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INTERNATIONAL TELECOMMUNICATION UNION

RADIO REGULATIONS

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RADIO REGULATIONS

ADDITIONAL RADIO REGULATIONS RESOLUTIONS AND RECOMMENDATIONS

(Edition of 1968)



**General Secretariat of the
International Telecommunication Union
GENEVA**

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FOREWORD

1. This edition of the Radio Regulations has been published, after consulting the Administrations of countries Members of the ITU, in pursuance of Recommendation No. Mar 1 of the World Administrative Radio Conference to deal with matters relating to the Maritime Mobile Service, Geneva, 1967.

2. It takes into account the partial revisions of the Radio Regulations (Geneva, 1959) made by:

- a) The Extraordinary Administrative Radio Conference to allocate frequency bands for Space Radiocommunication purposes, Geneva, 1963 (referred to hereafter as «the Space Conference»);
- b) the Extraordinary Administrative Radio Conference for the preparation of a revised allotment plan for the Aeronautical Mobile (R) Service, Geneva, 1966 (referred to hereafter as «the Aeronautical Conference»);
- c) the World Administrative Radio Conference to deal with matters relating to the Maritime Mobile Service, Geneva, 1967 (referred to hereafter as «the Maritime Conference»).

The final signature clauses (Nos. 1632 and 2165), the signatures themselves which follow the Radio Regulations (Geneva, 1959), and the text of the Additional Protocol to those Regulations have not been reproduced; nor have the signatures and the texts of the Additional Protocols contained in the Final Acts of the Space Conference and the Aeronautical Conference, and the signatures and text of the Final Protocol included in the Final Acts of the Maritime Conference. To consult these texts, reference should be made to the volume containing the 1959 Radio Regulations and to the Final Acts of the afore-mentioned Conferences, which also contain the signatures.

3. The following symbols appear under the numbers of provisions that have been added or amended by one of the above-mentioned Conferences:

- a) **Spa**
- b) **Aer**
- c) **Mar**

3.1 In the case of the Table of Frequency Allocations from 10 kc/s to 40 Gc/s (Article 5 of the Radio Regulations), the appropriate symbol (**Spa**, **Aer** or **Mar**) appears at the top of the pages under the indication of the frequency range if the latter includes bands the allocation or conditions of use of which have been amended by one of the above-mentioned Conferences.

3.2 If an appendix to the Radio Regulations has been added or amended by one of the above-mentioned Conferences, the appropriate symbol appears under the title of the Appendix.

3.3 If a provision has been amended by more than one of these Conferences, only the symbol corresponding to the last Conference making an amendment has been indicated.

3.4 In a few cases, the General Secretariat has included references in certain provisions as a consequence of amendments made to other provisions by a Conference. In such cases the appropriate symbol under the number of the provision is followed by an asterisk (*).

4. References to provisions of the Convention have been brought into line with those of the International Telecommunication Convention (Montreux, 1965).

5. No change has been made to the numbering of the Resolutions and Recommendations of the Administrative Radio Conference, Geneva, 1959. On the other hand, in the interest of uniformity, the following numbering system has been used for the Resolutions and Recommendations adopted by the subsequent Conferences:

- a) Space Conference: No. Spa 1, No. Spa 2, No. Spa 3, etc. *
- b) Aeronautical Conference: No. Aer 1, No. Aer 2, No. Aer 3, etc.
- c) Maritime Conference: No. Mar 1, No. Mar 2, No. Mar 3, etc.

* The numbering adopted by the Space Conference was: No. 1A, No. 2A, No. 3A, etc.

6. As requested by several Administrations, apart from continuous numbering at the foot of each page, pages are separately numbered by article, appendix, resolution and recommendation. The following symbols have been adopted for this numbering, which appears at the top of the pages:

RR = Radio Regulations
AP = Appendix
AR = Additional Radio Regulations
RES = Resolution
REC = Recommendation

For example :

RR5 - 14 = Article 5 of the Radio Regulations, page 14
AP13A - 20 = Appendix 13A, page 20
RES Mar 12 - 4 = Resolution No. Mar 12, page 4.

7. The General Secretariat considered it desirable to insert in this publication:

- a) in Article 19 of the Radio Regulations, a note indicating the international series of call signs allocated provisionally since 1959 by the Secretary-General, in accordance with the provisions of No. 749 of the Regulations.
- b) after the title of Article 45 of the Radio Regulations, notes concerning the entry into force of the provisions of the Radio Regulations (1959) and of those which were revised either by the Space Conference, the Aeronautical Conference or the Maritime Conference;
- c) after the title of Article 14 of the Additional Radio Regulations, notes concerning the entry into force of the provisions of the Additional Radio Regulations (1959) and of those which were revised by the Maritime Conference.

**RADIO
REGULATIONS**

CHAPTER I**Terminology****ARTICLE 1****Terms and Definitions****Preamble**

- 1** For the purposes of these Regulations, the following terms shall have the meanings defined below. These terms and definitions do not, however, necessarily apply for other purposes.

Section I. General Terms

- 2** *Telecommunication* : Any transmission, emission or reception of signs, signals, writing, images and sounds or intelligence of any nature by wire, radio, visual or other electromagnetic systems.
- 3** *General Network of Telecommunication Channels* : The whole of the existing telecommunication channels open to public correspondence, with the exception of the telecommunication channels of the mobile service.
- 4** *Simplex Operation* : Operating method in which transmission is made possible alternately in each direction, for example, by means of manual control.¹
- 5** *Duplex Operation* : Operating method in which transmission is possible simultaneously in both directions.¹
- 6** *Semi-duplex Operation* : Operating method which is simplex at one end of the circuit and duplex at the other.¹

4.1 ¹ In general, duplex and semi-duplex operation require two frequencies in radio-communication; simplex may use either one or two.

- 7 *Radio Waves (or Hertzian Waves)*: Electromagnetic waves of frequencies lower than 3 000 Gc/s, propagated in space without artificial guide.
- 8 *Radio*: A general term applied to the use of radio waves.
- 9 *Radiocommunication*: Telecommunication by means of radio waves.
- 10 *Telegraphy*: A system of telecommunication which is concerned in any process providing transmission and reproduction at a distance of documentary matter, such as written or printed matter or fixed images, or the reproduction at a distance of any kind of information in such a form. The foregoing definition appears in the Convention, but, for the purposes of these Regulations, telegraphy shall mean, unless otherwise specified, "A system of telecommunication for the transmission of written matter by the use of a signal code".
- 11 *Frequency-Shift Telegraphy*: Telegraphy by frequency modulation in which the telegraph signal shifts the frequency of the carrier between predetermined values. There is phase continuity during the shift from one frequency to the other.
- 12 *Four-Frequency Duplex Telegraphy*: Frequency-shift telegraphy in which each of the four possible signal combinations corresponding to two telegraph channels is represented by a separate frequency.
- 13 *Telegram*: Written matter intended to be transmitted by telegraphy for delivery to an addressee; this term also includes radiotelegram unless otherwise specified. In this definition the term Telegraphy has the meaning defined in the Convention.
- 14 *Radiotelegram*: Telegram originating in or intended for a mobile station transmitted, on all or part of its route, over the radio-communication channels of a mobile service.
- 15 *Telemetry*: The use of telecommunication for automatically indicating or recording measurements at a distance from the measuring instrument.

- 16 *Radiotelemetry* : Telemetry by means of radio waves.
- 17 *Telephony* : A system of telecommunication set up for the transmission of speech or, in some cases, other sounds.
- 18 *Radiotelephone Call* : A telephone call, originating in or intended for a mobile station, transmitted on all or part of its route over the radiocommunication channels of a mobile service.
- 19 *Television* : A system of telecommunication for the transmission of transient images of fixed or moving objects.
- 20 *Facsimile* : A system of telecommunication for the transmission of fixed images, with or without half-tones, with a view to their reproduction in a permanent form.

Section II. Radio Systems, Services and Stations

- 21 *Station* : One or more transmitters or receivers or a combination of transmitters and receivers, including the accessory equipment, necessary at one location for carrying on a radiocommunication service. Each station shall be classified by the service in which it operates permanently or temporarily.
- 22 *Fixed Service* : A service of radiocommunication between specified fixed points.
- 23 *Fixed Station* : A station in the fixed service.
- 24 *Aeronautical Fixed Service* : A fixed service intended for the transmission of information relating to air navigation, preparation for and safety of flight.
- 25 *Aeronautical Fixed Station* : A station in the aeronautical fixed service.
- 26 *Tropospheric Scatter* : The propagation of radio waves by scattering as a result of irregularities or discontinuities in the physical properties of the troposphere.

- 27** *Ionospheric Scatter* : The propagation of radio waves by scattering as a result of irregularities or discontinuities in the ionization of the ionosphere.
- 28** *Broadcasting Service* : A radiocommunication service in which the transmissions are intended for direct reception by the general public. This service may include sound transmissions, television transmissions or other types of transmissions.
- 29** *Broadcasting Station* : A station in the broadcasting service.
- 30** *Mobile Service* : A service of radiocommunication between mobile and land stations, or between mobile stations.
- 31** *Land Station* : A station in the mobile service not intended to be used while in motion.
- 32** *Mobile Station* : A station in the mobile service intended to be used while in motion or during halts at unspecified points.
- 33** *Aeronautical Mobile Service* : A mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may also participate.
- 34** *Aeronautical Station* : A land station in the aeronautical mobile service. In certain instances an aeronautical station may be placed on board a ship or an earth satellite.
- 35** *Aircraft Station* : A mobile station in the aeronautical mobile service on board an aircraft or an air-space vehicle.
- 36** *Maritime Mobile Service* : A mobile service between coast stations and ship stations, or between ship stations, in which survival craft stations may also participate.
- 37** *Port Operations Service* : A maritime mobile service in or near a port, between coast stations and ship stations, or between ship stations, in which messages are restricted to those relating to the operational handling, the movement and the safety of ships and, in emergency, to the safety of persons. Messages which are of a public correspondence nature shall be excluded.

- 38** *Coast Station* : A land station in the maritime mobile service.
- 38A** *Port Station*: A coast station in the port operations service.
Mar
- 39** *Ship Station* : A mobile station in the maritime mobile service located on board a vessel, other than a survival craft, which is not permanently moored.
- 40** *Ship's Emergency Transmitter* : A ship's transmitter to be used exclusively on a distress frequency for distress, urgency or safety purposes.
- 41** *Survival Craft Station* : A mobile station in the maritime or aeronautical mobile service intended solely for survival purposes and located on any lifeboat, life-raft or other survival equipment.
- 42** *Land Mobile Service* : A mobile service between base stations and land mobile stations, or between land mobile stations.
- 43** *Base Station* : A land station in the land mobile service carrying on a service with land mobile stations.
- 44** *Land Mobile Station* : A mobile station in the land mobile service capable of surface movement within the geographical limits of a country or continent.
- 45** *Radiodetermination* : The determination of position, or the obtaining of information relating to position, by means of the propagation properties of radio waves.
- 46** *Radiodetermination Service* : A service involving the use of radiodetermination.
- 47** *Radiodetermination Station* : A station in the radiodetermination service.
- 48** *Radionavigation* : Radiodetermination used for the purposes of navigation, including obstruction warning.
- 49** *Radionavigation Service* : A radiodetermination service involving the use of radionavigation.

- 50** *Radionavigation Land Station* : A station in the radionavigation service not intended to be used while in motion.
- 51** *Radionavigation Mobile Station* : A station in the radionavigation service intended to be used while in motion or during halts at unspecified points.
- 52** *Aeronautical Radionavigation Service* : A radionavigation service intended for the benefit of aircraft.
- 53** *Maritime Radionavigation Service* : A radionavigation service intended for the benefit of ships.
- 54** *Radiolocation* : Radiodetermination used for purposes other than those of radionavigation.
- 55** *Radiolocation Service* : A radiodetermination service involving the use of radiolocation.
- 56** *Radiolocation Land Station* : A station in the radiolocation service not intended to be used while in motion.
- 57** *Radiolocation Mobile Station* : A station in the radiolocation service intended to be used while in motion or during halts at unspecified points.
- 58** *Radar* : A radiodetermination system based on the comparison of reference signals with radio signals reflected, or re-transmitted, from the position to be determined.
- 59** *Primary Radar* : A radiodetermination system based on the comparison of reference signals with radio signals reflected from the position to be determined.
- 60** *Secondary Radar* : A radiodetermination system based on the comparison of reference signals with radio signals re-transmitted from the position to be determined.
- 61** *Instrument Landing System (ILS)* : A radionavigation system which provides aircraft with horizontal and vertical guidance just before and during landing and, at certain fixed points, indicates the distance to the reference point of landing.

- 62** *Instrument Landing System Localizer* : A system of horizontal guidance embodied in the instrument landing system which indicates the horizontal deviation of the aircraft from its optimum path of descent along the axis of the runway.
- 63** *Instrument Landing System Glide Path* : A system of vertical guidance embodied in the instrument landing system which indicates the vertical deviation of the aircraft from its optimum path of descent.
- 64** *Marker Beacon* : A transmitter in the aeronautical radio-navigation service which radiates vertically a distinctive pattern for providing position information to aircraft.
- 65** *Radio Altimeter* : A radionavigation equipment, on board an aircraft, which makes use of the reflection of radio waves from the ground to determine the height of the aircraft above the ground.
- 66** *Radio Direction-Finding*: Radiodetermination using the reception of radio waves for the purpose of determining the direction of a station or object.
- 67** *Radio Direction-Finding Station* : A radiodetermination station using radio direction-finding.
- 68** *Radiobeacon Station* : A station in the radionavigation service the emissions of which are intended to enable a mobile station to determine its bearing or direction in relation to the radiobeacon station.
- 68A** *Emergency Position-Indicating Radiobeacon Station*: A station
Mar in the mobile service the emissions of which are intended to facilitate search and rescue operations.
- 69** *Safety Service* : A radiocommunication service used permanently or temporarily for the safeguarding of human life and property.
- 70 – 73** SUP (Spa)
- 74** *Radio Astronomy* : Astronomy based on the reception of radio waves of cosmic origin.
- 75** *Radio Astronomy Service* : A service involving the use of radio astronomy.

75A *Radio Astronomy Station*

Spa A station in the radio astronomy service.

76 *Meteorological Aids Service* : A radiocommunication service used for meteorological, including hydrological, observations and exploration.

77 *Radiosonde* : An automatic radio transmitter in the meteorological aids service usually carried on an aircraft, free balloon, kite or parachute, and which transmits meteorological data.

78 *Amateur Service* : A service of self-training, intercommunication and technical investigations carried on by amateurs, that is, by duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest.

79 *Amateur Station* : A station in the amateur service.

80 *Standard Frequency Service* : A radiocommunication service for scientific, technical and other purposes, providing the transmission of specified frequencies of stated high precision, intended for general reception.

81 *Standard Frequency Station* : A station in the standard frequency service.

82 *Time Signal Service* : A radiocommunication service for the transmission of time signals of stated high precision, intended for general reception.

83 *Experimental Station* : A station utilizing radio waves in experiments with a view to the development of science or technique. This definition does not include amateur stations.

84 *Special Service* : A radiocommunication service, not otherwise defined in this Article, carried on exclusively for specific needs of general utility, and not open to public correspondence.

84AA *Terrestrial Service*

Spa Any radio service defined in these Regulations, other than a space service or the radio astronomy service.

84AB *Terrestrial Station*

Spa A station in a terrestrial service.

Section IIA. Space Systems, Services and Stations**84AC *Space Service*****Spa**

A radiocommunication service:

- between earth stations and space stations,
- or between space stations,
- or between earth stations when the signals are re-transmitted by space stations, or transmitted by reflection from objects in space, excluding reflection or scattering by the ionosphere or within the earth's atmosphere.

84AD *Earth Station***Spa**

A station in the space service located either on the earth's surface, including on board a ship, or on board an aircraft.

84AE *Space Station***Spa**

A station in the space service located on an object which is beyond, is intended to go beyond, or has been beyond, the major portion of the earth's atmosphere.

84AF *Space System***Spa**

Any group of co-operating earth and space stations, providing a given space service and which, in certain cases, may use objects in space for the reflection of the radiocommunication signals.

84AG *Communication-Satellite Service***Spa**

A space service:

- between earth stations, when using active or passive satellites for the exchange of communications of the fixed or mobile service, or
- between an earth station and stations on active satellites for the exchange of communications of the mobile service, with a view to their re-transmission to or from stations in the mobile service.

84AH *Communication-Satellite Earth Station*

Spa An earth station in the communication-satellite service.

84AI *Communication-Satellite Space Station*

Spa A space station in the communication-satellite service, on an earth satellite.

84AJ *Active Satellite*

Spa An earth satellite carrying a station intended to transmit or re-transmit radiocommunication signals.

84AK *Passive Satellite*

Spa An earth satellite intended to transmit radiocommunication signals by reflection.

84AL *Satellite System*

Spa Any group of co-operating stations providing a given space service and including one or more active or passive satellites.

84AM *Space Research Service*

Spa A space service in which spacecraft or other objects in space are used for scientific or technological research purposes.

84AN *Space Research Earth Station*

Spa An earth station in the space research service.

84AO *Space Research Space Station*

Spa A space station in the space research service.

84AP *Broadcasting-Satellite Service*

Spa A space service in which signals transmitted or re-transmitted by space stations, or transmitted by reflection from objects in orbit around the Earth, are intended for direct reception by the general public.

84AQ *Radionavigation-Satellite Service***Spa**

A service using space stations on earth satellites for the purpose of radionavigation, including, in certain cases, transmission or re-transmission of supplementary information necessary for the operation of the radionavigation system.

84AR *Radionavigation-Satellite Earth Station***Spa**

An earth station in the radionavigation-satellite service.

84AS *Radionavigation-Satellite Space Station***Spa**

A space station in the radionavigation-satellite service, on an earth satellite.

84AT *Meteorological-Satellite Service***Spa**

A space service in which the results of meteorological observations, made by instruments on earth satellites, are transmitted to earth stations by space stations on these satellites.

84AU *Meteorological-Satellite Earth Station***Spa**

An earth station in the meteorological-satellite service.

84AV *Meteorological-Satellite Space Station***Spa**

A space station in the meteorological-satellite service, on an earth satellite.

84AW *Space Telemetry***Spa**

The use of telemetry for the transmission from a space station of results of measurements made in a spacecraft, including those relating to the functioning of the spacecraft.

84AX *Maintenance Space Telemetry***Spa**

Space telemetry relating exclusively to the electrical and mechanical condition of a spacecraft and its equipment together with the condition of the environment of the spacecraft.

84AY *Space Telecommand*

Spa

The use of radiocommunication for the transmission of signals to a space station to initiate, modify or terminate functions of the equipment on a space object, including the space station.

84AZ *Space Tracking*

Spa

Determination of the orbit, velocity or instantaneous position of an object in space by means of radiodetermination, excluding primary radar, for the purpose of following the movement of the object.

Section IIB. Space, Orbits and Types of Objects in Space

84BA *Deep Space*

Spa

Space at distances from the Earth equal to or greater than the distance between the Earth and the Moon.

84BB *Orbit*

Spa

The path in space described by the centre of mass of a satellite or other object in space.

84BC *Angle of Inclination of an Orbit*

Spa

The acute angle between the plane containing an orbit and the plane of the earth's equator.

84BD *Period of an Object in Space*

Spa

The time elapsing between two consecutive passages of an object in space through the same point on its closed orbit.

84BE *Altitude of the Apogee*

Spa

Altitude above the surface of the Earth of the point on a closed orbit where a satellite is at its maximum distance from the centre of the Earth.

84BF *Altitude of the Perigee***Spa**

Altitude above the surface of the Earth of the point on a closed orbit where a satellite is at its minimum distance from the centre of the Earth.

84BG *Stationary Satellite***Spa**

A satellite, the circular orbit of which lies in the plane of the earth's equator and which turns about the polar axis of the Earth in the same direction and with the same period as those of the earth's rotation.

84BH *Spacecraft***Spa**

Any type of space vehicle, including an earth satellite or a deep-space probe, whether manned or unmanned.

Section III. Technical Characteristics

- 85** *Assigned Frequency*: The centre of the frequency band assigned to a station.
- 86** *Characteristic Frequency*: A frequency which can be easily identified and measured in a given emission.
- 87** *Reference Frequency*: A frequency having a fixed and specified position with respect to the assigned frequency. The displacement of this frequency with respect to the assigned frequency has the same absolute value and sign that the displacement of the characteristic frequency has with respect to the centre of the frequency band occupied by the emission.
- 88** *Frequency Tolerance*: The maximum permissible departure by the centre frequency of the frequency band occupied by an emission from the assigned frequency or, by the characteristic frequency of an emission from the reference frequency. The frequency tolerance is expressed in parts in 10^6 or in cycles per second.

- 89** *Assigned Frequency Band* : The frequency band the centre of which coincides with the frequency assigned to the station and the width of which equals the necessary bandwidth plus twice the absolute value of the frequency tolerance.
- 90** *Occupied Bandwidth* : The frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. In some cases, for example multi-channel frequency-division systems, the percentage of 0.5 % may lead to certain difficulties in the practical application of the definitions of occupied and necessary bandwidth ; in such cases a different percentage may prove useful.
- 91** *Necessary Bandwidth* : For a given class of emission, the minimum value of the occupied bandwidth sufficient to ensure the transmission of information at the rate and with the quality required for the system employed, under specified conditions. Emissions useful for the good functioning of the receiving equipment as, for example, the emission corresponding to the carrier of reduced carrier systems, shall be included in the necessary bandwidth.
- 92** *Spurious Emission* : Emission on a frequency or frequencies which are outside the necessary band, and the level of which may be reduced without affecting the corresponding transmission of information. Spurious emissions include harmonic emissions, parasitic emissions and intermodulation products, but exclude emissions in the immediate vicinity of the necessary band, which are a result of the modulation process for the transmission of information.
- 93** *Harmful Interference* : Any emission, radiation or induction which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs or repeatedly interrupts a radiocommunication service operating in accordance with these Regulations.

94 *Power*: Whenever the power of a radio transmitter, etc., is referred to, it shall be expressed in one of the following forms :

- peak envelope power (P_p) ;
- mean power (P_m) ;
- carrier power (P_c).

For different classes of emissions, the relationships between peak envelope power, mean power and carrier power, under the conditions of normal operation and of no modulation, are contained in Recommendations of the C.C.I.R., which may be used as a guide.

95 *Peak Envelope Power of a Radio Transmitter*: The average power supplied to the antenna transmission line by a transmitter during one radio frequency cycle at the highest crest of the modulation envelope, taken under conditions of normal operation.

96 *Mean Power of a Radio Transmitter*: The power supplied to the antenna transmission line by a transmitter during normal operation, averaged over a time sufficiently long compared with the period of the lowest frequency encountered in the modulation. A time of 1/10 second during which the mean power is greatest will be selected normally.

97 *Carrier Power of a Radio Transmitter*: The average power supplied to the antenna transmission line by a transmitter during one radio frequency cycle under conditions of no modulation. This definition does not apply to pulse modulated emissions.

98 *Effective Radiated Power*: The power supplied to the antenna multiplied by the relative gain of the antenna in a given direction.

99 *Gain of an Antenna*: The ratio of the power required at the input of a reference antenna to the power supplied to the input of

the given antenna to produce, in a given direction, the same field at the same distance. When not specified otherwise, the figure expressing the gain of an antenna refers to the gain in the direction of the radiation main lobe. In services using scattering modes of propagation the full gain of an antenna may not be realizable in practice and the apparent gain may vary with time.

- 100** *Isotropic or Absolute Gain of an Antenna* : The gain (G_{is}) of an antenna in a given direction when the reference antenna is an isotropic antenna isolated in space.
- 101** *Relative Gain of an Antenna* : The gain (G_d) of an antenna in a given direction when the reference antenna is a half-wave loss free dipole isolated in space and the equatorial plane of which contains the given direction.
- 102** *Gain Referred to a Short Vertical Antenna* : The gain (G_v) of an antenna in a given direction when the reference antenna is a perfect vertical antenna, much shorter than one quarter of the wavelength, placed on the surface of a perfectly conducting plane earth.
- 103** *Antenna Directivity Diagram* : A curve representing, in polar or cartesian co-ordinates, a quantity proportional to the gain of an antenna in the various directions in a particular plane or cone.

ARTICLE 2

Designation of Emissions

104 § 1. Emissions are designated according to their classification and their necessary bandwidth.

Section I. Classification

105 § 2. Emissions are classified and symbolized according to the following characteristics ¹ :

- (1) Type of modulation of main carrier
- (2) Type of transmission
- (3) Supplementary characteristics

106 § 3. (1) *Types of modulation of main carrier :*

	<i>Symbol</i>
a) Amplitude	A
b) Frequency (or Phase)	F
c) Pulse	P

107 (2) *Types of transmission :*

	<i>Symbol</i>
a) Absence of any modulation intended to carry information	0
b) Telegraphy without the use of a modulating audio frequency	1
c) Telegraphy by the on-off keying of a modulating audio frequency or audio frequencies, or by the on-off keying of the modulated emission (special case : an unkeyed modulated emission)	2

105.1 ¹ As an exception to the provisions of Nos. 106 to 108, damped waves are designated by B.

d) Telephony (including sound broadcasting)	3
e) Facsimile (with modulation of main carrier either directly or by a frequency modulated sub-carrier)	4
f) Television (vision only)	5
g) Four-frequency duplex telegraphy	6
h) Multichannel voice-frequency telegraphy	7
i) Cases not covered by the above	9

108

(3) *Supplementary characteristics :*

a) Double sideband	(none)
b) Single sideband :	
— reduced carrier	A
— full carrier	H
— suppressed carrier	J
c) Two independent sidebands	B
d) Vestigial sideband	C
e) Pulse :	
— amplitude modulated	D
— width (or duration) modulated	E
— phase (or position) modulated	F
— code modulated	G

109 § 4.

The classification of typical emissions is tabulated as follows :

Type of Modulation of Main Carrier	Type of Transmission	Supplementary Characteristics	Symbol
Amplitude Modulation	With no modulation	—	A0
	Telegraphy without the use of a modulating audio frequency (by on-off keying)	—	A1
	Telegraphy by the on-off keying of an amplitude-modulating audio frequency or audio frequencies, or by the on-off keying of the modulated emission (special case: an unkeyed emission amplitude modulated)	—	A2
	Telephony	Double sideband	A3
		Single sideband, reduced carrier	A3A
		Single sideband, suppressed carrier	A3J
		Two independent sidebands	A3B
	Facsimile (with modulation of main carrier either directly or by a frequency modulated sub-carrier)	—	A4
	Television	Single sideband, reduced carrier	A4A
		Vestigial sideband	A5C
Multichannel voice-frequency telegraphy	Single sideband, reduced carrier	A7A	
Cases not covered by the above, e.g. a combination of telephony and telegraphy	Two independent sidebands	A9B	

Type of Modulation of Main Carrier	Type of Transmission	Supplementary Characteristics	Symbol
Frequency (or Phase) Modulation	Telegraphy by frequency shift keying without the use of a modulating audio frequency; one of two frequencies being emitted at any instant	—	F1
	Telegraphy by the on-off keying of a frequency modulating audio frequency or by the on-off keying of a frequency modulated emission (special case: an unkeyed emission, frequency modulated)	—	F2
	Telephony	—	F3
	Facsimile by direct frequency modulation of the carrier	—	F4
	Television	—	F5
	Four-frequency duplex telegraphy	—	F6
	Cases not covered by the above, in which the main carrier is frequency modulated	—	F9

Type of Modulation of Main Carrier	Type of Transmission	Supplementary Characteristics	Symbol
Pulse Modulation	A pulsed carrier without any modulation intended to carry information (e.g. radar)	—	P0
	Telegraphy by the on-off keying of a pulsed carrier without the use of a modulating audio frequency	—	P1D
	Telegraphy by the on-off keying of a modulating audio frequency or audio frequencies, or by the on-off keying of a modulated pulsed carrier (special case: an unkeyed modulated pulsed carrier)	Audio frequency or audio frequencies modulating the amplitude of the pulses	P2D
		Audio frequency or audio frequencies modulating the width (or duration) of the pulses	P2E
		Audio frequency or audio frequencies modulating the phase (or position) of the pulses	P2F

Type of Modulation of Main Carrier	Type of Transmission	Supplementary Characteristics	Symbol
Pulse Modulation	Telephony	Amplitude modulated pulses	P3D
		Width (or duration) modulated pulses	P3E
		Phase (or position) modulated pulses	P3F
		Code modulated pulses (after sampling and quantization)	P3G
	Cases not covered by the above in which the main carrier is pulse modulated	—	P9

Section II. Bandwidths

110 § 5. Whenever the full designation of an emission is necessary, the symbol for that emission, as given above, shall be preceded by a number indicating in kilocycles per second the necessary bandwidth of the emission. Bandwidths shall generally be expressed to a maximum of three significant figures, the third figure being almost always a nought or a five.

111 § 6. The necessary bandwidths of various classes of emissions and examples of the designation of emissions are given in Appendix 5.

Section III. Nomenclature of the Frequency and Wavelength Bands Used in Radiocommunication

112 § 7. The radio spectrum shall be subdivided into nine frequency bands, which shall be designated by progressive whole numbers in accordance with the following Table. Frequencies shall be expressed :

- in kilocycles per second (kc/s) up to and including 3 000 kc/s
- in megacycles per second (Mc/s) thereafter up to and including 3 000 Mc/s
- in gigacycles per second (Gc/s) thereafter up to and including 3 000 Gc/s.

However, where adherence to these provisions would introduce serious difficulties, for example in connection with the notification and registration of frequencies, the lists of frequencies and related matters, reasonable departures may be made.

Band Number	Frequency Range (lower limit exclusive, upper limit inclusive)	Corresponding Metric Subdivision
4	3 to 30 kc/s (kHz)	Myriametric waves
5	30 to 300 kc/s (kHz)	Kilometric waves
6	300 to 3 000 kc/s (kHz)	Hectometric waves
7	3 to 30 Mc/s (MHz)	Decametric waves
8	30 to 300 Mc/s (MHz)	Metric waves
9	300 to 3 000 Mc/s (MHz)	Decimetric waves
10	3 to 30 Gc/s (GHz)	Centimetric waves
11	30 to 300 Gc/s (GHz)	Millimetric waves
12	300 to 3 000 Gc/s (GHz) or 3 Tc/s (THz)	Decimillimetric waves

Note 1: "Band Number N" extends from 0.3×10^N to 3×10^N c/s (Hz).

Note 2: Abbreviations:

c/s = cycles per second, Hz = hertz

k = kilo (10^3), M = mega (10^6), G = giga (10^9), T = tera (10^{12})

Note 3: Abbreviations for adjectival band designations:

Band 4 = VLF Band 8 = VHF

Band 5 = LF Band 9 = UHF

Band 6 = MF Band 10 = SHF

Band 7 = HF Band 11 = EHF

CHAPTER II**Frequencies****ARTICLE 3****General Rules for the Assignment and Use of Frequencies**

- 113** § 1. The Members and Associate Members of the Union agree that in assigning frequencies to stations which are capable of causing harmful interference to the services rendered by the stations of another country, such assignments are to be made in accordance with the Table of Frequency Allocations and other provisions of these Regulations.
- 114** § 2. Any new assignment or any change of frequency or other **Spa** basic characteristic of an existing assignment (see Appendix 1 or Appendix 1A) shall be made in such a way as to avoid causing harmful interference to services rendered by stations using frequencies assigned in accordance with the Table of Frequency Allocations in this Chapter and the other provisions of these Regulations, the characteristics of which assignments are recorded in the Master International Frequency Register.
- 115** § 3. Administrations of the Members and Associate Members of the Union shall not assign to a station any frequency in derogation of either the Table of Frequency Allocations given in this Chapter or the other provisions of these Regulations, except on the express condition that harmful interference shall not be caused to services carried on by stations operating in accordance with the provisions of the Convention and of these Regulations.
- 116** § 4. The frequency assigned to a station of a given service shall be separated from the limits of the band allocated to this service in such a way that, taking account of the frequency band assigned to

a station, no harmful interference is caused to services to which frequency bands immediately adjoining are allocated.

116A § 4A. For the purpose of resolving cases of harmful interference, the radio astronomy service shall be treated as a radiocommunication service. However, protection from services in other bands shall be afforded the radio astronomy service only to the extent that such services are afforded protection from each other.

117 § 5. Where, in adjacent Regions or sub-Regions, a band of frequencies is allocated to different services of the same category (see Section II of Article 5), the basic principle is the equality of right to operate. Accordingly, the stations of each service in one Region or sub-Region must operate so as not to cause harmful interference to services in the other Regions or sub-Regions.

ARTICLE 4

Special Agreements

- 118** § 1. Two or more Members or Associate Members of the Union may, in accordance with Article 44 of the Convention, conclude special agreements regarding the sub-allocation of bands of frequencies to the appropriate services of the participating countries.
- 119** § 2. Two or more Members or Associate Members of the Union may, in accordance with Article 44 of the Convention, conclude special agreements, as a result of a Conference to which all those Members and Associate Members of the Union affected have been invited, regarding the assignment of frequencies to those of their stations which participate in one or more specific services within the frequency bands allocated to these services by Article 5, either below 5 060 kc/s or above 27 500 kc/s, but not between those limits.
- 120** § 3. The Members and Associate Members of the Union may, in accordance with Article 44 of the Convention, conclude, on a world-wide basis, and as a result of a Conference to which all Members and Associate Members of the Union have been invited, special agreements concerning the assignment of frequencies to those of their stations participating in a specific service, on condition that such assignments are within the frequency bands allocated exclusively to that service in Article 5.
- 121** § 4. Special agreements concluded in accordance with the provisions of Nos. **118** to **120** shall not be in conflict with any of the provisions of these Regulations.
- 122** § 5. The Secretary General shall be informed, in advance, of any Conference to be convened to conclude such an agreement; he shall also be informed of the terms of the agreement when concluded; and he shall inform the Members and Associate Members of the Union of the existence of such agreements.

- 123** § 6. In accordance with the provisions of Article 8 the International Frequency Registration Board may be invited to send representatives to participate in an advisory capacity in the preparation of these agreements and in the proceedings of the Conferences, it being recognized that in the majority of cases such participation is desirable.
- 124** § 7. If, besides the action they may take in accordance with No. 119, two or more Members or Associate Members of the Union co-ordinate the use of individual frequencies in any of the frequency bands covered by Article 5 before notifying the frequency assignments concerned, they shall in all appropriate cases inform the Board of such co-ordination.

ARTICLE 5

Frequency Allocations
10 kc/s to 40 Gc/s

Section I. Regions and Areas

125 § 1. For the allocation of frequencies the world has been subdivided into three Regions ¹ (see Appendix 24).

126 *Region 1 :*

Region 1 includes the area limited on the East by line A (lines A, B and C are defined below) and on the West by line B, excluding any of the territory of Iran which lies between these limits. It also includes that part of the territory of Turkey and the Union of Soviet Socialist Republics lying outside of these limits, the territory of the Mongolian People's Republic, and the area to the North of the U.S.S.R. which lies between lines A and C.

127 *Region 2 :*

Region 2 includes the area limited on the East by line B and on the West by line C.

128 *Region 3 :*

Region 3 includes the area limited on the East by line C and on the West by line A, except the territories of the Mongolian People's Republic, Turkey, the territory of the U.S.S.R. and the area to the North of the U.S.S.R. It also includes that part of the territory of Iran lying outside of those limits.

129 The lines A, B, and C are defined as follows :

125-1 ¹ It should be noted that where the words "regions" or "regional" are without a capital "R" in these Regulations, they do not relate to the three Regions here defined for purposes of frequency allocation.

130 *Line A :*

Line A extends from the North Pole along meridian 40° East of Greenwich to parallel 40° North ; thence by great circle arc to the intersection of meridian 60° East and the Tropic of Cancer ; thence along the meridian 60° East to the South Pole.

131 *Line B :*

Line B extends from the North Pole along meridian 10° West of Greenwich to its intersection with parallel 72° North ; thence by great circle arc to the intersection of meridian 50° West and parallel 40° North ; thence by great circle arc to the intersection of meridian 20° West and parallel 10° South ; thence along meridian 20° West to the South Pole.

132 *Line C :*

Line C extends from the North Pole by great circle arc to the intersection of parallel 65° 30' North with the international boundary in Behring Strait ; thence by great circle arc to the intersection of meridian 165° East of Greenwich and parallel 50° North ; thence by great circle arc to the intersection of meridian 170° West and parallel 10° North ; thence along parallel 10° North to its intersection with meridian 120° West ; thence along meridian 120° West to the South Pole.

133 § 2. The "European Broadcasting Area" is bounded on the West by the Western boundary of Region 1, on the East by the meridian 40° East of Greenwich and on the South by the parallel 30° North so as to include the western part of the U.S.S.R. and the territories bordering the Mediterranean, with the exception of the parts of Arabia and Saudi-Arabia included in this sector. In addition, Iraq is included in the European Broadcasting Area.

134 The "European Maritime Area" is bounded on the North by a line extending along parallel 72° North from its intersection with meridian 55° East to its intersection with meridian 5° West,

then along meridian 5° West to its intersection with parallel 67° North, thence along parallel 67° North to its intersection with meridian 30° West ; on the West by a line extending along meridian 30° West to its intersection with parallel 30° North ; on the South by a line extending along parallel 30° North to its intersection with meridian 43° East ; on the East by a line extending along meridian 43° East to its intersection with parallel 60° North, thence along parallel 60° North to its intersection with meridian 55° East and thence along meridian 55° East to its intersection with parallel 72° North.

- 135** The "Tropical Zone" (see Appendix 24) is defined as :
- a) the whole of that area in Region 2 between the Tropics of Cancer and Capricorn ;
 - b) the whole of that area in Regions 1 and 3 contained between the parallels 30° North and 35° South with the addition of :
 - 1) the area contained between the meridian 40° East and 80° East of Greenwich and the parallels 30° North and 40° North ;
 - 2) that part of Libya north of parallel 30° North.
- 136** In Region 2, the Tropical Zone may be extended to parallel 33° North, subject to appropriate special agreements between the countries concerned in that Region.

Section II. Categories of Services and Allocations

Primary Services, Permitted Services and Secondary Services

- 137** Where, in a box of the Table in Section IV of this Article, a band is indicated as allocated to more than one service, either on a world-wide or Regional basis, such services are listed in the following order :

- a) services, the names of which are printed in "small capitals" (example: **FIXED**); these services are called "primary" services;
- b) services, the names of which are printed in "grotesque light" (example: Radiolocation); these are "permitted" services (see No. 138);
- c) services, the names of which are printed in "italics" (example: *Mobile*); these are "secondary" services (see No. 139).

138 Permitted and primary services have equal rights, except that, in the preparation of frequency plans, the primary service, as compared with the permitted service, shall have prior choice of frequencies.

139 Stations of a secondary service :

- a) shall not cause harmful interference to stations of primary or permitted services to which frequencies are already assigned or to which frequencies may be assigned at a later date ;
- b) cannot claim protection from harmful interference from stations of a primary or permitted service to which frequencies are already assigned or may be assigned at a later date ;
- c) can claim protection, however, from harmful interference from stations of the same or other secondary service(s) to which frequencies may be assigned at a later date.

140 Where a band is indicated in a footnote to the Table as allocated to a service "on a secondary basis" in an area smaller than a Region, or in a particular country, this is a secondary service (see No. 139).

- 141** Where a band is indicated in a footnote to the Table as allocated to a service "on a primary basis", or "on a permitted basis" in an area smaller than a Region, or in a particular country, this is a primary service or a permitted service only in that area or country (see No. 138).

Additional services

- 142** Where a band is indicated in a footnote to the Table as "also allocated" to a service in an area smaller than a Region, or in a particular country, this is an "additional" service, i.e. a service which is added in this area or in this country to the service or services which are indicated in the Table (see No. 143).

- 143** If the footnote does not include any restriction on an additional service apart from the restriction to operate only in a particular area or country, stations of this service shall have equality of right to operate with stations of the other service or services, the names of which are printed in "small capitals" in the Table.

- 144** If restrictions are imposed on an additional service in addition to the restriction to operate only in a particular area or country, this is indicated in the footnote to the Table.

Alternative allocations

- 145** Where a band is indicated in a footnote to the Table as "allocated" to one or more services in an area smaller than a Region, or in a particular country, this is an "alternative" allocation, i.e. an allocation which replaces, in this area or in this country, the allocation indicated in the Table (see No. 146).

- 146** If the footnote does not include any restriction on stations of the service or services concerned, apart from the restriction to operate only in a particular area or country, these stations shall

have an equality of right to operate with stations of the service or services, the names of which are printed in "small capitals" in the Table, and to which the band is allocated in other areas or countries.

- 147** If restrictions are imposed on stations of a service to which an alternative allocation is made, in addition to the restriction to operate only in a particular country or area, this is indicated in the footnote.

Miscellaneous Provisions

- 148** Where it is indicated in these Regulations that a service may operate in a specific frequency band subject to not causing harmful interference, this means also that this service cannot claim protection from harmful interference caused by other services to which the band is allocated under Chapter II of these Regulations.
- 149** Except if otherwise specified in a footnote, the term "fixed service", where appearing in Section IV of this Article, does not include systems using ionospheric scatter propagation.

Section III. Description of the Table of Frequency Allocations

- 150** The heading of the Table in Section IV of this Article includes three columns, each of which corresponds to one of the Regions (see No. 125). Where an allocation occupies the whole of the width of the Table or only one or two of the three columns, this is a world-wide allocation or a Regional allocation, respectively.
- 151** The frequency band referred to in each allocation is indicated in bold type in the left hand top corner of the part of the Table concerned.
- 152** Within each of the categories specified in No. 137, services are listed in alphabetical order according to the French language. The order of listing does not indicate relative priority within each category.

- 153** The footnote references which appear in the Table below the allocated service or services apply to the whole of the allocation concerned.
- 154** The footnote references which appear to the right of the name of a service are applicable only to that particular service.
- 155** In certain cases, the names of countries appearing in the footnotes have been simplified in order to shorten the text.

Section IV. Table of Frequency Allocations — 10 kc/s to 40 Gc/s

- 156** This Table is shown on pages 40 to 121 following.

kc/s
10—70

Allocation to Services		
Region 1	Region 2	Region 3
Below 10	(Not allocated) 157	
10—14	RADIONAVIGATION <i>Radiolocation</i>	
14—19.95	FIXED MARITIME MOBILE 159	158
19.95—20.05	STANDARD FREQUENCY 159	160
20.05—70	FIXED MARITIME MOBILE 159 161	158

- 157** Administrations authorizing the use of frequencies below 10 kc/s for special national purposes shall ensure that no harmful interference is caused thereby to the services to which the bands above 10 kc/s are allocated (see also Article 14, No. 699).
- 158** Limited to coast radiotelegraph stations (A1 and F1 only). Exceptionally, the use of class A7J emissions is permissible subject to the necessary bandwidth not exceeding that normally used for class A1 or F1 emissions in the bands concerned.
- 159** The stations of services to which the bands between 14 and 70 kc/s are allocated may transmit standard frequency and time signals. Such stations shall be afforded protection from harmful interference. In Albania, Bulgaria, Hungary, Poland, Roumania, Czechoslovakia and the U.S.S.R., the frequencies 25 kc/s and 50 kc/s will be used for this purpose under the same conditions.
- 160** The standard frequency is 20 kc/s.
- 161** In the U.S.S.R., frequencies in the band 60-80 kc/s may be used for industrial, scientific and medical purposes subject to the condition that interference is not caused to stations of services to which this band is allocated.

kc/s
70—90

Allocation to Services		
Region 1	Region 2	Region 3
70—72 RADIONAVIGATION 162 161	70—90 FIXED MARITIME MOBILE 158 MARITIME RADIONAVIGATION 162 <i>Radiolocation</i>	70—90 FIXED MARITIME MOBILE 158 RADIONAVIGATION 162
72—84 FIXED MARITIME MOBILE 158 RADIONAVIGATION 162 161 163	(Continued from above)	(Continued from above)
84—86 RADIONAVIGATION 162 163	(Continued from above)	(Continued from above)
86—90 FIXED MARITIME MOBILE 158 RADIONAVIGATION 162 163	(Continued from above)	(Continued from above)
163	164	165

- 162** Limited to continuous wave systems.
- 163** In Albania, Bulgaria, Hungary, Poland, Roumania, Czechoslovakia and the U.S.S.R., the band 80-150 kc/s is allocated on a secondary basis to the aeronautical and land mobile services while within and between these countries these services shall have equal right to operate.
- 164** The establishment and operation of maritime radionavigation stations shall be subject to arrangements between administrations whose services, operating in accordance with the Table, may be affected. However, the fixed, maritime mobile and radiolocation services shall not cause harmful interference to maritime radionavigation stations established under such arrangements.
- 165** In the bands 70-72 kc/s and 84-86 kc/s, the radionavigation service is the primary service and the fixed and maritime mobile services are secondary services, except in Japan and Pakistan.

kc/s
90—110

Allocation to Services		
Region 1	Region 2	Region 3
90—110 FIXED MARITIME MOBILE 158 RADIONAVIGATION 163 166 167	90—110 RADIONAVIGATION <i>Fixed</i> <i>Maritime mobile</i> 158 166 167	90—110 FIXED MARITIME MOBILE 158 RADIONAVIGATION 166 167

166 The development and operation of long distance radionavigation systems are authorized in this band, which will become exclusively allocated, wholly or in part, to the radionavigation service for the use of any one such system as soon as it is internationally adopted. Other considerations being equal, preference should be given to the system requiring the minimum bandwidth for world-wide service and causing the least harmful interference to other services. If a pulse radionavigation system is employed, the pulse emissions shall nevertheless be confined within the band 90-110 kc/s and shall not cause harmful interference outside the band to stations operating in accordance with the Regulations. In Regions 1 and 3, during the period prior to the international adoption of any long distance radionavigation system, the operation of specific radionavigation stations shall be subject to agreements between administrations whose services, operating in accordance with the Table, may be affected. Once established under such agreements, radionavigation stations shall be protected from harmful interference.

167 Only classes A1 or F1, A4 or F4 emissions are authorized in the band 90-160
Mar kc/s for stations of the fixed and maritime mobile services. Exceptionally, class A7J emissions is also authorized in the band 90-160 kc/s for stations of the maritime mobile service.

kc/s
110—130

Allocation to Services		
Region 1	Region 2	Region 3
110—112 FIXED MARITIME MOBILE RADIONAVIGATION 162 163 167 168	110—130 FIXED MARITIME MOBILE MARITIME RADIONAVIGATION 162 <i>Radiolocation</i>	110—130 FIXED MARITIME MOBILE RADIONAVIGATION 162
112—115 RADIONAVIGATION 162 163		
115—126 FIXED MARITIME MOBILE RADIONAVIGATION 162 163 167 168 169		
126—129 RADIONAVIGATION 162 163		
129—130 FIXED MARITIME MOBILE RADIONAVIGATION 162 163 167 168	164 167 168	167 168 170

- 168** Aeronautical stations may use frequencies in the bands 110-112 kc/s, 115-126 kc/s and 129-130 kc/s on a permitted basis for high-speed communications to aircraft.
- 169** In the band 115-117.6 kc/s the radionavigation service is the primary service and the fixed and maritime mobile services are secondary services. In the same band, in France and the F. R. of Germany the fixed and maritime mobile services are primary services and the radionavigation service is a secondary service.
- 170** In the bands 112-117.6 kc/s and 126-129 kc/s, the radionavigation service is the primary service and the fixed and maritime mobile services are secondary services, except in Japan and Pakistan.

kc/s
130—160

Allocation to Services		
Region 1	Region 2	Region 3
<p>130—150</p> <p>MARITIME MOBILE 171 172</p> <p>Fixed</p> <p>163 167 173</p>	<p>130—150</p> <p style="text-align: center;">FIXED</p> <p style="text-align: center;">MARITIME MOBILE 171</p> <p style="text-align: center;">167</p>	
<p>150—160</p> <p>MARITIME MOBILE 167 174</p> <p>BROADCASTING</p> <p>175</p>	<p>150—160</p> <p style="text-align: center;">FIXED</p> <p style="text-align: center;">MARITIME MOBILE</p> <p style="text-align: center;">167</p>	

171 SUP (Mar)

172 Limited to ship stations. However, the bands between 140 and 146 kc/s may
Mar also be used for coast stations on a permitted basis.

173 In Albania, Bulgaria, Hungary, Poland, Roumania, Czechoslovakia and the
 U.S.S.R., the band 130-150 kc/s is allocated on a secondary basis to the radio-
 navigation service while within and between these countries this service shall have
 equal right to operate.

174 The maritime mobile service shall not cause harmful interference to the recep-
 tion of broadcasting stations within the boundaries of the national territories
 in which the broadcasting stations are situated.

175 By special agreement.

kc/s
160—285

Allocation to Services		
Region 1	Region 2	Region 3
160—255 BROADCASTING 176	160—200 FIXED 179	160—200 FIXED <i>Aeronautical radionavigation</i>
255—285 MARITIME MOBILE 174 BROADCASTING AERONAUTICAL RADIONAVIGATION 176 177 178	200—285 AERONAUTICAL RADIONAVIGATION <i>Aeronautical mobile</i>	

- 176** In the Belgian Congo and Ruanda Urundi, Ethiopia, the Portuguese Oversea Provinces in Region 1 south of the equator, Rhodesia and Nyasaland, and the Union of South Africa and the Territory of South West Africa, the band 160-200 kc/s is allocated to the fixed service; the band 200-285 kc/s is allocated to aeronautical mobile and aeronautical radionavigation services.
- 177** In the western part of the European Broadcasting Area, the band 255-285 kc/s is used solely by the aeronautical radionavigation service except that in the United Kingdom frequencies are also assigned, by special agreement, to stations of the maritime mobile service.
- 178** Norwegian stations of the aeronautical fixed service situated in northern areas subject to auroral disturbances are allowed to continue operation on one frequency in the band 255-285 kc/s.
- 179** In northern areas which are subject to auroral disturbances the aeronautical fixed service is the primary service.

kc/s
285 — 405

Allocation to Services		
Region 1	Region 2	Region 3
285 — 315 MARITIME RADIONAVIGATION (radiobeacons) <i>Aeronautical radionavigation</i>		
315 — 325 AERONAUTICAL RADIONAVIGATION 180	315 — 325 MARITIME RADIONAVIGATION (radiobeacons) <i>Aeronautical radionavigation</i>	
325 — 405 AERONAUTICAL RADIONAVIGATION <i>Aeronautical mobile</i> 181		

- 180** In the U.S.S.R. and the Black Sea areas of Bulgaria, Roumania and Turkey, the band 315-325 kc/s is also allocated to the maritime radionavigation service under the following conditions:
- a) Stations of this service shall not cause interference to stations of the aeronautical radionavigation service in the North Sea area.
 - b) In the Black Sea and White Sea areas, the maritime radionavigation service is the primary service and the aeronautical radionavigation service is the permitted service.
 - c) In the Baltic Sea area, the assignment of frequencies in this band to new stations in the maritime or aeronautical radionavigation services shall be subject to prior consultation between the administrations concerned.
- 181** Norwegian fixed stations situated in northern areas subject to auroral disturbances are allowed to continue operation on two frequencies in the band 385-395 kc/s for transmissions chiefly composed of weather messages.

kc/s
405—510

Allocation to Services		
Region 1	Region 2	Region 3
405—415 MOBILE except aeronautical mobile AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radio direction-finding) 182 183 184	405—415 MARITIME RADIONAVIGATION (radio direction-finding) Aeronautical radionavigation <i>Aeronautical mobile</i> 182	405—415 RADIONAVIGATION <i>Aeronautical mobile</i> 182
415—490 MARITIME MOBILE 185 186		
490—510 MOBILE (distress and calling) 187		

- 182** The frequency 410 kc/s is designated for the maritime radionavigation service (radio direction-finding). Other allocated services in the band 405-415 kc/s shall not cause harmful interference to radio direction-finding. In the band 405-415 kc/s no frequency shall be assigned to coast stations.
- 183** The use of the band 405-415 kc/s by the radionavigation service is limited to radio direction-finding except in the Baltic and North Sea areas where this band may also be used for the maritime radionavigation service for radiobeacon stations of mean power not exceeding 10 watts and subject to not causing harmful interference to radio direction-finding.
- 184** In Bulgaria, Hungary, Poland, Roumania, Czechoslovakia and the U.S.S.R., the band 405-415 kc/s is also allocated, on a secondary basis, to the aeronautical mobile service.
- 185** In the European Maritime Area, subject to the conditions specified in the Final Acts of the European Maritime Conference (Copenhagen 1948), and any subsequent revision of that agreement, the administrations concerned may keep in the bands 415-485 kc/s and 515-525 kc/s such of the following broadcasting stations as will not cause harmful interference to the maritime mobile service: Hamar, Innsbruck, Oestersund, Oulu.
- 186** Limited to radiotelegraphy.
- 187** The frequency 500 kc/s is the international distress and calling frequency for radiotelegraphy. The conditions for its use are prescribed in Article 32.

kc/s
510 — 1 605

Allocation to Services		
Region 1	Region 2	Region 3
510 — 525 MARITIME MOBILE 186 <i>Aeronautical radionavigation</i> 185	510 — 525 MOBILE Aeronautical radionavigation 188	510 — 525 MARITIME MOBILE <i>Aeronautical mobile</i> <i>Land mobile</i> 189
525 — 535 BROADCASTING 190	525 — 535 MOBILE Broadcasting 191 Aeronautical radionavigation 188	525 — 535 MOBILE Broadcasting
535 — 1 605 BROADCASTING		

- 188** In operating stations of the aeronautical radionavigation service, the administrations concerned shall take all the technical steps necessary to avoid harmful interference to the maritime mobile service.
- 189** In India, Iran and Pakistan, the band 510-525 kc/s is also allocated, on a secondary basis, to the aeronautical radionavigation service.
- 190** In Rhodesia and Nyasaland, and the Union of South Africa and the Territory of South West Africa, the band 525-535 kc/s is allocated to the mobile service.
- 191** The carrier power of broadcasting stations in this band shall not exceed 250 watts.

kc/s
1 605—2 000

Allocation to Services		
Region 1	Region 2	Region 3
1 605—2 000 FIXED MOBILE except aeronautical mobile	1 605—1 800 FIXED MOBILE AERONAUTICAL RADIONAVIGATION <i>Radiolocation</i>	1 605—1 800 FIXED MOBILE 196 197
	1 800—2 000 AMATEUR FIXED MOBILE except aeronautical mobile RADIONAVIGATION	
192 193 194 195	198 199	

- 192** In the Tropical Zone of Region 1, with the exception of that part of Libya north of the parallel 30° N, the band 1 605-1 800 kc/s is also allocated, on a secondary basis, to the aeronautical radionavigation service (radiobeacons only).
- 193** Special agreements shall determine the conditions of operation of stations of the fixed and mobile services in order to protect these services from mutual harmful interference, having special regard to the difficulties of operation of stations of the maritime mobile service.

- 194** In Austria, Denmark, Finland, Ireland, Netherlands, F.R. of Germany, Rhodesia and Nyasaland, United Kingdom, Switzerland, Czechoslovakia, and the Union of South Africa and Territory of South West Africa, administrations may allocate up to 200 kc/s to their amateur service within the band 1 715-2 000 kc/s. However, when allocating bands within this range to their amateur service, administrations shall, after prior consultation with administrations of neighbouring countries, take such steps as may be necessary to prevent harmful interference from their amateur service to the fixed and mobile services of other countries. The mean power of any amateur station shall not exceed 10 watts.
- 195** The operation of Loran radionavigation stations is authorized temporarily on 1 950 kc/s (the band occupied being 1 925-1 975 kc/s) provided that, except for the stations comprising the North-East Atlantic Loran System (north of latitude 55° N), the establishment and operation of specific Loran stations shall be the subject of special agreements among administrations having operations that would be affected. All practicable measures shall be taken to reduce harmful interference from Loran transmissions to other services to which this band or adjacent bands are allocated.
- 196** In Japan, the band 1 605-1 800 kc/s is allocated on a permitted basis to the maritime radionavigation service using continuous wave systems with a mean power of not more than 50 watts.
- 197** In Australia, North Borneo, Brunei, Sarawak, Singapore, China, Indonesia, **Mar** Malaya, New Zealand and the Philippines, the band 1 605-1 800 kc/s is allocated on a permitted basis to the aeronautical radionavigation service, the stations of which shall use a mean power not exceeding 2 kW.¹
- 198** In Region 2 the Loran system has priority. Other services to which the band is allocated may use any frequency in this band provided that they do not cause harmful interference to the Loran system.
In Region 3 the Loran system in any particular area operates either on 1 850 or 1 950 kc/s, the bands occupied being 1 825-1 875 kc/s and 1 925-1 975 kc/s respectively. Other services to which the band 1 800-2 000 kc/s is allocated may use any frequency therein on condition that no harmful interference is caused to the Loran system operating on 1 850 or 1 950 kc/s.
- 199** In India, the band 1 800-2 000 kc/s is allocated on a permitted basis to the **Mar** aeronautical mobile service.¹

197.1 ¹ In Australia, Malaysia [including Sabah (North Borneo) and Sarawak], **Mar** Brunei, Singapore, China, Indonesia, New Zealand and the Philippines, the stations of the maritime mobile service are authorized to use this band subject to agreements to be reached with administrations whose services, operating in accordance with the Table, may be affected.

199.1 ¹ In India, the stations of the maritime mobile service are authorized to use **Mar** this band subject to agreements to be reached with administrations whose services, operating in accordance with the Table, may be affected.

kc/s
2 000—2 194

Allocation to Services		
Region 1	Region 2	Region 3
2 000—2 045 FIXED MOBILE except aeronautical mobile 193	2 000—2 065 FIXED MOBILE	
2 045—2 065 METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile 193		
2 065—2 170 FIXED MOBILE except aeronautical mobile (R) 193	2 065—2 107 MARITIME MOBILE 200	
	2 107—2 170 FIXED MOBILE	
2 170—2 194	MOBILE (distress and calling) 201	

200 In Region 2, except in Greenland, coast stations and ship stations using
Mar radiotelephony shall be limited to class A3A or A3J emissions and to a peak envelope power not exceeding 1 kW. Preferably, the following carrier frequencies should be used: 2 065.0, 2 079.0, 2 082.5, 2 086.0, 2 093.0, 2 096.5, 2 100.0, 2 103.5 kc/s.

201 The frequency 2 182 kc/s is the international distress and calling frequency
Mar for radiotelephony. The conditions for the use of the band 2 170- 2 194 kc/s are prescribed in Article 35.

kc/s
2 194—2 625

Allocation to Services		
Region 1	Region 2	Region 3
2 194—2 300 FIXED MOBILE except aeronautical mobile (R) 193	2 194—2 300 FIXED MOBILE	
2 300—2 498 FIXED MOBILE except aeronautical mobile (R) BROADCASTING 202 193	2 300—2 495 FIXED MOBILE BROADCASTING 202	
2 498—2 502 STANDARD FREQUENCY 203 204	2 495—2 505 STANDARD FREQUENCY 203 204	
2 502—2 625 FIXED MOBILE except aeronautical mobile (R) 193	2 505—2 625 FIXED MOBILE	

202 For the conditions of use of this band by the broadcasting service see Nos. 135, 136 and 423 to 428.

203 The standard frequency is 2 500 kc/s.

204 The standard frequency guard-bands at 2.5 Mc/s, 5 Mc/s, 10 Mc/s, 15 Mc/s, 20 Mc/s and 25 Mc/s may be used by the radio astronomy service. The radio astronomy service shall be protected from harmful interference from services operating in other bands in accordance with the provisions of these Regulations, only to the extent that these services are protected from each other.

kc/s
2 850—3 500

Allocation to Services		
Region 1	Region 2	Region 3
2 850—3 025		
AERONAUTICAL MOBILE (R)		
3 025—3 155		
AERONAUTICAL MOBILE (OR)		
3 155—3 200		
FIXED		
MOBILE except aeronautical mobile (R)		
3 200—3 230		
FIXED		
MOBILE except aeronautical mobile (R)		
BROADCASTING 202		
3 230—3 400		
FIXED		
MOBILE except aeronautical mobile		
BROADCASTING 202		
3 400—3 500		
AERONAUTICAL MOBILE (R)		

kc/s
3 500—4 000

Allocation to Services		
Region 1	Region 2	Region 3
3 500—3 800 AMATEUR FIXED MOBILE except aeronautical mobile	3 500—4 000 AMATEUR FIXED MOBILE except aeronautical mobile (R)	3 500—3 900 AMATEUR FIXED MOBILE
3 800—3 900 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE		206 207
3 900—3 950 AERONAUTICAL MOBILE (OR)		3 900—3 950 AERONAUTICAL MOBILE BROADCASTING
3 950—4 000 FIXED BROADCASTING		3 950—4 000 FIXED BROADCASTING

- 206 In Australia, the band 3 500-3 700 kc/s is allocated to the amateur service; the band 3 700-3 900 kc/s is allocated to the fixed and mobile services.
- 207 In India, the band 3 500-3 890 kc/s is allocated to the fixed and mobile services; the band 3 890-3 900 kc/s is allocated to the amateur service.

kc/s
4 000—4 850

Allocation to Services		
Region 1	Region 2	Region 3
4 000—4 063 FIXED		
4 063—4 438 MARITIME MOBILE 208 209		
4 438—4 650 FIXED MOBILE except aeronautical mobile (R)		4 438—4 650 FIXED MOBILE except aeronautical mobile
4 650—4 700 AERONAUTICAL MOBILE (R)		
4 700—4 750 AERONAUTICAL MOBILE (OR)		
4 750—4 850 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING 202		4 750—4 850 FIXED BROADCASTING 202

208 In the U.S.S.R., in the bands 4 063-4 133 kc/s and 4 408-4 438 kc/s, fixed stations of limited power may operate provided that, in order to minimize the possibility of causing harmful interference to the maritime mobile service, they are situated at least 600 km from the coast. A limited power station is one whose power and antenna characteristics are so adjusted that the field strength established at any point in any direction does not exceed that obtainable with a non-directive antenna and a peak envelope power of 1 kW.

209 On condition that harmful interference is not caused to the maritime mobile service, the frequencies between 4 063 and 4 438 kc/s may be used exceptionally by fixed stations communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 watts; however, in Regions 2 and 3, between 4 238 and 4 368 kc/s, a mean power not exceeding 500 watts may be used by such fixed stations.

kc/s
4 850 — 5 480

Allocation to Services		
Region 1	Region 2	Region 3
4 850 — 4 995	FIXED LAND MOBILE BROADCASTING 202	
4 995 — 5 005	STANDARD FREQUENCY 204 210	
5 005 — 5 060	FIXED BROADCASTING 202	
5 060 — 5 250	FIXED	
5 250 — 5 430	5 250 — 5 450	5 250 — 5 430
FIXED LAND MOBILE	FIXED LAND MOBILE	FIXED LAND MOBILE
5 430 — 5 480	5 450 — 5 480	5 430 — 5 480
FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	AERONAUTICAL MOBILE (R)	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE

210 The standard frequency is 5 000 kc/s.

kc/s
5 480—7 100

Allocation to Services		
Region 1	Region 2	Region 3
5 480—5 680	AERONAUTICAL MOBILE (R)	
5 680—5 730	AERONAUTICAL MOBILE (OR)	
5 730—5 950	FIXED	
5 950—6 200	BROADCASTING	
6 200—6 525	MARITIME MOBILE 211	
6 525—6 685	AERONAUTICAL MOBILE (R)	
6 685—6 765	AERONAUTICAL MOBILE (OR)	
6 765—7 000	FIXED	
7 000—7 100	AMATEUR	

- 211** On condition that harmful interference is not caused to the maritime mobile service, the frequencies between 6 200 and 6 525 kc/s may be used exceptionally by fixed stations, communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 watts. At the time of notification of these frequencies, the attention of the International Frequency Registration Board will be drawn to the above conditions.

kc/s
7 100—9 995

Allocation to Services		
Region 1	Region 2	Region 3
7 100—7 300 BROADCASTING 212	7 100—7 300 AMATEUR	7 100—7 300 BROADCASTING
7 300—8 195 FIXED		
8 195—8 815 MARITIME MOBILE 213		
8 815—8 965 AERONAUTICAL MOBILE (R)		
8 965—9 040 AERONAUTICAL MOBILE (OR)		
9 040—9 500 FIXED		
9 500—9 775 BROADCASTING		
9 775—9 995 FIXED		

- 212** In the Union of South Africa and the Territory of South West Africa, the band 7 100-7 150 kc/s is allocated to the amateur service.
- 213** Between 8 615 and 8 815 kc/s, 12 925 and 13 200 kc/s, and between 17 160 and 17 360 kc/s, the U.S.S.R. will meet their special requirements for the fixed service with due regard to technical provisions (power, location, antenna, etc.) with a view to minimizing the possibility of harmful interference to the maritime mobile service. Coast stations in the maritime mobile service will also have due regard to technical provisions (power, location, antenna, etc.) with a view to minimizing the possibility of harmful interference to the fixed service in the U.S.S.R. The International Frequency Registration Board will be consulted regarding this subject.

kc/s
9 995 — 12 330

Allocation to Services		
Region 1	Region 2	Region 3
9 995 — 10 005	STANDARD FREQUENCY	
	204 214 215	
10 005 — 10 100	AERONAUTICAL MOBILE (R)	
10 100 — 11 175	FIXED	
11 175 — 11 275	AERONAUTICAL MOBILE (OR)	
11 275 — 11 400	AERONAUTICAL MOBILE (R)	
11 400 — 11 700	FIXED	
	216	
11 700 — 11 975	BROADCASTING	
11 975 — 12 330	FIXED	

214 The standard frequency is 10 000 kc/s.

215 The band 10 003-10 005 kc/s is also allocated, on a secondary basis, to the Spa space research service.

215A In Bulgaria, Cuba, Hungary, Poland, Roumania, Czechoslovakia and the Spa U.S.S.R., the space research service is a primary service in the bands 15 762-15 768 kc/s and 18 030-18 036 kc/s.

216 In the U.S.S.R., the band 11 400-11 450 kc/s is also allocated to the aeronautical mobile (OR) service.

kc/s
12 330 — 14 990

Allocation to Services		
Region 1	Region 2	Region 3
12 330 — 13 200	MARITIME MOBILE 213	
13 200 — 13 260	AERONAUTICAL MOBILE (OR)	
13 260 — 13 360	AERONAUTICAL MOBILE (R)	
13 360 — 14 000	FIXED 217	
14 000 — 14 350	AMATEUR 218	
14 350 — 14 990	FIXED	

- 217** The frequency 13 560 kc/s is designated for industrial, scientific and medical purposes. Emissions must be confined within the limits of $\pm 0.05\%$ of that frequency. Radiocommunication services operating within those limits must accept any harmful interference that may be experienced from the operation of industrial, scientific and medical equipment.
- 218** In the U.S.S.R., the band 14 250-14 350 kc/s is also allocated to the fixed service.

kc/s
14 990 — 17 900
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
14 990 — 15 010	STANDARD FREQUENCY 204 219	
15 010 — 15 100	AERONAUTICAL MOBILE (OR)	
15 100 — 15 450	BROADCASTING	
15 450 — 15 762	FIXED	
15 762 — 15 768	FIXED <i>Space Research 215A</i>	
15 768 — 16 460	FIXED	
16 460 — 17 360	MARITIME MOBILE 213	
17 360 — 17 700	FIXED	
17 700 — 17 900	BROADCASTING	

219 The standard frequency is 15 000 kc/s.

kc/s
17 900—21 750
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
17 900—17 970	AERONAUTICAL MOBILE (R)	
17 970—18 030	AERONAUTICAL MOBILE (OR)	
18 030—18 036	FIXED <i>Space Research 215A</i>	
18 036—19 990	FIXED	
19 990—20 010	STANDARD FREQUENCY 204 220 221 221A	
20 010—21 000	FIXED	
21 000—21 450	AMATEUR	
21 450—21 750	BROADCASTING	

220 The standard frequency is 20 000 kc/s.

221 Spa The band 19 990-20 010 kc/s is also allocated, on a secondary basis, to the space research service.

221A Spa The frequency 20 007 kc/s may also be used, in emergency, in the search for, and rescue of, astronauts and space vehicles. Emissions must be confined in a band of ± 3 kc/s about this frequency.

kc/s
21 750 — 25 010

Allocation to Services		
Region 1	Region 2	Region 3
21 750 — 21 850	FIXED	
21 850 — 22 000	AERONAUTICAL FIXED AERONAUTICAL MOBILE (R)	
22 000 — 22 720	MARITIME MOBILE	
22 720 — 23 200	FIXED	
23 200 — 23 350	AERONAUTICAL FIXED AERONAUTICAL MOBILE (OR)	
23 350 — 24 990	FIXED LAND MOBILE 222	
24 990 — 25 010	STANDARD FREQUENCY 204 223	

222 Inter-ship radiotelegraphy may be used in the maritime mobile service between the frequencies 23 350 and 24 000 kc/s.

223 The standard frequency is 25 000 kc/s.

kc/s
25 010—27 500

Allocation to Services		
Region 1	Region 2	Region 3
25 010—25 070	FIXED MOBILE except aeronautical mobile	
25 070—25 110	MARITIME MOBILE 224	
25 110—25 600	FIXED MOBILE except aeronautical mobile	
25 600—26 100	BROADCASTING	
26 100—27 500	FIXED MOBILE except aeronautical mobile 225 226	

- 224** Limited to ship stations employing A1 or F1 emissions.
- 225** The frequency 27 120 kc/s is designated for industrial, scientific and medical purposes. Emissions must be confined within the limits of $\pm 0.6\%$ of that frequency. Radiocommunication services operating within those limits must accept any harmful interference that may be experienced from the operation of industrial, scientific and medical equipment.
- 226** In Region 2, Australia and New Zealand, the amateur service may operate between the frequencies 26 960 and 27 230 kc/s.

Mc/s
27.5—41
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
27.5—28 METEOROLOGICAL AIDS 227	27.5—28 METEOROLOGICAL AIDS FIXED MOBILE	
28—29.7		
AMATEUR		
29.7—30.005		
FIXED 228 229 231 232 MOBILE 233		
30.005—30.010		
FIXED 228 229 231 MOBILE SPACE RESEARCH SPACE (Satellite identification) 233		
30.010—37.750		
FIXED 228 229 230 231 MOBILE 233		
37.75—38.25		
FIXED 228 229 231 MOBILE <i>Radio Astronomy</i> 233		
38.25—41		
FIXED 228 229 230 231 MOBILE 233 235 236		

- 227** In Albania, Bulgaria, Hungary, Poland, Roumania, Switzerland, Czechoslovakia, and the U.S.S.R., the band 27.5-28 Mc/s is also allocated to the fixed and mobile services.
- 228** Stations designed to use ionospheric scatter may operate only subject to agreements between administrations concerned and those whose services, operating in accordance with the Table, may be affected.
- 229** Systems designed to use ionospheric scatter or other fixed service systems designed to operate over distances exceeding 800 km shall confine their emissions to the following bands:

Region 1	Region 2	Region 3
32.6—33	32.6—33	32.6—33
36.2—36.6	34.6—35	34.6—35
39 —39.4	36.4—36.8	36.4—36.8

and shall have priority in Region 2 in the bands shown above for such use in that Region.

- 230** In the case of the bands referred to in No. 229, which are limited to a particular Region the provisions of No. 117 shall apply and administrations shall avoid beaming such transmissions towards another Region unless specifically co-ordinated otherwise.
- 231** Ionospheric scatter stations, existing on 1 January 1960, and not causing harmful interference to the other services to which the band is allocated, may continue to operate on frequencies now assigned until re-accommodated.
- 232** Conventional (F2) long distance fixed service use of the band 29.7-30 Mc/s is not excluded in Region 2, provided that such use is coordinated between the administrations concerned.
- 233** In the United Kingdom, the band 29.7-41 Mc/s is also allocated to the aeronautical radionavigation service.
- 234** SUP (Spa)
- 235** The band 39.986-40.002 Mc/s is also allocated, on a secondary basis, to the space research service.
- 236** The frequency 40.68 Mc/s is designated for industrial, scientific and medical purposes. Emissions must be confined within the limits of $\pm 0.05\%$ of that frequency. Radiocommunication services operating within those limits must accept any harmful interference that may be experienced from the operation of industrial, scientific and medical equipment.

Mc/s
41 — 68

Allocation to Services		
Region 1	Region 2	Region 3
41 — 47 BROADCASTING <i>Fixed</i> 228 237 <i>Mobile</i> 238 239 240 241	41 — 50 FIXED 228 231 237 MOBILE	41 — 44 FIXED 228 237 MOBILE
47 — 68 BROADCASTING 238 239 241 242 243	50 — 54 AMATEUR 244 245 246 247	
BROADCASTING 238 239 241 242 243	54 — 68 FIXED 228 237 MOBILE BROADCASTING	54 — 68 FIXED 228 231 237 MOBILE BROADCASTING 246

- 237** Systems designed to use ionospheric scatter which may cause harmful interference to the broadcasting service are prohibited.
- 238** In Rhodesia and Nyasaland, the band 41-44 Mc/s is allocated to the fixed, mobile and aeronautical radionavigation services; the bands 44-50 and 54-68 Mc/s are allocated to the fixed, mobile and broadcasting services; the band 50-54 Mc/s is allocated to the amateur service.
- 239** In the Belgian Congo and Ruanda Urundi, and the Union of South Africa and the Territory of South West Africa, the band 41-50 Mc/s is also allocated to

- the fixed, mobile and aeronautical radionavigation services; the band 50-54 Mc/s is allocated to the amateur service; and the band 54-68 Mc/s is allocated to the fixed, mobile and broadcasting services. The band 53-54 Mc/s may be used for model control.
- 240** In Spain, France, Monaco and the United Kingdom, the band 41-47 Mc/s is allocated to the broadcasting service.
- 241** In the Portuguese Oversea Provinces in Region 1 south of the equator, the band 41-68 Mc/s is also allocated on a permitted basis to the fixed and mobile services.
- 242** In Austria, the F. R. of Germany and Czechoslovakia, the band 47-68 Mc/s is also allocated, on a secondary basis, to the fixed service and mobile, except aeronautical mobile, service.
- 243** In Albania, Bulgaria, Hungary, Poland, Roumania and the U.S.S.R., the band 47-48.5 Mc/s is also allocated, on a secondary basis, to the fixed and mobile services; the band 56.5-58 Mc/s is also allocated, on a secondary basis, to the fixed service.
- 244** In Malaya, New Zealand and Singapore, the band 50-51 Mc/s is allocated to the fixed, mobile and broadcasting services.
- 245** In India, Indonesia, Iran and Pakistan, the band 50-54 Mc/s is allocated to the fixed and mobile services.
- 246** In Australia, the band 50-54 Mc/s is allocated to the fixed, mobile and broadcasting services; the band 56-58 Mc/s is allocated to the amateur service.
- 247** In New Zealand, the band 51-53 Mc/s is also allocated to the fixed and mobile services; the band 53-54 Mc/s is allocated to the fixed and mobile services.

Mc/s
68—75.4
(Spa)

Allocation to Services									
Region 1			Region 2			Region 3			
68—74.8 FIXED MOBILE except aeronautical mobile			68—73 FIXED MOBILE BROADCASTING			68—70 FIXED MOBILE AERONAUTICAL RADIONAVIGATION 254 255 256			
			73—74.6 RADIO ASTRONOMY 253A 253B			70—74.6 FIXED MOBILE 256 257 258			
248 249 250 251 252			74.6—75.4 AERONAUTICAL RADIONAVIGATION						
74.8—75.2 AERONAUTICAL RADIONAVIGATION 259									

- 248** In the U.S.S.R., the bands 68-73 Mc/s and 76-87.5 Mc/s are allocated to the broadcasting service. The services to which these bands are allocated in other countries and the broadcasting service in the U.S.S.R. are subject to local agreement in order to avoid mutual harmful interference.
- 249** In Austria, Belgium, France, Greece, Morocco and the United Kingdom, the band 68-70 Mc/s is also allocated to the aeronautical radionavigation service for ground-based transmitters only.
- 250** In Albania, Bulgaria, Hungary, Poland, Roumania and Czechoslovakia, the bands 68-73 Mc/s (sound broadcasting) and 76-87.5 Mc/s (television) are also allocated to the broadcasting service. In these countries, broadcasting stations in these bands shall be established and operated only in accordance with agreements

and associated plans, to be drawn up by a special regional conference to be held not later than 1 May 1960. In the preparation of plans for the broadcasting service and the associated agreement concerning the fixed and mobile services, account should be taken of the existing assignments to broadcasting in the U.S.S.R. and to the fixed and mobile services in other countries which may be affected. The plans and agreement shall have the object of ensuring that no harmful interference is caused between the broadcasting service and the fixed and mobile services. The countries: Albania, Austria, Bulgaria, Denmark, Greece, Hungary, Italy, Poland, F. R. of Germany, Yugoslavia, Roumania, Sweden, Switzerland, Czechoslovakia, Turkey, the U.S.S.R. and other interested countries shall participate in the conference.

- 251** In Greece and the United Kingdom, the band 72-8-74-8 Mc/s is also allocated to the aeronautical radionavigation service for ground-based transmitters only.
- 252** In Albania, Bulgaria, Hungary, Poland, Roumania, Czechoslovakia and the U.S.S.R., the bands 73-74-8 Mc/s and 75-2-76 Mc/s are also allocated to the aeronautical radionavigation service for ground-based transmitters only.
- 253** SUP (Spa)
- 253A** In Region 2, fixed, mobile and broadcasting service operations previously authorized in the band 73-74-6 Mc/s may continue to operate on a non-interference basis to the radio astronomy service.
- 253B** In Cuba, the band 73-74-6 Mc/s is also allocated to the fixed, mobile and broadcasting services.
- 254** In Australia, the band 68-70 Mc/s is allocated to the fixed, mobile and broadcasting services; the band 85-88 Mc/s is allocated to the broadcasting and radionavigation services.
- 255** In China, the bands 68-70 Mc/s and 75-4-87 Mc/s are allocated to the fixed, mobile and broadcasting services; the band 100-108 Mc/s is allocated to the fixed and broadcasting services.
- 256** In Korea, the band 68-72 Mc/s is also allocated to the broadcasting service; the bands 76-87 Mc/s and 100-108 Mc/s are allocated to the fixed, mobile and broadcasting services.
- 257** In India, the bands 70-72-8 Mc/s and 76-85 Mc/s are also allocated to the broadcasting service.
- 258** In North Borneo, Brunei, Sarawak, Singapore and Malaya, the band 72-8-74-6 Mc/s is also allocated to the aeronautical radionavigation service; the band 100-108 Mc/s is allocated to the fixed, mobile and broadcasting services.
- 259** The frequency 75 Mc/s is assigned to aeronautical marker beacons. Administrations shall refrain from assigning frequencies close to the limits of the guard-band to stations of other services which, because of their power or geographical position, might cause harmful interference to marker beacons.

Mc/s
75.2—100

Allocation to Services		
Region 1	Region 2	Region 3
75.2—87.5		
FIXED	75.4—88	75.4—78
MOBILE except aeronautical mobile	FIXED	FIXED
	MOBILE	MOBILE
	BROADCASTING	255 256 257 265
		78—80
		FIXED
		MOBILE
		AERONAUTICAL RADIONAVIGATION
		255 256 257 261 266
		80—87
		FIXED
		MOBILE
		254 255 256 257 261 266 267
248 250 252 260 261 262 263		87—100
87.5—100		FIXED
BROADCASTING	88—100	MOBILE
	BROADCASTING	BROADCASTING
264 265		254 267 268

- 260** In Belgium, Morocco and the United Kingdom, the band 78-80 Mc/s is also allocated to the aeronautical radionavigation service for ground-based transmitters only; in France this band is allocated to the radionavigation service.
- 261** The band 79-75-80-25 Mc/s is also allocated in Regions 1 and 3 (except Korea, India and Japan) to the radio astronomy service. In making assignments to stations of other services to which this band is allocated, administrations are urged to take all practicable steps to protect radio astronomy observations from harmful interference. The radio astronomy service shall be protected from harmful interference from services operating in other bands in accordance with the provisions of these Regulations, only to the extent that these services are protected from each other.
- 262** In the United Kingdom, the band 82-87 Mc/s is also allocated to the radio-location service.
- 263** In Nigeria, Sierra Leone and Gambia, the band 86-87.5 Mc/s is also allocated to the broadcasting service.
- 264** In the United Kingdom, the band 87.5-88 Mc/s is also allocated to the land mobile service.
- 265** In the United Kingdom, the band 95-100 Mc/s is also allocated, on a permitted basis, to the fixed and land mobile services.
- 266** In Japan, the band 76-87 Mc/s is also allocated to the broadcasting service.
- 267** In New Zealand, the band 83-88 Mc/s is also allocated to the radionavigation service; the band 100-108 Mc/s is allocated to the fixed and mobile services.
- 268** In India, the band 87-100 Mc/s is allocated to the broadcasting service.

Mc/s
100—108

Allocation to Services						
Region 1	Region 2			Region 3		
100—108	100—108					
MOBILE except aeronautical mobile (R)	BROADCASTING					
269 270 271				255 256 258	267 272	

- 269** In the Portuguese Oversea Provinces in Region 1 south of the equator, Rhodesia and Nyasaland, and the Union of South Africa and Territory of South West Africa, the band 100-108 Mc/s is allocated to the broadcasting service.
- 270** In Austria, Belgium, Spain, Israel, Italy, Yugoslavia, Switzerland and, if necessary, in Denmark, the Netherlands and the F. R. of Germany, the band 100-104 Mc/s is allocated on a permitted basis to the broadcasting service. The introduction of the broadcasting service in these countries is subject to special agreements between the interested and affected administrations, to ensure that harmful interference is not caused to the services of the other countries operating in accordance with the Radio Regulations.
- 271** In Denmark, Finland, Greece, Ireland, Iceland, Norway, the F. R. of Germany, Sweden and Turkey, the band 100-108 Mc/s is also allocated to the fixed service and the same allocation will also be made eventually in the Netherlands and the United Kingdom. In Italy and Yugoslavia, the band 104-108 Mc/s is also allocated to the fixed service. The effective radiated power of any station in the fixed service shall normally not exceed 25 watts. In case higher powers are used, the introduction of the fixed service is subject to special agreements between interested and affected administrations.
- 272** In the Philippines, the band 100-108 Mc/s is also allocated to the fixed and mobile services.

Mc/s
108—143·6
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
108—117·975		
AERONAUTICAL RADIONAVIGATION		
117·975—132		
AERONAUTICAL MOBILE (R) 273 273A		
132—136 AERONAUTICAL MOBILE (R) 273A 274 275	132—136 FIXED MOBILE 273A 276 277 278 279	
136—137 FIXED MOBILE SPACE RESEARCH (Telemetering and tracking) 281A	136—137 SPACE RESEARCH (Telemetering and tracking) 281A 281B	136—137 FIXED MOBILE SPACE RESEARCH (Telemetering and tracking) 281A
137—138		
METEOROLOGICAL-SATELLITE SPACE RESEARCH (Telemetering and tracking) 281F SPACE (Telemetering and tracking) 275A 279A 281C 281D 281E		
138—143·6 AERONAUTICAL MOBILE (OR) 275 282 283	138—143·6 FIXED MOBILE Radiolocation	138—143·6 FIXED MOBILE 278 279A 284

Mc/s
143.6—144
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
143.6—143.65 AERONAUTICAL MOBILE (OR) SPACE RESEARCH (Telemetering and tracking) 275 282 283	143.6—143.65 FIXED MOBILE SPACE RESEARCH (Telemetering and tracking) Radiolocation	143.6—143.65 FIXED MOBILE SPACE RESEARCH (Telemetering and tracking) 278 279A 284
143.65—144 AERONAUTICAL MOBILE (OR) 275 282 283	143.65—144 FIXED MOBILE Radiolocation	143.65—144 FIXED MOBILE 278 279A 284

- 273** The frequency 121.5 Mc/s is the aeronautical emergency frequency in this band; mobile stations of the maritime mobile service may communicate on this frequency for safety purposes with stations of the aeronautical mobile service.
- 273A Spa** In the band 117-975-132 Mc/s and in the band 132-136 Mc/s where the aeronautical mobile (R) service is authorized, the use and development, for this service, of systems using space communication techniques may be authorized but limited initially to satellite relay stations of the aeronautical mobile (R) service. Such use and development shall be subject to co-ordination between administrations concerned and those having services operating in accordance with the Table, which may be affected.
- 274** In certain countries of Region 1, the aeronautical mobile (OR) service will continue to operate for an unspecified period, on a primary basis.
- 275 Spa** In Burundi, Ethiopia, Nigeria, Sierra Leone, Gambia, Portuguese Oversea Provinces in Region 1 south of the equator, Rhodesia and Nyasaland, Rwanda and the Rep. of South Africa and Territory of South-West Africa, the bands 132-136 Mc/s and 138-144 Mc/s are allocated to the fixed and mobile services.
- 275A Spa** In Burundi, Nigeria, Sierra Leone, Gambia, Portuguese Oversea Provinces in Region 1 south of the equator, Rhodesia and Nyasaland, and Rwanda, the band 137-138 Mc/s is also allocated to the fixed and mobile services.

- 276** In Region 2, in the band 132-135 Mc/s, the aeronautical mobile (R) service shall operate on a primary basis subject to co-ordination between administrations concerned and those having services operating in accordance with the Table, which may be affected.
- 277** In Region 3, in the band 132-136 Mc/s, which will eventually become exclusively allocated to the aeronautical mobile (R) service, frequency assignments to the aeronautical mobile service shall be co-ordinated between administrations concerned and shall be protected from harmful interference.
- 278** In New Zealand, the bands 132-136 Mc/s and 138-144 Mc/s are allocated to the aeronautical mobile (OR) service.
Spa
- 279** In Australia, the band 132-136 Mc/s is allocated to the aeronautical mobile service.
Spa
- 279A** In Australia, the band 137-144 Mc/s is also allocated to the broadcasting service for television.
Spa
- 280 281 SUP (Spa)**
- 281A** For the use of the band 136-137 Mc/s, see Recommendation No. Spa7.
Spa
- 281B** In Region 2, the band 136-137 Mc/s is also allocated to the fixed and mobile services until 1 January, 1969. Thereafter, in Cuba, the band will continue to be allocated also to the fixed and mobile services.
Spa
- 281C** In Algeria, Bulgaria, Hungary, Kuwait, Lebanon, Morocco, Poland, the United Arab Republic, Yugoslavia, Roumania, Czechoslovakia and the U.S.S.R., the band 137-138 Mc/s is also allocated to the aeronautical mobile (OR) service. In the remaining countries of Region 1, the band 137-138 Mc/s is also allocated to the aeronautical mobile (OR) service until 1 January, 1969.
Spa
- 281D** In Norway, Switzerland and Turkey, the band 137-138 Mc/s is also allocated to the fixed service and mobile, except aeronautical mobile, service until 1 January, 1969.
Spa
- 281E** In Regions 2 and 3, the band 137-138 Mc/s is also allocated to the fixed and mobile services until 1 January, 1969. Thereafter, in Cuba, Malaysia, Pakistan and the Philippines, the band 137-138 Mc/s will continue to be allocated also to the fixed and mobile services.
Spa
- 281F** The band 137-138 Mc/s will be used mainly for research concerning the establishment, technical improvement, and maintenance of operational space systems.
Spa
- 282** In Austria, the Netherlands and the United Kingdom, the band 138-144 Mc/s will, at some future date, be allocated to the fixed service and mobile, except aeronautical mobile, service.
Spa
- 283** In Denmark, Greece, Norway, Portugal, F.R. of Germany, Sweden, Switzerland and Turkey, the band 138-144 Mc/s is also allocated to the fixed service and mobile, except aeronautical mobile (R), service.
Spa
- 284** In China, the band 138-144 Mc/s is also allocated to the radiolocation service.
Spa

Mc/s
144 — 150.05
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
144—146 AMATEUR 284A		
146—149.9 FIXED MOBILE except aeronautical mobile (R) 274 285 285A	146—148 <p style="text-align: right;">AMATEUR 289</p>	
	148—149.9 <p style="text-align: right;">FIXED MOBILE 285A 290</p>	
149.9—150.05 RADIONAVIGATION-SATELLITE 285B		

284A Spa In the band 144-146 Mc/s, artificial satellites may be used by the amateur service.

285 Spa In Rhodesia and Nyasaland, and the Rep. of South Africa and Territory of South-West Africa, the bands 146-149.9 Mc/s and 150.05-174 Mc/s are also allocated to the aeronautical mobile service.

285A Spa The frequencies 148.25 Mc/s \pm 15 kc/s and 154.2 Mc/s \pm 15 kc/s may be used for space telecommand, subject to agreement among the administrations concerned and those having services operating in accordance with the Table, which may be affected.

285B Spa Stations operating in the fixed and mobile services may continue to use this band until 1 January, 1969. This cessation date shall not apply in Austria, Bulgaria, Cuba, Hungary, Iran, Kuwait, Morocco, Pakistan, the Netherlands, Poland, the United Arab Republic, Yugoslavia and Roumania where the fixed and mobile services will continue to have equal primary status with the radionavigation-satellite service. (See Recommendation NoSpa8).

Mc/s
150-05—174
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
150-05—151 FIXED MOBILE except aeronautical mobile (R) 274 285 286 286A	150-05—174 FIXED MOBILE	150-05—170 FIXED MOBILE
151—154 FIXED MOBILE except aeronautical mobile (R) Meteorological aids 285 286 286A		
154—156 FIXED MOBILE except aeronautical mobile (R) 285 285A		285A 287 290
156—174 FIXED MOBILE except aeronautical mobile 285 287 288	285A 287	170—174 FIXED MOBILE BROADCASTING

286 Spa In Region 1, the band 150.05-153 Mc/s is also allocated to the radio astronomy service. In making assignments to new stations of other services to which this band is allocated, administrations are urged to take all practicable steps to protect radio astronomy observations from harmful interference.

286A Spa In the United Kingdom, the band 150.05-151 Mc/s is allocated to the radio astronomy service, and the band 151-153 Mc/s is allocated to the radio astronomy service on a primary basis and to the meteorological aids service on a secondary basis; however, in this band the provisions of No. 274 apply.

287 Mar The frequency 156.8 Mc/s is the international safety and calling frequency for the maritime mobile VHF radiotelephone service. Administrations shall ensure that a guard-band on each side of the frequency 156.8 Mc/s is provided. The conditions for the use of this frequency are contained in Article 35.

In the bands 156.025-157.425 Mc/s, 160.625-160.975 Mc/s and 161.475-162.025 Mc/s, each administration shall give priority to the maritime mobile service on only such frequencies as are assigned to stations of the maritime mobile service by that administration (see Article 35).

Any use of frequencies in these bands by stations of other services to which they are allocated should be avoided in areas where such use might cause harmful interference to the maritime mobile VHF radiotelephone service.

However, the frequency bands in which priority is given to the maritime mobile service may be used for radiotelephone communications on inland waterways, subject to agreements between interested and affected administrations and taking into account current frequency usage and existing agreements.

288 In France, Morocco and Monaco, the band 162-174 Mc/s is allocated to the broadcasting service.

289 In China, India and Japan, the band 146-148 Mc/s is also allocated to the fixed and mobile services.

290 Spa In New Zealand, the bands 148-149.9 Mc/s and 150.05-156 Mc/s are allocated to the aeronautical mobile (OR) service.

Mc/s
174—235

Allocation to Services																
Region 1					Region 2				Region 3							
174—216 BROADCASTING 291 292 293 294					174—216 FIXED MOBILE BROADCASTING 294 295 296											
216—223 AERONAUTICAL RADIONAVIGATION BROADCASTING 297 298 299 300 301					216—220 FIXED MOBILE RADIOLOCATION				216—225 AERONAUTICAL RADIONAVIGATION <i>Radiolocation</i> 306 307 308							
223—235 AERONAUTICAL RADIONAVIGATION <i>Fixed</i> <i>Mobile</i> 299 300 301 302 303 304 305					220—225 AMATEUR RADIOLOCATION											
225—235 FIXED MOBILE					225—235 FIXED MOBILE AERONAUTICAL RADIONAVIGATION											

- 291** In the Union of South Africa and the Territory of South West Africa, the bands 174-181 Mc/s and 213-216 Mc/s are also allocated to the fixed and land mobile services.
- 292** In the United Kingdom, the band 174-184 Mc/s is also allocated to the fixed service; the band 211-216 Mc/s is allocated to the broadcasting and aeronautical radionavigation services.

- 293** In Ethiopia, Kenya, Tanganyika, Uganda, Nigeria, Sierra Leone, Gambia, Rhodesia and Nyasaland, and Zanzibar, the band 174-216 Mc/s is also allocated to the fixed and mobile services.
- 294 Spa** The band 183.1-184.1 Mc/s is also allocated, on a secondary basis, to the space research service.
- 295** In India, the band 197-216 Mc/s, and in New Zealand, Pakistan and the Philippines, the band 200-216 Mc/s are also allocated to the aeronautical radio-navigation service.
- 296** In Australia, the band 202-209 Mc/s is allocated to the aeronautical radio-navigation service.
- 297** The aeronautical radionavigation service will be operated only in Denmark, Spain, France, Greece, Nigeria, the Netherlands, Portugal, the United Kingdom, Sweden, Turkey and the Union of South Africa and Territory of South West Africa.
The broadcasting service will be introduced in such a way so as not to reduce the areas of coverage of the aeronautical radionavigation service of the above-mentioned countries existing on 21st December, 1959, or such lesser areas as may exist thereafter. The agreement of administrations concerned shall be obtained before new broadcasting stations are brought into operation which could cause harmful interference to the aeronautical radionavigation service.
The administrations employing the aeronautical radionavigation service shall not operate airborne equipment during flights over countries in which the band 216-223 Mc/s is used exclusively for the broadcasting service.
- 298** In Italy, the band 216-223 Mc/s is also allocated to the fixed service.
- 299** In France and in Italy, the provisions of No. **297** concerning the introduction of the broadcasting service apply to the band 216-225 Mc/s.
- 300** In the United Kingdom, the band 216-225 Mc/s is allocated to the aeronautical radionavigation and radiolocation services. The radiolocation service is a secondary service.
- 301** In Rhodesia and Nyasaland, the band 220-225 Mc/s is allocated to the amateur service.
- 302** In Austria and Switzerland, the band 223-230 Mc/s is allocated on a permitted basis to the broadcasting service; the band 230-235 Mc/s is allocated to the fixed and mobile services.
- 303** In Albania, Bulgaria, Hungary, Poland, Roumania, Czechoslovakia and the U.S.S.R., the band 223-230 Mc/s is allocated to the broadcasting service. The broadcasting service in these countries shall be introduced so as not to cause harmful interference to the aeronautical radionavigation service and broadcasting stations operating in this band shall be established only in accordance with agreements and associated plans to be concluded at the next European VHF/UHF Broadcasting Conference.

- 304** In the Union of South Africa and the Territory of South West Africa, the band 223-235 Mc/s is also allocated to the broadcasting service and the provisions of No. 297 concerning the introduction of that service will apply to this band.
- 305** In Nigeria, Sierra Leone and Gambia, the band 223-251 Mc/s is also allocated to the broadcasting service.
- 306** In Indonesia, the band 216-222 Mc/s is allocated to the fixed, mobile and broadcasting services.
- 307** In Japan, the band 216-222 Mc/s is allocated to the broadcasting service.
- 308** In China, Korea and the Philippines, the band 216-225 Mc/s is also allocated to the fixed and broadcasting services.

Mc/s
235— 335.4—
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
235—267	FIXED MOBILE 305 309	
267—272	FIXED MOBILE Space (Telemetry)	309A 309B
272—273	FIXED MOBILE SPACE (Telemetry)	309A
273—328.6	FIXED MOBILE 310	
328.6— 335.4	AERONAUTICAL RADIONAVIGATION 310	311

- 309** The frequency 243 Mc/s is the frequency in this band for use by survival craft stations and equipment used for survival purposes.
- 309A Spa** Space stations employing frequencies in the band 267-273 Mc/s for telemetry purposes may also transmit tracking signals in the band.
- 309B Spa** In the band 267-272 Mc/s individual administrations may use space telemetry in their countries on a primary basis, subject to the agreement of the administrations concerned and those having services operating in accordance with the Table, which may be affected.

Mc/s
335,4—401
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
335.4—399.9		
FIXED		
MOBILE		
399.9—400.05		
RADIONAVIGATION-SATELLITE		
311A		
400.05—401		
METEOROLOGICAL AIDS		
METEOROLOGICAL-SATELLITE (Maintenance telemetry)		
SPACE RESEARCH (Telemetry and tracking)		
312A 313 314		

- 310** Radio astronomy observations on the Deuterium line (322-329 Mc/s) are carried out in a number of countries under national arrangements. Administrations should bear in mind the needs of the radio astronomy service in their future planning of this band.
- 311** Limited to Instrument Landing Systems (glide path).
- 311A** Stations operating in the fixed and mobile services may continue to use this band until 1 January, 1969. This cessation date shall not apply in Bulgaria, Cuba, Greece, Hungary, Iran, Kuwait, Lebanon, Morocco, the United Arab Republic and Yugoslavia where the fixed and mobile services will continue to have equal status with the radionavigation-satellite service. (See Recommendation No Spa8)
- Spa**
- 312** SUP (Spa)
- 312A** In Sweden, the band 400.05-401 Mc/s is also allocated to the fixed and mobile services until 1 January, 1966.
- Spa**
- 313** In Albania, Bulgaria, Greece, Hungary, Poland, the United Arab Republic, Yugoslavia, Roumania, Czechoslovakia and the U.S.S.R., the band 400.05-401 Mc/s, is also allocated to the fixed and mobile services.
- Spa**
- 314** In the United Kingdom, the band 400.05-420 Mc/s is also allocated to the radiolocation service; however, between 400.05 and 410 Mc/s the allocation to the radiolocation service is on a secondary basis.
- Spa**

Mc/s
401—420
(Spa)

Allocation to Services			
Region 1	Region 2	Region 3	
401—402	METEOROLOGICAL AIDS SPACE (Telemetry) 315A <i>Fixed</i> <i>Mobile except aeronautical mobile</i> 314 315 315B 316		
402—406	METEOROLOGICAL AIDS <i>Fixed</i> <i>Mobile except aeronautical mobile</i> 314 315 316 317		
406—420	FIXED MOBILE except aeronautical mobile 314 317		

315 In France, the band 401-406 Mc/s is allocated to the meteorological aids service.

315A Spa Space stations employing frequencies between 401-402 Mc/s for telemetry purposes may also transmit tracking signals in this band.

315B Spa In Australia, the space (telemetry) service in the band 401-402 Mc/s is a secondary service.

316 In Albania, Bulgaria, Greece, Hungary, Iran, Norway, Poland, Yugoslavia, Roumania, Sweden, Switzerland, Czechoslovakia, Turkey and the U.S.S.R., the band 401-406 Mc/s is also allocated, on a primary basis, to the fixed service and mobile, except aeronautical mobile, service.

317 Spa The band 404-410 Mc/s in Region 2 and the band 406-410 Mc/s in Regions 1 and 3 are also allocated to the radio astronomy service. An appropriate continuous band within these limits shall be designated on a national or area basis. In making assignments to stations of other services to which these bands are allocated, administrations are urged to take all practicable steps to protect radio astronomy observations from harmful interference.

Mc/s
420—470
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
420—430 FIXED MOBILE except aeronautical mobile <i>Radiolocation</i> 318 319	420—450	
430—440 AMATEUR RADIOLOCATION 318 319 320 321 322	RADIOLOCATION <i>Amateur</i>	
440—450 FIXED MOBILE except aeronautical mobile <i>Radiolocation</i> 318 319 319A	318 319A 323 324	
450—460	FIXED MOBILE 318 319A	
460—470	FIXED MOBILE <i>Meteorological-Satellite</i> 318A	

- 318** Radio altimeters may also be used, temporarily, in the band 420-460 Mc/s until they are able to operate in a band allocated to the aeronautical radionavigation service or until they are no longer required.
- 318A** In Bulgaria, Cuba, Hungary, Poland, Roumania, Czechoslovakia and the
Spa U.S.S.R., the band 460-470 Mc/s may be used, on a primary basis, by the meteorological-satellite service subject to agreement among administrations concerned and those having services, or intending to introduce services, operating in accordance with the Table, which may be affected.
- 319** In the United Kingdom, the band 420-450 Mc/s is allocated, on a primary basis to the radiolocation service and on a secondary basis to the amateur service.
- 319A** The band 449.75-450.25 Mc/s may be used for space telecommand, subject to
Spa agreement among the administrations concerned and those having services operating in accordance with the Table, which may be affected.
- 320** In Greece, Italy and Switzerland, the band 430-440 Mc/s is also allocated to the fixed service and mobile, except aeronautical mobile, service.
- 321** In Austria, Portugal, the F. R. of Germany, Yugoslavia and Switzerland, the frequency 433.92 Mc/s is designated for industrial, scientific and medical purposes. Emissions must be confined within the limits of $\pm 0.2\%$ of that frequency.
- 322** In Norway, the band 435-440 Mc/s is also allocated to the fixed service.
- 323** In Indonesia, the band 420-450 Mc/s is also allocated, on a secondary basis, to the fixed service and mobile, except aeronautical mobile, service.
- 324** In Australia, the band 420-450 Mc/s is also allocated to the fixed service until the frequency assignments in this band for the fixed service stations are transferred to another band
- 324A** It is intended that meteorological-satellite space stations operating in this band
Spa shall transmit to selected earth stations. The location of such earth stations is subject to agreement among administrations concerned and those having services operating in accordance with the Table, which may be affected.

Mc/s
470—942
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
470—582 BROADCASTING	470—890 BROADCASTING	470—585 BROADCASTING
582—606 BROADCASTING RADIONAVIGATION 325 326 327 328 329		335 585—610 RADIONAVIGATION
606—790 BROADCASTING 326 329 330 330A 331 332		336 337 610—890 FIXED MOBILE BROADCASTING
790—890 FIXED BROADCASTING 329 331 333 334		332 890—942 FIXED RADIOLOCATION
890—942 FIXED BROADCASTING <i>Radiolocation</i> 329 331 333 339A	339A 340	339 339A

Mc/s
942—960
(Spa)

Allocation to Services									
Region 1				Region 2			Region 3		
942—960				942—960			942—960		
FIXED				FIXED			FIXED		
BROADCASTING							MOBILE		
							BROADCASTING		
329	331	333	339A	339A			338	339	339A

- 325** In the United Kingdom, the band 582-606 Mc/s is allocated on a primary basis to the aeronautical radionavigation service and on a secondary basis to the radiolocation service.
- 326** In Italy, the band 582-685 Mc/s is also allocated to the fixed service until January, 1965.
- 327** In France and the F. R. of Germany, the band 582-606 Mc/s is allocated on a primary basis to the broadcasting service and on a secondary basis to the radio-navigation service.
- 328** In Belgium, the band 582-606 Mc/s is allocated on a primary basis to the radio-navigation service and on a secondary basis to the broadcasting service.
- 329** In Israel, the band 582-960 Mc/s is also allocated to the fixed service and mobile, except aeronautical mobile, service.
- 330 Spa** In Region 1, except the African Broadcasting Area*, the radionavigation service may continue to operate in the band 606-610 Mc/s until the band is required for the broadcasting service.
- 330A Spa** In the African Broadcasting Area*, the band 606-614 Mc/s is allocated to the radio astronomy service.

330.1 * Spa For the purposes of this Regulation the term " African Broadcasting Area " means:

- a) African countries, parts of countries, territories and groups of territories situated between the parallels 40° South and 30° North.
- b) Islands in the Indian Ocean west of meridian 60° East, situated between the parallel 40° South and the great circle arc joining the points 45° East, 11° 30' North and 60° East, 15° North.
- c) Islands in the Atlantic Ocean east of Line B defined in No. 131 of these Regulations, situated between the parallels 40° South and 30° North.

- 331** In Albania, Bulgaria, Hungary, Poland, Roumania, Czechoslovakia and the U.S.S.R., the band 645-960 Mc/s is also allocated to the aeronautical radio-navigation service.
- 332 Spa** In Region 1, except the African Broadcasting Area*, the band 606-614 Mc/s, and in Region 3, the band 610-614 Mc/s may be used by the radio astronomy service. Administrations shall avoid using the band concerned for the broadcasting service as long as possible, and thereafter, as far as practicable, shall avoid the use of such effective radiated powers as will cause harmful interference to radio astronomy observations.
- In Region 2, the band 608-614 Mc/s is reserved exclusively for the radio astronomy service until the first Administrative Radio Conference after 1 January, 1974 which is competent to review this provision; however, this provision does not apply to Cuba.
- 333** In Region 1, stations of the fixed service using tropospheric scatter may operate in the band 790-960 Mc/s subject to agreements between the administrations concerned and affected. Such operations in the band 790-860 Mc/s shall be on a secondary basis to those of the broadcasting service.
- 334** In Belgium, France and Monaco, the band 790-860 Mc/s is allocated to the broadcasting service.
- 335** In Australia, the band 470-500 Mc/s is allocated to the fixed and mobile services.
- 336** In China, Korea, Japan and the Philippines, the band 585-610 Mc/s is also allocated to the broadcasting service.
- 337** In Australia, the band 585-610 Mc/s is allocated on a primary basis to the broadcasting service and on a secondary basis to the radionavigation service.
- 338** In Australia, the band 610-820 Mc/s is allocated to the broadcasting service; the bands 820-890 Mc/s and 942-960 Mc/s are allocated to the fixed service.
- 339** In India and Pakistan, the band 610-960 Mc/s is allocated to the broadcasting service.
- 339A Spa** Specific portions of the frequency band 900-960 Mc/s may also be used, on a secondary basis, for experimental purposes in connection with space research.
- 340** In Region 2, the frequency 915 Mc/s is designated for industrial, scientific and medical purposes. Emissions must be confined within the limits of ± 25 Mc/s of that frequency. Radiocommunication services operating within those limits must accept any harmful interference that may be experienced from the operation of industrial, scientific and medical equipment.

* See No. 330.1

Mc/s
960—1 350

Allocation to Services		
Region 1	Region 2	Region 3
960—1 215	AERONAUTICAL RADIONAVIGATION 341	
1 215—1 300	RADIOLOCATION <i>Amateur</i> 342 343 344 345	
1 300—1 350	AERONAUTICAL RADIONAVIGATION <i>Radiolocation</i> 347 348	346

- 341** The band 960-1 215 Mc/s is reserved on a world-wide basis for the use and development of airborne electronic aids to air navigation and any directly associated ground-based facilities.
- 342** In Albania, Bulgaria, Hungary, Poland, Roumania, Czechoslovakia and the U.S.S.R., the band 1 215-1 300 Mc/s is also allocated to the fixed service.
- 343** In Belgium, France, Norway, the Netherlands, Portugal and Sweden, the band 1 215-1 300 Mc/s is also allocated to the radionavigation service.
- 344** In China, India, Indonesia, Japan, Pakistan, Portuguese Overseas Provinces in Region 1 south of the equator, and in Switzerland, the band 1 215-1 300 Mc/s is also allocated to the fixed and mobile services.
- 345** In the F. R. of Germany, the band 1 250-1 300 Mc/s is allocated to the amateur service.
- 346** The use of the bands 1 300-1 350 Mc/s, 2 700-2 900 Mc/s and 9 000-9 200 Mc/s by the aeronautical radionavigation service is restricted to ground-based radars and, in the future, to associated airborne transponders which transmit only on frequencies in these bands and only when actuated by radars operating in the same band.
- 347** In the United Kingdom, the band 1 300-1 350 Mc/s is allocated to the radiolocation service.
- 348** In Albania, Austria, Bulgaria, Hungary, Indonesia, Poland, Roumania, Sweden, Switzerland, Czechoslovakia and the U.S.S.R., the band 1 300-1 350 Mc/s is also allocated to the fixed and mobile services.

Mc/s
1 350—1 535
(Spa)

Allocation to Services						
Region 1	Region 2	Region 3				
1 350—1 400 FIXED MOBILE RADIOLOCATION 349	1 350—1 400 <p style="text-align: center;">RADIOLOCATION</p> <p style="text-align: center;">349</p>					
1 400—1 427 RADIO ASTRONOMY						
1 427—1 429 FIXED MOBILE except aeronautical mobile SPACE (Telecommand)						
1 429—1 525 FIXED MOBILE except aeronautical mobile	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="vertical-align: top;"> 1 429—1 435 FIXED MOBILE </td> <td style="vertical-align: top;"> 1 429—1 525 FIXED MOBILE </td> </tr> <tr> <td style="vertical-align: top;"> 1 435—1 525 MOBILE <i>Fixed</i> </td> <td></td> </tr> </table>	1 429—1 435 FIXED MOBILE	1 429—1 525 FIXED MOBILE	1 435—1 525 MOBILE <i>Fixed</i>		
1 429—1 435 FIXED MOBILE	1 429—1 525 FIXED MOBILE					
1 435—1 525 MOBILE <i>Fixed</i>						
1 525—1 535 FIXED 350B SPACE (Telemetry) 350A <i>Mobile</i> except aeronautical mobile 350C	1 525—1 535 SPACE (Telemetry) 350A <i>Fixed</i> <i>Mobile</i> 350D	1 525—1 535 FIXED 350B SPACE (Telemetry) 350A <i>Mobile</i> 350E				

349 In Region 2 and Albania, Bulgaria, Hungary, Poland, Roumania, Czechoslovakia and the U.S.S.R., the existing installations of the radionavigation service may continue to operate, temporarily, in the band 1 350-1 400 Mc/s.

350 SUP (Spa)

Mc/s
1 535—1 690
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
1 535—1 540	SPACE (Telemetry) 350A 351 352 352C	
1 540—1 660	AERONAUTICAL RADIONAVIGATION 351 352 352A 352B 352D	
1 660—1 664·4	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE 324A 353 354 354A 354B	
1 664·4—1 668·4	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE 324A <i>Radio Astronomy</i> 353 353A 354 354A 354B	
1 668·4—1 670	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE 324A 353 354 354A 354B	
1 670—1 690	METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile 353 354	

350A Space stations employing frequencies in the band 1 525-1 540 Mc/s for tele-
Spa metering purposes may also transmit tracking signals in the band.

Mc/s
1 690—1 700
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
1 690—1 700 METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE 324A <i>Fixed</i> <i>Mobile except aeronautical mobile</i> 353 354A	1 690—1 700 METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE 324A 354A 354C	

- 350B Spa** As regards the category of the fixed service, see Resolution NoSpa3.
- 350C Spa** In Albania, Bulgaria, France, Hungary, Kuwait, Lebanon, Morocco, Poland, the United Arab Republic, Yugoslavia, Roumania, Czechoslovakia and the U.S.S.R., the band 1 525-1 535 Mc/s is also allocated, on a primary basis, to the mobile, except aeronautical mobile, service. As regards the category of this service, see Resolution NoSpa3.
- 350D Spa** In Cuba, the band 1 525-1 535 Mc/s is also allocated, on a primary basis, to the mobile service.
- 350E Spa** In Japan, the band 1 525-1 535 Mc/s is also allocated to the mobile service, on a primary basis, until 1 January, 1969.
- 351 Spa** In Italy, the band 1 535-1 600 Mc/s is also allocated to the fixed service until 1 January, 1970.
- 352 Spa** In Albania, Bulgaria, Hungary, Poland, Roumania, Czechoslovakia and the U.S.S.R., the band 1 535-1 660 Mc/s is also allocated to the fixed service. As regards the category of the fixed service in the band 1 535-1 540 Mc/s, see Resolution NoSpa3.
- 352A Spa** The bands 1 540-1 660 Mc/s, 4 200-4 400 Mc/s, 5 000-5 250 Mc/s and 15.4-15.7 Gc/s are reserved, on a world-wide basis, for the use and development of airborne electronic aids to air navigation and any directly associated ground-based or satellite-borne facilities.

- 352B** The bands 1 540-1 660 Mc/s, 5 000-5 250 Mc/s and 15·4-15·7 Gc/s are also
Spa allocated to the aeronautical mobile (R) service for the use and development of
systems using space communication techniques. Such use and development is
subject to agreement and co-ordination between administrations concerned and
those having services operating in accordance with the Table, which may be
affected.
- 352C** In Morocco and Yugoslavia, the band 1 535-1 540 Mc/s is also allocated to the
Spa aeronautical radionavigation service.
- 352D** In Austria, Indonesia and the F. R. of Germany, the band 1 540-1 660 Mc/s is
Spa also allocated to the fixed service.
- 353** In Austria and in Finland, the meteorological aids service is the primary service
- 353A** In view of the successful detection of two spectral lines in the region of
Spa 1 665 Mc/s and 1 667 Mc/s by astronomers, administrations are urged to give all
practicable protection in the band 1 664·4-1 668·4 Mc/s for future research in radio
astronomy.
- 354** In Albania, Bulgaria, Hungary, Poland, Roumania, Czechoslovakia and the
U.S.S.R., the bands 1 660-1 690 Mc/s, 3 165-3 195 Mc/s, 4 800-4 810 Mc/s,
5 800-5 815 Mc/s and 8 680-8 700 Mc/s are also used for radio astronomy obser-
vations.
- 354A** In Algeria, Bulgaria, Cuba, Hungary, Kuwait, Lebanon, Morocco, Pakistan,
Spa Poland, the United Arab Republic, Yugoslavia, Roumania, Czechoslovakia and the
U.S.S.R., the bands 1 660-1 670 Mc/s and 1 690-1 700 Mc/s are also allocated to
the fixed service and the mobile, except aeronautical mobile, service.
- 354B** In Australia, Cyprus, Spain, Ethiopia, Indonesia, Israel, New Zealand, Portugal,
Spa the Spanish Provinces in Africa, the United Kingdom, Sweden and Switzerland,
the band 1 660-1 670 Mc/s is also allocated, on a secondary basis, to the fixed
service, and the mobile, except aeronautical mobile, service.
- 354C** In Australia, Indonesia and New Zealand, the band 1 690-1 700 Mc/s is also
Spa allocated, on a secondary basis, to the fixed service and the mobile, except aero-
nautical mobile, service.
- 355** SUP (Spa)

Mc/s
1 700—2 300
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
1 700—1 710 FIXED SPACE RESEARCH (Telemetering and tracking) <i>Mobile</i>	1 700—1 710 SPACE RESEARCH (Telemetering and tracking) 355A	1 700—1 710 FIXED MOBILE SPACE RESEARCH (Telemetering and tracking)
1 710—1 770 FIXED <i>Mobile</i> 356	1 710—1 770 FIXED MOBILE	
1 770—1 790 FIXED <i>Meteorological-Satellite</i> 356AA <i>Mobile</i> 356	1 770—1 790 FIXED MOBILE <i>Meteorological-Satellite</i> 356AA	
1 790—2 290 FIXED <i>Mobile</i> 356 356A	1 790—2 290 FIXED MOBILE 356A	
2 290—2 300 FIXED SPACE RESEARCH (Telemetering and tracking in deep space) 356C <i>Mobile</i>	2 290—2 300 SPACE RESEARCH (Telemetering and tracking in deep space) 356B	2 290—2 300 FIXED MOBILE SPACE RESEARCH (Telemetering and tracking in deep space)

- 355A** In Cuba, the band 1 700-1 710 Mc/s is also allocated to the fixed and mobile
Spa services.
- 356** In Switzerland, the band 1 710-2 290 Mc/s is allocated to the fixed service
and the mobile, except aeronautical mobile, service.
- 356AA** In Bulgaria, Cuba, Hungary, Poland, Roumania, Czechoslovakia and the
Spa U.S.S.R., the meteorological-satellite service, in the band 1 770-1 790 Mc/s, shall
be on a primary basis, subject to co-ordination with the administrations concerned
and those having services operating in accordance with the Table, which may be
affected by the siting of earth stations.
- 356A** The band 2 110-2 120 Mc/s may be used for telecommand in conjunction with
Spa spacecraft engaged in deep space research, subject to agreement between the
administrations concerned and those having services operating in accordance with
the Table, which may be affected.
- 356B** In Cuba, the band 2 290-2 300 Mc/s is also allocated to the fixed and mobile
Spa services.
- 356C** In Austria, the space research service in the band 2 290-2 300 Mc/s is a secondary
Spa service.

Mc/s
2 300 — 2 450

Allocation to Services		
Region 1	Region 2	Region 3
2 300 — 2 450	2 300 — 2 450	
FIXED	RADIOLOCATION	
<i>Amateur</i>	<i>Amateur</i>	
<i>Mobile</i>	<i>Fixed</i>	
<i>Radiolocation</i>	<i>Mobile</i>	
357 358 359	357 360	

- 357** The frequency 2 450 Mc/s is designated for industrial, scientific and medical purposes except in Albania, Bulgaria, Hungary, Poland, Roumania, Czechoslovakia and the U.S.S.R., where the frequency 2 375 Mc/s is used. Emissions must be confined within ± 50 Mc/s of the frequencies designated. Radiocommunication services operating within these limits must accept any harmful interference that may be experienced from the operation of industrial, scientific and medical equipment.
- 358** In the United Kingdom, the band 2 300-2 450 Mc/s is allocated on a primary basis to the radiolocation service and on a secondary basis to the amateur, fixed and mobile services.
- 359** In the F. R. of Germany, the band 2 300-2 350 Mc/s is allocated to the amateur service and this service is excluded from the band 2 350-2 450 Mc/s.
- 360** In India, Japan and Pakistan, the band 2 300-2 450 Mc/s is allocated on a primary basis to the fixed, mobile and radiolocation services, and on a secondary basis to the amateur service.

Mc/s
2 450—2 700
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
2 450—2 550 FIXED MOBILE <i>Radiolocation</i> 357 361	2 450—2 550 FIXED MOBILE RADIOLOCATION 357	
2 550—2 690	FIXED MOBILE 362 363 364	
2 690—2 700	RADIO ASTRONOMY 363 364A 364B 365	

361 In France and the United Kingdom, the band 2 450-2 550 Mc/s is allocated on a primary basis to the radiolocation service and, on a secondary basis, to the fixed and mobile services.

362 In the United Kingdom, the radiolocation service may operate in the band 2 550-2 600 Mc/s, provided no harmful interference is caused to tropospheric scatter systems.

363 In the F. R. of Germany, the band 2 550-2 690 Mc/s is allocated to the fixed Spa service; and the band 2 690-2 700 Mc/s is also allocated to the fixed service.

364 In Region 1, tropospheric scatter systems may operate in the band 2 550-2 690 Mc/s under agreements concluded between administrations concerned and those having services operating in accordance with the Table, which may be affected. Spa

364A In Algeria, Bulgaria, Cuba, Hungary, India, Israel, Kuwait, Lebanon, Morocco, Spa Pakistan, the Philippines, Poland, the United Arab Republic, Yugoslavia, Roumania, Czechoslovakia and the U.S.S.R., the band 2 690-2 700 Mc/s is also allocated to the fixed and mobile services.

Mc/s
2 700 — 3 300

Allocation to Services		
Region 1	Region 2	Region 3
2 700 — 2 900		
	AERONAUTICAL RADIONAVIGATION	346
	<i>Radiolocation</i>	
	366	
2 900 — 3 100		
	RADIONAVIGATION	367
	<i>Radiolocation</i>	
3 100 — 3 300		
	RADIOLOCATION	
	354 368 369	

- 364B Spa** In Algeria, Bulgaria, Hungary, Poland, the United Arab Republic, Yugoslavia, Roumania, Czechoslovakia and the U.S.S.R., tropospheric scatter systems may operate in the band 2 690-2 700 Mc/s under agreements concluded between administrations concerned and those having services operating in accordance with the Table, which may be affected.
- 365 Spa** In making assignments to stations in the fixed and mobile services, administrations are urged to take all practicable steps to protect radio astronomy observations from harmful interference.
- 366** In the band 2 700-2 900 Mc/s ground-based radars used for meteorological purposes are authorized to operate on the basis of equality with stations of the aeronautical radionavigation service.
- 367** The use of the band 2 900-3 100 Mc/s by the aeronautical radionavigation service is limited to ground-based radars.
- 368** In Albania, Austria, Belgium, Bulgaria, Hungary, Poland, Roumania, Sweden, Switzerland, Czechoslovakia and the U.S.S.R., the band 3 100-3 300 Mc/s is also allocated to the radionavigation service.
- 369** In the band 3 100-3 300 Mc/s, existing racons and shipborne radars in merchant ships may operate within the band 3 100-3 266 Mc/s.

Mc/s
3 300—4 200
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
<p>3 300—3 400</p> <p>RADIOLOCATION</p> <p>370 371</p>	<p>3 300—3 400</p> <p style="text-align: center;">RADIOLOCATION</p> <p style="text-align: center;"><i>Amateur</i></p> <p style="text-align: center;">376</p>	
<p>3 400—3 600</p> <p>FIXED</p> <p>MOBILE</p> <p>COMMUNICATION-SATELLITE (Satellite-to-earth) 374A</p> <p><i>Radiolocation</i></p> <p>372 373 374 375</p>	<p>3 400—3 500</p> <p style="text-align: center;">RADIOLOCATION</p> <p style="text-align: center;">COMMUNICATION-SATELLITE (Satellite-to-earth) 374A</p> <p style="text-align: center;"><i>Amateur</i></p> <p style="text-align: center;">376</p>	
	<p>3 500—3 700</p> <p>FIXED</p> <p>MOBILE</p> <p>RADIOLOCATION</p> <p>COMMUNICATION-SATELLITE (Satellite-to-earth) 374A</p>	<p>3 500—3 700</p> <p style="text-align: center;">RADIOLOCATION</p> <p style="text-align: center;">COMMUNICATION-SATELLITE (Satellite-to-earth) 374A</p> <p style="text-align: center;"><i>Fixed</i></p> <p style="text-align: center;"><i>Mobile</i></p> <p style="text-align: center;">377 378</p>
<p>3 600—4 200</p> <p>FIXED</p> <p>COMMUNICATION-SATELLITE (Satellite-to-earth) 374A</p> <p><i>Mobile</i></p> <p>374</p>	<p>3 700—4 200</p> <p style="text-align: center;">FIXED</p> <p style="text-align: center;">MOBILE</p> <p style="text-align: center;">COMMUNICATION-SATELLITE (Satellite-to-earth) 374A</p> <p style="text-align: center;">379</p>	

- 370** In Albania, Austria, Bulgaria, Hungary, Poland, Portugal, Roumania, Switzerland, Czechoslovakia and the U.S.S.R., the band 3 300-3 400 Mc/s is also allocated to the radionavigation service.
- 371** In Austria, Greece, Norway, the Netherlands, Portugal and Sweden, the band 3 300-3 400 Mc/s is also allocated to the fixed and mobile services.
- 372** In Austria, the band 3 400-3 600 Mc/s is also allocated to the radionavigation service.
- 373** In Denmark, Norway, Sweden and Switzerland, the fixed, mobile, radio-
Spa location and communication-satellite services operate on a basis of equality in the band 3 400-3 600 Mc/s.
- 374** In the United Kingdom, the band 3 400-3 770 Mc/s is allocated to the radio-
location service.
- 374A** This band may also be used for the transmission of tracking and telemetering
Spa signals associated with communication-satellite space stations operating in the same band.
- 375** In Austria, Israel, Netherlands, F. R. of Germany and the United Kingdom, the band 3 400-3 475 Mc/s is also allocated, on a secondary basis, to the amateur service.
- 376** In China, India, Indonesia, Japan and Pakistan the band 3 300-3 500 Mc/s is also allocated to the fixed and mobile services.
- 377** In China and Japan, the band 3 500-3 700 Mc/s is allocated on a primary basis to the fixed and mobile services.
- 378** In Japan, in the band 3 620-3 700 Mc/s, the radiolocation service is excluded.
- 379** In Australia, the band 3 700-3 770 Mc/s is allocated to the radiolocation and
Spa communication-satellite services.
- 380** SUP (Spa)

Mc/s
4 200—5 000
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
4 200—4 400	AERONAUTICAL RADIONAVIGATION 352A 381 382 383	
4 400—4 700	FIXED MOBILE COMMUNICATION-SATELLITE (Earth-to-satellite) 392A	
4 700—4 990	FIXED MOBILE 354 365	
4 990—5 000 FIXED MOBILE RADIO ASTRONOMY 365	4 990—5 000 RADIO ASTRONOMY 383A	4 990—5 000 FIXED MOBILE RADIO ASTRONOMY 365

381 In China and the Philippines, the band 4 200-4 400 Mc/s is also allocated, on a secondary basis, to the fixed service.

382 In Albania, Bulgaria, Hungary, Poland, Roumania, Czechoslovakia and the U.S.S.R., the band 4 200-4 400 Mc/s is also allocated to the fixed and mobile services subject to causing no harmful interference to the aeronautical radio-navigation service used by aircraft on international air routes in these countries.

Mc/s
5 000—5 470
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
5 000—5 250	AERONAUTICAL RADIONAVIGATION 352A 352B	
5 250—5 255	RADIOLOCATION <i>Space Research</i> 384	
5 255—5 350	RADIOLOCATION 384 384A	
5 350—5 460	AERONAUTICAL RADIONAVIGATION <i>Radiolocation</i>	385
5 460—5 470	RADIONAVIGATION <i>Radiolocation</i>	385

383 In Austria, Denmark, Norway, the F. R. of Germany, Sweden and Switzerland, the band 4 200-4 210 Mc/s is also allocated, on a secondary basis, to the fixed service.

383A In Cuba, the band 4 990-5 000 Mc/s is also allocated to the fixed and mobile
Spa services, and the provisions of No. 365 apply.

384 In Albania, Austria, Bulgaria, Hungary, Poland, Roumania, Switzerland,
Spa Czechoslovakia and the U.S.S.R., the band 5 250-5 350 Mc/s is also allocated to the radionavigation service.

384A In Sweden, the band 5 255-5 350 Mc/s is also allocated to the radionavigation
Spa service.

Mc/s
5 470—5 925
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
5 470—5 650 <div style="text-align: center;">MARITIME RADIONAVIGATION <i>Radiolocation</i> 386 387</div>		
5 650—5 670 <div style="text-align: center;">RADIOLOCATION <i>Amateur</i> 388 389</div>		
5 670—5 725 <div style="text-align: center;">RADIOLOCATION <i>Amateur</i> <i>Space Research (Deep Space)</i> 388 389 389A</div>		
5 725—5 850 RADIOLOCATION COMMUNICATION- SATELLITE (Earth-to-satellite) 392A <i>Amateur</i> 354 388 390 391	5 725—5 850 <div style="text-align: center;">RADIOLOCATION <i>Amateur</i> 389 391</div>	
5 850—5 925 FIXED MOBILE COMMUNICATION- SATELLITE (Earth-to-satellite) 392A 391	5 850—5 925 RADIOLOCATION <i>Amateur</i> 391	5 850—5 925 FIXED MOBILE COMMUNICATION- SATELLITE (Earth-to-satellite) 392A <i>Radiolocation</i> 391

385 The use of the band 5 350-5 470 Mc/s by the aeronautical radionavigation service is limited to airborne radars and associated airborne beacons.

- 386** In Albania, Bulgaria, Hungary, Poland, Roumania, Czechoslovakia and the U.S.S.R., the band 5 470-5 650 Mc/s is also allocated to the aeronautical radio-navigation service.
- 387** Between 5 600 and 5 650 Mc/s, ground-based radars used for meteorological purposes are authorized to operate on the basis of equality with stations of the maritime radionavigation service.
- 388** In the F. R. of Germany, the band 5 650-5 775 Mc/s is allocated to the amateur service and the band 5 775-5 850 Mc/s is allocated to the fixed service.
- 389** In China, India, Indonesia, Japan and Pakistan the band 5 650-5 850 Mc/s is also allocated to the fixed and mobile services.
- 389A** In Bulgaria, Cuba, Hungary, Poland, Roumania, Czechoslovakia and the
Spa U.S.S.R., the space research service is a primary service in the band 5 670-5 725 Mc/s.
- 390** In Albania, Bulgaria, Hungary, Poland, Roumania, Czechoslovakia and the
Spa U.S.S.R., the band 5 800-5 850 Mc/s is allocated to the fixed, mobile and communication-satellite services.
- 391** The frequency 5 800 Mc/s is designated for industrial, scientific and medical purposes. Emissions must be confined within the limits of ± 75 Mc/s of that frequency. Radiocommunication services operating within those limits must accept any harmful interference that may be experienced from the operation of industrial, scientific and medical equipment.
- 392** SUP (Spa)

Mc/s
5 925—7 750
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
5 925—6 425	FIXED MOBILE COMMUNICATION-SATELLITE (Earth-to-satellite) 392A	
6 425—7 250	FIXED MOBILE 392B 392F 393	
7 250—7 300	COMMUNICATION-SATELLITE (Satellite-to-earth) 374A 392C 392D 392G	
7 300—7 750	FIXED MOBILE COMMUNICATION-SATELLITE (Satellite-to-earth) 374A 392D 392F	

392A Spa This band may also be used for the transmission of telecommand signals associated with communication-satellite earth stations operating in the same band.

392B Spa The band 7 120-7 130 Mc/s may be used for telecommand in association with space services, subject to agreement between the administrations concerned and those having services operating in accordance with the Table, which may be affected.

392C Spa Stations of the fixed and mobile services, previously authorized in the bands 7 250-7 300 Mc/s and 7 975-8 025 Mc/s, may continue to operate until 1 January, 1969. This provision does not apply to the countries listed in Nos. 392G and 392H.

Mc/s
7 750—8 500
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
7 750—7 900	FIXED MOBILE	
7 900—7 975	FIXED MOBILE COMMUNICATION-SATELLITE (Earth-to-satellite) 392A	
7 975—8 025	COMMUNICATION-SATELLITE (Earth-to-satellite) 392A 392C 392H	
8 025—8 400	FIXED MOBILE COMMUNICATION-SATELLITE (Earth-to-satellite) 392A 394 394B	
8 400—8 500 FIXED MOBILE SPACE RESEARCH 394A 394D	8 400—8 500 SPACE RESEARCH 394C	8 400—8 500 FIXED MOBILE SPACE RESEARCH 394A 394D

392D As an exception, passive communication-satellite systems also may be accommodated in the band 7 250-7 750 Mc/s, subject to:

Spa

- a) agreement between administrations concerned and those whose services, operating in accordance with the Table, may be affected;
- b) the co-ordination procedure laid down in Articles 9 and 9A.

Such systems shall not cause any more interference at active earth station receivers than would be caused by fixed or mobile services. Power-flux density limitations at the earth's surface after reflection from the passive communication-satellites shall not exceed those prescribed in these Regulations for active communication-satellite systems.

The maximum effective power radiated in any direction in the horizontal plane by earth stations of passive satellite systems shall not exceed + 55 dbW, not taking the site shielding factor into account. If the distance between a transmitting station of a passive system and the territory of another administration exceeds 400 km, this limitation may be increased in that direction by 2 db for each 100 km in excess of 400 km up to a maximum of 65 dbW.

392F In the bands 7 200-7 250 Mc/s and 7 300-7 750 Mc/s, the meteorological-satellite service may use a band up to 100 Mc/s in width on a primary basis. These bands may also be used for the transmission of tracking and telemetering signals associated with meteorological-satellite space stations operating in the same band.

Spa

392G In Algeria, Austria, Bulgaria, Cyprus, Cuba, Ethiopia, Finland, Hungary, Japan, Kuwait, Lebanon, Liberia, Malaysia, Morocco, the Philippines, Poland, the United Arab Republic, Yugoslavia, Roumania, Sweden, Switzerland, Czechoslovakia and the U.S.S.R., the band 7 250-7 300 Mc/s is also allocated to the fixed and mobile services.

Spa

392H In Algeria, Bulgaria, Cuba, Ethiopia, Finland, Hungary, Japan, Kuwait, Lebanon, Morocco, Poland, the United Arab Republic, Yugoslavia, Roumania, Sweden, Switzerland, Czechoslovakia and the U.S.S.R., the band 7 975-8 025 Mc/s is also allocated to the fixed and mobile services.

Spa

393 In Italy, the band 6 450-6 575 Mc/s is also allocated to the radiolocation service.

Spa

Mc/s
8 500—9 000

Allocation to Services		
Region 1	Region 2	Region 3
8 500—8 750	RADIOLOCATION	
	354 395	
8 750—8 850	RADIOLOCATION	
	AERONAUTICAL RADIONAVIGATION	396
	397	
8 850—9 000	RADIOLOCATION	
	397 398	

- 394 Spa** In Australia and the United Kingdom, the band 8 250-8 400 Mc/s is allocated to the radiolocation and communication-satellite services.
- 394A Spa** In Australia and the United Kingdom, the band 8 400-8 500 Mc/s is allocated to the radiolocation and space research services.
- 394B Spa** In Israel, the band 8 025-8 400 Mc/s is allocated, on a primary basis, to the fixed and mobile services and, on a secondary basis, to the communication-satellite service.
- 394C Spa** In Cuba, the band 8 400-8 500 Mc/s is also allocated to the fixed and mobile services.
- 394D Spa** In Austria, Belgium, France, Israel, Luxembourg and Malaysia, the allocation to the space research service in the band 8 400-8 500 Mc/s is on a secondary basis.
- 395** In Albania, Austria, Bulgaria, Hungary, Poland, Roumania, Sweden, Czechoslovakia and the U.S.S.R., the band 8 500-8 750 Mc/s is also allocated to the radionavigation service.
- 396** The use of the band 8 750-8 850 Mc/s by the aeronautical radionavigation service is limited to airborne Doppler navigation aids on a centre frequency of 8 800 Mc/s.
- 397** In Belgium, France, the Netherlands and the F. R. of Germany, the band 8 825-9 225 Mc/s is also allocated to the maritime radionavigation service for use by shore-based radars.

Mc/s
9 000—10 500
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
9 000—9 200	AERONAUTICAL RADIONAVIGATION <i>Radiolocation</i> 397	346
9 200—9 300	RADIOLOCATION 397 398	
9 300—9 500	RADIONAVIGATION <i>Radiolocation</i> 399	
9 500—9 800	RADIOLOCATION 398	
9 800—10 000	RADIOLOCATION <i>Fixed</i> 400 401 401A	
10 000—10 500	RADIOLOCATION <i>Amateur</i> 401A 402 403	

398 In Albania, Austria, Bulgaria, Hungary, Poland, Roumania, Sweden, Switzerland, Czechoslovakia and the U.S.S.R., the bands 8 850-9 000 Mc/s, 9 200-9 300 Mc/s and 9 500-9 800 Mc/s are also allocated to the radionavigation service.

399 The use of the band 9 300-9 500 Mc/s by the aeronautical radionavigation service is limited to airborne weather radars, and ground-based radars. In this band ground-based radars used for meteorological purposes have priority over other radiolocation devices.

- 400** In Albania, Bulgaria, Hungary, Poland, Roumania, Czechoslovakia and the U.S.S.R., the band 9 800-10 000 Mc/s is also allocated to the fixed and radio-navigation services.
- 401** In India, Indonesia, Japan and Sweden, the fixed and radiolocation services operate on a basis of equality in the band 9 800-10 000 Mc/s.
- 401A** The band 9 975-10 025 Mc/s may be used by weather radar on meteorological-Spa satellites.
- 402** In Japan and Sweden, the band 10 000-10 500 Mc/s is also allocated to the fixed and mobile services.
- 403** In the F. R. of Germany and Switzerland, the band 10 000-10 250 Mc/s is also allocated to the fixed and mobile services; the band 10 250-10 500 Mc/s is allocated to the amateur service.

Gc/s
10.5—13.25
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
10.5—10.55 FIXED MOBILE <i>Radiolocation</i>	10.5—10.55 <div style="text-align: right;">RADIOLOCATION</div> <div style="text-align: right;">404</div>	
10.55—10.68	FIXED MOBILE <i>Radiolocation</i>	
10.68—10.7	RADIO ASTRONOMY 405A 405B	
10.7—11.7	FIXED MOBILE	
11.7—12.7	FIXED MOBILE except aeronautical mobile BROADCASTING	
12.7—13.25	FIXED MOBILE	

404 Limited to continuous wave systems.

405 SUP (Spa)

405A In Australia and the United Kingdom, the band 10.68-10.7 Gc/s is also allocated, **Spa** on a secondary basis, to the radiolocation service.

Gc/s
13.25—15.4
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
13.25—13.4	AERONAUTICAL RADIONAVIGATION 406 407	
13.4—14	RADIOLOCATION 407 408 409	
14—14.3	RADIONAVIGATION 407	
14.3—14.4	RADIONAVIGATION-SATELLITE	
14.4—15.25	FIXED MOBILE	
15.25—15.35	SPACE RESEARCH 409A 409B	
15.35—15.4	RADIO ASTRONOMY 409C	

405B In Algeria, Bulgaria, Cuba, Hungary, Japan, Kuwait, Lebanon, Pakistan, Spa Poland, the United Arab Republic, Yugoslavia, Roumania, Czechoslovakia and the U.S.S.R., the band 10.68-10.7 Gc/s is also allocated to the fixed and mobile services.

405C In Cuba, the band 31.5-31.8 Gc/s is also allocated, on a secondary basis, to Spa the fixed and mobile services.

406 Limited to Doppler navigation aids.

407 In Albania, Bulgaria, Hungary, Poland, Roumania, Czechoslovakia and the
Spa U.S.S.R., the bands 13·25-13·5 Gc/s, 14·175-14·3 Gc/s, 15·4-17·7 Gc/s, 21-22 Gc/s,
23-24·25 Gc/s and 33·4-36 Gc/s are also allocated to the fixed and mobile services.

408 In Sweden, the bands 13·4-14 Gc/s, 15·7-17·7 Gc/s, 23-24·25 Gc/s and 33·4-
36 Gc/s are also allocated to the fixed and mobile services.

409 In Albania, Bulgaria, Hungary, Poland, Roumania, Czechoslovakia, and the
U.S.S.R., the band 13·5-14 Gc/s is also allocated to the radionavigation service.

409A In Algeria, Bulgaria, Cuba, Hungary, Kuwait, Lebanon, Morocco, Pakistan,
Spa Poland, the United Arab Republic, Yugoslavia, Roumania, Czechoslovakia and
the U.S.S.R., the band 15·25-15·35 Gc/s is also allocated to the fixed and mobile
services.

409B In Austria, Belgium, Japan, the Netherlands, Portugal, the F.R. of Germany,
Spa the United Kingdom and Switzerland, the band 15·25-15·35 Gc/s is also allocated,
on a secondary basis, to the fixed and mobile services.

409C In Algeria, Bulgaria, Cuba, Hungary, Kuwait, Lebanon, Morocco, Pakistan,
Spa Poland, the United Arab Republic, Yugoslavia, Roumania, Czechoslovakia and
the U.S.S.R., the band 15·35-15·4 Gc/s is also allocated to the fixed and mobile
services.

Gc/s
15.4—24.25
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
15.4—15.7	AERONAUTICAL RADIONAVIGATION	
	352A 352B 407	
15.7—17.7	RADIOLOCATION	
	407 408	
17.7—19.3	FIXED	
	MOBILE	
19.3—19.4	RADIO ASTRONOMY	
	409D	
19.4—21	FIXED	
	MOBILE	
21—22	AMATEUR	
	407	
22—23	FIXED	
	MOBILE	
	410	
23—24.25	RADIOLOCATION	
	407 408	

409D In Bulgaria, Cuba, Hungary, Kuwait, Lebanon, Poland, the United Arab Republic, Roumania, Czechoslovakia and the U.S.S.R., the band 19.3-19.4 Gc/s is also allocated to the fixed and mobile services.

410 The frequency 22.125 Gc/s is designated for industrial, scientific and medical purposes. Emissions must be confined within the limits of ± 125 Mc/s of that frequency. Radiocommunication services operating within those limits must accept any harmful interference that may be experienced from the operation of industrial, scientific and medical equipment.

Gc/s
24·25—33
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
24·25—25·25 RADIONAVIGATION 411 412		
25·25—31 FIXED MOBILE		
31—31·3 FIXED MOBILE <i>Space Research</i> 412H		
31·3—31·5 RADIO ASTRONOMY 412A		
31·5—31·8 SPACE RESEARCH <i>Fixed</i> <i>Mobile</i>	31·5—31·8 SPACE RESEARCH 405C	31·5—31·8 SPACE RESEARCH <i>Fixed</i> <i>Mobile</i>
31·8—32·3 RADIONAVIGATION <i>Space Research</i> 412B		
32·3—33 RADIONAVIGATION		

Gc/s
33—40
(Spa)

Allocation to Services		
Region 1	Region 2	Region 3
33—33.4 RADIO ASTRONOMY RADIONAVIGATION	33—33.4 <div style="text-align: right;">RADIONAVIGATION</div> <div style="text-align: right;">412F</div>	
33.4—34.2 <div style="text-align: center;">RADIOLOCATION</div> <div style="text-align: center;">407 408 412 412G</div>		
34.2—35.2 <div style="text-align: center;">RADIOLOCATION</div> <div style="text-align: center;"><i>Space Research</i></div> <div style="text-align: center;">407 408 412 412C 412D</div>		
35.2—36 <div style="text-align: center;">RADIOLOCATION</div> <div style="text-align: center;">407 408 412</div>		
36—40 <div style="text-align: center;">FIXED</div> <div style="text-align: center;">MOBILE</div> <div style="text-align: center;">412E</div>		
above 40 (Not allocated)		

- 411** In the band 24.25-25.25 Gc/s, ground-based radionavigation aids are not permitted except where they operate in cooperation with airborne or shipborne radionavigation devices.
- 412** In Japan, the bands 24.25-25.25 Gc/s and 33.4-36 Gc/s are also allocated to the meteorological aids service.

- 412A** In Bulgaria, Cuba, Hungary, Poland, the United Arab Republic, Roumania, Spa Czechoslovakia and the U.S.S.R., the band 31·3-31·5 Gc/s is also allocated to the fixed and mobile services.
- 412B** In Bulgaria, Cuba, Hungary, Poland, Yugoslavia, Roumania, Czechoslovakia and the U.S.S.R., the space research service is a primary service in the band 31·8-32·3 Gc/s.
- 412C** In Bulgaria, Cuba, Hungary, Poland, Roumania, Czechoslovakia and the Spa U.S.S.R., the space research service is a primary service in the band 34·2-35·2 Gc/s.
- 412D** The band 34·4-34·5 Gc/s may be used by weather radar devices on meteorological-satellites for the detection of cloud.
- 412E** In Bulgaria, Cuba, Hungary, Poland, Yugoslavia, Roumania, Czechoslovakia and the U.S.S.R., the band 36·5-37·5 Gc/s is also allocated to the radio astronomy service.
- 412F** In Cuba and India, the band 33-33·4 Gc/s is also allocated to the radio astronomy service.
- 412G** In Bulgaria, Cuba, Hungary, Poland, Yugoslavia, Roumania, Czechoslovakia and the U.S.S.R., the band 33·4-34 Gc/s is also allocated to the radio astronomy service.
- 412H** In Bulgaria, Cuba, Hungary, Poland, Roumania, Czechoslovakia and the Spa U.S.S.R., the space research service is a primary service in the band 31-31·3 Gc/s.

ARTICLE 6

Special Rules for the Assignment and Use of Frequencies

- 413** § 1. (1) Members and Associate Members of the Union recognize that among frequencies which have long-distance propagation characteristics, those in the bands between 5 000 and 30 000 kc/s are particularly useful for long-distance communications ; they agree to make every possible effort to reserve these bands for such communications. Whenever frequencies in these bands are used for short or medium-distance communications, the minimum power necessary shall be employed.
- 414** (2) To reduce requirements for frequencies in the bands between 5 000 and 30 000 kc/s and thus to prevent harmful interference to long-distance radiocommunications, administrations are encouraged to use, whenever practicable, any other possible means of communication.
- 415** § 2. (1) When special circumstances make it indispensable to do so, an administration may, as an exception to the normal methods of working authorized by these Regulations, have recourse to the special methods of working enumerated below, on the sole condition that the characteristics of the stations still conform to those inserted in the Master International Frequency Register :
- a) a fixed station may, on a secondary basis, transmit to mobile stations on its normal frequencies ;
 - b) a land station may communicate, on a secondary basis, with fixed stations or other land stations of the same category.
- 416** (2) However, in circumstances involving the safety of life, or the safety of a ship or aircraft, a land station may communicate with fixed stations or land stations of another category.

- 417** § 3. Any administration may assign a frequency in a band allocated to the fixed service to a station authorized to transmit, unilaterally, from one specified fixed point to one or more other specified fixed points, provided that such transmissions are not intended to be received directly by the general public.
- 418** § 4. Any mobile station using an emission which satisfies the frequency tolerance applicable to the coast station with which it is communicating may transmit on the same frequency as the coast station on condition that the latter requests such transmission and that no harmful interference is caused to other stations.
- 419** § 5. In certain cases provided for in Articles 32 and 35, aircraft stations are authorized to use frequencies in the bands allocated to the maritime mobile service for the purpose of communicating with stations of that service (see No. 952).
- 420** § 6. In Region 1, stations which use frequencies in the band 1 625-1 670 kc/s allocated for low-power telephony services shall, in principle, employ a power which is as low as possible. Such power shall not exceed 20 watts.
- 421** § 7. Any emission capable of causing harmful interference to distress, alarm, urgency or safety signals on the international distress frequencies of 500 kc/s or 2 182 kc/s is prohibited (see Nos. 187, 201, 1112 and 1325).

ARTICLE 7

Special Rules Relating to Particular Services**Section I. Broadcasting Service***General*

- 422** § 1. (1) The establishment and use of broadcasting stations (sound broadcasting and television broadcasting stations) on board ships, aircraft or any other floating or airborne objects outside national territories is prohibited.
- 423** (2) In principle, except in the frequency band 3 900-4 000 kc/s, broadcasting stations using frequencies below 5 060 kc/s or above 41 Mc/s shall not employ power exceeding that necessary to maintain economically an effective national service of good quality within the frontiers of the country concerned.

Broadcasting in the Tropical Zone

- 424** § 2. (1) In these Regulations, the expression "broadcasting in the Tropical Zone" indicates a type of broadcasting for internal national use in countries in the zone defined in Nos. 135 and 136, where it may be shown that because of the difficulty of high atmospheric noise level and propagation it is not possible to provide economically a more satisfactory service by using low, medium, or very high frequencies.
- 425** (2) The use by the broadcasting service of the bands listed below is restricted to the Tropical Zone :
- 2 300 - 2 498 kc/s (Region 1)
 - 2 300 - 2 495 kc/s (Regions 2 and 3)
 - 3 200 - 3 400 kc/s (All Regions)
 - 4 750 - 4 995 kc/s (All Regions)
 - 5 005 - 5 060 kc/s (All Regions)
- 426** (3) Within the Tropical Zone, the broadcasting service has priority over the other services with which it shares the bands listed in No. 425.

427 (4) However, in that part of Libya north of parallel 30° North the broadcasting service in the bands listed in No. **425** has equal rights to operate with other services in the Tropical Zone with which it shares these bands.

428 (5) The broadcasting service operating inside the Tropical Zone, and other services operating outside the Zone, are subject to the provisions of No. **117**.

Section II. Aeronautical Mobile Service

429 § 3. Frequencies in any band allocated to the aeronautical mobile (R) service are reserved for communications between any aircraft and those aeronautical stations primarily concerned with the safety and regularity of flight along national or international civil air routes.

430 § 4. Frequencies in any band allocated to the aeronautical mobile (OR) service are reserved for communications between any aircraft and aeronautical stations other than those primarily concerned with flight along national or international civil air routes.

431 § 5. Frequencies in the bands allocated to the aeronautical mobile service between 2 850 and 18 030 kc/s (see Article 5) shall be assigned in conformity with the provisions of Appendices 26 and 27 and the other relevant provisions of these Regulations.

432 § 6. Administrations shall not permit public correspondence in the frequency bands allocated exclusively to the aeronautical mobile service, unless permitted by special aeronautical regulations adopted by a Conference of the Union to which all interested Members and Associate Members of the Union are invited. Such regulations shall recognize the absolute priority of safety and control messages.

Section III. Aeronautical Radiobeacons

433 § 7. (1) The assignment of frequencies to aeronautical radio-beacons operating in the bands between 160 and 415 kc/s shall be based on a protection ratio against interference of at least 10db for each beacon throughout its service area.

434 (2) It is agreed that, to provide the protection ratio required, the radiated power should be kept to the value necessary to give the desired field strength at the service range.

435 (3) The daylight service range of radiobeacons referred to in No. **433** shall be based on the following field strengths ;

436 (4) *Regions 1 and 2*

- 70 microvolts per metre for radiobeacons north of 30°N.
- 120 microvolts per metre for radiobeacons between 30°N and 30°S.
- 70 microvolts per metre for radiobeacons south of 30°S.

437 (5) *Region 3*

- 70 microvolts per metre for radiobeacons north of 40°N.
- 120 microvolts per metre for radiobeacons between 40°N and 50°S.
- 70 microvolts per metre for radiobeacons south of 50°S.

Section IV. Maritime Mobile Service

437A § 7A. Stations of the maritime mobile service employing single
Mar sideband radiotelegraph transmissions shall use upper sideband emissions. The frequencies specified in the Radio Regulations for class A2H emissions in the maritime mobile service such as 410, 425, 454, 468, 480, 500, 512 and 8 364 kc/s, shall be used as carrier frequencies.

438 § 8. (1) Except as provided in No. **418**, ship stations authorized to work in the bands between 415 and 535 kc/s shall transmit on the frequencies indicated in Article 32 (see No. **1123**).

438A § 8A. As a general rule, the minimum separation between adjacent
Mar frequencies used respectively by coast stations and by ship stations
is 4 kc/s.

439 § 9. In the band 405 - 415 kc/s in Region 1, no frequency is
assigned to coast stations, in order to protect the frequency 410 kc/s
which is designated for the maritime radionavigation service (radio
direction-finding).

440 § 10. (1) In the African Area of Region 1, in the bands 415 -
490 kc/s and 510 - 525 kc/s, the separation between adjacent
frequencies assigned to coast stations is, as a general rule, 3 kc/s.
However, in order that the frequencies may coincide with those used
in the European Area in these bands, this spacing is reduced in
certain cases.

441 SUP (Mar)

442 § 11. (1) In Region 1, frequencies assigned to stations of the maritime
Mar mobile service operating in the bands between 1 605 and 3 800 kc/s
(see Article 5) should, whenever possible, be in accordance with the
following subdivision:

- 1 605 - 1 625 kc/s: Radiotelegraphy exclusively.
- 1 625 - 1 670 kc/s: Low power radiotelephony.
- 1 670 - 1 950 kc/s: Coast stations.
- 1 950 - 2 053 kc/s: Ship stations working to coast
stations.
- 2 053 - 2 065 kc/s: Intership working.
- 2 065 - 2 170 kc/s: Ship stations working to coast
stations.
- 2 170 - 2 173.5 kc/s: Coast stations calling ship sta-
tions (including selective calling)
and, exceptionally, coast stations
transmitting safety messages.
- 2 173.5 - 2 190.5 kc/s: *Guard-band for the distress and
calling frequency 2 182 kc/s.*

- 2 190.5 - 2 194 kc/s: Ship stations calling coast stations.
- 2 194 - 2 440 kc/s: Intership working.
- 2 440 - 2 578 kc/s: Ship stations working to coast stations.
- 2 578 - 2 850 kc/s: Coast stations.
- 3 155 - 3 340 kc/s: Ship stations working to coast stations.
- 3 340 - 3 400 kc/s: Intership working.
- 3 500 - 3 600 kc/s: Intership working.
- 3 600 - 3 800 kc/s: Coast stations.

443 (2) In these bands, in Region 1, the frequencies assigned to
Mar the maritime mobile service are spaced, as far as possible, by:

- 7 kc/s when two adjacent frequencies are used for double sideband radiotelephony;
- 3 kc/s when two adjacent frequencies are used for radiotelegraphy;
- 5 kc/s when one frequency is used for double sideband radiotelephony and the adjacent frequency is used for radiotelegraphy.

444 (3) However, in the case of the intership bands, in Region 1,
Mar the spacing is reduced to 5 kc/s for adjacent frequencies used for double sideband radiotelephony.

444A (4) When these bands are used for single sideband radiotele-
Mar phony, a station operating in the lower half of a double sideband channel shall use upper sideband emission with the carrier frequency located 3 kc/s below the centre frequency of that channel.

444B (5) However, in the case of the intership bands, the [carrier
Mar frequency of a station operating in the lower half of the double sideband channel is located only 2.5 kc/s below the centre frequency of that channel.

445 § 11A. In Regions 2 and 3, the carrier frequencies 2 635 kc/s
Mar (assigned frequency 2 636.4 kc/s) and 2 638 kc/s (assigned frequency 2 639.4 kc/s) are used as single sideband intership radiotelephony working frequencies in addition to the frequencies prescribed for common use in certain services. The carrier frequency 2 635 kc/s should be used with class A3A and A3J emissions only. The carrier frequency 2 638 kc/s may be used with class A3, A3H, A3A and A3J emissions. However, after 1 January 1982, class A3 and A3H emissions are no longer authorized. In Region 3 these frequencies are protected by a guard-band between 2 634 and 2 642 kc/s.

445A § 11B. The assigned frequency of a single sideband channel of a
Mar station in the radiotelephone maritime mobile service shall be 1 400 c/s higher than the carrier frequency.

446 § 12. (1) The bands exclusively allocated to the maritime mobile
service between 4 000 and 27 500 kc/s (see Articles 5, 32 and 35)
are subdivided into the following categories :

447 a) *Ship stations*, telephony, duplex operation (two-frequency
Mar channels)

4 063 - 4 139.5 kc/s
6 200 - 6 210.4 kc/s
8 195 - 8 281.2 kc/s
12 330 - 12 421 kc/s
16 460 - 16 565 kc/s
22 000 - 22 094.5 kc/s

448 b) *Coast stations*, telephony, duplex operation (two-frequency
Mar channels)

4 361 - 4 438 kc/s
6 514 - 6 525 kc/s
8 728.5 - 8 815 kc/s
13 107.5 - 13 200 kc/s
17 255 - 17 360 kc/s
22 624.5 - 22 720 kc/s

449 *c) Ship stations and coast stations, telephony, simplex operation*
Mar (single-frequency channels)

4 139.5 - 4 142.5 kc/s
 6 210.4 - 6 216.5 kc/s
 8 281.2 - 8 288 kc/s
 12 421 - 12 431.5 kc/s
 16 565 - 16 576 kc/s
 22 094.5 - 22 112 kc/s

450 SUP (**Mar**)

451 *(e) Ship stations, wide-band telegraphy, facsimile, and special*
Mar transmission systems

4 142.5 - 4 162.5 kc/s
 6 216.5 - 6 244.5 kc/s
 8 288 - 8 328 kc/s
 12 431.5 - 12 479.5 kc/s
 16 576 - 16 636.5 kc/s
 22 112 - 22 160.5 kc/s

451A *(f) Ship stations, oceanographic data transmission (see note a)*
Mar in Appendix 15)

4 162.5 - 4 166 kc/s
 6 244.5 - 6 248 kc/s
 8 328 - 8 331.5 kc/s
 12 479.5 - 12 483 kc/s
 16 636.5 - 16 640 kc/s
 22 160.5 - 22 164 kc/s

451B *(g) Ship stations, narrow-band direct-printing telegraph and*
Mar data transmission systems

4 166 - 4 172.25 kc/s
 6 248 - 6 258.25 kc/s
 8 331.5 - 8 341.75 kc/s
 12 483 - 12 503.25 kc/s
 16 640 - 16 660.5 kc/s
 22 164 - 22 184.5 kc/s

452 (h) *Ship stations, telegraphy*

Mar

4 172.25 - 4 231 kc/s
6 258.25 - 6 345.5 kc/s
8 341.75 - 8 459.5 kc/s
12 503.25 - 12 689 kc/s
16 660.5 - 16 917.5 kc/s
22 184.5 - 22 374 kc/s
25 070 - 25 110 kc/s

452.1 SUP (Mar)

453 (i) *Coast stations, wide-band and manual telegraphy, facsimile, special and data transmission systems and direct-printing telegraph systems*

Mar

4 231 - 4 361 kc/s
6 345.5 - 6 514 kc/s
8 459.5 - 8 728.5 kc/s
12 689 - 13 107.5 kc/s
16 917.5 - 17 255 kc/s
22 374 - 22 624.5 kc/s

453A (1A) Frequencies in the bands 25 010-25 070 kc/s, 25 110-25 600 Mar kc/s and 26 100-27 500 kc/s may be assigned to coast stations.

453.1 SUP (Mar)

454 – 455 SUP (Mar)

456 § 13. (1) Appendix 17 shows the radiotelephone channels of the Mar maritime mobile service in the frequency bands listed in Nos. **447**, **448** and **449**.

457 (2) Appendix 25 contains the frequency allotment plan for Mar coast radiotelephone stations in the high frequency bands (see, however, Resolution No. Mar 11).

Section V. Maritime Radiobeacons

458 § 14. (1) The protection ratio required for maritime radiobeacons operating in the bands between 285 and 325 kc/s is based on the radiated power being kept to the value necessary to give the desired field strength at the service range.

459 (2) The daylight service range of the radiobeacons referred to in No. **458** shall be based on the following field strengths :

460 (3) *Region 1*

- 50 microvolts per metre for radiobeacons north of 43°N.
- 75 microvolts per metre for radiobeacons between 43°N and 30°N.
- 100 microvolts per metre for radiobeacons between 30°N and 30°S.
- 75 microvolts per metre for radiobeacons between 30°S and 43°S.
- 50 microvolts per metre for radiobeacons south of 43°S.

461 (4) *Region 2*

- 50 microvolts per metre for radiobeacons north of 40°N.
- 75 microvolts per metre for radiobeacons between 40°N and 31°N.
- 100 microvolts per metre for radiobeacons between 31°N and 30°S.
- 75 microvolts per metre for radiobeacons between 30°S and 43°S.
- 50 microvolts per metre for radiobeacons south of 43°S.

462 (5) *Region 3*

- 75 microvolts per metre for radiobeacons north of 40°N.
- 100 microvolts per metre for radiobeacons between 40°N and 50°S.
- 75 microvolts per metre for radiobeacons south of 50°S.

463 (6) In Region 1, for maritime radiobeacons in these bands, the assignment of frequencies is based on a separation of 2.3 kc/s between adjacent frequencies used for class A2 emissions.

464 (7) In Region 1, for maritime radiobeacons, the depth of modulation should be at least 70 %.

Section VI. Fixed Service

General

465 § 15. (1) Administrations are urged to discontinue, in the fixed service, the use of double sideband radiotelephone transmissions in the bands below 30 Mc/s, if possible as from January 1, 1970.

466 (2) Class F3 emissions are prohibited in the fixed service in the bands below 30 Mc/s.

Selection of Frequencies for the International Exchange of Police Information.

467 § 16. (1) The frequencies necessary for the international exchange of information to assist in the apprehension of criminals shall be selected from the bands allocated to the fixed service, if necessary by special agreement among interested administrations, in accordance with Article 44 of the Convention.

- 468** (2) To obtain economy in the use of frequencies, the International Frequency Registration Board should be consulted by the administrations concerned whenever such agreements are under discussion on a regional or world-wide basis.

Selection of Frequencies for the International Exchange of Synoptic Meteorological Information.

- 469** § 17. (1) The frequencies necessary for the international exchange of synoptic meteorological information shall be selected from the bands allocated to the fixed service if necessary by special agreement among interested administrations, in accordance with Article 44 of the Convention.

- 470** (2) To obtain economy in the use of frequencies, the International Frequency Registration Board should be consulted by the administrations concerned whenever such agreements are under discussion on a regional or world-wide basis.

Section VII. Terrestrial Services sharing Frequency Bands with Space Services between 1 Gc/s and 10 Gc/s

Choice of Sites and Frequencies

- 470A** § 18. Sites and frequencies for terrestrial stations, operating in **Spa** frequency bands shared with equal rights between terrestrial and space services, shall be selected having regard to the relevant recommendations of the C.C.I.R. with respect to geographical separation from earth stations.

Power Limits

- 470B** § 19. (1) The maximum effective radiated power of the transmitter **Spa** and associated antenna, of a station in the fixed or mobile service, shall not exceed + 55 dBW.
- 470C** (2) The power delivered by a transmitter to the antenna of a **Spa** station in the fixed or mobile service shall not exceed + 13 dBW.

470D (3) The limits given in Nos. **470B** and **470C** apply in the following frequency bands allocated to reception by space stations in the communication-satellite service, where these are shared with equal rights with the fixed or mobile service:

5 800-5 850 Mc/s (for the countries mentioned in No. **390**)
5 850-5 925 Mc/s (Regions 1 and 3)
5 925-6 425 Mc/s
7 900-8 100 Mc/s

Section VIII. Space Services sharing Frequency Bands with Terrestrial Services between 1 Gc/s and 10 Gc/s

Choice of Sites and Frequencies

470E § 20. Sites and frequencies for earth stations, operating in frequency bands shared with equal rights between terrestrial and space services, shall be selected having regard to the relevant recommendations of the C.C.I.R. with respect to geographical separation from terrestrial stations.

Power Limits

470F § 21. (1) Earth Stations in the Communication-Satellite Service

470G (2) The mean effective radiated power transmitted by an earth station in any direction in the horizontal plane¹ shall not exceed + 55 dbW in any 4 kc/s band, except that it may be increased subject to the provisions of Nos. **470H** or **470I**. However, in no case shall it exceed a value of + 65 dbW in any 4 kc/s band.

Spa ¹ For the purpose of this Regulation, the effective radiated power transmitted in the horizontal plane shall be taken to mean the effective radiated power actually transmitted towards the horizon, reduced by the site-shielding factor that may be applicable. The value of this site-shielding factor shall be determined as indicated in Section 5 of the Annex to Recommendation No. **Spa1**.

470H (3) In any direction where the distance from an earth station
Spa to the boundary of the territory of another administration exceeds
 400 km, the limit of + 55 dbW in any 4 kc/s band may be increased
 in that direction by 2 db for each 100 km in excess of 400 km.

470I (4) The limit of + 55 dbW in any 4 kc/s band may be exceeded
Spa by agreement between the administrations concerned or affected.

470J (5) The limits given in No. **470G** apply in the following fre-
Spa quency bands allocated to transmission by earth stations in the com-
 munication-satellite service, where these are shared with equal rights
 with the fixed or mobile service:

4 400-4 700 Mc/s
 5 800-5 850 Mc/s (for the countries mentioned in No. **390**)
 5 850-5 925 Mc/s (Regions 1 and 3)
 5 925-6 425 Mc/s
 7 900-8 400 Mc/s

Minimum Angle of Elevation

470K § 22. (1) Earth Stations in the Communication-Satellite Service
Spa

470L (2) Earth station antennae shall not be employed for trans-
Spa mission at elevation angles less than 3 degrees, measured from the
 horizontal plane to the central axis of the main lobe, except when
 agreed to by the administrations concerned or affected.

470M (3) The limit given in No. **470L** applies in the following fre-
Spa quency bands allocated to transmission by earth stations in the com-
 munication-satellite service, where these are shared with equal rights
 with the fixed or mobile service:

4 400-4 700 Mc/s
 5 800-5 850 Mc/s (for the countries mentioned in No. **390**)
 5 850-5 925 Mc/s (Regions 1 and 3)
 5 925-6 425 Mc/s
 7 250-7 750 Mc/s
 7 900-8 400 Mc/s

Power Flux Density Limits

470N § 23. (1) Communication-Satellite Space Stations

Spa

470O

Spa

- a) The total power flux density at the earth's surface, produced by an emission from a communication-satellite space station, or reflected from a passive communication satellite, where wide-deviation frequency (or phase) modulation is used, shall in no case exceed -130 dBW/m² for all angles of arrival. In addition, such signals shall if necessary be continuously modulated by a suitable waveform, so that the power flux density shall in no case exceed -149 dBW/m² in any 4 kc/s band for all angles of arrival.

470P

Spa

- b) The power flux density at the earth's surface, produced by an emission from a communication-satellite space station, or reflected from a passive communication satellite, where modulation other than wide-deviation frequency (or phase) modulation is used, shall in no case exceed -152 dBW/m² in any 4 kc/s band for all angles of arrival.

470Q

Spa

- c) The limits given in Nos. **470O** and **470P** apply in the following frequency bands allocated to transmission by space stations in the communication-satellite service, where these are shared with equal rights with the fixed or mobile services:

3 400-4 200 Mc/s

7 250-7 750 Mc/s

470R (2) Meteorological-Satellite Space Stations ¹**Spa****470S****Spa**

- a) The power flux density at the earth's surface, produced by an emission from a meteorological-satellite space station, where wide-deviation frequency (or phase) modulation is used, shall in no case exceed -130 dBW/m² for all angles of arrival. In addition, such signals shall if necessary be continuously modulated by a suitable waveform, so that the power flux density shall in no case exceed -149 dBW/m² in any 4 kc/s band for all angles of arrival.

470T**Spa**

- b) The power flux density at the earth's surface, produced by an emission from a meteorological-satellite space station, where modulation other than wide-deviation frequency (or phase) modulation is used, shall in no case exceed -152 dBW/m² in any 4 kc/s band for all angles of arrival.

470U**Spa**

- c) The limits given in Nos. **470S** and **470T** apply in the following frequency bands allocated to transmissions by space stations in the meteorological-satellite service, shared with equal rights with the fixed or mobile service:

1 660-1 670 Mc/s

1 690-1 700 Mc/s

7 200-7 250 Mc/s

7 300-7 750 Mc/s

The limits given in Nos. **470S** and **470T** also apply in the band 1 770-1 790 Mc/s although the meteorological-satellite service is a secondary service in this band.

Spa ¹ In view of the absence of any C.C.I.R. Recommendations relative to sharing between the meteorological-satellite service and other services, power flux density levels applicable to communication-satellite space stations are extended to meteorological-satellite space stations.

Section IX. Space Services

Cessation of Emissions

470V § 24. Space stations shall be made capable of ceasing radio
Spa emissions by the use of appropriate devices ¹ that will ensure definite
cessation of emissions.

Spa ¹ Battery life, timing devices, ground command, etc.

CHAPTER III**Notification and Registration of Frequencies.
International Frequency Registration Board****ARTICLE 8****General Provisions**

- 471 § 1. The constitution and the essential duties of the International Frequency Registration Board are defined in the Convention.
- 472 § 2. The functions of the Board shall include :
- 473 a) the processing of frequency assignment notices received from administrations for recording in the Master International Frequency Register ;
- 474 b) the processing and co-ordination of seasonal schedules of high frequency broadcasting with a view to accommodating requirements of all administrations for that service ;
- 475 c) the compilation, for publication in suitable form and at appropriate intervals by the Secretary General, of frequency lists reflecting the data recorded in the Master International Frequency Register, as well as other material relating to the assignment and use of frequencies ;
- 476 d) the review of entries in the Master International Frequency Register with a view to amending or eliminating, as appropriate, those which do not reflect actual frequency usage, in agreement with the administrations which notified the assignments concerned ;
- 477 e) the study, on a long-term basis, of the usage of the radio spectrum, particularly the portion concerning

high frequencies, with a view to making recommendations for its more effective use ;

- 478** *f)* the investigation, at the request of one or more of the interested administrations, of harmful interference and the formulation of recommendations with respect thereto ;
- 479** *g)* the provision of assistance to administrations in the field of radio spectrum utilization, in particular to those administrations in need of special assistance, and the recommendation to administrations, where appropriate, of adjustments in their frequency assignments in order to obtain a better use of the radio spectrum ;
- 480** *h)* the collection of such results of monitoring observations as administrations and organizations may be able to supply and the making of arrangements, through the Secretary General, for their publication in suitable form ;
- 481** *i)* the formulation and reference to the C.C.I.R. of all general technical questions arising from the Board's examination of frequency assignments ;
- 482** *j)* the technical planning for radio conferences with a view to reducing their duration ; and
- 483** *k)* the participation in an advisory capacity, upon invitation by the organizations or countries concerned, in conferences and meetings where questions relating to the assignment and utilization of frequencies are discussed.
- 484** § 3. The working arrangements of the Board are set forth in the remaining articles of this Chapter.
- 485** § 4. The Board shall have the assistance of an adequate specialized secretariat of the requisite qualifications and experience, which shall work under the immediate direction of the Board to enable it to discharge its prescribed duties and functions.

ARTICLE 9

Notification and Recording in the Master International Frequency Register of Frequency Assignments to Stations in Terrestrial Services⁰

Section I. Notification of Frequency Assignments and Co-ordination Procedure to be Applied in appropriate Cases

486 Spa § 1. (1) Any *frequency assignment*^{1,2} to a fixed, land, broadcasting³, radionavigation land, radiolocation land or standard frequency station, or to a ground-based station in the meteorological aids service, shall be notified to the International Frequency Registration Board,

- a) if the use of the frequency concerned is capable of causing harmful interference to any service of another administration⁴; or
- b) if the frequency is to be used for international radio-communication; or
- c) if it is desired to obtain international recognition of the use of the frequency⁴.

Spa ⁰ For the notification and recording in the Master International Frequency Register of frequency assignments to stations in the space and radio astronomy services, see Article 9A.

486-1 ¹ The expression *frequency assignment*, wherever it appears in this Article, shall be understood to refer either to a new frequency assignment or to a change in an assignment already recorded in the Master International Frequency Register (hereinafter called *Master Register*).

486-2 ² In the case where a frequency is used by numerous stations under the jurisdiction of the same administration, see Appendix 1 (Section E, II, Column 5a, paragraphs 2c and 2d).

486-3 ³ With respect to assignments to broadcasting stations in the bands allocated exclusively to the broadcasting service between 5 950 kc/s and 26 100 kc/s, see Article 10.

486.4 Spa ⁴ The attention of administrations is specifically drawn to the application of the provisions of Nos. **486 a)** and **486 c)** in those cases where they make a frequency assignment to a station in the fixed or mobile service, located within co-ordination distance of an earth station (see No. **492A**), in a band which these services share with equal rights with the space service, in the frequency spectrum between one and ten Gc/s.

487 (2) Similar notice shall be given for any frequency to be used
Spa for the reception of mobile stations by a particular land station in each case where one or more of the conditions specified in No. **486** are applicable.

488 (3) Specific frequencies prescribed by these Regulations for common use by stations of a given service (for example, international distress frequencies 500 kc/s and 2 182 kc/s, frequencies of ship radiotelegraph stations operating in their exclusive high frequency bands, etc.), shall not be notified to the Board.

489 § 2. (1) For any notification under Nos. **486** or **487** an individual notice for each frequency assignment shall be drawn up as prescribed in Sections A or B of Appendix 1, which specify the basic characteristics to be furnished, according to the case. It is recommended that the notifying administration should also supply the additional data called for in that Appendix, together with such further data as it may consider appropriate.

490 (2) When stations of the same service, such as the land mobile service, use a band of frequencies above 28 000 kc/s in a specific area or areas, an individual notice should be drawn up, as prescribed in Section C of Appendix 1, which specifies the basic characteristics to be furnished, for each frequency on which there are assignments within the band ; however, the particulars should relate only to a typical station. This does not apply to broadcasting stations.

491 § 3. (1) Whenever practicable each notice should reach the Board
Spa before the date on which the assignment is brought into use. It must reach the Board not earlier than ninety days before the date on which it is to be brought into use, but in any case not later than thirty days after the date it is actually brought into use. However, for a frequency assignment to a station in the fixed or mobile service mentioned in No. **492A**, the notice must reach the Board not earlier than two years before the date on which the assignment is to be brought into use.

492 (2) Any frequency assignment, the notice of which reaches the Board more than thirty days after the notified date of putting into use shall, where it is to be recorded, bear a remark in the Master Register to indicate that it is not in conformity with No. **491**.

492A § 3A. (1) Before an administration notifies to the Board, or brings into
Spa use any frequency assignment to a station in the fixed or mobile service, whether for transmitting or receiving, in a particular band allocated with equal rights to the space service and the fixed or mobile service in the frequency spectrum between one and ten Gc/s, it shall effect co-ordination of the assignment with any other administration which has previously effected co-ordination under the provisions of No. **639AD**, for the establishment of an earth station, if the proposed station in the fixed or mobile service is to be located within the co-ordination distance ¹ of the earth station, and the necessary bandwidths of emission of the station concerned in the space service on the one hand, and of the station concerned in the fixed or mobile service on the other, are separated by less than six Mc/s. For this purpose it shall send to any other such administration a copy of a diagram drawn to an appropriate scale indicating the location of the station in the fixed or mobile service and all other pertinent details of the proposed frequency assignment, and the approximate date on which it is planned to begin operations.

492B (2) An administration with which co-ordination is sought under
Spa No. **492A** shall acknowledge receipt of the co-ordination data within thirty days and shall promptly examine the matter to establish:

- a) in the case of a frequency assignment to be used for transmitting by the station in the fixed or mobile service, whether the use would cause harmful interference to the service rendered by its earth stations operating in

492A.1 ¹ For the purposes of this Article the expression "co-ordination distance"
Spa means the distance from an earth station calculated along the lines of the procedures shown in Recommendation NoSpa1, within which there is a possibility of the use of a given transmitting frequency at this earth station causing harmful interference to stations in the fixed or mobile service in the frequency spectrum between one and ten Gc/s, sharing the same frequency band, or, as the case may be, of the use of a given frequency for reception at this earth station receiving harmful interference caused by such stations in the fixed or mobile service.

accordance with the Convention and these Regulations, or to be so operated within the next two years, with the proviso that in this latter case co-ordination specified in No. 639AD has been effected or the co-ordination procedure has already begun;

- b) in the case of a frequency assignment to be used for reception by the station in the fixed or mobile service, whether harmful interference would be caused to reception at the station in the fixed or mobile service by the service rendered by its earth stations operating in accordance with the Convention and these Regulations, or to be so operated within the next two years, with the proviso that in this latter case co-ordination specified in No. 639AD has been effected or the co-ordination procedure has already begun;

and shall, within a further period of thirty days, either notify the administration requesting co-ordination of its agreement to the proposals or, if this is not possible, indicate the reasons therefor and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem.

492C. (3) No co-ordination under No. 492A is required when an **Spa** administration proposes:

- a) to bring into use a station in the fixed or mobile service which is not located, in relation to an earth station, within the co-ordination distance defined in No. 492A.1; or
- b) to change characteristics of an existing assignment in such a way as not to increase the probability of harmful interference to the earth stations of other administrations.

492D (4) An administration seeking co-ordination may request the
Spa Board to endeavour to effect co-ordination, in those cases where:

- a) an administration with which co-ordination is sought under No. **492A** fails to reply within a period of ninety days;
- b) there is a disagreement between the administration seeking co-ordination and an administration with which co-ordination is sought as to the probability of harmful interference; or
- c) co-ordination between administrations is not possible for any other reason.

In so doing, it shall furnish the Board with the necessary information to enable it to effect such co-ordination.

492E (5) Either the administration seeking co-ordination or an
Spa administration with which co-ordination is sought, or the Board, may request additional information which they may require to assess the probability of harmful interference to the services concerned.

492F (6) Where the Board receives a request under No. **492D a)**,
Spa or where the Board receives no reply within ninety days to its request for co-ordination in the case foreseen in No. **492D c)**, it shall immediately send a telegram to the administration with which co-ordination is sought. If no reply has been received from that administration within a period of sixty days from the date of despatch of the telegram, it shall be deemed that the administration with which co-ordination was sought shall have undertaken that no complaint will be made in respect of any harmful interference which may be caused by the station in the fixed or mobile service to the services rendered by its earth station.

492G (7) Where necessary, as part of the procedure under No. **492D**,
Spa the Board shall assess the probability of harmful interference. In any case, the Board shall inform the administrations concerned of the results obtained.

493 § 3B. (1) Whatever the means of communication, including telegraph,
Spa by which a notice is transmitted to the Board, it shall be considered complete if it contains at least those appropriate basic characteristics specified in Appendix 1.

494 (2) Complete notices shall be considered by the Board in the
Spa order of their receipt.

495 § 4. When a service or regional agreement has been concluded,
the Board shall be informed of the details of this agreement.

**Section II. Procedure for the Examination of Notices and the Recording
of Frequency Assignments in the Master Register**

496 § 5. Any notice which is incomplete shall be returned by the
Board immediately, by airmail, to the notifying administration with
the reasons therefor.

497 § 6. Upon receipt of a complete notice, the Board shall include
the particulars thereof, with the date of receipt, in a weekly circular
sent by airmail to Administrations, Members and Associate Members
of the Union ; this circular shall contain the particulars of all such
notices received since the publication of the previous circular.

498 § 7. The circular shall constitute the acknowledgment to the
notifying administration of the receipt of a complete notice.

499 § 8. Complete notices shall be considered by the Board in the
order specified in No. **494**. The Board cannot postpone the formula-
tion of a finding unless it lacks sufficient data to render a decision in
connection therewith ; moreover, the Board shall not act upon any
notice which has a technical bearing on an earlier notice still under
consideration by the Board, until it has reached a finding with
respect to such earlier notice.

Spa **Sub-Section IIA. Procedure to be followed in cases where
the provisions of No. 492A are not applicable**

500 § 9. (1) Except for notices referred to in Nos. **541, 547, 552, 561**
and **568**, the Board shall examine each notice with respect to

501 a) its conformity with the Convention, the Table of Fre-
quency Allocations and the other provisions of the
Radio Regulations (with the exception of those relating
to the probability of harmful interference) ;

- 502** b) the probability of harmful interference to the service rendered by a station for which a frequency assignment already recorded in the Master Register :
- 1) bears a date in Column 2a (see No. **607**) ; or
 - 2) is in conformity with the provisions of No. **501** and bears a date in Column 2b (see No. **608**), but has not, in fact, caused harmful interference to any frequency assignment with a date in Column 2a or to any assignment in conformity with No. **501** with an earlier date in Column 2b ; or
- 503** c) the probability of harmful interference to the service rendered by a station for which a frequency assignment already recorded in the Master Register :
- 1) is in conformity with the provisions of No. **501** and either bears a symbol¹ in Column 2d (see No. **610**), or was recorded in the Master Register with a date in this column as a result of a favourable finding with respect to No. **503** ; or
 - 2) is in conformity with the provisions of No. **501** and was recorded in the Master Register with a date in Column 2d after an unfavourable finding with respect to No. **503**, but has not, in fact, caused harmful interference to any frequency assignment previously recorded in the Master Register and which is in conformity with No. **501**.

503-1 ¹ This symbol indicates an assignment notified pursuant to No. 272 of the Agreement of the Extraordinary Administrative Radio Conference, Geneva, 1951, or, in the frequency bands above 27 500 kc/s, an assignment for which the notice was received by the Board before 1 April 1952.

504 (2) The Board shall not make the examination specified in No. 502 where the notice refers to a broadcasting station in Region 2 in the band 535-1 605 kc/s. When the notice relates to a frequency above 28 000 kc/s, the Board shall only make the examination specified in No. 503 at the request of an administration directly concerned or affected when co-ordination has not been possible between the administrations involved.

505 (3) Where appropriate, the Board shall also examine the notice with respect to its conformity with a regional or service agreement. The procedure to be followed in connection with frequency assignments made pursuant to such an agreement shall be as specified in Nos. 501 and 502 or 503 except that the Board shall not consider the question of the probability of harmful interference among the parties to such agreement. Similarly, the Board shall not consider the probability of harmful interference to the assignments of any administration with which co-ordination has been effected.

506 § 10. Depending upon the findings of the Board subsequent to the examination prescribed in Nos. 501 and 502 or 503, further action shall be as follows :

507 § 11. (1) *Finding Favourable with Respect to No. 501 in cases where the Provisions of Nos. 502 or 503 are not applicable (see No. 504).*

508 (2) The assignment shall be recorded in the Master Register. The date to be entered in the appropriate part of Column 2 according to the relevant provisions of Section III of this Article, shall be the date of receipt of the notice by the Board.

509 § 12. (1) *Finding Favourable with Respect to Nos. 501 and 502 or 503.*

510 (2) The assignment shall be recorded in the Master Register. The date to be entered in the appropriate part of Column 2 according to the relevant provisions of Section III of this Article shall be the date of receipt of the notice by the Board.

- 511** (3) However, should the examination show that the probability of harmful interference for certain hours, seasons, or periods of solar activity is slightly greater than is considered desirable, a remark shall be included in the Master Register to show that there exists a slight probability of harmful interference and hence precautions must be taken in the use of the assignment to avoid harmful interference to assignments already recorded in the Master Register.
- 512** § 13. (1) *Finding Favourable with Respect to No. 501 but Unfavourable with Respect to Nos. 502 or 503.*
- 513** (2) The notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem.
- 514** (3) Should the notifying administration resubmit the notice with modifications which result, after re-examination, in a favourable finding by the Board with respect to Nos. **502** or **503**, the assignment shall be recorded in the Master Register. The date to be entered in the appropriate part of Column 2 according to the relevant provisions of Section III of this Article shall be the date of receipt by the Board of the original notice. The date of receipt by the Board of the resubmitted notice shall be indicated in the Remarks Column.
- 515** (4) Should the notifying administration resubmit the notice, either unchanged, or with modifications which decrease the probability of harmful interference, but not sufficiently to permit the provisions of No. **514** to be applied, and should that administration insist upon reconsideration of the notice, but should the Board's finding remain unchanged, the assignment shall be recorded in the Master Register. However, this entry shall be made only if the notifying administration informs the Board that the assignment has been in use for at least sixty days without any complaint of harmful interference having been received. The date to be entered in the appropriate part of Column 2 according to the relevant provisions of

Section III of this Article shall be the date of receipt by the Board of the original notice. The date of receipt by the Board of the advice that no complaint of harmful interference has been received shall be indicated in the Remarks Column.

516 (5) In the case of a frequency assignment recorded in accordance with the provisions of No. **515**, the Board shall investigate the assignments that contributed to the unfavourable finding, using such means at its disposal as are appropriate in the circumstances, and, with the agreement of the notifying administration concerned, shall effect any cancellations or amendments found to be necessary, in order that the recordings in the Master Register shall reflect the actual frequency usage. If, as a result, the Board is able to reach a favourable finding with respect to Nos. **502** or **503** with regard to any assignment recorded under the provisions of No. **515**, the appropriate changes shall be made in respect of the entry of that assignment in the Master Register. If the finding remains unfavourable, the Board shall enter suitable remarks in the Master Register for the entry or entries concerned which describe the situation as it has been found by the Board to exist.

517 (6) Moreover, if, as a result of investigations under No. **516** it is confirmed that an assignment recorded is being used in accordance with the notified basic characteristics, a symbol shall be entered in Column 13a of the Master Register to indicate this fact.

518 (7) Should the notifying administration resubmit the notice with modifications which increase the probability of harmful interference, and should the Board's finding remain unchanged, the resubmitted notice shall be treated under No. **513**. If the notice is resubmitted again and subsequently recorded, the date to be entered in the appropriate part of Column 2 according to the relevant provisions of Section III of this Article shall be the date of receipt by the Board of the notice submitted for the second time.

519 § 14. (1) *Finding Unfavourable with Respect to No. 501 in cases where the Provisions of Nos. 502 or 503 are not applicable (see No. 504).*

520 (2) Where the notice includes a specific reference to the fact that the station will be operated in accordance with the provisions of No. 115 of these Regulations, the assignment shall be recorded in the Master Register. The date to be entered in the appropriate part of Column 2 according to the relevant provisions of Section III of this Article shall be the date of receipt by the Board of the notice.

521 (3) Where the notice does not include a specific reference to the fact that the station will be operated in accordance with the provisions of No. 115 of these Regulations, it shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem.

522 (4) If the notifying administration resubmits the notice, the assignment shall be recorded in the Master Register. The date to be entered in the appropriate part of Column 2 according to the relevant provisions of Section III of this Article shall be the date of receipt by the Board of the resubmitted notice.

523 § 15. (1) *Finding Unfavourable with Respect to No. 501 in cases where the Provisions of Nos. 502 or 503 are applicable.*

524 (2) Where the notice includes a specific reference to the fact that the station will be operated in accordance with the provisions of No. 115 of these Regulations, it shall be examined immediately with respect to Nos. 502 or 503, and the provisions of Nos. 525 or 526 applied, as appropriate.

525 (3) If the finding is favourable with respect to Nos. 502 or 503 the assignment shall be recorded in the Master Register. The date to be entered in the appropriate part of Column 2 according to the relevant provisions of Section III of this Article shall be the date of receipt by the Board of the notice.

- 526** (4) If the finding is unfavourable with respect to Nos. **502** or **503**, the notice shall be returned immediately by airmail to the notifying administration. Should the administration insist upon re-consideration of the notice, the assignment shall be recorded in the Master Register. However, this entry shall be made only if the notifying administration informs the Board that the assignment has been in use for at least sixty days without any complaint of harmful interference having been received. The date to be entered in the appropriate part of Column 2 according to the relevant provisions of Section III of this Article shall be the date of receipt by the Board of the original notice. The date of receipt by the Board of the advice that no complaint of harmful interference has been received shall be indicated in the Remarks Column.
- 527** (5) Where the notice does not include a specific reference to the fact that the station will be operated in accordance with the provisions of No. **115** of these Regulations, it shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem.
- 528** (6) If the notifying administration resubmits the notice with modifications which result after re-examination in a favourable finding by the Board with respect to No. **501**, the notice shall be examined with respect to Nos. **502** or **503** and treated subsequently according to the provisions of Nos. **510** or **511**, or No. **513** as appropriate. The date to be entered in the appropriate part of Column 2 according to the relevant provisions of Section III of this Article shall be the date of receipt by the Board of the modified notice.
- 529** (7) If, however, the notifying administration insists upon re-consideration of the notice, and should the Board's finding remain unchanged, the notice shall be examined with respect to Nos. **502** or **503** and the provisions of Nos. **530** or **531** applied, as appropriate.

- 530** (8) If the finding is favourable with respect to Nos. **502** or **503**, the assignment shall be recorded in the Master Register. The date to be entered in the appropriate part of Column 2 according to the relevant provisions of Section III of this Article shall be the date of receipt by the Board of the resubmitted notice.
- 531** (9) If the finding is unfavourable with respect to Nos. **502** or **503**, the notice shall be returned immediately by airmail to the notifying administration. Should the administration insist upon reconsideration of the notice, the assignment shall be recorded in the Master Register. However, this entry shall be made only if the notifying administration informs the Board that the assignment has been in use for at least sixty days without any complaint of harmful interference having been received. The date to be entered in the appropriate part of Column 2 according to the relevant provisions of Section III of this Article shall be the date of receipt by the Board of the first resubmitted notice. The date of receipt by the Board of the advice that no complaint of harmful interference has been received shall be indicated in the Remarks Column.
- 532** § 16. (1) *Change in the basic Characteristics of Assignments already recorded in the Master Register.*
- 533** (2) A notice of a change in the basic characteristics of an assignment already recorded, as specified in Appendix 1 (except those entered in Columns 3, 4a and 11 of the Master Register), shall be examined by the Board according to Nos. **501** and **502, 503** or **504**, as appropriate, and the provisions of Nos. **507** to **531** inclusive applied. Where the change should be recorded, the assignment shall be amended according to the notice.
- 534** (3) However, in the case of a change in the basic characteristics of an assignment (except a change of the assigned frequency which exceeds half of the frequency band originally assigned, as defined in No. **89**) which is in conformity with No. **501**, should the Board reach a favourable finding with respect to Nos. **502** or **503**, or find that the change does not increase the probability of

harmful interference to assignments already recorded, the amended assignment shall retain the original date in the appropriate part of Column 2. In addition, the date of receipt by the Board of the notice relating to the change shall be entered in the Remarks Column.

535 § 17. *In applying the provisions of the whole of this Sub-Section,*
Spa any resubmitted notice which is received by the Board more than one hundred and eighty days after the date of its return by the Board shall be considered as a new notice.

536 § 18. (1) *Recording of Frequency Assignments notified before being brought into use.*

537 (2) If a frequency assignment notified in advance of bringing into use has received favourable findings by the Board with respect to Nos. **501** and **502** or **503**, it shall be entered provisionally in the Master Register with a special symbol in the Remarks Column indicating the provisional nature of that entry.

538 (3) If, within the period of thirty days (see No. **491**) after the projected date of bringing into use, the Board receives confirmation from the notifying administration of the date of putting into use, the special symbol shall be deleted from the Remarks Column. In the case where the Board, in the light of a request from the notifying administration received before the end of the thirty-day period, finds that exceptional circumstances warrant an extension of this period, the extension shall in no case exceed ninety days.

539 (4) If the Board does not receive this confirmation within the period referred to in No. **538**, the entry concerned shall be cancelled.

540 (5) The provisions of Nos. **537** to **539** do not apply to frequency assignments which are in conformity with the Allotment
Aer Plans appearing in Appendices 25, 26 and 27 to these Regulations; such frequency assignments shall be entered in the Master Register on receipt of the notice by the Board.

541 § 19. (1) *Examination of Notices concerning Frequency Assignments to Radiotelephone Coast Stations in the Bands allocated exclusively to the Maritime Mobile Service between 4 000 and 23 000 kcls for Radiotelephone Coast Stations (see No. 500).*

542 (2) The Board shall examine each notice covered by No. **541** to determine whether the notified assignment is in conformity with an allotment in Section I or Section II of the Allotment Plan contained in Appendix 25 to these Regulations, i.e. whether the frequency, the area of allotment, the power and any limitations are those specified in that Appendix.

543 (3) Any frequency assignment for which the finding is favourable with respect to No. **542** shall be recorded in the Master Register (see also No. **540**). The date to be entered in Column 2a or 2b shall be that determined according to the relevant provisions of Section III of this Article.

544 (4) If a notice relates to an amendment to an assignment in conformity with an allotment in Section I or Section II of the Allotment Plan, which is only a change in the characteristics (including the frequency) of the emission of a radiotelephone coast station, without extending the necessary bandwidth beyond the upper or lower limits of the band provided for double sideband emissions in accordance with the Table in Appendix 17, the original assignment shall be amended according to the notice. The date to be entered in Column 2a or 2b shall be that determined according to the relevant provisions of Section III of this Article.

545 (5) In the case of a notice which is not in conformity with the provisions of Nos. **542** or **544**, the Board shall examine this notice with respect to the probability of harmful interference to the service rendered by a radiotelephone coast station for which a frequency assignment :

- a) is in conformity with one of the allotments in Section I or II of the Plan and is already recorded in the Master Register or may be so recorded in the future ; or

- b) was recorded in the Master Register on a frequency specified in Appendix 17 as a result of a favourable finding with respect to Nos. 544 or 545 ; or
- c) was recorded in the Master Register on a frequency specified in Appendix 17 after an unfavourable finding with respect to Nos. 544 or 545, but has not, in fact, caused harmful interference to any frequency assignment to a radiotelephone coast station previously recorded in the Master Register.

546 (6) According to the finding of the Board with respect to No. 545, further action shall be in accordance with the provisions of Nos. 509 to 518 inclusive, or Nos. 532 to 534 inclusive, as appropriate, it being understood that in those provisions No. 545 shall be read for Nos. 501 and 502.

547 § 20. (1) *Examination of Notices concerning Frequencies used for Reception by Radiotelephone Coast Stations in the Bands allocated exclusively to the Maritime Mobile Service between 4 000 and 23 000 kc/s for Radiotelephone Ship Stations (see Nos. 487 and 500).*

548 (2) The Board shall examine each notice covered by No. 547 to determine whether the notified assignment corresponds to a frequency associated, according to Appendix 17, with a frequency allotted to the notifying administration under Section I or Section II of the Allotment Plan contained in Appendix 25 to these Regulations.

549 (3) Any frequency assignment for which the finding is favourable with respect to No. 548 shall be recorded in the Master Register. The date to be entered in Column 2a or 2b shall be that determined according to the relevant provisions of Section III of this Article.

550 (4) Where a notice relates to an amendment to an assignment of a frequency which is associated, according to Appendix 17, with a frequency allotted to the notifying administration under Section I

or Section II of the Plan, and this amendment is only a change in the characteristics (including the frequency) of the emission of radio-telephone ship stations, without extending the necessary bandwidth beyond the upper or lower limits of the band provided for double sideband emissions in accordance with the Table in Appendix 17, the original assignment shall be amended according to the notice. The date to be entered in Column 2a or 2b shall be that determined according to the relevant provisions of Section III of this Article.

551 (5) Any assignment of a frequency for reception by a radio-telephone coast station which is not in conformity with No. **548** shall be recorded in the Master Register. The date to be entered in Column 2b shall be that determined according to the relevant provisions of Section III of this Article.

552 § 21. (1) *Examination of Notices concerning Frequency Assignments to Aeronautical Stations in the Aeronautical Mobile (R) Service in the Bands allocated exclusively to that Service between 2 850 and 17 970 kc/s (see No. 500).*

553 (2) The Board shall examine each notice covered by No. **552** to determine whether :

554 *a) the frequency corresponds to one of the frequencies specified in Column 1 of the Allotment Plan for the aeronautical mobile (R) service contained in Part II, Section II, Article 2 of Appendix 27, or the assignment is the result of a permissive change from one class of emission to another and the necessary bandwidth is within the channelling arrangement provided for in Appendix 27;*

555 *b) the limitations of use set forth in Column 3 of the Plan have been appropriately observed ;*

556 *c) the notice is in conformity with the technical principles of the Plan set forth in Appendix 27;*

557 *d) the area of use is within the boundaries of the Areas as set forth in Column 2 of the Plan.*

558 (3) In the case of a notice in conformity with the provisions
Aer of Nos. **554** to **556**, but not with those of No. **557**, the Board, shall examine whether the protection specified in Appendix 27 Part I, Section II A, paragraph 5, is afforded to the allotments in the Plan. In doing so, the Board shall assume that the frequency will be used in accordance with the "Sharing conditions between areas" specified in Appendix 27, Part I, Section II B, paragraph 4 .

559 SUP (Aer)

560 (4) All frequency assignments referred to in No. **552** shall
Aer be recorded in the Master Register according to the findings reached by the Board. The date to be entered in Column 2a or 2b shall be that determined according to the relevant provisions of Section III of this Article.

561 § 22. (1) *Examination of Notices concerning Frequency Assignments to Aeronautical Stations in the Aeronautical Mobile (OR) Service in the Bands allocated exclusively to that Service between 3 025 and 18 030 kcls (see No. 500).*

562 (2) The Board shall examine each notice covered by No. **561** to determine whether :

563 a) the assignment is in conformity with the primary allotments in the Allotment Plan for the aeronautical mobile (OR) service and the conditions specified in Appendix 26 (Parts III and IV) ;

564 b) the assignment is in conformity with or satisfies the requirements for secondary allotments in the Allotment Plan for the aeronautical mobile (OR) service and the conditions specified in Appendix 26 (Part III, Section II, paragraph 4, sub-paragraph *d*), and Part IV). In applying these provisions, the Board shall assume that the frequency will be used on a day-time basis ;

- 565** c) the assignment is the result of a permissive change from one class of emission to another, its occupied bandwidth is within the channelling arrangement provided for in Appendix 26 (Part III, Section II, paragraphs 1 and 2), and it meets all the conditions for a primary or secondary allotment in the Plan, except that the assigned frequency does not correspond numerically with one of the frequencies specified therein.
- 566** (3) The technical criteria to be employed by the Board in its examination of these notices shall be those in Appendix 26 (Part III).
- 567** (4) All frequency assignments referred to in No. 561 shall be recorded in the Master Register according to the findings reached by the Board. The date to be entered in Column 2a or 2b shall be that determined according to the relevant provisions of Section III of this Article.
- 568** § 23. (1) *Frequency Assignments to Broadcasting Stations in the Bands allocated exclusively to the Broadcasting Service between 5 950 and 26 100 kc/s (see No. 500).*
- 569** (2) When the Board has prepared according to the provisions of Article 10 the High Frequency Broadcasting Schedule for a particular season, this Schedule shall be compared with the listings in the Master Register, to determine whether all the frequency assignments included in that Schedule correspond to frequency assignments recorded in the Master Register on behalf of the administrations concerned.
- 570** (3) In the case where a frequency assignment included in a Schedule for a particular season is not covered by any listing in the Master Register, that frequency assignment shall be considered as being notified, and the Board, without further examination, shall make an appropriate entry in the Master Register. The date to be entered in the appropriate part of Column 2 according to the relevant provisions of Section III of this Article shall be the date of receipt by the Board of the projected seasonal schedule.

Sub-Section IIB. Procedure to be followed in cases where the provisions of No. 492A are applicable

570AA § 23A. The Board shall examine each notice:

Spa

570AB

Spa

a) with respect to its conformity with the Convention, the Table of Frequency Allocations and the other provisions of the Radio Regulations (with the exception of those relating to the co-ordination procedure and the probability of harmful interference);

570AC

Spa

b) with respect to its conformity with the provisions of No. 492A relating to co-ordination of the use of the frequency assignment with the other administrations concerned;

570AD

Spa

c) where appropriate, with respect to the probability of harmful interference to the service rendered by an earth receiving station for which a frequency assignment already recorded in the Master Register is in conformity with the provisions of No. 639AS, and if the corresponding frequency assignment to the space transmitting station has not, in fact, caused harmful interference to any frequency assignment in conformity with No. 501 or 570AB, as appropriate, previously recorded in the Master Register.

570AE§ 23B. Depending upon the findings of the Board subsequent to Spa the examination prescribed in Nos. 570AB, 570AC and 570AD, further action shall be as follows:

570AF§ 23C.(1) *Finding unfavourable with respect to No. 570AB.*

Spa

570AG

Spa

(2) Where the notice includes a specific reference to the fact that the station will be operated in accordance with the provisions of No. 115, the assignment shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d.

570AH (3) Where the notice does not include a specific reference to
 Spa the fact that the station will be operated in accordance with the provisions of No. **115**, it shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem.

570AI (4) If the notifying administration resubmits the notice un-
 Spa changed, it shall be treated in accordance with the provisions of No. **570AH**.

570AJ (5) If it is resubmitted with a specific reference to the fact that
 Spa the station will be operated in accordance with the provisions of No. **115**, the assignment shall be recorded in the Master Register. The date of receipt by the Board of the resubmitted notice shall be entered in Column 2d.

570AK (6) If the notifying administration resubmits the notice with
 Spa modifications which, after re-examination, result in a favourable finding by the Board with respect to No. **570AB**, the notice shall be treated under the provisions of Nos. **570AL** to **570AY**. However, in any subsequent recording of the assignment, the date of receipt by the Board of the resubmitted notice shall be entered in Column 2d.

570AL § 23D. (1) *Finding favourable with respect to No. 570AB.*
 Spa

570AM (2) Where the Board finds that the co-ordination procedure
 Spa mentioned in No. **570AC** has been successfully completed with all administrations whose earth stations may be affected, the assignment shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d.

570AN (3) Where the Board finds that the co-ordination procedure
 Spa mentioned in No. **570AC** has not been applied, and the notifying administration requests the Board to effect the required co-ordination, the Board shall take the appropriate action necessary and shall inform the administrations concerned of the results obtained. If the Board's efforts are successful, the notice shall be treated in accordance with No. **570AM**. If the Board's efforts are unsuccessful, the notice

shall be examined by the Board with respect to the provisions of No. **570AD**.

570AO (4) Where the Board finds that the co-ordination procedure mentioned in No. **570AC** has not been applied, and the notifying administration does not request the Board to effect the required co-ordination, the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this action and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem.

570AP (5) Where the notifying administration resubmits the notice and the Board finds that the co-ordination procedure mentioned in No. **570AC** has been successfully completed with all administrations whose earth stations may be affected, the assignment shall be recorded in the Master Register. The date of receipt by the Board of the original notice shall be entered in Column 2d. The date of receipt by the Board of the resubmitted notice shall be entered in the Remarks Column.

570AQ (6) Where the notifying administration resubmits the notice with a request that the Board effect the required co-ordination, it shall be treated in accordance with the provisions of No. **570AN**. However, in any subsequent recording of the assignment, the date of receipt by the Board of the resubmitted notice shall be entered in the Remarks Column.

570AR (7) Where the notifying administration resubmits the notice and states it has been unsuccessful in effecting the co-ordination, it shall be examined by the Board with respect to the provisions of No. **570AD**. However, in any subsequent recording of the assignment, the date of receipt by the Board of the resubmitted notice shall be entered in the Remarks Column.

570AS§23E.(1) *Finding favourable with respect to Nos. 570AB and 570AD.*

570AT (2) The assignment shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d.

570AU§23F.(1) *Finding favourable with respect to No. 570AB but unfavourable with respect to No. 570AD.*

570AV (2) The notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem.

570AW (3) Should the notifying administration resubmit the notice with modifications which result, after re-examination, in a favourable finding by the Board with respect to No. **570AD**, the assignment shall be recorded in the Master Register. The date of receipt by the Board of the original notice shall be entered in Column 2d. The date of receipt by the Board of the resubmitted notice shall be indicated in the Remarks Column.

570AX (4) Should the notifying administration resubmit the notice, either unchanged, or with modifications which decrease the probability of harmful interference, but not sufficiently to permit the provisions of No. **570AW** to be applied, and should that administration insist upon reconsideration of the notice, but should the Board's finding remain unchanged, the assignment shall be recorded in the Master Register. However, this entry shall be made only if the notifying administration informs the Board that the assignment has been in use for at least one hundred and twenty days without any complaint of harmful interference having been received. The date of receipt by the Board of the original notice shall be entered in Column 2d. The date of receipt by the Board of the advice that no complaint of harmful interference has been received shall be indicated in the Remarks Column.

570AY (5) The period of one hundred and twenty days mentioned in No. **570AX** shall count from:

- the date when the assignment to the station in the fixed or mobile service which received an unfavourable finding is brought into use, if the assignment to the earth station is then in use;

— otherwise, from the date when the assignment to the earth station is brought into use.

But if the assignment to the earth station has not been brought into use by the notified date, the period of one hundred and twenty days shall be counted from this date. Allowance may be made for the additional period mentioned in No. **570BF**.

570AZ§23G.(1) *Change in the Basic Characteristics of Assignments already recorded in the Master Register.*

570BA (2) A notice of a change in the basic characteristics of an assignment already recorded, as specified in Appendix 1 (except those entered in Columns 3 and 4a of the Master Register), shall be examined by the Board according to Nos. **570AB** and **570AC** and, where appropriate, No. **570AD**, and the provisions of Nos. **570AF** to **570AY** inclusive applied. Where the change should be recorded, the assignment shall be amended according to the notice.

570BB (3) However, in the case of a change in the basic characteristics of an assignment which is in conformity with No. **570AB**, should the Board reach a favourable finding with respect to No. **570AC**, and, where its provisions are applicable, with respect to No. **570AD**, or find that the change does not increase the probability of harmful interference to assignments already recorded, the amended assignment shall retain the original date in Column 2d. In addition, the date of receipt by the Board of the notice relating to the change shall be entered in the Remarks Column.

570BC§23H. *In applying the provisions of the whole of this Sub-Section,* any resubmitted notice which is received by the Board more than two years after the date of its return by the Board, shall be considered as a new notice.

570BD § 23I. (1) *Recording of Frequency Assignments notified before being brought into use.*

570BE (2) If a frequency assignment notified in advance of bringing into use has received a favourable finding by the Board with respect to Nos. **570AB** and **570AC** and, where appropriate, with respect to No. **570AD**, it shall be entered provisionally in the Master Register with a special symbol in the Remarks Column indicating the provisional nature of that entry.

570BF (3) If, within the period of thirty days after the projected date of bringing into use, the Board receives confirmation from the notifying administration of the date of putting into use, the special symbol shall be deleted from the Remarks Column. In the case where the Board, in the light of a request from the notifying administration received before the end of the thirty-day period, finds that exceptional circumstances warrant an extension of this period, the extension shall in no case exceed one hundred and fifty days.

570BG (4) In the circumstances described in No. **570AX**, and as long as an assignment which received an unfavourable finding cannot be resubmitted as a consequence of the provisions of No. **570AY**, the notifying administration may ask the Board to enter the assignment provisionally in the Master Register, in which event a special symbol to denote the provisional nature of the entry shall be entered in the Remarks Column. The Board shall delete this symbol when it receives from the notifying administration, at the end of the period specified in No. **570AX**, the information relating to the absence of complaint of harmful interference.

570BH (5) If the Board does not receive this confirmation within the period referred to in No. **570BF** or at the end of the period referred to in No. **570BG**, as appropriate, the entry concerned shall be cancelled.

Section III. Recording of Dates and Findings in the Master Register

571 § 24. In any case where a frequency assignment is recorded in the Master Register, the finding reached by the Board shall be indicated by a symbol in Column 13a. In addition, a remark indicating the reasons for any unfavourable finding shall be inserted in the Remarks Column.

572 § 25. The procedure for recording dates in the appropriate part
Spa of Column 2 of the Master Register which shall be applied according to the frequency bands and services concerned is described in the following Nos. **573** to **604** for frequency assignments referred to in Sub-Section IIA.

573 § 26. (1) *Frequency Bands:*

Mar

10 - 2 850 kc/s
 3 155 - 3 400 kc/s
 3 500 - 3 900 kc/s in Region 1
 3 500 - 4 000 kc/s in Region 2
 3 500 - 3 950 kc/s in Region 3
 4 231 - 4 361 kc/s
 6 345.5 - 6 514 kc/s
 8 459.5 - 8 728.5 kc/s
 12 689 - 13 107.5 kc/s
 16 917.5 - 17 255 kc/s
 22 374 - 22 624.5 kc/s

574 (2) For any assignment to which the provisions of Nos. **510**, **511** or **514** apply, the relevant date shall be entered in Column 2a of the Master Register.

575 (3) For any assignment to which the provisions of Nos. **515**, **518**, **520**, **522**, **525**, **526**, **530** or **531** apply, the relevant date shall be entered in Column 2b of the Master Register.

576 (4) However, no date shall be entered in Column 2a or Column 2b in respect of frequency assignments to broadcasting stations in Region 2 in the band 535-1 605 kc/s. The date entered in Column 2c is given for information only.

- 577** § 27. (1) *Frequency Bands allocated exclusively to the Maritime Mobile Service between 4 000 and 23 000 kc/s for Radiotelephone Coast Stations.*
- 578** (2) If the finding is favourable with respect to No. **542**, the date of 3 December, 1951 shall be entered in Column 2a in the case of an allotment in Section I of the Plan ; in the case of an allotment in Section II, the date of 4 December, 1951 shall be entered in Column 2b.
- 579** (3) If the provisions of No. **544** are found to be applicable, the date originally entered in Column 2a or 2b, as the case may be, shall be retained.
- 580** (4) For all other cases referred to in No. **541**, the relevant date shall be entered in Column 2b (see Nos. **510, 514, 515, 518, 533** and **534**).
- 581** (5) For assignments to stations other than radiotelephone coast stations, the relevant date shall be entered in Column 2b (see Nos. **525, 526, 530** and **531**).
- 582** § 28. (1) *Frequency Bands allocated exclusively to the Maritime Mobile Service between 4 000 and 23 000 kc/s for Radiotelephone Ship Stations.*
- 583** (2) If the finding is favourable with respect to No. **548**, the date of 3 December, 1951 shall be entered in Column 2a if the associated allotment appears in Section I of the Plan ; if it appears in Section II, the date of 4 December, 1951 shall be entered in Column 2b.
- 584** (3) If the provisions of **550** are found to be applicable, the date originally entered in Column 2a or 2b, as the case may be, shall be retained.
- 585** (4) In all other cases covered by No. **547**, the date of receipt of the notice by the Board shall be entered in Column 2b.
- 586** (5) For assignments other than assignments of frequencies for reception by radiotelephone coast stations, the relevant date shall be entered in Column 2b (see Nos. **525, 526, 530** and **531**).

587 § 29. (1) *Frequency Bands allocated exclusively to the Maritime Mobile Service between 4 000 and 25 110 kcls for Radiotelegraph Ship Stations (see No. 488).*

588 (2) For assignments to stations other than radiotelegraph ship stations, the relevant date shall be entered in Column 2b (see Nos. **525, 526, 530** and **531**).

589 § 30. (1) *Frequency Bands allocated exclusively to the Aeronautical Mobile (R) Service between 2 850 and 17 970 kcls.*

590 (2) If the finding is favourable with respect to Nos. **554** to
Aer 557 the date of 29 April 1966 shall be entered in Column 2a.

591 (3) If the finding is favourable with respect to No. **558**, the
Aer date of 29 April 1966 shall be entered in Column 2b.

592 (4) In all other cases covered by No. **552**, the date of receipt of the notice by the Board shall be entered in Column 2b.

593 (5) For assignments to stations other than aeronautical stations in the aeronautical mobile (R) service, the relevant date shall be entered in Column 2b (see Nos. **525, 526, 530** and **531**).

594 § 31. (1) *Frequency Bands allocated exclusively to the Aeronautical Mobile (OR) Service between 3 025 and 18 030 kcls.*

595 (2) If the finding is favourable with respect to No. **563**, the date of 3 December, 1951 shall be entered in Column 2a.

596 (3) If the finding is favourable with respect to No. **564** the date of 3 December, 1951 shall be entered in Column 2b.

597 (4) If the provisions of No. **565** are found to be applicable, the date of 3 December, 1951 shall be entered in Column 2a for a primary allotment, or in Column 2b for a secondary allotment.

- 598** (5) In all other cases covered by No. **561**, the date of receipt of the notice by the Board shall be entered in Column 2b.
- 599** (6) For assignments to stations other than aeronautical stations in the aeronautical mobile (OR) service, the relevant date shall be entered in Column 2b (see Nos. **525**, **526**, **530** and **531**).
- 600** § 32. (1) *Frequency Bands allocated exclusively to the Broadcasting Service between 5 950 and 26 100 kc/s.*
- 601** (2) For any frequency assignment which is to be recorded under the provisions of No. **570**, the relevant date shall be entered in Column 2d.
- 602** (3) For assignments to stations other than broadcasting stations, the relevant date shall be entered in Column 2d.
- 603** § 33. (1) *Frequency Bands between 3 950 kc/s (4 000 kc/s in Region 2) and 28 000 kc/s other than those allocated exclusively to the Aeronautical Mobile Service, Maritime Mobile Service, Broadcasting Service or Amateur Service, and Frequency Bands above 28 000 kc/s.*
- 604** (2) For any frequency assignment which is to be recorded under the provisions of Section II of this Article, the relevant date shall be entered in Column 2d of the Master Register.
- 605** § 34. *Date to be entered in Column 2c.*
- 606** The date to be entered in Column 2c shall be the date of putting into use notified by the administration concerned (see Nos. **491** and **492**). However, in cases covered by No. **568**, the date to be entered in this column shall be either the date of implementation of the schedule from which the assignment was extracted, or the notified date of putting into use, whichever is the later.

Section IV. Categories of Frequency Assignments

- 607** § 35. (1) Any frequency assignment which bears a date in Column 2a of the Master Register shall have the right to international protection from harmful interference.
- 608** (2) Any frequency assignment which bears a date in Column 2b is recorded in the Master Register in order that administrations may take into account the fact that the frequency assignment concerned is in use. This recording shall not give the right to international protection to the frequency assignment concerned, except as provided for in No. **502**, sub-paragraph 2).
- 609** (3) For frequency assignments having dates in two parts of Column 2, the date in Column 2c is given for information only.
- 610** (4) The existence of a symbol in Column 2d for a particular frequency assignment and of a date in that column for another assignment is not in itself to be considered as having any significance.
- 611** (5) If harmful interference to the reception of any station whose assignment is in accordance with No. **501** is actually caused by the use of a frequency assignment which is not in conformity with No. **501**, the station using the latter frequency assignment must immediately cease operations upon receipt of advice of this harmful interference.
- 611A** (6) If harmful interference to the reception of any station whose
Spa assignment is in accordance with No. **639AS** is actually caused by the use of a frequency assignment which is not in conformity with No. **501** or **570AB**, the station using the latter frequency assignment must, upon receipt of advice thereof, immediately eliminate this harmful interference.

Section V. Review of Findings

- 612** § 36. (1) The review of a finding by the Board may be undertaken :
- at the request of the notifying administration,
 - at the request of any other administration interested in the question, but only on the grounds of actual harmful interference,
 - on the initiative of the Board itself when it considers this is justified.
- 613** (2) The Board, in the light of all the data at its disposal, shall
 Spa review the matter, taking into account No. **501** or **570AB** and No. **502**, **503**, **570AC** or **570AD**, as appropriate, and shall render an appropriate finding, informing the notifying administration prior either to the promulgation of its finding or to any recording action.
- 614** § 37. If a review of an unfavourable finding has been requested by the notifying administration on the grounds of special assistance to meet an urgent and essential need in a case where harmful interference has been experienced, the Board shall consult immediately the administrations concerned and shall make such suggestions as will facilitate the operation of the assignment of the administration which asked for special assistance ; such amendments as result from this consultation shall be made to the Master Register.
- 615** § 38. (1) After actual use for a reasonable period of an assignment
 Spa which has been entered in the Master Register on the insistence of the notifying administration, following an unfavourable finding with respect to No. **502**, **503** or **570AD**, as appropriate, this administration may request the Board to review the finding. Thereupon the Board shall review the matter, first having consulted the administrations concerned.
- 616** (2) If the finding of the Board is then favourable, it shall enter in the Master Register the changes that are required so that the entry shall appear in the future as if the original finding had been favourable.
- 617** (3) If the finding with regard to the probability of harmful interference remains unfavourable, no change shall be made in the original entry.

618 § 39. In the case where a frequency assignment has been entered in the Master Register on the insistence of the notifying administration, following an unfavourable finding with respect to Nos. **502** or **503**, and where the Board finds, after having consulted the administrations concerned, that harmful interference has not, in fact, occurred, although the assignment has been in actual use, according to be notified characteristics, during a period covering all the phases of a solar cycle in which the assignment could be normally used, the Board shall amend the entry in the Master Register in such a way that it shall appear in the future as if the original finding had been favourable with respect to Nos. **502** or **503**.

**Section VI. Modification, Cancellation and Review of Entries
in the Master Register**

619 § 40. In case of permanent discontinuance of the use of any recorded frequency assignment, the notifying administration shall inform the Board within three months of such discontinuance, whereupon the entry shall be removed from the Master Register.

620 § 41. Whenever it appears to the Board from the information available that a recorded assignment has not been brought into regular operation in accordance with the notified basic characteristics, or is not being used in accordance with those basic characteristics, the Board shall consult the notifying administration and, subject to its agreement, shall either cancel or suitably modify the entry.

621 § 42. If, in connection with an enquiry by the Board under Nos. **516** or **620**, the notifying administration has failed to supply the Board within ninety days with the necessary or pertinent information, the Board shall disregard the assignment concerned when acting upon any later notice, until such time as it has been informed that the assignment is being used as notified, or until it has received the information required. The Board shall make suitable entries in the Remarks Column of the Master Register to indicate the situation, and in particular the period when the assignment was not taken into account by the Board.

622 § 43. As far as possible, the Board shall maintain the entries in the Master Register under continuous review for those bands for which technical examination by the Board is prescribed in this Article, with a view to determining whether or not the assignments are being used in accordance with the notified basic characteristics, and shall take action under No. **620**.

Section VII. Studies and Recommendations

623 § 44. (1) If it is requested by any administration, particularly by an administration of a country in need of special assistance, and if the circumstances appear to warrant, the Board, using such means at its disposal as are appropriate in the circumstances, shall conduct a study of the following problems of frequency utilization :

624 *a)* in cases arising under No. **512** as to a possible alternative frequency assignment to avoid probable harmful interference ;

625 *b)* in cases where a need arises for additional frequency assignments within a specified portion of the radio spectrum ;

626 *c)* in cases where, due to harmful interference, two or more frequencies of the same megacycle order are being used alternately to maintain communication on a circuit requiring only one frequency of that order ; and

627 *d)* in cases of alleged contravention or non-observance of these Regulations, or of harmful interference.

628 (2) The Board shall thereupon prepare and forward to the administrations concerned a report containing its finding and recommendations for the solution of the problem.

- 629** § 45. If the Board finds, in particular following a request from an administration of a country in need of special assistance, that a change in the basic characteristics, including a change of frequency within a specific frequency range, of one or more assignments in conformity with the provisions of No. 501 will :
- 630** a) accommodate a new assignment ; or
- 631** b) facilitate the solution of a problem of harmful interference ; or
- 632** c) otherwise facilitate the more effective use of a particular portion of the radio spectrum ; and
- 633** if such change is acceptable to the administration or administrations concerned, the change in basic characteristics shall be recorded in the Master Register without change in the original date or dates.
- 634** § 46. In a case where, as a result of a study, the Board submits to one or more administrations suggestions or recommendations for the solution of a problem, and where no answer has been received from one or more of these administrations within a period of thirty days, the Board shall consider that the suggestions or recommendations concerned are unacceptable to the administrations which did not answer. If it was the requesting administration which failed to answer within this period, the Board shall close the study.

Section VIII. Miscellaneous Provisions

- 635** § 47. The provisions of Sections V, VI (excepting No. 619) and VII of this Article shall not be applied to frequency assignments in conformity with the Allotment Plans contained in Appendices 25, 26 and 27 to these Regulations.
- 636** § 48. The technical standards of the Board shall be based upon the relevant provisions of these Regulations and the Appendices thereto, the decisions of Administrative Conferences of the Union as appropriate, the Recommendations of the C.C.I.R., the state of the radio art, and the development of new transmission techniques.

- 637** § 49. The Board shall promulgate to administrations its findings and reasons therefor, together with all changes made to the Master Register, through the weekly circular referred to in No. **497**, which shall be published in the working languages of the Union as defined in the Convention. In carrying out the various procedures stipulated in this Article, the Board shall use the weekly circular as a means of communicating with administrations to the maximum extent practicable.
- 638** § 50. The Board shall inform administrations, at appropriate intervals, of the cases of special assistance which were studied under Nos. **614** and **623** to **634** inclusive of these Regulations.
- 639** § 51. In case a Member or Associate Member of the Union avails itself of the provisions of Article 28 of the Convention, the Board shall, upon request, make its records available for such proceedings as are prescribed in the Convention for the settlement of international disputes.

ARTICLE 9A

Notification and Recording in the Master International Frequency Register of Frequency Assignments to Stations in the Space and Radio Astronomy Services

Section I. Notification of Frequency Assignments and Co-ordination Procedure to be Applied in appropriate Cases

639AA § 1. (1) Any *frequency assignment*¹ to an earth or space station **Spa** shall be notified to the International Frequency Registration Board:

- a) if the use of the frequency concerned is capable of causing harmful interference to any service of another administration; or
- b) if the frequency is to be used for international radio-communication; or
- c) if it is desired to obtain international recognition of the use of the frequency.

639AB (2) Similar notice shall be given for any frequency to be used **Spa** for the reception of transmissions from earth or space stations by a particular space or earth station in each case where one or more of the conditions specified in No. **639AA** are applicable.

639AC (3) Similar notice may be given for any frequency or frequency **Spa** band to be used for reception by a particular radio astronomy station, if it is desired that such data should be included in the Master Register.

639AA.1¹ The expression *frequency assignment*, wherever it appears in this Article, shall **Spa** be understood to refer either to a new frequency assignment or to a change in an assignment already recorded in the Master International Frequency Register (hereinafter called *Master Register*).

639AD § 2. (1) Before an administration notifies to the Board or brings **Spa** into use any frequency assignment to an earth station, whether for transmitting or receiving, in a particular band allocated with equal rights to the space service and the fixed or the mobile service in the frequency spectrum between one and ten Gc/s, it shall effect co-ordination of the assignment with any other administration whose territory lies wholly or partly within co-ordination distance¹, but only in respect of the fixed or the mobile service. For this purpose it shall send to any other such administration a copy of a diagram drawn to an appropriate scale indicating the location of the earth station and showing the co-ordination distance from the earth station, for the cases of transmission and reception by the earth station, as a function of azimuth and the data on which it is based, including all pertinent details of the proposed frequency assignment, as listed in Appendix 1A, and an indication of the approximate date on which it is planned to begin operations.

639AE (2) An administration with which co-ordination is sought under **Spa** No. **639AD** shall acknowledge receipt of the co-ordination data within thirty days and shall promptly examine the matter to establish:

- a) in the case of a frequency assignment to be used for transmitting by the earth station, whether the use would cause harmful interference to the service rendered by its stations in the fixed or the mobile service operating in accordance with the Convention and these Regulations, or to be so operated within the next two years;

639AD.1¹ For the purposes of this Article the expression "co-ordination distance" means **Spa** the distance from an earth station calculated along the lines of the procedures shown in Recommendation NoSpa1, within which there is a possibility of the use of a given transmitting frequency at this earth station causing harmful interference to stations in the fixed or the mobile service in the frequency spectrum between one and ten Gc/s, sharing the same frequency band, or, as the case may be, of the use of a given frequency for reception at this earth station receiving harmful interference caused by such stations in the fixed or the mobile service.

- b)* in the case of a frequency assignment to be used for reception by the earth station, whether harmful interference would be caused to reception at the earth station by the service rendered by its stations in the fixed or the mobile service operating in accordance with the Convention and these Regulations, or to be so operated within the next two years;

and shall, within a further period of thirty days, notify the administration requesting co-ordination of its agreement. If the administration with which co-ordination is sought does not agree it shall, within the same period, send to the administration seeking co-ordination a copy of a diagram drawn to an appropriate scale showing the location of its stations in the fixed or the mobile service which are within the co-ordination distance of the earth transmitting or receiving station, as appropriate, together with all other relevant basic characteristics, and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem. A copy of these data shall be sent to the Board, as notification within the period specified for such a case in No. 491.

639AF (3) No co-ordination under No. **639AD** is required when an **Spa** administration proposes:

- a)* to bring into use an earth station which is located in relation to the territory of any other country, outside the co-ordination distance defined in No. **639AD.1**;
- b)* to change the characteristics of an existing assignment in such a way as not to increase the probability of harmful interference to the stations in the fixed or the mobile service of other administrations;
- c)* to bring into use an earth station in the band 4 400-4 700 Mc/s or the band 8 100-8 400 Mc/s; or
- d)* to operate an earth station located on board a ship or aircraft; however, in such a case the operation of this

station in a band referred to in No. 639AD, if the ship or aircraft is within the co-ordination distance with respect to the boundaries of another country, shall be subject to prior agreement between the administrations concerned, in order to avoid harmful interference to the established fixed and mobile services of that country.

639AG (4) An administration seeking co-ordination may request the
Spa Board to endeavour to effect co-ordination in those cases where:

- a) an administration with which co-ordination is sought under No. 639AD fails to reply within a period of ninety days;
- b) there is a disagreement between the administration seeking co-ordination and an administration with which co-ordination is sought as to the probability of harmful interference; or
- c) co-ordination between administrations is not possible for any other reason.

In so doing, it shall furnish the Board with the necessary information to enable it to effect such co-ordination.

639AH (5) Either the administration seeking co-ordination or an
Spa administration with which co-ordination is sought, or the Board, may request additional information which they may require to assess the probability of harmful interference to the services concerned.

639AI (6) Where the Board receives a request under No. 639AG a),
Spa or where the Board receives no reply within ninety days to its request for co-ordination in the case foreseen in No. 639AG c), it shall immediately send a telegram to the administration with which co-ordination is sought. If no reply has been received from that administration within a period of sixty days from the date of despatch of the telegram, it shall be deemed that the administration with which co-ordination was sought shall have undertaken that no complaint will be made in respect of any harmful interference which may be caused

by the earth station to the services rendered by its stations in the fixed or the mobile service.

639AJ (7) Where necessary, as part of the procedure under No. **639AG**,
Spa the Board shall assess the probability of harmful interference. In any case, the Board shall inform the administrations concerned of the results obtained.

639AK § 3. For any notification under No. **639AA**, **639AB**, or **639AC**,
Spa an individual notice for each frequency assignment shall be drawn up as prescribed in Appendix 1A, which specifies in Sections B, C, D, E or F the basic characteristics to be furnished, according to the case. It is recommended that the notifying administration should also supply the additional data called for in Section A of that Appendix, together with such further data as it may consider appropriate.

639AL § 4. (1) For a frequency assignment to an earth or space station,
Spa each notice must reach the Board not earlier than two years before the date on which the assignment is to be brought into use. It must reach the Board in any case not later than one hundred and eighty days before this date, except in the case of assignments in the space research service in bands allocated exclusively to this service or in shared bands in which this service is the sole primary service. In the case of such an assignment in the space research service the notice should, whenever practicable, reach the Board before the date on which the assignment is brought into use, but in any case must reach the Board not later than thirty days after the date it is actually brought into use.

639AM (2) Any frequency assignment to an earth or space station, the
Spa notice of which reaches the Board after the applicable period specified in No. **639AL**, shall, where it is to be recorded, bear a remark in the Master Register to indicate that it is not in conformity with No. **639AL**.

**Section II. Procedure for the Examination of Notices and the Recording
of Frequency Assignments in the Master Register**

639AN § 5. Any notice which does not contain at least those character-
Spa istics specified in Appendix 1A (Sections B, C, D, E, or F, as appropriate) shall be returned by the Board immediately, by airmail, to the notifying administration with the reasons therefor.

639AO § 6. Upon receipt of a complete notice, the Board shall include
Spa the particulars thereof, with the date of receipt, in the weekly circular referred to in No. 497, which shall contain the particulars of all such notices received since the publication of the previous circular.

639AP § 7. The circular shall constitute the acknowledgment to the
Spa notifying administration of the receipt of a complete notice.

639AQ § 8. Complete notices shall be considered by the Board in the
Spa order of their receipt. The Board shall not postpone the formulation of a finding unless it lacks sufficient data to render a decision in connection therewith; moreover, the Board shall not act upon any notice which has a technical bearing on an earlier notice still under consideration by the Board, until it has reached a finding with respect to such earlier notice.

639AR § 9. The Board shall examine each notice:

Spa

639AS

Spa

a) with respect to its conformity with the Convention, the Table of Frequency Allocations and the other provisions of the Radio Regulations (with the exception of those relating to the co-ordination procedure and the probability of harmful interference);

639AT

Spa

b) where appropriate, with respect to its conformity with the provisions of No. 639AD relating to the co-ordination of the use of the frequency assignment with the other administrations concerned:

639AU c) where appropriate, with respect to the probability of
Spa harmful interference to the service rendered by a station
 in the fixed or the mobile service for which a frequency
 assignment already recorded in the Master Register is in
 conformity with the provisions of No. **501** or **570AB**,
 as appropriate, if this frequency assignment has not, in
 fact, caused harmful interference to any frequency
 assignment in conformity with No. **639AS** previously
 recorded in the Master Register.

639AV § 10. Depending upon the findings of the Board subsequent to
Spa the examination prescribed in Nos. **639AS**, **639AT** and **639AU**,
 further action shall be as follows:

639AW § 11. (1) *Finding favourable with respect to No. 639AS in cases where*
Spa *the provisions of No. 639AT are not applicable.*

639AX (2) The assignment shall be recorded in the Master Register.
Spa The date of receipt by the Board of the notice shall be entered in
 Column 2d.

639AY § 12. (1) *Finding unfavourable with respect to No. 639AS.*
Spa

639AZ (2) Where the notice includes a specific reference to the fact
Spa that the station will be operated in accordance with the provisions of
 No. **115**, the assignment shall be recorded in the Master Register.
 The date of receipt by the Board of the notice shall be entered in
 Column 2d.

639BA (3) Where the notice does not include a specific reference to
Spa the fact that the station will be operated in accordance with the provi-
 sions of No. **115**, it shall be returned immediately by airmail to the
 notifying administration with the reasons of the Board for this finding
 and with such suggestions as the Board may be able to offer with a
 view to the satisfactory solution of the problem.

639BB (4) If the notifying administration resubmits the notice unchanged, it shall be treated in accordance with the provisions of No. **639BA**. If it is resubmitted with a specific reference to the fact that the station will be operated in accordance with the provisions of No. **115**, or with modifications which, after re-examination, result in a favourable finding by the Board with respect to No. **639AS**, and the provisions of No. **639AT** are not applicable, the assignment shall be recorded in the Master Register. The date of receipt by the Board of the resubmitted notice shall be entered in Column 2d.

639BC § 13. (1) *Finding favourable with respect to No. 639AS in cases where the provisions of No. 639AT are applicable.*

639BD (2) Where the Board finds that the co-ordination procedure mentioned in No. **639AT** has been successfully completed with all administrations whose fixed or mobile services may be affected, the assignment shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d.

639BE (3) Where the Board finds that the co-ordination procedure mentioned in No. **639AT** has not been applied, and the notifying administration requests the Board to effect the required co-ordination, the Board shall take the appropriate action necessary and shall inform the administrations concerned of the results obtained. If the Board's efforts are successful, the notice shall be treated in accordance with No. **639BD**. If the Board's efforts are unsuccessful, the notice shall be examined by the Board with respect to the provisions of No. **639AU**.

639BF (4) Where the Board finds that the co-ordination procedure mentioned in No. **639AT** has not been applied, and the notifying administration does not request the Board to effect the required co-ordination, the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this action and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem.

639BG (5) Where the notifying administration resubmits the notice
Spa and the Board finds that the co-ordination procedure mentioned in No. **639AT** has been successfully completed with all administrations whose fixed or mobile services may be affected, the assignment shall be recorded in the Master Register. The date of receipt by the Board of the original notice shall be entered in Column 2d. The date of receipt by the Board of the resubmitted notice shall be entered in the Remarks Column.

639BH (6) Where the notifying administration resubmits the notice
Spa with a request that the Board effect the required co-ordination, it shall be treated in accordance with the provisions of No. **639BE**. However, in any subsequent recording of the assignment, the date of receipt by the Board of the resubmitted notice shall be entered in the Remarks Column.

639BI (7) Where the notifying administration resubmits the notice
Spa and states it has been unsuccessful in effecting the co-ordination, it shall be examined by the Board with respect to the provisions of No. **639AU**. However, in any subsequent recording of the assignment, the date of receipt by the Board of the resubmitted notice shall be entered in the Remarks Column.

639BJ §14. (1) *Finding favourable with respect to Nos. 639AS and 639AU.*
Spa

639BK (2) The assignment shall be recorded in the Master Register.
Spa The date of receipt by the Board of the notice shall be entered in Column 2d.

639BL §15. (1) *Finding favourable with respect to No. 639AS but unfavourable with respect to No. 639AU.*
Spa

639BM (2) The notice shall be returned immediately by airmail to the
Spa notifying administration with the reasons of the Board for this finding and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem.

639BN (3) Should the notifying administration resubmit the notice
Spa with modifications which result, after re-examination, in a favourable finding by the Board with respect to No. **639AU**, the assignment shall be recorded in the Master Register. The date of receipt by the Board of the original notice shall be entered in Column 2d. The date of receipt by the Board of the resubmitted notice shall be indicated in the Remarks Column.

639BO (4) Should the notifying administration resubmit the notice,
Spa either unchanged, or with modifications which decrease the probability of harmful interference, but not sufficiently to permit the provisions of No. **639BN** to be applied, and should that administration insist upon reconsideration of the notice, but should the Board's finding remain unchanged, the assignment shall be recorded in the Master Register. However, this entry shall be made only if the notifying administration informs the Board that the assignment has been in use for at least one hundred and twenty days without any complaint of harmful interference having been received. The date of receipt by the Board of the original notice shall be entered in Column 2d. The date of receipt by the Board of the advice that no complaint of harmful interference has been received shall be indicated in the Remarks Column.

639BP (5) The period of one hundred and twenty days mentioned in
Spa No. **639BO** shall count from:

- the date when the assignment to the earth station which received an unfavourable finding is brought into use, if the assignment to the station in the fixed or the mobile service is then in use;
- otherwise, from the date when the assignment to the station in the fixed or the mobile service is brought into use.

But if the assignment to the station in the fixed or mobile service has not been brought into use by the notified date, the period of one hundred and twenty days shall be counted from this date. Allowance may be made for the additional period mentioned in No. **639BY**.

639BQ § 16. (1) *Notices relating to radio astronomy stations.*

Spa

639BR (2) A notice relating to a radio astronomy station shall not be examined by the Board with respect to No. **639AT** or **639AU**. Whatever the finding, the assignment shall be recorded in the Master Register with a date in Column 2c. The date of receipt by the Board of the notice shall be recorded in the Remarks Column.

639BS § 17. (1) *Change in the basic characteristics of assignments already recorded in the Master Register.*

Spa

639BT (2) A notice of a change in the basic characteristics of an assignment already recorded, as specified in Appendix 1A (except the call sign, the name of the station or the name of the locality in which it is situated) shall be examined by the Board according to No. **639AS**, and, where appropriate, No. **639AT** or **639AU**, and the provisions of No. **639AW** to **639BR** inclusive applied. Where the change should be recorded, the assignment shall be amended according to the notice.

639BU (3) However, in the case of a change in the characteristics of an assignment which is in conformity with No. **639AS**, should the Board reach a favourable finding with respect to No. **639AT** or **639AU**, where these provisions apply, or find that the change does not increase the probability of harmful interference to assignments already recorded, the amended assignment shall retain the original date in Column 2d. The date of receipt by the Board of the notice relating to the change shall be entered in the Remarks Column.

Spa

639BV § 18. *In applying the provisions of the whole of this Section, any resubmitted notice which is received by the Board more than two years after the date of its return by the Board, shall be considered as a new notice.*

Spa

639BW § 19. (1) *Recording of Frequency Assignments notified before being Sp_a brought into use.*

639BX (2) If a frequency assignment notified in advance of bringing Sp_a into use has received a favourable finding by the Board with respect to No. **639AS** and, where appropriate, No. **639AT** or **639AU**, it shall be entered provisionally in the Master Register with a special symbol in the Remarks Column indicating the provisional nature of that entry.

639BY (3) If, within the period of thirty days after the projected date Sp_a of bringing into use, the Board receives confirmation from the notifying administration of the date of putting into use, the special symbol shall be deleted from the Remarks Column. In the case where the Board, in the light of a request from the notifying administration received before the end of the thirty-day period, finds that exceptional circumstances warrant an extension of this period, the extension shall in no case exceed one hundred and fifty days.

639BZ (4) In the circumstances described in No. **639BO**, and as long Sp_a as an assignment which received an unfavourable finding cannot be resubmitted as a consequence of the provisions of No. **639BP**, the notifying administration may ask the Board to enter the assignment provisionally in the Master Register, in which event a special symbol to denote the provisional nature of the entry shall be entered in the Remarks Column. The Board shall delete this symbol when it receives from the notifying administration, at the end of the period specified in No. **639BO**, the information relating to the absence of complaint of harmful interference.

639CA (5) If the Board does not receive this confirmation within the Sp_a period referred to in No. **639BY** or at the end of the period referred to in No. **639BZ**, as appropriate, the entry concerned shall be cancelled.

Section III. Recording of Findings in the Master Register

639CB § 20. In any case where a frequency assignment is recorded in the Sp_a Master Register, the finding reached by the Board shall be indicated by a symbol in Column 13a. In addition, a remark indicating the reasons for any finding shall be inserted in the Remarks Column.

Section IV. Categories of Frequency Assignments

639CC §21. (1) The date in Column 2c shall be the date of putting into use notified by the administration concerned. It is given for information only.

639CD (2) If harmful interference to the reception of any station whose assignment is in accordance with No. **501**, **570AB** or **639AS** as appropriate, is actually caused by the use of a frequency assignment which is not in conformity with No. **639AS**, the station using the latter frequency assignment must, upon receipt of advice thereof, immediately eliminate this harmful interference.

Section V. Reviews of Findings

639CE § 22. (1) The review of a finding by the Board may be undertaken:

Spa

- at the request of the notifying administration,
- at the request of any other administration interested in the question, but only on the grounds of actual harmful interference,
- on the initiative of the Board itself when it considers this is justified.

639CF (2) The Board, in the light of all the data at its disposal, shall review the matter, taking into account No. **639AS** and No. **639AT** or **639AU**, where these latter provisions apply, and shall render an appropriate finding, informing the notifying administration prior either to the promulgation of its finding or to any recording action.

639CG §23. (1) After actual use for a reasonable period of an assignment which has been entered in the Master Register on the insistence of the notifying administration, following an unfavourable finding with respect to No. **639AU**, this administration may request the Board to review the finding. Thereupon the Board shall review the matter, having first consulted the administrations concerned.

639CH (2) If the finding of the Board is then favourable, it shall
Spa enter in the Master Register the changes that are required so that the
entry shall appear in the future as if the original finding had been
favourable.

639CI (3) If the finding with regard to the probability of harmful
Spa interference remains unfavourable, no change shall be made in the
original entry.

Section VI. Modification, Cancellation and Review of Entries in the Master Register

639CJ § 24. In case of permanent discontinuance of the use of any
Spa recorded frequency assignment, the notifying administration shall
inform the Board within ninety days of such discontinuance,
whereupon the entry shall be removed from the Master Register.

639CK § 25. Whenever it appears to the Board from the information
Spa available that a recorded assignment has not been brought into regular
operation in accordance with the notified basic characteristics, or is
not being used in accordance with those basic characteristics, the
Board shall consult the notifying administration and, subject to its
agreement, shall either cancel or suitably modify the entry.

639CL § 26. If, in connection with an enquiry by the Board under
Spa No. **639CK**, the notifying administration has failed to supply the
Board within ninety days with the necessary or pertinent information,
the Board shall make suitable entries in the Remarks Column of the
Master Register to indicate the situation.

Section VII. Studies and Recommendations

639CM § 27. (1) If it is requested by any administration, and if the cir-
Spa cumstances appear to warrant, the Board, using such means at its
disposal as are appropriate in the circumstances, shall conduct a
study of cases of alleged contravention or non-observance of these
Regulations, or of harmful interference.

639CN (2) The Board shall thereupon prepare and forward to the
Spa administration concerned a report containing its finding and recom-
 mendations for the solution of the problem.

639CO § 28. In a case where, as a result of a study, the Board submits to
Spa one or more administrations suggestions or recommendations for the
 solution of a problem, and where no answer has been received from
 one or more of these administrations within a period of ninety days,
 the Board shall consider that the suggestions or recommendations
 concerned are unacceptable to the administrations which did not
 answer. If it was the requesting administration which failed to answer
 within this period, the Board shall close the study.

Section VIII. Miscellaneous Provisions

639CP § 29. The technical standards of the Board shall be based upon
Spa the relevant provisions of these Regulations and the Appendices
 thereto, the decisions of Administrative Conferences of the Union as
 appropriate, and the Recommendations of the C.C.I.R.

639CQ § 30. The Board shall promulgate to administrations its findings
Spa and reasons therefor, together with all changes made to the Master
 Register, through the weekly circular referred to in No. 497.

639CR § 31. In case a Member or Associate Member of the Union
Spa avails itself of the provisions of Article 28 of the Convention, the
 Board shall, upon request, make its records available for such pro-
 ceedings as are prescribed in the Convention for the settlement of
 international disputes.

ARTICLE 10

**Procedure for the Bands Allocated Exclusively
to the Broadcasting Service between 5 950 and 26 100 kc/s**

Section I. Submission of Seasonal High Frequency Broadcasting Schedules

640 § 1. Periodically, administrations shall submit to the International Frequency Registration Board the projected seasonal schedules of their broadcasting stations in the bands allocated exclusively to the broadcasting service between 5 950 and 26 100 kc/s. These schedules shall cover each of the following seasonal propagation periods and shall be implemented at 0100 G.M.T. on the first Sunday of the period concerned :

March Schedule — March and April
 May Schedule — May, June, July and August
 September Schedule — September and October
 November Schedule — November, December, January
 and February.

641 § 2. The first schedules, to become effective on 4 September, 1960, for the September-October period (1960), should be received by the Board by 1 March, 1960. The closure dates for the receipt of the subsequent schedules will be set by the Board in order to permit the advance period to be reduced gradually to the minimum found practicable by the Board. Those assignments in a schedule the characteristics of which are not expected to change may be submitted up to a limit of one year in advance. Each such assignment shall be confirmed by the closing date for the submission of the schedules for the respective seasonal periods. The Board shall take appropriate steps to send reminders to administrations in carrying out this procedure.

642 § 3. Two or more administrations may submit co-ordinated schedules containing their agreed projected frequency usage.

- 643** § 4. The frequencies shown in the schedules shall be frequencies that actually will be used for that particular seasonal period and their number should be the minimum necessary to provide satisfactory reception of the particular programme in each of the areas for which it is intended. Each administration should prepare its schedule from season to season by using to the maximum extent practicable the same frequencies in each band as were used in previous schedules.
- 644** § 5. The schedules shall be submitted in the form prescribed in Appendix 2, which specifies the data to be furnished for each assignment.
- 645** § 6. The frequencies included in the schedules shall be in conformity with No. 501 of these Regulations. To the extent practicable, the frequencies selected should correspond to listings in the Master International Frequency Register. Those administrations not having suitable listings in the Master Register may suggest any frequency considered appropriate, or may, if they so desire, indicate only the frequency band.

**Section II. Preliminary Examination and Preparation of
Tentative High Frequency Broadcasting Schedule**

- 646** § 7. (1) Upon receipt of the seasonal schedules, including confirmation in appropriate cases of the continuing validity of assignments included in preceding schedules, the Board shall incorporate the proposed frequency usage of all administrations into a combined schedule and make the appropriate preliminary examination required to prepare the Tentative High Frequency Broadcasting Schedule (hereafter called the *Tentative Schedule*) for the particular seasonal period. This Tentative Schedule shall include :
- a) all specific frequency assignments in cases where no alternatives were given by the administration concerned ;
 - b) the selections made by the Board in cases where alternatives were given by the administration concerned ;

- c) frequencies suggested by the Board in respect of all services for which no specific frequency was included in the submitted schedule, such suggestions to be made with due overall consideration for No. 647, for compatibility within the Tentative Schedule, and for possible changes to the projected frequency usage which might be desirable to achieve more equitable satisfaction of administrations' requirements ;
 - d) such apparent incompatibilities between frequency assignments which the Board can indicate within the time available.
- 647** (2) Upon the request of administrations, particularly those of countries in need of special assistance and which have no suitable listings in the Master Register, the Board shall give special consideration to the requirements of those administrations in preparing the Tentative Schedule.
- 648** (3) The Board shall begin the work outlined in No. 646 early enough for the Tentative Schedule to be issued to administrations not later than two months before the date when the particular seasonal period begins.

Section III. Technical Examination and Revision of the Tentative Schedule

- 649** § 8. (1) The Board shall continue its technical examination of the Tentative Schedule with a view not only to identifying further incompatibilities between frequency assignments which become apparent in the technical examination, and correct them where possible, but also to improving the technical aspects of the Tentative Schedule by amendments to be agreed upon in consultation with the administrations concerned.
- 650** (2) In preparing its recommendations to administrations the Board shall take into account monitoring observations and all other available data. However, when actual frequency usage is apparently not in conformity with the assignments in a submitted schedule, the Board shall seek from the administration concerned confirmation of this information.

- 651** (3) Administrations, having considered the Tentative Schedule together with such recommendations as may have been furnished by the Board, should notify, as soon as possible, preferably before the date of commencement of the seasonal period concerned, any amendments to the Tentative Schedule which are intended for implementation.
- 652** (4) Changes in the assignments of broadcasting stations which are implemented after the date on which the seasonal period begins shall be notified to the Board as soon as they can be forecast.
- 653** (5) For changes notified in accordance with Nos. **651** and **652**, the Board shall apply the same procedure as that specified in Nos. **647**, **649** and **650**. Such revisions to the Tentative Schedule as result from the application of the procedure in this Section shall be published in the weekly circulars of the Board in order that administrations can keep up to date their copies of the Tentative Schedule.

Section IV. Publication of the High Frequency Broadcasting Schedule

- 654** § 9. After the end of each seasonal period, the Board shall publish the High Frequency Broadcasting Schedule, which shall reflect the Tentative Schedule as amended by all the changes notified to the Board since the publication of the Tentative Schedule. This High Frequency Broadcasting Schedule shall indicate by appropriate symbols :
- a)* those assignments which administrations found in practice to be unsatisfactory and so notified to the Board ; and
 - b)* those assignments not included in the Tentative Schedule which were taken into account by the Board in the examination under Section III of this Article.

Section V. Annual High Frequency Broadcasting Frequency List

- 655** § 10. A High Frequency Broadcasting Frequency List shall be published at the end of the first year of implementation of the procedure prescribed in this Article, including all frequency assignments which appear in the High Frequency Broadcasting Schedules for the year concerned. This list shall be issued as a supplement to the International Frequency List, and in the same general format. It shall also include symbols to indicate those assignments which were notified to the Board as being unsatisfactory in practice, as well as symbols to indicate the seasonal periods during which each assignment was used. A recapitulative list shall be issued annually thereafter.

Section VI. Miscellaneous Provisions

- 656** § 11. The technical standards used by the Board when applying the provisions of this Article should be based, not only on the factors listed in No. **636** but also on past experience in broadcasting planning and on the experience gained by the Board in the application of the provisions of this Article.
- 657** § 12. With a view to the ultimate evolution of compatible technical plans for the frequency bands concerned, the Board shall take all necessary steps to carry out engineering studies on a long-term basis. For this purpose, the Board shall use all information made available to it on frequency usage in the application of the procedure prescribed in this Article. The Board shall also keep administrations informed of the progress and results of such studies at regular intervals.
- 658** § 13. In applying the provisions of Article 15 of these Regulations, problems of harmful interference which may arise in frequency usage in the bands concerned shall be resolved by administrations by exercising the utmost goodwill and mutual co-operation and by giving due consideration to all the relevant technical and operational factors involved.

ARTICLE 11

Internal Regulations of the International Frequency Registration Board

- 659** § 1. The Board shall meet as frequently as necessary to deal expeditiously with its work and, normally, at least once a week.
- 660** § 2. (1) The members of the Board shall elect from among their number a Chairman and a Vice-Chairman, each to hold office for a term of one year. Thereafter, the Vice-Chairman shall succeed annually to the Chairmanship and a new Vice-Chairman shall be elected.
- 661** (2) In the unavoidable absence of the Chairman and Vice-Chairman, the Board shall elect a temporary Chairman for the occasion from among its members.
- 662** § 3. (1) Each member of the Board, including the Chairman, shall have one vote. Voting by proxy or by correspondence is not allowed.
- 663** (2) The minutes shall indicate whether a decision was unanimous or by a majority.
- 664** (3) A quorum of the Board shall be one-half of the number of members of the Board. If, however, the verdict of such a quorum on a question coming before it is not unanimous, the question shall be referred for decision at a later meeting at which at least two-thirds of the total number of members of the Board are present. If these calculations result in a fraction, the fraction shall be rounded up to a whole number.

665 (4) The Board shall endeavour to reach its decisions by unanimous agreement. If the Board fails in that endeavour, it shall thereafter decide the problem on the basis of a two-thirds majority vote of the members present and voting for or against.

666 § 4. The documents of the Board, which shall comprise a complete record of its official actions and minutes of its meetings, shall be maintained by the Board in the working languages of the Union as defined in the Convention ; for this purpose, as well as for the meetings of the Board, the necessary linguistic personnel, and such other facilities as may be required, shall be provided by the Secretary General. A copy of all documents of the Board shall be available for public inspection at the offices of the Board.

CHAPTER IV**Measures against Interference****ARTICLE 12****Technical Characteristics of Equipment
and Emissions**

- 667** § 1. (1) The choice and performance of equipment to be used in a station and any emissions therefrom shall satisfy the provisions of these Regulations.
- 668** (2) Also, as far as is compatible with practical considerations, the choice of transmitting, receiving and measuring equipment shall be based on the most recent advances in the technique as indicated, inter alia, in the C.C.I.R. Recommendations.
- 669** § 2. Transmitting and receiving equipment intended to be used in a given part of the frequency spectrum should be designed to take into account the technical characteristics of equipment likely to be employed in neighbouring parts of the spectrum.
- 670** § 3. To the maximum extent possible, amplitude modulation systems should use single sideband emissions having characteristics in accordance with the relevant C.C.I.R. Recommendations.
- 671** § 4. (1) Transmitting stations shall conform to the frequency tolerances specified in Appendix 3.
- 672** (2) Transmitting stations shall conform to the tolerances specified for spurious emissions in Appendix 4.
- 673** (3) Moreover, every effort should be made to keep frequency tolerances and levels of spurious emissions at the lowest values which the state of the technique and the nature of the service permit.

674 § 5. The bandwidths of emissions also shall be kept at the lowest values which the state of the technique and the nature of the service permit. Appendix 5 is provided as a guide for the determination of the necessary bandwidth.

675 § 6. To ensure compliance with these Regulations, administrations shall arrange for frequent checks to be made of the emissions of stations under their jurisdiction, the technique of measurements being in accordance with the most recent Recommendations of the C.C.I.R.

676 § 7. Administrations shall co-operate in the detection and elimination of harmful interference, employing where appropriate the facilities described in Article 13 and the procedures detailed in Article 15.

677 § 8. The use of class B emissions is forbidden in all stations.
Mar

ARTICLE 13

International Monitoring

- 678** § 1. Administrations agree to continue the development of monitoring facilities to assist in the implementation of these Regulations and to co-operate, to the extent practicable, in the continued development of an international monitoring system.
- 679** § 2. Monitoring stations participating in the international monitoring system may be operated by an administration or by a public or private enterprise recognized by its administration or by a common monitoring service established by two or more countries or by an international organization.
- 680** § 3. Administrations will, as far as they consider practicable, conduct such monitoring of both a general and a specific nature as may be required of them by the International Frequency Registration Board or by other administrations. In requesting monitoring observations, the Board and administrations should take into account the monitoring facilities set forth in the List of International Monitoring Stations (see Article 20), and should clearly specify both the purpose for which the observations are requested and the parameters of the requested monitoring work (including appropriate schedules). The results of such monitoring forwarded to other administrations may also be sent to the Board, if appropriate.
- 681** § 4. Each administration or common monitoring service established by two or more countries, or international organization participating in the international monitoring system, shall designate a centralizing office to which all requests for monitoring information shall be addressed and through which monitoring information will be forwarded to the Board or to centralizing offices of other administrations.

- 682** § 5. Administrations agree that monitoring requests from international organizations not participating in the international monitoring system should be co-ordinated by the Board and, if appropriate, forwarded by it to administrations.
- 683** § 6. However, these provisions shall not affect private monitoring arrangements made for special purposes by administrations, international organizations, or public or private enterprises.
- 684** § 7. The technical standards recommended by the C.C.I.R. to be observed by monitoring stations shall be recognized by the Board as the optimum practicable technical standards for monitoring stations participating in the international monitoring system. However, to meet some needs for monitoring data, stations observing lower technical standards may participate in the international monitoring system at the discretion of their administrations.
- 685** § 8. Administrations or international organizations, having determined whether their monitoring stations meet adequate technical standards, shall notify to the Secretary General pertinent information of the centralizing office and of the stations which may participate in the international monitoring system, as prescribed in Article 20 and Appendix 9.
- 686** § 9. (1) Results of measurements forwarded to the Board or other administrations shall indicate the estimated accuracy obtained at the time the measurements were made.
- 687** (2) Where the results supplied by any monitoring station appear to be doubtful or insufficient for its purposes, the Board shall advise the administration or international organization concerned giving the appropriate details.
- 688** § 10. When rapid action is required, communications between the Board and centralizing offices should be transmitted by the most expeditious means available.

- 689** § 11. To ensure that published monitoring data are current and world-wide in nature, administrations having jurisdiction over monitoring stations listed in the List of International Monitoring Stations (see Article 20) shall make every effort, as practicable, to arrange for monitoring observations to be made by such stations and submitted to the Board as soon as possible after the date of observation.
- 690** § 12. Centralizing offices may request the help of other centralizing offices in order to implement the provisions of this Article and of Article 15.
- 691** § 13. The Board shall record the results supplied by the monitoring stations participating in the international monitoring system.
- 692** § 14. The Board shall prepare periodically, for publication by the Secretary General, summaries of the useful monitoring data received by it including a list of the stations contributing the data.

ARTICLE 14

Interference and Tests**Section I. General Interference**

- 693** § 1. All stations are forbidden to carry out :
- unnecessary transmissions ;
 - the transmission of superfluous signals and correspondence ;
 - the transmission of signals without identification (see Article 19).¹
- 694** § 2. All stations shall radiate only as much power as is necessary to ensure a satisfactory service.
- 695** § 3. In order to avoid interference:
- Spa**
- locations of transmitting stations and, where the nature of the service permits, locations of receiving stations shall be selected with particular care;
 - radiation in and reception from unnecessary directions shall be minimized, where the nature of the service permits, by taking the maximum practical advantage of the properties of directional antennae;
 - the choice and use of transmitters and receivers shall be in accordance with the provisions of Article 12 ;
 - space stations shall be fitted with appropriate devices to quickly terminate their radio emissions whenever required to do so under the provisions of these Regulations.

693-1 ¹ In the present state of the technique, it is recognized nevertheless that
Spa * the transmission of identifying signals for certain radio systems (e.g. radio-determination, radio relay systems and space systems) is not always possible.

- 696** § 4. The class of emission to be employed by a station should be such as to achieve minimum interference and to assure efficient spectrum utilization. In selecting the class of emission to meet these objectives every effort shall be made to minimize the bandwidth occupied, taking into account the practical and technical considerations of the service to be performed.
- 697** § 5. If, while complying with the provisions of Article 12, a station causes harmful interference through its spurious emissions, special measures shall be taken to eliminate such interference.

Section II. Industrial Interference

- 698** § 6. Administrations shall take all practicable and necessary steps to ensure that the operation of electrical apparatus or installations of any kind, including power networks, does not cause harmful interference to a radio service operating in accordance with the provisions of these Regulations.

Section III. Special Cases of Interference

- 699** § 7. Administrations authorizing the use of frequencies below 10 kc/s for special national purposes shall ensure that no harmful interference is caused thereby to the services to which the bands above 10 kc/s are allocated.

Section IV. Tests

- 700** § 8. (1) Before authorizing tests and experiments in any station, each administration, in order to avoid harmful interference, shall prescribe the taking of all possible precautions such as the choice of frequency and of time and the reduction or, in all cases where this is possible, the suppression of radiation. Any harmful interference resulting from tests and experiments shall be eliminated with the least possible delay.

- 701** (2) A station making emissions for tests, adjustments, or experiments, shall transmit, at slow speed and at frequent intervals, its identification in accordance with the provisions of Article 19.
- 702** (3) Signals for testing and adjustment shall be chosen in such a manner that no confusion will arise with a signal, abbreviation, etc., having a special meaning defined by these Regulations or by the International Code of Signals.
- 703** (4) For testing stations in the mobile service see Nos. **1061**, **1062** and **1293** to **1295**.

ARTICLE 15 *

Procedure in a Case of Harmful Interference

- 704** § 1. It is essential that Members and Associate Members exercise the utmost goodwill and mutual assistance in the application of the provisions of Article 48 of the Convention and of this Article to the settlement of problems of harmful interference.
- 705** § 2. In the settlement of these problems, due consideration shall be given to all factors involved, including the relevant technical and operating factors such as : adjustment of frequencies, characteristics of transmitting and receiving antennae, time sharing, change of channels within multichannel transmissions.
- 706** § 3. When a case of such interference is reported by a receiving station, it shall give to the transmitting station interfered with all possible information which will assist in determining the source and characteristics of the interference.
- 707** § 4. Where practicable, and subject to agreement by administrations concerned, such interference may be dealt with by direct co-ordination between their operating organizations.
- 708** § 5. If a case of interference so justifies, the administration having jurisdiction over the receiving station experiencing the interference shall notify the administration having jurisdiction over the transmitting station being interfered with, giving all possible information.
- 709** § 6. If further observations and measurements are necessary to determine the source and characteristics of and to establish the responsibility for the interference, the administration having jurisdiction over the transmitting station interfered with may seek the co-operation of other administrations, particularly of the administration having jurisdiction over the receiving station experiencing the interference, or of other organizations.

* For the purposes of this Article, the term "administration" includes the centralizing office, where appropriate.

- 710 § 7.** Having determined the source and characteristics of the interference, the administration having jurisdiction over the transmitting station interfered with shall inform the administration having jurisdiction over the interfering station, giving all useful information in order that this administration may take such steps as may be necessary to eliminate the interference.
- 711 § 8.** When a safety service suffers interference, or in other cases with the prior approval of the administration having jurisdiction over the transmitting station interfered with, the administration having jurisdiction over the receiving station experiencing the interference may also approach directly the administration having jurisdiction over the interfering station.
- 711A § 8A.** When the service rendered by an earth station suffers interference, the administration having jurisdiction over the receiving station experiencing the interference may also approach directly the administration having jurisdiction over the interfering station.
- 711B § 8B.** When cases of harmful interference occur as a result of emissions from space stations, the administrations concerned shall, upon request from the administration having jurisdiction over the station experiencing the interference, furnish current ephemeral data necessary to allow calculation of the positions of the space station.
- 712 § 9.** In cases of interference where rapid action is required, communications between administrations shall be transmitted by the quickest means available.
- 713 § 10.** Full particulars relating to interference shall, whenever possible, be given in the form indicated in Appendix 8.
- 714 § 11.** If the interference persists in spite of actions taken in accordance with the procedures outlined above, the administration having jurisdiction over the transmitting station interfered with may address to the administration having jurisdiction over the interfering station a report of irregularity or infraction in accordance with the provisions of Article 16.

- 715** § 12. If there is a specialized international organization for a particular service, reports of irregularities and of infractions relating to interference caused by the stations in this service may be addressed to such organization at the same time as to the administration concerned.
- 716** § 13. (1) If it is considered necessary, and particularly if the steps taken in accordance with the procedures described above have not produced satisfactory results, the administration concerned shall forward details of the case to the International Frequency Registration Board for its information.
- 717** (2) In such a case, the administration concerned may also request the Board to act in accordance with the provisions of Section VII of Article 9 ; but it shall then supply the Board with the full facts of the case, including all the technical and operational details and copies of the correspondence.
- 718** (3) However, the Board shall not be required to deal with problems of harmful interference between stations operating in the same band and in conformity with the Table of Frequency Allocations, when at least one of these stations is in a class the frequency of which is not required to be notified according to Nos. 486 or 487 of these Regulations ; or between stations in the band 535-1 605 kc/s in Region 2. Such cases of interference shall be resolved by appropriate bilateral or multilateral arrangements in which administrations should particularly observe the provisions of No. 704.

ARTICLE 16

Reports of Infringements

- 719** § 1. Infringements of the Convention or Radio Regulations shall be reported to their respective administrations by the control organization, stations or inspectors detecting them. For this purpose they shall use forms similar to the specimen given in Appendix 7.
- 720** § 2. Representations relating to any serious infringement committed by a station shall be made to the administration of the country having jurisdiction over the station, by the administrations which detect it.
- 721** § 3. If an administration has information of an infringement of the Convention or Radio Regulations, committed by a station which it has authorized, it shall ascertain the facts, fix the responsibility and take the necessary action.

CHAPTER V**Administrative provisions for stations****ARTICLE 17****Secrecy**

- 722** The administrations bind themselves to take the necessary measures to prohibit and prevent :
- 723** *a)* the unauthorized interception of radiocommunications not intended for the general use of the public ;
- 724** *b)* the divulgence of the contents, simple disclosure of the existence, publication or any use whatever, without authorization, of information of any nature whatever obtained by the interception of the radiocommunications mentioned in No. 723.

ARTICLE 18

Licences

725 § 1. (1) No transmitting station may be established or operated by a private person or by any enterprise without a licence issued by the government of the country to which the station in question is subject. (However, see Nos. **726** and **732**.)

726 (2) However, the government of a country may conclude with the government of a neighbouring country a special agreement concerning one or several stations of its broadcasting service or of its land mobile services, operating on frequencies above 41 Mc/s, situated in the territory of the neighbouring country and intended to improve national coverage. This agreement, which shall be compatible with the provisions of the present Regulations as well as of those regional agreements to which the countries concerned are signatories, may allow exceptions to the provisions of No. **725** and shall be communicated to the Secretary General in order that it may be brought to the notice of administrations for their information.

727 (3) Mobile stations which are registered in a territory or group of territories which does not have full responsibility for its international relations may be considered, in so far as the issue of licences is concerned, as subject to the authority of that territory or group of territories.

728 § 2. The holder of a licence is required to preserve the secrecy of telecommunication, as provided in Article 35 of the Convention. Moreover, the licence shall provide, specifically or by reference, that if the station includes a receiver, the interception of radiocommunication correspondence, other than that which the station is authorized to receive, is forbidden, and that in the case where such correspondence is involuntarily received, it shall not be reproduced, nor communicated to third parties, nor used for any purpose, and even its existence shall not be disclosed.

- 729** § 3. To facilitate the verification of licences issued to mobile stations, there shall be added, when necessary, to the text written in the national language, a translation of the text in a language widely used in international relations.
- 730** § 4. (1) The government which issues a licence to a mobile station shall mention therein in clear form the particulars of the station, including its name, call sign and public correspondence category, as well as the general characteristics of the installation.
- 731** (2) For land mobile stations a clause shall be included in the licence, specifically or by reference, under which the operation of these stations shall be forbidden in countries other than the country which has issued the licence, except as may be provided by special agreement between the governments of the countries concerned.
- 732** § 5. (1) In the case of a new registration of a ship or aircraft in circumstances where delay is likely to occur in the issue of a licence by the country in which it will be registered, the administration of the country from which the mobile station wishes to make its voyage or flight may, at the request of the operating company, issue a certificate to the effect that the station complies with these Regulations. This certificate, drawn up in a form determined by the issuing administration, shall give the particulars mentioned in No. **730** and shall be valid only for the voyage or flight to the country in which the registration of the ship or aircraft will be effected, or for a period of three months, whichever is the lesser.
- 733** (2) The administration issuing the certificate shall inform the administration responsible for issuing the licence of the action taken.
- 734** (3) The holder of the certificate shall comply with the provisions of these Regulations applicable to licence-holders.

ARTICLE 19

Identification of Stations**Section I. General Provisions**

735 § 1. (1) Transmissions without identification or with false identification are prohibited.¹

736 (2) However, the requirements of identification need not **Mar** apply to:

- survival craft stations when transmitting distress signals automatically,
- emergency position-indicating radiobeacons.

737 § 2. A station shall be identified either by a call sign or other **Mar** recognized means of identification. Such recognized means of identification may be one or more of the following necessary for complete identification: name of station, location of station, operating agency, official registration mark, flight identification number, ship station selective call number or signal, coast station selective call identification number or signal, characteristic signal, characteristic of emission or other clearly distinguishing features readily recognized internationally.

737A § 2A. In the event that the transmission of identification signals **Spa** by a space station is not possible, that station shall be identified by specifying the angle of inclination of the orbit, the period of the object in space and the altitudes of apogee and perigee of the space station in kilometres. In the case of a space station on board a stationary satellite, the mean geographical longitude of the projection of the satellite's position on the surface of the Earth shall be specified. (See Appendix 1A.)

735.1 ¹ In the present state of the technique, it is recognized nevertheless that **Spa** the transmission of identifying signals for certain radio systems (e.g. radio-determination, radio relay systems and space systems) is not always possible.

738 § 3. In order that stations may be readily identified, each station shall transmit its identification as frequently as practicable during the course of transmissions, including those made for tests, adjustments or experiments. During such transmissions, however, identification shall be transmitted at least hourly, preferably within the period from ten minutes before to ten minutes after the hour (G.M.T.), unless to do so would cause unreasonable interruption of traffic. To meet these identification requirements, administrations are urged to ensure that, wherever practicable, superimposed identification methods be employed in accordance with C.C.I.R. Recommendations.

739 § 4. (1) The identifying signal shall be transmitted by methods which, in accordance with C.C.I.R. Recommendations, do not require the use of special terminal equipment for reception.

740 (2) If a superimposed identifying signal is used, the identification shall be preceded by the signal QTT.

741 § 5. When a number of stations work simultaneously in a common circuit, either as relay stations, or in parallel on different frequencies, each station shall, as far as practicable, transmit its own identification or those of all the stations concerned.

742 § 6. Each Member or Associate Member reserves the right to establish its own measures for identifying its stations used for national defence. However, it shall use, as far as possible, call signs recognizable as such, and containing the distinctive letters of its nationality.

Section II. Allocation of International Series, and Assignment of Call Signs

743 § 7. (1) All stations open to the international public correspondence service, all amateur stations, and other stations which are capable of causing harmful interference beyond the boundaries of

the country to which they belong, shall have call signs from the international series allocated to each country as given in the Table of Allocation of Call Sign Series in No. 747.

744 (2) However, it is not compulsory to assign call signs from the international series to stations which are easily identified by other means (see No. 737) and whose signals of identification or characteristics of emission are published in international documents.

745 § 8. (1) The first character or the first two characters of the call signs given in the following table show the nationality of the stations.

746 (2) The series of call signs preceded by an asterisk indicate the international organization to which they are allocated.

747 Table of Allocation of International Call Sign Series

Call Sign Series	Allocated to:	Call Sign Series	Allocated to:
AAA-ALZ	United States of America	EKA-EKZ	Union of Soviet Socialist Republics
AMA-AOZ	Spain	ELA-ELZ	Liberia
APA-ASZ	Pakistan	EMA-EOZ	Union of Soviet Socialist Republics
ATA-AWZ	India (Republic of)	EPA-EQZ	Iran
AXA-AXZ	Australia (Commonwealth of)	ERA-ERZ	Union of Soviet Socialist Republics
AYA-AZZ	Argentine (Republic)	ESA-ESZ	Estonia
BAA-BZZ	China	ETA-ETZ	Ethiopia
CAA-CEZ	Chile	EUA-EWZ	Bielorussian Soviet Socialist Republic
CFA-CKZ	Canada	EXA-EZZ	Union of Soviet Socialist Republics
CLA-CMZ	Cuba	FAA-FZZ	France and Overseas States of the French Community and French Overseas Territories
CNA-CNZ	Morocco (Kingdom of)	GAA-GZZ	United Kingdom of Great Britain and Northern Ireland
COA-COZ	Cuba	HAA-HAZ	Hungarian People's Republic
CPA-CPZ	Bolivia		
CQA-CRZ	Portuguese Oversea Provinces		
CSA-CUZ	Portugal		
CVA-CXZ	Uruguay (Oriental Republic of)		
CYA-CZZ	Canada		
DAA-DTZ	Germany		
DUA-DZZ	Philippines (Republic of the)		
EAA-EHZ	Spain		
EIA-EJZ	Ireland		

Call Sign Series	Allocated to:	Call Sign Series	Allocated to:
HBA-HBZ	Switzerland (Confederation)	MAA-MZZ	United Kingdom of Great Britain and Northern Ireland
HCA-HDZ	Ecuador	NAA-NZZ	United States of America
HEA-HEZ	Switzerland (Confederation)	OAA-OCZ	Peru
HFA-HFZ	Poland (People's Republic of)	ODA-ODZ	Lebanon
HGA-HGZ	Hungarian People's Republic	OEA-OEZ	Austria
HHA-HHZ	Haiti (Republic of)	OFA-OJZ	Finland
HIA-HIZ	Dominican Republic	OKA-OMZ	Czechoslovakia
HJA-HKZ	Colombia (Republic of)	ONA-OTZ	Belgium
HLA-HMZ	Korea (Republic of)	OUA-OZZ	Denmark
HNA-HNZ	Iraq (Republic of)	PAA-PIZ	Netherlands
HOA-HPZ	Panama	PJA-PJZ	Netherlands Antilles
HQA-HRZ	Honduras (Republic of)	PKA-POZ	Indonesia (Republic of)
HSA-HSZ	Thailand	PPA-PYZ	Brazil
HTA-HTZ	Nicaragua	PZA-PZZ	Surinam
HUA-HUZ	El Salvador (Republic of)	QAA-QZZ	(Service abbreviations)
HVA-HVZ	Vatican City State	RAA-RZZ	Union of Soviet Socialist Republics
HWA-HYZ	France and Overseas States of the French Community and French Overseas Territories	SAA-SMZ	Sweden
		SNA-SRZ	Poland (People's Republic of)
		SSA-SSM	United Arab Republic (Egyptian Region)
HZA-HZZ	Saudi Arabia (Kingdom of)	SSN-STZ	Sudan (Republic of the)
		SUA-SUZ	United Arab Republic (Egyptian Region)
IAA-IZZ	Italy and Territories under mandate of U.N.	SVA-SZZ	Greece
JAA-JSZ	Japan	TAA-TCZ	Turkey
JTA-JVZ	Mongolian People's Republic	TDA-TDZ	Guatemala
		TEA-TEZ	Costa Rica
JWA-JXZ	Norway	TFA-TFZ	Iceland
JYA-JYZ	Jordan (Hashemite Kingdom of)	TGA-TGZ	Guatemala
		THA-THZ	France and Overseas States of the French Community and French Overseas Territories
JZA-JZZ	Netherlands New Guinea		
KA A-KZZ	United States of America	TIA-TIZ	Costa Rica
LAA-LNZ	Norway	TJA-TRZ	France and Overseas States of the French Community and French Overseas Territories
LOA-LWZ	Argentine Republic		
LXA-LXZ	Luxembourg		
LYA-LYZ	Lithuania		
LZA-LZZ	Bulgaria (People's Republic of)		

Call Sign Series	Allocated to:	Call Sign Series	Allocated to:
TSA-TSM TSN-TZZ	Tunisia France and Overseas States of the French Community and French Overseas Territories	XYA-XZZ YAA-YAZ YBA-YHZ YIA-YIZ YJA-YJZ	Burma (Union of) Afghanistan Indonesia (Republic of) Iraq (Republic of) New Hebrides (Anglo-French Condominium)
UAA-UQZ	Union of Soviet Socialist Republics	YKA-YKZ	United Arab Republic (Syrian Region)
URA-UTZ	Ukrainian Soviet Socialist Republic	YLA-YLZ YMA-YMZ	Latvia Turkey
UUA-UZZ	Union of Soviet Socialist Republics	YNA-YNZ YOA-YRZ	Nicaragua Roumanian People's Republic
VAA-VGZ VHA-VNZ	Canada Australia (Commonwealth of)	YSA-YSZ YTA-YUZ	El Salvador (Republic of) Yugoslavia (Federal People's Republic of)
VOA-VOZ VPA-VSZ	Canada Overseas Territories for the international relations of which the Government of the United Kingdom of Great Britain and Northern Ireland are responsible	YVA-YYZ YZA-YZZ	Venezuela (Republic of) Yugoslavia (Federal People's Republic of)
VTA-VWZ VXA-VYZ VZA-VZZ	India (Republic of) Canada Australia (Commonwealth of)	ZAA-ZAZ ZBA-ZJZ	Albania (People's Republic of) Overseas Territories for the international relations of which the Government of the United Kingdom of Great Britain and Northern Ireland are responsible
WAA-WZZ XAA-XIZ XJA-XOZ XPA-XPZ XQA-XRZ XSA-XSZ XTA-XTZ	United States of America Mexico Canada Denmark Chile China France and Overseas States of the French Community and French Overseas Territories	ZKA-ZMZ ZNA-ZOZ ZPA-ZPZ ZQA-ZQZ	New Zealand Overseas Territories for the international relations of which the Government of the United Kingdom of Great Britain and Northern Ireland are responsible Paraguay Overseas Territories for the international relations of which the Government of the United Kingdom of Great Britain and Northern Ireland are responsible
XUA-XUZ XVA-XVZ XWA-XWZ XXA-XXZ	Cambodia (Kingdom of) Viet-Nam (Republic of) Laos (Kingdom of) Portuguese Oversea Provinces		

Call Sign Series	Allocated to:	Call Sign Series	Allocated to:
ZRA-ZUZ	Union of South Africa and Territory of South West Africa	5RA-5VZ	France and Overseas States of the French Community and French Overseas Territories
ZVA-ZZZ	Brazil	5WA-5ZZ	(Not allocated)
2AA-2ZZ	United Kingdom of Great Britain and Northern Ireland	6AA-6BZ	United Arab Republic (Egyptian Region)
3AA-3AZ	Monaco	6CA-6CZ	United Arab Republic (Syrian Region)
3BA-3FZ	Canada	6DA-6JZ	Mexico
3GA-3GZ	Chile	6KA-6NZ	Korea (Republic of)
3HA-3UZ	China	6OA-6OZ	Somaliland (Italian Administration)
3VA-3VZ	Tunisia	6PA-6SZ	Pakistan
3WA-3WZ	Viet-Nam (Republic of)	6TA-6UZ	Sudan (Republic of the)
3XA-3XZ	Guinea (Republic of)	6VA-6ZZ	(Not allocated)
3YA-3YZ	Norway	7AA-7IZ	Indonesia (Republic of)
3ZA-3ZZ	Poland (People's Republic of)	7JA-7NZ	Japan
4AA-4CZ	Mexico	7OA-7RZ	(Not allocated)
4DA-4IZ	Philippines (Republic of the)	7SA-7SZ	Sweden
4JA-4LZ	Union of Soviet Socialist Republics	7TA-7YZ	(Not allocated)
4MA-4MZ	Venezuela (Republic of)	7ZA-7ZZ	Saudi Arabia (Kingdom of)
4NA-4OZ	Yugoslavia (Federal People's Republic of)	8AA-8IZ	Indonesia (Republic of)
4PA-4SZ	Ceylon	8JA-8NZ	Japan
4TA-4TZ	Peru	8OA-8RZ	(Not allocated)
* 4UA-4UZ	United Nations (U.N.)	8SA-8SZ	Sweden
4VA-4VZ	Haiti (Republic of)	8TA-8YZ	India (Republic of)
4WA-4WZ	Yemen	8ZA-8ZZ	Saudi Arabia (Kingdom of)
4XA-4XZ	Israel (State of)	9AA-9AZ	San Marino (Republic of)
* 4YA-4YZ	International Civil Aviation Organization (ICAO)	9BA-9DZ	Iran
4ZA-4ZZ	Israel (State of)	9EA-9FZ	Ethiopia
5AA-5AZ	Libya (United Kingdom of)	9GA-9GZ	Ghana
5BA-5BZ	(Not allocated)	9HA-9JZ	(Not allocated)
5CA-5GZ	Morocco (Kingdom of)	9KA-9KZ	Kuwait
5HA-5IZ	(Not allocated)	9LA-9LZ	(Not allocated)
5JA-5KZ	Colombia (Republic of)	9MA-9MZ	Malaya (Federation of)
5LA-5MZ	Liberia	9NA-9NZ	Nepal
5NA-5OZ	(Not allocated)	9OA-9UZ	Belgian Congo and Territory of Ruanda-Urundi
5PA-5QZ	Denmark	9VA-9ZZ	(Not allocated)

Note by the General Secretariat

Since 1959 and until the date of this publication, the following Call Sign series have been allocated on a provisional basis under the terms of No. 749:

Call Sign Series	Allocated to :	Call Sign Series	Allocated to :
A2A-A2Z	Botswana (Republic of)	6VA-6WZ	Senegal (Republic of)
TJA-TJZ	Cameroon (Federal Republic of)	6XA-6XZ	Malagasy Republic
TLA-TLZ	Central African Republic	6YA-6YZ	Jamaica
TNA-TNZ	Congo (Republic of the) (Brazzaville)	6ZA-6ZZ	Liberia (Republic of)
TRA-TRZ	Gabon Republic	7OA-7OZ	Southern Yemen (People's Republic of)
TSN-TSZ	Tunisia	7PA-7PZ	Lesotho (Kingdom of)
TTA-TTZ	Chad (Republic of)	7QA-7QZ	Malawi
TUA-TUZ	Ivory Coast (Republic of the)	7RA-7RZ	Algeria (Algerian Democratic and Popular Republic)
TYA-TYZ	Dahomey (Republic of)	7TA-7YZ	Algeria (Algerian Democratic and Popular Republic)
TZA-TZZ	Mali (Republic of)	8OA-8OZ	Botswana (Republic of)
XTA-XTZ	Upper Volta (Republic of)	8PA-8PZ	Barbados
5BA-5BZ	Cyprus (Republic of)	8QA-8QZ	Maldiv Islands
5HA-5HZ	Tanzania (United Republic of)	8RA-8RZ	Guyana
5NA-5OZ	Nigeria (Federal Republic of)	9HA-9HZ	Malta
5RA-5SZ	Malagasy Republic	9IA-9JZ	Zambia (Republic of)
5TA-5TZ	Mauritania (Islamic Republic of)	9LA-9LZ	Sierra Leone
5UA-5UZ	Niger (Republic of the)	9UA-9UZ	Burundi (Republic of)
5VA-5VZ	Togolese Republic	9VA-9VZ	Singapore (Republic of)
5WA-5WZ	Western Samoa	9WA-9WZ	Malaysia
5XA-5XZ	Uganda	9XA-9XZ	Rwanda (Republic of)
5YA-5ZZ	Kenya	9YA-9ZZ	Trinidad and Tobago

748 § 9. Should the available call sign series in this table be exhausted, new call sign series may be allocated according to the principles set out in Resolution No. 8 Relating to the Formation of Call Signs and the Allocation of New International Series.

749 § 10. Between administrative radio Conferences, the Secretary General is authorized to deal with questions relating to changes in the allocation of series of call signs, on a provisional basis, and subject to confirmation by the following Conference. (See also No. **748**.)

749A § 10A. As an interim procedure, the Secretary-General shall be **Mar** responsible for supplying series of selective call numbers or signals (see No. **783H**) at the request of the administrations concerned.

750 § 11. (1) Each country shall choose the call signs and, if the selective **Mar** calling system used is in accordance with Appendix 20C, the ship station selective call number and the coast station identification number of its stations from the international series allocated or supplied to it; and shall, in accordance with Article 20, notify this information to the Secretary-General together with the information which is to appear in Lists I to VI inclusive. These notifications do not include call signs assigned to amateur and experimental stations.

751 (2) The Secretary-General shall ensure that the same call sign, **Mar** the same selective call number or the same identification number is not assigned more than once and that call signs which might be confused with distress signals, or with other signals of the same nature, are not assigned.

752 § 12. (1) When a *fixed station* uses more than one frequency in the international service, each frequency may be identified by a separate call sign used solely for this frequency.

753 (2) When a *broadcasting station* uses more than one frequency in the international service, each frequency may be identified by a separate call sign used solely for this frequency or by some other appropriate means, such as announcing the name of the place and frequency used.

754 (3) When a *land station* uses more than one frequency, each frequency may, if desired, be identified by a separate call sign.

755 (4) Where practicable, *coast stations* should use a common call sign for each frequency series ¹.

Section III. Formation of Call Signs

756 § 13. (1) The twenty-six letters of the alphabet, as well as digits in the cases specified below, may be used to form call signs. Accented letters are excluded.

757 (2) However, the following combinations shall not be used as call signs :

758 a) combinations which might be confused with distress signals or with other signals of a similar nature ;

759 b) combinations reserved for the abbreviations to be used
Mar* in the radiocommunication services (see Appendixes 13 and 13A);

760 SUP (Mar)

755.1 ¹ By "frequency series" is meant a group of frequencies, each of which belongs to one of the different bands between 4000 and 27 500 kc/s that are allocated exclusively to the maritime mobile service.

Ship's survival craft stations

- 768** § 18. — the call sign of the parent ship followed by two digits (other than the digits 0 or 1 in cases where they immediately follow a letter).

Emergency position-indicating radiobeacon stations

- 768A** § 18A. — the Morse letter B and/or the call sign of the parent
Mar ship to which the radiobeacon belongs.

Aircraft survival craft stations

- 769** § 19. — the complete call sign of the parent aircraft (see No. **767**), followed by a single digit other than 0 or 1.

Land mobile stations

- 770** § 20. (1) — four letters followed by a single digit other than 0 or 1.

- 771** (2) However, *land mobile stations* employing radiotelephony may also use a call sign consisting of :
— two or three letters followed by four digits (other than the digits 0 or 1 in cases where they immediately follow a letter).

Amateur and experimental stations

- 772** § 21. (1) — one or two letters and a single digit (other than 0 or 1), followed by a group of not more than three letters.
- 773** (2) However, the prohibition of the use of the digits 0 and 1 does not apply to *amateur stations*.

Stations in the Space Service

773A § 21A. When call signs for stations in the space service are employed, it is recommended that they consist of:

- two letters followed by two or three digits (other than the digits 0 and 1 in cases where they immediately follow a letter). (See also No. 737A.)

Section IV. Identification of Stations using Radiotelephony

774 § 22. Stations using radiotelephony shall be identified as indicated in Nos. 775 to 783.

775 § 23. (1) *Coast stations*

- a call sign (see Nos. 763 and 764); *or*
- the geographical name of the place as it appears in the List of Coast Stations, followed preferably by the word RADIO or by any other appropriate indication.

776 (2) *Ship stations*

Mar

- a call sign (see Nos. 765 and 766); *or*
- the official name of the ship preceded, if necessary, by the name of the owner on condition that there is no possible confusion with distress, urgency and safety signals; *or*
- its selective call number or signal.

777 (3) *Ship's survival craft stations*

- a call sign (see No. 768); *or*
- a signal of identification consisting of the name of the parent ship followed by two digits.

- 777A** (4) *Emergency position-indicating radiobeacon stations:*
Mar When speech transmission is used (see No. **1476G**)
— the name and/or the call sign of the parent ship to which the radiobeacon belongs.

- 778** § 24. (1) *Aeronautical stations*
— the name of the airport or geographical name of the place followed, if necessary, by a suitable word indicating the function of the station.

- 779** (2) *Aircraft stations*
— a call sign (see No. **767**), which may be preceded by a word designating the owner or the type of aircraft ;
or
— a combination of characters corresponding to the official registration mark assigned to the aircraft ; *or*
— a word designating the airline, followed by the flight identification number.

- 780** (3) In the exclusive aeronautical mobile frequency bands, *aircraft stations* using radiotelephony may use other methods of identification, after special agreement between governments, and on condition that they are internationally known.

- 781** (4) *Aircraft survival craft stations*
— a call sign (see No. **769**) ;

- 782** § 25. (1) *Base stations*
— a call sign (see No. **763**) ; *or*
— the geographical name of the place followed, if necessary, by any other appropriate indication.

- 783** (2) *Land mobile stations*
- a call sign (see Nos. 770 and 771); *or*
 - the identity of the vehicle or any other appropriate indication.

**Section IVA. Selective Call Numbers
in the Maritime Mobile Service**

783A § 25A. When stations of the maritime mobile service use selective **Mar** calling devices in accordance with Appendix 20C, their call numbers shall be assigned by the responsible administrations in accordance with the provisions below.

*Formation of ship station selective call numbers and coast
station identification numbers*

783B § 25B. (1) The ten digits from 0 to 9 inclusive shall be used to form **Mar** selective call numbers.

783C (2) However, combinations of numbers commencing with the **Mar** digits 00 (zero, zero) shall not be used when forming the identification numbers for coast stations.

783D (3) Ship station selective call numbers and coast station **Mar** identification numbers in the series are formed as indicated in Nos. 783E, 783F and 783G.

783E (4) *Coast station identification numbers*
Mar — four digits (see No. 783C).

783F (5) *Ship station selective call numbers*
Mar — five digits.

783G (6) *Predetermined groups of ship stations*
Mar — five digits consisting of:

- the same digit repeated five times, *or*
- two different digits repeated alternately.

Assignment of ship station selective call numbers and coast station identification numbers

783H § 25C. (1) In cases where selective call numbers for ship stations and identification numbers for coast stations are required for use in the maritime mobile service and the selective calling system is in accordance with Appendix 20C, as an interim procedure, the selective call numbers and identification numbers shall be supplied by the Secretary-General on request. Upon notification by an administration of the introduction of selective calling for use in the maritime mobile service:

- selective call numbers for ships will be supplied as required in blocks of 100 (one hundred);
- coast station identification numbers will be supplied in blocks of 10 (ten) to meet actual requirements;
- selective call numbers for selective calling of predetermined groups of ship stations in accordance with No. **783G** will be supplied as required as single numbers.

The final procedure shall be determined at a future competent World Administrative Radio Conference.

783I (2) Each administration shall choose the selective call numbers to be assigned to its ship stations from the blocks of the series supplied to it.

783J (3) Each administration shall choose the coast station identification numbers to be assigned to its coast stations from the blocks of the series supplied to it.

Section V. Special Provisions

784 § 26. (1) In the aeronautical mobile service, after communication has been established by means of the complete call sign, the aircraft station may use, if confusion is unlikely to arise, an abbreviated call sign or identification consisting of :

785 a) in radiotelegraphy, the first character and last two letters of the complete five-letter call sign ;

786 b) in radiotelephony :

— the first character of the complete five-letter call sign ; *or*

— the abbreviation of the name of the owner of the aircraft (company or individual) ; *or*

— the type of aircraft

followed by the last two letters of the complete five-letter call sign or by the last two characters of the registration mark.

787 (2) The provisions of Nos. **784**, **785** and **786** may be amplified or modified by agreement between administrations concerned.

788 § 27. The distinguishing signals allotted to ships for visual and aural signalling shall, in general, agree with the call signs of ship stations.

ARTICLE 20

Service Documents

789 § 1. The following documents shall be published by the Secretary General.

790 (I) *List I. The International Frequency List.*

This list shall contain :

791 a) particulars of frequency assignments recorded in the Master International Frequency Register. These particulars shall include the data enumerated in Appendix 9 ;

792 b) the frequencies (e.g. 500 kc/s or 2 182 kc/s) prescribed by these Regulations for common use by certain services, including frequencies specified in Appendices 15, 17 and 18 ;

793 c) the allotments in the Allotment Plans included in Appendices 25, 26 and 27.
Aer

794 An indication of the use of the frequencies and allotments in Nos. **792** and **793** shall be included in the entries concerned.

795 Frequency assignments in the International Frequency List shall be arranged in numerical ascending order of the frequencies assigned.

796 The International Frequency List above 28 Mc/s shall be in four separate parts as follows :

797 a) frequency assignments in bands between 28 and 50 Mc/s, excluding broadcasting stations ;

798 b) frequency assignments¹ in Region 1 in the bands between 50 and 40 000 Mc/s, and frequency assignments¹ to broadcasting stations in Region 1 in the bands between 28 and 50 Mc/s ;

798.1 ¹ In the case of television broadcasting stations in Region 1, separate entries shall be inserted for the carrier frequencies of the vision and sound channels.

- 799** c) frequency assignments in Region 2 in the bands between 50 and 40 000 Mc/s ;
- 800** d) frequency assignments in Region 3 in the bands between 50 and 40 000 Mc/s, and frequency assignments to broadcasting stations in Region 3 in the bands between 28 and 50 Mc/s.

801 (II) *List II. List of Fixed Stations Operating International Circuits.*

This list shall contain the fixed stations operating international circuits, the frequencies of which appear in List I.

802 (III) *List III. List of Broadcasting Stations Operating in Bands below 26 100 kc/s.*

The list shall be published in two volumes :

803 a) *List III A. List of Broadcasting Stations Operating in Bands below 5 950 kc/s.*

This list shall contain those broadcasting stations the frequency assignments of which are shown in List I.

804 b) *List III B. List of Broadcasting Stations Operating in Bands between 5 950 and 26 100 kc/s.*

This list shall contain those broadcasting stations the frequency assignments of which are shown in the Annual High Frequency Broadcasting Frequency List, published each year in accordance with the provisions of Section V of Article 10.

805 (IV) *List IV. List of Coast Stations.*
Mar

There are annexed to this list a table and a chart showing the zones and hours of service of ships of the second and third categories (see Appendix 12) and a table of inland telegraph rates, limitrophic rates, etc.

806 (V) *List V. List of Ship Stations.*
Mar

This list shall contain particulars of:

- a) ship stations fitted with radiotelegraph installations;
- b) ship stations fitted with radiotelegraph and radiotelephone installations;
- c) ship stations fitted with radiotelephone installations only, which communicate with stations of the maritime mobile service other than those of their own nationality or make international voyages.

This list shall contain a table and a chart showing the zones and hours of service of ships of the second and third categories (see Appendix 12).

807 (VI) *List VI. List of Radiodetermination and Special Service Stations.*

This list shall contain radio direction-finding stations and radiobeacon stations of the maritime radionavigation service, and include radiobeacons of the aeronautical radionavigation service reliable for maritime navigation, ocean-station vessels, direction-finder calibration stations as well as stations transmitting time signals, regular meteorological bulletins, notices to navigators, medical advice, standard frequencies, epidemiological bulletins and ursigrams. In this list, each class of station shall occupy a special section.

808 (VII) *List VII. Alphabetical List of Call Signs Assigned from the International Series to Stations Included in Lists I to VI and VIIIA.*
Spa

This list shall be published in two volumes :

809
Mar

- a) *List VIIA. Alphabetical List of Call Signs of Stations used by the Maritime Mobile Service (Coast, Ship, Radiotermination and Special Service Stations), Ship Station Selective Call Numbers or Signals and Coast Station Identification Numbers or Signals.*

This list shall be preceded by the Table of Allocation of International Call Signs Series given in Article 19 and a table of signals characterizing the emissions of radiobeacons used in the maritime mobile service.

810

- b) *List VII B. Alphabetical List of Call Signs of Stations other than Amateur Stations, Experimental Stations and Stations of the Maritime Mobile Service.*

This list shall be preceded by the Table of Allocation of International Call Signs Series given in Article 19 and by a Table indicating the form of call signs assigned by each administration to its amateur and experimental stations.

- 811** (VIII) *List VIII. List of International Monitoring Stations.*

This list shall contain, in tabulated form, particulars of monitoring stations participating in international monitoring.

811A
Spa

- (VIII A) *List VIIIA. List of Stations in the Space Service and in the Radio Astronomy Service.*

This list shall contain particulars of earth and space stations and of radio astronomy stations. In this list, each class of station shall occupy a special section.

812

- (IX) *Map of Coast Stations which are open to Public Correspondence or which Participate in the Port Operations Service.*

813 (X) *Chart in Colours showing Frequency Allocations* as specified in Article 5.

814 (XI) *Radiocommunication Statistics.*

815 § 2. (1) The Secretary-General shall publish the amendments to be made in the documents listed in Nos. **790** to **814** inclusive. Once a month administrations shall inform him, in the form shown for the lists themselves in Appendix 9, of the additions, modifications or deletions to be made in Lists IV, V and VI using for this purpose the appropriate symbols shown in Appendix 10. Furthermore, in order to make the necessary additions, modifications and deletions to Lists I, II, III and VIIIA, he shall use the data provided by the International Frequency Registration Board, obtained from the information received in application of the provisions of Articles 9, 9A and 10. He shall make the requisite amendments to List VII by using the data he has received for Lists I to VI and VIIIA. Lists IV and VI shall be co-ordinated with the information appearing in List I. The Secretary-General shall refer any discrepancies to the administrations concerned.

816 (2) For permanent changes affecting the operation of Radio-determination stations (List VI), see No. **1578**.

817 § 3. (1) New editions of the International Frequency List shall be published at intervals to be determined by the Secretary General, but not exceeding two years. This list shall be kept up to date by quarterly recapitulative supplements published in the same form as the list itself. New or modified entries made in the Master International Frequency Register after the publication of the latest recapitulative supplement and which appear in a new recapitulative supplement or in a new edition of the list, shall be indicated therein in an appropriate manner.

818 (2) The recapitulative supplements shall be divided into two sections as follows :

819 — Section A shall contain new entries and modifications

of entries already listed in the International Frequency List.

820 — Section B shall contain entries in the International Frequency List which have been deleted in their entirety.

821 § 4. The List of Fixed Stations Operating International Circuits (List II) shall be republished at intervals to be determined by the Secretary General. The list shall be kept up to date by the publication of recapitulative supplements at intervals of three months.

822 § 5. (1) The List of Broadcasting Stations Operating in Bands below 5 950 kc/s (List III A) shall be republished at intervals to be determined by the Secretary General. Recapitulative supplements shall be published every six months.

823 (2) The List of Broadcasting Stations Operating in Bands between 5 950 and 26 100 kc/s (List III B) shall be republished each year without supplements.

824 § 6. The List of Coast Stations (List IV) shall be republished
Mar every two years and kept up to date by recapitulative supplements issued every six months.

825 § 7. The List of Ship Stations (List V) shall be republished each
Mar year. It shall be kept up to date by means of a half-yearly supplement.

826 § 8. The List of Radiodetermination and Special Service Stations (List VI) shall be republished at intervals to be determined by the Secretary General. Recapitulative supplements shall be published every six months.

827 § 9. (1) The Alphabetical List of Call Signs of Stations used by the Maritime Mobile Service (List VII A) shall be republished every two years and kept up to date by recapitulative supplements every three months.

828 (2) The Alphabetical List of Call Signs of Stations other

than Amateur Stations, Experimental Stations and Stations of the Maritime Mobile Service (List VII B) shall be republished at intervals determined by the Secretary General, and kept up to date by recapitulative supplements issued every three months.

829 § 10. The List of International Monitoring Stations (List VIII) shall be published at intervals to be determined by the Secretary General. It shall be kept up to date by the publication of recapitulative supplements at intervals to be determined by the Secretary General.

829A § 10A. The List of Stations in the Space Service and in the Radio
Spa Astronomy Service (List VIIIA) shall be republished at intervals to be determined by the Secretary-General. Recapitulative supplements shall be published every six months.

830 § 11. The Radiocommunication Statistics shall be republished at intervals to be determined by the Secretary General.

831 § 12. (1) The forms in which Lists I to VI inclusive, Lists VIII and
Spa VIIIA and the Radiocommunication Statistics are to be prepared are given in Appendix 9. Information concerning the use of these documents shall be given in the Prefaces thereto. Each entry shall include the appropriate symbol, as shown in Appendix 10, to designate the category of station concerned. Additional symbols, where necessary, may be selected by the Secretary-General, any such new symbols being notified by the Secretary-General to administrations.

832 (2) In the service documents, the names of coast, radio direction-finding and radiobeacon stations are followed by the words:

833 — RADIO for coast stations ;

834 — GONIO for maritime radio direction-finding stations ;

835 — PHARE for maritime radiobeacon stations ;

836 — AEROPHARE for aeronautical radiobeacon stations.

837 § 13. For the purpose of the service documents, a country shall be understood to mean the territory within the limits of which the station is located ; a territory which does not have full responsibility for its international relations shall also be considered as a country for this purpose.

ARTICLE 21

Inspection of Mobile Stations

- 838** § 1. (1) The governments or appropriate administrations of countries which a mobile station visits, may require the production of the licence for examination. The operator of the mobile station, or the person responsible for the station, shall facilitate this examination. The licence shall be kept in such a way that it can be produced upon request. As far as possible, the licence, or a copy certified by the authority which has issued it, should be permanently exhibited in the station.
- 839** (2) The inspectors shall have in their possession an identity card or badge, issued by the competent authority, which they shall show on request of the master or person responsible for the ship, aircraft or other vehicle carrying the mobile station.
- 840** (3) When the licence cannot be produced or when manifest irregularities are observed, governments or administrations may inspect the radio installations in order to satisfy themselves that these conform to the conditions imposed by these Regulations.
- 841** (4) In addition, inspectors have the right to require the production of the operators' certificates, but proof of professional knowledge may not be demanded.
- 842** § 2. (1) When a government or an administration has found it necessary to adopt the course indicated in No. **840**, or when the operators' certificates cannot be produced, the government or administration to which the mobile station is subject shall be so informed without delay. In addition, the procedure specified in Article 16 is followed when necessary.
- 843** (2) Before leaving, the inspector shall report the result of his inspection to the master, or the person responsible for the ship, aircraft or other vehicle carrying the mobile station. If any breach of the conditions imposed by these Regulations is observed, the inspector shall make this report in writing.

844 § 3. The Members and Associate Members of the Union undertake not to impose upon foreign mobile stations which are temporarily within their territorial waters or make a temporary stay in their territory, technical and operating conditions more severe than those contemplated in these Regulations. This undertaking in no way affects arrangements which are made under international agreements relating to maritime or air navigation, and which are therefore not covered by these Regulations.

CHAPTER VI

Personnel of Mobile Service Stations

ARTICLE 22

Authority of the Master

- 845** § 1. The service of a mobile station is placed under the supreme authority of the master or of the person responsible for the ship, aircraft, or other vehicle carrying the mobile station.
- 846** § 2. The person holding this authority shall require that each operator comply with these Regulations and that the mobile station for which the operator is responsible is used, at all times, in accordance with these Regulations.
- 847** § 3. The master or the person responsible, as well as all persons who may have knowledge of the text or even of the existence of a radiotelegram, or of any information whatever obtained by means of the radiocommunication service, are placed under the obligation of observing and ensuring the secrecy of correspondence.

ARTICLE 23

Operators' Certificates for Ship and Aircraft Stations**Section I. General Provisions**

848 § 1. (1) The service of every ship or aircraft radiotelegraph station shall be performed by an operator holding a certificate issued or recognized by the government to which the station is subject.

849 (2) The service of every ship or aircraft radiotelephone station shall be controlled by an operator holding a certificate issued or recognized by the government to which the station is subject. Provided the station is so controlled, other persons besides the holder of the certificate may use the radiotelephone equipment.

850 (3) The service of automatic communication devices¹ installed in ship or aircraft stations shall be controlled by an operator holding a certificate issued or recognized by the government to which the station is subject. Provided the devices are so controlled, they may be used by other persons. If such devices require for their basic function the use of Morse code signals specified in the Telegraph Regulations, the service shall be performed by an operator holding a radiotelegraph certificate. However, this latter requirement does not apply to automatic devices which may use Morse code signals solely for identification purposes.

851 (4) Nevertheless, in the service of radiotelephone stations operating solely on frequencies above 30 Mc/s, each government shall decide for itself whether a certificate is necessary and, if so, shall define the conditions for obtaining it.

852 (5) The provisions of No. **851** shall not, however, apply to any ship or aircraft station working on frequencies assigned for international use.

850.1 ¹ The term "automatic communication devices" is intended to include such equipment as teleprinters, data transfer systems, etc.

853 § 2. (1) In the case of complete unavailability of the operator in the course of a sea passage, a flight or a journey, and solely as a temporary measure, the master or the person responsible for the station may authorize an operator holding a certificate issued by the government of another Member of the Union to perform the radiocommunication service.

854 (2) When it is necessary to employ a person without a certificate or an operator not holding an adequate certificate as a temporary operator, his performance as such must be limited solely to signals of distress, urgency and safety, messages relating thereto, messages relating directly to the safety of life, urgent messages relating to the movement of the ship and essential messages relating to the navigation and safe movement of the aircraft. Persons employed in these cases are bound by the provisions of No. **858** regarding the secrecy of correspondence.

855 (3) In all cases, such temporary operators must be replaced as soon as possible by operators holding the certificate prescribed in § 1 of this Article.

856 § 3. (1) Each administration shall take the necessary steps to prevent, to the maximum extent possible, the fraudulent use of certificates. For this purpose, such certificates shall bear the holder's signature and shall be authenticated by the issuing administration. Administrations may employ, if they wish, other means of identification such as photographs, fingerprints, etc.

857 (2) To facilitate verification of certificates, these may carry, if necessary, in addition to the text in the national language, a translation of this text in a working language of the Union.

858 § 4. Each administration shall take the necessary steps to place operators under the obligation to preserve the secrecy of correspondence as provided for in No. **728**.

Section II. Classes and Categories of Certificates

859 § 5. (1) There are two classes of certificates, as well as a special certificate, for radiotelegraph operators.¹

860 (2) There are two categories of radiotelephone operators' certificates, general and restricted.¹

860A (3) There is also a radiocommunication operator's general
Mar certificate for the maritime mobile service (Resolution No. Mar 16 refers).

861 § 6. (1) The holder of a first or second class radiotelegraph operator's
Mar certificate may carry out the radiotelegraph or radiotelephone service of any ship or aircraft station.

862 (2) The holder of a radiotelephone operator's general certificate may carry out the radiotelephone service of any ship or aircraft station.

863 (3) The holder of a radiotelephone operator's restricted certificate may carry out the radiotelephone service of any aircraft station, when working on frequencies of the maritime mobile service, provided that:

- the peak envelope power of the transmitter does not exceed 200 watts, or
- the operation of the transmitter requires only the use of simple external switching devices, excluding all manual adjustment of frequency determining elements, with the stability of the frequencies maintained by the transmitter itself within the limits of tolerance specified by Appendix 3, and the peak envelope power of the transmitter does not exceed 1 kilowatt.

859.1 ¹ As regards the employment of operators holding the different certificates, see Article 24.

863A (3A) However, in the maritime mobile service, the holder of a **Mar** radiotelephone operator's restricted certificate may carry out the radiotelephone service of any ship station, when working on frequencies of the maritime mobile service, provided that:

- the operation of the transmitter requires only the use of simple external controls, and excludes all manual adjustment of frequency determining elements, with the stability of the frequencies maintained by the transmitter itself within the limits of tolerance specified by Appendix 3, and the peak envelope power of the transmitter does not exceed 1 kilowatt.

864 (4) Nevertheless, the holder of a radiotelephone operator's restricted certificate may carry out the radiotelephone service of any aircraft station operating on frequencies allocated exclusively to the aeronautical mobile service, provided that:

- the operation of the transmitter requires only the use of simple external switching devices, excluding all manual adjustment of frequency determining elements, and that the stability of the frequencies is maintained by the transmitter itself within the limits of tolerance specified by Appendix 3.

865 (5) The radiotelegraph service of ships for which a radiotelegraph installation is not made compulsory by international agreements, as well as the radiotelephone service of ship stations and aircraft stations for which only a restricted radiotelephone operator's certificate is required, may be carried out by an operator holding a radiotelegraph operator's special certificate.

866 § 7. Exceptionally, the second class radiotelegraph operator's certificate as well as the radiotelegraph operator's special certificate may be limited exclusively to the radiotelegraph service. In such cases the certificate shall be suitably endorsed.

Section III. Conditions for the Issue of Operators' Certificates

867 § 8. (1) The conditions to be imposed for obtaining the various certificates are contained in the following paragraphs and represent the minimum requirements.

868 (2) Each administration is free to fix the number of examinations necessary to obtain each certificate.

869 § 9. (1) The administration which issues a certificate may, before authorizing an operator to carry out the service on board a ship or aircraft, require the fulfilment of other conditions (for example : experience with automatic communication devices; further technical and professional knowledge relating particularly to navigation; physical fitness; for an operator of the aeronautical mobile service, the completion as an operator of a certain number of flying hours, etc.).

870 (2) Administrations should take whatever steps they consider necessary to ensure the continued proficiency of operators after prolonged absences from operational duties.

A. First Class Radiotelegraph Operator's Certificate

871 § 10. The first class certificate is issued to candidates who have given proof of the technical and professional knowledge and qualifications enumerated below :

872 a) Knowledge both of the general principles of electricity and of the theory of radio, knowledge of the adjustment and practical working of various types of radiotelegraph and radiotelephone apparatus used in the mobile service, including apparatus used for radio direction-finding and the taking of direction-finding bearings, as well as a general knowledge of the principles of operation of other apparatus generally used for radionavigation.

873 b) Theoretical and practical knowledge of the operation and maintenance of apparatus, such as motor-generators, storage batteries, etc., used in the operation

and adjustment of the radiotelegraph, radiotelephone and radio direction-finding apparatus mentioned in No. 872.

- 874** c) Practical knowledge necessary to repair, with the means available on board, damage which may occur to the radiotelegraph, radiotelephone and radio direction-finding apparatus during a voyage.
- 875** d) Ability to send correctly by hand and to receive correctly by ear, in the Morse code, code groups (mixed letters, figures and punctuation marks), at a speed of twenty groups a minute, and a plain language text at a speed of twenty-five words a minute. Each code group shall comprise five characters, each figure or punctuation mark counting as two characters. The average word of the text in plain language shall contain five characters. The duration of each test of sending and of receiving shall be, as a rule, five minutes.
- 876** e) Ability to send correctly and to receive correctly by telephone.
- 877** f) Detailed knowledge of the Regulations applying to radiocommunications, knowledge of the documents relating to charges for radiocommunications, knowledge of the provisions of the Convention for the Safety of Life at Sea which relate to radio, and, in the case of air navigation, knowledge of the special provisions governing the aeronautical fixed, mobile, and radio-navigation services. In the latter case, the certificate states that the holder has successfully passed the tests relating to these special provisions.
- 878** g) A sufficient knowledge of world geography, especially the principal shipping and air routes and the most important telecommunication routes.

- 879 *h)* Sufficient knowledge of one of the working languages of the Union. Candidates should be able to express themselves satisfactorily in that language, both orally and in writing. Each administration shall decide for itself the language or languages required.

B. Second Class Radiotelegraph Operator's Certificate

880 § 11. The second class certificate is issued to candidates who have given proof of the technical and professional knowledge and qualifications enumerated below :

- 881 *a)* Elementary theoretical and practical knowledge of electricity and of radio, knowledge of the adjustment and practical working of the various types of radiotelegraph and radiotelephone apparatus used in the mobile service, including apparatus used for radio direction-finding and the taking of direction-finding bearings, as well as elementary knowledge of the principles of operation of other apparatus in general use for radionavigation.
- 882 *b)* Elementary theoretical and practical knowledge of the operation and maintenance of apparatus, such as motor-generators, storage batteries, etc., used in the operation and adjustment of the radiotelegraph, radiotelephone and radio direction-finding apparatus mentioned in No. 881.
- 883 *c)* Practical knowledge sufficient for effecting repairs in the case of minor damage which may occur to the radiotelegraph, radiotelephone and radio direction-finding apparatus during a voyage.
- 884 *d)* Ability to send correctly by hand and to receive correctly by ear in the Morse code, code groups (mixed letters, figures and punctuation marks) at a speed of sixteen groups a minute, and a plain language text at a speed of twenty words a minute. Each code group

shall comprise five characters, each figure or punctuation mark counting as two characters. The average word of the text in plain language shall contain five characters. The duration of each test of sending and of receiving shall, as a rule, be five minutes.

- 885 e) Ability to send correctly and to receive correctly by telephone, except in the case provided for in No. 866.
- 886 f) Knowledge of the Regulations applying to radio-communications, knowledge of the documents relating to charges for radiocommunications, knowledge of the provisions of the Convention for the Safety of Life at Sea which relate to radio, and, in the case of air navigation, knowledge of the special provisions governing the aeronautical fixed, mobile, and radio-navigation services. In the latter case, the certificate states that the holder has successfully passed the tests relating to these special provisions.
- 887 g) A sufficient knowledge of world geography, especially the principal shipping and air routes and the most important telecommunication routes.
- 888 h) If necessary, an elementary knowledge of one of the working languages of the Union. Candidates should be able to express themselves satisfactorily in that language, both orally and in writing. Each administration shall decide for itself the language or languages required.

C. Radiotelegraph Operator's Special Certificate

889 § 12. (1) The radiotelegraph operator's special certificate is issued to candidates who have given proof of the knowledge and professional qualifications enumerated below :

- 890 a) Ability to send correctly by hand and receive correctly by ear in the Morse code, code groups (mixed letters,

figures, and punctuation marks) at a speed of sixteen groups a minute, and a plain language text at a speed of twenty words a minute. Each code group shall comprise five characters, each figure or punctuation mark counting as two characters. The average word of the text in plain language shall contain five characters.

- 891** *b)* Knowledge of the practical operation and adjustment of radiotelegraph apparatus.
- 892** *c)* Knowledge of the Regulations applying to radiotelegraph communications and specifically of that part of those Regulations relating to safety of life at sea.
- 893** (2) Each administration concerned shall fix the other conditions for obtaining this certificate. However, except as provided for in No. **866**, the conditions specified in Nos. **899**, **900**, **901** and **902** or **903**, as the case may be, shall be satisfied.

D. Radiotelephone Operator's Certificate

- 894** § 13. The general radiotelephone operator's certificate is issued to candidates who have given proof of the knowledge and professional qualifications enumerated below (see also No. **861**):
- 895** *a)* A knowledge of the elementary principles of radiotelephony.
- 896** *b)* Detailed knowledge of the practical operation and adjustment of radiotelephone apparatus.
- 897** *c)* Ability to send correctly and to receive correctly by telephone.
- 898** *d)* Detailed knowledge of the Regulations applying to radiotelephone communications and specifically of that part of those Regulations relating to the safety of life.

899 § 14. (1) The restricted radiotelephone operator's certificate is issued to candidates who have given proof of the knowledge and professional qualifications enumerated below :

900 a) Practical knowledge of radiotelephone operation and procedure.

901 b) Ability to send correctly and to receive correctly by telephone.

902 c) General knowledge of the Regulations applying to radiotelephone communications and specifically of that part of those Regulations relating to the safety of life.

903 (2) For ship radiotelephone stations where the peak envelope
Mar power of the transmitter does not exceed 400 watts and for aircraft radiotelephone stations operating on frequencies allocated exclusively to the aeronautical mobile service, each administration may itself fix the conditions for obtaining a restricted radiotelephone operator's certificate, provided that the operation of the transmitter requires only the use of simple external switching devices, excluding all manual adjustment of frequency determining elements, and that the stability of the frequencies is maintained by the transmitter itself within the limits of tolerance specified in Appendix 3. However, in fixing the conditions, administrations shall ensure that the operator has an adequate knowledge of radiotelephone operation and procedure particularly as far as distress, urgency and safety are concerned. This in no way contravenes the provisions of No. **906**.

904 (3) Administrations in Region 1 do not issue certificates under No. **903**.

905 § 15. A radiotelephone operator's certificate shall show whether it is a general certificate or a restricted certificate and, in the latter case, if it has been issued in conformity with the provisions of No. **903**.

906 § 16. In order to meet special needs, special agreements between administrations may fix the conditions to be fulfilled in

order to obtain a radiotelephone operator's certificate, intended to be used in radiotelephone stations complying with certain technical conditions and certain operating conditions. These agreements, if made, shall be on the condition that harmful interference to international services shall not result therefrom. These conditions and agreements shall be mentioned in the certificates issued to such operators.

Section IV. Qualifying Service

907 § 17. (1) An operator holding a first or second class radiotelegraph
Mar operator's certificate is authorized to embark as chief operator of a ship station of the fourth category (see No. 932).

908 (2) Before becoming chief operator of a ship station of the
Mar second or third category (see Nos. 931 and 931A), an operator holding a first or second class radiotelegraph operator's certificate shall have had, as operator on board ship or in a coast station, at least six months' experience of which at least three months shall have been on board ship.

909 (3) Before becoming chief operator of a ship station of the
Mar first category (see No. 930), an operator holding a first class radiotelegraph operator's certificate shall have had, as operator on board ship or in a coast station, at least one year's experience of which at least six months shall have been on board ship.

910-911 SUP (Mar)

ARTICLE 24

**Class and Minimum Number of Operators
for Ship and Aircraft Stations**

912 § 1. In the public correspondence service, each government shall take the necessary steps to ensure that ship and aircraft stations of its own nationality have personnel adequate to perform efficient service.

913 § 2. The personnel of these stations shall, having regard to the provisions of Article 23, include at least :

914 a) ship stations of the first category, except in the case
Mar provided for in No. **918** : a chief operator holding
 a first class radiotelegraph operator's certificate;

915 b) ship stations of the second and third categories, except
Mar in the case provided for in No. **918**: a chief operator
 holding a first or second class radiotelegraph operator's
 certificate;

916 c) ship stations of the fourth category, except in the
Mar cases provided for in Nos. **917** and **918**: one operator
 holding a first or a second class radiotelegraph operator's
 certificate;

917 d) ship stations in which a radiotelegraph installation
 is provided but not prescribed by international
 agreements : one operator holding a radiotelegraph
 operator's special certificate or a first or second class
 radiotelegraph operator's certificate ;

918 e) ship stations equipped with radiotelephone installation
Mar only: one operator holding either a radiotelephone
 operator's certificate or a radiotelegraph operator's
 certificate;

- 919** f) aircraft stations except in the cases provided for in No. **920**: one operator holding a first or second class radiotelegraph operator's certificate, according to the internal regulations of the governments to which the stations are subject ;
- 920** g) aircraft stations equipped with a radiotelephone installation but not equipped for telegraphy : one operator holding, as the case may be, a radiotelephone operator's certificate or a radiotelegraph operator's certificate according to the internal regulations of the governments to which the stations are subject ¹.

920.1 ¹ See also Nos. **899** to **904** inclusive.

ARTICLE 25

**Working Hours of Stations in the Maritime and
Aeronautical Mobile Services****Section I. Preamble**

- 921 § 1. In order to permit the application of the following rules on the subject of hours of watch, every station of the maritime and aeronautical mobile services shall have an accurate clock correctly regulated to Greenwich Mean Time (G.M.T.).
- 922 § 2. Greenwich Mean Time (G.M.T.) (reckoned from 0001 to 2400 hours beginning at midnight) shall be used for all entries in the radiocommunication service log and in all similar documents of ships compulsorily equipped with radiocommunication apparatus in compliance with an international agreement; this same provision will apply, as far as possible, to other ships.

Section II. Coast Stations

- 923 § 3. (1) The service of coast stations is, as far as possible, continuous (day and night). Certain coast stations, however, may have a service of limited duration. Each administration or recognized private operating agency duly authorized to that effect fixes the hours of service for coast stations under its jurisdiction.
- 924 (2) These hours of service shall be notified to the Secretary General who shall publish them in the List of Coast Stations.
- 925 § 4. Coast stations whose service is not continuous shall not close before :
- 926 a) finishing all operations resulting from a distress call, urgency or safety signal ;

- 927 b) exchanging all traffic originating in or destined for mobile stations which are situated within their service area and have indicated their presence before the actual cessation of work.

Section III. Aeronautical Stations

- 928 § 5. The service of an aeronautical station shall be continuous throughout the period during which it bears responsibility for the radiocommunication service to aircraft in flight.

Section IV. Ship Stations

- 929 § 6. (1) For the international public correspondence service, ship
Mar stations are divided into four categories:
- 930 — Stations of the first category: these stations maintain a continuous service.
- 931 — Stations of the second category: these stations maintain a service for 16 hours a day.
Mar
- 931A — Stations of the third category: these stations maintain a service for 8 hours a day.
Mar
- 932 — Stations of the fourth category: these stations maintain a service the duration of which is either shorter than that of stations of the third category, or is not fixed by these Regulations.
Mar
- 933 (2) Each administration shall itself determine the rules under which ship stations subject to it are to be placed in one of the above four categories.
Mar
- 934 § 7. (1) Ship stations of the second and third categories shall provide service at least during the hours fixed by Appendix 12.
Mar
- 935 (2) In case of short voyages, these stations shall provide service during the hours fixed by the administrations to which they are subject.

935A § 7A. Ship stations of the fourth category are encouraged to provide service as follows:

- in Zone C, defined in Appendix 12: at least during the first half-hour of the second period of service of ships in the third category;
- in Zone D, defined in Appendix 12: at least during the first half-hour of the first period of service of ships in the third category.

936-938 SUP (Mar)

939 § 11. (1) Ship stations whose service is not continuous shall not close before :

- 940** a) finishing all operations resulting from a distress call, urgency or safety signal ;
- 941** b) exchanging, so far as practicable, all traffic originating in or destined for coast stations situated within their service area and for mobile stations which, being within their service area, have indicated their presence before the actual cessation of work.

942 (2) Any ship station not having fixed working hours shall inform the coast stations with which it is in communication of the time of closing and the time of reopening its service.

943 § 12. (1) Any mobile station arriving in port, and whose service is therefore about to close, shall :

- 944** a) notify accordingly the nearest coast station and, if appropriate, the other coast stations with which it generally communicates ;

945 *b)* not close until after the disposal of traffic on hand, unless this conflicts with the regulations in force in the country of the port of call.

946 (2) Upon departure from port the ship station shall notify the coast station or stations concerned that its service is reopening as soon as such reopening is permitted by the regulations in force in the country of the port of departure. However, a ship station not having hours of service fixed by these Regulations may defer such notification until the station first reopens its service after departure from port.

Section V. Aircraft Stations

947 § 13. For the international public correspondence service, aircraft stations constitute a single category. The duration of the service of such stations is not fixed by these Regulations.

ARTICLE 26

Personnel of Coast and Aeronautical Stations

948 Administrations shall ensure that the staff on duty in coast and aeronautical stations shall be adequately qualified to operate the stations efficiently.

CHAPTER VII**Working Conditions in the Mobile Services****ARTICLE 27****Aircraft and Aeronautical Stations**

- 949** § 1. Except as otherwise provided in these Regulations, the aeronautical mobile service may be regulated by special agreements between governments concerned (see Article 44 of the Convention).
- 950** § 2. In the absence of special agreements, the provisions of these Regulations concerning the exchanging of and accounting for public correspondence shall be applicable to stations in the aeronautical mobile service.
- 951** § 3. (1) Aircraft stations may communicate with stations of the maritime mobile service. They shall then conform to those provisions of these Regulations which relate to the maritime mobile service.
- 952** (2) For this purpose aircraft stations should use the frequencies allocated to the maritime mobile service. However, having regard to interference which may be caused by aircraft stations at high altitudes, maritime mobile frequencies in the bands above 30 Mc/s shall not be used by aircraft stations in any specific area without the prior agreement of all the administrations of the area in which interference is likely to be caused. In particular, aircraft stations operating in Region 1 should not use frequencies in the bands above 30 Mc/s allocated to the maritime mobile service by virtue of any agreement between administrations in that Region.
- 953** (3) However, the frequencies 156.30 Mc/s and 156.80 Mc/s may be used by aircraft stations for safety purposes only.
- 954** (4) Aircraft stations when handling public correspondence with stations of the maritime mobile service shall comply with all

the provisions applicable to the handling of public correspondence in the maritime mobile service (see particularly Articles 37 to 40).

ARTICLE 28

Conditions to be Observed by Mobile Stations**Section I. General Provisions**

955 § 1. Mobile stations shall be established in such a way as to
Mar conform to the provisions of Chapter II as regards frequencies and
 classes of emission.

956 SUP (Mar)

957 § 2. The frequencies of emission of mobile stations shall be
 checked as often as possible by the inspection service to which these
 stations are subject.

958 § 3. The energy radiated by receiving apparatus shall be
 reduced to the lowest possible value and shall not cause harmful
 interference to other stations.

959 § 4. Administrations shall take all practicable steps necessary
 to ensure that the operation of any electrical or electronic apparatus
 installed in mobile stations does not cause harmful interference to
 the essential radio services of stations which are operating in accord-
 ance with the provisions of these Regulations.

960 § 5. (1) Changes of frequency in the sending and receiving appa-
 ratus of any mobile station shall be capable of being made as rapidly
 as possible.

961 (2) Installations of any mobile station shall be capable, once
 communication is established, of changing from transmission to
 reception and vice versa in as short a time as possible.

962 § 6. The operation of a broadcasting service (see No. 28) by
 mobile stations at sea and over the sea is prohibited.

963 § 7. Mobile stations other than survival craft stations shall be
 provided with the documents enumerated in the appropriate section
 of Appendix 11.

964 § 8. When any ship station transmitter itself cannot be controlled in such a way that its frequency satisfies the tolerance specified in Appendix 3, the ship station shall be provided with a device, having a precision equal to at least one-half of this tolerance, for measuring the frequency of the emission.

964A § 8A. Equipment intended for use on narrow-band direct-printing **Mar** telegraph systems shall conform to the characteristics specified in Appendix 20B.

Section II. Special Provisions regarding Safety

965 § 9. (1) The International Convention for the Safety of Life at Sea prescribes which ships and which of their survival craft shall be fitted with radio equipment and which ships shall carry portable radio equipment for use in survival craft. It also prescribes the requirements which shall be complied with by such installations.

966 (2) The Annexes to the Convention on International Civil Aviation state which aircraft should be fitted with radio equipment and which aircraft should carry portable radio equipment for use in survival craft. They state also the requirements which should be complied with by such installations.

967 § 10. The applicable provisions of the present Regulations shall, however, be observed in the use of all such installations.

968 § 11. (1) Mobile stations of the maritime mobile service may communicate, for safety purposes, with stations of the aeronautical mobile service.

969 (2) For these purposes only, they may use the aeronautical emergency frequency 121.5 Mc/s using class A3 emissions. They shall then comply with any special arrangements between the governments concerned by which the aeronautical mobile service is regulated.

Section III. Ship Stations using Radiotelegraphy

970 § 12. Ship stations equipped with radiotelegraph apparatus intended to be used for normal traffic shall be provided with devices permitting change-over from transmission to reception and vice versa without manual switching. In addition these stations should be able to listen on the reception frequency during the course of periods of transmission.

971 SUP (Mar)

Bands between 405 and 535 kc/s

972 § 14. Transmitters used in ship stations working in the authorized bands between 405 and 535 kc/s shall be provided with devices readily permitting a material reduction of power.

973 § 15. All ship stations equipped with radiotelegraph apparatus to work in the authorized bands between 405 and 535 kc/s shall be able to :

974 a) send class A2 or A2H emissions and receive class
Mar A2 and A2H emissions with a carrier frequency of
500 kc/s;

975 b) send, in addition, class A1 and either A2 or A2H emis-
Mar sions on at least two working frequencies;

976 c) receive, in addition, class A1, A2 and A2H emissions
Mar on all the other frequencies necessary for their service.

977 § 16. The provisions of Nos. **975** and **976** do not apply to apparatus provided solely for distress, urgency and safety purposes.

Bands between 1 605 and 2 850 kc/s

978 § 17. In Region 2, any radiotelegraph station installed on board
Mar a ship which uses frequencies in the band 2 089·5-2 092·5 kc/s for call and reply shall be provided with at least one other frequency in the authorized bands between 1 605 and 2 850 kc/s.

Bands between 4 000 and 27 500 kc/s

979 § 18. In ship stations, all apparatus using class A1 emissions on frequencies in the authorized bands between 4 000 and 27 500 kc/s shall satisfy the following conditions :

- 980** a) in each of the bands necessary to carry on the station's service, it shall have at least two working frequencies in addition to one in the calling band (see Nos. **1193** and **1198**) ;
- 981** b) changes of frequency in transmitting apparatus shall
Mar be effected as quickly as practicable, but within fifteen seconds in any event;
- 982** c) in the matter of frequency changing, receiving apparatus shall be capable of a performance equal to that of the transmitting apparatus.

Section IV. Ship Stations using Radiotelephony*Bands between 1 605 and 4 000 kc/s*

983 § 19. All ship stations equipped with radiotelephony apparatus to work in the authorized bands between 1 605 and 2 850 kc/s shall be able to :

- 984** a) send class A3 or A3H emissions with a carrier frequency
Mar of 2 182 kc/s and receive class A3 and A3H emissions on a carrier frequency of 2 182 kc/s. However, after 1 January 1982, it is no longer authorized to send class A3 emissions, except for such apparatus as is referred to in No. **987**.

985
Mar

b) send, in addition:

1) class A3 or

2) class A3H, A3A and A3J¹

emissions on at least two working frequencies.² However, after 1 January 1982 class A3 and A3H emissions are no longer authorized on working frequencies;

986
Mar

c) receive, in addition:

1) class A3 and A3H or

2) class A3, A3H, A3A and A3J

emissions on all other frequencies necessary for their service. However, after 1 January 1982, the ability to receive class A3 and A3H emissions is no longer required.

987 § 20. The provisions of Nos. **985** and **986** do not apply to apparatus provided solely for distress, urgency and safety purposes.

Bands between 156 and 174 Mc/s

988
Mar

§ 21. All ship stations equipped with radiotelephony to work in the authorized bands between 156 and 174 Mc/s (see No. **287** and Appendix 18) shall be able to send and receive class F3 emissions (see Resolution No. Mar 14) on:

985.1
Mar

¹ Up to 1 January 1982 administrations may, in certain areas, reduce this requirement to class A3H and A3J emissions on working frequencies.

985.2
Mar

² In certain areas, administrations may reduce this requirement to one working frequency.

- 989** a) the calling and safety frequency 156.80 Mc/s ;
- 990** b) the primary intership frequency 156.30 Mc/s ; and
- 991** c) all the frequencies necessary for their service.

Section V. Aircraft Stations

992 § 22. (1) Any aircraft following a maritime course and required
Mar by national or international regulations to communicate for safety purposes with stations of the maritime mobile service, shall be capable of transmitting preferably class A2 or A2H and receiving preferably class A2 and A2H emissions on the carrier frequency of 500 kc/s or, on the carrier frequency of 2 182 kc/s, transmitting class A3 or A3H and receiving class A3 and A3H emissions.

993 (2) Aircraft stations, when communicating with stations of the maritime mobile service on frequencies allocated to that service, shall comply as far as possible with the provisions of this Article.

Section VI. Survival Craft Stations

994 § 23. Equipment provided for use in survival craft stations shall, if capable of operating on any frequency :

995 — *in the bands between 405 and 535 kc/s*, be able to transmit with a carrier frequency of 500 kc/s, using class A2 or A2H emissions. If a receiver is provided for any of these bands, it shall be able to receive class A2 and A2H emissions on a carrier frequency of 500 kc/s ;
Mar

- 996**
Mar — *in the bands between 1 605 and 2 850 kc/s*, be able to transmit with a carrier frequency of 2 182 kc/s using class A3 or A3H emissions. If a receiver is provided for any of these bands, it shall be able to receive class A3 and A3H emissions on a carrier frequency of 2 182 kc/s;
- 997**
Mar — *in the bands between 4 000 and 27 500 kc/s*, be able to transmit with a carrier frequency of 8 364 kc/s using class A2 or A2H emissions. If a receiver is provided for any of these bands, it shall be able to receive class A1, A2 and A2H emissions throughout the band 8 341.75 to 8 728.5 kc/s;
- 998** — *in the bands between 118 and 132 Mc/s*, be able to transmit on 121.5 Mc/s, preferably using amplitude modulated emission. If a receiver is provided for any of these bands, it shall be able to receive class A3 emissions on 121.5 Mc/s ;
- 999** — *in the bands between 235 and 328.6 Mc/s*, be able to transmit on the frequency 243 Mc/s.

ARTICLE 28A

**International Usage of Selective Calling in the
Maritime Mobile Service**

999A § 1. The characteristics of the sequential single-frequency code
Mar international selective calling system shall be in accordance with
Appendix 20C.

Method of Calling

999B § 2. (1) The call shall consist of:
Mar

- the selective call number or signal of the ship station called;
- the identification number or signal of the coast station calling.

However, in VHF the number of the channel to be used for the reply and for traffic may replace the identification number or signal of the coast station calling.

The call shall be transmitted twice.

999C (2) When a station called does not reply, the call should not
Mar normally be repeated until after an interval of at least ten minutes and should not then normally be renewed until after a further interval of thirty minutes.

Reply to Calls

999D § 3. The reply to calls should be made in accordance with the
Mar provisions of

- Nos. **1022** and **1023** when using radiotelegraphy;
- Nos. **1241** to **1253** when using radiotelephony.

Frequencies to be used

999E § 4. Selective calls should be sent on one or more of the following
Mar calling frequencies:

500 kc/s
2 182 kc/s
2 170.5 kc/s¹
4 434.9 kc/s
6 518.6 kc/s
8 802.4 kc/s
13 182.5 kc/s
17 328.5 kc/s
22 699.0 kc/s
156.8 Mc/s

999E.1 ¹ This frequency will replace 2 182 kc/s for selective calling not later
Mar than 1 April 1977.

ARTICLE 29

**General Radiotelegraph Procedure
in the Maritime Mobile and Aeronautical Mobile Services**

Section I. General Provisions

1000 § 1. (1) In the maritime mobile and aeronautical mobile services the procedure detailed in this Article is obligatory, except in cases of distress, urgency or safety, to which the provisions of Article 36 are applicable.

1001 (2) However, in the aeronautical mobile service the procedure specified in Sections III, IV and V of the present Article is applicable only in the absence of special arrangements to the contrary concluded between the governments concerned.

1002 (3) Aircraft stations when communicating with stations of the maritime mobile service shall use the procedure specified in this Article.

1003 § 2. The use of the Morse code signals specified in the Telegraph Regulations shall be obligatory in the maritime and aeronautical mobile services. However, for radiocommunications of a special character, the use of other signals is not precluded.

1004 § 3. (1) In order to facilitate radiocommunications, stations of the
Mar mobile service, other than the maritime mobile service, shall use the service abbreviations given in Appendix 13.

1005 (2) In the maritime mobile service, only the service abbreviations
Mar given in Appendix 13A are to be used.

Section II. Preliminary Operations

1006 SUP (Mar)

- 1007** § 5. (1) Before transmitting, a station shall take precautions to ensure that its emissions will not interfere with transmissions already in progress ; if such interference is likely, the station shall await an appropriate break in the communications in progress.
- 1008** (2) If, these precautions having been taken, the emissions of the station should, nevertheless, interfere with a transmission already in progress, the following rules shall be applied :
- 1009** a) The mobile station whose emission causes interference to the correspondence of a mobile station with a coast or aeronautical station, shall cease sending at the first request of the coast or aeronautical station.
- 1010** b) The mobile station whose emission causes interference to communications already in progress between mobile stations shall cease sending at the first request of one of the other stations.
- 1011** c) The station which requests this cessation shall indicate the approximate waiting time imposed on the station whose emission it suspends.

Section III. Calls, Reply to Calls and Signals Preparatory to Traffic

Method of Calling

- 1012** § 6. (1) The call consists of :
- the call sign of the station called, not more than three times ;
 - the word DE ;
 - the call sign of the calling station, not more than three times.
- 1013** (2) However, in the bands between 4 000 and 27 500 kc/s, when the conditions of establishing contact are difficult, the call signs may be transmitted more than three times, but not more than ten times each. In this case, the call signs of the called and the calling

station shall be transmitted in alternate sequence up to a total of twenty call signs altogether (e.g. ABC ABC de WXYZ WXYZ . . . or ABC ABC ABC de WXYZ WXYZ WXYZ . . .). This call may be sent three times at intervals of two minutes; thereafter it shall not be repeated until an interval of fifteen minutes has elapsed.

1013A (3) The procedure described in No. **1013** is not applicable **Mar** to the maritime mobile service.

1013AA (4) When selective calling is used in the maritime mobile **Mar** service, the procedures prescribed in Nos. **999B**, **999C** and **999D** shall be observed.

*Method of Calling in the Maritime Mobile Service Bands between
4 000 kc/s and 27 500 kc/s*

1013B § 6A (1) The call consists of:

Mar

- the call sign of the station called, not more than three times;
- the word DE;
- the call sign of the calling station, not more than three times;
- the signal — --- — (separation sign);
- the call sign of the station called, once only;
- the letter K.

1013C (2) For normal calling, when the requirements of No. **1162** **Mar** have been met, the call specified in No. **1013B** may be repeated at intervals of not less than one minute for a period not exceeding five minutes and shall not be renewed until after an interval of ten minutes.

1013D (3) When, however, the conditions of establishing contact
Mar are difficult, the call sign may be transmitted not more than ten times in succession. The call shall consist of:

- the call sign of the station called, not more than ten times;
- the word DE;
- the call sign of the calling station, not more than three times;
- the signal — --- — (separation sign);
- the call sign of the station called, once only;
- the letter K.

If necessary, this call may be transmitted a second time (see No. **1079**). The call or group of two consecutive calls may be repeated three times at intervals of two minutes; thereafter it shall not be repeated until an interval of ten minutes has elapsed.

1013E (4) When calling a coast station which has indicated a watch¹
Mar on the special calling frequencies 4 186.5, 6 279.75, 8 373, 12 559.5, 16 746 and 22 262.5 kc/s, ship stations do not apply the calling method contained in Nos. **1013B**, **1013C** and **1013D**. In these circumstances the call consists of:

- the call sign of the station called, not more than once;
- the word DE;
- the call sign of the calling station, not more than once.

This call may be transmitted three times at intervals of one minute; thereafter it shall not be repeated until after an interval of three minutes.

1013E.1 ¹ Administrations whose coast stations keep watch on the special calling
Mar frequencies provided for the study of the new calling procedure, shall ensure that watch is also maintained on normal calling bands (see No. **1174**) which they have indicated in accordance with No. **1168**.

Frequency to be used for Calling and for Preparatory Signals

1014 § 7. (1) For making the call and for transmitting preparatory signals, the calling station shall use a frequency on which the station called keeps watch.

1015 (2) A ship station calling a coast station in any of the frequency bands allocated to the maritime mobile service between 4 000 and 27 500 kc/s shall use a frequency in the calling band specially reserved for this purpose.

1015A (3) However, when using direct-printing telegraphy or similar **Mar** systems, the call may, by prior arrangement, be made on a working frequency in the bands reserved for such systems.

Indication of the Frequency to be used for Traffic

1016 § 8. (1) The call, as described in Nos. **1012, 1013, 1013B, 1013D** **Mar*** and **1013E**, shall be followed by the service abbreviation indicating the working frequency and, if useful, the class of emission which the calling station proposes to use for the transmission of its traffic.

1017 (2) When, in the aeronautical mobile service, as an exception **Mar** to this rule, the call is not followed by an indication of the frequency to be used for the traffic, this indicates:

1018 a) where the calling station is a land station, that it proposes **Mar** to use for traffic its normal working frequency shown in the appropriate document;

1019 b) where the calling station is a mobile station, that the frequency to be used for traffic is to be chosen by the station called from the frequencies on which the calling station can transmit.

- 1019A** (3) When, in the maritime mobile service, as an exception to
Mar No. **1016**, the call by a coast station is not followed by an indication of the frequency to be used for the traffic, this indicates that the coast station proposes to use for traffic its normal working frequency shown in the List of Coast Stations.

Indication of the Number of Radiotelegrams or of Transmission in Series

- 1020** § 9. (1) When the calling station has more than one radiotelegram to transmit to the station called, the above-mentioned preparatory signals shall be followed by the service abbreviation and the figure giving the number of such radiotelegrams.
- 1021** (2) Moreover, when the calling station wishes to send its radiotelegrams in series, it shall indicate this by adding the service abbreviation for requesting the consent of the station called.

Form of Reply to Calls

- 1022** § 10. The reply to calls consists of :
- the call sign of the calling station, not more than three times ;
 - the word DE ;
 - the call sign of the station called.

Frequency for Reply

- 1023** § 11. (1) Except as otherwise provided in these Regulations, for
Mar transmitting the reply to calls and to preparatory signals, the station called shall use the frequency on which the calling station keeps watch, unless the calling station has specified a frequency for the reply.

1024-1026 SUP (Mar)

Agreement on the Frequency to be used for Traffic

- 1027** § 12. (1) If the station called is in agreement with the calling station, it shall transmit :
- 1028** a) the reply to the call ;
- 1029** b) the service abbreviation indicating that from that moment onwards it will listen on the working frequency announced by the calling station ;
- 1030** c) if necessary, the indications referred to in No. **1038** ;
- 1031** d) the letter K if the station called is ready to receive the traffic of the calling station ;
- 1032** e) if useful, the service abbreviation and figure indicating the strength and/or intelligibility of the signals received (see Appendix 13 for Aeronautical Mobile Service and Appendix 13A for Maritime Mobile Service).
- Mar***
- 1033** (2) If the station called is not in agreement with the calling station on the working frequency to be used, it shall transmit :
- 1034** a) the reply to the call ;
- 1035** b) the service abbreviation indicating the working frequency to be used by the calling station and, if necessary, the class of emission ;
- 1036** c) if necessary, the indications specified in No. **1038**.
- 1037** (3) When agreement is reached regarding the working frequency which the calling station shall use for its traffic, the station called shall transmit the letter K after the indications contained in its reply.

Reply to the Request for Transmission by Series

- 1038** § 13. The station called, in replying to a calling station which has proposed to transmit its radiotelegrams by series (see No. **1021**), shall indicate, by means of the service abbreviation, its acceptance or refusal. In the former case it shall specify, if necessary, the number of radiotelegrams which it is ready to receive in one series.

Difficulties in Reception

- 1039** § 14 (1) If the station called is unable to accept traffic immediately, it shall reply to the call as indicated in Nos. **1027** to **1032**, but it shall replace the letter K by the signal - - - - (wait), followed by a number indicating in minutes the probable duration of the waiting time. If the probable duration exceeds ten minutes (five minutes in the case of an aircraft station communicating with a station of the maritime mobile service), the reason for the delay shall be given.
- 1040** (2) When a station receives a call without being certain that such a call is intended for it, it shall not reply until the call has been repeated and understood. When, on the other hand, a station receives a call which is intended for it but is uncertain of the call sign of the calling station, it shall reply immediately using the service abbreviation in place of the call sign of this latter station.

Section IV. Forwarding (Routing) of Traffic*Traffic Frequency*

- 1041** § 15. (1) As a general rule a station of the mobile service shall transmit its traffic on one of its working frequencies in that band in which the call has been made.
- 1042** (2) In addition to its normal working frequency, printed in heavy type in the List of Coast Stations, a coast station may use one or more supplementary frequencies in the same band, in accordance with the provisions of Article 32.
- 1043** (3) The use of frequencies reserved for calling shall be forbidden for traffic, except distress traffic (see Article 32).
- 1044** (4) If the transmission of a radiotelegram is to take place on a frequency and/or with a class of emission other than those used for the call, the transmission of the radiotelegram shall be preceded by :
- the call sign of the station called, not more than three times ;

- the word DE ;
- the call sign of the calling station, not more than three times.

1045 (5) If the transmission is to be made on the same frequency and with the same class of emission as the call, the transmission of the radiotelegram shall be preceded, if necessary, by :

- the call sign of the station called ;
- the word DE ;
- the call sign of the calling station.

Numbering in Daily Series

1046 § 16. (1) As a general rule, radiotelegrams of all kinds transmitted by ship stations, and radiotelegrams in the public correspondence service transmitted by aircraft stations, shall be numbered in a daily series ; number 1 shall be given to the first radiotelegram sent each day to each separate station.

1047 (2) A series of numbers which has begun in radiotelegraphy should be continued in radiotelephony and vice versa.

Long Radiotelegrams

1048 § 17. (1) In cases where both stations are able to change from sending to receiving without manual switching, the transmitting station may continue to send until completion of the message or until the receiving station breaks in on the transmission with the service abbreviation BK. Before commencing, both stations normally agree on such a method of working by means of the abbreviation QSK.

1049 (2) If this method of working cannot be employed, long radiotelegrams, whether in plain language or in secret language shall, as a general rule, be transmitted in sections, each section containing fifty words in the case of plain language and twenty words or groups if secret language is used.

1050 (3) At the end of each section the signal *— — — — —* (?) meaning "Have you received the radiotelegram correctly up to this point?" shall be transmitted. If the section has been correctly

received, the receiving station shall reply by sending the letter K and the transmission of the radiotelegram shall be continued.

Suspension of Traffic

- 1051** § 18. When a mobile station transmits on a working frequency of a land station and causes interference with the transmission of such land station, it shall suspend working at the first request of the latter.

Section V. End of Traffic and Work

Signal for the End of Transmission

- 1052** § 19. (1) The transmission of a radiotelegram shall be terminated by the signal - - - - (end of transmission), followed by the letter K.
- 1053** (2) In the case of transmission by series, the end of each radiotelegram shall be indicated by the signal - - - - (end of transmission) and the end of the series by the letter K.

Acknowledgment of Receipt

- 1054** § 20. (1) The acknowledgment of receipt of a radiotelegram or a series of radiotelegrams shall be given by the receiving station in the following manner :
- the call sign of the sending station ;
 - the word DE ;
 - the call sign of the receiving station ;
 - the letter R followed by the number of the radiotelegram ;
- or*
- the letter R followed by the number of the last radiotelegram of a series.

- 1055** (2) The acknowledgment of receipt shall be transmitted by the receiving station on the traffic frequency (see Nos. **1041** and **1042**).

End of Work

- 1056** § 21. (1) The end of work between two stations shall be indicated by each of them by means of the signal - - - - - (end of work).

- 1057** (2) The signal (end of work) shall also be used :
- when the transmission of radiotelegrams of general information, meteorological information and general safety notices is finished, and
 - when transmission is ended in long-distance radio-communication services with deferred acknowledgment of receipt or without acknowledgment of receipt.

Section VI. Control of Working

- 1058** § 22. The provisions of this section are not applicable in cases of distress, urgency or safety (see No. **1000**).
- 1059** § 23. In communication between land stations and mobile stations, the mobile station shall comply with the instructions given by the land station, in all questions relating to the order and time of transmission, to the choice of frequency and class of emission, and to the duration and suspension of work.
- 1060** § 24. In communication between mobile stations, the station called shall control the working in the manner indicated in No. **1059**. However, if a land station finds it necessary to intervene, these stations shall comply with the instructions given by the land station.

Section VII. Tests

- 1061** § 25. When it is necessary for a mobile station to send signals for testing or adjustment which are liable to interfere with the working of neighbouring coast or aeronautical stations, the consent of these stations shall be obtained before such signals are sent.
- 1062** § 26. When it is necessary for a station in the mobile service to make test signals, either for the adjustment of a transmitter before making a call or for the adjustment of a receiver, such signals shall not be continued for more than ten seconds and shall be composed of a series of VVV followed by the call sign of the station emitting the test signals.

ARTICLE 30

Calls by Radiotelegraphy

- 1063** § 1. (1) The provisions of this Article are not applicable to the aeronautical mobile service when special agreements exist between the governments concerned.
- 1064** (2) Aircraft stations when communicating with stations of the maritime mobile service shall use the procedure specified in this Article.
- 1065** § 2. (1) As a general rule, it rests with the mobile station to establish communication with the land station. For this purpose, the mobile station may call the land station only when it comes within the service area of the latter, that is to say, that area within which, by using an appropriate frequency, the mobile station can be heard by the land station.
- 1066** (2) However, a land station having traffic for a mobile station may call this station if it has reason to believe that the mobile station is keeping watch and is within the service area of the land station.
- 1067** § 3. (1) In addition, each coast station shall, so far as practicable, transmit its calls in the form of "traffic lists" consisting of the call signs in alphabetical order of all mobile stations for which it has traffic on hand. These calls are made at specified times fixed by agreement between the administrations concerned and at intervals of at least two hours and not more than four hours during the working hours of the coast station.
- 1068** (2) Continuous or frequently repeated emissions of its call sign or of the enquiry signal CQ by a coast station should be avoided (see No. **693**).
- 1068A** (2A) However, in the bands between 4 000 and 27 500 kc/s, a ^{Mar} coast station may transmit its call sign at intervals, using Type 1 transmission, to enable mobile stations to select the calling band with the most favourable propagation characteristics for reliable communication (see No. **1162**).

1069 (3) Coast stations shall transmit their traffic lists on their normal
Mar working frequencies in the appropriate bands. This transmission shall be preceded by a general call to all stations (CQ).

1070 (4) The call to all stations announcing the traffic list may be
Mar sent on a calling frequency in the following form:

- CQ, not more than three times;
- the word DE;
- the call sign of the calling station, not more than three times;
- QSW followed by the indication of the working frequency or frequencies on which the traffic list is about to be sent.

In no case may this preamble be repeated.

1071 (5) The provisions of No. **1070**:
Mar

1071A a) are obligatory when 500 kc/s is used;
Mar

1072 b) do not apply when frequencies in the bands between
Mar 4 000 and 27 500 kc/s are used.

1073 (7) The hours at which coast stations transmit their traffic
lists and the frequencies and classes of emission which they use for
this purpose shall be stated in the List of Coast Stations.

1074 (8) Mobile stations should, as far as possible, listen to the
traffic lists transmitted by coast stations. On hearing their call sign
in such a list they shall reply as soon as they can do so.

1075 (9) When the traffic cannot be sent immediately, the coast
station shall inform each mobile station concerned of the probable
time at which working can begin, and also, if necessary, the fre-
quency and class of emission which will be used.

- 1076** § 4. When a land station receives calls from several mobile stations at practically the same time, it decides the order in which these stations may transmit their traffic. Its decision shall be based on the priority (see No. **1496**) of the radiotelegrams or radiotelephone calls that mobile stations have on hand and on the need for allowing each calling station to clear the greatest possible number of communications.
- 1077** § 5. (1) When a station called does not reply to a call sent three times at intervals of two minutes, the calling shall cease and shall not be renewed until after an interval of fifteen minutes.
- 1078** (2) However, in the case of a communication between a station of the maritime mobile service and an aircraft station, calling may be renewed after an interval of five minutes.
- 1079** (3) Before renewing the call, the calling station shall ascertain that the station called is not in communication with another station.
- 1080** (4) If there is no reason to believe that harmful interference will be caused to other communications in progress, the provisions of Nos. **1077** and **1078** are not applicable. In such cases the call, sent three times at intervals of two minutes, may be repeated after an interval of less than fifteen minutes but not less than three minutes.
- 1081** § 6. Mobile stations shall not radiate a carrier wave between calls.
- 1082** § 7. When the name and address of the administration or private operating agency controlling a mobile station are not given in the appropriate list of stations or are no longer in agreement with the particulars given therein, it is the duty of the mobile station to furnish as a matter of regular procedure, to the land station to which it transmits traffic, all the necessary information in this respect.
- 1083** § 8. (1) The land station may, by means of the abbreviation TR, ask the mobile station to furnish it with the following information :

1084 a) position and, whenever possible, course and speed ;

1085 b) next port of call.

1086 (2) The information referred to in Nos. **1083** to **1085**, preceded
Mar by the abbreviation TR, should be furnished by mobile stations, whenever this seems appropriate, without prior request from the coast station. The provision of this information is authorized only by the master or person responsible for the ship, aircraft or other vehicle carrying the mobile station.

1087 SUP (Mar)

ARTICLE 31

Radiotelegraphic Call to Several Stations

- 1088** § 1. Two types of calling signal. "to all stations" are recognized :
- 1089** a) call CQ followed by the letter K
(see Nos. **1091** and **1092**) ;
- 1090** b) call CQ not followed by the letter K
(see No. **1093**).
- 1091** § 2. Stations desiring to enter into communication with stations of the mobile service without, however, knowing the names of any such stations within their service area may use the enquiry signal CQ in place of the call sign of the station called in the calling formula, the call being followed by the letter K (general call to all stations in the mobile service with request for reply).
- 1092** § 3. In the maritime mobile service, in regions where traffic is congested, the use of the call CQ followed by the letter K is forbidden. As an exception it may be used with signals denoting urgency.
- 1093** § 4. The call CQ not followed by the letter K (general call to all stations without request for reply) is used before the transmission of information of any kind intended to be read or used by anyone who can intercept it.
- 1094** § 5. The call CP followed by two or more call signs or by a code word (call to certain receiving stations without request for reply) is used only for the transmission of information of any nature intended to be read or used by the persons authorized.

ARTICLE 32

**Use of Frequencies for Radiotelegraphy in the Maritime Mobile
and Aeronautical Mobile Services****Section I. General**

1094A §1 Whenever the class of emission A2 or A2H is mentioned
Mar in the present Regulations for use in the maritime mobile service, the type of transmission shall, except for selective calling purposes, be telegraphy by on-off keying of the modulated emission, to the exclusion of on-off keying of the modulating audio frequencies only.

1095-1105 SUP (Mar)

Section II. Bands between 405 and 535 kc/s

1106 § 5. The provisions of this Section are also applicable to aircraft stations when communicating with stations of the maritime mobile service.

A. Distress

1107 § 6. (1) The frequency 500 kc/s is the international distress frequency for radiotelegraphy ; it shall be used for this purpose by ship, aircraft and survival craft stations using frequencies in the bands between 405 and 535 kc/s when requesting assistance from the maritime services. It shall be used for the distress call and distress traffic, for the urgency signal and urgency messages, and for the safety signal and, outside regions of heavy traffic, short safety messages. When practicable, safety messages shall be transmitted on the working frequency after a preliminary announcement on 500 kc/s (see also No. **1122**).

1108 (2) However, ship and aircraft stations which cannot transmit on 500 kc/s should use any other available frequency on which attention might be attracted.

- 1109** (3) In addition, 500 kc/s may be used only :
- 1110** a) for call and reply (see Nos. **1114** and **1116**) ;
- 1111** b) by coast stations to announce the transmission of their
Mar traffic lists under the conditions provided for in Nos. **1070**, **1071** and **1071A**.
- 1112** (4) Apart from the transmissions authorized on 500 kc/s, and taking account of No. **1115**, all transmissions on the frequencies included between 490 and 510 kc/s are forbidden.
- 1113** (5) In order to facilitate the reception of distress calls, other
Mar transmissions on the frequency 500 kc/s shall be reduced to a minimum, and in any case shall not exceed one minute.
- 1113A** (6) Before transmitting on 500 kc/s, stations in the mobile
Mar service must listen on this frequency for a reasonable period to make sure that no distress traffic is being sent (see No. **1007**).
- 1113B** (7) The provisions of No. **1113A** do not apply to stations
Mar in distress.

B. Call and Reply

- 1114** § 7. (1) The general calling frequency, which shall be used by any ship station or coast station engaged in radiotelegraphy in the authorized bands between 405 and 535 kc/s, and by aircraft desiring to enter into communication with a station of the maritime mobile service using frequencies in these bands, is the frequency 500 kc/s.
- 1115** (2) However, in order to reduce interference in regions of heavy traffic, administrations may consider the requirements of No. **1114** as satisfied when the calling frequencies assigned to coast stations open to public correspondence are not separated by more than 3 kc/s from the general calling frequency 500 kc/s.

1115A § 7A(1) A ship station calling a coast station shall, wherever possible
Mar and particularly in regions of heavy traffic, indicate to the coast station that it is ready to receive on the working frequency of that station.

1115B (2) The ship station should make sure beforehand that this
Mar frequency is not already being used by the coast station.

1116 § 8.(1) The frequency for replying to a call sent on the general
Mar calling frequency (see No. **1114**) shall be as follows:

- either 500 kc/s,
- or the frequency specified by the calling station (see Nos. **1023** and **1115A**).

1117 (2) In regions of heavy traffic, coast stations may answer calls
Mar made by ship stations of their own nationality in accordance with special arrangements made by the administration concerned (see No. **1023**).

C. Traffic

1118 § 9. (1) Coast stations working in the authorized bands between
405 and 535 kc/s shall be able to use at least one frequency in addition to 500 kc/s. One of these additional frequencies, which is printed in heavy type in the List of Coast Stations, is the normal working frequency of the station.

1119 (2) In addition to their normal working frequency, coast stations may use, in the authorized bands, additional frequencies which are shown in ordinary type in the List of Coast Stations. The band 405 to 415 kc/s, however, is assigned to radio direction-finding; it may not be used by the mobile service except on the conditions fixed by Chapter II.

1120 (3) The working frequencies of coast stations shall be chosen so as to avoid interference with neighbouring stations.

1121 (4) In regions of heavy traffic, coast stations and ship stations
 Mar should use class A1 emission on their working frequencies.

1122 § 10. As an exception to the provisions of Nos. **1107**, **1109**, **1110**
 Mar and **1111** and on condition that signals of distress, urgency and safety, and calls and replies are not interfered with, 500 kc/s may be used outside regions of heavy traffic for direction-finding but with discretion.

1123 § 11. (1) Ship stations operating in the authorized bands between 405
 Mar and 535 kc/s shall use working frequencies chosen from the following: 425, 454, 468, 480 and 512 kc/s, except as permitted by No. **418**.

1124 (2) Coast stations are prohibited from transmitting on the
 Mar working frequencies designated for the use of ship stations on a world-wide basis.

1125 (3) The frequency 512 kc/s may be used by ship stations as a
 Mar supplementary calling frequency when 500 kc/s is being used for distress.

1126 (4) During these periods coast stations may :

1127 a) use 512 kc/s as a supplementary frequency for call and
 reply, *or*

1128 b) make use of other arrangements for call and reply
 which shall have been specified in the List of Coast Stations.

1129 (5) When 500 kc/s is in use for distress, ship stations shall not
 use 512 kc/s as a working frequency in those areas where it is in use as a supplementary calling frequency.

D. Watch

1130 § 12. (1) In order to increase the safety of life at sea and over the
 sea, all stations of the maritime mobile service normally keeping watch on frequencies in the authorized bands between 405 and

1122.1 SUP (Mar)

535 kc/s shall, during their hours of service, take the necessary measures to ensure watch on the international distress frequency 500 kc/s for three minutes twice an hour beginning at x h. 15 and x h. 45 Greenwich Mean Time (G.M.T.) by an operator using headphones or a loud-speaker.

1131 (2) During the periods mentioned above, except for the emissions provided for in Article 36 :

1132 a) transmissions shall cease in the bands between 485 and 515 kc/s ;

1133 b) outside these bands, transmissions of stations of the mobile service may continue ; stations of the maritime mobile service may listen to these transmissions on the express condition that they first ensure watch on the distress frequency as required by No. **1130**.

1134 § 13. (1) Stations of the maritime mobile service open to public
^{Mar} correspondence and using frequencies in the authorized bands between 405 and 535 kc/s shall, during their hours of service, remain on watch on 500 kc/s. This watch is obligatory only for class A2 and A2H emissions.

1135 (2) These stations, while observing the requirements of No. **1130**, are authorized to relinquish this watch only when they are engaged in communications on other frequencies.

1136 (3) When they are engaged in such communications :

— Ship stations may maintain this watch on 500 kc/s by means of an operator using headphones or a loud-speaker or by some appropriate means such as an automatic alarm receiver.

— Coast stations may maintain this watch on 500 kc/s by means of an operator using headphones or a loud-speaker ; in the latter case an indication may be inserted in the List of Coast Stations.

Section III. Bands between 1 605 and 4 000 kc/s**1137** SUP (Mar)

1138 § 15. In Region 2, the frequencies in the band 2 068.5 to 2 078.5
Mar kc/s are assigned to ship stations using wide-band telegraphy, facsimile and special transmission systems. The provisions of No. 1146 are applicable.

**Section IV. Additional Provisions Applicable in Region 3 Areas
North of the Equator Only**

1139 § 16. (1) The band 2 089.5-2 092.5 kc/s is the calling and safety band
Mar for the maritime mobile service of radiotelegraphy in those parts of the bands between 1 605 and 2 850 kc/s in which radiotelegraphy is authorized.

1140 (2) Frequencies in the band 2 089.5-2 092.5 kc/s may be used
Mar for calls, replies and safety. These frequencies may also be used for messages preceded by the urgency or safety signals.

1141 (3) Each coast station using the calling band 2 089.5-2 092.5 kc/s
Mar shall, as far as possible, maintain watch on this band during its working hours.

1142 (4) Coast stations which use frequencies in the band 2 089.5-
Mar 2 092.5 kc/s for calling shall be able to use at least one other frequency in those parts of the bands between 1 605 and 2 850 kc/s in which the maritime mobile service of radiotelegraphy is authorized.

1143 (5) One of these frequencies is printed in heavy type in the
List of Coast Stations to indicate that it is the normal working frequency of the station. Supplementary frequencies, if any, are shown in ordinary type.

- 1144** (6) Working frequencies of coast stations shall be chosen in such a manner as to avoid interference with other stations.

Section V. Bands between 4 000 and 27 500 kc/s

A. General Provisions

- 1145** § 17. (1) Mobile radiotelegraph stations equipped to operate in the
Mar bands specified in Nos. **1174**, **1192** and **1196** shall employ only class A1 emissions. In the bands specified in No. **1192**, stations may use manual or automatic A1 Morse telegraphy at speeds not exceeding 40 bauds. Survival craft stations may use class A2 or A2H emissions in these bands (see Nos. **994** and **997**).

- 1146** (2) Mobile stations equipped for wide-band telegraphy, facsimile and special transmission systems may, in the frequency bands reserved for such use, employ any class of emission provided that such emissions can be contained within the wide-band channels indicated in Appendix 15. However, manual Morse and telephony are excluded, except for circuit alignment purposes.

- 1147** (3) Except as provided for in No. **1352A.1**, coast radiotelegraph
Mar stations operating in the maritime mobile exclusive bands between 4 000 and 27 500 kc/s shall not use Type 2 emissions. (See No. **1094A.**)

- 1148** (4) Coast radiotelegraph stations employing single-channel
Mar class A1 or F1 emissions and operating in the maritime mobile exclusive bands between 4 000 and 27 500 kc/s shall at no time use a mean power in excess of the following:

<i>Band</i>	<i>Maximum mean power</i>
4 Mc/s	5 kW
6 Mc/s	5 kW
8 Mc/s	10 kW
12 Mc/s	15 kW
16 Mc/s	15 kW
22 Mc/s	15 kW

- 1148A** (5) Coast radiotelegraph stations employing multichannel tele-
Mar graph emissions and operating in the maritime mobile exclusive
bands between 4 000 and 27 500 kc/s shall at no time use a mean
power in excess of 2.5 kW per 500 c/s bandwidth.
- 1149** § 18. (1) Each of the bands reserved for ship radiotelegraph stations,
Mar except for the band 25 070 to 25 110 kc/s, shall be divided into six
parts, beginning at the low frequency end:
- 1150** a) a band of working frequencies for ship stations using
wide-band telegraphy, facsimile and special trans-
mission systems ;
- 1150A** b) a band of working frequencies for oceanographic data
Mar transmissions ;
- 1150B** c) a band of working frequencies for ship stations using
Mar narrow-band direct-printing telegraph and data trans-
mission systems.
- 1151** d) a band of working frequencies for the use of high
Mar traffic ship stations ;
- 1152** e) a band of calling frequencies for the use of all ship
Mar and aircraft stations entering into communication with
stations of the maritime mobile service ;
- 1153** f) a band of working frequencies for the use of low
Mar traffic ship stations.
- 1154** (2) The bands 25 070 to 25 082.5 kc/s and 25 082.5 to 25 110
Mar kc/s are allocated, respectively for calling and working by ship
radiotelegraph stations on ships of all categories which employ A1
or F1 emissions (see No. 224).
- 1155** SUP (Mar)

1156 §.20. (1) Ship stations shall, at the discretion of the administration
Mar controlling the station concerned, use either the high traffic band
(see No. **1151**) or the low traffic band (see No. **1153**), depending on
their traffic requirements.

1157 SUP (Mar)

1158 (3) The arrangement of the frequencies in the ship radiotele-
Mar graph bands is illustrated graphically in Appendix 15.

1159 § 21. For the exchange of radiotelegraph communications with
stations of the maritime mobile service, aircraft stations may utilize
the frequencies of the bands allocated to that service for radio-
telegraphy between 4 000 and 27 500 kc/s. When using these fre-
quencies, aircraft stations shall comply with the provisions of this
Section.

B. Call and Reply

1160 § 22. (1) In order to establish communication with a station in the
maritime mobile service, each ship and aircraft station shall use a
calling frequency in the bands listed in No. **1174**.

1161 (2) Frequencies in the calling bands are assigned to each
mobile station in accordance with the provisions of Nos. **1175** to
1179 inclusive.

1162 § 23. In order to reduce interference, mobile stations shall,
within the means at their disposal, endeavour to select for calling
the band with the most favourable propagational characteristics for
effecting reliable communication. In the absence of more precise
data, a mobile station shall, before making a call, listen for the
signals of the station with which it desires to communicate. The
strength and intelligibility of such signals are useful as a guide to
propagational conditions and indicate which is the preferable band
for calling.

1163 § 24. (1) The calling frequency to be used by a coast station, in
each of the bands for which it is equipped, is its normal working
frequency as shown in heavy type in the List of Coast Stations
(see No. **1173**).

1164 (2) So far as is practicable, a coast station shall transmit its calls at specified times in the form of traffic lists on the frequency or frequencies indicated in the List of Coast Stations (see Nos. **1067** and **1069**).

1165 § 25. Unless the calling station specifies otherwise, the frequency for reply to a call made in any maritime mobile band is as follows :

1166 a) for a mobile station, its assigned calling frequency in the same band as that used by the calling station ;

1167 b) for a coast station, its normal working frequency in the same band as that used by the calling station.

1168 § 26. When notifying the transmitting frequencies of a coast station, administrations shall indicate on which of the ship calling bands the station keeps watch and, as far as possible, the approximate hours of watchkeeping in Greenwich Mean Time (G.M.T.). This information shall be published in the List of Coast Stations.

C. Traffic

1169 § 27. (1) A mobile station, after establishing communication on a calling frequency (see No. **1160**) shall change to a working frequency for the transmission of traffic. The use of frequencies in the calling bands for any purpose other than calling shall be prohibited.

1170 (2) Working frequencies shall be assigned to mobile stations in accordance with the provisions of Nos. **1180** to **1200** inclusive.

1171 § 28. (1) A coast station shall transmit its traffic on its normal working frequency or on other working frequencies assigned to it.

1172 (2) Countries which share a channel in one of the exclusive maritime mobile bands between 4 000 and 27 500 kc/s should give special consideration to the countries among them which have no other channel in the same band and should endeavour to use their primary channel to the greatest extent possible, in order to permit the latter countries to satisfy their minimum communication requirements.

1173 (3) Working frequencies assignable to coast stations using the
Mar bands between 4 000 and 27 500 kc/s are included within the following band limits:

4 231 to 4 361 kc/s
 6 345.5 to 6 514 kc/s
 8 459.5 to 8 728.5 kc/s
 12 689 to 13 107.5 kc/s
 16 917.5 to 17 255 kc/s
 22 374 to 22 624.5 kc/s
 (See also No. 453A.)

D. Assignment of Frequencies to Mobile Stations

1. Calling Frequencies of Ship Stations

1174 § 29. (1) The calling frequencies assignable to ship stations are
Mar included within the following band limits:

4 178 to 4 187 kc/s
 6 267 to 6 280.5 kc/s
 8 356 to 8 374 kc/s
 12 534 to 12 561 kc/s
 16 712 to 16 748 kc/s
 22 222.5 to 22 267.5 kc/s
 25 070 to 25 082.5 kc/s

1175 (2) In the band 4 178 to 4 187 kc/s, the calling frequencies are
Mar spaced 0.5 kc/s apart. The extreme frequencies assignable are 4 178.5 and 4 186.5 kc/s as indicated in Appendix 15.

1176 (3) In each of the other maritime mobile service bands between
Mar 4 000 and 18 000 kc/s, the calling frequencies shall be in harmonic relationship with those in the band 4 178 to 4 187 kc/s. In the bands 22 222.5 to 22 267.5 kc/s and 25 070 to 25 082.5 kc/s the spacing of calling frequencies is 2.5 kc/s and 1.5 kc/s respectively. The extreme frequencies assignable are 22 225 and 22 265 kc/s, and 25 073.5 and 25 081 kc/s, respectively.

1177 § 30. The administration to which a ship station is subject shall assign to it a series of calling frequencies including one frequency in each of the bands in which the station is equipped to transmit. Administrations may, however, assign a supplementary series of calling frequencies for use in the event of interference. In the bands between 4 000 and 18 000 kc/s, the frequencies assigned to each ship station shall be in harmonic relationship. Each administration shall take the necessary steps to assign such harmonic series of calling frequencies to ships in accordance with an orderly system of rotation so as to distribute these frequencies uniformly throughout the calling bands. The same system of uniform distribution shall be applied in the assignment of calling frequencies in the bands 22 222.5 to 22 267.5 kc/s and 25 070 to 25 082.5 kc/s. Administrations may also assign to their ship stations the special calling frequencies appearing in the footnote indicated by *d*) in Appendix 15.

1178 § 31. (1) One calling frequency in each of the calling bands indicated in No. **1174** (except in the 25 Mc/s band) shall be reserved as far as possible for the use of aircraft desiring to communicate with stations of the maritime mobile service. These frequencies are the following: 4 182, 6 273, 8 364, 12 546, 16 728 and 22 245 kc/s.

1179 (2) The frequency 8 364 kc/s, however, shall not be assigned to or used by ship stations except to establish communications relating to the safety of life. It is designated for use by survival craft stations if they are equipped to transmit on frequencies in the bands between 4 000 and 27 500 kc/s, and if they desire to establish with stations of the maritime and aeronautical mobile services communications relating to search and rescue operations.

2. Working Frequencies of Mobile Stations

a) Channel Spacing and Assignment of Frequencies

1180 § 32. In all bands the working frequencies for ship stations equipped
Mar to use wide-band telegraphy, facsimile and special transmission systems are spaced 4 kc/s apart. The frequencies assignable are shown in Appendix 15.

1180A § 32A. In all bands, the frequencies assignable for oceanographic
Mar data transmissions are spaced 0.3 kc/s apart. The frequencies assignable are shown in Appendix 15.

1180B § 32B. The working frequencies for ship stations using narrow-
Mar band direct-printing telegraph and data transmission systems are spaced 0.5 kc/s apart in the 4, 6 and 8 Mc/s bands and 1.0 kc/s apart in the 12, 16 and 22 Mc/s bands. The frequencies assignable are shown in Appendix 15.

1181 § 33. (1) The working frequencies for high traffic ships in the band
Mar 4 172.25 to 4 178 kc/s are spaced 0.5 kc/s apart, the extreme frequencies assignable being 4 172.5 and 4 177.5 kc/s as shown in Appendix 15.

1182 (2) In the band 4 187 to 4 231 kc/s, the working frequencies for
Mar low traffic ships are spaced 0.5 kc/s apart, the extreme frequencies assignable being 4 187.5 and 4 229 kc/s as shown in Appendix 15.

1183 § 34. The working frequencies assigned to each ship station in
Mar the 6, 8, 12 and 16 Mc/s bands shall be harmonically related to those assigned in the 4 Mc/s band in all cases where such a relationship is provided in Appendix 15.

1184 § 35. In the 22 Mc/s band, which is not in harmonic relationship
Mar with the other bands, the frequencies are spaced as follows, as shown in Appendix 15:

1185 a) in the high traffic band, the working frequencies are
Mar spaced 2 kc/s apart, the extreme frequencies assignable being 22 187 and 22 221 kc/s;

1186 *b)* in the low traffic band, the working frequencies are
 Mar spaced 2·5 kc/s apart, the extreme frequencies assign-
 able being 22 270 and 22 370 kc/s.

1187 § 36. In the 25 Mc/s band, the working frequencies are spaced
 Mar 1·5 kc/s apart. The extreme frequencies assignable are 25 084 and
 25 106·5 kc/s, as shown in Appendix 15.

*b) Working Frequencies for Ship Stations using Wide-Band
 Telegraphy, Facsimile and Special Transmission Systems*

1188 § 37. The working frequencies assignable for ship stations using
 Mar wide-band telegraphy, facsimile and special transmission systems
 are included within the following band limits:

4 142·5 to 4 162·5 kc/s
 6 216·5 to 6 244·5 kc/s
 8 288 to 8 328 kc/s
 12 431·5 to 12 479·5 kc/s
 16 576 to 16 636·5 kc/s
 22 112 to 22 160·5 kc/s

1189 § 38. (1) Each administration shall assign to each ship station under
 Mar its jurisdiction and employing wide-band telegraphy, facsimile and
 special transmission systems, one or more series of the working
 frequencies reserved for this purpose and shown in Appendix 15.
 The total number of series assigned to each ship shall be determined
 by traffic requirements.

1190 (2) When ship stations employing wide-band telegraphy, fac-
 simile and special transmission systems are assigned less than the
 total number of working frequencies in a band, the administration
 concerned shall assign working frequencies to such ships in accord-
 ance with an orderly system of rotation that will ensure approxi-
 mately the same number of assignments on any one working
 frequency.

1191 (3) However, within the limits of the bands given in No. **1188**,
 Mar administrations may, to meet the needs of specific systems, assign

frequencies in a different manner from that shown in Appendix 15. Nevertheless, administrations shall take into account, as far as possible, the provisions of Appendix 15 concerning channelling and 4 kc/s spacing.

c) Working Frequencies for Oceanographic Data Stations

1191A § 38A. The working frequencies assignable to ship stations for **Mar** oceanographic data transmissions are included within the following band limits:

4 162.5	to	4 166	kc/s
6 244.5	to	6 248	kc/s
8 328	to	8 331.5	kc/s
12 479.5	to	12 483	kc/s
16 636.5	to	16 640	kc/s
22 160.5	to	22 164	kc/s

1191B § 38B. The frequency bands in No. **1191A** may also be used by buoy **Mar** stations for oceanographic data transmission and by stations interrogating these buoys.

1191C § 38C. Each administration may assign to each station under **Mar** its jurisdiction of a type specified in Nos. **1191A** and **1191B** one or more of the assignable frequencies designated in Appendix 15.

*d) Working Frequencies for Ship Stations using
Narrow-Band Direct-Printing Telegraph and Data Transmission Systems*

1191D § 38D. Working frequencies assignable to ship stations using **Mar** narrow-band direct-printing telegraph and data transmission systems are included within the following band limits:

4 166	to	4 172.25	kc/s
6 248	to	6 258.25	kc/s
8 331.5	to	8 341.75	kc/s
12 483	to	12 503.25	kc/s
16 640	to	16 660.5	kc/s
22 164	to	22 184.5	kc/s

1191E § 38E. When assigning frequencies listed in Appendix 15 for narrow-band direct-printing telegraph and data transmission systems, administrations shall take due account of the information entries in the Master Register resulting from the notification procedure contained in Resolution No. Mar 8.

e) Working Frequencies for High Traffic Ship Stations

1192 § 39. The working frequencies assignable to high traffic ship stations are included within the following band limits:

4 172.25	to	4 178	kc/s
6 258.25	to	6 267	kc/s
8 341.75	to	8 356	kc/s
12 503.25	to	12 534	kc/s
16 660.5	to	16 712	kc/s
22 184.5	to	22 222.5	kc/s

1193 § 40.(1) Each administration shall assign to each high traffic ship station under its jurisdiction two or more of the series of working frequencies shown in Appendix 15 for vessels of this class. The total number of series of frequencies assigned to each ship station should be determined by the traffic requirements.

1194 (2) When high traffic ships are assigned less than the total number of working frequencies in a band, the administration concerned shall assign working frequencies to such ships in accordance with an orderly system of rotation which will ensure approximately the same number of assignments on any one frequency.

1195 § 41. For the exclusive purpose of communication with stations of the maritime mobile service an aircraft station may be assigned one or more series of working frequencies in the high traffic bands. These frequencies shall be assigned in accordance with the same system of uniform distribution provided for high traffic ships.

f) Working Frequencies for Low Traffic Ship Stations

1196 § 42. Working frequencies assigned to low traffic ship stations
Mar shall be included within the following band limits:

4 187	to	4 231	kc/s
6 280·5	to	6 345·5	kc/s
8 374	to	8 459·5	kc/s
12 561	to	12 689	kc/s
16 748	to	16 917·5	kc/s
22 267·5	to	22 374	kc/s

1197 § 43. (1) In each of the low traffic bands, the assignable frequencies
Mar are divided into two equal Groups A and B, Group A comprising the frequencies in the lower half of the band and Group B the frequencies in the upper half (see Appendix 15).

1198 (2) Each administration shall assign to each of the low traffic
Mar ship stations under its jurisdiction two series of working frequencies, one in Group A and the other in Group B. In each band, the two working frequencies of each station are separated, as far as practicable, by half the width of the assignable band.

1199 (3) For example, if one of the frequencies assigned to a ship
Mar station is the lowest frequency assignable in Group A, the other should be the lowest frequency assignable in Group B. If one of the frequencies assigned is the second frequency from the low frequency end of Group A, then the other frequency assigned should be the second frequency from the low frequency end of Group B, etc.

1200 (4) Each administration shall assign successively one such
 pair of frequencies to each of its ship stations commencing at either end of the band. When all available working frequencies in a band have been assigned in this manner, the process shall be repeated as often as is necessary to satisfy all its requirements and to ensure a uniform distribution of assignments throughout the band.

1201 (5) Administrations shall try to ensure that Group A and Group B frequencies are equally used for traffic, and to this end should arrange for half their ship stations to operate generally on Group A frequencies, and for the other half to operate generally on Group B frequencies.

g) Working Frequencies Available for Use by Ships of all Categories

1202 § 44. The working frequencies in the bands specified in No. **Mar 1191D** for narrow-band direct-printing telegraph and data transmission systems, and also those in the band 25 082.5 to 25 110 kc/s, may be assigned to ships of all categories.

h) Abbreviations for the Indication of Working Frequencies

1203 § 45. In the bands between 4 000 and 27 500 kc/s the following system of abbreviations may be used :

1204 a) to designate a working frequency, the last three figures of the frequency excluding fractions of a kilocycle per second may be transmitted ;

1205 b) when the calling station does not know the working frequencies of a low traffic ship station, it may request the ship station to reply on its working frequency in Group A or on its working frequency in Group B by transmitting QSW A or QSW B as the case may be ;

1206 c) in case of poor receiving conditions on the working frequency stated by the low traffic ship according to No. **1205**, the coast station may request the ship to change to transmissions on its supplementary working frequency in the same frequency band. This request is made by the transmission of QSY B or QSY A as the case may be.

Section VI. Aeronautical Mobile Service

1207 § 46. Governments may, by agreement, decide the frequencies to be used for call and reply in the aeronautical mobile service.

1208 § 47. Any aircraft in distress shall transmit the distress call on the frequency on which watch is kept by the land or mobile stations capable of helping it. When the call is intended for stations in the maritime mobile service, the provisions of Nos. **1107** and **1108** shall apply.

ARTICLE 33

**General Radiotelephone Procedure
in the Maritime Mobile Service****Section I. General Provisions**

- 1209** § 1. (1) The procedure detailed in this Article is applicable to radiotelephone stations of the maritime mobile service, except in cases of distress, urgency or safety, to which the provisions of Article 36 are applicable.
- 1210** (2) Aircraft stations may enter into radiotelephone communication with stations of the maritime mobile service on frequencies allocated to that service for radiotelephony. They shall then comply with the provisions of this Article and of Article 27.
- 1211** § 2. (1) The service of ship radiotelephone stations shall be performed by an operator satisfying the conditions specified in Article 23.
- 1212** (2) For the call signs or other means of identification for coast or ship radiotelephone stations see Article 19.
- 1213** § 3. The radiotelephone public correspondence service provided on ships should, if possible, be operated on a duplex basis.
- 1214** § 4. (1) Automatic calling and identification devices, and devices providing for the emission of a signal to indicate that a channel is in use, may be used in this service on a non-interference basis to the service provided by coast stations.
- 1215** (2) Radiotelephone stations of the maritime mobile service should, as far as possible, be equipped with devices for instantaneous switching from transmission to reception and vice versa. This equipment is necessary for all stations participating in communication between ships or aircraft and subscribers of the land telephone system.

1216 § 5. (1) Stations of the maritime mobile service equipped for
Mar radiotelephony may transmit and receive radiotelegrams by means
of radiotelephony.

1216A (2) To facilitate radiocommunications the service abbreviations
Mar given in Appendix 13A may be used.

1216B (3) When it is necessary to spell out certain expressions, difficult
Mar words, service abbreviations, figures, etc., the phonetic spelling tables
in Appendix 16 shall be used.

Section II. Preliminary Operations

1217 § 6. (1) Before transmitting, a station shall take precautions to
ensure that its emissions will not interfere with transmissions already
in progress ; if such interference is likely, the station shall await
an appropriate break in the working.

1218 (2) If, these precautions having been taken, the emissions of
the station should nevertheless interfere with a transmission already
in progress, the following rules shall be applied :

1219 *a)* The mobile station whose emission causes interference
to the correspondence of a mobile station with a coast
or aeronautical station shall cease sending at the first
request of the coast station or the aeronautical station.

1220 *b)* The mobile station whose emission causes interference
to communications already in progress between mobile
stations, shall cease sending at the first request of one
of the other stations.

1221 *c)* The station which requests this cessation shall indicate
the approximate waiting time imposed on the station
whose emission it suspends.

Section III. Calls, Reply to Calls and Signals Preparatory to Traffic

Method of Calling

1222 § 7. (1) The call consists of:

Mar

- the call sign or other identification of the station called, not more than three times;
- the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
- the call sign or other identification of the calling station, not more than three times.

1223 (2) When contact is established, the call sign or other identification may thereafter be transmitted once only.

1224

Mar

(3) When the coast station is fitted with equipment for selective calling and the ship station is fitted with equipment for receiving selective calls, the coast station shall call the ship by transmitting the appropriate code signals. The ship station shall call the coast station by speech in the manner given in No. 1222. (See also Article 28A.)

1224A § 7A. Calls for internal communications on board ship when in territorial waters shall consist of:

Mar

1224B a) From the master station:

Mar

- the name of the ship followed by a single letter (ALFA, BRAVO, CHARLIE, etc.) indicating the sub-station not more than three times;
- the words THIS IS;
- the name of the ship followed by the word CONTROL;

1224C b) From the sub-station:

Mar

- the name of the ship followed by the word CONTROL not more than three times;
- the words THIS IS;
- the name of the ship followed by a single letter (ALFA, BRAVO, CHARLIE etc.) indicating the sub-station.

*Frequency to be Used for Calling and for Preparatory Signals***A. Bands between 1 605 and 4 000 kc/s**

1225 § 8. (1) A radiotelephone ship station calling a coast station of its own nationality should use for the call :

1226 a) the carrier frequency 2 182 kc/s;
Mar

1227 b) a working frequency, whenever and wherever traffic density is high.

1227A c) in Regions 1 and 3 and in Greenland, the carrier frequency 2 191·0 kc/s (assigned frequency 2 192·4 kc/s) when a carrier frequency of 2 182 kc/s is being used for distress.
Mar

1228 (2) A ship radiotelephone station calling a coast station of another nationality should, as a general rule, use the carrier frequency 2 182 kc/s or, in Regions 1 and 3 and in Greenland, the carrier frequency 2 191·0 kc/s (assigned frequency 2 192·4 kc/s) when a carrier frequency of 2 182 kc/s is being used for distress. However, where so agreed by administrations, the ship station may use a working frequency on which watch is kept by that coast station.
Mar

1229 (3) A radiotelephone ship station calling another ship station should use for the call :

1230 a) the carrier frequency 2 182 kc/s;
Mar

1231 b) an inter-ship frequency, whenever and wherever traffic density is high and prior arrangements can be made.

1232 (4) An aircraft station calling a coast station or a ship station
Mar may use the carrier frequency 2 182 kc/s.

- 1233** (5) Subject to the provisions of No. **1235A**, coast stations
Mar shall, in accordance with the requirements of their own country, call ship stations of their own nationality either on a working frequency, or, when calls to individual ships are made, on the carrier frequency 2 182 kc/s.
- 1234** (6) However, a ship station which keeps watch simultaneously
Mar on the carrier frequency 2 182 kc/s and a working frequency should be called on the working frequency.
- 1235** (7) As a general rule, coast stations should call radiotelephone
Mar ship stations of another nationality on the carrier frequency 2 182 kc/s.
- 1235A** (8) Coast stations may call ship stations equipped to receive
Mar selective calls in accordance with the provisions of Article 28A.

B. Bands between 4 000 and 23 000 kc/s

- 1236** § 9. (1) A ship station calling a coast station by radiotelephony
Mar shall use either one of the calling frequencies mentioned in No. **1352** or the working frequency associated with that of the coast station in accordance with Appendix 17, Sections A and B.
- 1237** (2) A coast station calling a ship station by radiotelephony
Mar shall use one of the calling frequencies mentioned in No. **1352A**, or one of its working frequencies shown in the List of Coast Stations.
- 1238** (3) The preliminary operations for the establishment of radio-
telephone communications may also be carried out by radiotele-
graphy using the procedure appropriate to radiotelegraphy (see
Nos. **1014** and **1015**).
- 1238A** (4) The provisions of Nos. **1236** and **1237** do not apply to
Mar communication between ship stations and coast stations using the
simplex frequencies specified in Appendix 17, Section C.

C. Bands between 156 and 174 Mc/s

1239 § 10. (1) In the bands between 156 Mc/s and 174 Mc/s used for the
Mar maritime mobile services, coast and ship stations should, as a general rule, call on 156.80 Mc/s. However, calling may be conducted on a working channel or on a two-frequency calling channel which has been implemented in accordance with No. 1361.

1240 (2) When 156.80 Mc/s is being used for distress, urgency or safety communications, a ship station desiring to participate in the port operations service may establish contact on 156.60 Mc/s or another port operations frequency, indicated in heavy type in the List of Coast Stations.

Form of Reply to Calls

1241 § 11. The reply to calls consists of:
Mar

- the call sign or other identification of the calling station, not more than three times;
- the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
- the call sign or other identification of the station called, not more than three times.

*Frequency for Reply***A. Bands between 1 605 and 4 000 kc/s**

1242 § 12. (1) When a ship station is called on the carrier frequency 2 182
Mar kc/s it should reply on the same carrier frequency unless another frequency is indicated by the calling station.

1242A (1A) When a ship station is called by selective calling it shall
Mar reply on a frequency on which the coast station keeps watch.

- 1243** (2) When a ship station is called on a working frequency by a coast station of the same nationality, it shall reply on the working frequency normally associated with the frequency used by the coast station for the call.
- 1244** (3) When calling a coast station or another ship station, a ship
 Mar station shall indicate the frequency on which a reply is required if this frequency is not the normal one associated with the frequency used for the call.
- 1245** (4) A ship station which frequently exchanges traffic with a coast station of another nationality may use the same procedure for reply as ships of the nationality of the coast station, where this has been agreed by the administrations concerned.
- 1246** (5) As a general rule a coast station shall reply :
- 1247** a) on the carrier frequency 2 182 kc/s to calls made on the
 Mar carrier frequency 2 182 kc/s, unless another frequency is indicated by the calling station;
- 1248** b) on a working frequency to calls made on a working
 frequency.
- 1248A** c) on a working frequency to calls made in Regions 1 and
 Mar 3 and in Greenland on the carrier frequency 2 191.0 kc/s (assigned frequency 2 192.4 kc/s).

B. Bands between 4 000 and 23 000 kc/s

- 1249** § 13. (1) A ship station called by a coast station shall reply on either
 Mar one of the calling frequencies mentioned in No. 1352 or on the working frequency associated with that of the coast station, in accordance with Appendix 17, Sections A and B.
- 1250** (2) A coast station called by a ship station shall reply on one
 Mar of the calling frequencies mentioned in No. 1352A, or on one of its working frequencies shown in the List of Coast Stations.

1251 (3) In the Tropical Zone of Region 3, when a station is called on 6 204 kc/s, it should reply on the same frequency.

1251A (4) The provisions of Nos. **1249** and **1250** do not apply to
Mar communication between ship stations and coast stations using the simplex frequencies specified in Appendix 17, Section C.

C. Bands between 156 and 174 Mc/s

1252 § 14. (1) When a station is called on 156-80 Mc/s it should reply on the same frequency.

1253 (2) When a coast station open to public correspondence calls a ship station either by speech or by selective calling, using a two-frequency channel, the ship station shall reply by speech on the frequency associated with that of the coast station; conversely, a coast station shall reply to a call from a ship station on the frequency associated with that of the ship station.

Indication of the Frequency to be Used for Traffic

A. Bands between 1 605 and 4 000 kc/s

1254 § 15. If contact is established on the carrier frequency 2 182 kc/s,
Mar coast and ship stations shall transfer to working frequencies for the exchange of traffic.

B. Bands between 4 000 and 23 000 kc/s

1255 § 16. After a ship station has established contact with a coast station, or another ship station, on the calling frequency of the band chosen, traffic shall be exchanged on their respective working frequencies.

C. Bands between 156 and 174 Mc/s

1256 § 17. (1) Whenever contact has been established between a coast station in the public correspondence service and a ship station either on 156-80 Mc/s, or on a two-frequency calling channel (see No. **1361**), the stations shall transfer to one of their normal pairs of working frequencies for the exchange of traffic. The calling station should indicate the channel to which it is proposed to transfer

by reference to the frequency in Mc/s or, preferably, to its channel designator.

1257 (2) When contact on 156.80 Mc/s has been established between a coast station in the port operations service and a ship station, the ship station should indicate the particular service required (such as navigational information, docking instructions, etc.) and the coast station shall then indicate the channel to be used for the exchange of traffic by reference to the frequency in Mc/s or, preferably, to its channel designator.

1258 (3) A ship station, when it has established contact with another ship station on 156.80 Mc/s, should indicate the inter-ship channel to which it is proposed to transfer for the exchange of traffic by reference to the frequency in Mc/s or, preferably, to its channel designator.

1258A (4) However, a brief exchange of traffic concerning the safety **Mar** of navigation need not be transmitted on a working frequency when it is important that all ships within range receive the transmission.

1258B (5) Stations hearing a transmission concerning the safety of **Mar** navigation shall listen to the message until they are satisfied that the message is of no concern to them. They shall not make any transmission likely to interfere with the message.

Agreement on the Frequency to be Used for Traffic

1259 § 18. (1) If the station called is in agreement with the calling station, it shall transmit :

1260 a) an indication that from that moment onwards it will listen on the working frequency or channel announced by the calling station ;

1261 b) an indication that it is ready to receive the traffic of the calling station.

- 1262** (2) If the station called is not in agreement with the calling station on the working frequency or channel to be used, it shall transmit an indication of the working frequency or channel proposed.
- 1263** (3) For communications between a coast station and a ship station, the coast station shall finally decide the frequency or channel to be used.
- 1264** (4) When agreement is reached regarding the working frequency or channel which the calling station shall use for its traffic, the station called shall indicate that it is ready to receive the traffic.

Indication of Traffic

- 1265** § 19. When the calling station wishes to exchange more than one radiotelephone call, or to transmit more than one radiotelegram, it should indicate this when contact is established with the station called.

Difficulties in Reception

- 1266** § 20. (1) If the station called is unable to accept traffic immediately, **Mar** it should reply to the call as indicated in No. **1241** followed by "Wait . . . minutes" (or AS spoken as ALFA SIERRA . . . (minutes) in case of language difficulties), indicating the probable duration of waiting time in minutes. If the probable duration exceeds ten minutes the reason for the delay shall be given. Alternatively the station called may indicate, by any appropriate means, that it is not ready to receive traffic immediately.
- 1267** (2) When a station receives a call without being certain that such a call is intended for it, it shall not reply until the call has been repeated and understood.
- 1268** (3) When a station receives a call which is intended for it, but is uncertain of the identification of the calling station, it shall reply immediately asking for a repetition of the call sign or other identification of the calling station.

Section IV. Forwarding (Routing) of Traffic

Traffic Frequency

- 1269** § 21. (1) Every station of the maritime mobile service should transmit its traffic (radiotelephone calls or radiotelegrams) on one of its working frequencies in the band in which the call has been made.
- 1270** (2) In addition to its normal working frequency, printed in heavy type in the List of Coast Stations, a coast station may use one or more supplementary frequencies in the same band in accordance with the provisions of Article 35.
- 1271** (3) The use of frequencies reserved for calling shall be forbidden for traffic, except distress traffic (see Article 35).
- 1272** (4) After contact has been established on the frequency to be used for traffic, the transmission of a radiotelegram or radiotelephone call shall be preceded by :
- 1273** — the call sign or other identification of the station
Mar called;
- the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
- the call sign or other identification of the calling station.
- 1274** (5) The call sign or other identification need not be sent more than once.

*Establishment of Radiotelephone Calls and Transmission of Radiotelegrams***A. Establishment of Radiotelephone Calls**

- 1275** § 22. (1) In setting up a radiotelephone call, the coast station should establish connection with the telephone network as quickly as possible. In the meantime the mobile station shall maintain watch on the appropriate working frequency as indicated by the coast station.

1276 (2) However, if the connection cannot be quickly established, the coast station shall inform the mobile station accordingly. The latter station shall then either :

1277 a) maintain watch on the appropriate frequency until an effective circuit can be established ; or

1278 b) contact the coast station later at a mutually agreed time.

1279 (3) When a radiotelephone call has been completed, the procedure indicated in No. **1289** shall be applied unless further calls are on hand at either station.

B. Transmission of Radiotelegrams

1280 § 23. (1) The transmission of a radiotelegram should be made as follows :

- Radiotelegram begins : from ... (name of ship or aircraft) ;
- number ... (serial number of radiotelegram) ;
- number of words ... ;
- date ... ;
- time ... (time radiotelegram was handed in aboard ship or aircraft) ;
- service indicators (if any) ;
- address ... ;
- text ... ;
- signature ... (if any) ;
- radiotelegram ends, over.

1281 (2) As a general rule radiotelegrams of all kinds transmitted by ship stations, and radiotelegrams in the public correspondence service transmitted by aircraft stations shall be numbered in a daily series ; number 1 shall be given to the first radiotelegram sent each day to each separate station.

1282 (3) A series of numbers which has begun in radiotelegraphy should be continued in radiotelephony and vice versa.

1283 (4) Each radiotelegram should be transmitted once only by the sending station. However, it may, when necessary, be repeated in full or in part by the receiving or the sending station.

1284 SUP (Mar)

1285 (6) In transmitting groups of figures each figure shall be spoken separately and the transmission of each group or series of groups shall be preceded by the words "in figures".
Mar

1286 (7) Numbers written in letters shall be spoken as they are written, their transmission being preceded by the words "in letters".

C. Acknowledgment of Receipt

1287 § 24. (1) The acknowledgement of receipt of a radiotelegram or a series of radiotelegrams shall be given by the receiving station in the following manner:
Mar

- the call sign or other identification of the sending station;
- the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
- the call sign or other identification of the receiving station;
- "Your No... received, over" (or R spoken as ROMEO... (number), K spoken as KILO in case of language difficulties); *or*
- "Your No... to No... received, over" (or R spoken as ROMEO ... (numbers), K spoken as KILO in case of language difficulties).

- 1288** (2) The radiotelegram, or series of radiotelegrams, shall not be considered as cleared until this acknowledgment has been received.
- 1289** (3) The end of work between two stations shall be indicated
Mar by each of them by means of the word "Out" (or \overline{VA} spoken as VICTOR ALFA in case of language difficulties).

Section V. Duration and Control of Working

- 1290** § 25. (1) Calling, and signals preparatory to traffic, shall not exceed
Mar two minutes when made on the carrier frequency 2 182 kc/s or on 156·80 Mc/s, except in cases of distress, urgency or safety to which the provisions of Article 36 apply.
- 1291** (2) In communications between land stations and mobile stations, the mobile station shall comply with the instructions given by the land station in all questions relating to the order and time of transmission, to the choice of frequency, and to the duration and suspension of work.
- 1292** (3) In communications between mobile stations, the station called controls the working in the manner indicated in No. **1291**. However, if a land station finds it necessary to intervene, these stations shall comply with the instructions given by the land station.

Section VI. Tests

- 1293** § 26. When it is necessary for a mobile station to send signals for testing or adjustments which are liable to interfere with the working of neighbouring coast stations, the consent of these stations shall be obtained before such signals are sent.
- 1294** § 27. (1) When it is necessary for a station to make test signals, either for the adjustment of a transmitter before making a call or for

the adjustment of a receiver, such signals shall not be continued for more than ten seconds, and shall include the call sign or other identification of the station emitting the test signals. This call sign or other identification shall be spoken slowly and distinctly.

1295 (2) Any signals sent for testing shall be kept to a minimum, **Mar** particularly:

- on the carrier frequency 2 182 kc/s;
- on the frequency 156·80 Mc/s;
- in the zone lying between the parallels 33° North and 57° South, on the carrier frequency 4 136·3 kc/s;
- in the zone of Regions 1 and 3 lying between the parallels 33° North and 57° South, on the carrier frequency 6 204 kc/s.

ARTICLE 34

Calls by Radiotelephony

1296 § 1. (1) The provisions of this Article are not applicable to the aeronautical mobile service when special agreements exist between the governments concerned.

1297 (2) Aircraft stations when communicating with stations of the maritime mobile service shall use the procedure specified in this Article.

1298 § 2. (1) As a general rule, it rests with the mobile station to establish communication with the land station. For this purpose the mobile station may call the land station, only when it comes within the service area of the latter, that is to say, that area within which, by using an appropriate frequency, the mobile station can be heard by the land station.

1299 (2) However, a land station having traffic for a mobile station may call this station if it has reason to believe that the mobile station is keeping watch and is within the service area of the land station.

1300 § 3. (1) In addition, each coast station shall, so far as practicable, transmit its calls in the form of "traffic lists" consisting of the call signs or other identification in alphabetical order of all mobile stations for which it has traffic on hand. These calls shall be made at specified times fixed by agreement between the administrations concerned and at intervals of at least two hours and not more than four hours during the working hours of the coast station.

1301 (2) Coast stations shall transmit their traffic lists on their normal working frequencies in the appropriate bands. The transmission shall be preceded by a general call to all stations.
Mar

1302 (3) The general call to all stations announcing the traffic lists **Mar** may be sent on a calling frequency in the following form:

- “Hello all ships” or CQ (spoken as CHARLIE QUEBEC) not more than three times;
- the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
- “. . . Radio” not more than three times;
- “Listen for my traffic list on . . . kc/s”.

In no case may this preamble be repeated.

1303 (4) The provisions of No. **1302** are obligatory when 2182 kc/s or 156.80 Mc/s is used.

1304 (5) The hours at which coast stations transmit their traffic lists and the frequencies and classes of emission which they use for this purpose shall be stated in the List of Coast Stations.

1305 (6) Mobile stations should as far as possible listen to the traffic lists transmitted by coast stations. On hearing their call sign or other identification in such a list they must reply as soon as they can do so.

1306 (7) When the traffic cannot be sent immediately, the coast station shall inform each mobile station concerned of the probable time at which working can begin, and also, if necessary, the frequency and class of emission which will be used.

1307 § 4. When a land station receives calls from several mobile stations at practically the same time, it decides the order in which these stations may transmit their traffic. Its decision shall be based on the priority (see No. **1496**) of the radiotelegrams or radiotelephone calls that mobile stations have on hand and on the need for allowing each calling station to clear the greatest possible number of communications.

1308 § 5. (1) When a station called does not reply to a call sent three times at intervals of two minutes, the calling shall cease and shall not be renewed until after an interval of fifteen minutes.

1308A (1A) However, in the maritime mobile service, when a station
Mar called does not reply, the call may be repeated at three-minute intervals.

1309 (2) In the case of a communication between a station of the
Mar maritime mobile service and an aircraft station, calling may be renewed after an interval of five minutes.

1310 (3) Before renewing the call, the calling station shall ascertain that the station called is not in communication with another station.

1311 (4) If there is no reason to believe that harmful interference will be caused to other communications in progress, the provisions of Nos. **1308** and **1309** are not applicable. In such cases the call, sent three times at intervals of two minutes, may be repeated after an interval of less than fifteen minutes but not less than three minutes.

1311A (5) However, in the maritime mobile service, before renewing
Mar the call, the calling station shall ascertain that further calling is unlikely to cause interference to other communications in progress and that the station called is not in communication with another station.

1312 § 6. Mobile stations shall not radiate a carrier wave between calls.

1313 § 7. When the name and address of the administration or private operating agency controlling a mobile station are not given in the appropriate list of stations or are no longer in agreement with the particulars given therein, it is the duty of the mobile station to furnish as a matter of regular procedure, to the land station to which it transmits traffic, all the necessary information in this respect.

1314 § 8. (1) The land station may, by means of the abbreviation TR
Mar (spoken as TANGO ROMEO), ask the mobile station to furnish it with the following information:

1315 a) position and, whenever possible, course and speed ;

1316 b) next port of call.

1317 (2) The information referred to in Nos. **1314** to **1316**, preceded
Mar by the abbreviation TR, should be furnished by mobile stations, whenever this seems appropriate, without prior request from the coast station. The provision of this information is authorized only by the master or the person responsible for the ship, aircraft or other vehicle carrying the mobile station.

1318 SUP (Mar)

ARTICLE 35

Use of Frequencies for Radiotelephony in the Maritime Mobile Service**Section I. General Provisions**

1319 § 1. (1) The provisions of this Article are applicable to radiotelephone stations of the maritime mobile service.

1320 (2) Aircraft stations may enter into telephone communication with stations of the maritime mobile service on frequencies allocated to that service for radiotelephony. They shall then comply with the provisions of this Article and Article 27.

1321 (3) Any aircraft in distress shall transmit the distress call on the frequency on which watch is kept by the land or mobile stations capable of helping it. When the call is intended for stations in the maritime mobile service, the provisions of Nos. **1323** and **1324** shall be complied with.

1321A § 1A. Frequencies on which single sideband emissions are sent
 Mar shall be designated by the carrier frequency. This may be followed, in brackets, by the assigned frequency.

1322 § 2. The frequencies of transmission (and reception when these frequencies are in pairs as in the case of duplex radiotelephony) assigned to each coast station shall be indicated in the List of Coast Stations. This list shall also indicate any other useful information concerning the service performed by each coast station.

1322A § 2A. Single sideband apparatus in radiotelephone stations of
 Mar the maritime mobile service operating in the bands between 1 605 and 4 000 kc/s allocated to this service and in the bands allocated exclusively to this service between 4 000 and 23 000 kc/s shall satisfy the technical and operational conditions specified in Appendix 17A and Resolution No. Mar 4.

Section II. Bands between 1 605 and 4 000 kc/s*A. Mode of Operation of Stations*

1322B § 2B. (1) Except in the cases specified in Nos. **984**, **1322D** and **1323**,
Mar the classes of emissions to be used in the bands between 1 605 and 4 000 kc/s shall be:

- a) A3 or
- b) A3H, A3A and A3J¹.

However, unless otherwise specified in the present Regulations (see Nos. **984**, **996**, **1322D**, **1323** and **1337**):

- after 1 January 1975, class A3 emissions shall no longer be authorized for coast stations and
- after 1 January 1982, class A3H emissions for coast stations and class A3 and A3H emissions for ship stations shall no longer be authorized.

1322C (2) The normal mode of operation for each coast station
Mar shall be indicated in the List of Coast Stations.

1322D (3) Transmissions in the bands 2 170-2 173.5 kc/s and 2 190.5-
Mar 2 194 kc/s with the carrier frequency 2 170.5 kc/s (assigned frequency 2 171.9 kc/s) and the carrier frequency 2 191 kc/s (assigned frequency 2 192.4 kc/s) respectively are limited to class A3A and A3J emissions and are limited to a peak envelope power of 400 watts. However,

1322B.1
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¹ See also Resolution No. Mar 3.

on the carrier frequency 2 170.5 kc/s and with the same power limits², coast stations may use classes A2H, A2A and A2J emissions for selective calling³ and, exceptionally, in Regions 1 and 3 and in Greenland, may also use class A3H emissions for safety messages.

B. Distress

1323 § 3. (1) The frequency 2 182 kc/s¹ is the international distress
Mar frequency for radiotelephony; it shall be used for this purpose by ship, aircraft and survival craft stations and by emergency position-indicating radiobeacons using frequencies in the authorized bands between 1 605 and 4 000 kc/s when requesting assistance from the maritime services. It is used for the distress call and distress traffic, for signals of emergency position-indicating radiobeacons, for the urgency signal and urgency messages and for the safety signal. Safety messages shall be transmitted, where practicable, on a working frequency after a preliminary announcement on 2 182 kc/s. The class of emission to be used for radiotelephony on the frequency 2 182 kc/s shall be A3 or A3H (see No. **984**). The class of emission to be used by emergency position-indicating radiobeacons shall be as specified in Appendix 20A, (see also **1476G**).

1324 (2) However, ship and aircraft stations which cannot transmit on 2 182 kc/s should use any other available frequency on which attention might be attracted.

1322D.1 ² The application of this power limit to selective calling systems, as
Mar well as the transfer of selective calling systems from 2 182 to 2 170.5 kc/s on 1 April 1977 (see **999E**), may be reconsidered, in the light of experience, by the next competent World Administrative Radio Conference.

1322D.2 ³ See also No. **1329A**.
Mar

1323.1 ¹ Whatever the class of emission used, the frequency 2 182 kc/s always
Mar designates the carrier frequency of the emission.

1325 (3) Except for transmissions authorized on the carrier frequency
Mar 2 182 kc/s, all transmissions on the frequencies between 2 173·5 and
 2 190·5 kc/s are forbidden.

1326 (4) Any coast station using the carrier frequency 2 182 kc/s for
Mar distress purposes shall be able to transmit the radiotelephone alarm
 signal described in No. **1465** (see also Nos. **1471**, **1472** and **1473**).

1326A (5) Before transmitting on the carrier frequency 2 182 kc/s, a
Mar station in the mobile service should listen on this frequency for a
 reasonable period to make sure that no distress traffic is being sent
 (see No. **1217**).

1326B (6) The provisions of No. **1326A** do not apply to stations in dis-
Mar tress.

C. Search and Rescue

1326C § 3A. The frequency 3 023·5 kc/s may be used for intercommu-
Mar nication between mobile stations engaged in co-ordinated search
 and rescue operations, including communication between these
 stations and participating land stations, in accordance with the
 provisions of paragraph 4 of No. **27/196** of Appendix 27 (Fre-
 quency Allotment Plan for the Aeronautical Mobile (R) Service).

D. Call and Reply

1327 § 4. (1) The frequency 2 182 kc/s may also be used :

1328 a) for call and reply in accordance with the provisions of
 Article 33 ;

1329 b) by coast stations to announce the transmission, on
Mar another frequency, of traffic lists (see Nos. **1301** to
1304);

1329A c) coast stations for selective calling with classes of emission
Mar A2H, A2A and A2J until 1 April 1977¹ (see No. 999E).

1330 (2) In addition, an administration may assign to its stations other frequencies for call and reply.

1331 § 5. To facilitate the reception of distress calls, all transmissions on 2 182 kc/s shall be kept to a minimum.

E. Watch

1332 § 6. (1) All coast stations which are open to public correspondence and which form an essential part of the coverage of the area for distress purposes shall, during their hours of service, maintain a watch on 2 182 kc/s.

1333 (2) These stations shall maintain this watch by means of an operator using some aural method, such as headphones, split headphones or loudspeaker.

1334 (3) In addition, ship stations should keep the maximum watch practicable on 2 182 kc/s for receiving by any appropriate means the radiotelephone alarm signal described in No. 1465, as well as distress, urgency and safety signals.

1335 § 7. Ship stations open to public correspondence should, as far as possible during their hours of service, keep watch on 2 182 kc/s.

1329A.1
Mar

¹ Class of emission A2 permitted until 1 January 1975.

F. Traffic

1336 § 8. (1) Coast stations which use 2 182 kc/s for calling shall be able to use at least one other frequency in the authorized bands between 1 605 and 2 850 kc/s.

1336A (1A) Coast stations authorized to use radiotelephony on one or
Mar more frequencies other than 2 182 kc/s in the authorized bands between 1 605 and 2 850 kc/s shall be capable of transmitting on those frequencies class A3 emissions or class A3H, A3A and A3J emissions.¹ However, after 1 January 1975, class A3 emissions shall no longer be authorized, and after 1 January 1982 class A3H emissions also shall no longer be authorized, except on the frequency 2 182 kc/s (see also No. **1322D**).

1337 (2) Coast stations open to the public correspondence service
Mar on one or more frequencies between 1 605 and 2 850 kc/s shall also be capable of transmitting class A3H² emissions with a carrier frequency of 2 182 kc/s, and of receiving class A3 and A3H emissions with a carrier frequency of 2 182 kc/s.

1338 (3) One of the frequencies which coast stations are required to be able to use (see No. **1336**) is printed in heavy type in the List of Coast Stations to indicate that it is the normal working frequency of the stations. Supplementary frequencies, if assigned, are shown in ordinary type.

1336A.1 ¹ See also Resolution No. Mar 3.
Mar

1337.1 ² Coast stations are authorized to transmit class A3 emissions in lieu
Mar of class A3H emissions until 1 January 1975.

- 1339** (4) Working frequencies of coast stations shall be chosen in such a manner as to avoid interference with other stations.

G. Additional Provisions Applying to Region 1

- 1340** § 9. (1) The provisions of this sub-section apply only to stations of the maritime mobile service.

- 1341** (2) The peak envelope power of mobile radiotelephone stations
Mar operating in the authorized bands between 1 605 and 2 850 kc/s shall not exceed 400 watts.

- 1342** (3) The peak envelope power of coast radiotelephone stations
Mar operating in the authorized bands between 1 605 and 3 800 kc/s shall not exceed:

- 8 kilowatts for coast stations located north of latitude 32° N;
- 14 kilowatts for coast stations located south of latitude 32° N.

- 1343** § 10. (1) All stations on ships making international voyages should be able to use :

- 1344** a) the following ship-shore working frequencies, if required
Mar by their service:

- carrier frequency 2 046 kc/s (assigned frequency 2 047·4 kc/s) and carrier frequency 2 049 kc/s (assigned frequency 2 050·4 kc/s) for class A3A and A3J emissions;
- carrier frequency 2 049 kc/s also for class A3 and A3H emissions until 1 January 1982.

- 1345** b) the following intership frequencies, if required by their
Mar service:

- carrier frequency 2 053 kc/s (assigned frequency 2 054·4 kc/s) and carrier frequency 2 056 kc/s (assigned frequency 2 057·4 kc/s) for class A3A and A3J emissions;

— carrier frequency 2 056 kc/s also for class A3 and A3H emissions until 1 January 1982.

These frequencies may be used as additional ship-shore frequencies.

1346 (2) These frequencies shall not be used for working between stations of the same nationality.

1347 SUP (Mar)

1348 § 11. (1) Ships frequently exchanging correspondence with a coast station of a nationality other than their own may use the same frequencies as ships of the nationality of the coast station where mutually agreed by the administrations concerned.

1348A (2) In exceptional circumstances, if frequency usage according to Nos. **1343** to **1345** or No. **1348** is not possible, a ship station may use one of its own assigned national ship-to-shore frequencies for communication with a coast station of another nationality, under the express condition that the coast station as well as the ship station take precautions (see No. **1217**) to ensure that the use of such a frequency will not cause harmful interference to the service for which the frequency in question is authorized.

H. Additional Provisions Applying to Regions 1 and 3

1349 § 12. (1) In order to increase the safety of life at sea and over the sea, all stations of the maritime mobile service normally keeping watch on frequencies in the authorized band between 1 605 and 2 850 kc/s shall, during their hours of service, and as far as possible, take steps to keep watch on the international distress frequency

2 182 kc/s for three minutes twice each hour beginning at x h. 00 and x h. 30 Greenwich Mean Time (G.M.T.)¹.

1350 (2) During the periods mentioned above, except for the trans-
Mar missions provided for in Article 36, transmission shall cease within the band 2 173.5-2 190.5 kc/s.

I. Additional Provisions Applying to Regions 2 and 3

1351 § 13. All stations on ships making international voyages should,
Mar if required by their service, be able to use the intership carrier frequencies:

2 635 kc/s (assigned frequency 2 636.4 kc/s)

2 638 kc/s (assigned frequency 2 639.4 kc/s)

The conditions of use of these frequencies are specified in No. **445**.

Section III. Bands between 4 000 and 23 000 kc/s

A. Mode of Operation of Stations

1351A § 13A.(1) The classes of emission to be used for radiotelephony
Mar in the maritime mobile service bands between 4 000 and 23 000 kc/s are:

a) class A3¹, or

b) class A3H², A3A and A3J.³

However, unless otherwise specified in these Regulations (see No. **1353A**):

— after 1 January 1972, class A3 emissions shall no longer be authorized for coast stations, and

1349.1¹ In Region 3, this Regulation does not apply to Japan and the Philippines.

1351A.1 ¹ For the use of class A3B emissions, see Resolution No. **Mar** 13.
Mar

1351A.2 ² The conditions of use of class A3H emissions are specified in Appendix 17
Mar and in Resolution No. **Mar** 6.

1351A.3 ³ See also Resolution No. **Mar** 3.
Mar

— after 1 January 1978, class A3H emissions for coast stations and class A3 and A3H emissions for ship stations shall no longer be authorized.

1351B (2) The normal mode of operation of each coast station is **Mar** indicated in the List of Coast Stations.

B. Call, Reply and Safety

1352 § 14. (1) Ship stations may use the following carrier frequencies **Mar** for calling in radiotelephony:

4 136·3 kc/s¹
 6 204·0 kc/s
 8 268·4 kc/s
 12 403·5 kc/s
 16 533·5 kc/s
 22 073·5 kc/s

1352A (2) Coast stations may use the following carrier frequencies **Mar** for calling in radiotelephony²:

4 434·9 kc/s³
 6 518·6 kc/s³
 8 802·4 kc/s
 13 182·5 kc/s
 17 328·5 kc/s
 22 699·0 kc/s

1352.1 ¹ In Region 2, the frequency 4 136·3 kc/s is also authorized for common **Mar** use by coast and ship stations for single sideband radiotelephony on a simplex basis, provided the peak envelope power of such stations does not exceed 1 kW (see also No. 1352A.2).

1352A.1 ² These frequencies may also be used for selective calling purposes by **Mar** coast radiotelegraph stations (see Nos. 1147 and 1224).

1352A.2 ³ In Region 2, the frequencies 4 434·9 and 6 518·6 kc/s are also authorized **Mar** for common use by coast and ship stations for single sideband radiotelephony on a simplex basis, provided the peak envelope power of such stations does not exceed 1 kW. The use of 6 518·6 kc/s for this purpose should be limited to daytime use (see also No. 1352.1).

1352B §15.(1) In the zone lying between the parallels 33° North and
Mar 57° South, the carrier frequency 4 136.3 kc/s is designated for call, reply and safety purposes. It may also be used for messages preceded by the urgency or safety signals and, if necessary, for distress messages.

1353 (2) In the zone of Regions 1 and 3 lying between the parallels
Mar 33° North and 57° South, the carrier frequency 6 204 kc/s is designated for call, reply and safety purposes. It may also be used for messages preceded by the urgency or safety signals and, if necessary, for distress messages.

1353A (3) Stations using the frequencies 4 136.3 kc/s and 6 204 kc/s
Mar in the conditions specified in Nos. **1352B** and **1353** may continue to use class A3H emissions beyond 1 January 1978.

C. Search and Rescue

1353B § 15A. The frequency 5 680 kc/s may be used for intercommunica-
Mar tion between mobile stations engaged in co-ordinated search and rescue operations, including communication between these stations and participating land stations, in accordance with No. **27/201**, paragraph 4 of Appendix 27 (Frequency Allotment Plan for the Aeronautical Mobile (R) Service).

D. Watch

1354 § 16. The hours of service of coast stations open to public
Mar correspondence and the frequency or frequencies on which watch is maintained shall be indicated in the List of Coast Stations.

E. Traffic

1355 § 17. (1) For the conduct of duplex telephony, the transmitting
Mar frequencies of the coast stations and of the corresponding ship stations shall be associated in pairs, as far as possible, as indicated in Appendix 17, Sections A and B.

1356 (2) The frequencies to be used for the conduct of simplex
Mar radiotelephony are shown in Appendix 17, Section C. In these cases, the peak envelope power of the coast station transmitter shall not exceed 1 kW.

- 1357** (3) The frequencies indicated in Appendix 17, Sections A, B
Mar and C, for ship station transmissions may be used by ships of any category according to traffic requirements.
- 1358** (4) The technical characteristics of transmitters used for radio-
Mar telephony in the maritime mobile service in the bands between 4 000 and 23 000 kc/s are specified in Appendix 17A.

Section IV. Bands between 156 and 174 Mc/s

A. Call, Reply and Safety

- 1359** § 18. (1) The frequency 156·80 Mc/s is designated for world-wide use by the international maritime mobile radiotelephone service in the band 156 to 174 Mc/s for call, reply and safety purposes. It may also be used for messages preceded by the urgency and safety signals and, if necessary, for distress messages.
- 1359A** (1A) The frequency 156·80 Mc/s may be used by coast stations
Mar for selective calls to ships.
- 1360** (2) This frequency may also be used by coast stations to announce the transmission on another frequency of their traffic lists and important maritime information.
- 1361** (3) Any one of the channels designated in Appendix 18 for public correspondence may be used as a calling channel if an administration so desires. Such use shall be indicated in the List of Coast Stations.
- 1362** (4) Ship and coast stations in the public correspondence service may use a working frequency, for calling purposes, as provided in Article 33.
- 1363** (5) All emissions in the band 156·725-156·875 Mc/s¹ capable
Mar of causing harmful interference to the authorized transmissions of stations of the maritime mobile service on 156·80 Mc/s are forbidden.

1363.1 ¹ After 1 January 1983 this band is reduced to 156·7625-156·8375 Mc/s
Mar (see Resolution No. Mar 14).

B. Watch

1364 § 19. (1) A coast station providing an international maritime mobile service of radiotelephony in the band 156 to 174 Mc/s should, during its working hours in that band, maintain, as far as possible, an efficient aural watch on 156.80 Mc/s.

1365 (2) In addition to the watch referred to in No. **1364**, a coast station open to the international public correspondence service should, during its hours of service, maintain watch on its receiving frequency or frequencies indicated in the List of Coast Stations for receiving calls from mobile stations.

1366 (3) The method of watch on a working frequency shall be no less efficient than watch by an operator.

1367 (4) Ship stations should, where practicable, maintain watch on 156.80 Mc/s when within the service area of a coast station providing international maritime mobile radiotelephone service in the band 156-174 Mc/s.

1367A (5) However, ship stations, when in communication with a **Mar** port station may, on an exceptional basis and subject to the agreement of the administration concerned, continue to maintain watch, on the appropriate port operations frequency only, provided that watch on 156.8 Mc/s is being maintained by the port station.

1368 § 20. A coast station in the port operations service in an area where 156.80 Mc/s is being used for distress, urgency or safety, shall, during its working hours, keep an additional watch on 156.60 Mc/s or other port operations frequency indicated in heavy type in the List of Coast Stations.

C. Traffic

1369 § 21. (1) Where practicable, coast stations open to the international public correspondence service shall be capable of working with ship stations equipped for duplex or semi-duplex operation.

1370 (2) The method of working (single-frequency or two-frequency) **Mar** specified in Appendix 18 for each channel should be used in the international services (see Resolution No. Mar 14).

1371 § 22. Communications on port operations channels shall be **Mar** restricted to those relating to operational handling, the movement and the safety of ships and, in emergency, to the safety of persons. Public correspondence messages are excluded.

1372 § 23. (1) Coast stations, which use 156.80 Mc/s for calling shall be able to use at least one other authorized channel in the international maritime mobile radiotelephone service in the band 156 to 174 Mc/s.

1373 (2) In the band 156 to 174 Mc/s, administrations shall, where **Mar** practicable, assign frequencies to coast and ship stations in accordance with the Table of Transmitting Frequencies given in Appendix 18 for such international services as administrations consider necessary (see Resolution No. Mar 14).

1373A (3) The normal sequence in which channels should be put **Mar** into use by stations of the maritime mobile service in the band 156-174 Mc/s is indicated by the figures in the relevant columns of Appendix 18.

1373B (4) Administrations should, as far as possible, arrange that ship **Mar** stations fitted with the channels corresponding to the figures in a circle in Appendix 18 can obtain a reasonably adequate use of available services.

1373C (5) During ice seasons, ship stations shall avoid harmful interference to communications on 156-300 Mc/s (Channel 06 of Appendix 18) between icebreakers and assisted ships.

1374 (6) In assigning frequencies to their coast stations, administrations should collaborate in cases where harmful interference might occur.

1375 (7) Channels are designated by numbers in the Table of Transmitting Frequencies given in Appendix 18 (see Resolution No. Mar 14).

1376 § 24. (1) In assigning frequencies to stations of authorized services, other than maritime mobile, administrations shall avoid the possibility of interference to international maritime services in the bands between 156 and 174 Mc/s.

1377 (2) The use of channels for maritime mobile purposes other than those indicated in the Table of Transmitting Frequencies given in Appendix 18 shall not cause harmful interference to services which operate in accordance with that Table and shall not prejudice the future development of such services (see Resolution No. Mar 14).

1378 SUP (Mar)

1379 § 25. The carrier power of ship station transmitters shall not exceed 25 watts for equipment brought into service after 1 January, 1970.

CHAPTER VIII

Distress, Alarm, Urgency and Safety

ARTICLE 36

Distress Signal and Traffic. Alarm, Urgency and Safety Signals

Section I. General

- 1380** § 1. The procedure specified in this Article is obligatory in the maritime mobile service and for communications between aircraft stations and stations of the maritime mobile service. The provisions of this Article are also applicable to the aeronautical mobile service except in the case of special arrangements between the governments concerned.
- 1381** § 2. (1) No provision of these Regulations prevents the use by a mobile station in distress of any means at its disposal to attract attention, make known its position, and obtain help.
- 1382** (2) No provision of these Regulations prevents the use by a land station, in exceptional circumstances, of any means at its disposal to assist a mobile station in distress.
- 1383** § 3. The distress call and message shall be sent only on the authority of the master or person responsible for the ship, aircraft or other vehicle carrying the mobile station.
- 1384** § 4. In cases of distress, urgency or safety, transmissions :
- 1385** a) by radiotelegraphy, shall not in general exceed a speed of sixteen words a minute ;
- 1386** b) by radiotelephony, shall be made slowly and distinctly, each word being clearly pronounced to facilitate transcription.

1386A § 4A. The abbreviations and signals of Appendix 13A and the **Mar** Phonetic Alphabet and Figure Code in Appendix 16 should be used where applicable and, where language difficulties exist, the use of the International Code of Signals also is recommended.

1387 § 5. (1) The characteristics of the radiotelegraph alarm signal are given in No. **1463**.

1388 (2) The characteristics of the radiotelephone alarm signal are given in No. **1465**.

1388A § 5A. Information concerning the characteristics of the emergency **Mar** position-indicating radiobeacon signals is given in Nos. **1476B**, **1476C** and **1476D**.

Section II. Distress Signal

1389 § 6. (1) The radiotelegraph distress signal consists of the group . . . — — — . . . , symbolized herein by $\overline{\text{SOS}}$, transmitted as a single signal in which the dashes are emphasized so as to be distinguished clearly from the dots.

1390 (2) The radiotelephone distress signal consists of the word MAYDAY pronounced as the French expression "m'aider".

1391 (3) These distress signals indicate that a ship, aircraft or other vehicle is threatened by grave and imminent danger and requests immediate assistance.

Section III. Distress Call and Message

1392 § 7. (1) The distress call sent by radiotelegraphy consists of :

- the distress signal $\overline{\text{SOS}}$, sent three times ;
- the word DE ;
- the call sign of the mobile station in distress, sent three times.

1393
Mar

- (2) The distress call sent by radiotelephony consists of:
- the distress signal MAYDAY, spoken three times;
 - the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
 - the call sign or other identification of the mobile station in distress, spoken three times.

1394 § 8. The distress call shall have absolute priority over all other transmissions. All stations which hear it shall immediately cease any transmission capable of interfering with the distress traffic and shall continue to listen on the frequency used for the emission of the distress call. This call shall not be addressed to a particular station and acknowledgment of receipt shall not be given before the distress message which follows it is sent.

1395 § 9. (1) The radiotelegraph distress message consists of :

- the distress signal $\overline{\text{SOS}}$;
- the name, or other identification, of the mobile station in distress ;
- particulars of its position ;
- the nature of the distress and the kind of assistance desired ;
- any other information which might facilitate the rescue.

1396

- (2) The radiotelephone distress message consists of :
- the distress signal MAYDAY ;
 - the name, or other identification, of the mobile station in distress ;
 - particulars of its position ;
 - the nature of the distress and the kind of assistance desired ;
 - any other information which might facilitate the rescue.

1397 § 10. (1) As a general rule, a ship shall signal its position in latitude and longitude (Greenwich), using figures for the degrees and minutes, together with one of the words NORTH or SOUTH and one of the words EAST or WEST. In radiotelegraphy, the signal . — . — . — shall be used to separate the degrees from the minutes. When practicable, the true bearing and distance in nautical miles from a known geographical position may be given.

1398 (2) As a general rule, and if time permits, an aircraft shall transmit in its distress message the following information :

- estimated position and time of the estimate ;
- heading in degrees (state whether magnetic or true) ;
- indicated air speed ;
- altitude ;
- type of aircraft ;
- nature of distress and type of assistance desired ;
- any other information which might facilitate the rescue (including the intention of the person in command, such as forced alighting on the sea or crash landing).

1399 (3) As a general rule, an aircraft in flight shall signal its position either in radiotelephony or radiotelegraphy :

- by latitude and longitude (Greenwich) using figures for the degrees and minutes, together with one of the words NORTH or SOUTH and one of the words EAST or WEST ; or
- by the name of the nearest place, and its approximate distance in relation thereto, together with one of the words NORTH, SOUTH, EAST or WEST, as the case may be, or when practicable, by words indicating intermediate directions.

1400 (4) However, in radiotelegraphy, the words NORTH or SOUTH and EAST or WEST, indicated in Nos. **1397** and **1399**, may be replaced by the letters N or S and E or W.

Section IV. Distress Call and Message Transmission Procedure

A. Radiotelegraphy

- 1401** § 11. (1) The radiotelegraph distress procedure shall consist of :
- 1402** — the alarm signal ; followed in order by :
- 1403** — the distress call and an interval of two minutes ;
- 1404** — the distress call ;
- 1405** — the distress message ;
- 1406** — two dashes of ten to fifteen seconds duration each ;
- 1407** — the call sign of the station in distress.

1408 (2) However, when time is vital, the second step of this procedure (No. **1403**) or even the first and second steps (Nos. **1402** and **1403**), may be omitted or shortened. These two steps of the distress procedure may also be omitted in circumstances where transmission of the alarm signal is considered unnecessary.

1409 § 12. (1) The distress message, preceded by the distress call, shall be repeated at intervals, especially during the periods of silence prescribed in No. **1130** for radiotelegraphy, until an answer is received.

1410 (2) The intervals shall, however, be sufficiently long to allow time for stations preparing to reply to start their sending apparatus.

1411 (3) The alarm signal may also be repeated, if necessary.

1412 § 13. The transmissions under Nos. **1406** and **1407**, which are to permit direction-finding stations to determine the position of the station in distress, may be repeated at frequent intervals if necessary.

1413 § 14. When the mobile station in distress receives no answer to a distress message sent on the distress frequency, the message may be repeated on any other available frequency on which attention might be attracted.

1414 § 15. Immediately before a crash landing or a forced landing (on land or sea) of an aircraft, as well as before total abandonment of a ship or an aircraft, the radio apparatus should be set for continuous emission, if considered necessary and circumstances permit.

B. Radiotelephony

1415 § 16. The radiotelephone distress procedure shall consist of :

1416 — the alarm signal (whenever possible) followed by :

1417 — the distress call ;

1418 — the distress message.

1419 § 17. After the transmission by radiotelephony of its distress message, the mobile station may be requested to transmit suitable signals followed by its call sign or other identification, to permit direction-finding stations to determine its position. This request may be repeated at frequent intervals if necessary.

1420 § 18. (1) The distress message, preceded by the distress call, shall be repeated at intervals, especially during the periods of silence prescribed in No. **1349** for radiotelephony, until an answer is received.

1421 (2) The intervals shall, however, be sufficiently long to allow time for stations preparing to reply to start their sending apparatus.

1422 (3) This repetition shall be preceded by the alarm signal whenever possible.

1423 § 19. When the mobile station in distress receives no answer to a distress message sent on the distress frequency, the message may be repeated on any other available frequency on which attention might be attracted.

1424 § 20. Immediately before a crash landing or a forced landing (on land or sea) of an aircraft, as well as before total abandonment of a ship or an aircraft, the radio apparatus should be set for continuous emission, if considered necessary and circumstances permit.

Section V. Acknowledgment of Receipt of a Distress Message

1425 § 21. (1) Stations of the mobile service which receive a distress message from a mobile station which is, beyond any possible doubt, in their vicinity, shall immediately acknowledge receipt.

1426 (2) However, in areas where reliable communications with
 Mar one or more coast stations are practicable, ship stations should defer this acknowledgement for a short interval so that a coast station may acknowledge receipt.

1427 (3) Stations of the mobile service which receive a distress message from a mobile station which, beyond any possible doubt, is not in their vicinity, shall allow a short interval of time to elapse before acknowledging receipt of the message, in order to permit stations nearer to the mobile station in distress to acknowledge receipt without interference.

1427A (4) However, stations in the maritime mobile service which
 Mar receive a distress message from a mobile station which, beyond any possible doubt, is a long distance away need not acknowledge receipt of messages except as specified in No. 1455.

1428 § 22. The acknowledgment of receipt of a distress message shall be given in the following form :

1429 a) Radiotelegraphy :

— the call sign of the station sending the distress message, sent three times ;

- the word DE ;
- the call sign of the station acknowledging receipt, sent three times ;
- the group RRR ;
- the distress signal.

1430

Mar

b) Radiotelephony:

- the call sign or other identification of the station sending the distress message, spoken three times;
- the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
- the call sign or other identification of the station acknowledging receipt, spoken three times;
- the word RECEIVED (or RRR spoken as ROMEO ROMEO ROMEO in case of language difficulties);
- the distress signal.

1431 § 23. (1) Every mobile station which acknowledges receipt of a distress message shall, on the order of the master or person responsible for the ship, aircraft or other vehicle, transmit, as soon as possible, the following information in the order shown:

Mar

- its name;
- its position in the form prescribed in Nos. **1397**, **1399** and **1400**;
- the speed at which it is proceeding towards, and the approximate time it will take to reach, the mobile station in distress;
- additionally, if the position of the ship in distress appears doubtful, ship stations should also transmit, when available, the true bearing of the ship in distress preceded by the abbreviation QTE (for classification of bearings, see Appendix 23).

- 1432** (2) Before transmitting the message specified in No. **1431**,
Mar the station shall ensure that it will not interfere with the emissions of other stations better situated to render immediate assistance to the station in distress.

Section VI. Distress Traffic

- 1433** § 24. Distress traffic consists of all messages relating to the immediate assistance required by the mobile station in distress.
- 1434** § 25. In distress traffic, the distress signal shall be sent before the call and at the beginning of the preamble of any radiotelegram.
- 1435** § 26. The control of distress traffic is the responsibility of the mobile station in distress or of the station which, by the application of the provisions of Section VII of the present Article, has sent the distress message. These stations may, however, delegate the control of the distress traffic to another station.
- 1436** § 27. The station in distress or the station in control of distress
Mar traffic may impose silence either on all stations of the mobile service in the area or on any station which interferes with the distress traffic. It shall address these instructions "to all stations" (CQ) or to one station only, according to circumstances. In either case, it shall use:
- 1437** — in radiotelegraphy, the abbreviation QRT, followed by the distress signal SOS ;
- 1438** — in radiotelephony, the signal SEELONCE MAYDAY, pronounced as the French expression "silence, m'aider".
- 1439** § 28. If it is believed to be essential, any station of the mobile service near the ship, aircraft or other vehicle in distress, may also impose silence. It shall use for this purpose :
- 1440** a) in radiotelegraphy, the abbreviation QRT, followed by the word DISTRESS and its own call sign ;

- 1441** *b)* in radiotelephony, the word SEELONCE, pronounced as the French word “silence”, followed by the word DISTRESS and its own call sign.
- 1442** § 29. (1) In radiotelegraphy, the use of the signal $\overline{\text{ORT SOS}}$ shall be reserved for the mobile station in distress and for the station controlling distress traffic.
- 1443** (2) In radiotelephony, the use of the signal SEELONCE MAYDAY shall be reserved for the mobile station in distress and for the station controlling distress traffic.
- 1444** § 30. (1) Any station of the mobile service which has knowledge of distress traffic and which cannot itself assist the station in distress shall nevertheless follow such traffic until it is evident that assistance is being provided.
- 1445** (2) Until they receive the message indicating that normal working may be resumed (see No. **1449**) all stations which are aware of the distress traffic, and which are not taking part in it, are forbidden to transmit on the frequencies on which the distress traffic is taking place.
- 1446** § 31. A station of the mobile service which, while following distress traffic, is able to continue its normal service, may do so when the distress traffic is well established and on condition that it observes the provisions of No. **1445** and does not interfere with the distress traffic.
- 1447** § 32. In cases of exceptional importance and provided that no interference or delay is caused to the handling of distress traffic, urgency and safety messages may be announced during a lull in the distress traffic, preferably by coast stations, on the distress frequencies. This announcement shall include an indication of the working frequency on which the urgency or safety message will be transmitted. In this case, the signals provided for in Nos. **1477**, **1478**, **1488** and **1489** should only be sent once (e.g. XXX DE ABC QSW . . .).

1448 § 33. A land station receiving a distress message shall, without delay, take the necessary action to advise the appropriate authorities responsible for providing for the operation of rescue facilities.

1449 § 34. (1) When distress traffic has ceased, or when silence is no longer necessary on a frequency which has been used for distress traffic, the station which has controlled this traffic shall transmit on that frequency a message addressed "to all stations" (CQ) indicating that normal working may be resumed.

1450 (2) In radiotelegraphy, this message consists of :

- the distress signal $\overline{\text{SOS}}$;
- the call "to all stations" (CQ), sent three times ;
- the word DE ;
- the call sign of the station sending the message ;
- the time of handing in of the message ;
- the name and call sign of the mobile station which was in distress ;
- the service abbreviation QUM.

1451 (3) In radiotelephony, this message consists of:

Mar

- the distress signal MAYDAY ;
- the call "Hello all stations" or CQ (spoken as CHARLIE QUEBEC) spoken three times ;
- the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties) ;
- the call sign or other identification of the station sending the message ;
- the time of handing in of the message ;
- the name and call sign of the mobile station which was in distress ;
- the words SEELONCE FEENEE pronounced as the French words "silence fini".

1451A § 34A. When a station in distress has delegated control of distress
Mar working to another station, the person in charge of the station in
distress should, when he considers silence no longer justified, im-
mediately inform the controlling station, which will act in accordance
with the provisions of No. **1449**.

**Section VII. Transmission of a Distress Message by a Station
not itself in Distress**

1452 § 35. A mobile station or a land station which learns that a
mobile station is in distress shall transmit a distress message in any
of the following cases :

1453 *a)* when the station in distress is not itself in a position
to transmit the distress message ;

1454 *b)* when the master or person responsible for the ship,
aircraft or other vehicle not in distress, or the person
responsible for the land station, considers that further
help is necessary ;

1455 *c)* when, although not in a position to render assistance,
it has heard a distress message which has not been
acknowledged.

1456 § 36. (1) The transmission of a distress message under the condi-
tions prescribed in Nos. **1453** to **1455** shall be made on either or
both of the international distress frequencies (500 kc/s, 2 182 kc/s),
or on any other frequency that may be used in case of distress
(see Nos. **1107**, **1108**, **1208**, **1321**, **1323**, and **1324**).

1457 (2) This transmission of the distress message shall always be
preceded by the call indicated below, which shall itself be preceded
whenever possible by the radiotelegraph or radiotelephone alarm
signal.

1458 (3) This call consists of :

- 1459** a) Radiotelegraphy :
- the signal $\overline{DDD} \overline{SOS} \overline{SOS} \overline{SOS} \overline{DDD}$;
 - the word DE ;
 - the call sign of the transmitting station, sent three times.
- 1460** b) Radiotelephony:
- Mar**
- the signal MAYDAY RELAY pronounced as the French expression “m’aider relais”, spoken three times;
 - the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
 - the call sign or other identification of the transmitting station, spoken three times.
- 1461** § 37. When the radiotelegraph alarm signal is used an interval of two minutes shall be allowed, whenever this is considered necessary, before the transmission of the call mentioned in No. **1459**.
- 1462** § 38. When a station of the mobile service transmits a distress message under the conditions mentioned in No. **1455**, it shall take all necessary steps to notify the authorities who may be able to render assistance.
- 1462A** § 38A. A ship station should not acknowledge receipt of a distress **Mar** message transmitted by a coast station under the conditions mentioned in Nos. **1452** to **1455** until the master or person responsible has confirmed that the ship station concerned is in a position to render assistance.

Section VIII. Radiotelegraph and Radiotelephone Alarm Signals

- 1463** § 39. (1) The radiotelegraph alarm signal consists of a series of twelve dashes sent in one minute, the duration of each dash being four seconds and the duration of the interval between consecutive dashes one second. It may be transmitted by hand but its transmission by means of an automatic instrument is recommended.

1464 (2) Any ship station working in the bands between 405 and 535 kc/s, which is not provided with an automatic apparatus for the transmission of the radiotelegraph alarm signal shall be permanently equipped with a clock, clearly marking the seconds, preferably by means of a sweep hand completing one revolution per minute. This clock shall be placed at a point sufficiently visible from the operator's table so that the operator may, by keeping it in view, easily and correctly time the different elements of the alarm signal.

1465 § 40. (1) The radiotelephone alarm signal consists of two substantially sinusoidal audio frequency tones transmitted alternately. One tone shall have a frequency of 2 200 cycles per second and the other a frequency of 1 300 cycles per second, the duration of each tone being 250 milliseconds.

1466 (2) The radiotelephone alarm signal, when generated by automatic means, shall be sent continuously for a period of at least thirty seconds but not exceeding one minute; when generated by other means, the signal shall be sent as continuously as practicable over a period of approximately one minute.

1466A (3) The use of the radiotelephone alarm signal (see No. **1465**)
Mar by emergency position-indicating radiobeacons is indicated in Article 36, Section VIIIA.

1467 § 41. The purpose of these special signals is :

1468 a) in radiotelegraphy, the actuation of automatic devices giving the alarm to attract the attention of the operator when there is no listening watch on the distress frequency ;

1469 b) in radiotelephony, to attract the attention of the person on watch or to actuate automatic devices giving the alarm.

1470 § 42. (1) These signals shall only be used to announce :

1471 a) that a distress call or message is about to follow ; or

1472 *b)* the transmission of an urgent cyclone warning,
Mar which should be preceded by the safety signal (see Nos. **1488**
and **1489**). In this case they may only be used by coast stations
duly authorized by their government; or

1473 *c)* the loss of a person or persons overboard. In this case
they may only be used when the assistance of other
ships is required and cannot be satisfactorily obtained
by the use of the urgency signal only, but the alarm
signal shall not be repeated by other stations. The
message shall be preceded by the urgency signal (see
Nos. **1477** and **1478**).

1473A (2) The radiotelephone alarm signal may be used by emergency
Mar position-indicating radiobeacons of Type H (see No. **1476C**).

1474 (3) In the cases referred to in Nos. **1472** and **1473**, an interval
Mar of two minutes should, if possible, separate the end of the radiotele-
graph alarm signal and the beginning of the warning or the message.

1475 § 43. Automatic devices intended for the reception of the radio-
telegraph and radiotelephone alarm signals shall meet the require-
ments specified in Appendix 20.

1476 § 44. Before any such automatic device is approved for use on
ships, the administration having jurisdiction over those ships shall
be satisfied by practical tests made under operating conditions equi-
valent to those obtaining in practice (including interference, vibra-
tion, etc.), that the apparatus complies with the provisions of these
Regulations.

Section VIIIA. Emergency position-indicating radiobeacon signals

1476A § 44A.(1) The emergency position-indicating radiobeacon signal
Mar consists of:

1476B

Mar

a) for medium frequencies, i.e. 2 182 kc/s¹

1) a keyed emission modulated by a tone of 1 300 cycles per second, and having a ratio of the period of the emission to the period of silence equal to or greater than one, and an emission duration between one and five seconds; *or*

1476C

Mar

2) the radiotelephone alarm signal (see No. 1465) followed by the Morse letter B and/or the call sign of the ship to which the radio-beacon belongs transmitted by keying a carrier modulated by a tone of either 1 300 or 2 200 cycles per second;

1476D

Mar

b) for very high frequencies, i.e. 121.5 Mc/s and 243 Mc/s, the signal characteristics shall be in accordance with those recommended by the Organizations mentioned in Resolution No. Mar 7.

1476E

Mar

(2) Only the signal specified in No. 1476B shall be used by low power radiobeacons (Type L) and it shall be transmitted continuously.

1476F

Mar

(3) High power radiobeacons (Type H) may transmit either of the signals specified in Nos. 1476B or 1476C with a keying cycle which consists of the keying signal for between thirty and fifty seconds followed by a period of silence of between thirty and sixty seconds.

1476G

Mar

(4) However, the keying cycles in Nos. 1476E and 1476F may be interrupted for speech transmission if administrations so desire.

1476H

Mar

(5) The essential purpose of the emergency position-indicating radiobeacon signals is to facilitate determining the position of survivors in search and rescue operations.

1476B.1

Mar

¹ In Japan, there are emergency position-indicating radiobeacons which transmit the distress signal and identification on frequencies between 2 089.5 kc/s and 2 092.5 kc/s using class A1 emissions.

- 1476I** (6) These signals shall indicate that one or more persons are **Mar** in distress, may no longer be on board a ship or an aircraft, and that receiving facilities may not be available.
- 1476J** (7) Any mobile service station receiving one of these signals, **Mar** while no distress or urgent traffic is being passed, shall consider that the provisions of Nos. **1452** and **1453** are applicable.
- 1476K** (8) Equipment designed to transmit emergency position-
Mar indicating radiobeacon signals on the carrier frequency 2 182 kc/s shall meet the requirements specified in Appendix 20A.
- 1476L** (9) Equipment designed to transmit emergency position-
Mar indicating radiobeacon signals on very high frequencies shall be in agreement with the recommendations and standards recommended by the Organizations mentioned in Resolution No. **Mar 7**.

Section IX. Urgency Signal

- 1477** § 45. (1) In radiotelegraphy, the urgency signal consists of three repetitions of the group **XXX**, sent with the letters of each group and the successive groups clearly separated from each other. It shall be transmitted before the call.
- 1478** (2) In radiotelephony, the urgency signal consists of three repetitions of the word **PAN** pronounced as the French word "panne". It shall be transmitted before the call.
- 1479** § 46. (1) The urgency signal shall be sent only on the authority of the master or the person responsible for the ship, aircraft or other vehicle carrying the mobile station.
- 1480** (2) The urgency signal may be transmitted by a land station only with the approval of the responsible authority.

1481 § 47. (1) The urgency signal indicates that the calling station has a very urgent message to transmit concerning the safety of a ship, aircraft or other vehicle, or the safety of a person.

1482 (2) The urgency signal and the message following it shall be
Mar sent on one of the international distress frequencies (500 kc/s or 2182 kc/s) or on one of the frequencies which may be used in case of distress.

1482A (2A) However, in the maritime mobile service, in areas of
Mar heavy traffic or in the case of a long message or a medical call, the message should be transmitted on a working frequency. An indication to this effect should be given at the end of the call.

1483 (3) The urgency signal shall have priority over all other communications, except distress. All mobile and land stations which hear it shall take care not to interfere with the transmission of the message which follows the urgency signal.

1483A (4) In the maritime mobile service, urgency messages may be
Mar addressed either to all stations or to a particular station.

1484 § 48. Messages preceded by the urgency signal shall, as a general rule, be drawn up in plain language.

1485 § 49. (1) Mobile stations which hear the urgency signal shall continue
Mar to listen for at least three minutes. At the end of this period, if no urgency message has been heard, a land station should, if possible, be notified of the receipt of the urgency signal. Thereafter, normal working may be resumed.

1486 (2) However, land and mobile stations which are in communication on frequencies other than those used for the transmission of the urgency signal and of the call which follows it may continue their normal work without interruption provided the urgency message is not addressed "to all stations" (CQ).

1487 § 50. When the urgency signal has been sent before transmitting a message “to all stations” (CQ) and which calls for action by the stations receiving the message, the station responsible for its transmission shall cancel it as soon as it knows that action is no longer necessary. This message of cancellation shall likewise be addressed “to all stations” (CQ).

Section X. Safety Signal

1488 § 51. (1) In radiotelegraphy, the safety signal consists of three repetitions of the group TTT, the individual letters of each group, and the successive groups being clearly separated from each other. It shall be sent before the call.

1489 (2) In radiotelephony, the safety signal consists of the word SÉCURITÉ pronounced clearly as in French, spoken three times and transmitted before the call.

1490 § 52. (1) The safety signal indicates that the station is about to transmit a message concerning the safety of navigation or giving important meteorological warnings.

1491 (2) The safety signal and call shall be sent on the distress **Mar** frequency or one of the frequencies which may be used in case of distress.

1492 (3) Wherever possible, the safety message which follows the **Mar** call should be sent on a working frequency, particularly in areas of heavy traffic. A suitable announcement to this effect shall be made at the end of the call.

1492A (4) In the maritime mobile service, safety messages shall **Mar** generally be addressed to all stations. In some cases, however, they may be addressed to a particular station.

1493 § 53. (1) With the exception of messages transmitted at fixed times, the safety signal, when used in the maritime mobile service, shall be transmitted towards the end of the first available period of silence (see No. **1130** for radiotelegraphy and No. **1349** for radiotelephony); the message shall be transmitted immediately after the period of silence.

1494 (2) In the cases prescribed in Nos. **1612**, **1615** and **1619**, the safety signal and the message which follows it shall be transmitted as soon as possible, and shall be repeated at the end of the first period of silence which follows.

1495 § 54. All stations hearing the safety signal shall listen to the safety message until they are satisfied that the message is of no concern to them. They shall not make any transmission likely to interfere with the message.

CHAPTER IX**Radiotelegrams and Radiotelephone Calls****ARTICLE 37****Order of Priority of Communications in the Mobile Service**

1496 The term "communication" as used in this Article means radiotelegrams as well as radiotelephone calls. The order of priority for communications in the mobile service shall be as follows :

1. Distress calls, distress messages, and distress traffic.
2. Communications preceded by the urgency signal.
3. Communications preceded by the safety signal.
4. Communications relating to radio direction-finding.
5. Communications relating to the navigation and safe movement of aircraft.
6. Communications relating to the navigation, movements, and needs of ships, and weather observation messages destined for an official meteorological service.
7. Government radiotelegrams : Priorité Nations.
8. Government communications for which priority has been requested.
9. Service communications relating to the working of the radiocommunication service or to communications previously exchanged.
10. Government communications other than those shown in 7 and 8 above, and all other communications.

ARTICLE 38

Indication of the Station of Origin of Radiotelegrams

- 1497 § 1.** When, because of duplication of names, the name of a station is followed by its call sign, the latter shall be separated from the name of the station by a fraction bar. Example : Oregon/OZOC (not Oregonozoc) ; Rose/DDOR (not Roseddor).
- 1498 § 2.** When a coast or aeronautical station retransmits over the general network of telecommunication channels a radiotelegram received from a mobile station, it shall transmit, as office of origin, the name of the mobile station in which the radiotelegram originated as this name appears in the appropriate list of stations, followed by its own name. Where appropriate, the provisions of No. **1497** shall also apply.
- 1499 § 3.** In order to avoid any confusion with a telegraph office or a fixed station of the same name, the coast or aeronautical station may, if desirable, complete the indication of the name of the mobile station of origin by the word "ship" or "aircraft" placed before the name of the station of origin.

ARTICLE 39

Routing of Radiotelegrams

1500 § 1. (1) In routing radiotelegrams, a mobile station should, as a general rule, give preference to the coast or aeronautical station established on the territory of the country of destination, or the country likely to provide the most suitable transit route for radiotelegrams.

1501 (2) However, to expedite or facilitate the routing of radiotelegrams to a coast or aeronautical station, a mobile station may transmit them to another mobile station. The latter shall dispose of such radiotelegrams in the same manner as if they originated with itself (see the Additional Radio Regulations, Article 10).

1502 § 2. A mobile station, when using class A2 emission in the bands between 405 and 535 kc/s to transmit radiotelegrams to a coast or aeronautical station which is not the nearest to it, shall cease working or shall change frequency or class of emission upon the first request made by a coast or aeronautical station which is nearer to the mobile station than the coast or aeronautical station being worked, when this request is based upon interference which the working of the mobile station causes to the nearer coast or aeronautical station.

1503 § 3. If the sender of a radiotelegram handed in at a mobile station has indicated the coast or aeronautical station to which he desires his radiotelegram to be sent, the mobile station shall, in order to effect this transmission to the coast or aeronautical station indicated, wait, if necessary, until the conditions specified in Nos. **1500** to **1502** above are fulfilled.

1504 § 4. In order to facilitate disposal of traffic, and subject to such restrictions as individual governments may impose, coast stations may, in exceptional circumstances and with discretion, without incurring additional charges, exchange radiotelegrams and service messages relating thereto.

ARTICLE 40

Accounting for Radiotelegrams and Radiotelephone Calls**Section I. General**

1505 § 1. In principle, land station and ship and aircraft station charges shall not be entered in the international telegraph and telephone accounts.

1506 § 2. Administrations reserve to themselves the right to make, between themselves and with the recognized private operating agencies concerned, different arrangements with a view to the adoption of other accounting systems, more specifically the adoption, as far as practicable, of the system by which the land station and ship and aircraft station charges follow the radiotelegrams and radiotelephone calls from country to country through the medium of the telegraph and telephone accounts.¹ Such arrangements are subject to previous agreement between the administrations concerned.

1507 § 3. In the absence of a different arrangement in accordance with the provisions of No. **1506**, the accounts relating to these charges are prepared monthly by the administrations to which the land stations are subject and are forwarded by them to the administrations or accounting authorities concerned.

1508 § 4. (1) Where the enterprise operating the land station is not the administration of the country, this enterprise may replace the administration of that country as far as accounts are concerned. In this event the provisions of Nos. **1510** to **1559** shall apply to such enterprise in the same manner as to an administration.

1509 (2) When the provisions of No. **1082** are not followed, and the operating enterprise controlling the mobile station is not known, accounts should be sent to the administration to which the mobile station is subject, for forwarding to the appropriate accounting authority for settlement.

1506-1 ¹ Canada and the United States of America request that this system be adopted to the greatest possible extent in relations between themselves and other countries.

Section II. Establishment of Accounts for Radiotelegrams

1510 § 5. (1) In the case of radiotelegrams originating in ship and aircraft stations, the administration to which the land station is subject shall debit the administration to which the mobile station of origin is subject (or, if appropriate, the administration to which the operating enterprise of the mobile station of origin is subject, or the operating enterprise direct) with :

- the land station charges,
- the charges relating to transmission over the general network of telecommunication channels, which will hereafter be called telegraph charges,
- the total charges collected for prepaid replies,
- land station and telegraph charges made for collation,
- charges collected for delivery by express as well as the supplementary charges fixed by the Telegraph Regulations for delivery by post or by air mail,
- charges fixed by the Telegraph Regulations for copies of multiple telegrams.

1511 (2) So far as concerns transmission over the general network of telecommunication channels, radiotelegrams are treated, from the point of view of accounting, in conformity with the provisions of the Telegraph Regulations.

1512 § 6. (1) For radiotelegrams to a country other than that to which the land station belongs, the telegraph charges to be settled in accordance with the above provisions shall be the charges shown in the table of rates relating to international telegraph correspondence, or those fixed by special arrangements between the administrations and/or recognized private operating agencies of adjacent countries and published by those administrations or recognized private operating agencies.

1513 (2) However, account must be taken of the fact that a seven-word minimum charge is levied for every radiotelegram ; for press radiotelegrams this minimum is fourteen words.

1514 § 7. (1) In the case of radiotelegrams addressed to ship and aircraft stations, the administration to which the office of origin is subject shall be debited direct by the administration to which the land station is subject, with the land station and ship or aircraft station charges plus the land station and ship or aircraft station charges applicable to collation and for copies of multiple telegrams, but only where the radiotelegram has been transmitted to the ship or aircraft station. In the case provided for in No. **2132** of the Additional Radio Regulations, however, the administration to which the office of origin is subject shall be debited with the land station charge by the administration to which the land station is subject.

1515 (2) Unless otherwise arranged, the administration to which the office of origin is subject shall be debited through the medium of the telegraph accounts, from country to country if necessary, by the administration to which the land station is subject, with the telegraph charges and the total charges for prepaid replies.

1516 (3) When the radiotelegram has been transmitted, the administration to which the land station is subject credits the administration to which the mobile station of destination is subject (or, if appropriate, the administration to which the operating enterprise of the mobile station of destination is subject, or the operating enterprise direct) :

1517 a) with the ship or aircraft station charge ;

1518 b) if occasion arises, with

— the charges due to intermediate ship or aircraft stations,

— the total charge collected for prepaid replies,

— the ship or aircraft station charge for collation,

— the charges fixed by the Telegraph Regulations for copies of multiple telegrams.

1519 § 8. When the charge for a radiotelegram is paid for wholly or partly by means of a reply voucher, the radiotelegram shall be treated for accounting purposes as if the charge had been paid in cash.

1520 § 9. Radiotelegrams exchanged between stations in ships or aircraft

1521

a) without the intervention of land stations :

except when other arrangements have been made, the enterprise to which the station of destination is subject debits the enterprise to which the station of origin is subject with all charges collected, less the charges due to this latter station ;

1522

b) through the medium of a single land station :

the administration to which the land station is subject debits the administration to which the mobile station of origin is subject (or, if appropriate, the administration to which the operating enterprise of the mobile station of origin is subject, or the operating enterprise direct) with all the charges collected, less the charges due to that mobile station, in accordance with the provisions of Nos. **1510** and **1511**. Thereafter the provisions of Nos. **1514** to **1518** are applied ;

1523

c) through the medium of two land stations :

the administration to which the first land station is subject debits the administration to which the mobile station of origin is subject (or, if appropriate, the administration to which the operating enterprise of the mobile station of origin is subject, or the operating enterprise direct) with all the charges collected, less the charges due to that mobile station, in accordance with the provisions of Nos. **1510** and **1511**. The provisions of Nos. **1514** to **1518** are then applied, the first land station being regarded as the office of origin as far as the accounts are concerned.

1524 § 10. In the case of radiotelegrams which, at the request of the sender, are forwarded through one or two intermediate ship or aircraft stations, each such intermediate station debits with the charge accruing to it for transit :

1525

*a) the ship or aircraft station of destination, in the case of a radiotelegram originating on land and destined for a ship or aircraft station, or in the cases contemplated in Nos. **1522** and **1523** (second radiotelegraph transmission) ;*

- 1526** *b)* the ship or aircraft station of origin, in the case of a radiotelegram originating on a ship or aircraft station and destined for the land, or in the cases provided for in Nos. **1521** to **1523** (first radiotelegraph transmission).

Section III. Establishment of Accounts for Radiotelephone Calls

1527 § 11. In the case of radiotelephone calls originating in ship or aircraft stations, the administration to which the land station is subject :

- debits the administration to which the mobile station of origin is subject (or, if appropriate, the administration to which the operating enterprise of the mobile station of origin is subject, or the operating enterprise direct) with the land station charges, the charges relating to transmission over the telephone system of the country of the land station, and, where appropriate, with the charges relating to transmission over the international telephone system,
- credits, where appropriate, through the international telephone accounts, the administration or recognized private operating agency of the country of destination, and the administrations or recognized private operating agencies of intermediate countries, if any, with the charges relating to transmission over the international telephone system.

1528 § 12. (1) In the case of radiotelephone calls destined for ship or aircraft stations and originating in the country to which the land station belongs, the administration to which the land station is subject credits the administration to which the mobile station of destination is subject (or, if appropriate, the administration to which the operating enterprise of the mobile station of destination is subject, or the operating enterprise direct) with the ship or aircraft station charges.

1529 (2) In the case of radiotelephone calls destined for ship or aircraft stations and originating in a country other than that to which the land station belongs :

1530 a) the administration to which the land station is subject :
— debits the administration or recognized private operating agency of the country of origin with the land station and ship or aircraft station charges,
— credits the administration to which the mobile station of destination is subject (or, if appropriate, the administration to which the operating enterprise of the mobile station of destination is subject, or the operating enterprise direct) with the ship or aircraft station charges ;

1531 b) the administration or recognized private operating agency of the country in which the calls originate credits, through the international telephone accounts, the administration of the country to which the land station is subject, and the administrations or recognized private operating agencies of intermediate countries, if any, with the charges relating to transmission over the international telephone system.

1532 § 13. The provisions of Nos. **1520** to **1523** relative to the accounting for radiotelegrams exchanged between stations on ships or aircraft shall be followed in the case of radiotelephone calls exchanged between stations on ships or aircraft.

1533 § 14. For accounting purposes, collect radiotelephone calls shall be regarded as originating in the country or mobile station of destination.

Section IV. Exchange and Verification of Accounts.

Payment of Balances

1534 § 15. (1) In principle, radiotelegrams and radiotelephone calls are entered individually, with all necessary particulars, in the monthly accounts which serve as a basis for the accounting mentioned in this

Article. A specimen statement is given in Appendix 21. The accounts, in duplicate, are forwarded before the end of the third month following that to which the accounts relate.

1535 (2) However, when by special agreement, the accounts cover a period of more than one month, these accounts shall be forwarded before the end of the third month following the last month of the period to which the accounts in question relate.

1536 § 16. The acceptance of an account is notified, or observations thereon made, within a period of six months from the date of its despatch. An administration or recognized private operating agency which has not received any observations in this period shall be entitled to regard the account as admitted by right.

1537 § 17. The periods mentioned in Nos. **1534** and **1536** may be exceeded when exceptional difficulties occur in the transmission of the documents by post between the land stations and the administrations to which they are subject. However, the debtor administration or recognized private operating agency may refuse the settlement and adjustment of accounts presented more than eighteen months after the date of handing-in of the radiotelegrams or the date of establishment of the radiotelephone calls to which the accounts relate.

1538 § 18. Unless otherwise arranged, the following provisions are applicable to the radiotelegraph and radiotelephone accounts referred to in the present Article.

1539 § 19. (1) When there are differences between the accounts prepared by two administrations, two recognized private operating agencies, or an administration and a recognized private operating agency, the monthly accounts shall be admitted without revision in the following cases :

Amount of the account of the creditor	Difference not exceeding
less than 1,000 gold francs	10 gold francs
from 1,000 to 100,000 gold francs	1 % of the amount of the creditor's account
more than 100,000 gold francs	1 % of the first 100,000 gold francs, and 0.5 % of the remainder of the creditor's account.

1540 (2) A revision which has been begun shall be stopped following the exchange of observations between the two administrations and/or recognized private operating agencies concerned, as soon as the difference is brought down to a sum not exceeding the maximum fixed by No. 1539.

1541 § 20. (1) Immediately after the acceptance of the accounts proper to the last month of the quarter, a quarterly account showing the balance for the whole of the three months of the quarter shall, unless otherwise arranged between the two administrations and/or recognized private operating agencies concerned, be prepared by the creditor administration or recognized private operating agency and forwarded in duplicate to the debtor administration or recognized private operating agency, which, after verification, shall return one of the copies endorsed with its acceptance.

1542 (2) In default of acceptance of one or other of the monthly accounts of a given quarter before the expiration of the sixth month following the quarter to which the accounts relate, the quarterly account may, nevertheless, be prepared by the creditor administration or recognized private operating agency with a view to a provisional settlement which shall become obligatory for the debtor administration or recognized private operating agency under the conditions fixed by No. 1544.

1543 (3) Adjustments later agreed upon shall be included in a subsequent quarterly settlement.

1544 § 21. The quarterly account shall be verified and the amount shall be paid within a period of six weeks dating from the day on which it is received by the debtor administration or recognized private operating agency. Beyond this period, the creditor administration or recognized private operating agency shall have the right to charge interest at the rate of six per cent per annum, reckoned from the day following the date of expiration of the said period.

1545 § 22. (1) The balance of the quarterly account in gold francs shall be paid by the debtor administration or recognized private operating agency to the creditor administration or recognized private operating agency by a sum equivalent to its value, in conformity with the provisions of these Regulations and of such special monetary arrangements as may exist between the countries of the administrations or recognized private operating agencies concerned.

1546 (2) This payment shall be effected, without cost to the creditor administration or recognized private operating agency¹, by one of the following methods :

1547 a) at the choice of the debtor administration or recognized private operating agency, in gold or by means of cheques or drafts payable on demand in the capital or in a commercial centre of the creditor country, or by transfer on a bank of this capital or of a commercial centre of the creditor country ; cheques, drafts or transfers shall be made out in one of the currencies specified under Part A of Appendix 22 ;

1546-1 ¹ Taxes, clearing expenses, impositions and commissions which may be levied on the creditor administration or recognized private operating agency by the country in which they operate shall not be considered as expenses to be borne by the debtor administration or recognized private operating agency.

- 1548** *b)* by agreement between the two administrations and/or recognized private operating agencies, through the intermediary of a bank clearing through the Bank of International Settlements at Basle ;
- 1549** *c)* by any other means agreed upon between the parties concerned.
- 1550** (3) The currencies used for payment, and the rules for converting the balances expressed in gold francs into the currency of payment, shall be those shown in Appendix 22.
- 1551** (4) Any loss or gain resulting from the settlement of balances by cheque or draft shall be treated according to the following rules :
- 1552** *a)* any loss or gain arising from an unforeseen rise or fall affecting the gold par rate of one of the currencies specified in (3) *a)*, (3) *b)* or (3) *c)* of § 2 of Appendix 22 and occurring up to and including the day on which the cheque or draft is received, shall be divided equally between the administrations and/or recognized private operating agencies concerned ;
- 1553** *b)* when a considerable variation occurs in the gold par rate or in the rate upon which conversion was based, the provisions indicated in No. 1552 shall apply, except when a rise or fall is caused by a revaluation or devaluation of the currency of the creditor country ;
- 1554** *c)* in the case of delay in the despatch of a cheque or draft which has been delivered, or in the transmission to a bank of a transfer order, the debtor administration and/or recognized private operating agency shall bear any loss incurred as a result of such delay ; any unreasonable period¹ which may have elapsed between delivery by the bank and forwarding of the cheque or draft shall be considered as a delay ; if any gain is incurred as a result of such delay, one half shall be made good to the debtor administration or recognized private operating agency ;

1554-1¹ A period greater than four working days counted from the day of issue of the cheque or draft (but not including that day) until the day of forwarding of this cheque or draft.

- 1555** d) in any case provided for in Nos. **1552** to **1554**, differences not exceeding five per cent shall be ignored ;
- 1556** e) the provisions of Nos. **1546** to **1550** shall be observed for the settlement of differences ; and the period of settlement shall begin from the date of receipt of the cheque or draft.
- 1557** (5) When the amount of the balance is more than 5,000 gold francs (five thousand), the date of the despatch of a cheque or a draft, the date of its purchase and its amount, or else the date of the transfer order and its amount, shall, upon a request by the creditor administration or recognized private operating agency, be notified by the debtor administration or recognized private operating agency by means of a service telegram.

Section V. Period of Retention of Accounting Records

- 1558** § 23. (1) The originals of radiotelegrams and documents relating to radiotelegrams and radiotelephone calls retained by the administrations and/or recognized private operating agencies shall be held, with all necessary precautions from the point of view of secrecy, until the settlement of the relative accounts and, in any case, for at least six months counting from the month in which the accounts were sent.
- 1559** (2) However, should an administration or recognized private operating agency deem it desirable to destroy such documents before the above-mentioned period, and hence is not in a position to carry out an inquiry in respect of the services for which it is responsible, such administration or recognized private operating agency shall bear all the consequences both as regards refund of charges and any difference in the accounts in question which might otherwise have been observed.

CHAPTER X**Miscellaneous Stations and Services****ARTICLE 41****Amateur Stations**

1560 § 1. Radiocommunications between amateur stations of different countries shall be forbidden if the administration of one of the countries concerned has notified that it objects to such radiocommunications.

1561 § 2. (1) When transmissions between amateur stations of different countries are permitted, they shall be made in plain language and shall be limited to messages of a technical nature relating to tests and to remarks of a personal character for which, by reason of their unimportance, recourse to the public telecommunications service is not justified. It is absolutely forbidden for amateur stations to be used for transmitting international communications on behalf of third parties.

1562 (2) The preceding provisions may be modified by special arrangements between the administrations of the countries concerned.

1563 § 3. (1) Any person operating the apparatus of an amateur station shall have proved that he is able to send correctly by hand and to receive correctly by ear, texts in Morse code signals. Administrations concerned may, however, waive this requirement in the case of stations making use exclusively of frequencies above 144 Mc/s.

1564 (2) Administrations shall take such measures as they judge necessary to verify the technical qualifications of any person operating the apparatus of an amateur station.

1565 § 4. The maximum power of amateur stations shall be fixed by the administrations concerned, having regard to the technical qualifications of the operators and to the conditions under which these stations are to work.

1566 § 5. (1) All the general rules of the Convention and of these Regulations shall apply to amateur stations. In particular, the emitted frequency shall be as stable and as free from spurious emissions as the state of technical development for such stations permits.

1567 (2) During the course of their transmissions, amateur stations shall transmit their call sign at short intervals.

ARTICLE 42

Experimental Stations

- 1568** § 1. (1) An experimental station may enter into communication with an experimental station of another country only after it has been authorized to do so by its administration. Each administration shall notify other administrations concerned when such authorizations are issued.
- 1569** (2) The administrations concerned determine by special arrangement the conditions under which communications may be established.
- 1570** § 2. (1) In experimental stations any person operating radiotelegraph apparatus, either on his own account or for another, shall have proved his ability to transmit by hand and to receive by ear, texts in Morse code signals.
- 1571** (2) Administrations shall take such steps as they think necessary to verify the qualifications, from the technical point of view, of any person operating the apparatus of an experimental station.
- 1572** § 3. The administrations concerned shall fix the maximum power of experimental stations, having regard to the purpose for which their establishment has been authorized and the conditions under which they are to work.
- 1573** § 4. (1) All the general rules of the Convention, and of these Regulations, shall apply to experimental stations. In particular, experimental stations shall comply with the technical conditions imposed upon transmitters operating in the same frequency bands, except where the technical principles of the experiments prevent this.
- 1574** (2) During the course of their transmissions, experimental stations shall transmit, at short intervals, their call sign, or, in the case of stations not yet provided with a call sign, their name.

1575 § 5. Where there is no risk of an experimental station causing harmful interference to a service of another country, the administration concerned may, if considered desirable, adopt different provisions from those contained in this Article.

ARTICLE 43

Radiodetermination Service**Section I. General Provisions**

- 1576 § 1.** Administrations which have established a radiodetermination service shall take the necessary steps to ensure the effectiveness and regularity of that service ; however they accept no responsibility for the consequences that might arise from the use of inaccurate information furnished, defective working, or failure of their stations.
- 1577 § 2.** In the case of doubtful or unreliable observations, the station taking the bearing or fixing the position shall, whenever possible, notify the station for which the information is being obtained of any such doubt or unreliability.
- 1578 § 3.** Administrations shall notify to the Secretary General the characteristics of each radiodetermination station providing an international service of value to the maritime mobile service and, if considered necessary, for each station or group of stations, the sectors in which the information furnished is normally reliable. This information is published in the List of Radiodetermination and Special Service Stations, and the Secretary General shall be notified of any change of a permanent nature.
- 1579 § 4.** The method of identification of radiodetermination stations shall be so chosen as to avoid any doubt as to their identity.
- 1580 § 5.** Signals sent by radiodetermination stations shall be such as to permit accurate and precise measurements.
- 1581 § 6.** Any information concerning modification or irregularity of working of a radiodetermination station shall be notified without delay in the following manner :

- 1582** a) Land stations of countries operating a radiodetermination service shall send out daily, if necessary, notices of modifications or irregularities in working until such time as normal working is restored or, if a permanent alteration has been made, until such time as it can reasonably be taken that all navigators interested have been warned.
- 1583** b) Permanent alterations or irregularities of long duration shall be published as soon as possible in the relevant notices to navigators.
- 1584** § 7. Where radiocommunication by telegraphy or telephony is part of a radiodetermination service, such communication shall be subject to the provisions of these Regulations.

Section II. Radio Direction-Finding Stations

- 1585** § 8. (1) In the maritime radionavigation service, the radiotelegraph frequency normally used for radio direction-finding is 410 kc/s. All direction-finding stations of the maritime radionavigation service using radiotelegraphy shall be able to use this frequency. They shall, in addition, be able to take bearings on 500 kc/s, especially for locating stations sending signals of distress, alarm and urgency.
- 1586** (2) Where a radio direction-finding service is provided in the authorized bands between 1 605 and 2 850 kc/s, the radio direction-finding stations should be able to take bearings on the radiotelephone distress and calling frequency 2 182 kc/s.
- 1587** § 9. The procedure to be followed by radio direction-finding stations is given in Appendix 23.
- 1588** § 10. In the absence of prior arrangements, an aircraft station which calls a radio direction-finding station for a bearing shall use for this purpose a frequency on which the station called normally keeps watch.

1589 § 11. In the aeronautical radionavigation service, the procedure contemplated for radio direction-finding in this section is applicable, except where special procedures are in force as a result of arrangements concluded between the administrations concerned.

Section III. Radiobeacon Stations

1590 § 12. When an administration thinks it desirable in the interests of navigation to organize a service of radiobeacon stations, it may use for this purpose :

1591 *a)* radiobeacons properly so called, established on land or on ships permanently moored or, exceptionally, on ships navigating in a restricted area, the limits of which are known and published. The emissions of these radiobeacons may have either directional or non-directional patterns ;

1592 *b)* fixed stations, coast stations or aeronautical stations designated to function as radiobeacons, at the request of mobile stations.

1593 § 13. (1) Radiobeacons properly so called shall use the frequency bands which are available to them under Chapter II.

1594 (2) Other stations notified as radiobeacons shall use for this purpose their normal working frequency and their normal class of emission.

1595 (3) The power radiated by each radiobeacon properly so called shall be adjusted to the value necessary to produce the stipulated field strength at the limit of the range required (see Nos. 434 and 458).

ARTICLE 44

Special Services**Section I. Meteorology**

1596 § 1. (1) Meteorological messages comprise :

1597 *a)* messages addressed to meteorological services officially entrusted with weather forecasts, more specifically for the protection of maritime and air navigation ;

1598 *b)* messages from these meteorological services intended specially for :

1599 — ship stations ;

1600 — protection of aircraft ;

1601 — the public.

1602 (2) The information contained in these messages may be :

1603 *a)* observations taken at fixed times ;

1604 *b)* warnings of dangerous phenomena ;

1605 *c)* forecasts and warnings ;

1606 *d)* statements of the general meteorological situation.

1607 § 2. (1) The various national meteorological services mutually agree to prepare common transmission programmes so as to use the transmitters best situated to serve the regions concerned.

1608 (2) The meteorological observations contained in the classes mentioned in Nos. **1597** to **1600** are, in principle, drawn up in an international meteorological code, whether they are transmitted by or intended for mobile stations.

1609 § 3. For observation messages intended for an official meteorological service, use shall be made of the facilities resulting from the allocation of exclusive frequencies to synoptic meteorology and the aeronautical meteorological service, in conformity with regional

agreements made by the services concerned for the use of these frequencies.

- 1610** § 4. (1) Meteorological messages specially intended for all ship stations shall in principle be sent in accordance with a definite timetable, and, as far as possible, at times when they can be received by ship stations with only one operator. In radiotelegraphy the transmission speed shall not exceed sixteen words a minute.
- 1611** (2) During the transmission "to all stations" of meteorological messages intended for stations of the maritime mobile service, all stations of this service whose transmissions might interfere with the reception of these messages, shall keep silent in order to permit all stations which desire to do so to receive these messages.
- 1612** (3) Meteorological warning messages for the maritime mobile service shall be transmitted without delay. They shall be repeated at the end of the first silence period which follows their receipt (see Nos. **1130** and **1349**) as well as at the end of the first silence period which occurs in the working hours of a ship station having a single operator. They shall be preceded by the safety signal and sent on the appropriate frequencies (see No. **1491**).
- 1613** (4) In addition to the regular information services contemplated in the preceding sub-paragraphs, administrations shall take the necessary steps to ensure that certain stations shall, upon request, communicate meteorological messages to stations in the maritime mobile service.
- 1614** (5) The provisions of Nos. **1610** to **1613** are applicable to the aeronautical mobile service, in so far as they are not contrary to more detailed special arrangements which ensure at least equal protection to air navigation.
- 1615** § 5. (1) Messages originating in mobile stations and containing information concerning the presence of cyclones shall be transmitted, with the least possible delay, to other mobile stations in the vicinity and to the appropriate authorities at the first point of the coast with which contact can be established. Their transmission shall be preceded by the safety signal.

- 1616** (2) Any mobile station may, for its own use, listen to messages containing meteorological observations sent out by other mobile stations, even those which are addressed to a national meteorological service.
- 1617** (3) Stations of the mobile services which transmit meteorological observations addressed to a national meteorological service are not required to repeat them to other stations. However, the exchange between mobile stations, on request, of information relating to the state of the weather is authorized.

Section II. Notices to Mariners

- 1618** § 6. The provisions of Nos. **1610** to **1614** shall apply to notices to mariners.
- 1619** § 7. Messages containing information concerning the presence of dangerous ice, dangerous wrecks, or any other imminent danger to marine navigation, shall be transmitted as soon as possible to other ship stations in the vicinity, and to the appropriate authorities at the first point of the coast with which contact can be established. These transmissions shall be preceded by the safety signal.
- 1620** § 8. When thought desirable, and provided the sender agrees, administrations may authorize their land stations to communicate information concerning maritime damage or casualties or information of general interest to navigation, to the marine information agencies approved by them and subject to the conditions fixed by them.

Section III. Medical Advice

- 1621** § 9. Mobile stations requiring medical advice may obtain it through any of the land stations shown as providing this service in the List of Radiodetermination and Special Services Stations.

- 1622** § 10. Radiotelegrams and radiotelephone calls concerning medical advice may be preceded by the appropriate urgency signal (see Nos. **1479** to **1487**).

Section IV. Standard Frequency and Time Signals

- 1623** § 11. (1) To facilitate more efficient use of the radio frequency spectrum and to assist other technical and scientific activities, administrations should endeavour to provide, on a co-ordinated world-wide basis, a service of standard frequency and time signal transmissions. Attention should be given to the extension of this service to those areas of the world not adequately served.
- 1624** (2) To this end, each administration shall take steps to co-ordinate with the assistance of the International Frequency Registration Board, any new standard frequency or time signal transmission or any change in existing transmissions in the standard frequency bands. For this purpose, administrations shall exchange between themselves, and furnish to the Board, all relevant information. On this matter the Board shall consult the Director of the C.C.I.R. who shall also continue to seek the advice and co-operation of the International Time Bureau (B.I.H.), the International Scientific Radio Union (U.R.S.I.) and other international organizations having a direct and substantial interest in the subject.
- 1625** (3) In so far as is practicable, a new frequency assignment in the standard frequency bands should not be made or notified to the Board until appropriate co-ordination has been completed.
- 1626** § 12. Administrations shall co-operate in reducing interference in the standard frequency bands in accordance with the Recommendations of the C.C.I.R.
- 1627** § 13. Administrations which provide this service shall co-operate through the C.C.I.R. in the collation and distribution of the results of the measurements of standard frequencies and time signals, as well as details concerning adjustments to the frequencies and time signals.
- 1628** § 14. In selecting the technical characteristics of standard frequency and time signal transmissions, administrations shall be guided by the relevant C.C.I.R. Recommendations.

CHAPTER XI**ARTICLE 45****Effective Date of the Radio Regulations**

The Radio Regulations (Geneva, 1959) signed on 21 December 1959, include the following provisions:

- 1629** § 1. These Regulations, which are annexed to the International Telecommunication Convention, shall come into force on first May, 1961.
- 1630** § 2. The provisions of the Extraordinary Administrative Radio Conference Agreement, Geneva, 1951, shall be abrogated upon the coming into force of the provisions of these Regulations.
- 1631** § 3. The delegates signing these Regulations hereby declare that, should an administration make reservations about the application of one or more provisions of these Regulations, no other administration shall be obliged to observe that provision or those provisions in its relations with that particular administration.

The Final Acts of the Extraordinary Administrative Radio Conference to allocate frequency bands for Space Radiocommunication purposes (Geneva, 1963), signed on 8 November 1963, include the following provisions:

«The revised provisions of the Radio Regulations, Geneva, 1959, shall form an integral part of the Radio Regulations, which are annexed to the

International Telecommunication Convention. They shall come into force on the first of January, 1965, upon which date the provisions of the Radio Regulations, Geneva, 1959, which are cancelled or modified by these revisions, shall be abrogated.

The delegates signing this revision of the Radio Regulations, Geneva, 1959, hereby declare that should an administration make reservations concerning the application of one or more of the revised provisions of the Radio Regulations, Geneva, 1959, no other administration shall be obliged to observe that provision or those provisions in its relations with that particular administration.»

The Final Acts of the Extraordinary Administrative Radio Conference for the preparation of a revised allotment plan for the Aeronautical Mobile (R) Service (Geneva, 1966), signed on 29 April 1966, include the following provisions :

«The revised provisions of the Radio Regulations, Geneva, 1959, shall form an integral part of the Radio Regulations which are annexed to the International Telecommunication Convention. These revised provisions shall come into force on and from the first of July, 1967, except for the Frequency Allotment Plan for the Aeronautical Mobile (R) Service contained in Appendix 27 which shall come into force on and from 0001 hours G.M.T. on the tenth of April, 1970. The provisions of the Radio Regulations, Geneva, 1959, which are cancelled, superseded or modified by these revised provisions shall be abrogated on the dates of coming into force of the respective revised provisions.

The delegates signing this revision of the Radio Regulations, Geneva, 1959, hereby declare that should an administration make reservations concerning the application of one or more of the revised provisions of the Radio Regulations, Geneva, 1959, no other administration shall be obliged to observe that provision or those provisions in its relations with that particular administration.»

The Final Acts of the World Administrative Radio Conference to deal with matters relating to the Maritime Mobile Service (Geneva, 1967), signed on 3 November 1967, include the following provisions :

«The revised provisions of the Radio Regulations, Geneva, 1959, shall form an integral part of the Radio Regulations which are annexed to the International Telecommunication Convention. They shall come into force on 1 April 1969 upon which date the provisions of the Radio Regulations, Geneva, 1959, which are cancelled or modified by these revisions shall be abrogated.

The delegates signing this revision of the Radio Regulations, Geneva, 1959, hereby declare that, should an administration make reservations concerning the application of one or more of the revised provisions of the Radio Regulations, Geneva, 1959, no other administration shall be obliged to observe that provision or those provisions in its relations with that particular administration.»

APPENDICES
TO THE RADIO REGULATIONS

APPENDIX 1

Spa Aer

(See Article 9)

**Section A. Basic Characteristics to be Furnished for Notification
under No. 486 of the Regulations**

Column 1 Assigned frequency.

Column 2c Date of putting into use.

Column 3 Call sign (Identification).

*This is not a basic characteristic for stations referred to in
No. 735.1.*

Column 4a Name of the transmitting station.

Column 4b Country in which the transmitting station is located.

Column 4c Longitude and latitude of the transmitter site.

Column 5a Locality(ies) or area(s) with which communication is es-
tablished.

*This is not a basic characteristic for land, radionavigation land,
radiolocation land or standard frequency stations, or for
ground-based stations in the meteorological aids service.*

Column 5b Length of circuit (km)

*This is a basic characteristic only for land, radionavigation
land, radiolocation land and standard frequency stations.*

Column 6 Class of station and nature of service.

Column 7 Class of emission, necessary bandwidth and description of
transmission.

Column 8 Power (in kW).

Column 9a Azimuth of maximum radiation.

AP1-2

Column 10 Maximum hours of operation of the circuit to each locality or area (G.M.T.).

Column 11 Megacycle order of the other frequencies normally utilized for the same circuit.

This is a basic characteristic only for fixed stations within the range 4 000 kc/s to 28 000 kc/s.

Supplementary information: reference frequency or frequencies, if any, and any co-ordination required by No. 492A.

Section B. Basic Characteristics to be Furnished for Notification under No. 487 of the Regulations

Column 1 Assigned frequency.

Column 2c Date of putting into use.

Column 4a The letter " R ".

Column 4b Country in which the receiving land station is located.

Column 4c Longitude and latitude of the site of the receiving land station.

Column 5a Name of the receiving land station.

Column 5b Maximum distance in km between mobile stations and the receiving land station.

Column 6 Class of mobile stations and nature of service.

Column 7 Class of emission of mobile stations and necessary bandwidth.

Column 8 Highest power used by the mobile stations.

Column 10 Maximum hours of operation of the mobile stations (G.M.T.).

Supplementary information: any co-ordination required by No. 492A.

**Section C. Basic Characteristics to be Furnished for Notification
under No. 490 of the Regulations**

- Column 1 Assigned frequency.
- Column 2c Date of putting into use.
- Column 4b Country in which the transmitting station is located.
- Column 5a Locality(ies) or area(s) with which communication is established.
- Column 6 Class of station and nature of service.
- Column 7 Class of emission, necessary bandwidth and description of transmission.
- Column 8 Power (in kW).
- Column 10 Maximum hours of operation of the circuit to each locality or area (G.M.T.).

Supplementary information: any co-ordination required by No. 492A.

Form of Notice*

For Use when Notifying to the International Frequency Registration Board a Frequency Assignment or a Change to an Assignment Recorded in the Master International Frequency Register

(see Article 9)

(a)

Notifying administration

_____ kc/s
_____ Mc/s

(b) New assignment

(c) Change of characteristics of a recorded assignment in the Master Register

(d) Deletion of an assignment

(e) { Notice No. _____
Date _____

1 Assigned frequency

2c _____
Date of putting into use

3 _____
Call sign (Identification)

_____	For I.F.R.B. use

4a _____
Name of transmitting station

4b _____
Country

4c _____
Longitude and latitude of the transmitter site

Locality(ies) or area(s) with which communication is established 5a	Length of circuit (km) 5b	Class of station and nature of service 6	Class of emission, necessary bandwidth and description of transmission	Power (in kW) P _c P _m P _p P _e 8	Transmitting antenna characteristics			Maximum hours of operation of the circuit to each locality or area (G.M.T.) 10	Megacycle order of the other frequencies normally utilized for the same circuit 11	Supplementary information
					Azimuth of maximum radiation 9a	Angular width of radiation main lobe 9b	Antenna gain (db) 9c			

12a _____ Operating Administration or Company

12b _____ Name and postal address } of administration
_____ Telegraphic address } (Article 15)

Regional or service agreement _____ COORD/ _____

Other information:

* The actual size of the notice is a matter for individual administrations.

Section D. Form of Notice

Section E. General Instructions

1. A separate notice shall be sent to the International Frequency Registration Board for notifying :
 - Each new frequency assignment,
 - Any change in the characteristics of a frequency assignment recorded in the Master International Frequency Register (hereinafter called the *Master Register*),
 - Any total deletion of a frequency assignment recorded in the Master Register.
2. Frequencies prescribed by these Regulations for common use, such as 500 kc/s, or 2 182 kc/s, should not be notified (see No. 488).
3. Separate entries, in Columns 5a to 10, should be made for the various characteristics when they do not apply to the assignment as a whole, for instance when the class of emission or the power differ according to the localities or areas of reception.
4. When submitting notices for television broadcasting stations in Region 1, separate notices shall be submitted for the sound and vision channels. In such cases, the notice shall relate to the sound and vision carrier frequencies.

I. General Notes

- (a) The name of the notifying administration should be indicated.
- (b) Indicate in this box by the letter " X " when the notice reflects :
 - the first use of a frequency by a station,
 - or
 - the first use of an additional frequency by a station.
- (c) Indicate in this box by the letter " X " when the notice reflects a change in the characteristics of a frequency assignment recorded in the Master Register.
 - (1) In the case where existing particulars (including the frequency) are changed, the new characteristics in the appropriate place should

be underlined ; the original characteristics which have been changed should be shown in brackets underneath or at the side.

- (2) In the case where the change is an addition to existing particulars, the additional characteristics should be shown in the appropriate place and should be underlined.
 - (3) In the case where the change is a cancellation of a particular characteristic or characteristics, this should be shown in the appropriate place by a dash and, underneath or at the side, the characteristics which have been cancelled should be shown in brackets.
- (d) Indicate in this box by the letter "X" when the notice reflects a deletion of an assignment, in all of its notified characteristics.
- (e) The serial number of the notice and the date on which the notice is sent to the Board shall be shown here.

**II. Notes Concerning Information to be Entered in the Notice
Pertaining to Specific Columns of the Master Register**

Column 1 Assigned frequency

1. Indicate the assigned frequency as defined in Article 1 *, in kc/s up to 30 000 kc/s inclusive, and in Mc/s above 30 000 kc/s.
2. *This information is a basic characteristic.*

Column 2c Date of putting into use.

1. In the case of a new assignment, insert the date (actual or foreseen, as appropriate) of putting the frequency assignment into use.
2. Whenever the assignment is changed in any of its basic characteristics, as defined in this Appendix except in the case of a change in Columns 3, 4a or 11, then the date to

* For television broadcasting stations in Region 1, the frequencies to be notified are those of the sound and vision carriers.

be indicated shall be that of the latest change (actual or foreseen, as appropriate).

3. *This information is a basic characteristic.*

Column 3 Call sign (Identification)

1. Indicate the call sign or other identification used in accordance with Article 19.
2. *This information is a basic characteristic, except for stations referred to in Nos. 490 and 735.1 or when the frequency assignment is used for reception in the circumstances described in No. 487.*

Column 4 Name and location of transmitting station

- 4a Indicate the name of the locality by which the transmitting station is known or in which it is situated.
- 4b Indicate the country in which the station is located. Symbols from the Preface to the International Frequency List should be used.
- 4c Indicate the geographical co-ordinates (in degrees and minutes) of the transmitter site.

However, when the frequency assignment is used for reception in the circumstances described in No. 487, the indication to be given in Column 4 is as follows :

- 4a The letter " R ".
- 4b The country in which the receiving land station is located.
- 4c The geographical co-ordinates (in degrees and minutes) of the site of the receiving land station.

The information to be supplied for Columns 4a, 4b and 4c is a basic characteristic. However, for stations referred to

in No. 490 only the information to be supplied in Column 4b is a basic characteristic.

Column 5a Locality(ies) or area(s) with which communication is established.

1. Indicate in this column only the locality(ies) or area(s) to which the frequency is normally used.
2. For fixed stations, indicate the name of the locality by which the receiving station is known or in which it is situated.
 - a) Reception points may be grouped and entered collectively as areas in this column if all other basic characteristics of the frequency assignment are the same with respect to each such point and provided the area is well defined and sufficiently small to make it easy to forecast the conditions of the use of the frequency from the propagation point of view.
 - b) Similarly, in the case of one-way simultaneous transmissions to multiple points, representative points outlining the area being served may be indicated, but it should be specified as supplementary information that this is a simultaneous transmission.
 - c) In the case of a network composed of stations intercommunicating on the same frequency, the symbol ZN shall be entered in Column 5a. When the same frequency is used for two or more networks of the same administration, each network should be identified by a separate letter following the network symbol ZN, e.g. ZN-A, ZN-B, etc.
 - d) In the case of a network, as well as in the case where a frequency is used in a specific area by numerous stations under the jurisdiction of the same administration, it is necessary to notify only sufficient stations to define the

area of operation, provided that that area is well defined and sufficiently small to make it easy to forecast the conditions of the use of the frequency from the propagation point of view.

3. For land, radionavigation land, radiolocation land and standard frequency stations, and ground-based stations in the meteorological aids service, it is not necessary to indicate any information in this column.
4. For broadcasting stations, the areas of reception should be indicated. Each area should be either a country or one of the zones indicated on the map annexed to this Appendix.
5. For reception in the circumstances described in No. 487, the name of the locality by which the receiving land station is known or in which it is situated should be indicated.
6. In the case of a notification under No. 490 in a frequency band above 28 000 kc/s, each area in which the particular frequency is used should be clearly defined in order to assist co-ordination with other administrations.
7. *This information is a basic characteristic, except for paragraph 3 above.*

Column 5b Length of circuit (km)

1. The length of the circuit in km should be indicated in this column.
2. For reception in the circumstances described in No. 487, the maximum distance between the mobile stations and the receiving land station should be indicated.

3. This information is not a basic characteristic *except in the case of paragraph 2 above, and in the case of land, radio-navigation land, radiolocation land and standard frequency stations. In these latter cases, the distances shown shall represent the service ranges.*

Column 6 Class of station and nature of service

1. Indicate the class of station and nature of service performed, using the symbols shown in Appendix 10.
2. When the frequency assignment is used for reception in the circumstances described in No. 487, the class of station and nature of service applicable to the mobile stations should be indicated.
3. *This information is a basic characteristic.*

Column 7 Class of emission, necessary bandwidth and description of transmission.

1. Indicate, for each locality or area of reception shown in Column 5a, the class of emission, necessary bandwidth and description of transmission, in accordance with Article 2 and Appendix 5.
2. When the frequency assignment is used for reception in the circumstances described in No. 487, the particulars to be indicated are those applicable to the mobile stations.
3. *This information is a basic characteristic.*

Column 8 Power (in kW)

1. The power supplied to the antenna transmission line shall be notified as follows, according to the class of emission :

- a) Carrier power (P_c) for A3 sound broadcasting (see No. 97);
 - b) Mean power (P_m) for other amplitude modulated emissions using unkeyed full carrier, and for all frequency modulated emissions (see No. 96);
 - c) Peak envelope power (P_p) for all classes of emission other than those referred to in a) or b), including A5 television (vision) (see No. 95).
2. In the frequency bands above 28 000 kc/s, except for the notices referred to in No. 490, the power notified may be either the effective radiated power (see No. 98) or the power supplied to the antenna transmission line. In the latter case, the antenna gain (Column 9c) is a basic characteristic.
 3. The appropriate symbol P_c , P_m or P_p shall follow the indication of the value of the power. In cases where the effective radiated power is notified, this symbol shall be followed by the letter "e".
 4. The power normally used to each locality or area of reception shown in Column 5a shall be indicated.
 5. When the frequency assignment is used for reception in the circumstances described in No. 487, the power of the mobile stations should be indicated. If not all of the stations use the same power, the highest power should be indicated.
 6. *This information is a basic characteristic.*

Column 9 Transmitting antenna characteristics

Column 9a Azimuth of maximum radiation

1. If a directive transmitting antenna is used, indicate the azimuth of maximum radiation of the transmitting antenna in degrees (clockwise) from True North.
2. If a transmitting antenna with non-directional characteristics is used, insert "ND" in this column.
3. *This information is a basic characteristic, except for stations referred to in No. 490 or when the frequency assignment is used for reception in the circumstances described in No. 487.*

Columns 9b and 9c

If the radiation characteristics of the antenna concerned differ from those recommended by the C.C.I.R., the following information should be notified in Columns 9b and 9c :

Column 9b Angular width of radiation main lobe

The total angle in the horizontal plane, in degrees, within which the power radiated in any direction does not fall more than 6 db below the power radiated in the direction of maximum radiation, should be indicated.

Column 9c Antenna gain (db)

1. The relative gain of the antenna in the direction of maximum radiation for the assigned frequency should be indicated (see No. 101).
2. *In the frequency bands above 28 000 kc/s, the antenna gain is a basic characteristic in the case where the power notified in Column 8 is the power supplied to the antenna transmission line.*

It is not a basic characteristic if the effective radiated power is notified in Column 8.

Column 10 Maximum hours of operation of the circuit to each locality or area (G.M.T.)

1. When the frequency assignment is used for reception in the circumstances described in No. 487, the maximum hours of operation are those relating to the mobile stations.
2. As complementary information, indicate by the letter "I" any part of the period during which the operation of the circuit is intermittent.
3. *This information is a basic characteristic, except for paragraph 2 above.*

Column 11 Megacycle order of the other frequencies normally utilized for the same circuit.

1. If the notified frequency is the only frequency used for the particular circuit, the indication "Nil" shall be inserted in this column.
2. In the case of a meteorological or press broadcast transmission intended to cover a large area, the separate notice made for each frequency assignment required for transmission to each specific part of this area should indicate "Nil" in this column, subject to the condition that the specific area notified in Column 5a satisfies the conditions laid down in sub-paragraph 2a) relating to that column.
3. In cases other than those mentioned in paragraphs 1 and 2, the megacycle order of the other frequencies normally used for the circuit over the whole of the solar cycle shall be indicated. For this purpose, the megacycle order shall be calculated according to the following ranges :

Range	Megacycle Order
4 000 - 5 999 kc/s	5
6 000 - 7 999 kc/s	7
⋮	⋮
26 000 - 27 999 kc/s	27

4. *This information is a basic characteristic for fixed stations between 4 000 and 28 000 kc/s.*

Column 12a Operating Administration or Company *

This information is not a basic characteristic, but it is recommended it be supplied in cases where the same agency operates in more than one country.

Column 12b Postal and telegraphic address of the administration responsible for the station.*

1. The addresses required are those to which communication should be sent on urgent matters regarding interference, quality of emissions and questions referring to the technical operation of the circuit (see Article 15).
2. This information is not a basic characteristic.

Supplementary Information

Any supplementary information supplied by the administration should be indicated within the frame provided on the notice.

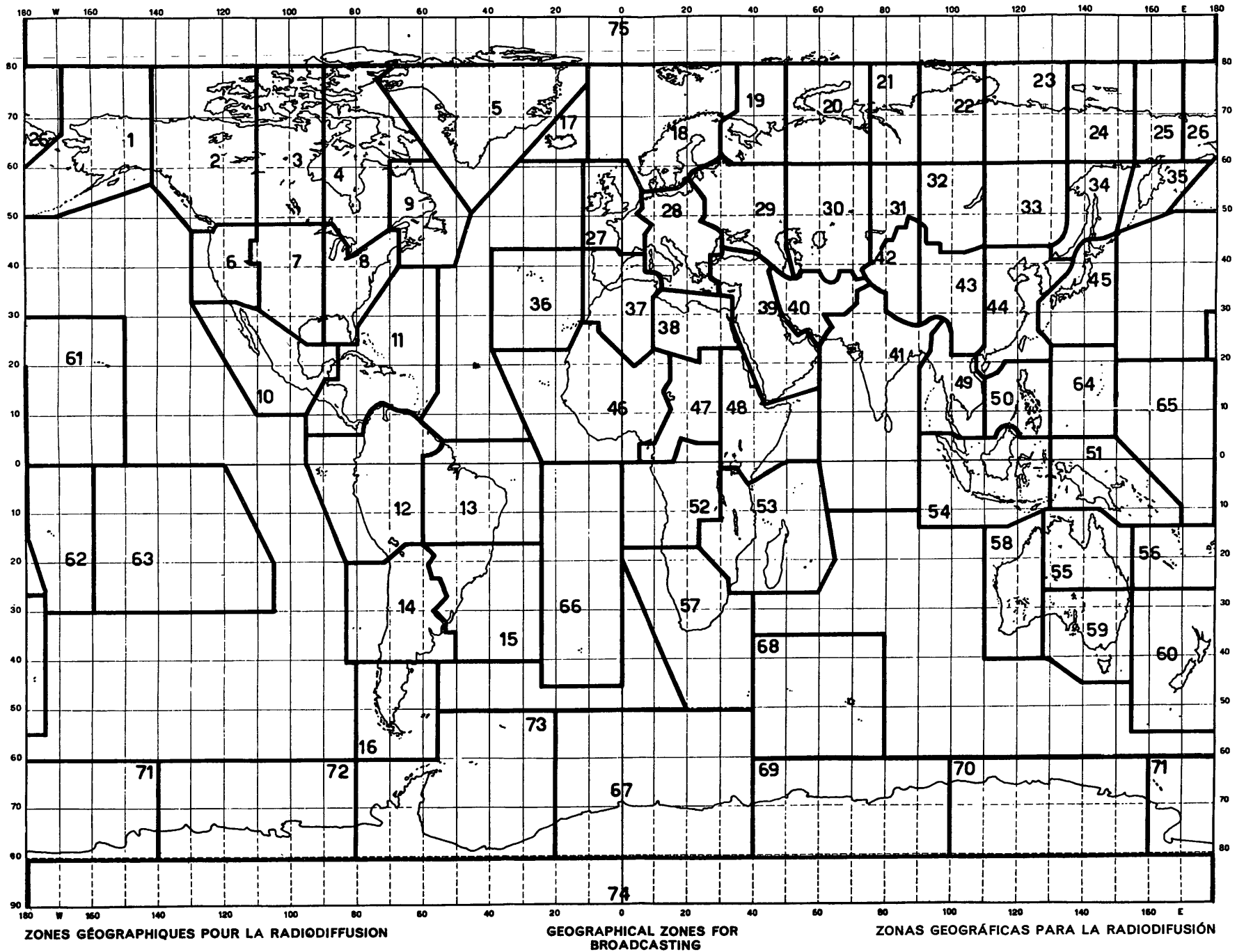
1. If the assignment is made in application of a regional or service agreement, the relevant agreement shall be indicated in the appropriate place; otherwise, insert the indication " Nil ".
2. Indicate after the symbol COORD/---- the name of any administration with which co-ordination has been effected for the use of the frequency; if no co-ordination has been effected, the indication " Nil " should be inserted. In the case of a notification under No. 490 in a frequency band above 28 000 kc/s, the area or areas of the actual agreed use to which the co-ordination refers should be indicated.

* Where this information already appears in the Preface to the International Frequency List, the appropriate reference number or letter may be used.

3. In any case where there are one or more reference frequencies in a particular transmission (e.g. in the case of (a) the frequency of the reduced carrier in an independent or single sideband emission, and (b) the frequencies of the sound and vision carriers in a television emission), such reference frequencies shall be supplied. In the case of television broadcasting stations in Region 1, each notice shall include, as supplementary information, both the frequency of the other carrier and the assigned frequency. For stations in the Aeronautical Mobile (R) Service using permitted emissions other than DSB, the reference frequency together with the appropriate centre frequency of the channel listed in the Allotment Plan in Appendix 27 shall be supplied as supplementary information.

4. Any other information which the administration considers to be relevant should be indicated, such as, for example, an indication that the assignment concerned would be operating in accordance with No. 115 of these Regulations, or information concerning the use of the notified frequency if such use is restricted or if the frequency is not used during all the time which is possible according to propagation conditions.

5. Only the information specified in paragraph 3 above is a basic characteristic ; it is recommended, however, that the information under paragraphs 1 and 2 above be supplied. However, in the case of stations in the fixed or mobile service referred to in No. 492A, the name of any administration with which co-ordination of the use of the frequency has been sought and the name of any administration with which such co-ordination has been effected are basic characteristics.



APPENDIX 1A

Spa

Notices Relating to Stations in the Space and Radio Astronomy Services

(See Article 9A)

Section A. General Instructions

1. A separate notice in a form convenient to the notifying administration shall be sent to the International Frequency Registration Board for notifying:

- each new frequency assignment,
- any change in the characteristics of a frequency assignment recorded in the Master International Frequency Register (hereinafter called the Master Register),
- any total deletion of a frequency assignment recorded in the Master Register.

2. When submitting notices under No. 639AA, for earth and space transmitting assignments, and under No. 639AB, for space and earth receiving assignments, separate notices shall be submitted to the Board. In the case of a passive satellite system, only earth transmitting and receiving assignments shall be notified.

3. In the case of a satellite system employing multiple space stations with the same general characteristics:

- for stationary satellites, a separate notice shall be submitted for each space station; and
- for non-stationary satellites, one notice covering all the space stations may be submitted.

4. The following information should be shown on the notice:
- a) the serial number of the notice and the date on which the notice is sent to the Board;
 - b) the name of the notifying administration;
 - c) sufficient data to identify the particular satellite system in which the earth or space station will operate;
 - d) whether the notice reflects
 - 1) the first use of a frequency by a station,
 - 2) the first use of an additional frequency by a station,
 - 3) a change in the characteristics of a frequency assignment recorded in the Master Register (indicate whether the change is a replacement, addition or deletion of existing characteristics), or
 - 4) a deletion of an assignment in all of its notified characteristics;
 - e) any other information which the administration considers to be relevant, e.g., any special channelling arrangements or methods of modulation, the degree of terrain shielding throughout all azimuthal angles for the earth stations, an indication that the assignment concerned would be operating in accordance with No. 115, information concerning the use of the notified frequency if such use is restricted, or, in the case of notices pertaining to space stations, if the transmissions of the station are to be permanently switched off after a certain period.

Section B. Basic Characteristics to be furnished in Notices relating to Frequencies used by Earth Stations for transmitting

Item 1 Assigned frequency

Indicate the assigned frequency as defined in Article 1, in kc/s up to 30 000 kc/s inclusive, and in Mc/s above 30 000 kc/s.

Item 2 Date of putting into use

a) In the case of a new assignment, indicate the date (actual or foreseen, as appropriate) of putting the frequency assignment into use.

b) Whenever the assignment is changed in any of its basic characteristics, as shown in this Section (except in the case of a change in *Items 3* or *4 a)*), the date to be given shall be that of the latest change (actual or foreseen, as appropriate).

Item 3 Call sign (Identification)

Indicate the call sign or other identification used in accordance with Article 19.

Item 4 Identity and location of the earth station

a) Indicate the name by which the station is known or the name of the locality in which it is situated.

b) Indicate the country in which the station is located. Symbols from the Preface to the International Frequency List should be used.

c) Indicate the geographical co-ordinates (in degrees and minutes) of the transmitter site.

Item 5 Station(s) with which communication is to be established

Identify the associated receiving space station(s) by reference to the notification thereof or in any other appropriate manner, or, in the case of a passive satellite, the identity of the satellite and the location of the receiving earth station(s).

Item 6 Class of station and nature of service

Indicate the class of station and nature of service performed, using the symbols shown in Appendix 10.

Item 7 Class of emission, necessary bandwidth and description of transmission

a) Indicate the class of emission, necessary bandwidth and description of transmission, in accordance with Article 2 and Appendix 5.

b) In any case where there are one or more reference frequencies in a particular emission, indicate such frequencies.

Item 8 Power (kW)

The power supplied to the antenna shall be notified as follows, according to the class of emission:

— Mean power (P_m) for amplitude modulated emissions using unkeyed full carrier, and for all frequency modulated emissions (see No. 96);

— Peak envelope power (P_p) for all classes of emission other than those referred to above (see No. 95).

Item 9 Transmitting antenna characteristics

a) Indicate in degrees from the horizontal plane the planned minimum operating angle of elevation of the antenna.

b) Indicate in degrees, clockwise from True North, the planned range of azimuthal angles.

c) Indicate the beamwidth, in degrees, between the half power points (describe in detail if not symmetrical).

d) Indicate the isotropic gain (db) of the antenna in the direction of maximum radiation (see No. 100).

e) Indicate the maximum isotropic gain (db) of the antenna in the horizontal plane with the antenna at any angle of elevation above the minimum angle of elevation (see No. 100).

f) Indicate the height (metres) of the antenna above mean sea level.

Item 10 Maximum hours of operation

Indicate in G.M.T. the maximum hours of operation on the frequency shown in *Item 1*.

Item 11 Co-ordination

Indicate the name of any administration with which co-ordination has been effected for the use of this frequency, and, if appropriate, the name of any administration with which co-ordination has been sought but not effected.

Item 12 Operating Administration or Company

Indicate the identity of the operating administration or company and the postal and telegraphic addresses of the administration to which communication should be sent on urgent matters regarding interference, quality of emissions and questions referring to the technical operation of stations (see Article 15).

Section C. Basic Characteristics to be furnished in Notices relating to Frequencies to be received by Earth Stations

Item 1 Assigned frequency

Indicate the assigned frequency of the emission to be received, as defined in Article 1, in kc/s up to 30 000 kc/s inclusive, and in Mc/s above 30 000 kc/s.

Item 2 Date of putting into use

a) In the case of a new assignment, indicate the date (actual or foreseen, as appropriate) when reception of the assigned frequency begins.

b) Whenever the assignment is changed in any of its basic characteristics, as shown in this Section (except in the case of a change in *Item 3 a)*), the date to be given shall be that of the latest change (actual or foreseen, as appropriate).

Item 3 Identity and location of the receiving earth station

- a) Indicate the name by which the receiving earth station is known or the name of the locality in which it is situated.
- b) Indicate the country in which the receiving earth station is located. Symbols from the Preface to the International Frequency List should be used.
- c) Indicate the geographical co-ordinates (in degrees and minutes) of the receiver site.

Item 4 Associated transmitting station(s)

Identify the associated transmitting space station(s) by reference to the notification thereof or in any other appropriate manner, or, in the case of a passive satellite, the identity of the satellite(s) and the associated transmitting earth station(s).

Item 5 Class of station and nature of service

Indicate the class of station and nature of service performed, using the symbols shown in Appendix 10.

Item 6 Class of emission, necessary bandwidth and description of the transmission to be received

- a) Indicate the class of emission, necessary bandwidth and description of the transmission to be received, in accordance with Article 2 and Appendix 5. Indicate also the over-all receiver bandwidth at which the receiver response is 6 db below maximum.
- b) In any case where there are one or more reference frequencies in a particular received emission, indicate such frequencies.

Item 7 Earth station receiving antenna characteristics

- a) Indicate in degrees from the horizontal plane the planned minimum operating angle of elevation of the antenna.

- b) Indicate in degrees, clockwise from True North, the planned range of azimuthal angles.
- c) Indicate the beamwidth, in degrees, between the half power points (describe in detail if not symmetrical).
- d) Indicate the isotropic gain (db) of the antenna in the direction of the main lobe (see No. 100).
- e) Indicate the maximum isotropic gain (db) of the antenna in the horizontal plane with the antenna at any angle of elevation above the minimum angle of elevation (see No. 100).
- f) Indicate the height (metres) of the antenna above mean sea level.

Item 8 Maximum hours of reception

Indicate in G.M.T. the maximum hours of reception of the frequency shown in *Item 1*.

Item 9 Co-ordination

Indicate the name of any administration with which co-ordination has been effected for the use of the frequency, and, if appropriate, the name of any administration with which co-ordination has been sought but not effected.

Item 10 Noise temperature

Indicate the over-all receiving system operating noise temperature (°K) under "quiet sky" conditions at the planned minimum operating angle of elevation of the antenna.

Item 11 Operating Administration or Company

Indicate the identity of the operating administration or company and the postal and telegraphic addresses of the administration to which communication should be sent on urgent matters regarding interference and questions referring to the technical operation of stations (see Article 15).

Section D. Basic Characteristics to be furnished in Notices relating to Frequencies used by Space Stations for transmitting

Item 1 Assigned frequency

Indicate the assigned frequency as defined in Article 1, in kc/s up to 30 000 kc/s inclusive, and in Mc/s above 30 000 kc/s.

Item 2 Date of putting into use

a) In the case of a new assignment, indicate the date (actual or foreseen, as appropriate) of putting the frequency assignment into use.

b) Whenever the assignment is changed in any of its basic characteristics, as shown in this Section (except in the case of a change in *Items 3* or *4*), the date to be given shall be that of the latest change (actual or foreseen, as appropriate).

Item 3 Call sign (Identification)

Indicate the call sign or other identification used in accordance with Article 19.

Item 4 Identity of the space station(s)

Indicate the identity of the space station(s).

Item 5 Area of coverage

Indicate the area of intended coverage or the name of the locality and country in which the associated receiving station(s) is located.

Item 6 Orbital information

Indicate, where applicable, the angle of inclination of the orbit, the period of the object in space and the altitudes of

apogee and perigee of the space station(s) in kilometres. In the case of a space station aboard a stationary satellite, indicate the mean geographical longitude of the projection of the satellite's position on the surface of the Earth.

Item 7 Class of station and nature of service

Indicate the class of station and nature of service performed, using the symbols shown in Appendix 10.

Item 8 Class of emission, necessary bandwidth and description of transmission

a) Indicate the class of emission, necessary bandwidth and description of transmission, in accordance with Article 2 and Appendix 5.

b) In any case where there are one or more reference frequencies in a particular emission, indicate such frequencies.

Item 9 Power (Watts)

The power supplied to the antenna shall be notified as follows, according to the class of emission:

- Mean power (P_m) for amplitude modulated emissions using unkeyed full carrier, and for all frequency modulated emissions (see No. 96);
- Peak envelope power (P_p) for all classes of emission other than those referred to above (see No. 95).

Item 10 Transmitting antenna characteristics

a) Indicate the beamwidth, in degrees, between the half power points (describe in detail if not symmetrical).

b) Indicate the isotropic gain (db) of the antenna in the direction of maximum radiation (see No. 100).

c) For a stationary satellite employing directional antennae, indicate the point on the Earth's surface towards which the antenna is directed and the accuracy of maintaining this direction.

Item 11 Maximum hours of operation

Indicate in G.M.T. the maximum hours of operation on the frequency shown in *Item 1*.

Item 12 Number of space stations

In the case of non-stationary satellites, indicate the number of space stations covered by the notice.

Item 13 Operating Administration or Company

Indicate the identity of the operating administration or company and the postal and telegraphic addresses of the administration to which communication should be sent on urgent matters regarding interference, quality of emissions and questions referring to the technical operation of stations (see Article 15).

Section E. Basic Characteristics to be furnished in Notices relating to Frequencies to be received by Space Stations

Item 1 Assigned frequency

Indicate the assigned frequency of the emission to be received, as defined in Article 1, in kc/s up to 30 000 kc/s inclusive, and in Mc/s above 30 000 kc/s.

Item 2 Date of putting into use

a) In the case of a new assignment, indicate the date (actual or foreseen, as appropriate) when reception of the assigned frequency begins.

b) Whenever the assignment is changed in any of its basic characteristics, as shown in this Section (except in the case of a change in *Item 3*), the date to be given shall be that of the latest change (actual or foreseen, as appropriate).

Item 3 Identity of the receiving space station(s)

Indicate the identity of the receiving space station(s).

Item 4 Orbital information

Indicate, where applicable, the angle of inclination of the orbit, the period of the object in space and the altitudes of apogee and perigee of the space station(s) in kilometres. In the case of a space station on board a stationary satellite, indicate the mean geographical longitude of the projection of the satellite's position on the surface of the Earth.

Item 5 Associated transmitting earth station(s)

Identify the associated transmitting earth station(s) by reference to the notification thereof or in any other appropriate manner.

Item 6 Class of station and nature of service

Indicate the class of station and nature of service performed, using the symbols shown in Appendix 10.

Item 7 Class of emission, necessary bandwidth and description of the transmission(s) to be received

a) Indicate the class of emission, necessary bandwidth and description of the transmission(s) to be received, in accordance with Article 2 and Appendix 5. Indicate also the over-all receiver bandwidth at which the receiver response is 6 db below maximum. In the case of a communication-satellite space station, designed

to receive as a composite signal two or more emissions in contiguous channels and transmitted from one or more earth stations, the description should state the number of such emissions, the spacing between their assigned frequencies and the total bandwidth collectively encompassed by them.

b) In any case where there are one or more reference frequencies in a particular received emission, indicate such frequencies.

Item 8 Space station receiving antenna characteristics

a) Indicate the beamwidth in degrees, between the half power points (describe in detail if not symmetrical).

b) Indicate the isotropic gain (db) of the antenna in the direction of the main lobe (see No. 100).

c) For a stationary satellite employing directional antennae, indicate the point on the Earth's surface towards which the antenna is directed and the accuracy of maintaining this direction.

Item 9 Maximum hours of reception

Indicate in G.M.T. the maximum hours of reception of the frequency shown in *Item 1*.

Item 10 Number of space stations

In the case of non-stationary satellites, indicate the number of space stations covered by the notice.

Item 11 Noise temperature

Indicate the over-all receiving system operating noise temperature (°K).

Item 12 Operating Administration or Company

Indicate the identity of the operating administration or company and the postal and telegraphic addresses of the administration to which communication should be sent on urgent matters regarding interference and questions referring to the technical operation of stations (see Article 15).

**Section F. Basic Characteristics to be furnished in Notices relating to
Frequencies to be received by Radio Astronomy Stations**

Item 1 Observed frequency

Indicate the centre of the frequency band observed, in kc/s up to 30 000 kc/s inclusive, and in Mc/s above 30 000 kc/s.

Item 2 Date of putting into use

a) Indicate the date (actual or foreseen, as appropriate) when reception of the frequency band begins.

b) Whenever there is a change in any of the basic characteristics, as shown in this Section (except in the case of a change in *Item 3 b)*), the date to be given shall be that of the latest change (actual or foreseen, as appropriate).

Item 3 Name and location of the station

a) Indicate the letters " RA ".

b) Indicate the name by which the station is known or the name of the locality in which it is situated or both.

c) Indicate the country in which the station is located. Symbols from the Preface to the International Frequency List should be used.

d) Indicate the geographical co-ordinates (in degrees and minutes) of the station site.

Item 4 Bandwidth

Indicate the width of the frequency band observed by the station.

Item 5 Antenna characteristics

Indicate the antenna type and dimensions, effective area and angular coverage in azimuth and elevation.

Item 6 Maximum hours of reception

Indicate in G.M.T. the maximum hours of reception of the frequency band shown in *Item 1*.

Item 7 Noise temperature

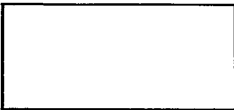
Indicate the over-all receiving system noise temperature (°K).

Item 8 Class of observations

Indicate the class of observations to be taken on the frequency band shown in *Item 1*. Class A observations are those in which the sensitivity of the equipment is not a primary factor. Class B observations are those of such a nature that they can be made only with advanced low-noise receivers using the best techniques.

Item 9 Operating Administration or Company

Indicate the identity of the operating administration or company and the postal and telegraphic addresses of the administration to which communication should be sent on urgent matters regarding interference and questions referring to the technical operation of stations (see Article 15).



Form of Notice *



For Use when Submitting to the International Frequency Registration Board
a Seasonal High Frequency Broadcasting Schedule
or a Change thereto

6 Class of station

(a) Notifying administration

(b) Assignment for the particular season

(c) Change of characteristics of an assignment for the season

(d) Deletion of an assignment for the season

(e) Notice No.: _____
Date : _____

<input type="text"/> kc/s	<input type="text"/> kc/s	<input type="text"/> Mc/s	Season: MARCH MAY SEPT. NOV. Year : <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Other date: <input type="text"/>	<input type="text"/>
1a Assigned frequency	1b Alternative frequency	1c Frequency band	2c Date of putting into use in the particular season	3 Call sign (Identification)

<input type="text"/>	<input type="text"/>	<input type="text"/>
4a Name of transmitting station	4b Country	4c Longitude and latitude of the transmitter site

Zone(s) or area(s) of reception	Class of emission and necessary bandwidth	Power (kW)	Transmitting antenna characteristics					Hours of operation (G.M.T.)	Other frequencies simultaneously utilized for same programme to the same area(s)	Supplementary information
			Azimuth of max. radiation	Angular width of radiation main lobe	Antenna gain in db	Angle of elevation	Type of antenna			
5a	7	8	9a	9b	9c	9d	9e	10	11	

12b _____ Name and postal address } of administration
_____ Telegraphic address } (Article 15)

COORD/ _____
Other information: _____

* The actual size of the notice is a matter for individual administrations

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Section A. Form of Notice
APPENDIX 2
(See Article 10)

AP-2-1

Section B. General Instructions

1. A separate notice shall be sent to the I.F.R.B. for notifying :
 - Each frequency assignment to be put into use for a particular season ;
 - any change in the characteristics of a frequency assignment in the High Frequency Broadcasting Schedule, for the season ;
 - any deletion of a frequency assignment in the High Frequency Broadcasting Schedule, for the season.

2. Separate entries, in Columns 5a and 8 to 11, should be made for the various characteristics when they do not apply to the assignment as a whole, for instance when the power, antenna characteristics or hours of operation differ according to the zones or areas of reception.

I. General Notes

- (a) The name of the notifying administration should be indicated.
- (b) Indicate in this box by the letter "X" when the notice reflects the first frequency usage by a station in a particular season.
- (c) Indicate in this box by the letter "X" when the notice reflects a change in the characteristics of a frequency assignment in the High Frequency Broadcasting Schedule, for the season.
 - 1) In the case where existing particulars are changed, the new characteristics in the appropriate place should be underlined ; the original characteristics which have been changed should be shown in brackets underneath or at the side.
 - 2) In the case where the change is an addition to existing particulars, the additional characteristics should be shown in the appropriate place and should be underlined.
 - 3) In the case where the change is a cancellation of a particular characteristic or characteristics, this should be shown in the appropriate place by a dash and, underneath or at the side, the characteristics which have been cancelled should be shown in brackets.

- (d) Indicate in this box by the letter "X" when the notice reflects a deletion of an assignment, in all of its notified characteristics, for the season.
- (e) The serial number of the notice and the date on which the notice is sent to the Board shall be shown here.

**II. Notes Concerning Information to be Entered
in the Specific Columns of the Notice**

Column 1 Frequency

- 1a Indicate the assigned frequency as defined in Article 1, in kc/s ;
- 1b indicate any suggested alternative frequency or frequencies in kc/s, or
- 1c the desired band in Mc/s, if a specific frequency is not given under 1a and 1b above.

Column 2c Date of putting into use, in the particular season

1. If the assignment is to be brought into use on the implementation date of the seasonal schedule, indicate the last two digits of the year in the box(es) of the season(s) for which the assignment is to be used.
2. If the assignment is to be brought into use or changed by any date other than the implementation date of the particular seasonal schedule, this date shall be entered in the space provided.

Column 3 Call sign (Identification)

Indicate the call sign or other station identification used in accordance with Article 19.

Column 4 Name and location of transmitting station

- 4a Indicate the name of the locality by which the transmitting station is known or in which it is situated.

- 4b Indicate the country in which the station is located. Symbols from the Preface to the International Frequency List should be used.
- 4c Indicate the geographical co-ordinates (in degrees and minutes) of the transmitter site.

Column 5a Zone(s) or area(s) of reception

1. Indicate in this column the zone(s) of reception as shown in the map annexed to Appendix 1.
2. If the reception area is smaller than an entire zone, it should be indicated as a country or part of a country using symbols from the Preface to the International Frequency List, as far as possible.
3. Indicate, as supplementary information, the maximum service range (in km) when this is considered necessary.

Column 7 Class of emission and necessary bandwidth

Indicate the class of emission and necessary bandwidth in accordance with Article 2 and Appendix 5.

Column 8 Power (in kW)

Indicate the carrier power supplied to the transmission line.

Transmitting Antenna Characteristics

Column 9a Azimuth of maximum radiation

1. If a directive transmitting antenna is used, indicate the azimuth of maximum radiation of the transmitting antenna in degrees (clockwise) from True North.

2. If a transmitting antenna with non-directional characteristics is used, insert "ND" in this column.

Column 9b Angular width of radiation main lobe

The total angle in the horizontal plane, in degrees, within which the power radiated in any direction does not fall more than 6 db below the power radiated in the direction of maximum radiation, should be indicated.

Column 9c Antenna gain (db)

The relative gain of the antenna in the direction of maximum radiation for the assigned frequency should be indicated.

Column 9d Angle of elevation

The angle of the direction of maximum radiation in the vertical plane in degrees should be indicated.

Column 9e Type of antenna

The nomenclature of the C.C.I.R. book of "Antenna Diagrams" should be used wherever it is applicable as shown in a list at the end of this instruction (see III of this Section).

Column 10 Hours of operation (G.M.T.)

Column 11 Other frequencies simultaneously used for the same programme to the same area(s).

1. If the notified frequency is the only frequency used for the particular schedule, the indication "Nil" shall be inserted in this column.
2. In other cases, the other frequencies simultaneously used for the same programme to the same area shall be indicated.

Column 12b Postal and telegraphic address of administration responsible for the station. *

The addresses required are those to which communication should be sent on urgent matters regarding interference, quality of emissions, and questions referring to the technical operation (see Article 15).

Supplementary Information

Any other information supplied by the administration should be indicated in the space provided.

1. Indicate after the symbol COORD/--- the name of any administration with which co-ordination has been effected for the use of the frequency ; if no co-ordination has been effected, the indication " Nil " should be inserted.

2. Any other information which the administration considers to be relevant should be indicated, such as, for example, the maximum service range when this is less than 2 000 kms ; or information concerning the use of the notified frequency if such use is restricted ; or if the frequency is not used during all the hours indicated in Column 10, or on certain days of the week only ; or if synchronizing techniques are used.

III. Symbols for Type of Antenna

HOR	Horizontal non-directive antenna
VER	Vertical non-directive antenna

* Where this information already appears in the Preface to the International Frequency List, the appropriate reference number or letter may be used.

DP	Dipole
H	Horizontal
V	Vertical
R	With reflector
	(Example : DPHR means : Horizontal dipole with reflector)
<hr/>	
H	Horizontal dipole curtain antenna
R	With reflector curtain
S	Slewed antenna
/..	Number of half wave elements in each row
/..	Number of half wave elements in each stack (one above the other)
/..	Height above ground in full wavelengths of the bottom row of elements
S..	Angle of slew, if any
	(Example : HRS/4/3/2S15 means : Horizontal array with reflector curtain, 4 half wave elements in each row, 3 stacks of dipoles, bottom element 2 wavelengths above the ground, slewed with an angle of 15 degrees)
<hr/>	
RHO	Rhombic antenna
/..	Length of one side of the rhombus, in wavelengths
/..	Height of rhombus above ground, in wavelengths
/..	One half of the interior side angle of rhombus
	(Example : RHO/2.5/0.4/65 means : Rhombic antenna, length of one side 2.5 wavelengths, height above ground 0.4 wavelengths, one half of the interior side angle 65 degrees)
<hr/>	
TRO	Tropical broadcasting antenna
/..	Number of rows
/..	Height above the ground in wavelengths
	(Example : TRO/4/0.2 means : Tropical BC antenna with 4 rows (and 4 dipoles in each row) in a height of 0.2 wavelengths above the ground)

APPENDIX 3

Mar

Table of Frequency Tolerances *

(See Article 12)

1. Frequency tolerance is defined in Article 1 and is expressed in parts in 10^6 or, in some cases, in cycles per second.

2. The power shown for the various categories of stations is the mean power as defined in Article 1.

Frequency Bands (lower limit exclusive, upper limit inclusive) and Categories of Stations	Tolerances applicable until 1st January, 1966* to transmitters in use and to those to be installed before 1st January, 1964	Tolerances applicable to new transmitters installed after 1st January, 1964 and to all transmitters after 1st January, 1966*
	* 1st January, 1970 in the case of all tolerances marked with an asterisk.	
Band : 10 to 535 kc/s		
1. <i>Fixed Stations :</i>		
-10 to 50 kc/s	1 000	1 000
-50 to 535 kc/s	200	200
2. <i>Land Stations :</i>		
a) <i>Coast Stations:</i>		
-power 200 W or less	500	500
-power above 200 W	200	200
b) <i>Aeronautical Stations</i>	200 *	100 *

* Certain services may need tighter tolerances for technical and operational reasons.

Frequency Bands (lower limit inclusive, upper limit inclusive) and Categories of Stations	Tolerances applicable until 1st January, 1966* to transmitters in use and to those to be installed before 1st January, 1964	Tolerances applicable to new transmitters installed after 1st January, 1964 and to all transmitters after 1st January, 1966*
	* 1st January, 1970 in the case of all tolerances marked with an asterisk.	
3. Mobile Stations : a) Ship Stations b) Ship's Emergency Transmitters c) Survival Craft Stations d) Aircraft Stations 4. Radiodetermination Stations 5. Broadcasting Stations	1 000 a) 5 000 5 000 500 200 * 20 c/s	1 000 a) 5 000 5 000 500 100 * 10 c/s
Band : 535 to 1 605 kc/s <i>Broadcasting Stations</i>	20 c/s	10 c/s b)
Band : 1 605 to 4 000 kc/s 1. Fixed Stations : -power 200 W or less -power above 200 W 2. Land Stations — power 200 W or less — power above 200 W 3. Mobile Stations a) Ship Stations	100 50 100 50 200	100 50 100 h) 50 h) 200 i)

Frequency Bands (lower limit exclusive, upper limit inclusive) and Categories of Stations	Tolerances applicable until 1st January, 1966* to transmitters in use and to those to be installed before 1st January, 1964	Tolerances applicable to new transmitters installed after 1st January, 1964 and to all transmitters after 1st January, 1966*
	* 1st January, 1970 in the case of all tolerances marked with an asterisk.	
b) Survival Craft Stations	—	300
b A) Emergency Position- Indicating Radiobeacons	—	300
c) Aircraft Stations	200 *	100 *
d) Land Mobile Stations	200	200
4. <i>Radiodetermination Stations</i> :		
—power 200 W or less	100	100
—power above 200 W	50	50
5. <i>Broadcasting Stations</i>	50	20
Band : 4 to 29.7 Mc/s		
1. <i>Fixed Stations</i> :		
—power 500 W or less	100	50
—power above 500 W	30	15
2. <i>Land Stations</i> :		
a) <i>Coast Stations</i> :		
— power 500 W or less	50	50 h) l)
— power above 500 W and less than or equal to 5 kW	50 *	30 * h) l)
— power above 5 kW	50	15 h) l)

Frequency Bands (lower limit exclusive, upper limit inclusive) and Categories of Stations	Tolerances applicable until 1st January, 1966* to transmitters in use and to those to be installed before 1st January, 1964	Tolerances applicable to new transmitters installed after 1st January, 1964 and to all transmitters after 1st January, 1966*
	* 1st January, 1970 in the case of all tolerances marked with an asterisk.	
b) Aeronautical Stations: -power 500 W or less -power above 500 W	100 50	100 50
c) Base Stations: -power 500 W or less -power above 500 W	100 50	100 50
3. <i>Mobile Stations:</i>		
a) Ship Stations:		
1) Class A1 emissions		
— low traffic ships	200	200 <i>j)</i>
— high traffic ships	—	50 <i>j) m)</i>
2) Emissions other than Class A1		
— power 50 W or less	50 <i>c)</i>	50 <i>c) i) k)</i>
— power above 50 W	50	50 <i>i) k)</i>
b) Survival Craft Stations	200	200
c) Aircraft Stations	200 *	100 *
d) Land Mobile Stations	200	200
4. <i>Broadcasting Stations</i>	30	15

Frequency Bands (lower limit exclusive, upper limit inclusive) and Categories of Stations	Tolerances applicable until 1st January, 1966 * to transmitters in use and to those to be installed before 1st January, 1964	Tolerances applicable to new transmitters installed after 1st January, 1964 and to all transmitters after 1st January, 1966*
	* 1st January, 1970 in the case of all tolerances marked with an asterisk.	
Band : 29.7 to 100 Mc/s		
1. Fixed Stations :		
-power 200 W or less	200 *	50 *
-power above 200 W	200	30
2. Land Stations :		
-power 15 W or less	200	50
-power above 15 W	200	20
3. Mobile Stations :		
-power 5 W or less	200	100
-power above 5 W	200	50
4. Radiodetermination Stations		
	200	200
5. Broadcasting Stations (other than television) :		
-power 50 W or less	50	50
-power above 50 W	30	20
6. Broadcasting Stations (television sound and vision):		
-power 50 W or less	100	100
-power above 50 W	30	1 000 c/s

Frequency Bands (lower limit exclusive, upper limit inclusive) and Categories of Stations	Tolerances applicable until 1st January, 1966 * to transmitters in use and to those to be installed before 1st January, 1964	Tolerances applicable to new transmitters installed after 1st January, 1964 and to all transmitters after 1st January, 1966*
	* 1st January, 1970 in the case of all tolerances marked with an asterisk.	
Band : 100 to 470 Mc/s		
1. Fixed Stations :		
-power 50 W or less	100 *	50 *
-power above 50 W	100 *	20 *
2. Land Stations:		
a) Coast Stations	100	20 n)
b) Aeronautical Stations	100	50
c) Base Stations :		
-power 5 W or less	100	50
-power above 5 W	100	20
3. Mobile Stations:		
a) Ship Stations and Survival Craft Stations:		
— in the band 156-174 Mc/s	100	20 n)
-outside this band	100 d)	50 d)
b) Aircraft Stations		
	100	50
c) Land Mobile Stations:		
-power 5 W or less	100	50
-power above 5 W	100	20

Frequency Bands (lower limit exclusive, upper limit inclusive) and Categories of Stations	Tolerances applicable until 1st January, 1966 * to transmitters in use and to those to be installed before 1st January, 1964	Tolerances applicable to new transmitters installed after 1st January, 1964 and to all transmitters after 1st January, 1966*
	* 1st January, 1970 in the case of all tolerances marked with an asterisk.	
4. <i>Radiodetermination Stations</i>	200 * d) e)	50 * d) e)
5. <i>Broadcasting Stations (other than television)</i>	30	20
6. <i>Broadcasting Stations (television sound and vision):</i> -power 100 W or less -power above 100 W	100 30	100 1 000 c/s
Band : 470 to 2 450 Mc/s		
1. <i>Fixed Stations :</i> -power 100 W or less -power above 100 W	7 500 7 500	300 f) 100 g)
2. <i>Land Stations</i>	7 500	300
3. <i>Mobile Stations</i>	7 500	300
4. <i>Radiodetermination Stations</i>	7 500 e)	500 e)
5. <i>Broadcasting Stations (other than television)</i>	7 500	100

Frequency Bands (lower limit exclusive, upper limit inclusive) and Categories of Stations	Tolerances applicable until 1st January, 1966 * to transmitters in use and to those to be installed before 1st January, 1964	Tolerances applicable to new transmitters installed after 1st January, 1964 and to all transmitters after 1st January, 1966*
	* 1st January, 1970 in the case of all tolerances marked with an asterisk.	
6. Broadcasting Stations <i>(television, sound and vision)</i> in the band 470-960 Mc/s : –power 100 W or less –power above 100 W	7 500 7 500	100 1 000 c/s
Band : 2 450 to 10 500 Mc/s 1. <i>Fixed Stations :</i> –power 100 W or less –power above 100 W 2. <i>Land Stations</i> 3. <i>Mobile Stations</i> 4. <i>Radiodetermination Stations :</i>	7 500 7 500 7 500 7 500 7 500 e)	300 f) 100 g) 300 300 2 000 e)
Band : 10·5 to 40 Gc/s 1. <i>Fixed Stations</i> 2. <i>Radiodetermination Stations</i>	— —	500 7 500 e)

Notes Referring to Table of Frequency Tolerances

- a)* At the present time some administrations permit ship transmitters fulfilling the role of standby to a main transmitter not only for distress but also for traffic purposes to operate with a tolerance of 5 000. These administrations should make every effort to ensure that by 1st January, 1966, all ship transmitters operating in the band 10—535 kc/s, other than ship's emergency transmitters, have a frequency tolerance of 1 000.
- b)* In the area covered by the North American Regional Broadcasting Agreement (NARBA) the tolerance of 20 c/s may continue to be applied.
- c)* For ship transmitters, of power 50 W or less, using frequencies below 13 Mc/s in tropical regions, the tolerance of 50 can be increased to 200 since these transmitters are sometimes used in such regions in the same circumstances as those of the band 1 605—4 000 kc/s.
- d)* This tolerance is not applicable to survival craft stations operating on the frequency 243 Mc/s.
- e)* Where specific frequencies are not assigned to radar stations, the bandwidth occupied by the emissions of such stations shall be maintained wholly within the band allocated to the service and the indicated tolerance does not apply.
- f)* For transmitters using time division multiplex the tolerance of 300 may be increased to 500.
- g)* This tolerance applies only to such emissions for which the necessary bandwidth does not exceed 3 000 kc/s; for larger bandwidth emissions a tolerance of 300 applies.
- h)* For coast station single sideband radiotelephone transmitters the tolerance is 20 c/s.
- i)* For ship station single sideband radiotelephone transmitters the tolerance is 100 c/s (see also Appendix 17A).
- j)* A frequency tolerance of 50 parts in 10^6 shall be applicable, in the case of assignments made after 1 April 1969, to ship stations using the lowest or highest series of:
- 1) calling frequencies;
 - 2) working frequencies for low traffic and high traffic ships (see Appendix 15).
- k)* For ship station transmitters used for direct-printing telegraphy or for data transmissions, the tolerance is 100 c/s (with a maximum deviation of 40 c/s for short periods of the order of 15 minutes).
- l)* For coast station transmitters used for direct-printing telegraphy and for data transmissions the tolerance is 40 c/s.

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m) Applicable to new transmitters installed after 1 April 1969. Ship station transmitters installed before this date may continue to have a tolerance of 200 parts in 10^6 until 1 January 1973 from which date all high traffic ship station transmitters shall have a tolerance of 50 parts in 10^6 .

n) For coast and ship station transmitters put into service after 1 January 1973 a tolerance of 10 parts in 10^6 shall apply. This tolerance is applicable to all transmitters, including survival craft stations, after 1 January 1983.

APPENDIX 4

Table of Tolerances for the Levels of Spurious Emissions

(See Article 12)

1. The following table indicates the tolerances which shall apply to the mean power of any spurious emission supplied by a transmitter to the antenna transmission line.

2. Furthermore, spurious radiation from any part of the installation other than the antenna system, i.e., the antenna and its transmission line, shall not have an effect greater than would occur if this antenna system were supplied with the maximum permissible power at that spurious emission frequency.

3. These tolerances shall not, however, apply to ship's emergency transmitters or survival craft stations.

4. For technical or operational reasons, specific services may demand tolerances tighter than those specified in the Table.

5. The final date by which all equipment shall meet the tolerances specified in Column B is 1st January, 1970. Nevertheless, all administrations recognize the urgent need to implement Column B tolerances for all equipment at the earliest possible dates and will endeavour to ensure that necessary changes are made to all transmitters under their jurisdiction well before this date and wherever possible by 1st January, 1966.

6. No tolerance is specified for transmitters operating on fundamental frequencies above 235 Mc/s. For these transmitters the levels of spurious emissions shall be as low as practicable.

Fundamental Frequency Band	The mean power of any spurious emission supplied to the antenna transmission line shall not exceed the values specified as tolerances in Columns A and B below	
	A	B
	Tolerances applicable until 1st January, 1970 to transmitters now in use and to those installed before 1st January, 1964	Tolerances applicable to transmitters installed after 1st January, 1964 and to all transmitters after 1st January, 1970
Below 30 Mc/s	40 decibels below the mean power of the fundamental without exceeding the power of 200 milliwatts	40 decibels below the mean power of the fundamental without exceeding the power of 50 milliwatts. ^{1 2 3}
30 Mc/s to 235 Mc/s: for transmitters having mean power: — greater than 25 watts — 25 watts or less		{ 60 decibels below the mean power of the fundamental without exceeding 1 milliwatt ⁴ { 40 decibels below the mean power of the fundamental without exceeding 25 microwatts and without the necessity for reducing this value below 10 microwatts ⁴

¹ For transmitters of mean power exceeding 50 kilowatts and which operate below 30 Mc/s over a frequency range approaching an octave or more, a reduction below 50 milliwatts is not mandatory, but a minimum attenuation of 60 decibels shall be provided and every effort should be made to keep within the 50 milliwatts limit.

² For hand-portable equipment of mean power less than 5 watts which operates in the frequency band below 30 Mc/s, the attenuation shall be at least 30 decibels, but every effort should be made to attain 40 decibels attenuation.

³ For mobile transmitters which operate below 30 Mc/s any spurious emission shall be at least 40 decibels below the fundamental without exceeding the value of 200 milliwatts, but every effort should be made to keep within the 50 milliwatts limit wherever practicable.

⁴ For frequency modulated maritime mobile radio-telephone equipment which operates above 30 Mc/s, the mean power of any spurious emission falling in any other international maritime mobile channel, due to products of modulation, shall not exceed a limit of 10 microwatts and the mean power of any other spurious emission on any discrete frequency within the international maritime mobile band shall not exceed a limit of 2.5 microwatts. Where, exceptionally, transmitters of mean power above 20 watts are employed, these limits may be increased in proportion to the mean power of the transmitter.

APPENDIX 5

Examples of Necessary Bandwidths and Designations of Emissions

(See Article 2, Section II)

The necessary bandwidth may be determined by one of the following methods :

- a) use of the formulae included in the following Table which also gives examples of necessary bandwidths and designation of corresponding emissions ;
- b) computation in accordance with C.C.I.R. Recommendations ;
- c) measurement, in cases not covered by a) or b) above.

The value so determined should be used when the full designation of an emission is required.

However, the necessary bandwidth so determined is not the only characteristic of an emission to be considered in evaluating the interference that may be caused by that emission.

In the formulation of the Table, the following terms have been employed :

B_n = Necessary bandwidth in cycles per second.

B = Telegraph speed in bauds.

N = Maximum possible number of black plus white elements to be transmitted per second, in facsimile and television.

M = Maximum modulation frequency in cycles per second.

C = Sub-carrier frequency in cycles per second.

D = Half the difference between the maximum and minimum values of the instantaneous frequency. Instantaneous frequency is the rate of change of phase.

t = Pulse duration in seconds.

K = An overall numerical factor which varies according to the emission and which depends upon the allowable signal distortion.

Description and Class of Emission	Necessary Bandwidth in cycles per second	Examples	
		Details	Designation of Emission
I. AMPLITUDE MODULATION			
Continuous wave Telegraphy, A1	$B_n = BK$ $K = 5$ for fading circuits $K = 3$ for non-fading circuits	Morse code at 25 words per minute, $B = 20$, $K = 5$; Bandwidth: 100 c/s.	0.1A1
		Four-channel time-division multiplex, 7-unit code, 42.5 bauds per channel, $B=170$, $K = 5$; Bandwidth: 850 c/s.	0.85A1
Telegraphy modulated by an audio frequency, A2	$B_n = BK + 2M$ $K = 5$ for fading circuits $K = 3$ for non-fading circuits	Morse code at 25 words per minute, $B = 20$, $M = 1\ 000$, $K = 5$; Bandwidth: 2 100 c/s.	2.1A2
Telephony, A3	$B_n = M$ for single sideband $B_n = 2M$ for double sideband	Double sideband telephony, $M = 3\ 000$; Bandwidth: 6 000 c/s.	6A3
		Single sideband telephony, reduced carrier, $M = 3\ 000$; Bandwidth: 3 000 c/s.	3A3A
		Telephony, two independent sidebands, $M = 3\ 000$; Bandwidth: 6 000 c/s.	6A3B

Description and Class of Emission	Necessary Bandwidth in cycles per second	Examples	
		Details	Designation of Emission
Sound Broadcasting, A3	$B_n = 2M$ M may vary between 4 000 and 10 000 depending on the quality desired.	Speech and music, $M = 4\ 000$; Bandwidth: 8 000 c/s.	8A3
Facsimile, carrier modulated by tone and by keying. A4	$B_n = KN + 2M$ $K = 1.5$	The total number of picture elements (black plus white) transmitted per second is equal to the circumference of the cylinder multiplied by the number of lines per unit length and by the speed of rotation of the cylinder in revolutions per second. Diameter of cylinder = 70 mm, number of lines per mm = 5, speed of rotation = 1 r.p.s., $N = 1\ 100$, $M = 1\ 900$; Bandwidth: 5 450 c/s.	5-45A4
Television (Vision and Sound), A5 and F3	Refer to relevant C.C.I.R. documents for the bandwidths of the commonly used television systems.	Number of lines = 625; Number of lines per second = 15 625; Video bandwidth: 5 Mc/s; Total vision bandwidth: 6.25 Mc/s.; FM sound bandwidth including guard bands: 0.75 Mc/s, Total bandwidth: 7 Mc/s.	6 250A5C 750F3

Description and Class of Emission	Necessary Bandwidth in cycles per second	Examples	
		Details	Designation of Emission
II. FREQUENCY MODULATION			
Frequency-shift Telegraphy F1	$B_n = 2.6D + 0.55 B$ for $1.5 < \frac{2D}{B} < 5.5$ $B_n = 2.1D + 1.9 B$ for $5.5 \leq \frac{2D}{B} \leq 20$	Four-channel time-division multiplex with 7-unit code, 42.5 bauds per channel, $B = 170$, $D = 200$; $\frac{2D}{B} = 2.35$, therefore the first formula in Column 2 applies; Bandwidth: 613 c/s.	0-6F1
Commercial Telephony, F3	$B_n = 2M + 2DK$ K is normally 1 but under certain conditions a higher value may be necessary.	For an average case of commercial telephony, $D = 15\ 000$, $M = 3\ 000$; Bandwidth: 36 000 c/s.	36F3
Sound Broadcasting, F3	$B_n = 2M + 2DK$	$D = 75\ 000$, $M = 15\ 000$ and assuming $K = 1$; Bandwidth: 180 000 c/s.	180F3

Description and Class of Emission	Necessary Bandwidth in cycles per second	Examples	
		Details	Designation of Emission
Facsimile, F4	$B_n = KN + 2M + 2D$ $K = 1.5$	(See facsimile, amplitude modulation). Diameter of cylinder = 70 mm, number of lines per mm = 5, speed of rotation = 1 r.p.s., $N = 1\ 100$, $M = 1\ 900$, $D = 10\ 000$; Bandwidth: 25 450 c/s.	25.5F4
Four-frequency diplex Telegraphy, F6	If the channels are not synchronized, $B_n = 2.6D + 2.75B$ where B is the speed of the higher speed channel. If the channels are synchronized the bandwidth is as for F1, B being the speed of either channel.	Four-frequency diplex system with 400 c/s spacing between frequencies, channels not synchronized, 170 bauds keying in each channel, $D = 600$, $B = 170$; Bandwidth: 2 027 c/s.	2.05F6

Description and Class of Emission	Necessary Bandwidth in cycles per second	Examples	
		Details	Designation of Emission
III. PULSE MODULATION			
Unmodulated Pulse, P0	$B_n = \frac{2K}{t}$ <p><i>K</i> depends upon the ratio of pulse duration to pulse rise time. Its value usually falls between 1 and in 10 and many cases it does not need to exceed 6.</p>	$t = 3 \times 10^{-8}$, $K = 6$; Bandwidth: 4×10^6 c/s.	4 000 P0
Modulated Pulse, P2 or P3	The bandwidth depends on the particular types of modulation used, many of these being still in the development stage.	—	—

APPENDIX 6

Reports of Monitoring Data

(See Article 13)

1. Reports of measurements of frequency should contain as much as necessary of the following information :
 - a)* identification of the monitoring station (administration or organization, and location);
 - b)* date of measurement;
 - c)* time of measurement (G.M.T.);
 - d)* call sign or other means of identification, or both, of the station measured;
 - e)* class of emission;
 - f)* assigned frequency or reference frequency;
 - g)* frequency tolerance;
 - h)* measured frequency;
 - i)* accuracy of measurement;
 - j)* departure from assigned or reference frequency;
 - k)* additional information (e.g., period covered by measurement, drift of measured frequency during that period, quality of received signal and conditions of reception);
 - l)* remarks.

2. Reports of measurements of field strength should contain as much as necessary of the following information :
 - a)* identification of the monitoring station (administration or organization, and location);
 - b)* date of measurement;
 - c)* time of measurement (G.M.T.);
 - d)* call sign or other means of identification, or both, of the station measured;
 - e)* class of emission;
 - f)* assigned frequency;
 - g)* value of measured field;
 - h)* estimated accuracy of measurement;
 - i)* component of polarisation measured;
 - j)* other elements or characteristics of the measurement;
 - k)* remarks.

3. Reports of observations of spectrum occupancy should as far as practicable be made in the form recommended by the International Frequency Registration Board and contain the following information:
 - a*) identification of the monitoring station (administration or organization, and location);
 - b*) date of the measurement;
 - c*) time of measurement (G.M.T.);
 - d*) call sign or other means of identification, or both, of the station monitored;
 - e*) class of emission;
 - f*) class of station;
 - g*) measured frequency;
 - h*) signal strength according to the QSA scale;
 - i*) bandwidth occupied;
 - j*) information as to the locality or area in which reception is intended;
 - k*) remarks.

4. In providing these data, the symbols contained in the Radio Regulations or in the Preface to the International Frequency List should be used as far as possible.

APPENDIX 7

**Report of an Irregularity or of an Infringement
of the Convention or the Radio Regulations**

(See Articles 15 and 16)

Particulars concerning the station infringing the Regulations :

1. Name¹ if known (in BLOCK letters)
2. Call sign or other identification (in BLOCK letters)
3. Nationality, if known
4. Frequency used (kc/s or Mc/s)
5. Class of emission ²

Particulars concerning the station, the centralizing office or inspection service reporting the irregularity or infringement :

6. Name (in BLOCK letters)
7. Call sign or other identification (in BLOCK letters)
8. Nationality
9. Approximate position ^{3, 4}

Particulars of the irregularity or infringement :

10. Name ⁴ of the station (in BLOCK letters) in communication with the station committing the irregularity or infringement
11. Call sign or other identification (in BLOCK letters) of the station in communication with the station committing the irregularity or infringement
12. Time ⁵ and date
13. Nature of the irregularity or infringement ⁶
14. Extracts from ship log and other documents supporting the report (to be continued on the back of the form if necessary)

Particulars concerning the transmitting station interfered with⁷ :

15. Name of the station (in BLOCK letters)
16. Call sign or other identification (in BLOCK letters)

- 17. Frequency assigned (kc/s or Mc/s)
- 18. Frequency measured at the time of the interference
- 19. Class of emission and bandwidth
- 20. Receiving location ³ ⁸ (in BLOCK letters) where the interference was troublesome
- 21. Certificate:
 I certify that the foregoing report represents, to the best of my knowledge, a complete and accurate account of what took place.
- Signatures ⁹ Dates
-

Instructions for filling in this form

- ¹ Each report shall refer only to one station (see note ⁴).
- ² See Article 2.
- ³ Applicable only to ships and aircraft; the position shall be expressed either in latitude and longitude (Greenwich) or by a true bearing in degrees and distance in nautical miles, or in kilometres, from some well-known place.
- ⁴ If both communicating stations infringe the Regulations, a separate report shall be made for each of these stations.
- ⁵ The time must be expressed as Greenwich Mean Time (G.M.T.) by a group of four figures (0001 to 2400). If the infringement is prolonged or repeated, the times shall be shown.
- ⁶ A separate report is required for each irregularity or infringement, unless they have obviously all been made by the same person and within a short time. All reports shall be forwarded in duplicate, and whenever practicable should be typewritten (indelible pencil and carbon paper may be used).
- ⁷ This information is to be given only in case of a complaint about interference.
- ⁸ In the case of land or fixed stations, the position shall be expressed in latitude and longitude (Greenwich).
- ⁹ This report shall be signed by the operator who has reported the infringement and countersigned by the Master of the ship or aircraft, or the officer in charge of the station in the case of an infringement reported by a station of the mobile service. When the report originates from a centralizing office or from an inspection service, it shall be signed by the head of that office or service and countersigned by an official of the administration transmitting it.

For use of Administrations only

- 1. Company controlling the installation of the station against which complaint is made
- 2. Name of operator of the station held responsible for the irregularity or infringement of the Regulations
- 3. Action taken

APPENDIX 8

Report of Harmful Interference

(See Article 15)

Particulars concerning the station causing the interference :

- A. Name or call sign and category of station
- B. Frequency measured
- C. Class of emission
- D. Bandwidth
- E. Field strength
- F. Nature of interference

Particulars concerning the transmitting station interfered with :

- G. Name or call sign and category of station
- H. Frequency assigned
- I. Frequency measured
- J. Class of emission
- K. Bandwidth
- L. Field strength

Particulars furnished by the receiving station experiencing the interference :

- M. Name of station
- N. Geographic location of station
- O. Dates and times of occurrence of harmful interference
- P. Other particulars
- Q. Requested action

(For convenience and brevity, telegraphic reports shall be in the format above, using the letters in the order listed in lieu of the explanatory titles, and an " X " after any such letter if no information on this particular item is reported.)

1		2			3			4			5			6			7			8			9			10			11			12			13																																								
1	2a	2b	2c	2d	3	4a	4b	4c	5a	5b	6	7	8	9a	9b	9c	10	11	12a	12b	13a	13b	13c																																																				
Assigned frequency (kc/s or Mc/s) ¹																							Dates			Of registration ²																							Of notification ²			Of putting into use			Of receipt of the notice by the I.F.R.B. when columns 2a or 2b are not to be used ³			Call sign (Identification)			Location of transmitting station			Reception			Transmitting Antenna Characteristics ⁴			Remarks					
Name of the transmitting station																							4			Country in which the transmitting station is located																							5			Class of station and nature of service			7			8			9			10			11			12			13		
Geographical co-ordinates of the transmitter site (longitude and latitude) in degrees and minutes																							4			Locality(ies) or area(s) with which communication is established																							5			Class of emission, necessary bandwidth and description of transmission			7			8			9			10			11			12			13		
Length of circuit (km)																							5			Power (kW)																							8			Class of emission, necessary bandwidth and description of transmission			7			8			9			10			11			12			13		
Azimuth of maximum radiation (ND if a transmitting antenna with non-directional characteristics is used)																							9			Angular width of radiation main lobe																							9			Class of emission, necessary bandwidth and description of transmission			7			8			9			10			11			12			13		
Antenna gain (db)																							9			Maximum hours of operation of the circuit to each locality or area (G.M.T.)																							10			Class of emission, necessary bandwidth and description of transmission			7			8			9			10			11			12			13		
Megacycle order of the other frequencies normally utilized for the same circuit ⁴																							11			Operating Administration or Company ⁵																							12			Class of emission, necessary bandwidth and description of transmission			7			8			9			10			11			12			13		
Postal and telegraphic address of the administration responsible for the station ⁵																							12			Results of examination ⁶ and investigations ⁷ by the I.F.R.B.																							13			Class of emission, necessary bandwidth and description of transmission			7			8			9			10			11			12			13		
Remarks related to the finding by the I.F.R.B.																							13			Other remarks ⁸																							13			Class of emission, necessary bandwidth and description of transmission			7			8			9			10			11			12			13		

APPENDIX 9
Service Documents
(See Articles 8, 9, 10 and 20)
List I. International Frequency List

¹ In the case of television broadcasting stations in Region 1, the frequency in this column is that of the sound and vision carriers (See Appendix 1 to the Radio Regulations, Geneva, 1959). ² A symbol instead of a date indicates an assignment notified pursuant to No. 272 of the Extraordinary Administrative Radio Conference Agreement (Geneva, 1951), or, in the frequency bands above 27 500 kc/s, an assignment for which the notice was received by the I.F.R.B. before 1st April 1952. ³ See Appendix 1 to the Radio Regulations, Geneva, 1959. ⁴ Columns 12a and 12b contain numbers or letters which are explained in the Preface to the International Frequency List. ⁵ See Article 9, Section II, of the Radio Regulations, Geneva, 1959. ⁶ See Nos. 516, 517, 621 and 622 of the Radio Regulations, Geneva, 1959. ⁷ See Nos. 514, 515, 526, 531 and 534 of the Radio Regulations, Geneva, 1959. ⁸ Including dates referred to in Nos. 514, 515, 526, 531 and 534 of the

List II. List of Fixed Stations Operating International Circuits

Names of countries arranged in alphabetical order of abbreviations.
Names of stations in alphabetical order.

Name of the transmitting station	Call Sign (Identification)	Assigned Frequency (kc/s or Mc/s)	Locality(ies) or Area(s) with which communication is established	Remarks
1	2	3	4	5

List III A. List of Broadcasting Stations Operating in Bands below 5 950 kc/s

Names of countries arranged in alphabetical order of abbreviations.
Names of stations in alphabetical order.

Name of the transmitting station	Assigned frequency in kc/s	Call sign (Identification)	Geographical co-ordinates of the transmitter site (longitude and latitude in degrees and minutes)	Zones or areas of reception	Power (kW)	Azimuth of maximum radiation (ND if a transmitting antenna with non-directional characteristics is used)	Maximum hours of operation (G.M.T.)	Operating Administration or Company	Other remarks
1	2	3	4	5	6	7	8	9	10

**List III B. List of Broadcasting Stations Operating in Bands
between 5 950 and 26 100 kc/s**

Names of countries arranged in alphabetical order of abbreviations.
Names of stations in alphabetical order.

	Name of the transmitting station	Geographical co-ordinates of the transmitter site (longitude and latitude in degrees and minutes)	Assigned frequency (kc/s)	Call sign (Identification)	Zone(s) or area(s) of reception	Power (kW)	Transmitting antenna characteristics				Hours of operation (G.M.T.)	Name, postal and telegraphic address of Administration	Remarks	
							Azimuth of maximum radiation	Angular width of radiation main lobe	Antenna gain in db	Angle of elevation	Type of antenna			
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														

(Mar)

List IV. List of Coast Stations

Part A. Alphabetical index of coast stations.

Name of the station	Call sign	See part B, page
1	2	3

Part B. Particulars of coast stations.

Names of countries arranged in alphabetical order of abbreviations.
 Names of stations in alphabetical order.

Name of the station ¹	Call sign ⁸	Emission			Service		Charges ⁴ ⁵	Geographical co-ordinates of the transmitting antenna (longitude and latitude in degrees, minutes and seconds)	Remarks ⁶ ⁷
		Frequencies ² (kc/s or Mc/s)	Class	Power (kW) ³	Nature	Hours of service (G.M.T.)			
1	2	3	4	5	6	7	8	9	10

¹ Indicate for each country the coast station or coast stations to which radiotelegrams intended for high frequency transmission to ship stations should be sent.

² The normal working frequency is printed in heavy type. In the case of duplex telephony, frequencies used for transmission and reception are indicated in conformity with No 1322.

³ In the case of directive antennae, indicate under the power, the azimuth of the direction or directions of maximum gain, in degrees, beginning from True North clockwise.

⁴ The internal telegraph charge of the country to which the coast station is subject and the charge applied by this country to telegrams destined for adjacent countries are given at the end of this list.

⁵ If the accounts for charges are settled by a private enterprise, the name and address of such private enterprise should, if necessary, be stated.

⁶ Indicate if radar service is provided.

⁷ Information concerning the times of transmission of traffic lists, and the hours of watch keeping of the coast station on the various frequencies, etc.

⁸ The call sign of the station shall be followed, where appropriate, by the identification number or signal, in brackets, that the station uses when sending selective calling signals.

(Mar)

List V. List of Ship Stations*Particulars of ship stations*

The information concerning these stations shall be published as shown below:

Name of ship	Call sign	Country	Auxiliary installations	Class of ship	Nature of service	Hours of service	Telegraph transmission frequency bands	Telephone transmission frequency bands	Ship charge per word for radiotelegrams	Ship charge for a radiotelephone call of three minutes	Remarks
1	2	3	4	5	6	7	8	9	10	11	12

Column 1 The stations shall be arranged in alphabetical order of the names of the ships, irrespective of nationality. In the case of duplication of names, the name of the ship shall be followed by the call sign (separated from the name by a fraction bar).

Column 2 Call sign. This column also contains the selective call number or signal, where appropriate.

Column 3 Country having jurisdiction over the station (indicated by the appropriate symbol).

Column 4 Auxiliary installations, including information concerning:

a) number of lifeboats fitted with radio apparatus, and

b) types and number of emergency position-indicating radio-beacons (optional), the operating frequency being indicated by one of the following letters:

- A = 2 182 kc/s
- B = 121.5 Mc/s
- C = 243 Mc/s

A figure following the letter indicates the number of radio-beacons. The letter "X" signifies that the number of radio-beacons has not been communicated.

Columns 5 to 7 In the form of service symbols (see Appendix 10). In addition, the list of the symbols used in column 5 to designate the class of ship is given in the Preface to the List.

Columns 8 and 9 Indication of the frequency bands and class of emission by means of the following symbols:

<i>Radiotelegraphy</i>	<i>Radiotelephony</i>
W = 110 - 150 kc/s	T = 1 605 - 4 000 kc/s
X = 405 - 535 kc/s	U = 4 000 - 23 000 kc/s
Y = 1 605 - 3 800 kc/s	V = 156 - 174 Mc/s
Z = 4 000 - 25 110 kc/s	

These symbols should, if necessary, be followed by references to brief notes and indications of the frequencies for which the transmitters are adjusted, which shall appear at the end of the List.

Column 10 Basic ship charge per word for radiotelegrams¹.

Column 11 Minimum charge for a radiotelephone call of three minutes¹. The information in columns 10 and 11 shall be followed by a note reference to indicate the administration or private enterprise to which the accounts should be sent. In case of

¹ These charges are fixed or approved by each administration.

a change of address of the operating authority, a second note reference after the charge should give the new address and the date from which the change will take effect.

Column 12 When two or more ship stations of the same nationality bear the same name, or if the accounts for charges should be sent direct to the owner of the ship, the name of the shipping line or the firm to which the ship belongs shall be given in this column.

In addition, if there is no room in the appropriate column, further information relating to columns 1 to 11 may be given in column 12 by means of a note reference. This column may comprise several lines.

List VI. List of Radiodetermination and Special Service Stations

(For navigational purposes, this list should be used with caution.
See Article 43 of the Radio Regulations, Geneva, 1959.)

Part A. Alphabetical index of stations.

Name of the station	Call sign	Nature of the service	See part B, page
1	2	3	4

*Part B. Particulars of stations.**1. Direction-finding stations*

Names of the countries arranged in alphabetical order of abbreviations.
Names of the stations in alphabetical order.

1	2	3	Frequencies (kc/s or Mc/s) and classes of emission			7	8	9	10
			4	5	6				
<p>Name of the station</p> <p>Geographical coordinates (longitude and latitude in degrees, minutes and seconds) of:</p> <p>a) the receiving antenna of the direction-finding station</p> <p>b) the transmitting antenna of the direction-finding station</p> <p>c) the transmitting antenna of the station mentioned in Column 8</p>									
<p>Call sign</p> <p>For calling the direction-finding station</p> <p>For transmitting to the direction-finding station the signals necessary for taking bearings</p> <p>For the transmission of the bearings by the direction-finding station</p> <p>Power (kW)</p> <p>Name and call sign of the station with which communication should be established if the direction-finding station is not equipped with a transmitter</p> <p>Charges</p> <p>Remarks</p> <p>a) sectors in which bearings are normally accurate and references to national or international publications other than the present list</p> <p>b) hours of service (G.M.T.), etc.</p>									

2. Radiobeacon stations

Names of the countries arranged in alphabetical order of abbreviations.
Names of the stations in alphabetical order.

1	2	3	4	Emission			8	9	10	11
Name of the station	Geographical co-ordinates of the transmitting antenna of the radiobeacon (longitude and latitude in degrees, minutes and seconds)	Characteristic signal of the radiobeacon	Call sign of the radiobeacon (if any)	Frequency (kc/s or Mc/s)	Class	Frequency of modulation (if any) (c/s)	Normal range in nautical miles	Name and call sign of the station to which requests for the emission of beacon signals may be addressed	Frequency to be used to call the station indicated in column 9 (kc/s or Mc/s)	Remarks
										<i>a)</i> sectors normally reliable and references to national or international publications other than this list; <i>b)</i> hours of service (G.M.T.); <i>c)</i> description of the emission; <i>d)</i> charges, etc.

3. *Ocean-station vessels*

Ocean Regions in alphabetical order.
 Names of stations in alphabetical order.

1	2	3	4	Radiobeacon					Direction-finding		12	13
				5	6	7	8	9	10	11		
				Characteristic signal	Transmitting frequency (kc/s or Mc/s)	Class of emission	Frequency of modulation (if any) (c/s)	Normal range in nautical miles	Frequency for transmitting to the station the signals necessary for taking bearings (kc/s or Mc/s)	Frequency for the transmission by the station of the bearings (kc/s or Mc/s)	Power of the transmitter (kW)	Remarks a) references to national or international publications other than this list; b) hours of service (G.M.T.); c) description of the radiobeacon emission

4. *Direction-finder calibration stations*

Names of the countries arranged in alphabetical order of abbreviations.
 Names of the stations in alphabetical order.

1	2	3	4	Emission			8	9	10	11
				5	6	7				
Name of the station	Geographical co-ordinates of the transmitting antenna of the radiobeacon (longitude and latitude in degrees, minutes and seconds)	Characteristic signal	Call sign of the radiobeacon (if any)	Frequency (kc/s or Mc/s)	Class	Frequency of modulation (if any) (c/s)	Normal range in nautical miles	Name and call sign of the station to which requests may be addressed	Frequency to be used to call the station mentioned in column 9 (kc/s or Mc/s)	Remarks a) sectors normally reliable and references to national or international publications other than this list; b) hours of service (G.M.T.); c) description of the emission; d) charges, etc.

5. *Stations transmitting time signals*

Names of the countries arranged in alphabetical order of abbreviations.
 Names of the stations in alphabetical order.

1	2	3	4	5	6
Name of the station	Call sign	Frequencies (kc/s or Mc/s)	Class of Emission	Times of Emission (G.M.T.)	Method ¹

¹ General instructions concerning time signals.

6. Stations transmitting standard frequencies

Names of the countries arranged in alphabetical order of abbreviations.
Names of the stations in alphabetical order.

Name of the station	Call sign	Frequencies (kc/s or Mc/s)	Class of Emission	Times of Emission (G.M.T.)	Remarks
1	2	3	4	5	6

7. Stations transmitting regular meteorological bulletins

Names of the countries arranged in alphabetical order of abbreviations.
Names of the stations in alphabetical order.

Name of the station	Call sign	Frequencies (kc/s or Mc/s)	Class of Emission	Times of Emission (G.M.T.)	Remarks ¹
1	2	3	4	5	6

¹ General instructions concerning meteorological bulletins including code used.

8. Stations transmitting notices to navigators

Names of the countries arranged in alphabetical order of abbreviations.
Names of the stations in alphabetical order.

Name of the station	Call sign	Frequencies (kc/s or Mc/s)	Class of Emission	Times of Emission (G.M.T.)	Remarks
1	2	3	4	5	6

9. Stations transmitting medical advice

Names of the countries arranged in alphabetical order of abbreviations.
Names of the stations in alphabetical order.

Name of the station	Call sign	Frequencies (kc/s or Mc/s)	Class of Emission	Hours of Service (G.M.T.)	Remarks
1	2	3	4	5	6

10. Stations transmitting epidemiological bulletins

Names of the countries arranged in alphabetical order of abbreviations.
Names of the stations in alphabetical order.

Name of the station	Call sign	Frequencies (kc/s or Mc/s)	Class of Emission	Times of Emission (G.M.T.)	Remarks
1	2	3	4	5	6

11. Stations transmitting Ursigrams

Names of the countries arranged in alphabetical order of abbreviations.
Names of the stations in alphabetical order.

Name of the station	Call sign	Frequencies (kc/s or Mc/s)	Class of Emission	Times of Emission (G.M.T.)	Remarks and nature of information
1	2	3	4	5	6

Note: The Secretary General, if he considers it necessary, may introduce in this list additional sections to cover new systems that may be developed and used.

List VIII. List of International Monitoring Stations.

(See Article 13)

Part I. Centralizing offices.

Names of countries arranged in alphabetical order of abbreviations.

- National centralizing office (postal and telegraphic address, telephone number, any other information).

Part II

A. Particulars of monitoring stations carrying out frequency measurements.

Names of countries arranged in alphabetical order of abbreviations.

Names of stations in alphabetical order.

- Name and geographical co-ordinates of the station (longitude and latitude in degrees and minutes).
- Hours of service (G.M.T.).
- Ranges of measurable frequencies (kc/s or Mc/s).
- Accuracy of measurements.¹
- Remarks.

B. Particulars of monitoring stations carrying out field strength measurements.

Names of countries arranged in alphabetical order of abbreviations.

Names of stations in alphabetical order.

- Name and geographical co-ordinates of the station (longitude and latitude in degrees and minutes).
- Hours of service (G.M.T.).

¹ Indicates the maximum attainable accuracy for each frequency range.

- Ranges of frequencies (kc/s or Mc/s).
- Maximum and minimum values of measurable field strengths.
- Accuracy of measurements in db.¹
- Remarks.

C. Particulars of monitoring stations carrying out direction-finding measurements.

Names of countries arranged in alphabetical order of abbreviations.

Names of stations in alphabetical order.

- Name and geographical co-ordinates of the station (longitude and latitude in degrees, minutes and seconds).
- Hours of service (G.M.T.).
- Ranges of frequencies (kc/s or Mc/s).
- Type of antennae in use.
- Remarks.

D. Particulars of monitoring stations carrying out bandwidth measurements.

Names of countries arranged in alphabetical order of abbreviations.

Names of stations in alphabetical order.

- Name and geographical co-ordinates of the station (longitude and latitude in degrees and minutes).
- Hours of service (G.M.T.).
- Ranges of frequencies (kc/s or Mc/s).

¹ Indicates the maximum attainable accuracy for each frequency range.

- Method(s) of measurement. ¹
- Resolution at -60 db (if appropriate)
- Remarks.

E. Particulars of monitoring stations carrying out automatic spectrum occupancy surveys.

Names of countries arranged in alphabetical order of abbreviations.
 Names of stations in alphabetical order.

- Name and geographical co-ordinates of the station (longitude and latitude in degrees and minutes).
- Hours of service (G.M.T.).
- Ranges of frequencies (kc/s or Mc/s).
- Method(s) employed.
- Remarks.

¹ See the Recommendations and relevant Reports of the C.C.I.R.

Radiocommunication Statistics

Part I. Number of Stations						Part II. Traffic			
Maritime mobile					Amateurs	Of coast stations transmitting public correspondence			
Coast stations transmitting public correspondence			Ship stations			Number of			
Radio-tele-graph	Radio-tele-phone	Mixed	Radio-tele-graph	Radio-tele-phone	Mixed	Radio-tele-grams transmitted	Radio-tele-grams received	Radio-tele-phone calls	Radio medical advices

(Spa) List VIII.A. — List of Stations in the Space Service and in the Radio Astronomy Service ¹

1 — Communication-satellite earth stations

Names of the countries notifying the stations in alphabetical order of country symbols.
Names of stations in alphabetical order.

Name by which the station is known or the name of the locality in which it is situated		Geographical co-ordinates (in degrees and minutes) of the transmitter site		Call sign (identification)		Transmission			Reception			Identity of the station(s) with which communication is to be established	Operating administration or company	Remarks			
						Frequency (Mc/s or Gc/s)	Class of emission, necessary bandwidth and description of transmission	Power (kW)	Telecommand where appropriate	Communications	Telemetry				Tracking	Communications	
1	2	3	4a	4b	4c	5a	5b	5c	6a	6b	7a	7b	8a	8b	9	10	11
																	1. Special channelling arrangements for: a) telegraphy b) telephony c) other types of communication, as appropriate 2. Special methods of modulation

¹ For the cases where these data must be supplied, see Nos. 639AA, 639AB and 639AC.

2 — *Communication-satellite space stations*

Names of the countries notifying the stations in alphabetical order of country symbols.
Names of stations by alphabetical and/or numerical order of designation of station.

1	Identity of the station	
2	Call sign (identification)	
3a	Frequency (Mc/s or Gc/s)	Telemetry
3b	Class of emission, necessary bandwidth and description of transmission	
3c	Power (Watts)	
4a	Frequency (Mc/s or Gc/s)	Tracking
4b	Class of emission, necessary bandwidth and description of transmission	
4c	Power (Watts)	
5a	Frequency (Mc/s or Gc/s)	Communications
5b	Class of emission, necessary bandwidth and description of transmission	
5c	Power (Watts)	
6a	Frequency (Mc/s or Gc/s)	Telecommand where appropriate
6b	Class of emission, necessary bandwidth and description of transmission	
7a	Frequency (Mc/s or Gc/s)	Communications
7b	Class of emission, necessary bandwidth and description of transmission	
8	Area of coverage or the name of the locality and country in which the associated receiving station(s) is located	
9	Operating administration or company	
10	<p>1. Orbital information</p> <p><i>a</i>) angle of inclination of the orbit</p> <p><i>b</i>) period of the object in space</p> <p><i>c</i>) altitude of apogee (km)</p> <p><i>d</i>) altitude of perigee (km)</p> <p><i>e</i>) in the case of a stationary satellite, the mean geographical longitude of the projection of the satellite's position on the surface of the Earth</p> <p>2. Special channelling arrangements for:</p> <p><i>a</i>) telegraphy</p> <p><i>b</i>) telephony</p> <p><i>c</i>) other types of communication, as appropriate</p> <p>3. Special methods of modulation</p>	

3 — *Meteorological-satellite earth stations*

Names of the countries notifying the stations in alphabetical order of country symbols.
Names of stations in alphabetical order.

1	Name by which the station is known or the name of the locality in which it is situated		
2	Geographical co-ordinates (in degrees and minutes) of the transmitter site		
3	Call sign (identification)		
4a	Frequency (Mc/s or Gc/s)	Telecommand where appropriate	Transmission
4b	Class of emission, necessary bandwidth and description of transmission		
4c	Power (kW)		
5a	Frequency (Mc/s or Gc/s)	Telemetry	Reception
5b	Class of emission, necessary bandwidth and description of transmission		
6a	Frequency (Mc/s or Gc/s)	Tracking	
6b	Class of emission, necessary bandwidth and description of transmission		
7a	Frequency (Mc/s or Gc/s)	Reception of meteorological information	
7b	Class of emission, necessary bandwidth and description of transmission		
8	Identity of the station(s) with which communication is to be established		
9	Operating administration or company		
10	<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Special methods of modulation</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Remarks</div> </div>		

4 — Meteorological-satellite space stations

Names of the countries notifying the stations in alphabetical order of country symbols.
Names of stations by alphabetical and/or numerical order of designation of station.

1	Identity of the station	
2	Call sign (identification)	
3a	Frequency (Mc/s or Gc/s)	Telemetry
3b	Class of emission, necessary bandwidth and description of transmission	
3c	Power (Watts)	
4a	Frequency (Mc/s or Gc/s)	Tracking
4b	Class of emission, necessary bandwidth and description of transmission	
4c	Power (Watts)	
5a	Frequency (Mc/s or Gc/s)	Transmission of meteorological information
5b	Class of emission, necessary bandwidth and description of transmission	
5c	Power (Watts)	
6a	Frequency (Mc/s or Gc/s)	Telecommand where appropriate
6b	Class of emission, necessary bandwidth and description of transmission	
7	Area of coverage or the name of the locality and country in which the associated receiving station(s) is located	
8	Operating administration or company	
9	<p>Remarks</p> <p>1. Orbital information: <i>a)</i> angle of inclination of the orbit <i>b)</i> period of the object in space <i>c)</i> altitude of apogee (km) <i>d)</i> altitude of perigee (km) <i>e)</i> in the case of a stationary satellite, the mean geographical longitude of the projection of the satellite's position on the surface of the Earth</p> <p>2. Special channelling arrangements for: <i>a)</i> telegraphy <i>b)</i> telephony <i>c)</i> other types of communication, as appropriate</p> <p>3. Special methods of modulation</p>	

5 — *Radiationavigation-satellite earth stations*
 Names of countries notifying the stations in alphabetical order of country symbols.
 Names of stations in alphabetical order.

1	Name by which the station is known or the name of the locality in which it is situated		
2	Geographical co-ordinates (in degrees and minutes) of the transmitter site		
3	Call sign (identification)		
4a	Frequency (Mc/s or Gc/s)	Telecommand where appropriate	Transmission
4b	Class of emission, necessary bandwidth and description of transmission		
4c	Power (kW)		
5a	Frequency (Mc/s or Gc/s)	Telemetry	Reception
5b	Class of emission, necessary bandwidth and description of transmission		
6a	Frequency (Mc/s or Gc/s)	Tracking	Reception
6b	Class of emission, necessary bandwidth and description of transmission		
7a	Frequency (Mc/s or Gc/s)	Supplementary information necessary for the operation of the radiationavigation system	Reception
7b	Class of emission, necessary bandwidth and description of transmission		
8	Identity of the station(s) with which communication is to be established		
9	Operating administration or company		
10	Special methods of modulation		
	Remarks		

6 — *Radiomavigation-satellite space stations*

Names of the countries notifying the stations in alphabetical order of country symbols.
Names of stations by alphabetical and/or numerical order of designation of stations.

1	Identity of the station		
	2	Call sign (identification)	
3a		Frequency (Mc/s or Gc/s)	Telemetry
3b	Class of emission, necessary bandwidth and description of transmission		
3c	Power (Watts)		
4a	Frequency (Mc/s or Gc/s)	Tracking	
4b	Class of emission, necessary bandwidth and description of transmission		
4c	Power (Watts)		
5a	Frequency (Mc/s or Gc/s)	Transmission of navigation information	
5b	Class of emission, necessary bandwidth and description of transmission		
5c	Power (Watts)		
6a	Frequency (Mc/s or Gc/s)	Telecommand where appropriate	Reception
6b	Class of emission, necessary bandwidth and description of transmission		
7	Area of coverage or the name of the locality and country in which the associated receiving station(s) is located		
8	Operating administration or company		
9	1. Orbital information: <i>a)</i> angle of inclination of the orbit <i>b)</i> period of the object in space <i>c)</i> altitude of apogee (km) <i>d)</i> altitude of perigee (km) <i>e)</i> in the case of a stationary satellite, the mean geographical longitude of the projection of the satellite's position on the surface of the Earth 2. Special channelling arrangements for: <i>a)</i> telegraphy <i>b)</i> telephony <i>c)</i> other types of communication, as appropriate 3. Special methods of modulation		

7 — *Space research earth stations*

Names of the countries notifying the stations in alphabetical order of country symbols.
Names of stations in alphabetical order.

1	Name by which the station is known or the name of the locality in which it is situated		
2	Geographical co-ordinates (in degrees and minutes) of the transmitter site		
3	Call sign (identification)		
4a	Frequency (Mc/s or Gc/s)	Telecommand where appropriate	Transmission
4b	Class of emission, necessary bandwidth and description of transmission		
4c	Power (kW)		
5a	Frequency (Mc/s or Gc/s)	Telemetry	Reception
5b	Class of emission, necessary bandwidth and description of transmission		
6a	Frequency (Mc/s or Gc/s)	Tracking	Reception of research information
6b	Class of emission, necessary bandwidth and description of transmission		
7a	Frequency (Mc/s or Gc/s)	Reception of research information	Reception of research information
7b	Class of emission, necessary bandwidth and description of transmission		
8	Identity of the station(s) with which communication is to be established		
9	Operating administration or company		
10	Remarks Any special characteristics of the station and scope of research		

8 — Space research space stations

Names of the countries notifying the stations in alphabetical order of country symbols.
Names of stations by alphabetical and/or numerical order of designation of station.

Identity of the station		Transmission		Reception	Remarks
1	2	3a	3b	3c	
	Call sign (identification)	Frequency (Mc/s or Gc/s)	Class of emission, necessary bandwidth and description of transmission	Power (Watts)	
		Frequency (Mc/s or Gc/s)	Class of emission, necessary bandwidth and description of transmission	Power (Watts)	
		Frequency (Mc/s or Gc/s)	Class of emission, necessary bandwidth and description of transmission	Power (Watts)	
		Frequency (Mc/s or Gc/s)	Class of emission, necessary bandwidth and description of transmission	Power (Watts)	
		Frequency (Mc/s or Gc/s)	Class of emission, necessary bandwidth and description of transmission	Power (Watts)	
		Frequency (Mc/s or Gc/s)	Class of emission, necessary bandwidth and description of transmission	Power (Watts)	
		Frequency (Mc/s or Gc/s)	Class of emission, necessary bandwidth and description of transmission	Power (Watts)	
		Frequency (Mc/s or Gc/s)	Class of emission, necessary bandwidth and description of transmission	Power (Watts)	
7	Area of coverage or the name of the locality and country in which the associated receiving station(s) is located				9
8	Operating administration or company				

9 — *Radio astronomy stations*

Names of the countries notifying the stations in alphabetical order of country symbols.
Names of stations in alphabetical order.

1	Name by which the station is known or the name of the locality in which it is situated
2	Geographical co-ordinates (in degrees and minutes) of the station
3	Centre of the frequency band observed (Mc/s or Gc/s)
4	Width of the frequency band observed
5	Antenna characteristics
6	Maximum hours of reception (G.M.T.)
7	Noise temperature ($^{\circ}$ K)
8	Class of observation
9	Operating administration or company
10	<p style="text-align: center;">Remarks</p> <p style="text-align: center;">Any special additional characteristics of the station including: 1) altitude in metres above sea level, 2) main particulars of antenna, 3) scope of observations.</p>

APPENDIX 10
Mar Spa

Service Document Symbols
(See Article 20 and Appendix 9)

- Station classified as situated in a region of heavy traffic (Article 32) ("TI")¹
- By day ("HJ")¹
- By night ("HN")¹
- [] A ship which carries lifeboats fitted with radio apparatus; a number inside the square brackets shows the number of such lifeboats ("S")¹
- △ High-traffic ship ("HS")¹
- AL Aeronautical radionavigation land station
- AM Aeronautical radionavigation mobile station
- AT Amateur station
- AX Aeronautical fixed station
- BC Broadcasting station, sound
- BT Broadcasting station, television
- C Continuous operation during hours shown
- CA Cargo ship
- CO Station open to official correspondence exclusively
- CP Station open to public correspondence
- CR Station open to limited public correspondence
- CV Station open exclusively to correspondence of a private agency

¹ The symbol shown in parenthesis may be used in notifications and service documents.

AP10-2

- D30° Directive antenna having maximum radiation in the direction of 30° (expressed in degrees from True North, from 0 to 360 clockwise)
- DR Directive antenna provided with a reflector
- EC Communication-satellite space station
- ED Space telecommand space station
- EH Space research space station
- EK Space tracking space station
- EM Meteorological-satellite space station
- EN Radionavigation-satellite space station
- ER Space telemetering space station

- EX Experimental station
- FA Aeronautical station
- FB Base station
- FC Coast station
- FE Earth station (Earth-Space service)
- FL Land station
- FP Port station
- FR Receiving station only, connected with the general network of telecommunication channels
- FS Land station established solely for the safety of life
- FX Fixed station
- G.M.T. Greenwich Mean Time

- GS Station on board a warship or a military or naval aircraft

- H Scheduled operation
- H8 8-hour service provided by a ship station of the third category
- H16 16-hour service provided by a ship station of the second category
- H24 Continuous throughout the twenty-four hours

HJ	Day service
HN	Night service
HT	Transition period service
HX	Intermittent throughout the twenty-four hours, or station having no specific working hours
I	Intermittent operation during the time indicated
LR	Radiolocation land station
MA	Aircraft station
ME	Space station
ML	Land mobile station
MO	Mobile station
MR	Radiolocation mobile station
MS	Ship station
ND	Non-directional antenna
NL	Maritime radionavigation land station
OD	Oceanographic data station
OE	Oceanographic data interrogating station
OT	Station open exclusively to operational traffic of the service concerned
PA	Passenger ship
RA	Radio astronomy station
RC	Non-directional radiobeacon
RD	Directional radiobeacon
RG	Radio direction-finding station
RM	Maritime radionavigation mobile station
RT	Revolving radiobeacon
SM	Meteorological aids station
SS	Standard frequency station
TC	Communication-satellite earth station
TD	Space telecommand earth station

AP10-4

TH	Space research earth station
TK	Space tracking earth station
TM	Meteorological-satellite earth station
TN	Radionavigation-satellite earth station
TR	Space telemetering earth station
TS	Television, sound channel
TV	Television, vision channel

APPENDIX 11

Mar

Documents with which Ship and Aircraft Stations shall be Provided

(See Articles 18, 20, 21, 23, 28, and Appendix 9)

Section I. Ship Stations for which a Radiotelegraph Installation is Required by International Agreement

These stations shall be provided with :

1. licence prescribed by Article 18 ;
2. certificates of the operator or operators ;
3. log (diary of the radio service) in which the following are recorded as they occur, together with the time of their occurrence ;
 - a) all communications relating to distress traffic in full,
 - b) urgency and safety communications,
 - c) communications exchanged between the ship station and land or mobile stations,
 - d) service incidents of all kinds,
 - e) if the ship's rules permit, the position of the ship at least once a day ;
4. Alphabetical List of Call Signs of Stations used in the Maritime Mobile Service ;
5. List of Coast Stations ;
6. List of Ship Stations(the carriage of the supplement is optional);
7. List of Radiodetermination and Special Service Stations ;
8. Manual for Use by the Maritime Mobile Service;

9. telegraph tariffs of the countries for which the station most frequently accepts radiotelegrams ;
10. if administrations concerned consider it necessary, the Telegraph Regulations.

Section II. Other Ship Radiotelegraph Stations

These stations shall be provided with the documents mentioned in items 1 to 6, 8 and 9 of Section 1.

Section III. Ship Stations for which a Radiotelephone Installation is Required by International Agreement

These stations shall be provided with :

1. licence prescribed by Article 18 ;
2. certificates of the operator or operators ;
3. the log (diary of the radio service) in which the following are recorded as they occur, together with the time of their occurrence :
 - a) a summary of all communications relating to distress, urgency and safety traffic,
 - b) a summary of communications exchanged between the ship station and land or mobile stations,
 - c) a reference to important service incidents,
 - d) if the ship's rules permit, the position of the ship at least once a day ;
4. a list of coast stations with which communications are likely to be conducted, showing watchkeeping hours, frequencies and charges ;
5. the provisions of the Radio Regulations and Additional Radio Regulations applicable to the maritime mobile radiotelephone service, or the Manual for Use by the Maritime Mobile Service.

Section IV. Other Ship Radiotelephone Stations

These stations shall be provided with :

1. the documents mentioned in items 1 and 2 of Section III ;
2. the documents mentioned in items 3, 4 and 5 of Section III, in accordance with the requirements of the administrations concerned.

Section V. Ship Stations Equipped with Multiple Installations

These stations shall be provided with :

1. for each installation, if necessary, the documents mentioned in items 1 to 3 of Section I, or in items 1, 2 and 3 of Section III ;
2. for only one installation, the other documents mentioned in Sections I or III, as appropriate.

Section VI. Aircraft Stations

These stations shall be provided with :

1. the documents mentioned in items 1 and 2 of Section I ;
2. the log (diary of the radio service) as defined in item 3 of Section I, unless administrations have adopted other arrangements for recording all information which the log should contain ;
3. the documents containing official information relating to stations which the aircraft station may use for the execution of its service.

APPENDIX 12

Mar

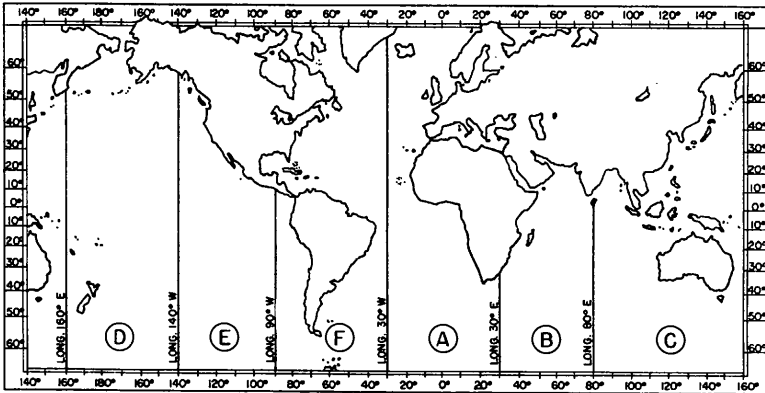
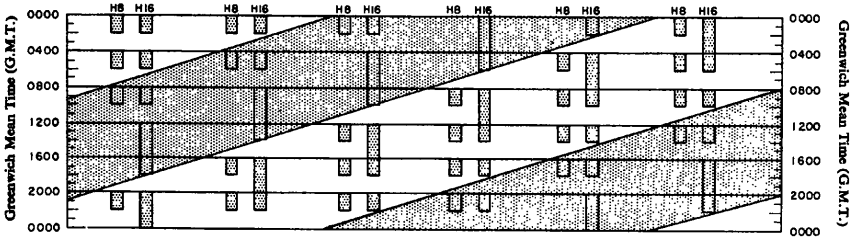
Hours of Service for Ship Stations of the Second and Third Categories
(See Articles 20 and 25)

Section I. Table

Zones	Western limits	Eastern limits	Hours of Service (Greenwich Mean Time) (G.M.T.)	
			8 hours (H8)	16 hours (H16)
A Eastern Atlantic Ocean, Mediterranean, North Sea, Baltic.	Meridian of 30° W, Coast of Greenland.	Meridian of 30° E, to the South of the coast of Africa, Eastern limits of the Mediterranean, of the Black Sea, and of the Baltic, Meridian of 30° E northwards from the coastline of Norway.	from 8 h. 12 h. 16 h. 20 h. to 10 h. 14 h. 18 h. 22 h.	from 0 h. 8 h. 16 h. 20 h. to 6 h. 14 h. 18 h. 22 h.
B Western Indian Ocean, Eastern Arctic Ocean.	Eastern limit of Zone A.	Meridian of 80° E, Western Coast of Ceylon to Adam's Bridge, thence Westward round the coast of India, Meridian 80° E to northwards from the coastline of the U.S.S.R.	from 4 h. 8 h. 12 h. 16 h. to 6 h. 10 h. 14 h. 18 h.	from 0 h. 4 h. 12 h. 16 h. 20 h. to 2 h. 10 h. 14 h. 18 h. 24 h.

Zones	Western limits	Eastern limits	Hours of Service (Greenwich Mean Time) (G.M.T.)	
			8 hours (H8)	16 hours (H16)
C Eastern Indian Ocean, China Sea, Western Pacific Ocean, Eastern Arctic Ocean.	Eastern limit of Zone B.	Meridian of 160° E, as far as the coast of Kamchatka, Meridian of 160° E northwards from the coastline of the U.S.S.R.	from 0 h. to 2 h. 4 h. 6 h. 8 h. 10 h. 12 h. 14 h.	from 0 h. to 6 h. 8 h. 10 h. 12 h. 14 h. 16 h. 22 h.
D Central Pacific Ocean.	Eastern limit of Zone C.	Meridian of 140°W.	from 0 h. to 2 h. 4 h. 6 h. 8 h. 10 h. 20 h. 22 h.	from 0 h. to 2 h. 4 h. 6 h. 8 h. 10 h. 12 h. 18 h. 20 h. 24 h.
E Eastern Pacific Ocean.	Eastern limit of Zone D.	Meridian of 90°W, as far as the coast of Central America, thence Western coast of Central America and of North America.	from 0 h. to 2 h. 4 h. 6 h. 16 h. 18 h. 20 h. 22 h.	from 0 h. to 2 h. 4 h. 6 h. 8 h. 14 h. 16 h. 22 h.
F Western Atlantic Ocean and Gulf of Mexico.	Meridian of 90°W, Gulf of Mexico, Eastern coast of North America.	Meridian of 30°W, coast of Greenland.	from 0 h. to 2 h. 12 h. 14 h. 16 h. 18 h. 20 h. 22 h.	from 0 h. to 2 h. 4 h. 10 h. 12 h. 18 h. 20 h. 22 h.

Section II. Diagram



APPENDIX 13

Mar

**Miscellaneous Abbreviations and Signals to be used
in Radiotelegraphy Communications except in the
Maritime Mobile Service**

(See Article 29)

SECTION I. Q CODE**Introduction**

1. The series of groups QRA to QVZ, listed in this Appendix, are for use by all services.
2. The QAA to QNZ series are reserved for the aeronautical service and the QOA to QQZ series are reserved for the maritime services. These series are not listed in these Regulations.
3. Certain Q code abbreviations may be given an affirmative or negative sense by sending YES or NO respectively, immediately following the abbreviation.
4. The meanings assigned to Q code abbreviations may be amplified or completed by the addition of appropriate other groups, call signs, place names, figures, numbers, etc. It is optional to fill in the blanks shown in parentheses. Any data which is filled in where blanks appear shall be sent in the same order as shown in the text of the following tables.
5. Q code abbreviations are given the form of a question when followed by a question mark. When an abbreviation is used as a question and is followed by additional or complementary information, the question mark should follow this information.
6. Q code abbreviations with numbered alternative significations shall be followed by the appropriate figure to indicate the exact meaning intended. This figure shall be sent immediately following the abbreviation.
7. All times shall be given in Greenwich Mean Time (G.M.T.) unless otherwise indicated in the question or reply.

Abbreviations Available for All Services

A. List of Abbreviations in Alphabetical Order

Abbreviation	Question	Answer or Advice
QRA	What is the name of your station?	The name of my station is . . .
QRB	How far approximately are you from my station?	The approximate distance between our stations is . . . nautical miles (or kilometres)
QRC	By what private enterprise (or State Administration) are the accounts for charges for your station settled?	The accounts for charges of my station are settled by the private enterprise . . . (or State Administration).
QRD	Where are you bound for and where are you from?	I am bound for . . . from . . .
QRE	What is your estimated time of arrival at . . . (or over . . .) (place)?	My estimated time of arrival at . . . (or over . . .) (place) is . . . hours.
QRF	Are you returning to . . . (place)?	I am returning to . . . (place). or Return to . . . (place).
QRG	Will you tell me my exact frequency (or that of . . .)?	Your exact frequency (or that of . . .) is . . . kc/s (or Mc/s).
QRH	Does my frequency vary?	Your frequency varies.
QRI	How is the tone of my transmission?	The tone of your transmission is . . . 1. good 2. variable 3. bad.
QRJ	How many radiotelephone calls have you to book?	I have . . . radiotelephone calls to book.

Abbr- viation	Question	Answer or Advice
QRK	What is the intelligibility of my signals (<i>or those of . . .</i>)?	The intelligibility of your signals (<i>or those of . . .</i>) is . . . 1. bad 2. poor 3. fair 4. good 5. excellent.
QRL	Are you busy?	I am busy (<i>or I am busy with . . .</i>). Please do not interfere.
QRM	Are you being interfered with?	I am being interfered with (1. nil 2. slightly 3. moderately 4. severely 5. extremely).
QRN	Are you troubled by static?	I am troubled by static (1. nil 2. slightly 3. moderately 4. severely 5. extremely).
QRO	Shall I increase transmitter power?	Increase transmitter power.
QRP	Shall I decrease transmitter power?	Decrease transmitter power.
QRQ	Shall I send faster?	Send faster (. . . words per minute).
QRR	Are you ready for automatic operation?	I am ready for automatic operation. Send at . . . words per minute.
QRS	Shall I send more slowly?	Send more slowly (. . . words per minute).

Abbreviation	Question	Answer or Advice
QRT	Shall I stop sending?	Stop sending.
QRU	Have you anything for me?	I have nothing for you.
QRV	Are you ready?	I am ready.
QRW	Shall I inform . . . that you are calling him on . . . kc/s (or Mc/s)?	Please inform . . . that I am calling him on . . . kc/s (or Mc/s).
QRX	When will you call me again?	I will call you again at . . . hours (on . . . kc/s (or Mc/s)).
QRY	What is my turn? (Relates to communication)	Your turn is Number . . . (or according to any other indication). (Relates to communication).
QRZ	Who is calling me?	You are being called by . . . (on . . . kc/s (or Mc/s)).
QSA	What is the strength of my signals (or those of . . .)?	The strength of your signals (or those of . . .) is . . . 1. scarcely perceptible 2. weak 3. fairly good 4. good 5. very good.
QSB	Are my signals fading?	Your signals are fading.
QSC	Are you a cargo vessel? (see Article 32, Section V)	I am a cargo vessel.
QSD	Is my keying defective?	Your keying is defective.
QSE	What is the estimated drift of the survival craft?	The estimated drift of the survival craft is . . . (figures and units)

Abbreviation	Question	Answer or Advice
QSF	Have you effected rescue?	I have effected rescue and am proceeding to . . . base (with . . . persons injured requiring ambulance).
QSG	Shall I send . . . telegrams at a time?	Send . . . telegrams at a time.
QSH	Are you able to home on your D/F equipment?	I am able to home on my D/F equipment (on station . . .).
QSI		I have been unable to break in on your transmission. <i>or</i> Will you inform . . . (<i>call sign</i>) that I have been unable to break in on his transmission (on . . . kc/s (<i>or</i> Mc/s)).
QSJ	What is the charge to be collected to . . . including your internal charge?	The charge to be collected to . . . including my internal charge is . . . francs.
QSK	Can you hear me between your signals and if so can I break in on your transmission?	I can hear you between my signals; break in on my transmission.
QSL	Can you acknowledge receipt?	I am acknowledging receipt.
QSM	Shall I repeat the last telegram which I sent you (<i>or</i> some previous telegram)?	Repeat the last telegram which you sent me (<i>or</i> telegram(s) number(s) . . .).
QSN	Did you hear me (<i>or</i> . . . (<i>call sign</i>)) on . . . kc/s (<i>or</i> Mc/s)?	I did hear you (<i>or</i> . . . (<i>call sign</i>)) on . . . kc/s (<i>or</i> Mc/s).
QSO	Can you communicate with . . . direct (<i>or</i> by relay)?	I can communicate with . . . direct (<i>or</i> by relay through . . .).

Abbreviation	Question	Answer or Advice
QSP	Will you relay to . . . free of charge?	I will relay to . . . free of charge.
QSQ	Have you a doctor on board (<i>or is... (name of person) on board</i>)?	I have a doctor on board (<i>or ... (name of person) is on board</i>).
QSR	Shall I repeat the call on the calling frequency?	Repeat your call on the calling frequency; did not hear you (<i>or have interference</i>).
QSS	What working frequency will you use?	I will use the working frequency . . . kc/s (<i>normally only the last three figures of the frequency need be given</i>).
QSU	Shall I send or reply on this frequency (<i>or on . . . kc/s (or Mc/s) (with emissions of class . . .)</i>)?	Send or reply on this frequency (<i>or on . . . kc/s (or Mc/s) (with emissions of class . . .)</i>).
QSV	Shall I send a series of V's on this frequency (<i>or . . . kc/s (or Mc/s)</i>)?	Send a series of V's on this frequency (<i>or . . . kc/s (or Mc/s)</i>).
QSW	Will you send on this frequency (<i>or on . . . kc/s (or Mc/s) (with emissions of class . . .)</i>)?	I am going to send on this frequency (<i>or on . . . kc/s (or Mc/s) (with emissions of class . . .)</i>).
QSX	Will you listen to . . . (<i>call sign (s)</i>) on . . . kc/s (<i>or Mc/s</i>)?	I am listening to . . . (<i>call sign (s)</i>) on . . . kc/s (<i>or Mc/s</i>).
QSY	Shall I change to transmission on another frequency?	Change to transmission on another frequency (<i>or on . . . kc/s (or Mc/s)</i>).
QSZ	Shall I send each word or group more than once?	Send each word or group twice (<i>or . . . times</i>).
QTA	Shall I cancel telegram number . . . ?	Cancel telegram number . . .
QTB	Do you agree with my counting of words?	I do not agree with your counting of words; I will repeat the first letter or digit of each word or group.

Abbreviation	Question	Answer or Advice
QTC	How many telegrams have you to send?	I have . . . telegrams for you (<i>or</i> for . . .).
QTD	What has the rescue vessel or rescue aircraft recovered?	. . . (<i>identification</i>) has recovered. . . 1. . . (<i>number</i>) survivors 2. wreckage 3. . . (<i>number</i>) bodies.
QTE	What is my TRUE bearing from you? <i>or</i>	Your TRUE bearing from me is . . . degrees at . . . hours. <i>or</i>
	What is my TRUE bearing from . . . (<i>call sign</i>)? <i>or</i>	Your TRUE bearing from . . . (<i>call sign</i>) was . . . degrees at . . . hours. <i>or</i>
	What is the TRUE bearing of . . . (<i>call sign</i>) from . . . (<i>call sign</i>)?	The TRUE bearing of . . . (<i>call sign</i>) from . . . (<i>call sign</i>) was . . . degrees at . . . hours.
QTF	Will you give me the position of my station according to the bearings taken by the D/F stations which you control?	The position of your station according to the bearings taken by the D/F stations which I control was . . . latitude . . . longitude (<i>or other indication of position</i>), class . . . at . . . hours.
QTG	Will you send two dashes of ten seconds each followed by your call sign (repeated . . . times) (on . . . kc/s (<i>or</i> Mc/s))? <i>or</i>	I am going to send two dashes of ten seconds each followed by my call sign (repeated . . . times) (on . . . kc/s (<i>or</i> Mc/s)). <i>or</i>
	Will you request . . . to send two dashes of ten seconds followed by his call sign (repeated . . . times) on . . . kc/s (<i>or</i> Mc/s)?	I have requested . . . to send two dashes of ten seconds followed by his call sign (repeated . . . times) on . . . kc/s (<i>or</i> Mc/s).

Abbreviation	Question	Answer or Advice
QTH	What is your position in latitude and longitude (<i>or according to any other indication</i>)?	My position is . . . latitude . . . longitude (<i>or according to any other indication</i>).
QTI	What is your TRUE track?	My TRUE track is . . . degrees.
Q TJ	What is your speed? (<i>Requests the speed of a ship or aircraft through the water or air respectively.</i>)	My speed is . . . knots (<i>or . . . kilometres per hour or . . . statute miles per hour</i>). (<i>Indicates the speed of a ship or aircraft through the water or air respectively.</i>)
QTK	What is the speed of your aircraft in relation to the surface of the earth?	The speed of my aircraft in relation to the surface of the earth is . . . knots (<i>or . . . kilometres per hour or . . . statute miles per hour</i>).
QTL	What is your TRUE heading?	My TRUE heading is . . . degrees.
QTM	What is your MAGNETIC heading?	My MAGNETIC heading is . . . degrees.
QTN	At what time did you depart from . . . (<i>place</i>)?	I departed from . . . (<i>place</i>) at . . . hours.
QTO	Have you left dock (<i>or port</i>)? <i>or</i> Are you airborne?	I have left dock (<i>or port</i>). <i>or</i> I am airborne.
QTP	Are you going to enter dock (<i>or port</i>)? <i>or</i> Are you going to alight (<i>or land</i>)?	I am going to enter dock (<i>or port</i>). <i>or</i> I am going to alight (<i>or land</i>).
QTQ	Can you communicate with my station by means of the International Code of Signals?	I am going to communicate with your station by means of the International Code of Signals.
QTR	What is the correct time?	The correct time is . . . hours.

Abbreviation	Question	Answer or Advice
QTS	Will you send your call sign for tuning purposes or so that your frequency can be measured now (or at ... hours) on ... kc/s (or Mc/s)?	I will send my call sign for tuning purposes or so that my frequency may be measured now (or at ... hours) on ... kc/s (or Mc/s).
QTT		The identification signal which follows is superimposed on another transmission.
QTU	What are the hours during which your station is open?	My station is open from ... to ... hours.
QTV	Shall I stand guard for you on the frequency of ... kc/s (or Mc/s) (from ... to ... hours)?	Stand guard for me on the frequency of ... kc/s (or Mc/s) (from ... to ... hours).
QTW	What is the condition of survivors?	Survivors are in ... condition and urgently need ...
QTX	Will you keep your station open for further communication with me until further notice (or until ... hours)?	I will keep my station open for further communication with you until further notice (or until ... hours).
QTY	Are you proceeding to the position of incident and if so when do you expect to arrive?	I am proceeding to the position of incident and expect to arrive at ... hours (on ... date).
QTZ	Are you continuing the search?	I am continuing the search for ... (aircraft, ship, survival craft, survivors or wreckage).
QUA	Have you news of ... (call sign)?	Here is news of ... (call sign).
QUB	Can you give me in the following order information concerning: the direction in degrees TRUE and speed of the surface wind; visibility; present weather; and amount, type and height of base of cloud above surface elevation at ... (place of observation)?	Here is the information requested : ... (The units used for speed and distances should be indicated.)

Abbreviation	Question	Answer or Advice
QUC	What is the number (<i>or other indication</i>) of the last message you received from me (<i>or from ... (call sign)</i>)?	The number (<i>or other indication</i>) of the last message I received from you (<i>or from ... (call sign)</i>) is ...
QUD	Have you received the urgency signal sent by ... (<i>call sign of mobile station</i>)?	I have received the urgency signal sent by ... (<i>call sign of mobile station</i>) at ... hours.
QUE	Can you use telephony in ... (<i>language</i>), with interpreter if necessary; if so, on what frequencies?	I can use telephony in ... (<i>language</i>) on ... kc/s (<i>or</i>) Mc/s.
QUF	Have you received the distress signal sent by ... (<i>call sign of mobile station</i>)?	I have received the distress signal sent by ... (<i>call sign of mobile station</i>) at ... hours.
QUG	Will you be forced to alight (<i>or</i>) land)?	I am forced to alight (<i>or</i>) land) immediately. <i>or</i> I shall be forced to alight (<i>or</i>) land) at ... (<i>position or place</i>) at ... hours.
QUH	Will you give me the present barometric pressure at sea level?	The present barometric pressure at sea level is ... (<i>units</i>).
QUI	Are your navigation lights working?	My navigation lights are working.
QUJ	Will you indicate the TRUE track to reach you (<i>or ...</i>)?	The TRUE track to reach me (<i>or...</i>) is ... degrees at ... hours.
QUK	Can you tell me the condition of the sea observed at ... (<i>place or co-ordinates</i>)?	The sea at ... (<i>place or co-ordinates</i>) is ...

Abbreviation	Question	Answer or Advice
QUL	Can you tell me the swell observed at ... (<i>place or co-ordinates</i>)?	The swell at ... (<i>place or co-ordinates</i>) is ...
QUM	May I resume normal working?	Normal working may be resumed.
QUN	Will vessels in my immediate vicinity ... <i>or</i> (in the vicinity of ... latitude ... longitude) <i>or</i> (in the vicinity of ...) please indicate their position, TRUE course and speed?	My position, TRUE course and speed are ...
QUO	Shall I search for ... 1. aircraft 2. ship 3. survival craft in the vicinity of ... latitude ... longitude (<i>or according to any other indication</i>)?	Please search for ... 1. aircraft 2. ship 3. survival craft in the vicinity of ... latitude ... longitude (<i>or according to any other indication</i>).
QUP	Will you indicate your position by ... 1. searchlight 2. black smoke trail 3. pyrotechnic lights?	My position is indicated by ... 1. searchlight 2. black smoke trail 3. pyrotechnic lights.
QUQ	Shall I train my searchlight nearly vertical on a cloud, occulting if possible and, if your aircraft is seen, deflect the beam up wind and on the water (<i>or land</i>) to facilitate your landing?	Please train your searchlight on a cloud, occulting if possible and, if my aircraft is seen or heard, deflect the beam up wind and on the water (<i>or land</i>) to facilitate my landing.

Abbreviation	Question	Answer or Advice
<p>QUR</p>	<p>Have survivors . . .</p> <ol style="list-style-type: none"> 1. received survival equipment 2. been picked up by rescue vessel 3. been reached by ground rescue party? 	<p>Survivors . . .</p> <ol style="list-style-type: none"> 1. are in possession of survival equipment dropped by . . . 2. have been picked up by rescue vessel 3. have been reached by ground rescue party.
<p>QUS</p>	<p>Have you sighted survivors or wreckage? If so, in what position?</p>	<p>Have sighted . . .</p> <ol style="list-style-type: none"> 1. survivors in water 2. survivors on rafts 3. wreckage <p>in position . . . latitude . . . longitude (or according to any other indication).</p>
<p>QUT</p>	<p>Is position of incident marked?</p>	<p>Position of incident is marked by . . .</p> <ol style="list-style-type: none"> 1. flame or smoke float 2. sea marker 3. sea marker dye 4. . . . (specify other marking).
<p>QUU</p>	<p>Shall I home ship or aircraft to my position?</p>	<p>Home ship or aircraft . . . (call sign)</p> <p>. . .</p> <ol style="list-style-type: none"> 1. to your position by transmitting your call sign and long dashes on . . . kc/s (or Mc/s) 2. by transmitting on . . . kc/s (or Mc/s) TRUE track to reach you.
<p>QUW</p>	<p>Are you in the search area designated as . . . (designator or latitude and longitude)?</p>	<p>I am in the . . . (designation) search area.</p>
<p>QUY</p>	<p>Is position of survival craft marked?</p>	<p>Position of survival craft was marked at . . . hours by . . .</p> <ol style="list-style-type: none"> 1. flame or smoke float 2. sea marker 3. sea marker dye 4. . . . (specify other marking).

B. Lists of Signals According to the Nature of Questions, Answer or Advice

Abbreviation	Question	Answer or Advice
	Name	
QRA	What is the name of your station ?	The name of my station is ...
	Route	
QRD	Where are you bound for and where are you from ?	I am bound for ... from ...
	Position	
QRB	How far approximately are you from my station ?	The approximate distance between our stations is... nautical miles (or kilometres).
QTH	What is your position in latitude and longitude (or according to any other indication) ?	My position is ... latitude ... longitude (or according to any other indication).
QTN	At what time did you depart from ... (place) ?	I departed from ... (place) at ... hours.
	Quality of Signals	
QRI	How is the tone of my transmission ?	The tone of your transmission is ... 1. good 2. variable 3. bad.
QRK	What is the intelligibility of my signals (or those of ...) ?	The intelligibility of your signals (or those of ...) is ... 1. bad 2. poor 3. fair 4. good 5. excellent.

Abbreviation	Question	Answer or Advice
Strength of Signals		
QRO	Shall I increase transmitter power ?	Increase transmitter power.
QRP	Shall I decrease transmitter power ?	Decrease transmitter power.
QSA	What is the strength of my signals (or those of . . .) ?	The strength of your signals (or those of . . .) is . . . 1. scarcely perceptible 2. weak 3. fairly good 4. good 5. very good.
QSB	Are my signals fading ?	Your signals are fading.
Keying		
QRQ	Shall I send faster ?	Send faster (. . . words per minute).
QRR	Are you ready for automatic operation ?	I am ready for automatic operation. Send at . . . words per minute.
QRS	Shall I send more slowly ?	Send more slowly (. . . . words per minute).
QSD	Is my keying defective ?	Your keying is defective.
Interference		
QRM	Are you being interfered with ?	I am being interfered with (1. nil 2. slightly 3. moderately 4. severely 5. extremely).

Abbreviation	Question	Answer or Advice
QRN	Are you troubled by static ?	I am troubled by static (1. nil 2. slightly 3. moderately 4. severely 5. extremely).
Adjustment of Frequency		
QRG	Will you tell me my exact frequency (or that of ...) ?	Your exact frequency (or that of ...) is ... kc/s (or Mc/s).
QRH	Does my frequency vary ?	Your frequency varies.
QTS	Will you send your call sign for tuning purposes or so that your frequency can be measured now (or at ... hours) on ... kc/s (or Mc/s) ?	I will send my call sign for tuning purposes or so that my frequency may be measured now (or at ... hours) on ... kc/s (or Mc/s).
Choice of Frequency and/or Class of Emission		
QSN	Did you hear me (or ... (call sign)) on ... kc/s (or Mc/s)?	I did hear you (or ... (call sign)) on ... kc/s (or Mc/s).
QSS	What working frequency will you use?	I will use the working frequency ... kc/s (normally only the last three figures of the frequency need be given).
QSU	Shall I send or reply on this frequency (or on ... kc/s (or Mc/s)) (with emissions of class ...)?	Send or reply on this frequency (or on ... kc/s (or Mc/s)) (with emissions of class ...).
QSV	Shall I send a series of V's on this frequency (or ... kc/s (or Mc/s))?	Send a series of V's on this frequency (or ... kc/s (or Mc/s)).

Abbreviation	Question	Answer or Advice
QSW	Will you send on this frequency (<i>or on . . . kc/s (or Mc/s)</i>) (with emissions of class . . .)?	I am going to send on this frequency (<i>or on . . . kc/s (or Mc/s)</i>) (with emissions of class . . .).
QSX	Will you listen to . . . (<i>call sign(s)</i>) on . . . kc/s (<i>or Mc/s</i>)?	I am listening to . . . (<i>call sign(s)</i>) on . . . kc/s (<i>or Mc/s</i>).
Change of Frequency		
QSY	Shall I change to transmission on another frequency?	Change to transmission on another frequency (<i>or on . . . kc/s (or Mc/s)</i>).
Establishing Communication		
QRL	Are you busy?	I am busy (<i>or I am busy with . . .</i>). Please do not interfere.
QRV	Are you ready?	I am ready.
QRX	When will you call me again?	I will call you again at . . . hours (<i>on . . . kc/s (or Mc/s)</i>).
QRY	What is my turn? (<i>Relates to communication.</i>)	Your turn is Number . . . (<i>or according to any other indication.</i>) (<i>Relates to communication.</i>)
QRZ	Who is calling me?	You are being called by . . . (<i>on . . . kc/s (or Mc/s)</i>).
QSC	Are you a cargo vessel? (<i>See Article 32, Section V.</i>)	I am a cargo vessel.
QSR	Shall I repeat the call on the calling frequency?	Repeat your call on the calling frequency; did not hear you (<i>or have interference</i>).
QTQ	Can you communicate with my station by means of the International Code of Signals?	I am going to communicate with your station by means of the International Code of Signals.

Abbreviation	Question	Answer or Advice
QUE	Can you use telephony in ... (<i>language</i>), with interpreter if necessary; if so, on what frequencies?	I can use telephony in ... (<i>language</i>) on ... kc/s (<i>or</i> Mc/s).
Time		
QTR	What is the correct time?	The correct time is ... hours.
QTU	What are the hours during which your station is open?	My station is open from ... to ... hours.
Charges		
QRC	By what private enterprise (<i>or</i> State Administration) are the accounts for charges for your station settled?	The accounts for charges of my station are settled by the private enterprise ... (<i>or</i> State Administration).
QSJ	What is the charge to be collected to ... including your internal charge?	The charge to be collected to ... including my internal charge is ... francs.
Transit		
QRW	Shall I inform ... that you are calling him on ... kc/s (<i>or</i> Mc/s)?	Please inform ... that I am calling him on ... kc/s (<i>or</i> Mc/s).
QSO	Can you communicate with ... direct (<i>or</i> by relay)?	I can communicate with ... direct (<i>or</i> by relay through ...).
QSP	Will you relay to ... free of charge?	I will relay to ... free of charge.
QSQ	Have you a doctor on board (<i>or</i> is... (<i>name of person</i>) on board)?	I have a doctor on board (<i>or</i> ... (<i>name of person</i>) is on board).
QUA	Have you news of ... (<i>call sign</i>)?	Here is news of ... (<i>call sign</i>).

Abbreviation	Question	Answer or Advice
QUC	What is the number (<i>or other indication</i>) of the last message you received from me (<i>or from . . . (call sign)</i>)?	The number (<i>or other indication</i>) of the last message I received from you (<i>or from . . . (call sign)</i>) is . . .
Exchange of Correspondence		
QRJ	How many radiotelephone calls have you to book?	I have . . . radiotelephone calls to book.
QRU	Have you anything for me?	I have nothing for you.
QSG	Shall I send . . . telegrams at a time?	Send . . . telegrams at a time.
QSI		I have been unable to break in on your transmission. <i>or</i> Will you inform . . . (<i>call sign</i>) that I have been unable to break in on his transmission (on . . . kc/s (<i>or</i> Mc/s)).
QSK	Can you hear me between your signals and if so can I break in on your transmission?	I can hear you between my signals; break in on my transmission.
QSL	Can you acknowledge receipt?	I am acknowledging receipt.
QSM	Shall I repeat the last telegram which I sent you (<i>or some previous telegram</i>)?	Repeat the last telegram which you sent me (<i>or telegram(s) number(s) . . .</i>).
QSZ	Shall I send each word or group more than once?	Send each word or group twice (<i>or . . . times</i>).
QTA	Shall I cancel telegram number . . . ?	Cancel telegram number . . .

Abbreviation	Question	Answer or Advice
QTB	Do you agree with my counting of words?	I do not agree with your counting of words; I will repeat the first letter or digit of each word or group.
QTC	How many telegrams have you to send?	I have ... telegrams for you (<i>or for ...</i>).
QTV	Shall I stand guard for you on the frequency of ... kc/s (<i>or Mc/s</i>) (from ... to ... hours)?	Stand guard for me on the frequency of ... kc/s (<i>or Mc/s</i>) (from ... to ... hours).
QTX	Will you keep your station open for further communication with me until further notice (<i>or until ... hours</i>)?	I will keep my station open for further communication with you until further notice (<i>or until ... hours</i>).
Movement		
QRE	What is your estimated time of arrival at ... (<i>or over</i>) ... (<i>place</i>)?	My estimated time of arrival at ... (<i>or over ...</i>) (<i>place</i>) is ... hours.
QRF	Are you returning to ... (<i>place</i>)?	I am returning to ... (<i>place</i>). <i>or</i> Return to ... (<i>place</i>).
QSH	Are you able to home on your D/F equipment?	I am able to home on my D/F equipment (on station ...).
QTI	What is your TRUE track?	My TRUE track is ... degrees.
Q TJ	What is your speed? (<i>Requests the speed of a ship or aircraft through the water or air respectively.</i>)	My speed is ... knots (<i>or ... kilometres per hour or ... statute miles per hour</i>). (<i>Indicates the speed of a ship or aircraft through the water or air respectively.</i>)

Abbreviation	Question	Answer or Advice
QTK	What is the speed of your aircraft in relation to the surface of the earth?	The speed of my aircraft in relation to the surface of the earth is ... knots (<i>or</i> ... kilometres per hour <i>or</i> ... statute miles per hour).
QTL	What is your TRUE heading?	My TRUE heading is ... degrees.
QTM	What is your MAGNETIC heading?	My MAGNETIC heading is ... degrees.
QTN	At what time did you depart from ... (<i>place</i>)?	I departed from ... (<i>place</i>) at ... hours.
QTO	Have you left dock (<i>or port</i>)? <i>or</i> Are you airborne?	I have left dock (<i>or port</i>). <i>or</i> I am airborne.
QTP	Are you going to enter dock (<i>or port</i>)? <i>or</i> Are you going to alight (<i>or land</i>)?	I am going to enter dock (<i>or port</i>) <i>or</i> I am going to alight (<i>or land</i>).
QUG	Will you be forced to alight (<i>or land</i>)?	I am forced to alight (<i>or land</i>) immediately. <i>or</i> I shall be forced to alight (<i>or land</i>) at ... (<i>position or place</i>) at ... hours.
QUJ	Will you indicate the TRUE track to reach you (<i>or</i> ...)?	The TRUE track to reach me (<i>or</i> ...) is ... degrees at ... hours.
QUN	Will vessels in my immediate vicinity ... <i>or</i> (in the vicinity of ... latitude ... longitude) <i>or</i> (in the vicinity of ...) please indicate their position, TRUE course and speed?	My position, TRUE course and speed are ...

Abbreviation	Question	Answer or Advice
Meteorology		
QUB	Can you give me in the following order information concerning: the direction in degrees TRUE and speed of the surface wind; visibility; present weather; and amount, type and height of base of cloud above surface elevation at ... (<i>place of observation</i>)?	Here is the information requested ... (<i>The units used for speed and distances should be indicated.</i>)
QUH	Will you give me the present barometric pressure at sea level?	The present barometric pressure at sea level is ... (<i>units</i>).
QUK	Can you tell me the condition of the sea observed at ... (<i>place or co-ordinates</i>)?	The sea at ... (<i>place or co-ordinates</i>) is ...
QUL	Can you tell me the swell observed at ... (<i>place or co-ordinates</i>)	The swell at ... (<i>place or co-ordinates</i>) is ...
Radio Direction-Finding		
QTE	What is my TRUE bearing from you?	Your TRUE bearing from me is ... degrees at ... hours.
	<i>or</i> What is my TRUE bearing from ... (<i>call sign</i>)?	<i>or</i> Your TRUE bearing from ... (<i>call sign</i>) was ... degrees at ... hours.
	<i>or</i> What is the TRUE bearing of ... (<i>call sign</i>) from .. (<i>call sign</i>)?	<i>or</i> The TRUE bearing of ... (<i>call sign</i>) from ... (<i>call sign</i>) was ... degrees at ... hours.
QTF	Will you give me the position of my station according to the bearings taken by the D/F stations which you control?	The position of your station according to the bearings taken by the D/F stations which I control was ... latitude ... longitude (<i>or other indication of position</i>), class ... at ... hours.

Abbreviation	Question	Answer or Advice
QTG	<p>Will you send two dashes of ten seconds each followed by your call sign (repeated . . . times) (on . . . kc/s (or Mc/s))?</p> <p style="text-align: center;"><i>or</i></p> <p>Will you request . . . to send two dashes of ten seconds followed by his call sign (repeated . . . times) on . . . kc/s (or Mc/s)?</p>	<p>I am going to send two dashes of ten seconds each followed by my call sign (repeated . . . times) (on . . . kc/s (or Mc/s)).</p> <p style="text-align: center;"><i>or</i></p> <p>I have requested . . . to send two dashes of ten seconds followed by his call sign (repeated . . . times) on . . . kc/s (or Mc/s).</p>
Suspension of Work		
QRT	Shall I stop sending?	Stop sending.
QUM	May I resume normal working?	Normal working may be resumed.
Urgency		
QUD	Have you received the urgency signal sent by . . . (<i>call sign of mobile station</i>)?	I have received the urgency signal sent by . . . (<i>call sign of mobile station</i>) at . . . hours.
QUG	Will you be forced to alight (<i>or land</i>)?	<p>I am forced to alight (<i>or land</i>) immediately.</p> <p style="text-align: center;"><i>or</i></p> <p>I shall be forced to alight (<i>or land</i>) at . . . (<i>position or place</i>) at . . . hours.</p>
Distress		
QUF	Have you received the distress signal sent by . . . (<i>call sign of mobile station</i>)?	I have received the distress signal sent by . . . (<i>call sign of mobile station</i>) at . . . hours.
QUM	May I resume normal working?	Normal working may be resumed.
Search and Rescue		
QSE	What is the estimated drift of the survival craft?	The estimated drift of the survival craft is . . . (<i>figures and units</i>).

Abbreviation	Question	Answer or Advice
QSF	Have you effected rescue?	I have effected rescue and am proceeding to . . . base (with . . . persons injured requiring ambulance).
QTD	What has the rescue vessel or rescue aircraft recovered?	. . . (<i>identification</i>) has recovered . . . 1. . . . (<i>number</i>) survivors 2. wreckage 3. . . . (<i>number</i>) bodies.
QTW	What is the condition of survivors?	Survivors are in . . . condition and urgently need . . .
QTY	Are you proceeding to the position of incident and if so when do you expect to arrive?	I am proceeding to the position of incident and expect to arrive at . . . hours (on . . . date).
QTZ	Are you continuing the search?	I am continuing the search for . . . (aircraft, ship, survival craft, survivors or wreckage).
QUI	Are your navigation lights working?	My navigation lights are working.
QUN	Will vessels in my immediate vicinity . . . <i>or</i> (in the vicinity of . . . latitude longitude . . .) <i>or</i> (in the vicinity of . . .) please indicate their position, TRUE course and speed?	My position, TRUE course and speed are . . .
QUO	Shall I search for . . . 1. aircraft 2. ship 3. survival craft in the vicinity of . . . latitude . . . longitude (<i>or according to any other indication</i>)?	Please search for . . . 1. aircraft 2. ship 3. survival craft in the vicinity of . . . latitude . . . longitude (<i>or according to any other indication</i>).

Abbreviation	Question	Answer or Advice
QUP	Will you indicate your position by . . . 1. searchlight 2. black smoke trail 3. pyrotechnic lights?	My position is indicated by . . . 1. searchlight 2. black smoke trail 3. pyrotechnic lights.
QUQ	Shall I train my searchlight nearly vertical on a cloud, occulting if possible and, if your aircraft is seen, deflect the beam up wind and on the water (<i>or</i> land) to facilitate your landing?	Please train your searchlight on a cloud, occulting if possible and, if my aircraft is seen or heard, deflect the beam up wind and on the water (<i>or</i> land) to facilitate my landing.
QUR	Have survivors . . . 1. received survival equipment 2. been picked up by rescue vessel 3. been reached by ground rescue party?	Survivors . . . 1. are in possession of survival equipment dropped by . . . 2. have been picked up by rescue vessel 3. have been reached by ground rescue party.
QUS	Have you sighted survivors or wreckage? If so, in what position?	Have sighted . . . 1. survivors in water 2. survivors on rafts 3. wreckage in position . . . latitude . . . longitude (<i>or according to any other indication</i>).
QUT	Is position of incident marked?	Position of incident is marked by... 1. flame or smoke float 2. sea marker 3. sea marker dye 4. . . . (<i>specify other marking</i>).

Abbreviation	Question	Answer or Advice
QUU	Shall I home ship or aircraft to my position?	Home ship or aircraft ... (<i>call sign</i>)... 1. to your position by transmitting your call sign and long dashes on . . . kc/s (<i>or</i> Mc/s) 2. by transmitting on . . . kc/s (<i>or</i> Mc/s) TRUE track to reach you.
QUW	Are you in the search area designated as... (<i>designator or latitude and longitude</i>)?	I am in the . . . (<i>designation</i>) search area.
QUY	Is position of survival craft marked?	Position of survival craft was marked at . . . hours by... 1. flame or smoke float 2. sea marker 3. sea marker dye 4. . . . (<i>specify other marking</i>).
QTT	Identification	The identification signal which follows is superimposed on another transmission.

SECTION II. MISCELLANEOUS ABBREVIATIONS AND SIGNALS

Abbreviation or Signal	Definition
AA	All after . . . (<i>used after a question mark to request a repetition</i>).
AB	All before . . . (<i>used after a question mark to request a repetition</i>).
ADS	Address (<i>used after a question mark to request a repetition</i>).
AR	End of transmission (. _ . _ . to be sent as one signal).
AS	Waiting period (. _ . . . to be sent as one signal).
BK	Signal used to interrupt a transmission in progress.
BN	All between . . . and . . . (<i>used after a question mark to request a repetition</i>).
BQ	A reply to an RQ.
CFM	Confirm (<i>or I confirm</i>).
CL	I am closing my station.
COL	Collate (<i>or I collate</i>).
CP	General call to two or more specified stations (<i>see Article 31</i>).
CQ	General call to all stations (<i>see Article 31</i>).
CS	Call sign (<i>used to request a call sign</i>).
DDD	Used to identify the transmission of the distress message by a station not itself in distress (<i>see No. 1459</i>).
DE	From (<i>used to precede the call sign of the calling station</i>).
DF	Your bearing at . . . hours was . . . degrees, in the doubtful sector of this station, with a possible error of . . . degrees.
DO	Bearing doubtful. Ask for another bearing later (<i>or at . . . hours</i>).
E	East (Cardinal).
ER	Here . . .
ETA	Estimated time of arrival.
ITP	The punctuation counts.
K	Invitation to transmit.
KMH	Kilometers per hour.
KTS	Nautical miles per hour (<i>Knots</i>).
MIN	Minute (<i>or Minutes</i>).

Abbreviation or Signal	Definition
MPH	Statute miles per hour.
MSG	Prefix indicating a message to or from the master of a ship concerning its operation or navigation.
N	North (Cardinal).
NIL	I have nothing to send to you.
NO	No (<i>Negative</i>).
NW	Now.
OK	We agree (<i>or It is correct</i>).
OL	Ocean Letter.
P	Prefix indicating a private radiotelegram.
PBL	Preamble (<i>used after a question mark to request a repetition</i>).
R	Received.
REF	Reference to . . . (<i>or Refer to . . .</i>).
RPT	Repeat (<i>or I repeat</i>) (<i>or Repeat . . .</i>).
RQ	Indication of a request.
S	South (Cardinal).
SIG	Signature (<i>used after a question mark to request a repetition</i>).
SLT	Radiomaritime Letter.
<u>SOS</u>	Distress Signal (. . . — — — . . . <i>to be sent as one signal</i>).
SS	Indicator preceding the name of a ship station.
SVC	Prefix indicating a service telegram.
SYS	Refer to your service telegram.
TFC	Traffic.
TR	Used by a land station to request the position and next port of call of a mobile station (<i>see No. 1083</i>) ; used also as a prefix to the reply.
TTT	This group when sent three times constitutes the safety signal (<i>see No. 1488</i>).
TU	Thank you.
<u>TXT</u>	Text (<i>used after a question mark to request a repetition</i>).
<u>V</u> A	End of work (. . . — — — <i>to be sent as one signal</i>).
W	West (Cardinal).

Abbreviation or Signal	Definition
WA	Word after . . . (<i>used after a question mark to request a repetition</i>).
WB	Word before . . . (<i>used after a question mark to request a repetition</i>).
WD	Word(s) or Group(s).
XQ	Prefix used to indicate an operating communication in the fixed service.
XXX	This group when sent three times constitutes the urgency signal (<i>see No. 1477</i>).
YES	Yes (<i>Affirmative</i>).

APPENDIX 13A

Mar

**Miscellaneous Abbreviations and Signals to be used
for Radiocommunications in the Maritime Mobile Service**

(See Articles 29, 33 and 36)

SECTION I. Q CODE**Introduction**

1. The series of groups listed in this Appendix range from QOA to QVZ.

2. The QOA to QQZ series are reserved for the maritime mobile service.

3. Certain Q code abbreviations may be given an affirmative or negative sense by sending, immediately following the abbreviation, the letter C or the letters NO (in radiotelephony spoken as : CHARLIE or NO).

4. The meanings assigned to Q code abbreviations may be amplified or completed by the appropriate addition of other groups, call signs, place names, figures, numbers, etc. It is optional to fill in the blanks shown in parentheses. Any data which is filled in where blanks appear shall be sent in the same order as shown in the text of the following tables.

5. Q code abbreviations are given the form of a question when followed by a questionmark in radiotelegraphy and RQ (ROMEO QUEBEC) in radiotelephony. When an abbreviation is used as a question and is followed by additional or complementary information, the question mark (or RQ) should follow this information.

6. Q code abbreviations with numbered alternative significations shall be followed by the appropriate figure to indicate the exact meaning intended. This figure shall be sent immediately following the abbreviation.

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7. All times shall be given in Greenwich Mean Time (G.M.T.) unless otherwise indicated in the question or reply.

8. An asterisk * following a Q code abbreviation means that this signal has a meaning similar to a signal appearing in the International Code of Signals.

Abbreviations Available for the Maritime Mobile Service

A. List of Abbreviations in Alphabetical Order

Abbreviation	Question	Answer or Advice
QOA	Can you communicate by radio-telegraphy (500 kc/s)?	I can communicate by radio-telegraphy (500 kc/s).
QOB	Can you communicate by radio-telephony (2 182 kc/s)?	I can communicate by radio-telephony (2 182 kc/s).
QOC	Can you communicate by radio-telephony (channel 16 - frequency 156-80 Mc/s)?	I can communicate by radio-telephony (channel 16 - frequency 156-80 Mc/s).
QOD	Can you communicate with me in... 0. Dutch 5. Italian 1. English 6. Japanese 2. French 7. Norwegian 3. German 8. Russian 4. Greek 9. Spanish?	I can communicate with you in... 0. Dutch 5. Italian 1. English 6. Japanese 2. French 7. Norwegian 3. German 8. Russian 4. Greek 9. Spanish.
QOE	Have you received the safety signal sent by... (<i>name and/or call sign</i>)?	I have received the safety signal sent by... (<i>name and/or call sign</i>).
QOF	What is the commercial quality of my signals?	The quality of your signals is... 1. not commercial 2. marginally commercial 3. commercial.
QOG	How many tapes have you to send?	I have... tapes to send.
QOH	Shall I send a phasing signal for... seconds?	Send a phasing signal for... seconds.
QOI	Shall I send my tape?	Send your tape.
QOJ	Will you listen on...kc/s (<i>or</i> Mc/s) for signals of emergency position-indicating radiobeacons?	I am listening on...kc/s (<i>or</i> Mc/s) for signals of emergency position-indicating radiobeacons.

Abbreviation	Question	Answer or Advice
QOK	Have you received the signals of an emergency position-indicating radiobeacon on... kc/s <i>(or Mc/s)</i> ?	I have received the signals of an emergency position-indicating radiobeacon on... kc/s <i>(or Mc/s)</i> .
QRA	What is the name of your vessel <i>(or station)</i> ?	The name of my vessel <i>(or station)</i> is...
QRB	How far approximately are you from my station?	The approximate distance between our stations is... nautical miles <i>(or kilometres)</i> .
QRC	By what private enterprise <i>(or State Administration)</i> are the accounts for charges for your station settled?	The accounts for charges of my station are settled by the private enterprise... <i>(or State Administration)</i> .
QRD	Where are you bound for and where are you from?	I am bound for... from...
QRE	What is your estimated time of arrival at... <i>(or over...)</i> <i>(place)</i> ?	My estimated time of arrival at... <i>(or over...)</i> <i>(place)</i> is... hours.
QRF	Are you returning to... <i>(place)</i> ?	I am returning to... <i>(place)</i> . <i>or</i> Return to... <i>(place)</i> .
QRG	Will you tell me my exact frequency <i>(or that of...)</i> ?	Your exact frequency <i>(or that of...)</i> is... kc/s <i>(or Mc/s)</i> .
QRH	Does my frequency vary?	Your frequency varies.
QRI	How is the tone of my transmission?	The tone of your transmission is... 1. good 2. variable 3. bad.
QRJ	How many radiotelephone calls have you to book?	I have... radiotelephone calls to book.

Abbreviation	Question	Answer or Advice
QRK	What is the intelligibility of my signals (or those of... (name and/or call sign))?	The intelligibility of your signals (or those of... (name and/or call sign)) is... 1. bad. 2. poor 3. fair 4. good 5. excellent.
QRL	Are you busy?	I am busy (or I am busy with... (name and/or call sign)). Please do not interfere.
QRM	Is my transmission being interfered with?	Your transmission is being interfered with... 1. nil 2. slightly 3. moderately 4. severely 5. extremely.
QRN	Are you troubled by static?	I am troubled by static... 1. nil 2. slightly 3. moderately 4. severely 5. extremely
QRO	Shall I increase transmitter power?	Increase transmitter power.
QRP	Shall I decrease transmitter power?	Decrease transmitter power.
QRQ	Shall I send faster?	Send faster (... words per minute).
QRR	Are you ready for automatic operation?	I am ready for automatic operation. Send at... words per minute.

Abbreviation	Question	Answer or Advice
QRS	Shall I send more slowly?	Send more slowly (... words per minute).
QRT	Shall I stop sending?	Stop sending.
QRU	Have you anything for me?	I have nothing for you.
QRV	Are you ready?	I am ready.
QRW	Shall I inform... that you are calling him on...kc/s (or Mc/s)?	Please inform... that I am calling him on...kc/s (or Mc/s).
QRX	When will you call me again?	I will call you again at... hours (on...kc/s (or Mc/s)).
QRY	What is my turn? (Relates to communication)	Your turn is Number... (or according to any other indication). (Relates to communication).
QRZ	Who is calling me?	You are being called by... (on...kc/s (or Mc/s)).
QSA	What is the strength of my signals (or those of... (name and/or call sign))?	The strength of your signals (or those of... (name and/or call sign)) is... 1. scarcely perceptible 2. weak 3. fairly good 4. good 5. very good.
QSB	Are my signals fading?	Your signals are fading.
QSC	Are you a low traffic ship station? (see Article 32, Section V)	I am a low traffic ship station.
QSD	Are my signals mutilated?	Your signals are mutilated.
QSE*	What is the estimated drift of the survival craft?	The estimated drift of the survival craft is... (figures and units).

Abbreviation	Question	Answer or Advice
QSF*	Have you effected rescue?	I have effected rescue and am proceeding to... base (with... persons injured requiring ambulance).
QSG	Shall I send... telegrams at a time?	Send... telegrams at a time.
QSH	Are you able to home with your direction-finding equipment?	I am able to home with my direction-finding equipment (on... <i>(name and/or call sign)</i>).
QSI		I have been unable to break in on your transmission. <i>or</i> Will you inform... <i>(name and/or call sign)</i> that I have been unable to break in on his transmission (on...kc/s <i>(or Mc/s)</i>).
QSJ	What is the charge to be collected to... including your internal charge?	The charge to be collected to... including my internal charge is... francs.
QSK	Can you hear me between your signals and if so may I break in on your transmission?	I can hear you between my signals; break in on my transmission.
QSL	Can you acknowledge receipt?	I am acknowledging receipt.
QSM	Shall I repeat the last telegram which I sent you <i>(or some previous telegram)</i> ?	Repeat the last telegram which you sent me <i>(or telegram(s) number(s)...)</i> .
QSN	Did you hear me <i>(or... (name and/or call sign) on...kc/s (or Mc/s)</i> ?	I did hear you <i>(or... (name and/or call sign) on...kc/s (or Mc/s)</i> .

Abbreviation	Question	Answer or Advice
QSO	Can you communicate with... <i>(name and/or call sign)</i> direct <i>(or by relay)</i> ?	I can communicate with... <i>(name and/or call sign)</i> direct <i>(or by relay through...)</i> .
QSP	Will you relay to... <i>(name and/or call sign)</i> free of charge?	I will relay to... <i>(name and/or call sign)</i> free of charge.
QSQ	Have you a doctor on board <i>(or is... (name of person) on board)</i> ?	I have a doctor on board <i>(or... (name of person) is on board)</i> .
QSR	Shall I repeat the call on the calling frequency?	Repeat your call on the calling frequency; did not hear you <i>(or have interference)</i> .
QSS	What working frequency will you use?	I will use the working frequency ...kc/s <i>(or Mc/s)</i> <i>(in the high frequency bands normally only the last three figures of the frequency need be given)</i> .
QSU	Shall I send or reply on this frequency <i>(or on...kc/s (or Mc/s))</i> <i>(with emissions of class...)</i> ?	Send or reply on this frequency <i>(or on...kc/s (or Mc/s))</i> <i>(with emissions of class...)</i> .
QSV	Shall I send a series of V's <i>(or signs)</i> for adjustment on this frequency <i>(or on...kc/s (or Mc/s))</i> ?	Send a series of V's <i>(or signs)</i> for adjustment on this frequency <i>(or on...kc/s (or Mc/s))</i> .
QSW	Will you send on this frequency <i>(or on...kc/s (or Mc/s))</i> <i>(with emissions of class...)</i> ?	I am going to send on this frequency <i>(or on...kc/s (or Mc/s))</i> <i>(with emissions of class...)</i> .
QSX	Will you listen to... <i>(name and/or call sign(s))</i> on...kc/s <i>(or Mc/s)</i> ?	I am listening to... <i>(name and/or call sign(s))</i> on...kc/s <i>(or Mc/s)</i> .
QSY	Shall I change to transmission on another frequency?	Change to transmission on another frequency <i>(or on... kc/s (or Mc/s))</i> .

Abbreviation	Question	Answer or Advice
QSZ	Shall I send each word or group more than once?	Send each word or group twice (<i>or... times</i>).
QTA	Shall I cancel telegram (<i>or message</i>) number...?	Cancel telegram (<i>or message</i>) number...
QTB	Do you agree with my counting of words?	I do not agree with your counting of words; I will repeat the first letter or digit of each word or group.
QTC	How many telegrams have you to send?	I have... telegrams for you (<i>or for... (name and/or call sign)</i>).
QTD*	What has the rescue vessel or rescue aircraft recovered?	... (<i>identification</i>) has recovered... 1. ... (<i>number</i>) survivors 2. wreckage 3. ... (<i>number</i>) bodies.
QTE	What is my TRUE bearing from you?	Your TRUE bearing from me is... degrees at... hours.
	<i>or</i> What is my TRUE bearing from... (<i>name and/or call sign</i>)?	Your TRUE bearing from... (<i>name and/or call sign</i>) was... degrees at... hours.
	<i>or</i> What is the TRUE bearing of... (<i>name and/or call sign</i>) from... (<i>name and/or call sign</i>)?	The TRUE bearing of... (<i>name and/or call sign</i>) from... (<i>name and/or call sign</i>) was... degrees at... hours.
QTF	Will you give me my position according to the bearings taken by the direction-finding stations which you control?	Your position according to the bearings taken by the direction-finding stations which I control was... latitude... longitude (<i>or other indication of position</i>), class... at... hours.

Abbreviation	Question	Answer or Advice
QTG	<p>Will you send two dashes of ten seconds each (<i>or carrier</i>) followed by your call sign (<i>or name</i>) (repeated... times) on...kc/s (<i>or Mc/s</i>)?</p> <p style="text-align: right;"><i>or</i></p> <p>Will you request... (<i>name and/or call sign</i>) to send two dashes of ten seconds each (<i>or carrier</i>) followed by his call sign (<i>and/or name</i>) (repeated... times) on... kc/s (<i>or Mc/s</i>)?</p>	<p>I am going to send two dashes of ten seconds each (<i>or carrier</i>) followed by my call sign (<i>or name</i>) (repeated... times) on... kc/s (<i>or Mc/s</i>).</p> <p style="text-align: right;"><i>or</i></p> <p>I have requested... (<i>name and/or call sign</i>) to send two dashes of ten seconds each (<i>or carrier</i>) followed by his call sign (<i>and/or name</i>) (repeated... times) on... kc/s (<i>or Mc/s</i>).</p>
QTH	<p>What is your position in latitude and longitude (<i>or according to any other indication</i>)?</p>	<p>My position is... latitude... longitude (<i>or according to any other indication</i>).</p>
QTI*	<p>What is your TRUE course?</p>	<p>My TRUE course is... degrees.</p>
Q TJ*	<p>What is your speed?</p> <p><i>(Requests the speed of a ship or aircraft through the water or air respectively).</i></p>	<p>My speed is... knots (<i>or kilometres per hour or... statute miles per hour</i>).</p> <p><i>(Indicates the speed of a ship or aircraft through the water or air respectively).</i></p>
QTK*	<p>What is the speed of your aircraft in relation to the surface of the earth?</p>	<p>The speed of my aircraft in relation to the surface of the earth is... knots (<i>or... kilometres per hour or... statute miles per hour</i>).</p>
QTL*	<p>What is your TRUE heading?</p>	<p>My TRUE heading is... degrees.</p>

Abbreviation	Question	Answer or Advice
QTM*	What is your MAGNETIC heading?	My MAGNETIC heading is... degrees.
QTN	At what time did you depart from ... (<i>place</i>)?	I departed from... (<i>place</i>) at... hours.
QTO	Have you left dock (<i>or port</i>)? <i>or</i> Are you airborne?	I have left dock (<i>or port</i>). <i>or</i> I am airborne.
QTP	Are you going to enter dock (<i>or port</i>)? <i>or</i> Are you going to alight (<i>or land</i>)?	I am going to enter dock (<i>or port</i>). <i>or</i> I am going to alight (<i>or land</i>).
QTQ	Can you communicate with my station by means of the International Code of Signals (INTERCO)?	I am going to communicate with your station by means of the International Code of Signals (INTERCO).
QTR	What is the correct time?	The correct time is... hours.
QTS	Will you send your call sign (<i>and/or name</i>) for... seconds?	I will send my call sign (<i>and/or name</i>) for... seconds.
QTT		The identification signal which follows is superimposed on another transmission.
QTU	What are the hours during which your station is open?	My station is open from... to... hours.
QTV	Shall I stand guard for you on the frequency of...kc/s (<i>or Mc/s</i>) (from... to... hours)?	Stand guard for me on the frequency of...kc/s (<i>or Mc/s</i>) (from... to... hours).
QTW*	What is the condition of survivors?	Survivors are in... condition and urgently need...

Abbreviation	Question	Answer or Advice
QTX	Will you keep your station open for further communication with me until further notice (<i>or until ...hours</i>)?	I will keep my station open for further communication with you until further notice (<i>or until... hours</i>).
QTY*	Are you proceeding to the position of incident and if so when do you expect to arrive?	I am proceeding to the position of incident and expect to arrive at... hours (<i>on... date</i>).
QTZ*	Are you continuing the search?	I am continuing the search for... (<i>aircraft, ship, survival craft, survivors or wreckage</i>).
QUA	Have you news of... (<i>name and/or call sign</i>)?	Here is news of... (<i>name and/or call sign</i>).
QUB*	Can you give me in the following order information concerning: the direction in degrees TRUE and speed of the surface wind; visibility; present weather; and amount, type and height of base of cloud above surface elevation at... (<i>place of observation</i>)?	Here is the information requested: ... (<i>The units used for speed and distances should be indicated</i>).
QUC	What is the number (<i>or other indication</i>) of the last message you received from me (<i>or from... (name and/or call sign)</i>)?	The number (<i>or other indication</i>) of the last message I received from you (<i>or from... (name and/or call sign)</i>) is...
QUD	Have you received the urgency signal sent by... (<i>name and/or call sign</i>)?	I have received the urgency signal sent by... (<i>name and/or call sign</i>) at... hours.
QUE	Can you speak in... (<i>language</i>), with interpreter if necessary; if so, on what frequencies?	I can speak in... (<i>language</i>) on ...kc/s (<i>or Mc/s</i>).
QUF	Have you received the distress signal sent by... (<i>name and/or call sign</i>)?	I have received the distress signal sent by... (<i>name and/or call sign</i>) at... hours.

Abbreviation	Question	Answer or Advice
QUH*	Will you give me the present barometric pressure at sea level?	The present barometric pressure at sea level is... (<i>units</i>).
QUM	May I resume normal working?	Normal working may be resumed.
QUN	<p>1. <i>When directed to all stations:</i></p> <p>Will vessels in my immediate vicinity... <i>or</i> (in the vicinity of... latitude... longitude) <i>or</i> (in the vicinity of...) please indicate their position, TRUE course and speed?</p>	My position, TRUE course and speed are...
	<p>2. <i>When directed to a single station:</i> Please indicate your position, TRUE course and speed?</p>	
QUO*	<p>Shall I search for...</p> <ol style="list-style-type: none"> 1. aircraft 2. ship 3. survival craft <p>in the vicinity of... latitude... longitude (<i>or according to any other indication</i>)?</p>	<p>Please search for...</p> <ol style="list-style-type: none"> 1. aircraft 2. ship 3. survival craft <p>in the vicinity of... latitude... longitude (<i>or according to any other indication</i>).</p>
	<p>Will you indicate your position by...</p> <ol style="list-style-type: none"> 1. searchlight 2. black smoke trail 3. pyrotechnic lights? 	
QUP*	Will you indicate your position by...	My position is indicated by...
QUR*	<p>Have survivors...</p> <ol style="list-style-type: none"> 1. received survival equipment 2. been picked up by rescue vessel 3. been reached by ground rescue party? 	<p>Survivors...</p> <ol style="list-style-type: none"> 1. are in possession of survival equipment dropped by... 2. have been picked up by rescue vessel 3. have been reached by ground rescue party.
	<p>1. searchlight</p> <p>2. black smoke trail</p> <p>3. pyrotechnic lights.</p>	
QUS*	Have you sighted survivors or wreckage? If so, in what position?	<p>Have sighted...</p> <ol style="list-style-type: none"> 1. survivors in water 2. survivors on rafts 3. wreckage <p>in position... latitude... longitude (<i>or according to any other indication</i>).</p>

Abbreviation	Question	Answer or Advice
QUT*	Is position of incident marked?	Position of incident is marked by... 1. flame or smoke float 2. sea marker 3. sea marker dye 4. ... (<i>specify other marking</i>).
QUU*	Shall I home ship or aircraft to my position?	Home ship or aircraft... <i>(name and/or call sign)</i> ... 1. to your position by sending your call sign and long dashes on...kc/s (<i>or</i> Mc/s) 2. by sending on...kc/s (<i>or</i> Mc/s) TRUE track to reach you.
QUW*	Are you in the search area designated as... (<i>designator or latitude and longitude</i>)?	I am in the... (<i>designation</i>) search area.
QUY*	Is position of survival craft marked?	Position of survival craft was marked at... hours by... 1. flame or smoke float 2. sea marker 3. sea marker dye 4. ... (<i>specify other marking</i>).

B. List of Signals according to the Nature of Questions, Answer or Advice

Abbr- viation	Question	Answer or Advice
	Name	
QRA	What is the name of your vessel (<i>or</i> station)?	The name of my vessel (<i>or</i> station) is...
	Route	
QRD	Where are you bound for and where are you from?	I am bound for... from...
	Position	
QRB	How far approximately are you from my station?	The approximate distance between our stations is... nautical miles (<i>or</i> kilometres).
QTH	What is your position in latitude and longitude (<i>or according to any other indication</i>)?	My position is... latitude... longitude (<i>or according to any other indication</i>).
QTN	At what time did you depart from ... (<i>place</i>)?	I departed from... (<i>place</i>) at... hours.
	Quality of Signals	
QOF	What is the commercial quality of my signals?	The quality of your signals is... 1. not commercial 2. marginally commercial 3. commercial.
QRI	How is the tone of my transmission?	The tone of your transmission is... 1. good 2. variable 3. bad.
QRK	What is the intelligibility of my signals (<i>or those of... (name and/or call sign)</i>)?	The intelligibility of your signals (<i>or those of... (name and/or call sign)</i>) is... 1. bad 2. poor 3. fair 4. good 5. excellent.

Abbreviation	Question	Answer or Advice
Strength of Signals		
QRO	Shall I increase transmitter power?	Increase transmitter power.
QRP	Shall I decrease transmitter power?	Decrease transmitter power.
QSA	What is the strength of my signals (or those of... (name and/or call sign))?	The strength of your signals (or those of... (name and/or call sign)) is... 1. scarcely perceptible 2. weak 3. fairly good 4. good 5. very good.
QSB	Are my signals fading?	Your signals are fading.
Keying		
QRQ	Shall I send faster?	Send faster (... words per minute).
QRR	Are you ready for automatic operation?	I am ready for automatic operation. Send at... words per minute.
QRS	Shall I send more slowly?	Send more slowly (... words per minute).
QSD	Are my signals mutilated?	Your signals are mutilated.
Interference		
QRM	Is my transmission being interfered with?	Your transmission is being interfered with... 1. nil 2. slightly 3. moderately 4. severely 5. extremely.

Abbreviation	Question	Answer or Advice
Interference (cont.)		
QRN	Are you troubled by static?	I am troubled by static... 1. nil 2. slightly 3. moderately 4. severely 5. extremely.
Adjustment of Frequency		
QRG	Will you tell me my exact frequency (or that of...)?	Your exact frequency (or that of...) is... kc/s (or Mc/s).
QRH	Does my frequency vary?	Your frequency varies.
QTS	Will you send your call sign (and/or name) for... seconds?	I will send my call sign (and/or name) for... seconds.
Choice of Frequency and / or Class of Emission		
QSN	Did you hear me (or... (name and/or call sign)) on...kc/s (or Mc/s)?	I did hear you (or... (name and/or call sign)) on...kc/s (or Mc/s).
QSS	What working frequency will you use?	I will use the working frequency ...kc/s (or Mc/s) (in the high frequency bands normally only the last three figures of the frequency need be given).
QSU	Shall I send or reply on this frequency (or on...kc/s (or Mc/s)) (with emissions of class...)?	Send or reply on this frequency (or on...kc/s (or Mc/s)) (with emissions of class...).
QSV	Shall I send a series of V's (or signs) for adjustment on this frequency (or...kc/s (or Mc/s))?	Send a series of V's (or signs) for adjustment on this frequency (or...kc/s (or Mc/s)).

Abbreviation	Question	Answer or Advice
Choice of Frequency and/or Class of Emission (cont.)		
QSW	Will you send on this frequency (<i>or</i> on... kc/s (<i>or</i> Mc/s)) (with emissions of class...)?	I am going to send on this frequency (<i>or</i> on...kc/s (<i>or</i> Mc/s)) (with emissions of class...).
QSX	Will you listen to... (<i>name and/or call sign(s)</i>) on...kc/s (<i>or</i> Mc/s)?	I am listening to... (<i>name and/or call sign(s)</i>) on...kc/s (<i>or</i> Mc/s).
Change of Frequency		
QSY	Shall I change to transmission on another frequency?	Change to transmission on another frequency (<i>or</i> on ... kc/s (<i>or</i> Mc/s)).
Establishing Communication		
QOA	Can you communicate by radiotelegraphy (500 kc/s)?	I can communicate by radiotelegraphy (500 kc/s).
QOB	Can you communicate by radiotelephony (2 182 kc/s)?	I can communicate by radiotelephony (2 182 kc/s).
QOC	Can you communicate by radiotelephony (channel 16-frequency 156·80 Mc/s)?	I can communicate by radiotelephony (channel 16-frequency 156·80Mc/s).
QOD	Can you communicate with me in... 0. Dutch 5. Italian 1. English 6. Japanese 2. French 7. Norwegian 3. German 8. Russian 4. Greek 9. Spanish?	I can communicate with you in... 0. Dutch 5. Italian 1. English 6. Japanese 2. French 7. Norwegian 3. German 8. Russian 4. Greek 9. Spanish.
QRL	Are you busy?	I am busy (<i>or</i> I am busy with... (<i>name and/or call sign</i>)). Please do not interfere.
QRV	Are you ready?	I am ready.

Abbreviation	Question	Answer or Advice
Establishing Communication (cont.)		
QRX	When will you call me again?	I will call you again at... hours (on...kc/s (or Mc/s)).
QRY	What is my turn? <i>(Relates to communication)</i>	Your turn is Number... <i>(or according to any other indication)</i> . <i>(Relates to communication)</i>
QRZ	Who is calling me?	You are being called by... (on ...kc/s (or Mc/s)).
QSC	Are you a low traffic ship station? <i>(see Article 32, Section V)</i>	I am a low traffic ship station.
QSR	Shall I repeat the call on the calling frequency?	Repeat your call on the calling frequency; did not hear you <i>(or have interference)</i> .
QTQ	Can you communicate with my station by means of the International Code of Signals (INTERCO)?	I am going to communicate with your station by means of the International Code of Signals (INTERCO).
QUE	Can you speak in... <i>(language)</i> , with interpreter if necessary; if so, on what frequencies?	I can speak in... <i>(language)</i> on...kc/s (or Mc/s).
Time		
QTR	What is the correct time?	The correct time is... hours.
QTU	What are the hours during which your station is open?	My station is open from... to... hours.
Charges		
QRC	By what private enterprise <i>(or State Administration)</i> are the accounts for charges for your station settled?	The accounts for charges of my station are settled by the private enterprise... <i>(or State Administration)</i> .

Abbreviation	Question	Answer or Advice
Charges (cont.)		
QSJ	What is the charge to be collected to... including your internal charge?	The charge to be collected to... including my internal charge is... francs.
Transit		
QRW	Shall I inform... that you are calling him on...kc/s (or Mc/s)?	Please inform... that I am calling him on...kc/s (or Mc/s).
QSO	Can you communicate with... (name and/or call sign) direct (or by relay)?	I can communicate with... (name and/or call sign) direct (or by relay through...).
QSP	Will you relay to... (name and/or call sign) free of charge?	I will relay to... (name and/or call sign) free of charge.
QSQ	Have you a doctor on board (or is... (name of person) on board)?	I have a doctor on board (or... (name of person) is on board).
QUA	Have you news of... (name and/or call sign)?	Here is news of... (name and/or call sign).
QUC	What is the number (or other indication) of the last message you received from me (or from... (name and/or call sign))?	The number (or other indication) of the last message I received from you (or from... (name and/or call sign)) is...
Exchange of Correspondence		
QOG	How many tapes have you to send?	I have... tapes to send.
QOH	Shall I send a phasing signal for... seconds?	Send a phasing signal for... seconds.
QOI	Shall I send my tape?	Send your tape.
QRJ	How many radiotelephone calls have you to book?	I have... radiotelephone calls to book.

Abbreviation	Question	Answer or Advice
	Exchange of Correspondence (cont.)	
QRU	Have you anything for me?	I have nothing for you.
QSG	Shall I send... telegrams at a time?	Send... telegrams at a time.
QSI		I have been unable to break in on your transmission. <i>or</i> Will you inform... (<i>name and/or call sign</i>) that I have been unable to break in on his transmission (on...kc/s (<i>or</i> Mc/s)).
QSK	Can you hear me between your signals and if so may I break in on your transmission?	I can hear you between my signals; break in on my transmission.
QSL	Can you acknowledge receipt?	I am acknowledging receipt.
QSM	Shall I repeat the last telegram which I sent you (<i>or</i> some previous telegram)?	Repeat the last telegram which you sent me (<i>or</i> telegram(s) number(s)...).
QSZ	Shall I send each word or group more than once?	Send each word or group twice (<i>or</i> ... times).
QTA	Shall I cancel telegram (<i>or</i> message) number...?	Cancel telegram (<i>or</i> message) number...
QTB	Do you agree with my counting of words?	I do not agree with your counting of words; I will repeat the first letter or digit of each word or group.
QTC	How many telegrams have you to send?	I have... telegrams for you (<i>or</i> for... (<i>name and/or call sign</i>)).

Abbreviation	Question	Answer or Advice
	Exchange of Correspondence (cont.)	
QTV	Shall I stand guard for you on the frequency of...kc/s (<i>or</i> Mc/s) (from... to... hours)?	Stand guard for me on the frequency of...kc/s (<i>or</i> Mc/s) (from ... to... hours).
QTX	Will you keep your station open for further communication with me until further notice (<i>or</i> until ...hours)?	I will keep my station open for further communication with you until further notice (<i>or</i> until... hours).
	Movement	
QRE	What is your estimated time of arrival at...(or over...)(<i>place</i>)?	My estimated time of arrival at... (<i>or</i> over...) (<i>place</i>) is... hours.
QRF	Are you returning to... (<i>place</i>)?	I am returning to... (<i>place</i>). <i>or</i> Return to... (<i>place</i>).
QSH	Are you able to home with your direction-finding equipment?	I am able to home with my direction-finding equipment (on... (<i>name and/or call sign</i>)).
QTI*	What is your TRUE course?	My TRUE course is... degrees.
Q TJ*	What is your speed? (<i>Requests the speed of a ship or aircraft through the water or air respectively.</i>)	My speed is... knots (<i>or</i> ... kilometres per hour <i>or</i> ... statute miles per hour). (<i>Indicates the speed of a ship or aircraft through the water or air respectively.</i>)
QTK*	What is the speed of your aircraft in relation to the surface of the earth?	The speed of my aircraft in relation to the surface of the earth is... knots (<i>or</i> ... kilometres per hour <i>or</i> ... statute miles per hour).

Abbreviation	Question	Answer or Advice
Movement (cont.)		
QTL*	What is your TRUE heading?	My TRUE heading is... degrees.
QTM*	What is your MAGNETIC heading?	My MAGNETIC heading is... degrees.
QTN	At what time did you depart from ... <i>(place)</i> ?	I departed from... <i>(place)</i> at... hours.
QTO	Have you left dock <i>(or port)</i> ?	I have left dock <i>(or port)</i> .
	<i>or</i> Are you airborne?	<i>or</i> I am airborne.
QTP	Are you going to enter dock <i>(or port)</i> ?	I am going to enter dock <i>(or port)</i> .
	<i>or</i> Are you going to alight <i>(or land)</i> ?	<i>or</i> I am going to alight <i>(or land)</i> .
QUN	<p>1. <i>When directed to all stations:</i> Will vessels in my immediate vicinity... <i>or</i> (in the vicinity of... latitude... longitude) <i>or</i> (in the vicinity of...) please indicate their position, TRUE course and speed?</p> <p>2. <i>When directed to a single station:</i> Please indicate your position, TRUE course and speed?</p>	My position, TRUE course and speed are...
Meteorology		
QUB*	Can you give me in the following order information concerning: the direction in degrees TRUE and speed of the surface wind; visibility; present weather; and amount, type and height of base of cloud above surface elevation at... <i>(place of observation)</i> ?	Here is the information requested: ... <i>(The units used for speed and distances should be indicated).</i>
QUH*	Will you give me the present barometric pressure at sea level?	The present barometric pressure at sea level is... <i>(units)</i> .

Abbreviation	Question	Answer or Advice
	<p>Radio Direction-Finding</p>	
QTE	<p>What is my TRUE bearing from you?</p>	<p>Your TRUE bearing from me is... degrees at... hours.</p>
	<i>or</i>	<i>or</i>
	<p>What is my TRUE bearing from... (name and/or call sign)?</p>	<p>Your TRUE bearing from... (name and/or call sign) was... degrees at... hours.</p>
	<i>or</i>	<i>or</i>
	<p>What is the TRUE bearing of... (name and/or call sign) from... (name and/or call sign)?</p>	<p>The TRUE bearing of... (name and/or call sign) from... (name and/or call sign) was... degrees at... hours.</p>
QTF	<p>Will you give me my position according to the bearings taken by the direction-finding stations which you control?</p>	<p>Your position according to the bearings taken by the direction-finding stations which I control was... latitude... longitude (or other indication of position), class... at... hours.</p>
QTG	<p>Will you send two dashes of ten seconds each (or carrier) followed by your call sign (or name) (repeated... times) (on... kc/s (or Mc/s))?</p>	<p>I am going to send two dashes of ten seconds each (or carrier) followed by my call sign (or name) (repeated... times) (on... kc/s (or Mc/s)).</p>
	<i>or</i>	<i>or</i>
	<p>Will you request... (name and/or call sign) to send two dashes of ten seconds each (or carrier) followed by his call sign (and/or name) (repeated... times) on... kc/s (or Mc/s)?</p>	<p>I have requested... (name and/or call sign) to send two dashes of ten seconds each (or carrier) followed by his call sign (and/or name) (repeated... times) on... kc/s (or Mc/s).</p>

Abbreviation	Question	Answer or Advice
Suspension of Work		
QRT	Shall I stop sending?	Stop sending.
QUM	May I resume normal working?	Normal working may be resumed.
Safety		
QOE	Have you received the safety signal sent by... <i>(name and/or call sign)</i> ?	I have received the safety signal sent by... <i>(name and/or call sign)</i> .
Urgency		
QUD	Have you received the urgency signal sent by... <i>(name and/or call sign)</i> ?	I have received the urgency signal sent by... <i>(name and/or call sign)</i> at... hours.
Distress		
QOJ	Will you listen on... <i>kc/s (or Mc/s)</i> for signals of emergency position-indicating radiobeacons?	I am listening on... <i>kc/s (or Mc/s)</i> for signals of emergency position-indicating radiobeacons.
QOK	Have you received the signals of an emergency position-indicating radiobeacon on... <i>kc/s (or Mc/s)</i> ?	I have received the signals of an emergency position-indicating radiobeacon on... <i>kc/s (or Mc/s)</i> .
QUF	Have you received the distress signal sent by... <i>(name and/or call sign)</i> ?	I have received the distress signal sent by... <i>(name and/or call sign)</i> at... hours.
QUM	May I resume normal working?	Normal working may be resumed.
Search and Rescue		
QSE*	What is the estimated drift of the survival craft?	The estimated drift of the survival craft is... <i>(figures and units)</i> .
QSF*	Have you effected rescue?	I have effected rescue and am proceeding to... base (with... persons injured requiring ambulance).

Abbreviation	Question	Answer or Advice
Search and Rescue (cont.)		
QTD*	What has the rescue vessel or rescue aircraft recovered?	... (<i>identification</i>) has recovered... 1. ... (<i>number</i>) survivors 2. wreckage 3. ... (<i>number</i>) bodies.
QTW*	What is the condition of survivors?	Survivors are in... condition and urgently need...
QTY*	Are you proceeding to the position of incident and if so when do you expect to arrive?	I am proceeding to the position of incident and expect to arrive at... hours (on... <i>date</i>).
QTZ*	Are you continuing the search?	I am continuing the search for... (aircraft, ship, survival craft, survivors or wreckage).
QUN	1. <i>When directed to all stations:</i> Will vessels in my immediate vicinity... <i>or</i> (in the vicinity of... latitude... longitude) <i>or</i> (in the vicinity of...) please indicate their position, TRUE course and speed? 2. <i>When directed to a single station:</i> Please indicate your position, TRUE course and speed?	My position, TRUE course and speed are...
QUO*	Shall I search for... 1. aircraft 2. ship 3. survival craft in the vicinity of... latitude... longitude (<i>or according to any other indication</i>)?	Please search for... 1. aircraft 2. ship 3. survival craft in the vicinity of... latitude... longitude (<i>or according to any other indication</i>).
QUP*	Will you indicate your position by... 1. searchlight 2. black smoke trail 3. pyrotechnic lights?	My position is indicated by... 1. searchlight 2. black smoke trail 3. pyrotechnic lights.

Abbreviation	Question	Answer or Advice
Search and Rescue (cont.)		
QUR*	Have survivors... 1. received survival equipment 2. been picked up by rescue vessel 3. been reached by ground rescue party?	Survivors... 1. are in possession of survival equipment dropped by... 2. have been picked up by rescue vessel 3. have been reached by ground rescue party.
QUS*	Have you sighted survivors or wreckage? If so, in what position?	Have sighted... 1. survivors in water 2. survivors on rafts 3. wreckage in position... latitude... longitude (<i>or according to any other indication</i>).
QUT*	Is position of incident marked?	Position of incident is marked by... 1. flame or smoke float 2. sea marker 3. sea marker dye 4. ... (<i>specify other marking</i>).
QUU*	Shall I home ship or aircraft to my position?	Home ship or aircraft... (<i>name and/or call sign</i>)... 1. to your position by sending your call sign and long dashes on...kc/s (<i>or</i> Mc/s) 2. by sending on...kc/s (<i>or</i> Mc/s) TRUE track to reach you.
QUW*	Are you in the search area designated as... (<i>designator or latitude and longitude</i>)?	I am in the... (<i>designation</i>) search area.
QUY*	Is position of survival craft marked?	Position of survival craft was marked at... hours by... 1. flame or smoke float 2. sea marker 3. sea marker dye 4. ... (<i>specify other marking</i>).

Abbreviation	Question	Answer or Advice
QTT	Identification	The identification signal which follows is superimposed on another transmission.

SECTION II. MISCELLANEOUS ABBREVIATIONS AND SIGNALS

Abbreviation or Signal	Definition
AA	All after... (used after a question mark in radiotelegraphy or after RQ in radiotelephony (in case of language difficulties) or after RPT, to request a repetition).
AB	All before... (used after a question mark in radiotelegraphy or after RQ in radiotelephony (in case of language difficulties) or after RPT, to request a repetition).
ADS	Address (used after a question mark in radiotelegraphy or after RQ in radiotelephony (in case of language difficulties) or after RPT, to request a repetition).
<u>AR</u>	End of transmission.
<u>AS</u>	Waiting period.
BK	Signal used to interrupt a transmission in progress.
BN	All between... and... (used after a question mark in radiotelegraphy or after RQ in radiotelephony (in case of language difficulties) or after RPT, to request a repetition).
<u>BQ</u>	A reply to an RQ.
<u>BT</u>	Signal to mark the separation between different parts of the same transmission.
C	Yes or "The significance of the previous group should be read in the affirmative".
CFM	Confirm (or I confirm).
CL	I am closing my station.
COL	Collate (or I collate).
CORREC- TION	Cancel my last word or group. The correct word or group follows (used in radiotelephony, spoken as KOR-REK-SHUN).

Note: When used in radiotelegraphy a bar over the letters composing a signal denotes that the letters are to be sent as one signal.

Abbreviation or Signal	Definition
CP	General call to two or more specified stations (<i>see Article 31</i>).
CQ	General call to all stations.
CS	Call sign (<i>used to request a call sign</i>).
DE	"from..." (<i>used to precede the name or other identification of the calling station</i>).
DF	Your bearing at... hours was... degrees, in the doubtful sector of this station, with a possible error of... degrees.
DO	Bearing doubtful. Ask for another bearing later (<i>or at... hours</i>).
E	East (Cardinal point) (<i>see No. 1400</i>).
ETA	Estimated time of arrival.
INTERCO	International Code of Signals groups follow (<i>used in radiotelephony, spoken as IN-TER-CO</i>).
K	Invitation to transmit.
<u>KA</u>	Starting signal.
KTS	Nautical miles per hour (<i>Knots</i>).
MIN	Minute (<i>or Minutes</i>).
MSG	Prefix indicating a message to or from the master of a ship concerning its operation or navigation.
N	North (Cardinal point) (<i>see No. 1400</i>).
NIL	I have nothing to send to you.
NO	No (<i>Negative</i>).
NW	Now.
NX	Notice to Mariners (<i>or Notice to Mariners follows</i>).
OK	We agree (<i>or It is correct</i>).
OL	Ocean Letter.
P	Prefix indicating a private radiotelegram.
PBL	Preamble (<i>used after a question mark in radiotelegraphy or after RQ in radiotelephony (in case of language difficulties) or after RPT, to request a repetition</i>).
PSE	Please.
R	Received.
REF	Reference to... (<i>or Refer to...</i>).
RPT	Repeat (<i>or I repeat</i>) (<i>or Repeat...</i>).

Abbreviation or Signal	Definition
RQ	Indication of a request.
S	South (Cardinal point) (<i>see No. 1400</i>).
SIG	Signature (<i>used after a question mark in radiotelegraphy or after RQ in radiotelephony (in case of language difficulties) or after RPT, to request a repetition</i>).
SLT	Radiomaritime Letter.
SVC	Prefix indicating a service telegram.
SYS	Refer to your service telegram.
TFC	Traffic.
TR	Used by a land station to request the position and next port of call of a mobile station (<i>see Nos. 1083 and 1314</i>); used also as a prefix to the reply.
TU	Thank you.
TXT	Text (<i>used after a question mark in radiotelegraphy or after RQ in radiotelephony (in case of language difficulties) or after RPT, to request a repetition</i>).
<u>VA</u>	End of work.
W	West (Cardinal point) (<i>see No. 1400</i>).
WA	Word after... (<i>used after a question mark in radiotelegraphy or after RQ in radiotelephony (in case of language difficulties) or after RPT, to request a repetition</i>).
WB	Word before... (<i>used after a question mark in radiotelegraphy or after RQ in radiotelephony (in case of language difficulties) or after RPT, to request a repetition</i>).
WD	Word(s) or Group(s).
WX	Weather report (<i>or Weather report follows</i>).
XQ	Prefix used to indicate the transmission of a service note.
YZ	The words which follow are in plain language.

APPENDIX 14

SINPO and SINPFEMO Codes

(See C.C.I.R. Recommendation No. 251)

SINPO signal reporting code

Rating scale	S	I	N	P	O
	Signal strength	Degrading effect of			Overall rating
		Interference	Noise	Propagation disturbance	
5	Excellent	Nil	Nil	Nil	Excellent
4	Good	Slight	Slight	Slight	Good
3	Fair	Moderate	Moderate	Moderate	Fair
2	Poor	Severe	Severe	Severe	Poor
1	Barely audible	Extreme	Extreme	Extreme	Unusable

SINPFEMO signal reporting code

Rating scale	S	I	N	P	F	E	M	O
	Signal strength	Degrading effect of			Frequency of fading	Modulation		Overall rating
		Interference	Noise	Propagation disturbance		Quality	Depth	
5	Excellent	Nil	Nil	Nil	Nil	Excellent	Maximum	Excellent
4	Good	Slight	Slight	Slight	Slow	Good	Good	Good
3	Fair	Moderate	Moderate	Moderate	Moderate	Fair	Fair	Fair
2	Poor	Severe	Severe	Severe	Fast	Poor	Poor or Nil	Poor
1	Barely audible	Extreme	Extreme	Extreme	Very fast	Very poor	Continuously overmodulated	Unusable

Special remarks :

- a) A signal report shall consist of the code word SINPO or SINPFEMO followed by a group of five or eight numerals, rating, respectively, the five or eight characteristics of the particular signal code.
- b) The letter X shall be used instead of a numeral for characteristics not rated.
- c) Although the code word SINPFEMO is intended for radiotelephony, it may be used for radiotelegraphy.
- d) The overall rating for radiotelegraphy shall be as indicated in Tables I and II, below.

TABLE I

Overall rating	Mechanized Operations
5. Excellent 4. Good 3. Fair 2. Poor 1. Unusable	4-channel time-division multiplex 2-channel time-division multiplex Marginal single start-stop printer BK's, XQ's and call signs readable Unreadable

TABLE II

Overall rating	Morse Operation
5. Excellent 4. Good 3. Fair 2. Poor 1. Unusable	High speed 100 wpm 50 wpm BK's, XQ's and call signs readable Unreadable

e) The overall rating for telephony shall be as indicated in Table III.

TABLE III

Overall rating	Operating condition	Quality
5. Excellent 4. Good 3. Fair 2. Poor 1. Unusable	Signal quality unaffected Signal quality slightly affected Signal quality seriously affected. Channel usable by operators or by experienced subscribers Channel just usable by operators Channel unusable by operators	} Commercial } Marginally commercial } Not commercial

APPENDIX 15

Mar

**Table of Frequencies to be used by Ship Radiotelegraph Stations in
the Bands Between 4 and 27.5 Mc/s Allocated Exclusively to the Maritime
Mobile Service**

(See Article 32)

In the Table:

- a) the assignable frequencies in a given band for each usage are:
- indicated by the lowest and highest frequency, in heavy type, assigned in that band;
 - regularly spaced, the number of assignable frequencies and the spacing in kc/s being indicated in italics;
- b) the vertical arrows indicate the harmonic relationship between the frequencies assigned in the different bands.

Frequencies Assignable to Ship Radiotelegraph Stations Using the Maritime Mobile Service Bands between 4 and 27.5 Mc/s

(kc/s)

Bands Mc/s	Limits	Assignable frequencies for wide-band telegraphy, facsimile and special transmission systems	Limits	Oceanographic data transmission a)	Limits	Assignable frequencies for narrow-band direct-printing telegraph and data transmission systems	Limits	Assignable working frequencies for high traffic ships b)	Limits	Calling frequencies d)	Limits	Assignable working frequencies for low traffic ships		Limits
												GROUP A	GROUP B	
4	4 142.5	4 144.5 --- 4 160.5 5 frequencies spaced 4	4 162.5	4 162.9 --- 4 165.6 10 frequencies spaced 0.3	4 166	4 166.5 --- 4 172 12 frequencies spaced 0.5	4 172.25	4 172.5 --- 4 177.5 11 frequencies spaced 0.5	4 178	4 178.5 --- 4 186.5 17 frequencies spaced 0.5	4 187	4 187.5 --- 4 208 4 208.5 --- 4 229 84 frequencies spaced 0.5	4 231	
6	6 216.5	6 218.5 --- 6 242.5 7 frequencies spaced 4	6 244.5	6 244.9 --- 6 247.6 10 frequencies spaced 0.3	6 248	6 248.5 --- 6 258 20 frequencies spaced 0.5	6 258.25	6 258.75 --- 6 266.25 11 frequencies spaced 0.75	6 267	6 267.75 --- 6 279.75 17 frequencies spaced 0.75	6 280.5	6 281.25 --- 6 312 6 312.75 --- 6 343.5 84 frequencies spaced 0.75	6 345.5	
8	8 288	8 290 --- 8 326 10 frequencies spaced 4	8 328	8 328.4 --- 8 331.1 10 frequencies spaced 0.3	8 331.5	8 332 --- 8 341.5 20 frequencies spaced 0.5	8 341.75	8 342 --- 8 345 --- 8 355 14 frequencies spaced 1	8 356	8 357 --- c) --- 8 373 17 frequencies spaced 1	8 374	8 375 --- 8 416 8 417 --- 8 458 84 frequencies spaced 1	8 459.5	
12	12 431.5	12 433.5 --- 12 477.5 12 frequencies spaced 4	12 479.5	12 479.9 --- 12 482.6 10 frequencies spaced 0.3	12 483	12 484 --- 12 503 20 frequencies spaced 1	12 503.25	12 504 --- 12 513 --- 12 517.5 --- 12 532.5 20 frequencies spaced 1.5	12 534	12 535.5 --- 12 559.5 17 frequencies spaced 1.5	12 561	12 562.5 --- 12 624 12 625.5 --- 12 687 84 frequencies spaced 1.5	12 689	
16	16 576	16 578 --- 16 634 15 frequencies spaced 4	16 636.5	16 636.9 --- 16 639.6 10 frequencies spaced 0.3	16 640	16 641 --- 16 660 20 frequencies spaced 1	16 660.5	16 662 --- 16 672 --- 16 684 --- 16 690 --- 16 710 25 frequencies spaced 2	16 712	16 714 --- 16 746 17 frequencies spaced 2	16 748	16 750 --- 16 832 16 834 --- 16 916 84 frequencies spaced 2	16 917.5	
22	22 112	22 114 --- 22 158 12 frequencies spaced 4	22 160.5	22 160.9 --- 22 163.6 10 frequencies spaced 0.3	22 164	22 165 --- 22 184 20 frequencies spaced 1	22 184.5	22 187 --- 22 221 18 frequencies spaced 2	22 222.5	22 225 --- 22 265 17 frequencies spaced 2.5	22 267.5	22 270 --- 22 320 22 322.5 --- 22 370 41 frequencies spaced 2.5	22 374	

Assignable Frequencies to Ships of all Categories

Limit	Calling frequencies	Limit	Working frequencies	Limit
25	25 073.5 ----- 25 081 6 frequencies spaced 1.5	25 082.5	25 084 ----- 25 106.5 16 frequencies spaced 1.5	25 110

a) The frequency bands may also be used by buoy stations for oceanographic data transmission and by stations interrogating these buoys, in accordance with the conditions set forth in Resolution No. Mar 20.

b) Manual or automatic A1 Morse telegraphy at speeds not exceeding 40 bauds.

c) For the conditions of use of 8 364 kc/s, see No. 1179.

d) The frequencies 4 186.5, 6 279.75, 8 373, 12 559.5, 16 746 and 22 262.5 kc/s may also be assigned as special calling frequencies. Administrations should, if possible, abstain from assigning these frequencies as normal calling frequencies (See Nos. 1013E and 1013E.1).

APPENDIX 16

Mar

Phonetic Alphabet and Figure Code

(See Articles 33 and 36)

1. When it is necessary to spell out call signs, service abbreviations and words, the following letter spelling table shall be used:

Letter to be transmitted	Word to be used	Spoken as *
A	Alfa	<u>AL</u> FAH
B	Bravo	<u>BRAH</u> VOH
C	Charlie	<u>CHAR</u> LEE or <u>SHAR</u> LEE
D	Delta	<u>DELL</u> TAH
E	Echo	<u>ECK</u> OH
F	Foxtrot	<u>FOKS</u> TROT
G	Golf	GOLF
H	Hotel	HOH <u>TELL</u>
I	India	<u>IN</u> DEE AH
J	Juliett	<u>JEW</u> LEE <u>ETT</u>
K	Kilo	<u>KEY</u> LOH
L	Lima	<u>LEE</u> MAH

* The syllables to be emphasized are underlined.

Letter to be transmitted	Word to be used	Spoken as *
M	Mike	MIKE
N	November	NO <u>VEM</u> BER
O	Oscar	<u>OSS</u> CAH
P	Papa	PAH <u>PAH</u>
Q	Quebec	KEH <u>BECK</u>
R	Romeo	<u>ROW</u> ME OH
S	Sierra	SEE <u>AIR</u> RAH
T	Tango	<u>TANG</u> GO
U	Uniform	<u>YOU</u> NEE FORM or <u>OO</u> NEE FORM
V	Victor	<u>VIK</u> TAH
W	Whiskey	<u>WISS</u> KEY
X	X-ray	<u>ECKS</u> RAY
Y	Yankee	<u>YANG</u> KEY
Z	Zulu	<u>ZOO</u> LOO

2. When it is necessary to spell out figures or marks, the following table shall be used:

Figure or mark to be transmitted	Code word to be used	Spoken as **
0	NADAZERO	NAH-DAH-ZAY-ROH
1	UNAOONE	OO-NAH-WUN
2	BISSOTWO	BEES-SOH-TOO
3	TERRATHREE	TAY-RAH-TREE
4	KARTEFOUR	KAR-TAY-FOWER
5	PANTAFIVE	PAN-TAH-FIVE
6	SOXISIX	SOK-SEE-SIX

* The syllables to be emphasized are underlined.

** Each syllable should be equally emphasized.

Figure or mark to be transmitted	Code word to be used	Spoken as **
7	SETTESEVEN	SAY-TAY-SEVEN
8	OKTOEIGHT	OK-TOH-AIT
9	NOVENINE	NO-VAY-NINER
Decimal point	DECIMAL	DAY-SEE-MAL
Full stop	STOP	STOP

3. However, stations of the same country, when communicating between themselves, may use any other table recognized by their administration.

** Each syllable should be equally emphasized.

APPENDIX 17

Mar

**Channelling of the Maritime Mobile Radiotelephone Bands
between 4 000 and 23 000 kc/s**

(See Article 35)

1. Channelling arrangements for the frequencies to be used by coast and ship stations in the bands allocated to the maritime mobile radiotelephone service are indicated in three sections as follows:

Section A — Table of double sideband transmitting frequencies for duplex (two-frequency) operation (in kc/s).

Section B — Table of single sideband transmitting frequencies for duplex (two-frequency) operation (in kc/s).

Section C — Table of single sideband transmitting frequencies for simplex (single-frequency) operation (in kc/s).

2. The technical characteristics for single sideband transmitters are specified in Appendix 17A.

3. One or more series of frequencies from Sections A or B (with the exception of those frequencies of Section B mentioned in paragraph 5 below) are assigned to each coast station, which uses these frequencies associated, as far as possible, in pairs; each pair comprises a transmitting and a receiving frequency. The series shall be selected with due regard

to the areas served and so as to avoid, as far as possible, harmful interference between the services of different coast stations.

4. The frequencies in Section C are provided for world-wide common use by ships of all categories, according to traffic requirements, for ship transmissions to coast stations and for intership communication. They are also authorized for world-wide common use for transmissions by coast stations (simplex operation) provided the peak envelope power does not exceed 1 kW.

5. a) The following series of frequencies in Section B are allocated for calling purposes:

- Series No. 24 in the 4 Mc/s and 8 Mc/s bands;
- Series No. 2 in the 6 Mc/s band;
- Series No. 22 in the 12, 16 and 22 Mc/s bands.

The remaining frequencies in Sections A, B and C are working frequencies.

b) Use of the double sideband calling frequencies 8 269, 12 403.5, 16 533.5 and 22 074 kc/s should, as far as possible, cease by 1 March 1970 to permit the use of the new single sideband channels. In any event, the use of these frequencies for double sideband calling shall cease by 1 January 1978.

6. Stations utilizing double sideband emissions shall operate only on the frequencies in Section A subject to No. 1351A and on the frequencies mentioned in paragraph 5 b) above.

7. a) Stations using single sideband emissions shall operate only on the carrier frequencies shown in Sections B and C in conformity with the technical characteristics specified in Appendix 17A. The upper sideband mode shall always be employed.

b) Stations employing the single sideband mode shall use only class A3A and A3J emissions. However, administrations should

endeavour, as far as possible, to restrict to class A3J emissions, the use of the Series No. 1 frequencies from Section B. Until 1 January 1978 class A3H emissions (in accordance with No. 1351A) are permitted only on those carrier frequencies shown in Section B which are coincident with, or within 100 c/s of, the frequencies shown in Section A. However, on the calling frequencies for coast stations class A3H emissions may be used until 1 January 1978.

8. During the transition period (see Resolution No. Mar 13) assignments to stations using independent sideband emissions shall be considered to be in accordance with the Table in Section A if the necessary bandwidth does not extend beyond the upper or lower limits of the bandwidth provided for double sideband emissions.

9. If an administration authorizes the use of frequencies other than those indicated in Sections A, B and C, its radiotelephone service shall not cause harmful interference to radiotelephone stations of the maritime mobile service which use frequencies in accordance with the following Tables.

SECTION A

Table of Double Sideband Transmitting Frequencies for Duplex (two-frequency) Operation (in kc/s)

Series No.	4 Mc/s Band		8 Mc/s Band		12 Mc/s Band		16 Mc/s Band		22 Mc/s Band	
	Coast station frequency	Ship station frequency	Coast station frequency	Ship station frequency	Coast station frequency	Ship station frequency	Coast station frequency	Ship station frequency	Coast station frequency	Ship station frequency
1	4 364.7	4 066.1	8 732.1	8 198.1	13 112.5	12 333.5	17 238.5	16 463.5	22 629.0	22 003.5
2	4 371.0	4 072.4	8 738.4	8 204.4	13 119.5	12 340.5	17 265.5	16 470.5	22 636.0	22 010.5
3	4 377.4	4 078.8	8 744.8	8 210.8	13 126.5	12 347.5	17 272.5	16 477.5	22 643.0	22 017.5
4	4 383.8	4 085.2	8 751.2	8 217.2	13 133.5	12 354.5	17 279.5	16 484.5	22 650.0	22 024.5
5	4 390.2	4 091.6	8 757.6	8 223.6	13 140.5	12 361.5	17 286.5	16 491.5	22 657.0	22 031.5
6	4 396.6	4 098.0	8 764.0	8 230.0	13 147.5	12 368.5	17 293.5	16 498.5	22 664.0	22 038.5
7	4 403.0	4 104.4	8 770.4	8 236.4	13 154.5	12 375.5	17 300.5	16 505.5	22 671.0	22 045.5
8	4 409.4	4 110.8	8 776.8	8 242.8	13 161.5	12 382.5	17 307.5	16 512.5	22 678.0	22 052.5
9	4 415.8	4 117.2	8 783.2	8 249.2	13 168.5	12 389.5	17 314.5	16 519.5	22 685.0	22 059.5
10	4 422.2	4 123.6	8 789.6	8 255.6	13 175.5	12 396.5	17 321.5	16 526.5	22 692.0	22 066.5
11	4 428.6	4 129.9	8 796.0	8 261.9						

SECTION B

Table of Single Sideband Transmitting Frequencies for Duplex (two-frequency) Operation (in kc/s)

Series No.	4 Mc/s Band				6 Mc/s Band			
	Coast stations		Ship stations		Coast stations		Ship stations	
	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency
1	4 361-6	4 363-0	4 063-0	4 064-4	6 515-4	6 516-8	6 200-8	6 202-2
2	4 364-7	4 366-1	4 066-1	4 067-5	6 518-6 *	6 520-0 *	6 204-0 * ¹	6 205-4 *
3	4 367-8	4 369-2	4 069-2	4 070-6	6 521-8	6 523-2	6 207-2	6 208-6
4	4 371-0	4 372-4	4 072-4	4 073-8				
5	4 374-2	4 375-6	4 075-6	4 077-0				
6	4 377-4	4 378-8	4 078-8	4 080-2				
7	4 380-6	4 382-0	4 082-0	4 083-4				
8	4 383-8	4 385-2	4 085-2	4 086-6				
9	4 387-0	4 388-4	4 088-4	4 089-8				
10	4 390-2	4 391-6	4 091-6	4 093-0				
11	4 393-4	4 394-8	4 094-8	4 096-2				
12	4 396-6	4 398-0	4 098-0	4 099-4				
13	4 399-8	4 401-2	4 101-2	4 102-6				
14	4 403-0	4 404-4	4 104-4	4 105-8				
15	4 406-2	4 407-6	4 107-6	4 109-0				
16	4 409-4	4 410-8	4 110-8	4 112-2				
17	4 412-6	4 414-0	4 114-0	4 115-4				
18	4 415-8	4 417-2	4 117-2	4 118-6				
19	4 419-0	4 420-4	4 120-4	4 121-8				
20	4 422-2	4 423-6	4 123-6	4 125-0				
21	4 425-4	4 426-8	4 126-8	4 128-2				
22	4 428-6	4 430-0	4 130-0	4 131-4				
23	4 431-8	4 433-2	4 133-2	4 134-6				
24	4 434-9 *	4 436-3 *	4 136-3 * ¹	4 137-7 *				
25								
26								
27								
28								
29								
30								

* The frequencies followed by an asterisk are calling frequencies (see Nos. 1352 and 1352A).

¹ For the conditions of use of frequencies 4 136-3 and 6 204-0 kc/s, see Nos. 1352B and 1353 respectively.

SECTION B (continued)

Table of Single Sideband Transmitting Frequencies for Duplex (two-frequency) Operation (in kc/s)

Series No.	8 Mc/s Band				12 Mc/s Band			
	Coast stations		Ship stations		Coast stations		Ship stations	
	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency
1	8 729.0	8 730.4	8 195.0	8 196.4	13 109.0	13 110.4	12 330.0	12 331.4
2	8 732.1	8 733.5	8 198.1	8 199.5	13 112.5	13 113.9	12 333.5	12 334.9
3	8 735.2	8 736.6	8 201.2	8 202.6	13 116.0	13 117.4	12 337.0	12 338.4
4	8 738.4	8 739.8	8 204.4	8 205.8	13 119.5	13 120.9	12 340.5	12 341.9
5	8 741.6	8 743.0	8 207.6	8 209.0	13 123.0	13 124.4	12 344.0	12 345.4
6	8 744.8	8 746.2	8 210.8	8 212.2	13 126.5	13 127.9	12 347.5	12 348.9
7	8 748.0	8 749.4	8 214.0	8 215.4	13 130.0	13 131.4	12 351.0	12 352.4
8	8 751.2	8 752.6	8 217.2	8 218.6	13 133.5	13 134.9	12 354.5	12 355.9
9	8 754.4	8 755.8	8 220.4	8 221.8	13 137.0	13 138.4	12 358.0	12 359.4
10	8 757.6	8 759.0	8 223.6	8 225.0	13 140.5	13 141.9	12 361.5	12 362.9
11	8 760.8	8 762.2	8 226.8	8 228.2	13 144.0	13 145.4	12 365.0	12 366.4
12	8 764.0	8 765.4	8 230.0	8 231.4	13 147.5	13 148.9	12 368.5	12 369.9
13	8 767.2	8 768.6	8 233.2	8 234.6	13 151.0	13 152.4	12 372.0	12 373.4
14	8 770.4	8 771.8	8 236.4	8 237.8	13 154.5	13 155.9	12 375.5	12 376.9
15	8 773.6	8 775.0	8 239.6	8 241.0	13 158.0	13 159.4	12 379.0	12 380.4
16	8 776.8	8 778.2	8 242.8	8 244.2	13 161.5	13 162.9	12 382.5	12 383.9
17	8 780.0	8 781.4	8 246.0	8 247.4	13 165.0	13 166.4	12 386.0	12 387.4
18	8 783.2	8 784.6	8 249.2	8 250.6	13 168.5	13 169.9	12 389.5	12 390.9
19	8 786.4	8 787.8	8 252.4	8 253.8	13 172.0	13 173.4	12 393.0	12 394.4
20	8 789.6	8 791.0	8 255.6	8 257.0	13 175.5	13 176.9	12 396.5	12 397.9
21	8 792.8	8 794.2	8 258.8	8 260.2	13 179.0	13 180.4	12 400.0	12 401.4
22	8 796.0	8 797.4	8 262.0	8 263.4	13 182.5 *	13 183.9 *	12 403.5 *	12 404.9 *
23	8 799.2	8 800.6	8 265.2	8 266.6	13 186.0	13 187.4	12 407.0	12 408.4
24	8 802.4 *	8 803.8 *	8 268.4 *	8 269.8 *	13 189.5	13 190.9	12 410.5	12 411.9
25	8 805.6	8 807.0	8 271.6	8 273.0	13 193.0	13 194.4	12 414.0	12 415.4
26	8 808.8	8 810.2	8 274.8	8 276.2	13 196.5	13 197.9	12 417.5	12 418.9
27	8 812.0	8 813.4	8 278.0	8 279.4				
28								
29								
30								

* The frequencies followed by an asterisk are calling frequencies (see Nos. 1352 and 1352A).

SECTION B (continued)

Table of Single Sideband Transmitting Frequencies for Duplex (two-frequency) Operation (in kc/s)

Series No.	16 Mc/s Band				22 Mc/s Band			
	Coast stations		Ship stations		Coast stations		Ship stations	
	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency
1	17 255-0	17 256-4	16 460-0	16 461-4	22 625-5	22 626-9	22 000-0	22 001-4
2	17 258-5	17 259-9	16 463-5	16 464-9	22 629-0	22 630-4	22 003-5	22 004-9
3	17 262-0	17 263-4	16 467-0	16 468-4	22 632-5	22 633-9	22 007-0	22 008-4
4	17 265-5	17 266-9	16 470-5	16 471-9	22 636-0	22 637-4	22 010-5	22 011-9
5	17 269-0	17 270-4	16 474-0	16 475-4	22 639-5	22 640-9	22 014-0	22 015-4
6	17 272-5	17 273-9	16 477-5	16 478-9	22 643-0	22 644-4	22 017-5	22 018-9
7	17 276-0	17 277-4	16 481-0	16 482-4	22 646-5	22 647-9	22 021-0	22 022-4
8	17 279-5	17 280-9	16 484-5	16 485-9	22 650-0	22 651-4	22 024-5	22 025-9
9	17 283-0	17 284-4	16 488-0	16 489-4	22 653-5	22 654-9	22 028-0	22 029-4
10	17 286-5	17 287-9	16 491-5	16 492-9	22 657-0	22 658-4	22 031-5	22 032-9
11	17 290-0	17 291-4	16 495-0	16 496-4	22 660-5	22 661-9	22 035-0	22 036-4
12	17 293-5	17 294-9	16 498-5	16 499-9	22 664-0	22 665-4	22 038-5	22 039-9
13	17 297-0	17 298-4	16 502-0	16 503-4	22 667-5	22 668-9	22 042-0	22 043-4
14	17 300-5	17 301-9	16 505-5	16 506-9	22 671-0	22 672-4	22 045-5	22 046-9
15	17 304-0	17 305-4	16 509-0	16 510-4	22 674-5	22 675-9	22 049-0	22 050-4
16	17 307-5	17 308-9	16 512-5	16 513-9	22 678-0	22 679-4	22 052-5	22 053-9
17	17 311-0	17 312-4	16 516-0	16 517-4	22 681-5	22 682-9	22 056-0	22 057-4
18	17 314-5	17 315-9	16 519-5	16 520-9	22 685-0	22 686-4	22 059-5	22 060-9
19	17 318-0	17 319-4	16 523-0	16 524-4	22 688-5	22 689-9	22 063-0	22 064-4
20	17 321-5	17 322-9	16 526-5	16 527-9	22 692-0	22 693-4	22 066-5	22 067-9
21	17 325-0	17 326-4	16 530-0	16 531-4	22 695-5	22 696-9	22 070-0	22 071-4
22	17 328-5*	17 329-9*	16 533-5*	16 534-9*	22 699-0*	22 700-4*	22 073-5*	22 074-9*
23	17 332-0	17 333-4	16 537-0	16 538-4	22 702-5	22 703-9	22 077-0	22 078-4
24	17 335-5	17 336-9	16 540-5	16 541-9	22 706-0	22 707-4	22 080-5	22 081-9
25	17 339-0	17 340-4	16 544-0	16 545-4	22 709-5	22 710-9	22 084-0	22 085-4
26	17 342-5	17 343-9	16 547-5	16 548-9	22 713-0	22 714-4	22 087-5	22 088-9
27	17 346-0	17 347-4	16 551-0	16 552-4	22 716-5	22 717-9	22 091-0	22 092-4
28	17 349-5	17 350-9	16 554-5	16 555-9				
29	17 353-0	17 354-4	16 558-0	16 559-4				
30	17 356-5	17 357-9	16 561-5	16 562-9				

* The frequencies followed by an asterisk are calling frequencies (see Nos. 1352 and 1352A).

SECTION C

Table of Single Sideband Transmitting Frequencies for Simplex (single-frequency) Operation (in kc/s)

4 Mc/s Band		6 Mc/s Band		8 Mc/s Band		12 Mc/s Band		16 Mc/s Band		22 Mc/s Band	
Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency
4 139·5	4 140·9	6 210·4 6 213·5	6 211·8 6 214·9	8 281·2 8 284·4	8 282·6 8 285·8	12 421·0 12 424·5 12 428·0	12 422·4 12 425·9 12 429·4	16 565·0 16 568·5 16 572·0	16 566·4 16 569·9 16 573·4	22 094·5 22 098·0 22 101·5 22 105·0 22 108·5	22 095·9 22 099·4 22 102·9 22 106·4 22 109·9

APPENDIX 17A

Mar

**Technical Characteristics of Single Sideband Transmitters Used
in the Maritime Mobile Service for Radiotelephony in
the Bands between 1 605 and 4 000 kc/s and between 4 000 and
23 000 kc/s**

1. Classes of emission:

- a)* for class A3A emissions the power of the carrier shall be 16 ± 2 db below the peak envelope power;
- b)* for class A3J emissions the power of the carrier shall be at least 40 db below the peak envelope power.

2. Coast and ship stations shall use only the upper sideband.

3. The transmitter audio-frequency band shall be 350 to 2 700 c/s, with a permitted amplitude variation of 6 db.

4. The carrier frequencies shall be maintained within the following tolerances:

- a)* coast stations: ± 20 c/s;
- b)* ship stations: ± 100 c/s; the short-term limits (of the order of 15 minutes) shall be ± 40 c/s.

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5. The unwanted frequency modulation of the carrier shall be sufficiently low to prevent harmful distortion.

6. When class A3H, A3A or A3J emissions are used, the power of any unwanted emission supplied to the antenna transmission line on any discrete frequency shall, when the transmitter is driven to full peak envelope power, be in accordance with the following table:

Separation Δ in kc/s between the frequency of the unwanted emission and the assigned frequency ¹	Minimum attenuation below peak envelope power
1.6 < Δ \leq 4.8	28 db
4.8 < Δ \leq 8.0	38 db
8.0 < Δ	43 db, without exceeding the power of .50 milliwatts

Transmitters using reduced carrier or suppressed carrier emission may, as far as spurious emissions are concerned, be tested for compliance with this regulation by means of a two-tone audio input signal with a frequency separation between the tones such that all intermodulation products occur at frequencies at least 1.6 kc/s removed from the assigned frequency.

¹ The assigned frequency is 1 400 c/s higher than the carrier frequency (see No. 445A).

APPENDIX 18

Mar

**Table of Transmitting Frequencies for the Band 156-174 Mc/s
for Radiotelephony in the International Maritime Mobile Service
(See No. 287 and Article 35)**

Note 1: For assistance in understanding the Table, see notes *a)* to *j)* below.

Note 2: Channels 01 to 28, except 15 and 17, correspond to the channels of Appendix 18 to the Radio Regulations, Geneva, 1959, and channels 15, 17 and 60 to 88 represent the additional channels available for assignment by administrations in the future in this frequency band (see Resolution No. Mar 14).

Note 3: Channel designators 60 to 88 were chosen for the additional channels in order to separate them clearly from the original channels.

Channel Designators	Transmitting Frequencies (Mc/s)		Intership	Port Operations		Public Correspondence
	Ship Stations	Coast Stations		Single Frequency	Two Frequency	
60 g)	156-025	160-625			17	25
01	156-050 f)	160-650			10	8
61	156-075	160-675			23	19
02	156-100	160-700			8	10
62	156-125	160-725			20	22
03	156-150 f)	160-750			9	9
63	156-175 f)	160-775			18	24
04	156-200	160-800			11	7
64	156-225	160-825			22	20
05	156-250	160-850			6	12
65	156-275	160-875			21	21
06	156-300 e)		①			
66	156-325	160-925			19	23
07	156-350	160-950			7	11
67	156-375	156-375	10	10		
08	156-400		②			
68	156-425	156-425		6		
09	156-450	156-450	5	5		
69	156-475	156-475	9	11		
10	156-500	156-500	3	9		
70	156-525		6			
11	156-550	156-550		3		
71	156-575	156-575		7		
12	156-600	156-600		①		
72	156-625		7			
13	156-650	156-650	4	4		
73	156-675	156-675	8	12		
14	156-700	156-700		②		
74	156-725	156-725		8		
15 d) i)	156-750	156-750	12	14		
75		Guard-band 156-7625 - 156-7875 Mc/s j)				
16	156-800	156-800	CALLING AND SAFETY			
76		Guard-band 156-8125 - 156-8375 Mc/s j)				
17 d) i)	156-850	156-850	13	13		
77	156-875		11			
18	156-900	161-500			3	

Channel Designators	Transmitting Frequencies Mc/s		Intership	Port Operations		Public Correspondence
	Ship Stations	Coast Stations		Single Frequency	Two Frequency	
78	156-925	161-525			12	
19	156-950	161-550			4	
79	156-975	161-575			14	
20	157-000	161-600			①	
80	157-025	161-625			16	
21	157-050	156-050 <i>f</i>) or 161-650			5	
81	157-075	161-675			15	
22	157-100	161-700			②	
82	157-125	161-725			13	26
23	157-150	156-150 <i>f</i>) or 161-750				5
83	157-175	156-175 <i>f</i>) or 161-775				16
24	157-200	161-800				4
84	157-225	161-825			24	13
25	157-250	161-850				③
85	157-275	161-875				17
26	157-300	161-900				①
86	157-325	161-925				15
27	157-350	161-950				②
87	157-375	161-975				14
28	157-400	162-000				6
88 <i>g</i>)	157-425	162-025				18

NOTES REFERRING TO THE TABLE

- a) The figures in the column headed "Intership" indicate the normal sequence in which channels should be taken into use by mobile stations.
- b) The figures in the columns headed "Port Operations" and "Public Correspondence" indicate the normal sequence in which channels should be taken into use by each coast station. However, in some cases, it may be necessary to omit channels in order to avoid harmful interference between the services of neighbouring coast stations.

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- c)* Administrations should, as far as possible, arrange that ship stations fitted with the channels corresponding to the figures in a circle can obtain a reasonably adequate use of available services.
- d)* On channels 15 and 17, the maximum frequency deviation shall be limited to ± 5 kc/s. Until 1 January 1983, the effective radiated power of ship stations must not exceed 1 watt.
- e)* During ice seasons, ship stations shall avoid harmful interference to communications on 156·300 Mc/s (Channel 06) between icebreakers and assisted ships.
- f)* In France and in Belgium, the frequencies 156·050, 156·150 and 156·175 Mc/s are used as ship station frequencies in Channels 01, 03 and 63 respectively and as coast station frequencies in Channels 21, 23 and 83 respectively when the latter are used in the special semi-duplex public correspondence systems employed with 1 Mc/s separation between transmit and receive frequencies.
- g)* Channels 60 and 88 can be used subject to special agreements between interested and affected administrations.
- h)* The frequencies in this Table may also be used for radiotelephone communications on inland waterways in accordance with the conditions specified in No. 287.
- i)* Channels 15 and 17 may also be used for internal operational communications on board ships, provided the effective radiated power does not exceed 0·1 W, and subject to the national regulations of the administration concerned when these channels are used in its territorial waters.
- j)* This guard-band will apply after 1 January 1983 (see No. 1363.1).

APPENDIX 19

Mar

**Technical Characteristics for Transmitters and Receivers
Used in the Maritime Mobile Service in the 156-174 Mc/s Band**

(See Articles 28 and 35, Appendix 18 and Resolution No. Mar 14)

Section A. Transmitters and receivers using 50 kc/s-spacing between adjacent channels

1. Only frequency modulation with a pre-emphasis of 6 db/octave (phase modulation) shall be used.
2. The frequency deviation corresponding to 100% modulation shall approach 15 kc/s as nearly as practicable. In no event shall the frequency deviation exceed ± 15 kc/s. However, it is recognized that, under certain conditions, the percentage of modulation may be decreased to avoid adjacent channel interference.
3. When transmitting on any of the frequencies designated in the Table in Appendix 18, the emission of each station shall be vertically polarized at the source.
4. The audio-frequency band shall be limited to 3 000 c/s.

Section B. Transmitters and receivers using 25 kc/s-spacing between adjacent channels

1. Only frequency modulation with a pre-emphasis of 6 db/octave (phase modulation) shall be used.

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2. The frequency deviation corresponding to 100% modulation shall approach 5 kc/s as nearly as practicable. In no event shall the frequency deviation exceed ± 5 kc/s.
3. The frequency tolerance for coast and ship stations shall not exceed 10 parts in 10^6 .
4. When transmitting on any of the frequencies designated in the Table in Appendix 18, the emission of each station shall be vertically polarized at the source.
5. The audio-frequency band shall be limited to 3 000 c/s.
6. It shall be possible to reduce, readily, the effective radiated power of a ship station to 1 watt or less.

APPENDIX 20

Mar

Automatic Receiving Equipment for Radiotelegraph and Radiotelephone Alarm Signals

(See Section VIII of Article 36)

1. The automatic devices intended for the reception of the radiotelegraph alarm signal shall fulfil the following conditions:
 - a) The equipment shall respond to the alarm signal transmitted by the telegraphic emissions of at least class A2 and A2H (see No. **1094A**).
 - b) The equipment shall respond to the alarm signal through interference (provided it is not continuous) caused by atmospheric and powerful signals other than the alarm signal, preferably without any manual adjustment being required during any period of watch maintained by the apparatus.
 - c) The equipment shall not be actuated by atmospheric or by strong signals other than the alarm signal.
 - d) The equipment shall possess a minimum sensitivity such that with negligible atmospheric interference, it is capable of being operated by the alarm signal transmitted by the emergency transmitter of a ship station at any distance from this station up to the normal range fixed for this transmitter by the International Convention for the Safety of Life at Sea, and preferably at greater distances.
 - e) The equipment shall give warning of any fault which would prevent the apparatus from performing its normal functions during watch hours.

2. The automatic devices intended for the reception of the radio-telephone alarm signal shall fulfil the following conditions :

- a) The equipment shall respond to the alarm signal through intermittent interference caused by atmospherics and powerful signals other than the alarm signal, preferably without any manual adjustment being required during any period of watch maintained by the equipment.
- b) The equipment shall not be actuated by atmospherics or by strong signals other than the alarm signal.
- c) The equipment shall be effective beyond the range at which speech transmission is satisfactory and it should, as far as practicable, give warning of faults that would prevent the apparatus from performing its normal function during watch hours.

APPENDIX 20A

Mar

Technical Characteristics of Emergency Position-indicating Radiobeacons Operating on the Carrier Frequency 2 182 kc/s

(See Section VIIIA of Article 36)

Emergency position-indicating radiobeacons shall fulfil the following conditions:

a) The power radiated by low-power radiobeacons (Type L) shall be of a value necessary to produce at a distance of 30 nautical miles at sea level a field strength equal to or less than 10 microvolts per metre, with an initial field strength of at least 2.5 microvolts per metre.

b) The power radiated by high-power radiobeacons (Type H) shall be of a value necessary to produce at a distance of 30 nautical miles at sea level a field strength greater than 10 microvolts per metre.

c) After a period of 48 hours' continuous operation the radiated power shall not be less than 20 per cent of the initial power.

d) The radiobeacons shall be capable of class A2 or A2H emissions, with a depth of modulation between 30 and 90 per cent.

e) The audio-frequency tolerance of emissions used for emergency position-indicating radiobeacons (Nos. **1476B** and **1476C**) are:

± 20 c/s for the frequency of 1 300 c/s

± 35 c/s for the frequency of 2 200 c/s

f) Equipment shall be designed to comply with relevant C.C.I.R. recommendations.

APPENDIX 20B
Mar
Narrow-band Direct-printing Telegraph Equipment

(See Articles 28 and 29)

The equipment for narrow-band direct-printing telegraph systems in the maritime mobile service shall fulfil the following conditions:

- a)* The equipment shall accept signals conforming to International Telegraph Alphabet Code No. 2 at a modulation rate of 50 bauds and shall provide similar signals at its output for extension to the public telegraph network.
- b)* The modulation rate over the radio path shall not exceed 100 bauds.
- c)* Class F1 emissions shall be used, with a total frequency shift of 170 c/s.

APPENDIX 20C

**Selective Calling System for Use in the
International Maritime Mobile Service**

(See Articles 19, 28A, 29 and 33 and Appendix 9)

1. Where there is a need to fulfil immediate requirements for selective calling, the system to be used shall have the following characteristics:
 - 1.1 the selective call signal shall consist of five figures representing the code number assigned to a ship for selective calling;
 - 1.2 the audio-frequency signal applied to the input of the coast station transmitter shall consist of consecutive audio-frequency pulses conforming to the following:
 - 1.2.1 the audio frequencies used to identify the figures of the code number assigned to a ship shall conform to the following series:

Figure	1	2	3	4	5	6	7	8	9	0	Figure repetition
Audio frequency (c/s)	1124	1197	1275	1358	1446	1540	1640	1747	1860	1981	2110

For example, the series of audio-frequency pulses corresponding to the selective call 12133 would be 1124-1197-1124-1275-2110 c/s, and the series corresponding to the code number 22222 would be 1197-2110-1197-2110-1197 c/s;

- 1.2.2 if the series of numbers represented by the use of only two frequencies, chosen from those in paragraph 1.2.1, are reserved for calling predetermined groups of ships, then 100 different groups of numbers are available for allocation, according to the needs of administrations;
- 1.2.3 the waveforms of the audio-frequency generators shall be substantially sinusoidal, not exceeding 2% total harmonic distortion;
- 1.2.4 the audio-frequency pulses shall be transmitted sequentially;
- 1.2.5 the difference between the maximum amplitude of any audio-frequency pulses shall not exceed 1 db;
- 1.2.6 the duration of each audio-frequency pulse, measured between the half-amplitude points, shall be 100 ms \pm 10 ms;
- 1.2.7 the time interval between consecutive pulses, measured between the half-amplitude points, shall be 3 ms \pm 2 ms;
- 1.2.8 the rise and the decay time of each audio-frequency pulse, measured between the 10% and 90% amplitude points, shall be 1.5 ms \pm 1 ms;
- 1.2.9 the frequency tolerance of the audio frequencies given in paragraph 1.2.1 shall be \pm 4 c/s;
- 1.2.10 the selective call signal (the selective call number assigned to the ship station) shall be transmitted twice with an interval of 900 ms \pm 100 ms between the end of the first signal and the beginning of the second signal (Figure 1);
- 1.2.11 the interval between calls from a coast station to different ships shall be at least 1 second (Figure 1).

2. The additional information following the selective call signal shall be transmitted as follows:

- 2.1 to identify the calling coast station, four figures shall be transmitted;
- 2.2 to identify the VHF channel on which a reply is required, two "zeros" followed by two "figures" should be transmitted (see Appendix 18);
- 2.3 the characteristics of the signals shall conform to paragraphs 1.2.1 and 1.2.3 to 1.2.9 inclusive;
- 2.4 the composition of the signal shall be as shown in the diagram (Figure 2), the tolerance on the 350 ms interval being ± 30 ms.

3. An "all ships call" to actuate the receiving selectors on all ships, regardless of their individual code number, shall consist of a continuous sequential transmission of the eleven audio frequencies given in paragraph 1.2.1. The parameters of the audio-frequency pulses shall be in accordance with paragraphs 1.2.3, 1.2.4, 1.2.5 and 1.2.9. The duration of each audio-frequency pulse, measured between the half-amplitude points, shall be $17 \text{ ms} \pm 1 \text{ ms}$ and the interval between consecutive pulses, measured between half-amplitude points, shall not exceed 1 ms.

4. Receiving selectors on ships should operate reliably in any radio conditions acceptable for satisfactory communication.

5. The receiving selector shall be designed to accept the signals as defined in paragraph 1. However, bearing in mind that coast stations may transmit additional signals (e.g. coast station identification), it is important that the reset time of the decoder should be $250 \text{ ms} \pm 40 \text{ ms}$.

6. The receiving selector should be so designed, constructed and maintained that it is resistant to atmospheric and other unwanted signals including selective calling signals other than that for which the decoder has been set up.

7. The receiving selector shall include an audible or visual means of indicating the receipt of a call and, if required, an additional facility allowing the determination of the identity of the calling station or the VHF channel on which to reply according to the needs of administrations.

8. The indicating means shall be actuated on correct reception of the calling signal, no matter whether the correct registration has occurred on the first, or the second, or both parts of the calling signal transmitted by the coast stations.

9. The indicating means shall remain actuated until reset manually.

10. The receiving selector equipment should be as simple as is practicable, be capable of reliable operation over long periods with a minimum of maintenance, and could, with advantage, include facilities for self-testing.

FIGURE 1

Composition of Selective Call Signals without Additional Information

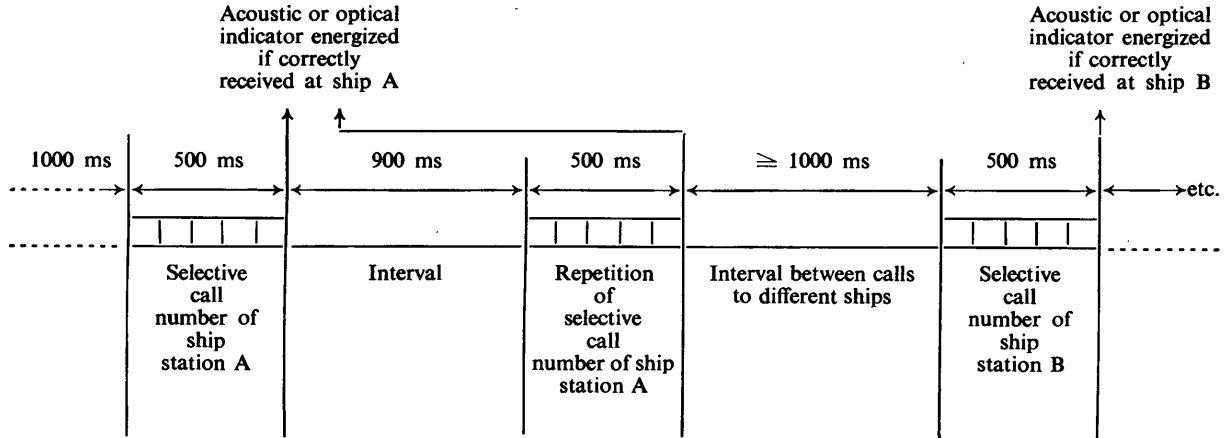
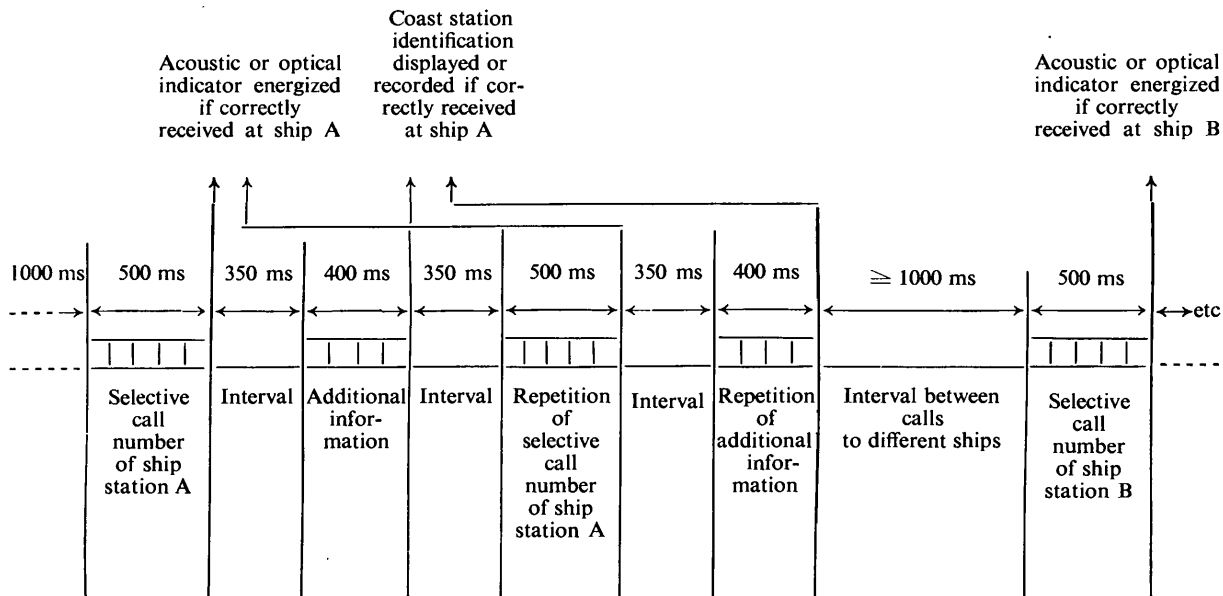


FIGURE 2

Composition of Selective Call Signals with Additional Information



APPENDIX 21

**Specimen Form of Statement of Account
for Radiotelegrams and Radiotelephone Calls**

(See Article 40)

Account between country A and country B

in respect of $\left\{ \begin{array}{l} \text{radiotelegraph} \\ \text{radiotelephone} \end{array} \right.$
during the month of . . .

Date	Origin	Coast Station	Desti- nation	Number of		Credit or Debit of country A		Remarks
				Words	Minutes	Credit in Gold Frs.	Debit in Gold Frs.	
Totals								
Balance due to country * gold francs								

* A or B as appropriate.

APPENDIX 22

Payment of Balance of Accounts

(See Article 40)

§ 1. The currencies used for payment, as well as the rules for conversion of the balances expressed in gold francs into the currency of payment, referred to in Nos. 1547 and 1550 of the Radio Regulations, shall be the following :

A. Currencies of Payment

§ 2. (1) The currencies used for the payment of the gold franc balances of international radiotelegraph and radiotelephone accounts shall be in accordance with the following :

(2) If the country to which the creditor administration or recognized private operating agency belongs has made a special monetary agreement with the country to which the debtor administration or recognized private operating agency belongs, the currency shall be as designated by that agreement.

(3) If no special monetary agreement exists between these countries, the creditor country may request that this payment be made :

- a) in the money of a country where the central bank of issue or other official institution freely buys and sells gold or gold currency for the national money at fixed rates determined by law or by virtue of an agreement with the government (money referred to hereinafter as " gold currency ") ;
- b) or in the money of a country with a free rate of exchange (money referred to hereinafter as " free currency "), the gold parity of which is fixed by the International Monetary Fund ;
- c) or in the money of a country with a free rate of exchange (free currency), the gold parity of which is determined by domestic law or by an arrangement between the government and an official issuing house of that country ;

d) or in its own money, which may not necessarily fulfil the conditions laid down in *a)*, *b)* or *c)* of sub-paragraph (3), above ; in this case, the administrations or recognized private operating agencies concerned must be in agreement.

(4) If the currencies of several countries fulfil the conditions in *a)*, *b)* or *c)* of sub-paragraph (3), above, the creditor administration or recognized private operating agency shall indicate the currency of payment which is convenient to it.

B. Rules for Conversion

§ 3. (1) Conversion into the currency of payment of the balances in gold francs shall be effected according to the following rules :

(2) If the administrations or recognized private operating agencies belong to countries between which special monetary agreements exist, conversion shall be made :

a) at the choice of the debtor administration or recognized private operating agency either directly into the currency of the creditor country at the gold parity fixed for such currency by the International Monetary Fund ; or through the currency of the debtor country on the basis of the gold parity approved for this currency by the International Monetary Fund ; the result obtained in the currency of the creditor country or of the debtor country shall, if necessary, be converted into the currency of payment in conformity with special monetary agreements between the two countries ;

b) in the absence of a gold parity approved by the International Monetary Fund for both the currency of the creditor country and the currency of the debtor country, at the gold par rate of a currency fulfilling the conditions prescribed in sub-paragraphs (3) *a)*, (3) *b)* or (3) *c)* of § 2, above ; the result obtained shall then be converted into the currency of the debtor country at the current official rate of exchange for such currency in that country, and thence, if necessary, into

the currency of payment, in conformity with the special monetary agreements ;

- c) at the choice of the debtor administration or recognized private operating agency either directly into the currency of the creditor country and at the gold parity fixed for that currency by a law of the country, or by an arrangement between the government and an official issuing house, or through the currency of the debtor country and at the gold parity determined for that currency by a law of the country or by an arrangement between the government and an official issuing house ; the result obtained in the currency of the creditor country or in the currency of the debtor country shall, if necessary, be converted into the currency of payment in conformity with the special monetary agreements between the two countries.

(3) If the administrations or recognized private operating agencies belong to countries which have not made any special monetary agreement, conversion shall be made as follows :

- a) if the currency in which payment is made is a gold currency, at the gold par rate of such currency ;
- b) if the currency in which payment is made is a free currency for which a gold parity has been fixed by the International Monetary Fund, at the gold parity approved by the Fund, or at the gold par rate determined by domestic law, or by an arrangement between the government and an official issuing house ;
- c) if the currency in which payment is made is a free currency for which the International Monetary Fund has not fixed any gold parity, either at the gold par rate determined by domestic law or by an arrangement between the government and an official issuing house, or through another free currency with a gold parity fixed by the Fund ; the result obtained shall be converted into the currency in which payment is made at the official rate in force in the debtor country the day or the day before the transfer is effected or the cheque or draft is purchased.

(4) If, by agreement between the two administrations or recognized private operating agencies concerned, the currency in which payment is made is that specified in sub-paragraph (3) *d*) of § 2., above, the balance in gold francs shall be converted into any gold currency or free currency ; the result obtained shall be converted into the currency of the debtor country, and thence into the currency of the creditor country at the official rate of exchange in force in the debtor country on the day or the day before the transfer is effected or the cheque or draft is purchased.

APPENDIX 23

Procedure for Obtaining Radio Direction-Finding Bearings and Positions

(See Article 43)

Section I. General Instructions

§ 1. Stations of the aeronautical mobile service shall use such special procedures as may be in force as a result of agreements concluded between administrations. However, if they have need to participate in direction-finding operations with stations of the maritime mobile service, the provisions of this Appendix shall be applicable.

§ 2. Before calling one or more radio direction-finding stations for the purpose of asking for a bearing or position, a mobile station shall ascertain from the List of Radiodetermination and Special Service Stations :

- a) the call signs of the stations to be called to obtain the desired bearings or position ;
- b) the frequency on which the radio direction-finding stations keep watch, and the frequency or frequencies on which they take bearings ;
- c) the radio direction-finding stations which, being linked by special circuits, can be grouped operationally with the radio direction-finding station to be called.

§ 3. The procedure to be followed by the mobile station depends on varying circumstances. Generally, the following shall be taken into account :

- a) If the radio direction-finding stations do not keep watch on the same frequency (whether it be the frequency on which bearings are taken or another frequency), a separate request for the bearings shall be made to each station or group of stations using a given frequency.

- b) If all the radio direction-finding stations concerned keep watch on the same frequency, and if they are able to take bearings on a common frequency (which may be different from the listening frequency), the mobile station shall call all of them at the same time, in order that all these stations may take simultaneous bearings on the same transmission.
- c) If several radio direction-finding stations are grouped by means of special circuits, only one of them, the radio direction-finding control station, shall be called even if all are furnished with transmitting apparatus. In that case, however, the mobile station shall, if appropriate, specify in the call, by means of call signs, the radio direction-finding stations from which it wishes to obtain bearings.

§ 4. The List of Radiodetermination and Special Service Stations contains information relating to :

- a) the type of signal and class of emission to be used for obtaining the bearings ;
- b) the duration of the transmission to be made by the mobile station ;
- c) the time used by the radio direction-finding station in question, if different from Greenwich Mean Time (G.M.T.).

Section II. Rules of Procedure

§ 5. The following rules of procedure applicable to radiotelegraphy and radiotelephony are based on the use of radiotelegraphy. When used for radiotelephony, appropriate phrases may replace the service abbreviations.

To obtain a bearing

§ 6. (1) The mobile station shall call the radio direction-finding station or the radio direction-finding control station on the listening frequency indicated in the List of Radiodetermination and Special Service Stations. Depending on the type of information desired, the calling station shall transmit the appropriate service abbreviation followed, if the radio direction-finding station is a mobile station, by the service abbreviation QTH? It shall indicate, if necessary, the frequency on which it is going to transmit to enable its bearing to be taken, and then await instructions.

(2) The radio direction-finding station called shall request the calling station, by means of the appropriate service abbreviation, to transmit for the bearing. If necessary, it shall indicate the frequency to be used for this purpose and the number of times the transmission is to be repeated.

(3) After having changed, if necessary, to its new transmitting frequency, the calling station shall transmit two dashes of approximately ten seconds each, followed by its call sign. It shall repeat this signal as often as the radio direction-finding station requires.

(4) The radio direction-finding station shall determine the direction and, if possible, the sense of the bearing, and its classification (see paragraph 7).

(5) If the radio direction-finding station is not satisfied with the operation, it shall request the calling station to repeat the transmission described in (3).

(6) The radio direction-finding station shall transmit the information to the calling station in the following order :

- a) the appropriate service abbreviation ;
- b) three digits indicating the true bearing in degrees from the radio direction-finding station ;
- c) class of bearing ;
- d) time of observation ;

- e) if the radio direction-finding station is mobile, its own position in latitude and longitude, preceded by the service abbreviation QTH.

(7) As soon as the calling station has received the result of the observation, it shall repeat the message, if this is considered necessary to obtain confirmation. The radio direction-finding station then shall confirm that the repetition is correct or, if necessary, correct it by repeating the message. When the radio direction-finding station is sure that the calling station has received the message correctly, it shall transmit the signal "end of work". The calling station shall repeat this signal to indicate that the operation is finished.

(8) In the absence of information to the contrary, the calling station may assume that the sense of the bearing was determined. If the radio direction-finding station has not determined the sense, it shall indicate this in the information transmitted, or report the bearing and its reciprocal.

Classification of Bearings

§ 7. To estimate the accuracy and determine the corresponding class of a bearing :

- a) An operator should generally, and particularly in the maritime mobile radio direction-finding service on frequencies below 3 000 kc/s, use the observational characteristics of bearings shown in the following Table.
- b) The operators at a radio direction-finding station, when facilities and time permit, may take into account the probability of error in the bearing. A bearing is considered as belonging to a particular class if there is a probability of less than one in twenty that the bearing error would exceed the numerical values specified for that class in the Table shown on the following page. This probability should be determined from an analysis of the five components that make up the total variance of the bearing (instrumental, site, propagation, random-sampling and observational components).

To obtain a position determined by two or more radio direction-finding stations organized as a group

§ 8. (1) If the calling station wishes to be informed of its position by a group of radio direction-finding stations, it shall call the control station as is indicated in § 6. (1) above, and request its position by means of the appropriate service abbreviation.

(2) The control station shall reply to the call and, when the radio direction-finding stations are ready, request, by means of the appropriate service abbreviation, that the calling station transmit. When the position has been determined, the control station shall transmit to the calling station :

- a) the appropriate service abbreviation ;
- b) the position, in latitude and longitude or, if appropriate, in relation to a known geographical position ;
- c) the class of position as defined in the following subparagraph ;
- d) the time of observation.

(3) According to its estimate of the accuracy of the observations, the control station shall classify the position in one of the four following classes :

Class A : positions which the operator may reasonably expect to be accurate to within 5 nautical miles ;

Class B : positions which the operator may reasonably expect to be accurate to within 20 nautical miles ;

Class C : positions which the operator may reasonably expect to be accurate to within 50 nautical miles ;

Class D : positions which the operator may not expect to be accurate to within 50 nautical miles.

(4) However, for frequencies above 3 000 kc/s, where the distance limits specified in the preceding sub-paragraph may not be appropriate, the control station may classify the position in accordance with current C.C.I.R. Recommendations.

To obtain simultaneous bearings from two or more radio direction-finding stations organized as a group

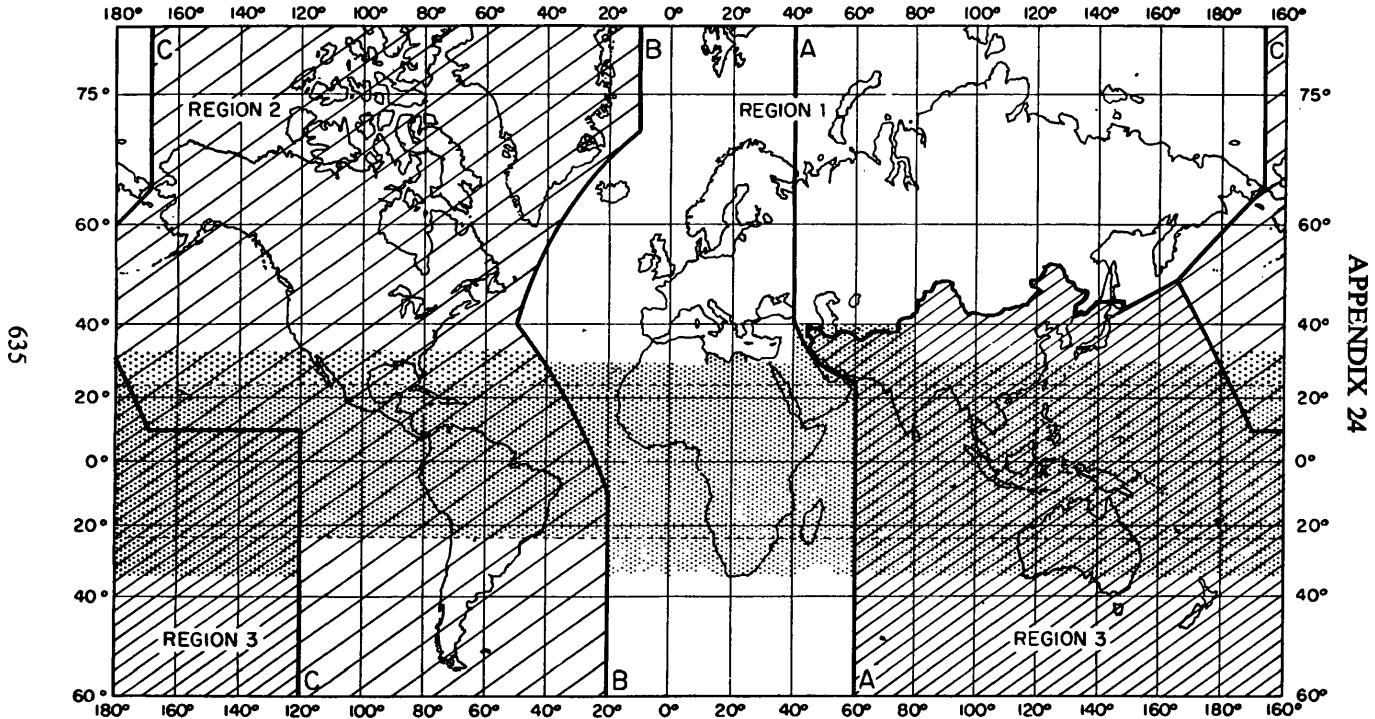
§ 9. On a request for bearings, the control station of a group of radio direction-finding stations shall proceed as indicated in § 8 above. It then shall transmit the bearings observed by each station of the group, each bearing being preceded by the call sign of the station which observed it.

TABLE
Classification of Bearings

Class	Bearing Error (Degrees)	Observational Characteristics					
		Signal Strength	Bearing Indication	Fading	Interference	Bearing Swing (Degrees)	Duration of Observation
A	± 2	very good or good	definite (sharp null)	negligible	negligible	less than 3	adequate
B	± 5	fairly good	blurred	slight	slight	more than 3 less than 5	short
C	± 10	weak	severely blurred	severe	strong	more than 5 less than 10	very short
D	more than ± 10	scarcely perceptible	ill-defined	very severe	very strong	more than 10	inadequate

Chart of Regions as Defined in Table of Frequency Allocations

(See Nos. 125 to 132 and 135)



The shaded part represents the Tropical Zone as defined in Nos. 135 and 136

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APPENDIX 24

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APPENDIX 25

Frequency Allotment Plan for Coast Radiotelephone Stations Operating in the Exclusive Maritime Mobile Bands between 4 000 and 23 000 kc/s

(This Appendix to the Radio Regulations, (Geneva, 1959), was published as a separate booklet. On 1 March 1970, the frequencies appearing in column (1) of Appendix 25, will be replaced by those contained in Annex 1 to Resolution No. Mar 11 of the Maritime Conference, the other columns remaining unchanged. Appendix 25, thus amended, will also contain a new Section III (see Annex 3 to Resolution No. Mar 11) as mentioned in Resolution No. Mar 15 of the Maritime Conference; it will then be known as «Appendix 25 MOD». Appendix 25 MOD will be published in due course. Meanwhile, copies of Appendix 25 (1959 edition) are obtainable from the General Secretariat of the I.T.U.)

APPENDIX 26

Frequency Allotment Plan for the Aeronautical Mobile Service and Related Information

(This Appendix to the Radio Regulations, (Geneva, 1959), was published as a separate booklet. As far as the Aeronautical Mobile (R) Service is concerned, a revised Plan was adopted in 1966 by the Aeronautical Conference: it is contained in Appendix 27. However, the Plan adopted in 1959 for the Aeronautical Mobile (OR) Service remains in force, so that for this service reference should be made to Appendix 26. Copies of Appendix 26 (1959 edition) are obtainable from the General Secretariat of the I.T.U.)

APPENDIX 27

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Frequency Allotment Plan for the Aeronautical Mobile (R) Service and Related Information

(This Appendix is published as a separate booklet. It contains provisions relating exclusively to the Aeronautical Mobile (R) Service, which on 17 September 1970 will have completely replaced the provisions relating to this service that are contained in Appendix 26 (see I.F.R.B. Circular Letter No. 176, dated 10 August 1967). Accordingly, after this date reference should be made exclusively to Appendix 27 as far as the Aeronautical Mobile (R) Service is concerned.)

APPENDIX A

Studies and Prediction of Radio Propagation and Radio Noise

Recognizing the vital dependence of maximum utilization of radio frequencies and efficient planning of radiocommunication services upon the fullest use of radio propagation and radio noise data, the Members and Associate Members of the Union shall continue to promote the establishment and operation of world-wide systems of observation stations to obtain data on radio noise and on ionospheric, tropospheric and other phenomena affecting radio propagation. Each Member or Associate Member shall provide, by the best means possible, for the study, co-ordination and rapid dissemination of such data and of their predictions. In formulating and carrying out their programme of work in this field, Members and Associate Members shall take note of the relevant C.C.I.R. Recommendations, Reports, Questions and Study Programmes, particularly regarding the conclusions so far reached, the planning of future studies and the recommended forms of presentation contained in these documents.

**ADDITIONAL
RADIO
REGULATIONS**

ADDITIONAL RADIO REGULATIONS

ARTICLE 1

Application of the Telegraph and Telephone Regulations to Radiocommunications

- 2001** § 1. The provisions of the Telegraph and Telephone Regulations and the Protocols annexed thereto are applicable to radiocommunications in so far as the provisions of the Radio Regulations do not provide otherwise.
- 2002** § 2. (1) With the exceptions mentioned in the following Articles, radiotelegrams are drawn up and treated in accordance with the provisions of the Telegraph Regulations for telegrams.
- 2003** (2) The use of groups of letters from the International Code of Signals is permitted in radiotelegrams in the maritime mobile service.
- 2004** § 3. Since the word RADIO or AERADIO, as the case may be, is always included in the list of stations and in the address of a radiotelegram, as part of the name of the land station, this word must not be given as a service indication at the beginning of the preamble in the transmission of a radiotelegram.

ARTICLE 2

Address of Radiotelegrams

2005 § 1. (1) The address of radiotelegrams destined for mobile stations must be as complete as possible and must include :

2006 a) the name or the designation of the addressee, with supplementary particulars, if necessary ;

2007 b) in the case of a ship station, the name of this station followed, when necessary, by its call sign, the latter separated from the name of the station by a fraction bar, as shown in the List of Ship Stations ;

2008 c) in the case of an aircraft station the call sign or other identification, as it appears in No. 2011 ;

2009 d) the name of the land station through which the message is to be forwarded, as it appears in the appropriate list of stations.

2010 (2) If the ship does not appear in the List of Ship Stations, the sender should, if possible, indicate the nationality and route followed by the ship.

2011 (3) However, the name and call sign required under Nos. 2007 and 2008 may be replaced, at the risk of the sender, by particulars of the passage made by such mobile station, indicated by the names of the ports or airports of departure and of destination, or by any equivalent indication.

2012 (4) In the address, the name of the mobile station and that of the land station, written as they appear in the appropriate list of stations are, in all cases and irrespective of their length, each counted as one word.

Note by the General Secretariat: The Administration of a Member of the Union has pointed out that in No. 2008 there is a discrepancy between the French and Spanish texts on the one hand and the English text on the other. According to the French text, it would appear that the words «call sign» in Nos. 2008 and 2011 should read «flight identification number».

2013 § 2. (1) Mobile stations not supplied with the International List of Telegraph Offices may add to the name of the telegraph office of destination,

- the name of the territorial subdivision, or
- the country of destination, or
- both of the above,

if it is doubtful whether, without such addition, the message could be correctly routed without difficulty.

2014 (2) In that case the name of the telegraph office and the supplementary particulars are counted and charged for as a single word. The land station operator receiving the radiotelegram retains or deletes these particulars, or further amends the name of the office of destination as is necessary or sufficient for forwarding the radiotelegram to its proper destination.

ARTICLE 3

Time of Handing-in of Radiotelegrams

2015 § 1. In the transmission of radiotelegrams originating in a mobile station, the date and time of handing-in at this station are given in the preamble.

2016 § 2. The time of handing-in is indicated in Greenwich Mean Time (G.M.T.) from 0 to 24 h. beginning at midnight, and is always expressed and transmitted by means of four figures (0001 to 2400).

2017 § 3. Administrations of countries situated outside Zone A (Appendix 12 to the Radio Regulations) may, however, authorize ship stations passing along the coasts of their countries to use zone time for giving, in a group of four figures, the time of handing-in. In that case the group must be followed by the letter F.

ARTICLE 4

Charges for Radiotelegrams**Section I. General. Full-rate Radiotelegrams**

- 2018** § 1. The charge for a radiotelegram originating in and/or intended for a mobile station comprises, according to circumstances :
- 2019** *a)* the ship or aircraft charge or charges accruing to the mobile station of origin or destination, or to both of these stations ;
- 2020** *b)* the land station charge accruing to the land station or stations (see No. **2028**) which participate in the transmission ;
- 2021** *c)* the charge for transmission over the general network of telecommunication channels, reckoned in accordance with the ordinary rules ;
- 2022** *d)* the charges for accessory services requested by the sender.
- 2023** § 2. (1) The land station charge and the ship or aircraft charge, as well as the charge for transmission over the general network of telecommunication channels are fixed on the basis of a word rate ; for each full-rate radiotelegram, however, a minimum charge for seven words shall be made.
- 2024** (2) In conformity with Article 43 of the Convention the rate shall be expressed in gold francs. The rate shall be the same in the two directions for radiotelegrams transmitted over the same route.
- 2025** (3) The maximum land station charge is 0.60 gold franc (sixty centimes) per word ; the maximum ship or aircraft charge is 0.40 gold franc (forty centimes) per word. Administrations shall notify to the Secretary General the rates fixed by them.
- 2026** (4) Each administration, however, reserves to itself the right to fix and authorize a land station charge higher than the maximum charge indicated in No. **2025** in the case of land stations which are exceptionally costly on account of their installation or working.

2027 § 3. (1) When a single land station is used as an intermediary between mobile stations, only one land station charge is collected. If the land station charge applicable to traffic with the mobile station of origin is different from that applicable to traffic with the mobile station of destination, the higher of these two charges is collected. In addition, a land telegraph charge may be collected equal to that indicated in No. **2030** as applicable to transmission over the telecommunication network.

2028 (2) When, at the request of the sender, two land stations are used as intermediaries between two mobile stations, the land station charge of each station is collected and also the telegraph charge for the section between the two stations.

2029 § 4. The retransmission service and charges are governed by Article 10 of these Regulations.

2030 § 5. In the case of radiotelegrams originating in or destined for a country which pass through land stations of that country, the telegraph charge per word applicable to the transmission over the internal telecommunication system of that country is notified in gold francs to the Secretary General by the administration to which the land stations are subject.

2031 SUP (Mar)

2032 § 7. The country on whose territory is established a land station serving as intermediary for the exchange of radiotelegrams between a mobile station and another country, is considered, as far as the application of telegraph charges is concerned, as the country of origin or destination of the radiotelegrams, and not as a transit country.

2033 § 8. (1) For the purpose both of transmission and of international accounting, the word count of the office of origin is decisive in the case of radiotelegrams destined for mobile stations, and that of the mobile station of origin is decisive in the case of radiotelegrams originating in mobile stations.

2034 (2) Nevertheless, when a radiotelegram is expressed wholly or partly either :

- in one of the languages of the country of destination (in the case of radiotelegrams originating in mobile stations), or
- in one of the languages of the country to which the mobile station is subject (in the case of radiotelegrams destined for mobile stations),

and when the radiotelegram contains combinations or alterations of words contrary to the usage of that language, the office or the mobile station of destination, as the case may be, has the right to recover from the addressee the amount of the charge not collected. Where payment is refused, the radiotelegram may be withheld.

2035 § 9. The total charge for radiotelegrams is collected from the sender, with the exception of :

- 2036** a) express charges to be collected on delivery (see No. **576** of the Telegraph Regulations, Geneva Revision, 1958) ;
- 2037** b) charges applicable to radiotelegrams to be redirected at the request of the addressee as provided under No. **2122** (see Article 57 of the Telegraph Regulations, Geneva Revision, 1958) ;
- 2038** c) the charges applicable to inadmissible combinations or alterations of words, observed by the office or mobile station of destination (see No. **2034**) which are collected from the addressee.

2039 § 10. Mobile stations must be acquainted with the tariffs necessary for charging for radiotelegrams. However, they are authorized, where necessary, to obtain such information from land stations ; rates furnished by land stations are expressed in gold francs.

- 2040** § 11. The land station or ship or aircraft station charges for radio-
Mar telegrams concerning stations not yet included in the appropriate list of stations are fixed, as part of its duties, by the office which collects the charge. The ship or aircraft station charges pertaining to radiotelegrams intended for mobile stations, the names or call signs of which are replaced by the indication of the route followed or by any other equivalent indication (see No. **2011**), are also fixed, as part of its duties, by the office which collects the charge. They are the normal rates notified by the administration(s) concerned or, in the absence of such notification, they are the maximum charges prescribed in No. **2025**.
- 2041** § 12. (1) No new rate and no modification, either general or of detail, relative to the tariff shall be effective for countries other than those which establish the new rate or rate modification until fifteen days after its notification by the Secretary General, excluding the day of despatch, and it shall not be applied until the first of the month following the expiration of this period.
- 2042** (2) If there are several notifications, the date of the first only is to be considered in reckoning the interval.
- 2043** (3) The interval of fifteen days shall be reduced to ten days for modifications intended to equalize rates with those already notified for competing routes.
- 2044** (4) Nevertheless, for radiotelegrams originating in mobile stations, modifications of tariffs are not applicable until a month after the periods laid down in No. **2041**.
- 2045** (5) No exceptions shall be made to the provisions of Nos. **2041** to **2044**.

Section II. Reduced-rate Radiotelegrams

A. Radiotelegrams of Immediate General Interest

- 2046** § 13. No charge for radio transmission in the mobile service is made for radiotelegrams of immediate general interest, which fall within the following classes :

- 2047** a) distress messages and replies thereto ;
- 2048** b) messages originating in mobile stations notifying the presence of icebergs, derelicts, mines and other dangers to navigation, or announcing cyclones and storms ;
- 2049** c) messages announcing unexpected phenomena threatening air navigation or the sudden occurrence of obstacles at airports ;
- 2050** d) messages originating in mobile stations notifying sudden changes in the position of buoys, the working of lighthouses, devices connected with buoyage, etc. ;
- 2051** e) service messages relating to the mobile service.

B. Radiotelegrams Relating to Medical Advice

- 2052** § 14. No charge for radio transmission is made for messages relating to medical advice exchanged direct between mobile stations and land stations which are shown in the List of Radiodetermination and Special Service Stations as providing such a service. Such messages from mobile stations to any one of these land stations shall be addressed in accordance with the conditions indicated in this List.

C. Meteorological Radiotelegrams

- 2053** § 15. (1) The term "meteorological radiotelegram" denotes a radiotelegram consisting solely of meteorological observations or meteorological forecasts, which is sent by an official meteorological service or by a station in official relation with such a service, and addressed to such a service or to such a station.
- 2054** (2) Meteorological radiotelegrams must bear the service instruction **Mar** =OBS= at the beginning of the preamble and the paid service indication =OBS= before the address. This paid service indication is the only one admitted.

- 2055** (3) If requested, the sender must affirm that the text of his radiotelegram complies with the above conditions.
- 2056** § 16. (1) Land station and ship or aircraft station charges applicable to meteorological radiotelegrams are reduced by at least 50 per cent in all relations. The minimum number of chargeable words in meteorological radiotelegrams shall be fixed at seven.
- 2057** (2) For land stations, the date on which this provision is put into force is fixed by agreement between the administrations and operating companies on the one hand, and the official meteorological services concerned on the other hand.

D. Press Radiotelegrams

- 2057A** §16A. Press telegrams from a mobile station to a land station **Mar** shall be admitted as press radiotelegrams.
- 2058** § 17. The minimum number of chargeable words for press radiotelegrams shall be fixed at fourteen.
- 2059** § 18. (1) The land station and ship or aircraft charges are reduced **Mar** by 50 per cent. These radiotelegrams are subject to the conditions of acceptance laid down in Articles 65 to 69 of the Telegraph Regulations, Geneva Revision, 1958. For those radiotelegrams which are addressed to a destination in the country of the land station, the telegraph charge to be collected is one-half of the telegraph charge applicable to an ordinary radiotelegram.
- 2060** (2) Press radiotelegrams destined for a country other than that of the land station are subject to the press rate in force between the country of the land station and the country of destination.

*E. Radiotelegrams concerning Persons Protected in Time of War
by the Geneva Conventions of 12 August, 1949*

2061 § 19. (1) Radiotelegrams concerning persons protected in time of war by the Geneva Conventions of 12 August, 1949, are accepted under the conditions specified in Article 64 of the Telegraph Regulations (Geneva Revision, 1958) and shall bear the paid service indication = RCT = placed before the address.

2062 (2) The land station charge and the ship or aircraft station charge for radiotelegrams bearing the paid service indication = RCT = shall be decreased in the same proportion as the charge for transmission on the general network of telecommunication channels (see Nos. 646 and 647 of the Telegraph Regulations, Geneva Revision, 1958).

ARTICLE 5

**Charges for Radiotelephone Calls in the Maritime
and Aeronautical Mobile Services**

Section I. Mobile Station Charge, Land Station Charge, Land-line Charge

- 2063 § 1.** Unless special arrangements between the administrations and/or the recognized private operating agencies concerned are in effect, the following rules shall be applied as regards charging for radiotelephone calls in the maritime and aeronautical mobile services.
- 2064 § 2.** The charge for a radiotelephone call originating in and/or intended for a mobile station comprises, according to circumstances :
- 2065** a) the mobile station charge or charges accruing to the mobile station of origin or destination, or to both of these stations ;
- 2066** b) the land station charge or charges accruing to the land station or land stations which participate in the transmission ;
- 2067** c) the land-line charge or charges, i.e., the appropriate charge for transmission over the general network of telecommunication channels ;
- 2068** d) the charges for accessory services requested by the person who booked the call (see Section II).
- 2069 § 3.** (1) The charge for a radiotelephone call is fixed on a time basis. Calls of a duration of three minutes or less are charged as for three minutes. In the case of calls whose duration exceeds three minutes, a charge per minute is made for the period in excess of three minutes, any fraction of a minute being charged as for one minute. The charge per minute is one-third of the charge for three minutes.
- 2070** (2) The mobile station charge will in principle be the same for ship stations and aircraft stations of the same nationality under like conditions of installation and working.
- 2071** (3) Administrations shall notify the Secretary General of the rates fixed by them.

2072 § 4. (1) When a single land station is used as an intermediary for a radiotelephone call between two mobile stations, only one land station charge is collected. If the land station charge applicable to traffic with the mobile station booking the radiotelephone call is different from that applicable to traffic with the mobile station called, the higher of these two charges is collected.

2073 (2) When, at the request of the person booking the radiotelephone call, two land stations are used as intermediaries for a radiotelephone call between two mobile stations, the appropriate land station charge of each station is collected and also the land-line charge between the two land stations.

2074 § 5. (1) When handled through a land station the chargeable duration of a radiotelephone call will be fixed at the end of the call by the land station ; if two land stations are participating in the handling of the radiotelephone call, the opinion of that land station will prevail which has accepted the call from the originating mobile station. The decision of this land station will also be valid for international accounting.

2075 (2) The chargeable duration of a radiotelephone call between two mobile stations in direct communication with each other will be fixed by the mobile station in which the call originates.

2076 § 6. (1) When, through any fault of the service, the booking of a radiotelephone call is not followed by the calling and called stations being placed in communication, no charge shall be payable. If the amount of the charge has been paid, it shall be refunded.

2077 (2) When, through any fault of the service, the correspondents experience difficulty in the course of a radiotelephone conversation, the chargeable duration of the call shall be reduced to the total time during which speech conditions have been satisfactory.

- 2078** § 7. (1) When after onward transmission of the booking particulars of a radiotelephone call, it is cancelled at the request of the person booking the call, or when a correspondent refuses to accept a call, or when the caller does not answer the call though his station is not engaged, or when the caller has become unavailable, a report charge will be collected.
- 2079** (2) The report charge will be not more than one-third of the charge for an ordinary radiotelephone call of three minutes' duration between the two stations concerned.
- 2080** § 8. The total charge for a radiotelephone call is collected from the calling station with the exception of collect calls (if collect calls are admitted). For collect calls, the charge shall be payable by the called subscriber.
- 2081** § 9. Mobile stations must be acquainted with the tariffs applicable to radiotelephone calls. However, they are authorized, where necessary, to obtain such information from land stations; rates furnished by land stations are expressed in gold francs, or in any other currency by special arrangement between the respective administrations and/or recognized private operating agencies of the mobile and land stations.
- 2082** § 10. The rules prescribed in Nos. **2041** to **2044** shall be applied as regards the interval before the application of new rates.

Section II. Supplementary Charge

- 2083** § 11. Unless special arrangements between the administrations and/or the recognized private operating agencies concerned are in effect, the following supplementary charges for préavis calls, avis d'appel calls, and collect calls, if admitted, shall be applied.

2084 § 12. (1) The charge for a préavis call (from ship or aircraft to land), a call with avis d'appel (from ship or aircraft to land) and a collect call shall be the same as that for an ordinary call of the same duration, with the addition of a supplementary charge equal to one-third of the charge for a radiotelephone call of three minutes' duration, between the two stations concerned.

2085 (2) The préavis charge or avis d'appel charge is payable when the mobile station with which the call is booked transmits the particulars of this booking. This charge is, however, not collected when, because of a fault of the service, the call is not established or the station wanted has not been advised.

2086 (3) The caller will, however, be required to pay the supplementary charge for a collect call if the called subscriber refuses to pay for the call and the call is not established.

2087 (4) When the booking of a radiotelephone call which is liable to the payment of a supplementary charge (for example, a collect call) is accompanied by a préavis or an avis d'appel, only one supplementary charge shall be collected.

ARTICLE 6

Radiomaritime Letters and Radio Air Letters

- 2088 § 1.** Each administration may organize a service of radiomaritime letters between ships at sea and its coast stations, and radio air letters between aircraft in flight and its land stations. Such correspondence is transmitted by radio between the ships or aircraft and the land stations. They may be forwarded on the land section :
- 2089** *a)* wholly or partly by post (ordinary or airmail) ;
- 2090** *b)* exceptionally by telegraph, in which case delivery is subject to the periods of delay fixed for letter telegrams of the European or extra-European systems.
- 2091 § 2.** Radio retransmission of radiomaritime letters and radio air letters is not permitted in the mobile service.
- 2092 § 3.** Radiomaritime letters and radio air letters shall be exchanged only with places in the country in which the land station is situated, unless other arrangements have been made with the administrations concerned. In that event, an additional charge may be collected in accordance with the agreement between these administrations.
- 2093 § 4.** Radiomaritime letters bear the paid service indication = SLT = and radio air letters the paid service indication = ALT =. These indications precede the address.
- 2094 § 5.** (1) Other paid service indications which may be admitted are : =RPx=, =PR=, =GP=, =GPR=, =PAV=, =PAVR=.

2095 (2) Where the transmission over the land section is performed exceptionally by telegraph, the only paid service indications which may be admitted are :
=RPx=, =GP=, =TR=, =LX=, =LXDEUIL=, =Réexpédié de x=.

2096 § 6. The address must enable delivery to be effected without inquiry or requests for information. Registered or abbreviated addresses are admitted when, exceptionally, radiomaritime letters and radio air letters are forwarded telegraphically on the land section.

2097 § 7. As a general rule, the text is subject to the regulations applicable to letter telegrams (see Article 70 of the Telegraph Regulations, Geneva Revision, 1958).

2098 § 8. (1) The ship or aircraft station charge for radiomaritime letters and radio air letters shall be 2.75 gold francs up to 22 words. For each word in excess of 22 : 0.125 gold franc.

2099 (2) The land station charge up to 22 words and the charge per word in excess shall be determined by the administrations concerned subject to a maximum of 4.40 gold francs for the first and 0.20 gold franc for the second. The land station charge shall include the postal charge (by ordinary letter) due for routing in the country to which the land station is subject.

2100 (3) The following charges are added where applicable :

2101 — charges due for authorized accessory services and, if necessary, the further charge mentioned in No. **2092**.

2102 — the telegraph charge when transmission on the land section is exceptionally by telegraph.

- 2103** § 9. Radiomaritime letters and radio air letters rank for radio transmission after ordinary radiotelegrams on hand. Those which have not been transmitted within 24 hours of handing-in are sent concurrently with ordinary radiotelegrams.
- 2104** § 10. The normal rules of accounting as regards radiocommunications are applicable to radiomaritime letters and to radio air letters, in accordance with the provisions of Nos. **2098** and **2099**.
- 2105** § 11. (1) When a radiomaritime letter or a radio air letter fails to reach its destination due to the failure of the postal service, only the charges in respect to the services not carried out are refunded.
- 2106** (2) Reimbursement of charges is admitted when, through the fault of the telegraph or radiotelegraph service, a radiomaritime or radio air letter has not reached its destination, as well as in the cases provided for in Nos. **911**, **912** and **913** of the Telegraph Regulations (Geneva Revision, 1958).

ARTICLE 7

Special Radiotelegrams. Paid Service Indications

- 2107 § 1.** The following special radiotelegrams are admitted provided the administrations concerned accept them :
- 2108**
Mar *a)* Press radiotelegrams in the conditions specified in Nos. 2057A to 2060.

 - 2109**
Mar *b)* Meteorological radiotelegrams in the conditions specified in Nos. 2053 to 2057.

 - 2110** *c)* Paid service advices. These are forwarded, as far as practicable, by the same route as that of the original radiotelegram. In the case of diversion (for example, in case of interruption or where the mobile station proceeds beyond the service area of the land station which has acted as intermediary for the transmission of the original radiotelegram) they bear the indication "dévité" and particulars of the route followed by the original radiotelegram.

 - 2111** *d)* Urgent radiotelegrams, but only over the general network of telecommunication channels.

 - 2112** *e)* Radiotelegrams with prepaid reply. The reply voucher issued on board a mobile station gives the right to send up to its value a radiotelegram to any destination, but only from the mobile station which issued the voucher. When the charge for a radiotelegram paid for by voucher exceeds the value of the voucher, the excess charge must be paid by the sender using the voucher.

 - 2113** *f)* Radiotelegrams with collation.

 - 2114** *g)* Radiotelegrams with notification of delivery destined for mobile stations, but only as far as concerns the notification to the telegraph office of origin of the

- date and time at which the land station has transmitted the radiotelegram to the mobile station of destination.
- 2115** *h)* Multiple radiotelegrams.
- 2116** *i)* Radiotelegrams to be delivered by express or by post (from ship or aircraft to land).
- 2117** *j)* De luxe radiotelegrams (subject to the conditions laid down in Article 60 of the Telegraph Regulations, Geneva Revision, 1958).
- 2117A** *k)* The supplementary charges levied by the offices of origin or by mobile stations for the special radiotelegrams specified in Nos. **2110** to **2117** inclusive shall be the charges specified in the Telegraph Regulations, Geneva Revision, 1958.
- 2118** *l)* Radiotelegrams to be retransmitted by one or two mobile stations at the sender's request (=RM=), in the conditions specified in Nos. **2152** to **2154**.
- 2119** *m)* Radiomaritime letters and radio air letters in the conditions specified in Article 6 of these Additional Regulations.
- 2120** *n)* Radiotelegrams concerning persons protected in time of war by the Geneva Conventions of 12 August 1949 (=RCT=) in the conditions specified in Nos. **2061** and **2062**.
- 2121** SUP (Mar)
- 2122** § 2. In addition, the following paid service indications shall be permitted in radiotelegrams: =GP=, =GPR=, =MP=, =TR=, =TFx= (from ship or aircraft to land), =TLXx= (from ship or aircraft to land), =Jx= (from land to ship or aircraft), =Réexpédié de x= (only when the charge for forwarding can be collected), =Jour=, =Nuit=, =Etat Priorité Nations=, =Etat Priorité=, =Etat=, =Remettre x= (from ship or aircraft to land).
- 2123** § 3. Radiotelegrams are not admitted as letter telegrams. Radiotelegrams to follow the addressee at the request of the sender are also not admitted.

ARTICLE 8

Period of Retention of Radiotelegrams at Land Stations**Section I. Radiotelegrams destined for Ships at Sea**

2124 § 1. (1) The sender of a radiotelegram destined for a ship at sea may specify the number of days during which the coast station may hold the radiotelegram.

2125 (2) In that case, the sender writes before the address the paid service indication = Jx = (x days) specifying the number of days (ten at the most) exclusive of the day of handing-in of the radiotelegram.

2126 § 2. When it has not been possible for a land station to transmit
Mar to a ship station:

- a) a radiotelegram bearing the paid service indication = Jx = within the prescribed period, or
- b) a radiotelegram not bearing this service indication up to the morning of the fourth day following the date of handing-in,

the coast station informs the office of origin, which notifies the sender. The sender of the radiotelegram may then ask, by paid service advice, addressed to the coast station, either that his radiotelegram be cancelled as regards the section between the coast station and the ship station or that further attempts at transmitting it to the ship station be made during a period of another seven days at the most. Failing such a request, the radiotelegram is treated as undelivered by the coast station three days after the dispatch of the advice of non-transmission. The same applies upon the expiry of any period for further attempts which may have been requested by the sender if it has been impossible to reach the ship. The office of origin shall be immediately advised if the coast station transmits the radiotelegram during the last-mentioned period of three days. The same shall apply if the coast station transmits the radiotelegram during the additional period which may have been requested by the sender.

- 2127** § 3. On the morning of the day following that day on which
Mar a radiotelegram to a ship station is treated as undelivered by the coast station, the latter shall advise the office of origin which notifies the sender. The coast station and ship station charges and the charges for the special services not performed shall be refunded to the sender.
- 2128** § 4. The periods mentioned in No. **2126** shall be ignored if the coast station is sure that the ship station will soon come within its service area.
- 2129** § 5. (1) On the other hand, the lapse of those periods is not awaited when the coast station is sure that the ship station being in course of a voyage either has definitely left its service area or will not enter it. If there is reason to believe that no other coast station of the administration or of the private enterprise to which it is subject is or will be in touch with it, the coast station cancels the radiotelegram as far as concerns the section between itself and the ship station and informs the office of origin which notifies the sender. In the contrary case, the coast station forwards the radiotelegram to the coast station believed to be in touch with the ship station, provided, however, that no additional charge results therefrom.
- 2130** (2) The coast station which carries out the redirection alters
Mar the address of the radiotelegram by placing after the name of the ship station that of the new coast station charged with the transmission and adding at the end of the preamble the service instruction "redirected from x Radio" which must be transmitted throughout the course of the radiotelegram.
- 2131** (3) If, within the limits of the requisite period of retention of radiotelegrams, the coast station which has redirected a radiotelegram to another coast station is subsequently in a position to transmit the radiotelegram direct to the mobile station of destination, it does so by inserting the service instruction "ampliation" before the preamble. It shall then transmit to the coast station to which the radiotelegram had been redirected a service notice informing the latter of the transmission of the said radiotelegram.

2132 § 6. When a radiotelegram cannot be transmitted to a ship station owing to the arrival of the latter in a port near the coast station, the latter station may, according to circumstances, forward the radiotelegram to the ship station by other means of communication, at the same time informing the office of origin by service advice of the delivery. In this case the coast station charge is retained by the administration to which the coast station is subject and the ship charge is refunded to the sender by the administration to which the office of origin is subject.

Section II. Radiotelegrams destined for Aircraft in Flight

2133 § 7. (1) Radiotelegrams intended for aircraft in flight must be sent by land stations with the least possible delay. When the land station is certain that the aircraft station cannot be reached, it immediately informs the office of origin by service advice, so that the land station and aircraft station charges, and any charges for special services not performed, may be refunded to the sender.

2134 (2) When, however, a radiotelegram cannot be transmitted to an aircraft station due to the latter's arrival at an airport (other than that where the land station is situated) and if the stay of the aircraft is prolonged, the land station may, if necessary, forward the radiotelegram to the aircraft station by other means of communication, and advise the office of origin of this transmission by a service message. In this case, the land station charge is retained by the administration to which the land station belongs, and the aircraft station charge is refunded to the sender by the administration to which the office of origin is subject.

2135 (3) The radiotelegram may be delivered to the aircraft station at the airport where the land station, which should have made the transmission, is situated.

2136 (4) In this case, the land station notifies the office of origin of this delivery by service advice, and the office of origin refunds the land station and aircraft station charges to the sender.

ARTICLE 9

**Doubtful Reception. Transmission by "Ampliation".
Long-distance Radiocommunications**

- 2137** § 1. (1) In the mobile service, when communication becomes difficult, the two stations in communication make every effort to complete the radiotelegram in course of transmission. The receiving station may request not more than two repetitions of a radiotelegram of which the reception is doubtful. If this triple transmission is ineffective, the radiotelegram is kept on hand in case a favourable opportunity for completing its transmission occurs.
- 2138** (2) If the transmitting station considers that it will not be possible to re-establish communication with the receiving station within twenty-four hours, it proceeds as follows :
- 2139** a) *If the transmitting station is a mobile station, it immediately informs the sender of the reason for the non-transmission of his radiotelegram. The sender may then request :*
- 2140** — that the radiotelegram be transmitted through another land station or through other mobile stations ; or,
- 2141** — that the radiotelegram be held until it can be transmitted without additional charge ; or,
- 2142** — that the radiotelegram be cancelled.
- 2143** b) *If the transmitting station is a land station, it applies the provisions of Article 8 of these Regulations to the radiotelegram.*

2144 § 2. When a mobile station subsequently transmits a radiotelegram thus held to the land station which incompletely received it, this new transmission must bear the service instruction "ampliation" in the preamble of the radiotelegram. If the radiotelegram is transmitted to another land station subject to the same administration or the same private enterprise, the new transmission must bear the service instruction "ampliation via . . ." (insert here the call sign of the land station to which the radiotelegram was transmitted in the first instance) and the administration or private enterprise in question may claim only the charges relating to a single transmission. The "other land station" which thus forwards the radiotelegram may claim from the mobile station of origin any additional charges resulting from the transmission of the radiotelegram over the general network of telecommunication channels between itself and the office of destination.

2145 § 3. When the land station designated in the address as the station by which the radiotelegram is to be forwarded cannot reach the mobile station of destination, and has reason to believe that such mobile station is within the service area of another land station of the administration or private enterprise to which it is itself subject, it may, if no additional charge is incurred thereby, forward the radiotelegram to this other land station.

2146 § 4. (1) A station of the mobile service which has received a radiotelegram and has been unable to acknowledge its receipt in the usual way, must take the first favourable opportunity to give such acknowledgment.

2147 (2) When the acknowledgment of receipt of a radiotelegram transmitted between a mobile station and a land station cannot be given direct, it is forwarded through another mobile or land station by service advice if the latter is able to communicate with the station which has transmitted the radiotelegram in question. In any case, no additional charge shall result.

- 2148** § 5. (1) Administrations reserve the right to organize a long-distance radiocommunication service between land stations and mobile stations, with deferred acknowledgment of receipt or without any acknowledgment of receipt.
- 2149** (2) When there is doubt about the accuracy of any part of a radiotelegram transmitted under either of these systems, the indication "doubtful reception" is entered on the copy delivered to the addressee, and the doubtful words or groups of words are underlined. If words are missing, blanks are left in the places where these words should be.
- 2150** (3) In the long-distance radiocommunication service with deferred acknowledgment of receipt, when the transmitting land station has not, within a period of 5 days, received the acknowledgment of receipt of a radiotelegram sent by it, the station notifies the office of origin. The reimbursement of the land station and ship or aircraft station charges must be postponed until the office of origin has ascertained from the land station in question that an acknowledgment of receipt has not been received subsequently, within a period not exceeding one month.
- 2151** (4) Each administration designates the land station or stations
Mar participating in the long-distance radio service. An indication to this effect shall appear in the List of Coast Stations.

ARTICLE 10

Retransmission by Mobile Stations**Section I. Retransmission at the Request of the Sender**

- 2152** § 1. Mobile stations shall, if the sender so requests, serve as inter-Mar mediaries for the routing of radiotelegrams; the number of intermediary mobile stations is, however, limited to two.
- 2153** § 2. Radiotelegrams forwarded as described in No. **2152** above shall bear, before the address, the paid service indication = RM = (retransmission).
- 2154** § 3. The transit charge, whether two intermediary stations are concerned or only one, is fixed uniformly at 0.40 gold franc (forty centimes) per word, with the collection of a minimum charge for seven words. When two mobile stations have participated, this charge is divided equally between them.

Section II. Routine Retransmission

- 2155** § 4. (1) When a land station cannot reach the mobile station for which a radiotelegram is destined and no payment for retransmission of the radiotelegram has been deposited by the sender, the land station may, in order to forward the radiotelegram to its destination, have recourse to the help of another mobile station provided that the latter consents. The radiotelegram is then transmitted to this other mobile station. The help of the latter is given free of charge.
- 2156** (2) The same provision is also applicable to traffic from mobile stations to land stations, when necessary.
- 2157** (3) The station assisting in the free retransmission in accordance Mar with the provisions of Nos. **2155** and **2156** must enter the service abbreviation QSP... (name of the mobile station) at the end of the preamble of the radiotelegram.

- 2158** (4) In order that a radiotelegram thus forwarded may be considered as having reached its destination, the station which has made use of this indirect route must have obtained the regular acknowledgment of receipt, either direct or by an indirect route, from the mobile station for which the radiotelegram was destined or from the land station to which it was to be forwarded, as the case may be.

ARTICLE 11

Advice of Non-Delivery

2159 § 1. When, for any reason, a radiotelegram originating in a mobile station and destined for a place on land cannot be delivered to the addressee, an advice of non-delivery is addressed to the land station which received the radiotelegram. After checking the address, the land station forwards the advice, when possible, to the mobile station, if necessary, by way of another land station of the same country or of a neighbouring country, as far as existing conditions or special agreements permit.

2160 § 2. When a radiotelegram received at a mobile station cannot be delivered, that station so informs the office or mobile station of origin by a service advice. In the case of a radiotelegram originating on land, this service advice is sent, whenever possible, to the land station through which the radiotelegram passed, or, if necessary, to another land station of the same country or of a neighbouring country, so far as existing conditions or special arrangements permit. In such cases the name or call sign of the station from which the radiotelegram was received is quoted.

ARTICLE 12

Radiotelegrams originating in or destined for Aircraft

2161 In the absence of special arrangements the provisions of the Additional Radio Regulations are applicable generally to public correspondence radiotelegrams originating in or destined for aircraft.

ARTICLE 13

Radiocommunications for Multiple Destinations

- 2162** Radiocommunications for multiple destinations shall be carried on in accordance with the provisions of the Telegraph Regulations.

ARTICLE 14

Effective Date of the Additional Radio Regulations

The Additionnal Radio Regulations (Geneva, 1959) signed on 21 December 1959, include the following provisions:

- 2163** These Additional Radio Regulations shall come into force on first May, 1961.
- 2164** The delegates signing these Regulations hereby declare that, should an administration make reservations about the application of one or more provisions of these Regulations, no other administration shall be obliged to observe that provision or those provisions in its relations with that particular administration.

The Final Acts of the World Administrative Radio Conference to deal with matters relating to the Maritime Mobile Service (Geneva, 1967), signed on 3 November 1967, include the following provisions :

« The revised provisions of the Additional Radio Regulations, Geneva, 1959, shall form an integral part of the Additional Radio Regulations which are annexed to the International Telecommunication Convention. They shall come into force on 1 April 1969, upon which date the provisions of the Additional Radio Regulations, Geneva, 1959, which are cancelled or modified by these revisions shall be abrogated.

The delegates signing this revision of the Additional Radio Regulations, Geneva, 1959, hereby declare that, should an administration make reservations concerning the application of one or more of the revised provisions of the Additional Radio Regulations, Geneva, 1959, no other administration shall be obliged to observe that provision or those provisions in its relations with that particular administration.»

RESOLUTIONS
AND
RECOMMENDATIONS

RESOLUTION No. 1**Relating to the Establishment of the Master
International Frequency Register**

The Administrative Radio Conference, Geneva, 1959,

decides

1. General

1.1 The Master International Frequency Register shall be compiled and maintained by the International Frequency Registration Board, preferably by means of a mechanical system.

1.2 The effective date of the Master International Frequency Register shall be the first of May, 1961.

2. Initial entries

2.1 The Master International Frequency Register shall include :

- a) the information contained in the Master Radio Frequency Record ¹ as on the thirtieth of April, 1961, subject to the provisions of paragraph 3 below ;
- b) the frequencies (e.g. 500 kc/s or 2 182 kc/s) prescribed in the Radio Regulations, Geneva, 1959, for common use by certain services, including the frequencies specified in Appendices 15, 17 and 18 to these Regulations.
- c) the allotments in the Plans included in Appendices 25 and 26 to the Regulations, Geneva, 1959.

¹ Master Radio Frequency Record: The interim master register of frequency assignments established and maintained pursuant to the provisions of the Agreement adopted by the Extraordinary Administrative Radio Conference, Geneva, 1951 (E.A.R.C. Agreement).

2.2 An indication of the purpose of the frequencies and allotments under paragraphs 2.1 *b*) and 2.1 *c*) shall be included in the entries concerned, which shall not bear any date in Column 2 of the Master International Frequency Register.

3. *Methods of transfer*

3.1 Those entries in the Master Radio Frequency Record which will not be complete according to Nos. 269 or 270 of the E.A.R.C. Agreement, Geneva, 1951, or according to Annex 6 to this Resolution, as appropriate, on the date specified above shall not be transferred to the Master International Frequency Register. However, except for the bands above 28 000 kc/s, the Board shall send before the thirtieth of September, 1960, to each administration concerned, a list of incomplete frequency assignments in order that the missing data may be notified as soon as possible, and by the thirtieth of April, 1961, at the latest.

3.2 In those cases provided for in Annex 1 where an entry shall be transferred after an examination or re-examination, and where the finding of the Board is favourable, the Board shall amend the entry in order that this entry will appear in the Master International Frequency Register in the same way as if the Board had made a favourable finding at the time of notification. If, on the contrary, the finding is unfavourable, the assignment shall be entered in the Master International Frequency Register as if the Board had in the first place made an unfavourable finding at the time of notification.

3.3 Frequency assignments not in conformity with No. 501 of the Radio Regulations, Geneva, 1959, shall be indicated, where appropriate, by an appropriate symbol in the Remarks Column. Moreover, any Remark in the Master Radio Frequency Record which is consistent with the provisions of Article 9 of the Radio Regulations, Geneva, 1959, shall be entered in the Master International Frequency Register.

4. *Additional basic characteristics*

4.1 Inasmuch as the Radio Regulations, Geneva, 1959, stipulate certain basic characteristics heretofore not required, administrations should furnish to the Board these additional characteristics in respect of their initial entries in the Master International Frequency Register as and when possible.

4.2 However, these additional characteristics shall be supplied when an initial entry is involved in any review conducted by the Board under Article 9 of the Radio Regulations, Geneva, 1959.

**ANNEX 1 — Method of Transfer from the Master Radio Frequency Record
(see paragraph 3 of this resolution)**

RESI-4

Frequency band kc/s	Regions or Services	Dates recorded in Master Radio Frequency Record <i>g</i>			Transfer to new Register	Method of transfer: examination	Nature of examination (if any)	Dates recorded in new Master International Frequency Register <i>g</i>				Remarks	
		Column						Column					
		2a	2b	2c				2a	2b	2c	2d		
14-2 850	Regions 1 and 3	Δ		Δ	Yes	No		Δ		Δ			
			Δ	Δ	Yes	Yes	Art. 9	(1)	(1)	Δ		(2)	
		03			No								
			04		No								
				Δ**	Yes	No					Δ**		
14-2 000	Region 2	Δ		Δ	Yes	No		Δ		Δ			
			Δ	Δ	Yes	Yes	Art. 9	(1)	(1)	Δ		(2)	
		03			No								
			04		No								
				Δ**	Yes	No					Δ**		
				Δ***	Yes	No					Δ***		

g The symbol "03" means 3.12.51 and the symbol "04" means 4.12.51.

** Ship-to-ship frequencies.

*** For the band 535-1 605 kc/s, in Region 2, see No. 576 of the Radio Regulations, Geneva 1959.

Frequency band kc/s	Regions or Services	Dates recorded in Master Radio Frequency Record #			Transfer to new Register	Method of transfer: examination	Nature of examination (if any)	Dates recorded in new Master International Frequency Register #				Remarks
		Column						Column				
		2a	2b	2c				2a	2b	2c	2d	
3 155- 3 400 3 500- 3 900	Region 1		03		Yes	No		03				
				Δ	No						Δ	
			Δ		Yes	Yes	Art. 9	(1)	(1)		Δ	(2)
2 000- 2 850 3 155- 3 400 3 500- 4 000	Region 2	03			Yes	No		03				
			Δ		Yes	Yes	Art. 9	(1)	(1)		Δ	(2)
				Δ	No							
			04		No							
3 155- 3 400 3 500- 3 950	Region 3	03			Yes	No		03				
			Δ		Yes	Yes	Art. 9	(1)	(1)		Δ	(2)
				Δ	No							
		03			No							
		04		No								

The symbol "03" means 3.12.51 and the symbol "04" means 4.12.51.

Frequency band kc/s	Regions or Services	Dates recorded in Master Radio Frequency Record \varnothing			Transfer to new Register	Method of transfer: examination	Nature of examination (if any)	Dates recorded in new Master International Frequency Register \varnothing				Remarks		
		Column						Column						
		2a	2b	2c				2a	2b	2c	2d			
2 850-3 155 3 400-3 500 3 900-3 950 (Region 1) 4 650-4 750 5 450-5 480 (Region 2) 5 480-5 730 6 525-6 765 8 815-9 040 10 005-10 100 11 175-11 400 13 200-13 360 15 010-15 100 17 900-18 030	Aeronautical mobile (R) and (OR)													
		03			Yes	No		03						
			03		Δ	Yes	No			03		Δ		
			Δ		Δ	Yes	Yes	(3)		Δ (3)		Δ		
					Δ	Yes	Yes					Δ (4)		
4 238-4 368 6 357-6 525 8 476-8 745 12 714-13 130 16 952-17 290 22 400-22 650	Maritime mobile (Radio-telegraph coast stations)	03			Yes	No		03			Δ			
			Δ		Δ	Yes	Yes	E.A.R.C. Art. 33 234-235 (ii)	(1)	(1)		Δ (4)		(2)
		03			No									
			04			No								

\varnothing The symbol "03" means 3.12.51 and the symbol "04" means 4.12.51.

Frequency band kc/s	Regions or Services	Dates recorded in Master Radio Frequency Record \varnothing			Transfer to new Register	Method of transfer examination	Nature of examination (if any)	Dates recorded in new Master International Frequency Register \varnothing				Remarks
		Column						Column				
		2a	2b	2c				2a	2b	2c	2d	
4 368- 4 438 8 745- 8 815 13 130-13 200 17 290-17 360 22 650-22 720	Maritime mobile (Radio- telephone coast stations)	03		Δ	Yes	No		03		Δ		(2)
			04	Δ	Yes	No			04	Δ		
			Δ	Δ	Yes	Yes	(5)		Δ	Δ (4)		
4 063- 4 133 8 195- 8 265 12 330-12 400 16 460-16 530 22 000-22 070	Maritime mobile (Radio- telephone ship stations)		Δ	Δ	Yes	Yes	(6)	(1)	(1)	Δ		
5 950- 6 200 7 100- 7 300 (Regions 1 & 3) 9 500- 9 775 11 700-11 975 15 100-15 450 17 700-17 900 21 450-21 750 25 600-26 100	Broadcasting			Δ	Yes	No				Δ (7)		
										Δ (7)		

\varnothing The symbol "03" means 3.12.51 and the symbol "04" means 4.12.51.

Frequency band kc/s	Regions or Services	Dates recorded in Master Radio Frequency Record			Transfer to new Register	Method of transfer: examination	Nature of examination (if any)	Dates recorded in new Master International Frequency Register				Remarks
		Column						Column				
		2a	2b	2c				2a	2b	2c	2d	
3 950 (4 000 Region 2) - 27 500	Various, excluding the bands allocated exclusively to aero- nautical mobile, maritime mobile, broadcasting and amateur											
				Δ	Yes	No				Δ (7)		
										Δ (7)		
27 500-28 000	Various			Δ	Yes	Yes	Art. 9			Δ	Δ (8)	
Above 28 000	Various			Δ	Yes (8)	No (8)				Δ	Δ (8)	

FOOTNOTES TO ANNEX 1

- | | |
|--|------------------------------------|
| (1) According to the result of the examination | (5) See Annex 3 to this Resolution |
| (2) Application of Section V of Article 9 of the Radio Regulations, Geneva, 1959, from 1st May, 1961 | (6) See Annex 4 to this Resolution |
| (3) See Annex 2 to this Resolution | (7) See Annex 5 to this Resolution |
| (4) In case of assignments which bear symbols ZZ or ZZZ, see paragraph 2.2.2 of Annex 5 to this Resolution | (8) See Annex 6 to this Resolution |

ANNEX 2

**Bands allocated exclusively to the Aeronautical Mobile Service
between 2 850 and 18 030 kc/s**

Frequency assignments entered in the Master Radio Frequency Record with a date in Column 2b which is after 3rd December, 1951, shall be examined by the Board following the relevant parts of the procedure described in Nos. 552 to 567 inclusive of the Radio Regulations, Geneva, 1959; they shall be recorded in the Master International Frequency Register following the procedure described in Nos. 589 to 599 inclusive of those Radio Regulations.

ANNEX 3

**Bands allocated exclusively to the Maritime Mobile Service
between 4 000 and 23 000 kc/s for Radiotelephone Coast Stations**

1. All assignments not in conformity with the Plan adopted by the E.A.R.C. (Annex 5 to the E.A.R.C. Agreement, Geneva, 1951), notified to the Board between 3rd December, 1951, and the 1st May, 1961, shall be submitted to a complete technical examination by the Board in accordance with Nos. 233, 234, 235(ii) and 236 of Section III of Article 33 of the E.A.R.C. Agreement, Geneva, 1951, with respect to the allotments appearing in Sections I and II of the Plan in Annex 5 to that Agreement (that is to say, with respect to the frequency assignments brought into use or liable to be brought into use in the future in accordance with the allotments in the Plan), as well as with respect to frequency assignments in conformity with Nos. 327 and 328 of the Radio Regulations, Atlantic City, 1947, which were previously recorded in the Master Radio Frequency Record on frequencies specified in Annex 7 to the E.A.R.C. Agreement, Geneva, 1951, either as a consequence of a favourable finding or after an unfavourable finding, the assignment having not, in this latter case, caused harmful interference. The same shall be done for the changes of basic characteristics of assignments in conformity with the Plan.

2. Upon the entry into force of the Radio Regulations, Geneva, 1959, assignments in conformity with the Allotment Plan adopted by the E.A.R.C. shall be considered as transferred to the channel frequencies of the Plan in Appendix 25 to the Radio Regulations, Geneva, 1959. All assignments not in conformity with the Plan adopted by the E.A.R.C., Geneva, 1951, which were notified to the Board between 3rd December, 1951, and 1st May, 1961, shall be considered as transferred to the channel frequencies of the Plan in Appendix 25 to the Radio Regulations, Geneva, 1959, if they had been notified on the central channel frequencies of the Plan adopted by the E.A.R.C., Geneva, 1951. If they have not been so notified, the administrations concerned shall notify to the Board as soon as possible before 1st May, 1961, the adjustments considered necessary in order that these assignments retain the same relative positions in relation to the channels in the Plan in Appendix 25 as they had in relation to the channels in the Plan adopted by the E.A.R.C., Geneva, 1951.

3. Frequency assignments transferred on 1st May, 1961, according to paragraph 2 above shall retain in Columns 2a or 2b the dates which appear in these columns on 30th April, 1961.

ANNEX 4

Bands allocated exclusively to the Maritime Mobile Service between 4 000 and 23 000 kc/s for Radiotelephone Ship Stations

1. Assignments of frequencies for reception by radiotelephone coast stations, notified to the Board between 3rd December, 1951, and 1st May, 1961, shall be examined by the Board following the procedure described in Nos. 547 to 551 inclusive of the Radio Regulations, Geneva, 1959 ; they shall be entered in the Master International Frequency Register following the procedure described in Nos. 582 to 586 of those Regulations.

2. Upon the entry into force of the Radio Regulations, Geneva, 1959, assignments shall be considered as transferred to the frequencies in Appendix 17 to the Radio Regulations, Geneva, 1959, if they had been notified on frequencies specified in Annex 7 to the E.A.R.C. Agreement,

Geneva, 1951. If they have not been so notified, the administrations concerned shall notify to the Board as soon as possible before 1st May, 1961, the adjustments considered necessary in order that these assignments retain the same relative positions in relation to the channels in Appendix 17 to the Radio Regulations, Geneva, 1959, as they had in relation to the channel in Annex 7 to the Final Acts of the E.A.R.C. Agreement, Geneva, 1951.

3. Frequency assignments transferred on 1st May, 1961, according to paragraph 2 above shall retain in Columns 2a or 2b the dates which appear in those columns on 30th April, 1961.

ANNEX 5

Bands between 3 950 kc/s (4 000 kc/s in Region 2) and 27 500 kc/s other than those allocated exclusively to the Aeronautical Mobile Service, Maritime Mobile Service or Amateur Service

1. *Transfer of frequency assignments notified pursuant to the provisions of No. 272 of the E.A.R.C. Agreement, Geneva, 1951*

- 1.1 A symbol shall be inserted in Column 2d.
- 1.2 The date entered in Column 2c of the Master Radio Frequency Record shall be transferred to Column 2c of the Master International Frequency Register.

2. *Transfer of frequency assignments notified from 1st April, 1952, other than those referred to in paragraph 1*

- 2.1 In the case where the finding reached by the Board under Article 33 of the E.A.R.C. Agreement, Geneva, 1951, was favourable :
 - 2.1.1 the date of receipt by the Board of the first notice shall be entered in Column 2d ;
 - 2.1.2 the date entered in Column 2c of the Master Radio Frequency Record shall be transferred to Column 2c of the Master International Frequency Register ;

- 2.1.3 **if appropriate, the date following symbol XX in Column 13 shall be inserted in the Remarks Column of the Master International Frequency Register, as well as any other relevant date entered in Column 13 of the Master Radio Frequency Record.**
- 2.2 **In the case where the finding reached by the Board under Article 33 of the E.A.R.C. Agreement, Geneva, 1951, was unfavourable, i.e. in the case where the assignment concerned bears symbol ZZ or ZZZ in Column 13 of the Master Radio Frequency Record :**
 - 2.2.1 **the date of receipt by the Board of the first notice (i.e. the date which follows immediately symbol ZZ or ZZZ) shall be entered^d in Column 2d ;**
 - 2.2.2 **the date to be entered in Column 2c of the Master International Frequency Register shall be either the date of putting into use notified by the administration concerned, or the date of the tenth day prior to the date following symbol ZZ or ZZZ, whichever is the later ;**
 - 2.2.3 **the date of receipt by the Board of the resubmitted notice (i.e. in general the date of the tenth day following the date entered in Column 2c of the Master Radio Frequency Record) shall be entered in the Remarks Column of the Master International Frequency Register.**

ANNEX 6

Frequency Bands above 27 500 kc/s

1. Bands between 27 500 and 28 000 kc/s

- 1.1 *Transfer of frequency assignments, the notification of which was received by the Board before 1st April, 1952*
- 1.1.1 **A symbol shall be inserted in Column 2d of the Master International Frequency Register.**

- 1.1.2 The date entered in Column 2c of the Master Radio Frequency Record shall be transferred to Column 2c of the Master International Frequency Register.
 - 1.1.3 With a view to the application of the provisions of paragraph 1.2 below, administrations, if so requested in specific cases, should supply the Board with those basic characteristics listed in Appendix 1 to the Radio Regulations, Geneva, 1959, which might be missing in the assignments concerned.
 - 1.2 *Transfer of frequency assignments, the notification of which was received by the Board between 1st April, 1952, and the date of entry into force of the Radio Regulations, Geneva, 1959.*
 - 1.2.1 These assignments shall be examined by the Board following the procedure described in Article 9 of the Radio Regulations, Geneva, 1959. Administrations, if so requested, in specific cases, should supply the Board with those basic characteristics listed in Appendix 1 to the Radio Regulations, Geneva, 1959, which might be missing in the assignments concerned.
 - 1.2.2 The date of receipt of the first notice by the Board shall be entered in Column 2d of the Master International Frequency Register.
 - 1.2.3 The date entered in Column 2c of the Master Radio Frequency Record shall be transferred to Column 2c of the Master International Frequency Register.
2. *Transfer of frequency assignments in the bands above 28 000 kc/s*
 - 2.1 From the end of this Conference, administrations shall review the frequency assignments entered on their behalf in the Master Radio Frequency Record above 28 000 kc/s, with a view to reducing substantially the number of such assignments to be transferred to the Master International Frequency Register as initial entries. For this purpose, administrations should be guided

by the principles contained in No. 490 of the Radio Regulations, Geneva, 1959, and in Appendix 1 to those Regulations (Section E, Column 5a, paragraph 2d). Only those entries should be retained where they relate to stations which fulfil one or more of the conditions listed in No. 486 of the Radio Regulations, Geneva, 1959.

- 2.2 As a result of such review, administrations shall notify to the Board prior to 1st October, 1960, in the form described in Appendix 1 to the Radio Regulations, Geneva, 1959, all entries in the Master Radio Frequency Record which they desire to be transferred to the Master International Frequency Register. Assignments so notified shall not be included in the weekly circulars of the Board referred to in Nos. 497 and 498 of the Radio Regulations, Geneva, 1959.
- 2.3 When notifying, after the end of this Conference, new frequency assignments, i.e. assignments which will not be subject to review under paragraph 2.1 above, administrations shall prepare their notices in the form described in Appendix 1 to the Radio Regulations, Geneva, 1959, and shall apply, in appropriate cases, the principles contained in No. 490 of the Radio Regulations, Geneva, 1959, and in Appendix 1 (Section E, Column 5a, paragraph 2d) to those Regulations.
- 2.4 Notices submitted under either paragraphs 2.2 or 2.3 above should bear a suitable reference to the appropriate paragraph.
- 2.5 From 1st October, 1960, the Board shall transfer to the Master International Frequency Register, as initial entries, complete assignments in the Master Radio Frequency Record, as notified by administrations in conformity with paragraphs 2.2 or 2.3 above.
- 2.6 Frequency assignments, the notification of which was received by the Board before 1st April, 1952, shall bear a symbol in Column 2d of the Master International Frequency Register.

- 2.7 Assignments, the notification of which was received by the Board between 1st April, 1952, and the date of entry into force of the Radio Regulations, Geneva, 1959, shall bear in Column 2d of the Master International Frequency Register the date of receipt of the notice by the Board.
- 2.8 All transferred assignments shall bear in Column 2c of the Master International Frequency Register the date entered in Column 2c of the Master Radio Frequency Record. Where, under the principles in No. 490 of the Radio Regulations, Geneva, 1959, and in Appendix 1 (Section E, Column 5a, paragraph 2d) to those Regulations, a single assignment is notified under paragraph 2.2 above in replacement of several assignments entered in the Master Radio Frequency Record, the date to be entered in Column 2c of the Master International Frequency Register shall be the earliest date entered in Column 2c of the Master Radio Frequency Record for the assignments concerned.

RESOLUTION No. 2

Relating to the Application, from 1st March, 1960, to 30th April, 1961, of the Procedure specified in Article 10 of the Radio Regulations, Geneva, 1959, for the Bands allocated exclusively to the Broadcasting Service between 5 950 and 26 100 kc/s

The Administrative Radio Conference, Geneva, 1959,

resolves

1. that the procedure specified in Article 10 of the Radio Regulations, Geneva, 1959, shall be applied from 1st March, 1960 ;

2. that for this purpose, the first schedules, to become effective on 4th September, 1960, for the September/October period 1960, should be received from administrations by the International Frequency Registration Board by 1st March, 1960. The closure dates for the receipt of the subsequent schedules will be set by the Board under No. 641 of Article 10 ;

3. that the schedules referred to in paragraph 2 shall be prepared and submitted to the Board in conformity with the provisions of Section I of Article 10 ;

4. that the procedure for notifying and recording frequency assignments, provided for in Articles 32 and 33 of the Agreement of the Extraordinary Administrative Radio Conference, Geneva, 1951, shall cease to be applied from 1st March, 1960, to frequency assignments to broadcasting stations in the bands allocated exclusively to the broadcasting service between 5 950 and 26 100 kc/s ;

5. that from 1st March 1960, the procedure specified in Nos. **568** to **570** of the Radio Regulations, Geneva, 1959, shall be applied. Frequency assignments recorded in the Master Radio Frequency Record according to these provisions shall bear in Column 2c a date determined according to the relevant provisions of No. **606** of the Radio Regulations, Geneva, 1959. No date shall be entered in Column 2a or Column 2b :

6. that in applying the provisions of Article 10 in accordance with the terms of this Resolution, " Nos. 327 and 328 of the Radio Regulations, Atlantic City, 1947 ", should be read instead of " No. **501** of these Regulations ", and " Master Radio Frequency Record " should be read instead of " Master International Frequency Register " :

7. that the first edition of the High Frequency Broadcasting Frequency List referred to in No. **655** of Article 10 shall be published as of September, 1961.

RESOLUTION No. 3

**Relating to a Study by a Panel of Experts of Measures to Reduce
Congestion in the Bands between 4 and 27.5 Mc/s
(See Recommendation No. 37)**

The Administrative Conference, Geneva, 1959,

considering

the trend towards congestion and saturation in the bands between 4 and 27.5 Mc/s ;

realising

- a) that if this trend continues, this portion of the radio frequency spectrum will become progressively less useful to administrations for purposes for which it is indispensable ;
- b) that there are uses of the bands between 4 and 27.5 Mc/s that could, from a technical and operational point of view, be satisfied by other means ;
- c) that before administrations will be willing to undertake a programme to relieve congestion in the bands between 4 and 27.5 Mc/s, they will need a clear statement of the issues involved and of the measures that need to be taken ;
- d) that the ability of administrations to undertake such a programme is intimately linked to the financial implications involved ;

resolves

1. that a Panel of Experts should be convened for the purpose of devising ways and means of relieving the pressure on the bands between 4 and 27.5 Mc/s ;
2. that the preparatory work as set out in Annex 1 of the present Resolution should be undertaken by the International Frequency

Registration Board in collaboration with the other permanent organs of the Union before this Panel of Experts is convened ;

invites

the Administrative Council

1. 1.1 in the light of the progress made in the above preparatory work, to convene the Panel of Experts to undertake the tasks covered in the terms of reference set out in Annex 2. The Panel would include the Heads of the permanent organs, or their representatives, and should not be more than eleven in number ;
- 1.2 to request administrations to nominate highly qualified technical experts to serve on the Panel and, when nominating, to submit a biographical sketch of the qualifications and professional experience of each nominee ;
- 1.3 to select, from those nominated, a maximum of seven experts, taking into consideration the need to obtain very highly qualified individuals drawn from the various parts of the world. The experts, as a group, should have a broad overall knowledge covering the following :
 - the world-wide aspects of telecommunication planning
 - the economic factors involved in the development of telecommunications
 - high frequency communications
 - land and submarine cables
 - broadcasting techniques
 - radio relay systems
 - scatter propagation
 - space communications ;
- 1.4 to set the date on which the Panel should meet ;

- 1.5 to request the Chairman of the International Frequency Registration Board to convene the meeting in Geneva ;
2. to decide, after considering the final report and recommendations of the Panel of Experts, and after consulting administrations, whether any further action should be taken and whether or not an Administrative Conference should be called for the purpose of taking the necessary decisions.

ANNEX. 1

Preliminary Study to be made before convening the Panel of Experts

1. The International Frequency Registration Board shall group the existing uses of the bands between 4 and 27.5 Mc/s into appropriate categories.
2. The Board shall study and analyse each such category of use with a view to determining those categories which might be satisfied by means other than the use of these bands. However, it shall not consider possible amendments to the Table of Frequency Allocations.
3. The Board shall invite administrations, at the appropriate time, to submit any general proposals they may have for relieving the pressure on the bands in question.
4. The Board shall also, through the Secretary General, obtain all pertinent facts relating to the provision of economic assistance to countries which would need such assistance to carry out a programme for relieving the pressure on the bands between 4 and 27.5 Mc/s.
5. The Board shall submit a report, to be prepared in collaboration with the Secretary General and the Directors of the C.C.I.R. and the C.C.I.T.T., to the Administrative Council at its 1961 Session on the results of their study. The report shall include the information and proposals called for in paragraphs 3 and 4 above, together with suitable recommendations to the Administrative Council, so that the meeting of the Panel of Experts can be convened to undertake its tasks. Copies of this report shall also be sent to all administrations.

ANNEX 2

Terms of Reference for a Panel of Experts to study Measures to reduce Congestion in the Bands between 4 and 27.5 Mc/s

1. The Panel at each session shall elect its own chairman. The Chairman of the International Frequency Registration Board shall convene the first meeting of each session and act as co-ordinator between sessions.
2. The Panel shall first consider the report on the preparatory study forwarded to it by the Administrative Council and shall make any further investigations and studies deemed appropriate.
3. The Panel shall determine those categories of use of the bands between 4 and 27.5 Mc/s that could be satisfied by other means, and analyse the implications of utilizing such other means from the technical, practical and, in particular, economic aspects, in consultation with administrations when necessary. Due consideration shall be given to estimated traffic growth.
4. The Panel shall take account of the different degrees of technical development of countries as well as their differing needs in relation to the various telecommunication services concerned.
5. The Panel shall, through the Secretary General, obtain any necessary additional information about the facilities available for affording economic assistance to those countries that might need such aid in proceeding with any programme envisaged by the Panel, as well as any other specific information required from administrations or other sources.
6. The Panel shall study the best method of informing the administrations of the problems that exist.
7. The Panel shall then prepare a report to the Administrative Council together with recommendations as to the steps that should be taken for the purpose of relieving the pressure on the bands in question.

8. The recommendations of the Panel shall include a detailed and specific agenda which, when approved by the Administrative Council, would be the agenda of whatever body, Administrative Conference or otherwise, is to consider the policy decisions necessary to relieve the pressure on the bands concerned.

RESOLUTION No. 4

Relating to Certain Entries in the Master Radio Frequency Record¹ in the Bands below 27 500 kc/s

The Administrative Radio Conference, Geneva, 1959,

considering that

- a) in various parts of the Table of Frequency Allocations, Atlantic City, 1947, certain services had priority and will be primary services according to the Table of Frequency Allocations, Geneva, 1959 ;
- b) the concepts of primary and secondary services have only now been introduced (see Article 5 of the Radio Regulations, Geneva, 1959) ;
- c) the Extraordinary Administrative Radio Conference, Geneva, 1951, adopted an International Frequency List which included entries not in conformity with the Table of Frequency Allocations, Atlantic City, 1947 ;
- d) provisions have to be made in connection with these entries on the establishment of the Master International Frequency Register ;

and taking into account

the Report by the International Frequency Registration Board to this Conference.

¹ Master Radio Frequency Record: The interim master register of frequency assignments established and maintained pursuant to the provisions of the Agreement adopted by the Extraordinary Administrative Radio Conference, Geneva, 1951 (E.A.R.C. Agreement).

resolves

that those entries in the Master Radio Frequency Record referred to in the Annexes to this Resolution which will be transferred to the Master International Frequency Register shall receive the consideration and treatment specified in these Annexes ;

and decides

1. to urge administrations to take the required action ; and
2. to invite the next Administrative Radio Conference to reconsider the situation.

ANNEX 1

Bands below 3 950 kc/s (4 000 kc/s Region 2) except the Bands allocated exclusively to the Aeronautical Mobile Service above 2 850 kc/s

Frequency bands	Entry in the Master Radio Frequency Record	Description of entry	Date in Column 2a or 2b	To be considered as a permitted service, as defined in Article 5 of the Radio Regulations, Geneva, 1959, until: (6)	Treatment thereafter: (6)
14 - 2 850 kc/s (2 000 kc/s in Region 2)	Initial and Subsequent (until 31 December, 1959)	Non-priority, Atlantic City, 1947	2a	Next Administrative Radio Conference (1)	According to the decisions of the next Administrative Radio Conference (1)
	Initial	Non-conformity with Table of Frequency Allocations, Atlantic City, 1947	2a	31 December, 1961 (2)	As not conforming with Table of Frequency Allocations, Geneva, 1959 (3)
	Initial	Classes of emission not in conformity with Table of Frequency Allocations, Atlantic City, 1947	2a	31 December, 1961 (2)	As not conforming with Table of Frequency Allocations, Geneva, 1959 (3)
	Initial and Subsequent	Conformity with Table of Frequency Allocations, Atlantic City 1947, but Non-conformity with Table of Frequency Allocations, Geneva, 1959	2a	Next Administrative Radio Conference (4)	According to the decisions of the next Administrative Radio Conference (4)

Frequency bands	Entry in the Master Radio Frequency Record	Description of entry	Date in Column 2a or 2b	To be considered as a permitted service, as defined in Article 5 of the Radio Regulations, Geneva, 1959, until: (6)	Treatment thereafter : (6)
2 850 kc/s (2 000 kc/s Region 2) - 3 950 kc/s (4 000 kc/s Region 2), except for the bands allocated exclusively to the aeronauti- cal mobile service	Initial and Subsequent	Non-priority; Atlantic City, 1947 (5)	2a (Regions 2 and 3) 2b (Region 1)	Next Administrative Radio Conference (1)	According to the deci- sions of the next Administrative Radio Conference (1)
	Initial	Non-conformity with Table of Frequency Allocations, Atlantic City, 1947	2a (Regions 2 and 3) 2b (Region 1)	31 December, 1961 (2)	As not conforming with Table of Frequen- cy Allocations, Geneva, 1959 (3)
	Initial	Class of emission not in conformity with Table of Frequency Allocations, Atlantic City, 1947	2a (Regions 2 and 3) 2b (Region 1)	31 December, 1961 (2)	As not conforming with Table of Fre- quency Allocations, Geneva, 1959 (3)
	Initial and Subsequent	Conformity with Table of Frequency Allocations, Atlantic City, 1947, but Non- conformity with Table of Frequency Alloca- tions, Geneva, 1959	2a (Regions 2 and 3) 2b (Region 1)	Next Administrative Radio Conference (4)	According to the deci- sions of the next Administrative Radio Conference (4)

Footnotes to Annex 1

- (1) *a)* Until the situation has been reconsidered by the next Administrative Radio Conference, the class of service of these assignments shall be considered as being a permitted service, as defined in Article 5 of the Radio Regulations, Geneva, 1959, and existing or future assignments for the primary or priority service in the same frequency band according to the Table of Frequency Allocations and other relevant provisions of the Radio Regulations of either Atlantic City, 1947, or Geneva, 1959, shall be considered, as far as their relationship with the former assignments is concerned, as being for a primary service as referred to in Article 5 of the Radio Regulations, Geneva, 1959.
- b)* In respect of the relationship with each other of the assignments referred to in *a)* above, these provisions replace the relevant provisions of the Radio Regulations of Atlantic City, 1947, and of Geneva, 1959, whereby certain services in the particular bands are primary or priority services and other services are secondary or non-priority services in the same bands.
- (2) These assignments should be brought into conformity with the provisions of the Radio Regulations, Geneva, 1959, as soon as possible, either by their transfer to appropriate bands or by discontinuance of the operations of the services concerned. Until the date this has been done or until 31st December, 1961, whichever date is the earlier, the assignments or classes of emission concerned shall be considered as being for a permitted service as defined in Article 5 of the Radio Regulations, Geneva, 1959, in derogation of the relevant provisions of the Radio Regulations of Atlantic City, 1947, and of Geneva, 1959. The International Frequency Registration Board should draw the attention of the administrations concerned to these entries as soon as possible.
- (3) On 1st January, 1962, provided that the entries are not in conformity with the Table of Frequency Allocations, Geneva, 1959, the dates appearing in Column 2a of the Master International Frequency Register shall be transferred to Column 2b and a symbol shall be entered in Column 13 to indicate non-conformity with that Table.
- (4) These assignments should be brought into conformity with the provisions of the Radio Regulations, Geneva, 1959, as soon as possible after the entry into force of these Regulations, either by their transfer to appropriate bands or by discontinuance of the operations of the services concerned. Until this has been done, these assignments shall be considered as being for a permitted service as defined in Article 5 of the Radio Regulations, Geneva, 1959, in derogation of the relevant provisions of these Regulations until the next Administrative Radio Conference has reconsidered the situation. The International Frequency Registration Board should draw the attention of the administrations concerned to these entries as soon as possible.
- (5) The subsequent entries for Region 1 are those which are in conformity with Nos. 327 and 328 of the Radio Regulations, Atlantic City, 1947.
- (6) The foregoing provisions shall be taken into account by the International Frequency Registration Board when conducting the examinations prescribed in the Resolution relating to the establishment of the Master International Frequency Register and in Article 9 of the Radio Regulations, Geneva, 1959.

ANNEX 2

Shared Bands between 3 950 kc/s (4 000 kc/s Region 2) and 27 500 kc/s

Entry in the Master Radio Frequency Record	Description of Entry	To be considered as a permitted service, as defined in Article 5 of the Radio Regulations, Geneva, 1959, until:	Treatment thereafter:
Initial and Subsequent	Non-priority Atlantic City, 1947, but in conformity with the Table of Frequency Allocations, Atlantic City, 1947	Next Administrative Radio Conference (1)	According to the decisions of the next Administrative Radio Conference (1)

Footnote to Annex 2

- (1) *a)* Until the situation has been reconsidered by the next Administrative Radio Conference, the class of service of these assignments shall be considered as being a permitted service as defined in Article 5 of the Radio Regulations, Geneva, 1959, and existing or future assignments for the primary or priority service in the same frequency band according to the Table of Frequency Allocations and other relevant provisions of the Radio Regulations of either Atlantic City, 1947, or Geneva, 1959, shall be considered, as far as their relationship with the former assignments is concerned, as being for a primary service as referred to in Article 5 of the Radio Regulations, Geneva, 1959.
- b)* In respect of the relationship with each other of the assignments referred to in *a)* above, these provisions replace the relevant provisions of the Radio Regulations of Atlantic City, 1947, and of Geneva, 1959, whereby certain services in the particular bands are primary or priority services and other services are secondary or non-priority services in the same bands.
- c)* The foregoing provisions shall be taken into account by the International Frequency Registration Board when conducting the examinations prescribed in Article 9 of the Radio Regulations, Geneva, 1959.

RESOLUTION No. 5**Relating to Notification of Frequency Assignments**

The Administrative Radio Conference, Geneva, 1959,

referring to

- the Preamble of the Convention,
- Article 44 of the Convention (Special Agreements),
- Article 4 of the Radio Regulations (Special Agreements),
- Article 9 of the Radio Regulations (Notification and Recording of Frequencies in the Master International Frequency Register).

resolves

that, unless specifically stipulated otherwise by special arrangements communicated to the Union by the administrations, any notification of a frequency assignment to a station shall be made by the administration of the country on whose territory the station is located.

RESOLUTION No. 6

Relating to Frequency Terminology

The Administrative Radio Conference, Geneva, 1959,

considering

a) that it is necessary that, in the documents of the Union, frequency terminology be used accurately ;

b) that in the past, some of these terms have been used ambiguously;

decides

that wherever used in the documents of the Union the terms listed below shall be expressed in the appropriate working language of the Union as indicated in the following table :

Frequency distribution to:	French	English	Spanish
Services	Attribution (attribuer)	Allocation (to allocate)	Atribución (atribuir)
Areas or countries	Allotissement (allotir)	Allotment (to allot)	Adjudicación (adjudicar)
Stations	Assignment (assigner)	Assignment (to assign)	Asignación (asignar)

RESOLUTION No. 7

**Relating to Radio Emissions from Artificial Satellites
and other Space Vehicles**

The Administrative Radio Conference, Geneva, 1959,

considering

- a) that it is desirable to study the question of identification for radio emissions from satellites and other space vehicles ;
- b) that it is desirable to study the question of providing for the cessation, at appropriate times, of radio emissions from satellites and other space vehicles ;

invites

1. the C.C.I.R. to study the above-mentioned questions ;
2. Members and Associate Members of the Union launching satellites and other space vehicles to give consideration to the above-mentioned problems and to present the results of their study to the C.C.I.R.

RESOLUTION No. 8

**Relating to the Formation of Call Signs and the Allocation
of New International Series**

The Administrative Radio Conference, Geneva, 1959,

considering

- a) the Recommendation of the International Radio Conference, Atlantic City, 1947, relating to a new method of generating call signs ;
- b) the fact that no new proposal has been placed before the Administrative Radio Conference, Geneva, 1959 ;
- c) Document No. 456 submitted by the Republic of the Philippines;
- d) the increasing demand for call signs justified by the increased number of Members and Associate Members of the Union and by the increased requirements of countries which are already Members or Associate Members ;
- e) the information supplied by the Secretary General regarding allocations of call signs since 1947 and the possibilities of the current system of forming call signs ;

believing

- a) that call signs already in use should, as far as possible, not be changed ;
- b) that, however, the current system of forming call signs may not be adequate to meet all the requirements submitted between the present time and the next Administrative Radio Conference ;

resolves

1. that, should the existing call sign series formed of three letters, or a figure and two letters, be exhausted, a new series should be introduced formed of a letter, a figure and a letter ; but in no case may the figure be 0 or 1 ;
2. that the method advocated in 1 above shall not be applicable to series beginning with one of the following letters : B F G I K M N Q R U W ;
3. that the Secretary General shall, as soon as possible, issue a circular letter urging administrations :
 - 3.1 to make the maximum use of the possibilities of the series at present allocated, to avoid, as far as possible, further requests ;
 - 3.2 to review the call-sign assignments they have already made from their present allocations, with a view to releasing any series possible and place them at the disposal of the Union.
4. that the Secretary General shall, upon request, furnish advice to administrations on the means of effecting the greatest economy, which should be the rule, in the use of a series of call signs ;
5. that if, nevertheless, before the next Administrative Radio Conference, it appears that all the possibilities of the present system of forming call signs as amended by 1 and 2 above will be exhausted, the Secretary General shall issue a circular letter :
 - 5.1 explaining the position ;
 - 5.2 urging the administrations to send in their proposals for possible solutions ;
6. that, from the information thus submitted, the Secretary General shall prepare a report, together with his comments and suggestions, for submission to the next Administrative Radio Conference.

RESOLUTION No. 9

Relating to the Publication of Service Documents

The Administrative Radio Conference, Geneva, 1959,

considering

that the early implementation of the provisions of Article 20 of the Radio Regulations and Appendix 9 would be of general advantage ;

resolves

that the Secretary General may, at his discretion, implement these provisions in part or in whole, in advance of the effective date of the Radio Regulations.

RESOLUTION No. 10

**Relating to the Use of the Bands
7 000 to 7 100 kc/s and 7 100 to 7 300 kc/s
by the Amateur Service and the Broadcasting Service**

The Administrative Radio Conference, Geneva, 1959,

considering

- a) that the sharing of frequency bands by amateur, fixed and broadcasting services is undesirable and should be avoided ;
- b) that it is desirable to have world-wide exclusive allocations for these services in Band 7 ;
- c) that the band 7 000 to 7 100 kc/s is allocated on a world-wide basis exclusively to the amateur service ;
- d) that the band 7 100 to 7 300 kc/s is allocated in Regions 1 and 3 to the broadcasting service and in Region 2 to the amateur service ;

resolves

that the broadcasting service should be prohibited from the band 7 000 to 7 100 kc/s and that broadcasting stations operating on frequencies in this band should cease such operation ;

and noting

the provisions of No. 117 of the Radio Regulations ;

further resolves

that inter-Regional amateur contacts should be only in the band 7 000 to 7 100 kc/s and that the administrations should make every effort to ensure that the broadcasting service in the band 7 100 to 7 300 kc/s, in Regions 1 and 3, does not cause interference to the amateur service in Region 2 ; such being consistent with the provisions of No 117 of the Radio Regulations.

RESOLUTION No. 11

Relative to the Convening of a Special Regional Conference

The Administrative Radio Conference, Geneva, 1959,

considering

- a) that, according to No. **250** of the Radio Regulations, a special regional conference is to be held not later than 1st May, 1960, to draw up agreements and associated plans for the bands 68-73 Mc/s and 76-87.5 Mc/s ;
- b) the desirability to hold this conference at Geneva with regard to the availability of relevant data of the International Frequency Registration Board and C.C.I.R., and the experienced staff of the Secretariat of the Union ;
- c) that this conference should be convened by the Secretary General under the provisions of the General Regulations annexed to the Convention ;

requests the Secretary General

to take the necessary steps for convening at Geneva the special regional conference referred to in No. **250** of the Radio Regulations, Geneva, 1959.

RESOLUTION No. 12

Relating to the Establishment of a Manual for Use by the Mobile Services

The Administrative Radio Conference, Geneva, 1959,

considering

- a) that the provisions of the Radio Regulations Atlantic City, 1947, applicable to the mobile services include, in particular :
 - provisions directly related to the operation of the mobile services,
 - other provisions not directly related to these services ;
- b) that certain administrations have submitted to the Administrative Radio Conference, Geneva, 1959, proposals to revise and re-classify those provisions directly related to the operation of the mobile services ;
- c) that those administrations have found a new layout for the provisions necessary to facilitate the understanding of the technical stipulations and service procedure regulations concerning radiotelegraphy and radiotelephony, as well as the rules regarding radiotelegrams, radiotelephone calls, and distress traffic ;
- d) that this new layout would be of great value to the mobile services and would enable administrations to issue, if they wish to do so, national regulations based upon internationally self-contained sets of rules for the different services ;
- e) that a complete rearrangement of certain parts of the Radio Regulations and the Additional Radio Regulations cannot, for practical reasons, be achieved during the Conference ;

- f) that those provisions directly related to the mobile services will not be presented in the new Radio Regulations in the form recommended and that in consequence the final reclassification of those provisions should be carried out after the close of the Conference ;
- g) that it would, however, be very useful to rearrange and to publish in a manual those provisions relating directly to the operation of the mobile services ;
- h) that the Secretary General should be requested to undertake these tasks ;
- i) that, in the future, those provisions not related directly to the mobile services should be reclassified by the next Administrative Radio Conference if this is considered useful ;
- j) that this reclassification would require a preliminary study which should be undertaken by the Secretary General and the results communicated to administrations ;
- k) that, finally, the Secretary General in carrying out these tasks mentioned in h) above should consult a small group of administrations ;

resolves

1. that the provisions of the Radio Regulations and its Appendices, together with those of the Additional Radio Regulations, Geneva, 1959, which deal with the operation of the mobile services, shall be assembled in the order indicated in Document No. 775 of the Conference and published in a manual, drawn up in accordance with Article 17, paragraphs 2 and 4, of the Convention ;

2. that the Secretary General shall, as soon as possible after the publication of the Radio Regulations, Geneva, 1959, proceed to the rearrangement and the issue of the Manual as mentioned in paragraph 1 above, after approval by the administrations named in paragraph 4, below ;

3. that the Secretary General shall also undertake a study with a view to the insertion, in the appropriate places, in the next Radio Regulations, of those regulations contained in the Manual and also those other regulations mentioned in paragraph *i*) above. The results of this study shall be communicated to administrations well in advance of the next Administrative Radio Conference ;

4. that the Secretary General may consult the following administrations on questions relating to the tasks entrusted to him, in accordance with paragraph 2 above :

- United States of America,
- France,
- Italy,
- Netherlands,
- the United Kingdom of Great Britain and Northern Ireland,
- Sweden ;

5. that these administrations approve the Manual before publication ;

6. that the Manual should be available to administrations before 1st August 1960.

RESOLUTION No. 13

**Relating to the Preparation of revised Allotment Plans
for the Aeronautical Mobile Service**

The Administrative Radio Conference, Geneva, 1959,

considering

- a) that the Frequency Allotment Plans for the Aeronautical Mobile Service produced by the International Administrative Aeronautical Radio Conference (I.A.A.R.C.), Geneva, 1949, and adopted by the Extraordinary Administrative Radio Conference, Geneva, 1951, have been substantially adopted by the present Conference and included in the Radio Regulations ;
- b) that since the time of the I.A.A.R.C. there have been changes in the route patterns flown by international civil airlines ;
- c) that the rates of increase of international civil air traffic have differed amongst the various Major World Air Route Areas (MWARA's) ;
- d) that there are now new requirements for frequency allotments to serve the needs of international civil aviation outside the existing MWARA's ; for example, in the area of the North Pole and in the territories of the U.S.S.R. adjacent to the existing MWARA's ;
- e) that because of the higher speeds of aircraft there are now new requirements for frequencies to meet the needs of international civil aviation for particular purposes, for example, frequencies allotted in the Plans for the purpose of providing meteorological information to aircraft in flight ;
- f) that, on the other hand, certain provisions of the I.A.A.R.C. Plans are no longer required, for example, the provision for extending the MWARA frequency families, NSA-1 and NSA-2, into the whole of the European area :

- g)* that a limited number of new provisions to meet urgent requirements have been incorporated into the Plans at this Conference ;
- h)* that the Plans contain a measure of flexibility which will permit some but not all new requirements to be satisfied ;
- i)* that there are new aeronautical communication techniques under study and development which have a direct bearing on channel widths and on the number of channels required to meet essential communication needs of national and international aircraft operations. These include :

 - 1. extensions of the useful communication range and increased application of very high frequencies,
 - 2. new high frequency techniques to increase the speed and quantity of communications,
 - 3. new methods for more expeditious dissemination of meteorological information,
 - 4. improved selective calling systems ;
- j)* that the new frequency allotment plans should adequately reflect the communication techniques above, together with anticipated improvements in aeronautical radionavigation techniques, having a direct influence upon the nature and quantity of communications handled and having an impact on spectrum space required ;
- k)* that whereas the present Plans were produced on the basis of a large amount of material relating to the operational requirements, usages and procedures of the aeronautical mobile service, it has been impracticable for this Conference to obtain and study the corresponding material essential at this time to effect a complete review of the Aeronautical Mobile Service Plans ;
- l)* that many countries did not have available at this Conference the information necessary to determine the extent to which the Fre-

quency Allotment Plans meet current requirements for national and regional air operations ;

- m)* that the International Telecommunication Convention, Geneva, 1959, in Article 7, paragraphs 4 and 5, provides that an Extraordinary Administrative Radio Conference may revise the provisions of the Radio Regulations ;

is of the opinion

that the Aeronautical Mobile Service Plans contained in Appendix 26 of the Radio Regulations will have to be reviewed and administrations should urgently study the communications requirements of their national and international air operations in order to establish when, in the best interests of aviation, such a review shall be undertaken ;

resolves

that, when the Administrative Council deems it appropriate and timely, an Extraordinary Administrative Radio Conference be convened under the provisions of Article 7 of the International Telecommunication Convention to review Appendix 26 and the provisions of the Radio Regulations associated therewith and to complete its work before the next Ordinary Administrative Radio Conference.

RESOLUTION No. 14

**Relating to the Use of Frequencies
of the Aeronautical Mobile (R) Service**

The Administrative Radio Conference, Geneva, 1959,
considering

- a) that the Plan developed for the use of high frequency channels for the Aeronautical Mobile (R) Service (Appendix 26 to the Radio Regulations, Geneva, 1959) has been substantially implemented ;
- b) that air operations are subject to continuous changes ;
- c) that these changes require attention by the administrations concerned, but
- d) that, in seeking to satisfy new communication requirements, no decision should be taken that will prevent or handicap the co-ordinated utilization of those high frequency (R) band allotments as prescribed in the Plan ;
- e) that the families of high frequencies allotted to the Major World Air Route Areas (MWARA), Regional and Domestic Air Route Areas (RDARA) and Sub-Areas have been chosen considering propagation conditions which allow for the selection of the most suitable frequencies for the distance involved ;
- f) that it is essential to distribute the communication traffic load as uniformly as possible over frequencies of the same order ;
- g) that specific steps should be taken to ensure that the correct order of frequency is used ;

resolves

that administrations, individually or in collaboration, take the necessary steps :

1. to make as great a use as possible of very high frequencies in order to lessen the load on the high frequency (R) bands ;
2. to make as great a use as possible of antennae of appropriate directivity and efficiency in order to minimise possibilities of mutual interference within an area or between areas ;
3. to co-ordinate the use of families of frequencies necessary for a given route segment in accordance with the technical principles in Appendix 26 and, in the light of the propagation data available, in order that the most appropriate frequencies be used with an aircraft at a given distance from the aeronautical station providing service over the route segment concerned ;
4. to improve operating techniques and procedures and to use equipment which will make it possible to attain the highest possible efficiency in handling air-ground high frequency communications ;
5. to collect precise data on the operation of their high frequency communication systems, particularly that having a bearing on technical and operating standards, so as to facilitate re-examination of this Plan ;
6. to establish, through regional agreements, the best method to provide the required communications for any new long-distance international or regional air operation which is not or cannot be accommodated within the system of MWARA and RDARA, in such a manner as not to cause harmful interference to the utilization of frequencies as prescribed in the Aeronautical Mobile (R) Frequency Plan.

RESOLUTION No. 15

**Relating to Inter-ship Frequencies in the Bands
between 1 605 and 3 600 kc/s in Region 1**

The Administrative Radio Conference, Geneva, 1959,

considering

- a) that the Master International Frequency Register will contain among the initial entries the frequency assignments adopted by the Extraordinary Administrative Radio Conference, Geneva, 1951, made to specific countries for inter-ship communications in the bands between 1 605 and 3 600 kc/s in Region 1 ;
- b) that provisions should be made for the notification and recording of the use of these frequencies for inter-ship communications by administrations of other countries in Region 1 ;

resolves

1. that the use of the frequencies referred to in a) above by other administrations should be co-ordinated with the administrations concerned, and subsequently notified to the International Frequency Registration Board ;
2. that upon such notification the Board shall record these new assignments in the Master International Frequency Register, without any date in Columns 2a or 2b, but with an appropriate note in the Remarks Column followed by the date of receipt of the notice by the Board ;

invites administrations

to review the recorded areas of operation of the frequency assignments concerned, with a view to improving sharing possibilities ; and

requests the International Frequency Registration Board

to make, where necessary, such suggestions to the administrations concerned as it may be able to offer with a view to achieving the purpose referred to in the immediately preceding paragraph.

RESOLUTION No Spa 1

**Relating to the Provision and Use of Information Regarding
International Satellite Systems**

The Extraordinary Administrative Radio Conference, Geneva, 1963.

considering

the interest of all administrations concerning the effective use of the radio frequency spectrum by the space services;

believing

- a) that international satellite systems should provide for the interests and requirements of all countries;
- b) that, in accordance with Article 4 of the International Telecommunication Convention, Geneva, 1959, the International Telecommunication Union should closely observe the development of the telecommunications aspects of international satellite systems;
- c) that the permanent organs of the International Telecommunication Union should assist in that development as far as may be practicable;
- d) that the development of space telecommunications ought not to be delayed, but that a suitable period of time will be needed for the acquisition of the additional data which will result from further experiment and operational experience;
- e) that the interest mentioned above will best be served by the provision to administrations, as early as practicable, of information regarding the development of international satellite systems;
- f) that this information, by reason of its early provision, must be regarded as of a preliminary nature;
- g) that the data mentioned in *d)* above will need to be collated by the C.C.I.R., C.C.I.T.T. and the I.F.R.B. for use by such future con-

ferences as may be called to consider the international regulation of space communication systems;

resolves

1. that, as a measure which will enable administrations to make early comment upon satellite system projects, any administration (or group of administrations) which intends to establish an international satellite system shall provide the Board, as early as practicable during the co-ordination process (Radio Regulation No. 639AD) with information similar to the data mentioned in Appendix 1A such as will provide a general description of the satellite system, e.g.
 - a) the frequencies and bandwidths to be used in the initial operation of the system;
 - b) the over-all frequencies and bandwidths of the satellite system required to facilitate the final development of the system, in order to meet the needs of other administrations wishing to participate in the system;
 - c) the sites and functions of the earth stations in the system and the co-ordination distances, as a function of azimuth, which are applicable thereto, as defined in Recommendation No Spa 1;
2. that the Board shall put these data in a special section of its weekly circular, for the information of all administrations;

and further resolves

3. that, if after studying the information given under 1) above, an administration believes that it has reason to expect that harmful interference may be caused to its space services (either those existing, or those concerning which information has already been circulated under the provisions of this Resolution), it shall address its comments, within ninety days of receipt of the relevant circular, to the administration concerned; a copy of those comments shall be sent to the Board;
4. that, if comments, as allowed for in 3) above, are received, then the administration concerned shall endeavour to find a solution satisfactory to the administration which has made the comments;

5. that, if an agreement is not reached the Board may be asked for such suggestions as it may be able to offer in the circumstances;
6. that, if within the time referred to in paragraph 3), no comments concerning the data mentioned in paragraph 2) are received, the administration concerned is entitled to assume that there are no comments on the action proposed;
7. that, in order to keep up-to-date the information relating to space systems, the Board shall collate this information and publish it periodically.

RESOLUTION No Spa 2

Relating to Space Vehicles in Distress and Emergency

The Extraordinary Administrative Radio Conference, Geneva, 1963,

considering

- a) that the number of flights by manned space vehicles or satellites is likely to increase;
- b) that, as a result, the possibility of such vehicles being forced down in emergency anywhere on the earth's surface cannot be ignored;
- c) that in such circumstances the search for and rescue of the occupants and recovery of the vehicles present problems very similar to those encountered by aircraft and ships in distress and emergency;
- d) that the frequency of 20 007 kc/s has been selected by the Conference for search and rescue to augment those already designated in the Radio Regulations for distress, emergency and survival craft;

notes

that although the relevant Radio Regulations for the mobile services concerning distress and emergency contain no specific reference to space vehicles or their occupants;

resolves

that until such time as the Radio Regulations may be revised, the appropriate provisions of Chapters VII and VIII concerning distress and emergency be construed to apply equally to spacemen and space vehicles in the circumstances described herein.

RESOLUTION No Spa 3

**Relating to the Category of the Fixed and Mobile Services
in the Band 1 525-1 540 Mc/s**

The Extraordinary Administrative Radio Conference, Geneva, 1963,

considering

- a) that the Table of Frequency Allocations, Geneva, 1959, made certain provisions for the fixed and mobile services in the sub-bands 1 525-1 535 Mc/s and 1 535-1 540 Mc/s;
- b) that a number of administrations have fixed and mobile services operating in accordance with these provisions;
- c) that the Extraordinary Administrative Radio Conference, Geneva, 1963, has agreed that the space (telemetering) service shall be allocated on a primary basis in the band 1 525-1 540 Mc/s, and that continuing provision shall be made for fixed and mobile services now operating in this band;
- d) the economic consequences of an early down-grading of the category of the fixed and mobile services are not at present acceptable to the administrations concerned;

resolves

that nevertheless, it is highly desirable that reception of the very weak signals of the space (telemetering) service shall be afforded protection against interference from stations in the fixed and mobile services;

invites

those administrations operating stations in the fixed and mobile services on a primary basis in the band 1 525-1 540 Mc/s, to consider the possibility of agreeing to modify the category of these services from "primary" to "secondary" at the earliest possible date.

RESOLUTION No Spa 4

**Relating to International Co-operation
and Technical Assistance in the Field of Space Radiocommunications**

The Extraordinary Administrative Radio Conference, Geneva, 1963,

considering

- a) that a large number of countries, Members of the International Telecommunication Union, are not in a position to take immediate advantage of satellite techniques for the development of their telecommunication services;
- b) that such countries would benefit immensely through the technical assistance programmes sponsored by the Union;

recognizing

- a) that international satellite-communication systems will be subject to the Convention and Regulations and that they will permit participation of all countries including, in particular, the developing countries, in space communication systems;
- b) that a number of problems need to be solved in order that the developing countries may participate effectively in international space communication systems and integrate these systems with their national telecommunication networks;

resolves to invite the Administrative Council

1. to draw the attention of administrations to the means by which they may avail themselves of technical assistance in connection with the introduction of space communications;
2. to consider the most effective manner in which requests for such assistance by Member-countries of the Union may be formulated and presented in order to secure maximum financial and other assistance;
3. to consider how best to make use of funds made available by the United Nations in accordance with its Resolution No. 1721 to give technical and other assistance to administrations of Member-countries of the Union to make effective use of space communications;
4. to consider in what way the work of the Consultative Committees and other organs of the Union may be utilized in the most effective way for the information and assistance of administrations of Member-countries of the Union in the development of space radiocommunications.

RESOLUTION No. Aer 1

**relating to the use of frequencies 3023.5 and 5680 kc/s
common to the aeronautical mobile (R) and (OR) services**

The Extraordinary Administrative Radio Conference,
Geneva, 1966,

having noted

that some anomalies appeared to exist in the conditions prescribed in Appendix 26 to the Radio Regulations, Geneva, 1959, for the use of the frequencies 3023.5 and 5680 kc/s, as contained in Article 2 of the Frequency Allotment Plan, Column 3, clauses 2 a) and 2 b) and having taken steps to remove these anomalies ;

considering

1. that the coordination of search and rescue operations at the scene of a disaster would be improved if the use of the frequencies 3023.5 and 5680 kc/s, in such operations, was extended to include communication between mobile stations and participating land stations ;
2. that it would be in the general interests of the aeronautical mobile service if the same provisions relating to the use of the frequencies 3023.5 and 5680 kc/s were applied to operations both in the aeronautical mobile (R) service and the aeronautical mobile (OR) service ;

resolves

to invite administrations to apply in the aeronautical mobile (OR) service, as from the date of coming into force of the Final Acts of the Conference, the provisions governing the use of the frequencies 3023.5 and 5680 kc/s specified in Appendix 27 (Nos. 27/196 and 27/201).

RESOLUTION No. Aer 2

relating to the use of frequencies in the HF bands allocated exclusively to the aeronautical mobile (R) service

The Extraordinary Administrative Radio Conference,
Geneva, 1966,

considering

- a) that monitoring observations on the use of frequencies in the bands allocated exclusively to the aeronautical mobile (R) service between 2850 and 17 970 kc/s show that a number of frequencies in these bands are being used by stations of services other than the aeronautical mobile (R) service, thus causing harmful interference to aeronautical mobile (R) service communications on some international air routes ; and that a considerable number of emissions, the sources of which could not be positively identified, were observed in these bands ;
- b) that the aeronautical mobile (R) service is a safety service, to which frequency bands are exclusively allocated in order to ensure the safety and regularity of flight along national or international civil air routes as defined in No. 429 of the Radio Regulations, Geneva, 1959 ;
- c) that in order to protect the safety of life and property in the air, and to operate aeronautical transport services in a regular and effective manner, it is essential that the aeronautical mobile communication channels be kept free from harmful interference ;

recognizing

that the aeronautical mobile (R) service is a safety service ;

urges

administrations to abstain from the use of frequencies in the bands exclusively allocated to this service by stations of services other than the aeronautical mobile (R) service, except under

the express conditions prescribed in No. 115 or No. 415 of the Radio Regulations, Geneva, 1959 ;

invites

the I.F.R.B. to continue to organize monitoring observations in the bands exclusively allocated to the aeronautical mobile (R) service with a view to eliminating the emissions of out-of-band stations which cause, or are likely to cause, harmful interference to the aeronautical mobile (R) service ; and to seek the collaboration of administrations in identifying the source of such emission by all available means including the use of automatic recording equipment, direction finding and field strength measurements, and in securing the suppression of these emissions.

RESOLUTION No. Aer 3

relating to the introduction of single sideband techniques in the HF bands allocated to the aeronautical mobile (R) service

The Extraordinary Administrative Radio Conference,
Geneva, 1966,

considering

- a) that congestion should be avoided in the HF bands allocated to the aeronautical mobile (R) service ;
- b) that the great majority of stations now operating in the HF bands allocated to the aeronautical mobile (R) service are capable of operating only in the double sideband radiotelephony mode ;
- c) that, because of the preponderance of double sideband equipment in use, the Allotment Plan adopted by the Conference is one based on the assumption that all existing stations are capable of operating only in the double sideband radiotelephony mode, and
- d) that recent advances in technology may make it possible to avoid congestion in the HF bands allocated to the aeronautical mobile (R) service through the use of VHF techniques and of space radiocommunication techniques ;

recognizing

- a) that, despite the recent advances in technology permitting the accommodation of the aeronautical mobile (R) service in bands other than HF bands, there are many areas of the world where the need for HF communication will continue into the foreseeable future, and in some areas this may be an increasing need ;
- b) that single sideband radiotelephony has demonstrated advantages over double sideband radiotelephony in many radio services in terms of radio spectrum economy and in reliability

of communication, particularly under adverse atmospheric and propagation conditions ;

- c) that economic, technical and operational considerations make it impracticable to specify, at this time, any definitive date by which the use of double sideband radiotelephony must be discontinued in favour of single sideband radiotelephony ;
- d) that single sideband equipment of appropriate design can operate compatibly with double sideband systems, and would permit the introduction of SSB on an evolutionary basis ;
- e) that significant spectrum economy will be realized only when the ratio of SSB-to-DSB users is sufficiently large to make channel splitting practicable ; and
- f) the desirability of introducing single sideband equipment in the interest of improving the standard of communication and effecting spectrum economy ;

resolves

1. that, taking into account economic, technical and operational considerations, administrations shall effect, as soon as possible, a progressive conversion of their HF radiotelephone services in the aeronautical mobile (R) service from double sideband to single sideband operation using, where necessary, single sideband equipment capable of working compatibly with double sideband systems ;
2. that, notwithstanding the foregoing, administrations may continue to instal and operate equipment having characteristics similar to those of equipment in current use ;
3. that the International Civil Aviation Organization be invited, as a matter of urgency and within the framework of the decisions taken by this Conference, to establish technical characteristics for system standards relative to single sideband equipment, in respect of application to international operations in the aeronautical mobile (R) service, and to advise the C.C.I.R. of any technical or operational problems on which they would like the assistance of the C.C.I.R.

RESOLUTION No. Aer 4

**relating to the use of VHF for communication
in the aeronautical mobile (R) service**

The Extraordinary Administrative Radio Conference,
Geneva, 1966,

considering

- a) that from an aeronautical viewpoint, VHF can provide a more reliable and more noise-free communication system than HF ;
- b) that from a technical and operational viewpoint, the use of VHF by aviation has progressed appreciably ;
- c) that the use of VHF in its several modes could appreciably reduce the use of HF in the aeronautical mobile (R) service ;
- d) that, owing to development in the general telecommunication networks in many areas of the world, the possibilities of providing VHF coverage are rapidly increasing ;

resolves

that administrations, to the maximum extent practicable, should employ VHF to meet their requirements in the aeronautical mobile (R) service.

RESOLUTION No. Aer 5

**relating to the use of VHF for meteorological broadcasts
in the aeronautical mobile (R) service**

The Extraordinary Administrative Radio Conference,
Geneva, 1966,

considering

- a) that the number of channels available for the aeronautical mobile (R) service in the frequency bands between 2850 and 17 970 kc/s is limited ;
- b) that the need for frequencies for aeronautical mobile (R) service communications and for meteorological broadcasts to aircraft is increasing ;
- c) that the propagation characteristics of high frequencies make them essential for aviation communication requirements over long distances ;
- d) that in Recommendation No. 13 of the International Administrative Aeronautical Radio Conference, Geneva, 1949, and Resolution No. 14 of the Ordinary Administrative Radio Conference, Geneva, 1959, administrations were urged "to make as great a use as possible of very high frequencies in order to lessen the load on the high frequency (R) bands" ;
- e) that substantial technical progress has been made by aviation since 1949 in extending the operational range of VHF used for communications within the aeronautical mobile (R) service ;
- f) that this extension of the operational range of VHF could partially meet the increasing need for meteorological broadcasts to aircraft ;

resolves

that administrations, to the maximum extent practicable, should employ VHF for meteorological broadcasts to aircraft.

RESOLUTION No. Aer 6

relating to the treatment of notices concerning frequency assignments to aeronautical stations in the aeronautical mobile (R) service in the bands allocated exclusively to that service between 2850 and 17 970 kc/s

The Extraordinary Administrative Radio Conference,
Geneva, 1966,

considering

- a) that the Final Acts of this Conference will enter into force on 1st July, 1967, but
- b) that the revised Frequency Allotment Plan contained in Appendix 27 will enter into force at 0001 hours G.M.T. on 10th April, 1970 ;
- c) that some administrations may wish to implement certain provisions of the revised Frequency Allotment Plan in advance of the latter date where this may be done without causing harmful interference to stations working in accordance with the present Frequency Allotment Plan, Geneva, 1959 ;
- d) that it will therefore be necessary to provide an interim procedure to facilitate transition from the present Frequency Allotment Plan to the revised Frequency Allotment Plan ;

resolves

1. that during the period between the date of entry into force of the Final Acts and the date of entry into force of the revised Frequency Allotment Plan :

1.1 the provisions of Nos. **553** to **559** of the Radio Regulations, Geneva, 1959, shall continue to be applied in the examination of notices concerning frequency assignments to aeronautical stations in the aeronautical mobile (R) service in the bands allocated exclusively to that service between 2850 and 17 970 kc/s ;

1.2 all such assignments shall be recorded in the Master International Frequency Register according to the findings reached by the I.F.R.B. ;

1.3 the date to be entered in Column 2a or 2b of the Master International Frequency Register shall be as follows :

- a) if the finding is favourable with respect to Nos. **554** to **557**, the date of 3rd December 1951 shall be entered in Column 2a ;
- b) if the finding is favourable with respect to No. **558**, the date of 3rd December 1951 shall be entered in Column 2b ;
- c) for all other such assignments (including those which may be in conformity with the revised Frequency Allotment Plan but not in conformity with the present Frequency Allotment Plan) the date of receipt of the notice by the I.F.R.B. shall be entered in Column 2b ;

1.4 any assignment which is in accordance with the revised Frequency Allotment Plan shall be so indicated by the insertion by the I.F.R.B. of an appropriate symbol in the Remarks Column of the Master International Frequency Register ;

2. that on the date of coming into force of the revised Frequency Allotment Plan, the I.F.R.B. shall examine those frequency assignments to aeronautical stations in the aeronautical mobile (R) service in the bands allocated exclusively to that service between 2850 and 17 970 kc/s, which are contained in the Master International Frequency Register from the point of view of their conformity with the revised Frequency Allotment Plan following the relevant parts of the procedure described in Nos. **553** to **559** of the Radio Regulations, Geneva, 1959, as modified by the Extraordinary Administrative Radio Conference, Geneva, 1966, and shall record against them in the Master International Frequency Register a date in Column 2a or 2b as follows :

2.1 assignments found favourable with respect to Nos. **554** to **557** shall have the date of 29th April 1966 entered in Column 2a ;

2.2 assignments found favourable with respect to No. 558 shall have the date of 29th April 1966 entered in Column 2b ;

2.3 all other assignments shall have the date of 30th April, 1966 entered in Column 2b ;

3. that, on the date of entry into force of the revised Frequency Allotment Plan, the allotments therein shall replace in the Master International Frequency Register those allotments in the present Frequency Allotment Plan ;

invites

administrations to notify to the I.F.R.B. as soon as possible the cancellation of frequency assignments released as a consequence of bringing into use the allotments in the revised Frequency Allotment Plan.

RESOLUTION No Mar 1

**Relating to the Abrogation of Obsolete Recommendations
of the Administrative Radio Conference, Geneva, 1959**

The World Administrative Radio Conference, Geneva, 1967,

considering

a) that all necessary action has been taken on the following Recommendations of the Administrative Radio Conference, Geneva, 1959:

Recommendation No. 22 to the Intergovernmental Maritime Consultative Organization, the International Civil Aviation Organization and to Administrations relating to an International Radiotelephone Code for the Maritime Mobile Service;

Recommendation No. 23 to the Safety of Life at Sea Conference relating to the Use of the Term "Emergency (Reserve)";

Recommendation No. 24 to the Governments Signatory to the International Convention for the Safety of Life at Sea relating to the Adoption of a Radiotelephone Alarm Signal;

Recommendation No. 25 to the International Conference on Safety of Life at Sea relating to Distress, Urgency and Safety Communications;

b) that the undermentioned Recommendations of the Administrative Radio Conference, Geneva, 1959, are obsolete:

Recommendation No. 26 relating to a Reclassification of International Public Correspondence Categories of Ship Stations;

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Recommendation No. 27 relating to Hours of Service for Ship Stations;

Recommendation No. 28 relating to the Use of Single Sideband Systems by the Maritime Mobile Service;

Recommendation No. 30 relating to the Phonetic Figure Table;

resolves

that the said Recommendations are abrogated.

RESOLUTION No Mar 2

**Relating to the Establishment of a Manual
for Use by the Maritime Mobile Service**

The World Administrative Radio Conference, Geneva, 1967,

considering

that provision has been made in Appendix 11 to the Radio Regulations for the carriage by ship stations of a manual for use by the maritime mobile service ;

resolves

1. that those provisions of
 - a) the Radio Regulations (including Appendices thereto) and the Additional Radio Regulations, as revised by the World Administrative Radio Conference, Geneva, 1967,
 - b) the Telegraph Regulations and the Telephone Regulations, and
 - c) the International Telecommunication Convention,

which are applicable or useful to stations in the maritime mobile service shall be assembled by the Secretary-General in a manual entitled "Manual for Use by the Maritime Mobile Service";

2. that the Secretary-General shall publish such a manual, using as a basis the "Manual for Use by the Mobile Services" published in 1961 with the exception of such provisions as do not relate to the maritime mobile service, and shall make it available by 1 October 1968 at the latest;

3. that the Secretary-General may consult the following Administrations on questions relating to the tasks entrusted to him in accordance with paragraphs 1 and 2 above:

United States of America
France
Italy
Kingdom of the Netherlands
United Kingdom of Great Britain and Northern Ireland
Sweden;

4. that the Secretary-General shall examine the possibility of issuing this manual in loose-leaf form to facilitate its being brought up to date following any revision by future conferences of the provisions referred to in 1. *a)*, *b)* and *c)* above;

5. that, as from 1 April 1969, the "Manual for Use by the Maritime Mobile Service" shall replace, so far as the maritime mobile service is concerned, the "Manual for Use by the Mobile Services" published in accordance with the provisions of Resolution No. 12 of the Administrative Radio Conference, Geneva, 1959.

RESOLUTION No Mar 3

Relating to the Classes of Emissions to be used for Remote-Controlled Coast Stations in the Maritime Mobile Radiotelephone Service

The World Administrative Radio Conference, Geneva, 1967,

considering

- a) that, in Recommendation 258-1, the C.C.I.R. (Oslo, 1966) advocated the use of both class A3A and class A3J emissions;
- b) that, under Nos. 1336A and 1351A of the Radio Regulations, coast stations will be required to use class A3H emissions during the period of transition to single sideband operation;
- c) that some administrations have already converted their services to single sideband operation in accordance with C.C.I.R. Recommendation 258 (Los Angeles, 1959);
- d) that during this period the interim provision of three classes of emission may, in the case of remote-controlled coast stations, cause considerable hardship to the above-mentioned administrations;

resolves

1. that, during the transitional period¹ of conversion from double sideband to single sideband operation, coast stations equipped for at least class A3H and class A3A emissions will satisfy the requirements of ship stations fitted for reception of class A3, class A3A or class A3J emissions; and
2. that after the end of the transitional period¹ such coast stations shall be capable of using class A3A and A3J emissions, except that the use of class A3H emissions shall be required on the frequency 2 182 kc/s in accordance with the provisions of No. 1337 of the Radio Regulations.

¹ See Resolutions Nos Mar 5 and Mar 6.

RESOLUTION No Mar 4

Relating to the Conversion to Single Sideband Technique of Stations of the Radiotelephone Maritime Mobile Service Operating in the Bands between 1 605 and 4 000 kc/s

The World Administrative Radio Conference, Geneva, 1967,

considering

- a)* that radiotelephone stations in the maritime mobile service operating with double sideband emissions in the bands between 1 605 and 4 000 kc/s use a bandwidth of the order of 6 kc/s;
- b)* that these stations will have to use single sideband operation in future;
- c)* that, during the period of conversion to single sideband operation, every precaution must be taken to avoid harmful interference between stations operating with double sideband emissions and those operating with single sideband emissions;

resolves

- 1. that the transition to single sideband operation in the stations referred to in considerandum *a)* above shall be made in accordance with the following provisions:
 - 1.1 the carrier frequency of the single sideband channel in the upper part of the previous double sideband channel shall be the same as the carrier frequency of that channel;
 - 1.2 the carrier frequency of the single sideband channel in the lower part of the previous double sideband channel shall be 3 kc/s lower than the carrier frequency of the previous double sideband channel when the latter has a carrier frequency at least 6 kc/s

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above that of the lower adjacent double sideband radiotelephone channel;

- 1.3 in Region 1, the carrier frequency of the single sideband channel in the lower part of the previous double sideband channel for intership communication shall be 2.5 kc/s below the carrier frequency of the previous double sideband channel when the latter has a carrier frequency 5 kc/s above that of the lower adjacent double sideband radiotelephone channel;
2. that class A3H emissions shall not be used on single sideband channels in the lower part of previous double sideband channels.

RESOLUTION No Mar 5

**Relating to the Use of Single Sideband Technique in the Radiotelephone
Maritime Mobile Service Bands between 1 605 and 4 000 kc/s**

The World Administrative Radio Conference, Geneva, 1967,

considering

- a) Recommendation No. **28** of the Administrative Radio Conference, Geneva, 1959;
- b) that the present Conference has decided to require the use of single sideband techniques, except in certain circumstances;
- c) the desirability of replacing double sideband emissions by single sideband emissions as early as possible in the maritime mobile service bands between 1 605 and 4 000 kc/s;

resolves

that, unless otherwise specified in the Final Acts of this Conference, radiotelephone stations in the maritime mobile service operating in the bands between 1 605 and 4 000 kc/s shall comply with the following conditions:

1. as from 1 January 1973, any new installations of double sideband equipment in ship stations shall not be permitted, except in the cases covered by Nos. **984**, **987** and **1323** of the Radio Regulations; however, administrations shall endeavour to discontinue the installation of double sideband equipment at the earliest possible date after 1 April 1969;
2. coast stations shall be capable of single sideband operation at the earliest possible date; furthermore, they shall discontinue double sideband emissions as early as possible, and, in any case, not later than 1 January 1975;

3. until 1 January 1982, coast and ship stations equipped for single sideband operation shall also be equipped to transmit class A3H emissions compatible with reception by double sideband equipment. On the carrier frequency 2 182 kc/s this requirement with respect to class A3H emissions will continue beyond 1 January 1982;

4. with the following exceptions, as from 1 January 1982, the use of class A3A and A3J emissions only shall be authorized:

- class A3 and A3H emissions for ship, survival craft and aircraft stations transmitting with a carrier frequency of 2 182 kc/s;
- class A3H emissions for coast stations transmitting with a carrier frequency of 2 182 kc/s;
- in Regions 1, 3 and in Greenland, in exceptional circumstances, class A3H emissions for coast stations sending safety messages on the carrier frequency 2 170.5 kc/s;
- classes of emission A2H, A2A and A2J for coast stations for selective calling on the carrier frequency 2 170.5 kc/s;
- the class of emission specified in Appendix 20A to the Radio Regulations for emergency position-indicating radiobeacons (see also No. 1476G of the Radio Regulations);

5. as from 1 January 1982, ship and aircraft stations required to employ single sideband operation on the working frequencies of the maritime mobile service shall use only class A3H emissions on the carrier frequency 2 182 kc/s.

RESOLUTION No Mar 6

Relating to the Use of Single Sideband Technique in the Radiotelephone Maritime Mobile Service Bands between 4 000 and 23 000 kc/s

The World Administrative Radio Conference, Geneva, 1967,

considering

- a) Recommendation No. 28 and Resolution No. 3 of the Administrative Radio Conference, Geneva, 1959;
- b) Recommendation No. 3 contained in the Final Report of the Panel of Experts convened for the purpose of devising ways and means of reducing the congestion in the bands between 4 and 27.5 Mc/s, Geneva, 1963;
- c) the desirability of replacing double sideband emissions by single sideband emissions as early as possible in the maritime mobile service bands between 4 000 and 23 000 kc/s;

resolves

that, unless otherwise specified in the Final Acts of this Conference or in any decision concerning the use of class of emission A3B which may be taken pursuant to Resolution No. Mar 13, radiotelephone stations in the maritime mobile service operating in the bands between 4 000 and 23 000 kc/s shall comply with the conditions set out in the following provisions:

1. as from 1 January 1972, any new installation of double sideband equipment in ship stations shall not be permitted. However, administrations shall endeavour to discontinue the installation of double sideband equipment at the earliest possible date after 1 April 1969;

RES Mar 6-2

2. as from 1 January 1972, coast stations shall cease all double sideband emissions;

3. *a)* until 1 January 1978, coast stations equipped for single sideband operation shall be able to use class A3H emissions in addition to class A3A and A3J emissions¹;

b) this provision should, until 1 January 1978, also apply to ship stations equipped for single sideband operation;

c) in any event, ship stations equipped for single sideband operation prior to 1 January 1972 shall be able to transmit class A3H emission in order to ensure compatibility with coast stations not yet equipped with single sideband receivers;

4. as from 1 January 1978, class A3A and A3J emissions only shall be authorized.

¹ See also Resolution No Mar 3.

RESOLUTION No Mar 7

**Relating to the Recommendations and Standards for Emergency Position-
Indicating Radiobeacons Operating
on the Frequencies 121.5 Mc/s and 243 Mc/s**

The World Administrative Radio Conference, Geneva, 1967,

considering

- a) that emergency position-indicating radiobeacons operating on the frequencies 121.5 Mc/s and 243 Mc/s are intended to facilitate search and rescue operations;
- b) that the frequencies 121.5 Mc/s and 243 Mc/s are in common use by aircraft engaged in search and rescue operations;
- c) that the International Civil Aviation Organization has established recommended signal characteristics and technical specifications for aircraft equipment operating on 121.5 Mc/s and/or 243 Mc/s;

resolves

that administrations authorizing the use of emergency position-indicating radiobeacons on 121.5 Mc/s and/or 243 Mc/s should ensure that such radiobeacons comply with the relevant recommendations and standards of the International Civil Aviation Organization and the International Radio Consultative Committee.

RESOLUTION No. Mar 8

Relating to the Notification of Ship Station Frequencies used for Narrow-Band Direct-Printing Telegraph and Data Transmission Systems

The World Administrative Radio Conference, Geneva, 1967,

considering

- a) that in Appendix 15 to the Radio Regulations certain sections of the HF bands allocated to the maritime mobile service are reserved for narrow-band direct-printing telegraph and data transmission systems;
- b) that the development by administrations of radiotelegraph services between ship and shore using the above-mentioned systems is at an early stage;
- c) that in consequence the present Conference is not in a position to decide whether it is necessary to regulate the orderly use of frequencies for the transmission by ship stations of direct-printing telegraph signals or on what basis this might be done;
- d) that these questions should be considered by the World Administrative Radio Conference referred to in Recommendation No. Mar 6 ;
- e) that the existing provisions of the Radio Regulations do not provide administrations with appropriate guidance for the period between the coming into force of the Final Acts of the present Conference and the coming into force of the Final Acts of the Conference mentioned in d) above;

resolves

1. that, during the period referred to in e) above, any administration operating or bringing into operation narrow-band direct-printing telegraph or data transmission systems for ships, shall notify to the International Frequency Registration Board, for recording in the Master International

Frequency Register, and to the Secretary-General for inclusion in the List of Coast Stations, the frequencies on which ship stations participating in the service will be required to transmit;

2. that these notices concerning frequencies used for reception by coast stations shall not be subject to technical examination by the Board, and that the assignments notified shall be recorded in the Master Register for information only, bearing no date in Column 2, but with a suitable remark in the Remarks Column merely referring to this Resolution;

3. that these entries in the Master Register shall not prejudice any decisions which may be taken by the World Administrative Radio Conference referred to in Recommendation No Mar 6.

RESOLUTION No Mar 9

**Relating to the Unauthorized Use of Frequencies in the Bands
Allocated to the Maritime Mobile Service**

The World Administrative Radio Conference, Geneva, 1967,

considering

- a) that monitoring observations of the use of frequencies in the band 2 170-2 194 kc/s and the bands allocated exclusively to the maritime mobile service between 4 063 and 25 110 kc/s show that a number of frequencies in these bands are being used by stations of services other than the maritime mobile service;
- b) that these stations are causing harmful interference to the maritime mobile service and that a considerable number of emissions, the sources of which could not be positively identified, were observed in these bands;
- c) that radio is the sole means of communication of the maritime mobile service;
- d) that it is of paramount importance that the international distress frequencies and the frequencies for international calls and public correspondence should be kept free from harmful interference, since the former are essential for the protection of the safety of life and property and the latter are essential to ensure the orderly and efficient operation of communications in the maritime mobile service;

resolves to urge

administrations to ensure that stations of services other than the maritime mobile service abstain from using frequencies in the guard-bands of calling and distress frequencies and in the bands allocated exclu-

sively to that service, except under the conditions expressly specified in Nos. 115, 208, 209, 211, 213 or 415 of the Radio Regulations, Geneva, 1959;

invites

the International Frequency Registration Board to continue to organize monitoring observations in the guard-bands of calling and distress frequencies and in the bands allocated exclusively to the maritime mobile service between 4063 kc/s and 25 110 kc/s with a view to eliminating the emissions of out-of-band stations which cause, or are likely to cause, harmful interference to the maritime mobile service; and to seek the co-operation of administrations in identifying the sources of such emissions by all available means, including the use of automatic recording equipment, direction-finding and field strength measurements, and in securing the cessation of these emissions.

RESOLUTION No. Mar 10

Relating to the Transfer of certain Frequency Assignments for Coast Radiotelegraph Stations in the Frequency Bands allocated exclusively to the Maritime Mobile Service between 4 000 and 23 000 kc/s

The World Administrative Radio Conference, Geneva, 1967,

considering

a) that the frequency band limits for coast radiotelegraph stations have been modified as a result of the revision of Appendices 15 and 17 to the Radio Regulations;

b) that the new limits of the frequency bands for coast radiotelegraph stations are:

4 231	-	4 361	kc/s
6 345·5	-	6 514	kc/s
8 459·5	-	8 728·5	kc/s
12 689	-	13 107·5	kc/s
16 917·5	-	17 255	kc/s
22 374	-	22 624·5	kc/s

recognizing

that the rearrangement of the frequency usage within the frequency bands allocated to the maritime mobile service should be carried out in several stages and that the transfer of certain coast radiotelegraph station frequency assignments governs any subsequent arrangements and should therefore be one of the phases of the rearrangement;

resolves

1. that the frequency assignments to coast radiotelegraph stations which, on 1 April 1969, are recorded in the Master International Frequency Register, shall be transferred as follows:

- any frequency assignment f in the 4 361 - 4 368 kc/s band shall be transferred to the frequency $f-129$ kc/s;

- any frequency assignment f in the 6 514 - 6 525 kc/s band shall be transferred to the frequency $f-168$ kc/s;
- any frequency assignment f in the 8 728.5 - 8 745 kc/s band shall be transferred to the frequency $f-269$ kc/s;
- any frequency assignment f in the 13 107.5 - 13 130 kc/s band shall be transferred to the frequency $f-419$ kc/s;
- any frequency assignment f in the 17 255 - 17 290 kc/s band shall be transferred to the frequency $f-338$ kc/s;
- any frequency assignment f in the 22 624.5 - 22 650 kc/s band shall be transferred to the frequency $f-251$ kc/s;

2. that low traffic ships will discontinue the use of frequencies above 4 229 kc/s, 6 343.5 kc/s, 8 458 kc/s, 12 687 kc/s, 16 916 kc/s and 22 370 kc/s as soon as practicable, and in any event not later than 1 February 1970;

3. that between 2 February 1970 and 28 February 1970, administrations shall transfer the transmitting frequencies of their coast radio-telegraph stations as indicated in paragraph 1 above. Administrations shall notify the I.F.R.B. of these transfers, in accordance with the provisions of Section I of Article 9 of the Radio Regulations;

4. provided that the notices received by the I.F.R.B. in accordance with paragraph 3 above do not contain any change in the basic characteristics of the originally recorded assignment, other than the assigned frequency, the I.F.R.B. shall record the change in the Master Register. The dates to be entered in the appropriate parts of Column 2 shall be those of the original assignment. Should any other change in the basic characteristics of the original assignment be notified, this change shall be dealt with in accordance with the provisions of Article 9 of the Radio Regulations;

5. that on 1 March 1970, the I.F.R.B. shall also include in the Master Register, in respect of each original assignment the transfer of which has not at that time been notified to the Board, a provisional entry determined in accordance with paragraph 1 above. For such provisional entries, the dates in Column 2 recorded for the original assignment shall be retained. The original entries shall be retained in the Master Register

but with a special remark in the Remarks Column and any dates in Column 2a shall be transferred to Column 2b;

6. that thirty days after 1 March 1970, the I.F.R.B. shall send to those administrations which have not yet notified the transfer of frequency assignments to their coast radiotelegraph stations in accordance with paragraphs 1 and 3 above, an extract from the Master Register showing the relevant entries contained therein on their behalf, and shall remind them of the provisions of this Resolution;

7. that if, sixty days after the despatch of these extracts, an administration has still not notified to the I.F.R.B. the transfer of an existing assignment in accordance with paragraphs 1 and 3 above, the corresponding provisional new entry shall be deleted from the Master Register and the original entry shall be retained with its date in Column 2b and a special remark in the Remarks Column; if, however, the administration concerned notifies the transfer during the sixty days period, the provisions of paragraph 4 above shall apply;

8. that in those cases where the foregoing transfer procedure will result in an increase in the probability of a specific frequency assignment causing or experiencing harmful interference, the I.F.R.B. shall render such assistance as will be necessary to the administrations concerned in order to solve the problem. In doing so, the I.F.R.B. shall apply the provisions of No. 534 or Nos. 629 to 633 of the Radio Regulations, as the case may be.

RESOLUTION No. Mar 11

Relating to the Transfer of Frequency Assignments to Coast Radiotelephone Stations in the Frequency Bands allocated exclusively to the Maritime Mobile Service between 4 000 and 23 000 kc/s

The World Administrative Radio Conference, Geneva, 1967,

considering

- a) that the frequency allotment plan appearing in Appendix 25 to the Radio Regulations, Geneva, 1959, is to be retained until a new plan is established by the Conference mentioned in Recommendation No Mar 6;
- b) that, as a result of the extension of the bands allocated exclusively to the maritime mobile service for radiotelephony, new duplex radiotelephone channels will be available to the maritime mobile service and will be contained in Section III of Appendix 25 MOD (see Resolution No Mar 15);
- c) that the separation between the transmitting frequencies of coast and ship stations should remain constant within each band;
- d) that on the whole it is easier and cheaper to change transmitting frequencies for coast stations than for ship stations, taking into account the large number of ship stations;
- e) that the additions to the bands allocated exclusively to the maritime mobile service for radiotelephony will become available on 1 March 1970 (see Resolution No Mar 12);
- f) that the new channels should be brought into use as soon as possible;

resolves

1. that, on 1 March 1970, the frequencies appearing in Appendix 25 to the Radio Regulations, Geneva, 1959, shall be replaced by the frequencies appearing in Annex 1 to this Resolution. This Appendix, as modified, shall also contain the new Section III (see Annex 3) referred to in Resolution No Mar 15 and shall then be known as Appendix 25 MOD;
2. that, on 1 March 1970, the I.F.R.B. shall bring the appropriate initial entries, listed in the Master International Frequency Register in accordance with the provisions of paragraph 2.1 c) of Resolution No. 1 of the Administrative Radio Conference, Geneva, 1959, into conformity with the allotments included in Appendix 25 MOD referred to above;
3. that the frequency assignments to high frequency coast radiotelephone stations recorded in the Master Register on 1 March 1970 on the channels defined in Appendix 17 to the Radio Regulations, Geneva, 1959, shall be transferred in accordance with the Tables appearing in Annex 1 (double sideband or independent sideband emissions) or Annex 2 (single sideband emissions), as the case may be;
4. that the frequency assignments to coast radiotelephone stations in the high frequency bands allocated exclusively for that purpose, recorded in the Master Register on 1 March 1970, but not in accordance with Appendix 17 to the Radio Regulations, Geneva, 1959, shall be transferred in such a way as to retain, with respect to the frequencies specified in Section A of Appendix 17, the same relative positions they occupied in relation to the frequencies listed in Appendix 17 to the Radio Regulations, Geneva, 1959;
5. that, on 1 March 1970 at 0001 G.M.T., administrations shall modify, as indicated in paragraphs 3 and 4 above, the transmitting frequencies of their coast radiotelephone stations. They shall notify these modifications to the I.F.R.B. in accordance with the provisions of Section I of Article 9 of the Radio Regulations;

6. that, provided the notice received by the I.F.R.B. in accordance with paragraph 5 above does not contain any change in the basic characteristics of the originally recorded assignment, other than the assigned frequency, the I.F.R.B. shall record the change in the Master Register; the dates to be entered in the appropriate parts of Column 2 shall be those of the original assignment. Should any other change be notified in the basic characteristics of the original assignment, it shall be dealt with in accordance with the provisions of Article 9 of the Radio Regulations;

7. that, on 1 March 1970, the I.F.R.B. shall also include in the Master Register, in respect of each original assignment the transfer of which has not at that time been notified to the I.F.R.B., a provisional entry determined in accordance with the provisions of paragraphs 3 or 4 above. For such provisional entries, the dates in Column 2 recorded for the original assignment shall be retained. The original entries shall be retained in the Master Register, but with a special remark in the Remarks Column, and any dates in Column 2a shall be transferred to Column 2b;

8. that, thirty days after that date, the I.F.R.B. shall send to those administrations which have not yet notified the transfer of frequency assignment to their coast radiotelephone stations in accordance with paragraphs 3 or 4 and 5 above, an extract from the Master Register showing the relevant entries contained therein on their behalf, and shall remind them of the provisions of this Resolution;

9. that if, sixty days after the despatch of these extracts, an administration has still not notified to the I.F.R.B. the transfer of an existing assignment in accordance with paragraphs 3 or 4 and 5 above, the corresponding provisional new entry shall be deleted from the Master Register and the original entry shall be retained with its date in Column 2b and a special remark in the Remarks Column. If, however, the administration concerned notifies the transfer during the sixty days period, the provisions of paragraph 6 above shall apply.

ANNEX 1

Table of Transmitting Frequencies of Coast Radiotelephone Stations (in kc/s)
(Double sideband or independent sideband ¹ emissions)

4 Mc/s band		8 Mc/s band		12 Mc/s band		16 Mc/s band		22 Mc/s band	
Old frequencies	New frequencies	Old frequencies	New frequencies	Old frequencies	New frequencies	Old frequencies	New frequencies	Old frequencies	New frequencies
4 371-1	4 364-7	8 748-1	8 732-1	13 133-5	13 112-5	17 293-5	17 258-5	22 653-5	22 629-0
4 377-4	4 371-0	8 754-4	8 738-4	13 140-5	13 119-5	17 300-5	17 265-5	22 660-5	22 636-0
4 383-8	4 377-4	8 760-8	8 744-8	13 147-5	13 126-5	17 307-5	17 272-5	22 667-5	22 643-0
4 390-2	4 383-8	8 767-2	8 751-2	13 154-5	13 133-5	17 314-5	17 279-5	22 674-5	22 650-0
4 396-6	4 390-2	8 773-6	8 757-6	13 161-5	13 140-5	17 321-5	17 286-5	22 681-5	22 657-0
4 403-0	4 396-6	8 780-0	8 764-0	13 168-5	13 147-5	17 328-5	17 293-5	22 688-5	22 664-0
4 409-4	4 403-0	8 786-4	8 770-4	13 175-5	13 154-5	17 335-5	17 300-5	22 695-5	22 671-0
4 415-8	4 409-4	8 792-8	8 776-8	13 182-5	13 161-5	17 342-5	17 307-5	22 702-5	22 678-0
4 422-2	4 415-8	8 799-2	8 783-2	13 189-5	13 168-5	17 349-5	17 314-5	22 709-5	22 685-0
4 428-6	4 422-2	8 805-6	8 789-6	13 196-5	13 175-5	17 356-5	17 321-5	22 716-5	22 692-0
4 434-9	4 428-6	8 811-9	8 796-0						

¹ See Resolution No. Mar 13

ANNEX 2

Table of Single Sideband Transmitting Frequencies of Coast Radiotelephone Stations (in kc/s)

4 Mc/s band				8 Mc/s band			
Old frequencies		New frequencies		Old frequencies		New frequencies	
Carrier frequencies	Assigned frequencies	Carrier frequencies	Assigned frequencies	Carrier frequencies	Assigned frequencies	Carrier frequencies	Assigned frequencies
4 368.0	4 369.4	4 361.6	4 363.0	8 745.0	8 746.4	8 729.0	8 730.4
4 371.1	4 372.5	4 364.7	4 366.1	8 748.1	8 749.5	8 732.1	8 733.5
4 374.3	4 375.7	4 367.8	4 369.2	8 751.3	8 752.7	8 735.2	8 736.6
4 377.4	4 378.8	4 371.0	4 372.4	8 754.4	8 755.8	8 738.4	8 739.8
4 380.7	4 382.1	4 374.2	4 375.6	8 757.7	8 759.1	8 741.6	8 743.0
4 383.8	4 385.2	4 377.4	4 378.8	8 760.8	8 762.2	8 744.8	8 746.2
4 387.1	4 388.5	4 380.6	4 382.0	8 764.1	8 765.5	8 748.0	8 749.4
4 390.2	4 391.6	4 383.8	4 385.2	8 767.2	8 768.6	8 751.2	8 752.6
4 393.5	4 394.9	4 387.0	4 388.4	8 770.5	8 771.9	8 754.4	8 755.8
4 396.6	4 398.0	4 390.2	4 391.6	8 773.6	8 775.0	8 757.6	8 759.0
4 399.9	4 401.3	4 393.4	4 394.8	8 776.9	8 778.3	8 760.8	8 762.2
4 403.0	4 404.4	4 396.6	4 398.0	8 780.0	8 781.4	8 764.0	8 765.4
4 406.3	4 407.7	4 399.8	4 401.2	8 783.3	8 784.7	8 767.2	8 768.6
4 409.4	4 410.8	4 403.0	4 404.4	8 786.4	8 787.8	8 770.4	8 771.8
4 412.7	4 414.1	4 406.2	4 407.6	8 789.7	8 791.1	8 773.6	8 775.0
4 415.8	4 417.2	4 409.4	4 410.8	8 792.8	8 794.2	8 776.8	8 778.2
4 419.1	4 420.5	4 412.6	4 414.0	8 796.1	8 797.5	8 780.0	8 781.4
4 422.2	4 423.6	4 415.8	4 417.2	8 799.2	8 800.6	8 783.2	8 784.6
4 425.5	4 426.9	4 419.0	4 420.4	8 802.5	8 803.9	8 786.4	8 787.8
4 428.6	4 430.0	4 422.2	4 423.6	8 805.6	8 807.0	8 789.6	8 791.0
4 431.8	4 433.2	4 425.4	4 426.8	8 808.8	8 810.2	8 792.8	8 794.2
4 434.9	4 436.3	4 428.6	4 430.0	8 811.9	8 813.3	8 796.0	8 797.4

ANNEX 2 (continued)

Table of Single Sideband Transmitting Frequencies of Coast Radiotelephone Stations (in kc/s)

12 Mc/s band				16 Mc/s band			
Old frequencies		New frequencies		Old frequencies		New frequencies	
Carrier frequencies	Assigned frequencies	Carrier frequencies	Assigned frequencies	Carrier frequencies	Assigned frequencies	Carrier frequencies	Assigned frequencies
13 130-2	13 131-6	13 109-0	13 110-4	17 290-2	17 291-6	17 255-0	17 256-4
13 133-5	13 134-9	13 112-5	13 113-9	17 293-5	17 294-9	17 258-5	17 259-9
13 137-2	13 138-6	13 116-0	13 117-4	17 297-2	17 298-6	17 262-0	17 263-4
13 140-5	13 141-9	13 119-5	13 120-9	17 300-5	17 301-9	17 265-5	17 266-9
13 144-2	13 145-6	13 123-0	13 124-4	17 304-2	17 305-6	17 269-0	17 270-4
13 147-5	13 148-9	13 126-5	13 127-9	17 307-5	17 308-9	17 272-5	17 273-9
13 151-2	13 152-6	13 130-0	13 131-4	17 311-2	17 312-6	17 276-0	17 277-4
13 154-5	13 155-9	13 133-5	13 134-9	17 314-5	17 315-9	17 279-5	17 280-9
13 158-2	13 159-6	13 137-0	13 138-4	17 318-2	17 319-6	17 283-0	17 284-4
13 161-5	13 162-9	13 140-5	13 141-9	17 321-5	17 322-9	17 286-5	17 287-9
13 165-2	13 166-6	13 144-0	13 145-4	17 325-2	17 326-6	17 290-0	17 291-4
13 168-5	13 169-9	13 147-5	13 148-9	17 328-5	17 329-9	17 293-5	17 294-9
13 172-2	13 173-6	13 151-0	13 152-4	17 332-2	17 333-6	17 297-0	17 298-4
13 175-5	13 176-9	13 154-5	13 155-9	17 335-5	17 336-9	17 300-5	17 301-9
13 179-2	13 180-6	13 158-0	13 159-4	17 339-2	17 340-6	17 304-0	17 305-4
13 182-5	13 183-9	13 161-5	13 162-9	17 342-5	17 343-9	17 307-5	17 308-9
13 186-2	13 187-6	13 165-0	13 166-4	17 346-2	17 347-6	17 311-0	17 312-4
13 189-5	13 190-9	13 168-5	13 169-9	17 349-5	17 350-9	17 314-5	17 315-9
13 193-2	13 194-6	13 172-0	13 173-4	17 353-2	17 354-6	17 318-0	17 319-4
13 196-5	13 197-9	13 175-5	13 176-9	17 356-5	17 357-9	17 321-5	17 322-9

ANNEX 2 (end)

Table of Single Sideband Transmitting Frequencies of Coast Radiotelephone Stations (in kc/s)

22 Mc/s band			
Old frequencies		New frequencies	
Carrier frequencies	Assigned frequencies	Carrier frequencies	Assigned frequencies
22 650·2	22 651·6	22 625·5	22 626·9
22 653·5	22 654·9	22 629·0	22 630·4
22 657·2	22 658·6	22 632·5	22 633·9
22 660·5	22 661·9	22 636·0	22 637·4
22 664·2	22 665·6	22 639·5	22 640·9
22 667·5	22 668·9	22 643·0	22 644·4
22 671·2	22 672·6	22 646·5	22 647·9
22 674·5	22 675·9	22 650·0	22 651·4
22 678·2	22 679·6	22 653·5	22 654·9
22 681·5	22 682·9	22 657·0	22 658·4
22 685·2	22 686·6	22 660·5	22 661·9
22 688·5	22 689·9	22 664·0	22 665·4
22 692·2	22 693·6	22 667·5	22 668·9
22 695·5	22 696·9	22 671·0	22 672·4
22 699·2	22 700·6	22 674·5	22 675·9
22 702·5	22 703·9	22 678·0	22 679·4
22 706·2	22 707·6	22 681·5	22 682·9
22 709·5	22 710·9	22 685·0	22 686·4
22 713·2	22 714·6	22 688·5	22 689·9
22 716·5	22 717·9	22 692·0	22 693·4

ANNEX 3

Channels in Section III of Appendix 25 MOD (in kc/s)

The frequencies printed in italics are calling frequencies (see No. 1352A)

4 Mc/s Band		6 Mc/s Band		8 Mc/s Band		12 Mc/s Band		16 Mc/s Band		22 Mc/s Band	
Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency
4 431·8	4 433·2	6 515·4	6 516·8	8 799·2	8 800·6	13 179·0	13 180·4	17 325·0	17 326·4	22 695·5	22 696·9
<i>4 434·9</i>	<i>4 436·3</i>	<i>6 518·6</i>	<i>6 520·0</i>	<i>8 802·4</i>	<i>8 803·8</i>	<i>13 182·5</i>	<i>13 183·9</i>	<i>17 328·5</i>	<i>17 329·9</i>	<i>22 699·0</i>	<i>22 700·4</i>
		6 521·8	6 523·2	8 805·6	8 807·0	13 186·0	13 187·4	17 332·0	17 333·4	22 702·5	22 703·9
				8 808·8*	8 810·2	13 189·5*	13 190·9	17 335·5*	17 336·9	22 706·0*	22 707·4
				8 812·0	8 813·4	13 193·0	13 194·4	17 339·0	17 340·4	22 709·5	22 710·9
						13 196·5*	13 197·9	17 342·5*	17 343·9	22 713·0*	22 714·4
								17 346·0	17 347·4	22 716·5	22 717·9
								17 349·5*	17 350·9		
								17 353·0	17 354·4		
								17 356·5*	17 357·9		

* This carrier frequency may also be used for double sideband transmissions in accordance with Resolution No. Mar 15

RESOLUTION No Mar 12

**Relating to the Implementation of the New Arrangement of
Radiotelegraphy and Radiotelephony Bands Allocated to the Maritime
Mobile Service between 4 000 and 27 500 kc/s**

The World Administrative Radio Conference, Geneva, 1967,

considering

- a) that each of the high-frequency radiotelegraphy and radiotelephony bands allocated to the maritime mobile service by the Administrative Radio Conference, Geneva, 1959, has been modified to make additional channels available for radiotelephony;
- b) that a considerable number of both ship and coast stations will be transferred from existing frequencies to the new frequencies and channels designated by this Conference;
- c) that changes in frequency assignments should be made as soon as possible so that the advantages of the rearrangement of bands may be realized at the earliest opportunity;
- d) that the transfer of assignments should be made with the least possible disruption of the service rendered by each station;
- e) that the transfer of assignments should be made in such a manner that harmful interference between stations involved is avoided during the implementation period;

resolves

1. that the implementation of the decisions made by this Conference relating to the rearrangement of the high-frequency bands allocated to the maritime mobile service should follow an orderly procedure for the transfer of the existing services from the old to the new assignments;
2. that administrations shall make every effort to implement the rearrangement in accordance with the time schedule in Annexes 1, 2 and 3.

ANNEX 1

Step of implementation (4 000 to 23 000 kc/s bands)	Starting date	Completion date
<i>Step 1</i> Vacate low traffic ship working channels 85 to 98	As soon as possible	1 February 1970
<i>Step 2</i> Transfer coast radiotelegraph stations to frequencies made available by Step 1	2 February 1970 (In accordance with Resolution No. Mar 10)	28 February 1970
<i>Step 3</i> Transfer coast radiotelephone stations to new channels as shown in Appendix 25 MOD, Sections I and II	0001 G.M.T. ¹ 1 March 1970	—
<i>Step 4</i> Authorize coast radiotelephone stations to use the channels vacated by coast radiotelegraph stations in Step 2	1 March 1970	—

¹ Time of change-over.

ANNEX 2

Step of implementation (4 000 to 23 000 kc/s bands)	Starting date	Completion date
<i>Step 1 a)</i> Transfer high traffic ship radiotelegraphy (A1) stations to their new frequencies	1 January 1969	30 June 1969
<i>b)</i> Vacate the first calling channel (the lowest assignable calling frequency in each band) of Section A, Appendix 15 (Geneva, 1959)	1 January 1969	30 June 1969
<i>Step 2</i> Transfer direct-printing radiotelegraph systems to their new bands	1 July 1969	31 October 1969
<i>Step 3</i> Transfer wide-band radiotelegraph systems upward in frequency, as needed	1 November 1969	31 December 1969
<i>Step 4</i> Change frequency usage specified in Section B, Appendix 15 (Geneva, 1959) to that specified in Appendix 17	1 January 1970	28 February 1970
<i>Step 5</i> Ship radiotelephone stations may commence use of the new duplex ship channels. Ship and coast radiotelephone stations may commence use of the new simplex channels	1 March 1970	—

ANNEX 3

Step of implementation (25 Mc/s band)	Starting date	Completion date
<i>Step 1</i> Transfer ship radiotelegraphy stations from the first three working channels of Section A, Appendix 15 (Geneva, 1959) to their new higher frequencies	1 January 1969	30 June 1969
<i>Step 2</i> Ship radiotelegraphy stations may commence use of the new calling channels	1 July 1969	—

RESOLUTION No Mar 13

**Relating to the Use of Class of Emission A3B by Radiotelephone
Stations in the Maritime Mobile Service in the Bands between
4 000 and 23 000 kc/s**

The World Administrative Radio Conference, Geneva, 1967,

considering

- a)* that certain administrations are at present using class A3B emissions, in accordance with the provisions of Appendix 17 to the Radio Regulations, Geneva, 1959, for radiotelephone communications with ships;
- b)* that difficulties may arise from the use of this class of emission when the new allotment plan is prepared by the Conference which is the subject of Recommendation No. Mar 6;

resolves

1. that, as an exception, the use of class A3B emissions, in addition to normal single sideband emissions, may continue to be authorized up to the date when the new allotment plan enters into force, subject to agreements between administrations concerned and those whose services may be affected;
2. that the Conference envisaged in Recommendation No. Mar 6 shall consider whether class A3B emissions should be maintained after that date.

RESOLUTION No Mar 14

Relating to the Channel Spacing of Transmitting Frequencies Allotted to the International Maritime Mobile Service for Radiotelephony in the Band 156-174 Mc/s

(See Appendix 18 and Article 35)

The World Administrative Radio Conference, Geneva, 1967,

considering

- a)* the expanding use of the maritime mobile radiotelephone frequencies in the VHF bands between 156 Mc/s and 174 Mc/s;
- b)* the increasing demand for additional channels for port operations (including pilotage, tug and other services);
- c)* the need for additional VHF channels for short-distance communications in the maritime mobile service to relieve the congestion and saturation on the maritime mobile frequencies in the band 1 605 kc/s to 3 800 kc/s;
- d)* that this expanding use of VHF cannot be fully met by the existing available channels given in the Table of Transmitting Frequencies in Appendix 18 to the Radio Regulations, Geneva, 1959;
- e)* that additional channels could be made available by reducing the present channel spacing of 50 kc/s to 25 kc/s;

resolves

1. that the channel spacing for international maritime mobile VHF radiotelephone services shall be reduced from 50 kc/s to 25 kc/s;

2. that the additional channels shall be obtained by interleaving the 25 kc/s channels midway between the existing 50 kc/s channels given in Appendix 18 to the Radio Regulations, Geneva, 1959, and that they shall be numbered from 60 to 88;

3. that the 25 kc/s channels should be allocated on an international basis;

4. that, until 1 January 1983, administrations shall arrange that ship stations fitted with any of the channels from 01 to 28 of Appendix 18 to the Radio Regulations, Geneva, 1959, can obtain an adequate use of available services;

5. that, in bringing into use channels 15, 17 and 60 to 88 (see Appendix 18) before 1 January 1983, no harmful interference shall be caused to those services on channels 01 to 28 referred to in paragraph 4 above, especially with respect to ships equipped with receivers built for 50 kc/s spacing between channels;

6. that the technical characteristics of equipment for 25 kc/s channel spacing in the international maritime mobile VHF radiotelephone service shall be in accordance with Appendix 19, Section B;

7. that, after 1 January 1983, guard-bands on either side of 156.80 Mc/s shall be 156.7625 to 156.7875 Mc/s and 156.8125 to 156.8375 Mc/s;

8. that the transition from a channel spacing of 50 kc/s to that of 25 kc/s shall be in accordance with the following:

8.1 date by which modification of transmitters to a maximum deviation of ± 5 kc/s and of receivers to increase the audio gain, where necessary, may commence 1 January 1972

8.2 date by which the modifications specified in paragraph 8.1 shall be completed for all existing equipments 1 January 1973

8.3 date up to which coast stations should maintain capability to receive transmissions with a maximum deviation of

- ± 15 kc/s and after which the modification of coast station receivers should take place as early as practicable to meet the selectivity requirements for a channel spacing of 25 kc/s 1 January 1973
- 8.4 date by which all new equipments shall conform to 25 kc/s standards 1 January 1973
- 8.5 date by which all equipments shall conform to 25 kc/s standards and all interleaved channels may be generally introduced 1 January 1983

RESOLUTION No Mar 15

Relating to the Use of the New High Frequency Channels made available for Maritime Radiotelephony by the Present Conference

The World Administrative Radio Conference, Geneva, 1967,

considering

a) that the Conference has decided to create as from 1 March 1970 new high frequency duplex radiotelephone channels to be included in Appendix 17 to the Radio Regulations and, without allotting them to countries, in Section III of Appendix 25 MOD;

b) that the Conference has also decided to recommend that a World Administrative Radio Conference be convened in 1973 to prepare a new frequency allotment plan for high frequency coast radiotelephone stations, covering the channels in the present Appendix 25 as well as the new channels referred to in *a)* above;

c) that, however, interim measures have to be taken by administrations and by the I.F.R.B. to provide for an orderly use of the new channels between the date when they become available for maritime radiotelephony and the date of entry into force of the new frequency allotment plan;

resolves

1. that during the interim period referred to in *c)* above, the new channels should be used for single sideband operation, and also for double sideband operation where technically feasible, in accordance with the time-table for conversion to single sideband operation determined by the present Conference; the peak envelope power of the transmitters shall be limited to 5 kW per speech channel for coast stations¹ and to 1.5 kW for ship stations;

¹ For class A3H emissions a peak envelope power of 7 kW may be used. For class A3 emissions a mean power of 10 kW may be used.

2. that the I.F.R.B. shall collect from administrations their requirements for use of these new channels;

urges administrations

3. in view of the limited number of new channels available for maritime radiotelephony, to submit only those requirements considered essential for use during the interim period referred to in c) above;

further resolves

4. that, after compilation of the requirements collected from administrations, the I.F.R.B., in consultation, where appropriate, with the administrations concerned, shall endeavour to distribute such requirements amongst the new channels, dealing with them in the following order, in the frequency bands covered by Appendix 25 MOD, band by band:

4.1 requirements from those countries which, in a particular frequency band, have no allotments in the present Appendix 25, have no assignments to high frequency coast radiotelephone stations recorded in the Master International Frequency Register in that band and are in urgent need of frequencies for maritime radiotelephony in that band;

4.2 requirements from those countries which have assignments to high frequency coast radiotelephone stations recorded in the Master Register, but which have a large volume of traffic to handle and whose assignments are causing or experiencing harmful interference;

5. that the distribution of requirements amongst the new channels in accordance with paragraph 4 above shall be circulated to all administrations at least six months before the new channels become available for maritime radiotelephony ;

6. that the channels distributed in accordance with paragraph 4 above shall be regarded as allotments to the countries concerned from the point of view of the frequency notification and registration procedure to be applied as from the date the channels become available;

7. that, as from that date, the relevant provisions of Nos. **541** to **551** of the Radio Regulations, in so far as they refer to Section I of Appendix 25, shall apply also to the frequency bands covered by the new channels (Section III of Appendix 25 MOD), for the examination by the I.F.R.B. of frequency assignment notices for transmission or reception by coast stations;

8. that the dates to be entered in Column 2a or Column 2b of the Master Register depending upon the findings reached by the I.F.R.B., after the examination referred to in paragraph 7 above, shall be in accordance with the relevant provisions of Nos. **577** to **586** of the Radio Regulations;

9. that the above procedure, which should be discontinued on the date of entry into force of the new frequency allotment plan to be prepared by the Radio Conference referred to in Recommendation No Mar 6, is of an interim nature and shall not prejudice the decisions to be taken by the above-mentioned Conference; a suitable remark to this effect shall be entered in the Master Register for the frequency assignments in the bands concerned.

RESOLUTION No Mar 16

**Relating to the Introduction of a
Radiocommunication Operator's General Certificate
for the Maritime Mobile Service**

The World Administrative Radio Conference, Geneva, 1967,

considering

- a) that Article 23 of the Radio Regulations, Geneva, 1959, provides for two classes of certificate as well as a special certificate for radiotelegraph operators;
- b) that many radiotelegraph operators are the holders of the second class certificate;
- c) that the higher Morse code speed qualification of the first class certificate may not be necessary in the future;
- d) that there is a future need for greater emphasis on the practical maintenance of radiocommunication equipment in service;

is of the opinion

- a) that administrations should consider the desirability of replacing the present two classes of radiotelegraph operator's certificate with a general class of certificate for radiocommunication operators, which is more closely related to future needs;
- b) that in considering the introduction of such a certificate, administrations should take into account the certificate qualification as appended hereto in Annexes 1, 2 and 3;

resolves

- 1. that administrations wishing to issue a radiocommunication operator's general certificate for the maritime mobile service are authorized to do so;

2. that the radiocommunication operator's general certificate shall maintain at least the practical technical standards of the present first class radiotelegraph operator's certificate;
3. that the Morse code speed shall not be less than specified in No. **884** of the Radio Regulations;
4. that, for the purposes of the Radio Regulations, such a general certificate shall be recognized as an alternative to the present first and second class certificates;
5. that a country which does not issue the general certificate and which employs an operator of a foreign nationality who holds this certificate may decide upon the status of the radiocommunication operator in so far as employment in its own ships is concerned.

ANNEX 1

**Conditions for the Issue of the Radiocommunication Operator's
General Certificate—Maritime**

The radiocommunication operator's general certificate is issued to candidates who have given proof of the technical and professional knowledge and qualifications enumerated below:

- a)* Knowledge of the principles of electricity and the theory of radio sufficient to meet the requirements of paragraphs *b)*, *c)* and *d)* below.
- b)* Theoretical knowledge of marine radiotelegraph and radiotelephone transmitters and receivers, marine aerial systems, automatic alarm devices, radio equipment for lifeboats and other survival craft, direction-finding equipment, together with all auxiliary items including power supply (such as motors, alternators, generators, inverters, rectifiers and accumulators), with particular reference to maintaining the equipment in service.
- c)* Practical knowledge of the operation, adjustment and maintenance of the apparatus mentioned in paragraph *b)* above, including the taking of direction-finding bearings and knowledge of the principles of the calibration of radio direction-finding apparatus.
- d)* Practical knowledge necessary for the location and remedying (with the means available on board) of faults which may occur during a voyage in the apparatus mentioned in paragraph *b)* above.
- e)* Ability to send correctly by hand and to receive correctly by ear, in the Morse code, code groups (mixed letters, figures and punctuation marks), at a speed of sixteen groups a minute, and a plain language text at the speed of twenty words a minute. Each code group shall comprise five characters, each figure or punctuation mark counting as two characters.

The average word of the text in plain language shall contain five characters. The duration of each test of sending and receiving shall be, as a rule, five minutes.

f) Ability to send correctly and to receive correctly by radio-telephone.

g) Knowledge of the Regulations applying to radiocommunications, knowledge of the documents relating to charges for radiocommunications and knowledge of the provisions of the Convention for the Safety of Life at Sea which relate to radio.

h) A sufficient knowledge of world geography, especially the principal shipping and the most important telecommunication routes.

i) Knowledge of one of the working languages of the Union. Candidates should be able to express themselves satisfactorily in that language, both orally and in writing. Each administration shall decide for itself the language or languages required.

ANNEX 2

Qualifying Service

1. An operator holding a radiocommunication operator's general certificate may be authorized to embark as chief operator of a ship station of the fourth category (see No. 932 of the Radio Regulations).
2. Before becoming chief operator of a ship station of the second or third category (see Nos. 931 and 931A of the Radio Regulations) an operator holding a radiocommunication operator's general certificate shall have had, as operator on board ship or in a coast station, at least six months' experience, of which at least three shall have been on board ship.
3. Before becoming chief operator of a ship station of the first category (see No. 930 of the Radio Regulations) an operator holding a radiocommunication operator's general certificate shall have had, as operator on board ship or in a coast station, at least two years' experience of which at least one shall have been on board ship.

ANNEX 3

Conditions of Employment of Holders of Radiocommunication Operator's General Certificates on Ship Stations

The holder of a radiocommunication operator's general certificate may carry out the radiotelegraph or radiotelephone service of any ship station and, having regard to the requirements of paragraphs 1, 2 and 3 of Annex 2, may act as chief or sole operator on any ship station in the circumstances detailed in Nos. 914 to 918 of the Radio Regulations.

RESOLUTION No Mar 17

Relating to the Need for keeping adequate Watch by Ship Stations on the International Distress Frequency for Radiotelephony

The World Administrative Radio Conference, Geneva, 1967,

considering

- a) that this Conference has adopted the necessary amendments to the Radio Regulations, Geneva, 1959, concerning the operation of emergency position-indicating radiobeacons on the international distress frequency for radiotelephony;
- b) that ship stations which are equipped for radiotelegraphy but are also equipped for radiotelephony are required to keep watch only on the international distress frequency for radiotelegraphy;
- c) that ship stations keeping watch only on the international distress frequency for radiotelegraphy will not hear distress calls from small craft calling on the distress frequency for radiotelephony;
- d) that if radiotelegraph ship stations in a position to do so would keep watch on both the radiotelephony and radiotelegraphy international distress frequencies, it would increase the safety of ships and especially of those fitted for radiotelephony only;
- e) that a watch on both the radiotelephony and radiotelegraphy international distress frequencies would improve the efficacy of assistance to the survivors from any maritime distress incident;

is of the opinion

that an increased watch is necessary by ship stations on the radiotelephony distress frequency;

RES Mar 17-2

resolves

that the Inter-Governmental Maritime Consultative Organization be invited to consider this matter, as part of the study currently being undertaken on the maritime safety system, taking into account the possibility of eventual amendment to the pertinent provisions of the International Convention for the Safety of Life at Sea (London, 1960);

requests the Secretary-General

to communicate this Resolution to the Inter-Governmental Maritime Consultative Organization.

RESOLUTION No. Mar 18

Relating to the Examination of Pertinent Portions of the Revised International Code of Signals

The World Administrative Radio Conference, Geneva, 1967,

considering

- a)* that the Inter-Governmental Maritime Consultative Organization (I.M.C.O.) has prepared a revised International Code of Signals which is designed to be used in all methods of signalling, including radio;
- b)* that the revised International Code of Signals was adopted by the I.M.C.O. Assembly at its 4th Session in 1965, to come into effect on first of January 1968 (later amended to be first of January 1969);
- c)* that the I.M.C.O. Assembly at its 4th Session invited the International Telecommunication Union (I.T.U.) to comment on the pertinent portions of the revised International Code of Signals at an Administrative Radio Conference for the maritime mobile service;
- d)* that the present Conference has amended certain portions of the Radio Regulations by adopting Appendices 13A and 16, and in so doing has attempted to reduce to a minimum the differences between the Radio Regulations and the International Code of Signals;
- e)* that it is necessary to determine the responsibility of the I.M.C.O. and the I.T.U. regarding the choice and conditions of use of international signals related to radiocommunication;
- f)* that it is advisable to bring the revised International Code of Signals and the Appendices 13A and 16 to the Radio Regulations into force on the same date;

recognizing

a) that the I.T.U. is responsible for determining the choice and conditions of use of international signals relating to radiocommunication procedures;

b) that the I.M.C.O. is responsible for determining the choice and conditions of use of international signals relating to other matters, such as navigation, and search and rescue operations;

resolves

1. that, where considered desirable, signals within the responsibility of the International Telecommunication Union may be reproduced in the publications of the Inter-Governmental Maritime Consultative Organization suitably annotated to indicate their source;

2. that the attention of the Inter-Governmental Maritime Consultative Organization should be invited to differences existing between the Radio Regulations and the revised International Code of Signals (see Annex to this Resolution);

requests the Secretary-General

to communicate the present Resolution, together with the Annex, to the Inter-Governmental Maritime Consultative Organization.

ANNEX

**Differences between the Provisions of Appendices 13A and 16
to the Radio Regulations and those of the International Code of Signals**

1. *Phonetic Alphabet and Figure Code*

The figure spelling table in Appendix 16 contains, in addition to the figures 0 to 9 and the mark "Decimal Point", the mark "Full Stop" * as follows:

Figure or mark to be transmitted	Code word to be used	Spoken as
Full Stop	STOP	STOP

2. *Abbreviations in Appendix 13A pertaining to use of emergency position-indicating radiobeacons not appearing in the International Code of Signals*

QOJ	Will you listen on...kc/s (or Mc/s) for signals of emergency position-indicating radiobeacons?	I am listening on...kc/s (or Mc/s) for signals of emergency position-indicating radiobeacons.
QOK	Have you received the signal of an emergency position-indicating radiobeacon on ...kc/s (or Mc/s)?	I have received the signal of an emergency position-indicating radiobeacon on ...kc/s (or Mc/s).

* The mark "Full Stop" appears in the International Code of Signals but not in the figure spelling table of that Code.

3. *Signals with identical or almost identical meaning but with different abbreviations or signals*

App. 13A	International Code of Signals	Meaning **
QOE	YI	I have received the safety signal sent by... <i>(name and/or call sign)</i> .
QOE?	YJ	Have you received the safety signal sent by... <i>(name and/or call sign)</i> ?
QRX	YL	I will call you again at... hours (on...kc/s <i>(or Mc/s)</i>).
QRZ?	YM	Who is calling me?
QTA	YN	Cancel telegram <i>(or message)</i> No....
QOA?	YR 7	Can you communicate by radiotelegraphy (500 kc/s)?
QOB?	YR 8	Can you communicate by radiotelephony (2 182 kc/s)?
QOC?	YR 9	Can you communicate by radiotelephony (channel 16 - frequency 156-80 Mc/s)?
QTQ	YU	I am going to communicate with your station by means of the International Code of Signals (INTER-CO).
QSW	YW	I am going to send on this frequency <i>(or on...kc/s (or Mc/s))</i> (with emissions of class...).
QSW	YX	I am going to send on this frequency <i>(or on...kc/s (or Mc/s))</i> (with emissions of class...).
QSW	YY	I am going to send on this frequency <i>(or on...kc/s (or Mc/s))</i> (with emissions of class...).

** In cases of slight differences of meaning, the wording in Appendix 13A is given.

App. 13A	International Code of Signals	Meaning **
QOD	ZB	I can communicate with you in . . . 0. Dutch 5. Italian 1. English 6. Japanese 2. French 7. Norwegian 3. German 8. Russian 4. Greek 9. Spanish
QOD?	ZC	Can you communicate with me in . . . 0. Dutch 5. Italian 1. English 6. Japanese 2. French 7. Norwegian 3. German 8. Russian 4. Greek 9. Spanish ?
QRS	ZM	Send more slowly (. . . words per minute).
QRS?	ZM 1	Shall I send more slowly?
QSZ	ZN	Send each word or group twice (<i>or</i> . . . times).
QRT	ZO	Stop sending.
QRT?	ZO 1	Shall I stop sending?
4.	<i>Identical abbreviations or signals having quite different meanings</i> BK, BQ, BT, CL, CP, DF, DO, KA, NW, NX, OL, TU, WD, WX, XQ, MIN, MSG.	
5.	<i>Identical abbreviations or signals having only a slight difference of meaning</i> CQ K (no confusion possible, if signal K is given with numerals)	

* * *

** In cases of slight differences of meaning, the wording in Appendix 13A is given.

Note: The following provisions of the Radio Regulations refer to the International Code of Signals:

- No. **1386A**,
- Appendix 13A, Section I, abbreviation QTQ,
- Appendix 13A, Section II, abbreviation INTERCO.

RESOLUTION No Mar 19

Relating to the Manner in which the I.F.R.B. shall treat Notifications dealing with Frequency Assignments to Oceanographic Stations

The World Administrative Radio Conference, Geneva, 1967,

considering

a) that the Conference has adopted Resolution No. Mar 20, concerning the establishment of a co-ordinated world-wide system for the collection of data relating to oceanography; and

b) that the I.F.R.B. requires instructions regarding the notification and registration in the Master International Frequency Register of assignments to oceanographic stations;

resolves

that the I.F.R.B. be instructed to accept for registration in the Master International Frequency Register only such notifications, submitted by administrations in accordance with Nos. 486 and 487, as pertain to transmitting and receiving oceanographic stations which are land based and which are in conformity with Resolution No. Mar 20. Such notifications shall be treated by the Board in accordance with No. 505 of the Regulations. These entries in the Master Register shall not prejudice any decisions to be taken by the next Administrative Radio Conference competent to deal with the maritime mobile service.

RESOLUTION No. Mar 20

Concerning the Establishment of a Co-ordinated World-wide System for the Collection of Data relating to Oceanography

The World Administrative Radio Conference, Geneva, 1967,

considering

- a)* the expressed desire for the establishment of a co-ordinated world-wide system for the collection of data relating to oceanography;
- b)* that in each of the six high frequency bands allocated exclusively to the maritime mobile service a frequency band has been designated for use in the collection of data relating to oceanography in accordance with Appendix 15 to the Radio Regulations;
- c)* that use of these frequencies with maximum effectiveness is dependent upon co-operation and co-ordination among administrations;
- d)* that certain administrations expressed the desire that a co-ordinated world-wide system for the transmission of data relating to oceanography be established on the basis of a co-ordinated plan in the bands allocated by the present Conference;
- e)* that, however, certain other administrations wish to use in the near future stations for the collection of data relating to oceanography within the framework of decisions taken on this matter by the present Conference;
- f)* that, consequently, a co-ordinated programme for the collection of data relating to oceanography should be established using the frequency bands referred to in *b)* above;
- g)* that the Intergovernmental Oceanographic Commission (I.O.C.) and the World Meteorological Organization (W.M.O.) have been in

consultation since 1962 with respect to co-operative efforts in the collection of data relating to oceanography (e.g. the W.M.O./I.O.C. Panel of Experts on Co-ordination of Requirements, Geneva, 19-21 July, 1967);

resolves

1. that the I.O.C. and W.M.O. be invited to develop jointly, in consultation with the I.F.R.B., and in consultation with administrations of the Members and Associate Members of the Union, as appropriate, a co-ordinated plan designed to meet existing and future requirements of all interested Members and Associate Members, for use by stations in the collection of data relating to oceanography in a world-wide system, within the framework of provisions made by the present Conference for such a system; this plan to include the geographical distribution of oceanographic stations, their system of operation, the deployment of frequencies in the system and the manner in which oceanographic information is to be transmitted;
2. that administrations be encouraged to assign frequencies in conformity with the plan and the recommendations of I.O.C. and W.M.O. for the portion of the world-wide system over which they have jurisdiction;
3. that the I.O.C. and W.M.O. be invited further to assume jointly the responsibility, in consultation with the I.F.R.B., for keeping such a plan current, in the light of changing requirements for data relating to oceanography;
4. that the plan developed under points 1 and 3 above shall be considered at the next Administrative Radio Conference competent to deal with matters relating to the maritime mobile service, to determine what changes, if any, appear necessary to improve its effectiveness.

RECOMMENDATION No. 1

to the C.C.I.R. Relating to the Frequency Tolerances of Transmitters

The Administrative Radio Conference, Geneva, 1959,

considering

- a) that Appendix 3 to the Radio Regulations specifies the permissible frequency tolerances for transmitters ;
- b) that the principal objective of this Appendix has been the reduction of frequency space required per channel by means of the tightening of frequency tolerances, and that in many cases considerable improvement in spectrum utilization can continue to be obtained by further tightening of frequency tolerances ;
- c) that for some services, a reduction in frequency tolerance to the lowest value possible in the state of the technique would be useful in order to increase the signal to noise ratio, improve intelligibility and reduce errors ;
- d) that in certain cases, a further reduction of frequency tolerance would not in practice increase the number of available channels ;
- e) that in particular frequency bands, the frequency tolerances specified in Appendix 3 to these Radio Regulations may already approach the minimum useful value for certain categories of station when using existing techniques and methods of operation ;
- f) that it will be of considerable assistance to administrations, in the future planning of services and provision of equipment, to know those frequency tolerances which can be considered to be the ultimate useful minimum value for stations when using existing techniques and methods of operation ;
- g) that in certain cases, reduction of frequency tolerances is subject to economic limitations, which should be known and taken into account ;

invites the C.C.I.R.

1. to continue its study of frequency tolerances with a view to the reduction of the frequency space required for a given channel ;
2. to consider whether or not in certain cases it is possible to predict ultimate values of tolerances, which it would not be necessary to make more stringent under currently known conditions of operation, and to state what these tolerance values might be ;
3. to report upon the possibility of achieving such ultimate values of tolerances consistent with economic and design requirements and other practical considerations ;
4. to indicate which, if any, of the tolerances specified in Appendix 3 to the Radio Regulations have already attained these ultimate values.

RECOMMENDATION No. 2

Relating to the Technical Standards of the I.F.R.B.

The Administrative Radio Conference, Geneva, 1959,

recognizing

that the Technical Standards of the International Frequency Registration Board (I.F.R.B.) are in daily use in the technical examination of frequency assignment notices,

urges the C.C.I.R.

to expedite all phases of the programme of studies which will assist the I.F.R.B. in the further refinement of its Technical Standards,

and invites the administrations

in their participation in the work of the C.C.I.R. and its study groups, to give special priority to those studies.

RECOMMENDATION No. 3

to the C.C.I.R. Relating to Signal to Interference Protection Ratios and Minimum Field Strengths Required

The Administrative Radio Conference, Geneva, 1959,

recognizing

that the available information on signal to interference protection ratios and minimum field strengths required for each one of the services needs further refinement in order to permit the most efficient planning of the use of the radio frequency spectrum ;

invites the C.C.I.R.

1. to continue to study the signal to interference protection ratios which define the threshold of harmful interference for the several services ;
2. to continue to study the signal to noise ratios and the minimum field strengths required for satisfactory reception of the different classes of emission in the several services ;
3. to continue the study of fading allowances for the several services :
4. to give particular attention to those studies which will assist in the further refinement of the technical standards used by the International Frequency Registration Board.

RECOMMENDATION No. 4

to the C.C.I.R.
Relating to Studies of Radio Propagation and Radio Noise

The Administrative Radio Conference, Geneva, 1959,

considering

- a) that the efficient utilization of radio frequencies depends upon the use of the most reliable technical data and standards, especially in those parts of the radio frequency spectrum which are most congested ;
- b) that the satisfaction of new frequency requirements and the development of radio services can be facilitated by improvements, where these are necessary, in the technical standards at present used by the I.F.R.B. ;
- c) that, in accordance with Appendix A, administrations will endeavour to promote further studies on radio propagation and radio noise through the medium of the C.C.I.R. ;
- d) that the C.C.I.R. has adopted a programme of studies covering many of these problems ;

invites the C.C.I.R.

1. to continue the studies of radio propagation and radio noise and to take measures for the co-ordination of the results of these studies carried out in different countries ;
2. to give particular attention to those studies which will assist in the further refinement of the technical standards used by the I.F.R.B. ;
3. to report regularly on these matters, even if the studies have not been completed ;
4. to continue regular consultation with other organizations undertaking studies of propagation such as the International Scientific Radio Union, in order to attain the maximum possible degree of co-ordination.

RECOMMENDATION No. 5

**to the C.C.I.R. and to Administrations
Relating to International Monitoring in the Bands Below 28 000 kc/s**

The Administrative Radio Conference, Geneva, 1959,

considering

- a) the desirability of achieving a more effective use of the radio spectrum in order to assist administrations to satisfy their frequency requirements, and, to that end, the desirability of taking steps to make the International Frequency List reflect more accurately the actual use being made of the radio spectrum ;
- b) the provisions of the Radio Regulations, Geneva, 1959, under which the International Frequency Registration Board shall review the entries in the Master International Frequency Register with a view to bringing them into conformity, to the maximum extent practicable, with the actual use being made of the radio spectrum ;
- c) that monitoring information should assist the Board in discharging that function ;

recognizing

- a) that an international monitoring system cannot be fully effective unless it covers all areas of the world ;
- b) that, at present, in certain areas of the world, monitoring facilities are either non-existent or insufficient to provide effective coverage ;

invites the C.C.I.R.

in collaboration with the Board, to study and make technical recommendations concerning the additional facilities required to provide adequate coverage in all areas of the world for the purposes of Articles 8, 9 and 13 of the Radio Regulations, and

invites Administrations

1. to make every effort to develop monitoring facilities as envisaged in Article 13 of the Radio Regulations bearing in mind the means which may be made available through the appropriate technical assistance organs of the United Nations ;
2. to inform the Board of the extent to which they are prepared to co-operate in such monitoring programmes as may be requested by the Board.

RECOMMENDATION No. 6

**to the C.C.I.R. Relating to Studies of the Technical Characteristics
of Equipment**

The Administrative Radio Conference, Geneva, 1959,

recognizing

that the available technical information concerning the various types of apparatus used for the reception of the different classes of emission in the several services needs to be more complete and more precise in order to permit the most efficient planning of the use of the radio frequency spectrum ;

invites the C.C.I.R.

1. to continue to study, and to make recommendations for the bandwidth, selectivity, sensitivity and stability characteristics of various types of apparatus used for the reception of the different classes of emission in the several services ;
2. to continue to study practical methods of achieving the recommended characteristics ;
3. to study the minimum practicable spacing between adjacent channels for the different classes of emission for the several services in the various bands ;
4. to study other desirable conditions to be fulfilled by the complete systems employed by the different services in order to determine the required technical performance of the equipment, including the station terminal apparatus and the antennae ;
5. to study methods for determining whether the equipment satisfies the recommended requirements ;
6. to give particular attention to those studies which will assist in the further refinement of the technical standards used by the International Frequency Registration Board.

RECOMMENDATION No. 7

Relating to Specifications of Broadcasting Receivers at Low Cost

The Administrative Radio Conference, Geneva, 1959.

considering

- a) that the advantages of broadcasting should be made more easily available to the populations of the countries where at present the density of receivers is particularly low due to economic, geographic or technical reasons ;
- b) that to this end it is desirable that efficient broadcasting receivers should be available at prices low enough to secure their wide distribution in these countries ;
- c) that general agreement on the performance of suitable broadcasting receivers would prove most useful to radio receiver manufacturers by assisting them to produce suitable receivers having an agreed adequate standard performance at the lowest possible cost ;

invites the C.C.I.R.

1. to draw up performance specifications for one or more types of sound broadcasting receivers suitable for production in large quantities at the lowest possible cost, the receivers to meet the requirements of listeners in the countries mentioned in the considering *a)* above. These specifications should cover receivers for amplitude modulated transmissions in the low, medium, and/or high frequency bands (bands 5, 6 and/or 7) as well as those for frequency modulated transmissions in the VHF band (band 8) according to the needs of the countries ;

2. to avoid duplication of effort, and complete the work in as short a time as possible, collaboration should be maintained with other international bodies working in this field.

and requests the Secretary-General

to communicate the result of this study, together with suggestions as to the action to be taken, to the Director-General of UNESCO.

RECOMMENDATION No. 8

Relating to the Classification of Emissions

The Administrative Radio Conference, Geneva, 1959,

considering

- a) that Article 2, Section I, of the Radio Regulations classifies emissions for the purpose of designation ;
- b) that certain symbols are used for classes of emission which are not precisely specified ;
- c) that it may be necessary to specify new classes of emissions in the future ;
- d) that in the recording processes used by the International Frequency Registration Board and by certain administrations, particularly in mechanical recording processes, a simple and precise method of designation is required, using the smallest practicable number of symbols for each designation to provide all the essential information ;
- e) that it may be useful to combine in a single series of symbols the information now classified as supplementary characteristics with that giving the type of modulation of the main carrier ;
- f) that the present method of classifying emissions does not adequately provide for systems employing multiple modulation processes ;
- g) that the increasing use of multichannel telephone and telegraph systems makes it desirable to classify them in categories and to adopt a uniform designation for the channels of such systems ;

- h) that pulse modulation is not intrinsically a basic modulation process but is a form of signal stimulus which gives rise to amplitude, frequency or phase modulation or a combination of these modulations ;
- i) that the Board sometimes receives or requires from administrations additional significant information of a supplementary nature—e.g., carrier level and telegraph signal code information, which is not always provided for in the present system of designation ;
- j) that the present system of designation does not enable all emissions to be specified precisely or completely ;
- k) that the terms emission, radiation and transmission are not defined in the Radio Regulations and that they are liable to confusion not only when they are translated from one language to another, but also when they are used in the same language ;

recommends that the C.C.I.R.

1. consider, in conjunction with the Board, all emissions and characteristics requiring classification ;
2. study, in conjunction with the Board, various methods of designating and classifying emissions, and develop a method which could be used over a long period and which would enable all the essential information to be provided ;
3. report their conclusions on these matters, and make a Recommendation in time for a decision to be taken at the next Administrative Radio Conference ;
4. define the terms emission, radiation and transmission so that they may be used consistently and without confusion and be readily translated from one working language to another.

RECOMMENDATION No. 9

Relating to the Use of the Rationalized M.K.S. System of Units

The Administrative Radio Conference, Geneva, 1959,

recognizing

the wide use of the rationalized M.K.S. system of units (also known as the rationalized Giorgi system) by radio engineers and authors of radio publications, and its wide use in the C.C.I.R. and other permanent organs of the Union ;

recommends

that administrations shall endeavour to adopt that system gradually in their relations with the Union and its permanent organs.

RECOMMENDATION No. 10

Relating to the Means of Reducing the Congestion in Band 7 (3-30 Mc/s)

The Administrative Radio Conference, Geneva, 1959,

recognizing

- a) that there is an urgent need to reduce the pressure on Band 7 of the radio frequency spectrum ;
- b) that the utilization of modern development in telecommunication techniques, particularly those involving the use of Band 8 and higher Bands, coaxial cables, etc., can contribute to this reduction ;
- c) that the utilization of these improved and alternative techniques would entail considerable expenditure whereas the continued use of Band 7 techniques would be less expensive and therefore some administrations would find it more difficult to introduce these new techniques than other administrations more favourably placed ;

recommends

1. that all administrations take necessary steps to reduce the pressure on Band 7 by adopting the new techniques to the maximum extent possible ;
2. that the international organizations giving aid be requested to give special consideration to the supply of equipment to administrations which are not in a position to procure it themselves due to economic difficulties, for the purpose of enabling these administrations to change over to the alternative means of telecommunication, thus contributing towards greater economy in the use of Band 7.

RECOMMENDATION No. 11

Relating to the More Efficient Consolidation of National and International Radiocommunication Circuits operating in the Bands between 4 000 and 27 500 kc/s

The Administrative Radio Conference, Geneva, 1959,

considering

- a) the ever-increasing need for frequencies particularly in the bands between 4 000 and 27 500 kc/s ;
- b) the present structure of national and international radiocommunication networks in these bands ;
- c) the relatively light traffic load on some of the circuits of these networks ;
- d) the provisions of the Convention concerning the rational use of frequencies and spectrum space (Article 46) ;

and taking into account

- a) the fact that the efficiency of a group of circuits is higher than that of the total number of single circuits ;
- b) that as a consequence the total number of frequencies needed may be reduced ;
- c) that in certain parts of the world there are areas and countries interconnected by several circuits, both radio and cable ;

recommends

1. that, wherever possible, administrations should contribute to reducing the pressure on bands between 4 000 and 27 500 kc/s by a more efficient consolidation of lightly-loaded radio circuits ;
2. that countries, interconnected by telecommunication circuits, should, whenever practicable, conclude special arrangements on the common use of existing international radio circuits, operating in the bands between 4 000 and 27 500 kc/s ;

3. that, as a general rule, these arrangements should give to each participating country equal benefit with regard to operational and financial conditions ;
4. that in planning new radio circuits or the extension of existing radio circuits, administrations should as far as possible take into account the principles stated in 1 to 3 above.

RECOMMENDATION No. 12

Relating to the Use of the Band 9 300-9 500 Mc/s

The Administrative Radio Conference, Geneva, 1959,

noting

- a) that there are in existence two main classes of airborne weather radar, using the bands 5 350-5 460 Mc/s and 9 300-9 500 Mc/s respectively ;
- b) that there is in existence a very considerable number of shipborne radars, the majority in the band 9 300-9 500 Mc/s ;
- c) that there are also ground-based radars of the maritime and aeronautical radionavigation services and of the meteorological service in the band 9 300-9 500 Mc/s ;
- d) that in the band 5 350-5 460 Mc/s airborne radars have the exclusive use of the sole primary allocation which is to the aeronautical radionavigation service ;
- e) that in the bands 2 900-3 100 Mc/s and 5 470-5 650 Mc/s shipborne radars have the use of the sole primary allocation to the radionavigation service and the maritime radionavigation service respectively, which they share only with land-based radars ;
- f) that it has proved necessary to allocate the band 9 300-9 500 Mc/s on an equality basis to both the aeronautical and the maritime radionavigation services ;

considering

- a) that it is of the utmost importance to ensure that harmful interference is not caused to radionavigation services providing a safety of life function ;
- b) that the operating conditions of a safety of life service should be uniform throughout the world ;

- c) that an uncoordinated increase in the use of the band 9 300-9 500 Mc/s can only lead to an increase in the probability of harmful interference between the aeronautical and maritime radionavigation services ;

recommends

1. that administrations, the International Civil Aviation Organization and the Inter-Governmental Maritime Consultative Organization study this matter at the earliest opportunity ; and especially
2. that they determine whether, and to what extent, interference which is recognized to be technically possible between the two services becomes harmful in operational circumstances ;
3. that they investigate, in the event that it is established that there may be harmful interference between the two services, the possibility of reducing such interference by technical, operational and procedural means, including the principle that new equipments should always be of the highest technical standard ;

invites

administrations, the International Civil Aviation Organization and the Inter-Governmental Maritime Consultative Organization to communicate to the Union the results of their studies together with their views and proposals resulting therefrom.

RECOMMENDATION No. 13

**Relating to the Technical Standards to be applied
when preparing Plans for the Broadcasting Stations
in the Bands 68-73 Mc/s and 76-87.5 Mc/s**

The Administrative Radio Conference, Geneva, 1959,

recommends

that in the preparation of plans for broadcasting stations in the bands 68-73 Mc/s and 76-87.5 Mc/s at the Special Regional Conference referred to in No. 250 of the Radio Regulations, Geneva, 1959, the following factors shall be taken into consideration :

- a) the minimum median field strengths to be protected for the broadcasting and for the fixed and mobile services should be the field strengths required for satisfactory service at the limit of the service area in rural areas. For frequency modulated sound broadcasting, the figures given in C.C.I.R. (Los Angeles, 1959) Recommendation No. 263 should be taken as a guide. For television, the same values of minimum field strength as for frequency modulated sound broadcasting should be used. For the fixed and mobile services a tentative figure of 5 microvolts per metre should be taken ;
- b) the protection ratios required for frequency modulated sound broadcasting are given in C.C.I.R. (Los Angeles, 1959) Recommendation No. 263, and for television in C.C.I.R. (Los Angeles, 1959) Report No. 125. For the fixed and mobile services the protection ratio should be at least 6 db ;
- c) when determining the required protection ratios, due account shall be taken of the occupied bandwidth and the receiver selectivity when there is a difference between the frequencies of the desired and interfering signals, and of the additional protection resulting from the use of cross-polarization ;

- d)* all services should be protected for not less than 90 % of the time ;
- e)* in evaluating the possible degree of interference due regard should be given to the conditions of propagation. The tropospheric wave propagation curves of C.C.I.R. (Los Angeles, 1959) Recommendation No. 312 should be used where they apply.

RECOMMENDATION No. 14

**to Administrations in Region 1. Relating to the Broadcasting Service
in the Band 100-108 Mc/s**

The Administrative Radio Conference, Geneva, 1959,

considering

- a) that, so far as possible, there should be a common allocation of frequency bands to the broadcasting service in the three Regions, so that administrations may more readily coordinate their use of frequencies and thereby achieve maximum frequency economy ;
- b) that a growing demand is foreseen in Region 1 for assignable frequencies in Band 8 for sound broadcasting ;
- c) that, for technical reasons, and in particular, in order to avoid complication in the manufacture of receivers, any future extension of the broadcasting band 87.5-100 Mc/s, should take place in an adjacent band ;
- d) that the band 100-108 Mc/s is now allocated to the broadcasting service in Regions 2 and 3, and in some countries in Region 1 ;
- e) that a number of administrations in Region 1 have expressed their desire to use the band 100-104 Mc/s for the broadcasting service ;

recommends

that, at the next Administrative Radio Conference, administrations of Region 1 consider the possibility of proposing a new allocation to services in the band 100-108 Mc/s, with special reference to the needs of the broadcasting service.

RECOMMENDATION No. 15

Relating to Frequency Modulation Transmissions

The Administrative Radio Conference, Geneva, 1959,
considering :

- a)* that listeners should be enabled to hear national broadcasting transmissions free of interference from other stations ;
- b)* that in many regions, the overloading of Bands 5 and 6 is such that listening is becoming increasingly difficult ;
- c)* that experience has shown that where frequency modulated transmissions are broadcast in Band 8, listeners in those countries are assured of improved reception ;

recommends :

that the Members and Associate Members of the Union should consider the possibility of using frequency modulated transmissions in the Band 8 for their national broadcasting services.

RECOMMENDATION No. 16

**Relating to the Measures to be taken to prevent
the Operation of Broadcasting Stations on Board Ships
or Aircraft outside National Territories**

The Administrative Radio Conference, Geneva, 1959,

considering

- a) that the operation of broadcasting stations on board ships or aircraft outside national territories is in conflict with the provisions of Nos. 422 and 962 of the Radio Regulations ;
- b) that such operation is contrary to the orderly use of the radio frequency spectrum and may result in chaotic conditions ;
- c) that the operation of such broadcasting stations may take place outside the jurisdiction of Member countries, thereby making the direct application of national laws difficult ;
- d) that a particularly difficult legal situation arises when such broadcasting stations are operated on board ships or aircraft not duly registered in any country ;

recommends

1. that administrations ask their Governments to study possible means, direct or indirect, to prevent or suspend such operations, and where appropriate, take the necessary action,
2. that administrations inform the Secretary General of the results of these studies and submit any other information which may be of general interest, so that the Secretary General can inform the Members and Associate Members of the Union accordingly.

RECOMMENDATION No. 17

**Relating to the Adoption of Standard Forms
for Ship Station Licences and Aircraft Station Licences**

The Administrative Radio Conference, Geneva, 1959,

considering

- a) that the standardization of the licence forms issued to stations installed on board ships and aircraft making international voyages and flights would greatly facilitate the task of inspection of such stations ;
- b) that standard licence forms for ship stations and for aircraft stations would serve as a useful guide to those administrations desiring to improve their existing national licences ;
- c) that standard licence forms could be advantageously used by these administrations as the Form of Certification specified in No. 732 of the Radio Regulations ;

has formulated

- d) a set of principles for the draft of a standard licence form (See Annex 1) and
- e) specimens of a ship station licence and of an aircraft station licence (See Annexes 2 and 3) ;

recommends

1. that administrations which find these forms practicable and acceptable should adopt them for international use ;
2. that administrations should, as far as possible, endeavour to bring their national licence forms into line with these standard forms.

ANNEX 1

Principles for the Formulation of Standard Ship and Aircraft Station Licences

The Administrative Radio Conference, Geneva, 1959, considers that in formulating standard ship and aircraft station licences, the following set of principles should be applied :

1. The licence should, as far as possible, be prepared in tabular form, and each line and column of the table clearly numbered or lettered.
2. The licence for ship stations and the licences for aircraft stations should be as similar as possible.
3. The size of the licence should be International Standard A4.
4. The licences should be designed in a form which facilitates its exhibition on board a ship or an aircraft.
5. The licence should be printed in Latin characters in the national language of the country which issues it. Those countries whose national language cannot be written in Latin characters should use their national language and, in addition, one working language of the Union.
6. The title "Ship Station Licence" or "Aircraft Station Licence" should appear at the top of the licence in the national language as well as in the three working languages of the Union.

These principles were used in formulating the two standard forms which are given in Annexes 2 and 3.

ANNEX 2

(Full Name of the Authority issuing the Licence,
in the national language)

.....*

**SHIP STATION LICENCE
LICENCE DE STATION DE NAVIRE
LICENCIA DE LA ESTACIÓN DE BARCO**

No. ...

Period of validity

In accordance with (*Title of the National Regulation*)
and with the Radio Regulations annexed to the International Tele-
communication Convention now in force, this authorization is here-
with issued for the installation and for the use of the radio equipment
described below :

1	2	3	4
Name of Ship	Call Sign or other Identification	Owner of Ship	Public Correspondence Category

	Equipment	a	b	c	d
		Type	Power (watts)	Class of Emission	Frequency Bands or Assigned Frequencies
5	Transmitters				**
6	Ship's Emergency Transmitters				**
7	Survival Craft Transmitters				**
8	Other Equipment	<i>(Optional)</i>			

For the Issuing Authority :

.....
Place Date Authentication

* The words "Ship Station Licence" written in the national language, if this is not one of the three working languages of the Union.

** Specifically or by reference.

ANNEX 3

(Full Name of the Authority Issuing the Licence, in the national language)

.....*

AIRCRAFT STATION LICENCE
LICENCE DE STATION D'AÉRONEF
LICENCIA DE LA ESTACIÓN DE AERONAVE

No. ...

Period of validity

In accordance with (Title of the National Regulation)
and with the Radio Regulations annexed to the International Telecommunication Convention now in force, this authorization is hereby issued for the installation and for the use of the radio equipment described below :

1	2	3	4
Nationality and Registration Mark of the Aircraft	Call Sign or other Identification	Type of Aircraft	Owner of Aircraft

	Equipment	a	b	c	d
		Type	Power (watts)	Clas of Emission	Frequency Bands or Assigned Frequencies
5	Transmitters				**
6	Survival Craft Transmitters (when applicable)				**
7	Other Equipment	(Optional)			

For the Issuing Authority :

.....
Place Date Authentication

* The words " Aircraft Station Licence " written in the national language, if this is not one of the three working languages of the Union.

** Specifically or by reference.

RECOMMENDATION No. 18**Relating to Operator Certificates**

The Administrative Radio Conference, Geneva, 1959,

considering

- a) that Article 23 of the Radio Regulations provides that Operator Certificates for ship and aircraft stations are classified as radiotelegraph, and radiotelephone ;
- b) that with the introduction of new modes of telecommunication, including the use of automatic communication devices, it becomes increasingly difficult to categorize such modes as either radiotelegraph or radiotelephone ;
- c) that all such devices, as well as radiotelephone stations, may be operated by holders of radiotelegraph operator certificates ; and many automatic communication devices may be operated by holders of radiotelephone certificates ;
- d) that, in particular, it may be desirable to modify the present categories of operator certificates ;

recommends

that administrations consider this problem and submit to the next Administrative Radio Conference proposals for the amendment of Article 23 taking into account the use of such new communication techniques

RECOMMENDATION No. 19

**Relating to International Co-ordination
in the Selection of an appropriate Frequency Band for the Development
of Air-Ground Public Correspondence Systems**

The Administrative Radio Conference, Geneva, 1959,

considering

- a) that there is not at present an adequate air-ground public correspondence system ;
- b) that such systems are specifically excluded by the Radio Regulations from operating in frequency bands allocated exclusively to the aeronautical mobile (R) service ;
- c) that some administrations are actively engaged in the development of such systems without the benefit of international co-ordination on the subject of the appropriate frequency bands for such development ;
- d) that, because of the international character of the aeronautical service, it is essential that international agreement be reached on the appropriate frequency bands ;
- e) that transmissions from aircraft may cause interference over considerable distances ;

recommends

1. that administrations now engaged, or planning to engage, in the development of an air-ground public correspondence system advise the International Frequency Registration Board of the relevant details of their planning so that the Board can advise all other administrations of the current trends in development ;
2. that administrations ensure, by frequency co-ordination or otherwise, that no interference is caused to the services of other countries by the operation of air-ground public correspondence systems.

RECOMMENDATION No. 20

Concerning the Matter of providing a Suitable Frequency Allocation for a Collision Avoidance System in the Aeronautical Radionavigation Service

The Administrative Radio Conference, Geneva, 1959,

considering

- a) the ever-increasing speed of modern aircraft and, taking into account that an adequate collision avoidance system providing a means of enhancing safety in the air has not been developed but is urgently required ;
- b) that if such a collision avoidance system, when developed, requires the use of radio frequencies, it should be accommodated in one of the frequency bands allocated to the aeronautical radionavigation service ;
- c) that it is impossible to forecast at this time whether the bands allocated to the aeronautical radionavigation service will prove to be suitable for such a system ;

recommends

that administrations and the International Civil Aviation Organization pay especial attention to the progress being made in developing a suitable collision avoidance system, noting that if radio frequencies are required, and if the bands allocated to the aeronautical radionavigation service are not suitable for such a system, international consideration of this matter will be necessary.

RECOMMENDATION No. 21

**Relating to Technical Provisions for Maritime Radiobeacons
in the African Area**

The Administrative Radio Conference, Geneva, 1959,

considering

the need to facilitate the planning for new maritime radio-beacons in the band 285 - 315 kc/s particularly in the neighbouring localities of the European and African areas,

recommends

that the administrations of the countries of the African area adopt provisions similar to those contained in the "Regional Arrangement for Maritime Radiobeacons in the European Area of Region 1", Paris, 1951.

RECOMMENDATION No. 22

**to the Inter-governmental Maritime Consultative Organization,
the International Civil Aviation Organization and to Administrations**

**Relating to an International Radiotelephone Code
for the Maritime Mobile Service**

(Abrogated by Resolution No. Mar 1)

RECOMMENDATION No. 23

**Recommendation to the Safety of Life at Sea Conference
relating to the Use of the Term “Emergency (Reserve)”**

(Abrogated by Resolution No. Mar 1)

RECOMMENDATION No. 24

**to the Governments Signatory to the
International Convention for the Safety of Life at Sea
Relating to the Adoption of a Radiotelephone Alarm Signal**

(Abrogated by Resolution No. Mar 1)

RECOMMENDATION No. 25

**to the International Conference on Safety of Life at Sea
Relating to Distress, Urgency and Safety Communications**

(Abrogated by Resolution No. Mar 1)

RECOMMENDATION No. 26

**Relating to a Re-Classification of International
Public Correspondence Categories of Ship Stations**

(Abrogated by Resolution No. Mar 1)

RECOMMENDATION No. 27

Relating to Hours of Service for Ship Stations

(Abrogated by Resolution No. Mar 1)

RECOMMENDATION No. 28

**Relating to the Use of Single Sideband Systems
by the Maritime Mobile Service**

(Abrogated by Resolution No. Mar 1)

RECOMMENDATION No. 29

Relating to the Pronunciation of Words in the Phonetic Alphabet

The Administrative Radio Conference, Geneva, 1959,

noting

- a) that agreement has been reached on a world-wide phonetic alphabet (see Appendix 16) ;
- b) that the pronunciation of the words in this alphabet may vary according to the language habits of the speakers ;
- c) that in order to minimise the wide variations in pronunciation, a record has been prepared by the International Civil Aviation Organization which gives the pronunciation desired of the words in the newly adopted phonetic alphabet ;
- d) that this record contains preambles in English, French and Spanish, and is readily available ;

considering

that a similar record would be very useful ;

recommends

1. that the Secretary General be instructed to make similar records available as one of the publications of the Union ;
2. that for this purpose the Secretary General may investigate the possibility of making use of records that already exist.

RECOMMENDATION No. 30

Relating to the Phonetic Figure Table

(Abrogated by Resolution No. Mar 1)

RECOMMENDATION No. 31

**Relating to the Protection of Standard Frequency
Guard-Bands for Use by Radio Astronomy**

The Administrative Radio Conference, Geneva, 1959,

considering

- a) that interference-free reception of standard frequency and time signals in the standard frequency bands centred on 2.5, 5, 10, 15, 20 and 25 Mc/s, allocated to the standard frequency service in the Table of Frequency Allocations, is of world-wide interest ;
- b) that these bands may be used most efficiently for the observation of cosmic radiations by radio astronomers only if they are free from appreciable energy due to emissions of services other than the standard frequency service ;
- c) that the bands 10 003-10 005 kc/s and 19 990-20 010 kc/s may be used for space research ;

recommends

that administrations take all practicable measures to safeguard the standard frequency bands from any harmful interference.

RECOMMENDATION No. 32

Relating to the Radio Astronomy Service

The Administrative Radio Conference, Geneva, 1959,

considering that

- a) recognition has now been given to the radio astronomy service in the Regulations, and that allocations to this service are included in the Table of Frequency Allocations ;
- b) the radio astronomy service is devoted to the reception of extremely low-level electromagnetic radiations of extra-terrestrial origin, and needs therefore to be protected from radiations of man-made origin, to the maximum degree practicable ;
- c) the radio astronomy service must compete for spectrum space with other existing and expanding radio services ;
- d) the ability of the radio astronomy service to share frequency bands with other radio services is limited ;
- e) in the case of many radio astronomy service installations it would be very difficult, once they were established, to change the frequency bands being observed or locations to avoid harmful interference ;
- f) the radio astronomy service should be assured a reasonable degree of stability in the frequency bands allocated to it, so as to permit long-term study programmes ;
- g) the desired protection for the radio astronomy service in many of the bands allocated for its use will be difficult to obtain and can be achieved only on a long-term basis ;
- h) the provisions of the new Table of Frequency Allocations do not meet fully the stated requirements of the radio astronomy service, particularly in Band 8 and the lower part of Band 9 ;

- i) it will assist administrations to protect the radio astronomy service if information is available showing the locations of the observatories, and those of the bands allocated in the Table of Frequency Allocations that are in use at each observatory ;

recommends that

1. administrations, when preparing for the next Administrative Radio Conference, should consider further the question of frequency allocations for the radio astronomy service ;

2. the possibility of making a firm allocation in the range 37–41 Mc/s be specially considered and that, in the meantime, when assigning frequencies to stations of other services, administrations should avoid, as far as practicable, the bands 38.0 ± 0.25 Mc/s or 40.68 ± 0.25 Mc/s, which are in use, or are proposed for use for radio astronomical observations in certain countries ;

3. administrations when drawing up frequency assignment plans should leave, as far as practicable, the band 606–614 Mc/s free for radio astronomical observations or should assign frequencies to stations of other services in this band in such a way as to afford the maximum practicable protection for the radio astronomy service ;

4. administrations should notify to the Secretary General the locations of observatories in their countries and those of the bands allocated in the Table of Frequency Allocations that are in use at each observatory ; and that the Secretary General should communicate this information to Members and Associate Members and

draws the attention of organizations concerned with radio astronomy to the following :

1. the relevant provisions of the Radio Regulations ;
2. the need to maintain close co-ordination with their national administrations on matters of frequency usage ;
3. the need to select, for observatories, sites that are as remote as possible from sources of radio interference.

RECOMMENDATION No. 33

Relating to the Meteorological Aids Service in the band 27.5-28 Mc/s

The Administrative Radio Conference, Geneva, 1959,

recommends

that administrations whose stations in the meteorological aids service operate in the band 27.5-28 Mc/s should arrange, as soon as possible, for the transfer of these operations to higher frequency bands which are allocated to the meteorological aids service ;

invites

the World Meteorological Organization to study this question and to proceed with such co-ordination among administrations as appears necessary.

RECOMMENDATION No. 34

**Relating to the Use of Radiotelegraph and Radiotelephone
Links by Red Cross Organizations**

The Administrative Radio Conference, Geneva, 1959,

considering

- a) that the world-wide relief work of the Red Cross Organizations is of increasing importance particularly in the event of disasters, catastrophes, etc. ;
- b) that in such circumstances normal communication facilities are frequently overloaded, damaged or even completely interrupted ;
- c) that it is necessary to facilitate by all possible measures the rapid intervention of the Red Cross, national and international ;
- d) that rapid and independent contact is essential to the intervention of the national Red Cross Societies (Red Crescent, Red Lion and Sun) ;
- e) that for international relief work it is necessary that the national Red Cross Societies involved be able to communicate with each other as well as with the International Committee of the Red Cross and the League of Red Cross Societies ;

recommends

1. that administrations take account of the possible need of the Red Cross for rapid communication by radio when normal communication facilities are disrupted ;
2. that administrations study the possibility of assigning, for this purpose, at the upper or lower limits of the amateur bands, one or more common frequencies to stations of the Red Cross.
3. that the next Administrative Radio Conference should consider whether any further action is necessary.

RECOMMENDATION No 35

Relating to the Practical Needs of Countries in Need of Special Assistance

The Administrative Radio Conference, Geneva, 1959,

recommends

1. that administrations of countries in need of special assistance should establish their own facilities for processing and adjusting quartz crystals, and obtain crystal-stabilized variable frequency oscillators to be employed as a temporary means of frequency control of their transmitters pending availability of crystals adjusted to precise operating frequencies. When assistance in this matter is requested, it should be provided through the appropriate technical assistance organs of the United Nations ;
2. that all administrations should make special efforts to co-operate with the administrations of countries in need of special assistance by furnishing monitoring information and such technical assistance as may aid these countries in obtaining proper frequency assignments for their operations ;

invites the International Frequency Registration Board

to provide administrations of countries in need of special assistance with the necessary information and technical data, including the detailed explanations of the Radio Regulations, which will permit these countries to choose and obtain proper frequency assignments for their operations.

RECOMMENDATION No. 36

Relating to the Convening of an Extraordinary Administrative Radio Conference to allocate Frequency Bands for Space Radiocommunication Purposes

The Administrative Radio Conference, Geneva, 1959,

considering

- a) that several delegations participating in the Administrative Radio Conference have proposed to allocate frequencies for space research purposes only on the basis of the research requirements for the next few years ;
- b) that the C.C.I.R. has already under study technical questions relating to radiocommunication with and between space vehicles ;
- c) that the Administrative Radio Conference has recommended to the C.C.I.R. that the identification and control of space vehicle emissions be questions for study by the C.C.I.R. ;
- d) that, until the results of some space research programmes are available, the extent to which space radiocommunication services and other radiocommunication services may share frequencies, without harmful interference, cannot accurately be assessed ;
- e) that additional research experience and the results of studies by the C.C.I.R., and other interested organizations, relating to space radiocommunications are essential before it will be feasible for the Union to take decisions on firm frequency allocations for space radiocommunication purposes ;

and bearing in mind

that the Union is the specialized agency in the field of telecommunications and that it is necessary for the Union to provide

adequate frequency allocations for all categories of space radio-communications as soon as the results of research and studies by the C.C.I.R. and other interested organizations make this possible ;

recommends

1. that an Extraordinary Administrative Radio Conference be convened, in principle during the latter part of 1963 with a duration of approximately one month and with an agenda which should include the following basic items :
 - 1.1 to examine the technical progress in the use of radio-communication for space research and the results of technical studies by the C.C.I.R. and other interested organizations ;
 - 1.2 to decide, in the light of this examination, on the allocation of frequency bands essential for the various categories of space radiocommunication ;
 - 1.3 to consider whether there is a continuing need for the allocation of certain frequencies for space research purposes and, if so, to take appropriate action in this regard ;
 - 1.4 to adopt, if such action is considered desirable, new provisions revising the Radio Regulations to provide for the identification and control of radio emissions from space vehicles, taking into account possible Recommendations of the C.C.I.R. ;
2. that the Administrative Council review the situation during its 1962 and 1963 ordinary sessions on the basis of information received from Members and Associate Members of the Union, the C.C.I.R. and other interested organizations. Should the Administrative Council decide that there is sufficient justification for the convening of the Extraordinary Administrative Radio Conference in 1963, it shall recommend to Members and Associate Members of the Union the date and place for the Conference and its Agenda ;

and invites

those Members and Associate Members of the Union which launch satellites during the period of space research before the convening of the Extraordinary Administrative Radio Conference referred to above, to keep the Administrative Council, and the relevant technical organs of the Union, informed of the frequencies used and the technical progress achieved in the use of radio-communication for space research purposes.

RECOMMENDATION No. 37
(See Resolution No. 3)

**Relating to a Study by a Panel of Experts of Measures
to Reduce Congestion in the Bands between 4 and 27.5 Mc/s**

The Administrative Radio Conference, Geneva, 1959,

noting

- a) the trend towards congestion in the bands between 4 and 27.5 Mc/s ;
- b) the need to adopt new policies for the solution of the frequency problems confronting administrations in the use of these bands ;

realizing

- a) that, before administrations will be willing to undertake a programme to relieve congestion in the bands between 4 and 27.5 Mc/s, they will require a clear statement of the issues involved and of the measures that need to be taken ;
- b) that the ability of administrations to undertake such a programme is intimately linked to the financial implications involved ;

considers

- a) that the first step in the direction of reform should be a review of possibilities before taking the necessary policy decisions ;
- b) that this could best be done by a Panel of Experts convened for the sole purpose of devising ways and means of relieving the pressure on the bands concerned ;

recommends

1. that a Panel of Experts should be convened for the sole purpose of devising ways and means to relieve the pressure on the bands between 4 and 27.5 Mc/s. This Panel should prepare a report on its work which should be submitted with a detailed and specific agenda which, when approved by the Administrative Council, would be the agenda for whatever body is to consider the policy decisions necessary to relieve the pressure on these bands ;
2. that the Panel meet in Geneva for a period of approximately 30 days in 1961 and approximately 30 days in 1962 ;
3. that each administration making one or more experts available be invited to make suitable arrangements for payment of the salaries of such experts ; these salaries shall not be a charge to the Union.

RECOMMENDATION No. Spa 1

Relating to the Calculation of Co-ordination Distance for Earth Stations

The Extraordinary Administrative Radio Conference, Geneva, 1963,

considering

- a) that Article 9A requires frequency assignments for earth stations in certain shared frequency bands to be co-ordinated with fixed or mobile services, in order to avoid mutual harmful interference;
- b) that, in any direction from an earth station there is a distance beyond which the possibility that the use of a given transmitting frequency at that earth station will cause harmful interference to reception by a station in the fixed or mobile service may be regarded as negligible: this is the co-ordination distance in that direction;
- c) that, in any direction from an earth station there is a distance beyond which the possibility that the use of a given transmitting frequency at a fixed or mobile station will cause harmful interference to reception at that earth station may be regarded as negligible: this is the co-ordination distance in that direction;
- d) that a simple procedure is required to enable administrations to calculate the co-ordination distance from an earth station according to its location and characteristics;

noting

that the Recommendations and Reports of the C.C.I.R. Xth Plenary Assembly provide a technical basis for the calculation of co-ordination distance which is provisional and subject to further study by the C.C.I.R.;

recommends

that the procedure set out in the Annex to this Recommendation should be used to determine co-ordination distances until such time as the C.C.I.R. may recommend a procedure to be used for this purpose;

and invites the C.C.I.R.

to study the question of co-ordination distance and, as soon as improved calculation methods and more accurate propagation data become available, to make suitable Recommendations to replace the procedure set out in the Annex to this Recommendation.

ANNEX TO RECOMMENDATION No. Spa 1

**Procedure for Calculating Co-ordination Distance between
Earth Stations and Terrestrial Stations sharing
the Same Frequency Band in the Range 1-10 Gc/s****1. Objectives**

Co-ordination is required when earth stations and terrestrial stations operate in shared frequency bands with equal rights. In specific circumstances, co-ordination may involve more than two administrations, depending upon the siting of the stations and the co-ordination distances involved. The co-ordination area around an earth station is arrived at by ascertaining the co-ordination distance measured in the various azimuths from that station.

For the calculation of co-ordination distance three separate cases must be considered:

a) interference from an earth station transmitter to terrestrial station receivers;

b) interference from terrestrial station transmitters to a communication-satellite or meteorological-satellite earth station receiver;

c) interference from terrestrial station transmitters to a space research earth station receiver.

In the case of *a)* it has been assumed, for the purpose of calculation, that the terrestrial receiving station is a line-of-sight radio-relay station designed according to C.C.I.R. Recommendations. In the case of *b)* it has been assumed, for both applications, that the earth station forms a part of a communication-satellite system. Further, in order to ensure that a safe value of co-ordination distance shall be obtained, it has been assumed that in all cases the receiving station antenna is of typically high gain. For the same reason, in all cases, appropriately low-noise sensitive receivers are assumed.

2. Minimum Permissible Basic Transmission Loss (L_b)

The general formula for calculating the required minimum permissible basic transmission loss is:

$$L_b = (P_t + G_t) - F_s - (P_r - G_r) \quad (1)$$

where P_t is the power in dbW supplied by the interfering transmitter to the transmission line input,

G_t is the isotropic gain in db of the transmitting antenna of the interfering station effective in the direction of the receiving station liable to interference, including the effect of all feeder losses, and losses due to any artificial screens,

F_s is the earth station site-shielding factor in db (see Section 5),

P_r is the maximum permissible interference level in dbW at the receiver input of the receiving station,

G_r is the isotropic gain in db of the antenna of the receiving station effective in the direction of the interfering transmitter, less feeder loss and polarization discrimination if applicable.

When considering interference to telephone transmission systems, particularly in the case of systems using frequency modulation, it is convenient to operate in terms of the power densities in any 4 kc/s bandwidth. Therefore, in the case of interference from an earth station transmitter to terrestrial radio-relay systems, P_t is taken as the maximum power density in any 4 kc/s bandwidth supplied by the earth station transmitter to the transmission line input, and similarly P_r is the maximum permissible power density for any 4 kc/s bandwidth at the receiver input.

When considering interference from a terrestrial transmitter to an earth station receiver, it is more convenient to consider P_t and P_r of (1) as total powers rather than power densities.

It is assumed in calculating co-ordination distances for cases *a)* and *b)* of Section 1 that the communication-satellite system is employing carrier energy dispersal techniques when lightly loaded.

3. Calculation of Minimum Permissible Basic Transmission Loss

In any direction from the transmitting station, the required minimum value of permissible basic transmission loss (L_b) is obtained from the following Tables 1, 2 and 3.

TABLE 1

Interference from a Communication-Satellite Earth Station Transmitter to a Terrestrial Line-of-Sight Radio-Relay System

	Percentage of time	Values to be assumed for co-ordination
Permissible total interference in any telephone channel	0.01 %	-40 dbm0
Permissible interference from one earth station to one radio-relay system receiver, assuming four such non-simultaneous interference entries	0.0025 %	-40 dbm0
Receiver transfer characteristic assuming carrier energy dispersion to distribute interference uniformly over at least 300 kc/s bandwidth	—	1 db * (light loading worst case)
Hence, maximum value of unwanted-to-wanted signal ratio at the receiver input	0.0025 %	-39 db
Minimum level of wanted signal at receiver input	—	-74 dbW *
Hence, permissible level of unwanted signal at receiver input, assuming carrier energy dispersion as above	0.0025 %	-113 dbW
Factor for conversion of interference bandwidth to 4 kc/s from 300 kc/s	—	-19 db
Hence, permissible level of unwanted signal at receiver input in any 4 kc/s bandwidth	0.0025 %	-132 dbW (per 4 kc/s)
Isotropic gain of radio-relay station antenna less feeder losses (Note 1)	—	42 db

* These figures are taken from an example of a 960-channel line-of-sight radio-relay system but the maximum permissible unwanted signal level of -113 dbW is almost independent of the number of channels carried.

	Percentage of time	Values to be assumed for co-ordination
Isotropic gain of earth station antenna effective in the horizontal plane less feeder and polarization losses (Note 2)	2.5%	G_{earth} db
Power supplied by earth station transmitter to the transmission line input per 4 kc/s bandwidth	—	P_{earth} dbW
Earth station site-shielding factor if applicable	—	F_s db
Minimum permissible basic transmission loss, L_b (in decibels)	0.1%	$P_{earth} + G_{earth} - F_s + 174$

Note 1 The value of 42 db, given in Table 1, should be used unless it is known that the terrestrial station receiving antenna gain is greater than 42 db, in which case the higher value may be used.

Note 2 For simplicity, the appropriate value of G_{earth} to be used shall be the maximum value obtained in the horizontal plane in the pertinent azimuthal direction rather than the value exceeded for 2.5% of the time. However, when site-shielding is allowed, the value to be used shall be that maximum value obtaining at the angle of elevation of the screening obstacle.

TABLE 2

Interference from a Terrestrial Line-of-Sight Radio-Relay Transmitter to a Communication-Satellite Earth Station Receiver

	Percentage of time	Values to be assumed for co-ordination
Permissible total interference in any telephone channel	0.02%	-38 dbm0
Permissible interference from one terrestrial station to one earth station, assuming four such non-simultaneous interference entries	0.005%	-38 dbm0
Receiver transfer characteristic assuming carrier energy dispersion of the wanted signal	—	10 db *
Hence, maximum value of unwanted-to-wanted signal ratio at the receiver input	0.005%	-28 db
Minimum level of wanted signal at receiver input	—	-117 dbW *
Hence, permissible level of unwanted signal at receiver input	0.005%	-145 dbW
Isotropic gain of earth station antenna effective in the horizontal plane (Note 1)	5%	G_{earth} db
Isotropic gain of radio-relay station antenna less feeder loss	—	$G_{terr.}$ db
Earth station site-shielding factor if applicable	—	F_s db
Power supplied by terrestrial station transmitter to the transmission line input	—	$P_{terr.}$ dbW
Minimum permissible basic transmission loss, L_b (in decibels) (Note 2)	0.1%	$P_{terr.} + G_{terr.} - F_s + G_{earth} + 145$

* These figures are taken from an example of a 1200-channel communication-satellite system but the maximum permissible unwanted signal level of -145 dbW is almost independent of the number of channels carried.

Note 1 For simplicity, the appropriate value of G_{earth} to be used shall be that maximum value obtained in the horizontal plane in the pertinent azimuthal direction rather than the value exceeded for 5% of the time. However, when site-shielding is allowed, the value to be used shall be that maximum value obtaining at the angle of elevation of the screening obstacle.

Note 2 The application of co-ordination procedures for frequency sharing of this type involves the preparation, by the administration desiring to set up an earth station, of equal-power contours of co-ordination distance in the various azimuthal directions for several discrete levels of radiated power from the terrestrial station.

TABLE 3

**Interference from a Terrestrial Transmitter to a
Space Research Earth Station Receiver**

	Percentage of time	Values to be assumed for co-ordination
Permissible interference in any bandwidth of 1 c/s at receiver input (Note 1)	0.1%	-220 dbW
Permissible interference in any bandwidth of 10 kc/s at receiver input (Note 2)	0.1%	-180 dbW
Isotropic gain of earth station antenna effective in the horizontal plane (Note 3)	10%	G_{earth} db
Isotropic gain of radio-relay station antenna less feeder losses	—	$G_{terr.}$ db
Earth station site-shielding factor if applicable	—	F_g db
Power supplied by terrestrial station transmitter to the transmission line input	—	$P_{terr.}$ dbW
Minimum permissible basic transmission loss, L_b , in decibels	1.0%	$P_{terr.} + G_{terr.} - F_g + G_{earth} + 180$
Factor to convert from use of 1.0% to 0.1% transmission loss curves (Note 4)	—	15 db
Minimum permissible basic transmission loss, L_b , in decibels	0.1%	$P_{terr.} + G_{terr.} - F_g + G_{earth} + 165$

Note 1 A comparison of the C.C.I.R. criteria for near-earth, deep-space and manned-space research indicates that the permissible levels of interference at the receiver input are substantially the same.

Note 2 Measurements on terrestrial station emissions indicate that the minimum occupied bandwidth under no-load conditions is of the order of at least 10 kc/s.

Note 3 In order to meet the 0.1% time criteria for which the -220 dbW per cycle per second is permitted, the combination of earth station antenna gain, G_{earth} , in the horizontal plane and pertinent azimuthal direction, exceeded for 10% of the time and the basic transmission loss, L_b , exceeded for 1.0% of the time, is taken as an appropriate combination.

Note 4 From available propagation curves it is noted that $L_b(1\%) - L_b(0.1\%)$ over a range of typical co-ordination distances is about 10 db overland (Zone A) and 15 db oversea (Zones B and C). The conversion ratio of 15 db was selected to permit the use of the 0.1% transmission loss curves employed in connection with Tables 1 and 2.

4. Summary

The formulae giving the required basic transmission loss in db (L_b) not to be exceeded for 0.1% of the time are summarized below:

- (1) For co-ordination between an earth transmitting station and terrestrial receiving stations:

$$L_b = P_{earth} + G_{earth}^1 - F_s + 174$$

- (2) For co-ordination between terrestrial transmitting stations and a communication-satellite or meteorological-satellite earth receiving station:

$$L_b = P_{terr.} + G_{terr.} - F_s + G_{earth}^2 + 145$$

- (3) For co-ordination between terrestrial transmitting stations and a space research earth receiving station:

$$L_b = P_{terr.} + G_{terr.} - F_s + G_{earth}^3 + 165$$

¹ See Note 2 of Table 1.

² See Note 1 of Table 2.

³ See Note 3 of Table 3.

5. Site-Shielding Factor

In cases where earth stations are sited below the level of surrounding or nearby terrain it is necessary to adopt the following procedure. Thus, if, in a given azimuthal direction, an obstacle provides an angle of elevation, θ , to the earth station then—for that azimuthal direction—it is necessary, in calculating co-ordination distance, to employ the maximum earth station antenna gain at the angle of elevation, θ , rather than the maximum gain along the horizontal.

As previously discussed, where site-shielding applies, the value of required basic transmission loss, L_b , may be reduced by a site-shielding factor, F_s , expressed in decibels. The following values of site-shielding factor shall apply when the obstacle limiting the angle of elevation is situated more than 5 kilometres away from the earth station.

Minimum angle of elevation, θ , of obstacle, as seen from earth station	Allowable value of site-shielding factor, F_s , in decibels
below 1°	0
between 1° and 2°	5
between 2° and 3°	8
between 3° and 4°	11
between 4° and 5°	13
more than 5°	15

In the case of nearer obstacles, the values of site-shielding factor which apply may be obtained by multiplying the tabulated values by the fraction $d/5$, where d is the distance from the earth station to the obstacle in kilometres.

The values of site-shielding factor quoted here shall be used with caution where terrestrial stations may be located, within co-ordination distance, at sites which are substantially above the horizontal plane passing through the earth station.

6. Equivalent Basic Transmission Loss at 4 Gc/s (L'_b)

The propagation data considered in the next paragraph relate to the frequency of 4 Gc/s and it is therefore in general necessary to convert the minimum permissible basic transmission loss (L_b) into an equivalent loss at 4 Gc/s (L'_b) before using these data to find the co-ordination distance. The equivalent loss in decibels at 4 Gc/s is given by:

$$L'_b = L_b + 13 - 21.6 \log_{10} f$$

where f is the assigned frequency in Gc/s. This relationship is shown in Figure 1.

7. World Radio-Climatic Conditions and Propagation Data

The propagation curves of Figure 2 are labelled Zone A, Zone B, and Zone C, and correspond to the various basic radio-climatic regions of the world as follows:—

Zone A: Land

Zone B: Sea, at latitudes greater than
23.5° N and 23.5° S

Zone C: Sea, at latitudes between
23.5° N and 23.5° S inclusive.

In any direction from the earth station the required co-ordination distance is found as follows:

- a) if the equivalent basic transmission loss L'_b is such that the co-ordination distance in the given direction lies wholly within one of the zones, the co-ordination distance may be obtained directly from Figure 2 using the appropriate curve;
- b) if the co-ordination distance lies partly in one zone and partly in another, the curves for mixed paths, Figures 3, 4 and 5, should be used. These curves show the loss L'_b as a function of the path length in each of the two zones separately. Thus, if the path length in one zone and the required loss are known, the path length in the other zone can be determined. The path length in the first zone is the known distance from the

earth station to the zone boundary in the direction concerned, hence the further length in the second zone can be found. The total path length, or co-ordination distance, is the sum of these two path lengths. Figures 3, 4 and 5 cover all cases of mixed paths in two zones as follows:

Fig. 3: Zones A and B,

Fig. 4: Zones A and C,

Fig. 5: Zones B and C.

An example of the co-ordination distance calculation for a mixed path is worked out in the Appendix;

- c) in certain geographical areas where propagation losses are known to be less than the values given by the pertinent zonal propagation curves, co-ordination distances should be calculated on the basis of the known propagation data.

APPENDIX

Example of Co-ordination Distance Calculation for a Mixed Path

The procedure to be followed in the case of a mixed path is illustrated by the following example, in which it is assumed that a basic transmission loss of 190 db is required to avoid interference from an earth station to terrestrial services in a given direction.

As shown in Figure 6A, the earth station is situated 50 km from the coast and there is an oversea path of 150 km before the coastline of a neighbouring country is reached. It is required to find the co-ordination distance from the earth station in the given direction using the mixed paths propagation chart represented by Figure 6B. The procedure is as follows:

1. Starting from the origin, the distance of 50 km from the earth station to the coastline is set off along the A axis of the chart as indicated by the point A_1 .
2. The oversea path length of 150 km is then set off parallel to the B axis of the chart as indicated by the point B_1 .
3. The further overland distance required is then measured parallel to the A axis from the point B_1 to the point of intersection with the 190 db curve, as indicated by X. This distance is found to be 90 km.
4. The co-ordination distance is the sum of the A and B co-ordinates of the point X and is equal to $50 + 150 + 90 = 290$ km.

FIGURE 1

Correction Factor to be Added to the Required Loss L_b at Frequency f to Obtain the Equivalent Loss L'_b at 4 Gc/s

$$L'_b = L_b + \text{correction factor}$$

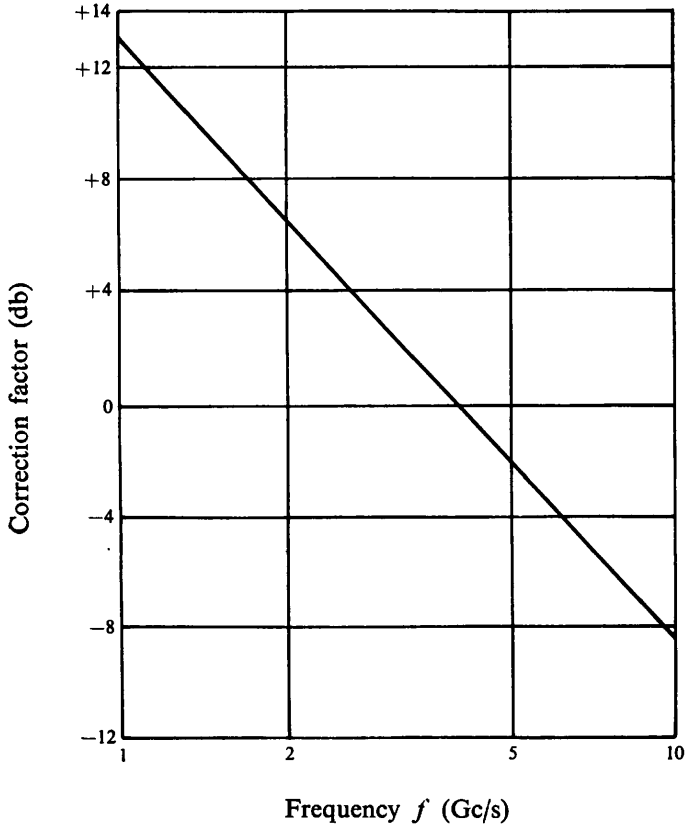


FIGURE 2

Simplified Tropospheric Propagation Curves for Calculation of Co-ordination Distance.

Basic Transmission Loss not Exceeded for 0.1% of the Time at 4 Gc/s

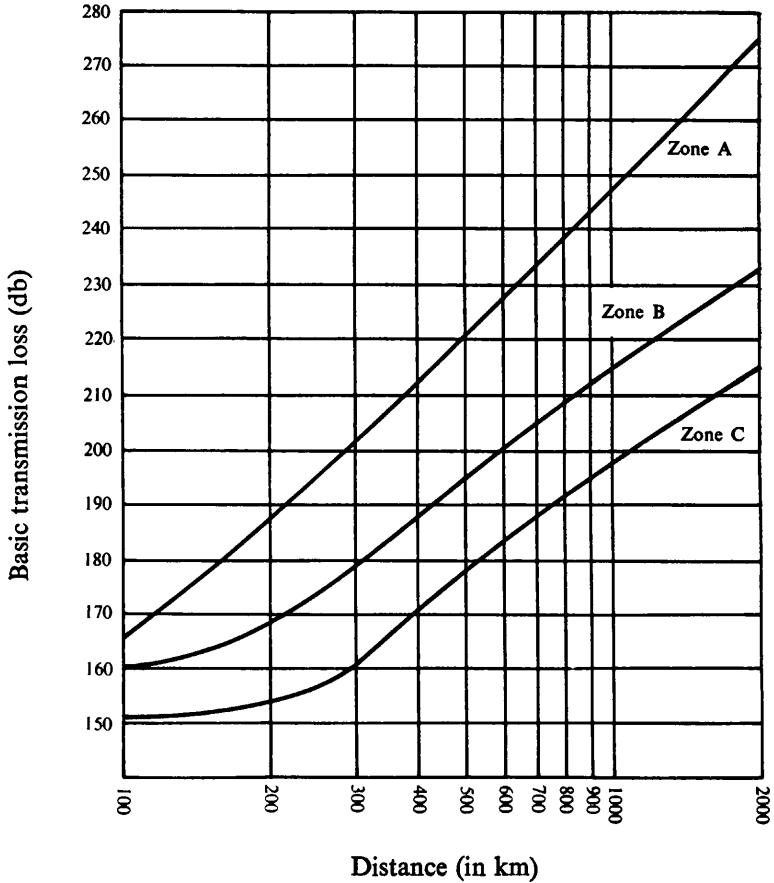


FIGURE 3

**Chart for Co-ordination Distance Calculations
Mixed Paths in Zones A and B**

Basic transmission loss not exceeded for 0.1% of the time at 4 Gc/s, L'_b (db)

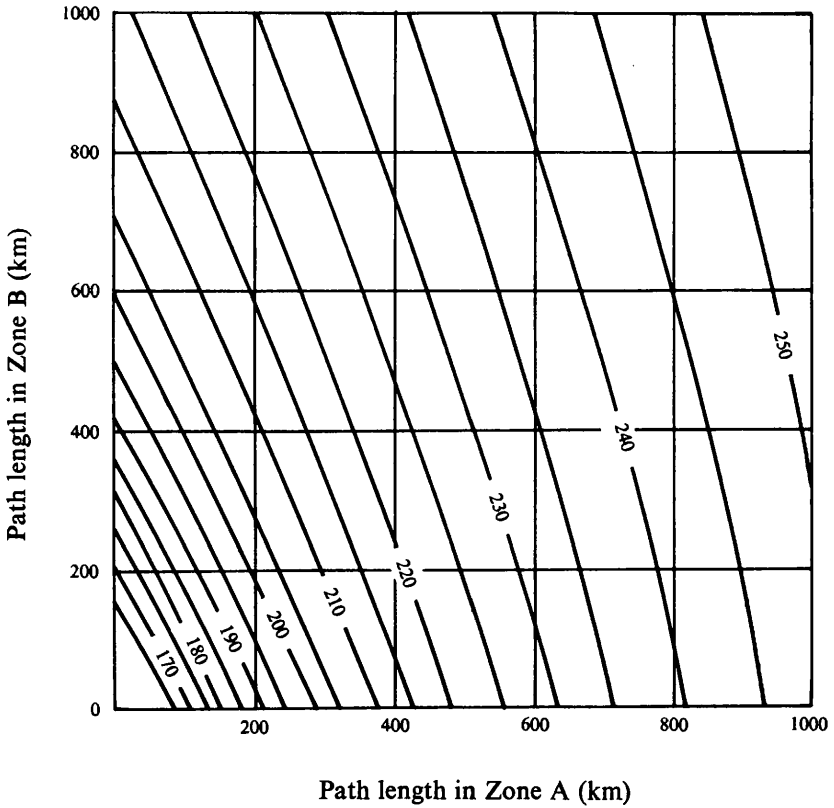


FIGURE 4

**Chart for Co-ordination Distance Calculations
Mixed Paths in Zones A and C**

Basic transmission loss not exceeded for 0.1% of the time at 4 Gc/s, L'_b (db)

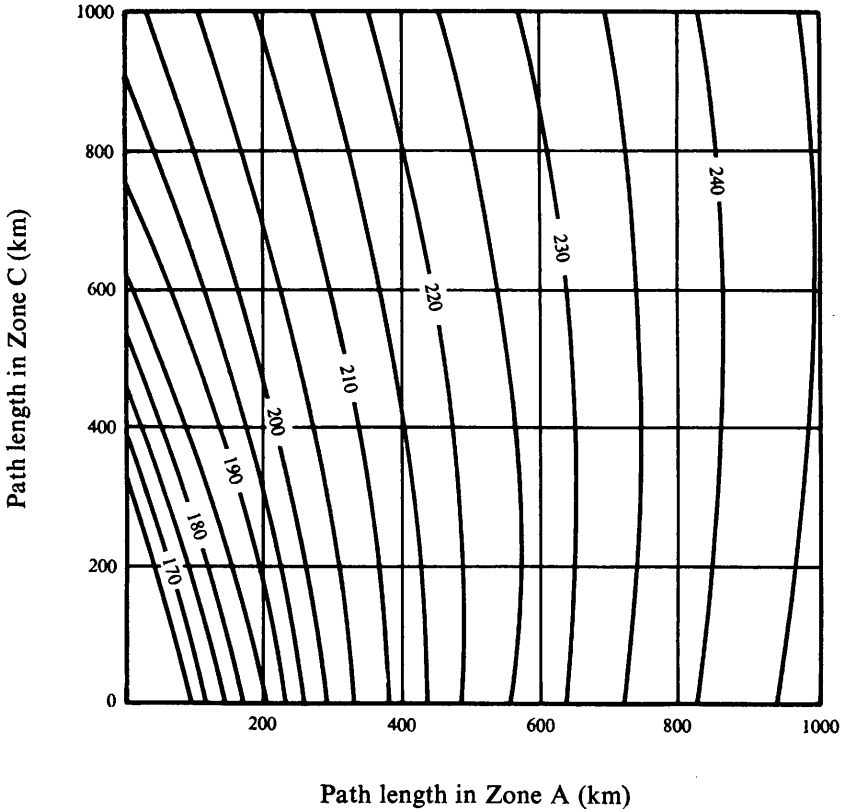


FIGURE 5

**Chart for Co-ordination Distance Calculations
Mixed Paths in Zones B and C**

Basic transmission loss not exceeded for 0.1% of the time at 4 Gc/s, L'_b (db)

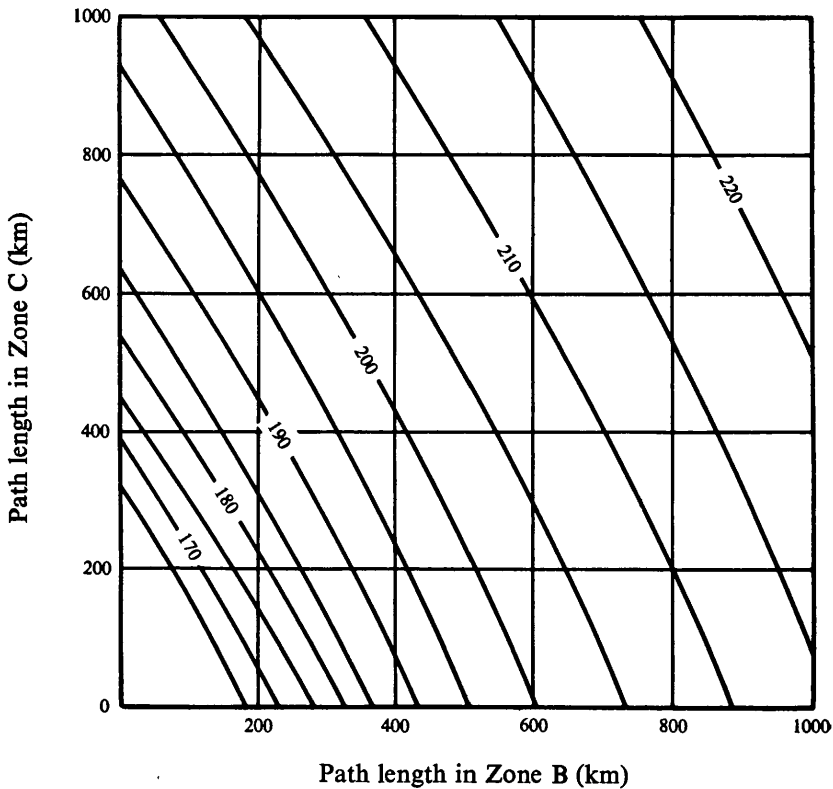


FIGURE 6

Example of Co-ordination Distance Calculation for Mixed Paths

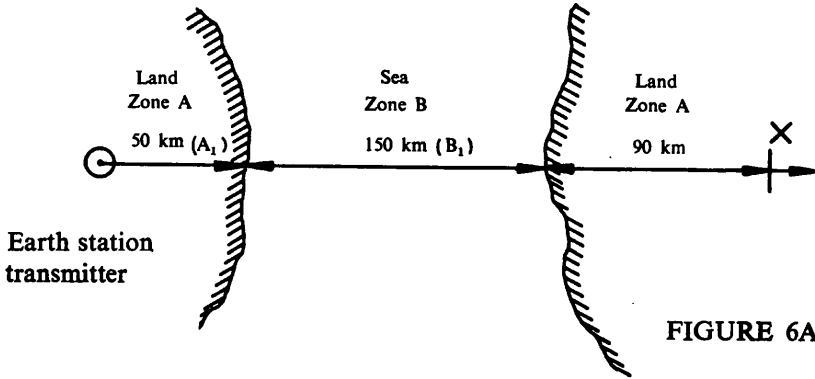


FIGURE 6A

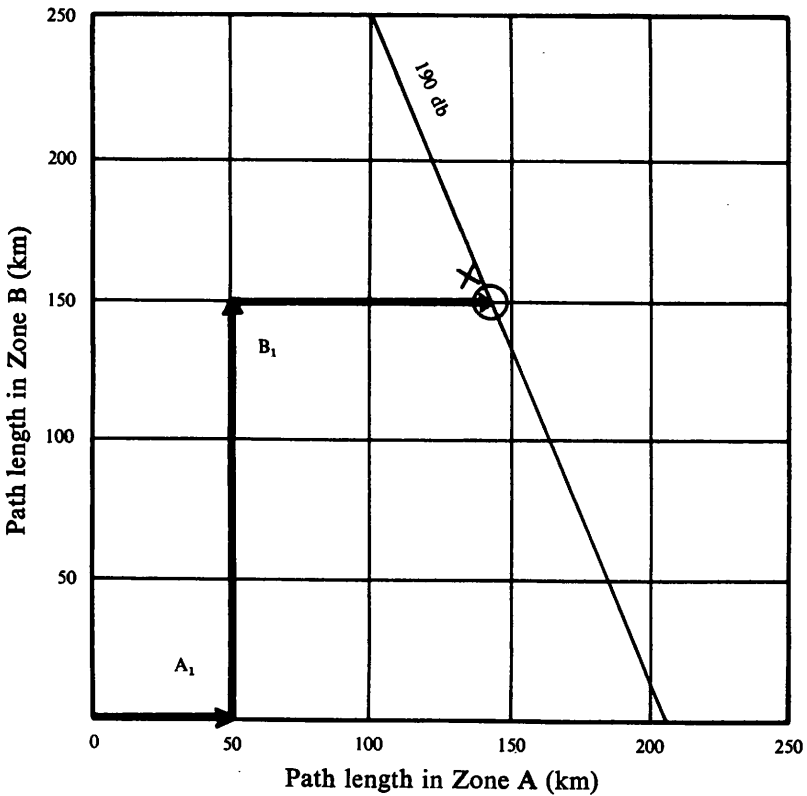


FIGURE 6B

RECOMMENDATION No. Spa 2

**to the C.C.I.R. and to Administrations Relating to the
Calculation of the Probability of Interference between Stations
within Co-ordination Distance**

The Extraordinary Administrative Radio Conference, Geneva, 1963,

considering

- a) that the technical basis for sharing the frequency bands between terrestrial services and space services is based inter alia on geographical separation between the stations of these two types of services;
- b) that the Final Acts of this Conference refer to the process of co-ordination between administrations, the later stages of which will involve the calculation of the probability of interference between stations of the two services;
- c) that such calculations will require a knowledge of the system parameters of the terrestrial and space services involved and a knowledge of the propagation characteristics in the appropriate geographical areas;
- d) that a concise presentation in readily usable form of the appropriate values of the factors governing interference between a variety of typical systems in the terrestrial and space services would be helpful in the implementation of the co-ordination procedures laid down in the Final Acts of this Conference;

noting

- a) that the C.C.I.R., through its various Study Groups, particularly Study Groups Nos. IV, V and IX, is engaged in the active study of the various parameters which influence the sharing of frequency bands by the terrestrial services and the space services;
- b) that, nevertheless, the data available at present from the C.C.I.R. do not make it possible for this Conference to lay down sufficiently precise and detailed methods for calculating in all cases the probability of harmful interference between stations of the two services;

invites administrations

during the period preceding the XIth Plenary Assembly of the C.C.I.R. to submit contributions concerning:

1. the essential steps to be taken in the calculation of the probability of interference between stations of the two services;
2. the values of those factors which govern interference between the stations of typical terrestrial and space systems;

and invites the C.C.I.R.

during the XIth Plenary Assembly, and in the light of contributions submitted under 1 and 2, to decide the most appropriate form, for example a separate manual, in which the material adopted should be published.

RECOMMENDATION No. Spa 3

**to the C.C.I.R. and to Administrations
Relating to Frequency Bands shared between Space and Terrestrial Services**

The Extraordinary Administrative Radio Conference, Geneva, 1963,
recognizing

- a) the value to the Conference of the material contained in Document No. 1 (results of C.C.I.R. studies relating to space telecommunications concluded at its Xth Plenary Assembly);
- b) that further studies on a wide range of problems dealing with space communications form the subject of C.C.I.R. Questions and Study Programmes approved by the Xth Plenary Assembly;

considering however

- a) that certain of the C.C.I.R. Recommendations, listed below, are provisional and call for further work and study before they can become definite:

Recommendation 355 “ ACTIVE COMMUNICATION-SATELLITE SYSTEMS
—Feasibility of sharing frequency bands with
terrestrial radio services.”

Recommendation 356 “ COMMUNICATION-SATELLITE SYSTEMS SHARING
THE SAME FREQUENCY BANDS AS LINE-OF-SIGHT
RADIO-RELAY SYSTEMS—Maximum allowable
values of interference in a telephone channel
of a communication-satellite system.”

Recommendation 357 “ COMMUNICATION-SATELLITE SYSTEMS SHARING
FREQUENCY BANDS WITH LINE-OF-SIGHT RADIO-
RELAY SYSTEMS—Maximum allowable values

of interference in a telephone channel of a radio-relay system.”

Recommendation 358

“ COMMUNICATION-SATELLITE SYSTEMS SHARING THE SAME FREQUENCY BANDS AS LINE-OF-SIGHT RADIO-RELAY SYSTEMS—Maximum allowable values of power flux density at the surface of the Earth produced by communication satellites.”

Recommendation 406

“ LINE-OF-SIGHT RADIO-RELAY SYSTEMS SHARING THE SAME FREQUENCY BANDS AS THE SATELLITE RECEIVERS OF ACTIVE EARTH-SATELLITE COMMUNICATION SYSTEMS— Maximum effective radiated powers of line-of-sight radio-relay system transmitters.”

b) that as a result of the deliberations of this Conference, particularly in relation to the provisions of Article 7, Sections VII, VIII and IX, and to the Annex to Recommendation No. Spal, further information is required in reply to the following Questions and Study Programmes already set for study by the C.C.I.R.:

Question 235 (IV)

“ TECHNICAL CHARACTERISTICS OF COMMUNICATION-SATELLITE SYSTEMS ”

under Decides 4:

Particularly,

- a)* the need for, and application of, maximum limits of power to earth stations and terrestrial stations in shared bands (cf. Regulations **470B** and **470G**),
- b)* the need for, and application of, escalation clauses on such power limits to permit the use

of higher powers in certain cases, when stations are situated at substantial distances from the boundary of neighbouring administrations (cf. Regulation 470H);

under Decides 5: Particularly, as it may affect the co-ordination of frequency assignments for earth stations (cf. Articles 9 and 9A);

Study Programme 235A (IV) “ FEASIBILITY OF FREQUENCY SHARING BETWEEN COMMUNICATION-SATELLITE SYSTEMS AND TERRESTRIAL RADIO SERVICES ”

under Decides 1: Particularly, the values which should be allowed for site-shielding factors,
 a) in the application of power limits (cf. Regulation 470G, footnote 1),
 b) in the calculation of co-ordination distance (cf. Recommendation No.Spa1);

under Decides 3: Particularly, the minimum angle of elevation which should be employed by earth station antennae, taking account of tropospheric effects (cf. Regulation 470L);

under Decides 5: Power flux density limits for communication-satellite space stations in bands shared with terrestrial services (cf. Regulations 470O and 470P);

under Decides 6: Particularly, as it concerns the selection of sites and frequencies for terrestrial stations and earth stations operating in shared frequency bands (cf. Regulations 470A and 470E);

Question 236 (IV)

“ SHARING OF RADIO FREQUENCY BANDS BY LINKS BETWEEN EARTH STATION AND SPACECRAFT ”

under Decides 2:

a) Particularly, sharing between space services and terrestrial services other than line-of-sight radio-relay systems, and

b) power flux density limits for space stations of the meteorological-satellite service, the radionavigation-satellite service and the space research service, in bands shared with terrestrial services (cf. Regulations 470S and 470T);

New aspect:

Feasibility of sharing frequency bands, and the necessary sharing criteria, in bands below 1 Gc/s and above 10 Gc/s;

Question 237 (IV)

“ TECHNICAL CHARACTERISTICS OF LINKS BETWEEN EARTH STATIONS AND SPACECRAFT ”

under Decides 1, 2, 3 and 4:

Particularly the sharing of frequency bands between telecommand, telemetry, tracking or data transmissions of the space services and terrestrial services;

Question 242 (IV)

“ TECHNICAL CHARACTERISTICS OF RADIONAVIGATION-SATELLITE SYSTEMS ”

under Decides 3:

Feasibility of sharing frequency bands with other services, and relevant sharing criteria;

Study Programme 243A (IV)

“ RADIO-COMMUNICATION ASPECTS OF METEOROLOGICAL-SATELLITE SYSTEMS ”

under Decides 3:

Particularly, feasibility of sharing frequency bands with other services, and relevant sharing criteria;

Question 244 (IV) " RADIOASTRONOMY "

under Decides 2.1: Acceptable levels of harmful interference;

Study Programme 188 (V) " INFLUENCE OF IRREGULAR TERRAIN ON TROPO-
SPHERIC PROPAGATION "

Particularly the application of site-shielding factors (cf. Regulation 470G, footnote 1, and Recommendation No. Spa 1);

Study Programme 190 (V) " TROPOSPHERIC PROPAGATION FACTORS AF-
FECTING THE SHARING OF THE RADIO-FREQUENCY
(See also *Study*
Programmes 185A (V) SPECTRUM BETWEEN RADIO-RELAY SYSTEMS, IN-
and 185B (V) CLUDING SPACE AND TERRESTRIAL TELECOM-
MUNICATIONS SYSTEMS "

under Decides 3: Particularly, the provision of more precise data on the minimum values of transmission loss occurring, under various climatic conditions, for very short periods of time (e.g. 1%, 0.1%), for overland, oversea, and mixed land/sea paths;

under Decides 5: Particularly, the effects of reflections from rain, hail, cloud and aircraft in producing interference at long distances especially when using antennae with extremely narrow beam-widths;

recommends

1. that all administrations and recognized private operating agencies, through their participation in the work of the C.C.I.R., consider, as a matter of priority, the submission of contributions on these subjects, so that definite Recommendations can be prepared at the Interim Meetings of the relevant Study Group for adoption by the XIth Plenary Assembly of the C.C.I.R.;
2. that the C.C.I.R. should study:

2.1. the permissible interference criteria for the various space and terrestrial services sharing the frequency bands allocated by the E.A.R.C., Geneva, 1963, in order to permit the determination of:

2.1.1 the co-ordination distance and the probability of interference between stations within that distance;

2.1.2 the necessary limits of power flux density set up at the earth's surface by space stations;

2.2. the necessary limitation of spurious emissions and the frequency tolerances to be observed in both the terrestrial and space services insofar as they may affect sharing of frequency bands.

RECOMMENDATION No. Spa 4

**to the C.C.I.R. Relating to the
Study of Modulation Methods for Radio-Relay Systems
in Relation to Sharing with Communication-Satellite Systems**

The Extraordinary Administrative Radio Conference, Geneva, 1963,

considering

- a)* that Article 5 of the Radio Regulations permits the sharing of certain frequency bands by the communication-satellite service and the fixed service;
- b)* that the sharing criteria to avoid mutual interference between the stations in these two services have been established in Article 7;
- c)* that among many factors of over-all efficiency of utilization of frequency bands it seems that the reduction of interference between two services is most important;

noting

- a)* that the over-all efficiency of utilization of the frequency bands shared by the two services depends on the methods of modulation used by the systems concerned;
- b)* that studies of the preferred modulation characteristics for communication-satellite systems are to be carried out under Study Programme 235D (IV) of the C.C.I.R.;

recommends

that the C.C.I.R. should study especially, under the general framework of Question 236 (IV), modulation methods (such as pulse-code modulation using phase or frequency modulation) in particular for line-of-sight radio-relay systems in relation to sharing with communication-satellite systems.

RECOMMENDATION No. Spa 5

to the C.C.I.R. Relating to the Broadcasting-Satellite Service

The Extraordinary Administrative Radio Conference, Geneva, 1963,

considering

- a)* that the use of satellite transmissions for direct reception by the general public of sound and television broadcasts may be possible in the future;
- b)* that the C.C.I.R. is studying the technical feasibility of sound and television broadcasting from satellites, the technically suitable frequency bands for such a service, including the possibility of sharing with terrestrial services;

recommends

that the C.C.I.R. expedite its studies and make early recommendations on Question 241 (IV), Geneva, 1963, in particular, regarding those parts of the question relating to the technical feasibility of broadcasting from satellites, the optimum technical characteristics of the systems to be used, what bands would be technically suitable and whether and under what conditions those bands could be shared between the broadcasting-satellite and terrestrial services.

RECOMMENDATION No. Spa 6

**Relating to the Frequency Requirements in the HF Bands Exclusively
Allocated to the Aeronautical Mobile (R) Service**

The Extraordinary Administrative Radio Conference, Geneva, 1963,

considering

a) that for the safety of all aircraft it is essential to provide communications for routine flight of transport air-space vehicles intended to fly between points on the earth's surface both within and beyond the major part of the atmosphere;

b) that frequencies in the HF bands (between 2 850 and 22 000 kc/s) are technically suitable for such communications as well as those frequencies above 100 Mc/s now available to the aeronautical mobile (R) service;

recommends

that at the Extraordinary Administrative Radio Conference to be called to revise Appendix 26 to the Radio Regulations in accordance with Resolution No. 13 of the Administrative Radio Conference, Geneva, 1959, the necessary measures be taken to provide the high-frequency channels required for this purpose.

RECOMMENDATION No. Spa 7

**Relating to the Use of the Band 136-137 Mc/s
by the Fixed and Mobile Services**

The Extraordinary Administrative Radio Conference, Geneva, 1963,

considering

- a) that the Table of Frequency Allocations, Geneva, 1959, made provisions for the fixed and mobile services together with space services in the band 136-137 Mc/s;
- b) that a number of administrations have fixed and mobile services operating in accordance with these provisions;
- c) that the modified Table of Frequency Allocations, Geneva, 1963, makes provision for the space research service on a primary basis in the band 136-137 Mc/s, and makes provision for the continued operation of the fixed and mobile services on a primary basis in this band;
- d) the great importance of affording the space research service protection against interference from stations in the fixed and mobile services, taking into account the very weak signals which may be used in the space research service;

recommends

1. that administrations of all Regions operating, or intending to operate, stations in the fixed and mobile services in the band 136-137 Mc/s take all possible steps to give the required protection to the space research service and to cease the operation of stations of the fixed and mobile services as soon as possible;
2. that administrations notify the International Frequency Registration Board, preferably in advance, of the date when these stations will have ceased operations, and that specific reference should be made to this Recommendation;

and requests the International Frequency Registration Board

to publish this information every six months.

RECOMMENDATION No. Spa 8

Relating to the Need to Cease Operations of the Fixed and Mobile Services in the Bands 149-9-150-05 Mc/s and 399-9-400-05 Mc/s Allocated to the Radionavigation-Satellite Service

The Extraordinary Administrative Radio Conference, Geneva, 1963,

considering

- a) that the frequency bands 149-9-150-05 Mc/s and 399-9-400-05 Mc/s have been allocated to the radionavigation-satellite service on an exclusive world-wide basis;
- b) that many administrations require an extended period of time to re-accommodate existing fixed and mobile operations in other appropriately allocated bands;
- c) that early implementation of the radionavigation-satellite service will be of benefit to all administrations, particularly in its application to marine navigation;
- d) that interference to users of the radionavigation-satellite service could constitute a hazard to the safety of life and property;
- e) that the C.C.I.R. is studying the feasibility of sharing frequency bands between the radionavigation-satellite service and terrestrial services but has not yet been able to reach a conclusion in this regard;

recommends

1. that, pending an affirmative determination by the C.C.I.R. that sharing is possible and practicable between stations of the radionavigation-satellite service and the fixed and mobile services, administrations take all possible steps to protect from harmful interference the operations of mobile earth stations using the radionavigation-satellite service;
2. that, in the light of 1) above, administrations be urged to cease operation of their fixed and mobile stations in the bands 149-9-150-05 Mc/s and 399-9-400-05 Mc/s as soon as practicable, with particular emphasis on those stations located in coastal areas.

RECOMMENDATION No. Spa 9

**Relating to the Review of Progress in the Field
of Space Radiocommunications**

The Extraordinary Administrative Radio Conference, Geneva, 1963,

considering

a) that man is progressing rapidly in the conquest of outer space, that all nations will benefit, and that this progress depends upon efficient and orderly space communications;

b) that this Conference has taken the first steps in the field of development of space radiocommunications in having allocated frequency bands for space radiocommunications and having established technical criteria and frequency registration and notification procedures designed to facilitate the further development of space radiocommunications;

recognizing

a) that the development of space services will go on in parallel with the development of terrestrial communication systems;

b) that all Members of the Union have an interest in the rational use of frequency bands allocated for space communication services, in the avoidance of harmful interference to space and other services, and in the international regulation of the use of these frequency bands;

c) that the decisions of the Conference may be subject to increasing refinement and improvement by future Conferences of the Union;

d) that there will be available additional data relating to space radiocommunications resulting from further experimental and operational experience;

believing

that such refinement and improvement is in the best interests of all Members and Associate Members of the Union if the full benefits of new technology are to be realized;

recommends

1. that Members and Associate Members of the Union make available, to the appropriate permanent organs of the Union, pertinent

data resulting from experimental and operational experience relating to space radiocommunications, as well as their proposals concerning space radiocommunications;

2. that the Administrative Council of the Union should review annually the progress in space radiocommunications made by Administrations, and the available reports and recommendations of the permanent organs of the Union with respect thereto;

and further recommends

3. that until revised by a future Conference, including the conference mentioned in para. 4 below, notification and registration of frequency assignments to space services shall be effected in accordance with the procedures adopted by this present Conference;

4. that the Administrative Council of the Union should, in the light of its annual review, and at a date which it will determine, recommend to Administrations the convening of an Extraordinary Administrative Conference to work out further agreements for the international regulation of the use of radio frequency bands allocated for space radiocommunications by this present Conference.

RECOMMENDATION No. Spa 10

Relating to the Utilization and Sharing of Frequency Bands Allocated to Space Radiocommunications

The Extraordinary Administrative Radio Conference, Geneva, 1963,

considering

Resolutions 1721 (XVI) part D and 1802 (XVII) part IV para. 3 of the General Assembly of the United Nations which refer inter alia to the unanimous belief of the Members of the United Nations that communication satellites should be organized on a global basis with non-discriminatory access for all nations;

considering further

the economic and social implications for all nations of global communications by satellites recently expressed in the report prepared for Members and Associate Members of U.N.E.S.C.O. in accordance with the decision of the 12th session of its General Conference in December 1962;

recognizing

that all Members and Associate Members of the Union have an interest in and right to an equitable and rational use of frequency bands allocated for space communications;

recommends

to all Members and Associate Members of the I.T.U.

that the utilization and exploitation of the frequency spectrum for space communications be subject to international agreements based on principles of justice and equity permitting the use and sharing of allocated frequency bands in the mutual interest of all nations.

RECOMMENDATION No. Spa 11

Relating to the Radio Astronomy Service

The Extraordinary Administrative Radio Conference, Geneva, 1963,

considering that

- a) by definitions 74, 75 and 75A in Article 1 of the Radio Regulations, 1959, Radio Astronomy is a service using reception only;
- b) research in Radio Astronomy is conducted with the use of receiving equipment of the highest attainable sensitivity;
- c) at the Extraordinary Administrative Radio Conference, Geneva, 1963, considerable recognition was given to the needs of the Radio Astronomy service;
- d) in addition to the exclusive allocation of one band on a world-wide basis, some administrations have been able to provide exclusive frequency allocations for Radio Astronomy in some other bands;
- e) the greatest practicable protection from interference is essential to the advancement of the science of Radio Astronomy;

recommends that

1. the next Ordinary Administrative Radio Conference should give further consideration to the provision of improved frequency allocations for Radio Astronomy;
2. in the meantime, administrations should afford all practicable protection to the frequencies now allocated to Radio Astronomy on a shared basis with other radio services.

RECOMMENDATION No. Aer 1

relating to the development of techniques which would help to reduce congestion in the high frequency bands allocated to the aeronautical mobile (R) service

The Extraordinary Administrative Radio Conference,
Geneva, 1966,

considering

- a) that several administrations are actively engaged in the development of communication techniques the wider use of which, in the aeronautical mobile (R) service, would help to reduce congestion in the high frequency bands allocated to that service ; such developments include remotely controlled VHF stations, high-powered VHF transmitters employing directional antennae, space radiocommunication techniques and automatic data transmission ;
- b) that knowledge of these developments would be useful to other administrations in considering the application of these techniques to their aeronautical mobile (R) communication services ;
- c) that the International Civil Aviation Organization (I.C.A.O.) is actively engaged in coordinating the operational use of such techniques ;

invites

administrations engaged in such developments to inform the I.F.R.B. periodically of the progress achieved ;

requests

the I.F.R.B. periodically to circulate the information so obtained to administrations and to I.C.A.O.

RECOMMENDATION No. Aer 2

relating to a study of the utilization of space communication techniques in the aeronautical mobile (R) service

The Extraordinary Administrative Radio Conference,
Geneva, 1966,

considering

- a) the continuing efforts of the aeronautical mobile (R) service to obtain improvements in communications commensurate with increases in the number, size and speed of aircraft ;
- b) the efforts of the International Telecommunication Union to reduce congestion in the bands between 4 and 27.5 Mc/s ; and
- c) the need to effect conservation in the use of the high frequency spectrum ;

noting

- a) that successful application of space radiocommunication techniques to the communication needs of international civil aviation offers the possibility of substantially improving aeronautical mobile (R) service communications while avoiding congestion in the bands between 4 and 27.5 Mc/s ;
- b) that tests have demonstrated the capability of effecting communication between aircraft and aeronautical stations by relay via a stationary satellite ;
- c) that the state of the art in space radiocommunication techniques is rapidly advancing ;
- d) that the technical potential is such that space radiocommunication techniques could provide a capability for accommodating, in the near future, many of the aeronautical mobile (R) service communication requirements over major world air routes on all but the polar routes ;

- e) that before administrations will be willing to undertake a programme to implement space radiocommunication techniques they will need a comprehensive investigation into those techniques and a statement of the measures that need to be taken ;
- f) that the ability of administrations to undertake such a programme is intimately linked to the economic implications involved ;
- g) that the International Civil Aviation Organization (I.C.A.O.) is the international body primarily concerned with the establishment of standards and recommended practices governing communication systems and techniques used to support international civil aviation ; and that Organization has included the subject of space radiocommunication techniques on the agenda of its Communications/Operations Divisional Meeting scheduled to convene in October 1966 ;
- h) that the C.C.I.R. has a Study Group on Space Systems and Radioastronomy as well as a Study Group on Mobile Services and that close co-ordination of the work of the C.C.I.R. and I.C.A.O. in this field is desirable ;

recommends

1. that administrations, bearing in mind the economic and operational aspects involved, should take account of the possibilities of satisfying the communication needs of the aeronautical mobile (R) service on major world air routes by the use of space radiocommunication techniques ; and
2. that administrations should give further study to these questions taking as a basis for their consideration the factors listed in the Annex hereto.

ANNEX TO RECOMMENDATION No. Aer 2

(Note : The list of factors which follows is not claimed to be exhaustive nor is it intended to limit consideration of any other aspects pertinent to the use of space radiocommunication techniques by the aeronautical mobile (R) service.)

1. The technical parameters of the satellite and aircraft receiving and transmitting system, including :
 - a) Required received (carrier) power at the satellite (from the aircraft).
 - b) Required received (carrier) power at the aircraft (from the satellite).
 - c) Satellite effective radiated power (per channel).
 - d) Aircraft effective radiated power (per channel).
 - e) Type of emission which should be employed.
 - f) Bandwidth of each channel.
 - g) Channelling arrangement.
 - h) Polarization requirements.
 - i) Need for omni-directional aircraft antennae ; sea/ground reflections.
 - j) Required separation between transmit and receive frequencies at the satellite.
 - k) Requirement on the satellite for capability of aircraft to use each channel independently (multiple/random access).
 - l) Requirements in relation to system reliability.
 - m) Other considerations.

2. The number and location of satellites, including :
 - a) In regard to provision of service, disposition of air routes and the number of flights over each air route.
 - b) Group of air routes which may be served via a common satellite.
 - c) Number of satellites needed to provide service to each group of air routes.
 - d) Location of each of the satellites.
 - e) Number of channels needed aboard each satellite.
 - f) Other considerations.

3. Technical performance requirements of aeronautical (R) stations, including :
 - a) Suitable transmitting and receiving antennae characteristics : gain, beamwidth, siting, etc.
 - b) Minimum effective radiated power.
 - c) Development and utilization of low-cost aeronautical (R) station (terminal) facilities.
 - d) Need for a selective calling system (SELCAL).
 - e) Other considerations.

4. Method of operation and location of aeronautical (R) stations, including :
 - a) The method of operation : where multiple frequencies are provided on the satellite, the need, or absence of need, to continue the present practice of providing route separation by use of different/separate frequencies ; that is,
 - should all (R) frequencies on the satellite be available at all aeronautical (R) stations ; or
 - should the communication load be distributed between available frequencies, each of which is limited to a specific geographic area ; or
 - some other arrangement.
 - b) As appropriate, to list (by frequency) each of the aeronautical (R) stations which should employ each satellite frequency.
 - c) Other considerations.

5. Provisions for handling aeronautical point-to-point communications :
 - a) Technical system performance parameters of the terminal equipment.
 - b) Technical system performance parameters of the satellite equipment.

- c)* Requirement on the satellite for capability of terminals to have independent access to relaychannels through the satellite (multiple/random access).
 - d)* Frequency bands to be used.
 - e)* Required separation between transmit and receive frequencies on the satellite.
 - f)* Development and utilization of low-cost terminal facilities.
 - g)* The entity or entities which should provide, own or operate the satellites and terminal facilities as well as the extent to which aeronautical point-to-point communications should be handled.
 - h)* Other considerations.
- 6. Estimated costs of a satellite system to include : land-based, airborne and satellite-borne facilities.
- 7. Operational aspects of a satellite system, including all facilities mentioned in paragraph 6 above, particularly :
 - a)* The environment within which the system must work.
 - b)* The evolutionary process of introducing the system.

RECOMMENDATION No. Mar 1

**Relating to a Reprint of the Radio Regulations and of the Additional
Radio Regulations**

The World Administrative Radio Conference, Geneva, 1967,

considering

that the Radio Regulations, Geneva, 1959, have undergone partial revision by the Extraordinary Administrative Radio Conference to Allocate Frequency Bands for Space Radiocommunication Purposes, Geneva, 1963, and by the Extraordinary Administrative Radio Conference for the Preparation of a Revised Allotment Plan for the Aeronautical Mobile (R) Service, Geneva, 1966, and that the Radio Regulations, Geneva, 1959, and the Additional Radio Regulations, Geneva, 1959, have undergone partial revision by the present Conference;

is of the opinion

that the task of administrations would be facilitated if these Regulations were reprinted to include the partial revisions carried out by the above-mentioned conferences;

recommends

1. that the Secretary-General should consult all administrations as to:
 - a) the desirability of carrying out such a reprint;
 - b) the desirability of issuing the new publication in loose-leaf form, with the pages of each article numbered separately, so as to facilitate its being kept up-to-date to reflect any partial revisions of the Radio Regulations or the Additional Radio Regulations which may be carried out by future conferences;
2. that if the response as regards 1.a) is favourable, the Secretary-General should proceed with the reprint, with a view to the new publication being available by 1 April 1969.

RECOMMENDATION No. Mar 2

**Relating to a Regrouping of the Radio Regulations and
the Additional Radio Regulations appertaining to
the Maritime Mobile Service**

The World Administrative Radio Conference, Geneva, 1967,

in view of

the terms of Administrative Council Resolutions Nos. 522, 549 and Decision No. 346 relating to a possible revision of the structure of the Radio Regulations and the Additional Radio Regulations;

considering

a) that it is desirable that those provisions of the Radio Regulations and of the Additional Radio Regulations which relate to the maritime mobile service be segregated from those relating to other services and regrouped in logical sequence;

b) that the Administration of the United Kingdom of Great Britain and Northern Ireland submitted to the present Conference in Document No. 117 a proposal for regrouping the provisions of the Radio Regulations and of the Additional Radio Regulations relating to the maritime mobile service, but that time did not permit its detailed examination;

c) that it is in general very difficult for a conference of limited duration, charged with the revision of the substance of only part of the Regulations, to undertake at a sufficiently early stage in its work a revision of the order in which they are arranged;

recommends

1. that the Administrative Council should bear in mind:

a) the desirability of including a regrouping of the Radio Regulations and of the Additional Radio Regulations relating to the maritime

mobile service in the agenda of the first World Administrative Radio Conference at which, in the Council's opinion, it would be practicable to undertake this task; and

- b) in particular, the possibility that it might be included in the agenda of the Conference referred to in Recommendation No. Mar 6 of the present Conference;

2. that the Secretary-General should ask all administrations to take the present Recommendation into account in connection with any studies they may be making in accordance with Administrative Council Decision No. 346;

requests

the Secretary-General and the I.F.R.B. also to study this question and to submit their suggestions to administrations in due time.

RECOMMENDATION No. Mar 3

**Relating to the Utilization of Space Communication
Techniques in the Maritime Mobile Service**

The World Administrative Radio Conference, Geneva, 1967,

considering

- a)* the efforts of the International Telecommunication Union to reduce congestion in the frequency bands available to the maritime mobile service;
- b)* the fact that ships at sea are completely dependent upon the use of radio for communication; and
- c)* the potential value of adapting satellite relay techniques to the communication requirements of the maritime mobile service;

noting

- a)* that limited tests have demonstrated the feasibility of effecting communications between ships and coast stations by means of relaying through a stationary satellite;
- b)* that no provision is made for the use of space communication techniques in any of the frequency bands at present allocated to the maritime mobile service;
- c)* that the frequencies available to the maritime mobile service by virtue of Appendix 18 to the Radio Regulations are technically suitable for the use of space communication techniques, but that the congestion foreseen from terrestrial maritime mobile usage, even after implementation of reduced channel spacing, is expected to preclude the accommodation of an operational system employing space communication techniques;
- d)* that the Inter-Governmental Maritime Consultative Organization (I.M.C.O.) has undertaken a study of the requirements for maritime safety

and navigation that may be satisfied by utilization of space communication techniques;

e) that the C.C.I.R. has a study group on space systems and radio-astronomy as well as a study group on mobile services and that close co-ordination of the work of the C.C.I.R. and I.M.C.O. in these fields is desirable; and

f) that the Scientific and Technical Sub-Committee of the United Nations Committee on the Peaceful Use of Outer Space has also established a working group which is studying the need for, the feasibility and ways and means of establishing a navigation satellite system;

invites administrations

to determine the foreseeable operational requirements of the maritime mobile service that can be accommodated by means of space communication techniques;

invites the Inter-Governmental Maritime Consultative Organization

to continue to study the requirements and other considerations where benefit may accrue to the safety and navigation of ships at sea through application of space communication techniques;

invites the C.C.I.R.

to study the technical aspects of systems which offer the potential of fulfilling these maritime requirements and to recommend a practical system with particular attention to the environment in which ships operate;

and invites both administrations and the C.C.I.R.

to consider in these studies a technically suitable frequency band higher in the spectrum than band 8 and of sufficient bandwidth to accommodate the overall needs of the maritime mobile service. In this connection, particular attention may be given to bands 9 and 10 for the link between the mobile station and the relaying satellite.

RECOMMENDATION No. Mar 4-

Relating to Transmission by Television of Port Radar Images to Ships

The World Administrative Radio Conference, Geneva, 1967,

considering

- a) that there may be a future requirement for the transmission by television of port radar images from shore to ships, in congested waters;
- b) that the Table of Frequency Allocations does not provide spectrum space for this purpose;

recommends

1. that administrations and the Inter-Governmental Maritime Consultative Organization study the operational need and the characteristics for such systems and inform the Secretary-General of the I. T. U. of the results of these studies;
2. that if such an operational need does exist, the C.C.I.R. be invited to determine the most suitable order of frequencies required for this purpose, and the technical parameters to be met by such systems;
3. that administrations be prepared to take a decision in this matter at the next World Administrative Radio Conference competent to deal with the matter.

RECOMMENDATION No. Mar 5

**Relating to the Designation of Common Frequencies in the
Medium Frequency Bands for Use by Coast Radiotelephone Stations
for Communicating with Ships of other Nationalities**

The World Administrative Radio Conference, Geneva, 1967,

noting

- a)* that, on small ships fitted with single sideband equipment, a crystal-controlled fixed frequency receiver is essential to facilitate correct tuning;
- b)* that, if such ships make international voyages and communicate with coast stations of other nationalities, they need to be provided with a considerable number of additional crystals;
- c)* that, by reducing the number of receiver crystals required, the cost of single sideband receivers can be kept to a satisfactory level;

considering

- a)* that international working frequencies should be assigned to all coast stations for working with ships of other nationalities, without precluding their use for national purposes;
- b)* that, according to the Master International Frequency Register, no frequencies appear to be available for common use by all coast stations for working with ships of other nationalities, either on a world-wide or on a regional basis;

recommends

1. that administrations study this question at the earliest opportunity with a view to formulating proposals for consideration by the next Administrative Radio Conference competent to deal with the matter;
2. that, in the meantime, countries should explore the possibility of concluding regional, bilateral or multilateral arrangements to provide common frequencies for coast stations working with ship stations of other nationalities.

RECOMMENDATION No. Mar 6

**Relating to the Preparation of a new Frequency Allotment Plan
for High Frequency Coast Radiotelephone Stations**

The World Administrative Radio Conference, Geneva, 1967,

considering

a) that the present Frequency Allotment Plan for coast radiotelephone stations contained in Appendix 25 to the Radio Regulations, Geneva, 1959, was initially prepared by the Provisional Frequency Board in the years from 1948 to 1950 and was subject to amendments by the Extraordinary Administrative Radio Conference, Geneva, 1951, and by the Administrative Radio Conference, Geneva, 1959;

b) that the Plan has already been implemented to a great extent, this being illustrated by the assignments, corresponding to allotments, recorded in the Master International Frequency Register;

c) that a number of additional assignments has also been recorded in the Master Register;

d) that the introduction of single sideband technique in the maritime high frequency radiotelephone bands has already started on the basis of the provisions of Appendix 17 to the Radio Regulations, Geneva, 1959, and that the conversion from double sideband to single sideband will continue, guided by the time-table and the supplementary technical specifications adopted by the present Conference;

e) that double sideband operation in the frequency bands concerned will continue until 1 January 1972 for coast stations and 1 January 1978 for ship stations;

f) that the Conference has decided to create as from 1 March 1970, new high frequency duplex radiotelephone channels to be used in accor-

dance with the provisions of Resolution No. Mar 15, to include such new channels in Appendix 17 to the Radio Regulations and, without allotting them to countries, in Section III of Appendix 25 MOD;

g) that it was found impracticable for the present Conference to prepare a new Frequency Allotment Plan, but it was found necessary that such a Plan be prepared by a subsequent conference;

h) that it is desirable to have in advance of that conference proposals for the technical bases for the establishment of a frequency allotment plan;

in view of

the provisions of Nos. 60 and 61 of the International Telecommunication Convention, Montreux, 1965;

recommends

1. that a World Administrative Radio Conference be convened:
 - 1.1 to establish on the basis of single sideband operation a new Frequency Allotment Plan for high-frequency radiotelephone coast stations, covering the channels in the present Appendix 25 as well as the new channels referred to in f) above;
 - 1.2 to amend the associated provisions of the Radio Regulations;
2. that such a conference be convened in 1973;
3. that the Administrative Council determine the exact date and place of such a conference, in accordance with No. 64 of the International Telecommunication Convention, Montreux, 1965;
4. that this conference be preceded by a preparatory meeting, in accordance with No. 73 of that Convention.

RECOMMENDATION No. Mar. 7

Relating to Harmonic Relationship and Channel Spacing in the High Frequency Bands used by Ship Stations for Radiotelegraphy

The World Administrative Radio Conference, Geneva, 1967,

considering

- a) that there is an urgent need for all services to utilize the high frequency spectrum with maximum efficiency;
- b) that new developments and advances in technique, and in frequency synthesizers in particular, are leading to more stable and reliable radiocommunication equipment;
- c) that the continued use of harmonically related frequencies and of the existing channel spacings may hinder the fullest use in the future of the bands allocated exclusively to the maritime mobile service for ships' radiotelegraph stations, especially the upper bands;
- d) that, in view of the time required for full utilization and amortization of equipment, any organized change of equipment for ships may require a period of some 20 years;

recommends

1. that administrations should study, in the light of advancing techniques, the problems relating to the future use of harmonic relationship in ships' radio equipment and to the determination of the optimum channel spacing and the number of channels in the bands allocated for calling and for high and low traffic ships, as indicated in Appendix 15 to

the Radio Regulations, and should submit their proposals for consideration by the next World Administrative Radio Conference competent to deal with the matter;

2. that administrations should consider whether the use of synthesized transmitters by ship stations will make it desirable to modify the provisions for low traffic ships of Nos. **1196** to **1201** of the Radio Regulations, in order to allow more flexibility in the choice of actual working frequencies.

RECOMMENDATION No. Mar 8

Relating to the Study of a Selective Calling System for future operational Requirements of the Maritime Mobile Service

The World Administrative Radio Conference, Geneva, 1967,

noting

a) that the C.C.I.R. has prepared a draft Recommendation D.a (257-1) giving the characteristics of a selective calling system for the maritime mobile service to fulfil immediate requirements;

b) that the present Conference has adopted and included in Articles 19 and 28A of the Radio Regulations and in Appendix 20C thereto provisions for utilization of this system;

c) that the C.C.I.R. has adopted Question 9/XIII on the subject of a selective calling system for future operational requirements of the maritime mobile service;

urges the C.C.I.R.

to complete the studies in response to Question 9/XIII as soon as possible;

and invites administrations

in their participation in the work of the C.C.I.R. to give priority to these studies.

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- **APPENDICES TO THE RADIO REGULATIONS**
- **ADDITIONAL RADIO REGULATIONS**
- **RESOLUTIONS AND RECOMMENDATIONS**

(1968 edition)



**General Secretariat
of the International Telecommunication Union
GENEVA**

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Symbols:

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REC	—	Recommendation (pages 823-959)
RES	—	Resolution (pages 681-822)
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Mar	—	Maritime Conference (Geneva, 1967)
Spa	—	Space Conference (Geneva, 1963)

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