

Footnotes to National Frequency Allocation of Japan (Column 4)

J1 In authorizing the use of frequencies below 8.3kHz, it shall be ensured that no harmful interference is thereby caused to the services to which the bands above 8.3kHz are allocated.

J2 Use of this frequency band by stations in the meteorological aids service is limited to passive use only. In this frequency band, meteorological aids stations shall not claim protection from stations of the radionavigation service submitted for notification to the Bureau prior to 1 January 2013. For sharing between stations of the meteorological aids service and stations in the radionavigation service submitted for notification after this date, Recommendation ITU-R RS.1881 should be applied.

J3 The use of this frequency band by the maritime mobile service is limited to class A1A or F1B emissions by the coast stations only. However, the use of class J2B or J7B emissions may be authorized to coast stations on condition that those emissions do not exceed the necessary bandwidth normally used for class A1A or F1B emissions.

J4 The stations of services to which this band is allocated may transmit standard frequency and time signals. Such stations shall be afforded protection from harmful interference.

J5 The use of this frequency band by the fixed service is limited to class A1A, F1B, A2C, A3C, F1C or F3C emissions.

J6 The use of this frequency band by the maritime mobile service is limited to class A1A, F1B, A2C, A3C, F1C, F3C, J2B, or J7B emissions.

J7 The stations of the amateur service operating in this band shall not exceed an equivalent isotropic radiated power (e.i.r.p.) of 1W or cause harmful interference to stations of the radionavigation service operating in the countries listed on No.5.67 of the RR.

J8 This frequency band in the radionavigation land stations of the maritime radionavigation service may be used to transmit the differential GPS data and supplementary navigational information.

J9 In order to protect the intermediate frequencies of medium-wave broadcasting receivers, assignment of frequencies in the band 450-460 kHz is restricted to cases in which operation in that band does not cause harmful interference to the reception of standard broadcasting signals.

J10 When establishing the radionavigation coast stations in the NAVTEX service on the frequencies 490 kHz, 518 kHz and 4209.5 kHz, it is necessary to coordinate the operating characteristics in accordance with the procedures of the International Maritime Organization (IMO) (see Resolution **339 (Rev.WRC-97)**).

J11 The maximum equivalent isotropically radiated power (e.i.r.p.) of stations in the amateur service using frequencies in this frequency band shall not exceed 1 W. In this frequency band, stations in the amateur service shall not cause harmful interference to, or claim protection from, stations of the aeronautical radionavigation service.

J12 The frequency 490kHz is to be used exclusively for the transmission by coast stations of navigational and meteorological warnings and urgent information to ships, by means of narrow-band direct-printing telegraphy. In using the band 415-495kHz for the aeronautical radionavigation service, it shall be ensured that no harmful interference is caused to the frequency 490kHz. In using the frequency band 472-479 kHz for the amateur service, it shall ensure that no harmful interference is caused to the frequency 490 kHz.

J13 The frequency 518kHz is to be used exclusively for transmission by coast stations in the international NAVTEX service of meteorological and navigational warnings and urgent information to ships, by means of narrow-band direct-printing telegraphy.

J14 The use of this frequency band by broadcasting services is subject to conformity with the Regional Agreements (Geneva, 1975), (Notification No.810 of the Ministry of Posts and Telecommunications, 1976), on the use of the MF band in Regions 1 and 3 and the LF band in Region 1 by the broadcasting services.

J15 This frequency allocated to the broadcasting services or the broadcasting-satellite services shall be that stipulated in Article 26, Paragraph 2(5) a), of the Radio Law.

J16 The frequencies 2174.5kHz, 4177.5kHz, 6268kHz, 8376.5kHz, 12520kHz and 16695kHz are international distress frequencies for narrow-band

direct-printing telegraphy.

J17 The frequency 2182kHz is an international distress, calling and response frequency for radiotelephony, and is to be used exclusively for class J3E emissions. This frequency's guard band is 2173.5-2190.5kHz.

J18 The carrier frequencies 2182kHz, 3023kHz, 5680kHz, 8364kHz as well as the frequencies 121.5MHz, 156.525MHz, 156.8MHz, 243MHz, 10003kHz, 14993kHz, and 19993kHz may also be used, in accordance with the procedures for terrestrial radiocommunication services, for search and rescue operations concerning manned space vehicles. The bandwidth of any individual transmission shall not exceed ± 3 kHz.

J19 The frequencies 2187.5kHz, 4207.5kHz, 6312kHz, 8414.5kHz, 12577kHz and 16804.5kHz are international distress frequencies for digital selective calling.

J20 The carrier frequencies 3023kHz and 5680kHz may also be used by stations of the maritime mobile service engaged in coordinated search and rescue operations.

J21 The band 3155-3195kHz may also be used for low-power wireless hearing aids.

J22 The carrier frequencies 4125kHz and 6215kHz are the frequencies auxiliary to the carrier frequency 2182kHz. These frequencies are to be international calling and response frequencies for radiotelephony.

J23 The frequency 4209.5kHz is used exclusively for the transmission by coast stations of meteorological and navigational warnings and urgent information to ships by means of narrow-band direct-printing techniques.

J24 The frequencies 4210kHz, 6314kHz, 8416.5kHz, 12579kHz, 16806.5kHz, 19680.5kHz, 22376kHz and 26100.5kHz are the international frequencies for the transmission of Maritime Safety Information (MSI).

J25 In principle, the A1A radio frequency 4630kHz is used exclusively for setting up an emergency communication channel, and once the channel is open, the emergency communication is carried on the radio waves regularly used. However,

this limitation may be eased when emergency communication through regular radio waves is impossible.

J26 Stations in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the fixed or mobile services. Applications of the radiolocation service are limited to oceanographic radars operating in accordance with Resolution 612 (Rev.WRC-12).

J27 The use of the bands 5900-5950 kHz, 7300-7350 kHz, 9400-9500 kHz, 11600-11650 kHz, 12050-12100 kHz, 13570-13600 kHz, 13800-13870 kHz, 15600-15800 kHz, 17480-17550 kHz and 18900-19020 kHz by the broadcasting service is subject to the application of the procedure of Article 12, and is encouraged to facilitate the introduction of digitally modulated emissions in accordance with the provisions of Resolution 517 (Rev.WRC-07).

J28 This band is allocated to the fixed service on a primary basis and to the mobile service except aeronautical mobile (R) service on a secondary basis.

J29 The following bands are designated for industrial, scientific and medical (ISM) applications based on the results of ITU-R research.

6765-6795kHz	(center frequency 6780kHz),
61-61.5GHz	(center frequency 61.25GHz),
122-123GHz	(center frequency 122.5GHz), and
244-246GHz	(center frequency 245GHz)

Additional assignment of frequencies in the following bands to stations of the fixed and land mobile services is suspended for the time being.

6765 - 6795kHz	(center frequency 6780kHz)
244 - 246GHz	(center frequency 245GHz)

J30 This band may be used by stations in the fixed service and the land mobile service on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

J31 The stations of services to which the band 7995-8005kHz is allocated may transmit standard frequency and time signals.

J32 The carrier frequencies 8291kHz, 12290kHz and 16420kHz are distress and calling frequencies for radiotelephony.

J33 Stations in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the fixed service. Applications of the radiolocation service are limited to oceanographic radars operating in accordance with Resolution **612 (Rev.WRC-12)**.

J34 The use of this frequency band by the amateur service is restricted to cases in which operation does not cause harmful interference to the foreign radio stations whose service is except the amateur service operating in accordance with the Table of Frequency Allocations of the RR.

J35 This band is used by the fixed service for provision of services related to aircraft flight safety.

J36 In assigning frequencies to stations of other services to which the following bands are allocated, all practicable steps shall be taken to protect the radio astronomy service from harmful interference. Emissions from spaceborne or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. **4.5** and **4.6**, and Article **29** of the RR).

13360-13410kHz,	4990-5000MHz,	92-94GHz,
25550-25670kHz,	6650-6675.2MHz,	94.1-100GHz,
37.5-38.25MHz,	10.6-10.68GHz,	102-109.5GHz,
73-74.6MHz,	14.47-14.5GHz,	111.8-114.25GHz,
322-328.6MHz,	22.01-22.21GHz,	128.33-128.59GHz,
406.1-410MHz,	22.21-22.5GHz,	129.23-129.49GHz,
608-614MHz,	22.81-22.86GHz,	130-134GHz,
1330-1 400MHz,	23.07-23.12GHz,	136-148.5GHz,
1610.6-1 613.8MHz,	31.2-31.3GHz,	151.5-158.5GHz,
1660-1 670MHz,	31.5-31.8GHz,	168.59-168.93GHz,
1718.8-1722.2MHz,	36.43-36.5GHz,	171.11-171.45GHz,
2655-2690MHz,	42.5-43.5GHz,	172.31-172.65GHz,
3260-3267MHz,	42.77-42.87GHz,	173.52-173.85GHz,
3332-3339MHz,	43.07-43.17GHz,	195.75-196.15GHz,
3345.8-3352.5MHz,	43.37-43.47GHz,	209-226GHz,
4825-4835MHz,	48.94-49.04GHz,	241-250GHz,
4950-4990MHz,	76-86GHz,	252-275GHz

J37 The following bands are designated for industrial, scientific and medical (ISM) applications. Radiocommunication services operating within these bands must accept harmful interference that may be caused by these applications.

13553-13567kHz	(center frequency 13560kHz),
26957-27283kHz	(center frequency 27120kHz),
40.66-40.70MHz	(center frequency 40.68MHz),
2400-2500MHz	(center frequency 2450MHz),
5725-5875MHz	(center frequency 5800MHz), and
24-24.25GHz	(center frequency 24.125GHz)

J38 The stations of services to which the band 15995-16005kHz is allocated may transmit standard frequency and time signals.

J39 The use of this frequency band is restricted to cases in which operation does not cause harmful interference to the foreign radio stations whose service is except the space research service operating in accordance with the Table of Frequency Allocations of the RR.

J40 The use of this band by the fixed service shall be only for aircraft flight safety service.

J41 The use of this frequency band is restricted to cases in which operation does not cause harmful interference to the radio stations whose service is except the radiolocation service operating in accordance with the Table of Frequency Allocations of the RR.

J42 The frequency 75MHz is assigned to marker beacons. Frequencies close to the limits of the guard band 74.8-75.2MHz shall not be assigned to stations or other services which, because of their power or geographical position, might cause harmful interference or otherwise place a constraint on marker beacons.

J43 This band is also allocated on a primary basis to the aeronautical mobile (R) service, limited to systems operating in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution **413 (Rev.WRC-07)**. The use of the band 108-112 MHz by the aeronautical mobile (R) service shall be limited to systems composed of ground-based transmitters and associated receivers that provide navigational information in support of air navigation functions in accordance with recognized international aeronautical standards.

J44 In this band, the frequency 121.5MHz is the aeronautical emergency frequency and, where required, the frequency 123.1MHz is the aeronautical frequency auxiliary to 121.5MHz. Mobile stations of the maritime mobile service may communicate on these frequencies for distress and safety purposes or collection of Satellite Position-Indicating Radiobeacons installed Simplified Voyage Data Recorder (S-VDR) with stations of the aeronautical mobile service.

J45 The frequency bands 118-118.875MHz, 121.6-121.975MHz and 124.3-124.375MHz may also be used by stations of the land mobile service that engage in ground control operations within airports.

J46 The band 132-136MHz is also allocated to the aeronautical mobile (OR) service on a primary basis. In assigning frequencies to stations of the aeronautical mobile (OR) service, account shall be taken of the frequencies assigned to stations in the aeronautical mobile (R) service.

J47 In making assignments to space stations in the mobile-satellite service in this band, all practicable steps shall be taken to protect the radio astronomy service in the bands 150.05-153MHz, 322-328.6MHz, 406.1-410MHz and 608-614MHz from harmful interference by unwanted emissions.

J48 In the bands:
137-138 MHz,
400.15-401 MHz,
1 525-1 610 MHz,
21.4-22 GHz,

Resolution **739 (WRC-15)** applies.

J49 The use of this band by the mobile-satellite service is limited to non-geostationary satellite systems.

J50 The use of this band by the mobile-satellite service is subject to coordination under No. **9.11A** of the RR.

J51 This frequency band may also be used in the portable mobile service and fixed service that is closely related to the land mobile service.

J52 This frequency band may be used for the transmission of

radiocommunications in commercial mobile services except for the basic broadcasting stipulated in Article 6, Paragraph 2, of the Radio Law, limited to stations for broadcasting services.

J53 Frequencies in this band may also be allocated for the space operation service (Earth-to-space) on a primary basis, on condition that the Japanese administration obtains the agreements of other administrations in accordance with No. **9.21** of the RR. The bandwidth of any individual transmission shall not exceed ± 25 kHz.

J54 The use of this band by the mobile-satellite service is subject to coordination under No. **9.11A** of the RR. The mobile-satellite service shall not constrain the development and use of the fixed, mobile and space operation services in the band 148-149.9MHz.

J55 Stations of the mobile-satellite service in this band shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in the countries listed on No. **5.221** of the RR.

J56 The use of the frequency bands 149.9-150.05MHz and 399.9-400.05MHz by the mobile-satellite service is subject to coordination under No. **9.11A** of the RR.

J57 Not used.

J58 Not used.

J59 Not used.

J60 The frequency 156.525MHz is to be used exclusively for digital selective calling for distress, safety and calling.

J61 The frequency 156.8MHz is the international distress and calling frequency for radiotelephony.

J62 This frequency band may also be used by the mobile service except for the maritime mobile service, or the fixed service that are closely related to the maritime mobile service.

J63 The use of the frequency bands 156.7625-156.7875MHz and 156.8125-156.8375MHz by the mobile-satellite service (Earth-to-space) is limited to

the reception of automatic identification system (AIS) emissions of longrange AIS broadcast messages (Message 27, see Recommendation ITU-R M.1371). With the exception of AIS emissions, emissions in these frequency bands by systems operating in the maritime mobile service for communications shall not exceed 1 W.

J63A The use of the frequency bands 161.9375-161.9625 MHz and 161.9875-162.0125 MHz by the maritime mobile-satellite (Earth-to-space) service is limited to the systems which operate in accordance with Appendix 18 of the RR.

J64 The use of the automatic identification system in the frequency bands 161.9625-161.9875MHz and 162.0125-162.0375MHz by the aeronautical mobile (OR) service is limited to aircraft stations for the purpose of search and rescue operations and other safety-related communications.

J65 The use of the frequency bands 161.9625-161.9875MHz and 162.0125-162.0375MHz by the mobile-satellite service (Earth-to-space) is limited to the reception of automatic identification system emissions from stations operating in the maritime mobile service.

J66 This frequency band may also be used by the mobile service except for the land mobile service, which is closely related to the land mobile service.

J67 This frequency band may also be used by the fixed service that is closely related to the mobile service.

J68 A part of the band 806-960 MHz may also be used by International Mobile Telecommunications (IMT) in accordance with Resolutions 224 (Rev.WRC-15) and 749 (Rev.WRC-15).

J69 The frequency 243MHz is for use by survival craft stations and equipment used for survival purposes.

J70 The frequency band 247.9-250.2MHz may also be used by stations of the fixed service for broadcast communication on a primary basis.

J71 The use of this band by unlicensed low-power service shall not claim protection from, and shall not cause harmful interference to, other stations operating in accordance with this Frequency Allocation Table.

J72 Stations of the aeronautical mobile service that currently operate in this frequency band may continue their operations for the time being.

J73 This frequency band may also be used by the mobile service except for the maritime mobile service that is closely related to the maritime mobile service.

J74 Emissions of the standard frequency 400.1MHz shall be confined in a band of ± 25 kHz.

J75 This band is also allocated to the space research service in the space-to-space direction for communications with manned space vehicles. In this allocation, the space research service will not be regarded as a safety service.

J76 The use of this band by the mobile-satellite service is subject to coordination under No.9.11A of the RR.

J77 The use of this frequency band by the fixed service is limited to the cases when it is closely related to the meteorological service.

J78 The use of this band by the mobile-satellite service is limited to Satellite Emergency Position-Indicating Radiobeacons is prohibited.

J79 Any emission capable of causing harmful interference to Satellite Emergency Position-Indicating Radiobeacons.

J80 The use of the frequency band 410-420MHz by the space research service is limited to space-to-space transmissions with manned space vehicles. In this frequency band the space research service shall not claim protection from, nor constrain the use and development of, stations of the fixed and mobile services.

J81 This frequency band may also be used on a secondary basis by stations of the fixed service that is closely related to the land mobile service.

J82 In the bands 435-438MHz, 1260-1270MHz, 2400-2450MHz, and 5650-5670MHz, the amateur-satellite service may be operated on condition that it does not cause harmful interference to other services operated in accordance with the Table of Frequency Allocations of the RR. The use of the bands 1260-1270MHz and 5650- 5670 MHz by the amateur-satellite service is limited to the Earth-to-space direction.

J83 The use of the 432-438MHz band by sensors in the Earth exploration-satellite service (active) shall be in accordance with Recommendation ITU-R SA.1260-1. Additionally, the Earth exploration-satellite service (active) in the band 432-438 MHz shall not cause harmful interference to the aeronautical

radionavigation service in China. The provisions of this footnote in no way diminish the obligation of the Earth exploration-satellite service (active) to operate as a secondary service in accordance with Nos. **5.29** and **5.30** of the RR.

J84 The use of this band by mobile service shall not claim protection from, and shall not cause harmful interference to, other stations operating in accordance with this Frequency Allocation Table.

J85 The band 449.75-450.25MHz may be used by the space operation service (Earth-to-space) and the space research service (Earth-to-space) on condition that the Japanese administration obtains agreements of other administrations in accordance with No. **9.21** of the RR.

J86 The allocation of this band to the meteorological-satellite service (space-to-Earth) is on a primary basis, on condition that the Japanese administration obtains agreements of other administrations in accordance with No. **9.21** of the RR.

J87 The frequency bands 460-470MHz and 1690-1710MHz may be allocated to the Earth exploration-satellite service (space-to-Earth) except for the meteorological-satellite service on condition that the use of frequencies does not cause harmful interference to stations operating in accordance with the Table of Frequency Allocations of the RR.

J88 This frequency allocated to the broadcasting services or the broadcasting-satellite services shall be that stipulated in Article 26, Paragraph 2(5) b), of the Radio Law.

J89 The use of this frequency band by the broadcasting service for the commercial telecommunications service (Area Broadcasting) and the broadcasting (Area Broadcasting) shall not cause harmful interference to, or claim protection from the stations of the land mobile service for the broadcast auxiliary service (Specified Radio Microphone and Digital Specified Radio Microphone) and the general service (Specified Radio Microphone and Digital Specified Radio Microphone) using the frequency band 470-710MHz.

J90 The band 608-614MHz is also allocated to the radio astronomy service on a secondary basis.

J91 This frequency band may also be used by the fixed service that is closely related to the portable mobile service on a primary basis.

J92 Not used.

J93 Until 31 March 2019, stations of the mobile service for the commercial telecommunications service in this frequency band shall not cause harmful interference to other stations of the mobile service using this frequency band.

J94 This frequency band may be used for the broadcasting services that provide broadcasting services and commercial telecommunications services as the secondary purpose stipulated in Article 6, Paragraph 1, of the Radio Law, limited to stations for the mobile services that provide commercial telecommunications services as the principal purpose stipulated in the same article. In this case, the frequency of this frequency band shall be that stipulated in Article 26, paragraph 2(5) b), of the Radio Law.

J95 Not used.

J96 Not used.

J97 Stations in the radionavigation-satellite service in this band shall operate in accordance with the provisions of Resolution **609 (Rev.WRC-07)** and shall not claim protection from stations in the aeronautical radionavigation service in the band 960-1215 MHz. No. **5.43A** of the RR does not apply. The provisions of No. **21.18** of the RR shall apply.

J98 See No. **5.328B** of the RR.

J99 Use of the radionavigation-satellite service in this band shall be subject to the condition that no harmful interference is caused to, and no protection is claimed from, the radionavigation service authorized under No. **5.331** of the RR. See also Resolution **608 (WRC-03)**.

J100 Use of systems in the radionavigation-satellite service (space-to-space) operating in the bands 1215-1300MHz and 1559-1610MHz is not intended to provide safety service applications, and shall not impose any additional constraints on radionavigation-satellite service (space-to-Earth) systems or on other services operating in accordance with the Table of the RR.

J101 In this band, active spaceborne sensors in the Earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service, the radionavigation-satellite service and other services

allocated on a primary basis.

J102 In this band, active spaceborne sensors in the Earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service and other services allocated by footnotes on a primary basis.

J103 Stations of the mobile service in this frequency band shall not cause harmful interference to, or claim protection from other stations of co-primary services using this frequency band.

J104 The use of this band by the aeronautical radionavigation service is restricted to ground-based radar and to associating airborne transponders activated by such radar.

J105 The use of this band by earth stations in the radionavigation-satellite service and by stations in the radiolocation service shall not cause harmful interference to, nor constrain the operation and development of, the aeronautical-radionavigation service.

J106 The bands 1370-1400MHz, 4950-4990MHz and 15.20-15.35GHz are also allocated to the space research (passive) and earth exploration-satellite (passive) services on a secondary basis.

J107 All emissions are prohibited in the following bands. However, this limitation is eased by stations of UWB radio systems.:

1400-1427MHz,
2690-2700MHz,
15.35-15.4GHz,
23.6-24GHz,
31.3-31.5GHz,
50.2-50.4GHz,
52.6-54.25GHz,
86-92GHz,
100-102GHz,
109.5-111.8GHz,
114.25-116GHz,
148.5-151.5GHz,
164-167GHz,
182-185GHz,

190-191.8GHz,
200-209GHz,
226-231.5GHz,
250-252GHz.

J108 Not used.

J109 The use of this band by the mobile-satellite service is subject to coordination under No. **9.11A** of the RR. In the band 1518-1525 MHz stations in the mobile-satellite service shall not claim protection from the stations in the fixed service. No. **5.43A** of the RR does not apply.

J110 In this band, the coordination threshold in terms of the power flux-density levels at the surface of the Earth in application of No. **9.11A** of the RR for space stations in the mobile-satellite (space-to-Earth) service, with respect to the land mobile service use for specialized mobile radios or used in conjunction with public switched telecommunication networks (PSTN) operating within the territory of Japan, shall be -150 dB(W/m²) in any 4 kHz band for all angles of arrival, instead of those given in Table 5-2 of Appendix **5** of the RR. In the band 1518-1525 MHz stations in the mobile-satellite service shall not claim protection from stations in the mobile service in the territory of Japan. No. **5.43A** of the RR does not apply.

J111 In this band, stations in the mobile-satellite service shall not claim protection from aeronautical mobile telemetry stations in the mobile service in the territory of the United States (see No. **5.343** and **5.344** of the RR) and in the countries listed in No. **5.342** of the RR. No. **5.43A** of the RR does not apply.

J112 For the use of the bands 1518-1544MHz, 1545-1559MHz, 1610-1645.5 MHz, 1646.5-1660.5MHz, 1668-1675MHz, 1980-2010MHz, 2170-2200MHz, 2483.5-2520MHz and 2670-2690MHz by the mobile-satellite service, see Resolutions **212 (Rev.WRC-07)** and **225 (Rev.WRC-07)**.

J113 In this band, stations of the mobile-satellite service, except for the stations of the maritime mobile-satellite service, shall not cause harmful interference, or claim any protections to the stations of the fixed service operating in the countries and territories listed on No.**5.352A** of the RR notified prior to 1 April 1998.

J114 The bands 1525-1544MHz, 1545-1559MHz, 1626.5-1645.5MHz and 1646.5-1660.5MHz shall not be used for feeder links of any service. In exceptional circumstances, however, an earth station at a specified fixed point in any of the

mobile-satellite services may be authorized.

J115 The use of the bands 1525-1559MHz and 1626.5-1660.5MHz by the mobile-satellite services is subject to coordination under No. **9.11A** of the RR.

J116 In applying the procedures of Section II of Article **9** to the mobile-satellite service in the bands 1530-1544MHz and 1626.5-1645.5MHz, priority shall be given to accommodating the spectrum requirements for distress, urgency and safety communications of the Global Maritime Distress and Safety System (GMDSS). Maritime mobile-satellite distress, urgency and safety communications shall have priority access and immediate availability over all other mobile satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, distress, urgency and safety communications of the GMDSS. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (The provisions of Resolution **222 (Rev.WRC-12)** shall apply.)

J117 The use of the band 1544-1545MHz by the mobile-satellite service (space-to-Earth) is limited to distress and safety communications.

J118 The use of this band by the mobile-satellite service (Earth-to-space) and inter-satellite links is limited to distress and safety communications.

J119 Transmissions in this band from terrestrial aeronautical stations directly to aircraft stations, or between aircraft stations, in the aeronautical mobile (R) service are also authorized when such transmissions are used to extend or supplement the satellite-to-aircraft links.

J120 In applying the procedures of Section II of Article **9** of the RR to the mobile-satellite service in the bands 1545-1555MHz and 1646.5-1656.5MHz, priority shall be given to accommodating the spectrum requirements of the aeronautical mobile-satellite (R) service providing transmission of messages with priority 1 to 6 in Article **44** of the RR. Aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **44** of the RR shall have priority access and immediate availability, by pre-emption if necessary, over all other mobile-satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **44** of the RR. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (The provisions of Resolution

222 (WRC-2000) shall apply.)

J120A This frequency band may also be used by the public mobile-satellite services that transmit using the same radio waves as radionavigation-satellite service on a secondary basis.

J121 This band is reserved on a worldwide basis for the use and development of airborne electronic aids to air navigation and any directly associated ground-based or satellite-borne facilities. Such satellite use is subject to agreement obtained from other administrations under No. **9.21** of the RR.

J122 This band is also allocated to the aeronautical mobile-satellite (R) service on a primary basis, subject to agreement obtained from other administrations under No. **9.21** of the RR.

J123 With respect to the radiodetermination-satellite and mobile-satellite service, the provisions of No. **4.10** of the RR do not apply in this band, with the exception of the aeronautical radionavigation-satellite service.

J124 The use of the band 1610-1626.5MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth-to-space) is subject to coordination under No. **9.11A** of the RR. A mobile earth station operating in either of the services in this band shall not produce a peak equivalent isotropic radiated power (e.i.r.p.) density in excess of -15dB(W/4 kHz) in the part of the band used by systems operating in accordance with the provisions of No. **5.366** of the RR (to which No. **4.10** of the RR applies), unless otherwise agreed to by the affected administrations. In the part of the band where such systems are not operating, the mean e.i.r.p., density of a mobile earth station shall not exceed -3dB(W/4 kHz). Stations of the mobile-satellite service shall not claim protection from stations of the aeronautical radionavigation service, stations operating in accordance with the provisions of No. **5.366** of the RR and stations of the fixed service operating in accordance with the provisions of No. **5.359** of the RR.

J125 Stations of the radiodetermination-satellite service shall not cause harmful interference to stations of the radio astronomy service that are using the band 1610.6- 1613.8MHz.

J126 The use of this band by the mobile-satellite service (space-to-Earth) is subject to coordination under No. **9.11A** of the RR.

J127 Mobile earth stations of the mobile-satellite service operating in the bands 1631.5-1634.5MHz and 1656.5-1660MHz shall not cause harmful interference to stations of the fixed service operating in the countries listed on No.5.359 of the RR.

J128 Transmissions in this band from aircraft stations of the aeronautical mobile (R) service directly to terrestrial aeronautical stations, or between aircraft stations, are also authorized when such transmissions are used to extend or supplement the aircraft-to-satellite links.

J129 Mobile earth stations operating in this band shall not cause harmful interference to stations of the radio astronomy service.

J130 For sharing of this band between the mobile-satellite service and the fixed, mobile and space research (passive) services, Resolution 744 (Rev.WRC-07) shall apply.

J131 The use of this band by the mobile-satellite service is subject to coordination under No. 9.11A of the RR. In the band 1668-1668.4MHz, Resolution 904 (WRC-07) shall apply.

J132 In order to protect the radio astronomy service in this band, the aggregate power flux-density values produced by mobile earth stations in a network of the mobile-satellite service operating in this band shall not exceed $-181 \text{ dB(W/m}^2\text{)}$ in 10 MHz and $-194 \text{ dB(W/m}^2\text{)}$ in any 20 kHz at any radio astronomy station recorded in the Master International Frequency Register, for more than 2% of integration periods of 2000 s.

J133 In this band, stations in the mobile-satellite service shall not cause harmful interference to stations in the meteorological aids service operating in the countries listed on No.5.379 of the RR.

J134 See No.5.328B of the RR.

J135 The band 1750-1850MHz is also allocated to the space operation (Earth-to-space) and space research (Earth-to-space) services on a primary basis, subject to agreements obtained from other administrations under No.9.21 of the RR, having particular regard to troposcatter systems.

J136 This band may be also used International Mobile Telecommunications (IMT) in accordance with Resolution 223 (Rev.WRC-07).

J137 The bands 1885-2025MHz and 2110-2200MHz are intended for use by International Mobile Telecommunications (IMT). The bands should be made available for IMT in accordance with Resolution 212 (Rev.WRC-15). (See also Resolution 223 (Rev.WRC-15).)

J138 The bands 1885-1980MHz, 2010-2025MHz and 2110-2170MHz may be used by high altitude platform stations as base stations to provide IMT-2000, in accordance with Resolution 221 (Rev.WRC-03).

J139 For the purpose of protecting fixed and mobile services operating in the countries listed on No.5.388B of the RR, including IMT-2000 mobile stations, in their territories from co-channel interference, a high altitude platform station (HAPS) operating as an IMT-2000 base station in neighbouring countries, in the bands referred to in No. 5.388A of the RR, shall not exceed a co-channel power flux-density of $-127 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ at the Earth's surface outside a country's borders unless explicit agreement of the affected administration is provided at the time of the notification of HAPS.

J140 The use of the bands 1980-2 010MHz and 2170-2 200MHz by the mobile-satellite service is subject to coordination under No.9.11A of the RR and to the provisions of Resolution 716 (Rev.WRC-2000).

J141 In making assignments to the mobile service in the bands 2025-2110MHz and 2200-2290MHz, high-density mobile systems shall not be introduced, as described in SA.1154-0 of the Recommendation ITU-R, and this recommendation shall be taken into account for the introduction of any other type of mobile system.

J142 All practicable measures shall be taken to ensure that space-to-space transmission between two or more non-geostationary satellites, in the space research, space operations and the Earth exploration-satellite service in the bands 2025-2110MHz and 2200-2290MHz, shall not impose any constraints on Earth-to-space, space-to-Earth and other space-to-space transmissions of those services and in those bands between geostationary and non-geostationary satellites.

J143 In regard to the radiodetermination-satellite service in this band, the provisions of No.4.10 of the RR do not apply.

J144 The use of this band by the mobile-satellite and the radiodetermination-satellite services is subject to the coordination under No.9.11A of

the RR. All practicable steps shall be taken to prevent harmful interference to the radio astronomy service from emissions in this band, especially those caused by second-harmonic radiation that would fall into the 4990-5000MHz band allocated to the radio astronomy service.

J145 The allocation of the frequency band 2500-2520MHz to the mobile-satellite service (space-to-Earth) is subject to coordination under No.9.11A of the RR.

J146 The band 2515-2535MHz may also be used by the aeronautical mobile-satellite service (space-to-Earth) for operation limited to within Japan subject to agreement obtained from other administrations under No.9.21 of the RR.

J147 Subject to agreement obtained from other administrations under No.9.21 of the RR, the band 2520-2535MHz may also be used by the mobile-satellite (space-to-Earth) service except for the aeronautical mobile-satellite service, for operation limited to within Japan. The provisions of No. 9.11A of the RR apply.

J148 The use of the band 2545-2555MHz by the stations in the mobile service shall not cause harmful interference to the mobile-satellite service in the band 2505-2535 MHz.

J149 The band 2655-2670MHz may also be used by the mobile-satellite (Earth-to-space) service except for the aeronautical mobile-satellite service, for operation only within Japan, subject to agreement obtained from other administrations under No.9.21 of the RR. The provisions of No. 9.11A of the RR apply.

J150 Introducing systems of the mobile-satellite service in this band shall take all necessary steps to protect the satellite systems operating in this band prior to 3 March 1992. The coordination of mobile-satellite systems in the band shall be in accordance with No.9.11A of the RR.

J151 In this band, ground-based radars used for meteorological purposes are authorized to operate on a primary basis.

J152 In this band, the use of the shipboard interrogator-transponder system (SIT) shall be confined to the sub-bands 2930 -2950MHz.

J153 The use of this band by the aeronautical radionavigation service is

limited to ground-based radar.

J154 The frequency bands 2920-3100MHz and 9320-9500MHz may not be used by radarbeacons (racons) that use fixed-frequencies of the maritime radionavigation service.

J155 In this band, stations in the radiolocation service shall not cause harmful interference to, nor claim protection from, radar systems in the radionavigation service.

J156 The frequency band 3100-3266MHz may also be used by radarbeacons and radars that are used for ships.

J157 See No.5.432A and 5.433A of the RR.

J158 The use of this frequency band by the broadcasting-satellite service (domestic and overseas broadcasting) is restricted to cases where the operation will not cause harmful interference to stations operating in accordance with the Table of Frequency Allocations in the RR. Stations of the broadcasting-satellite service (domestic and overseas broadcasting) shall not claim protection from stations operating in accordance with the Table.

J159 The standard frequency and time signal-satellite service for space-to-Earth transmissions may be authorized to use the frequency band 4200-4204MHz, subject to agreement obtained from other administrations under No.9.21 of the RR.

J159A The use of the frequency band 4200-4400 MHz by stations in the aeronautical mobile (R) service is reserved exclusively for wireless avionics intra-communication systems that operate in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution 424 (WRC-15) .

J160 The use of the band 4200-4400MHz by the aeronautical radionavigation service is reserved exclusively for radio altimeters installed on board aircraft and for the associated transponders on the ground.

J161 See No.5.441 of the RR.

J162 In the bands 4825-4835 MHz and 4950-4990 MHz, the allocation to the mobile service is restricted to the mobile, except aeronautical mobile, service.

J163 In the frequency bands 5000-5030MHz and 5091-5150MHz, the aeronautical mobile-satellite (R) service is subject to agreement obtained under No. 9.21. The use of these bands by the aeronautical mobile-satellite (R) service is limited to internationally standardized aeronautical systems.

J164 In order not to cause harmful interference to the microwave landing system operating above 5030 MHz, the aggregate power flux-density produced at the Earth's surface in the band 5030-5150 MHz by all the space stations within any radionavigation-satellite service system (space-to-Earth) operating in the band 5010-5030 MHz shall not exceed -124.5 dB(W/m²) in a 150 kHz band. In order not to cause harmful interference to the radio astronomy service in the band 4990-5000 MHz, radionavigation-satellite service systems operating in the band 5010-5030 MHz shall comply with the limits in the band 4990-5000 MHz defined in Resolution **741 (Rev.WRC-12)**.

J165 Not used.

J166 The use of the band 5091-5150MHz by the aeronautical mobile service is limited to:

- systems operating in the aeronautical mobile (R) service and in accordance with international aeronautical standards, limited to surface applications at airports. Such use shall be in accordance with Resolution **748 (Rev.WRC-15)**;
- aeronautical telemetry transmissions from aircraft stations (see No. 1.83) in accordance with Resolution **418 (Rev.WRC-15)**;

J167 See No.**5.444A** of the RR.

J168 The allocation to the fixed-satellite service (Earth-to-space) is limited to feeder links of non-geostationary mobile-satellite systems in the mobile-satellite service and is subject to coordination under No. **9.11A** of the RR.

J169 The use of this frequency band by the aeronautical mobile (R) service is limited to internationally standardized aeronautical systems. Until such time that an appropriate value is established in a relevant ITU-R Recommendation, the e.i.r.p. density limit of -75 dBW/MHz in this frequency band for any AM(R)S station unwanted emission should be used.

J170 The use of this frequency band by the aeronautical mobile-satellite (R)

service is subject to coordination under No. 9.11A, and is limited to internationally standardized aeronautical systems.

J171 This frequency band is also allocated to the mobile service on a primary basis, subject to agreement obtained from other administrations under No.**9.21** of the RR.

J172 The band 5150-5216MHz is also allocated to the radiodetermination-satellite service (space-to-Earth) on a secondary basis. The use by the radiodetermination-satellite service is limited to feeder links in conjunction with the radiodetermination-satellite service operating in the bands 1610-1626.5MHz and 2483.5-2500MHz. The total power flux-density at the Earth's surface shall in no case exceed -159 dBW/m²/4 kHz for all angles of arrival.

J173 The use of the bands 5150-5350 MHz and 5470-5650 MHz by the stations in the mobile service, except aeronautical mobile, shall be in accordance with Resolution **229 (Rev.WRC-12)**. However, this limitation is eased by base stations and land mobile relay stations of 5.2GHz High-Power Data Transmission System and radio stations communicate with these stations.

J174 In the band 5150-5250 MHz, stations in the mobile service shall not claim protection from earth stations in the fixed-satellite service. No. **5.43A** of the RR does not apply to the mobile service with respect to fixed-satellite service earth stations.

J175 The band 5150-5650 MHz may also be used by Low-Power Data Transmission System in the mobile service in the airplane. In addition, the use of the band 5150-5350 MHz is restricted to place where indoor or indoor and an equal cover effect are accepted.

J176 The Earth exploration-satellite (active) and space research (active) services in this frequency band shall not claim protection from the radiolocation service. No. **5.43A** of the RR does not apply.

J177 The allocation of this frequency band to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of this band by the space research service are on a secondary basis.

J178 The band 5250-5350MHz is also allocated to the fixed service on a primary basis. The use of this band by the fixed service is intended for the

implementation of fixed wireless access systems and shall comply with Recommendation ITU-R F.1613-0. In addition, the fixed service shall not claim protection from the radiodetermination, Earth exploration-satellite (active) and space research (active) services, but the provisions of No. **5.43A** of the RR do not apply to the fixed service with respect to the Earth exploration-satellite (active) and space research (active) services. After implementation of fixed wireless access systems in the fixed service with protection for the existing radiodetermination systems, no more stringent constraints should be imposed on the fixed wireless access systems by future radiodetermination implementations.

J179 In the band 5250-5350MHz , stations in the mobile service shall not claim protection from the radiolocation service, the Earth exploration-satellite service (active) and the space research service (active). These services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendations ITU-R M.1638 -0 and ITU-R RS.1632-0.

J180 The Earth exploration-satellite service (active) operating in the band 5350-5570 MHz and space research service (active) operating in the band 5460-5570 MHz shall not cause harmful interference to the aeronautical radionavigation service in the band 5350-5460 MHz, the radionavigation service in the band 5460-5470 MHz and the maritime radionavigation service in the band 5470-5570 MHz.

J181 The space research service (active) operating in the band 5350-5460 MHz shall not cause harmful interference to nor claim protection from other services to which this band is allocated.

J182 In this frequency band, stations in the radiolocation service shall not cause harmful interference to, nor claim protection from, radar systems in the aeronautical radionavigation service operating in accordance with No. **5.449** of the RR.

J183 In this frequency band, stations in the mobile service shall not claim protection from radiodetermination services. Radiodetermination services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendation ITU-R M.1638.

J184 Stations in the radiolocation service, except ground-based radars used

for meteorological purposes in the band 5600-5650 MHz, shall not cause harmful interference to, nor claim protection from, radar systems in the maritime radionavigation service.

J185 The frequency band 5830-5 850MHz may also be used on a secondary basis by the amateur-satellite service (space-to-Earth).

J186 In the bands 5925-6425 MHz and 14-14.5 GHz, portable mobile earth station established under Article 49.24.2 of Ordinance Regulating Radio Equipment located on board vessels may communicate with space stations of the fixed-satellite service. Such use shall be in accordance with Resolution **902 (WRC-03)**. In this case, “earth station located on board vessels” in this Resolution is transported to “portable mobile earth station established under Article 49.24.2 of Ordinance Regulating Radio Equipment”.

J187 The standard frequency and time signal-satellite service for Earth-to-space transmissions may be authorized to use the frequency band 6425-6429MHz, subject to agreement obtained from other administrations under No.**9.21** of the RR.

J187A Use of the land mobile service for the public service in this band shall be subject to the condition that no harmful interference is caused to, and no protection is claimed from, stations of the fixed service and the fixed-satellite service.

J188 No emissions from space research service (Earth-to-space) systems intended for deep space shall be effected in the frequency band 7190-7235 MHz. Geostationary satellites in the space research service operating in the band 7190-7235 MHz shall not claim protection from existing and future stations of the fixed and mobile services and No. **5.43A** of the RR does not apply.

J188A The use of the frequency band 7 190-7 250 MHz (Earth-to-space) by the Earth exploration-satellite service shall be limited to tracking, telemetry and command for the operation of spacecraft. Space stations operating in the Earth exploration-satellite service (Earth-to-space) in the frequency band 7 190-7 250 MHz shall not claim protection from existing and future stations in the fixed and mobile services, and No. **5.43A** does not apply. No. **9.17** applies. Additionally, to ensure protection of the existing and future deployment of fixed and mobile services, the location of earth stations supporting spacecraft in the Earth exploration-satellite service in non-geostationary orbits or geostationary orbit shall maintain a separation

distance of at least 10 km and 50 km, respectively, from the respective border(s) of neighbouring countries, unless a shorter distance is otherwise agreed between the corresponding administrations.

J188B Space stations on the geostationary orbit operating in the Earth exploration-satellite service (Earth-to-space) in the frequency band 7 190-7 235 MHz shall not claim protection from existing and future stations of the space research service, and No. **5.43A** does not apply.

J189 The band 7250-7375MHz is also allocated to the mobile-satellite (space-to-Earth) service on a primary basis, subject to agreement obtained from other administrations under No. **9.21** of the RR.

J189A The frequency band 7375-7425MHz may also be used on a secondary basis by stations of the mobile-satellite service (space-to-Earth) that is closely related to the fixed-satellite service (space-to-Earth).

J189B The frequency band may also be used on a secondary basis by stations of the mobile-satellite service (space-to-Earth) that is closely related to the fixed-satellite service (space-to-Earth).

J190 The use of this frequency band by the meteorological-satellite service (space-to-Earth) is limited to non-geostationary-satellite systems.

J191 This band is also allocated to the mobile-satellite (Earth-to-space) service on a primary basis, subject to agreement obtained from other administrations under No. **9.21** of the RR.

J191A The frequency band may also be used on a secondary basis by stations of the mobile-satellite service (Earth-to-space) that is closely related to the fixed-satellite service (Earth-to-space).

J192 In the space research service, the use of the band 8400-8450MHz is limited to deep space.

J193 In this band, stations of the Earth exploration-satellite service (active) and the space research service (active) shall not cause harmful interference to, or constrain the use and development of, stations of the radiolocation service.

J194 In the bands 8850-9000MHz and 9200-9225MHz, the maritime radionavigation service is limited to shore-based radar.

J195 In this frequency band, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, systems identified in No. **5.337** of the RR operating in the aeronautical radionavigation service, or radar systems in the maritime radionavigation service operating in this band on a primary basis in the countries listed in No. **5.471** of the RR..

J196 The use of this band by the aeronautical radionavigation service is limited to airborne weather radar and ground-based radar. In addition, ground-based radar beacons of the aeronautical radionavigation service are permitted on condition that harmful interference is not caused to the maritime radionavigation service.

J197 The use of this frequency band by the Earth exploration-satellite service (active) and the space research service (active) is limited to systems requiring necessary bandwidth greater than 300 MHz that cannot be fully accommodated within the 9500-9800 MHz band.

J198 In this frequency band, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, radars operating in the radionavigation service in conformity with the Radio Regulations. Ground-based radars used for meteorological purposes have priority over other radiolocation stations.

J199 In this band, stations of the Earth exploration-satellite service (active) and the space research service (active) shall not cause harmful interference to, nor claim protection from, stations of the radionavigation and the radiolocation service.

J200 The use of the band 9800-9900 MHz by the Earth exploration-satellite service (active) and the space research service (active) is limited to systems requiring necessary bandwidth greater than 500 MHz that cannot be fully accommodated within the 9300-9800 MHz band.

J201 In the band 9800-9900 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, nor claim protection from stations of the fixed service to which this band is allocated on a secondary basis.

J202 The band 9975-10025MHz is also allocated to the meteorological-satellite service on a secondary basis for use by weather radar.

J203 The use of this frequency band is restricted to cases in which operation

does not cause harmful interference to the foreign radio stations whose service is except the amateur service and amateur-satellite service operating in accordance with the Table of Frequency Allocations of the RR.

J204 This frequency band is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis, limited to non-geostationary systems.

J205 Assignments to stations of the broadcasting-satellite service in conformity with the appropriate regional plan in Appendix 30 of the RR, may also be used for transmissions in the fixed-satellite service (space-to-Earth), provided that such transmissions do not cause more interference or require more protection from interference than the broadcasting-satellite service transmissions operating in conformity with this plan. With respect to the space services, this band shall be used principally for the broadcasting-satellite service.

J206 The use of the bands 10.95-11.2GHz (space-to-Earth), 11.45-11.7GHz (space-to-Earth), 12.2-12.75GHz (space-to-Earth), 13.75-14.5GHz (Earth-to-space), 17.8-18.6GHz (space-to-Earth), 19.7-20.2GHz (space-to-Earth), 27.5-28.6GHz (Earth-to-space), 29.5-30GHz (Earth-to-space) by a non-geostationary-satellite system in the fixed-satellite service is subject to application of the provisions of No. 9.12 for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. 5.43A of the RR does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated.

J207 In this frequency band, aircraft earth stations in the secondary aeronautical mobile-satellite service may also communicate with space stations in the fixed-satellite service. The provisions of Nos. 5.29, 5.30 and 5.31 of the RR apply.

J208 In the band 12.2-12.5GHz, VSAT Earth station shall not claim protection to the harmful interference from stations of the fixed service which is operated in the frequency band.

J209 The Earth exploration-satellite (active) and the space research (active) services operating in this frequency band shall not cause harmful interference to, or constrain the use and development of, the aeronautical radionavigation service.

J210 The use of this frequency band by the aeronautical radionavigation service is limited to Doppler navigation aids.

J211 The allocation of this frequency band to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of the band by the space research service are on a secondary basis.

J212 The use of this frequency band by the Earth exploration-satellite (active) and the space research (active) services shall not cause harmful interference to, or constrain the use and development of, the radiolocation service.

J212A The allocation of the frequency band 13.4-13.65 GHz to the space research service on a primary basis is limited to:

- satellite systems operating in the space research service (space-to-space) to relay data from space stations in the geostationary-satellite orbit to associated space stations in non-geostationary satellite orbits for which advance publication information has been received by the Bureau by 27 November 2015,

- active spaceborne sensors,

- satellite systems operating in the space research service (space-to-Earth) to relay data from space stations in the geostationary-satellite orbit to associated earth stations.

Other uses of the frequency band by the space research service are on a secondary basis.

J212B In the frequency band 13.4-13.65 GHz, satellite systems in the space research service (space-to-Earth) and/or the space research service (space-to-space) shall not cause harmful interference to, nor claim protection from, stations in the fixed, mobile, radiolocation and Earth exploration-satellite (active) services.

J213 See No.5.502 of the RR.

J214 See No.5.503 of the RR.

- J215** See No. **5.506A** of the RR.
- J216** The band 3400-3600MHz may also be used for the radiolocation service for the public service on a secondary basis.
- J217** See No. **5.511A** of the RR.
- J218** Stations of the aeronautical radionavigation service shall limit the effective equivalent isotropic radiated power (e.i.r.p.) in accordance with Recommendation ITU-R **S.1340-0**. The minimum coordination distance required to protect the aeronautical radionavigation stations (limited to the stations that are applied No. **4.10** of the RR) from harmful interference from feeder link earth stations and the maximum e.i.r.p. transmitted towards the local horizontal plane by a feeder link earth station shall be in accordance with Recommendation ITU-R **S.1340-0**.
- J219** In this frequency band, stations operating in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the aeronautical radionavigation service.
- J220** In order to protect the radio astronomy service in the frequency band 15.35-15.4 GHz, radiolocation stations operating in the frequency band 15.4-15.7 GHz shall not exceed the power flux-density level of -156dB(W/m²) in a 50 MHz bandwidth in the frequency band 15.35-15.4 GHz, at any radio astronomy observatory site for more than 2 per cent of the time.
- J221** Spaceborne active sensors operating in this frequency band shall not cause harmful interference to, or constrain the development of, the radiolocation and other services allocated on a primary basis.
- J222** The use of the band 17.3-18.1GHz and 18.1-18.4GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service.
- J223** This frequency band is also allocated to the meteorological-satellite service (space-to-Earth) on a primary basis. Its use is limited to geostationary-satellites.
- J224** The emissions of the fixed service and the fixed-satellite service in this frequency band are limited to the values given in Nos. **21.5A** and **21.16.2** of the RR, respectively.
- J225** The use of this frequency band by the fixed-satellite service is limited to geostationary systems and systems with an orbit of apogee greater than 20000 km.
- J226** See No. **5.523A** of the RR.
- J227** The use of the band 19.3-19.6GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for non-geostationary systems of the mobile-satellite service. Such use is subject to the application of the provisions of No. **9.11A** of the RR, and No. **22.2** of the RR does not apply.
- J228** The use of this frequency band (space-to-Earth) by geostationary fixed-satellite service systems and by feeder links for non-geostationary-satellite systems of the mobile-satellite service is subject to the application of the provisions of No. **9.11A** of the RR, but not subject to the provisions of No. **22.2** of the RR. The use of this band by other non-geostationary fixed-satellite service systems, or the cases indicated in Nos. **5.523C** and **5.523E** of the RR; however, this use shall continue to be subject to the procedures of Articles 9 (except No. **9.11A**) and **11** of the RR, as well as to the provisions of No. **22.2** of the RR.
- J229** See No. **5.523C** of the RR.
- J230** See No. **5.523E** of the RR.
- J231** The use of this frequency band by the fixed or the mobile services shall not impose any limitation on the power flux-density of space stations of the fixed-satellite service and of space stations of the mobile-satellite service operating in the band 19.7-20.2GHz, which is allocated to the mobile-satellite service is on a primary basis.
- J232** The bands 19.7-20.2GHz (space-to-Earth), 28.45-29.1GHz (Earth-to-space), 29.46-30GHz (Earth-to-space) and 40-40.5GHz (space-to-Earth) are identified for use by high-density applications in the fixed-satellite service
- J233** In order to facilitate interregional coordination between networks of the mobile-satellite and the fixed-satellite services, carriers of the mobile-satellite service that are most susceptible to interference shall, to the maximum extent practicable, be assigned in the higher parts of the bands 19.7-20.2GHz and 29.5-30GHz.
- J234** In the bands 19.7-20.2GHz and 29.5-30GHz, the provisions of **4.10** of the RR do not apply with respect to the mobile-satellite service.

J235 In the bands 20.1-20.2GHz and 29.9-30.0GHz, networks which are both in the fixed-satellite service and in the mobile-satellite service may include links between earth stations at specified or unspecified points or while in motion, through one or more satellites for point-to-point and point-to-multi-point communications.

J236 The allocation to the mobile-satellite service is intended to be used by networks that use narrow spot-beam antennas and other advanced technology on space stations. In operating the mobile-satellite service systems in this frequency band, all practicable steps shall be taken to ensure the continued availability of the bands assigned to fixed and mobile systems in accordance with the provisions of No.5.524 of the RR.

J237 Unless otherwise agreed between the administrations concerned, any station in the fixed or mobile services shall not produce a power flux-density in excess of $-120.4 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ at 3 m above the ground of any point of the territory of any other administration for more than 20% of the time. In conducting the calculations, Recommendation ITU-R P.452 (see Recommendation ITU-R BO.1898) should be used.

J238 In this frequency band, in order to facilitate the development of the broadcasting-satellite service, the deployment of stations of the fixed service and the mobile service can be limited.

J239 Not used.

J240 See Resolution 555 (WRC-12).

J241 The use of this band by the Earth exploration-satellite (passive) and the space research (passive) services shall not impose constraints upon the fixed and the mobile services.

J242 The location of earth stations in the space research service shall maintain a separation distance of at least 54 km from the respective border(s) of neighbouring countries to protect the existing and future deployment of fixed and mobile services unless a shorter distance is otherwise agreed between the corresponding administrations. Nos. 9.17 and 9.18 do not apply.

J243 The use of this frequency band by the fixed-satellite service (Earth-to-space) is limited to earth stations using a minimum antenna diameter of 4.5 m.

J244 The inter-satellite service to which this band is allocated shall not claim protection from harmful interference from airport surface detection equipment stations of the radionavigation service.

J245 In this band, feeder links to stations of the broadcasting-satellite service shall have priority over other uses of the fixed-satellite service (Earth-to-space). Such other uses shall not cause interference to and shall not claim protection from existing and planned feeder link networks of the satellite basic broadcast stations.

J246 The use of this band by the inter-satellite service is limited to the space research and the Earth exploration-satellite applications, and to transmissions of data originating from industrial and medical activities in space.

J247 Earth stations in the Earth exploration-satellite service or the space research service shall not claim protection from stations in the fixed and mobile services operated by other administrations. In addition, earth stations in the Earth exploration-satellite service or in the space research service should be operated taking into account Recommendations ITU-R SA.1862.

J248 Space services using non-geostationary-satellites operating in the inter-satellite service in this frequency band are exempt from the provisions of No.22.2 of the RR.

J249 This band may be used by the fixed-satellite service (Earth-to-space) for the provision of feeder links for the broadcasting-satellite service.

J250 The bands 27.500-27.501GHz and 29.999-30.000GHz are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis for the beacon transmissions intended for up-link power control. Such space-to-Earth transmissions shall not exceed an equivalent isotropic radiated power (e.i.r.p.) of +10dBW in the direction of adjacent satellites on the geostationary-satellite orbit.

J251 The band 27.501-29.999GHz is also allocated to the fixed-satellite service (space-to-Earth) on a secondary basis for beacon transmissions intended for up-link power control.

J252 The allocation to the fixed service in the band 27.9-28.2 GHz may also be assigned to high altitude platform stations (HAPS). The use of this frequency band by HAPS is the auxiliary frequency band. The use of this frequency band allocated to HAPS is further limited to operation in the HAPS-to-ground direction

and shall not cause harmful interference to, nor claim protection from, other types of fixed-service systems or other co-primary services. Furthermore, the development of these other services shall not be constrained by HAPS. See Resolution **145 (Rev.WRC-07)**.

J253 In this frequency band, the Earth exploration-satellite service is limited to the data transfer between stations and not to the primary collection of information by means of active or passive sensors.

J254 See No.**5.535A** of the RR.

J255 See No.**5.541** of the RR.

J255A In the bands 29.5-30GHz, portable mobile earth station established under Article 49.23.4 of Ordinance Regulating Radio Equipment located on board vessels may communicate with space stations of the fixed-satellite service. Such use shall be in accordance with Resolution **156 (WRC-15)**.

J256 The use of this frequency by the fixed and the mobile services shall be subject to the power limits specified in Nos. **21.3** and **21.5** of the RR.

J257 The band 29.95-30GHz may be used for space-to-space links of the Earth exploration-satellite service for telemetry, tracking, and control purposes, on a secondary basis.

J258 See No.**5.543A** of the RR.

J259 In this band, the power flux-density limits specified in Article **21**, Table **21-4** of the RR shall apply to the space research service.

J260 The bands 31.8-33.4 GHz, 37-40 GHz, 40.5-43.5 GHz, 51.4-52.6 GHz, 55.78-59 GHz and 64-66 GHz are available for high-density applications in the fixed service (see Resolutions **75 (WRC-2000)**).

J261 The potential interference between stations in the fixed service and airborne stations in the radionavigation service in this frequency band should be minimized, taking into account the operational needs of the airborne radar systems.

J262 In designing systems for the inter-satellite service in the band 32.3-33 GHz, for the radionavigation service in the band 32-33 GHz, and for the space research service (deep space) in the band 31.8-32.3 GHz, administrations shall take

all necessary measures to prevent harmful interference between these services, bearing in mind the safety aspects of the radionavigation service (see Recommendation **707**).

J263 In the band 35.5-36.0 GHz, the mean power flux-density at the Earth's surface, generated by any spaceborne sensor in the Earth exploration-satellite service (active) or space research service (active), for any angle greater than 0.8° from the beam centre shall not exceed -73.3 dB(W/m²) in this band.

J264 For sharing of the band 36-37 GHz between the Earth exploration-satellite (passive) service and the fixed and mobile services, Resolution **752 (WRC-07)** shall apply.

J265 See No.**5.551H** of the RR.

J266 See No.**5.551I** of the RR.

J267 In the bands 43.5-47GHz and 66-71GHz, stations of the land mobile service may be operated on condition that harmful interference is not caused to the space radiocommunication services to which these bands are allocated (see No.5.43 of the RR).

J268 In this band, satellite links connecting land stations at specified fixed points are also authorized when used in conjunction with the mobile-satellite service or the radionavigation-satellite service.

J269 All practicable steps shall be taken to reserve the band 47.2-49.2GHz for feeder links for the broadcasting-satellite service operating in the band 40.5-42.5GHz.

J270 The allocation to the fixed service in the bands 47.2-47.5GHz and 47.9-48.2GHz is designated for use by high altitude platform stations. The use of the bands 47.2-47.5GHz and 47.9-48.2GHz is subject to the provisions of Resolution **122 (Rev. WRC-07)**.

J271 The band 48.94-49.04GHz is also allocated to the radio astronomy service on a primary basis.

J272 The bands 51.4 - 54.25GHz, 58.2 - 59GHz and 64 - 65GHz may be used by the radio astronomy service.

J273 The use of this frequency band for mobile services (except for the unlicensed low-power service) is allowed only until 31 December 2021.

J274 The use of the bands 54.25-56.9GHz, 57-58.2GHz and 59-59.3GHz by the inter-satellite service is limited to satellites on the geostationary-satellite orbit. The single-entry power flux-density at all altitudes from 0km to 1000km above the Earth's surface produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, shall not exceed -147dBW/m²/100 MHz for all angles of arrival.

J275 This frequency band is also allocated to the mobile service on a primary basis for low-density use.

J276 In the band 55.78-56.26GHz, in order to protect stations in the Earth exploration-satellite service (passive), the maximum power density delivered by a transmitter to the antenna of a fixed service station is limited to -26dB(W/MHz).

J277 In this band, stations of the aeronautical mobile service may be operated on condition that harmful interference is not caused to the inter-satellite service (see No.5.43 of the RR).

J278 The use of this frequency band by inter-satellite systems is limited to links between satellites on geostationary-satellite orbit and to transmissions from non-geostationary satellites on high-Earth orbit to those on low-Earth orbit. For links between satellites on the geostationary-satellite orbit, the single entry power flux-density at all altitudes from 0km to 1000km above the Earth's surface, for all conditions and for all methods of modulation, shall not exceed -147dBW/m²/100 MHz for all angles of arrival.

J279 In this band, airborne radar of the radiolocation service may be operated on condition that harmful interference is not caused to the inter-satellite service (see No. 5.43 of the RR).

J280 In this frequency band, radar located on space stations may be operated on a primary basis in the Earth exploration-satellite service and in the space research service.

J281 The 81-81.5GHz band is also allocated to the amateur and amateur-satellite services on a secondary basis.

J282 In this frequency band, stations of the fixed, the mobile and the

broadcasting services shall not cause harmful interference to the broadcasting-satellite stations operating in accordance with the decisions of the appropriate frequency assignment planning conference for the broadcasting-satellite service.

J283 Use of this frequency band, by the fixed-satellite service (Earth-to-space) is limited to feeder links in the broadcasting-satellite service using the geostationary-satellite orbit.

J284 The use of this band by the Earth exploration-satellite (active) and the space research (active) services is limited to spaceborne cloud radar.

J285 Space agencies operating the transmitters and the radio astronomy stations concerned should mutually plan their operations so as to avoid interference to some radio astronomy receivers caused by transmissions from space stations of the Earth exploration-satellite service (active) that are directed into the main beam of a radio astronomy antenna in the frequency bands 94-94.1GHz and 130-134GHz to the maximum extent possible.

J286 In the bands 105-109.5GHz, 111.8-114.25GHz, 155.5-158.5GHz and 217-226GHz, the use of this allocation is limited to space-based radio astronomy only.

J287 Use of this frequency band by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, at all altitudes from 0km to 1000km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, shall not exceed -148dB(W/(m²·MHz)) for all angles of arrival.

J288 The allocation to the Earth exploration-satellite service (active) is limited to the band 133.5-134GHz.

J289 In this frequency band, the allocation to the Earth exploration-satellite (passive) and space research (passive) services shall terminate on 1 January 2018.

J290 Use of this frequency band by the fixed and mobile services shall begin on 1 January 2018.

J291 Use of the bands 174.8-182 GHz and 185-190 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry

power flux-density produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, at all altitudes from 0 to 1000km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, shall not exceed $-144\text{dB(W/(m}^2\cdot\text{MHz))}$ for all angles of arrival.

J292 In the bands 200-209GHz, 235-238GHz, 250-252GHz and 265-275GHz, ground-based passive atmospheric sensing is carried out to monitor atmospheric constituents.

J293 The band 237.9-238GHz is also allocated to the Earth exploration-satellite service (active) and the space research service (active) for spaceborne cloud radars only.

J294 The use of the range 275-1000GHz by the passive services does not preclude use of this range by active services.

J295 The frequency band 1000-3000GHz may be used by both active and passive services.