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## Radioreglementets fotnoter

Nedan återges i fulltext och på originalspråk de i frekvenstabellen angivna fotnoterna till det internationella radioreglementet.

- S5.53** Administrations authorizing the use of frequencies below 9 kHz shall ensure that no harmful interference is caused thereby to the services to which the bands above 9 kHz are allocated.
- S5.54** Administrations conducting scientific research using frequencies below 9 kHz are urged to advise other administrations that may be concerned in order that such research may be afforded all practicable protection from harmful interference.
- S5.56** The stations of services to which the bands 14 - 19.95 kHz and 20.05 - 70 kHz and in Region 1 also the bands 72 - 84 kHz and 86 - 90 kHz are allocated may transmit standard frequency and time signals. Such stations shall be afforded protection from harmful interference. In Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Republic, Russia, Tajikistan, Turkmenistan and Ukraine, the frequencies 25 kHz and 50 kHz will be used for this purpose under the same conditions.
- S5.57** The use of the bands 14 - 19.95 kHz, 20.05 - 70 kHz and 70 - 90 kHz (72 - 84 kHz and 86 - 90 kHz in Region 1) by the maritime mobile service is limited to coast radiotelegraph stations (A1A and F1B only). Exceptionally, the use of class J2B or J7B emissions is authorized subject to the necessary bandwidth not exceeding that normally used for class A1A or F1B emissions in the band concerned.
- S5.60** In the bands 70 - 90 kHz (70 - 86 kHz in Region 1) and 110 - 130 kHz (112 - 130 kHz in Region 1), pulsed radionavigation systems may be used on condition that they do not cause harmful interference to other services to which these bands are allocated.
- S5.62** Administrations which operate stations in the radionavigation service in the band 90 - 110 kHz are urged to coordinate technical and operating characteristics in such a way as to avoid harmful interference to the services provided by these stations.
- S5.64** Only classes A1A or F1B, A2C, A3C, F1C or F3C emissions are authorized for stations of the fixed service in the bands allocated to this service between 90 kHz and 160 kHz (148.5 kHz in Region 1) and for stations of the maritime mobile service in the bands allocated to this service between 110 kHz and 160 kHz (148.5 kHz in Region 1). Exceptionally, class J2B or J7B emissions are also authorized in the bands between 110 kHz and 160 kHz (148.5 kHz in Region 1) for stations of the maritime mobile service.

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- S5.73** In the band 285 - 325 kHz (283.5 - 325 kHz in Region 1), in the maritime radionavigation service, radiobeacon stations may also transmit supplementary navigational information using narrow-band techniques, on condition that the prime function of the beacon is not significantly degraded.
- S5.74** *Additional Allocation:* in Region 1, the frequency band 285.3 - 285.7 kHz is also allocated to the maritime radionavigation service (other than radiobeacons) on a primary basis.
- S5.76** The frequency 410 kHz is designated for radio direction-finding in the maritime radionavigation service. The other radionavigation services to which the band 405 - 415 kHz is allocated shall not cause harmful interference to radio direction-finding in the band 406.5 - 413.5 kHz.
- S5.79** The use of the bands 415 - 495 kHz and 505 - 526.5 kHz (505 - 510 kHz in Region 2) by the maritime mobile service is limited to radiotelegraphy.
- S5.81** The bands 490 - 495 kHz and 505 - 510 kHz shall be subject to the provisions of Appendix **S13** until the entry into force of the reduced guardband in accordance with Resolution **210 (Mob-87)**.
- S5.82** In the maritime mobile service, the frequency 490 kHz is, from the date of fullimplementation of the GMDSS (see Resolution **331 (Mob-87)**), 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. The conditions for use of the frequency 490 kHz are prescribed in Articles **S31** and **S52**, and Resolution **339 (WRC-95)**. In using the band 415 - 495 kHz for the aeronautical radionavigation service, administrations are requested to ensure that no harmful interference is caused to the frequency 490 kHz.
- S5.83** The frequency 500 kHz is an international distress and calling frequency for Morse radiotelegraphy. The conditions for its use are prescribed in Articles **S31** and **S52**, and in Appendix **S13**.
- S5.84** The conditions for the use of the frequency 518 kHz by the maritime mobile service are prescribed in Articles **S31** and **S52** and in Appendix **S13** (see Resolution **339 (WRC-95)**).
- S5.90** In the band 1 605 - 1 705 kHz, in cases where a broadcasting station of Region 2 is concerned, the service area of the maritime mobile stations in Region 1 shall be limited to that provided by ground-wave propagation.
- S5.92** Some countries of Region 1 use radiodetermination systems in the bands 1 606.5 - 1 625 kHz, 1 635 - 1 800 kHz, 1 850 - 2 160 kHz, 2 194 - 2 300 kHz, 2 502 - 2 850 kHz and 3 500 - 3 800 kHz, subject to agreement obtained under No. **S9.21**. The radiated mean power of these stations shall not exceed 50 W.

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- S5.96** In Germany, Armenia, Azerbaijan, Belarus, Denmark, Estonia, Finland, Georgia, Hungary, Ireland, Israel, Jordan, Kazakstan, Latvia, Lithuania, Malta, Moldova, Norway, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Republic, the United Kingdom, Russia, Sweden, Tajikistan, Turkmenistan and Ukraine, administrations may allocate up to 200 kHz to their amateur service in the bands 1 715 - 1 800 kHz and 1 850 - 2 000 kHz. However, when allocating the 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 W.
- S5.100** In Region 1, the authorization to use the band 1 810 - 1 830 kHz by the amateur service in countries situated totally or partially north of 40° N shall be given only after consultation with the countries mentioned in Nos. **S5.98** and **S5.99** to define the necessary steps to be taken to prevent harmful interference between amateur stations and stations of other services operating in accordance with Nos. **S5.98** and **S5.99**.
- S5.103** In Region 1, in making assignments to stations in the fixed and mobile services in the bands 1 850 - 2 045 kHz, 2 194 - 2 498 kHz, 2 502 - 2 625 kHz and 2 650 - 2 850 kHz, administrations should bear in mind the special requirements of the maritime mobile service.
- S5.104** In Region 1, the use of the band 2 025 - 2 045 kHz by the meteorological aids service is limited to oceanographic buoy stations.
- S5.108** The carrier frequency 2 182 kHz is an international distress and calling frequency for radiotelephony. The conditions for the use of the band 2 173.5 - 2 190.5 kHz are prescribed in Articles **S31** and **S52** and in Appendix **S13**.
- S5.109** The frequencies 2 187.5 kHz, 4 207.5 kHz, 6 312 kHz, 8 414.5 kHz, 12 577 kHz and 16 804.5 kHz are international distress frequencies for digital selective calling. The conditions for the use of these frequencies are prescribed in Article **S31**.
- S5.110** The frequencies 2 174.5 kHz, 4 177.5 kHz, 6 268 kHz, 8 376.5 kHz, 12 520 kHz and 16 695 kHz are international distress frequencies for narrow-band direct-printing telegraphy. The conditions for the use of these frequencies are prescribed in Article **S31**.
- S5.111** The carrier frequencies 2 182 kHz, 3 023 kHz, 5 680 kHz, 8 364 kHz and the frequencies 121.5 MHz, 156.8 MHz and 243 MHz may also be used, in accordance with the procedures in force for terrestrial radiocommunication services, for search and rescue operations concerning manned space vehicles. The conditions for the use of the frequencies are prescribed in Article **S31** and in Appendix **S13**. The same applies to the frequencies 10 003 kHz, 14 993 kHz and 19 993 kHz, but in each of these cases emissions must be confined in a band of  $\pm 3$  kHz about the frequency.

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- S5.113** For the conditions for the use of the bands 2 300 - 2 495 kHz (2 498 kHz in Region 1), 3 200 - 3 400 kHz, 4 750 - 4 995 kHz and 5 005 - 5 060 kHz by the broadcasting service, see Nos. **S5.16** to **S5.20**, **S5.21** and **S23.3** to **S23.10**.
- S5.115** The carrier (reference) frequencies 3 023 kHz and 5 680 kHz may also be used, in accordance with Article **S31** and Appendix **S13** by stations of the maritime mobile service engaged in co-ordinated search and rescue operations.
- S5.116** Administrations are urged to authorize the use of the band 3 155 - 3 195 kHz to provide a common worldwide channel for low power wireless hearing aids. Additional channels for these devices may be assigned by administrations in the bands between 3 155 kHz and 3 400 kHz to suit local needs.  
It should be noted that frequencies in the range 3 000 kHz to 4 000 kHz are suitable for hearing aid devices which are designed to operate over short distances within the induction field.
- S5.120** For the use of the bands allocated to the amateur service at 3.5 MHz, 7.0 MHz, 10.1 MHz, 14.0 MHz, 18.068 MHz, 21.0 MHz, 24.89 MHz and 144 MHz in the event of natural disasters, see Resolution **640**.
- S5.127** The use of the band 4 000 - 4 063 kHz by the maritime mobile service is limited to ship stations using radiotelephony (see No. **S52.220** and Appendix **S17**).
- S5.129** On condition that harmful interference is not caused to the maritime mobile service, the frequencies in the bands 4 063 - 4 123 kHz and 4 130 - 4 438 kHz may be used exceptionally by stations in the fixed service communicating only within the boundary of the country in which they are located with a mean power not exceeding 50 W.
- S5.130** The conditions for the use of the carrier frequencies 4 125 kHz and 6 215 kHz are prescribed in Articles **S31** and **S52** and in Appendix **S13**.
- S5.131** The frequency 4 209.5 kHz 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 (see Resolution **339 WRC-95**).
- S5.132** The frequencies 4 210 kHz, 6 314 kHz, 8 416.5 kHz, 12 579 kHz, 16 806.5 kHz, 19 680.5 kHz, 22 376 kHz and 26 100.5 kHz are the international frequencies for the transmission of Maritime Safety Information (MSI) (see Resolution **333 (Mob-87)** and Appendix **S17**).
- S5.134** The use of the bands 5 900 - 5 950 kHz, 7 300 - 7 350 kHz, 9 400 - 9 500 kHz, 11 600 - 11 650 kHz, 12 050 - 12 100 kHz, 13 570 - 13 600 kHz, 13 800 - 13 870 kHz, 15 600 - 15 800 kHz, 17 480 - 17 550 kHz and 18 900 - 19 020 kHz by the broadcasting service is limited to single-sideband emissions with the characteristics specified in Appendix **S11** to the Radio Regulations.

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**S5.135** The use of the bands 5 900 - 5 950 kHz, 7 300 - 7 350 kHz, 9 400 - 9 500 kHz, 11 600 - 11 650 kHz, 12 050 - 12 100 kHz, 13 570 - 13 600 kHz, 13 800 - 13 870 kHz, 15 600 - 15 800 kHz, 17 480 - 17 550 kHz and 18 900 - 19 020 kHz by the broadcasting service shall be subject to the planning procedures to be drawn up by a competent world radio conference.

**S5.136** The band 5 900 - 5 950 kHz is allocated, until 1 April 2007, to the fixed service on a primary basis, as well as to the following services: in Region 1 to the land mobile service on a primary basis, in Region 2 to the mobile except aeronautical mobile (R) service on a primary basis, and in Region 3 to the mobile except aeronautical mobile (R) service on a secondary basis, subject to application of the procedure referred to in Resolution **21 (Rev.WRC-95)**. After 1 April 2007, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on the 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.

**S5.137** On condition that harmful interference is not caused to the maritime mobile service, the bands 6 200 - 6 213.5 kHz and 6 220.5 - 6 525 kHz may be used exceptionally by stations in the fixed service, communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 W. At the time of notification of these frequencies, the attention of the Bureau will be drawn to the above conditions.

**S5.138** The following bands:

|                     |  |
|---------------------|--|
| 6 765 - 6 795 kHz   | (centre frequency 6 780 kHz),  |
| 433.5 - 434.79 MHz  | (centre frequency 433.92 MHz) in Region 1 except in the countries mentioned in No. <b>S5.280</b> , |
| 433.1 61 - 61.5 GHz | (centre frequency 61.25 GHz),  |
| 122 - 123 GHz       | (centre frequency 122.5 GHz), and  |
| 244 - 246 GHz       | (centre frequency 245 GHz)   |

are designated for industrial, scientific and medical (ISM) applications. The use of these frequency bands for ISM applications shall be subject to special authorization by the administration concerned, in agreement with other administrations whose radiocommunication services might be affected. In applying this provision, administrations shall have due regard to the latest relevant ITU-R Recommendations.

**S5.143** The band 7 300 - 7 350 kHz is allocated, until 1 April 2007, to the fixed service on a primary basis and to the land mobile service on a secondary basis, subject to application of the procedure referred to in Resolution **21 (Rev.WRC-95)**. After 1 April 2007, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting

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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.

- S5.145** The conditions for the use of the carrier frequencies 8 291 kHz, 12 290 kHz and 16 420 kHz are prescribed in Articles **S31** and **S52** and in Appendix **S13**.
- S5.146** The bands 9 400 - 9 500 kHz, 11 600 - 11 650 kHz, 12 050 - 12 100 kHz, 15 600 - 15 800 kHz, 17 480 - 17 550 kHz and 18 900 - 19 020 kHz are allocated to the fixed service on a primary basis until 1 April 2007, subject to application of the procedure referred to in Resolution **21 (Rev.WRC-95)**. After 1 April 2007, frequencies in these bands may be used by stations in the fixed service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies in the fixed service, 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.
- S5.147** On condition that harmful interference is not caused to the broadcasting service, frequencies in the bands 9 775 - 9 900 kHz, 11 650 - 11 700 kHz and 11 975 - 12 050 kHz may be used by stations in the fixed service communicating only within the boundary of the country in which they are located, each station using a total radiated power not exceeding 24 dBW.
- S5.148** The bands 9 775 - 9 900 kHz, 11 650 - 11 700 kHz, 11 975 - 12 050 kHz, 13 600 - 13 800 kHz, 15 450 - 15 600 kHz, 17 550 - 17 700 kHz and 21 750 - 21 850 kHz are allocated to the fixed service on a primary basis subject to the procedure described in Resolution **8**. The use of these bands by the broadcasting service shall be subject to provisions established by the World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (see Resolution **508**). The provisions of Resolution **512 (HFBC-87)** also apply. Within these bands, the date of commencement of operations in the broadcasting service on a planned channel shall not be earlier than the date of completion of satisfactory transfer, according to the procedures described in Resolution **8**, of all assignments to stations in the fixed service operating in accordance with the Table and other provisions of the Radio Regulations, which are recorded in the Master Register and which may be affected by broadcasting operations on that channel.

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**S5.149** In making assignments to stations of other services to which the bands:

|                                   |                                     |
|-----------------------------------|-------------------------------------|
| 13 360 - 13 410 kHz,              | 31.5 - 31.8 GHz in Regions 1 and 3, |
| 25 550 - 25 670 kHz,              | 36.43 - 36.5 GHz*,                  |
| 37.5 - 38.25 MHz,                 | 42.5 - 43.5 GHz,                    |
| 73 - 74.6 MHz in Regions 1 and 3, | 42.77 - 42.87 GHz*,                 |
| 79.75 - 80.25 MHz in Region 3,    | 43.07 - 43.17 GHz*,                 |
| 150.05 - 153 MHz in Region 1,     | 43.37 - 43.47 GHz*,                 |
| 322 - 328.6 MHz*,                 | 48.94 - 49.04 GHz*,                 |
| 406.1 - 410 MHz,                  | 72.77 - 72.91 GHz*,                 |
| 608 - 614 MHz in Regions 1 and 3, | 93.07 - 93.27 GHz*,                 |
| 1 330 - 1 400 MHz*,               | 97.88 - 98.08 GHz*,                 |
| 1 610.6 - 1 613.8 MHz*,           | 140.69 - 140.98 GHz*,               |
| 1 660 - 1 670 MHz,                | 144.68 - 144.98 GHz*,               |
| 1 718.8 - 1 722.2 MHz*,           | 145.45 - 145.75 GHz*,               |
| 2 655 - 2 690 MHz,                | 146.82 - 147.12 GHz*,               |
| 3 260 - 3 267 MHz*,               | 150 - 151 GHz*,                     |
| 3 332 - 3 339 MHz*,               | 174.42 - 175.02 GHz*,               |
| 3 345.8 - 3 352.5 MHz*,           | 177 - 177.4 GHz*,                   |
| 4 825 - 4 835 MHz*,               | 178.2 - 178.6 GHz*,                 |
| 4 950 - 4 990 MHz,                | 181 - 181.46 GHz*,                  |
| 4 990 - 5 000 MHz,                | 186.2 - 186.6 GHz*,                 |
| 6 650 - 6 675.2 MHz*,             | 250 - 251 GHz*,                     |
| 10.6 - 10.68 GHz,                 | 257.5 - 258 GHz*,                   |
| 14.47 - 14.5 GHz*,                | 261 - 265 GHz,                      |
| 22.01 - 22.21 GHz*,               | 262.24 - 262.76 GHz*,               |
| 22.21 - 22.5 GHz,                 | 265 - 275 GHz,                      |
| 22.81 - 22.86 GHz*,               | 265.64 - 266.16 GHz*,               |
| 23.07 - 23.12 GHz*,               | 267.34 - 267.86 GHz*,               |
| 31.2 - 31.3 GHz,                  | 271.74 - 272.26 GHz*                |

are allocated (\* indicates radio astronomy use for spectral line observations), administrations are urged to take all practicable steps 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. **S4.5** and **S4.6** and Article **S29**).

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**S5.150** The following bands:

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|---------------------|---|
| 13 553 - 13 567 kHz | (centre frequency 13 560 kHz),          |
| 26 957 - 27 283 kHz | (centre frequency 27 120 kHz),          |
| 40.66 - 40.70 MHz   | (centre frequency 40.68 MHz),           |
| 902 - 928 MHz       | in Region 2 (centre frequency 915 MHz), |
| 2 400 - 2 500 MHz   | (centre frequency 2 450 MHz),           |
| 5 725 - 5 875 MHz   | (centre frequency 5 800 MHz), and       |
| 24 - 24.25 GHz      | (centre frequency 24.125 GHz)           |

are also designated for industrial, scientific and medical (ISM) applications. Radiocommunication services operating within these bands must accept harmful interference which may be caused by these applications. ISM equipment operating in these bands is subject to the provisions of No. **S15.13**.

**S5.151** The bands 13 570 - 13 600 kHz and 13 800 - 13 870 kHz are allocated, until 1 April 2007, to the fixed service on a primary basis and to the mobile except aeronautical mobile (R) service on a secondary basis, subject to application of the procedure referred to in Resolution **21 (Rev.WRC-95)**. After 1 April 2007, frequencies in these bands may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on the condition that harmful interference is not caused to the broadcasting service. When using frequencies in 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.

**S5.155B** The band 21 870 - 21 924 kHz is used by the fixed service for provision of services related to aircraft flight safety.

**S5.156A** The use of the band 23 200 - 23 350 kHz by the fixed service is limited to provision of services related to aircraft flight safety.

**S5.157** The use of the band 23 350 - 24 000 kHz by the maritime mobile service is limited to inter-ship radiotelegraphy.

**S5.164** *Additional allocation:* in Albania, Germany, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Côte d'Ivoire, Denmark, Spain, Finland, France, Gabon, Greece, Ireland, Israel, Italy, Jordan, Lebanon, Libya, Liechtenstein, Luxembourg, Madagascar, Mali, Malta, Morocco, Mauritania, Monaco, Nigeria, Norway, the Netherlands, Poland, Syria, the United Kingdom, Senegal, Slovenia, Sweden, Switzerland, Swaziland, Togo, Tunisia, Turkey and Yugoslavia, the band 47 - 68 MHz and in Romania, the band 47 -58 MHz, are also allocated to the land mobile service on a primary basis. However, stations of the land mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations of countries other than those mentioned in connection with the band.

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- S5.180** The frequency 75 MHz is assigned to marker beacons. Administrations shall refrain from assigning frequencies close to the limits of the guardband to stations of other services which, because of their power or geographical position, might cause harmful interference or otherwise place a constraint on marker beacons. Every effort should be made to improve further the characteristics of airborne receivers and to limit the power of transmitting stations close to the limits 74.8 MHz and 75.2 MHz.
- S5.181** *Additional allocation:* in Germany, Austria, Belgium, Cyprus, Denmark, Egypt, Spain, France, Greece, Israel, Italy, Japan, Jordan, Lebanon, Malta, Morocco, Monaco, Norway, Syria, the United Kingdom, Sweden and Switzerland, the band 74.8 - 75.2 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. **S9.21**. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedure invoked under No. **S9.21**.
- S5.197** *Additional allocation:* in Germany, Austria, Cyprus, Denmark, Egypt, Spain, France, Israel, Italy, Japan, Jordan, Lebanon, Malta, Morocco, Monaco, Norway, Pakistan, Syria, the United Kingdom and Sweden, the band 108 - 111.975 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. **S9.21**. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedures invoked under No. **S9.21**.
- S5.198** *Additional allocation:* the band 117.975 - 137 MHz is also allocated to the aeronautical mobilesatellite (R) service on a secondary basis, subject to agreement obtained under No. **S9.21**.
- S5.199** The bands 121.45 - 121.55 MHz and 242.95 - 243.05 MHz are also allocated to the mobilesatellite service for the reception on board satellites of emissions from emergency position-indicating radiobeacons transmitting at 121.5 MHz and 243 MHz (see Appendix **S13**).
- S5.200** In the band 117.975 - 136 MHz, the frequency 121.5 MHz is the aeronautical emergency frequency and, where required, the frequency 123.1 MHz is the aeronautical frequency auxiliary to 121.5 MHz. Mobile stations of the maritime mobile service may communicate on these frequencies under the conditions laid down in Article **S31** and Appendix **S13** for distress and safety purposes with stations of the aeronautical mobile service.
- S5.203** *Additional allocation:* the band 136 - 137 MHz is also allocated to the space operation service (space-to-Earth), meteorological-satellite service (space-to-Earth) and the space research service (space-to-Earth) on a secondary basis (see Resolution **408 (Mob-87)**).

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- S5.208** The use of the band 137 - 138 MHz by the mobile-satellite service is subject to coordination under Resolution **46 (Rev.WRC-95)/No. S9.11A**. The power flux-density limit indicated in Annex 2 of Resolution **46 (Rev.WRC-95)/Annex 1** of Appendix **S5** shall apply until such time as a competent world radiocommunication conference revises it. Additionally, until that time, the provisions of Resolution **714 (WRC-95)** apply.
- S5.208A** In making assignments to space stations in the mobile-satellite service in the bands 137 - 138 MHz, 387 - 390 MHz and 400.15 - 401 MHz, administrations shall take all practicable steps to protect the radio astronomy service in the bands 150.05 - 153 MHz, 322 - 328.6 MHz, 406.1 - 410 MHz and 608 - 614 MHz from harmful interference from unwanted emissions. For information, the threshold levels of interference detrimental to the radio astronomy service to be protected are shown in Table 1 of Recommendation ITU-R RA.769-1.
- S5.209** The use of the bands 137 - 138 MHz, 148 - 149.9 MHz, 400.15 - 401 MHz, 455 - 456 MHz and 459 - 460 MHz by the mobile-satellite service and the bands 149.9 - 150.05 MHz and 399.9 - 400.05 MHz by the land mobile-satellite service is limited to non-geostationary-satellite systems.
- S5.211** *Additional allocation:* in Germany, Saudi Arabia, Austria, Bahrain, Belgium, Bosnia and Herzegovina, Denmark, the United Arab Emirates, Spain, Finland, Greece, Ireland, Israel, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Liechtenstein, Luxembourg, Mali, Malta, Norway, the Netherlands, Qatar, the United Kingdom, Slovenia, Somalia, Sweden, Switzerland, Tanzania, Tunisia, Turkey and Yugoslavia, the band 138 - 144 MHz is also allocated to the maritime mobile and land mobile services on a primary basis.
- S5.218** *Additional allocation:* the band 148 - 149.9 MHz is also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under No. **S9.21**. The bandwidth of any individual transmission shall not exceed  $\pm 25$  kHz.
- S5.219** The use of the band 148 - 149.9 MHz by the mobile-satellite service is subject to coordination under Resolution **46 (Rev.WRC-95)/No. S9.11A**. The mobile-satellite service shall not constrain the development and use of the fixed, mobile and space operation services in the band 148 - 149.9 MHz.
- S5.220** The use of the bands 149.9 - 150.05 MHz and 399.9 - 400.05 MHz by the land mobile-satellite service is subject to coordination under Resolution **46 (Rev.WRC-95)/No. S9.11A**. The land mobile-satellite service shall not constrain the development and use of the radionavigation-satellite service in the bands 149.9 - 150.05 MHz and 399.9 - 400.05 MHz.

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- S5.221** Stations of the mobile-satellite service in the band 148 - 149.9 MHz shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations in the following countries: Albania, Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Benin, Bosnia and Herzegovina, Brunei Darussalam, Bulgaria, Burkina Faso, Cameroon, Canada, China, Cyprus, Colombia, Congo, the Republic of Korea, Croatia, Cuba, Denmark, Egypt, the United Arab Emirates, Ecuador, Eritrea, Spain, Estonia, Ethiopia, Finland, France, Gabon, Ghana, Greece, Guinea, Guinea Bissau, Honduras, Hungary, India, Indonesia, the Islamic Republic of Iran, Ireland, Iceland, Israel, Italy, Jamaica, Japan, Jordan, Kazakstan, Kenya, Kuwait, Latvia, The Former Yugoslav Republic of Macedonia, Lebanon, Libya, Liechtenstein, Luxembourg, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, Philippines, Poland, Portugal, Qatar, Syria, Kyrgyzstan, Slovakia, Romania, the United Kingdom, Russia, Senegal, Sierra Leone, Singapore, Slovenia, Sri Lanka, South Africa, Sweden, Switzerland, Suriname, Swaziland, Tanzania, Chad, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Viet Nam, Yemen, Yugoslavia, Zambia, and Zimbabwe.
- S5.222** Emissions of the radionavigation-satellite service in the bands 149.9 - 150.05 MHz and - 400.05 MHz may also be used by receiving earth stations of the space research service.
- S5.223** Recognizing that the use of the band 149.9 - 150.05 MHz by the fixed and mobile services may cause harmful interference to the radionavigation-satellite service, administrations are urged not to authorize such use in application of No. **S4.4**.
- S5.224** In the bands 149.9 - 150.05 MHz and 399.9 - 400.05 MHz, the allocation to the land mobile-satellite service shall be on a secondary basis until 1 January 1997.
- S5.226** The frequency 156.8 MHz is the international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service. The conditions for the use of this frequency are contained in Article **S31** and Appendix **S13**. In the bands 156 - 156.7625 MHz, 156.8375 - 157.45 MHz, 160.6 - 160.975 MHz and 161.475 - 162.05 MHz, 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 the administration (see Articles **S31** and **S52**, and Appendix **S13**). 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 radiocommunication service. However, the frequency 156.8 MHz and the frequency bands in which priority is given to the maritime mobile service may be used for radiocommunications on inland waterways subject to agreement between interested and affected administrations and taking into account current frequency usage and existing agreements.

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- S5.227** In the maritime mobile VHF service the frequency 156.525 MHz is to be used exclusively for digital selective calling for distress, safety and calling (see Resolution **323 (Mob-87)**). The conditions for the use of this frequency are prescribed in Articles **S31** and **S52**, and Appendices **S13** and **S18**.
- S5.235** *Additional allocation:* in Germany, Austria, Belgium, Denmark, Spain, Finland, France, Israel, Italy, Liechtenstein, Malta, Monaco, Norway, the Netherlands, the United Kingdom, Sweden and Switzerland, the band 174 - 223 MHz is also allocated to the land mobile service on a primary basis. However, the stations of the land mobile service shall not cause harmful interference to, or claim protection from, broadcasting stations, existing or planned, in countries other than those listed in this footnote.
- S5.254** The bands 235 - 322 MHz and 335.4 - 399.9 MHz may be used by the mobile-satellite service, subject to agreement obtained under No. **S9.21**, on condition that stations in this service do not cause harmful interference to those of other services operating or planned to be operated in accordance with the Table of Frequency Allocations.
- S5.255** The bands 312 - 315 MHz (Earth-to-space) and 387 - 390 MHz (space-to-Earth) in the mobile-satellite service may also be used by non-geostationary-satellite systems. Such use is subject to coordination under Resolution **46 (Rev.WRC-95)/No. S9.11A**.
- S5.256** The frequency 243 MHz is the frequency in this band for use by survival craft stations and equipment used for survival purposes (see Appendix **S13**).
- S5.257** The band 267 - 272 MHz may be used by administrations for space telemetry in their countries on a primary basis, subject to agreement obtained under No. **S9.21**.
- S5.258** The use of the band 328.6 - 335.4 MHz by the aeronautical radionavigation service is limited to Instrument Landing Systems (glide path).
- S5.259** *Additional allocation:* in Germany, Austria, Belgium, Cyprus, Denmark, Egypt, Spain, France, Greece, Israel, Italy, Japan, Jordan, Malta, Morocco, Monaco, Norway, the Netherlands, Syria, the United Kingdom, Sweden and Switzerland, the band 328.6 - 335.4 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. **S9.21**. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedure invoked under No. **S9.21**.
- S5.260** Recognizing that the use of the band 399.9 - 400.05 MHz by the fixed and mobile services may cause harmful interference to the radionavigation satellite service, administrations are urged not to authorize such use in application of No. **S4.4**.
- S5.261** Emissions shall be confined in a band of  $\pm 25$  kHz about the standard frequency 400.1 MHz.

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- S5.263** The band 400.15 - 401 MHz is also allocated to the space research service in the space-to-space direction for communications with manned space vehicles. In this application, the space research service will not be regarded as a safety service.
- S5.264** The use of the band 400.15 - 401 MHz by the mobile-satellite service is subject to coordination under Resolution **46 (Rev.WRC-95)/No. S9.11A**. The power flux-density limit indicated in Annex 2 of Resolution **46 (Rev. WRC-95)/Annex 1** of Appendix **S5** shall apply until such time as a competent world radiocommunication conference revises it.
- S5.266** The use of the band 406 - 406.1 MHz by the mobile-satellite service is limited to low power satellite emergency position-indicating radiobeacons (see also Article **S31** and Appendix **S13**).
- S5.267** Any emission capable of causing harmful interference to the authorized uses of the band 406 - MHz is prohibited.
- S5.268** Use of the band 410 - 420 MHz by the space research service is limited to communications within 5 km of an orbiting, manned space vehicle.
- S5.274** *Alternative allocation:* in Denmark, Norway and Sweden, the bands 430 - 432 MHz and 438 - 440 MHz are allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.
- S5.282** In the bands 435 - 438 MHz, 1 260 - 1 270 MHz, 2 400 - 2 450 MHz, 3 400 - 3 410 MHz (in Regions 2 and 3 only) and 5 650 - 5 670 MHz, the amateur-satellite service may operate subject to not causing harmful interference to other services operating in accordance with the Table (see No. **S5.43**). Administrations authorizing such use shall ensure that any harmful interference caused by emissions from a station in the amateur-satellite service is immediately eliminated in accordance with the provisions of No. **S25.11**. The use of the bands 1 260 - 1 270 MHz and 5 650 - 5 670 MHz by the amateur-satellite service is limited to the Earth-to-space direction.
- S5.286** The band 449.75 - 450.25 MHz may be used for the space operation service (Earth-to-space) and the space research service (Earth-to-space), subject to agreement obtained under No. **S9.21**.
- S5.286B** Stations in the mobile-satellite service in the bands 455 - 456 MHz and 459 - 460 MHz shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services.
- S5.287** In the maritime mobile service, the frequencies 457.525 MHz, 457.550 MHz, 457.575 MHz, 467.525 MHz, 467.550 MHz and 467.575 MHz may be used by on-board communication stations. The use of these frequencies in territorial waters may be subject to the national regulations of the administration concerned. The characteristics of the equipment used shall conform to those specified in Recommendation ITU-R M.1174.

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- S5.289** Earth exploration-satellite service applications, other than the meteorological-satellite service, may also be used in the bands 460 - 470 MHz and 1 690 - 1 710 MHz for space-to-Earth transmissions subject to not causing harmful interference to stations operating in accordance with the Table.
- S5.296** *Additional allocation:* in Germany, Austria, Belgium, Cyprus, Denmark, Spain, Finland, France, Ireland, Israel, Italy, Libya, Malta, Morocco, Monaco, Norway, the Netherlands, Portugal, Syria, the United Kingdom, Sweden, Switzerland, Swaziland, Tunisia and Turkey, the band 470 -790 MHz is also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting. Stations of the land mobile service in the countries mentioned in this footnote, shall not cause harmful interference to existing or planned stations operating in accordance with the Table of Frequency Allocations in countries other than those listed in this footnote.
- S5.306** *Additional allocation:* in Region 1, except in the African Broadcasting Area (see Nos. **S5.10** to **S5.13**), and in Region 3, the band 608 - 614 MHz is also allocated to the radio astronomy service on a secondary basis.
- S5.311** Within the frequency band 620 - 790 MHz, assignments may be made to television stations using frequency modulation in the broadcasting-satellite service subject to agreement between the administrations concerned and those having services, operating in accordance with the Table, which may be affected (see Resolutions **33** and **507**). Such stations shall not produce a power flux-density in excess of the value  $-129$  dB(W/m<sup>2</sup>) for angles of arrival less than 20° (see Recommendation **705**) within the territories of other countries without the consent of the administrations of those countries.
- S5.316** *Additional allocation:* in Germany, Bosnia and Herzegovina, Burkina Faso, Cameroon, Côte d'Ivoire, Croatia, Denmark, Egypt, Finland, Israel, Kenya, The Former Yugoslav Republic of Macedonia, Libya, Liechtenstein, Monaco, Norway, the Netherlands, Portugal, Sweden, Switzerland and Yugoslavia, the band 790 - 830 MHz, and in these same countries and in Spain, France, Gabon, Malta and Syria, the band 830 - 862 MHz, are also allocated to the mobile, except aeronautical mobile, service on a primary basis. However, stations of the mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, stations of services operating in accordance with the Table in countries other than those mentioned in connection with the band.
- S5.328** The band 960 - 1 215 MHz is reserved on a worldwide basis for the use and development of airborne electronic aids to air navigation and any directly associated ground-based facilities.
- S5.329** Use of the radionavigation-satellite service in the band 1 215 - 1 260 MHz shall be subject to the condition that no harmful interference is caused to the radionavigation service authorized under No. **S5.331**.

- S5.331** *Additional allocation:* in Algeria, Germany, Austria, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Burundi, Cameroon, China, Croatia, Denmark, the United Arab Emirates, France, Greece, India, the Islamic Republic of Iran, Iraq, Kenya, The Former Yugoslav Republic of Macedonia, Liechtenstein, Luxembourg, Mali, Mauritania, Norway, Oman, Pakistan, the Netherlands, Portugal, Qatar, Senegal, Slovenia, Somalia, Sudan, Sri Lanka, Sweden, Switzerland, Turkey and Yugoslavia, the band 1 215 - 1 300 MHz is also allocated to the radionavigation service on a primary basis.
- S5.333** In the bands 1 215 - 1 300 MHz, 3 100 - 3 300 MHz, 5 250 - 5 350 MHz, 8 550 - 8 650 MHz, 9 500 - 9 800 MHz and 13.4 - 14.0 GHz, radiolocation stations installed on spacecraft may also be employed for the earth exploration-satellite and space research services on a secondary basis.
- S5.337** The use of the bands 1 300 - 1 350 MHz, 2 700 - 2 900 MHz and 9 000 - 9 200 MHz by the aeronautical radionavigation service is restricted to ground-based radars and to associated airborne transponders which transmit only on frequencies in these bands and only when actuated by radars operating in the same band.
- S5.339** The bands 1 370 - 1 400 MHz, 2 640 - 2 655 MHz, 4 950 - 4 990 MHz and 15.20 - 15.35 GHz are also allocated to the space research (passive) and earth exploration-satellite (passive) services on a secondary basis.
- S5.340** All emissions are prohibited in the following bands:
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| 1 400 - 1 427 MHz,<br>2 690 - 2 700 MHz  | except those provided for by Nos. <b>S5.421</b> and <b>S5.422</b> ,   |
| 10.68 - 10.7 GHz<br>15.35 - 15.4 GHz<br>23.6 - 24 GHz,<br>31.3 - 31.5 GHz,<br>31.5 - 31.8 GHz<br>48.94 - 49.04 GHz<br>51.4 - 54.25 GHz,<br>58.2 - 59 GHz,<br>64 - 65 GHz,<br>86 - 92 GHz,<br>105 - 116 GHz,<br>140.69 - 140.98 GHz | except those provided for by No. <b>S5.483</b> ,<br>except those provided for by No. <b>S5.511</b> ,<br><br>in Region 2,<br>from airborne stations, |
| 182 - 185 GHz<br>217 - 231 GHz.  | from airborne stations and from space stations in the<br>space-to-Earth direction,<br>except those provided for by No. <b>S5.563</b> ,              |
- S5.341** In the bands 1 400 - 1 727 MHz, 101 - 120 GHz and 197 - 220 GHz, passive research is being conducted by some countries in a programme for the search for intentional emissions of extraterrestrial origin.

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- S5.345** Use of the band 1 452 - 1 492 MHz by the broadcasting-satellite service, and by the broadcasting service, is limited to digital audio broadcasting and is subject to the provisions of Resolution **528 (WARC-92)**.
- S5.347** *Different category of service:* in Bangladesh, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Colombia, Cuba, Denmark, Egypt, Spain, Greece, Hungary, Ireland, Italy, Jordan, Kenya, The Former Yugoslav Republic of Macedonia, Malawi, Mozambique, Panama, Portugal, Sri Lanka, Sweden, Swaziland, Yemen, Yugoslavia and Zimbabwe, the allocation of the band 1 452 - 1 492 MHz to the broadcasting-satellite service and the broadcasting service is on a secondary basis until 1 April 2007.
- S5.351** The bands 1 525 - 1 544 MHz, 1 545 - 1 559 MHz, 1 626.5 - 1 645.5 MHz and 1 646.5 - 1 660.5 MHz 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 by an administration to communicate via space stations using these bands.
- S5.352** The use of the bands 1 525 - 1 530 MHz, 1 533 - 1 544 MHz, 1 626.5 - 1 631.5 MHz and 1 634.5 - 1 645.5 MHz by the land mobile-satellite service is limited to non-speech low bit-rate data transmissions.
- S5.354** The use of the bands 1 525 - 1 559 MHz and 1 626.5 - 1 660.5 MHz by the mobile-satellite services is subject to coordination under Resolution **46 (Rev. WRC-95)/No. S9.11A**.
- S5.356** The use of the band 1 544 - 1 545 MHz by the mobile-satellite service (space-to-Earth) is limited to distress and safety communications (see Article **S31**).
- S5.357** Transmissions in the band 1 545 - 1 555 MHz 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.
- S5.358** Notwithstanding any other provisions of the Radio Regulations relating to restrictions in the use of the bands allocated to the aeronautical mobile-satellite (R) service for public correspondence, the bands 1 545 - 1 555 MHz and 1 646.5 - 1 656.5 MHz may be authorized by administrations for public correspondence with aircraft earth stations. Such communications must cease immediately, if necessary, to permit transmission of messages with priority 1 to 6 in Article **S44**.
- S5.360** In the bands 1 555 - 1 559 MHz and 1 656.5 - 1 660.5 MHz administrations may also authorize aircraft earth stations and ship earth stations to communicate with space stations in the land mobile-satellite service (see Resolution **208 (Mob-87)**).

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- S5.363** *Alternative allocation:* in Sweden, the band 1 590 - 1 626.5 MHz is allocated to the aeronautical radionavigation service on a primary basis.
- S5.364** The use of the band 1 610 - 1 626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth-to-space) is subject to coordination under Resolution **46 (Rev.WRC-95)/No. S9.11A**. A mobile earth station operating in either of the services in this band shall not produce a peak e.i.r.p. density in excess of  $-15$  dB(W/4 kHz) in the part of the band used by systems operating in accordance with the provisions of No. **S5.366** (to which No. **S4.10** applies), unless otherwise agreed 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  $-3$  dB(W/4 kHz). Stations of the mobile-satellite service shall not claim protection from stations in the aeronautical radionavigation service, stations operating in accordance with the provisions of No. **S5.366** and stations in the fixed service operating in accordance with the provisions of No. **S5.359**. Administrations responsible for the coordination of mobile-satellite networks shall make all practicable efforts to ensure protection of stations operating in accordance with the provisions of No. **S5.366**.
- S5.366** The band 1 610 - 1 626.5 MHz 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 under No. **S9.21**.
- S5.367** *Additional allocation:* the bands 1 610 - 1 626.5 MHz and 5 000 - 5 150 MHz are also allocated to the aeronautical mobile-satellite (R) service on a primary basis, subject to agreement obtained under No. **S9.21**.
- S5.371** *Additional allocation:* in Region 1, the bands 1 610 - 1 626.5 MHz (Earth-to-space) and 2 483.5 - 2 500 MHz (space-to-Earth) are also allocated to the radiodetermination-satellite service on a secondary basis, subject to agreement obtained under No. **S9.21**.
- S5.372** Harmful interference shall not be caused to stations of the radio astronomy service using the band 1 610.6 - 1 613.8 MHz by stations of the radiodetermination-satellite and mobile-satellite services (No. **S29.13** applies).
- S5.374** Land earth stations and ship earth stations in the mobile-satellite service operating in the bands 1 631.5 - 1 634.5 MHz and 1 656.5 - 1 660 MHz shall not cause harmful interference to the stations in the fixed service operating in the countries listed in No. **S5.359**.
- S5.375** The use of the band 1 645.5 - 1 646.5 MHz by the mobile-satellite service (Earth-to-space) and for inter-satellite links is limited to distress and safety communications (see Article **S31**).
- S5.376** Transmissions in the band 1 646.5 - 1 656.5 MHz from aircraft stations in the aeronautical mobile (R) service directly to terrestrial aeronautical stations, or between

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aircraft stations, are also authorized when such transmissions are used to extend or supplement the aircraft-to-satellite links.

- S5.379A** Administrations are urged to give all practicable protection in the band 1 660.5 - 1 668.4 MHz for future research in radio astronomy, particularly by eliminating air-to-ground transmissions in the meteorological aids service in the band 1 664.4 - 1 668.4 MHz as soon as practicable.
- S5.380** The bands 1 670 - 1 675 MHz and 1 800 - 1 805 MHz are intended for use, on a worldwide basis, by administrations wishing to implement aeronautical public correspondence. The use of the band 1 670 - 1 675 MHz by stations in the systems for public correspondence with aircraft is limited to transmissions from aeronautical stations and the use of the band 1 800 - 1 805 MHz is limited to transmissions from aircraft stations.
- S5.385** *Additional allocation:* the bands 1 718.8 - 1 722.2 MHz, 150 - 151 GHz, 174.42 - 175.02 GHz, 177 - 177.4 GHz, 178.2 - 178.6 GHz, 181 - 181.46 GHz, 186.2 - 186.6 GHz and 257.5 - 258 GHz are also allocated to the radio astronomy service on a secondary basis for spectral line observations.
- S5.388** The bands 1 885 - 2 025 MHz and 2 110 - 2 200 MHz are intended for use, on a worldwide basis, by administrations wishing to implement the future public land mobile telecommunication systems (FPLMTS). Such use does not preclude the use of these bands by other services to which these bands are allocated. The bands should be made available for FPLMTS in accordance with Resolution **212 (Rev.WRC-95)**.
- S5.389A** The use of the bands 1 980 - 2 010 MHz and 2 170 - 2 200 MHz by the mobile-satellite service is subject to coordination under Resolution **46 (Rev.WRC-95)/No. S9.11A** and to the provisions of Resolution **716 (WRC-95)**. The use of these bands shall not commence before 1 January 2000; however the use of the band 1 980 - 1 990 MHz in Region 2 shall not commence before 1 January 2005.
- S5.391** In making assignments to the mobile service in the bands 2 025 - 2 110 MHz and 2 200 - 2 290 MHz, administrations shall take into account Resolution **211 (WARC-92)**.
- S5.392** Administrations are urged to take all practicable measures to ensure that space-to-space transmissions between two or more non-geostationary satellites, in the space research, space operations and Earth exploration-satellite services in the bands 2 025 - 2 110 MHz and 2 200 - 2 290 MHz, 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.
- S5.398** In respect of the radiodetermination-satellite service in the band 2 483.5 - 2 500 MHz, the provisions of No. **S4.10** do not apply.

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- S5.399** In Region 1, in countries other than those listed in No. **S5.400**, harmful interference shall not be caused to, or protection shall not be claimed from, stations of the radiolocation service by stations of the radiodetermination satellite service.
- S5.402** The use of the band 2 483.5 - 2 500 MHz by the mobile-satellite and the radiodetermination-satellite services is subject to the coordination under Resolution **46 (Rev.WRC-95)/No. S9.11A**. Administrations are urged to take all practicable steps to prevent harmful interference to the radio astronomy service from emissions in the 2 483.5 - 2 500 MHz band, especially those caused by second-harmonic radiation that would fall into the 4 990 - 5 000 MHz band allocated to the radio astronomy service worldwide.
- S5.403** Subject to agreement obtained under No. **S9.21**, the band 2 520 - 2 535 MHz (until 1 January 2005 the band 2 500 - 2 535 MHz) may also be used for the mobile-satellite (space-to-Earth), except aeronautical mobile-satellite, service for operation limited to within national boundaries. The provisions of Resolution **46 (Rev.WRC-95)/No. S9.11A** apply.
- S5.409** Administrations shall make all practicable efforts to avoid developing new tropospheric scatter systems in the band 2 500 - 2 690 MHz.
- S5.410** The band 2 500 - 2 690 MHz may be used for tropospheric scatter systems in Region 1, subject to agreement obtained under No. **S9.21**.
- S5.411** When planning new tropospheric scatter radio-relay links in the band 2 500 - 2 690 MHz, all possible measures shall be taken to avoid directing the antennae of these links towards the geostationary-satellite orbit.
- S5.413** In the design of systems in the broadcasting-satellite service in the bands between 2 500 MHz and 2 690 MHz, administrations are urged to take all necessary steps to protect the radio astronomy service in the band 2 690 - 2 700 MHz.
- S5.414** The allocation of the frequency band 2 500 - 2 520 MHz to the mobile-satellite service (space-to-Earth) shall be effective on 1 January 2005 and is subject to coordination under Resolution **46 (Rev.WRC-95)/No. S9.11A**.
- S5.416** The use of the band 2 520 - 2 670 MHz by the broadcasting-satellite service is limited to national and regional systems for community reception, subject to agreement obtained under No. **S9.21**. The power flux-density at the Earth's surface shall not exceed the values given in Article **S21**, Table S21-4.
- S5.419** The allocation of the frequency band 2 670 - 2 690 MHz to the mobile-satellite service shall be effective from 1 January 2005. When introducing systems of the mobile-satellite service in this band, administrations 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 Resolution **46 (Rev.WRC-95)/No. S9.11A**.



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- S5.420** The band 2 655 - 2 670 MHz (until 1 January 2005 the band 2 655 - 2 690 MHz) may also be used for the mobile-satellite (Earth-to-space), except aeronautical mobile-satellite, service for operation limited to within national boundaries, subject to agreement obtained under No. **S9.21**. The coordination under Resolution **46 (Rev.WRC-95)/No. S9.11A** applies.
- S5.423** In the band 2 700 - 2 900 MHz, ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the aeronautical radionavigation service.
- S5.425** In the band 2 900 - 3 100 MHz, the use of the shipborne interrogator-transponder system (SIT) shall be confined to the sub-band 2 930 - 2 950 MHz.
- S5.426** The use of the band 2 900 - 3 100 MHz by the aeronautical radionavigation service is limited to ground-based radars.
- S5.427** In the bands 2 900 - 3 100 MHz and 9 300 - 9 500 MHz, the response from radar transponders shall not be capable of being confused with the response from radar beacons (racons) and shall not cause interference to ship or aeronautical radars in the radionavigation service, having regard, however, to No. **S4.9** of these Regulations.
- S5.438** Use of the band 4 200 - 4 400 MHz by the aeronautical radionavigation service is reserved exclusively for radio altimeters installed on board aircraft and for the associated transponders on the ground. However, passive sensing in the earth exploration-satellite and space research services may be authorized in this band on a secondary basis (no protection is provided by the radio altimeters).
- S5.440** The standard frequency and time signal-satellite service may be authorized to use the frequency 4 202 MHz for space-to-Earth transmissions and the frequency 6 427 MHz for Earth-to-space transmissions. Such transmissions shall be confined within the limits of  $\pm 2$  MHz of these frequencies, subject to agreement obtained under No. **S9.21**.
- S5.441** The use of the bands 4 500 - 4 800 MHz (space-to-Earth), 6 725 - 7 025 MHz (Earth-to-space), 10.7 - 10.95 GHz (space-to-Earth), 11.2 - 11.45 GHz (space-to-Earth) and 12.75 - 13.25 GHz (Earth-to-space) by the fixed-satellite service shall be in accordance with the provisions of Appendix **S30B**.
- S5.442** In the bands 4 825 - 4 835 MHz and 4 950 - 4 990 MHz, the allocation to the mobile service is restricted to the mobile, except aeronautical mobile, service.
- S5.444** The band 5 000 - 5 150 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. The requirements of this system shall take precedence over other uses of this band. For the use of this band, No. **S5.444A** and Resolution **114 (WRC-95)** apply.
- S5.444A** *Additional allocation:* the band 5 091 - 5 150 MHz is also allocated to the fixed-satellite service (Earth-to-space) on a primary basis. This allocation is limited to feeder

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links of non-geostationary mobile-satellite systems and is subject to coordination under Resolution **46 (Rev.WRC-95)/No. S9.11A**.

In the band 5 091 - 5 150 MHz, the following conditions also apply:

- prior to 1 January 2010, the use of the band 5 091 - 5 150 MHz by feeder links of non-geostationary-satellite systems in the mobile-satellite service shall be made in accordance with Resolution **114 (WRC-95)**;
- prior to 1 January 2010, the requirements of existing and planned international standard systems for the aeronautical radionavigation service which cannot be met in the 5 000 - 5 091 MHz band, shall take precedence over other uses of this band;
- after 1 January 2008, no new assignments shall be made to stations providing feeder links of non-geostationary mobile-satellite systems;
- after 1 January 2010, the fixed-satellite service will become secondary to the aeronautical radionavigation service.

- S5.446** *Additional allocation:* in the countries listed in Nos. **S5.369** and **S5.400**, the band 5 150 - 5 216 MHz is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis, subject to agreement obtained under No. **S9.21**. In Region 2, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis. In Regions 1 and 3, except those countries listed in Nos. **S5.369** and **S5.400**, the band 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 1 610 - 1 626.5 MHz and/or 2 483.5 - 2 500 MHz. The total power flux-density at the Earth's surface shall in no case exceed  $-159$  dBW/m<sup>2</sup> in any 4 kHz band for all angles of arrival.
- S5.447** *Additional allocation:* in Germany, Austria, Belgium, Denmark, Spain, Finland, France, Greece, Israel, Italy, Japan, Jordan, Lebanon, Liechtenstein, Luxembourg, Malta, Morocco, Norway, Pakistan, the Netherlands, Portugal, Syria, the United Kingdom, Sweden, Switzerland and Tunisia, the band 5 150 - 5 250 MHz is also allocated to the mobile service, on a primary basis, subject to agreement obtained under No. **S9.21**.
- S5.447A** The allocation to the fixed-satellite service (Earth-to-space) is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to coordination under Resolution **46 (Rev.WRC-95)/ No. S9.11A**.
- S5.447B** *Additional allocation:* the band 5 150 - 5 216 MHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. This allocation is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to provisions of Resolution **46 (Rev.WRC-95)/ No. S9.11A**. The power flux-density at the Earth's surface produced by space stations of the fixed-satellite service operating in the space-to-Earth direction in the band 5 150 - 5 216 MHz shall in no case exceed  $-164$  dB(W/m<sup>2</sup>) in any 4 kHz band for all angles of arrival.

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- S5.447C** Administrations responsible for fixed-satellite service networks in the band 5 150 - 5 250 MHz operated under Nos. **S5.447A** and **S5.447B** shall coordinate on an equal basis in accordance with Resolution **46 (Rev.WRC-95)/No. S9.11A** with administrations responsible for non-geostationary-satellite networks operated under No. **S5.446** and brought into use prior to 17 November 1995. Satellite networks operated under No. **S5.446** brought into use after 17 November 1995 shall not claim protection from, and shall not cause harmful interference to, stations of the fixed-satellite service operated under Nos. **S5.447A** and **S5.447B**.
- S5.449** The use of the band 5 350 - 5 470 MHz by the aeronautical radionavigation service is limited to airborne radars and associated airborne beacons.
- S5.452** Between 5 600 MHz and 5 650 MHz, ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the maritime radionavigation service.
- S5.458** In the band 6 425 - 7 075 MHz, passive microwave sensor measurements are carried out over the oceans. In the band 7 075 - 7 250 MHz, passive microwave sensor measurements are carried out. Administrations should bear in mind the needs of the Earth exploration-satellite (passive) and space research (passive) services in their future planning of the bands 6 425 - 7 025 MHz and 7 075 - 7 250 MHz.
- S5.458A** In making assignments in the band 6 700 - 7 075 MHz to space stations of the fixed-satellite service, administrations are urged to take all practicable steps to protect spectral line observations of the radio astronomy service in the band 6 650 - 6 675.2 MHz from harmful interference from unwanted emissions.
- S5.458B** The space-to-Earth allocation to the fixed-satellite service in the band 6 700 - 7 075 MHz is limited to feeder links for non-geostationary satellite systems of the mobile-satellite service and is subject to coordination under Resolution **46 (Rev.WRC-95)/No. S9.11A**. The use of the band 6 700 - 7 075 MHz (space-to-Earth) by feeder links for non-geostationary satellite systems in the mobile-satellite service is not subject to No. **S22.2**.
- S5.458C** Administrations making submissions in the band 7 025 - 7 075 MHz (Earth-to-space) for geostationary-satellite systems in the fixed-satellite service after 17 November 1995 shall consult on the basis of relevant ITU-R Recommendations with the administrations that have notified and brought into use non-geostationary-satellite systems in this frequency band before 18 November 1995 upon request of the latter administrations. This consultation shall be with a view to facilitating shared operation of both geostationary-satellite systems in the fixed-satellite service and non-geostationary-satellite systems in this band.

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- S5.460** *Additional allocation:* the band 7 145 - 7 235 MHz is also allocated to the space research (Earth-to-space) service on a primary basis, subject to agreement obtained under No. **S9.21**. The use of the band 7 145 - 7 190 MHz is restricted to deep space; no emissions to deep space shall be effected in the band 7 190 - 7 235 MHz.
- S5.461** *Additional allocation:* the bands 7 250 - 7 375 MHz (space-to-Earth) and 7 900 - 8 025 MHz (Earth-to-space) are also allocated to the mobile-satellite service on a primary basis, subject to agreement obtained under No. **S9.21**.
- S5.462** In the band 8 025 - 8 400 MHz, the power flux-density limits specified in Article **S21**, Table S21-4, shall apply in Regions 1 and 3 to the earth exploration-satellite service.
- S5.464** *Different category of service:* in Bangladesh, Benin, Burkina Faso, Cameroon, China, the Central African Republic, Côte d'Ivoire, Egypt, France, Guinea, India, the Islamic Republic of Iran, Italy, Japan, Libya, Mali, Niger, Pakistan, Senegal, Somalia, Sudan, Sweden, Tanzania, Zaire and Zambia, the allocation of the band 8 025 - 8 400 MHz to the Earth exploration-satellite service (space-to-Earth) is on a primary basis, subject to agreement obtained under No. **S9.21**.
- S5.465** In the space research service, the use of the band 8 400 - 8 450 MHz is limited to deep space.
- S5.470** The use of the band 8 750 - 8 850 MHz by the aeronautical radionavigation service is limited to airborne Doppler navigation aids on a centre frequency of 8 800 MHz.
- S5.472** In the bands 8 850 - 9 000 MHz and 9 200 - 9 225 MHz, the maritime radionavigation service is limited to shore-based radars.
- S5.474** In the band 9 200 - 9 500 MHz, search and rescue transponders (SART) may be used, having due regard to the appropriate ITU-R Recommendation (see also Article **S31**).
- S5.475** The use of the band 9 300 - 9 500 MHz by the aeronautical radionavigation service is limited to airborne weather radars and ground-based radars. In addition, ground-based radar beacons in the aeronautical radionavigation service are permitted in the band 9 300 - 9 320 MHz on condition that harmful interference is not caused to the maritime radionavigation service. In the band 9 300 - 9 500 MHz, ground-based radars used for meteorological purposes have priority over other radiolocation devices.
- S5.476** In the band 9 300 - 9 320 MHz in the radionavigation service, the use of shipborne radars, other than those existing on 1 January 1976, is not permitted until 1 January 2001.

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- S5.477** *Different category of service:* in Algeria, Saudi Arabia, Austria, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, the Republic of Korea, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, the Islamic Republic of Iran, Iraq, Jamaica, Japan, Jordan, Kuwait, Lebanon, Liberia, Malaysia, Nigeria, Oman, Pakistan, Qatar, Singapore, Somalia, Sudan, Sweden, Thailand, Trinidad and Tobago, and Yemen, the allocation of the band 9 800 - 10 000 MHz to the fixed service is on a primary basis (see No. **S5.33**).
- S5.479** The band 9 975 - 10 025 MHz is also allocated to the meteorological-satellite service on a secondary basis for use by weather radars.
- S5.481** *Additional allocation:* in Germany, Angola, China, Ecuador, Spain, Japan, Morocco, Nigeria, Oman, Democratic People's Republic of Korea, Sweden, Tanzania and Thailand, the band 10.45 - 10.5 GHz is also allocated to the fixed and mobile services on a primary basis.
- S5.482** In the band 10.6 - 10.68 GHz, stations of the fixed and mobile, except aeronautical mobile, services shall be limited to a maximum equivalent isotropically radiated power of 40 dBW and the power delivered to the antenna shall not exceed -3 dBW. These limits may be exceeded subject to agreement obtained under No. **S9.21**. However, in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Bangladesh, Belarus, China, the United Arab Emirates, Georgia, India, Indonesia, the Islamic Republic of Iran, Iraq, Japan, Kazakstan, Kuwait, Latvia, Lebanon, Moldova, Nigeria, Uzbekistan, Pakistan, the Philippines, Qatar, Syria, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Ukraine, the restrictions on the fixed and mobile, except aeronautical mobile, services are not applicable.
- S5.484** In Region 1, the use of the band 10.7 - 11.7 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service.
- S5.487** In the band 11.7 - 12.5 GHz in Regions 1 and 3, the fixed, fixed-satellite, mobile, except aeronautical mobile, and broadcasting services, in accordance with their respective allocations, shall not cause harmful interference to broadcasting-satellite stations operating in accordance with the provisions of Appendix **S30**.
- S5.497** The use of the band 13.25 - 13.4 GHz by the aeronautical radionavigation service is limited to Doppler navigation aids.
- S5.498** The band 13.25 - 13.4 GHz may also be used in the space research service (Earth-to-space) on a secondary basis, subject to agreement obtained under No. **S9.21**.
- S5.502** In the band 13.75 - 14 GHz, the e.i.r.p. of any emission from an earth station in the fixed-satellite service shall be at least 68 dBW, and should not exceed 85 dBW, with a minimum antenna diameter of 4.5 metres. In addition the e.i.r.p., averaged over one second, radiated by a station in the radiolocation or radionavigation services towards the geostationary-satellite orbit shall not exceed 59 dBW.

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- S5.503** In the band 13.75 - 14 GHz, geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 shall operate on an equal basis with stations in the fixed-satellite service; after that date, new geostationary space stations in the space research service will operate on a secondary basis. The e.i.r.p. density of emissions from any earth station in the fixed-satellite service shall not exceed 71 dBW in any 6 MHz band in the frequency range 13.772 - 13.778 GHz until those geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 cease to operate in this band. Automatic power control may be used to increase the e.i.r.p. density above 71 dBW in any 6 MHz band in this frequency range to compensate for rain attenuation, to the extent that the power-flux density at the fixed-satellite service space station does not exceed the value resulting from use of an e.i.r.p. of 71 dBW in any 6 MHz band in clear sky conditions.
- S5.503A** Until 1 January 2000, stations in the fixed-satellite service shall not cause harmful interference to non-geostationary space stations in the space research and Earth exploration-satellite services. After that date, these non-geostationary space stations will operate on a secondary basis in relation to the fixed-satellite service. Additionally, when planning earth stations in the fixed-satellite service to be brought into service between 1 January 2000 and 1 January 2001, in order to accommodate the needs of spaceborne precipitation radars operating in the band 13.793 - 13.805 GHz, advantage should be taken of the consultation process and the information given in Recommendation ITU-R SA.1071.
- S5.504** The use of the band 14 - 14.3 GHz by the radionavigation service shall be such as to provide sufficient protection to space stations of the fixed-satellite service (see Recommendation **708**.)
- S5.506** The band 14 - 14.5 GHz may be used, within the fixed-satellite service (Earth-to-space), for feeder links for the broadcasting-satellite service, subject to coordination with other networks in the fixed-satellite service. Such use of feeder links is reserved for countries outside Europe.
- S5.510** The use of the band 14.5 - 14.8 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. This use is reserved for countries outside Europe.
- S5.511A** Use of the band 15.4 - 15.7 GHz by the fixed-satellite service (space-to-Earth) is limited to feeder links of non-geostationary systems in the mobile-satellite service, subject to coordination under Resolution **46 (Rev.WRC-95)/No. S9.11A**. Emissions from a non-geostationary space station shall not exceed the power flux-density limits at the Earth's surface of -146 dB(W/m<sup>2</sup>/MHz) in the bands 15.4 - 15.45 GHz and 15.65 - 15.7 GHz, and 111 dB(W/m<sup>2</sup>/MHz) in the band 15.45 - 15.65 GHz, for all angles of arrival. These limits relate to the power flux-density which would be obtained under assumed free-space propagation conditions. In the band 15.45 - 15.65 GHz, where an administration plans emissions from a non-geostationary space

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station that exceed  $-146 \text{ dB(W/m}^2\text{/MHz)}$  for all angles of arrival, it shall coordinate with affected administrations. Moreover, harmful interference shall not be caused to stations of the radio astronomy service using the band 15.35 - 15.4 GHz. The threshold levels of interference and associated power flux-density limits which are detrimental to the radio astronomy service are given in Recommendation ITU-R RA.769. The power flux-density limits and coordination threshold in this footnote shall apply, subject to review by ITU-R and based on the studies referred to in Resolution **116 (WRC-95)**, until changed by a future competent world radiocommunication conference.

- S5.511B** Aircraft stations are not permitted to transmit in the band 15.45 - 15.65 GHz.
- S5.511C** *Additional allocation:* the band 15.45 - 15.65 GHz is also allocated to the fixed-satellite service (Earth-to-space) on a primary basis. Such use is limited to feeder links of non-geostationary systems in the mobile-satellite service and is subject to coordination under Resolution **46 (Rev.WRC-95)/No. S9.11A**. Until such time as the studies called for in Resolution **117 (WRC-95)** are completed: 1) administrations operating stations in the aeronautical radionavigation service are urged to limit the average e.i.r.p. to 42 dBW; 2) stations in the fixed-satellite service shall not cause harmful interference to stations in the aeronautical radionavigation service (No. **S4.10** applies).
- S5.512** *Additional allocation:* in Algeria, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Bosnia and Herzegovina, Brunei Darussalam, Cameroon, the Congo, Costa Rica, Egypt, El Salvador, the United Arab Emirates, Finland, Guatemala, India, Indonesia, the Islamic Republic of Iran, Jordan, Kuwait, The Former Yugoslav Republic of Macedonia, Libya, Malaysia, Malawi, Morocco, Mozambique, Nepal, Nicaragua, Oman, Pakistan, Qatar, Singapore, Slovenia, Somalia, Sudan, Sweden, Swaziland, Tanzania, Chad, Thailand, Yemen and Yugoslavia, the band 15.7 - 17.3 GHz is also allocated to the fixed and mobile services on a primary basis.
- S5.514** *Additional allocation:* in Algeria, Germany, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Bosnia and Herzegovina, Cameroon, Costa Rica, El Salvador, the United Arab Emirates, Finland, Guatemala, Honduras, India, the Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kuwait, The Former Yugoslav Republic of Macedonia, Libya, Nepal, Nicaragua, Oman, Pakistan, Qatar, Slovenia, Sudan, Sweden, and Yugoslavia, the band 17.3 - 17.7 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits given in Nos. **S21.3** and **S21.5** shall apply.
- S5.516** The use of the band 17.3 - 18.1 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. For the use of the band 17.3 - 17.8 GHz in Region 2 by the feeder links for the broadcasting-satellite service in the band 12.2 - 12.7 GHz, see Article **S11**.

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- S5.519** *Additional allocation:* the band 18.1 - 18.3 GHz is also allocated to the meteorological-satellite service (space-to-Earth) on a primary basis. Its use is limited to geostationary satellites and shall be in accordance with the provisions of Article **S21**, Table S21-4.
- S5.520** The use of the band 18.1 - 18.4 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service.
- S5.522** In making assignments to stations in the fixed and mobile services, administrations are invited to take account of passive sensors in the earth-exploration satellite and space research services operating in the band 18.6 - 18.8 GHz. In this band, administrations should endeavour to limit as far as possible both the power delivered by the transmitter to the antenna and the e.i.r.p. in order to reduce the risk of interference to passive sensors to the minimum.
- S5.523** In assigning frequencies to stations in the fixed-satellite service in the direction space-to-Earth, administrations are requested to limit as far as practicable the power flux-density at the Earth's surface in the band 18.6 - 18.8 GHz, in order to reduce the risk of interference to passive sensors in the earth exploration-satellite and space research services.
- S5.523A** The use of the bands 18.8-19.3 GHz (space-to-Earth) and 28.6-29.1 GHz (Earth-to-space) by geostationary and non-geostationary fixed-satellite service networks is subject to the application of the provisions of No. S9.11A/Resolution 46 (Rev.WRC-97) and No. S22.2 does not apply. Administrations having geostationary-satellite networks under coordination prior to 18 November 1995 shall cooperate to the maximum extent possible to coordinate pursuant to No. S9.11A/Resolution 46 (Rev.WRC-97) with non-geostationary-satellite networks for which notification information has been received by the Bureau prior to that date, with a view to reaching results acceptable to all the parties concerned. Non-geostationary-satellite networks shall not cause unacceptable interference to geostationary fixed-satellite service networks for which complete Appendix S4 notification information is considered as having been received by the Bureau prior to 18 November 1995.
- S5.523B** The use of the band 19.3 - 19.6 GHz (Earth-to-space) by the FSS is limited to feeder links for non-GSO systems in the MSS. Such use is subject to the application of the provisions of Resolution **46 (Rev.WRC-95)**/No. **S9.11A**, and No. **S22.2** does not apply.
- S5.523C** No. **S22.2** of the Radio Regulations shall continue to apply in the bands 19.3-19.6 GHz and 29.1-29.4 GHz, between feeder links of non-geostationary mobile-satellite service networks and those fixed-satellite service networks for which complete Appendix **S4** coordination information, or notification information, is considered as having been received by the Bureau prior to 18 November 1995.

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- S5.523D** The use of the band 19.3-19.7 GHz (space-to-Earth) by geostationary fixed-satellite service systems and by feeder links for non-geostationary-satellite systems in the mobile-satellite service is subject to the application of the provisions of Resolution **46 (Rev.WRC-97)**/ No. **S9.11A**, but not subject to the provisions of No. **S22.2**. The use of this band for other non-geostationary fixed-satellite service systems, or for the cases indicated in Nos. **S5.523C** and **S5.523E**, is not subject to the provisions of Resolution **46 (Rev.WRC-97)**/No. **S9.11A** and shall continue to be subject to Articles **S9** (except No. **S9.11A**) and **S11** procedures, and to the provisions of No. **S22.2**.
- S5.523E** No. S22.2 of the Radio Regulations shall continue to apply in the bands 19.6-19.7 GHz and 29.4-29.5 GHz, between feeder links of non-geostationary mobile-satellite service networks and those fixed-satellite service networks for which complete Appendix S4 coordination information, or notification information, is considered as having been received by the Bureau by 21 November 1997.
- S5.525** In order to facilitate interregional coordination between networks in the mobile-satellite and fixed-satellite services, carriers in the mobile-satellite service that are most susceptible to interference shall, to the extent practicable, be located in the higher parts of the bands 19.7 - 20.2 GHz and 29.5 - 30 GHz.
- S5.526** In the bands 19.7 - 20.2 GHz and 29.5 - 30 GHz in Region 2, and in the bands 20.1 - 20.2 GHz and 29.9 - 30 GHz in Regions 1 and 3, 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-multipoint communications.
- S5.527** In the bands 19.7 - 20.2 GHz and 29.5 - 30 GHz, the provisions of No. **S4.10** do not apply with respect to the mobile-satellite service.
- S5.528** The allocation to the mobile-satellite service is intended for use by networks which use narrow spot-beam antennas and other advanced technology at the space stations. Administrations operating systems in the mobile-satellite service in the band 19.7 - 20.1 GHz in Region 2 and in the band 20.1 - 20.2 GHz shall take all practicable steps to ensure the continued availability of these bands for administrations operating fixed and mobile systems in accordance with the provisions of No. **S5.524**.
- S5.530** In Regions 1 and 3, the allocation to the broadcasting-satellite service in the band 21.4 - 22 GHz shall come into effect on 1 April 2007. The use of this band by the broadcasting-satellite service after that date and on an interim basis prior to that date is subject to the provisions of Resolution **525 (WARC-92)**.
- S5.532** The use of the band 22.21 - 22.5 GHz by the earth exploration-satellite (passive) and space research (passive) services shall not impose constraints upon the fixed and mobile, except aeronautical mobile, services.

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- S5.535A** The use of the band 29.1 - 29.4 GHz (Earth-to-space) by the FSS is limited to GSO satellite systems and feeder links to non-GSO satellite systems in the mobile-satellite service. Such use is subject to the application of the provisions of Resolution **46 (Rev.WRC-95)**/No. **S9.11A**, but not subject to the provisions of No. **S22.2**.
- S5.536** Use of the 25.25 - 27.5 GHz band by the inter-satellite service is limited to space research and Earth exploration-satellite applications, and also transmissions of data originating from industrial and medical activities in space.
- S5.538** *Additional allocation:* the bands 27.500 - 27.501 GHz and 29.999 - 30.000 GHz 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 isotropically radiated power (e.i.r.p.) of +10 dBW in the direction of adjacent satellites on the geostationary-satellite orbit. In the band 27.500 - 27.501 GHz, such space-to-Earth transmissions shall not produce a power flux-density in excess of the values specified in Article **S21**, Table S21-4 on the Earth's surface.
- S5.539** The band 27.5 - 30 GHz may be used by the fixed-satellite service (Earth-to-space) for the provision of feeder links for the broadcasting-satellite service.
- S5.540** *Additional allocation:* the band 27.501 - 29.999 GHz is also allocated to the fixed-satellite service (space-to-Earth) on a secondary basis for beacon transmissions intended for up-link power control.
- S5.541** In the band 28.5 - 30 GHz, the earth exploration-satellite service is limited to the transfer of data between stations and not to the primary collection of information by means of active or passive sensors.
- S5.541A** Feeder links of non-GSO/MSS networks and GSO/FSS networks operating in the band 29.1 - 29.4 GHz (Earth-to-space) shall employ uplink adaptive power control or other methods of fade compensation, such that the earth station transmissions shall be conducted at the power level required to meet the desired link performance while reducing the level of mutual interference between both networks. These methods shall apply to networks for which Appendix **S4** coordination information is considered as having been received by the Bureau after 17 May 1996 and until it is changed by a future competent world radiocommunication conference. Administrations submitting Appendix **S4** information for coordination before this date are encouraged to utilize these techniques to the extent practicable. These methods are also subject to review by the ITU-R (see Resolution **121 (WRC-95)**).
- S5.543** The band 29.95 - 30 GHz may be used for space-to-space links in the earth exploration-satellite service for telemetry, tracking, and control purposes, on a secondary basis.
- S5.544** In the band 31 - 31.3 GHz the power flux-density limits specified in Article **S21**, Table S21-4 shall apply to the space research service.

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- S5.548** In designing systems for the inter-satellite and radionavigation services 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**).
- S5.551** Radars located on spacecraft may be operated on a primary basis in the band 35.5 - 35.6 GHz.
- S5.552** The allocation of the spectrum for the fixed-satellite service in the bands 42.5 - 43.5 GHz and 47.2 - 50.2 GHz for Earth-to-space transmission is greater than that in the band 37.5 - 39.5 GHz for space-to-Earth transmission in order to accommodate feeder links to broadcasting satellites. Administrations are urged to take all practicable steps to reserve the band 47.2 - 49.2 GHz for feeder links for the broadcasting-satellite service operating in the band 40.5 - 42.5 GHz.
- S5.553** In the bands 43.5 - 47 GHz, 66 - 71 GHz, 95 - 100 GHz, 134 - 142 GHz, 190 - 200 GHz and 252 - 265 GHz, stations in the land mobile service may be operated subject to not causing harmful interference to the space radiocommunication services to which these bands are allocated (see No. **S5.43**).
- S5.554** In the bands 43.5 - 47 GHz, 66 - 71 GHz, 95 -100 GHz, 134 - 142 GHz, 190 - 200 GHz and 252 - 265 GHz, 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.
- S5.555** *Additional allocation:* the bands 48.94 - 49.04 GHz, 97.88 - 98.08 GHz, 140.69 - 140.98 GHz, 144.68 - 144.98 GHz, 145.45 - 145.75 GHz, 146.82 - 147.12 GHz, 250 - 251 GHz and 262.24 - 262.76 GHz are also allocated to the radio astronomy service on a primary basis.
- S5.556** In the bands 51.4 - 54.25 GHz, 58.2 - 59 GHz, 64 - 65 GHz, 72.77 - 72.91 GHz and 93.07 - 93.27 GHz, radio astronomy observations may be carried out under national arrangements.
- S5.558** In the bands 54.25 - 58.2 GHz, 59 - 64 GHz, 116 - 134 GHz, 170 - 182 GHz and 185 - 190 GHz, stations in the aeronautical mobile service may be operated subject to not causing harmful interference to the inter-satellite service (see No. **S5.43**).
- S5.559** In the bands 59 - 64 GHz and 126 - 134 GHz, airborne radars in the radiolocation service may be operated subject to not causing harmful interference to the inter-satellite service (see No. **S5.43**).
- S5.560** In the band 78 - 79 GHz radars located on space stations may be operated on a primary basis in the earth exploration-satellite service and in the space research service.

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**S5.561** In the band 84 - 86 GHz, stations in the fixed, mobile and broadcasting services shall not cause harmful interference to broadcasting-satellite stations operating in accordance with the decisions of the appropriate frequency assignment planning conference for the broadcasting-satellite service.

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## Hänvisningar till rättskällor

*Post- och telestyrelsens föreskrifter m.m.*

- TSNFS 1993:1** föreskrifter om radiotekniska krav för rundradiosändare i frekvensbandet 87,5 - 108 MHz.
- TSNFS 1993:5** föreskrifter om radiotekniska krav på radioanläggning för trådlöst barnvaktsystem.
- TSNFS 1993:6** föreskrifter om radiotekniska krav för radioanläggningar för lokalisering av lavinoffer, med arbetsfrekvens 457 kHz.
- PTSFS 1994:5** föreskrifter om innehav och användning av amatörradioanläggningar m.m. (se även PTSFS 1994:14 om ändring av PTSFS 1994:5)
- PTSFS 1995:7** föreskrifter om tillstånd att tillhandahålla personsökning enligt ERMES-standard.
- PTSFS 1995:19** föreskrifter om tekniska krav på digitala sladdlösa telefoner CT2 i frekvensbandet 864,1 - 868,1 MHz.
- PTSFS 1995:22** föreskrifter om tekniska krav på analoga sladdlösa telefonapparater CT1 i frekvensbandet 914 - 915/959/960 MHz.
- PTSFS 1995:24** föreskrifter om tekniska krav på digitala sladdlösa telefonapparater i frekvensbandet 862-866 MHz.
- PTSFS 1995:25** föreskrifter om ändring i Televerkets föreskrifter (TVTFFS 1989:103) om radiotekniska krav på digitala sladdlösa telefoner i frekvensbandet 862 - 864 MHz.
- PTSFS 1996:7** föreskrifter om tekniska krav på privatradioanläggningar i frekvensbandet 26,960 - 27,410 MHz.
- PTSFS 1996:8** föreskrifter om tekniska krav på radioanläggningar för dataöverföring med bandspridningsteknik i frekvensbandet 2400,0 - 2483,5 MHz.
- PTSFS 1996:10** föreskrifter om tekniska krav på radioanläggningar för landmobil trafik i frekvensbandet 29,7 - 31,7 MHz med 20 kHz kanalindelning.

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| <b>PTSFS 1997:1</b>    | föreskrifter om tekniska krav på teleterminalutrustning i de cellulära analoga landbaserade nordiska mobiltelefonsystemen NMT-450 och NMT-900.  |
| <b>PTSFS 1997:2</b>    | föreskrifter om tekniska krav på radioanläggningar för kortdistanssändning i frekvensbandet 25 MHz - 25 GHz.  |
| <b>PTSFS 1997:5</b>    | allmänna råd för prövningsgrunder vid tilldelning av frekvenser för mobila teletjänster enligt GSM.   |
| <b>PTSFS 1997:6</b>    | föreskrifter om undantag från tillståndsplikten för vissa radiosändare.   |
| <i>CEPT/ERC-beslut</i> |   |
| <b>ERC/DEC/(92)01</b>  | ERC Decision of 22 October 1992 on frequency bands to be designated for the co-ordinated introduction of the Terrestrial Flight Telecommunications Systems.   |
| <b>ERC/DEC/(92)02</b>  | ERC Decision of 22 October 1992 on frequency bands to be designated for the co-ordinated introduction of the Road Transport Telematic Systems.  |
| <b>ERC/DEC/(94)01</b>  | ERC Decision of 24 October 1994 on the frequency bands to be designated for the co-ordinated introduction of the GSM Digital pan-European communications System.  |
| <b>ERC/DEC/(94)02</b>  | ERC Decision of 24 October 1994 on the frequency band to be designated for the co-ordinated introduction of the European Radio Messaging System (ERMES).  |
| <b>ERC/DEC/(94)03</b>  | ERC Decision of 24 October 1994 on the frequency bands to be designated for the co-ordinated introduction of the Digital European Cordless Telecommunications System.   |
| <b>ERC/DEC/(97)03</b>  | ERC Decision of 30 June 1997 on the harmonised use of spectrum for Satellite Personal Communication Services (S-PCS) operating within the bands 1610-1626.5 MHz, 2483.5-2500 MHz, 1980-2010 MHz and 2170-2200 MHz.  |
| <b>ERC/DEC/(97)04</b>  | ERC Decision of 30 June 1997 on transitional arrangements for the Fixed Service and the Mobile-Satellite Service in the bands 1980-2010 MHz and 2170-2200 MHz in order to facilitate the harmonised introduction and development of Satellite Personal Communications Services. |
| <b>ERC/DEC/(97)05</b>  | ERC Decision of 30 June 1997 on free circulation, use and licensing of  |

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Mobile Earth Stations of Satellite Personal Communications Services (S-PCS) operating within the bands 1610-1626.5 MHz, 2483.5-2500 MHz, 1980-2010 MHz and 2170-2200 MHz within the CEPT.

- ERC/DEC/(97)07** ERC Decision of 30 June 1997 on the frequency bands for the introduction of the Universal Mobile Telecommunications System (UMTS).
- ERC/DEC/(97)08** ERC Decision of 30 June 1997 on management of the Schiever Plan for the Terrestrial Flight Telecommunications System.

*CEPT/ERC-rekommendationer*

- ERC/REC T/R 13-01** Preferred channel arrangements for fixed services in the range 1 - 3 GHz.
- ERC/REC T/R 13-02** Preferred channel arrangements for fixed services in the range 22.0-29.5 GHz.
- ERC/REC T/R 22-01** Frequencies likely to be allocated to international railways.

*EG-rättsakter*

- 87/372/EEG<sup>1</sup>** Rådets direktiv av den 25 juni 1987 om vilka frekvensband som skall reserveras för det samordnade förfarandet av allmänt tillgänglig, alleuropeisk, cellulär, digital, landbaserad mobilkommunikation inom gemenskapen (GSM).
- 90/544/EEG<sup>2</sup>** Rådets direktiv av den 9 oktober 1990 om frekvensband för det samordnade införandet av alleuropeisk, landbaserad, allmänt tillgänglig, radiobaserad personsökning i gemenskapen (ERMES).
- 91/287/EEG<sup>3</sup>** Rådets direktiv av den 3 juni 1991 om det frekvensband som skall tilldelas för det samordnade införandet av digital europeisk trådlös telekommunikation DECT i gemenskapen.
- 710/97/EG<sup>4</sup>** Europaparlamentets och Rådets beslut av den 24 mars 1997 om ett samordnat tillvägagångsätt vid auktorisation inom området för satellittjänster för personkommunikation inom gemenskapen.

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<sup>1</sup> EGT L196, 17.7.1987, s. 85

<sup>2</sup> EGT L310, 9.11.1990, s. 28

<sup>3</sup> EGT L144, 8.6.1991, s. 45

<sup>4</sup> EGT L105, 23.4.1997, s. 4

## Svenska kanalplaner

Denna bilaga innehåller svenska kanalplaner för fast radiotrafik i vissa frekvensband över 1000 MHz. Vissa av nedan angivna frekvensband är även upplåtna för mobil radiotrafik, vilket kan medföra inskränkningar i möjligheten att använda samtliga kanaler för fast trafik.

| Frekvensband        | Kanalbredd (MHz) | Formel för beräkning av mittfrekvens (MHz) m.m.   |
|---------------------|------------------|---|
| 1427 - 1500 MHz     | 3,5              | $f_n = 1462,75 - 37,5 + 3,5n$<br>$f_{n'} = 1462,75 + 2,5 + 3,5n$<br>$n = 1, 2, 3 \dots 9$       |
|                     | 1,75             | $f_n = 1462,75 - 36,625 + 175n$<br>$f_{n'} = 1462,75 + 3,375 + 1,75n$<br>$n = 1, 2, 3 \dots 18$ |
| 2484,5 - 2690 MHz   | 14               | $f_n = 2586 - 108,5 + 14n$<br>$f_{n'} = 2586 + 10,5 + 14n$<br>$n = 1, 2, 3 \dots 6$             |
|                     | 7                | $f_n = 2586 - 105 + 7n$<br>$f_{n'} = 2586 + 14 + 7n$<br>$n = 1, 2, 3 \dots 12$                  |
|                     | 3,5              | $f_n = 2586 - 103,25 + 3,5n$<br>$f_{n'} = 2586 + 15,75 + 3,5n$<br>$n = 1, 2, 3 \dots 24$        |
|                     | 1,75             | $f_n = 2586 - 101,5 + 1,75n$<br>$f_{n'} = 2586 + 17,5 + 1,75n$<br>$n = 1, 2, 3 \dots 47$        |
| 3,580 - 4,200 GHz   | 40               | $f_n = 3900 - 330 + 40n$<br>$f_{n'} = 3900 - 10 + 40n$<br>$n = 1, 2, 3 \dots 7$                 |
|                     | 29               | $f_n = 4003,5 - 208 + 29n$<br>$f_{n'} = 4003,5 + 5 + 29n$<br>$n = 2, 2, 3 \dots 6$              |
| 5,925 - 6,425 GHz   | 29,65            | $f_n = 6175 - 259,45 + 29,65n$<br>$f_{n'} = 6175 - 7,41 + 29,65n$<br>$n = 1, 2, 3 \dots 8$      |
| 6,425 - 7,125 GHz   | 40               | $f_n = 6770 - 350 + 40n$<br>$f_{n'} = 6770 - 10 + 40n$<br>$n = 1, 2, 3 \dots 8$                 |
| 7,4245 - 7,7255 GHz | 14               | $f_n = 7575 - 157,5 + 14n$<br>$f_{n'} = 7575 + 3,5 + 14n$<br>$n = 1, 2, 3 \dots 10$             |
|                     | 7                | $f_n = 7575 - 154 + 7n$<br>$f_{n'} = 7575 + 7 + 7n$<br>$n = 1, 2, 3 \dots 20$                   |

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|  | 3,5 | $f_n = 7575 - 150,5 + 3,5n$<br>$f_n' = 7575 + 10,5 + 3,5n$<br>$n = 1, 2, 3 \dots 39$ |
|--|-----|--|

| Frekvensband                                   | Kanalbredd (MHz)     | Formel för beräkning av mittfrekvens (MHz) m.m.   |
|--|----------------------|---|
| 7,764 - 8492 GHz                               | 28                   | $f_n = 8128 - 378 + 28n$<br>$f_{n'} = 8128 - 14 + 28n$<br>$n = 1, 2, 3 \dots 13$        |
| 9,8 - 10 GHz                                   | 25; 20; 15; 10;<br>5 | $f_n = 9900 - 100 + 5n$<br>$f_{n'} = 9900 + 5n$<br>$n = 1, 2, 3 \dots 19$               |
| 10,380 - 10,480 GHz och<br>10,580 - 10,680 GHz | 5                    | $f_n = 11701 - 1323,5 + 5n$<br>$f_{n'} = 11701 - 1123,5 + 5n$<br>$n = 1, 2, 3 \dots 20$ |
| 10,7 - 11,7 GHz                                | 40                   | $f_n = 11200 - 525 + 40n$<br>$f_{n'} = 11200 + 5 + 40n$<br>$n = 1, 2, 3 \dots 12$       |
| 12,75 - 13,25 GHz                              | 28                   | $f_n = 12996 - 259 + 28n$<br>$f_{n'} = 12996 + 7 + 28n$<br>$n = 1, 2, 3 \dots 8$        |
|  | 14                   | $f_n = 12996 - 252 + 14n$<br>$f_{n'} = 12996 + 14 + 14n$<br>$n = 1, 2, 3 \dots 16$      |
|  | 7                    | $f_n = 12996 - 248,5 + 7n$<br>$f_{n'} = 12996 + 17,5 + 7n$<br>$n = 1, 2, 3 \dots 32$    |
| 14,501 - 14,613 GHz och<br>14,921 - 15,033 GHz | 28                   | $f_n = 11701 + 2786 + 28n$<br>$f_{n'} = 11701 + 3206 + 28n$<br>$n = 1, 2, 3 \dots 4$    |
|  | 14                   | $f_n = 11701 + 2793 + 14n$<br>$f_{n'} = 11701 + 3213 + 14n$<br>$n = 1, 2, 3 \dots 8$    |
|  | 7                    | $f_n = 11701 + 2796,5 + 7n$<br>$f_{n'} = 11701 + 3216,5 + 7n$<br>$n = 1, 2, 3 \dots 16$ |
|  | 3,5                  | $f_n = 11701 + 2800 + 3,5n$<br>$f_{n'} = 11701 + 3220 + 3,5n$<br>$n = 1, 2, 3 \dots 31$ |
| 14,725 - 14,823 GHz och<br>15,145 - 15,243 GHz | 14                   | $f_n = 11701 + 3017 + 14n$<br>$f_{n'} = 11701 + 3437 + 14n$<br>$n = 1, 2, 3 \dots 7$    |
|  | 7                    | $f_n = 11701 + 3020,5 + 7n$<br>$f_{n'} = 11701 + 3440,5 + 7n$<br>$n = 1, 2, 3 \dots 14$ |
|  | 3,5                  | $f_n = 11701 + 3024 + 3,5n$<br>$f_{n'} = 11701 + 3444 + 3,5n$<br>$n = 1, 2, 3 \dots 27$ |

|   |     |              |
|---|-----|--------------|
| 17,3 - 17,92 GHz och<br>18,70 - 18,92 GHz | 200 | 17400, 17600 |
|   | 220 | 17810, 18810 |

| Frekvensband                               | Kanalbredd (MHz) | Formel för beräkning av mittfrekvens (MHz) m.m.   |
|--|------------------|---|
| 18,58 - 18,70 GHz och<br>18,92 - 19,04 GHz | 7                | $f_n = 18700 - 119,5 + 7n$<br>$f_{n'} = 18700 + 220,5 + 7n$<br>$n = 1, 2, 3 \dots 16$       |
|  | 3,5              | $f_n = 18700 - 117,75 + 3,5n$<br>$f_{n'} = 18700 + 222,25 + 3,5n$<br>$n = 1, 2, 3 \dots 32$ |
| 21,2 - 21,95 GHz                           | 28               | $f_n = 21196 - 7 + 28n$<br>$f_{n'} = 21196 + 357 + 28n$<br>$n = 1, 2, 3 \dots 13$           |
| 21,95 - 22,5 GHz och<br>23,0 - 23,55 GHz   | 14               | $f_n = 21196 + 749 + 14n$<br>$f_{n'} = 21196 + 1799 + 14n$<br>$n = 1, 2, 3 \dots 39$        |
|  | 7                | $f_n = 21196 + 752,5 + 3,5n$<br>$f_{n'} = 21196 + 1802,5 + 3,5n$<br>$n = 1, 2, 3 \dots 78$  |
|  | 3,5              | $f_n = 21196 + 752,5 + 3,5n$<br>$f_{n'} = 21196 + 1802,5 + 3,5n$<br>$n = 1, 2, 3 \dots 158$ |
| 37,000 - 39,500 GHz                        | 140              | $f_n = 38248 - 1260 + 140n$<br>$f_{n'} = 38248 + 140n$<br>$n = 1, 2, 3 \dots 8$             |
|  | 56               | $f_n = 38248 - 1218 + 56n$<br>$f_{n'} = 38248 + 42 + 56n$<br>$n = 1, 2, 3 \dots 20$         |
|  | 28               | $f_n = 38248 - 1204 + 28n$<br>$f_{n'} = 38248 + 56 + 28n$<br>$n = 1, 2, 3 \dots 40$         |
|  | 14               | $f_n = 38248 - 1197 + 14n$<br>$f_{n'} = 38248 + 63 + 14n$<br>$n = 1, 2, 3 \dots 80$         |
|  | 7                | $f_n = 38248 - 1193,5 + 7n$<br>$f_{n'} = 38248 + 66,5 + 7n$<br>$n = 1, 2, 3 \dots 160$      |