Implementation of Resolution 703 (Rev.WRC-07)

Calculation methods and interference criteria recommended by ITU-R
for sharing frequency bands between space radiocommunication
and terrestrial radiocommunication services or between
space radiocommunication services

(Last update: 03 March 2025)

In accordance with *resolves* 1 of Resolution 703 (Rev.WRC-07), the Director of the Radiocommunication Bureau, in consultation with the Chairmen of Study Groups 4 and 5, prepared a list identifying the relevant newly approved ITU‑R Recommen­dations relating to sharing between space radiocommunication and terrestrial radiocommunication services, or between space radiocommunication services, since RA-07.

In accordance with *resolves* 2 of Resolution 703 (Rev.WRC-07), this list is provided below for the information of all administrations.

| **Rec. ITU-R** | **Title** | **Approval date** |
| --- | --- | --- |
| BO.1443-3 | Reference BSS earth station antenna patterns for use in interference assessment involving non-GSO satellites in frequency bands covered by RR Appendix 30 | 12 July 2014 |
| BO.1776-1 | Maximum power flux-density for the broadcasting-satellite service in the band 21.4-22.0 GHz in Regions 1 and 3 | 12 January 2012 |
| BO.1898-1 | Power flux-density value required for the protection of receiving earth stations in the broadcasting-satellite service in Regions 1 and 3 from emissions by a station in the fixed and/or mobile services in the band 21.4-22 GHz | 19 December 2012 |
| BO.1900-0 | Reference receive earth station antenna pattern for the broadcasting-satellite service in the band 21.4-22 GHz in Regions 1 and 3 | 12 January 2012 |
| BO.2063-0 | Alternative BSS earth station antenna radiation pattern for 12 GHz BSS bands with effective apertures in the range 55-75 cm | 29 September 2014 |
| F.1247-4 | Technical and operational characteristics of systems in the fixed service to facilitate sharing with the space research, space operation and Earth exploration-satellite services operating in the bands 2 025-2 110 MHz and 2 200-2 290 MHz | 30 September 2015 |
| F.1249-5 | Technical and operational requirements that facilitate sharing between point‑to‑point systems in the fixed service and the inter-satellite service in the band 25.25-27.5 GHz | 30 January 2018 |
| F.1336-5 | Reference radiation patterns of omnidirectional, sectoral and other antennas for the fixed and mobile services for use in sharing studies in the frequency range from 400 MHz to about 70 GHz | 30 January 2019 |
| F.1509-4 | Technical and operational requirements that facilitate sharing between point‑to‑multipoint systems in the fixed service and the inter-satellite service in the band 25.25-27.5 GHz | 30 January 2018 |
| F.2086-0 | Deployment scenarios for point-to-point systems in the fixed service | 30 September 2015 |
| F.758-8 | System parameters and considerations in the development of criteria for sharing or compatibility between digital fixed wireless systems in the fixed service and systems in other services and other sources of interference | 13 February 2025 |
| M.1319-3 | The basis of a methodology to assess the impact of interference from a time division multiple access/frequency division multiple access (TDMA/FDMA) mobile-satellite service (MSS) space-to-Earth transmissions on the performance of line-of-sight fixed service receivers in the frequency range 1-3 GHz | 12 January 2010 |
| M.1463-3 | Characteristics of and protection criteria for radars operating in the radiodetermination service in the frequency band 1 215-1 400 MHz | 2 February 2015 |
| M.1465-4 | Characteristics of and protection criteria for radars operating in the radiodetermination service in the frequency range 3 100‑3 700 MHz | 23 February 2022 |
| M.1469-2 | Methodology for evaluating potential for interference from time division multiple access/frequency division multiple access (TDMA/FDMA) mobile‑satellite service (MSS) Earth-to-space transmissions into line-of-sight fixed service receivers in the frequency range 1-3 GHz | 12 January 2010 |
| M.1471-1 | Guide to the application of the methodologies to facilitate coordination and use of frequency bands shared between the mobile-satellite service and the fixed service in the frequency range 1-3 GHz | 12 January 2010 |
| M.1472-1 | Methodology to evaluate the impact of interference from time division multiple access/frequency division multiple access (TDMA/FDMA) mobile-satellite service (MSS) space-to-Earth transmissions on baseband performance in frequency division multiplexing-frequency modulation (FDM-FM) analogue line-of-sight (LoS) fixed service receivers in the frequency range 1-3 GHz | 12 January 2010 |
| M.1473-1 | Methodology to evaluate the impact of interference from time division multiple access/frequency division multiple access (TDMA/FDMA) mobile-satellite service (MSS) space-to-Earth transmissions on video baseband performance in TV-FM analogue line-of-sight fixed service receivers in the frequency range 1-3 GHz | 12 January 2010 |
| M.1474-1 | Methodology to evaluate the impact of interference from time division multiple access/frequency division multiple access (TDMA/FDMA) mobile-satellite service (MSS) systems on baseband performance in digital line-of-sight fixed service receivers based on statistics of radio-frequency interference in the frequency range 1-3 GHz | 12 January 2010 |
| M.1478-3 | Protection criteria for Cospas-Sarsat search and rescue instruments in the band 406-406.1 MHz | 29 September 2014 |
| M.1638-1 | Characteristics of and protection criteria for sharing studies for radiolocation aeronautical radionavigation and meteorological radars operating in the frequency bands between 5 250 and 5 850 MHz | 27 January 2015 |
| M.1731-2 | Protection criteria for Cospas-Sarsat local user terminals in the band 1 544-1 545 MHz | 12 January 2012 |
| M.1787-5 | Description of systems and networks in the radionavigation-satellite service (space-to-Earth and space-to-space) and technical characteristics of transmitting space stations operating in the bands 1 164-1 215 MHz, 1 215-1 300 MHz, and 1 559-1 610 MHz | 23 July 2024 |
| M.1827-1 | Guideline on technical and operational requirements for stations of the aeronautical mobile (R) service limited to surface application at airports in the frequency band 5 091-5 150 MHz | 27 January 2015 |
| M.1831-1 | A coordination methodology for RNSS inter-system interference estimation | 9 September 2015 |
| M.1851-2 | Mathematical models for radiodetermination radar systems antenna patterns for use in interference analyses | 13 December 2023 |
| M.1901-3 | Guidance on ITU-R Recommendations related to systems and networks in the radionavigation-satellite service operating in the frequency bands 1 164-1 215 MHz, 1 215-1 300 MHz, 1 559-1 610 MHz,5 000-5 010 MHz and 5 010-5 030 MHz | 26 January 2022 |
| M.1902-2 | Characteristics and protection criteria for receiving earth stations in the radionavigation-satellite service (space-to-Earth) operating in the band 1 215-1 300 MHz | 26 January 2022 |
| M.1903-1 | Characteristics and protection criteria for receiving earth stations in the radionavigation-satellite service (space-to-Earth) and receivers in the aeronautical radionavigation service operating in the band1 559-1 610 MHz | 17 September 2019 |
| M.1904-1 | Characteristics, performance requirements and protection criteria for receiving stations of the radionavigation-satellite service (space-to-space) operating in the frequency bands 1 164-1 215 MHz,1 215-1 300 MHz and 1 559-1 610 MHz | 17 September 2019 |
| M.1905-1 | Characteristics and protection criteria for receiving earth stations in the radionavigation-satellite service (space-to-Earth) operating in the band 1 164-1 215 MHz | 17 September 2019 |
| M.1906-1 | Characteristics and protection criteria of receiving space stations and characteristics of transmitting earth stations in the radionavigation-satellite service (Earth-to-space) operating in the band 5 000-5 010 MHz | 9 September 2015 |
| M.2030-0 | Evaluation method for pulsed interference from relevant radio sources other than in the radionavigation-satellite service to the radionavigation-satellite service systems and networks operating in the 1 164-1 215 MHz, 1 215-1 300 MHz and 1 559-1 610 MHz frequency bands | 19 December 2012 |
| M.2031-1 | Characteristics and protection criteria of receiving earth stations and characteristics of transmitting space stations of the radionavigation-satellite service (space-to-Earth) operating in the band 5 010-5 030 MHz | 9 September 2015 |
| M.2046-0 | Characteristics and protection criteria for non-geostationary mobile-satellite service systems operating in the band 399.9-400.05 MHz | 28 December 2013 |
| M.2068-0 | Characteristics of and protection criteria for systems operating in the mobile service in the frequency range 14.5-15.35 GHz | 2 February 2015 |
| M.2159-0 | Technical and regulatory measures to provide compatibility between IMT and MSS, with respect to MSS operations in the frequency band 1 518-1 525 MHz for administrations wishing to implement IMT in the frequency band 1 492- 1 518 MHz | 09 December 2023 |
| M.2161-0 | Guidelines to assist administrations to mitigate in-band interference from FSS earth stations operating in the frequency bands 24.65-25.25 GHz, 27- 27.5 GHz, 42.5-43.5 GHz and 47.2-48.2 GHz into IMT stations | 13 December 2023 |
| M.2164-0 | Guidance on technical and operational measures for the use of the frequency band 1 240-1 300 MHz by the amateur and amateur-satellite service in order to protect the radionavigation-satellite service (space-to-Earth) | 17 November 2023 |
| S.1503-4 | Functional description to be used in developing software tools for determining conformity of non-geostationary-satellite orbit fixed-satellite service systems or networks with limits contained in Article 22 of the Radio Regulations | 20 September 2023 |
| S.1587-3 | Technical characteristics of earth stations on board vessels communicating with FSS satellites in the frequency bands 5 925-6 425 MHz and 14-14.5 GHz which are allocated to the fixed-satellite service | 9 September 2015 |
| S.1673-1 | Methodologies for the calculation of the worst-case interference levels from a non‑geostationary HEO-type fixed-satellite service system into geostationary fixed-satellite service satellite networks operating in the 10 to 30 GHz frequency bands | 12 January 2010 |
| S.1844-0 | Cross-polarization reference gain pattern for linearly polarized very small aperture terminals (VSATs) for frequencies in the range 2 to 31 GHz | 18 February 2009 |
| S.1855-0 | Alternative reference radiation pattern for earth-station antennas used with satellites in the geostationary-satellite orbit for use in coordination and/or interference assessment in the frequency range from 2 to 31 GHz | 23 January 2010 |
| S.1856-0 | Methodologies for determining whether an IMT station at a given location operating in the band 3 400-3 600 MHz would transmit without exceeding the power flux-density limits in Nos. 5.430A, 5.432A, 5.432B and 5.433A of the Radio Regulations | 23 January 2010 |
| S.1857-0 | Methodologies to estimate the off-axis e.i.r.p. density levels and to assess the interference towards adjacent satellites resulting from pointing errors of vehicle-mounted earth stations in the 14 GHz frequency band | 23 January 2010 |
| S.1899-0 | Protection criteria and interference assessment methods for non-GSO inter-satellite links in the 23.183-23.377 GHz band with respect to the space research service | 12 January 2012 |
| S.2029-0 | Statistical methodology to assess time-varying interference produced by a geostationary fixed-satellite service network of earth stations operating with MF-TDMA schemes to geostationary fixed-satellite service networks | 19 December 2012 |
| S.2157-0 | Procedures for the evaluation of interference from any non-geostationary-satellite system into a global set of the generic geostationary-satellite reference links in the frequency bands 37.5-39.5 GHz (space-to-Earth), 39.5-42.5 GHz (space-to-Earth), 47.2-50.2 GHz (Earth-to-space) and 50.4-51.4 GHz (Earth-to-space) | 20 September 2023 |
| S.2158-0 | Methodology for examining the compliance of an aeronautical earth station in motion communicating with geostationary space stations in the fixed-satellite service in the 27.5-29.5 GHz band with a set of pre-established pfd limits on the Earth's surface | 20 September 2023 |
| S.465-6 | Reference radiation pattern for earth station antennas in the fixed‑satellite service for use in coordination and interference assessment in the frequency range from 2 to 31 GHz | 23 January 2010 |
| S.732-1 | Method for statistical processing of earth station antenna side-lobe peaks to determine excess over antenna reference patterns and conditions for acceptability of any excess | 19 December 2012 |
| SA.2142-0 | Methodologies for calculating coordination areas around Earth exploration-satellite and space research earth stations to avoid harmful interference from IMT-2020 systems in the frequency bands 25.5-27 GHz and 37-38 GHz | 06 December 2021 |
| SF.1649-1 | Guidance for determination of interference from earth stations on board vessels to stations in the fixed service when the earth station on board vessels is within the minimum distance | 9 August 2008 |
| SF.674-3 | Determination of the impact on the fixed service operating in the 11.7‑12.2 GHz band when geostationary fixed-satellite service networks in Region 2 exceed power flux‑density thresholds for coordination | 28 December 2013 |
| SF.675-4 | Calculation of the maximum power density (averaged over 4 kHz or 1 MHz) of angle modulated and digital carriers | 12 January 2012 |