Draft analytical list of the Recommendations (SF-series)

****Frequency sharing and coordination between fixed-satellite and fixed service systems****

**Section 1A Sharing conditions**

| No | Title | Scope |
| --- | --- | --- |
| SF.356-4 | Maximum allowable values of interference from line-of-sight radio-relay systems in a telephone channel of a system in the fixed-satellite service employing frequency modulation, when the same frequency bands are shared by both systems   (07/1978) | None |
| SF.357-4 | Maximum allowable values of interference in a telephone channel of an analogue angle-modulated radio-relay system sharing the same frequency bands as systems in the fixed-satellite service (05/1997) | None |
| SF.674-2 | 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 in Resolution 77 (WRC-2000) (05/2002) | This Recommendation provides a methodology that can be used to determine the interference levels that would be caused to fixed service systems by GSO fixed-satellite service systems operating at power flux-density levels above the threshold levels specified in Resolution 77 (WRC‑2000). |
| SF.765‑1 | Intersection of radio-relay antenna beams with orbits used by space stations in the fixed-satellite service (02/2003) | This Recommendation discusses various aspects of the intersection of radio-relay antenna beams with orbits used by space stations in the fixed-satellite service and, in particular, Annex 2 presents an analytical method for calculating separation angles between radio-relay antenna beams and the geostationary-satellite orbit. This revised Recommendation expands the applicability of Annex 2 so that it becomes applicable also to radio-relay antennas with very high elevation angles. Appendix 1 to Annex 2 provides a computer program written in C language. |
| SF.1482 | Maximum allowable values of power flux-density (pfd) produced at the Earth's surface by non-GSO satellites in the fixed-satellite service (FSS) operating in the 10.7‑12.75 GHz band (05/2000) | This Recommendation provides values of power flux-density to protect fixed service (FS) receivers from emissions of non-geostationary orbit (GSO) satellites in the 10.7-12.75 GHz band. An Annex provides the FS characteristics and protection criteria along with the methodologies used to assess the adequacy of these limits to protect the FS. |
| SF.1483 | Maximum allowable values of power flux-density (pfd) produced at the Earth's surface by non-GSO satellites in the fixed-satellite service (FSS) operating in the 17.7‑19.3 GHz band (05/2000) | This Recommendation provides values of power flux-density to protect fixed service receivers from emissions of non-GSO satellites in the fixed-satellite service operating in the 17.7‑19.3 GHz band. An Annex provides the FS characteristics and protection criteria along with the methodologies used to assess the adequacy of these limits to protect the FS. |
|  |  |  |
|  |  |  |
| SF.1719 | Sharing between point-to-point and point-to-multipoint fixed service and transmitting earth stations of GSO and non-GSO FSS systems in the 27.5-29.5 GHz band | This Recommendation examines sharing as described in the title. The Annex provides various methodologies of interference analysis to support the recommends that administrations avoid the deployment of FS receiver stations and large numbers of FSS transmitting earth stations with overlapping frequencies within the band 27.5-29.5 GHz in the same geographical area. |

**Section 1B Coordination and interference calculations**

|  |  |  |
| --- | --- | --- |
| No | Title | Scope |
| SF.675-4 | Calculation of the maximum power density (averaged over 4 kHz) of an angle‑modulated carrier (01/2012) | This Recommendation provides methods for calculating the maximum power density of various types of carriers averaged over 4 kHz or 1 MHz. |
| SF.766 | Methods for determining the effects of interference on the performance and the availability of terrestrial radio-relay systems and systems in the fixed-satellite service (03/1992) | None |
| SF.1006 | Determination of the interference potential between earth stations of the fixed-satellite service and stations in the fixed service (04/1993) | None |
| SF.1395 | Minimum propagation attenuation due to atmospheric gases for use in frequency sharing studies between the fixed-satellite service and the fixed service (03/1993) | This Recommendation gives approximate formulae of minimum propagation attenuation in the Earth-to-space link due to atmospheric gases for use in frequency sharing studies between the fixed‑satellite service and the fixed service. Three formulae are presented for each of thirteen frequency bands in the 10 ‑ 50 GHz range, corresponding to the low-latitude, mid-latitude and high‑latitude areas. The information in this Recommendation is based on Recommendation ITU-R P.676-3 (Geneva, 1997) and Recommendation ITU‑R P.835-2 (Geneva, 1997). |
| SF.1485 | Determination of the coordination area for earth stations operating with non-geostationary space stations in the fixed‑satellite service in frequency bands shared with the fixed service (05/2000) | This Recommendation addresses the determination of coordination area for earth stations operating with non-geostationary satellites in the fixed-satellite service in frequency bands shared with the fixed service. Annex 1 describes the determination using a method sometimes called the time-varying gain (TVG) method and provides examples of its application in the Appendices to Annex 1 (See also Recommendation ITU-R SM.1448, Annex 1, § 2.2.2). Annex 2 provides a description of the determination of coordination area using a method sometimes called the composite method. |

|  |  |  |
| --- | --- | --- |
| No | Title | Scope |
| SF.1486 | Sharing methodology between fixed wireless access systems in the fixed service and very small aperture terminals in the fixed-satellite service in the 3 400-3 700 MHz band (05/2000) | This Recommendation provides a methodology to facilitate the sharing between fixed wireless access (FWA) systems in the fixed service (FS) and very small aperture terminals (VSATs) in the fixed-satellite service (FSS) in the band 3400-3700 GHz. In particular, Annex 1 provides a methodology for calculating separation distances between FSS VSATs and point-to-multipoint (P‑MP) FWA systems, and Annex 2 provides interference mitigation methods for the shared deployment of FSS VSATs and FWA terrestrial systems. |
| SF.1572 | Methodology to evaluate the impact of space-to-Earth interference from the fixed‑satellite service to the fixed service in frequency bands where precipitation is the predominant fade mechanism (05/2002) | This Recommendation provides a methodology for assessing the effect of interference from GSO fixed-satellite service satellites on the availability of fixed service systems in frequency bands where precipitation fading limits the availability of fixed service systems. The methodology is based on a carrier to noise-plus-interference power ratio criterion as it applies to the availability of fixed service systems, both point-to-point and point-to-multipoint, with parameters specified on a statistical basis. Flexibility in the specification of constant and/or statistically variable input parameters allows the consideration of many different examples of fixed service systems. |
| SF.1602 | Methodology for determining power flux-density statistics for use in sharing studies between fixed wireless systems and multiple fixed-satellite service satellites (02/2003) | At some elevation angles on the surface of the earth, the power flux-density produced by a satellite may be smaller than the limiting values required by conformance to a given pfd mask because of the limitations of real antenna gain patterns and the need to avoid self interference. This Recommendation provides a methodology for determining the statistics of the power flux-density produced at the surface of the earth by satellites in GSO or non-GSO orbits. |

|  |  |  |
| --- | --- | --- |
| No | Title | Scope |
| SF.1707 | Methods to facilitate the implementation of large numbers of earth stations in the FSS in areas where terrestrial services are also deployed (04/2005) | This Recommendation provides methods and means to facilitate the implementation of large numbers of earth stations operating in the fixed-satellite service (FSS) in areas where terrestrial services are also deployed. It includes examples for the deployment of a large number of FSS earth stations, guidance for an agreed interference calculation to facilitate implementation of such large numbers of earth stations, and an example of how to develop a single transmit and a single receive coordination distance for consideration as a means to ease bilateral agreements for a given geographical area. |

**Section 1C High altitude platform stations (HAPS)**

|  |  |  |
| --- | --- | --- |
| No | Title | Scope |
|  |  |  |
| SF.1601-2: | Methodologies for interference evaluation from the downlink of the fixed service using high altitude platform stations to the uplink of the fixed-satellite service using the geostationary satellites within the band 27.5-28.35 GHz (04/2005) | This Recommendation provides methodologies for the interference evaluation from the HAPS-to-ground transmission downlink of the fixed service (FS) using high altitude platform stations to the uplink of the fixed-satellite service using the geostationary satellites within the bands 27.5-28.35 GHz. This Recommendation contains three Annexes that provide methodologies for interference calculation, calculation of the e.i.r.p. of transmission from HAPS, interference evaluation in terms of C/I and examples of applications of the methodologies in the Appendix. |
| SF.1843 | Methodology for determining the power level for HAPS user terminals to facilitate sharing with space station receivers in the bands 47.2-47.5 GHz and 47.9-48.2 GHz (10/2007) | This Recommendation presents a methodology and its applications to determine the power level for the ground terminals of HAPS to promote frequency sharing with an FSS space station receiver in the bands 47.2-47.5 GHz and 47.9-48.2 GHz. |

**Section 1D Earth stations on board vessels (ESV)**

|  |  |  |
| --- | --- | --- |
| No | Title | Scope |
| SF.1585 | Example approach for determination of the composite area within which interference to fixed service stations from earth stations on board vessels when operating in motion near a coastline would need to be evaluated (09/2002) | This Recommendation provides an example approach to be used to determine the composite area within which interference to fixed stations from proposed operations near a coastline by in-motion earth stations on board vessels should be evaluated. |
| SF.1648 | Use of frequencies by earth stations on board vessels transmitting in certain bands allocated to the fixed-satellite service (06/2003) | This Recommendation provides guidance on the choice of a frequency band for the operation of earth stations on board vessels when considering the possibility of operations within the minimum distance from the coast beyond which such stations would not cause unacceptable interference to the fixed service. |
| 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 (08/2008) | This Recommendation provides guidance to administrations for the determination of the interference potential of earth stations on board vessels (ESVs) to stations in the fixed service. Annex 1 provides general considerations for this determination. Annex 2 provides a description of the most basic approach to such a determination. Annex 3 provides several alternative approaches based on simulations. Annex 4 contains material that may be considered in bilateral and multilateral discussion when administrations authorize antennas smaller than 1.2 m in the 14.0-14.5 GHz band to ensure that these smaller antennas are in compliance with the requirements of Resolution 902 (WRC-03). |
| SF.1650-1 | The minimum distance from the baseline beyond which in-motion earth stations located on board vessels would not cause unacceptable interference to the terrestrial service in the bands 5 925-6 425 MHz and 14-14.5 GHz (02/2005) | This Recommendation provides the offshore distance beyond which earth stations on board vessels (ESVs) will not interfere with fixed service systems. The Annex provides the assumptions and methodology used in determining these distances in the frequency bands 5 925‑6 425 MHz and 14-14.5 GHz. |

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_