



Recommendation ITU-R SA.2079-0
(08/2015)

**Frequency sharing between SRS and FSS
(space-to-Earth) systems
in the 37.5-38 GHz band**

SA Series
Space applications and meteorology



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Foreword

The role of the Radiocommunication Sector is to ensure the rational, equitable, efficient and economical use of the radio-frequency spectrum by all radiocommunication services, including satellite services, and carry out studies without limit of frequency range on the basis of which Recommendations are adopted.

The regulatory and policy functions of the Radiocommunication Sector are performed by World and Regional Radiocommunication Conferences and Radiocommunication Assemblies supported by Study Groups.

Policy on Intellectual Property Right (IPR)

ITU-R policy on IPR is described in the Common Patent Policy for ITU-T/ITU-R/ISO/IEC referenced in Annex 1 of Resolution ITU-R 1. Forms to be used for the submission of patent statements and licensing declarations by patent holders are available from <http://www.itu.int/ITU-R/go/patents/en> where the Guidelines for Implementation of the Common Patent Policy for ITU-T/ITU-R/ISO/IEC and the ITU-R patent information database can also be found.

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SA	Space applications and meteorology
SF	Frequency sharing and coordination between fixed-satellite and fixed service systems
SM	Spectrum management
SNG	Satellite news gathering
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Note: This ITU-R Recommendation was approved in English under the procedure detailed in Resolution ITU-R 1.

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RECOMMENDATION ITU-R SA.2079-0

**Frequency sharing between SRS and FSS (space-to-Earth) systems
in the 37.5-38 GHz band**

(2015)

Scope

This Recommendation covers the frequency sharing between the space research service (SRS) and the fixed satellite service (FSS) in the 37.5-38 GHz band (space-to-Earth). It gives e.i.r.p. and pfd limits for the space-VLBI (SVLBI) and lunar systems of SRS, and the geostationary orbit (GSO) and highly inclined elliptical Orbit (HEO) systems of FSS.

Keywords

SRS near-Earth systems, FSS GSO and HEO systems, e.i.r.p. and p.f.d. limits, frequency sharing, 37.5-38 GHz

The ITU Radiocommunication Assembly,

considering

- a) that the space research service (SRS) (s-E) has a primary allocation in the 37-38 GHz band and the fixed-satellite service (FSS) (s-E) has a primary allocation in the 37.5-42.5 GHz band, and these allocations overlap in the 37.5-38 GHz band;
- b) that the protection criteria for the SRS downlinks in the 37-38 GHz band are given in Recommendation ITU-R SA.1396;
- c) that calculation of interference to an SRS earth station that may result from atmospheric and precipitation effects should be based on weather statistics for 0.001% of the time for manned missions and for 0.1% of time for unmanned missions;
- d) that deep space SRS downlinks often carry data of unique science events that are not repeatable;
- e) that the emissions from deep space downlinks typically have a power flux-density (pfd) on the surface of the Earth that is much lower than any other satellite signal and is therefore extremely vulnerable to interference from satellites operating in the same frequency band;
- f) that space-based very long baseline interferometry (SVLBI) SRS downlinks have interference criteria as given in Report ITU-R SA.2065, and that these links may be able to tolerate higher interference levels than indicated in Recommendation ITU-R SA.1396;
- g) that protection of SRS and FSS systems sharing the 37.5-38 GHz band has been studied in Report ITU-R SA.2307 whose results are summarized in the Annex;
- h) that transmissions from the SRS SVLBI and lunar systems with e.i.r.p. levels below the limits given in Report ITU-R SA.2307 meet the protection criteria of the FSS GSO and HEO systems;
- i) that transmissions from the FSS GSO and HEO systems with e.i.r.p. levels below the limits given in Recommendation ITU-R S.1328 meet the protection criteria of SRS SVLBI and unmanned lunar systems, but FSS GSO transmissions require a lower e.i.r.p limit to meet the protection criterion of SRS manned lunar missions;