



Recommendation ITU-R SA.510-3
(07/2017)

**Feasibility of frequency sharing between the
space research service and other services in
bands near 14 and 15 GHz
Potential interference from data relay
satellite systems**

SA Series
Space applications and meteorology

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.

Series of ITU-R Recommendations

(Also available online at <http://www.itu.int/publ/R-REC/en>)

| Series | Title |
|------------|--------------------------------------------------------------------------------------|
| BO | Satellite delivery |
| BR | Recording for production, archival and play-out; film for television |
| BS | Broadcasting service (sound) |
| BT | Broadcasting service (television) |
| F | Fixed service |
| M | Mobile, radiodetermination, amateur and related satellite services |
| P | Radiowave propagation |
| RA | Radio astronomy |
| RS | Remote sensing systems |
| S | Fixed-satellite service |
| SA | Space applications and meteorology |
| SF | Frequency sharing and coordination between fixed-satellite and fixed service systems |
| SM | Spectrum management |
| SNG | Satellite news gathering |
| TF | Time signals and frequency standards emissions |
| V | Vocabulary and related subjects |

Note: This ITU-R Recommendation was approved in English under the procedure detailed in Resolution ITU-R 1.

Electronic Publication
Geneva, 2017

© ITU 2017

All rights reserved. No part of this publication may be reproduced, by any means whatsoever, without written permission of ITU.

RECOMMENDATION ITU-R SA.510-3

**Feasibility of frequency sharing between the space research service
and other services in bands near 14 and 15 GHz****Potential interference from data relay satellite systems**

(Question ITU-R 118/7)

(1978-1982-1997-2017)

Scope

This Recommendation provides conditions for the feasibility of frequency sharing, on a non-interference basis, between transmitters in the space research service and receivers of other services near 14 and 15 GHz.

Keywords

Frequency, sharing, SRS, 14 GHz, 15 GHz

Related ITU-R Recommendations and Reports

Recommendation ITU-R SA.1626

The ITU Radiocommunication Assembly,

considering

- a) that frequency sharing within the range 13 to 16 GHz between near-Earth space research applications (transmitters of the data relay satellite (DRS) system) and other services is feasible;
- b) that, in accordance with the relevant provisions of the Radio Regulations, the space research service may operate on a secondary basis in some of the bands where other services are primary,

recognizing

that frequency sharing, on a non-interference basis, between transmitters in the space research service and receivers of other services is feasible near 14 and 15 GHz provided that appropriate pfd limits are specified for the space research service;

recommends

that, in frequency bands near 14 and 15 GHz shared between the space research service (DRS systems) and other services, the space research satellites should operate with the following pfd limits produced at the surface of the Earth in any 4 kHz band for all conditions and methods of modulation not exceeding:

| | | | |
|-------------------------|-----------------------|-----|-----------------------------------|
| −148 | dB(W/m ²) | for | $0^\circ < \delta \leq 5^\circ$ |
| $-148 + (\delta - 5)/2$ | dB(W/m ²) | for | $5^\circ < \delta \leq 25^\circ$ |
| −138 | dB(W/m ²) | for | $25^\circ < \delta \leq 90^\circ$ |

where δ is the angle of arrival of the radio-frequency wave (degrees above the horizontal); and that these limits relate to the pfd and angles of arrival which would be obtained under free-space propagation conditions.
