

Recommendation ITU-R RS.2066-1

(03/2024)

RS Series: Remote sensing systems

Protection of the radio astronomy service in the frequency band 10.6-10.7 GHz from unwanted emissions of synthetic aperture radars operating in the Earth exploration-satellite service (active) around 9 600 MHz

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 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 <https://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, 2024

© ITU 2024

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

RECOMMENDATION ITU-R RS.2066-1

Protection of the radio astronomy service in the frequency band 10.6-10.7 GHz from unwanted emissions of synthetic aperture radars operating in the Earth exploration-satellite service (active) around 9 600 MHz

(2014-2024)

Scope

This Recommendation provides an operational procedure to avoid main-beam to main-beam coupling between Earth exploration-satellite service (EESS) (active) SAR-4 systems when transmitting near 9 600 MHz and radio astronomy service (RAS) stations performing observations in the band 10.6-10.7 GHz in order to avoid damage to the sensitive RAS low noise amplifier.

Keywords

EESS (active), RAS, mitigation

Abbreviations/Glossary

SAR Synthetic Aperture Radar

Related ITU Recommendations/Reports

Recommendation ITU-R RS.2043 – Characteristics of synthetic aperture radars operating in the Earth exploration-satellite service (active) around 9 600 MHz

Report ITU-R RA.2188 – Power flux-density and e.i.r.p. levels potentially damaging to radio astronomy receivers

Report ITU-R RS.2274 – Spectrum requirements for spaceborne synthetic aperture radar applications planned in an extended allocation to the Earth exploration-satellite service around 9 600 MHz

Report ITU-R RS.2308 – Radio frequency compatibility of unwanted emissions from 9 GHz EESS synthetic aperture radars with the Earth exploration-satellite service (passive), space research service (passive), space research service and radio astronomy service operating in the frequency bands 8 400-8 500 MHz and 10.6-10.7 GHz, respectively

The ITU Radiocommunication Assembly,

considering

- a) that the frequency band 9 300-9 800 MHz is allocated to EESS (active) on a primary basis;
- b) that the frequency band 9 800-9 900 MHz is allocated to EESS (active) on a secondary basis;
- c) that the frequency band 10.6-10.7 GHz is allocated to the RAS on a primary basis;
- d) that EESS (active) systems operating active radars around 9 600 MHz use high power chirp emissions in the space-to-Earth direction;
- e) that radio astronomy stations operating in the frequency band 10.6-10.7 GHz use extremely sensitive low noise amplifiers;
- f) that Report ITU-R RA.2188 provides the power flux-density and e.i.r.p. levels potentially damaging RAS low noise amplifiers/front-ends;
- g) that the level of interference received by RAS stations from the emissions of EESS (active) systems may, under rare conditions of mainbeam to main beam coupling, reach or exceed the critical levels as given by Report ITU-R RA.2188,