

ITU-R

Radiocommunication Sector of ITU

Recommendation ITU-R SA.2078-0
(08/2015)

Protection of space research service earth stations from mobile (aircraft) stations in the 2 200-2 290 MHz band

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)

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Series of ITU-R Recommendations

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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, 2015

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RECOMMENDATION ITU-R SA.2078-0

Protection of space research service earth stations from mobile (aircraft) stations in the 2 200-2 290 MHz band

(2015)

Scope

This Recommendation gives the required coordination distance of 880 km between space research earth stations and transmitting mobile (aircraft) stations to protect the space research earth stations in the 2 200-2 290 MHz band.

Keywords

SRS earth stations, mobile (aircraft) stations, coordination distance, 2 200-2 290 MHz

The ITU Radiocommunication Assembly,

considering

- a) that the band 2 200-2 290 MHz is allocated to the space operation (space-to-Earth) (space-space), Earth exploration-satellite (space-to-Earth) (space-to-space), fixed, mobile, and space research (space-to-Earth) (space-to-space) services (SRS) on a primary basis;
- b) that the protection criteria for near-Earth SRS earth stations are given in Recommendation ITU-R SA.609 as -216 dBW/Hz with 0.1% exceedance probability for unmanned SRS missions and 0.001% for manned SRS missions;
- c) that mobile (aircraft) stations flying over SRS earth stations can have line-of-sight (LoS) interference with the SRS earth stations;
- d) that the LoS separation distance is determined by RF visibility limit, which is about 830 km for an aircraft at 17 km altitude and for exceedance probabilities less than 1%;
- e) that transmissions from a mobile (aircraft) station at the RF visibility limit with 17 km altitude may cause interference to an SRS earth station, exceeding the protection level by up to 37 dB;
- f) that, to meet the protection criteria of the SRS earth stations, distances larger than line-of-sight separations distances are required;
- g) that for non-line-of-sight (NLoS) propagation analysis, the methodology in Recommendation ITU-R P.528 needs to be used;
- h) that Report ITU-R SA.2276, using NLoS propagation methodology, has shown that the required separation distance would be about 880 km, as shown in the Annex,

recommends

that, in the 2 200-2 290 MHz band, 880km should be used as the coordination distance between SRS earth stations and mobile (aircraft) stations.