



Recommendation ITU-R F.1502
(05/2000)

**Protection of the fixed service in the
frequency band 8 025-8 400 MHz sharing
with geostationary-satellite systems
of the Earth exploration-satellite
service (space-to-Earth)**

F Series
Fixed service

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.

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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.

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RECOMMENDATION ITU-R F.1502*, **

**Protection of the fixed service in the frequency band 8 025-8 400 MHz
sharing with geostationary-satellite systems of the Earth
exploration-satellite service (space-to-Earth)**

(Question ITU-R 113/9)

(2000)

The ITU Radiocommunication Assembly,

considering

- a) that prior to WRC-97, the band 8 025-8 400 MHz was allocated to the Earth exploration-satellite service (EESS) (space-to-Earth) on a secondary basis in Regions 1 and 3, except for those countries listed in No. 5.464 of the Radio Regulations (RR);
- b) that the power flux-density (pfd) limits given in Table 21-4 of RR Article 21 apply to emissions from space stations of the EESS (space-to-Earth);
- c) that, for those administrations where the secondary allocation applied before WRC-97, geostationary orbital avoidance was not required for the fixed service and, therefore, the pfd limits given in Table 21-4 of the RR will give rise to excessive interference to the fixed service;
- d) that provisional pfd limits in RR No. 5.462A are lower than those shown in Table 21-4 of the RR to protect the fixed service;
- e) that the band 8 025-8 400 MHz is used extensively by the fixed service in accordance with ITU-R channel arrangements for the 8 GHz band (see Recommendation ITU-R F.386) and is also used by some countries for television outside broadcast applications;
- f) that it is expected that the main application for the EESS in this band is for non-geostationary satellites (non-GSO), however there may be some geostationary satellite (GSO) applications;
- g) that WRC-97, in its Resolution 124 (WRC-97), resolved to invite ITU-R to study, as a matter of urgency, the required pfd limits to be applied to space stations of GSO systems in the EESS (space-to-Earth) in the frequency band 8 025-8 400 MHz where orbital avoidance has not been implemented by the fixed service sharing the band,

* This Recommendation should be brought to the attention of Radiocommunication Study Group 7.

** Radiocommunication Study Group 9 made editorial amendments to this Recommendation in 2004.

recommends

1 that, in the frequency band 8 025-8 400 MHz shared between GSO systems in the EESS (space-to-Earth) and radio-relay systems in the fixed service, the spectral pfd produced at the surface of the Earth (Regions 1 and 3 only) by emissions from a satellite, for all conditions and methods of modulation, should not exceed (see Notes 1 and 2):

-135	dB(W/m ²) in any 1 MHz band	for	0° ≤ θ < 5°
-135 + 0.5(θ - 5)	dB(W/m ²) in any 1 MHz band	for	5° ≤ θ < 25°
-125	dB(W/m ²) in any 1 MHz band	for	25° ≤ θ ≤ 90°

where θ is the angle of arrival of the radio-frequency wave (degrees above the horizontal plane);

2 that the aforementioned limits relate to the pfd and angles of arrival which would be obtained under free-space propagation conditions.

NOTE 1 – The pfd limits in *recommends* 1 have been derived in response to the request stated in Resolution 124 (WRC-97) and are intended for consideration by a future world radio-communication conference which may wish to use this Recommendation in order to replace the limits contained in RR No. 5.462A. For Region 2 and for non-GSO systems in Regions 1 and 3 in the band 8 025-8 400 MHz, the pfd limits in Table 21-4 of the RR will continue to apply.

NOTE 2 – In deriving the pfd limits in *recommends* 1, consideration was given to the fact that many fixed wireless systems in Regions 1 and 3 had been established before 1997 when GSO orbital avoidance was not required and, therefore, it was found that if the pfd limits given in Table 21-4 of the RR are applied without change, an excessive interference will be caused to fixed wireless systems at low angles of arrival.
