



Report ITU-R SM.2181
(09/2010)

**Use of Appendix 10 of the Radio Regulations
to convey information related to emissions
from both GSO and non-GSO space stations
including geolocation information**

SM Series
Spectrum management



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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.

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***Note:** This ITU-R Report was approved in English by the Study Group under the procedure detailed in Resolution ITU-R 1.*

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related to emissions from both GSO and non-GSO space
stations including geolocation information**

(Question ITU-R 232/1)

(2010)

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1 Introduction

Article 15 of the Radio Regulations (RR) describes the procedure for the resolution of cases of harmful interference. When cases of harmful interference occur as result of emissions from space stations, the administrations having jurisdiction over these interfering stations shall, upon request from the administration having jurisdiction over the station experiencing the interference, furnish current ephemeral data necessary to allow determination of the positions of the space stations when not otherwise known. Having determined the source and characteristics of the harmful interference, the administration having jurisdiction over the transmitting station whose service is being interfered with shall inform the administration having jurisdiction over the interfering station, giving all useful information in order that this administration may take such steps as may be necessary.

Full particulars relating to harmful interference shall, whenever possible, be given in the form indicated in RR Appendix 10.

2 Problem definition

Appendix 10 was designed with terrestrial services in mind. Therefore its applicability related to emissions from space stations is limited. This is even more problematic when graphical geolocation information has to be conveyed. The relatively limited number of interference cases, however, would not justify conducting rather complex procedures aiming in a modification of Appendix 10.

3 Proposal for solution

The shortcomings related to the need of conveying ephemeris or geolocation data can simply be overcome by attaching additional information and figures to the Report of harmful interference describing the information in a narrative or graphic form.

Annex 1 of this Report provides data fields and additional information which may be used in an interference report as required.

Annex 2 of this Report provides two example reports of harmful interference. According to the note at the end of Appendix 10 only those letters for which information is provided was used.

Annex 1

Data fields and additional information that can be used in an interference report

The elements in the following three tables are extracted from RR Appendix 10.

Particulars concerning the station causing the interference:

a	Name, call sign or other means of identification	
b	Frequency measured Date: Time (UTC)	
h	Location/position/area/bearing (QTE)	

Particulars concerning the transmitting station interfered with:

j	Name, call sign or other means of identification	
o	Location/position/area/bearing (QTE)	

Particulars furnished by the receiving station experiencing the interference:

q	Name, call sign or other means of identification	
r	Location/position/area	
x	Action requested	

The additional information presented in Tables 1 and 2 is suggested to supplement RR Appendix 10 to provide the additional information needed to fully report the information.

TABLE 1
Particulars concerning the interference

	Type of interference:	
	Satellite interferes with stations of terrestrial services or earth stations of space services (yes/no)	
	Terrestrial emissions or earth stations interfere with a satellite (yes/no)	
	Name of the satellite:	
	– as ITU filing	
	– as commercial name(s)	
	– as NORAD number of spacecraft	
	Name of the satellite system:	
	– Satellite operator	
	– Type of satellite service	
	Satellite orbit:	
	– GSO orbit position (nominal):	
	– Position measured (Lat./Lon.)	
	– Inclination	
	– Position within tolerance (yes/no)	
	– LEO/MEO/HEO orbit:	
	– Orbital period	
	– Time of visibility	
	– Orbit type	
	– Name of the satellite system	
	– Number of satellites in the system	
	Satellite downlink:	
	– Frequency range (nominal) (MHz)	
	– Frequency range measured (MHz)	
	– Polarization (nominal)	
	– Polarization measured	
	– Transmitted power (nominal)	
	– Transmitted power measured	
	Interfering signal:	
	– Frequency measured (downlink) (MHz)	
	– Frequency calculated (uplink) (MHz)	
	– Date of measurement (yyyy-mm-dd)	
	– Time of measurement (UTC)	
	– Bandwidth (kHz)	
	– Power flux-density (dBW/m ²)	

TABLE 1 (end)

	– Class of emission	
	– Plot of interfering signal (Figure No.)	
	– Descriptions (Dates and times (UTC) of occurrence of harmful interference)	
	– Frequency behaviour characteristics (sweeping or drifting)	
	– Remark about interfering signal	
	Ground based geolocation measurement:	
	– Interferer position result (Lat./Lon.)	
	– Interferer location (country, state, town)	
	– Plot of measurement (Figure No.)	
	– Semi-major axis (km)	
	– Semi-minor axis (km)	
	– Orientation of ellipse (true north clockwise)	
	– Confidence level (%)	
	Transponder in which the interferer is appearing:	
	– Transponder on satellite	
	– Transponder name/number	
	– Polarization (downlink)	
	– Polarization (uplink)	
	– Frequency range (downlink)	
	– Centre frequency (downlink)	
	– Frequency range (uplink)	
	– Centre frequency (uplink)	
	– Measurement Plot (Figure No.)	
	– Description/identification of authorized signal	
	Footprint in which the interferer is downlinked	
	Footprint in which the interferer is uplinked	