



Recommendation ITU-R S.1717-1
(09/2015)

**Electronic data file format for earth
station antenna patterns**

S Series
Fixed-satellite service



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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.

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.

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RECOMMENDATION ITU-R S.1717-1

Electronic data file format for earth station antenna patterns

(Questions ITU-R 42-1/4 and ITU-R 280/4)

(2005-2015)

Scope

Although the standard reference patterns for FSS and BSS earth station antenna main-beam and side-lobe gain, such as those in Recommendations ITU-R S.465, ITU-R S.580, ITU-R BO.1213 or ITU-R BO.1900 among many others are adequate for many interference studies, cases sometimes arise where more detailed gain patterns for specific antennas, or antenna types are needed in ITU-R studies. Also, the gain data for particular antennas are used in the refinement of existing reference patterns and/or the development of new reference patterns. Annex 1 to this Recommendation details a format in which gain data on specific FSS and BSS earth station antennas may be submitted by administrations in electronic form, and includes examples. Annex 2 includes a format for the capture of measured gain data of earth station antennas when only elevation and azimuth data is available.

Keywords

FSS, BSS, electronic data file format, earth station antenna patterns

Related ITU Recommendations, Reports

Recommendation ITU-R BO.1213-1	Reference receiving earth station antenna pattern for the broadcasting-satellite service in the 11.7-12.75 GHz band
Recommendation ITU-R BO.1900-0	Reference receive earth station antenna pattern for the broadcasting-satellite service in the band 21.4-22 GHz in Regions 1 and 3
Recommendation ITU-R S.465-6	Reference radiation pattern of earth station antennas in the fixed-satellite service for use in coordination and interference assessment in the frequency range from 2 to 31 GHz
Recommendation ITU-R S.580-6	Radiation diagrams for use as design objectives for antennas of earth stations operating with geostationary satellites
Recommendation ITU-R S.732-1	Method for statistical processing of earth station antenna side-lobe peaks to determine excess over antenna reference patterns and conditions for acceptability of any excess

The ITU Radiocommunication Assembly,

considering

- a) that efficient utilization of the radio spectrum is a primary factor in the management of the GSO;
- b) that the side-lobe characteristic of earth station antennas is one of the main factors in determining the minimum spacing between satellites and therefore the extent to which the radio spectrum can be efficiently used;
- c) that the collection of measured earth station antenna pattern data would allow a continuous improvement of the ITU-R mathematical models for use in sharing studies or as reference patterns for antenna side-lobe limits or off-axis e.i.r.p. levels;

d) that a defined file format for the submission of measured earth station antenna pattern data would be useful for the analysis of these data by the Radiocommunication Study Groups;

e) that this file format should be sufficiently general to support data on different cut planes, angular ranges and polarization types of antenna patterns,

recommends

1 that the file format contained in Annex 1 may be used for the collection of electronic data containing information on FSS or BSS earth station antenna radiation patterns for further studies concerning the modelling of the radiation patterns;

2 that the file format in Annex 2 may be used for cases when measurement data are only available in the azimuth and elevation planes.

NOTE 1 – Recommendation ITU-R S.732 may be used as guidance for the choice of an adequate number of points to achieve the necessary angular resolution in each electronic data file.

NOTE 2 – Further studies may be required for the establishment of antenna measurement procedures.

NOTE 3 – The electronic databank containing antenna measurements submitted to ITU-R is available at <http://www.itu.int/itu-r/go/rsg4/recs1717data/>.

Annex 1

Electronic file format for earth station antenna pattern data

1 Generic description

The basic file types considered here are block structured. These data blocks are detailed in the next sections.

In all files, HEADER has to be formatted in accordance with:

Line	Description/content
1	Title
2	Comments
3	Comments
4	File identification code

Maximum number of characters:

- title: 52 characters
- comments: 80 characters.

NOTE 1 – Such comments lines are reserved for information related to the content of the file and or its purpose (e.g. antenna model or configuration).