

QUESTION ITU-R 280/4*

Receiving earth station antennas for the broadcasting-satellite service

(2009)

The ITU Radiocommunication Assembly,

considering

- a) the need for detailed information on co-polar and cross-polar patterns of receiving earth station antennas for the planning and coordination of systems in the broadcasting-satellite service (BSS);
- b) that the determination of coordination requirements and/or interference assessments between geostationary-satellite systems belonging to the BSS and/or to the fixed-satellite service (FSS), as well as between BSS earth stations and other services sharing the same frequency band, significantly depends on the accuracy of reference antenna patterns used in analysis;
- c) that the range of applicability of antenna patterns needs to be precisely defined (i.e. the applicable range of input parameters, the applicable frequency bands, etc.);
- d) that the definition of both antenna patterns and their associated range of applicability needs to be based on measurements, rather than on theoretical analysis;
- e) that new antenna technologies (e.g. multiple-feed antennas, non-circular reflectors) are being widely deployed;
- f) that the ITU Radiocommunication Bureau has developed an antenna pattern software library to be used in conjunction with all software used in the application of the relevant procedures of the Radio Regulations,

noting

- a) that extensive studies and measurements were conducted to appropriately describe the patterns of antennas in the 12 GHz frequency range, which led to the adoption of Recommendations ITU-R BO.1213 and ITU-R BO.1443 as well as Report ITU-R BO.2029;
- b) that BSS feeder links are implemented in frequency bands allocated to the FSS (Earth-to-space), and are using antennas that are compliant with the relevant Recommendations of the ITU-R S-series;
- c) that, in order to achieve better performance, BSS space stations employ shaped beams specific to each BSS satellite for both transmitting and receiving,

* Former Question ITU-R 73-1/6.

decides that the following Questions should be studied

- 1 What are the measured co-polar and cross-polar radiation characteristics of BSS receiving earth station antennas (for both individual and community reception)?
- 2 What are the reference patterns for the co-polar and cross-polar components applicable to receiving earth station antennas for the BSS (for both individual and community reception)?
- 3 What is the range of applicability of each antenna pattern (frequency bands, antenna diameter values, etc.)?
- 4 What are the necessary parameters to implement reference antenna patterns in software tools developed by the ITU Radiocommunication Bureau?

NOTE 1 – Further study under this Question should be aimed at covering the types of antennas needed for the 17 GHz and 21 GHz BSS bands and above,

further decides

- 1 that the results of the above studies should be included in appropriate Reports and/or Recommendations;
- 2 that the above studies should be completed by 2011.

Category: S1

ITU-R M.1451-01, 2009-01, Annex 1, Table 1