



Recommendation ITU-R P.679-4
(07/2015)

**Propagation data required for the design of
broadcasting-satellite systems**

P Series
Radiowave propagation



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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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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

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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 P.679-4

**Propagation data required for the design of
broadcasting-satellite systems**

(Question ITU-R 206/3)

(1990-1992-1999-2001-2015)

The ITU Radiocommunication Assembly,

considering

- a) that for the proper planning of broadcasting-satellite systems it is necessary to have appropriate propagation data and prediction methods;
- b) that the methods of Recommendation ITU-R P.618 are recommended for the planning of Earth-space telecommunication systems;
- c) that further development of prediction methods for specific application to broadcasting-satellite systems is required to give adequate accuracy for all operational conditions;
- d) that, however, methods are available which yield sufficient accuracy for many applications;
- e) that Recommendation ITU-R P.2040 provides guidance on the effects of building material properties and structures on radiowave propagation,

recommends

1 that the propagation data contained in Annex 1 be adopted for use in the planning of broadcasting-satellite systems, in addition to the methods recommended in Recommendation ITU-R P.618.

Annex 1

1 Introduction

Broadcasting by satellite leads to propagation considerations that are not entirely comparable with those occurring in the fixed-satellite service. Attenuation data for the space-to-Earth direction are needed in the form of statistical averages and/or contour maps of attenuation and depolarization for large areas. Specific coordination problems may arise at the margin of the service area between satellite broadcasting systems and terrestrial or other space services. General methods for prediction of Earth-space path propagation effects are presented in Recommendation ITU-R P.618. Additional information specific to satellite broadcasting system planning is treated in this Annex. It should be noted that feeder links are considered to be part of fixed-satellite services, not the broadcasting services.

In the case of space-to-Earth paths for broadcasting systems, several propagation effects may require consideration.