

Recommendation ITU-R P.2001-2
(07/2015)

**A general purpose wide-range terrestrial
propagation model in the frequency
range 30 MHz to 50 GHz**

P Series
Radiowave propagation

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 P.2001-2

A general purpose wide-range terrestrial propagation model in the frequency range 30 MHz to 50 GHz

(2012-2013-2015)

Scope

This Recommendation contains a general purpose wide-range model for terrestrial propagation which predicts path loss due to both signal enhancements and fading over effectively the range from 0% to 100% of an average year. This makes the model particularly suitable for Monte-Carlo methods, and studies in which it is desirable to use the same propagation model, with no discontinuities in its output, for signals which may be either wanted or potentially interfering. The model covers the frequency range from 30 MHz to 50 GHz, and distances from 3 km to at least 1 000 km.

The ITU Radiocommunication Assembly,

considering

- a) that to support efficient use of the radio spectrum there is a need for sharing studies in which the variability of both wanted and potentially interfering signal levels should be taken into account;
- b) that to plan high-performance radio systems the prediction of signal-level variability must include the small-probability tails of both fading and enhancement distributions;
- c) that Monte-Carlo simulations are useful for spectrum-planning purposes,

noting

- a) that Recommendation ITU-R P.528 provides guidance on the prediction of point-to-area path loss for the aeronautical mobile service for the frequency range 125 MHz to 30 GHz and the distance range up to 1 800 km;
- b) that Recommendation ITU-R P.452 provides guidance on the detailed evaluation of microwave interference between stations on the surface of the Earth at frequencies above about 0.7 GHz;
- c) that Recommendation ITU-R P.617 provides guidance on the prediction of point-to-point path loss for trans-horizon radio-relay systems for the frequency range above 30 MHz and for the distance range 100 to 1 000 km;
- d) that Recommendation ITU-R P.1411 provides guidance on prediction for short-range (up to 1 km) outdoor services;
- e) that Recommendation ITU-R P.530 provides guidance on the prediction of point-to-point path loss for terrestrial line-of-sight systems;
- f) that Recommendation ITU-R P.1546 provides guidance on the prediction of point-to-area field strengths in the VHF and UHF bands based principally on statistical analyses of experimental data;
- g) that Recommendation ITU-R P.1812 provides guidance on the prediction of point-to-area field strengths in the VHF and UHF bands based principally on deterministic method;
- h) that Recommendation ITU-R P.844 summarizes modes of long range propagation paths that may also occur at VHF via the ionosphere,