



Radiocommunication Bureau (BR)

Administrative Circular
CACE/622

30 July 2013

To Administrations of Member States of the ITU, Radiocommunication Sector Members and ITU-R Associates participating in the work of Radiocommunication Study Group 3

Subject: **Radiocommunication Study Group 3 (Radiowave propagation)**

- **Proposed adoption of 2 draft new ITU-R Recommendations and 24 draft revised ITU-R Recommendations and their simultaneous approval by correspondence in accordance with § 10.3 of Resolution ITU-R 1-6 (Procedure for the simultaneous adoption and approval by correspondence)**
- **Proposed suppression of 1 ITU-R Recommendation**

At the meeting of Radiocommunication Study Group 3, held from 27 to 28 June 2013, the Study Group decided to seek adoption of 2 draft new ITU-R Recommendations and 24 draft revised ITU-R Recommendations by correspondence (§ 10.2.3 of Resolution ITU-R 1-6) and further decided to apply the procedure for simultaneous adoption and approval by correspondence (PSAA), (§ 10.3 of Resolution ITU-R 1-6). The titles and summaries of the draft Recommendations are given in Annex 1. Furthermore, the Study Group proposed the suppression of 1 ITU-R Recommendation listed in Annex 2.

The consideration period shall extend for 2 months ending on 30 September 2013. If within this period no objections are received from Member States, the draft Recommendations shall be considered to be adopted by Study Group 3. Furthermore, since the PSAA procedure has been followed, the draft Recommendations shall also be considered as approved.

Any Member State who objects to the adoption of a draft Recommendation is requested to inform the Director and the Chairman of the Study Group of the reasons for the objection.

After the above-mentioned deadline, the results of the PSAA procedure will be announced in an Administrative Circular and the approved Recommendations will be published as soon as practicable (see <http://www.itu.int/rec/R-REC-P/en>).

Any ITU member organization aware of a patent held by itself or others which may fully or partly cover elements of the draft Recommendations mentioned in this letter is requested to disclose such information to the Secretariat as soon as possible. The Common Patent Policy for ITU-T/ITU-R/ISO/IEC is available at <http://www.itu.int/en/ITU-T/ipr/Pages/policy.aspx>.

François Rancy
Director

Annex 1: Titles and summaries of the draft Recommendations

Annex 2: Recommendation proposed for suppression

Documents: Documents 3/11(Rev.1), 3/12(Rev.1), 3/13(Rev.1),3/14(Rev.1), 3/16(Rev.1), 3/18(Rev.1), 3/19(Rev.1), 3/20(Rev.1), 3/21(Rev.1), 3/23(Rev.1), 3/24(Rev.1), 3/25(Rev.1), 3/26(Rev.1), 3/28(Rev.1), 3/33(Rev.1), 3/34(Rev.1), 3/35(Rev.1), 3/37(Rev.1), 3/39(Rev.1), 3/40(Rev.1), 3/41(Rev.1), 3/43(Rev.1), 3/45(Rev.1), 3/46(Rev.1), 3/48(Rev.1), 3/51(Rev.1)

These documents are available in electronic format at: <http://www.itu.int/md/R12-sg03-c>.

Distribution:

- Administrations of Member States of the ITU and Radiocommunication Sector Members participating in the work of Radiocommunication Study Group 3
- ITU-R Associates participating in the work of Radiocommunication Study Group 3
- Chairmen and Vice-Chairmen of Radiocommunication Study Groups and the Special Committee on Regulatory/Procedural Matters
- Chairman and Vice-Chairmen of the Conference Preparatory Meeting
- Members of the Radio Regulations Board
- Secretary-General of the ITU, Director of the Telecommunication Standardization Bureau, Director of the Telecommunication Development Bureau

Annex 1

Titles and summaries of the draft Recommendations

Draft new Recommendation ITU-R P.[MATERIAL EFFECT]

Doc. 3/21(Rev.1)

Effects of building materials and structures on radiowave propagation above about 100 MHz

This Recommendation provides guidance on the effects of building material properties and structures on radiowave propagation. Basic principles and building loss measurements affected by building materials and structures are also discussed.

Draft new Recommendation ITU-R P.[AIRBORNE]

Doc. 3/48(Rev.1)

Prediction of path attenuation on links between an airborne platform and space and between an airborne platform and the surface of the Earth

This Recommendation predicts the various propagation effects needed in planning airborne systems operating in either the airborne-to-space or airborne-to-Earth direction.

Draft revision of Recommendation ITU-R P.676-9

Doc. 3/11(Rev.1)

Attenuation by atmospheric gases

This revision:

- replaces the oxygen line coefficients with the updated line coefficients (e.g., the line intensities, line widths, and mixing coefficients) published by M. Yu. Tretyakov in 2005;
- replaces Figures 1, 2, and 3.

Multipath propagation and parameterization of its characteristics

This revision includes:

- in Annex 1, section 1 “Introduction”, the last three paragraphs were modified and in section 2.1 “Definition of power delay profile” new text was incorporated. Also the expression (small scale) was added following short term to highlight equivalence. In section 2.2 text was deleted and moved to section 2.2.7. In section 2.2.6, “Frequency correlation bandwidth” was replaced by “number of multipath components”. A new section, section 4 “Parameters of the received variations” was added;
- in Annex 2, section 3, the parameters relating to equation (23) have been corrected;
- added Annex 3 “Generation of wideband channel”.

Probability distributions relevant to radiowave propagation modeling

This revision:

- replaces the scope with a new wording;
- clarifies the parameters of the Rayleigh distribution in § 5;
- clarifies the parameters of the combined log-normal and Rayleigh distribution in § 6;
- adds an expression for the probability density function of the phase of the Nakagami-Rice distribution.

Attenuation in vegetation

The purpose of this revision is to propose the addition of a method to predict single tree effect for slant path (elevation angle $> 5^\circ$) for frequencies between 1 and 100 GHz.

Draft revision of Recommendation ITU-R P.678-1

Doc. 3/16(Rev.1)

Characterization of the natural variability of propagation phenomena

In this revision it is proposed to modify the title of the Recommendation and to add 3 new Annexes.

Draft revision of Recommendation ITU-R P.840-5

Doc. 3/18(Rev.1)

Attenuation due to clouds and fog

This revision:

- adds monthly values of the total columnar content of cloud liquid water reduced to a temperature of 0° C;
- updates the double-Debye model for the dielectric permittivity $\epsilon (f)$ of water;
- clarifies that current sections 3 to 4 refer to slant path link configuration.

Draft revision of Recommendation ITU-R P.836-4

Doc. 3/19(Rev.1)

Water vapour: surface density and total columnar content

This revision adds monthly values of integrated water vapour content and surface water vapour density. Proposed modifications:

- Modification of section 1 in Annex 1 to:
 - i) include new monthly maps of surface water vapour density as an integral part of the Recommendation;
 - ii) delete Figures 2 to 13 from the text of the Recommendation and include the figures in the integral digital product associated to the Recommendation.
- Modification of section 1 in Annex 2 to:
 - i) include new monthly maps of total water content as an integral part of the Recommendation;
 - ii) delete Figures 15 and 21 from the text of the Recommendation and include the figures in the integral digital product associated to the Recommendation;
 - iii) renumber Figure 14 as Figure 2.

Draft revision of Recommendation ITU-R P.839-3

Doc. 3/20(Rev.1)

Rain height model for prediction methods

This revision modifies the 0°C isotherm height above mean sea level map by correcting anomalous pixels and moves the figure into a file associated with this Recommendation.

Draft revision of Recommendation ITU-R P.1321-3

Doc. 3/23(Rev.1)

Propagation factors affecting systems using digital modulation techniques at LF and MF

This revision adds information on the time variations of ground wave propagation in daytime.

Draft revision of Recommendation ITU-R P.373-9

Doc. 3/24(Rev.1)

Definitions of maximum and minimum transmission frequencies

This revision seeks to restore the definition for FOT as an alternative term for the "OWF", the optimum working frequency, and is defined as the lower decile of the daily values of operational MUF at a given time over a specified period, usually a month.

Draft revision of Recommendation ITU-R P.842-4

Doc. 3/25(Rev.1)

Computation of reliability and compatibility of HF radio systems

This revision concerns methods to determine basic circuit reliability, BCR, for digital modulation systems given in both Recommendations ITU-R P.533-11 and ITU-R P.842-4. The method in Recommendation ITU-R P.842-4 claims to be simplified while that in Recommendation ITU-R P.533-11 is trivially more complicated. Section 9 in Recommendation ITU-R P.842-4 should be removed in favour of the procedure to calculate BCR in Recommendation ITU-R P.533-11. In addition, in Appendix 1, a new Note 7 is added to explain the usage of service reliability for some broadcasting applications.

Draft revision of Recommendation ITU-R P.533-11

Doc. 3/26(Rev.1)

Method for the prediction of the performance of HF circuits

This Recommendation provides methods for the prediction of available frequencies, of signal levels and of the predicted reliability for both analogue and digital modulated systems at HF, taking account not only of the signal to noise ratio but also of the expected time and frequency spreads of the channel.

Draft revision of Recommendation ITU-R P.372-10

Doc. 3/28(Rev.1)

Radio noise

This revision provides:

- the addition of man-made noise measurement data from Japan;
- the addition of a new Table 4;
- revision of sections 6, 7 and 8.

Draft revision of Recommendation ITU-R P.1411-6

Doc. 3/33(Rev.1)

Propagation data and prediction methods for the planning of short-range outdoor radiocommunication systems and radio local area networks in the frequency range 300 MHz to 100 GHz

This revision proposes five modifications:

- the structure of the Recommendation is re-organized to place related topics under the same section. Section 5 is placed under section 4. Section 7, section 9 and section 10 are placed under section 5, "Multipath models";
- generic terms "Station 1" and "Station 2" are used throughout the Recommendation in place of "BS" and "MS" to cater for propagation models for mobile-to-mobile services and to simplify the Recommendation. Each path loss model is associated with a graphical representation of the path geometry in a figure (Fig. 1);
- the revision of section 6.2 (new section 5.1.1) to add new r.m.s. delay spread data for different environments, antenna heights, and/or frequencies;
- the addition of a new section 8 to add new models for multi-link channels;
- a number of editorial corrections.

The prediction of the time and the spatial profile for broadband land mobile services using UHF and SHF bands

This revision proposes modification of Annex 1 and modification to parameters of Annex 2 and addition of a new section in Annex 3.

A path-specific propagation prediction method for point-to-area terrestrial services in the VHF and UHF bands

This revision proposes:

- additional input parameters in the Table;
- clarifications and missing units have been added to aid implementation;
- “ K ” in section 4.8 equation (66) duplicates the general surface admittance in equation (30). In section 4.8 changed to “ K_L ”;
- change in the method described in § 5.1.6.2 for calculating the slope of the least-squares surface relative to sea level, this simplified version is applicable to both equi-spaced and non-equi-spaced profiles;
- equation (64e) has been amended so that the “27” has been replaced by the variable w_s with the definition “ w_s relates to the width of the street. This should be set to 27 unless there is specific local information available”;
- the small angle simplification has been changed to arctan in equations (77), (78), (81) and (82a);
- a new *noting g)* has been added referencing Recommendation ITU-R P.2001;
- information regarding the integral digital products relating to the Recommendation ITU-R P.453 ΔN and N_0 maps has been added and these contained in the link <http://www.itu.int/oth/R0A04000062/en> have been included as an integral digital product in this revision;
- a number of editorial corrections and an equation review for formatting has been carried out.

Draft revision of Recommendation ITU-R P.531-11

Doc. 3/37(Rev.1)

Ionospheric propagation data and prediction methods required for the design of satellite services and systems

This revision is related to the update of the IRI model to its version 2012. In addition, following Resolution 25/3 the links to the two integral digital products in this Recommendation are included in the document and editorial mistakes in the reference of GISM are cleaned up.

Draft revision of Recommendation ITU-R P.1546-4

Doc. 3/39(Rev.1)

Method for point-to-area predictions for terrestrial services in the frequency range 30 MHz to 3 000 MHz

This revision includes:

- some editorial corrections mainly proposed in Annex 3;
- the approach of Annex 5 for the treatment of short paths (< 1 km) has been supplemented. The proposed changes would lead to an extension of the scope of the Recommendation to distances < 1 km and allow terminals to be below clutter height.

Draft revision of Recommendation ITU-R P.618-10

Doc. 3/40(Rev.1)

Propagation data and prediction methods required for the design of Earth-space telecommunication systems

This revision:

- adds introductory text to § 2.4 to clarify the three parts of the method to predict the fading due to scintillation and multipath;
- modifies the scintillation and low elevation angle fading in § 2.4.3;
- clarifies § 2.4.2;
- makes minor editorial changes to § 2.4.1;
- and augments the existing frequency scaling method in § 2.2.1.2 with an additional prediction method.

Propagation data and prediction methods required for the design of terrestrial line-of-sight systems

This revision proposes:

- changes to provide new material, correct errors, and clarify and simplify issues;
- text has been corrected/revised in Step 2 and Figure 2 caption in § 2.2.2.1 to become in line with original work from which the figure has been taken;
- a sentence has been added at the beginning of § 2.3.1 to say that the multipath fading shall be calculated only for path length longer than 5 km, and ignored for shorter lengths;
- a new map has been developed to provide area roughness from looking up a number from a map, as done for other parameters such as rain rate. § 2.3.1 has been modified to point the users to the new maps rather than to calculate it from digital elevation data;
- a new model has been included for number of clear air fading events in new § 2.3.8. There was no model for this before, and it is requested to estimate outage intensity;
- explanatory text describing equation (32) in § 2.4.1 has been modified to avoid division by zero;
- equation (60) in § 2.4.6.3.1 has been corrected by replacing the second = by multiplication;
- equation (149) in § 7 has been revised to reflect that for dual polarized systems the contribution outage from fact that both polarizations are used must be reduced for the diversity setup. A tentative factor has been multiplied to P_{XP} calculated for the non-diversity case.

Propagation prediction techniques and data required for the design of trans-horizon radio-relay systems

This revision includes:

- addition of a new section 2 “Integral digital products”. This section gives information regarding the map file associated with Recommendation ITU-R P.617 taken from the readme file that is associated with the TropoClim.txt file. Sections have been renumbered as a result of this change;
- Figure 1 has been edited to align climate numbers in the colour key;
- amendment of γ in Table 1;
- the definition of d_s has been reinstated from Recommendation ITU-R P.617-1 below equation (11c);
- Figure 2 has been deleted as it is no longer required due to changes in the last revision;
- in section 3.2 text has been added regarding the action to be taken for climate 5;
- the definition of d_q as referenced in Figure 3 has been inserted from the definition in CCIR Report 238;
- the labeling of Figure 3 had been amended in line with the renumbered climates;
- as a result of these changes equations and figures have been renumbered.

Acquisition, presentation and analysis of data in studies of tropospheric propagation

This revision includes a change in the title and inclusion of a clarification about the meaning of “concurrency” between rain rate and attenuation statistics requested for Tables I-1 and II-1 of dmsg3 database.

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

This document proposes amendments to Recommendation ITU-R P.2001:

- insertion of a new section referencing integral digital products. This section details the digital maps to be used in the implementation of this Recommendation;
- update the ESA0Height.txt file to the corrected file h0.txt;
- addition of new *considering h*).

**Prediction procedure for the evaluation of interference between stations
on the surface of the Earth at frequencies above about 0.1 GHz**

The modifications are as follows:

- updates to section "scope";
- replacement of the diffraction model in order to align with Recommendations ITU-R P.1812 and ITU-R P.526;
- a corrected method for approximating elevation angles to the horizon;
- a simplified method for analyzing the path profile for regularly or irregularly space points along the path;
- corrected references to two equation numbers in the hydrometeor scatter portion of the Recommendation;
- harmonization of terminology throughout the document.

Annex 2

(Source: Document 3/27)

Recommendation proposed for suppression

Recommendation ITU-R	Title
P.313-11	Exchange of information for short-term forecasts and transmission of ionospheric disturbance warnings.
