



Radiocommunication Bureau (BR)

Administrative Circular
CACE/783

23 September 2016

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

Subject: Radiocommunication Study Group 3 (Radiowave propagation)
– **Approval of 2 revised ITU-R Questions**

By Administrative Circular CACE/778 of 15 July 2016, 2 draft revised ITU-R Questions were submitted for approval by correspondence in accordance with Resolution ITU-R 1-7 (§ A2.5.2.3).

The conditions governing this procedure were met on 15 September 2016.

The texts of the approved Questions are attached for your reference in the Annexes 1 – 2 and will be published by the ITU.

A handwritten signature in black ink, appearing to read 'FRANCIS RANCY'.

François Rancy
Director

Annexes: 2

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
- ITU Academia
- Chairmen and Vice-Chairmen of Radiocommunication Study Groups
- 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

QUESTION ITU-R 222-5/3

Measurements and data banks of ionospheric characteristics and radio noise

(1990-1993-2000-2000-2009-2012-2016)

The ITU Radiocommunication Assembly,

considering

- a) that measurements of signal characteristics and of the ionosphere as a propagation medium are essential for the further improvement of methods of radiowave propagation prediction;
- b) that many ionospheric measurements were made in the past, but that the ionosphere has been subject to long term secular changes in morphology and characteristics and that there is now an increased understanding of ionospheric phenomena;
- c) that radio noise is now being produced from new and developing man-made sources and this is likely to affect the performance of radiocommunication systems and networks;
- d) that the prediction of performance of systems using digital technologies requires new types of measurement and the collection in new databanks;
- e) that various organisations and agencies maintain databanks of measurements of ionospheric characteristics;
- f) that measurements of signal characteristics, useful for the evaluation of prediction procedures, etc., may not be consistently collected in databanks elsewhere,

decides that the following Questions should be studied

- 1 What characteristics of the ionosphere, of signal propagation through or via the ionosphere and of radio noise are appropriate for inclusion in databanks maintained and developed by ITU-R Study Group 3?
- 2 What data collection, analysis, standardization, compilation and dissemination procedures are best suited for current ITU-R purposes?

further decides

- 1 that Radiocommunication Study Group 3 should develop and maintain databanks of measurements of ionospheric propagation, of ionospheric characteristics and of radio noise identified in answering this Question;
- 2 that the above studies should be completed by 2019.

Category: S3

Annex 2

QUESTION ITU-R 201-6/3

Radiometeorological data required for the planning of terrestrial and space communication systems and space research application

(1966-1970-1974-1978-1982-1990-1995-2000-2007-2012-2016)

The ITU Radiocommunication Assembly,

considering

- a)* that the characteristics of the tropospheric radio channel depend on a variety of meteorological parameters;
- b)* that statistical predictions of radiopropagation effects are urgently required for planning and design of radiocommunication and remote sensing systems;
- c)* that, for the development of such predictions, knowledge of all atmospheric parameters affecting channel characteristics, their natural variability and their mutual dependence is needed;
- d)* that the quality of measured and suitably analysed radiometeorological data is one of the determinants of the ultimate reliability of propagation prediction methods that are based on meteorological parameters;
- e)* that an accurate knowledge of the clear-sky level on a satellite-to-ground link is important in developing the margin required to enable a telecommunications service to operate satisfactorily under adverse propagation conditions;
- f)* that the clear-sky level on a satellite-to-ground link can fluctuate significantly both diurnally and seasonally due to atmospheric effects;
- g)* that interest exists in extending the range of frequencies used for telecommunication and remote sensing purposes;
- h)* that propagation conditions should be known as well as possible during the process of bringing into service (BIS) of radio-relay equipment,

decides that the following Questions should be studied

- 1 What are the distributions of tropospheric refractivity, its gradients and their variability, both in space and time?
- 2 What are the distributions of atmospheric constituents and particles, such as water vapour and other gases, clouds, fog, rain, hail, aerosols, sand, etc., both in space and time?
- 3 What is the magnitude of the variations in clear-sky level on a satellite-to-ground link that can occur on a diurnal, monthly and seasonal basis?

4 How do the climatology and natural variability (year-to-year, seasonal, monthly and diurnal variations, long-term variations) of all atmospheric constituents affect attenuation and interference predictions?

5 What models best describe the relationship between atmospheric parameters and radiowave characteristics (amplitude, polarization, phase, angle of arrival, etc.)?

6 What methods based on meteorological information can be used in the statistical prediction of signal behaviour, especially for percentages of time from 0.01 to 99%, taking into account the composite effect of various atmospheric parameters?

7 What procedures can be used to evaluate data quality, accuracy, statistical stability and confidence levels?

8 What methods can be used to perform physical based simulations and forecast propagation conditions during consecutive periods of 24 hours during any season anywhere in the world using numerical weather prediction methods?

9 What methods based on meteorological information can be used in the statistical prediction of signal behaviour, especially extreme events with a long return period?

further decides

1 that the results of the above studies should be included in one or more Recommendations and/or Reports;

2 that the information about radioclimatological parameters should be given in worldwide digital maps with the highest possible accuracy and spatial resolution;

3 that the long-term time variability of radioclimatological parameters should be investigated;

4 that the above studies should be completed by 2019.

Category: S2
