



Radiocommunication Bureau (BR)

Administrative Circular
CACE/985

22 June 2021

**To Administrations of Member States of the ITU, Radiocommunication Sector Members,
ITU-R Associates participating in the work of the Radiocommunication Study Group 6
and ITU Academia**

Subject: **Radiocommunication Study Group 6 (Broadcasting service)**
 – **Approval of 1 revised ITU-R Question**

By Administrative Circular [CACE/977](#) dated 13 April 2021, 1 draft revised ITU-R Question was submitted for approval by correspondence in accordance with Resolution ITU-R 1-8 (§ A2.5.2.3).

The conditions governing this procedure were met on 13 June 2021.

The text of the approved Question is attached for your reference in the Annex to this letter and will be published by the ITU.

Mario Maniewicz
Director

Annex: 1

Annex

QUESTION ITU-R 132-6/6

Digital terrestrial broadcasting planning

(2010-2011-2011-2015-2017-2019-2021)

The ITU Radiocommunication Assembly,

considering

- a) that many administrations have already introduced, and others are introducing, digital terrestrial broadcasting in bands assigned to the broadcasting service;
- b) that experience gained through the implementation of digital terrestrial television, sound and multimedia broadcasting will be useful in refining the assumptions and techniques to be applied in the broadcasting networks planning and implementation;
- c) that planning procedures are being developed to facilitate the introduction of new systems in the existing radio frequency environment;
- d) that these planning procedures are based on the use of propagation prediction methods and empirically derived protection ratios;
- e) that the characteristics of receiving installations, receivers and antennas are the important elements in frequency planning;
- f) that administrations and/or broadcasters need to verify and validate the results from the process of planning of digital terrestrial broadcasting networks,

decides that the following Questions should be studied

- 1 What are the frequency planning parameters for digital terrestrial broadcasting, including but not limited to:
 - minimum field strengths;
 - implications of modulation and emission methods;
 - receiving and transmitting antenna characteristics;
 - implications of using diversity transmission and reception methods;
 - location correction values;
 - time variability values;
 - single frequency networks;
 - speed ranges;
 - environmental noise and its impact on digital terrestrial broadcasting reception;
 - effect of wet foliage on digital terrestrial broadcasting reception;
 - effect of wind turbine farms and airplane flutter on digital terrestrial broadcasting reception;
 - building entry loss;
 - indoor location variations?

- 2 What is the likely impact on matters related to the planning of digital terrestrial broadcasting networks in the migration from analogue networks?
- 3 What is the likely impact on matters related to the planning of digital terrestrial broadcasting networks in the migration from existing first generation digital systems¹ to more spectrally efficient second generation digital systems²?
- 4 What protection ratios are required when two or more digital transmitters of the same system, or of different systems, or analogue and digital transmitters are operating:
 - in the same channel;
 - in adjacent channels;
 - with overlapping channels;
 - in other potential interference relationships (e.g. image channel)?
- 5 What receiver and antenna system characteristics should be used for frequency planning with respect to more efficient use of the frequency spectrum (e.g. selectivity, noise figure, etc.)?
- 6 What are the protection ratios needed to protect the digital terrestrial broadcasting service from other services sharing the same bands or operating in adjacent bands?
- 7 What techniques can be used to mitigate interference?
- 8 What are acceptable durations of outages due to local short-term interference to digital terrestrial broadcasting?
- 9 What are the technical bases required for planning which lead to efficient utilization of the frequency bands for digital terrestrial broadcasting?
- 10 What are the characteristic multipath conditions that need to be taken into account in the digital terrestrial broadcasting networks planning?
- 11 What time availability percentages can be practically achieved in digital terrestrial broadcasting and what margins in planning parameters are required to achieve these time availability percentages?
- 12 What planning criteria can be optimized to facilitate the implementation of digital terrestrial broadcasting, taking into account existing services?
- 13 What are the characteristics of the mobile multipath channel that need to be taken into account in the use of mobile reception, at different speeds?

¹ See in Recommendation ITU-R BT.1306-8 (04/2020) ‘Error correction, data framing, modulation and emission methods for digital terrestrial television broadcasting’, Recommendation ITU-R BT.2016-2 (12/2020) ‘Error-correction, data framing, modulation and emission methods for terrestrial multimedia broadcasting for mobile reception using handheld receivers in VHF/UHF bands’ and Recommendation ITU-R BS.1114-11 (06/2019) ‘Systems for terrestrial digital sound broadcasting to vehicular, portable and fixed receivers in the frequency range 30-3 000 MHz’.

² See in Recommendation ITU-R BT.1877-3 (12/2020) ‘Error-correction, data framing, modulation and emission methods and selection guidance for second generation digital terrestrial television broadcasting systems’.

14 What are the characteristics of the multipath channel that need to be taken into account in the use of hand-held reception, at different speeds?

15 What radio-frequency verification methods are appropriate for the verification and validation of the digital terrestrial broadcasting planning processes?

further decides

1 that the results of the above studies should be included in (a) Report(s) and/or Recommendation(s);

2 that the above studies should be completed by 2027.

Category: S3
