



Radiocommunication Bureau (BR)

Administrative Circular
CACE/807

5 May 2017

To Administrations of Member States of the ITU, Radiocommunication Sector Members, ITU-R Associates participating in the work of Radiocommunication Study Group 7 and ITU Academia

Subject: **Radiocommunication Study Group 7 (Science Services)**

- **Proposed approval of 1 draft new ITU-R Question and 3 draft revised ITU-R Questions**
- **Proposed suppression of 1 ITU-R Question**

At the meetings of Radiocommunication Study Group 7 held on 4 and 12 April 2017, 1 draft new ITU-R Question and 3 draft revised ITU-R Questions were adopted according to Resolution ITU-R 1-7 (§ A2.5.2.2) and it was agreed to apply the procedure of Resolution ITU-R 1-7 (see § A2.5.2.3) for approval of Questions in the interval between Radiocommunication Assemblies. The texts of the draft ITU-R Questions are attached for your reference in Annexes 1 to 4. Any Member State who objects to the approval of a draft Question is requested to inform the Director and the Chairman of the Study Group of the reasons for the objection.

Furthermore, the Study Group proposed the suppression of 1 ITU-R Question in accordance with Resolution ITU-R 1-7 (§ A2.5.3). The ITU-R Question proposed for suppression is indicated in Annex 5. Any Member State who objects to the suppression of an ITU-R Question is requested to inform the Director and the Chairman of the Study Group of the reasons for the objection.

Having regard to the provisions of § A2.5.2.3 of Resolution ITU-R 1-7, Member States are requested to inform the Secretariat (brsgd@itu.int) by 5 July 2017, whether they approve or do not approve the proposals above.

After the above-mentioned deadline, the results of this consultation will be announced in an Administrative Circular and the approved Questions will be published as soon as practicable (see: <http://www.itu.int/ITU-R/go/que-rsg7/en>).



François Rancy
Director

Annexes: 5

- 1 draft new ITU-R Question and 3 draft revised ITU-R Questions
- Proposed suppression of 1 ITU-R Question

Distribution:

- Administrations of Member States of the ITU and Radiocommunication Sector Members participating in the work of Radiocommunication Study Group 7
- ITU-R Associates participating in the work of Radiocommunication Study Group 7
- 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

(Document [7/43](#))

DRAFT NEW QUESTION ITU-R [RAS ABOVE 275 GHZ]/7

Technical and operational characteristics of radio astronomy applications operating above 275 GHz

The ITU Radiocommunication Assembly,

considering

- a) that many cosmic phenomena are observable only at frequencies above 275 GHz owing to the physical laws which govern them;
- b) that the ability of the radio astronomy service to operate at frequencies above 275 GHz has improved to the point that observations are regularly conducted at various terrestrial locations, on airborne platforms, and by space missions;
- c) that applications of active services above 275 GHz are under development;
- d) that compatibility of the use of the spectrum above 275 GHz should be ensured;
- e) that compatibility is facilitated when the operational and technical characteristics of systems are clearly understood,

recognizing

- a) that spectrum allocations do not currently exist above 275 GHz;
- b) that RR No. **5.565** identifies bands in the range 275-1 000 GHz for use by administrations for passive service applications, including radio astronomy applications,

decides that the following Questions should be studied

- 1 What are the technical and operational characteristics of systems operating at frequencies above 275 GHz in the radio astronomy service?
- 2 Which of these technical and operational characteristics are of particular importance in ensuring the compatible use of spectrum above 275 GHz?

further decides

- 1 that the results of studies should be brought to the attention of the other Study Groups;
- 2 that the results of studies should be included in ITU-R Recommendations and/or Reports, as appropriate;
- 3 that the above studies should be completed before 2023.

Category: S2

Annex 2

(Document [7/44](#))

DRAFT REVISION OF QUESTION ITU-R 226-1/7

Frequency sharing between the radio astronomy service and other services in bands between above 67 70 and 275 GHz

(1997-2012)

The ITU Radiocommunication Assembly,

considering

- a) that many atomic and molecular spectral lines are observed at frequencies in the mm-wave spectrum between 67 GHz and 275 GHz, 67 GHz being the lowest frequency at which telluric opacity permits ground-based radio astronomy observations above 60 GHz, and 275 GHz being the highest frequency at which spectrum allocations presently exist; that a large number of atomic and molecular spectral lines are observed at frequencies above 70 GHz, and that many of these lines are of great importance to astronomy but only few fall within bands allocated to radio astronomy;
- b) that these spectral lines, along together with continuum observations, provide **unique** information about star formation, including the formation of planets in other solar systems, the existence of pre-biological molecules and extra-terrestrial life, the physics and chemistry of the interstellar medium, the history of the universe, and about other astrophysical processes of great interest;
- c) that spectral lines of great importance to radio astronomy may not fall within bands allocated to the radio astronomy service; that Doppler-shifted lines of great interest for the study of the early universe have been detected at frequencies well outside the bands allocated to radio astronomy;
- d) that sharing between radio astronomy observatories and ground-based transmitters is facilitated in the mm-wave band by and submm-wave spectral regions by topography and, by the atmospheric absorption bands, and by the natural attenuation provided by atmospheric gases;
- e) that there are only a small number of mm-wave and submm-wave observatories operating worldwide;
- f) that several large mm-wave and submm-wave telescopes, which will incorporate the most advanced technology, are planned or are under construction, and that they represent significant large collaborative scientific investments by the participating countries;
- g) that mm-wave **and submm-wave** observatories are, wherever practicable, located in **high and** isolated remote sites, to take maximum advantage of extremely dry atmospheric conditions and a low interference environment;
- g^h) that geographical sharing between the radio astronomy service and other services may be feasible with the creation of protection zones by national administrations; and

~~j)h) that Question ITU-R 145/7 addresses conditions for frequency sharing between radio astronomy and other radio services, that there is extensive development being carried out to provide radiocommunication services at mm-wavelengths, e.g. for the transmission of large volumes of data, and for mass market devices such as vehicular radars,~~

further considering

that systems of active services in the frequency range of 67 GHz to 275 GHz are under development,

decides that the following Questions should be studied

1 What are the technical and operational characteristics of systems operating at frequencies between 67 and 275 GHz in the radio astronomy service?

2 What are the radiocommunication services with which the radio astronomy service can share frequency bands between above 6770 and GHz275 GHz?

~~2 What are the conditions for frequency sharing between radiocommunication services above 70 GHz using active and passive systems?~~

further decides

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

2 that the results of studies should be brought to the attention of the other Study Groups;

~~23~~ that the above studies should be completed bybefore 2015-2023.

Category: S2

Annex 3

(Document [7/47](#))

DRAFT REVISION OF QUESTION ITU-R 145-2/7*

Technical factors ~~involved in the~~ relating to the protection of radioastronomical observations

(1990-1993-2000)

The ITU Radiocommunication Assembly,

considering

- a) that radio astronomy is based on the reception of natural emissions at much lower power levels than are generally used in other radio services, and may therefore suffer harmful interference at levels which could be tolerated by many other services;
- b) that, for an understanding of astronomical phenomena, radioastronomers must observe both at specific and immutable line frequencies and also in a series of bands throughout the continuum spectrum;
- c) that existing measures to protect the radio astronomy service are based on the assumption that the radio astronomy stations are located on Earth;

d) that Question ITU-R 230/7 deals with radio astronomy observations from space,

decides that the following Questions should be studied

- 1 What are the preferred frequency bands for the radio astronomy service?
- 2 What are the characteristics of observational techniques in radio astronomy?
- 3 What are the factors which affect the practicability of frequency sharing between radio astronomy and other radio services?
- 4 In what ways can radio astronomy observations be affected by spurious and out-of-band emissions from radio transmitters located in other frequency bands and by other electrical equipment?

further decides

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

2 that the results of studies should be brought to the attention of the other Study Groups;

23 that the above studies should be completed by before 2015/2023.

NOTE 1—Question ITU-R 230/7 deals with radio astronomy observations from space.

Category: S2

* ~~In the year 2011, Radiocommunication Study Group 7 extended the completion date of studies for this Question.~~

Annex 4

(Document [7/20\(Rev.1\)](#))

DRAFT REVISION OF QUESTION ITU-R 236-1/7^{*,**}

The future of the UTC time scale

(2001-2014)

The ITU Radiocommunication Assembly,

considering

- a) that Resolution 655 (WRC-15) invites the ITU Radiocommunication Sector and BIPM, along with other organizations, to cooperate in studies, dialogue, and reports to address issues identified in that Resolution concerning the definition of time scales and the dissemination of time signals via telecommunication systems that the procedures for maintaining the Coordinated Universal Time (UTC) time scale are described by Recommendation ITU-R TF.460;
- b) that UTC is the legal basis for time-keeping for most countries in the world, and *de-facto* is the time scale used in most others;
- c) that Recommendation ITU-R TF.460-6 states that all standard-frequency and time signal emissions should conform as closely as possible to UTC;
- d) that Recommendation ITU-R TF.460-6 describes the procedure for the occasional insertion of leap seconds into UTC to ensure that it does not differ by more than 0.9 seconds from the time determined from the rotation of the Earth (UT1);
- e) that the occasional insertion of leap seconds into UTC creates serious operational difficulties for many ~~operational~~-navigation, industrial, financial, and telecommunication systems today,

decides that the following Questions should be studied

- 1 What are the various aspects of current and potential future reference time scales, including their impacts and applications in telecommunications, industry, and other areas of human activity?~~What are the requirements for globally accepted time scales for use both in navigation/telecommunication systems, and for civil time keeping?~~
- 2 What are the requirements for the content and structure of time signals to be disseminated by radiocommunication systems?~~What are the present and future requirements for the tolerance limit between UTC and UT1?~~
- 3 Does the current leap second procedure satisfy user needs or should an alternative procedure be ~~developed~~adopted?

^{*}~~In the year 2011, Radiocommunication Study Group 7 extended the completion date of studies for this Question.~~

^{**} This Question should be brought to the attention of the Bureau international des Poids et Mesures (BIPM), the International Earth Rotation Service (IERS), Study Group 13 of the Telecommunication Standardization Sector and Radiocommunication Study Group 5.

further decides

- 1 that the results of the above studies should be included in ~~(a) Recommendation(s)~~
ITU-R Reports;
- 2 that the above studies should be completed ~~by 2015~~before 2023.

Category: ~~C1C2~~

Annex 5

(Document [7/29](#))

Proposed suppression of ITU-R Question

Question ITU-R	Title
254/7	Characteristics and spectrum requirements of satellite systems using nanosatellites and picosatellites
