



Radiocommunication Bureau (BR)

Administrative Circular
CACE/1001

19 November 2021

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

Subject: **Radiocommunication Study Group 7 (Science services)**
 – **Approval of 2 new ITU-R Questions**

By Administrative Circular [CACE/993](#) dated 15 September 2021, 2 draft new ITU-R Questions were 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 15 November 2021.

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

Mario Maniewicz
Director

Annexes: 2

Annex 1

QUESTION ITU-R 258/7

Geodetic VLBI

(2021)

The ITU Radiocommunication Assembly,

considering

- a)* that the International VLBI Service for Geodesy and Astrometry (IVS) as a non-profit multi-national cooperative effort provides on a daily basis Very Long Baseline Interferometry (VLBI) measurements of Universal Time UT1 needed for the transformations of the ephemerides of any kind of space activities, in particular those that rely on highest position accuracy;
- b)* that according to the Resolution B2 of the International Astronomical Union (IAU) General Assembly 1997, the fundamental reference system for astronomical applications is the International Celestial Reference System (ICRS) and the practical realization of the ICRS in the radio regime is the International Celestial Reference Frame (ICRF), a space-fixed frame based on high accuracy radio positions of extragalactic sources measured by VLBI and provided by the International Earth Rotation and Reference Systems Service (IERS) using observational data from the IVS;
- c)* that these IVS observations are the only means for tying the international terrestrial reference frame (ITRF) to the ICRF by the full set of Earth orientation parameters which includes UT1 as defined in Recommendation ITU-R TF.460-6;
- d)* that the Resolution 69/266 of the General Assembly of the United Nations (UN) calls Member States to contribute to “A global geodetic reference frame for sustainable development”, to be realized as the Global Geodetic Reference Frame (GGRF) including precise coordinates of radio telescopes maintained within the IVS;
- e)* that the Global Geodetic Observing System (GGOS) Project of the International Association of Geodesy (IAG), which is an associated member of the United Nations Office for Outer Space Affairs, including IVS operations, is set up to provide the 1mm position accuracy needed for Global Change studies in general and for monitoring global sea level rise in particular;
- f)* that the global infrastructure of the IVS is composed of radio telescope stations of the VLBI Global Observing System (VGOS) which is essential for UT1 determinations for satellite operations, for astronomical and terrestrial reference frame construction, for the UN GGRF efforts, and for monitoring the effects of Global Change,

noting

- a) that the GGRF is a generic term describing the framework which allows users to precisely express locations on the Earth, as well as to quantify changes of the Earth in space time;
- b) that VLBI is a technique developed and practiced in the radio astronomy service;
- c) that geodetic VLBI is of fundamental importance to establish the GGRF;
- d) that many services rely on and utilise the GGRF,

decides that the following Questions should be studied

- 1 What are the technical and operational characteristics of geodetic VLBI?
- 2 How does geodetic VLBI use radio spectrum to achieve the accuracy needed to fulfil its mission?

further suggests

- 1 that the results of the above studies should be included in one or more ITU-R Recommendations and/or Reports as appropriate;
- 2 that the above studies should be completed by the year 2027.

Category: S2

Annex 2

QUESTION ITU-R 259/7

Timing applications and the definition of the second*

(2021)

The ITU Radiocommunication Assembly,

considering

- a) that recently developed optical frequency standards can provide significant improvement in the precision and accuracy provided by time and frequency devices;
- b) that these optical frequencies are capable of being used as frequency standards with precision and accuracy improved by orders of magnitude over the current *Système international d'unités* (SI) second based on the hyperfine transition frequency of caesium;
- c) that the joint Consultative Committee for Length (CCL) and Consultative Committee for Time and Frequency (CCTF) Working Group on Frequency Standards (WGFS) together with the Bureau international des poids et mesures (BIPM), maintains a list of recommended frequency values and wavelength values for applications including the practical realization of the definition of the metre and secondary representations of the second;
- d) that the CCTF is working on a roadmap for the possible redefinition of the SI second in terms of optical frequencies to be presented to the *Conférence générale des poids et mesures* (CGPM) which may consider the redefinition at an upcoming meeting;
- e) that the definition of the second may have an impact in many navigation, industrial, financial, and telecommunication systems,

decides that the following Questions should be studied

- 1 What are the various aspects of a possible redefinition of the SI second with respect to the impacts and applications in radiocommunications and other ITU areas of interest?
- 2 What revisions to current ITU-R documents regarding radiocommunication systems might be required if/when the SI second is redefined?

further decides

- 1 that the results of the above studies should be included in ITU-R Reports;
- 2 that the above studies should be completed by 2027.

Category: S2

* This Question should be brought to the attention of the Telecommunication Standardization Sector and the Development Sector of the ITU.