QUESTION ITU-R 236-3/7[[1]](#footnote-1)\*

The future of the UTC time scale

(2001-2014-2017-2023)

The ITU Radiocommunication Assembly,

considering

*a)* that the ITU Radiocommunication Sector (ITU‑R) is responsible for defining the standard frequency and time signal service (SFTS) and the standard frequency and time signal-satellite service (SFTSS) for the dissemination of time signals via radiocommunication;

*b)* that the International Bureau of Weights and Measures (BIPM) is responsible for establishing and maintaining the second of the International System of Units (SI) and the reference time scale UTC with the SI second as its scale unit;

*c)* 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;

*d)* that Resolution 2 (2018) of the 26th General Conference on Weights and Measures (CGPM) provides the definition of UTC and confirms that UTC, produced by the BIPM, is the only recommended time scale for international reference and the basis of civil time in most countries (<https://www.bipm.org/en/committees/cg/cgpm/26-2018/resolution-2>);

*e)* that Recommendation ITU-R TF.460-6 states that all standard-frequency and time-signal emissions should conform as closely as possible to UTC and describes the procedure for the occasional insertion of leap seconds into UTC to ensure that it does not differ by more than 0.9 second from the time determined from the rotation of the Earth (UT1),

noting

that signals carrying time information, used in practically all areas of human activities (i.e. telecommunications, industries, etc.), are disseminated both by wired communications, covered by Recommendations of the ITU Telecommunication Standardization Sector (ITU-T), and by systems of different radiocommunication services (space and terrestrial), including the standard frequency and time signal services for which ITU‑R is responsible,

recognizing

*a)* that in 2020 a Memorandum of Understanding was signed between the BIPM and the ITU outlining the scope of mutual cooperation (<https://www.bipm.org/en/-/2020-bipm-itu-mou>);

*b)* that the CGPM adopted the Resolution 4 (2022) “On the use and future development of UTC” (<https://www.bipm.org/en/cgpm-2022/resolution-4>);

*c)* that the various aspects of current and potential future reference time scales, including their impacts and applications are covered by the Report [ITU-R TF.2511](https://www.itu.int/dms_pub/itu-r/opb/rep/R-REP-TF.2511-2022-MSW-E.docx) (2022),

decides that the following Questions should be studied

1 What are the required accuracy and availability of the (UT1 – UTC) information in the time signals to be disseminated by radiocommunication and wired systems, in view of a future UTC with relaxed constraints on the magnitude of (UT1 – UTC)?

2 Which techniques and formats are most appropriate to disseminate the quantity (UT1 – UTC) with the required accuracy and availability?

further decides

1 that the results of the above studies should be included in ITU‑R Recommendations and/or Reports;

2 that the above studies should be completed before 2027.

Category: S1

1. \* This Question should be brought to the attention of the Bureau international des poids et mesures (BIPM), the International Earth Rotation and Reference Systems Service (IERS), the ITU-T Study Group 15 / Question 13 and the ITU-R Study Groups, and furthermore to the Institute of Electrical and Electronic Engineering (IEEE), and the Internet Engineering Task Force (IETF), both engaged in standardization of protocols for disseminating time information in wired systems. [↑](#footnote-ref-1)