

MOD

RESOLUTION 655 (REV.WRC-23)

Definition of time scale and dissemination of time signals via radiocommunication systems

The World Radiocommunication Conference (Dubai, 2023),

considering

- a)* that the ITU Radiocommunication Sector (ITU-R) is responsible for setting standards for the content and structure of time signals to be disseminated via radiocommunication systems, including the standard frequency and time signal service (SFTS) and the standard frequency and time signal-satellite service (SFTSS);
- 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 the definition of reference time scale and dissemination of time signals via radiocommunication systems are important for applications and equipment that require a time traceable to the reference time,

considering further

- a)* that ITU-R has a liaison with the Consultative Committee for Time and Frequency (CCTF) and participates in the General Conference on Weights and Measures (CGPM) as an observer;
- b)* that BIPM is a Sector Member of ITU-R and participates in the relevant activities of ITU-R,

noting

- a)* that the international reference time scale UTC is the legal basis for timekeeping for many countries and is the time scale used in the majority of countries;
- b)* that disseminated time signals are used not only in telecommunications but also in many industries and practically all areas of human activities;
- c)* that time signals are disseminated by both 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 service for which ITU-R is responsible,

realizing

that, in BIPM, a Task Group has been created to prepare a draft resolution for CGPM in 2026 related to the new maximum value of the difference between UT1 and UTC, and, in the spirit of close collaboration with ITU, the ITU-R group in charge of the subject has been invited to participate in this Task Group,

recognizing

- a) that No. **26.1** states that: “Attention should be given to the extension of this service to those areas of the world not adequately served”;
- b) that No. **26.6** states that: “In selecting the technical characteristics of standard frequency and time signal transmissions, administrations shall be guided by the relevant ITU-R Recommendations”;
- c) that the original definition of the international reference time scale UTC resulted from work completed in 1970 by the International Radio Consultative Committee (CCIR) of ITU, in full cooperation with CGPM;
- d) that WARC-79 included UTC in the Radio Regulations, and since then UTC, as “strongly endorsed” in Resolution 5 of CGPM (1975), has been used as the main time scale for telecommunication networks (wired and wireless) and for other time-related applications and equipment;
- e) that, in 2020, a Memorandum of Understanding was signed between BIPM and ITU concerning the expertise of each organization;
- f) that Resolution 2 of the 26th meeting of the CGPM (2018) provides the definition of UTC and confirms that UTC produced by BIPM is the only recommended time scale for international reference and the basis of civil time in most countries;
- g) that, in Resolution 4 on the use and future development of UTC, the 27th meeting of the CGPM (2022) decided that the maximum value for the difference allowed between UT1 and UTC will be increased in, or before, 2035;
- h) that the various aspects of current and potential future reference time scales, including their impacts and applications, are covered by Report ITU-R TF.2511;
- i) that a change in approach to the formation of the continuous UTC time scale will have positive operational and, consequently, economic implications;
- j) that implementing a new tolerance (UT1 – UTC) will require a transitional period of up to 15 years, in accordance with Report ITU-R TF.2511, the length of which shall take into account the planned lifetime of equipment and the implementation of backward compatibility for some categories of user;
- k) that the maximum value for the difference between UT1 and UTC should be no less than 100 seconds, taking into account the constraints of the technological systems expected to be used to disseminate this value,

resolves to invite the ITU Radiocommunication Sector

1 to continue the cooperation with BIPM, the International Committee for Weights and Measures (CIPM) and CGPM, as well as other relevant organizations, concerned industries and groups, and to maintain a dialogue concerning the expertise of each organization;

2 to further study the content and structure of time signals to be disseminated by radiocommunication systems, including wired technologies, using the combined expertise of the relevant organizations,

resolves

1 that, until the implementation of continuous UTC (see *recognizing g*), UTC as described in Recommendation ITU-R TF.460-6 shall continue to apply;

2 that ITU-R cooperate further with BIPM, CIPM and CGPM in response to the consultation in *realizing*, to define a new maximum value for the difference between UT1 and UTC and on the implementation date for continuous UTC, possibly in 2035;

3 that ITU-R conduct studies, as appropriate, related to actions consequential upon *resolves 1 and 2* to provide new and revised ITU-R Reports and Recommendations, such as, but not limited to, a revision to Recommendation ITU-R TF.460-6;

4 to establish a transition period for implementation and allow for the possibility to disseminate the increased difference between UT1 and UTC via radiocommunication system until 2035, but no later than 2040, in cases where existing equipment cannot be replaced earlier;

5 to maintain the name “UTC” as contained in Recommendation ITU-R TF.460-6 when it is revised,

instructs the Director of the Radiocommunication Bureau

to report on the progress of this Resolution to WRC-27,

invites administrations

to participate in the studies by submitting contributions to ITU-R,

instructs the Secretary-General

to bring this Resolution to the attention of the International Maritime Organization, the International Civil Aviation Organization, CGPM, CCTF, CIPM, BIPM, the International Earth Rotation and Reference Systems Service, the International Union of Geodesy and Geophysics, the International Union of Radio Science (URSI), the International Organization for Standardization (ISO), the World Meteorological Organization, the International Astronomical Union, the Institute of Electrical and Electronics Engineers and the Internet Engineering Task Force.