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|  | ASIA-PACIFIC TELECOMMUNITY | **Document No:** |
| **The 4th Meeting of the APT Conference Preparatory****Group for WRC-23 (APG23-4)** | **APG23-4/OUT-26**  |
| 15 – 20 August 2022, Bangkok, Thailand | 20 August 2022 |

Working Party 3

**PRELIMINARY VIEWs on Resolution 655 (WRC-15)**

**Resolution 655 (WRC-15):**

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

**1. Background**

Coordinated Universal Time (UTC) is the international standard time-scale for all practical timekeeping in the modern world. The UTC time-scale is maintained by the International Bureau of Weights and Measures (BIPM) and adjusted by insertion or deletion of seconds (positive or negative leap-seconds) to ensure approximate agreement with mean solar time (UT1). A leap second was added most recently on 31 December 2016 at 23:59:60 UTC.

WRC-15 considered “Future of the Coordinated Universal Time time-scale” under AI 1.14 (WRC-15), including removal of the leap second insertion or deletion from the definition of UTC, and decided that further studies were required on current and potential future reference time-scales, including their impact and applications. The results of the ITU-R studies will be reported to WRC-23. Until then, UTC shall continue to be applied as described in Recommendation ITU-R [TF.460-6](https://www.itu.int/rec/R-REC-TF.460/recommendation.asp?lang=en&parent=R-REC-TF.460-6-200202-I) and as maintained by BIPM.

Since WRC-15, this issue has been studied by the ITU-R and the organizations of the Metre Convention in parallel and in cooperation with each other as per Resolution **655 (WRC-15)**.

The responsible group in ITU-R is WP 7A. WP 7A is currently developing the preliminary draft new Report ITU-R TF.[UTC], “Content and structure of time signals to be disseminated by radiocommunication systems and various aspects of current and potential future reference time scales, including their impacts and applications in radiocommunication” (Annex 3 to the WP 7A Chairman’s Report (Doc. [7A/51](https://www.itu.int/md/R19-WP7A-C-0051/en))). WP 7A is also developing the preliminary draft Note to provide the necessary information to the Director of the Radiocommunication Bureau (BR) to fulfil his task (Annex 1 to the WP 7A Chairman’s Report (Doc. [7A/51](https://www.itu.int/md/R19-WP7A-C-0051/en)))

In the meantime, the General Conference on Weights and Measures (CGPM) at its 26th meeting in 2018 confirms the definition of UTC in [Resolution 2](https://www.bipm.org/en/committees/cg/cgpm/26-2018/resolution-2) “On the definition of time scales”: that UTC is a time scale produced by the BIPM with the same rate as TAI (International Atomic Time) but differing from TAI only by an integral number of seconds.

The [27th CGPM](https://www.bipm.org/en/cgpm-2022) will be held in November 2022, where [Resolution D](https://www.bipm.org/documents/20126/64811571/Draft-Resolutions-2022.pdf/2e8e53df-7a14-3fc8-8a04-42dd47df1a04?t=1644502962693) is proposed to be adopted for addressing the use and future development of UTC. This draft Resolution proposes, *inter alia*, to decide at the 27th CGPM in 2022 that the maximum value of the difference (UT1 – UTC) will be increased in, or before, 2035, which is currently 0.9 seconds, to be able to ensure the continuity of UTC for at least a century.

These activities under the Metre Convention are well recognized by WP7A and taken into consideration in developing the new ITU-R Report TF.[UTC] as well as the preliminary draft Note to the BR Director.

**2. Documents**

* Input Documents APG23-4/INP-[09](https://www.apt.int/sites/default/files/2022/08/APG23-4-INP-09_J-3_WP3_Preliminary_Views_on_WRC-23_Agenda_Items_1.12_1.13_1.14_9.1.A_9.1.D_and_RES.655.docx) (J)
* Information Documents APG23-4/INF-[11](https://www.apt.int/sites/default/files/2022/07/APG23-4-INF-11_Brief_on_Res655.docx) (DG Chair), [18](https://www.apt.int/sites/default/files/2022/08/APG23-4-INF-18_BIPM_The_Coordinated_Universal_Time_as_International_Reference_for_Timekeeping_0.pdf) (BIPM), [44](https://www.apt.int/sites/default/files/2022/08/APG23-4-INF-44_Status_of_RCC_preparation_to_the_World_Radio_Conference_and_Radio_Assembly_2023.pdf) (RCC),
[48](https://www.apt.int/sites/default/files/2022/08/APG23-4-INF-48_Status_of_CEPT_preparation_for_WRC-23_and_RA-23.pdf) (CEPT)

**3. Summary of discussions**

**3.1 Summary of APT Members’ views**

**3.1.1 Australia** – **Oral input during the APG23-4**

Australia recognises the responsibility of the International Bureau of Weights and Measures (BIPM) in the maintenance of a global time scale and believes that the responsibility of the ITU-R is limited to the spectrum allocation for radiocommunication systems which disseminate the time signal. Resolution 655 (WRC-15) does not call for a decision by WRC-23 on the future of the leap second.

**3.1.2 Japan** - **Document APG23-4/INP-**[**09**](https://www.apt.int/sites/default/files/2022/08/APG23-4-INP-09_J-3_WP3_Preliminary_Views_on_WRC-23_Agenda_Items_1.12_1.13_1.14_9.1.A_9.1.D_and_RES.655.docx)

Japan supports introducing the new continuous reference time-scale by stopping the insertion of leap seconds in UTC as well as retaining the name of UTC after the introduction of the new continuous reference time-scale, as shared in APG15 meetings and WRC-15.

Accordingly, Japan accepts the increase in the maximum value for the difference (UT1 – UTC) proposed in Draft Resolution D on the use and future development of UTC, which has been submitted to the 27th meeting of the General Conference on Weights and Measures (CGPM, November 2022), because this proposal will lead to the substantial stoppage of leap second adjustment and the transition to the continuous reference time-scale.

**3.2 Summary of issues raised during the meeting**

The APT preliminary views below were developed in the drafting group based on the preliminary views, including an oral input, from APT Members as well as deliberation during the session.

**4. APT Preliminary View(s)**

APT Members support the ongoing ITU-R studies called for by Resolution **655 (WRC-15)**, recognizing that the 27th General Conference on Weights and Measures (CGPM) in November 2022 will consider adopting Resolution D which proposes that the maximum value for the difference (UT1 – UTC) will be increased. APT Members would like to end leap seconds, while recognizing that it is not the responsibility of the ITU-R to make this decision.

**5. Other View(s) from APT Members**

None

**6. Issues for Consideration at Next APG Meeting**

APT Members are encouraged to contribute to the next APG meeting for further consideration on Resolution **655 (WRC-15)**, taking into account the progress of ITU-R studies and the results of the 27th CGPM to be held in November 2022.

**7. Views from Other Organisations**

**7.1 Regional Groups**

**7.1.1 ASMG** - **Document APG23-4/INF-**[**21**](https://www.apt.int/sites/default/files/2022/08/APG23-4-INF-21_ASMG_Preparation_for_WRC-23.pdf)

To be developed

**7.1.2 ATU** - **Document APG24-4/INF-**[**02**](https://www.apt.int/sites/default/files/2022/07/APG23-4-INF-02_ATU_preparation.docx)

To be developed

**7.1.3 CEPT** - **Document APG23-4/INF-**[**48**](https://www.apt.int/sites/default/files/2022/08/APG23-4-INF-48_Status_of_CEPT_preparation_for_WRC-23_and_RA-23.pdf)

CEPT recognises strictly that:

* the UTC is produced by BIPM and is not a task of spectrum regulation;
* the general definition of international reference time scale UTC is provided in Resolution 2 of the 26th General Conference on Weights and Measures.
* UTC is addressed in RR **1.14**, Resolution **655 (WRC-15)** and Recommendation ITU-R TF.460-6

**7.1.4 CITEL** - **Document APG23-4/INF-**[**28**](https://www.apt.int/sites/default/files/2022/08/APG23-4-INF-28_CITEL_Preparation_for_WRC-23.pdf)

To be developed

**7.1.5 RCC** - **Document APG23-4/INF-**[**44**](https://www.apt.int/sites/default/files/2022/08/APG23-4-INF-44_Status_of_RCC_preparation_to_the_World_Radio_Conference_and_Radio_Assembly_2023.pdf)

The RCC Telecommunication Administrations are of the view that, changing the approach to forming the Coordinated Universal Time (UTC) scale may lead to the need to refine on-board equipment of Global Navigation Satellite Systems (GNSS), ground stations of the standard frequency and time signal service, transmitting reference signals of frequency and time, as well as navigation and frequency-time consumer equipment.

The RCC Telecommunication Administrations are of the view that, in the case of a decision-making to switch to a new time scale, it is necessary:

* to keep the UTC term, while it is proposed to revise the limits on the maximum discrepancy between UT1 and UTC times, to meet the needs of current and future user communities;
* to determine the maximum value of the discrepancy between the time UT1 and UTC;
* to provide for a transition period, the duration of which should take into account the planned lifetime of the equipment, and ensure the principle of backward compatibility for consumers of all categories.

**7.2 International Organisations**

None

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