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| **World Radiocommunication Conference (WRC-15) Geneva, 2–27 November 2015** |  |
| **INTERNATIONAL TELECOMMUNICATION UNION** |  |
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| PLENARY MEETING | **Addendum 14 to Document 62-E** |
|  | **16 October 2015** |
|  | **Original: Chinese** |
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| China (People's Republic of) | |
| Proposals for the work of the conference | |
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| Agenda item 1.14 | |

1.14to consider the feasibility of achieving a continuous reference time-scale, whether by the modification of coordinated universal time (UTC) or some other method, and take appropriate action, in accordance with Resolution **653 (WRC‑12)**;

Introduction

Resolution **653 (WRC-12)** invites ITU-R to conduct the necessary studies on the feasibility of achieving a continuous reference time-scale for dissemination by radiocommunication systems and on issues related to the possible implementation of a continuous reference time-scale (including technical and operation factors).

Coordinated Universal Time (UTC) is the international standard reference 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). UTC and its use are defined in Recommendation ITU‑R [TF.460-6](http://www.itu.int/rec/R-REC-TF.460-6-200202-I/en), which is incorporated by reference in the Radio Regulations. According to this Recommendation “The UTC is adjusted by insertion or deletion of seconds (positive or negative leap-seconds) to ensure approximate agreement with UT1”[[1]](#footnote-1). An adjustment to UTC is made whenever the difference between UTC and UT1 approaches the value of 0.9 second. A positive or negative leap-second should be the last second of a UTC month, but the first preference should be given to the end of December and June, and the second preference to the end of March and September. As UT1 is based on measurements, the adjustments in UTC occur at irregular intervals and require manual intervention in systems using UTC for operation and synchronization.

Various aspects of the current situation and the advantages and disadvantages of introducing a continuous time-scale were analysed in ITU-R studies under WRC-15 agenda item 1.14.

Four methods are proposed to satisfy the agenda item:

• Remove the leap second insertion or deletion from the definition of UTC and either retain the name UTC or adopt a new name.

• Keep the current definition of UTC, disseminate the UTC time-scale and also disseminate another continuous time-scale on an equal basis.

• Keep the current definition of UTC and enable the recovery of the International Atomic Time (TAI)2[[2]](#footnote-2)2 or use a continuous system time-scale.

• No change to the definition of UTC in the Radio Regulations.

China’s basic views and position

1) A continuous international reference time-scale is beneficial for most users. The irregular insertion of leap seconds in UTC is very inconvenient or troublesome for users that require continuous time-scales.

2) A continuous international reference time-scale can be achieved by stopping the insertion of leap seconds in UTC, and as the *de facto* international standard time, UTC should give up the role of the approximate UT1. The dissemination of two “standard” time-scales might bring a significant risk of confusion.

3) Taking into account the long history and wide application of UTC, the name and continuity of UTC should be kept unchanged.

In conclusion, China supports Method A1 of the CPM Report under Section 2/1.14/5.1.1, i.e. a continuous international reference time-scale is feasible and can be achieved by stopping the insertion of leap seconds in UTC. It is proposed to modify the Radio Regulations and relevant procedures in accordance with Section 2/1.14/6.1.1 of the CPM Report.

ARTICLE 1

Terms and definitions

Section I – General terms

MOD CHN/62A14/1

1.14 *Coordinated Universal Time (UTC):*Time scale, based on the second (SI) and maintained by the Bureau International des Poids et Mesures (BIPM), that forms the basis for the coordinated dissemination of standard frequencies and time signals.     (WRC-15)

**Reasons:** To remove the incorporation by reference of Recommendation ITU-R TF.460-6, which defines the use of leap seconds in UTC, it is necessary to add a reference to the international organization responsible for the maintenance of the UTC time-scale, and remove the equivalence between UTC and the mean solar time at the prime meridian.

ARTICLE 2

Nomenclature

Section II – Dates and times

MOD CHN/62A14/2

2.5 Whenever a date is used in connection with Coordinated Universal Time (UTC), this date is that at the prime meridian, the prime meridian corresponding to zero degrees geographical longitude.

MOD CHN/62A14/3

2.6 Whenever a specified time is used in international radiocommunication activities, UTC shall be applied, and it shall be presented as a four-digit group (0000-2359). The abbreviation UTC shall be used in all languages.

**Reasons:** Consequential changes resulting from the MOD to RR No. 1.14.

ARTICLE 59

Entry into force and provisional application  
of the Radio Regulations    (WRC‑12)

MOD CHN/62A14/4

59.1 These Regulations, which complement the provisions of the Constitution and Convention of the International Telecommunication Union, and as revised and contained in the Final Acts of WRC‑95, WRC‑97, WRC‑2000, WRC‑03, WRC‑07, WRC‑12 and WRC‑15, shall be applied, pursuant to Article 54 of the Constitution, on the following basis.     (WRC‑15)

ADD CHN/62A14/5

59.A114 The other provisions of these Regulations, as revised by WRC‑15, shall enter into force on 1 January 2017, with the exception of the following:     (WRC‑15)

ADD CHN/62A14/6

59.B114 – the revised provisions for which other effective dates of application are stipulated in Resolution:

**[CHN-A114-UTC]**.     (WRC‑15)

ADD CHN/62A14/7

Draft New Resolution [CHN-A114-UTC] (WRC‑15)

Provisional application of certain provisions of the Radio Regulations  
as revised by WRC‑15 and abrogation of certain  
Resolutions and Recommendations

The World Radiocommunication Conference (Geneva, 2015),

considering

*a)* that this conference has, in accordance with its terms of reference adopted a partial revision to the Radio Regulations, which will enter into force on 1 January 2017;

*b)* that some of the provisions, as amended by this conference, need to apply provisionally before that date;

*c)* that some of the provisions, as amended by this conference, need to apply after that date;

*d)* that, as a general rule, new and revised resolutions and Recommendations enter into force at the time of the signing of the final acts of a conference;

*e)* that, as a general rule, resolutions and Recommendations which a WRC has decided to suppress are abrogated at the time of the signing of the final acts of a conference,

resolves

1 that, as of 1 January [TBD by WRC‑15], Nos. **1.14**, **2.5** and**2.6**, as revised or established by WRC‑15, shall apply.

**Reasons:** To ensure sufficient time for legacy systems to update hardware and/or software to accommodate the elimination of leap seconds from UTC.

SUP CHN/62A14/8

RESOLUTION 653 (WRC‑12)

Future of the Coordinated Universal Time time-scale

**Reasons:** Resolution 653 (WRC-12) is no longer needed.

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1. UT1 (Universal Time 1) is a time based on the rotation of the Earth. This is the mean solar time of the prime meridian obtained from direct astronomical observations corrected taking into account the effects of small movements of the Earth relative to the axis of rotation (polar variations). [↑](#footnote-ref-1)
2. 2 A definition of TAI is provided in Recommendation ITU-R TF.460-6. [↑](#footnote-ref-2)