International Committee on Global Navigation Satellite Systems (ICG)

G. Petit (BIPM)

21st CCTF Meeting

8-9 June 2017

Bureau International des Poids et Mesures

International Committee on GNSS (ICG)

Funded in 2005 under the United Nations Office for Outer Space Affairs
Annual meetings. BIPM has an Observer status.
BIPM chairs the Task Force on Timing References of Working Group D: Reference Frames, Timing and Applications

ICG WG-D main products: templates

Describing GNSS references

Templates on Geodetic and Timing References

GLOBAL NAVIGATION SATELLITE SYSTEMS TIMESCALE DESCRIPTIONS

- Global Positioning System (GPS): GPS Time
- GLObal NAvigation Satellite System (GLONASS): GLONASS Time
- GALILEO (satellite navigation): Galileo System Time (GST) - as of January 2016
- European Geostationary Navigation Overlay (EGNOS): SBAS Timescale Description
- International GNSS Service (IGS): IGS Time V1.0
- BeiDou Navigation Satellite System BDS): BeiDou System Time - as of November 2016
- Quazi Zenith Satellite System (QZSS): QZSS Time - as of November 2016

GNSS Timescale Description
Galileo

Reference document:
RD1: European GNSS (Galileo) Open Service Signal In Space Interface Control Document (OS SIS ICD), Issue 1.1, September 201

Definition of System

1. System timescale: GST (Galileo System Time)

2. Generation of system timescale:
Master Clock steered to the clock ensemble at the Precise Time Facility with an option to include ground station and satellite clocks.

3. Is system timescale steered to a reference UTC timescale?
Yes

a. To which reference timescale:
UTC prediction as provided by the GTSP (Galileo Time Service Provider), based on contributions from European UTC laboratories.

Beidou Timescale Description

Reference document

RD1: BeiDou Satellite Navigation System Signal In Space Interface Control Document, Open Service Signal (Version 2.0), Nov. 2013.

Definition of time system

1.System timescale: BDT (Beidou System Time)

2. Generation of system timescale:
Composite clock based on the clock ensembles of master control station and monitor station

3. Is system timescale steered to a reference UTC timescale?
Yes

a. To which reference timescale: linked to UTC through UTC(NTSC).

ICG WG-D main products: Recommendations

Recommendations, mostly to GNSS service providers

e.g. GNSS Times offsets

or to the BIPM

e.g. publication of [UTC-GNSS times]

e.g. Rapid UTC

Recommendation for Committee Decision (#21-A)

Prepared by: **Working Group D**

Date of Submission: **10 November 2016 (REVISED 13 November 2013)**

Issue Title: **On the monitoring of offsets between GNSS times (revision of Recommendation 21 adopted in 2013)**

Background/Brief Description of the Issue:

Offsets between GNSS times are important information for GNSS users. Monitoring of the offsets between GNSS times and provision of consistent broadcast information are essential to improve interoperability and combined navigation using multiple GNSS.

Recommendation for Committee Decision (WG-D#20-A)

Prepared by: **Working Group D**

Date of Submission: **10 November 2016 (REVISED 12 November 2013)**

Issue Title: **BIPM publication of [*UTC – GNSS times*] and [*UTC – UTC (k)*$_{GNSS}$] (revision of Recommendation 20 adopted in 2013)**

Recommendation 17 for Committee Decision

Prepared by: Working Group D

Date of Submission: 08 November 2012

Issue Title: Declaration on the computation of Rapid UTC (UTCr)

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