GPS calibration of JATC receiver by NTSC (1201-2018)

Summary

In July 2018, GNSS equipment owned by the Joint Atomic Time Commission, Lintong (UTC acronym JATC) was calibrated against the reference station NTP1 of the National Time Service Center (NTSC). The exercise is very specific in two ways:

- NTP1 was included in the 1001-2016 Group 1 trip, so this calibration is considered Group 2 even though NTSC is not a G1 laboratory.
- The method of differential calibration is through a calibrated direct link between the two reference clocks of the receivers (no common-clock operation). This justifies the publication of a result only for the P3 linear combination.

The BIPM Calibration guidelines will eventually be extended to cover this type of exercise.

The operation and report of measurements are described in the report by the NTSC.

- **Final results for the calibrated systems**

The INTDLY values of the JA01 receiver given in Table 1 have been computed by the NTSC based on the results of the 1001-2016 Group 1 trip for NTP1 and should not be updated to reflect later changes in the conventional INTDLY values of NTP1.

The uncertainty for a P3/PPP link involving JA01 is U_{CAL0} = 2.5 ns at the time of calibration, as obtained from the NTSC report.

Changes in the set-up of the receivers after the calibration must be accounted for as described in section A.3.6 of the most recent Calibration guidelines in ftp://ftp2.bipm.org/pub/tai/publication/gnss-calibration/guidelines/.

Table 1. Final P3 SYSDLY value from the 1201-2018 exercise. Value of REFDLY during the calibration is also indicated for reference, see note 1 (all values in ns). "Meas. Date" refers to the first day of the differential calibration, to which the calibration results can be applied. "Impl. Date" is the MJD when the results should be implemented in the receiver.

System	BIPM	Meas. date	SYSDLY P3	REFDLY	Note	Impl. date
JA01	JA01	2018/07/09	**237.2**	341.8	(1)	58329

Notes:
(1) The REFDLY value represents the set-up during the measurements.

Version history
V1.0 2018/09/03: Publication of results from the NTSC report. Results have been implemented in the JA01 receiver on MJD 58329.