

GPS calibration of HKO and SCL equipment with respect to NIM G1 (1011-2018)

Summary

Over January to December 2018, the National Institute of Metrology, China (NIM) conducted a trip to calibrate GNSS equipment owned by Hong-Kong Observatory, China (BIPM acronym HKO) and by Standards and Calibration Laboratory, China (BIPM acronym SCL). The trip started and finished at the NIM, providing closure with respect to NIM Group1 reference receiver IM06.

The operations and report of measurements are described in in the [report by NIM](#).

• Final results for the calibrated systems

The INTDLY values of the HKO and SCL receivers given in Table 1 have been computed by NIM based on the results of the [1001-2018](#) Group 1 trip for IM06 and should not be updated to reflect later changes in the conventional INTDLY values of the reference receivers.

For a P3/PPP UTC link A-B involving any Group 1 and any receiver in this trip, the uncertainty resulting from the calibration, $U_B(A-B)$, is computed as

$$U_B(A-B) = (U_{CAL0}^2 + \Delta U_{CAL}(A)^2 + \Delta U_{CAL}(B)^2)^{1/2} \quad (1)$$

where $U_{CAL0} = 2.5$ ns at the time of calibration, as given conventionally to Group 2, and where ΔU_{CAL} (generally zero) is specified for each system.

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 P1/P2 INTDLY values from the 1011-2018 trip. Values of REFDLY with respect to UTC(k) and of CABDLY during the calibration are also indicated for reference as available. All values are 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	INTDLY P1	INTDLY P2	REFDLY	CABDLY	Note	ΔU_{CAL}	Impl. date
HKO1	HKO1	2018/02/10	-17.2	-19.0	12.7	333.9		0.0	58661
HKO2	HKO2	2018/02/10	-25.9	-28.8	1.5	423.3		0.0	58661
SCL2	SC05	2018/03/26	25.5	25.1	10.0	512.0		0.0	58661

Notes:

Version history

V1.0 2019/06/28: Publication of results from V3.6 of the Calibration report, to be implemented in the receivers.

V1.1 2019/08/08: Correction of REFDLY values for HKO1 and HKO2 listed in Table 1. Correction of BIPM code to SC05 in Table 1. No change to calibration results.