

GPS transfer of calibration at IMBH (1101-2020)

Summary

In April 2020, the Institute of Metrology of Bosnia and Herzegovina (UTC acronym IMBH) conducted a transfer of calibration from its G2-calibrated GPS receiver BH02 to the receiver BH01 which calibration was lost after a repair.

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

- **Final results for the calibrated systems**

The INTDLY values of the BH01 receivers given in Table 1 have been computed by IMBH based on the results of the [1011-2019](#) Group 2 trip for BH02 and should not be updated to reflect later changes in the conventional INTDLY values of the reference receiver.

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 $U_{CAL0} = 2.7$ ns is composed of the conventional Group 2 value (2.5 ns) and the uncertainty of the transfer (1.1 ns), and where ΔU_{CAL} (generally zero) is specified for each system. For UTC use, the ageing uncertainty will be based on the date of original calibration of BH02 i.e. 2019/03/05.

For single frequency C1 links, U_{CAL0} is 2.7 ns but could be complemented by an additional component to represent systematic errors in the ionospheric model.

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/C1 INTDLY values from the 1101-2020 exercise. Values of REFDLY with respect to UTC(IMBH) and of CABDLY during the calibration are also indicated for reference. 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	INTDLY C1	REFDLY	CABDLY	Note	ΔU_{CAL}	Impl. date
BH01	BH01	2020/04/23	53.4	49.1	54.9	10.8	145.3	(1)	0.0	59001

Notes:

(1) INTDLY values include delays of parts added in the repair of BH01, see the report by IMBH.

Version history

V1.0 2020/05/20: Publication of results from the IMBH report on the transfer of calibration, to be implemented in the BH01 receiver: