

GNSS calibration of NRL receivers with respect to BIPM G1 (1201-2024)

Summary

During the 1001-2022 G1 trip visiting SIM, the BIPM also calibrated GNSS equipment owned by the U.S. Naval Research Laboratory (NRL). The trip started and finished at BIPM, providing closure with respect to the 1001-2022 G1 trip reference receiver BP21.

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

- **Final results for the calibrated systems**

The INTDLY values of the receivers given in Table 1 have been computed by BIPM based on the results of the Group 1 trip [1001-2022](#) for BP21 (GPS and Galileo) and should not be updated to reflect later changes in the conventional INTDLY values of the reference receiver.

For a P3/E3/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 is the conventional Group 2 value, 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](#).

Table 1. Final P1/P2/E1/E5a INTDLY values from the 1201-2023 exercise. Values of REF DLY and CABDLY during the calibration are also indicated for reference. All values are in ns date in YYYY/MM/DD format. “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 C1	INTDLY P1	INTDLY P2	INTDLY E1	INTDLY E5a	REF DLY	CABDLY	Note	ΔU_{CAL}	Impl. date
RL5B	RL5B	2023/08/22	27.5	25.7	23.2	27.6	28.0	8.2	300.1		0.0	

Notes:

Version history

V1.0 2024/06/03: Publication of results from V1.0 of the BIPM report.