GPS calibration of AGGO, ONBA and INTI receivers with respect to NIST G1 (1014-2021)

Summary

From June 2021 to April 2022, the National Institute of Standards and Technology (NIST) conducted a trip to calibrate GPS equipment owned by the Argentinian-German Geodetic Observatory (AGGO), the Observatorio Naval Buenos Aires (ONBA) and the Instituto Nacional de Tecnología Industrial (INTI). The trip started and finished at the NIST, providing closure with respect to the NIST Group1 reference receiver NIST. The operations and report of measurements are described in the report by NIST.

- Final results for the calibrated systems

The INTDLY values of the receivers given in Table 1 have been computed by NIST based on the results of the Group 1 trip 1001-2020 for NIST 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

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

where \( U_{CAL0} = 2.5 \) ns is the conventional Group 2 value, and where \( \Delta U_{CAL} \) (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/C1 INTDLY values from the 1014-2021 exercise. Values of REFDLY 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.

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<th>Meas. date</th>
<th>INTDLY C1</th>
<th>INTDLY P1</th>
<th>INTDLY P2</th>
<th>REFDLY</th>
<th>CABDLY</th>
<th>Note</th>
<th>( \Delta U_{CAL} )</th>
<th>Impl. date</th>
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</table>

Notes:

1. Significant systematics errors in the differential measurements

Version history
V1.0 2022/09/27: Publication of results from V1 of the NIST report.