

GPS transfer of calibration at NMIA (1103-2020)

Summary

In May 2020, the National Measurement Institute of Australia (UTC acronym AUS) conducted a transfer of calibration from its calibrated GPS receiver AU04 to the receiver AU05.

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

- **Final results for the calibrated systems**

The INTDLY values of AU05 given in Table 1 have been computed by AUS based on the results of the calibration trip [1002-2010](#) for AU04 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 $U_{CAL0} = 5.1$ ns is composed of the conventional uncertainty of pre-Group 1 P3 calibrations (5.0 ns) and the uncertainty of the transfer (0.8 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 AU04 i.e. 2010/10.

For single frequency C1 links, U_{CAL0} is 5.1 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 for AU05. Values of REFDLY with respect to UTC(AUS) 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
SEP2	AU05	2020/05/16	51.4	49.6	52.3	217.4	101.6		0.0	59031

Notes:

(1).

Version history

V1.0 2020/06/25: Publication of results derived from the AUS report on the transfer of calibration, to be implemented in the receivers: