

Stability of the BIPM GNSS travelling calibrator

Z. Jiang and L. Tisserand

Time Department

Bureau International des Poids et Mesures

Pavillon de Breteuil, F-92312, SEVRES CEDEX France

zjiang@bipm.org

In the frame of the BIPM pilot project [1] on the accurate calibration aiming at unifying the UTC time link calibration uncertainties ≤ 2 ns. The dominant term in the total uncertainty budget is the instability of the BIPM travelling calibrator (StdB).

The StdB is composed of two or three independent GNSS receiver systems. Each has its own GNSS receiver (two GTR50 and a PolaRx), antenna and cables and hens can separately perform time transfer using the PPP technique. Since the April 2013, the StdB has being setup at BIPM and the leading UTC laboratories: OP in France, PTB in Germany, AOS and PL in Poland, TL in Taiwan, NMIJ and NICT in Japan. The short- and long-terms instability of the StdB can be investigated by comparing each other between the StdB receivers installed side by side at one of the above laboratories. On the other side, between the long calibration tours, the StdB returned to BIPM to be compared to the fixed reference receivers to monitor its status. The closure measurements give also important information on the receiver systems' stability. The common clock difference analysis allows us removing the instability of the clocks and compensating most of the site dependent disturbances and is a good indicator of the stability of the StdB.

In this paper, we present our study results; discuss the potential causes of the calibration variations and how to implement the calibration correction in the conventional GNSS measurement data file in the CGGTTS format.

Reference

- [1] Jiang Z., Arias F., Lewandowski W., Petit G., *BIPM Calibration Scheme for UTC Time Links* - BIPM pilot experriment to strenghen Asia-Europe very long baselines, Proc. EFTF 2011, pp 1064-1069