IEN TW Station (IEN01) status report Revised: October 2002

Since April 2001 (MJD 52001) IEN regularly has performed TWSTFT measurements with IEN01 station, taking part in both the European and transatlantic sessions.

No major problems occurred until last July (MJD 52477) when the LNA failed signal receiving was prevented. A spare part was bought and recently installed. Since MJD 52549 IEN TW station has restarted its routine operations. During the inactivity period the IEN-NPL slot was occasionally used by the NPL for calibration purposes.

Automation of the IEN measurement equipment is now completed with the automatic data analysis software. At 15.00 UTC the measurement data (1s files) are processed and the final file is produced. All the files are the uploaded to the IEN FTP server (ftp://ftp.ien.it/twstt) and are available to the TWSTFT community. If the files on the server are successively updated or corrected by the operator, every changes are notified in the file twlog.nnn (where nnn is a counter that is incremented every time the twlog file is updated).

The data analysis software implements a quadratic fitting routine with a filter. The data that are 3σ out of the fit are filtered out and the fit is recalculated. The actual data number contributing to the final fit are reported in the ITU file (SMP field).

Since MJD 52334 the IEN-PTB two way link is used for TAI calculation [1]. The GPS link is kept as backup and was used during the failure period of the station. IEN-PTB link was calibrated using Circular T: calibration refers to MJD 52294 and CALR value is –253 ns (IEN side) with an uncertainty of 5 ns, as usual.

Figure 1 shows the differences between TWSTFT and GPS for IEN-PTB link, using the Circ. T and BIPM TWSTFT data [1] [2]: TWSTFT data are (linearly) interpolated to match Circ. T standard dates and differences calculated using the CALR value.

During last April the IEN-NIST two way link was used to compare the frequency of IEN-CSF1 Cs fountain primary standard to NIST-F1, using UTC(IEN) and UTC(NIST) as transfer standards. A paper about this experiment was presented at the CPEM02.

A second TWSTFT measurement equipment, that is expected to increase the reliability of IEN Two Way measurements, is ready to operate. The availability of a backup station important because of the too many failures that affected the present equipment.

The new equipment will use a set of high quality cables and will be arranged for the use of a satellite simulator.

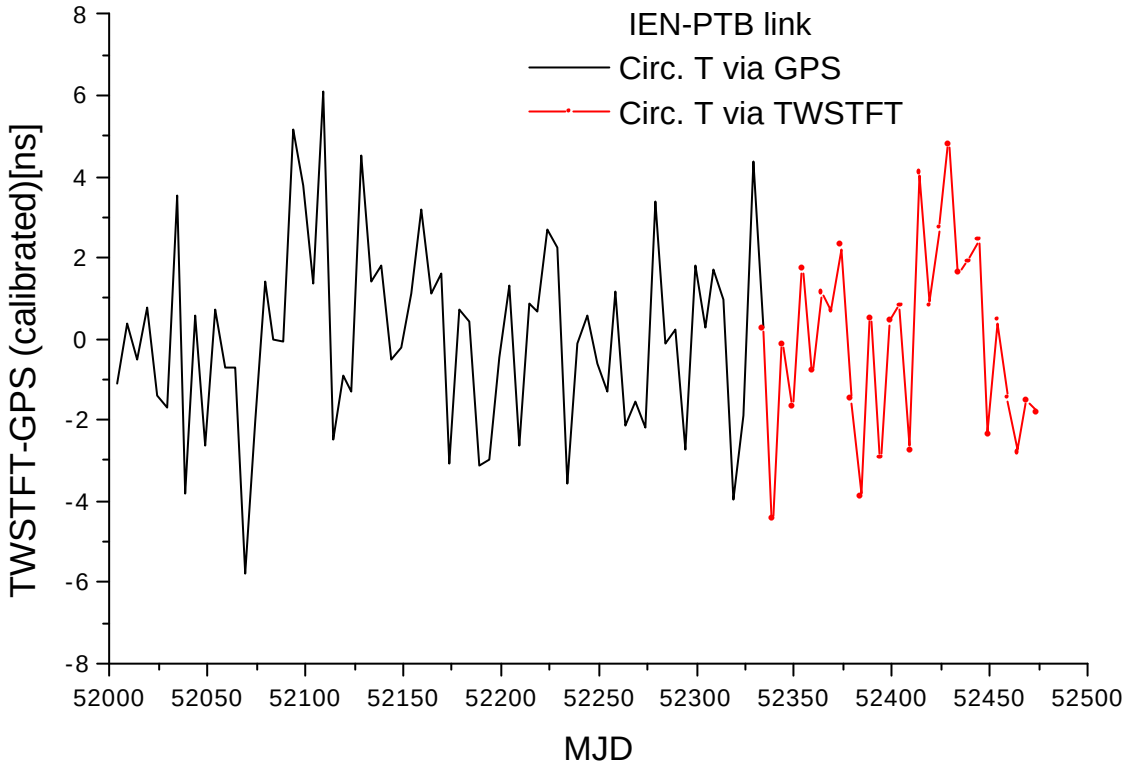

Figure 1. Differences between TWSTFT and GPS/CV for IEN-PTB link

[1] 21st BIPM TWSTFT Report

[2] 22nd BIPM TWSTFT Report