13TF054 Influence of GPS Measurements Quality to NTP Time-Keeping

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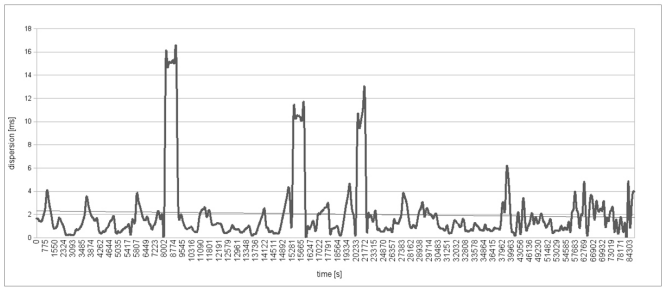
The Metrological laboratory for angle and length calibration (ML160) uses a geodetic class double-frequency GPS receiver as a time standard. Time correction terms are delivered to laboratory computers via Network Time Protocol (NTP). We tested NTP parameters within the intranet environment with the respect to the quality of GPS measurements. The 24 hours experiment showed that the characteristics of time delivered to NTP clients is influenced by the quality of GPS data received by our Stratum 1. We suggested methods for improving the reliability of GPS disciplined time corrections.



Jitter

13TF083 Uncertainty to harmonic measurements with DFT techniques

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The harmonic content generated by the use of non-linear loads can cause an electrical device to operate improperly. For this reason, reliable measurements of this parameter are fundamental to guarantee the results needed by the electronics industry and medical devices. The aim of this work is to describe the development of a measurement system of harmonic signals with traceability to the international system of units (DC voltage), and its uncertainty levels. The system consist a software developed in Visual Basic language based on a voltmeter with a General Purpose Interface Bus (GPIB) able to digitalize a signal with sampling rates up to 100,000 samples per second. A Discrete Fourier Transform algorithm is used to evaluate the harmonic content of the signal. The work consists of a tool for the calibration services provided by the laboratory LABELO-PUCRS, and its results indicate the best capability (uncertainty) to harmonic measurements.