

# A sub-ns comparison between GPS common view and T2L2

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T2L2 (Time Transfer by Laser Link) permits the synchronization of remote ultra stable clocks over intercontinental distances. The principle is issued from laser telemetry technology with a network of laser stations at ground and dedicated space equipment designed to record arrival time of laser pulses at the satellite. T2L2 permits to realize some links between distant clocks with time stability of a few picoseconds and accuracy better than 100 ps.

The instrumental metrology associated with such performances need to be designed with utmost care. It concerns all the instrumentation directly linked with the specific T2L2 equipment and also the instrumentation doing the link between the laboratory reference and the T2L2 ground segment. Several campaigns were done to demonstrate both the ultimate time accuracy and time stability capabilities of T2L2.

The presentation is focused on the current high accuracy equipment that has been designed for the picosecond metrology and on some recent campaigns involving global calibrations of both laser stations and GNSS equipment. Results obtained during the last two months comparisons between GPS in common view and T2L2 with 3 European laboratories shows some differences below 300 ps with a standard deviation better than 500 ps.