

Current status and expected performance of European Laser Timing

Prof. Ulrich Schreiber¹, Prof. Ivan Prochazka², Dr. Josef Blazej², Dr. Jan Kodet^{1,2}, Johan Eckl¹

¹Czech Technical University In Prague, Prague, Czech Republic, ²Technical University Munich, Munich, Germany

The current status of the ELT hardware segment will be presented. The ELT detector for the ACES space segment was constructed, tested and delivered for mission platform integration in 2015. Some Satellite Laser Ranging (SLR) ground stations, which are expected to participate in ELT project are already tested. Their related system delays were calibrated. Significant progress in the distribution of time scales in geodetic networks including SLR systems was obtained. This also includes aspects of time and frequency handling and distribution at the observing stations. The performance achieved is demonstrated on results of ground tests. Significant improvement in the design of laser time transfer components was achieved recently. Both the ground and space segments of the laser time transfer instrumental chain were upgraded. As a result the frequency transfer uncertainty of the order of 1×10^{-18} after several days of integration time may be achieved. The application of this improved laser time transfer technology (dubbed ELT+) is expected in a near future in relation to orbiting optical clocks.