



Borowiec, 18.10.2025

## CALIBRATION CERTIFICATE 10/2025

**Astrogeodynamical Observatory Space Research Centre (SRC) certifies that:**

- From Sept. 09<sup>th</sup> 2025, 00:00 UTC, till Sept. 18<sup>th</sup> 2025, 23:59 UTC the following set of instruments supplied by:

*Piktime Systems Ltd*  
*company having its registered office at:*  
*Mazowiecka 59, 60-623 Poznań, Poland,*

was calibrated by a **Common View** method at the Time and Frequency Laboratory of the Observatory:

- TTS-5 receiver, s.n. 1034,
- Choke ring antenna, RinGant-3L sn: RA10110,
- POLYPHASER DGXZ+06NMNF-Z,
- Antenna cable assembly (TTS5-1034A),
- Antenna cable assembly (TTS5-1034B).

- The calibration was carried with respect to the main GPS/GLONASS s.n. 112 TTS-4 receiver at the Observatory.
- The s.n.112 receiver was several times calibrated against traveling receivers from BIPM Time Section, in particular, in January 2017 against absolutely calibrated BIPM BP1K receiver.

**The calibration yielded the following results:**

Differential delays of the calibrated receiver:

GPS, L1C: 25.40, RMS: 0.52 [ns],  
GPS, L1P: 20.31, RMS: 0.41 [ns],  
GPS, L2C: 53.49, RMS: 0.55 [ns],  
GPS, L2P: 34.66, RMS: 0.63 [ns],  
GLONASS, L1C: 33.67, RMS: 2.88 [ns],  
GLONASS, L1P: 34.18, RMS: 3.11 [ns],  
GLONASS, L2C: 40.69, RMS: 0.99 [ns],  
GLONASS, L2P: 40.67, RMS: 0.98 [ns],  
Galileo E1: 24.01, RMS 0.39 [ns]  
Galileo E5A: 42.21, RMS: 0.55 [ns].  
Antenna cable assembly TTS5-1034A: 205.913, RMS: 0.5 [ns],  
Antenna cable assembly TTS5-1034B: 20.417, RMS: 0.5 [ns],  
POLYPHASER DGXZ+06NMNF-Z, 0.383 [ns], RMS 0.2 [ns]

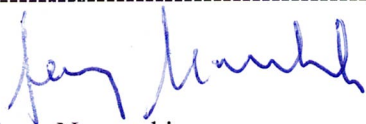
**After the calibration, the obtained results were implemented into the receiver.**

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Additionally the following antenna cables were calibrated::

TTS5-1034C: 202.201 ns, RMS: 0.5 [ns],  
TTS5-1034D: 203.074 ns, RMS: 0.5 [ns],  
TTS5-1034E: 204.349 ns, RMS: 0.5 [ns].

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