



CALIBRATION CERTIFICATE 05/2023

Astrogeodynamical Observatory Space Research Centre (SRC) certifies that:

- From March. 13th 2023, 00:00 UTC, till March 18th 2023, 00:00 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. 1002,
 - Choke ring antenna, RinGant G3T sn: 0650,
 - Antenna cable assembly (TTS5-1002-1A),
 - Antenna cable assembly (TTS5-1002-1B),
 - Antenna cable assembly (TTS5-1002-1C),
 - Antenna cable assembly (TTS5-1002-2A),
 - Antenna cable assembly (TTS5-1002-2B),
 - Antenna cable assembly (TTS5-1002-2C),
 - Arrester iPolyPhaser, sn.: DL2016 0000 38231.
- 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: 35.10, RMS: 0.61 [ns],
GPS, L1P: 34.31, RMS: 0.60 [ns],
GPS, L2C: 51.65, RMS: 0.85 [ns],
GPS, L2P: 36.50, RMS: 0.86 [ns],
GLONASS, L1C: 40.09, RMS: 2.70 [ns],
GLONASS, L1P: 40.44 RMS: 2.41 [ns],
GLONASS, L2C: 40.00, RMS: 1.30 [ns],
GLONASS, L2P: 39.97, RMS: 1.28 [ns],
Antenna cable assembly: TTS5-1002-1A, 8.71 ns, RMS: 0.5 [ns],
Antenna cable assembly: TTS5-1002-1B, 308.62 ns, RMS: 0.5 [ns],
Antenna cable assembly: TTS5-1002-1C, 8.50 ns, RMS: 0.5 [ns],
Antenna cable assembly: TTS5-1002-2A, 8.49 ns, RMS: 0.5 [ns],
Antenna cable assembly: TTS5-1002-2B, 308.59 ns, RMS: 0.5 [ns],
Antenna cable assembly: TTS5-1002-2C, 8.52 ns, RMS: 0.5 [ns],
Arrester delay: 0.287 ns

The obtained results should be implemented into the receiver.

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