



SPACE  
RESEARCH  
CENTRE  
POLISH  
ACADEMY  
OF SCIENCES

Borowiec, 22.12.2022

## CALIBRATION CERTIFICATE 12/2022

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

- From Nov. 28<sup>th</sup> 2022, 00:00 UTC, till Dec. 02<sup>nd</sup> 2022, 05:10 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. 1029,
- Choke ring antenna, RinGant G5T sn: RA100059,
- Antenna cable assembly (TTS5-1029A),
- Antenna cable assembly (TTS5-1029D).

- 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: 32.03, RMS: 0.51 [ns],  
GPS, L1P: 29.55, RMS: 0.39 [ns],  
GPS, L2C: 56.74, RMS: 0.47 [ns],  
GPS, L2P: 40.25, RMS: 0.54 [ns],  
GLONASS, L1C: 41.60, RMS: 1.78 [ns],  
GLONASS, L1P: 42.24, RMS: 1.47 [ns],  
GLONASS, L2C: 37.60, RMS: 1.01 [ns],  
GLONASS, L2P: 37.52, RMS: 0.87 [ns],  
Antenna cable assembly TTS5-1029A: 242.99, RMS: 0.5 [ns],  
Antenna cable assembly TTS5-1029D: 12.96, RMS: 0.5 [ns].

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

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