

**Calibration Report No. 2001-2021/UFE**  
**Laboratory of the National Time and Frequency Standard**  
(Designated Institute of the Czech Metrology Institute)

**Instrument:** Name: **GNSS Time Transfer Receiver**  
Type: GTR 55  
SN: 2010010

**Antenna:** Type: Novatel GNSS-850  
SN: NMLK20420007H

**Antenna Cable:** Type: Belden 50Ω LOW LOSS H155 PVC  
Length: 30 m

**Reference:** Signal: 1 PPS and 10 MHz signals of UTC(TP) generated from  
the Cesium clock 5071A SN 2476  
Receiver: GPS Time Transfer Receiver GTR 55, SN 1711887,  
calibrated by BIPM, Cal. ID 1015-2019

**Measurement Date:** 7 January 2021, 00:00:00–23:59:59 UTC

**Measurement Results:**

Internal Receiver Delays:

GPS L1 C/A: (14.5 ± 1.0) ns  
GPS L1P: (13.7 ± 1.0) ns  
GPS L2P: (10.0 ± 1.0) ns

**Measurement performed by:** Alexander Kuna, Ph.D.

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Attachment: Graphs with measured values.

Prague, 8 January 2021



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**Alexander Kuna, Ph.D.**  
Head of the LNTFS

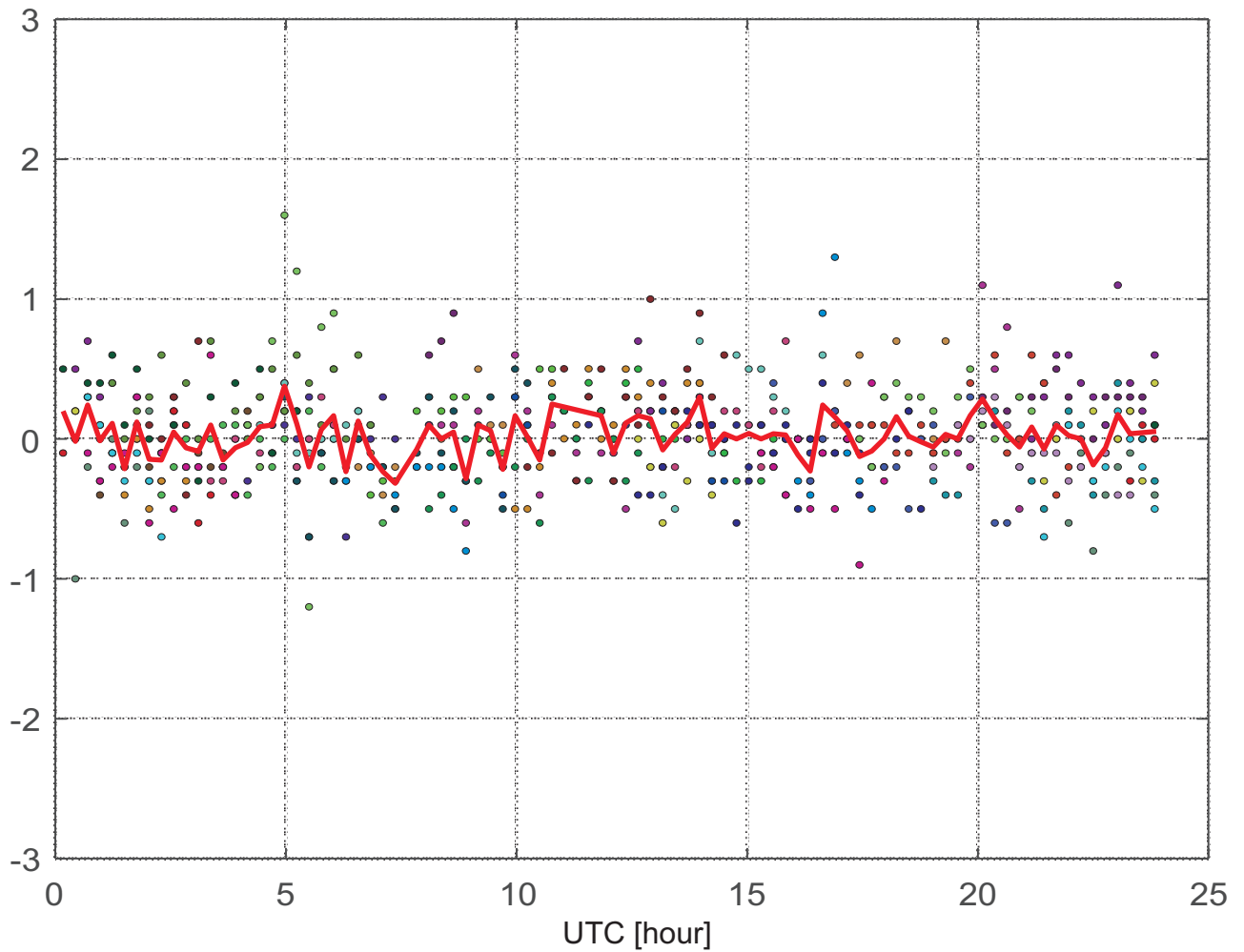
## TEST MEASUREMENT

TESTED RECEIVER: GTR55 S/N 2010010  
ANTENNA: NOV-850 S/N NMLK20420007H  
REFERENCE RECEIVER: GTR55 S/N: 1711887  
DATE: 2021-01-07  
SITE: PRAGUE  
BASELINE: 8 m

OUTPUT DATA: **CGGTTS**  
SATELLITES: ALL IN VIEW  
SIGNAL: GPS L1C/A

**SIGMA = 140 ps**

TIME DIFFERENCE [ns]



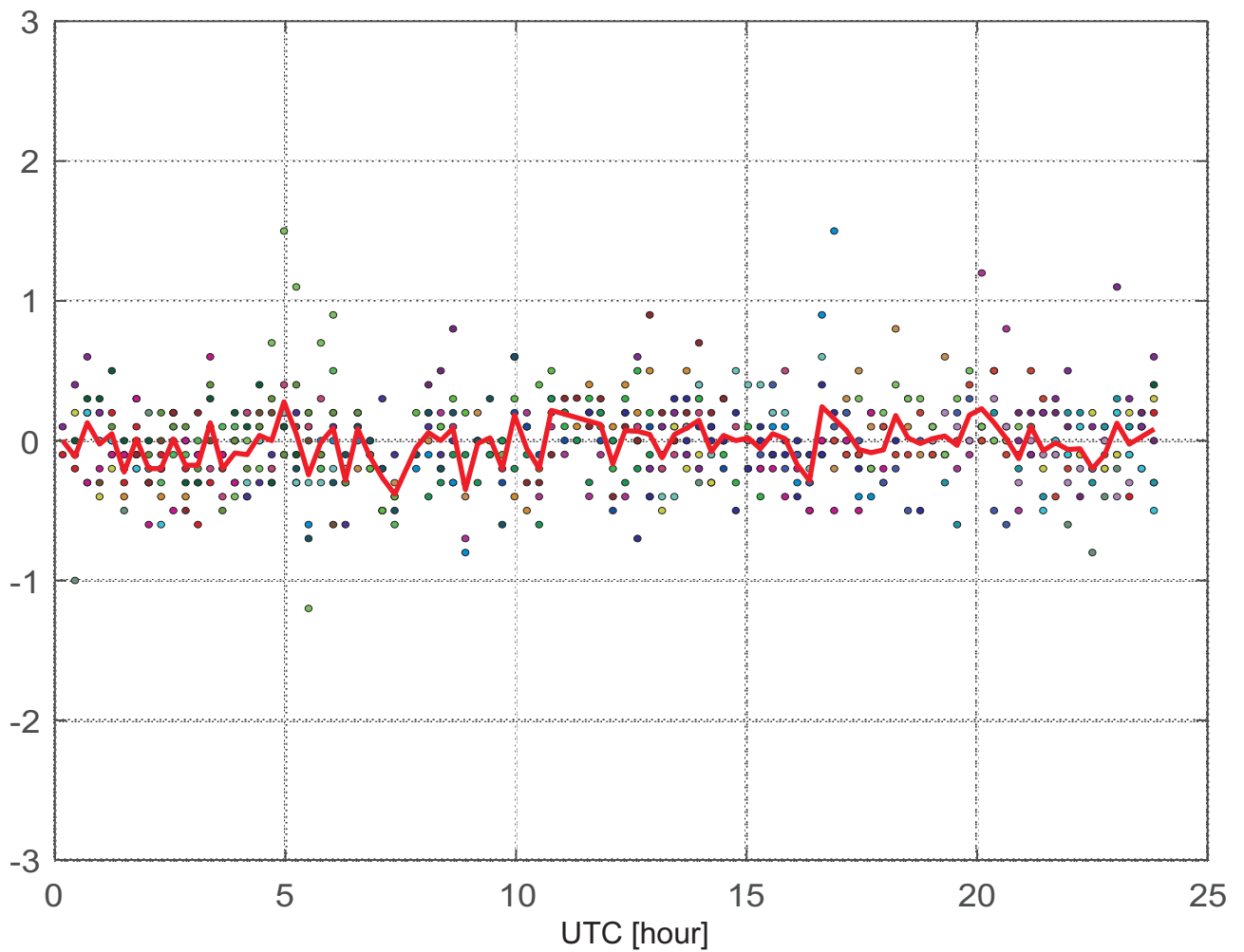
POINTS = TRACKS  
COLOR = SATELLITE

RED LINE = AVERAGE OVER ALL SATELLITES IN VIEW

OUTPUT DATA: **CGGTTS**  
SATELLITES: ALL IN VIEW  
SIGNAL: GPS L1P

**SIGMA = 140 ps**

TIME DIFFERENCE [ns]



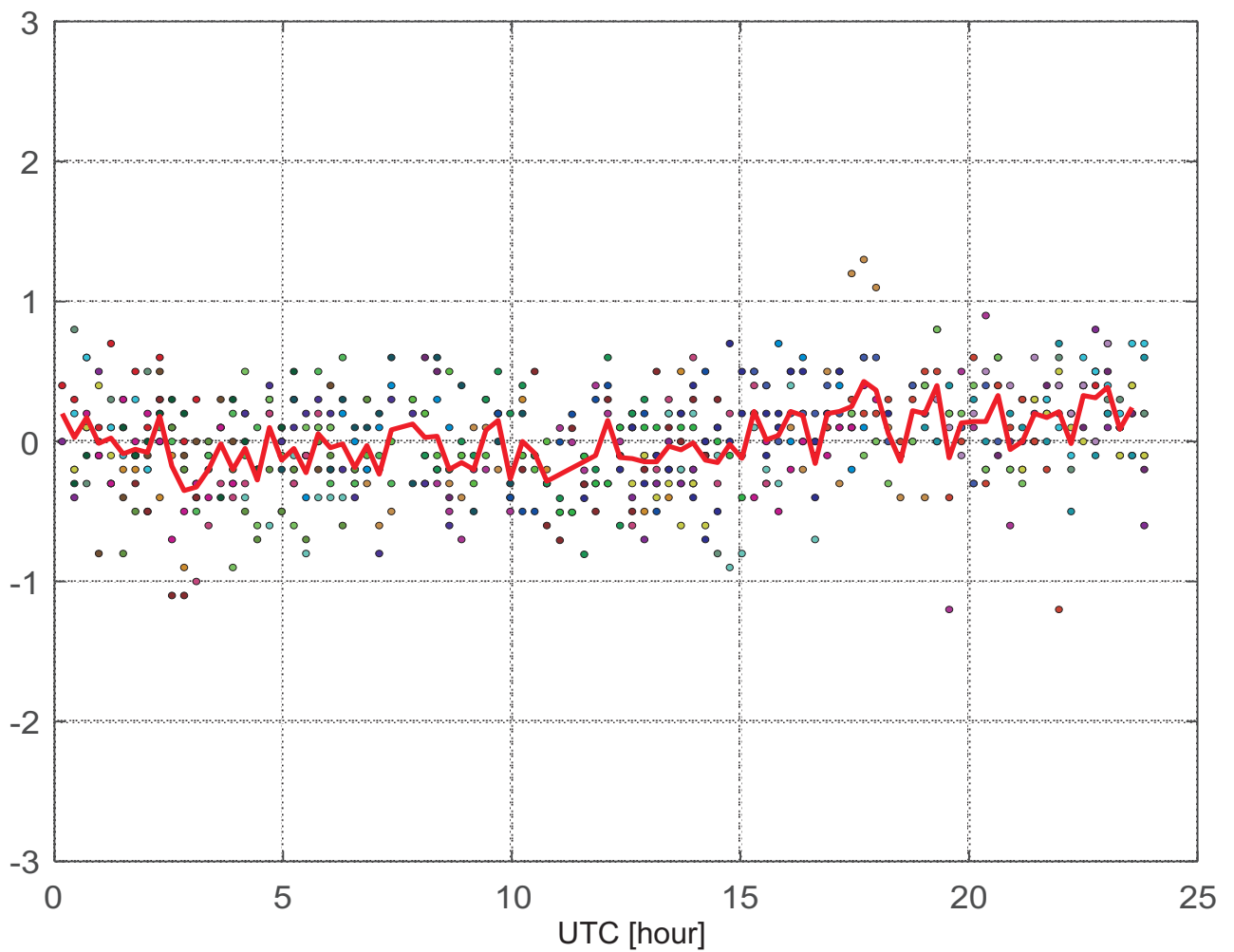
POINTS = TRACKS  
COLOR = SATELLITE

RED LINE = AVERAGE OVER ALL SATELLITES IN VIEW

OUTPUT DATA: **CGGTTS**  
SATELLITES: ALL IN VIEW  
SIGNAL: GPS L2P

**SIGMA = 180 ps**

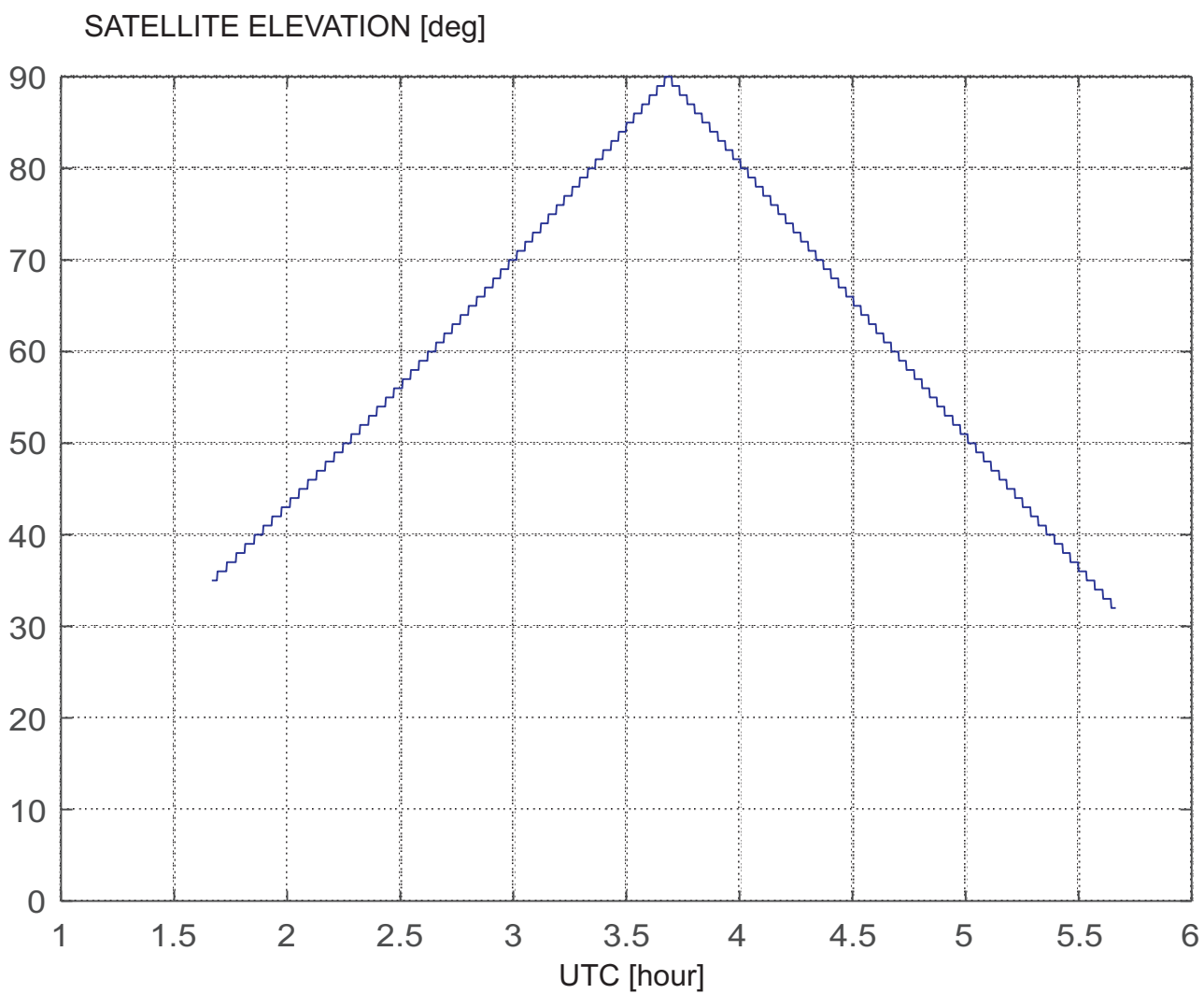
TIME DIFFERENCE [ns]



POINTS = TRACKS  
COLOR = SATELLITE

RED LINE = AVERAGE OVER ALL SATELLITES IN VIEW

OUTPUT DATA: **RAW**  
SATELLITE: PRN 1  
SIGNAL: GPS L1C/A

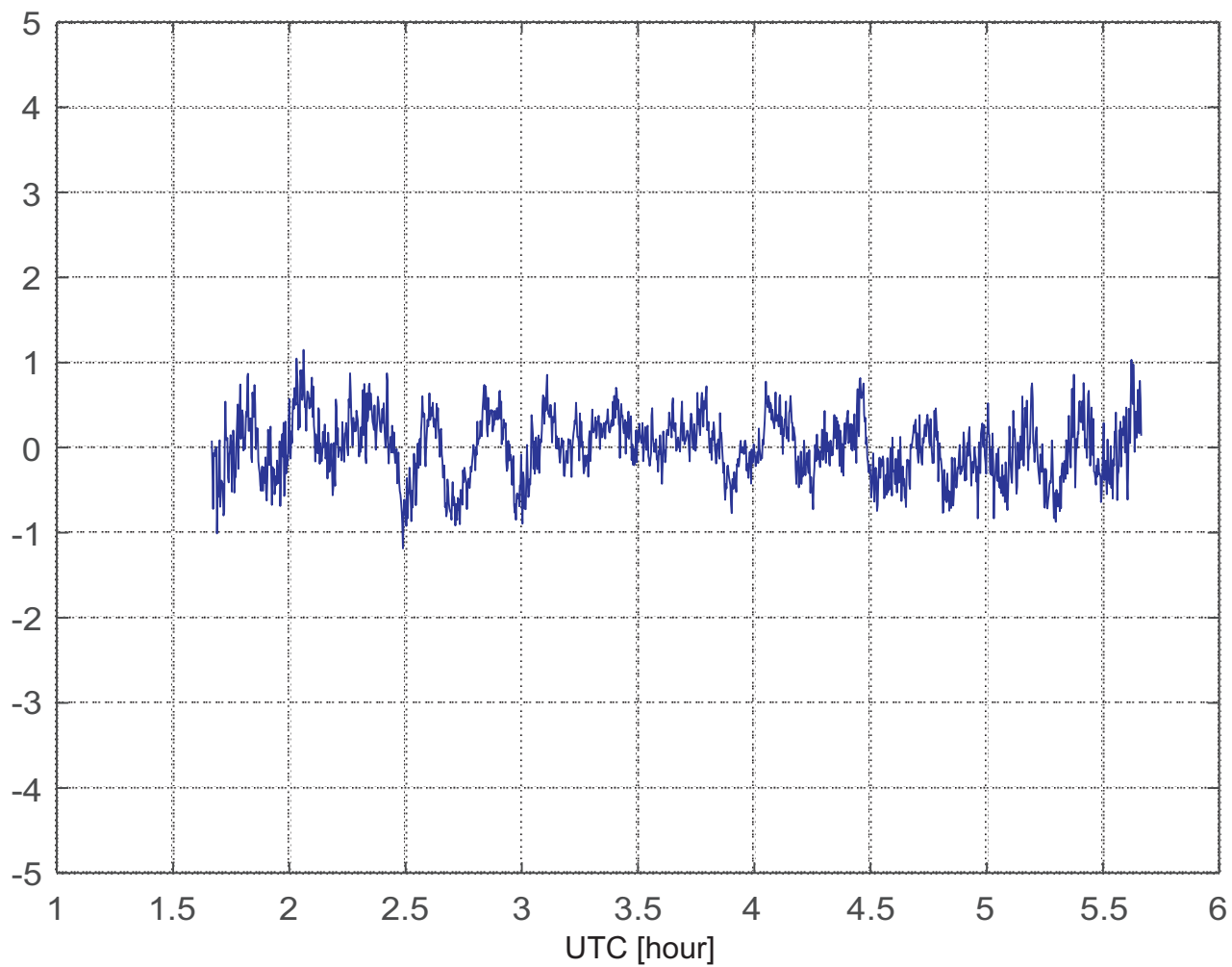


OUTPUT DATA: **RAW**  
SATELLITE: PRN 1  
SIGNAL: GPS L1C/A

**CODE MEASUREMENT**

**SIGMA = 0.4 ns**

TIME DIFFERENCE [ns]



OUTPUT DATA: RAW  
SATELLITE: PRN 1  
SIGNAL: GPS L1C/A

**CARRIER PHASE MEASUREMENT**

**SIGMA = 10 ps**

TIME DIFFERENCE [ns]

