

Calibration Report No. 2008-2019/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: 1711887

Antenna: Type: Novatel NOV-704-WB
SN: NMHB16380001P

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 1227
Receiver: GNSS Time Transfer Receiver GTR 55, SN 1541941,
calibrated by BIPM, Cal. ID 1102-2017

Measurement Date: 28 January – 6 February 2019, 00:00:00–23:59:59 UTC

Measurement Results:

Internal Receiver Delays:

GPS L1 C/A: (13.6 ± 0.4) ns, $k = 1$
GPS L1P: (12.8 ± 0.4) ns, $k = 1$
GPS L2P: (13.8 ± 0.6) ns, $k = 1$

Measurement performed by: Alexander Kuna, Ph.D.

Attachment: Graphs with measured values.

Prague, 3 April 2019

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Alexander Kuna, Ph.D.
Head of the LNTFS

	Local		Traveling
Information on the system			
4-character BIPM code	TP01		TP02
Receiver maker and type	MESIT defence GTR55		MESIT defence GTR55
Receiver serial number	S/N 1541941		S/N 1711887
1 PPS trigger level /V		1.00	1.00
Antenna cable maker and type	Andrews FSJ-1		Belden 50Ω LOW LOSS H155
Phase stabilized cable (Y/N)	N		N
Length outside the building /m		30	30
Antenna maker and type	Novatel NOV-704-WB		Novatel NOV-704-WB
Antenna serial number	NMHB16390010R		NMHB16380001P
Temperature (if stabilized) /°C			

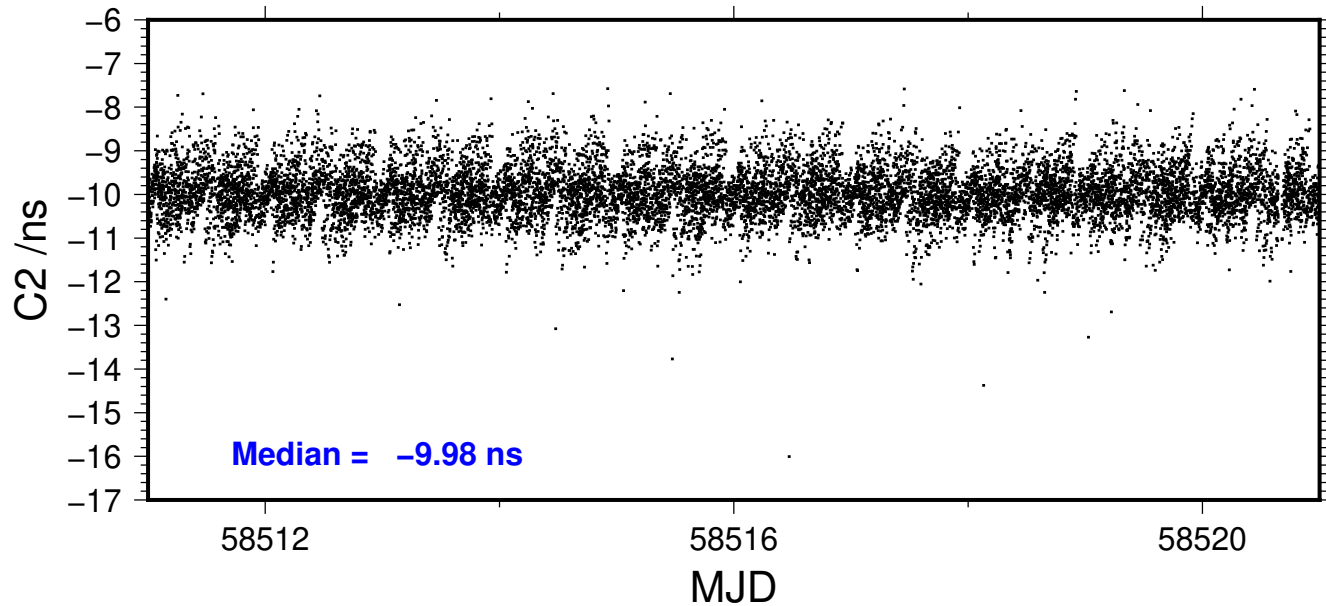
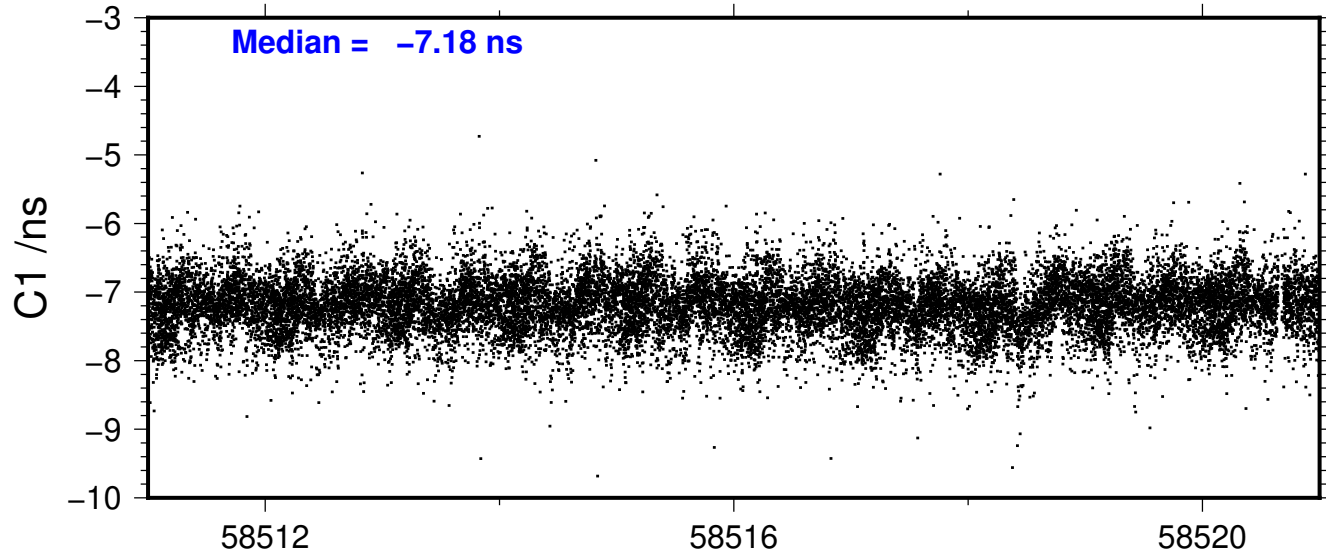
Measured delays /ns

Delay from local UTC to receiver 1 PPS-in (XP) / ns		0.0	11.9
Delay from 1 PPS-in to internal reference (if different) (or XO) / ns			
Antenna cable delay (or XC) / ns		149.0	154.7
Splitter delay (if any)			
Additional cable delay (if any)			

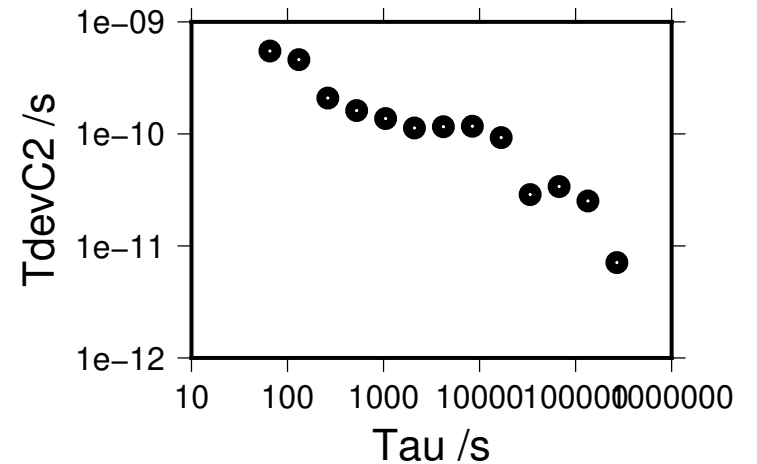
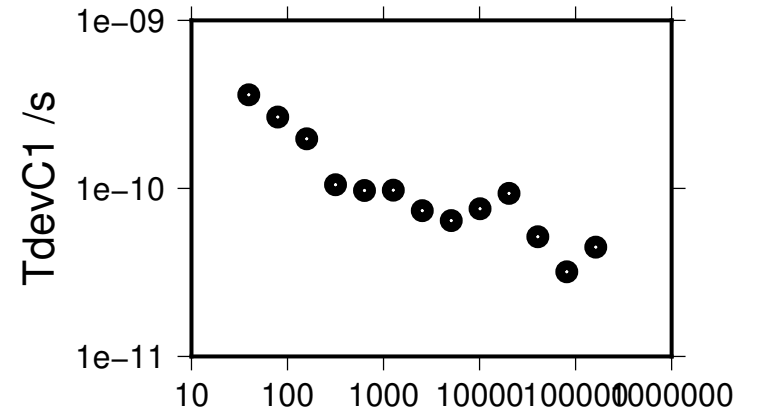
Data used for the generation of CGGTTS files

INT DLY (or XR+XS) /ns			
GPS C1		14.6	0.0
GPS C2		0.0	0.0
GPS C5		0.0	0.0
GPS P1		13.5	0.0
GPS P2		17.6	0.0
GALILEO E1		12.3	0.0
GALILEO E5 (E5a)		12.7	0.0
GALILEO E6		0.0	0.0
GALILEO E7 (E5b)		0.0	0.0
GALILEO E8 (E5 AltBOC)		0.0	0.0
BEIDOU B1		0.0	0.0
BEIDOU B2		0.0	0.0
BEIDOU B3		0.0	
BEIDOU B5		0.0	
BEIDOU B8		0.0	
CAB DLY (or XC) /ns		149.0	154.7
REF_DLY (or XP+XO) /ns		0.0	11.9
Coordinates reference frame	ITRF		ITRF
X /m		3,967,283.15	3,967,279.43
Y /m		1,022,538.18	1,022,535.80
Z /m		4,872,414.48	4,872,416.50

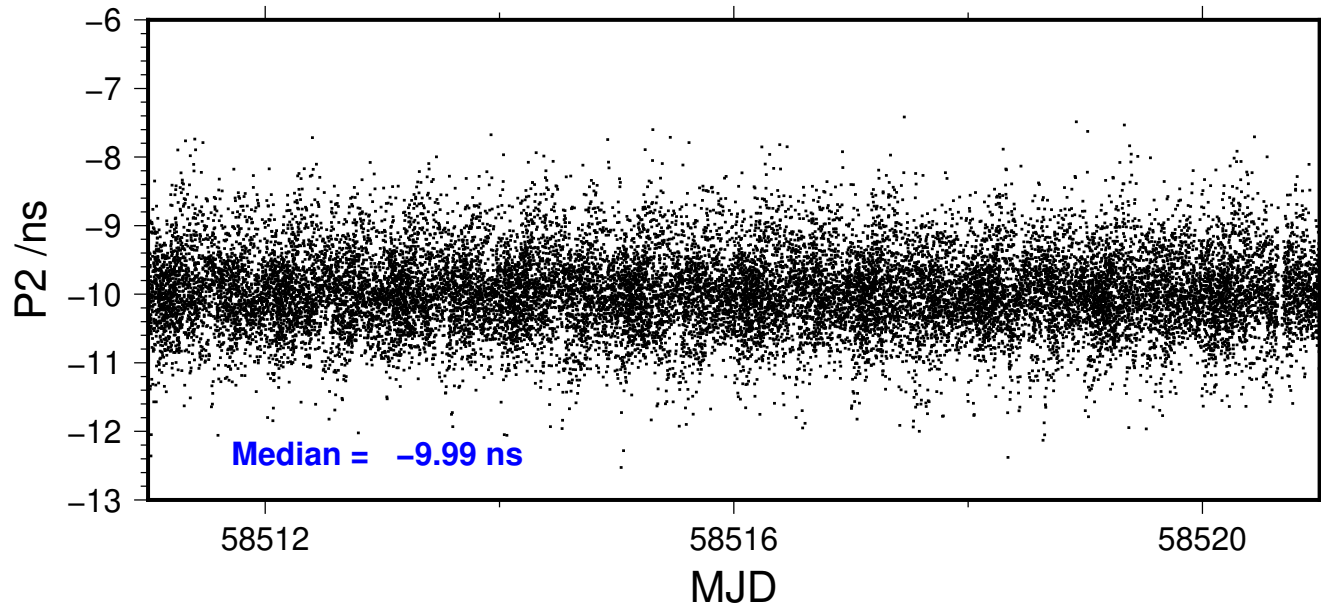
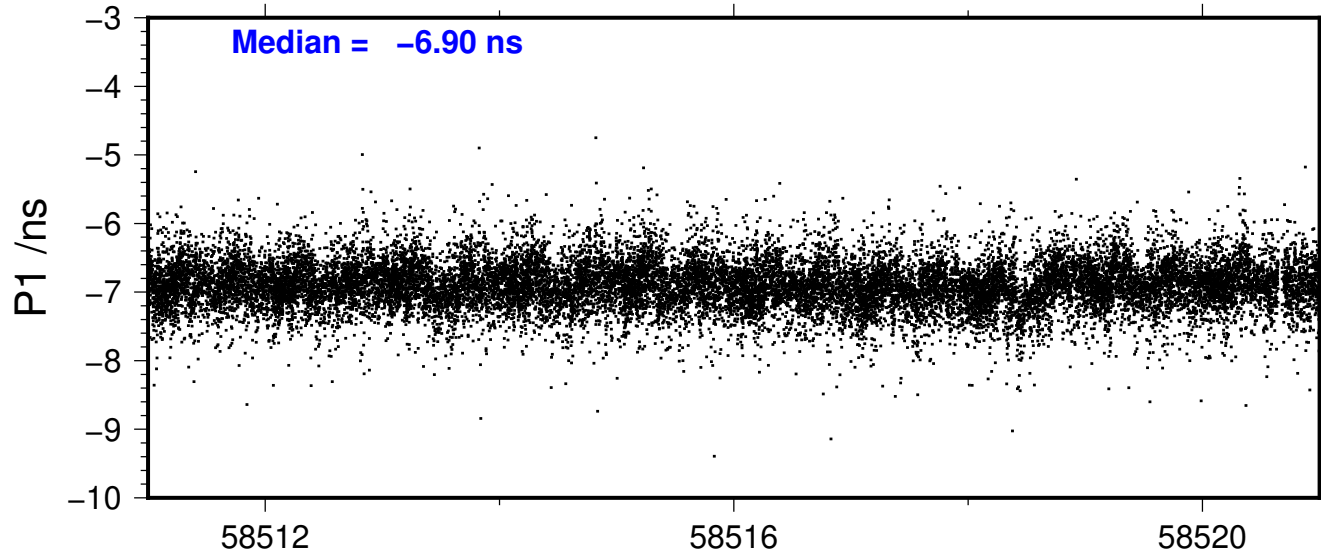
2019-02-07 TP02TP0119028_10



162006 s: C1= 45 ps	268946 s: C2= 7 ps
81003 s: C1= 32 ps	134473 s: C2= 25 ps
40501 s: C1= 52 ps	67236 s: C2= 34 ps
20251 s: C1= 93 ps	33618 s: C2= 29 ps
10125 s: C1= 76 ps	16809 s: C2= 93 ps
5063 s: C1= 64 ps	8405 s: C2= 117 ps
2531 s: C1= 74 ps	4202 s: C2= 116 ps
1266 s: C1= 98 ps	2101 s: C2= 113 ps
633 s: C1= 97 ps	1051 s: C2= 137 ps
316 s: C1= 105 ps	525 s: C2= 162 ps
158 s: C1= 197 ps	263 s: C2= 209 ps
79 s: C1= 266 ps	131 s: C2= 460 ps
40 s: C1= 360 ps	66 s: C2= 549 ps



2019-02-07 TP02TP0119028_10



162006 s: P1=	42 ps	162006 s: P2=	8 ps
81003 s: P1=	29 ps	81003 s: P2=	16 ps
40501 s: P1=	35 ps	40501 s: P2=	36 ps
20251 s: P1=	70 ps	20251 s: P2=	58 ps
10125 s: P1=	62 ps	10125 s: P2=	61 ps
5063 s: P1=	59 ps	5063 s: P2=	71 ps
2531 s: P1=	71 ps	2531 s: P2=	90 ps
1266 s: P1=	95 ps	1266 s: P2=	109 ps
633 s: P1=	95 ps	633 s: P2=	121 ps
316 s: P1=	102 ps	316 s: P2=	140 ps
158 s: P1=	164 ps	158 s: P2=	298 ps
79 s: P1=	233 ps	79 s: P2=	418 ps
40 s: P1=	323 ps	40 s: P2=	556 ps

