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Notations

As presented in [Petit et al., 2001] for the Z12-T, the calibration of a geodetic system is divided in (up to) 6 different parts (Figure 1)

- X_P = Delay of the 1PPS-in with respect to the laboratory reference
- X_O = Delay of the "internal reference" with respect to the 1PPS-in

(X_P + X_o) = REFDLY.

- X_C = antenna cable delay
- [X_D = short cable + splitter delay]

(X_C + X_D) = CABDLY. In practice, X_D is generally not used.

- X_R = receiver internal delay, measured from the "internal reference"
- X_S = antenna delay

(X_R + X_S) = INTDLY.

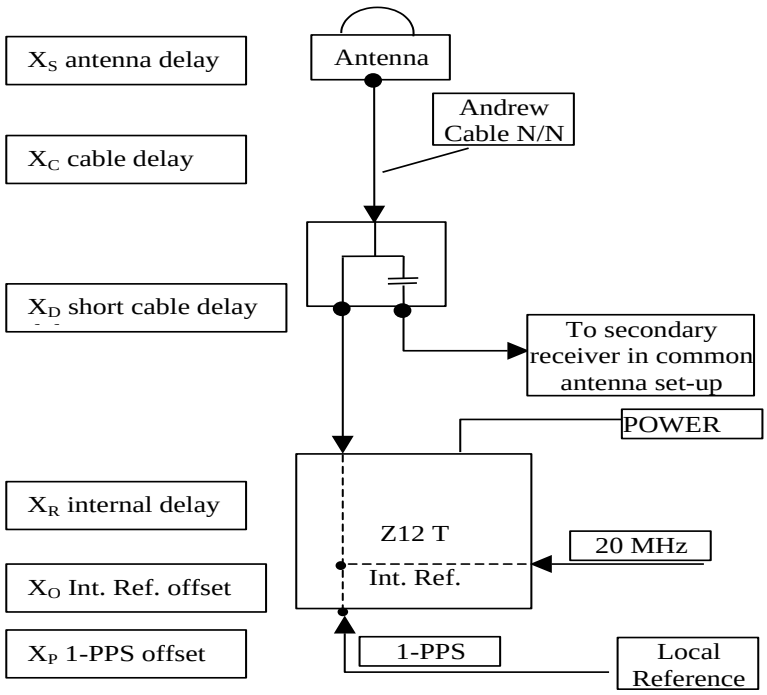


Figure 1: Definition of the different delays used in the most general set-up of a geodetic system (here shown for a Z12-T) from [Petit et al, 2001].

2/ phase 2

Laboratories: BIPM, ROA, PTB, OP

2.1/ BIPM (23063)

Period

MJD 60007 to 60011

Delays

BP2D: (cf page 4)
REFDLY = 53.43 ns (68.45-15.02)
CABDLY = 176.85 ns (C210)

BP2G: (cf page 5)
REFDLY = 53.55 ns (68.57-15.02)
CABDLY = 176.38 ns (C211)

BP21: (cf page 4)
REFDLY = 43.27 ns (58.29-15.02)
CABDLY = 140.80 ns (C201)

Setup at the BIPM

Annex A - Information Sheet

(to be repeated for each calibrated system)

Laboratory:	BIPM
Date and hour of the beginning of measurements:	MJD 60007
Date and hour of the end of measurements:	MJD 60011

Information on the system

	Local:	**Travelling:**
4-character BIPM code	BP21	BP2D
• Receiver maker and type: Receiver serial number:	Septentrio PolaRx5TR 4701229	Mesit GTR55 2010001
1 PPS trigger level /V:		
• Antenna cable maker and type: Phase stabilised cable (Y/N):	LMR-195	HYLM195
Length outside the building /m:	~ 15 m	~ 15 m
• Antenna maker and type: Antenna serial number:	Septentrio SEPCHOKE B3E6 5253	Novatel GNSS-850 NMLK17440001C
Temperature (if stabilised) /°C		

Measured delays /ns

(if needed fill box "Additional Information" below)

	Local:	**Travelling:**
• Delay from local UTC to receiver 1 PPS-in:	43.27 ns	53.43 ns
Delay from 1 PPS-in to internal Reference (if different): (see section 2 for details)	PPSin compensation enable	
• Antenna cable delay:	140.80 ns	176.85 ns
Splitter delay (if any):		(1)
Additional cable delay (if any):		(1)

Data used for the generation of CGGTTS files

• INT DLY (GPS) /ns:	
• INT DLY (Galileo) /ns:	
• INT DLY (GLONASS) /ns:	
• CAB DLY /ns:	
• REF DLY /ns:	
• Coordinates reference frame:	
Latitude or X /m:	
Longitude or Y /m:	
Height or Z /m:	

General information

• Rise time of the local UTC pulse:	
• Is the laboratory air conditioned:	
Set temperature value and uncertainty:	22 ± 1°C
Set humidity value and uncertainty:	

(1) For a trip with closure, not needed if the traveling equipment is used in the same set-up throughout.

Annex A - Information Sheet

(to be repeated for each calibrated system)

Laboratory:	BIPM
Date and hour of the beginning of measurements:	MJD 60007
Date and hour of the end of measurements:	MJD 60011

Information on the system

	Local:	Travelling:
4-character BIPM code	BP21	BP2G
• Receiver maker and type: Receiver serial number:	Septentrio PolaRx5TR 4701229	Septentrio PolaRx5TR 4701533
1 PPS trigger level /V:		
• Antenna cable maker and type: Phase stabilised cable (Y/N):	LMR-195	HYLM195
Length outside the building /m:	~ 15 m	~ 15 m
• Antenna maker and type: Antenna serial number:	Septentrio SEPCHOKE B3E6 5253	Septentrio SEPCHOKE B3E6 6023
Temperature (if stabilised) /°C		

Measured delays /ns

(if needed fill box "Additional Information" below)

	Local:	Travelling:
• Delay from local UTC to receiver 1 PPS-in:	43.27 ns	53.55 ns
Delay from 1 PPS-in to internal Reference (if different): (see section 2 for details)	PPSin compensation enable	PPSin compensation enable
• Antenna cable delay:	140.80 ns	176.38 ns
Splitter delay (if any):		(1)
Additional cable delay (if any):		(1)

Data used for the generation of CGGTTS files

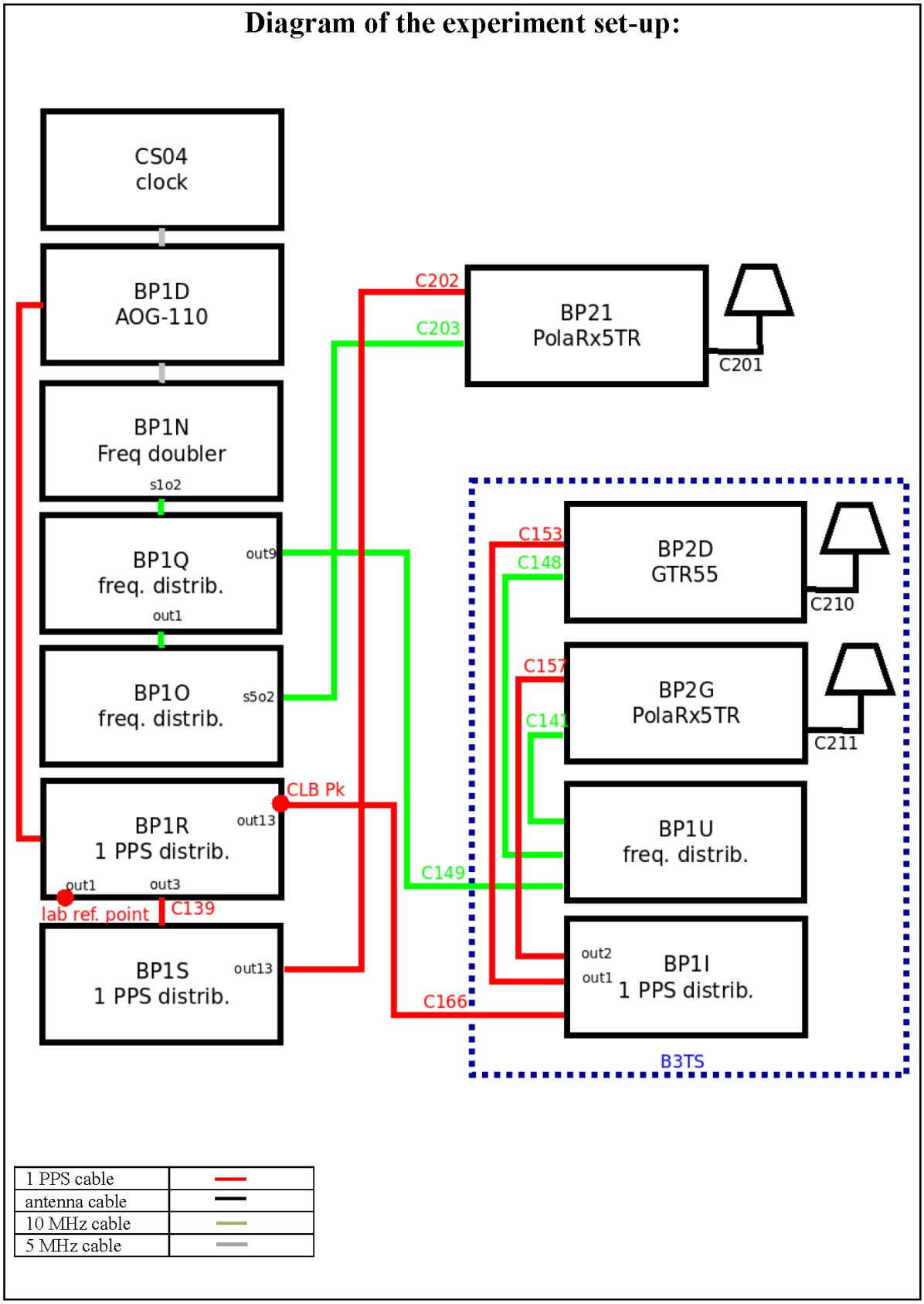
• INT DLY (GPS) /ns:	
• INT DLY (Galileo) /ns:	
• INT DLY (GLONASS) /ns:	
• CAB DLY /ns:	
• REF DLY /ns:	
• Coordinates reference frame:	
Latitude or X /m:	
Longitude or Y /m:	
Height or Z /m:	

General information

• Rise time of the local UTC pulse:	
• Is the laboratory air conditioned:	
Set temperature value and uncertainty:	22 ± 1°C
Set humidity value and uncertainty:	

(1) For a trip with closure, not needed if the traveling equipment is used in the same set-up throughout.

Diagram of the experiment set-up:



Log of Events / Additional Information :

All measurements at BIPM carried out by L. Tisserand.

Equipment used to measure delays is a Time Interval Counter (TIC), model 53230A, maker Keysight, S/N MY58390132, with measurement uncertainty typically less than 0.5 ns (using external reference frequency as timebase).

The delay between the laboratory reference point and the 1 PPS input connector of the B3TS (CLB P_k) is 0 ns.

BP2D-BP21

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 103629
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 19123 high elev obs : 3.024 4.273
Iteration 0: Obs used = 138219; Huge residuals = 1051; Large residuals = 32481
Iteration 1: Obs used = 165027; Huge residuals = 0; Large residuals = 4621
Computed code bias (P1/P2)/m = 2.832 4.090
Computed baseline (X,Y,Z)/m = -1.352 -0.086 1.435
RMS of residuals /m = 0.638

Number of phase differences to fit baseline
L1/L2 = 100641
L5 = 57956
A priori baseline (X,Y,Z)/m = -1.352 -0.086 1.435
14340 clock jitters computed out of 14341 intervals
AVE jitter /ps = -0.5 RMS jitter /ps = 5.0

Iter 1 Large residuals L1= 4
Iter 1 Large residuals L2= 12
Iter 1 Large residuals L5= 4
Computed baseline L1 (X,Y,Z)/m = -0.083 -0.106 -0.060
RMS of residuals L1 /m = 0.004
Computed baseline L2 (X,Y,Z)/m = -0.055 -0.096 -0.036
RMS of residuals L2 /m = 0.005
Computed baseline L5 (X,Y,Z)/m = -0.053 -0.105 -0.039
RMS of residuals L5 /m = 0.004

Iter 2 Large residuals L1= 4
Iter 2 Large residuals L2= 12
Iter 2 Large residuals L5= 4
Computed baseline L1 (X,Y,Z)/m = -0.083 -0.106 -0.060
RMS of residuals L1 /m = 0.004
Computed baseline L2 (X,Y,Z)/m = -0.055 -0.096 -0.036
RMS of residuals L2 /m = 0.005
Computed baseline L5 (X,Y,Z)/m = -0.053 -0.105 -0.039
RMS of residuals L5 /m = 0.004

New iteration of baseline
New apriori baseline (X,Y,Z)/m = -1.421 -0.187 1.387
14340 clock jitters computed out of 14341 intervals
AVE jitter /ps = 0.3 RMS jitter /ps = 0.2

Iter 3 Large residuals L1= 4
Iter 3 Large residuals L2= 11
Iter 3 Large residuals L5= 4
Computed baseline L1 (X,Y,Z)/m = -0.007 -0.034 -0.012
RMS of residuals L1 /m = 0.004
Computed baseline L2 (X,Y,Z)/m = 0.021 -0.024 0.011
RMS of residuals L2 /m = 0.005
Computed baseline L5 (X,Y,Z)/m = 0.026 -0.032 0.009
RMS of residuals L5 /m = 0.004

Iter 4 Large residuals L1= 4
Iter 4 Large residuals L2= 11

Iter 4 Large residuals L5= 4
Computed baseline L1 (X,Y,Z)/m = -0.007 -0.034 -0.012
RMS of residuals L1 /m = 0.004
Computed baseline L2 (X,Y,Z)/m = 0.021 -0.024 0.011
RMS of residuals L2 /m = 0.005
Computed baseline L5 (X,Y,Z)/m = 0.026 -0.032 0.009
RMS of residuals L5 /m = 0.004

Final baseline L1 (X,Y,Z)/m = -1.428 -0.220 1.374
Final baseline L2 (X,Y,Z)/m = -1.400 -0.211 1.398
Final baseline L5 (X,Y,Z)/m = -1.394 -0.219 1.396

COMPUTATION OF CODE DIFFERENCES

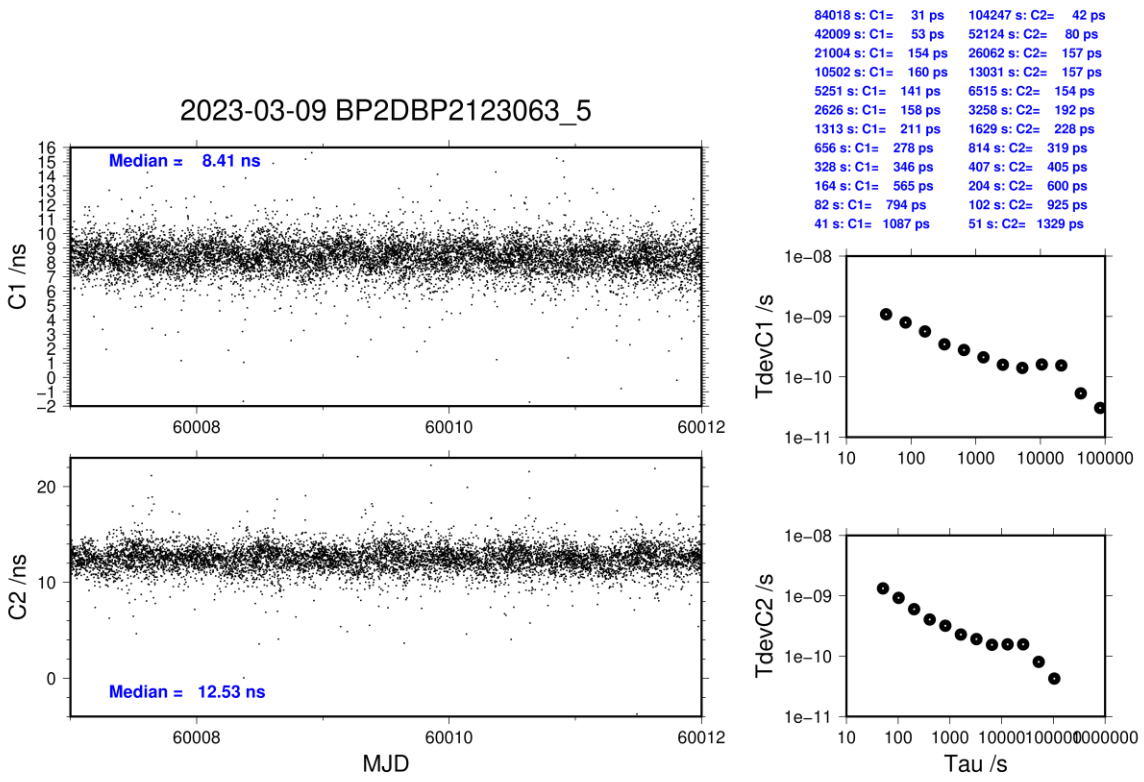
Total number of code differences = 397812

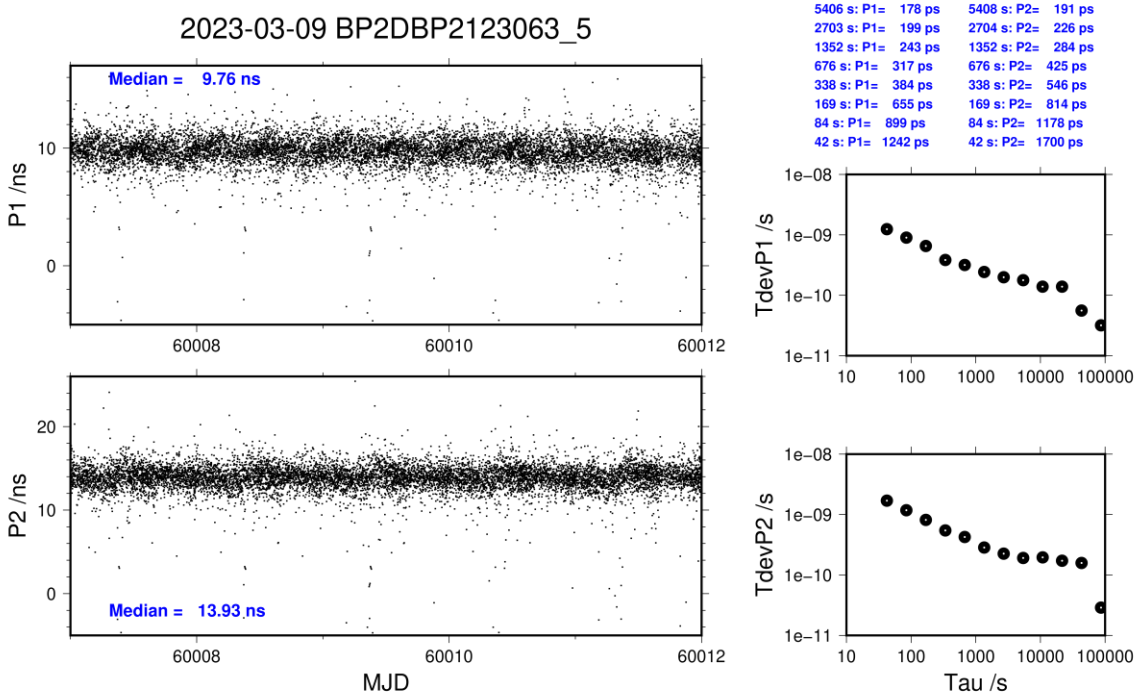
Global average of individual differences

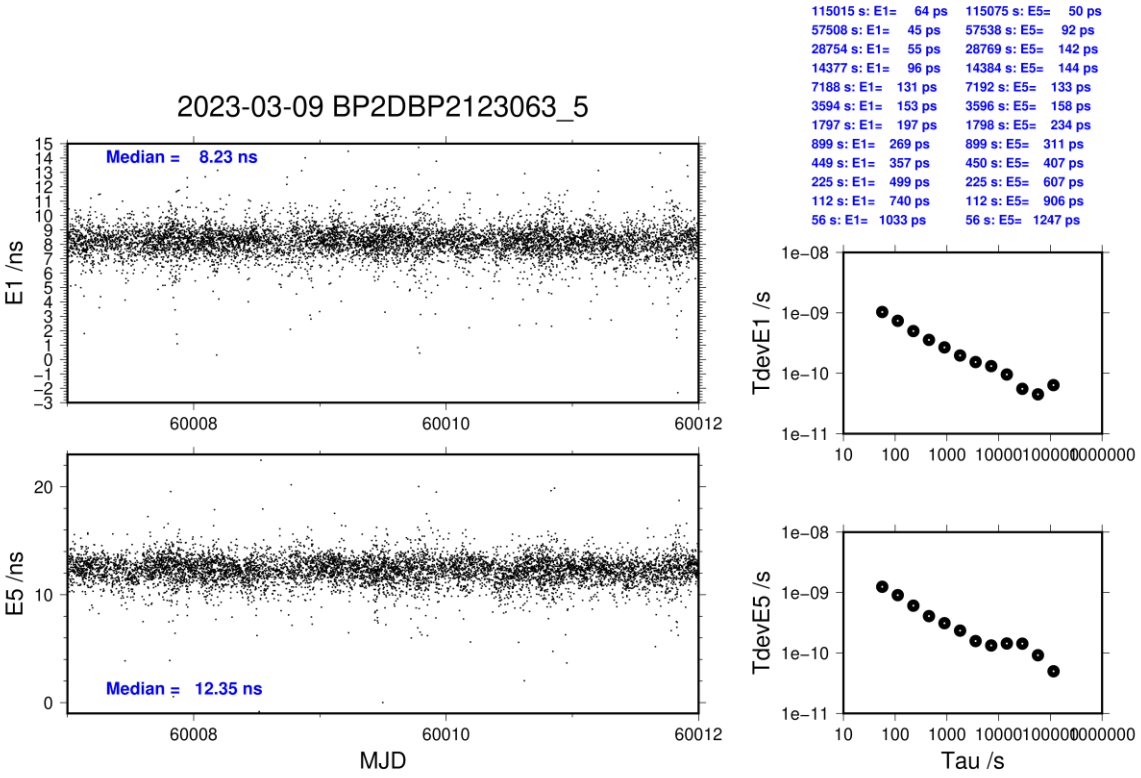
Code	#pts	ave/ns	rms/ns
C1	105267	8.401	2.176
C2	84789	12.504	2.243
P1	102992	9.676	2.208
P2	102973	13.786	2.823
E1	76932	8.213	1.899
E5	77037	12.314	1.957
BC	89219	7.656	2.276
B5	90682	11.957	2.213

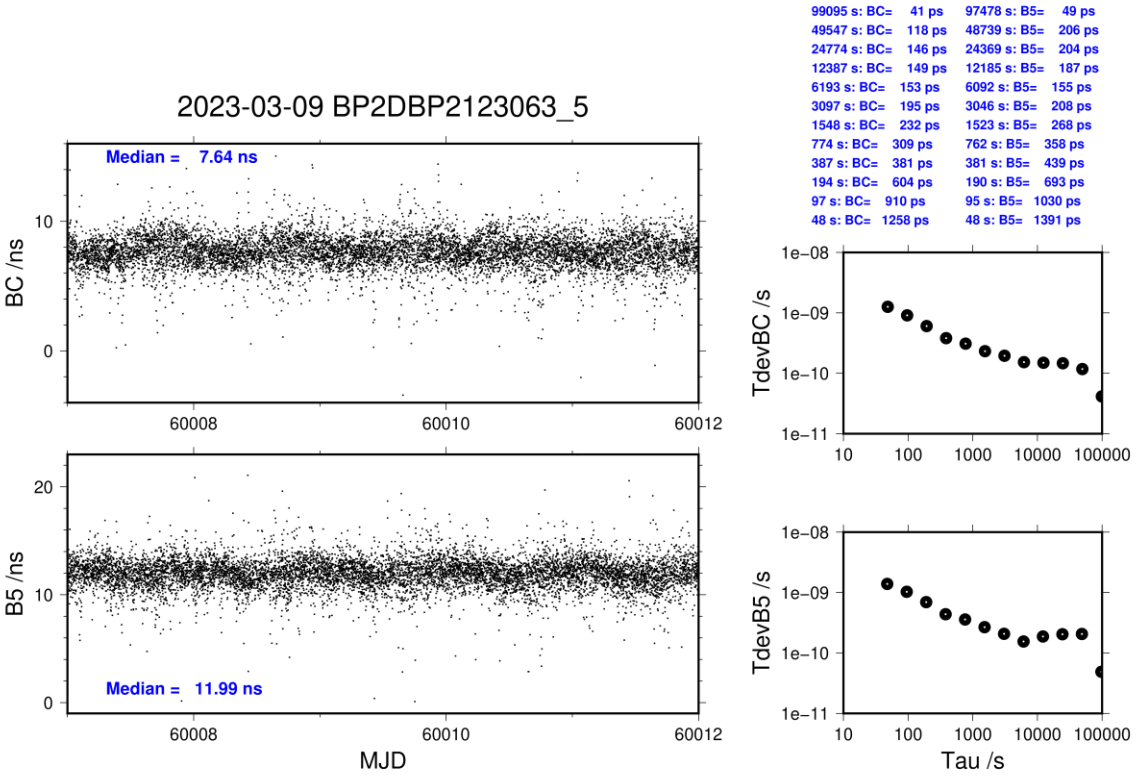
Number of 300s epochs in out file = 1440

Code	#pts	median/ns	ave/ns	rms/ns
C1	10524	8.415	8.401	1.118
C2	8482	12.531	12.493	1.304
P1	10222	9.761	9.720	1.273
P2	10219	13.933	13.841	1.683
E1	7688	8.234	8.199	1.042
E5	7684	12.346	12.284	1.260
BC	8923	7.645	7.637	1.269
B5	9071	11.989	11.941	1.432


2023-03-09 BP2DBP2123063_5
Median = 8.41 ns
Median = 12.53 ns
C1 /ns
C2 /ns
MJD
84018 s: C1= 31 ps
42009 s: C1= 53 ps
21004 s: C1= 154 ps
10502 s: C1= 160 ps
5251 s: C1= 141 ps
2626 s: C1= 158 ps
1313 s: C1= 211 ps
656 s: C1= 278 ps
328 s: C1= 346 ps
164 s: C1= 565 ps
82 s: C1= 794 ps
41 s: C1= 1087 ps
104247 s: C2= 42 ps
52124 s: C2= 80 ps
26062 s: C2= 157 ps
13031 s: C2= 157 ps
6515 s: C2= 154 ps
3258 s: C2= 192 ps
1629 s: C2= 228 ps
814 s: C2= 319 ps
407 s: C2= 405 ps
204 s: C2= 600 ps
102 s: C2= 925 ps
51 s: C2= 1329 ps
TdevC1 /s
TdevC2 /s
Tau /s


2023-03-09 BP2DBP2123063_5
Median = 9.76 ns
Median = 13.93 ns
P1 /ns
P2 /ns
MJD
86500 s: P1= 32 ps
43250 s: P1= 56 ps
21625 s: P1= 139 ps
10813 s: P1= 139 ps
5406 s: P1= 178 ps
2703 s: P1= 199 ps
1352 s: P1= 243 ps
676 s: P1= 317 ps
338 s: P1= 384 ps
169 s: P1= 655 ps
84 s: P1= 899 ps
42 s: P1= 1242 ps
86526 s: P2= 29 ps
43263 s: P2= 158 ps
21631 s: P2= 172 ps
10816 s: P2= 195 ps
5408 s: P2= 191 ps
2704 s: P2= 226 ps
1352 s: P2= 284 ps
676 s: P2= 425 ps
338 s: P2= 546 ps
169 s: P2= 814 ps
84 s: P2= 1178 ps
42 s: P2= 1700 ps
TdevP1 /s
TdevP2 /s
Tau /s


115015 s: E1= 64 ps
57508 s: E1= 45 ps
28754 s: E1= 55 ps
14377 s: E1= 96 ps
7188 s: E1= 131 ps
3594 s: E1= 153 ps
1797 s: E1= 197 ps
899 s: E1= 269 ps
449 s: E1= 357 ps
225 s: E1= 499 ps
112 s: E1= 740 ps
56 s: E1= 1033 ps
115075 s: E5= 50 ps
57538 s: E5= 92 ps
28769 s: E5= 142 ps
14384 s: E5= 144 ps
7192 s: E5= 133 ps
3596 s: E5= 158 ps
1798 s: E5= 234 ps
899 s: E5= 311 ps
450 s: E5= 407 ps
225 s: E5= 607 ps
112 s: E5= 906 ps
56 s: E5= 1247 ps
2023-03-09 BP2DBP2123063_5
Median = 8.23 ns
E1 /ns
Median = 12.35 ns
E5 /ns
MJD
TdevE1 /s
TdevE5 /s
Tau /s


99095 s: BC= 41 ps
49547 s: BC= 118 ps
24774 s: BC= 146 ps
12387 s: BC= 149 ps
6193 s: BC= 153 ps
3097 s: BC= 195 ps
1548 s: BC= 232 ps
774 s: BC= 309 ps
387 s: BC= 381 ps
194 s: BC= 604 ps
97 s: BC= 910 ps
48 s: BC= 1258 ps
97478 s: B5= 49 ps
48739 s: B5= 206 ps
24369 s: B5= 204 ps
12185 s: B5= 187 ps
6092 s: B5= 155 ps
3046 s: B5= 208 ps
1523 s: B5= 268 ps
762 s: B5= 358 ps
381 s: B5= 439 ps
190 s: B5= 693 ps
95 s: B5= 1030 ps
48 s: B5= 1391 ps
2023-03-09 BP2DBP2123063_5
Median = 7.64 ns
BC /ns
Median = 11.99 ns
B5 /ns
MJD
TdevBC /s
TdevB5 /s
Tau /s

BP2G-BP21

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 107262
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 19155 high elev obs : 7.753 7.231
Iteration 0: Obs used = 162809; Huge residuals = 144; Large residuals = 15093
Iteration 1: Obs used = 162861; Huge residuals = 0; Large residuals = 14897
Computed code bias (P1/P2)/m = 6.980 6.490
Computed baseline (X,Y,Z)/m = -3.126 0.087 3.774
RMS of residuals /m = 0.770

Number of phase differences to fit baseline
L1/L2 = 101819
L5 = 58237
A priori baseline (X,Y,Z)/m = -3.126 0.087 3.774
14339 clock jitters computed out of 14341 intervals
AVE jitter /ps = -1.5 RMS jitter /ps = 5.0

Iter 1 Large residuals L1= 4
Iter 1 Large residuals L2= 8
Iter 1 Large residuals L5= 4
Computed baseline L1 (X,Y,Z)/m = -0.526 -0.492 -0.428
RMS of residuals L1 /m = 0.004
Computed baseline L2 (X,Y,Z)/m = -0.518 -0.481 -0.424
RMS of residuals L2 /m = 0.005
Computed baseline L5 (X,Y,Z)/m = -0.545 -0.486 -0.426
RMS of residuals L5 /m = 0.003

Iter 2 Large residuals L1= 4
Iter 2 Large residuals L2= 8
Iter 2 Large residuals L5= 4
Computed baseline L1 (X,Y,Z)/m = -0.526 -0.492 -0.428
RMS of residuals L1 /m = 0.004
Computed baseline L2 (X,Y,Z)/m = -0.518 -0.481 -0.424
RMS of residuals L2 /m = 0.005
Computed baseline L5 (X,Y,Z)/m = -0.546 -0.487 -0.427
RMS of residuals L5 /m = 0.003

New iteration of baseline
New apriori baseline (X,Y,Z)/m = -3.648 -0.399 3.348
14339 clock jitters computed out of 14341 intervals
AVE jitter /ps = 1.0 RMS jitter /ps = 1.1

Iter 3 Large residuals L1= 4
Iter 3 Large residuals L2= 8
Iter 3 Large residuals L5= 4
Computed baseline L1 (X,Y,Z)/m = 0.009 -0.112 -0.012
RMS of residuals L1 /m = 0.004
Computed baseline L2 (X,Y,Z)/m = 0.018 -0.101 -0.008
RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = 0.001 -0.104 -0.011
RMS of residuals L5 /m = 0.003
WARNING Phase baseline L1 differs from a priori by > 10 cm

Final baseline L1 (X,Y,Z)/m = -3.638 -0.512 3.336
Final baseline L2 (X,Y,Z)/m = -3.630 -0.501 3.340
Final baseline L5 (X,Y,Z)/m = -3.647 -0.503 3.337

COMPUTATION OF CODE DIFFERENCES

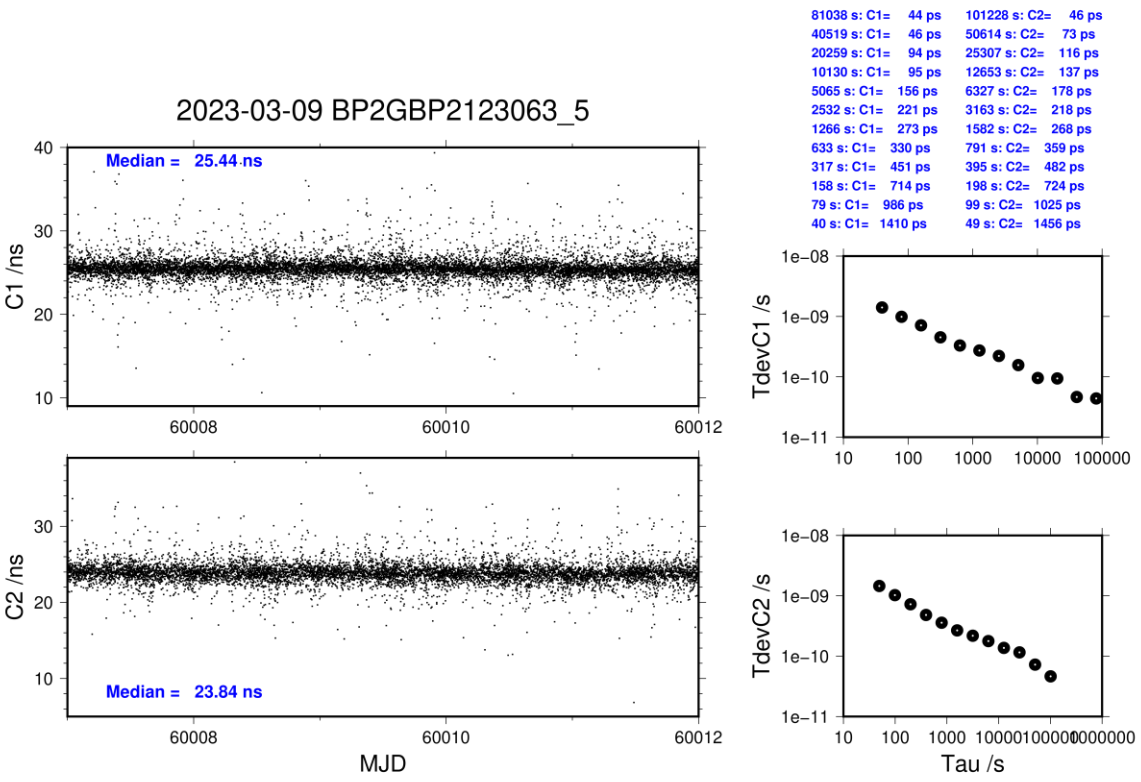
Total number of code differences = 421661

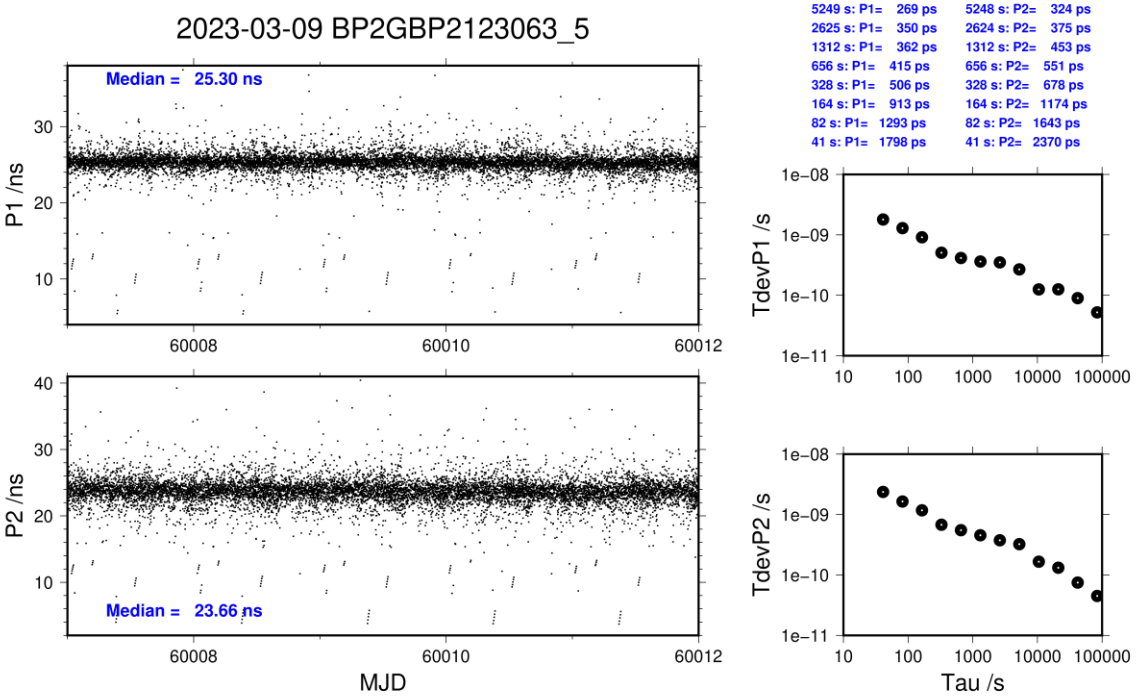
Global average of individual differences

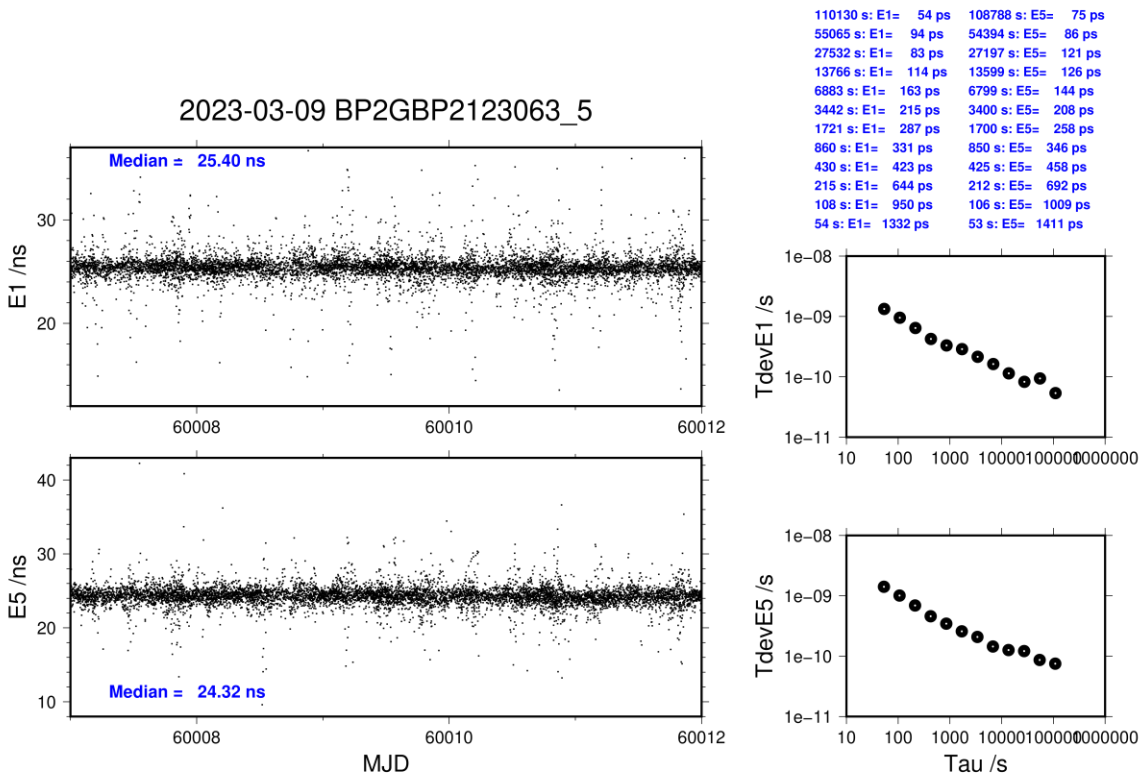
Code	#pts	ave/ns	rms/ns
C1	108935	25.499	2.874
C2	87179	23.864	2.722
P1	105310	25.201	2.752
P2	105363	23.517	3.581
E1	80246	25.415	2.529
E5	81156	24.307	2.450
BC	91198	25.332	2.597
B5	92275	24.355	2.414

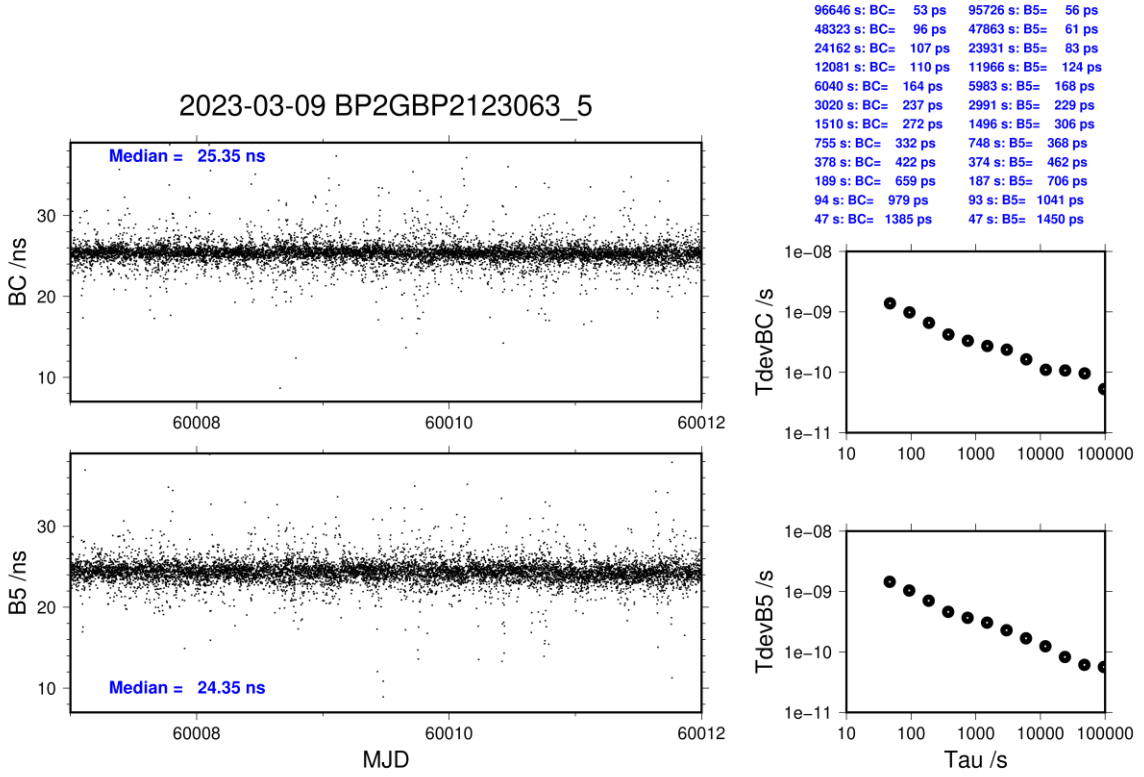
Number of 300s epochs in out file = 1440

Code	#pts	median/ns	ave/ns	rms/ns
C1	10911	25.444	25.495	1.406
C2	8735	23.839	23.869	1.461
P1	10528	25.301	25.204	1.808
P2	10530	23.659	23.527	2.339
E1	8029	25.400	25.413	1.337
E5	8128	24.317	24.298	1.416
BC	9149	25.347	25.334	1.378
B5	9237	24.349	24.354	1.460


2023-03-09 BP2GBP2123063_5
Median = 25.44 ns
Median = 23.84 ns
C1 /ns
C2 /ns
MJD
81038 s: C1= 44 ps
40519 s: C1= 46 ps
20259 s: C1= 94 ps
10130 s: C1= 95 ps
5065 s: C1= 156 ps
2532 s: C1= 221 ps
1266 s: C1= 273 ps
633 s: C1= 330 ps
317 s: C1= 451 ps
158 s: C1= 714 ps
79 s: C1= 986 ps
40 s: C1= 1410 ps
101228 s: C2= 46 ps
50614 s: C2= 73 ps
25307 s: C2= 116 ps
12653 s: C2= 137 ps
6327 s: C2= 178 ps
3163 s: C2= 218 ps
1582 s: C2= 268 ps
791 s: C2= 359 ps
395 s: C2= 482 ps
198 s: C2= 724 ps
99 s: C2= 1025 ps
49 s: C2= 1456 ps
TdevC1 /s
TdevC2 /s
Tau /s


2023-03-09 BP2GBP2123063_5
Median = 25.30 ns
Median = 23.66 ns
P1 /ns
P2 /ns
MJD
83986 s: P1= 52 ps
41993 s: P1= 90 ps
20997 s: P1= 125 ps
10498 s: P1= 125 ps
5249 s: P1= 269 ps
2625 s: P1= 350 ps
1312 s: P1= 362 ps
656 s: P1= 415 ps
328 s: P1= 506 ps
164 s: P1= 913 ps
82 s: P1= 1293 ps
41 s: P1= 1798 ps
83970 s: P2= 45 ps
41985 s: P2= 75 ps
20993 s: P2= 132 ps
10496 s: P2= 166 ps
5248 s: P2= 324 ps
2624 s: P2= 375 ps
1312 s: P2= 453 ps
656 s: P2= 551 ps
328 s: P2= 678 ps
164 s: P2= 1174 ps
82 s: P2= 1643 ps
41 s: P2= 2370 ps
TdevP1 /s
TdevP2 /s
Tau /s


2023-03-09 BP2GBP2123063_5
Median = 25.40 ns
Median = 24.32 ns
E1 /ns
E5 /ns
MJD
110130 s: E1= 54 ps
55065 s: E1= 94 ps
27532 s: E1= 83 ps
13766 s: E1= 114 ps
6883 s: E1= 163 ps
3442 s: E1= 215 ps
1721 s: E1= 287 ps
860 s: E1= 331 ps
430 s: E1= 423 ps
215 s: E1= 644 ps
108 s: E1= 950 ps
54 s: E1= 1332 ps
108788 s: E5= 75 ps
54394 s: E5= 86 ps
27197 s: E5= 121 ps
13599 s: E5= 126 ps
6799 s: E5= 144 ps
3400 s: E5= 208 ps
1700 s: E5= 258 ps
850 s: E5= 346 ps
425 s: E5= 458 ps
212 s: E5= 692 ps
106 s: E5= 1009 ps
53 s: E5= 1411 ps
TdevE1 /s
TdevE5 /s
Tau /s


2023-03-09 BP2GBP2123063_5
Median = 25.35 ns
Median = 24.35 ns
BC /ns
B5 /ns
MJD
96646 s: BC= 53 ps
48323 s: BC= 96 ps
24162 s: BC= 107 ps
12081 s: BC= 110 ps
6040 s: BC= 164 ps
3020 s: BC= 237 ps
1510 s: BC= 272 ps
755 s: BC= 332 ps
378 s: BC= 422 ps
189 s: BC= 659 ps
94 s: BC= 979 ps
47 s: BC= 1385 ps
95726 s: B5= 56 ps
47863 s: B5= 61 ps
23931 s: B5= 83 ps
11966 s: B5= 124 ps
5983 s: B5= 168 ps
2991 s: B5= 229 ps
1496 s: B5= 306 ps
748 s: B5= 368 ps
374 s: B5= 462 ps
187 s: B5= 706 ps
93 s: B5= 1041 ps
47 s: B5= 1450 ps
TdevBC /s
TdevB5 /s
Tau /s

2.2/ ROA (23075)

Period

MJD 60019 to 60032

Delays

BP2D: (cf page 4&23)
REFDLY = 330.93 ns (277.50+53.43)
CABDLY = 176.85 ns (C210)

BP2G: (cf page 5&23)
REFDLY = 331.05 ns (277.50+53.55)
CABDLY = 176.38 ns (C211)

RO_6: (cf page 17)
X_P = 292.60 ns
X_O = 192.50 ns
REFDLY = 485.10 ns
CABDLY = 82.00 ns (70.0+7.0+5.0)

RO_7: (cf page 18)
X_P = 305.60 ns
X_O = 146.80 ns
REFDLY = 452.40 ns
CABDLY = 89.90 ns (70.0+14.0+5.9)

RO_8: (cf page 19)
REFDLY = 20.40 ns
CABDLY = 197.10 ns

RO_9: (cf page 20)
REFDLY = 451.80 ns
CABDLY = 59.70 ns

RO10: (cf page 21)
REFDLY = 5.10 ns
CABDLY = 199.00 ns

Setup at the ROA

Annex A - Information Sheet

(to be repeated for each calibrated system)

Laboratory	ROA	
Date and hour beginning of measurements	16-03-2023, 12:00 UTC	
Date and hour end of measurements		
Information on the system		
	Local	**Traveling**
4-character BIPM code	RO_6	
Receiver maker and type Receiver serial number	Septentrio PolaRx3eTR 200805 v2.1	
1 PPS trigger level /V	1 V	
Antenna cable maker and type Phase stabilized cable (Y/N)	LDF1RK-50	
Cable length outside building /m	Approximately 18 m	
Antenna maker and type Antenna serial number	LEICA AR25 S/N 725233	
Temperature if stabilized /°C	N/A	
Measured delays / ns		
	Local	**Traveling**
Delay from local UTC(k) to receiver 1 PPS_IN	292.6	
Delay from 1 PPS_IN to internal reference (see Annex 1)	192.5	
Antenna cable delay	70.0	
Splitter delay	7.0	
Additional cable delay	5.0	
Data used for the generation of CGGTTS files		
	Local	
INT DLY (GPS) /ns	55.9 (C1), 54.3 (P1), 53.2 (P2)	
INT DLY (Galileo) /ns	N/A	
CAB DLY /ns	82.0	
REF DLY /ns	485.1	
Coordinate reference frame	ITRF14	
Latitude or X /m	5105581.87	
Longitude or Y /m	-555193.41	
Height or Z /m	3769704.66	
General information		
Rise time of local UTC pulse	< 1 ns	
Air conditioning (Y/N)	Y	
Set temperature value and uncertainty	(22 ± 2) °C	
Set humidity value and uncertainty	< 70 %	

Annex A - Information Sheet

(to be repeated for each calibrated system)

Laboratory	ROA	
Date and hour beginning of measurements	16-03-2023, 12:00 UTC	
Date and hour end of measurements		
Information on the system		
	Local	**Traveling**
4-character BIPM code	RO_7	
Receiver maker and type Receiver serial number	Septentrio PolaRx4TR PRO 3007633 v2.9.6	
1 PPS trigger level /V	1 V	
Antenna cable maker and type Phase stabilized cable (Y/N)	LDF1RK-50	
Cable length outside building /m	Approximately 18 m	
Antenna maker and type Antenna serial number	LEICA AR25 S/N 725233	
Temperature if stabilized /°C	N/A	
Measured delays / ns		
	Local	**Traveling**
Delay from local UTC(k) to receiver 1 PPS_IN	305.6	
Delay from 1 PPS_IN to internal reference (see Annex 1)	146.8	
Antenna cable delay	70.0	
Splitter delay	14.0	
Additional cable delay	5.9	
Data used for the generation of CGGTTS files		
	Local	
INT DLY (GPS) /ns	55.5 (C1), 54.3 (P1), 53.9 (P2)	
INT DLY (Galileo) /ns	55.1 (E1), 63.8 (E5a)	
CAB DLY /ns	89.9	
REF DLY /ns	452.4	
Coordinate reference frame	ITRF14	
Latitude or X /m	5105581.87	
Longitude or Y /m	-555193.41	
Height or Z /m	3769704.66	
General information		
Rise time of local UTC pulse	< 1 ns	
Air conditioning (Y/N)	Y	
Set temperature value and uncertainty	(22 ± 2) °C	
Set humidity value and uncertainty	< 70 %	

Annex A - Information Sheet

(to be repeated for each calibrated system)

Laboratory	**ROA**	
Date and hour beginning of measurements	16-03-2023, 12:00 UTC	
Date and hour end of measurements		
Information on the system		
	Local	**Traveling**
4-character BIPM code	RO_8	
Receiver maker and type Receiver serial number	MESIT GTR51 1509257 v1.9.4	
1 PPS trigger level /V	1 V	
Antenna cable maker and type Phase stabilized cable (Y/N)	LDF1RK-50	
Cable length outside building /m	Approximately 20 m	
Antenna maker and type Antenna serial number	ANTCOM G5Ant-72CA4T1 S/N 448359	
Temperature if stabilized /°C	N/A	
Measured delays / ns		
	Local	**Traveling**
Delay from local UTC(k) to receiver 1 PPS_IN	20.4	
Delay from 1 PPS_IN to internal reference (see Annex 1)	N/A	
Antenna cable delay	197.1	
Splitter delay		
Additional cable delay		
Data used for the generation of CGGTTS files		
	Local	
INT DLY (GPS) /ns	31.1 (C1), 29.2 (P1), 27.6 (P2)	
INT DLY (Galileo) /ns	32.5 (E1), 24.2 (E5a)	
CAB DLY /ns	197.1	
REF DLY /ns	20.4	
Coordinate reference frame	ITRF14	
Latitude or X /m	5105576.85	
Longitude or Y /m	-555197.14	
Height or Z /m	3769710.69	
General information		
Rise time of local UTC pulse	< 1 ns	
Air conditioning (Y/N)	Y	
Set temperature value and uncertainty	(22 ± 2) °C	
Set humidity value and uncertainty	< 70 %	

Annex A - Information Sheet

(to be repeated for each calibrated system)

Laboratory	ROA	
Date and hour beginning of measurements	16-03-2023, 12:00 UTC	
Date and hour end of measurements		
Information on the system		
	Local	**Traveling**
4-character BIPM code	RO_9	
Receiver maker and type Receiver serial number	Septentrio PolaRx4TR v2.9.2 3102314	
1 PPS trigger level /V	1 V	
Antenna cable maker and type Phase stabilized cable (Y/N)	LDF1RK-50	
Cable length outside building /m	Approximately 37 m	
Antenna maker and type Antenna serial number	LEICA AR25 S/N 725232	
Temperature if stabilized /°C	N/A	
Measured delays / ns		
	Local	**Traveling**
Delay from local UTC(k) to receiver 1 PPS_IN	451.8	
Delay from 1 PPS_IN to internal reference (see Annex 1)	N/A	
Antenna cable delay	59.7	
Splitter delay		
Additional cable delay		
Data used for the generation of CGGTTS files		
	Local	
INT DLY (GPS) /ns	56.3 ns C1, 54.9 ns P1, 54.0 ns P2	
INT DLY (Galileo) /ns	55.8 ns E1, 64.7 ns E5a	
CAB DLY /ns	59.7	
REF DLY /ns	451.8	
Coordinate reference frame	ITRF14	
Latitude or X /m	5105582.90	
Longitude or Y /m	-555191.22	
Height or Z /m	3769703.66	
General information		
Rise time of local UTC pulse	< 1 ns	
Air conditioning (Y/N)	Y	
Set temperature value and uncertainty	(22 ± 2) °C	
Set humidity value and uncertainty	< 70 %	

Annex A - Information Sheet

(to be repeated for each calibrated system)

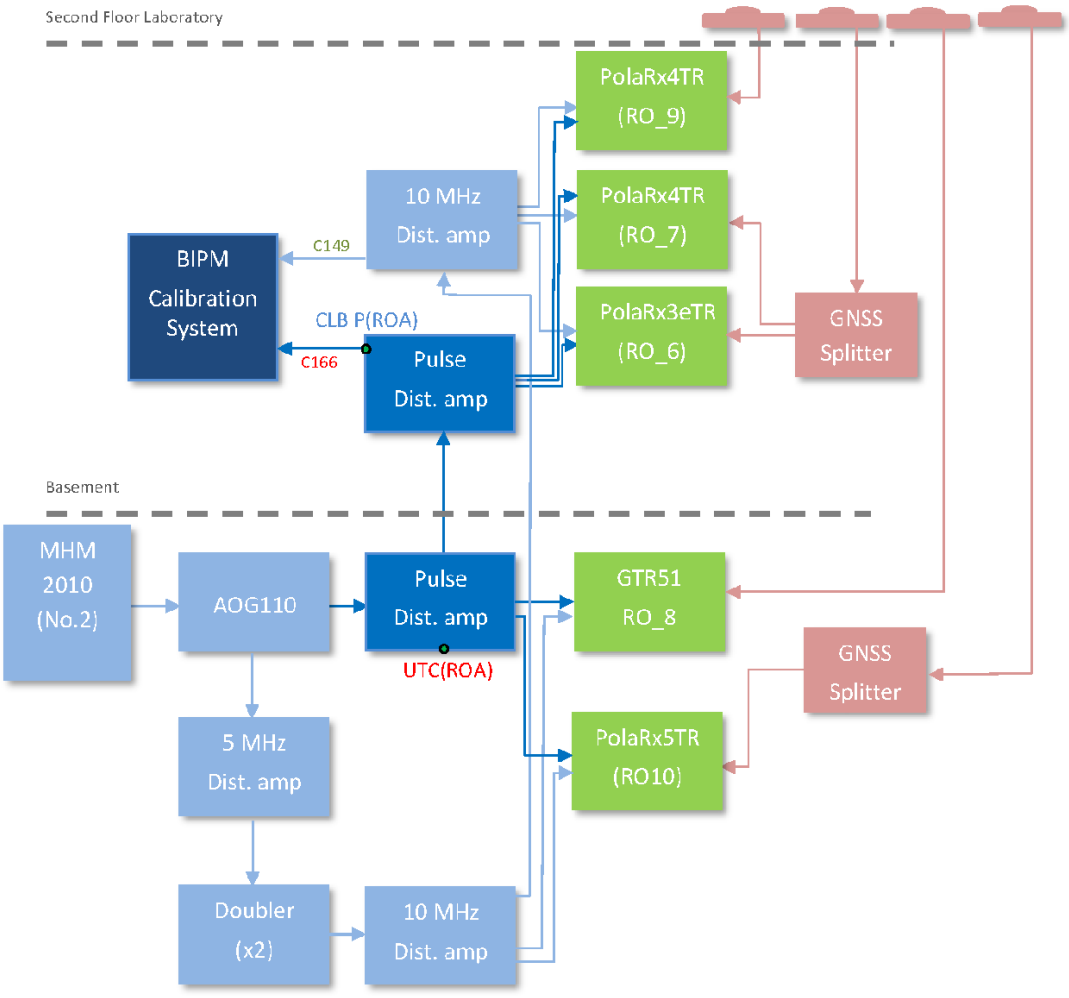
Laboratory	**ROA**	
Date and hour beginning of measurements	16-03-2023, 12:00 UTC	
Date and hour end of measurements		
Information on the system		
	Local	**Traveling**
4-character BIPM code	RO10	
Receiver maker and type Receiver serial number	Septentrio PolaRx5TR v5.3.2 4701187	
1 PPS trigger level /V	1 V	
Antenna cable maker and type Phase stabilized cable (Y/N)	LDF1RK-50	
Cable length outside building /m	Approximately 37 m	
Antenna maker and type Antenna serial number	LEICA AR25 S/N 726362	
Temperature if stabilized /°C	N/A	
Measured delays / ns		
	Local	**Traveling**
Delay from local UTC(k) to receiver 1 PPS_IN	5.1 Auto-compensation PPS IN: ON	
Delay from 1 PPS_IN to internal reference (see Annex 1)		
Antenna cable delay	199.0	
Splitter delay		
Additional cable delay		
Data used for the generation of CGGTTS files		
	Local	
INT DLY (GPS) /ns	29.9 ns C1, 28.2 ns P1, 25.7 ns P2	
INT DLY (Galileo) /ns	30.1 ns E1, 29.7 ns E5a	
CAB DLY /ns	199.0	
REF DLY /ns	5.1	
Coordinate reference frame	ITRF14	
Latitude or X /m	5105577.48	
Longitude or Y /m	-555208.94	
Height or Z /m	3769714.20	
General information		
Rise time of local UTC pulse	< 1 ns	
Air conditioning (Y/N)	Y	
Set temperature value and uncertainty	(22 ± 2) °C	
Set humidity value and uncertainty	< 70 %	

Diagram of the experiment set-up:

Setup of BIPM GNSS calibration system at ROA

Friday 17 March 2023

Setup



Log of Events / Additional Information :

Friday 17 March 2023

Delay Measurement, 13:30 UTC:

UTC(ROA) – CLB P(ROA) = (277.50± 0.01) ns

RO_6-BP2D

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 341724
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 48133 high elev obs : -61.758 -63.187
Iteration 0: Obs used = 592483; Huge residuals = 4; Large residuals = 335
Iteration 1: Obs used = 592483; Huge residuals = 0; Large residuals = 331
Computed code bias (P1/P2)/m = -61.846 -63.225
Computed baseline (X,Y,Z)/m = -2.130 3.267 2.854
RMS of residuals /m = 0.388

Number of phase differences to fit baseline
L1/L2 = 339874
L5 = 0
A priori baseline (X,Y,Z)/m = -2.130 3.267 2.854
38859 clock jitters computed out of 38859 intervals
AVE jitter /ps = 0.1 RMS jitter /ps = 4.5

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 0
Iter 1 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.156 -0.008 0.091
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.157 -0.008 0.090
RMS of residuals L2 /m = 0.003
No computed baseline L5, will use L1/L2

New iteration of baseline
New apriori baseline (X,Y,Z)/m = -1.973 3.259 2.945
38859 clock jitters computed out of 38859 intervals
AVE jitter /ps = -0.0 RMS jitter /ps = 0.2

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 0
Iter 2 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.005 0.003 0.003
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.006 0.003 0.002
RMS of residuals L2 /m = 0.003
No computed baseline L5, will use L1/L2

Final baseline L1 (X,Y,Z)/m = -1.968 3.262 2.948
Final baseline L2 (X,Y,Z)/m = -1.967 3.262 2.947
Final baseline L5 (X,Y,Z)/m = -1.967 3.262 2.947

COMPUTATION OF CODE DIFFERENCES

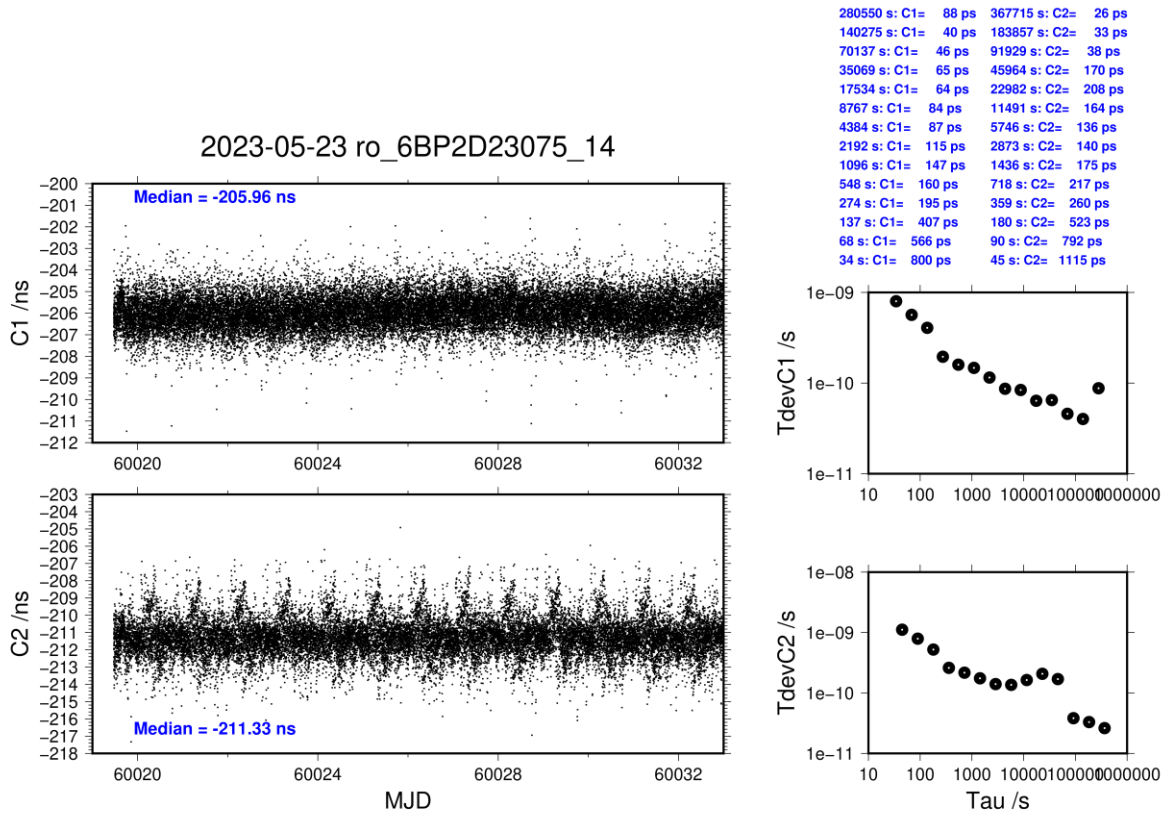
Total number of code differences = 600573

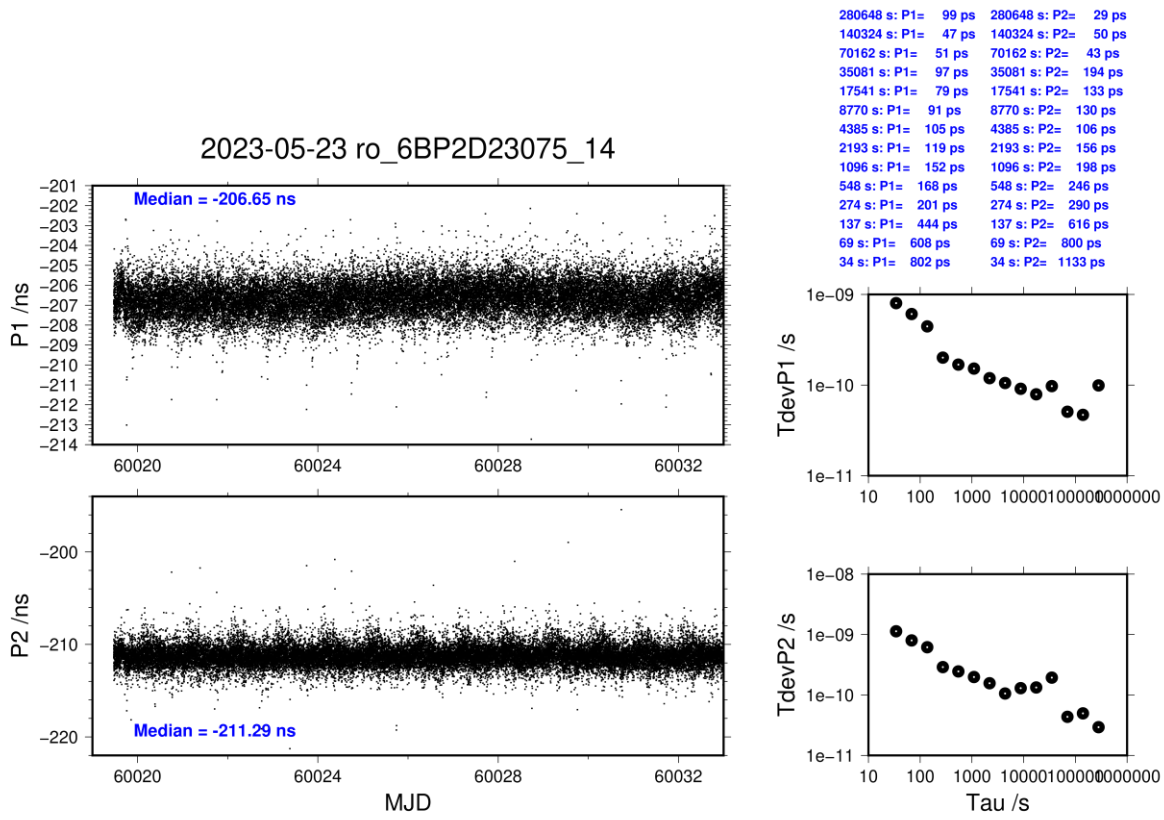
Global average of individual differences

Code	#pts	ave/ns	rms/ns
C1	341795	-205.947	1.062
C2	260841	-211.293	1.448
P1	341663	-206.649	1.103
P2	341655	-211.255	1.400

Number of 300s epochs in out file = 3895

Code	#pts	median/ns	ave/ns	rms/ns
C1	34121	-205.961	-205.945	0.793
C2	26033	-211.328	-211.288	1.101
P1	34109	-206.646	-206.646	0.833
P2	34109	-211.295	-211.252	1.138




2023-05-23 ro_6BP2D23075_14
Median = -206.65 ns
Median = -211.29 ns
P1 /ns
P2 /ns
MJD
280648 s: P1= 99 ps
140324 s: P1= 47 ps
70162 s: P1= 51 ps
35081 s: P1= 97 ps
17541 s: P1= 79 ps
8770 s: P1= 91 ps
4385 s: P1= 105 ps
2193 s: P1= 119 ps
1096 s: P1= 152 ps
548 s: P1= 168 ps
274 s: P1= 201 ps
137 s: P1= 444 ps
69 s: P1= 608 ps
34 s: P1= 802 ps
280648 s: P2= 29 ps
140324 s: P2= 50 ps
70162 s: P2= 43 ps
35081 s: P2= 194 ps
17541 s: P2= 133 ps
8770 s: P2= 130 ps
4385 s: P2= 106 ps
2193 s: P2= 156 ps
1096 s: P2= 198 ps
548 s: P2= 246 ps
274 s: P2= 290 ps
137 s: P2= 616 ps
69 s: P2= 800 ps
34 s: P2= 1133 ps
TdevP1 /s
TdevP2 /s
Tau /s

RO_6-BP2G

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 367705
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 48242 high elev obs : -66.351 -65.910
Iteration 0: Obs used = 641480; Huge residuals = 783; Large residuals = 3084
Iteration 1: Obs used = 641932; Huge residuals = 0; Large residuals = 1849
Computed code bias (P1/P2)/m = -66.445 -66.050
Computed baseline (X,Y,Z)/m = -1.723 4.065 2.566
RMS of residuals /m = 0.413

Number of phase differences to fit baseline
L1/L2 = 364360
L5 = 0
A priori baseline (X,Y,Z)/m = -1.723 4.065 2.566
38931 clock jitters computed out of 38933 intervals
AVE jitter /ps = 0.1 RMS jitter /ps = 3.6

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 1
Iter 1 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.164 -0.012 0.069
RMS of residuals L1 /m = 0.002
Computed baseline L2 (X,Y,Z)/m = 0.169 -0.009 0.072
RMS of residuals L2 /m = 0.003
No computed baseline L5, will use L1/L2

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 1
Iter 2 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.164 -0.012 0.069
RMS of residuals L1 /m = 0.002
Computed baseline L2 (X,Y,Z)/m = 0.169 -0.009 0.072
RMS of residuals L2 /m = 0.003
No computed baseline L5, will use L1/L2

New iteration of baseline
New apriori baseline (X,Y,Z)/m = -1.556 4.055 2.636
38931 clock jitters computed out of 38933 intervals
AVE jitter /ps = -0.0 RMS jitter /ps = 0.2

Iter 3 Large residuals L1= 0
Iter 3 Large residuals L2= 1
Iter 3 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.002 0.001 0.000
RMS of residuals L1 /m = 0.002
Computed baseline L2 (X,Y,Z)/m = 0.007 0.003 0.004
RMS of residuals L2 /m = 0.003

No computed baseline L5, will use L1/L2

Final baseline L1 (X,Y,Z)/m =	-1.554	4.056	2.636
Final baseline L2 (X,Y,Z)/m =	-1.550	4.058	2.640
Final baseline L5 (X,Y,Z)/m =	-1.552	4.057	2.638

COMPUTATION OF CODE DIFFERENCES

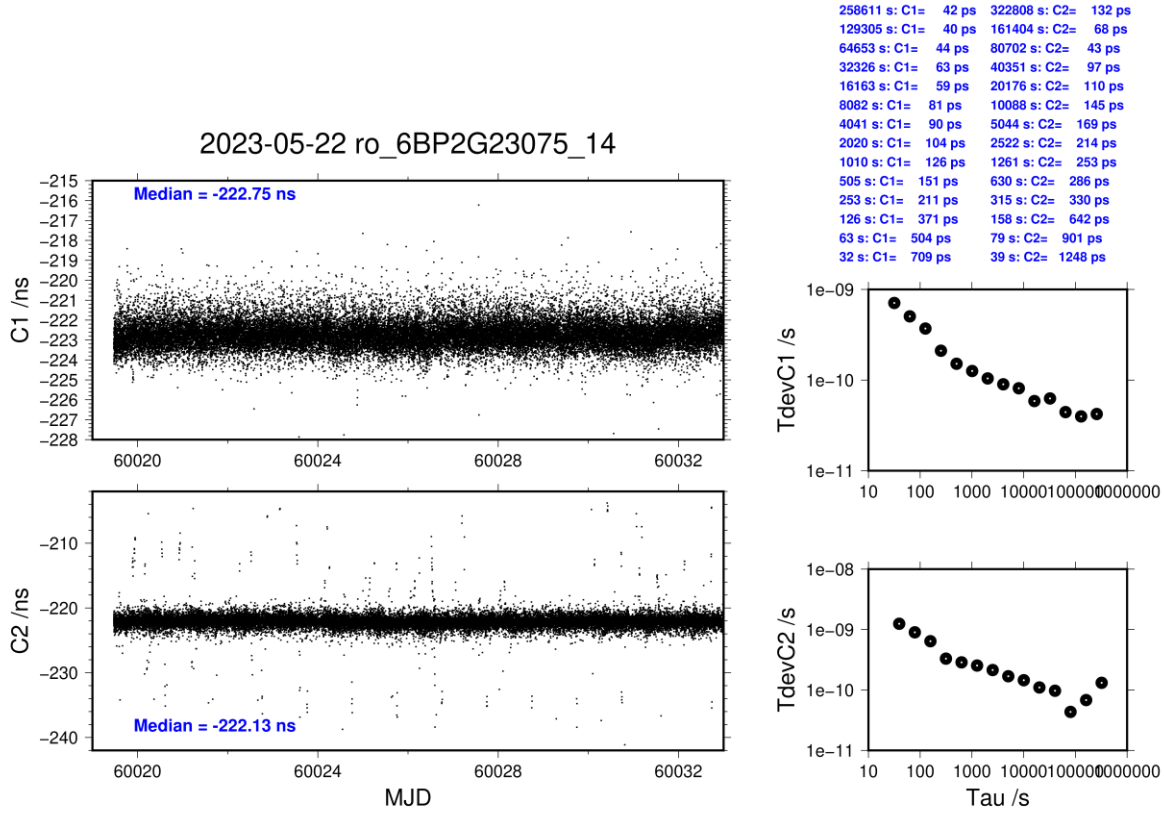
Total number of code differences = 664863

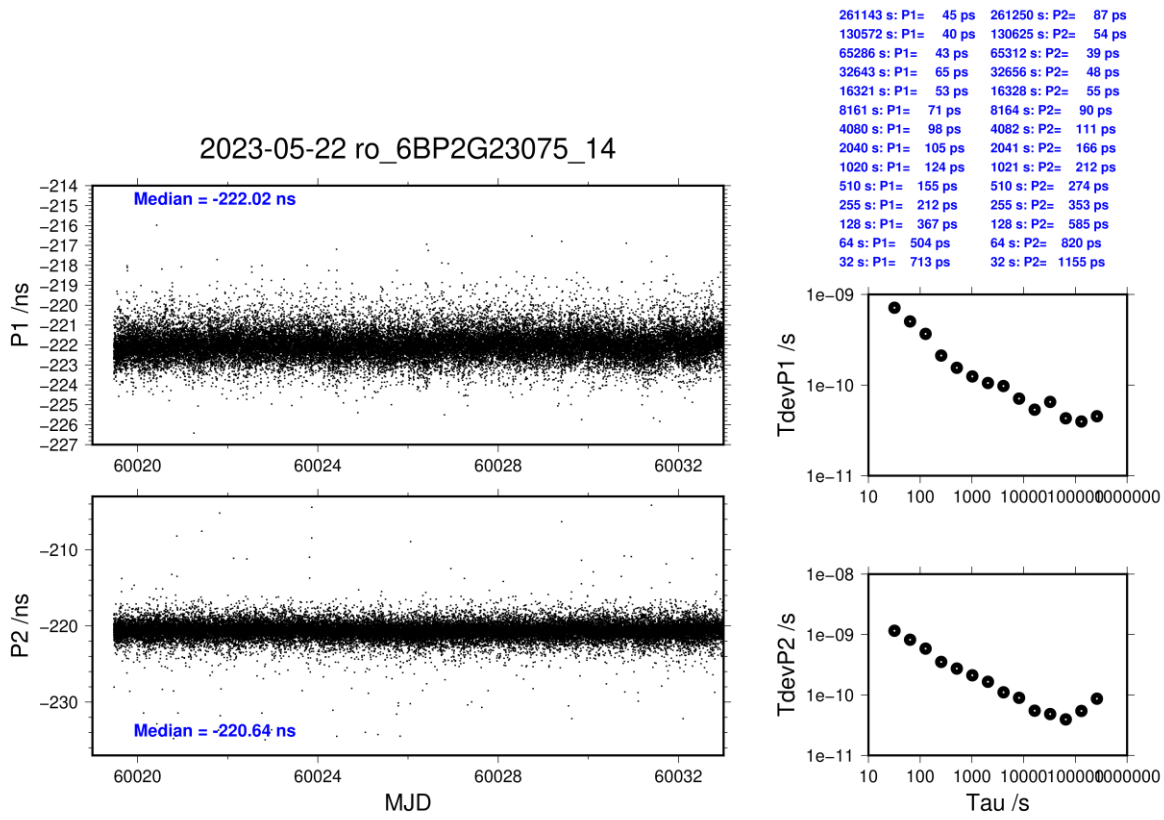
Global average of individual differences

Code	#pts	ave/ns	rms/ns
C1	370645	-222.696	1.216
C2	297506	-222.117	1.846
P1	367173	-221.979	1.186
P2	366999	-220.656	1.578

Number of 300s epochs in out file = 3897

Code	#pts	median/ns	ave/ns	rms/ns
C1	37025	-222.746	-222.693	0.713
C2	29662	-222.132	-222.114	1.259
P1	36666	-222.018	-221.975	0.715
P2	36651	-220.636	-220.649	1.151




2023-05-22 ro_6BP2G23075_14
Median = -222.02 ns
Median = -220.64 ns
P1 /ns
P2 /ns
MJD
261143 s: P1= 45 ps
130572 s: P1= 40 ps
65286 s: P1= 43 ps
32643 s: P1= 65 ps
16321 s: P1= 53 ps
8161 s: P1= 71 ps
4080 s: P1= 98 ps
2040 s: P1= 105 ps
1020 s: P1= 124 ps
510 s: P1= 155 ps
255 s: P1= 212 ps
128 s: P1= 367 ps
64 s: P1= 504 ps
32 s: P1= 713 ps
261250 s: P2= 87 ps
130625 s: P2= 54 ps
65312 s: P2= 39 ps
32656 s: P2= 48 ps
16328 s: P2= 55 ps
8164 s: P2= 90 ps
4082 s: P2= 111 ps
2041 s: P2= 166 ps
1021 s: P2= 212 ps
510 s: P2= 274 ps
255 s: P2= 353 ps
128 s: P2= 585 ps
64 s: P2= 820 ps
32 s: P2= 1155 ps
TdevP1 /s
TdevP2 /s
Tau /s

RO_7-BP2D

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 329907
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 48611 high elev obs : -49.588 -50.929
Iteration 0: Obs used = 568245; Huge residuals = 10; Large residuals = 45
Iteration 1: Obs used = 568245; Huge residuals = 0; Large residuals = 35
Computed code bias (P1/P2)/m = -49.705 -50.984
Computed baseline (X,Y,Z)/m = -2.110 3.262 2.851
RMS of residuals /m = 0.327

Number of phase differences to fit baseline
L1/L2 = 328251
L5 = 190503
A priori baseline (X,Y,Z)/m = -2.110 3.262 2.851
38859 clock jitters computed out of 38859 intervals
AVE jitter /ps = 0.1 RMS jitter /ps = 4.1

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 0
Iter 1 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.138 -0.007 0.096
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.139 -0.005 0.093
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = 0.137 -0.005 0.095
RMS of residuals L5 /m = 0.002

New iteration of baseline
New apriori baseline (X,Y,Z)/m = -1.972 3.257 2.946
38859 clock jitters computed out of 38859 intervals
AVE jitter /ps = -0.0 RMS jitter /ps = 0.2

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 0
Iter 2 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.004 0.002 0.003
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.005 0.003 0.001
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = 0.005 0.005 0.002
RMS of residuals L5 /m = 0.002

Final baseline L1 (X,Y,Z)/m = -1.968 3.258 2.949
Final baseline L2 (X,Y,Z)/m = -1.967 3.260 2.947
Final baseline L5 (X,Y,Z)/m = -1.967 3.262 2.947

COMPUTATION OF CODE DIFFERENCES

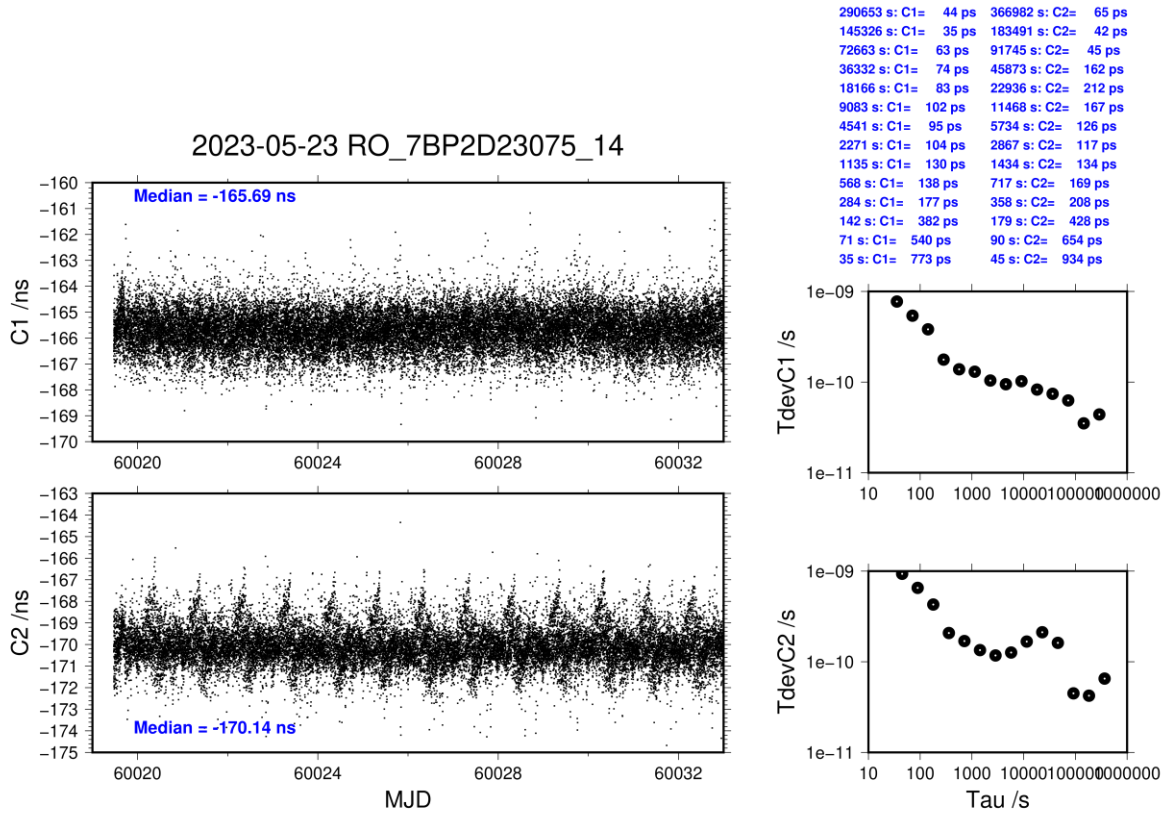
Total number of code differences = ******

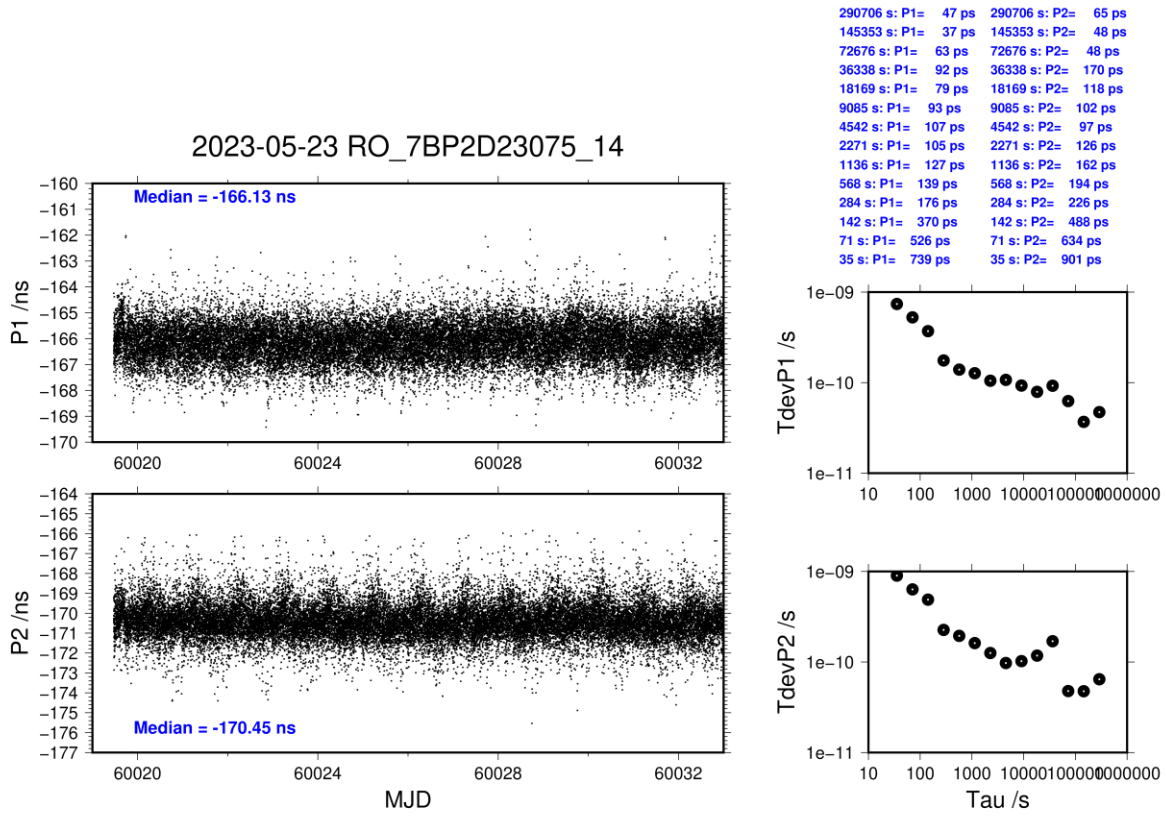
Global average of individual differences

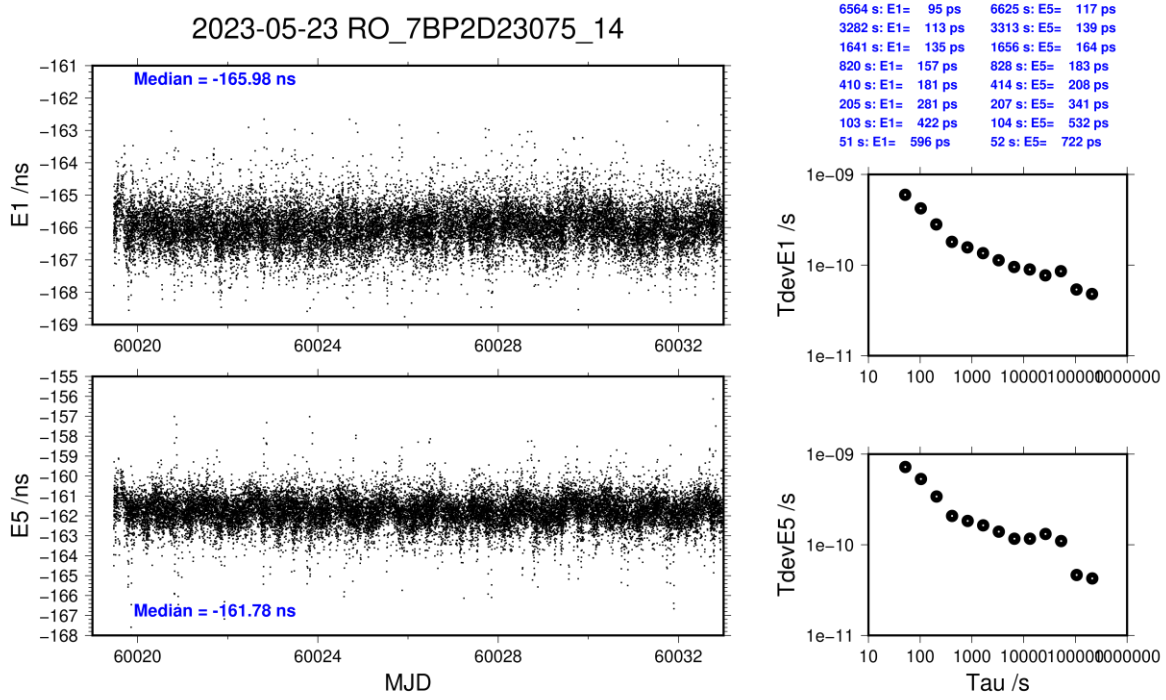
Code	#pts	ave/ns	rms/ns
C1	329920	-165.695	0.995
C2	261380	-170.078	1.209
P1	329849	-166.130	0.983
P2	329843	-170.399	1.107
E1	228120	-165.972	0.803
E5	225989	-161.789	0.849

Number of 300s epochs in out file = 3895

Code	#pts	median/ns	ave/ns	rms/ns
C1	32935	-165.691	-165.697	0.754
C2	26085	-170.140	-170.078	0.922
P1	32929	-166.133	-166.132	0.732
P2	32929	-170.453	-170.399	0.909
E1	22788	-165.982	-165.975	0.614
E5	22576	-161.778	-161.789	0.750




290706 s: P1= 47 ps
145353 s: P1= 37 ps
72676 s: P1= 63 ps
36338 s: P1= 92 ps
18169 s: P1= 79 ps
9085 s: P1= 93 ps
4542 s: P1= 107 ps
2271 s: P1= 105 ps
1136 s: P1= 127 ps
568 s: P1= 139 ps
284 s: P1= 176 ps
142 s: P1= 370 ps
71 s: P1= 526 ps
35 s: P1= 739 ps
290706 s: P2= 65 ps
145353 s: P2= 48 ps
72676 s: P2= 48 ps
36338 s: P2= 170 ps
18169 s: P2= 118 ps
9085 s: P2= 102 ps
4542 s: P2= 97 ps
2271 s: P2= 126 ps
1136 s: P2= 162 ps
568 s: P2= 194 ps
284 s: P2= 226 ps
142 s: P2= 488 ps
71 s: P2= 634 ps
35 s: P2= 901 ps
2023-05-23 RO_7BP2D23075_14
Median = -166.13 ns
Median = -170.45 ns
P1 /ns
P2 /ns
MJD
TdevP1 /s
TdevP2 /s
Tau /s


210040 s: E1= 48 ps
105020 s: E1= 54 ps
52510 s: E1= 86 ps
26255 s: E1= 77 ps
13127 s: E1= 89 ps
6564 s: E1= 95 ps
3282 s: E1= 113 ps
1641 s: E1= 135 ps
820 s: E1= 157 ps
410 s: E1= 181 ps
205 s: E1= 281 ps
103 s: E1= 422 ps
51 s: E1= 596 ps
212012 s: E5= 42 ps
106006 s: E5= 46 ps
53003 s: E5= 110 ps
26502 s: E5= 132 ps
13251 s: E5= 117 ps
6625 s: E5= 117 ps
3313 s: E5= 139 ps
1656 s: E5= 164 ps
828 s: E5= 183 ps
414 s: E5= 208 ps
207 s: E5= 341 ps
104 s: E5= 532 ps
52 s: E5= 722 ps
2023-05-23 RO_7BP2D23075_14
Median = -165.98 ns
Median = -161.78 ns
E1 /ns
E5 /ns
MJD
TdevE1 /s
TdevE5 /s
Tau /s

RO_7-BP2G

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 371768
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 48720 high elev obs : -54.166 -53.658
Iteration 0: Obs used = 648366; Huge residuals = 1620; Large residuals = 3430
Iteration 1: Obs used = 649220; Huge residuals = 0; Large residuals = 956
Computed code bias (P1/P2)/m = -54.306 -53.812
Computed baseline (X,Y,Z)/m = -1.701 4.060 2.568
RMS of residuals /m = 0.380

Number of phase differences to fit baseline
L1/L2 = 367907
L5 = 212765
A priori baseline (X,Y,Z)/m = -1.701 4.060 2.568
38932 clock jitters computed out of 38933 intervals
AVE jitter /ps = 0.0 RMS jitter /ps = 2.7

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 0
Iter 1 Large residuals L5= 8
Computed baseline L1 (X,Y,Z)/m = 0.147 -0.001 0.069
RMS of residuals L1 /m = 0.002
Computed baseline L2 (X,Y,Z)/m = 0.152 0.002 0.073
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = 0.160 -0.039 0.053
RMS of residuals L5 /m = 0.002

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 0
Iter 2 Large residuals L5= 8
Computed baseline L1 (X,Y,Z)/m = 0.147 -0.001 0.069
RMS of residuals L1 /m = 0.002
Computed baseline L2 (X,Y,Z)/m = 0.152 0.002 0.073
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = 0.160 -0.039 0.053
RMS of residuals L5 /m = 0.002

New iteration of baseline
New apriori baseline (X,Y,Z)/m = -1.552 4.061 2.639
38932 clock jitters computed out of 38933 intervals
AVE jitter /ps = -0.0 RMS jitter /ps = 0.2

Iter 3 Large residuals L1= 0
Iter 3 Large residuals L2= 0
Iter 3 Large residuals L5= 8
Computed baseline L1 (X,Y,Z)/m = 0.001 0.002 -0.000
RMS of residuals L1 /m = 0.002
Computed baseline L2 (X,Y,Z)/m = 0.006 0.004 0.003

RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = 0.015 -0.036 -0.017
RMS of residuals L5 /m = 0.002

Final baseline L1 (X,Y,Z)/m = -1.551 4.063 2.639
Final baseline L2 (X,Y,Z)/m = -1.546 4.065 2.643
Final baseline L5 (X,Y,Z)/m = -1.537 4.025 2.622

COMPUTATION OF CODE DIFFERENCES

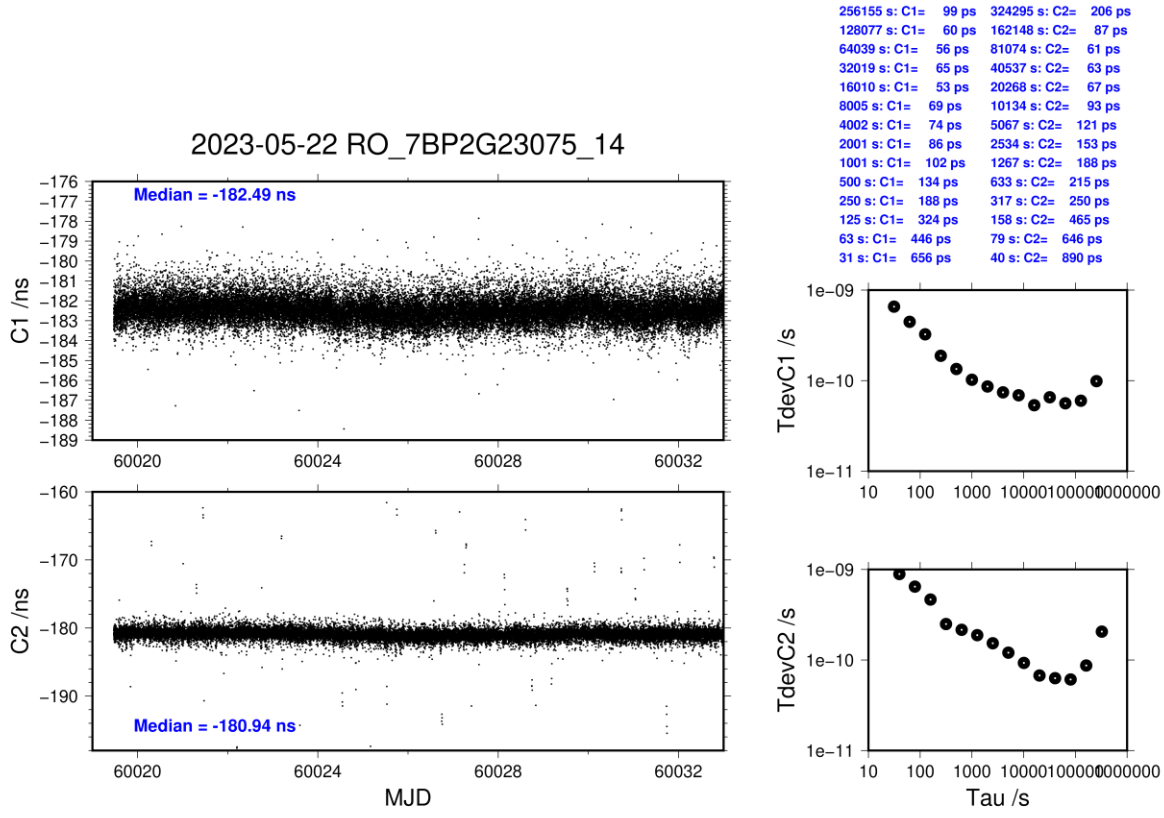
Total number of code differences = ******

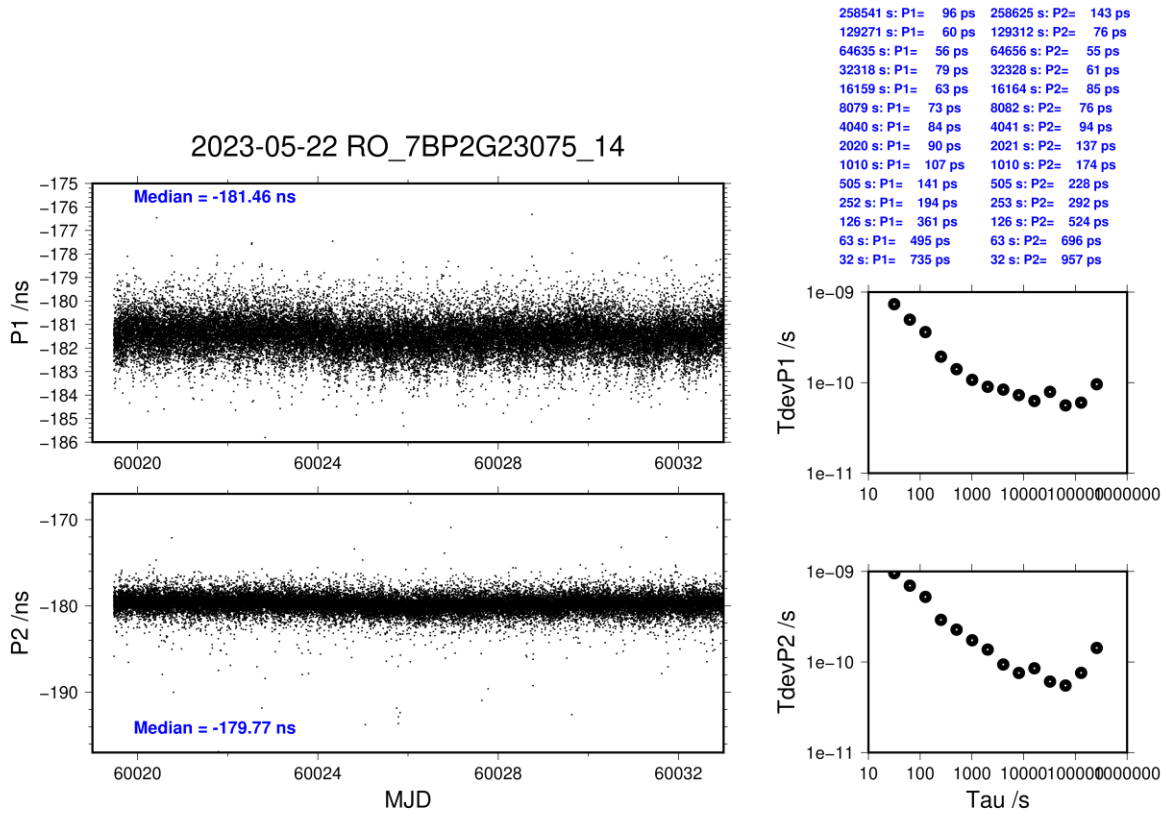
Global average of individual differences

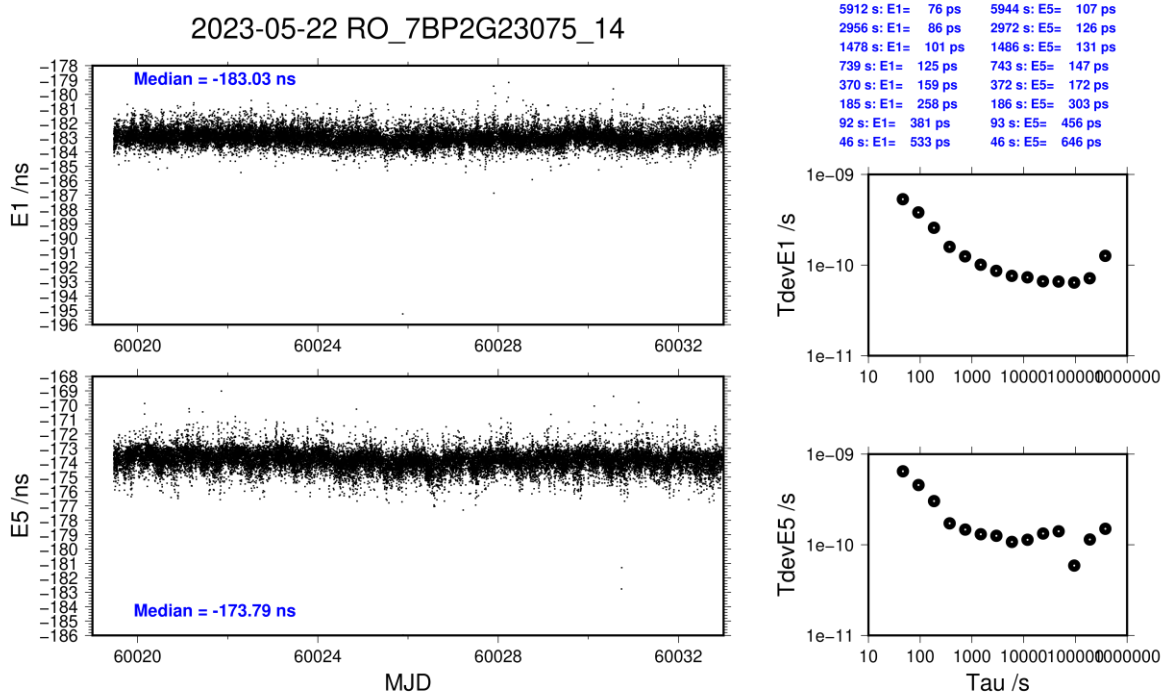
Code	#pts	ave/ns	rms/ns
C1	374105	-182.461	1.145
C2	295834	-180.927	1.478
P1	370817	-181.468	1.155
P2	370711	-179.805	1.343
E1	253241	-182.985	0.841
E5	251808	-173.821	0.835

Number of 300s epochs in out file = 3897

Code	#pts	median/ns	ave/ns	rms/ns
C1	37380	-182.490	-182.460	0.647
C2	29526	-180.940	-180.929	0.918
P1	37035	-181.464	-181.466	0.714
P2	37023	-179.774	-179.799	0.986
E1	25305	-183.025	-182.988	0.547
E5	25169	-173.789	-173.825	0.677




2023-05-22 RO_7BP2G23075_14
Median = -181.46 ns
Median = -179.77 ns
P1 /ns
P2 /ns
MJD
258541 s: P1= 96 ps
129271 s: P1= 60 ps
64635 s: P1= 56 ps
32318 s: P1= 79 ps
16159 s: P1= 63 ps
8079 s: P1= 73 ps
4040 s: P1= 84 ps
2020 s: P1= 90 ps
1010 s: P1= 107 ps
505 s: P1= 141 ps
252 s: P1= 194 ps
126 s: P1= 361 ps
63 s: P1= 495 ps
32 s: P1= 735 ps
258625 s: P2= 143 ps
129312 s: P2= 76 ps
64656 s: P2= 55 ps
32328 s: P2= 61 ps
16164 s: P2= 85 ps
8082 s: P2= 76 ps
4041 s: P2= 94 ps
2021 s: P2= 137 ps
1010 s: P2= 174 ps
505 s: P2= 228 ps
253 s: P2= 292 ps
126 s: P2= 524 ps
63 s: P2= 696 ps
32 s: P2= 957 ps
TdevP1 /s
TdevP2 /s
Tau /s


2023-05-22 RO_7BP2G23075_14
Median = -183.03 ns
Median = -173.79 ns
E1 /ns
E5 /ns
MJD
378391 s: E1= 126 ps
189196 s: E1= 72 ps
94598 s: E1= 64 ps
47299 s: E1= 66 ps
23649 s: E1= 66 ps
11825 s: E1= 73 ps
5912 s: E1= 76 ps
2956 s: E1= 86 ps
1478 s: E1= 101 ps
739 s: E1= 125 ps
370 s: E1= 159 ps
185 s: E1= 258 ps
92 s: E1= 381 ps
46 s: E1= 533 ps
380436 s: E5= 150 ps
190218 s: E5= 114 ps
95109 s: E5= 59 ps
47554 s: E5= 141 ps
23777 s: E5= 133 ps
11889 s: E5= 114 ps
5944 s: E5= 107 ps
2972 s: E5= 126 ps
1486 s: E5= 131 ps
743 s: E5= 147 ps
372 s: E5= 172 ps
186 s: E5= 303 ps
93 s: E5= 456 ps
46 s: E5= 646 ps
TdevE1 /s
TdevE5 /s
Tau /s

RO_8-BP2D

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 322312
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 48611 high elev obs : 103.781 102.143
Iteration 0: Obs used = 529507; Huge residuals = 28; Large residuals = 23593
Iteration 1: Obs used = 529514; Huge residuals = 0; Large residuals = 23558
Computed code bias (P1/P2)/m = 103.946 102.349
Computed baseline (X,Y,Z)/m = 3.288 6.793 -2.764
RMS of residuals /m = 0.517

Number of phase differences to fit baseline
L1/L2 = 320254
L5 = 189820
A priori baseline (X,Y,Z)/m = 3.288 6.793 -2.764
38859 clock jitters computed out of 38859 intervals
AVE jitter /ps = 0.7 RMS jitter /ps = 4.5

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 0
Iter 1 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = -0.288 0.124 -0.368
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = -0.297 0.123 -0.384
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = -0.308 0.140 -0.402
RMS of residuals L5 /m = 0.003

New iteration of baseline
New apriori baseline (X,Y,Z)/m = 2.996 6.916 -3.140
38859 clock jitters computed out of 38859 intervals
AVE jitter /ps = -0.4 RMS jitter /ps = 0.6

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 0
Iter 2 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = -0.002 0.049 -0.001
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = -0.010 0.049 -0.017
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = -0.026 0.060 -0.032
RMS of residuals L5 /m = 0.003

Final baseline L1 (X,Y,Z)/m = 2.995 6.966 -3.141
Final baseline L2 (X,Y,Z)/m = 2.986 6.965 -3.157
Final baseline L5 (X,Y,Z)/m = 2.970 6.976 -3.172

COMPUTATION OF CODE DIFFERENCES

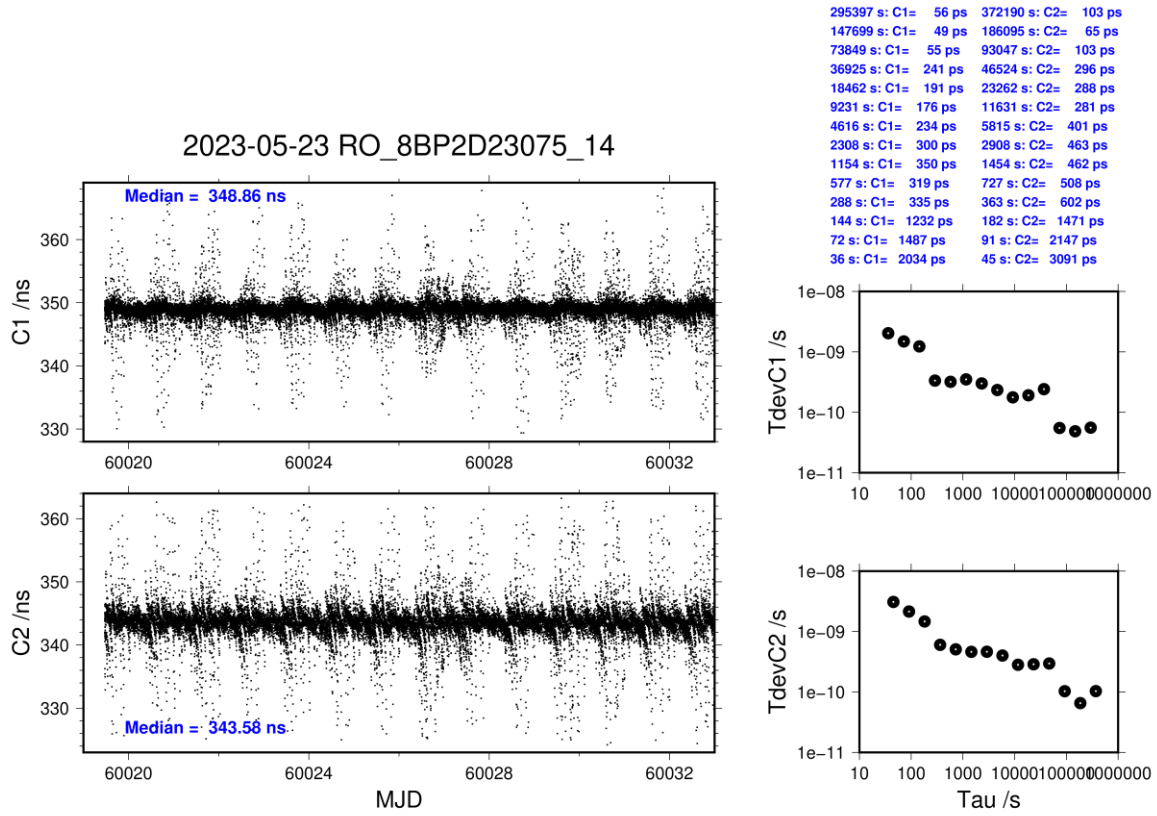
Total number of code differences = 835061

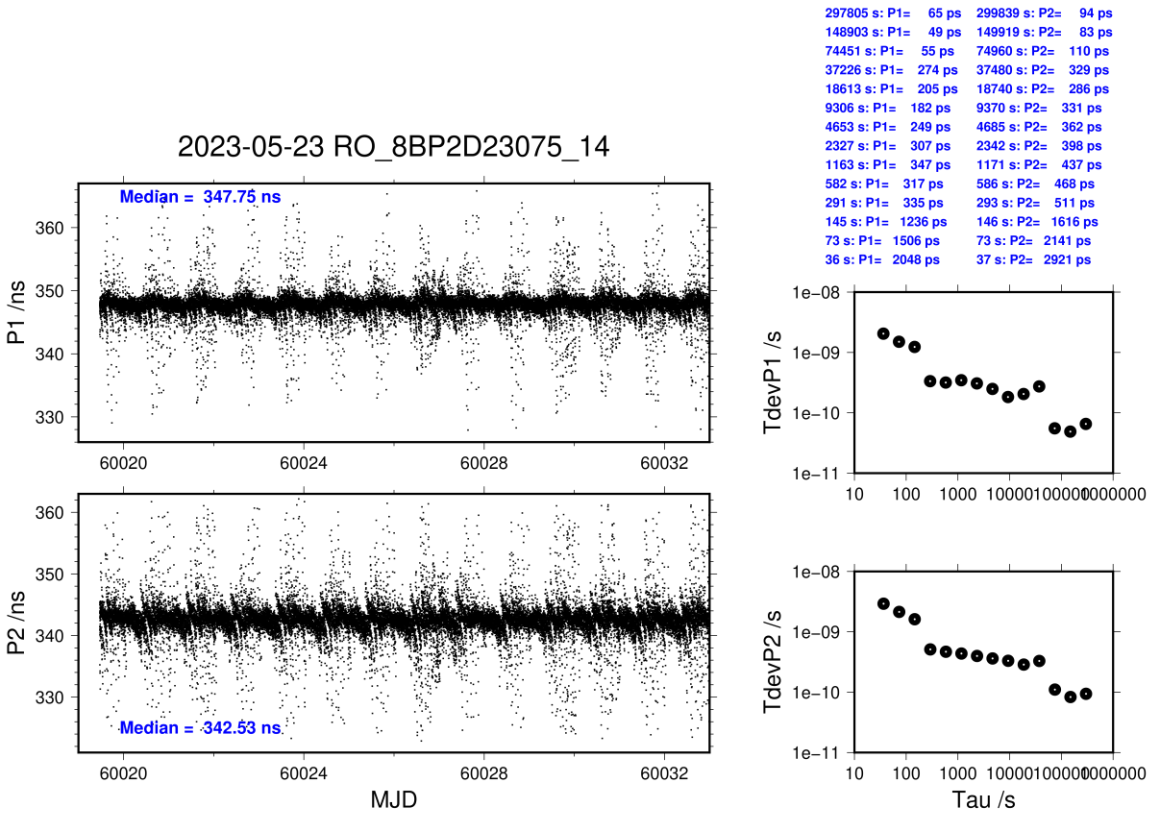
Global average of individual differences

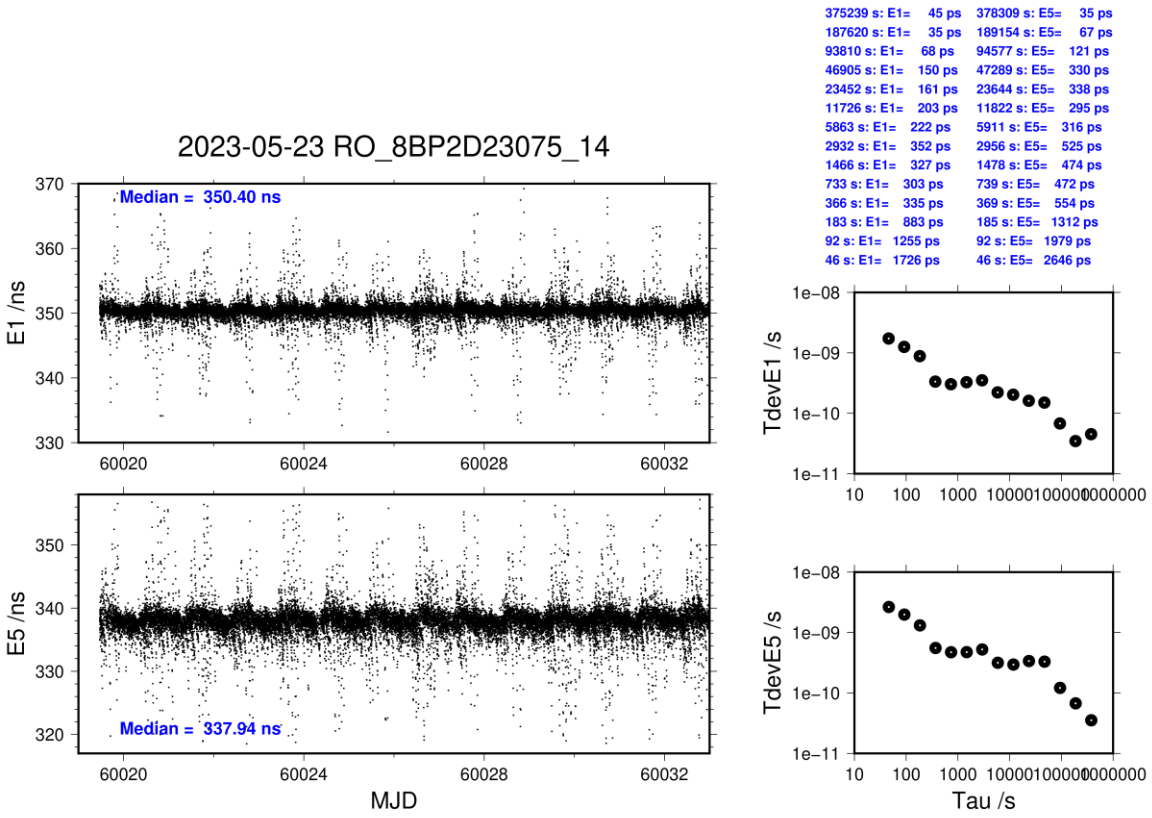
Code	#pts	ave/ns	rms/ns
C1	324715	348.802	2.113
C2	257978	343.546	3.051
P1	322071	347.686	2.144
P2	320273	342.435	3.014
E1	255371	350.369	1.766
E5	253457	337.810	2.739

Number of 300s epochs in out file = 3895

Code	#pts	median/ns	ave/ns	rms/ns
C1	32406	348.856	348.802	2.048
C2	25720	343.578	343.546	2.966
P1	32144	347.754	347.682	2.068
P2	31926	342.528	342.434	2.897
E1	25511	350.405	350.369	1.717
E5	25304	337.937	337.819	2.657




297805 s: P1= 65 ps
148903 s: P1= 49 ps
74451 s: P1= 55 ps
37226 s: P1= 274 ps
18613 s: P1= 205 ps
9306 s: P1= 182 ps
4653 s: P1= 249 ps
2327 s: P1= 307 ps
1163 s: P1= 347 ps
582 s: P1= 317 ps
291 s: P1= 335 ps
145 s: P1= 1236 ps
73 s: P1= 1506 ps
36 s: P1= 2048 ps
299839 s: P2= 94 ps
149919 s: P2= 83 ps
74960 s: P2= 110 ps
37480 s: P2= 329 ps
18740 s: P2= 286 ps
9370 s: P2= 331 ps
4685 s: P2= 362 ps
2342 s: P2= 398 ps
1171 s: P2= 437 ps
586 s: P2= 468 ps
293 s: P2= 511 ps
146 s: P2= 1616 ps
73 s: P2= 2141 ps
37 s: P2= 2921 ps
2023-05-23 RO_8BP2D23075_14
Median = 347.75 ns
Median = 342.53 ns
P1 /ns
P2 /ns
MJD
TdevP1 /s
TdevP2 /s
Tau /s


375239 s: E1= 45 ps
187620 s: E1= 35 ps
93810 s: E1= 68 ps
46905 s: E1= 150 ps
23452 s: E1= 161 ps
11726 s: E1= 203 ps
5863 s: E1= 222 ps
2932 s: E1= 352 ps
1466 s: E1= 327 ps
733 s: E1= 303 ps
366 s: E1= 335 ps
183 s: E1= 883 ps
92 s: E1= 1255 ps
46 s: E1= 1726 ps
378309 s: E5= 35 ps
189154 s: E5= 67 ps
94577 s: E5= 121 ps
47289 s: E5= 330 ps
23644 s: E5= 338 ps
11822 s: E5= 295 ps
5911 s: E5= 316 ps
2956 s: E5= 525 ps
1478 s: E5= 474 ps
739 s: E5= 472 ps
369 s: E5= 554 ps
185 s: E5= 1312 ps
92 s: E5= 1979 ps
46 s: E5= 2646 ps
2023-05-23 RO_8BP2D23075_14
Median = 350.40 ns
Median = 337.94 ns
E1 /ns
E5 /ns
MJD
TdevE1 /s
TdevE5 /s
Tau /s

RO_8-BP2G

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 323018
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 48720 high elev obs : 99.180 99.372
Iteration 0: Obs used = 526450; Huge residuals = 1; Large residuals = 27846
Iteration 1: Obs used = 526452; Huge residuals = 0; Large residuals = 27843
Computed code bias (P1/P2)/m = 99.362 99.552
Computed baseline (X,Y,Z)/m = 3.679 7.581 -3.079
RMS of residuals /m = 0.541

Number of phase differences to fit baseline
L1/L2 = 320844
L5 = 190147
A priori baseline (X,Y,Z)/m = 3.679 7.581 -3.079
38931 clock jitters computed out of 38933 intervals
AVE jitter /ps = 0.7 RMS jitter /ps = 3.2

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 0
Iter 1 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = -0.263 0.129 -0.362
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = -0.263 0.129 -0.370
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = -0.272 0.143 -0.387
RMS of residuals L5 /m = 0.003

New iteration of baseline
New apriori baseline (X,Y,Z)/m = 3.416 7.709 -3.445
38931 clock jitters computed out of 38933 intervals
AVE jitter /ps = -0.4 RMS jitter /ps = 0.6

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 0
Iter 2 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = -0.005 0.052 -0.005
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = -0.005 0.052 -0.013
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = -0.017 0.060 -0.028
RMS of residuals L5 /m = 0.003

Final baseline L1 (X,Y,Z)/m = 3.411 7.761 -3.450
Final baseline L2 (X,Y,Z)/m = 3.411 7.761 -3.457
Final baseline L5 (X,Y,Z)/m = 3.399 7.770 -3.472

COMPUTATION OF CODE DIFFERENCES

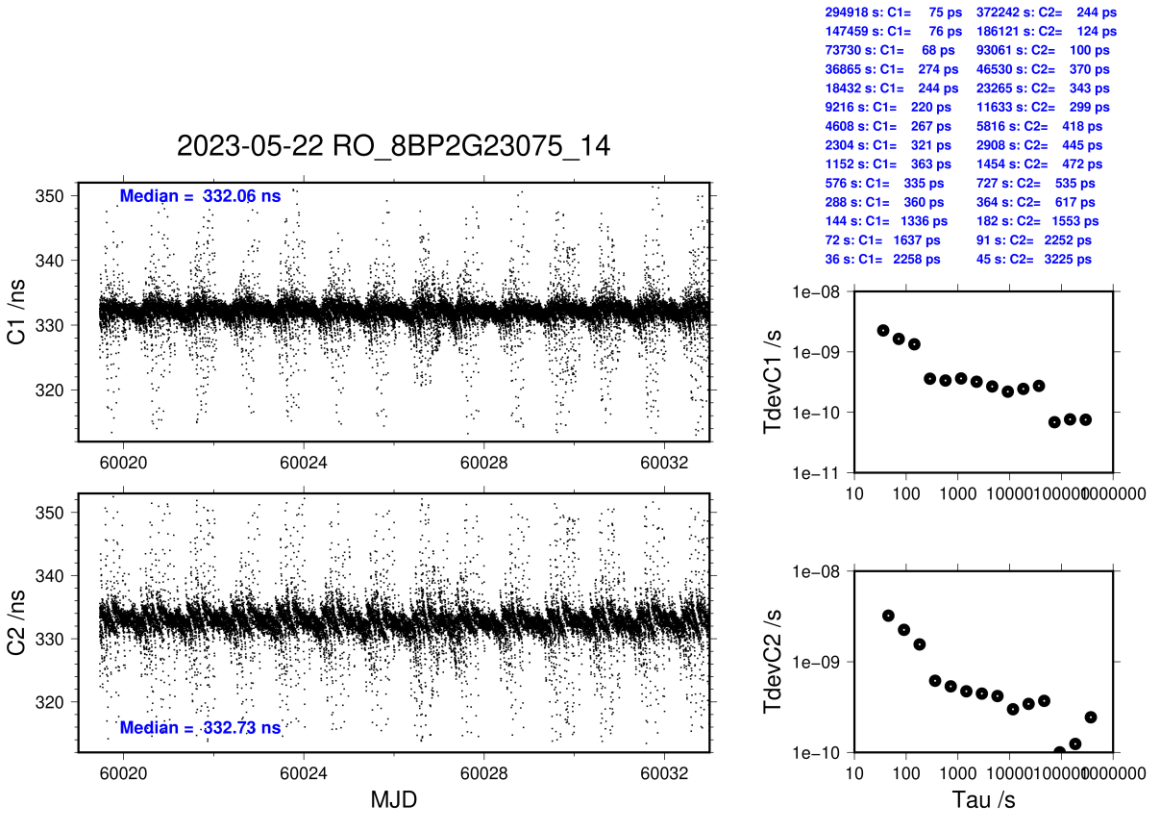
Total number of code differences = 833118

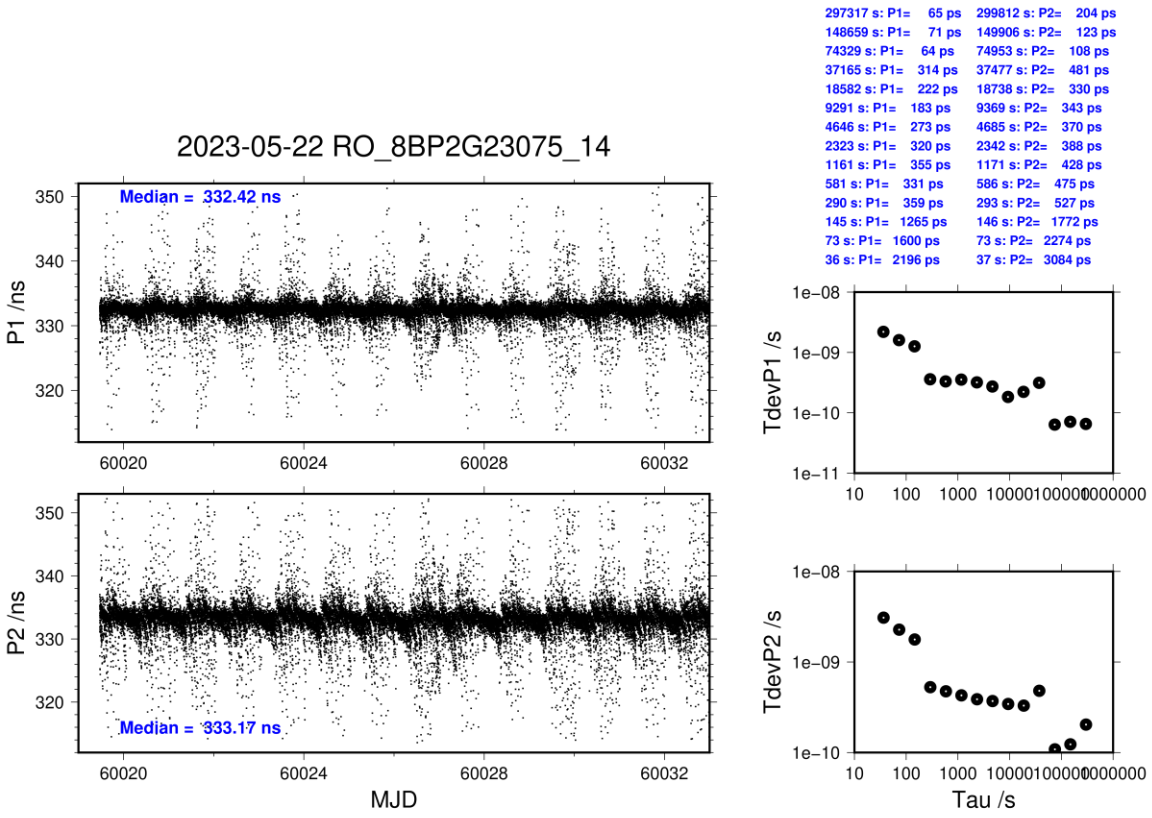
Global average of individual differences

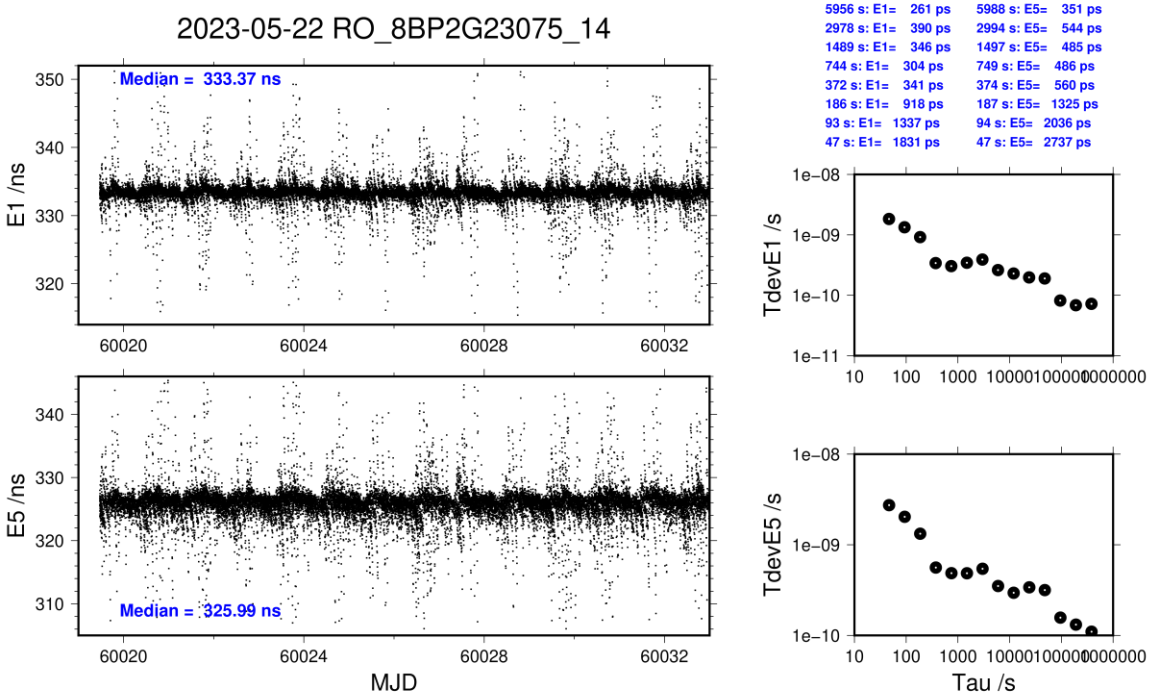
Code	#pts	ave/ns	rms/ns
C1	325162	332.014	2.337
C2	257916	332.692	3.225
P1	322548	332.332	2.291
P2	320245	333.033	3.220
E1	251372	333.339	1.881
E5	250146	325.752	2.804

Number of 300s epochs in out file = 3897

Code	#pts	median/ns	ave/ns	rms/ns
C1	32467	332.060	332.012	2.254
C2	25723	332.726	332.693	3.112
P1	32205	332.419	332.328	2.187
P2	31937	333.166	333.033	3.092
E1	25121	333.367	333.342	1.824
E5	24985	325.990	325.758	2.732




2023-05-22 RO_8BP2G23075_14
Median = 332.42 ns
Median = 333.17 ns
P1 /ns
P2 /ns
MJD
297317 s: P1= 65 ps
299812 s: P2= 204 ps
148659 s: P1= 71 ps
149906 s: P2= 123 ps
74329 s: P1= 64 ps
74953 s: P2= 108 ps
37165 s: P1= 314 ps
37477 s: P2= 481 ps
18582 s: P1= 222 ps
18738 s: P2= 330 ps
9291 s: P1= 183 ps
9369 s: P2= 343 ps
4646 s: P1= 273 ps
4685 s: P2= 370 ps
2323 s: P1= 320 ps
2342 s: P2= 388 ps
1161 s: P1= 355 ps
1171 s: P2= 428 ps
581 s: P1= 331 ps
586 s: P2= 475 ps
290 s: P1= 359 ps
293 s: P2= 527 ps
145 s: P1= 1265 ps
146 s: P2= 1772 ps
73 s: P1= 1600 ps
73 s: P2= 2274 ps
36 s: P1= 2196 ps
37 s: P2= 3084 ps
TdevP1 /s
TdevP2 /s
Tau /s


2023-05-22 RO_8BP2G23075_14
Median = 333.37 ns
Median = 325.99 ns
E1 /ns
E5 /ns
MJD
381163 s: E1= 72 ps
383238 s: E5= 110 ps
190581 s: E1= 68 ps
191619 s: E5= 131 ps
95291 s: E1= 82 ps
95809 s: E5= 157 ps
47645 s: E1= 190 ps
47905 s: E5= 316 ps
23823 s: E1= 197 ps
23952 s: E5= 339 ps
11911 s: E1= 229 ps
11976 s: E5= 296 ps
5956 s: E1= 261 ps
5988 s: E5= 351 ps
2978 s: E1= 390 ps
2994 s: E5= 544 ps
1489 s: E1= 346 ps
1497 s: E5= 485 ps
744 s: E1= 304 ps
749 s: E5= 486 ps
372 s: E1= 341 ps
374 s: E5= 560 ps
186 s: E1= 918 ps
187 s: E5= 1325 ps
93 s: E1= 1337 ps
94 s: E5= 2036 ps
47 s: E1= 1831 ps
47 s: E5= 2737 ps
TdevE1 /s
TdevE5 /s
Tau /s

RO_9-BP2D

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 329907
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 48611 high elev obs : -58.236 -59.545
Iteration 0: Obs used = 568249; Huge residuals = 8; Large residuals = 41
Iteration 1: Obs used = 568250; Huge residuals = 0; Large residuals = 32
Computed code bias (P1/P2)/m = -58.449 -59.707
Computed baseline (X,Y,Z)/m = -3.148 1.023 3.772
RMS of residuals /m = 0.320

Number of phase differences to fit baseline
L1/L2 = 328242
L5 = 189539
A priori baseline (X,Y,Z)/m = -3.148 1.023 3.772
38859 clock jitters computed out of 38859 intervals
AVE jitter /ps = 0.1 RMS jitter /ps = 4.1

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 0
Iter 1 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.197 -0.014 0.150
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.196 -0.013 0.145
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = 0.193 -0.015 0.146
RMS of residuals L5 /m = 0.002

New iteration of baseline
New apriori baseline (X,Y,Z)/m = -2.951 1.009 3.919
38859 clock jitters computed out of 38859 intervals
AVE jitter /ps = -0.0 RMS jitter /ps = 0.3

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 0
Iter 2 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.007 0.001 0.006
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.006 0.001 0.001
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = 0.005 0.002 0.001
RMS of residuals L5 /m = 0.002

Final baseline L1 (X,Y,Z)/m = -2.944 1.010 3.925
Final baseline L2 (X,Y,Z)/m = -2.945 1.010 3.920
Final baseline L5 (X,Y,Z)/m = -2.946 1.012 3.920

COMPUTATION OF CODE DIFFERENCES

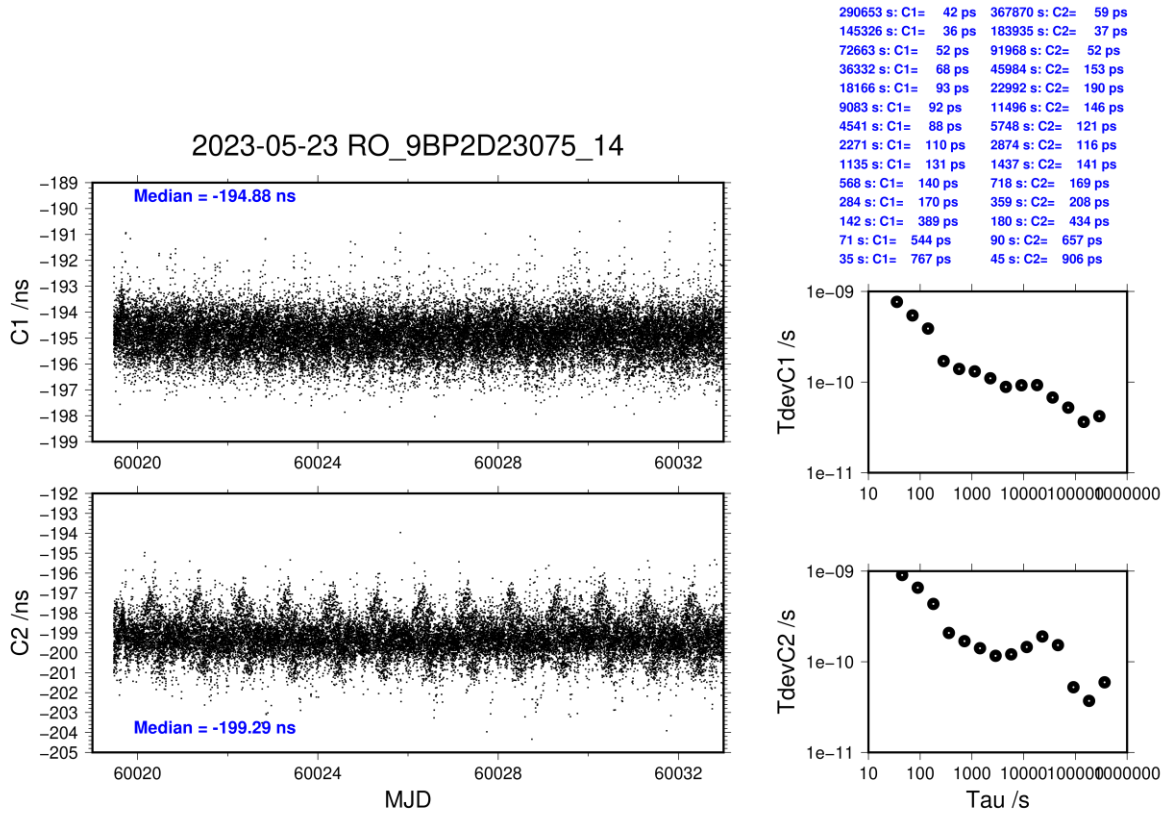
Total number of code differences = ******

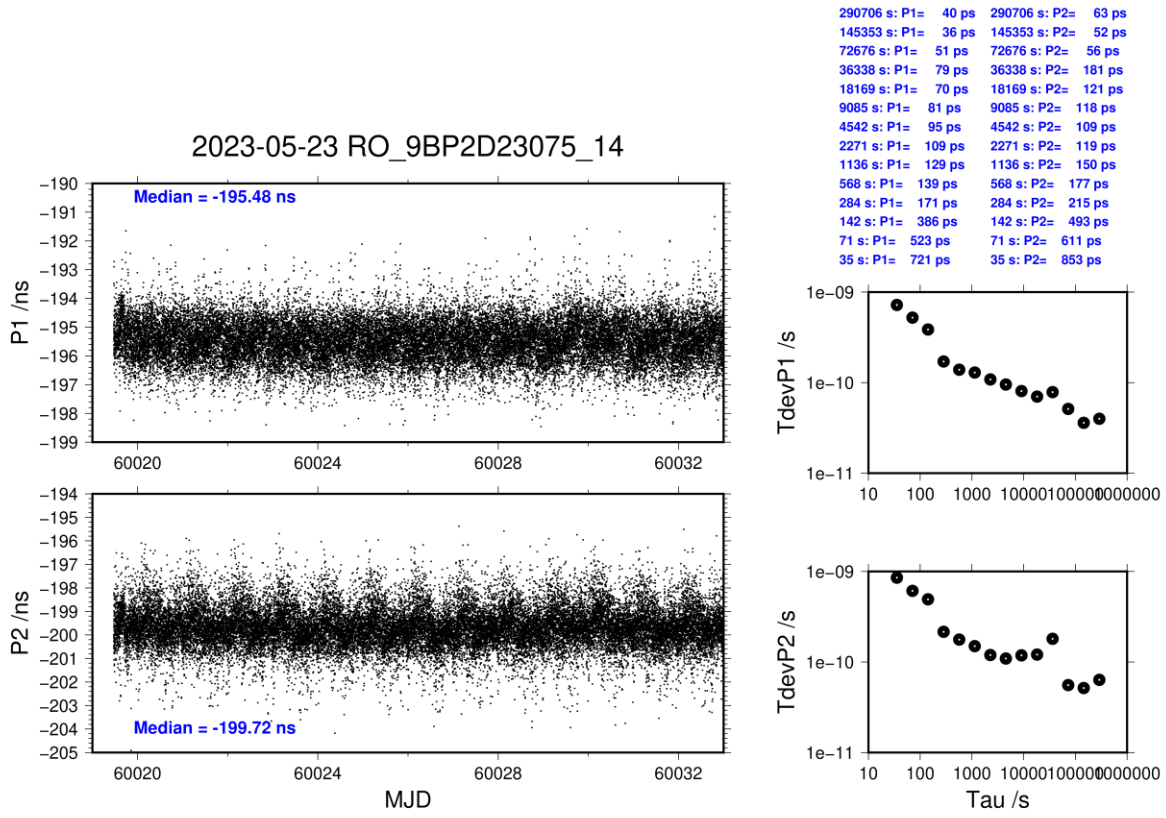
Global average of individual differences

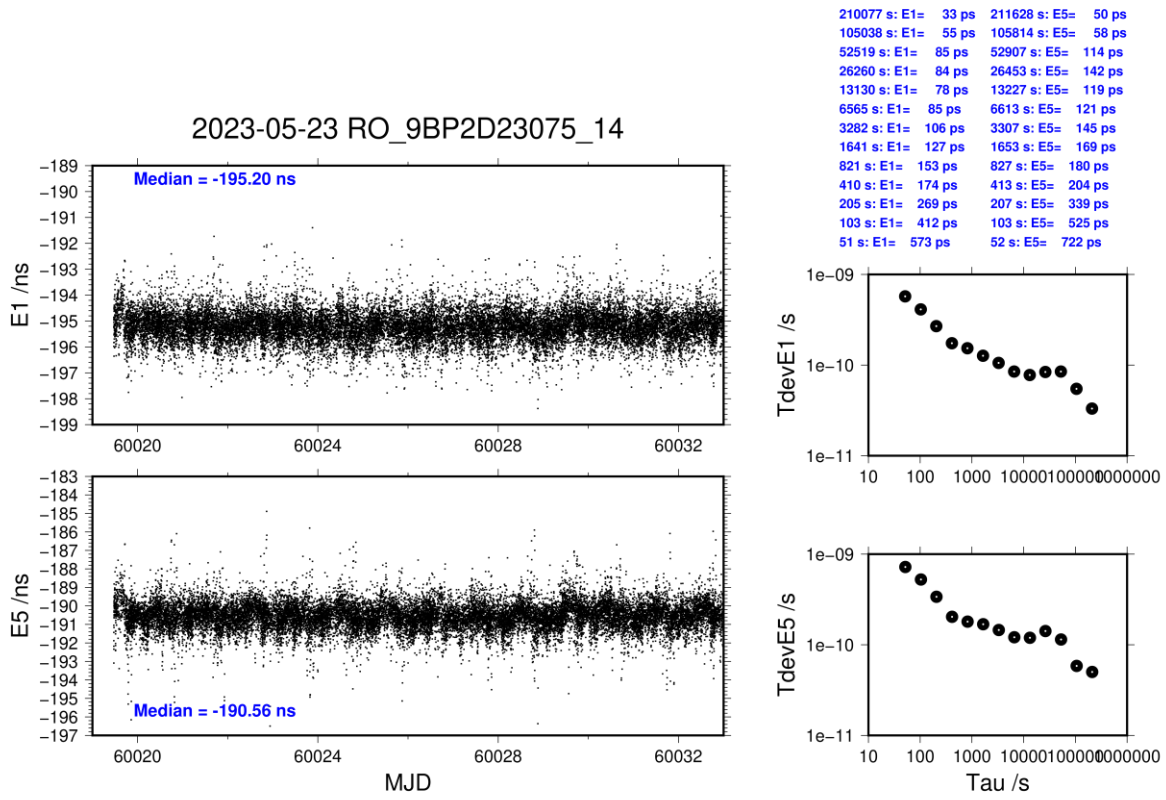
Code	#pts	ave/ns	rms/ns
C1	329921	-194.886	0.965
C2	260668	-199.239	1.188
P1	329850	-195.474	0.948
P2	329843	-199.674	1.069
E1	228100	-195.199	0.774
E5	226403	-190.565	0.850

Number of 300s epochs in out file = 3895

Code	#pts	median/ns	ave/ns	rms/ns
C1	32935	-194.883	-194.887	0.752
C2	26022	-199.291	-199.240	0.908
P1	32929	-195.480	-195.475	0.723
P2	32929	-199.715	-199.676	0.880
E1	22784	-195.203	-195.201	0.589
E5	22617	-190.560	-190.567	0.750




290706 s: P1= 40 ps
145353 s: P1= 36 ps
72676 s: P1= 51 ps
36338 s: P1= 79 ps
18169 s: P1= 70 ps
9085 s: P1= 81 ps
4542 s: P1= 95 ps
2271 s: P1= 109 ps
1136 s: P1= 129 ps
568 s: P1= 139 ps
284 s: P1= 171 ps
142 s: P1= 386 ps
71 s: P1= 523 ps
35 s: P1= 721 ps
290706 s: P2= 63 ps
145353 s: P2= 52 ps
72676 s: P2= 56 ps
36338 s: P2= 181 ps
18169 s: P2= 121 ps
9085 s: P2= 118 ps
4542 s: P2= 109 ps
2271 s: P2= 119 ps
1136 s: P2= 150 ps
568 s: P2= 177 ps
284 s: P2= 215 ps
142 s: P2= 493 ps
71 s: P2= 611 ps
35 s: P2= 853 ps
2023-05-23 RO_9BP2D23075_14
Median = -195.48 ns
Median = -199.72 ns
P1 /ns
P2 /ns
MJD
TdevP1 /s
TdevP2 /s
Tau /s


210077 s: E1= 33 ps
105038 s: E1= 55 ps
52519 s: E1= 85 ps
26260 s: E1= 84 ps
13130 s: E1= 78 ps
6565 s: E1= 85 ps
3282 s: E1= 106 ps
1641 s: E1= 127 ps
821 s: E1= 153 ps
410 s: E1= 174 ps
205 s: E1= 269 ps
103 s: E1= 412 ps
51 s: E1= 573 ps
211628 s: E5= 50 ps
105814 s: E5= 58 ps
52907 s: E5= 114 ps
26453 s: E5= 142 ps
13227 s: E5= 119 ps
6613 s: E5= 121 ps
3307 s: E5= 145 ps
1653 s: E5= 169 ps
827 s: E5= 180 ps
413 s: E5= 204 ps
207 s: E5= 339 ps
103 s: E5= 525 ps
52 s: E5= 722 ps
2023-05-23 RO_9BP2D23075_14
Median = -195.20 ns
Median = -190.56 ns
E1 /ns
E5 /ns
MJD
TdevE1 /s
TdevE5 /s
Tau /s

RO_9-BP2G

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 372611
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 48720 high elev obs : -62.865 -62.292
Iteration 0: Obs used = 650099; Huge residuals = 1566; Large residuals = 3383
Iteration 1: Obs used = 651022; Huge residuals = 0; Large residuals = 894
Computed code bias (P1/P2)/m = -63.069 -62.548
Computed baseline (X,Y,Z)/m = -2.714 1.816 3.497
RMS of residuals /m = 0.362

Number of phase differences to fit baseline
L1/L2 = 368676
L5 = 212380
A priori baseline (X,Y,Z)/m = -2.714 1.816 3.497
38932 clock jitters computed out of 38933 intervals
AVE jitter /ps = 0.0 RMS jitter /ps = 2.7

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 1
Iter 1 Large residuals L5= 9
Computed baseline L1 (X,Y,Z)/m = 0.182 -0.005 0.117
RMS of residuals L1 /m = 0.002
Computed baseline L2 (X,Y,Z)/m = 0.188 -0.004 0.120
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = 0.211 -0.017 0.086
RMS of residuals L5 /m = 0.003

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 1
Iter 2 Large residuals L5= 9
Computed baseline L1 (X,Y,Z)/m = 0.182 -0.005 0.117
RMS of residuals L1 /m = 0.002
Computed baseline L2 (X,Y,Z)/m = 0.188 -0.004 0.120
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = 0.211 -0.017 0.086
RMS of residuals L5 /m = 0.003

New iteration of baseline
New apriori baseline (X,Y,Z)/m = -2.529 1.811 3.615
38932 clock jitters computed out of 38933 intervals
AVE jitter /ps = -0.0 RMS jitter /ps = 0.2

Iter 3 Large residuals L1= 0
Iter 3 Large residuals L2= 1
Iter 3 Large residuals L5= 9
Computed baseline L1 (X,Y,Z)/m = 0.001 0.001 0.001
RMS of residuals L1 /m = 0.002
Computed baseline L2 (X,Y,Z)/m = 0.007 0.002 0.004

RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = 0.031 -0.010 -0.031
RMS of residuals L5 /m = 0.003

Final baseline L1 (X,Y,Z)/m = -2.528 1.811 3.616
Final baseline L2 (X,Y,Z)/m = -2.522 1.812 3.619
Final baseline L5 (X,Y,Z)/m = -2.498 1.801 3.584

COMPUTATION OF CODE DIFFERENCES

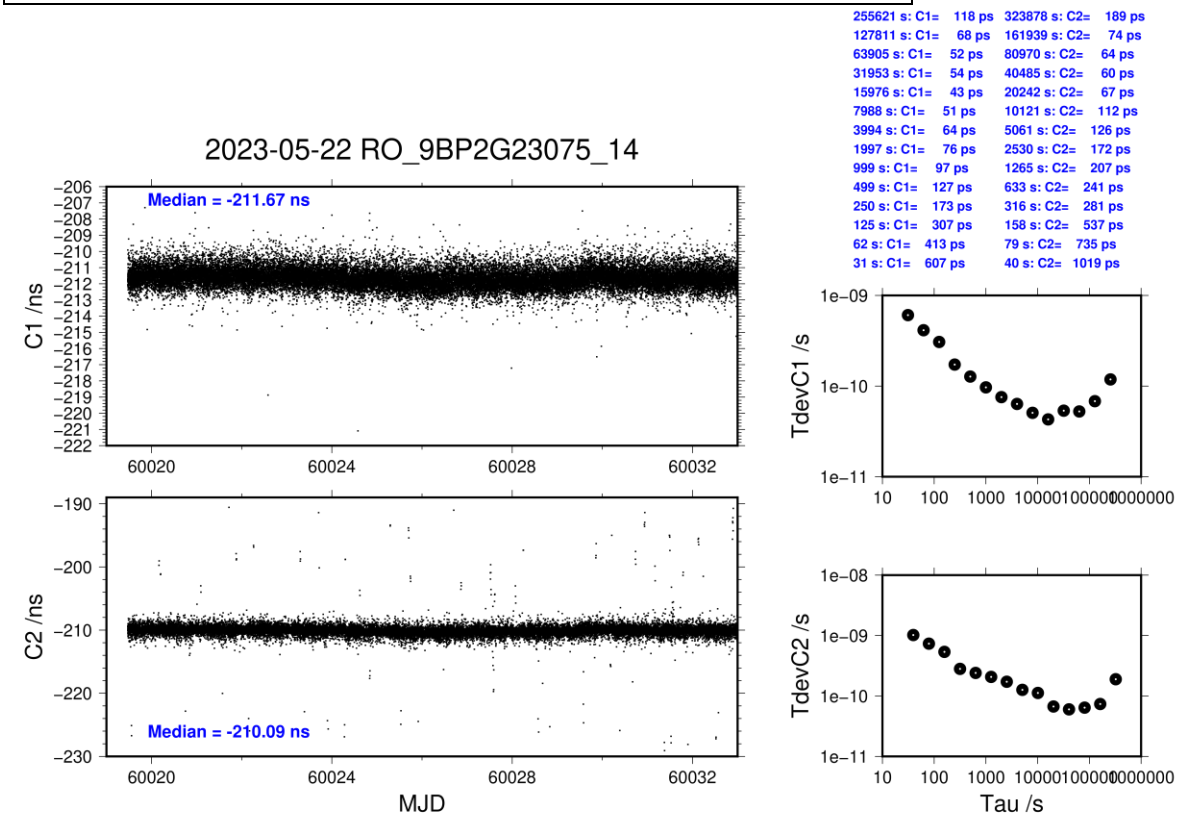
Total number of code differences = ******

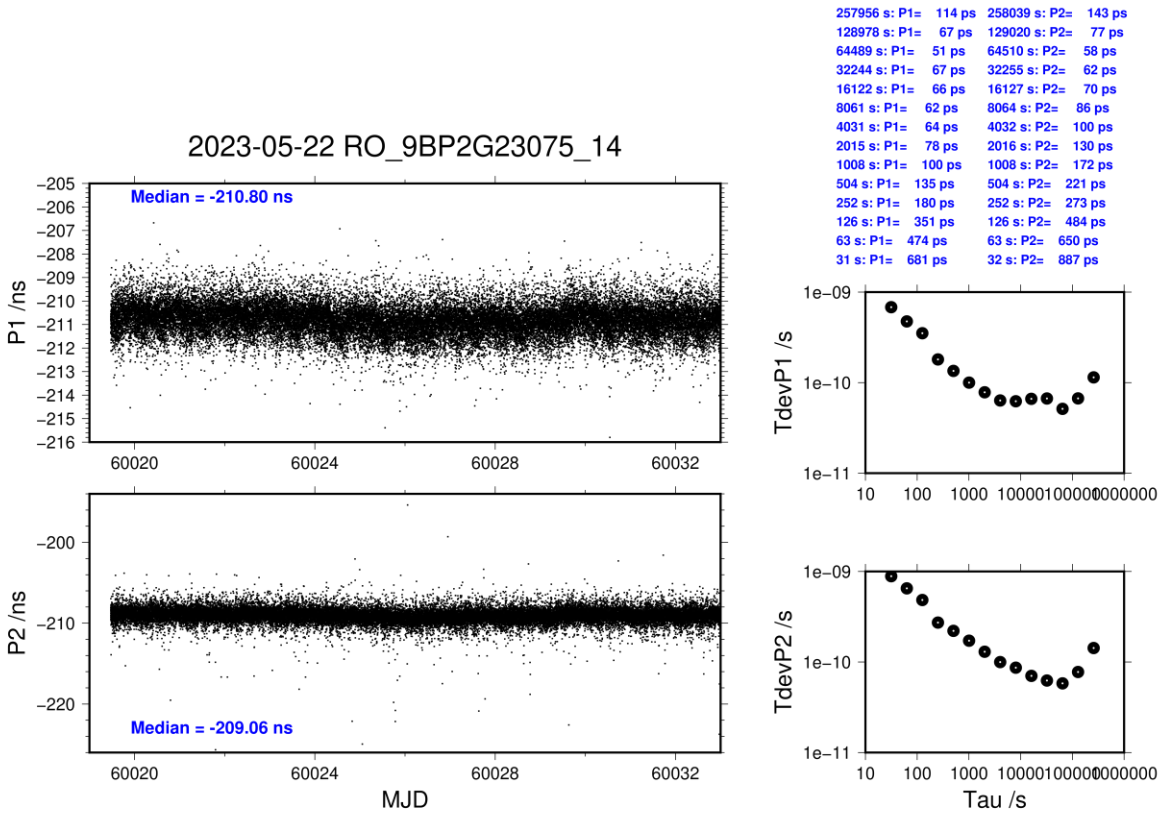
Global average of individual differences

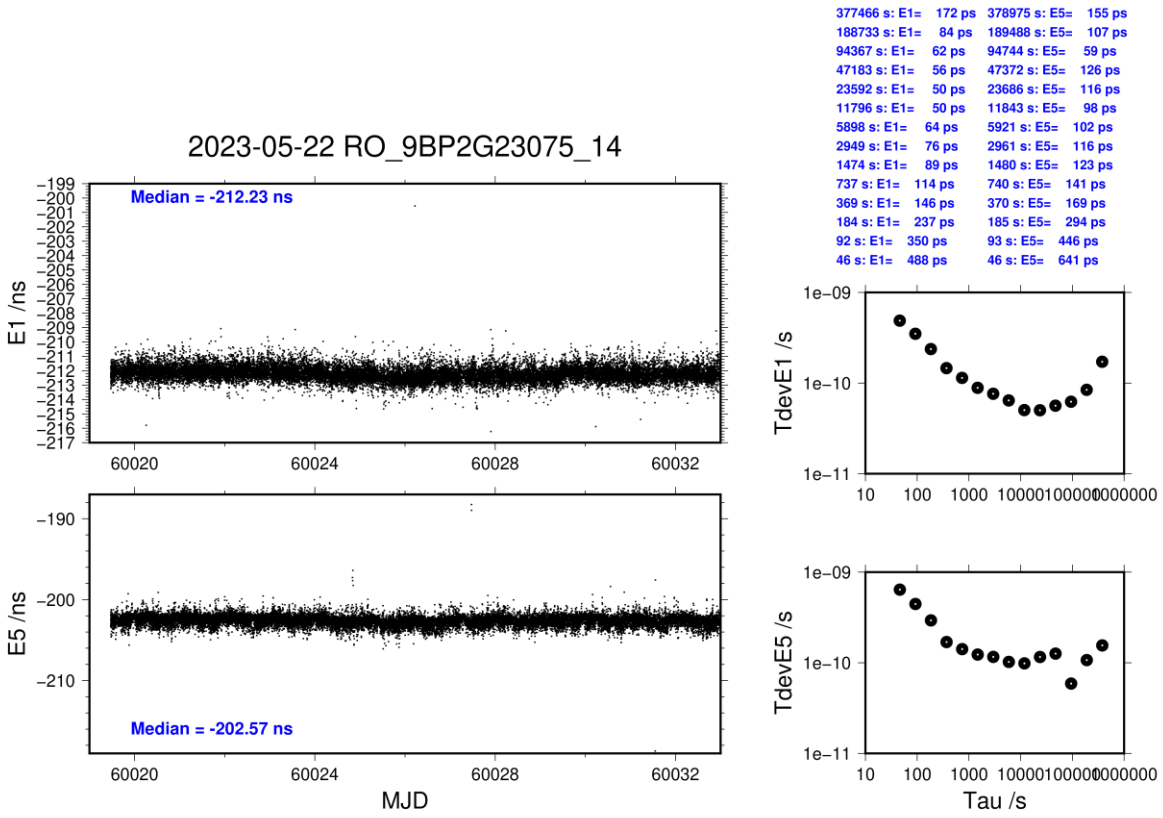
Code	#pts	ave/ns	rms/ns
C1	374824	-211.651	1.089
C2	296224	-210.087	1.560
P1	371685	-210.812	1.102
P2	371571	-209.070	1.268
E1	253793	-212.206	0.806
E5	252747	-202.606	0.820

Number of 300s epochs in out file = 3897

Code	#pts	median/ns	ave/ns	rms/ns
C1	37458	-211.674	-211.650	0.607
C2	29564	-210.087	-210.087	1.039
P1	37119	-210.801	-210.811	0.679
P2	37107	-209.055	-209.068	0.921
E1	25367	-212.231	-212.209	0.509
E5	25266	-202.573	-202.609	0.657




257956 s: P1= 114 ps
128978 s: P1= 67 ps
64489 s: P1= 51 ps
32244 s: P1= 67 ps
16122 s: P1= 66 ps
8061 s: P1= 62 ps
4031 s: P1= 64 ps
2015 s: P1= 78 ps
1008 s: P1= 100 ps
504 s: P1= 135 ps
252 s: P1= 180 ps
126 s: P1= 351 ps
63 s: P1= 474 ps
31 s: P1= 681 ps
258039 s: P2= 143 ps
129020 s: P2= 77 ps
64510 s: P2= 58 ps
32255 s: P2= 62 ps
16127 s: P2= 70 ps
8064 s: P2= 86 ps
4032 s: P2= 100 ps
2016 s: P2= 130 ps
1008 s: P2= 172 ps
504 s: P2= 221 ps
252 s: P2= 273 ps
126 s: P2= 484 ps
63 s: P2= 650 ps
32 s: P2= 887 ps
2023-05-22 RO_9BP2G23075_14
Median = -210.80 ns
P1 /ns
Median = -209.06 ns
P2 /ns
MJD
TdevP1 /s
TdevP2 /s
Tau /s


377466 s: E1= 172 ps
188733 s: E1= 84 ps
94367 s: E1= 62 ps
47183 s: E1= 56 ps
23592 s: E1= 50 ps
11796 s: E1= 50 ps
5898 s: E1= 64 ps
2949 s: E1= 76 ps
1474 s: E1= 89 ps
737 s: E1= 114 ps
369 s: E1= 146 ps
184 s: E1= 237 ps
92 s: E1= 350 ps
46 s: E1= 488 ps
378975 s: E5= 155 ps
189488 s: E5= 107 ps
94744 s: E5= 59 ps
47372 s: E5= 126 ps
23686 s: E5= 116 ps
11843 s: E5= 98 ps
5921 s: E5= 102 ps
2961 s: E5= 116 ps
1480 s: E5= 123 ps
740 s: E5= 141 ps
370 s: E5= 169 ps
185 s: E5= 294 ps
93 s: E5= 446 ps
46 s: E5= 641 ps
2023-05-22 RO_9BP2G23075_14
Median = -212.23 ns
E1 /ns
Median = -202.57 ns
E5 /ns
MJD
TdevE1 /s
TdevE5 /s
Tau /s

RO10-BP2D

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 329899
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 48611 high elev obs : 104.849 102.991
Iteration 0: Obs used = 564581; Huge residuals = 4; Large residuals = 3693
Iteration 1: Obs used = 564605; Huge residuals = 0; Large residuals = 3665
Computed code bias (P1/P2)/m = 107.302 105.557
Computed baseline (X,Y,Z)/m = 4.846 18.446 -4.989
RMS of residuals /m = 0.741

Number of phase differences to fit baseline
L1/L2 = 328205
L5 = 193181
A priori baseline (X,Y,Z)/m = 4.846 18.446 -4.989
38857 clock jitters computed out of 38857 intervals
AVE jitter /ps = 0.1 RMS jitter /ps = 5.3

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 0
Iter 1 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = -2.268 0.267 -1.572
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = -2.272 0.268 -1.578
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = -2.249 0.300 -1.591
RMS of residuals L5 /m = 0.003

New iteration of baseline
New apriori baseline (X,Y,Z)/m = 2.577 18.713 -6.564
38857 clock jitters computed out of 38857 intervals
AVE jitter /ps = -0.0 RMS jitter /ps = 3.4

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 0
Iter 2 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = -0.069 0.018 -0.036
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = -0.072 0.020 -0.042
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = -0.072 0.021 -0.042
RMS of residuals L5 /m = 0.002

Final baseline L1 (X,Y,Z)/m = 2.508 18.731 -6.601
Final baseline L2 (X,Y,Z)/m = 2.504 18.733 -6.607
Final baseline L5 (X,Y,Z)/m = 2.505 18.734 -6.607

COMPUTATION OF CODE DIFFERENCES

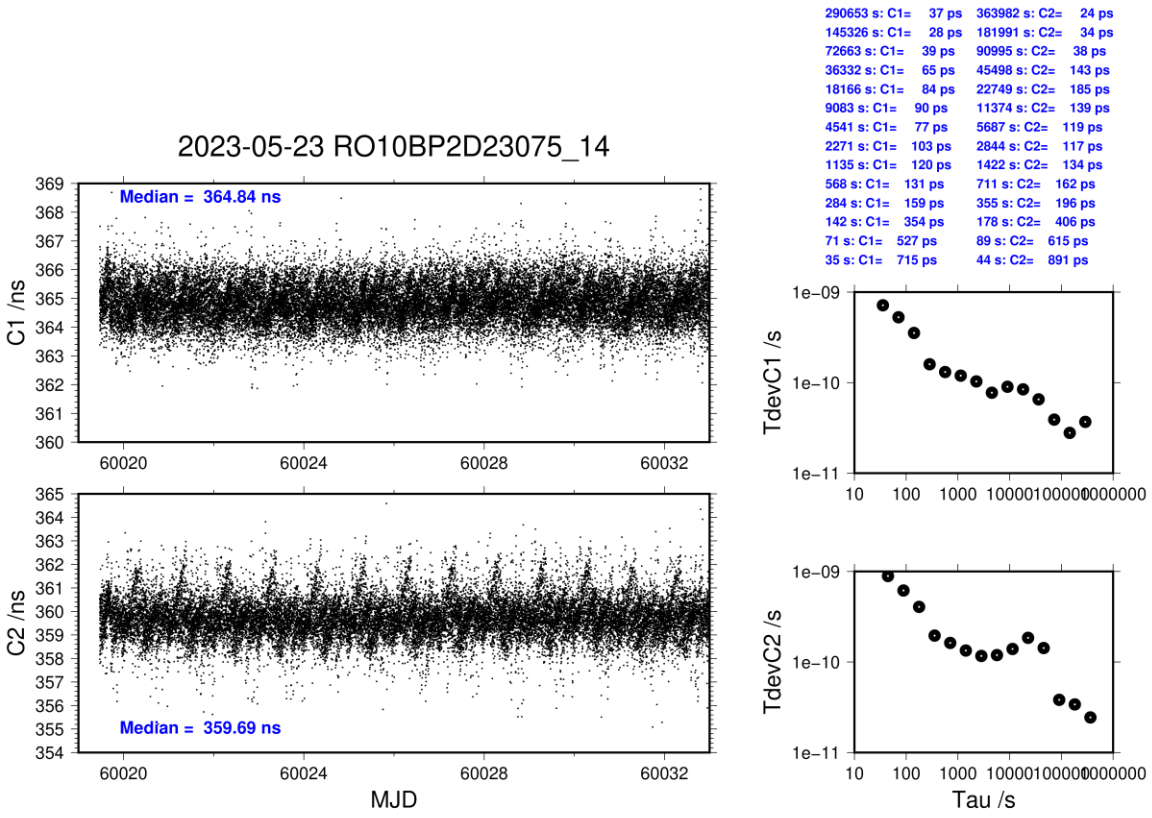
Total number of code differences = ******

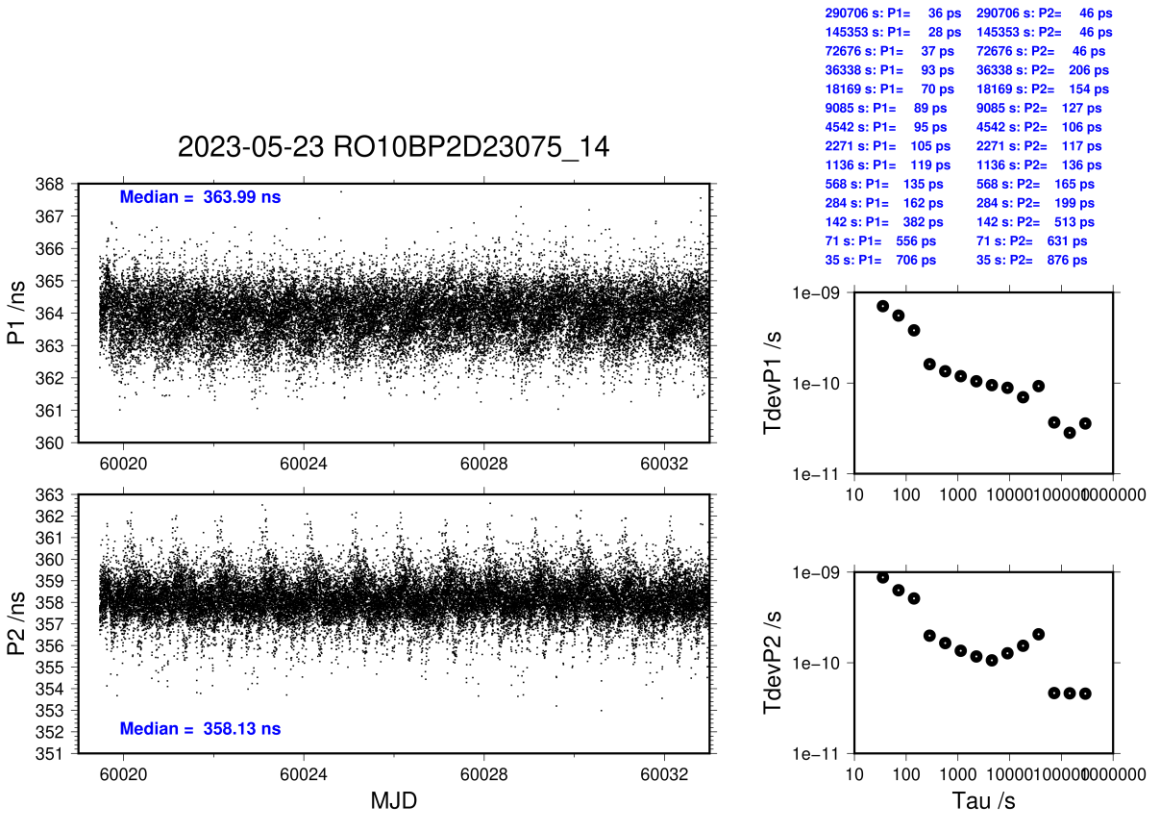
Global average of individual differences

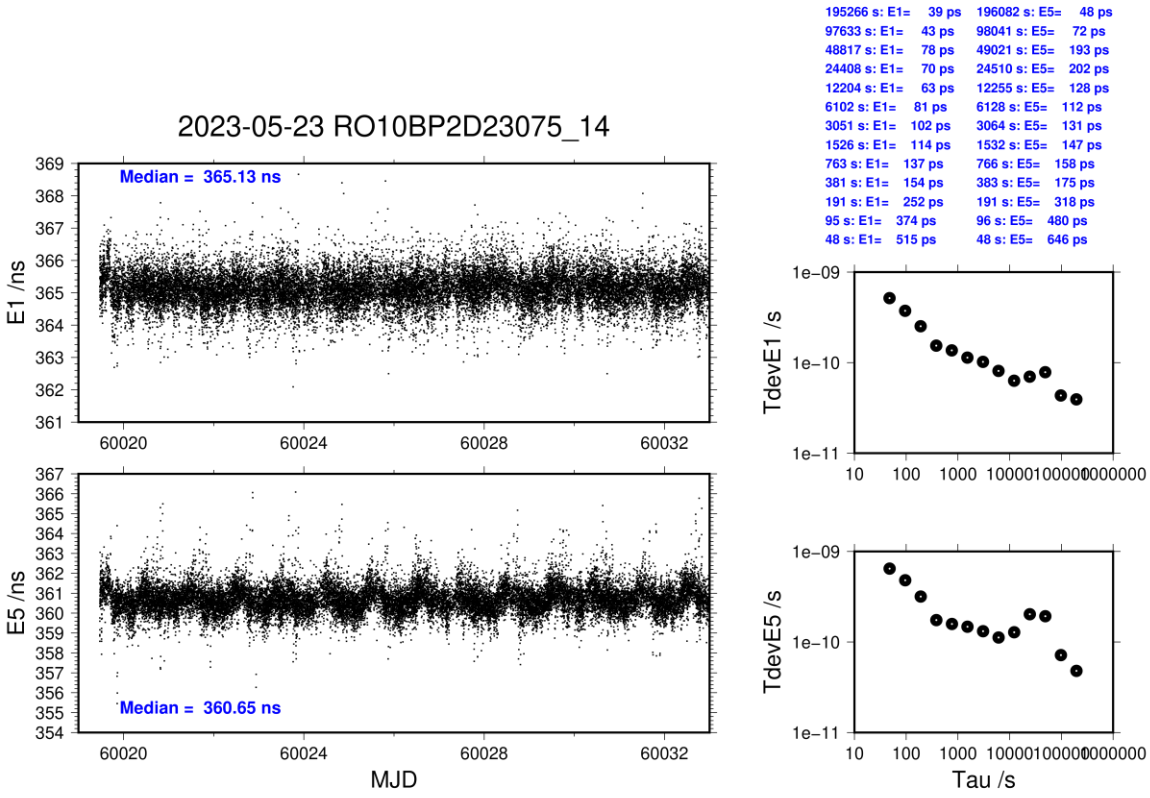
Code	#pts	ave/ns	rms/ns
C1	329917	364.867	0.979
C2	263491	359.726	1.127
P1	329844	363.961	0.998
P2	329840	358.156	1.141
E1	245360	365.134	0.757
E5	244330	360.682	0.802
BC	195672	365.843	0.957
B5	195674	361.116	0.891

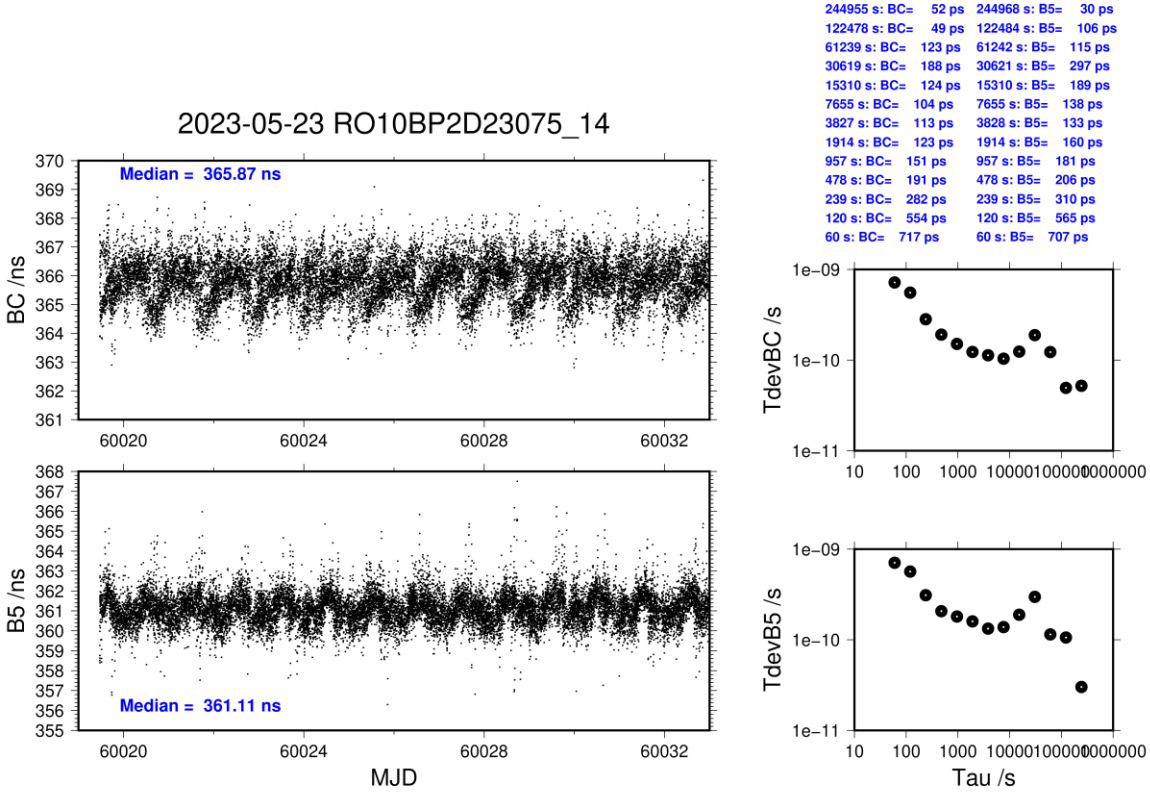
Number of 300s epochs in out file = 3895

Code	#pts	median/ns	ave/ns	rms/ns
C1	32935	364.837	364.867	0.707
C2	26300	359.691	359.725	0.870
P1	32929	363.985	363.959	0.728
P2	32929	358.126	358.156	0.903
E1	24512	365.128	365.135	0.535
E5	24410	360.650	360.680	0.707
BC	19540	365.874	365.844	0.735
B5	19539	361.109	361.114	0.795


290653 s: C1= 37 ps
145326 s: C1= 28 ps
72663 s: C1= 39 ps
36332 s: C1= 65 ps
18166 s: C1= 84 ps
9083 s: C1= 90 ps
4541 s: C1= 77 ps
2271 s: C1= 103 ps
1135 s: C1= 120 ps
568 s: C1= 131 ps
284 s: C1= 159 ps
142 s: C1= 354 ps
71 s: C1= 527 ps
35 s: C1= 715 ps
363982 s: C2= 24 ps
181991 s: C2= 34 ps
90995 s: C2= 38 ps
45498 s: C2= 143 ps
22749 s: C2= 185 ps
11374 s: C2= 139 ps
5687 s: C2= 119 ps
2844 s: C2= 117 ps
1422 s: C2= 134 ps
711 s: C2= 162 ps
355 s: C2= 196 ps
178 s: C2= 406 ps
89 s: C2= 615 ps
44 s: C2= 891 ps
2023-05-23 RO10BP2D23075_14
Median = 364.84 ns
C1 /ns
Median = 359.69 ns
C2 /ns
MJD
TdevC1 /s
TdevC2 /s
Tau /s


290706 s: P1= 36 ps
145353 s: P1= 28 ps
72676 s: P1= 37 ps
36338 s: P1= 93 ps
18169 s: P1= 70 ps
9085 s: P1= 89 ps
4542 s: P1= 95 ps
2271 s: P1= 105 ps
1136 s: P1= 119 ps
568 s: P1= 135 ps
284 s: P1= 162 ps
142 s: P1= 382 ps
71 s: P1= 556 ps
35 s: P1= 706 ps
290706 s: P2= 46 ps
145353 s: P2= 46 ps
72676 s: P2= 46 ps
36338 s: P2= 206 ps
18169 s: P2= 154 ps
9085 s: P2= 127 ps
4542 s: P2= 106 ps
2271 s: P2= 117 ps
1136 s: P2= 136 ps
568 s: P2= 165 ps
284 s: P2= 199 ps
142 s: P2= 513 ps
71 s: P2= 631 ps
35 s: P2= 876 ps
2023-05-23 RO10BP2D23075_14
Median = 363.99 ns
P1 /ns
Median = 358.13 ns
P2 /ns
MJD
TdevP1 /s
TdevP2 /s
Tau /s


2023-05-23 RO10BP2D23075_14
Median = 365.13 ns
Median = 360.65 ns
E1 /ns
E5 /ns
MJD
195266 s: E1= 39 ps
97633 s: E1= 43 ps
48817 s: E1= 78 ps
24408 s: E1= 70 ps
12204 s: E1= 63 ps
6102 s: E1= 81 ps
3051 s: E1= 102 ps
1526 s: E1= 114 ps
763 s: E1= 137 ps
381 s: E1= 154 ps
191 s: E1= 252 ps
95 s: E1= 374 ps
48 s: E1= 515 ps
196082 s: E5= 48 ps
98041 s: E5= 72 ps
49021 s: E5= 193 ps
24510 s: E5= 202 ps
12255 s: E5= 128 ps
6128 s: E5= 112 ps
3064 s: E5= 131 ps
1532 s: E5= 147 ps
766 s: E5= 158 ps
383 s: E5= 175 ps
191 s: E5= 318 ps
96 s: E5= 480 ps
48 s: E5= 646 ps
TdevE1 /s
TdevE5 /s
Tau /s


2023-05-23 RO10BP2D23075_14
Median = 365.87 ns
Median = 361.11 ns
BC /ns
B5 /ns
MJD
244955 s: BC= 52 ps
122478 s: BC= 49 ps
61239 s: BC= 123 ps
30619 s: BC= 188 ps
15310 s: BC= 124 ps
7655 s: BC= 104 ps
3827 s: BC= 113 ps
1914 s: BC= 123 ps
957 s: BC= 151 ps
478 s: BC= 191 ps
239 s: BC= 282 ps
120 s: BC= 554 ps
60 s: BC= 717 ps
244968 s: B5= 30 ps
122484 s: B5= 106 ps
61242 s: B5= 115 ps
30621 s: B5= 297 ps
15310 s: B5= 189 ps
7655 s: B5= 138 ps
3828 s: B5= 133 ps
1914 s: B5= 160 ps
957 s: B5= 181 ps
478 s: B5= 206 ps
239 s: B5= 310 ps
120 s: B5= 565 ps
60 s: B5= 707 ps
TdevBC /s
TdevB5 /s
Tau /s

RO10-BP2G

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 372543
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 48720 high elev obs : 100.213 100.243
Iteration 0: Obs used = 618927; Huge residuals = 1261; Large residuals = 34419
Iteration 1: Obs used = 644100; Huge residuals = 1; Large residuals = 7985
Iteration 2: Obs used = 644101; Huge residuals = 0; Large residuals = 7983
Computed code bias (P1/P2)/m = 103.089 103.124
Computed baseline (X,Y,Z)/m = 4.802 19.331 -5.577
RMS of residuals /m = 0.707

Number of phase differences to fit baseline
L1/L2 = 368794
L5 = 216900
A priori baseline (X,Y,Z)/m = 4.802 19.331 -5.577
38930 clock jitters computed out of 38931 intervals
AVE jitter /ps = 0.1 RMS jitter /ps = 3.5

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 0
Iter 1 Large residuals L5= 1
Computed baseline L1 (X,Y,Z)/m = -1.835 0.172 -1.302
RMS of residuals L1 /m = 0.002
Computed baseline L2 (X,Y,Z)/m = -1.824 0.172 -1.296
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = -1.810 0.184 -1.304
RMS of residuals L5 /m = 0.002

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 0
Iter 2 Large residuals L5= 1
Computed baseline L1 (X,Y,Z)/m = -1.835 0.172 -1.302
RMS of residuals L1 /m = 0.002
Computed baseline L2 (X,Y,Z)/m = -1.824 0.172 -1.296
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = -1.811 0.184 -1.304
RMS of residuals L5 /m = 0.002

New iteration of baseline
New apriori baseline (X,Y,Z)/m = 2.973 19.502 -6.876
38930 clock jitters computed out of 38931 intervals
AVE jitter /ps = -0.1 RMS jitter /ps = 2.4

Iter 3 Large residuals L1= 0
Iter 3 Large residuals L2= 0
Iter 3 Large residuals L5= 1
Computed baseline L1 (X,Y,Z)/m = -0.043 0.021 -0.031
RMS of residuals L1 /m = 0.002

Computed baseline L2 (X,Y,Z)/m = -0.032 0.021 -0.025
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = -0.026 0.021 -0.023
RMS of residuals L5 /m = 0.002

Final baseline L1 (X,Y,Z)/m = 2.929 19.523 -6.907
Final baseline L2 (X,Y,Z)/m = 2.941 19.523 -6.901
Final baseline L5 (X,Y,Z)/m = 2.947 19.523 -6.899

COMPUTATION OF CODE DIFFERENCES

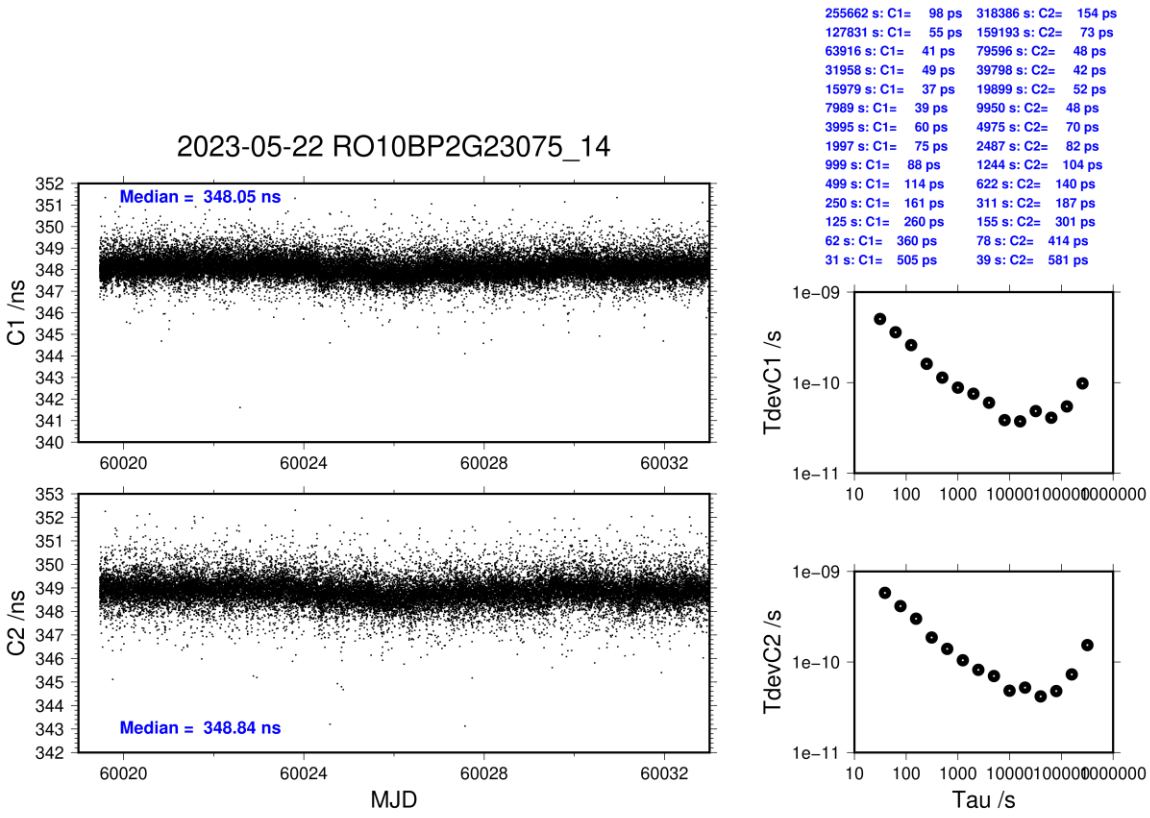
Total number of code differences = ******

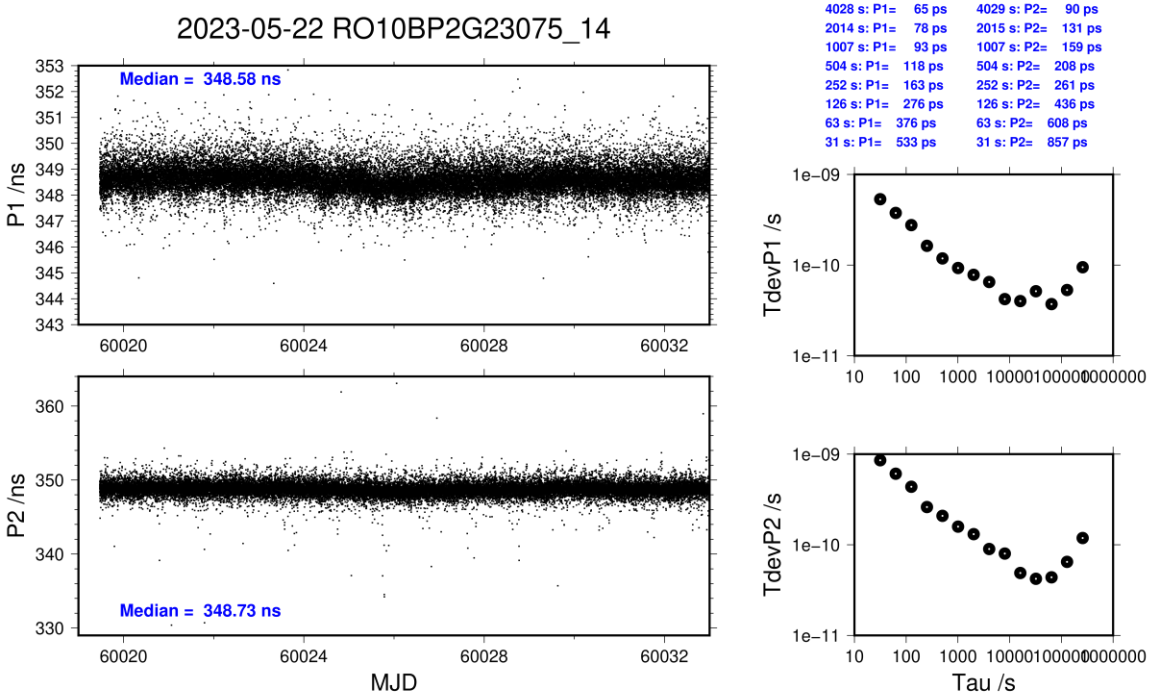
Global average of individual differences

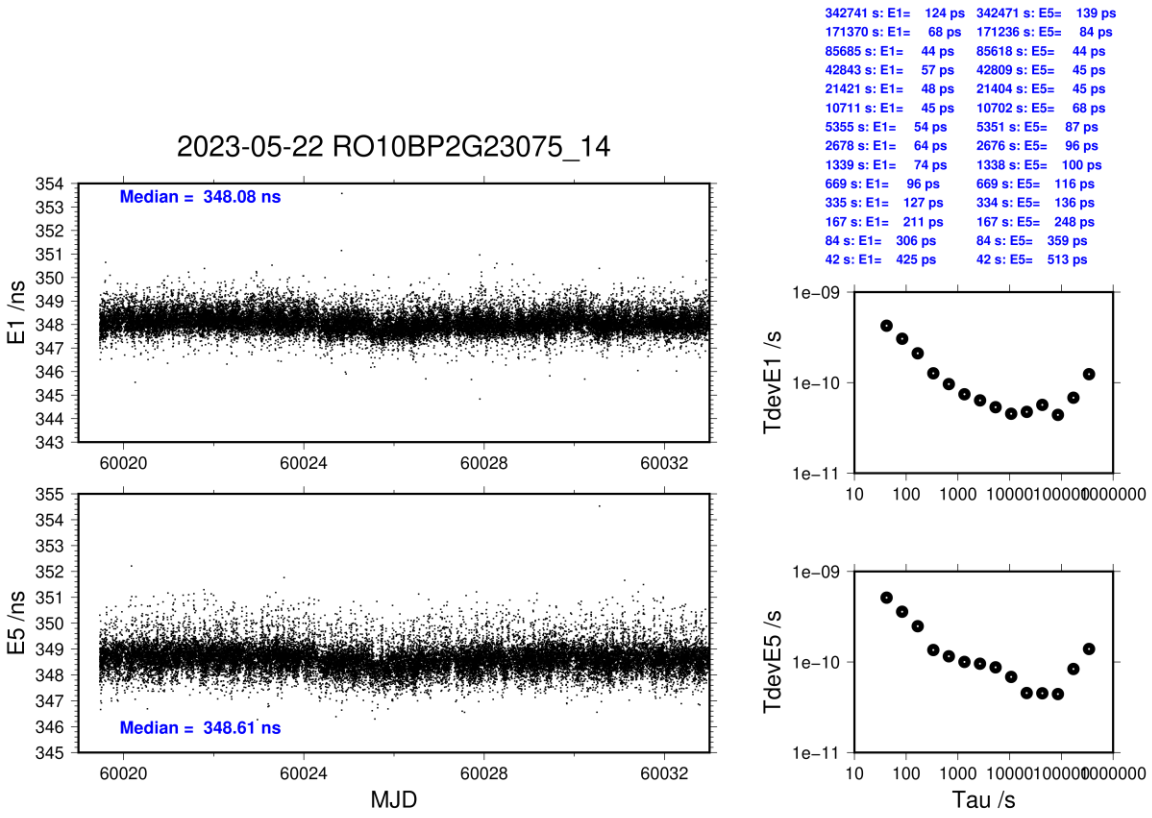
Code	#pts	ave/ns	rms/ns
C1	374818	348.084	1.087
C2	300948	348.854	1.228
P1	371770	348.616	1.066
P2	371663	348.735	1.278
E1	279558	348.106	0.783
E5	279769	348.635	0.708
BC	221454	348.281	0.839
B5	221678	348.609	0.714

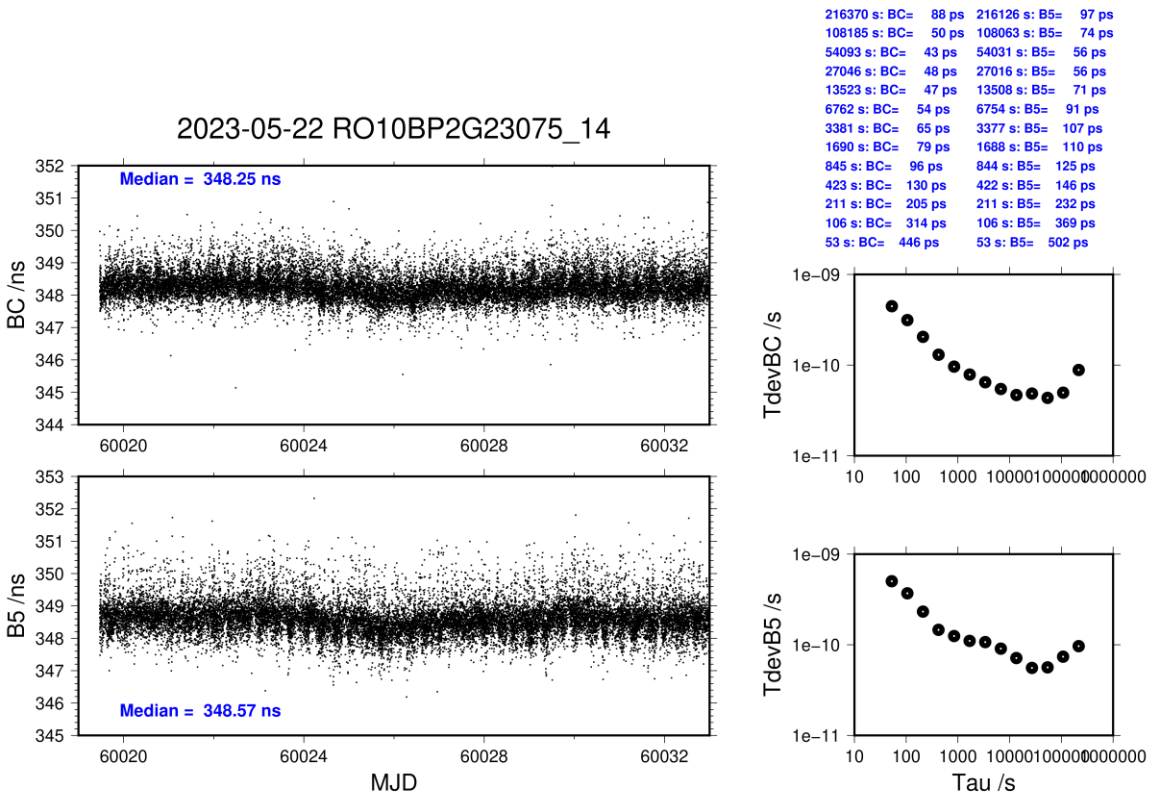
Number of 300s epochs in out file = 3897

Code	#pts	median/ns	ave/ns	rms/ns
C1	37452	348.051	348.084	0.517
C2	30074	348.841	348.854	0.595
P1	37139	348.582	348.616	0.542
P2	37129	348.731	348.737	0.863
E1	27937	348.077	348.107	0.438
E5	27959	348.610	348.634	0.520
BC	22127	348.246	348.285	0.449
B5	22152	348.572	348.608	0.525


2023-05-22 RO10BP2G23075_14
Median = 348.05 ns
Median = 348.84 ns
C1 /ns
C2 /ns
MJD
255662 s: C1= 98 ps
127831 s: C1= 55 ps
63916 s: C1= 41 ps
31958 s: C1= 49 ps
15979 s: C1= 37 ps
7989 s: C1= 39 ps
3995 s: C1= 60 ps
1997 s: C1= 75 ps
999 s: C1= 88 ps
499 s: C1= 114 ps
250 s: C1= 161 ps
125 s: C1= 260 ps
62 s: C1= 360 ps
31 s: C1= 505 ps
318386 s: C2= 154 ps
159193 s: C2= 73 ps
79596 s: C2= 48 ps
39798 s: C2= 42 ps
19899 s: C2= 52 ps
9950 s: C2= 48 ps
4975 s: C2= 70 ps
2487 s: C2= 82 ps
1244 s: C2= 104 ps
622 s: C2= 140 ps
311 s: C2= 187 ps
155 s: C2= 301 ps
78 s: C2= 414 ps
39 s: C2= 581 ps
TdevC1 /s
TdevC2 /s
Tau /s


2023-05-22 RO10BP2G23075_14
Median = 348.58 ns
Median = 348.73 ns
P1 /ns
P2 /ns
MJD
257817 s: P1= 95 ps
128909 s: P1= 53 ps
64454 s: P1= 37 ps
32227 s: P1= 51 ps
16114 s: P1= 40 ps
8057 s: P1= 42 ps
4028 s: P1= 65 ps
2014 s: P1= 78 ps
1007 s: P1= 93 ps
504 s: P1= 118 ps
252 s: P1= 163 ps
126 s: P1= 276 ps
63 s: P1= 376 ps
31 s: P1= 533 ps
257886 s: P2= 119 ps
128943 s: P2= 65 ps
64472 s: P2= 44 ps
32236 s: P2= 42 ps
16118 s: P2= 49 ps
8059 s: P2= 80 ps
4029 s: P2= 90 ps
2015 s: P2= 131 ps
1007 s: P2= 159 ps
504 s: P2= 208 ps
252 s: P2= 261 ps
126 s: P2= 436 ps
63 s: P2= 608 ps
31 s: P2= 857 ps
TdevP1 /s
TdevP2 /s
Tau /s


342741 s: E1= 124 ps 342471 s: E5= 139 ps
171370 s: E1= 68 ps 171236 s: E5= 84 ps
85685 s: E1= 44 ps 85618 s: E5= 44 ps
42843 s: E1= 57 ps 42809 s: E5= 45 ps
21421 s: E1= 48 ps 21404 s: E5= 45 ps
10711 s: E1= 45 ps 10702 s: E5= 68 ps
5355 s: E1= 54 ps 5351 s: E5= 87 ps
2678 s: E1= 64 ps 2676 s: E5= 96 ps
1339 s: E1= 74 ps 1338 s: E5= 100 ps
669 s: E1= 96 ps 669 s: E5= 116 ps
335 s: E1= 127 ps 334 s: E5= 136 ps
167 s: E1= 211 ps 167 s: E5= 248 ps
84 s: E1= 306 ps 84 s: E5= 359 ps
42 s: E1= 425 ps 42 s: E5= 513 ps
2023-05-22 RO10BP2G23075_14
Median = 348.08 ns
E1 /ns
Median = 348.61 ns
E5 /ns
MJD
TdevE1 /s
TdevE5 /s
Tau /s


216370 s: BC= 88 ps 216126 s: B5= 97 ps
108185 s: BC= 50 ps 108063 s: B5= 74 ps
54093 s: BC= 43 ps 54031 s: B5= 56 ps
27046 s: BC= 48 ps 27016 s: B5= 56 ps
13523 s: BC= 47 ps 13508 s: B5= 71 ps
6762 s: BC= 54 ps 6754 s: B5= 91 ps
3381 s: BC= 65 ps 3377 s: B5= 107 ps
1690 s: BC= 79 ps 1688 s: B5= 110 ps
845 s: BC= 96 ps 844 s: B5= 125 ps
423 s: BC= 130 ps 422 s: B5= 146 ps
211 s: BC= 205 ps 211 s: B5= 232 ps
106 s: BC= 314 ps 106 s: B5= 369 ps
53 s: BC= 446 ps 53 s: B5= 502 ps
2023-05-22 RO10BP2G23075_14
Median = 348.25 ns
BC /ns
Median = 348.57 ns
B5 /ns
MJD
TdevBC /s
TdevB5 /s
Tau /s

2.3/ PTB (23136)

Period

MJD 60080 to 60088

Delays

BP2D: (cf page 3 & PTB report page 13)
REFDLY = 88.83 ns (35.40+53.43)
CABDLY = 176.85 ns (C210)

BP2G: (cf page 3 & PTB report page 13)
REFDLY = 88.95 ns (35.40+53.55)
CABDLY = 176.38 ns (C211)

PT07: (from PTB report page 15)
REFDLY = 43.36 ns
CABDLY = 245.80 ns
INT DLY = -35.9 ns (GPS C1), -37.2 ns (GPS P1), -24.9 ns (GPS P2)

PT09: (from PTB report page 15)
X_P = 35.24 ns
X_O = 147.82 ns
REFDLY = 183.06 ns
CABDLY = 198.70 ns

PT10: (from PTB report page 15)
REFDLY = 36.59 ns
CABDLY = 250.00 ns

PTBB (PT13): (from PTB report page 14)
X_P = 9.44 ns
X_O = 46.69 ns
REFDLY = 56.13 ns
CABDLY = 205.70 ns

Setup at the PTB

Laboratory:	PTB
Date and hour of the beginning of measurements:	2023-04-20 09:00 UTC
Date and hour of the end of measurements:	2023-05-25 ca. 06:00 UTC

Information on the system

	Local:	Travelling:
4-character BIPM code	PT07	(a) BP2D (b) BP2G
• Receiver maker and type: Receiver serial number:	Dicom (Mesit), GTR50 806091	(a) Mesit (b) Septentrio (a) 1306001 (b) S9000169176
1 PPS trigger level /V:	1 V	1 V
• Antenna cable maker and type: Phase stabilised cable (Y/N):	FSJ-1 Y	Hytem (a) C210 (b) C211
Length outside the building /m:	Approx. 25 m	Approx.. 25 m
• Antenna maker and type: Antenna serial number:	Novatel, GPS-702-PP SN01017577	(a) Novatel, GNSS-850 GG (b) Septentrio PolarNt Choke Ring B3/B6 (a) NMLK17440001C (b) 6023
Temperature (if stabilised) /°C	-	-

Measured delays /ns

(if needed fill box "Additional Information" below)

	Local:	Travelling:
• Delay from local UTC to receiver 1 PPS-in:	43.3	(b) 85.5 ns
Delay from 1 PPS-in to internal Reference (if different): (see section 2 for details)	-	-
• Antenna cable delay:	-	(1)
Splitter delay (if any):	-	(1)
Additional cable delay (if any):	-	(1)

Data used for the generation of CGGTTS files

• INT DLY (GPS) /ns:	-35.9 (C1), -37.2 (P1), -24.9 (P2)
• INT DLY (Galileo) /ns:	-
• INT DLY (GLONASS) /ns:	-
• CAB DLY /ns:	245.8
• REF DLY /ns:	43.4
• Coordinates reference frame:	
Latitude or X /m:	3844062.43
Longitude or Y /m:	709659.03
Height or Z /m:	5023128.06

General information

• Rise time of the local UTC pulse:	<5 ns
• Is the laboratory air conditioned:	Yes
Set temperature value and uncertainty:	22.8 °C ± 0.5 °C
Set humidity value and uncertainty:	

(1) For a trip with closure, not needed if the traveling equipment is used in the same set-up throughout.

Laboratory:	PTB
Date and hour of the beginning of measurements:	2023-04-20 09:00 UTC
Date and hour of the end of measurements:	2023-05-25 ca. 06:00 UTC

Information on the system

	Local:	Travelling:
4-character BIPM code	PT09	(a) BP2D (b) BP2G
• Receiver maker and type: Receiver serial number:	Septentrio, PolaRx4TR Pro 3001148	(a) Mesit (b) Septentrio (a) 1306001 (b) S9000169176
1 PPS trigger level /V:	1 V	1 V
• Antenna cable maker and type: Phase stabilised cable (Y/N):	SSB-electronics, Ecoflex 15plus Y	Hytem (a) C210 (b) C211
Length outside the building /m:	Approx. 25 m	Approx.. 25 m
• Antenna maker and type: Antenna serial number:	Novatel, NOV750.R4 n/a	(a) Novatel, GNSS-850 GG (b) Septentrio PolarNt Choke Ring B3/B6 (a) NMLK17440001C (b) 6023
Temperature (if stabilised) /°C	-	-

Measured delays /ns

(if needed fill box "Additional Information" below)

	Local:	Travelling:
• Delay from local UTC to receiver 1 PPS-in:	35.2	(b) 85.5 ns
Delay from 1 PPS-in to internal Reference (if different): (see section 2 for details)	147.8	-
• Antenna cable delay:	-	(1)
Splitter delay (if any):	-	(1)
Additional cable delay (if any):	-	(1)

Data used for the generation of CGGTTS files

• INT DLY (GPS) /ns:	56.0 (P1), 55.2 (P2)
• INT DLY (Galileo) /ns:	56.9 (E1), 65.9 (E5a)
• INT DLY (GLONASS) /ns:	-
• CAB DLY /ns:	198.7
• REF DLY /ns:	182.9
• Coordinates reference frame:	
Latitude or X /m:	3844057.34
Longitude or Y /m:	709663.82
Height or Z /m:	5023131.76

General information

• Rise time of the local UTC pulse:	<5 ns
• Is the laboratory air conditioned:	Yes
Set temperature value and uncertainty:	22.8 °C ± 0.5 °C
Set humidity value and uncertainty:	

(1) For a trip with closure, not needed if the traveling equipment is used in the same set-up throughout.

Laboratory:	PTB
Date and hour of the beginning of measurements:	2023-04-20 09:00 UTC
Date and hour of the end of measurements:	2023-05-25 ca. 06:00 UTC

Information on the system

	Local:	Travelling:
4-character BIPM code	PT10	(a) BP2D (b) BP2G
• Receiver maker and type: Receiver serial number:	Dicom (Mesit), GTR51 1309042	(a) Mesit (b) Septentrio (a) 1306001 (b) S9000169176
1 PPS trigger level /V:	1 V	1 V
• Antenna cable maker and type: Phase stabilised cable (Y/N):	Belden, 8214 RG-8/U Y	Hytem (a) C210 (b) C211
Length outside the building /m:	Approx. 25 m	Approx.. 25 m
• Antenna maker and type: Antenna serial number:	NavExperience, 3G+C NA 0121	(a) Novatel, GNSS-850 GG (b) Septentrio PolarNt Choke Ring B3/B6 (a) NMLK17440001C (b) 6023
Temperature (if stabilised) /°C	-	-

Measured delays /ns

(if needed fill box "Additional Information" below)

	Local:	Travelling:
• Delay from local UTC to receiver 1 PPS-in:	36.5	(b) 85.5 ns
Delay from 1 PPS-in to internal Reference (if different): (see section 2 for details)	-	-
• Antenna cable delay:	-	(1)
Splitter delay (if any):	-	(1)
Additional cable delay (if any):	-	(1)

Data used for the generation of CGGTTS files

• INT DLY (GPS) /ns:	33.2 (C1), 31.4 (P1), 24.8 (P2)
• INT DLY (Galileo) /ns:	34.7 (E1), 23.6 (E5a)
• INT DLY (GLONASS) /ns:	0.0 (C1), 0.0 (P1), 0.0 (C2), 0.0 (P2)
• CAB DLY /ns:	250.0
• REF DLY /ns:	36.6
• Coordinates reference frame:	
Latitude or X /m:	3844056.64
Longitude or Y /m:	709664.25
Height or Z /m:	5023131.88

General information

• Rise time of the local UTC pulse:	<5 ns
• Is the laboratory air conditioned:	Yes
Set temperature value and uncertainty:	22.8 °C ± 0.5 °C
Set humidity value and uncertainty:	

(1) For a trip with closure, not needed if the traveling equipment is used in the same set-up throughout.

Laboratory:	PTB
Date and hour of the beginning of measurements:	2023-04-20 09:00 UTC
Date and hour of the end of measurements:	2023-05-25 ca. 06:00 UTC

Information on the system

	Local:	Travelling:
4-character BIPM code	PT13	(a) BP2D (b) BP2G
• Receiver maker and type: Receiver serial number:	Septentrio, PolaRx5 TR 4701292	(a) Mesit (b) Septentrio (a) 1306001 (b) S9000169176
1 PPS trigger level /V:	1 V	1 V
• Antenna cable maker and type: Phase stabilised cable (Y/N):	SSB electronics, Ecoflex15	Hytem (a) C210 (b) C211
Length outside the building /m:	Approx.. 25 m	Approx.. 25 m
• Antenna maker and type: Antenna serial number:	LEICA, AR 25 726333	(a) Novatel, GNSS-850 GG (b) Septentrio PolarNt Choke Ring B3/B6 (a) NMLK17440001C (b) 6023
Temperature (if stabilised) /°C	-	-

Measured delays /ns

(if needed fill box "Additional Information" below)

	Local:	Travelling:
• Delay from local UTC to receiver 1 PPS-in:	9.4 ns	(b) 85.5 ns
Delay from 1 PPS-in to internal Reference (if different): (see section 2 for details)	46.7 ns	-
• Antenna cable delay:	-	(1)
Splitter delay (if any):	-	(1)
Additional cable delay (if any):	-	(1)

Data used for the generation of CGGTTS files

• INT DLY (GPS) /ns:	33.6 (GPS), 31.6 (P1), 29.3 (P2)
• INT DLY (Galileo) /ns:	33.6 (E1), 33.6 (E5a)
• INT DLY (GLONASS) /ns:	0.0 (C1), 0.0 (P1), 0.0 (C2), 0.0 (P2)
• CAB DLY /ns:	205.7
• REF DLY /ns:	56.2
• Coordinates reference frame:	
Latitude or X /m:	3844059.86
Longitude or Y /m:	709661.56
Height or Z /m:	5023129.87

General information

• Rise time of the local UTC pulse:	<5 ns
• Is the laboratory air conditioned:	Yes
Set temperature value and uncertainty:	22.8 °C ± 0.5 °C
Set humidity value and uncertainty:	

(1) For a trip with closure, not needed if the traveling equipment is used in the same set-up throughout.

Diagram of the experiment set-up:

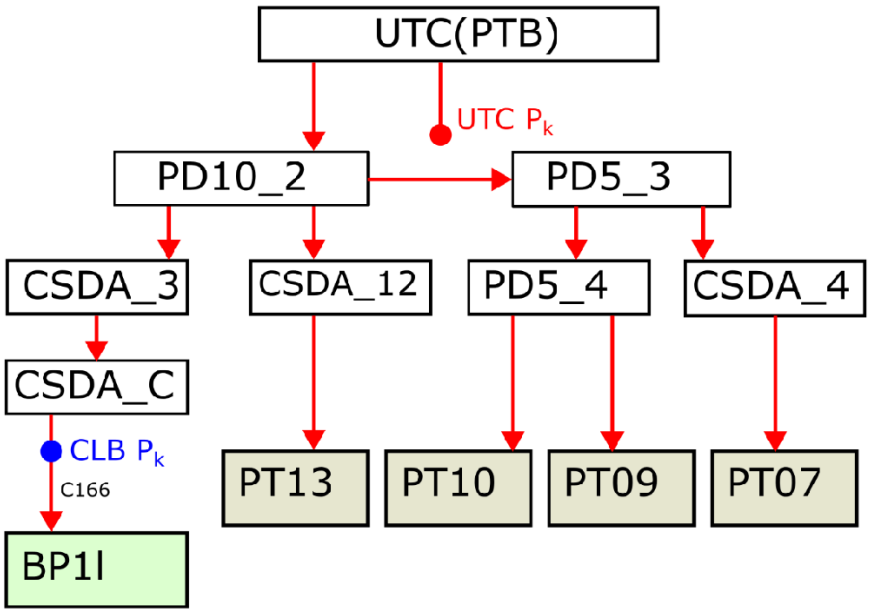


Figure 1: Signal distribution (1pps) to local receivers and B3TS

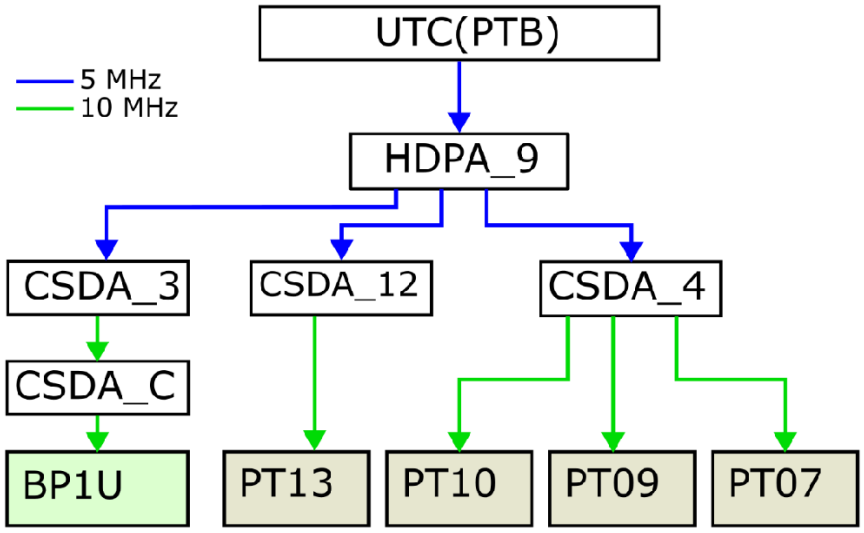


Figure 2: Signal distribution (5 MHz, 10 MHz) to local receivers and B3TS

Explanation of Acronyms:
HPDA: High Performance Distribution Amplifier (MHz signals)
CSDA: Clock Signal Distribution Amplifier (1PPS and MHz signals)
PD: Pulse Distribution Amplifier (1PPS signals)

Log of Events / Additional Information :

PTB report: "Relative calibration of internal delays of PTB GNSS receivers by means of B3TS – Campaign 1001-2023, v. 1, 2023-05-25, F Heimbach, D.Piester" received by email on June 1st 2023, filename: PTB_GNSS_Calibration_Report_2023-06-01.pdf.

PT07-BP2D

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 203312
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 30769 high elev obs : -29.943 -31.067
Iteration 0: Obs used = 347391; Huge residuals = 8; Large residuals = 69
Iteration 1: Obs used = 347391; Huge residuals = 0; Large residuals = 61
Computed code bias (P1/P2)/m = -29.968 -31.050
Computed baseline (X,Y,Z)/m = -0.186 -0.376 0.203
RMS of residuals /m = 0.381

Number of phase differences to fit baseline
L1/L2 = 199645
L5 = 0
A priori baseline (X,Y,Z)/m = -0.186 -0.376 0.203
24053 clock jitters computed out of 24064 intervals
AVE jitter /ps = -0.0 RMS jitter /ps = 28.4

Iter 1 Large residuals L1= 3
Iter 1 Large residuals L2= 3
Iter 1 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = -0.044 -0.030 -0.034
RMS of residuals L1 /m = 0.005
Computed baseline L2 (X,Y,Z)/m = -0.045 -0.029 -0.032
RMS of residuals L2 /m = 0.004
No computed baseline L5, will use L1/L2

Iter 2 Large residuals L1= 3
Iter 2 Large residuals L2= 3
Iter 2 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = -0.044 -0.030 -0.034
RMS of residuals L1 /m = 0.005
Computed baseline L2 (X,Y,Z)/m = -0.045 -0.029 -0.032
RMS of residuals L2 /m = 0.004
No computed baseline L5, will use L1/L2

New iteration of baseline
New apriori baseline (X,Y,Z)/m = -0.231 -0.406 0.170
24053 clock jitters computed out of 24064 intervals
AVE jitter /ps = 0.1 RMS jitter /ps = 0.1

Iter 3 Large residuals L1= 3
Iter 3 Large residuals L2= 3
Iter 3 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.000 -0.006 -0.002
RMS of residuals L1 /m = 0.005
Computed baseline L2 (X,Y,Z)/m = -0.001 -0.005 0.001
RMS of residuals L2 /m = 0.004

No computed baseline L5, will use L1/L2

Final baseline L1 (X,Y,Z)/m =	-0.230	-0.412	0.167
Final baseline L2 (X,Y,Z)/m =	-0.232	-0.411	0.170
Final baseline L5 (X,Y,Z)/m =	-0.231	-0.412	0.169

COMPUTATION OF CODE DIFFERENCES

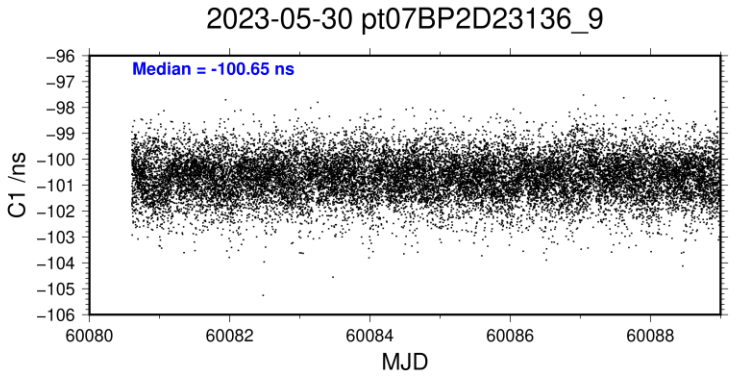
Total number of code differences = 204760

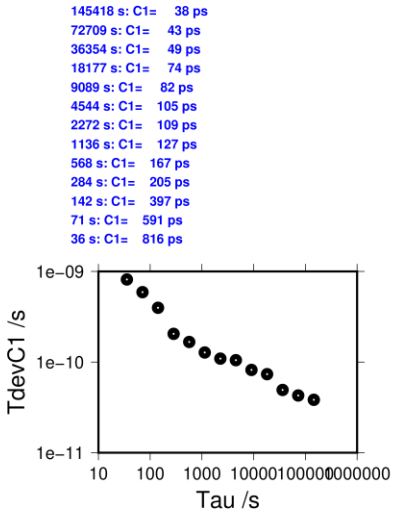
Global average of individual differences

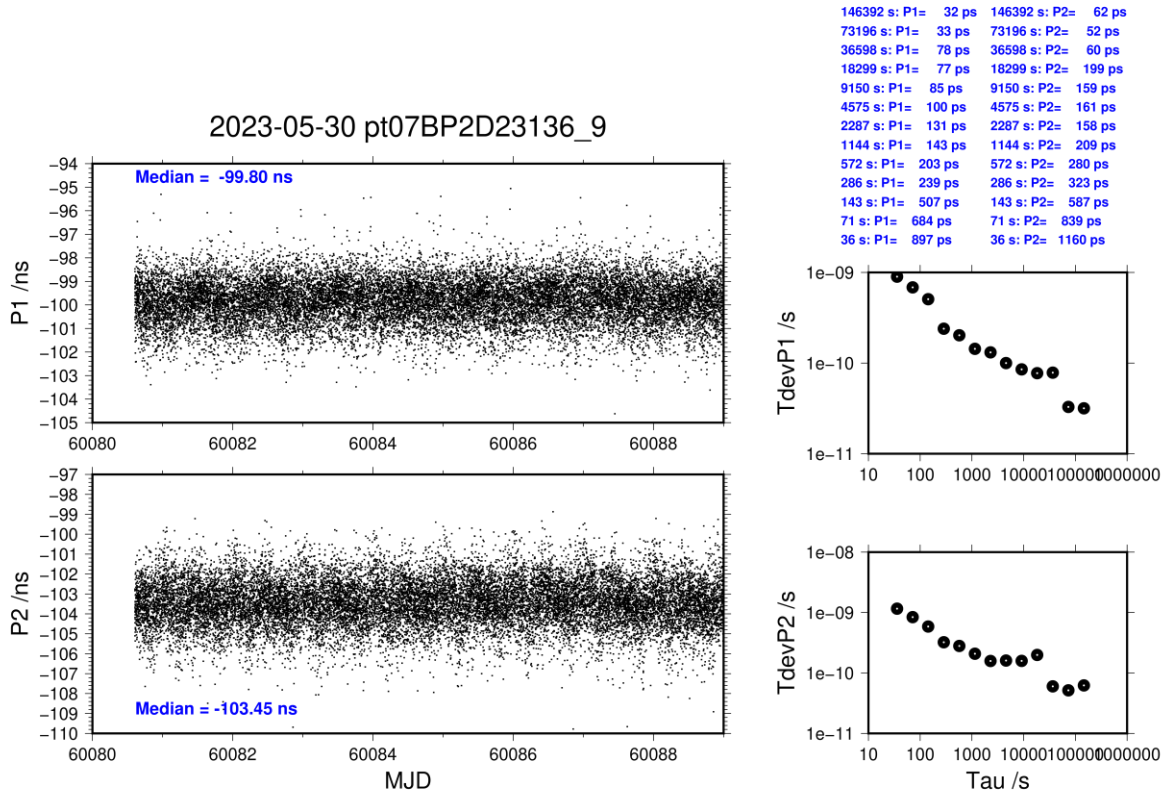
Code	#pts	ave/ns	rms/ns
C1	204672	-100.670	0.964
P1	203228	-99.833	1.088
P2	203227	-103.454	1.366

Number of 300s epochs in out file = 2418

Code	#pts	median/ns	ave/ns	rms/ns
C1	20425	-100.654	-100.675	0.800
P1	20289	-99.800	-99.838	0.923
P2	20289	-103.448	-103.451	1.172






2023-05-30 pt07BP2D23136_9
Median = -99.80 ns
Median = -103.45 ns
P1 /ns
P2 /ns
MJD
146392 s: P1= 32 ps
73196 s: P1= 33 ps
36598 s: P1= 78 ps
18299 s: P1= 77 ps
9150 s: P1= 85 ps
4575 s: P1= 100 ps
2287 s: P1= 131 ps
1144 s: P1= 143 ps
572 s: P1= 203 ps
286 s: P1= 239 ps
143 s: P1= 507 ps
71 s: P1= 684 ps
36 s: P1= 897 ps
146392 s: P2= 62 ps
73196 s: P2= 52 ps
36598 s: P2= 60 ps
18299 s: P2= 199 ps
9150 s: P2= 159 ps
4575 s: P2= 161 ps
2287 s: P2= 158 ps
1144 s: P2= 209 ps
572 s: P2= 280 ps
286 s: P2= 323 ps
143 s: P2= 587 ps
71 s: P2= 839 ps
36 s: P2= 1160 ps
TdevP1 /s
TdevP2 /s
Tau /s

PT07-BP2G

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 218388
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 33029 high elev obs : -34.481 -33.735
Iteration 0: Obs used = 373089; Huge residuals = 62; Large residuals = 197
Iteration 1: Obs used = 373092; Huge residuals = 0; Large residuals = 132
Computed code bias (P1/P2)/m = -34.463 -33.744
Computed baseline (X,Y,Z)/m = 0.131 0.411 -0.259
RMS of residuals /m = 0.408

Number of phase differences to fit baseline
L1/L2 = 214680
L5 = 0
A priori baseline (X,Y,Z)/m = 0.131 0.411 -0.259
25797 clock jitters computed out of 25810 intervals
AVE jitter /ps = -0.0 RMS jitter /ps = 28.2

Iter 1 Large residuals L1= 1
Iter 1 Large residuals L2= 1
Iter 1 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.081 0.001 0.073
RMS of residuals L1 /m = 0.004
Computed baseline L2 (X,Y,Z)/m = 0.086 0.001 0.083
RMS of residuals L2 /m = 0.003
No computed baseline L5, will use L1/L2

Iter 2 Large residuals L1= 1
Iter 2 Large residuals L2= 1
Iter 2 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.081 0.001 0.073
RMS of residuals L1 /m = 0.004
Computed baseline L2 (X,Y,Z)/m = 0.086 0.001 0.083
RMS of residuals L2 /m = 0.003
No computed baseline L5, will use L1/L2

New iteration of baseline
New apriori baseline (X,Y,Z)/m = 0.215 0.412 -0.181
25797 clock jitters computed out of 25810 intervals
AVE jitter /ps = 0.0 RMS jitter /ps = 0.2

Iter 3 Large residuals L1= 1
Iter 3 Large residuals L2= 1
Iter 3 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.001 -0.003 -0.002
RMS of residuals L1 /m = 0.004
Computed baseline L2 (X,Y,Z)/m = 0.006 -0.003 0.008
RMS of residuals L2 /m = 0.003

No computed baseline L5, will use L1/L2

Final baseline L1 (X,Y,Z)/m =	0.215	0.409	-0.183
Final baseline L2 (X,Y,Z)/m =	0.221	0.409	-0.173
Final baseline L5 (X,Y,Z)/m =	0.218	0.409	-0.178

COMPUTATION OF CODE DIFFERENCES

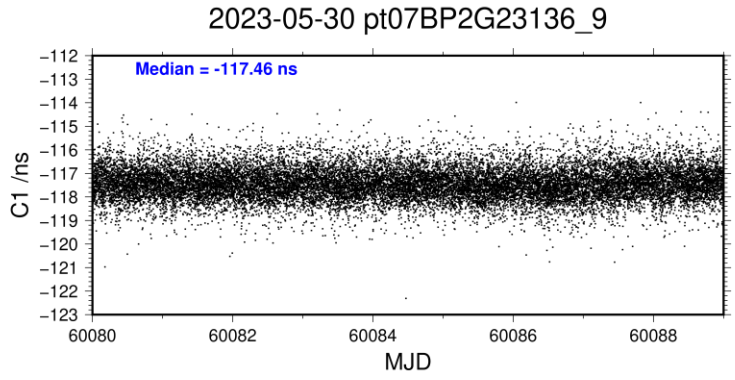
Total number of code differences = 219989

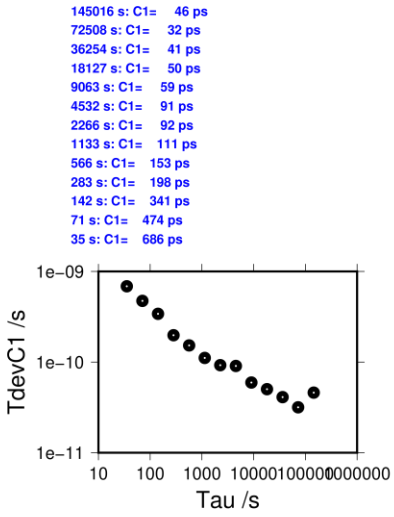
Global average of individual differences

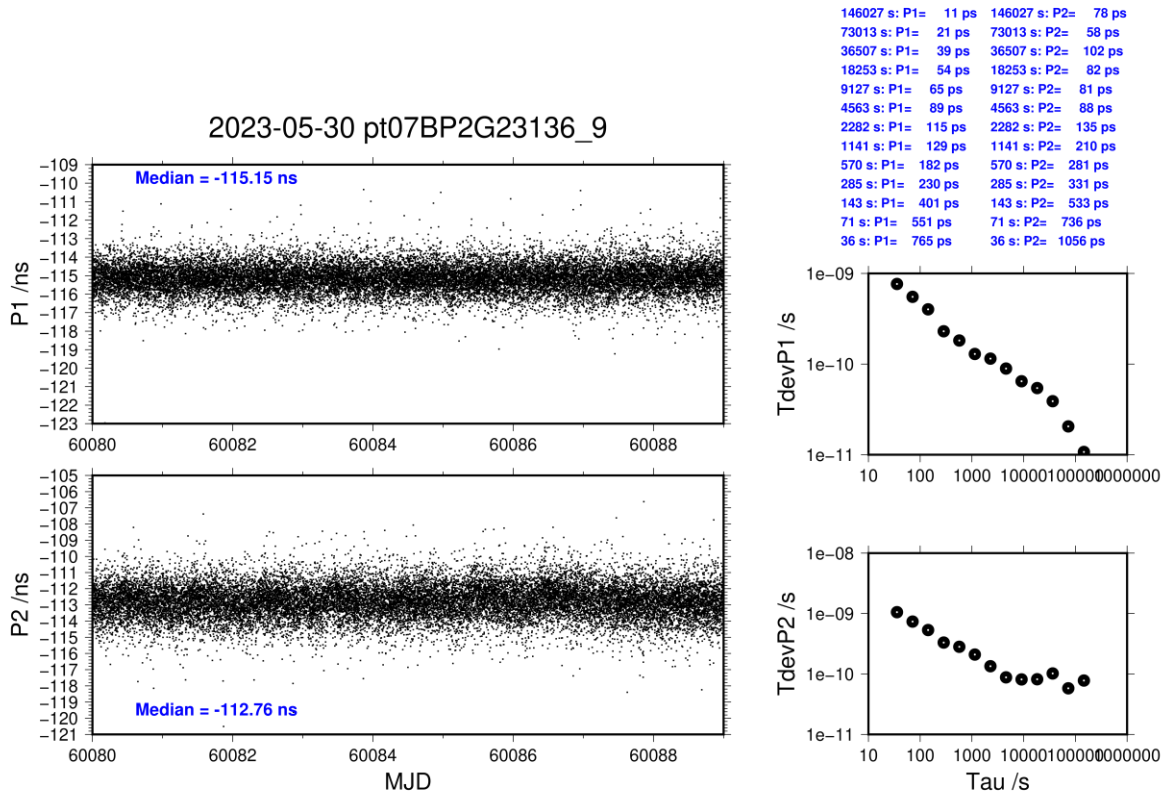
Code	#pts	ave/ns	rms/ns
C1	219915	-117.439	1.025
P1	218294	-115.156	1.113
P2	218291	-112.770	1.475

Number of 300s epochs in out file = 2592

Code	#pts	median/ns	ave/ns	rms/ns
C1	21956	-117.464	-117.439	0.674
P1	21804	-115.153	-115.156	0.769
P2	21804	-112.760	-112.778	1.058






2023-05-30 pt07BP2G23136_9
Median = -115.15 ns
Median = -112.76 ns
P1 /ns
P2 /ns
MJD
146027 s: P1= 11 ps 146027 s: P2= 78 ps
73013 s: P1= 21 ps 73013 s: P2= 58 ps
36507 s: P1= 39 ps 36507 s: P2= 102 ps
18253 s: P1= 54 ps 18253 s: P2= 82 ps
9127 s: P1= 65 ps 9127 s: P2= 81 ps
4563 s: P1= 89 ps 4563 s: P2= 88 ps
2282 s: P1= 115 ps 2282 s: P2= 135 ps
1141 s: P1= 129 ps 1141 s: P2= 210 ps
570 s: P1= 182 ps 570 s: P2= 281 ps
285 s: P1= 230 ps 285 s: P2= 331 ps
143 s: P1= 401 ps 143 s: P2= 533 ps
71 s: P1= 551 ps 71 s: P2= 736 ps
36 s: P1= 765 ps 36 s: P2= 1056 ps
TdevP1 /s
TdevP2 /s
Tau /s

PT09-BP2D

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 208193
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 30780 high elev obs : -8.284 -9.663
Iteration 0: Obs used = 357063; Huge residuals = 0; Large residuals = 137
Iteration 1: Obs used = 357063; Huge residuals = 0; Large residuals = 137
Computed code bias (P1/P2)/m = -8.472 -9.722
Computed baseline (X,Y,Z)/m = 4.890 -5.148 -3.504
RMS of residuals /m = 0.375

Number of phase differences to fit baseline
L1/L2 = 206947
L5 = 117563
A priori baseline (X,Y,Z)/m = 4.890 -5.148 -3.504
24163 clock jitters computed out of 24163 intervals
AVE jitter /ps = -0.0 RMS jitter /ps = 4.3

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 0
Iter 1 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = -0.003 -0.002 0.071
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = -0.007 0.004 0.072
RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = -0.017 -0.000 0.062
RMS of residuals L5 /m = 0.003

New iteration of baseline
New apriori baseline (X,Y,Z)/m = 4.885 -5.148 -3.433
24163 clock jitters computed out of 24163 intervals
AVE jitter /ps = 0.0 RMS jitter /ps = 0.1

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 0
Iter 2 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.003 -0.004 0.002
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = -0.001 0.002 0.003
RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = -0.011 -0.001 -0.006
RMS of residuals L5 /m = 0.003

Final baseline L1 (X,Y,Z)/m = 4.888 -5.151 -3.431
Final baseline L2 (X,Y,Z)/m = 4.884 -5.146 -3.430
Final baseline L5 (X,Y,Z)/m = 4.874 -5.148 -3.439

COMPUTATION OF CODE DIFFERENCES

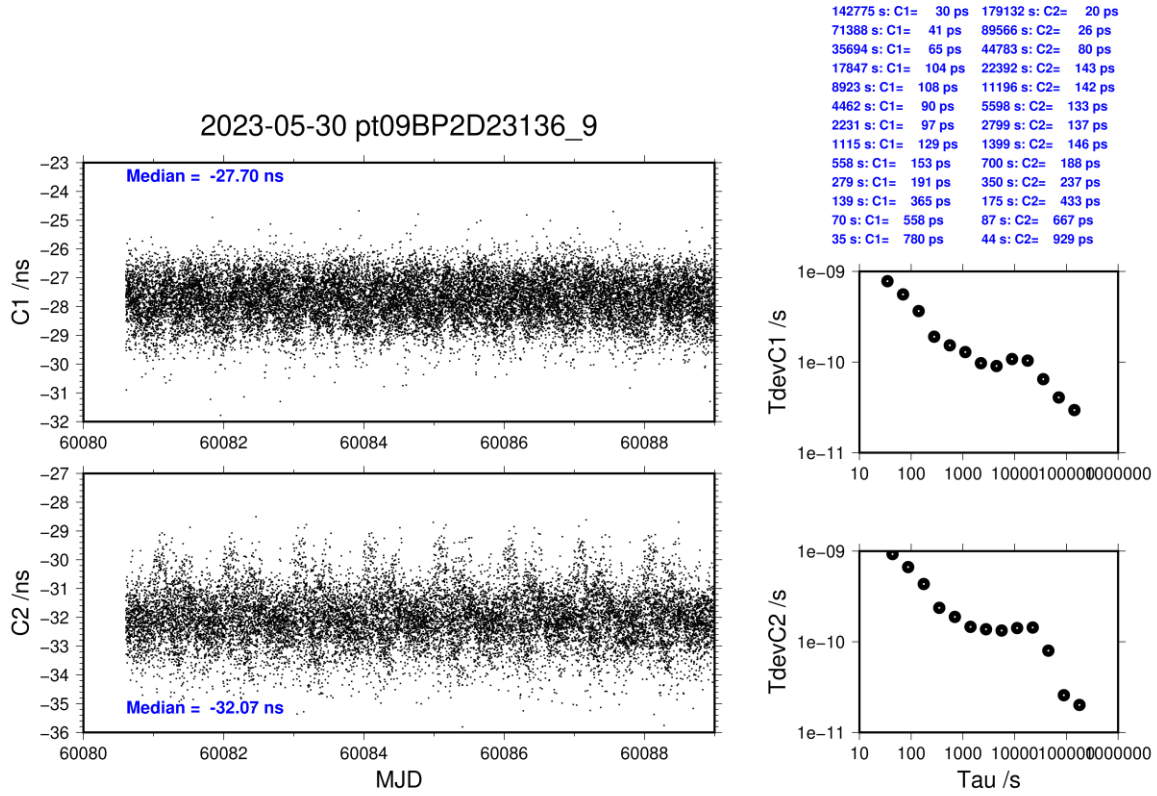
Total number of code differences = 721116

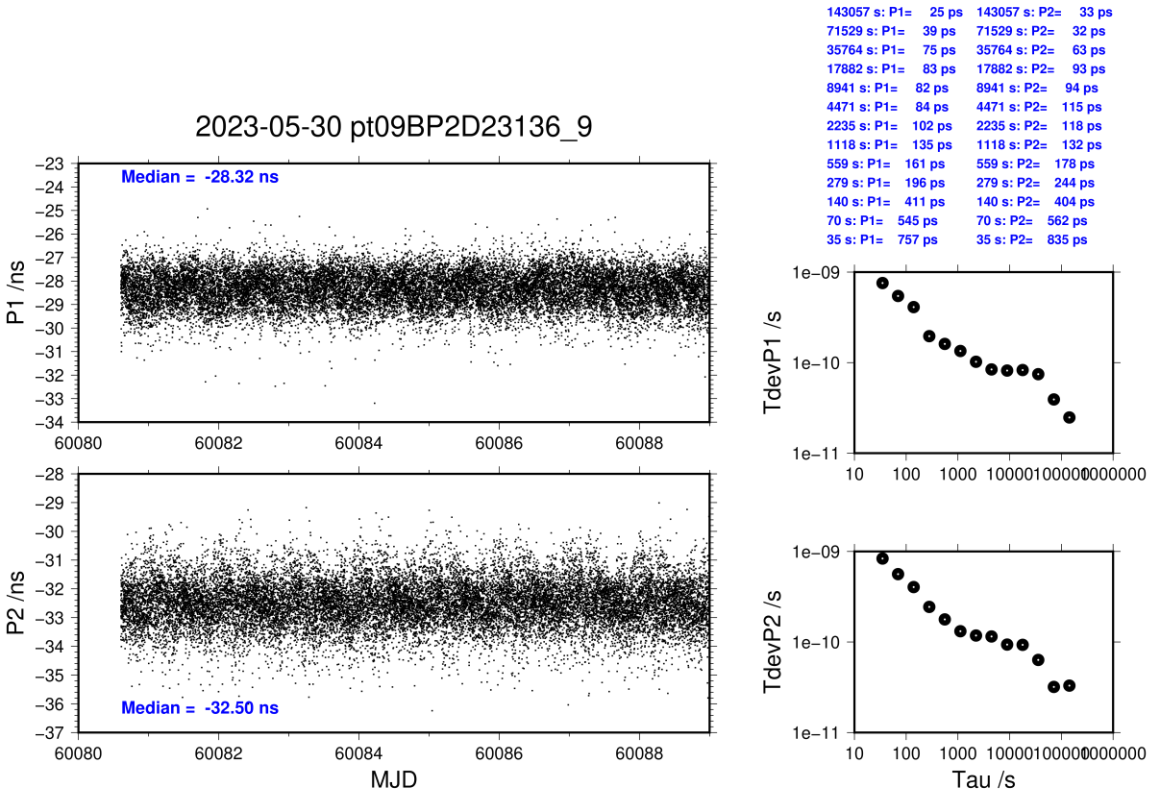
Global average of individual differences

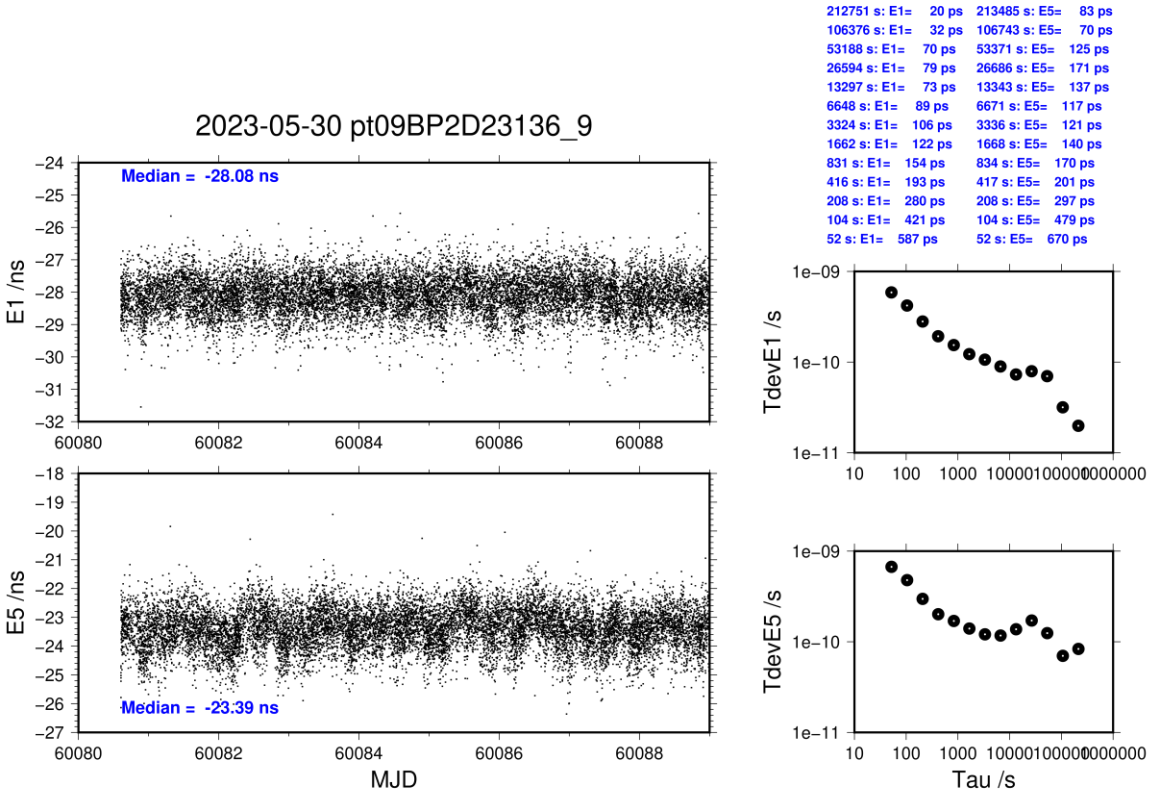
Code	#pts	ave/ns	rms/ns
C1	208507	-27.730	1.143
C2	166173	-32.042	1.398
P1	208100	-28.346	1.163
P2	208096	-32.510	1.247
E1	139596	-28.086	0.976
E5	139214	-23.402	0.958

Number of 300s epochs in out file = 2418

Code	#pts	median/ns	ave/ns	rms/ns
C1	20803	-27.705	-27.733	0.760
C2	16581	-32.067	-32.042	0.918
P1	20762	-28.315	-28.349	0.759
P2	20762	-32.497	-32.500	0.811
E1	13961	-28.081	-28.092	0.600
E5	13913	-23.386	-23.406	0.700




143057 s: P1= 25 ps 143057 s: P2= 33 ps
71529 s: P1= 39 ps 71529 s: P2= 32 ps
35764 s: P1= 75 ps 35764 s: P2= 63 ps
17882 s: P1= 83 ps 17882 s: P2= 93 ps
8941 s: P1= 82 ps 8941 s: P2= 94 ps
4471 s: P1= 84 ps 4471 s: P2= 115 ps
2235 s: P1= 102 ps 2235 s: P2= 118 ps
1118 s: P1= 135 ps 1118 s: P2= 132 ps
559 s: P1= 161 ps 559 s: P2= 178 ps
279 s: P1= 196 ps 279 s: P2= 244 ps
140 s: P1= 411 ps 140 s: P2= 404 ps
70 s: P1= 545 ps 70 s: P2= 562 ps
35 s: P1= 757 ps 35 s: P2= 835 ps
2023-05-30 pt09BP2D23136_9
Median = -28.32 ns
Median = -32.50 ns
P1 /ns
P2 /ns
MJD
TdevP1 /s
TdevP2 /s
Tau /s


212751 s: E1= 20 ps 213485 s: E5= 83 ps
106376 s: E1= 32 ps 106743 s: E5= 70 ps
53188 s: E1= 70 ps 53371 s: E5= 125 ps
26594 s: E1= 79 ps 26686 s: E5= 171 ps
13297 s: E1= 73 ps 13343 s: E5= 137 ps
6648 s: E1= 89 ps 6671 s: E5= 117 ps
3324 s: E1= 106 ps 3336 s: E5= 121 ps
1662 s: E1= 122 ps 1668 s: E5= 140 ps
831 s: E1= 154 ps 834 s: E5= 170 ps
416 s: E1= 193 ps 417 s: E5= 201 ps
208 s: E1= 280 ps 208 s: E5= 297 ps
104 s: E1= 421 ps 104 s: E5= 479 ps
52 s: E1= 587 ps 52 s: E5= 670 ps
2023-05-30 pt09BP2D23136_9
Median = -28.08 ns
Median = -23.39 ns
E1 /ns
E5 /ns
MJD
TdevE1 /s
TdevE5 /s
Tau /s

PT09-BP2G

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 225337
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 33040 high elev obs : -12.843 -12.279
Iteration 0: Obs used = 386701; Huge residuals = 1; Large residuals = 461
Iteration 1: Obs used = 386701; Huge residuals = 0; Large residuals = 459
Computed code bias (P1/P2)/m = -12.954 -12.399
Computed baseline (X,Y,Z)/m = 5.198 -4.357 -3.991
RMS of residuals /m = 0.427

Number of phase differences to fit baseline
L1/L2 = 224082
L5 = 126790
A priori baseline (X,Y,Z)/m = 5.198 -4.357 -3.991
25916 clock jitters computed out of 25916 intervals
AVE jitter /ps = -0.1 RMS jitter /ps = 3.0

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 0
Iter 1 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.129 0.031 0.201
RMS of residuals L1 /m = 0.002
Computed baseline L2 (X,Y,Z)/m = 0.129 0.034 0.210
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = 0.135 0.029 0.208
RMS of residuals L5 /m = 0.002

New iteration of baseline
New apriori baseline (X,Y,Z)/m = 5.328 -4.324 -3.786
25916 clock jitters computed out of 25916 intervals
AVE jitter /ps = 0.0 RMS jitter /ps = 0.4

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 0
Iter 2 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.005 -0.001 0.003
RMS of residuals L1 /m = 0.002
Computed baseline L2 (X,Y,Z)/m = 0.005 0.001 0.011
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = 0.010 -0.000 0.013
RMS of residuals L5 /m = 0.002

Final baseline L1 (X,Y,Z)/m = 5.332 -4.325 -3.782
Final baseline L2 (X,Y,Z)/m = 5.333 -4.323 -3.774
Final baseline L5 (X,Y,Z)/m = 5.338 -4.324 -3.773

COMPUTATION OF CODE DIFFERENCES

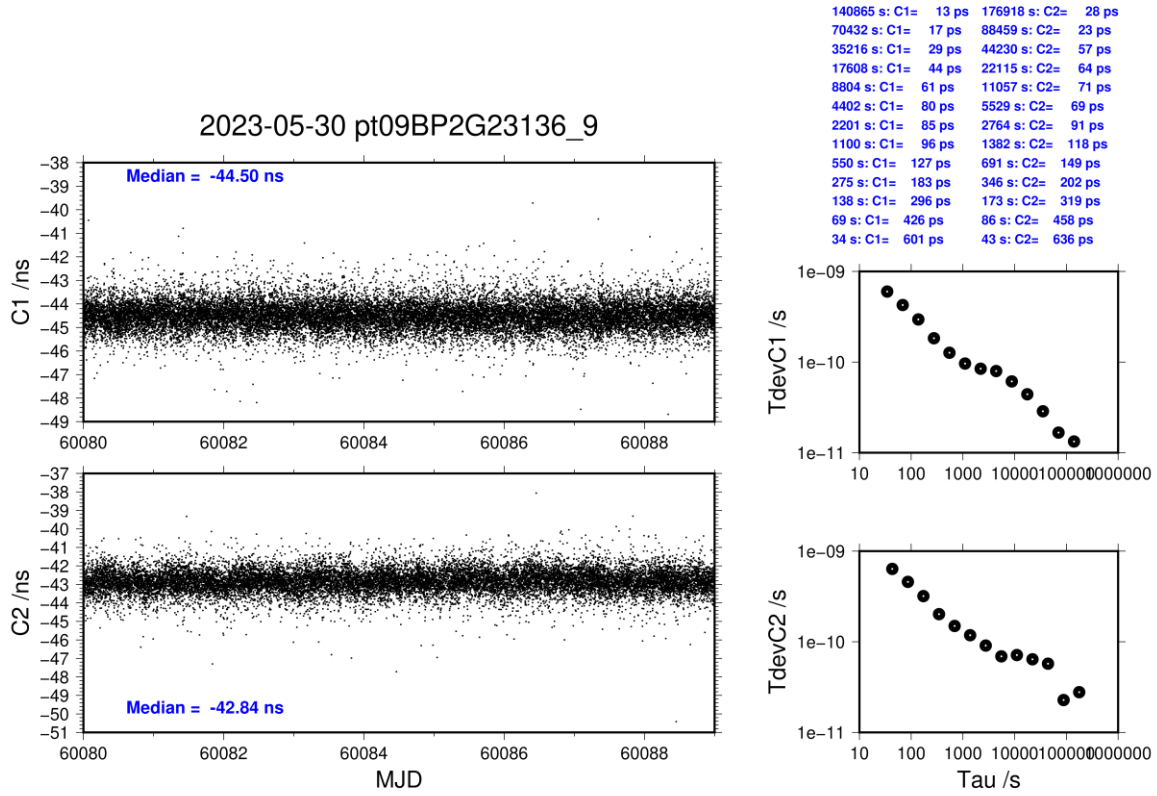
Total number of code differences = 786190

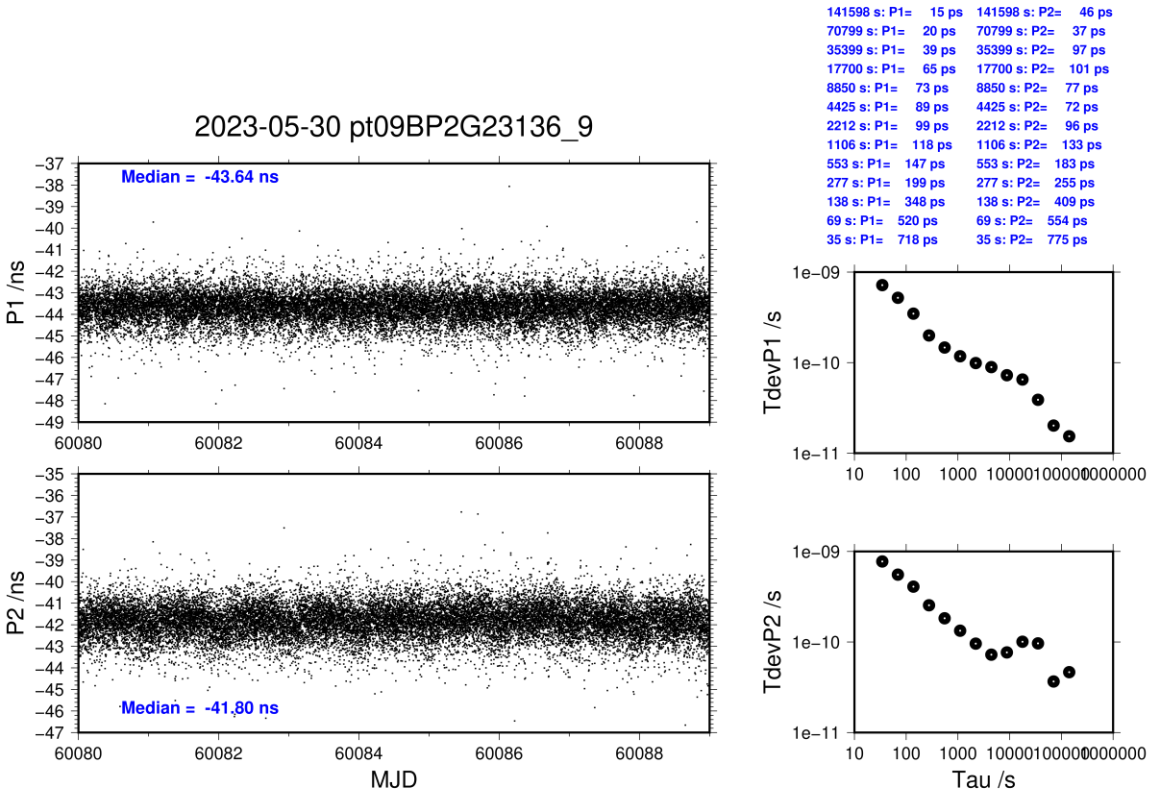
Global average of individual differences

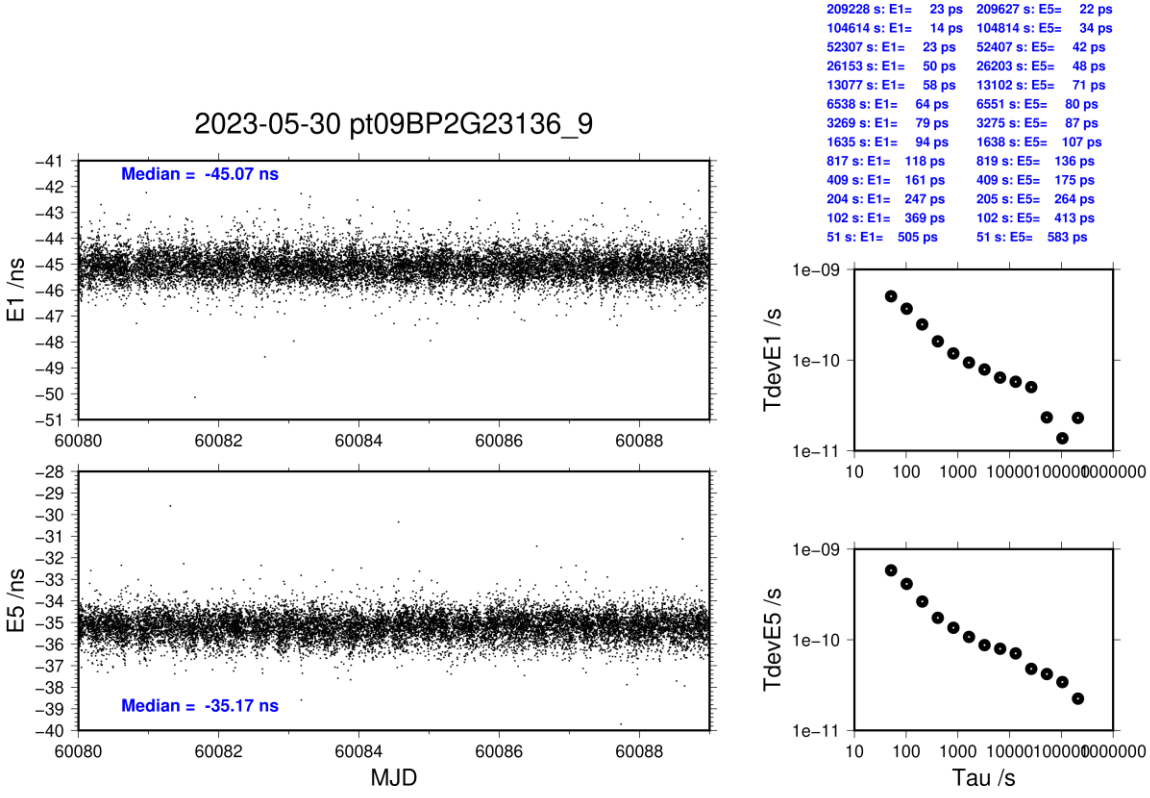
Code	#pts	ave/ns	rms/ns
C1	226326	-44.497	1.239
C2	180112	-42.837	1.385
P1	225199	-43.664	1.279
P2	225199	-41.822	1.435
E1	152288	-45.052	1.024
E5	152064	-35.191	0.921

Number of 300s epochs in out file = 2592

Code	#pts	median/ns	ave/ns	rms/ns
C1	22603	-44.504	-44.502	0.594
C2	17997	-42.838	-42.840	0.642
P1	22486	-43.644	-43.670	0.708
P2	22486	-41.804	-41.824	0.787
E1	15218	-45.072	-45.059	0.510
E5	15189	-35.172	-35.192	0.576




2023-05-30 pt09BP2G23136_9
Median = -43.64 ns
Median = -41.80 ns
P1 /ns
P2 /ns
MJD
141598 s: P1= 15 ps 141598 s: P2= 46 ps
70799 s: P1= 20 ps 70799 s: P2= 37 ps
35399 s: P1= 39 ps 35399 s: P2= 97 ps
17700 s: P1= 65 ps 17700 s: P2= 101 ps
8850 s: P1= 73 ps 8850 s: P2= 77 ps
4425 s: P1= 89 ps 4425 s: P2= 72 ps
2212 s: P1= 99 ps 2212 s: P2= 96 ps
1106 s: P1= 118 ps 1106 s: P2= 133 ps
553 s: P1= 147 ps 553 s: P2= 183 ps
277 s: P1= 199 ps 277 s: P2= 255 ps
138 s: P1= 348 ps 138 s: P2= 409 ps
69 s: P1= 520 ps 69 s: P2= 554 ps
35 s: P1= 718 ps 35 s: P2= 775 ps
TdevP1 /s
TdevP2 /s
Tau /s


2023-05-30 pt09BP2G23136_9
Median = -45.07 ns
Median = -35.17 ns
E1 /ns
E5 /ns
MJD
209228 s: E1= 23 ps 209627 s: E5= 22 ps
104614 s: E1= 14 ps 104814 s: E5= 34 ps
52307 s: E1= 23 ps 52407 s: E5= 42 ps
26153 s: E1= 50 ps 26203 s: E5= 48 ps
13077 s: E1= 58 ps 13102 s: E5= 71 ps
6538 s: E1= 64 ps 6551 s: E5= 80 ps
3269 s: E1= 79 ps 3275 s: E5= 87 ps
1635 s: E1= 94 ps 1638 s: E5= 107 ps
817 s: E1= 118 ps 819 s: E5= 136 ps
409 s: E1= 161 ps 409 s: E5= 175 ps
204 s: E1= 247 ps 205 s: E5= 264 ps
102 s: E1= 369 ps 102 s: E5= 413 ps
51 s: E1= 505 ps 51 s: E5= 583 ps
TdevE1 /s
TdevE5 /s
Tau /s

PT10-BP2D

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 205283
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 30780 high elev obs : 43.597 40.532
Iteration 0: Obs used = 350442; Huge residuals = 68; Large residuals = 938
Iteration 1: Obs used = 350435; Huge residuals = 0; Large residuals = 877
Computed code bias (P1/P2)/m = 43.344 40.386
Computed baseline (X,Y,Z)/m = 5.519 -5.593 -3.732
RMS of residuals /m = 0.421

Number of phase differences to fit baseline
L1/L2 = 203378
L5 = 116973
A priori baseline (X,Y,Z)/m = 5.519 -5.593 -3.732
24163 clock jitters computed out of 24163 intervals
AVE jitter /ps = -0.1 RMS jitter /ps = 4.7

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 0
Iter 1 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.012 -0.022 0.060
RMS of residuals L1 /m = 0.004
Computed baseline L2 (X,Y,Z)/m = 0.017 -0.017 0.065
RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = 0.008 -0.019 0.054
RMS of residuals L5 /m = 0.004

New iteration of baseline
New apriori baseline (X,Y,Z)/m = 5.534 -5.613 -3.669
24163 clock jitters computed out of 24163 intervals
AVE jitter /ps = 0.1 RMS jitter /ps = 0.1

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 0
Iter 2 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = -0.000 -0.009 -0.001
RMS of residuals L1 /m = 0.004
Computed baseline L2 (X,Y,Z)/m = 0.005 -0.004 0.005
RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = -0.004 -0.004 -0.006
RMS of residuals L5 /m = 0.004

Final baseline L1 (X,Y,Z)/m = 5.534 -5.622 -3.670
Final baseline L2 (X,Y,Z)/m = 5.539 -5.617 -3.664
Final baseline L5 (X,Y,Z)/m = 5.530 -5.617 -3.675

COMPUTATION OF CODE DIFFERENCES

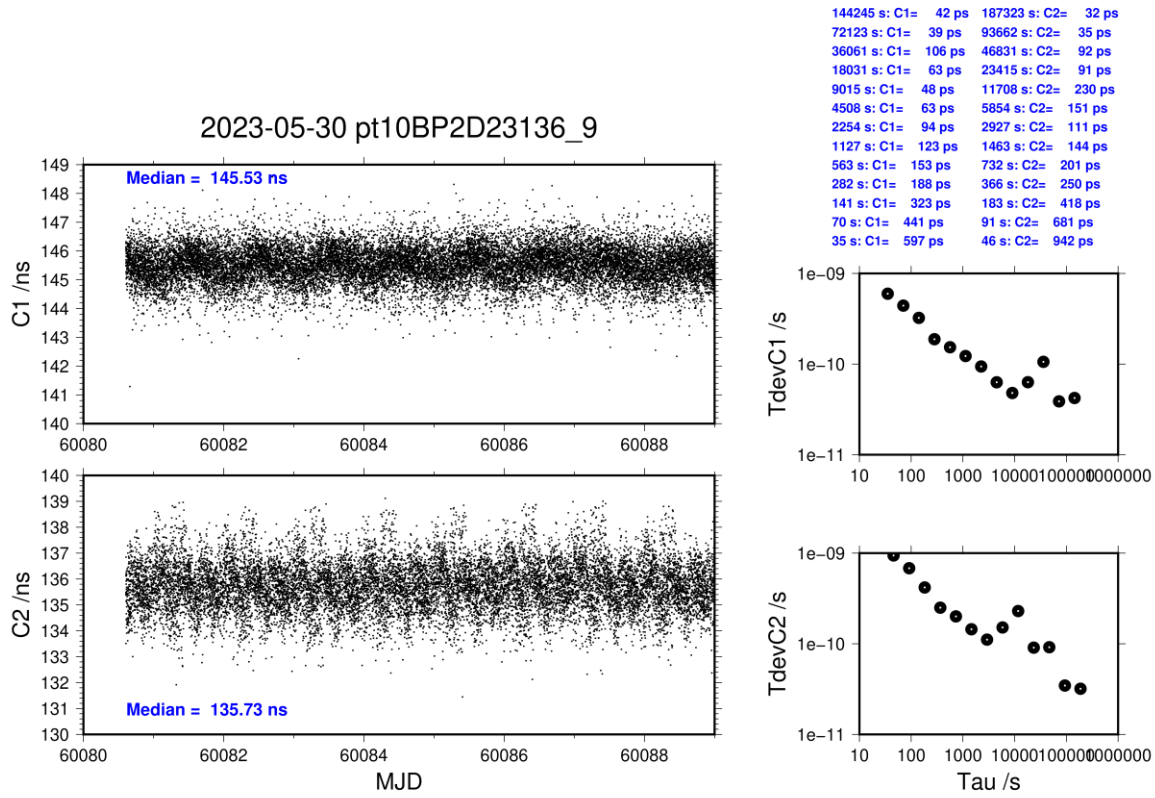
Total number of code differences = 529584

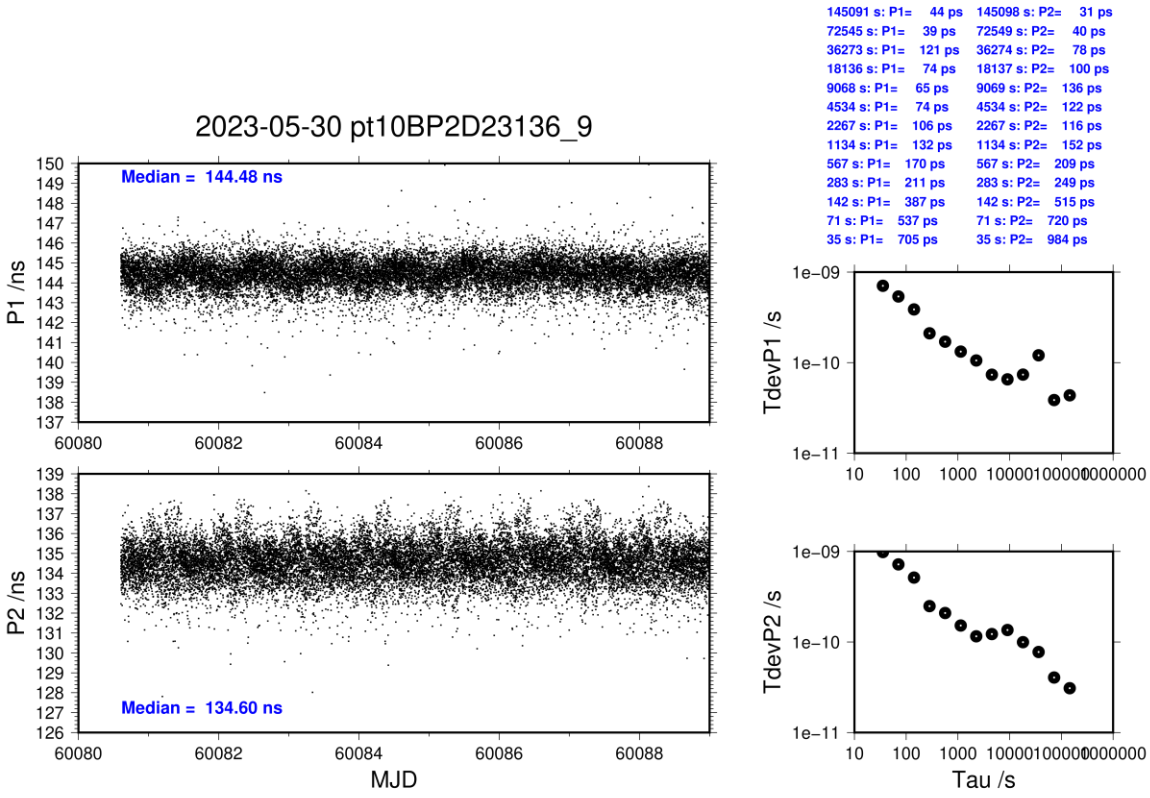
Global average of individual differences

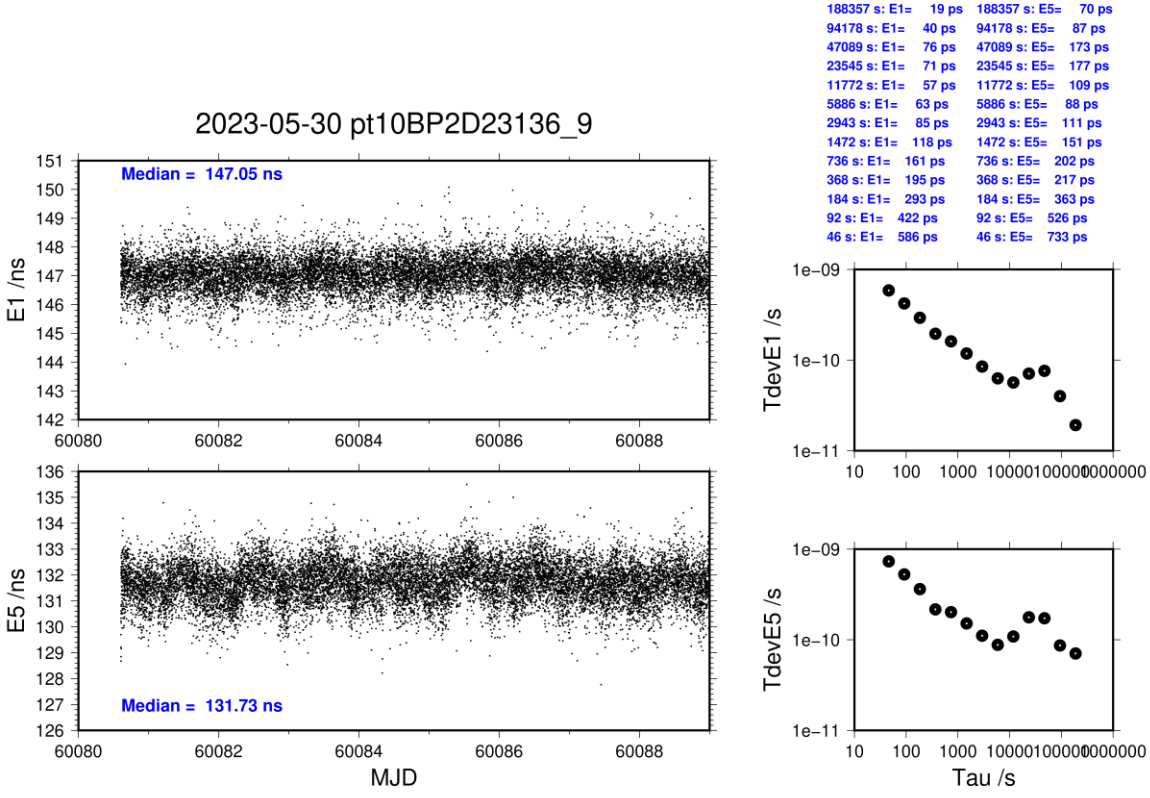
Code	#pts	ave/ns	rms/ns
C1	206291	145.509	1.040
C2	158882	135.721	1.311
P1	205168	144.439	1.279
P2	205161	134.569	1.481
E1	157740	147.027	0.924
E5	157739	131.717	0.997

Number of 300s epochs in out file = 2418

Code	#pts	median/ns	ave/ns	rms/ns
C1	20591	145.532	145.518	0.622
C2	15856	135.726	135.727	0.942
P1	20471	144.484	144.450	0.735
P2	20470	134.597	134.583	0.983
E1	15769	147.049	147.032	0.601
E5	15769	131.731	131.718	0.772




2023-05-30 pt10BP2D23136_9
Median = 144.48 ns
Median = 134.60 ns
P1 /ns
P2 /ns
MJD
145091 s: P1= 44 ps 145098 s: P2= 31 ps
72545 s: P1= 39 ps 72549 s: P2= 40 ps
36273 s: P1= 121 ps 36274 s: P2= 78 ps
18136 s: P1= 74 ps 18137 s: P2= 100 ps
9068 s: P1= 65 ps 9069 s: P2= 136 ps
4534 s: P1= 74 ps 4534 s: P2= 122 ps
2267 s: P1= 106 ps 2267 s: P2= 116 ps
1134 s: P1= 132 ps 1134 s: P2= 152 ps
567 s: P1= 170 ps 567 s: P2= 209 ps
283 s: P1= 211 ps 283 s: P2= 249 ps
142 s: P1= 387 ps 142 s: P2= 515 ps
71 s: P1= 537 ps 71 s: P2= 720 ps
35 s: P1= 705 ps 35 s: P2= 984 ps
TdevP1 /s
TdevP2 /s
Tau /s


2023-05-30 pt10BP2D23136_9
Median = 147.05 ns
Median = 131.73 ns
E1 /ns
E5 /ns
MJD
188357 s: E1= 19 ps 188357 s: E5= 70 ps
94178 s: E1= 40 ps 94178 s: E5= 87 ps
47089 s: E1= 76 ps 47089 s: E5= 173 ps
23545 s: E1= 71 ps 23545 s: E5= 177 ps
11772 s: E1= 57 ps 11772 s: E5= 109 ps
5886 s: E1= 63 ps 5886 s: E5= 88 ps
2943 s: E1= 85 ps 2943 s: E5= 111 ps
1472 s: E1= 118 ps 1472 s: E5= 151 ps
736 s: E1= 161 ps 736 s: E5= 202 ps
368 s: E1= 195 ps 368 s: E5= 217 ps
184 s: E1= 293 ps 184 s: E5= 363 ps
92 s: E1= 422 ps 92 s: E5= 526 ps
46 s: E1= 586 ps 46 s: E5= 733 ps
TdevE1 /s
TdevE5 /s
Tau /s

PT10-BP2G

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 219770
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 33040 high elev obs : 39.024 37.939
Iteration 0: Obs used = 374698; Huge residuals = 50; Large residuals = 1330
Iteration 1: Obs used = 374688; Huge residuals = 0; Large residuals = 1290
Computed code bias (P1/P2)/m = 38.853 37.706
Computed baseline (X,Y,Z)/m = 5.831 -4.809 -4.205
RMS of residuals /m = 0.463

Number of phase differences to fit baseline
L1/L2 = 217859
L5 = 124950
A priori baseline (X,Y,Z)/m = 5.831 -4.809 -4.205
25916 clock jitters computed out of 25916 intervals
AVE jitter /ps = -0.1 RMS jitter /ps = 3.6

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 0
Iter 1 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.143 0.015 0.178
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.156 0.017 0.192
RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = 0.155 0.017 0.186
RMS of residuals L5 /m = 0.003

New iteration of baseline
New apriori baseline (X,Y,Z)/m = 5.980 -4.792 -4.020
25916 clock jitters computed out of 25916 intervals
AVE jitter /ps = 0.0 RMS jitter /ps = 0.4

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 0
Iter 2 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = -0.001 -0.004 -0.000
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.012 -0.002 0.013
RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = 0.011 -0.000 0.010
RMS of residuals L5 /m = 0.003

Final baseline L1 (X,Y,Z)/m = 5.979 -4.797 -4.020
Final baseline L2 (X,Y,Z)/m = 5.992 -4.795 -4.006
Final baseline L5 (X,Y,Z)/m = 5.991 -4.793 -4.010

COMPUTATION OF CODE DIFFERENCES

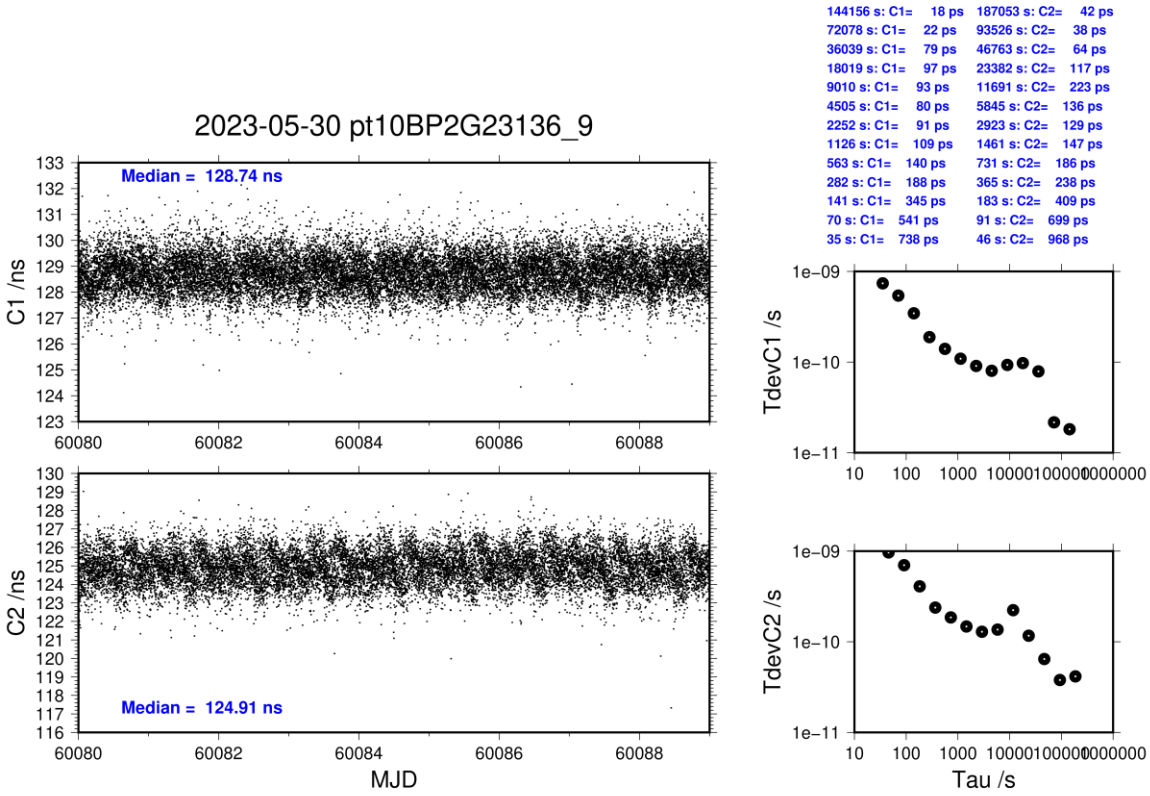
Total number of code differences = 568297

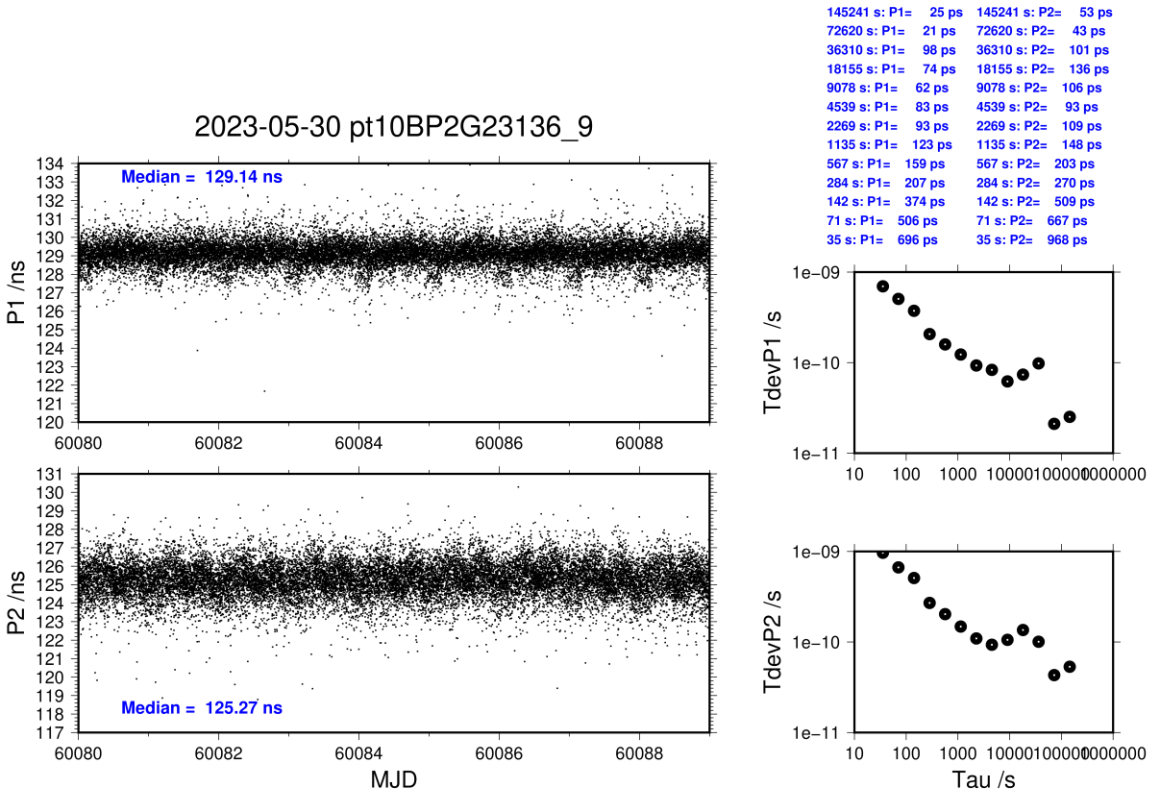
Global average of individual differences

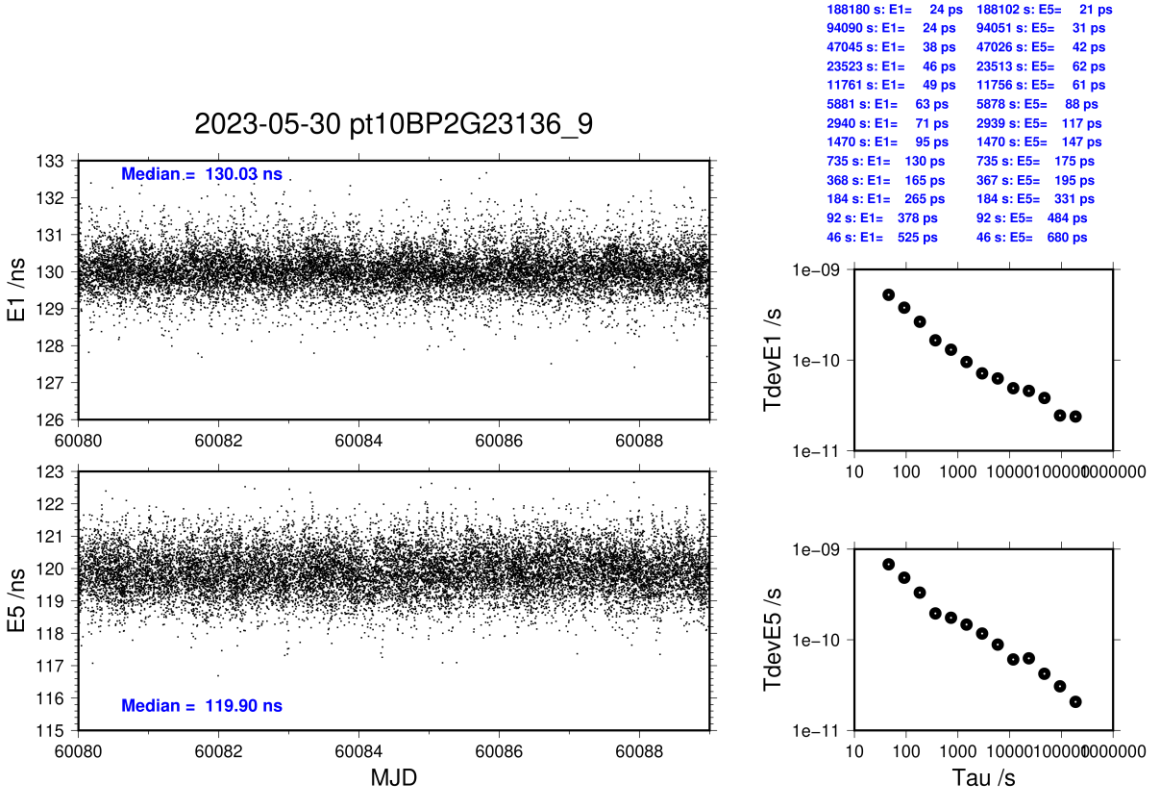
Code	#pts	ave/ns	rms/ns
C1	221154	128.732	1.254
C2	170442	124.899	1.434
P1	219680	129.118	1.374
P2	219679	125.251	1.638
E1	169170	130.044	0.950
E5	169242	119.920	0.945

Number of 300s epochs in out file = 2592

Code	#pts	median/ns	ave/ns	rms/ns
C1	22087	128.741	128.740	0.726
C2	17022	124.914	124.902	0.954
P1	21922	129.139	129.130	0.708
P2	21922	125.268	125.252	0.955
E1	16920	130.031	130.052	0.529
E5	16927	119.899	119.922	0.683




2023-05-30 pt10BP2G23136_9
Median = 129.14 ns
Median = 125.27 ns
P1 /ns
P2 /ns
MJD
145241 s: P1= 25 ps
72620 s: P1= 21 ps
36310 s: P1= 98 ps
18155 s: P1= 74 ps
9078 s: P1= 62 ps
4539 s: P1= 83 ps
2269 s: P1= 93 ps
1135 s: P1= 123 ps
567 s: P1= 159 ps
284 s: P1= 207 ps
142 s: P1= 374 ps
71 s: P1= 506 ps
35 s: P1= 696 ps
145241 s: P2= 53 ps
72620 s: P2= 43 ps
36310 s: P2= 101 ps
18155 s: P2= 136 ps
9078 s: P2= 106 ps
4539 s: P2= 93 ps
2269 s: P2= 109 ps
1135 s: P2= 148 ps
567 s: P2= 203 ps
284 s: P2= 270 ps
142 s: P2= 509 ps
71 s: P2= 667 ps
35 s: P2= 968 ps
TdevP1 /s
TdevP2 /s
Tau /s


2023-05-30 pt10BP2G23136_9
Median = 130.03 ns
Median = 119.90 ns
E1 /ns
E5 /ns
MJD
188180 s: E1= 24 ps
94090 s: E1= 24 ps
47045 s: E1= 38 ps
23523 s: E1= 46 ps
11761 s: E1= 49 ps
5881 s: E1= 63 ps
2940 s: E1= 71 ps
1470 s: E1= 95 ps
735 s: E1= 130 ps
368 s: E1= 165 ps
184 s: E1= 265 ps
92 s: E1= 378 ps
46 s: E1= 525 ps
188102 s: E5= 21 ps
94051 s: E5= 31 ps
47026 s: E5= 42 ps
23513 s: E5= 62 ps
11756 s: E5= 61 ps
5878 s: E5= 88 ps
2939 s: E5= 117 ps
1470 s: E5= 147 ps
735 s: E5= 175 ps
367 s: E5= 195 ps
184 s: E5= 331 ps
92 s: E5= 484 ps
46 s: E5= 680 ps
TdevE1 /s
TdevE5 /s
Tau /s

PTBB-BP2D

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 208601
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 30780 high elev obs : 24.334 22.481
Iteration 0: Obs used = 357662; Huge residuals = 86; Large residuals = 354
Iteration 1: Obs used = 357660; Huge residuals = 0; Large residuals = 234
Computed code bias (P1/P2)/m = 24.222 22.472
Computed baseline (X,Y,Z)/m = 2.301 -2.896 -1.604
RMS of residuals /m = 0.432

Number of phase differences to fit baseline
L1/L2 = 207356
L5 = 119875
A priori baseline (X,Y,Z)/m = 2.301 -2.896 -1.604
24163 clock jitters computed out of 24163 intervals
AVE jitter /ps = 0.1 RMS jitter /ps = 4.1

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 1
Iter 1 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = -0.022 0.014 0.016
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = -0.025 0.020 0.016
RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = -0.035 0.016 0.005
RMS of residuals L5 /m = 0.003

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 1
Iter 2 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = -0.022 0.014 0.016
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = -0.025 0.020 0.016
RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = -0.035 0.016 0.005
RMS of residuals L5 /m = 0.003

New iteration of baseline
New apriori baseline (X,Y,Z)/m = 2.278 -2.879 -1.588
24163 clock jitters computed out of 24163 intervals
AVE jitter /ps = -0.1 RMS jitter /ps = 0.1

Iter 3 Large residuals L1= 0
Iter 3 Large residuals L2= 1
Iter 3 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = -0.000 0.001 0.001
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = -0.002 0.008 0.000
RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = -0.013 0.004 -0.011
RMS of residuals L5 /m = 0.003

Final baseline L1 (X,Y,Z)/m = 2.278 -2.877 -1.587
Final baseline L2 (X,Y,Z)/m = 2.275 -2.871 -1.588
Final baseline L5 (X,Y,Z)/m = 2.265 -2.875 -1.598

COMPUTATION OF CODE DIFFERENCES

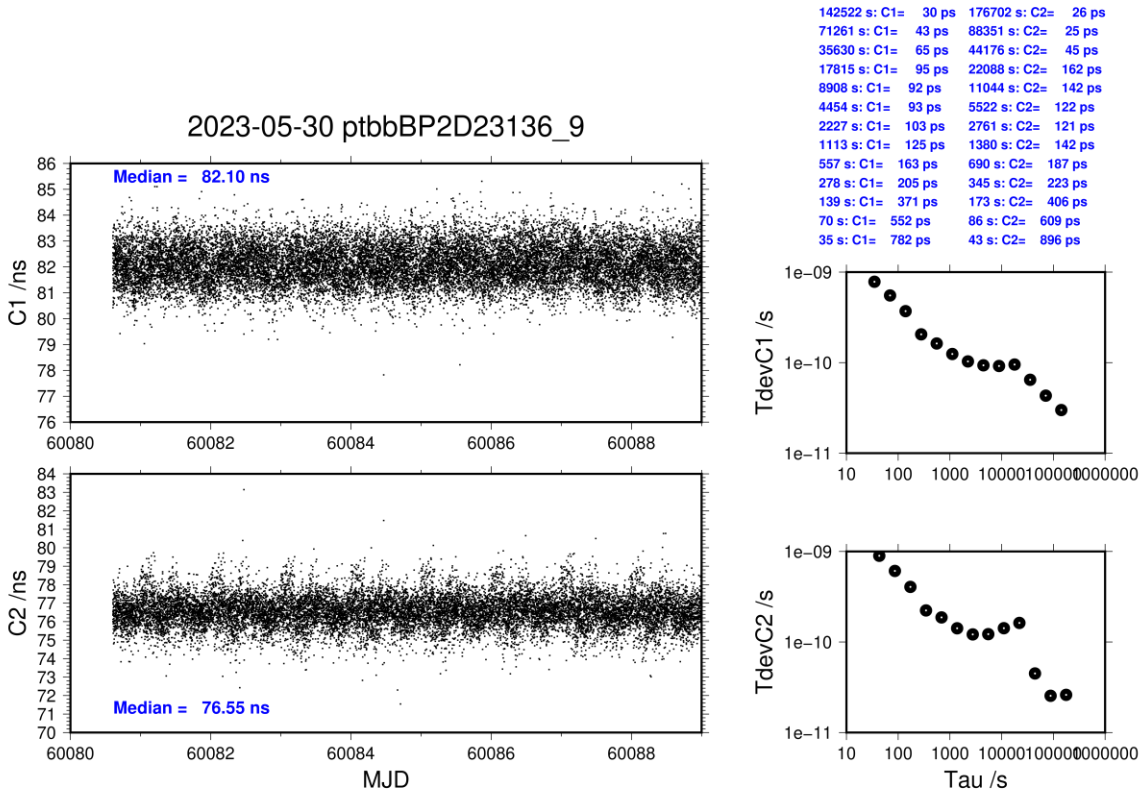
Total number of code differences = 747227

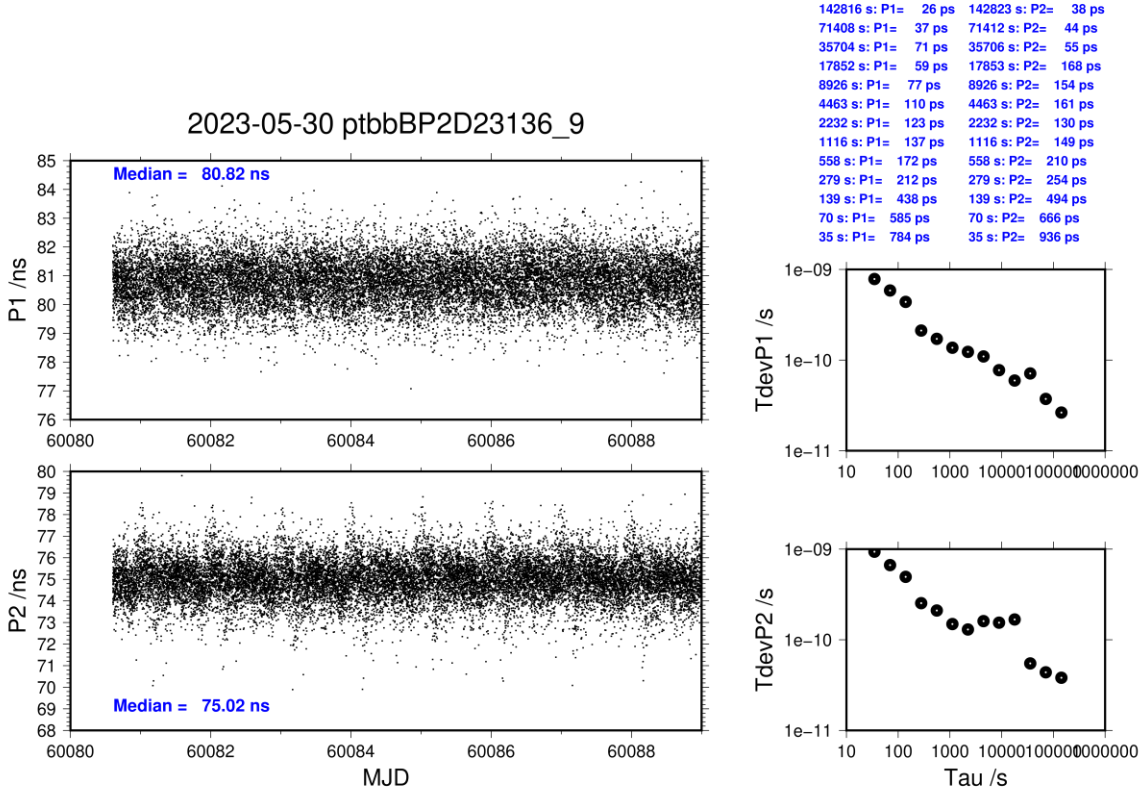
Global average of individual differences

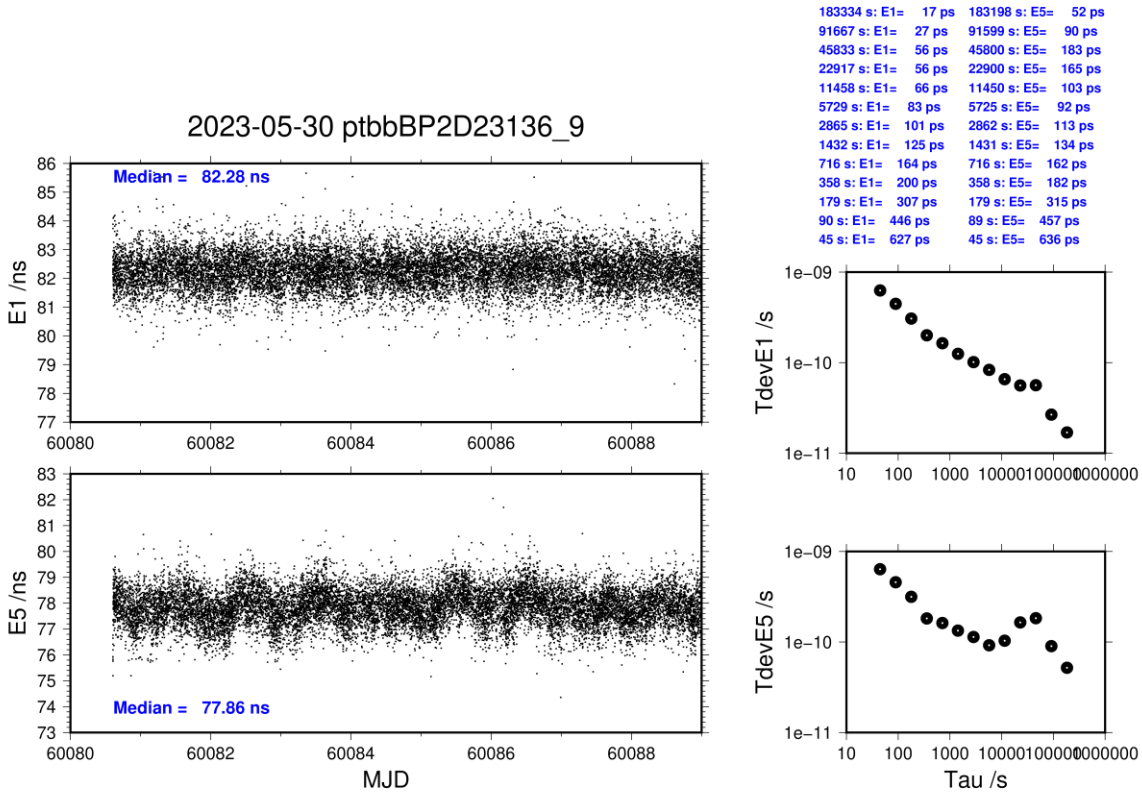
Code	#pts	ave/ns	rms/ns
C1	208857	82.121	1.254
C2	168475	76.562	1.320
P1	208460	80.812	1.283
P2	208454	75.002	1.492
E1	162001	82.276	1.078
E5	162082	77.849	0.917
BC	122994	82.910	1.303
B5	123214	78.306	0.980

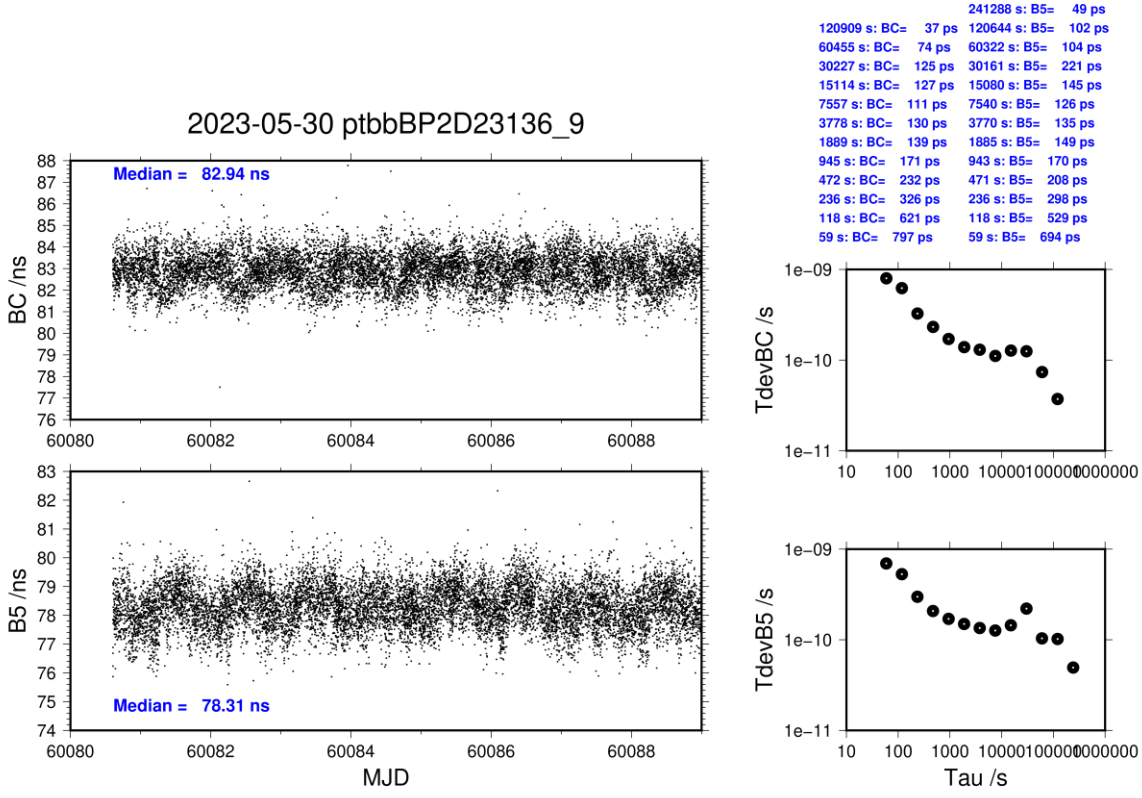
Number of 300s epochs in out file = 2418

Code	#pts	median/ns	ave/ns	rms/ns
C1	20840	82.098	82.114	0.763
C2	16809	76.550	76.561	0.867
P1	20797	80.823	80.806	0.803
P2	20796	75.022	75.013	0.947
E1	16201	82.283	82.282	0.634
E5	16213	77.858	77.850	0.677
BC	12283	82.939	82.921	0.807
B5	12310	78.308	78.307	0.744


2023-05-30 ptbbBP2D23136_9
Median = 82.10 ns
Median = 76.55 ns
C1 /ns
C2 /ns
MJD
142522 s: C1= 30 ps
71261 s: C1= 43 ps
35630 s: C1= 65 ps
17815 s: C1= 95 ps
8908 s: C1= 92 ps
4454 s: C1= 93 ps
2227 s: C1= 103 ps
1113 s: C1= 125 ps
557 s: C1= 163 ps
278 s: C1= 205 ps
139 s: C1= 371 ps
70 s: C1= 552 ps
35 s: C1= 782 ps
176702 s: C2= 26 ps
88351 s: C2= 25 ps
44176 s: C2= 45 ps
22088 s: C2= 162 ps
11044 s: C2= 142 ps
5522 s: C2= 122 ps
2761 s: C2= 121 ps
1380 s: C2= 142 ps
690 s: C2= 187 ps
345 s: C2= 223 ps
173 s: C2= 406 ps
86 s: C2= 609 ps
43 s: C2= 896 ps
TdevC1 /s
TdevC2 /s
Tau /s


2023-05-30 ptbbBP2D23136_9
Median = 80.82 ns
Median = 75.02 ns
P1 /ns
P2 /ns
MJD
142816 s: P1= 26 ps
71408 s: P1= 37 ps
35704 s: P1= 71 ps
17852 s: P1= 59 ps
8926 s: P1= 77 ps
4463 s: P1= 110 ps
2232 s: P1= 123 ps
1116 s: P1= 137 ps
558 s: P1= 172 ps
279 s: P1= 212 ps
139 s: P1= 438 ps
70 s: P1= 585 ps
35 s: P1= 784 ps
142823 s: P2= 38 ps
71412 s: P2= 44 ps
35706 s: P2= 55 ps
17853 s: P2= 168 ps
8926 s: P2= 154 ps
4463 s: P2= 161 ps
2232 s: P2= 130 ps
1116 s: P2= 149 ps
558 s: P2= 210 ps
279 s: P2= 254 ps
139 s: P2= 494 ps
70 s: P2= 666 ps
35 s: P2= 936 ps
TdevP1 /s
TdevP2 /s
Tau /s


2023-05-30 ptbbBP2D23136_9
Median = 82.28 ns
Median = 77.86 ns
E1 /ns
E5 /ns
MJD
183334 s: E1= 17 ps
91667 s: E1= 27 ps
45833 s: E1= 56 ps
22917 s: E1= 56 ps
11458 s: E1= 66 ps
5729 s: E1= 83 ps
2865 s: E1= 101 ps
1432 s: E1= 125 ps
716 s: E1= 164 ps
358 s: E1= 200 ps
179 s: E1= 307 ps
90 s: E1= 446 ps
45 s: E1= 627 ps
183198 s: E5= 52 ps
91599 s: E5= 90 ps
45800 s: E5= 183 ps
22900 s: E5= 165 ps
11450 s: E5= 103 ps
5725 s: E5= 92 ps
2862 s: E5= 113 ps
1431 s: E5= 134 ps
716 s: E5= 162 ps
358 s: E5= 182 ps
179 s: E5= 315 ps
89 s: E5= 457 ps
45 s: E5= 636 ps
TdevE1 /s
TdevE5 /s
Tau /s


2023-05-30 ptbbBP2D23136_9
Median = 82.94 ns
Median = 78.31 ns
BC /ns
B5 /ns
MJD
241288 s: B5= 49 ps
120909 s: BC= 37 ps
120644 s: B5= 102 ps
60455 s: BC= 74 ps
60322 s: B5= 104 ps
30227 s: BC= 125 ps
30161 s: B5= 221 ps
15114 s: BC= 127 ps
15080 s: B5= 145 ps
7557 s: BC= 111 ps
7540 s: B5= 126 ps
3778 s: BC= 130 ps
3770 s: B5= 135 ps
1889 s: BC= 139 ps
1885 s: B5= 149 ps
945 s: BC= 171 ps
943 s: B5= 170 ps
472 s: BC= 232 ps
471 s: B5= 208 ps
236 s: BC= 326 ps
236 s: B5= 298 ps
118 s: BC= 621 ps
118 s: B5= 529 ps
59 s: BC= 797 ps
59 s: B5= 694 ps
TdevBC /s
TdevB5 /s
Tau /s

PTBB-BP2G

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 247006
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 33011 high elev obs : 19.763 19.843
Iteration 0: Obs used = 420472; Huge residuals = 2586; Large residuals = 10086
Iteration 1: Obs used = 421896; Huge residuals = 95; Large residuals = 6075
Iteration 2: Obs used = 421928; Huge residuals = 0; Large residuals = 5948
Computed code bias (P1/P2)/m = 19.276 19.325
Computed baseline (X,Y,Z)/m = 3.036 -2.288 -1.490
RMS of residuals /m = 0.539

Number of phase differences to fit baseline
L1/L2 = 241808
L5 = 141259
A priori baseline (X,Y,Z)/m = 3.036 -2.288 -1.490
25887 clock jitters computed out of 25887 intervals
AVE jitter /ps = 0.8 RMS jitter /ps = 3.2

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 1
Iter 1 Large residuals L5= 5
Computed baseline L1 (X,Y,Z)/m = -0.287 0.177 -0.427
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = -0.287 0.182 -0.422
RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = -0.273 0.246 -0.386
RMS of residuals L5 /m = 0.003

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 1
Iter 2 Large residuals L5= 5
Computed baseline L1 (X,Y,Z)/m = -0.287 0.177 -0.427
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = -0.287 0.182 -0.422
RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = -0.273 0.247 -0.386
RMS of residuals L5 /m = 0.003

New iteration of baseline
New apriori baseline (X,Y,Z)/m = 2.749 -2.109 -1.915
25887 clock jitters computed out of 25887 intervals
AVE jitter /ps = -0.6 RMS jitter /ps = 0.8

Iter 3 Large residuals L1= 0
Iter 3 Large residuals L2= 1
Iter 3 Large residuals L5= 5
Computed baseline L1 (X,Y,Z)/m = -0.018 0.039 -0.018
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = -0.018 0.044 -0.012
RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = -0.004 0.102 0.019
RMS of residuals L5 /m = 0.003

Final baseline L1 (X,Y,Z)/m = 2.731 -2.070 -1.932
Final baseline L2 (X,Y,Z)/m = 2.731 -2.065 -1.927
Final baseline L5 (X,Y,Z)/m = 2.745 -2.007 -1.895

COMPUTATION OF CODE DIFFERENCES

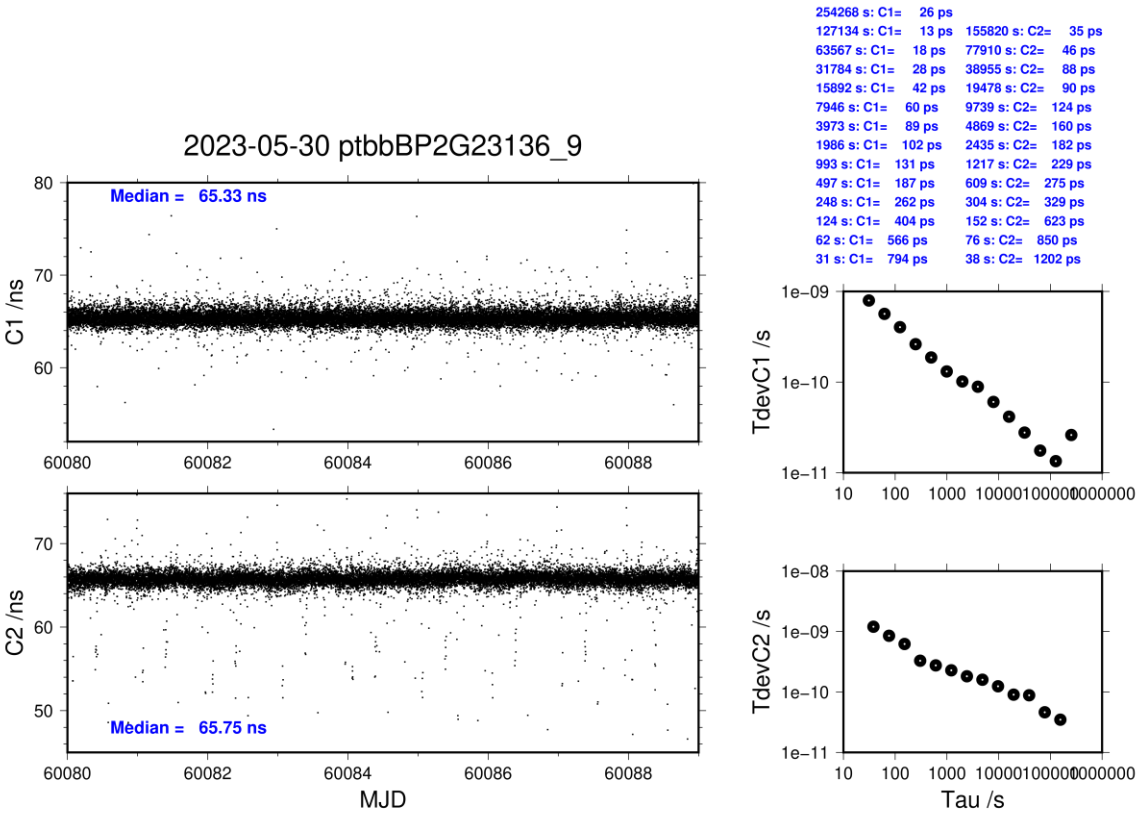
Total number of code differences = 911593

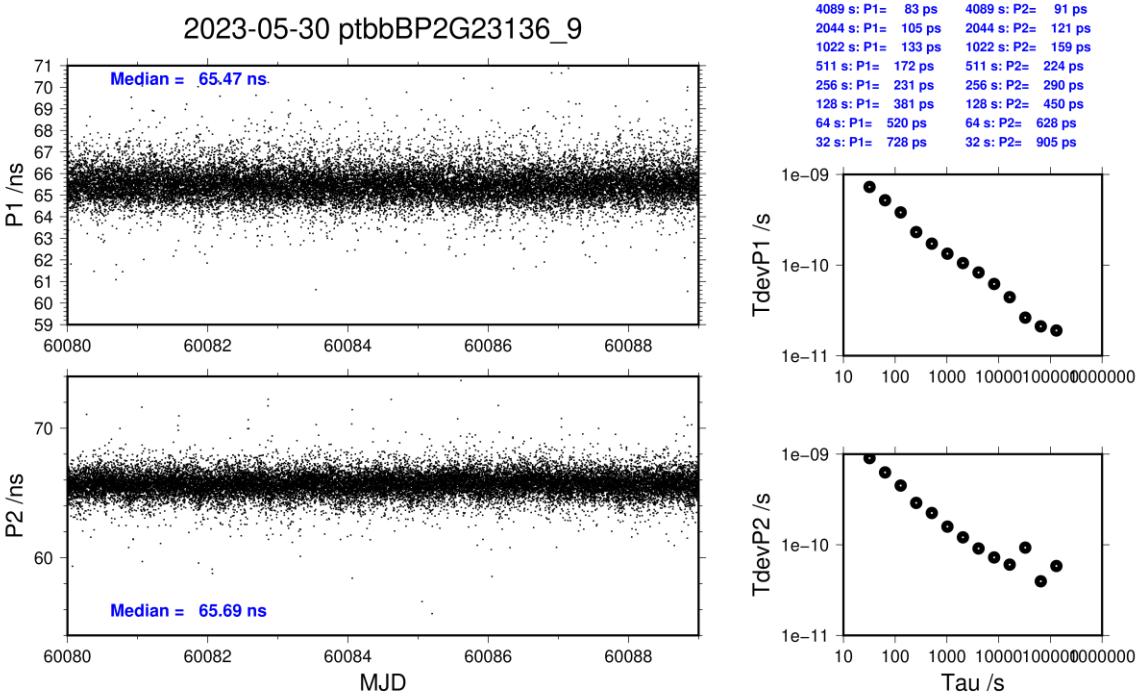
Global average of individual differences

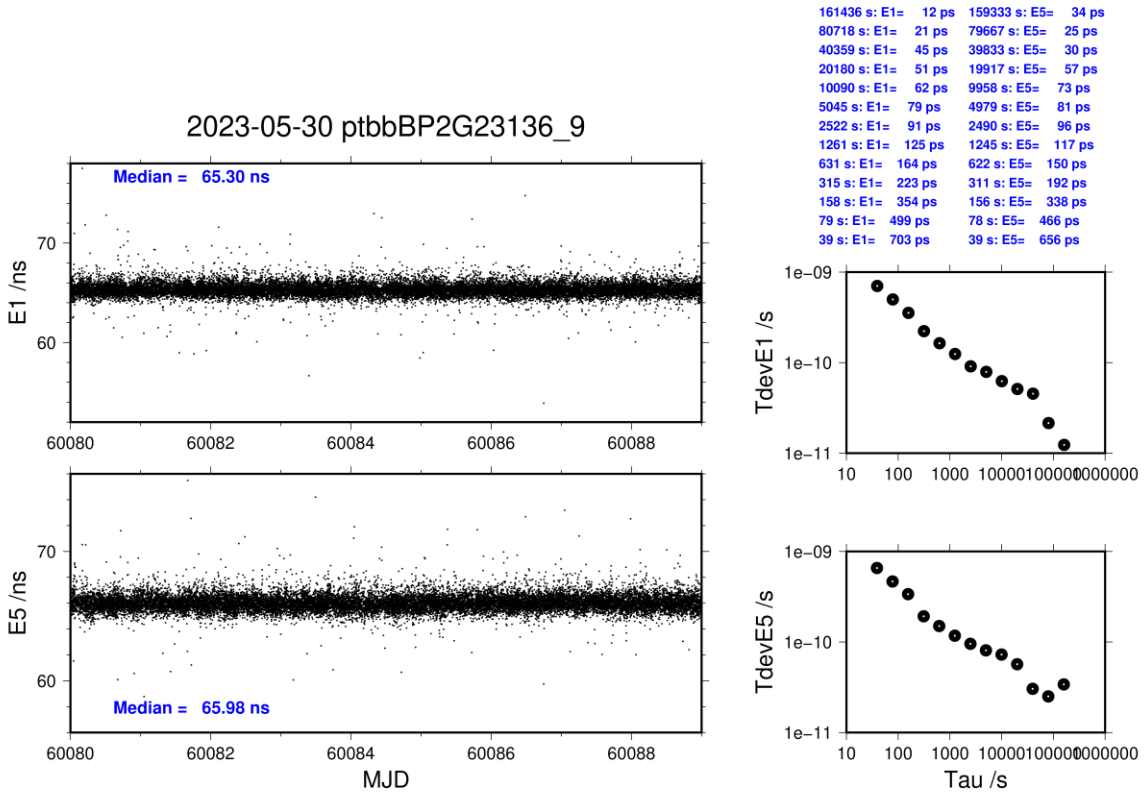
Code	#pts	ave/ns	rms/ns
C1	250461	65.383	1.815
C2	204258	65.701	2.036
P1	243567	65.517	1.504
P2	243568	65.685	1.685
E1	197260	65.326	1.507
E5	199762	66.019	1.182
BC	148663	65.441	1.697
B5	151017	66.015	1.235

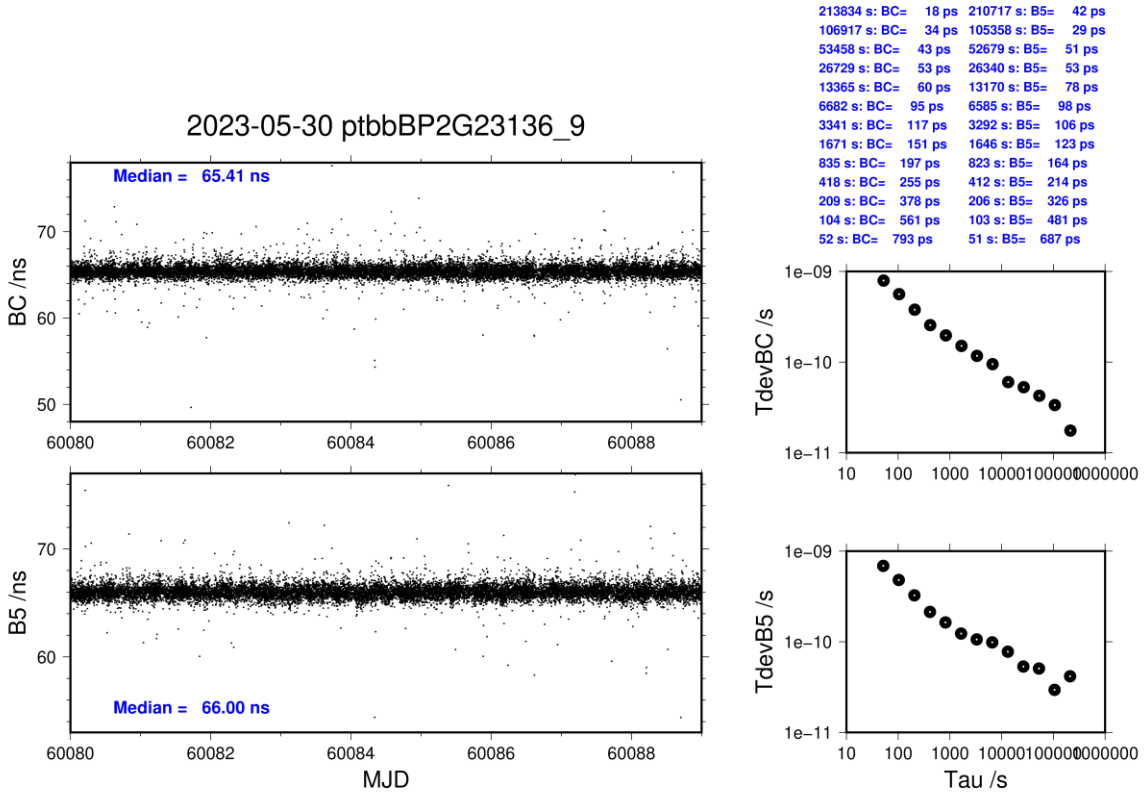
Number of 300s epochs in out file = 2589

Code	#pts	median/ns	ave/ns	rms/ns
C1	25015	65.330	65.378	0.793
C2	20410	65.754	65.702	1.199
P1	24306	65.473	65.514	0.733
P2	24306	65.694	65.687	0.900
E1	19700	65.297	65.334	0.702
E5	19960	65.982	66.016	0.657
BC	14873	65.406	65.443	0.789
B5	15093	65.997	66.020	0.682


2023-05-30 ptbbBP2G23136_9
Median = 65.33 ns
Median = 65.75 ns
C1 /ns
C2 /ns
MJD
254268 s: C1= 26 ps
127134 s: C1= 13 ps
63567 s: C1= 18 ps
31784 s: C1= 28 ps
15892 s: C1= 42 ps
7946 s: C1= 60 ps
3973 s: C1= 89 ps
1986 s: C1= 102 ps
993 s: C1= 131 ps
497 s: C1= 187 ps
248 s: C1= 262 ps
124 s: C1= 404 ps
62 s: C1= 566 ps
31 s: C1= 794 ps
155820 s: C2= 35 ps
77910 s: C2= 46 ps
38955 s: C2= 88 ps
19478 s: C2= 90 ps
9739 s: C2= 124 ps
4869 s: C2= 160 ps
2435 s: C2= 182 ps
1217 s: C2= 229 ps
609 s: C2= 275 ps
304 s: C2= 329 ps
152 s: C2= 623 ps
76 s: C2= 850 ps
38 s: C2= 1202 ps
TdevC1 /s
TdevC2 /s
Tau /s


2023-05-30 ptbbBP2G23136_9
Median = 65.47 ns
Median = 65.69 ns
P1 /ns
P2 /ns
MJD
130843 s: P1= 19 ps
65421 s: P1= 21 ps
32711 s: P1= 26 ps
16355 s: P1= 44 ps
8178 s: P1= 62 ps
4089 s: P1= 83 ps
2044 s: P1= 105 ps
1022 s: P1= 133 ps
511 s: P1= 172 ps
256 s: P1= 231 ps
128 s: P1= 381 ps
64 s: P1= 520 ps
32 s: P1= 728 ps
130843 s: P2= 58 ps
65421 s: P2= 40 ps
32711 s: P2= 93 ps
16355 s: P2= 60 ps
8178 s: P2= 73 ps
4089 s: P2= 91 ps
2044 s: P2= 121 ps
1022 s: P2= 159 ps
511 s: P2= 224 ps
256 s: P2= 290 ps
128 s: P2= 450 ps
64 s: P2= 628 ps
32 s: P2= 905 ps
TdevP1 /s
TdevP2 /s
Tau /s


2023-05-30 ptbbBP2G23136_9
Median = 65.30 ns
Median = 65.98 ns
E1 /ns
E5 /ns
MJD
161436 s: E1= 12 ps 159333 s: E5= 34 ps
80718 s: E1= 21 ps 79667 s: E5= 25 ps
40359 s: E1= 45 ps 39833 s: E5= 30 ps
20180 s: E1= 51 ps 19917 s: E5= 57 ps
10090 s: E1= 62 ps 9958 s: E5= 73 ps
5045 s: E1= 79 ps 4979 s: E5= 81 ps
2522 s: E1= 91 ps 2490 s: E5= 96 ps
1261 s: E1= 125 ps 1245 s: E5= 117 ps
631 s: E1= 164 ps 622 s: E5= 150 ps
315 s: E1= 223 ps 311 s: E5= 192 ps
158 s: E1= 354 ps 156 s: E5= 338 ps
79 s: E1= 499 ps 78 s: E5= 466 ps
39 s: E1= 703 ps 39 s: E5= 656 ps
TdevE1 /s
TdevE5 /s
Tau /s


2023-05-30 ptbbBP2G23136_9
Median = 65.41 ns
Median = 66.00 ns
BC /ns
B5 /ns
MJD
213834 s: BC= 18 ps 210717 s: B5= 42 ps
106917 s: BC= 34 ps 105358 s: B5= 29 ps
53458 s: BC= 43 ps 52679 s: B5= 51 ps
26729 s: BC= 53 ps 26340 s: B5= 53 ps
13365 s: BC= 60 ps 13170 s: B5= 78 ps
6682 s: BC= 95 ps 6585 s: B5= 98 ps
3341 s: BC= 117 ps 3292 s: B5= 106 ps
1671 s: BC= 151 ps 1646 s: B5= 123 ps
835 s: BC= 197 ps 823 s: B5= 164 ps
418 s: BC= 255 ps 412 s: B5= 214 ps
209 s: BC= 378 ps 206 s: B5= 326 ps
104 s: BC= 561 ps 103 s: B5= 481 ps
52 s: BC= 793 ps 51 s: B5= 687 ps
TdevBC /s
TdevB5 /s
Tau /s

2.4/ OP (23168)

Period

MJD 60112 to 60117

Delays

Delays

BP2D: (cf page 4 & 91)
REFDLY = 105.31 ns (51.88+53.43)
CABDLY = 176.85 ns (C210)

BP2G: (cf page 5)
REFDLY = 105.43 ns (51.88+53.55)
CABDLY = 176.38 ns (C211)

OP70: (cf page 86)
REFDLY = 90.65 ns
CABDLY = 128.70 ns

OP73: (cf page 87)
REFDLY = 85.22 ns
CABDLY = 129.60 ns

OP75: (cf page 88)
REFDLY = 85.28 ns
CABDLY = 129.60 ns

OPMT (OP02): (cf page 89)
REFDLY = 137.20 ns
CABDLY = 156.50 ns

OPM9: (cf page 90)
REFDLY = 60.50 ns
CABDLY = 173.60 ns

Setup at the OP

Annex A - Information Sheet

(to be repeated for each calibrated system)

Laboratory: OP	OP
Date and hour of the beginning of measurements:	16/06/2023
Date and hour of the end of measurements:	23/06/2023

Information on the system

	Local:	Travelling:
4-character BIPM code	OP70	
• Receiver maker and type: Receiver serial number:	Septentrio PolaRx5TR 3083495	
1 PPS trigger level /V:	1V	
• Antenna cable maker and type: Phase stabilised cable (Y/N):		
Length outside the building /m:		
• Antenna maker and type: Antenna serial number:	LEIAR25.R4 725498	
Temperature (if stabilised) /°C	/	

Measured delays /ns

(if needed fill box "Additional Information" below)

	Local:	Travelling:
• Delay from local UTC to receiver 1 PPS-in:	90,645 ns	
Delay from 1 PPS-in to internal Reference (if different): (see section 2 for details)		
• Antenna cable delay:	128,7 ns.	(1)
Splitter delay (if any):		(1)
Additional cable delay (if any):		(1)

Data used for the generation of CGGTTS files

• INT DLY (GPS) /ns:	P1: 27,5 ns P2: 26,5 ns
• INT DLY (Galileo) /ns:	E1: 29,9 ns E5a: 30,3 ns.
• INT DLY (GLONASS) /ns:	/
• CAB DLY /ns:	128,7 ns
• REF DLY /ns:	90,7 ns
• Coordinates reference frame:	ITRF
Latitude or X /m:	4 202 779,84 m
Longitude or Y /m:	171 370,85 m
Height or Z /m:	4 778 660,89 m

General information

• Rise time of the local UTC pulse:	
• Is the laboratory air conditioned:	Yes
Set temperature value and uncertainty:	22 ± 1 °C
Set humidity value and uncertainty:	

(1) For a trip with closure, not needed if the traveling equipment is used in the same set-up throughout.

Annex A - Information Sheet

(to be repeated for each calibrated system)

Laboratory:	OP
Date and hour of the beginning of measurements:	16/06/2023
Date and hour of the end of measurements:	23/06/2023

Information on the system

	Local:	Travelling:
4-character BIPM code	OP73	
• Receiver maker and type: Receiver serial number:	Septentrio PolaRX5TR 3069470	
1 PPS trigger level /V:		
• Antenna cable maker and type: Phase stabilised cable (Y/N):		
Length outside the building /m:		
• Antenna maker and type: Antenna serial number:	SEPCHOKE B3E6 5769.	
Temperature (if stabilised) /°C		

Measured delays /ns

(if needed fill box "Additional Information" below)

	Local:	Travelling:
• Delay from local UTC to receiver 1 PPS-in:	85,221	
Delay from 1 PPS-in to internal Reference (if different): (see section 2 for details)		
• Antenna cable delay:	129,6	(1)
Splitter delay (if any):		(1)
Additional cable delay (if any):		(1)

Data used for the generation of CGGTTS files

• INT DLY (GPS) /ns:	P1: 29,5 ns P2: 26,3 ns
• INT DLY (Galileo) /ns:	E1: 31,7 ns E5a: 31,3 ns.
• INT DLY (GLONASS) /ns:	/
• CAB DLY /ns:	129,6 ns
• REF DLY /ns:	85,2 ns.
• Coordinates reference frame:	ITRF
Latitude or X /m:	4 202 777,07 m
Longitude or Y /m:	171 367,03 m
Height or Z /m:	4 778 661,39 m

General information

• Rise time of the local UTC pulse:	
• Is the laboratory air conditioned:	YES
Set temperature value and uncertainty:	22 ± 1°C.
Set humidity value and uncertainty:	

(1) For a trip with closure, not needed if the traveling equipment is used in the same set-up throughout.

Annex A - Information Sheet

(to be repeated for each calibrated system)

Laboratory:	OP
Date and hour of the beginning of measurements:	16/06/2023
Date and hour of the end of measurements:	23/06/2023

Information on the system

	Local:	Travelling:
4-character BIPM code	OP75	
• Receiver maker and type: Receiver serial number:	Septentrio PolaRxSTR 3024918	
1 PPS trigger level /V:	1V	
• Antenna cable maker and type: Phase stabilised cable (Y/N):		
Length outside the building /m:		
• Antenna maker and type: Antenna serial number:	SEPCHOKE B3E6 5769	
Temperature (if stabilised) /°C		

Measured delays /ns

(if needed fill box "Additional Information" below)

	Local:	Travelling:
• Delay from local UTC to receiver 1 PPS-~~in~~out	85,284 ns.	
Delay from 1 PPS-in to internal Reference (if different): (see section 2 for details)		
• Antenna cable delay:	129,6	(1)
Splitter delay (if any):		(1)
Additional cable delay (if any):		(1)

Data used for the generation of CGGTTS files

• INT DLY (GPS) /ns:	P1 : 30,2 ns P2 : 25,7 ns.
• INT DLY (Galileo) /ns:	E1 : 32,5 ns E5a : 31,3
• INT DLY (GLONASS) /ns:	
• CAB DLY /ns:	129,6 ns
• REF DLY /ns:	85,3 ns.
• Coordinates reference frame:	ITRF
Latitude or X /m:	4 202 777,07 m
Longitude or Y /m:	171 367,03 m
Height or Z /m:	4 778 661,39 m.

General information

• Rise time of the local UTC pulse:	
• Is the laboratory air conditioned:	YES
Set temperature value and uncertainty:	22 ± 1°C
Set humidity value and uncertainty:	

(1) For a trip with closure, not needed if the traveling equipment is used in the same set-up throughout.

Annex A - Information Sheet

(to be repeated for each calibrated system)

Laboratory:	OP
Date and hour of the beginning of measurements:	16/06/2023
Date and hour of the end of measurements:	23/06/2023

Information on the system

	Local:	Travelling:
4-character BIPM code	OP02	
• Receiver maker and type: Receiver serial number:	ASHTECH Z-XII T 02942	
1 PPS trigger level /V:		
• Antenna cable maker and type: Phase stabilised cable (Y/N):		
Length outside the building /m:		
• Antenna maker and type: Antenna serial number:	35-02 - TSADM 00015 .	
Temperature (if stabilised) /°C	~~X~~	

Measured delays /ns

(if needed fill box "Additional Information" below)

	Local:	Travelling:
• Delay from local UTC to receiver 1 PPS-in:	137,2 ns .	
Delay from 1 PPS-in to internal Reference (if different): (see section 2 for details)		
• Antenna cable delay:	156,5 ns .	(1)
Splitter delay (if any):		(1)
Additional cable delay (if any):		(1)

Data used for the generation of CGGTTS files

• INT DLY (GPS) /ns:	P1 : 308,9 P2 : 320,9 ns
• INT DLY (Galileo) /ns:	-
• INT DLY (GLONASS) /ns:	-
• CAB DLY /ns:	156,5 ns
• REF DLY /ns:	137,2 ns .
• Coordinates reference frame:	ITRF
Latitude or X /m:	4 202 777,33 m
Longitude or Y /m:	171 368,26 m
Height or Z /m:	4 778 660,50 m .

General information

• Rise time of the local UTC pulse:	
• Is the laboratory air conditioned:	YES
Set temperature value and uncertainty:	22 ± 1 °C .
Set humidity value and uncertainty:	

(1) For a trip with closure, not needed if the traveling equipment is used in the same set-up throughout.

Annex A - Information Sheet

(to be repeated for each calibrated system)

Laboratory:	OP
Date and hour of the beginning of measurements:	16/06/2023 -
Date and hour of the end of measurements:	23/06/2023

Information on the system

	Local:	Travelling:
4-character BIPM code	OPMS.	
• Receiver maker and type: Receiver serial number:	GTR51 1402025	
1 PPS trigger level /V:		
• Antenna cable maker and type: Phase stabilised cable (Y/N):		
Length outside the building /m:		
• Antenna maker and type: Antenna serial number:	CHORE- RING	
Temperature (if stabilised) /°C		

Measured delays /ns

(if needed fill box "Additional Information" below)

	Local:	Travelling:
• Delay from local UTC to receiver 1 PPS-in:	60,500 ns.	
Delay from 1 PPS-in to internal Reference (if different): (see section 2 for details)		
• Antenna cable delay:	173,6 ns	(1)
Splitter delay (if any):		(1)
Additional cable delay (if any):		(1)

Data used for the generation of CGGTTS files

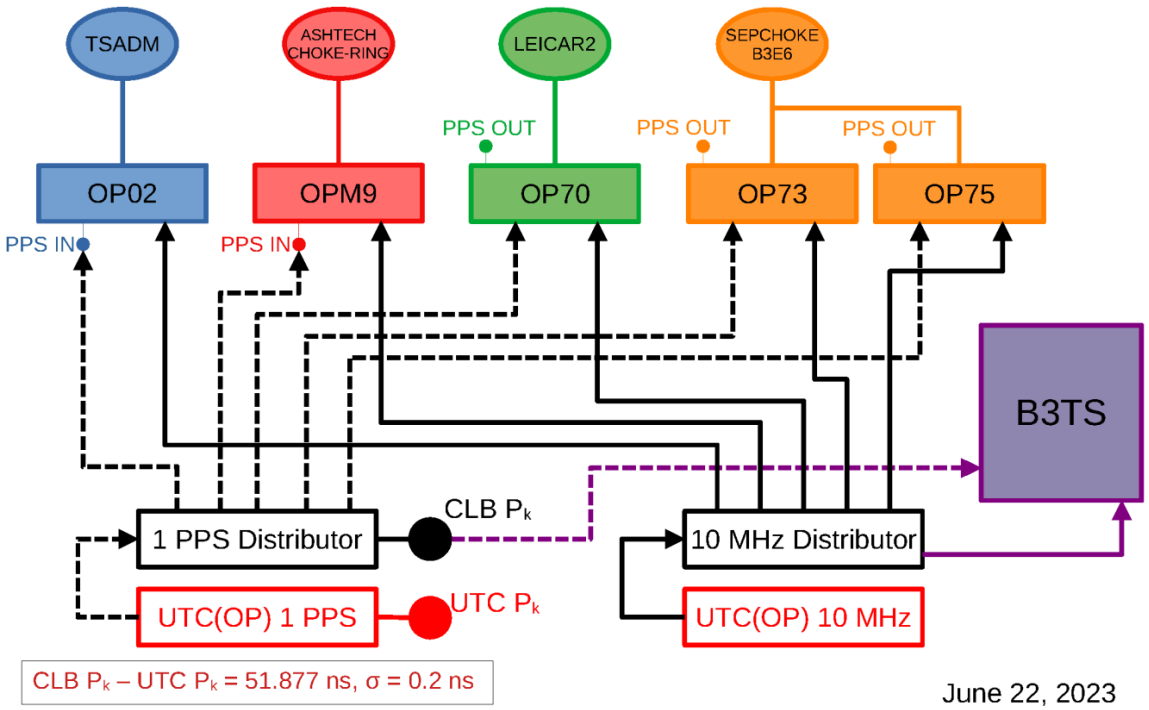
• INT DLY (GPS) /ns:	P1 : 37,5 ns P2 : 34,4 ns.
• INT DLY (Galileo) /ns:	E1 : 40,7 ns E5a : 34,4 ns.
• INT DLY (GLONASS) /ns:	/
• CAB DLY /ns:	173,6 ns
• REF DLY /ns:	60,5 ns.
• Coordinates reference frame:	ITRF
Latitude or X /m:	4 202 777,43 m
Longitude or Y /m:	171 367,13 m
Height or Z /m:	4 778 660,72 m.

General information

• Rise time of the local UTC pulse:	
• Is the laboratory air conditioned:	YES
Set temperature value and uncertainty:	22 ± 1°C.
Set humidity value and uncertainty:	

(1) For a trip with closure, not needed if the traveling equipment is used in the same set-up throughout.

Diagram of the experiment set-up:



Log of Events / Additional Information :

OP70-BP2D

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 149699
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 24478 high elev obs : -5.580 -7.116
Iteration 0: Obs used = 252198; Huge residuals = 0; Large residuals = 262
Iteration 1: Obs used = 252198; Huge residuals = 0; Large residuals = 262
Computed code bias (P1/P2)/m = -5.454 -6.911
Computed baseline (X,Y,Z)/m = 1.354 -1.592 -1.339
RMS of residuals /m = 0.405

Number of phase differences to fit baseline
L1/L2 = 148818
L5 = 82924
A priori baseline (X,Y,Z)/m = 1.354 -1.592 -1.339
17230 clock jitters computed out of 17230 intervals
AVE jitter /ps = -0.0 RMS jitter /ps = 3.9

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 0
Iter 1 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = -0.123 -0.032 -0.155
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = -0.132 -0.029 -0.160
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = -0.129 -0.029 -0.161
RMS of residuals L5 /m = 0.003

New iteration of baseline
New apriori baseline (X,Y,Z)/m = 1.226 -1.623 -1.496
17230 clock jitters computed out of 17230 intervals
AVE jitter /ps = 0.0 RMS jitter /ps = 0.3

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 0
Iter 2 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.002 -0.006 -0.002
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = -0.007 -0.003 -0.007
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = -0.004 -0.002 -0.008
RMS of residuals L5 /m = 0.003

Final baseline L1 (X,Y,Z)/m = 1.228 -1.629 -1.498
Final baseline L2 (X,Y,Z)/m = 1.219 -1.626 -1.503
Final baseline L5 (X,Y,Z)/m = 1.222 -1.625 -1.504

COMPUTATION OF CODE DIFFERENCES

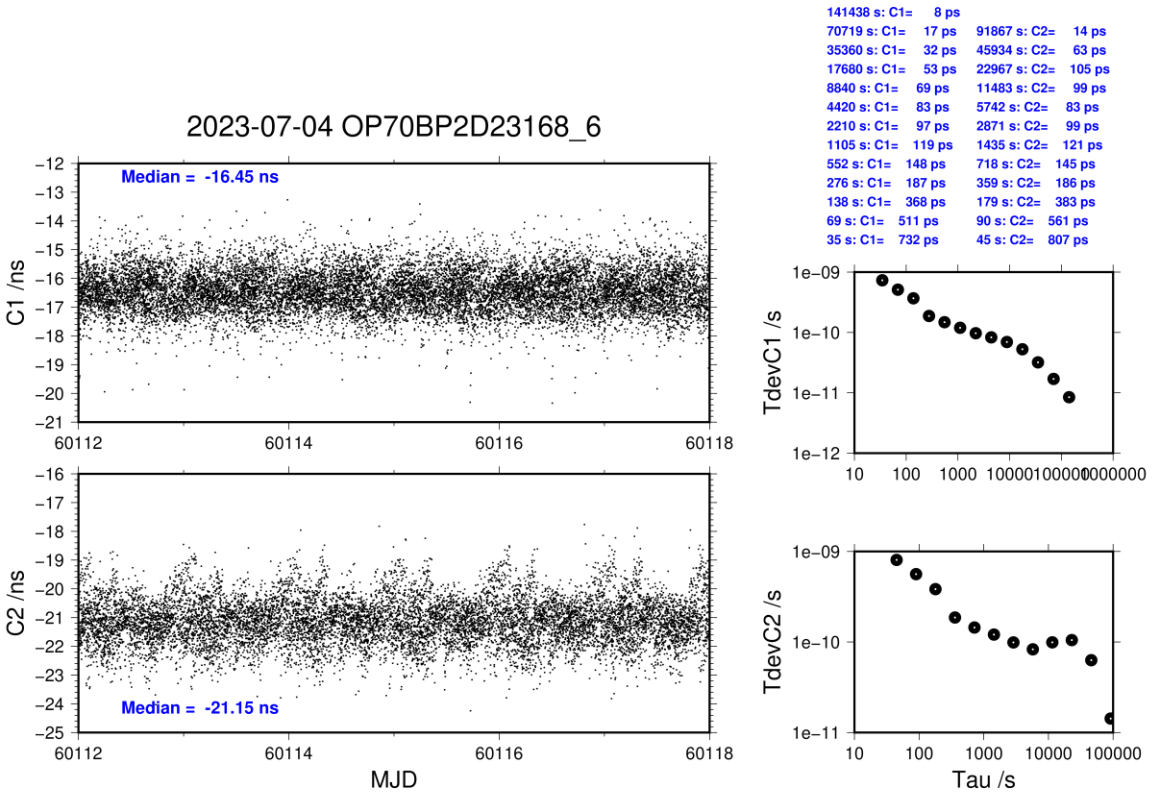
Total number of code differences = 552305

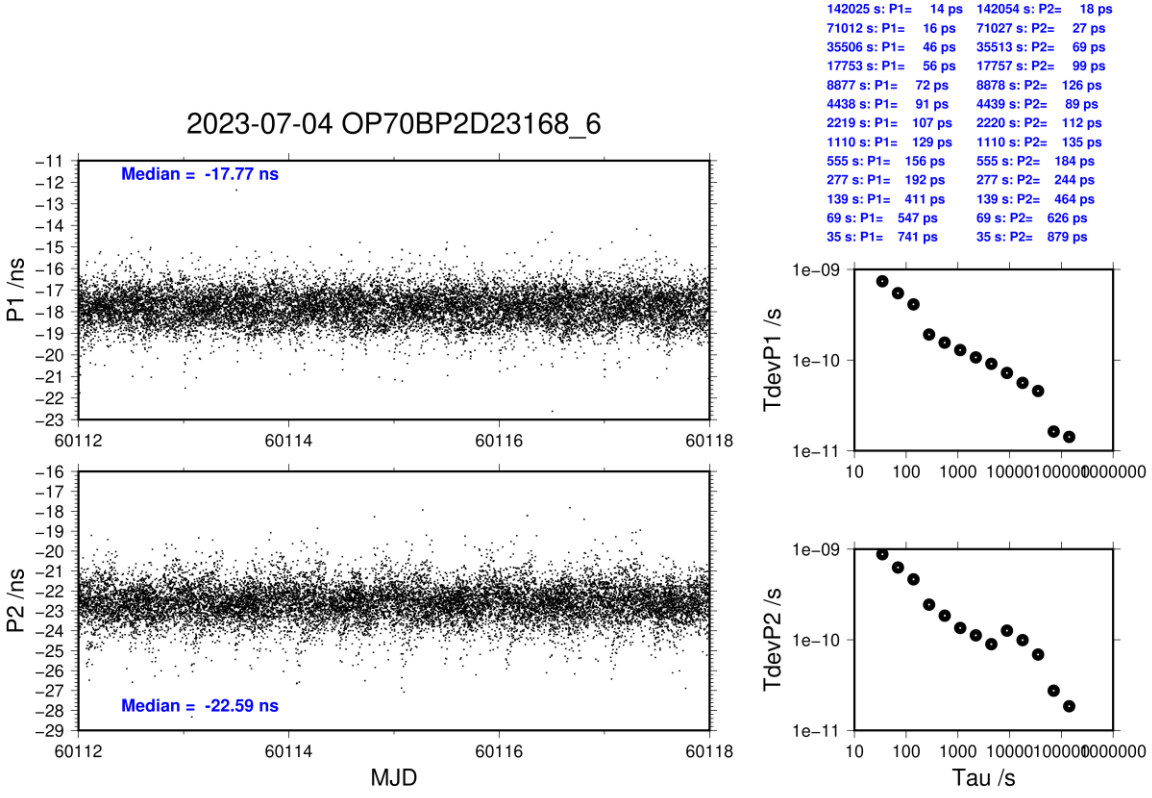
Global average of individual differences

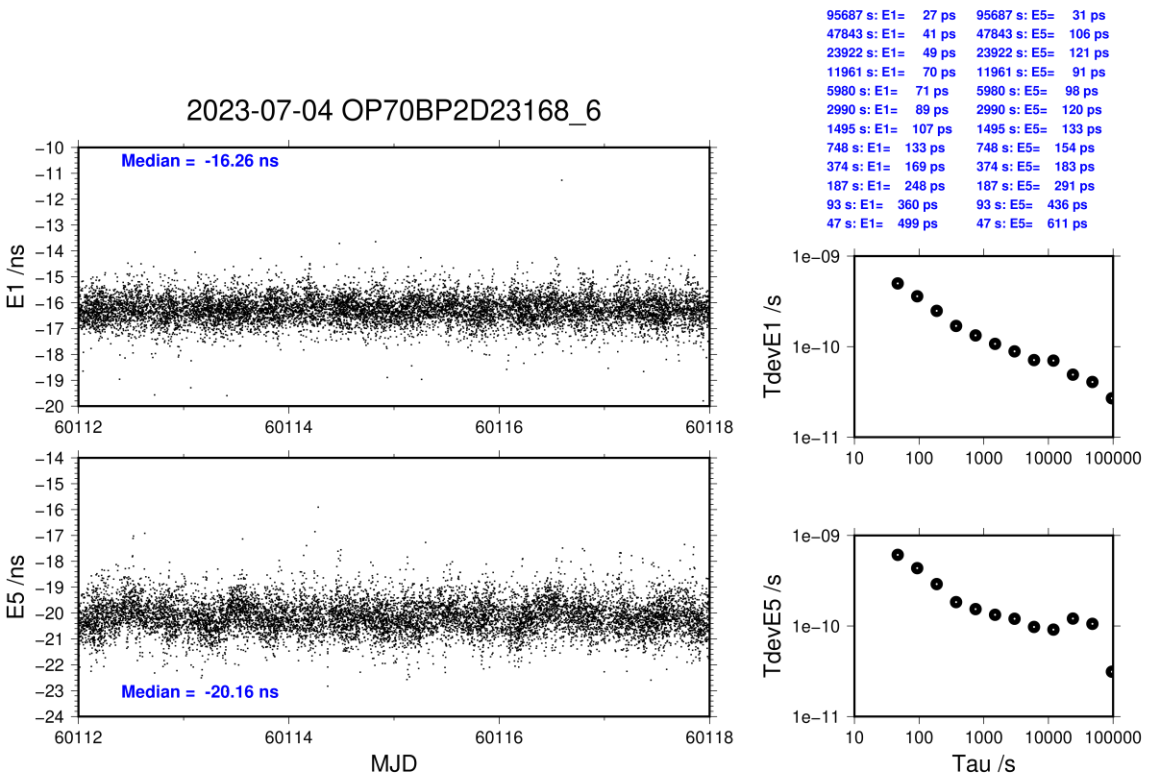
Code	#pts	ave/ns	rms/ns
C1	150316	-16.425	1.175
C2	115727	-21.134	1.188
P1	149640	-17.767	1.252
P2	149579	-22.602	1.379
E1	111028	-16.258	0.900
E5	111022	-20.135	0.869
BC	124466	-15.541	1.138
B5	125146	-19.754	0.995

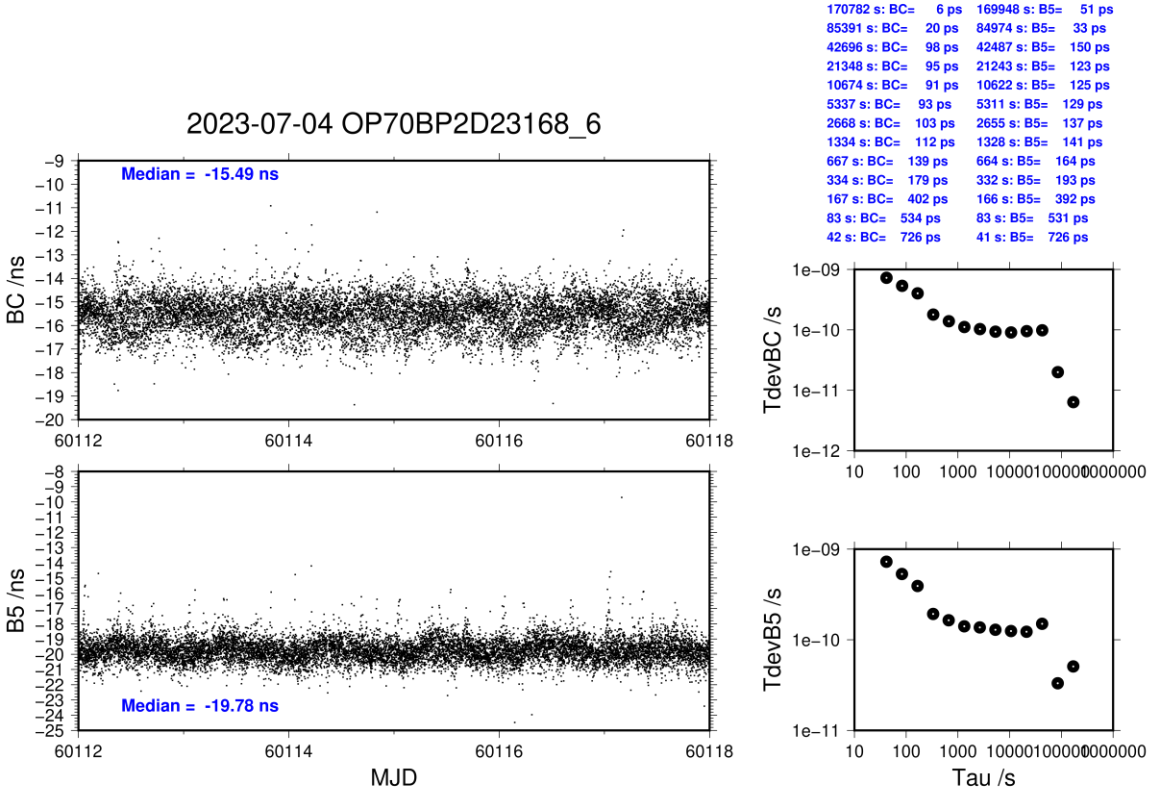
Number of 300s epochs in out file = 1727

Code	#pts	median/ns	ave/ns	rms/ns
C1	15005	-16.452	-16.436	0.711
C2	11551	-21.147	-21.134	0.782
P1	14943	-17.771	-17.785	0.749
P2	14940	-22.586	-22.592	0.877
E1	11090	-16.263	-16.256	0.513
E5	11090	-20.158	-20.138	0.631
BC	12427	-15.494	-15.531	0.738
B5	12488	-19.782	-19.757	0.759


2023-07-04 OP70BP2D23168_6
Median = -16.45 ns
Median = -21.15 ns
C1 /ns
C2 /ns
MJD
141438 s: C1= 8 ps
70719 s: C1= 17 ps
35360 s: C1= 32 ps
17680 s: C1= 53 ps
8840 s: C1= 69 ps
4420 s: C1= 83 ps
2210 s: C1= 97 ps
1105 s: C1= 119 ps
552 s: C1= 148 ps
276 s: C1= 187 ps
138 s: C1= 368 ps
69 s: C1= 511 ps
35 s: C1= 732 ps
91867 s: C2= 14 ps
45934 s: C2= 63 ps
22967 s: C2= 105 ps
11483 s: C2= 99 ps
5742 s: C2= 83 ps
2871 s: C2= 99 ps
1435 s: C2= 121 ps
718 s: C2= 145 ps
359 s: C2= 186 ps
179 s: C2= 383 ps
90 s: C2= 561 ps
45 s: C2= 807 ps
TdevC1 /s
TdevC2 /s
Tau /s


2023-07-04 OP70BP2D23168_6
Median = -17.77 ns
Median = -22.59 ns
P1 /ns
P2 /ns
MJD
142025 s: P1= 14 ps
71012 s: P1= 16 ps
35506 s: P1= 46 ps
17753 s: P1= 56 ps
8877 s: P1= 72 ps
4438 s: P1= 91 ps
2219 s: P1= 107 ps
1110 s: P1= 129 ps
555 s: P1= 156 ps
277 s: P1= 192 ps
139 s: P1= 411 ps
69 s: P1= 547 ps
35 s: P1= 741 ps
142054 s: P2= 18 ps
71027 s: P2= 27 ps
35513 s: P2= 69 ps
17757 s: P2= 99 ps
8878 s: P2= 126 ps
4439 s: P2= 89 ps
2220 s: P2= 112 ps
1110 s: P2= 135 ps
555 s: P2= 184 ps
277 s: P2= 244 ps
139 s: P2= 464 ps
69 s: P2= 626 ps
35 s: P2= 879 ps
TdevP1 /s
TdevP2 /s
Tau /s


2023-07-04 OP70BP2D23168_6
Median = -16.26 ns
Median = -20.16 ns
E1 /ns
E5 /ns
MJD
95687 s: E1= 27 ps
47843 s: E1= 41 ps
23922 s: E1= 49 ps
11961 s: E1= 70 ps
5980 s: E1= 71 ps
2990 s: E1= 89 ps
1495 s: E1= 107 ps
748 s: E1= 133 ps
374 s: E1= 169 ps
187 s: E1= 248 ps
93 s: E1= 360 ps
47 s: E1= 499 ps
95687 s: E5= 31 ps
47843 s: E5= 106 ps
23922 s: E5= 121 ps
11961 s: E5= 91 ps
5980 s: E5= 98 ps
2990 s: E5= 120 ps
1495 s: E5= 133 ps
748 s: E5= 154 ps
374 s: E5= 183 ps
187 s: E5= 291 ps
93 s: E5= 436 ps
47 s: E5= 611 ps
TdevE1 /s
TdevE5 /s
Tau /s


2023-07-04 OP70BP2D23168_6
Median = -15.49 ns
Median = -19.78 ns
BC /ns
B5 /ns
MJD
170782 s: BC= 6 ps
85391 s: BC= 20 ps
42696 s: BC= 98 ps
21348 s: BC= 95 ps
10674 s: BC= 91 ps
5337 s: BC= 93 ps
2668 s: BC= 103 ps
1334 s: BC= 112 ps
667 s: BC= 139 ps
334 s: BC= 179 ps
167 s: BC= 402 ps
83 s: BC= 534 ps
42 s: BC= 726 ps
169948 s: B5= 51 ps
84974 s: B5= 33 ps
42487 s: B5= 150 ps
21243 s: B5= 123 ps
10622 s: B5= 125 ps
5311 s: B5= 129 ps
2655 s: B5= 137 ps
1328 s: B5= 141 ps
664 s: B5= 164 ps
332 s: B5= 193 ps
166 s: B5= 392 ps
83 s: B5= 531 ps
41 s: B5= 726 ps
TdevBC /s
TdevB5 /s
Tau /s

OP70-BP2G

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 163220
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 24552 high elev obs : -10.347 -9.955
Iteration 0: Obs used = 273782; Huge residuals = 0; Large residuals = 5576
Iteration 1: Obs used = 273782; Huge residuals = 0; Large residuals = 5576
Computed code bias (P1/P2)/m = -9.754 -9.374
Computed baseline (X,Y,Z)/m = 1.189 -1.796 -1.941
RMS of residuals /m = 0.545

Number of phase differences to fit baseline
L1/L2 = 160319
L5 = 95658
A priori baseline (X,Y,Z)/m = 1.189 -1.796 -1.941
17276 clock jitters computed out of 17276 intervals
AVE jitter /ps = 0.7 RMS jitter /ps = 2.7

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 0
Iter 1 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.445 0.268 0.186
RMS of residuals L1 /m = 0.002
Computed baseline L2 (X,Y,Z)/m = 0.450 0.270 0.194
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = 0.487 0.363 0.227
RMS of residuals L5 /m = 0.003

New iteration of baseline
New apriori baseline (X,Y,Z)/m = 1.636 -1.527 -1.751
17276 clock jitters computed out of 17276 intervals
AVE jitter /ps = -0.6 RMS jitter /ps = 0.6

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 0
Iter 2 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = -0.000 0.047 -0.000
RMS of residuals L1 /m = 0.002
Computed baseline L2 (X,Y,Z)/m = 0.005 0.049 0.008
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = 0.038 0.139 0.043
RMS of residuals L5 /m = 0.003

Final baseline L1 (X,Y,Z)/m = 1.636 -1.480 -1.751
Final baseline L2 (X,Y,Z)/m = 1.641 -1.478 -1.742
Final baseline L5 (X,Y,Z)/m = 1.674 -1.388 -1.707

COMPUTATION OF CODE DIFFERENCES

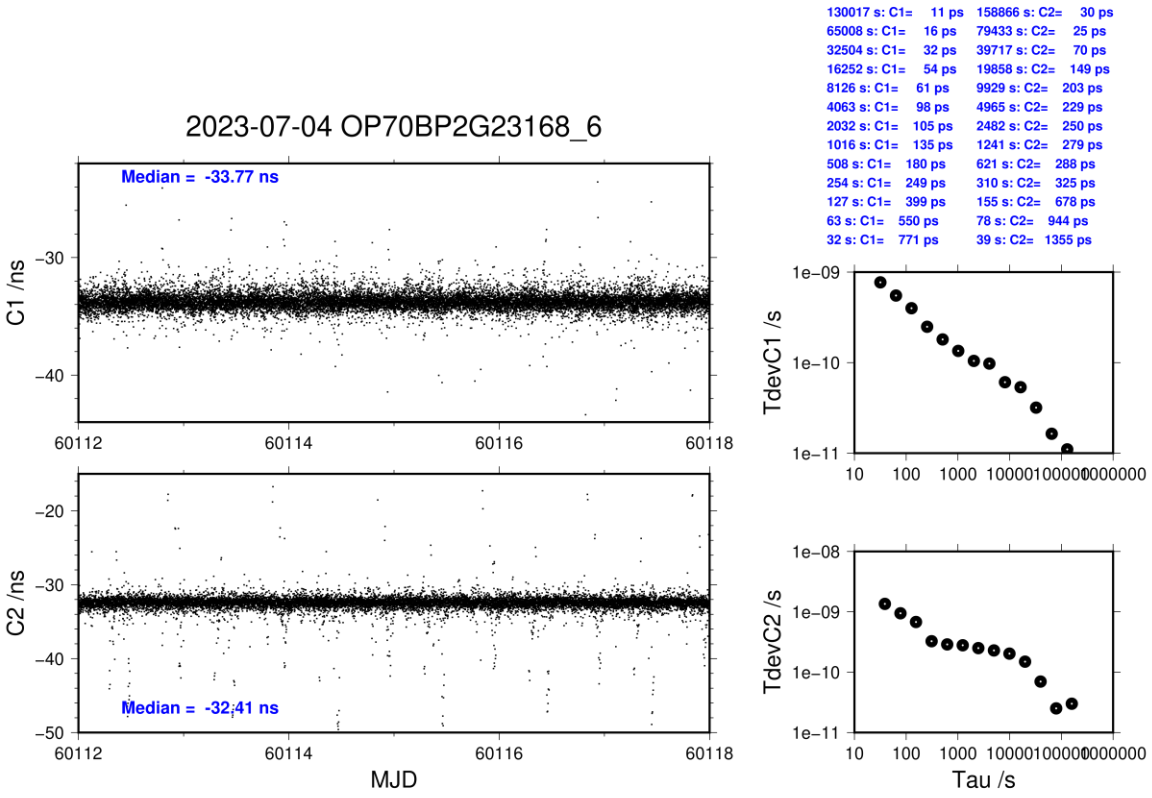
Total number of code differences = 629924

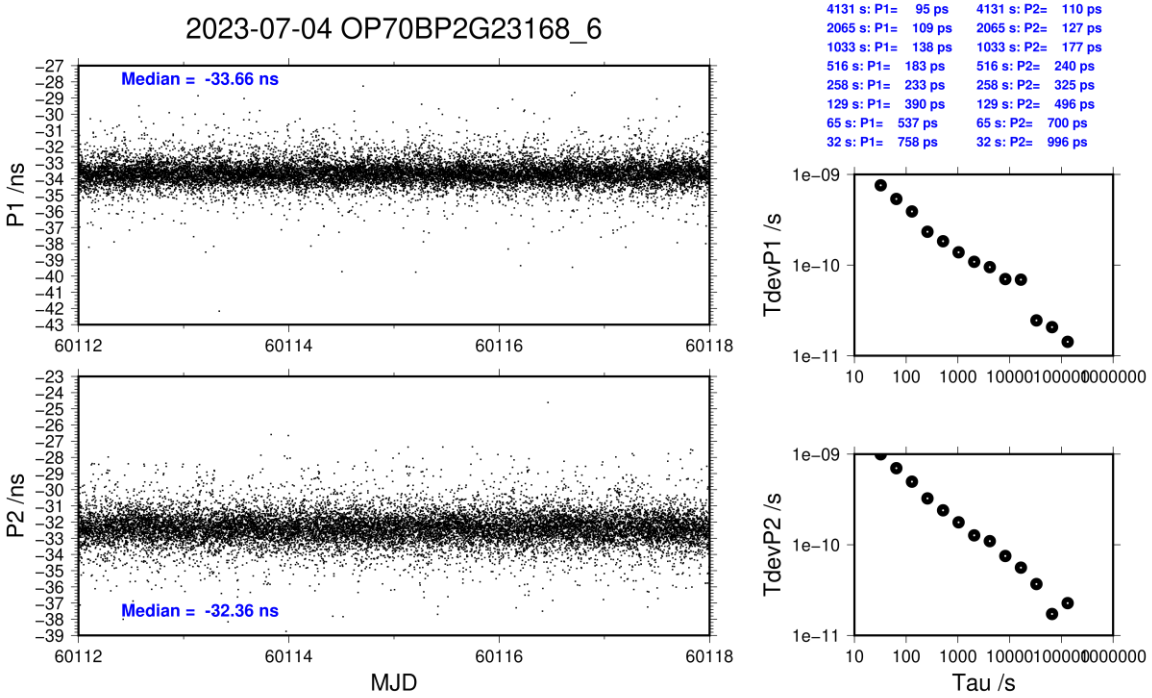
Global average of individual differences

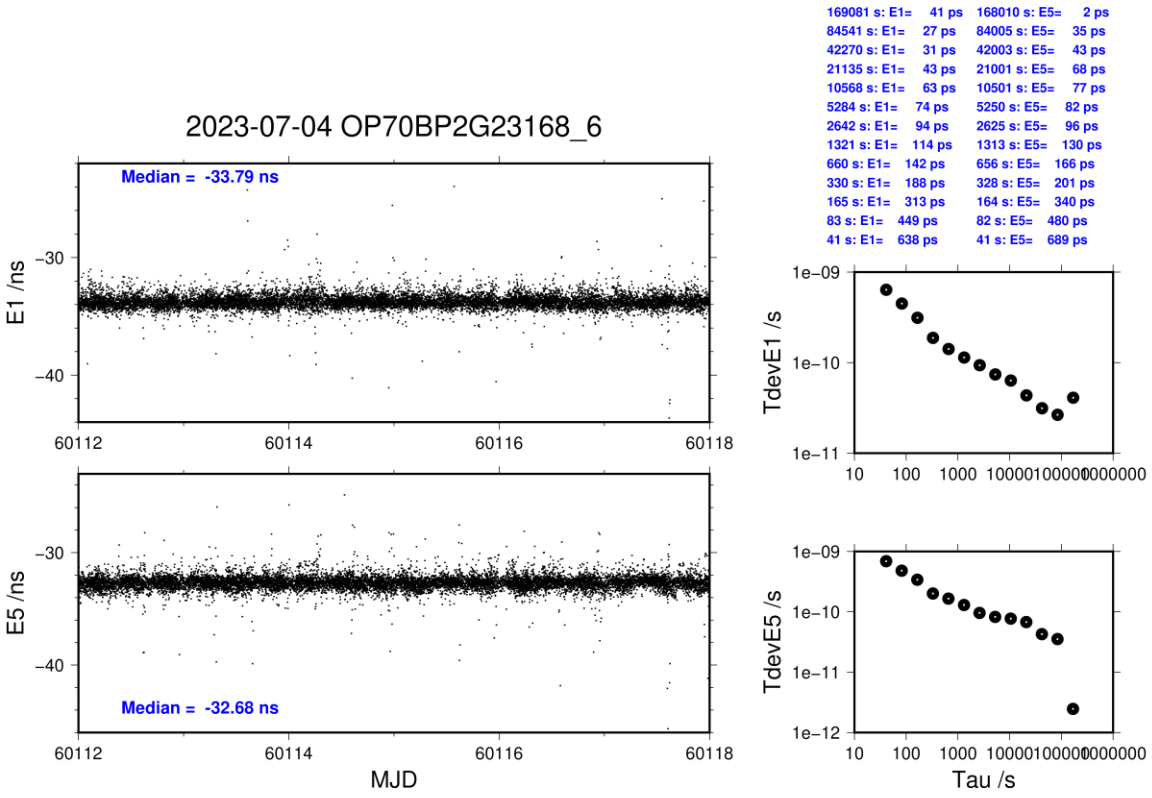
Code	#pts	ave/ns	rms/ns
C1	163651	-33.735	1.699
C2	133837	-32.507	2.005
P1	160923	-33.636	1.497
P2	160922	-32.365	1.668
E1	125637	-33.749	1.243
E5	126394	-32.685	1.112
BC	141770	-33.540	1.425
B5	143019	-32.706	1.167

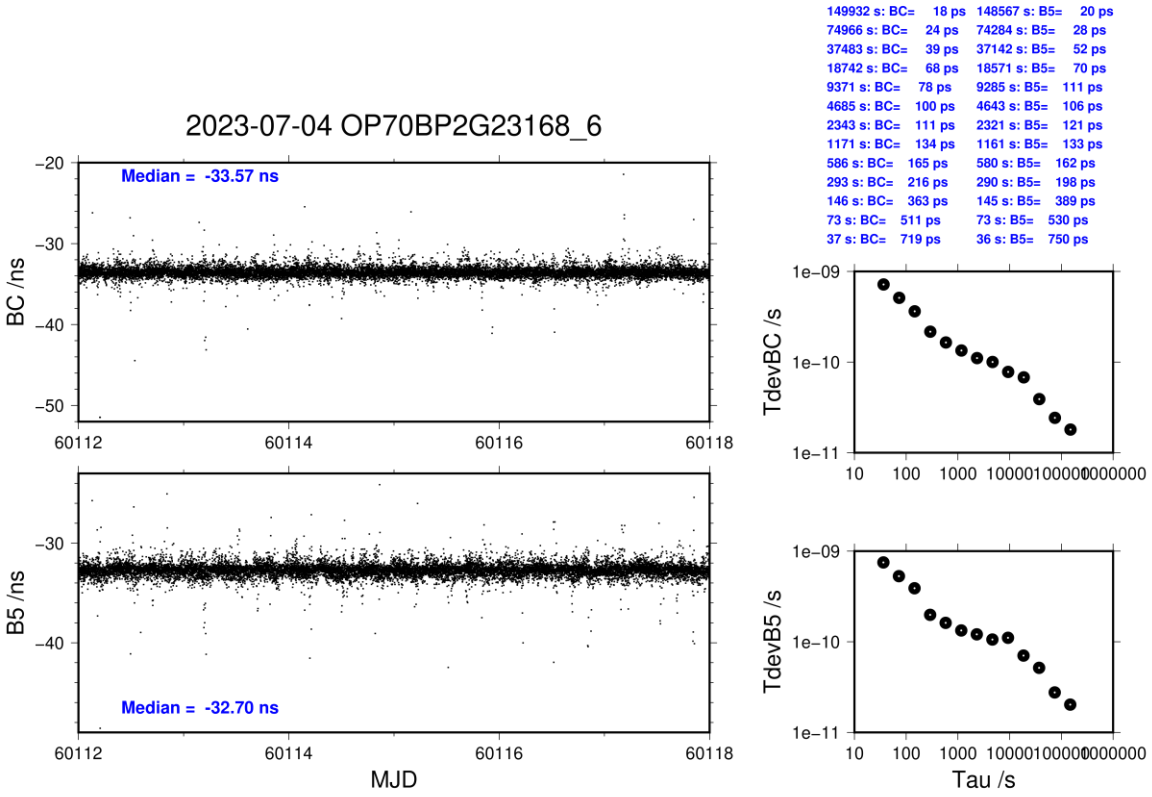
Number of 300s epochs in out file = 1728

Code	#pts	median/ns	ave/ns	rms/ns
C1	16323	-33.770	-33.735	0.774
C2	13359	-32.412	-32.513	1.344
P1	16055	-33.664	-33.637	0.760
P2	16055	-32.363	-32.363	0.989
E1	12552	-33.790	-33.748	0.629
E5	12632	-32.684	-32.689	0.683
BC	14155	-33.573	-33.535	0.719
B5	14285	-32.699	-32.709	0.749


2023-07-04 OP70BP2G23168_6
Median = -33.77 ns
Median = -32.41 ns
C1 /ns
C2 /ns
MJD
130017 s: C1= 11 ps
65008 s: C1= 16 ps
32504 s: C1= 32 ps
16252 s: C1= 54 ps
8126 s: C1= 61 ps
4063 s: C1= 98 ps
2032 s: C1= 105 ps
1016 s: C1= 135 ps
508 s: C1= 180 ps
254 s: C1= 249 ps
127 s: C1= 399 ps
63 s: C1= 550 ps
32 s: C1= 771 ps
158866 s: C2= 30 ps
79433 s: C2= 25 ps
39717 s: C2= 70 ps
19858 s: C2= 149 ps
9929 s: C2= 203 ps
4965 s: C2= 229 ps
2482 s: C2= 250 ps
1241 s: C2= 279 ps
621 s: C2= 288 ps
310 s: C2= 325 ps
155 s: C2= 678 ps
78 s: C2= 944 ps
39 s: C2= 1355 ps
TdevC1 /s
TdevC2 /s
Tau /s


2023-07-04 OP70BP2G23168_6
Median = -33.66 ns
Median = -32.36 ns
P1 /ns
P2 /ns
MJD
132187 s: P1= 14 ps
66094 s: P1= 21 ps
33047 s: P1= 25 ps
16523 s: P1= 69 ps
8262 s: P1= 70 ps
4131 s: P1= 95 ps
2065 s: P1= 109 ps
1033 s: P1= 138 ps
516 s: P1= 183 ps
258 s: P1= 233 ps
129 s: P1= 390 ps
65 s: P1= 537 ps
32 s: P1= 758 ps
132187 s: P2= 23 ps
66094 s: P2= 17 ps
33047 s: P2= 37 ps
16523 s: P2= 56 ps
8262 s: P2= 75 ps
4131 s: P2= 110 ps
2065 s: P2= 127 ps
1033 s: P2= 177 ps
516 s: P2= 240 ps
258 s: P2= 325 ps
129 s: P2= 496 ps
65 s: P2= 700 ps
32 s: P2= 996 ps
TdevP1 /s
TdevP2 /s
Tau /s


2023-07-04 OP70BP2G23168_6
Median = -33.79 ns
Median = -32.68 ns
E1 /ns
E5 /ns
MJD
TdevE1 /s
TdevE5 /s
Tau /s
169081 s: E1= 41 ps
84541 s: E1= 27 ps
42270 s: E1= 31 ps
21135 s: E1= 43 ps
10568 s: E1= 63 ps
5284 s: E1= 74 ps
2642 s: E1= 94 ps
1321 s: E1= 114 ps
660 s: E1= 142 ps
330 s: E1= 188 ps
165 s: E1= 313 ps
83 s: E1= 449 ps
41 s: E1= 638 ps
168010 s: E5= 2 ps
84005 s: E5= 35 ps
42003 s: E5= 43 ps
21001 s: E5= 68 ps
10501 s: E5= 77 ps
5250 s: E5= 82 ps
2625 s: E5= 96 ps
1313 s: E5= 130 ps
656 s: E5= 166 ps
328 s: E5= 201 ps
164 s: E5= 340 ps
82 s: E5= 480 ps
41 s: E5= 689 ps


2023-07-04 OP70BP2G23168_6
Median = -33.57 ns
Median = -32.70 ns
BC /ns
B5 /ns
MJD
TdevBC /s
TdevB5 /s
Tau /s
149932 s: BC= 18 ps
74966 s: BC= 24 ps
37483 s: BC= 39 ps
18742 s: BC= 68 ps
9371 s: BC= 78 ps
4685 s: BC= 100 ps
2343 s: BC= 111 ps
1171 s: BC= 134 ps
586 s: BC= 165 ps
293 s: BC= 216 ps
146 s: BC= 363 ps
73 s: BC= 511 ps
37 s: BC= 719 ps
148567 s: B5= 20 ps
74284 s: B5= 28 ps
37142 s: B5= 52 ps
18571 s: B5= 70 ps
9285 s: B5= 111 ps
4643 s: B5= 106 ps
2321 s: B5= 121 ps
1161 s: B5= 133 ps
580 s: B5= 162 ps
290 s: B5= 198 ps
145 s: B5= 389 ps
73 s: B5= 530 ps
36 s: B5= 750 ps

OP73-BP2D

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 140883
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 24478 high elev obs : -1.780 -3.892
Iteration 0: Obs used = 233966; Huge residuals = 0; Large residuals = 862
Iteration 1: Obs used = 233966; Huge residuals = 0; Large residuals = 862
Computed code bias (P1/P2)/m = -2.413 -4.473
Computed baseline (X,Y,Z)/m = 3.438 2.036 -2.577
RMS of residuals /m = 0.455

Number of phase differences to fit baseline
L1/L2 = 139752
L5 = 81290
A priori baseline (X,Y,Z)/m = 3.438 2.036 -2.577
17230 clock jitters computed out of 17230 intervals
AVE jitter /ps = 0.1 RMS jitter /ps = 4.1

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 0
Iter 1 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.549 0.099 0.503
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.538 0.099 0.490
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = 0.539 0.103 0.483
RMS of residuals L5 /m = 0.003

New iteration of baseline
New apriori baseline (X,Y,Z)/m = 3.981 2.135 -2.080
17230 clock jitters computed out of 17230 intervals
AVE jitter /ps = -0.0 RMS jitter /ps = 0.9

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 0
Iter 2 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.019 0.003 0.018
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.008 0.003 0.006
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = 0.007 0.007 0.001
RMS of residuals L5 /m = 0.003

Final baseline L1 (X,Y,Z)/m = 4.000 2.138 -2.062
Final baseline L2 (X,Y,Z)/m = 3.989 2.138 -2.074
Final baseline L5 (X,Y,Z)/m = 3.988 2.142 -2.079

COMPUTATION OF CODE DIFFERENCES

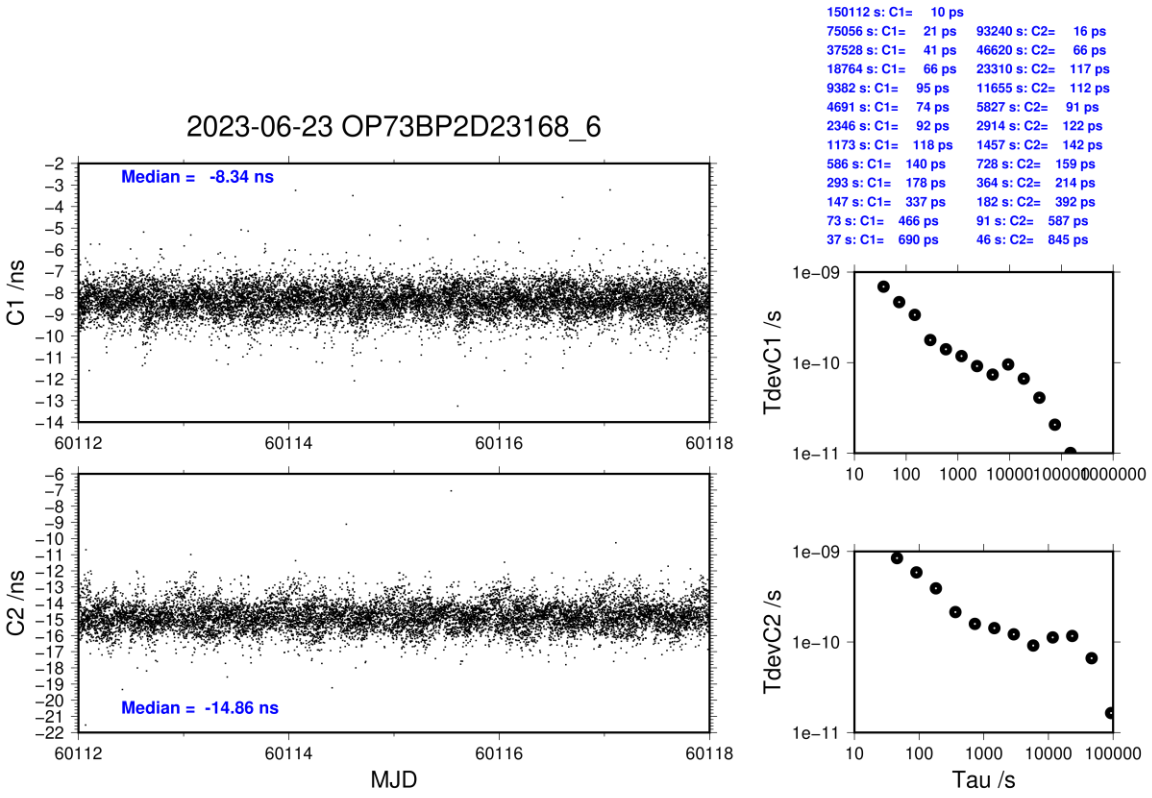
Total number of code differences = 539866

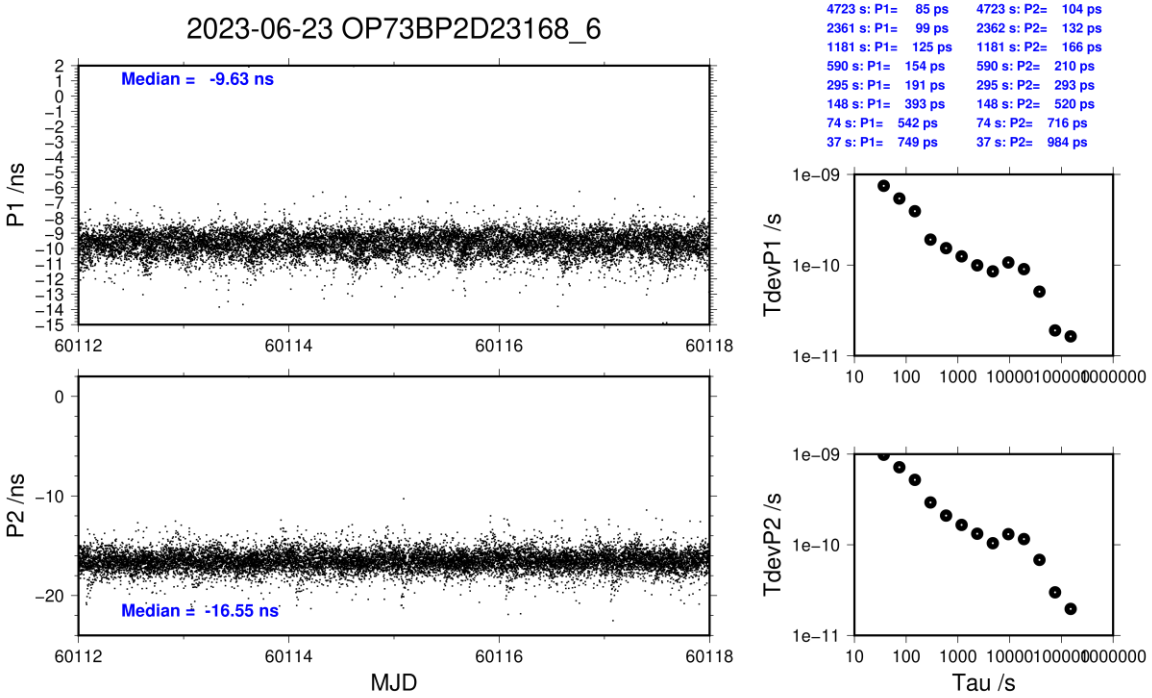
Global average of individual differences

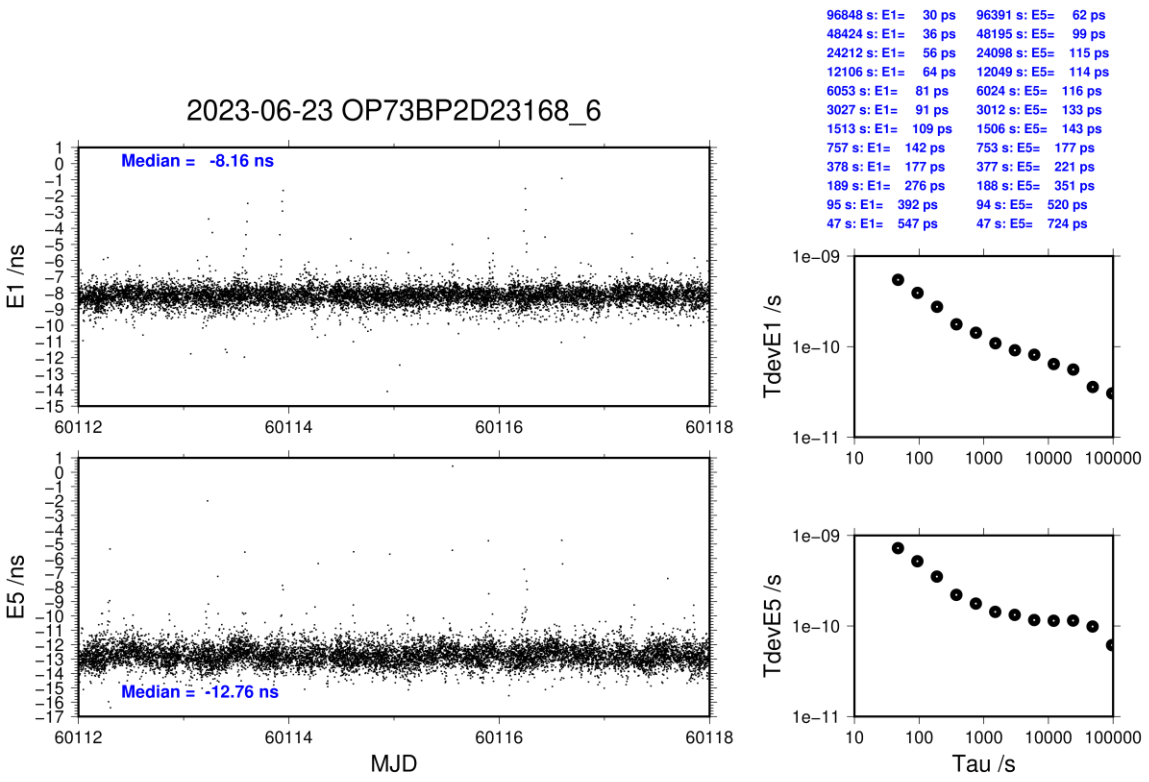
Code	#pts	ave/ns	rms/ns
C1	141561	-8.335	1.167
C2	113985	-14.839	1.308
P1	140666	-9.662	1.182
P2	140628	-16.539	1.516
E1	109629	-8.172	0.947
E5	110116	-12.721	1.040
BC	123094	-7.473	1.184
B5	123805	-12.321	1.174

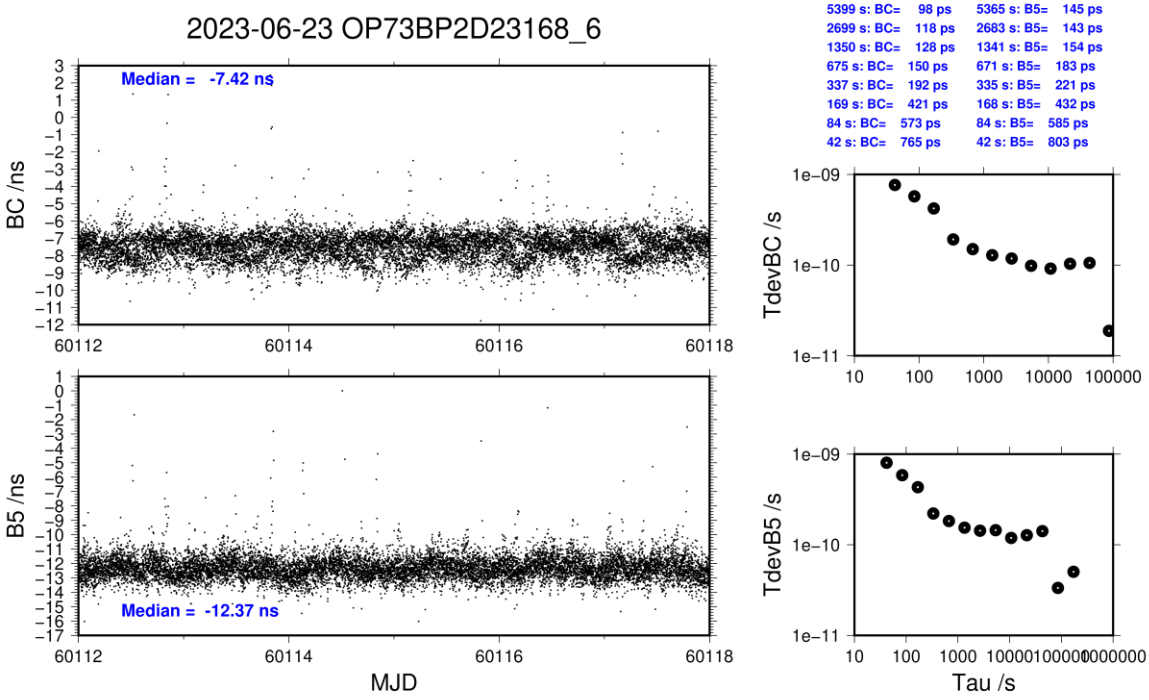
Number of 300s epochs in out file = 1727

Code	#pts	median/ns	ave/ns	rms/ns
C1	14138	-8.339	-8.343	0.666
C2	11381	-14.860	-14.837	0.823
P1	14043	-9.634	-9.675	0.747
P2	14041	-16.545	-16.533	0.994
E1	10957	-8.159	-8.168	0.557
E5	11009	-12.758	-12.720	0.742
BC	12285	-7.420	-7.473	0.785
B5	12361	-12.372	-12.317	0.834


2023-06-23 OP73BP2D23168_6
Median = -8.34 ns
Median = -14.86 ns
C1 /ns
C2 /ns
MJD
60112
60114
60116
60118
150112 s: C1= 10 ps
75056 s: C1= 21 ps
37528 s: C1= 41 ps
18764 s: C1= 66 ps
9382 s: C1= 95 ps
4691 s: C1= 74 ps
2346 s: C1= 92 ps
1173 s: C1= 118 ps
586 s: C1= 140 ps
293 s: C1= 178 ps
147 s: C1= 337 ps
73 s: C1= 466 ps
37 s: C1= 690 ps
93240 s: C2= 16 ps
46620 s: C2= 66 ps
23310 s: C2= 117 ps
11655 s: C2= 112 ps
5827 s: C2= 91 ps
2914 s: C2= 122 ps
1457 s: C2= 142 ps
728 s: C2= 159 ps
364 s: C2= 214 ps
182 s: C2= 392 ps
91 s: C2= 587 ps
46 s: C2= 845 ps
TdevC1 /s
TdevC2 /s
Tau /s
1e−09
1e−10
1e−11
10
100
1000
10000
100000


2023-06-23 OP73BP2D23168_6
Median = -9.63 ns
Median = -16.55 ns
P1 /ns
P2 /ns
MJD
60112
60114
60116
60118
151128 s: P1= 16 ps
75564 s: P1= 19 ps
37782 s: P1= 51 ps
18891 s: P1= 90 ps
9445 s: P1= 107 ps
4723 s: P1= 85 ps
2361 s: P1= 99 ps
1181 s: P1= 125 ps
590 s: P1= 154 ps
295 s: P1= 191 ps
148 s: P1= 393 ps
74 s: P1= 542 ps
37 s: P1= 749 ps
151149 s: P2= 20 ps
75575 s: P2= 30 ps
37787 s: P2= 68 ps
18894 s: P2= 116 ps
9447 s: P2= 131 ps
4723 s: P2= 104 ps
2362 s: P2= 132 ps
1181 s: P2= 166 ps
590 s: P2= 210 ps
295 s: P2= 293 ps
148 s: P2= 520 ps
74 s: P2= 716 ps
37 s: P2= 984 ps
TdevP1 /s
TdevP2 /s
Tau /s
1e−09
1e−10
1e−11
10
100
1000
10000
100000


2023-06-23 OP73BP2D23168_6
Median = -8.16 ns
Median = -12.76 ns
E1 /ns
E5 /ns
MJD
96848 s: E1= 30 ps
48424 s: E1= 36 ps
24212 s: E1= 56 ps
12106 s: E1= 64 ps
6053 s: E1= 81 ps
3027 s: E1= 91 ps
1513 s: E1= 109 ps
757 s: E1= 142 ps
378 s: E1= 177 ps
189 s: E1= 276 ps
95 s: E1= 392 ps
47 s: E1= 547 ps
96391 s: E5= 62 ps
48195 s: E5= 99 ps
24098 s: E5= 115 ps
12049 s: E5= 114 ps
6024 s: E5= 116 ps
3012 s: E5= 133 ps
1506 s: E5= 143 ps
753 s: E5= 177 ps
377 s: E5= 221 ps
188 s: E5= 351 ps
94 s: E5= 520 ps
47 s: E5= 724 ps
TdevE1 /s
TdevE5 /s
Tau /s


2023-06-23 OP73BP2D23168_6
Median = -7.42 ns
Median = -12.37 ns
BC /ns
B5 /ns
MJD
171694 s: B5= 50 ps
86378 s: BC= 19 ps
85847 s: B5= 33 ps
43189 s: BC= 106 ps
42924 s: B5= 142 ps
21595 s: BC= 103 ps
21462 s: B5= 127 ps
10797 s: BC= 91 ps
10731 s: B5= 119 ps
5399 s: BC= 98 ps
5365 s: B5= 145 ps
2699 s: BC= 118 ps
2683 s: B5= 143 ps
1350 s: BC= 128 ps
1341 s: B5= 154 ps
675 s: BC= 150 ps
671 s: B5= 183 ps
337 s: BC= 192 ps
335 s: B5= 221 ps
169 s: BC= 421 ps
168 s: B5= 432 ps
84 s: BC= 573 ps
84 s: B5= 585 ps
42 s: BC= 765 ps
42 s: B5= 803 ps
TdevBC /s
TdevB5 /s
Tau /s

OP73-BP2G

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 158666
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 24552 high elev obs : -6.492 -6.758
Iteration 0: Obs used = 261222; Huge residuals = 0; Large residuals = 9028
Iteration 1: Obs used = 261222; Huge residuals = 0; Large residuals = 9028
Computed code bias (P1/P2)/m = -6.705 -6.922
Computed baseline (X,Y,Z)/m = 3.224 1.720 -3.101
RMS of residuals /m = 0.664

Number of phase differences to fit baseline
L1/L2 = 155341
L5 = 91961
A priori baseline (X,Y,Z)/m = 3.224 1.720 -3.101
17276 clock jitters computed out of 17276 intervals
AVE jitter /ps = 0.9 RMS jitter /ps = 3.2

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 0
Iter 1 Large residuals L5= 2
Computed baseline L1 (X,Y,Z)/m = 1.160 0.488 0.763
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 1.163 0.483 0.764
RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = 1.067 0.382 0.761
RMS of residuals L5 /m = 0.003

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 0
Iter 2 Large residuals L5= 2
Computed baseline L1 (X,Y,Z)/m = 1.160 0.488 0.763
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 1.163 0.483 0.764
RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = 1.067 0.382 0.761
RMS of residuals L5 /m = 0.003

New iteration of baseline
New apriori baseline (X,Y,Z)/m = 4.386 2.206 -2.337
17276 clock jitters computed out of 17276 intervals
AVE jitter /ps = -0.7 RMS jitter /ps = 1.6

Iter 3 Large residuals L1= 0
Iter 3 Large residuals L2= 0
Iter 3 Large residuals L5= 2
Computed baseline L1 (X,Y,Z)/m = 0.015 0.074 0.016
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.018 0.070 0.017

RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = -0.087 -0.039 0.021
RMS of residuals L5 /m = 0.003

Final baseline L1 (X,Y,Z)/m = 4.401 2.280 -2.321
Final baseline L2 (X,Y,Z)/m = 4.404 2.276 -2.320
Final baseline L5 (X,Y,Z)/m = 4.298 2.166 -2.316

COMPUTATION OF CODE DIFFERENCES

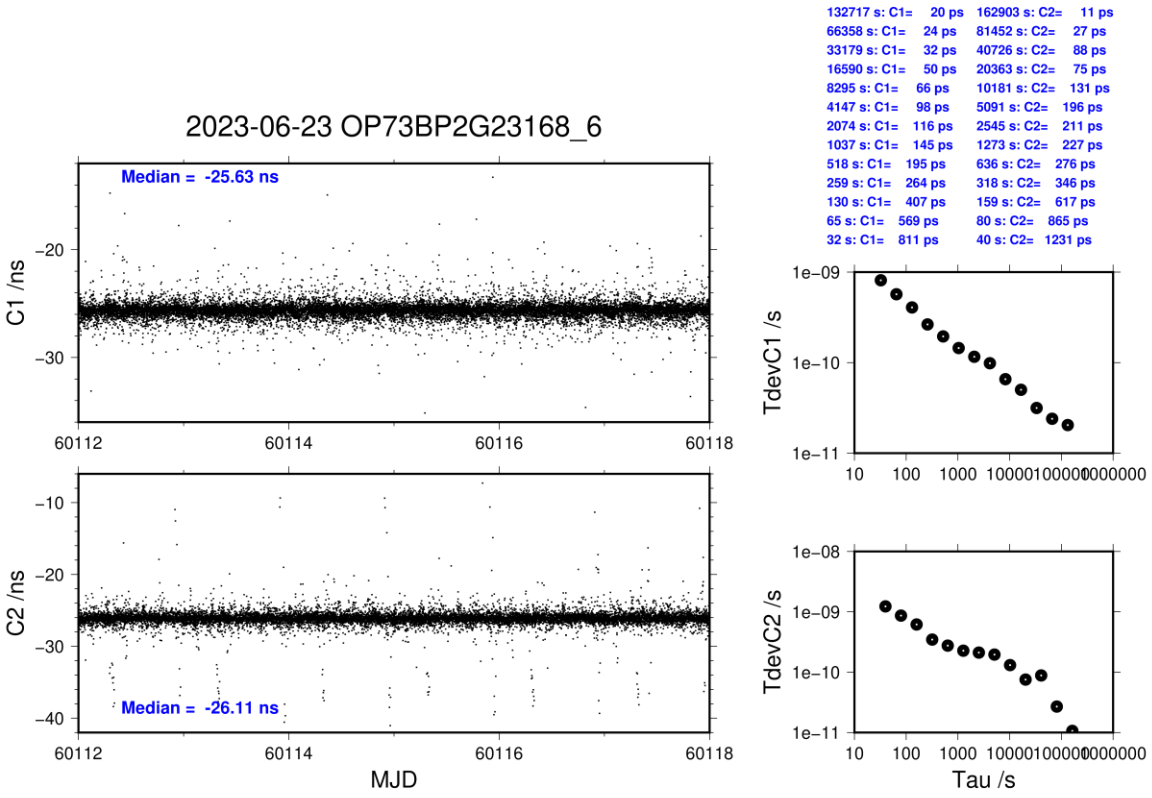
Total number of code differences = 619187

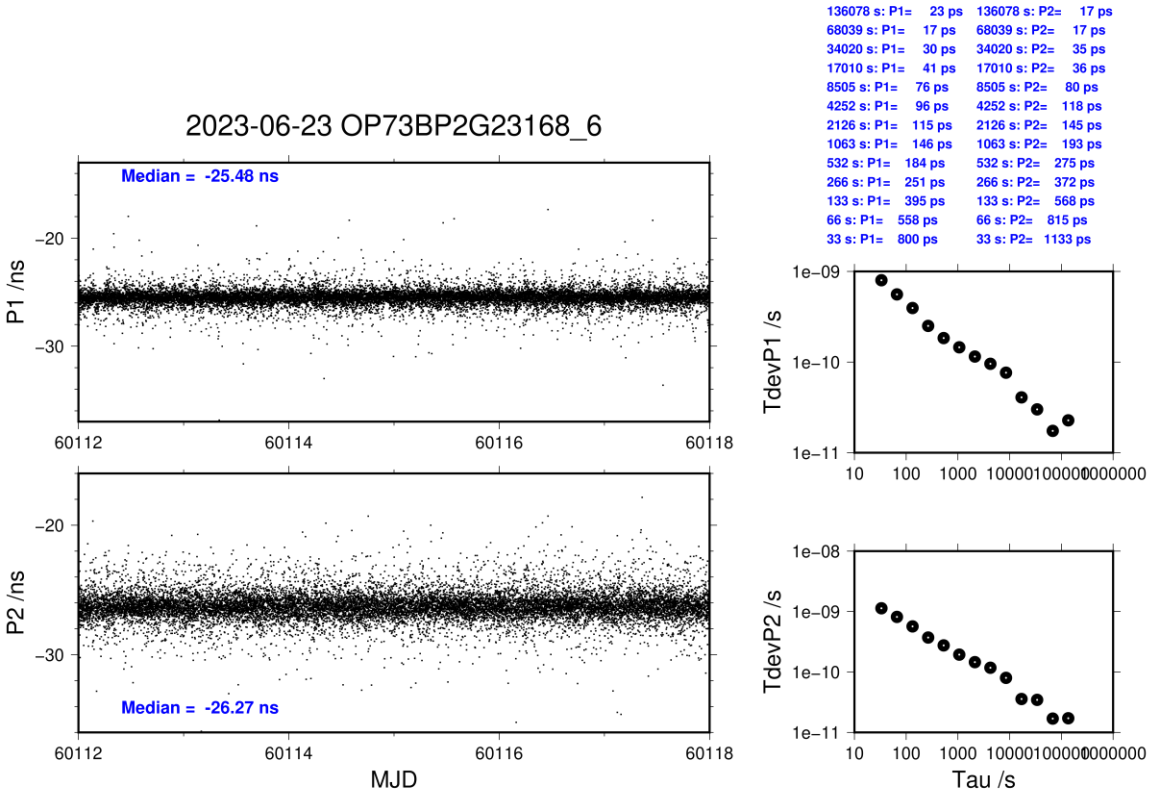
Global average of individual differences

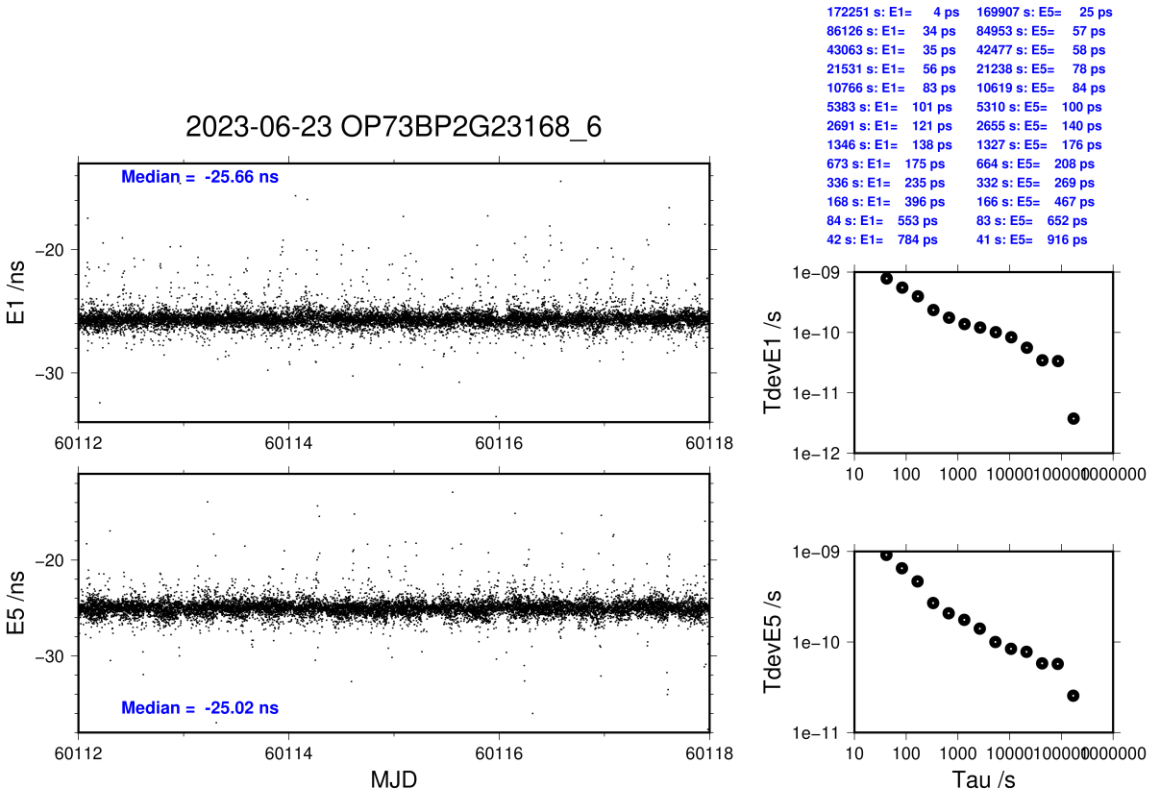
Code	#pts	ave/ns	rms/ns
C1	160237	-25.631	1.753
C2	130755	-26.108	2.099
P1	156208	-25.495	1.523
P2	156208	-26.244	1.825
E1	123388	-25.607	1.410
E5	124929	-25.002	1.422
BC	140122	-25.423	1.531
B5	141367	-25.010	1.408

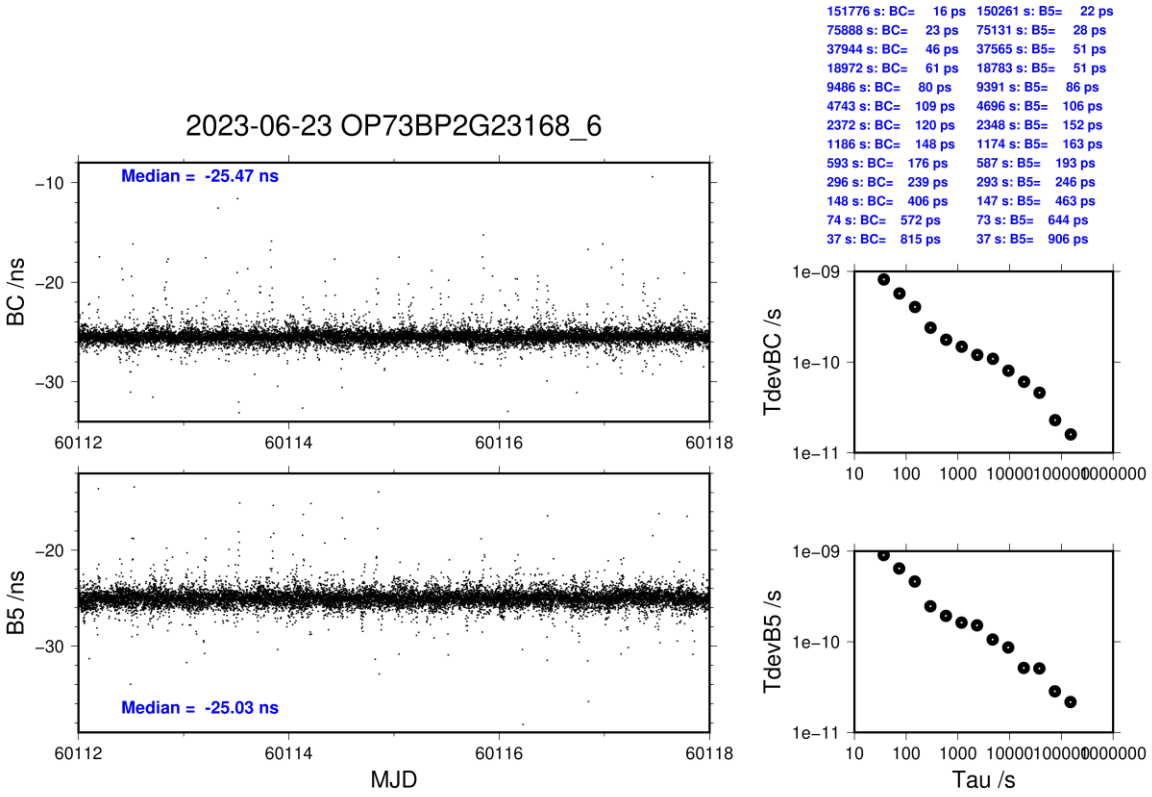
Number of 300s epochs in out file = 1728

Code	#pts	median/ns	ave/ns	rms/ns
C1	15991	-25.629	-25.636	0.808
C2	13028	-26.114	-26.116	1.223
P1	15596	-25.476	-25.495	0.790
P2	15596	-26.275	-26.242	1.132
E1	12321	-25.661	-25.612	0.779
E5	12491	-25.023	-25.004	0.916
BC	13983	-25.471	-25.429	0.805
B5	14124	-25.034	-25.009	0.898


132717 s: C1= 20 ps
66358 s: C1= 24 ps
33179 s: C1= 32 ps
16590 s: C1= 50 ps
8295 s: C1= 66 ps
4147 s: C1= 98 ps
2074 s: C1= 116 ps
1037 s: C1= 145 ps
518 s: C1= 195 ps
259 s: C1= 264 ps
130 s: C1= 407 ps
65 s: C1= 569 ps
32 s: C1= 811 ps
162903 s: C2= 11 ps
81452 s: C2= 27 ps
40726 s: C2= 88 ps
20363 s: C2= 75 ps
10181 s: C2= 131 ps
5091 s: C2= 196 ps
2545 s: C2= 211 ps
1273 s: C2= 227 ps
636 s: C2= 276 ps
318 s: C2= 346 ps
159 s: C2= 617 ps
80 s: C2= 865 ps
40 s: C2= 1231 ps
2023-06-23 OP73BP2G23168_6
Median = -25.63 ns
C1 /ns
Median = -26.11 ns
C2 /ns
MJD
TdevC1 /s
TdevC2 /s
Tau /s


136078 s: P1= 23 ps
68039 s: P1= 17 ps
34020 s: P1= 30 ps
17010 s: P1= 41 ps
8505 s: P1= 76 ps
4252 s: P1= 96 ps
2126 s: P1= 115 ps
1063 s: P1= 146 ps
532 s: P1= 184 ps
266 s: P1= 251 ps
133 s: P1= 395 ps
66 s: P1= 558 ps
33 s: P1= 800 ps
136078 s: P2= 17 ps
68039 s: P2= 17 ps
34020 s: P2= 35 ps
17010 s: P2= 36 ps
8505 s: P2= 80 ps
4252 s: P2= 118 ps
2126 s: P2= 145 ps
1063 s: P2= 193 ps
532 s: P2= 275 ps
266 s: P2= 372 ps
133 s: P2= 568 ps
66 s: P2= 815 ps
33 s: P2= 1133 ps
2023-06-23 OP73BP2G23168_6
Median = -25.48 ns
P1 /ns
Median = -26.27 ns
P2 /ns
MJD
TdevP1 /s
TdevP2 /s
Tau /s


172251 s: E1= 4 ps
86126 s: E1= 34 ps
43063 s: E1= 35 ps
21531 s: E1= 56 ps
10766 s: E1= 83 ps
5383 s: E1= 101 ps
2691 s: E1= 121 ps
1346 s: E1= 138 ps
673 s: E1= 175 ps
336 s: E1= 235 ps
168 s: E1= 396 ps
84 s: E1= 553 ps
42 s: E1= 784 ps
169907 s: E5= 25 ps
84953 s: E5= 57 ps
42477 s: E5= 58 ps
21238 s: E5= 78 ps
10619 s: E5= 84 ps
5310 s: E5= 100 ps
2655 s: E5= 140 ps
1327 s: E5= 176 ps
664 s: E5= 208 ps
332 s: E5= 269 ps
166 s: E5= 467 ps
83 s: E5= 652 ps
41 s: E5= 916 ps
2023-06-23 OP73BP2G23168_6
Median = -25.66 ns
E1 /ns
Median = -25.02 ns
E5 /ns
MJD
TdevE1 /s
TdevE5 /s
Tau /s


151776 s: BC= 16 ps
75888 s: BC= 23 ps
37944 s: BC= 46 ps
18972 s: BC= 61 ps
9486 s: BC= 80 ps
4743 s: BC= 109 ps
2372 s: BC= 120 ps
1186 s: BC= 148 ps
593 s: BC= 176 ps
296 s: BC= 239 ps
148 s: BC= 406 ps
74 s: BC= 572 ps
37 s: BC= 815 ps
150261 s: B5= 22 ps
75131 s: B5= 28 ps
37565 s: B5= 51 ps
18783 s: B5= 51 ps
9391 s: B5= 86 ps
4696 s: B5= 106 ps
2348 s: B5= 152 ps
1174 s: B5= 163 ps
587 s: B5= 193 ps
293 s: B5= 246 ps
147 s: B5= 463 ps
73 s: B5= 644 ps
37 s: B5= 906 ps
2023-06-23 OP73BP2G23168_6
Median = -25.47 ns
BC /ns
Median = -25.03 ns
B5 /ns
MJD
TdevBC /s
TdevB5 /s
Tau /s

OP75-BP2D

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 147191
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 24478 high elev obs : -1.628 -4.105
Iteration 0: Obs used = 246473; Huge residuals = 0; Large residuals = 971
Iteration 1: Obs used = 246473; Huge residuals = 0; Large residuals = 971
Computed code bias (P1/P2)/m = -2.261 -4.683
Computed baseline (X,Y,Z)/m = 3.433 2.037 -2.578
RMS of residuals /m = 0.457

Number of phase differences to fit baseline
L1/L2 = 145971
L5 = 81268
A priori baseline (X,Y,Z)/m = 3.433 2.037 -2.578
17230 clock jitters computed out of 17230 intervals
AVE jitter /ps = 0.1 RMS jitter /ps = 4.1

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 0
Iter 1 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.553 0.098 0.501
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.542 0.098 0.488
RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = 0.542 0.105 0.485
RMS of residuals L5 /m = 0.003

New iteration of baseline
New apriori baseline (X,Y,Z)/m = 3.981 2.135 -2.084
17230 clock jitters computed out of 17230 intervals
AVE jitter /ps = -0.0 RMS jitter /ps = 0.9

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 0
Iter 2 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.018 0.004 0.021
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.007 0.004 0.008
RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = 0.008 0.007 0.005
RMS of residuals L5 /m = 0.003

Final baseline L1 (X,Y,Z)/m = 3.999 2.139 -2.063
Final baseline L2 (X,Y,Z)/m = 3.987 2.139 -2.076
Final baseline L5 (X,Y,Z)/m = 3.988 2.142 -2.079

COMPUTATION OF CODE DIFFERENCES

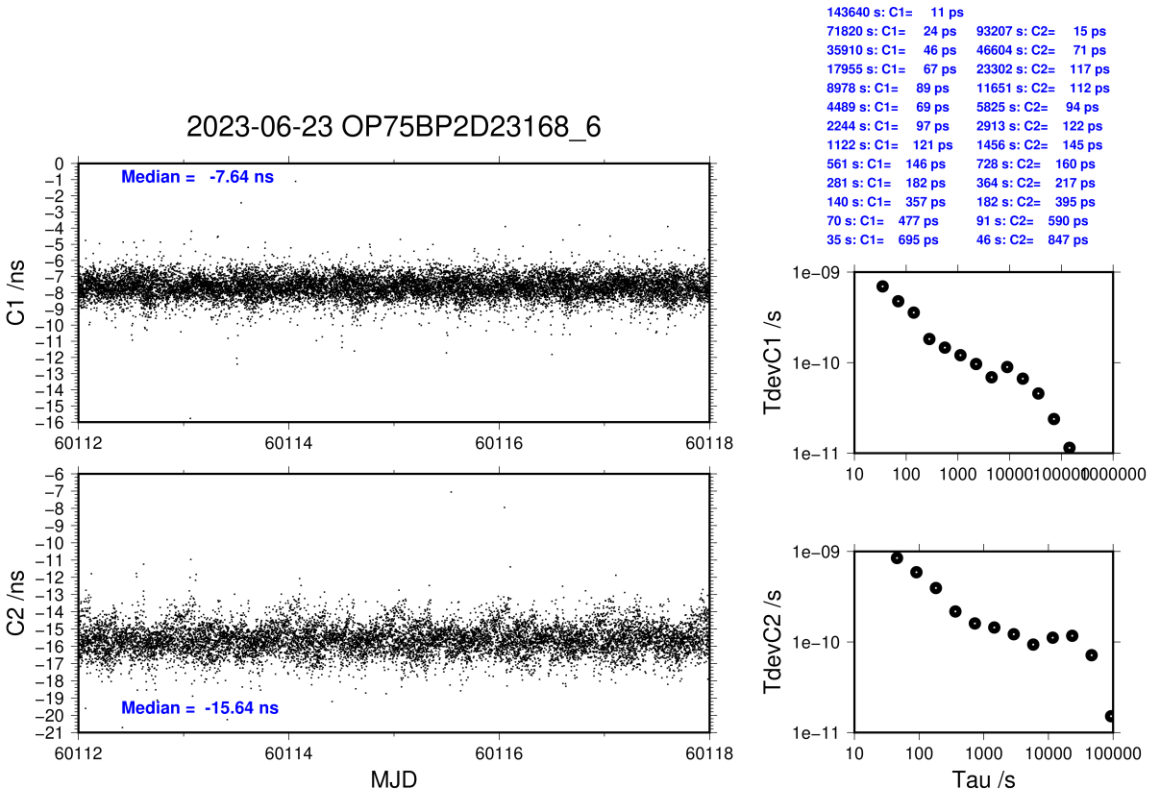
Total number of code differences = 547166

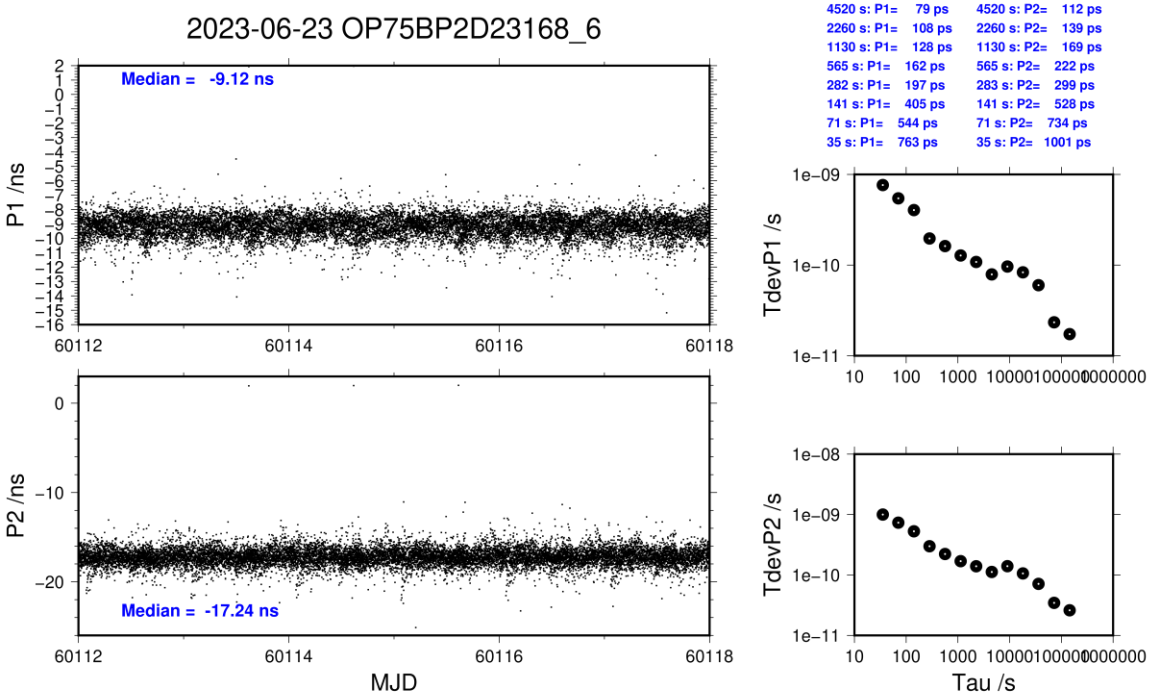
Global average of individual differences

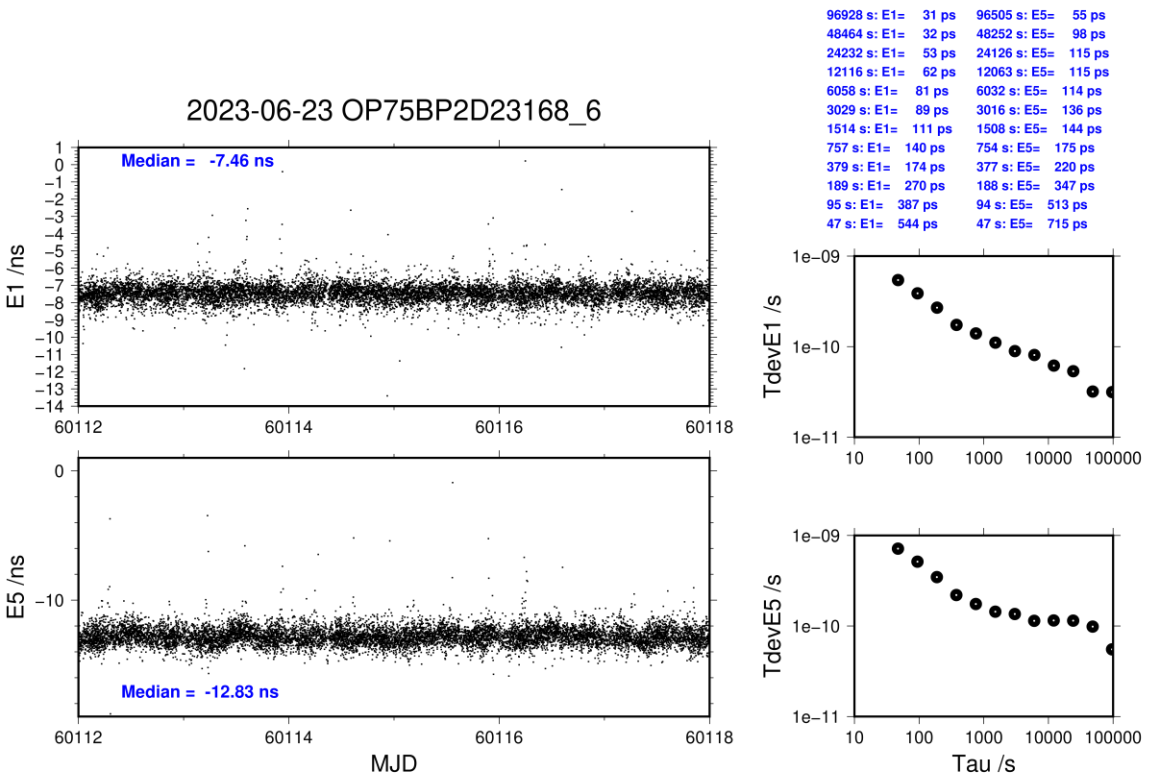
Code	#pts	ave/ns	rms/ns
C1	147927	-7.630	1.181
C2	114012	-15.624	1.304
P1	146962	-9.147	1.199
P2	146924	-17.231	1.536
E1	109571	-7.462	0.942
E5	110010	-12.790	1.036
BC	123146	-6.834	1.189
B5	123864	-12.384	1.171

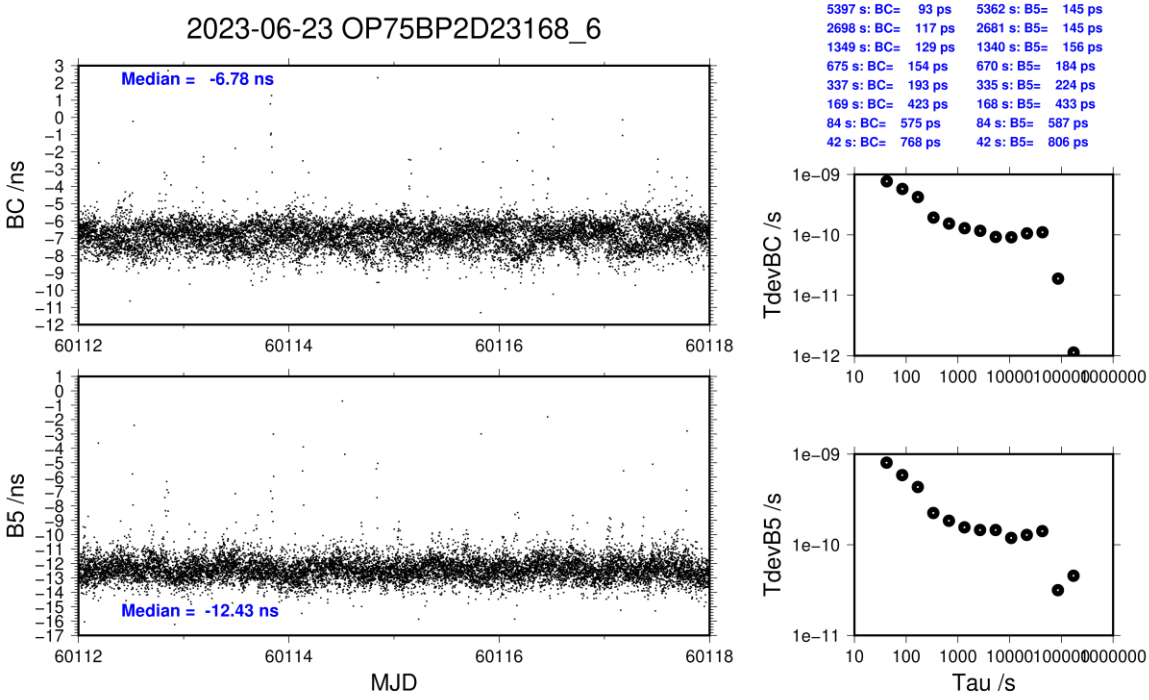
Number of 300s epochs in out file = 1727

Code	#pts	median/ns	ave/ns	rms/ns
C1	14775	-7.638	-7.638	0.680
C2	11385	-15.641	-15.623	0.827
P1	14674	-9.120	-9.161	0.759
P2	14672	-17.238	-17.227	1.014
E1	10948	-7.457	-7.461	0.551
E5	10996	-12.828	-12.791	0.734
BC	12289	-6.778	-6.834	0.788
B5	12369	-12.432	-12.381	0.837


2023-06-23 OP75BP2D23168_6
Median = -7.64 ns
Median = -15.64 ns
C1 /ns
C2 /ns
MJD
143640 s: C1= 11 ps
71820 s: C1= 24 ps
35910 s: C1= 46 ps
17955 s: C1= 67 ps
8978 s: C1= 89 ps
4489 s: C1= 69 ps
2244 s: C1= 97 ps
1122 s: C1= 121 ps
561 s: C1= 146 ps
281 s: C1= 182 ps
140 s: C1= 357 ps
70 s: C1= 477 ps
35 s: C1= 695 ps
93207 s: C2= 15 ps
46604 s: C2= 71 ps
23302 s: C2= 117 ps
11651 s: C2= 112 ps
5825 s: C2= 94 ps
2913 s: C2= 122 ps
1456 s: C2= 145 ps
728 s: C2= 160 ps
364 s: C2= 217 ps
182 s: C2= 395 ps
91 s: C2= 590 ps
46 s: C2= 847 ps
TdevC1 /s
TdevC2 /s
Tau /s


2023-06-23 OP75BP2D23168_6
Median = -9.12 ns
Median = -17.24 ns
P1 /ns
P2 /ns
MJD
144629 s: P1= 17 ps
72314 s: P1= 23 ps
36157 s: P1= 60 ps
18079 s: P1= 83 ps
9039 s: P1= 96 ps
4520 s: P1= 79 ps
2260 s: P1= 108 ps
1130 s: P1= 128 ps
565 s: P1= 162 ps
282 s: P1= 197 ps
141 s: P1= 405 ps
71 s: P1= 544 ps
35 s: P1= 763 ps
144648 s: P2= 26 ps
72324 s: P2= 35 ps
36162 s: P2= 71 ps
18081 s: P2= 106 ps
9041 s: P2= 140 ps
4520 s: P2= 112 ps
2260 s: P2= 139 ps
1130 s: P2= 169 ps
565 s: P2= 222 ps
283 s: P2= 299 ps
141 s: P2= 528 ps
71 s: P2= 734 ps
35 s: P2= 1001 ps
TdevP1 /s
TdevP2 /s
Tau /s


2023-06-23 OP75BP2D23168_6
Median = -7.46 ns
E1 /ns
Median = -12.83 ns
E5 /ns
MJD
96928 s: E1= 31 ps
48464 s: E1= 32 ps
24232 s: E1= 53 ps
12116 s: E1= 62 ps
6058 s: E1= 81 ps
3029 s: E1= 89 ps
1514 s: E1= 111 ps
757 s: E1= 140 ps
379 s: E1= 174 ps
189 s: E1= 270 ps
95 s: E1= 387 ps
47 s: E1= 544 ps
96505 s: E5= 55 ps
48252 s: E5= 98 ps
24126 s: E5= 115 ps
12063 s: E5= 115 ps
6032 s: E5= 114 ps
3016 s: E5= 136 ps
1508 s: E5= 144 ps
754 s: E5= 175 ps
377 s: E5= 220 ps
188 s: E5= 347 ps
94 s: E5= 513 ps
47 s: E5= 715 ps
TdevE1 /s
TdevE5 /s
Tau /s


2023-06-23 OP75BP2D23168_6
Median = -6.78 ns
BC /ns
Median = -12.43 ns
B5 /ns
MJD
172700 s: BC= 1 ps
86350 s: BC= 19 ps
43175 s: BC= 110 ps
21588 s: BC= 106 ps
10794 s: BC= 91 ps
5397 s: BC= 93 ps
2698 s: BC= 117 ps
1349 s: BC= 129 ps
675 s: BC= 154 ps
337 s: BC= 193 ps
169 s: BC= 423 ps
84 s: BC= 575 ps
42 s: BC= 768 ps
171583 s: B5= 46 ps
85791 s: B5= 32 ps
42896 s: B5= 141 ps
21448 s: B5= 128 ps
10724 s: B5= 119 ps
5362 s: B5= 145 ps
2681 s: B5= 145 ps
1340 s: B5= 156 ps
670 s: B5= 184 ps
335 s: B5= 224 ps
168 s: B5= 433 ps
84 s: B5= 587 ps
42 s: B5= 806 ps
TdevBC /s
TdevB5 /s
Tau /s

OP75-BP2G

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 158598
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 24552 high elev obs : -6.336 -6.973
Iteration 0: Obs used = 261083; Huge residuals = 0; Large residuals = 9031
Iteration 1: Obs used = 261083; Huge residuals = 0; Large residuals = 9031
Computed code bias (P1/P2)/m = -6.553 -7.130
Computed baseline (X,Y,Z)/m = 3.220 1.718 -3.101
RMS of residuals /m = 0.664

Number of phase differences to fit baseline
L1/L2 = 155301
L5 = 91921
A priori baseline (X,Y,Z)/m = 3.220 1.718 -3.101
17276 clock jitters computed out of 17276 intervals
AVE jitter /ps = 0.9 RMS jitter /ps = 3.3

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 0
Iter 1 Large residuals L5= 2
Computed baseline L1 (X,Y,Z)/m = 1.165 0.489 0.764
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 1.167 0.485 0.763
RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = 1.070 0.385 0.761
RMS of residuals L5 /m = 0.003

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 0
Iter 2 Large residuals L5= 2
Computed baseline L1 (X,Y,Z)/m = 1.165 0.489 0.764
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 1.167 0.485 0.763
RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = 1.070 0.385 0.761
RMS of residuals L5 /m = 0.003

New iteration of baseline
New apriori baseline (X,Y,Z)/m = 4.386 2.206 -2.338
17276 clock jitters computed out of 17276 intervals
AVE jitter /ps = -0.8 RMS jitter /ps = 1.6

Iter 3 Large residuals L1= 0
Iter 3 Large residuals L2= 0
Iter 3 Large residuals L5= 3
Computed baseline L1 (X,Y,Z)/m = 0.016 0.075 0.017
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.017 0.071 0.016
RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = -0.088 -0.037 0.021
RMS of residuals L5 /m = 0.003

Iter 4 Large residuals L1= 0
Iter 4 Large residuals L2= 0
Iter 4 Large residuals L5= 3
Computed baseline L1 (X,Y,Z)/m = 0.016 0.075 0.017

RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.017 0.071 0.016
RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = -0.088 -0.037 0.021
RMS of residuals L5 /m = 0.003

Final baseline L1 (X,Y,Z)/m = 4.401 2.281 -2.321
Final baseline L2 (X,Y,Z)/m = 4.403 2.277 -2.322
Final baseline L5 (X,Y,Z)/m = 4.298 2.169 -2.318

COMPUTATION OF CODE DIFFERENCES

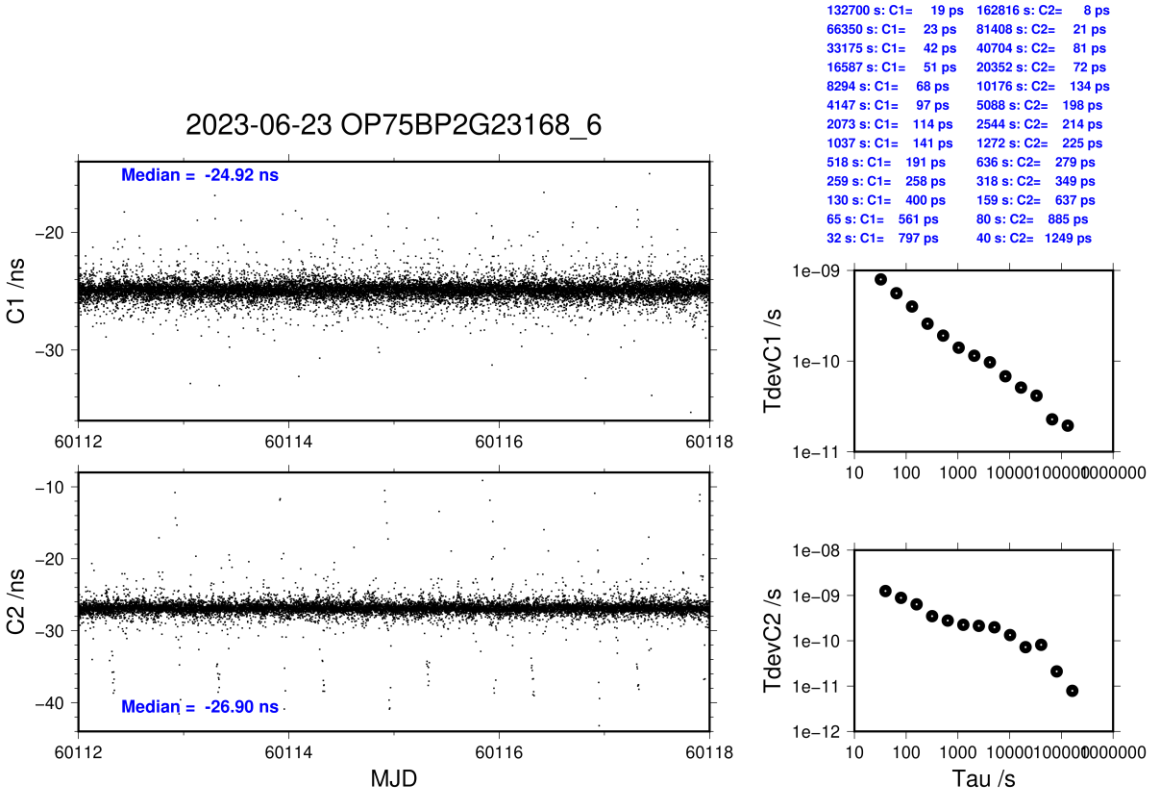
Total number of code differences = 619855

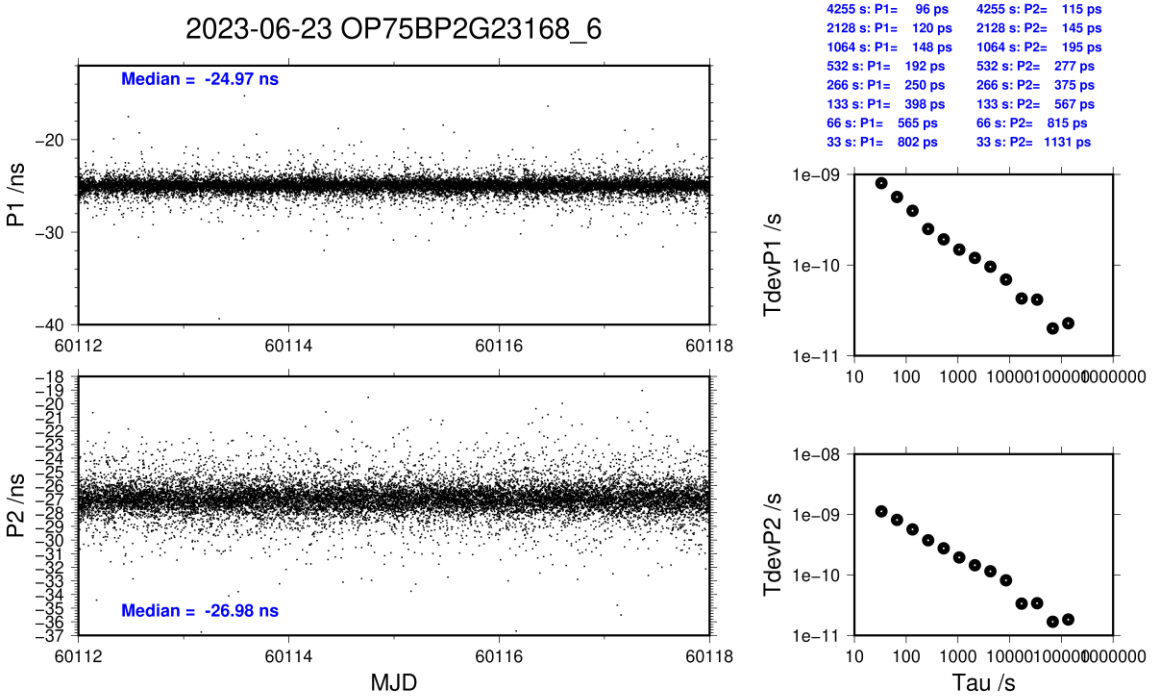
Global average of individual differences

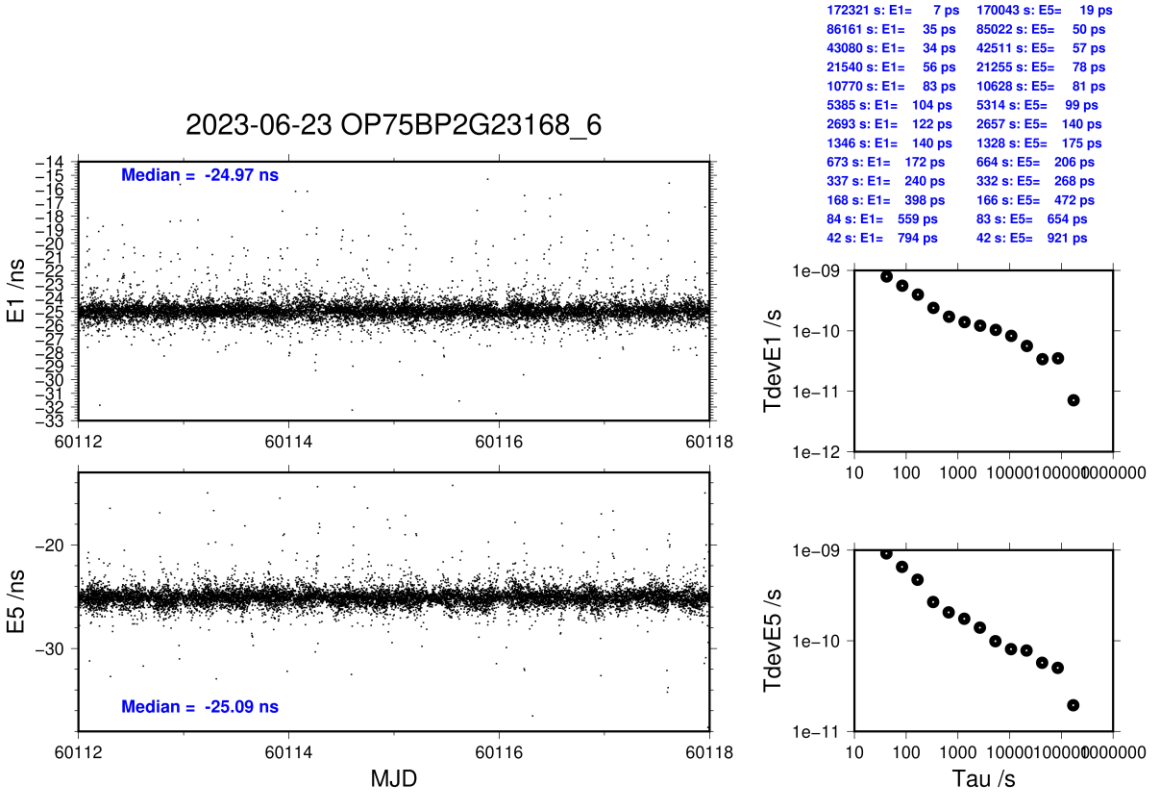
Code	#pts	ave/ns	rms/ns
C1	160248	-24.917	1.753
C2	130825	-26.890	2.101
P1	156144	-24.988	1.521
P2	156143	-26.952	1.824
E1	123369	-24.903	1.414
E5	124860	-25.070	1.434
BC	140257	-24.787	1.544
B5	141543	-25.069	1.411

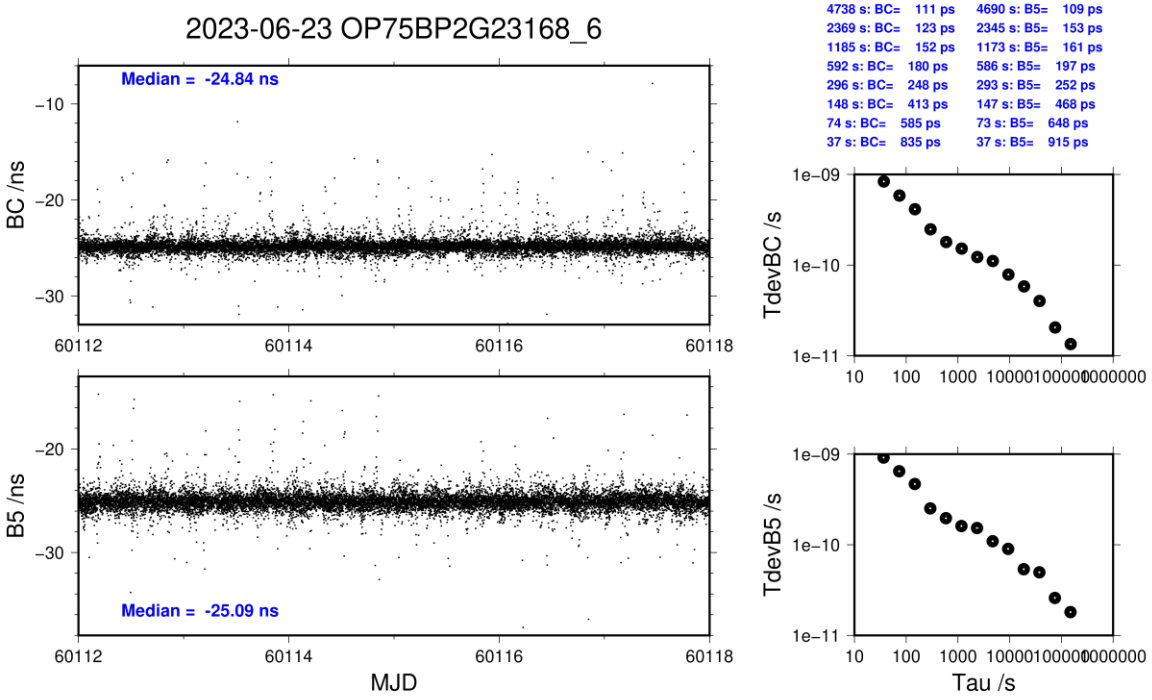
Number of 300s epochs in out file = 1728

Code	#pts	median/ns	ave/ns	rms/ns
C1	15993	-24.916	-24.920	0.794
C2	13035	-26.898	-26.896	1.245
P1	15586	-24.970	-24.988	0.796
P2	15586	-26.980	-26.952	1.132
E1	12316	-24.966	-24.910	0.787
E5	12481	-25.090	-25.069	0.919
BC	13997	-24.839	-24.792	0.824
B5	14140	-25.092	-25.070	0.907


2023-06-23 OP75BP2G23168_6
Median = -24.92 ns
Median = -26.90 ns
C1 /ns
C2 /ns
MJD
132700 s: C1= 19 ps
66350 s: C1= 23 ps
33175 s: C1= 42 ps
16587 s: C1= 51 ps
8294 s: C1= 68 ps
4147 s: C1= 97 ps
2073 s: C1= 114 ps
1037 s: C1= 141 ps
518 s: C1= 191 ps
259 s: C1= 258 ps
130 s: C1= 400 ps
65 s: C1= 561 ps
32 s: C1= 797 ps
162816 s: C2= 8 ps
81408 s: C2= 21 ps
40704 s: C2= 81 ps
20352 s: C2= 72 ps
10176 s: C2= 134 ps
5088 s: C2= 198 ps
2544 s: C2= 214 ps
1272 s: C2= 225 ps
636 s: C2= 279 ps
318 s: C2= 349 ps
159 s: C2= 637 ps
80 s: C2= 885 ps
40 s: C2= 1249 ps
TdevC1 /s
TdevC2 /s
Tau /s


2023-06-23 OP75BP2G23168_6
Median = -24.97 ns
Median = -26.98 ns
P1 /ns
P2 /ns
MJD
136165 s: P1= 23 ps
68083 s: P1= 20 ps
34041 s: P1= 42 ps
17021 s: P1= 43 ps
8510 s: P1= 69 ps
4255 s: P1= 96 ps
2128 s: P1= 120 ps
1064 s: P1= 148 ps
532 s: P1= 192 ps
266 s: P1= 250 ps
133 s: P1= 398 ps
66 s: P1= 565 ps
33 s: P1= 802 ps
136165 s: P2= 18 ps
68083 s: P2= 17 ps
34041 s: P2= 34 ps
17021 s: P2= 34 ps
8510 s: P2= 82 ps
4255 s: P2= 115 ps
2128 s: P2= 145 ps
1064 s: P2= 195 ps
532 s: P2= 277 ps
266 s: P2= 375 ps
133 s: P2= 567 ps
66 s: P2= 815 ps
33 s: P2= 1131 ps
TdevP1 /s
TdevP2 /s
Tau /s


2023-06-23 OP75BP2G23168_6
Median = -24.97 ns
Median = -25.09 ns
E1 /ns
E5 /ns
MJD
60112
60114
60116
60118
172321 s: E1= 7 ps
86161 s: E1= 35 ps
43080 s: E1= 34 ps
21540 s: E1= 56 ps
10770 s: E1= 83 ps
5385 s: E1= 104 ps
2693 s: E1= 122 ps
1346 s: E1= 140 ps
673 s: E1= 172 ps
337 s: E1= 240 ps
168 s: E1= 398 ps
84 s: E1= 559 ps
42 s: E1= 794 ps
170043 s: E5= 19 ps
85022 s: E5= 50 ps
42511 s: E5= 57 ps
21255 s: E5= 78 ps
10628 s: E5= 81 ps
5314 s: E5= 99 ps
2657 s: E5= 140 ps
1328 s: E5= 175 ps
664 s: E5= 206 ps
332 s: E5= 268 ps
166 s: E5= 472 ps
83 s: E5= 654 ps
42 s: E5= 921 ps
TdevE1 /s
TdevE5 /s
Tau /s


2023-06-23 OP75BP2G23168_6
Median = -24.84 ns
Median = -25.09 ns
BC /ns
B5 /ns
MJD
60112
60114
60116
60118
151625 s: BC= 13 ps
75812 s: BC= 20 ps
37906 s: BC= 40 ps
18953 s: BC= 58 ps
9477 s: BC= 79 ps
4738 s: BC= 111 ps
2369 s: BC= 123 ps
1185 s: BC= 152 ps
592 s: BC= 180 ps
296 s: BC= 248 ps
148 s: BC= 413 ps
74 s: BC= 585 ps
37 s: BC= 835 ps
150091 s: B5= 18 ps
75046 s: B5= 26 ps
37523 s: B5= 50 ps
18761 s: B5= 54 ps
9381 s: B5= 90 ps
4690 s: B5= 109 ps
2345 s: B5= 153 ps
1173 s: B5= 161 ps
586 s: B5= 197 ps
293 s: B5= 252 ps
147 s: B5= 468 ps
73 s: B5= 648 ps
37 s: B5= 915 ps
TdevBC /s
TdevB5 /s
Tau /s

OPMT-BP2D

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 133808
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 24478 high elev obs : 74.755 77.209
Iteration 0: Obs used = 216963; Huge residuals = 68; Large residuals = 3715
Iteration 1: Obs used = 216803; Huge residuals = 0; Large residuals = 3807
Computed code bias (P1/P2)/m = 73.873 76.351
Computed baseline (X,Y,Z)/m = 3.067 0.808 -2.023
RMS of residuals /m = 0.619

Number of phase differences to fit baseline
L1/L2 = 133111
L5 = 0
A priori baseline (X,Y,Z)/m = 3.067 0.808 -2.023
17230 clock jitters computed out of 17230 intervals
AVE jitter /ps = -0.5 RMS jitter /ps = 4.6

Iter 1 Large residuals L1= 1
Iter 1 Large residuals L2= 1
Iter 1 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.608 0.130 0.734
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.599 0.128 0.719
RMS of residuals L2 /m = 0.004
No computed baseline L5, will use L1/L2

Iter 2 Large residuals L1= 1
Iter 2 Large residuals L2= 1
Iter 2 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.608 0.130 0.734
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.599 0.128 0.719
RMS of residuals L2 /m = 0.004
No computed baseline L5, will use L1/L2

New iteration of baseline
New apriori baseline (X,Y,Z)/m = 3.670 0.937 -1.297
17230 clock jitters computed out of 17230 intervals
AVE jitter /ps = 0.4 RMS jitter /ps = 1.2

Iter 3 Large residuals L1= 1
Iter 3 Large residuals L2= 1
Iter 3 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.030 -0.026 0.029
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.021 -0.027 0.015
RMS of residuals L2 /m = 0.004

No computed baseline L5, will use L1/L2

Final baseline L1 (X,Y,Z)/m = 3.700 0.911 -1.267
Final baseline L2 (X,Y,Z)/m = 3.691 0.909 -1.282
Final baseline L5 (X,Y,Z)/m = 3.695 0.910 -1.275

COMPUTATION OF CODE DIFFERENCES

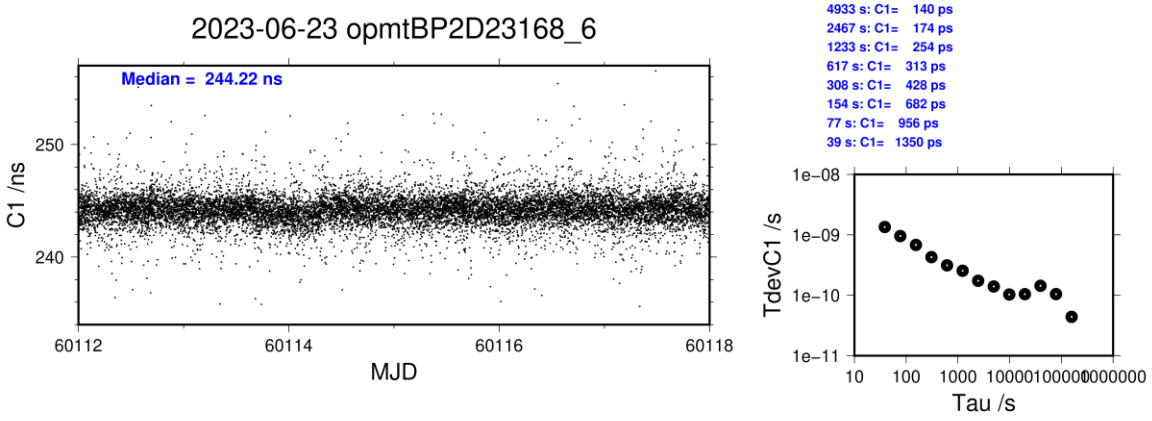
Total number of code differences = 134796

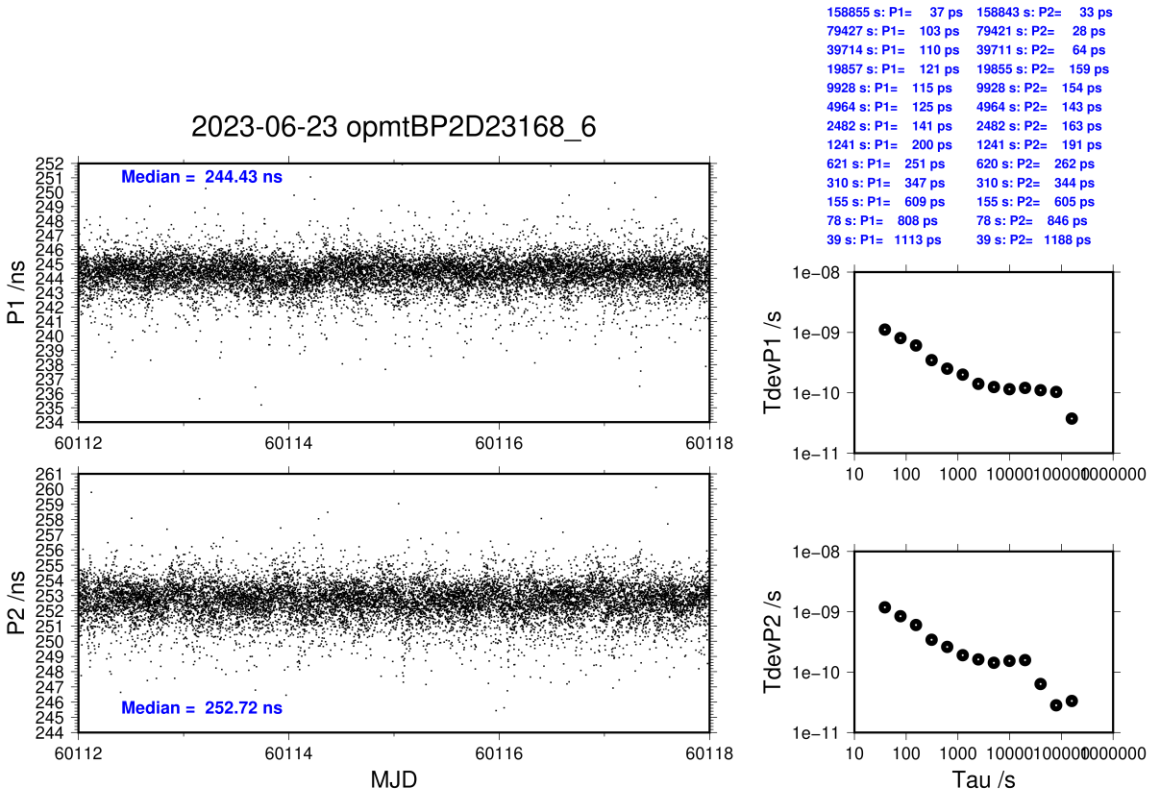
Global average of individual differences

Code	#pts	ave/ns	rms/ns
C1	134510	244.182	2.900
P1	133799	244.330	2.049
P2	133888	252.630	2.061

Number of 300s epochs in out file = 1727

Code	#pts	median/ns	ave/ns	rms/ns
C1	13444	244.220	244.215	1.350
P1	13360	244.425	244.353	1.135
P2	13361	252.717	252.650	1.183




158855 s: P1= 37 ps
79427 s: P1= 103 ps
39714 s: P1= 110 ps
19857 s: P1= 121 ps
9928 s: P1= 115 ps
4964 s: P1= 125 ps
2482 s: P1= 141 ps
1241 s: P1= 200 ps
621 s: P1= 251 ps
310 s: P1= 347 ps
155 s: P1= 609 ps
78 s: P1= 808 ps
39 s: P1= 1113 ps
158843 s: P2= 33 ps
79421 s: P2= 28 ps
39711 s: P2= 64 ps
19855 s: P2= 159 ps
9928 s: P2= 154 ps
4964 s: P2= 143 ps
2482 s: P2= 163 ps
1241 s: P2= 191 ps
620 s: P2= 262 ps
310 s: P2= 344 ps
155 s: P2= 605 ps
78 s: P2= 846 ps
39 s: P2= 1188 ps
2023-06-23 opmtBP2D23168_6
Median = 244.43 ns
P1 /ns
Median = 252.72 ns
P2 /ns
MJD
TdevP1 /s
TdevP2 /s
Tau /s

OPMT-BP2G

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 141454
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 24552 high elev obs : 70.035 74.363
Iteration 0: Obs used = 228899; Huge residuals = 158; Large residuals = 6927
Iteration 1: Obs used = 228600; Huge residuals = 0; Large residuals = 7068
Computed code bias (P1/P2)/m = 69.113 73.426
Computed baseline (X,Y,Z)/m = 3.458 0.932 -2.262
RMS of residuals /m = 0.654

Number of phase differences to fit baseline
L1/L2 = 140921
L5 = 0
A priori baseline (X,Y,Z)/m = 3.458 0.932 -2.262
17276 clock jitters computed out of 17276 intervals
AVE jitter /ps = -0.9 RMS jitter /ps = 3.8

Iter 1 Large residuals L1= 1
Iter 1 Large residuals L2= 1
Iter 1 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.607 0.180 0.704
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.616 0.174 0.708
RMS of residuals L2 /m = 0.004
No computed baseline L5, will use L1/L2

Iter 2 Large residuals L1= 1
Iter 2 Large residuals L2= 1
Iter 2 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.607 0.180 0.704
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.616 0.174 0.708
RMS of residuals L2 /m = 0.004
No computed baseline L5, will use L1/L2

New iteration of baseline
New apriori baseline (X,Y,Z)/m = 4.069 1.109 -1.556
17276 clock jitters computed out of 17276 intervals
AVE jitter /ps = 0.6 RMS jitter /ps = 1.2

Iter 3 Large residuals L1= 1
Iter 3 Large residuals L2= 1
Iter 3 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.029 -0.042 0.024
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.037 -0.048 0.028
RMS of residuals L2 /m = 0.004
No computed baseline L5, will use L1/L2

Final baseline L1 (X,Y,Z)/m = 4.097 1.067 -1.532
Final baseline L2 (X,Y,Z)/m = 4.106 1.061 -1.528
Final baseline L5 (X,Y,Z)/m = 4.102 1.064 -1.530

COMPUTATION OF CODE DIFFERENCES

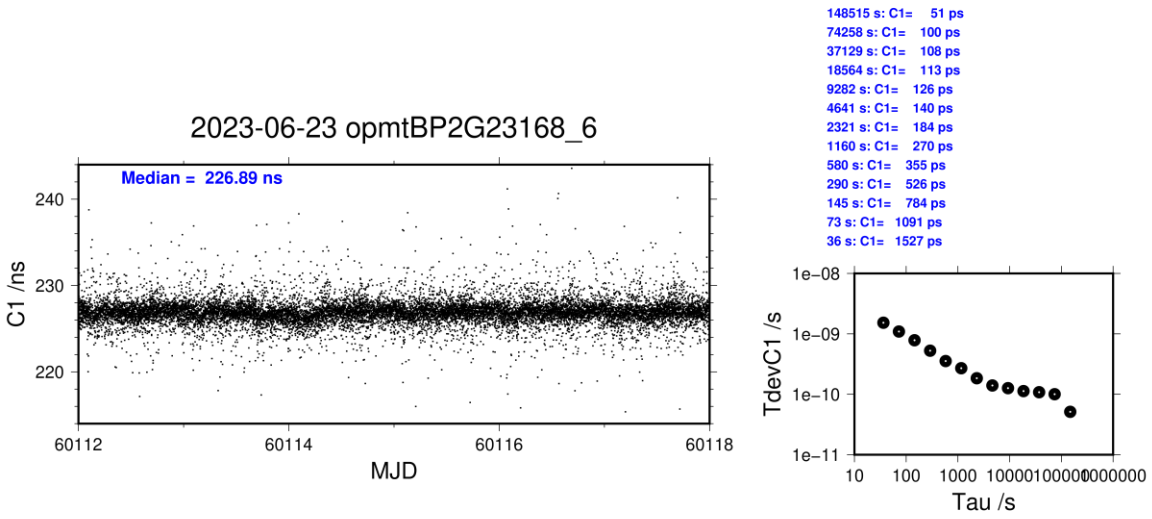
Total number of code differences = 143293

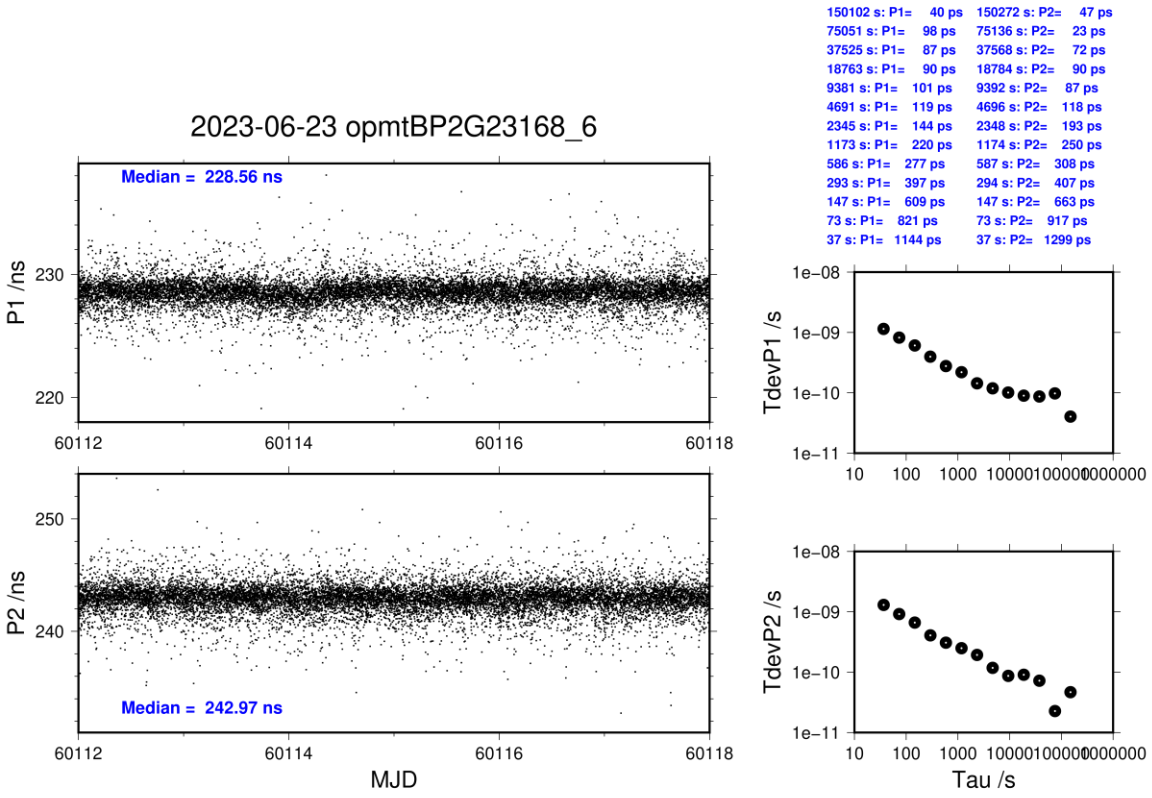
Global average of individual differences

Code	#pts	ave/ns	rms/ns
C1	142741	226.890	3.298
P1	141579	228.506	2.355
P2	141479	242.885	2.432

Number of 300s epochs in out file = 1728

Code	#pts	median/ns	ave/ns	rms/ns
C1	14290	226.890	226.921	1.539
P1	14139	228.563	228.527	1.166
P2	14123	242.969	242.902	1.296




2023-06-23 opmtBP2G23168_6
Median = 228.56 ns
Median = 242.97 ns
P1 /ns
P2 /ns
MJD
150102 s: P1= 40 ps
75051 s: P1= 98 ps
37525 s: P1= 87 ps
18763 s: P1= 90 ps
9381 s: P1= 101 ps
4691 s: P1= 119 ps
2345 s: P1= 144 ps
1173 s: P1= 220 ps
586 s: P1= 277 ps
293 s: P1= 397 ps
147 s: P1= 609 ps
73 s: P1= 821 ps
37 s: P1= 1144 ps
150272 s: P2= 47 ps
75136 s: P2= 23 ps
37568 s: P2= 72 ps
18784 s: P2= 90 ps
9392 s: P2= 87 ps
4696 s: P2= 118 ps
2348 s: P2= 193 ps
1174 s: P2= 250 ps
587 s: P2= 308 ps
294 s: P2= 407 ps
147 s: P2= 663 ps
73 s: P2= 917 ps
37 s: P1= 1299 ps
TdevP1 /s
TdevP2 /s
Tau /s

OPM9-BP2D

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 140242
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 24478 high elev obs : 21.452 19.501
Iteration 0: Obs used = 232934; Huge residuals = 1; Large residuals = 612
Iteration 1: Obs used = 232934; Huge residuals = 0; Large residuals = 611
Computed code bias (P1/P2)/m = 20.628 18.685
Computed baseline (X,Y,Z)/m = 3.053 1.993 -2.077
RMS of residuals /m = 0.418

Number of phase differences to fit baseline
L1/L2 = 139227
L5 = 80838
A priori baseline (X,Y,Z)/m = 3.053 1.993 -2.077
17230 clock jitters computed out of 17230 intervals
AVE jitter /ps = -0.2 RMS jitter /ps = 4.4

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 0
Iter 1 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.568 0.073 0.694
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.559 0.071 0.684
RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = 0.560 0.075 0.676
RMS of residuals L5 /m = 0.003

New iteration of baseline
New apriori baseline (X,Y,Z)/m = 3.616 2.065 -1.387
17230 clock jitters computed out of 17230 intervals
AVE jitter /ps = 0.1 RMS jitter /ps = 1.1

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 0
Iter 2 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.022 -0.011 0.022
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.012 -0.013 0.012
RMS of residuals L2 /m = 0.004
Computed baseline L5 (X,Y,Z)/m = 0.012 -0.010 0.008
RMS of residuals L5 /m = 0.003

Final baseline L1 (X,Y,Z)/m = 3.638 2.055 -1.366
Final baseline L2 (X,Y,Z)/m = 3.629 2.053 -1.375
Final baseline L5 (X,Y,Z)/m = 3.628 2.056 -1.379

COMPUTATION OF CODE DIFFERENCES

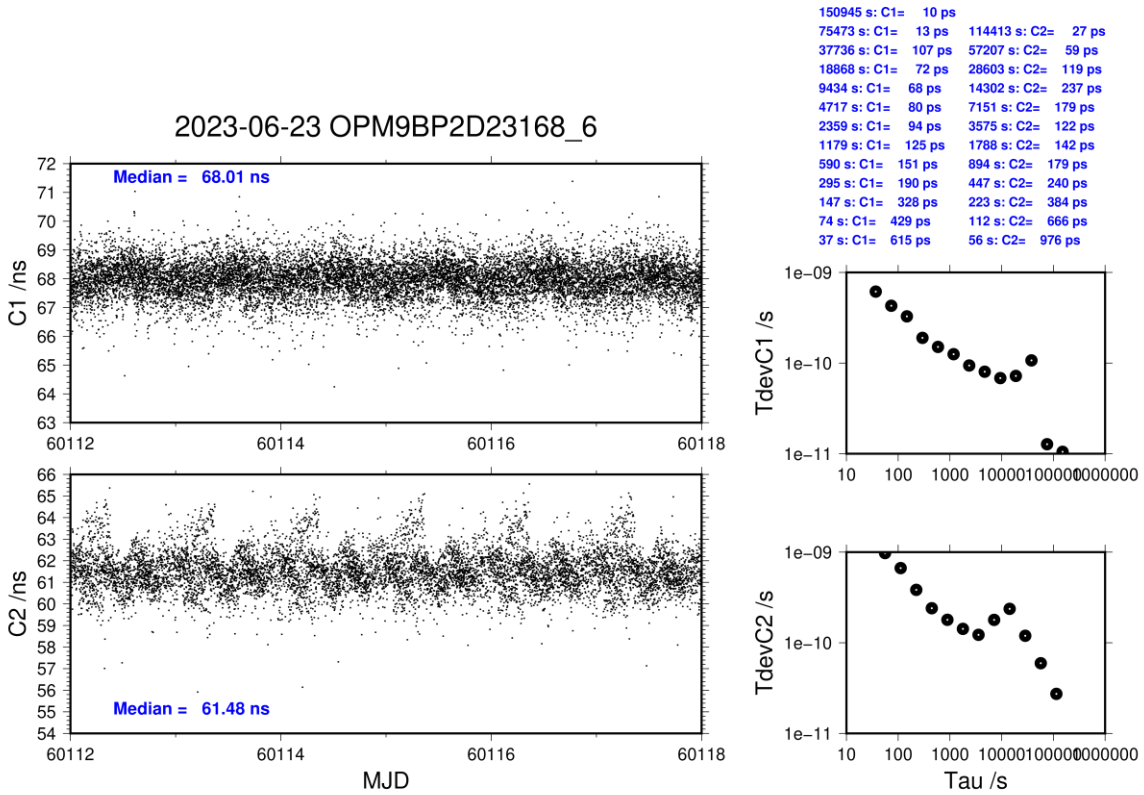
Total number of code differences = 365608

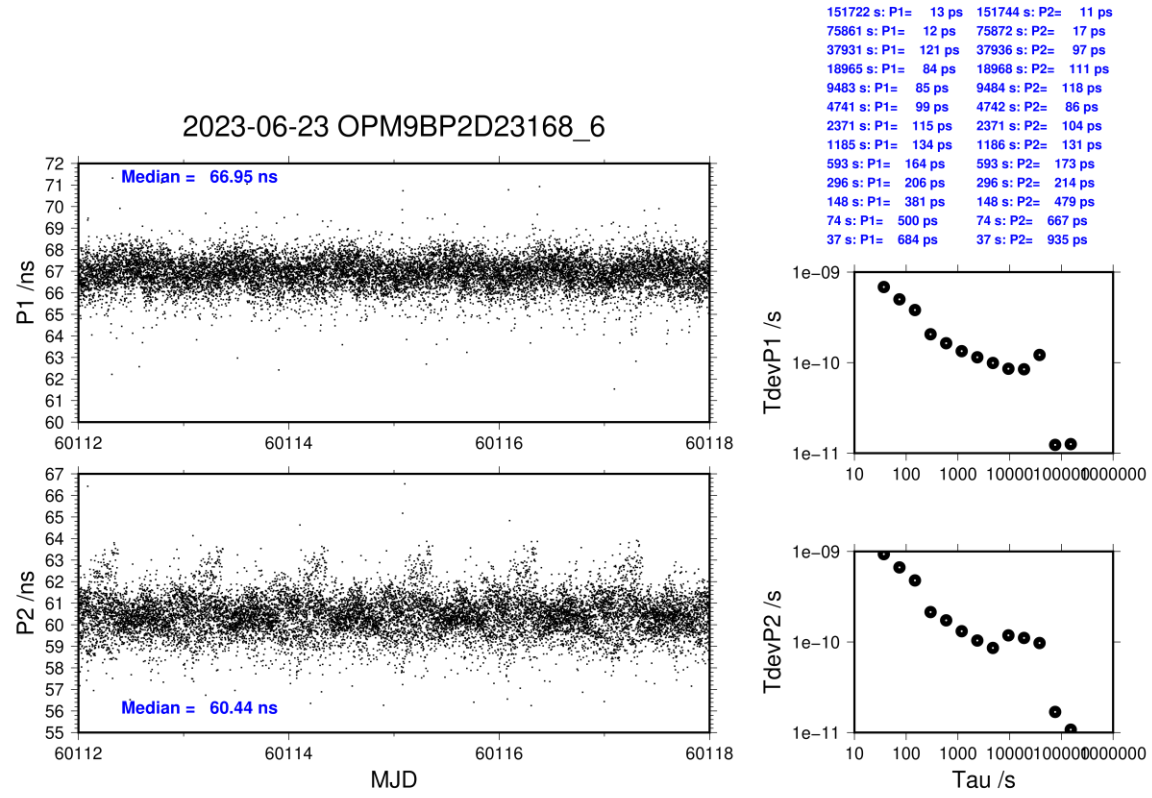
Global average of individual differences

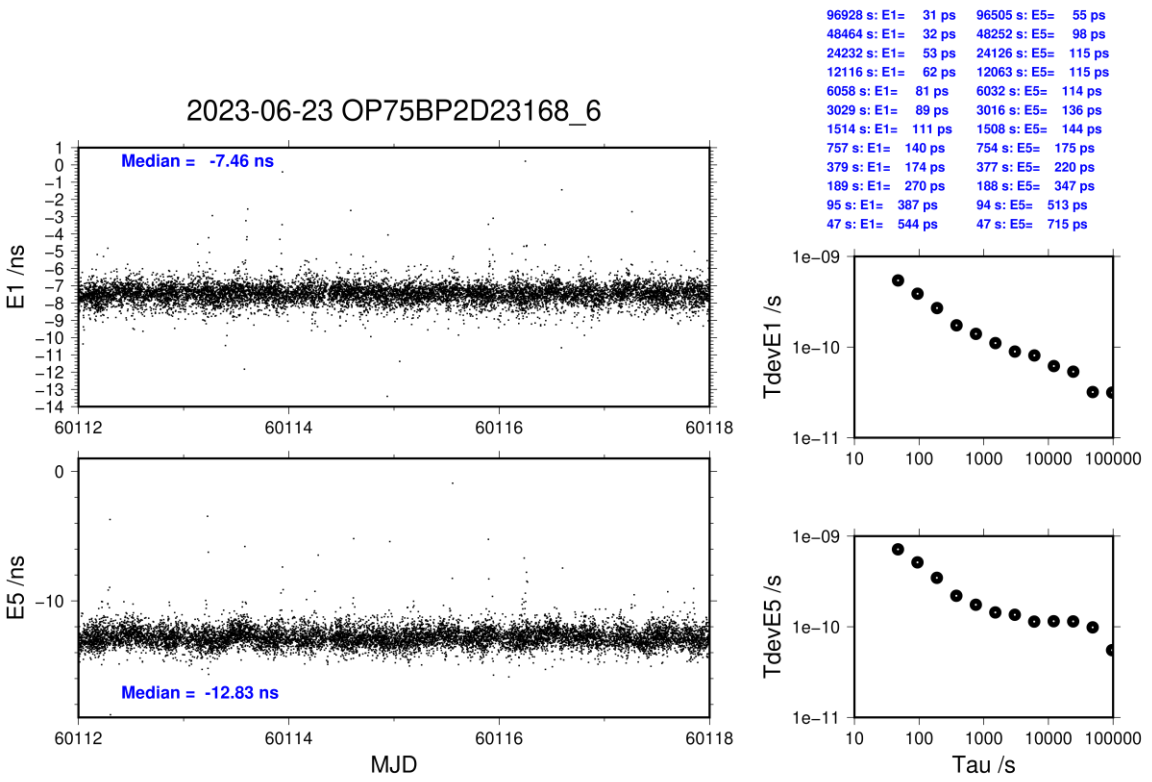
Code	#pts	ave/ns	rms/ns
C1	140828	67.991	0.981
C2	92898	61.522	1.246
P1	140116	66.921	1.128
P2	140107	60.450	1.256
E1	108444	69.460	0.905
E5	108436	59.092	0.958

Number of 300s epochs in out file = 1727

Code	#pts	median/ns	ave/ns	rms/ns
C1	14060	68.013	67.997	0.626
C2	9275	61.483	61.526	0.942
P1	13988	66.948	66.926	0.710
P2	13986	60.440	60.452	0.914
E1	10832	69.469	69.464	0.613
E5	10831	59.082	59.090	0.746




2023-06-23 OPM9BP2D23168_6
Median = 66.95 ns
Median = 60.44 ns
P1 /ns
P2 /ns
MJD
151722 s: P1= 13 ps
75861 s: P1= 12 ps
37931 s: P1= 121 ps
18965 s: P1= 84 ps
9483 s: P1= 85 ps
4741 s: P1= 99 ps
2371 s: P1= 115 ps
1185 s: P1= 134 ps
593 s: P1= 164 ps
296 s: P1= 206 ps
148 s: P1= 381 ps
74 s: P1= 500 ps
37 s: P1= 684 ps
151744 s: P2= 11 ps
75872 s: P2= 17 ps
37936 s: P2= 97 ps
18968 s: P2= 111 ps
9484 s: P2= 118 ps
4742 s: P2= 86 ps
2371 s: P2= 104 ps
1186 s: P2= 131 ps
593 s: P2= 173 ps
296 s: P2= 214 ps
148 s: P2= 479 ps
74 s: P2= 667 ps
37 s: P2= 935 ps
TdevP1 /s
TdevP2 /s
Tau /s


2023-06-23 OP75BP2D23168_6
Median = -7.46 ns
Median = -12.83 ns
E1 /ns
E5 /ns
MJD
96928 s: E1= 31 ps
48464 s: E1= 32 ps
24232 s: E1= 53 ps
12116 s: E1= 62 ps
6058 s: E1= 81 ps
3029 s: E1= 89 ps
1514 s: E1= 111 ps
757 s: E1= 140 ps
379 s: E1= 174 ps
189 s: E1= 270 ps
95 s: E1= 387 ps
47 s: E1= 544 ps
96505 s: E5= 55 ps
48252 s: E5= 98 ps
24126 s: E5= 115 ps
12063 s: E5= 115 ps
6032 s: E5= 114 ps
3016 s: E5= 136 ps
1508 s: E5= 144 ps
754 s: E5= 175 ps
377 s: E5= 220 ps
188 s: E5= 347 ps
94 s: E5= 513 ps
47 s: E5= 715 ps
TdevE1 /s
TdevE5 /s
Tau /s

OPM9-BP2G

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 140544
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 24552 high elev obs : 16.734 16.664
Iteration 0: Obs used = 233096; Huge residuals = 1; Large residuals = 910
Iteration 1: Obs used = 233096; Huge residuals = 0; Large residuals = 909
Computed code bias (P1/P2)/m = 15.938 15.836
Computed baseline (X,Y,Z)/m = 3.375 2.126 -2.390
RMS of residuals /m = 0.477

Number of phase differences to fit baseline
L1/L2 = 139682
L5 = 81124
A priori baseline (X,Y,Z)/m = 3.375 2.126 -2.390
17276 clock jitters computed out of 17276 intervals
AVE jitter /ps = -0.2 RMS jitter /ps = 3.1

Iter 1 Large residuals L1= 0
Iter 1 Large residuals L2= 0
Iter 1 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.655 0.091 0.749
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.657 0.087 0.752
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = 0.662 0.089 0.747
RMS of residuals L5 /m = 0.003

New iteration of baseline
New apriori baseline (X,Y,Z)/m = 4.031 2.215 -1.639
17276 clock jitters computed out of 17276 intervals
AVE jitter /ps = 0.1 RMS jitter /ps = 1.3

Iter 2 Large residuals L1= 0
Iter 2 Large residuals L2= 0
Iter 2 Large residuals L5= 0
Computed baseline L1 (X,Y,Z)/m = 0.019 -0.009 0.017
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.021 -0.013 0.020
RMS of residuals L2 /m = 0.003
Computed baseline L5 (X,Y,Z)/m = 0.023 -0.011 0.019
RMS of residuals L5 /m = 0.003

Final baseline L1 (X,Y,Z)/m = 4.050 2.206 -1.622
Final baseline L2 (X,Y,Z)/m = 4.051 2.202 -1.619
Final baseline L5 (X,Y,Z)/m = 4.054 2.204 -1.620

COMPUTATION OF CODE DIFFERENCES

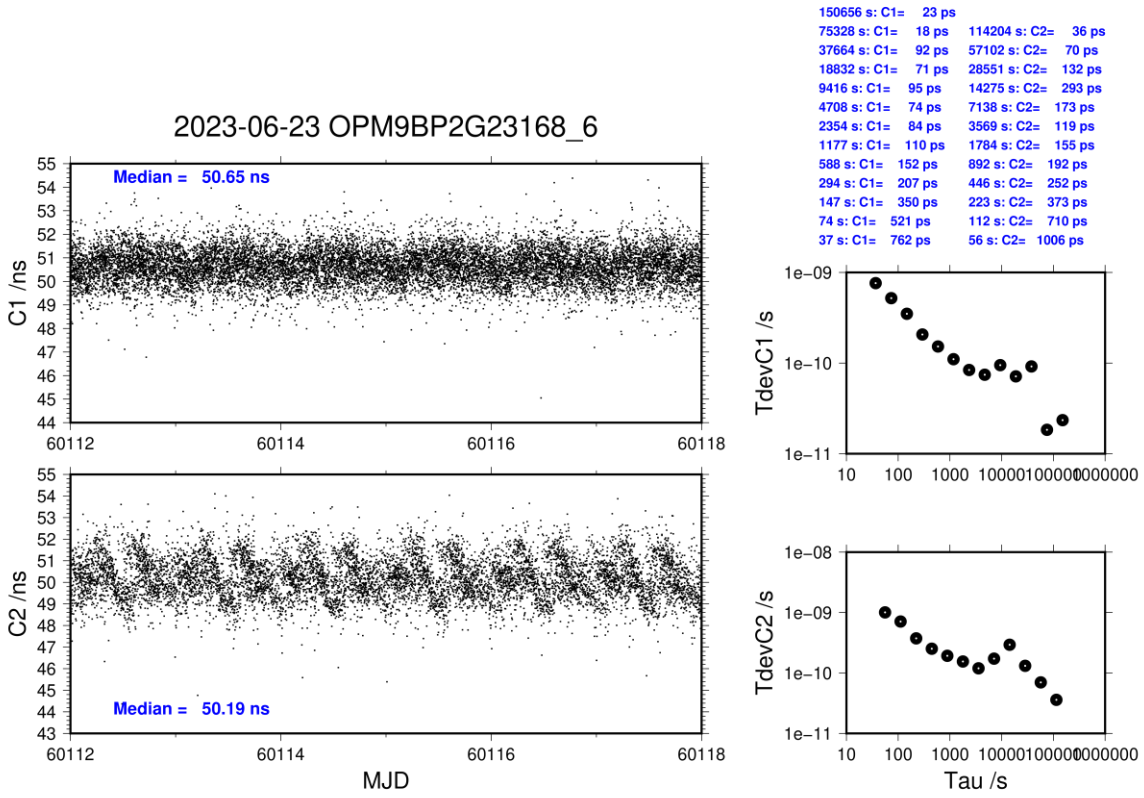
Total number of code differences = 367659

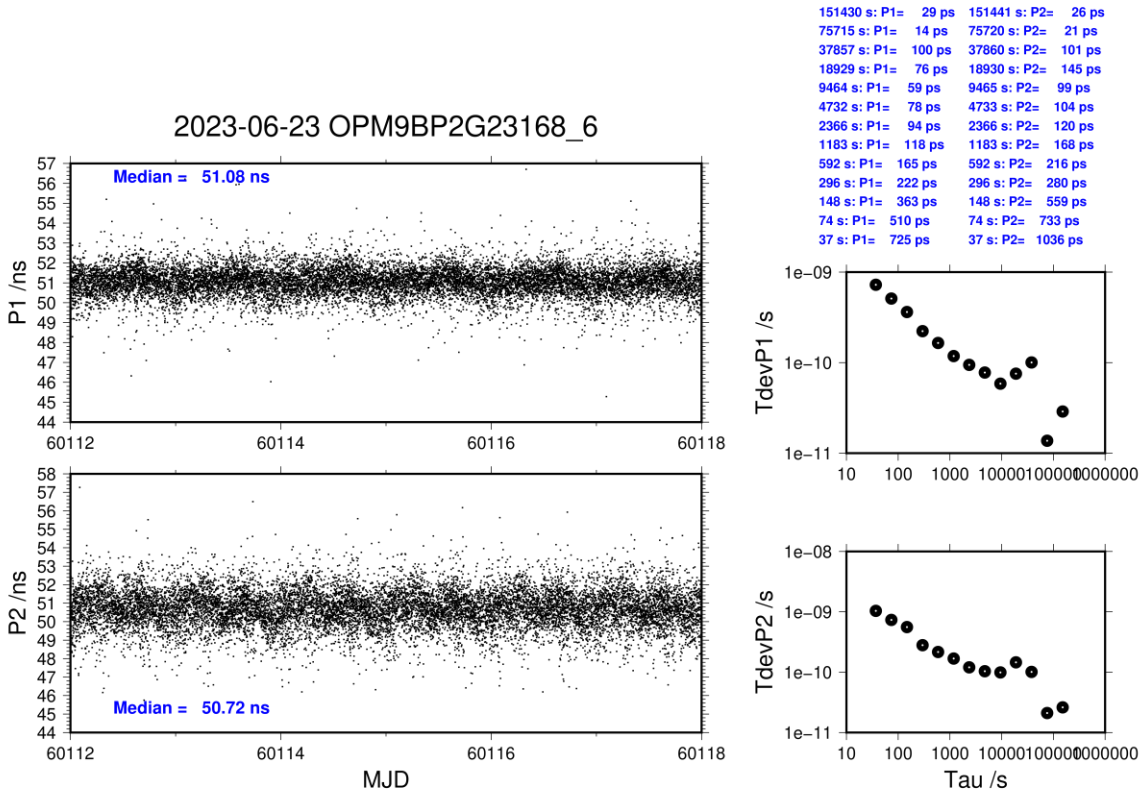
Global average of individual differences

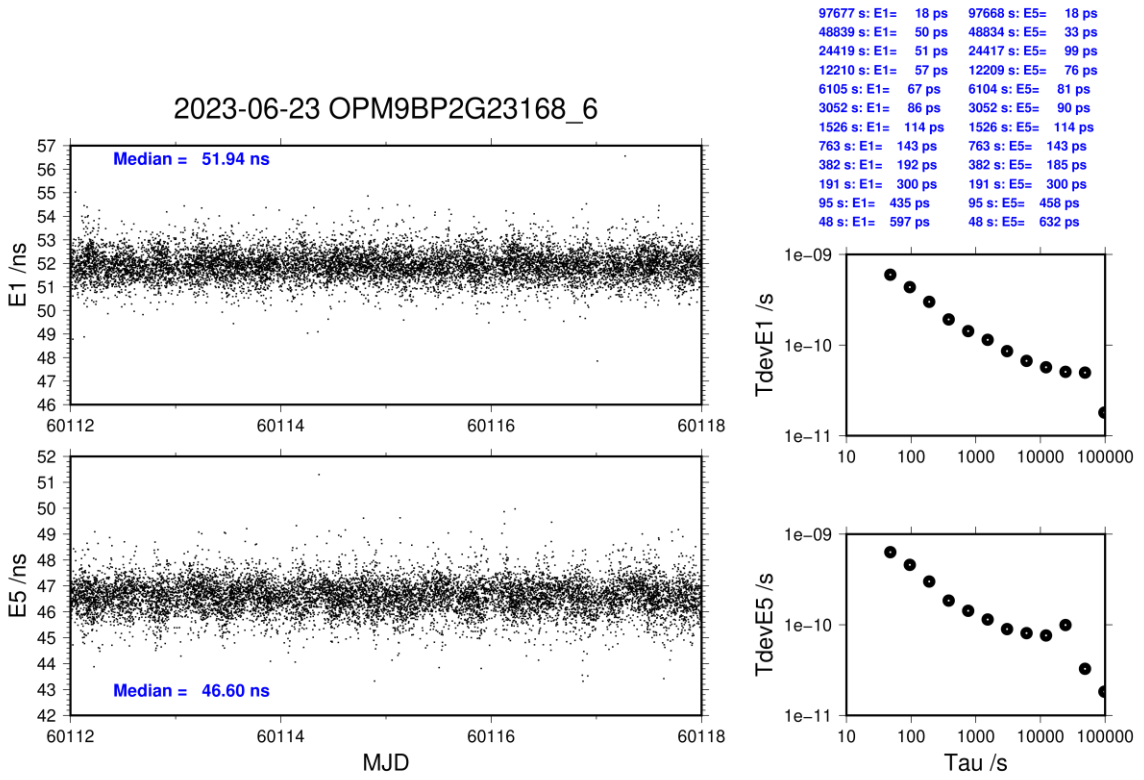
Code	#pts	ave/ns	rms/ns
C1	141142	50.642	1.204
C2	93085	50.210	1.400
P1	140430	51.056	1.285
P2	140422	50.698	1.509
E1	108735	51.942	0.946
E5	108735	46.590	0.877

Number of 300s epochs in out file = 1728

Code	#pts	median/ns	ave/ns	rms/ns
C1	14087	50.652	50.651	0.731
C2	9292	50.186	50.213	0.983
P1	14015	51.079	51.064	0.721
P2	14014	50.715	50.698	1.032
E1	10864	51.936	51.945	0.604
E5	10865	46.602	46.593	0.632




2023-06-23 OPM9BP2G23168_6
Median = 51.08 ns
Median = 50.72 ns
P1 /ns
P2 /ns
MJD
151430 s: P1= 29 ps
151441 s: P2= 26 ps
75715 s: P1= 14 ps
75720 s: P2= 21 ps
37857 s: P1= 100 ps
37860 s: P2= 101 ps
18929 s: P1= 76 ps
18930 s: P2= 145 ps
9464 s: P1= 59 ps
9465 s: P2= 99 ps
4732 s: P1= 78 ps
4733 s: P2= 104 ps
2366 s: P1= 94 ps
2366 s: P2= 120 ps
1183 s: P1= 118 ps
1183 s: P2= 168 ps
592 s: P1= 165 ps
592 s: P2= 216 ps
296 s: P1= 222 ps
296 s: P2= 280 ps
148 s: P1= 363 ps
148 s: P2= 559 ps
74 s: P1= 510 ps
74 s: P2= 733 ps
37 s: P1= 725 ps
37 s: P2= 1036 ps
TdevP1 /s
TdevP2 /s
Tau /s


2023-06-23 OPM9BP2G23168_6
Median = 51.94 ns
Median = 46.60 ns
E1 /ns
E5 /ns
MJD
97677 s: E1= 18 ps
97668 s: E5= 18 ps
48839 s: E1= 50 ps
48834 s: E5= 33 ps
24419 s: E1= 51 ps
24417 s: E5= 99 ps
12210 s: E1= 57 ps
12209 s: E5= 76 ps
6105 s: E1= 67 ps
6104 s: E5= 81 ps
3052 s: E1= 86 ps
3052 s: E5= 90 ps
1526 s: E1= 114 ps
1526 s: E5= 114 ps
763 s: E1= 143 ps
763 s: E5= 143 ps
382 s: E1= 192 ps
382 s: E5= 185 ps
191 s: E1= 300 ps
191 s: E5= 300 ps
95 s: E1= 435 ps
95 s: E5= 458 ps
48 s: E1= 597 ps
48 s: E5= 632 ps
TdevE1 /s
TdevE5 /s
Tau /s

2.5/ BIPM (23175)

Period

MJD 60119 to 60127

Delays

BP2D: (cf page 124)
REFDLY = 53.41 ns (68.42-15.01)
CABDLY = 176.85 ns (C210)

BP2G: (cf page 125)
REFDLY = 53.51 ns (68.52-15.01)
CABDLY = 176.38 ns (C211)

BP21: (cf page 124)
REFDLY = 43.41 ns (58.42-15.01)
CABDLY = 140.80 ns (C201)

Setup at the BIPM

Annex A - Information Sheet

(to be repeated for each calibrated system)

Laboratory:	BIPM
Date and hour of the beginning of measurements:	MJD 60119
Date and hour of the end of measurements:	MJD 60127

Information on the system

	Local:	Travelling:
4-character BIPM code	BP21	BP2D
• Receiver maker and type: Receiver serial number:	Septentrio PolaRx5TR 4701229	Mesit GTR55 2010001
1 PPS trigger level /V:		
• Antenna cable maker and type: Phase stabilised cable (Y/N):	LMR-195	HYLM195
Length outside the building /m:	~ 15 m	~ 15 m
• Antenna maker and type: Antenna serial number:	Septentrio SEPCHOKE B3E6 5253	Novatel GNSS-850 NMLK17440001C
Temperature (if stabilised) /°C		

Measured delays /ns

(if needed fill box "Additional Information" below)

	Local:	Travelling:
• Delay from local UTC to receiver 1 PPS-in:	43.41 ns	53.41 ns
Delay from 1 PPS-in to internal Reference (if different): (see section 2 for details)	PPSin compensation enable	
• Antenna cable delay:	140.80 ns	176.85 ns
Splitter delay (if any):		(1)
Additional cable delay (if any):		(1)

Data used for the generation of CGGTTS files

• INT DLY (GPS) /ns:	
• INT DLY (Galileo) /ns:	
• INT DLY (GLONASS) /ns:	
• CAB DLY /ns:	
• REF DLY /ns:	
• Coordinates reference frame:	
Latitude or X /m:	
Longitude or Y /m:	
Height or Z /m:	

General information

• Rise time of the local UTC pulse:	
• Is the laboratory air conditioned:	
Set temperature value and uncertainty:	22 ± 1°C
Set humidity value and uncertainty:	

(1) For a trip with closure, not needed if the traveling equipment is used in the same set-up throughout.

Annex A - Information Sheet

(to be repeated for each calibrated system)

Laboratory:	BIPM
Date and hour of the beginning of measurements:	MJD 60119
Date and hour of the end of measurements:	MJD 60127

Information on the system

	Local:	Travelling:
4-character BIPM code	BP21	BP2G
• Receiver maker and type: Receiver serial number:	Septentrio PolaRx5TR 4701229	Septentrio PolaRx5TR 4701533
1 PPS trigger level /V:		
• Antenna cable maker and type: Phase stabilised cable (Y/N):	LMR-195	HYLM195
Length outside the building /m:	~ 15 m	~ 15 m
• Antenna maker and type: Antenna serial number:	Septentrio SEPCHOKE B3E6 5253	Septentrio SEPCHOKE B3E6 6023
Temperature (if stabilised) /°C		

Measured delays /ns

(if needed fill box "Additional Information" below)

	Local:	Travelling:
• Delay from local UTC to receiver 1 PPS-in:	43.41 ns	53.51 ns
Delay from 1 PPS-in to internal Reference (if different): (see section 2 for details)	PPSin compensation enable	PPSin compensation enable
• Antenna cable delay:	140.80 ns	176.38 ns
Splitter delay (if any):		(1)
Additional cable delay (if any):		(1)

Data used for the generation of CGGTTS files

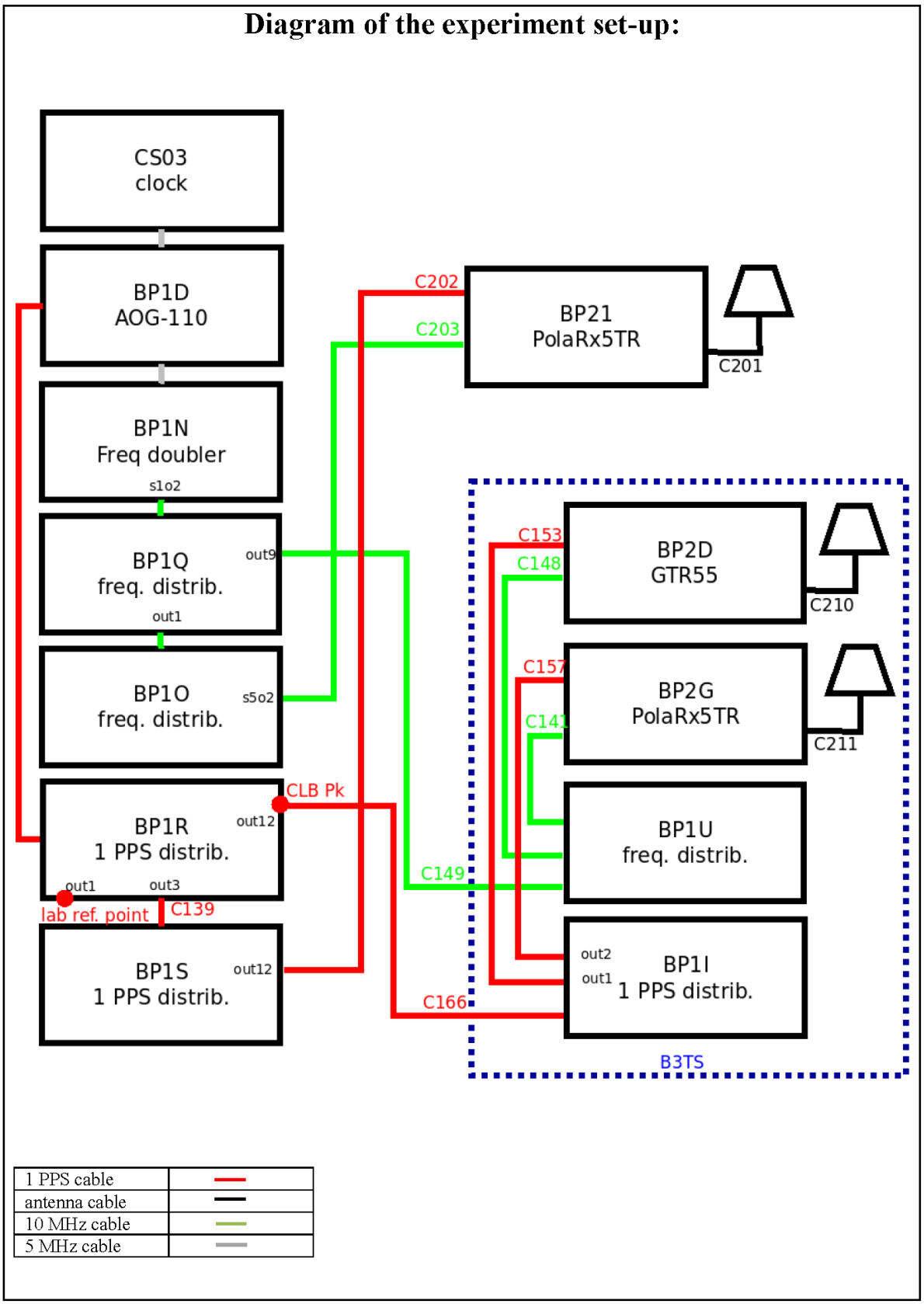
• INT DLY (GPS) /ns:	
• INT DLY (Galileo) /ns:	
• INT DLY (GLONASS) /ns:	
• CAB DLY /ns:	
• REF DLY /ns:	
• Coordinates reference frame:	
Latitude or X /m:	
Longitude or Y /m:	
Height or Z /m:	

General information

• Rise time of the local UTC pulse:	
• Is the laboratory air conditioned:	
Set temperature value and uncertainty:	22 ± 1°C
Set humidity value and uncertainty:	

(1) For a trip with closure, not needed if the traveling equipment is used in the same set-up throughout.

Diagram of the experiment set-up:



Log of Events / Additional Information :

All measurements at BIPM carried out by L. Tisserand.

Equipment used to measure delays is a Time Interval Counter (TIC), model 53230A, maker Keysight, S/N MY58390132, with measurement uncertainty typically less than 0.5 ns (using external reference frequency as timebase).

The delay between the laboratory reference point and the 1 PPS input connector of the B3TS (CLB P_k) is 0 ns.

BP2D-BP21

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 180840
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 36798 high elev obs : 2.997 4.442
Iteration 0: Obs used = 283986; Huge residuals = 11; Large residuals = 7104
Iteration 1: Obs used = 283975; Huge residuals = 0; Large residuals = 7102
Computed code bias (P1/P2)/m = 2.825 4.213
Computed baseline (X,Y,Z)/m = -1.346 -0.112 1.361
RMS of residuals /m = 0.602

Number of phase differences to fit baseline
L1/L2 = 175121
L5 = 100481
A priori baseline (X,Y,Z)/m = -1.346 -0.112 1.361
25886 clock jitters computed out of 25886 intervals
AVE jitter /ps = -0.4 RMS jitter /ps = 4.8

Iter 1 Large residuals L1= 4
Iter 1 Large residuals L2= 12
Iter 1 Large residuals L5= 4
Computed baseline L1 (X,Y,Z)/m = -0.033 -0.082 0.067
RMS of residuals L1 /m = 0.004
Computed baseline L2 (X,Y,Z)/m = -0.009 -0.071 0.087
RMS of residuals L2 /m = 0.005
Computed baseline L5 (X,Y,Z)/m = -0.015 -0.061 0.107
RMS of residuals L5 /m = 0.004

Iter 2 Large residuals L1= 4
Iter 2 Large residuals L2= 12
Iter 2 Large residuals L5= 4
Computed baseline L1 (X,Y,Z)/m = -0.033 -0.082 0.067
RMS of residuals L1 /m = 0.004
Computed baseline L2 (X,Y,Z)/m = -0.009 -0.071 0.087
RMS of residuals L2 /m = 0.005
Computed baseline L5 (X,Y,Z)/m = -0.015 -0.061 0.107
RMS of residuals L5 /m = 0.004

New iteration of baseline
New apriori baseline (X,Y,Z)/m = -1.367 -0.188 1.438
25886 clock jitters computed out of 25886 intervals
AVE jitter /ps = 0.3 RMS jitter /ps = 0.2

Iter 3 Large residuals L1= 4
Iter 3 Large residuals L2= 12
Iter 3 Large residuals L5= 4
Computed baseline L1 (X,Y,Z)/m = -0.001 -0.038 -0.006
RMS of residuals L1 /m = 0.004
Computed baseline L2 (X,Y,Z)/m = 0.023 -0.027 0.014
RMS of residuals L2 /m = 0.005
Computed baseline L5 (X,Y,Z)/m = 0.023 -0.016 0.034
RMS of residuals L5 /m = 0.004

Final baseline L1 (X,Y,Z)/m = -1.368 -0.226 1.432
Final baseline L2 (X,Y,Z)/m = -1.344 -0.215 1.453
Final baseline L5 (X,Y,Z)/m = -1.345 -0.204 1.472

COMPUTATION OF CODE DIFFERENCES

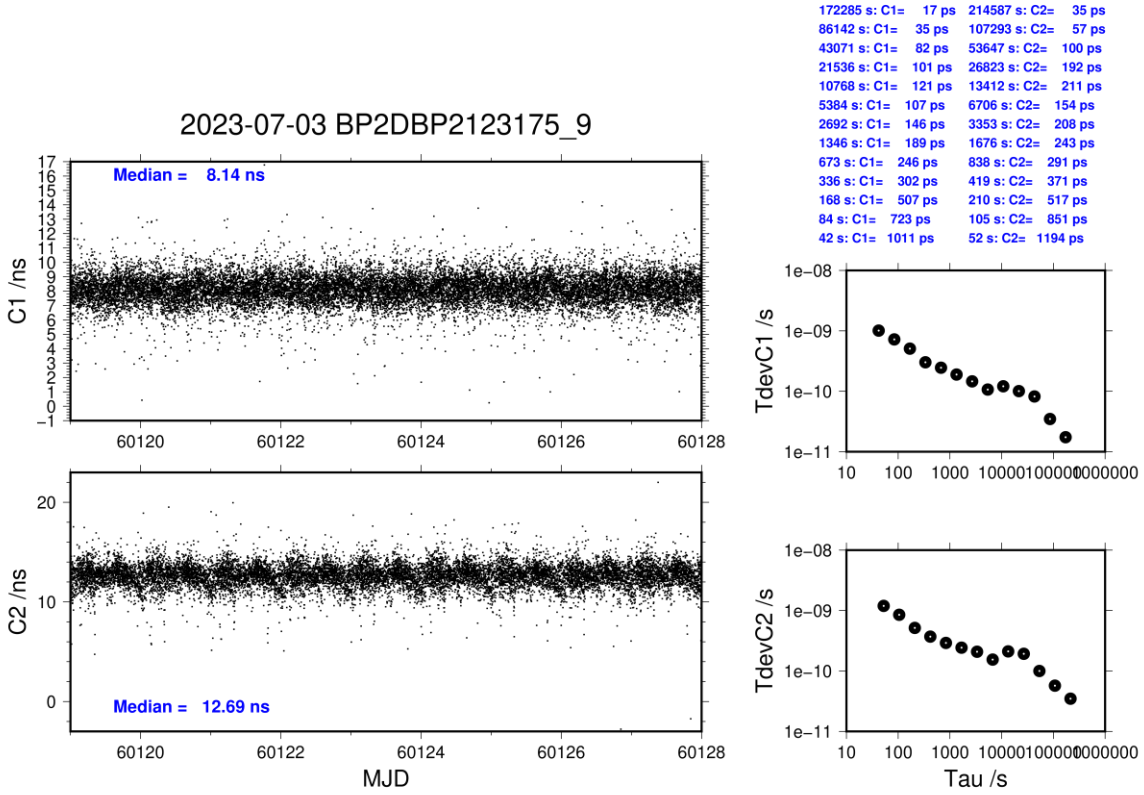
Total number of code differences = 709618

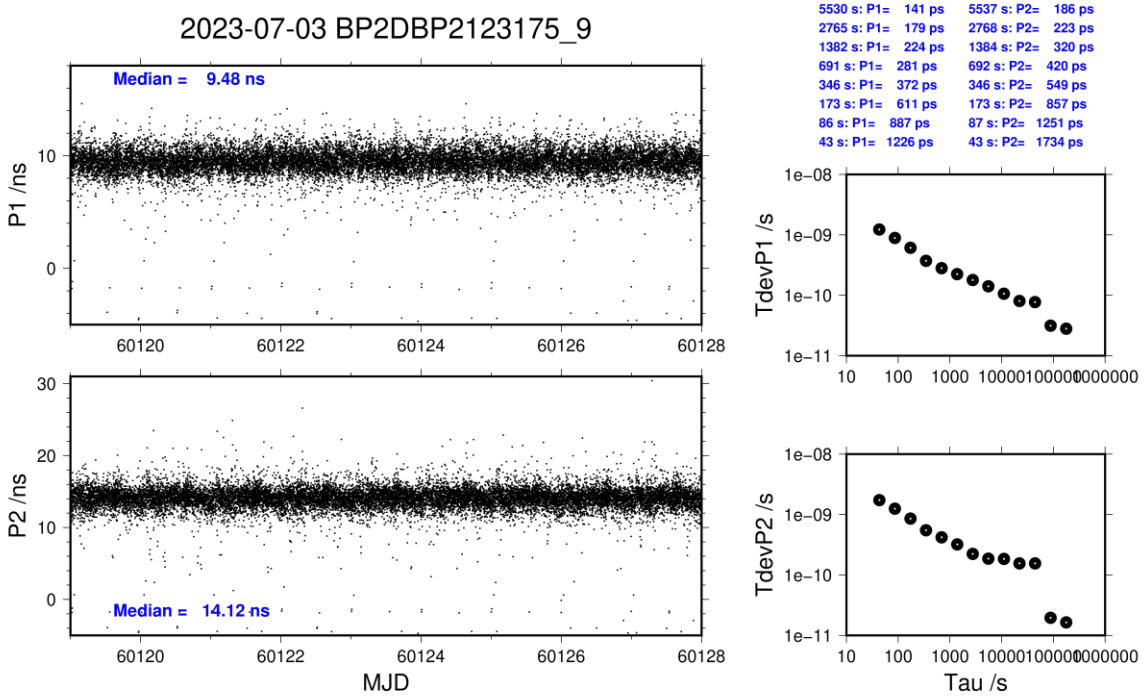
Global average of individual differences

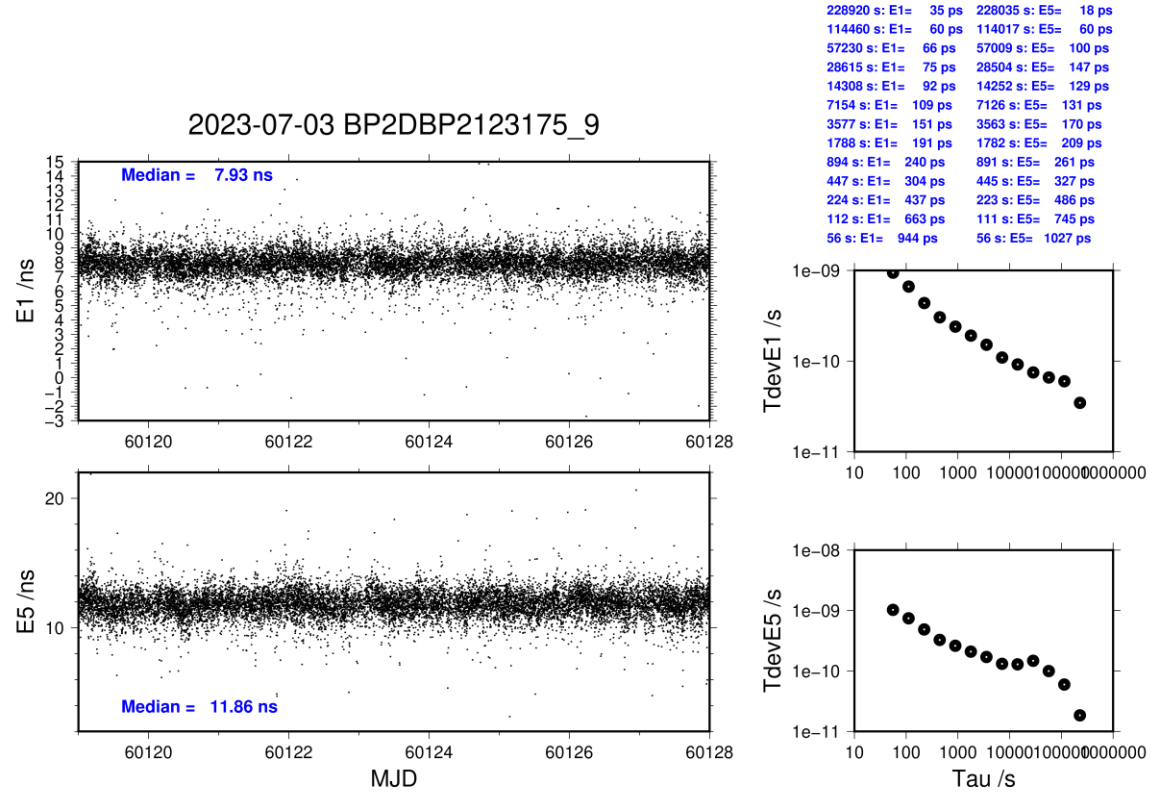
Code	#pts	ave/ns	rms/ns
C1	184844	8.105	1.953
C2	148462	12.636	2.014
P1	180773	9.395	1.957
P2	180571	13.974	2.776
E1	139651	7.921	1.676
E5	140298	11.840	1.621
BC	161430	7.365	1.985
B5	165079	11.473	1.912

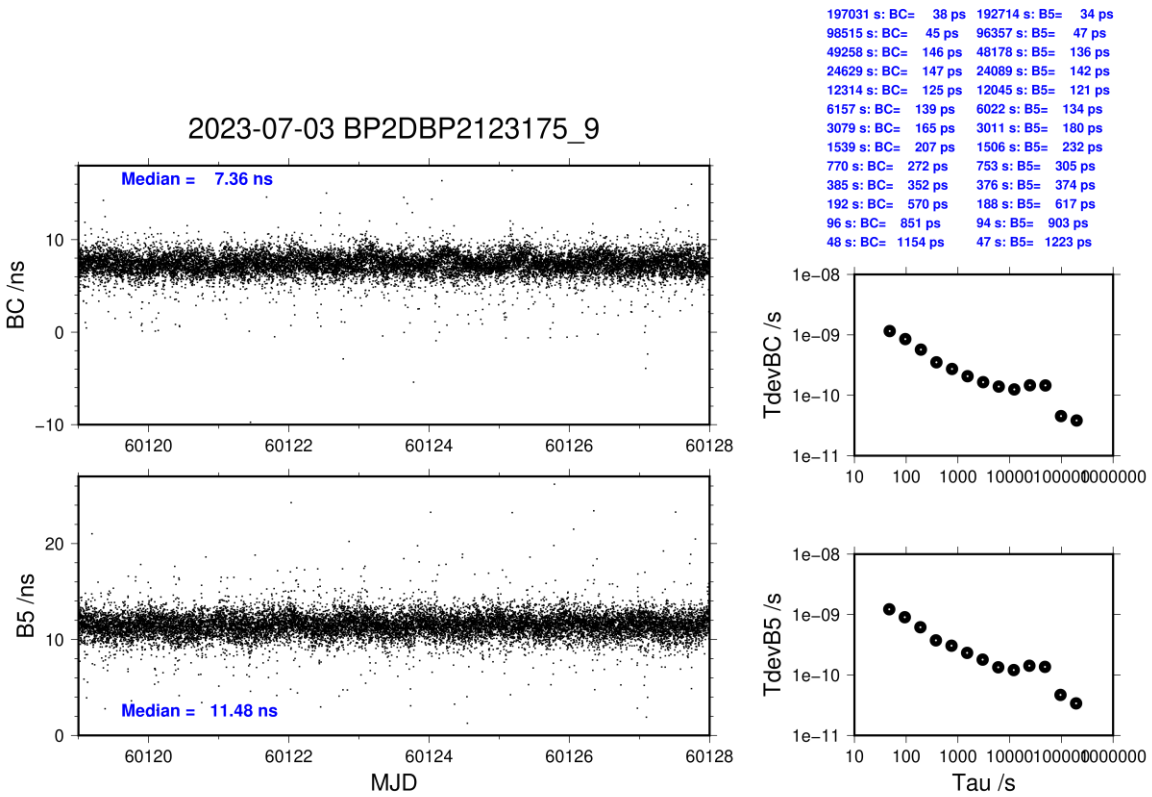
Number of 300s epochs in out file = 2592

Code	#pts	median/ns	ave/ns	rms/ns
C1	18481	8.138	8.126	1.015
C2	14838	12.693	12.630	1.199
P1	17994	9.478	9.453	1.228
P2	17970	14.115	14.025	1.742
E1	13909	7.934	7.918	0.941
E5	13963	11.864	11.836	1.047
BC	16160	7.360	7.358	1.172
B5	16522	11.477	11.469	1.248


2023-07-03 BP2DBP2123175_9
Median = 8.14 ns
Median = 12.69 ns
C1 /ns
C2 /ns
MJD
172285 s: C1= 17 ps
86142 s: C1= 35 ps
43071 s: C1= 82 ps
21536 s: C1= 101 ps
10768 s: C1= 121 ps
5384 s: C1= 107 ps
2692 s: C1= 146 ps
1346 s: C1= 189 ps
673 s: C1= 246 ps
336 s: C1= 302 ps
168 s: C1= 507 ps
84 s: C1= 723 ps
42 s: C1= 1011 ps
214587 s: C2= 35 ps
107293 s: C2= 57 ps
53647 s: C2= 100 ps
26823 s: C2= 192 ps
13412 s: C2= 211 ps
6706 s: C2= 154 ps
3353 s: C2= 208 ps
1676 s: C2= 243 ps
838 s: C2= 291 ps
419 s: C2= 371 ps
210 s: C2= 517 ps
105 s: C2= 851 ps
52 s: C2= 1194 ps
TdevC1 /s
TdevC2 /s
Tau /s


2023-07-03 BP2DBP2123175_9
Median = 9.48 ns
Median = 14.12 ns
P1 /ns
P2 /ns
MJD
176948 s: P1= 28 ps
88474 s: P1= 31 ps
44237 s: P1= 77 ps
22118 s: P1= 81 ps
11059 s: P1= 106 ps
5530 s: P1= 141 ps
2765 s: P1= 179 ps
1382 s: P1= 224 ps
691 s: P1= 281 ps
346 s: P1= 372 ps
173 s: P1= 611 ps
86 s: P1= 887 ps
43 s: P1= 1226 ps
177184 s: P2= 16 ps
88592 s: P2= 20 ps
44296 s: P2= 155 ps
22148 s: P2= 155 ps
11074 s: P2= 184 ps
5537 s: P2= 186 ps
2768 s: P2= 223 ps
1384 s: P2= 320 ps
692 s: P2= 420 ps
346 s: P2= 549 ps
173 s: P2= 857 ps
87 s: P2= 1251 ps
43 s: P2= 1734 ps
TdevP1 /s
TdevP2 /s
Tau /s


228920 s: E1= 35 ps
114460 s: E1= 60 ps
57230 s: E1= 66 ps
28615 s: E1= 75 ps
14308 s: E1= 92 ps
7154 s: E1= 109 ps
3577 s: E1= 151 ps
1788 s: E1= 191 ps
894 s: E1= 240 ps
447 s: E1= 304 ps
224 s: E1= 437 ps
112 s: E1= 663 ps
56 s: E1= 944 ps
228035 s: E5= 18 ps
114017 s: E5= 60 ps
57009 s: E5= 100 ps
28504 s: E5= 147 ps
14252 s: E5= 129 ps
7126 s: E5= 131 ps
3563 s: E5= 170 ps
1782 s: E5= 209 ps
891 s: E5= 261 ps
445 s: E5= 327 ps
223 s: E5= 486 ps
111 s: E5= 745 ps
56 s: E5= 1027 ps
2023-07-03 BP2DBP2123175_9
Median = 7.93 ns
E1 /ns
Median = 11.86 ns
E5 /ns
MJD
TdevE1 /s
TdevE5 /s
Tau /s


197031 s: BC= 38 ps
98515 s: BC= 45 ps
49258 s: BC= 146 ps
24629 s: BC= 147 ps
12314 s: BC= 125 ps
6157 s: BC= 139 ps
3079 s: BC= 165 ps
1539 s: BC= 207 ps
770 s: BC= 272 ps
385 s: BC= 352 ps
192 s: BC= 570 ps
96 s: BC= 851 ps
48 s: BC= 1154 ps
192714 s: B5= 34 ps
96357 s: B5= 47 ps
48178 s: B5= 136 ps
24089 s: B5= 142 ps
12045 s: B5= 121 ps
6022 s: B5= 134 ps
3011 s: B5= 180 ps
1506 s: B5= 232 ps
753 s: B5= 305 ps
376 s: B5= 374 ps
188 s: B5= 617 ps
94 s: B5= 903 ps
47 s: B5= 1223 ps
2023-07-03 BP2DBP2123175_9
Median = 7.36 ns
BC /ns
Median = 11.48 ns
B5 /ns
MJD
TdevBC /s
TdevB5 /s
Tau /s

BP2G-BP21

COMPUTATION OF BASELINE

Number of codes to fit baseline and biases = 188251
Compute baseline with sin(elev) between 0.05 and 0.90
Apriori codes biases from 36831 high elev obs : 7.705 7.264
Iteration 0: Obs used = 278946; Huge residuals = 10; Large residuals = 26900
Iteration 1: Obs used = 278956; Huge residuals = 0; Large residuals = 26878
Computed code bias (P1/P2)/m = 6.798 6.347
Computed baseline (X,Y,Z)/m = -3.083 0.179 3.918
RMS of residuals /m = 0.748

Number of phase differences to fit baseline
L1/L2 = 177312
L5 = 100909
A priori baseline (X,Y,Z)/m = -3.083 0.179 3.918
25916 clock jitters computed out of 25916 intervals
AVE jitter /ps = -1.7 RMS jitter /ps = 4.0

Iter 1 Large residuals L1= 9
Iter 1 Large residuals L2= 5
Iter 1 Large residuals L5= 6
Computed baseline L1 (X,Y,Z)/m = -0.576 -0.562 -0.570
RMS of residuals L1 /m = 0.004
Computed baseline L2 (X,Y,Z)/m = -0.580 -0.551 -0.569
RMS of residuals L2 /m = 0.005
Computed baseline L5 (X,Y,Z)/m = -0.612 -0.545 -0.557
RMS of residuals L5 /m = 0.003

Iter 2 Large residuals L1= 9
Iter 2 Large residuals L2= 5
Iter 2 Large residuals L5= 6
Computed baseline L1 (X,Y,Z)/m = -0.576 -0.562 -0.570
RMS of residuals L1 /m = 0.004
Computed baseline L2 (X,Y,Z)/m = -0.581 -0.551 -0.570
RMS of residuals L2 /m = 0.005
Computed baseline L5 (X,Y,Z)/m = -0.612 -0.545 -0.557
RMS of residuals L5 /m = 0.003

New iteration of baseline
New apriori baseline (X,Y,Z)/m = -3.661 -0.378 3.348
25916 clock jitters computed out of 25916 intervals
AVE jitter /ps = 1.1 RMS jitter /ps = 1.3

Iter 3 Large residuals L1= 9
Iter 3 Large residuals L2= 5
Iter 3 Large residuals L5= 6
Computed baseline L1 (X,Y,Z)/m = 0.023 -0.127 -0.011
RMS of residuals L1 /m = 0.003
Computed baseline L2 (X,Y,Z)/m = 0.019 -0.116 -0.012
RMS of residuals L2 /m = 0.005
Computed baseline L5 (X,Y,Z)/m = 0.003 -0.105 -0.002
RMS of residuals L5 /m = 0.003
WARNING Phase baseline L1 differs from a priori by > 10 cm

Final baseline L1 (X,Y,Z)/m = -3.638 -0.505 3.337
Final baseline L2 (X,Y,Z)/m = -3.643 -0.494 3.337
Final baseline L5 (X,Y,Z)/m = -3.658 -0.483 3.347

COMPUTATION OF CODE DIFFERENCES

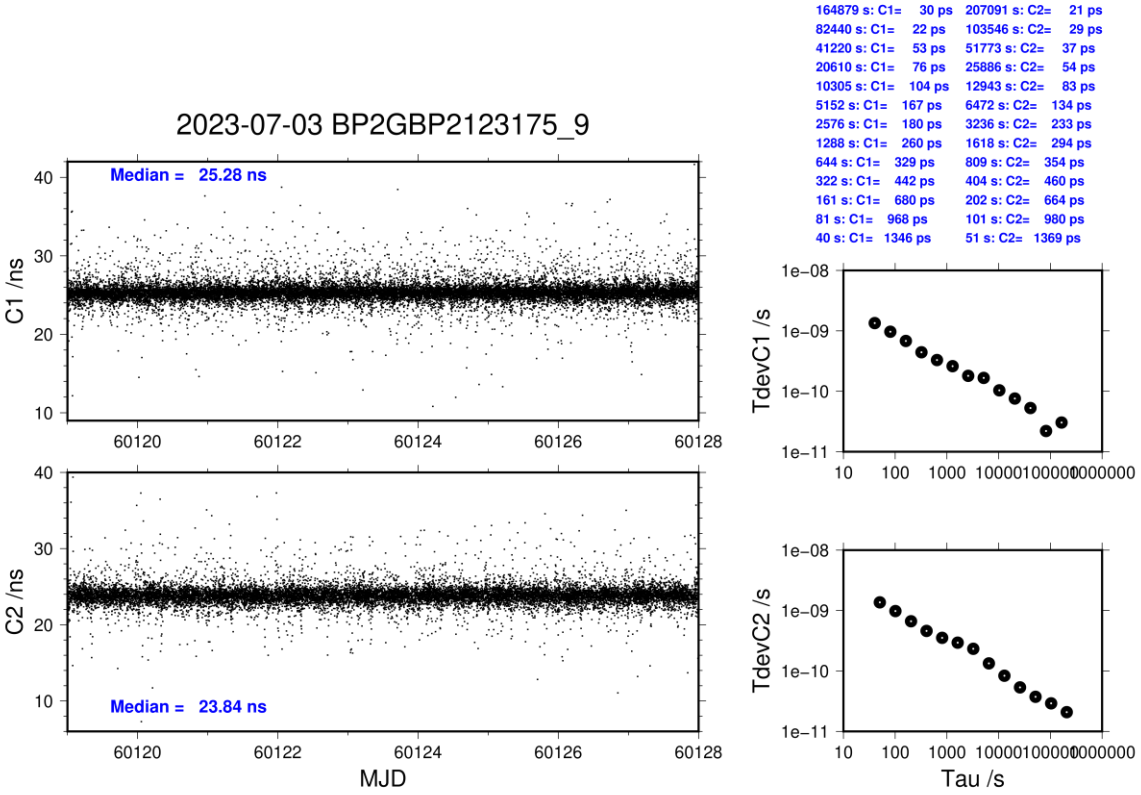
Total number of code differences = 757729

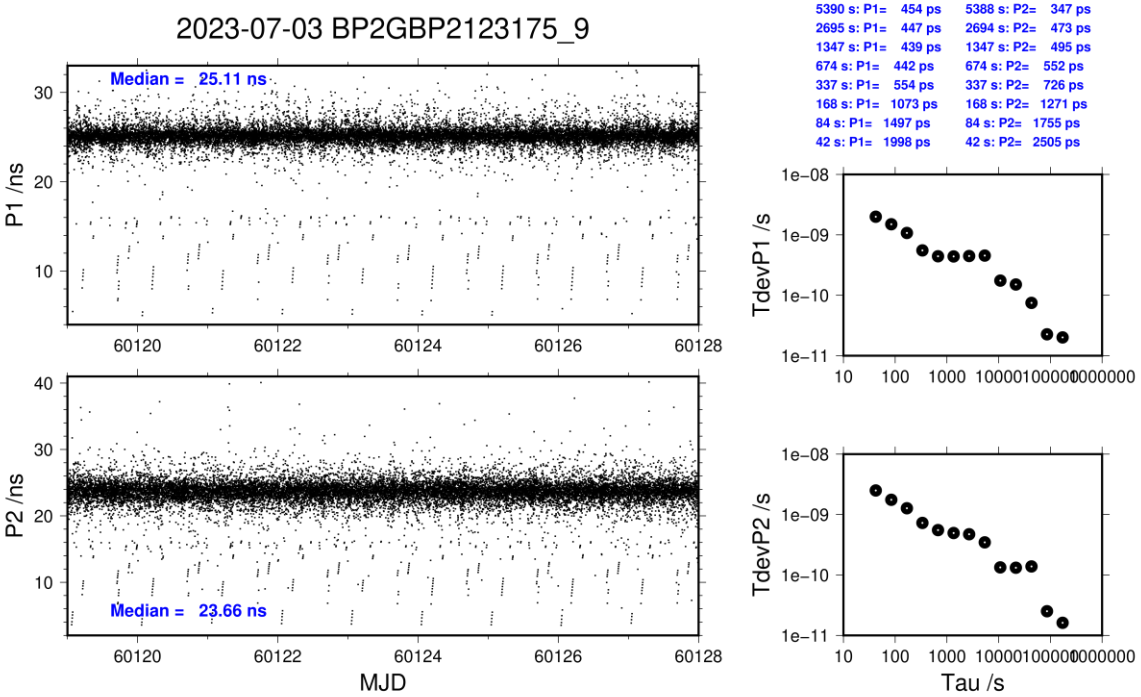
Global average of individual differences

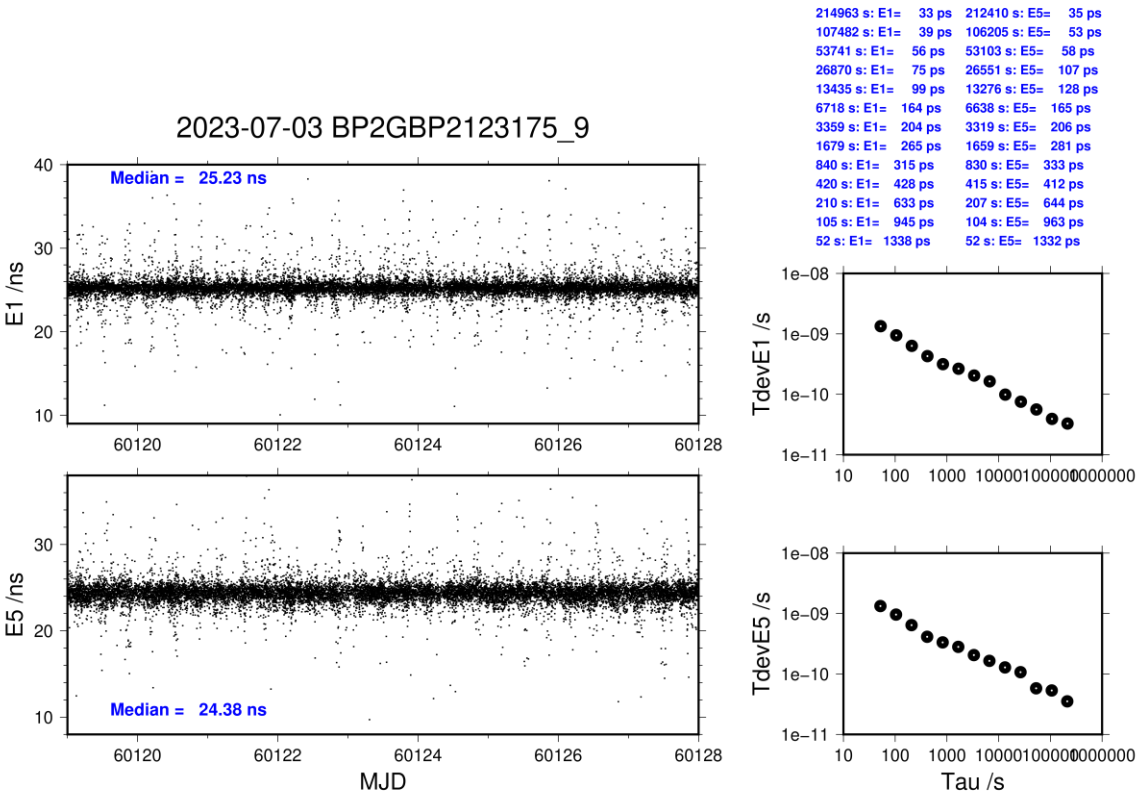
Code	#pts	ave/ns	rms/ns
C1	192383	25.341	2.792
C2	153541	23.867	2.578
P1	184990	24.901	2.769
P2	185062	23.388	3.592
E1	147510	25.259	2.476
E5	149647	24.360	2.248
BC	165939	25.198	2.440
B5	168547	24.390	2.275

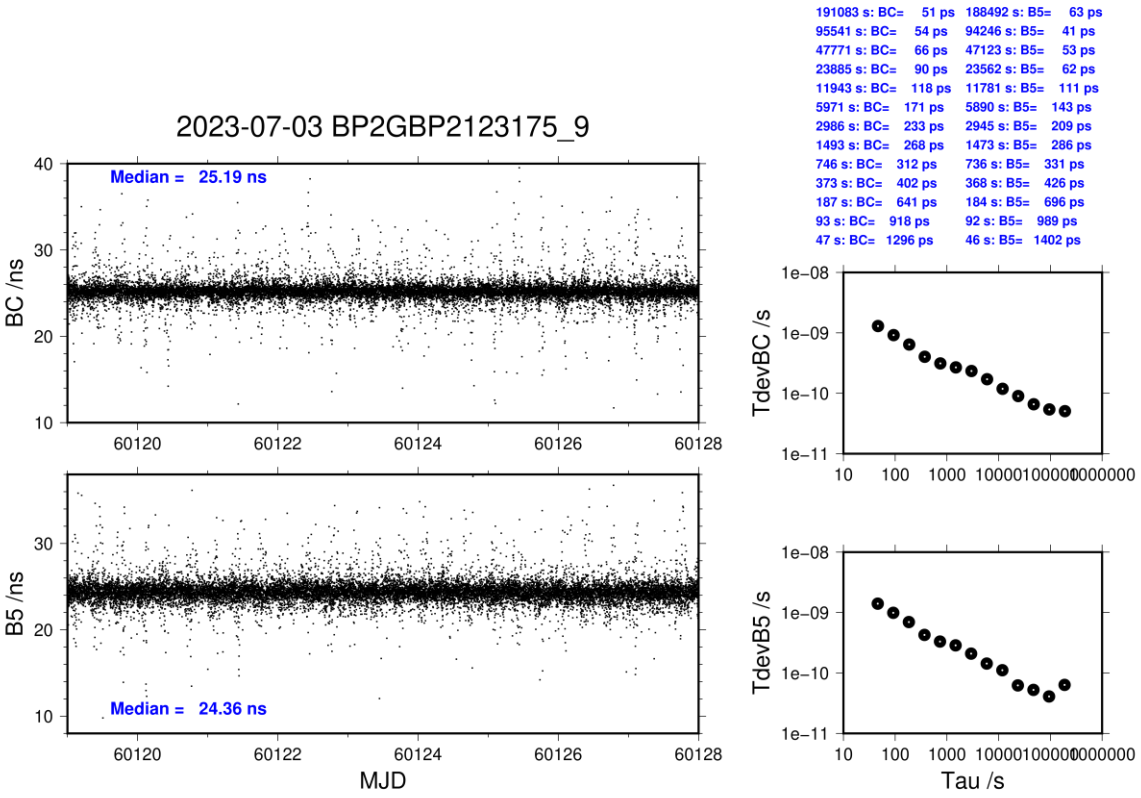
Number of 300s epochs in out file = 2592

Code	#pts	median/ns	ave/ns	rms/ns
C1	19311	25.284	25.351	1.355
C2	15375	23.839	23.864	1.378
P1	18461	25.112	24.910	2.081
P2	18466	23.656	23.402	2.494
E1	14812	25.232	25.265	1.326
E5	14990	24.376	24.366	1.340
BC	16663	25.186	25.206	1.301
B5	16892	24.362	24.398	1.394


2023-07-03 BP2GBP2123175_9
Median = 25.28 ns
Median = 23.84 ns
C1 /ns
C2 /ns
MJD
164879 s: C1= 30 ps
82440 s: C1= 22 ps
41220 s: C1= 53 ps
20610 s: C1= 76 ps
10305 s: C1= 104 ps
5152 s: C1= 167 ps
2576 s: C1= 180 ps
1288 s: C1= 260 ps
644 s: C1= 329 ps
322 s: C1= 442 ps
161 s: C1= 680 ps
81 s: C1= 968 ps
40 s: C1= 1346 ps
207091 s: C2= 21 ps
103546 s: C2= 29 ps
51773 s: C2= 37 ps
25886 s: C2= 54 ps
12943 s: C2= 83 ps
6472 s: C2= 134 ps
3236 s: C2= 233 ps
1618 s: C2= 294 ps
809 s: C2= 354 ps
404 s: C2= 460 ps
202 s: C2= 664 ps
101 s: C2= 980 ps
51 s: C2= 1369 ps
TdevC1 /s
TdevC2 /s
Tau /s


2023-07-03 BP2GBP2123175_9
Median = 25.11 ns
Median = 23.66 ns
P1 /ns
P2 /ns
MJD
172471 s: P1= 20 ps
86236 s: P1= 23 ps
43118 s: P1= 75 ps
21559 s: P1= 151 ps
10779 s: P1= 175 ps
5390 s: P1= 454 ps
2695 s: P1= 447 ps
1347 s: P1= 439 ps
674 s: P1= 442 ps
337 s: P1= 554 ps
168 s: P1= 1073 ps
84 s: P1= 1497 ps
42 s: P1= 1998 ps
172425 s: P2= 16 ps
86212 s: P2= 25 ps
43106 s: P2= 139 ps
21553 s: P2= 132 ps
10777 s: P2= 134 ps
5388 s: P2= 347 ps
2694 s: P2= 473 ps
1347 s: P2= 495 ps
674 s: P2= 552 ps
337 s: P2= 726 ps
168 s: P2= 1271 ps
84 s: P2= 1755 ps
42 s: P2= 2505 ps
TdevP1 /s
TdevP2 /s
Tau /s


214963 s: E1= 33 ps
107482 s: E1= 39 ps
53741 s: E1= 56 ps
26870 s: E1= 75 ps
13435 s: E1= 99 ps
6718 s: E1= 164 ps
3359 s: E1= 204 ps
1679 s: E1= 265 ps
840 s: E1= 315 ps
420 s: E1= 428 ps
210 s: E1= 633 ps
105 s: E1= 945 ps
52 s: E1= 1338 ps
212410 s: E5= 35 ps
106205 s: E5= 53 ps
53103 s: E5= 58 ps
26551 s: E5= 107 ps
13276 s: E5= 128 ps
6638 s: E5= 165 ps
3319 s: E5= 206 ps
1659 s: E5= 281 ps
830 s: E5= 333 ps
415 s: E5= 412 ps
207 s: E5= 644 ps
104 s: E5= 963 ps
52 s: E5= 1332 ps
2023-07-03 BP2GBP2123175_9
Median = 25.23 ns
Median = 24.38 ns
E1 /ns
E5 /ns
MJD
TdevE1 /s
TdevE5 /s
Tau /s


191083 s: BC= 51 ps
95541 s: BC= 54 ps
47771 s: BC= 66 ps
23885 s: BC= 90 ps
11943 s: BC= 118 ps
5971 s: BC= 171 ps
2986 s: BC= 233 ps
1493 s: BC= 268 ps
746 s: BC= 312 ps
373 s: BC= 402 ps
187 s: BC= 641 ps
93 s: BC= 918 ps
47 s: BC= 1296 ps
188492 s: B5= 63 ps
94246 s: B5= 41 ps
47123 s: B5= 53 ps
23562 s: B5= 62 ps
11781 s: B5= 111 ps
5890 s: B5= 143 ps
2945 s: B5= 209 ps
1473 s: B5= 286 ps
736 s: B5= 331 ps
368 s: B5= 426 ps
184 s: B5= 696 ps
92 s: B5= 989 ps
46 s: B5= 1402 ps
2023-07-03 BP2GBP2123175_9
Median = 25.19 ns
Median = 24.36 ns
BC /ns
B5 /ns
MJD
TdevBC /s
TdevB5 /s
Tau /s