

AMD ZCU102 with Renesas ClockMatrix, ITU-T G.8263

Contents

1. Results Summary	3
2. Test Configuration.....	4
3. G.8263: Noise Generation	5
3.1 ONEPPS Analysis	6
3.2 MTIE Analysis.....	7
4. G.8263: Holdover	8
4.1 TIE Analysis.....	9
5. G.8261: Test Case 12.....	10
5.1 ONEPPS Analysis	11
5.2 CLKFFO Analysis.....	12
6. G.8261: Test Case 13 Network Traffic Model 2	13
6.1 ONEPPS Analysis	14
6.2 CLKFFO Analysis.....	15
7. G.8261: Test Case 14 Network Traffic Model 2	16
7.1 ONEPPS Analysis	17
7.2 CLKFFO Analysis.....	18
8. G.8261: Test Case 15 Network Traffic Model 2	19
8.1 ONEPPS Analysis	20
8.2 CLKFFO Analysis.....	21
9. G.8261: Test Case 16 Network Traffic Model 2	22
9.1 ONEPPS Analysis	23
9.2 CLKFFO Analysis.....	24
10. G.8261: Test Case 17(10μs) Network Traffic Model 2.....	25
10.1 ONEPPS Analysis	26
10.2 CLKFFO Analysis.....	27
11. G.8261: Test Case 17(200μs) Network Traffic Model 2.....	28
11.1 ONEPPS Analysis	29
11.2 CLKFFO Analysis.....	30
12. G.8263: Noise Tolerance - Method 1	31
12.1 ONEPPS Analysis	32
12.2 MTIE Analysis.....	33
12.3 CLKFFO Analysis.....	34
13. G.8263: Noise Tolerance - Method 2 (50μs).....	35
13.1 ONEPPS Analysis	36
13.2 MTIE Analysis.....	37
14. G.8263: Noise Tolerance - Method 2 (75μs).....	38

14.1	ONEPPS Analysis	39
14.2	MTIE Analysis.....	40
15.	G.8263: Noise Tolerance - Method 2 (150µs).....	41
15.1	ONEPPS Analysis	42
15.2	MTIE Analysis.....	43
16.	G.8263: Noise Tolerance - Method 3 (High Frequency).....	44
16.1	ONEPPS Analysis	45
16.2	MTIE Analysis.....	46
17.	G.8263: Noise Tolerance - Method 3 (Low Frequency).....	47
17.1	ONEPPS Analysis	48
17.2	MTIE Analysis.....	49
18.	Revision History	50

1. Results Summary

Standard	Test Case	Results
G.8263	Noise Generation	Pass
G.8263	Holdover	Pass
G.8261	Test Case 12 ^[1]	Pass
G.8261	Test Case 13 Network Traffic Model 2 ^[1]	Pass
G.8261	Test Case 14 Network Traffic Model 2 ^[1]	Pass
G.8261	Test Case 15 Network Traffic Model 2 ^[1]	Pass
G.8261	Test Case 16 Network Traffic Model 2 ^[1]	Pass
G.8261	Test Case 17(10 μ s) Network Traffic Model 2 ^[1]	Pass
G.8261	Test Case 17(200 μ s) Network Traffic Model 2 ^[1]	Pass
G.8263	Noise Tolerance - Method 1	Pass
G.8263	Noise Tolerance - Method 2 (50 μ s)	Pass
G.8263	Noise Tolerance - Method 2 (75 μ s)	Pass
G.8263	Noise Tolerance - Method 2 (150 μ s)	Pass
G.8263	Noise Tolerance - Method 3 (High Frequency)	Pass
G.8263	Noise Tolerance - Method 3 (Low Frequency)	Pass

1. Results for information only, not part of ITU-T required performance testing.

2. Test Configuration

Table 1. Test Configuration

Device Under Test	AMD + CM
Oscillator	Rakon M6141
1pps Source	Symmetricom TP5000
Instrument	Paragon Neo
Instrument Serial Number	00036081
Ethernet Interface	Optical

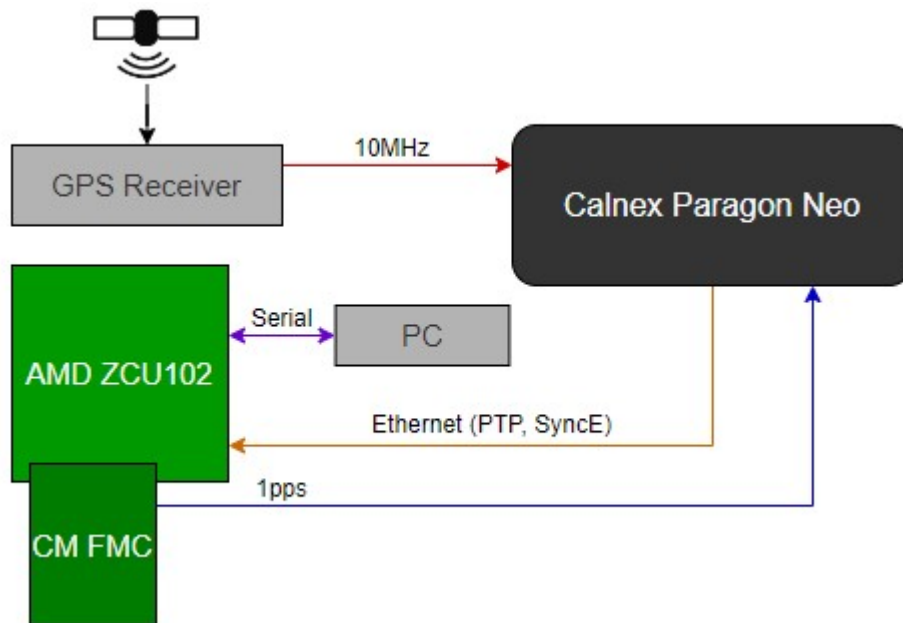


Figure 1. Equipment Configuration

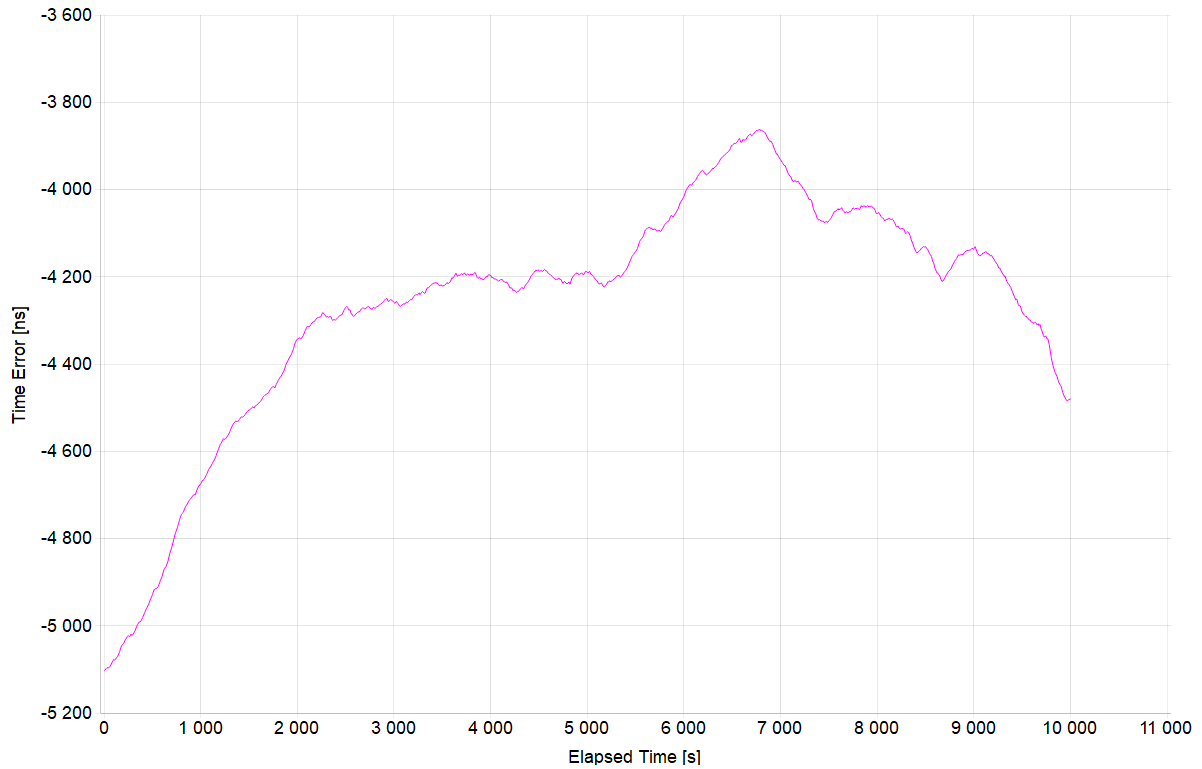
3. G.8263: Noise Generation

Test Description	Noise Generation
Report Date	22-10-18_13-29-39
Packet Rate (pkt/s)	16
Test Duration	02:46:40
Test Configuration	2
Time to Phase Lock (s)	70

All Mask Results	Pass
Mask ONEPPS	-
Mask ONEPPS Result	No Mask
Mask MTIE	G.8263 PEC-S-F Wander Gen Const. Temp.
Mask MTIE Result	Pass

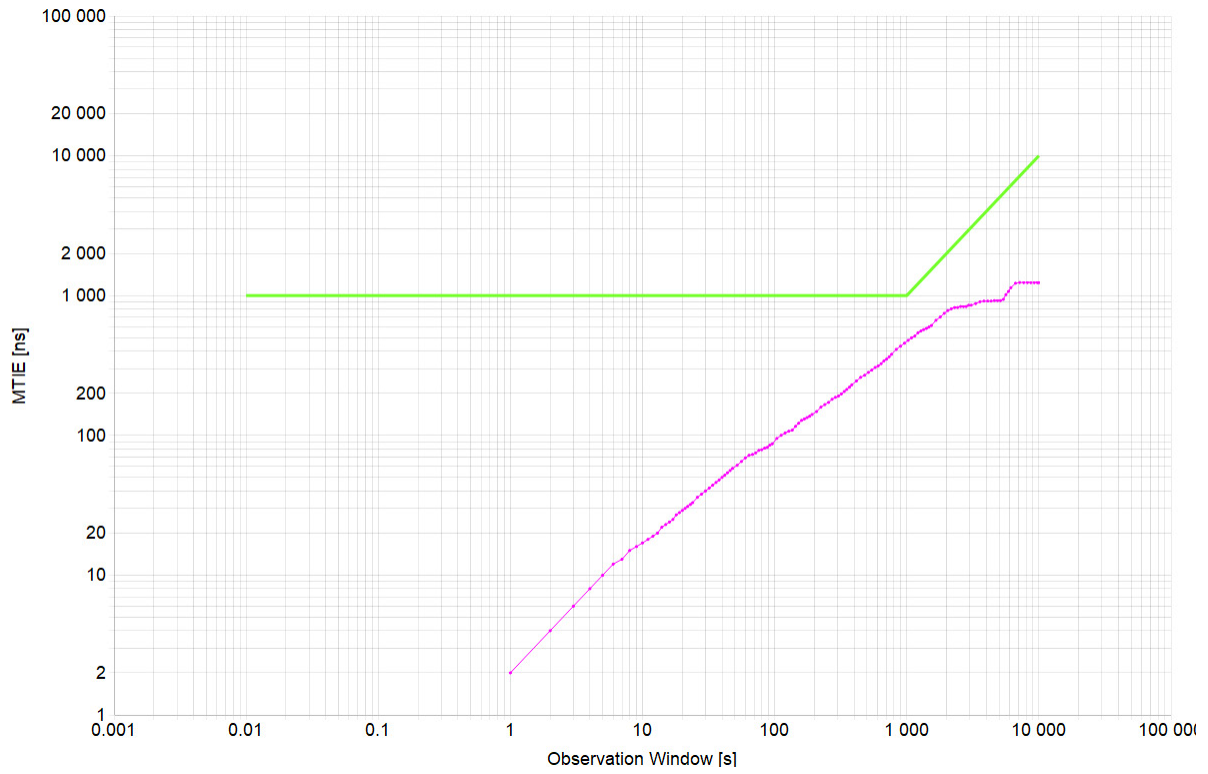
3.1 ONEPPS Analysis

Offset Removal Applied	Off
Zero Offset	-5103ns



Mean [ns]	-4263.029
Min [ns]	-5103
Max [ns]	-3863
Max-Min [ns]	1240

3.2 MTIE Analysis



Min [ns]	2
Max [ns]	1240
Max-Min [ns]	1238

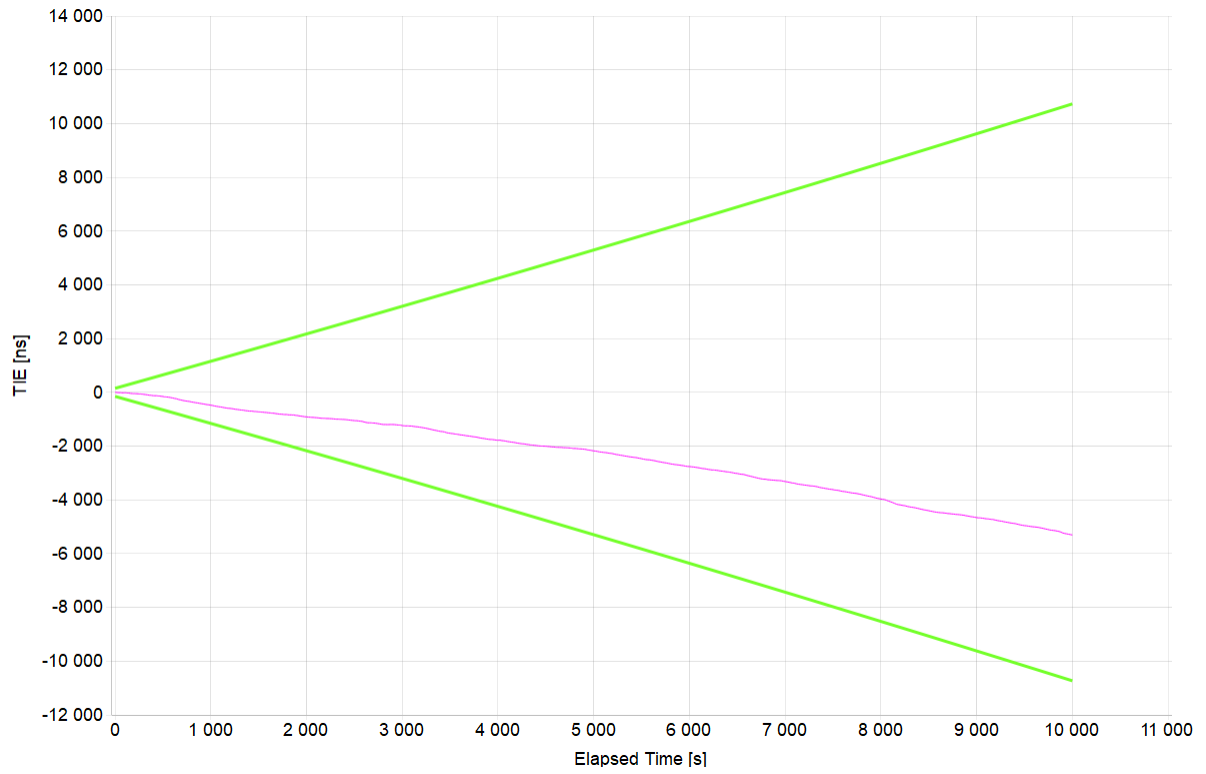
4. G.8263: Holdover

Test Description	Holdover
Report Date	22-10-18_13-29-39
Packet Rate (pkt/s)	16
Test Duration	02:46:40
Test Configuration	2
Time to Phase Lock (s)	N/A

All Mask Results	Pass
Mask TIE	G.8263 PEC-S-F Long-Term Holdover Const. Temp.
Mask TIE Result	Pass

1. This test is a continuation of the previous Noise Generation test. This allows for an appropriate amount of settling time before collecting holdover data (10 000s). The results are split because holdover requires a different mask than noise generation.

4.1 TIE Analysis



Mean [ns]	-2392.1
Min [ns]	-5304
Max [ns]	0
Max-Min [ns]	5304

5. G.8261: Test Case 12

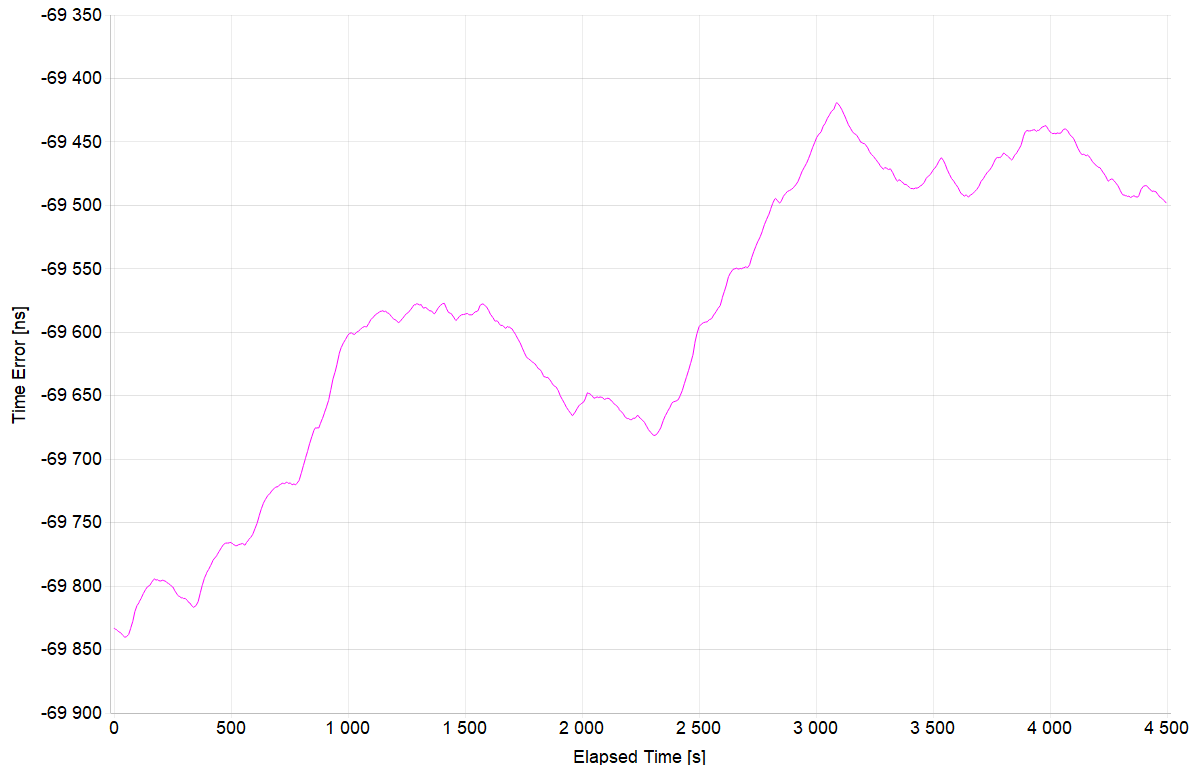
Note: Results for information only; not part of ITU-T required performance testing.

Test Description	Test Case 12
Report Date	22-06-06_09-02-08
Packet Rate (pkt/s)	16
Test Duration	01:14:57
Time to Frequency Lock (s)	206

All Mask Results	Pass
Mask ONEPPS	-
Mask ONEPPS Result	No Mask
Mask CLKFFO	16ppb
Mask CLKFFO Result	Pass

5.1 ONEPPS Analysis

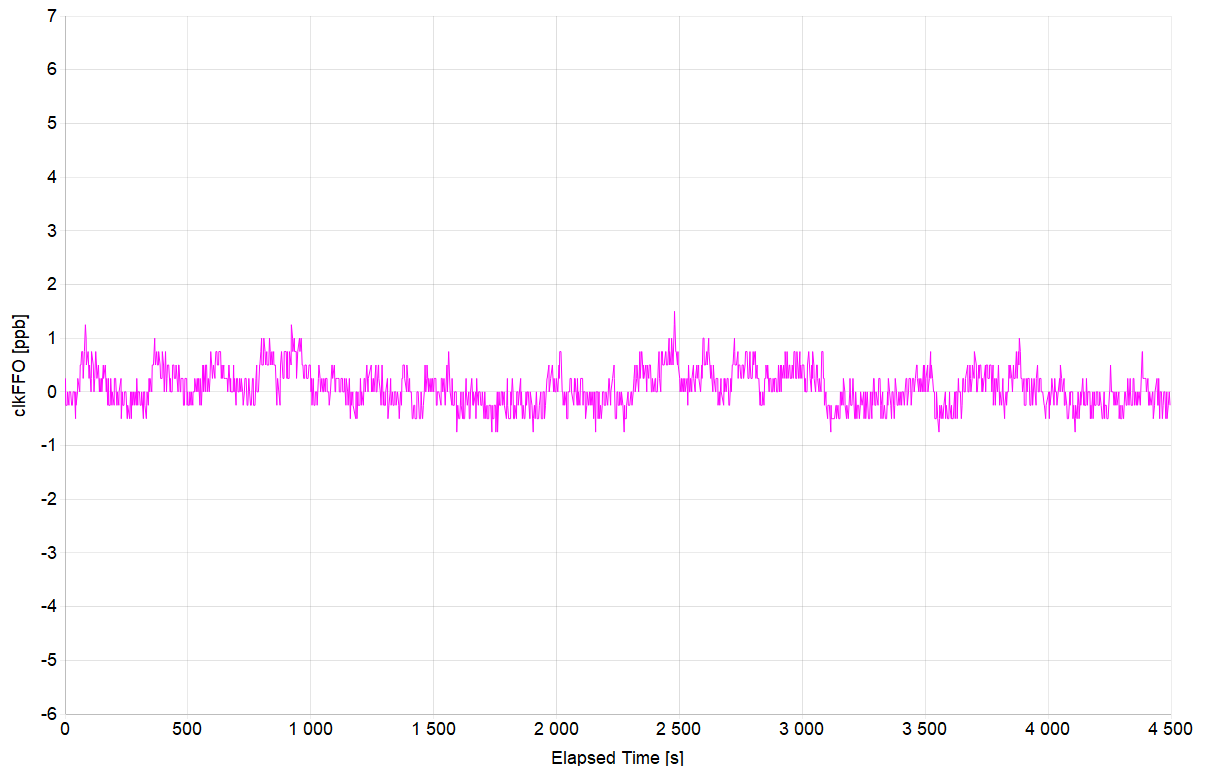
Offset Removal Applied	Off
Zero Offset	-69833.733ns



Mean [ns]	-69588.197
Min [ns]	-69840.233
Max [ns]	-69418.983
Max-Min [ns]	421.25

5.2 CLKFFO Analysis

Averaging Time (s)	2
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Mean [ppb]	0.075
Min [ppb]	-0.75
Max [ppb]	1.5
Max-Min [ppb]	2.25

6. G.8261: Test Case 13 Network Traffic Model 2

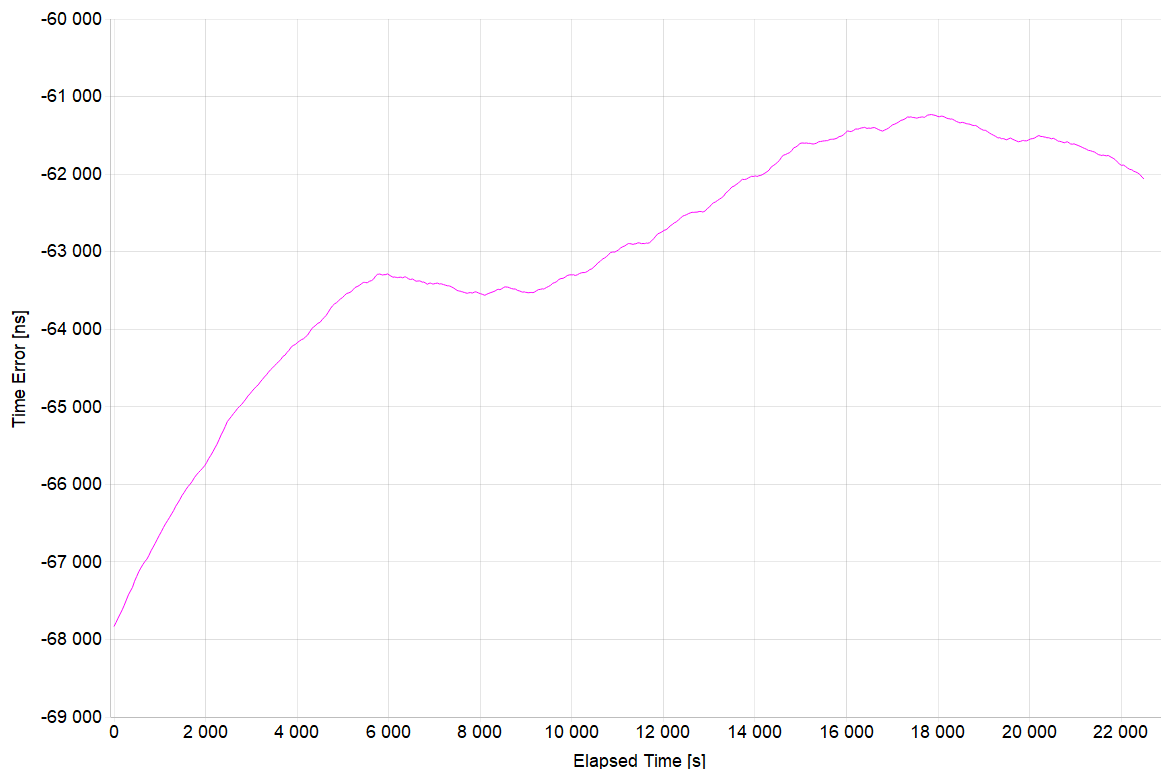
Note: Results for information only; not part of ITU-T required performance testing.

Test Description	Test Case 13 Network Traffic Model 2
Report Date	22-06-06_09-02-08
Packet Rate (pkt/s)	16
Test Duration	06:14:57
Time to Frequency Lock (s)	285

All Mask Results	Pass
Mask ONEPPS	-
Mask ONEPPS Result	No Mask
Mask CLKFFO	16ppb
Mask CLKFFO Result	Pass

6.1 ONEPPS Analysis

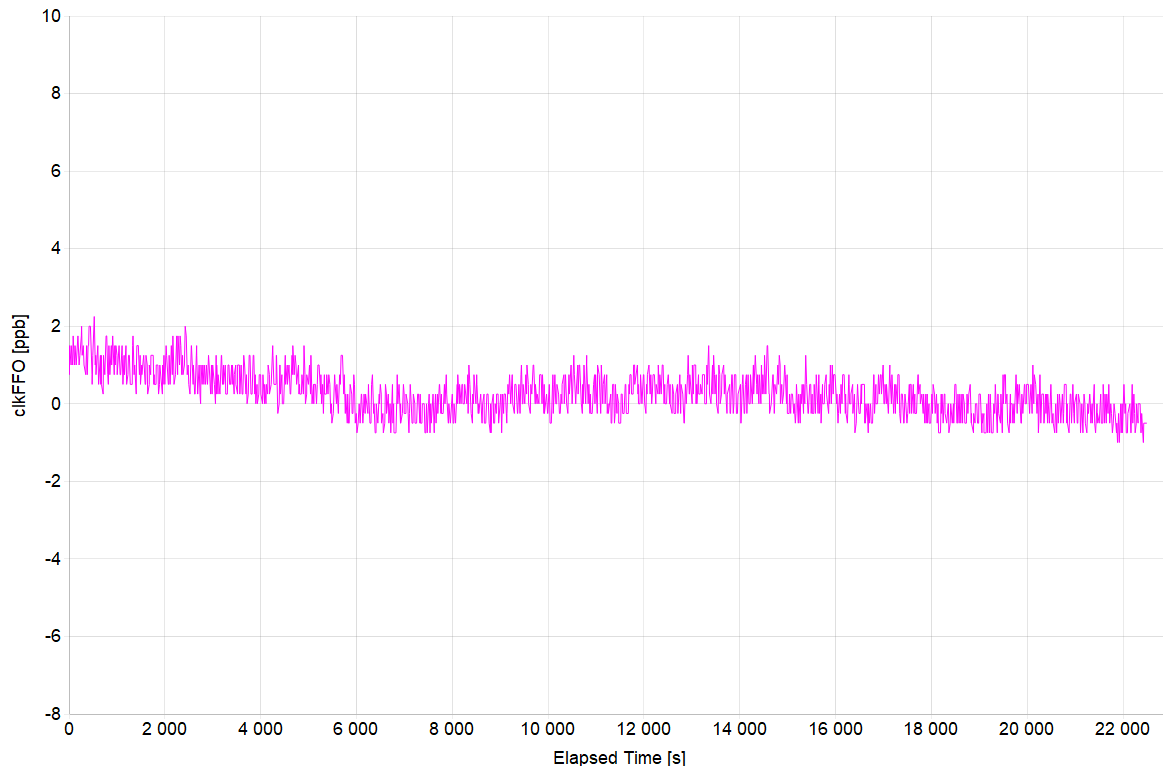
Offset Removal Applied	Off
Zero Offset	-67833.233ns



Mean [ns]	-63030.232
Min [ns]	-67833.233
Max [ns]	-61231.733
Max-Min [ns]	6601.5

6.2 CLKFFO Analysis

Averaging Time (s)	2
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Mean [ppb]	0.257
Min [ppb]	-1
Max [ppb]	2.25
Max-Min [ppb]	3.25

7. G.8261: Test Case 14 Network Traffic Model 2

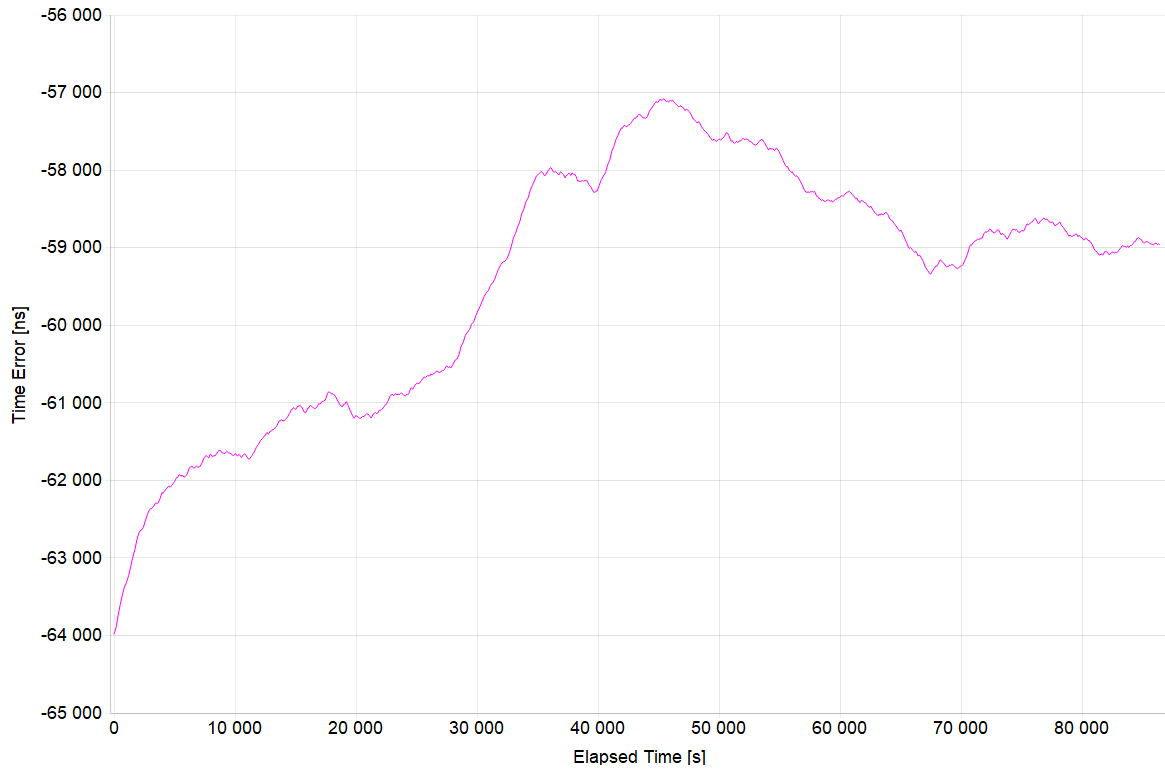
Note: Results for information only, not part of ITU-T required performance testing.

Test Description	Test Case 14 Network Traffic Model 2
Report Date	22-06-06_09-02-08
Packet Rate (pkt/s)	16
Test Duration	23:59:57
Time to Frequency Lock (s)	264

All Mask Results	Pass
Mask ONEPPS	-
Mask ONEPPS Result	No Mask
Mask CLKFFO	16ppb
Mask CLKFFO Result	Pass

7.1 ONEPPS Analysis

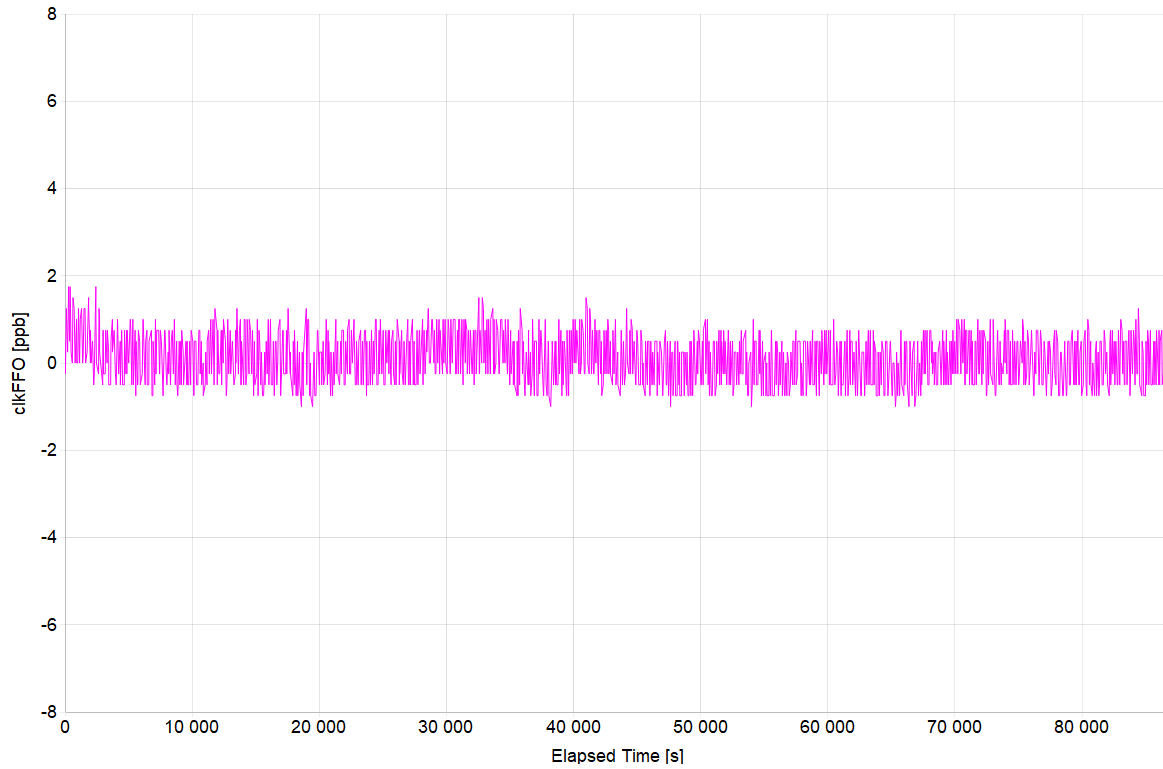
Offset Removal Applied	Off
Zero Offset	-63986.733ns



Mean [ns]	-59428.301
Min [ns]	-63986.733
Max [ns]	-57079.733
Max-Min [ns]	6907

7.2 CLKFFO Analysis

Averaging Time (s)	2
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Mean [ppb]	0.058
Min [ppb]	-1
Max [ppb]	1.75
Max-Min [ppb]	2.75

8. G.8261: Test Case 15 Network Traffic Model 2

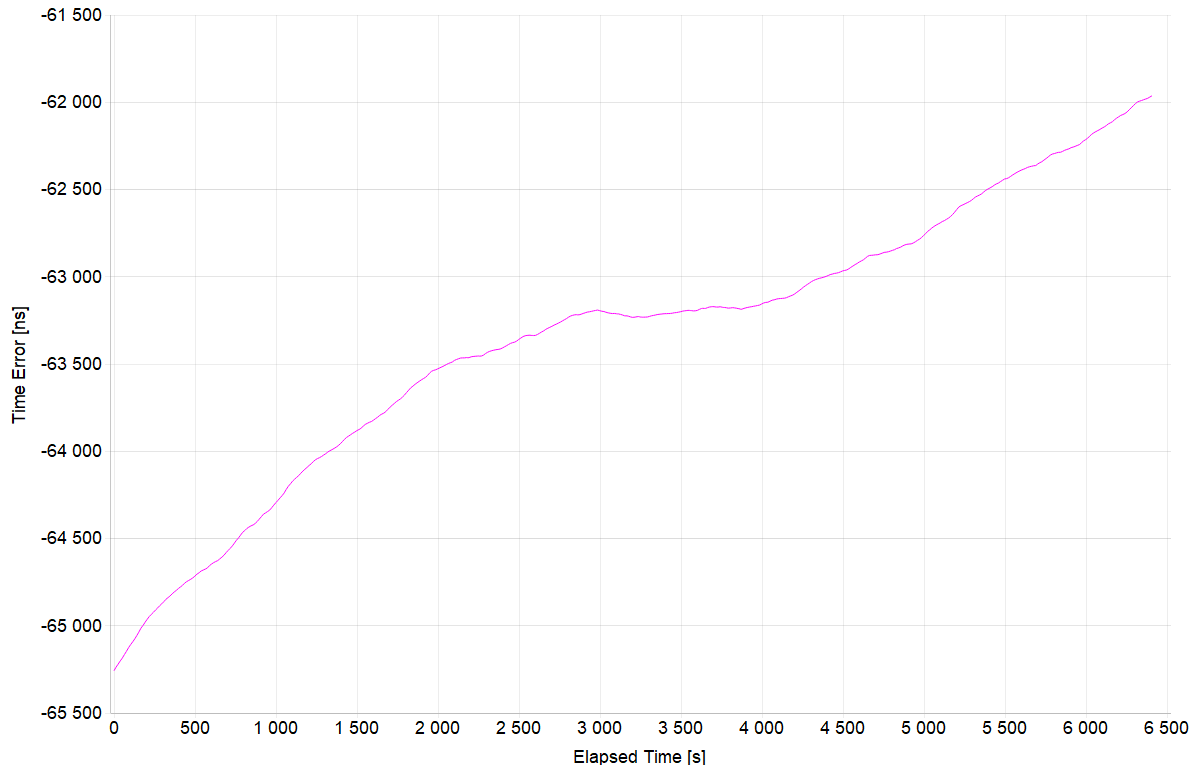
Note: Results for information only, not part of ITU-T required performance testing.

Test Description	Test Case 15 Network Traffic Model 2
Report Date	22-06-06_09-02-08
Packet Rate (pkt/s)	16
Test Duration	01:46:47
Time to Frequency Lock (s)	265

All Mask Results	Pass
Mask ONEPPS	-
Mask ONEPPS Result	No Mask
Mask CLKFFO	16ppb
Mask CLKFFO Result	Pass

8.1 ONEPPS Analysis

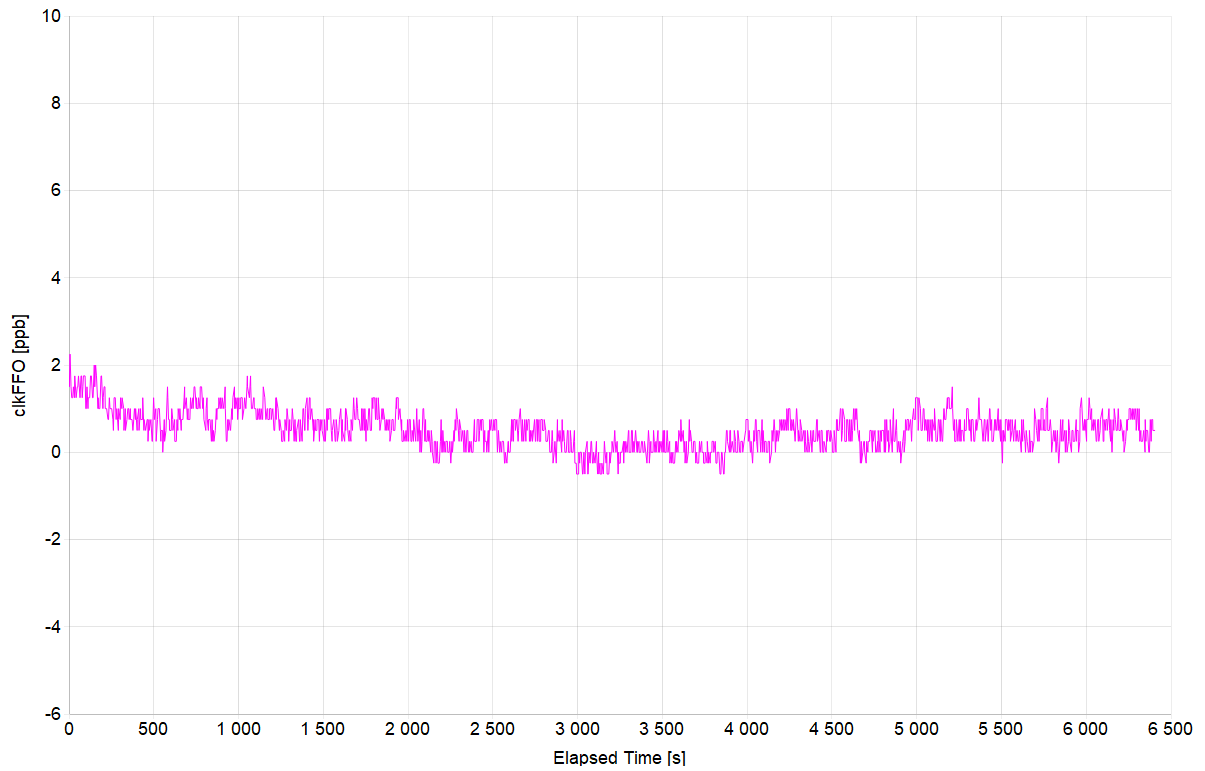
Offset Removal Applied	Off
Zero Offset	-65258.233ns



Mean [ns]	-63346.293
Min [ns]	-65258.233
Max [ns]	-61963.233
Max-Min [ns]	3295

8.2 CLKFFO Analysis

Averaging Time (s)	2
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Mean [ppb]	0.514
Min [ppb]	-0.5
Max [ppb]	2.25
Max-Min [ppb]	2.75

9. G.8261: Test Case 16 Network Traffic Model 2

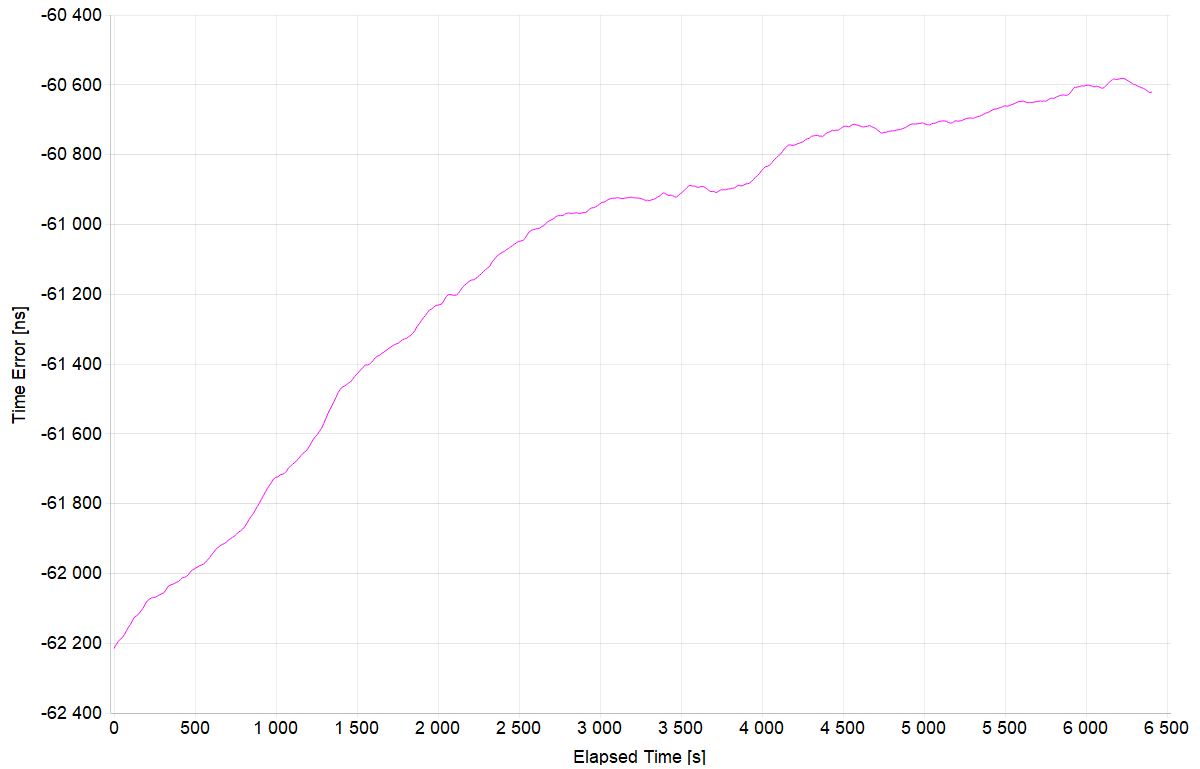
Note: Results for information only, not part of ITU-T required performance testing.

Test Description	Test Case 16 Network Traffic Model 2
Report Date	22-06-06_09-02-08
Packet Rate (pkt/s)	16
Test Duration	01:46:47
Time to Phase Lock (s)	262

All Mask Results	Pass
Mask ONEPPS	-
Mask ONEPPS Result	No Mask
Mask CLKFFO	16ppb
Mask CLKFFO Result	Pass

9.1 ONEPPS Analysis

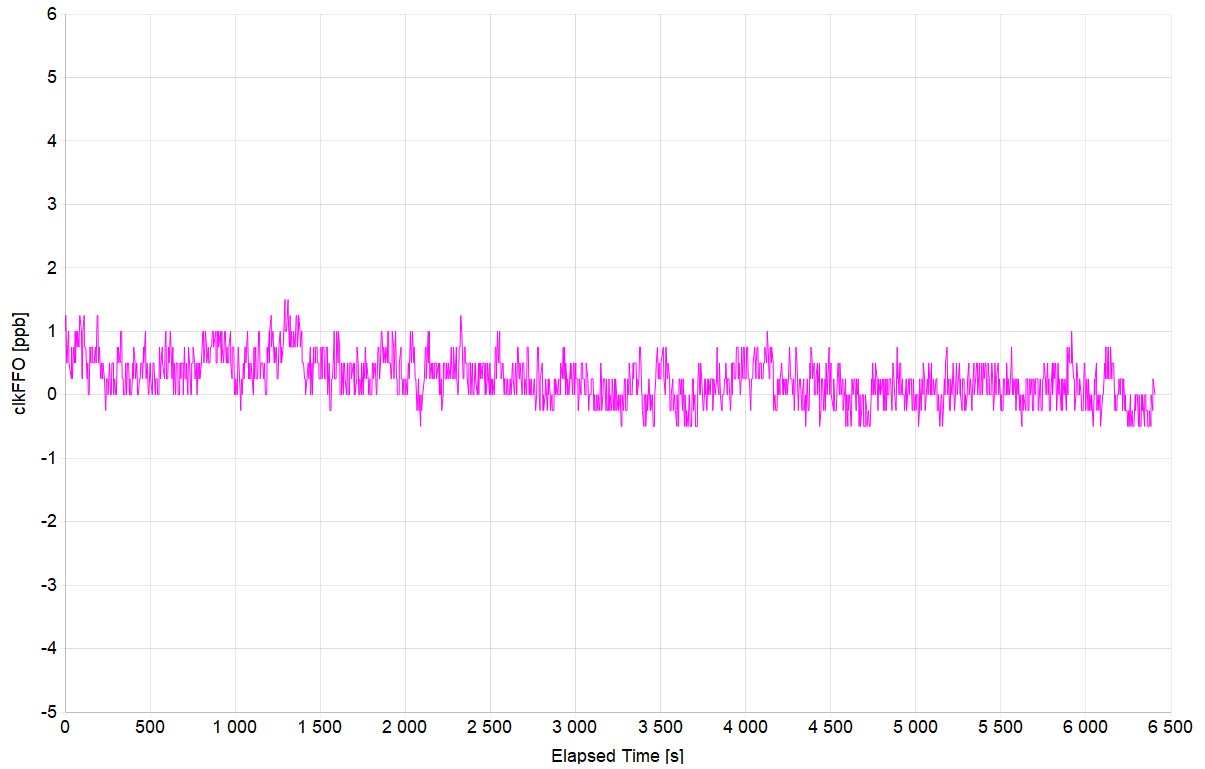
Offset Removal Applied	Off
Zero Offset	-62215.233ns



Mean [ns]	-61103.07
Min [ns]	-62215.233
Max [ns]	-60581.233
Max-Min [ns]	1634

9.2 CLKFFO Analysis

Averaging Time (s)	2
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Mean [ppb]	0.249
Min [ppb]	-0.5
Max [ppb]	1.5
Max-Min [ppb]	2

10. G.8261: Test Case 17(10μs) Network Traffic Model 2

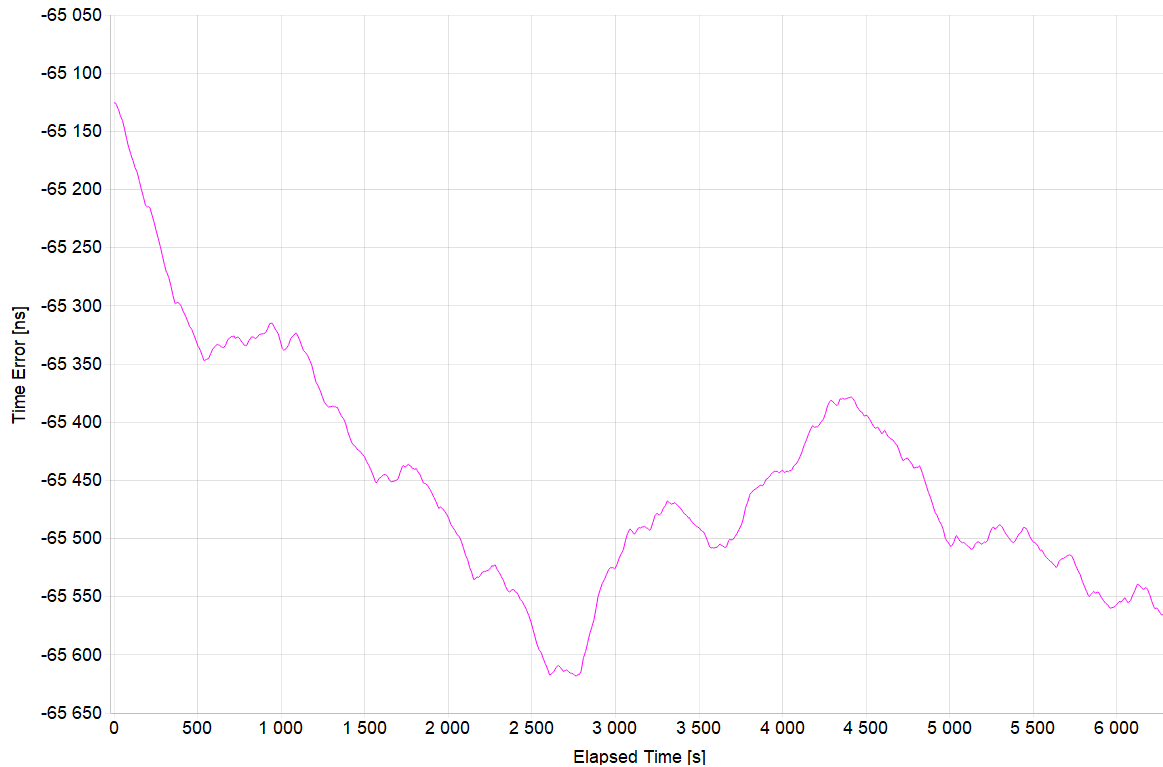
Note: Results for information only, not part of ITU-T required performance testing.

Test Description	Test Case 17(10μs) Network Traffic Model 2
Report Date	22-06-06_09-02-08
Packet Rate (pkt/s)	16
Test Duration	01:44:57
Time to Phase Lock (s)	265

All Mask Results	Pass
Mask ONEPPS	-
Mask ONEPPS Result	No Mask
Mask CLKFFO	16ppb
Mask CLKFFO Result	Pass

10.1 ONEPPS Analysis

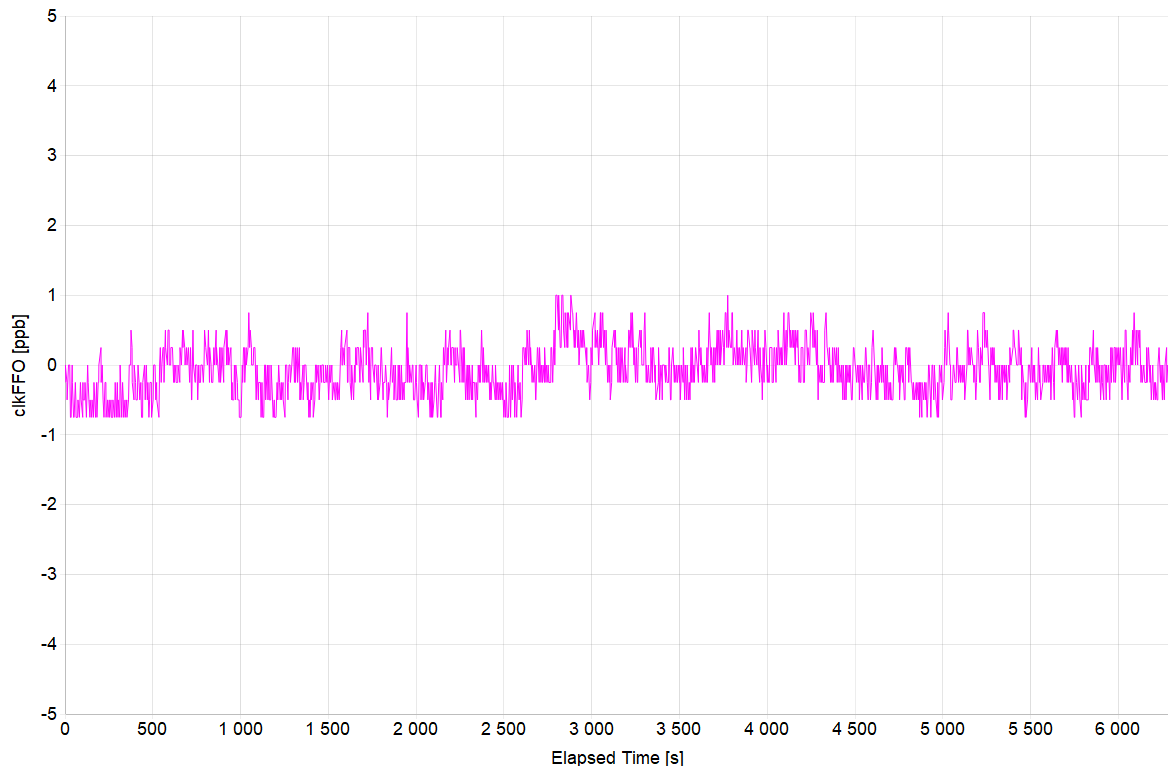
Offset Removal Applied	Off
Zero Offset	-65125.483ns



Mean [ns]	-65450.292
Min [ns]	-65618.233
Max [ns]	-65125.483
Max-Min [ns]	492.75

10.2 CLKFFO Analysis

Averaging Time (s)	2
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Mean [ppb]	-0.07
Min [ppb]	-0.75
Max [ppb]	1
Max-Min [ppb]	1.75

11. G.8261: Test Case 17(200μs) Network Traffic Model 2

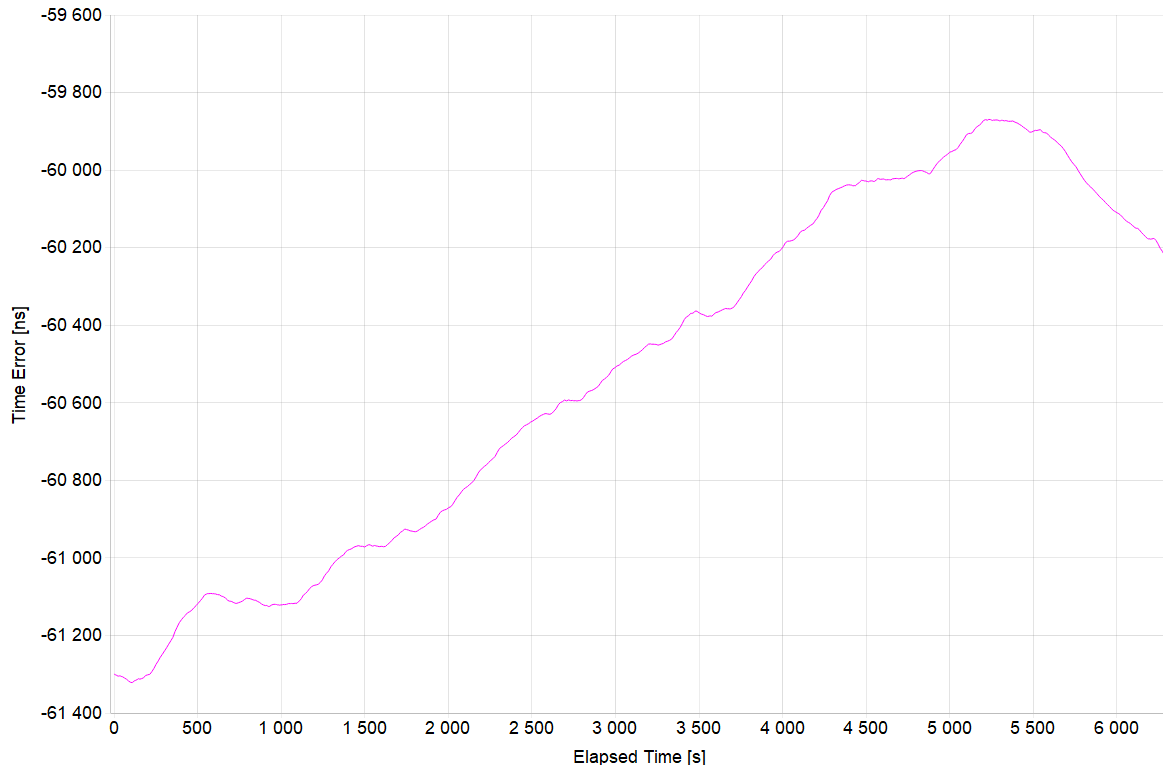
Note: Results for information only, not part of ITU-T required performance testing.

Test Description	Test Case 17(200μs) Network Traffic Model 2
Report Date	22-06-06_09-02-08
Packet Rate (pkt/s)	16
Test Duration	01:44:57
Time to Phase Lock (s)	265

All Mask Results	Pass
Mask ONEPPS	-
Mask ONEPPS Result	No Mask
Mask CLKFFO	16ppb
Mask CLKFFO Result	Pass

11.1 ONEPPS Analysis

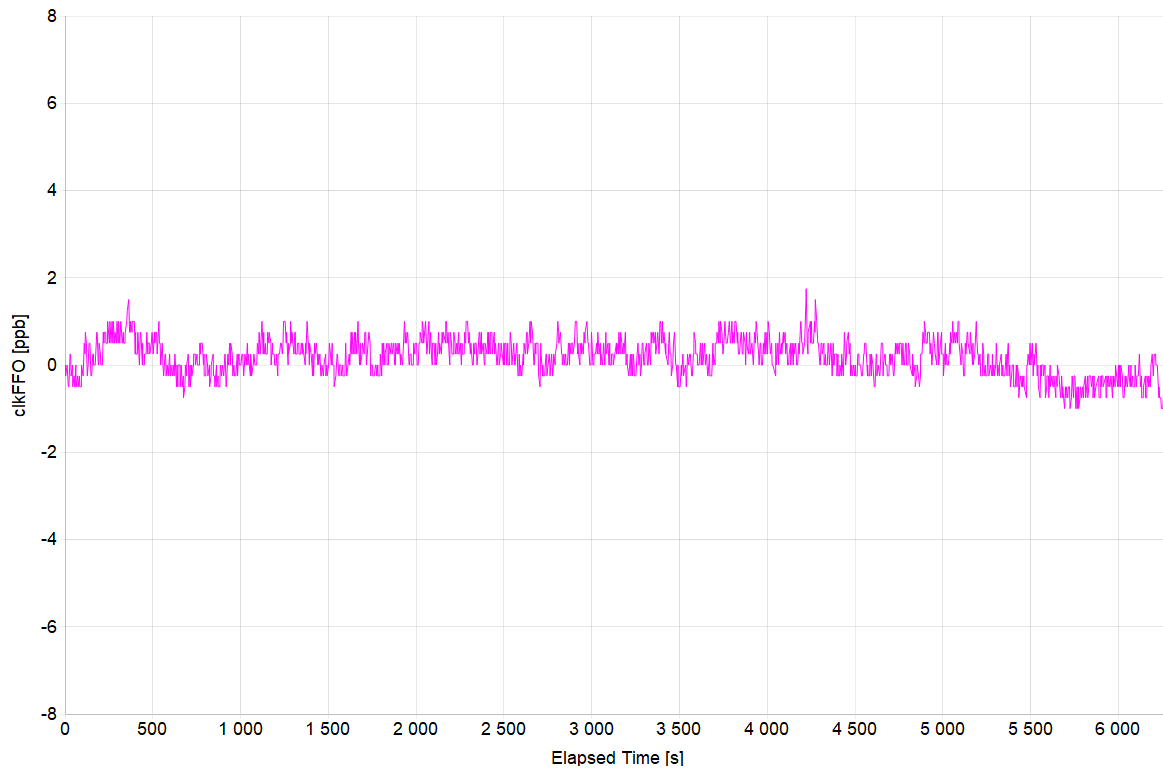
Offset Removal Applied	Off
Zero Offset	-61300.233ns



Mean [ns]	-60517.605
Min [ns]	-61321.733
Max [ns]	-59869.233
Max-Min [ns]	1452.5

11.2 CLKFFO Analysis

Averaging Time (s)	2
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Mean [ppb]	0.17
Min [ppb]	-1.25
Max [ppb]	1.75
Max-Min [ppb]	3

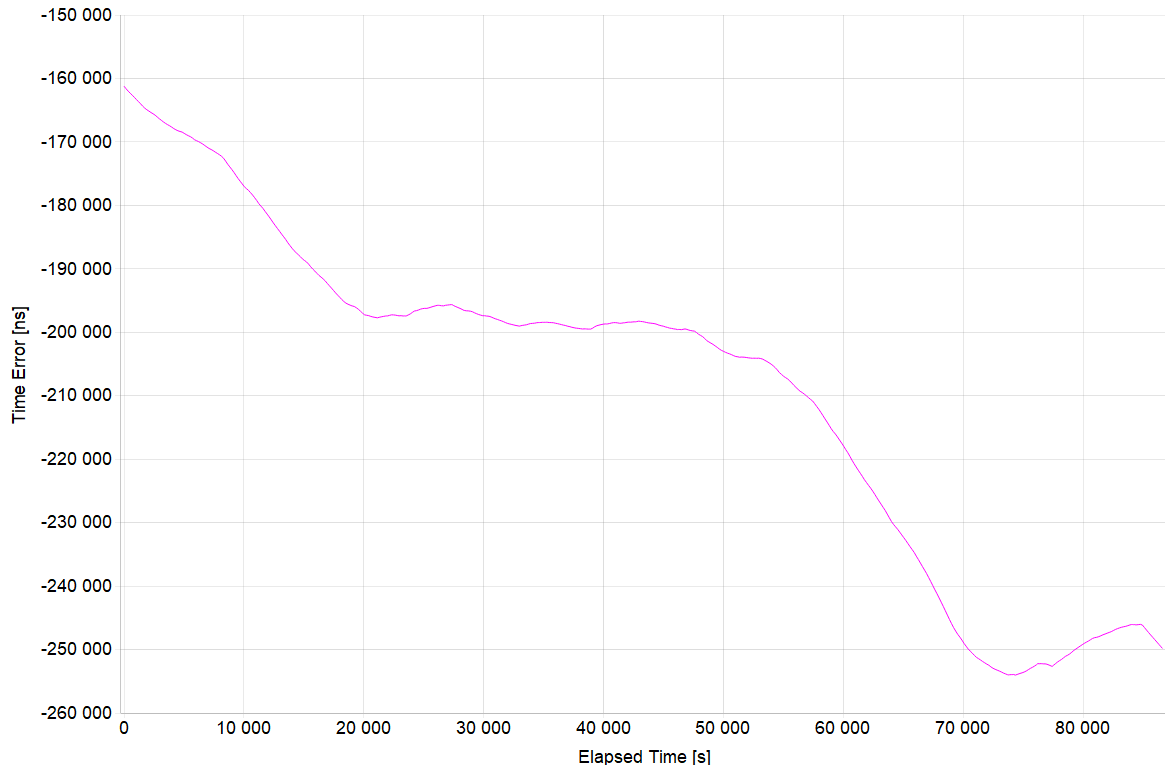
12. G.8263: Noise Tolerance - Method 1

Test Description	Noise Tolerance - Method 1
Report Date	22-06-06_15-27-12
Packet Rate (pkt/s)	16
Test Duration	24:03:43
Time to Frequency Lock (s)	311

All Mask Results	Pass
Mask ONEPPS	-
Mask ONEPPS Result	No Mask
Mask MTIE	G.8261.1 PEC-S-F Wander Limit Case 3
Mask MTIE Result	Pass
Mask CLKFFO	-
Mask CLKFFO Result	No Mask

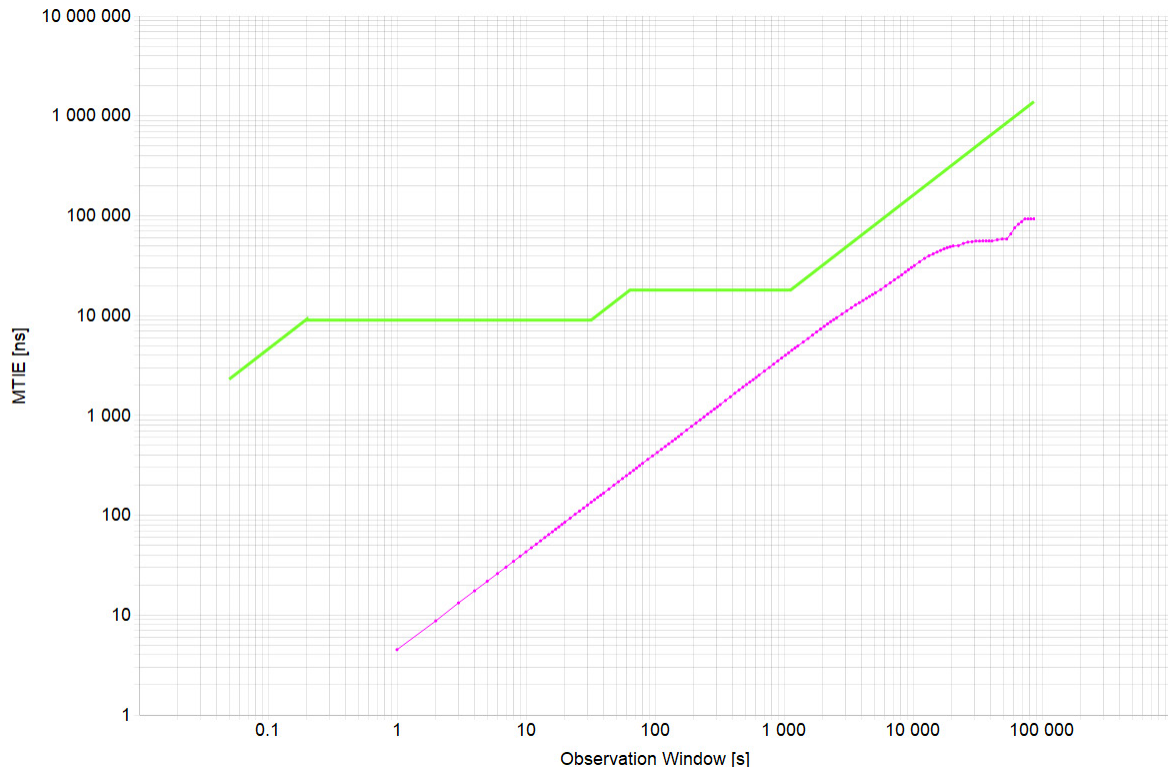
12.1 ONEPPS Analysis

Offset Removal Applied	Off
Zero Offset	-161214.483ns



Mean [ns]	-208770.37
Min [ns]	-254032.733
Max [ns]	-161214.483
Max-Min [ns]	92818.25

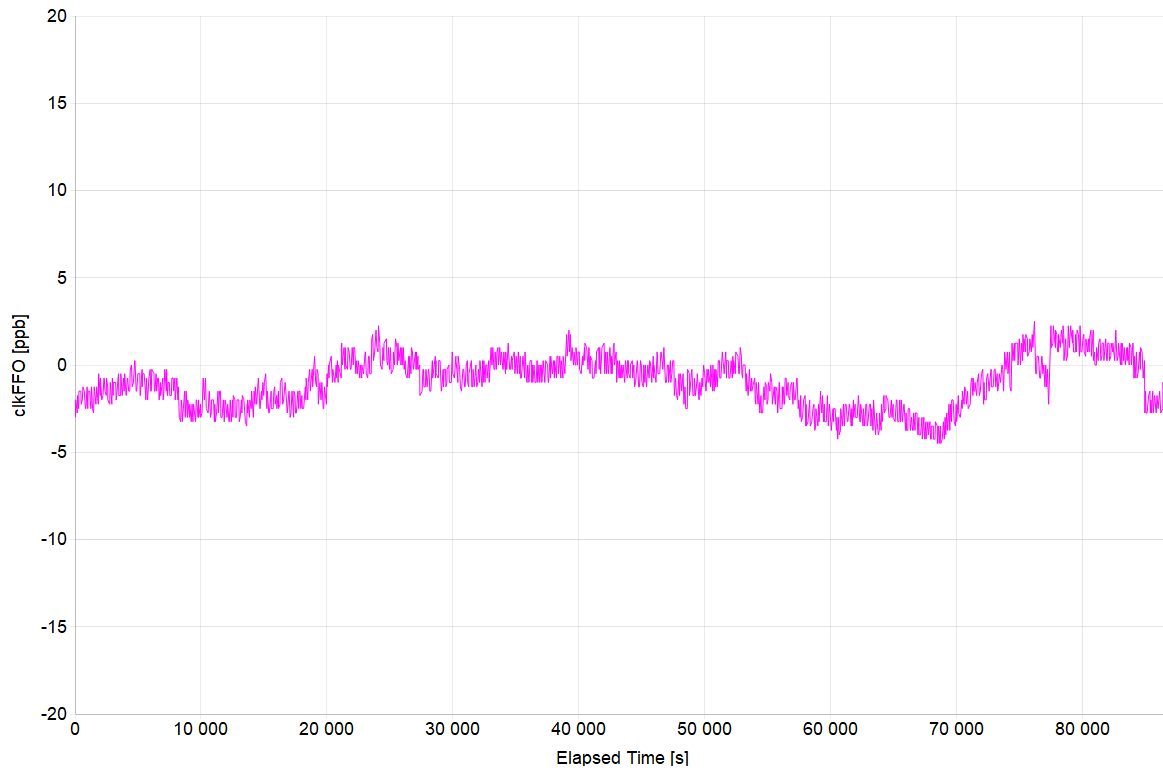
12.2 MTIE Analysis



Min [ns]	4.5
Max [ns]	92818.25
Max-Min [ns]	92813.75

12.3 CLKFFO Analysis

Averaging Time (s)	2
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Mean [ppb]	-1.023
Min [ppb]	-4.5
Max [ppb]	2.5
Max-Min [ppb]	7

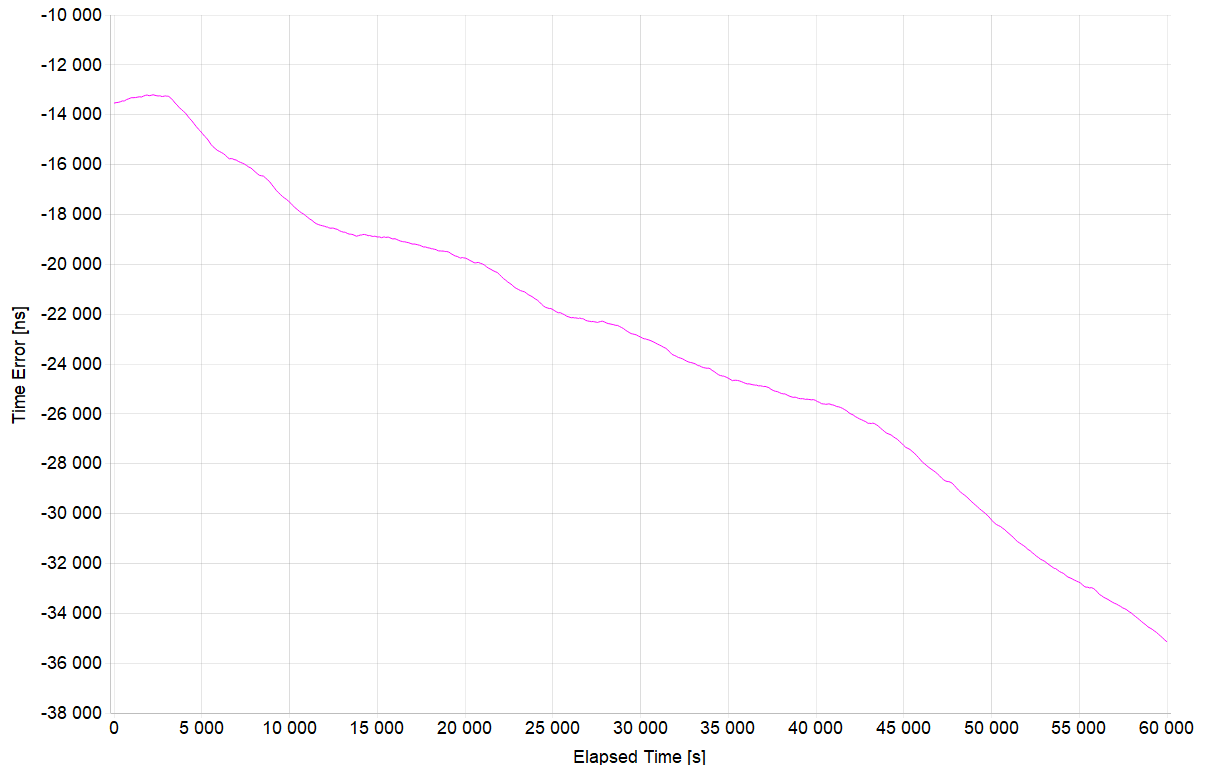
13. G.8263: Noise Tolerance - Method 2 (50µs)

Test Description	Noise Tolerance - Method 2 (50µs)
Report Date	22-06-06_11-31-25
Packet Rate (pkt/s)	16
Test Duration	16:39:57
Time to Frequency Lock (s)	72

All Mask Results	Pass
Mask ONEPPS	-
Mask ONEPPS Result	No Mask
Mask MTIE	G.8261.1 PEC-S-F Wander Limit Case 3
Mask MTIE Result	Pass

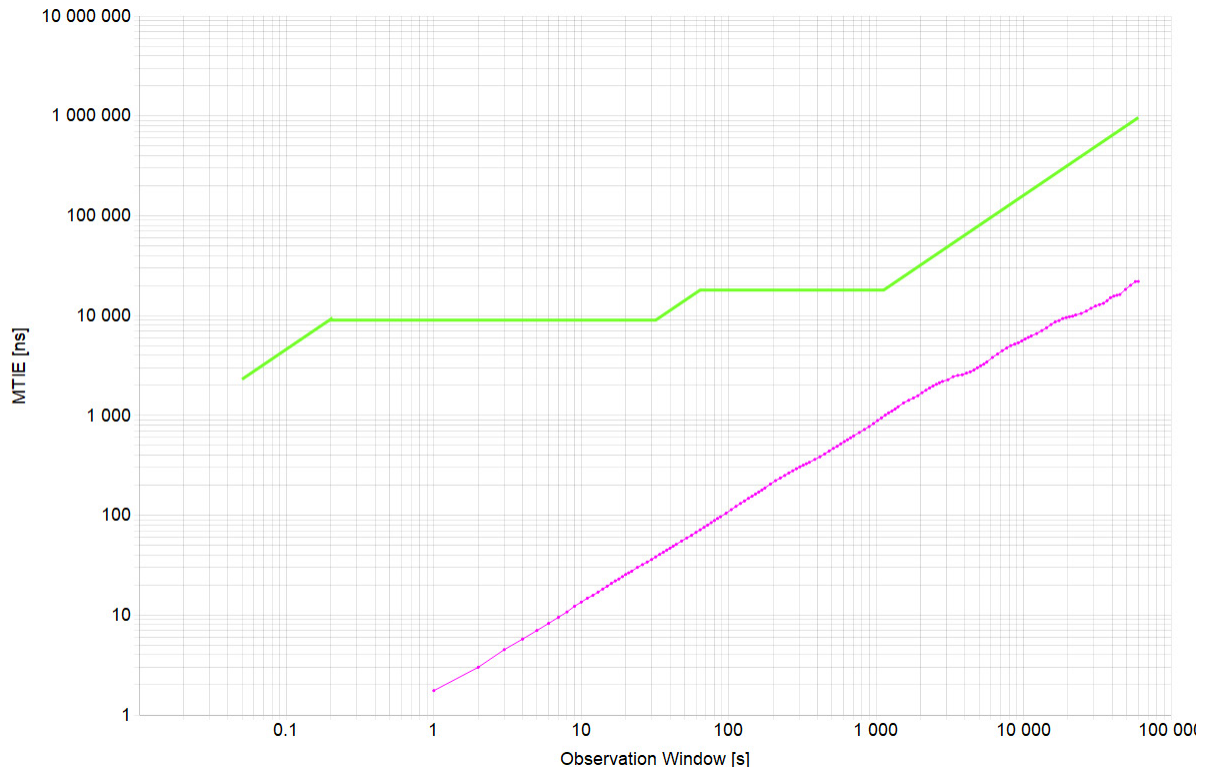
13.1 ONEPPS Analysis

Offset Removal Applied	Off
Zero Offset	-13536.233 ns



Mean [ns]	-23307.121
Min [ns]	-35143.983
Max [ns]	-13199.733
Max-Min [ns]	21944.25

13.2 MTIE Analysis



Min [ns]	1.75
Max [ns]	21944.25
Max-Min [ns]	21942.5

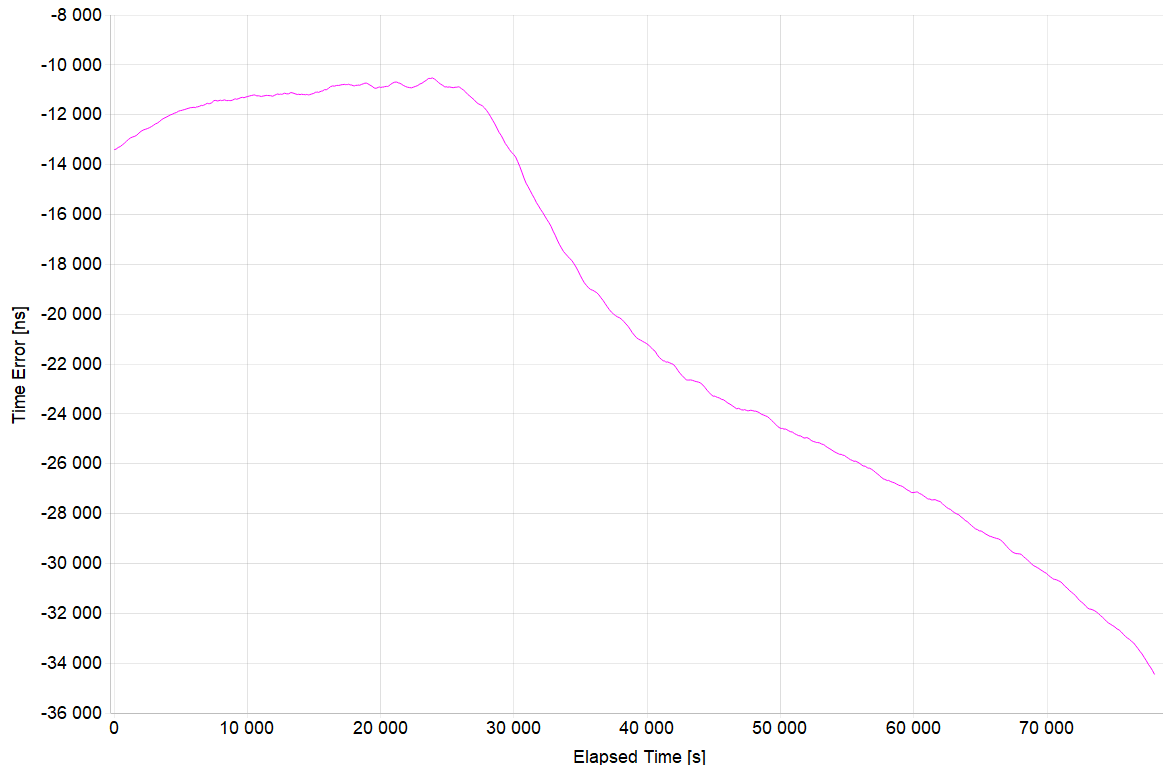
14. G.8263: Noise Tolerance - Method 2 (75µs)

Test Description	Noise Tolerance - Method 2 (75µs)
Report Date	22-06-06_11-31-25
Packet Rate (pkt/s)	16
Test Duration	21:41:05
Time to Frequency Lock (s)	70

All Mask Results	Pass
Mask ONEPPS	-
Mask ONEPPS Result	No Mask
Mask MTIE	G.8261.1 PEC-S-F Wander Limit Case 3
Mask MTIE Result	Pass

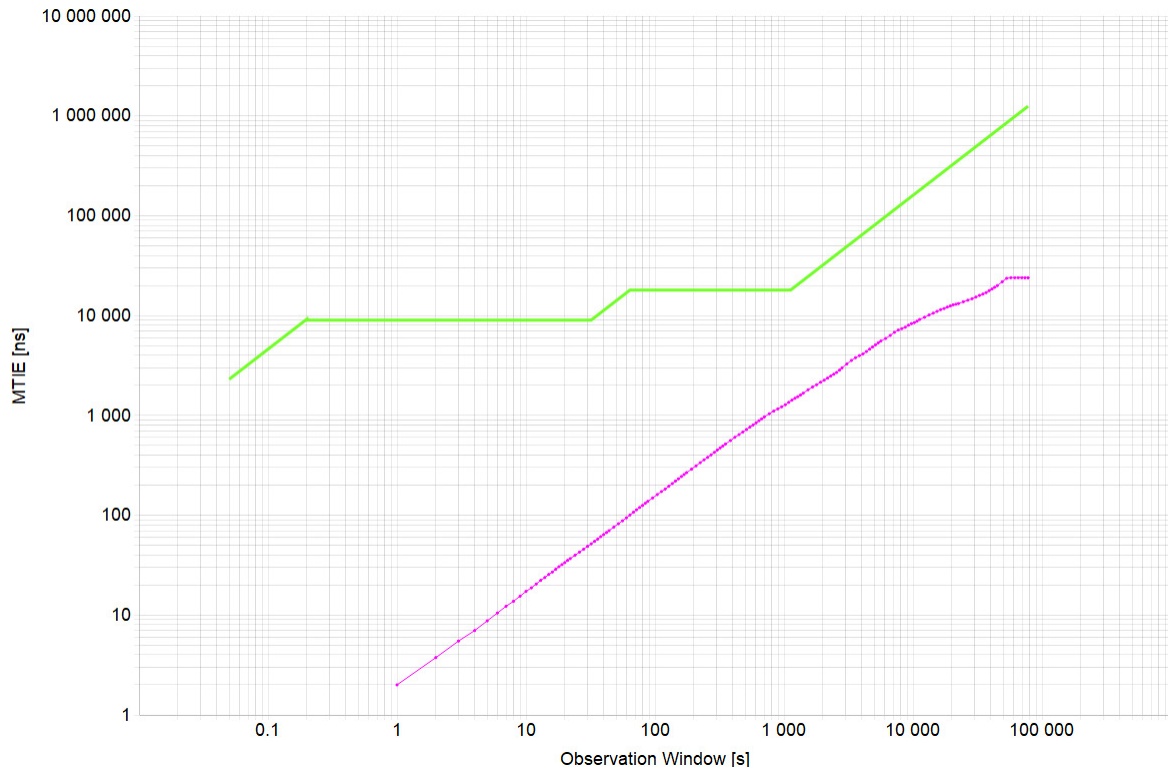
14.1 ONEPPS Analysis

Offset Removal Applied	Off
Zero Offset	-13397.483ns



Mean [ns]	-19975.532
Min [ns]	-34453.983
Max [ns]	-10525.983
Max-Min [ns]	23928

14.2 MTIE Analysis



Min [ns]	2
Max [ns]	23928
Max-Min [ns]	23926

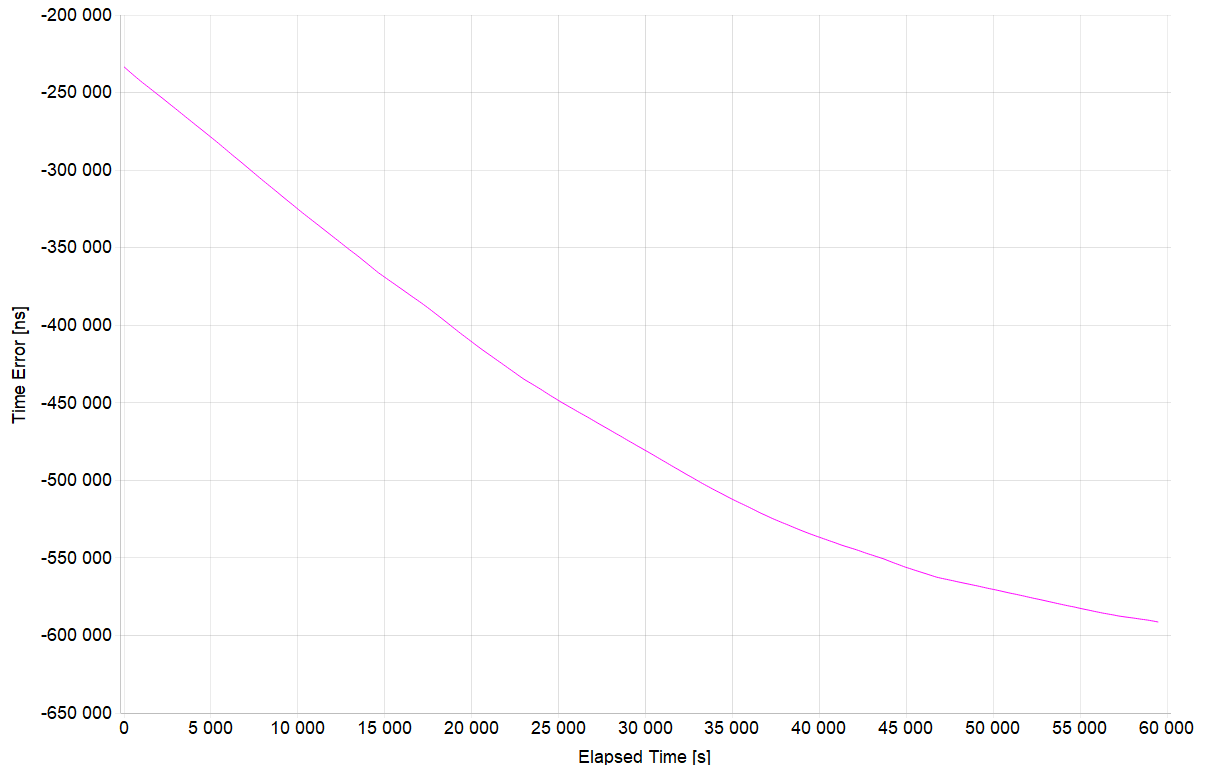
15. G.8263: Noise Tolerance - Method 2 (150µs)

Test Description	Noise Tolerance - Method 2 (150µs)
Report Date	22-06-06_11-31-25
Packet Rate (pkt/s)	16
Test Duration	16:31:37
Time to Frequency Lock (s)	799

All Mask Results	Pass
Mask ONEPPS	-
Mask ONEPPS Result	No Mask
Mask MTIE	G.8261.1 PEC-S-F Wander Limit Case 3
Mask MTIE Result	Pass

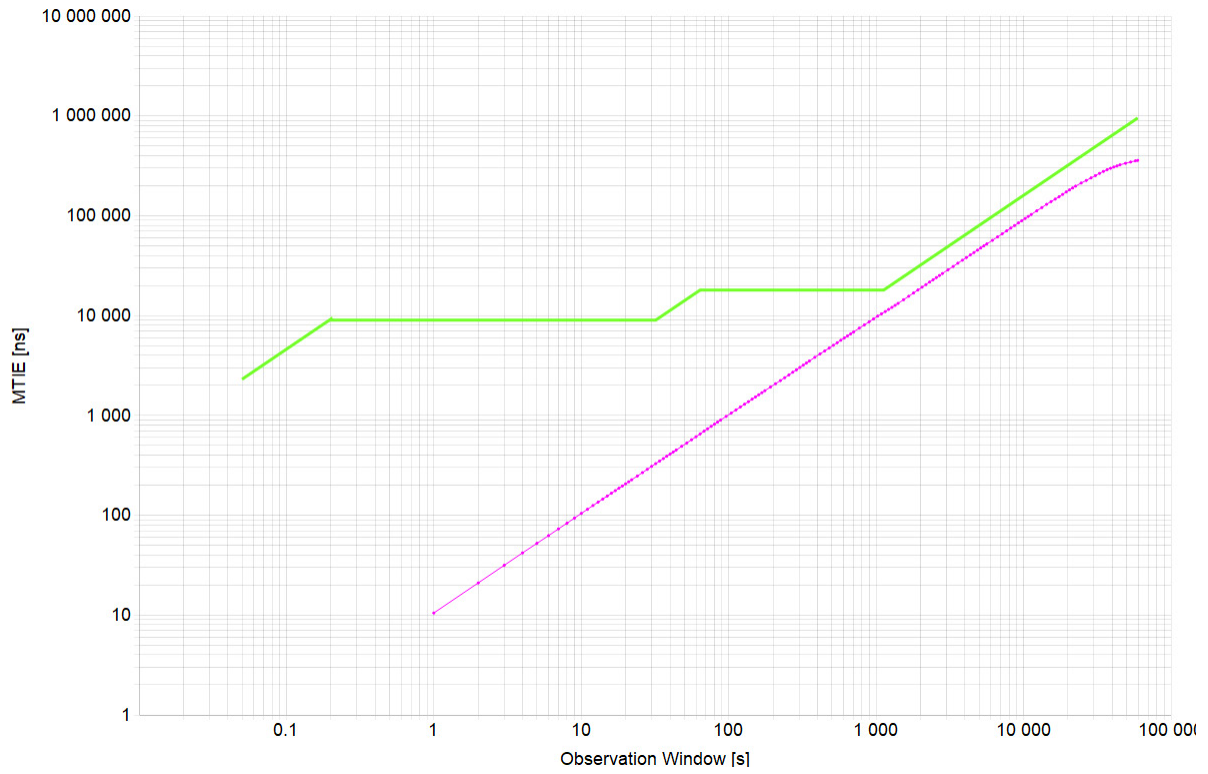
15.1 ONEPPS Analysis

Offset Removal Applied	Off
Zero Offset	-233388.733 ns



Mean [ns]	-456037.089
Min [ns]	-591349.983
Max [ns]	-233388.733
Max-Min [ns]	357961.25

15.2 MTIE Analysis



Min [ns]	10.5
Max [ns]	357963.75
Max-Min [ns]	357953.25

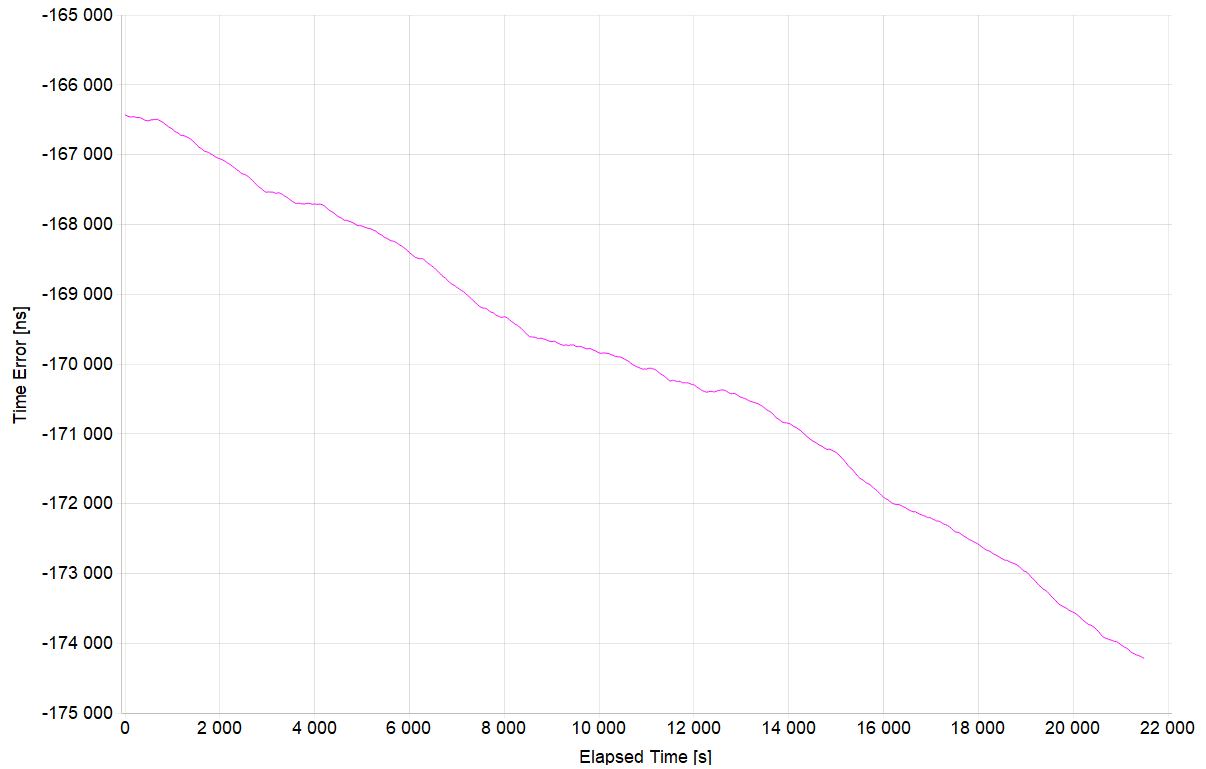
16. G.8263: Noise Tolerance - Method 3 (High Frequency)

Test Description	Noise Tolerance – Method 3 (High Frequency)
Report Date	22-06-06_11-31-25
Packet Rate (pkt/s)	16
Test Duration	05:58:17
Time to Frequency Lock (s)	689

All Mask Results	Pass
Mask ONEPPS	-
Mask ONEPPS Result	No Mask
Mask MTIE	G.8261.1 PEC-S-F Wander Limit Case 3
Mask MTIE Result	Pass

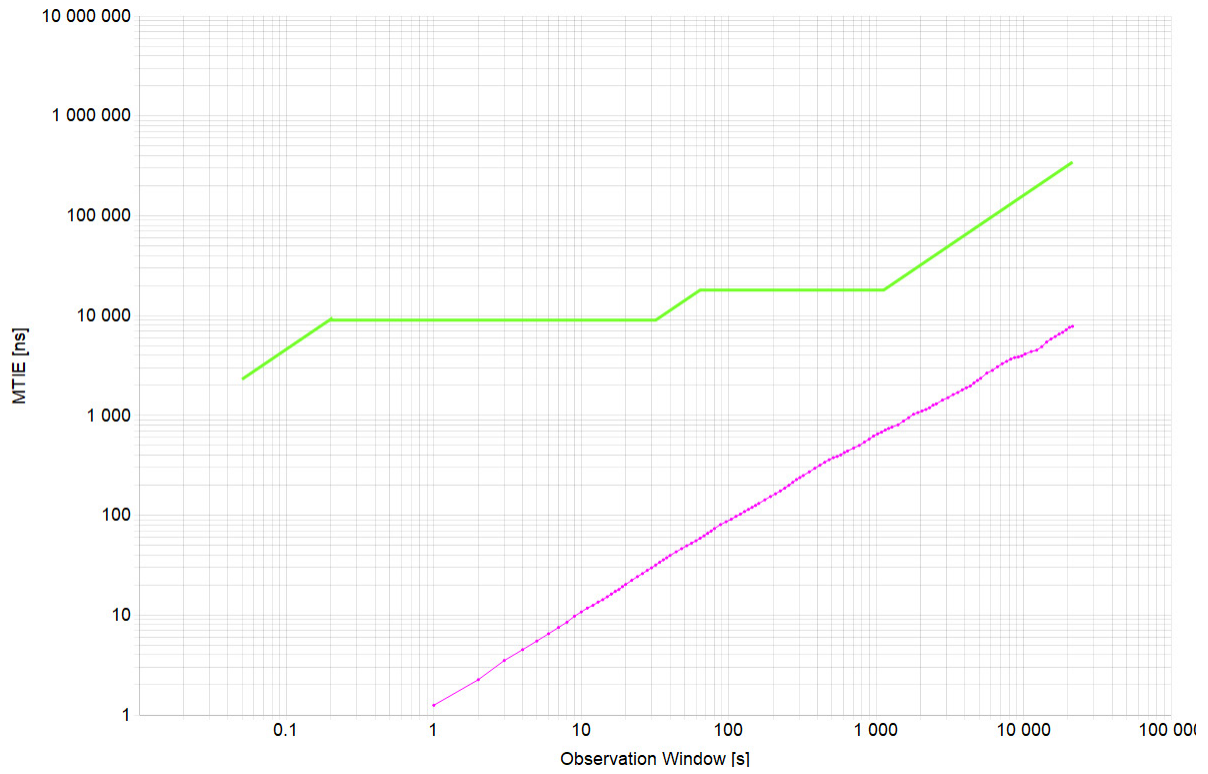
16.1 ONEPPS Analysis

Offset Removal Applied	Off
Zero Offset	-166427.733 ns



Mean [ns]	-170077.769
Min [ns]	-174216.733
Max [ns]	-166427.733
Max-Min [ns]	7789

16.2 MTIE Analysis



Min [ns]	1.25
Max [ns]	7789.25
Max-Min [ns]	7788

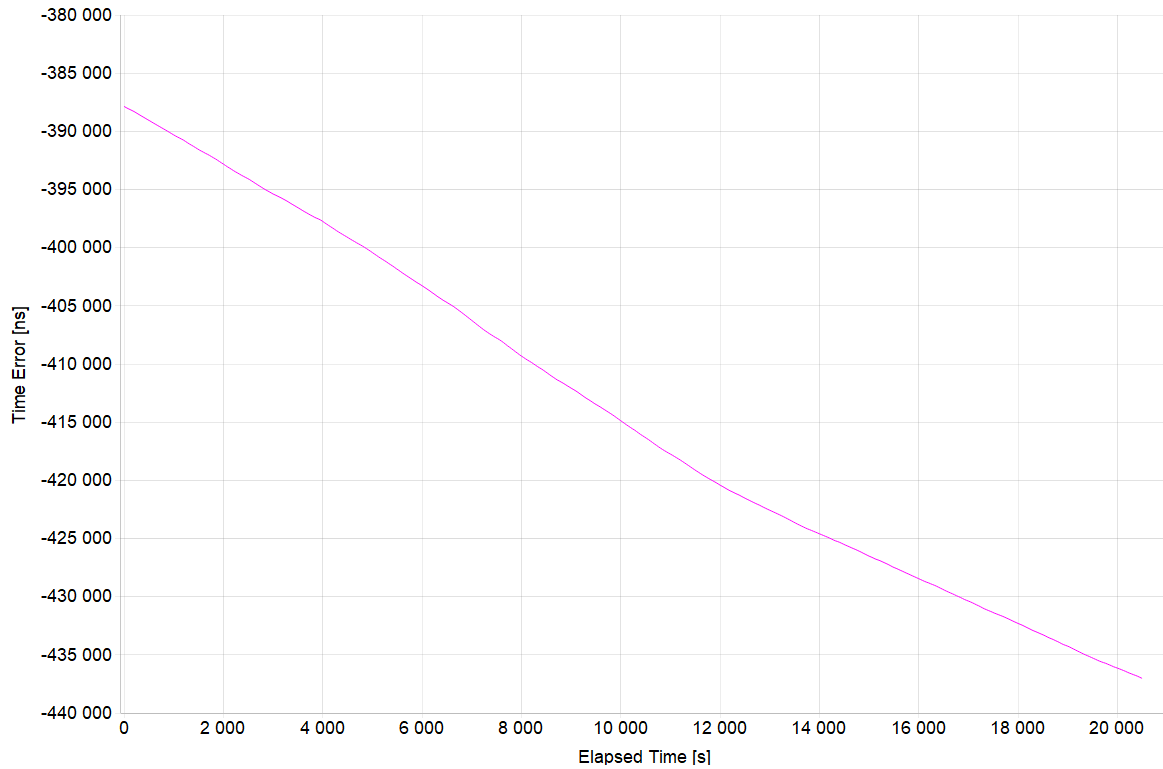
17. G.8263: Noise Tolerance - Method 3 (Low Frequency)

Test Description	Noise Tolerance – Method 3 (Low Frequency)
Report Date	22-06-06_11-31-25
Packet Rate (pkt/s)	16
Test Duration	05:41:37
Time to Frequency Lock (s)	895

All Mask Results	Pass
Mask ONEPPS	-
Mask ONEPPS Result	No Mask
Mask MTIE	G.8261.1 PEC-S-F Wander Limit Case 3
Mask MTIE Result	Pass

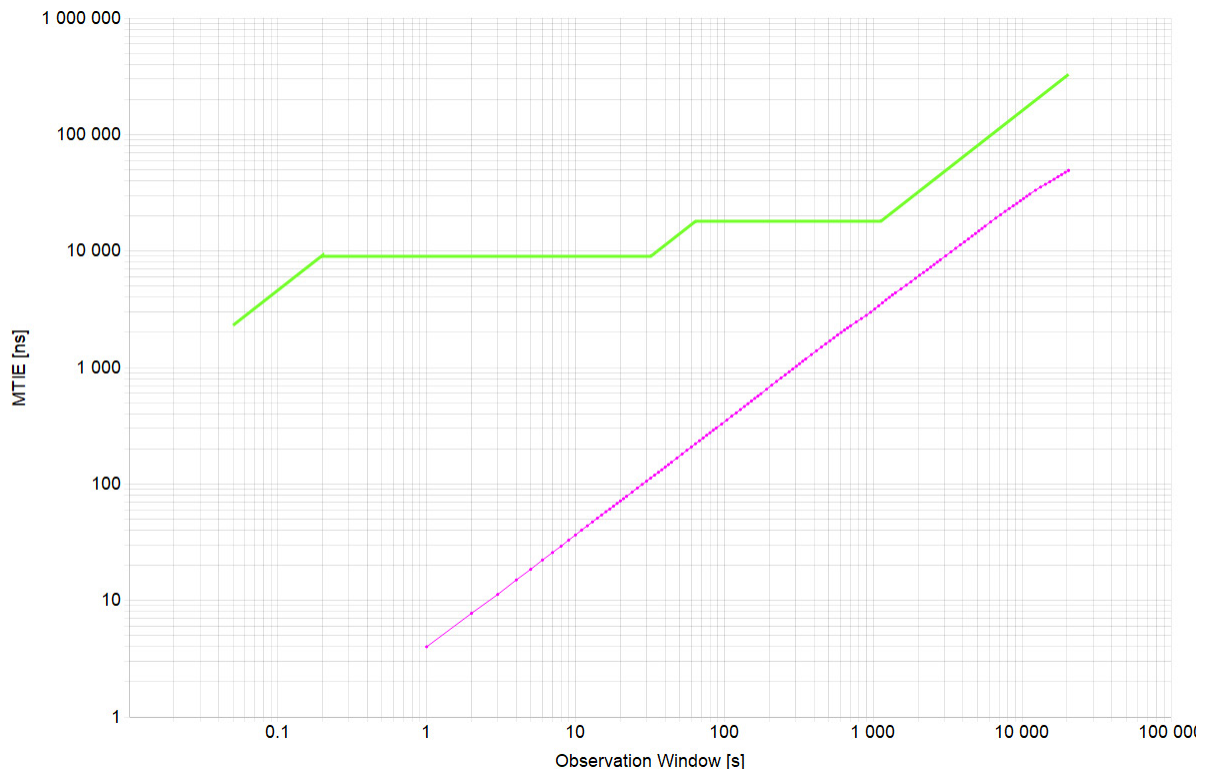
17.1 ONEPPS Analysis

Offset Removal Applied	Off
Zero Offset	-387857.483ns



Mean [ns]	-414143.482
Min [ns]	-437019.233
Max [ns]	-387857.483
Max-Min [ns]	49161.75

17.2 MTIE Analysis



Min [ns]	4
Max [ns]	49163.75
Max-Min [ns]	49159.75

18. Revision History

Revision	Date	Description
1.01	Jul 16, 2024	Replaced Xilinx with AMD throughout the document.
1.00	May 5, 2023	Initial release.

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