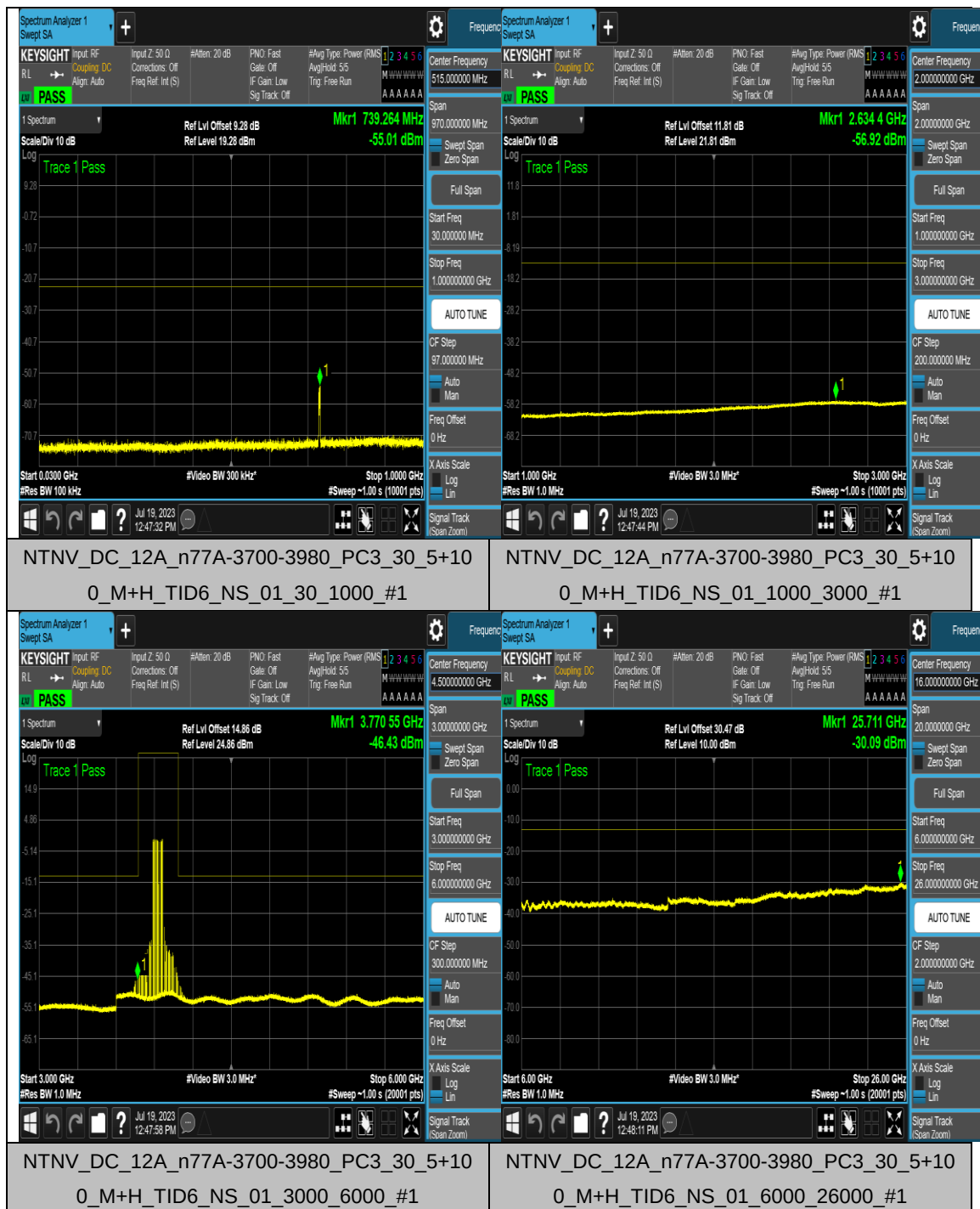
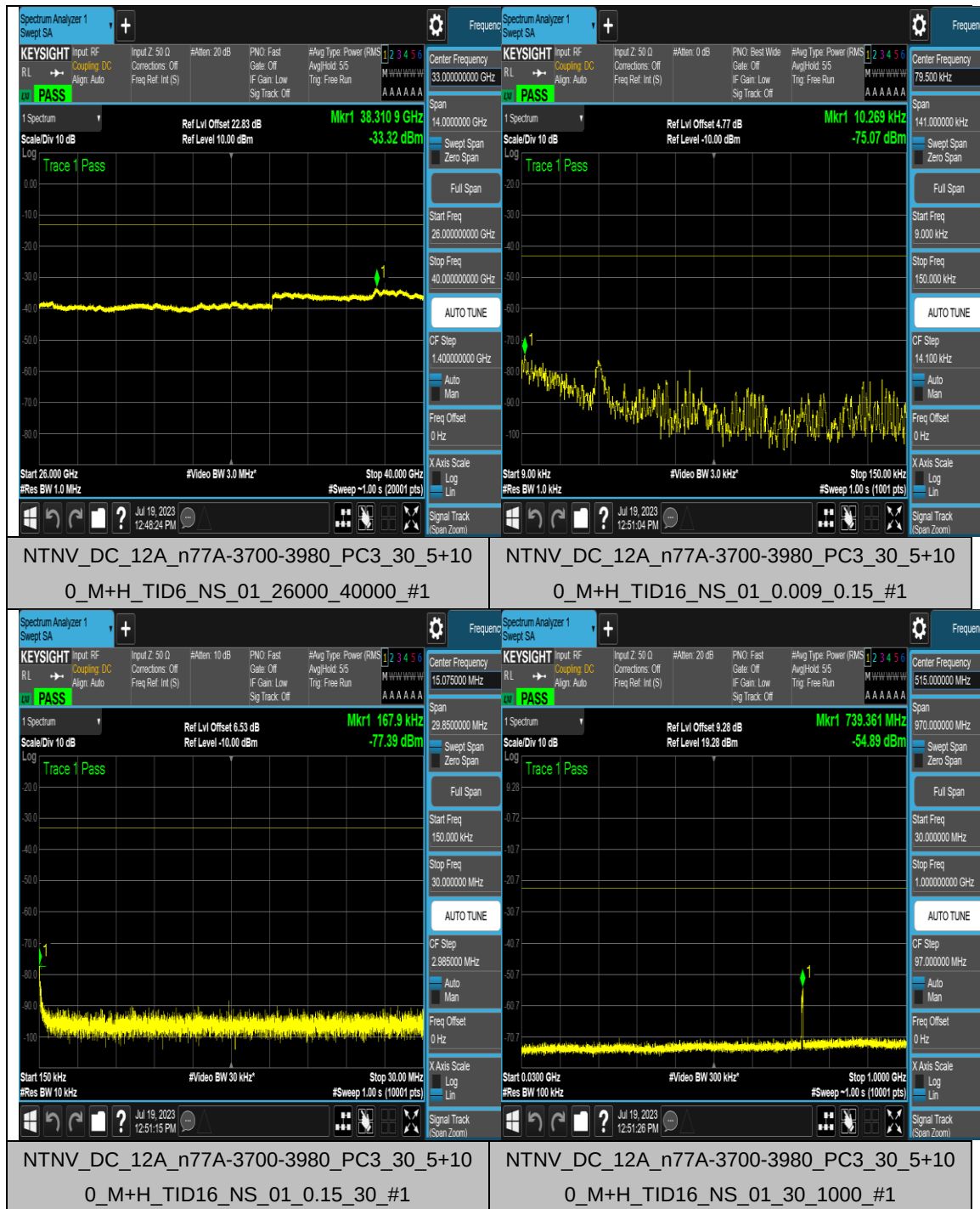
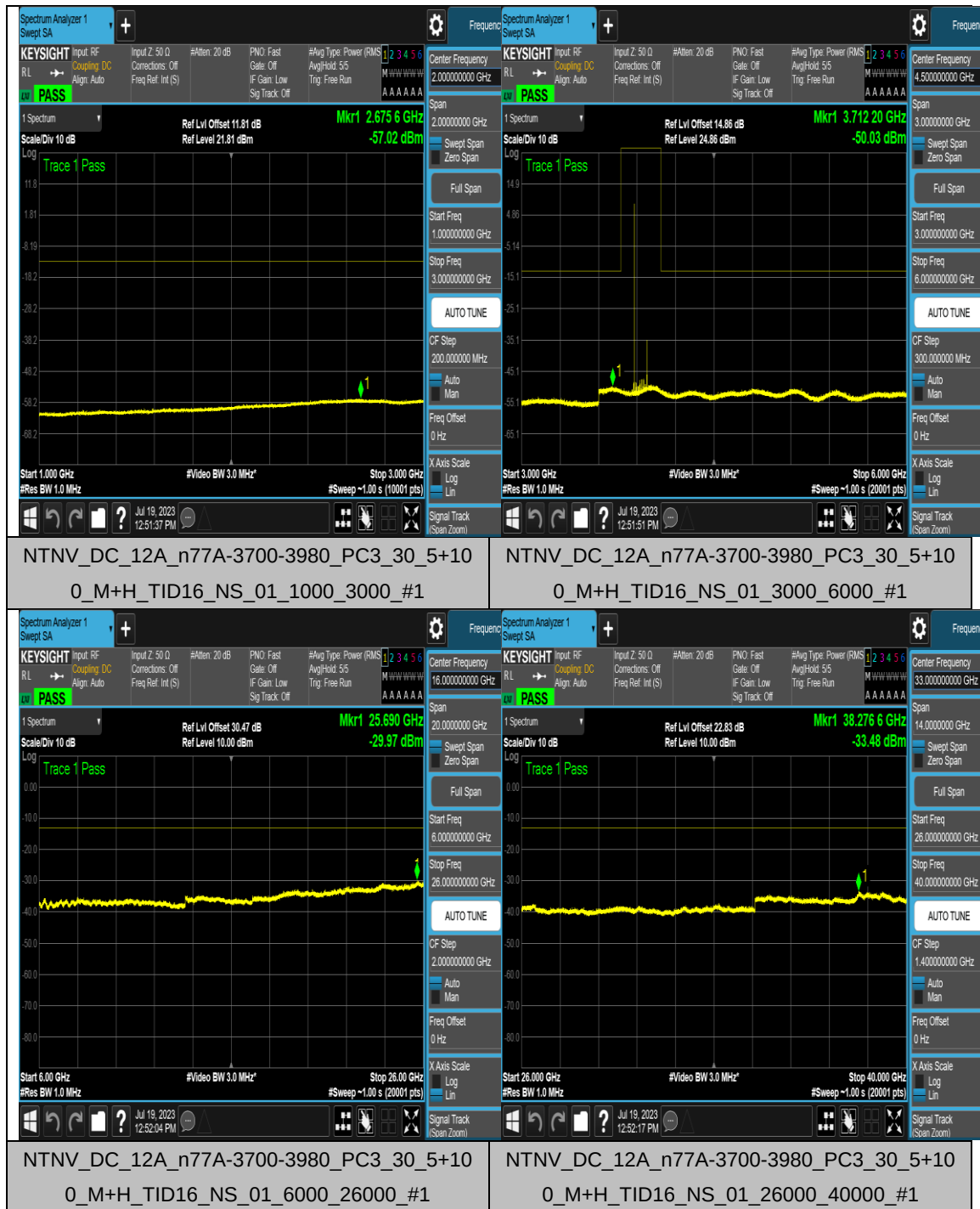
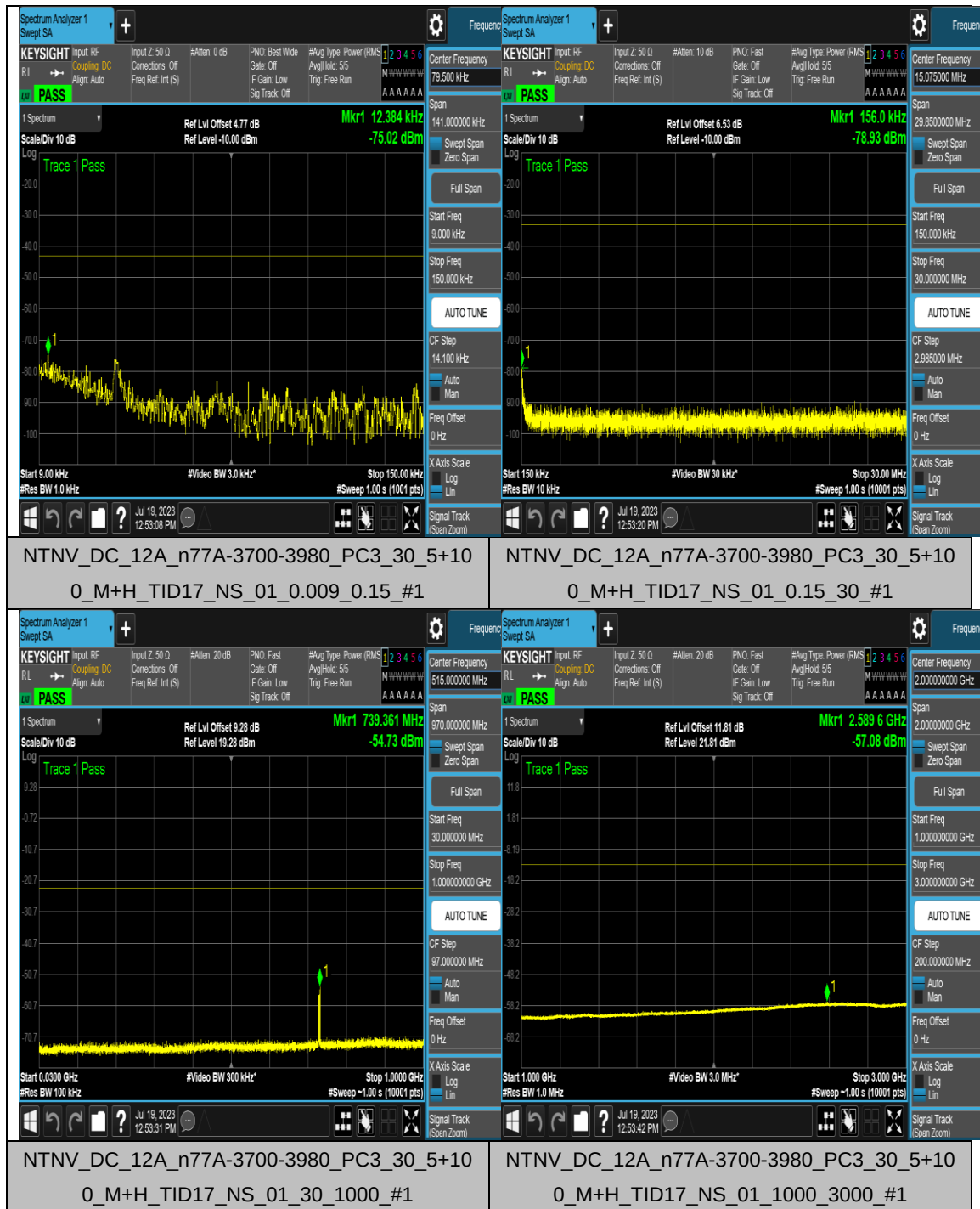
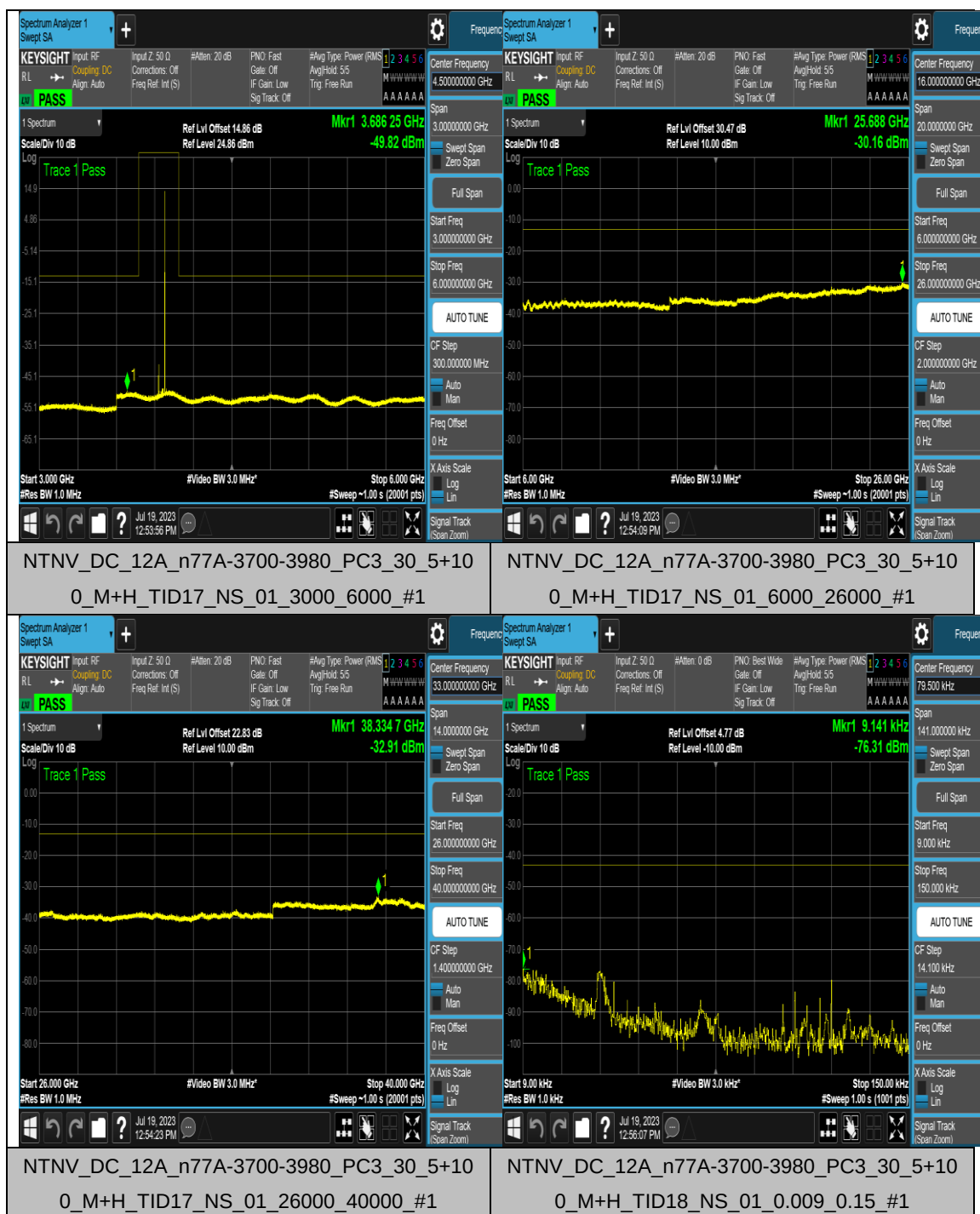


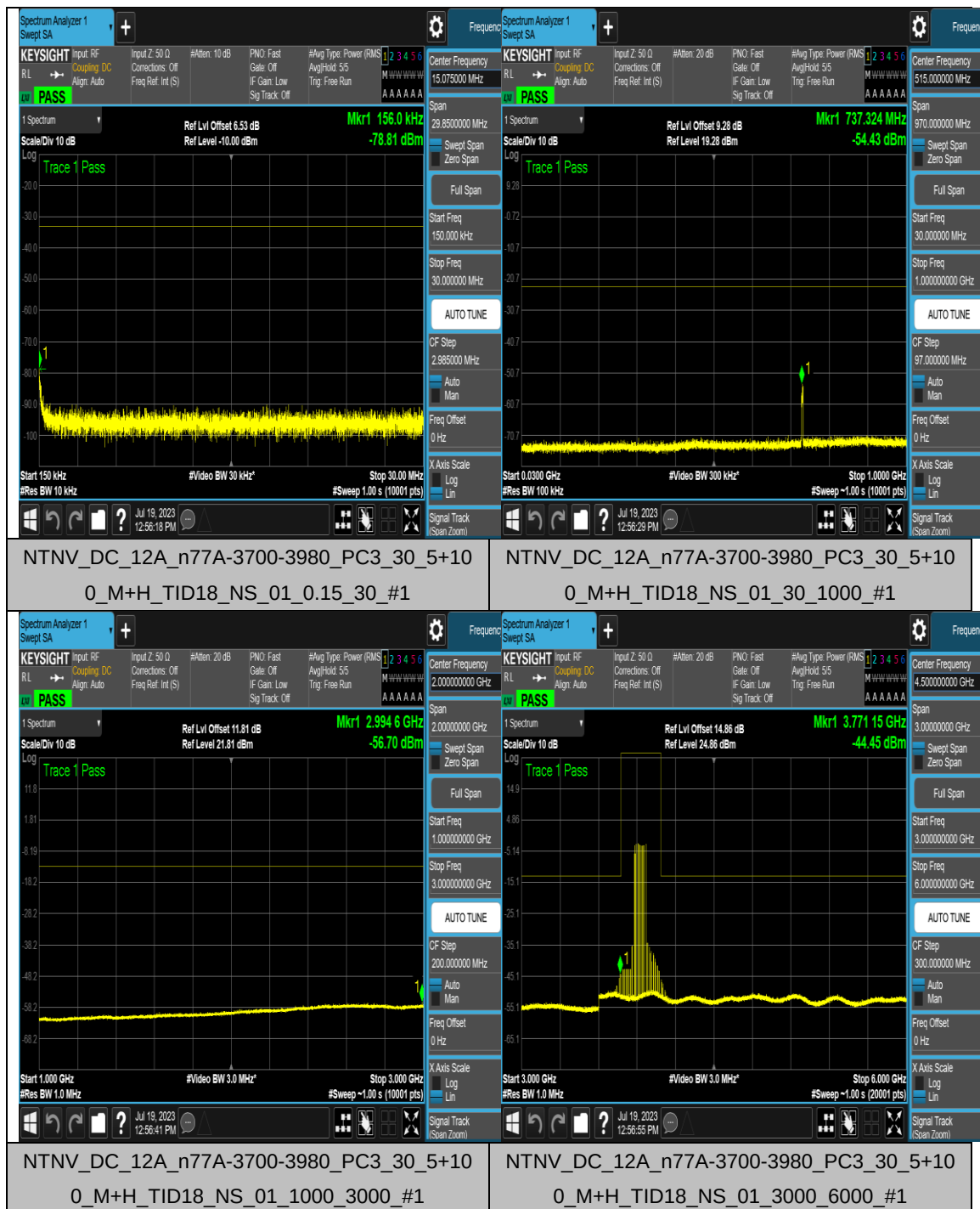


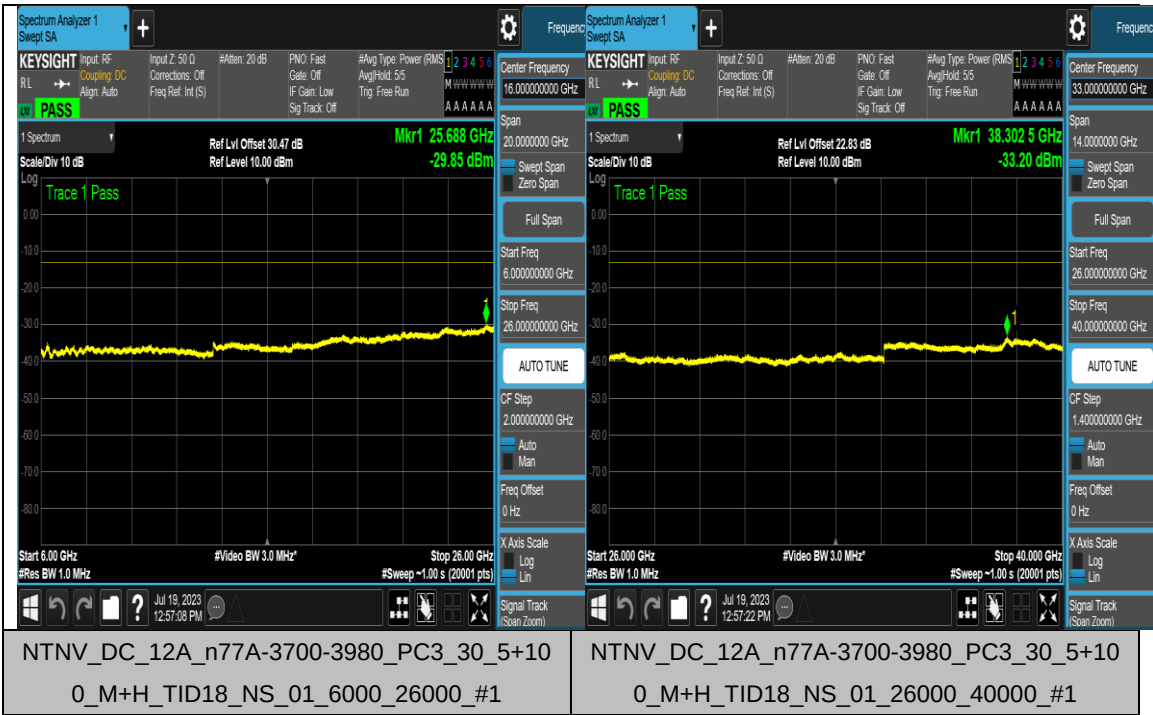












Appendix F: Frequency Stability for NSA

Test Result

Frequency Error VS. Voltage

Voltage										
Band	SCS	Bandwidth	Modulation	Channel	RB Config	Voltage	Temperature	Deviation(Hz)	Deviation (ppm)	Verdict
DC_12A_n77A-3 700-3980	30	5+100	DFT-QPSK	M+L	Outer_Full	VN	NT	-3.06	0.00	PASS
DC_12A_n77A-3 700-3980	30	5+100	CP-QPSK	M+L	Outer_Full	VN	NT	-14.69	0.00	PASS
DC_12A_n77A-3 700-3980	30	5+100	DFT-QPSK	M+M	Outer_Full	VN	NT	-5.22	0.00	PASS
DC_12A_n77A-3 700-3980	30	5+100	CP-QPSK	M+M	Outer_Full	VN	NT	-9.99	0.00	PASS
DC_12A_n77A-3 700-3980	30	5+100	DFT-QPSK	M+H	Outer_Full	VN	NT	-10.27	0.00	PASS
DC_12A_n77A-3 700-3980	30	5+100	CP-QPSK	M+H	Outer_Full	VN	NT	-4.08	0.00	PASS

Frequency Error VS. Temperature

Voltage										
Band	SCS	Bandwidth	Modulation	Channel	RB Config	Voltage	Temperature	Deviation(Hz)	Deviation (ppm)	Verdict
DC_12A_n77A-3 700-3980	30	5+100	DFT-QPSK	M+L	Outer_Full	NV	TN	-9.523200	-0.002540	PASS
DC_12A_n77A-3 700-3980	30	5+100	CP-QPSK	M+L	Outer_Full	NV	TN	-4.154991	-0.001108	PASS
DC_12A_n77A-3 700-3980	30	5+100	DFT-QPSK	M+M	Outer_Full	NV	TN	3.967520	0.001033	PASS
DC_12A_n77A-3 700-3980	30	5+100	CP-QPSK	M+M	Outer_Full	NV	TN	-3.195944	-0.000832	PASS

_n77A-3 700-3980										
DC_12A _n77A-3 700-3980	30	5+100	DFT-QPSK	M+H	Outer_Full	NV	TN	2.620751	0.000667	PASS
DC_12A _n77A-3 700-3980	30	5+100	CP-QPSK	M+H	Outer_Full	NV	TN	0.545378	0.000139	PASS

Appendix F: Modulation characteristics for NSA

Test Result

Band	SCS	Bandwidth	Modulation	Channel	RB Config	Result	Verdict
DC_12A_n77A-3700-3980	30	5+100	DFT-QPSK	M+L	Outer_Full	see graph	PASS
DC_12A_n77A-3700-3980	30	5+100	CP-QPSK	M+L	Outer_Full	see graph	PASS
DC_12A_n77A-3700-3980	30	5+100	DFT-QPSK	M+M	Outer_Full	see graph	PASS
DC_12A_n77A-3700-3980	30	5+100	CP-QPSK	M+M	Outer_Full	see graph	PASS
DC_12A_n77A-3700-3980	30	5+100	DFT-QPSK	M+H	Outer_Full	see graph	PASS
DC_12A_n77A-3700-3980	30	5+100	CP-QPSK	M+H	Outer_Full	see graph	PASS

Test Graphs



Transceiver A

5GNR Cell L1 (PCC/TDD)
Modulation Analysis

KEYSIGHT

Input: RFIO1
Output: RFIO1
Coupling: AC

Corr: CCorr

Range: -50 dBm

Trig: Prof Frame
Aligned

Carrier Ref Freq: 3.750000000 GHz
CC Info: Uplink, 1 CC, SISO

1 CCB-BWP1
IQ Meas Time

2 CCB-BWP1
Detected Allocations

3 CCB
Spectrum

4 CCB
Raw Main Time

5 CCB Frame Summary

6 CCB Error Summary

ScaleDiv 320 subcarriers
Ref Value 0 subcarriers

ScaleDiv 10.00 dB
Ref Value 10.00 dBm

ScaleDiv 10.00 dB
Ref Value 0.00 dBm

ScaleDiv 10.00 dB
Ref Value 10.00 dBm

ScaleDiv 10.00 dB
Ref Value 0.00 dBm

ScaleDiv 10.00 dB
Ref Value 10.00 dBm

μ = 1: 30 kHz

μ = 1: 30 kHz

μ = 1: 30 kHz

μ = 1: 30 kHz

μ = 1: 30 kHz

μ = 1: 30 kHz

EVM

Power per RE

Num RB

Channel Power

Spectral Flatness

Channel Power (Active)

Widest Fail Margin

EVM

at Slot

EVM Peak

at Subcarrier

Frequency Error

Ripple R1

Symbol Clock Error

Ripple R2

3.76 %

-34.26 dBm

273

-12.01 dBm

-12.01 dBm

3.76 %

at Slot

14.39 %

at Subcarrier

-8.63 Hz

Ripple R1

-0.010 ppm

Ripple R2

Subframe 1

Subframe 2

Jul 19, 2023
3:11:29 PM

NTNV,DC_12A_n77A-3700-3980,_PC3,_30,5+10
0,M+L,TID6,#1

Transceiver A

5GNR Cell L1 (PCC/TDD)
Modulation Analysis

KEYSIGHT

Input: RFIO1
Output: RFIO1
Coupling: AC

Corr: CCorr

Range: -50 dBm

Trig: Prof Frame
Aligned

Carrier Ref Freq: 3.840000000 GHz
CC Info: Uplink, 1 CC, SISO

1 CCB-BWP1
IQ Meas Time

2 CCB-BWP1
Detected Allocations

3 CCB
Spectrum

4 CCB
Raw Main Time

5 CCB Frame Summary

6 CCB Error Summary

ScaleDiv 320 subcarriers
Ref Value 0 subcarriers

ScaleDiv 10.00 dB
Ref Value 10.00 dBm

ScaleDiv 10.00 dB
Ref Value 0.00 dBm

ScaleDiv 10.00 dB
Ref Value 10.00 dBm

ScaleDiv 10.00 dB
Ref Value 0.00 dBm

ScaleDiv 10.00 dB
Ref Value 10.00 dBm

μ = 1: 30 kHz

μ = 1: 30 kHz

μ = 1: 30 kHz

μ = 1: 30 kHz

μ = 1: 30 kHz

μ = 1: 30 kHz

EVM

Power per RE

Num RB

Channel Power

Spectral Flatness

Channel Power (Active)

Widest Fail Margin

EVM

at Slot

EVM Peak

at Subcarrier

Frequency Error

Ripple R1

Symbol Clock Error

Ripple R2

5.15 %

-34.63 dBm

270

-12.33 dBm

-12.33 dBm

4.87 %

at Slot

16.44 %

at Subcarrier

-17.85 Hz

Ripple R1

-0.022 ppm

Ripple R2

Subframe 1

Subframe 2

Jul 19, 2023
3:12:10 PM

NTNV,DC_12A_n77A-3700-3980,_PC3,_30,5+10
0,M+M,TID2,#1

Transceiver A

5GNR Cell L1 (PCC/TDD)
Modulation Analysis

KEYSIGHT

Input: RFIO1
Output: RFIO1
Coupling: AC

Corr: CCorr

Range: -50 dBm

Trig: Prof Frame
Aligned

Carrier Ref Freq: 3.840000000 GHz
CC Info: Uplink, 1 CC, SISO

1 CCB-BWP1
IQ Meas Time

2 CCB-BWP1
Detected Allocations

3 CCB
Spectrum

4 CCB
Raw Main Time

5 CCB Frame Summary

6 CCB Error Summary

ScaleDiv 320 subcarriers
Ref Value 0 subcarriers

ScaleDiv 10.00 dB
Ref Value 10.00 dBm

ScaleDiv 10.00 dB
Ref Value 0.00 dBm

ScaleDiv 10.00 dB
Ref Value 10.00 dBm

ScaleDiv 10.00 dB
Ref Value 0.00 dBm

ScaleDiv 10.00 dB
Ref Value 10.00 dBm

μ = 1: 30 kHz

μ = 1: 30 kHz

μ = 1: 30 kHz

μ = 1: 30 kHz

μ = 1: 30 kHz

μ = 1: 30 kHz

EVM

Power per RE

Num RB

Channel Power

Spectral Flatness

Channel Power (Active)

Widest Fail Margin

EVM

at Slot

EVM Peak

at Subcarrier

Frequency Error

Ripple R1

Symbol Clock Error

Ripple R2

7.18 %

-34.64 dBm

273

-12.27 dBm

-12.27 dBm

6.90 %

at Slot

29.84 %

at Subcarrier

-10.60 Hz

Ripple R1

0.002 ppm

Ripple R2

Subframe 1

Subframe 2

Jul 19, 2023
3:14:28 PM

NTNV,DC_12A_n77A-3700-3980,_PC3,_30,5+10
0,M+M,TID6,#1

