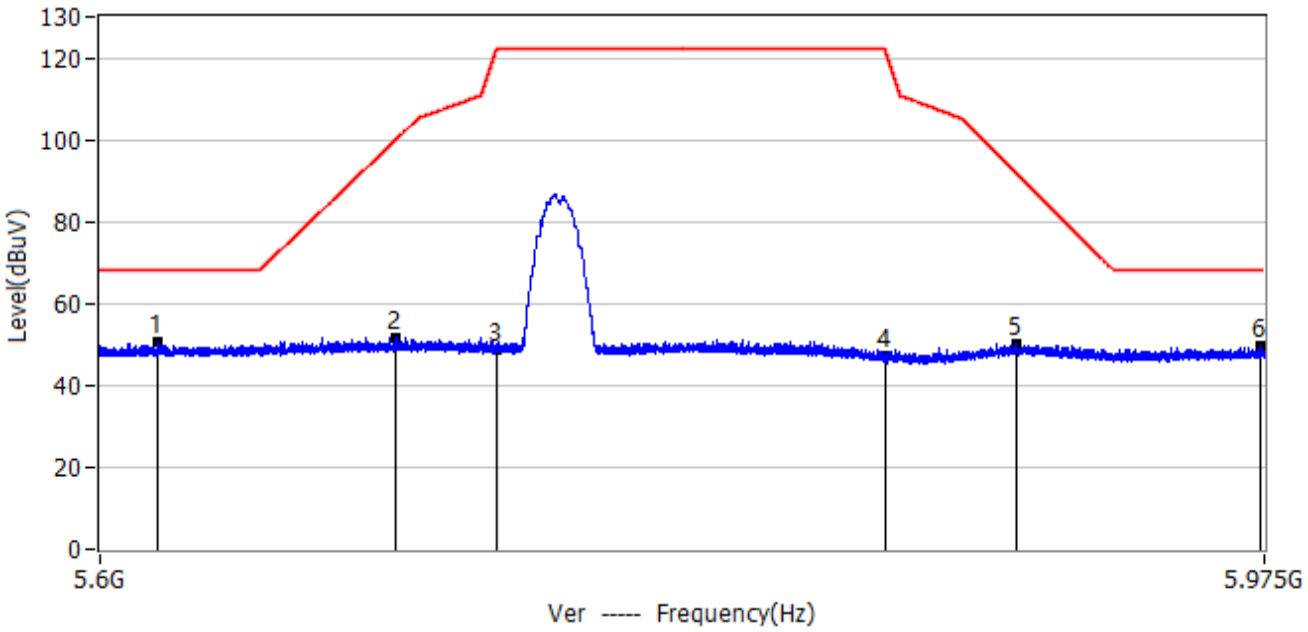
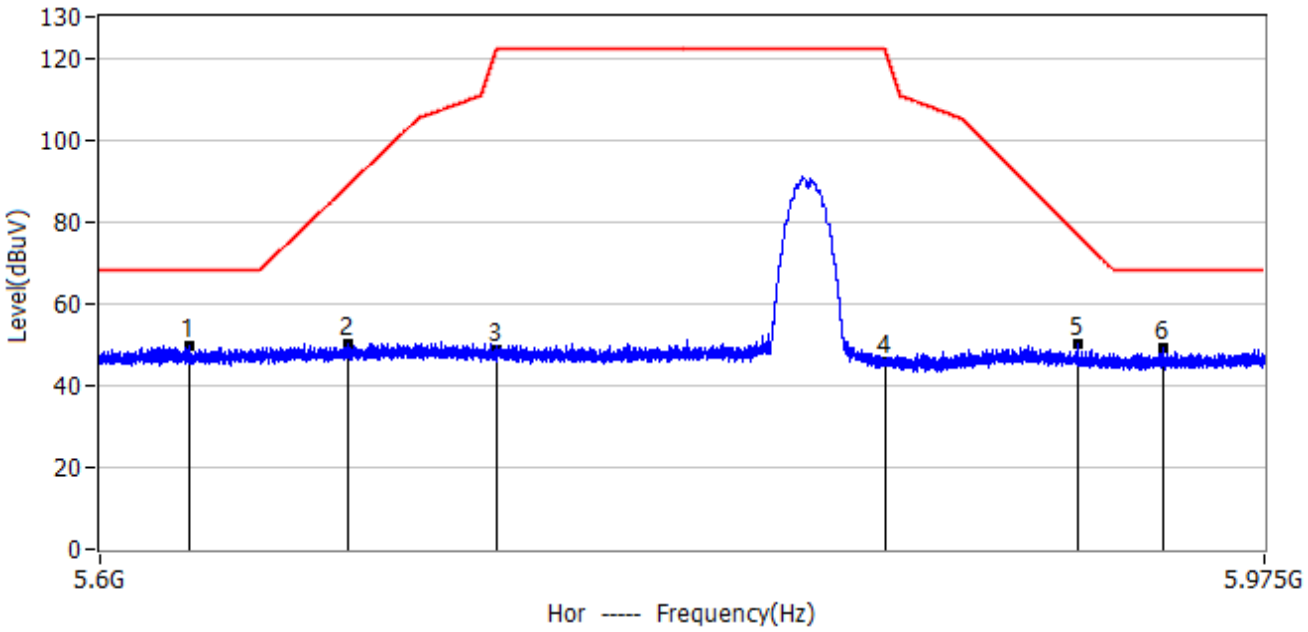
Project: LGT23C033	Test Engineer: Dylan.shi
EUT: AX3000 Wireless Dual-Band WiFi6 Router	Temperature: 24.5℃
M/N: NX30	Humidity: 61%RH
Test Voltage: AC 120V/60Hz	Test Data: 2023-03-29
Test Mode: 802.11a 5745	
Note:	



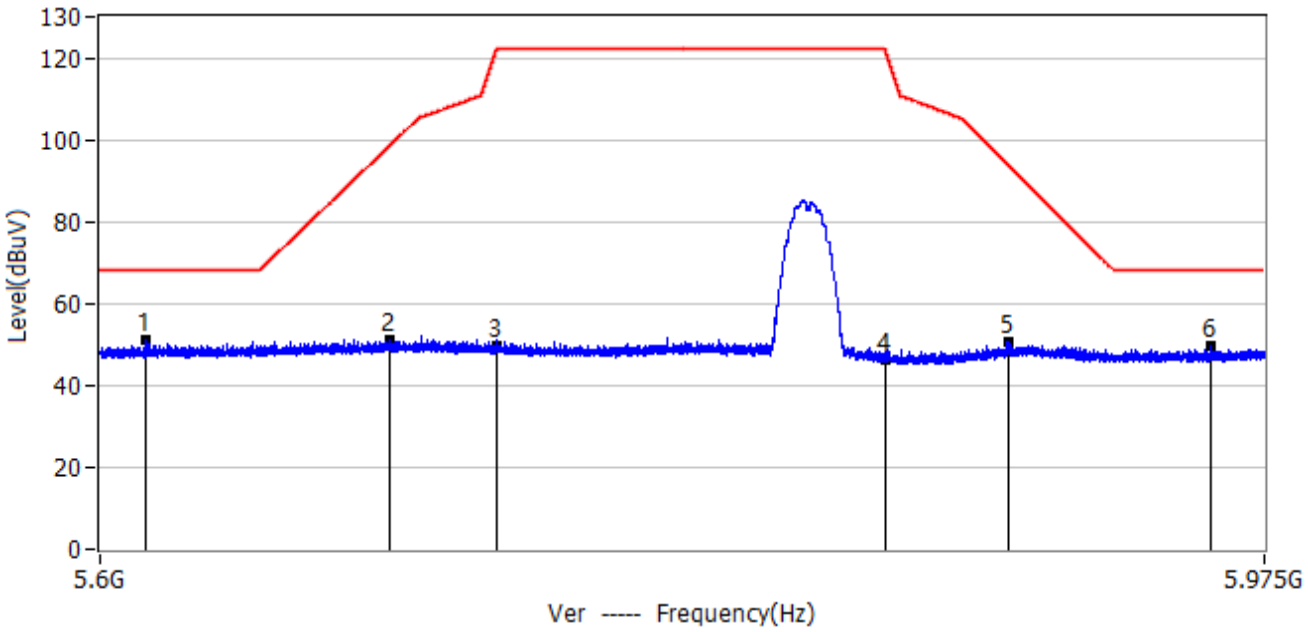
No.	Frequency	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	5.6177GHz	58.39	-7.69	50.70	68.20	-17.50	PK	Ver
2*	5.6930GHz	59.36	-7.66	51.70	100.01	-48.31	PK	Ver
3*	5.7250GHz	56.15	-7.65	48.50	122.20	-73.70	PK	Ver
4*	5.8500GHz	54.60	-7.60	47.00	122.20	-75.20	PK	Ver
5*	5.8931GHz	57.93	-7.58	50.35	91.80	-41.45	PK	Ver
6*	5.9739GHz	57.23	-7.55	49.68	68.20	-18.52	PK	Ver

Project: LGT23C033	Test Engineer: Dylan.shi
EUT: AX3000 Wireless Dual-Band WiFi6 Router	Temperature: 24.5℃
M/N: NX30	Humidity: 61%RH
Test Voltage: AC 120V/60Hz	Test Data: 2023-03-29
Test Mode: 802.11a 5825	
Note:	



No.	Frequency	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	5.6277GHz	57.19	-7.69	49.50	68.20	-18.70	PK	Hor
2*	5.6778GHz	58.00	-7.67	50.33	88.79	-38.45	PK	Hor
3*	5.7250GHz	56.25	-7.65	48.60	122.20	-73.60	PK	Hor
4*	5.8500GHz	53.40	-7.60	45.80	122.20	-76.30	PK	Hor
5*	5.9130GHz	57.59	-7.57	50.02	77.06	-27.05	PK	Hor
6*	5.9416GHz	56.53	-7.56	48.97	68.20	-19.23	PK	Hor

Project: LGT23C033	Test Engineer: Dylan.shi
EUT: AX3000 Wireless Dual-Band WiFi6 Router	Temperature: 24.5℃
M/N: NX30	Humidity: 61%RH
Test Voltage: AC 120V/60Hz	Test Data: 2023-03-29
Test Mode: 802.11a 5825	
Note:	



No.	Frequency	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	5.6145GHz	59.03	-7.69	51.34	68.20	-16.86	PK	Ver
2*	5.6910GHz	58.95	-7.66	51.29	98.59	-47.29	PK	Ver
3*	5.7250GHz	57.25	-7.65	49.60	122.20	-72.60	PK	Ver
4*	5.8500GHz	53.90	-7.60	46.30	122.20	-75.80	PK	Ver
5*	5.8904GHz	58.30	-7.58	50.72	93.74	-43.02	PK	Ver
6*	5.9573GHz	57.27	-7.56	49.71	68.20	-18.49	PK	Ver

4. POWER SPECTRAL DENSITY TEST

4.1 LIMIT

1. For mobile and portable client devices in the 5.15-5.25 GHz band, , the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
2. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
3. For the band 5.725-5.850 GHz, the peak power spectral density shall not exceed 30 dBm in any 500KHz band. If transmitting antenna directional gain is greater than 6 dBi, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

4.2 TEST PROCEDURE

1. The setting follows Method SA-1 of FCC KDB 789033 D02 General U-NII Test Procedures New Rules v02r01.

For devices operating in the band, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (*i.e.,* 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

a) Set RBW ≥ 1/*T*, where *T* is defined in section II.B.l.a).

b) Set VBW ≥ 3 RBW.

c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10 log (500kHz/RBW) to the measured result, whereas RBW (< 500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add 10 log (1MHz/RBW) to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.

e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 kHz for the sections5.c) and 5.d) above, since RBW=100 KHZ is available on nearly all spectrum analyzers.

4.3 DEVIATION FROM STANDARD

No deviation.

4.4 TEST SETUP

4.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

4.6 TEST RESULTS

For the measurement records，refer to the appendix I.

5. BANDWIDTH MEASUREMENT

5.1 EMISSION BANDWIDTH (EBW) 26 BANDWID PROCEDURES / LIMIT

The following procedure shall be used for measuring 26 bandwidth.

5.1.1 TEST PROCEDURE

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > =RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP

5.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.1.5 TEST RESULTS

For the measurement records，refer to the appendix I.

5.2 OCCUPIED BANDWIDTH (99%) TEST APPLIED PROCEDURES / LIMIT

The following procedure shall be used for measuring (99 %) power bandwidth.

5.2.1 TEST PROCEDURE

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures v02r01.
The following procedure shall be used for measuring (99 %) power bandwidth:
1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW ≥ 3 · RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

5.2.2 DEVIATION FROM STANDARD

No deviation.

5.2.3 TEST SETUP

5.2.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.2.5 TEST RESULTS

For the measurement records，refer to the appendix I.

5.3 MINIMUM EMISSION BANDWIDTH(6 DB) PROCEDURES / LIMIT

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.725-5.85 GHz. The following procedure shall be used for measuring this bandwidth.

5.3.1 TEST PROCEDURE

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures v02r01.
a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3 × RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

5.3.2 DEVIATION FROM STANDARD

No deviation.

5.3.3 TEST SETUP

5.3.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.3.5 TEST RESULTS

For the measurement records，refer to the appendix I.

6. MAXIMUM CONDUCTED OUTPUT POWER

6.1 LIMIT

For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz,If transmitting antennas of directional gain greater than 6 dBi are used.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. If transmitting antennas of directional gain greater than 6 dBi are used.

FCC Part15 (15.407) , Subpart E				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.407(a) (1) (iv)	Peak Output Power	0.25 watt	5150-5250	PASS
		The lesser of 250 mW or 11 dBm + 10 log (26 dB emission bandwidth)	5250-5350 5470-5725	
15.407(a) (3)		1 watt	5725-5825	

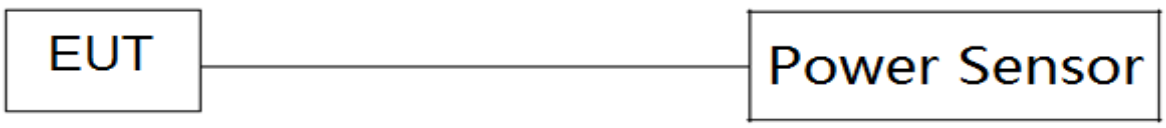
6.2 TEST PROCEDURE

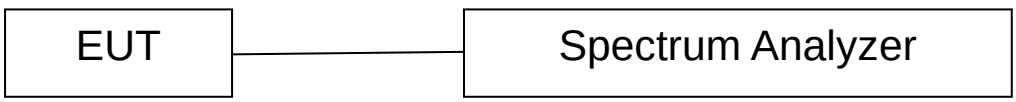
The EUT was directly connected to the Power Sensor&PC

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP





6.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 5 Unless otherwise a special operating condition is specified in the follows during the testing.

6.6 TEST RESULTS

For the measurement records，refer to the appendix I.

7. AUTOMATICALLY DISCONTINUE TRANSMISSION

7.1 LIMIT OF AUTOMATICALLY DISCONTINUE TRANSMISSION

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.

7.2 TEST RESULT OF AUTOMATICALLY DISCONTINUE TRANSMISSION

During no any information transmission, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission

8. ANTENNA REQUIREMENT

8.1 STANDARD REQUIREMENT

Part 15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

8.2 EUT ANTENNA

The EUT antenna is Omni-directional Antenna with RP-SMA connector. It comply with the standard requirement.

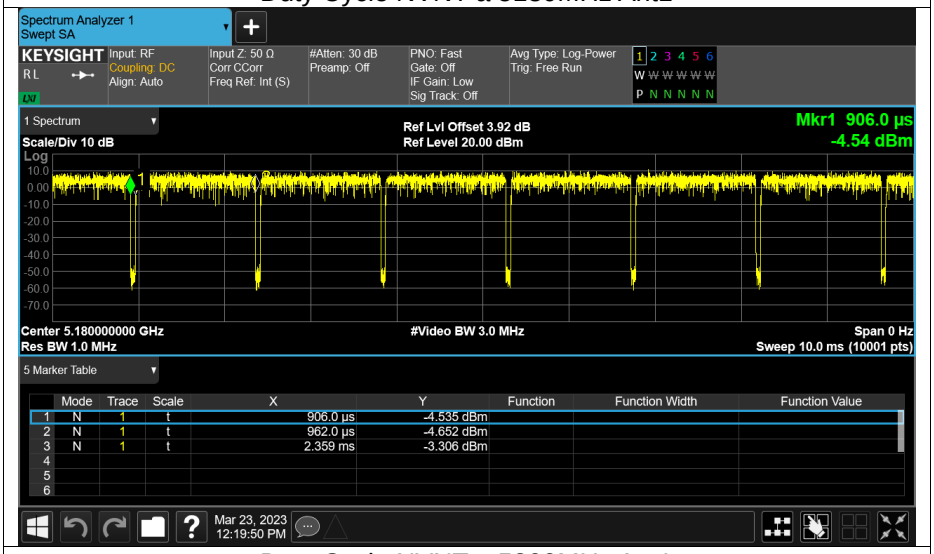
APPENDIX I:TEST RESULTS

Duty Cycle

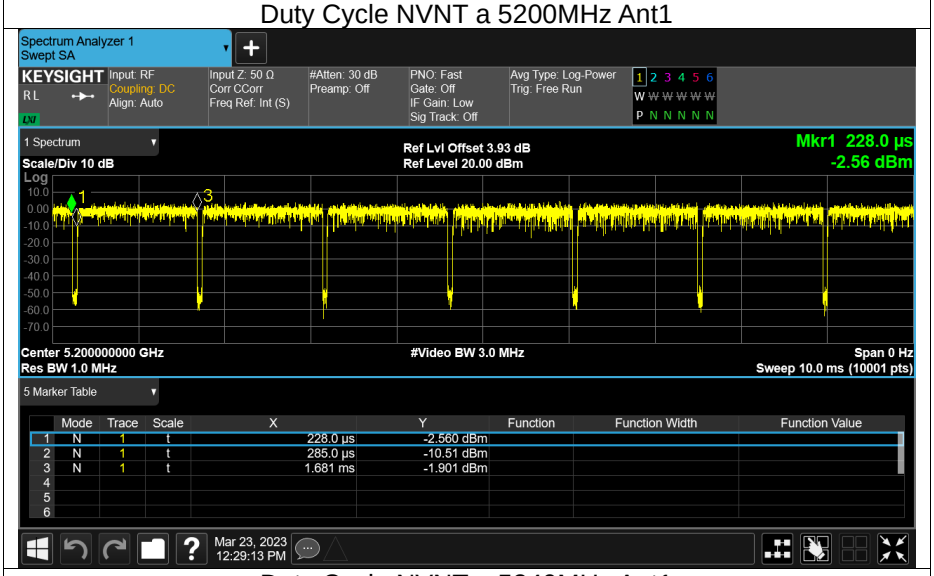
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	a	5180	Ant1	96.15	0.17	0.72
NVNT	a	5200	Ant1	96.08	0.17	0.72
NVNT	a	5240	Ant1	96.08	0.17	0.72
NVNT	a	5745	Ant1	96.15	0.17	0.72
NVNT	a	5785	Ant1	96.15	0.17	0.72
NVNT	a	5825	Ant1	96.15	0.17	0.72
NVNT	a	5180	Ant2	98.01	0	0.36
NVNT	a	5200	Ant2	98.01	0	0.36
NVNT	a	5240	Ant2	98.01	0	0.36
NVNT	a	5745	Ant2	98.01	0	0.36
NVNT	a	5785	Ant2	98.01	0	0.36
NVNT	a	5825	Ant2	98.01	0	0.36
NVNT	a	5180	Ant3	96.15	0.17	0.72
NVNT	a	5200	Ant3	96.15	0.17	0.72
NVNT	a	5240	Ant3	96.15	0.17	0.72
NVNT	a	5745	Ant3	96.15	0.17	0.72
NVNT	a	5785	Ant3	96.15	0.17	0.72
NVNT	a	5825	Ant3	96.15	0.17	0.72
NVNT	n20	5180	Ant1	95.9	0.18	0.76
NVNT	n20	5200	Ant1	95.9	0.18	0.76
NVNT	n20	5240	Ant1	95.9	0.18	0.76
NVNT	n20	5745	Ant1	95.9	0.18	0.76
NVNT	n20	5785	Ant1	95.9	0.18	0.76
NVNT	n20	5825	Ant1	95.9	0.18	0.76
NVNT	n20	5180	Ant2	95.89	0.18	0.77
NVNT	n20	5200	Ant2	95.89	0.18	0.77
NVNT	n20	5240	Ant2	95.89	0.18	0.77
NVNT	n20	5745	Ant2	95.89	0.18	0.77
NVNT	n20	5785	Ant2	95.89	0.18	0.77
NVNT	n20	5825	Ant2	95.89	0.18	0.77
NVNT	n20	5180	Ant3	95.89	0.18	0.77
NVNT	n20	5200	Ant3	95.89	0.18	0.77
NVNT	n20	5240	Ant3	95.89	0.18	0.77
NVNT	n20	5745	Ant3	95.89	0.18	0.77
NVNT	n20	5785	Ant3	95.89	0.18	0.77
NVNT	n20	5825	Ant3	95.89	0.18	0.77
NVNT	n20	5180	Sum	95.85	0.18	0.77
NVNT	n20	5200	Sum	95.85	0.18	0.77
NVNT	n20	5240	Sum	95.85	0.18	0.77
NVNT	n20	5745	Sum	95.85	0.18	0.77
NVNT	n20	5785	Sum	95.85	0.18	0.77
NVNT	n20	5825	Sum	95.85	0.18	0.77
NVNT	n40	5190	Ant1	92.2	0.35	1.54
NVNT	n40	5230	Ant1	92.2	0.35	1.54
NVNT	n40	5755	Ant1	92.06	0.36	1.54
NVNT	n40	5795	Ant1	92.06	0.36	1.54
NVNT	n40	5190	Ant2	92.13	0.36	1.54
NVNT	n40	5230	Ant2	92.13	0.36	1.54
NVNT	n40	5755	Ant2	92.17	0.35	1.54
NVNT	n40	5795	Ant2	92.06	0.36	1.54
NVNT	n40	5190	Ant3	92.05	0.36	1.54
NVNT	n40	5230	Ant3	92.17	0.35	1.54
NVNT	n40	5755	Ant3	92.17	0.35	1.54
NVNT	n40	5795	Ant3	92.17	0.35	1.54
NVNT	n40	5190	Sum	91.96	0.36	1.57

NVNT	n40	5230	Sum	91.96	0.36	1.57
NVNT	n40	5755	Sum	91.97	0.36	1.57
NVNT	n40	5795	Sum	92.06	0.36	1.57
NVNT	ac80	5210	Ant1	72.68	1.39	6.71
NVNT	ac80	5775	Ant1	72.76	1.38	6.72
NVNT	ac80	5210	Ant2	72.73	1.38	6.72
NVNT	ac80	5775	Ant2	72.76	1.38	6.68
NVNT	ac80	5210	Ant3	73.05	1.36	6.68
NVNT	ac80	5775	Ant3	72.66	1.39	6.72
NVNT	ac80	5210	Sum	72.76	1.38	6.72
NVNT	ac80	5775	Sum	72.86	1.38	6.68
NVNT	ac160	5250	Ant1	66.89	1.75	9.9
NVNT	ac160	5250	Ant2	67.55	1.7	9.84
NVNT	ac160	5250	Ant3	83.2	0.8	4.14
NVNT	ac160	5250	Sum	66.89	1.75	9.9
NVNT	ax80	5210	Ant1	92.74	0.33	1.4
NVNT	ax80	5775	Ant1	92.75	0.33	1.4
NVNT	ax80	5210	Ant2	77.13	1.13	5.39
NVNT	ax80	5775	Ant2	77.08	1.13	5.39
NVNT	ax80	5210	Ant3	88.05	0.55	2.42
NVNT	ax80	5775	Ant3	88.05	0.55	2.42
NVNT	ax80	5210	Sum	92.69	0.33	1.4
NVNT	ax80	5775	Sum	92.76	0.33	1.4
NVNT	ax160	5250	Ant1	89.18	0.5	2.43
NVNT	ax160	5250	Ant2	75	1.25	6.72
NVNT	ax160	5250	Ant3	89.27	0.49	2.42
NVNT	ax160	5250	Sum	89.35	0.49	2.42

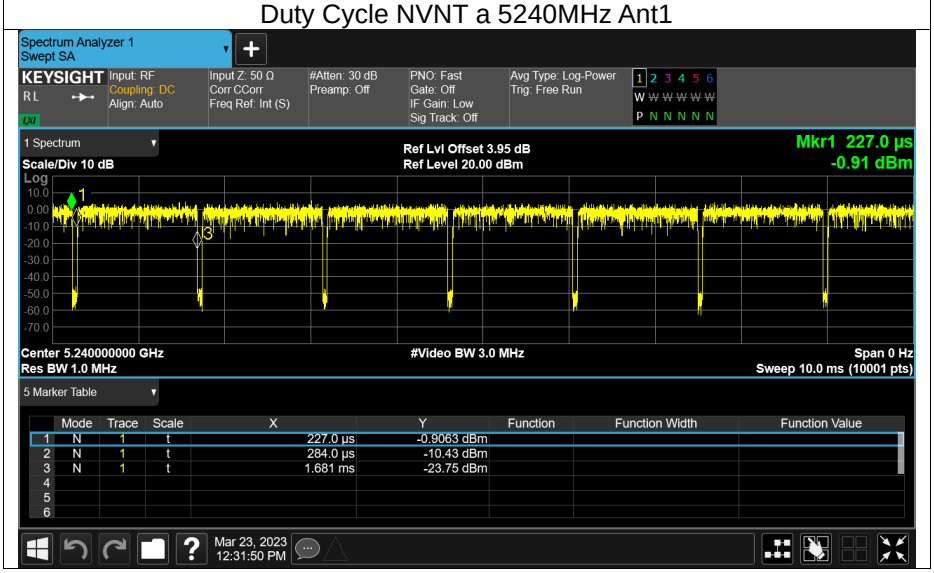
Test Graphs
Duty Cycle NVNT a 5180MHz Ant1



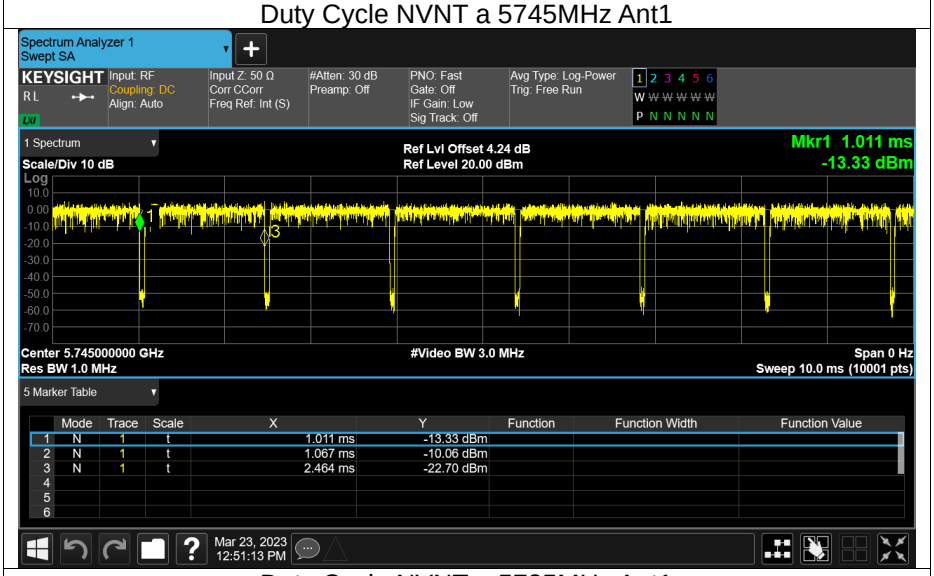
Duty Cycle NVNT a 5200MHz Ant1



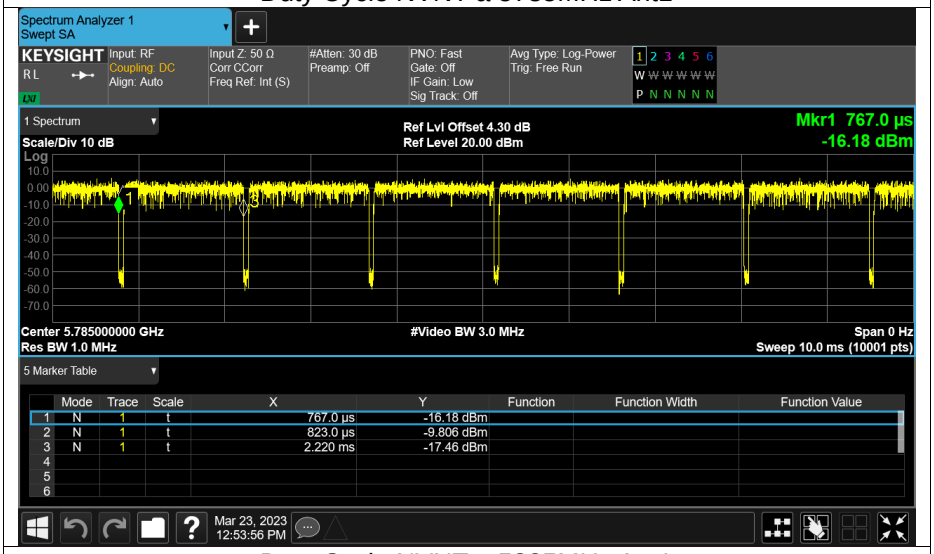
Duty Cycle NVNT a 5240MHz Ant1



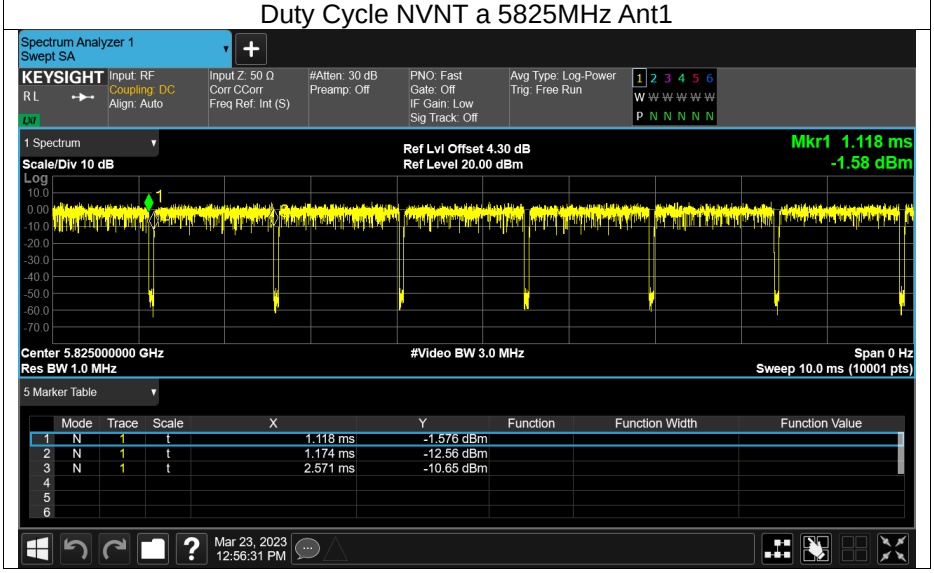
Duty Cycle NVNT a 5745MHz Ant1



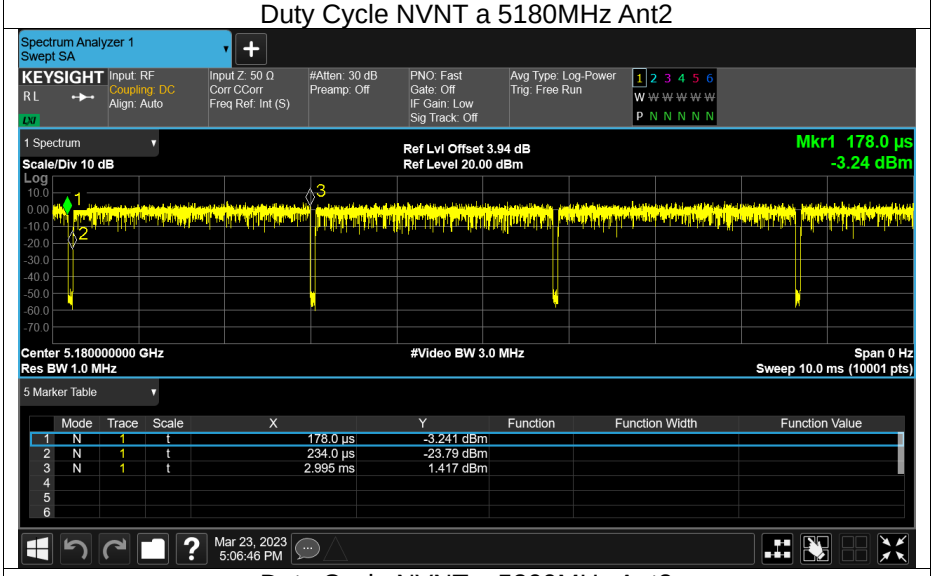
Duty Cycle NVNT a 5785MHz Ant1



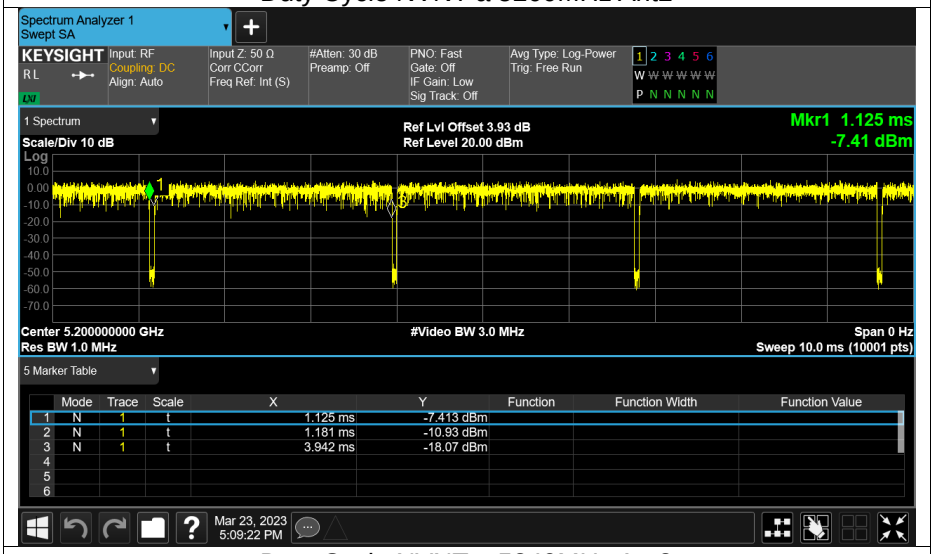
Duty Cycle NVNT a 5825MHz Ant1



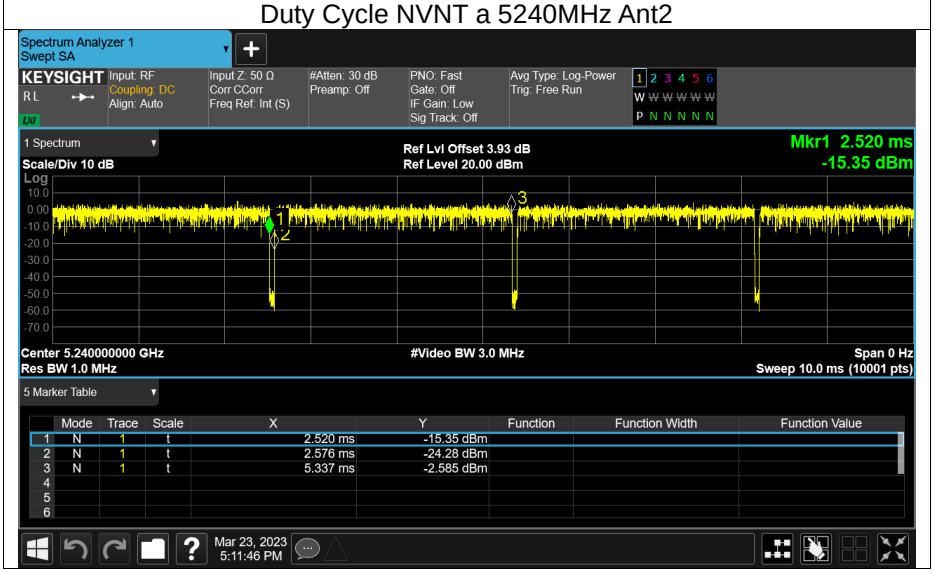
Duty Cycle NVNT a 5180MHz Ant2



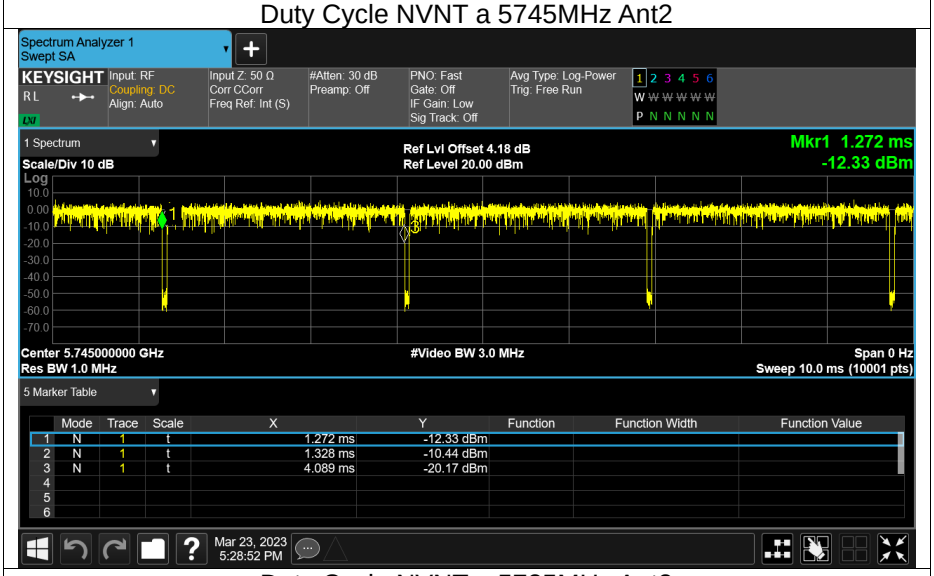
Duty Cycle NVNT a 5200MHz Ant2



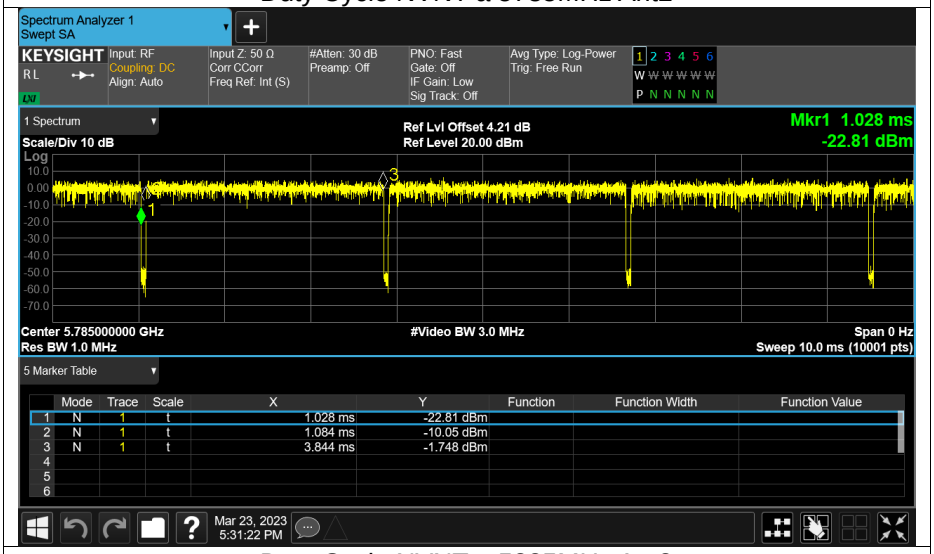
Duty Cycle NVNT a 5240MHz Ant2



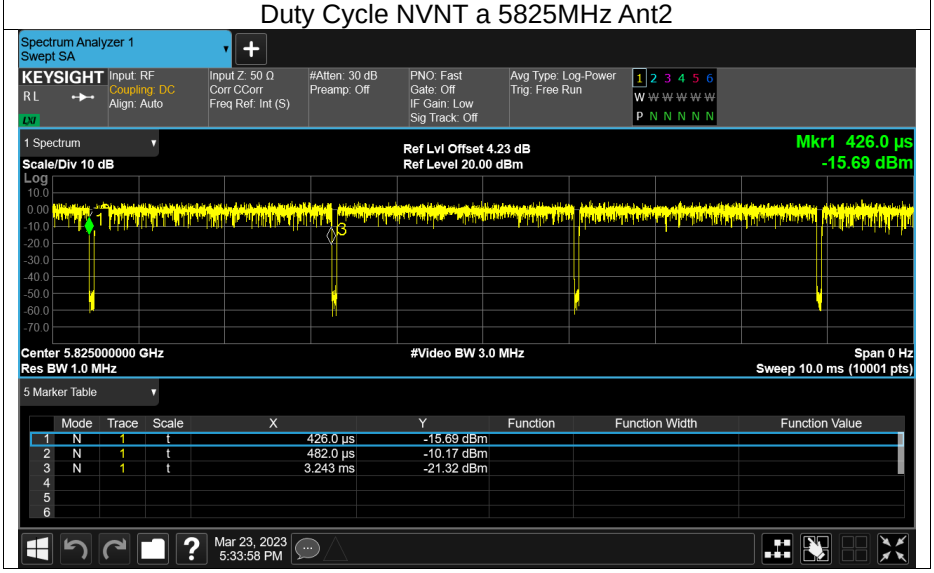
Duty Cycle NVNT a 5745MHz Ant2



Duty Cycle NVNT a 5785MHz Ant2

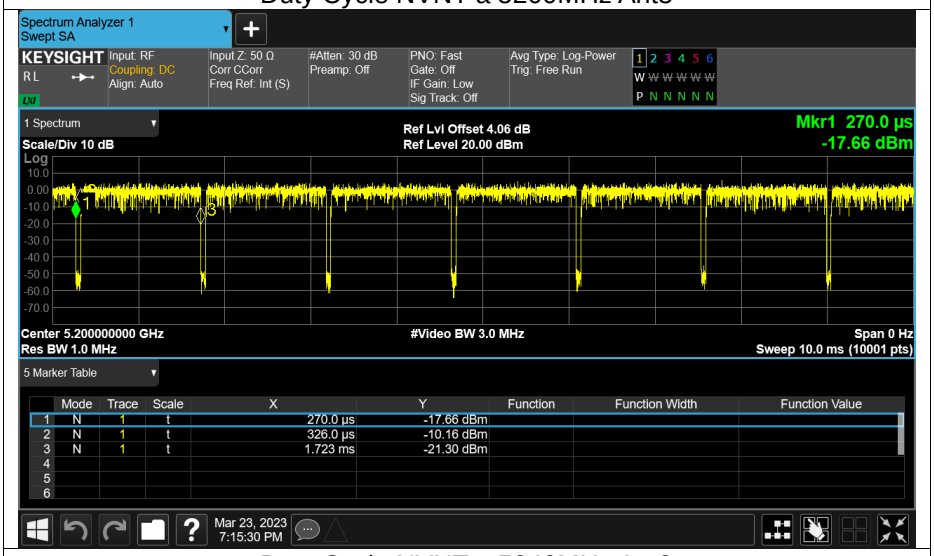


Duty Cycle NVNT a 5825MHz Ant2

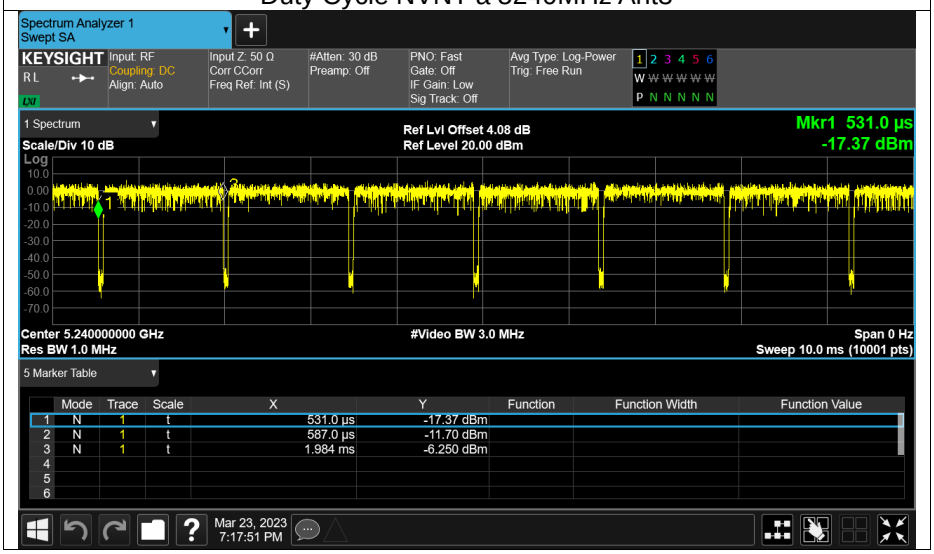


Duty Cycle NVNT a 5180MHz Ant3

Duty Cycle NVNT a 5200MHz Ant3

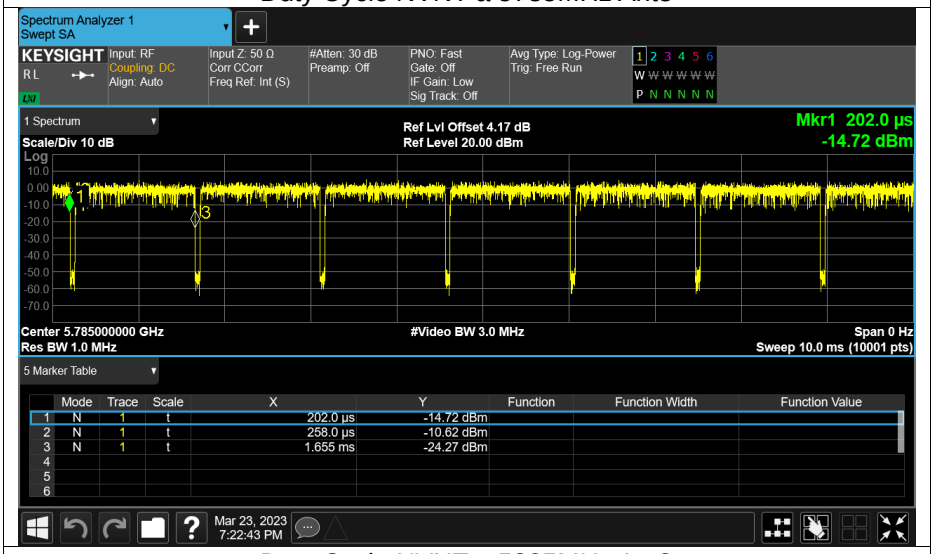


Duty Cycle NVNT a 5240MHz Ant3

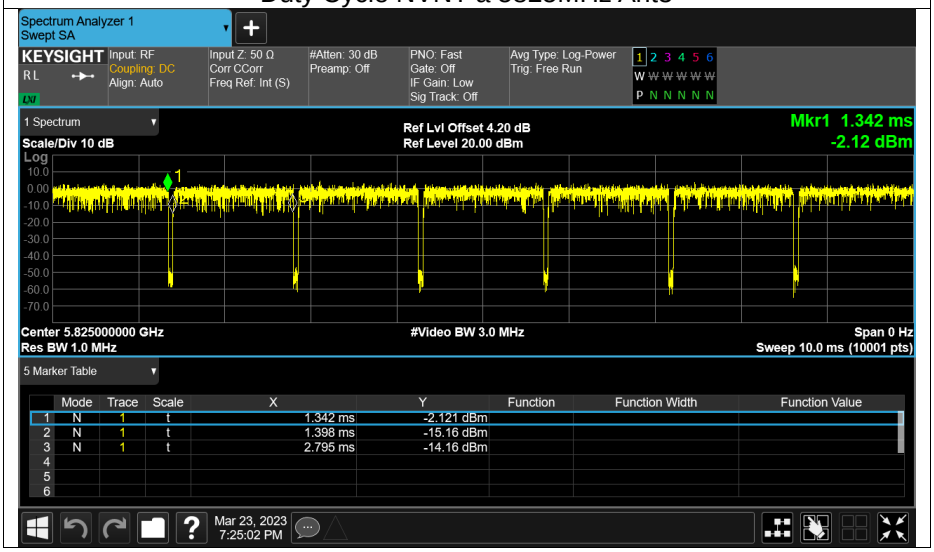


Duty Cycle NVNT a 5745MHz Ant3

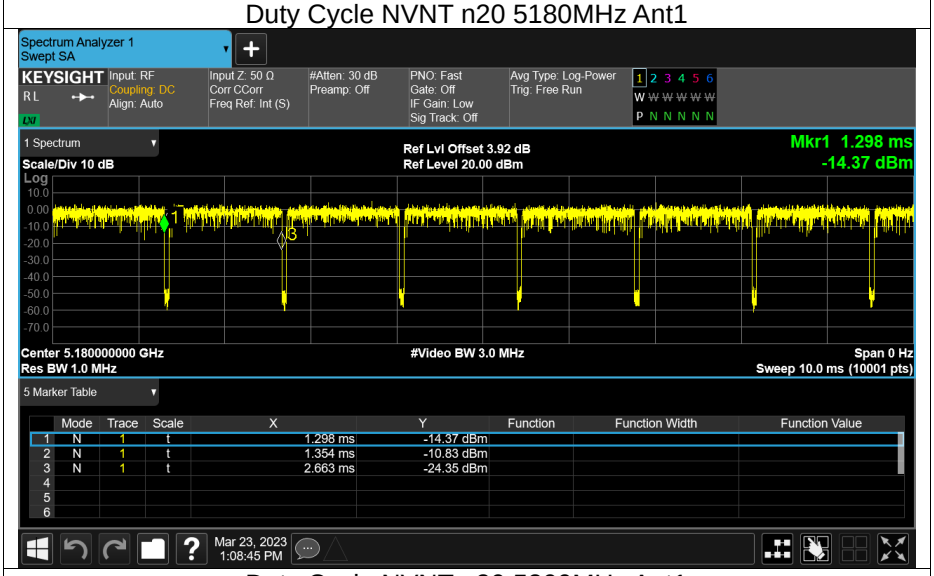
Duty Cycle NVNT a 5785MHz Ant3



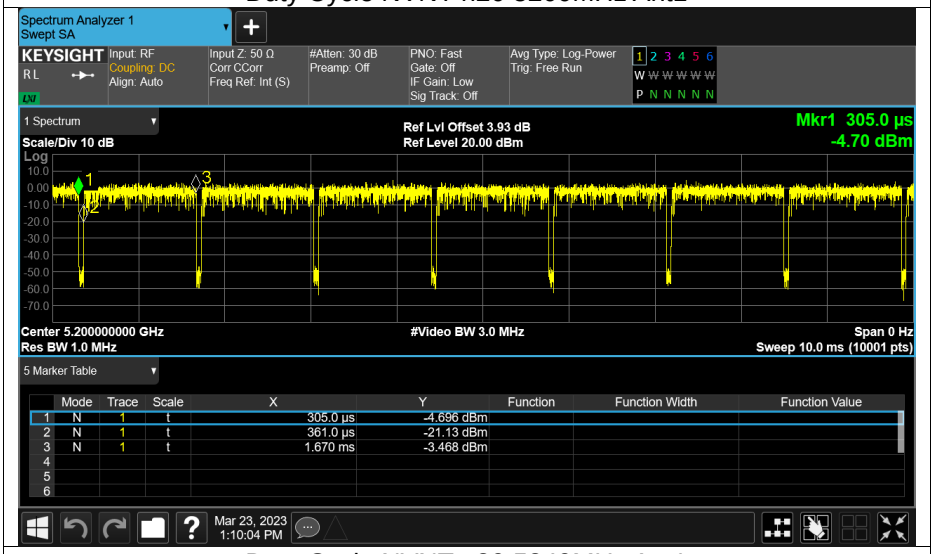
Duty Cycle NVNT a 5825MHz Ant3



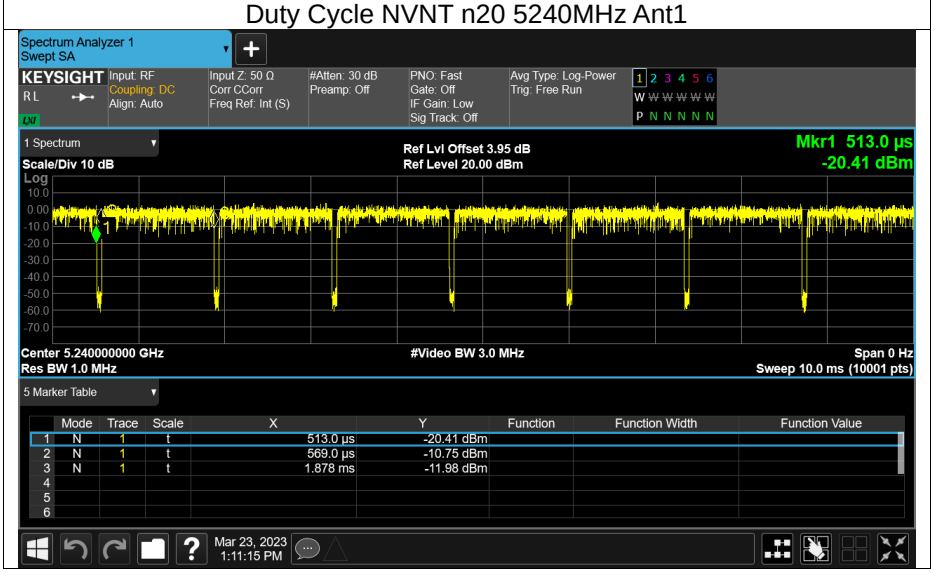
Duty Cycle NVNT n20 5180MHz Ant1



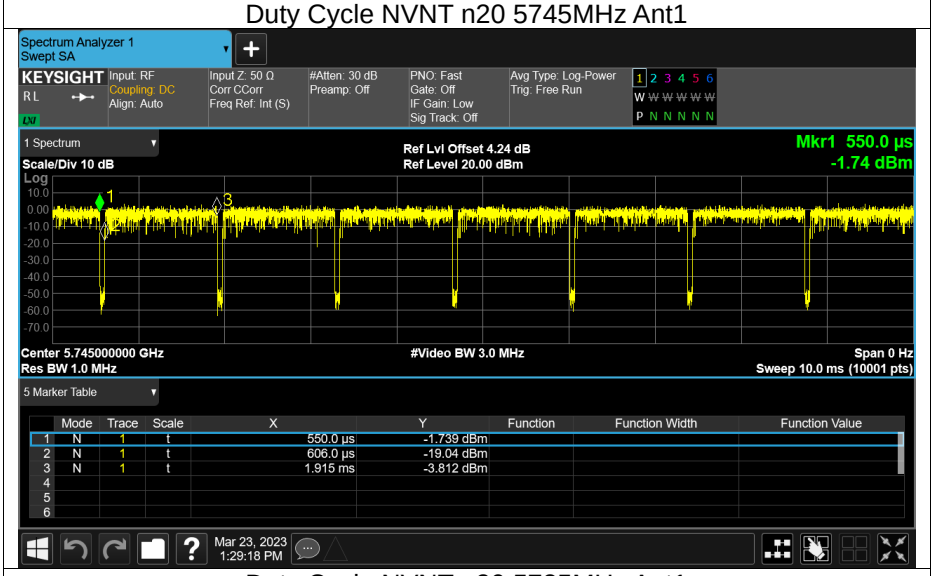
Duty Cycle NVNT n20 5200MHz Ant1



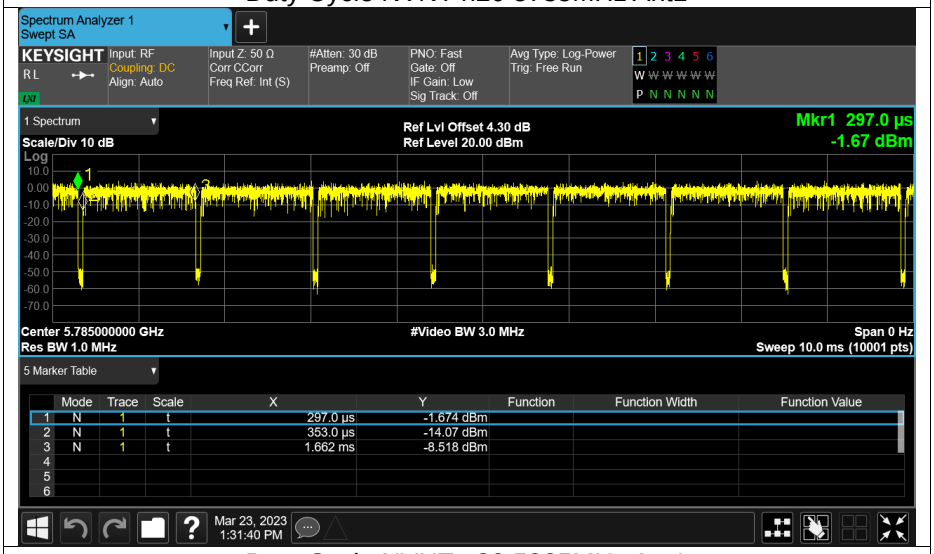
Duty Cycle NVNT n20 5240MHz Ant1



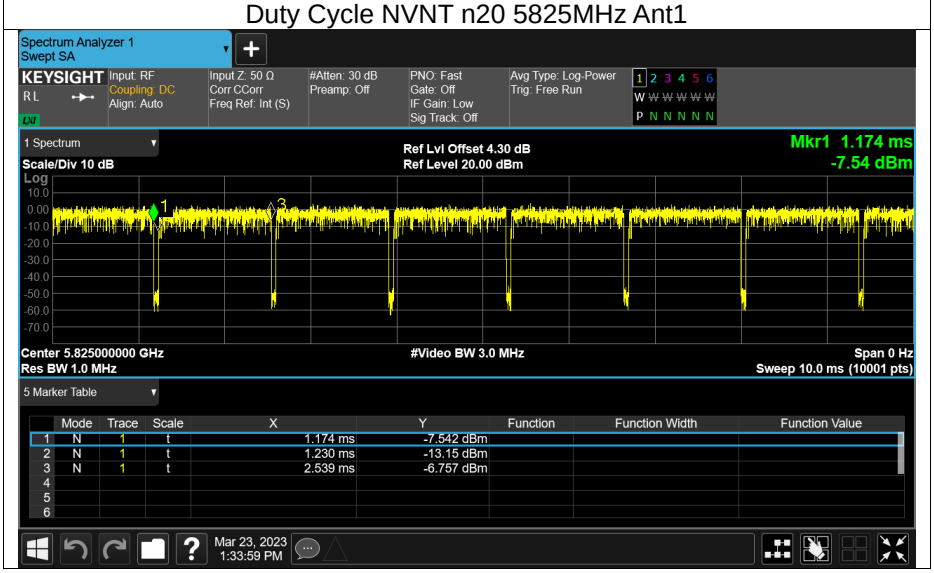
Duty Cycle NVNT n20 5745MHz Ant1



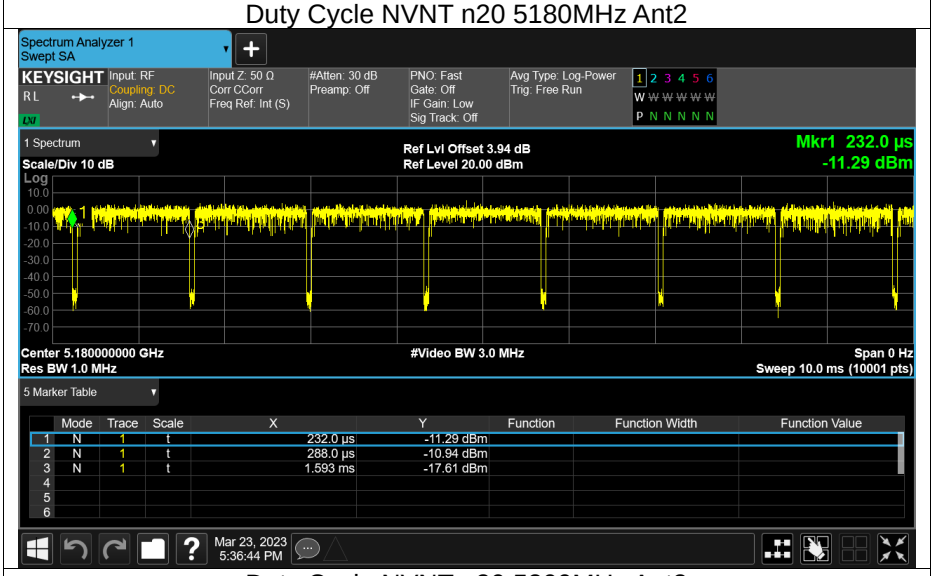
Duty Cycle NVNT n20 5785MHz Ant1



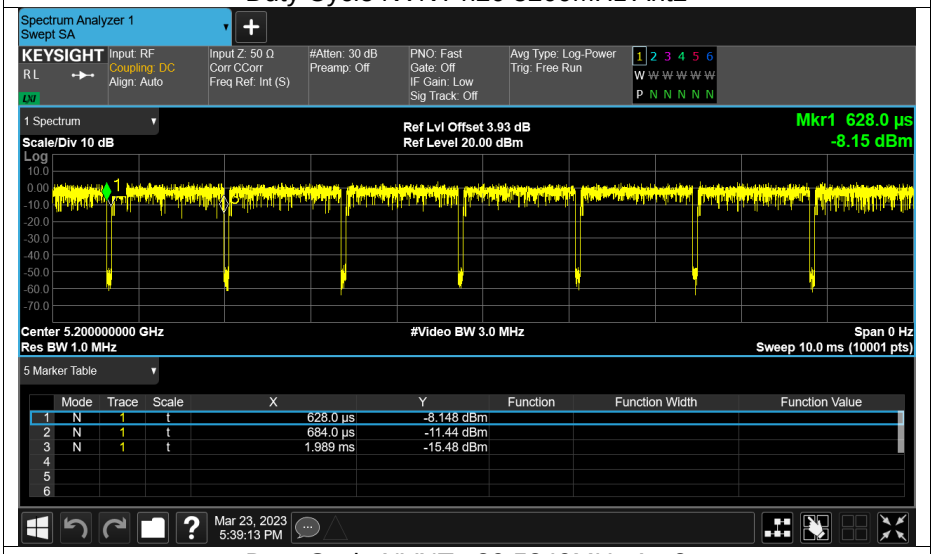
Duty Cycle NVNT n20 5825MHz Ant1



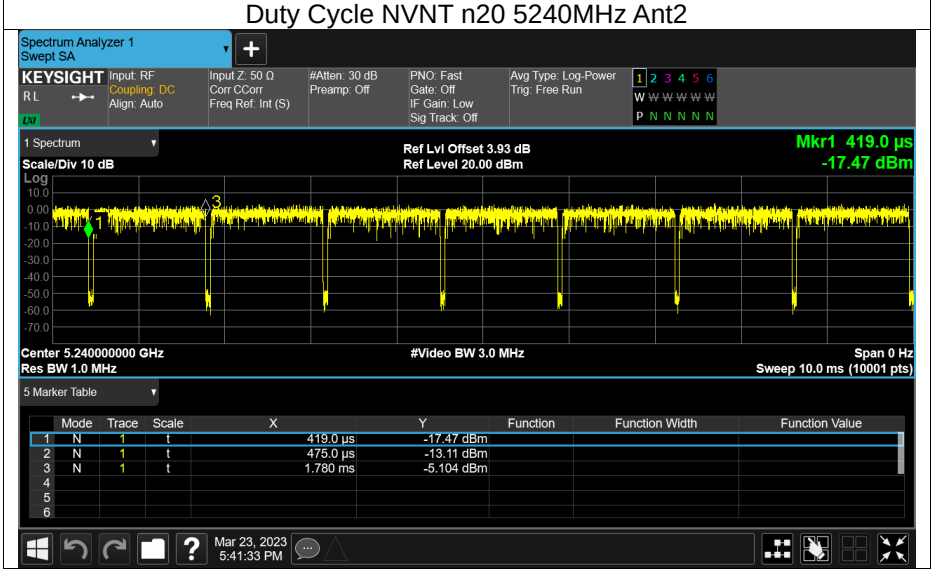
Duty Cycle NVNT n20 5180MHz Ant2



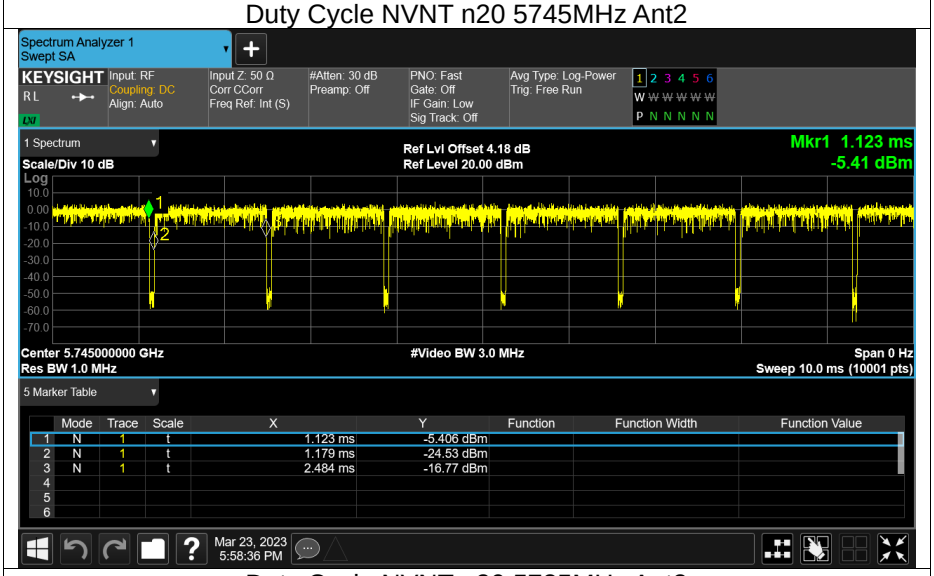
Duty Cycle NVNT n20 5200MHz Ant2



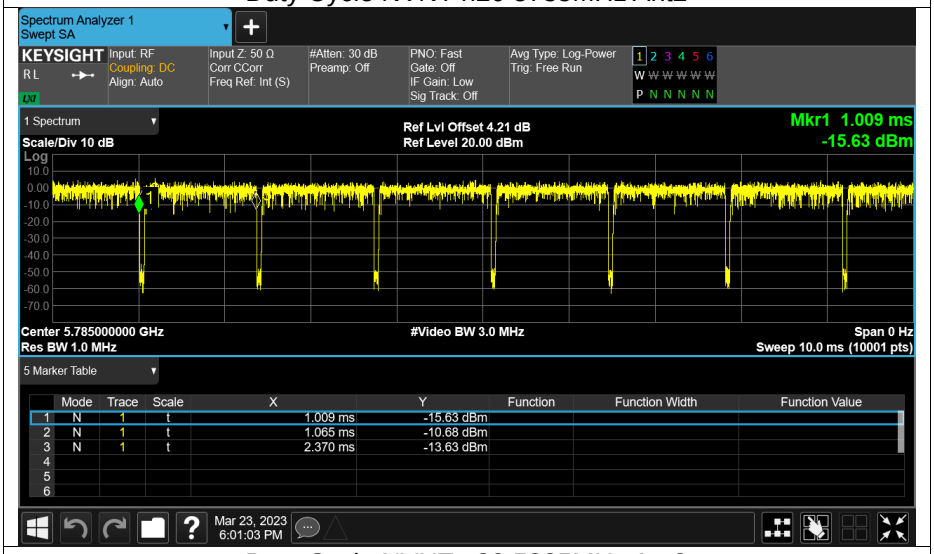
Duty Cycle NVNT n20 5240MHz Ant2



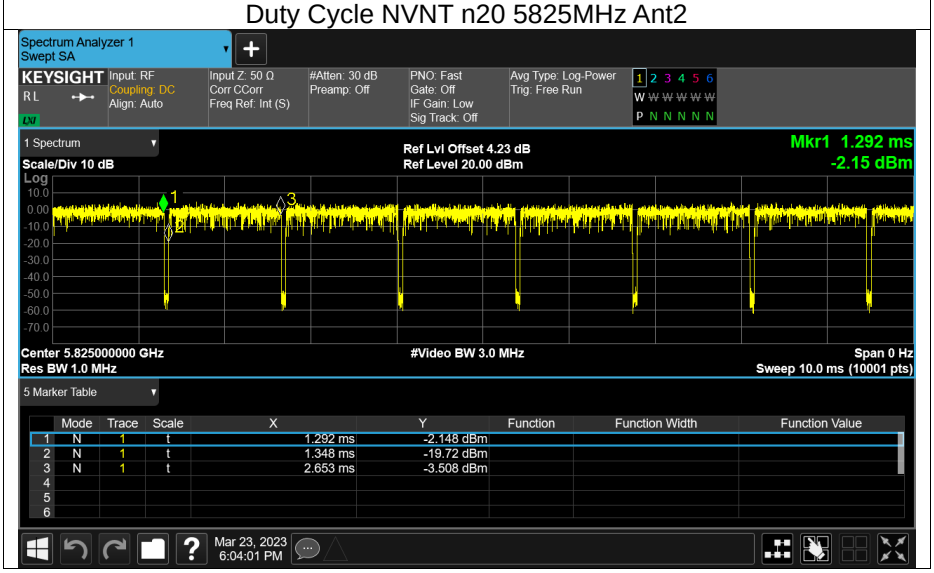
Duty Cycle NVNT n20 5745MHz Ant2



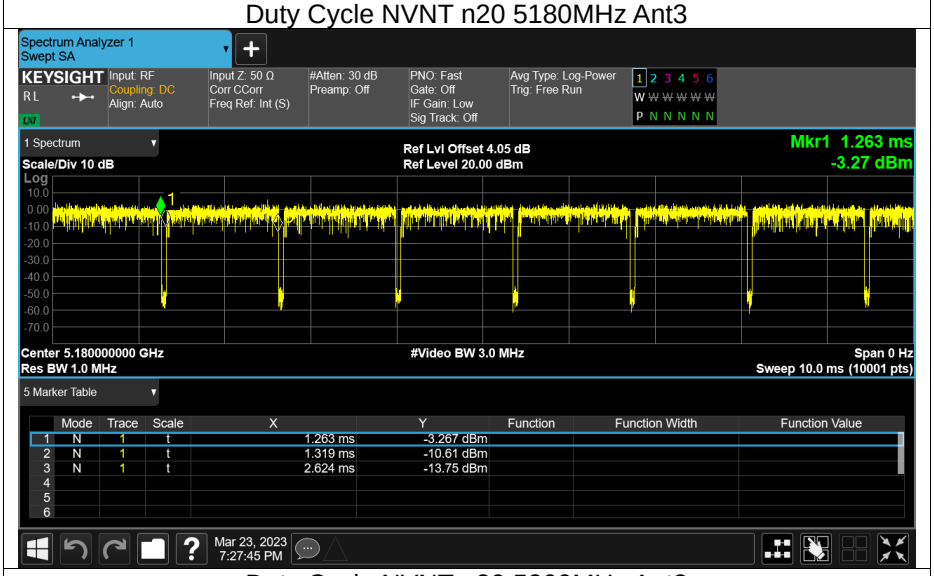
Duty Cycle NVNT n20 5785MHz Ant2



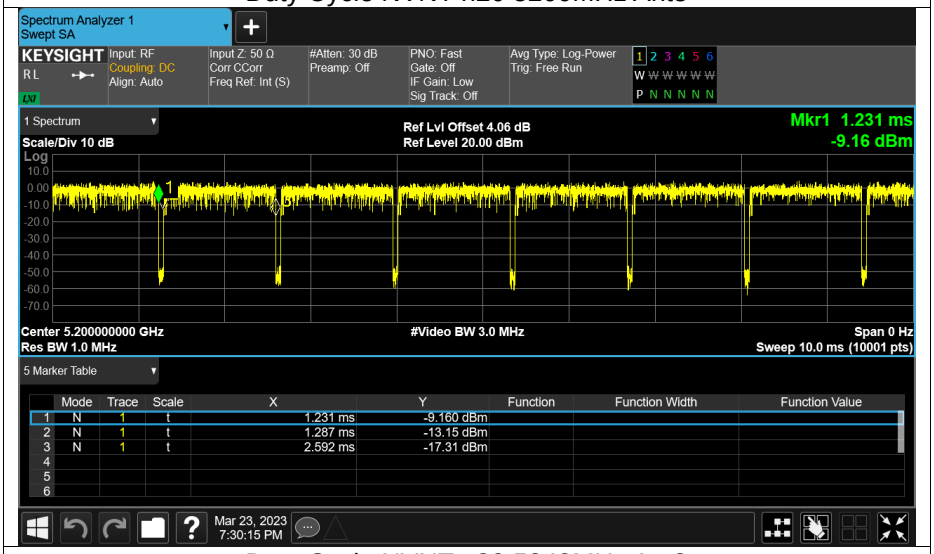
Duty Cycle NVNT n20 5825MHz Ant2



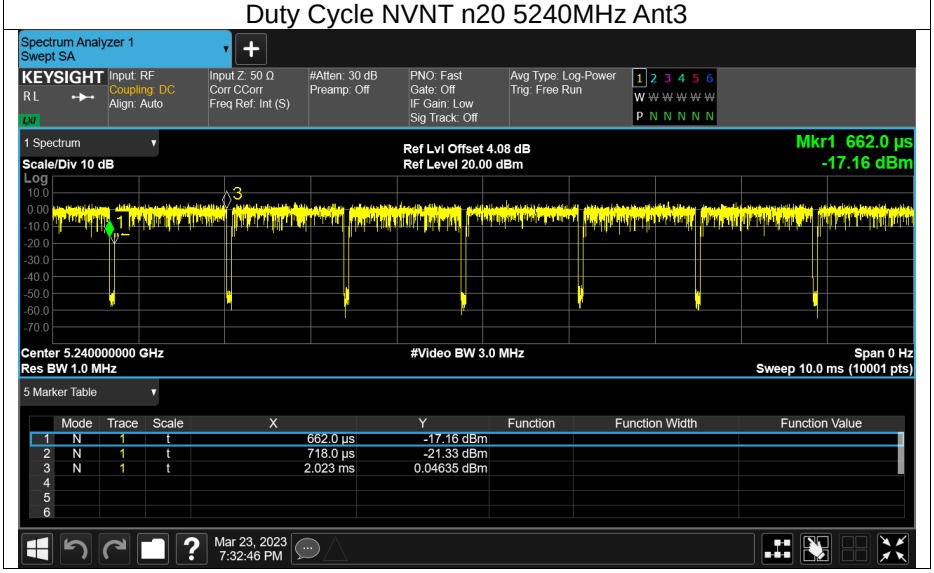
Duty Cycle NVNT n20 5180MHz Ant3



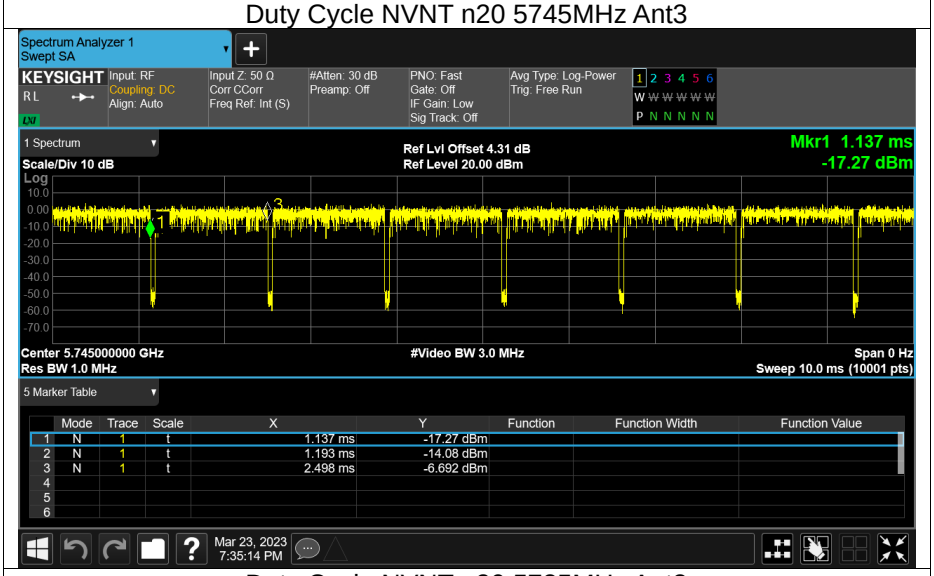
Duty Cycle NVNT n20 5200MHz Ant3



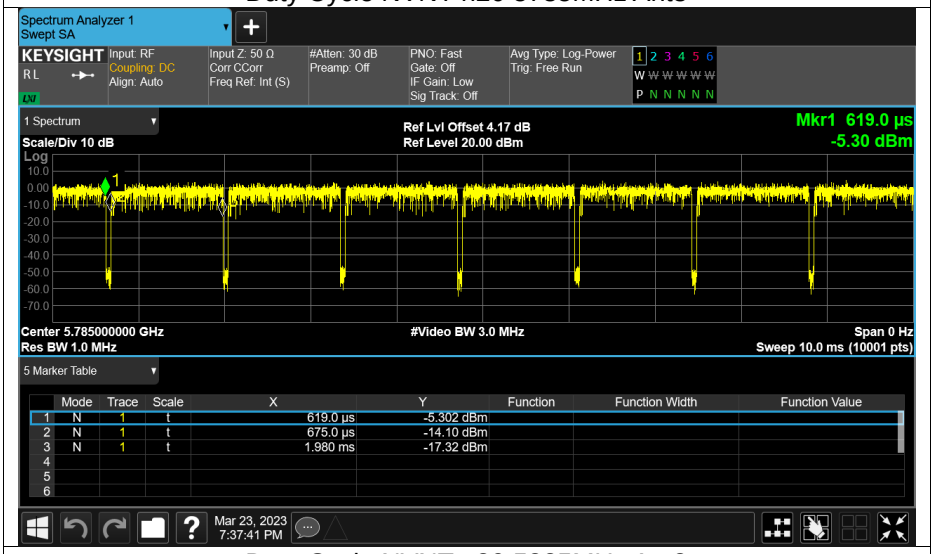
Duty Cycle NVNT n20 5240MHz Ant3



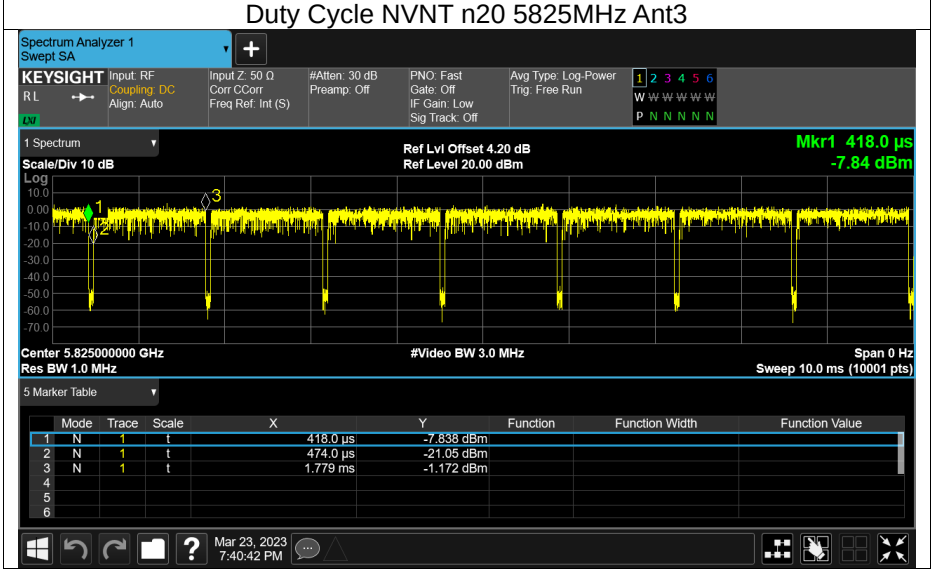
Duty Cycle NVNT n20 5745MHz Ant3



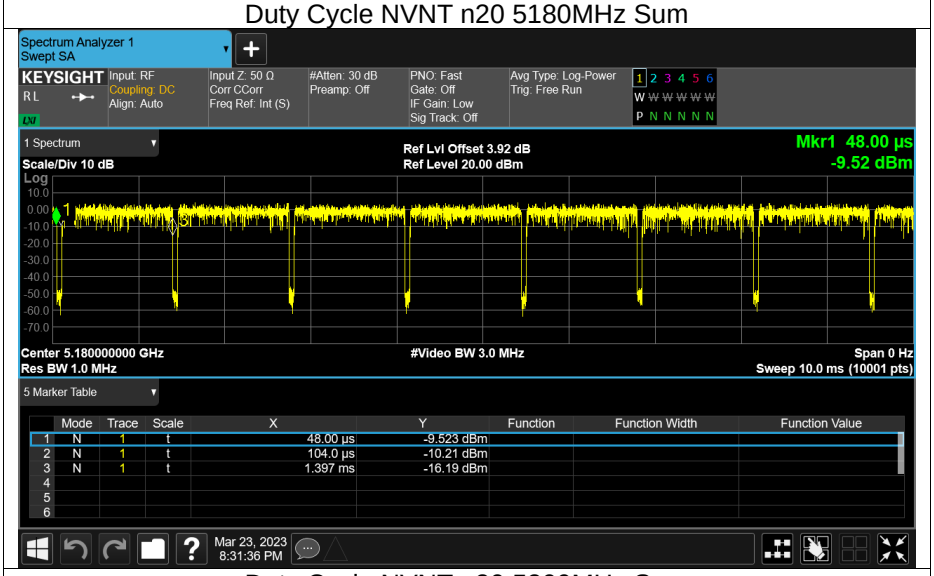
Duty Cycle NVNT n20 5785MHz Ant3



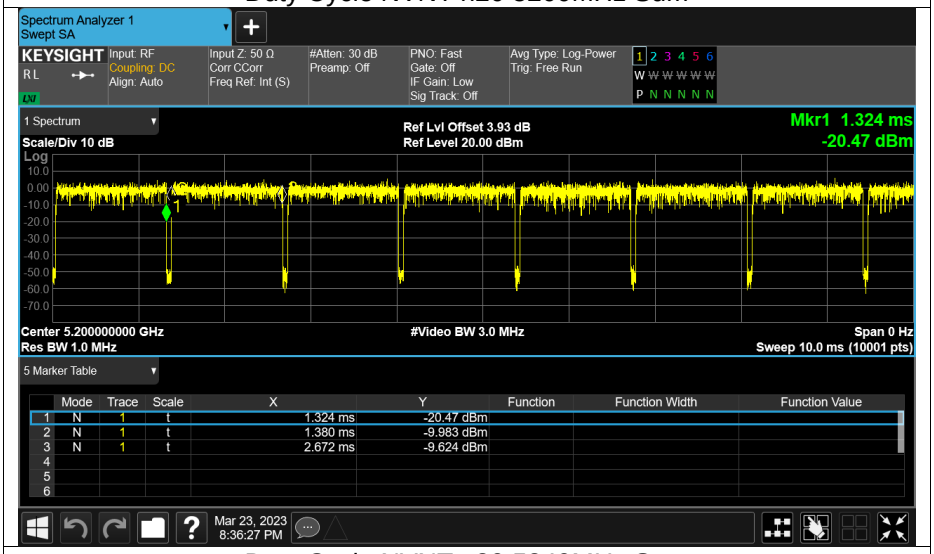
Duty Cycle NVNT n20 5825MHz Ant3



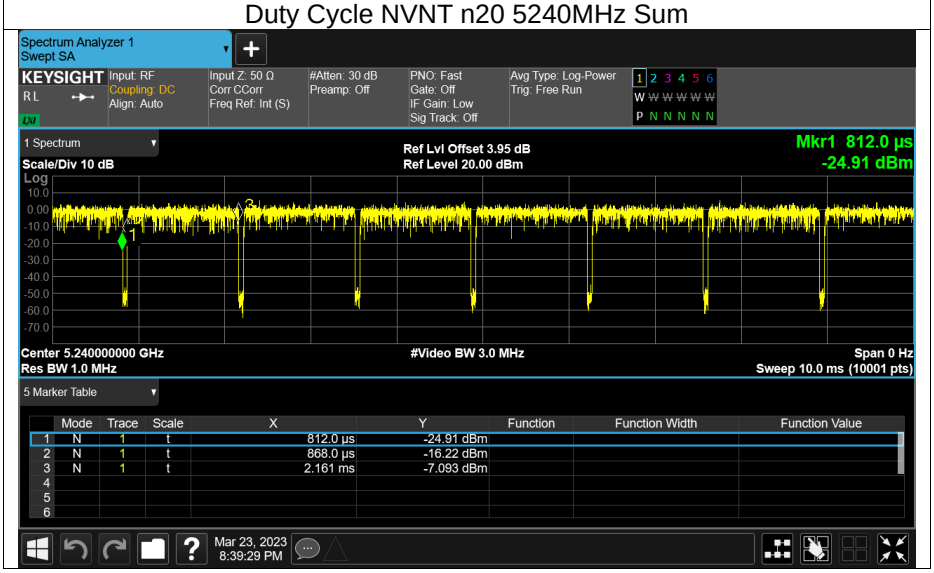
Duty Cycle NVNT n20 5180MHz Sum



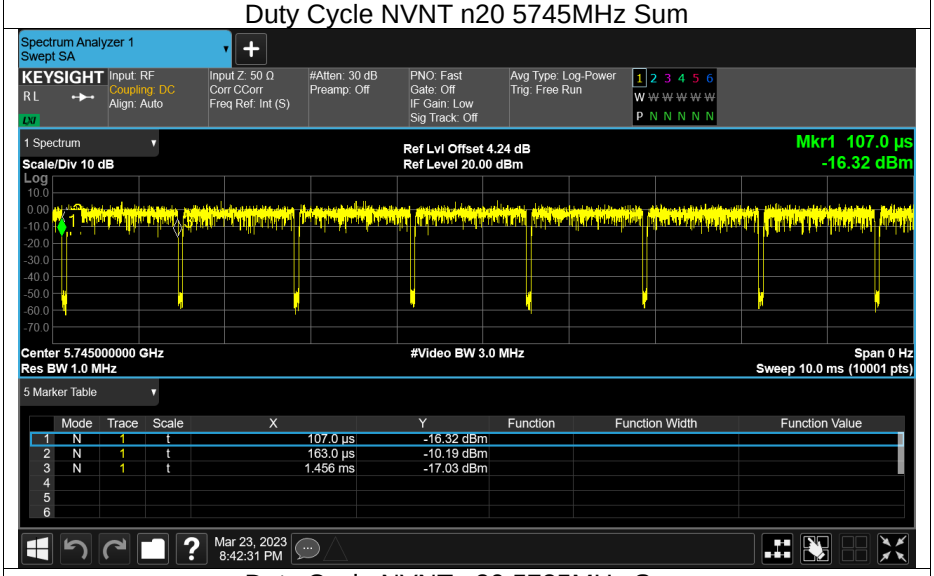
Duty Cycle NVNT n20 5200MHz Sum



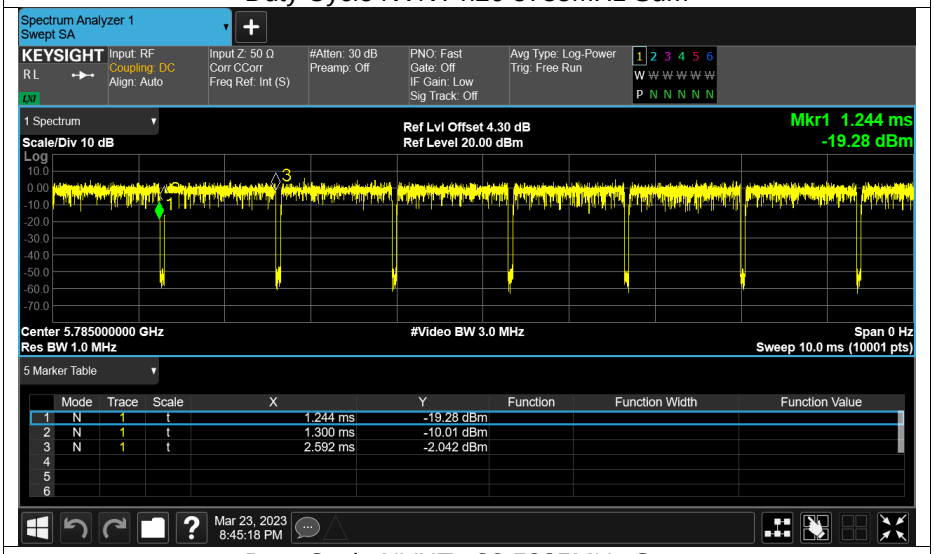
Duty Cycle NVNT n20 5240MHz Sum



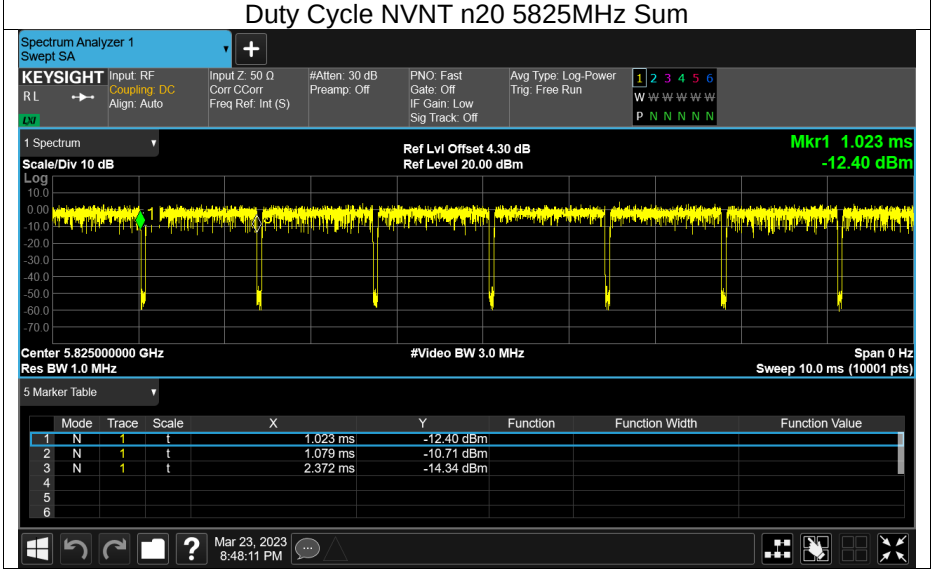
Duty Cycle NVNT n20 5745MHz Sum



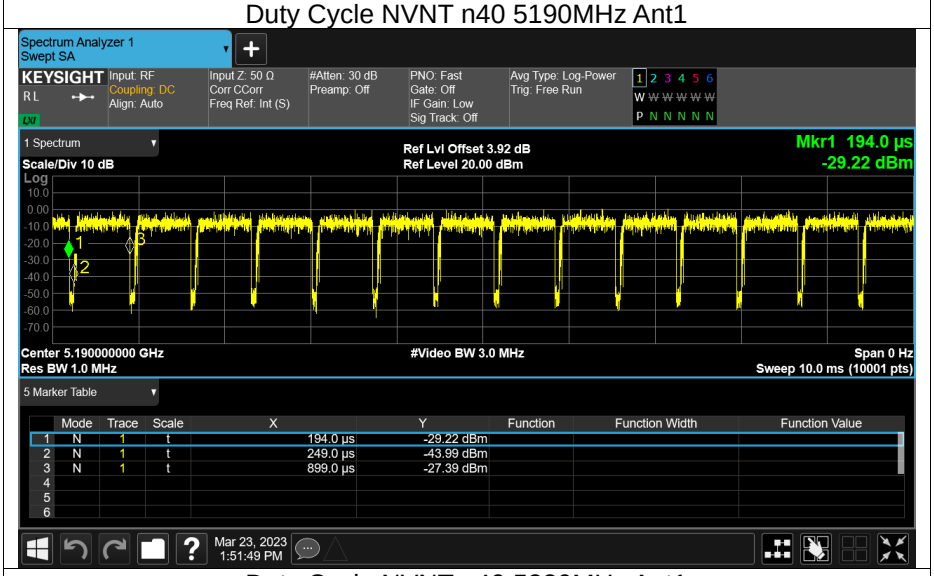
Duty Cycle NVNT n20 5785MHz Sum



Duty Cycle NVNT n20 5825MHz Sum

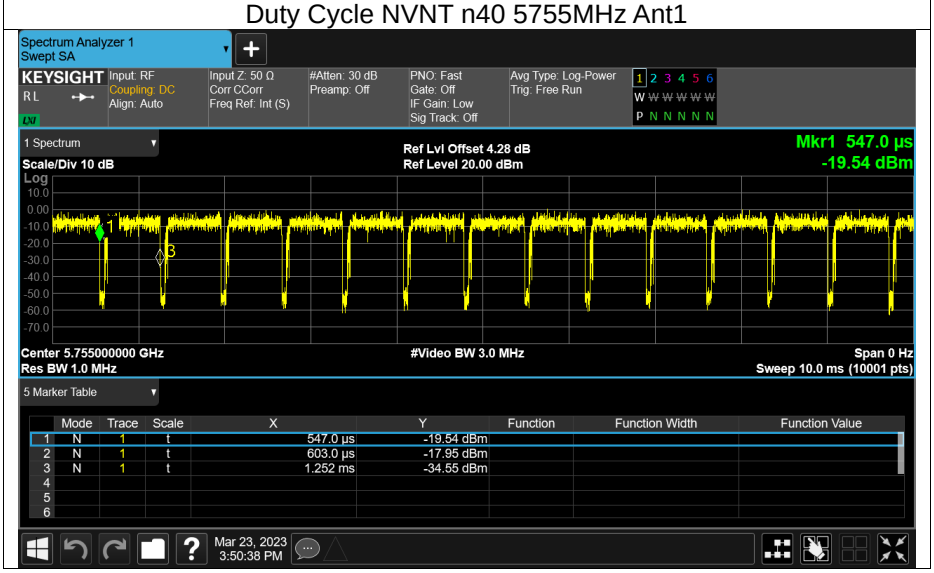


Duty Cycle NVNT n40 5190MHz Ant1

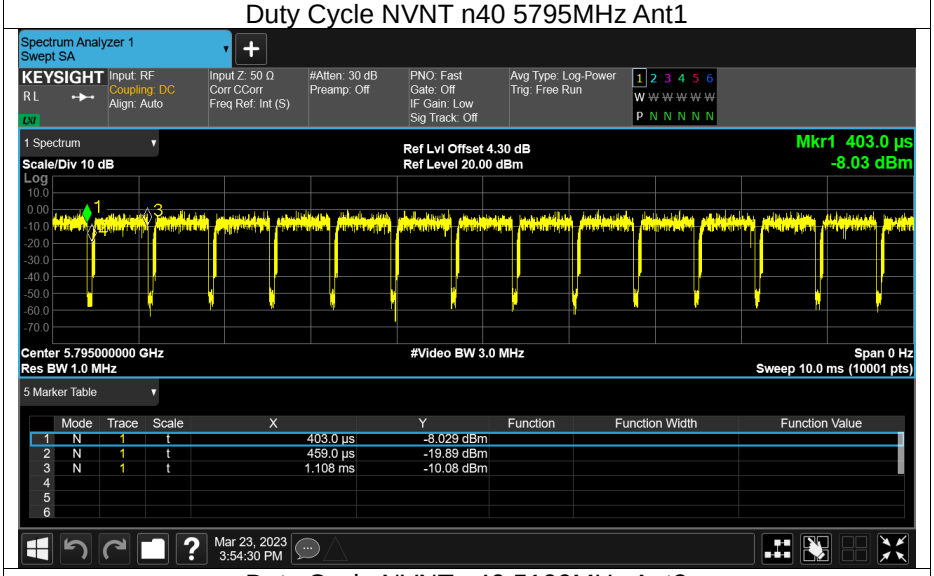


Duty Cycle NVNT n40 5230MHz Ant1

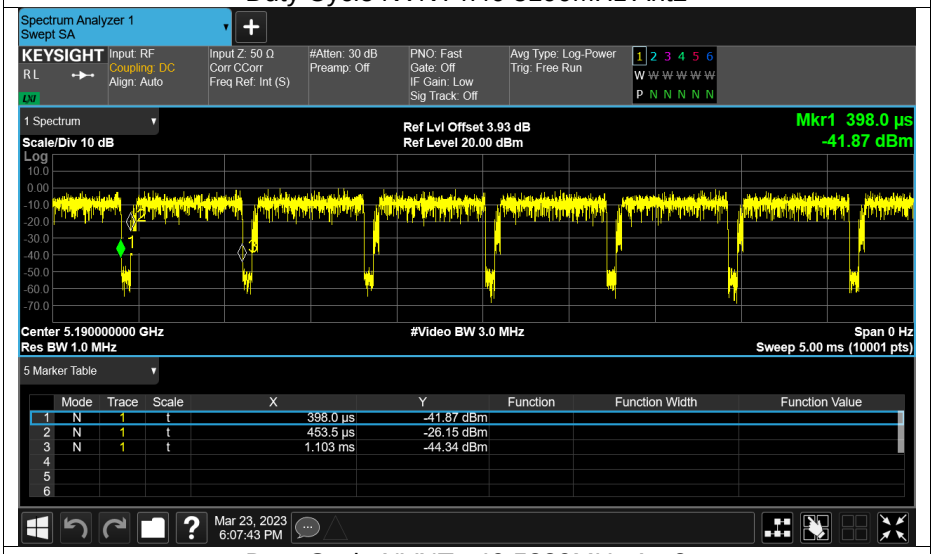
Duty Cycle NVNT n40 5755MHz Ant1



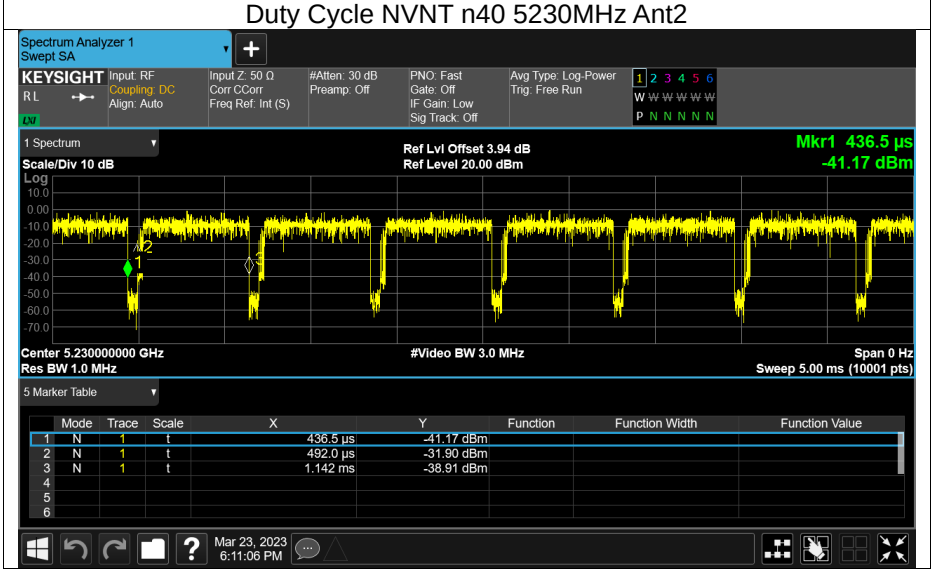
Duty Cycle NVNT n40 5795MHz Ant1



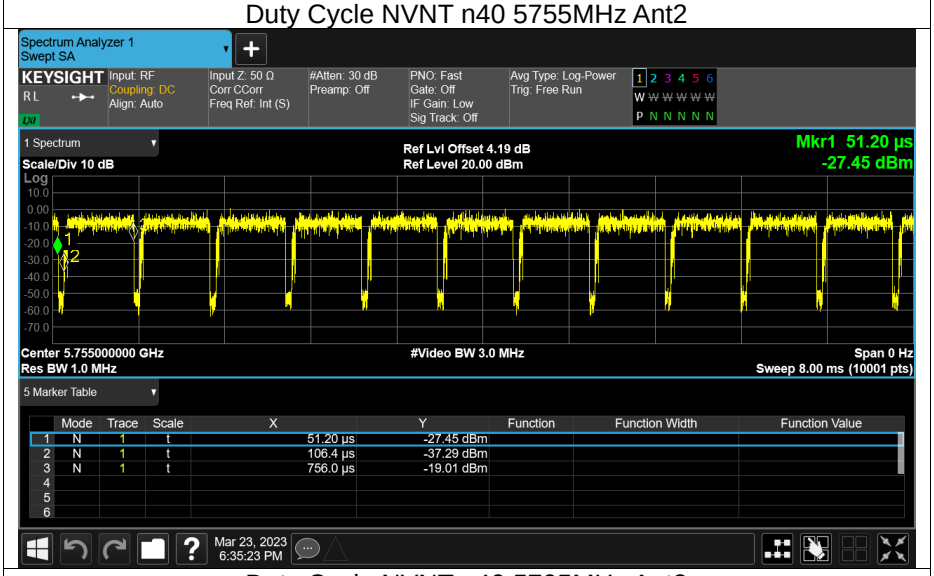
Duty Cycle NVNT n40 5190MHz Ant2



Duty Cycle NVNT n40 5230MHz Ant2

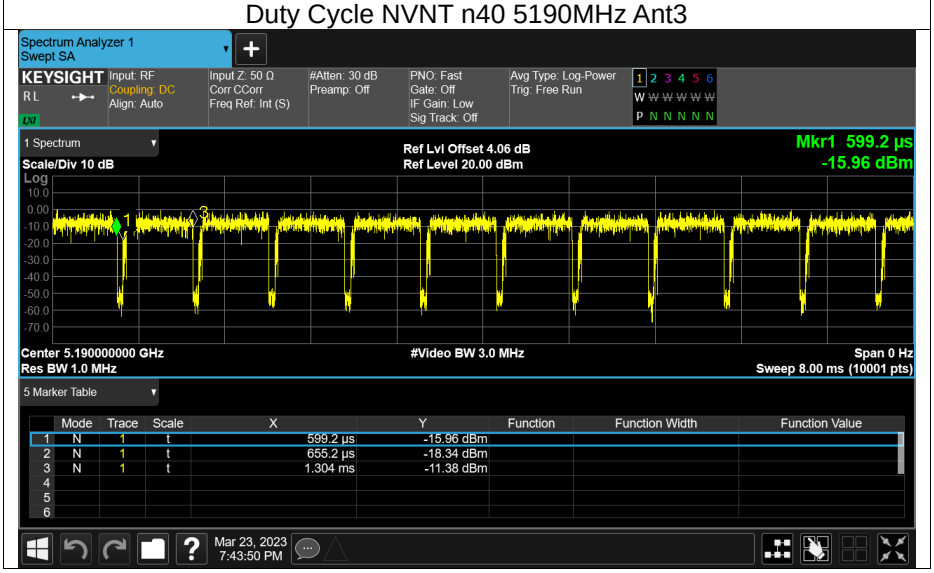


Duty Cycle NVNT n40 5755MHz Ant2

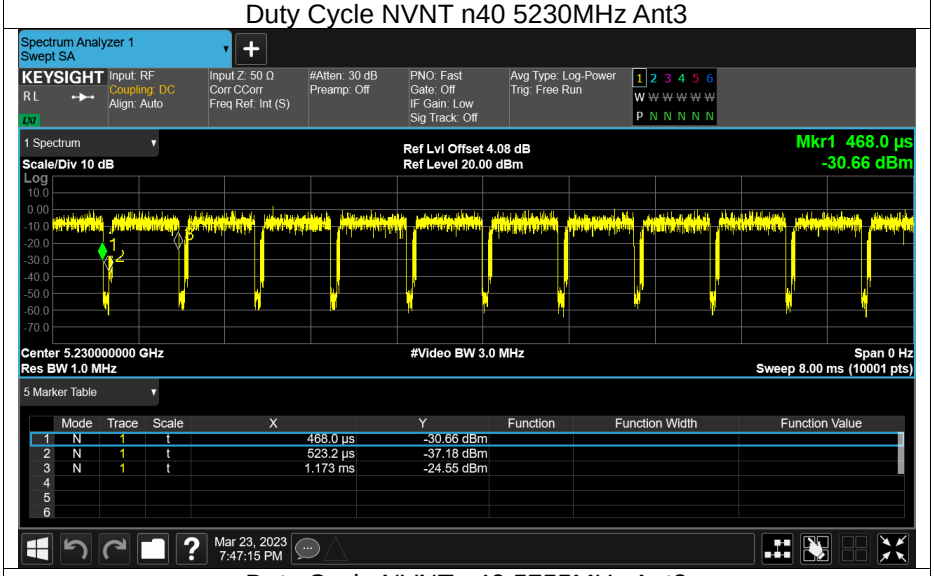


Duty Cycle NVNT n40 5795MHz Ant2

Duty Cycle NVNT n40 5190MHz Ant3

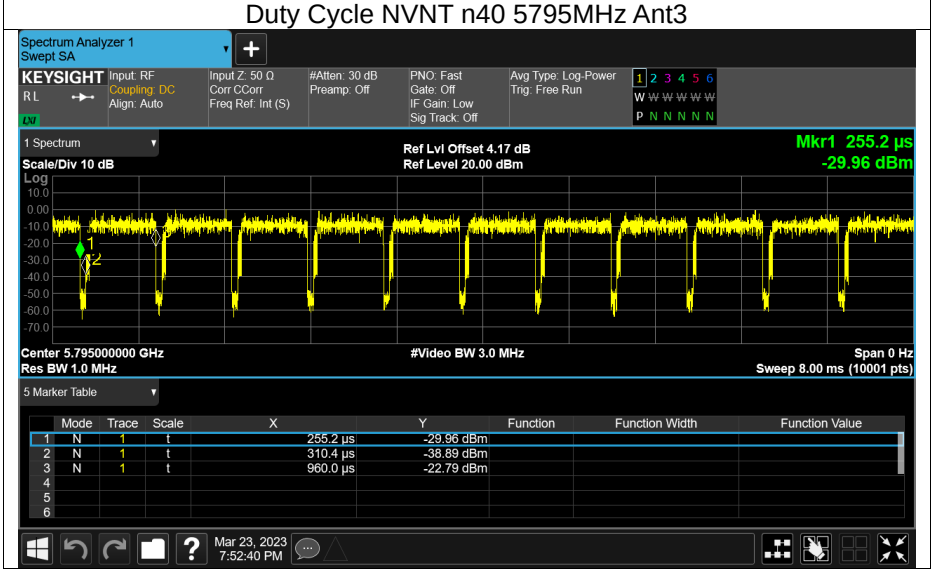


Duty Cycle NVNT n40 5230MHz Ant3

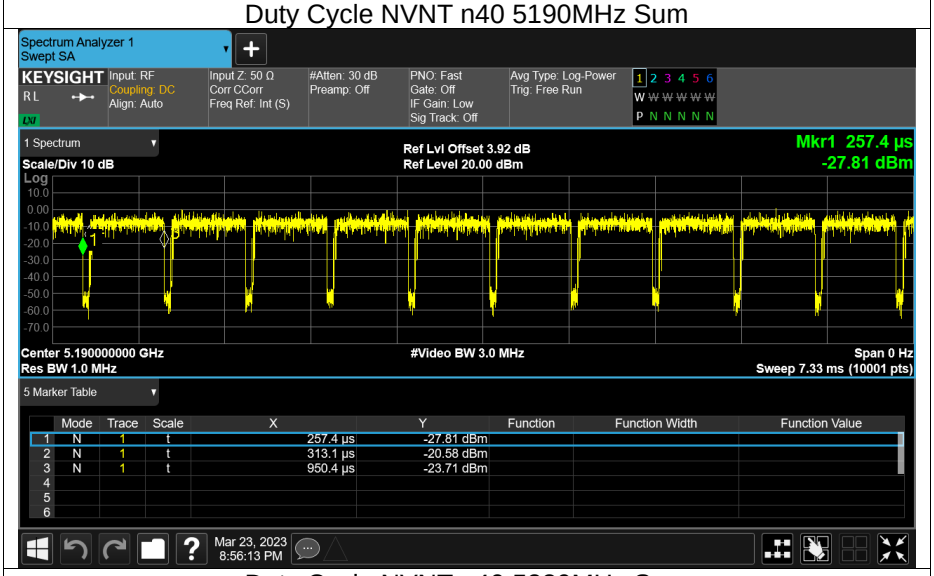


Duty Cycle NVNT n40 5755MHz Ant3

Duty Cycle NVNT n40 5795MHz Ant3

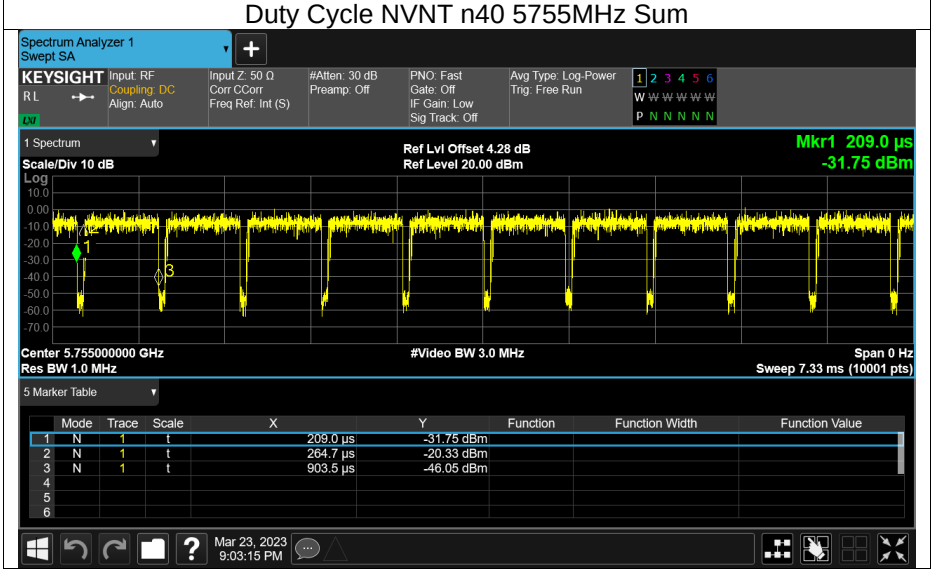


Duty Cycle NVNT n40 5190MHz Sum

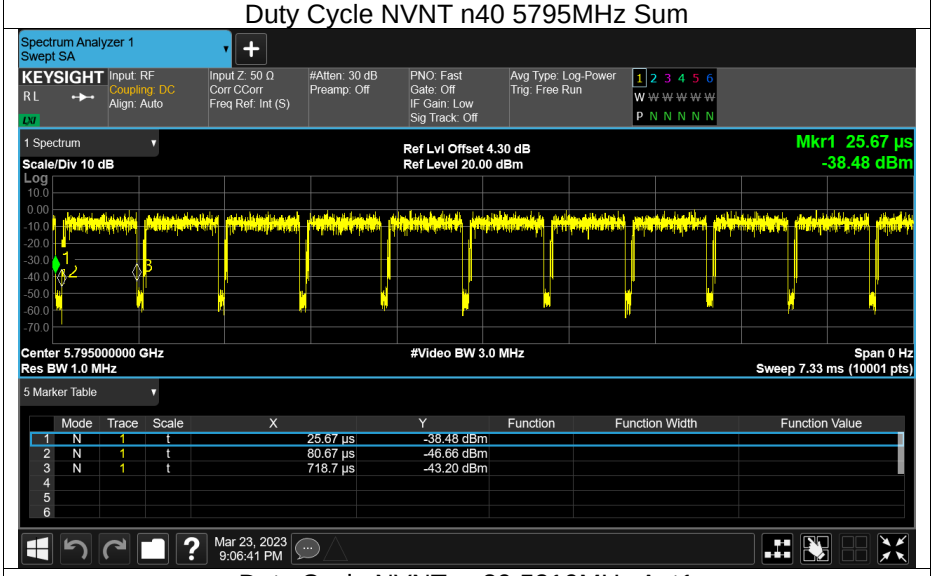


Duty Cycle NVNT n40 5230MHz Sum

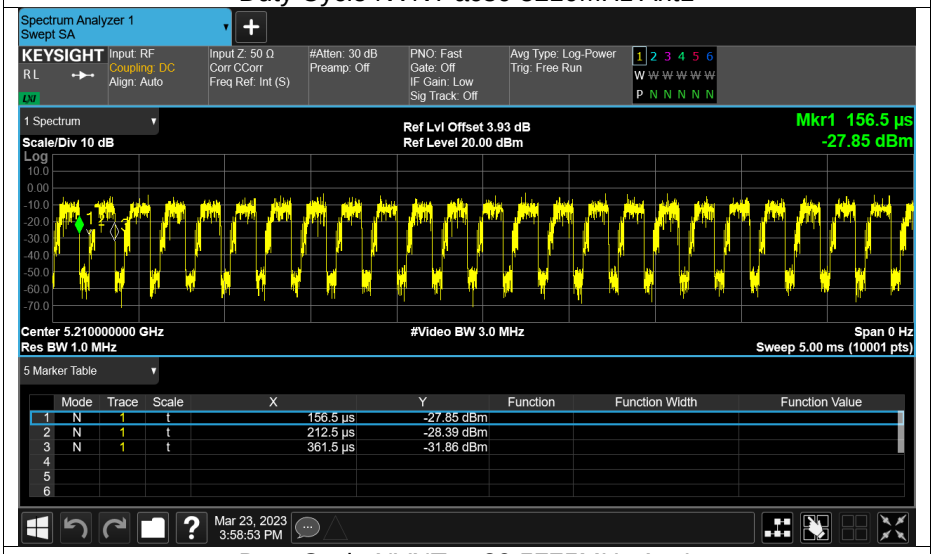
Duty Cycle NVNT n40 5755MHz Sum



Duty Cycle NVNT n40 5795MHz Sum



Duty Cycle NVNT ac80 5210MHz Ant1



Duty Cycle NVNT ac80 5775MHz Ant1