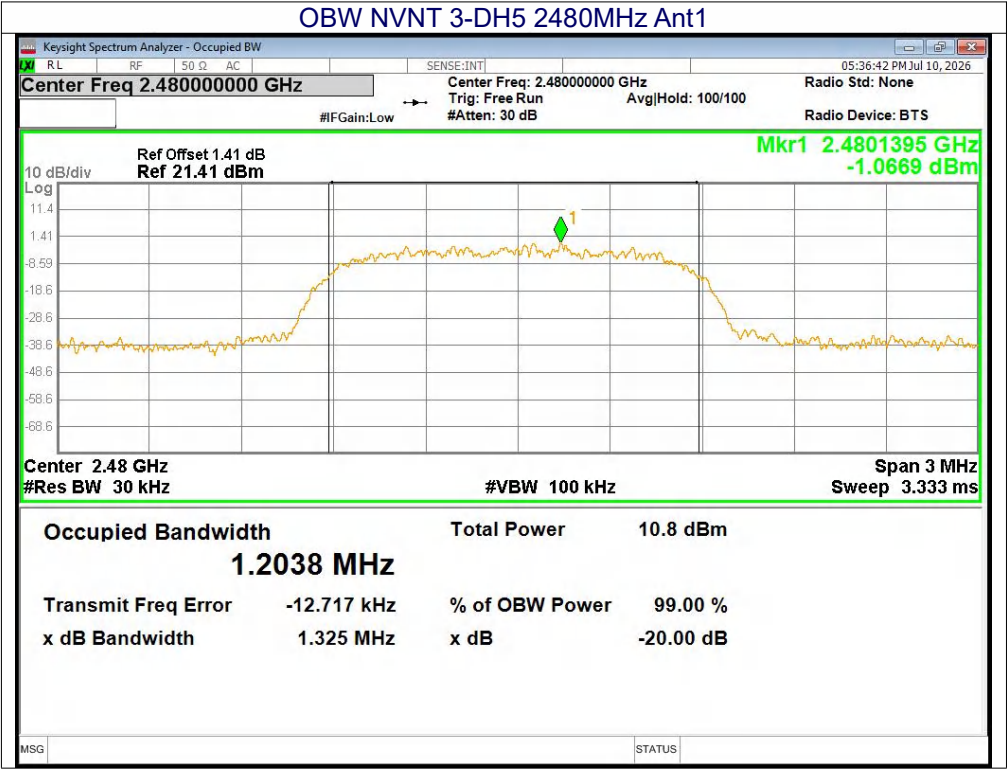




8. Maximum Peak Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(1)
Test Method:	ANSI C63.10-2020 + Cor.1-2023 + C63.10a-2024 + Errata to C63.10a-2024

8.1 Block Diagram Of Test Setup



8.2 Limit

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

For FHSs operating in the band 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1.0 W if the hopset uses 75 or more hopping channels; the maximum peak conducted output power shall not exceed 0.125 W if the hopset uses less than 75 hopping channels. The e.i.r.p. shall not exceed 4 W.

8.3 Test procedure

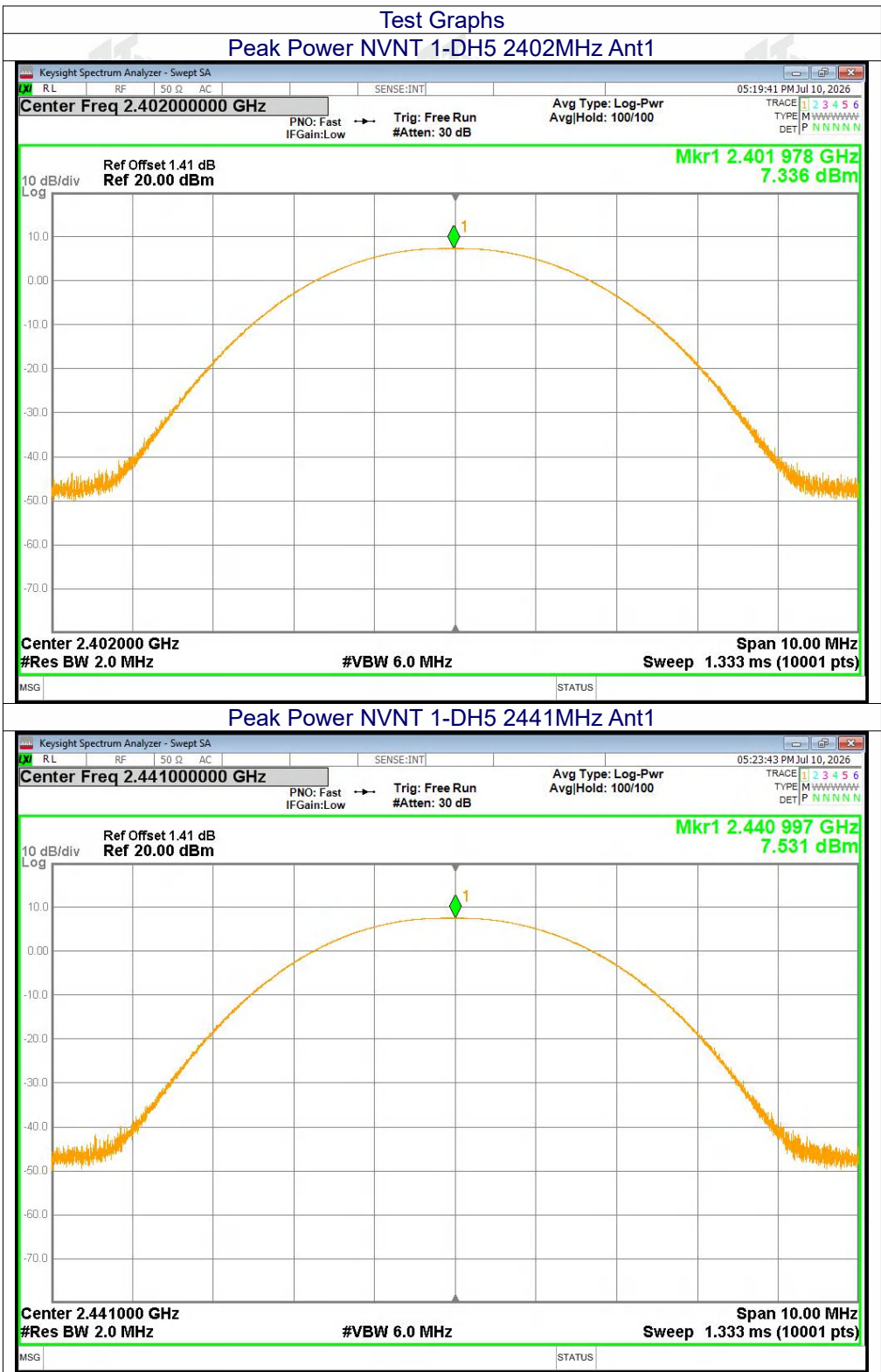
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 2MHz. VBW =6MHz. Sweep = auto; Detector Function = Peak.
3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

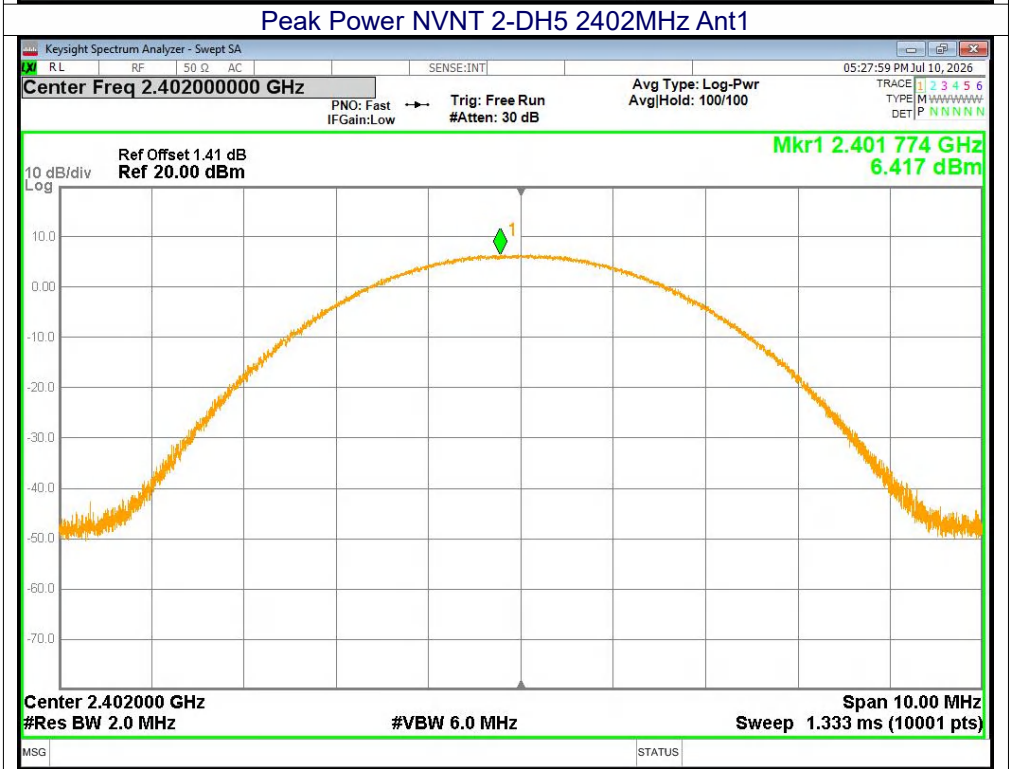
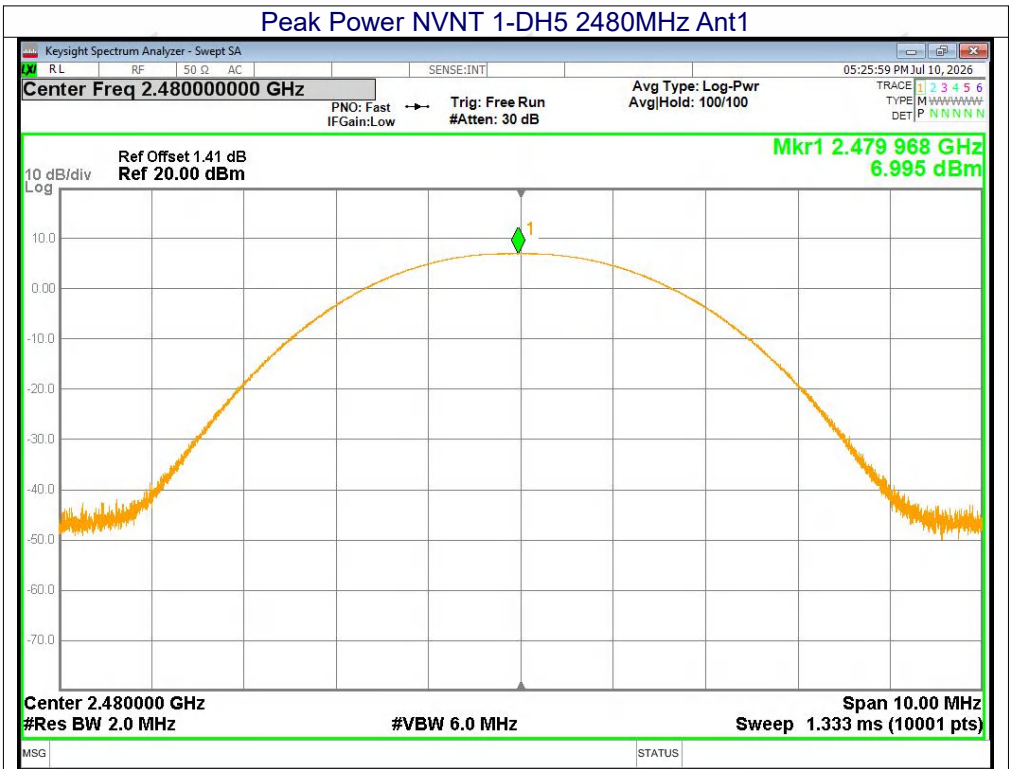
8.4 DEVIATION FROM STANDARD

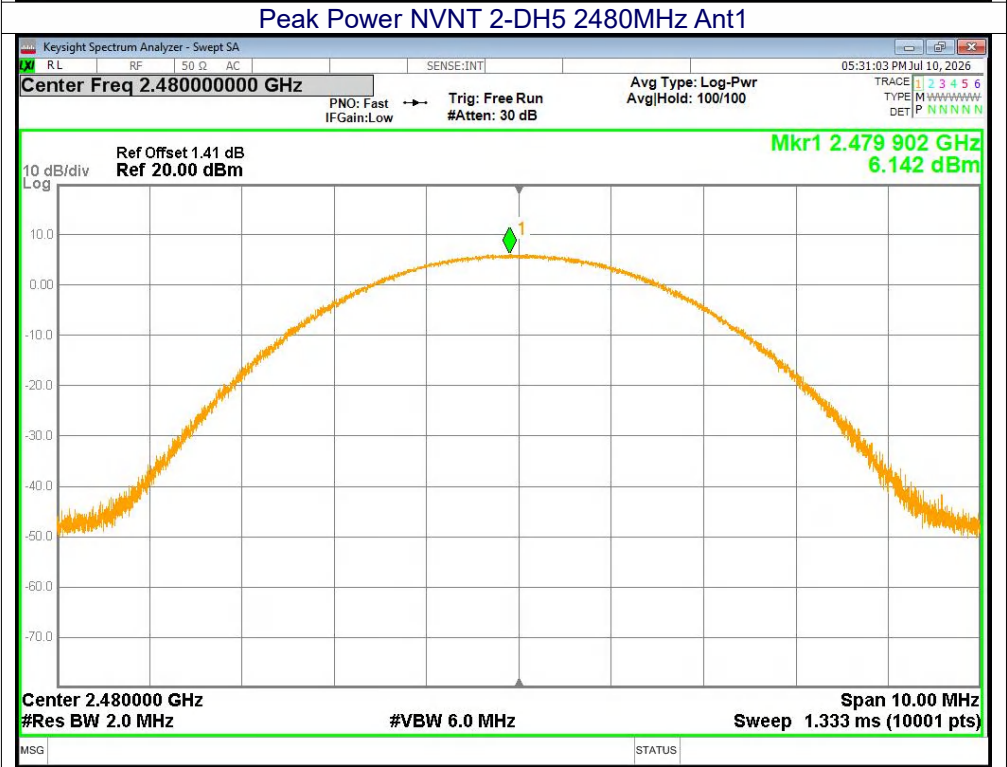
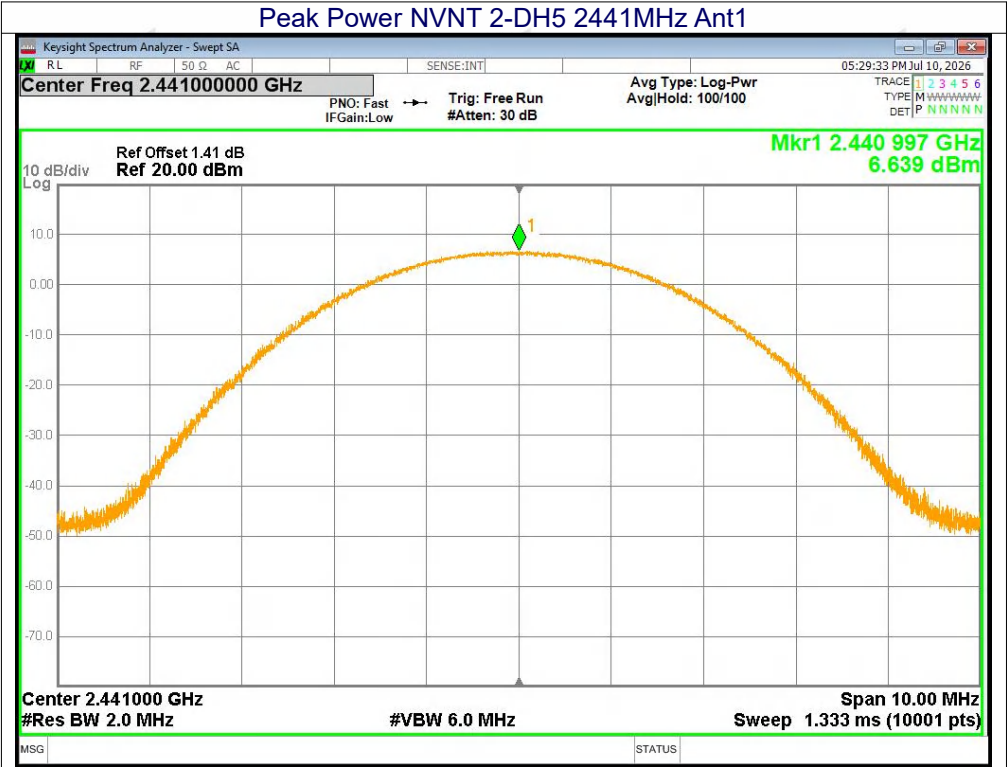
No deviation.

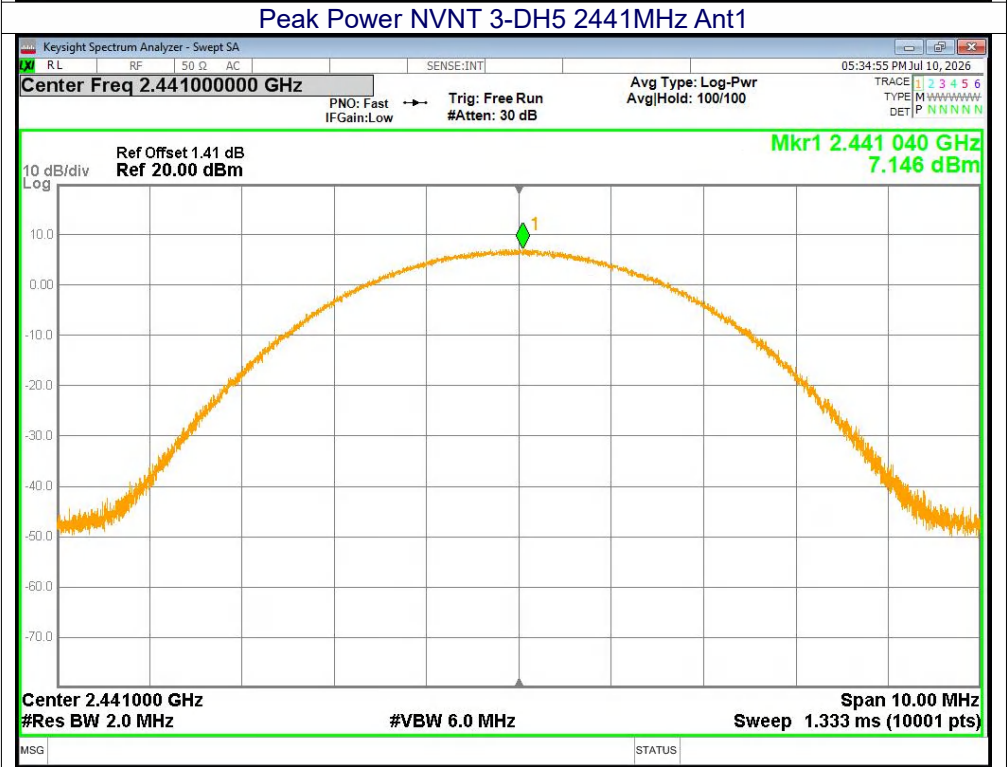
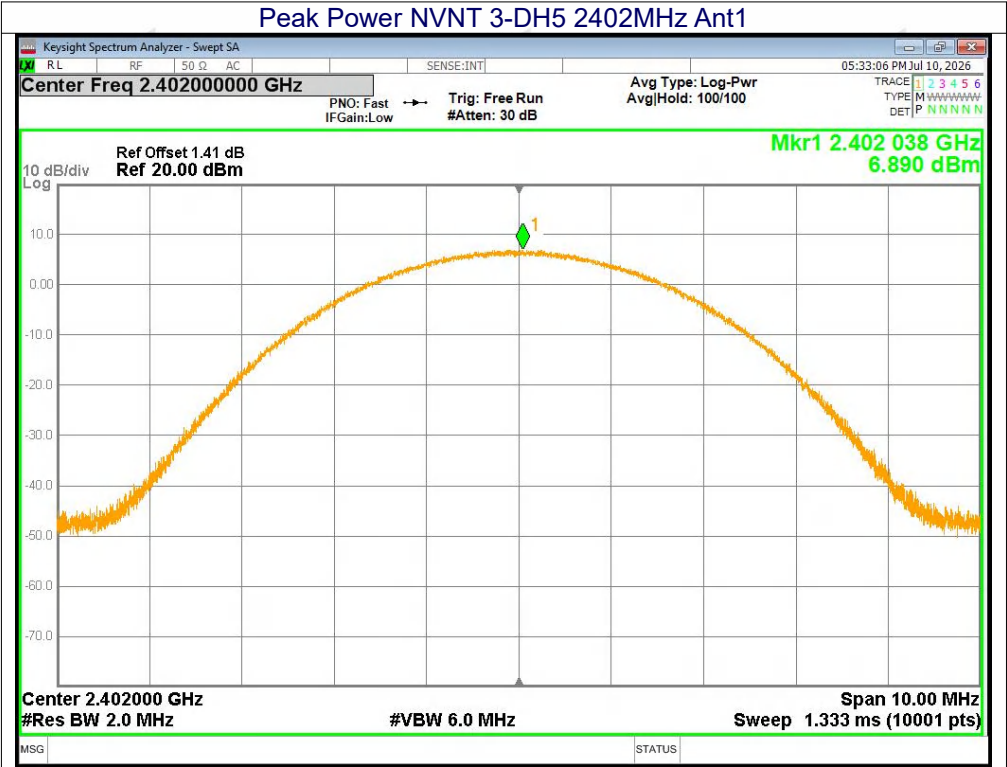
8.5 Test Result

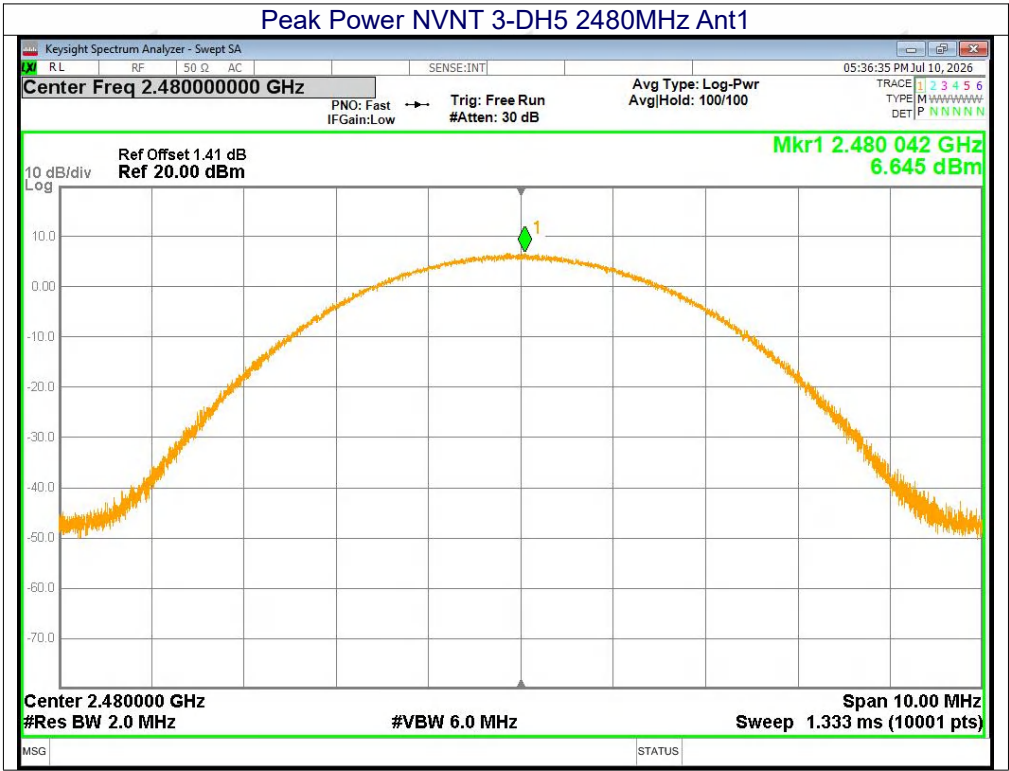
Mode	Test channel	Peak Output Power (dBm)	Peak Output Power Limit (dBm)	Result
GFSK	Lowest	7.34	21.00	Pass
	Middle	7.53		
	Highest	7.00		
$\pi/4$ DQPSK	Lowest	6.42	21.00	Pass
	Middle	6.64		
	Highest	6.14		
8DPSK	Lowest	6.89	21.00	Pass
	Middle	7.15		
	Highest	6.65		











**9. HOPPING CHANNEL SEPARATION**

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)
Test Method:	ANSI C63.10-2020 + Cor.1-2023 + C63.10a-2024 + Errata to C63.10a-2024
Receiver setup:	RBW=30KHz, VBW=100KHz, detector=Peak
Limit:	GFSK, $\pi/4$ -DQPSK & 8DSK: 0.025MHz or 2/3 of the 20dB bandwidth (whichever is greater)

9.1 Test Setup**9.2 Test procedure**

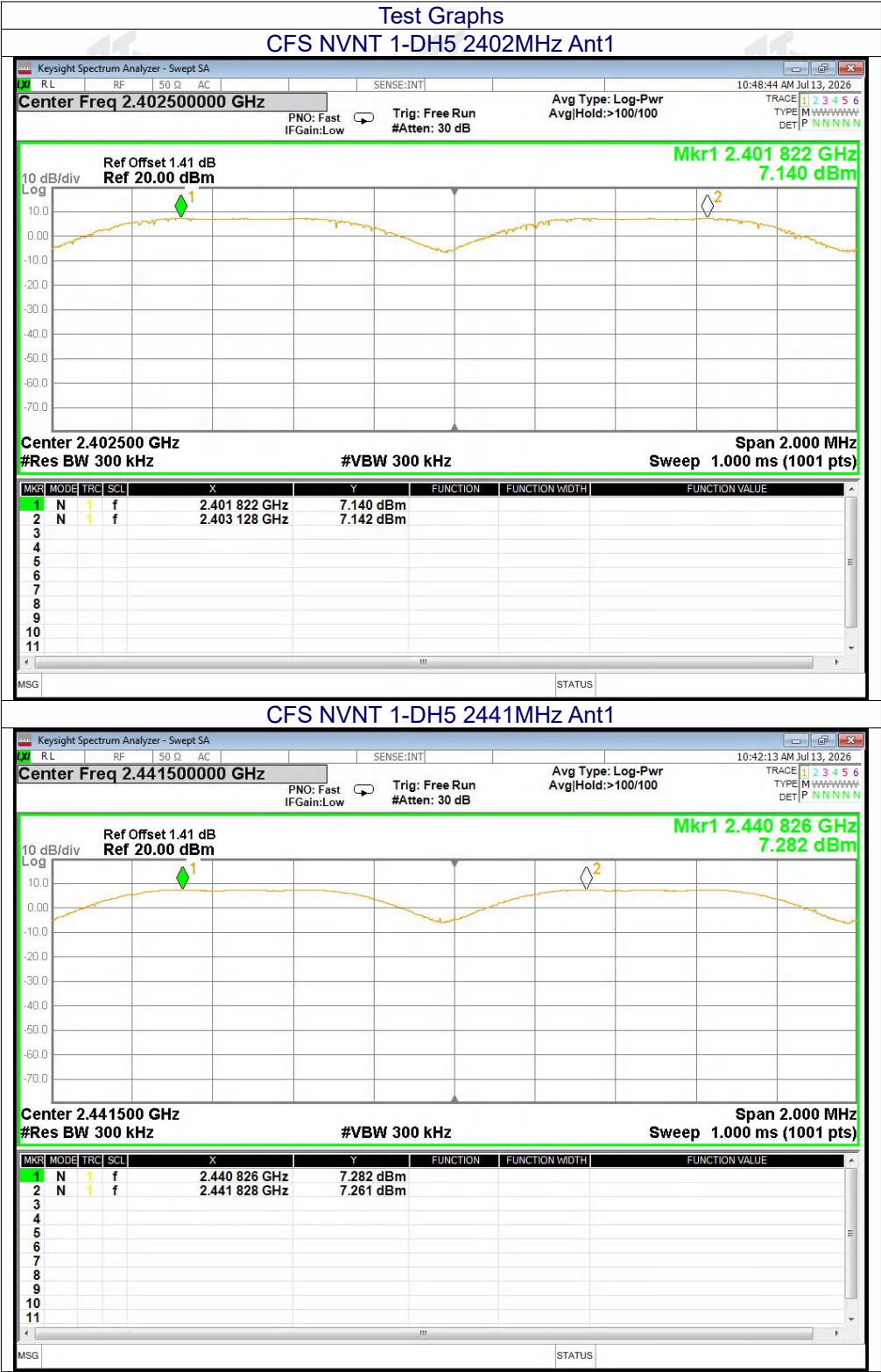
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: GFSK: RBW = 300kHz. VBW = 300kHz , Span = 2.0MHz. $\pi/4$ -DQPSK: RBW = 100kHz. VBW = 100kHz , Span = 2.6MHz. 8DSK: RBW = 100kHz. VBW = 100kHz , Span = 2.0MHz. Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.

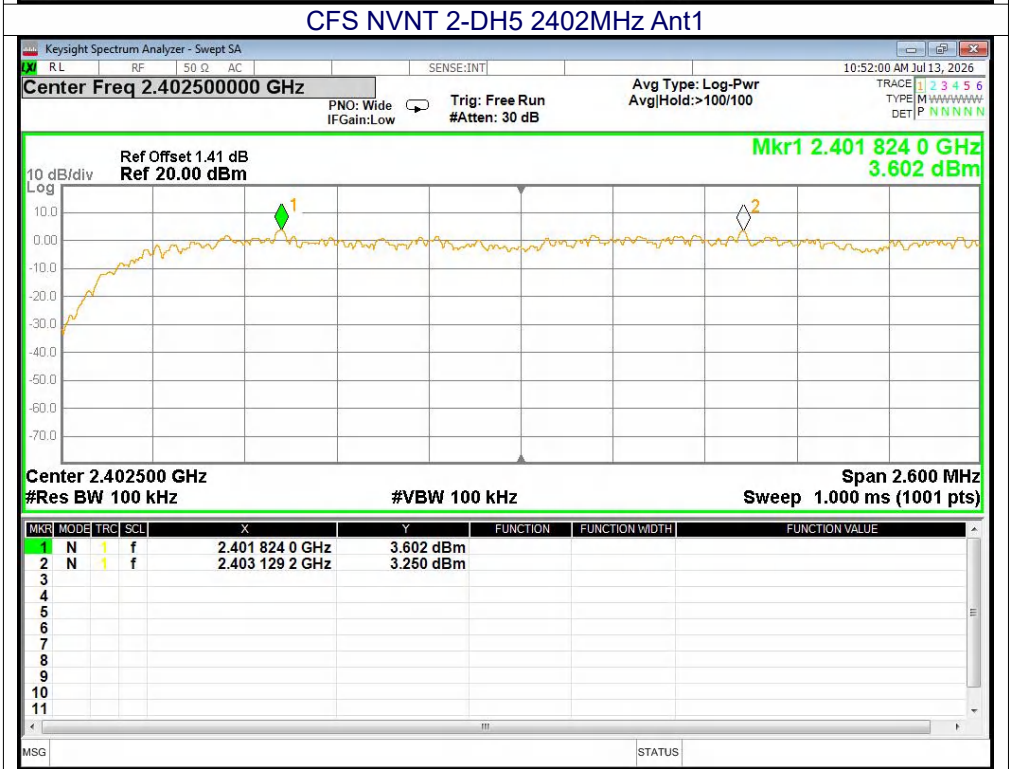
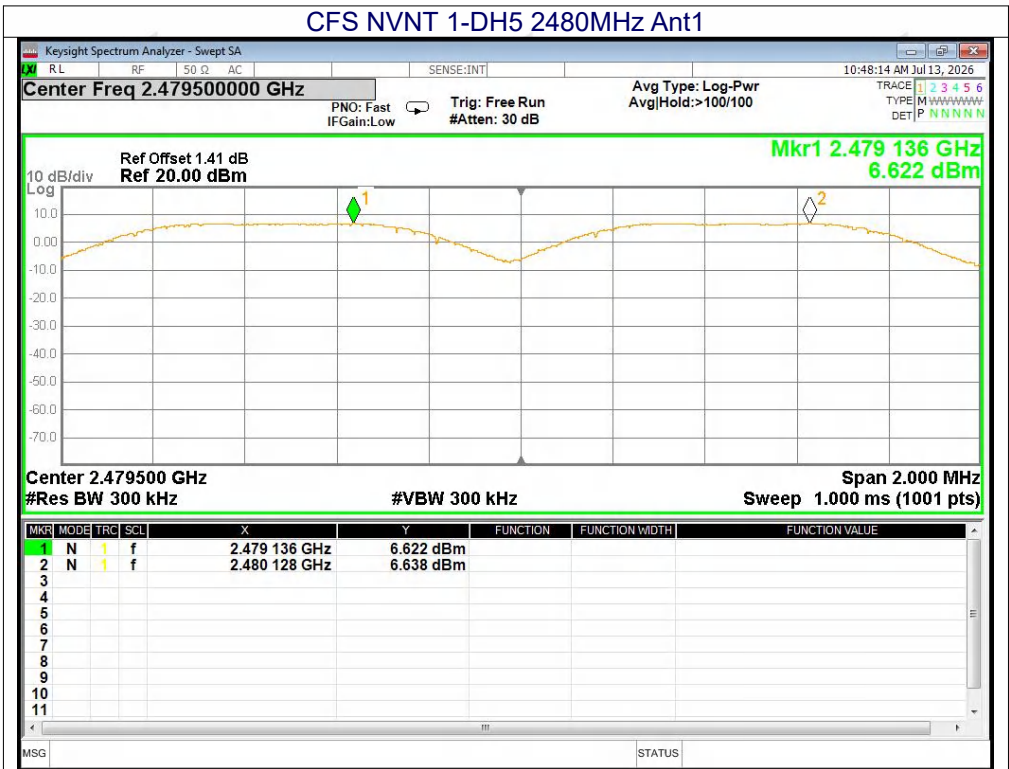
9.3 DEVIATION FROM STANDARD

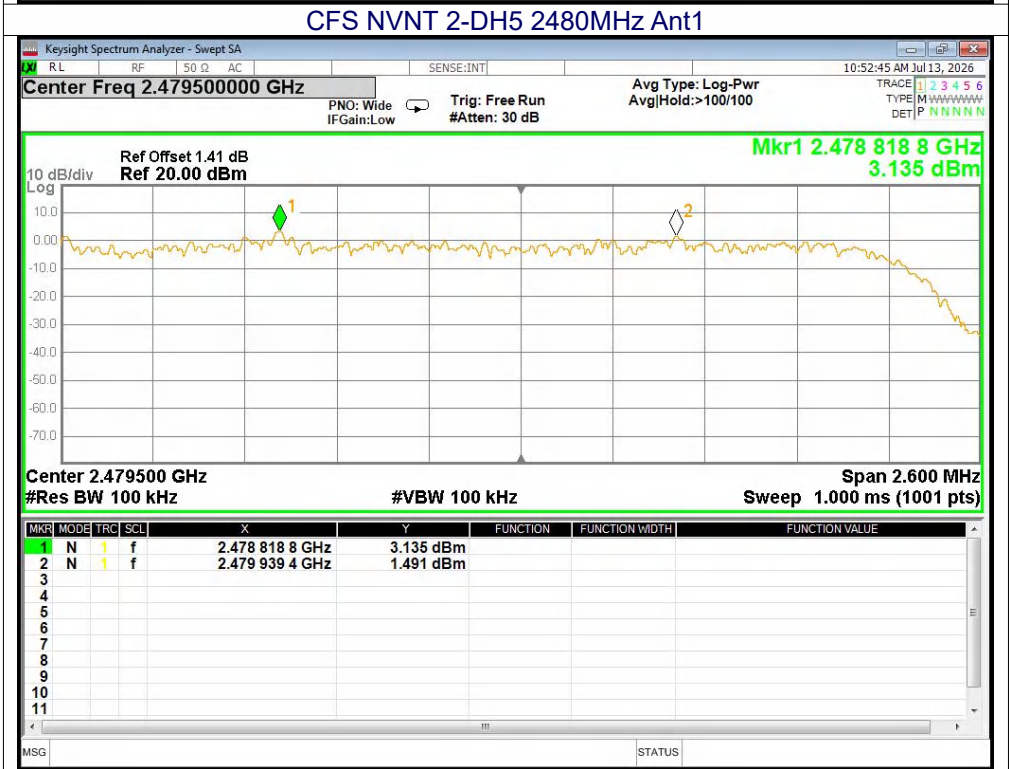
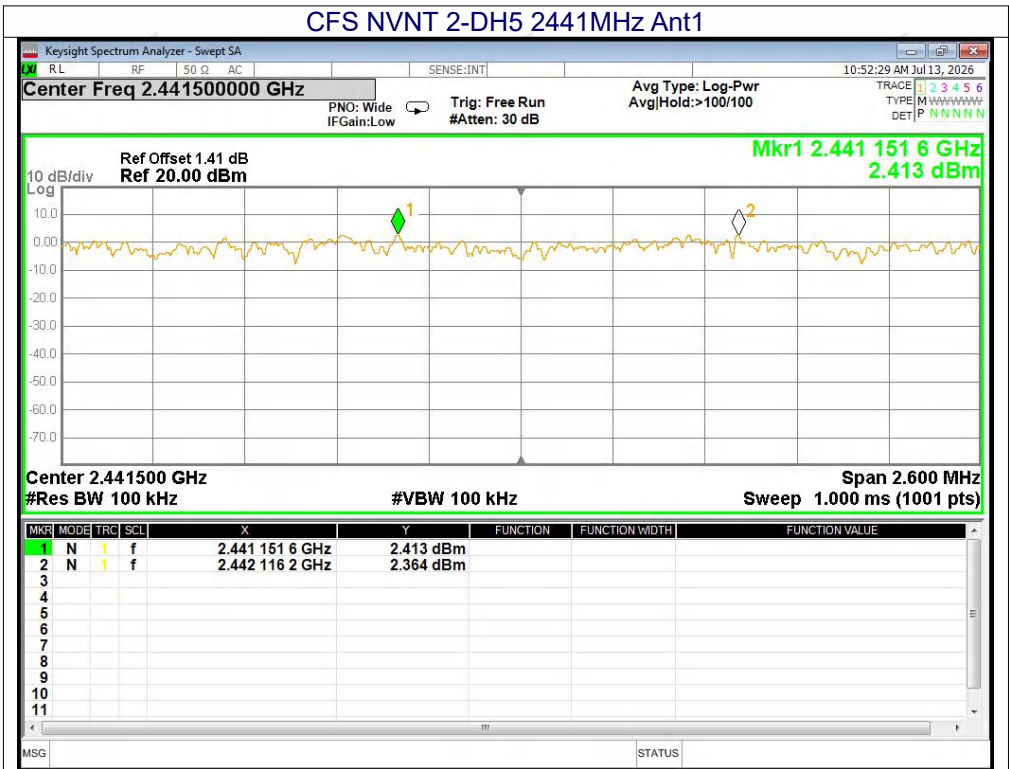
No deviation.

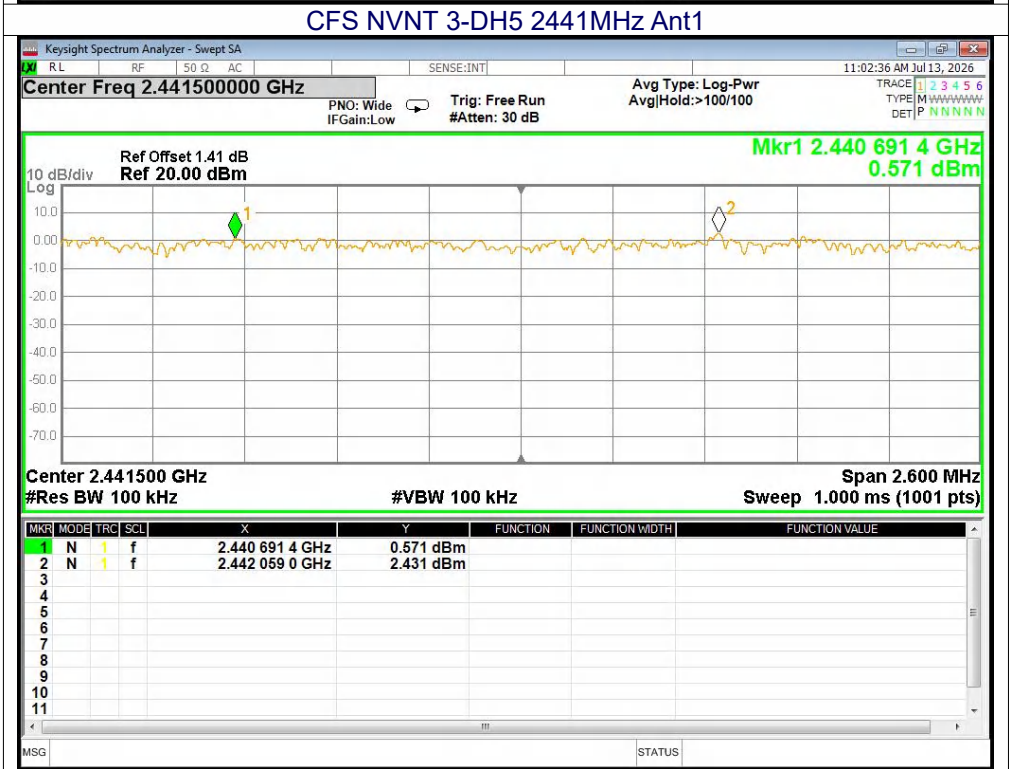
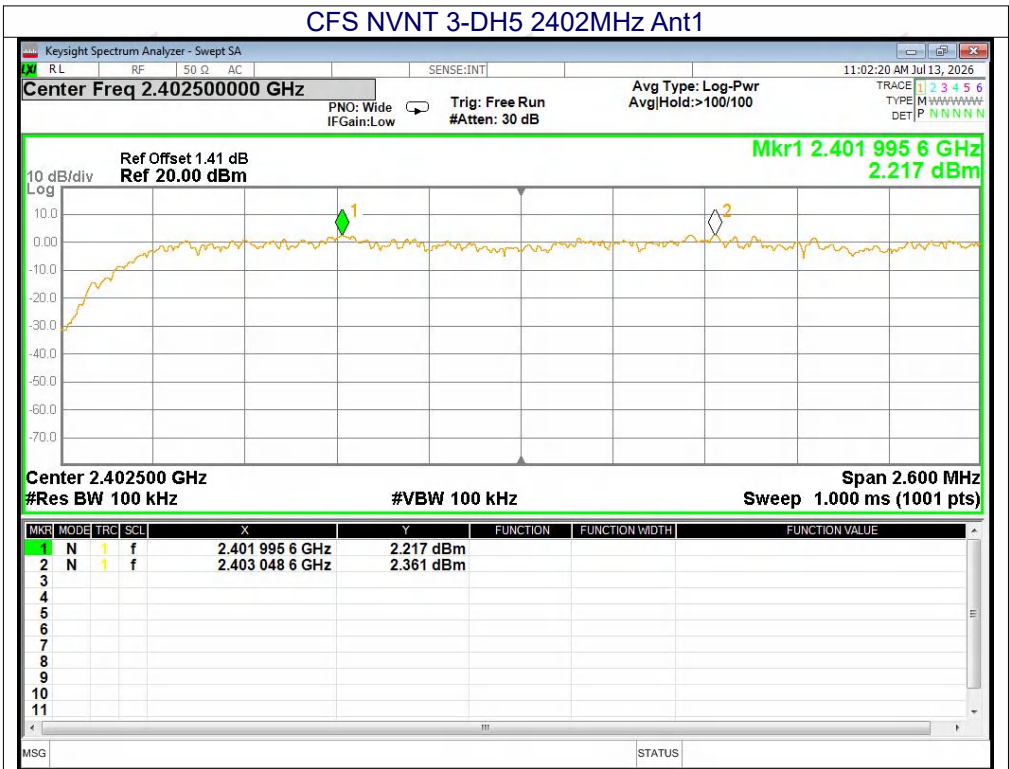
9.4 Test Result

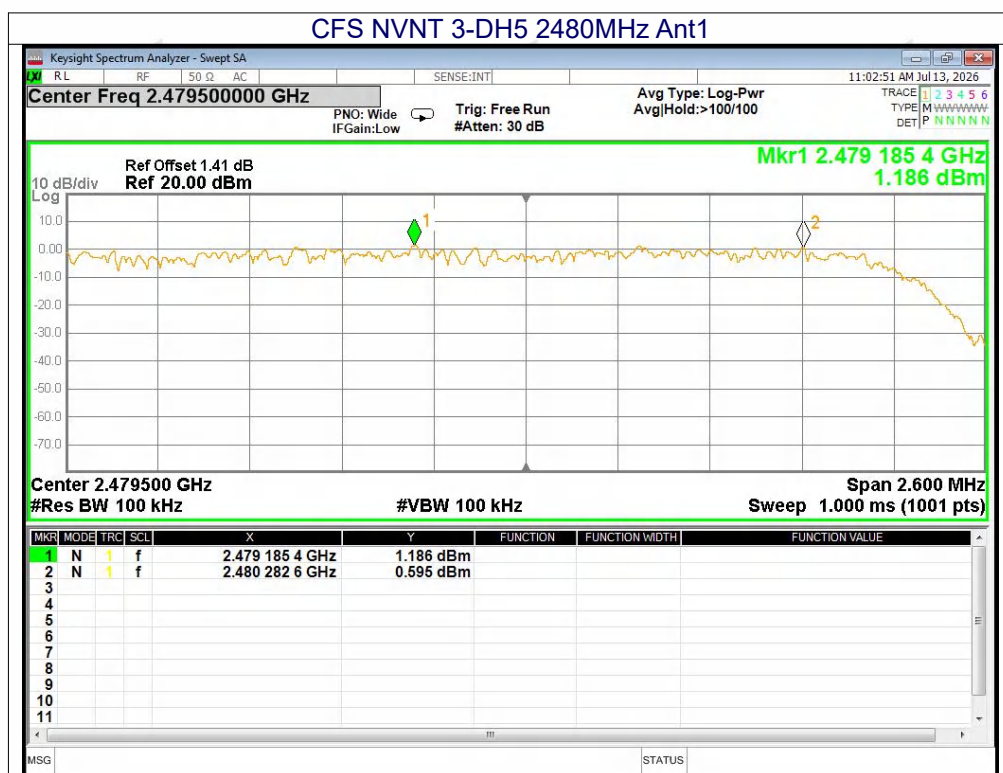
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant1	2401.822	2403.128	1.306	0.653	Pass
NVNT	1-DH5	Ant1	2440.826	2441.828	1.002	0.643	Pass
NVNT	1-DH5	Ant1	2479.136	2480.128	0.992	0.629	Pass
NVNT	2-DH5	Ant1	2401.824	2403.1292	1.3052	0.882	Pass
NVNT	2-DH5	Ant1	2441.1516	2442.1162	0.9646	0.886	Pass
NVNT	2-DH5	Ant1	2478.8188	2479.9394	1.1206	0.88	Pass
NVNT	3-DH5	Ant1	2401.9956	2403.0486	1.053	0.873	Pass
NVNT	3-DH5	Ant1	2440.6914	2442.059	1.3676	0.877	Pass
NVNT	3-DH5	Ant1	2479.1854	2480.2826	1.0972	0.873	Pass











10.NUMBER OF HOPPING FREQUENCY

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)(iii)
Test Method:	ANSI C63.10-2020 + Cor.1-2023 + C63.10a-2024 + Errata to C63.10a-2024
Receiver setup:	RBW=100kHz, VBW=300kHz, Frequency range=2400MHz-2483.5MHz, Detector=Peak
Limit:	15 channels

10.1 Test Setup



10.2 Test procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 100kHz. VBW = 300kHz. Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to stabilize. It may prove necessary to break the span up to sections. in order to clearly show all of the hopping frequencies. The limit is specified in one of the subparagraphs of this Section.
4. Set the spectrum analyzer: Start Frequency = 2.4GHz, Stop Frequency = 2.4835GHz. Sweep=auto;

10.3 DEVIATION FROM STANDARD

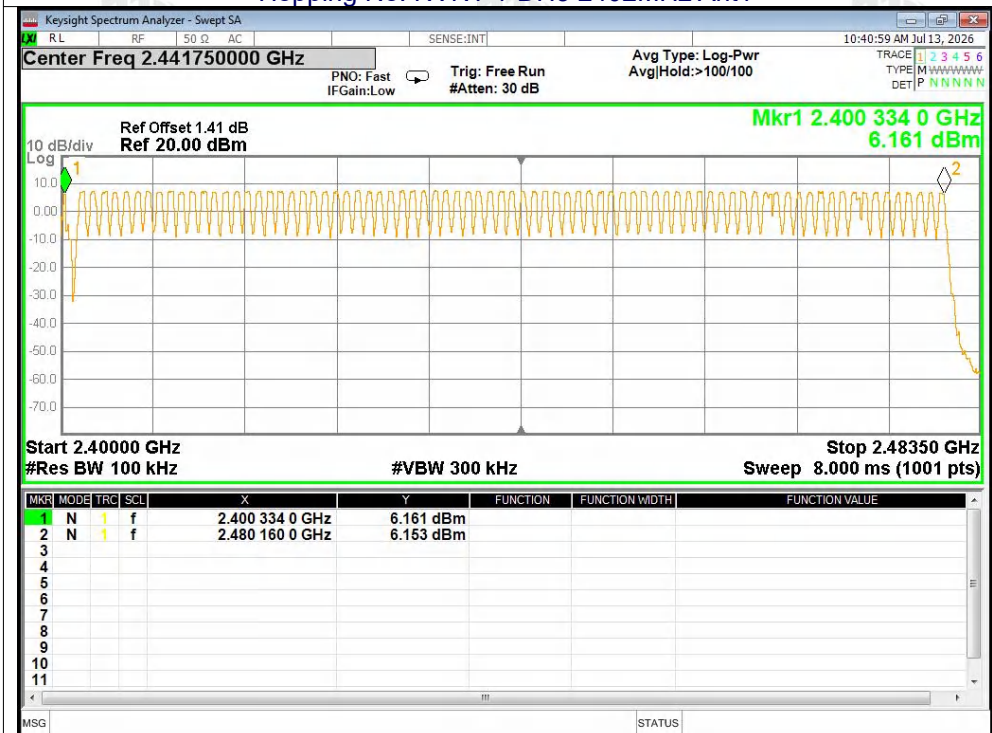
No deviation.

11.4 Test Result

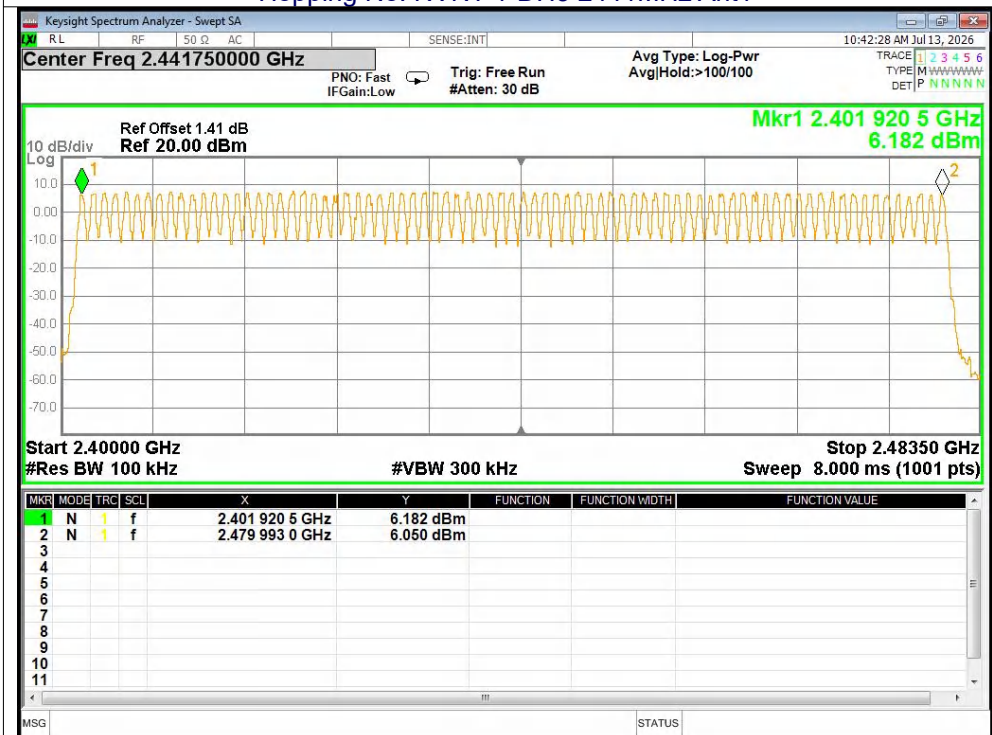
Mode	Antenna	Hopping Number	Limit	Verdict
1-DH5	Ant1	79	15	Pass
2-DH5	Ant1	79	15	Pass
3-DH5	Ant1	79	15	Pass

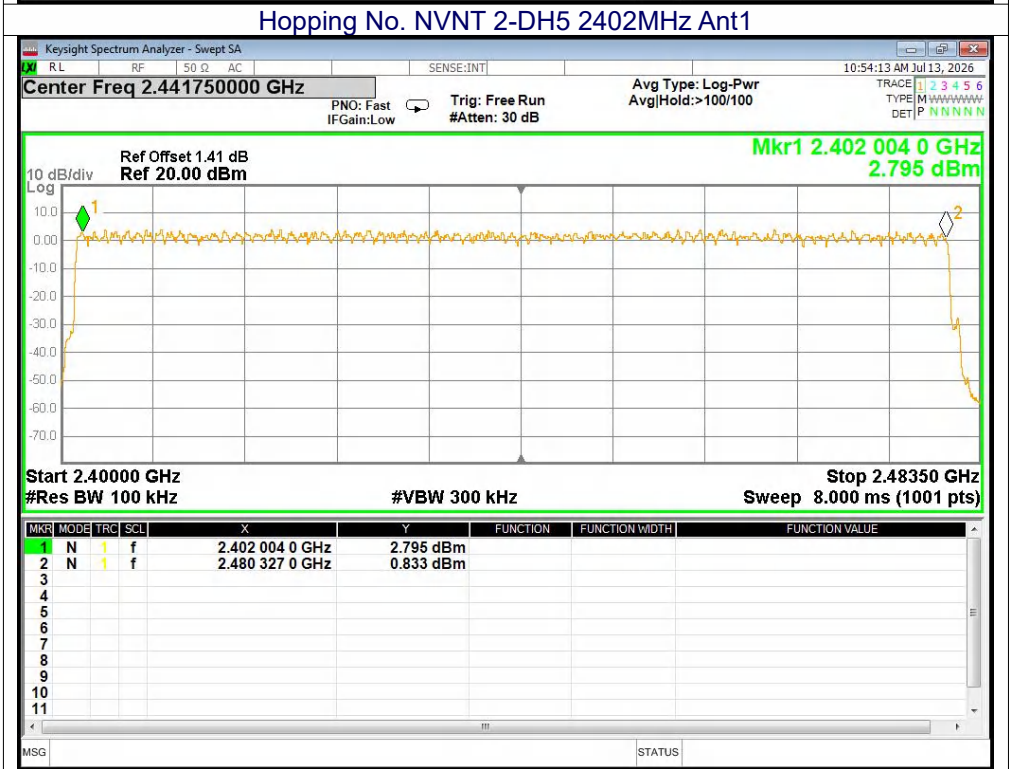
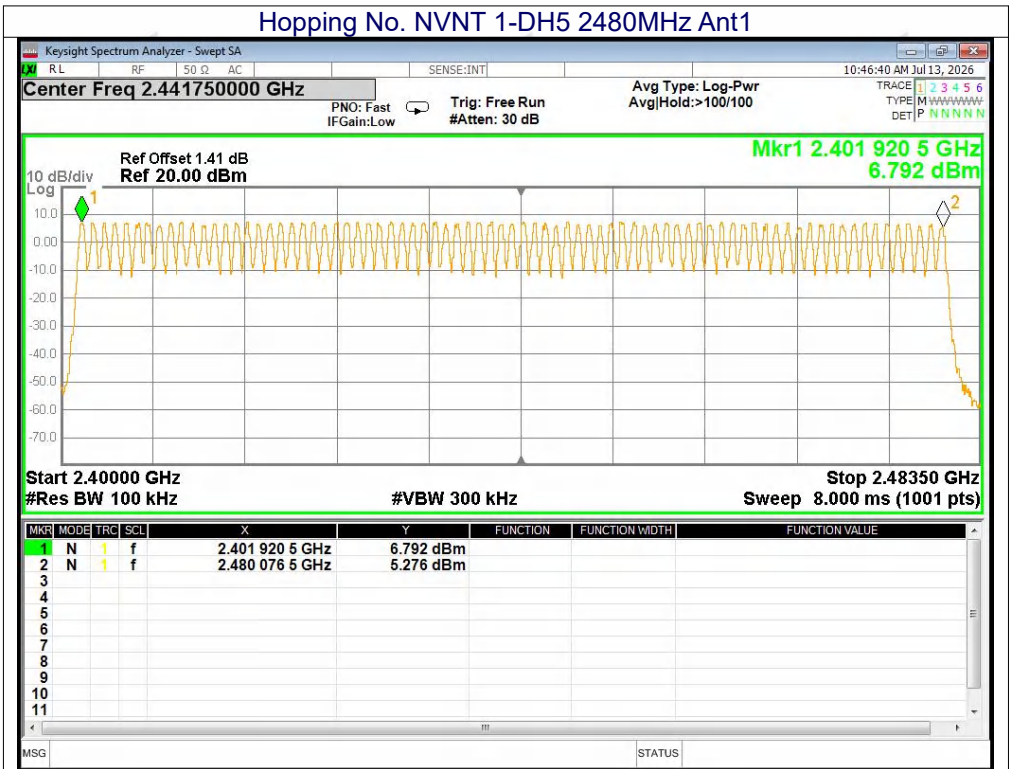
Test Graphs

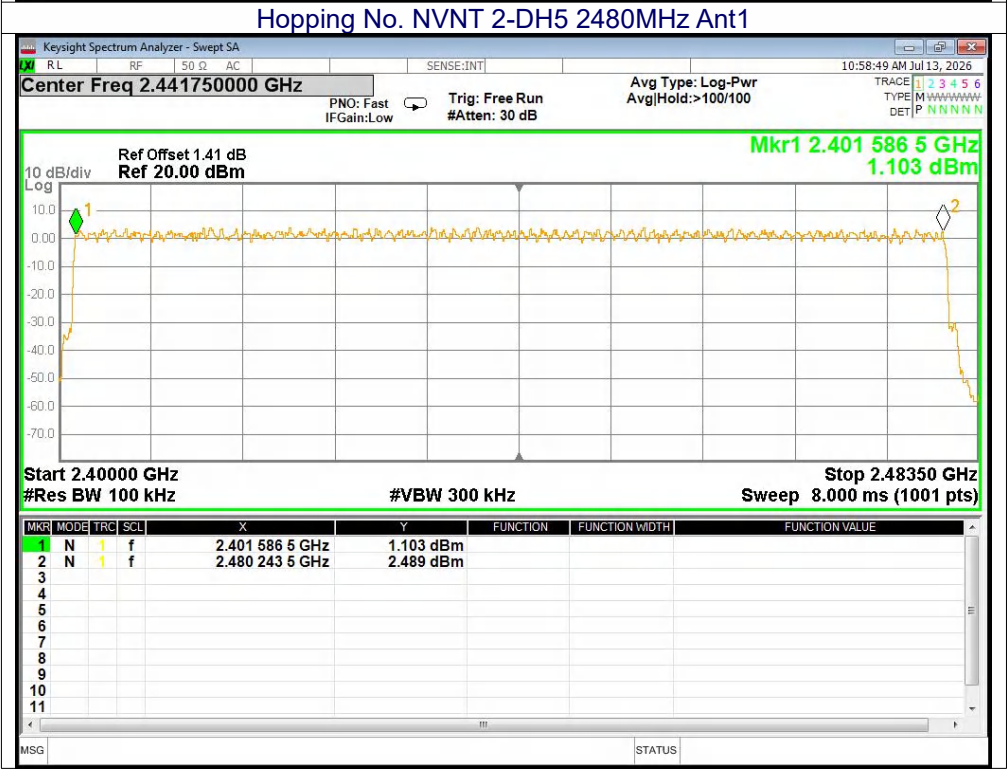
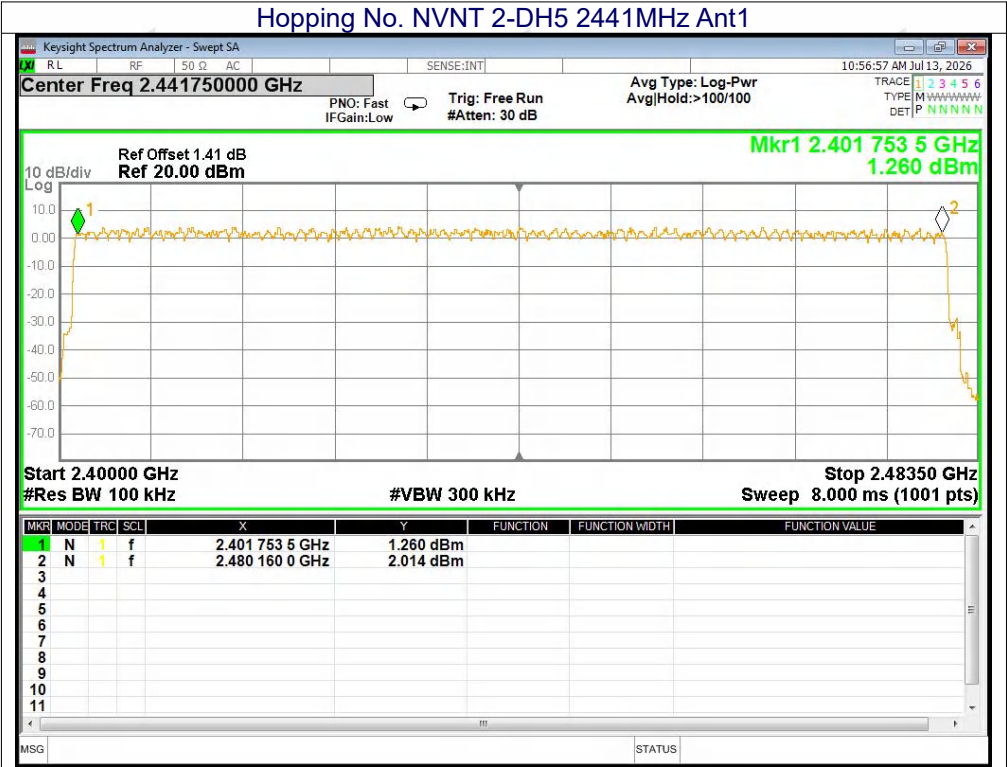
Hopping No. NVNT 1-DH5 2402MHz Ant1

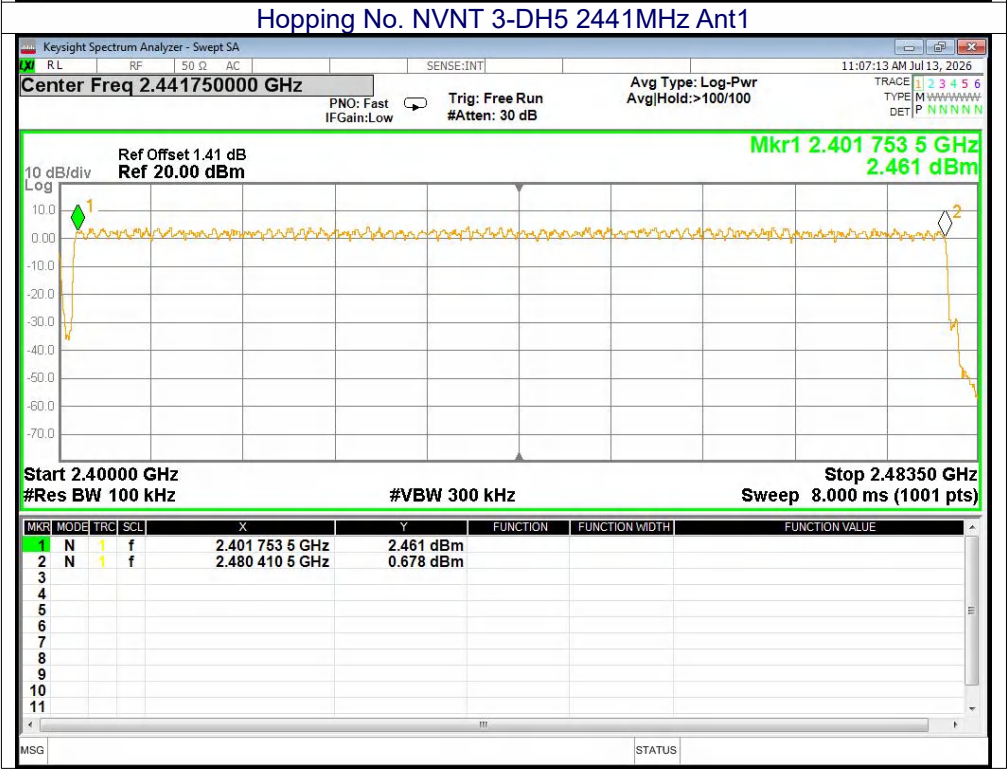
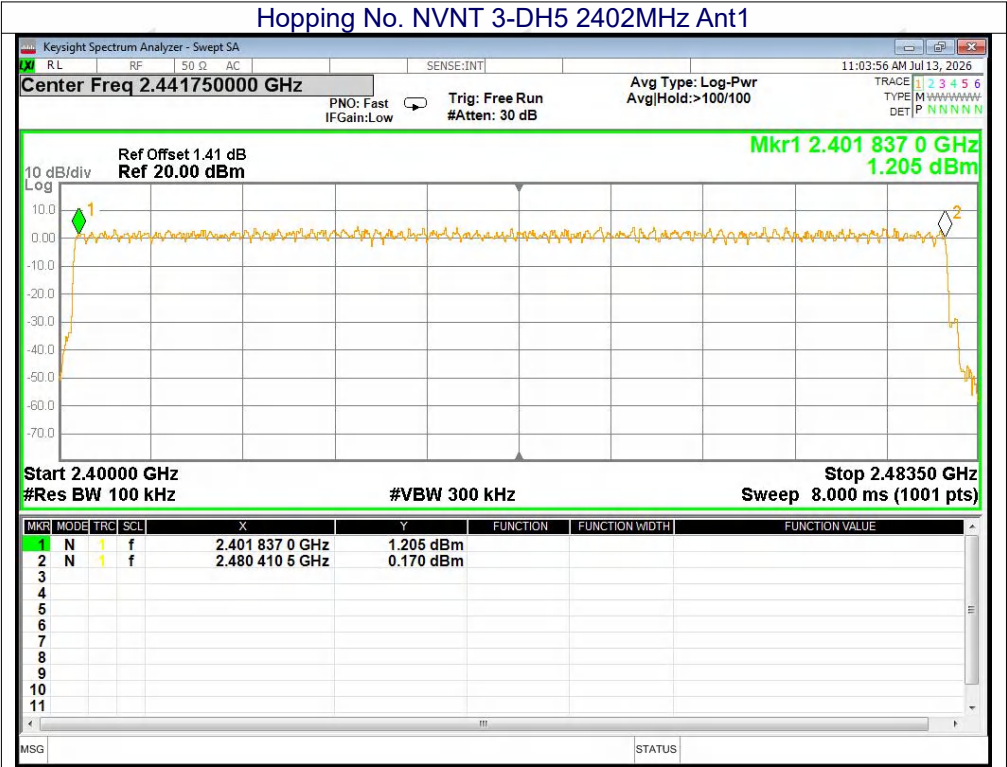


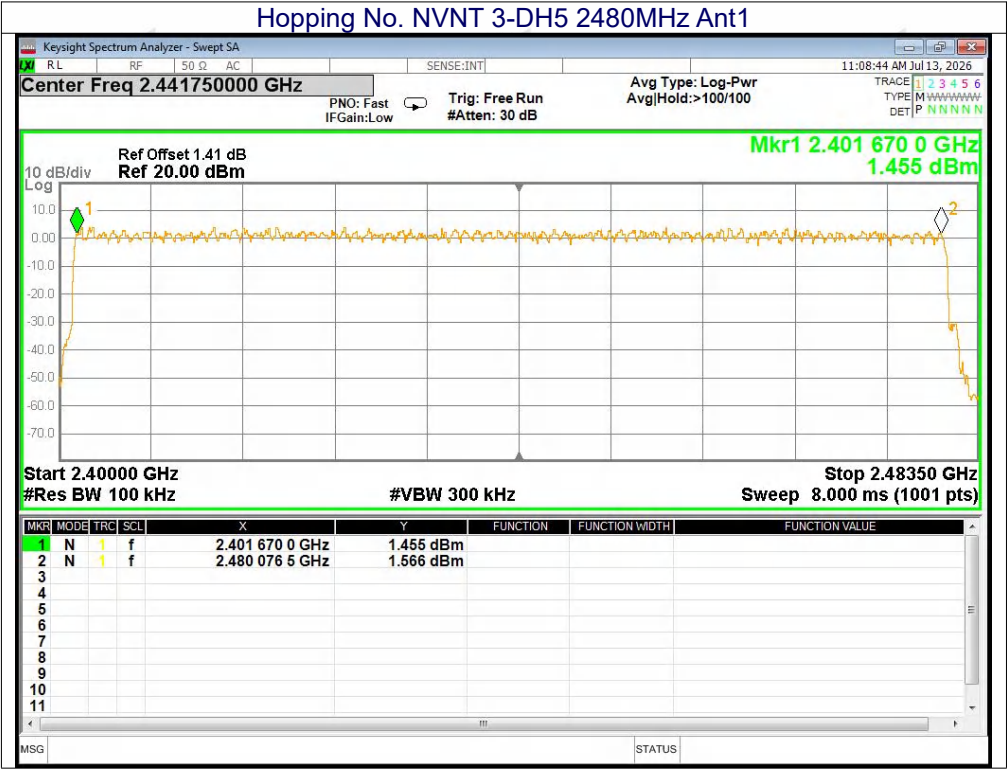
Hopping No. NVNT 1-DH5 2441MHz Ant1







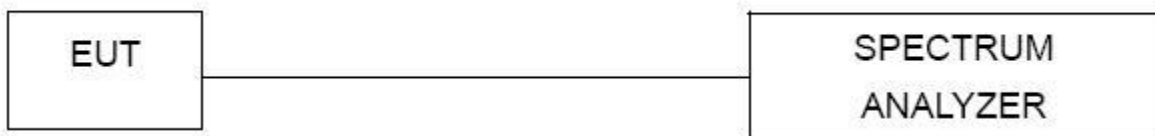




11. DWELL TIME

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)(iii)
Test Method:	ANSI C63.10-2020 + Cor.1-2023 + C63.10a-2024 + Errata to C63.10a-2024
Receiver setup:	RBW=1MHz, VBW=3MHz, Span=0Hz, Detector=Peak
Limit:	0.4 Second

11.1 Test Setup



11.2 Test procedure

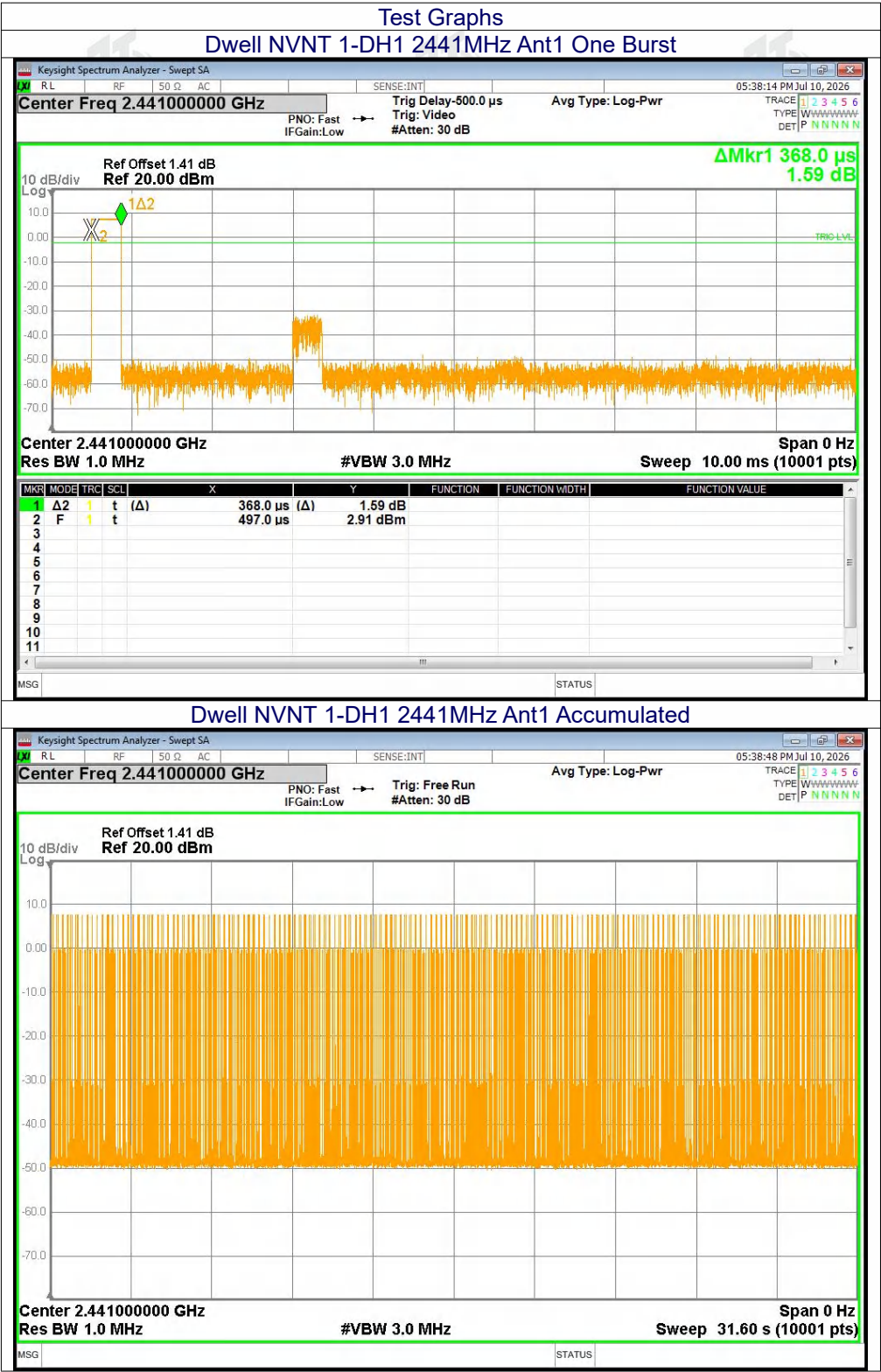
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set spectrum analyzer span = 0Hz;
3. Set RBW = 1MHz and VBW = 3MHz. Sweep = as necessary to capture the entire dwell time per hopping channel. Set the EUT for DH5, DH3 and DH1 packet transmitting.
4. Use the marker-delta function to determine the dwell time. If this value varies with different modes of operation (e.g.. data rate. modulation format. etc.). repeat this test for each variation. The limit is specified in one of the subparagraphs of this Section. Submit this plot(s).

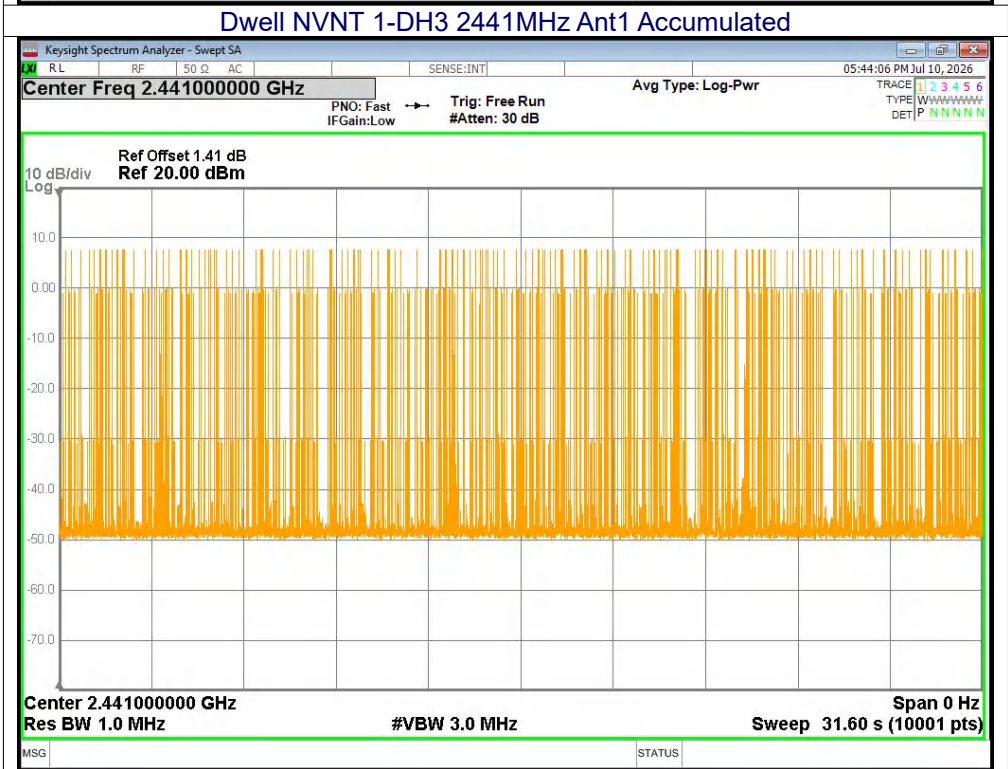
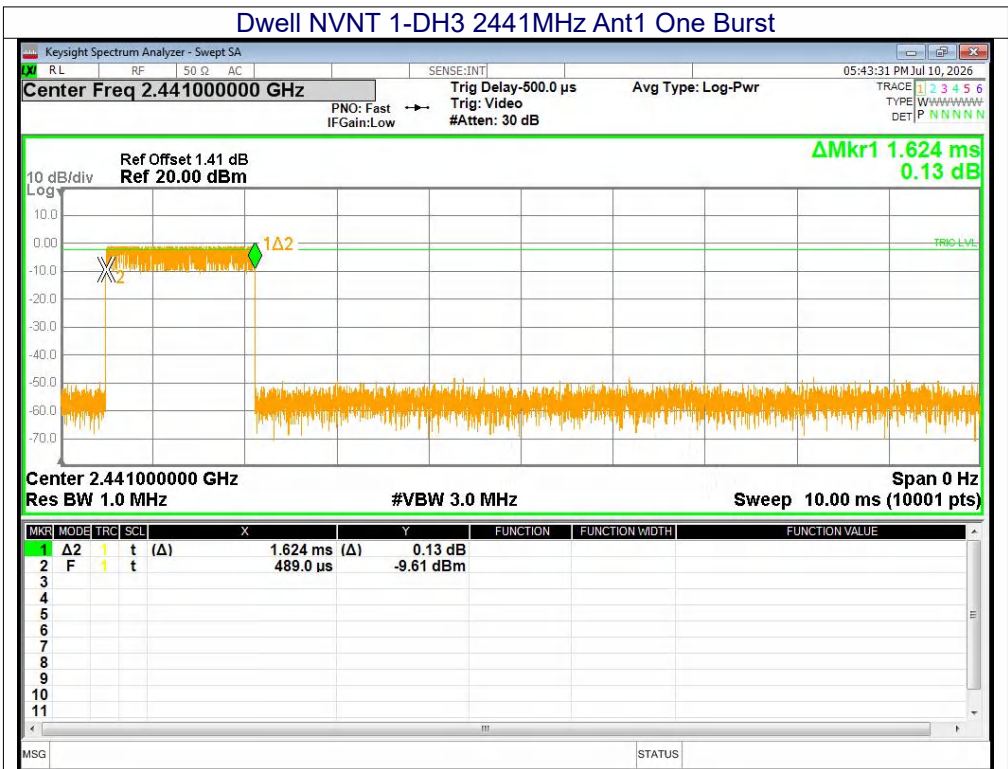
11.3 DEVIATION FROM STANDARD

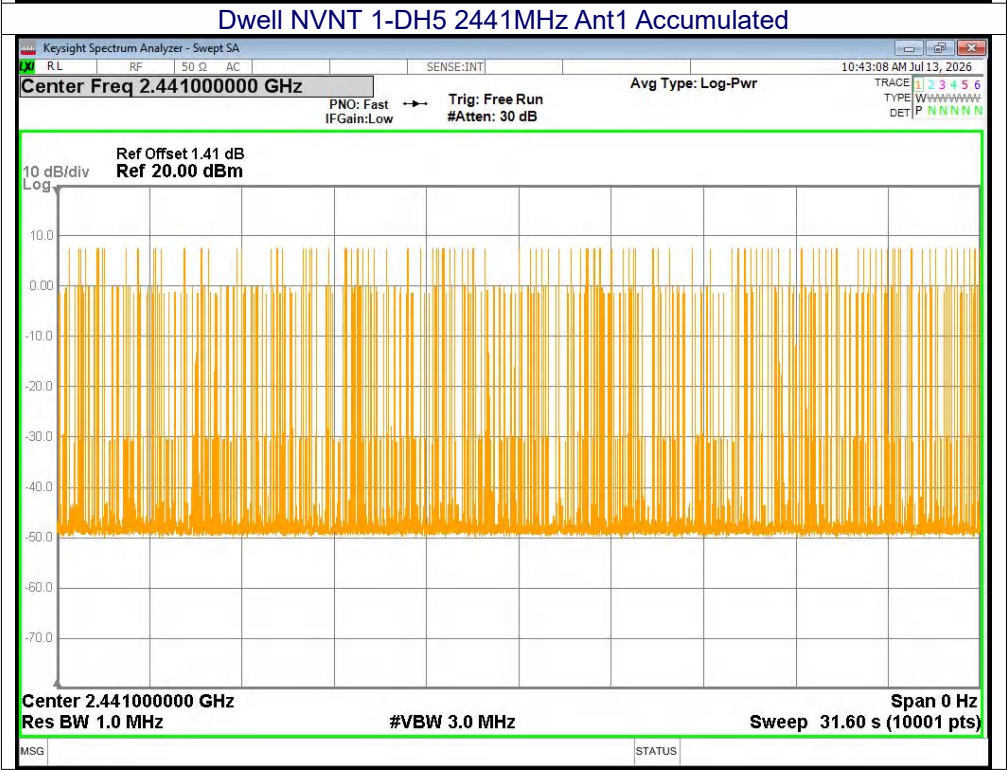
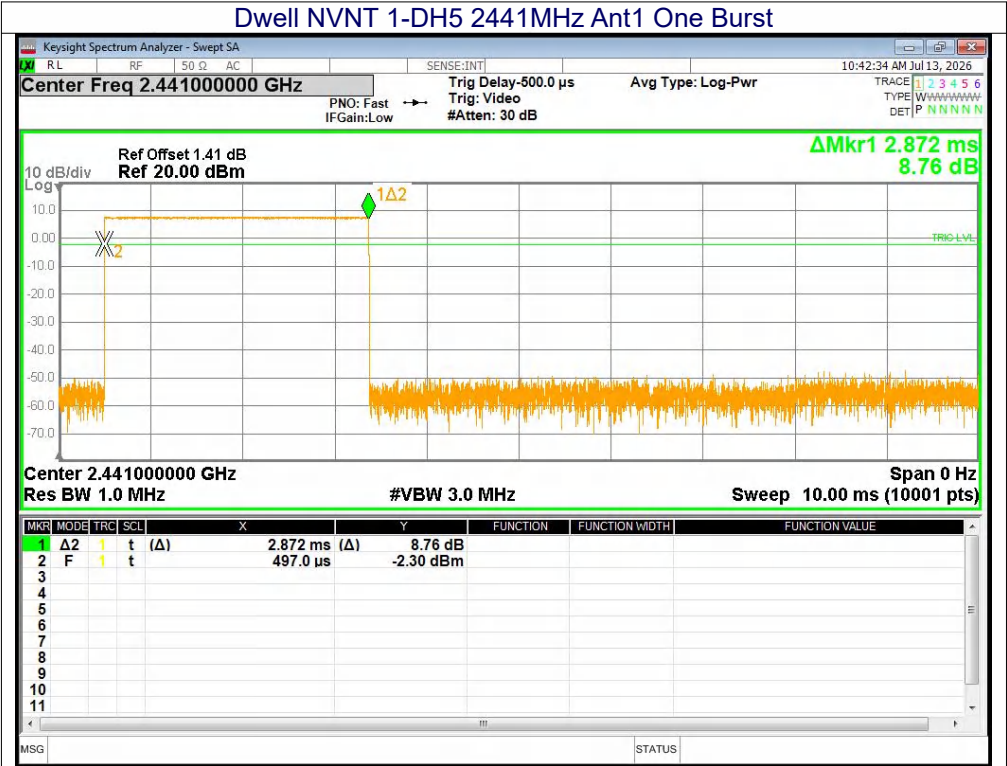
No deviation.

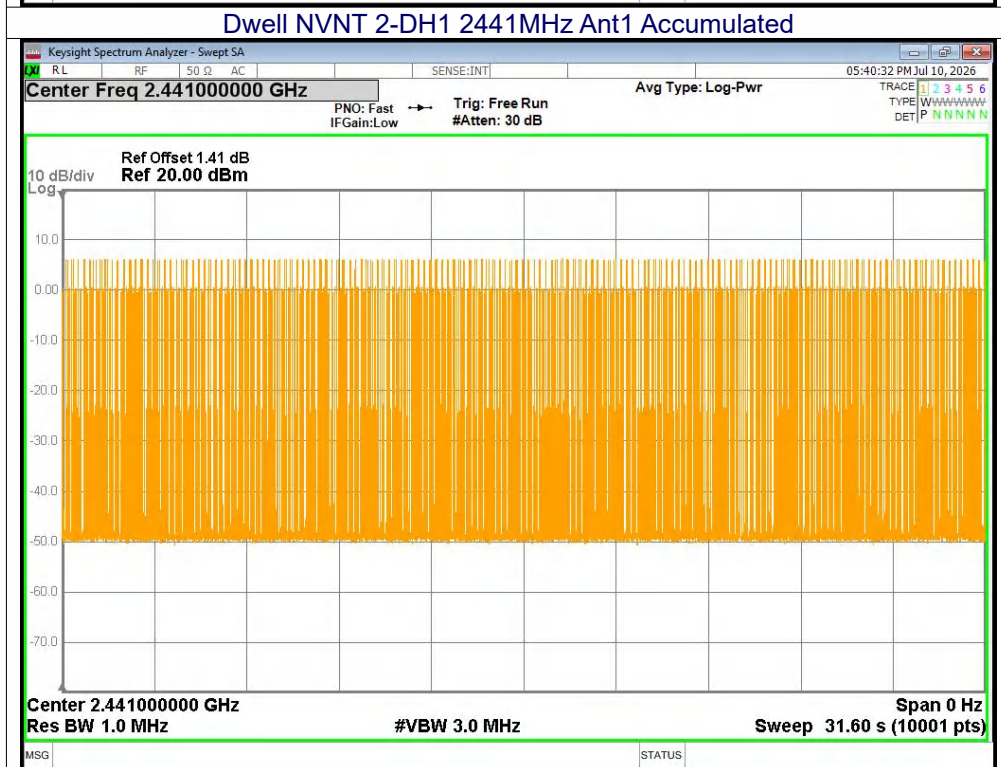
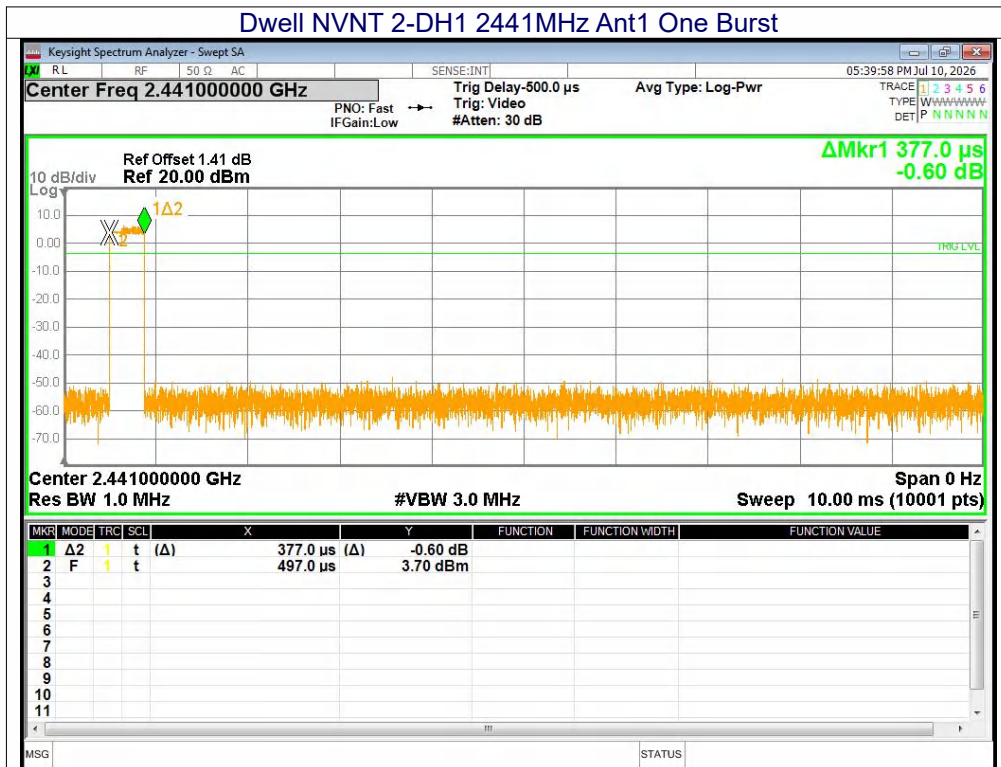
11.4 Test Result

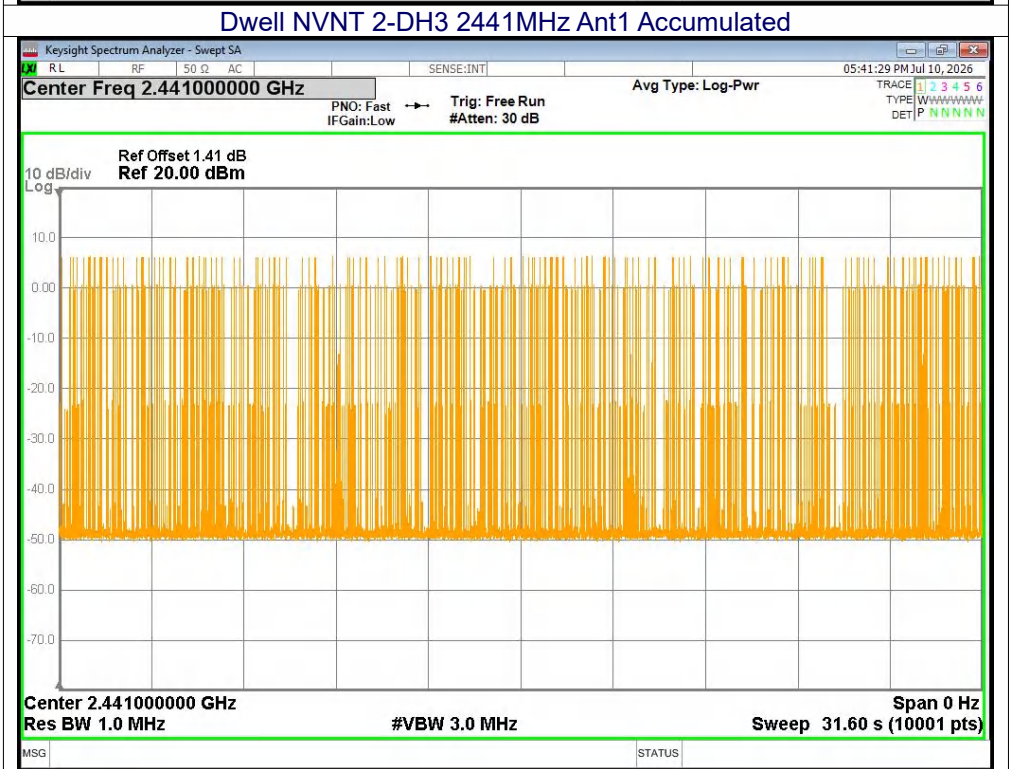
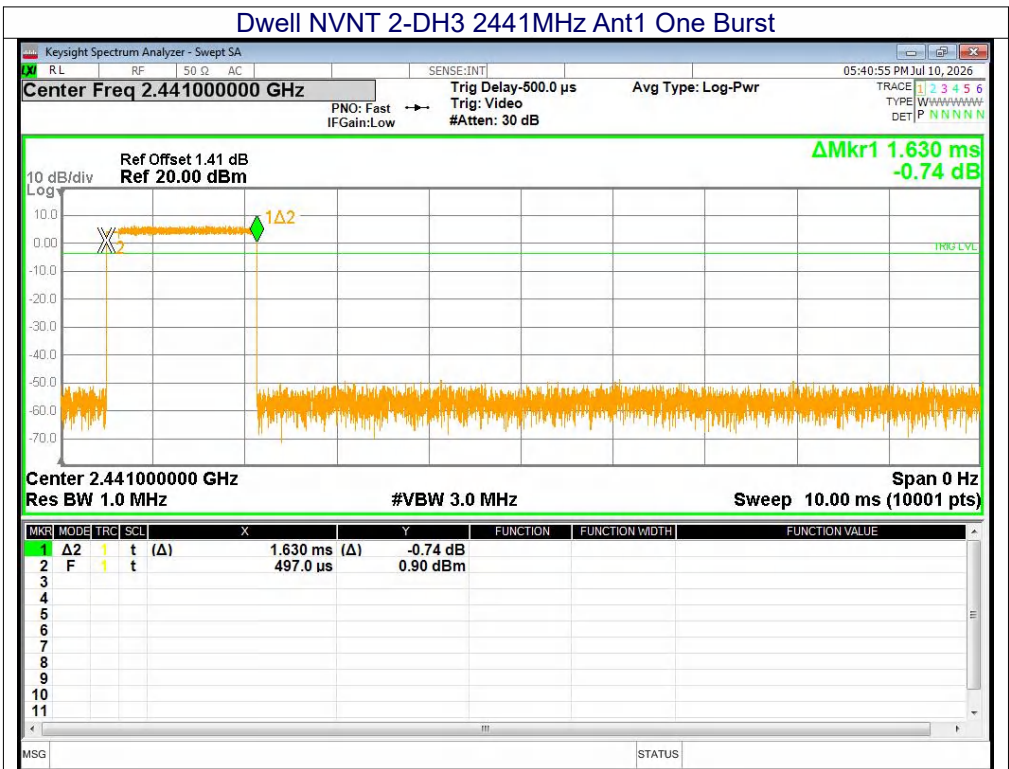
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.368	117.392	319	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.624	251.72	155	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.872	327.408	114	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.377	120.263	319	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.63	257.54	158	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.877	316.47	110	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.377	120.263	319	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.629	255.753	157	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.88	342.72	119	31600	400	Pass

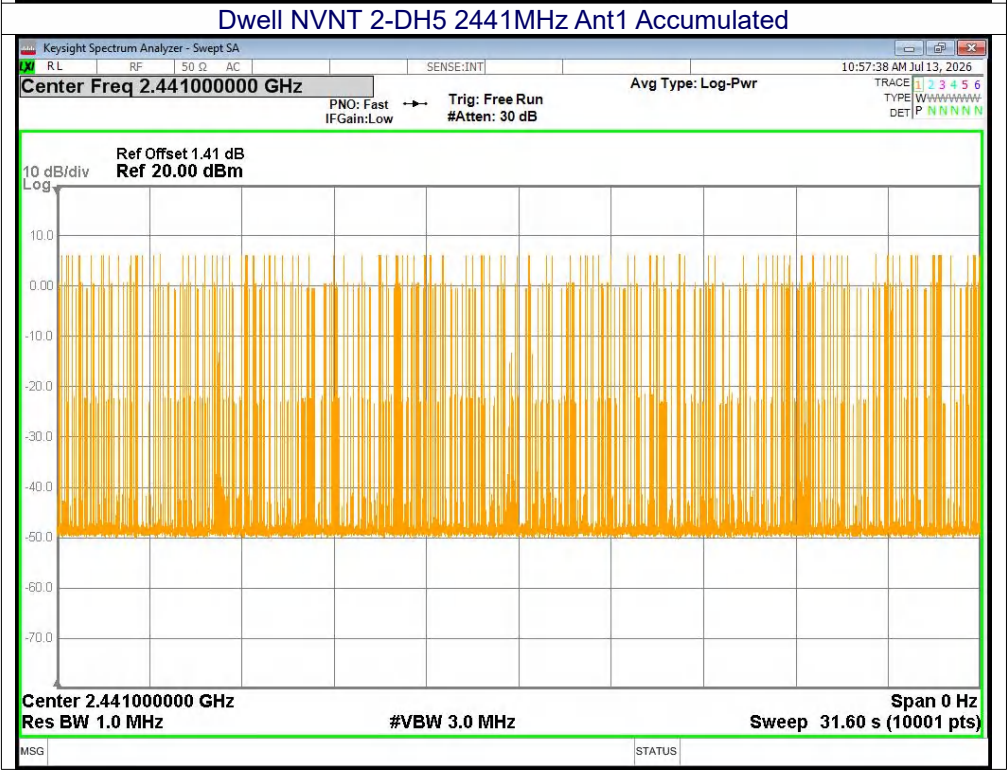
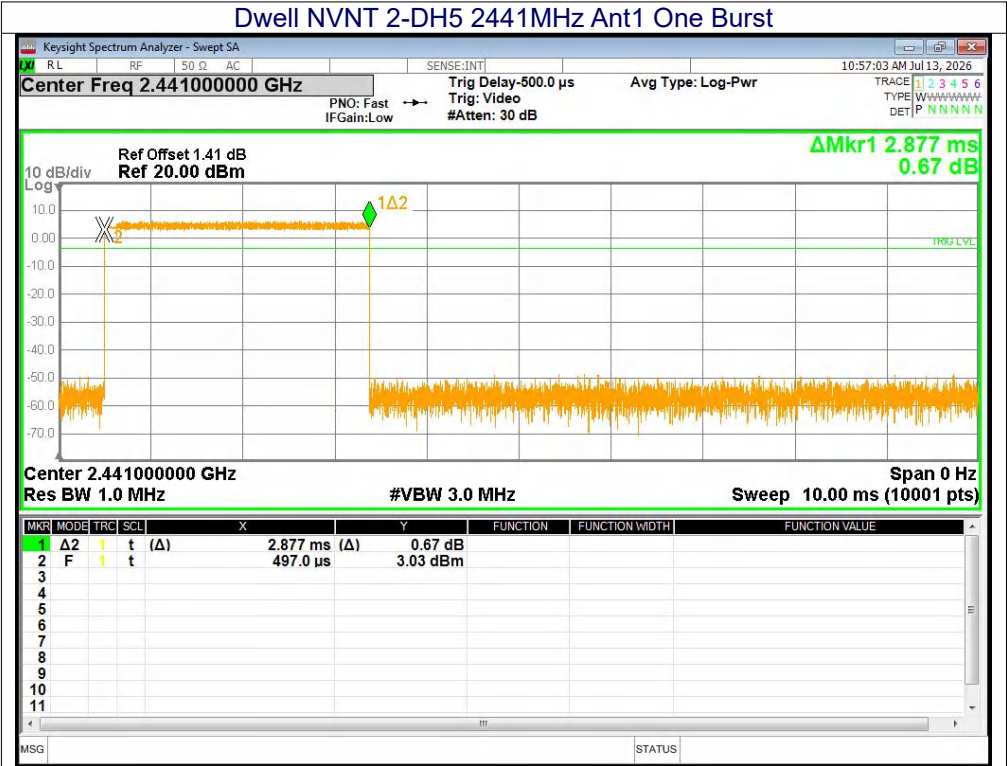


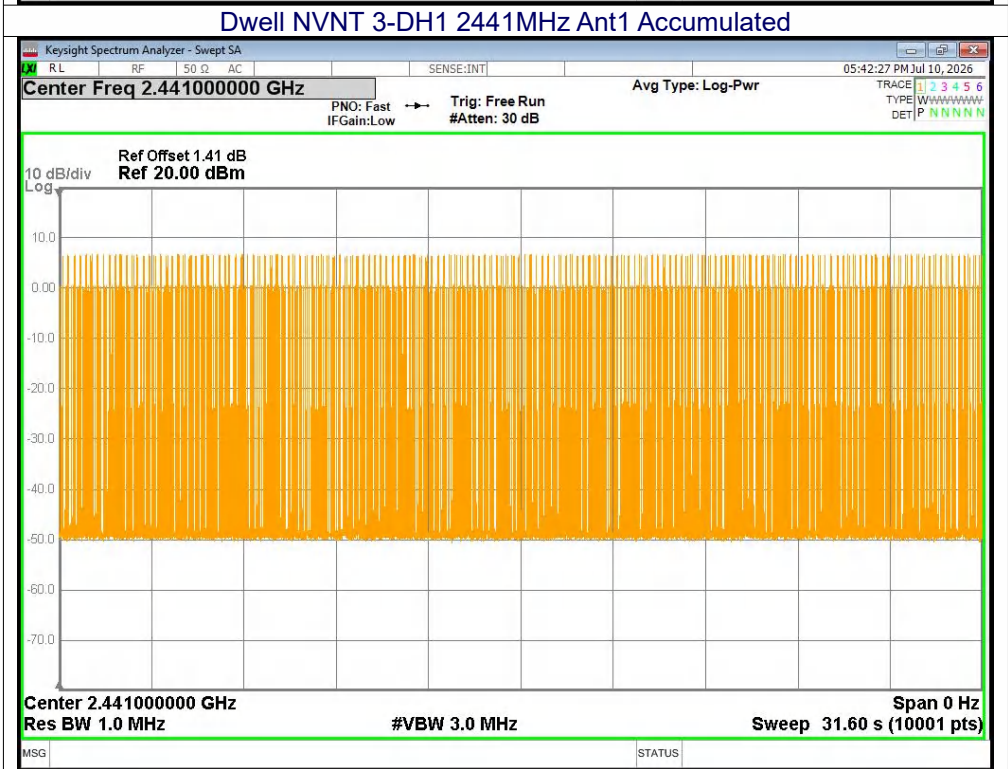
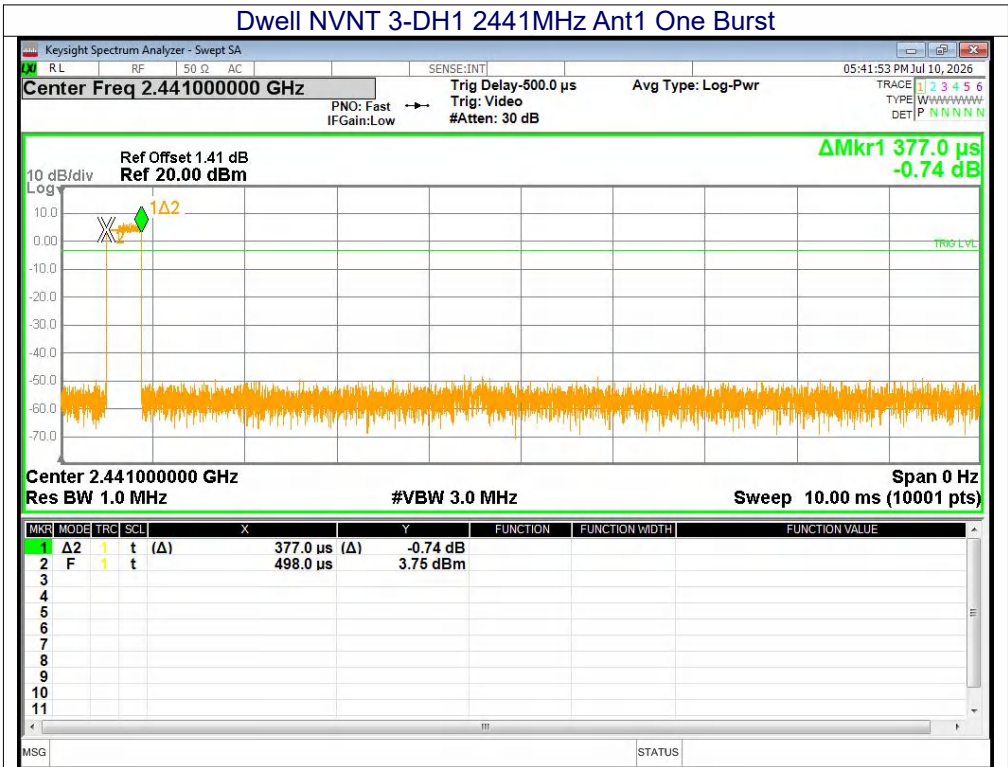


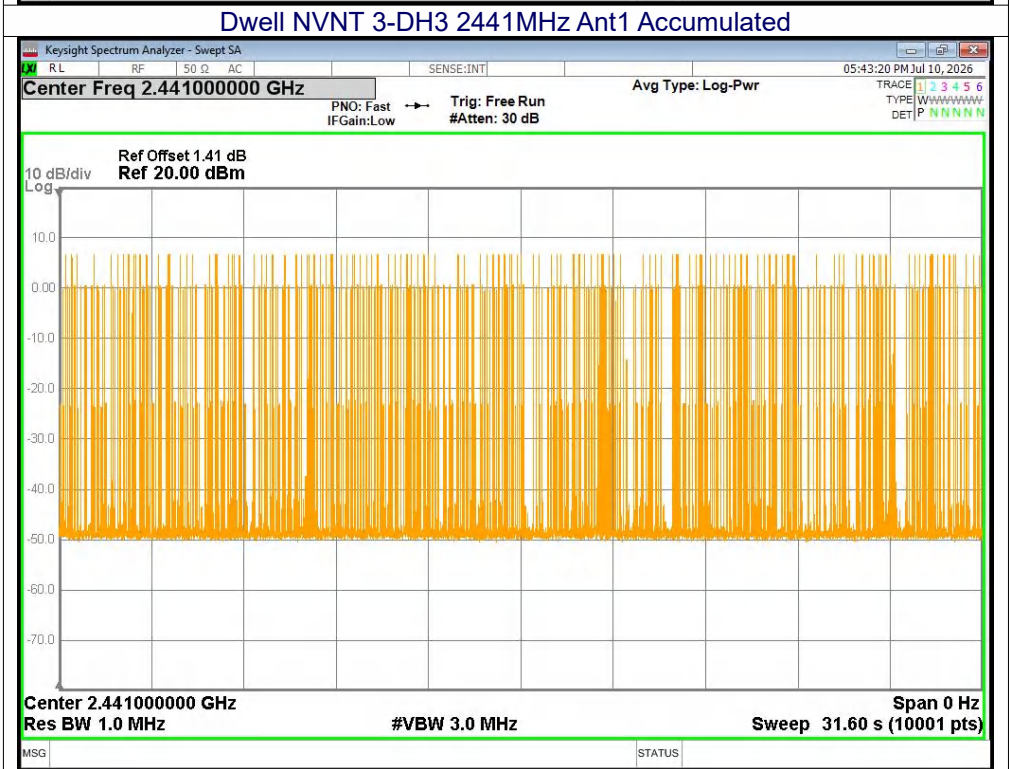
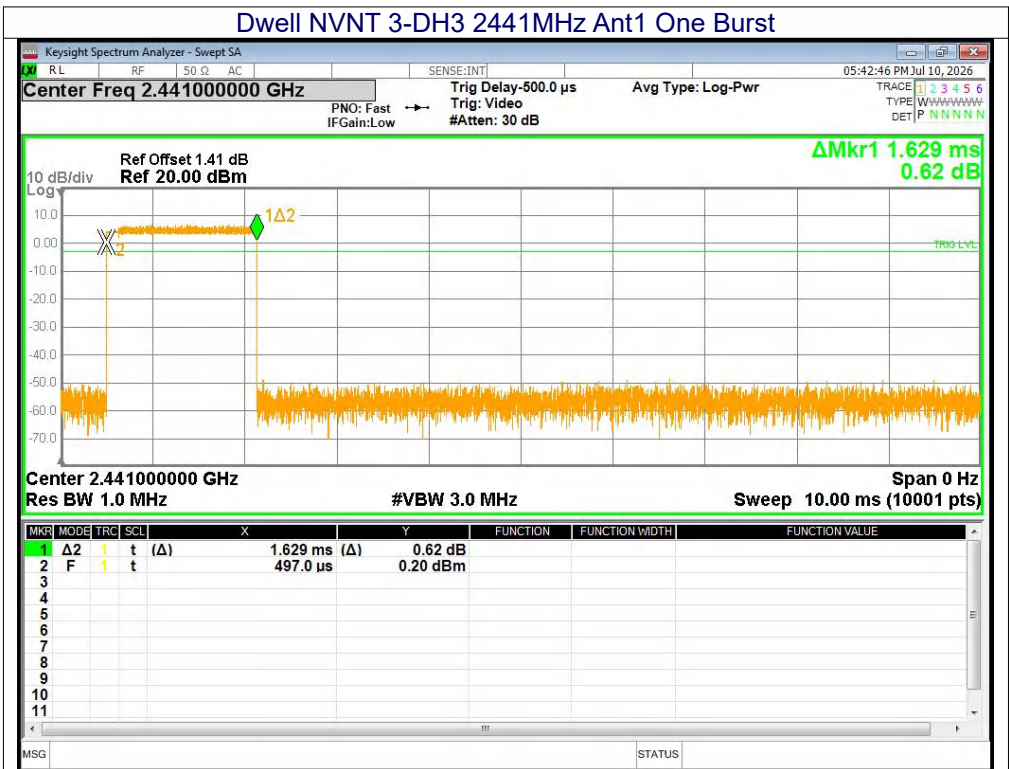


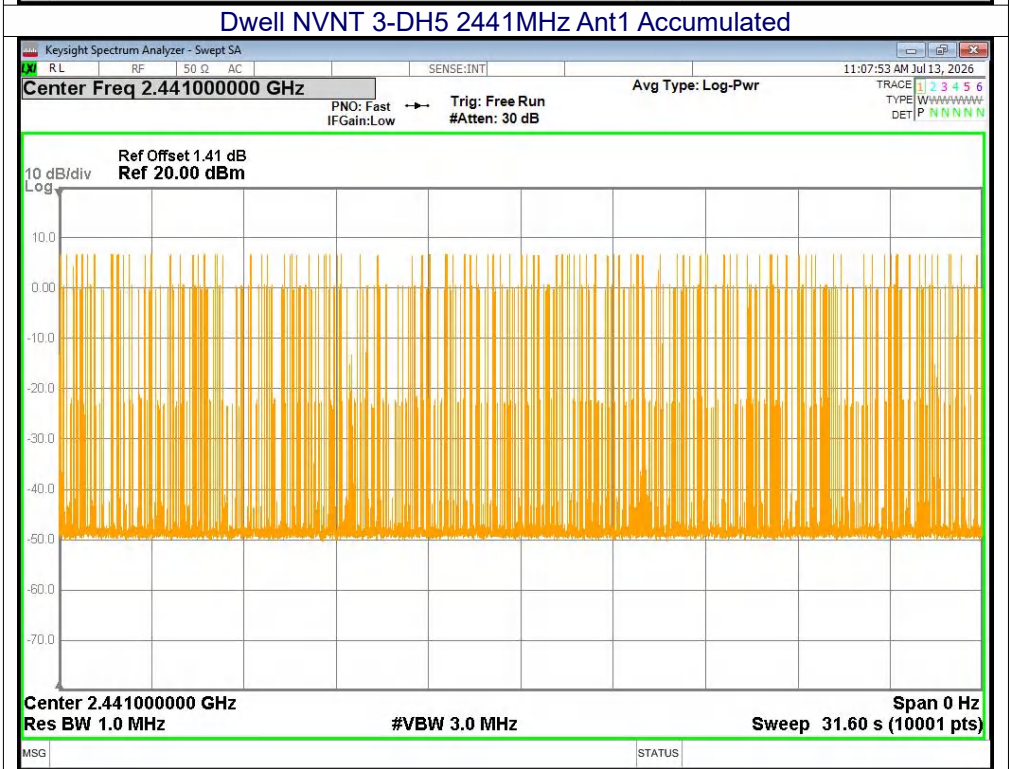
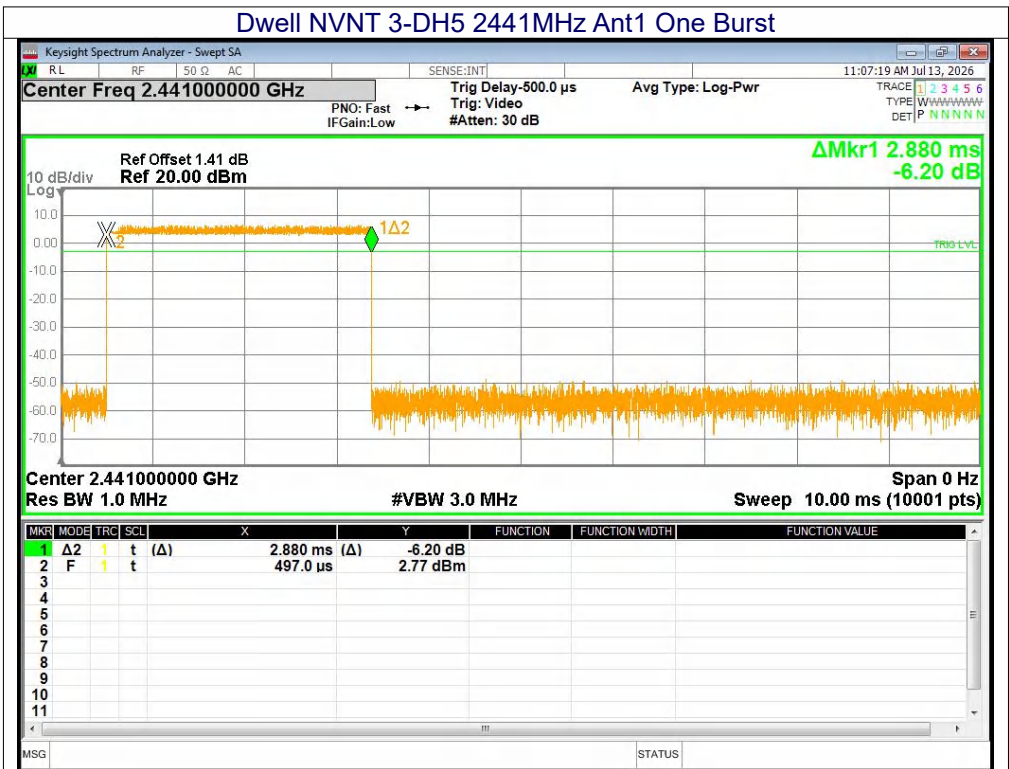












12. Antenna Requirement

Standard requirement:	FCC Part15 C Section 15.203 /247(b)(4)
15.203 requirement: 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. 15.247(b) (4) requirement: The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.	
EUT Antenna:	
The antenna is FPC Antenna, the best case gain of the antennas is 1.13dBi, reference to the appendix II for details.	



13. Test Setup Photo

Reference to the appendix I for details.

14. EUT Constructional Details

Reference to the appendix II for details.

***** END OF REPORT *****