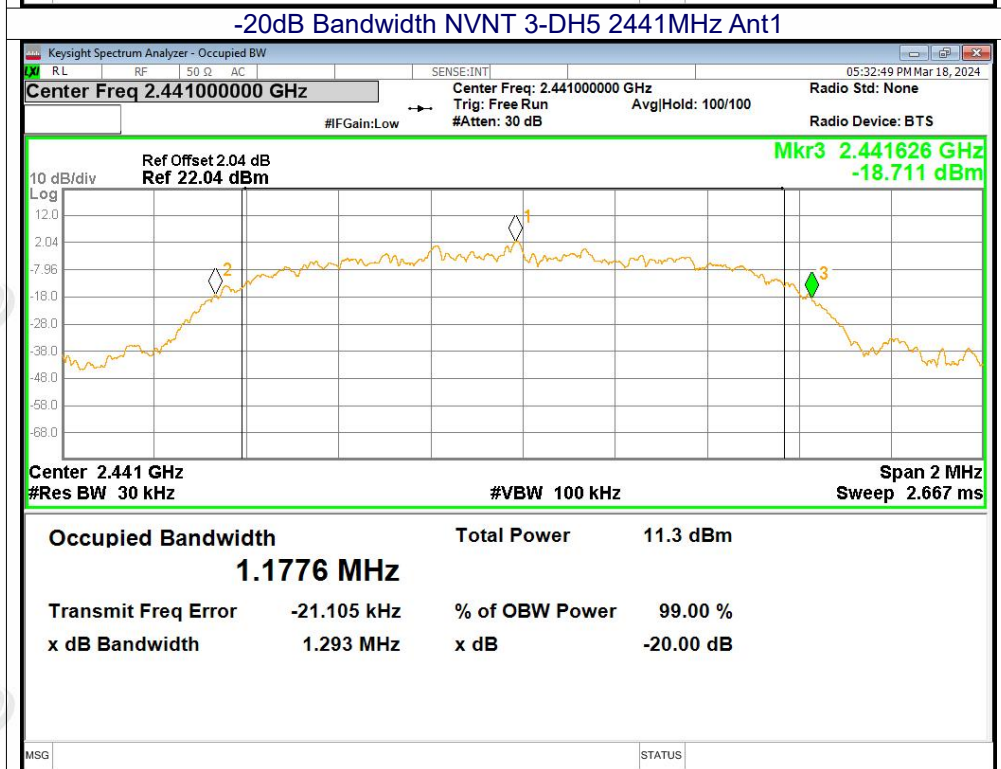
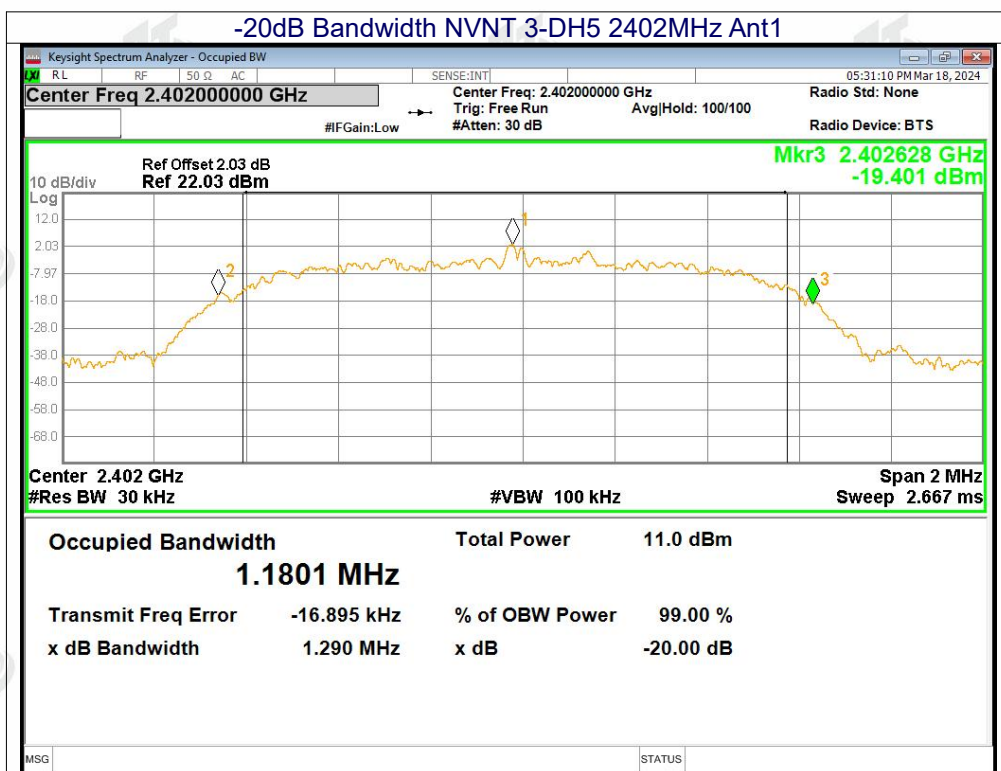
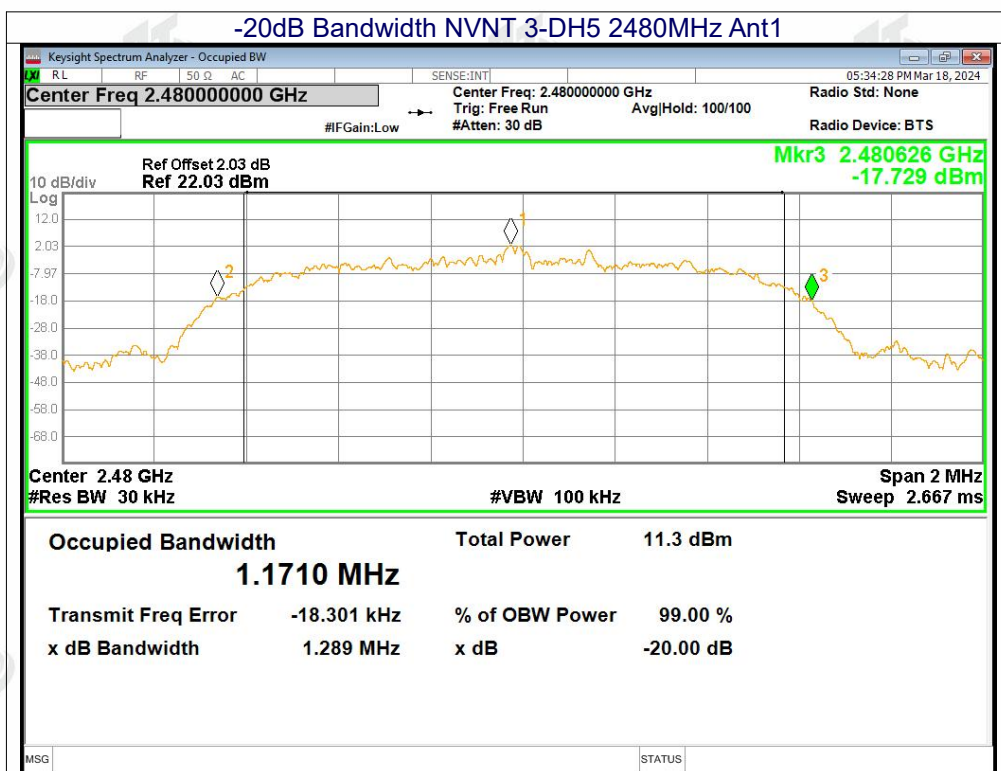






8. Maximum Peak Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(1)
Test Method:	ANSI C63.10:2013

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

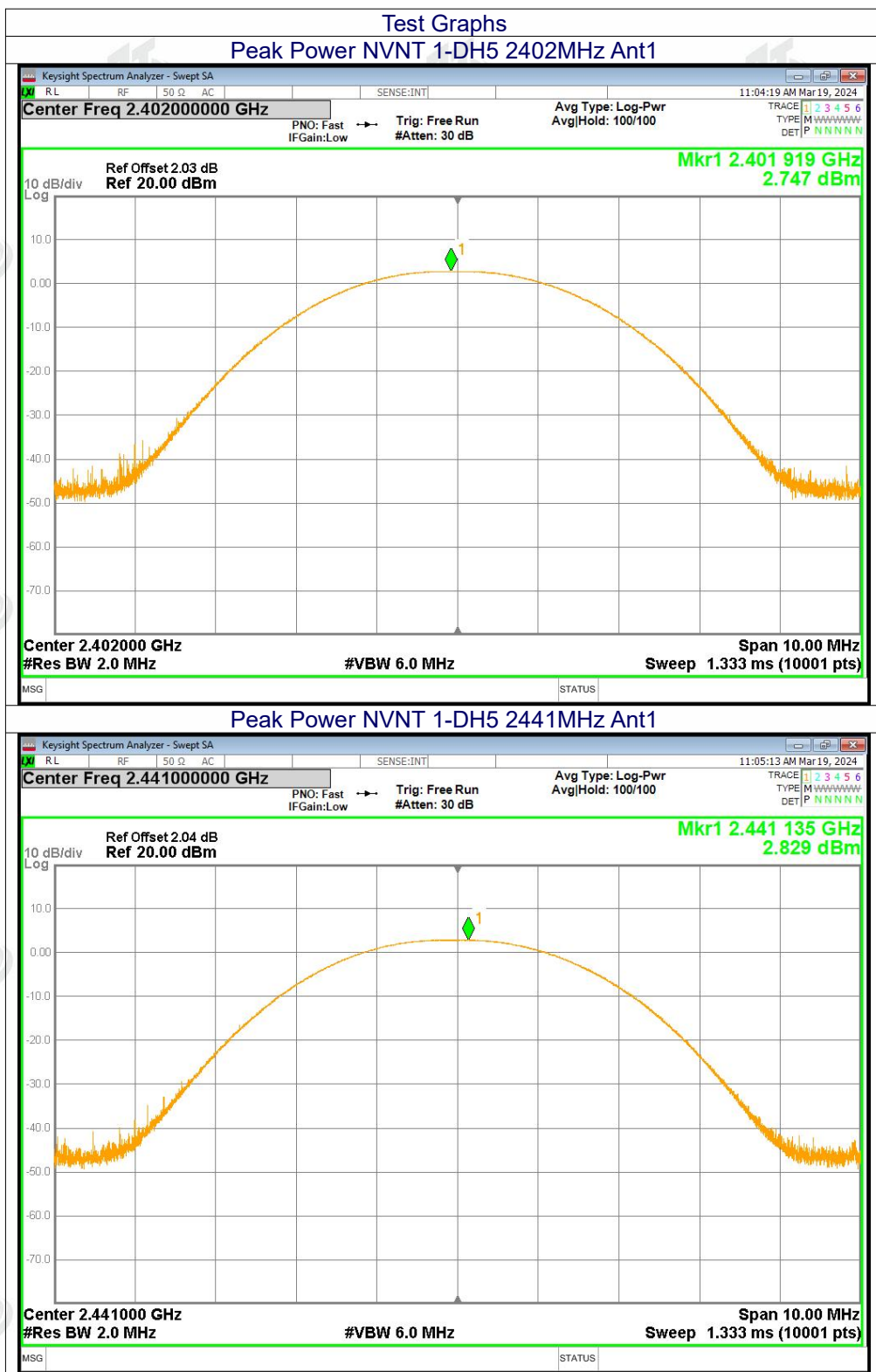
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 2MHz. VBW =6MHz. Sweep = auto; Detector Function = Peak.
3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

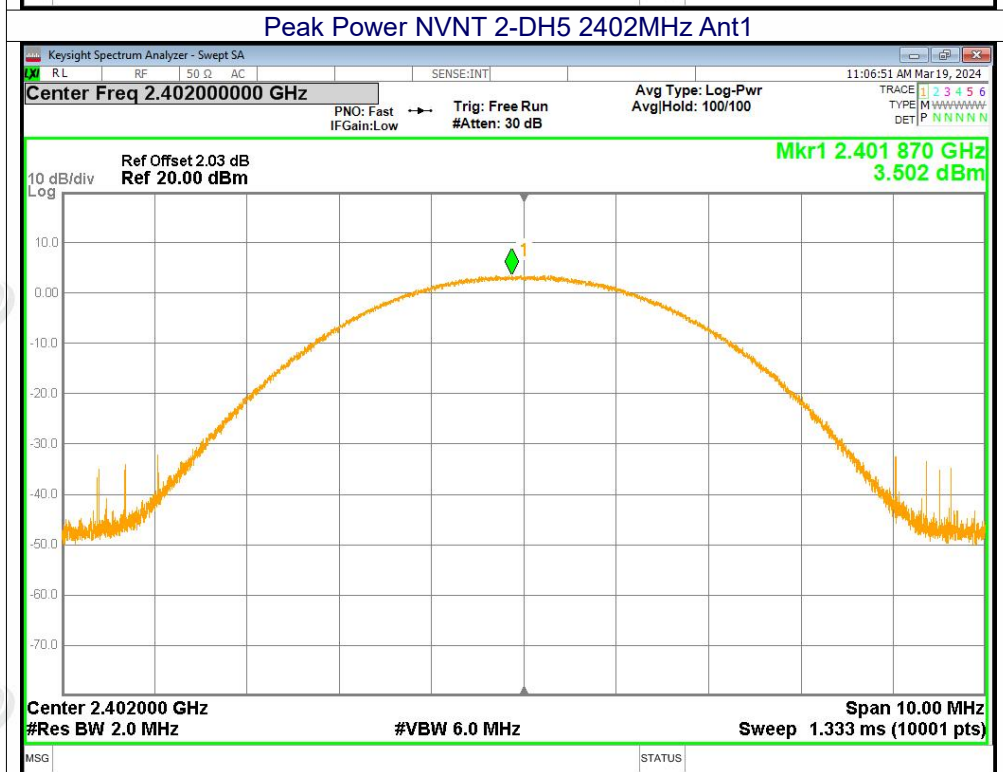
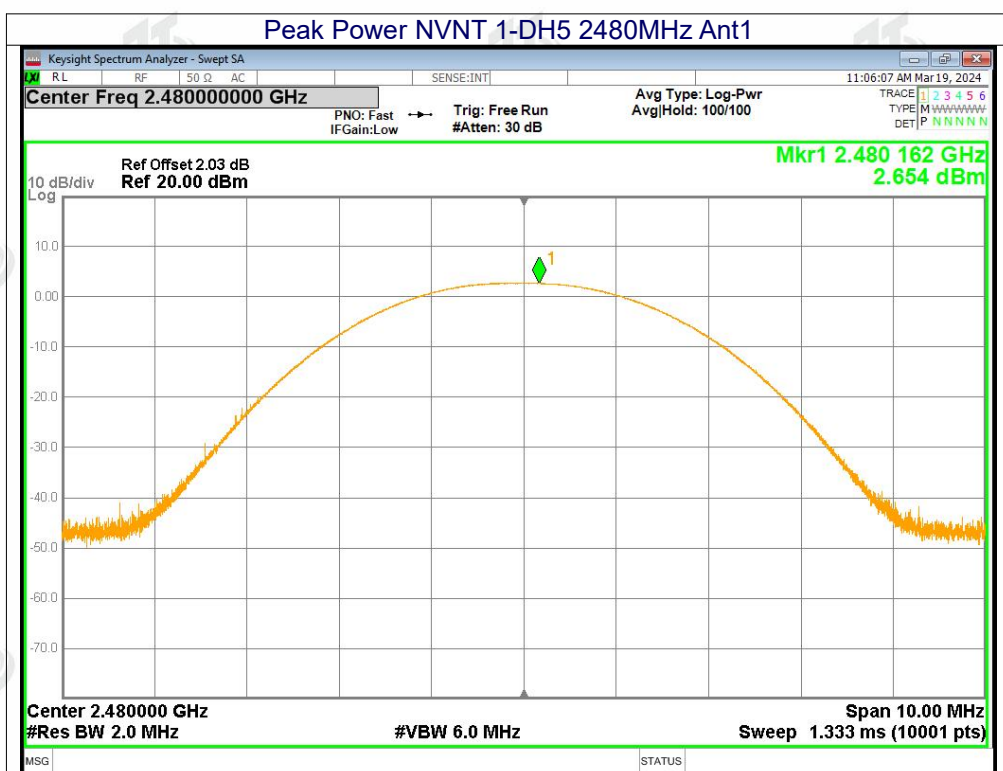
8.4 DEVIATION FROM STANDARD

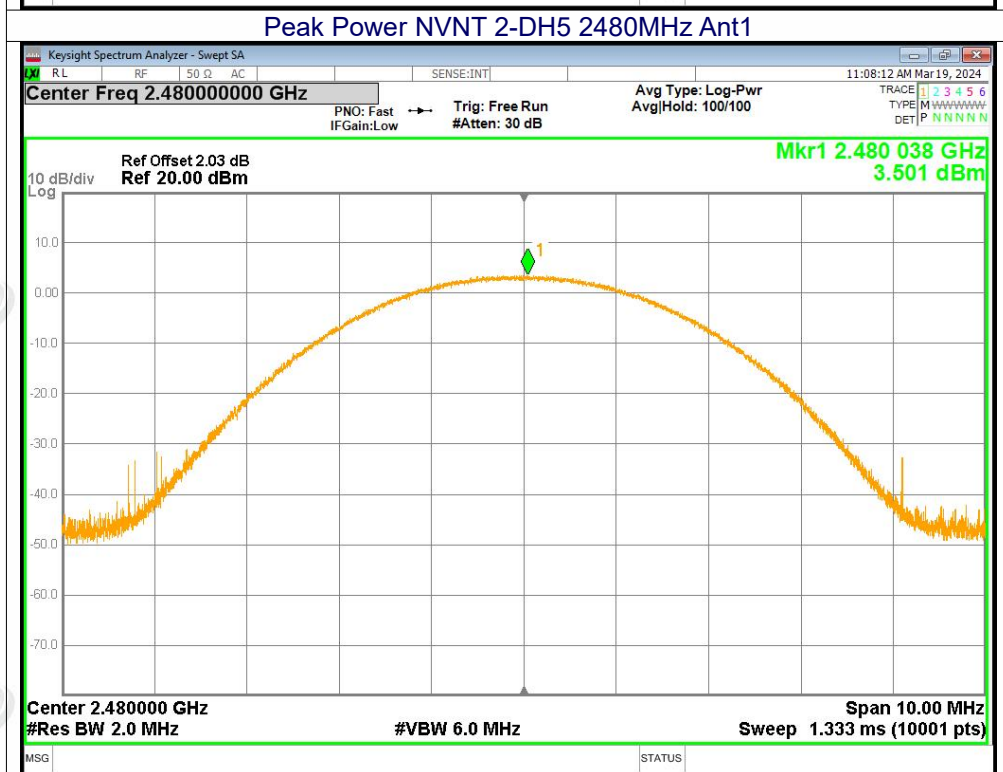
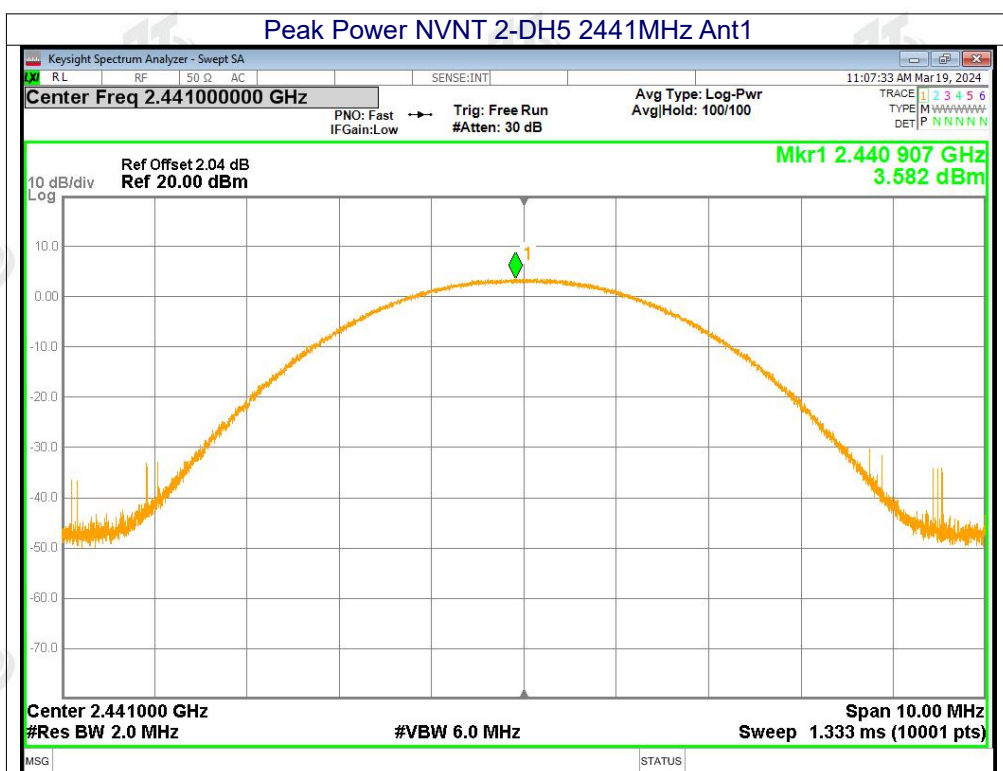
No deviation.

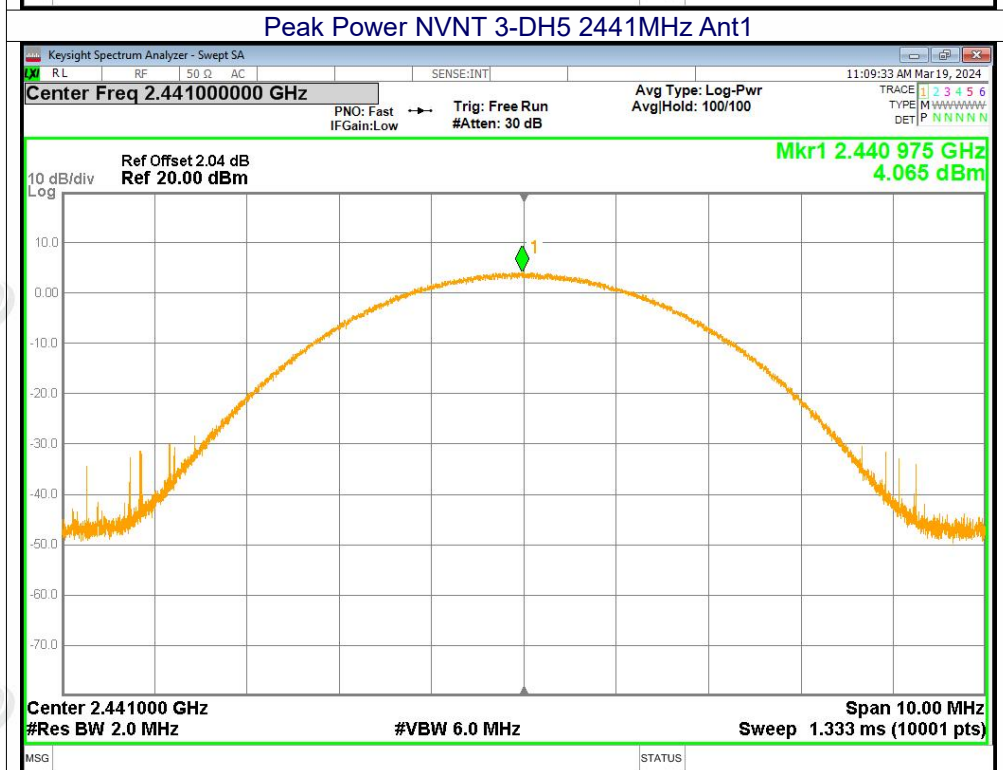
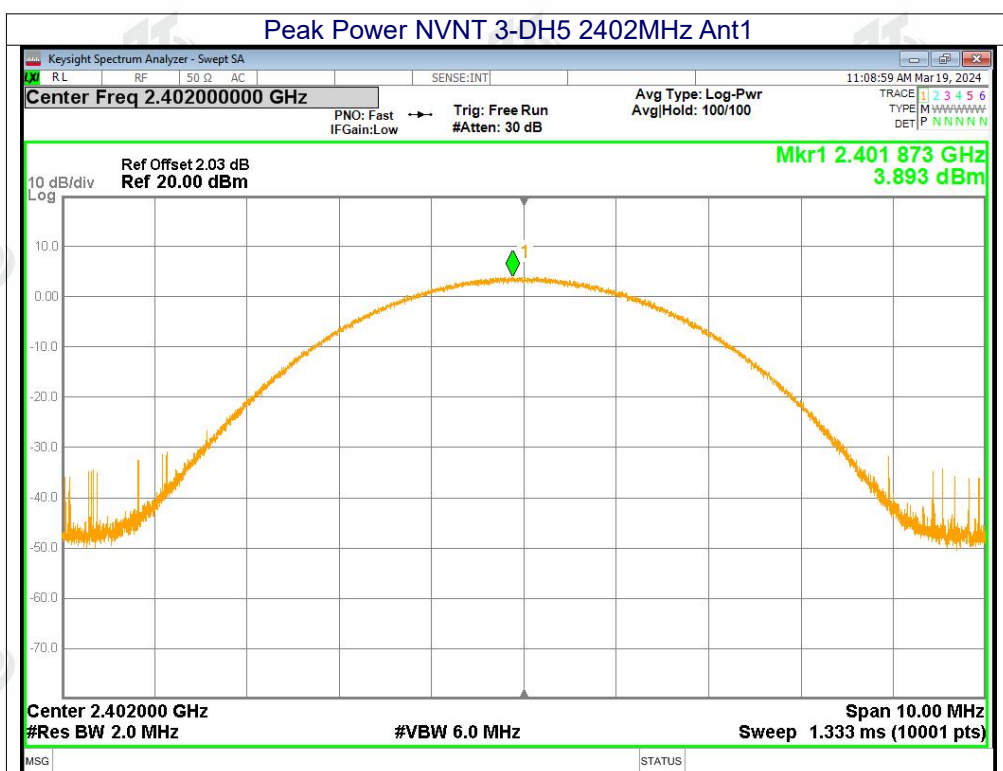
8.5 Test Result

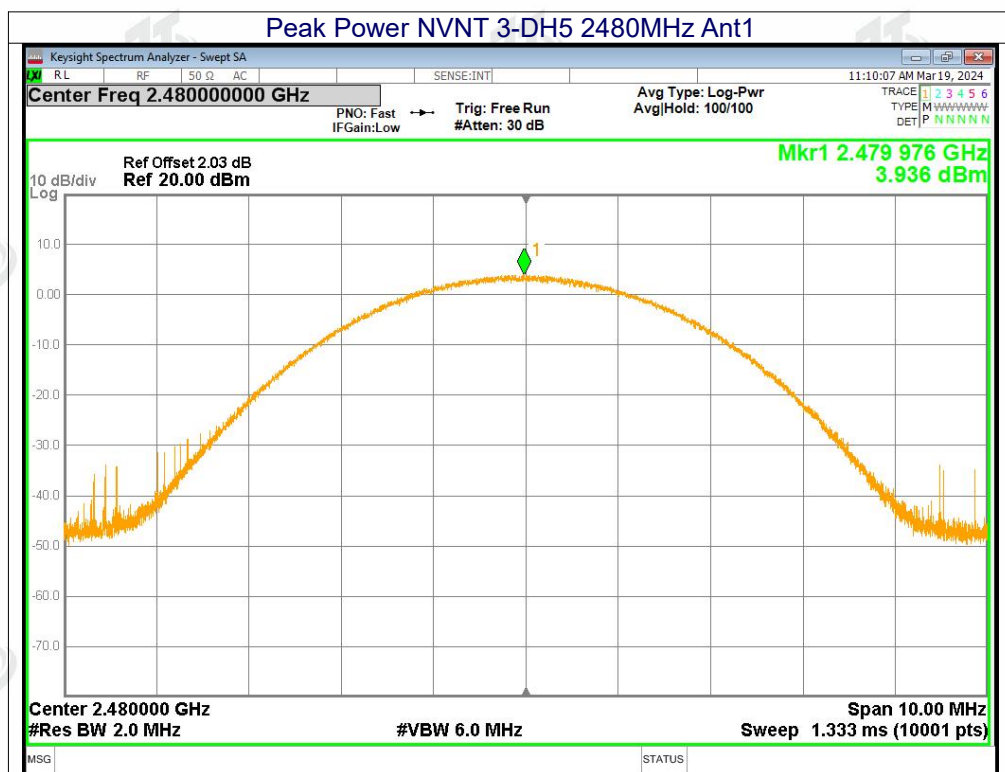
Mode	Test channel	Peak Output Power (dBm)	FCC Limit (dBm)	Result
GFSK	Lowest	2.75	21.00	Pass
	Middle	2.83		
	Highest	2.65		
$\pi/4$ DQPSK	Lowest	3.50	21.00	Pass
	Middle	3.58		
	Highest	3.50		
8DPSK	Lowest	3.89	21.00	Pass
	Middle	4.07		
	Highest	3.94		











9. HOPPING CHANNEL SEPARATION

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)
Test Method:	ANSI C63.10:2013
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: RBW = 30kHz. 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.

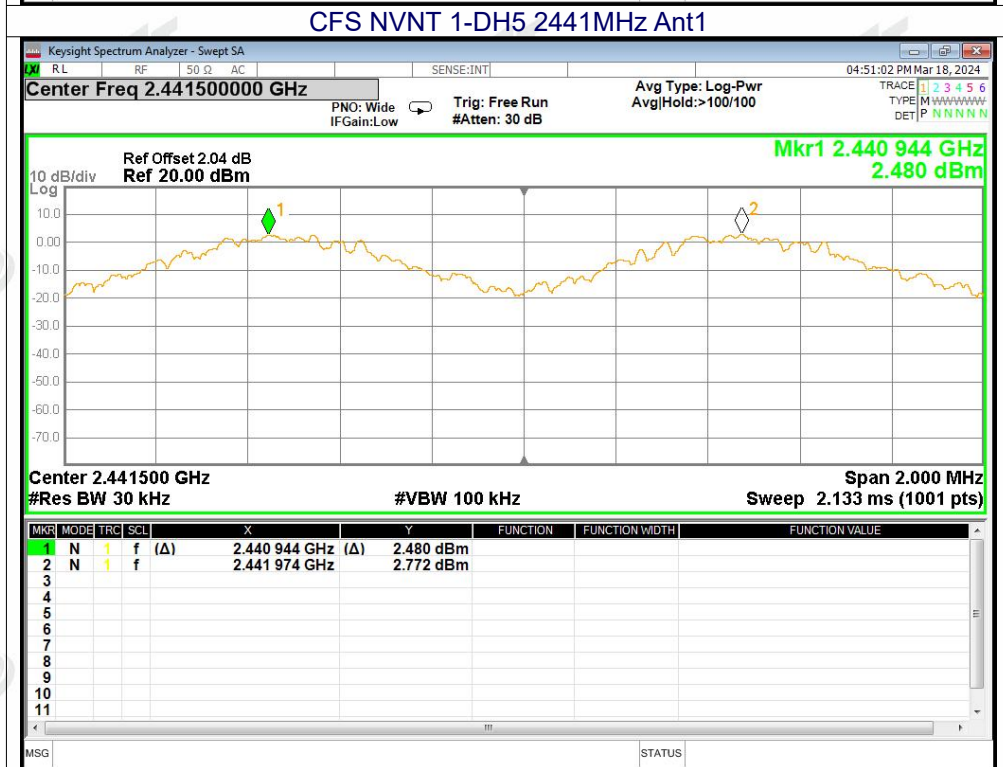
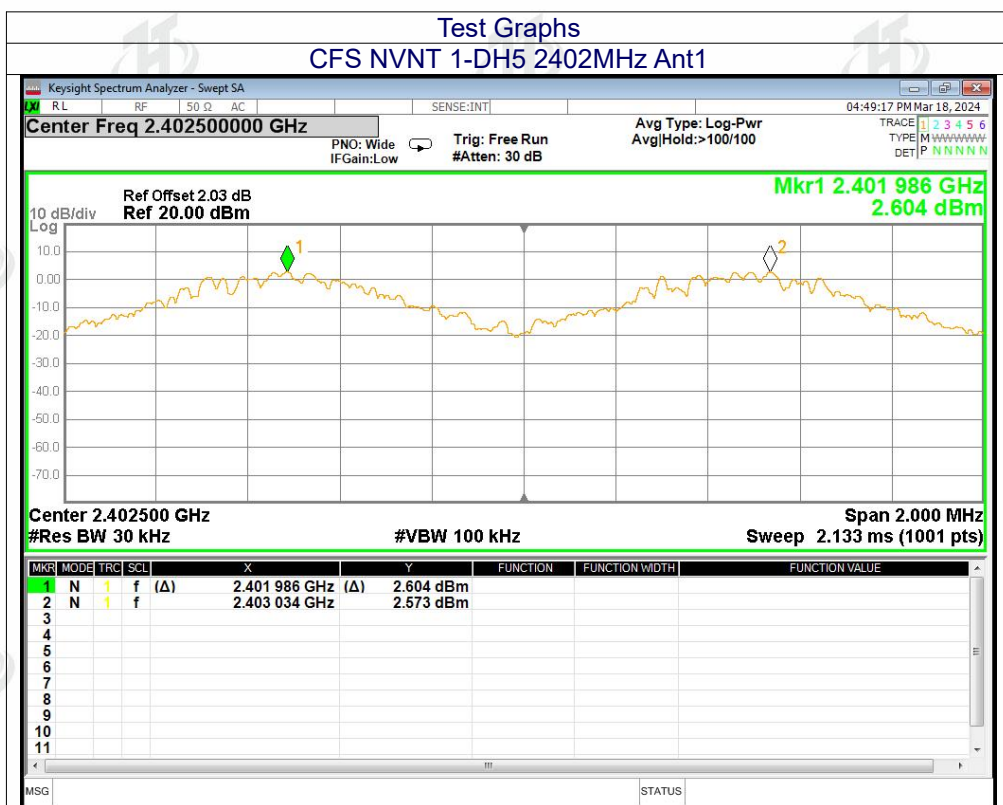
9.3 DEVIATION FROM STANDARD

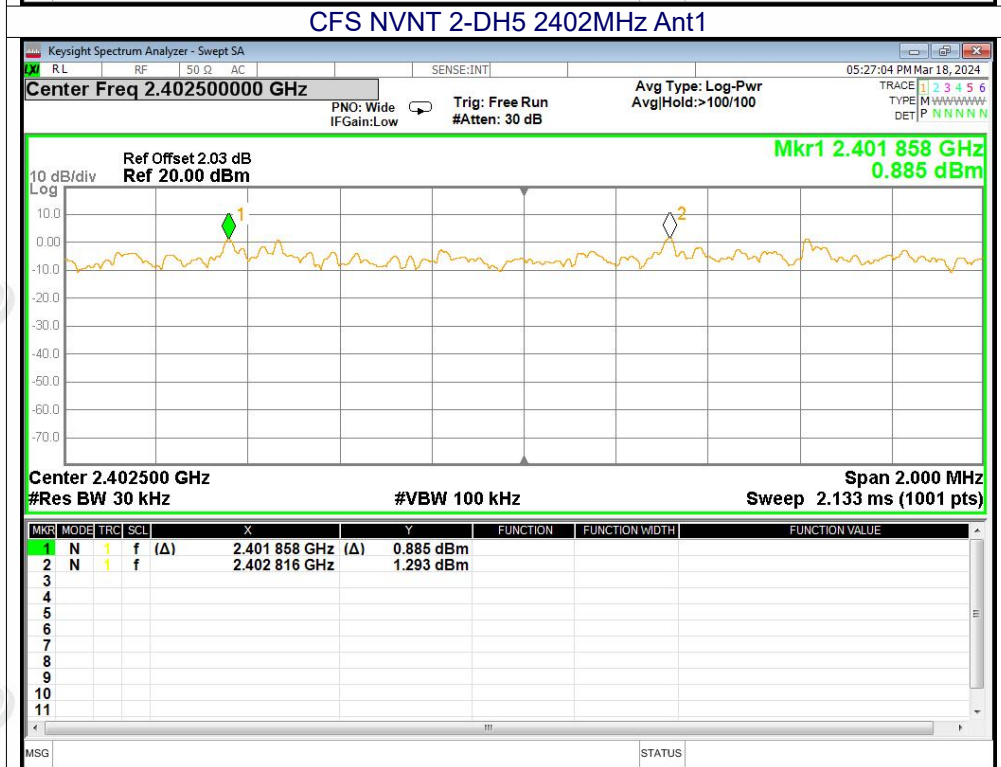
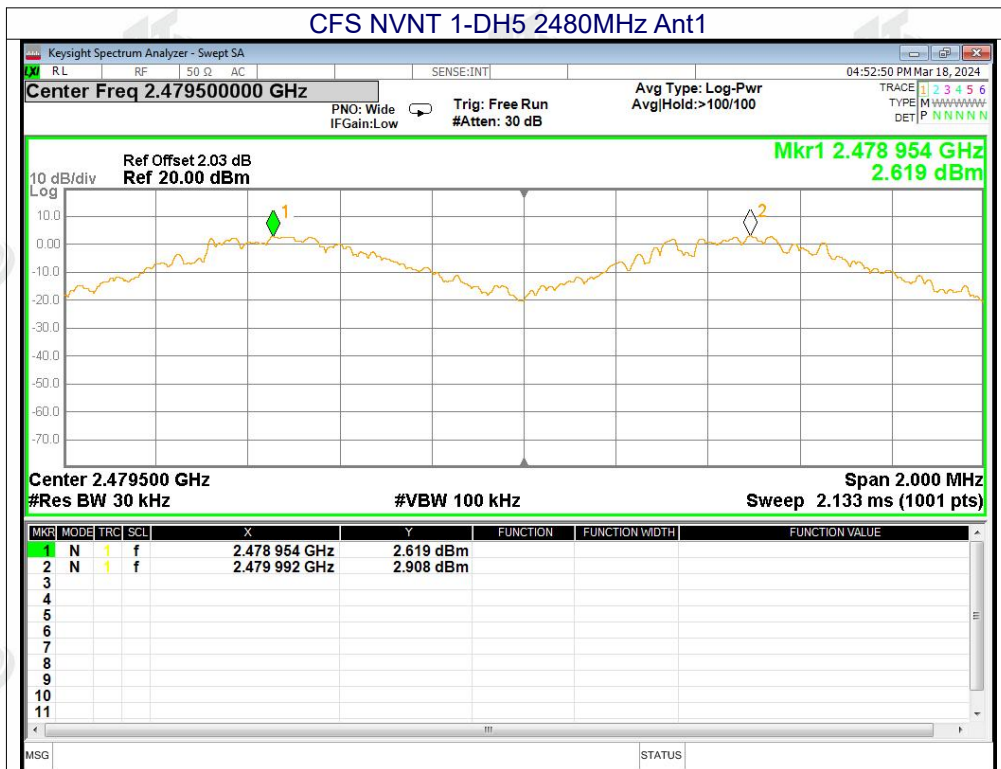
No deviation.

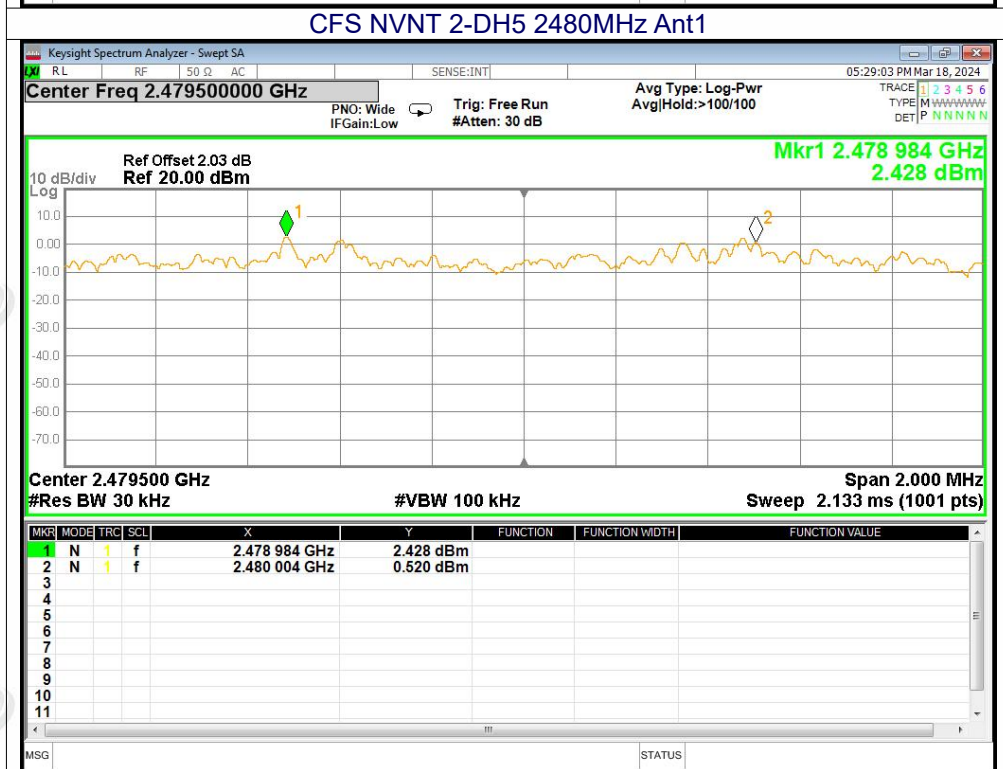
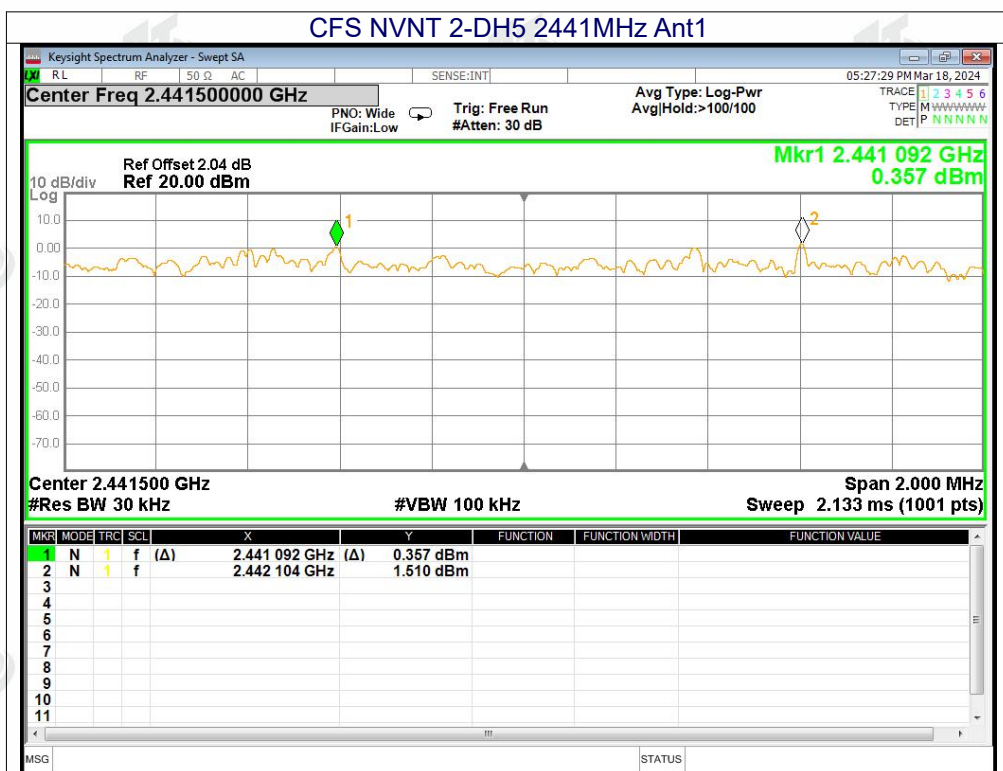


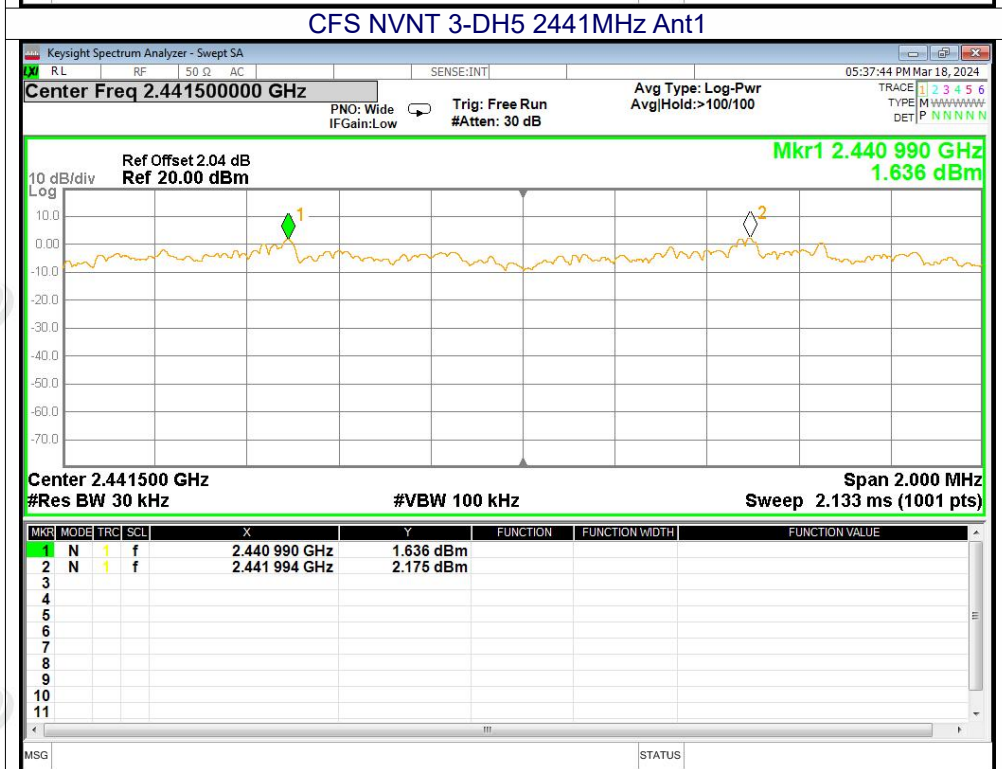
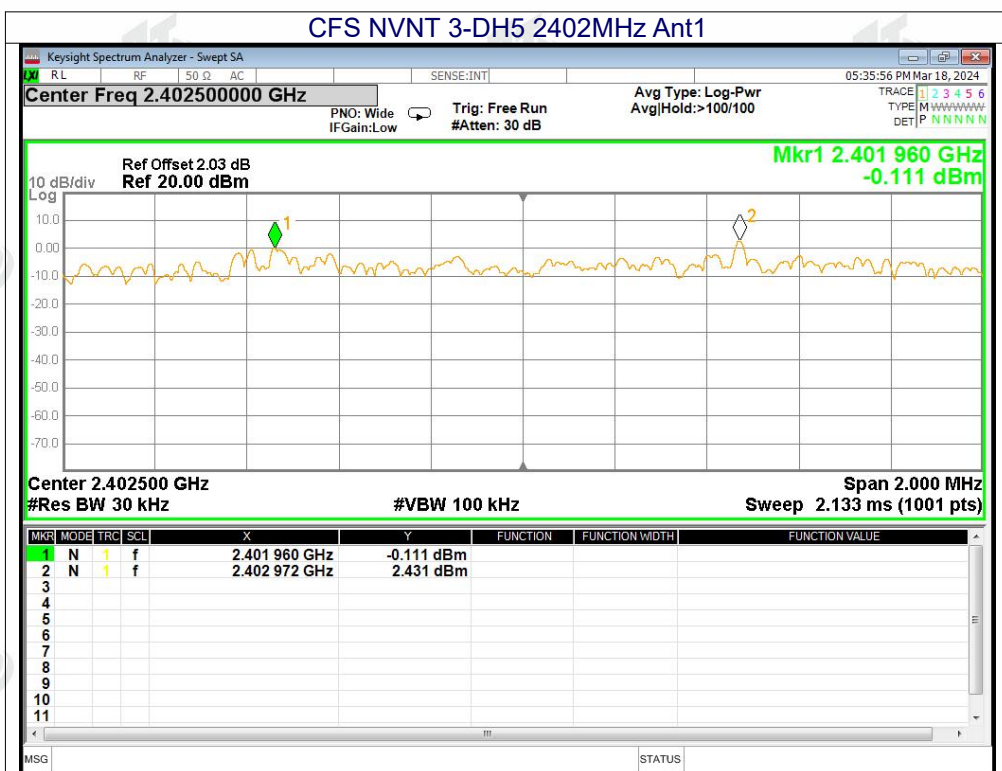
9.4 Test Result

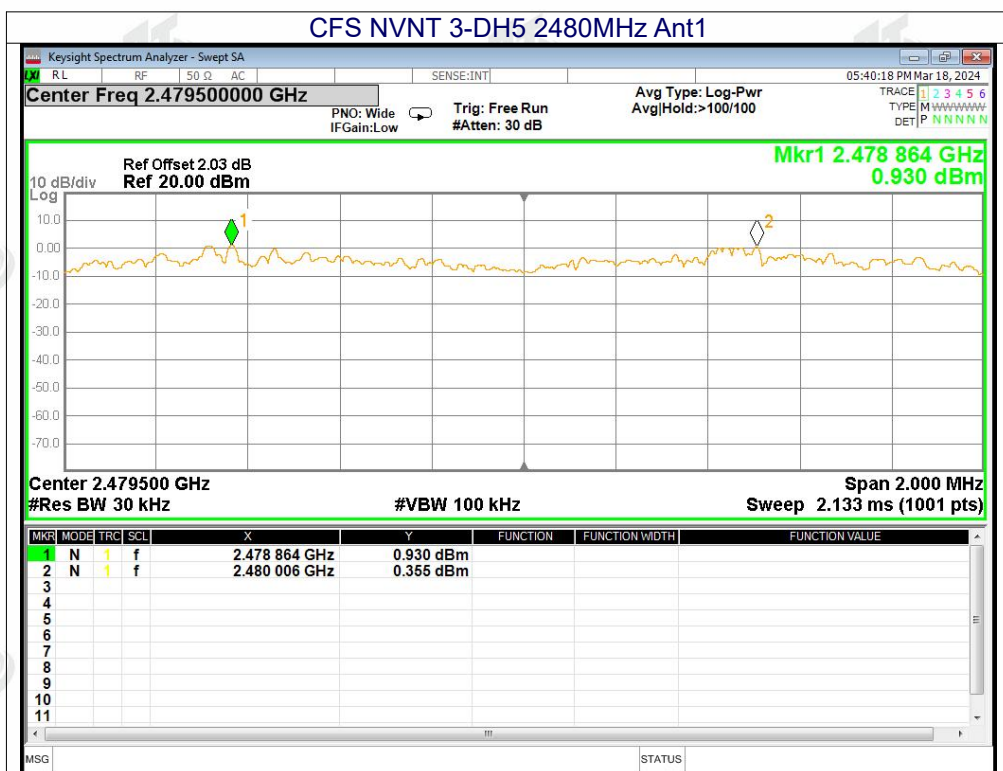
Modulation	Test Channel	Separation (MHz)	Limit(MHz)	Result
GFSK	Low	1.048	0.644	PASS
GFSK	Middle	1.03	0.637	PASS
GFSK	High	1.038	0.636	PASS
$\pi/4$ DQPSK	Low	0.958	0.889	PASS
$\pi/4$ DQPSK	Middle	1.012	0.876	PASS
$\pi/4$ DQPSK	High	1.02	0.847	PASS
8DPSK	Low	1.012	0.86	PASS
8DPSK	Middle	1.004	0.862	PASS
8DPSK	High	1.142	0.859	PASS











**10.NUMBER OF HOPPING FREQUENCY**

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)(iii)
Test Method:	ANSI C63.10:2013
Receiver setup:	RBW=100kHz, VBW=300kHz, Frequency range=2400MHz-2483.5MHz, Detector=Peak
Limit:	15 channels

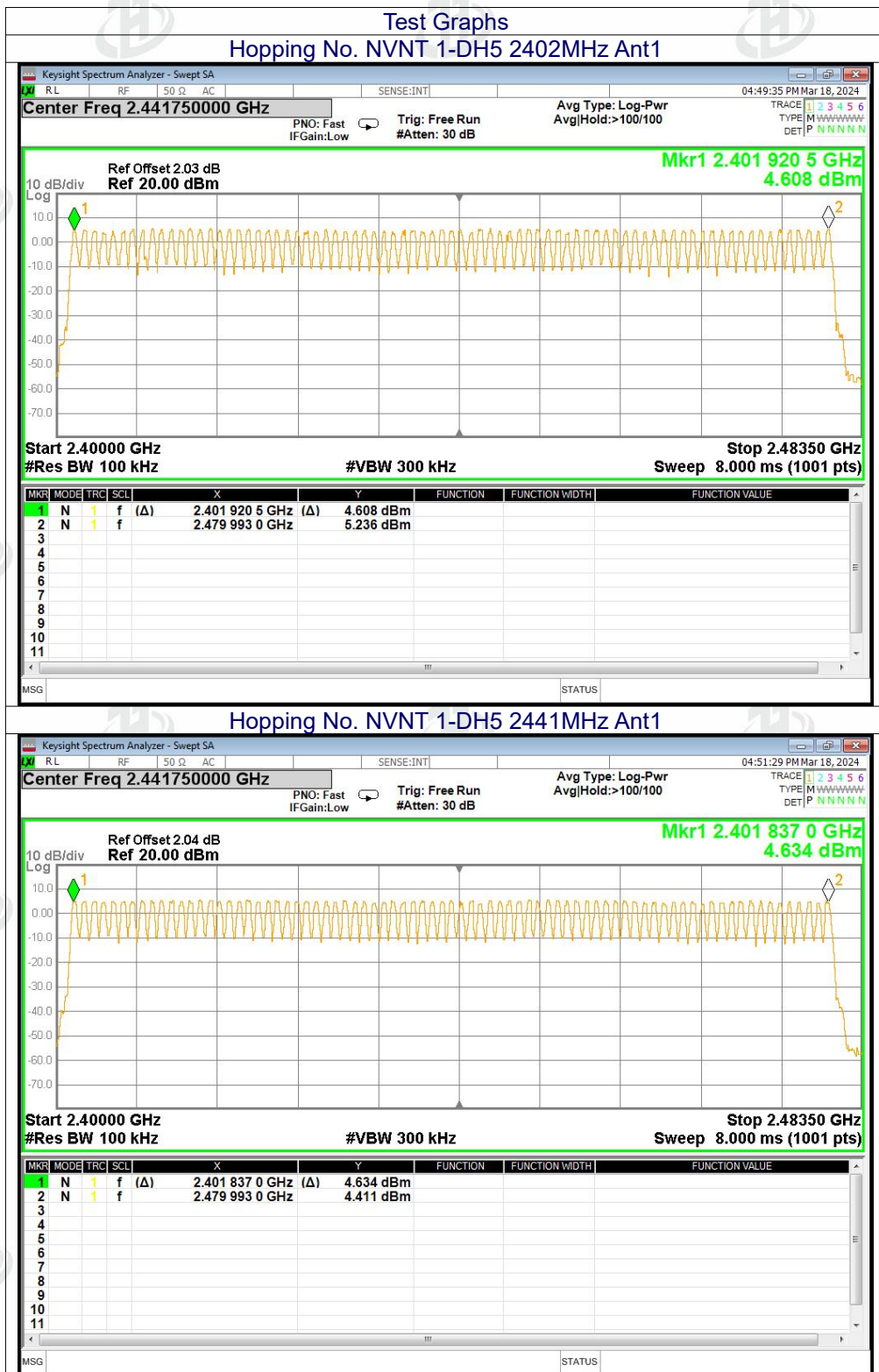
10.1 Test Setup**10.2 Test procedure**

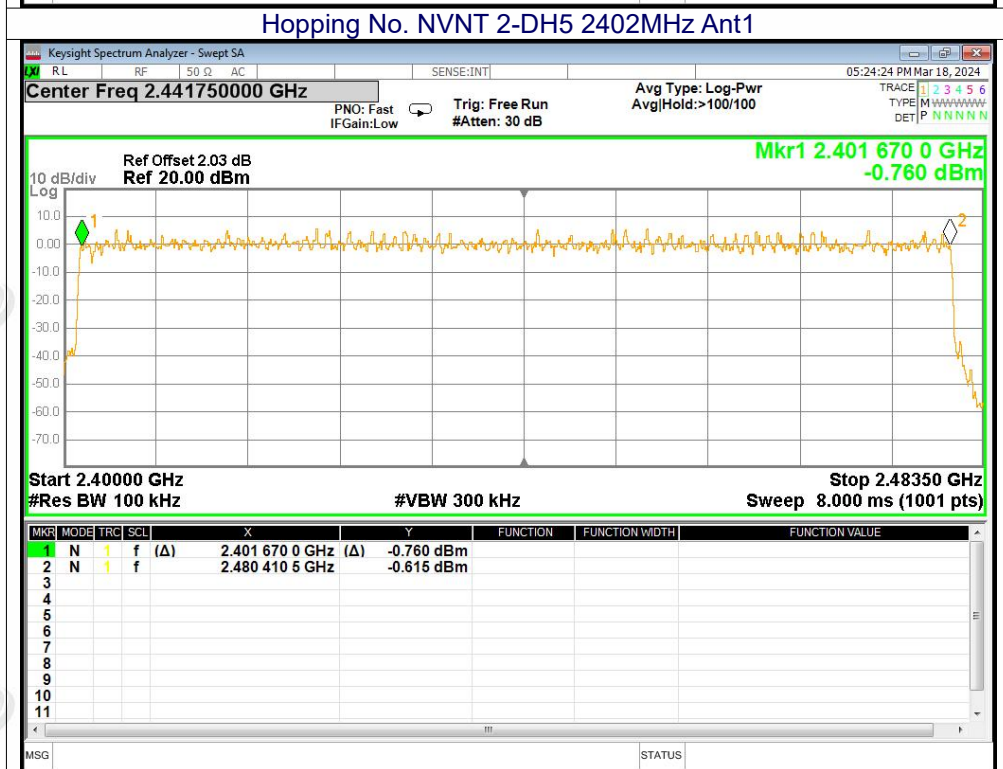
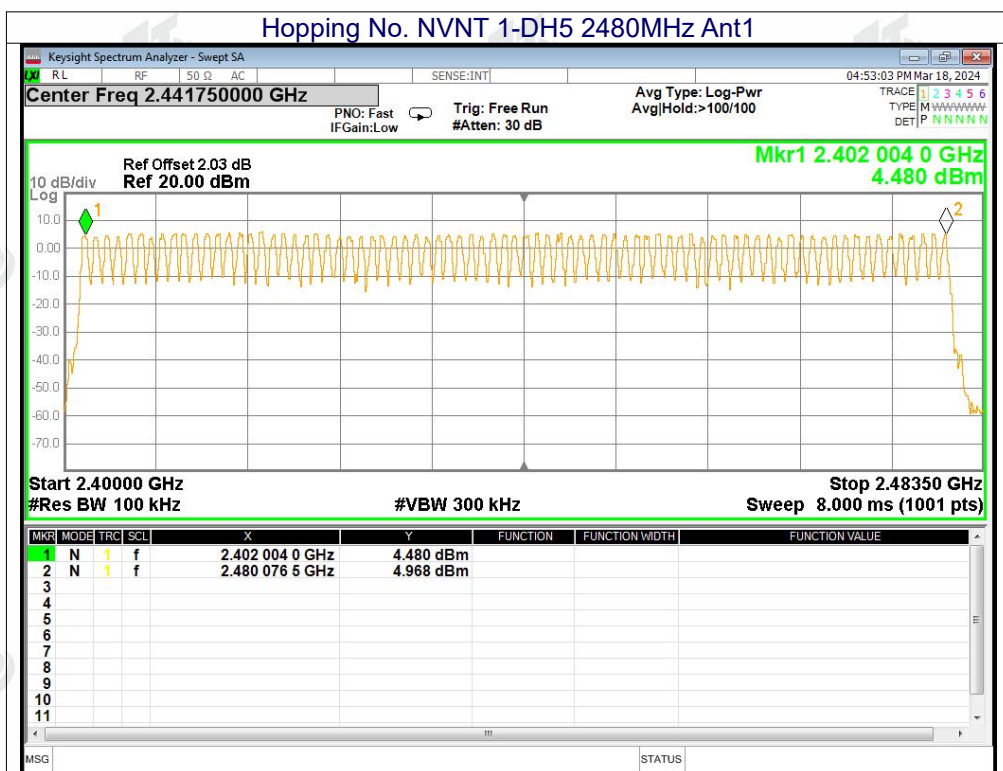
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 100kHz. VBW = 300kHz. Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to stabilize. It may prove necessary to break the span up to 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;

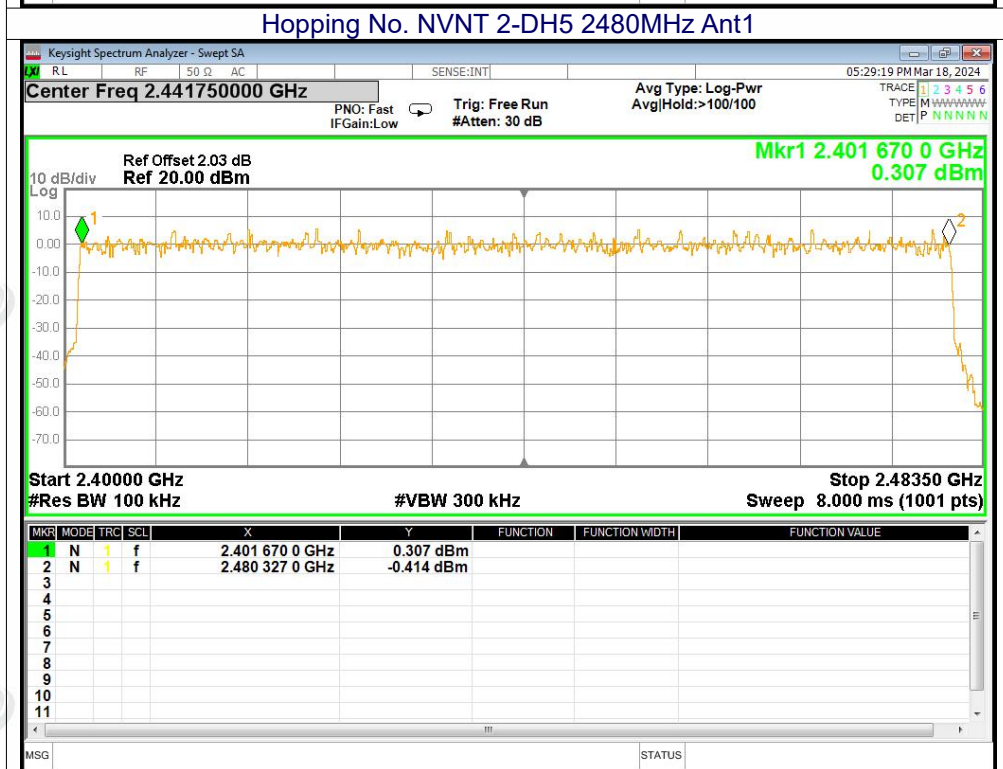
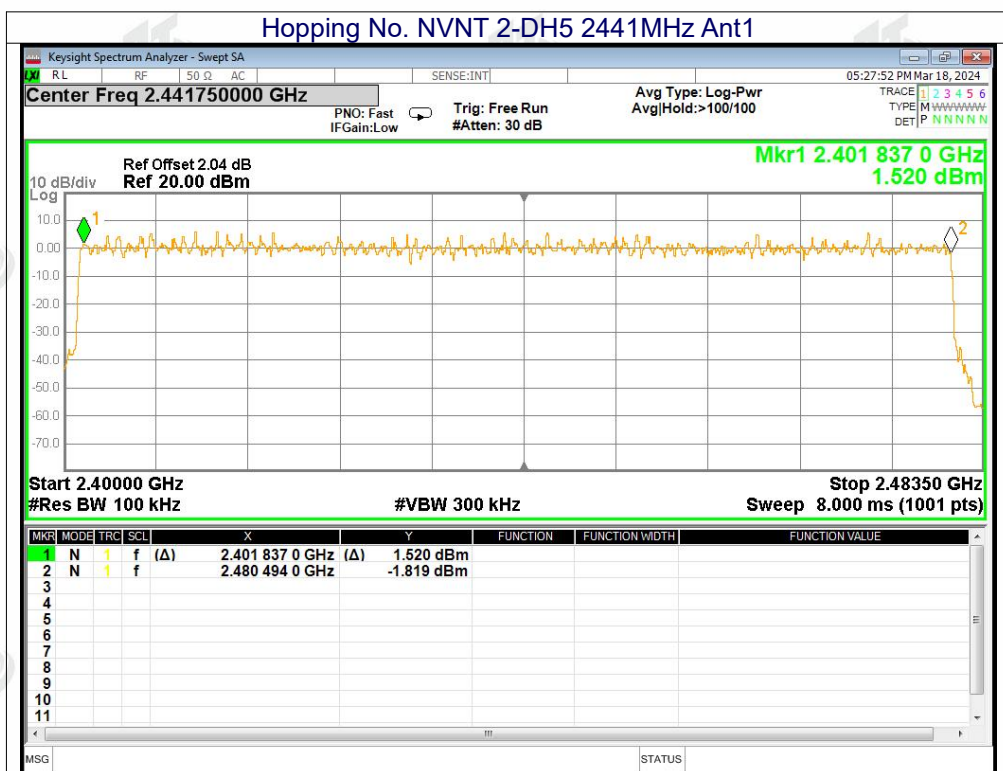
10.3 DEVIATION FROM STANDARD

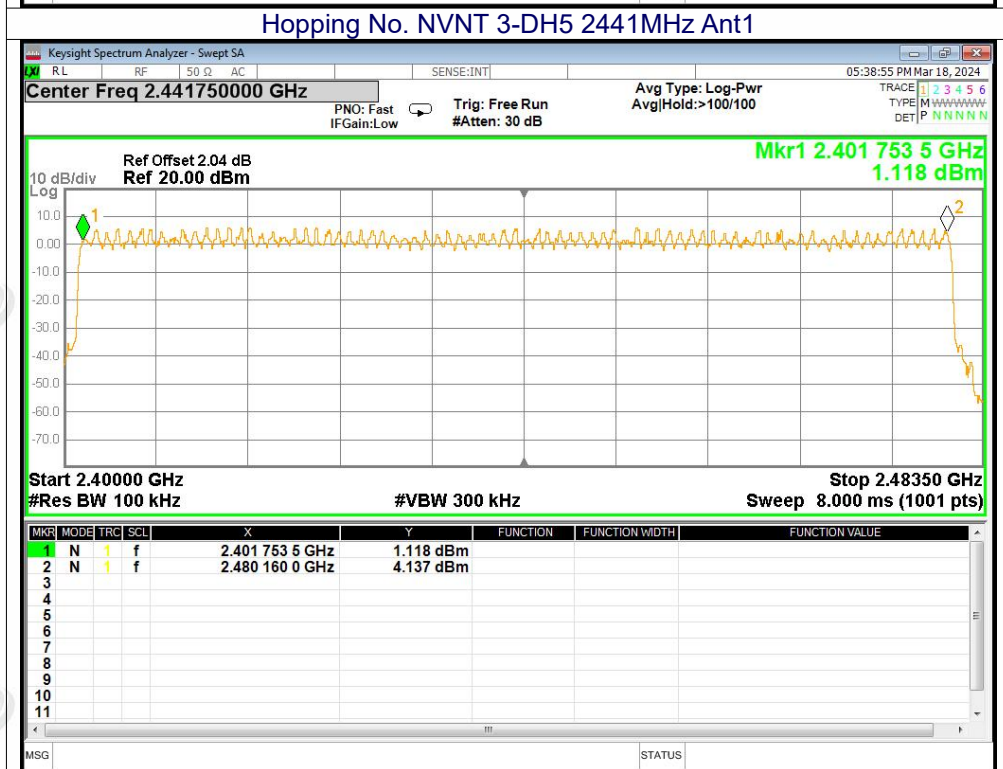
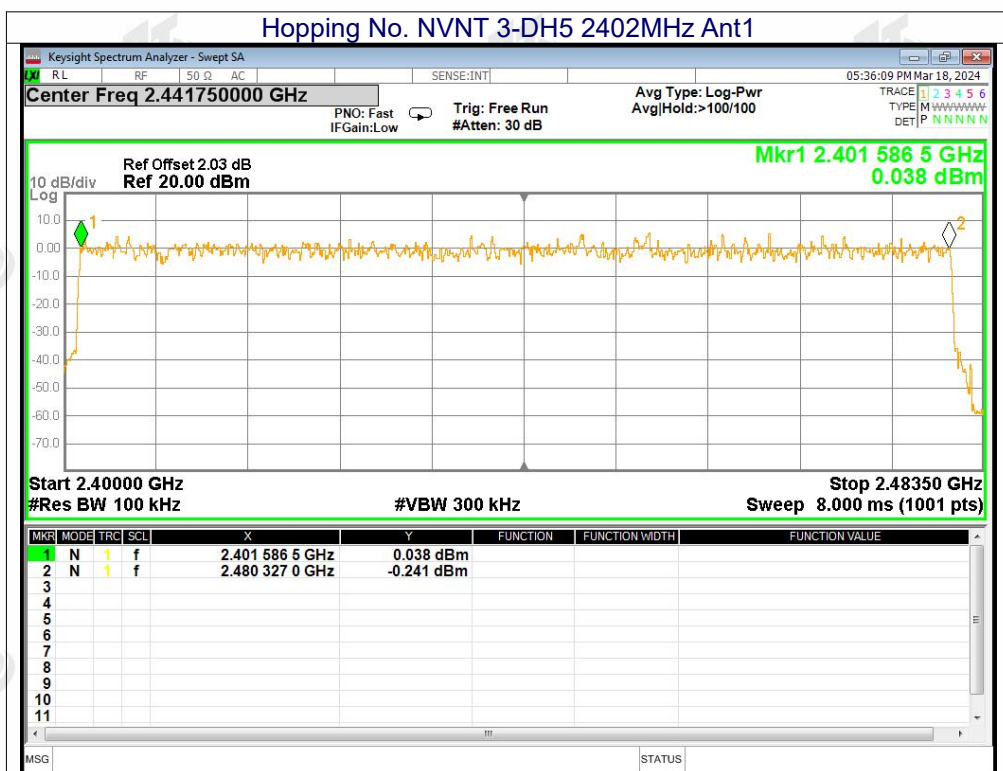
No deviation.

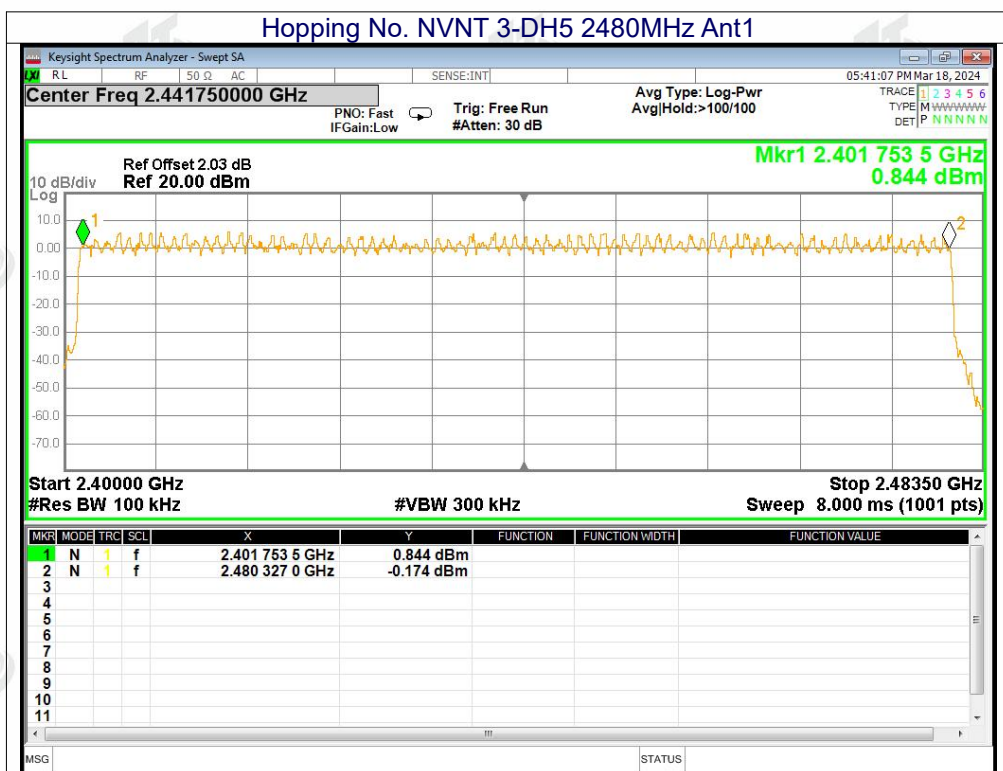
10.4 Test Result











**11. DWELL TIME**

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)(iii)
Test Method:	ANSI C63.10:2013
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

Mode	Frequency (MHz)	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
1-DH1	2441	0.397	123.864	312	31600	400	Pass
1-DH3	2441	1.655	254.87	154	31600	400	Pass
1-DH5	2441	2.903	322.233	111	31600	400	Pass
2-DH1	2441	0.408	129.744	318	31600	400	Pass
2-DH3	2441	1.645	248.395	151	31600	400	Pass
2-DH5	2441	2.89	320.79	111	31600	400	Pass
3-DH1	2441	0.411	129.465	315	31600	400	Pass
3-DH3	2441	1.661	252.472	152	31600	400	Pass
3-DH5	2441	2.908	322.788	111	31600	400	Pass

Remarks:

The test period: $T = 0.4 \text{ Second/Channel} \times 79 \text{ Channel} = 31.6 \text{ s}$

(1 / 2 / 3)-DH1: Dwell time (ms) = Pulse Time (ms) * $[1600 / (2 * 79)] * 31.6\text{s}$

(1 / 2 / 3)-DH3: Dwell time (ms) = Pulse Time (ms) * $[1600 / (4 * 79)] * 31.6\text{s}$

(1 / 2 / 3)-DH5: Dwell time (ms) = Pulse Time (ms) * $[1600 / (6 * 79)] * 31.6\text{s}$

