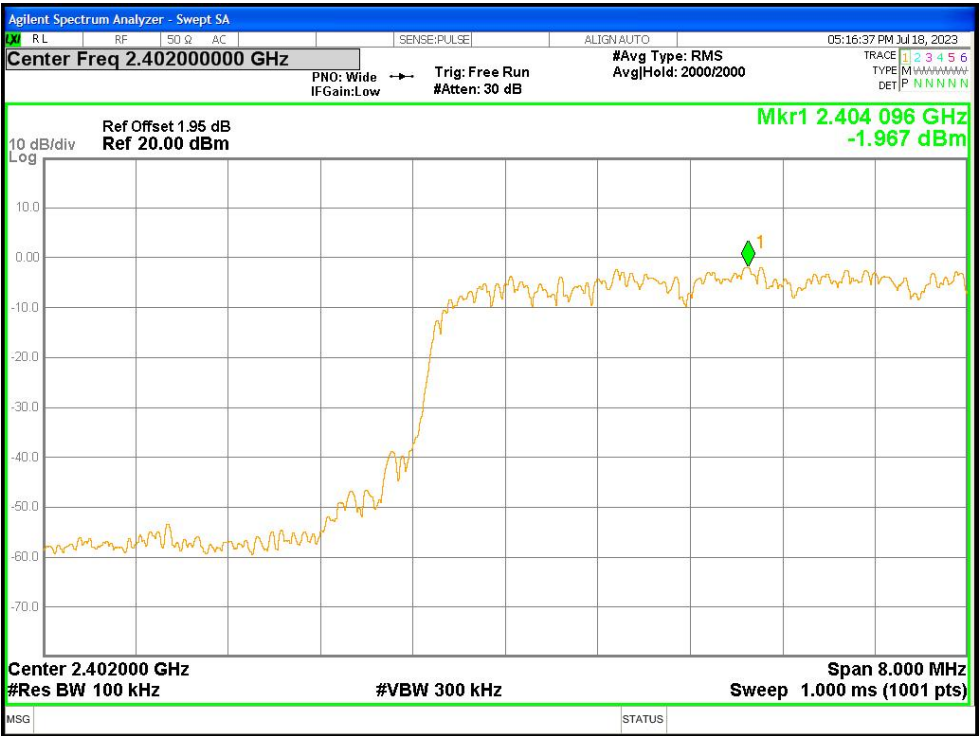
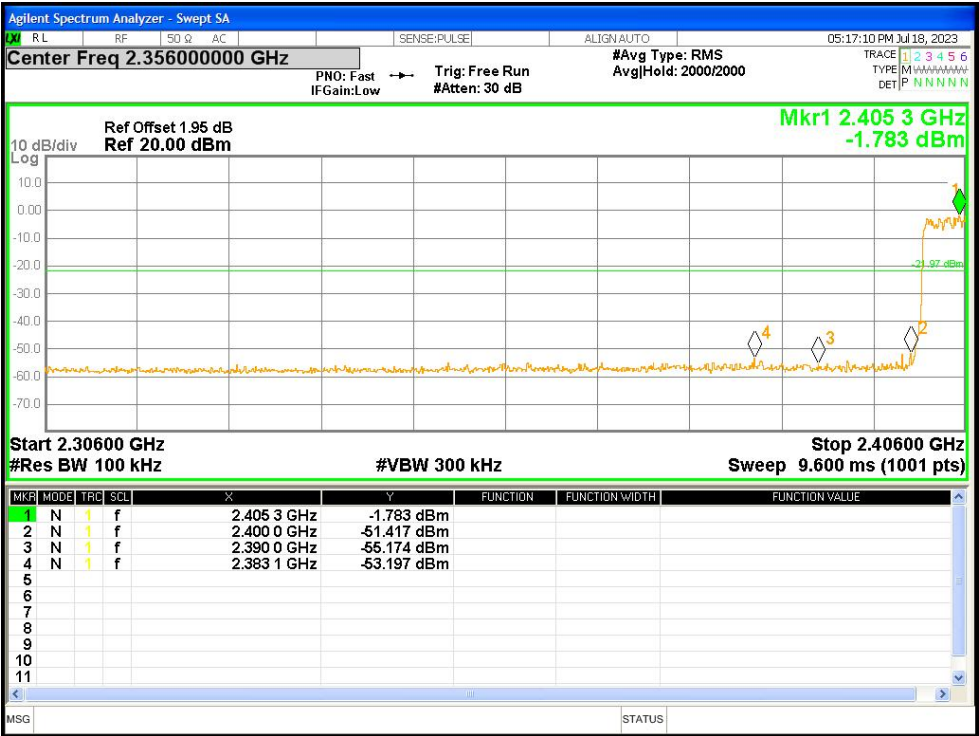




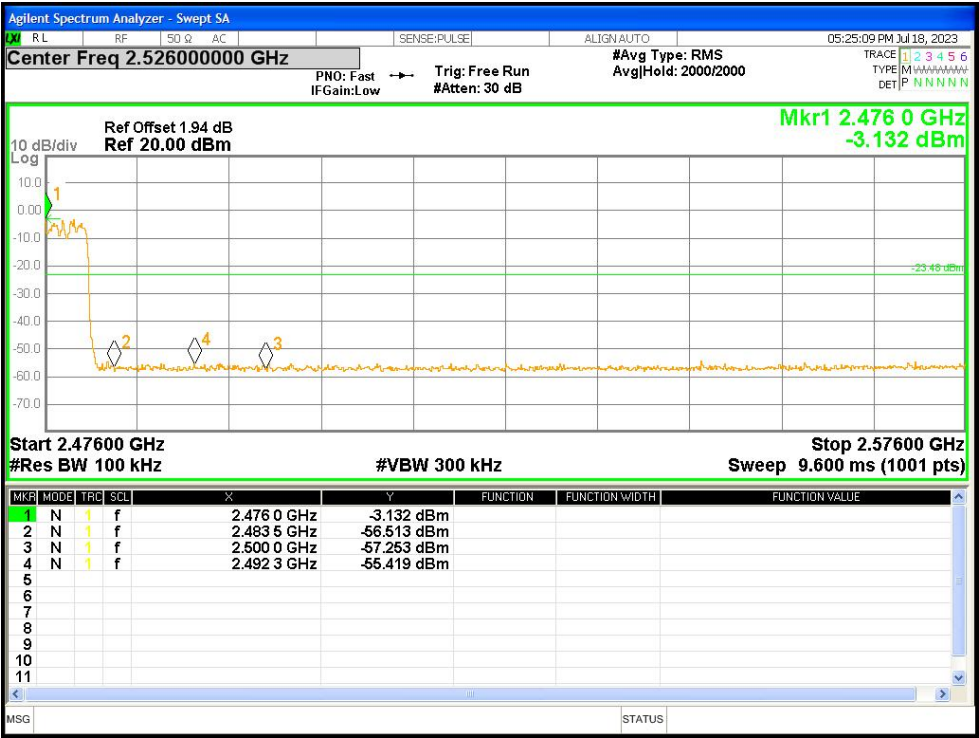
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Emission

7. 20DB&99% BANDWIDTH

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

7.1 Test Setup**7.2 Limit**

N/A

7.3 Test procedure

1. Set RBW = 30 kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. 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.

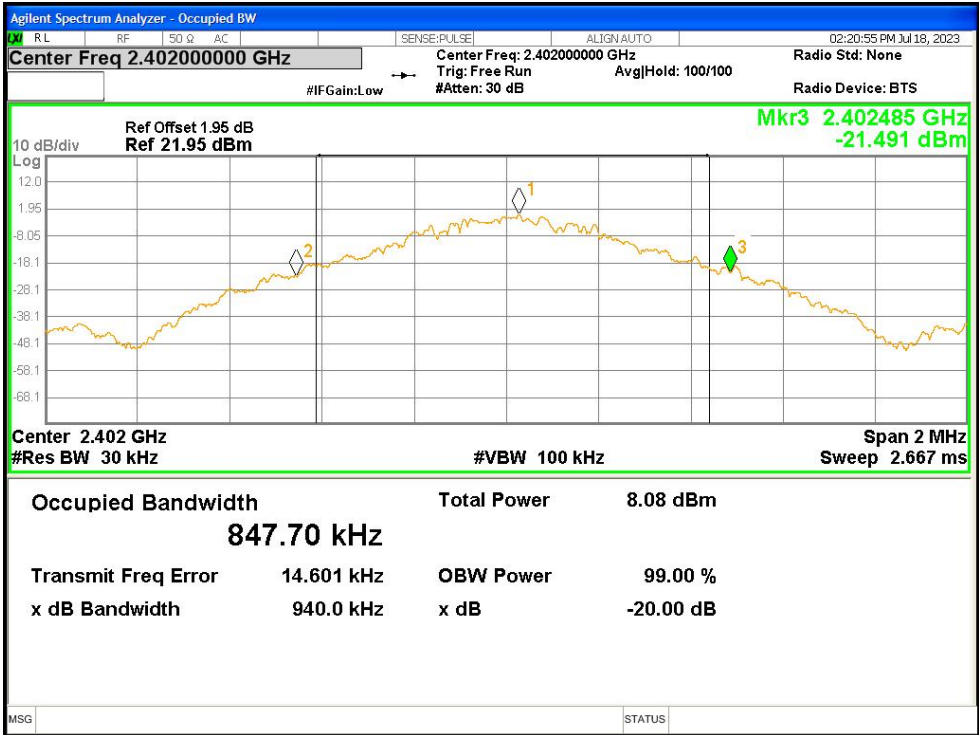
7.4 DEVIATION FROM STANDARD

No deviation.

7.5 Test Result

Mode	Test channel	20dB Emission Bandwidth (MHz)	99%Bandwidth (MHz)	Result
GFSK	Lowest	0.94	0.848	Pass
	Middle	0.943	0.846	
	Highest	0.921	0.848	
$\pi/4$ -DQPSK	Lowest	1.305	1.183	Pass
	Middle	1.314	1.183	
	Highest	1.274	1.179	
8-DPSK	Lowest	1.273	1.184	Pass
	Middle	1.325	1.189	
	Highest	1.332	1.194	

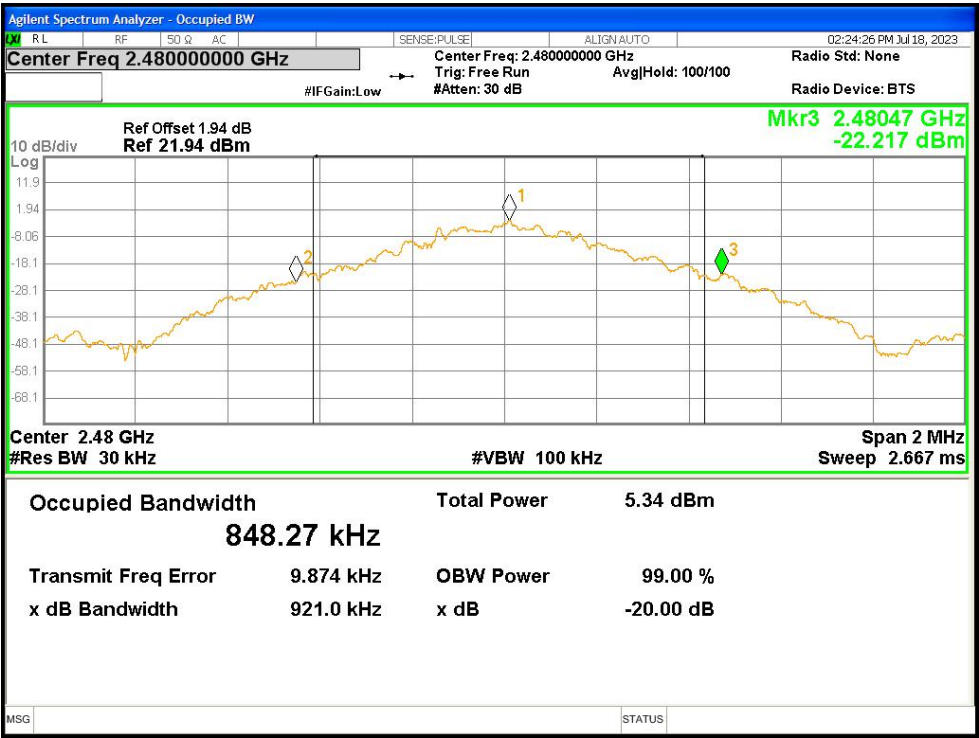
Test plots



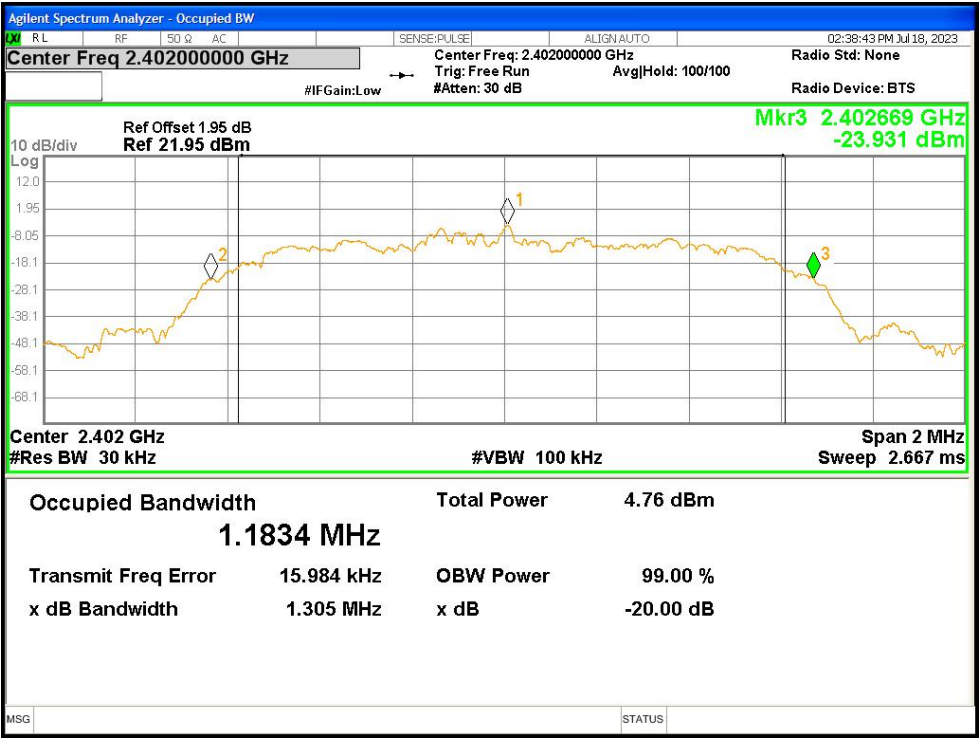
-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1



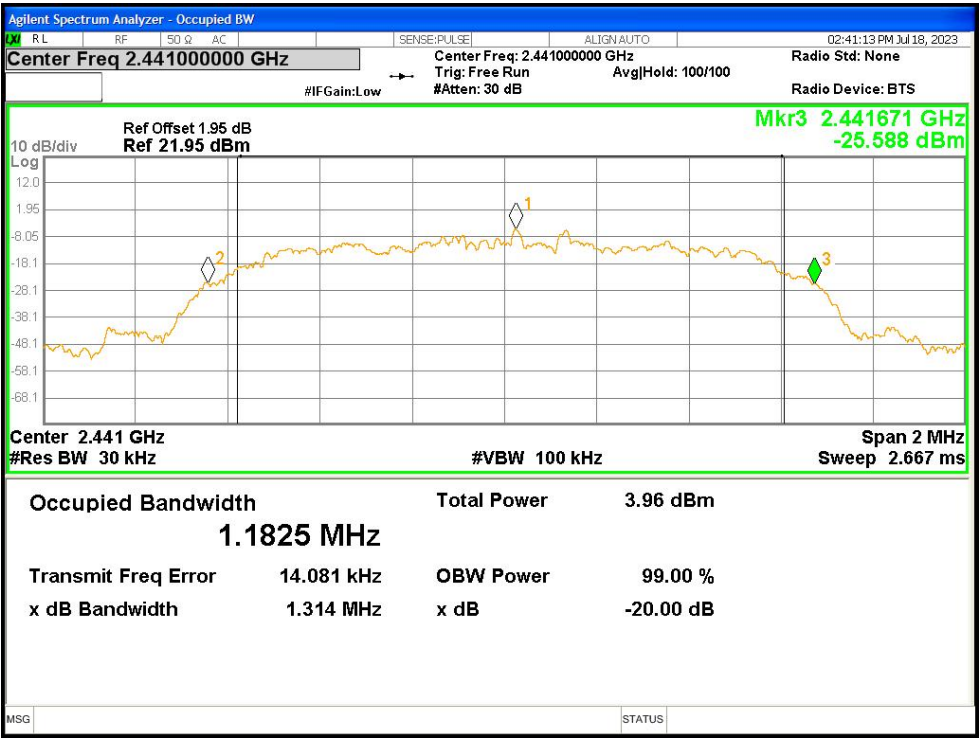
-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1



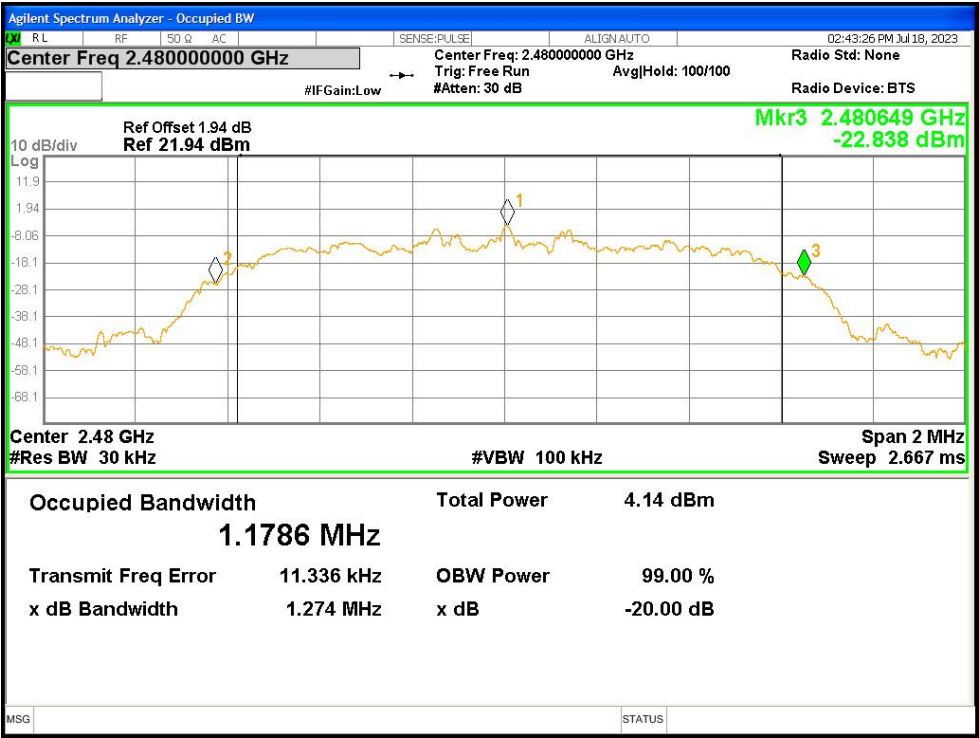
-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1



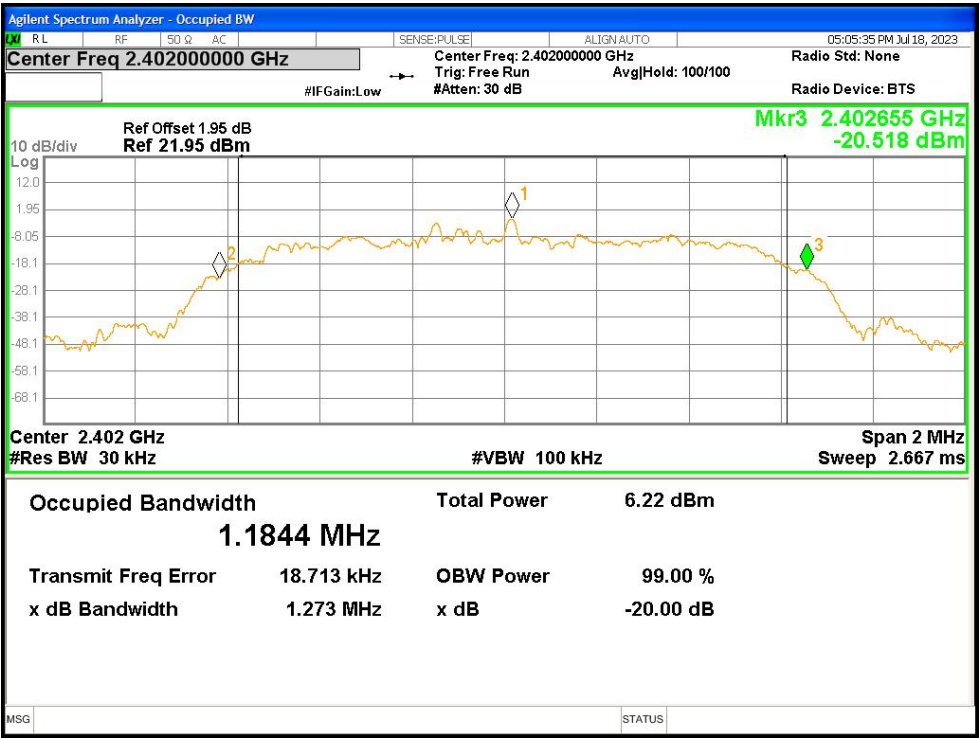
-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1



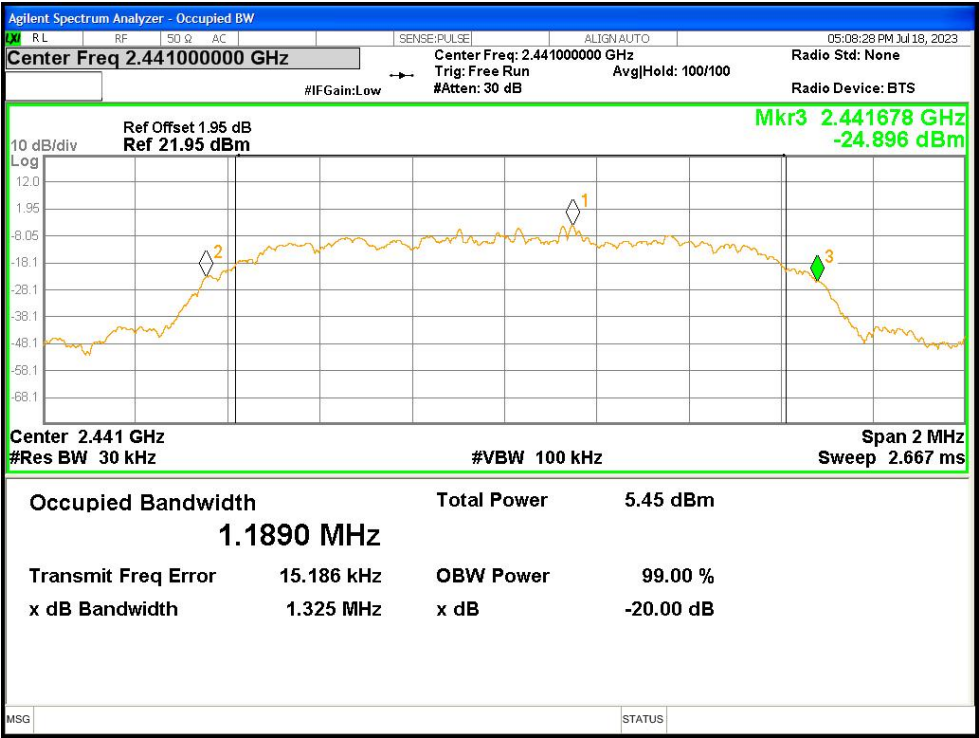
-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1



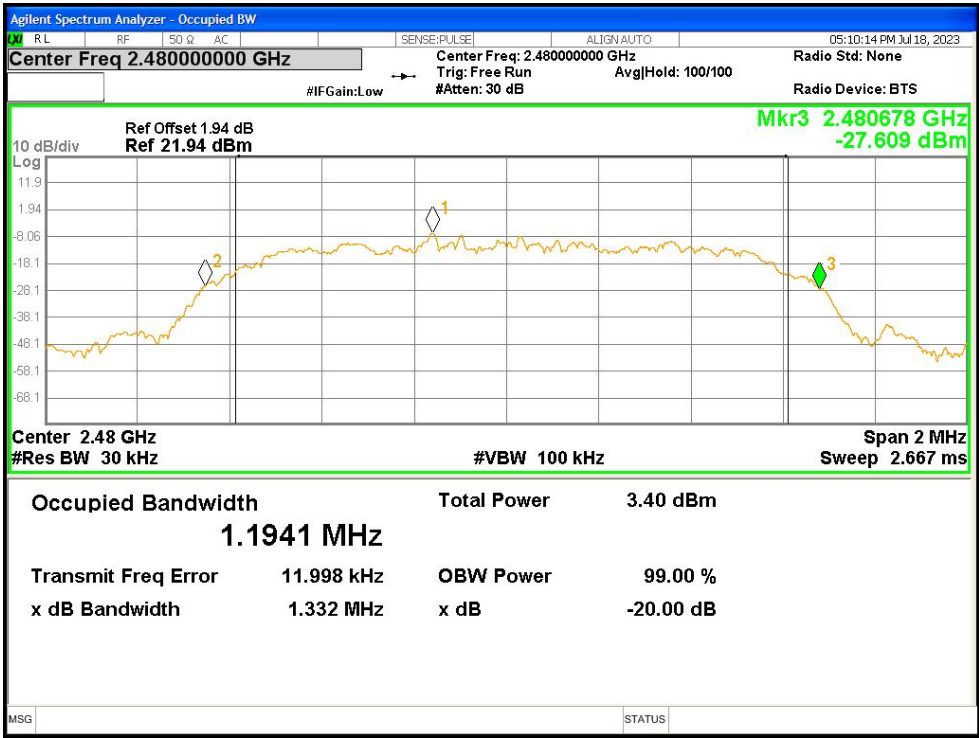
-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2480MHz Ant1

8. Maximum Peak Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(1)
Test Method:	ANSI C63.10:2013
Limit:	GFSK:30 dBm $\pi/4$ -DQPSK & 8-DPSK:20.97 dBm

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

The EUT was directly connected to the Power meter

8.4 DEVIATION FROM STANDARD

No deviation.

8.5 Test Result

Mode	Test channel	Peak Output Power (dBm)	FCC Limit (dBm)	Result
GFSK	Lowest	1.98	30.00	Pass
	Middle	1.07		
	Highest	-0.96		
$\pi/4$ -DQPSK	Lowest	0.3	21.00	Pass
	Middle	-0.49		
	Highest	-0.58		
8-DPSK	Lowest	1.9	21.00	Pass
	Middle	1.25		
	Highest	-0.62		

9. HOPPING CHANNEL SEPARATION

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)
Test Method:	ANSI C63.10:2013
Receiver setup:	RBW=100KHz, VBW=300KHz, detector=Peak
Limit:	GFSK: 20dB bandwidth $\pi/4$ -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.

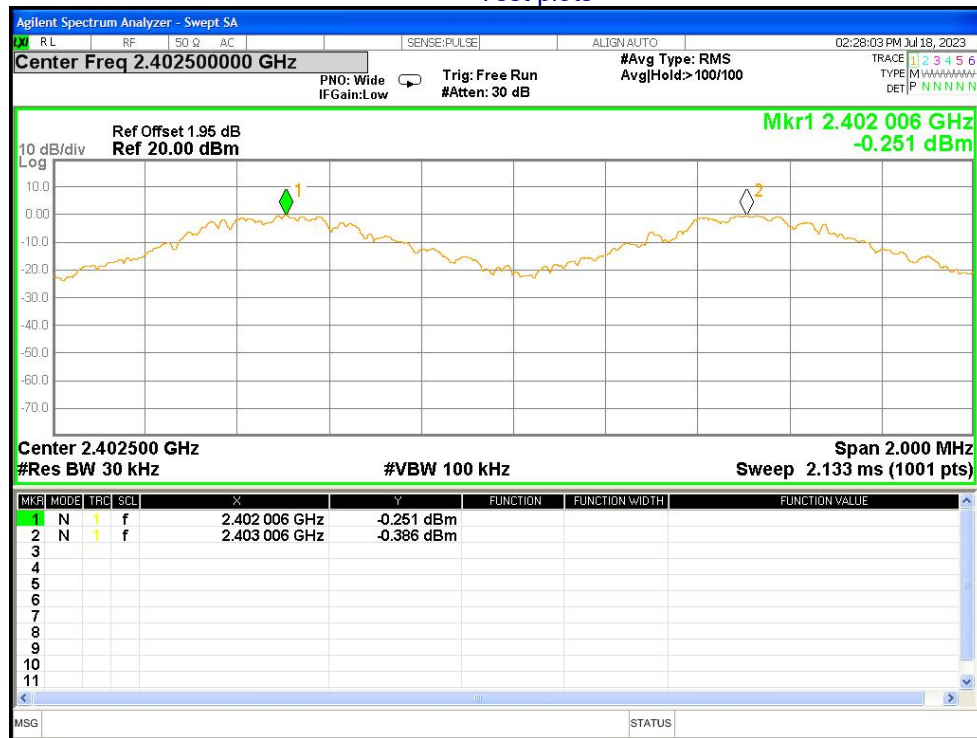
9.3 DEVIATION FROM STANDARD

No deviation.

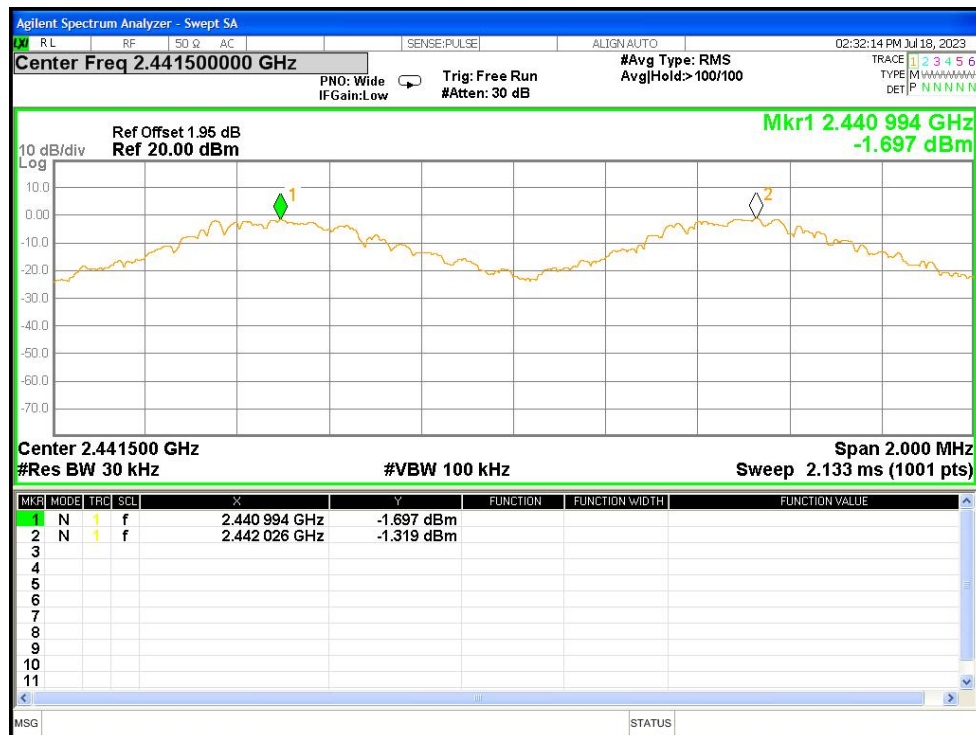
9.4 Test Result

Modulation	Test Channel	Separation (MHz)	Limit(MHz)	Result
GFSK	Low	1	0.94	PASS
GFSK	Middle	1.032	0.943	PASS
GFSK	High	1.034	0.921	PASS
$\pi/4$ -DQPSK	Low	1.006	0.87	PASS
$\pi/4$ -DQPSK	Middle	1.166	0.876	PASS
$\pi/4$ -DQPSK	High	1.272	0.849	PASS
8-DPSK	Low	1.098	0.849	PASS
8-DPSK	Middle	0.998	0.883	PASS
8-DPSK	High	1.118	0.888	PASS

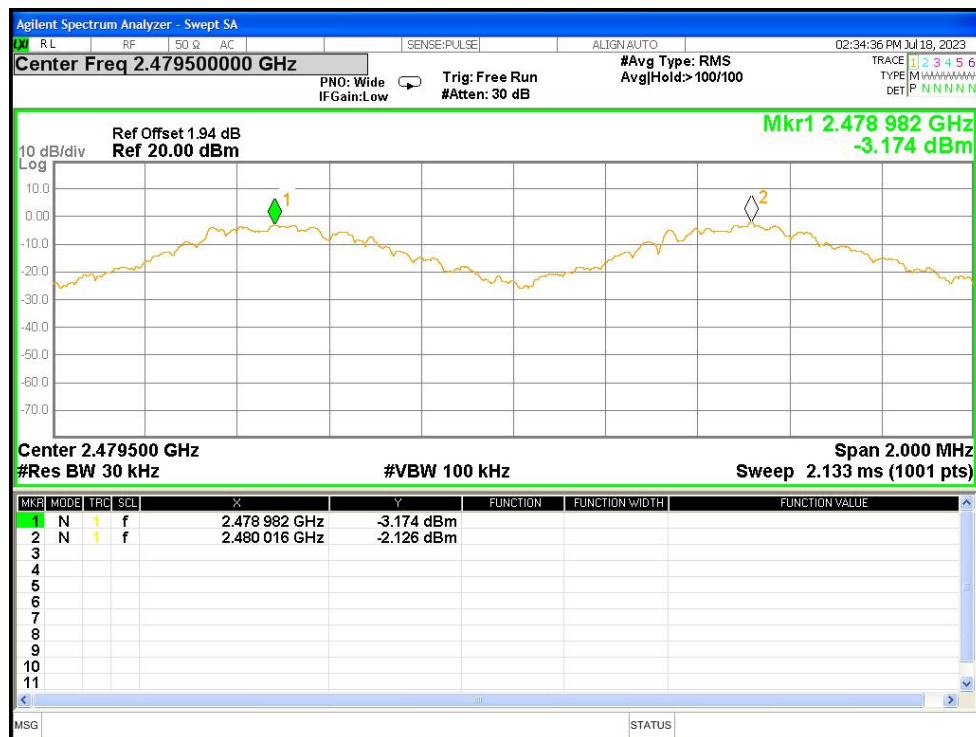
Test plots



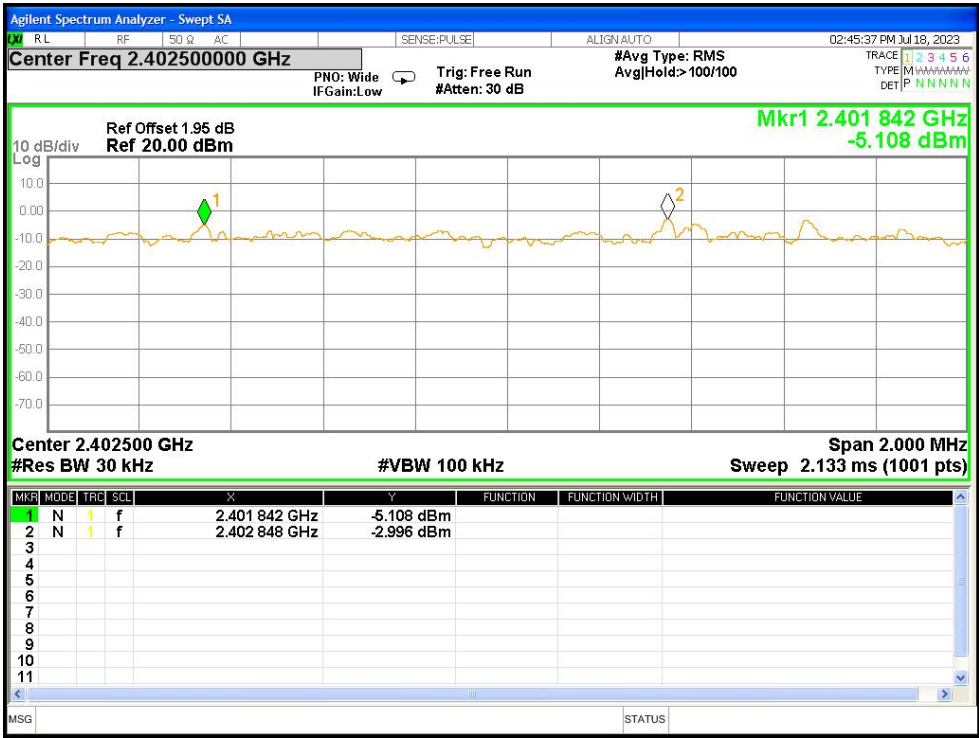
CFS NVNT 1-DH5 2402MHz Ant1



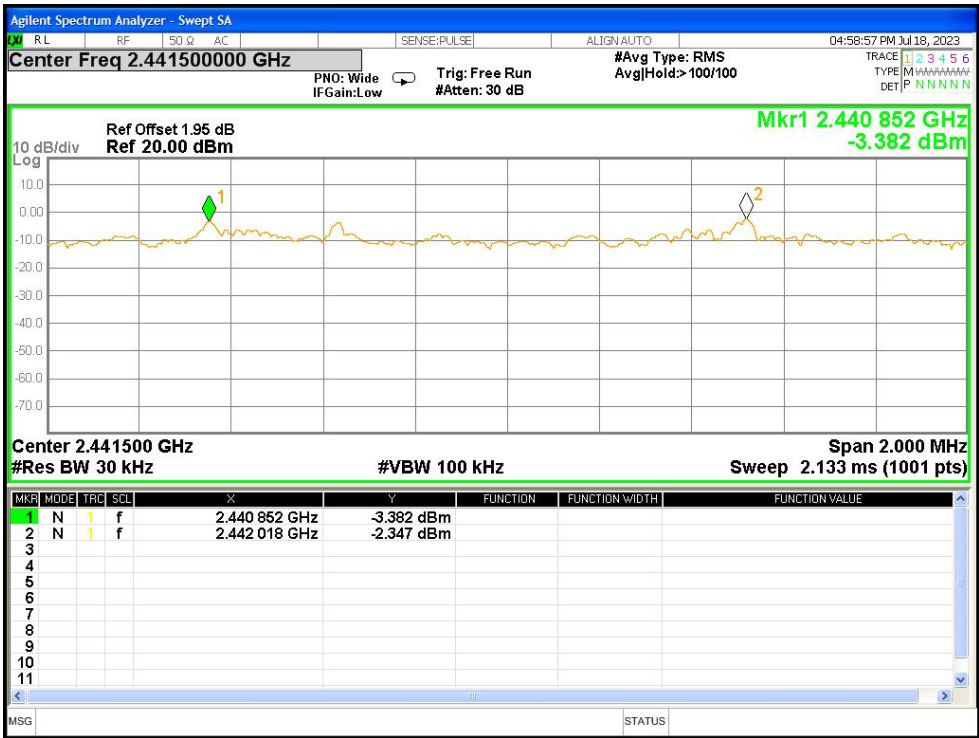
CFS NVNT 1-DH5 2441MHz Ant1



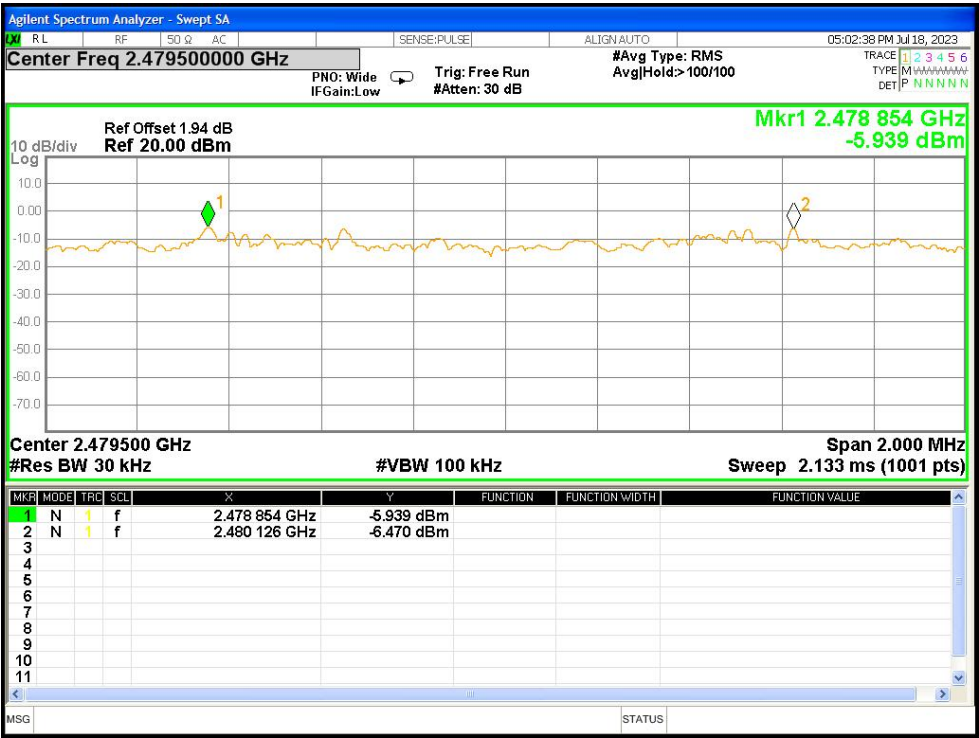
CFS NVNT 1-DH5 2480MHz Ant1



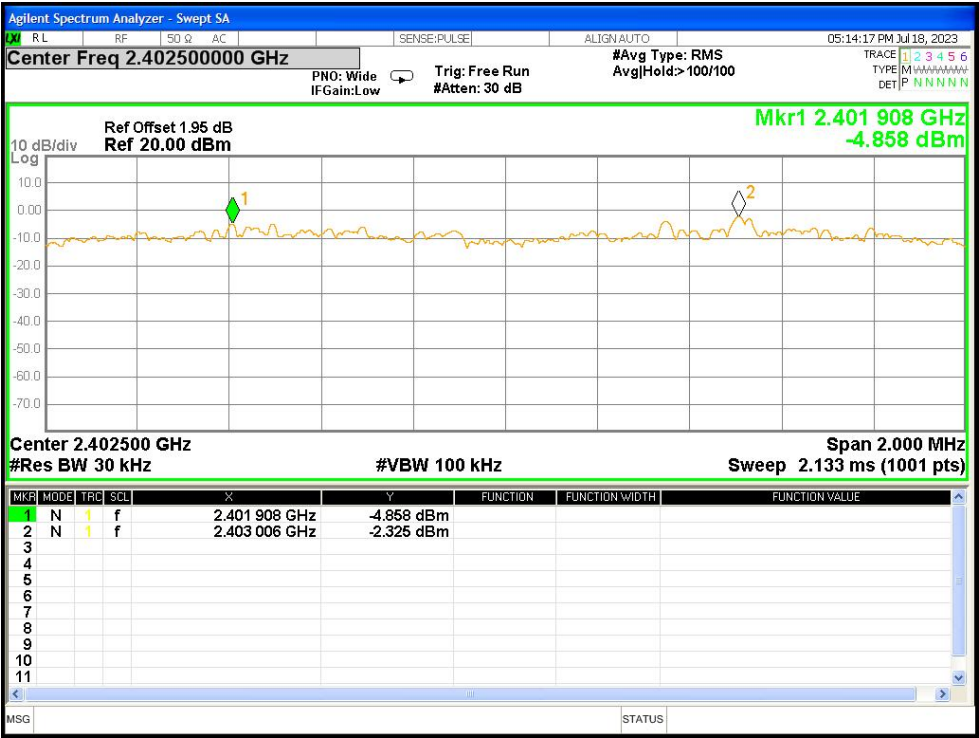
CFS NVNT 2-DH5 2402MHz Ant1



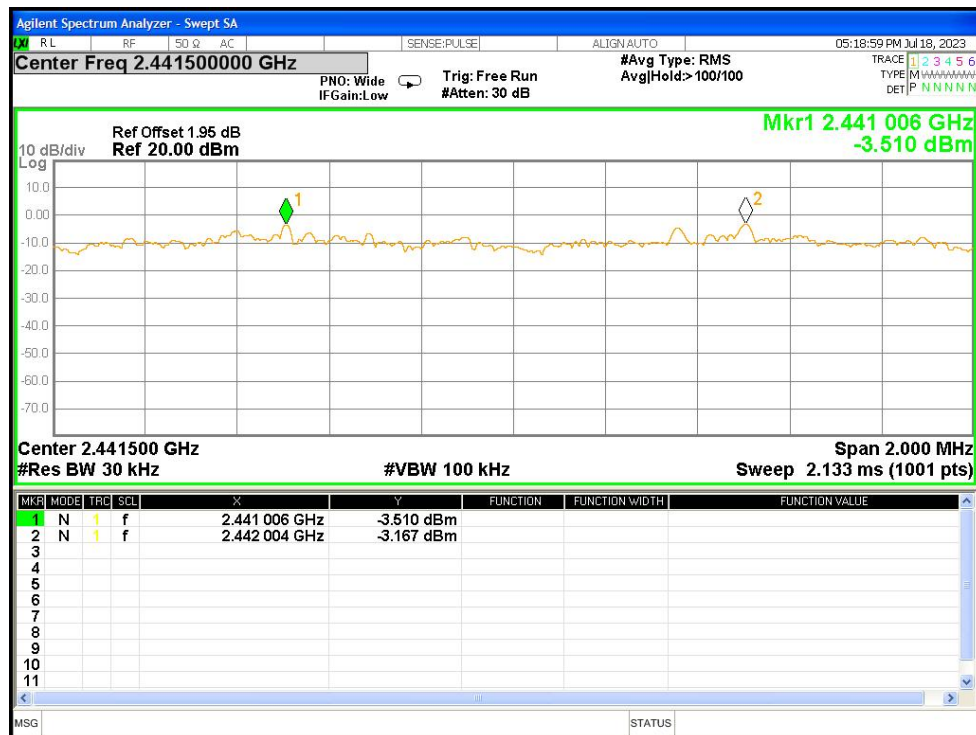
CFS NVNT 2-DH5 2441MHz Ant1



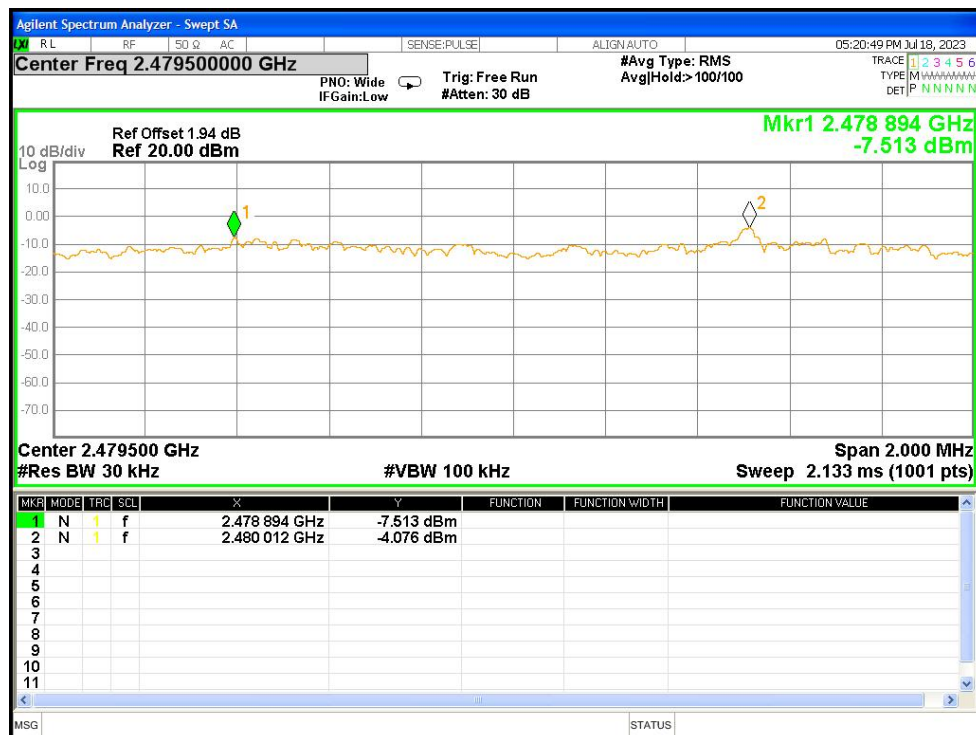
CFS NVNT 2-DH5 2480MHz Ant1



CFS NVNT 3-DH5 2402MHz Ant1



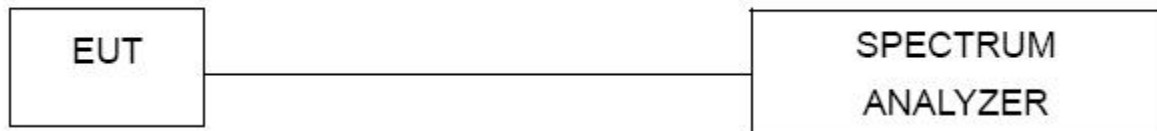
CFS NVNT 3-DH5 2441MHz Ant1



CFS NVNT 3-DH5 2480MHz Ant1

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**

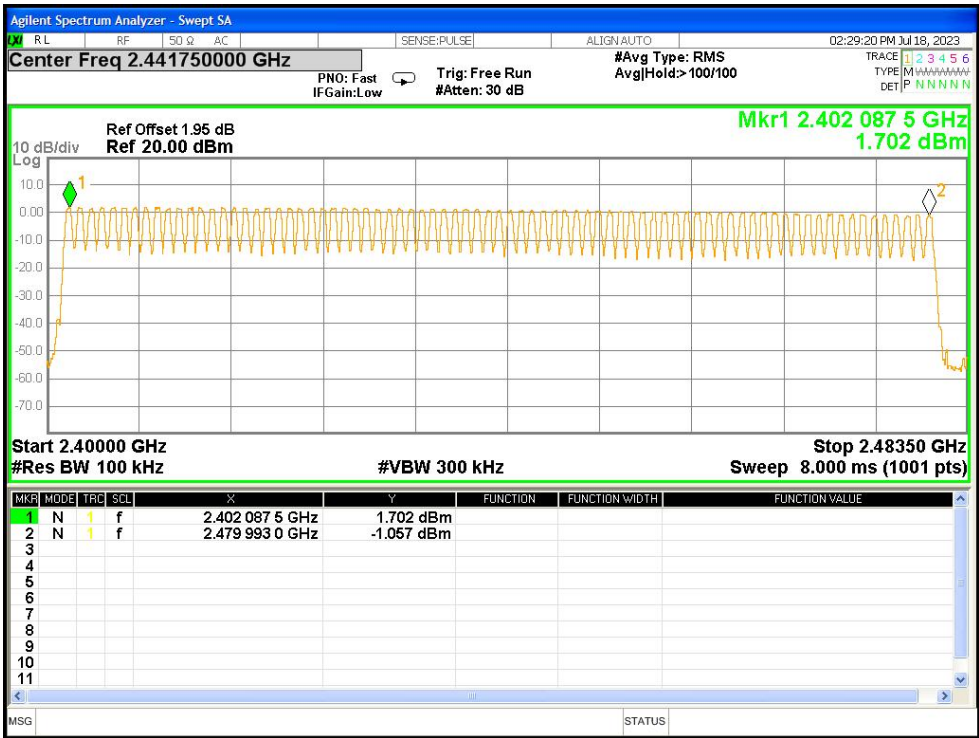
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 100kHz. VBW = 300kHz. Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to stabilize. It may prove necessary to break the span up to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

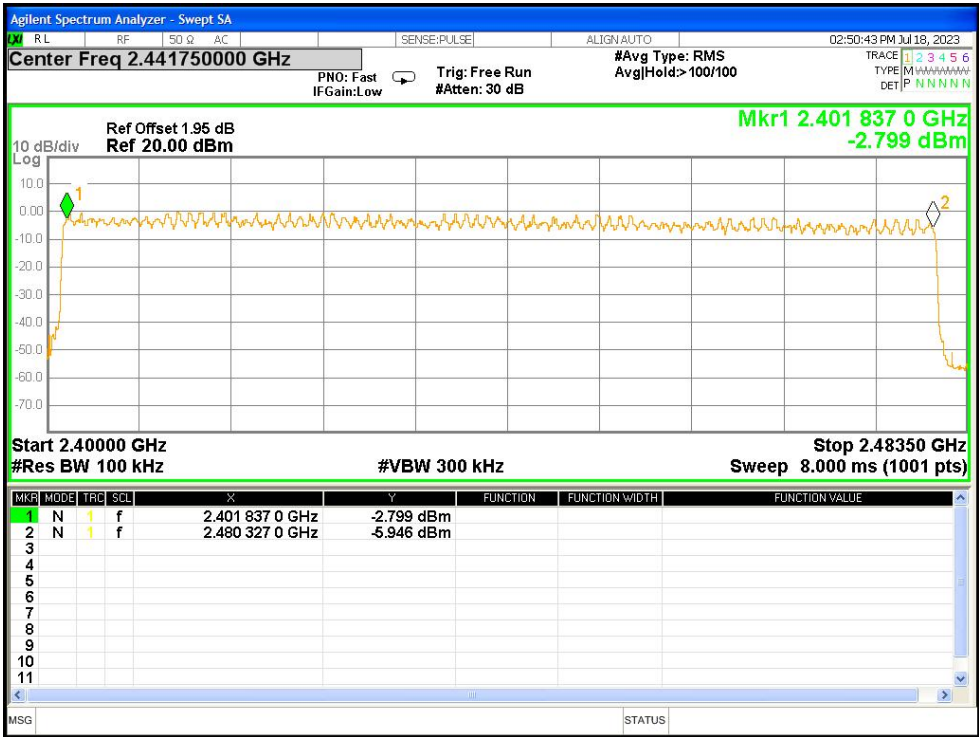
No deviation.

10.4 Test Result

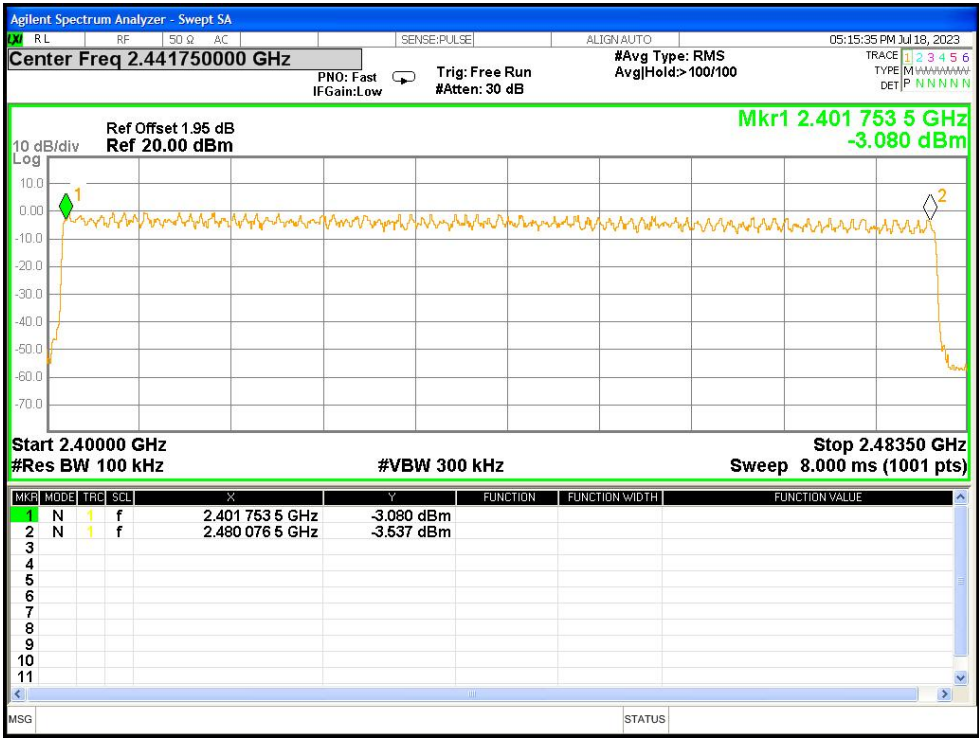
Test Plots:



Hopping No. NVNT 1-DH5 2402MHz Ant1



Hopping No. NVNT 2-DH5 2402MHz Ant1



Hopping No. NVNT 3-DH5 2402MHz Ant1

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 DH1/DH2/2DH1/2DH3/3DH1/3DH3 DH5/2DH5/3DH5 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.

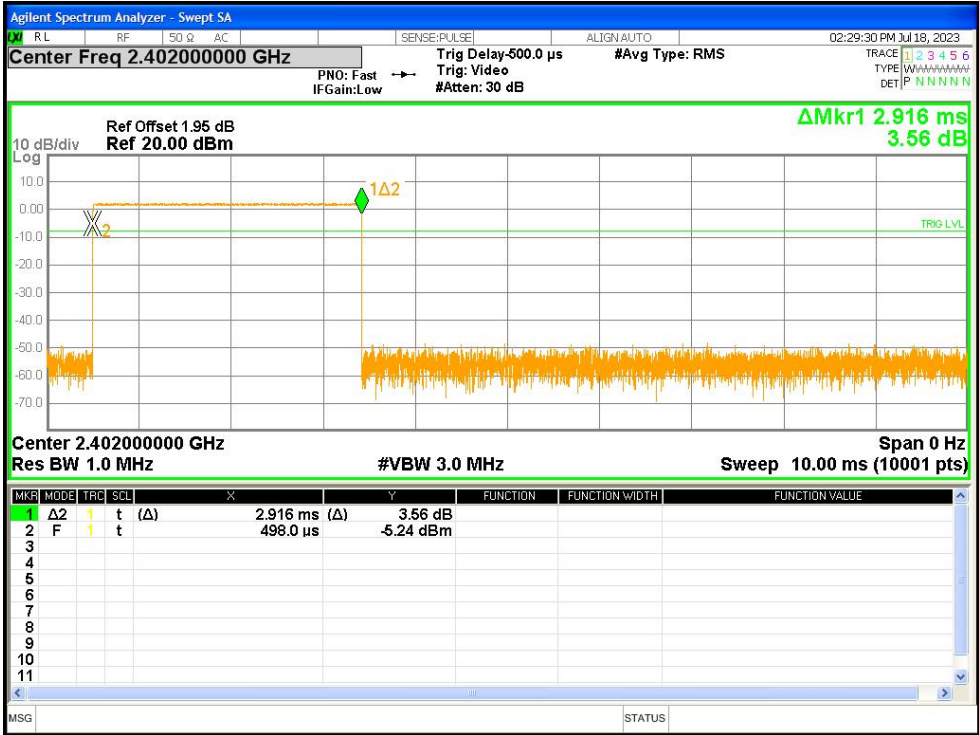
11.4 Test Result

Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
1-DH5	2402	Ant1	2.916	326.592	112	31600	400	Pass
1-DH5	2441	Ant1	2.916	347.004	119	31600	400	Pass
1-DH5	2480	Ant1	2.915	341.055	117	31600	400	Pass
2-DH5	2402	Ant1	2.921	347.599	119	31600	400	Pass
2-DH5	2441	Ant1	2.921	303.784	104	31600	400	Pass
2-DH5	2480	Ant1	2.921	315.468	108	31600	400	Pass
3-DH5	2402	Ant1	2.923	306.915	105	31600	400	Pass
3-DH5	2441	Ant1	2.923	318.607	109	31600	400	Pass
3-DH5	2480	Ant1	2.923	359.529	123	31600	400	Pass

Note1: Total Dwell Time (ms)=Pulse Time (ms)*Burst Count

Note2: Only the worst test data DH5/2DH5/3DH5 put in the report

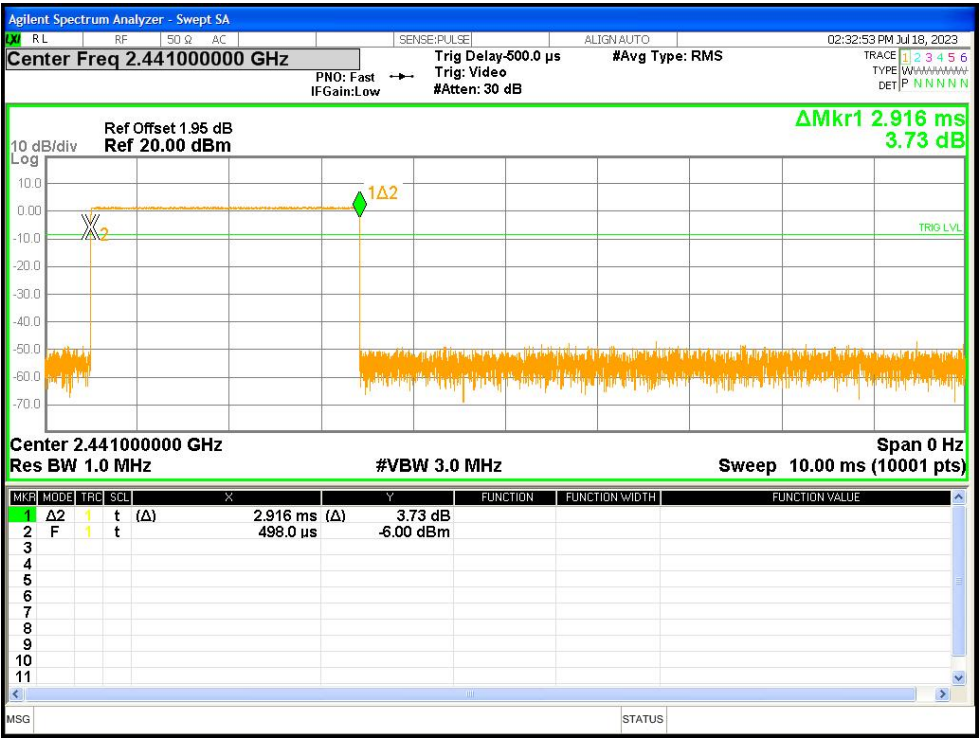
Test Plots



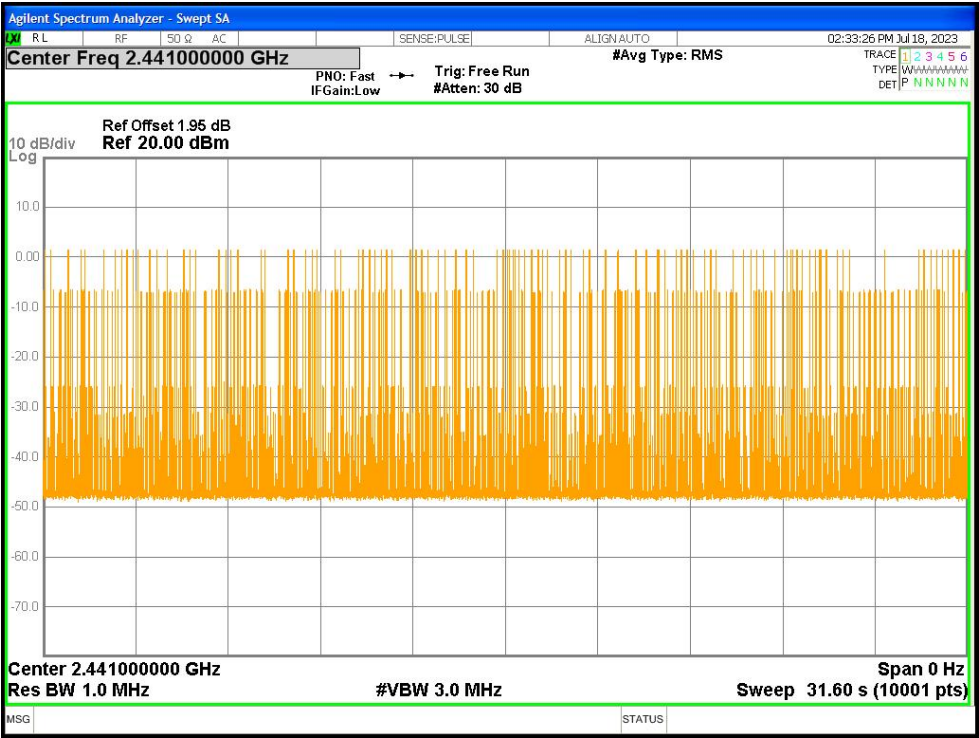
Dwell NVNT 1-DH5 2402MHz Ant1 One Burst



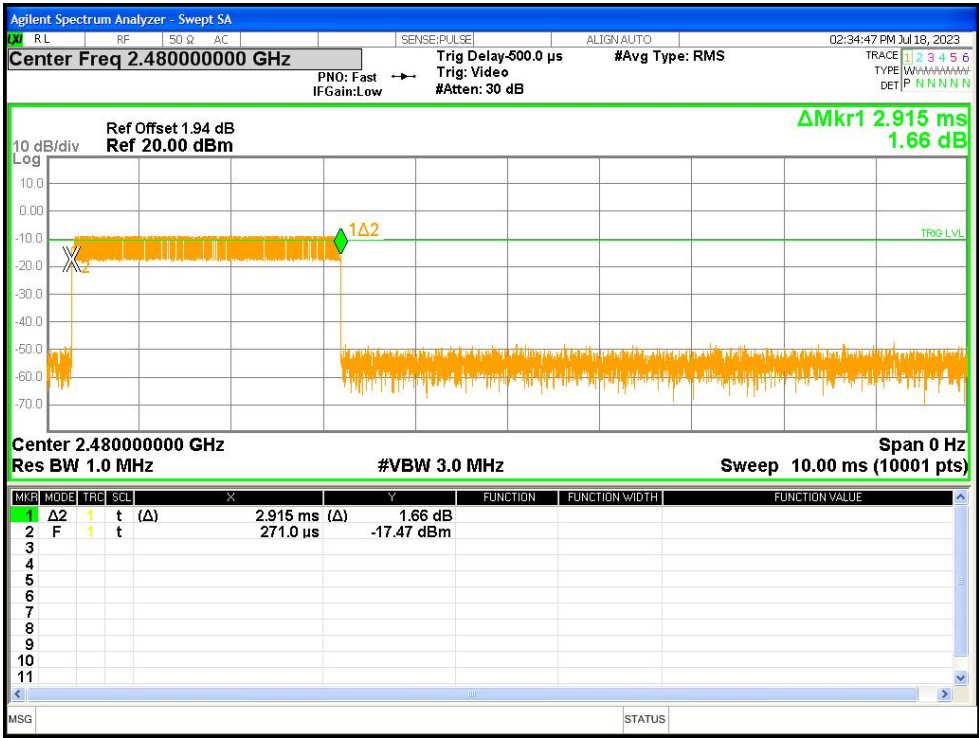
Dwell NVNT 1-DH5 2402MHz Ant1 Accumulated



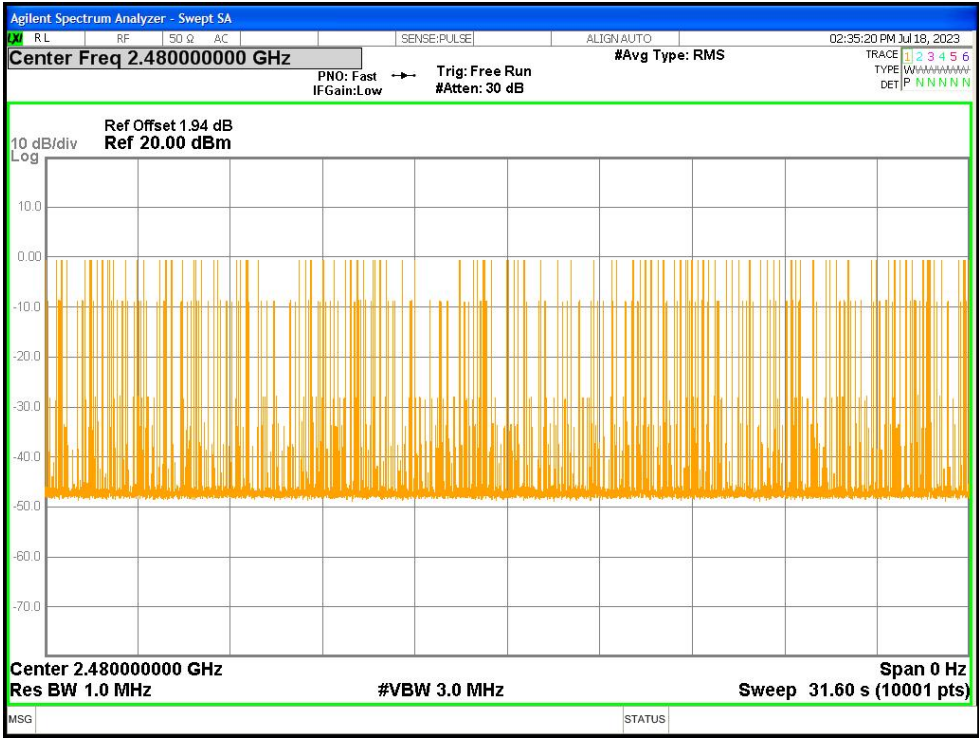
Dwell NVNT 1-DH5 2441MHz Ant1 One Burst



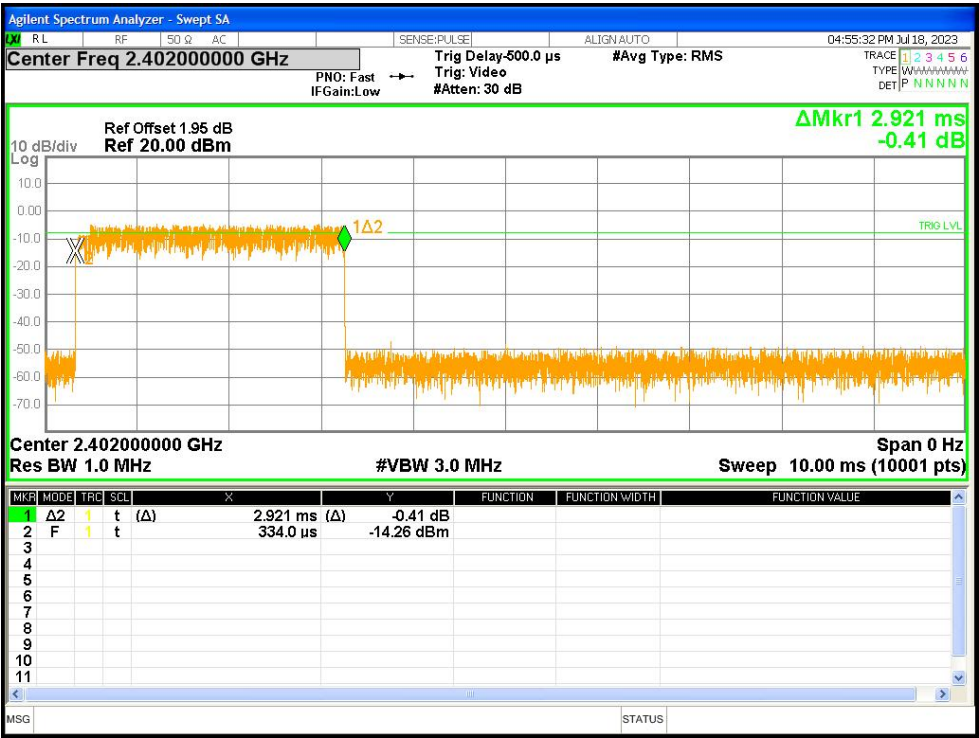
Dwell NVNT 1-DH5 2441MHz Ant1 Accumulated



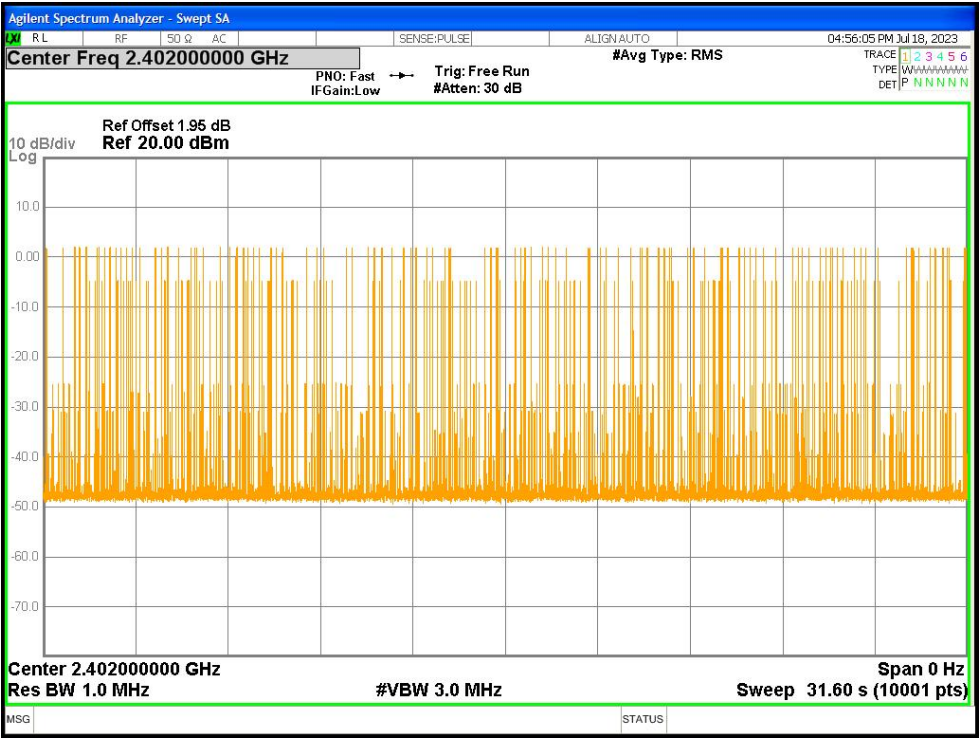
Dwell NVNT 1-DH5 2480MHz Ant1 One Burst



Dwell NVNT 1-DH5 2480MHz Ant1 Accumulated

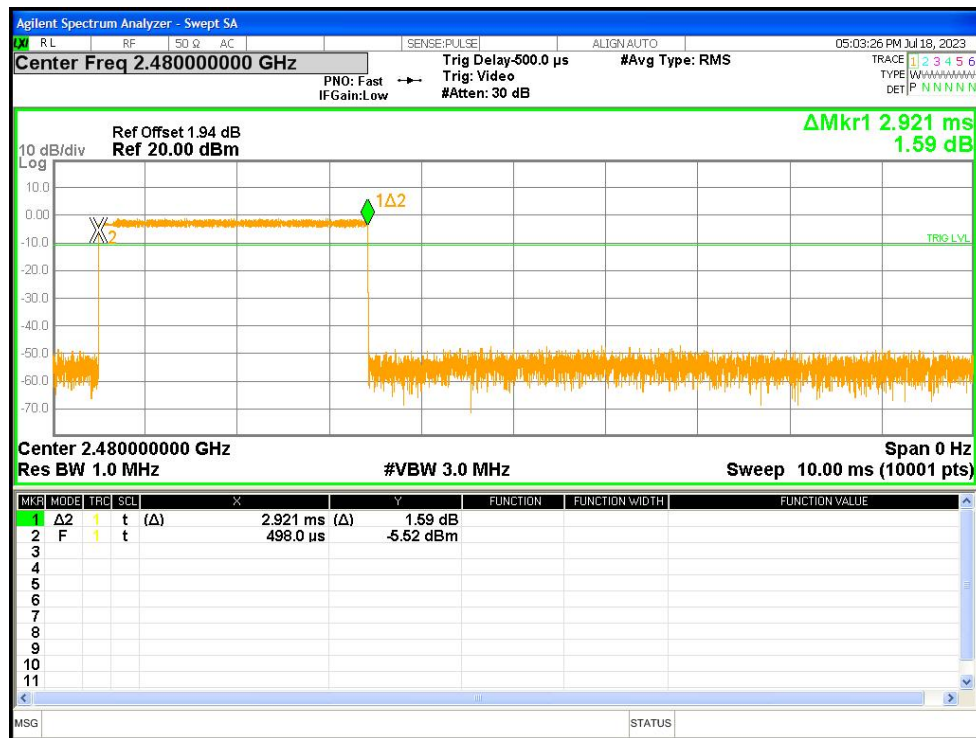


Dwell NVNT 2-DH5 2402MHz Ant1 One Burst



Dwell NVNT 2-DH5 2402MHz Ant1 Accumulated



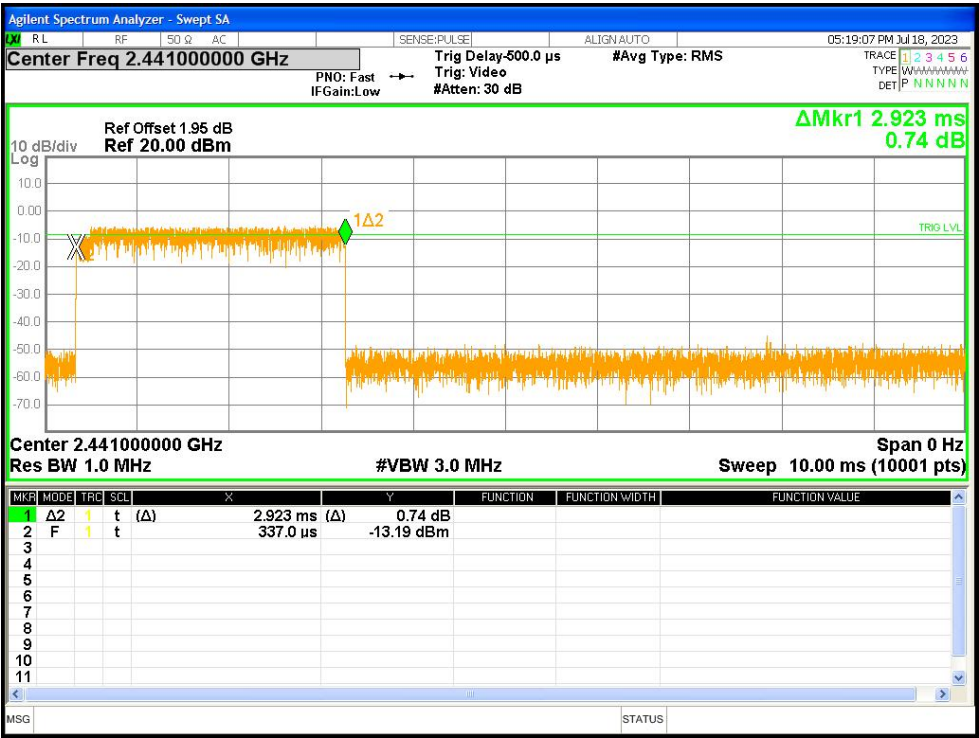


Dwell NVNT 2-DH5 2480MHz Ant1 One Burst

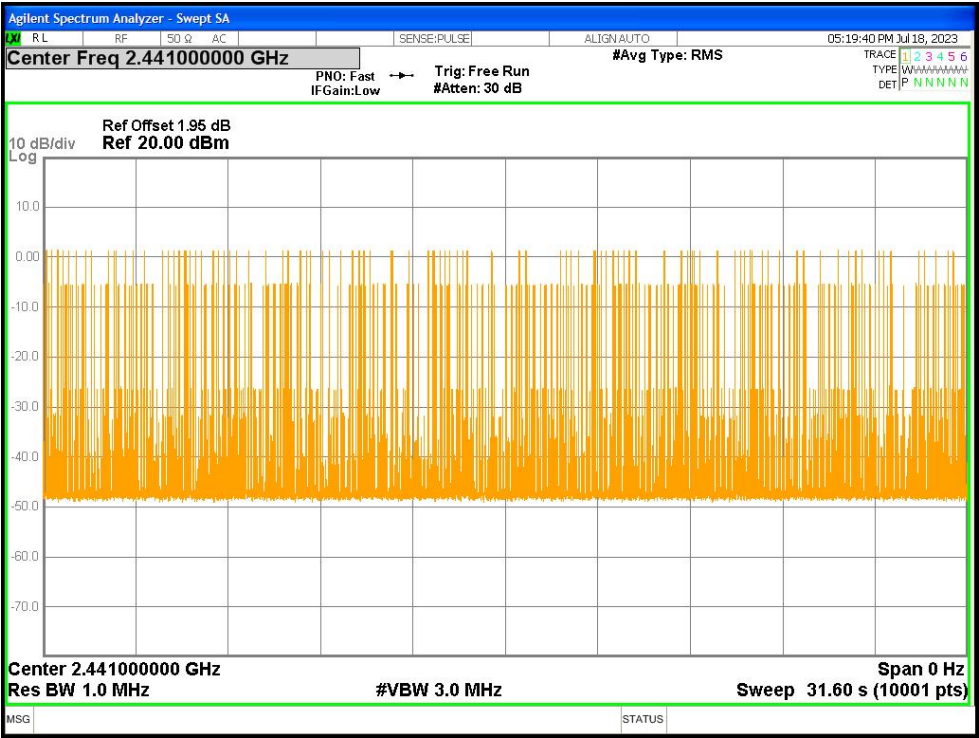


Dwell NVNT 2-DH5 2480MHz Ant1 Accumulated

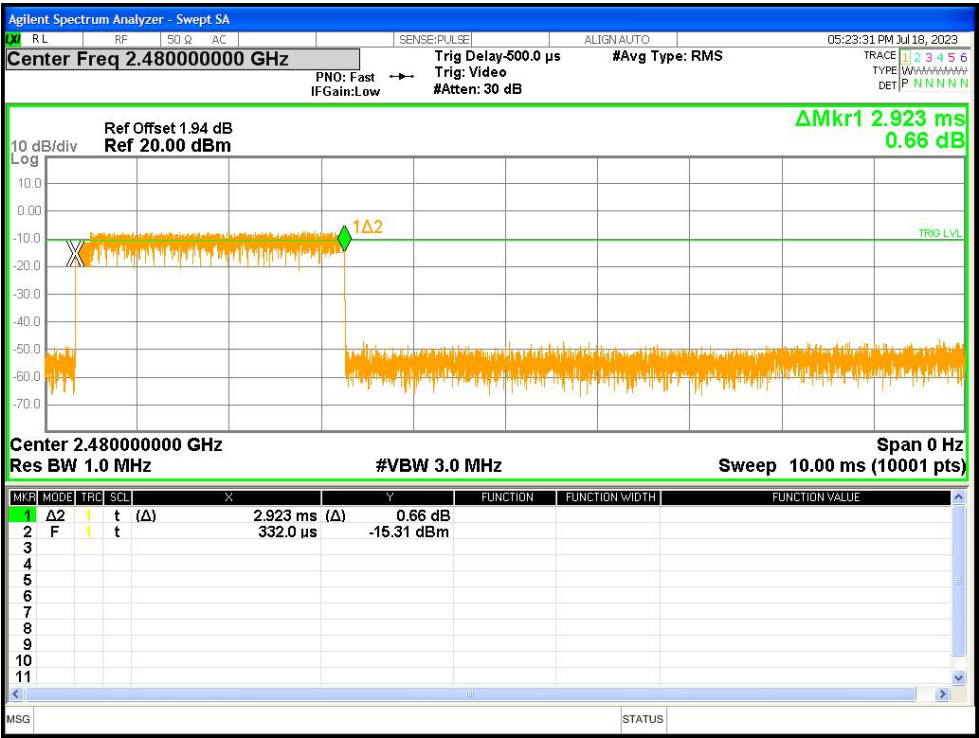




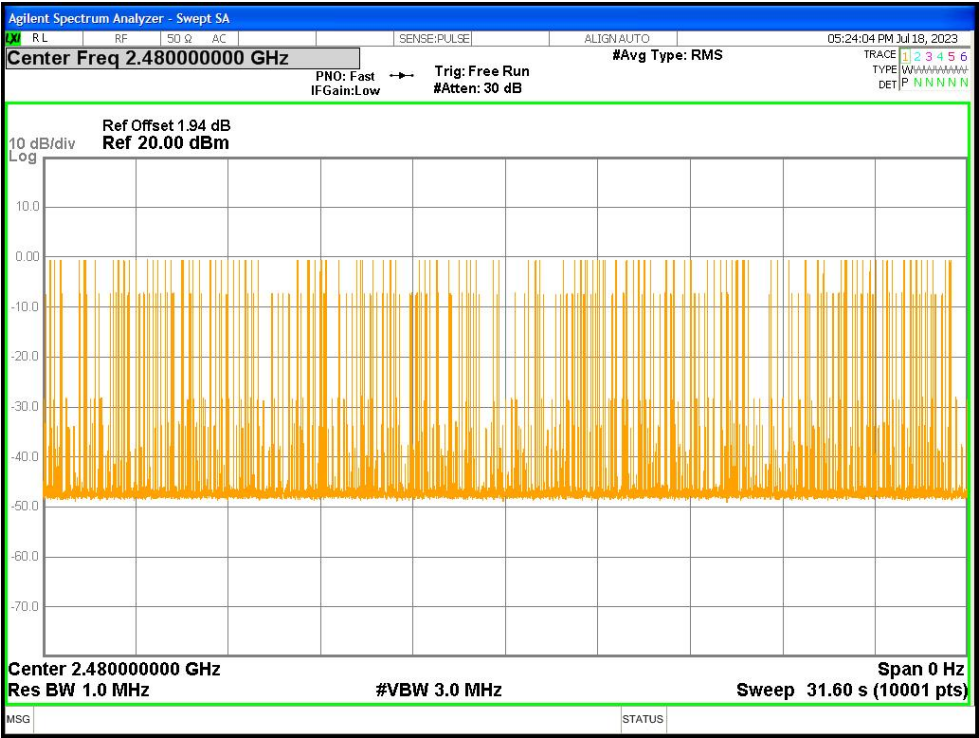
Dwell NVNT 3-DH5 2441MHz Ant1 One Burst



Dwell NVNT 3-DH5 2441MHz Ant1 Accumulated



Dwell NVNT 3-DH5 2480MHz Ant1 One Burst



Dwell NVNT 3-DH5 2480MHz Ant1 Accumulated

12. Antenna Requirement

Standard requirement:	FCC Part15 C Section 15.203 /247(c)
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(c) (1)(i) requirement: (i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.	
EUT Antenna:	
The antenna is PCB antenna, the best case gain of the antennas is -0.68dBi, 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 *******