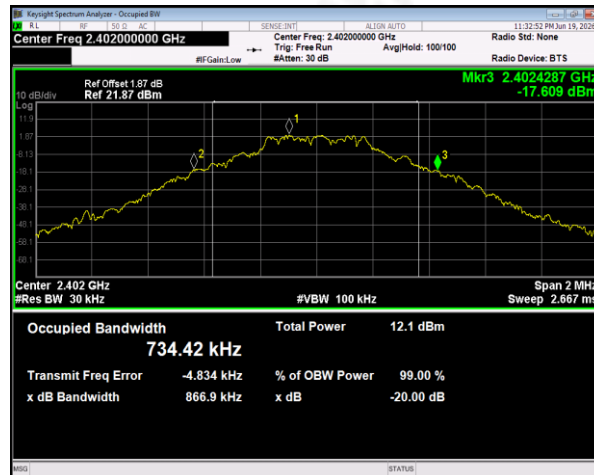




GFSK - 1-DH1 Test plots Low Channel



Middle Channel



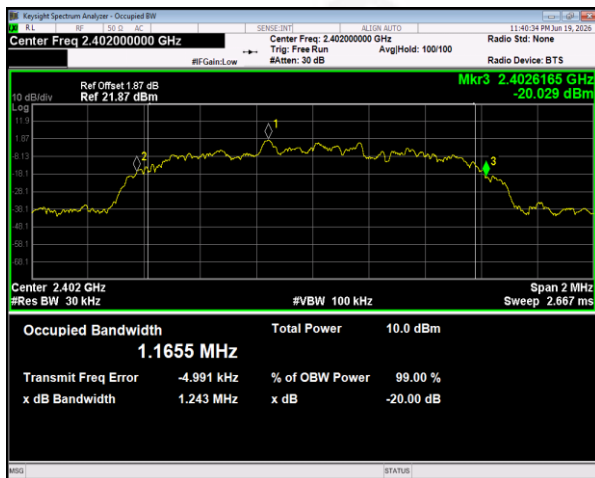
High Channel





$\pi/4$ -DQPSK - 2-DH1 Test plots

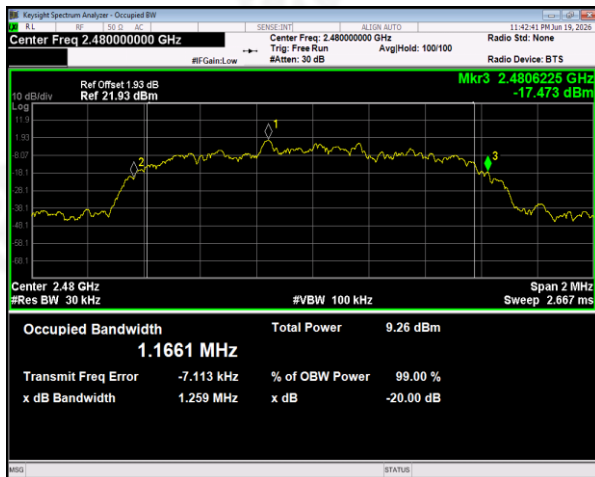
Low Channel



Middle Channel



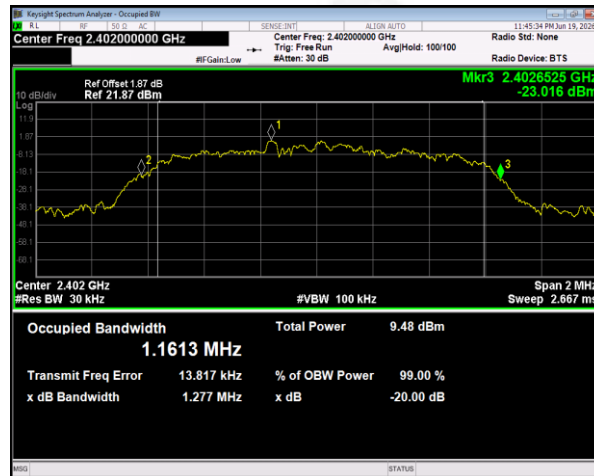
High Channel



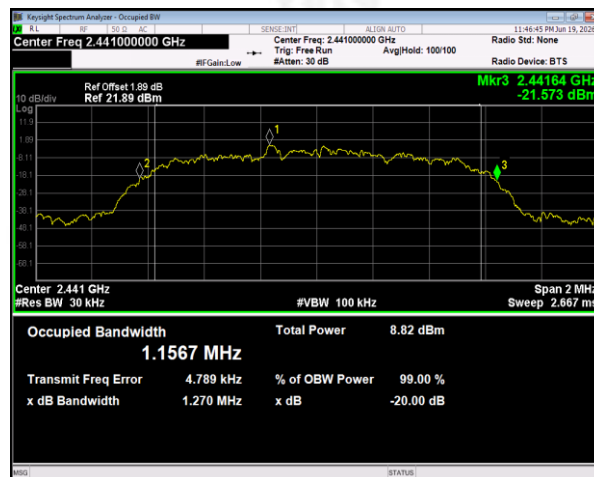


8-DPSK - 3-DH1 Test plots

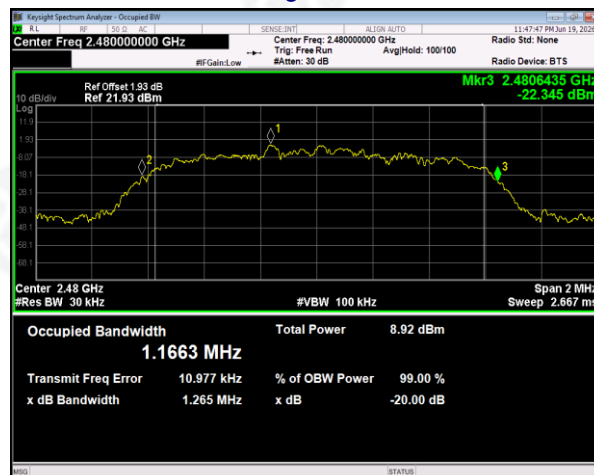
Low Channel



Middle Channel



High Channel

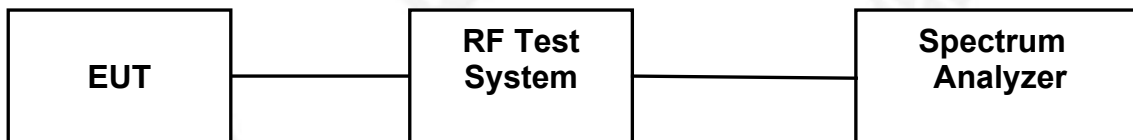




8. Maximum Peak Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(1)
Test Method:	ANSI C63.10:2020+Cor.1-2023
Limit:	GFSK & $\pi/4$ -DQPSK & 8-DPSK: 21 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

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.

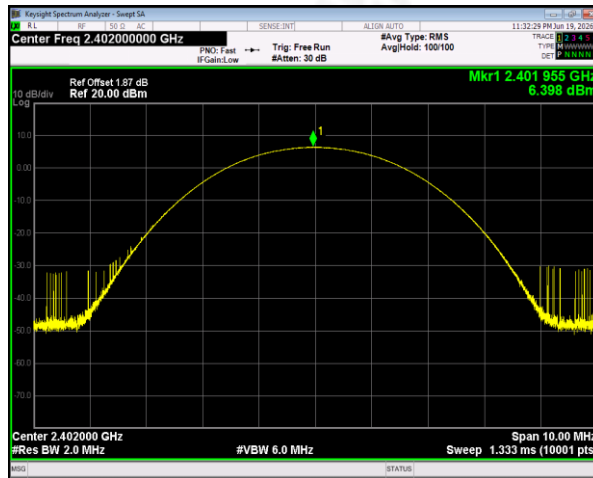


8.5 Test Result

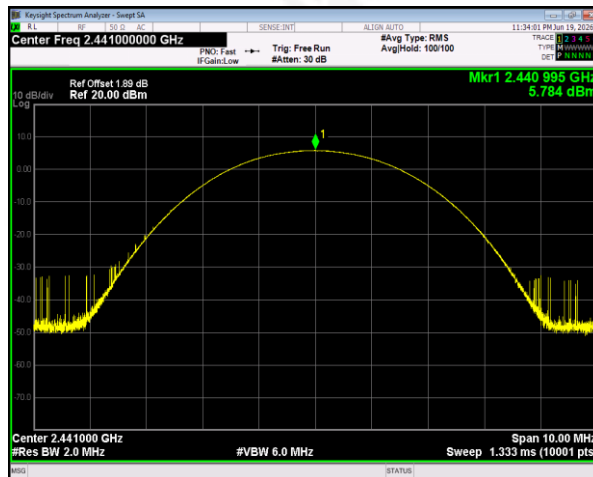
Modulation	Packet	Test Channel	Peak Output Power (dBm)	Limit (dBm)	Result
GFSK	1-DH1	Lowest	6.4	21.00	Pass
		Middle	5.78		
		Highest	5.59		
$\pi/4$ -DQPSK	2-DH1	Lowest	5.83	21.00	Pass
		Middle	5.06		
		Highest	5.11		
8-DPSK	3-DH1	Lowest	5.97	21.00	Pass
		Middle	5.28		
		Highest	5.33		



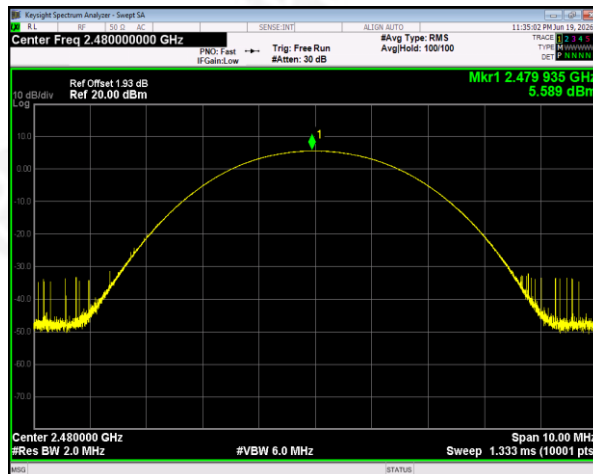
GFSK - 1-DH1 Test plots Low Channel



Middle Channel



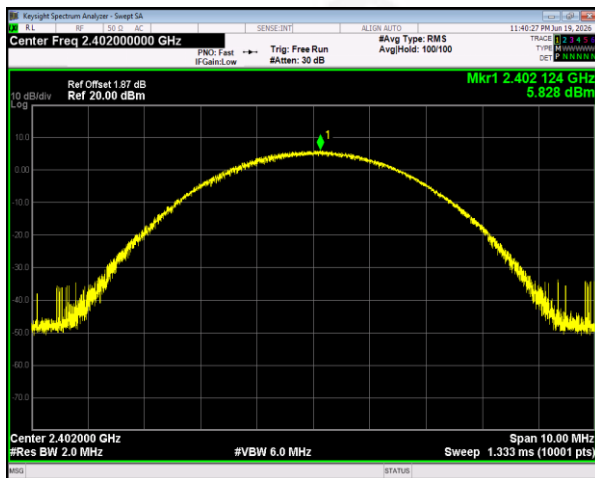
High Channel



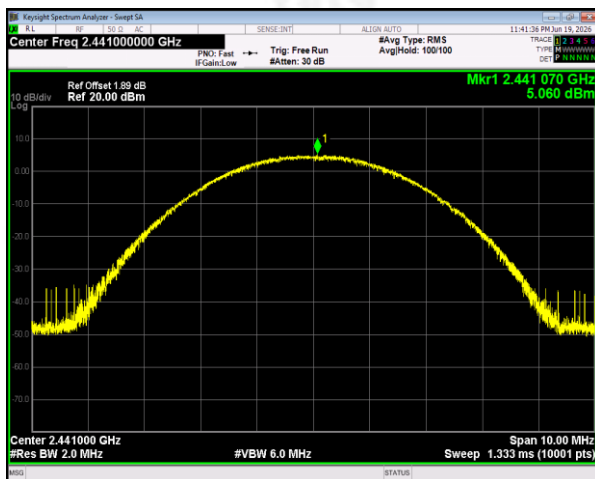


$\pi/4$ -DQPSK - 2-DH1 Test plots

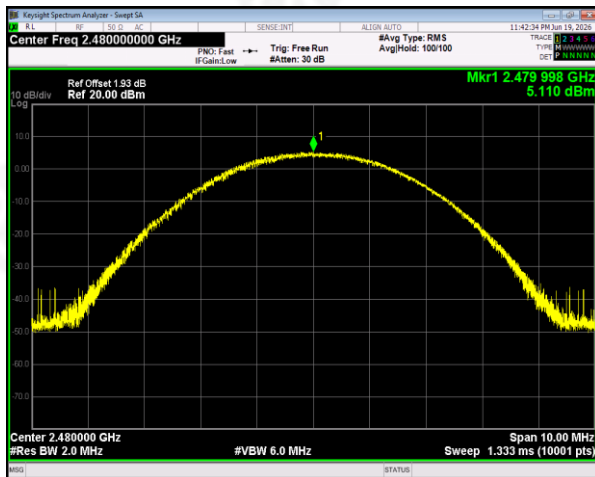
Low Channel



Middle Channel



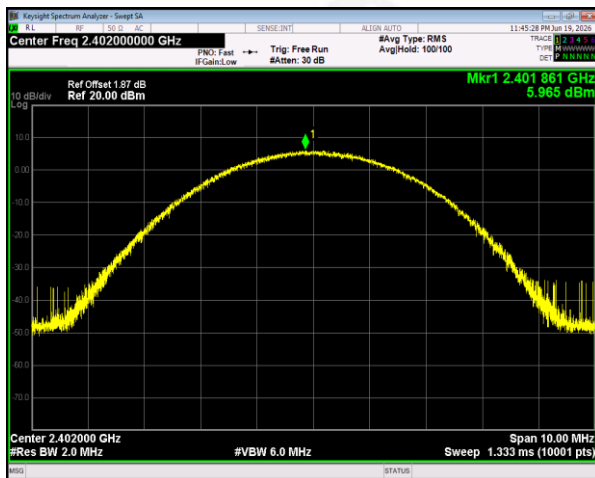
High Channel



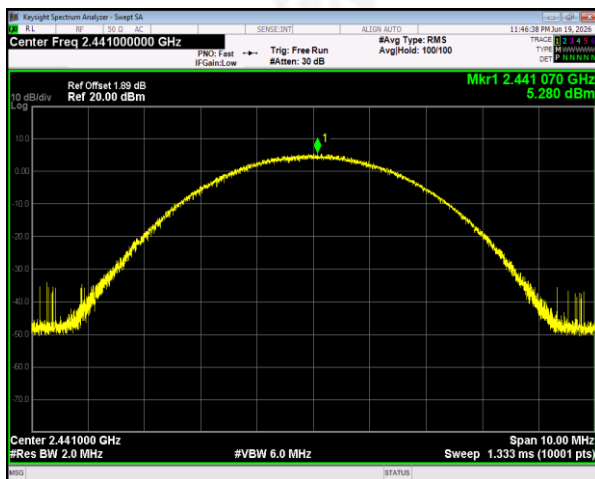


8-DPSK - 3-DH1 Test plots

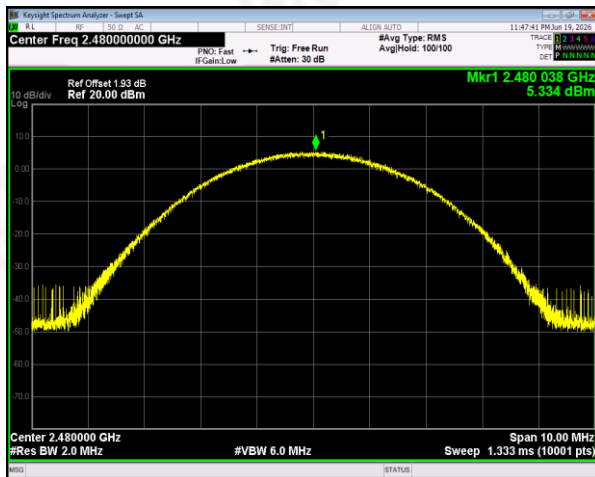
Low Channel



Middle Channel



High Channel

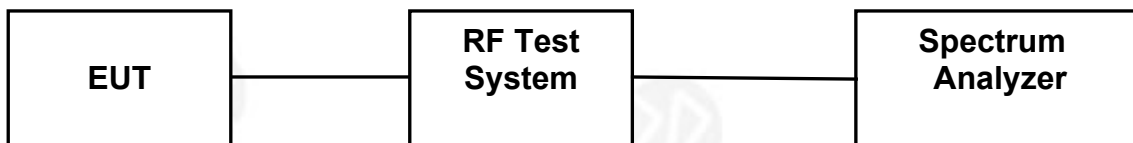




9. HOPPING CHANNEL SEPARATION

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



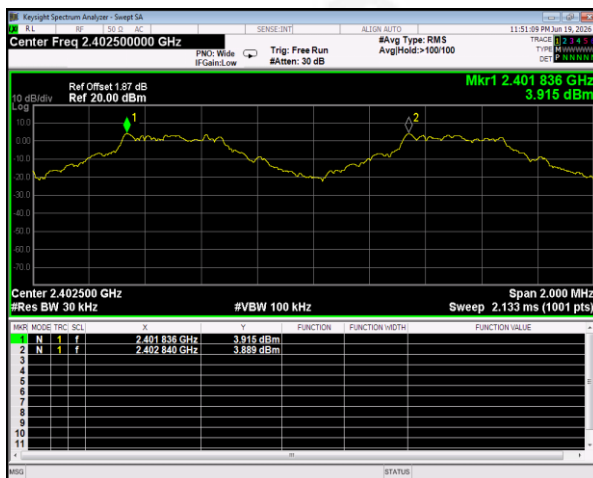
9.4 Test Result

Modulation	Packet	Test Channel	Separation (MHz)	Limit (MHz)	Result
GFSK	1-DH1	Low	1.004	0.578	PASS
		Middle	0.998	0.523	PASS
		High	1	0.551	PASS
$\pi/4$ -DQPSK	2-DH1	Low	0.996	0.829	PASS
		Middle	0.996	0.834	PASS
		High	1.006	0.839	PASS
8-DPSK	3-DH1	Low	1	0.851	PASS
		Middle	1	0.847	PASS
		High	1	0.843	PASS

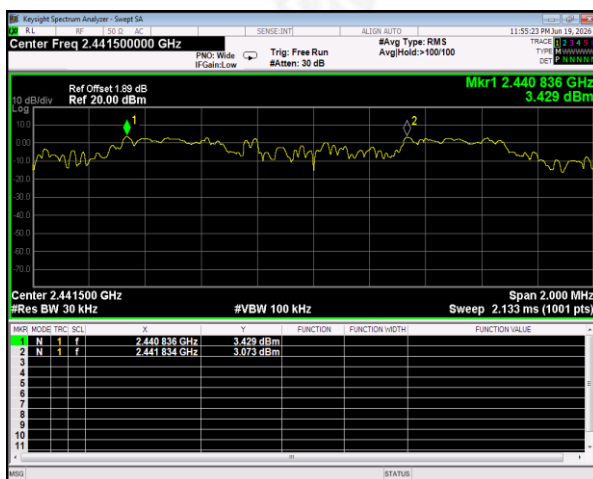


GFSK - 1-DH1 Test plots

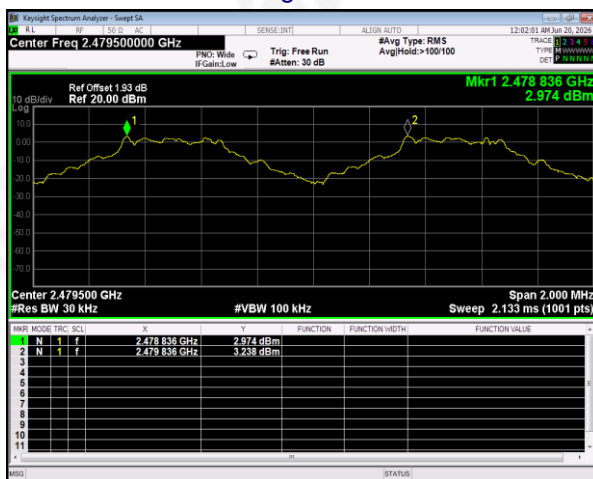
Low Channel



Middle Channel



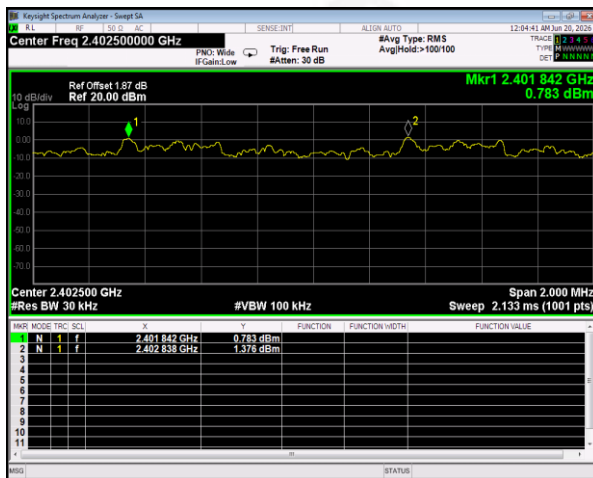
High Channel



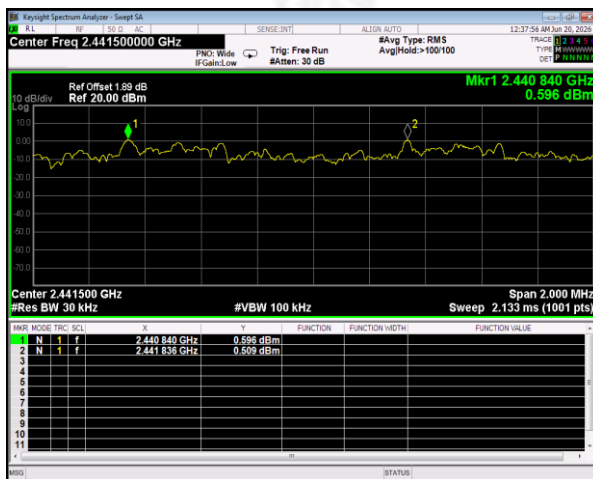


$\pi/4$ -DQPSK - 2-DH1 Test plots

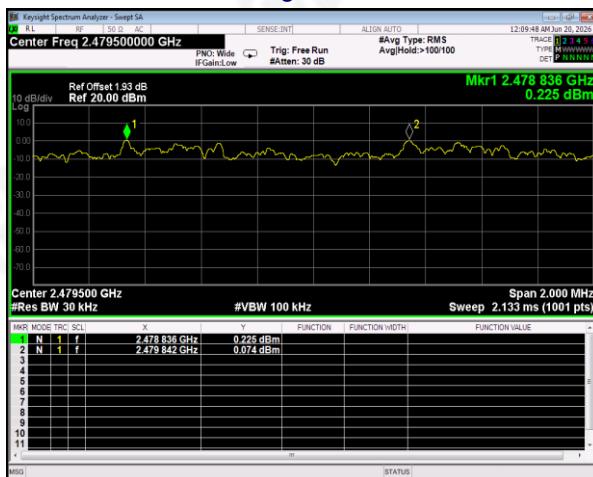
Low Channel



Middle Channel

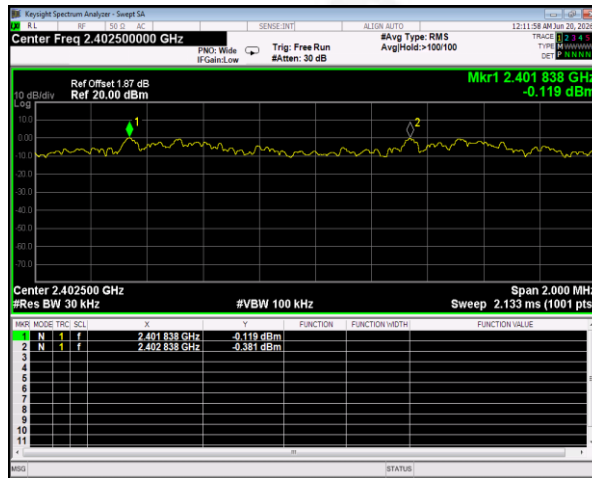


High Channel

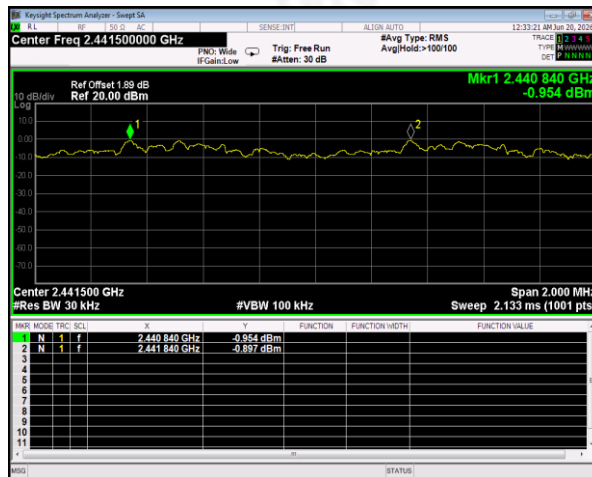




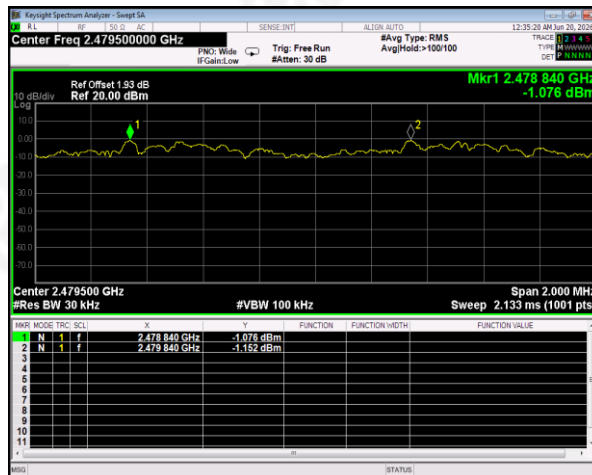
8-DPSK - 3-DH1 Test plots Low Channel



Middle Channel



High Channel

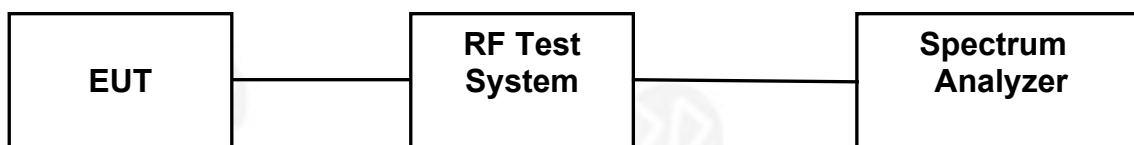




10.NUMBER OF HOPPING FREQUENCY

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

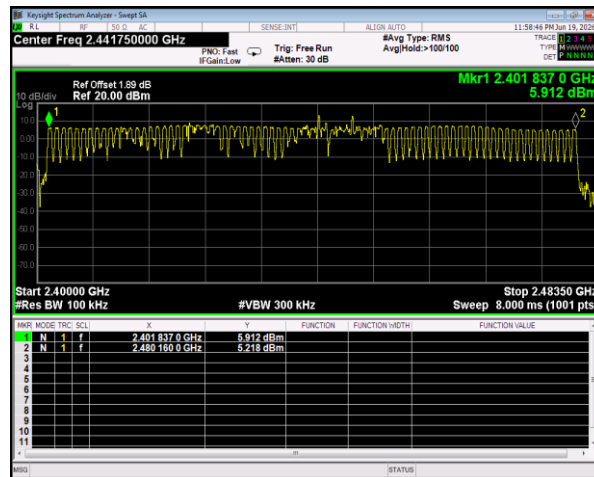


10.4 Test Result

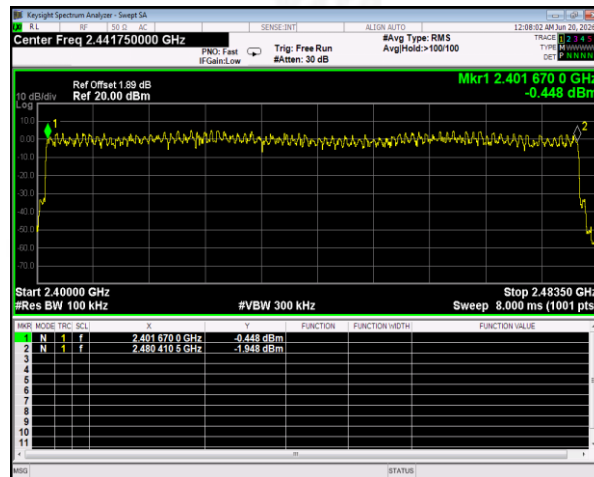
Modulation	Packet	Hopping Number	Limit	Result
GFSK	1-DH1	79	15	Pass
$\pi/4$ -DQPSK	2-DH1	79	15	Pass
8-DPSK	3-DH1	79	15	Pass



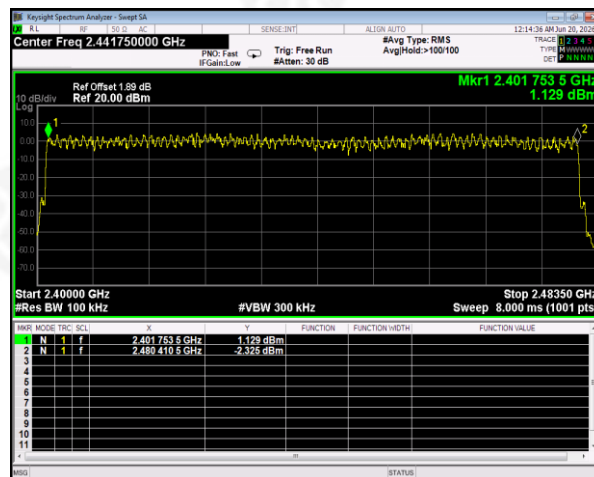
GFSK - 1-DH1 Test Plots



$\pi/4$ -DQPSK - 2-DH1 Test Plots



8-DPSK - 3-DH1 Test Plots

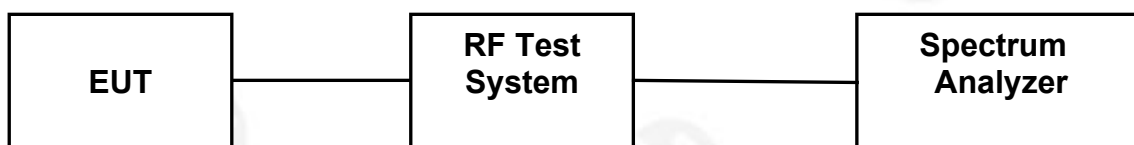




11. DWELL TIME

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



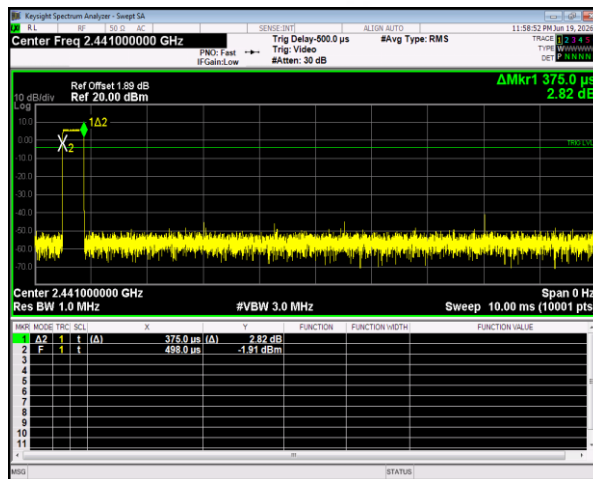
11.4 Test Result

Mode	Frequency (MHz)	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
1-DH1	2441	0.375	1.125	3	31600	400	Pass
1-DH3	2441	1.631	275.639	169	31600	400	Pass
1-DH5	2441	2.876	324.988	113	31600	400	Pass
2-DH1	2441	0.381	190.881	501	31600	400	Pass
2-DH3	2441	1.48	241.24	163	31600	400	Pass
2-DH5	2441	2.712	303.744	112	31600	400	Pass
3-DH1	2441	0.38	1.14	3	31600	400	Pass
3-DH3	2441	1.444	228.152	158	31600	400	Pass
3-DH5	2441	2.68	297.48	111	31600	400	Pass

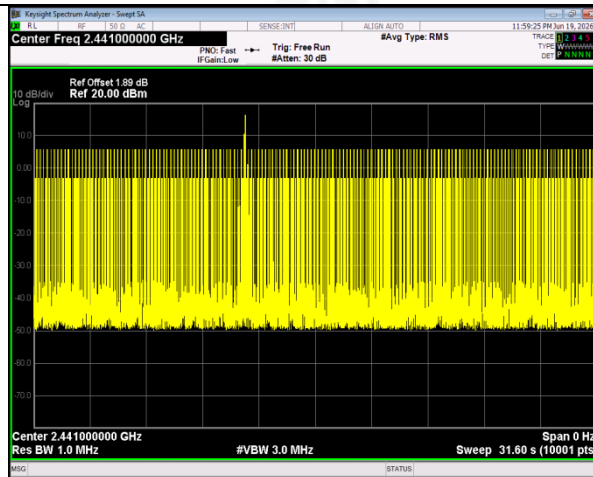
Note: Total Dwell Time (ms) = Pulse Time (ms)*Burst Count



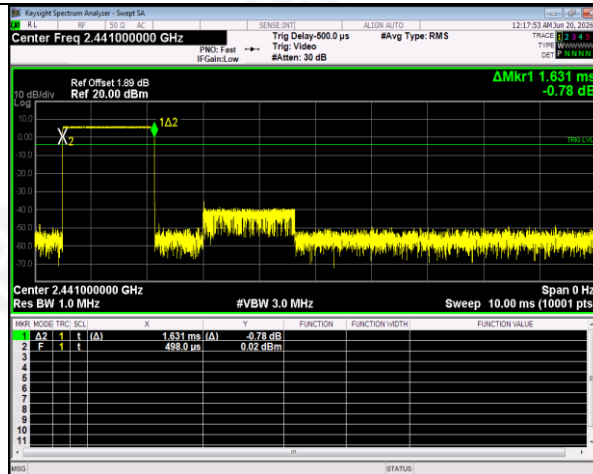
Test Plots



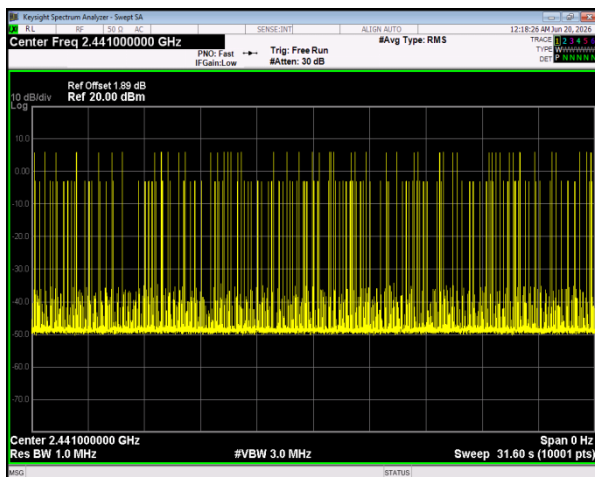
1-DH1 2441MHz One Burst



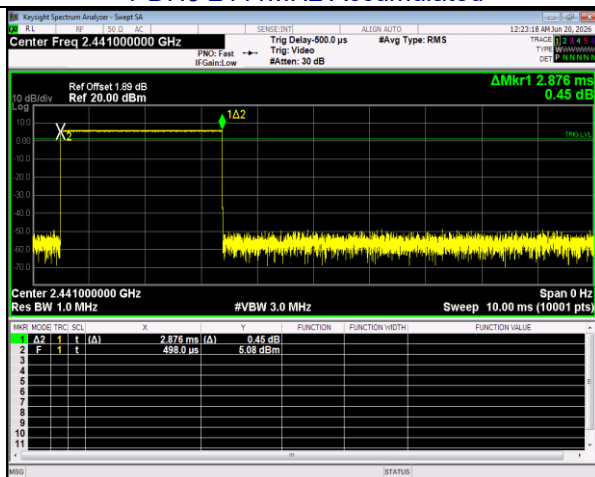
1-DH1 2441MHz Accumulated



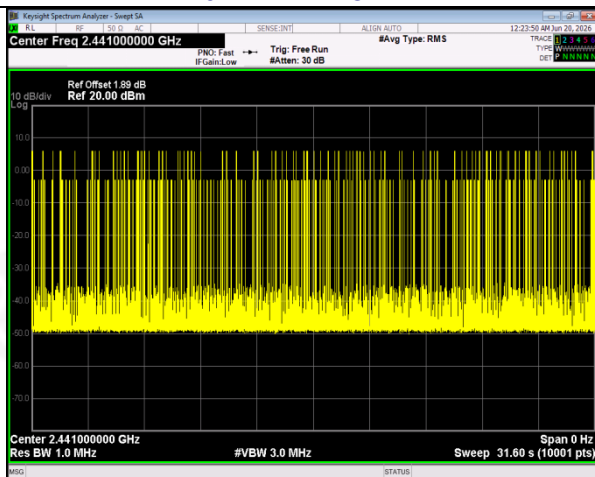
1-DH3 2441MHz One Burst



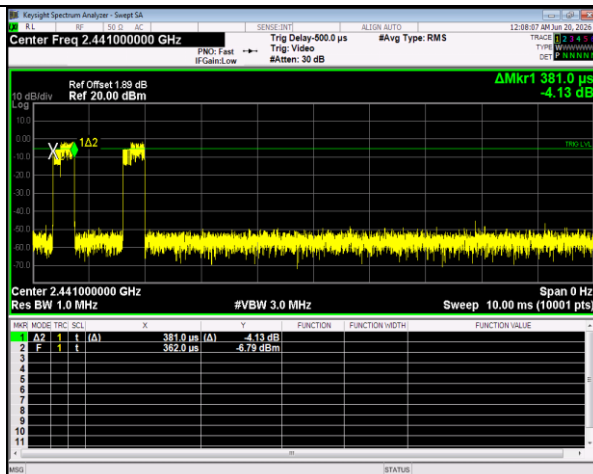
1-DH3 2441MHz Accumulated



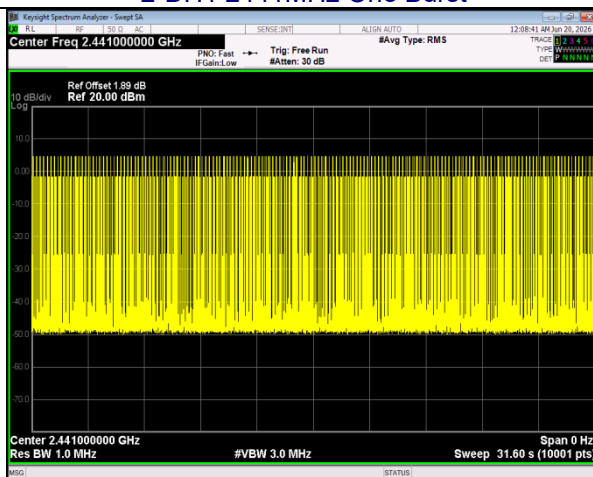
1-DH5 2441MHz One Burst



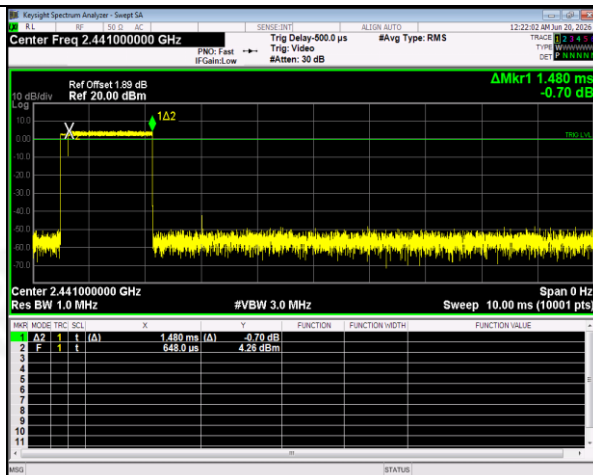
1-DH5 2441MHz Accumulated



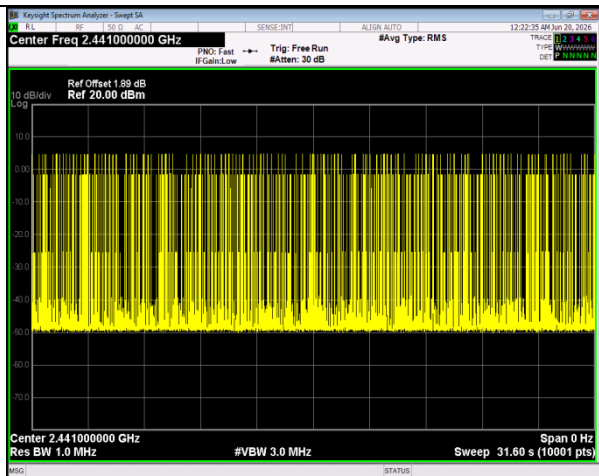
2-DH1 2441MHz One Burst



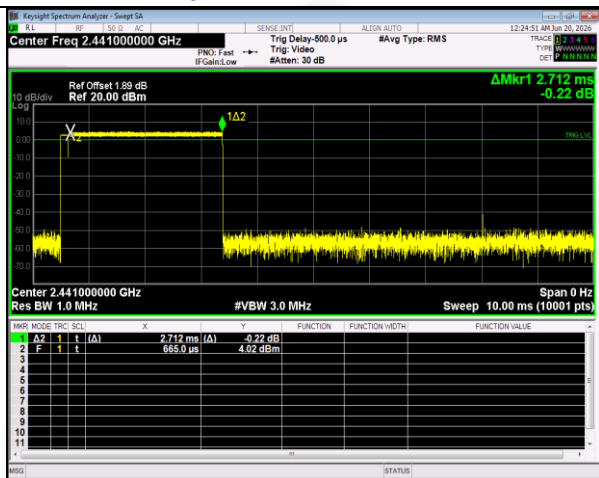
2-DH1 2441MHz Accumulated



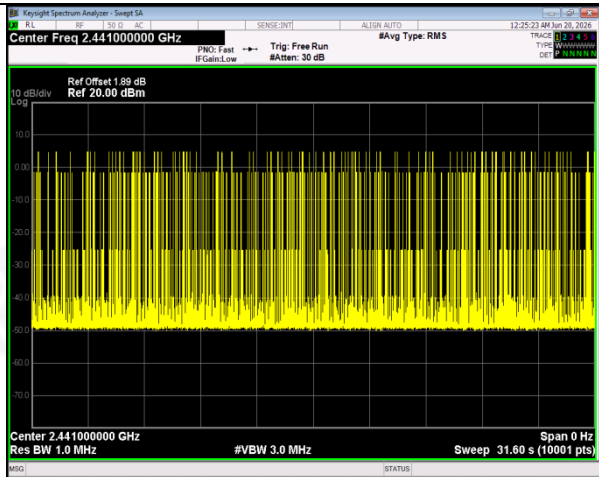
2-DH3 2441MHz One Burst



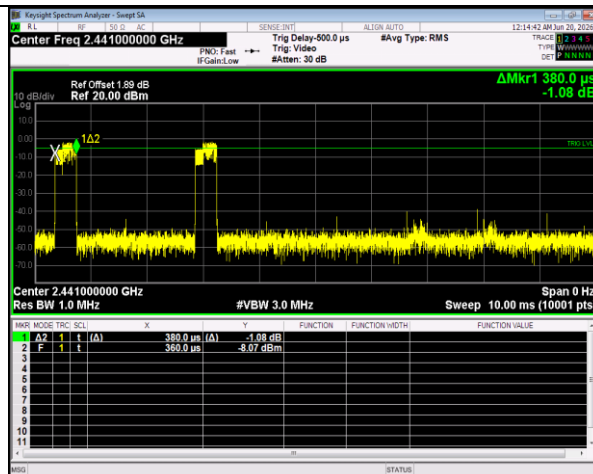
2-DH3 2441MHz Accumulated



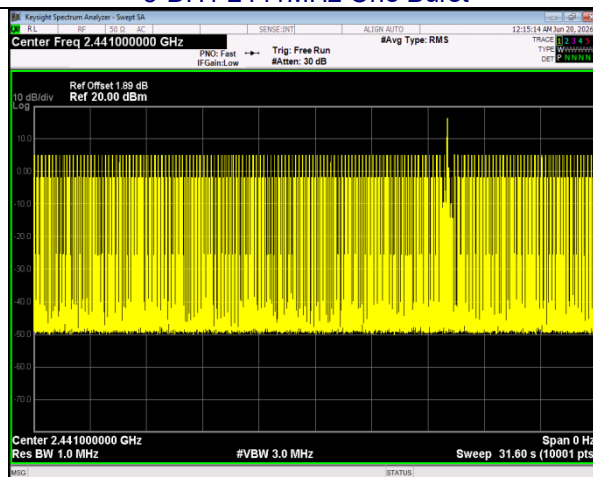
2-DH5 2441MHz One Burst



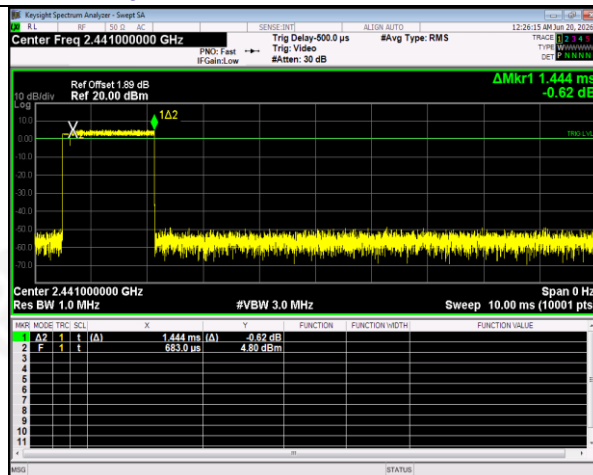
2-DH5 2441MHz Accumulated



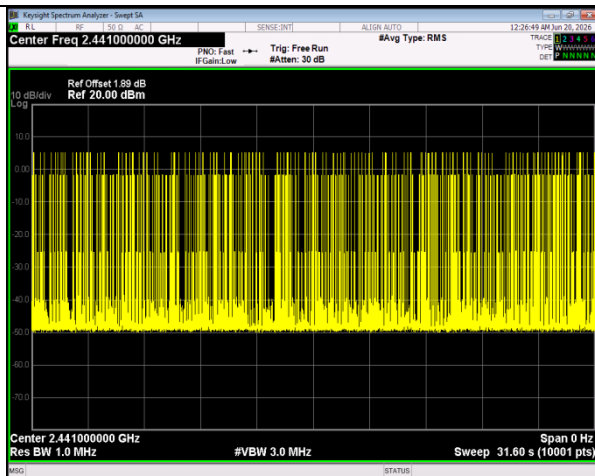
3-DH1 2441MHz One Burst



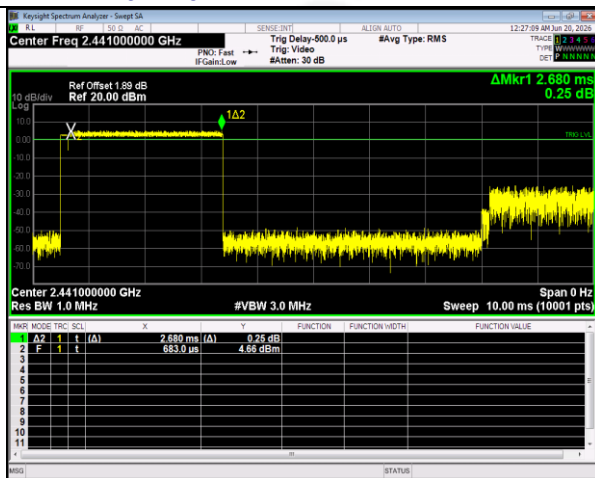
3-DH1 2441MHz Accumulated



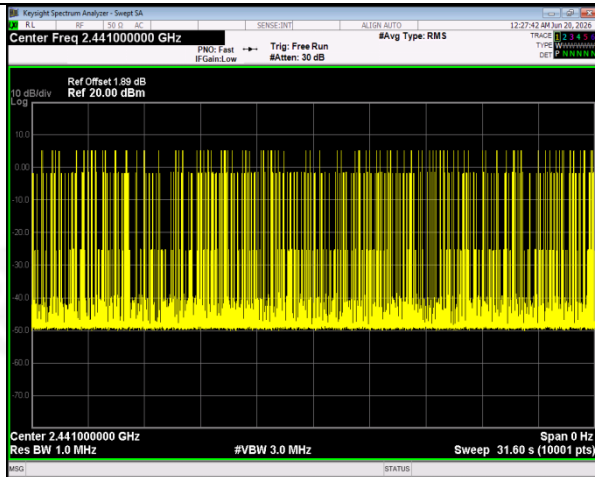
3-DH3 2441MHz One Burst



3-DH3 2441MHz Accumulated



3-DH5 2441MHz One Burst



3-DH5 2441MHz 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 FPCB antenna, the best case gain of the antennas is 2.71dBi, 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 *****