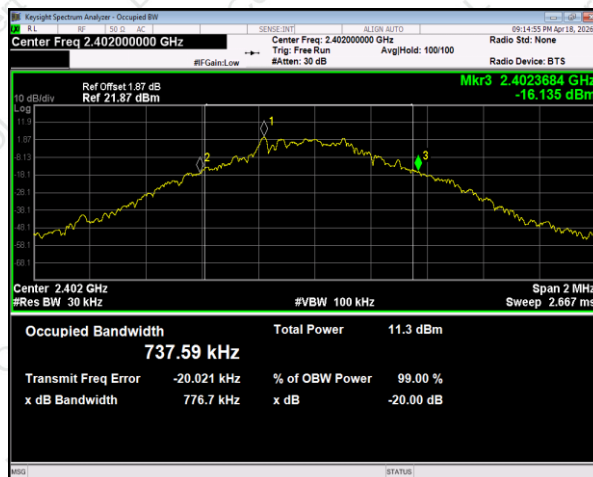


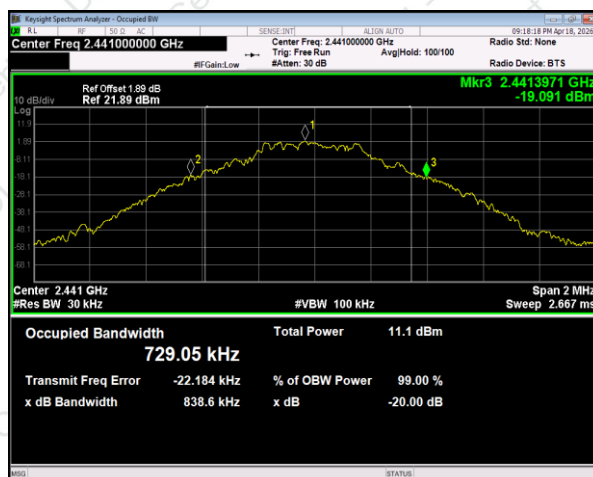


GFSK - 1-DH1 Test plots

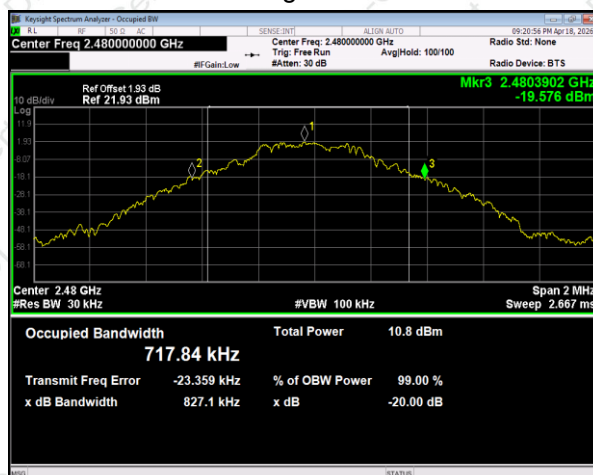
Low Channel



Middle Channel

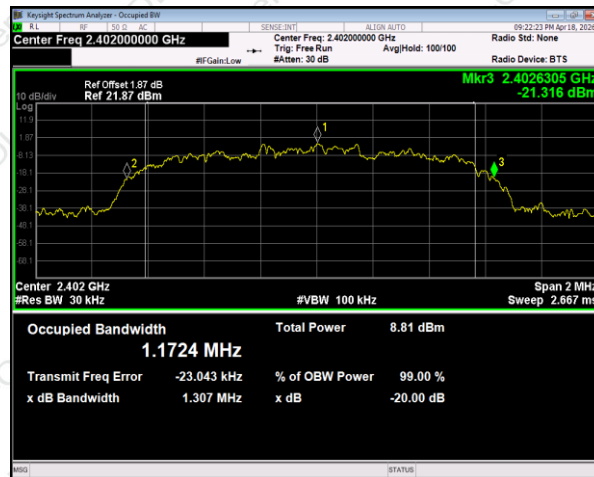


High Channel

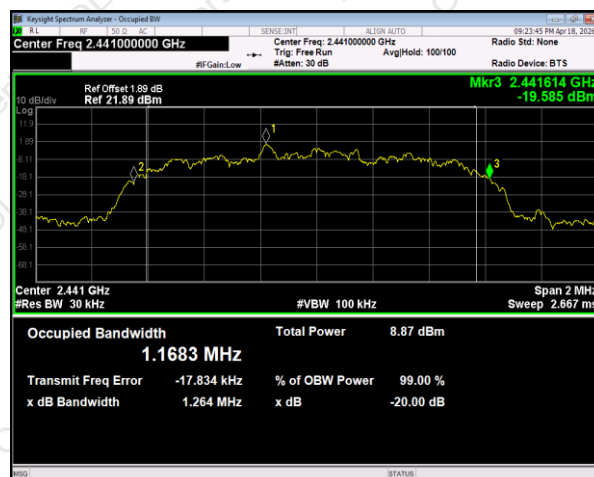


 $\pi/4$ -DQPSK - 2-DH1 Test plots

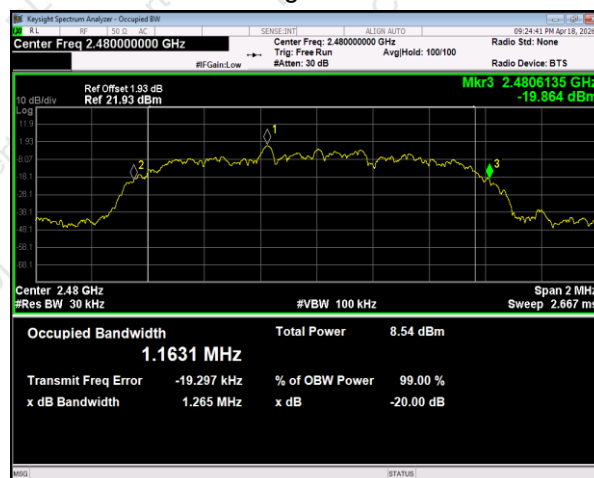
Low Channel



Middle Channel

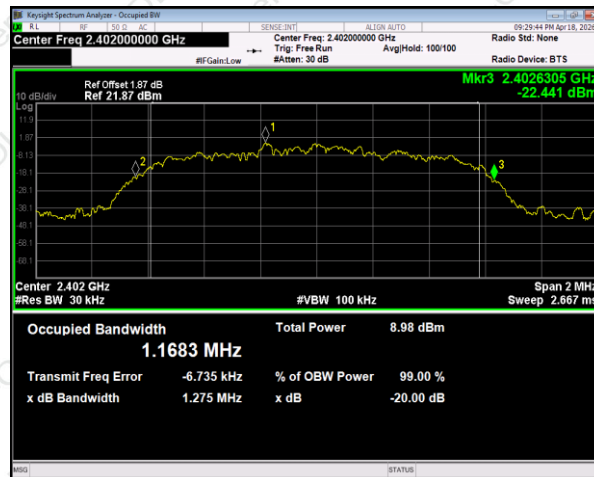


High Channel

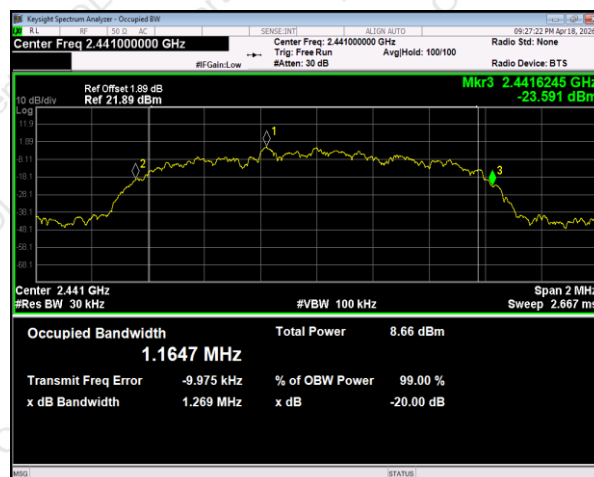




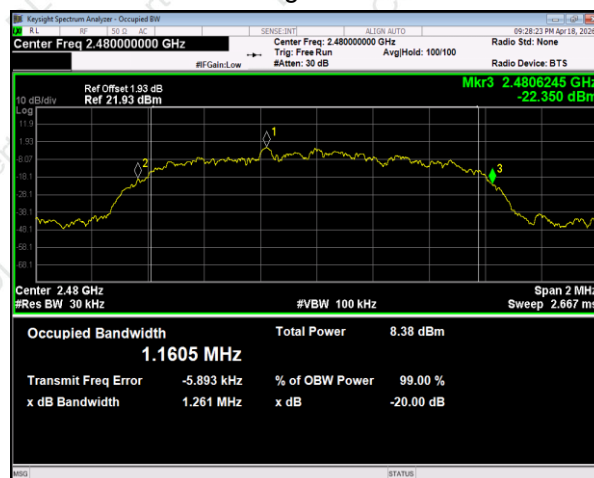
8-DPSK - 3-DH1 Test plots Low Channel



Middle Channel



High Channel

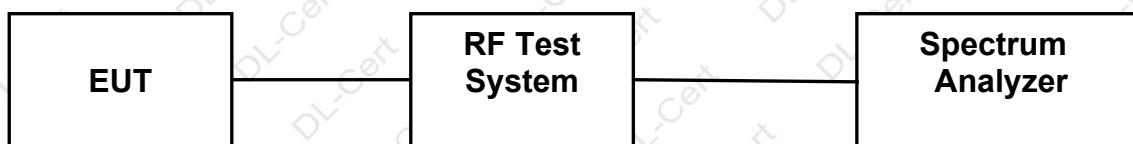




8. Maximum Peak Output Power

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.



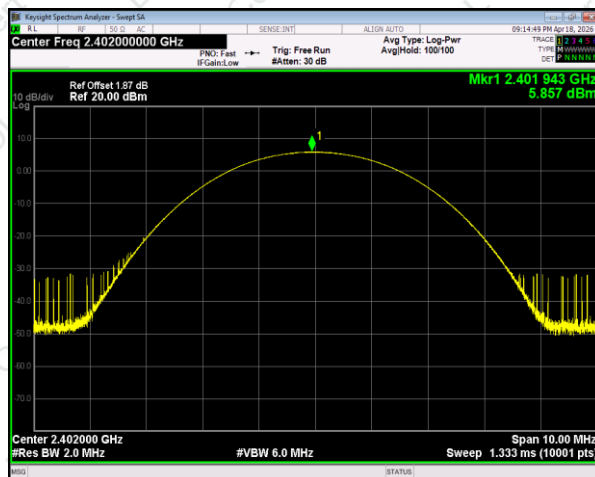
8.5 Test Result

Modulation	Packet	Test Channel	Peak Output Power (dBm)	Limit (dBm)	Result
GFSK	1-DH1	Lowest	5.86	21.00	Pass
		Middle	5.44		
		Highest	5.07		
$\pi/4$ -DQPSK	2-DH1	Lowest	5.17	21.00	Pass
		Middle	4.74		
		Highest	4.55		
8-DPSK	3-DH1	Lowest	5.35	21.00	Pass
		Middle	4.98		
		Highest	4.76		

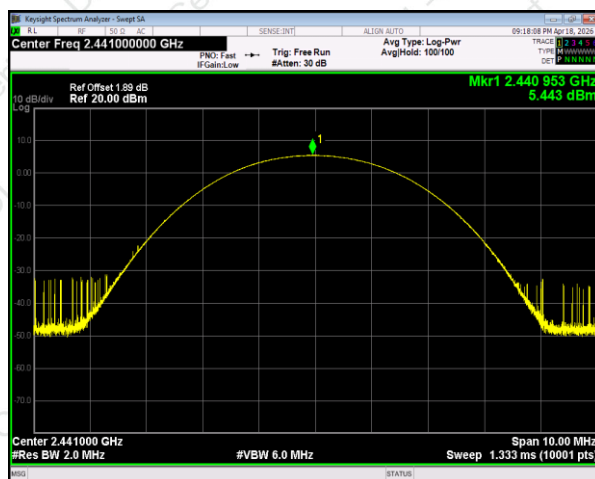


GFSK - 1-DH1 Test plots

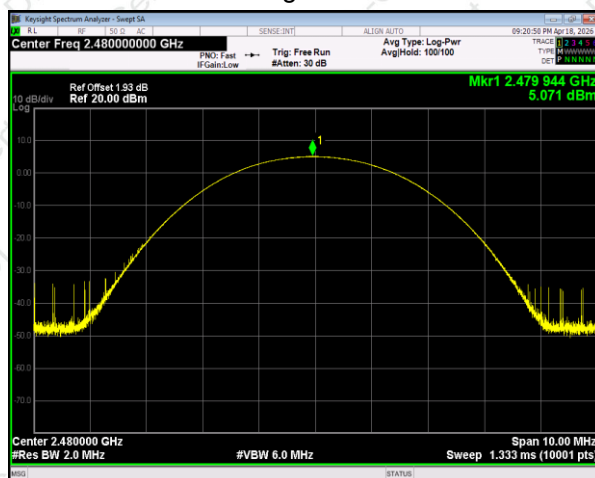
Low Channel



Middle Channel

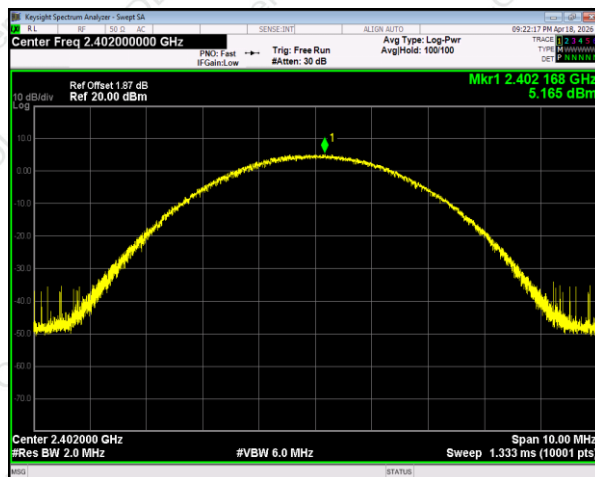


High Channel

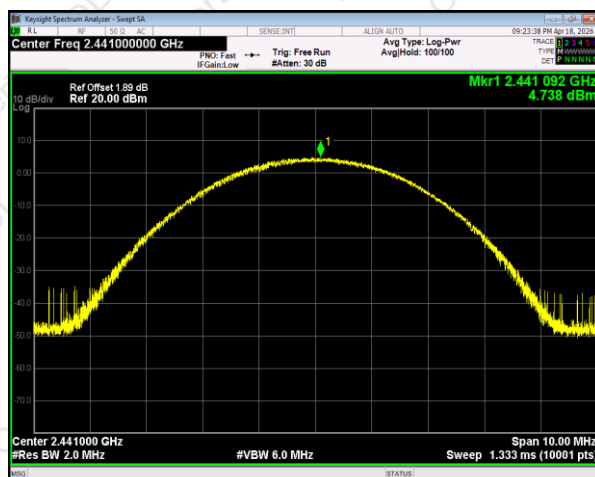


 $\pi/4$ -DQPSK - 2-DH1 Test plots

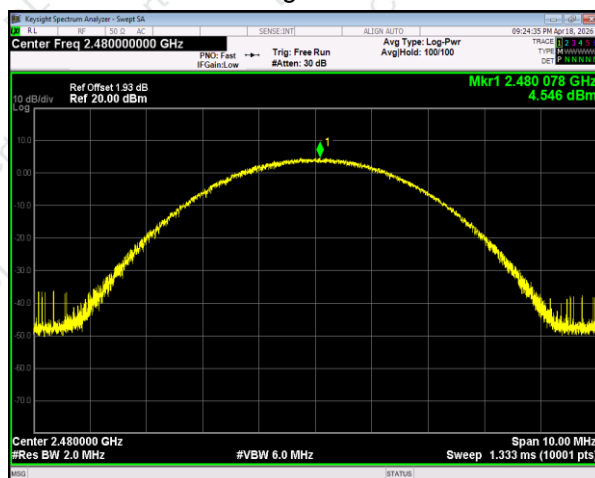
Low Channel



Middle Channel



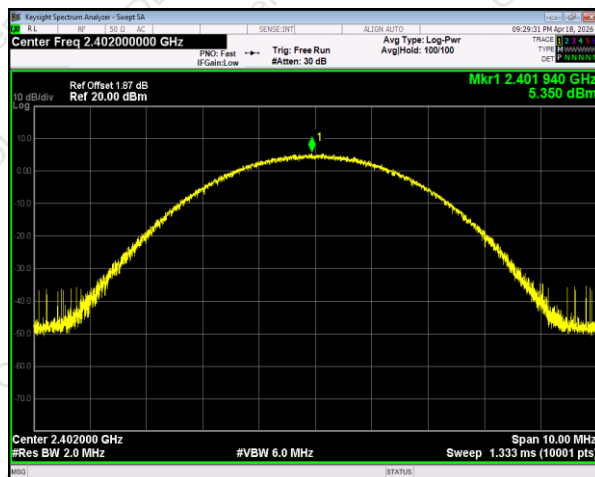
High Channel



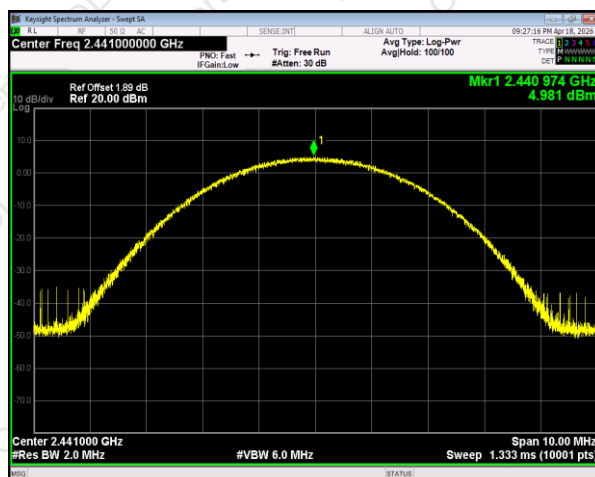


8-DPSK - 3-DH1 Test plots

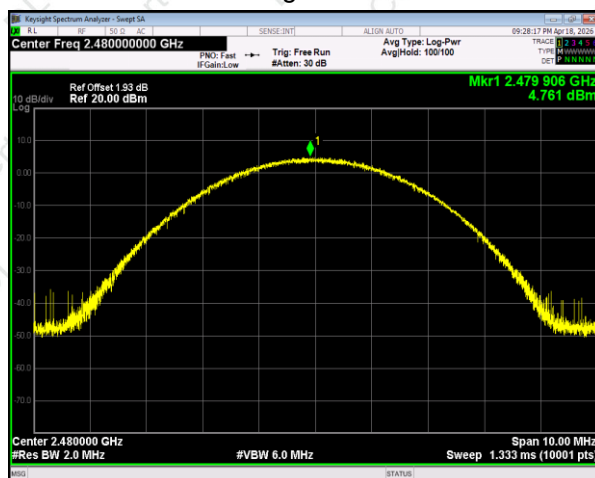
Low Channel



Middle Channel



High Channel

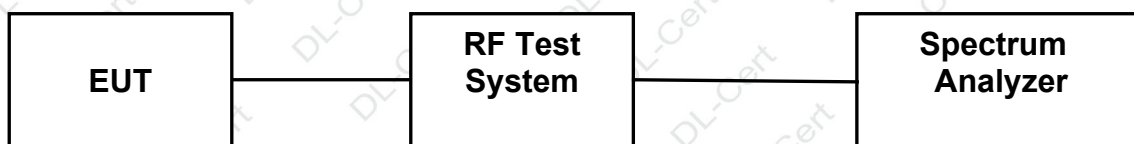




9. HOPPING CHANNEL SEPARATION

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.



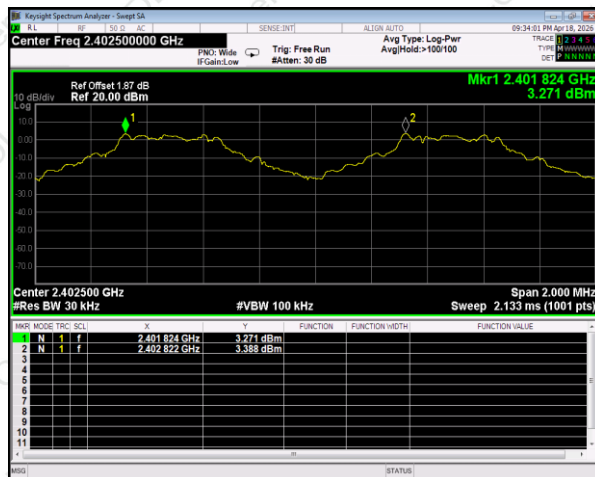
9.4 Test Result

Modulation	Packet	Test Channel	Separation (MHz)	Limit (MHz)	Result
GFSK	1-DH1	Low	0.998	0.518	PASS
		Middle	1.002	0.559	PASS
		High	1.002	0.551	PASS
$\pi/4$ -DQPSK	2-DH1	Low	1.000	0.871	PASS
		Middle	1.000	0.843	PASS
		High	0.998	0.843	PASS
8-DPSK	3-DH1	Low	0.998	0.85	PASS
		Middle	1.002	0.846	PASS
		High	1.008	0.841	PASS

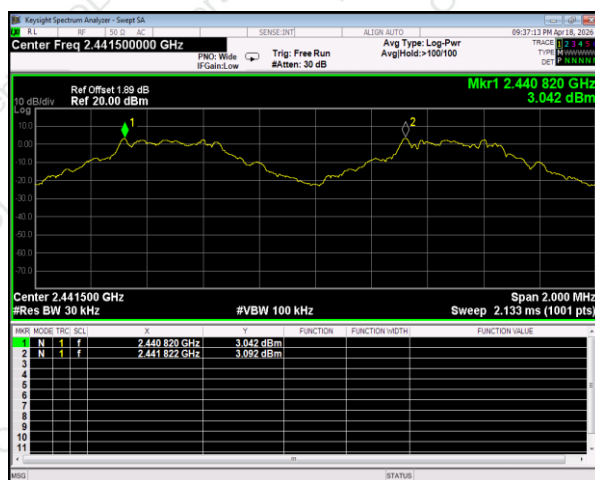


GFSK - 1-DH1 Test plots

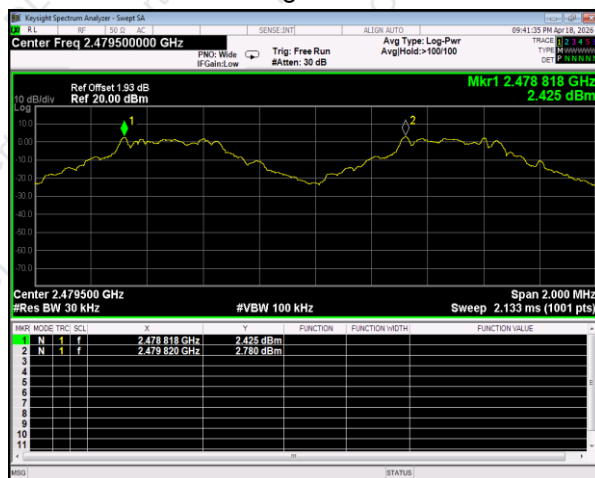
Low Channel



Middle Channel

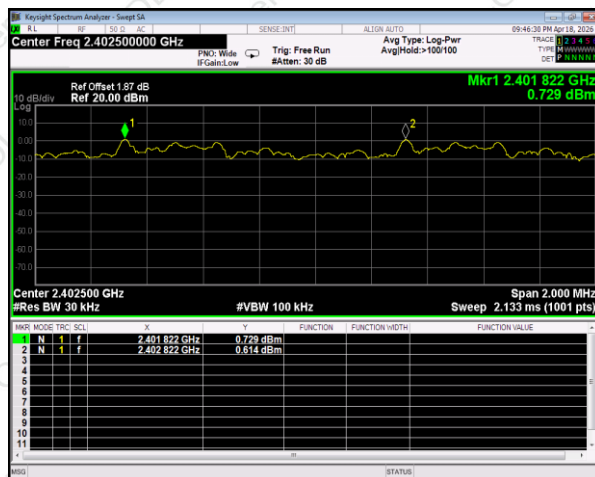


High Channel

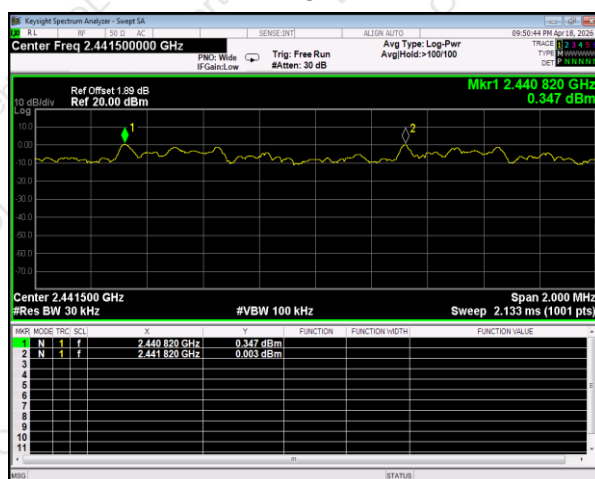


 $\pi/4$ -DQPSK - 2-DH1 Test plots

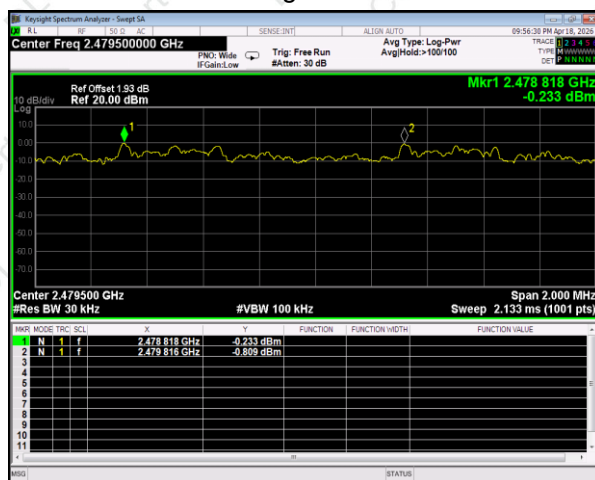
Low Channel



Middle Channel



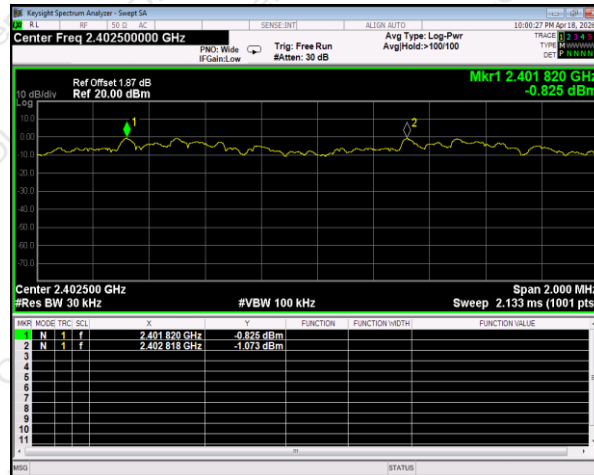
High Channel



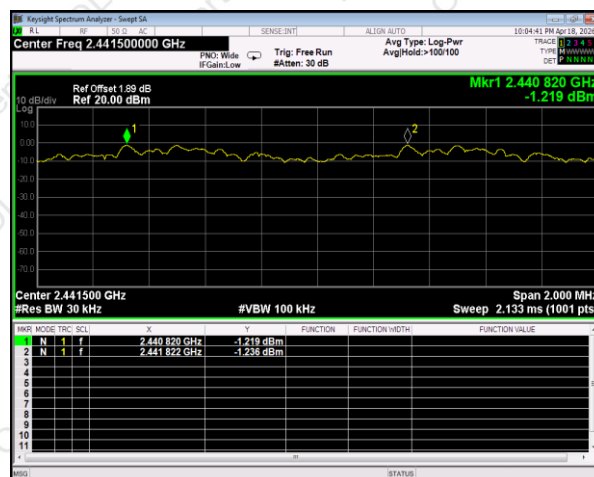


8-DPSK - 3-DH1 Test plots

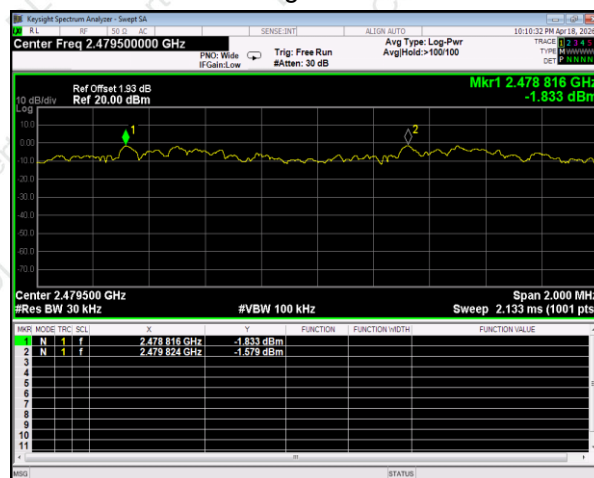
Low Channel



Middle Channel

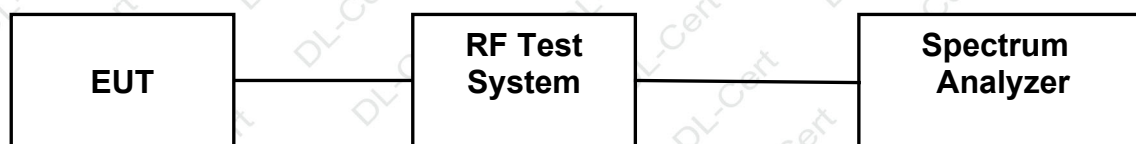


High Channel



**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.

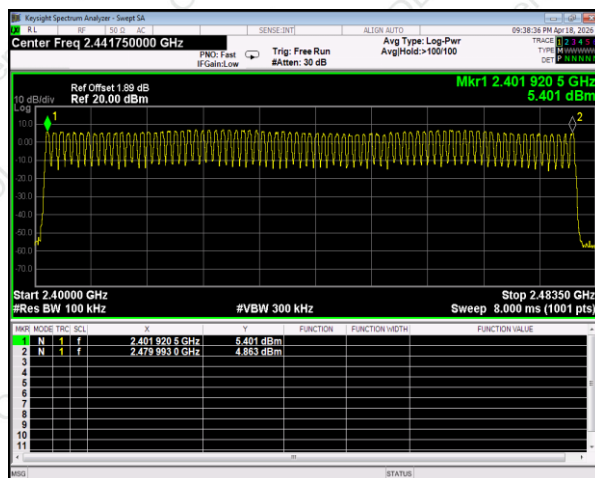
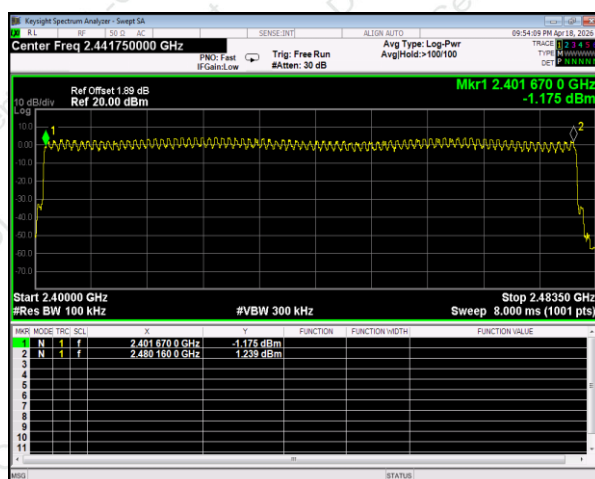


10.4 Test Result

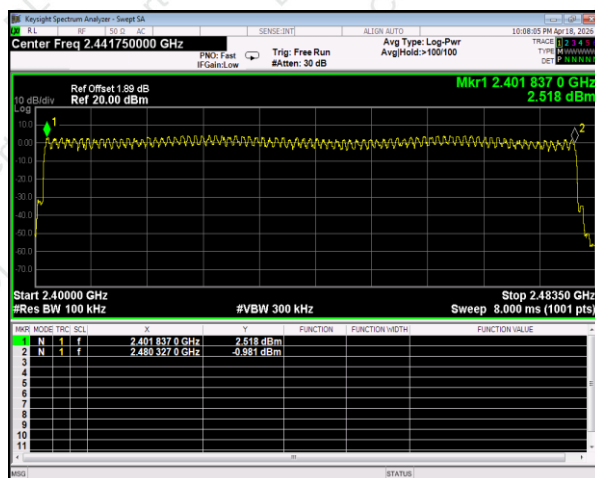
Modulation	Packet	Hopping Number	Limit	Result
GFSK	1-DH1	79	15	Pass
$\pi/4$ -DQPSK	2-DH1	79	15	Pass
8-DPSK	3-DH1	79	15	Pass



GFSK - 1-DH1 Test Plots

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

8-DPSK - 3-DH1 Test Plots

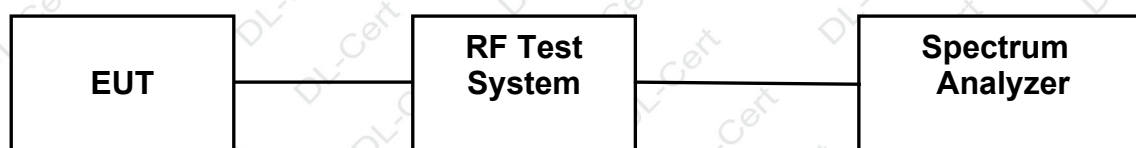




11. DWELL TIME

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.



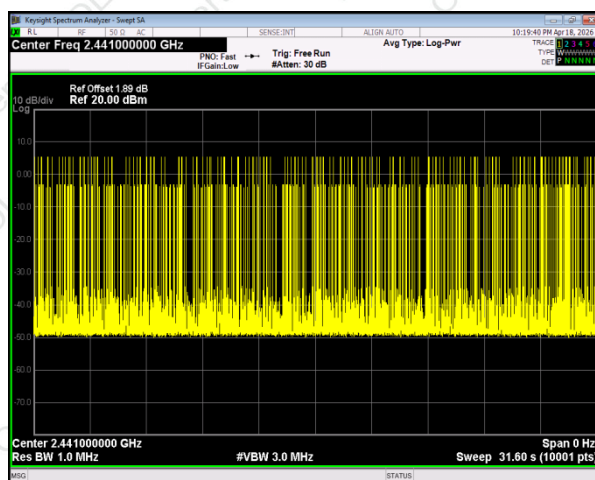
11.4 Test Result

Mode	Frequency (MHz)	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
1-DH1	2441	0.374	187.374	501	31600	400	Pass
1-DH3	2441	1.63	257.54	158	31600	400	Pass
1-DH5	2441	2.878	284.922	99	31600	400	Pass
2-DH1	2441	0.381	190.881	501	31600	400	Pass
2-DH3	2441	1.634	245.1	150	31600	400	Pass
2-DH5	2441	2.882	299.728	104	31600	400	Pass
3-DH1	2441	0.383	191.883	501	31600	400	Pass
3-DH3	2441	1.632	254.592	156	31600	400	Pass
3-DH5	2441	2.883	299.832	104	31600	400	Pass

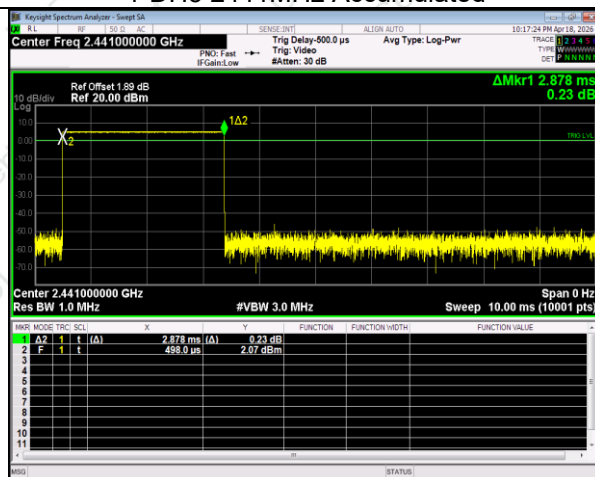
Note: Total Dwell Time (ms) = Pulse Time (ms)*Burst Count

[illegible][illegible][illegible]

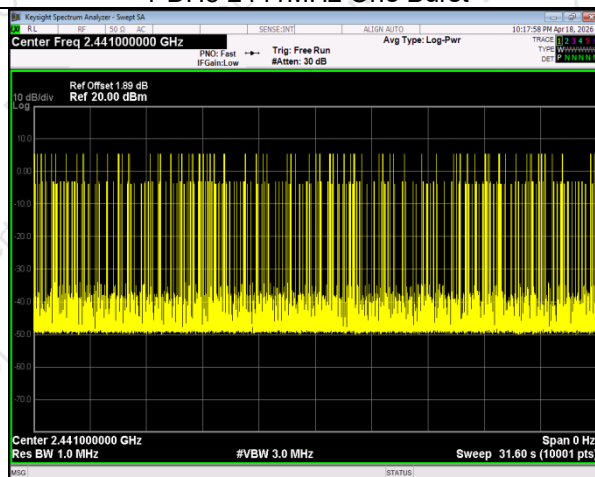
Page 58 of 65



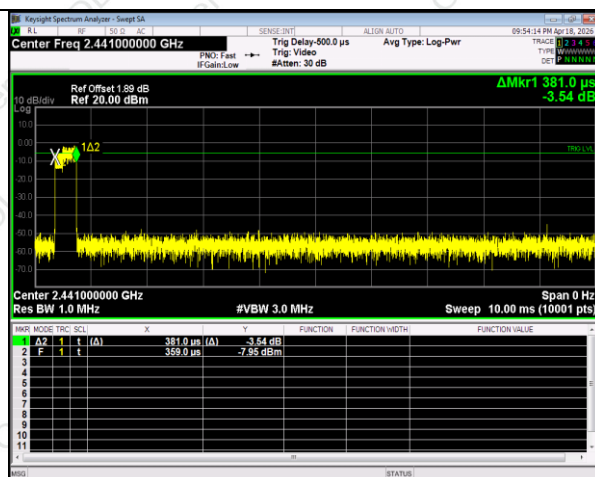
1-DH3 2441MHz Accumulated



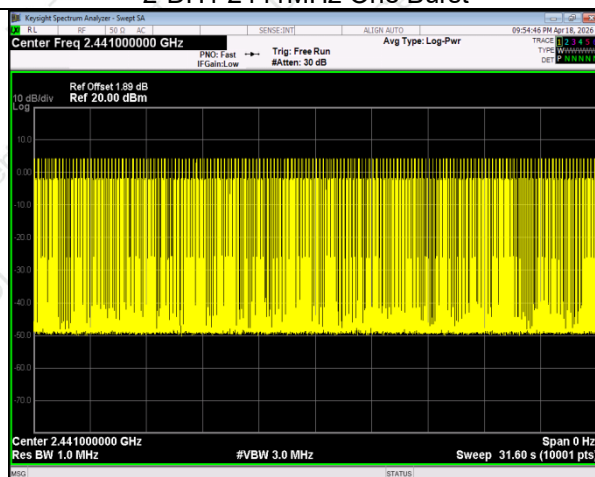
1-DH5 2441MHz One Burst



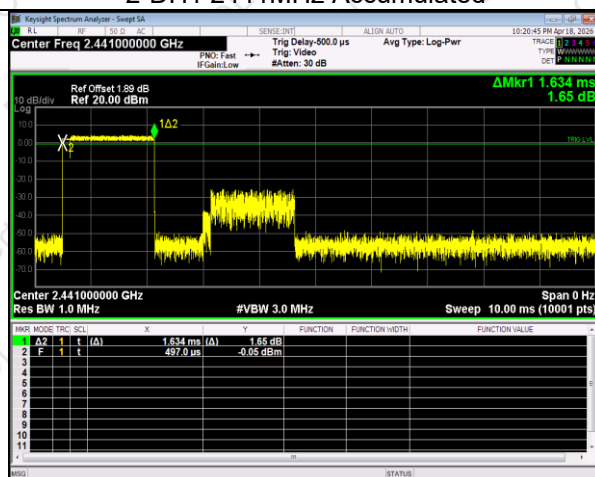
1-DH5 2441MHz Accumulated



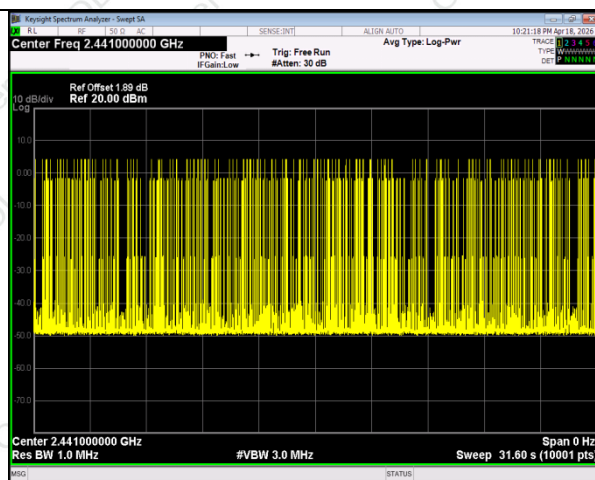
2-DH1 2441MHz One Burst



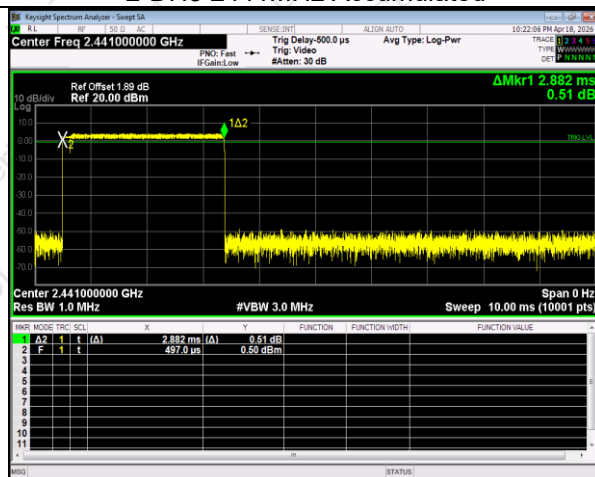
2-DH1 2441MHz Accumulated



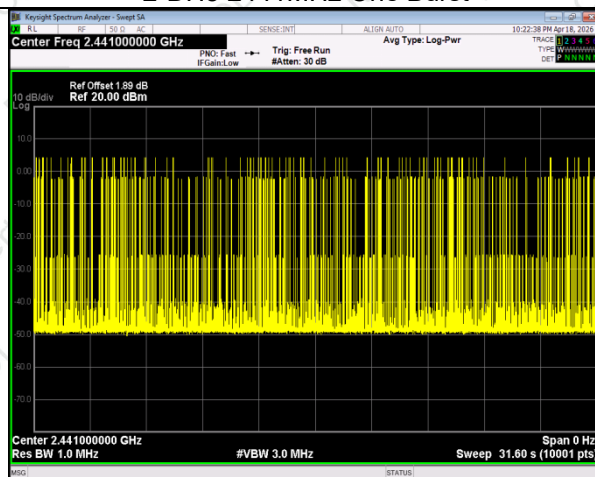
2-DH3 2441MHz One Burst



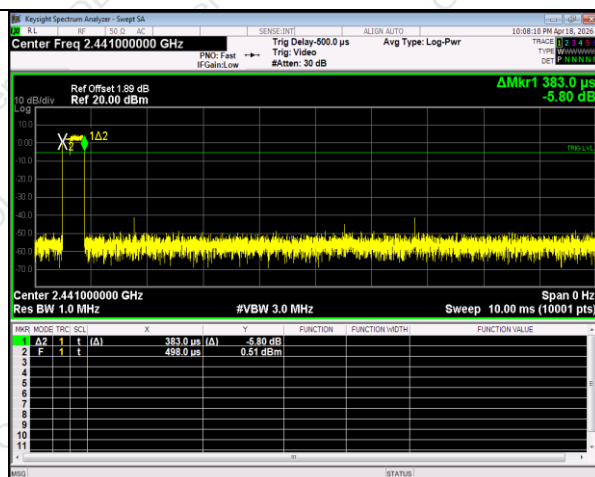
2-DH3 2441MHz Accumulated



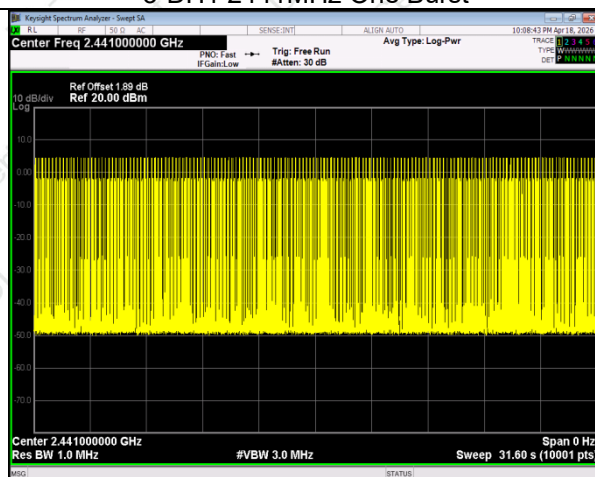
2-DH5 2441MHz One Burst



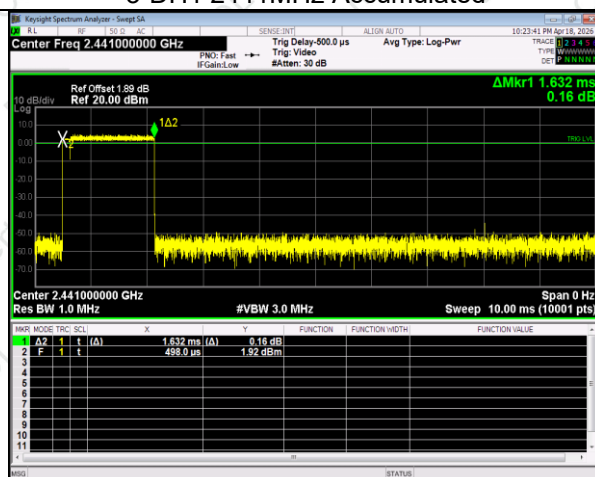
2-DH5 2441MHz Accumulated



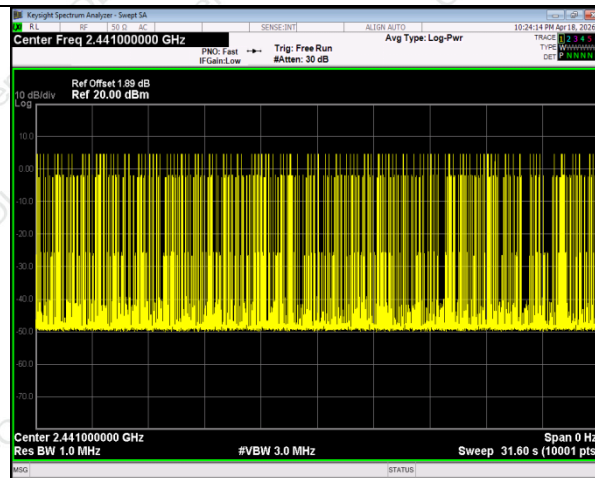
3-DH1 2441MHz One Burst



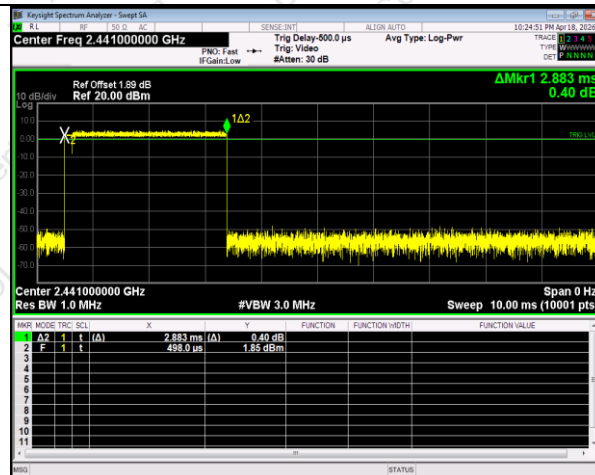
3-DH1 2441MHz Accumulated



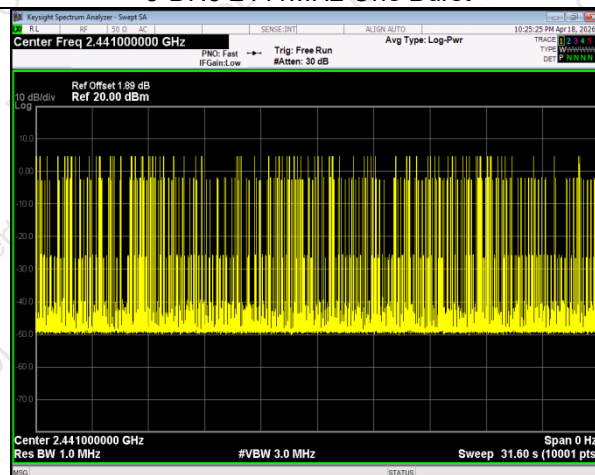
3-DH3 2441MHz One Burst



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 2.6dBi, 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 *****