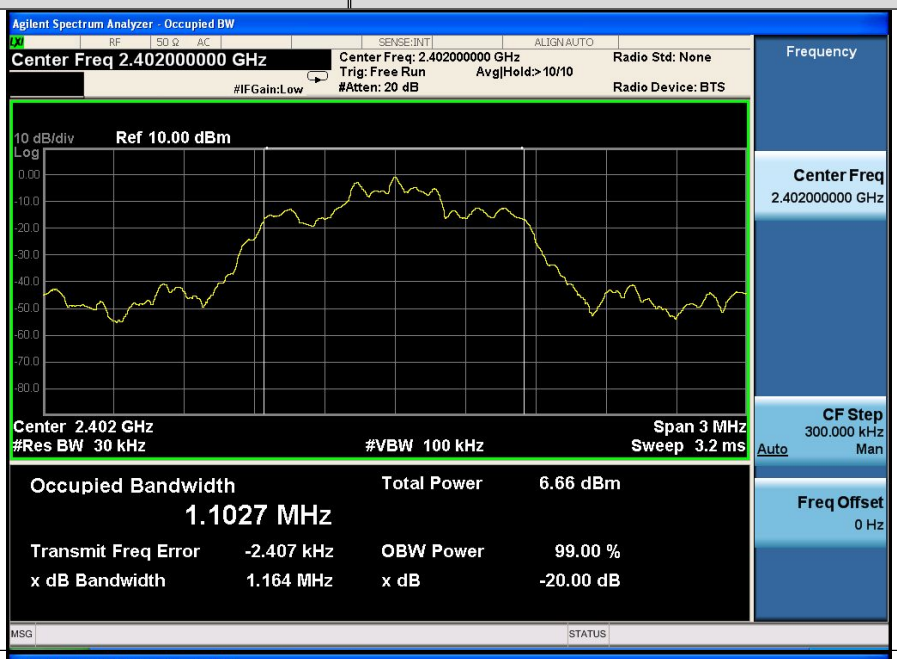
2480MHz		Agilent Spectrum Analyzer - Occupied BW Center Freq 2.480000000 GHz Center Freq: 2.480000000 GHz Trig: Free Run #Atten: 20 dB Avg|Hold:>10/10 Radio Std: None Radio Device: BTS #IFGain:Low Frequency 10 dB/div Ref 10.00 dBm Log Center Freq 2.480000000 GHz Center 2.48 GHz #Res BW 30 kHz #VBW 100 kHz Span 3 MHz Sweep 3.2 ms CF Step 300.000 kHz Auto Man Occupied Bandwidth 1.0651 MHz Total Power 7.01 dBm Transmit Freq Error -2.070 kHz OBW Power 99.00 % x dB Bandwidth 1.119 MHz x dB -20.00 dB Freq Offset 0 Hz MSG STATUS

Modulation mode		8DPSK	
2402MHz			
2441MHz			

2480MHz		Agilent Spectrum Analyzer - Occupied BW Center Freq 2.480000000 GHz Center Freq: 2.480000000 GHz Trig: Free Run #Atten: 20 dB Avg|Hold:>10/10 Radio Std: None Radio Device: BTS #IFGain:Low 10 dB/div Ref 10.00 dBm Log Center 2.48 GHz #Res BW 30 kHz #VBW 100 kHz Span 3 MHz Sweep 3.2 ms Occupied Bandwidth 1.1032 MHz Total Power 6.39 dBm Transmit Freq Error -2.288 kHz OBW Power 99.00 % x dB Bandwidth 1.165 MHz x dB -20.00 dB Frequency Center Freq 2.480000000 GHz CF Step 300.000 kHz Auto Man Freq Offset 0 Hz MSG STATUS

7. Carrier Frequency Separation Test

7.1. Test Standard and Limit

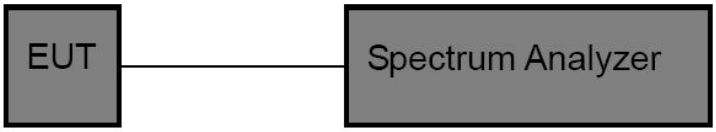
7.1.1 Test Standard

FCC Part15 C Section 15.247 (a)(1)

7.1.2 Test Limit

FCC Part 15 Subpart C(15.247)		
Test Item	Limit	Frequency Range (MHz)
Channel Separation	>25KHz or >two-thirds of the 20 dB bandwidth (Which is greater)	2400~2483.5

7.2. Test Setup



7.3. Test Procedure

(1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.

(2) Spectrum Setting:
RBW=100 kHz, VBW=300 kHz, detector= Peak, Sweep Time =auto.

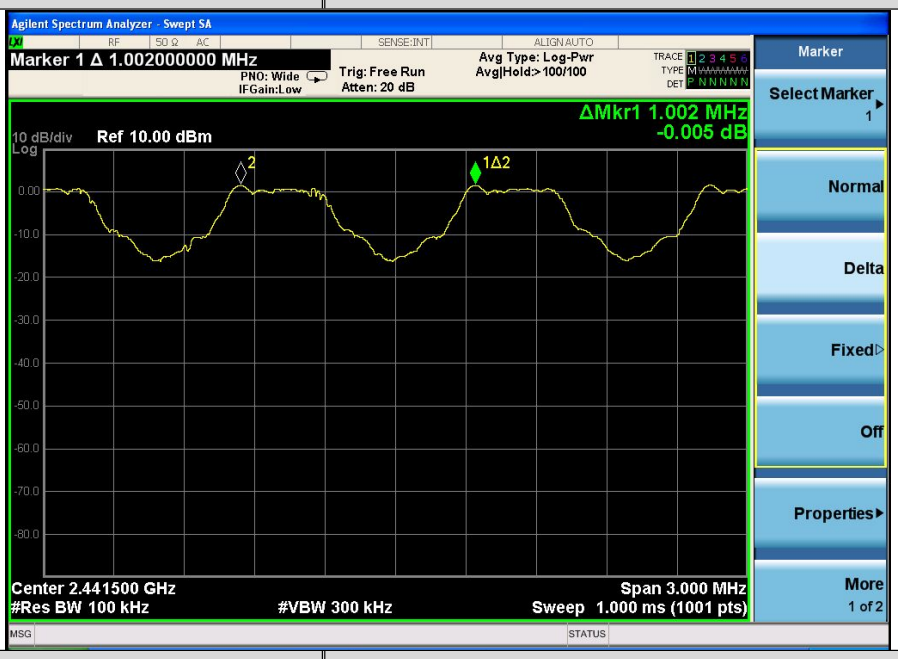
(3) The EUT was set to the Hopping Mode for Channel Separation Test and continuously transmitting for the Test.

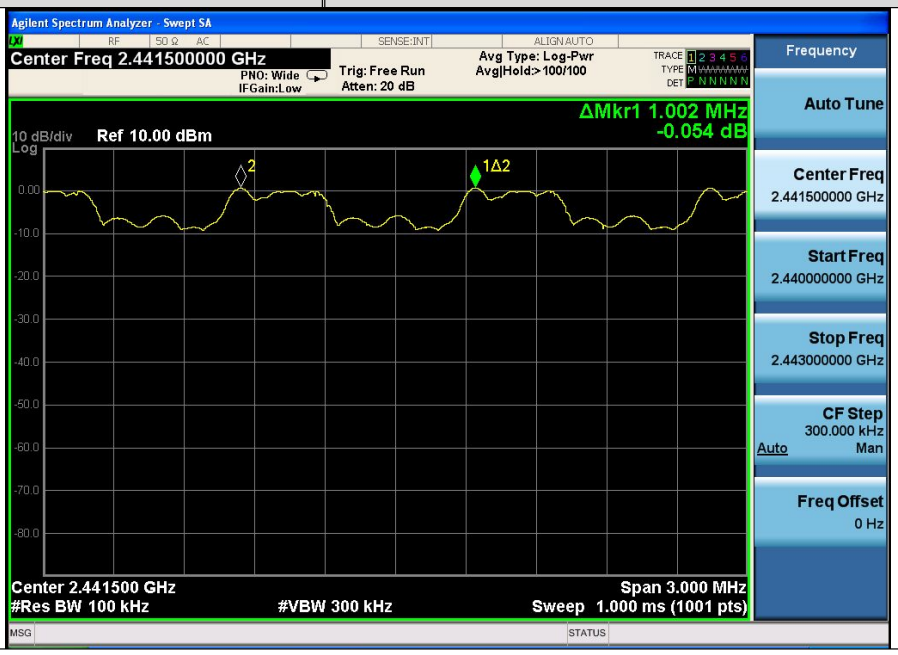
7.4. Test Data

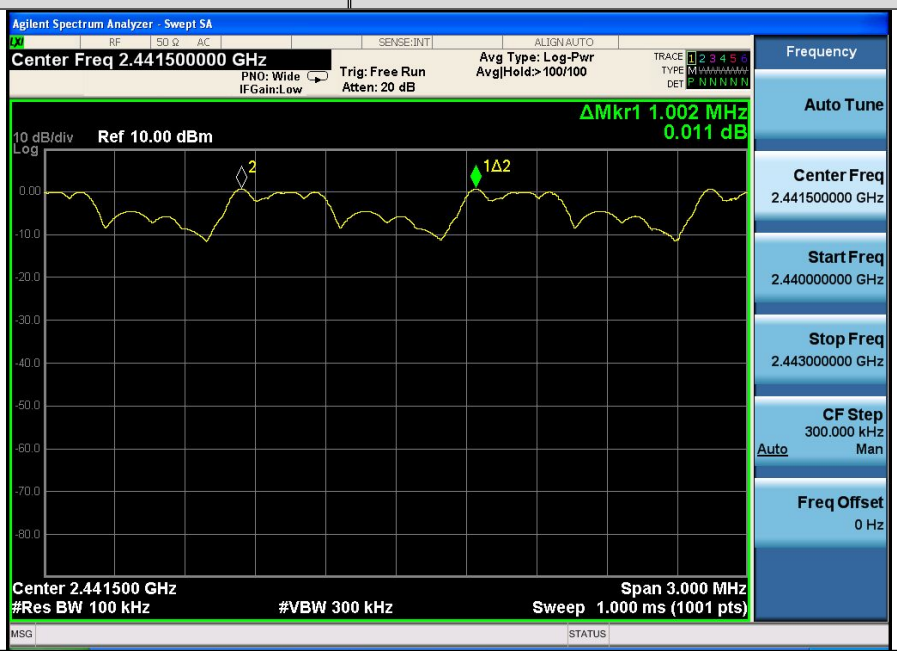
GFSK mode				
Channel Number	**Channel Frequency (MHz)**	**Test Result (KHz)**	**Limit (KHz)**	**Judgment**
CH 39	2441	1002	554.733	PASSED
π/4-DQPSK mode				
Channel Number	**Channel Frequency (MHz)**	**Test Result (KHz)**	**Limit (KHz)**	**Judgment**
CH 39	2441	1002	744.667	PASSED
8DPSK mode				
Channel Number	**Channel Frequency (MHz)**	**Test Result (KHz)**	**Limit (KHz)**	**Judgment**
CH 39	2441	1002	774.667	PASSED
Remark: Test plot as follows				

According to section 6.4

Test Mode	20dB bandwidth (MHz)	Limit (kHz) (Carrier Frequency Separation)
GFSK	0.8321	554.733
π/4-DQPSK	1.117	744.667
8DPSK	1.162	774.667

Modulation mode	GFSK mode
2441MHz	

Modulation mode	π/4-DQPSK
2441MHz	

Modulation mode		8DPSK
2441MHz		

8. Number of Hopping Channel

8.1. Test Standard and Limit

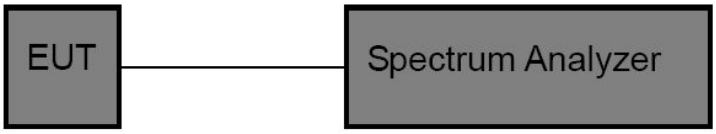
8.1.1 Test Standard

FCC Part15 C Section 15.247 (a)(1)

8.1.2 Test Limit

FCC Part 15 Subpart C (15.247)		
Test Item	Limit	Frequency Range (MHz)
Number of Hopping Channel	>15 channels	2400~2483.5

8.2. Test Setup



8.3. Test Procedure

(1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.

(2) Spectrum Setting: RBW=100 kHz, VBW=300 kHz, Detector=Peak, Sweep time= Auto.

(3) The EUT was set to the Hopping Mode for Channel Separation Test and continuously transmitting for the Test.

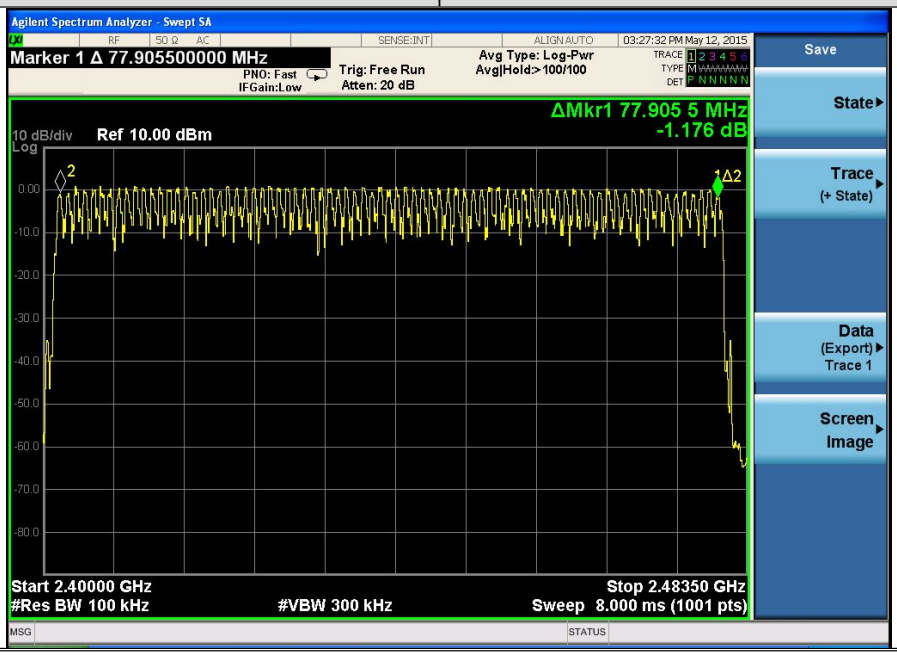
8.4. Test Data

Mode	Quantity of Hopping Channel	Limit	Judgment
GFSK, π/4-DQPSK, 8DPSK	79	>15	PASSED

Modulation mode	GFSK mode

Modulation mode	π/4-DQPSK

Modulation mode	8DPSK



9. Dwell Time Test

9.1. Test Standard and Limit

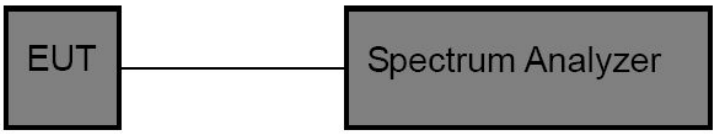
9.1.1 Test Standard

FCC Part15 C Section 15.247 (a)(1)

9.1.2 Test Limit

FCC Part 15 Subpart C(15.247)		
Section	Test Item	Limit
15.247(a)(1)	Dwell time	0.4 sec

9.2. Test Setup



9.3. Test Procedure

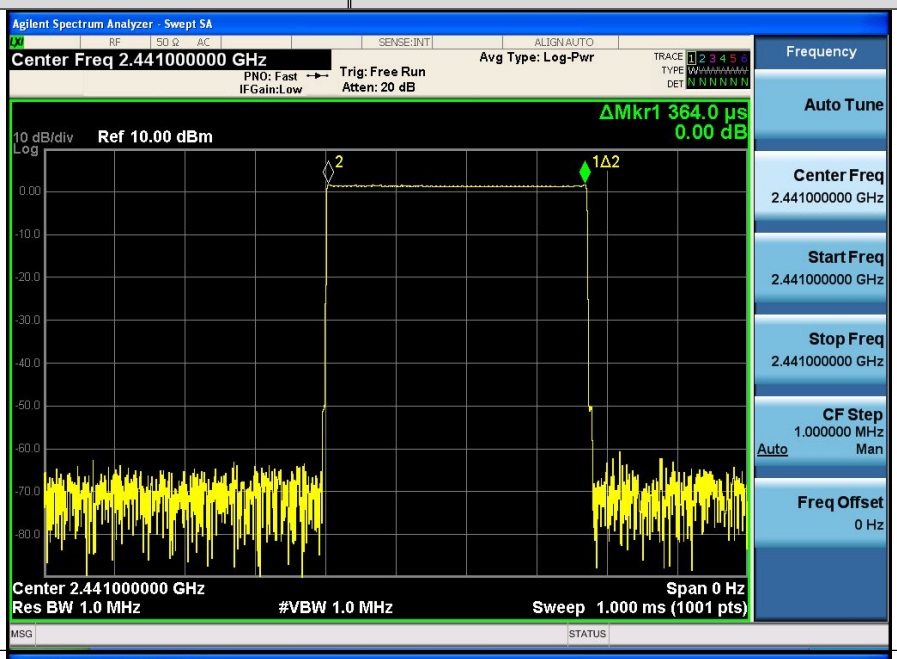
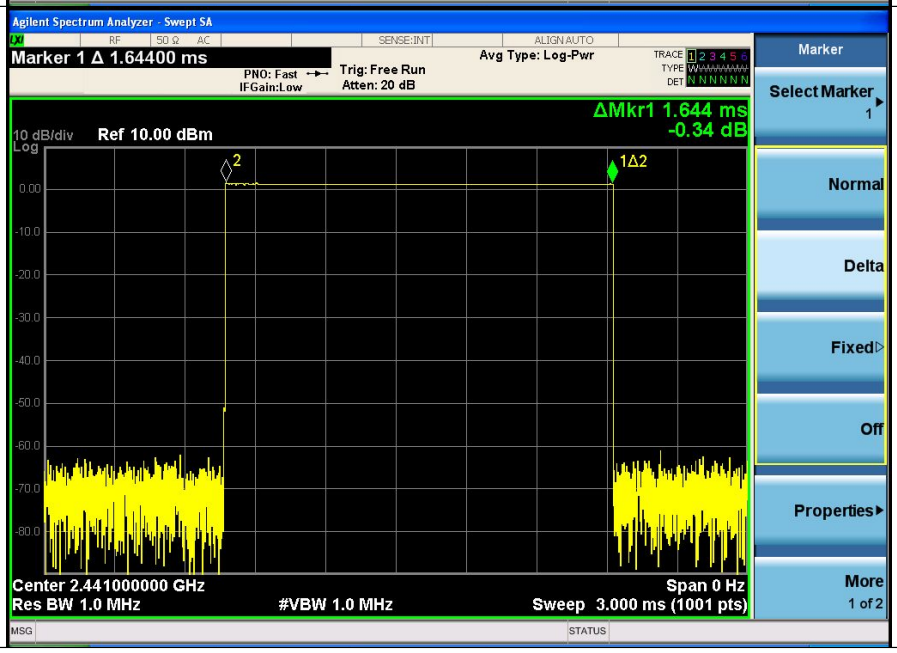
(1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
(2) Spectrum Setting: RBW=1MHz, VBW=1MHz, Span=0Hz, Detector=Peak
(3) Use video trigger with the trigger level set to enable triggering only on full pulses.
(4) Sweep Time is more than once pulse time.
(5) Set the center frequency on any frequency would be measure and set the frequency span to zero span.
(6) Measure the maximum time duration of one single pulse.
(7) Set the EUT for packet transmitting.
(8) Measure the maximum time duration of one single pulse.
(9) The EUT was set to the Hopping Mode for Dwell Time Test

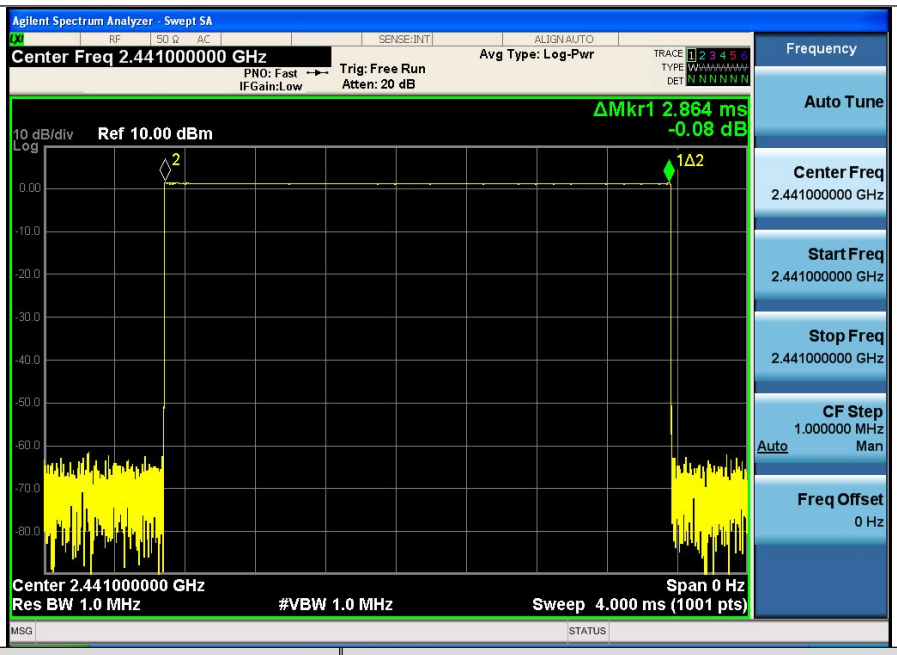
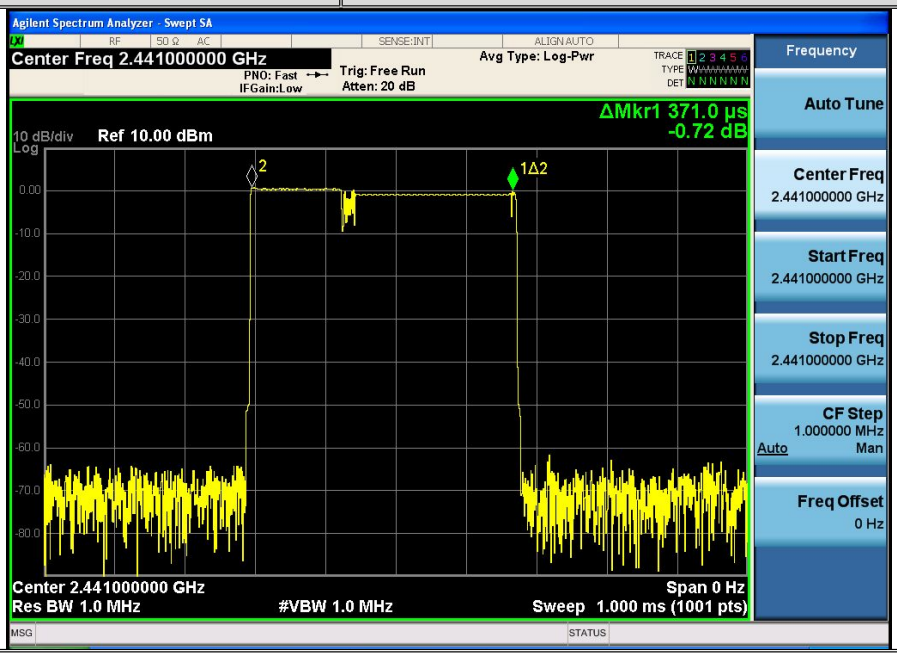
9.4. Test Data

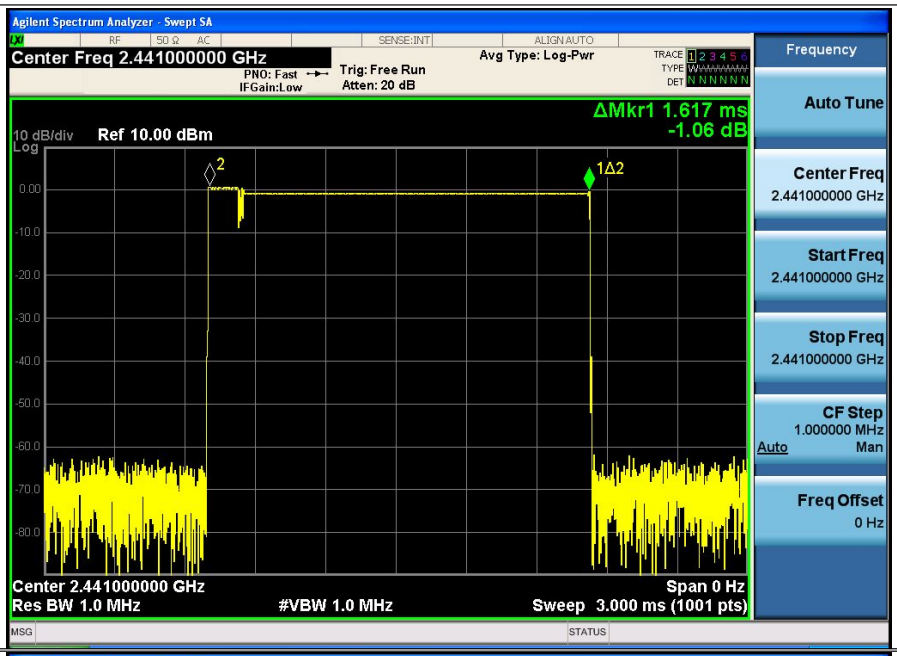
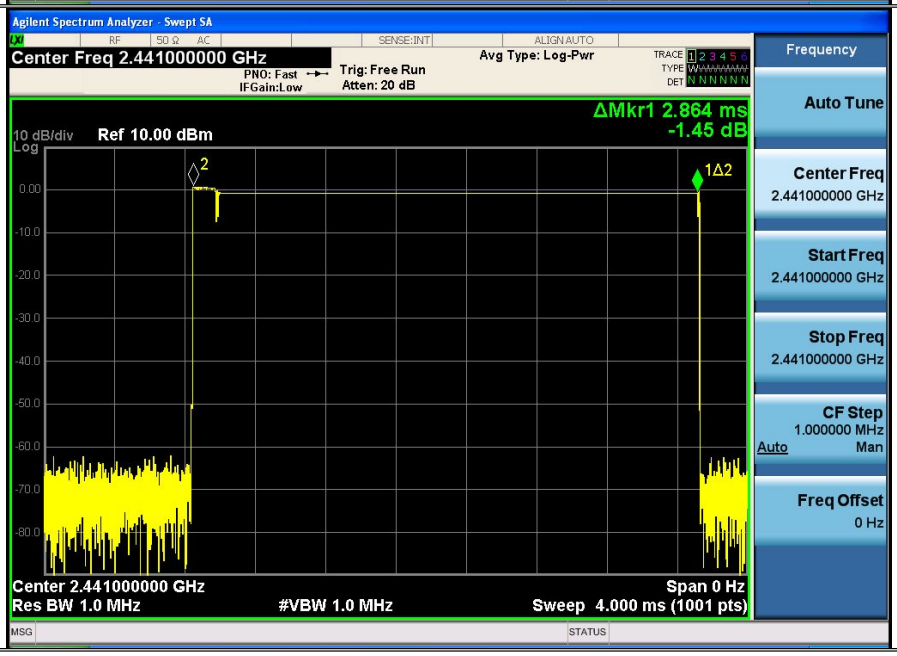
For GFSK, π/4-DQPSK and 8DPSK:

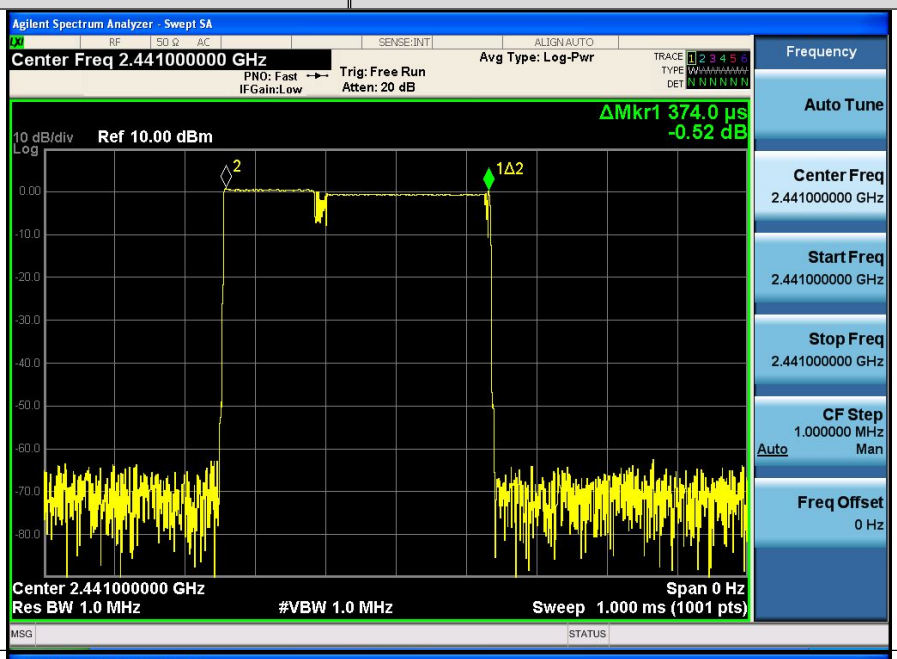
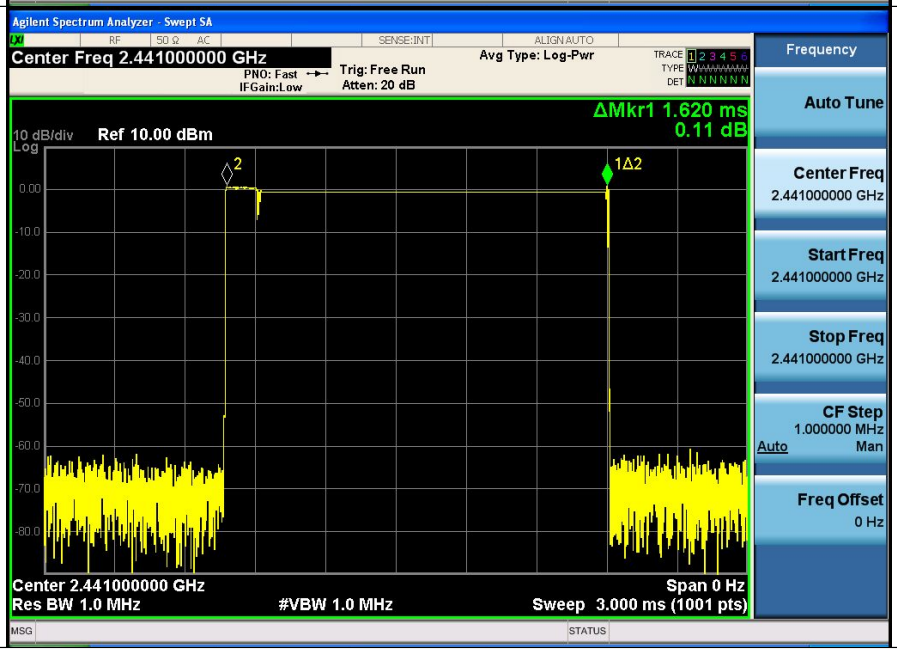
The test period: T= 0.4 Second/Channel x 79 Channel = 31.6 s

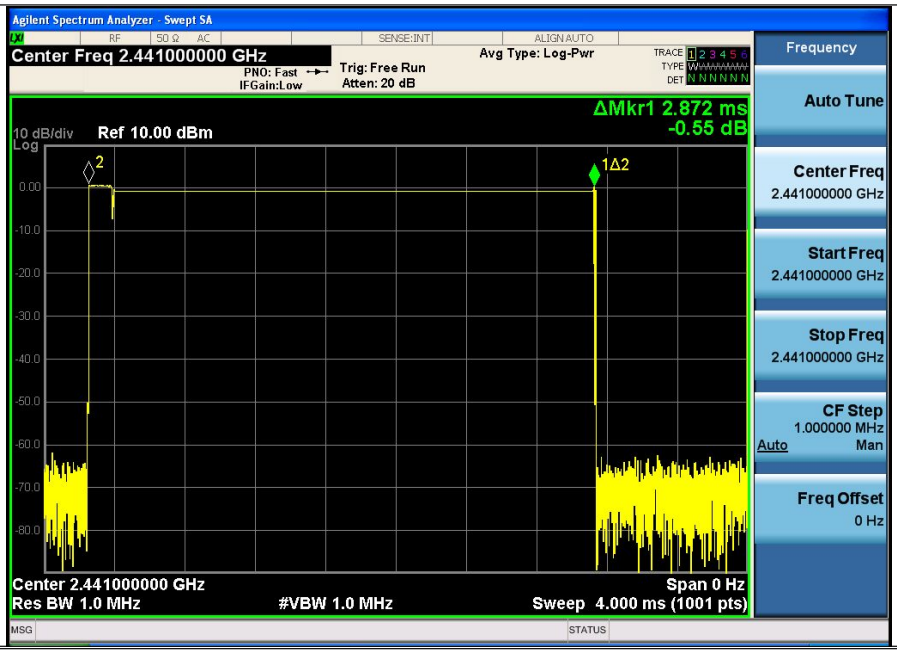
EUT: Bluetooth Speaker M/N: KTS-2003						
Mode	Data Packet	Frequency (MHz)	Pulse Duration (ms)	Dwell Time (s)	Limit (s)	Conclusion
GFSK	DH1	2441	0.364	0.233	<0.4	PASS
	DH3	2441	1.644	0.351	<0.4	PASS
	DH5	2441	2.864	0.367	<0.4	PASS
π/4 DQPSK	DH1	2441	0.371	0.237	<0.4	PASS
	DH3	2441	1.617	0.345	<0.4	PASS
	DH5	2441	2.864	0.367	<0.4	PASS
8- DQPSK	DH1	2441	0.374	0.239	<0.4	PASS
	DH3	2441	1.62	0.346	<0.4	PASS
	DH5	2441	2.873	0.368	<0.4	PASS
Note: 1 A period time = 0.4 (s) * 79 = 31.6(s) 2 DH1 time slot = Pulse Duration * (1600/(1*79)) * A period time DH3 time slot = Pulse Duration * (1600/(3*79)) * A period time DH5 time slot = Pulse Duration * (1600/(5*79)) * A period time						

Modulation mode		GFSK mode	
DH1			
DH3			

DH5		
Modulation mode		**π/4-DQPSK**
2-DH1		

2-DH3		 Agilent Spectrum Analyzer - Swept SA Center Freq 2.441000000 GHz PNO: Fast IFGain:Low Trig: Free Run Atten: 20 dB Avg Type: Log-Pwr ΔMkr1 1.617 ms -1.06 dB 10 dB/div Ref 10.00 dBm Log Center 2.441000000 GHz Res BW 1.0 MHz #VBW 1.0 MHz Span 0 Hz Sweep 3.000 ms (1001 pts) Frequency Auto Tune Center Freq 2.441000000 GHz Start Freq 2.441000000 GHz Stop Freq 2.441000000 GHz CF Step 1.000000 MHz Auto Man Freq Offset 0 Hz
2-DH5		 Agilent Spectrum Analyzer - Swept SA Center Freq 2.441000000 GHz PNO: Fast IFGain:Low Trig: Free Run Atten: 20 dB Avg Type: Log-Pwr ΔMkr1 2.864 ms -1.45 dB 10 dB/div Ref 10.00 dBm Log Center 2.441000000 GHz Res BW 1.0 MHz #VBW 1.0 MHz Span 0 Hz Sweep 4.000 ms (1001 pts) Frequency Auto Tune Center Freq 2.441000000 GHz Start Freq 2.441000000 GHz Stop Freq 2.441000000 GHz CF Step 1.000000 MHz Auto Man Freq Offset 0 Hz

Modulation mode		8DPSK	
3-DH1			
3-DH3			

3-DH5		 Agilent Spectrum Analyzer - Swept SA Center Freq 2.441000000 GHz PNO: Fast IFGain:Low Trig: Free Run Atten: 20 dB Avg Type: Log-Pwr ΔMkr1 2.872 ms -0.55 dB 10 dB/div Ref 10.00 dBm Log Center 2.441000000 GHz Res BW 1.0 MHz #VBW 1.0 MHz Span 0 Hz Sweep 4.000 ms (1001 pts) Frequency Auto Tune Center Freq 2.441000000 GHz Start Freq 2.441000000 GHz Stop Freq 2.441000000 GHz CF Step 1.000000 MHz Auto Man Freq Offset 0 Hz