Appendix A

RF Test Data for BR_EDR(Conducted Measurement)

Product Name: AZEADA Space Bear series TWS wireless speaker

Trade Mark:N/A

Test Model: AZ-S04

Environmental Conditions

Temperature:	℃
Relative Humidity:	%
ATM Pressure:	101Kpa
Test Engineer:	Simba Huang
Supervised by:	Seal Chen

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1 .Duty Cycle

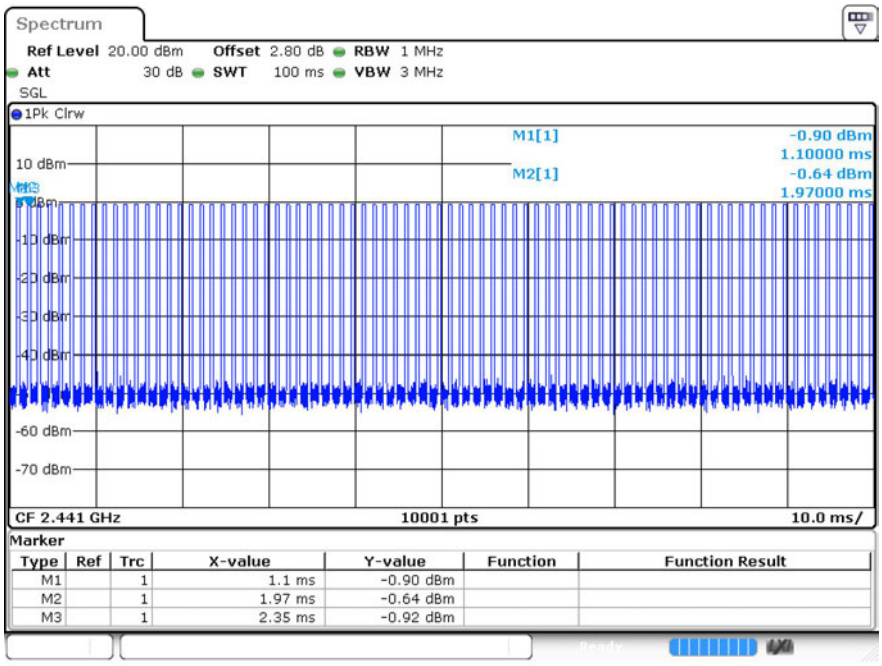
1.1 Test Result

Mode	Frequency (MHz)	Duty Cycle (%)	1/T (kHz)
1-DH1	2441	31.2	2.63
2-DH1	2441	32.01	2.56
3-DH1	2441	32	2.56

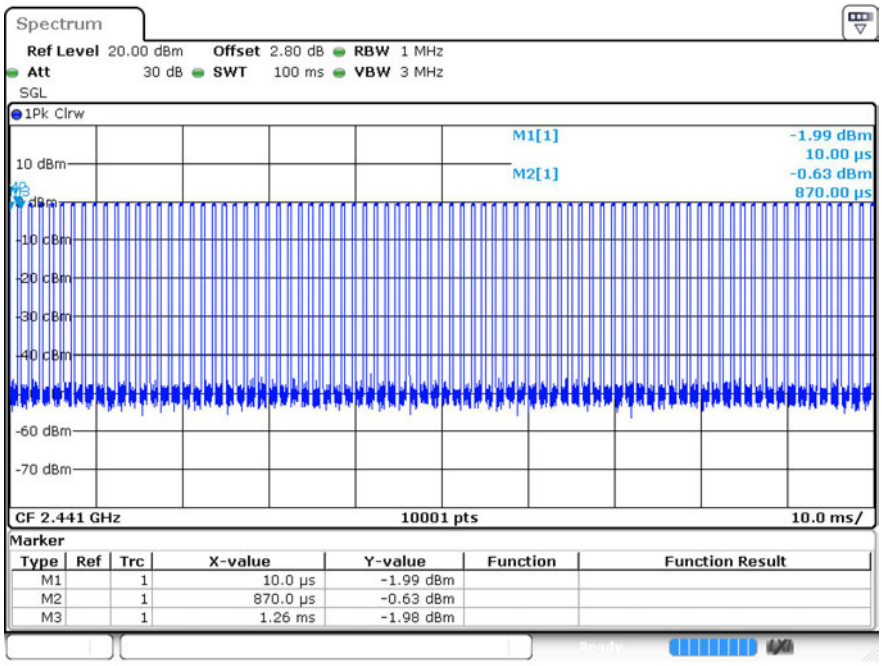
1.2 Test Graphs

Test Graphs

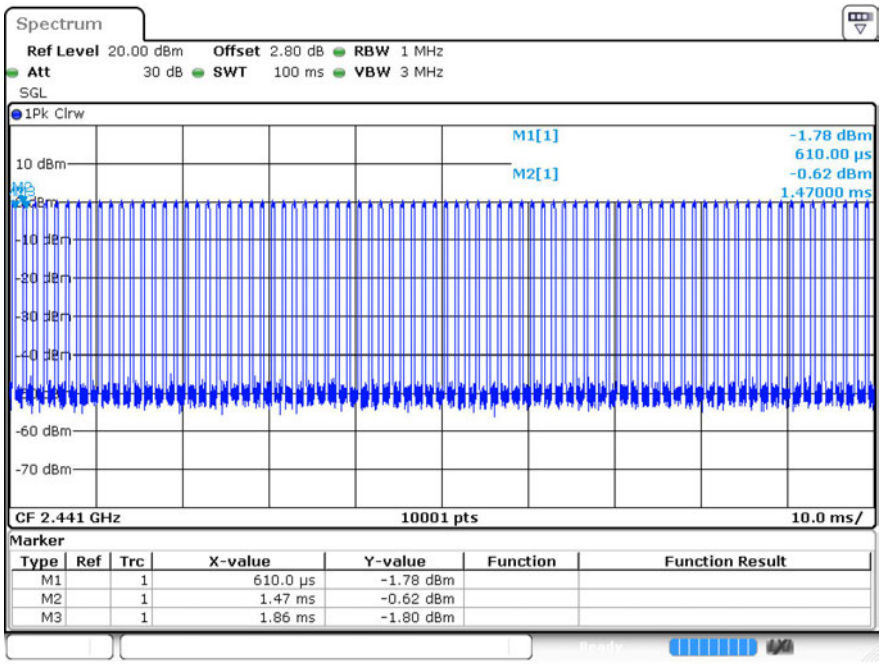
1-DH1 2441MHz



2-DH1 2441MHz



3-DH1 2441MHz

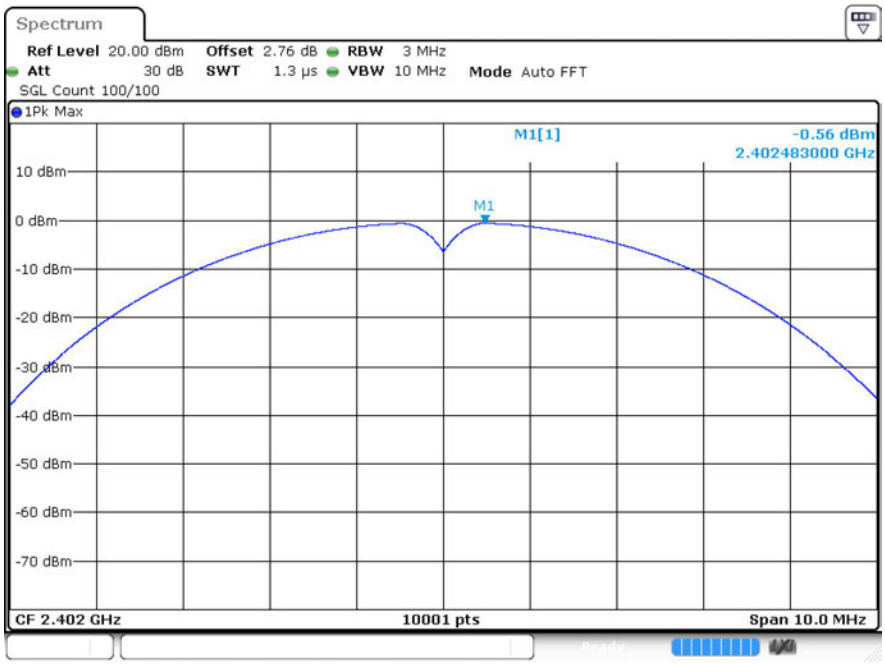
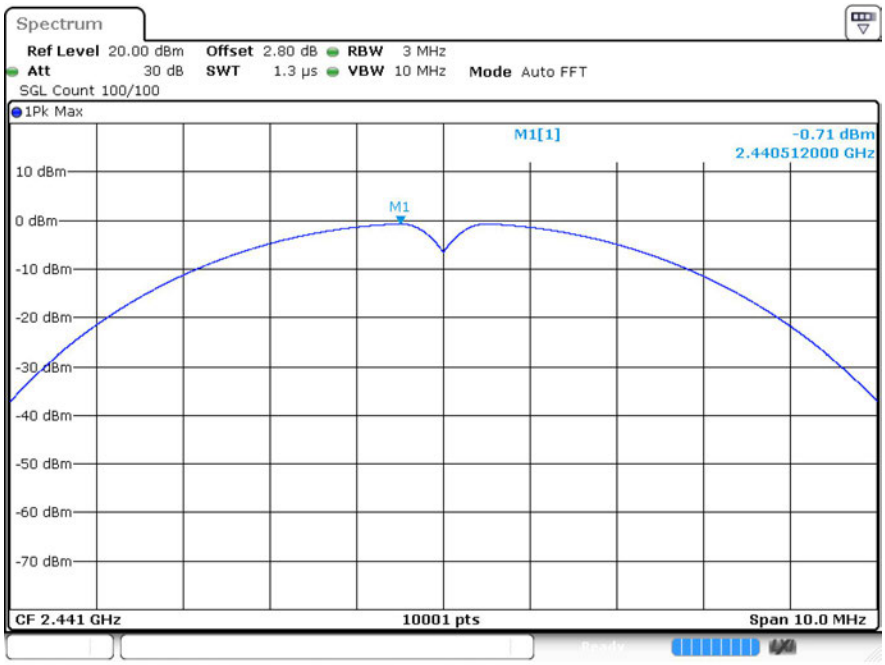


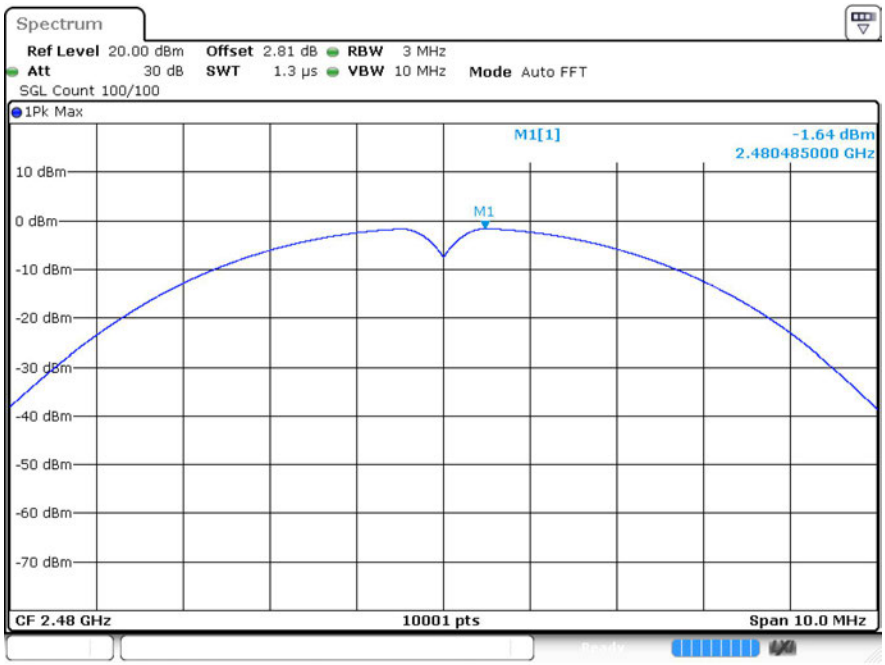
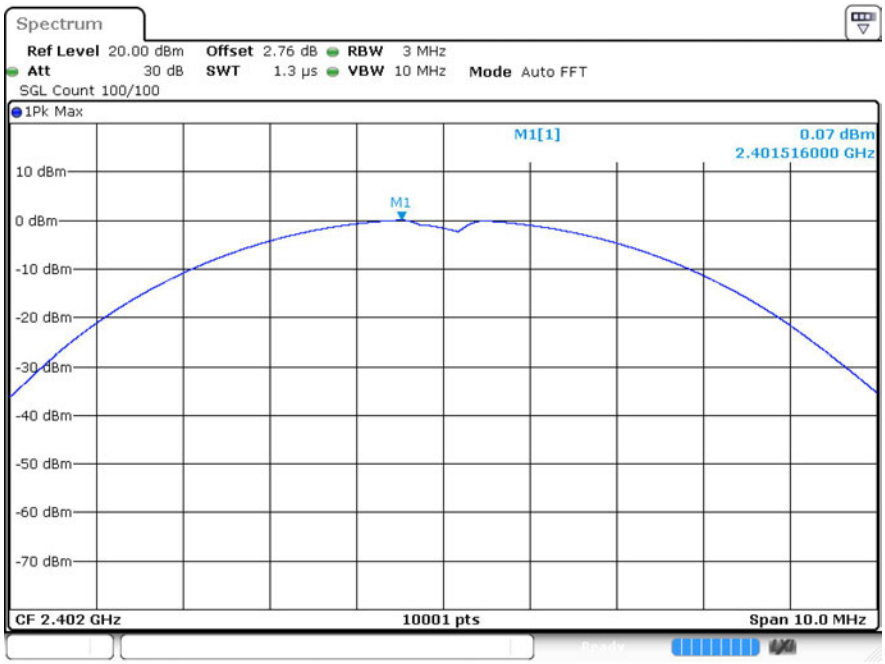
2 Maximum Conducted Peak Output Power

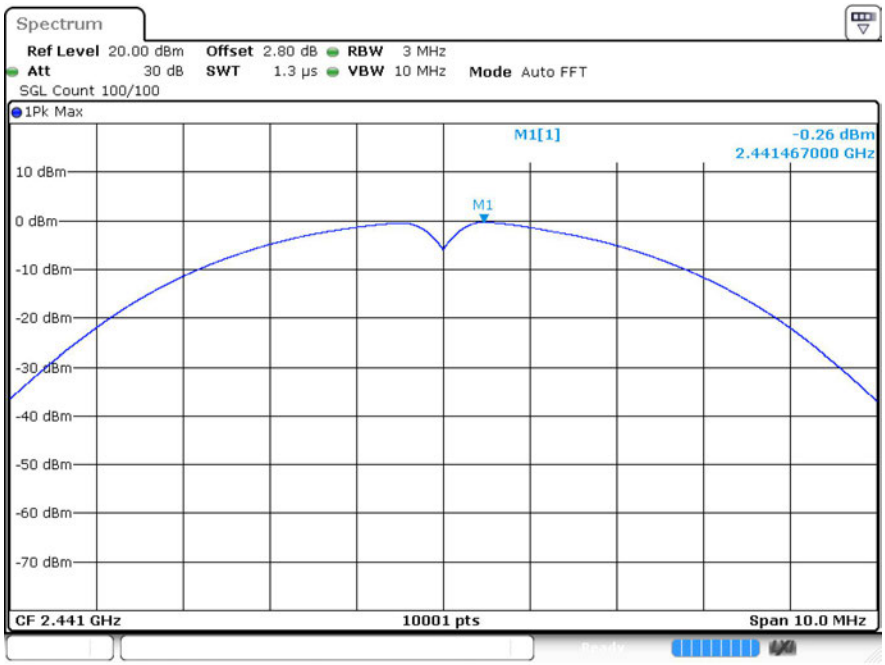
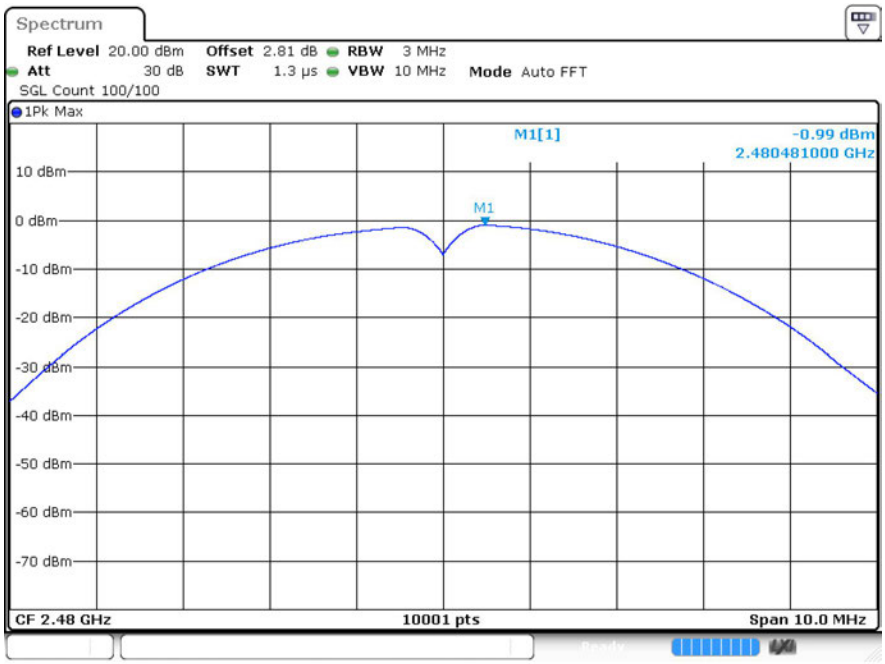
2.1 Test Result

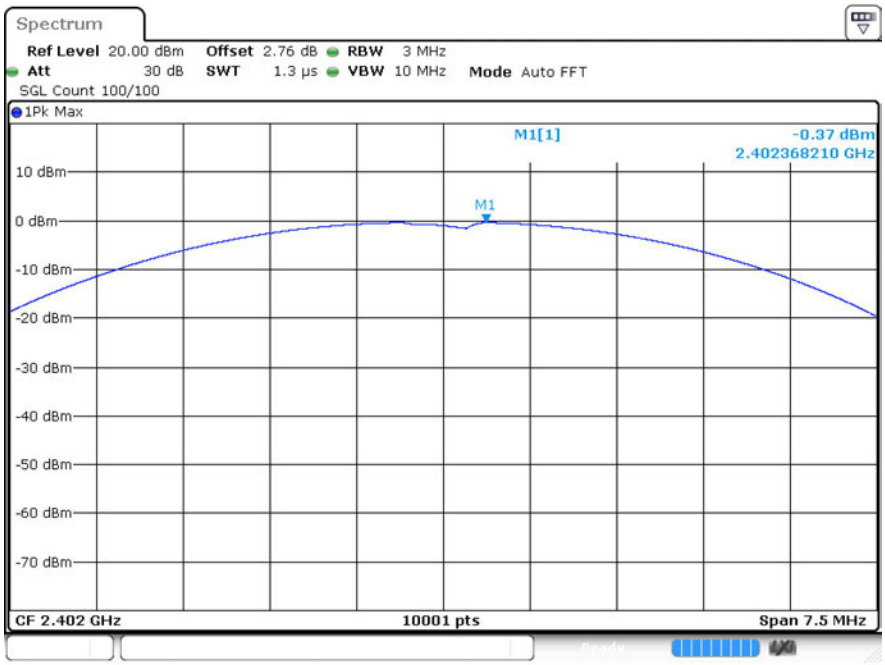
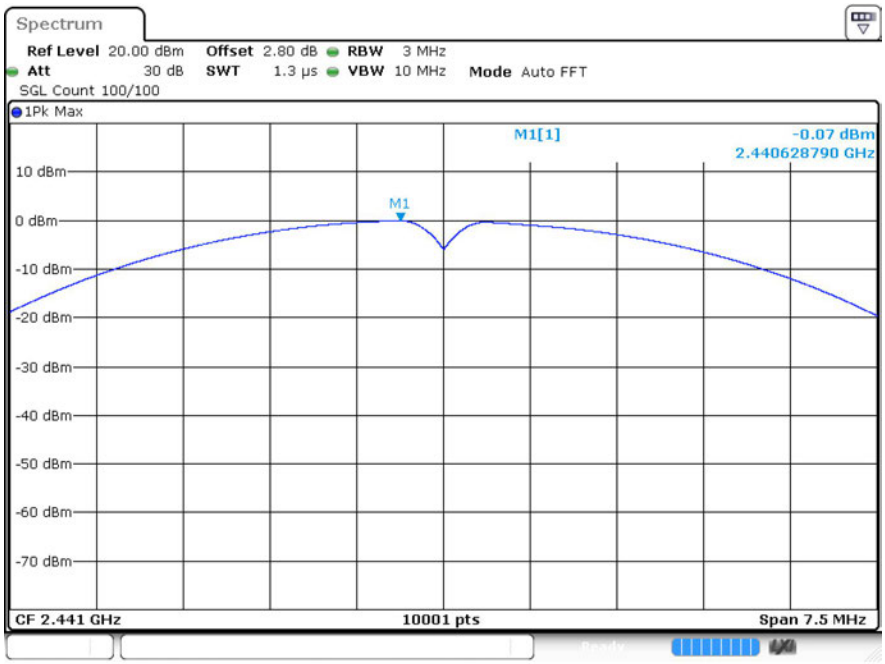
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.56	≤21	Pass
	MCH	-0.71	≤21	Pass
	HCH	-1.64	≤21	Pass
π/4DQPSK	LCH	0.07	≤21	Pass
	MCH	-0.26	≤21	Pass
	HCH	-0.99	≤21	Pass
8DPSK	LCH	-0.37	≤21	Pass
	MCH	-0.07	≤21	Pass
	HCH	-1.12	≤21	Pass

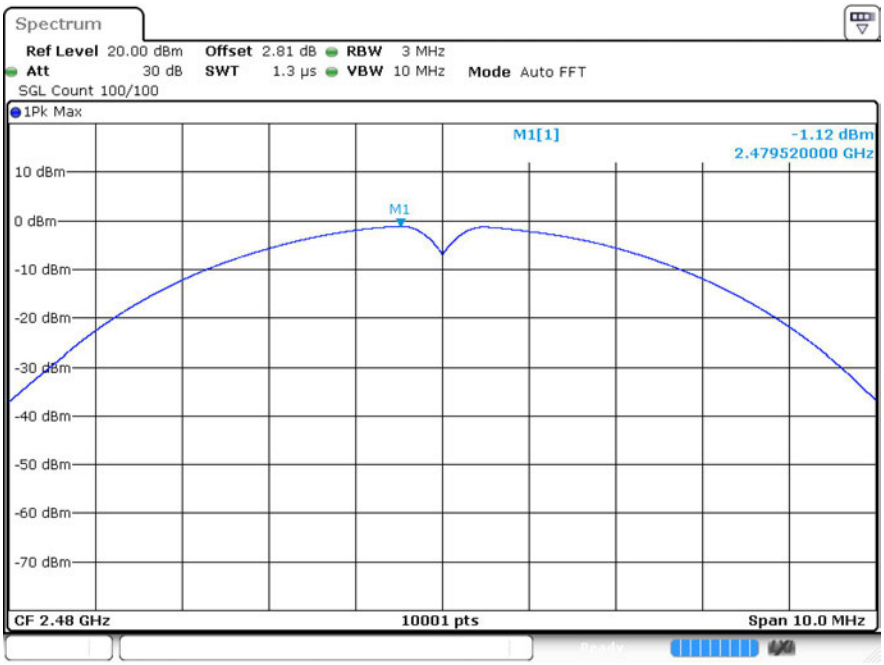
2.2 Test Graphs

Test Graphs	
GFSK/LCH	
GFSK/MCH	

GFSK/HCH	
π/4DQPSK/LCH	

π/4DQPSK/MCH	
π/4DQPSK/HCH	

8DPSK/LCH	
8DPSK/MCH	

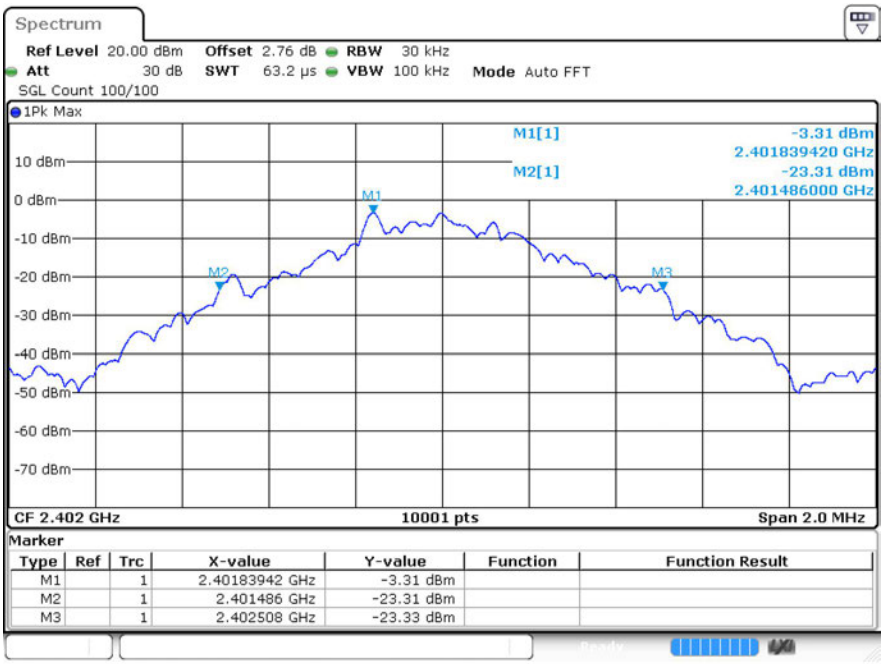
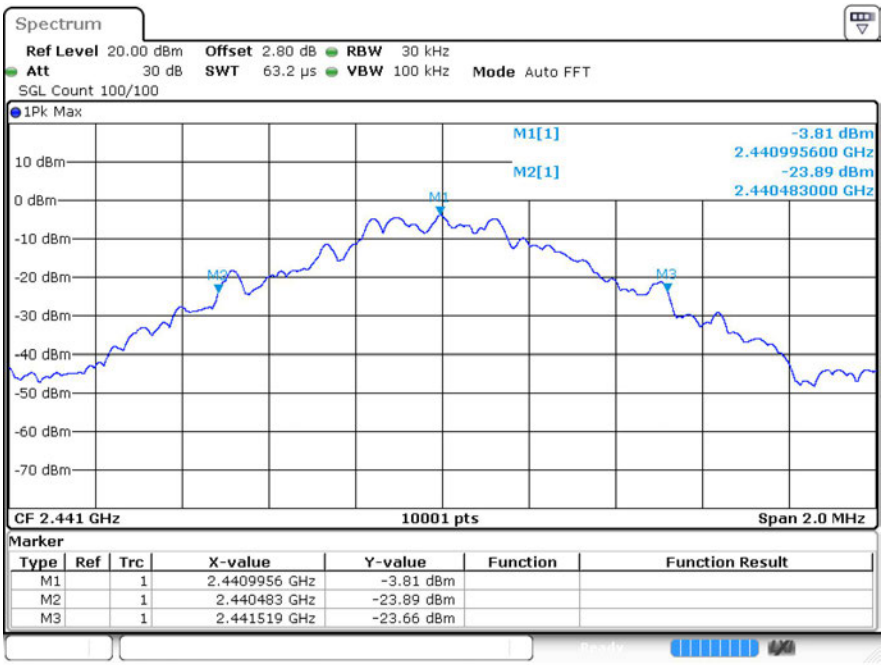
8DPSK/HCH	 Spectrum Ref Level 20.00 dBm Offset 2.81 dB RBW 3 MHz Att 30 dB SWT 1.3 µs VBW 10 MHz Mode Auto FFT SGL Count 100/100 1Pk Max M1[1] -1.12 dBm 2.479520000 GHz M1 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm CF 2.48 GHz 10001 pts Span 10.0 MHz

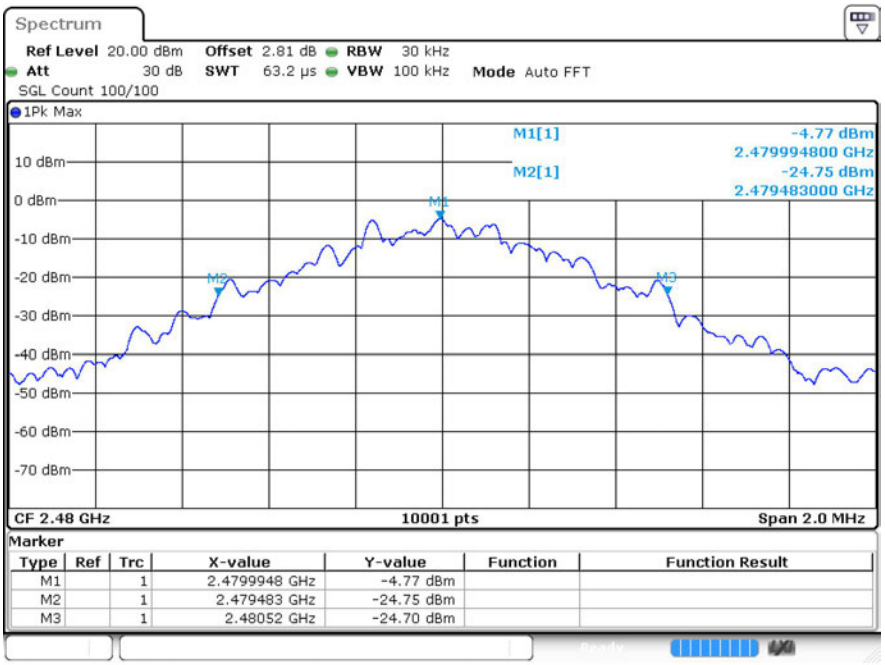
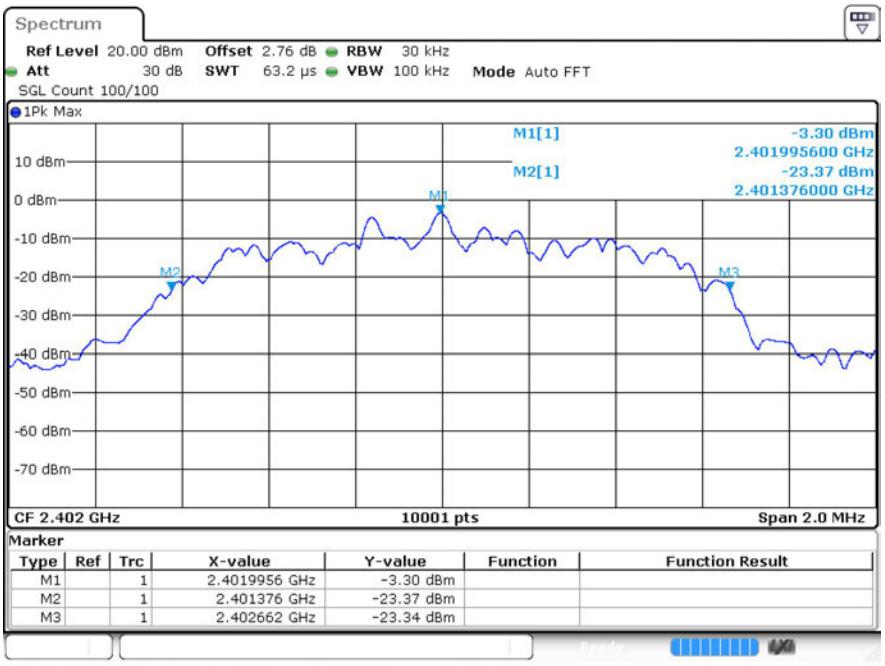
3 20dB Bandwidth

3.1 Test Result

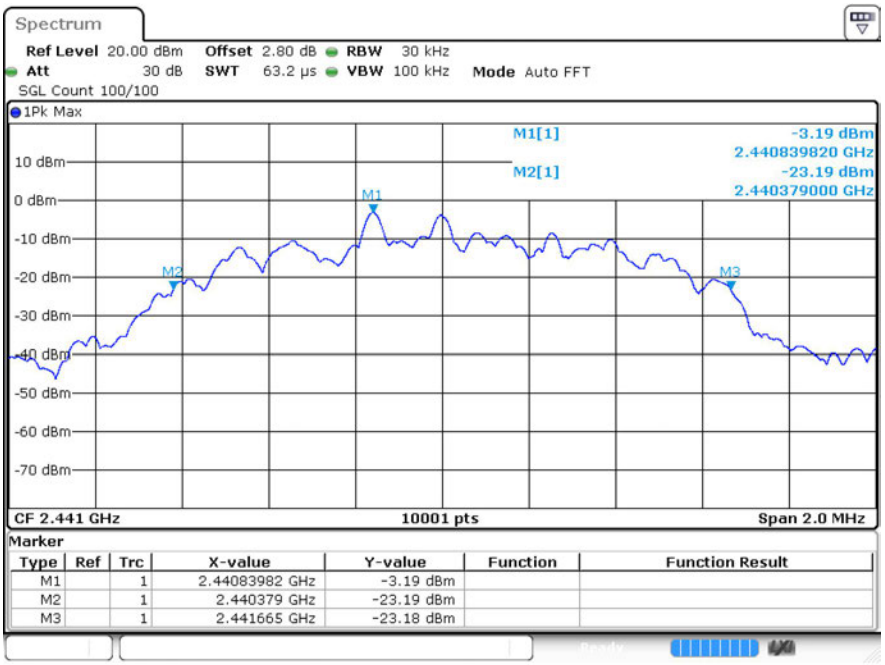
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.022	Not Specified	Pass
	MCH	1.036	Not Specified	Pass
	HCH	1.037	Not Specified	Pass
π/4DQPSK	LCH	1.285	Not Specified	Pass
	MCH	1.286	Not Specified	Pass
	HCH	1.211	Not Specified	Pass
8DPSK	LCH	1.23	Not Specified	Pass
	MCH	1.247	Not Specified	Pass
	HCH	1.272	Not Specified	Pass

3.2 Test Graphs

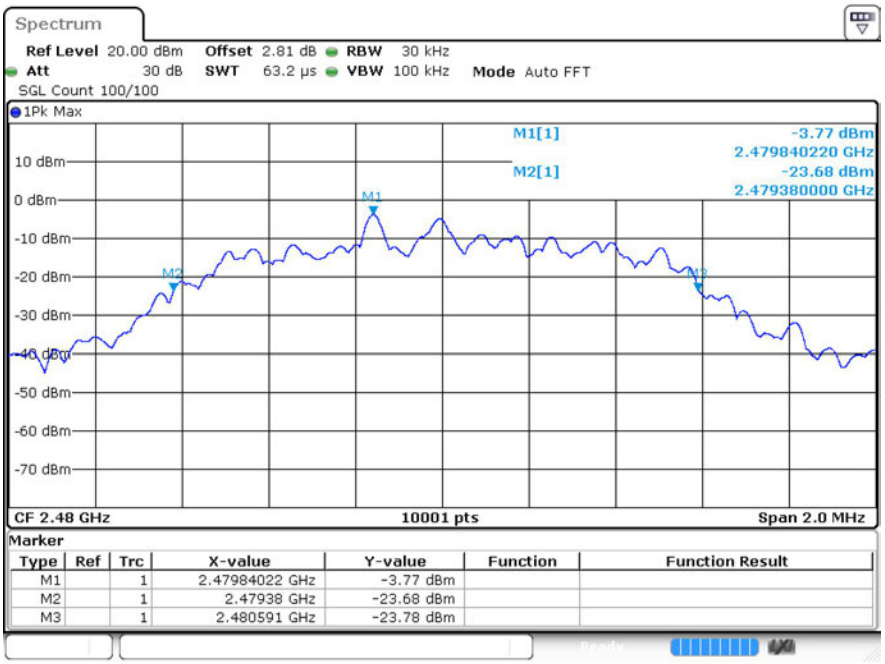
Test Graphs	
GFSK/LCH	
GFSK/MCH	

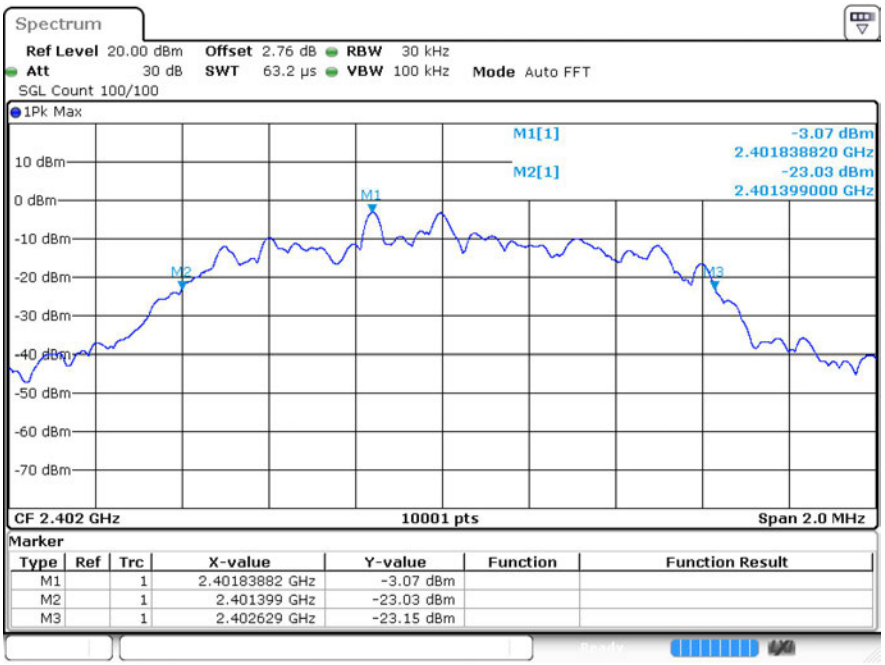
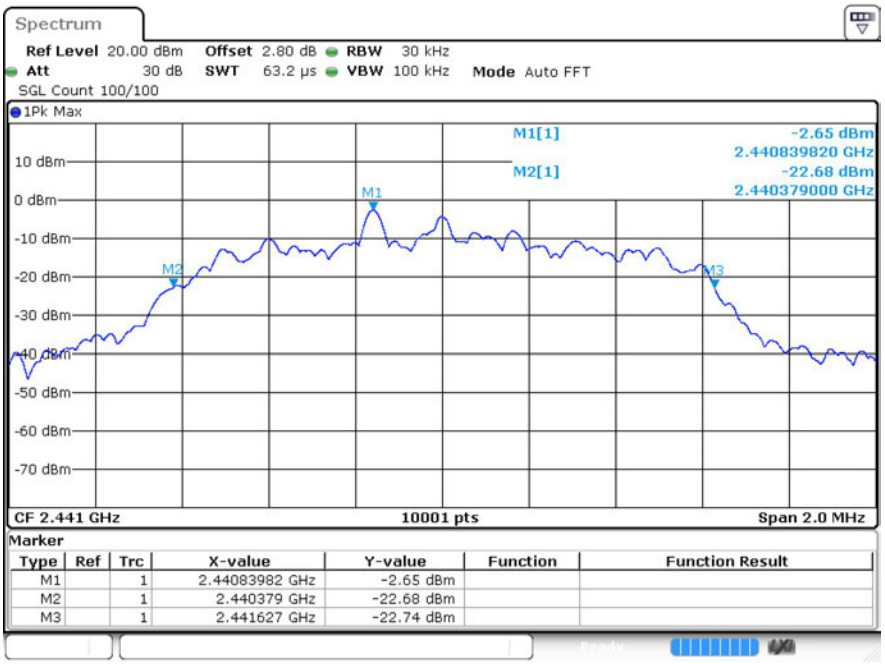
GFSK/HCH	
π/4DQPSK/LCH	

π/4DQPSK/MCH

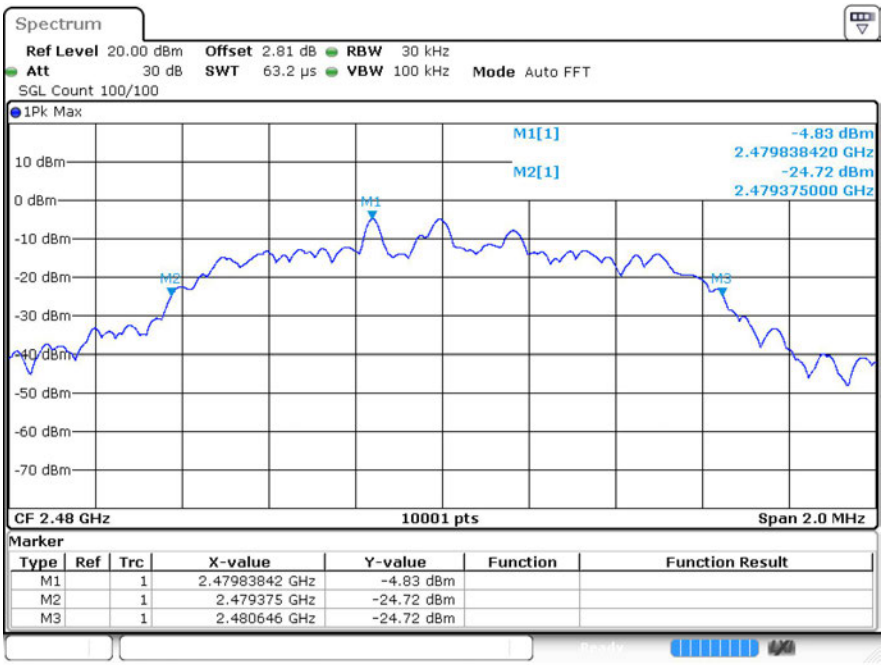


π/4DQPSK/HCH



8DPSK/LCH	
8DPSK/MCH	

8DPSK/HCH

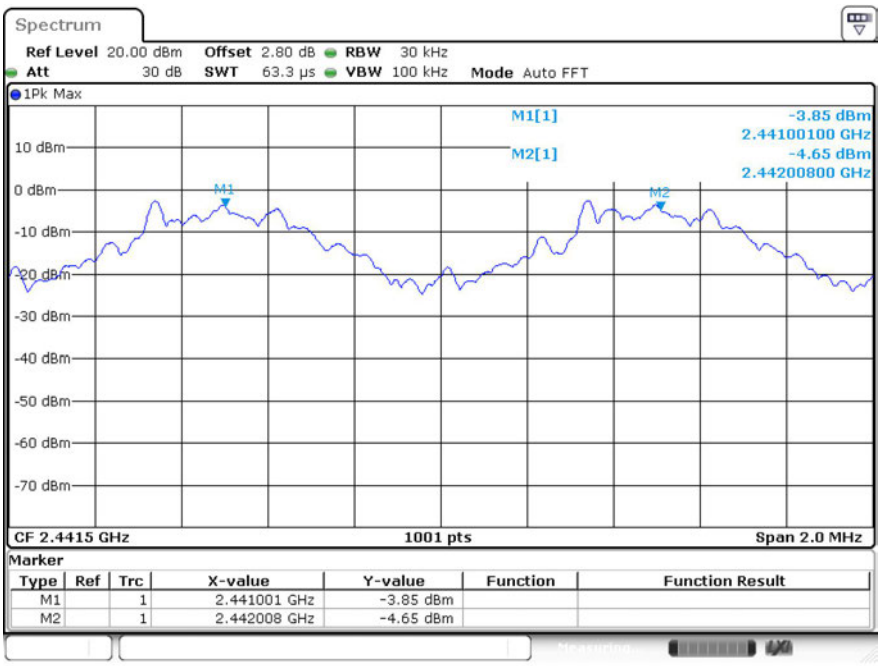
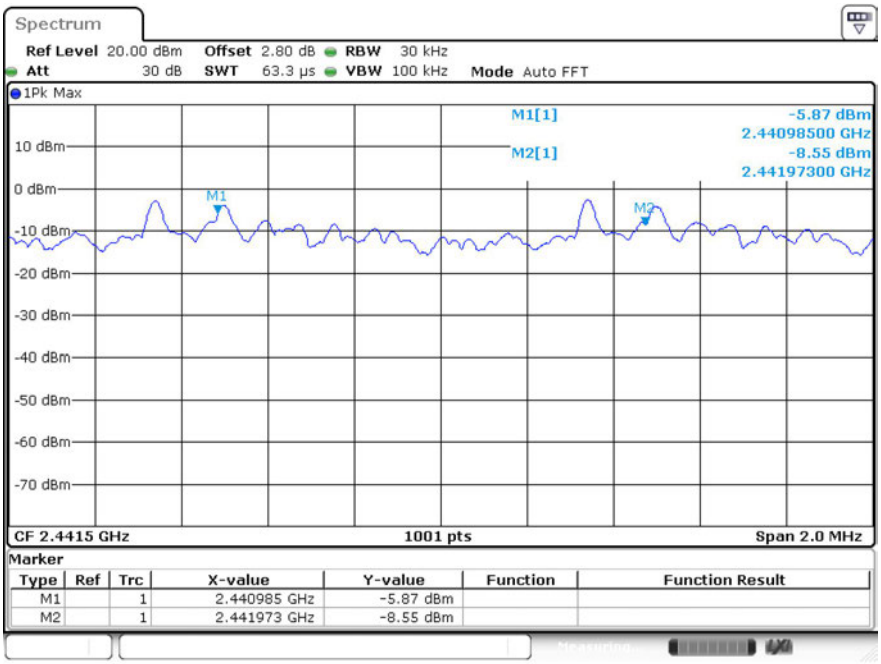

Spectrum
Ref Level 20.00 dBm Offset 2.81 dB RBW 30 kHz
Att 30 dB SWT 63.2 µs VBW 100 kHz Mode Auto FFT
SGL Count 100/100
1Pk Max
M1[1] -4.83 dBm
2.479838420 GHz
M2[1] -24.72 dBm
2.479375000 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
M2
M3
CF 2.48 GHz
10001 pts
Span 2.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.47983842 GHz -4.83 dBm
M2 1 2.479375 GHz -24.72 dBm
M3 1 2.480646 GHz -24.72 dBm

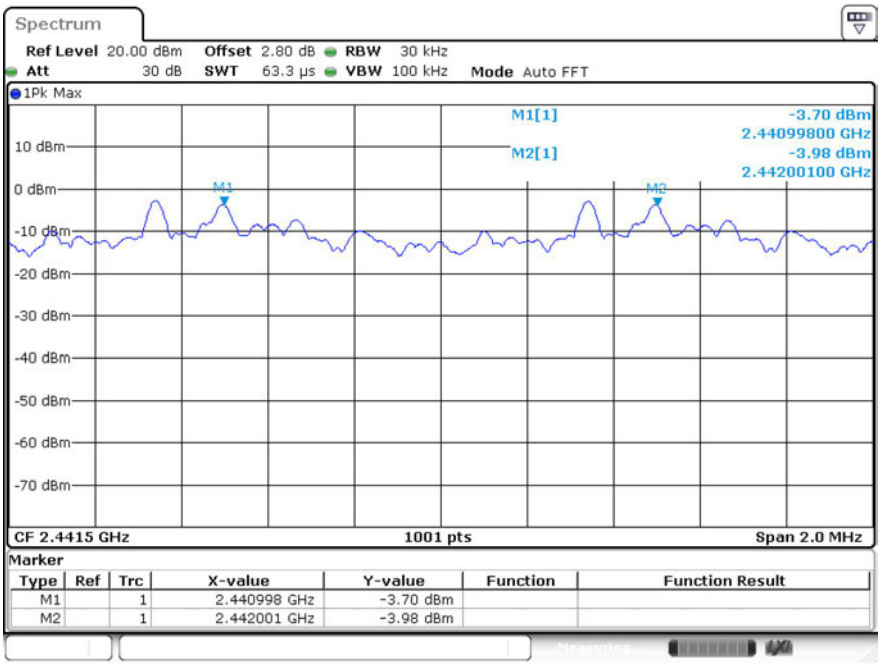
4 Carrier Frequency Separation

4.1 Test Result

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	MCH	1.007	0.691	Pass
π/4DQPSK	MCH	0.988	0.857	Pass
8DPSK	MCH	1.003	0.831	Pass

4.2 Test Graphs

Test Graphs	
GFSK/MCH	
π/4DQPSK/MCH	

8DPSK/MCH	

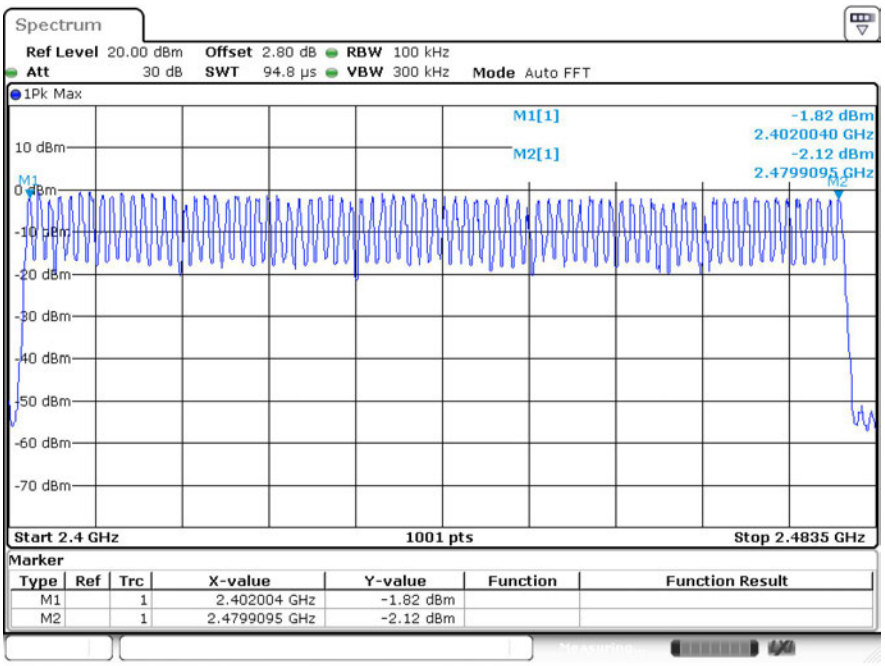
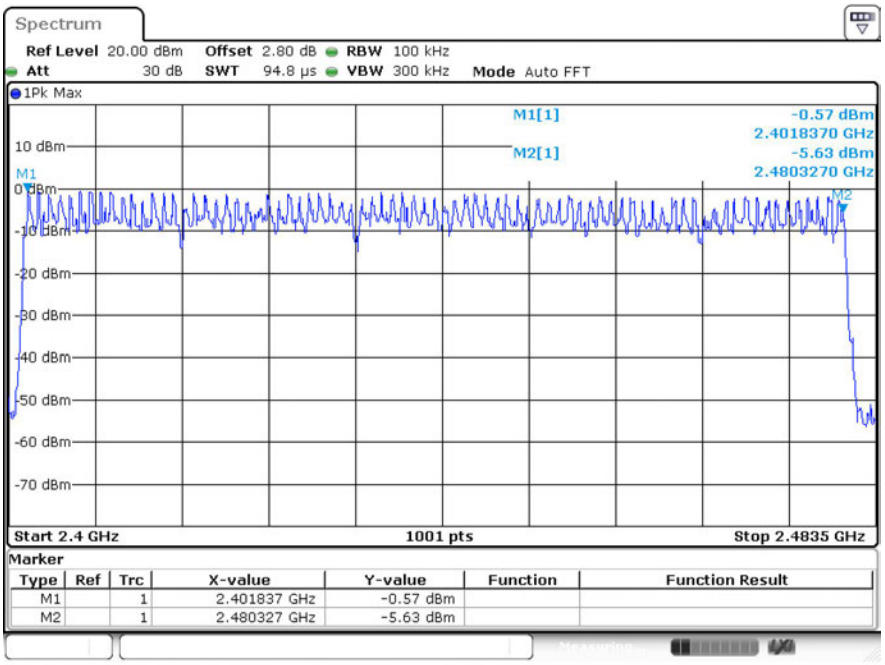
Spectrum
Ref Level 20.00 dBm Offset 2.80 dB RBW 30 kHz
Att 30 dB SWT 63.3 µs VBW 100 kHz Mode Auto FFT
1Pk Max
M1[1] -3.70 dBm 2.44099800 GHz
M2[1] -3.98 dBm 2.44200100 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
M2
CF 2.4415 GHz
1001 pts
Span 2.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.440998 GHz -3.70 dBm
M2 1 2.442001 GHz -3.98 dBm

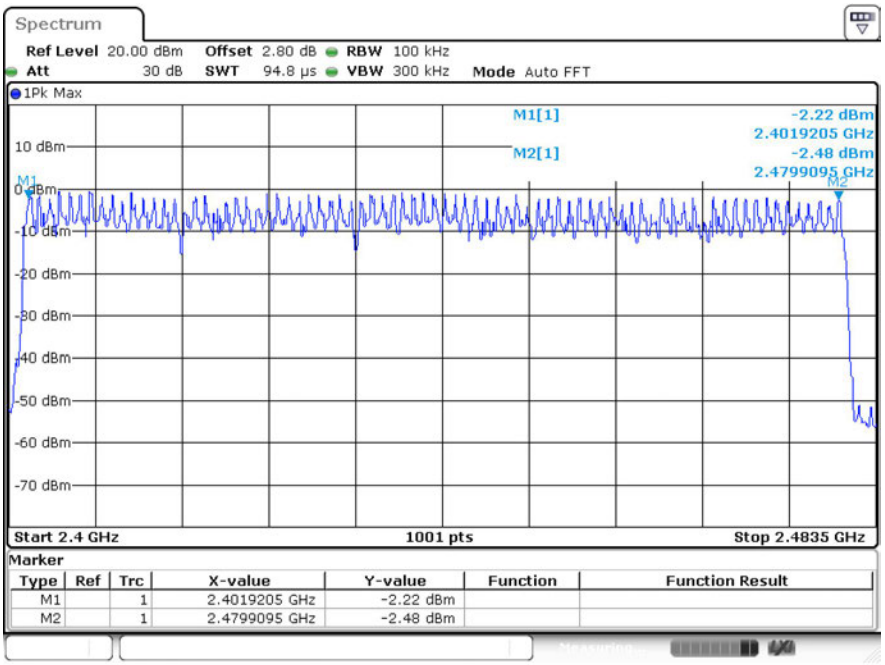
5 Hopping Channel Number

5.1 Test Result

Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
π/4DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

5.2 Test Graphs

Test Graphs	
GFSK/Hop	
π/4DQPSK/Hop	

8DPSK/Hop	

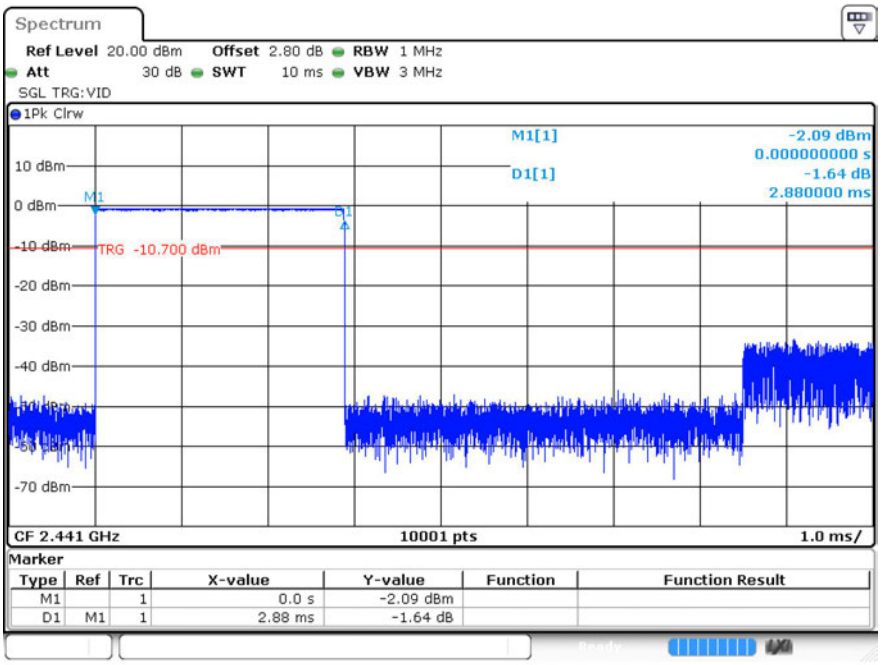
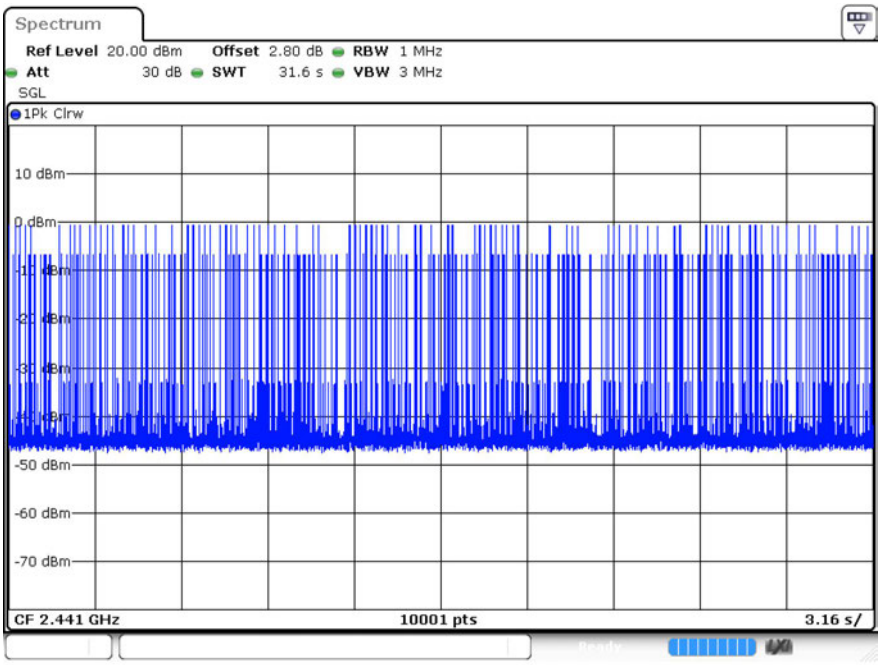
Spectrum
Ref Level 20.00 dBm Offset 2.80 dB RBW 100 kHz
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT
1Pk Max
M1[1] -2.22 dBm 2.4019205 GHz
M2[1] -2.48 dBm 2.4799095 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
Start 2.4 GHz 1001 pts Stop 2.4835 GHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.4019205 GHz -2.22 dBm
M2 1 2.4799095 GHz -2.48 dBm

6 Dwell Time

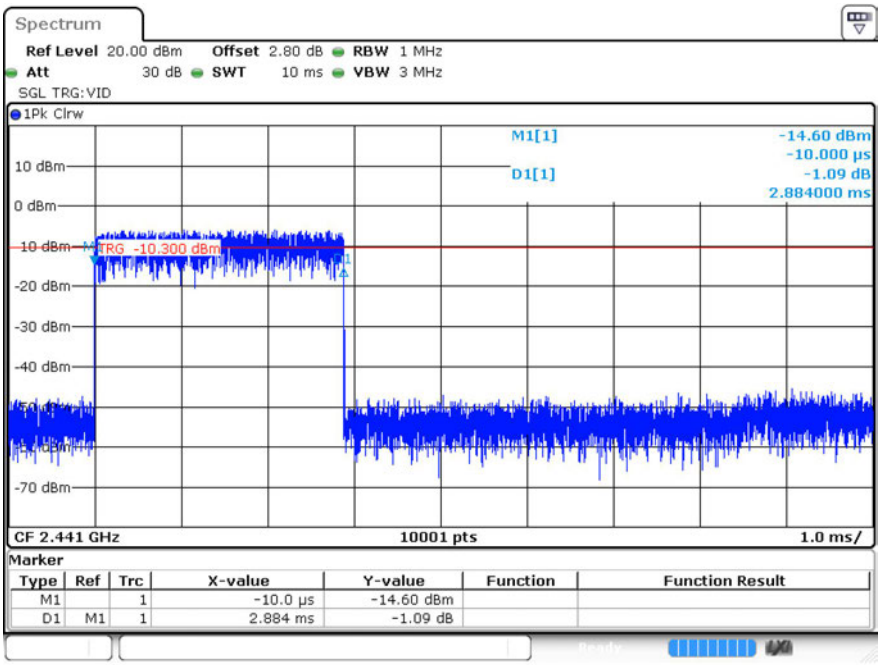
6.1 Test Result

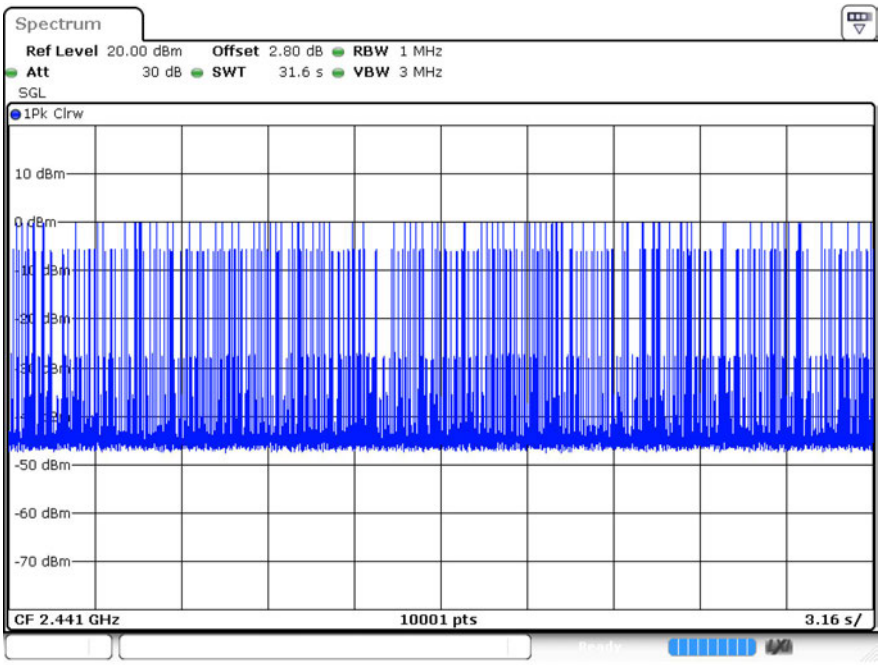
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[ms]	Limit [s]	Verdict
GFSK	DH5	MCH	2.88	114	328.32	0.4	Pass
π/4DQPSK	2DH5	MCH	2.884	100	288.4	0.4	Pass
8DPSK	3DH5	MCH	2.888	103	297.464	0.4	Pass

6.2 Test Graphs

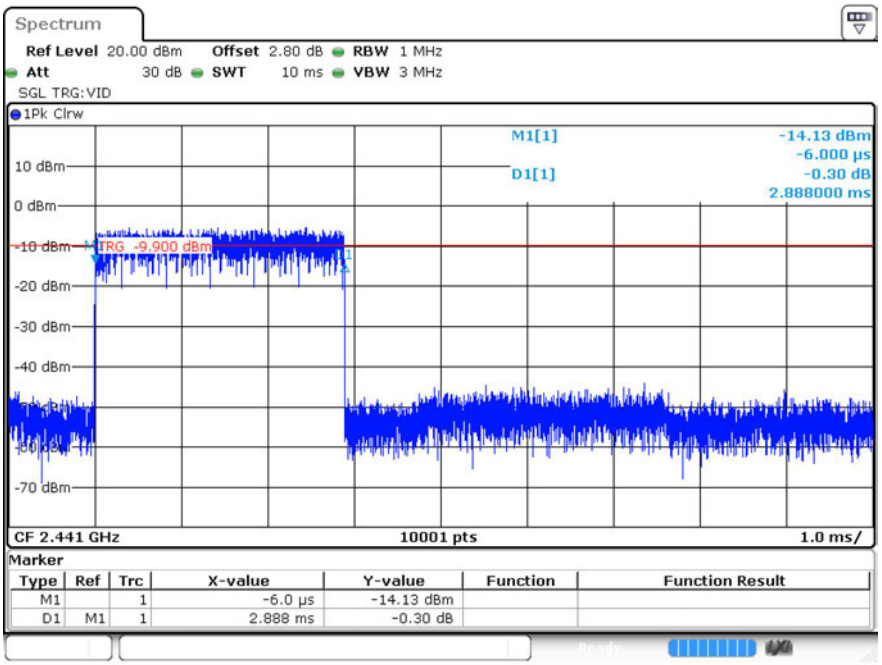
Test Graphs	
GFSK_DH5/MCH	 

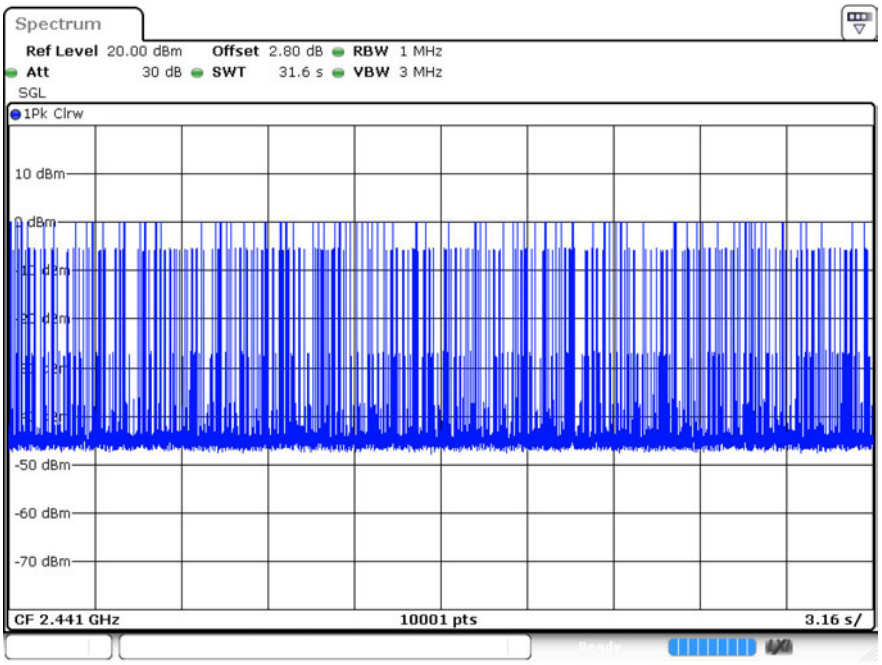
π/4DQPSK
_2DH5/MCH





8DPSK _3DH5/MCH





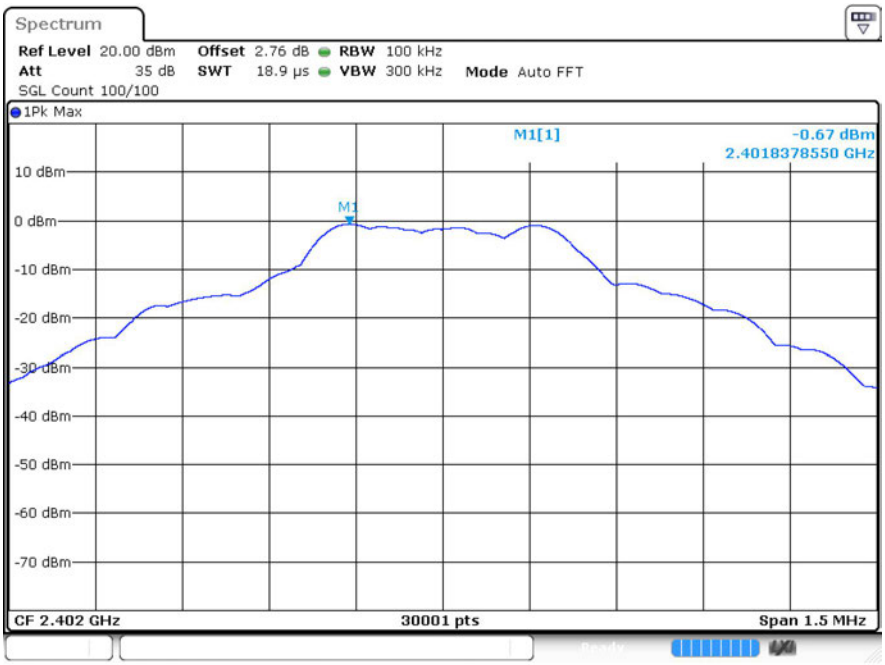
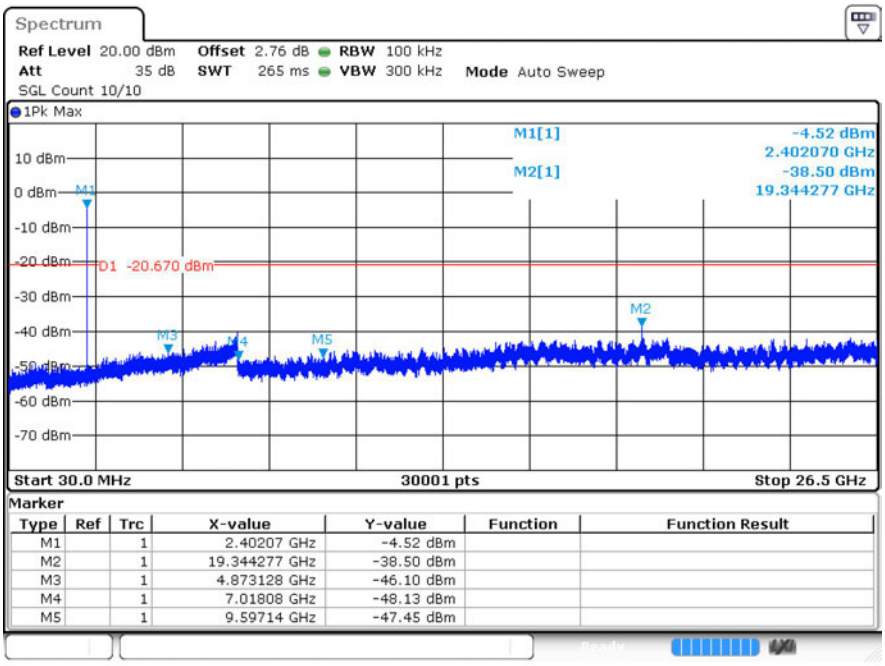
7 RF Conducted Spurious Emissions

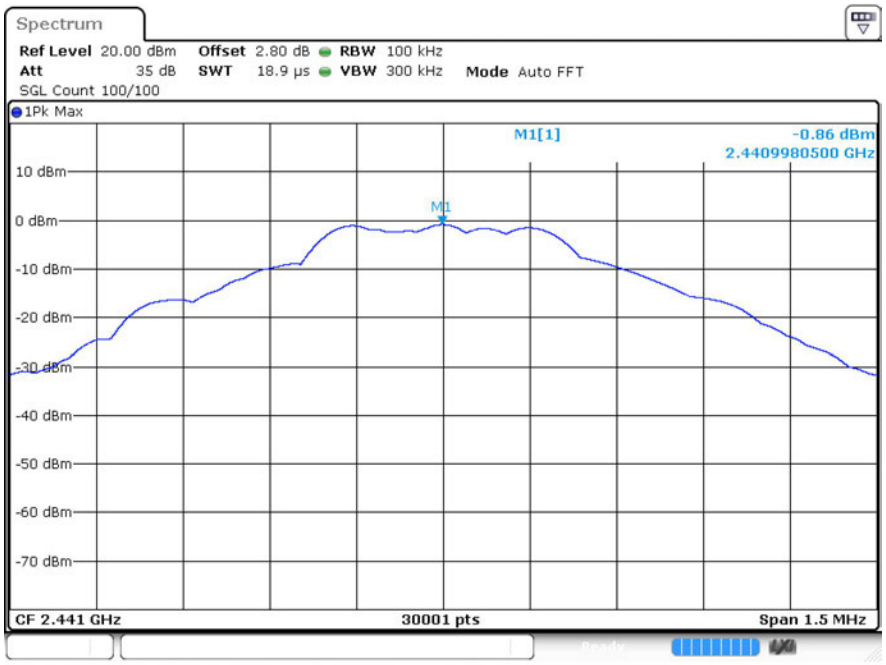
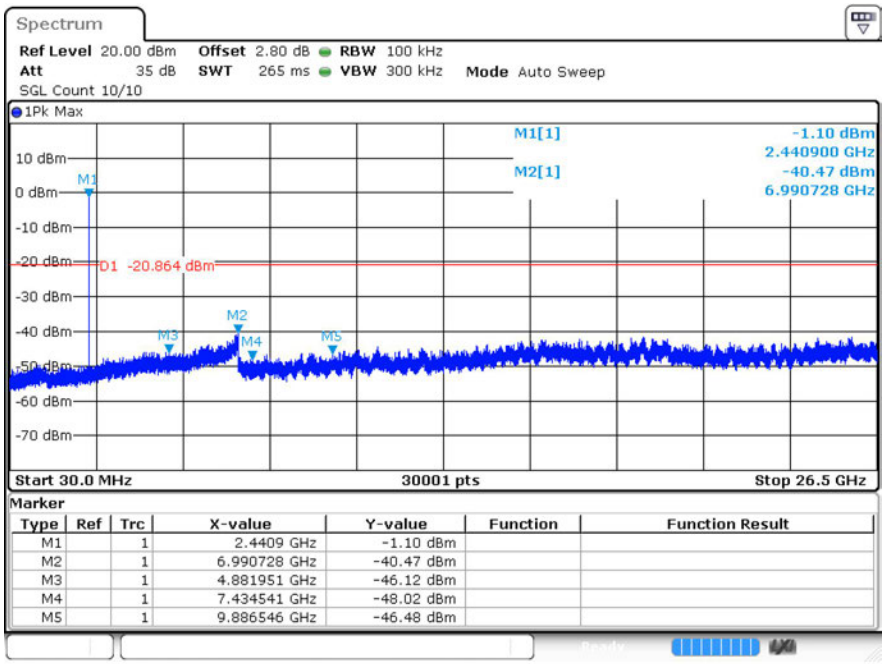
7.1 Test Result

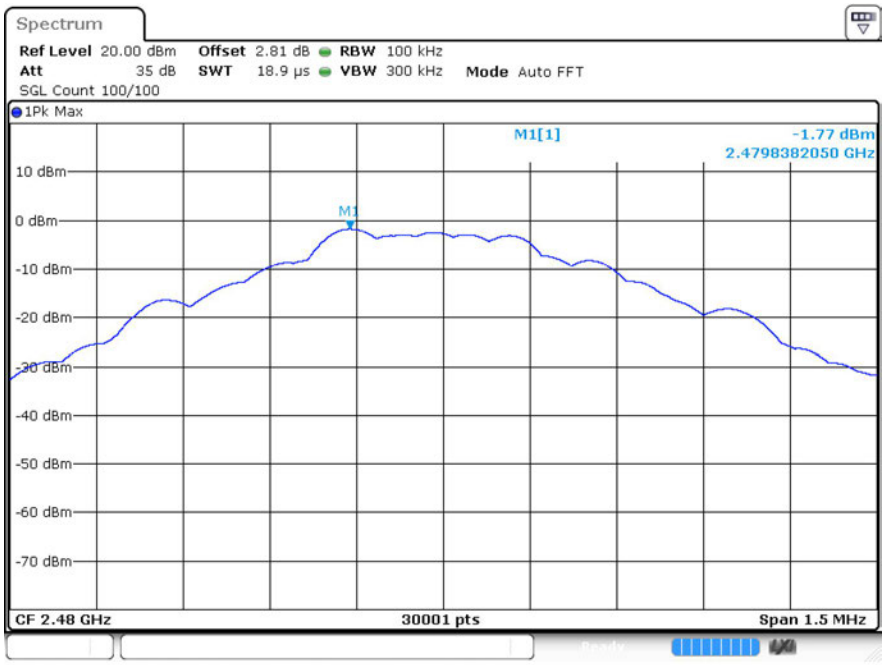
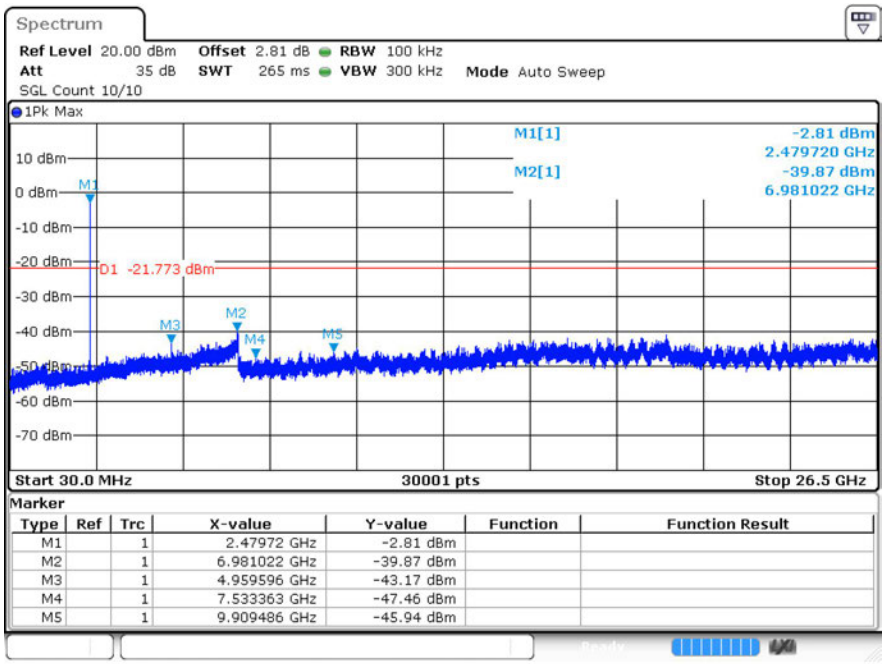
Mode	Channel	Max. Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	-37.82	-20	Pass
	MCH	-39.61	-20	Pass
	HCH	-38.1	-20	Pass
π/4DQPSK	LCH	-40.33	-20	Pass
	MCH	-40.23	-20	Pass
	HCH	-38.32	-20	Pass
8DPSK	LCH	-40.32	-20	Pass
	MCH	-38.36	-20	Pass
	HCH	-39.5	-20	Pass

7.2 Test Graphs

GFSK_LCH_Graphs

Pref	 Spectrum Ref Level 20.00 dBm Offset 2.76 dB RBW 100 kHz Att 35 dB SWT 18.9 µs VBW 300 kHz Mode Auto FFT SGL Count 100/100 1Pk Max M1[1] -0.67 dBm 2.4018378550 GHz M1 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm CF 2.402 GHz 30001 pts Span 1.5 MHz
Puw	 Spectrum Ref Level 20.00 dBm Offset 2.76 dB RBW 100 kHz Att 35 dB SWT 265 ms VBW 300 kHz Mode Auto Sweep SGL Count 10/10 1Pk Max M1[1] -4.52 dBm 2.402070 GHz M2[1] -38.50 dBm 19.344277 GHz 10 dBm 0 dBm -10 dBm -20 dBm D1 -20.670 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1 M2 M3 M4 M5 Start 30.0 MHz 30001 pts Stop 26.5 GHz Marker Type Ref Trc X-value Y-value Function Function Result M1 1 2.40207 GHz -4.52 dBm M2 1 19.344277 GHz -38.50 dBm M3 1 4.873128 GHz -46.10 dBm M4 1 7.01808 GHz -48.13 dBm M5 1 9.59714 GHz -47.45 dBm

GFSK_MCH_Graphs	
Pref	
Puw	

GFSK_HCH_Graphs	
Pref	
Puw	

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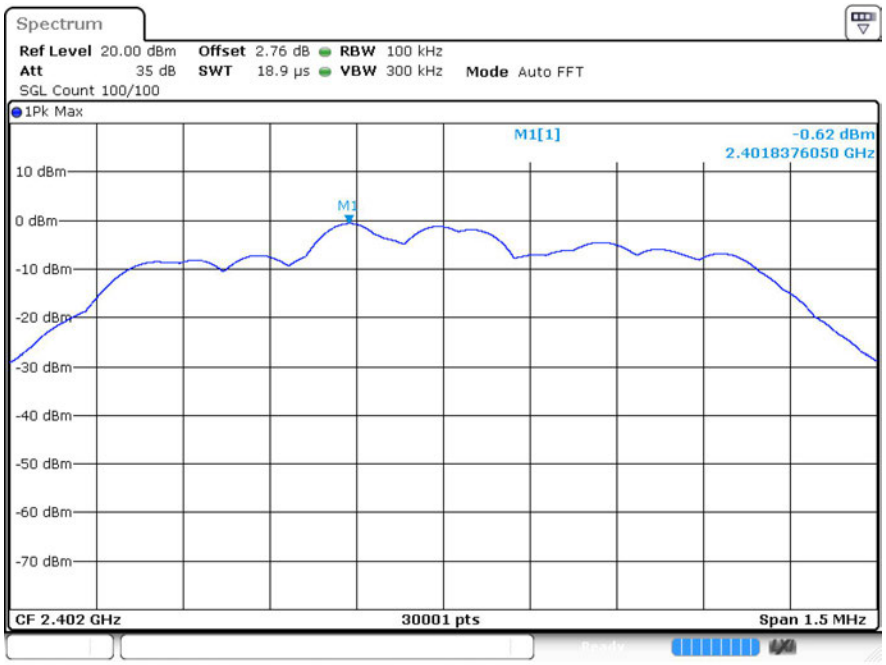
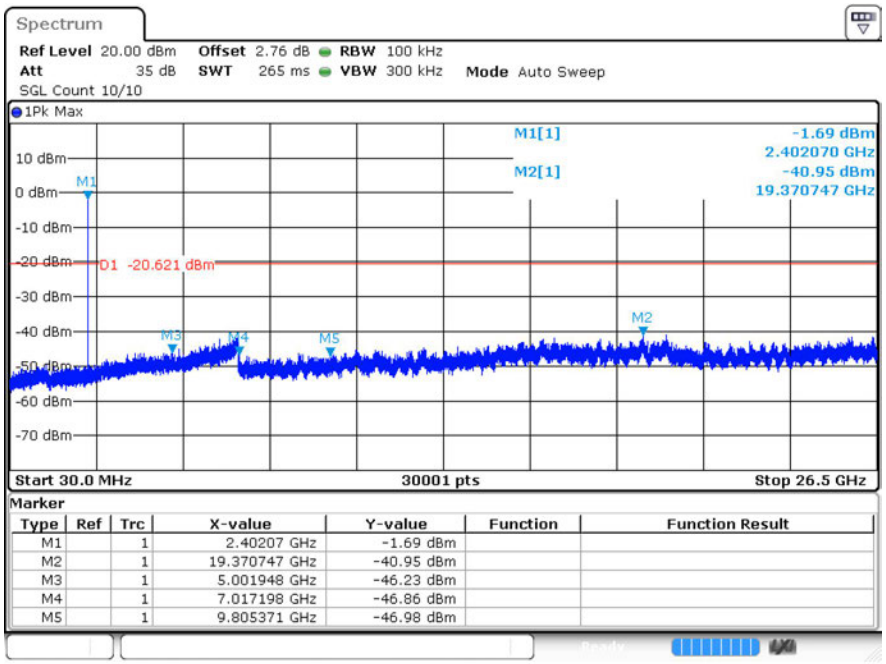
Pref	
Puw	

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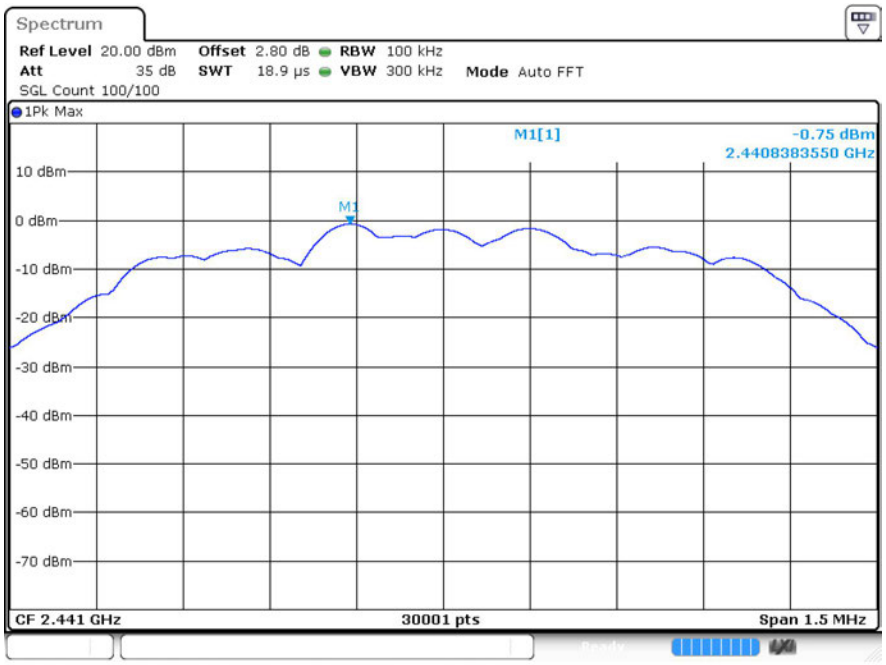
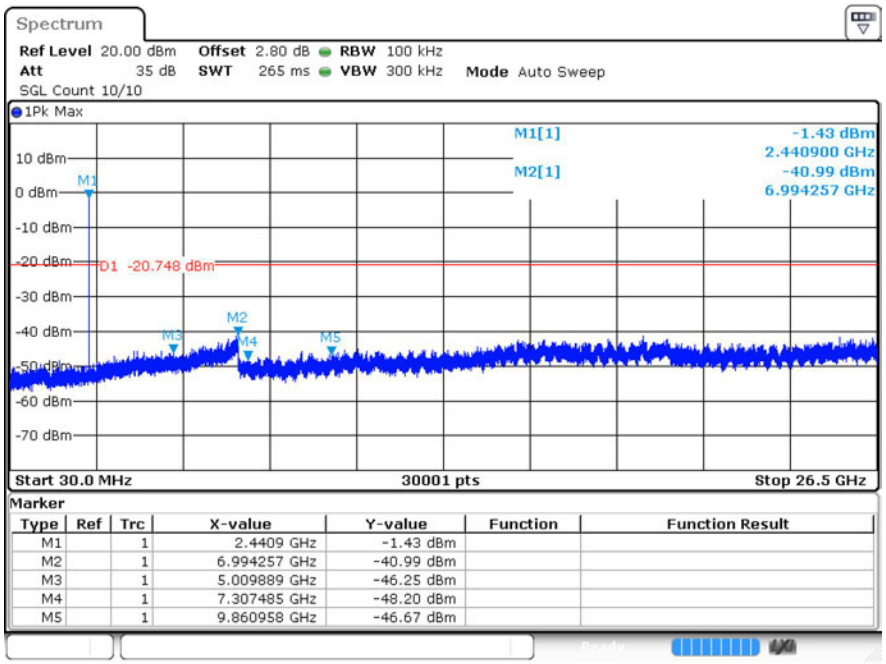
Pref	
Puw	

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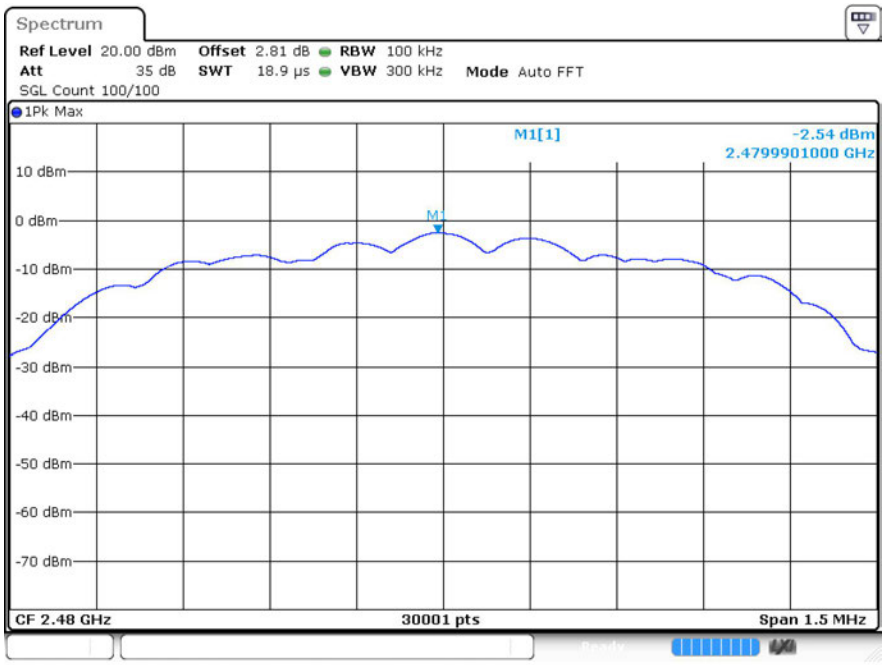
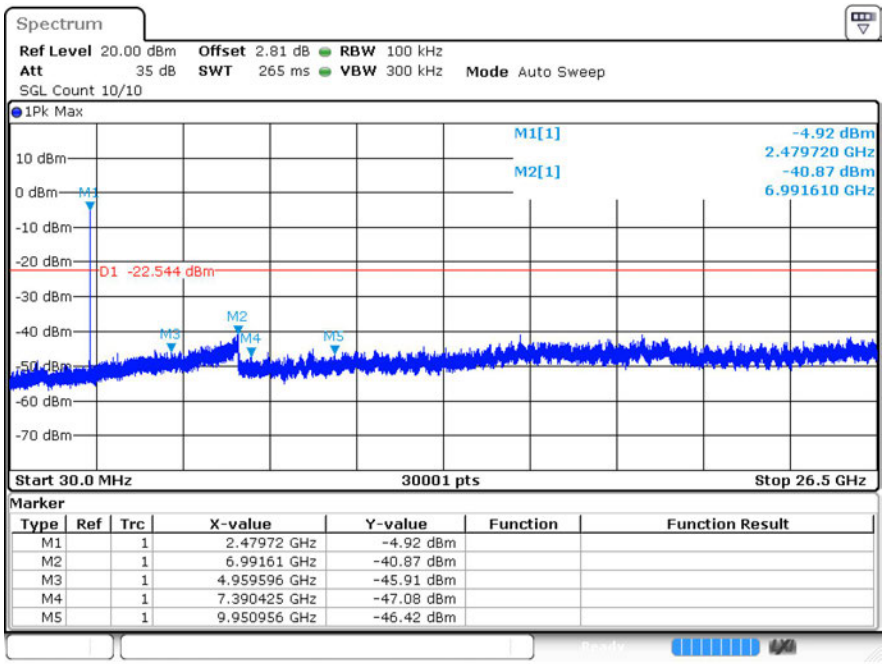
Pref	
Puw	

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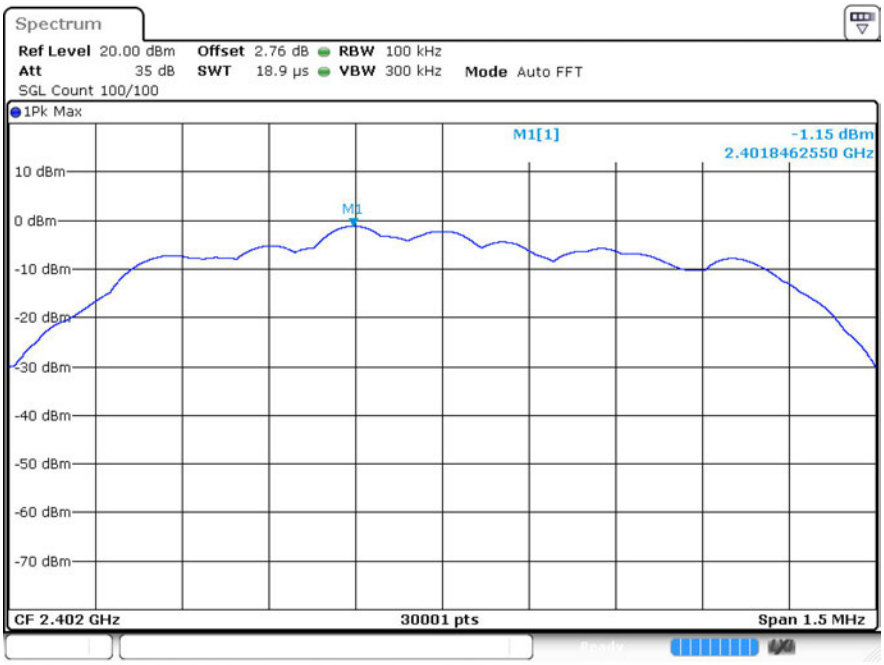
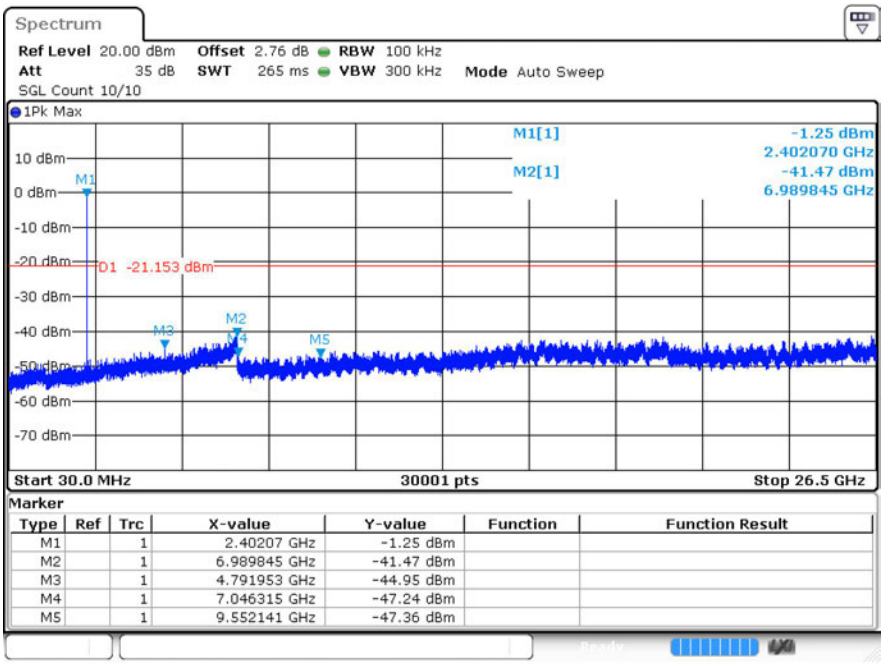
Pref	
Puw	

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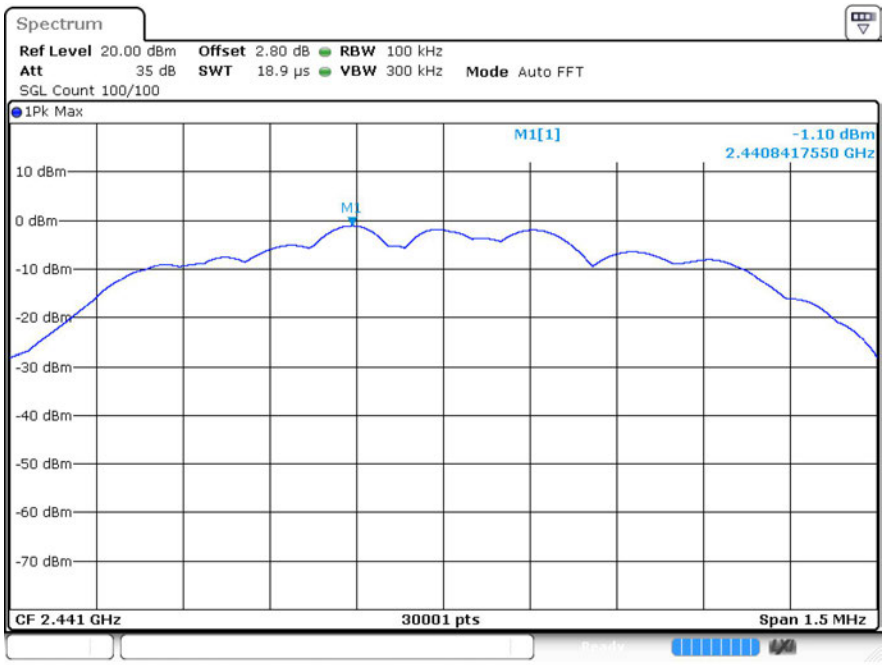
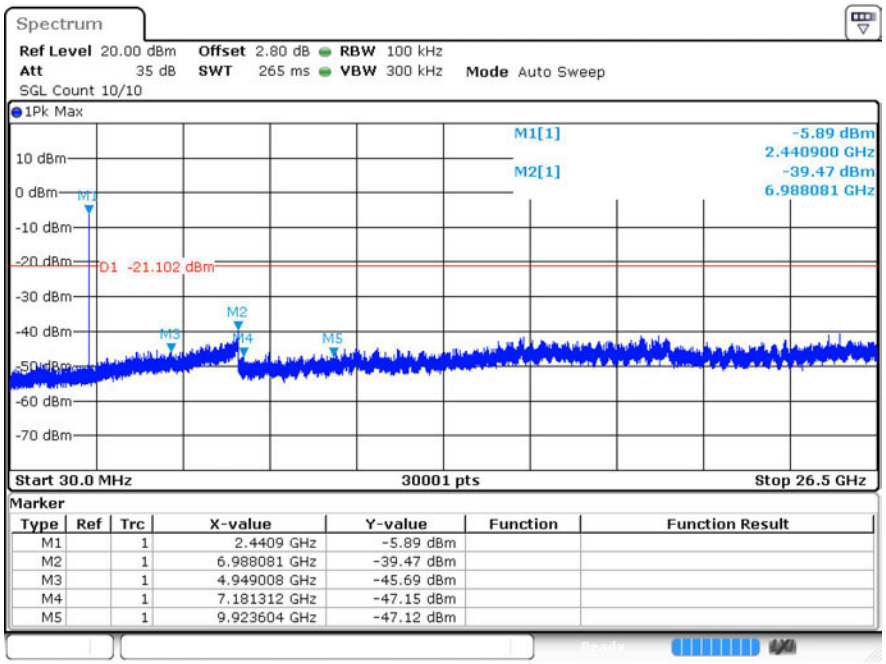
Pref	
Puw	

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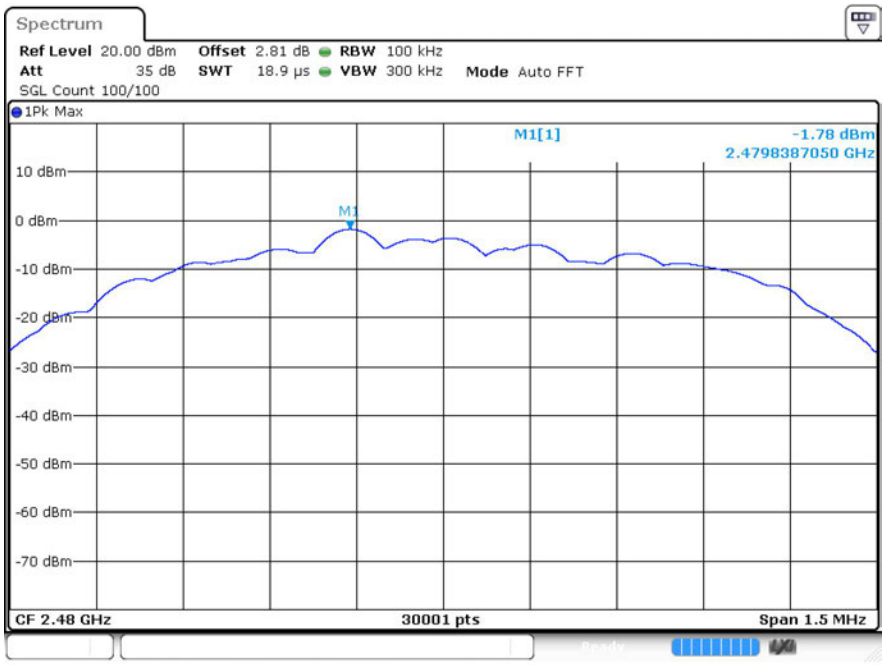
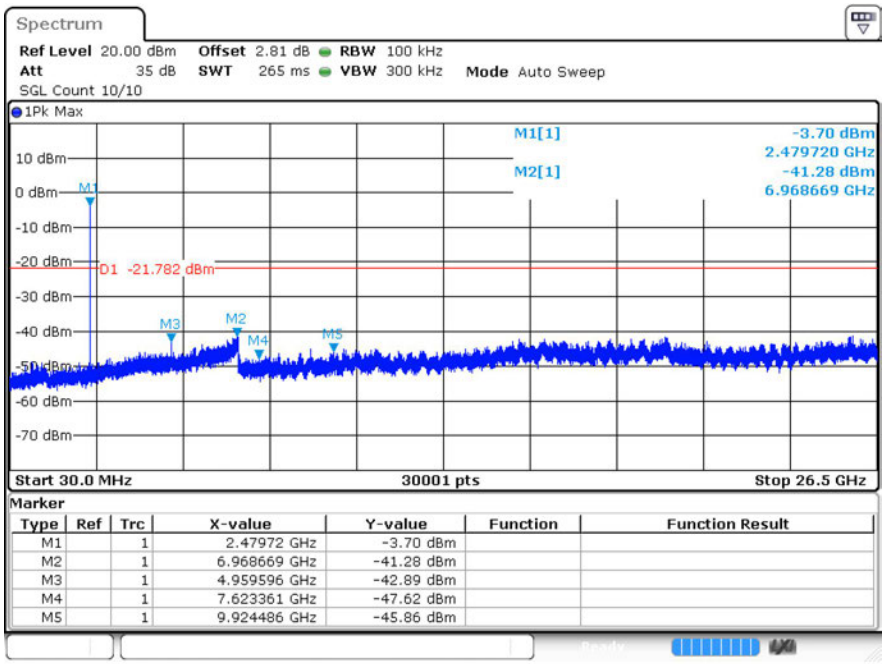
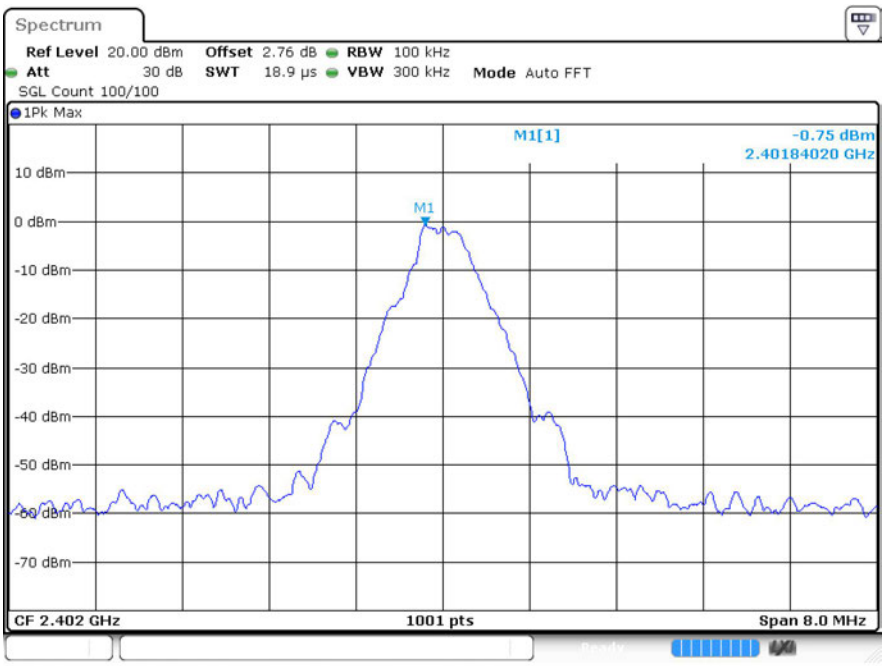
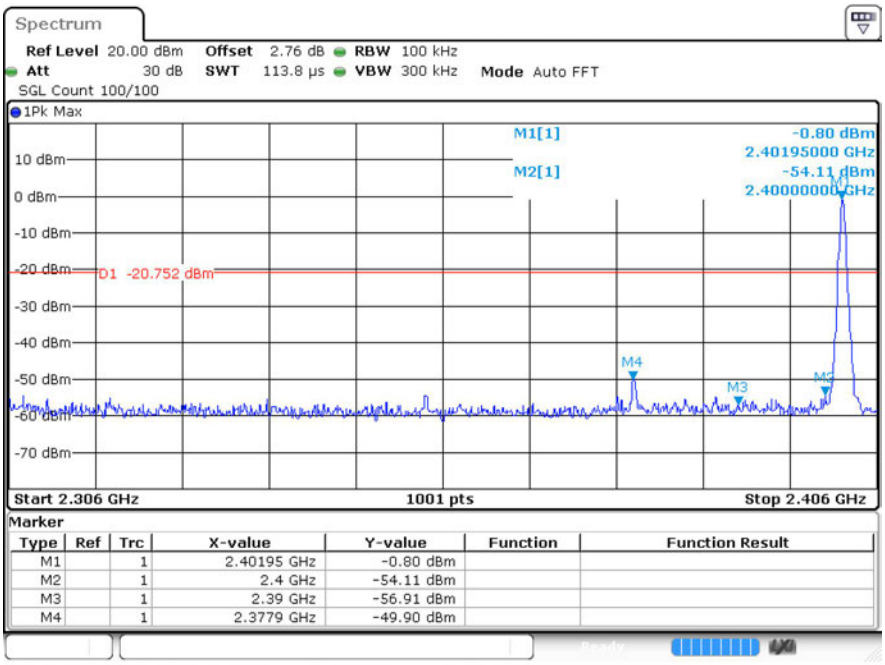
Pref	
Puw	

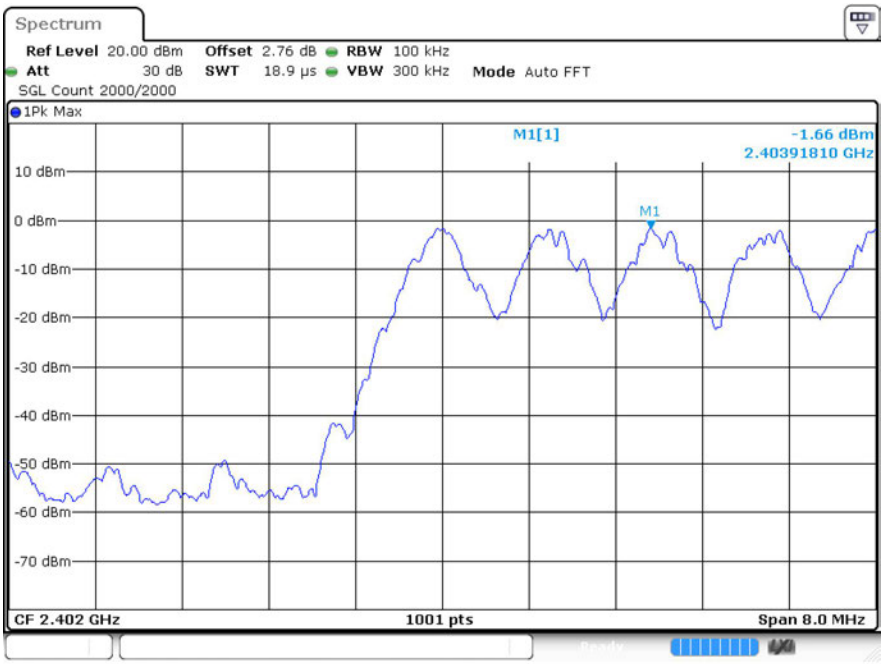
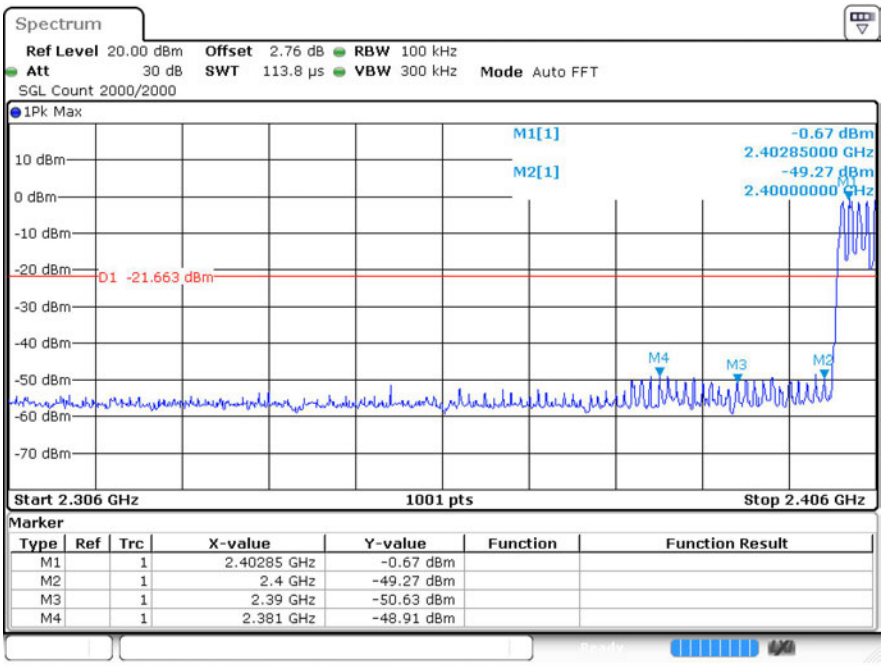
8 Band-edge for RF Conducted Emissions

8.1 Test Result

Mode	Channel	Carrier Frequency [MHz]	Frequency Hopping	Max Spurious Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	2402	Off	-49.14	-20	Pass
			On	-47.25	-20	Pass
	HCH	2480	Off	-53.72	-20	Pass
			On	-47.09	-20	Pass
π/4DQPSK	LCH	2402	Off	-48.11	-20	Pass
			On	-47.66	-20	Pass
	HCH	2480	Off	-54.09	-20	Pass
			On	-46.23	-20	Pass
8DPSK	LCH	2402	Off	-47.07	-20	Pass
			On	-47.03	-20	Pass
	HCH	2480	Off	-53.17	-20	Pass
			On	-46.65	-20	Pass

8.2 Test Graphs

Test Graphs	
Pref	
GFSK/LCH/No Hop	

Ref	
GFSK/LCH/Hop