Appendix A

RF Test Data for BT(BDR/EDR) (Conducted Measurement)

Product Name: Translation headphones

Trade Mark: N/A

Test Model: T25

Environmental Conditions

Temperature:	24.2℃
Relative Humidity:	52.4%
ATM Pressure:	101Kpa
Test Engineer:	Emiya lin
Supervised by:	Simba Haung

Contents

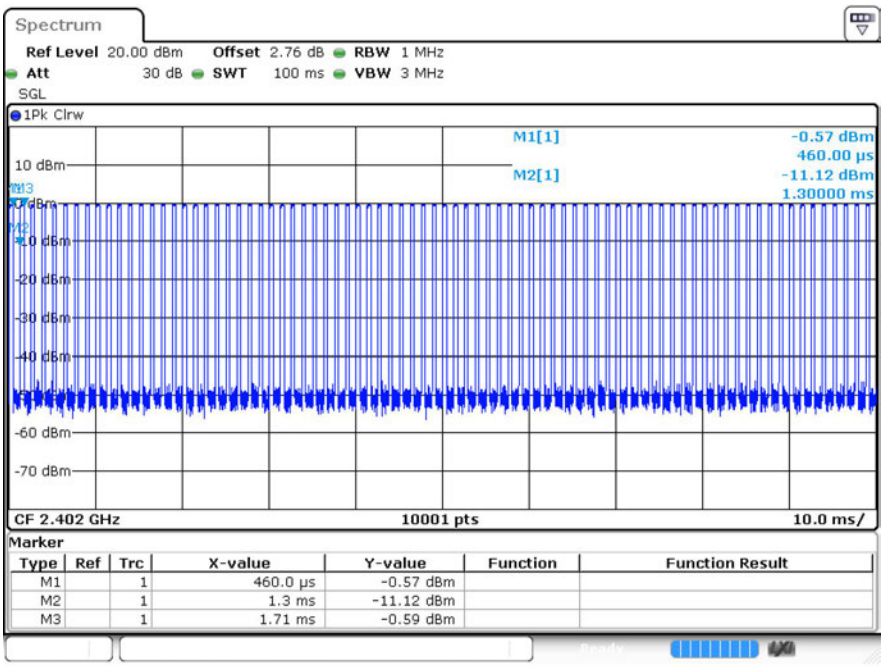
1 Duty Cycle

1.1 Test Result

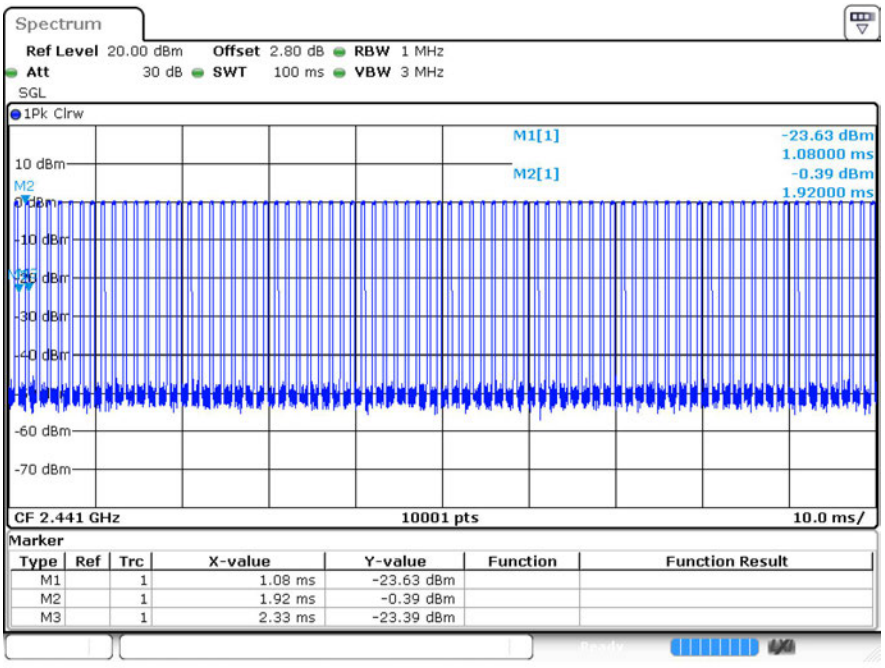
Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor	1/T (kHz)
1-DH1	2402	33.6	4.74	2.44
1-DH1	2441	33.6	4.74	2.44
1-DH1	2480	33.6	4.74	2.44
2-DH1	2402	34.4	4.63	2.38
2-DH1	2441	34.41	4.63	2.38
2-DH1	2480	34.41	4.63	2.38
3-DH1	2402	34.4	4.63	2.38
3-DH1	2441	34.4	4.63	2.38
3-DH1	2480	34.4	4.63	2.38

1.2 Test Graphs

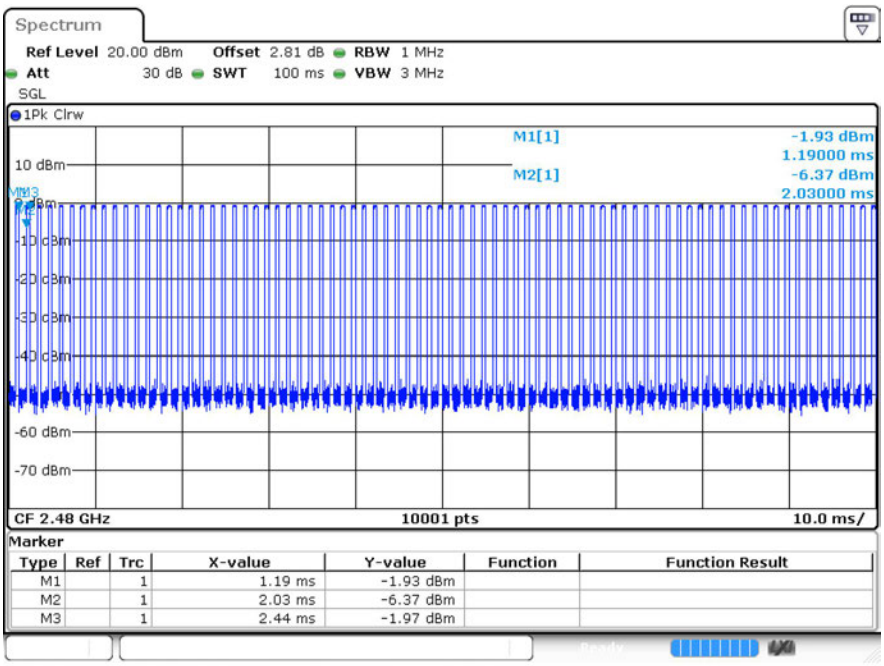
Test Graphs
1-DH1 2402MHz



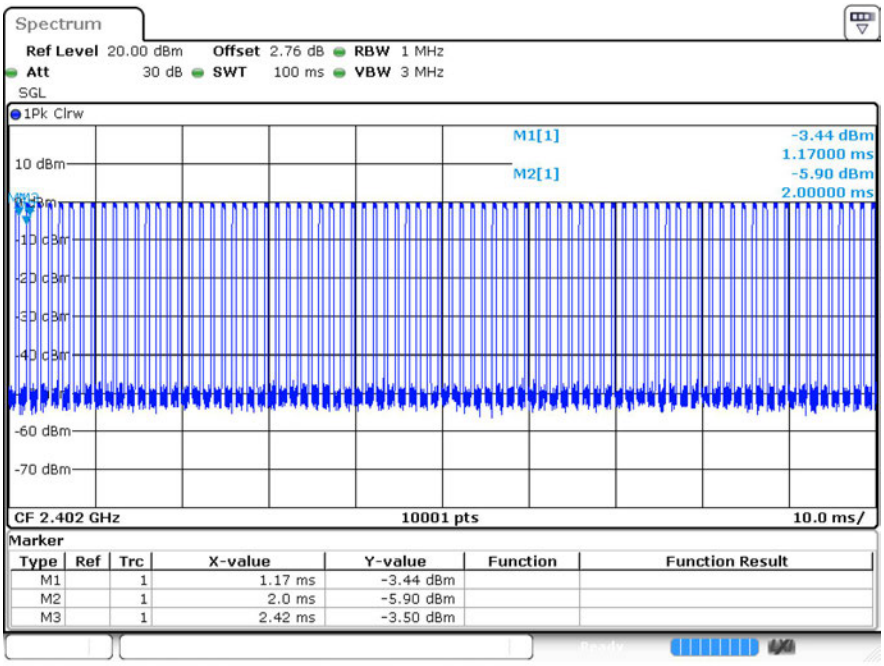
1-DH1 2441MHz



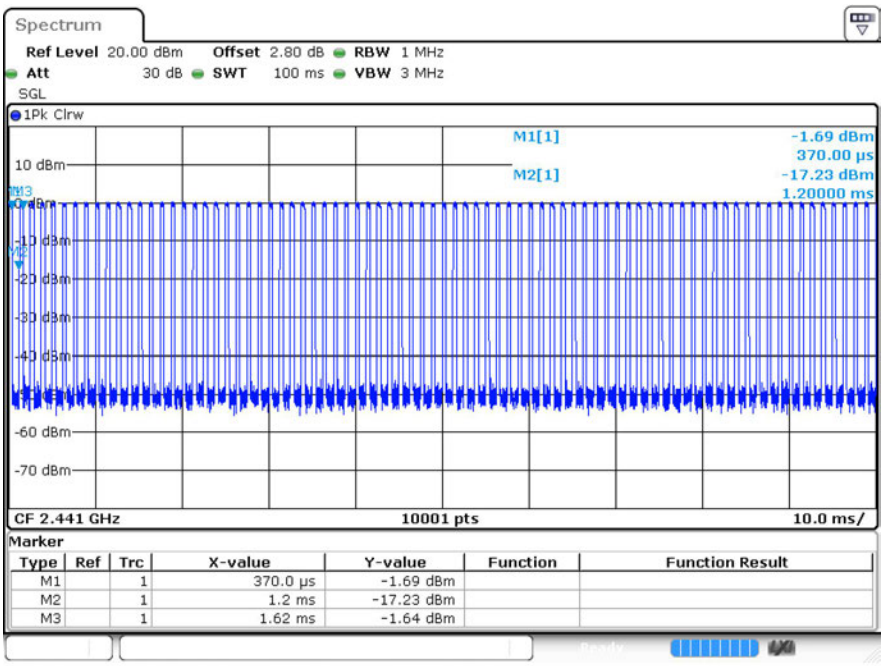
1-DH1 2480MHz



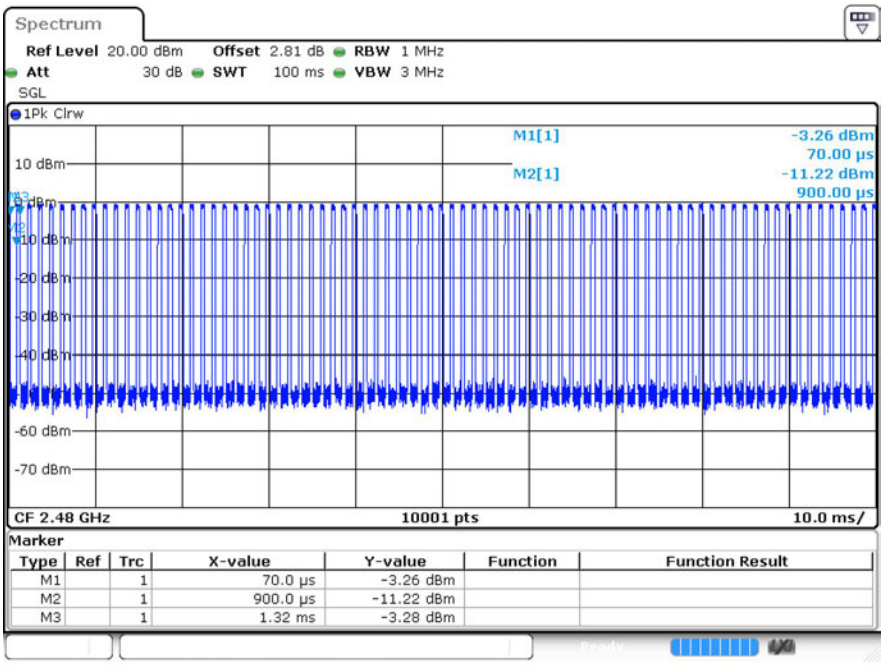
2-DH1 2402MHz



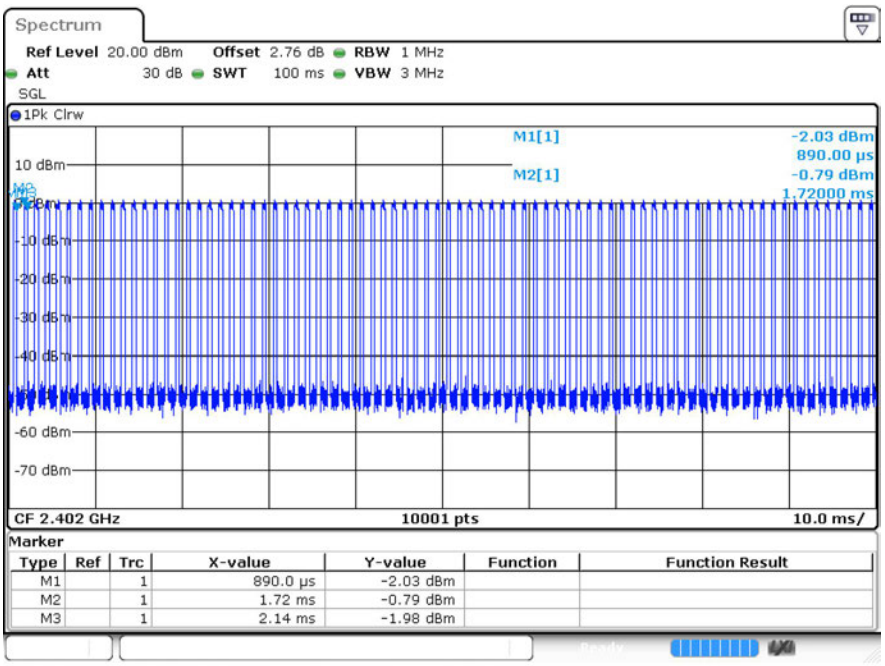
2-DH1 2441MHz



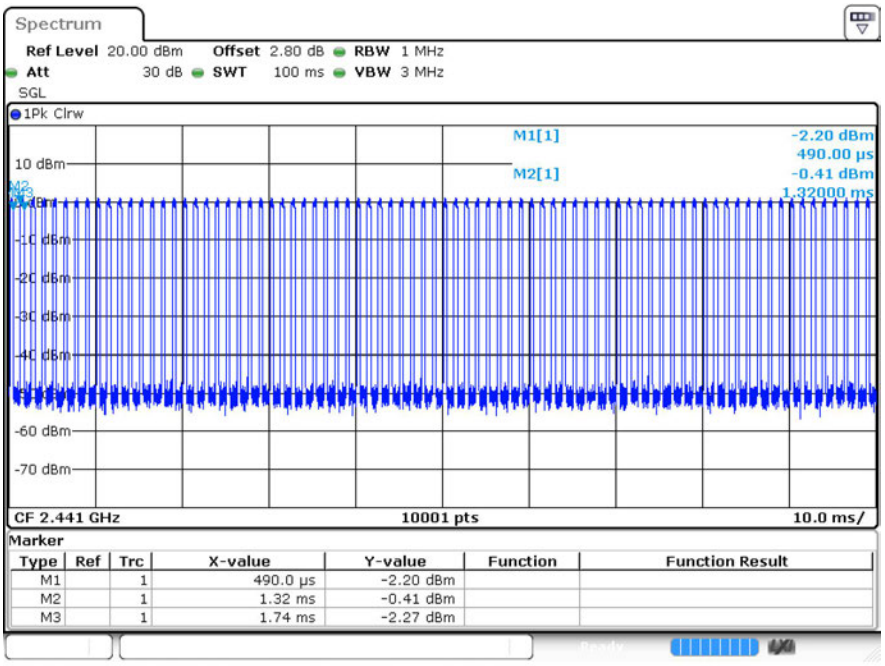
2-DH1 2480MHz



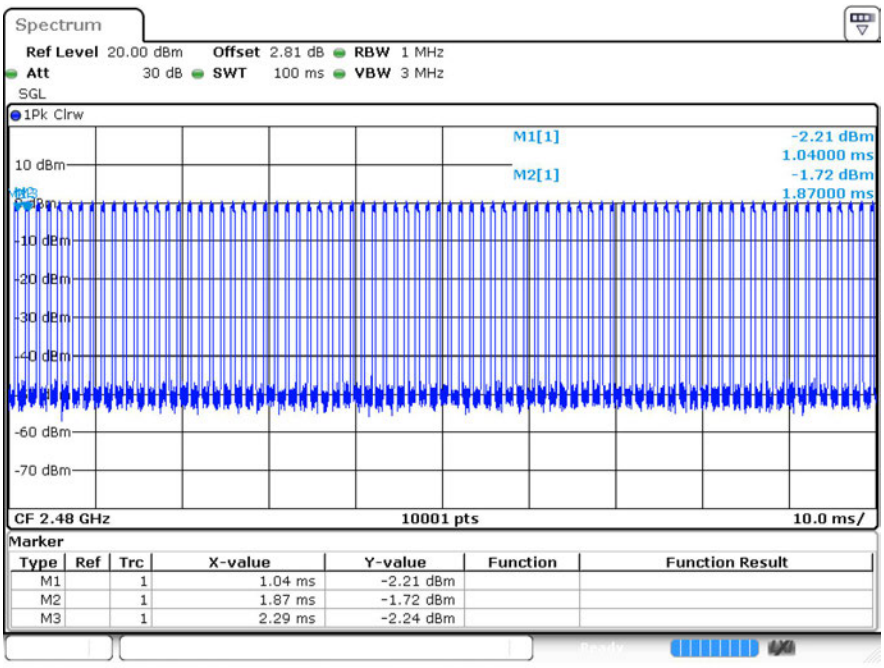
3-DH1 2402MHz



3-DH1 2441MHz



3-DH1 2480MHz

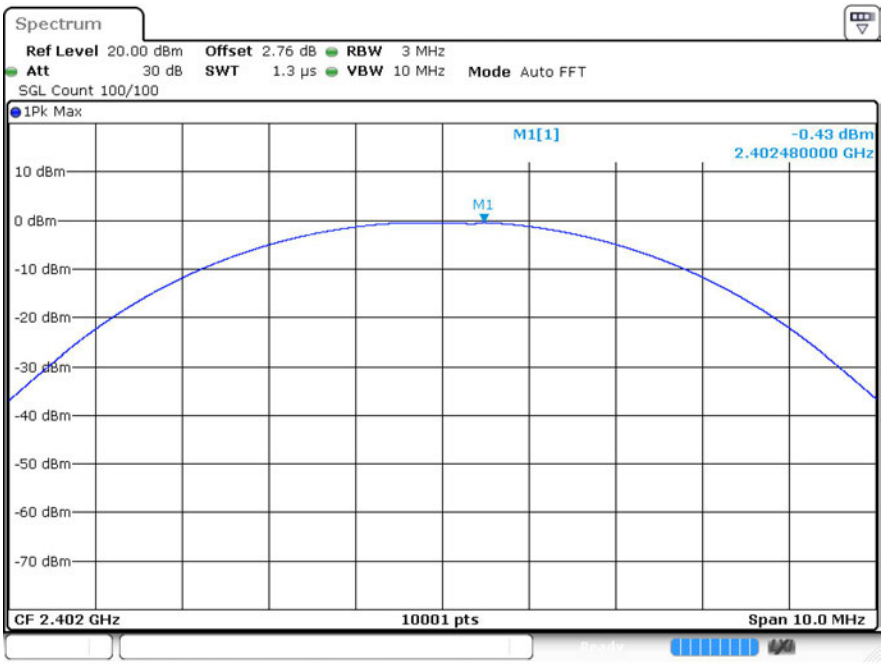
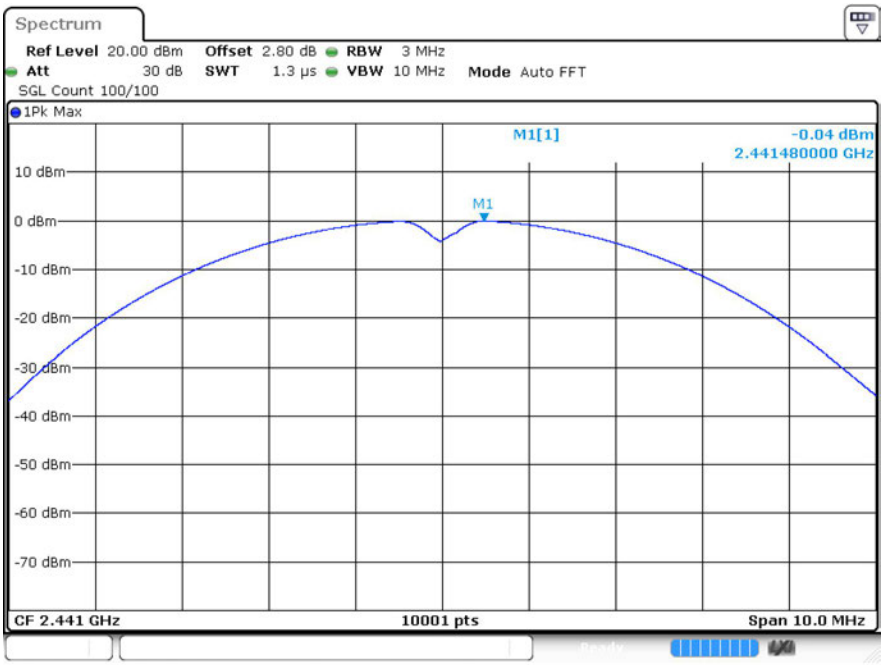


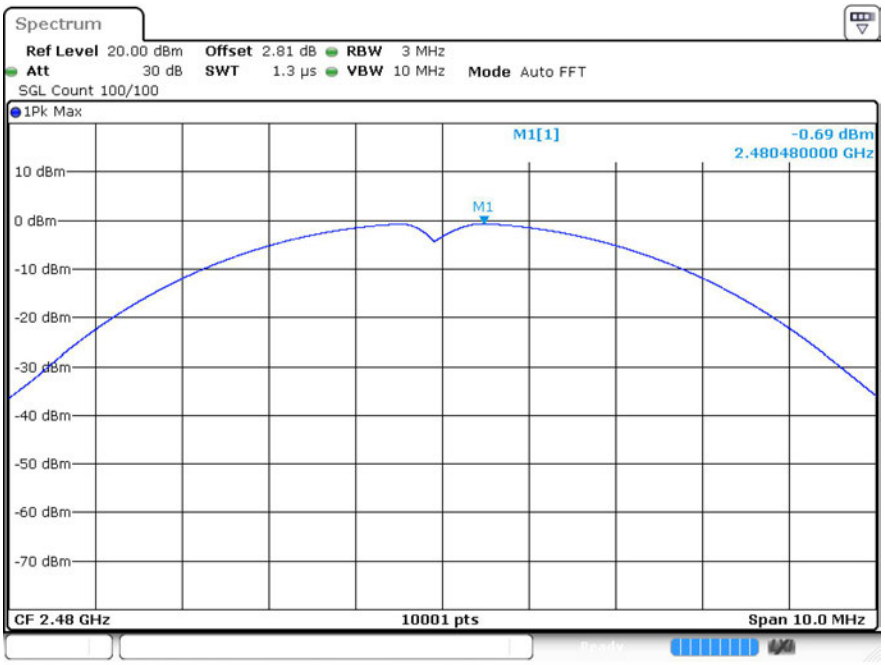
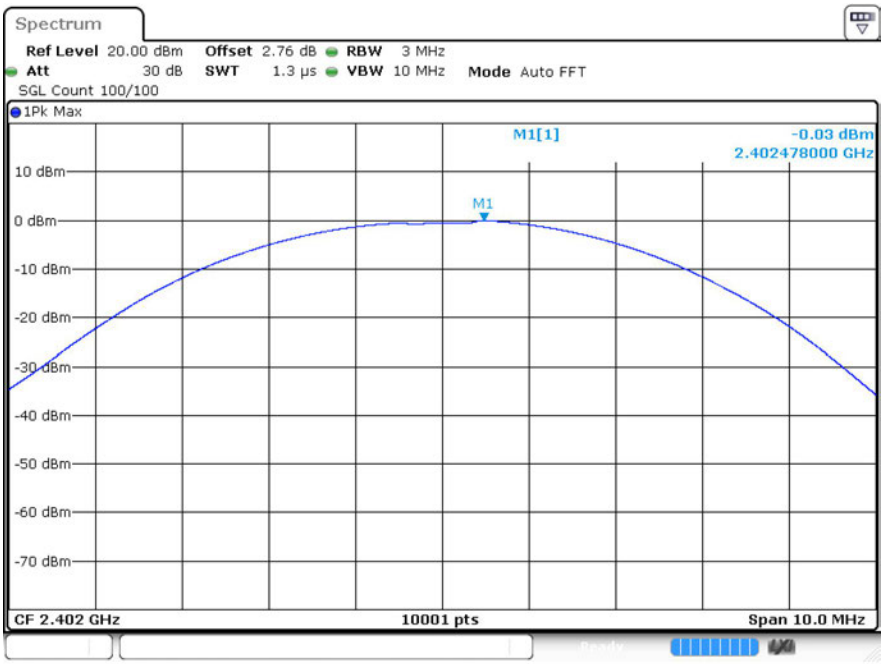
2 Maximum Conducted Peak Output Power

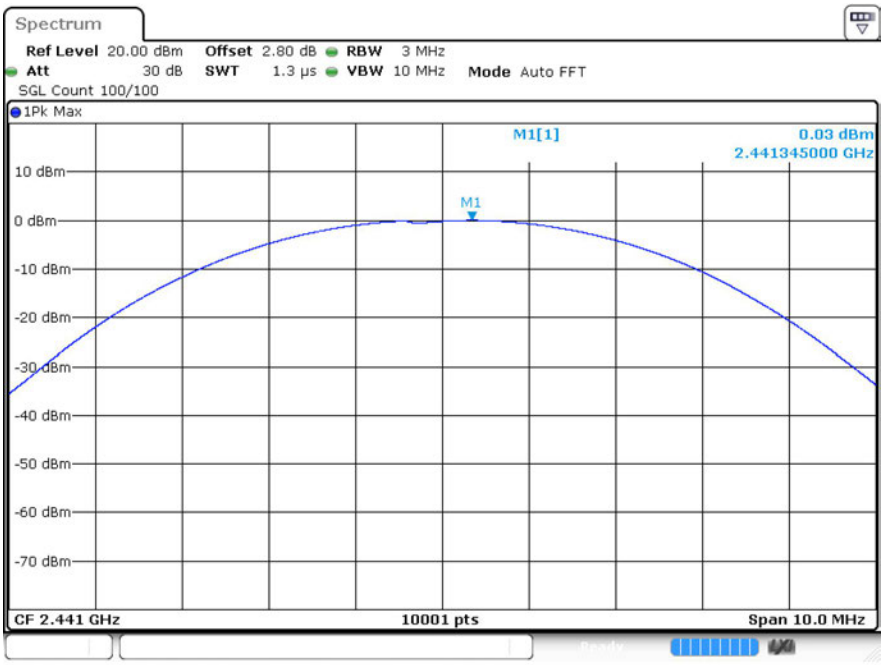
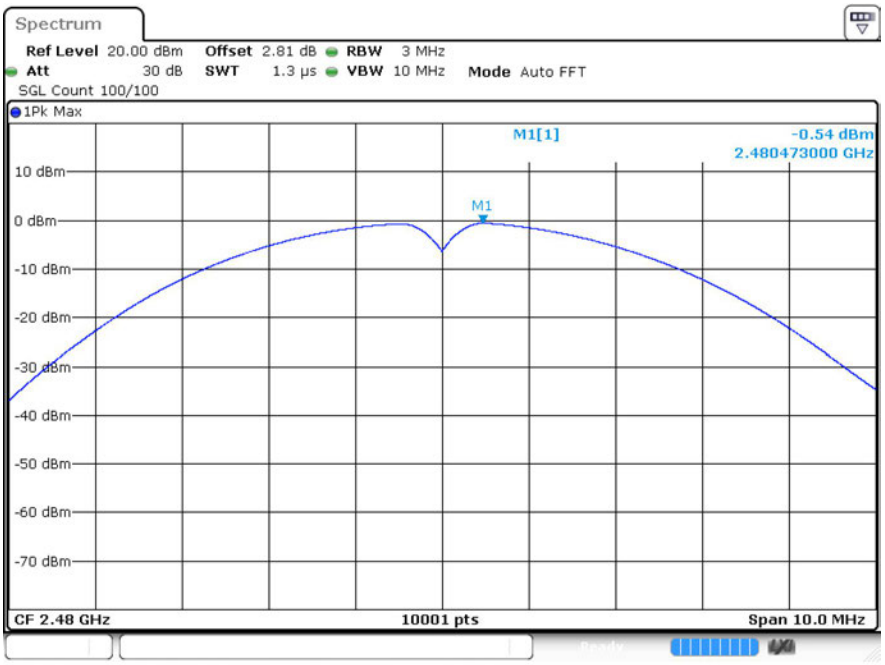
2.1 Test Result

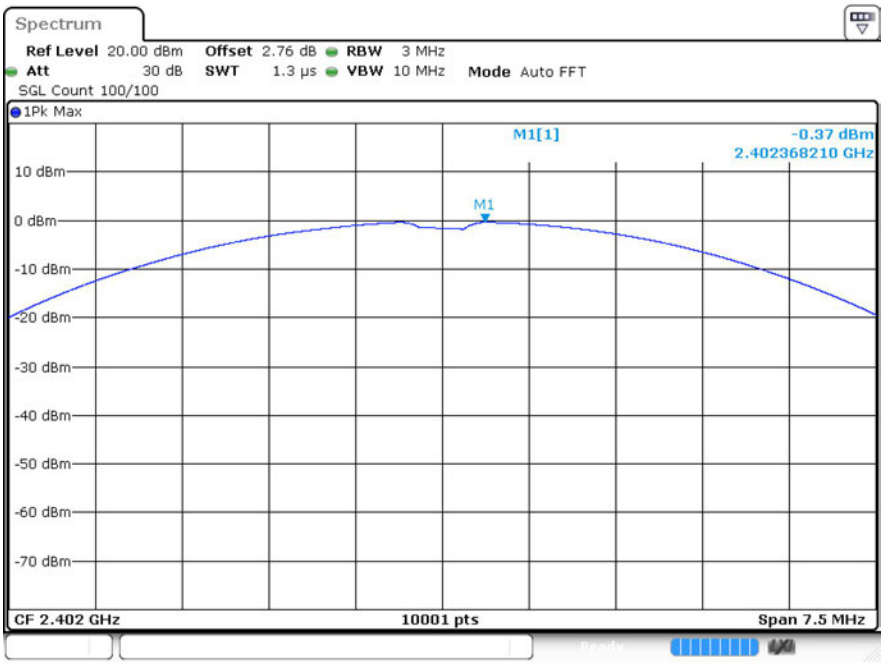
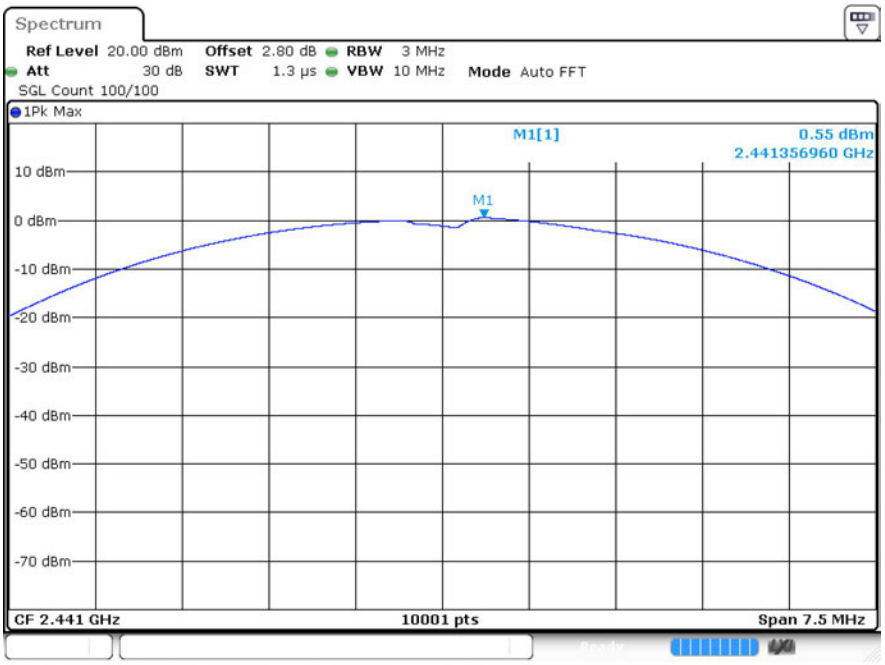
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.43	21	Pass
	MCH	-0.04	21	Pass
	HCH	-0.69	21	Pass
π/4DQPSK	LCH	-0.03	21	Pass
	MCH	0.03	21	Pass
	HCH	-0.54	21	Pass
8DPSK	LCH	-0.37	21	Pass
	MCH	0.55	21	Pass
	HCH	-0.72	21	Pass

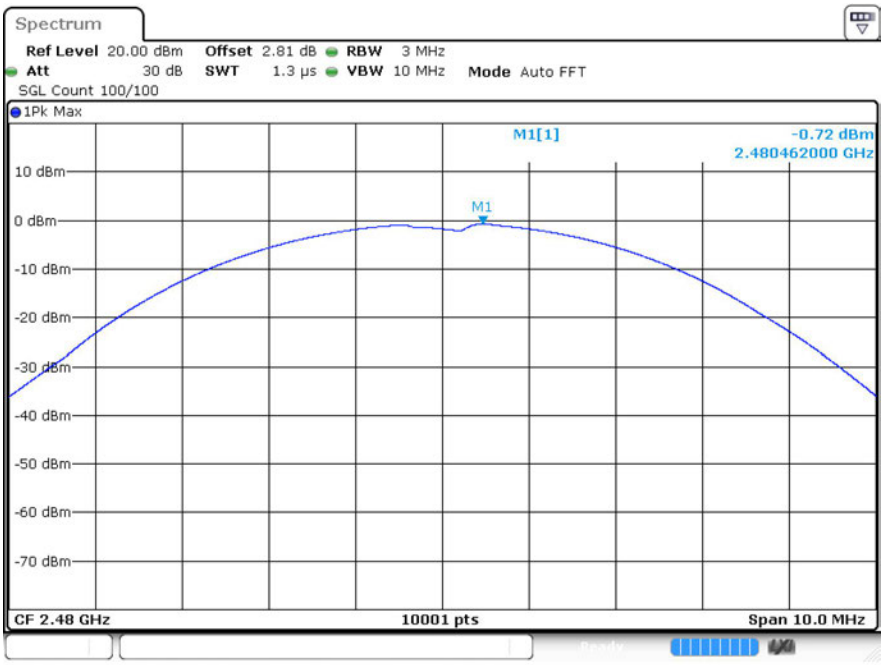
2.2 Test Graphs

Test Graphs	
GFSK/LCH	
GFSK/MCH	

GFSK/HCH	
π/4DQPSK/LCH	

π/4DQPSK/MCH	
π/4DQPSK/HCH	

8DPSK/LCH	
8DPSK/MCH	

8DPSK/HCH	

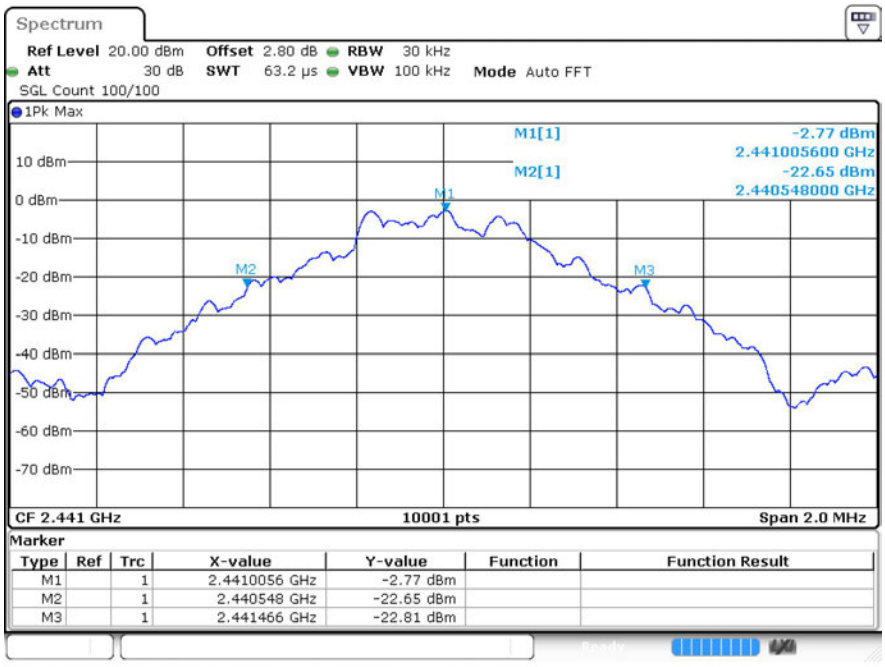
Spectrum
Ref Level 20.00 dBm Offset 2.81 dB RBW 3 MHz
Att 30 dB SWT 1.3 µs VBW 10 MHz Mode Auto FFT
SGL Count 100/100
1Pk Max
M1[1] -0.72 dBm
2.480462000 GHz
M1
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 2.48 GHz
10001 pts
Span 10.0 MHz

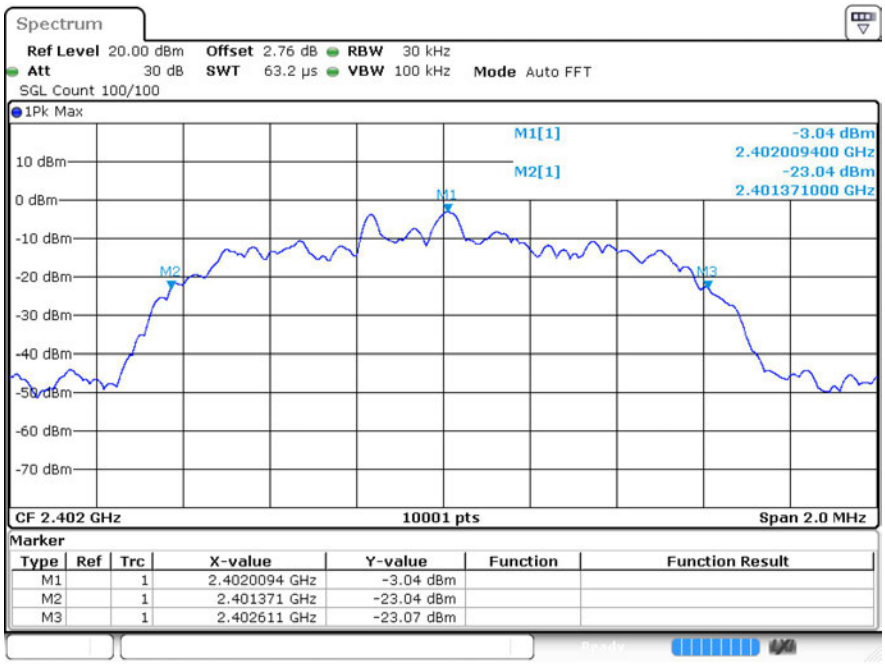
3 20dB Bandwidth

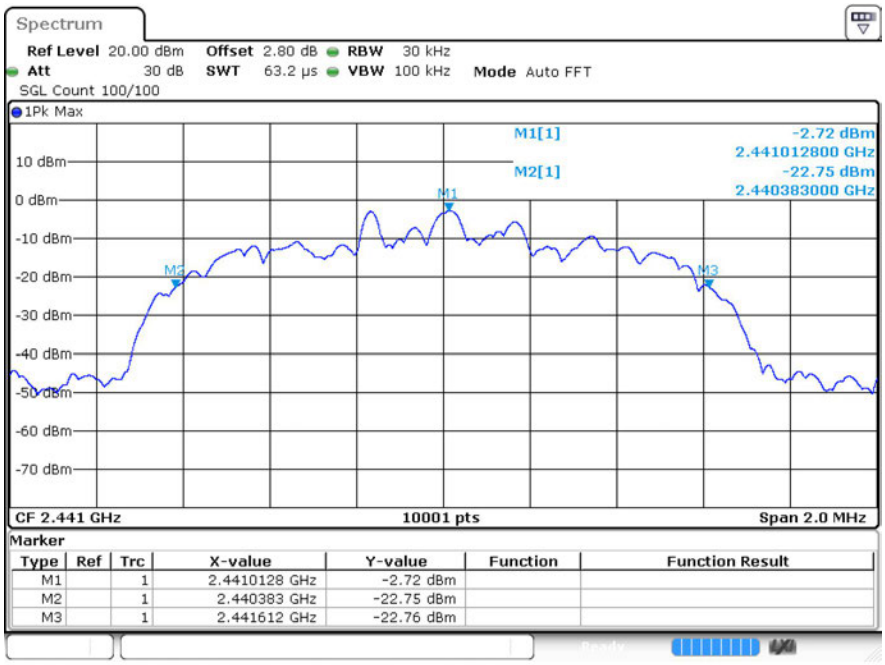
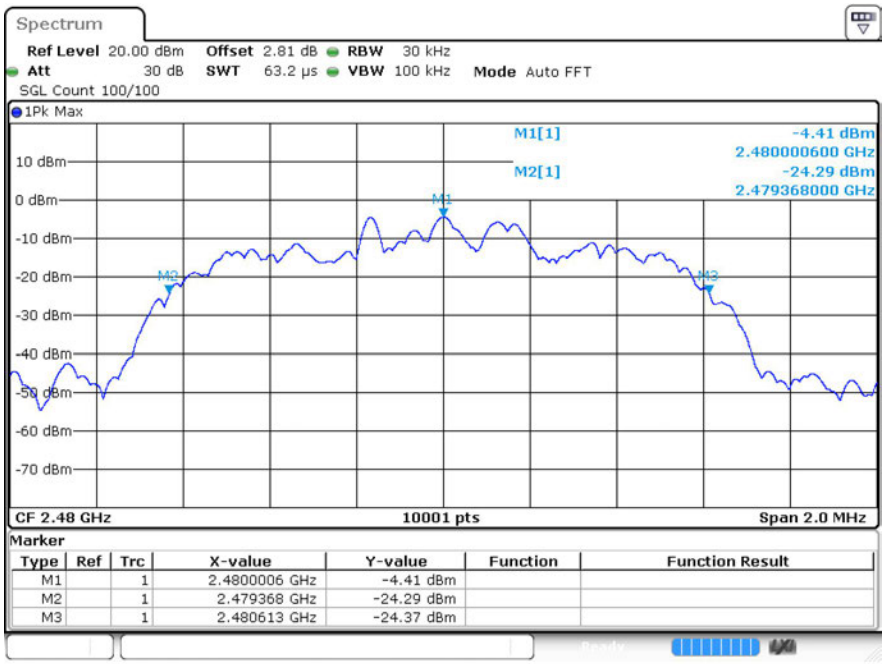
3.1 Test Result

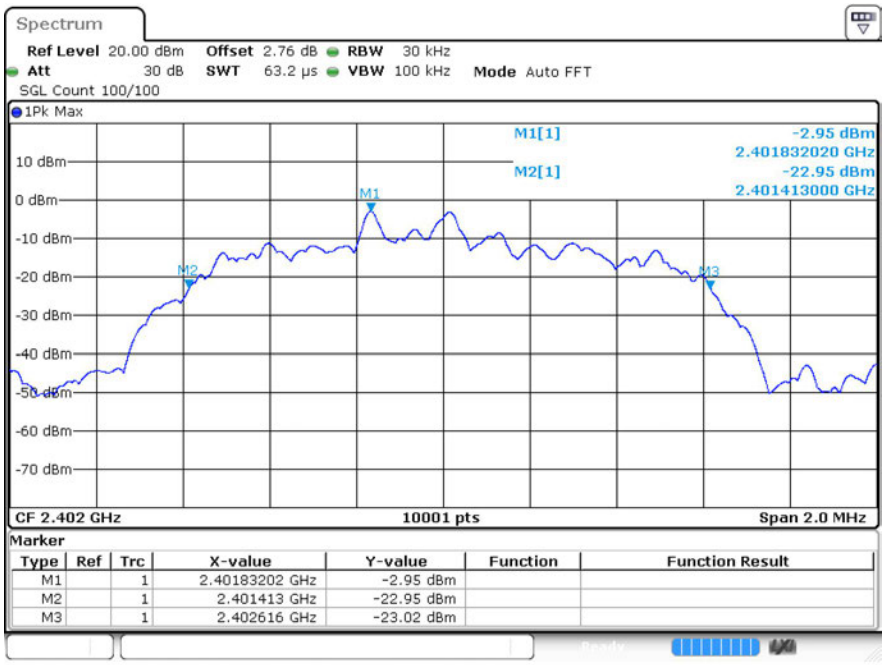
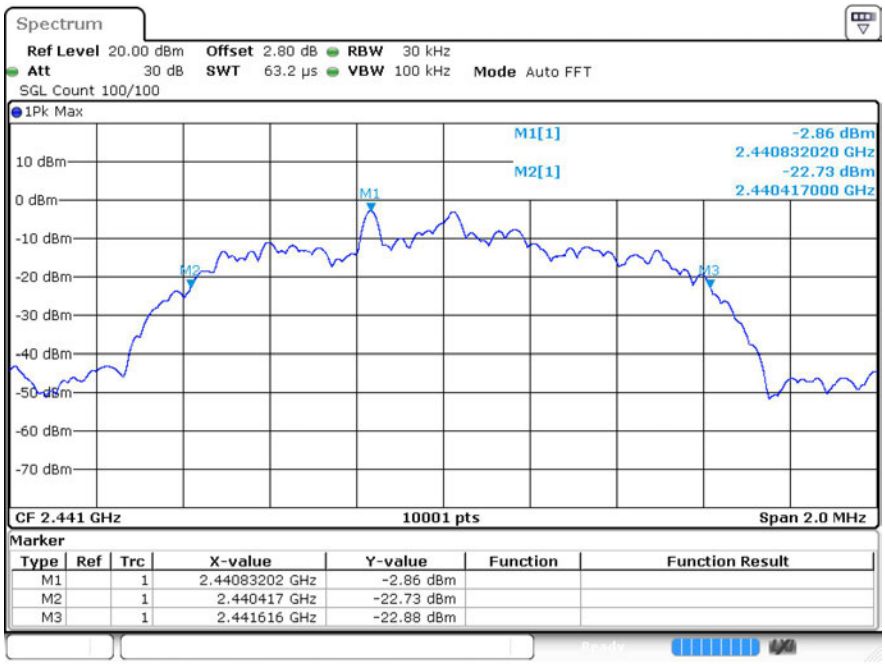
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.876	Not Specified	Pass
	MCH	0.918	Not Specified	Pass
	HCH	0.923	Not Specified	Pass
π/4DQPSK	LCH	1.24	Not Specified	Pass
	MCH	1.228	Not Specified	Pass
	HCH	1.245	Not Specified	Pass
8DPSK	LCH	1.203	Not Specified	Pass
	MCH	1.199	Not Specified	Pass
	HCH	1.2	Not Specified	Pass

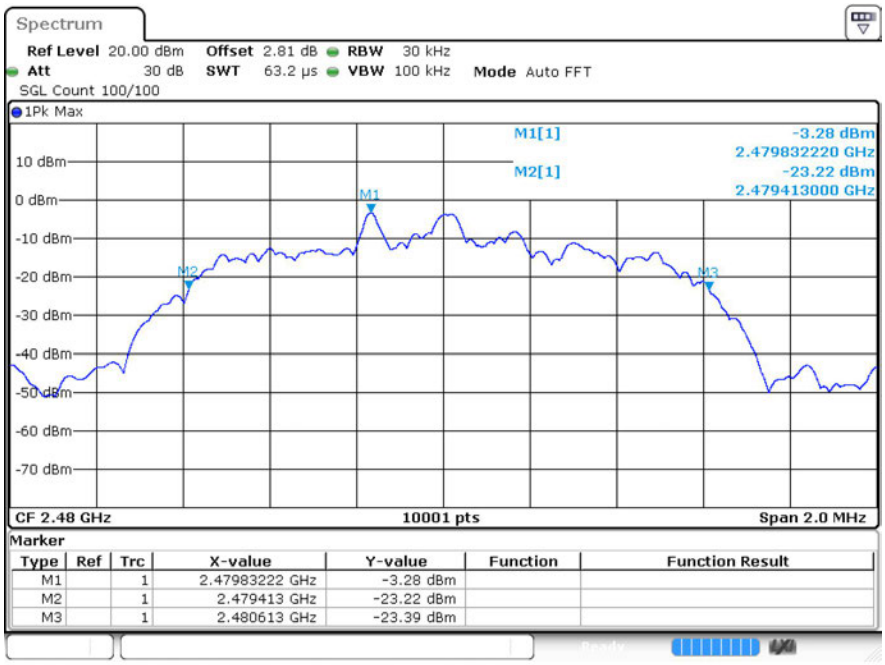
3.2 Test Graphs

Test Graphs	
GFSK/LCH	
GFSK/MCH	

GFSK/HCH	
π/4DQPSK/LCH	

π/4DQPSK/MCH	
π/4DQPSK/HCH	

8DPSK/LCH	
8DPSK/MCH	

8DPSK/HCH	

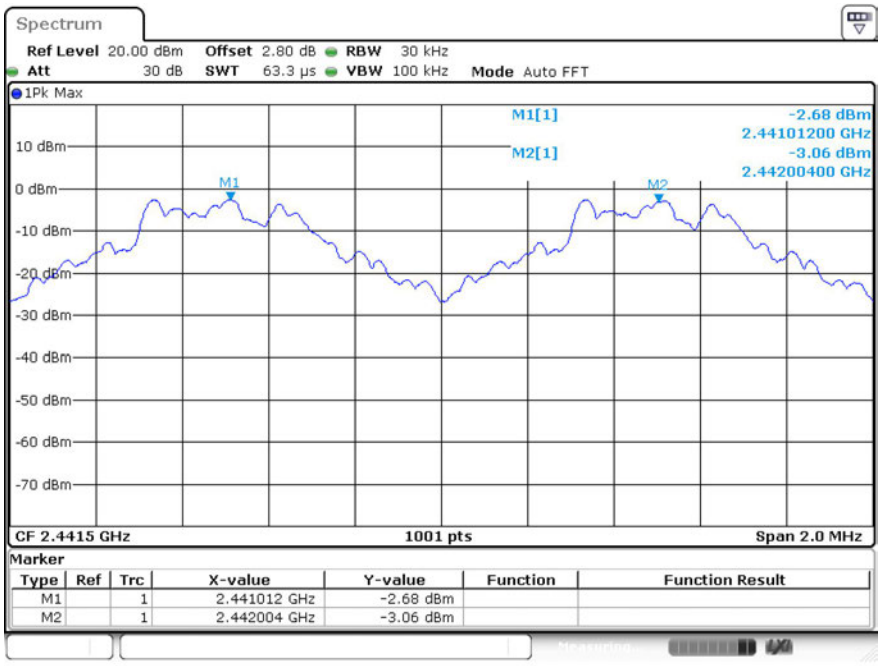
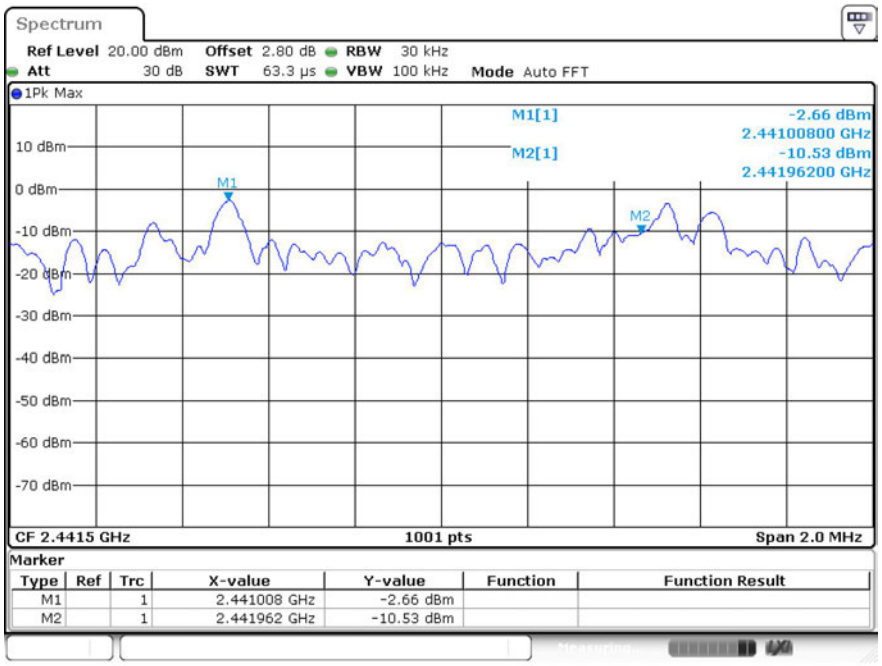
Spectrum
Ref Level 20.00 dBm Offset 2.81 dB RBW 30 kHz
Att 30 dB SWT 63.2 µs VBW 100 kHz Mode Auto FFT
SGL Count 100/100
1Pk Max
M1[1] -3.28 dBm
2.479832220 GHz
M2[1] -23.22 dBm
2.479413000 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 2.48 GHz
10001 pts
Span 2.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.47983222 GHz -3.28 dBm
M2 1 2.479413 GHz -23.22 dBm
M3 1 2.480613 GHz -23.39 dBm

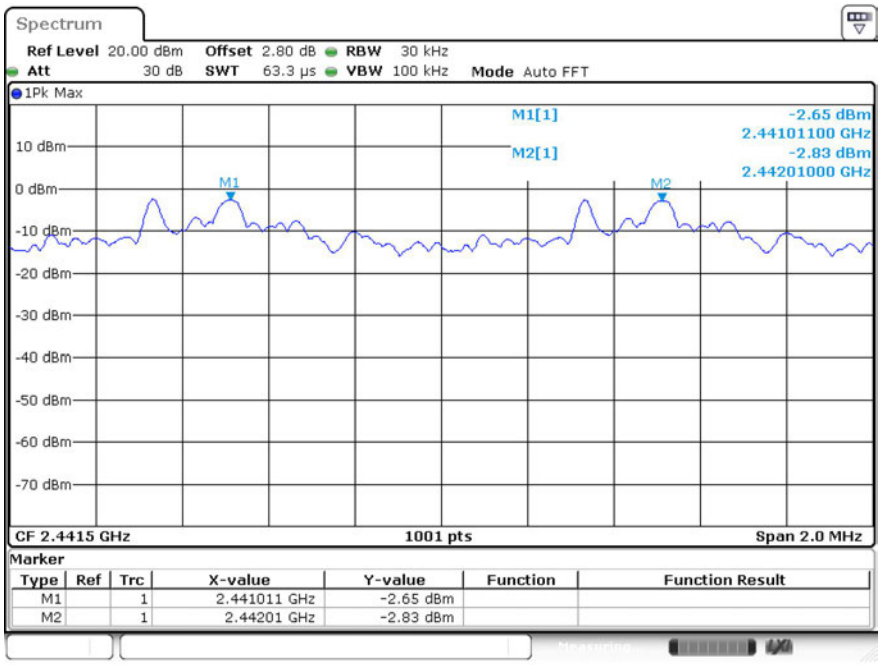
4 Carrier Frequency Separation

4.1 Test Result

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	MCH	0.992	0.612	Pass
π/4DQPSK	MCH	0.954	0.819	Pass
8DPSK	MCH	0.999	0.799	Pass

4.2 Test Graphs

Test Graphs	
GFSK/MCH	
π/4DQPSK/MCH	

8DPSK/MCH	

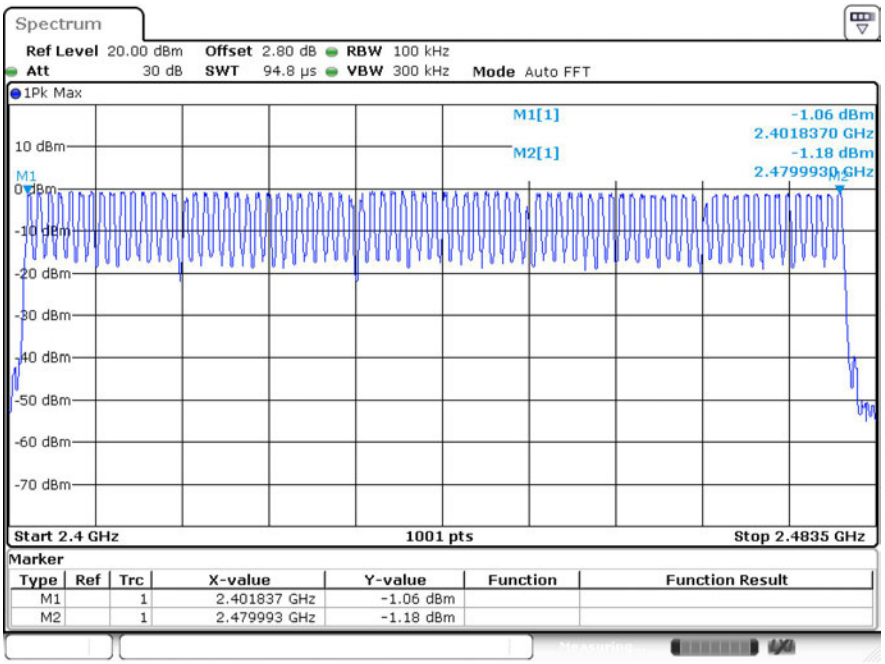
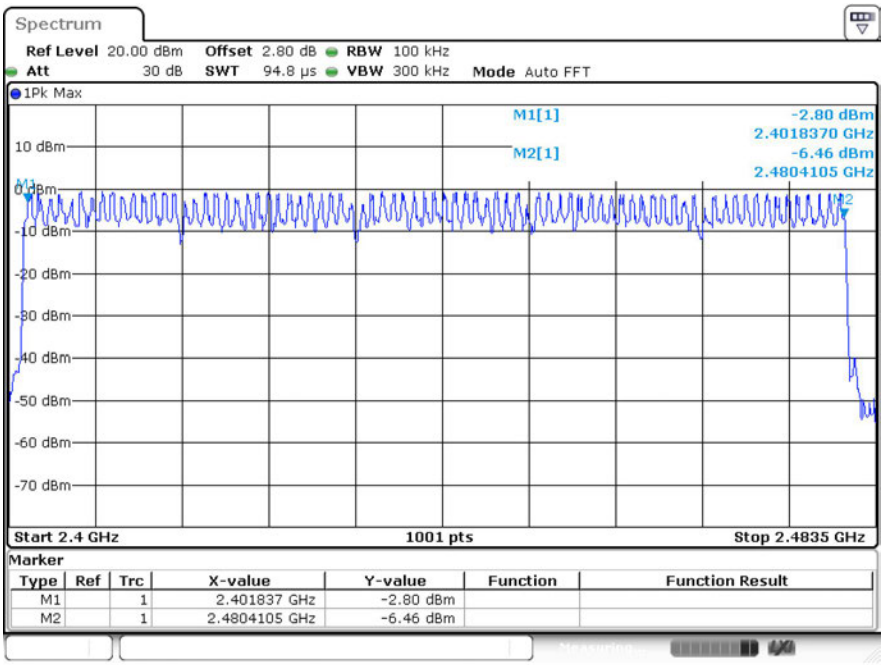
Spectrum
Ref Level 20.00 dBm Offset 2.80 dB RBW 30 kHz
Att 30 dB SWT 63.3 µs VBW 100 kHz Mode Auto FFT
1Pk Max
M1[1] -2.65 dBm
2.44101100 GHz
M2[1] -2.83 dBm
2.44201000 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
M2
CF 2.4415 GHz
1001 pts
Span 2.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.441011 GHz -2.65 dBm
M2 1 2.44201 GHz -2.83 dBm

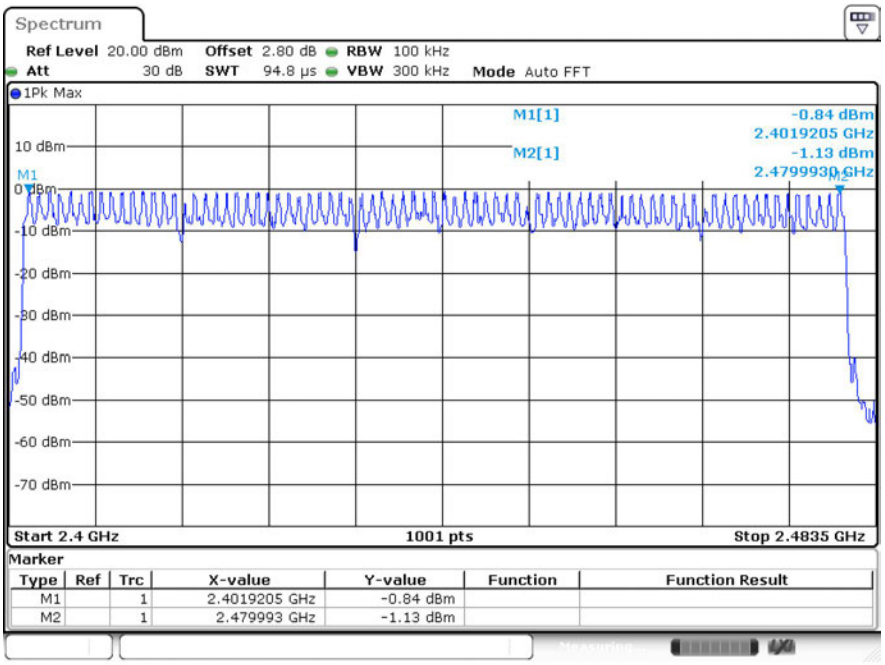
5 Hopping Channel Number

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	

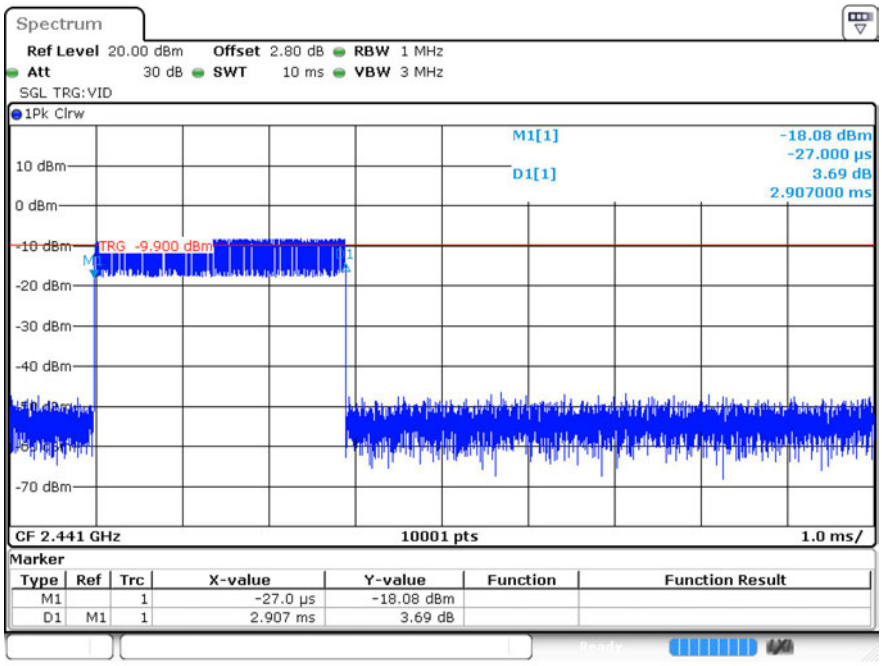
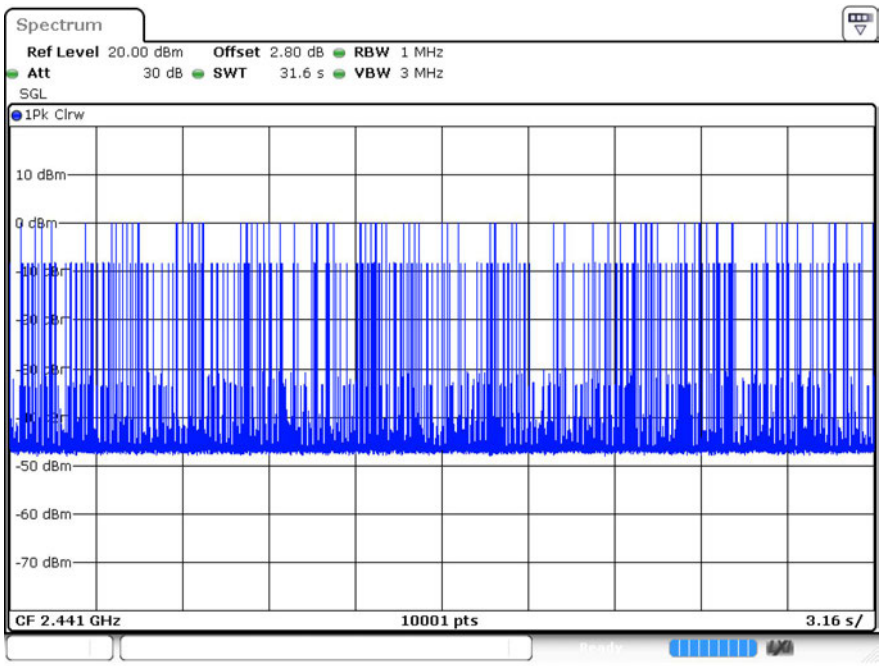
Spectrum
Ref Level 20.00 dBm Offset 2.80 dB RBW 100 kHz
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT
1Pk Max
M1[1] -0.84 dBm
2.4019205 GHz
M2[1] -1.13 dBm
2.479993 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
Start 2.4 GHz
1001 pts
Stop 2.4835 GHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.4019205 GHz -0.84 dBm
M2 1 2.479993 GHz -1.13 dBm

6 Dwell Time

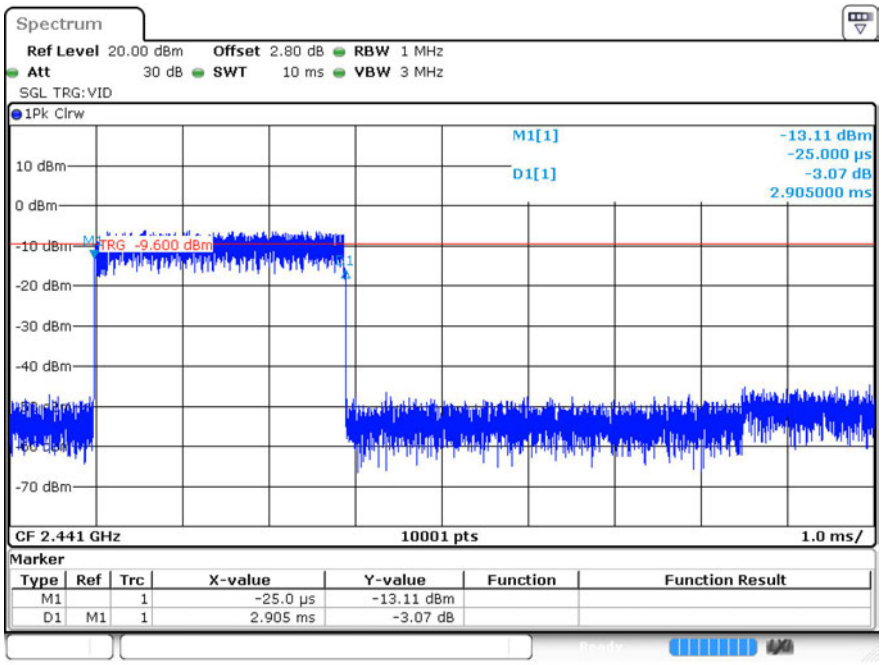
6.1 Test Result

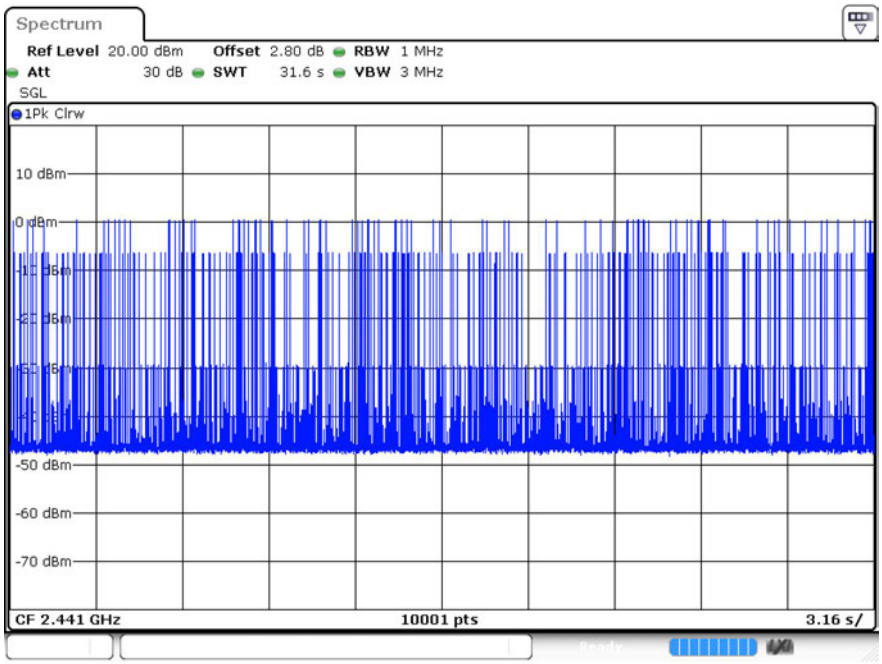
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[ms]	Limit [s]	Verdict
GFSK	DH5	MCH	2.907	85	247.095	0.4	Pass
π/4DQPSK	2DH5	MCH	2.905	86	249.83	0.4	Pass
8DPSK	3DH5	MCH	2.914	123	358.422	0.4	Pass

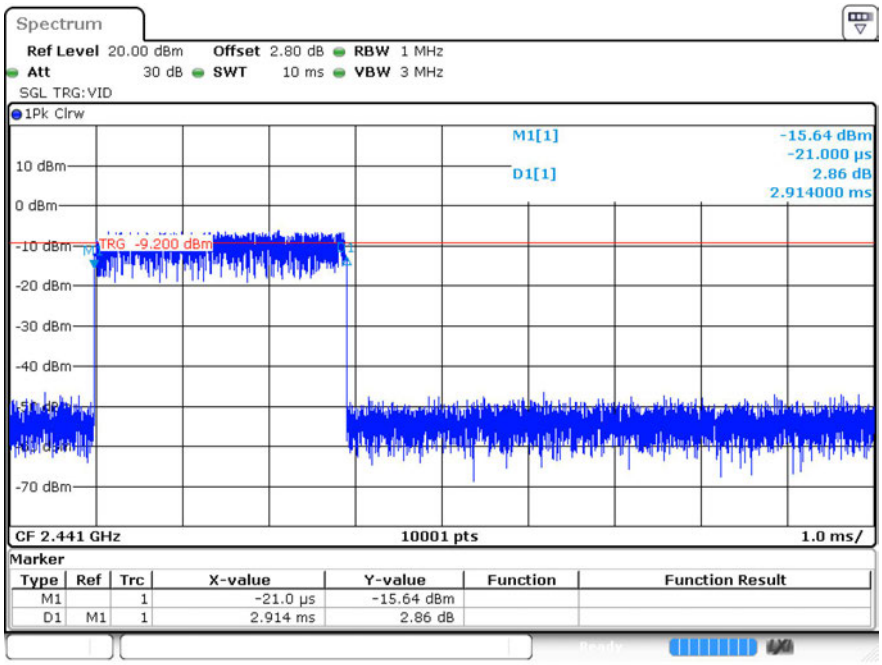
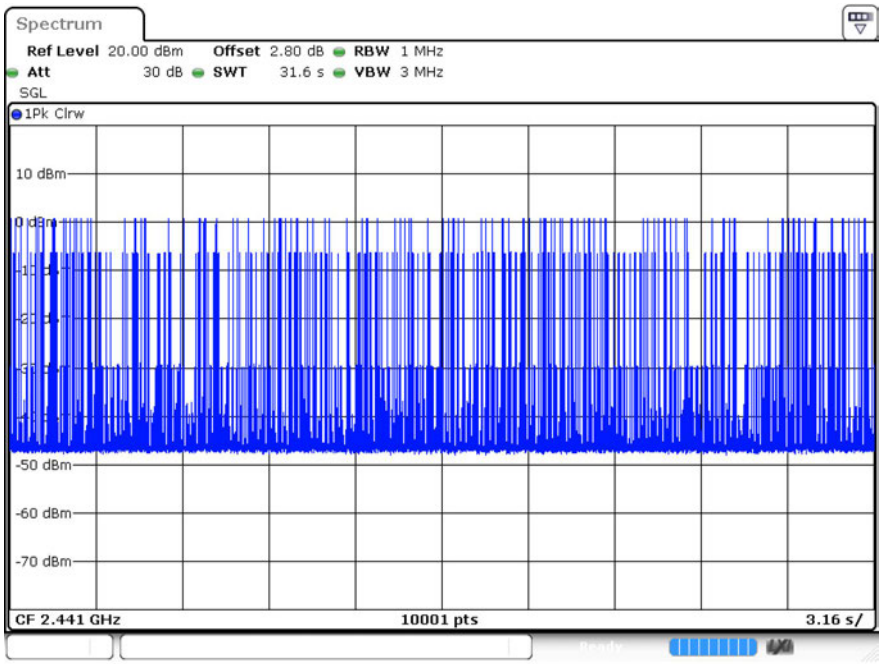
6.2 Test Graphs

Test Graphs	
GFSK_DH5/MCH	 

π/4DQPSK
_2DH5/MCH





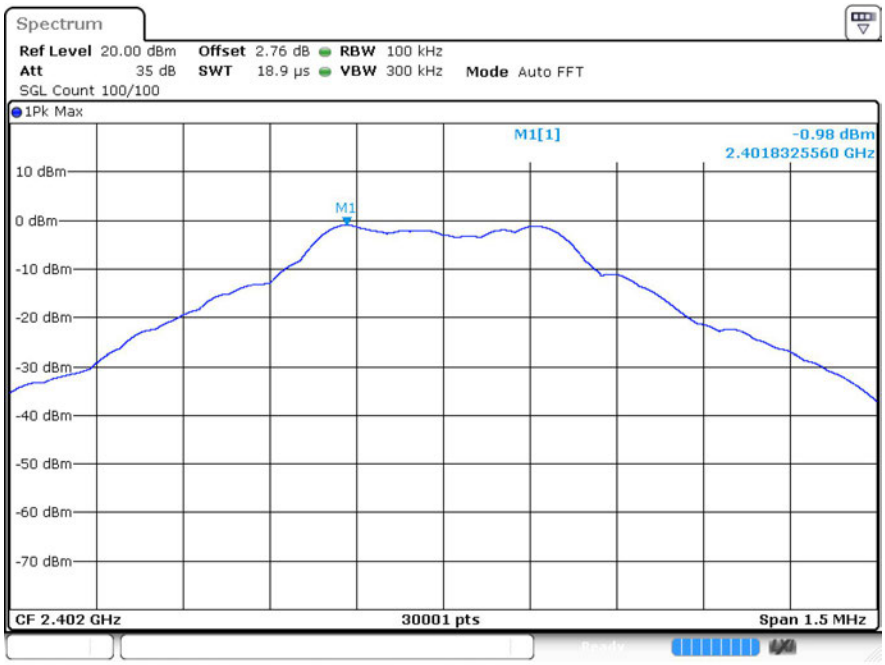
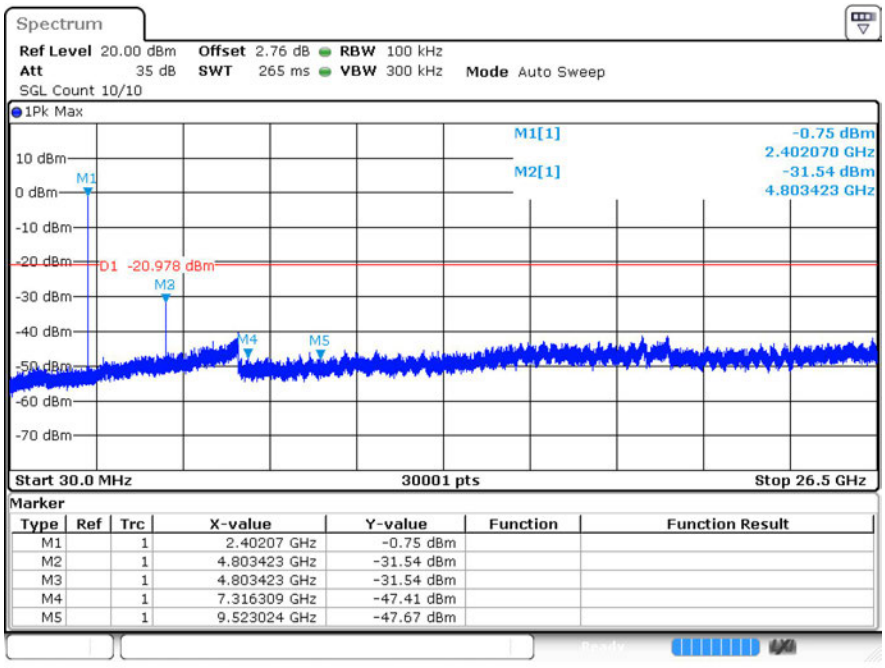
8DPSK _3DH5/MCH	 

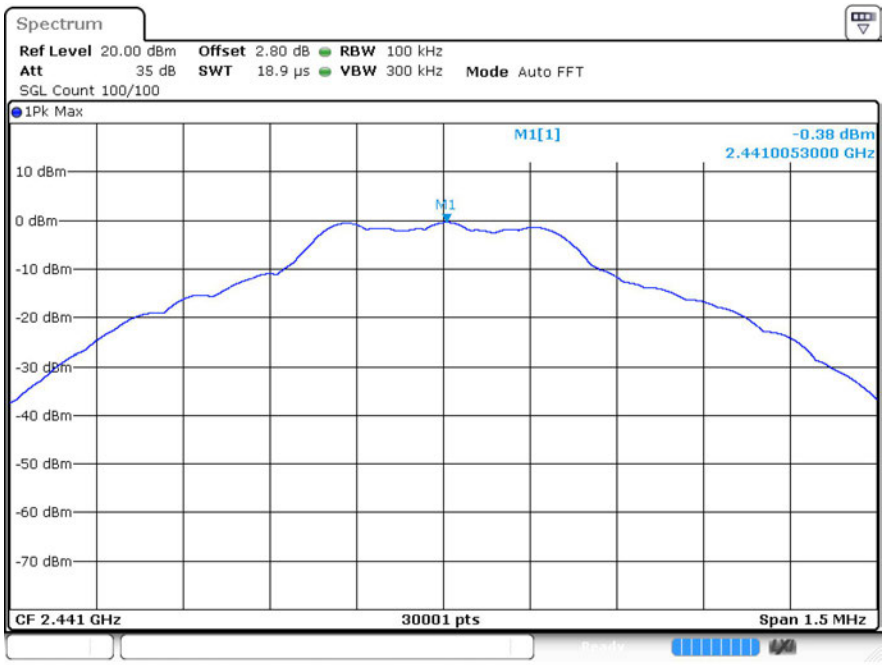
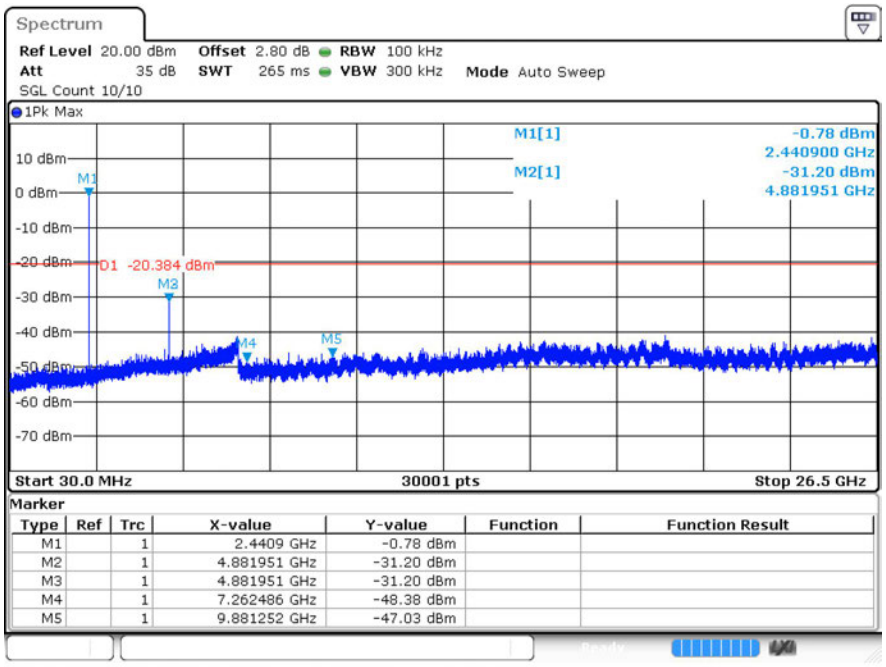
7 RF Conducted Spurious Emissions

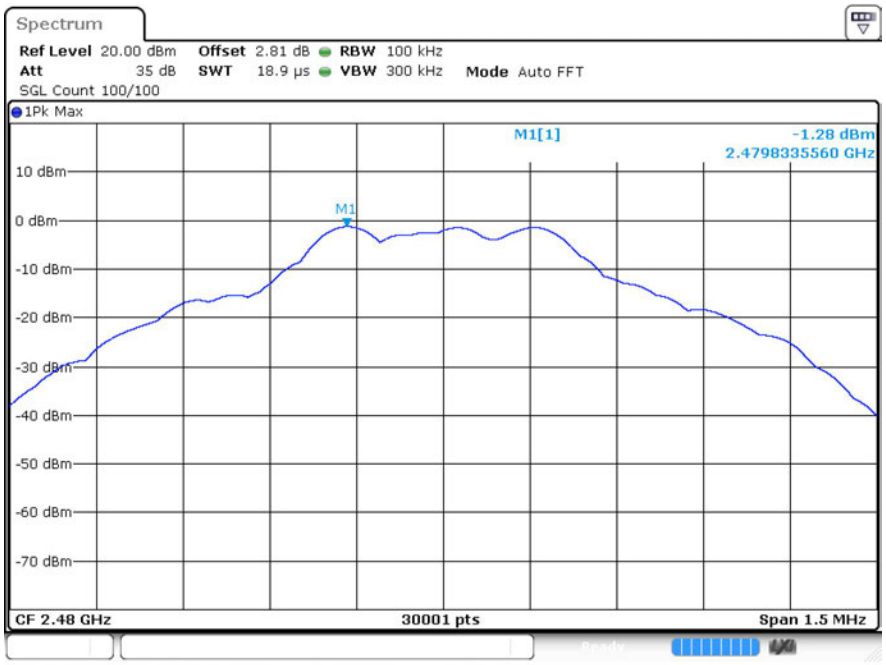
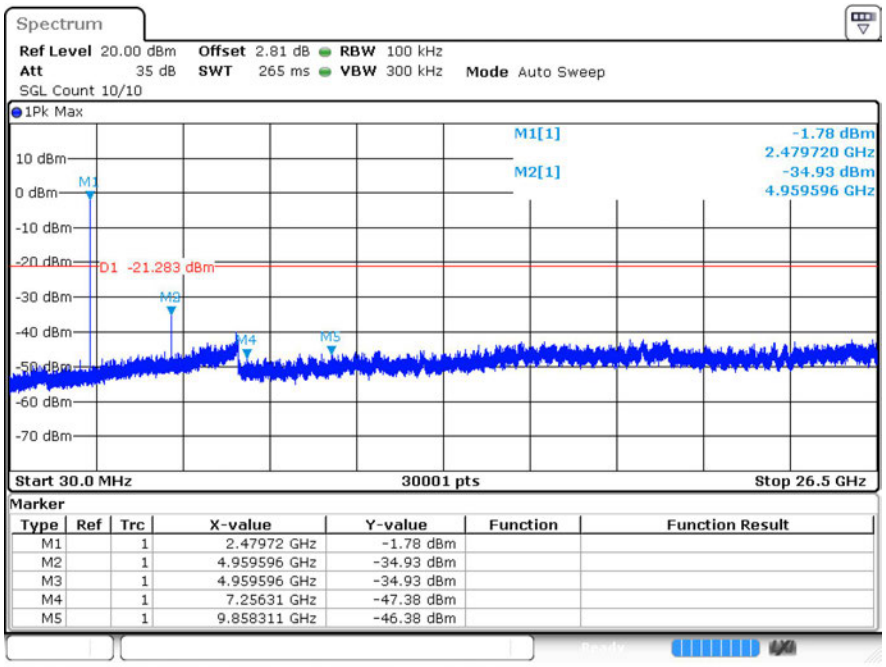
7.1 Test Result

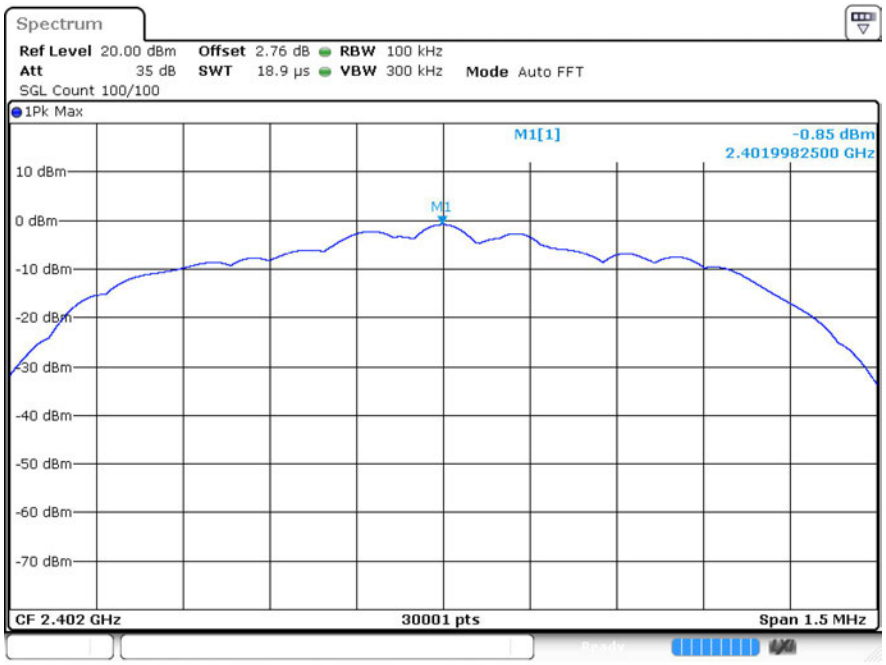
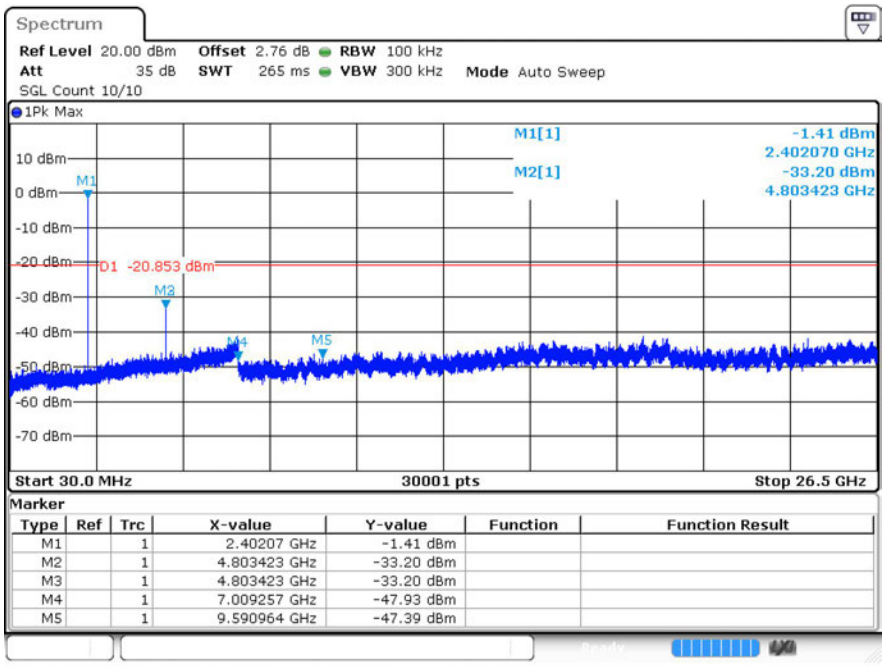
Mode	Channel	Max. Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	-30.55	-20	Pass
	MCH	-30.82	-20	Pass
	HCH	-33.64	-20	Pass
π/4DQPSK	LCH	-32.34	-20	Pass
	MCH	-35.64	-20	Pass
	HCH	-32.37	-20	Pass
8DPSK	LCH	-31.77	-20	Pass
	MCH	-30.63	-20	Pass
	HCH	-33.02	-20	Pass

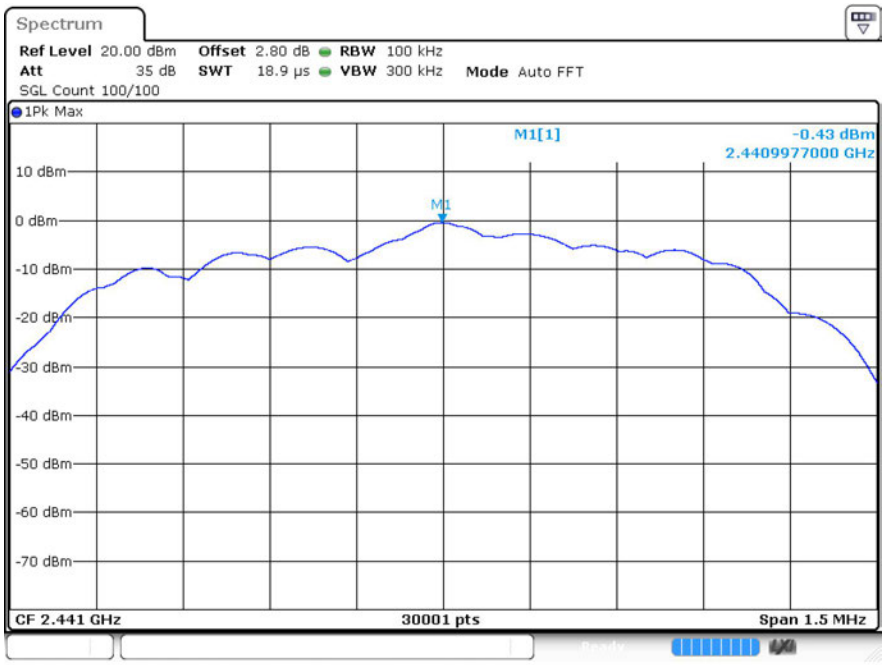
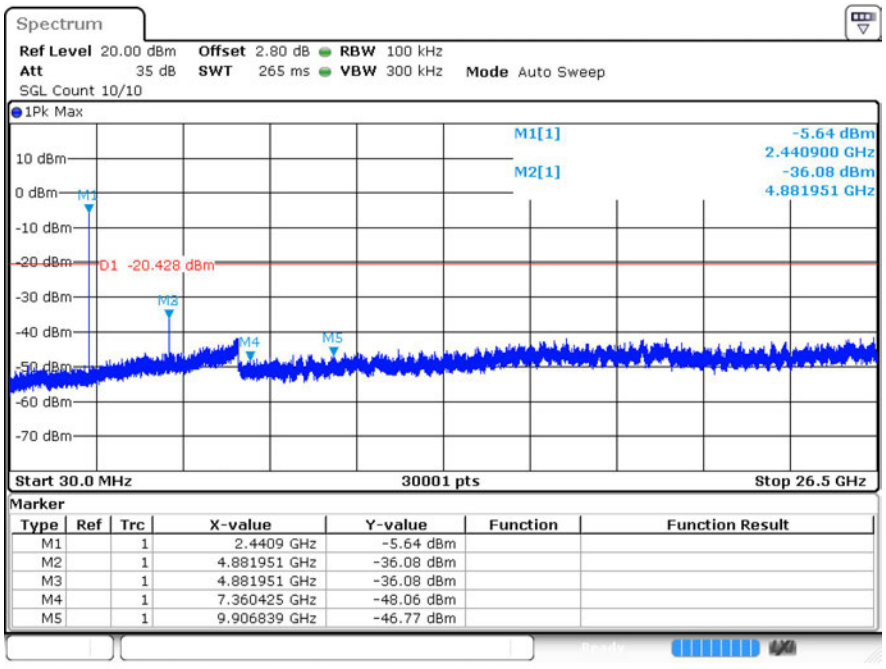
7.2 Test Graphs

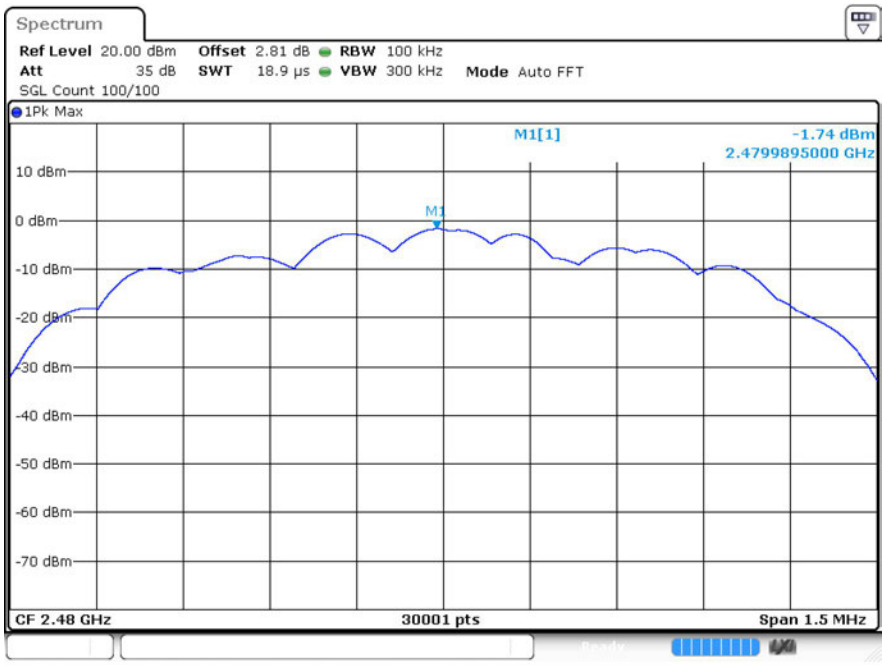
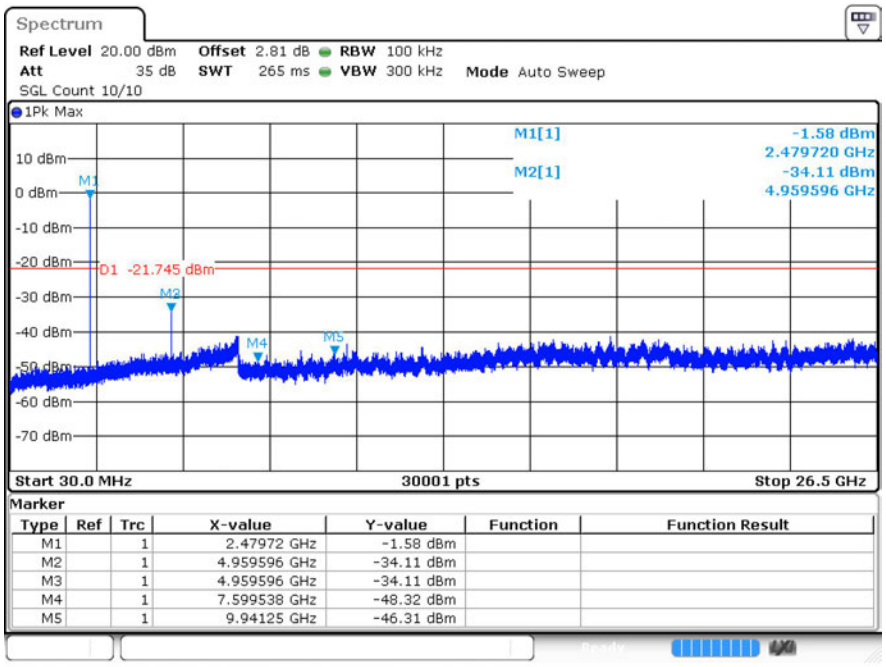
GFSK_LCH_Graphs	
Pref	
Puw	

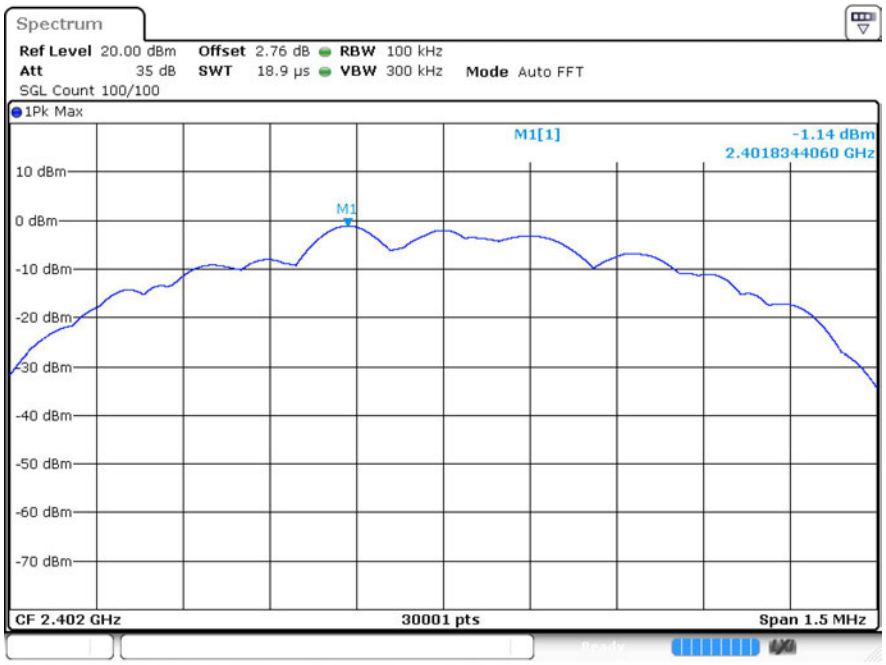
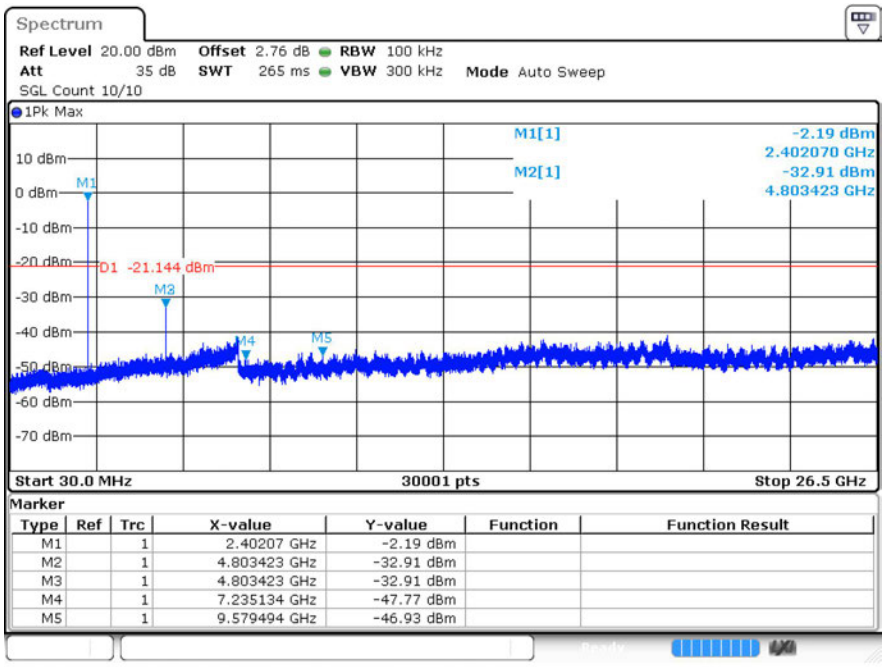
GFSK_MCH_Graphs	
Pref	
Puw	

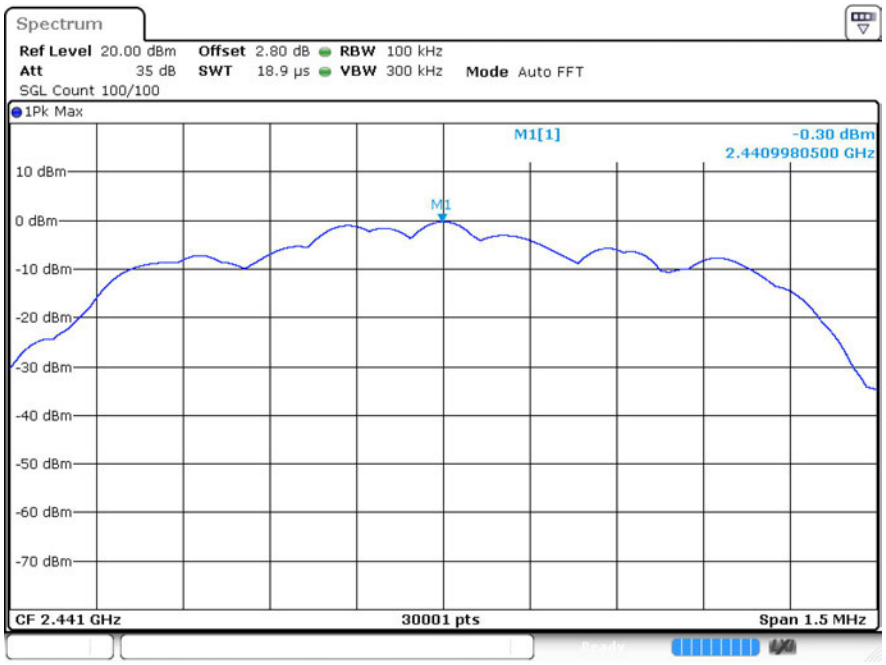
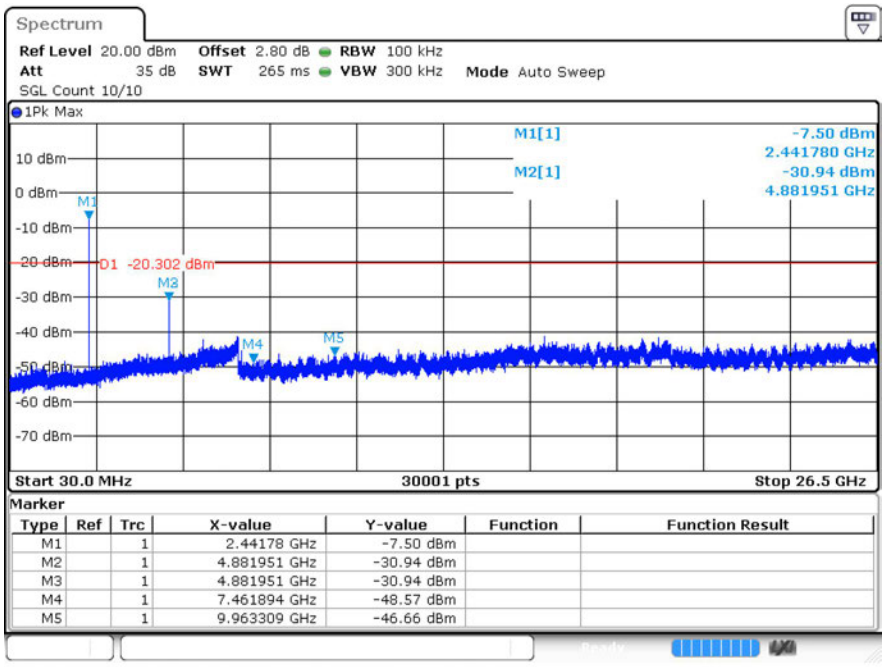
GFSK_HCH_Graphs	
Pref	
Puw	

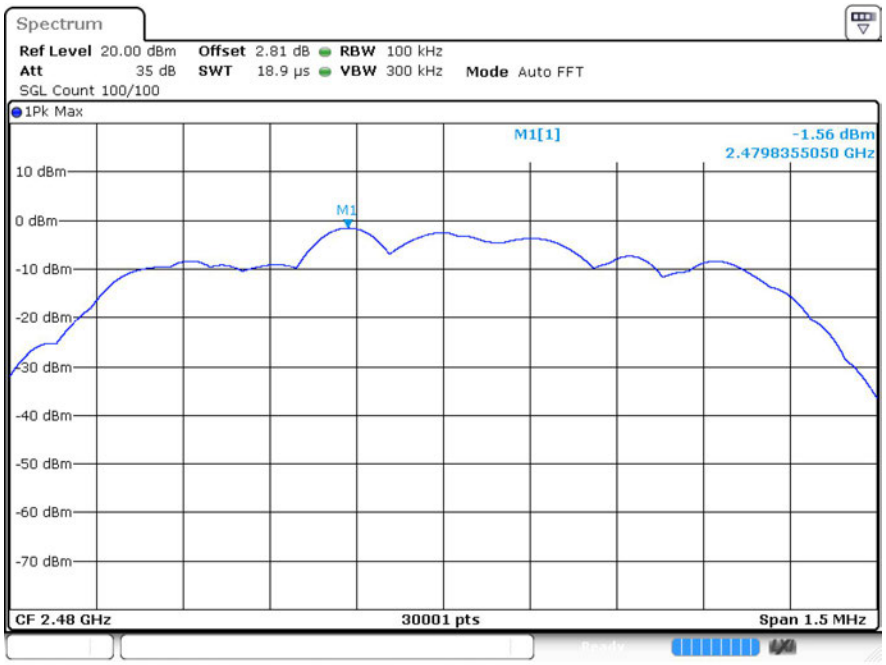
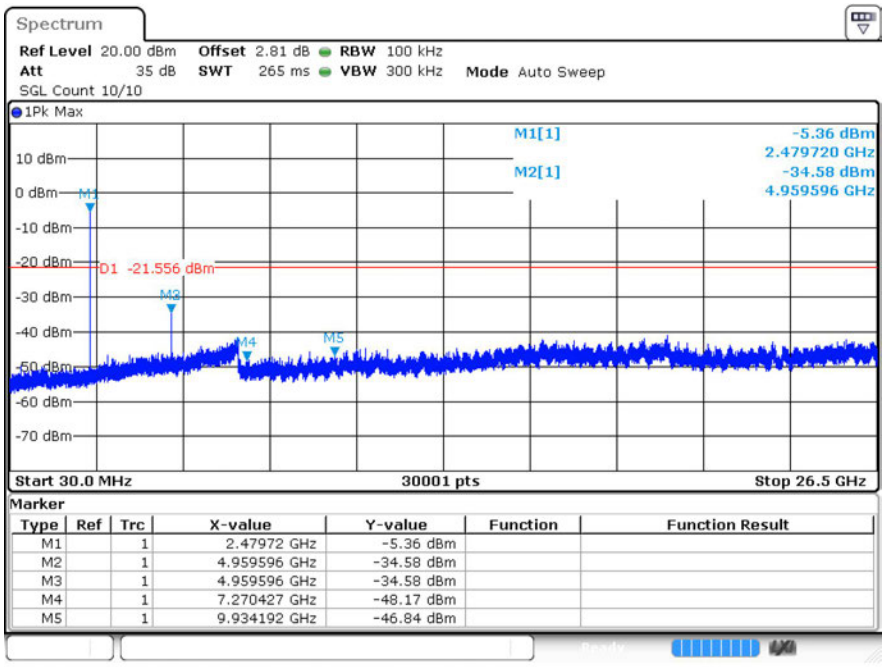
π/4DQPSK_LCH_Graphs	
Pref	
Puw	

π/4DQPSK_MCH_Graphs	
Pref	
Puw	 Marker Type | Ref | Trc | X-value | Y-value | Function | Function Result M1 | 1 | 2.4409 GHz | -5.64 dBm M2 | 1 | 4.881951 GHz | -36.08 dBm M3 | 1 | 4.881951 GHz | -36.08 dBm M4 | 1 | 7.360425 GHz | -48.06 dBm M5 | 1 | 9.906839 GHz | -46.77 dBm

π/4DQPSK_HCH_Graphs	
Pref	
Puw	 Marker Type | Ref | Trc | X-value | Y-value | Function | Function Result M1 | 1 | 2.47972 GHz | -1.58 dBm M2 | 1 | 4.959596 GHz | -34.11 dBm M3 | 1 | 4.959596 GHz | -34.11 dBm M4 | 1 | 7.599538 GHz | -48.32 dBm M5 | 1 | 9.94125 GHz | -46.31 dBm

8DPSK_LCH_Graphs	
Pref	
Puw	

8DPSK_MCH_Graphs	
Pref	
Puw	

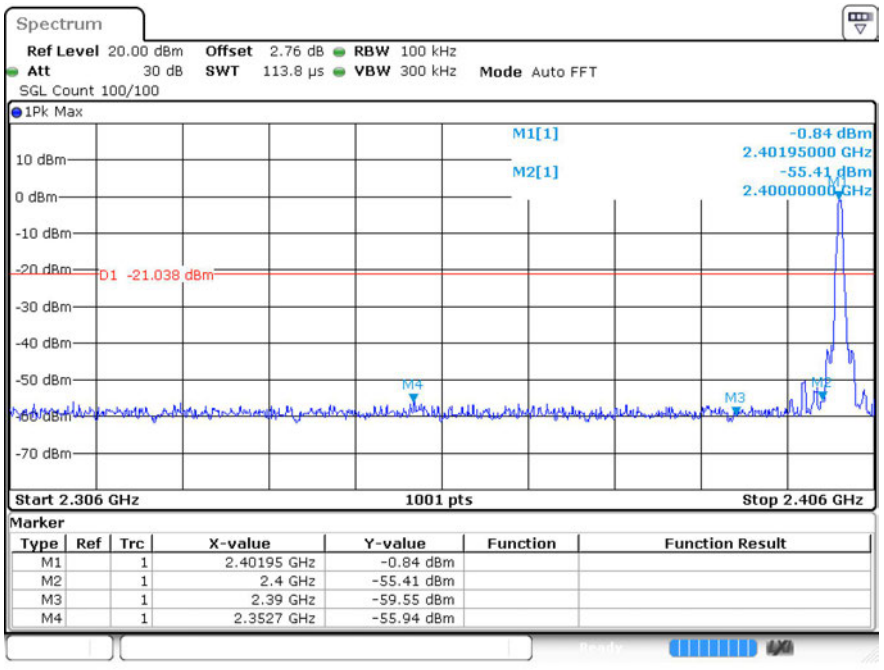
8DPSK_HCH_Graphs	
Pref	
Puw	

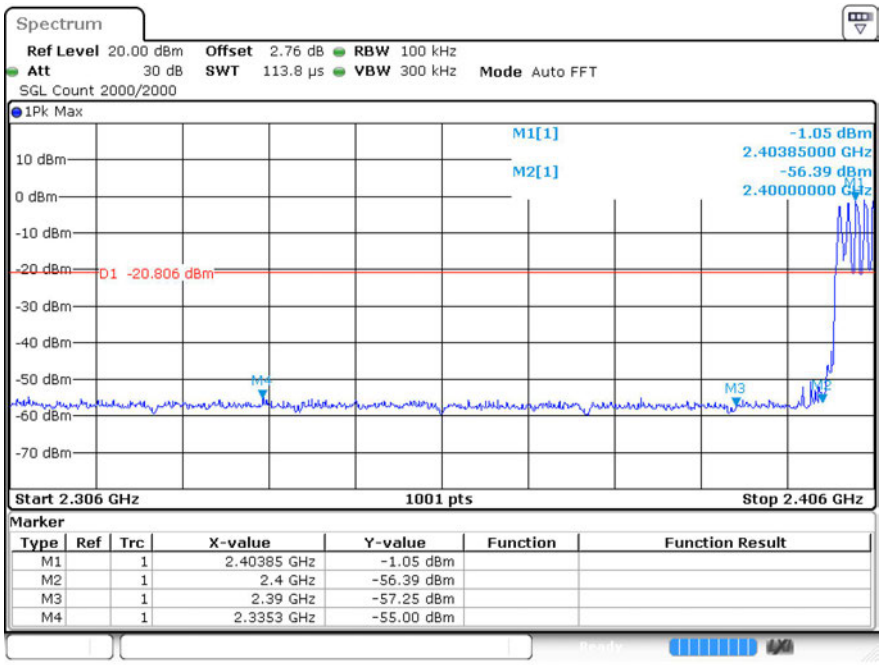
8 Band-edge for RF Conducted Emissions

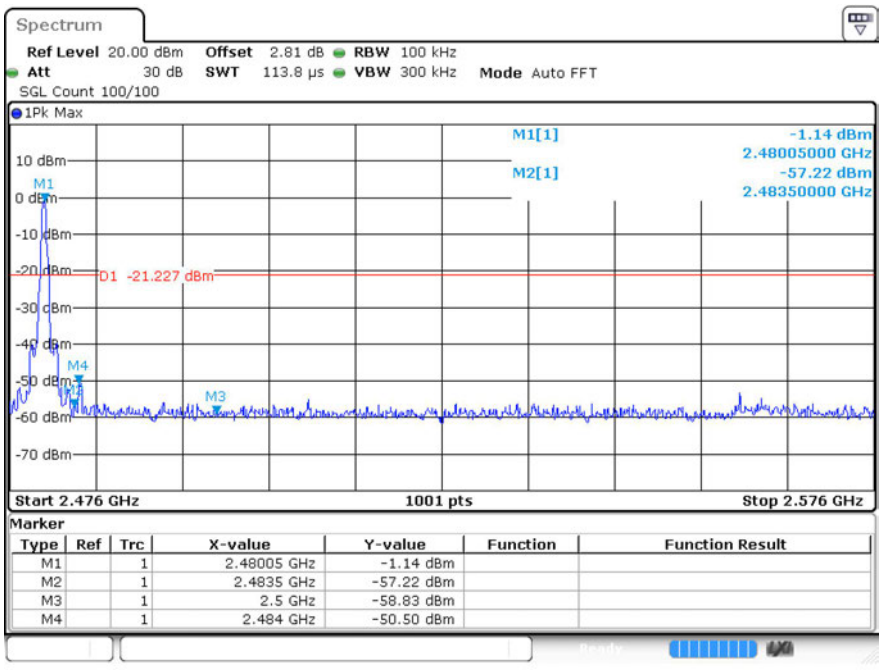
8.1 Test Result

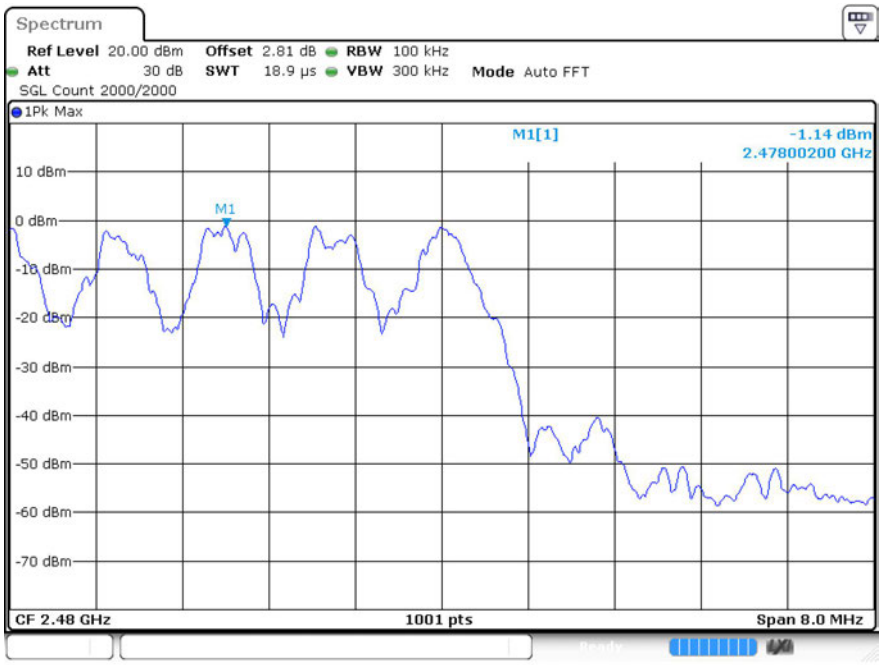
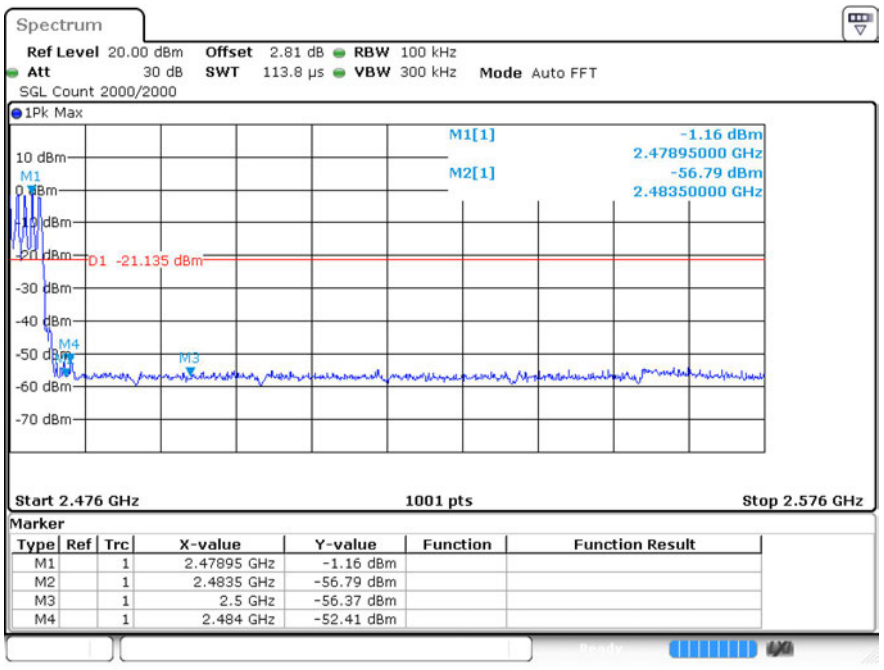
Mode	Channel	Carrier Frequency [MHz]	Frequency Hopping	Max Spurious Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	2402	Off	-54.89	-20	Pass
			On	-54.18	-20	Pass
	HCH	2480	Off	-49.27	-20	Pass
			On	-51.27	-20	Pass
π/4DQPSK	LCH	2402	Off	-54.59	-20	Pass
			On	-53.96	-20	Pass
	HCH	2480	Off	-49.3	-20	Pass
			On	-51.98	-20	Pass
8DPSK	LCH	2402	Off	-55.1	-20	Pass
			On	-53.73	-20	Pass
	HCH	2480	Off	-49.09	-20	Pass
			On	-53.86	-20	Pass

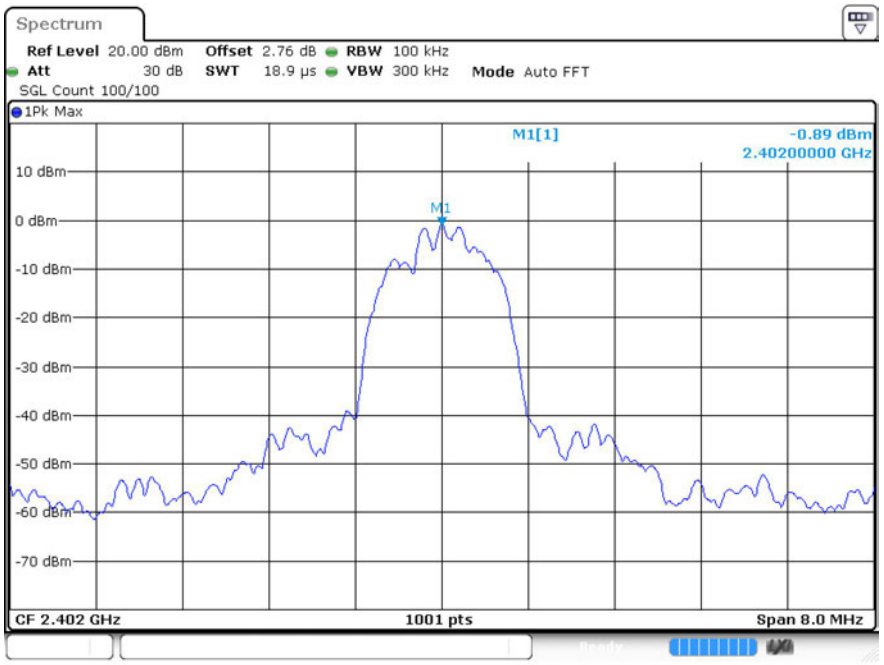
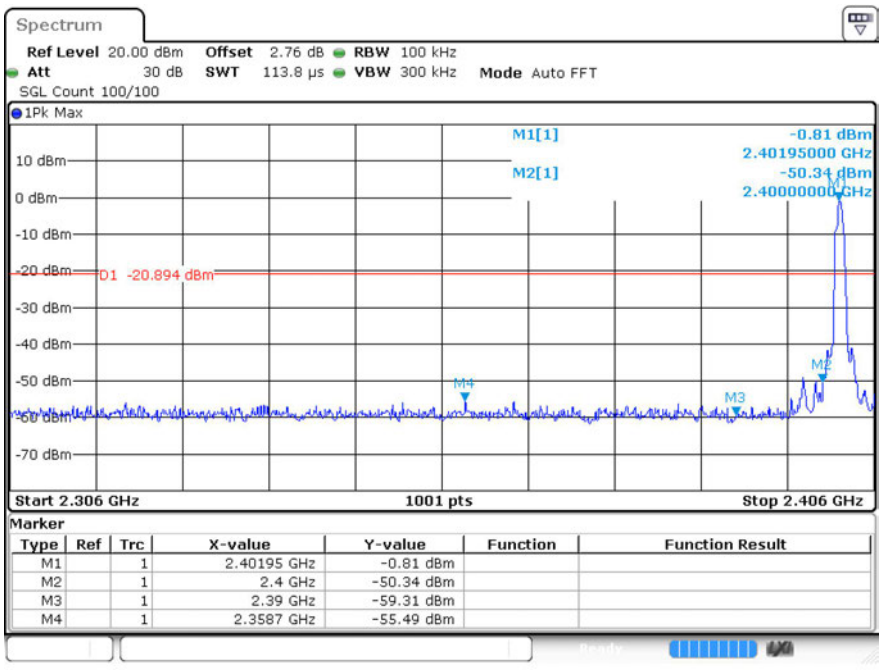
8.2 Test Graphs

Test Graphs	
Pref	
GFSK/LCH/No Hop	

Ref	
GFSK/LCH/Hop	 Marker Type | Ref | Trc | X-value | Y-value | Function | Function Result M1 | | 1 | 2.40385 GHz | -1.05 dBm M2 | | 1 | 2.4 GHz | -56.39 dBm M3 | | 1 | 2.39 GHz | -57.25 dBm M4 | | 1 | 2.3353 GHz | -55.00 dBm

Ref	
GFSK/HCH/No Hop	

Ref.	
GFSK/HCH/Hop	

Ref	
π/4DQPSK/LCH/No Hop	

Ref	
π/4DQPSK/LCH/Hop