Appendix A

RF Test Data for BT V2.1+EDR (Conducted Measurement)

Product Name: 2G Mobile Phone

Trade Mark: GOL

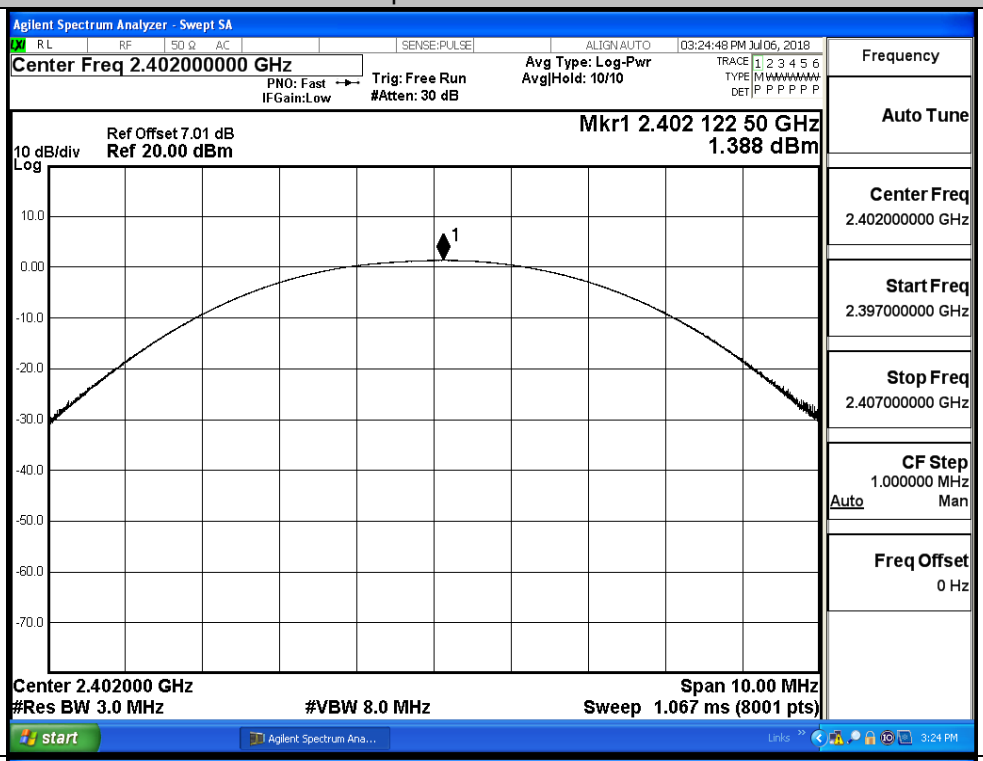
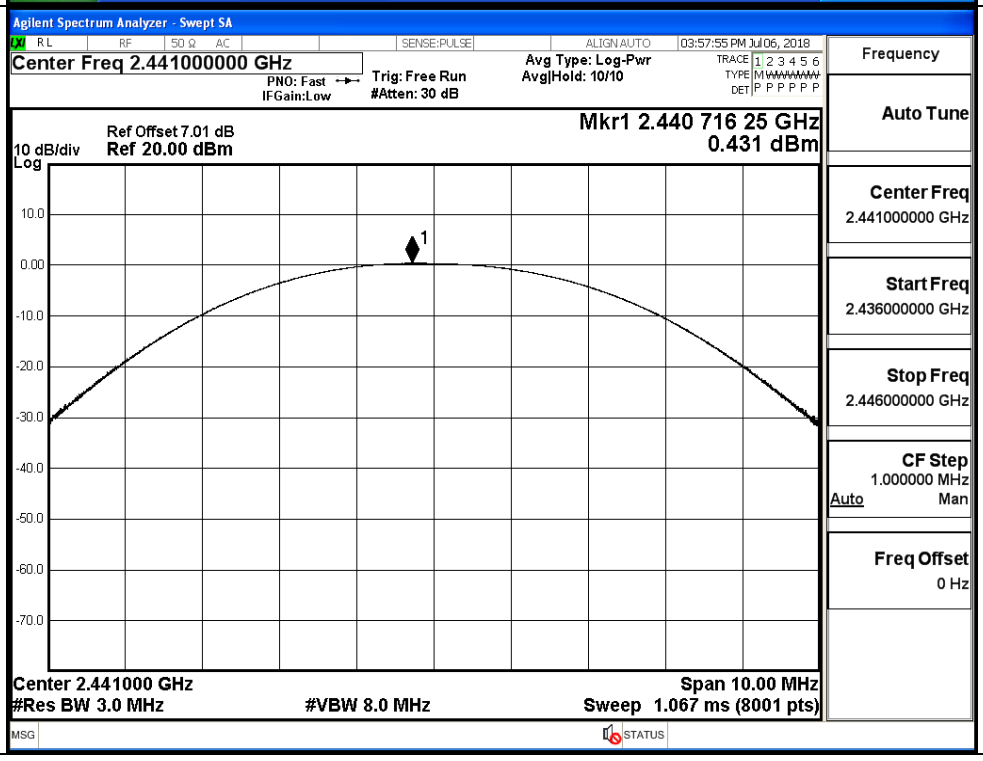
Test Model: Z1

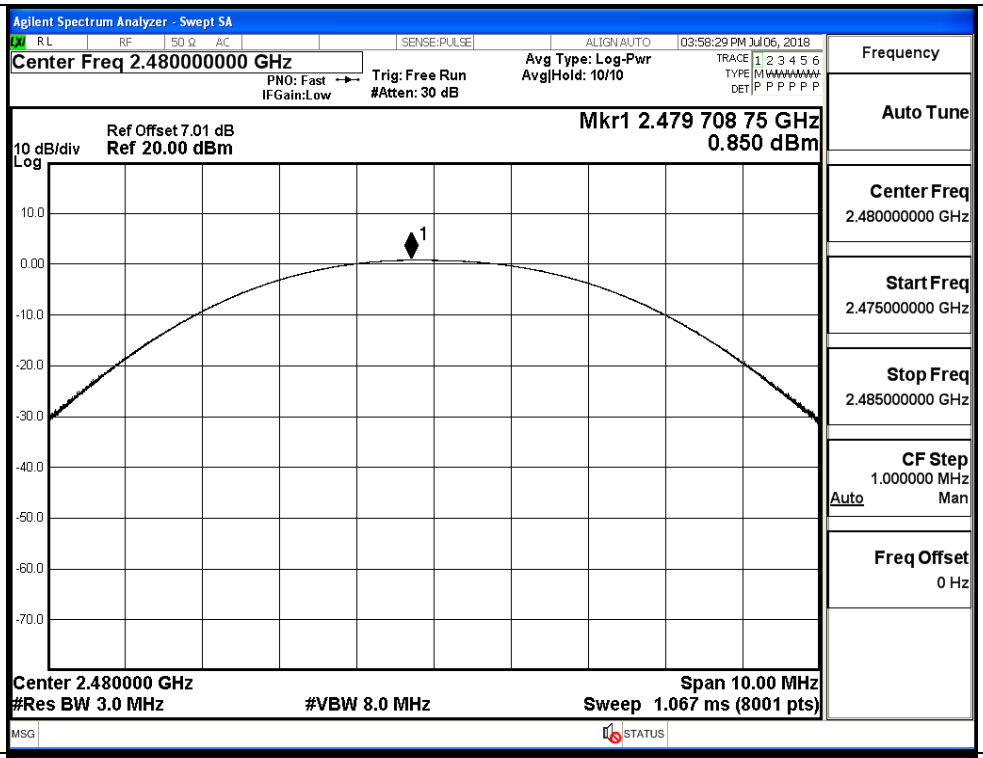
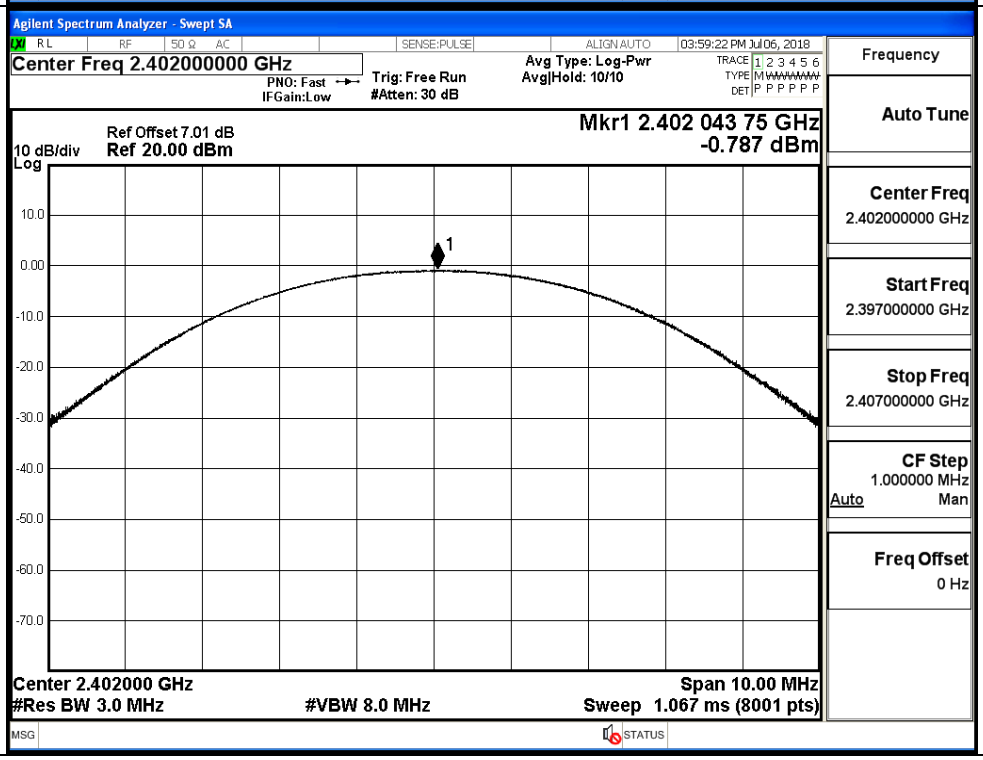
Environmental Conditions

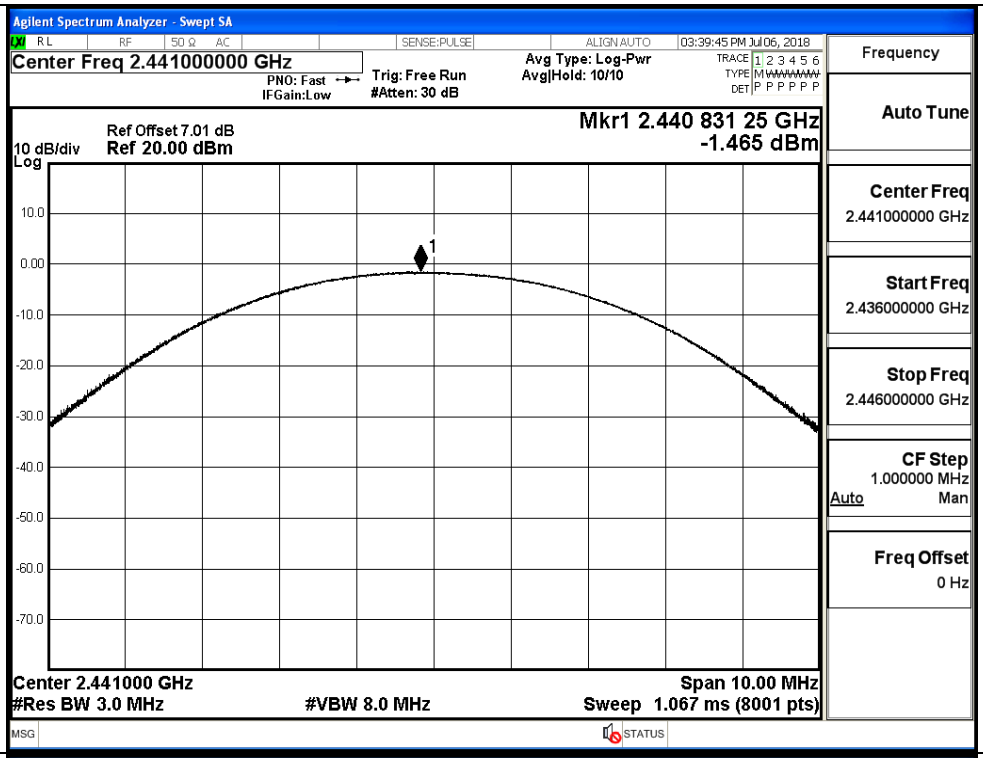
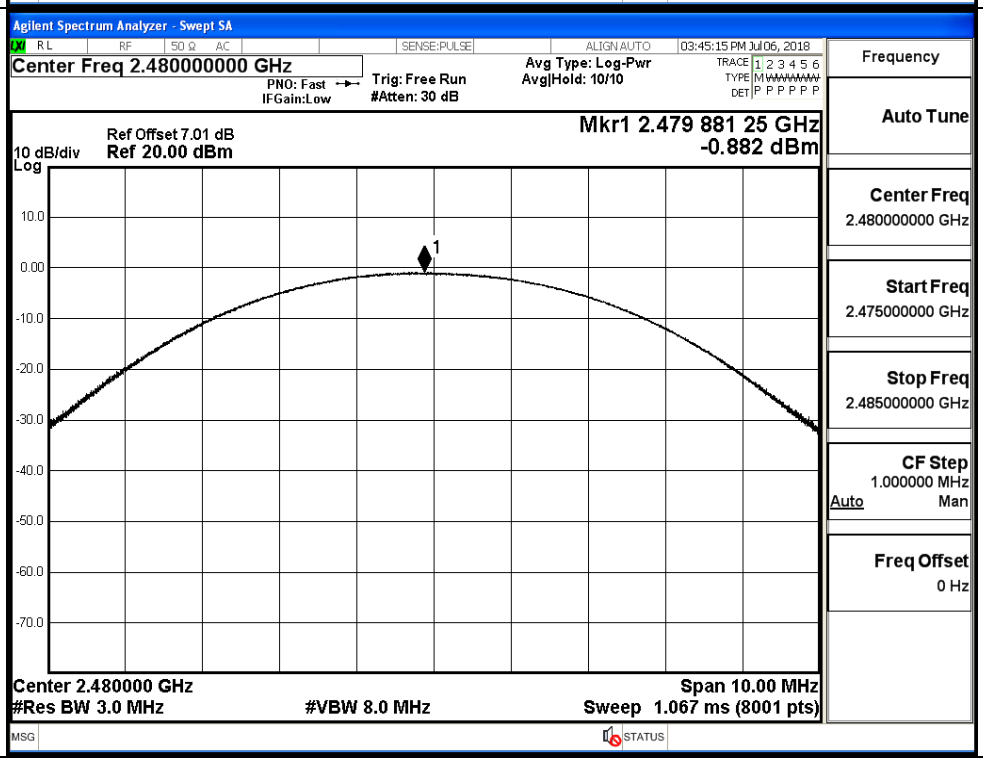
Temperature:	22.7 ° C
Relative Humidity:	53.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Mina Xu
Supervised by:	Jayden Zhuo

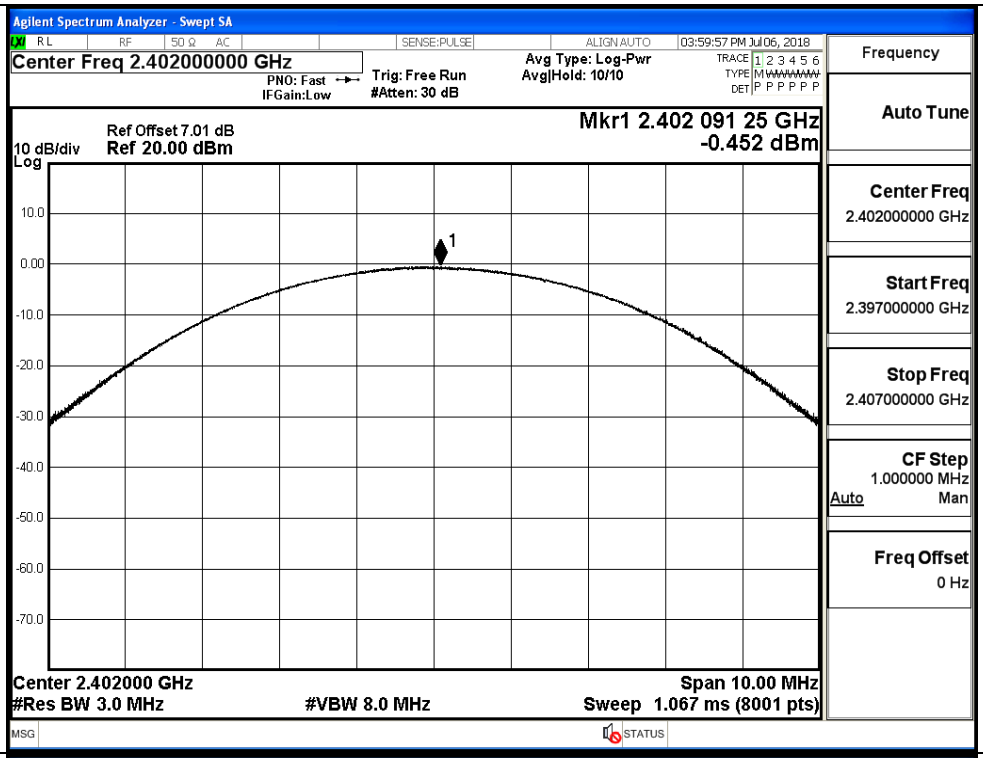
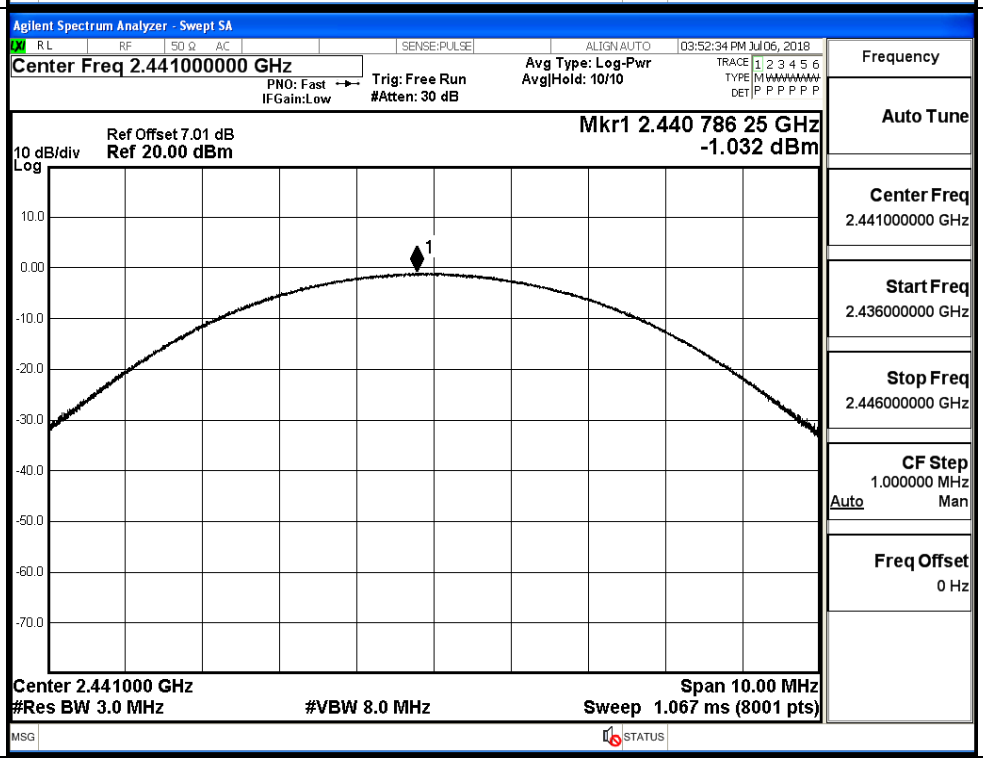
A.1 Maxmum Conducted Peak Output Power

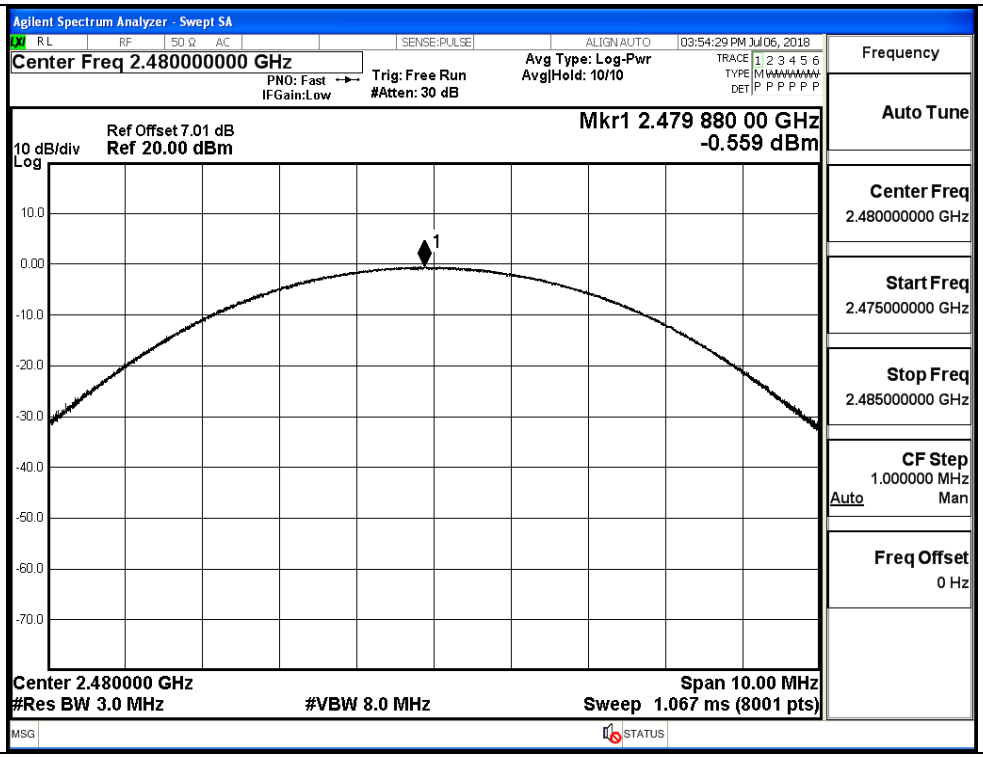
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.388	30	PASS
	MCH	0.431	30	PASS
	HCH	0.850	30	PASS
π/4DQPSK	LCH	-0.787	21	PASS
	MCH	-1.465	21	PASS
	HCH	-0.882	21	PASS
8DPSK	LCH	-0.452	21	PASS
	MCH	-1.032	21	PASS
	HCH	-0.559	21	PASS

Test Graphs		
GFSK/LCH		
GFSK/MCH		

GFSK/HCH	
π/4DQPSK/LCH	

π/4DQPSK/MCH	
π/4DQPSK/HCH	

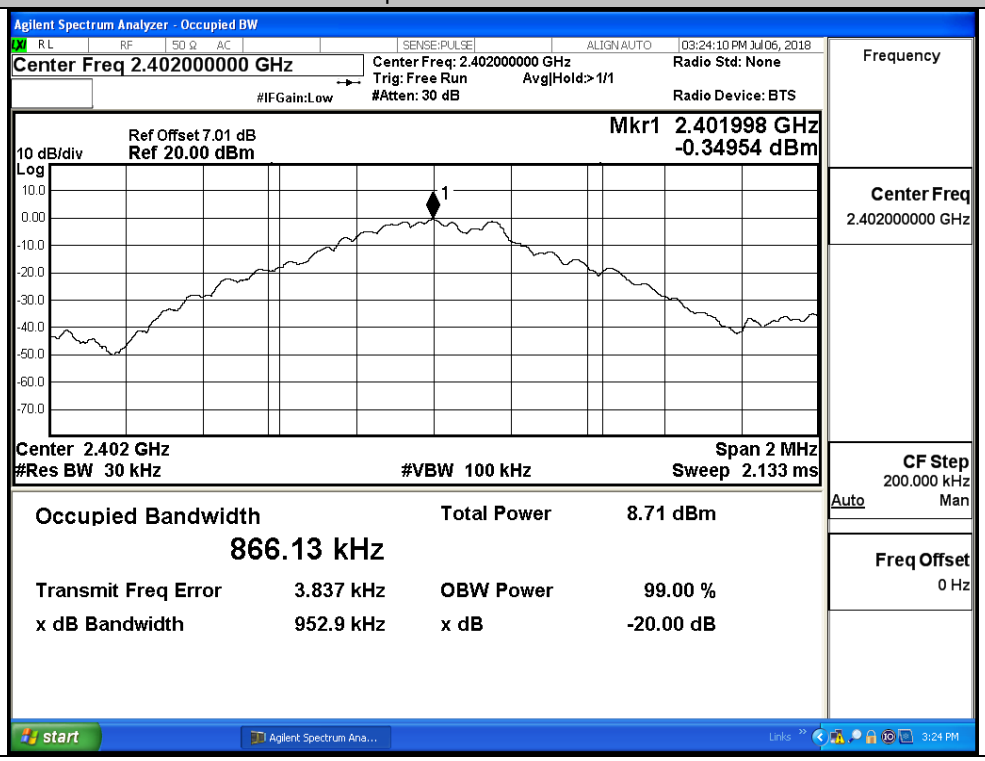
8DPSK/LCH	
8DPSK/MCH	

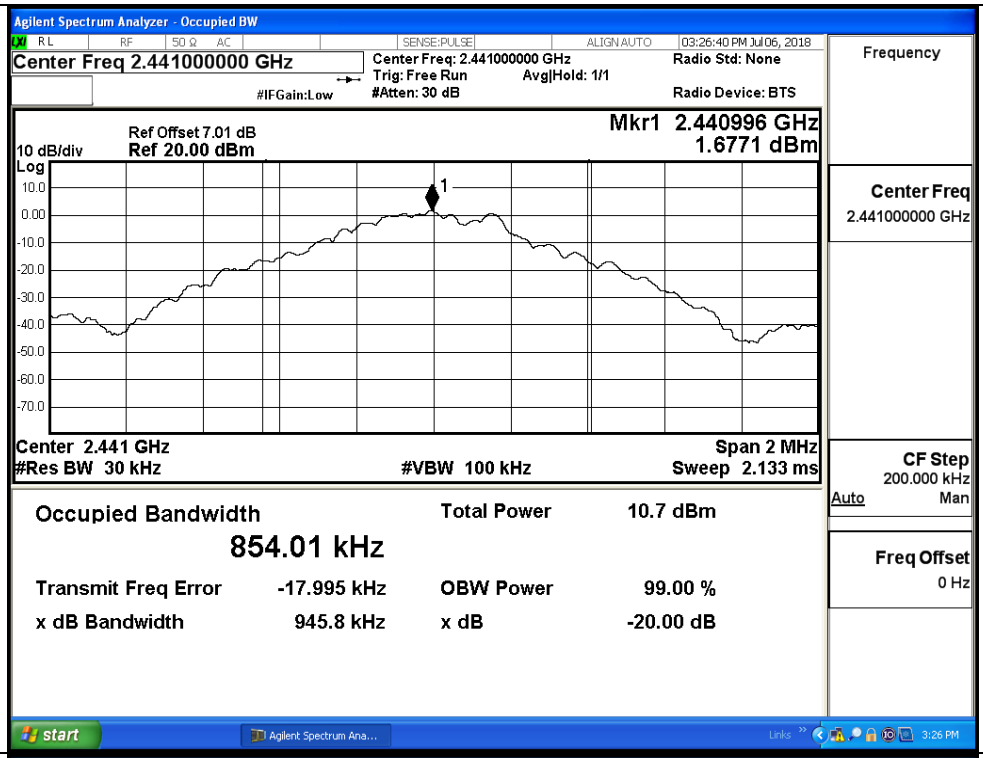
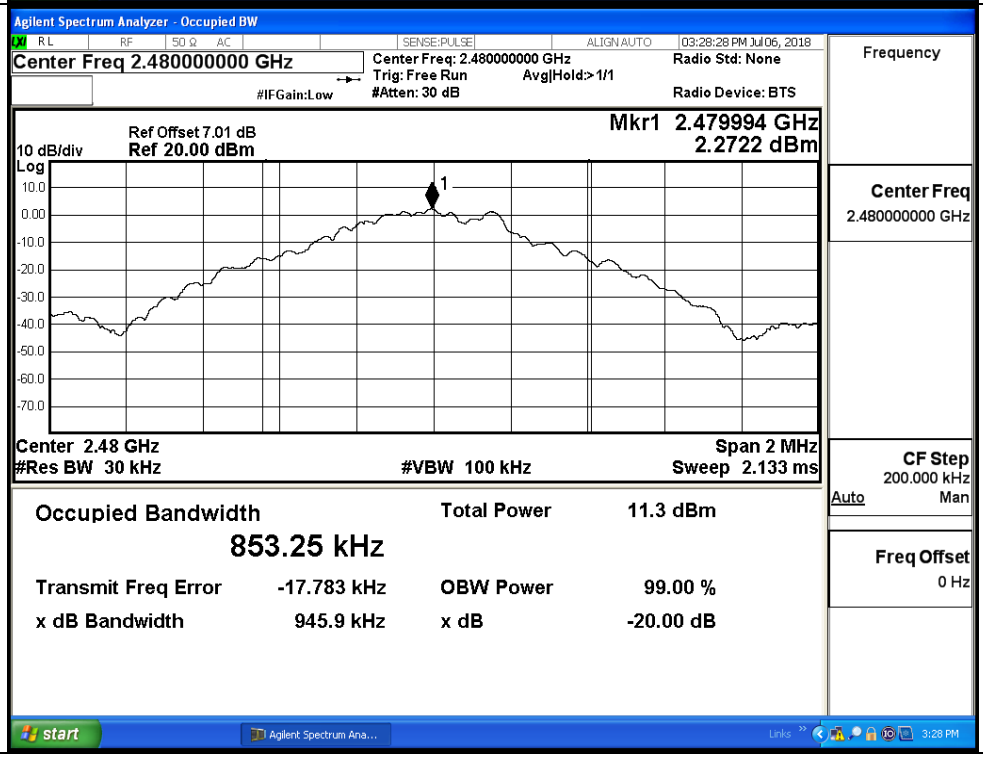
8DPSK/HCH	

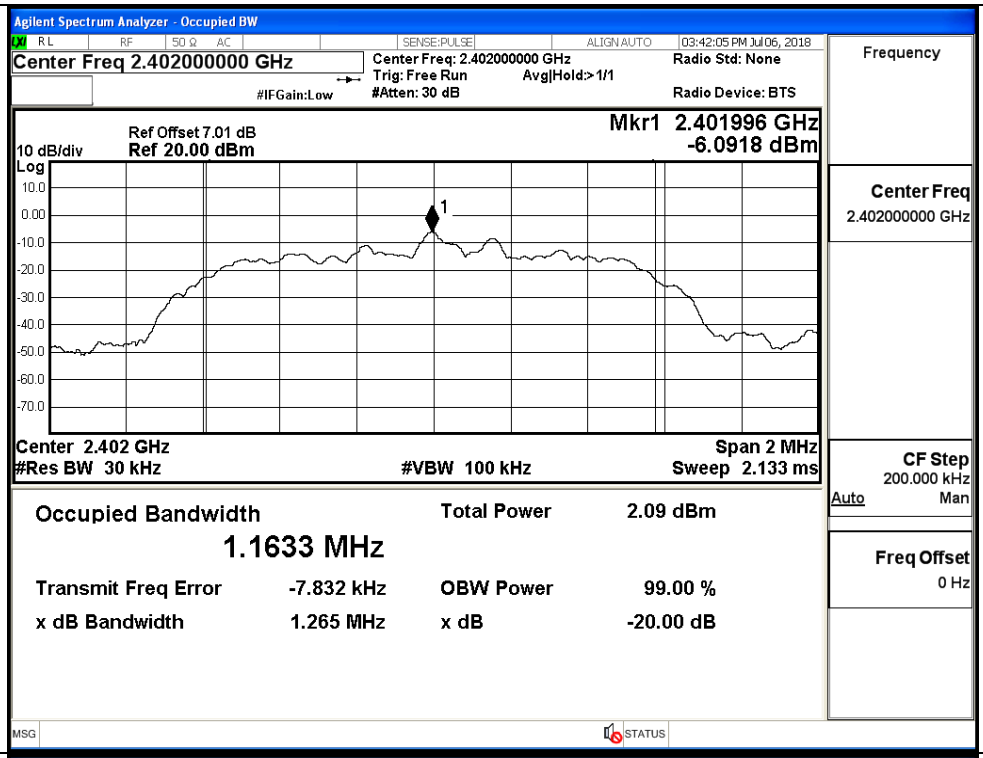
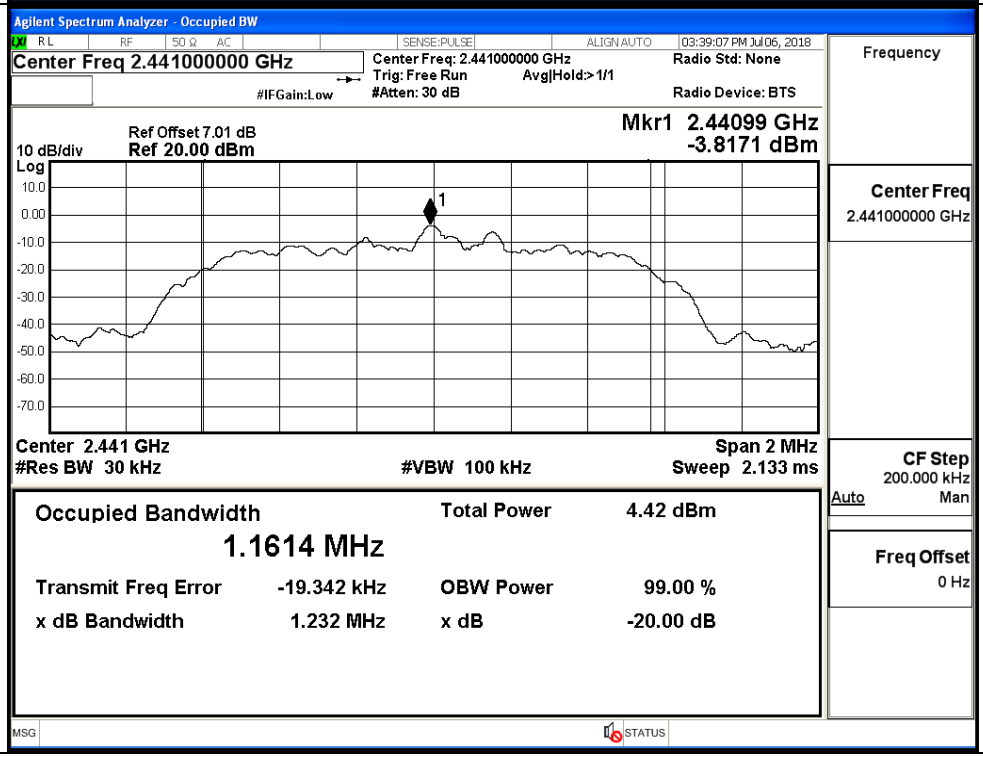
Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:PULSE
ALIGN AUTO
03:54:29 PM Jul 06, 2018
Center Freq 2.480000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 10/10
TRACE 1 2 3 4 5 6
TYPE M
DET P P P P P
Ref Offset 7.01 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 2.479 880 00 GHz
-0.559 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
1
Center 2.480000 GHz
#Res BW 3.0 MHz
#VBW 8.0 MHz
Span 10.00 MHz
Sweep 1.067 ms (8001 pts)
MSG
STATUS
Frequency
Auto Tune
Center Freq
2.480000000 GHz
Start Freq
2.475000000 GHz
Stop Freq
2.485000000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz

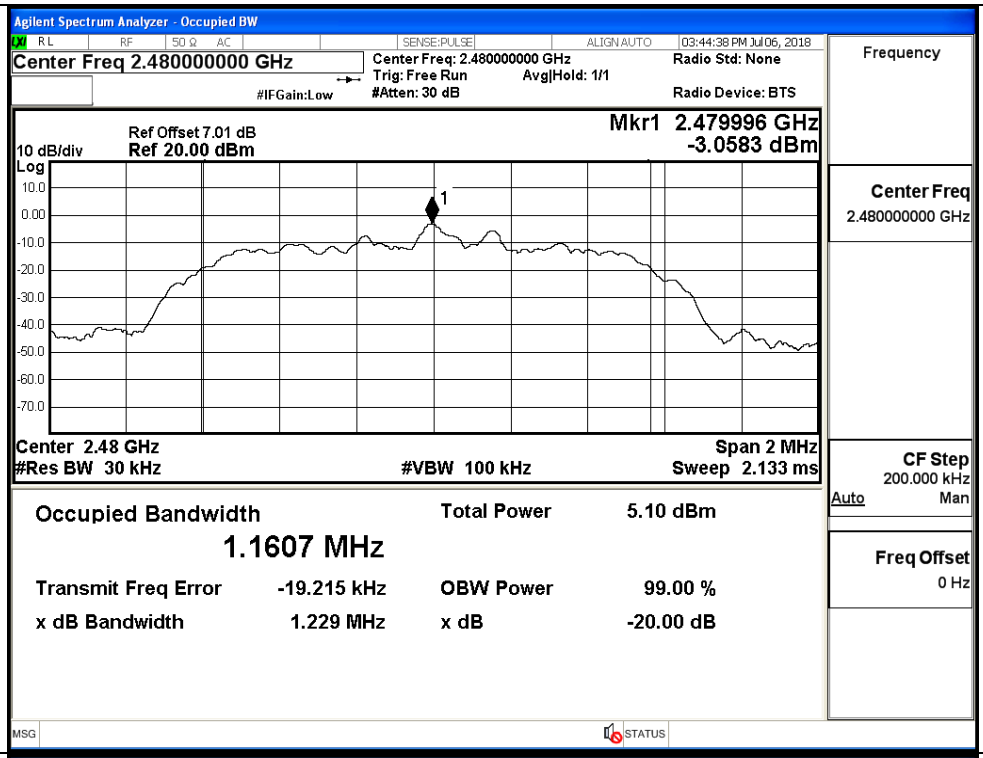
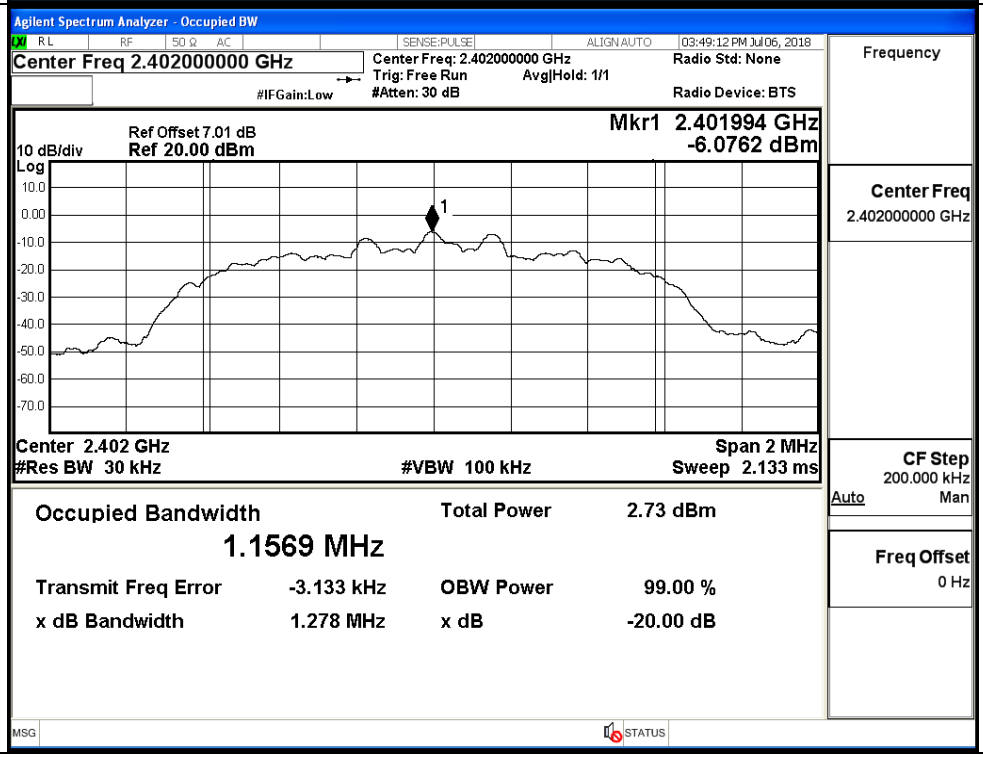
A.2 20dB Bandwidth

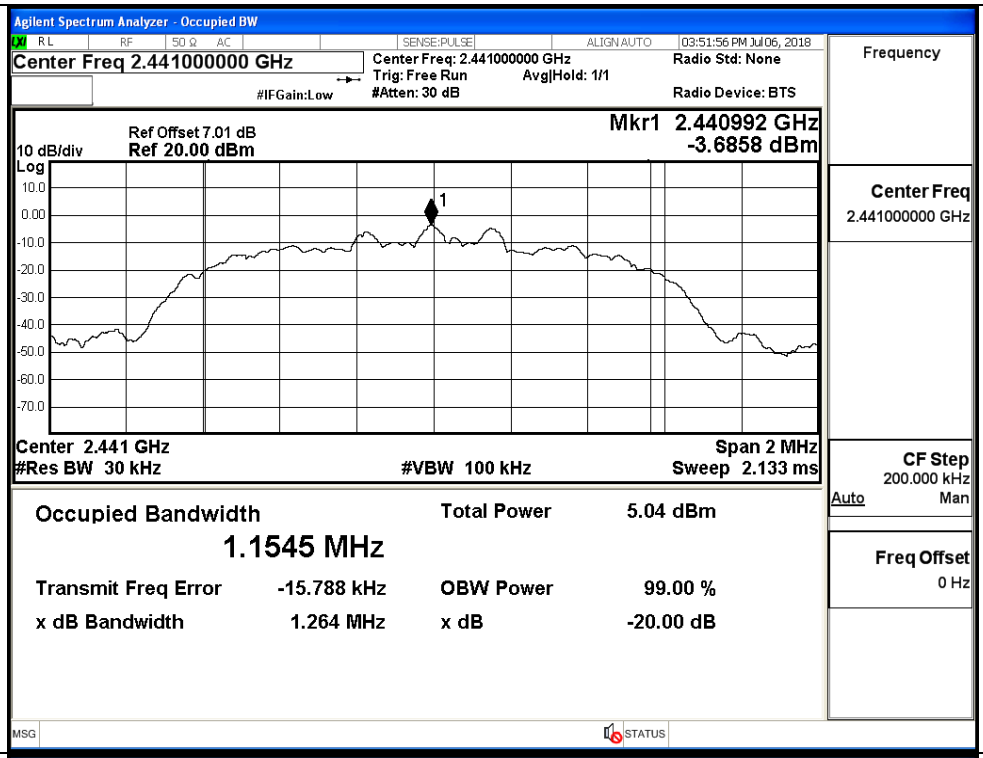
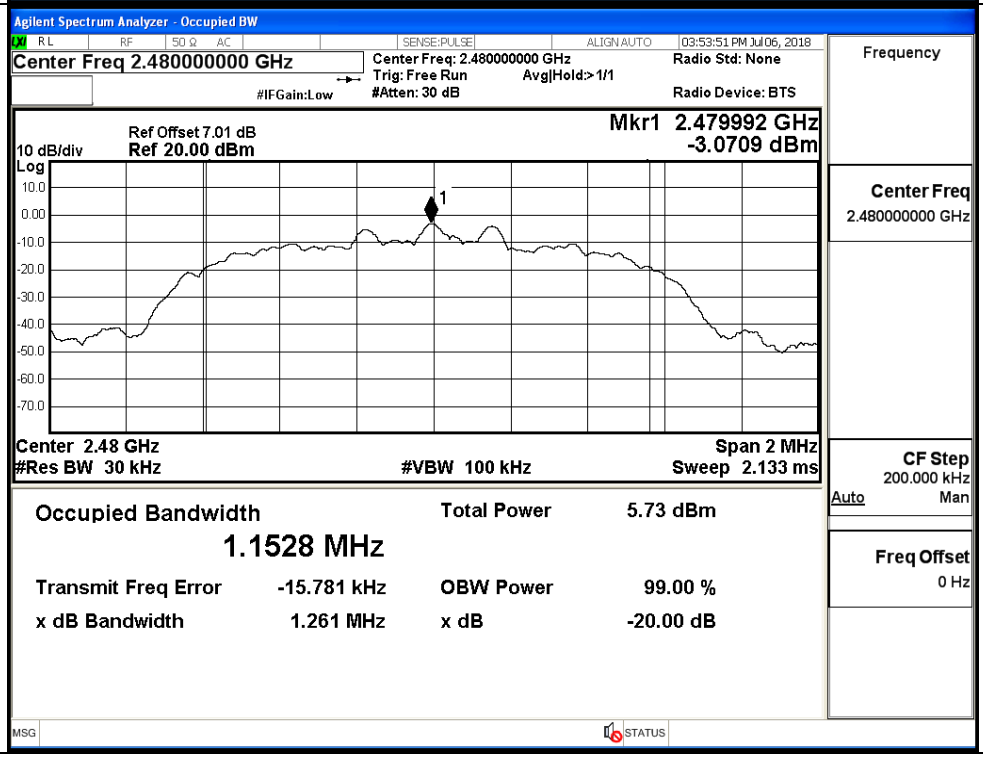
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9529	Not Specified	PASS
	MCH	0.9458	Not Specified	PASS
	HCH	0.9459	Not Specified	PASS
π/4DQPSK	LCH	1.265	Not Specified	PASS
	MCH	1.232	Not Specified	PASS
	HCH	1.229	Not Specified	PASS
8DPSK	LCH	1.278	Not Specified	PASS
	MCH	1.264	Not Specified	PASS
	HCH	1.261	Not Specified	PASS

Test Graphs	
GFSK/LCH	

GFSK/MCH	
GFSK/HCH	

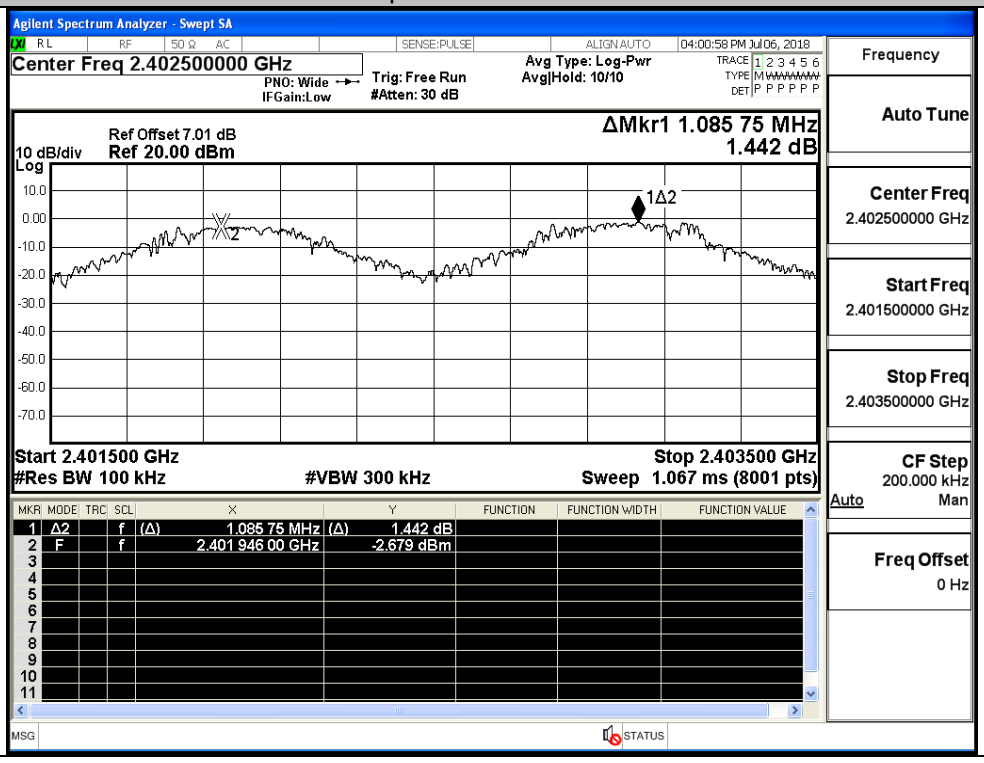
π/4DQPSK/LCH	
π/4DQPSK/MCH	

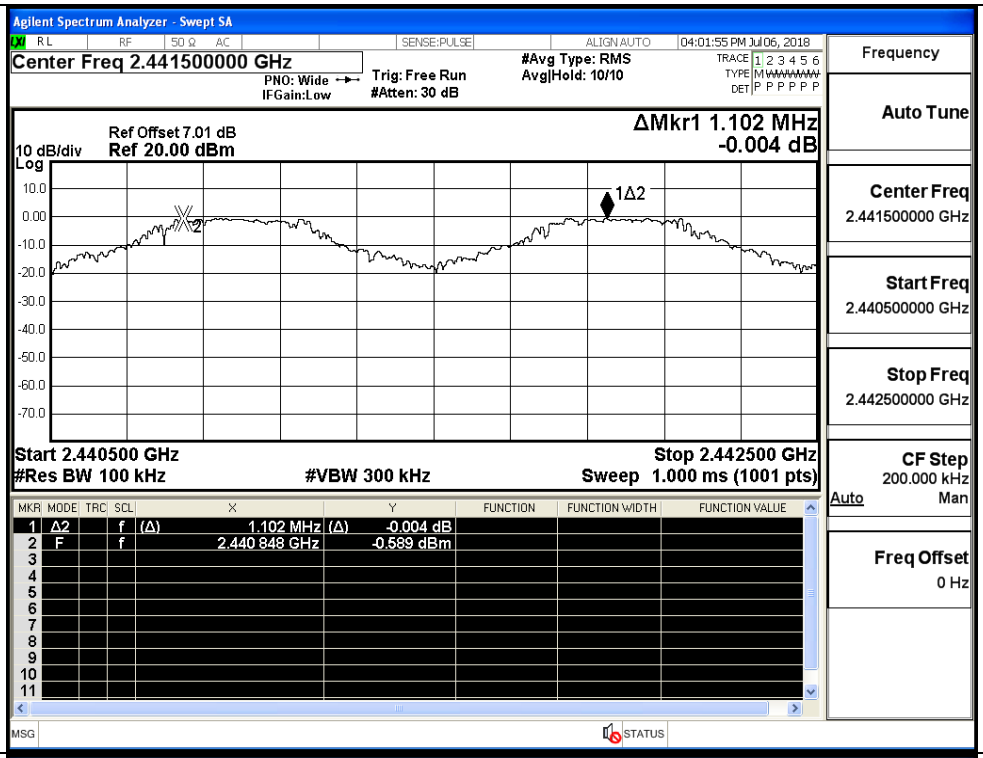
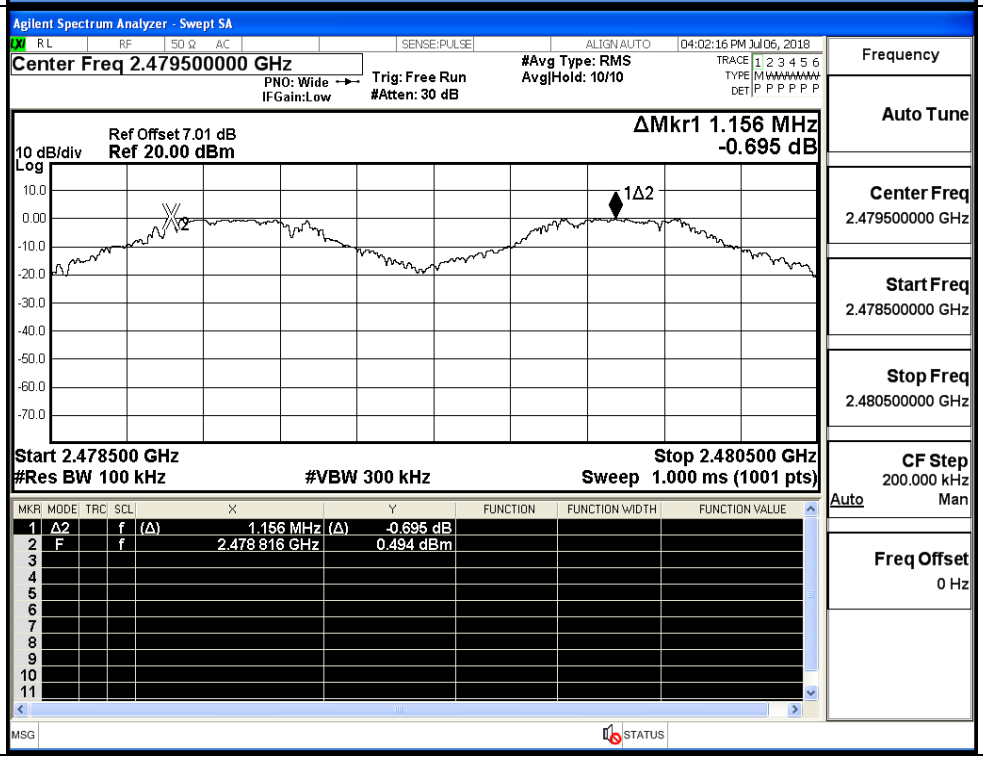
π/4DQPSK/HCH	
8DPSK/LCH	

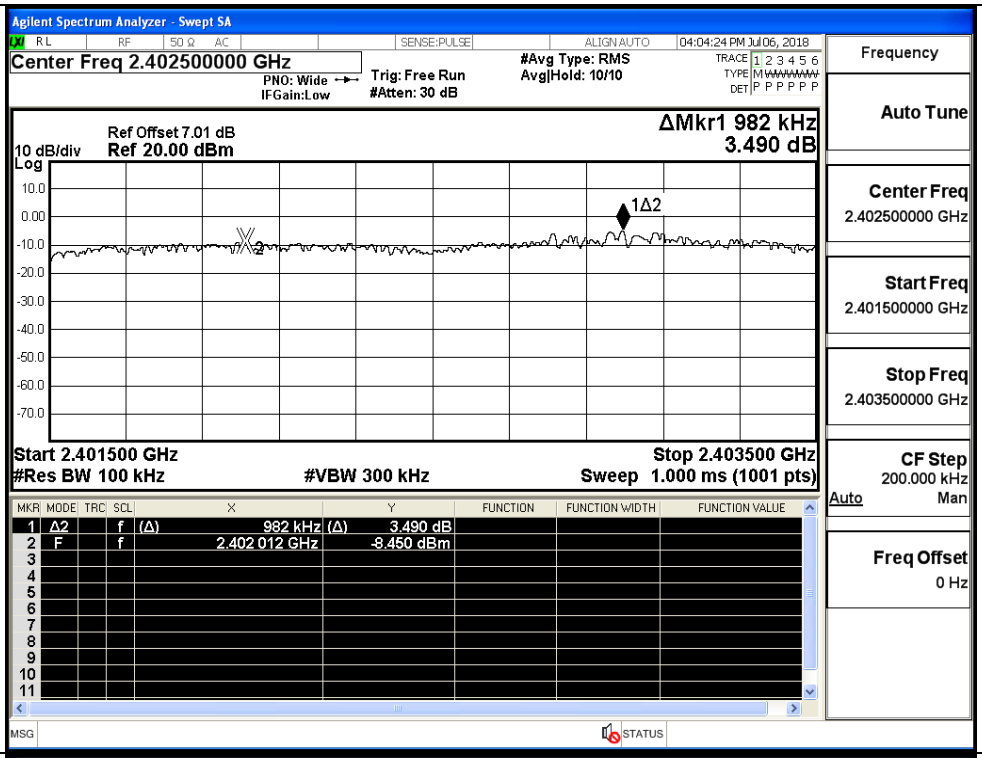
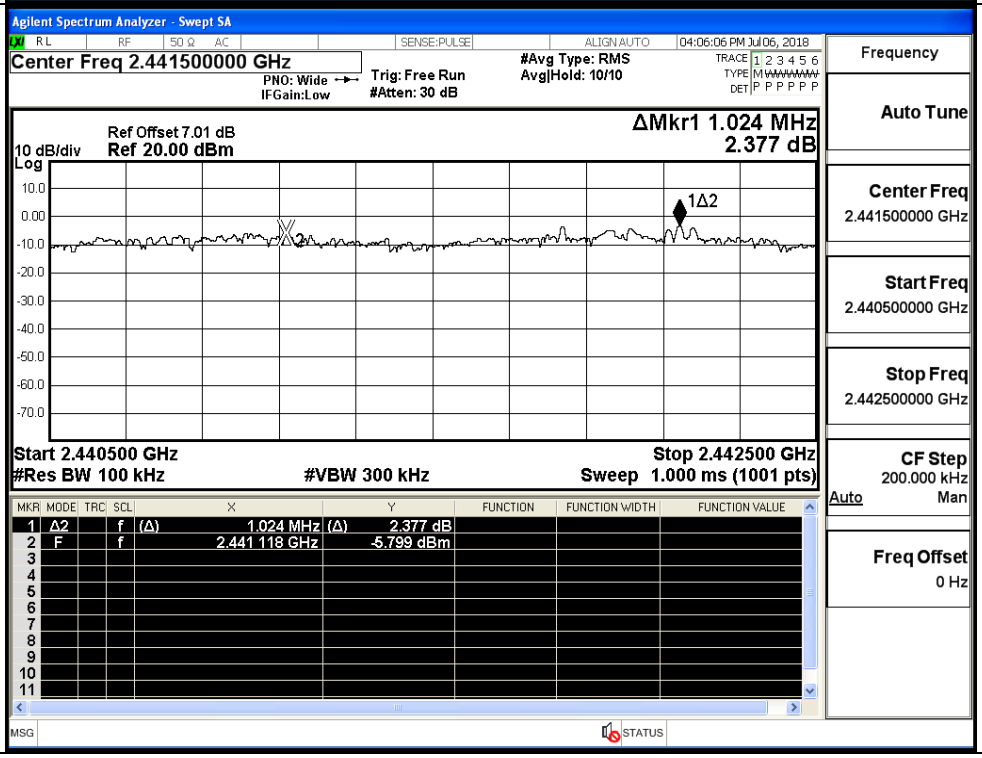
8DPSK/MCH	
8DPSK/HCH	

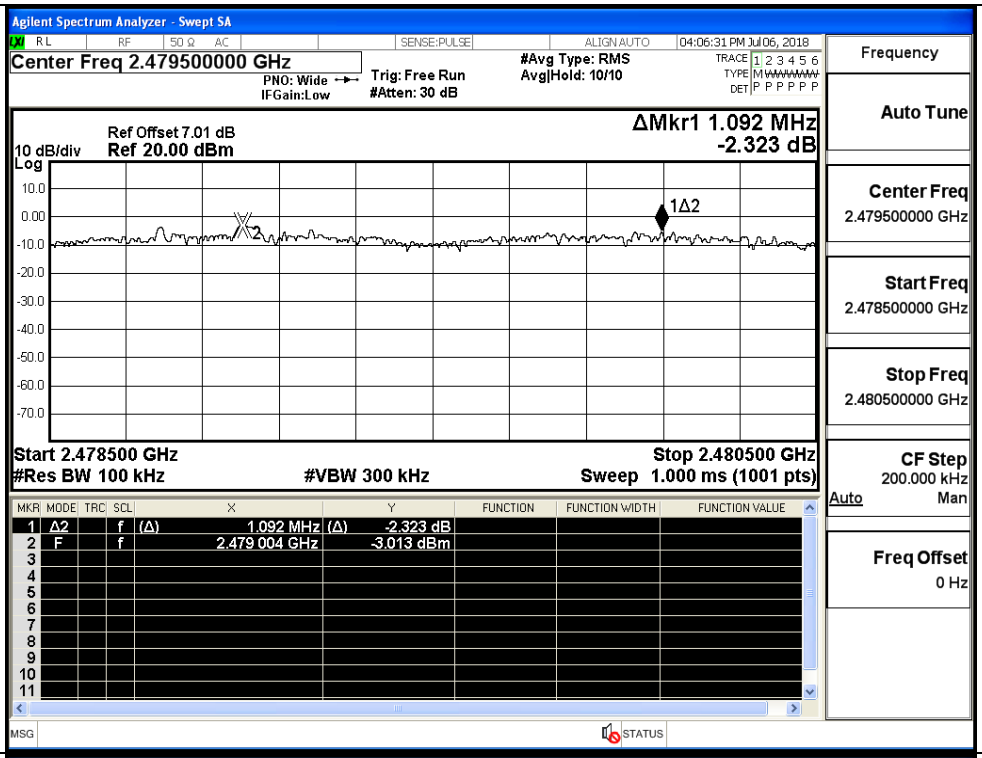
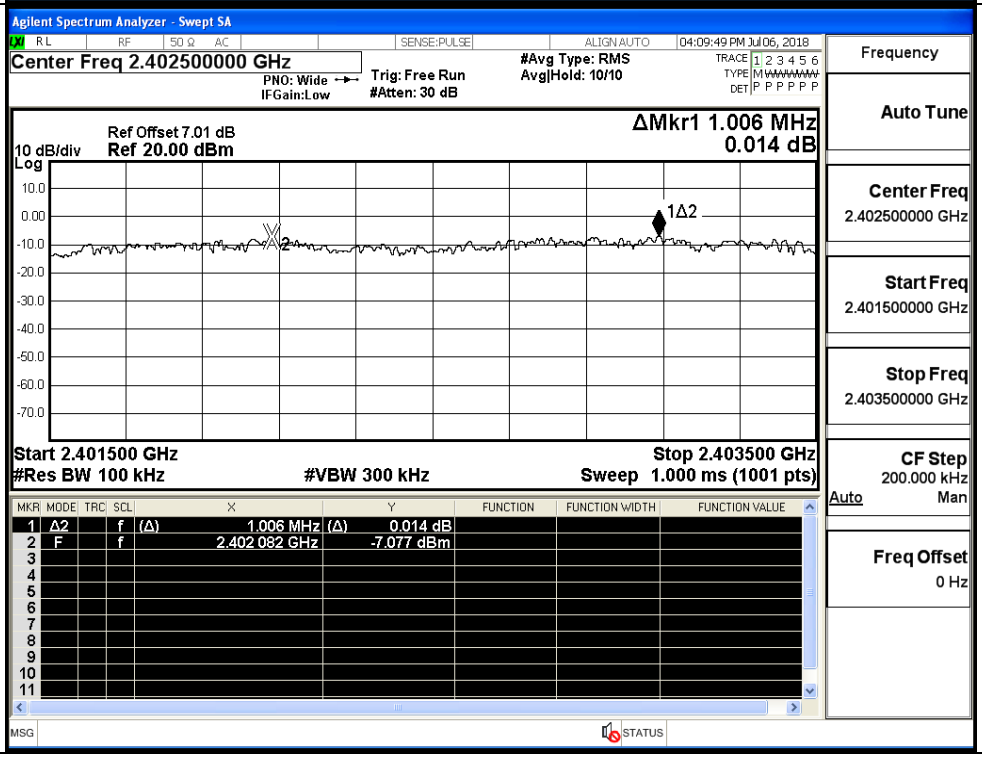
A.3 Carrier Frequency Separation

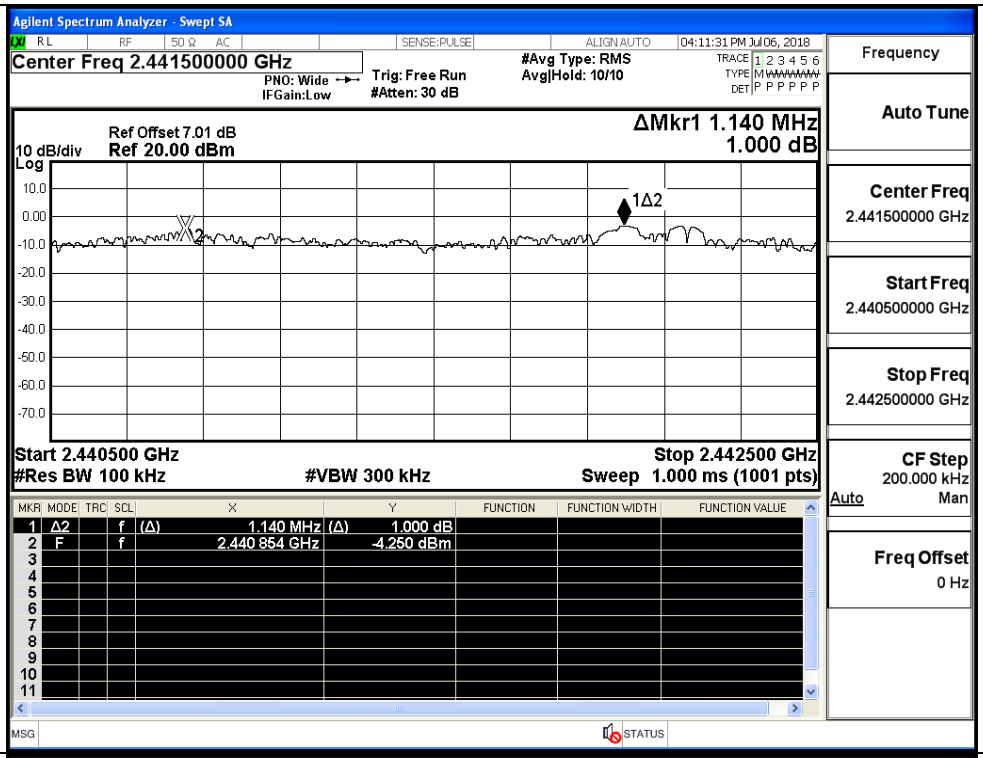
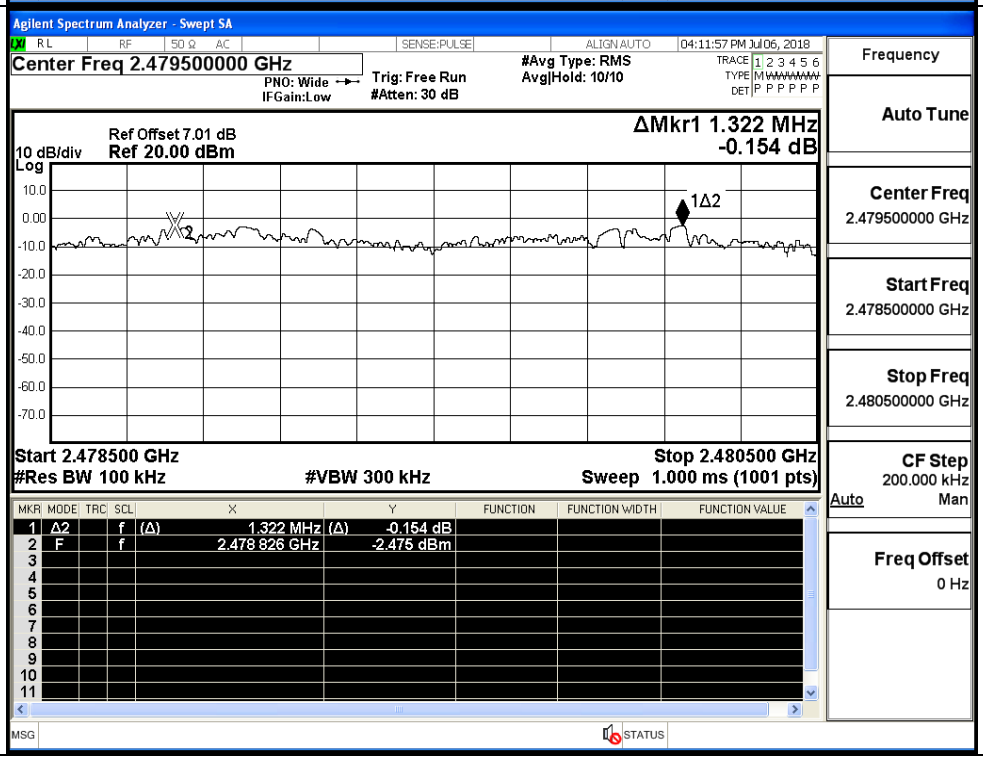
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.086	0.9529	PASS
	MCH	1.102	0.9458	PASS
	HCH	1.156	0.9459	PASS
π/4DQPSK	LCH	0.982	0.843	PASS
	MCH	1.024	0.843	PASS
	HCH	1.092	0.843	PASS
8DPSK	LCH	1.006	0.852	PASS
	MCH	1.140	0.852	PASS
	HCH	1.322	0.852	PASS

Test Graphs	
GFSK/LCH	

GFSK/MCH	
GFSK/HCH	

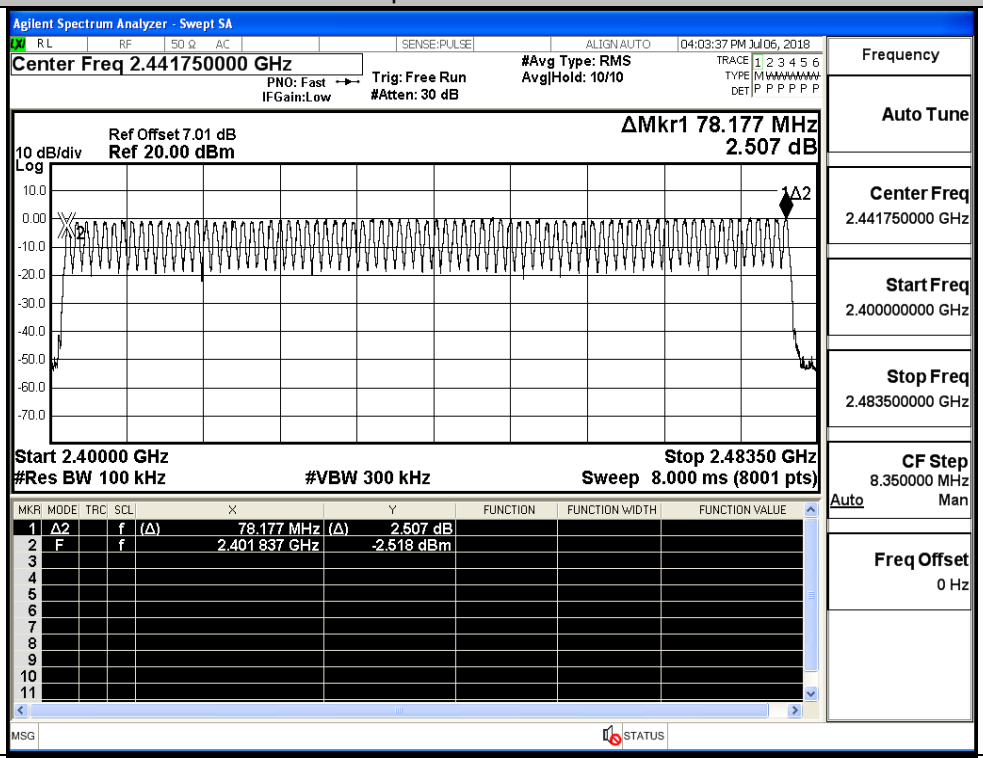
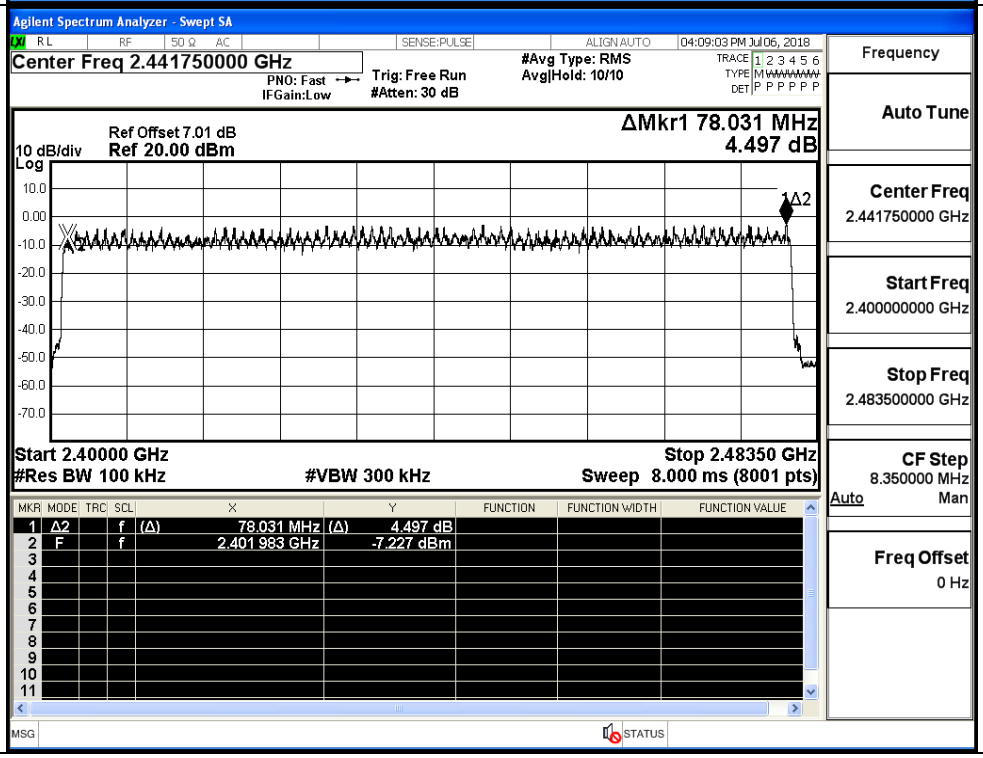
π/4DQPSK/LCH	
π/4DQPSK/MCH	

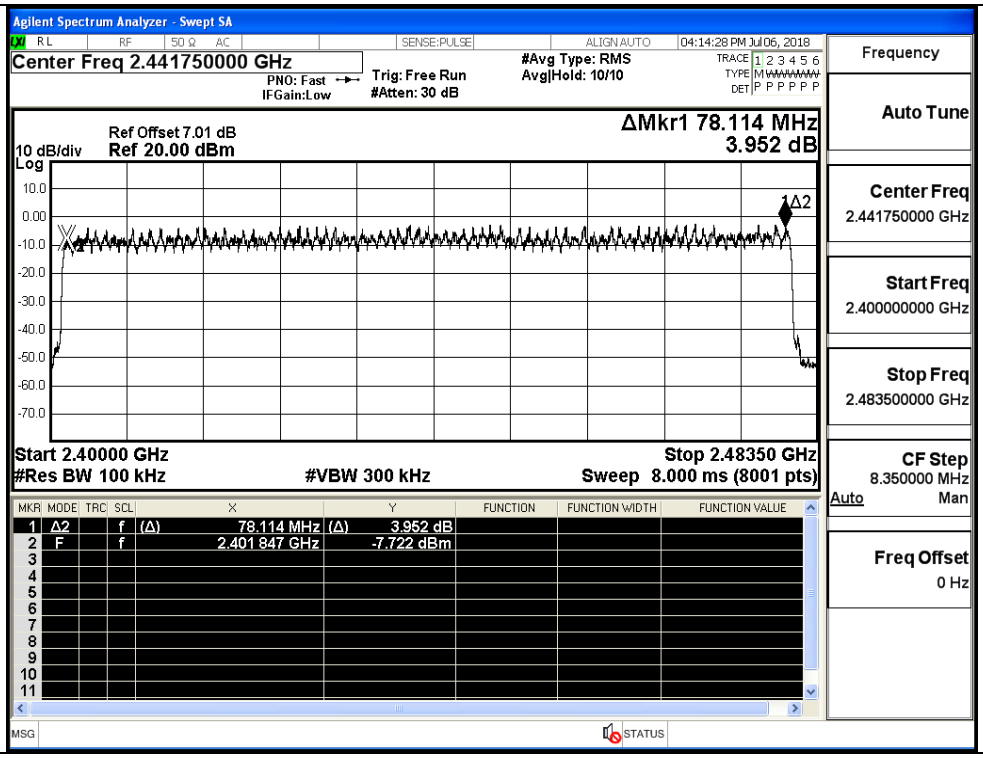
π/4DQPSK/HCH	
8DPSK/LCH	

8DPSK/MCH	
8DPSK/HCH	

A.4 Hopping Channel Number

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

Test Graphs		
GFSK/Hop		
π/4DQPSK/Hop		

8DPSK/Hop	

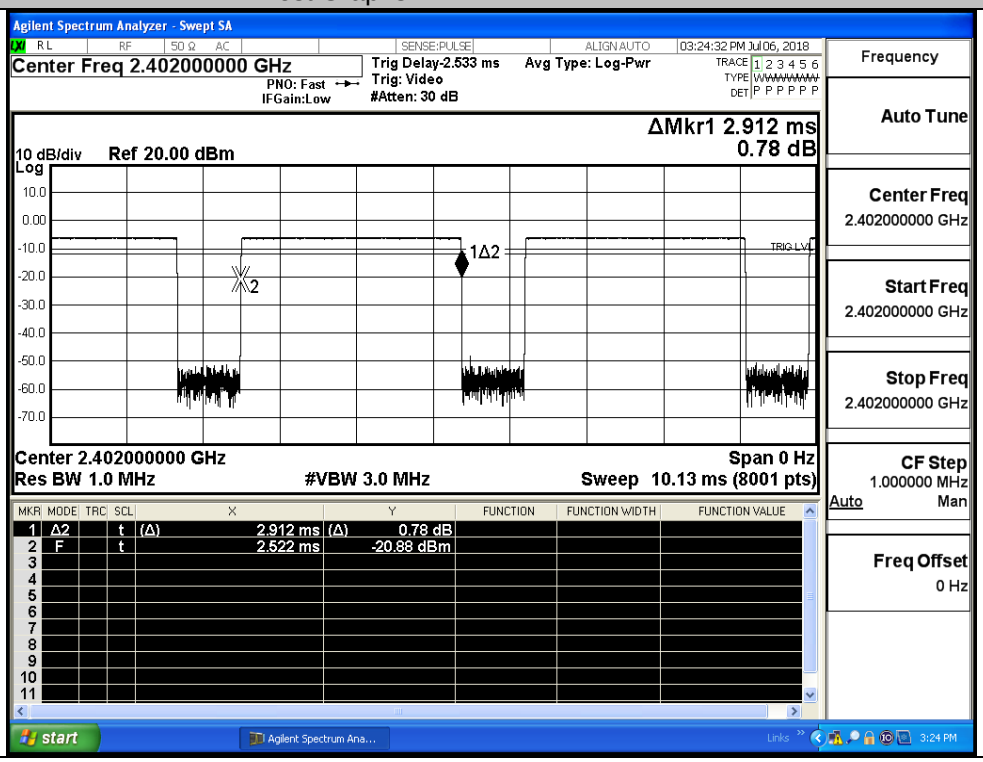
Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441750000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 10/10
04:14:28 PM Jul 06, 2018
Ref Offset 7.01 dB
10 dB/div
Log
Ref 20.00 dBm
ΔMkr1 78.114 MHz
3.952 dB
Start 2.40000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.48350 GHz
Sweep 8.000 ms (8001 pts)
1 Δ2 f (Δ) 78.114 MHz (Δ) 3.952 dB
2 F f 2.401 847 GHz -7.722 dBm
Frequency
Auto Tune
Center Freq
2.441750000 GHz
Start Freq
2.400000000 GHz
Stop Freq
2.483500000 GHz
CF Step
8.350000 MHz
Auto
Man
Freq Offset
0 Hz

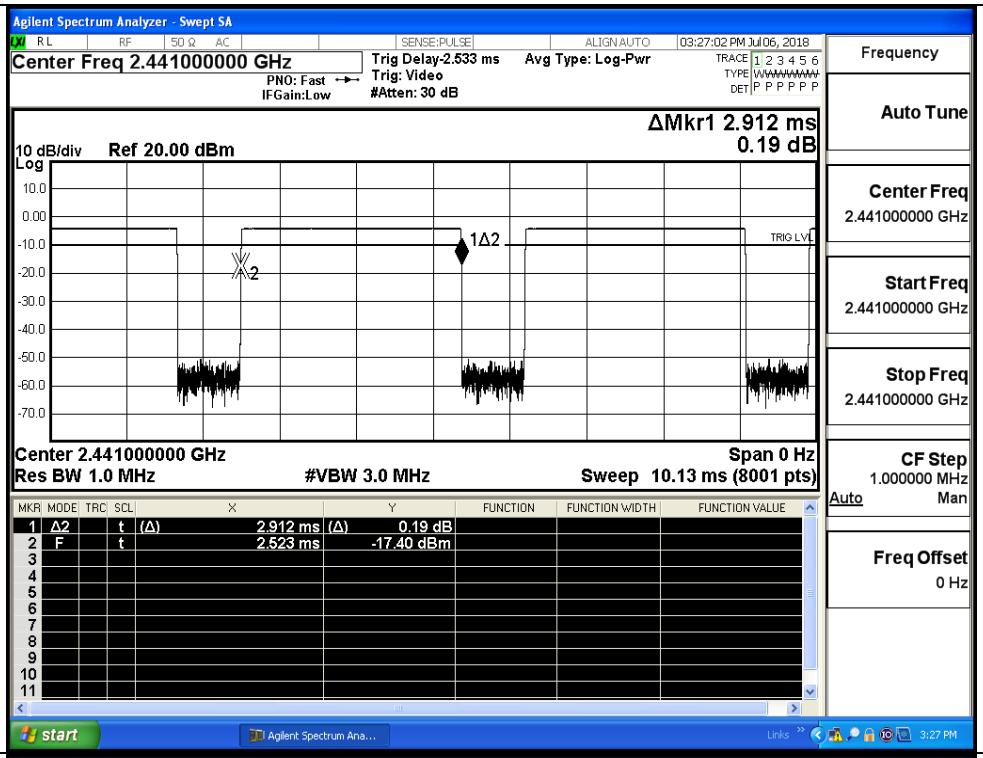
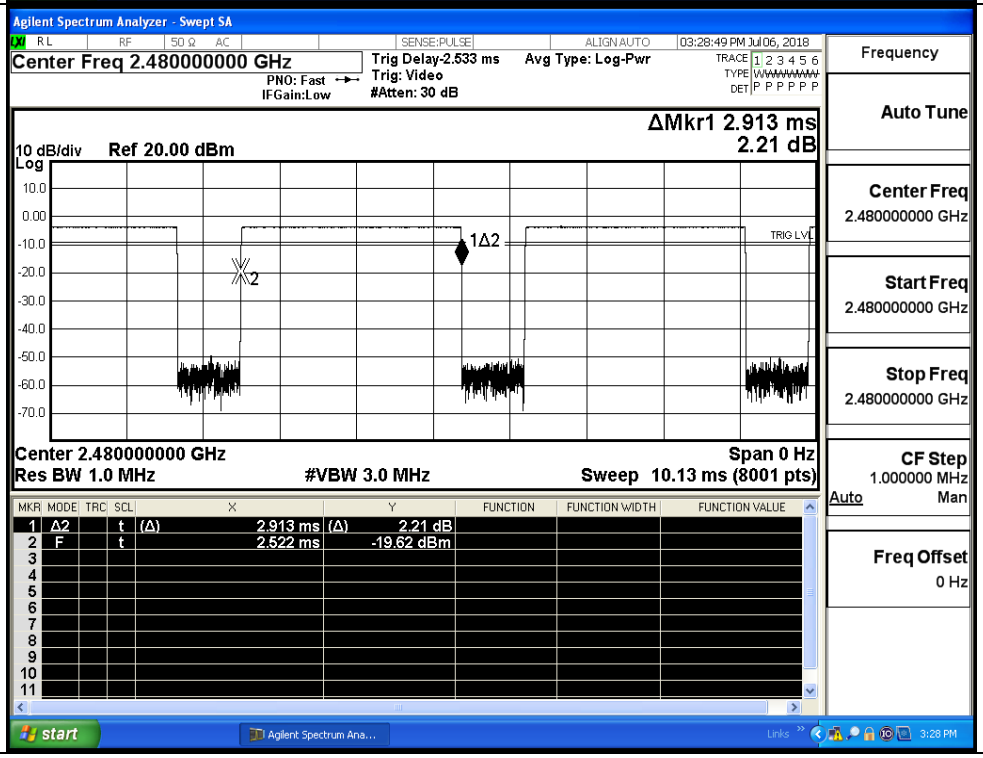
A.5 Dwell Time

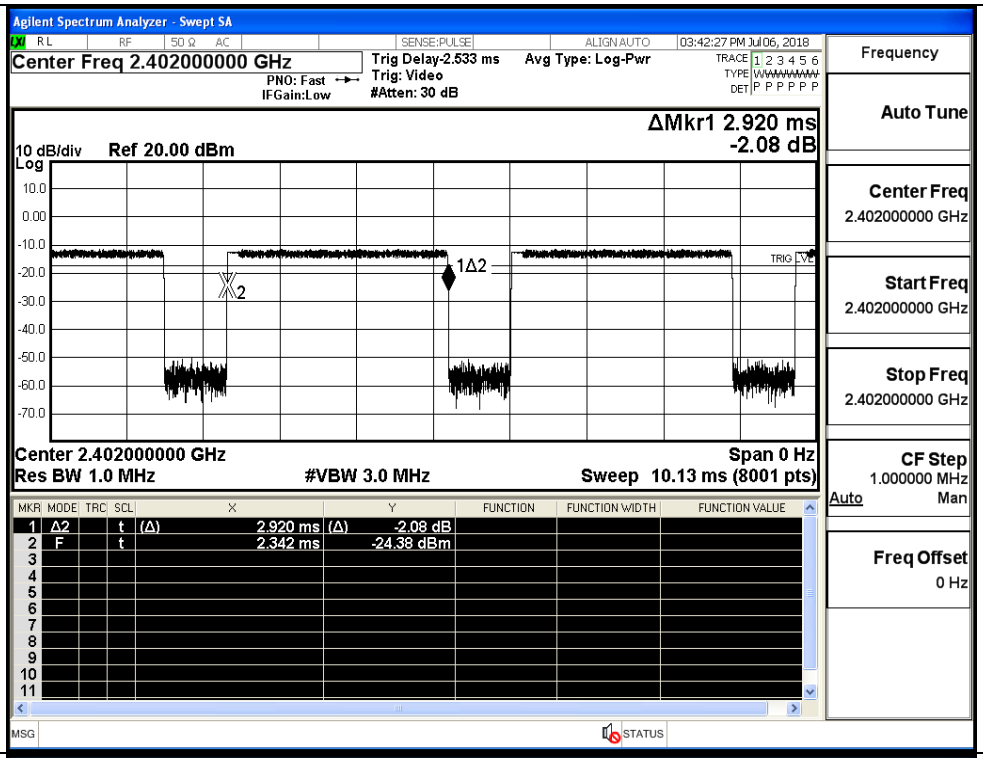
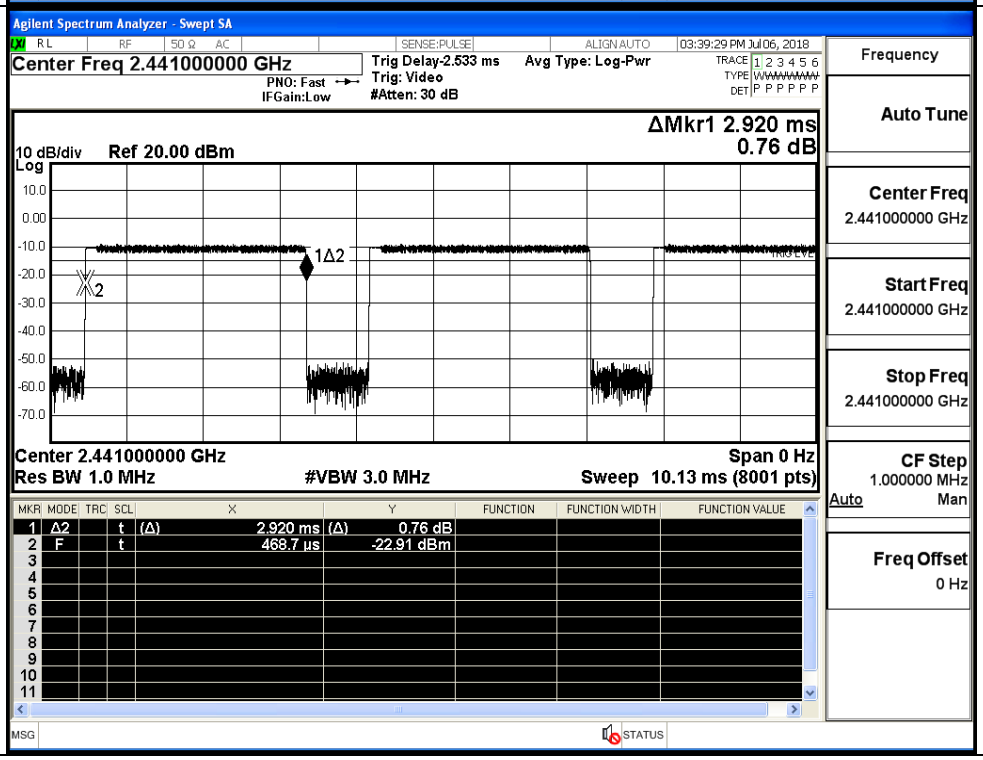
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.91	106.7	0.310	0.4	PASS
	DH5	MCH	2.91	106.7	0.310	0.4	PASS
	DH5	HCH	2.91	106.7	0.310	0.4	PASS
π/4DQPSK	2DH5	LCH	2.92	106.7	0.312	0.4	PASS
	2DH5	MCH	2.92	106.7	0.312	0.4	PASS
	2DH5	HCH	2.92	106.7	0.312	0.4	PASS
8DPSK	3DH5	LCH	2.92	106.7	0.312	0.4	PASS
	3DH5	MCH	2.92	106.7	0.312	0.4	PASS
	3DH5	HCH	2.92	106.7	0.312	0.4	PASS

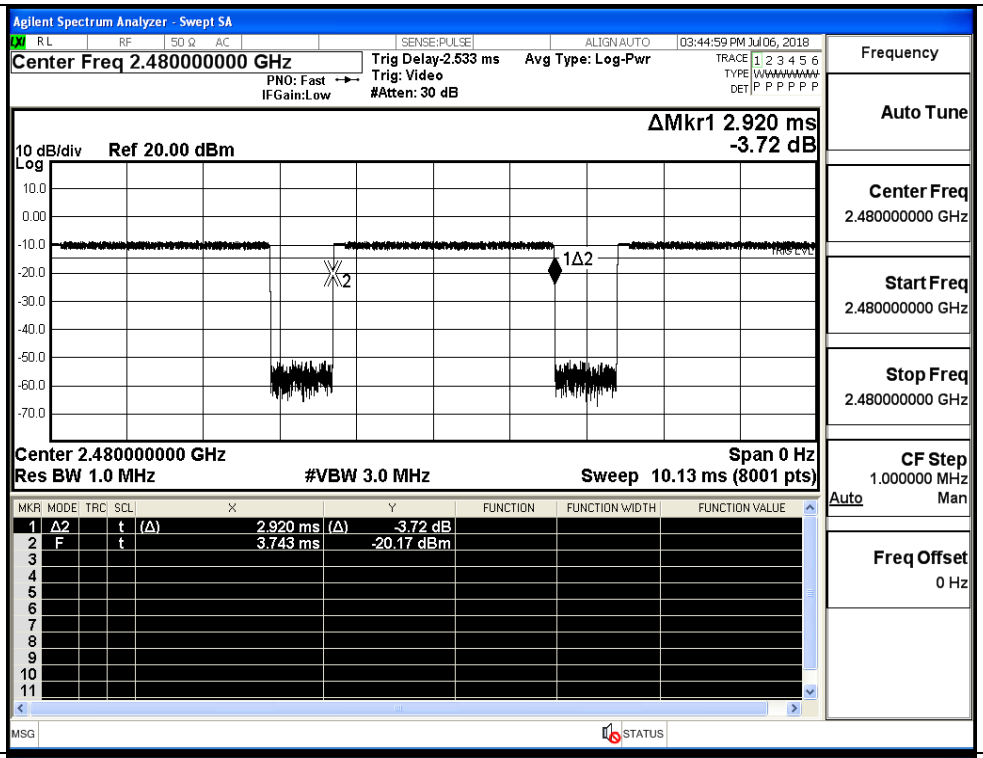
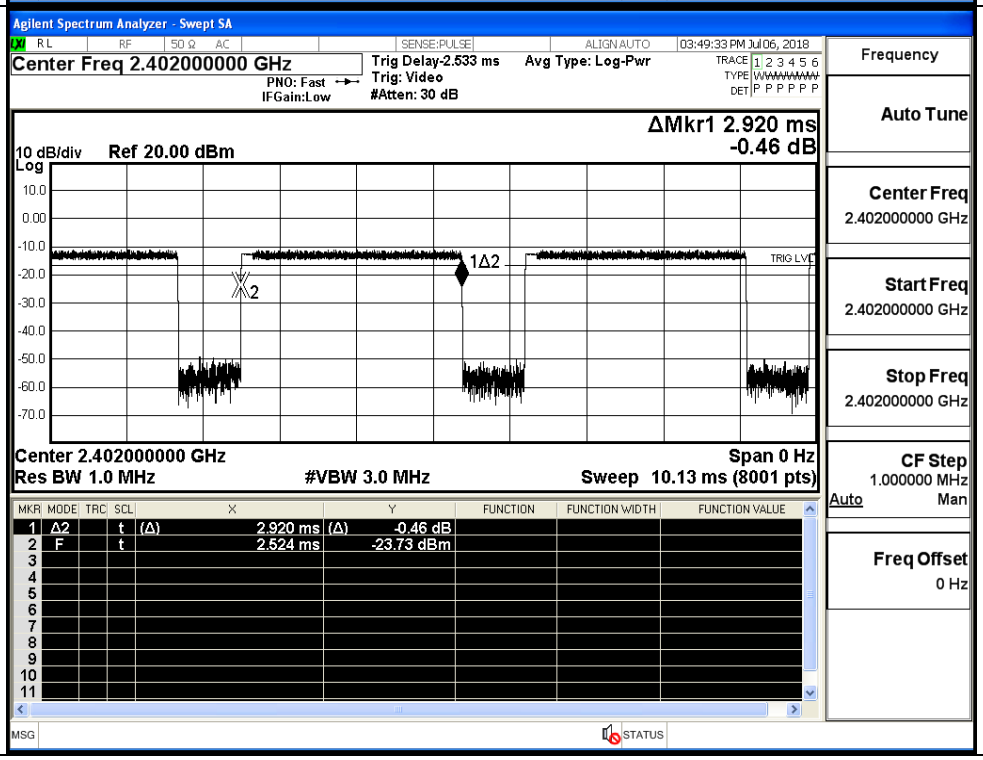
Test Graphs

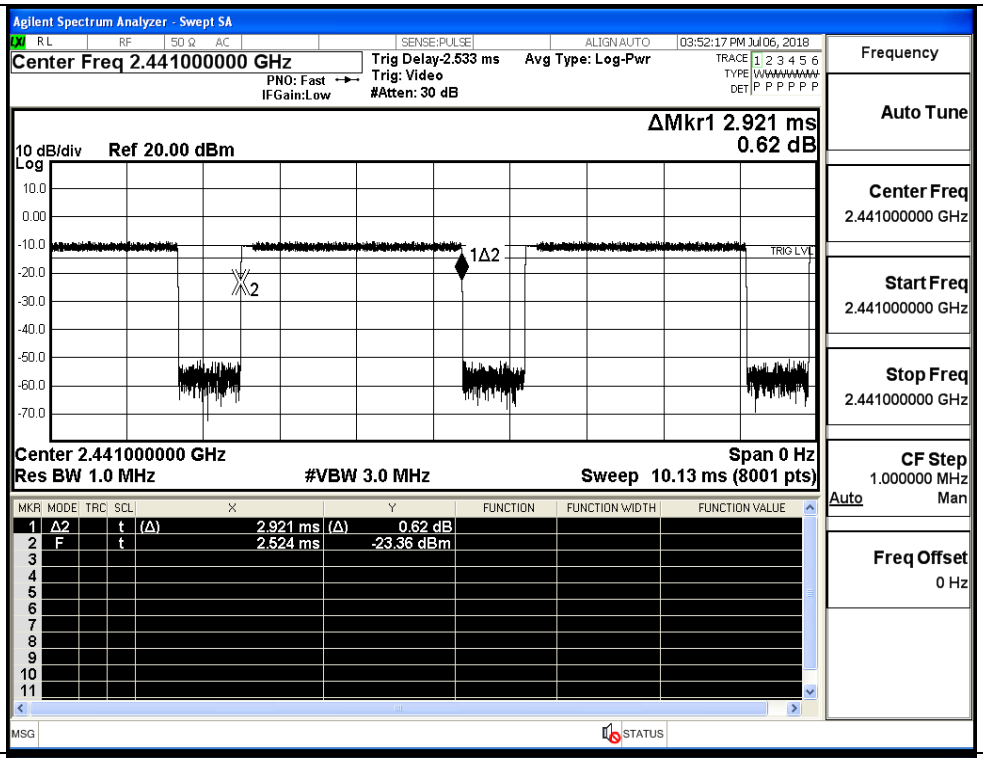
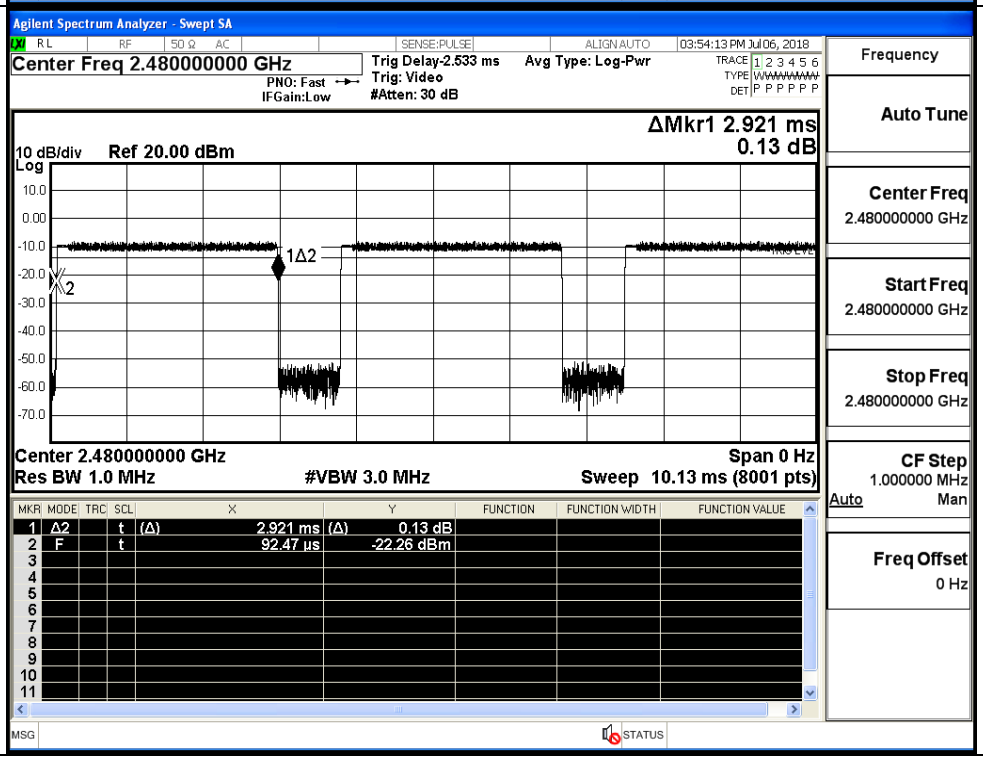
GFSK_DH5/LCH



GFSK_DH5/MCH	
GFSK_DH5/HCH	

π/4DQPSK _2DH5/LCH	
π/4DQPSK _2DH5/MCH	

π/4DQPSK _2DH5/HCH	
8DPSK _3DH5/LCH	

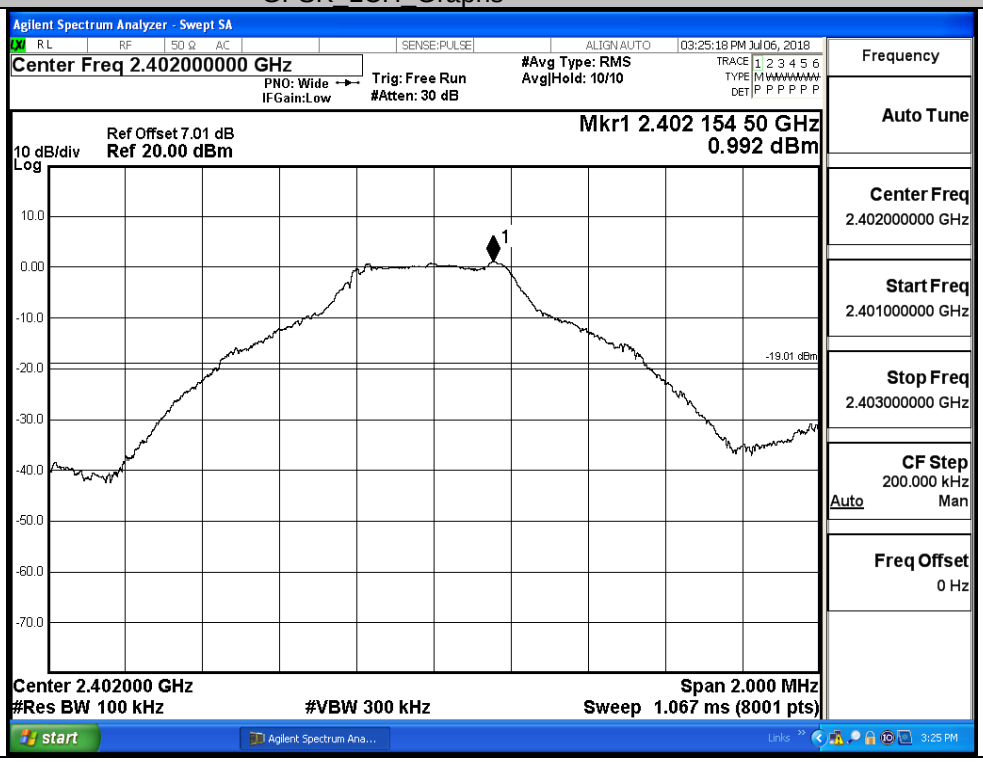
8DPSK _3DH5/MCH	
8DPSK _3DH5/HCH	

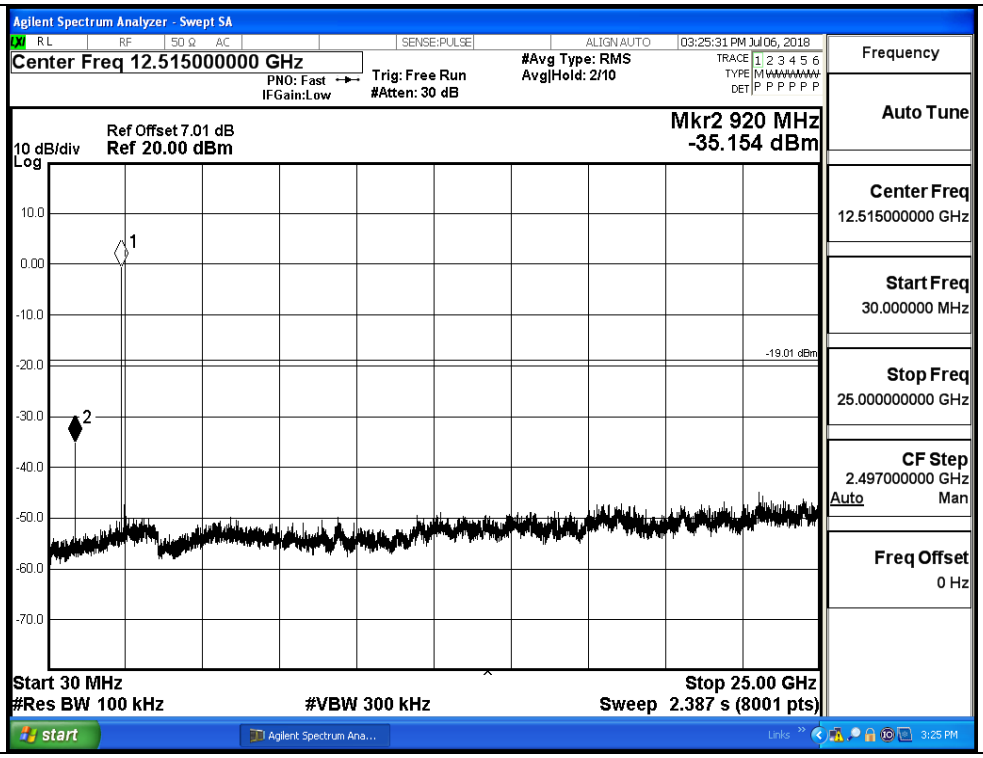
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.992	-35.154	-19.008	PASS
	MCH	2.912	-37.787	-17.088	PASS
	HCH	3.454	-34.529	-16.546	PASS
π/4DQPSK	LCH	-5.653	-38.934	-25.653	PASS
	MCH	-3.275	-39.819	-23.275	PASS
	HCH	-2.665	-40.284	-22.665	PASS
8DPSK	LCH	-5.597	-39.771	-25.597	PASS
	MCH	-3.028	-42.290	-23.028	PASS
	HCH	-2.572	-40.161	-22.572	PASS

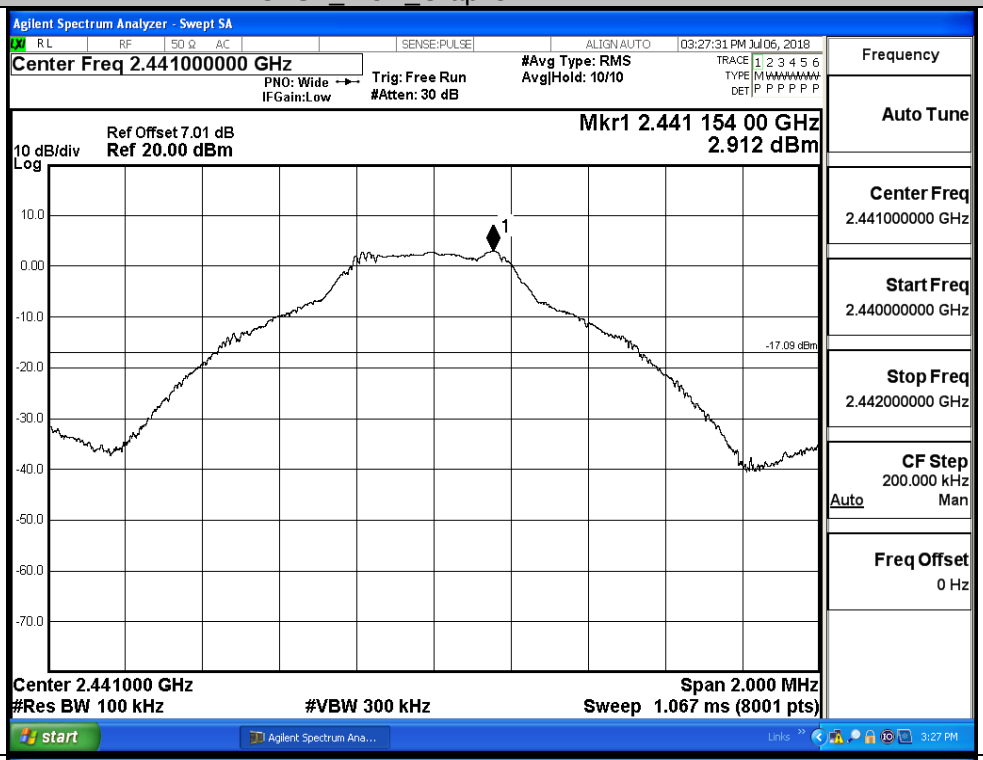
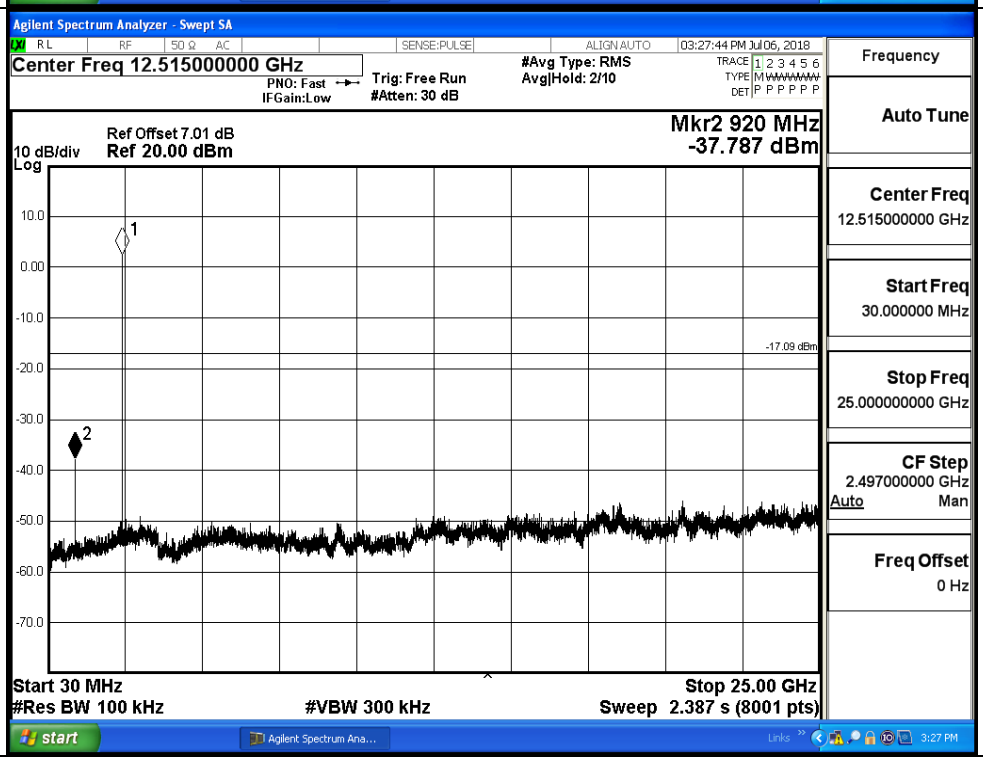
GFSK_LCH_Graphs

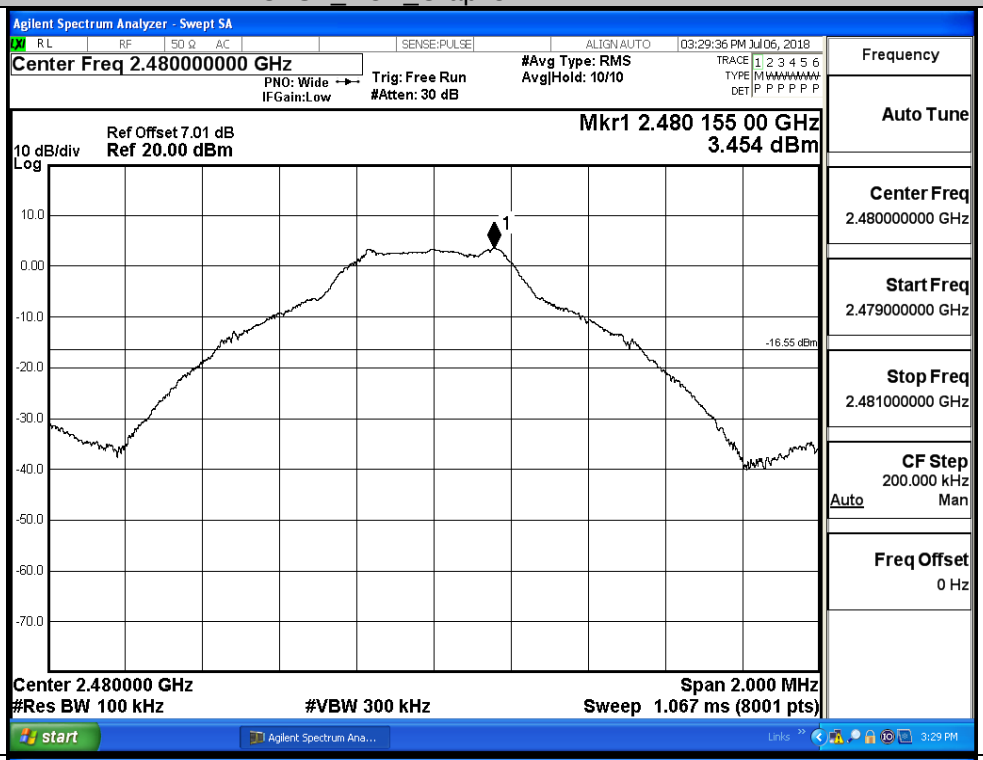
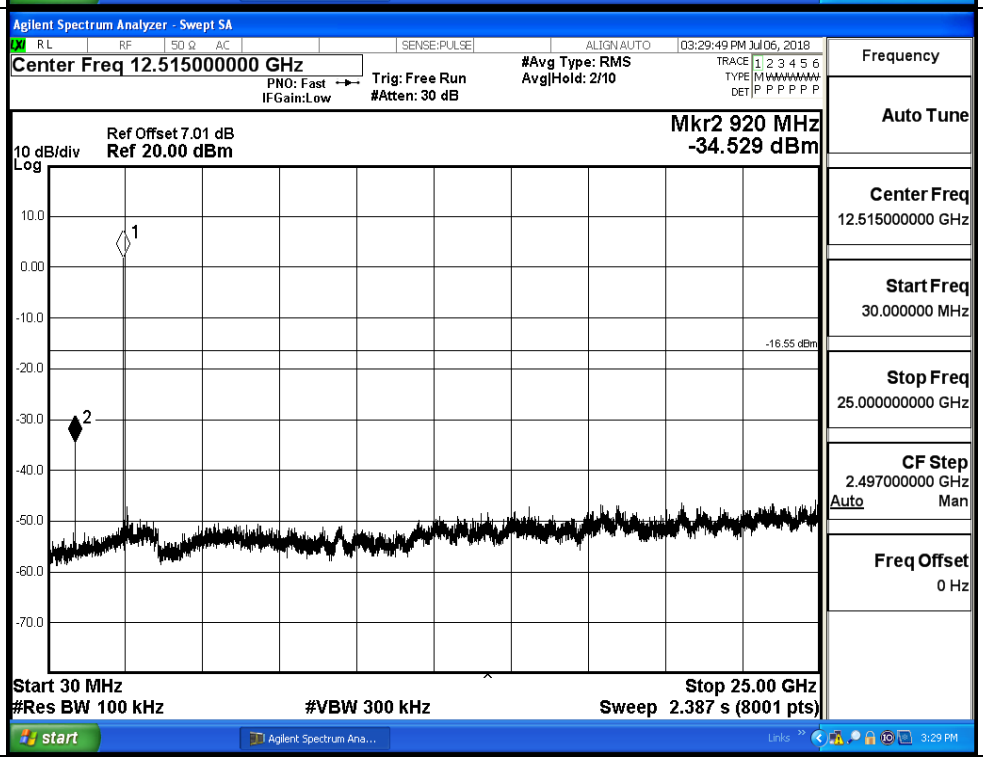
Pref

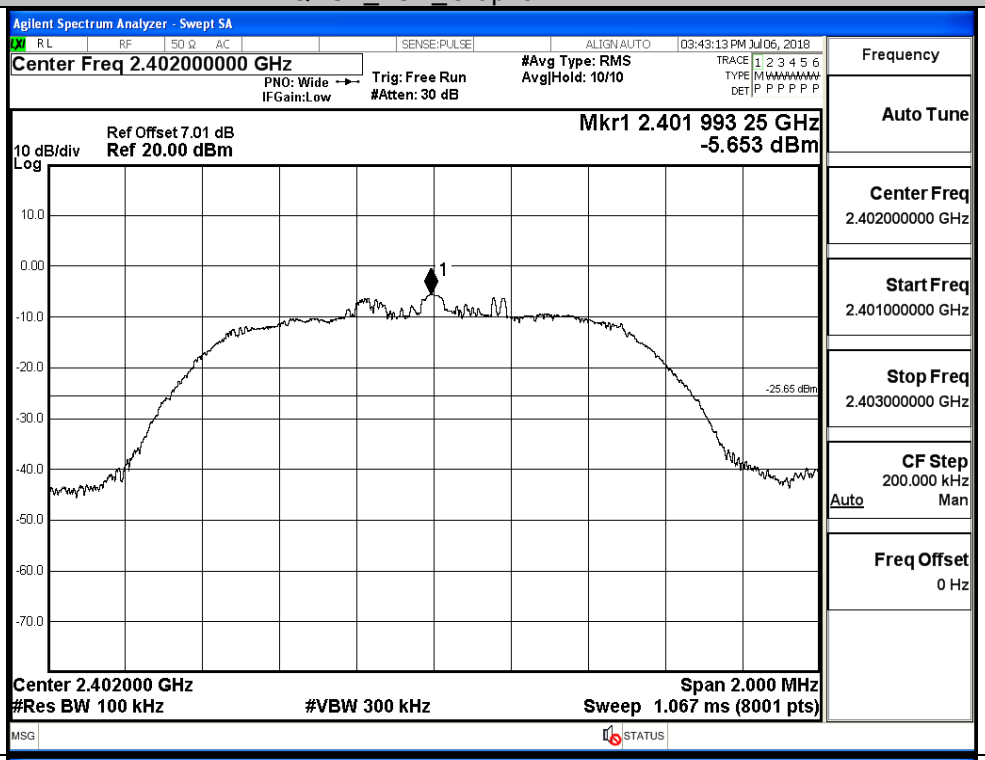
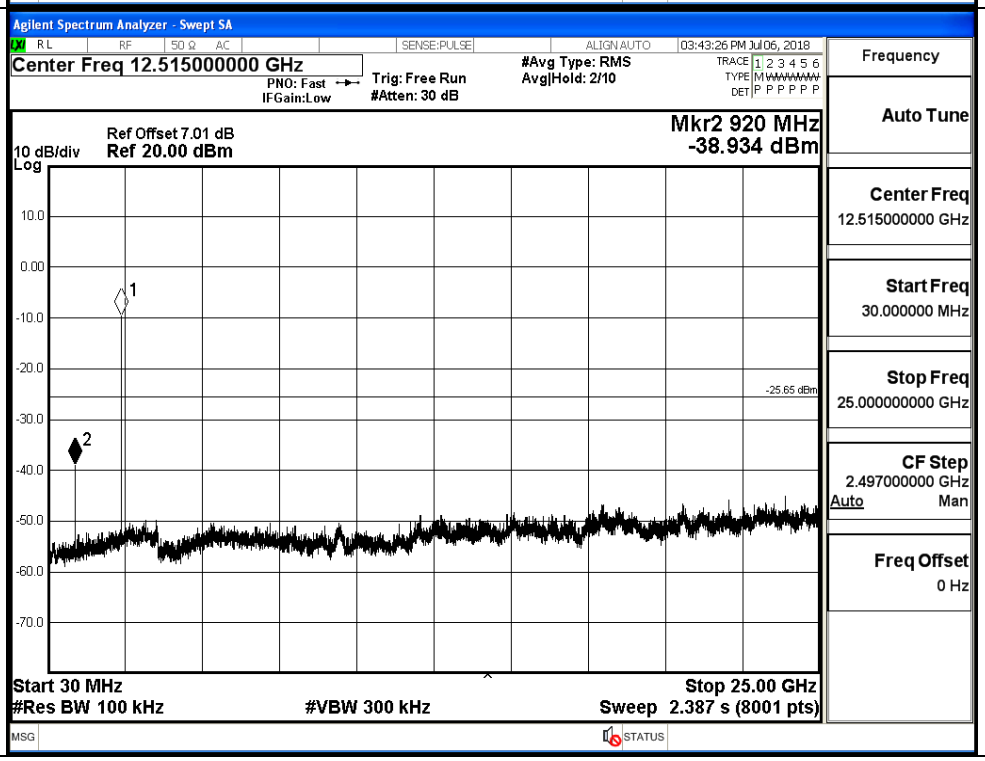


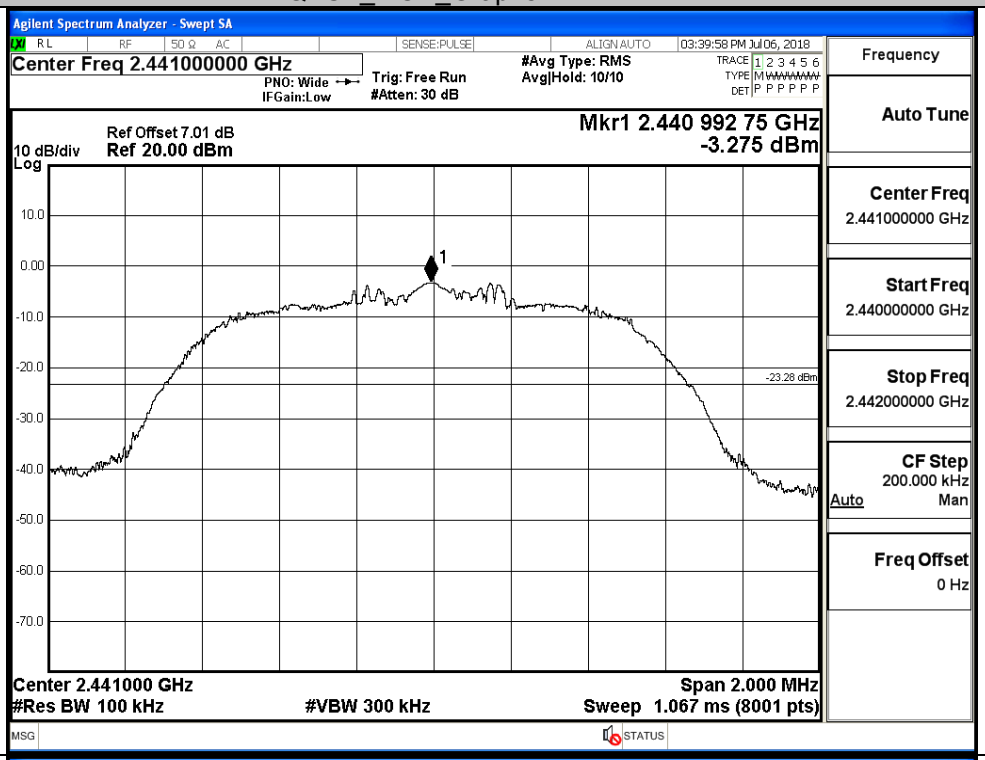
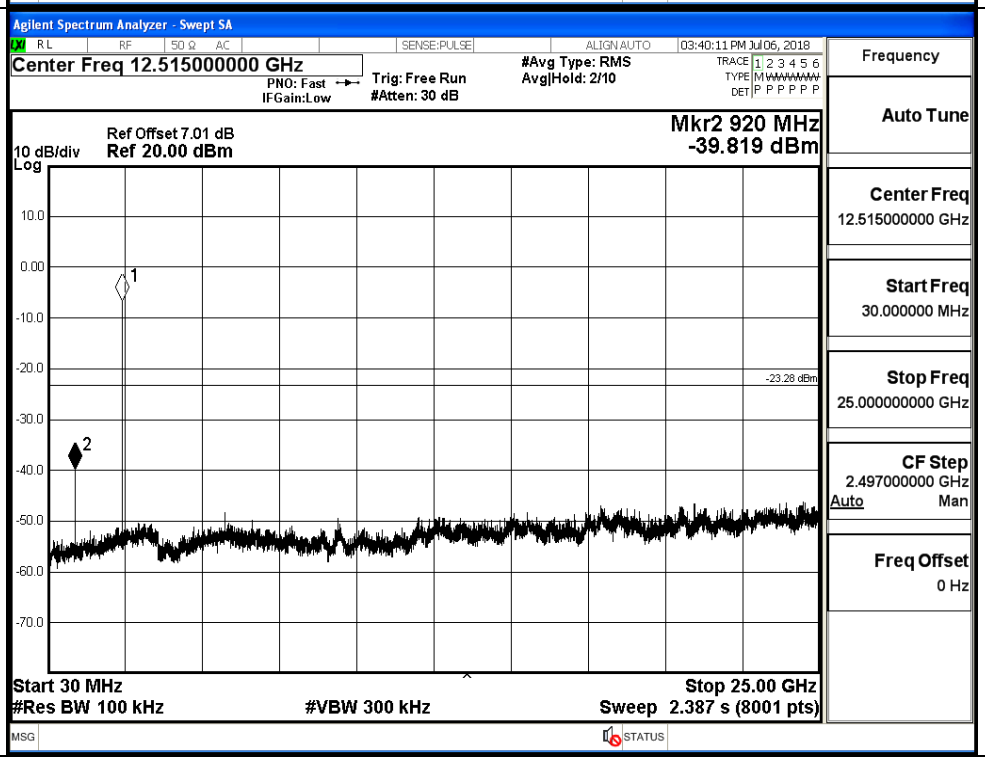
Puw		

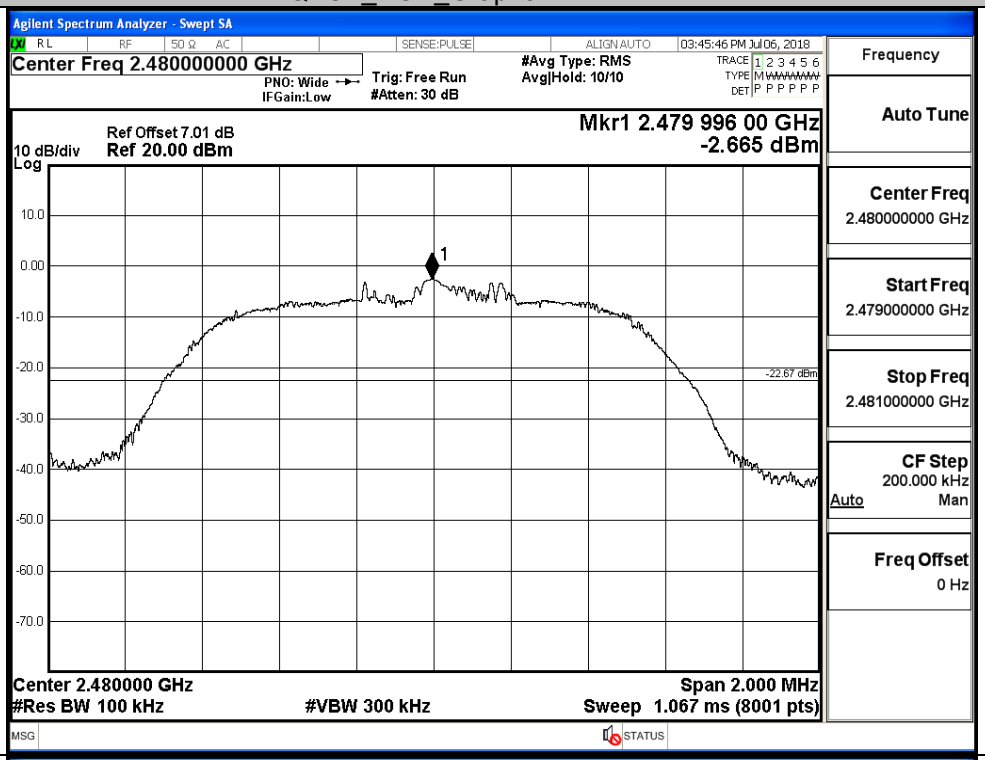
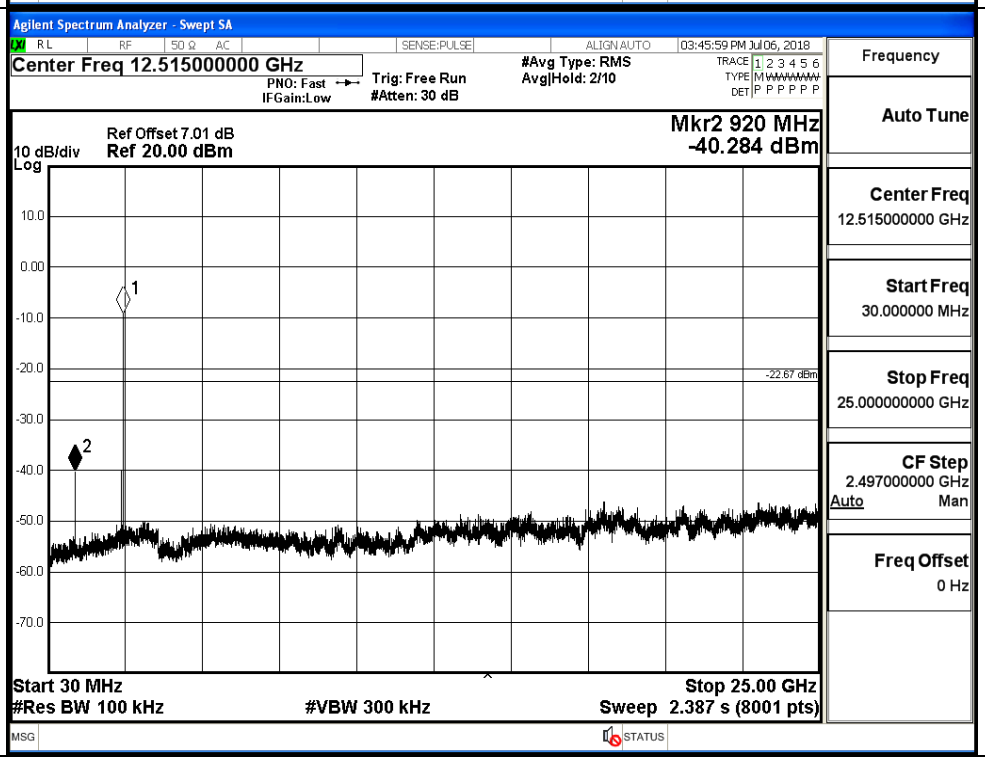
Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:PULSE
ALIGN AUTO
03:25:31 PM Jul 06, 2018
Center Freq 12.515000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 2/10
TRACE 1 2 3 4 5 6
TYPE M
DET P P P P P
Ref Offset 7.01 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr2 920 MHz
-35.154 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-19.01 dBm
Start 30 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.00 GHz
Sweep 2.387 s (8001 pts)
Frequency
Auto Tune
Center Freq
12.515000000 GHz
Start Freq
30.000000 MHz
Stop Freq
25.000000000 GHz
CF Step
2.497000000 GHz
Auto
Man
Freq Offset
0 Hz
start
Agilent Spectrum Ana...
Links
3:25 PM

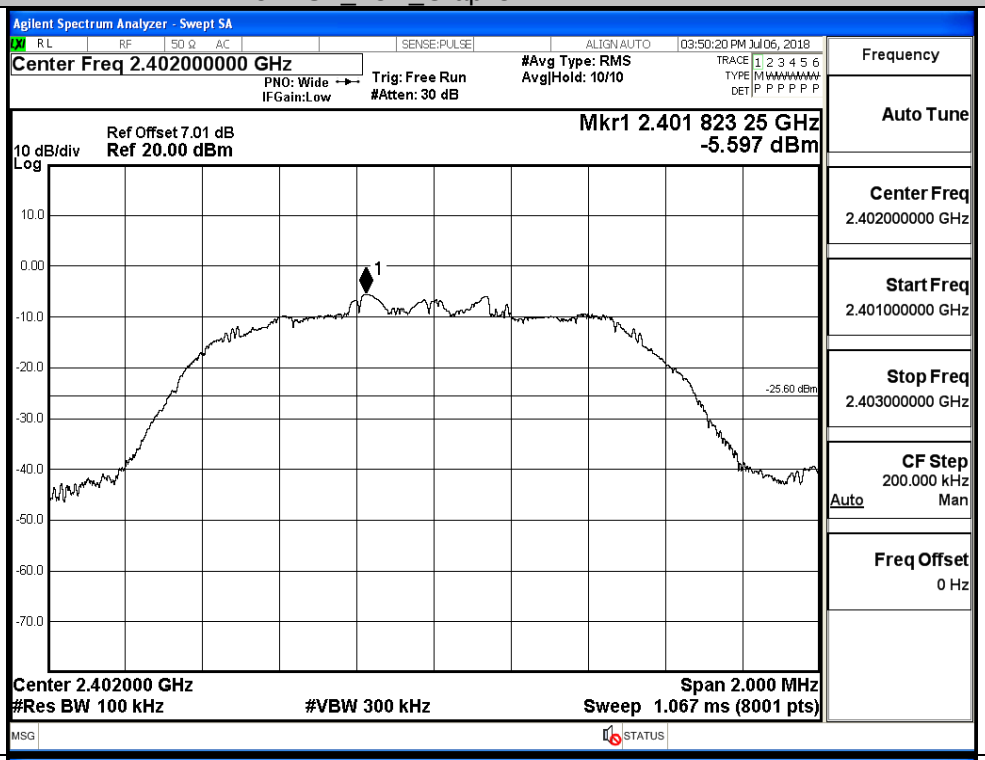
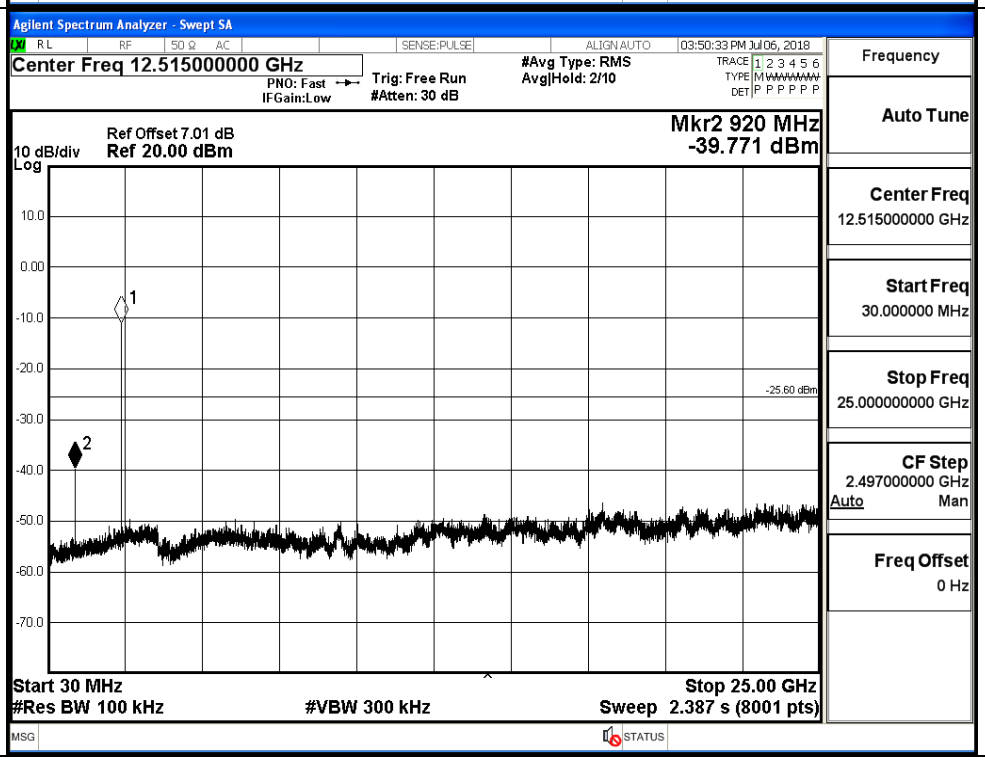
GFSK_MCH_Graphs		
Pref		
Puw		

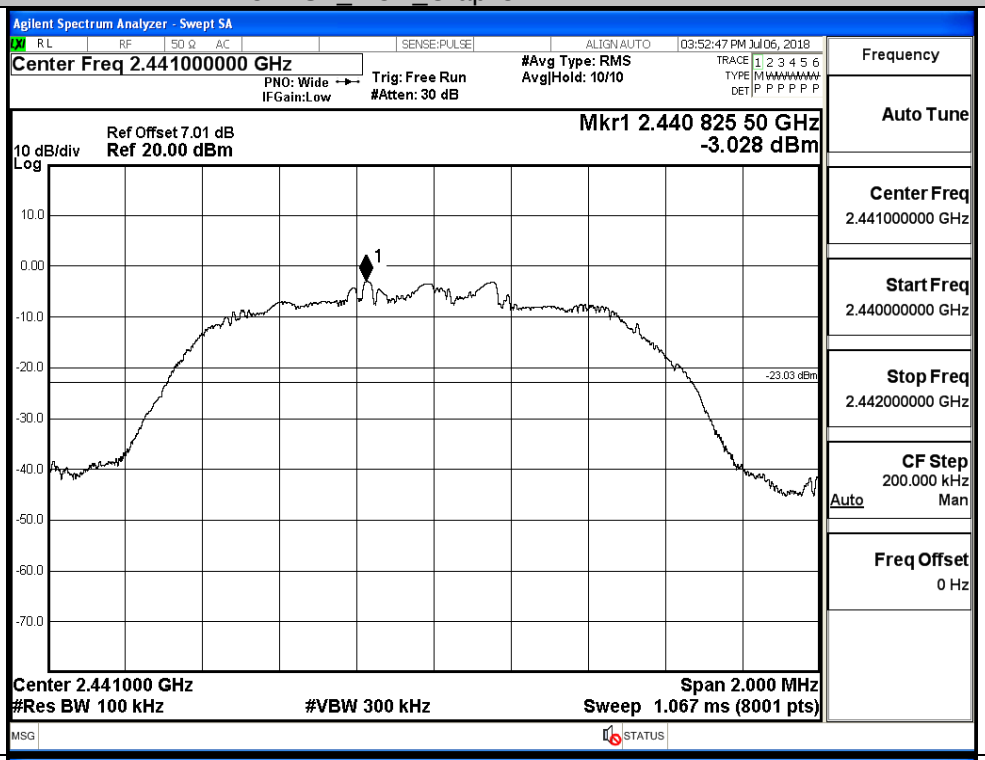
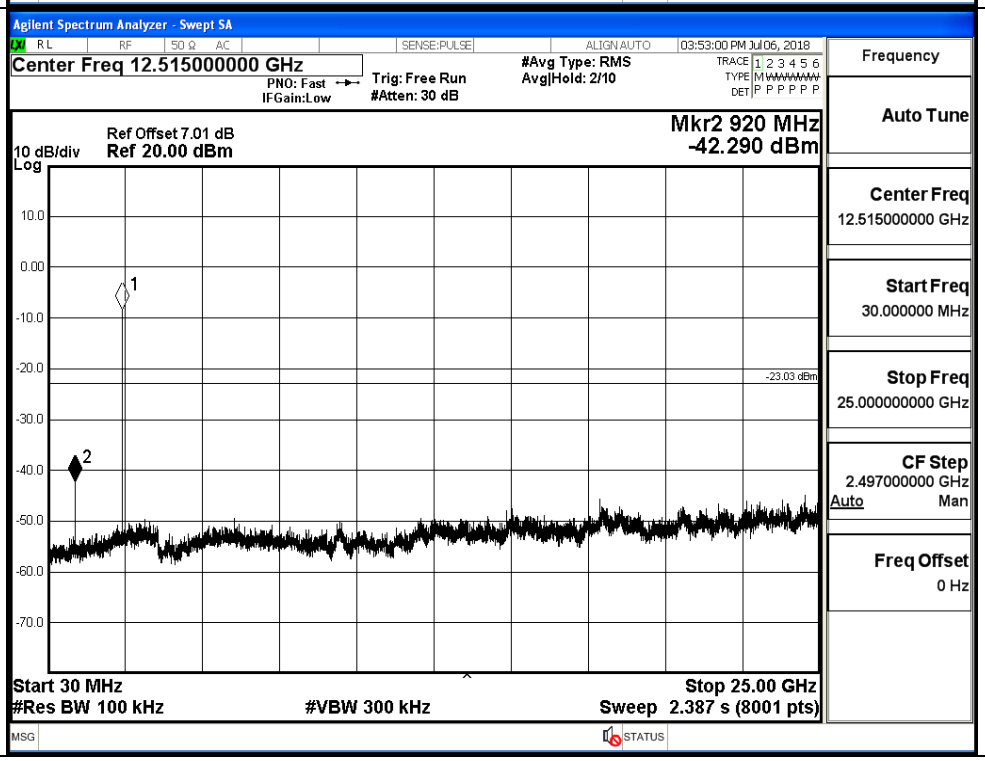
GFSK_HCH_Graphs		
Pref		
Puw		

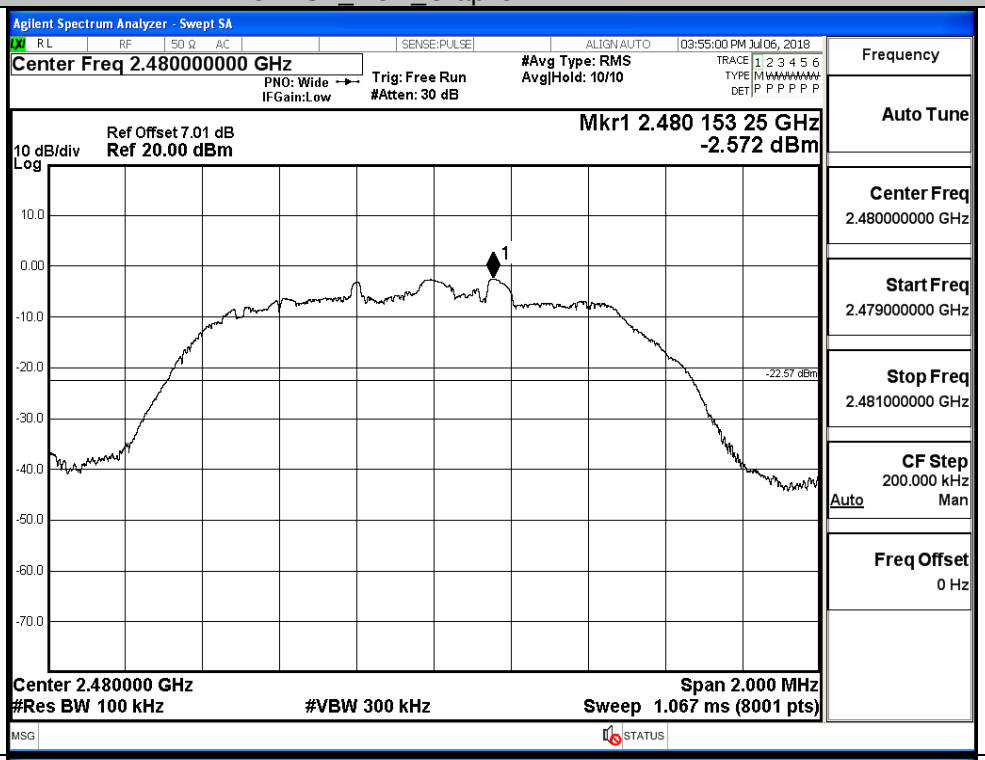
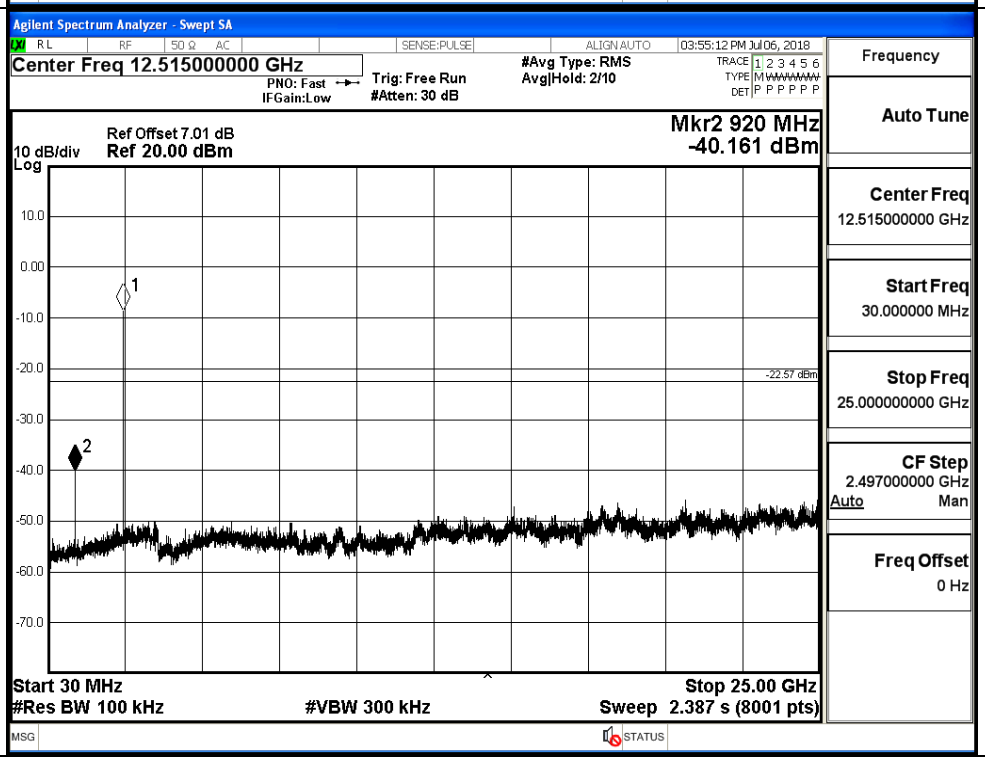
π/4DQPSK_LCH_Graphs		
Pref		
Puw		

π/4DQPSK_MCH_Graphs		
Pref		
Puw		

π/4DQPSK_HCH_Graphs		
Pref		
Puw		

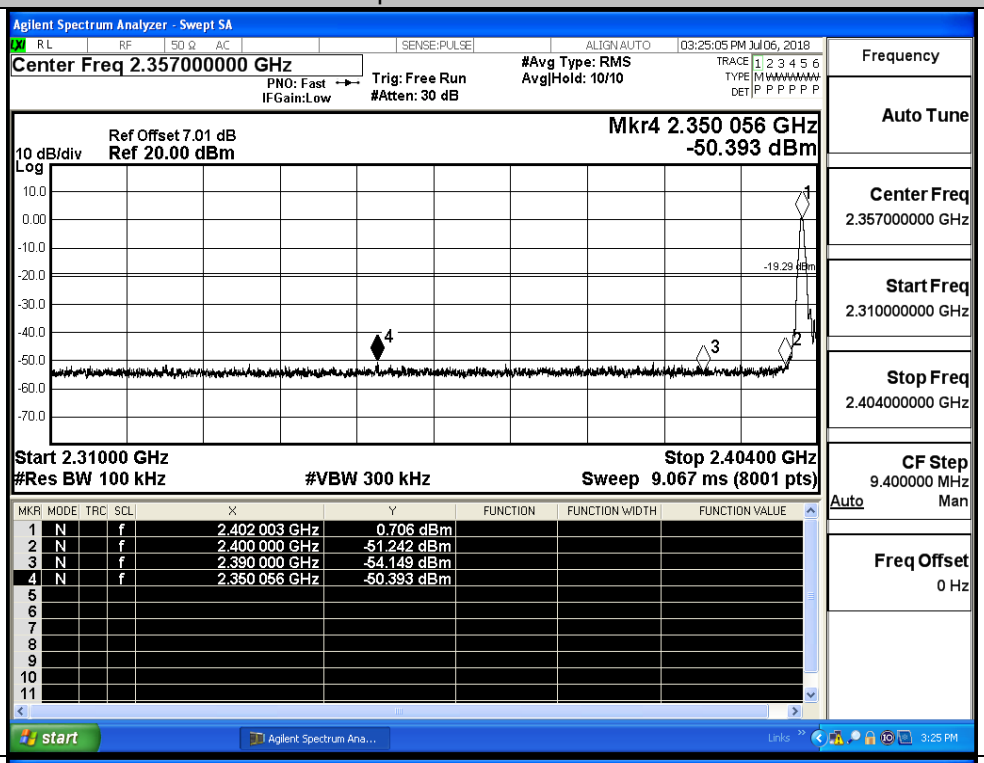
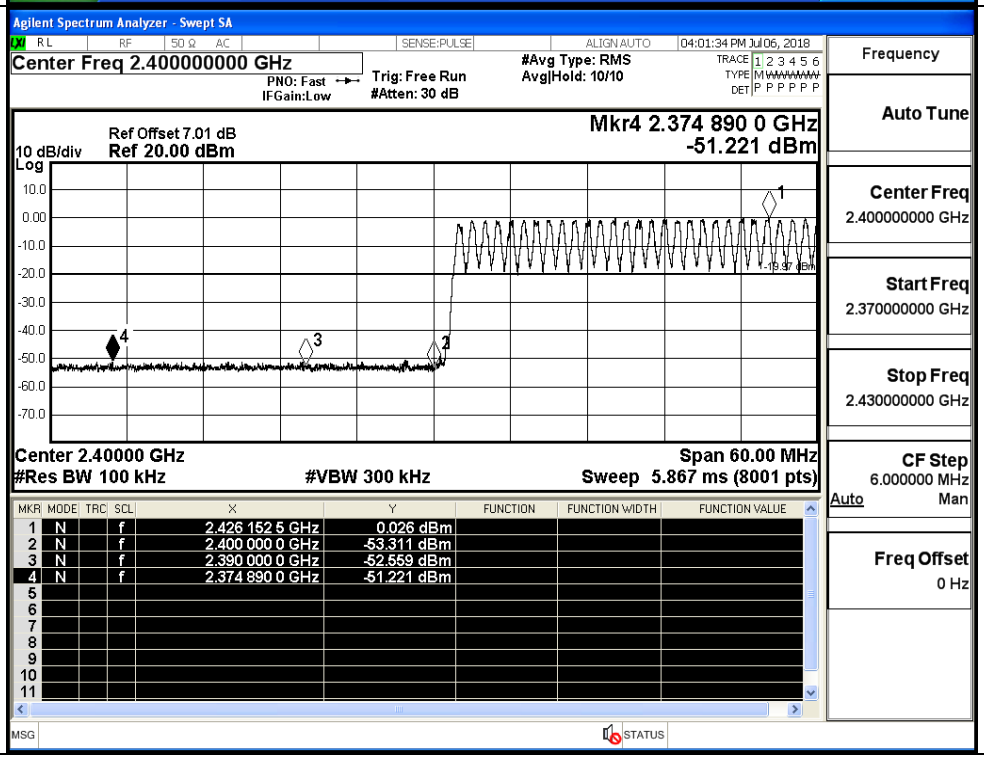
8DPSK_LCH_Graphs			
Pref			
Puw			

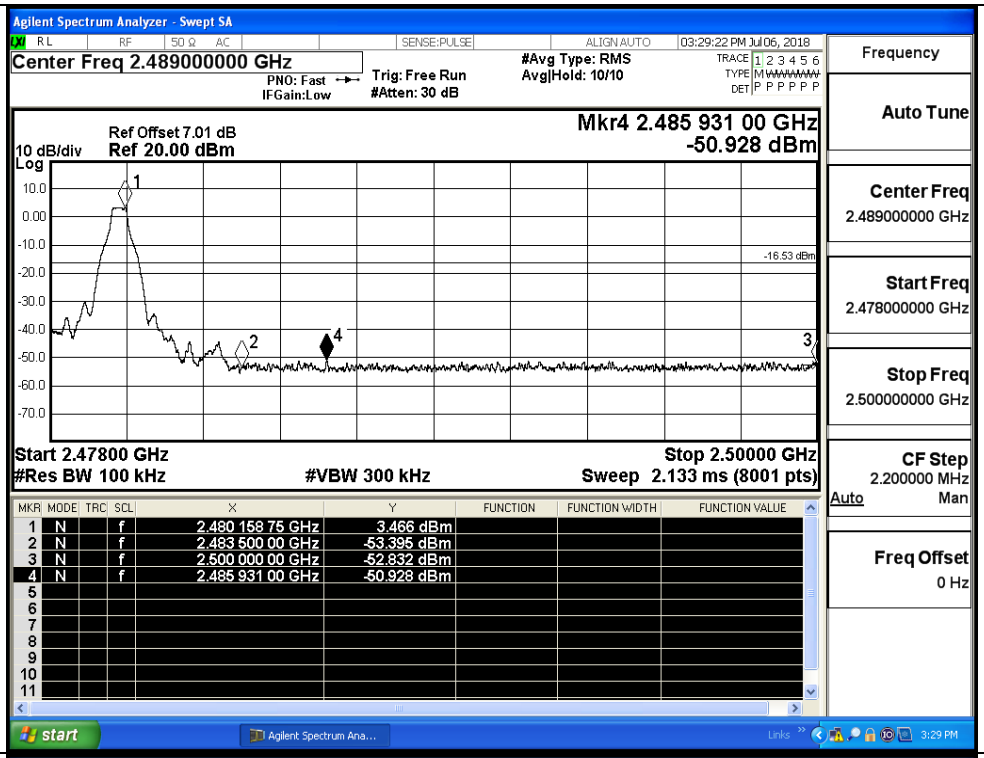
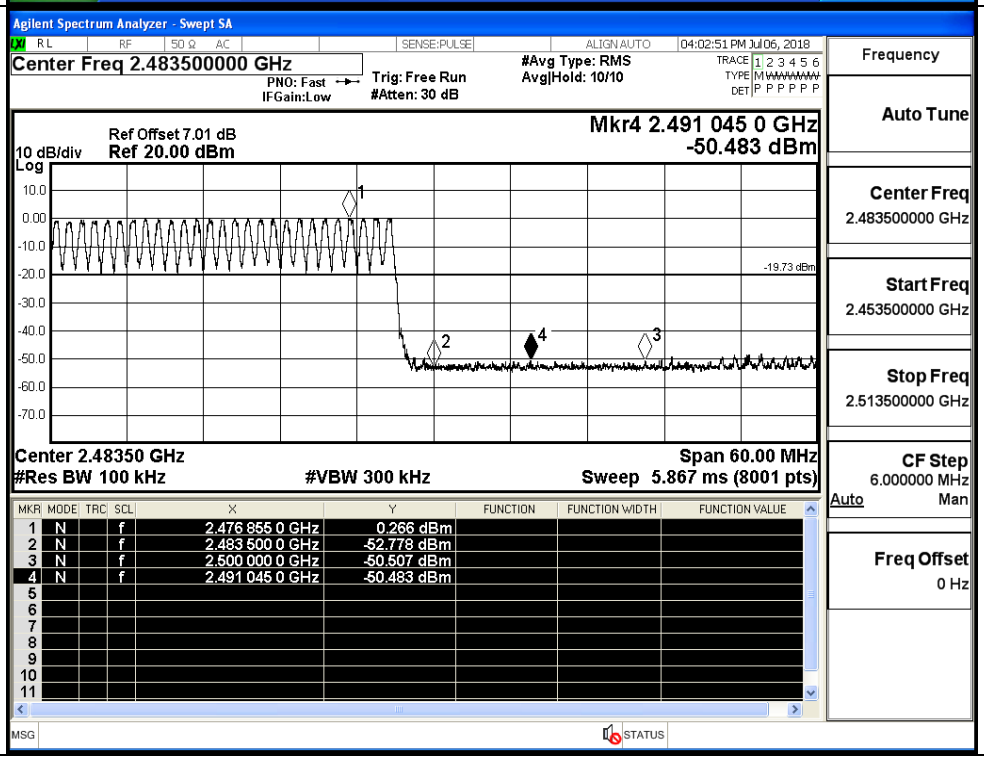
8DPSK_MCH_Graphs			
Pref			
Puw			

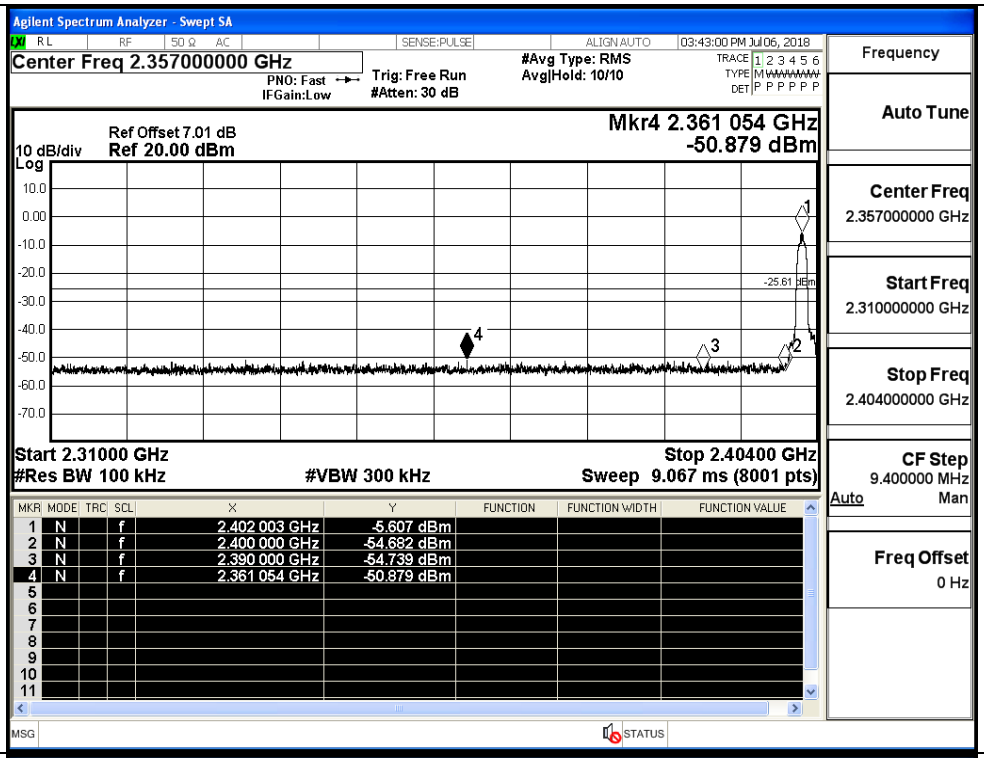
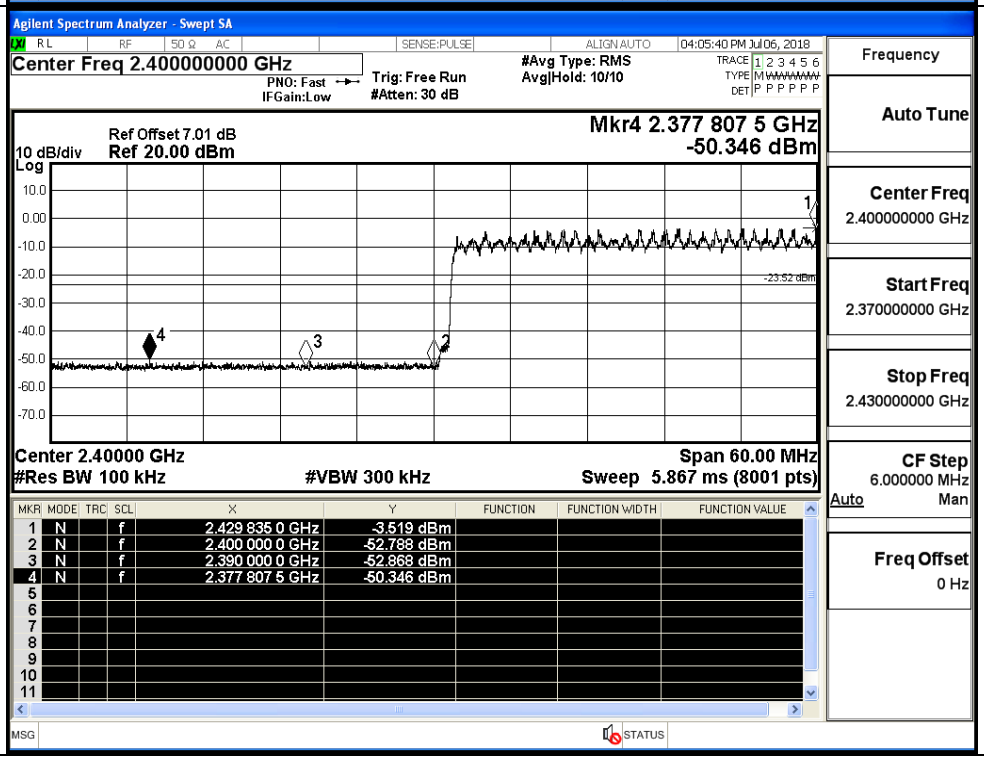
8DPSK_HCH_Graphs			
Pref			
Puw			

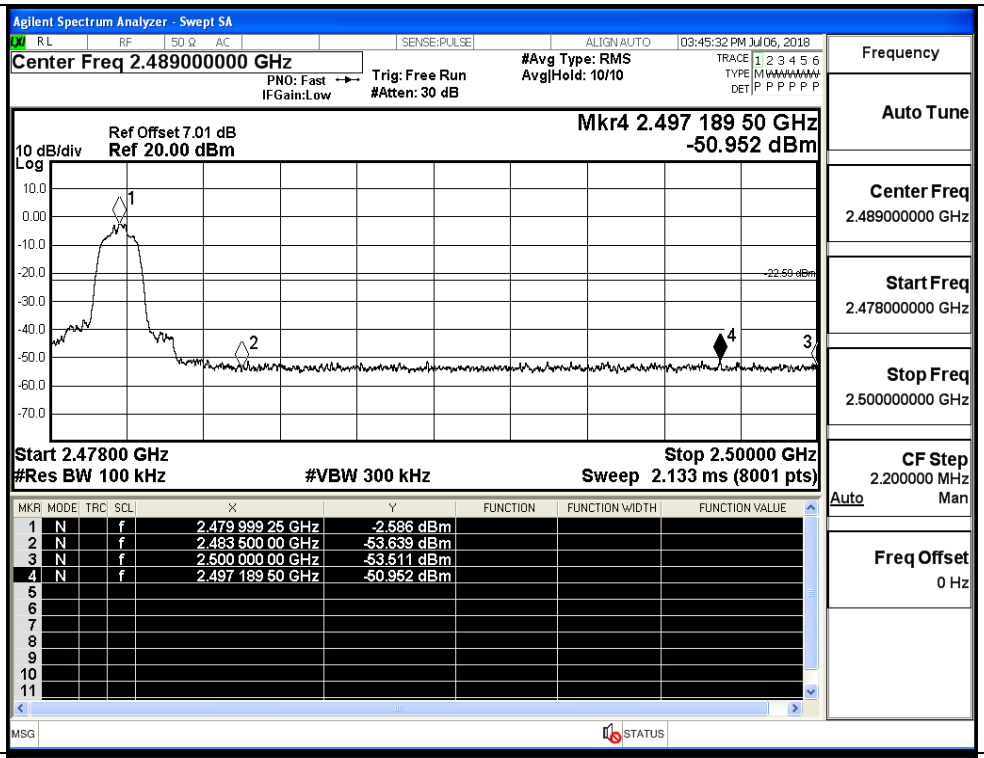
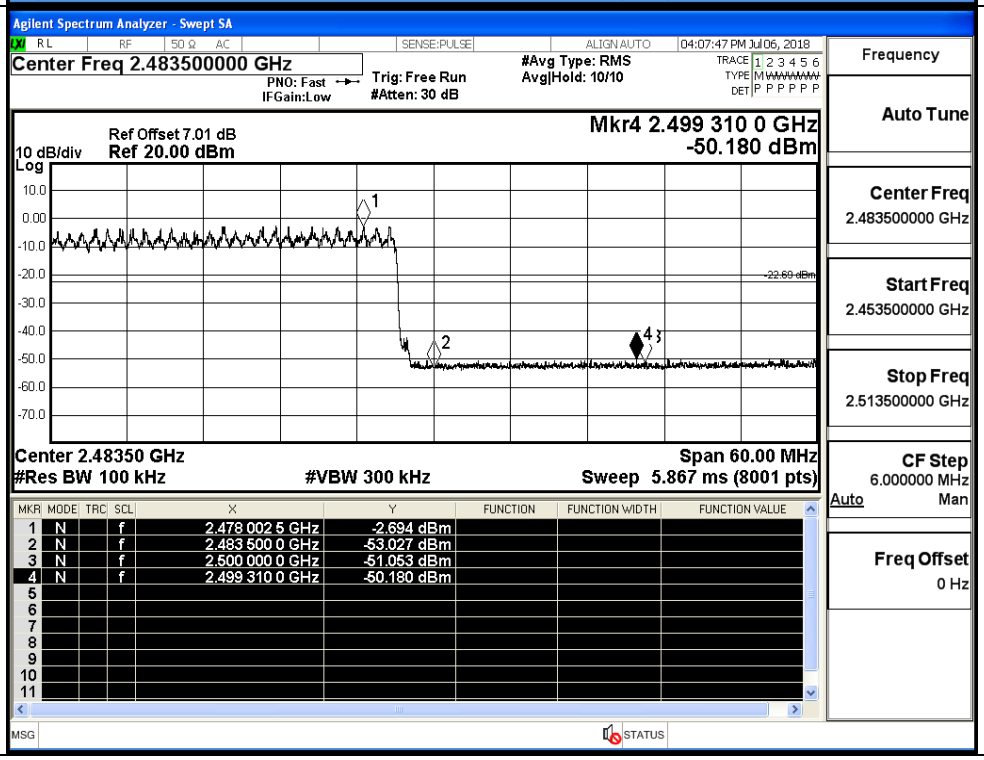
A.7 Band-edge for RF Conducted Emissions

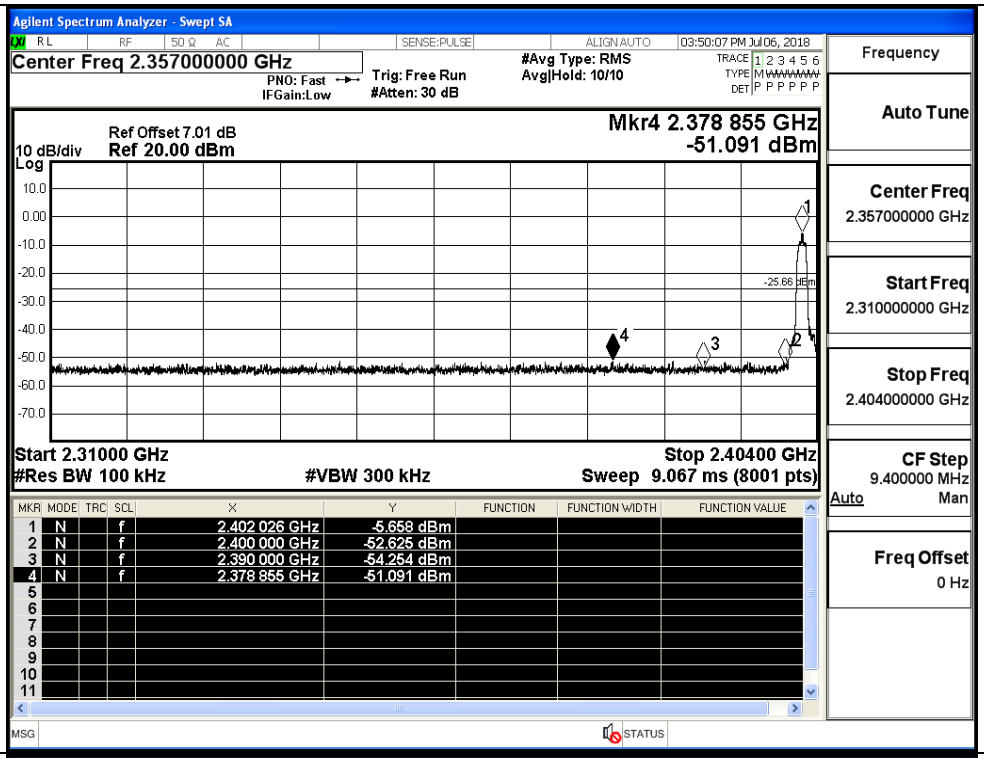
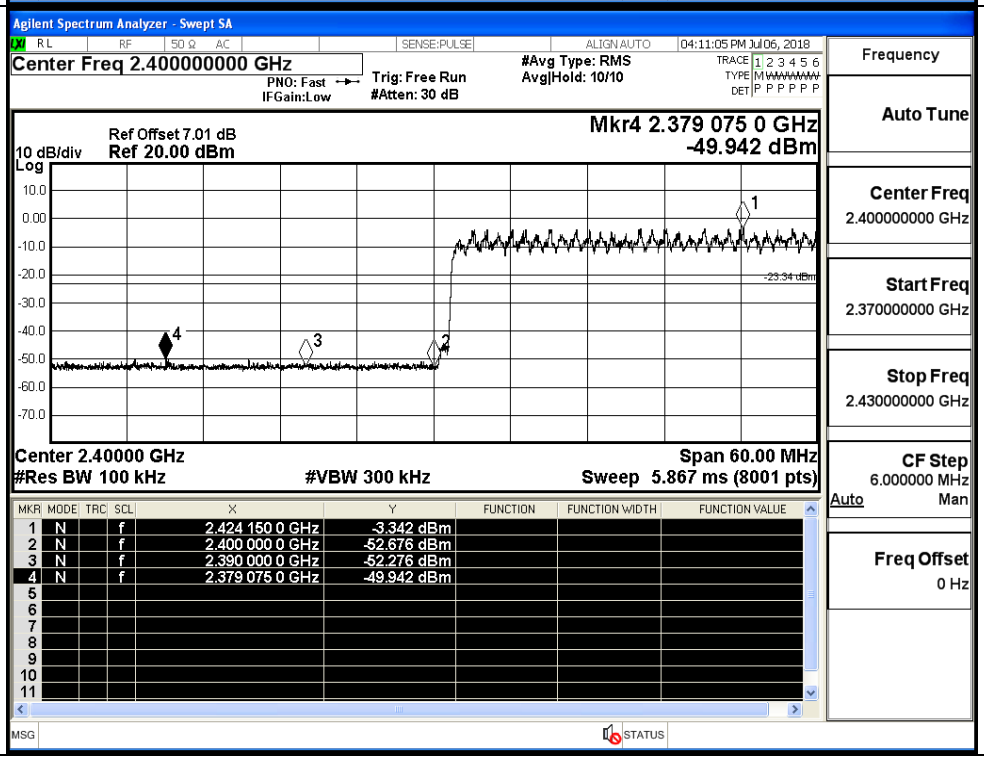
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	0.706	Off	-50.393	-19.29	PASS
			0.026	On	-51.221	-19.97	PASS
	HCH	2480	3.466	Off	-50.928	-16.53	PASS
			0.266	On	-50.483	-19.73	PASS
π/4DQPSK	LCH	2402	-5.607	Off	-50.879	-25.61	PASS
			-3.519	On	-50.346	-23.52	PASS
	HCH	2480	-2.586	Off	-50.952	-22.59	PASS
			-2.694	On	-50.180	-22.69	PASS
8DPSK	LCH	2402	-5.658	Off	-51.091	-25.66	PASS
			-3.342	On	-49.942	-23.34	PASS
	HCH	2480	-2.350	Off	-51.493	-22.35	PASS
			-2.432	On	-50.131	-22.43	PASS

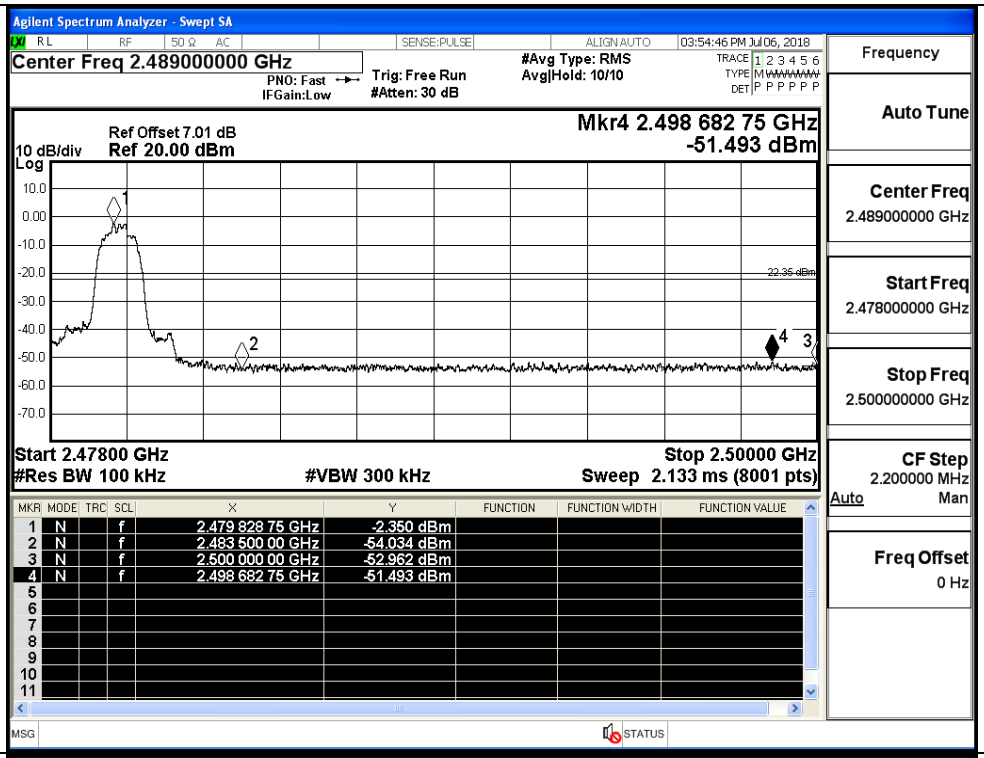
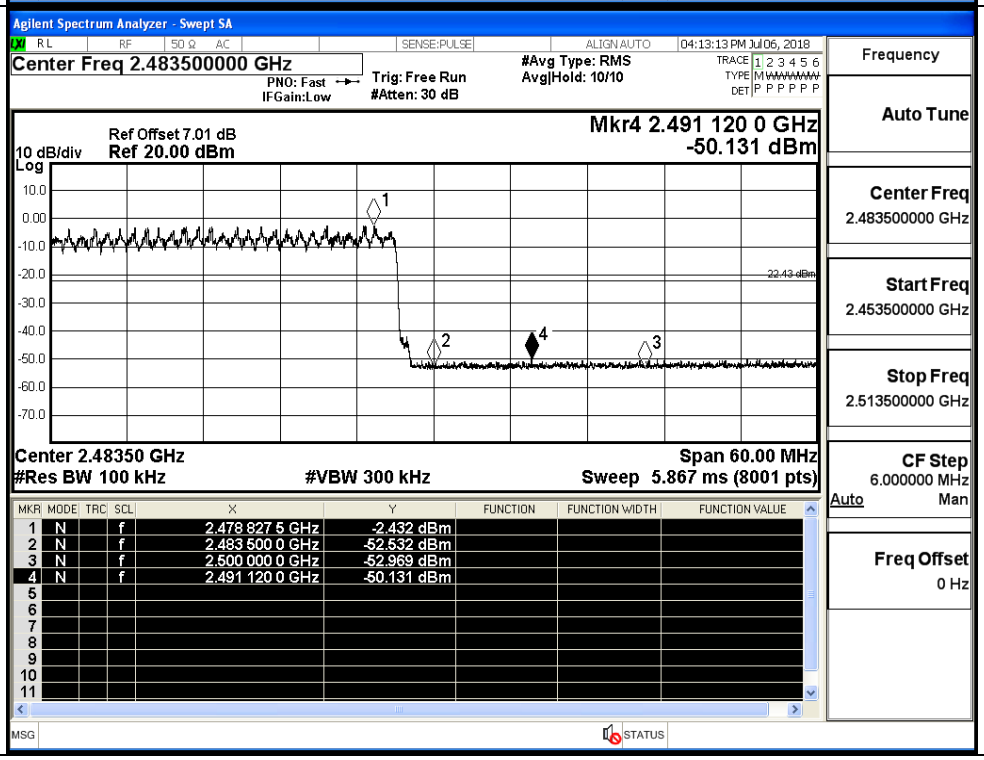
Test Graphs	
GFSK/LCH/No Hop	
GFSK/LCH/Hop	

GFSK/HCH/No Hop	
GFSK/HCH/Hop	

π/4DQPSK/LCH/No Hop	
π/4DQPSK/LCH/Hop	

π/4DQPSK/HCH/No Hop	
π/4DQPSK/HCH/Hop	

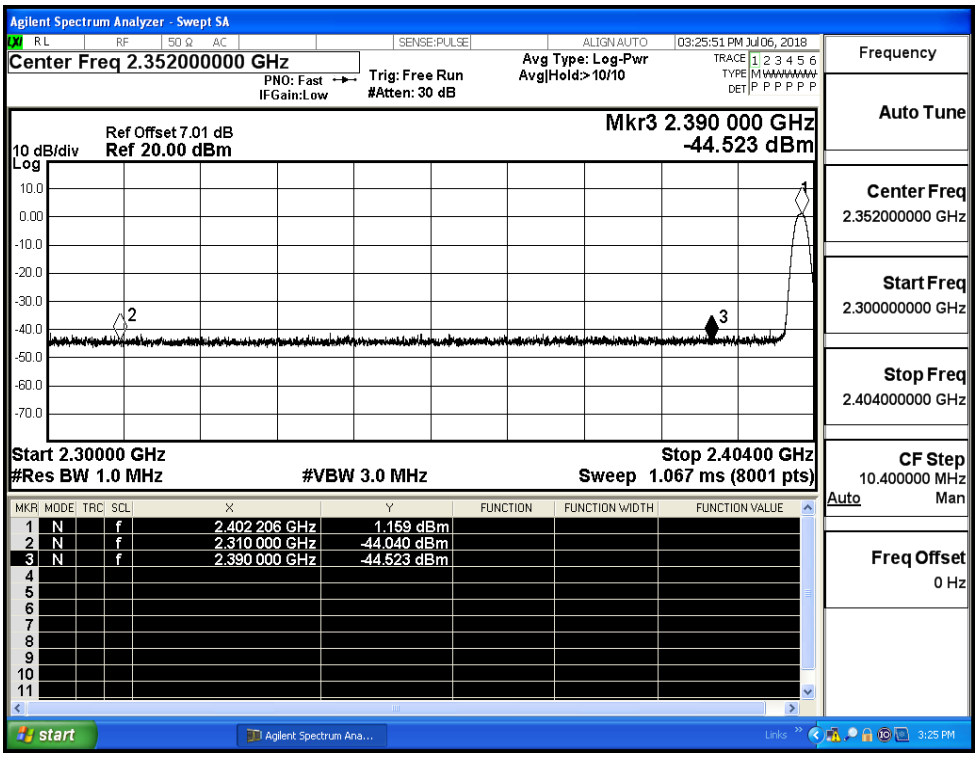
8DPSK/LCH/No Hop	
8DPSK/LCH/Hop	

8DPSK/HCH/No Hop	
8DPSK/HCH/Hop	

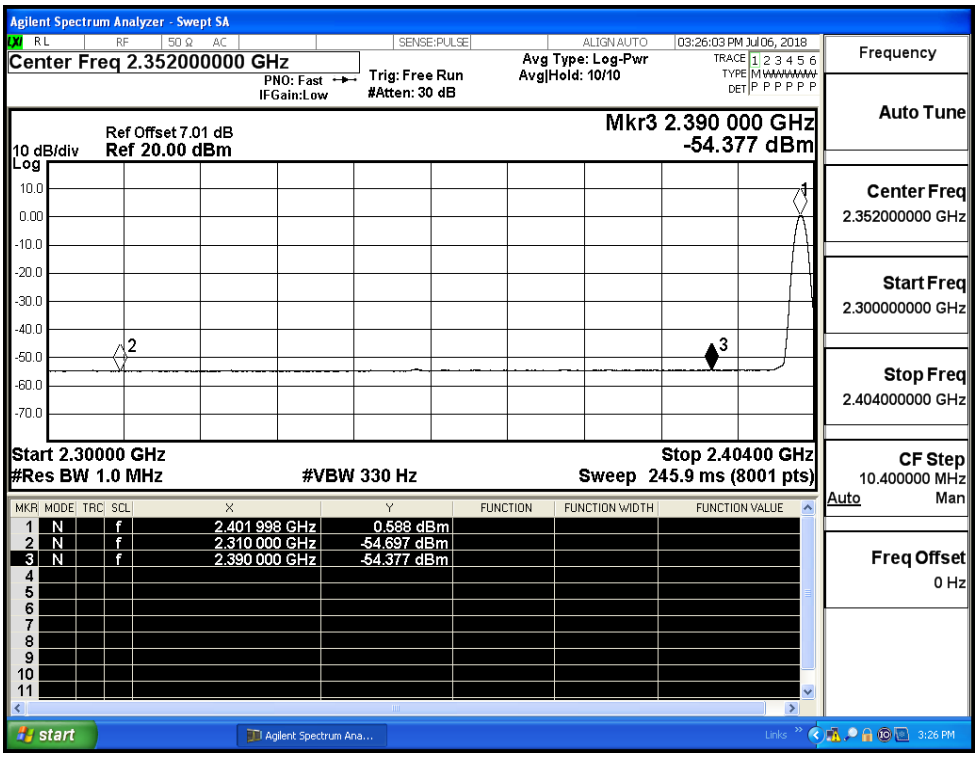
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-44.04	2.0	0	53.22	PEAK	74	PASS
	Off	2310.0	-54.70	2.0	0	42.56	AV	54	PASS
	Off	2390.0	-44.52	2.0	0	52.73	PEAK	74	PASS
	Off	2390.0	-54.38	2.0	0	42.88	AV	54	PASS
	Off	2483.5	-43.69	2.0	0	53.57	PEAK	74	PASS
	Off	2483.5	-52.38	2.0	0	44.88	AV	54	PASS
	Off	2500.0	-44.42	2.0	0	52.84	PEAK	74	PASS
	Off	2500.0	-53.95	2.0	0	43.31	AV	54	PASS
π/4DQPSK	Off	2310.0	-44.31	2.0	0	52.95	PEAK	74	PASS
	Off	2310.0	-54.74	2.0	0	42.52	AV	54	PASS
	Off	2390.0	-45.44	2.0	0	51.82	PEAK	74	PASS
	Off	2390.0	-54.48	2.0	0	42.77	AV	54	PASS
	Off	2483.5	-43.63	2.0	0	53.63	PEAK	74	PASS
	Off	2483.5	-54.00	2.0	0	43.26	AV	54	PASS
	Off	2500.0	-42.82	2.0	0	54.44	PEAK	74	PASS
	Off	2500.0	-54.21	2.0	0	43.05	AV	54	PASS
8DPSK	Off	2310.0	-43.70	2.0	0	53.56	PEAK	74	PASS
	Off	2310.0	-54.65	2.0	0	42.61	AV	54	PASS
	Off	2390.0	-44.45	2.0	0	52.81	PEAK	74	PASS
	Off	2390.0	-54.53	2.0	0	42.72	AV	54	PASS
	Off	2483.5	-44.16	2.0	0	53.10	PEAK	74	PASS
	Off	2483.5	-53.98	2.0	0	43.28	AV	54	PASS
	Off	2500.0	-43.63	2.0	0	53.62	PEAK	74	PASS
	Off	2500.0	-54.12	2.0	0	43.14	AV	54	PASS

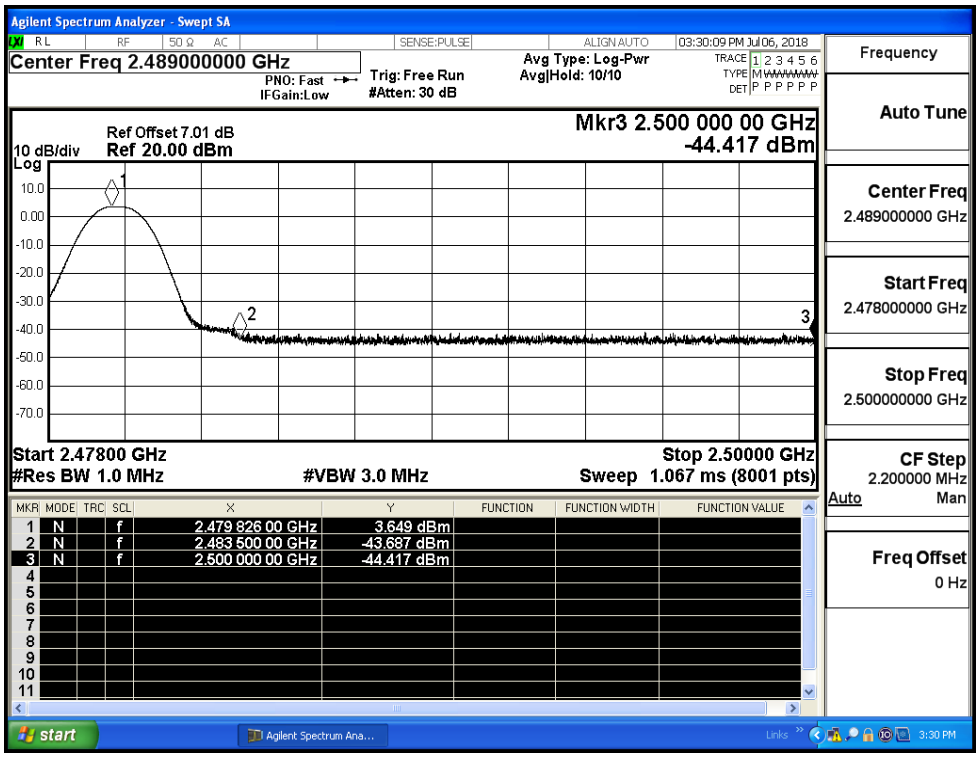
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



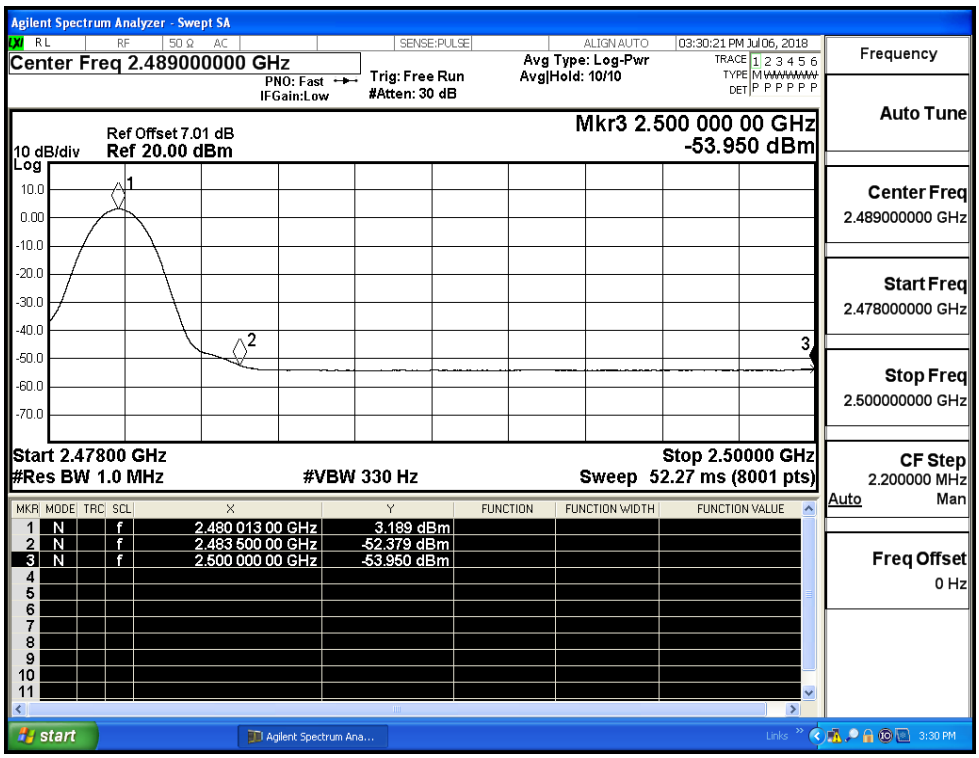
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



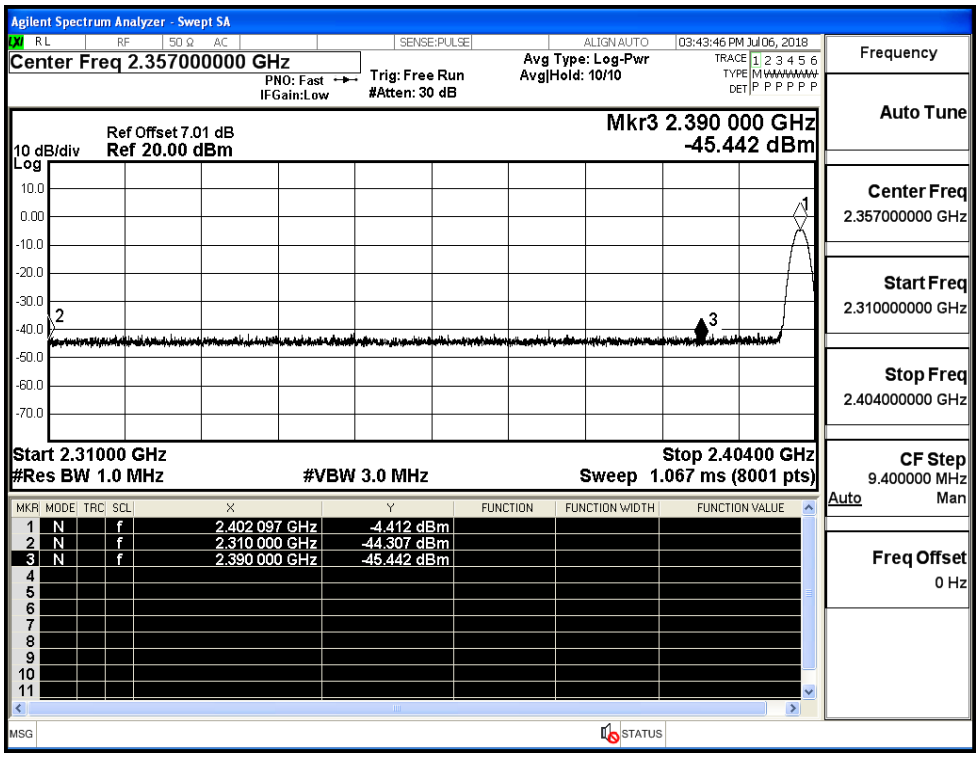
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



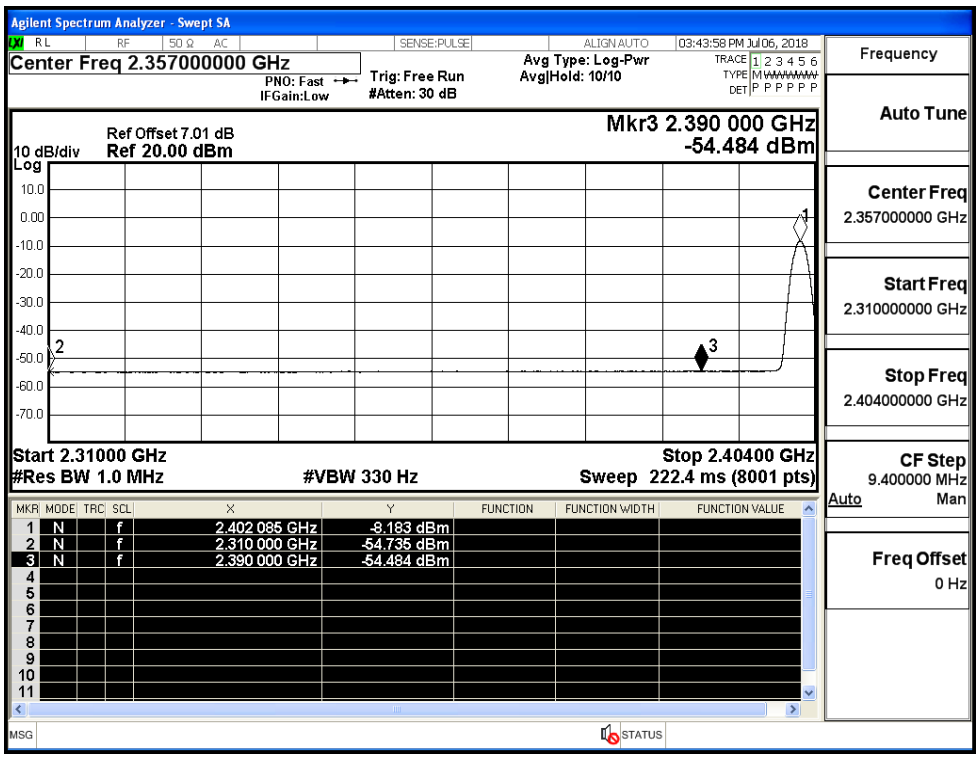
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



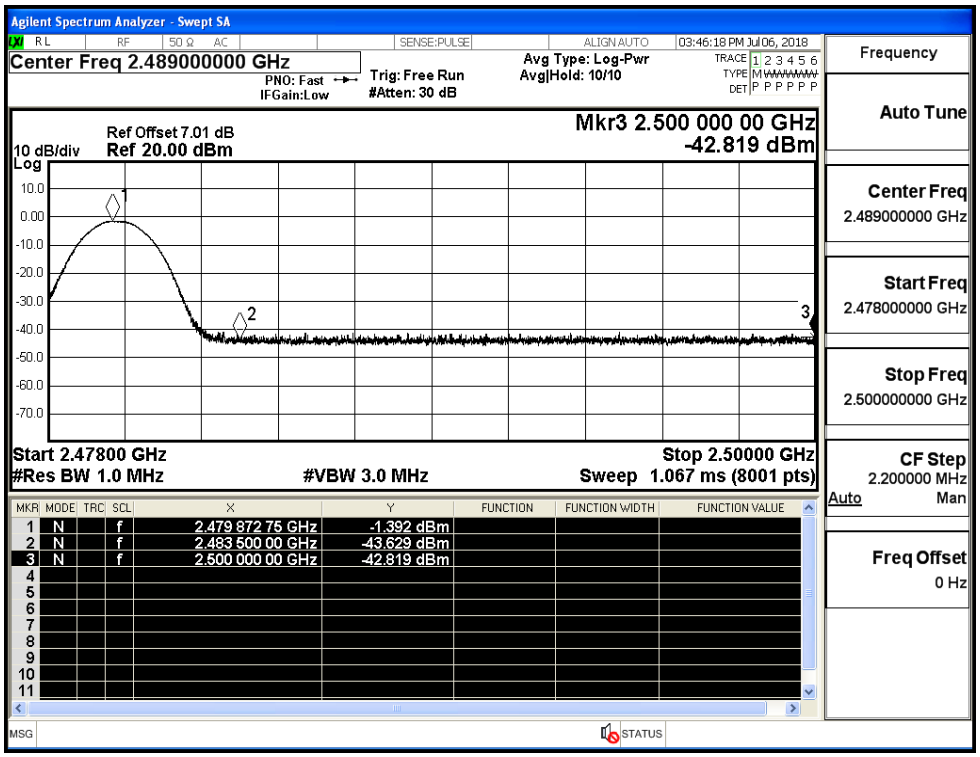
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



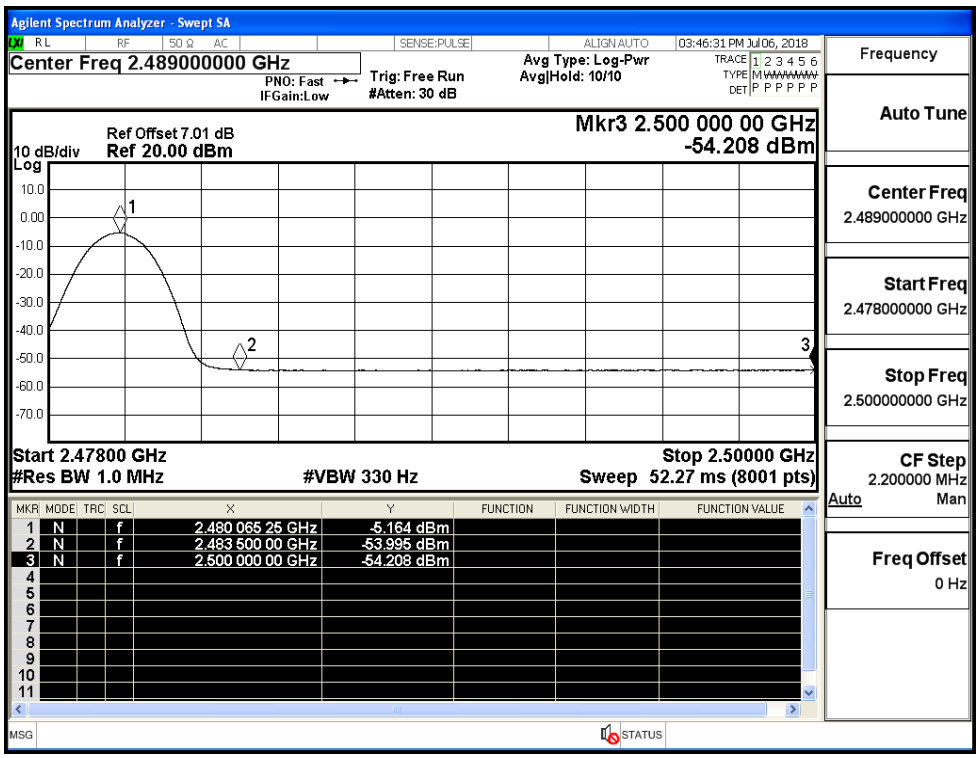
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



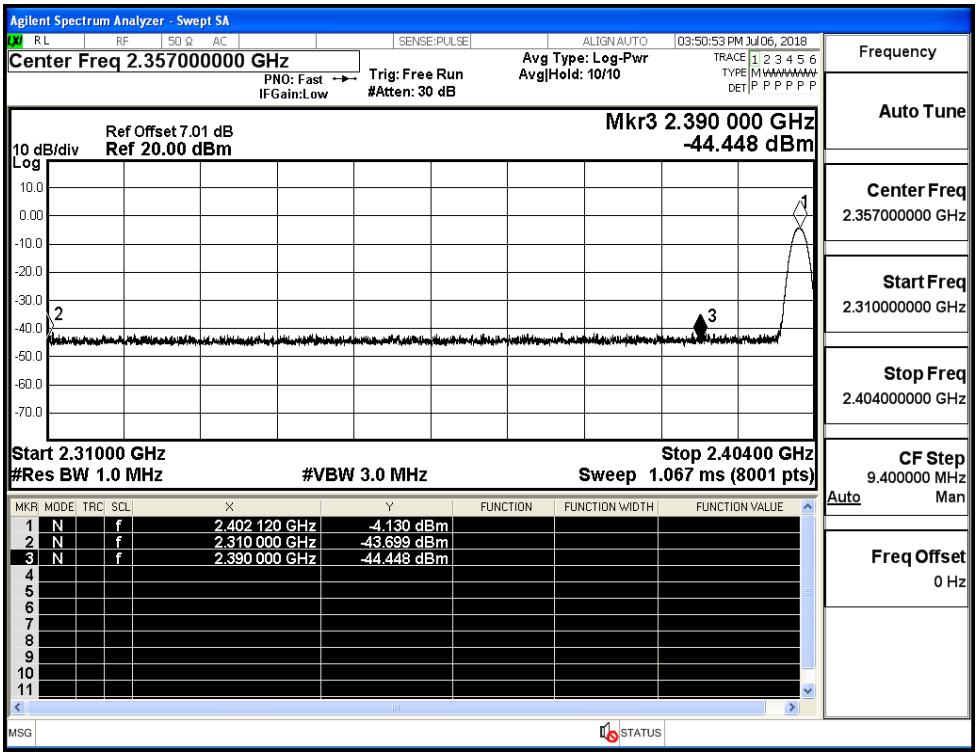
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



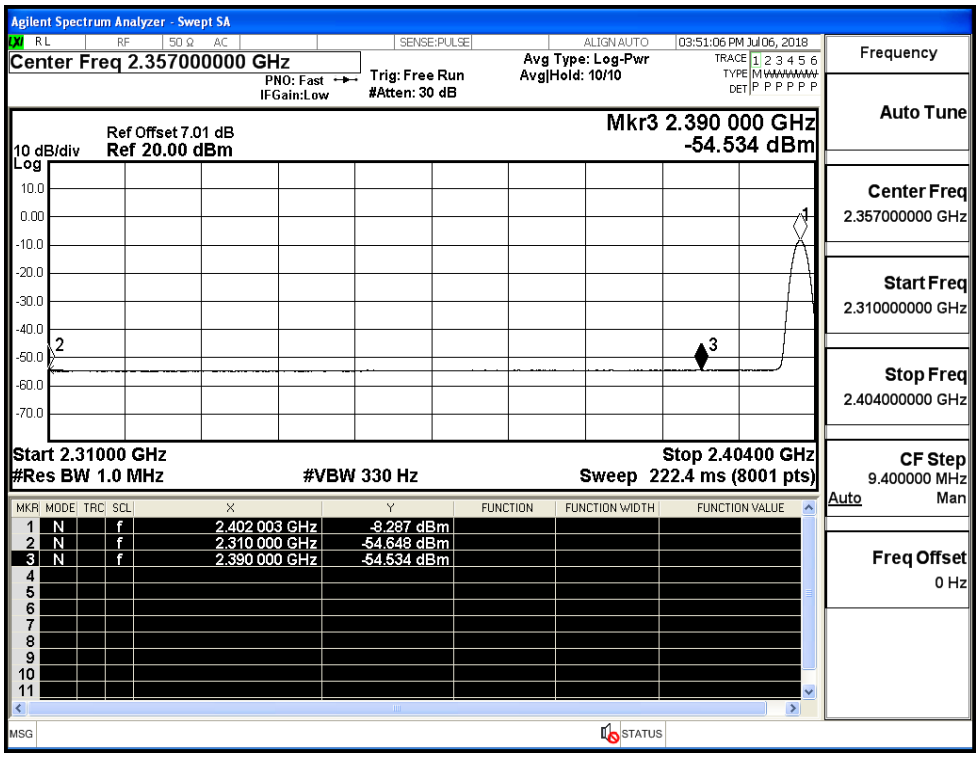
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



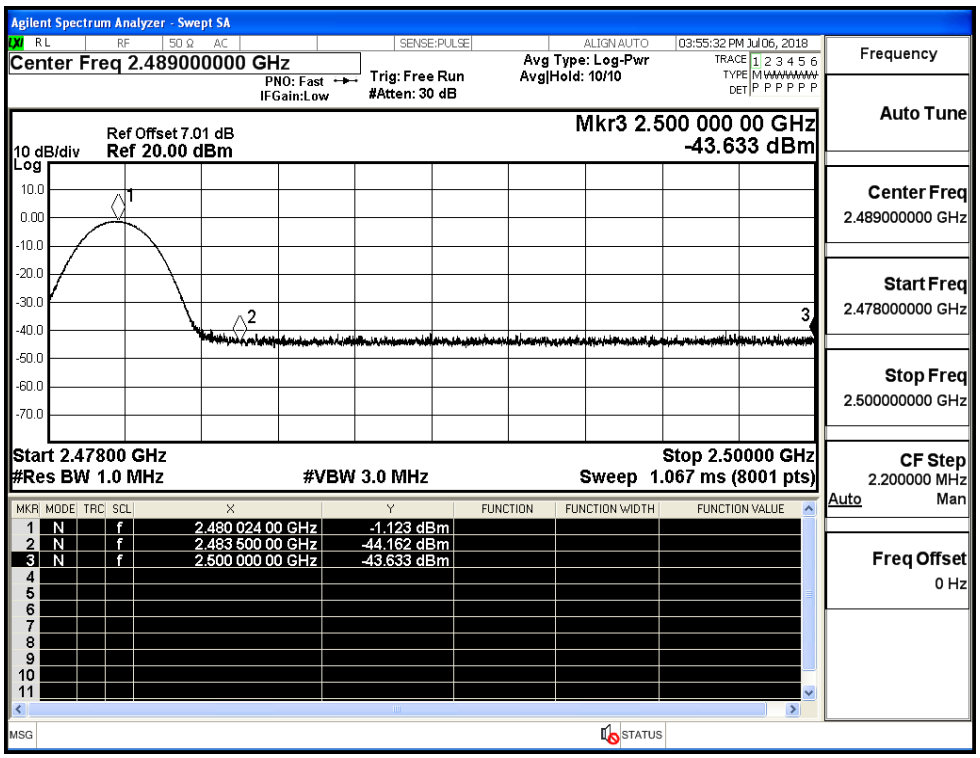
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



Restrict-band band-edge measurements_Hopping Off_8DPSK_Average (Low Channel)



Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (High Channel)



Restrict-band band-edge measurements_Hopping Off_8DPSK_Average (High Channel)