Appendix A

RF Test Data for BT V5.0(BDR/EDR) (Conducted Measurement)

Product Name: TV Speaker

Trade Mark: Serene

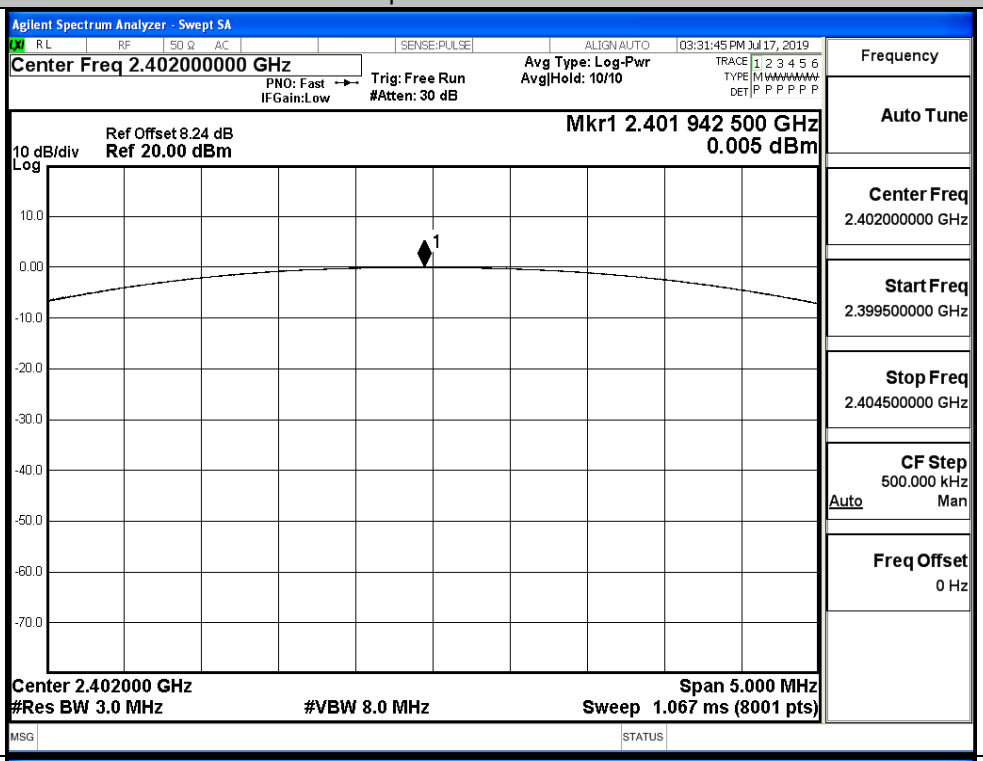
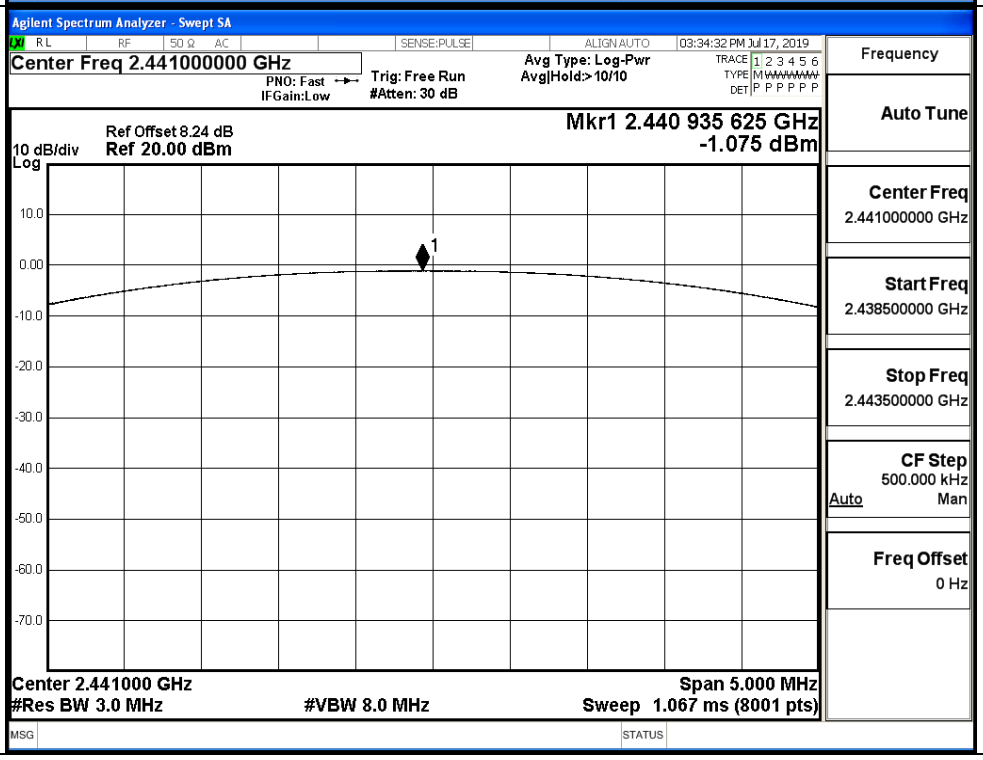
Test Model: BT-100

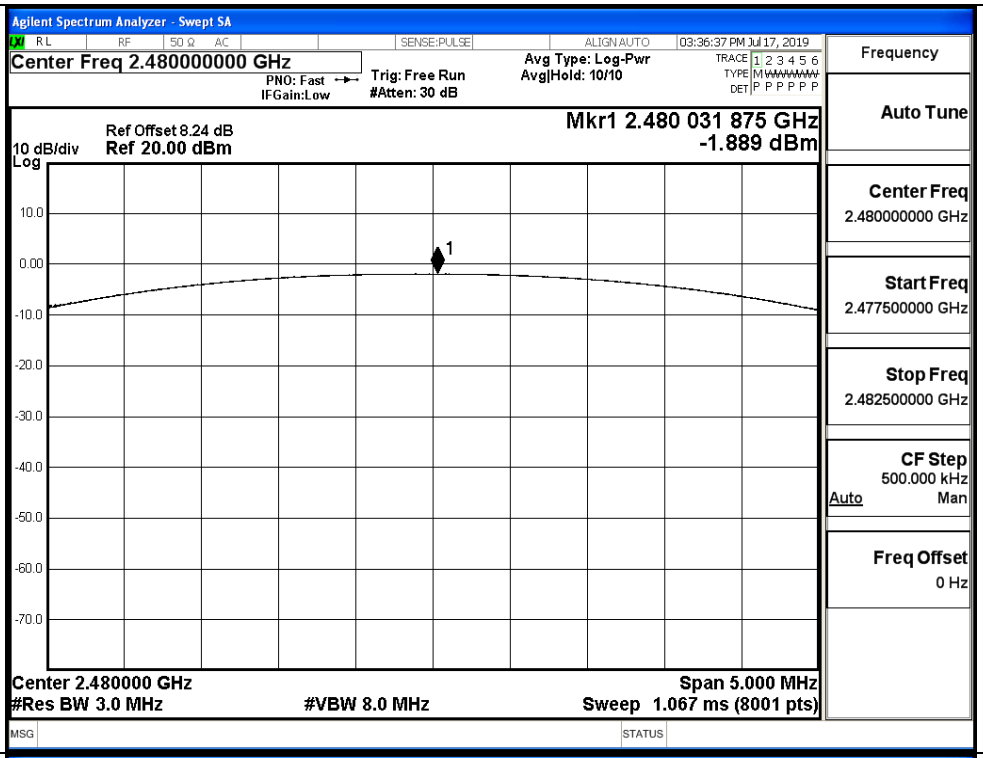
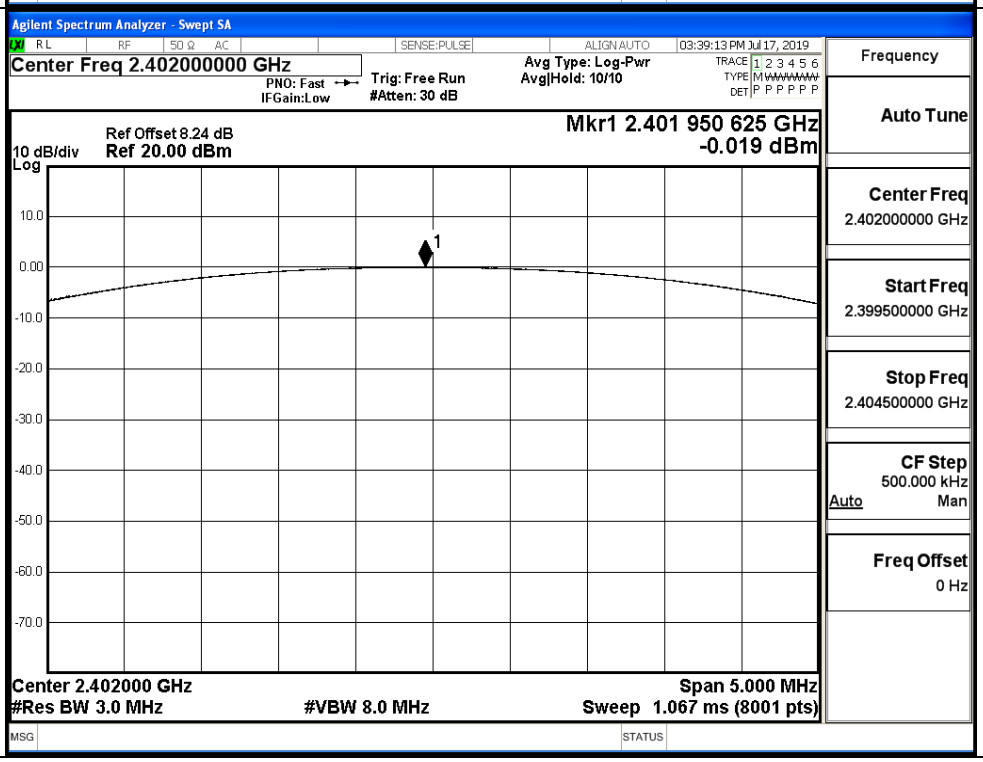
Environmental Conditions

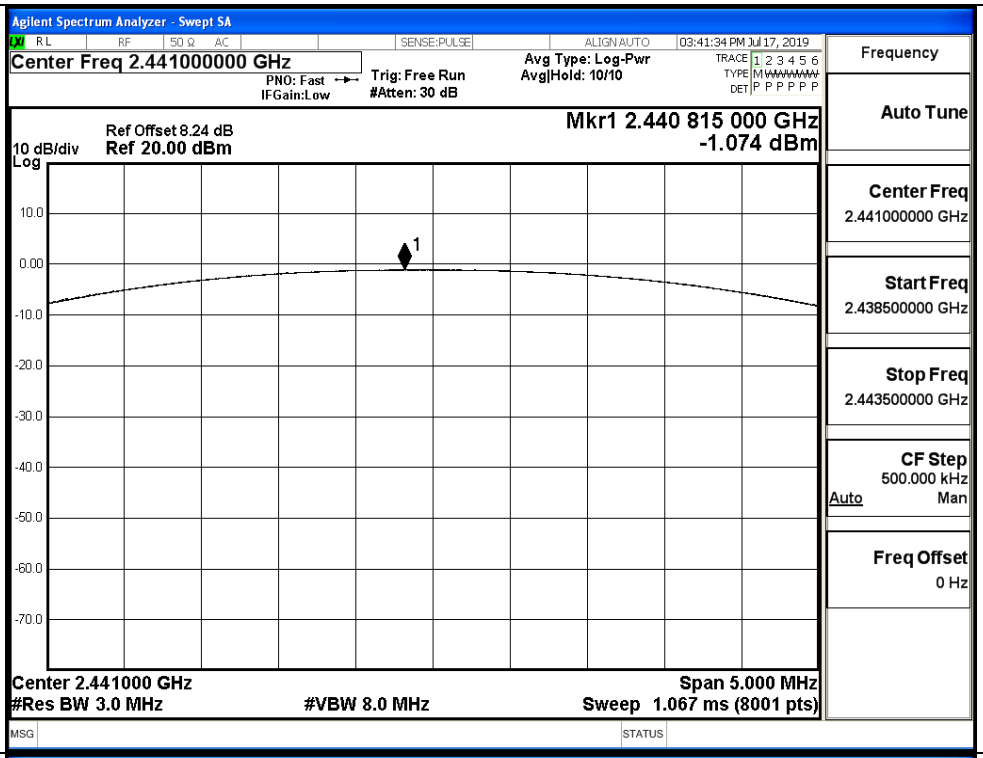
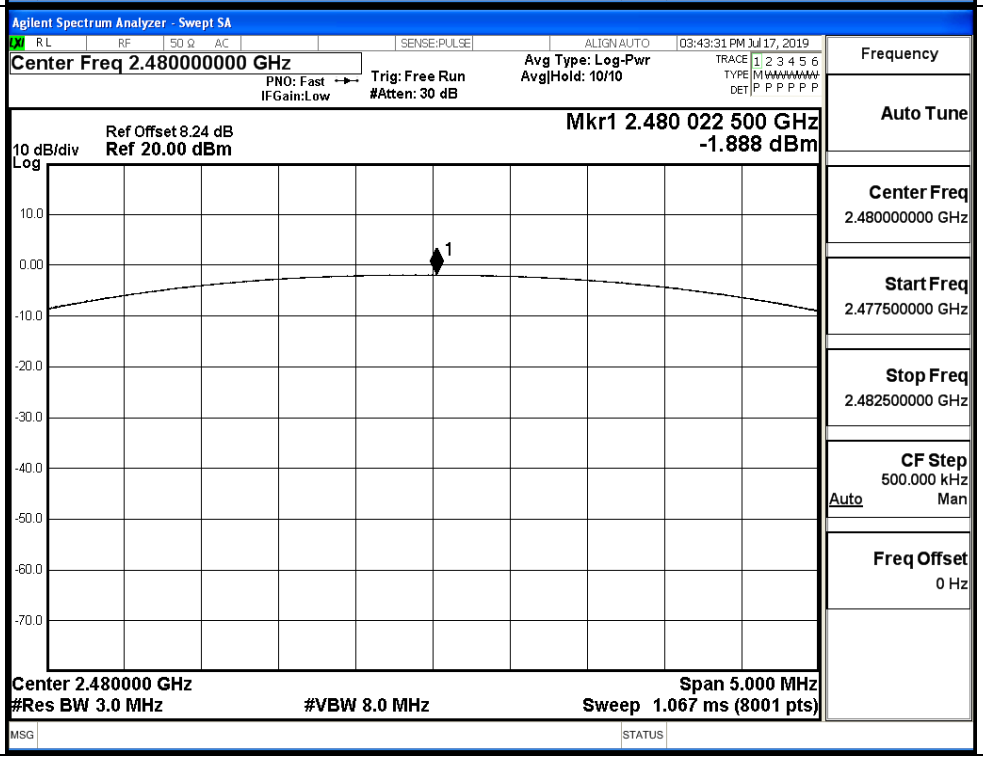
Temperature:	23.7 ° C
Relative Humidity:	53.4%
ATM Pressure:	100.0 kPa
Test Engineer:	David Luo
Supervised by:	Wang.Chuang

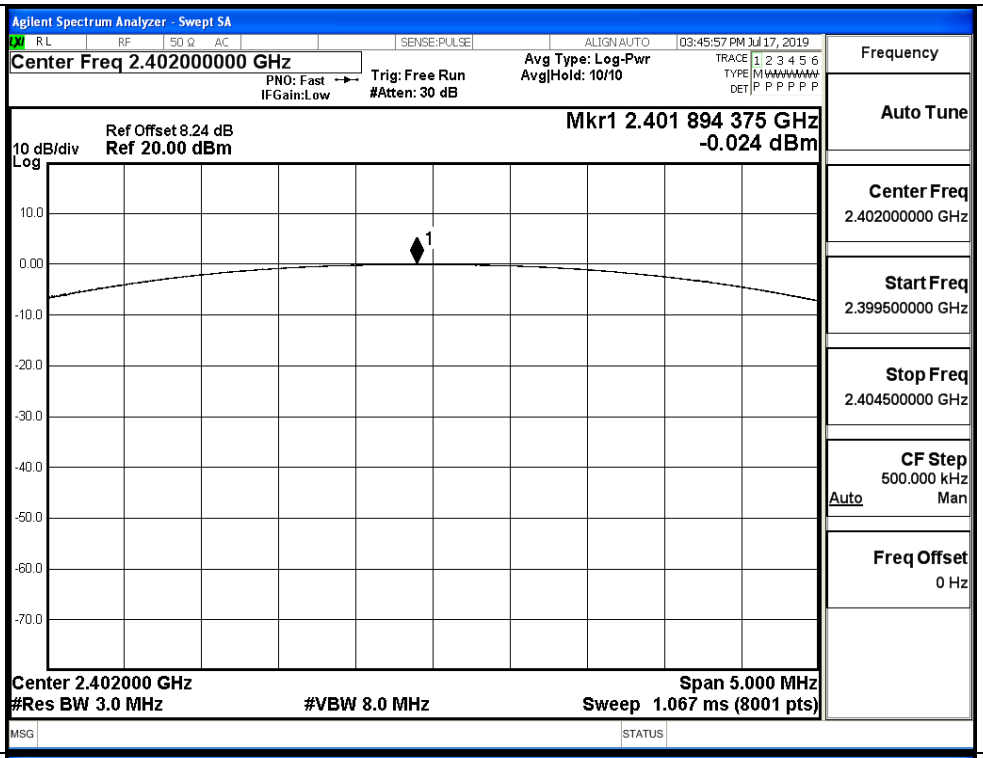
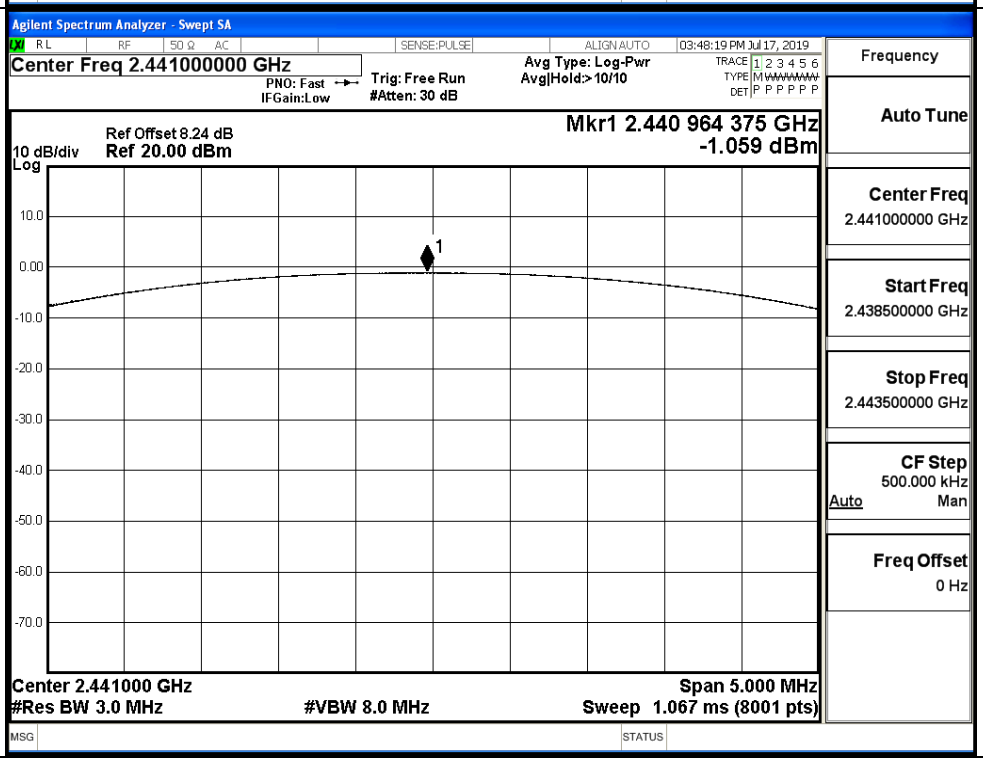
A.1 Maxmum Conducted Peak Output Power

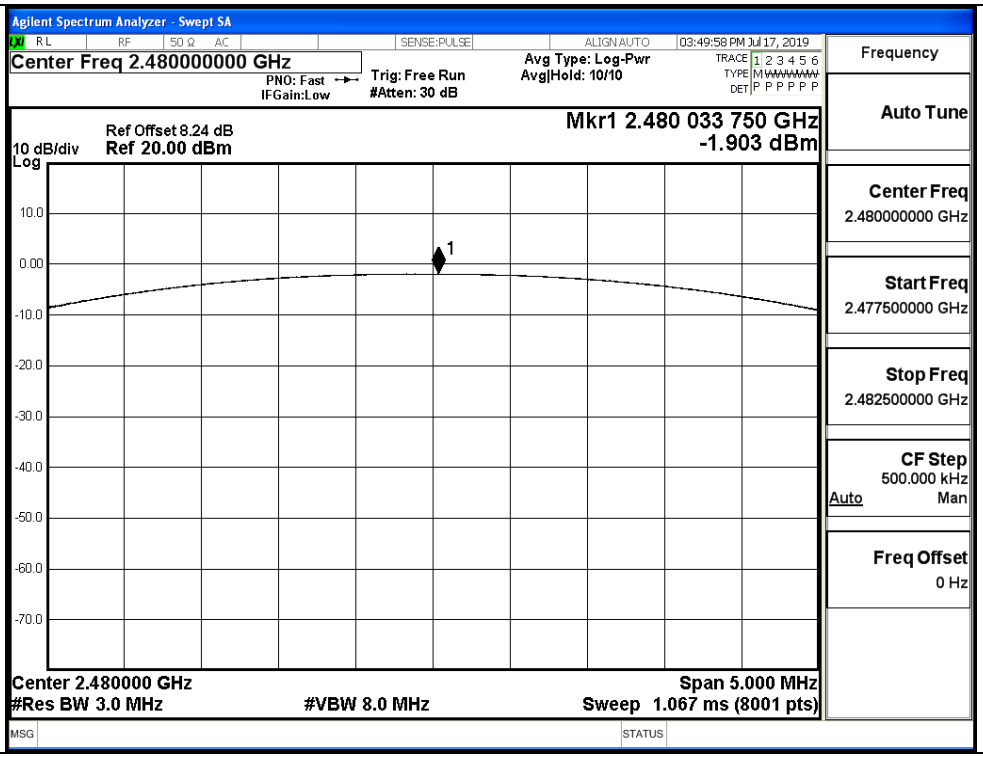
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.005	30	PASS
	MCH	-1.075	30	PASS
	HCH	-1.889	30	PASS
π/4DQPSK	LCH	-0.019	21	PASS
	MCH	-1.074	21	PASS
	HCH	-1.888	21	PASS
8DPSK	LCH	-0.024	21	PASS
	MCH	-1.059	21	PASS
	HCH	-1.903	21	PASS

Test Graphs		
GFSK/LCH		
GFSK/MCH		

GFSK/HCH	
π/4DQPSK/LCH	

π/4DQPSK/MCH		
π/4DQPSK/HCH		

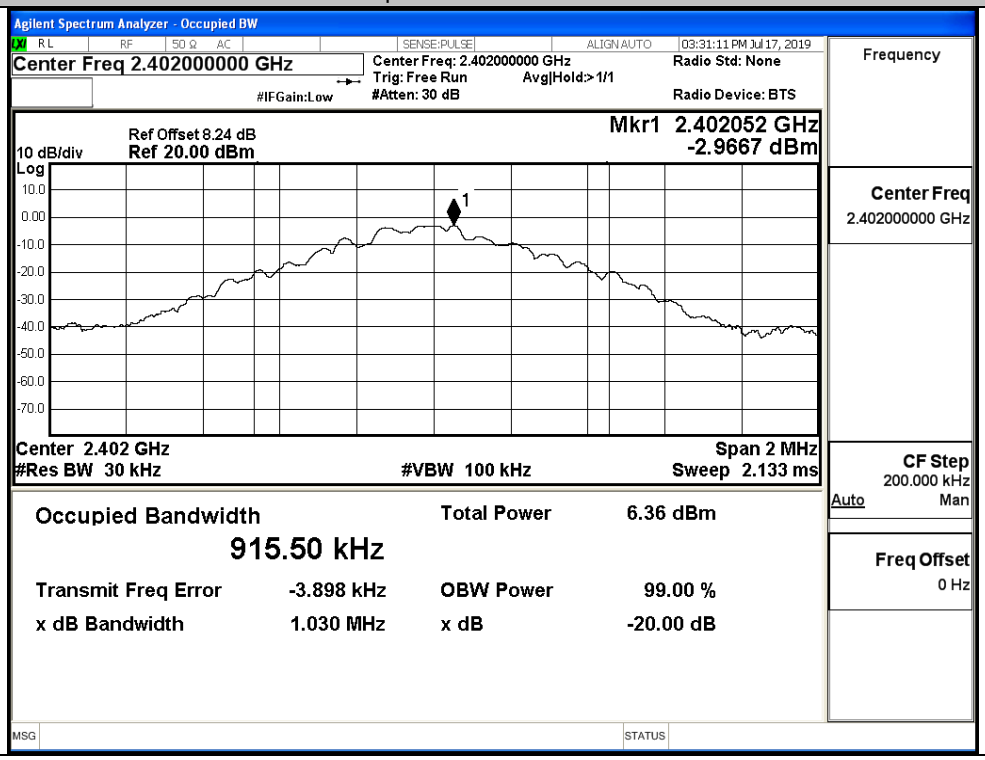
8DPSK/LCH		
8DPSK/MCH		

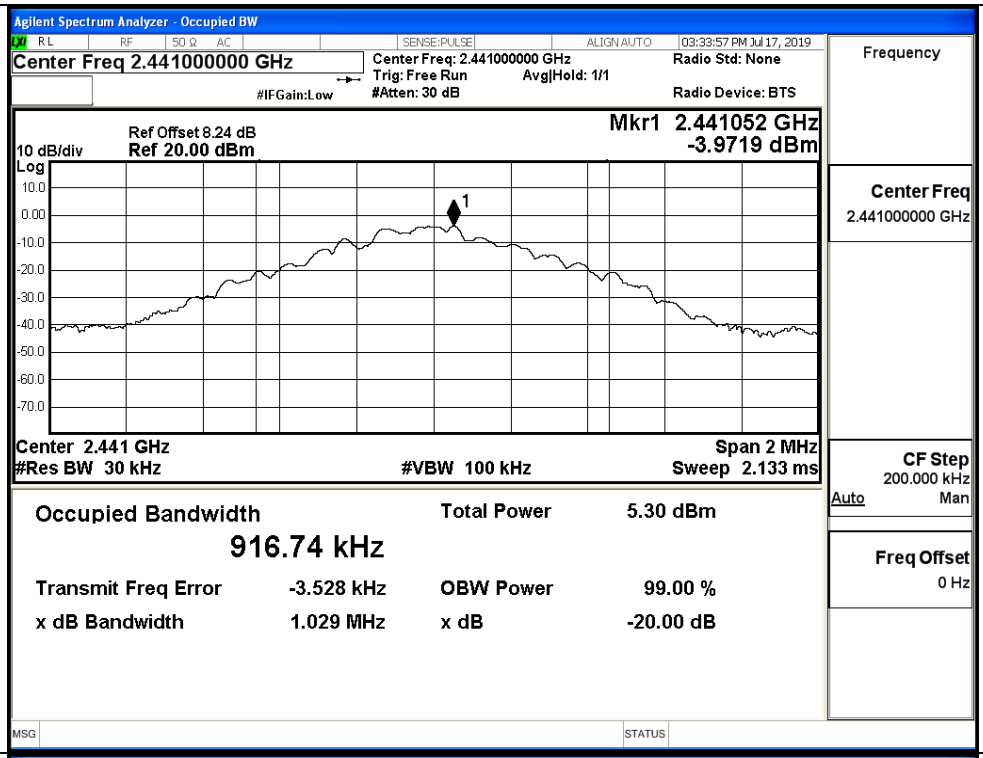
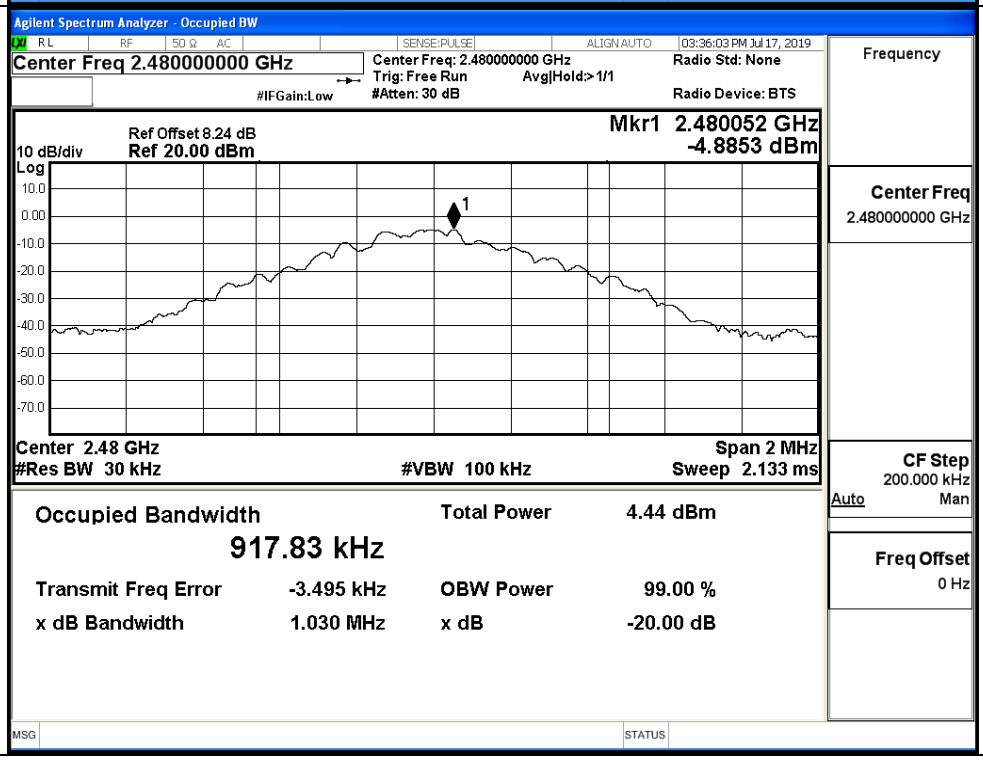
8DPSK/HCH	

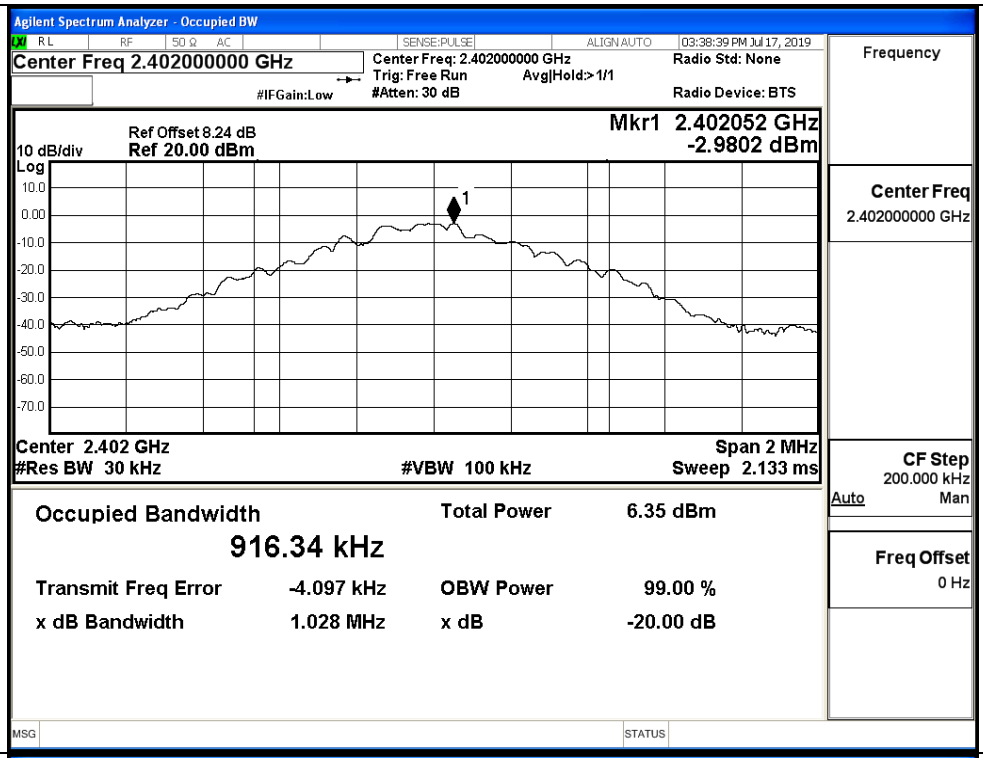
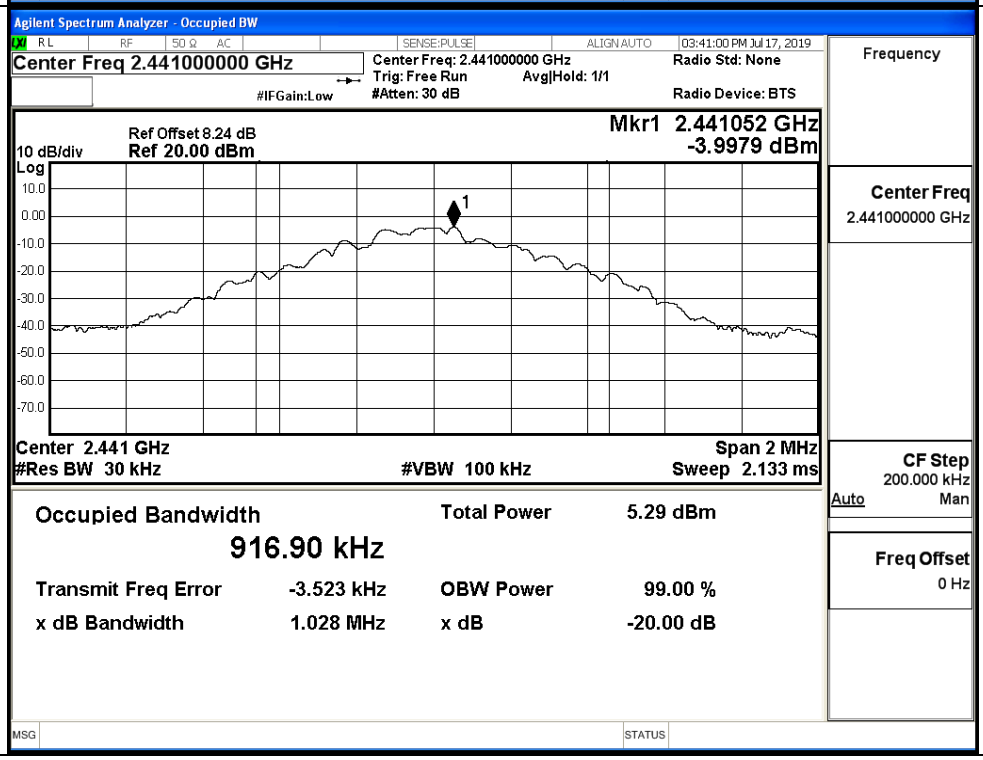
Agilent Spectrum Analyzer - Swept SA
Center Freq 2.480000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 10/10
03:49:58 PM Jul 17, 2019
Ref Offset 8.24 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 2.480 033 750 GHz
-1.903 dBm
Center 2.480000 GHz
#Res BW 3.0 MHz
#VBW 8.0 MHz
Span 5.000 MHz
Sweep 1.067 ms (8001 pts)
Frequency
Auto Tune
Center Freq
2.480000000 GHz
Start Freq
2.477500000 GHz
Stop Freq
2.482500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz

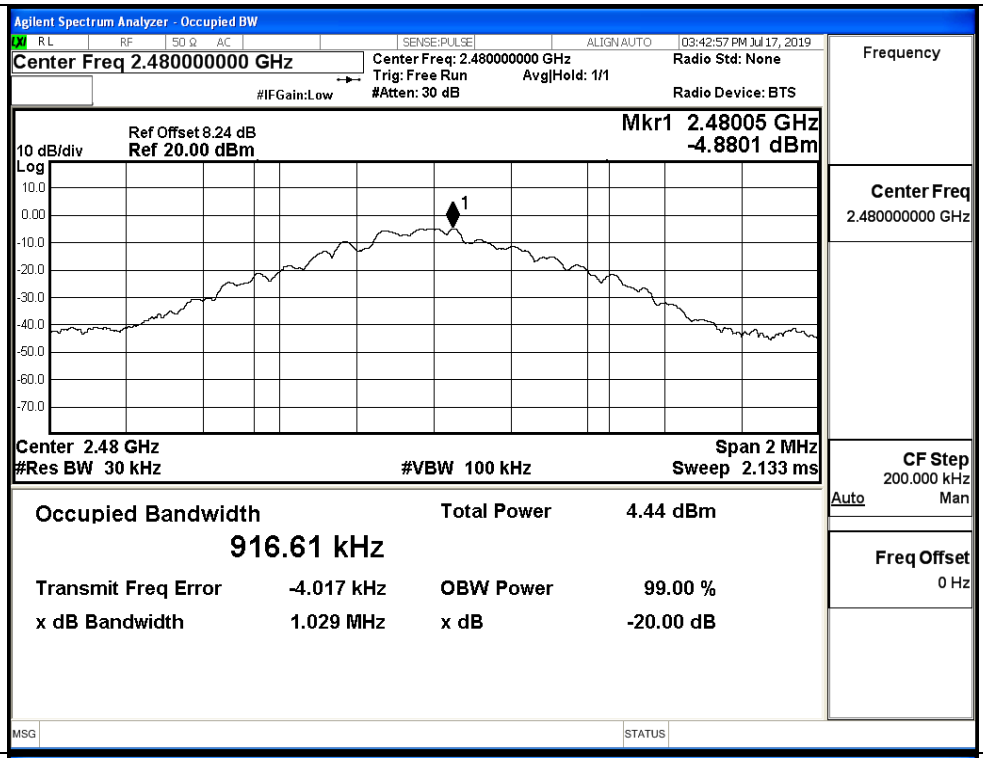
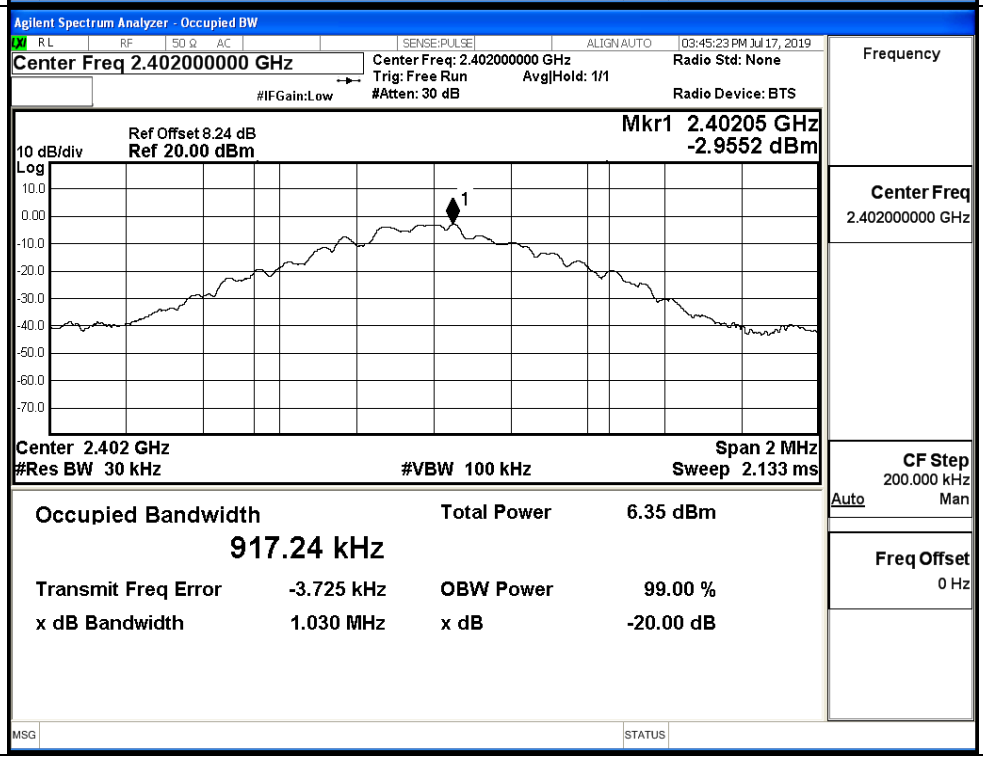
A.2 20dB Bandwidth

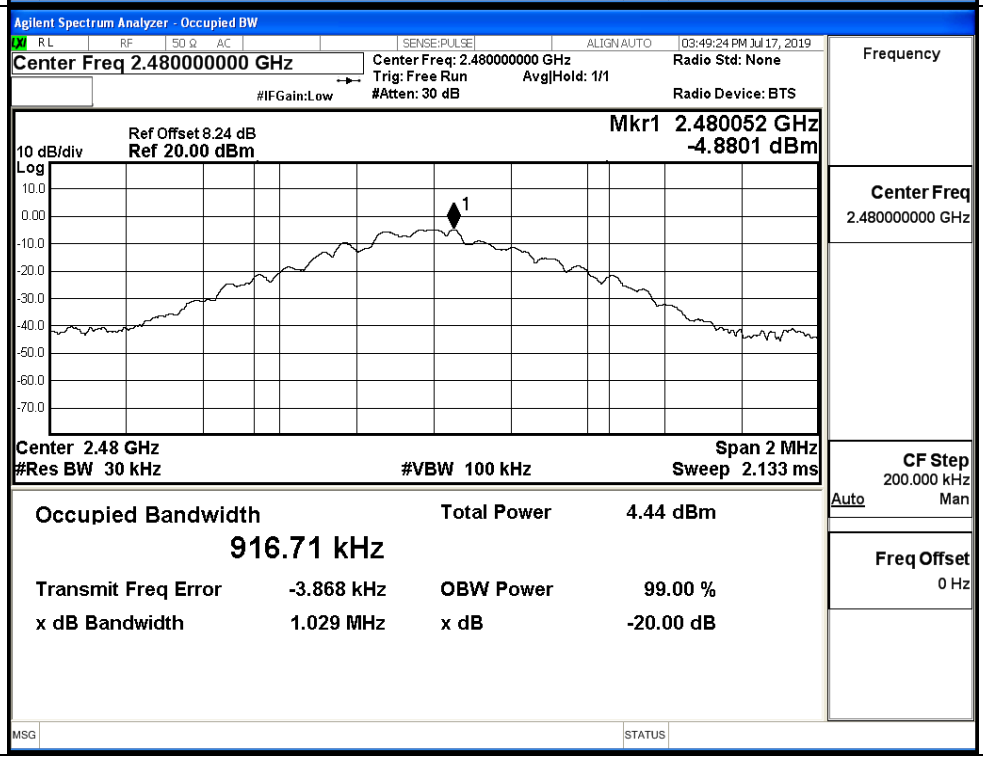
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.030	Not Specified	PASS
	MCH	1.029	Not Specified	PASS
	HCH	1.030	Not Specified	PASS
π/4DQPSK	LCH	1.028	Not Specified	PASS
	MCH	1.028	Not Specified	PASS
	HCH	1.029	Not Specified	PASS
8DPSK	LCH	1.030	Not Specified	PASS
	MCH	1.029	Not Specified	PASS
	HCH	1.029	Not Specified	PASS

Test Graphs	
GFSK/LCH	

GFSK/MCH	
GFSK/HCH	

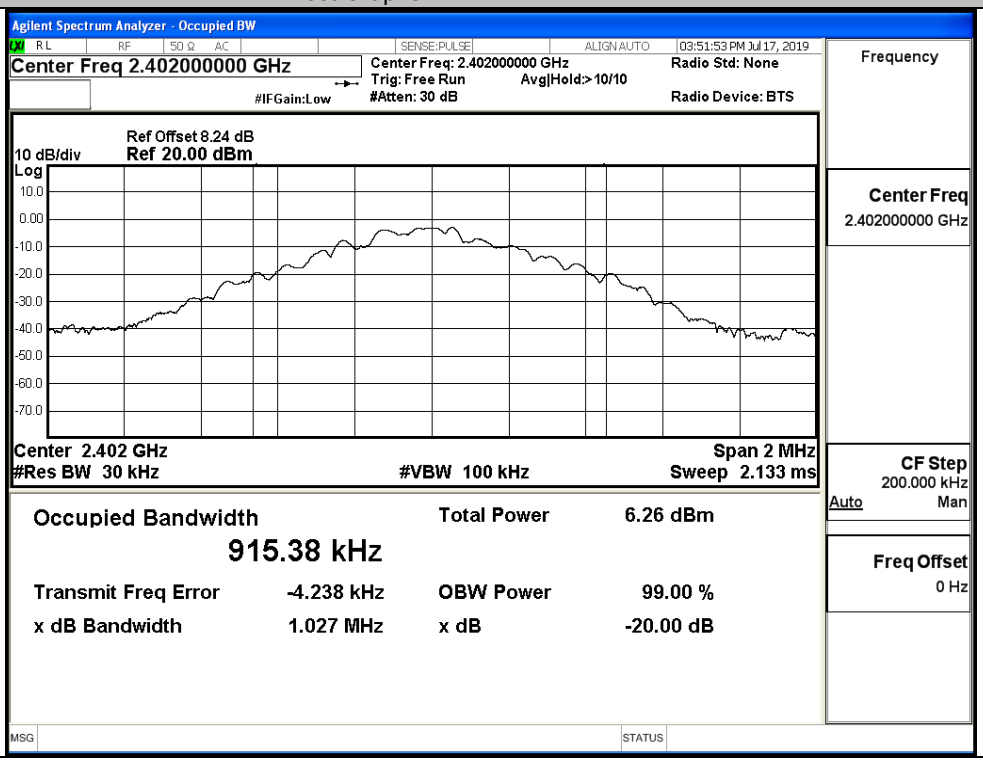
π/4DQPSK/LCH	
π/4DQPSK/MCH	

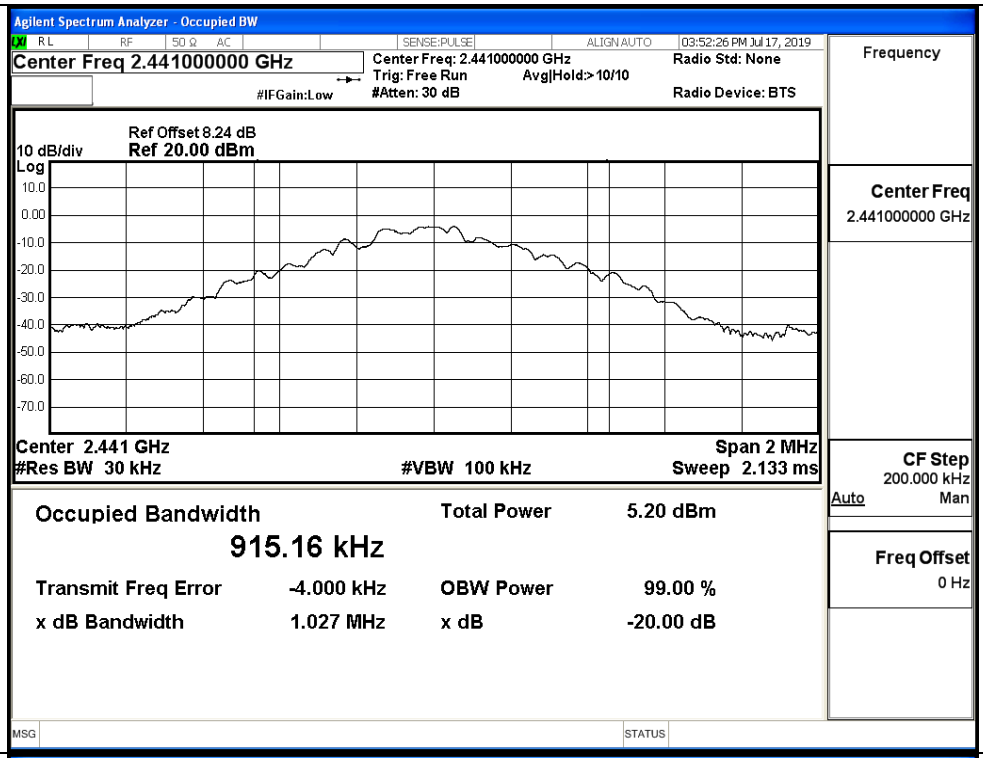
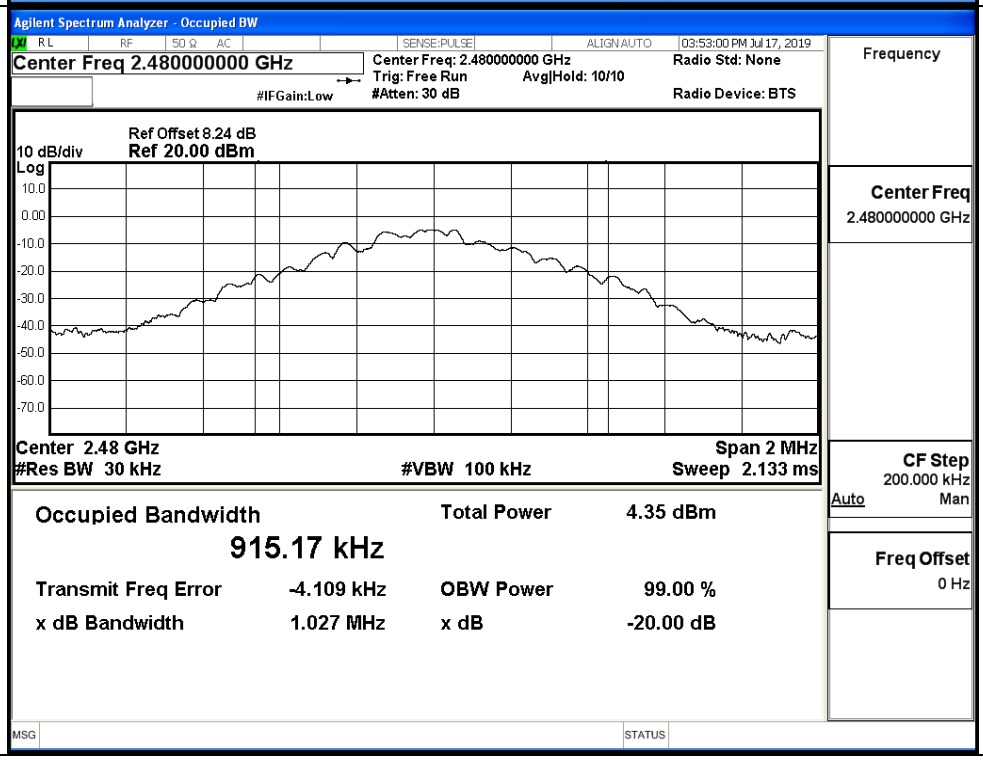
π/4DQPSK/HCH	
8DPSK/LCH	

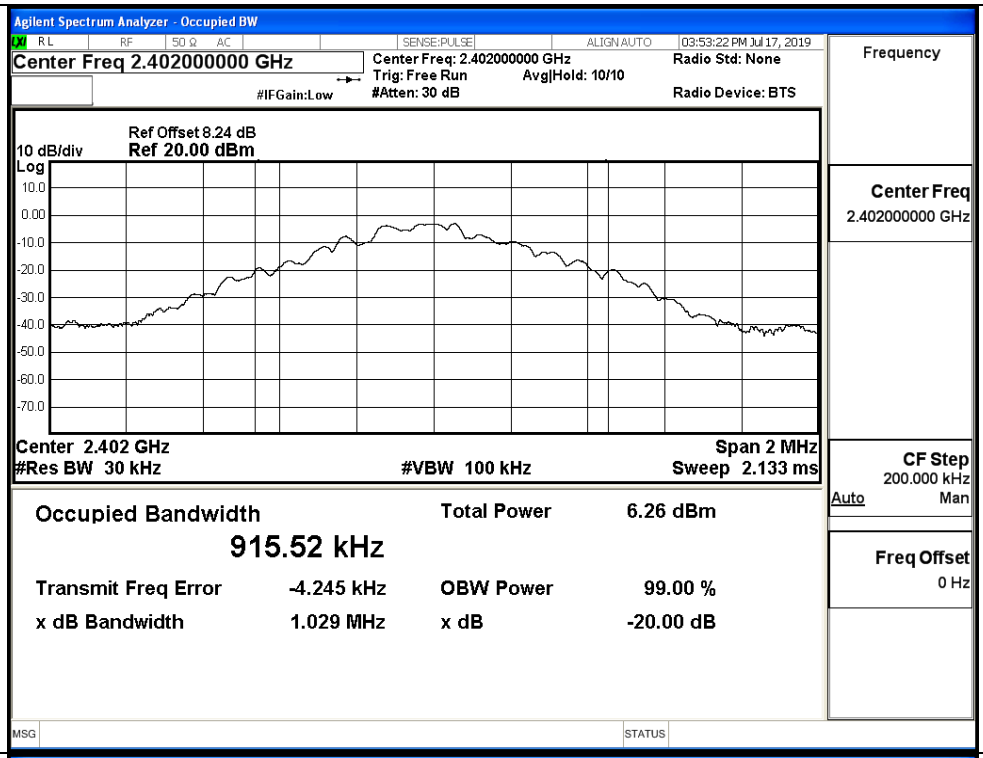
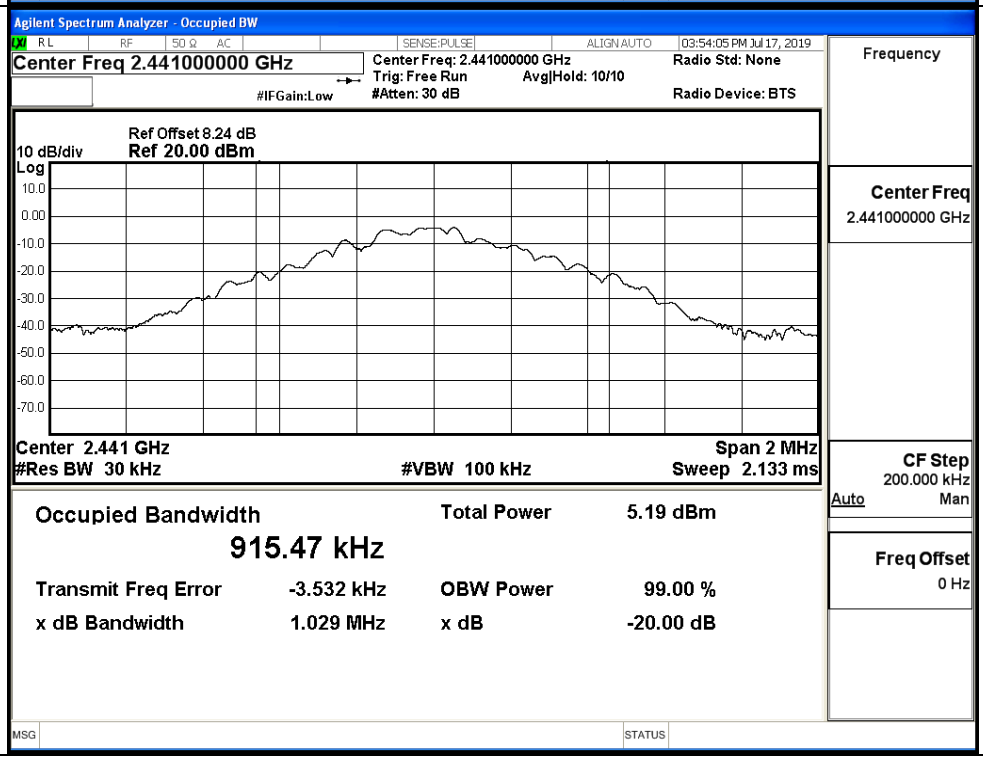
8DPSK/MCH	
8DPSK/HCH	

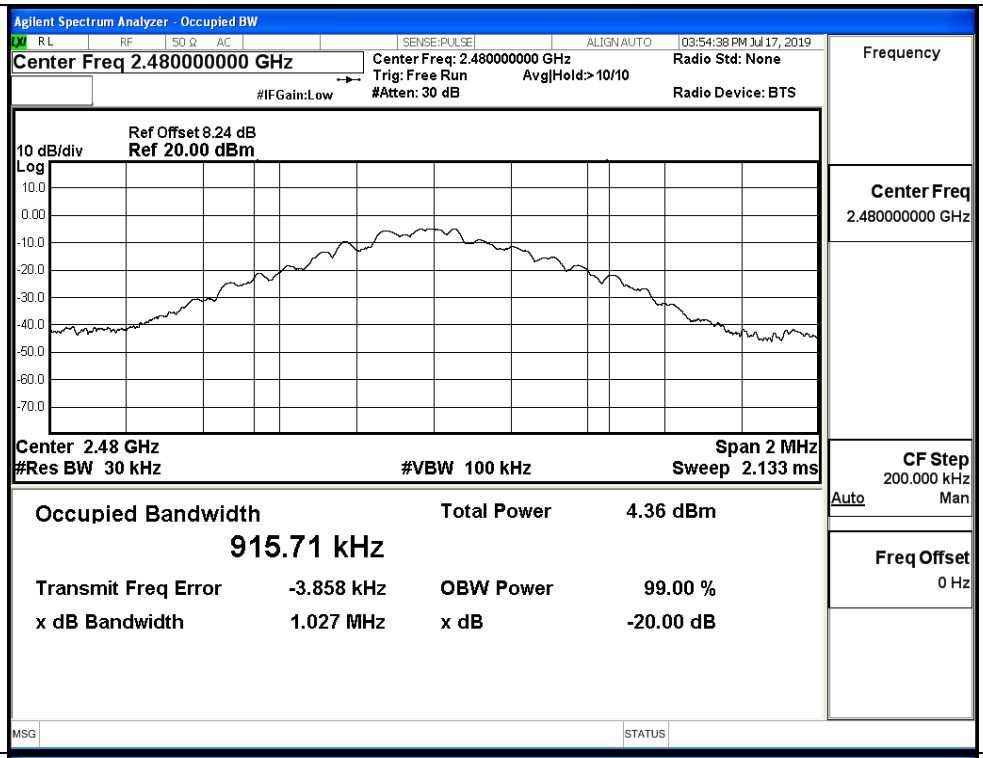
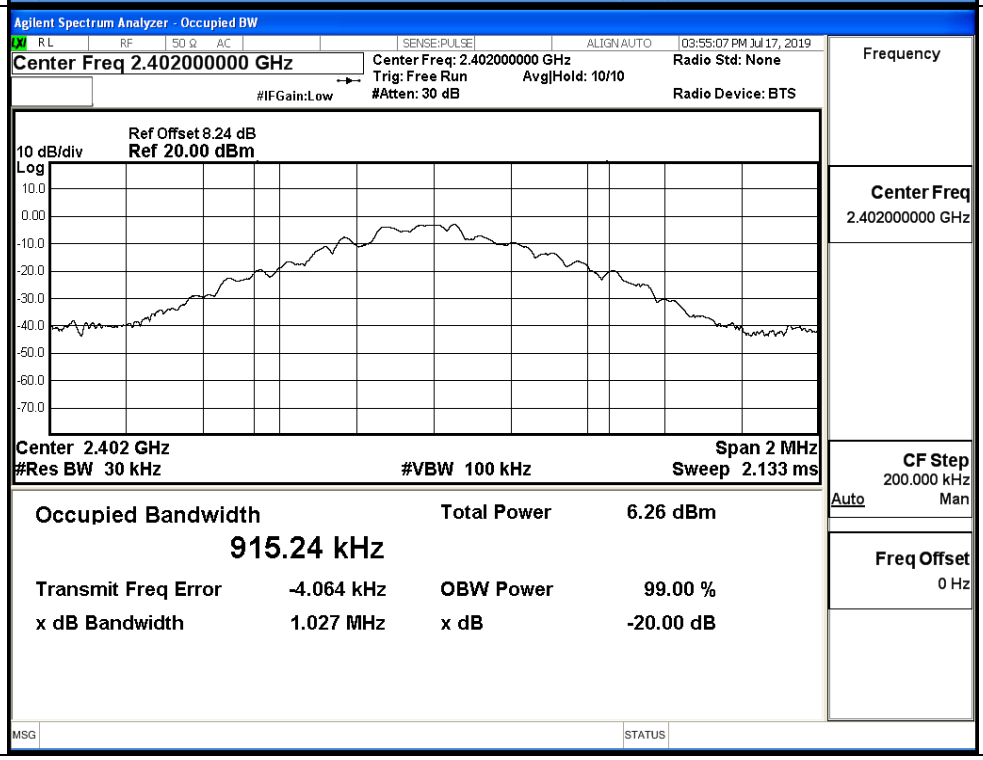
A.3 Occupied Bandwidth

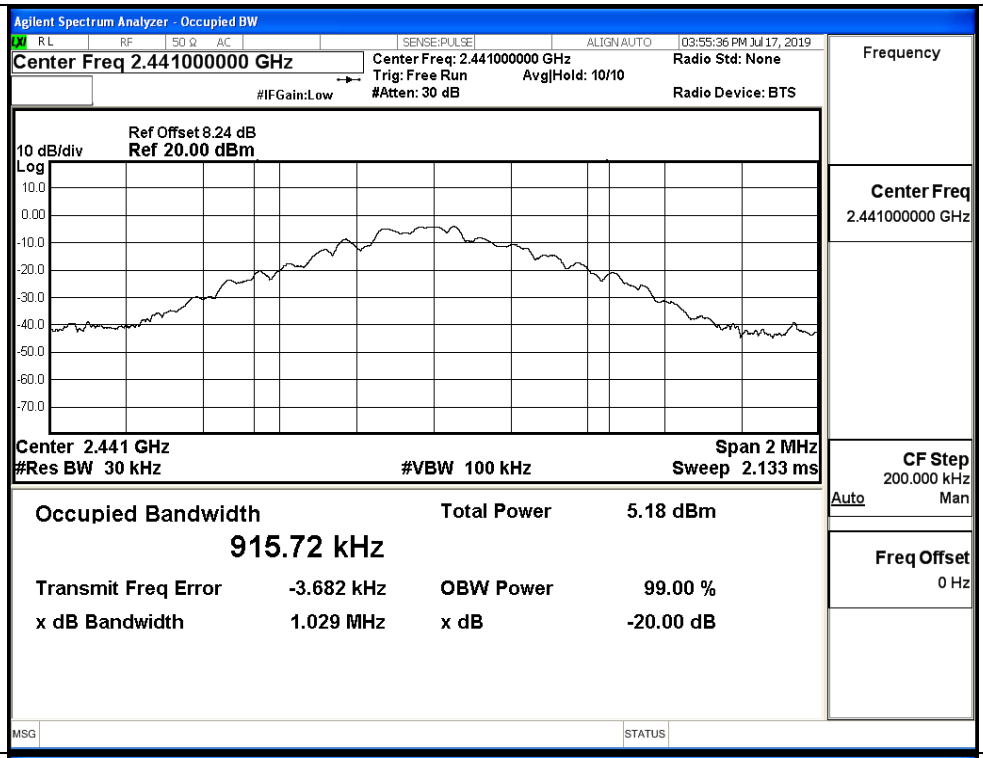
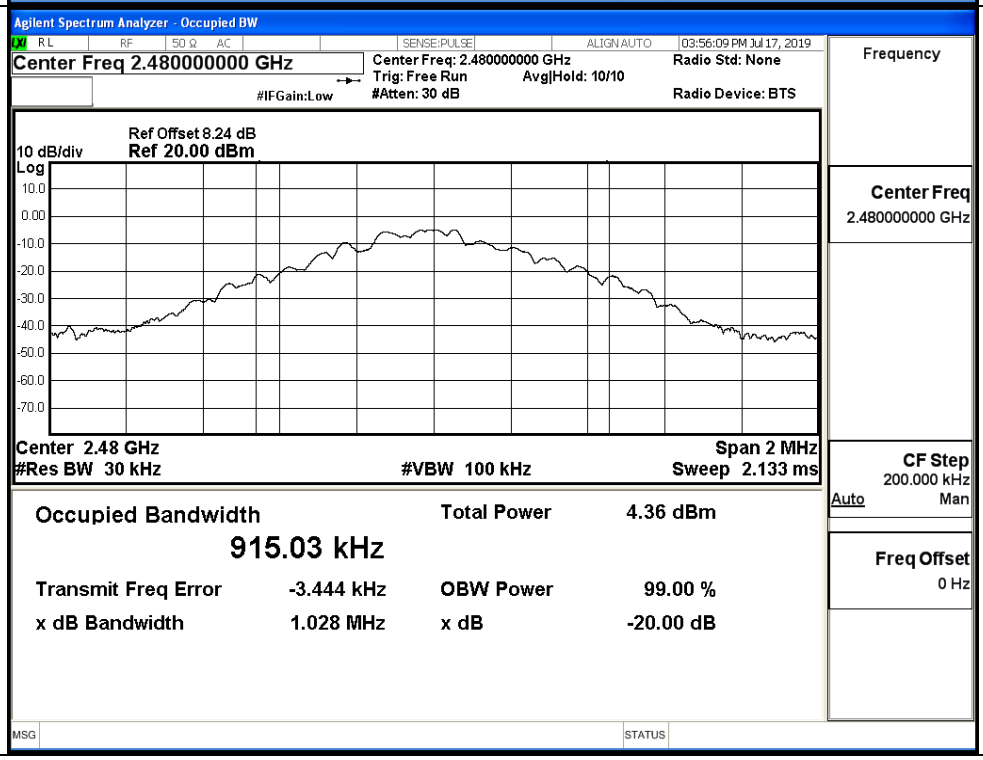
Mode	Channel.	Occupied Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.91538	Not Specified	PASS
	MCH	0.91516	Not Specified	PASS
	HCH	0.91517	Not Specified	PASS
π/4DQPSK	LCH	0.91552	Not Specified	PASS
	MCH	0.91547	Not Specified	PASS
	HCH	0.91571	Not Specified	PASS
8DPSK	LCH	0.91524	Not Specified	PASS
	MCH	0.91572	Not Specified	PASS
	HCH	0.91503	Not Specified	PASS

Test Graphs	
GFSK/LCH	

GFSK/MCH	
GFSK/HCH	

π/4DQPSK/LCH	
π/4DQPSK/MCH	

π/4DQPSK/HCH	
8DPSK/LCH	

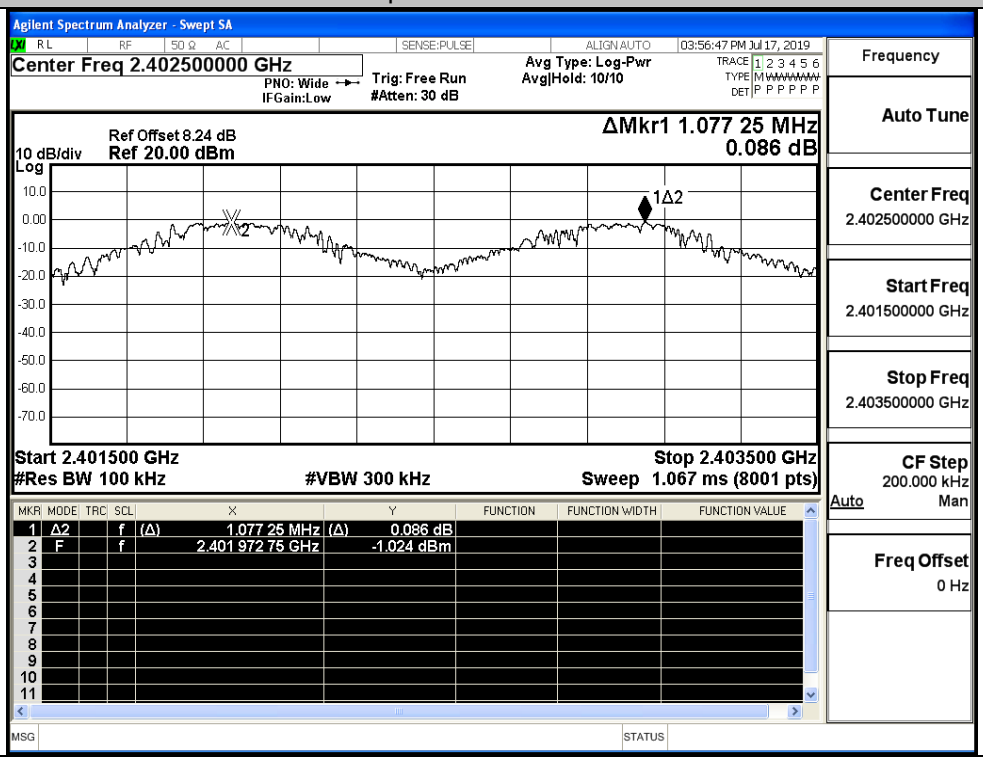
8DPSK/MCH	
8DPSK/HCH	

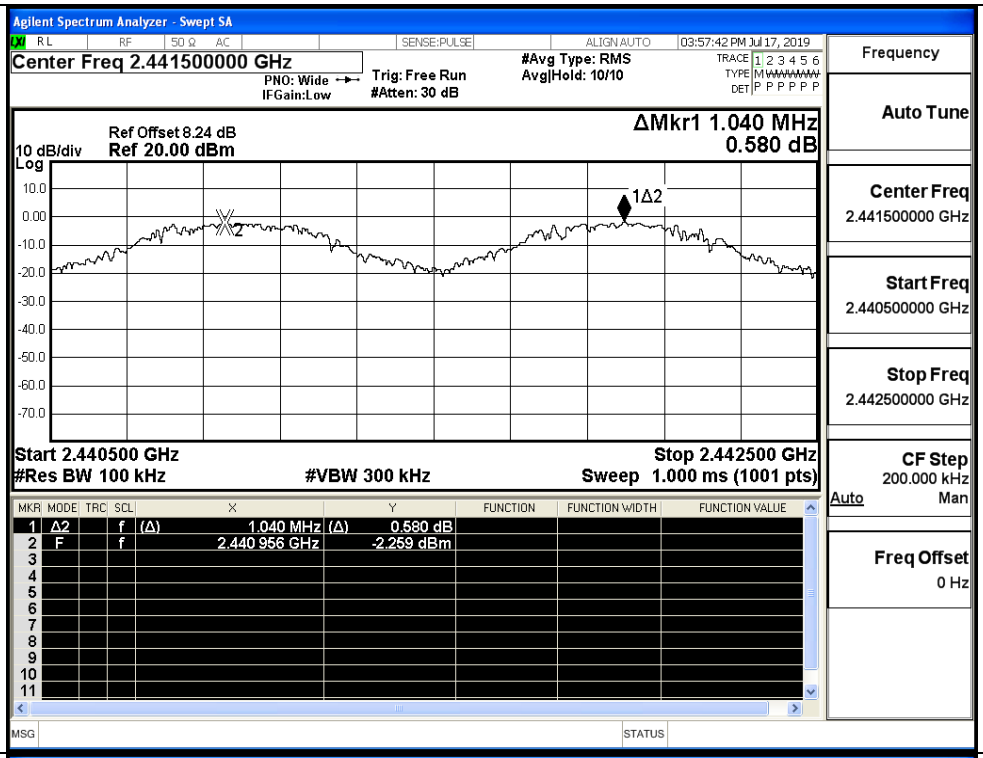
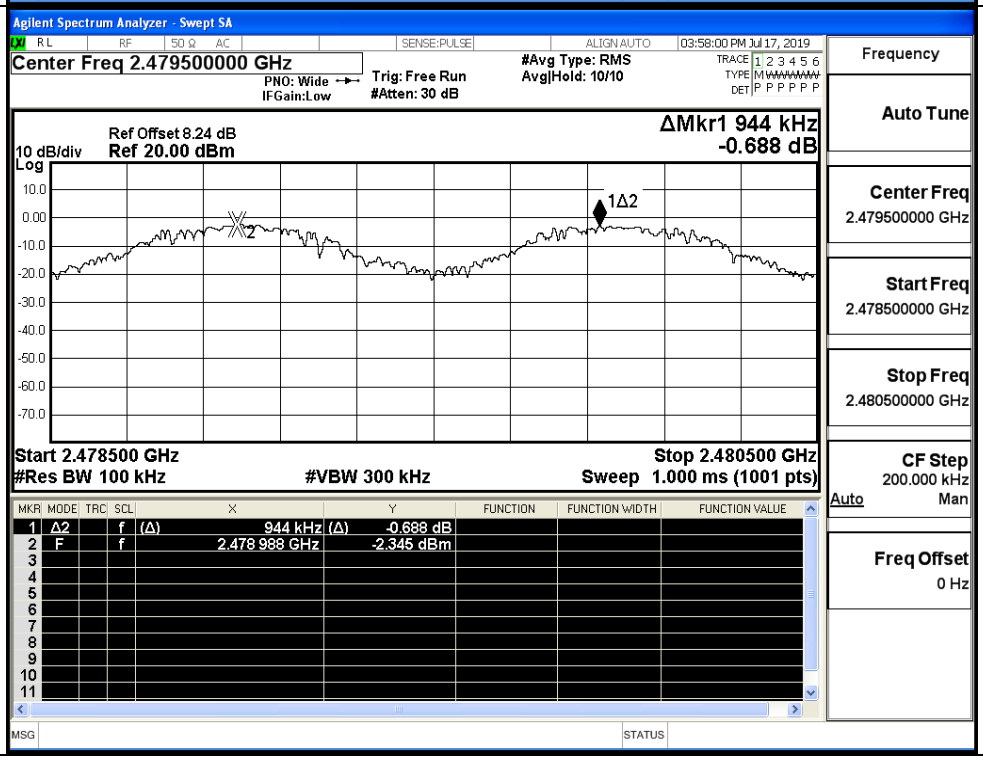
A.4 Carrier Frequency Separation

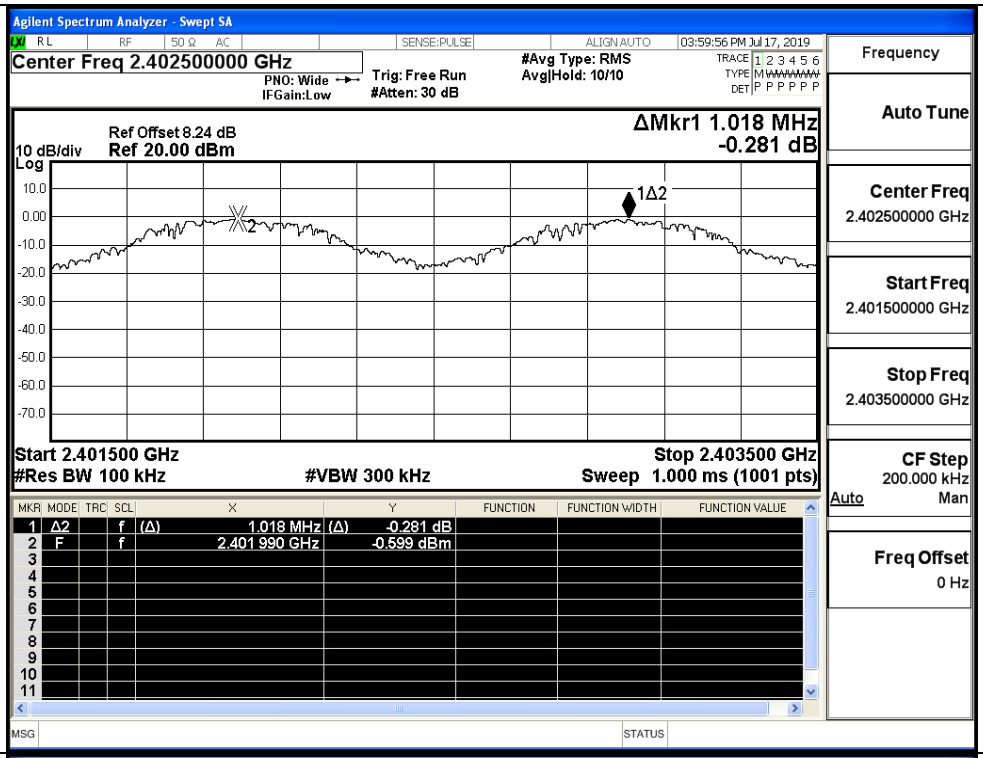
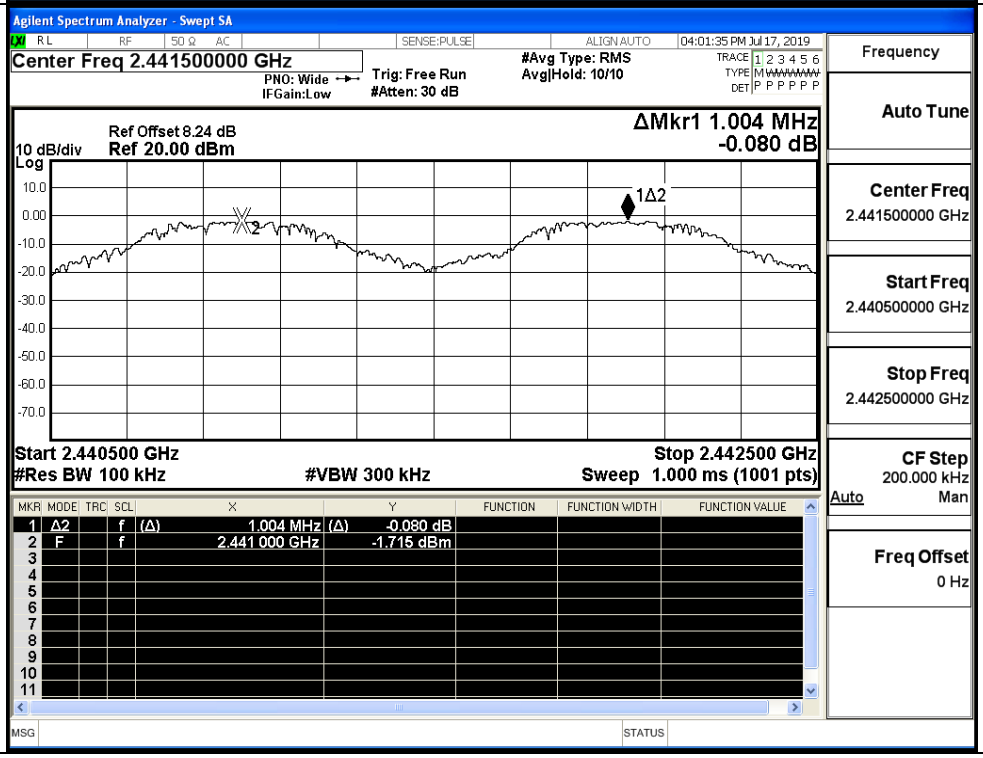
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.077	0.687	PASS
	MCH	1.040	0.687	PASS
	HCH	0.944	0.687	PASS
π/4DQPSK	LCH	1.018	0.686	PASS
	MCH	1.004	0.686	PASS
	HCH	0.992	0.686	PASS
8DPSK	LCH	1.048	0.687	PASS
	MCH	0.984	0.687	PASS
	HCH	0.950	0.687	PASS

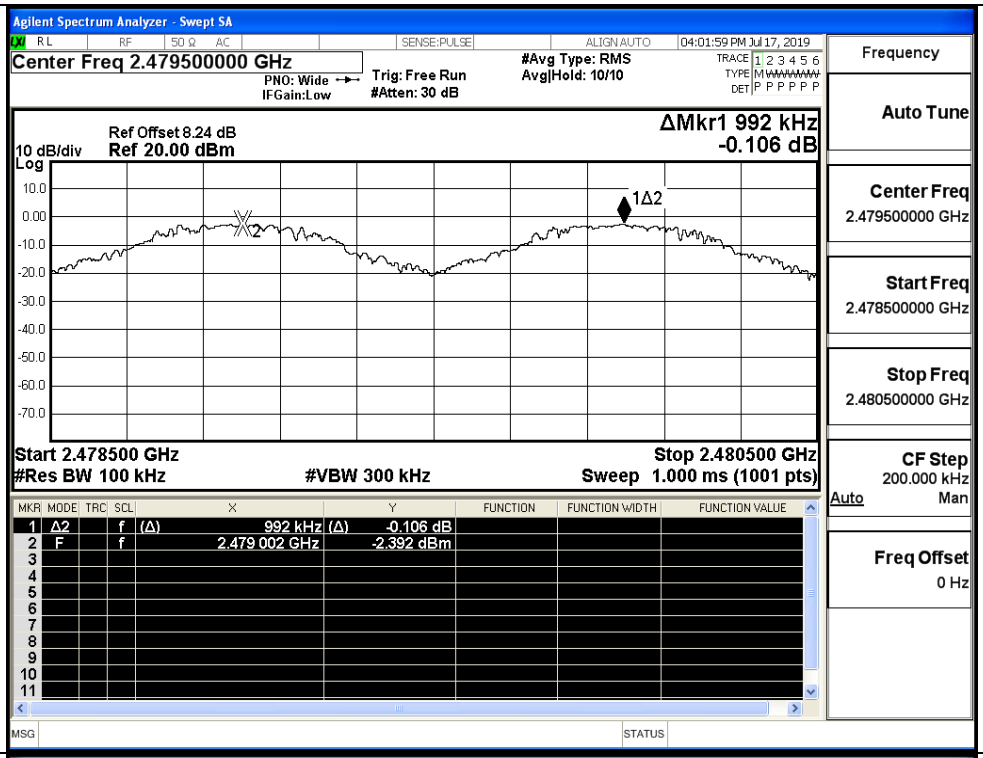
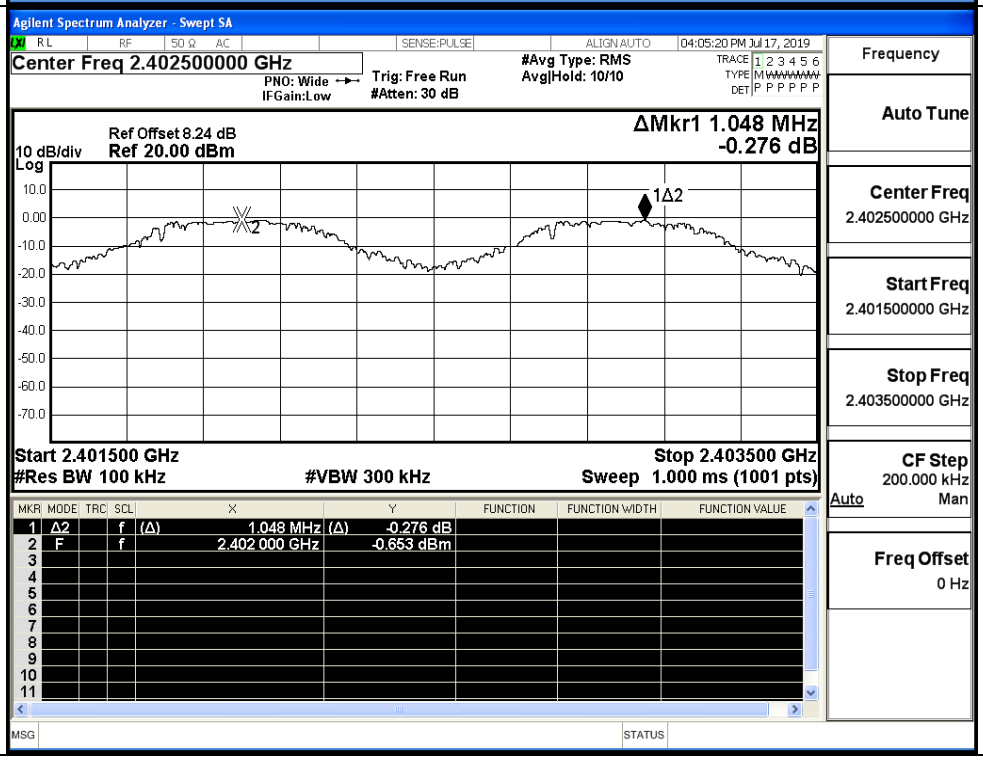
Test Graphs

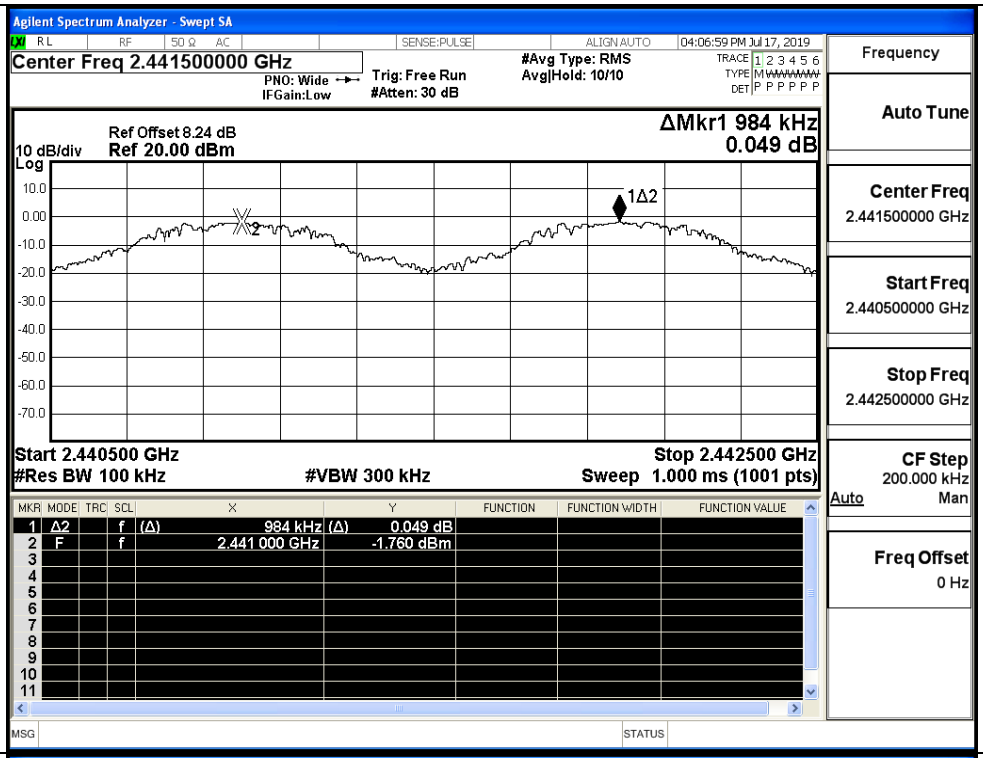
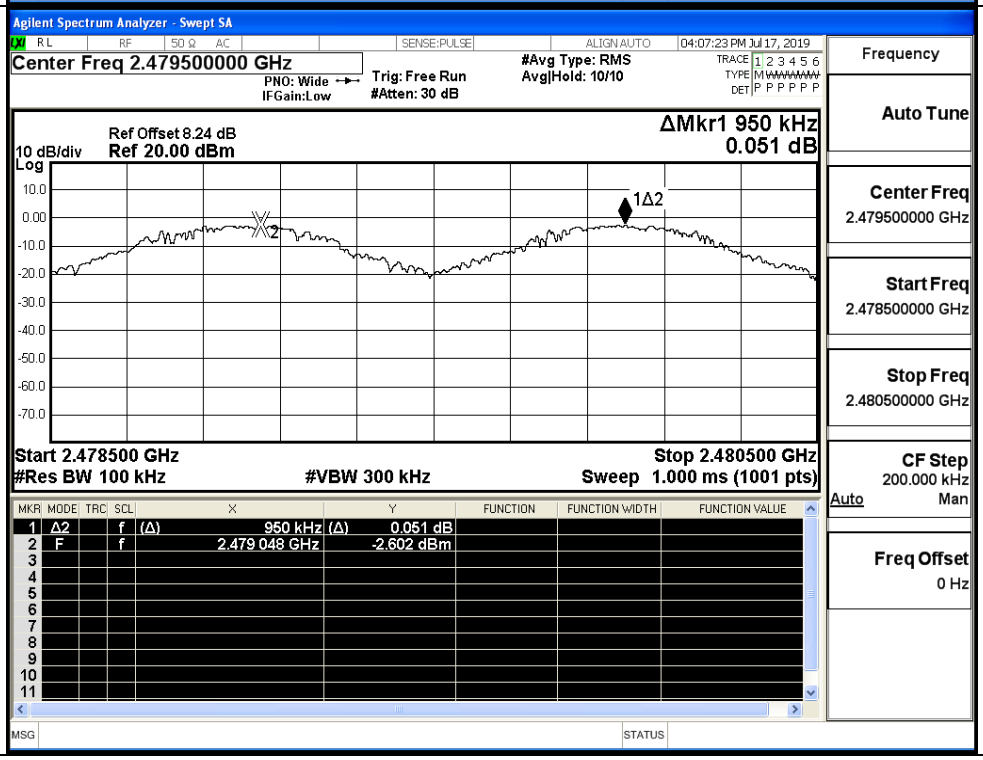
GFSK/LCH



GFSK/MCH	
GFSK/HCH	

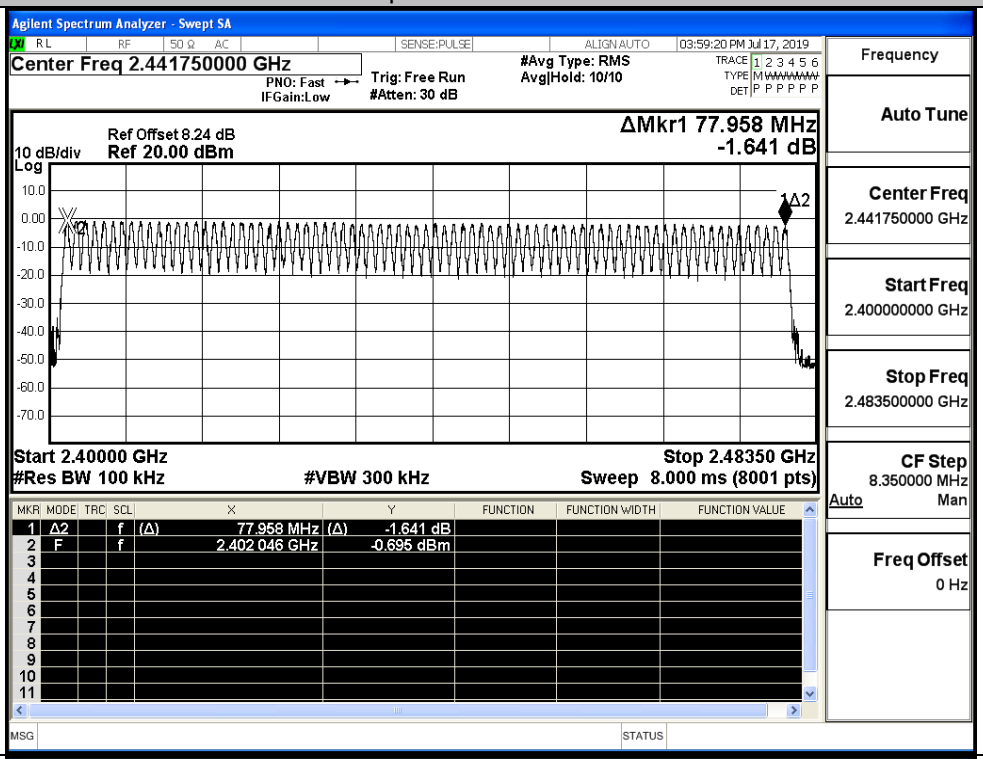
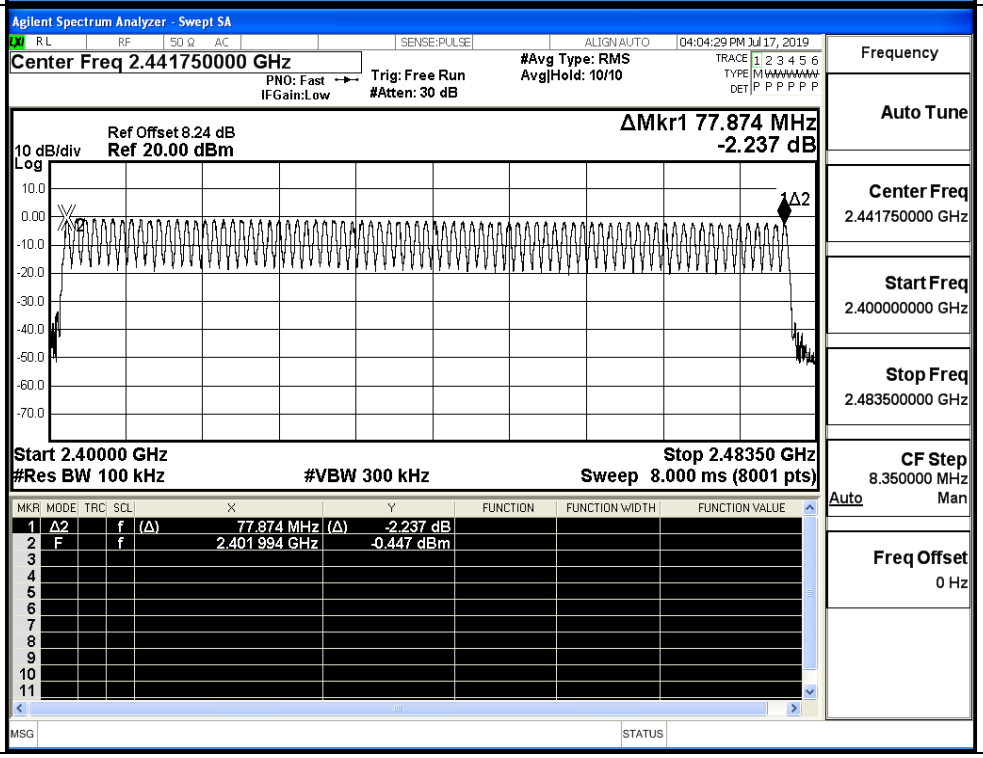
π/4DQPSK/LCH	
π/4DQPSK/MCH	

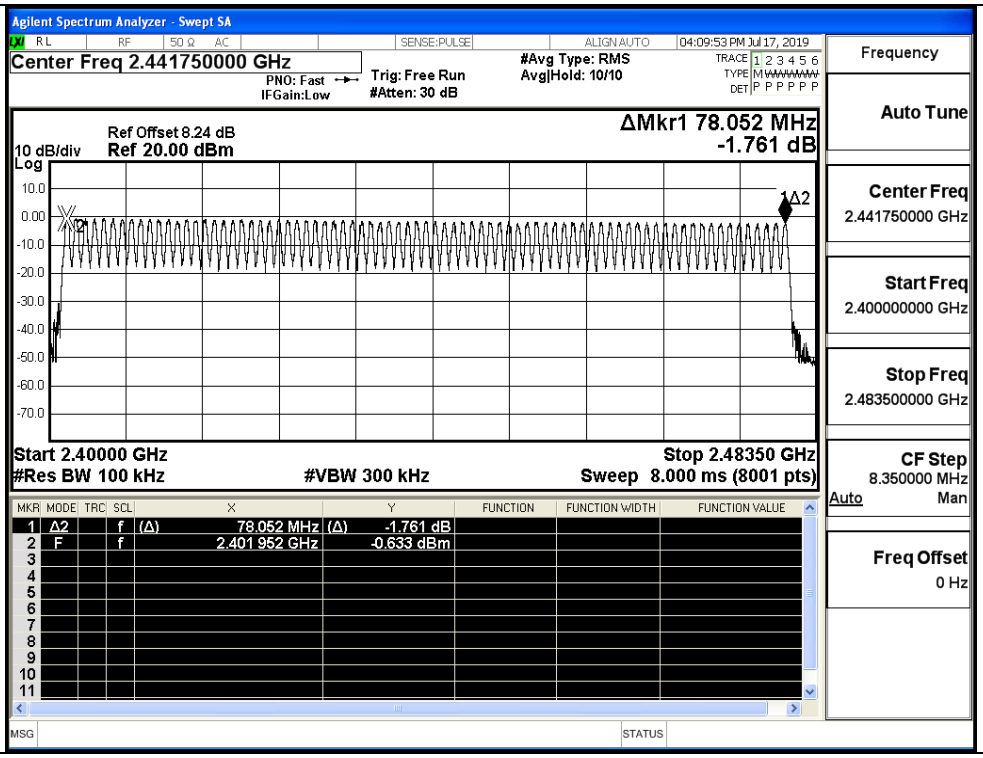
π/4DQPSK/HCH	
8DPSK/LCH	

8DPSK/MCH	
8DPSK/HCH	

A.5 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	

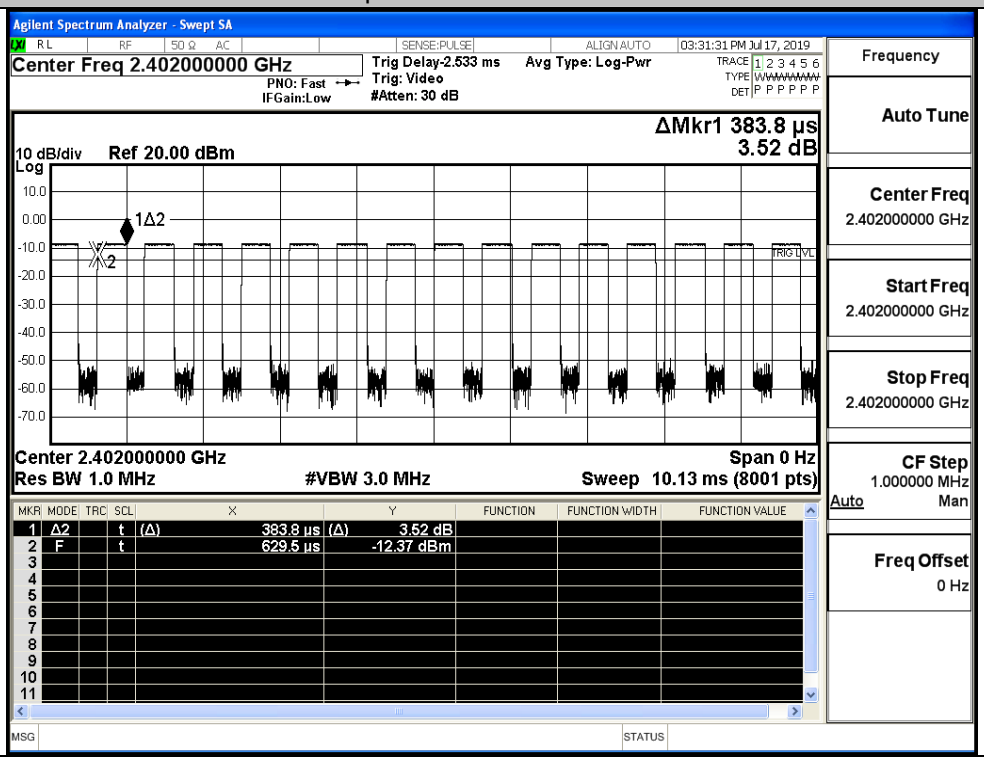
Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441750000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 10/10
04:09:53 PM Jul 17, 2019
Ref Offset 8.24 dB
10 dB/div
Log
Ref 20.00 dBm
ΔMkr1 78.052 MHz
-1.761 dB
Start 2.40000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.48350 GHz
Sweep 8.000 ms (8001 pts)
1 Δ2 f (Δ) 78.052 MHz (Δ) -1.761 dB
2 F f 2.401 952 GHz -0.633 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

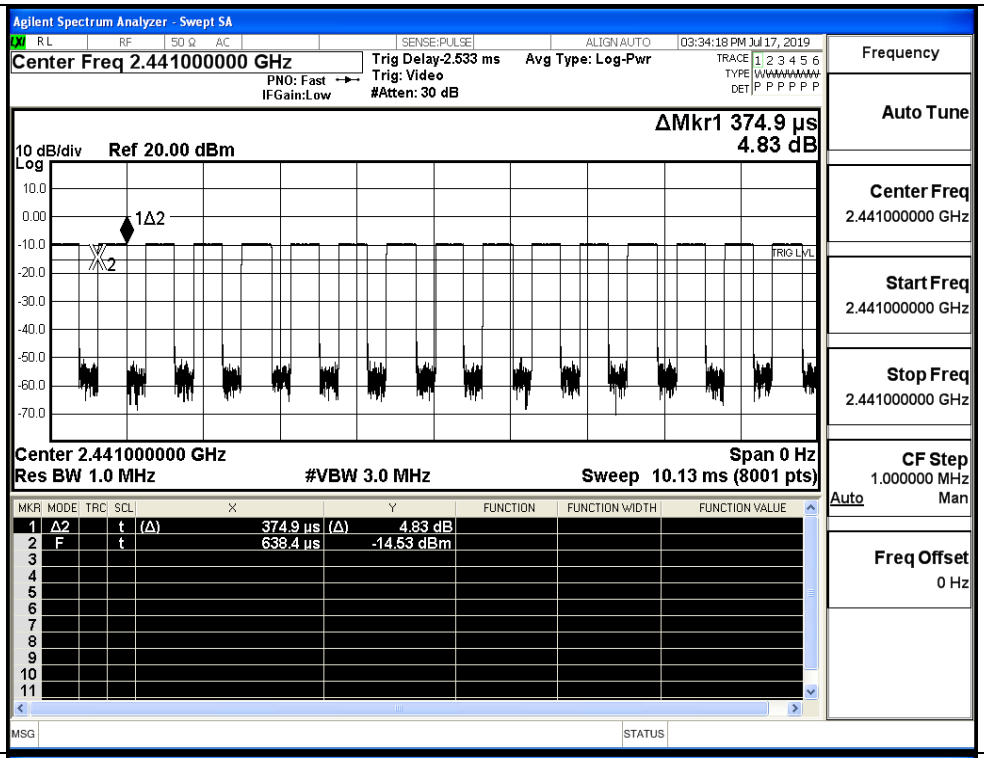
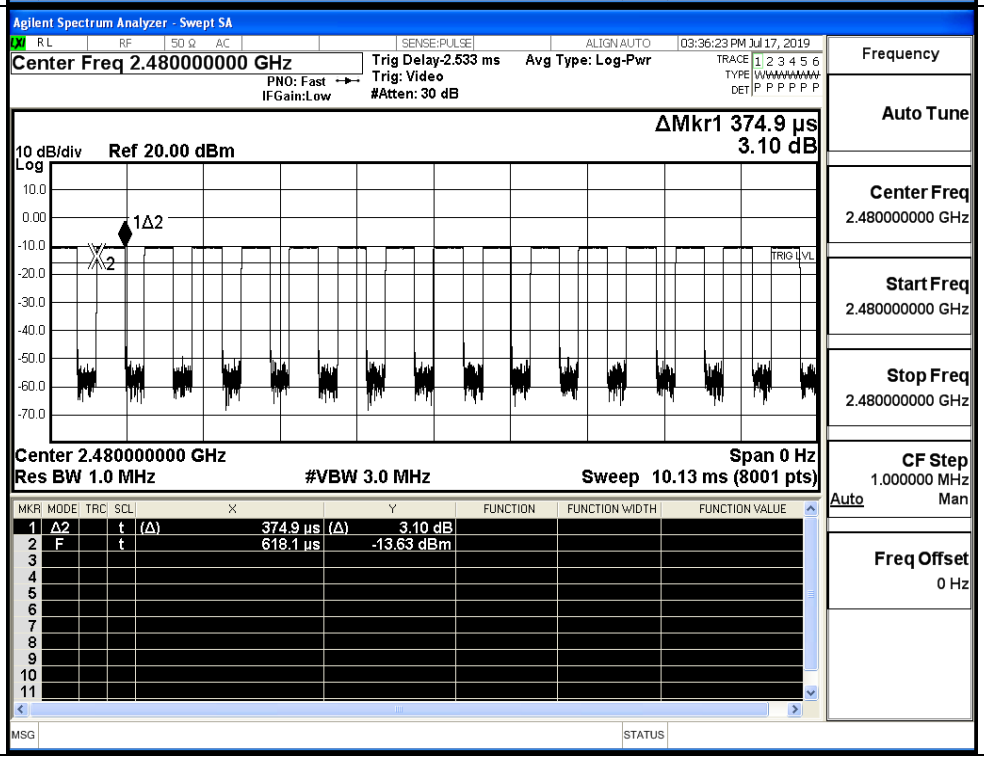
A.6 Dwell Time

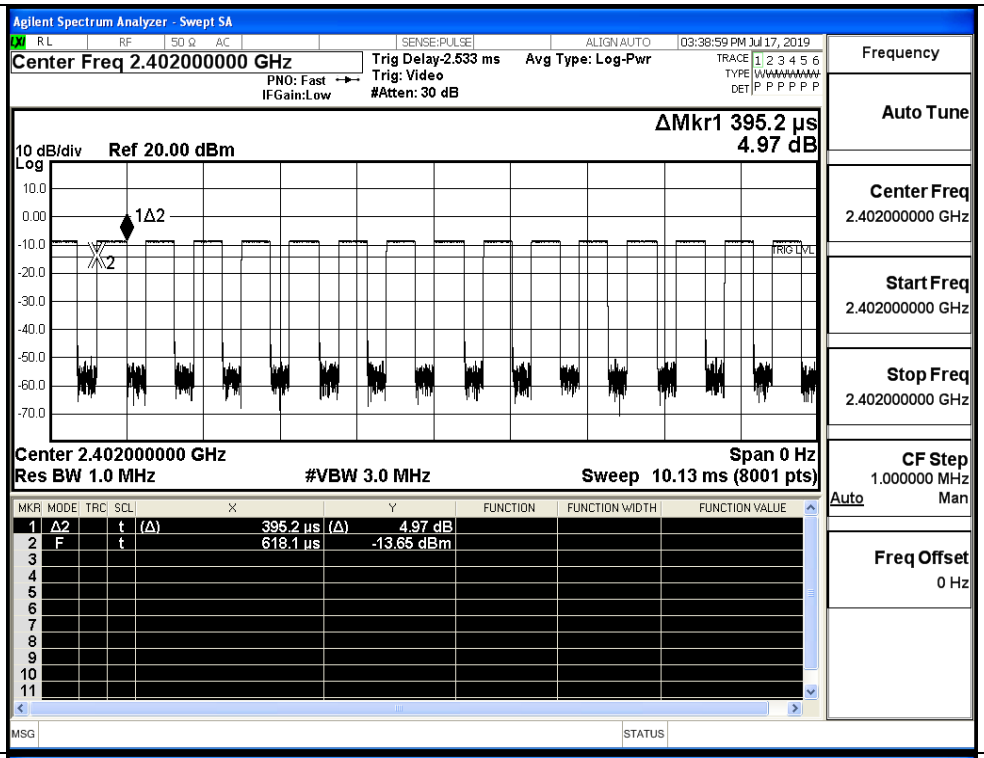
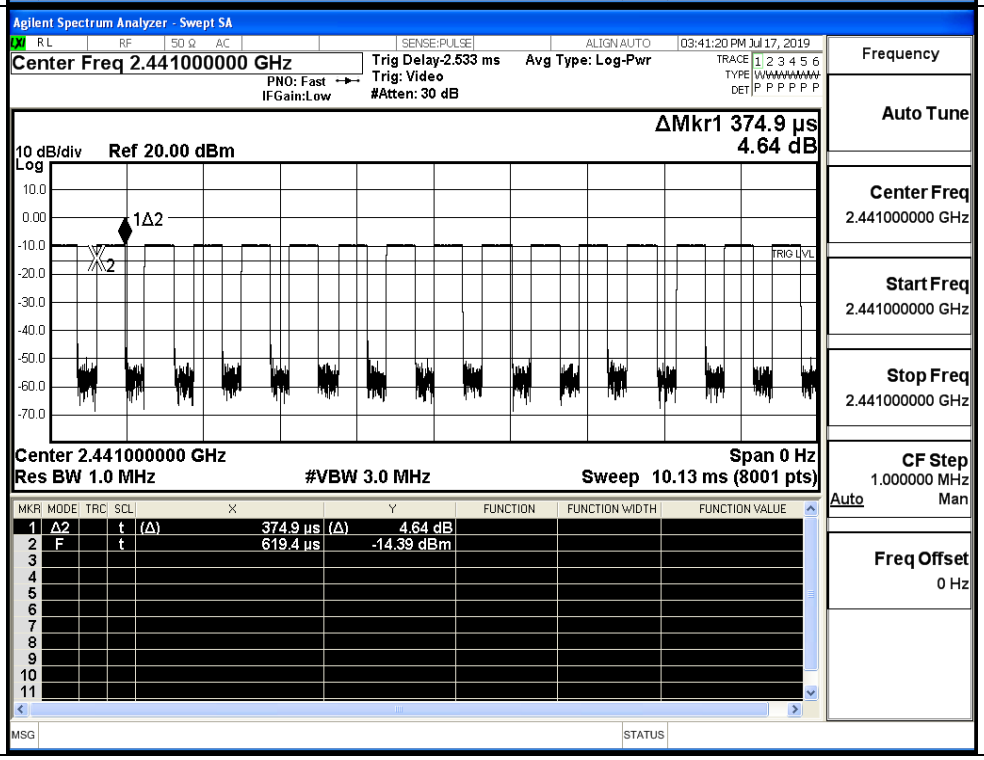
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	0.38	106.7	0.041	0.4	PASS
	DH5	MCH	0.37	106.7	0.039	0.4	PASS
	DH5	HCH	0.37	106.7	0.039	0.4	PASS
π/4DQPSK	2DH5	LCH	0.38	106.7	0.043	0.4	PASS
	2DH5	MCH	0.37	106.7	0.039	0.4	PASS
	2DH5	HCH	0.37	106.7	0.039	0.4	PASS
8DPSK	3DH5	LCH	0.38	106.7	0.041	0.4	PASS
	3DH5	MCH	0.37	106.7	0.041	0.4	PASS
	3DH5	HCH	0.37	106.7	0.043	0.4	PASS

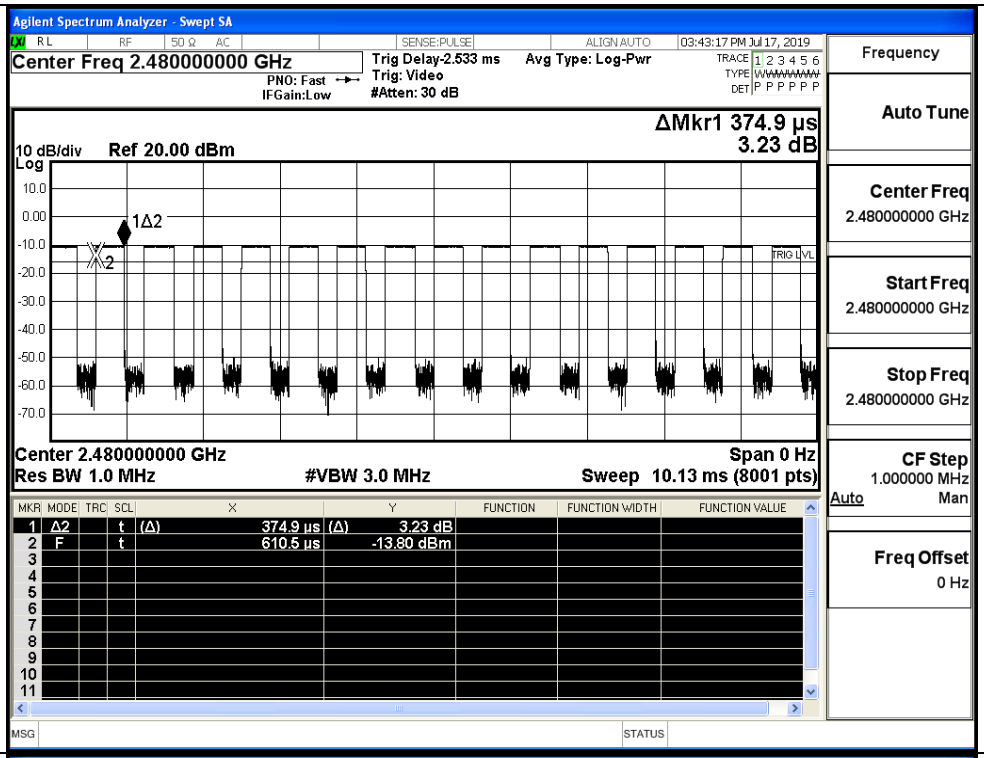
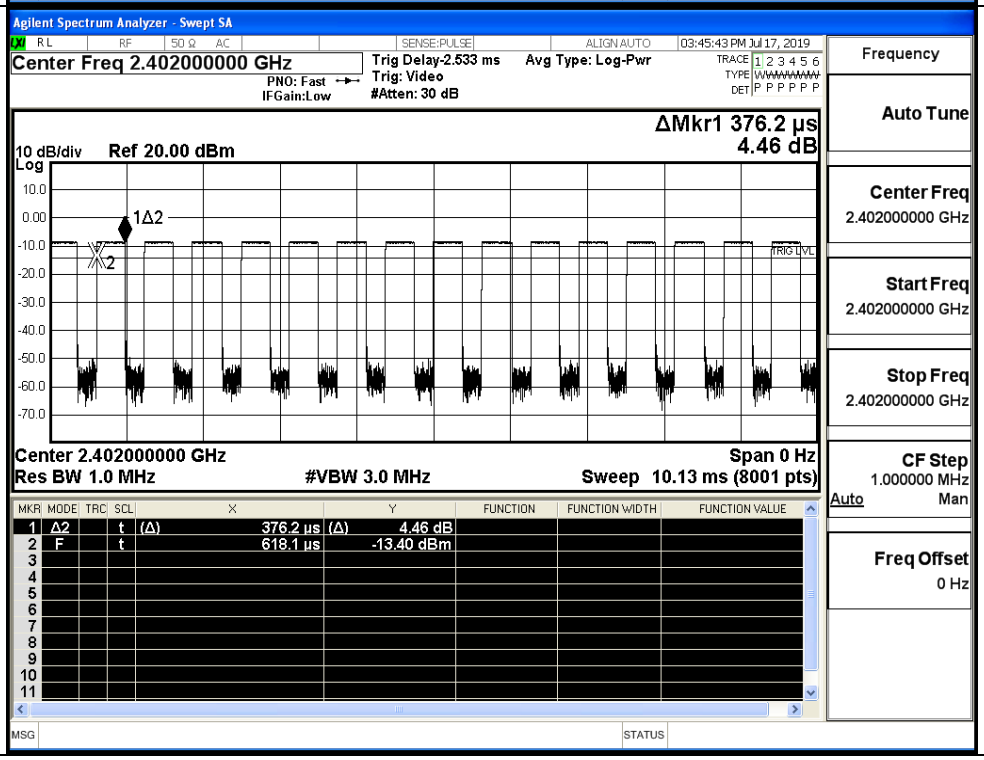
Test Graphs

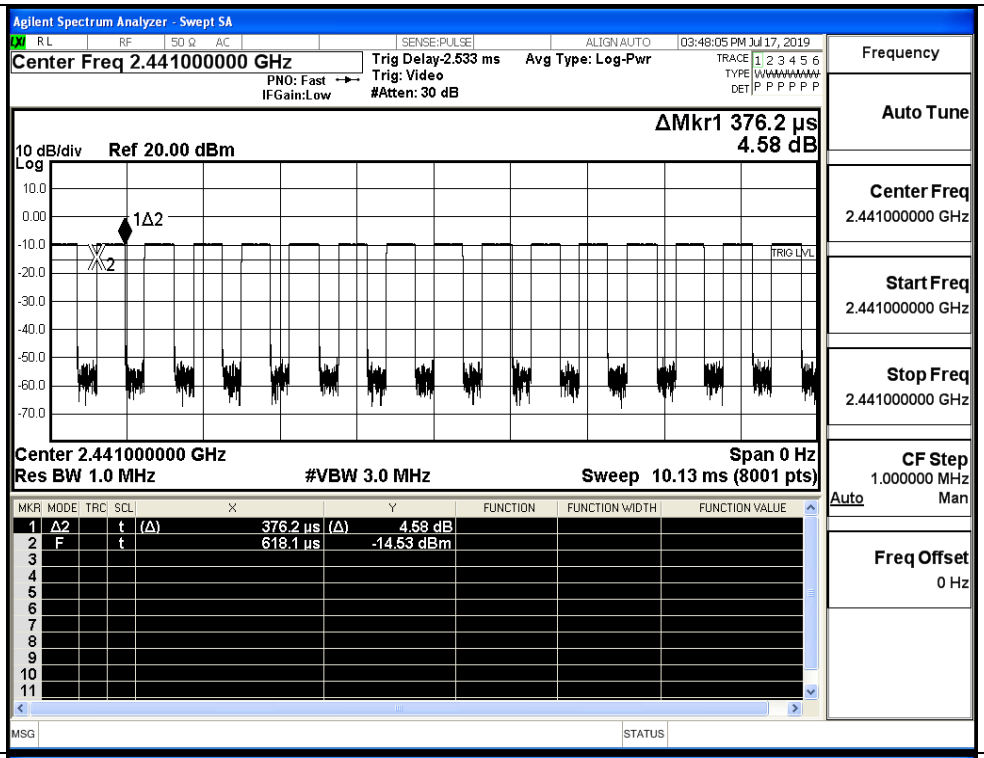
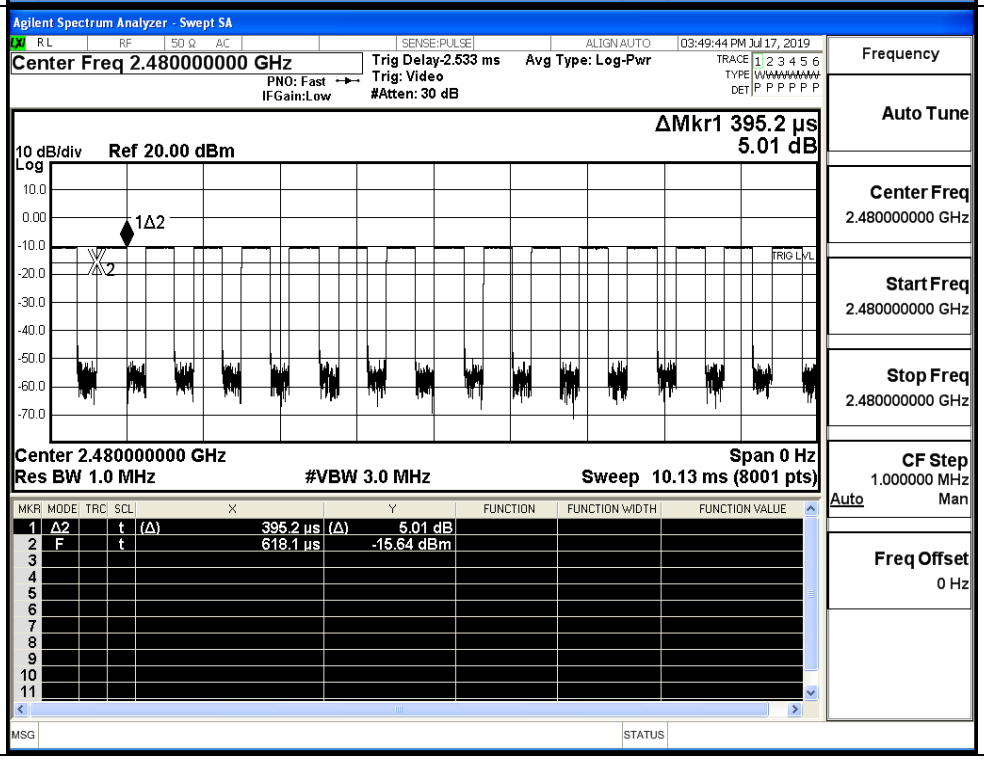
GFSK_DH5/LCH



GFSK_DH5/MCH	
GFSK_DH5/HCH	

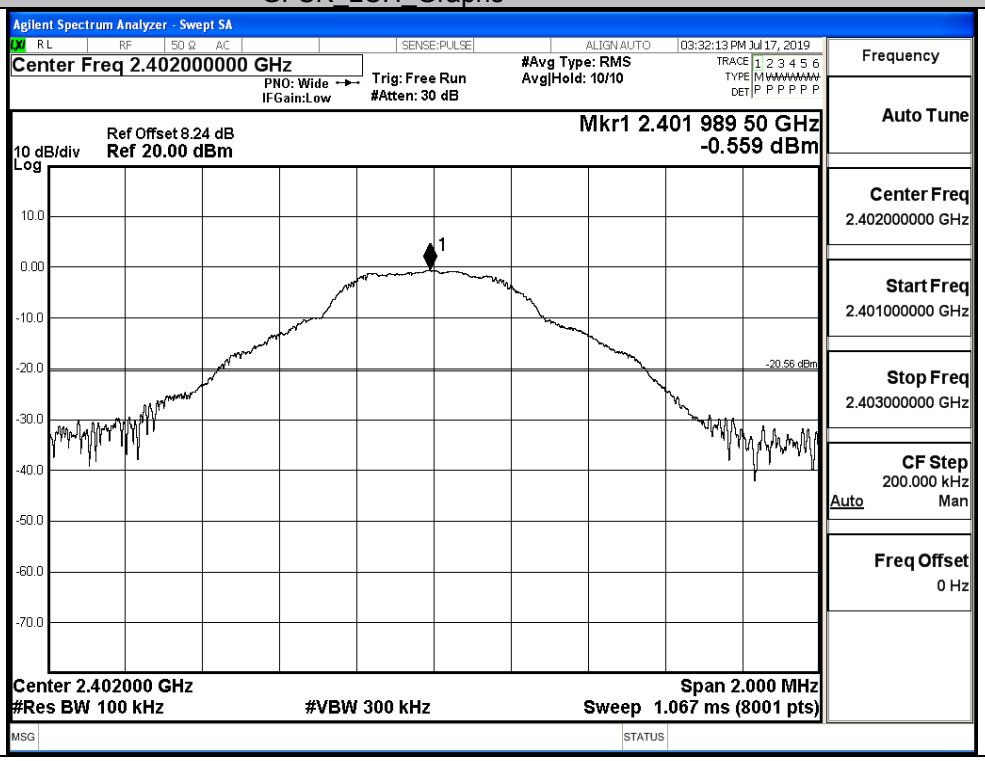
π/4DQPSK _2DH5/LCH	
π/4DQPSK _2DH5/MCH	

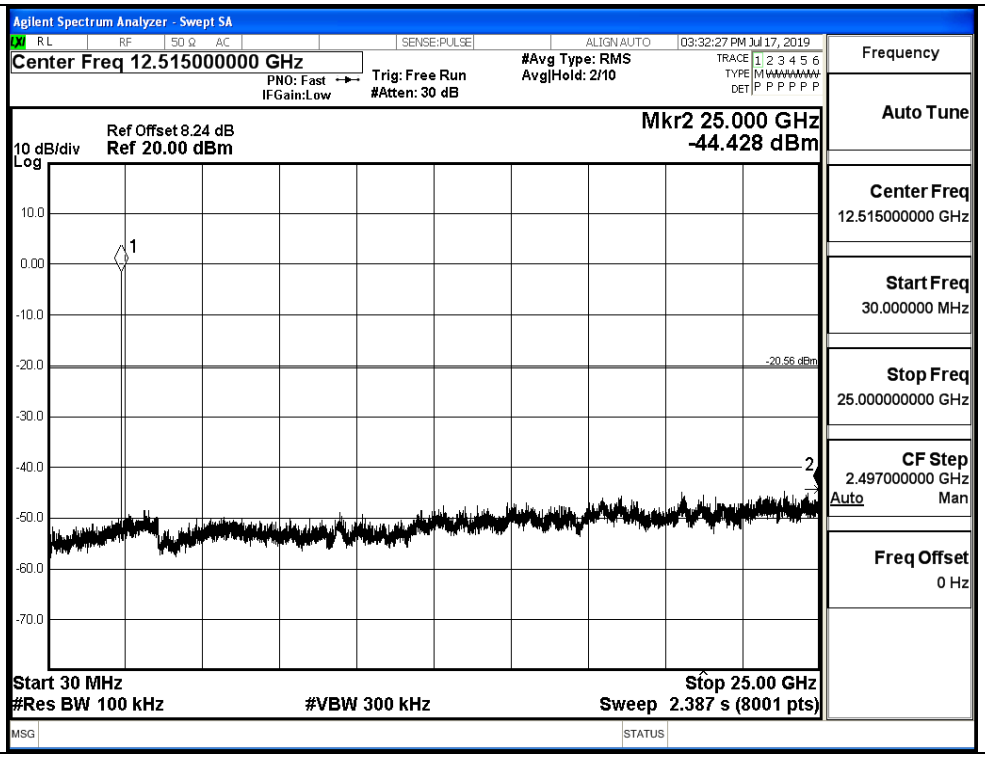
π/4DQPSK _2DH5/HCH	
8DPSK _3DH5/LCH	

8DPSK _3DH5/MCH	
8DPSK _3DH5/HCH	

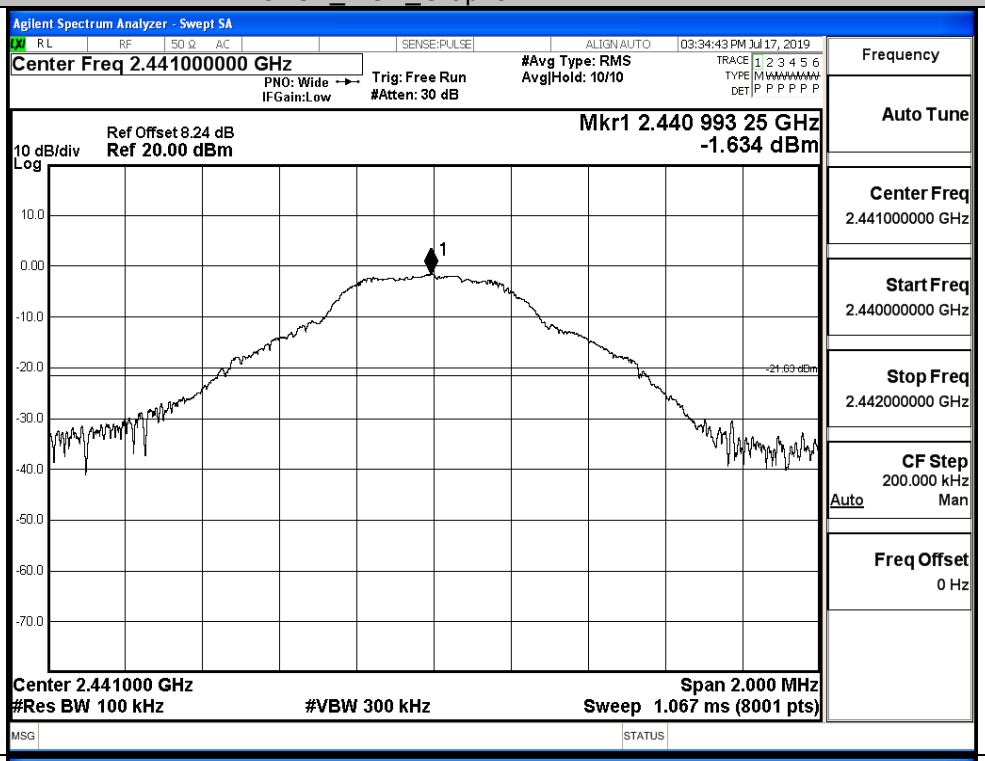
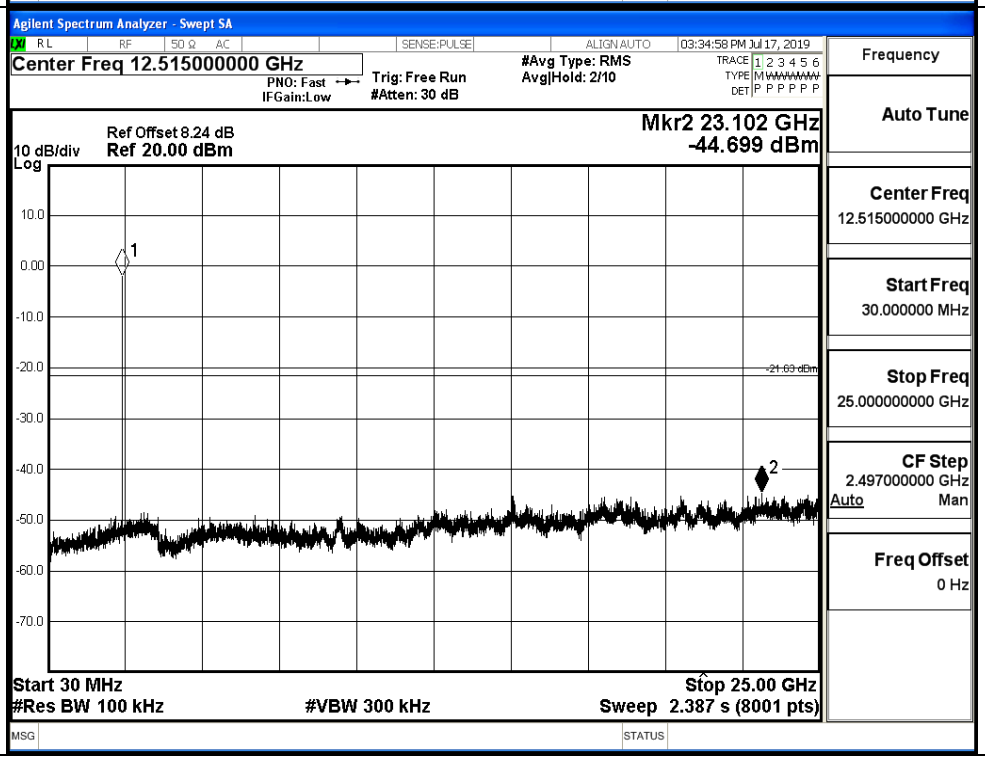
A.7 RF Conducted Spurious Emissions

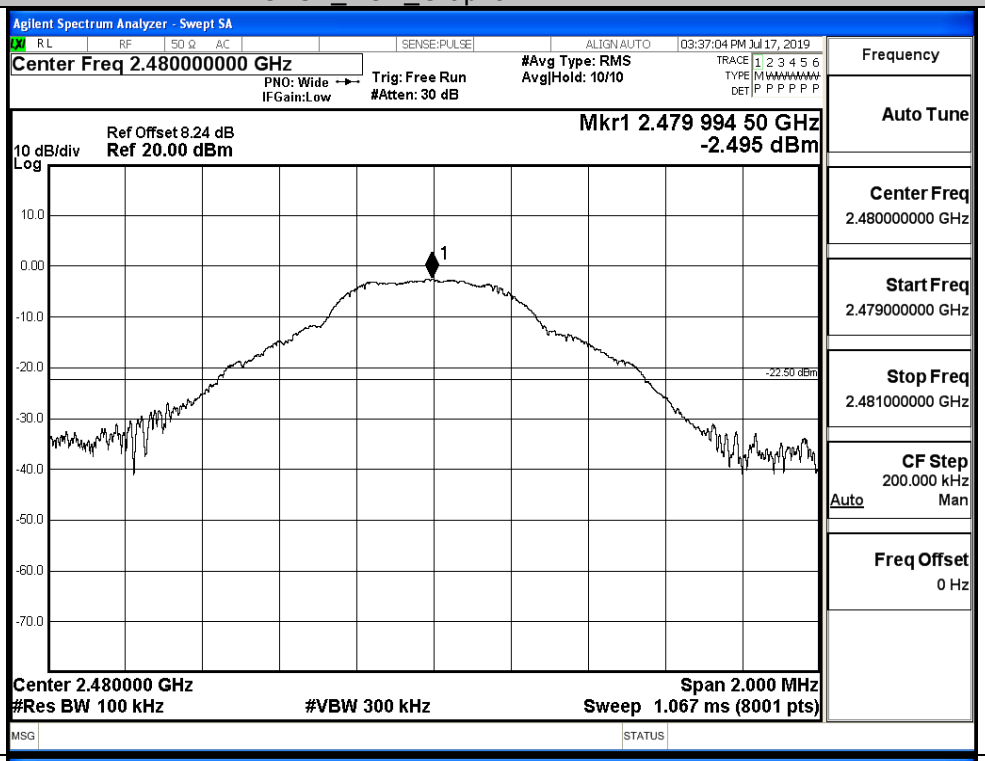
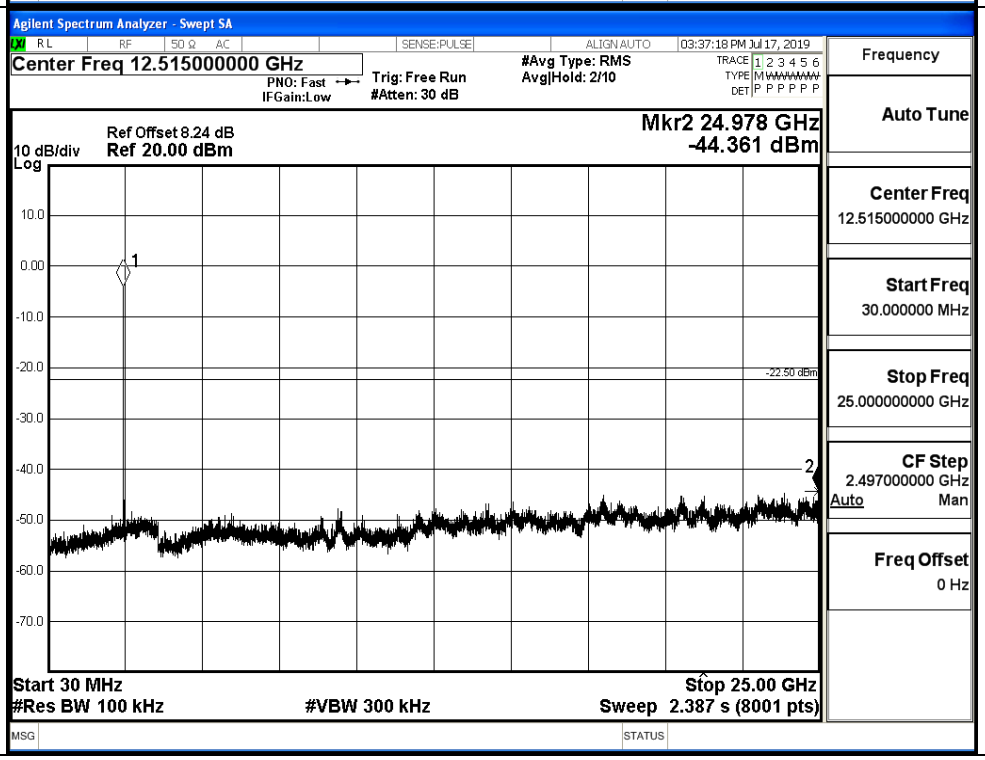
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.559	-44.428	-20.559	PASS
	MCH	-1.634	-44.699	-21.634	PASS
	HCH	-2.495	-44.361	-22.495	PASS
π/4DQPSK	LCH	-0.583	-44.949	-20.583	PASS
	MCH	-1.634	-44.740	-21.634	PASS
	HCH	-2.51	-44.766	-22.510	PASS
8DPSK	LCH	-0.612	-43.624	-20.612	PASS
	MCH	-1.617	-44.597	-21.617	PASS
	HCH	-2.482	-44.259	-22.482	PASS

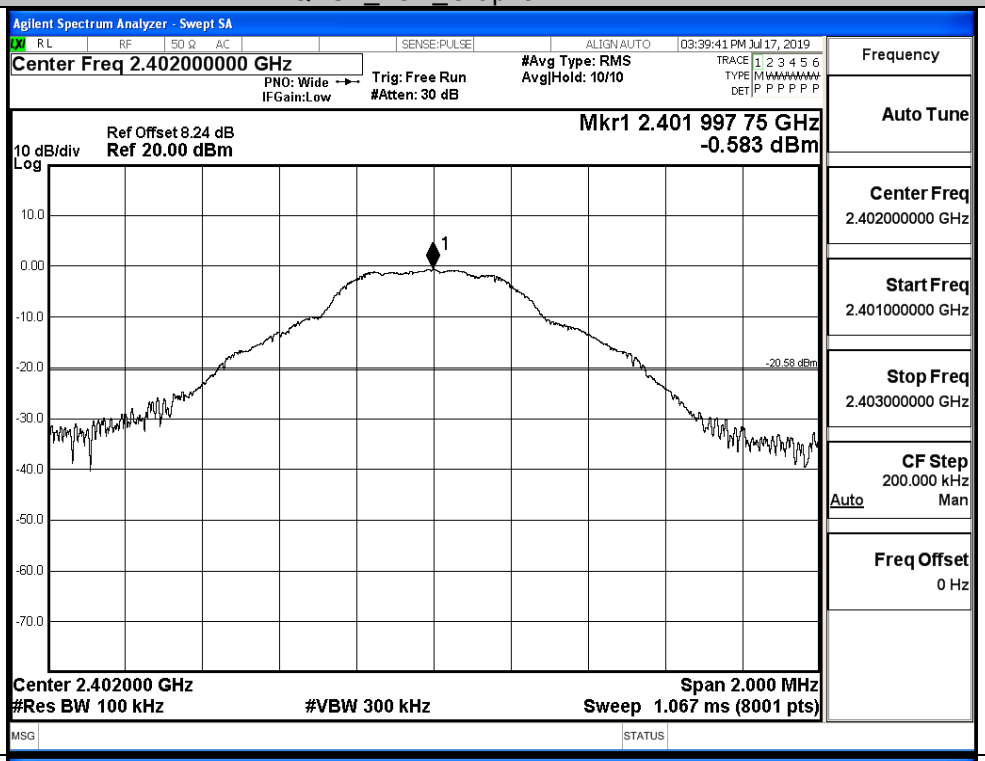
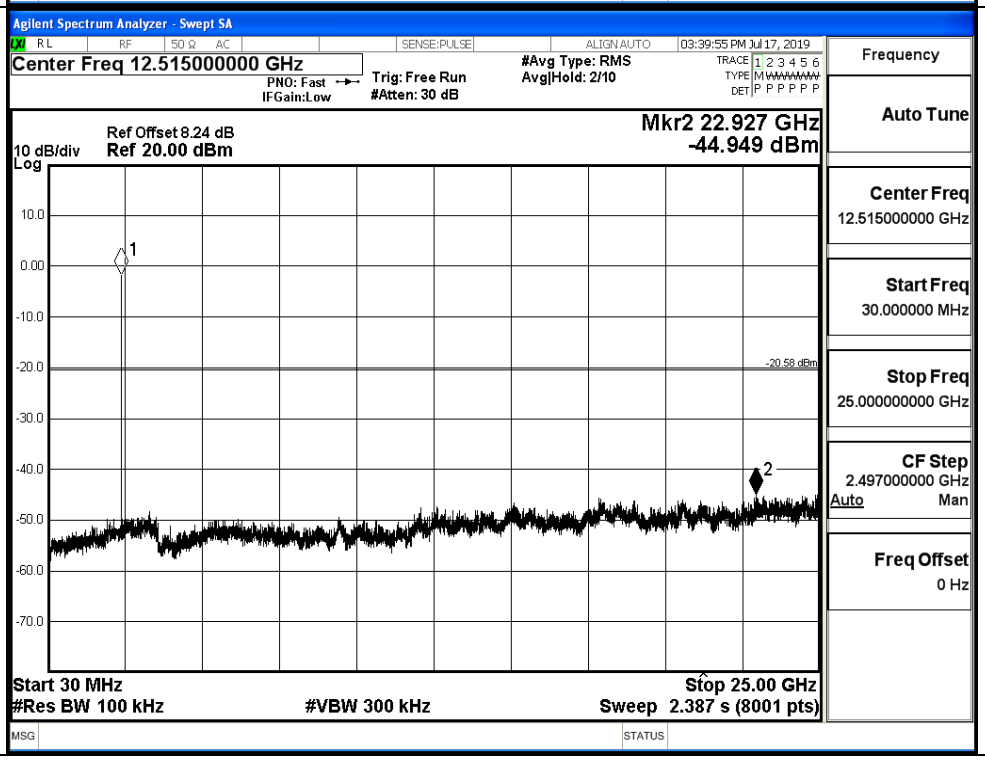
GFSK_LCH_Graphs	
Pref	

Puw		

Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:PULSE
ALIGN AUTO
03:32:27 PM Jul 17, 2019
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 8.24 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr2 25.000 GHz
-44.428 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-20.56 dBm
Start 30 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.00 GHz
Sweep 2.387 s (8001 pts)
MSG
STATUS
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

GFSK_MCH_Graphs			
Pref			
Puw			

GFSK_HCH_Graphs			
Pref			
Puw			

π/4DQPSK_LCH_Graphs			
Pref			
Puw			

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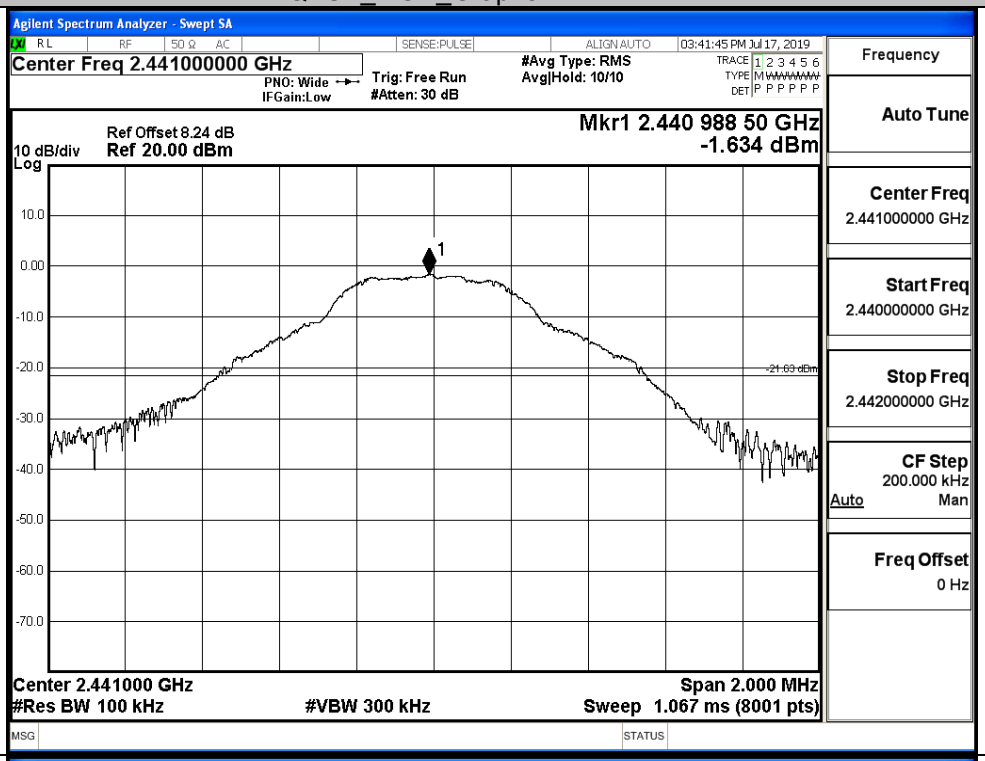
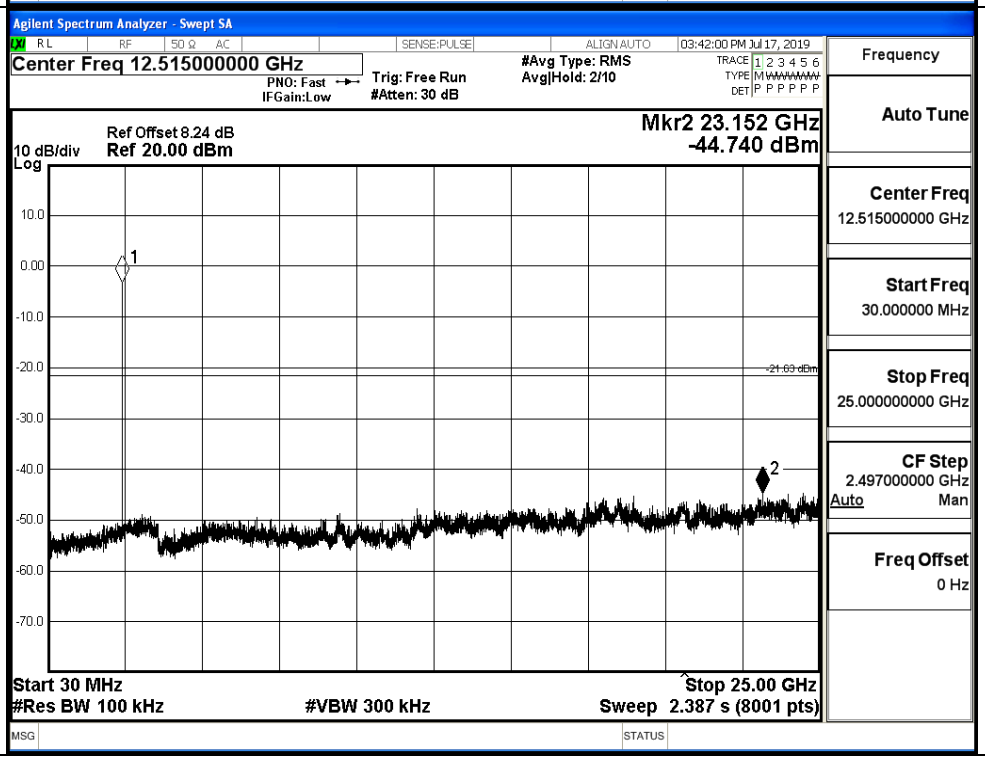
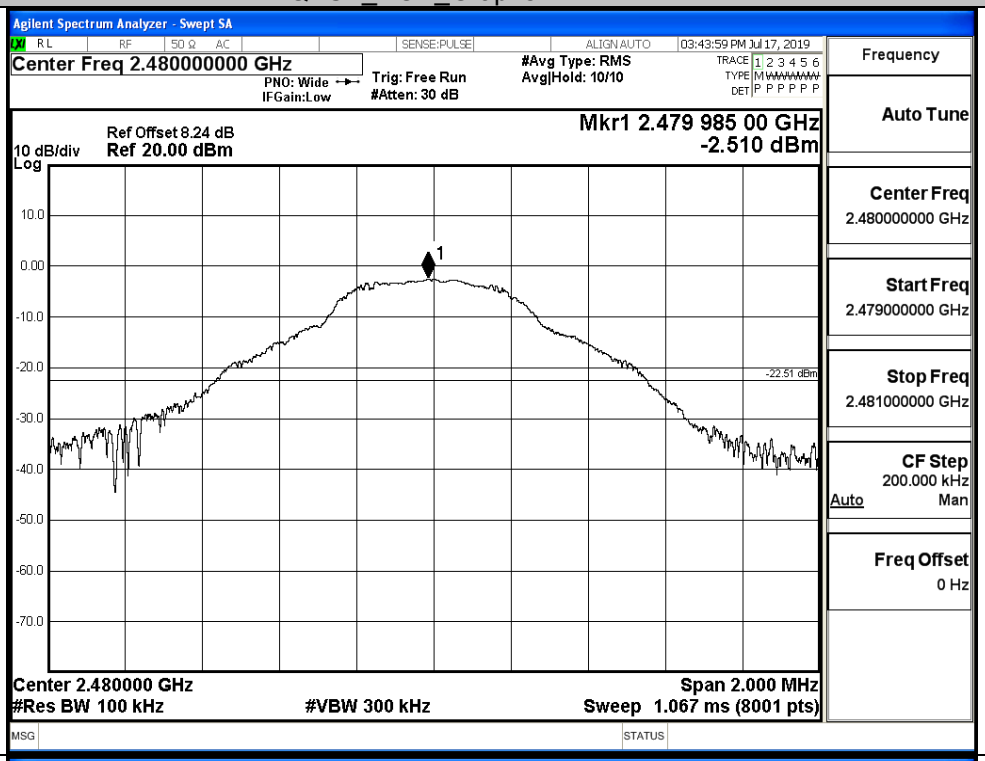
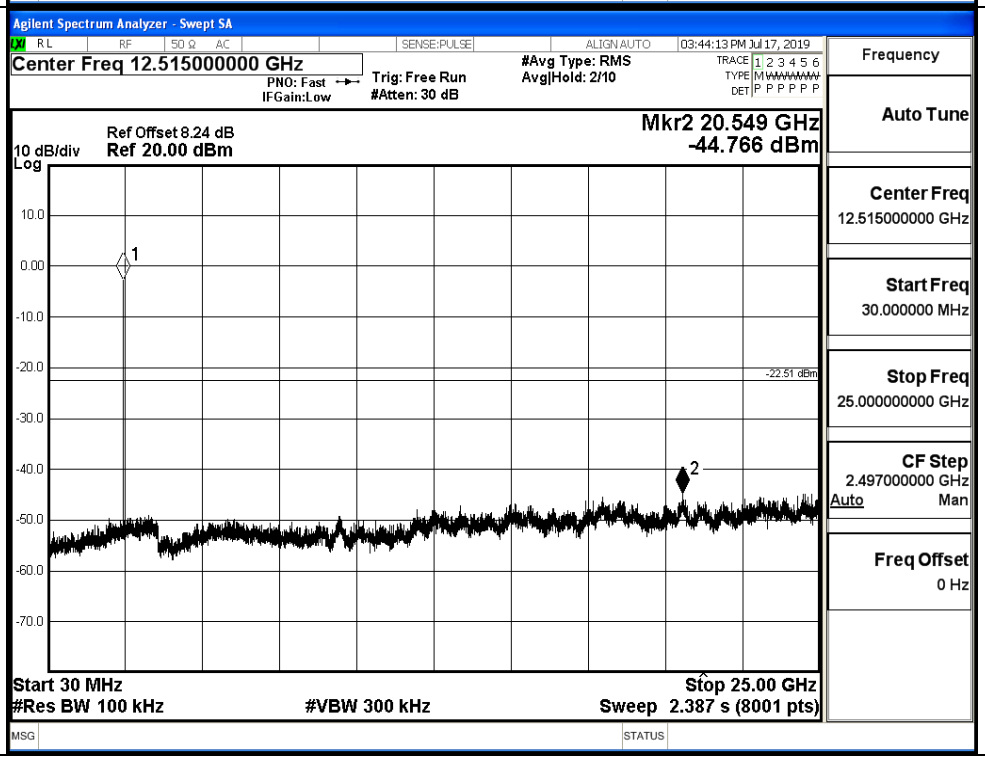
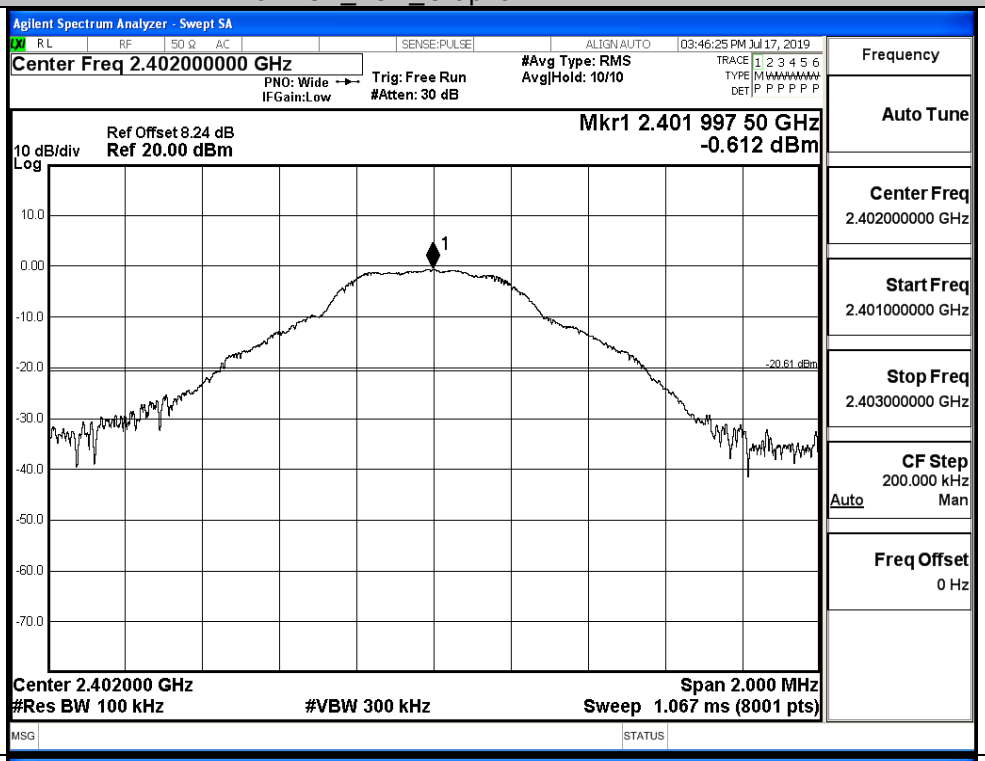
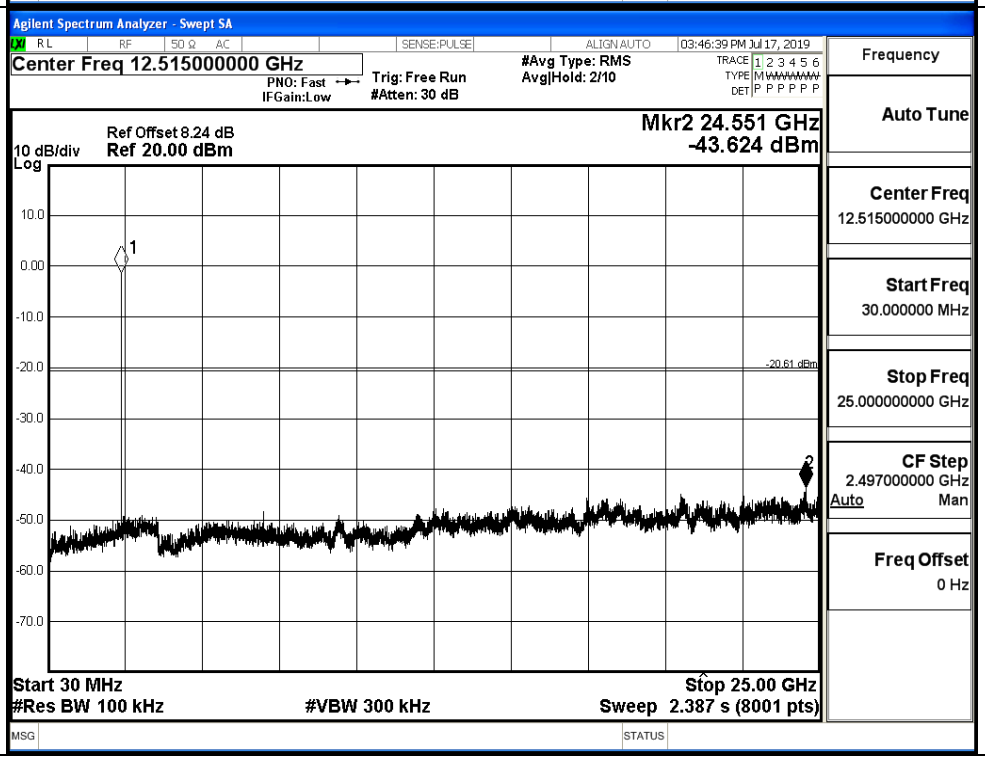
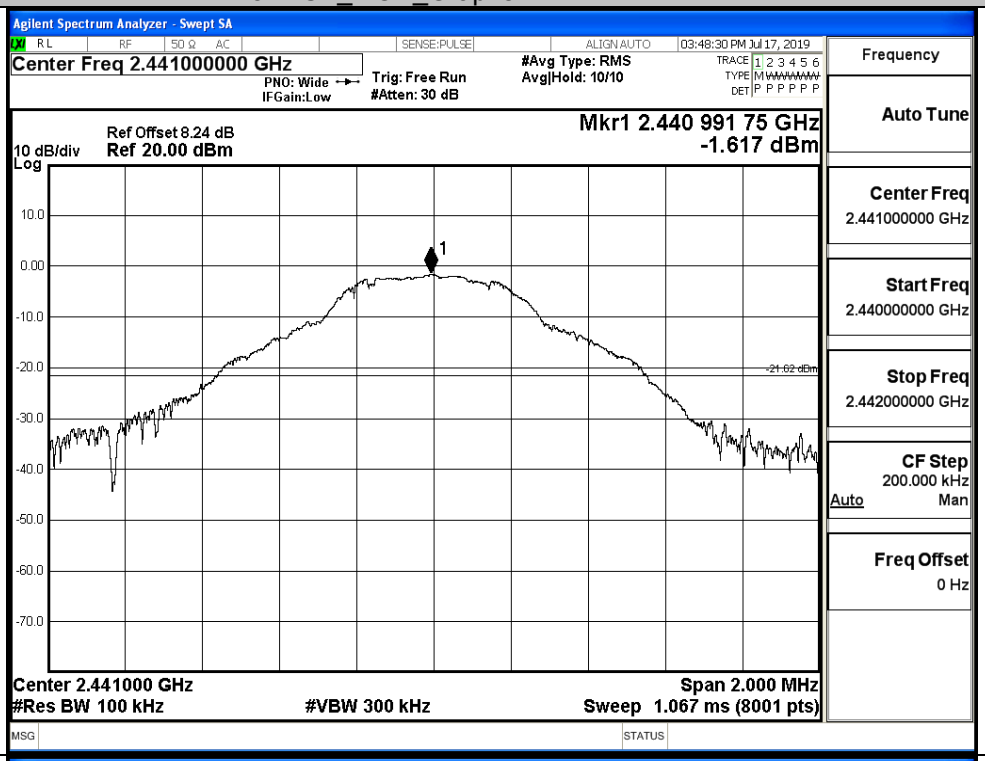
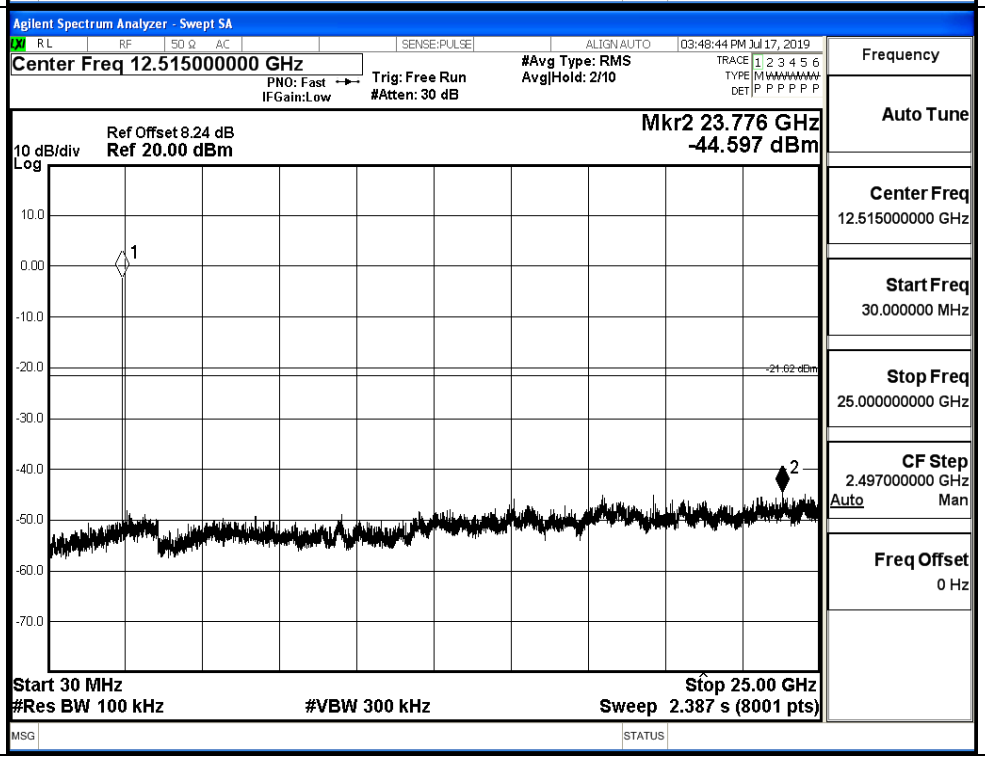
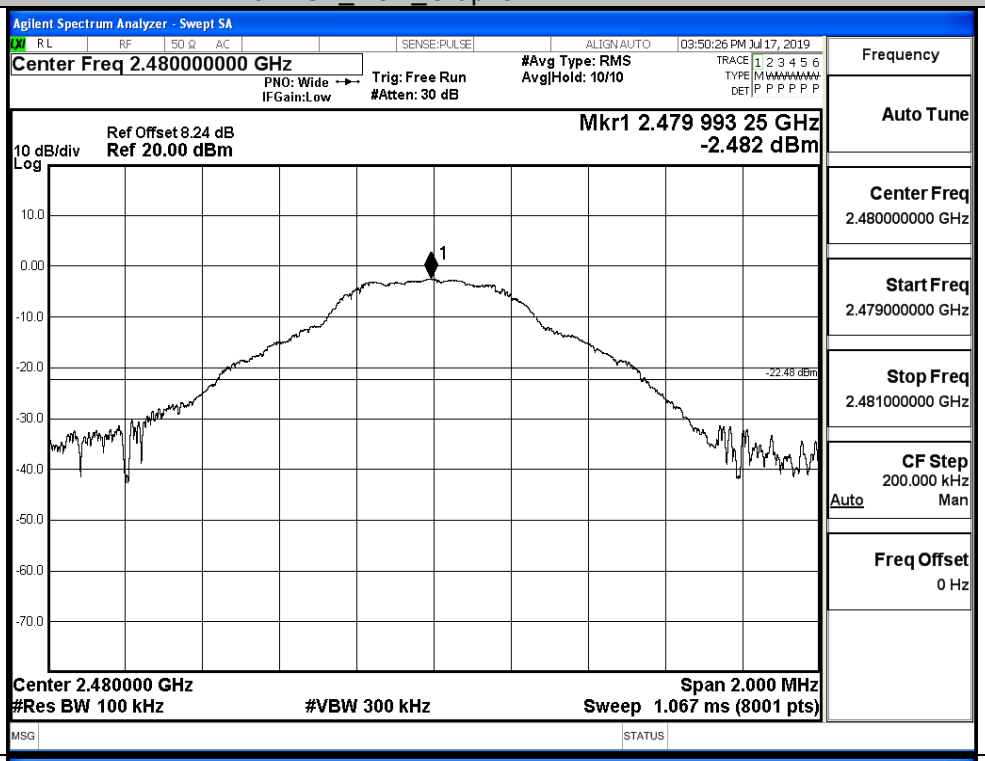
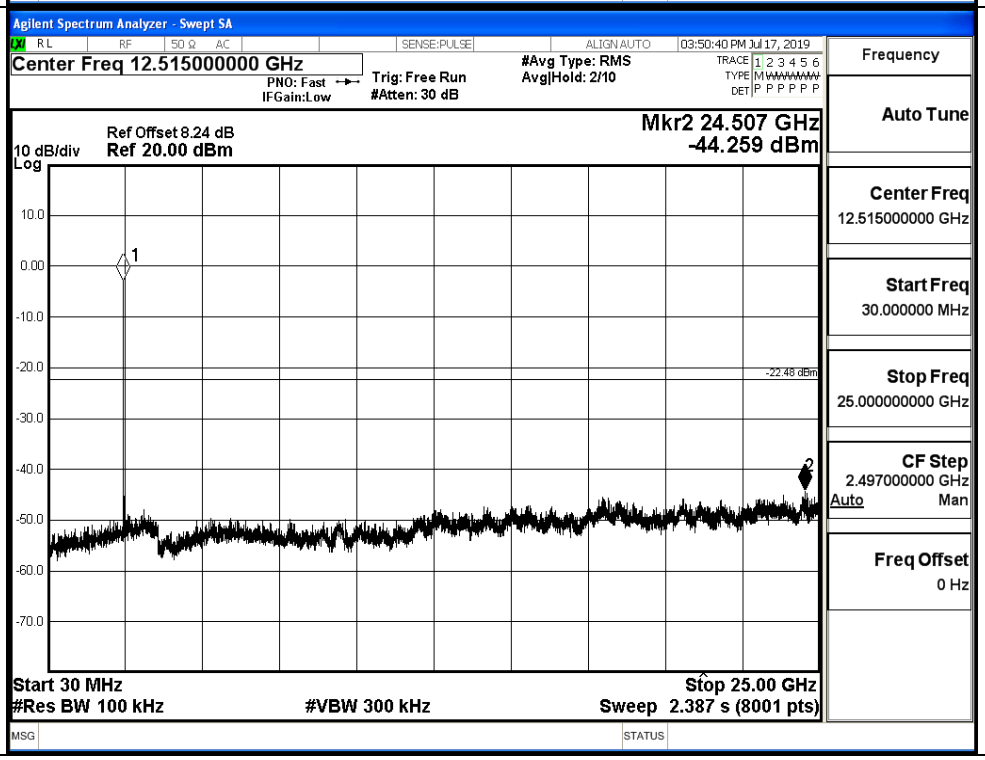
Pref			
Puw			

π/4DQPSK_HCH_Graphs			
Pref			
Puw			

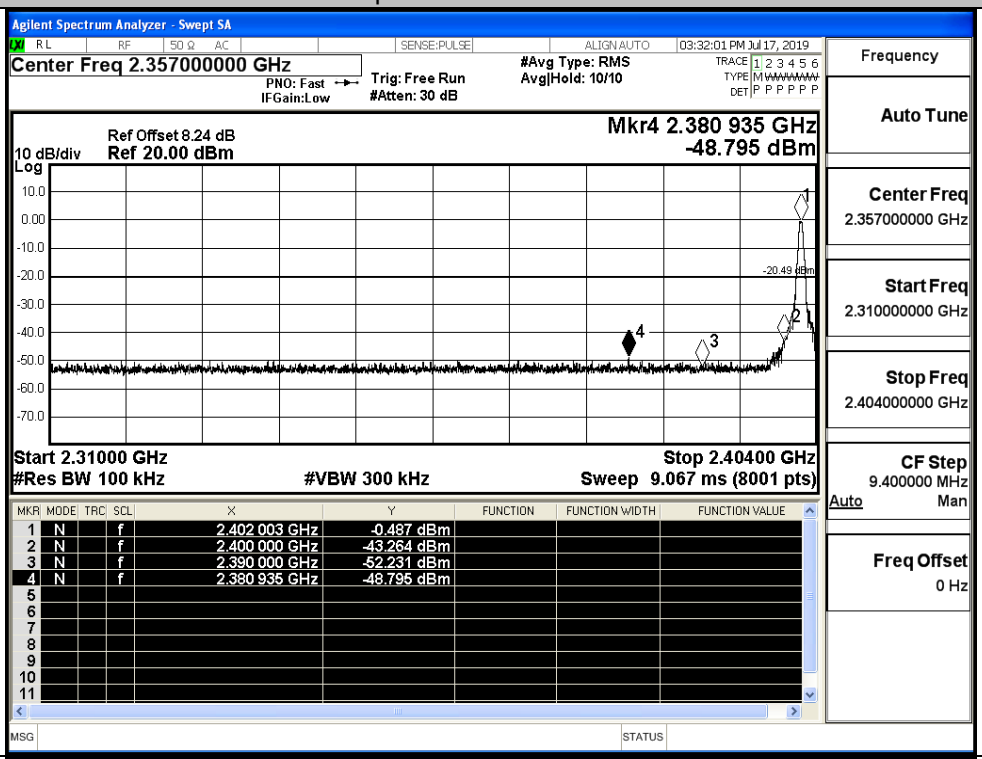
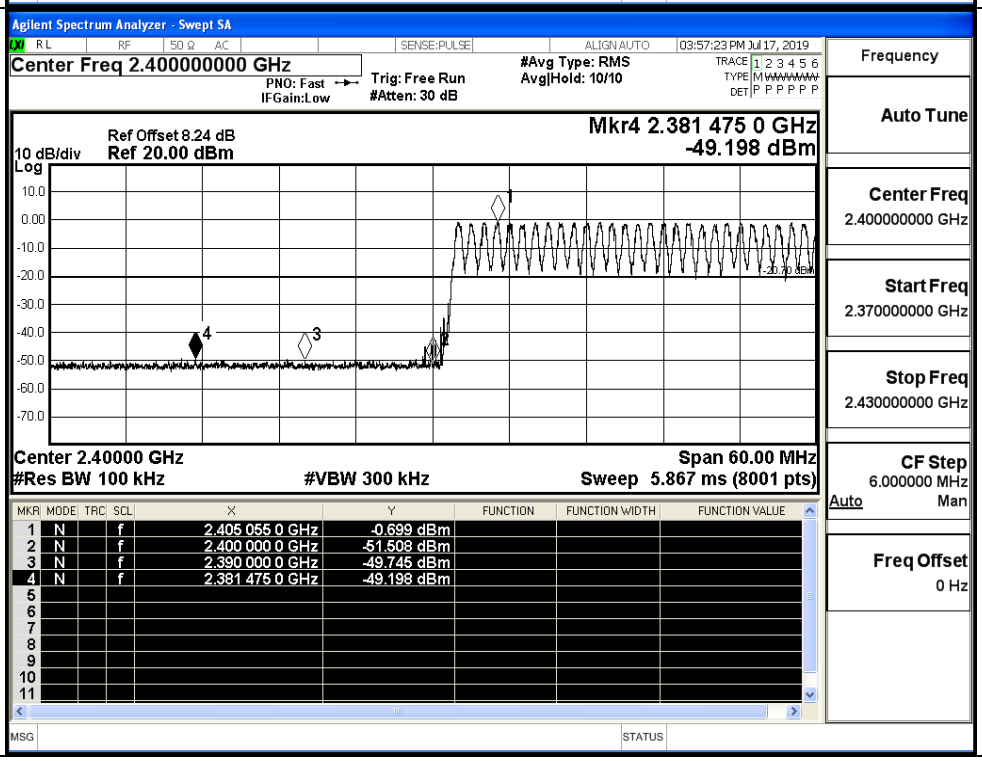
8DPSK_LCH_Graphs			
Pref			
Puw			

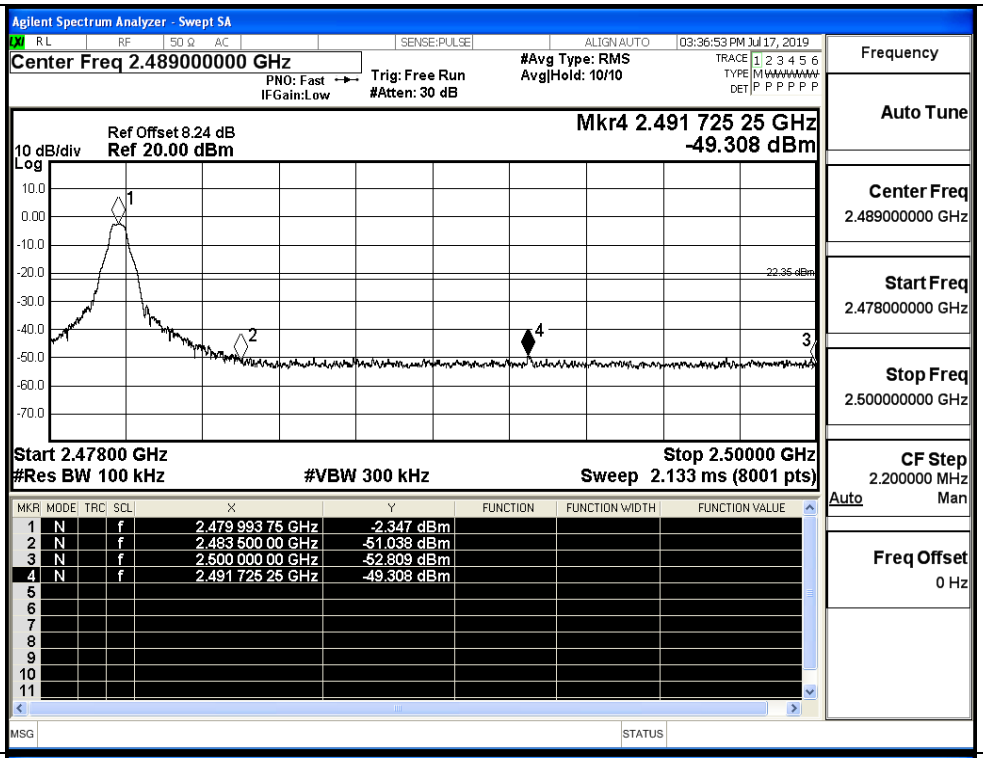
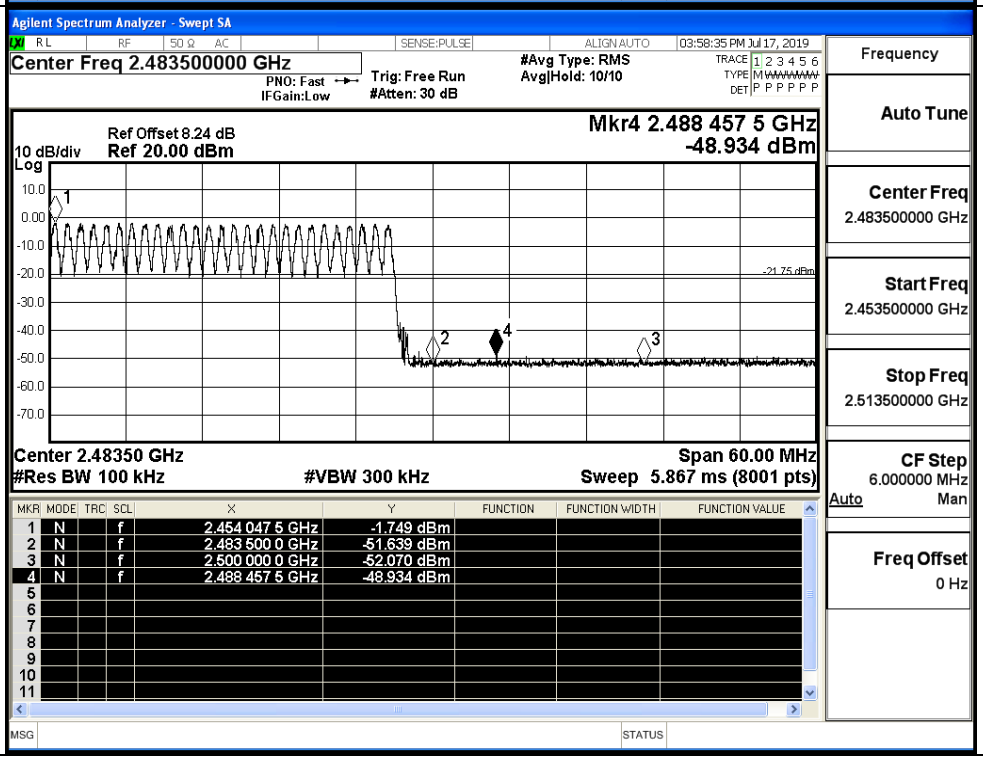
8DPSK_MCH_Graphs			
Pref			
Puw			

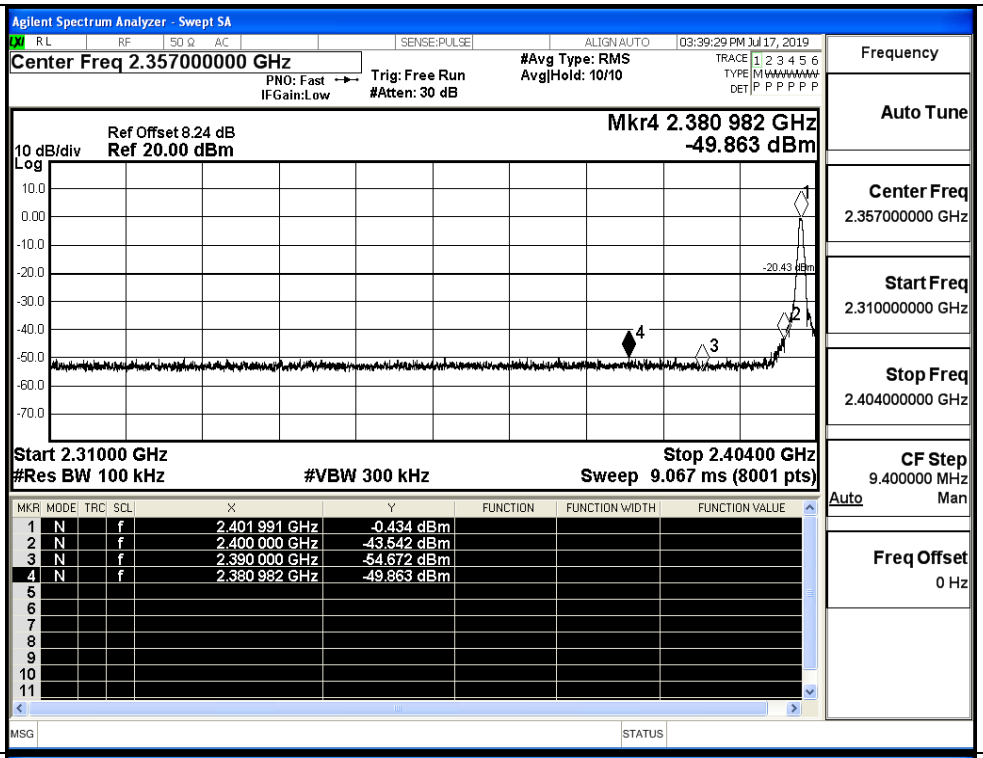
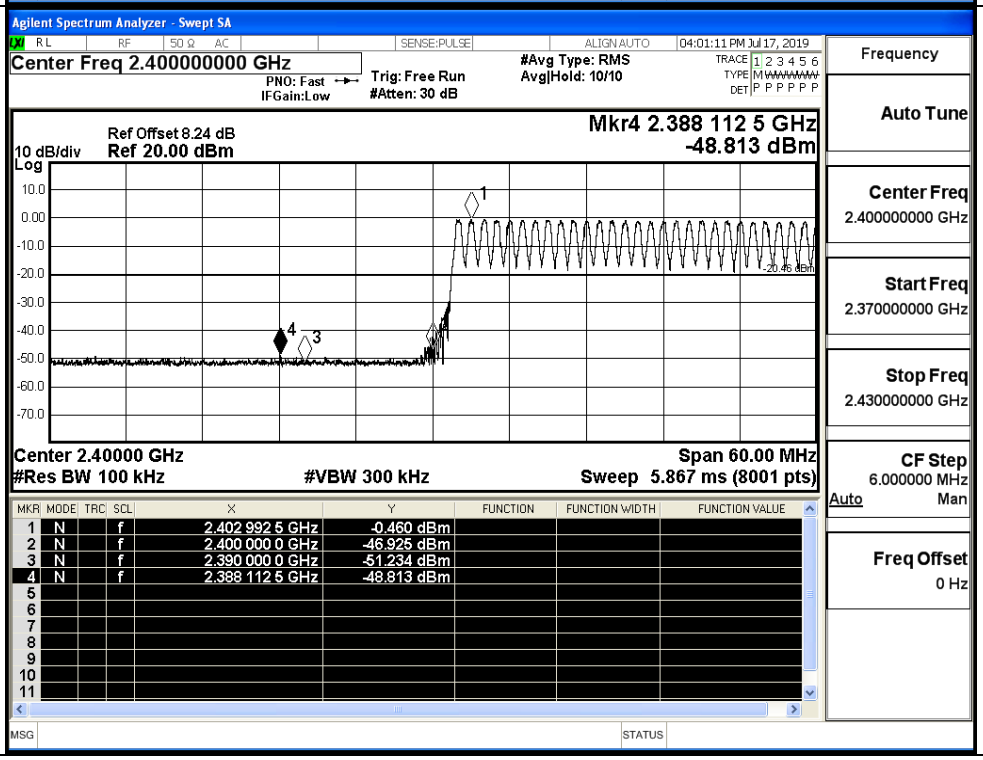
8DPSK_HCH_Graphs			
Pref			
Puw			

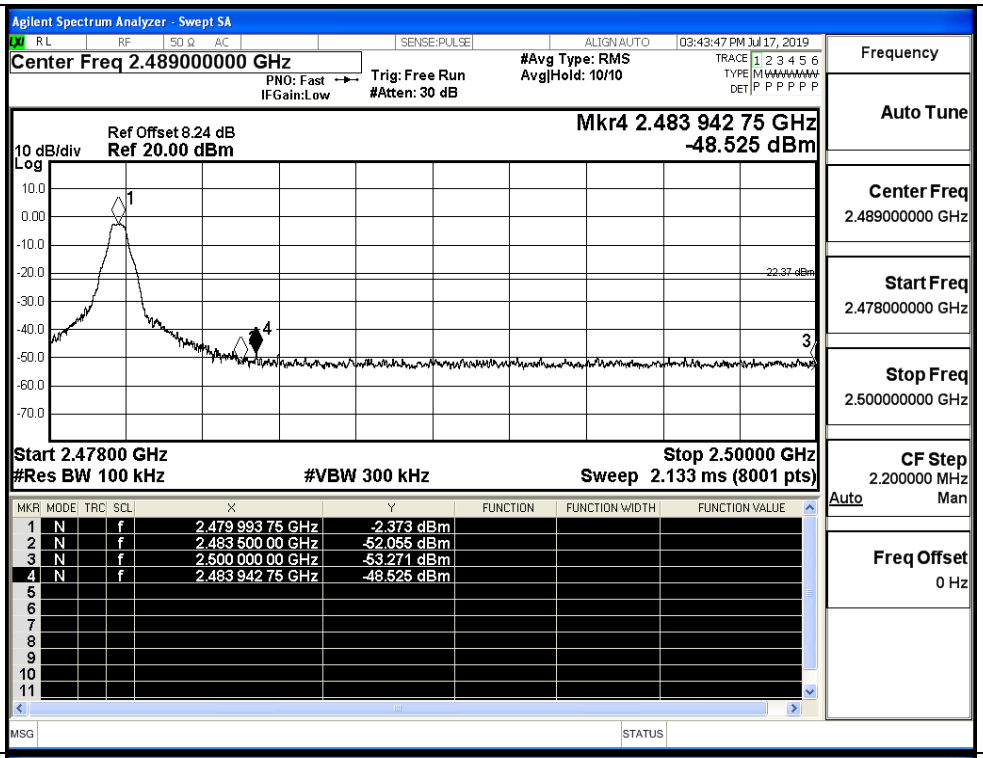
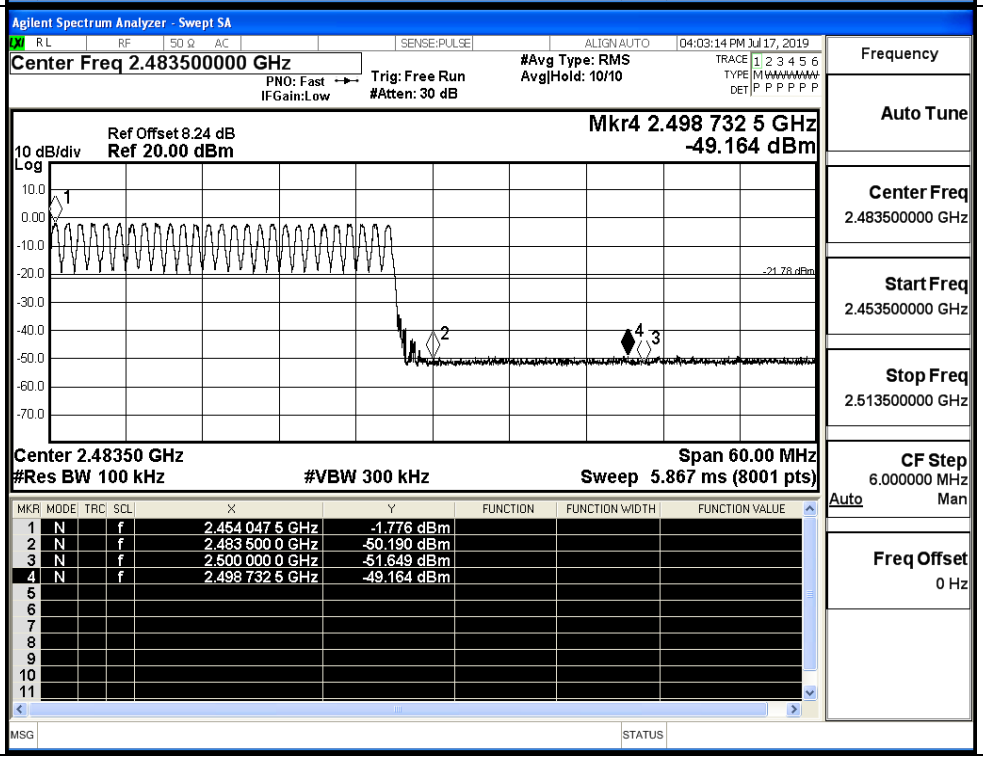
A.8 Band-edge for RF Conducted Emissions

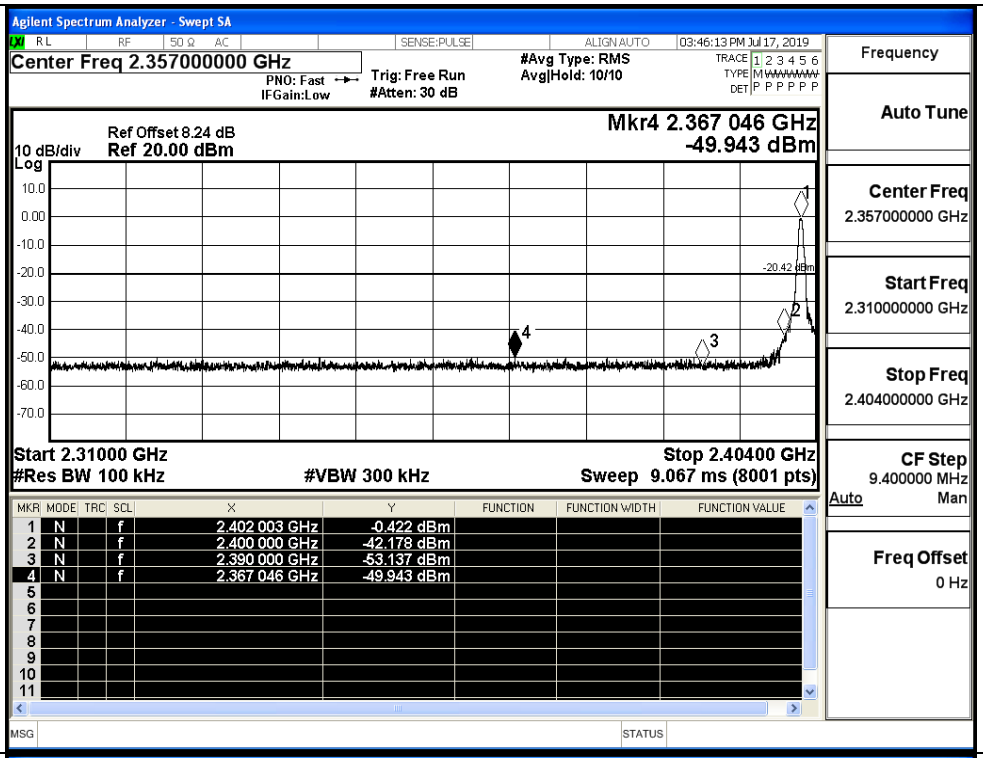
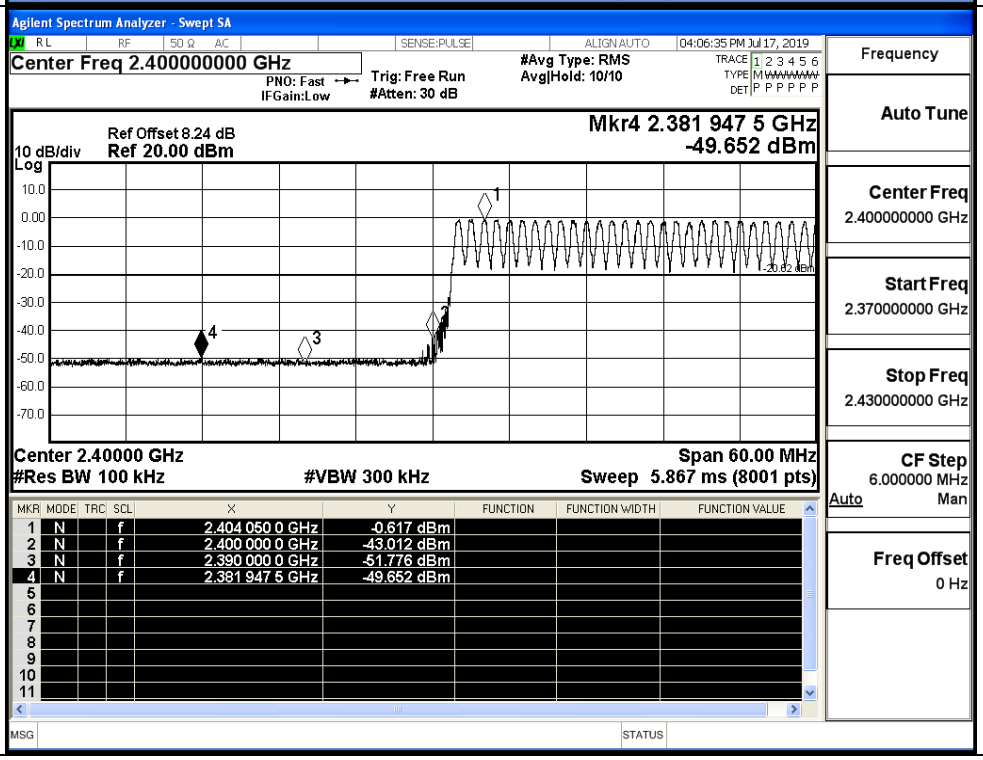
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-0.487	Off	-48.795	-20.49	PASS
			-0.699	On	-49.198	-20.7	PASS
	HCH	2480	-2.347	Off	-49.308	-22.35	PASS
			-1.749	On	-48.934	-21.75	PASS
π/4DQPSK	LCH	2402	-0.434	Off	-49.863	-20.43	PASS
			-0.460	On	-48.813	-20.46	PASS
	HCH	2480	-2.373	Off	-48.525	-22.37	PASS
			-1.776	On	-49.164	-21.78	PASS
8DPSK	LCH	2402	-0.422	Off	-49.943	-20.42	PASS
			-0.617	On	-49.652	-20.62	PASS
	HCH	2480	-2.350	Off	-49.093	-22.35	PASS
			-1.748	On	-48.585	-21.75	PASS

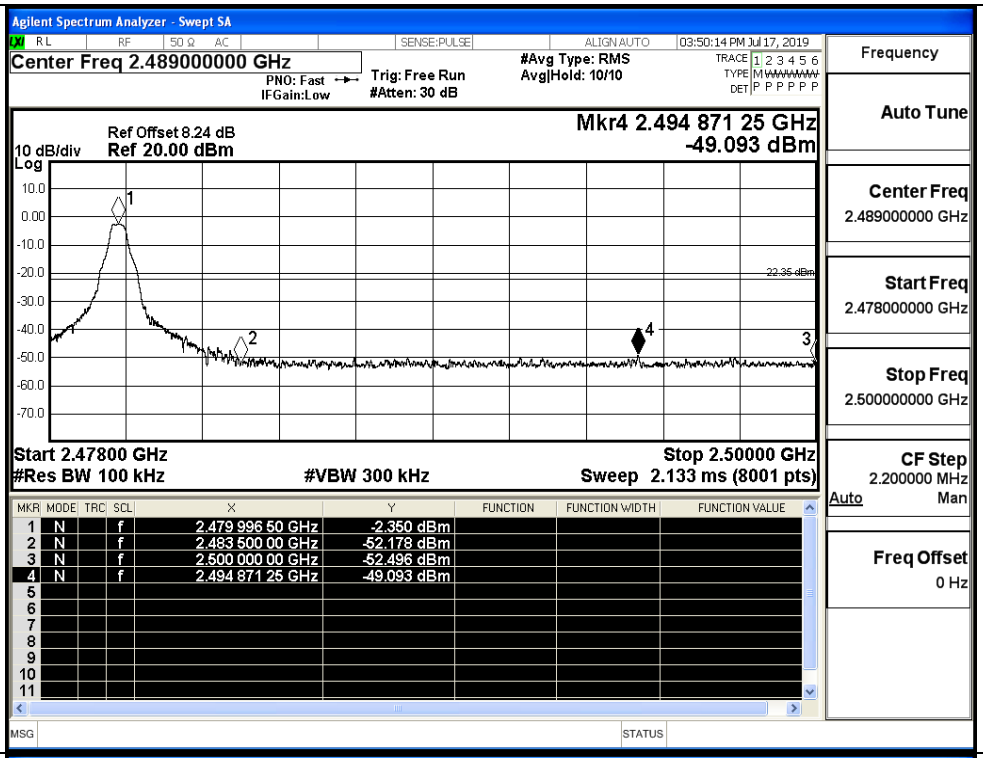
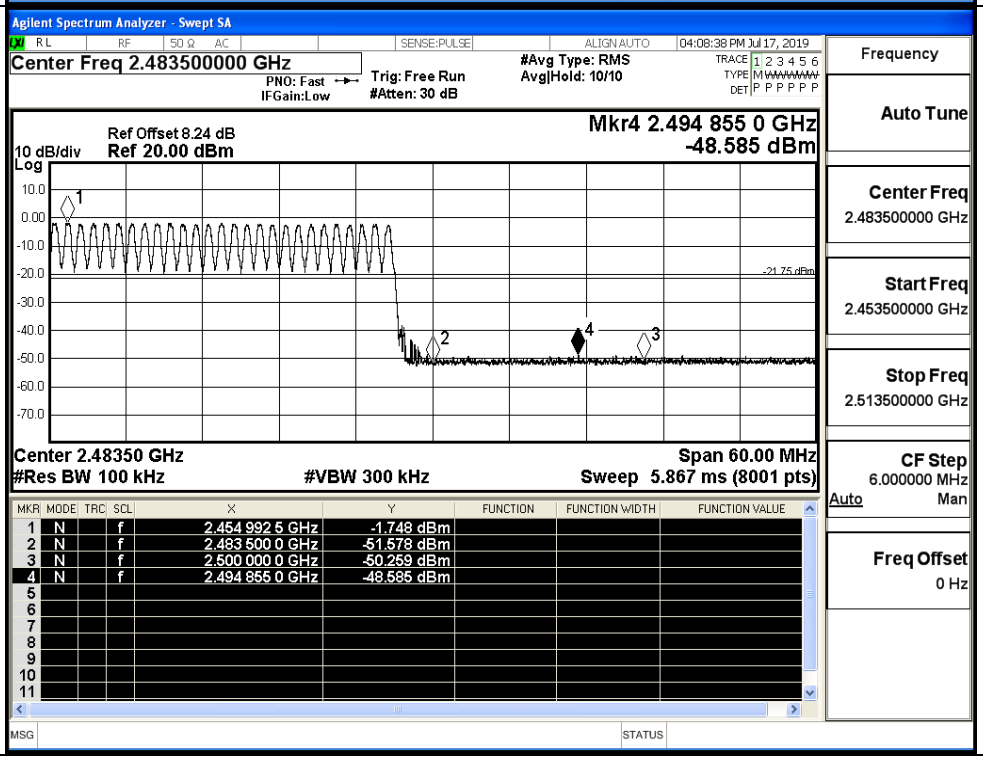
Test Graphs	
GFSK/LCH/No Hop	
GFSK/LCH/Hop	

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	

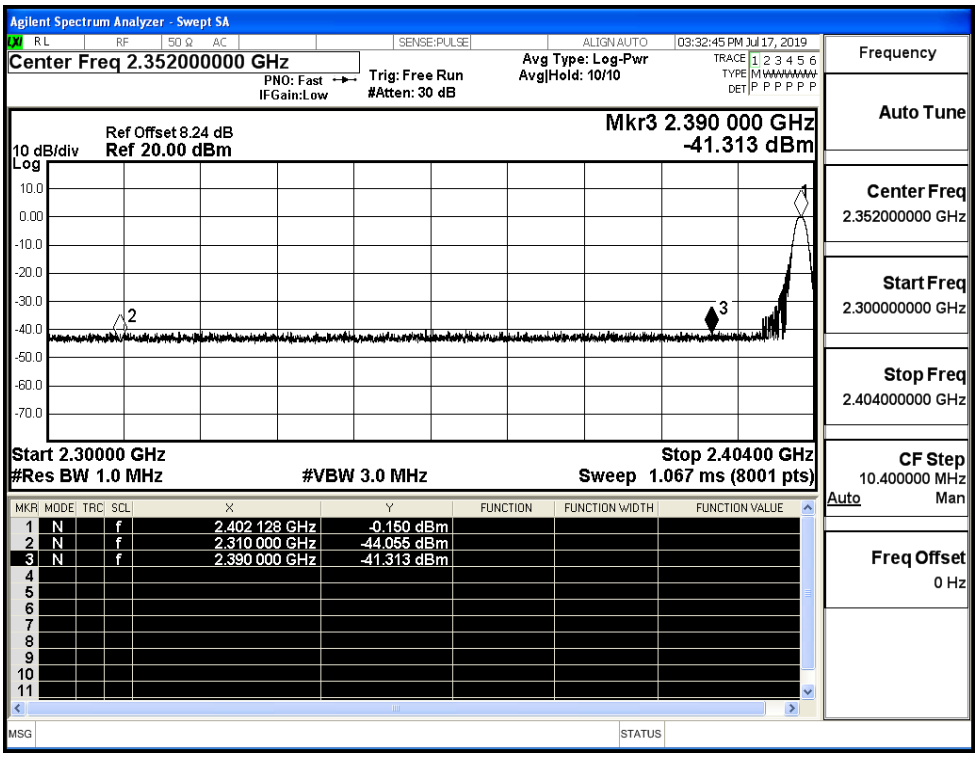
8DPSK/LCH/No Hop	
8DPSK/LCH/Hop	

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

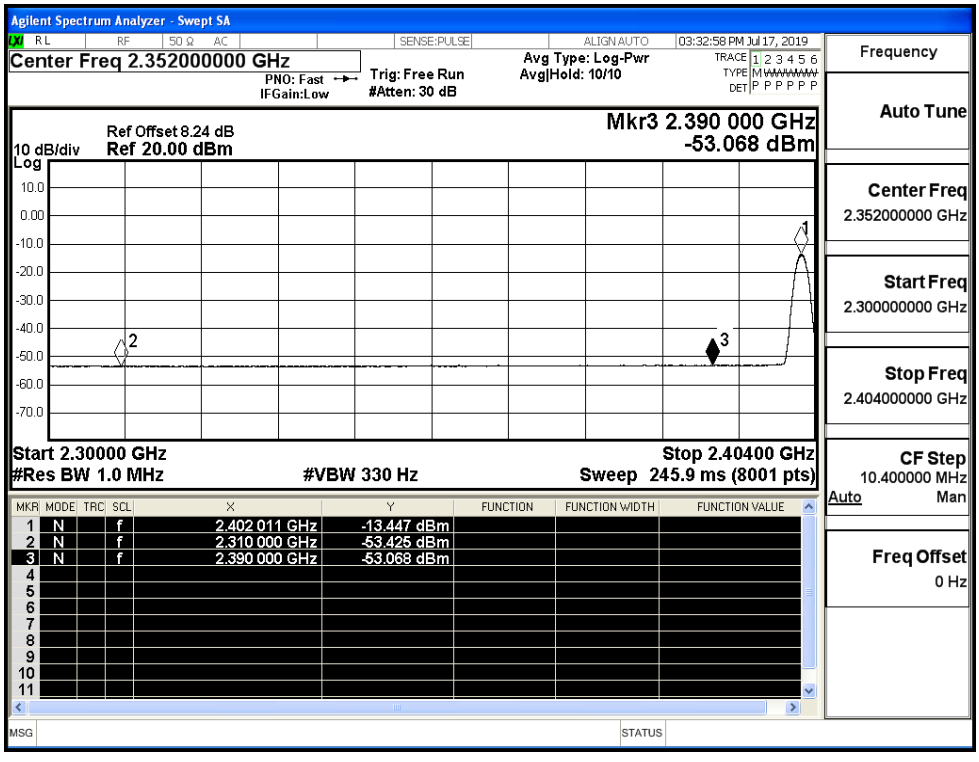
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-44.06	2.0	0	53.20	PEAK	74	PASS
	Off	2310.0	-53.43	2.0	0	43.83	AV	54	PASS
	Off	2390.0	-41.31	2.0	0	55.94	PEAK	74	PASS
	Off	2390.0	-53.07	2.0	0	44.19	AV	54	PASS
	Off	2483.5	-33.88	2.0	0	63.38	PEAK	74	PASS
	Off	2483.5	-52.91	2.0	0	44.35	AV	54	PASS
	Off	2500.0	-43.19	2.0	0	54.07	PEAK	74	PASS
	Off	2500.0	-52.79	2.0	0	44.47	AV	54	PASS
π/4DQPSK	Off	2310.0	-43.78	2.0	0	53.47	PEAK	74	PASS
	Off	2310.0	-53.44	2.0	0	43.82	AV	54	PASS
	Off	2390.0	-42.63	2.0	0	54.63	PEAK	74	PASS
	Off	2390.0	-53.21	2.0	0	44.05	AV	54	PASS
	Off	2483.5	-43.30	2.0	0	53.96	PEAK	74	PASS
	Off	2483.5	-52.78	2.0	0	44.48	AV	54	PASS
	Off	2500.0	-43.60	2.0	0	53.66	PEAK	74	PASS
	Off	2500.0	-52.83	2.0	0	44.43	AV	54	PASS
8DPSK	Off	2310.0	-42.94	2.0	0	54.31	PEAK	74	PASS
	Off	2310.0	-53.48	2.0	0	43.77	AV	54	PASS
	Off	2390.0	-42.32	2.0	0	54.93	PEAK	74	PASS
	Off	2390.0	-53.10	2.0	0	44.16	AV	54	PASS
	Off	2483.5	-41.71	2.0	0	55.55	PEAK	74	PASS
	Off	2483.5	-52.82	2.0	0	44.44	AV	54	PASS
	Off	2500.0	-41.93	2.0	0	55.32	PEAK	74	PASS
	Off	2500.0	-52.85	2.0	0	44.41	AV	54	PASS

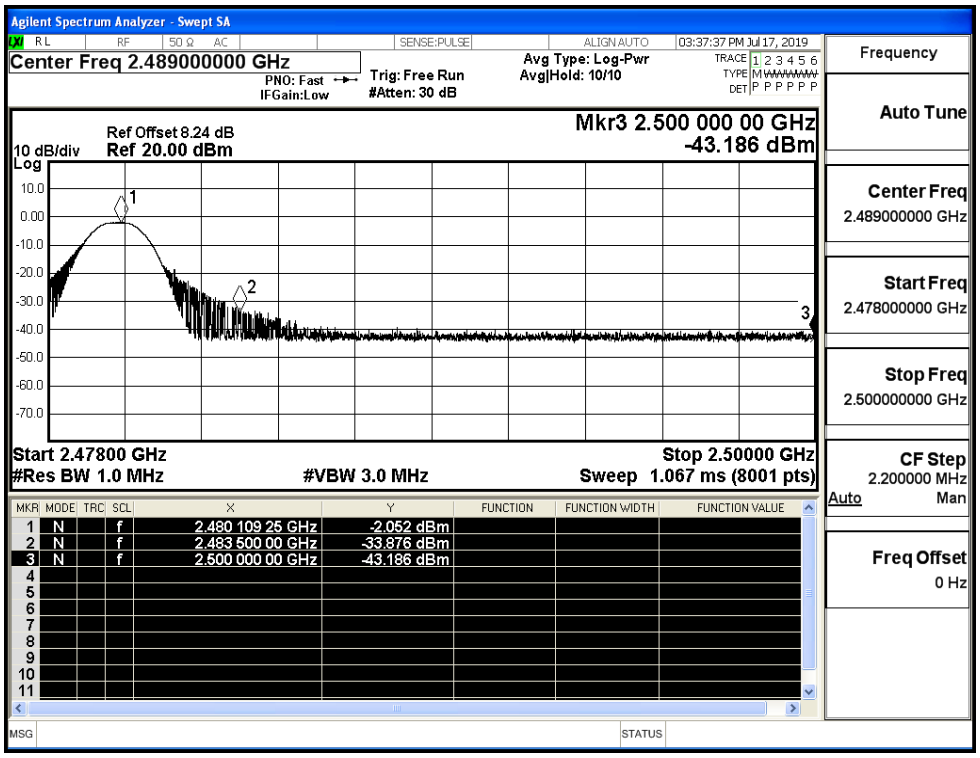
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



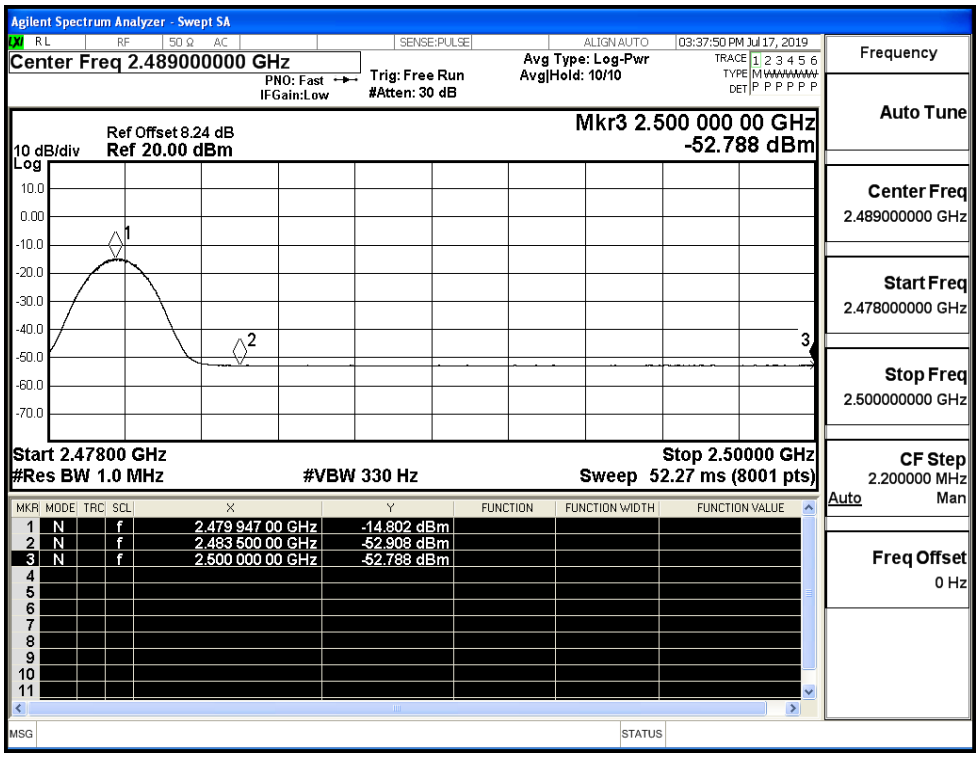
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



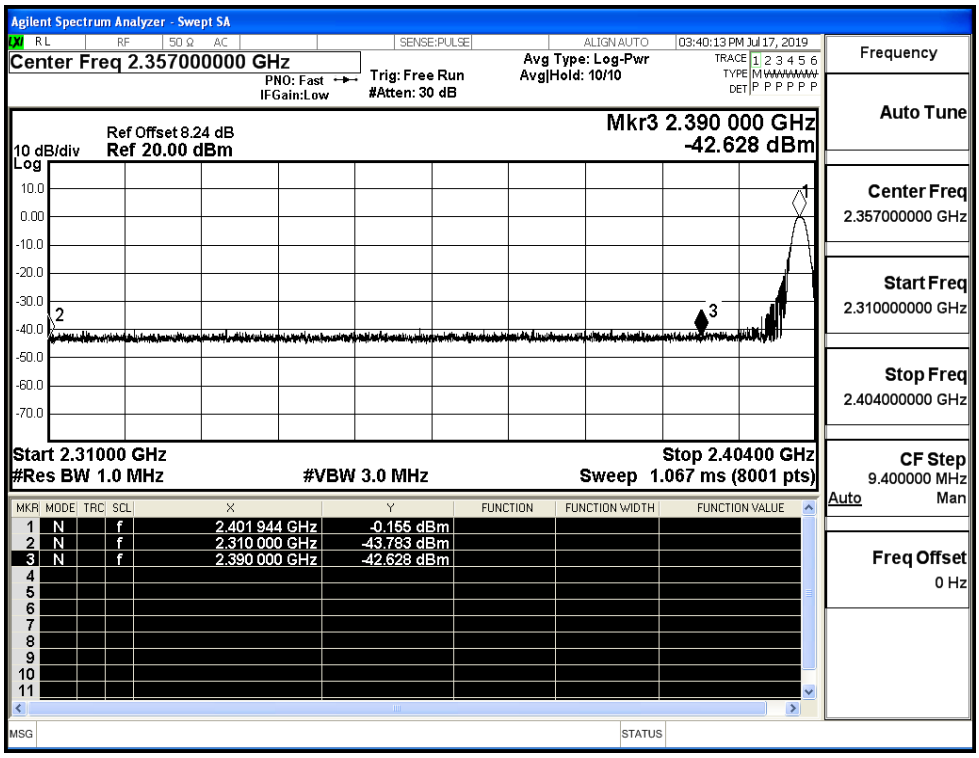
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



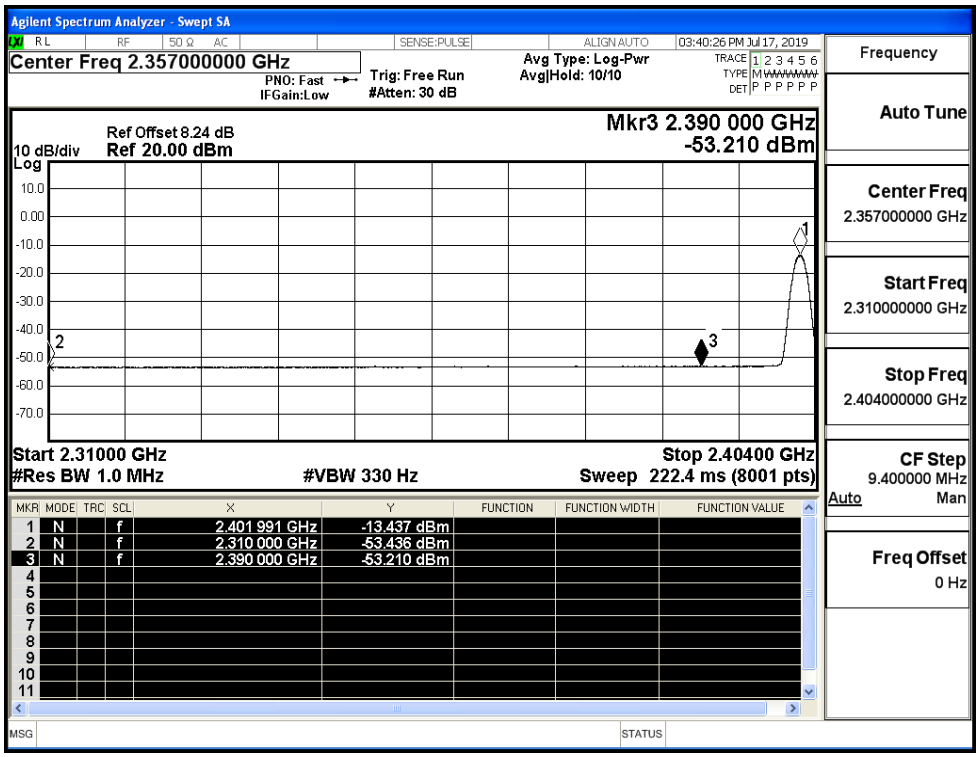
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



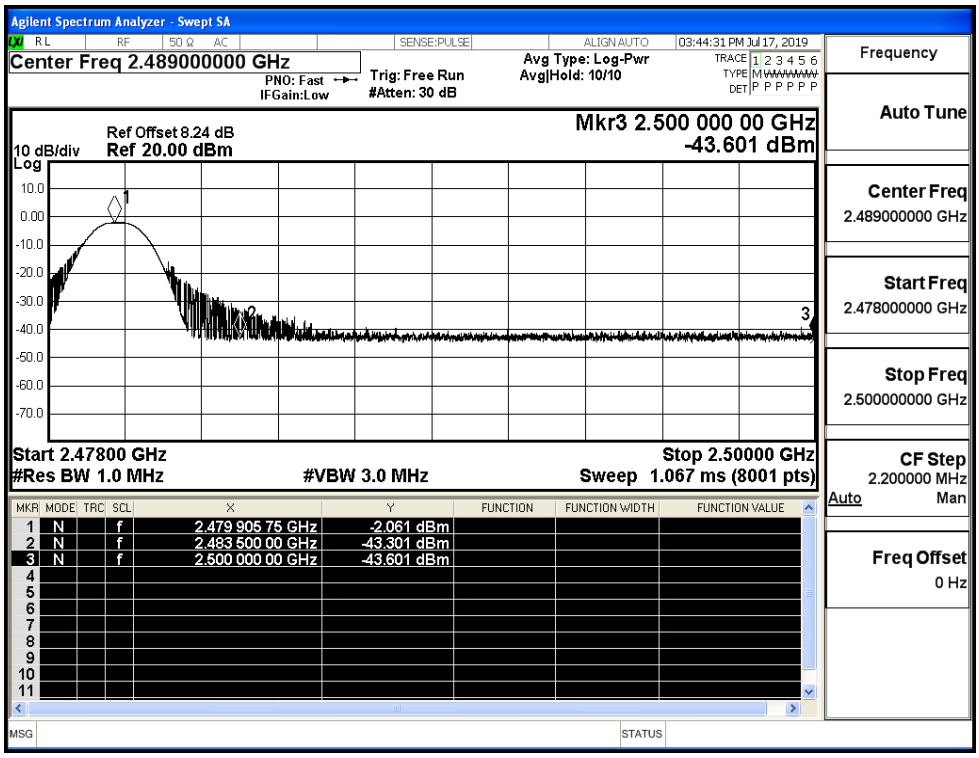
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



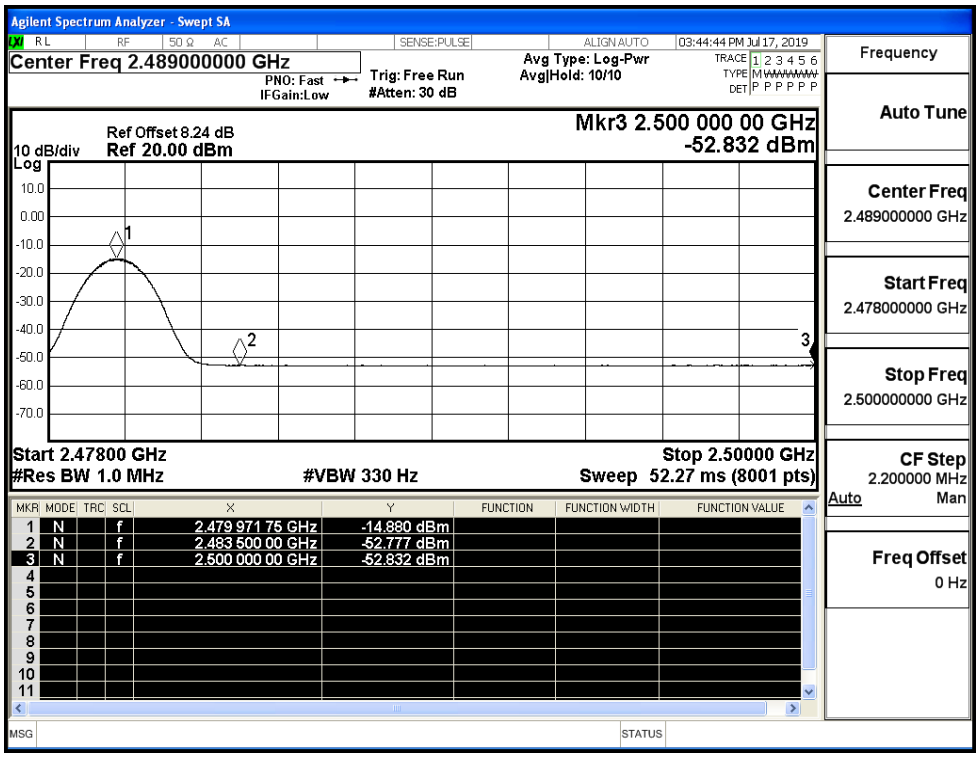
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



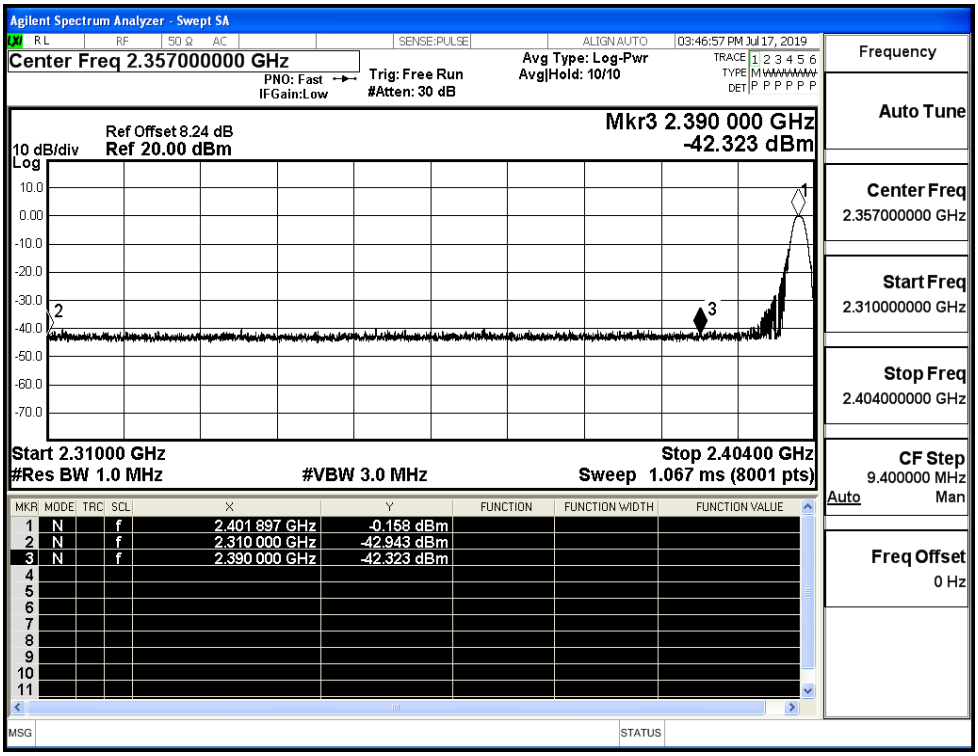
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



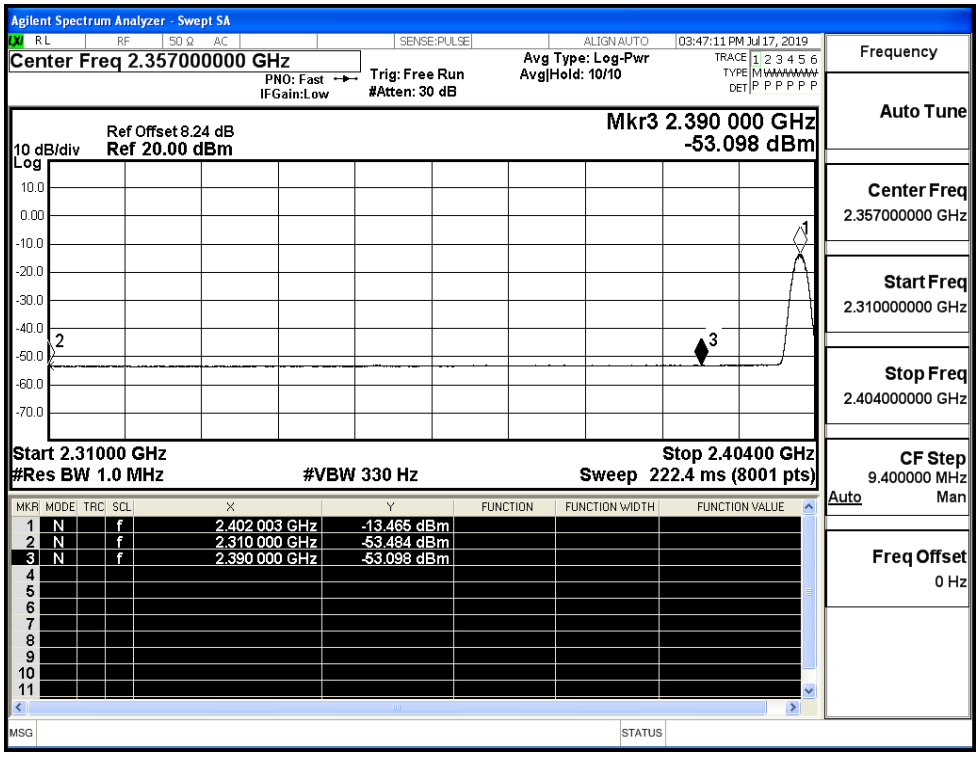
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



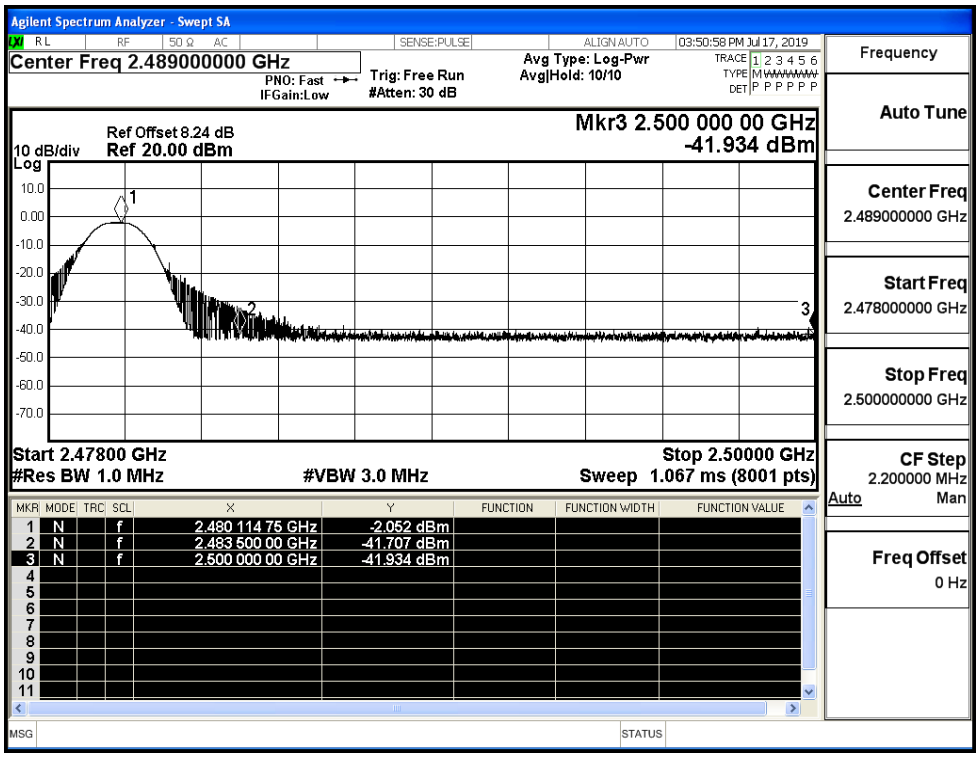
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)