Appendix A

RF Test Data for BT V3.0 (BDR/EDR) (Conducted Measurement)

Product Name: 5.1 CHANNEL DVD HOME THEATER SYSTEM WITH BLUETOOTH

Trade Mark: IMPECCA

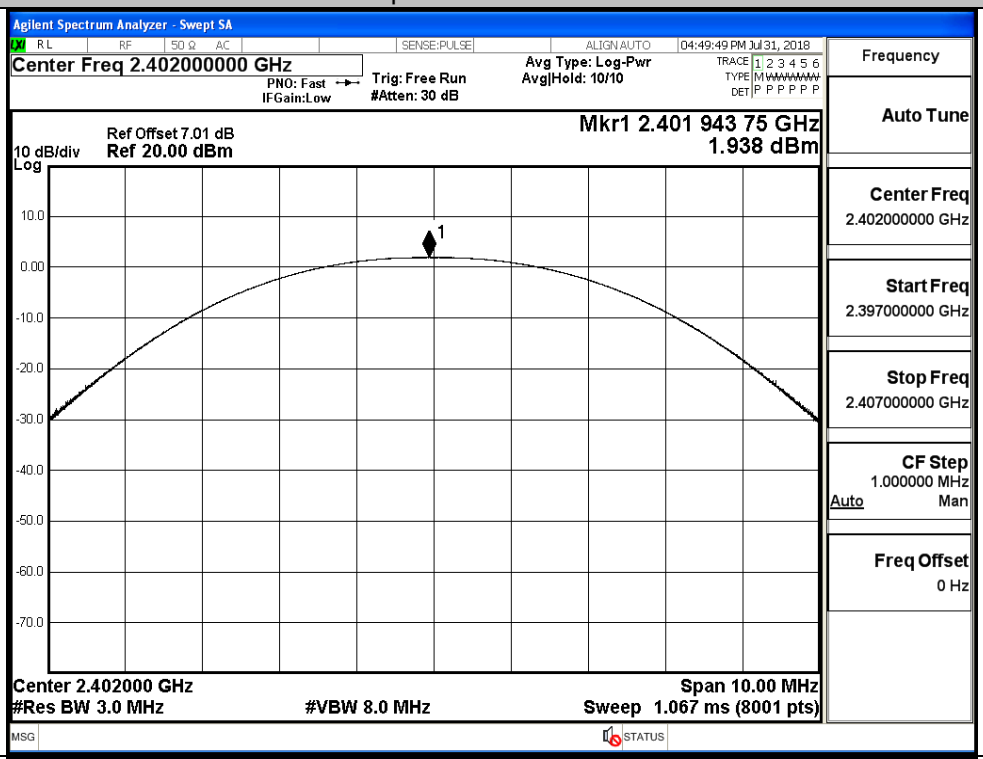
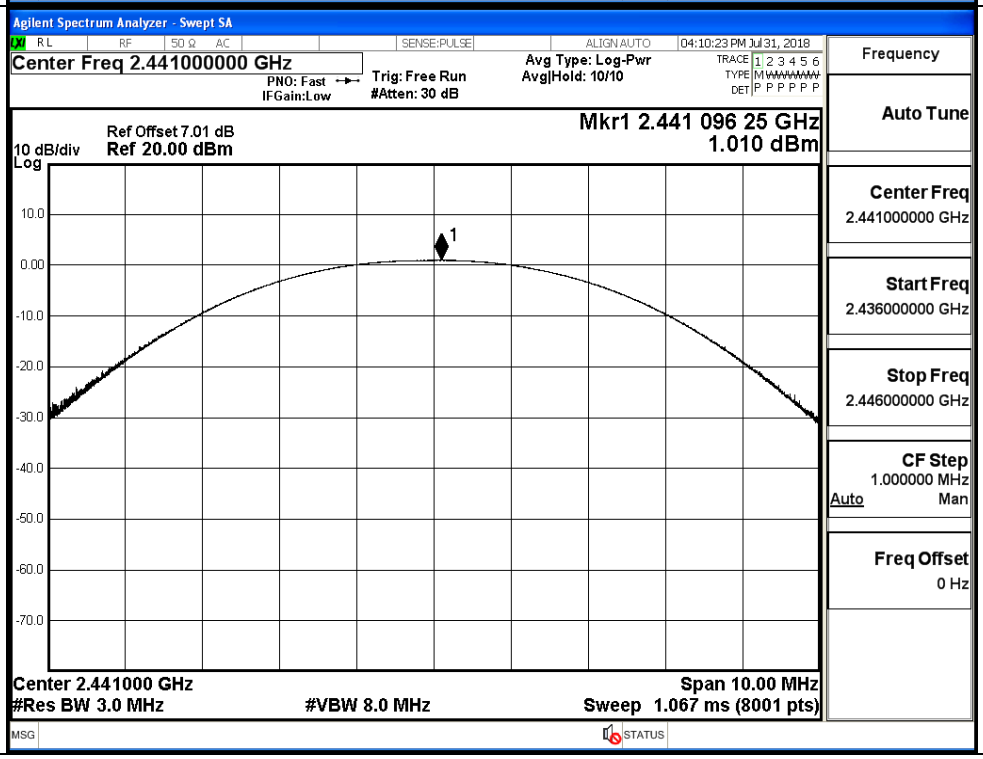
Test Model: HTDS-517BT

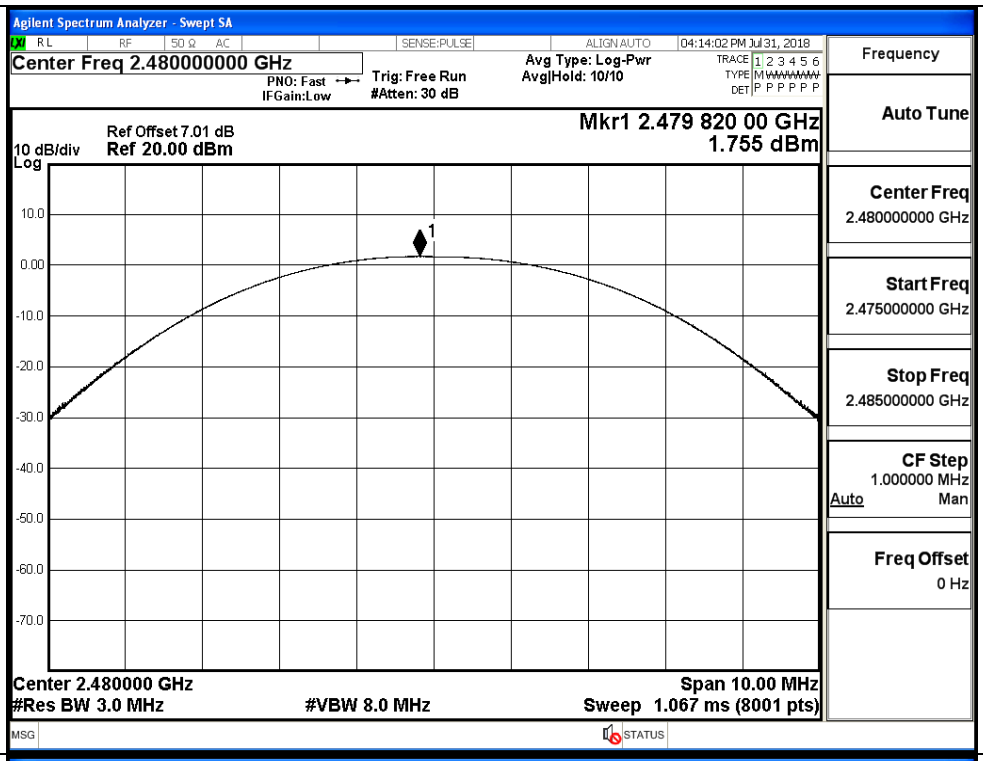
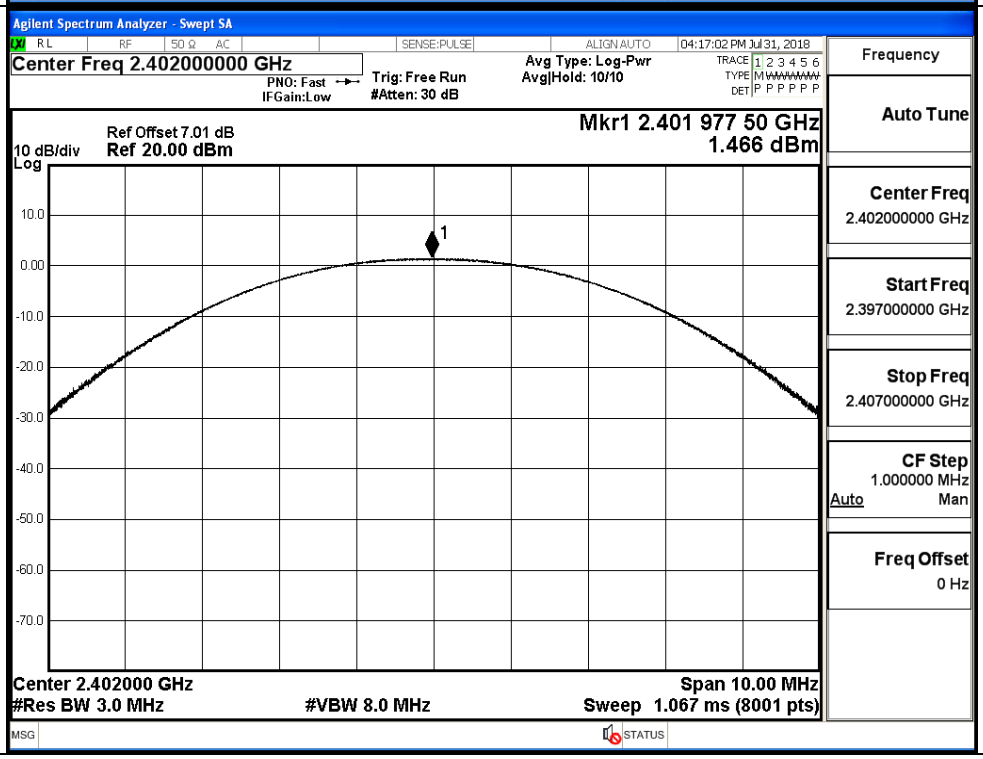
Environmental Conditions

Temperature:	23.3° C
Relative Humidity:	52.5%
ATM Pressure:	100.0 kPa
Test Engineer:	Mina.Xu
Supervised by:	Jayden.Zhuo

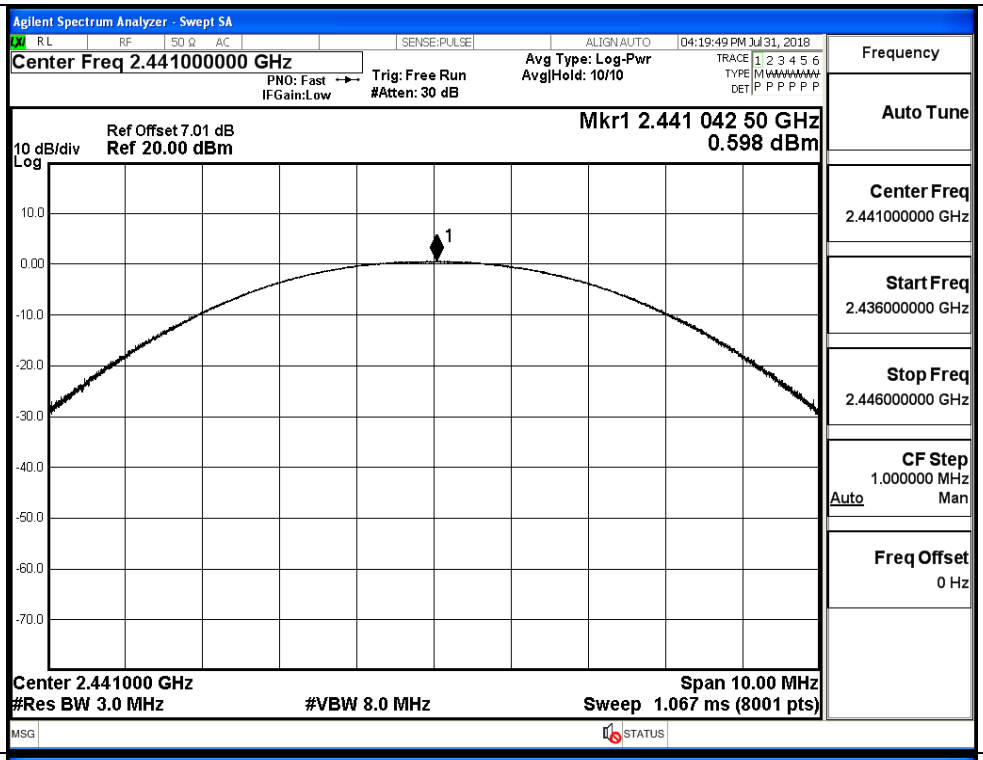
A.1 Maximum Conducted Peak Output Power

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.938	30	PASS
	MCH	1.010	30	PASS
	HCH	1.755	30	PASS
π/4DQPSK	LCH	1.466	21	PASS
	MCH	0.598	21	PASS
	HCH	0.979	21	PASS
8DPSK	LCH	1.486	21	PASS
	MCH	0.669	21	PASS
	HCH	1.169	21	PASS

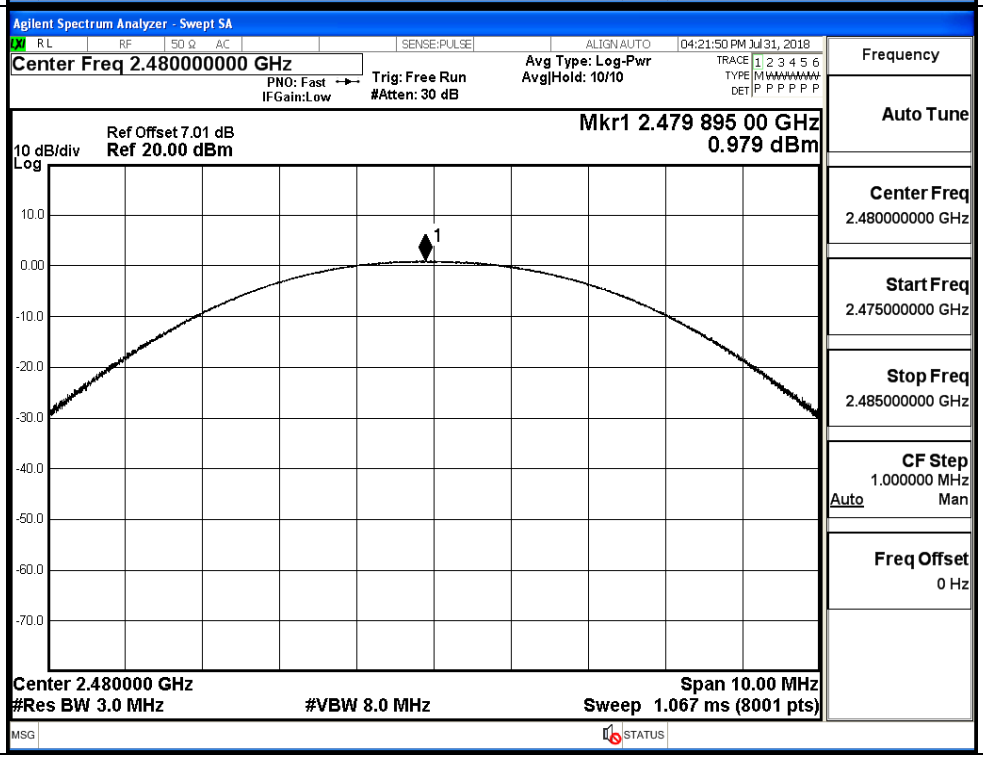
Test Graphs		
GFSK/LCH		
GFSK/MCH		

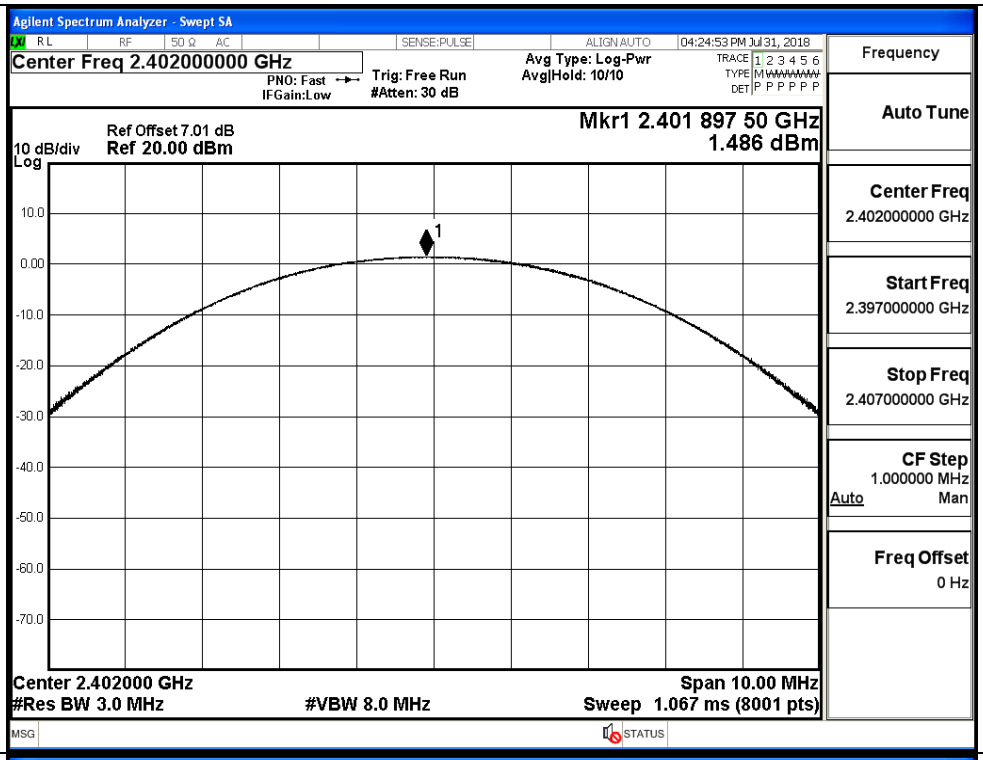
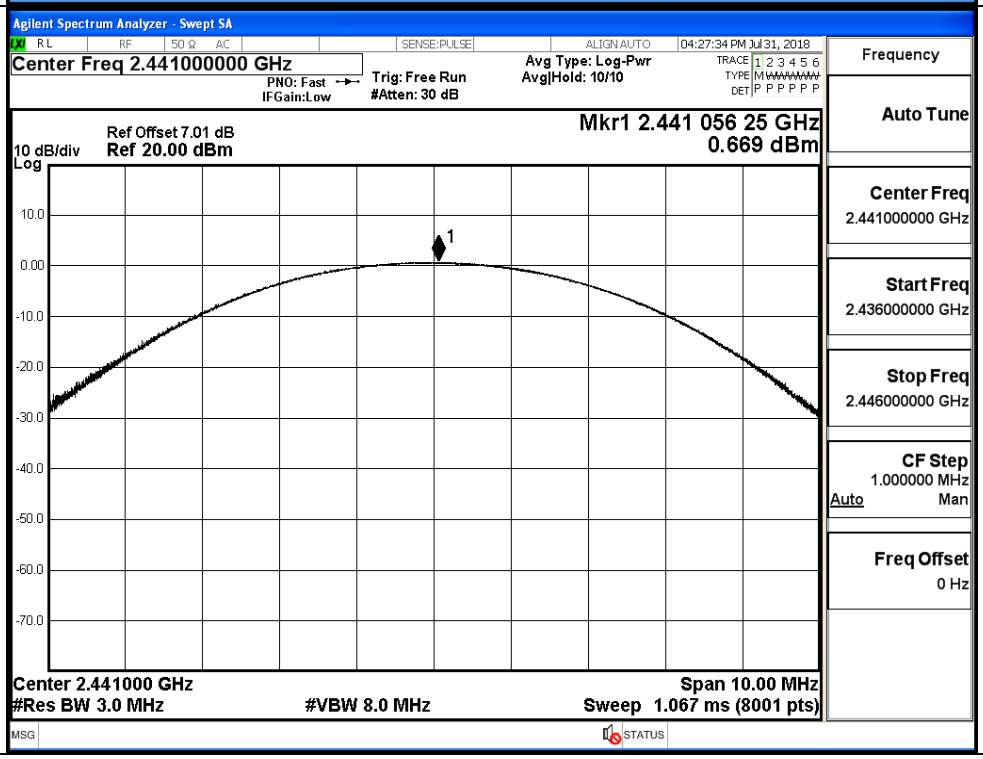
GFSK/HCH		
π/4DQPSK/LCH		

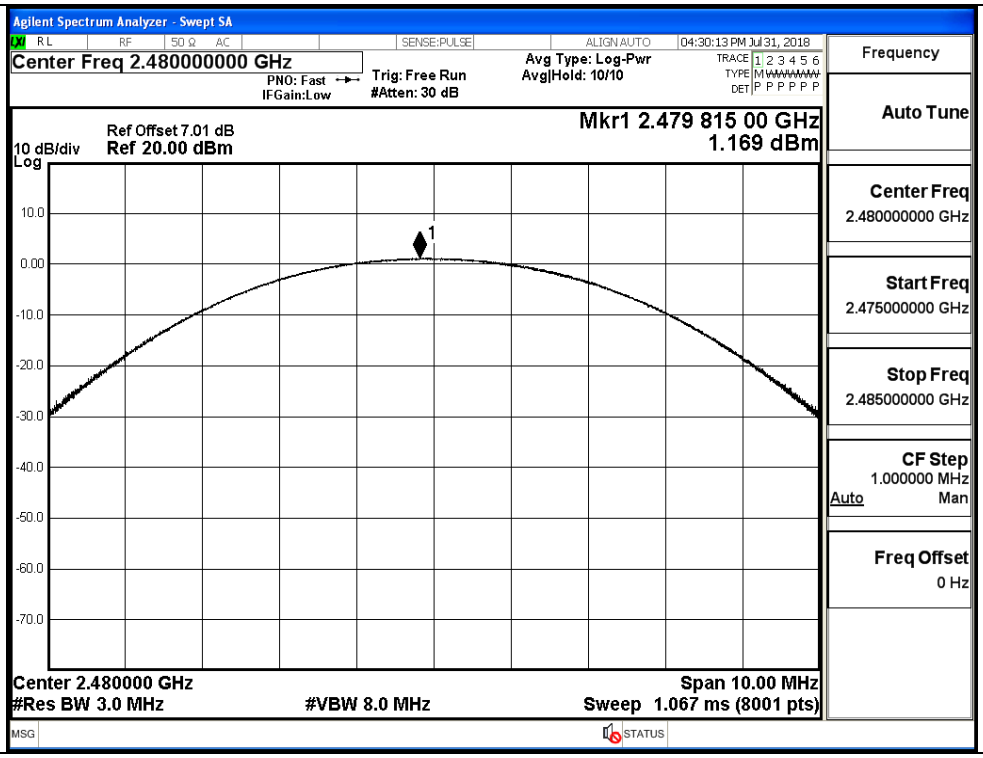
π/4DQPSK/MCH



π/4DQPSK/HCH



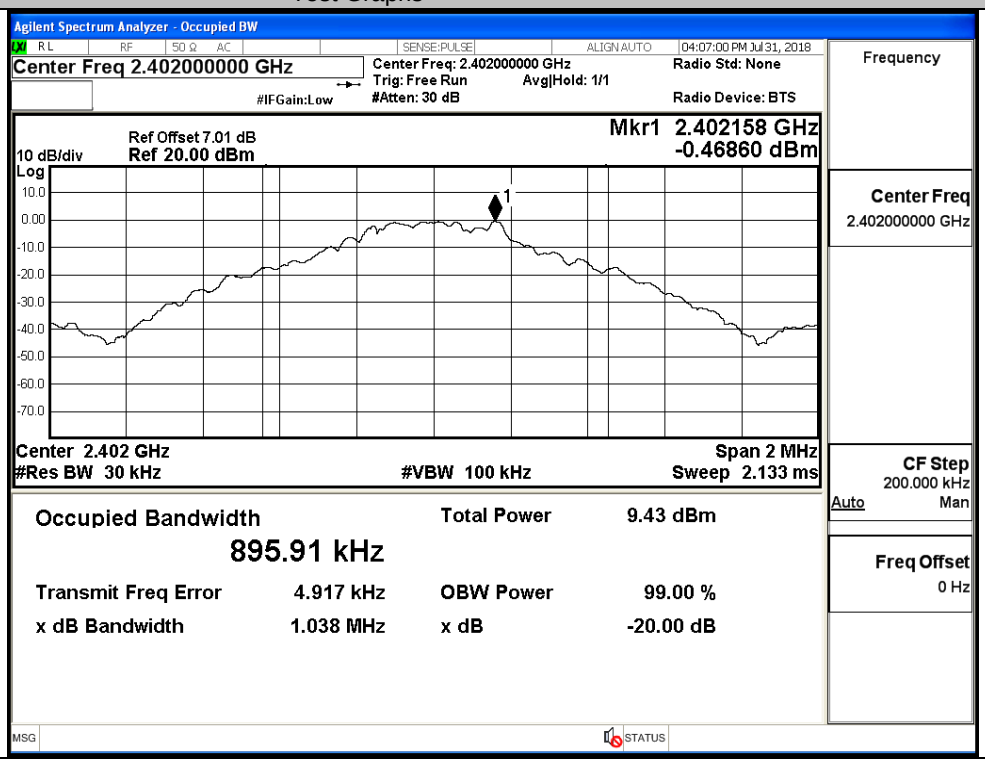
8DPSK/LCH		
8DPSK/MCH		

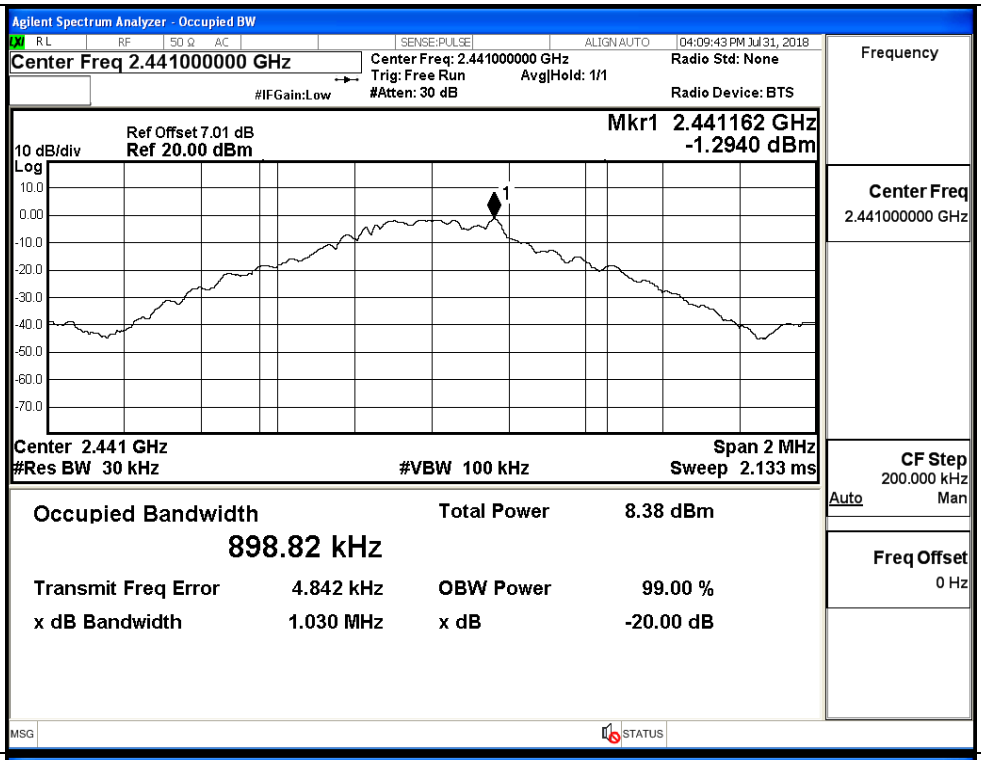
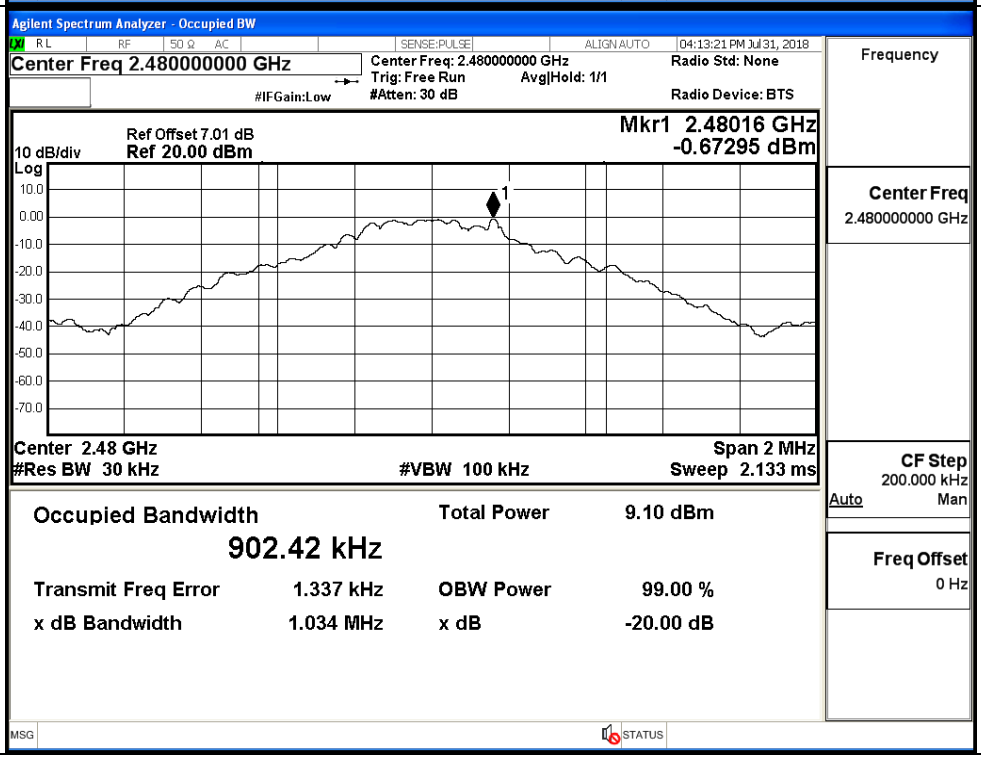
8DPSK/HCH		

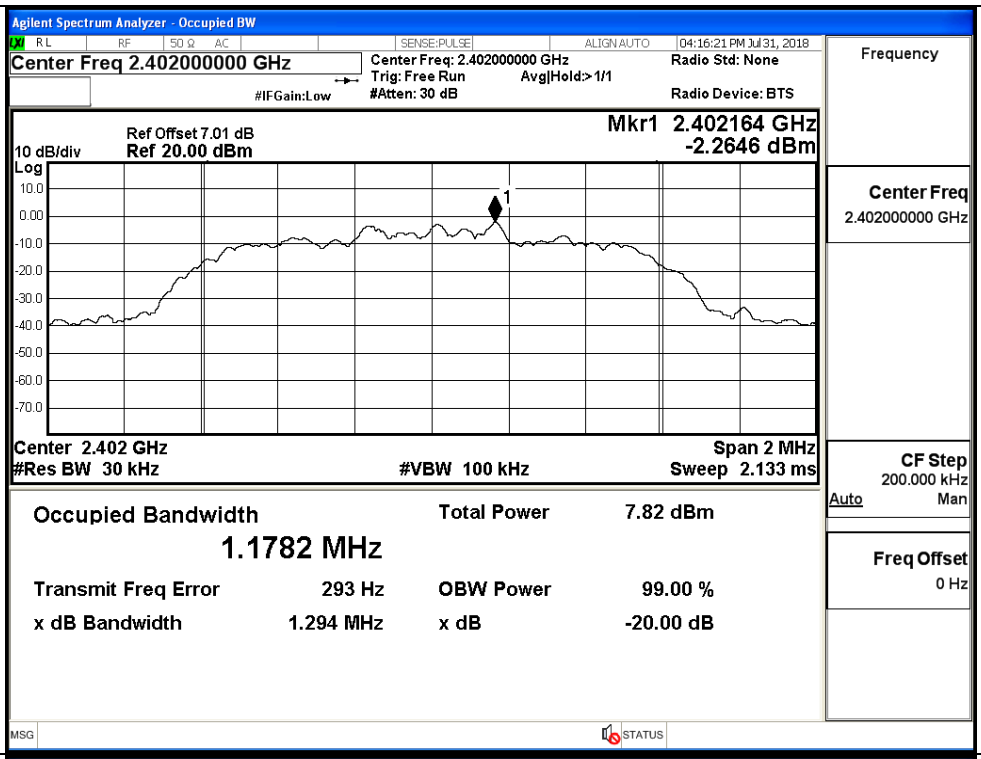
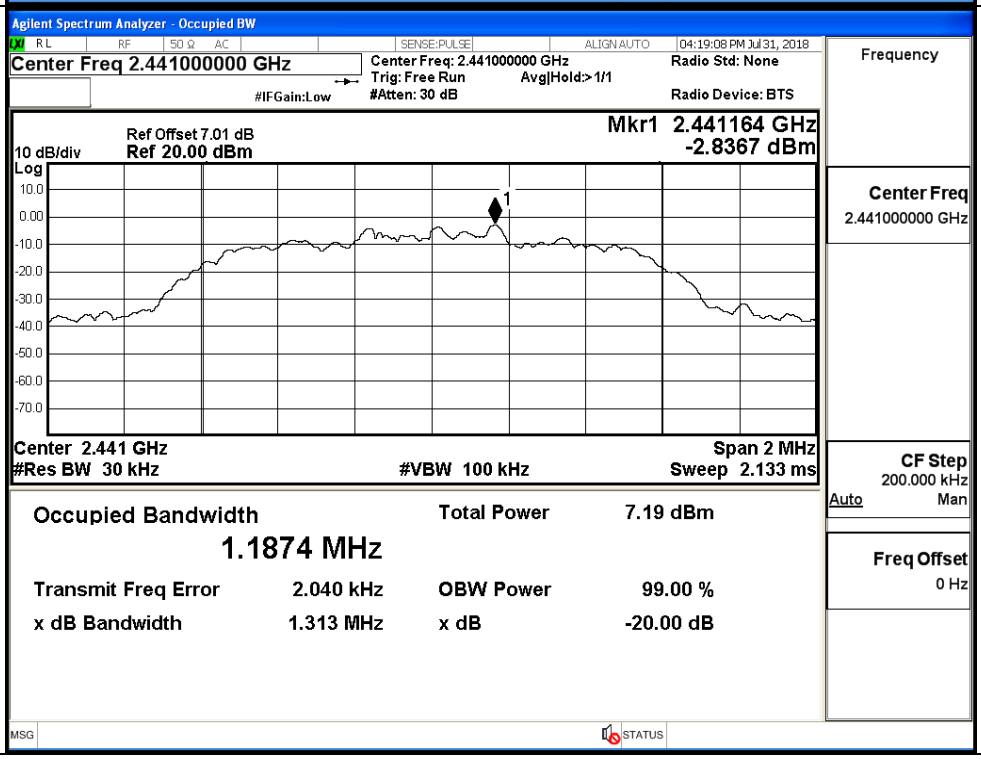
Agilent Spectrum Analyzer - Swept SA
Center Freq 2.480000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 10/10
04:30:13 PM Jul 31, 2018
Ref Offset 7.01 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 2.479 815 00 GHz
1.169 dBm
Center 2.480000 GHz
#Res BW 3.0 MHz
#VBW 8.0 MHz
Span 10.00 MHz
Sweep 1.067 ms (8001 pts)
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

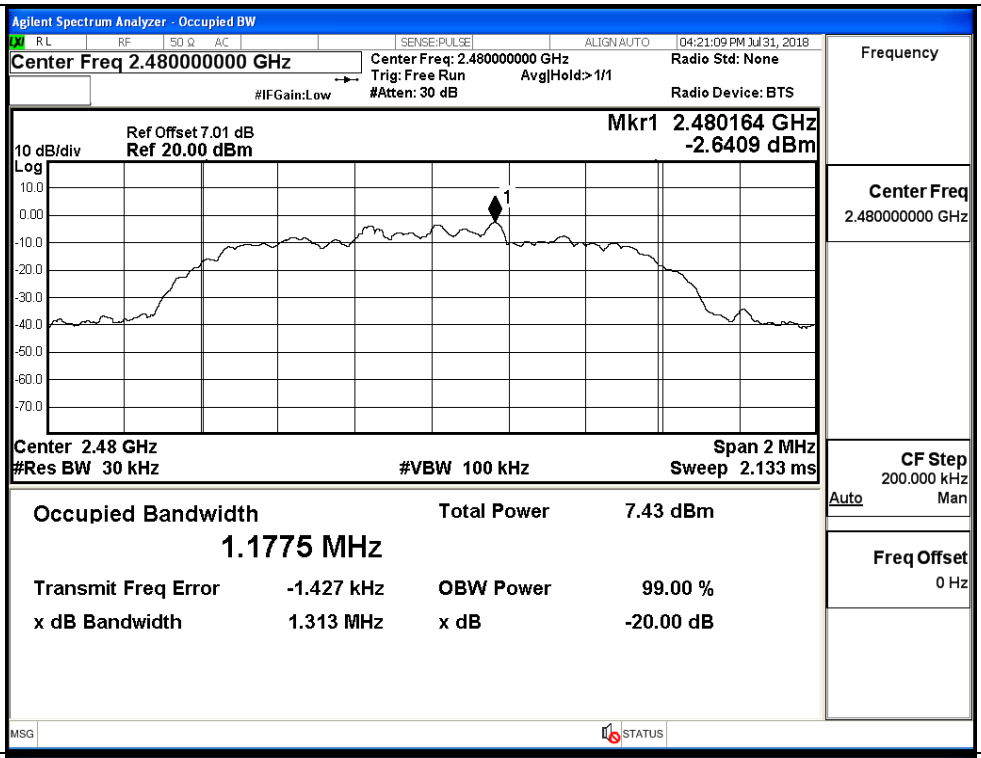
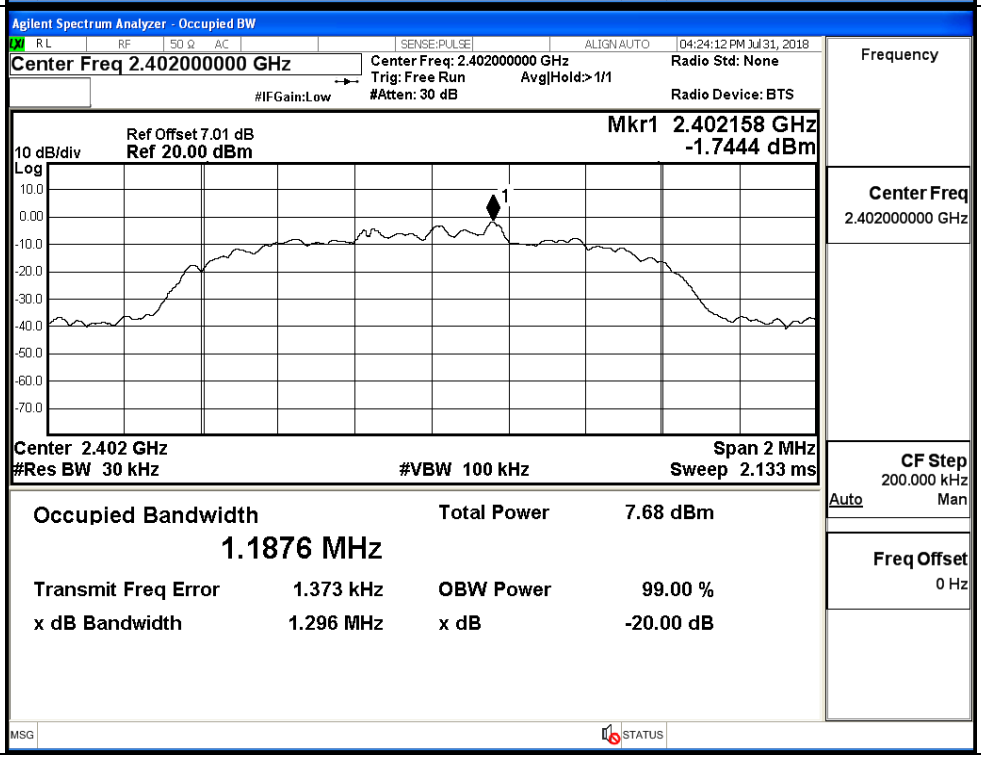
A.2 99% and 20dB Bandwidth

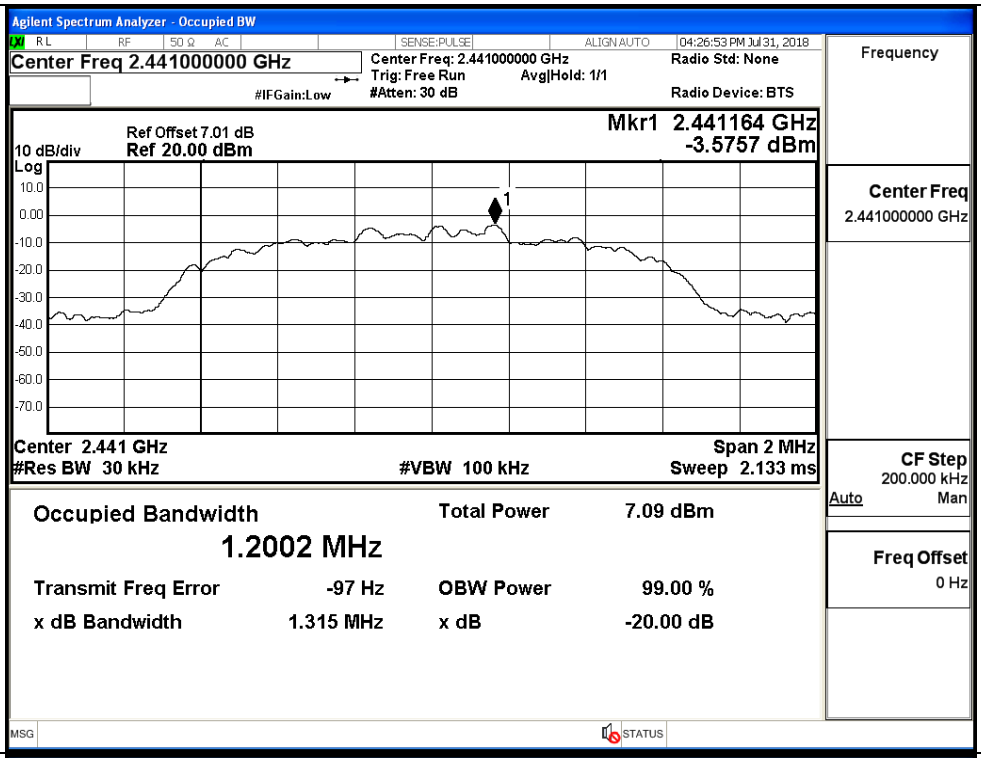
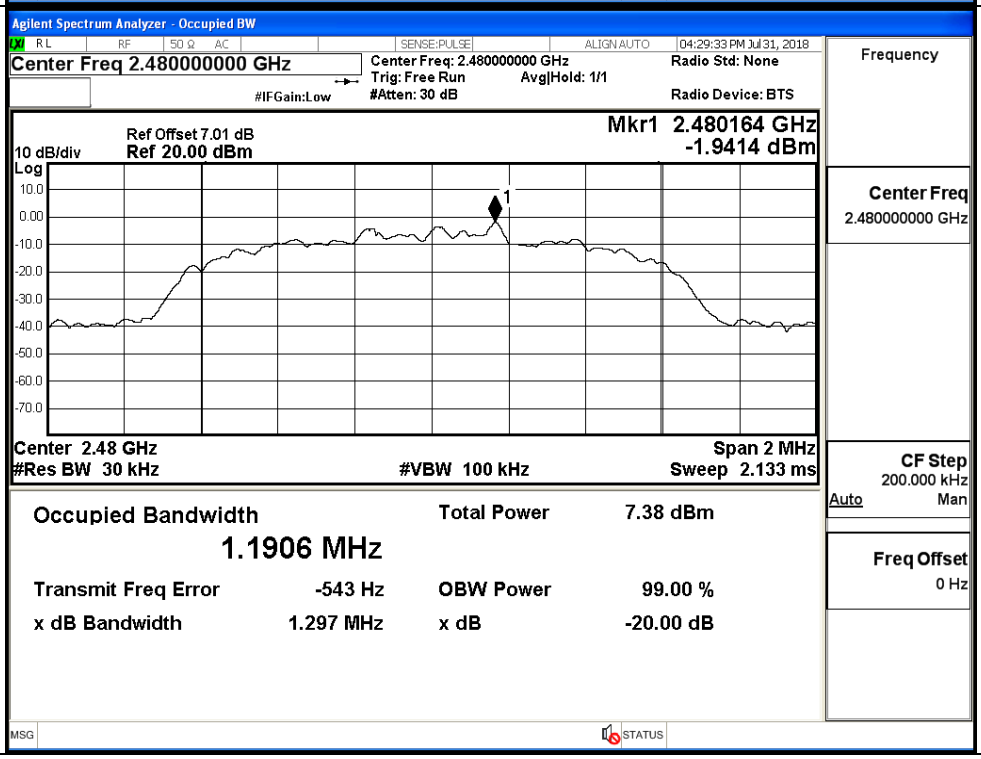
Mode	Channel.	99% Bandwidth [MHz]	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.89591	1.038	Not Specified	PASS
	MCH	0.89882	1.030	Not Specified	PASS
	HCH	0.90242	1.034	Not Specified	PASS
π/4DQPSK	LCH	1.1782	1.294	Not Specified	PASS
	MCH	1.1874	1.313	Not Specified	PASS
	HCH	1.1775	1.313	Not Specified	PASS
8DPSK	LCH	1.1876	1.296	Not Specified	PASS
	MCH	1.2002	1.315	Not Specified	PASS
	HCH	1.1906	1.297	Not Specified	PASS

Test Graphs	
GFSK/LCH	

GFSK/MCH		
GFSK/HCH		

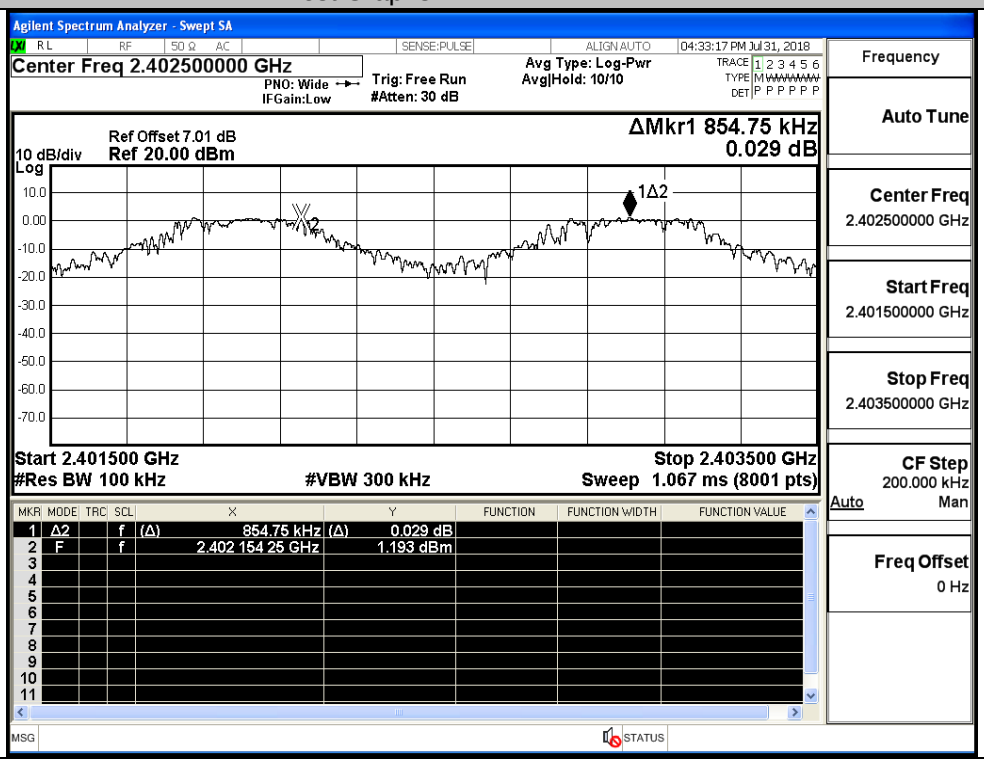
π/4DQPSK/LCH	
π/4DQPSK/MCH	

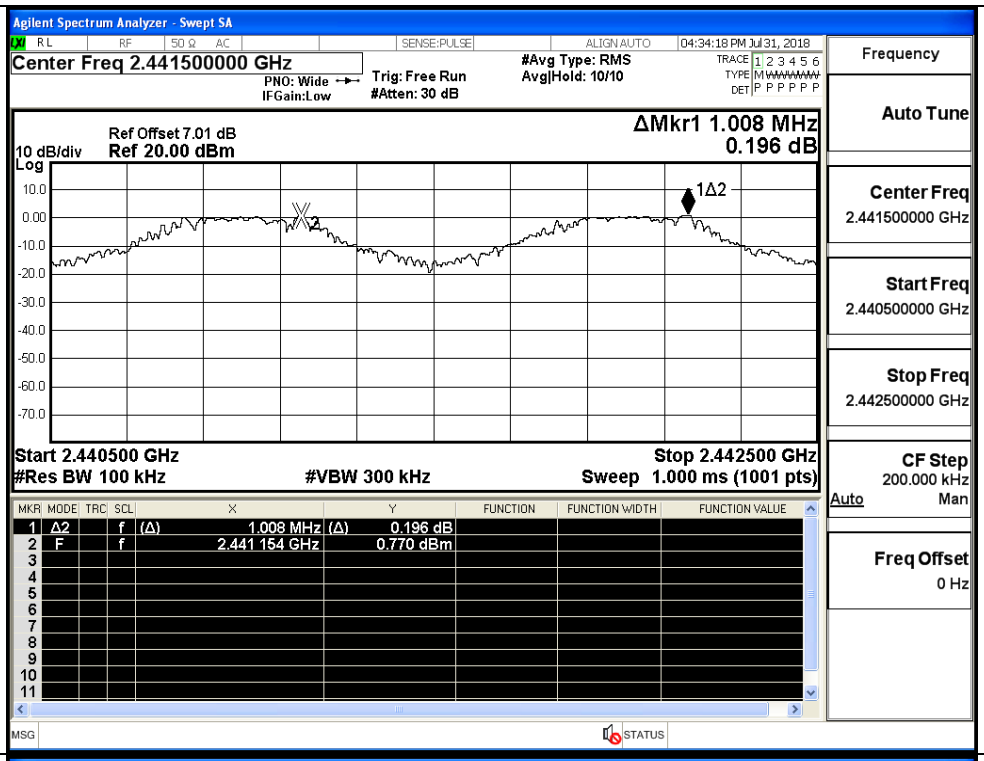
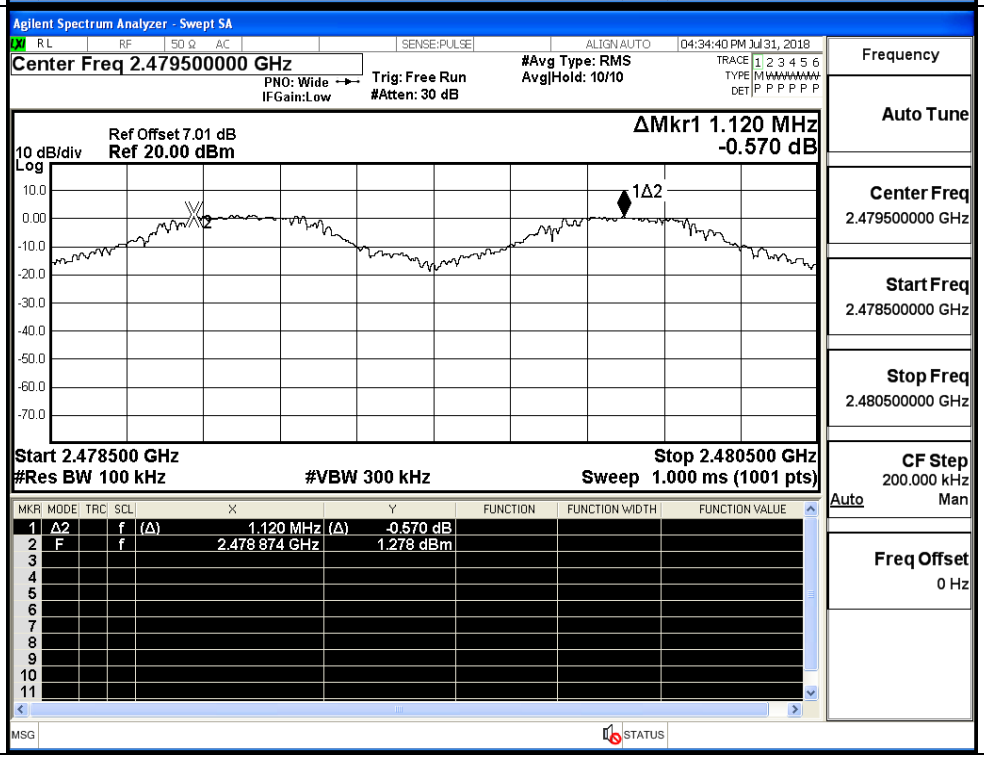
π/4DQPSK/HCH	
8DPSK/LCH	

8DPSK/MCH	
8DPSK/HCH	

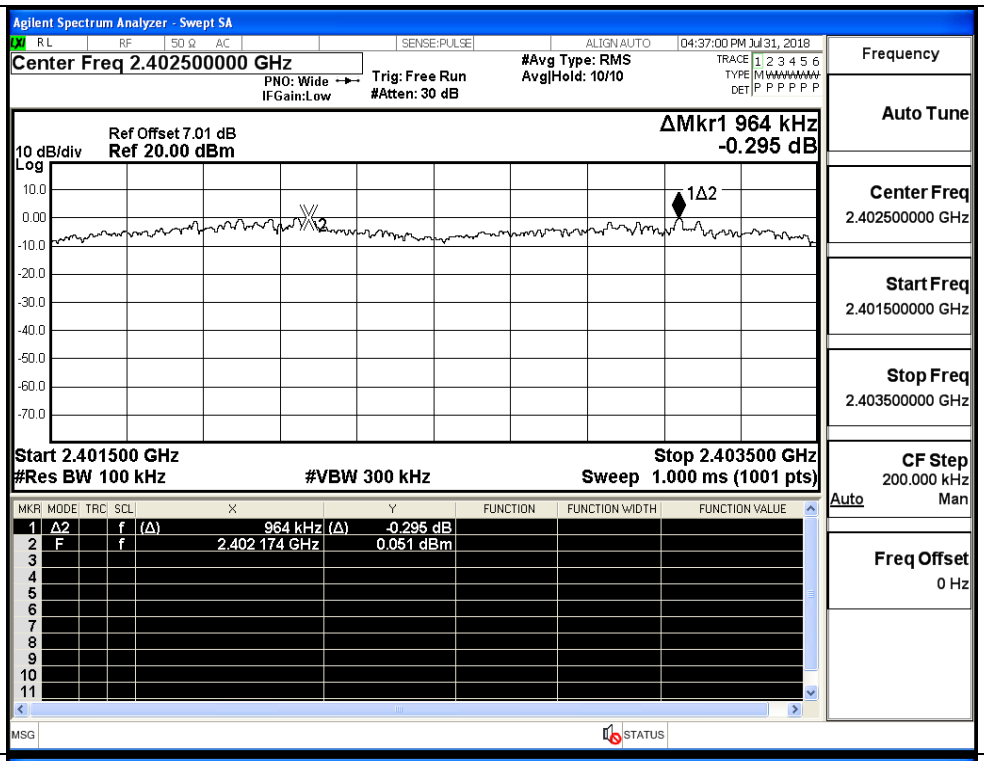
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.855	0.692	PASS
	MCH	1.008	0.692	PASS
	HCH	1.120	0.692	PASS
π/4DQPSK	LCH	0.964	0.875	PASS
	MCH	1.164	0.875	PASS
	HCH	0.940	0.875	PASS
8DPSK	LCH	0.996	0.877	PASS
	MCH	1.044	0.877	PASS
	HCH	1.054	0.877	PASS

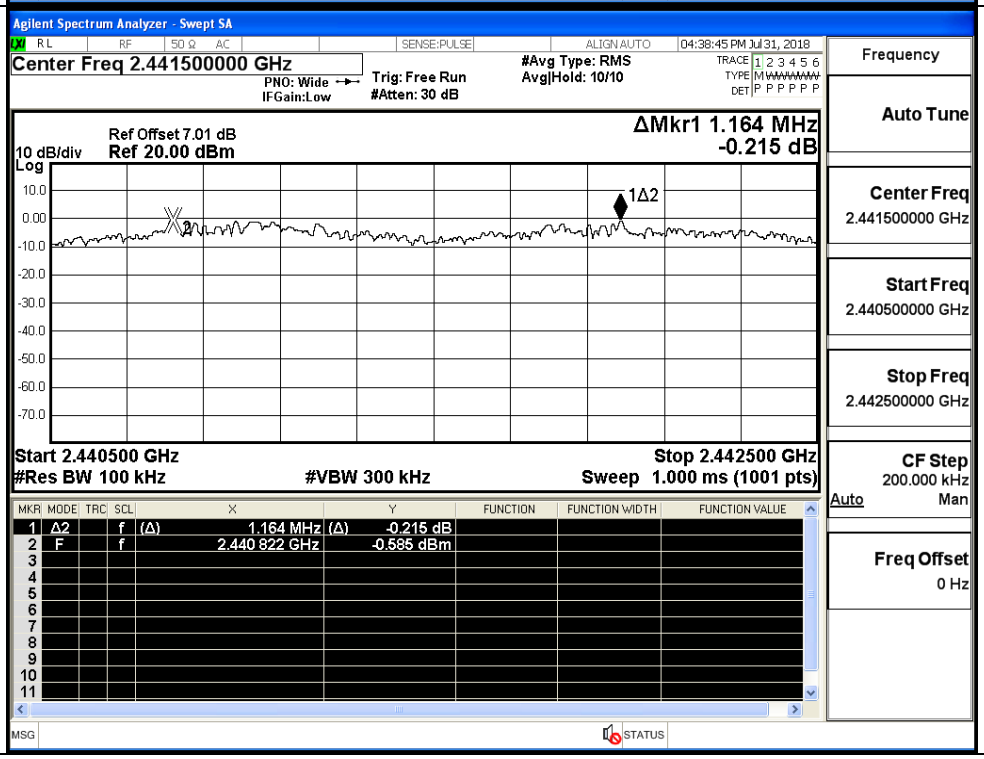
Test Graphs	
GFSK/LCH	

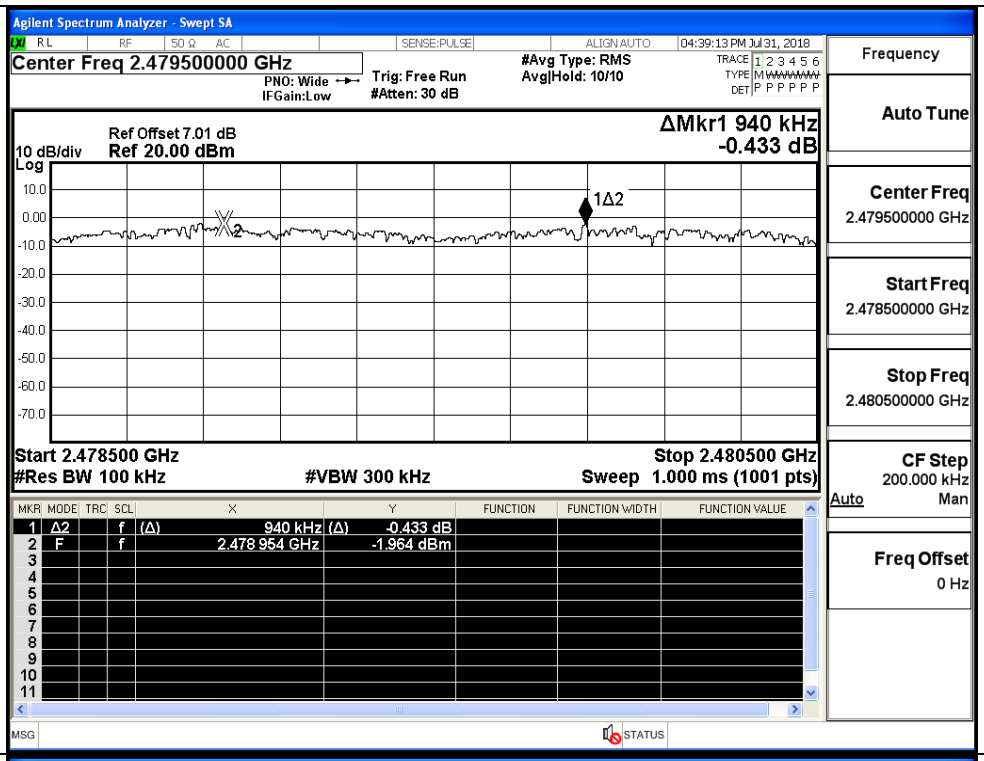
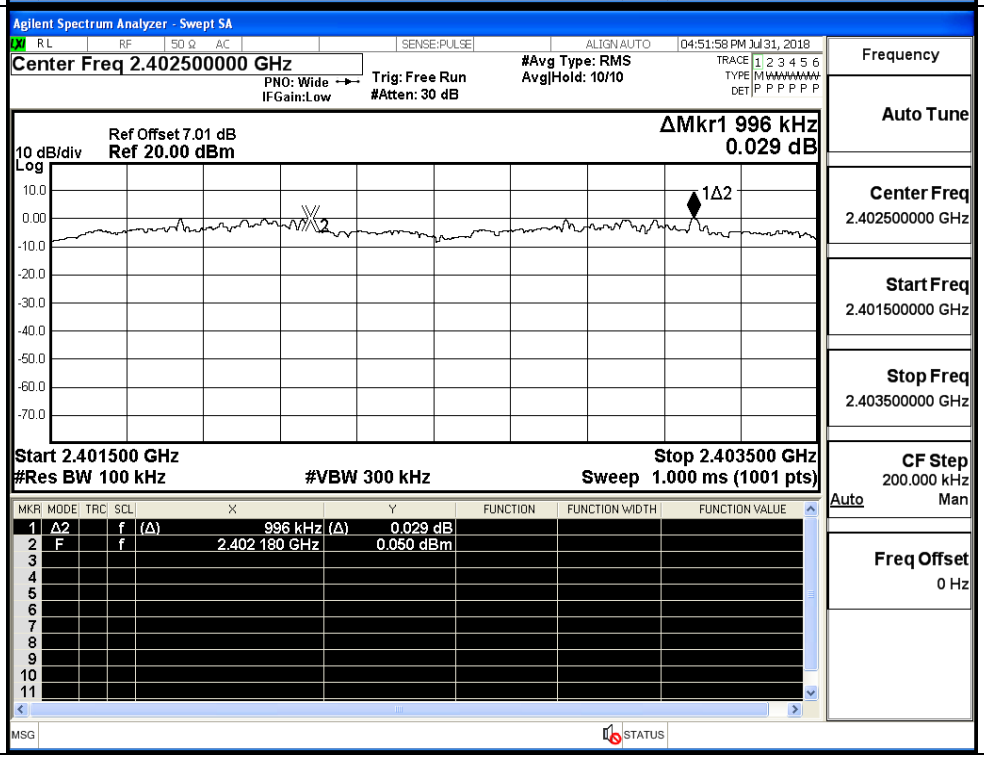
GFSK/MCH		
GFSK/HCH		

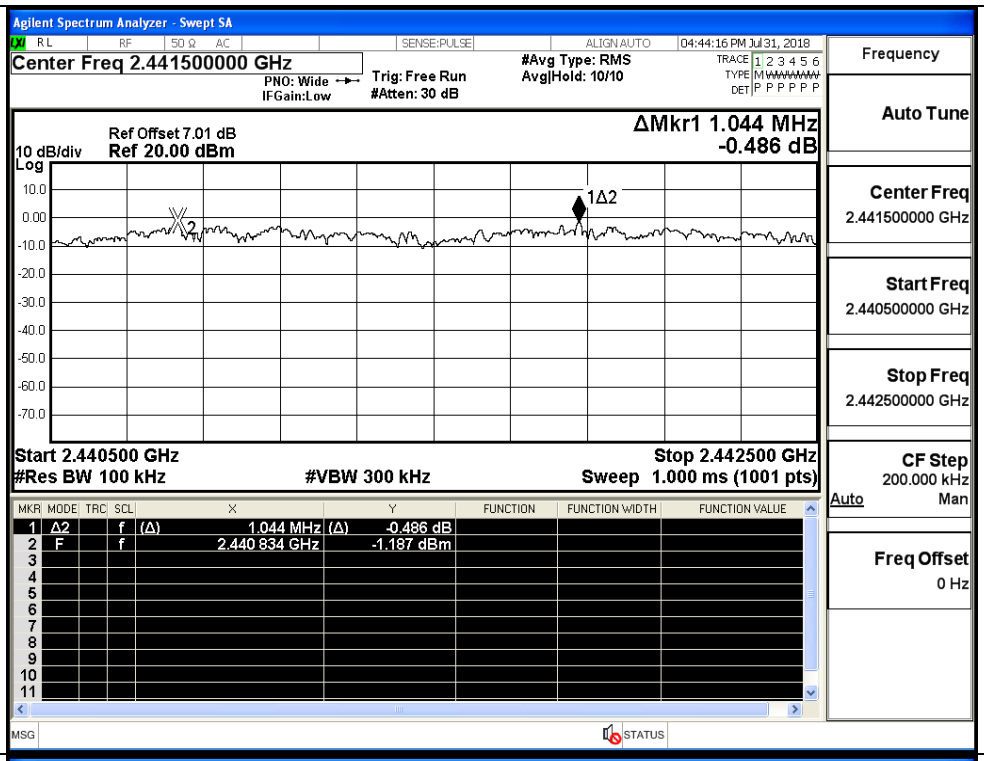
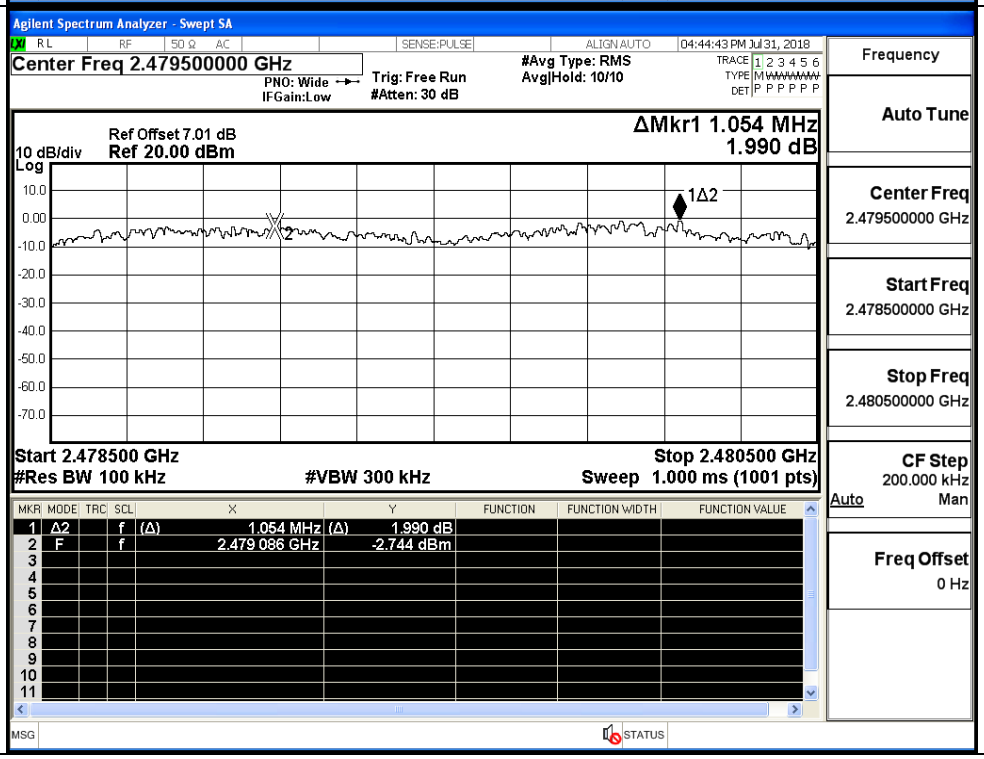
π/4DQPSK/LCH



π/4DQPSK/MCH

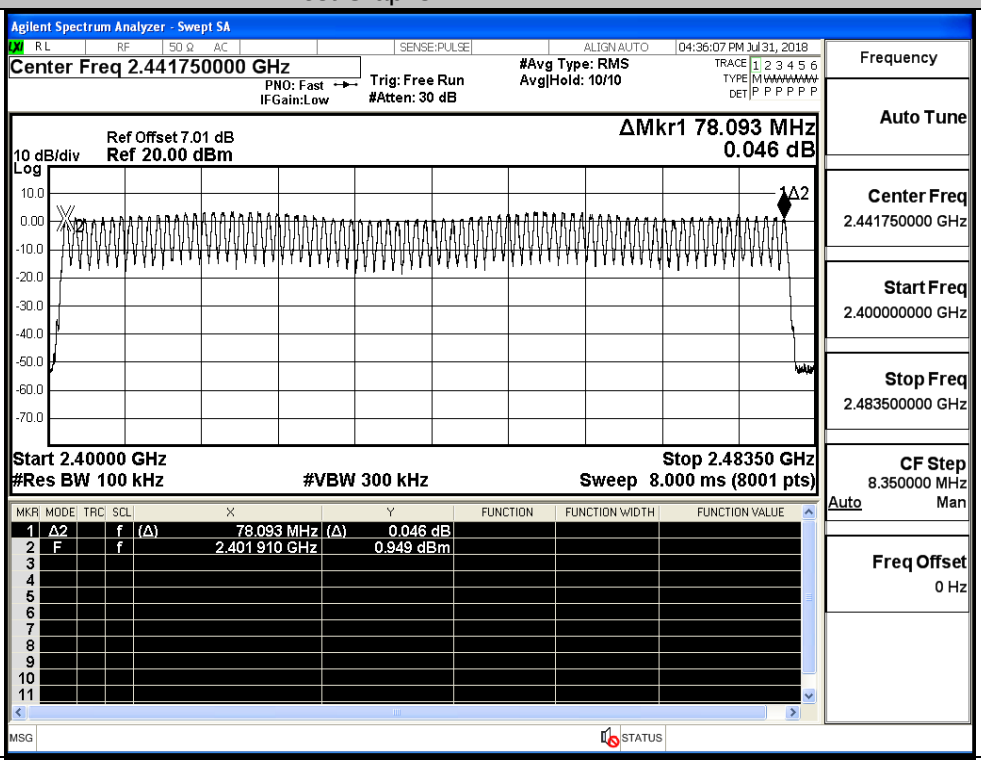
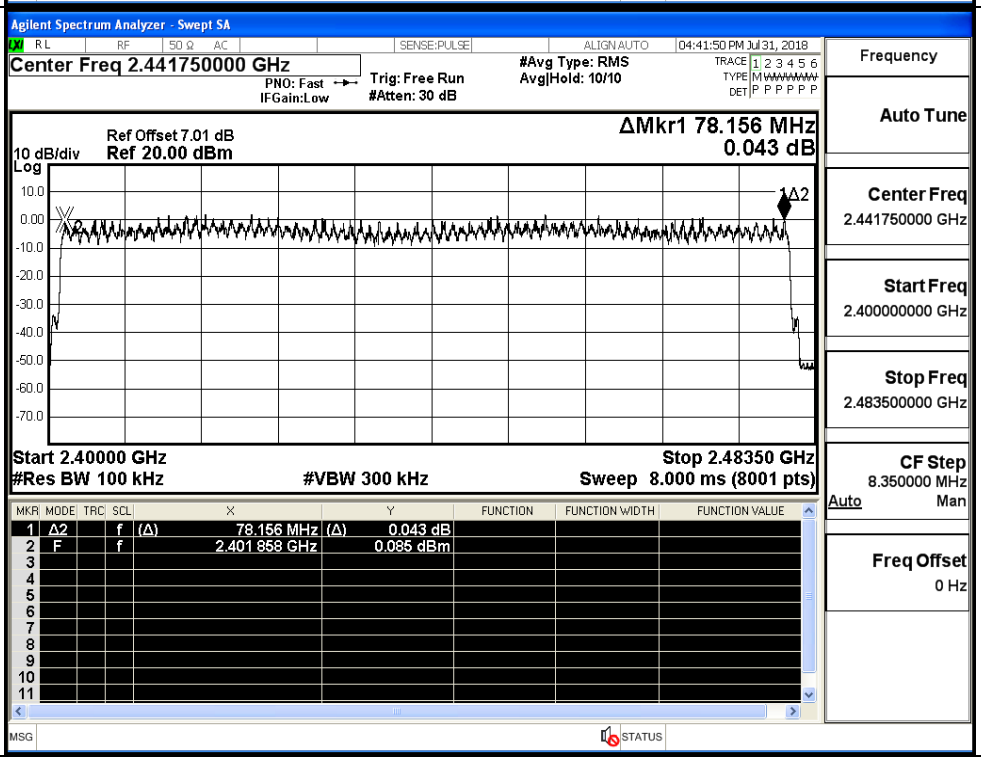


π/4DQPSK/HCH		
8DPSK/LCH		

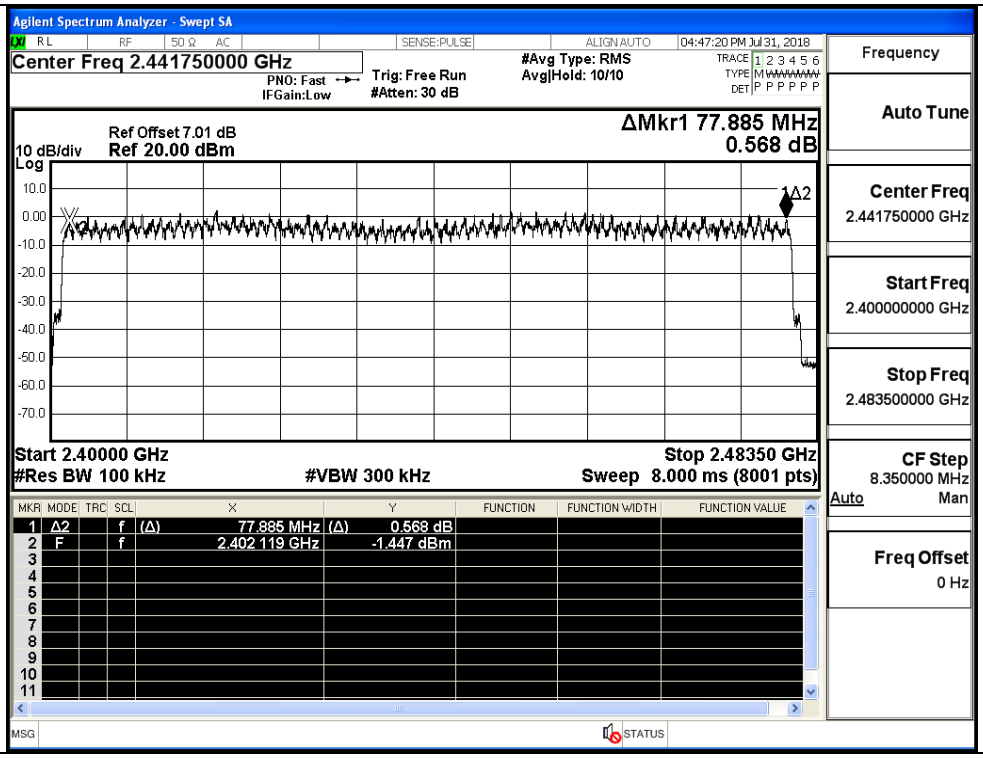
8DPSK/MCH		
8DPSK/HCH		

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

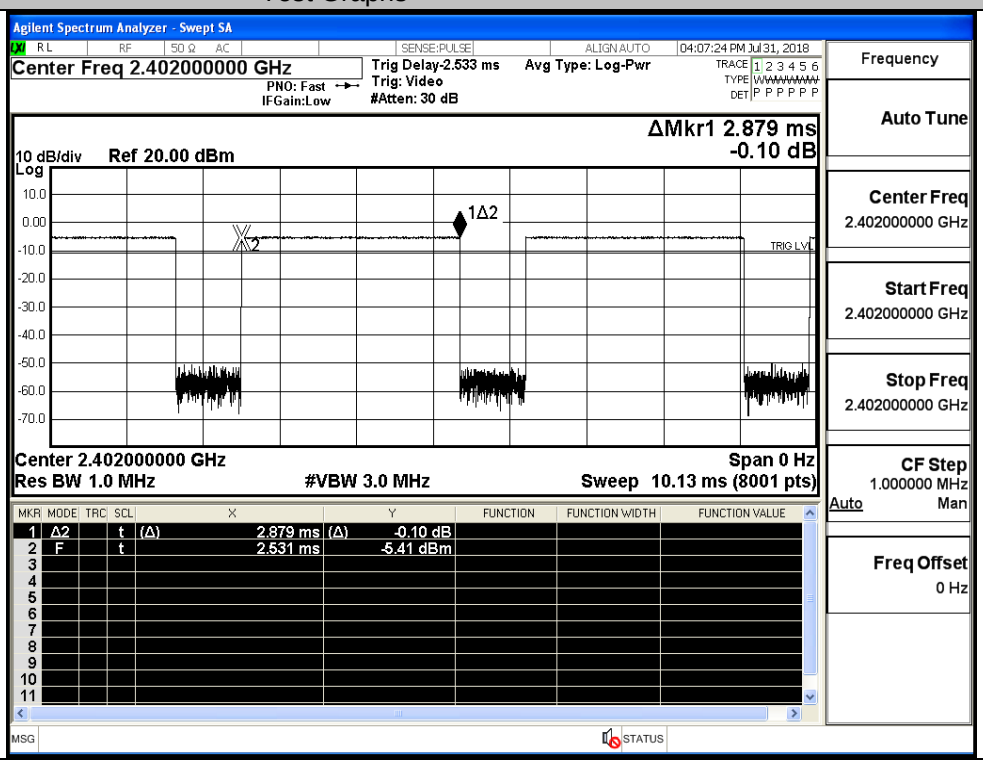
Test Graphs	
GFSK/Hop	
π/4DQPSK/Hop	

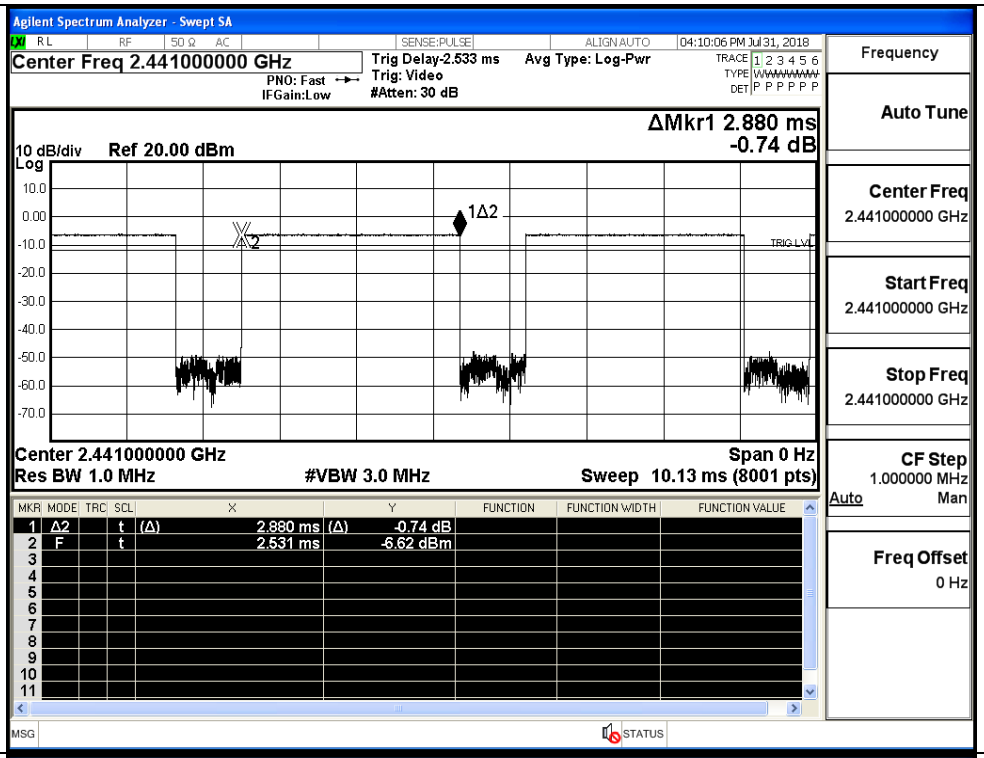
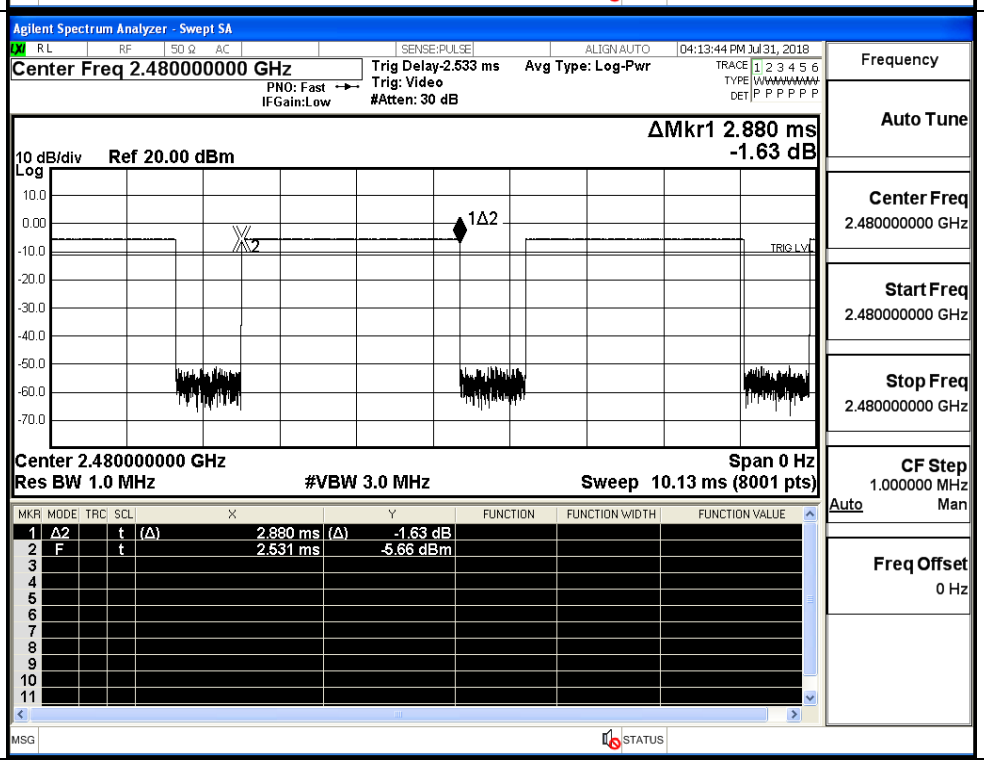
8DPSK/Hop

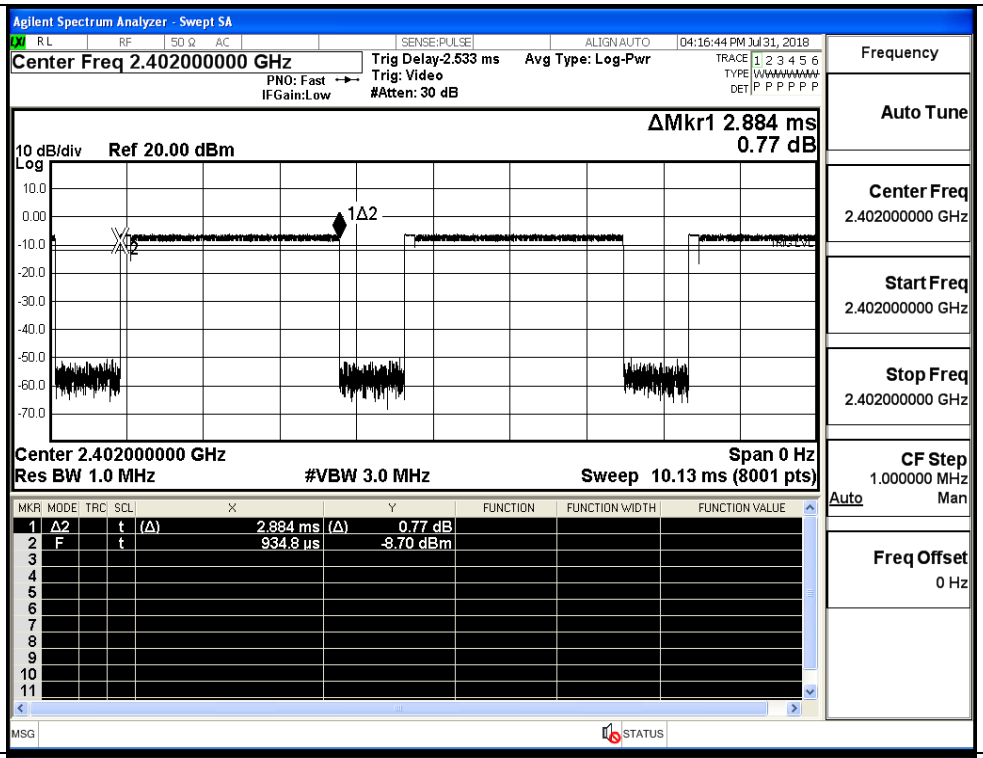
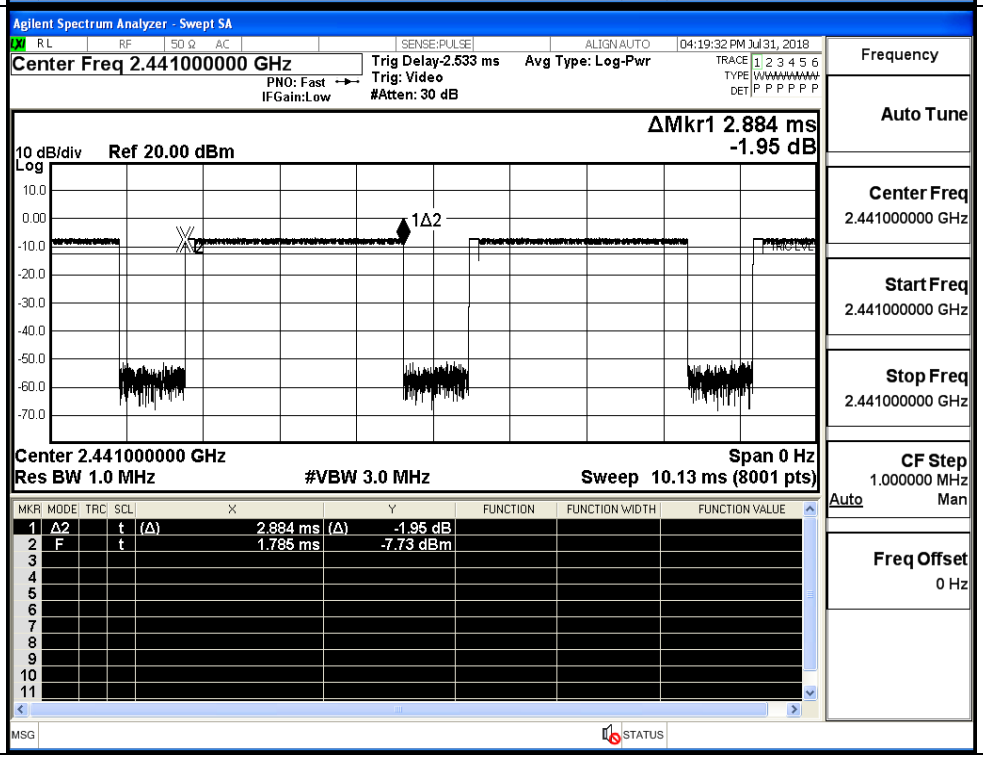

Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441750000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 10/10
04:47:20 PM Jul 31, 2018
Ref Offset 7.01 dB
10 dB/div
Ref 20.00 dBm
Log
ΔMkr1 77.885 MHz
0.568 dB
Start 2.40000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.48350 GHz
Sweep 8.000 ms (8001 pts)
1 Δ2 f (Δ) 77.885 MHz (Δ) 0.568 dB
2 F f 2.402 119 GHz -1.447 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

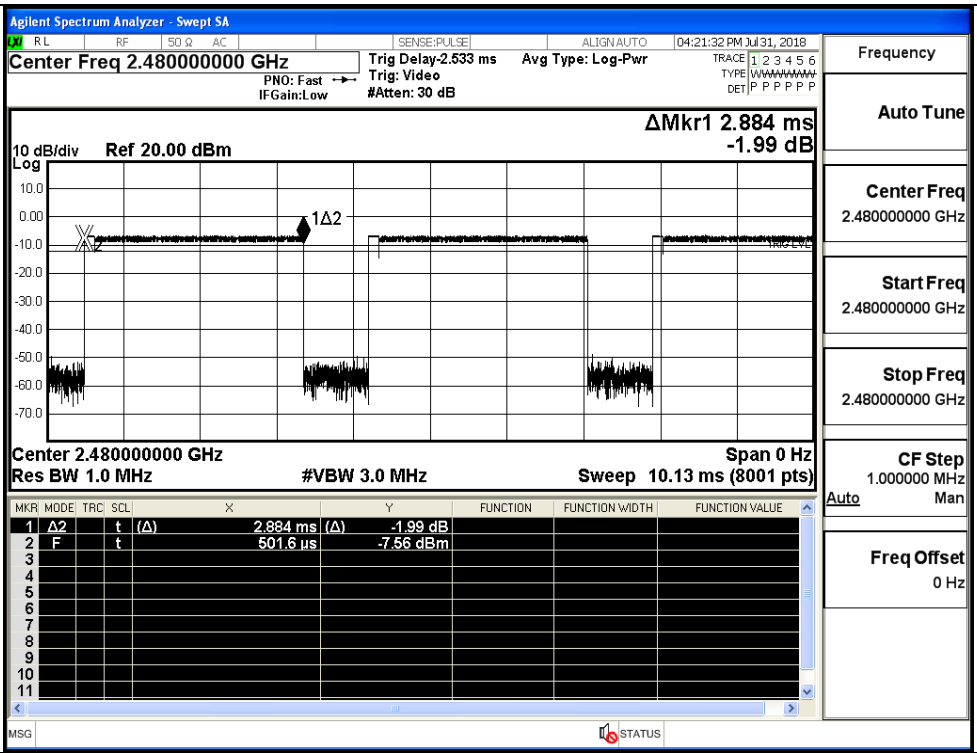
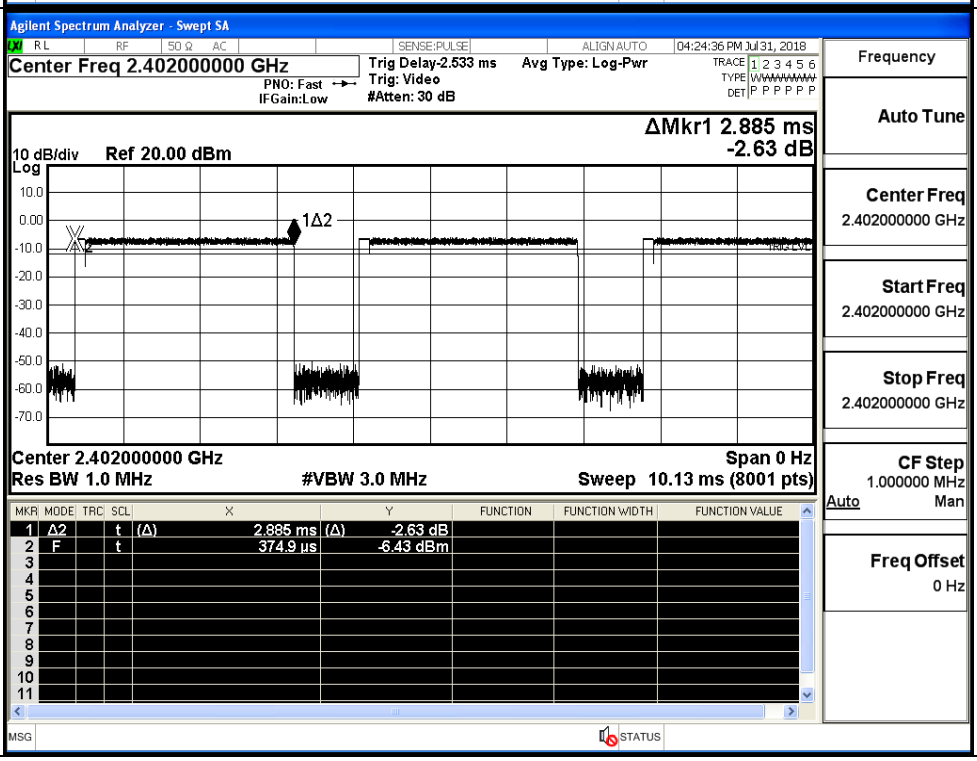
A.5 Dwell Time

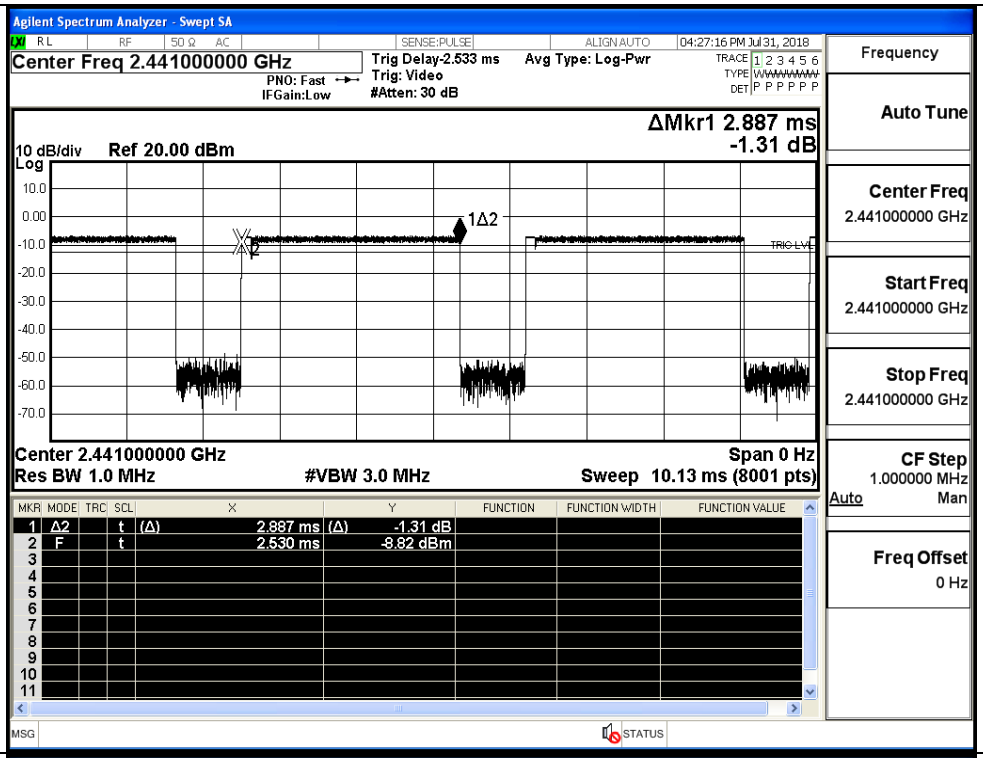
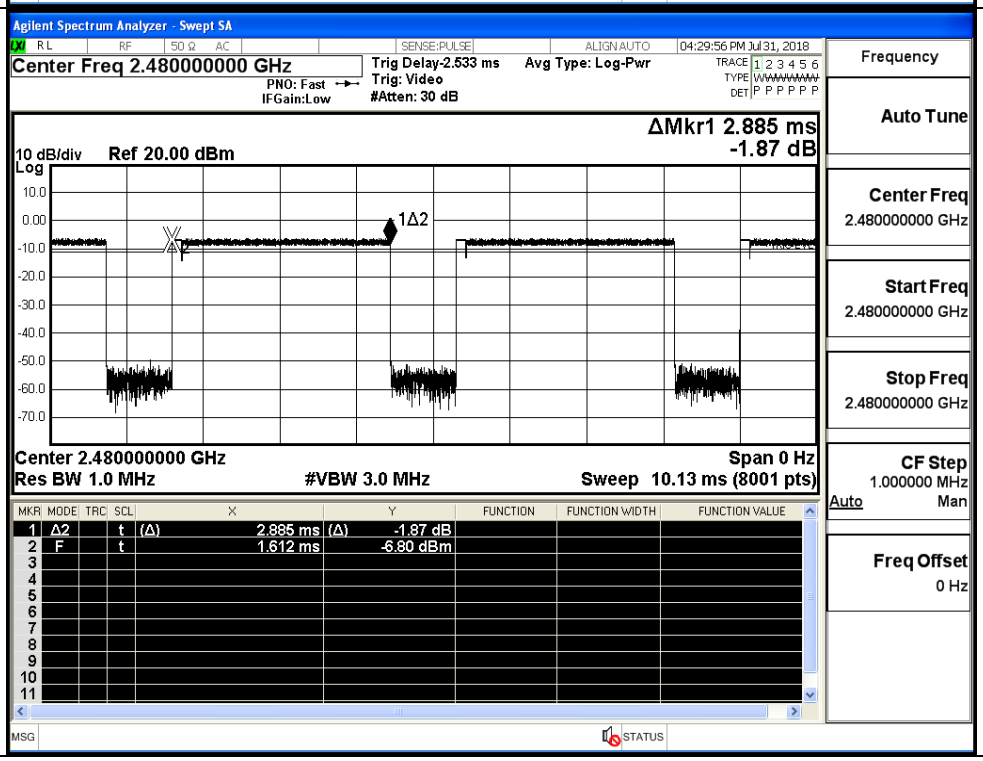
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
π/4DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88	106.7	0.307	0.4	PASS
8DPSK	3DH5	LCH	2.89	106.7	0.308	0.4	PASS
	3DH5	MCH	2.89	106.7	0.308	0.4	PASS
	3DH5	HCH	2.89	106.7	0.308	0.4	PASS

Test Graphs	
GFSK_DH5/LCH	

GFSK_DH5/MCH	
GFSK_DH5/HCH	

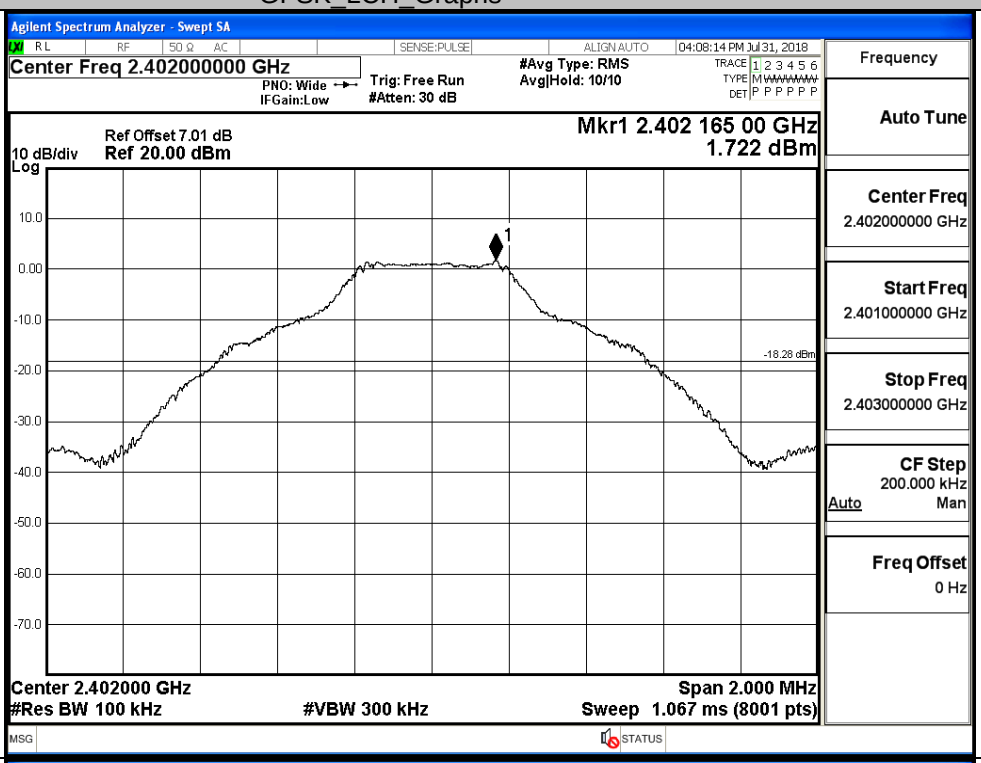
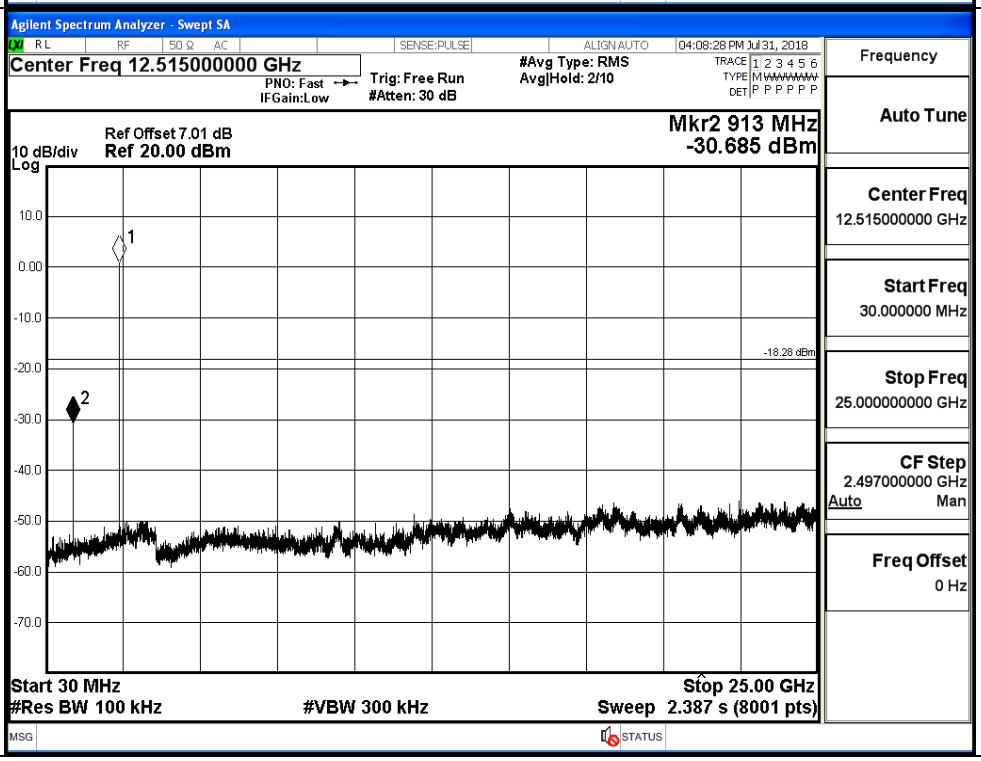
π/4DQPSK _2DH5/LCH	
π/4DQPSK _2DH5/MCH	

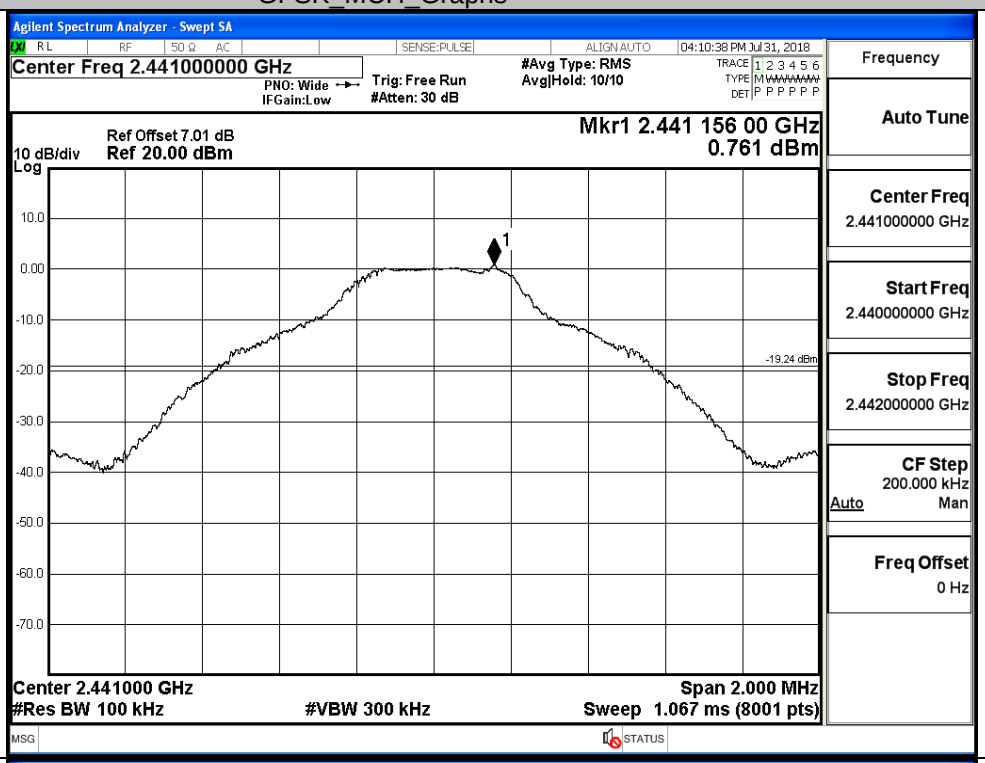
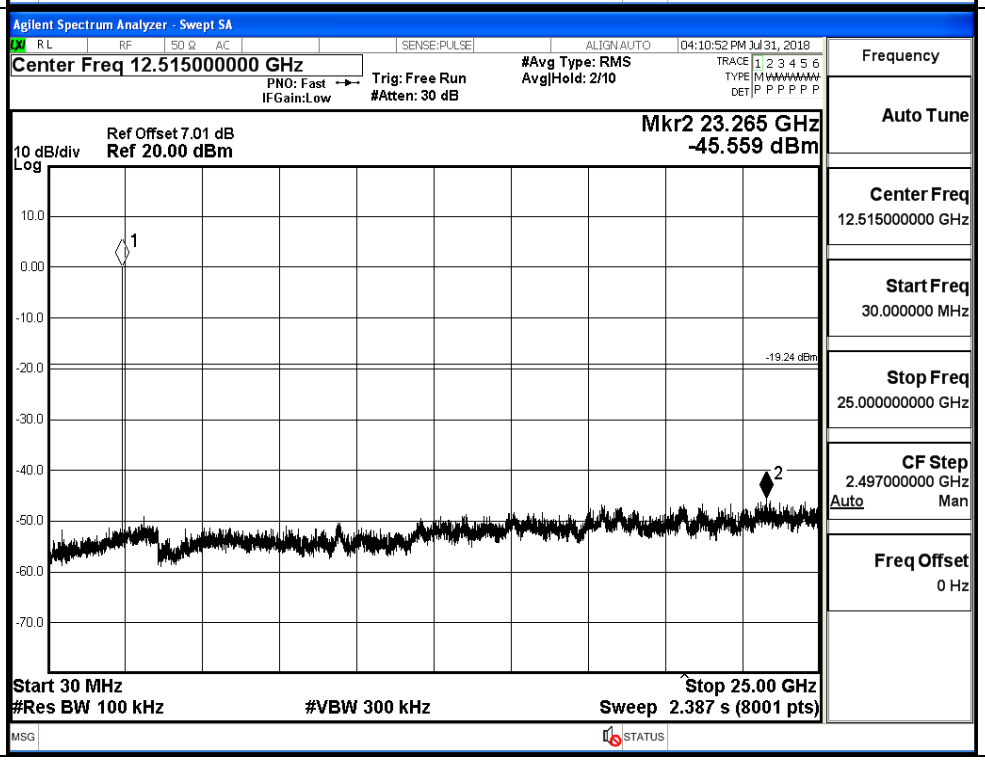
π/4DQPSK _2DH5/HCH	
8DPSK _3DH5/LCH	

8DPSK _3DH5/MCH	
8DPSK _3DH5/HCH	

A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.722	-30.685	-18.278	PASS
	MCH	0.761	-45.559	-19.239	PASS
	HCH	1.417	-45.242	-18.583	PASS
π/4DQPSK	LCH	0.459	-42.757	-19.541	PASS
	MCH	-0.665	-45.148	-20.665	PASS
	HCH	-0.013	-46.054	-20.013	PASS
8DPSK	LCH	0.623	-42.969	-19.377	PASS
	MCH	-0.166	-34.465	-20.166	PASS
	HCH	0.296	-45.139	-19.704	PASS

GFSK_LCH_Graphs		
Pref		
Puw		

GFSK_MCH_Graphs		
Pref		
Puw		

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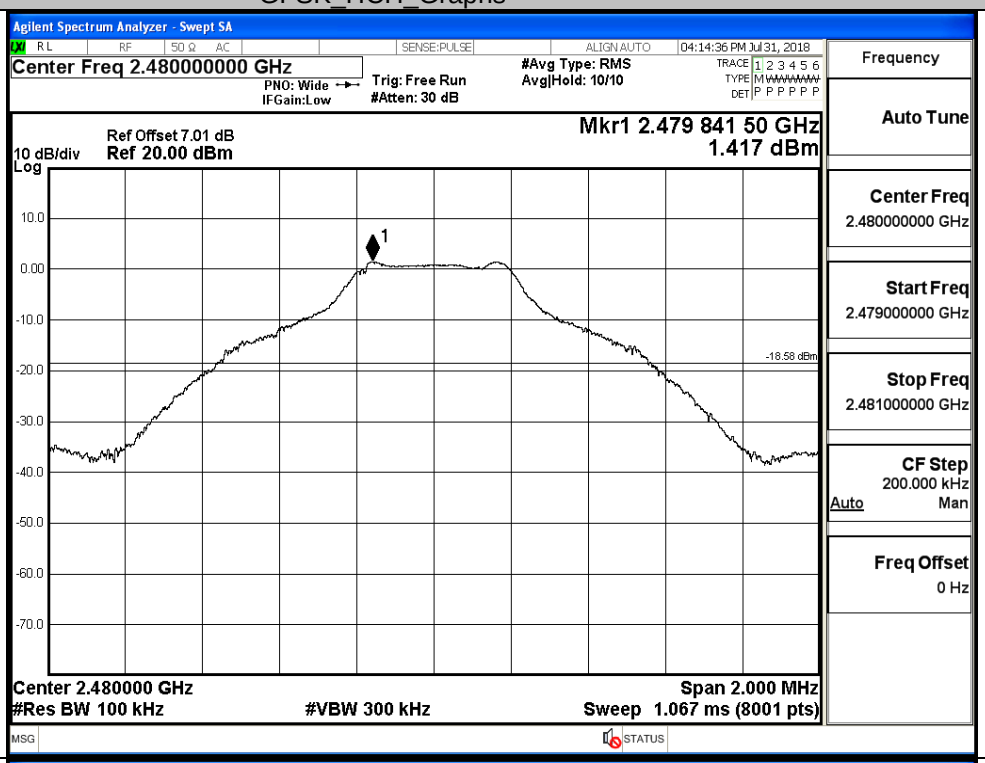
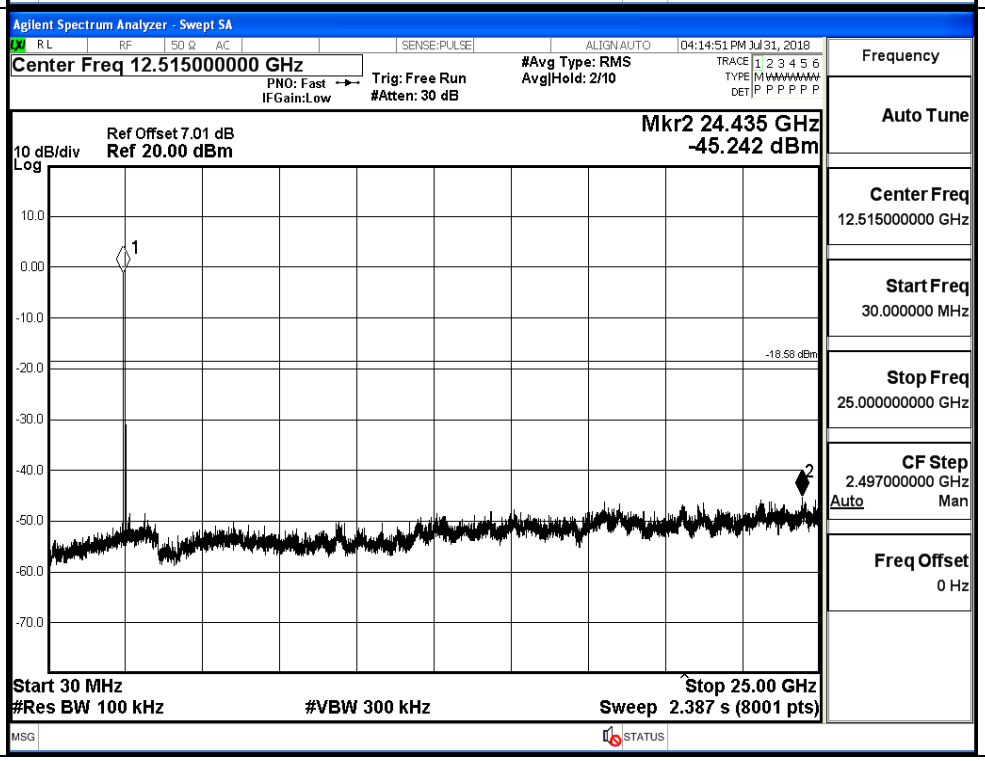
Pref		
Puw		

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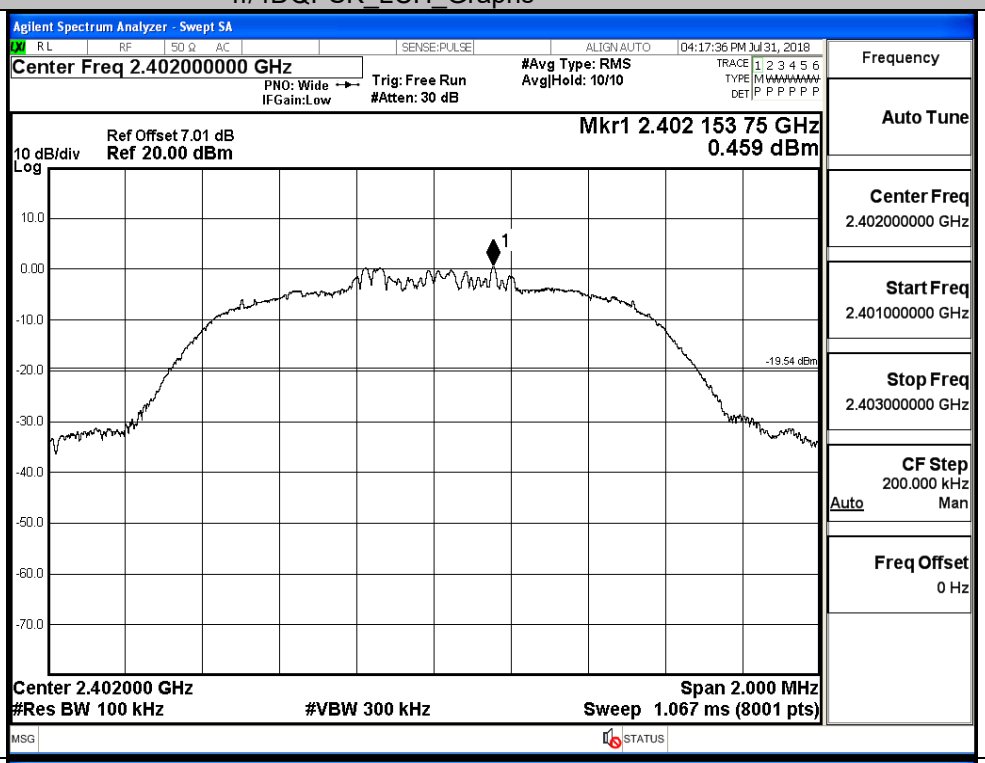
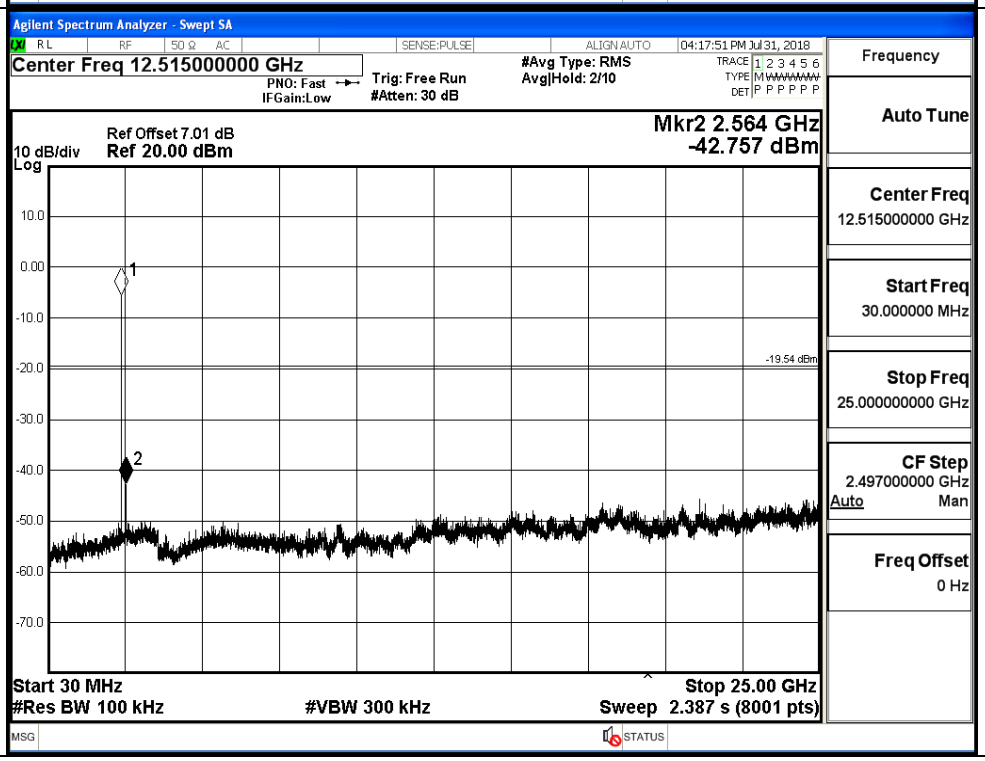
Pref		
Puw		

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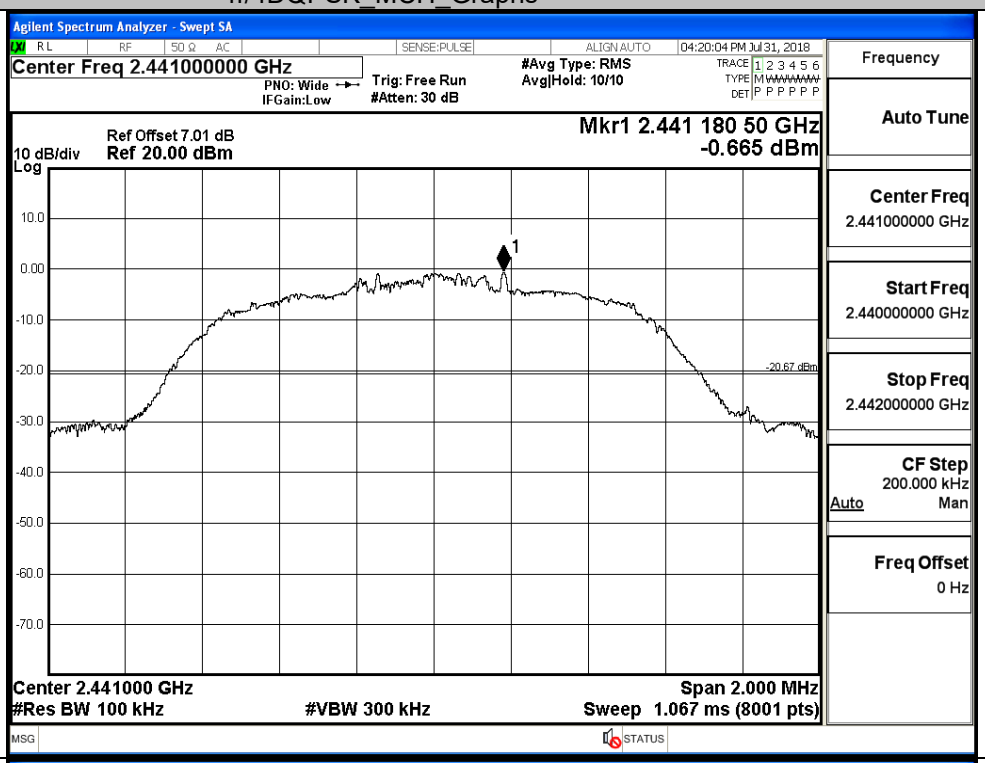
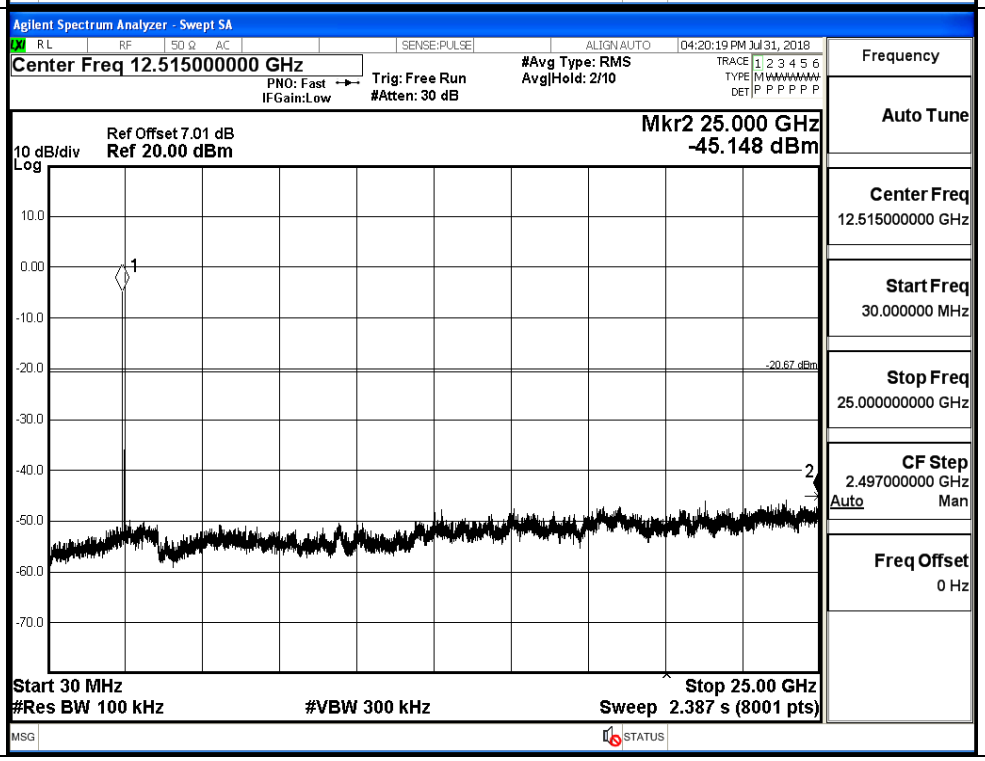
Pref		
Puw		

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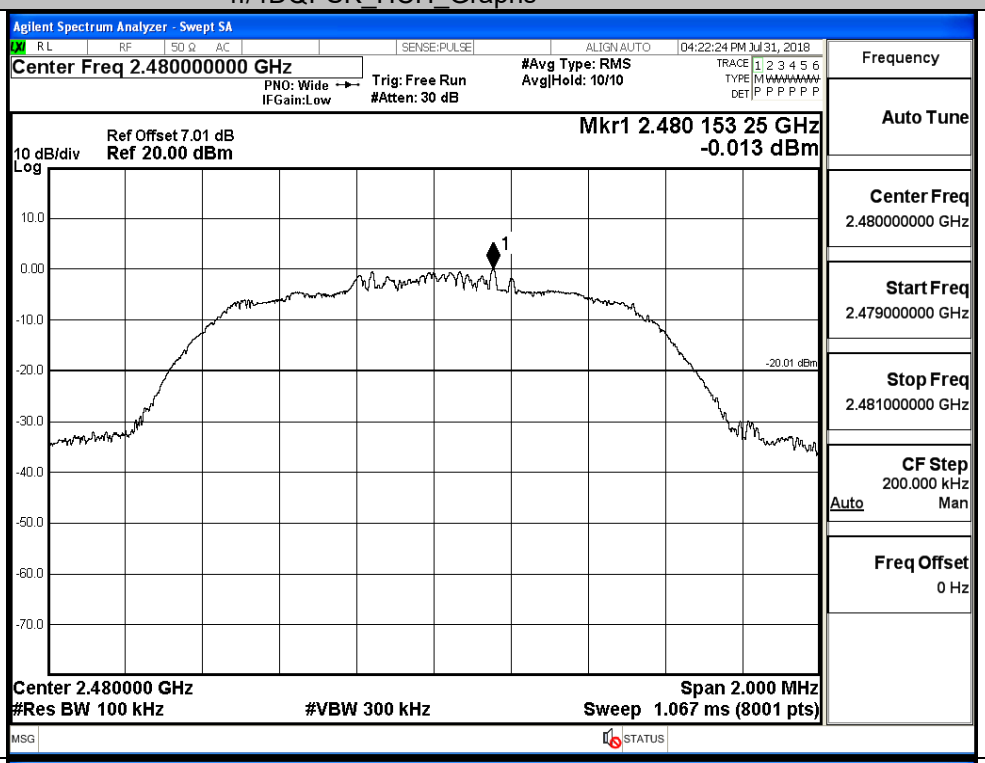
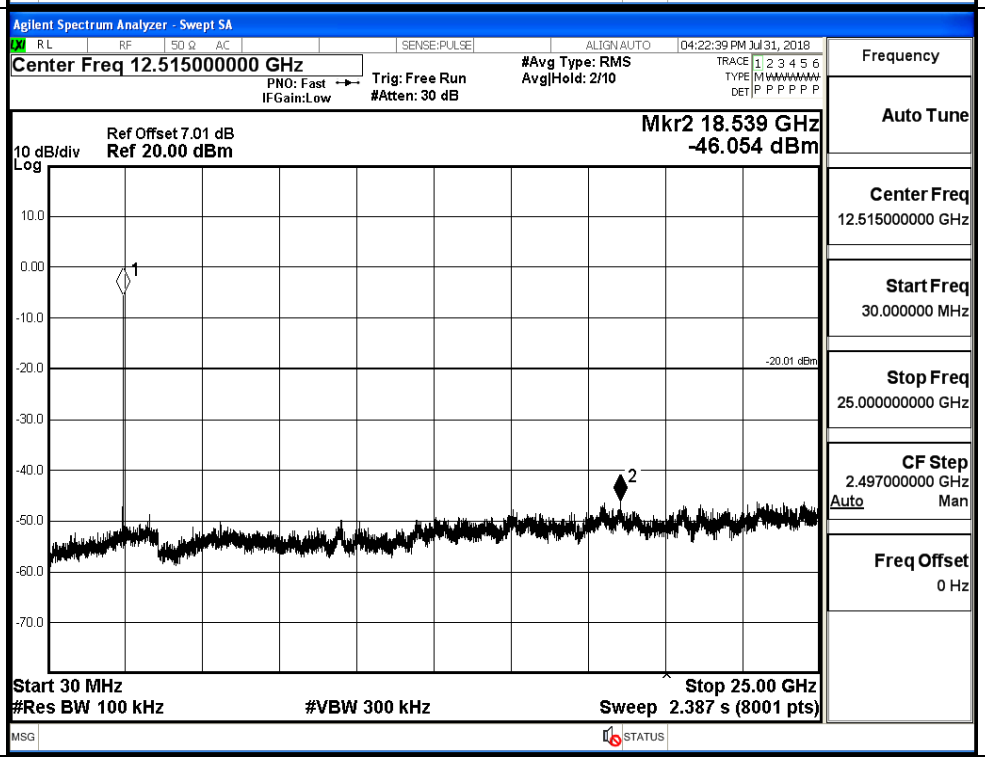
Pref		
Puw		

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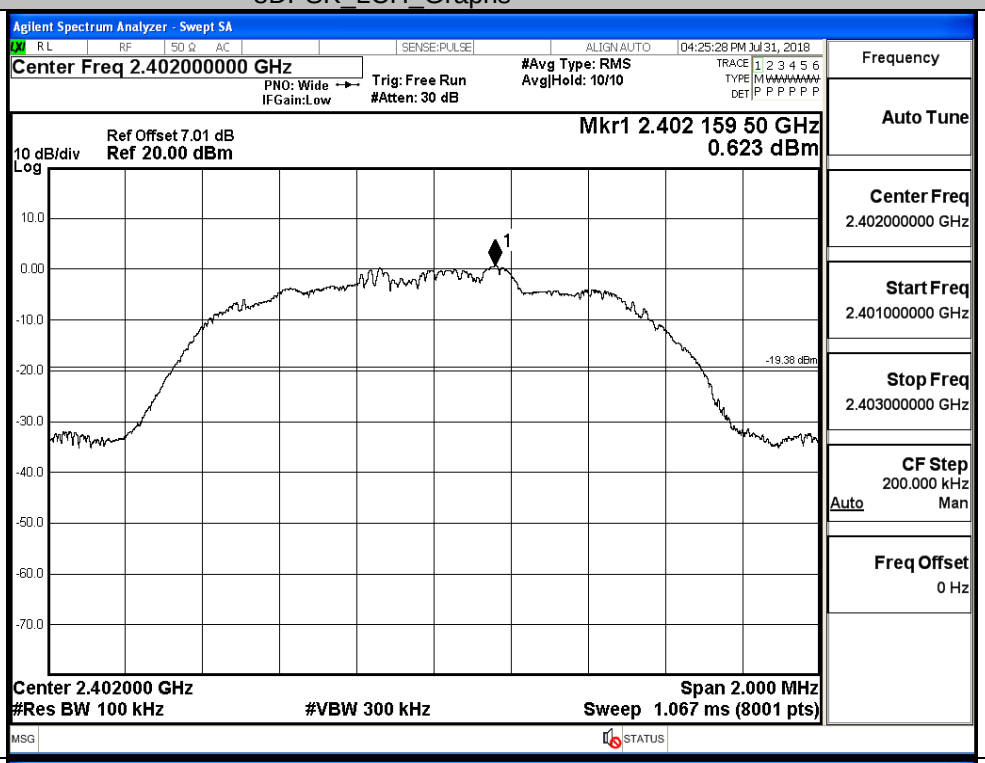
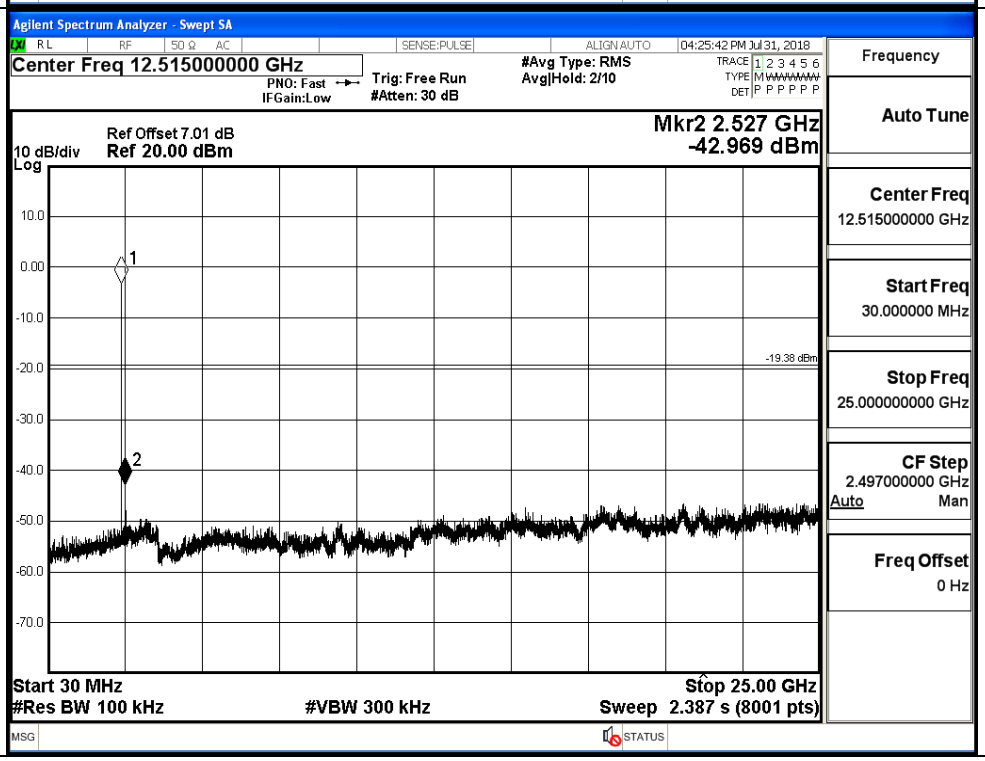
Pref		
Puw		

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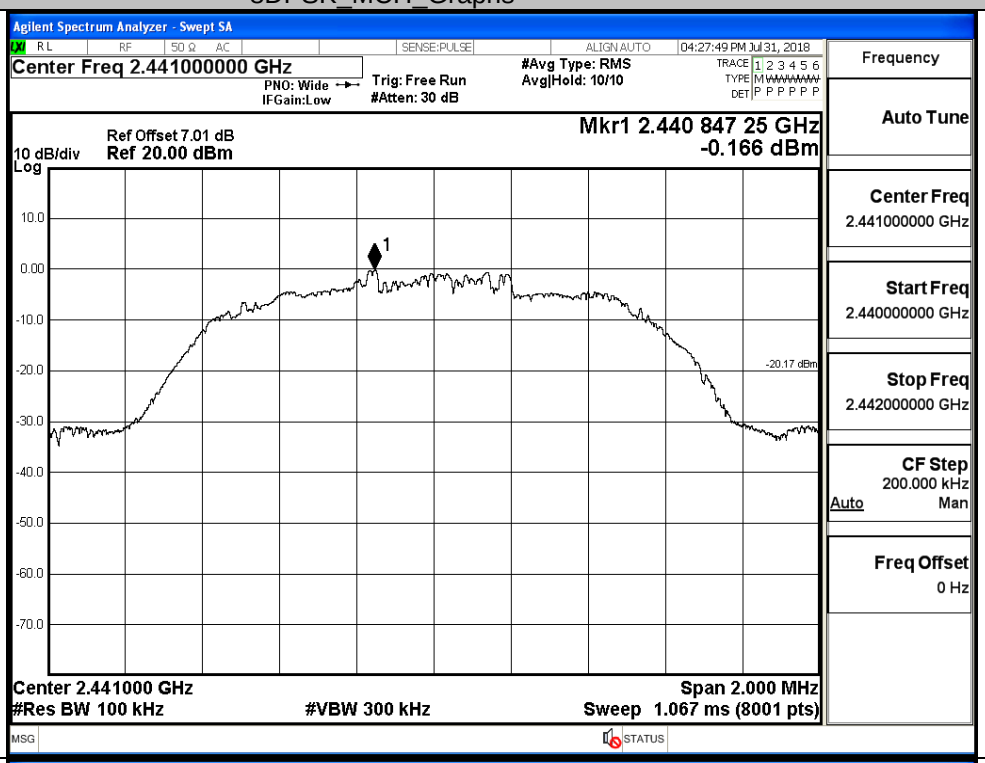
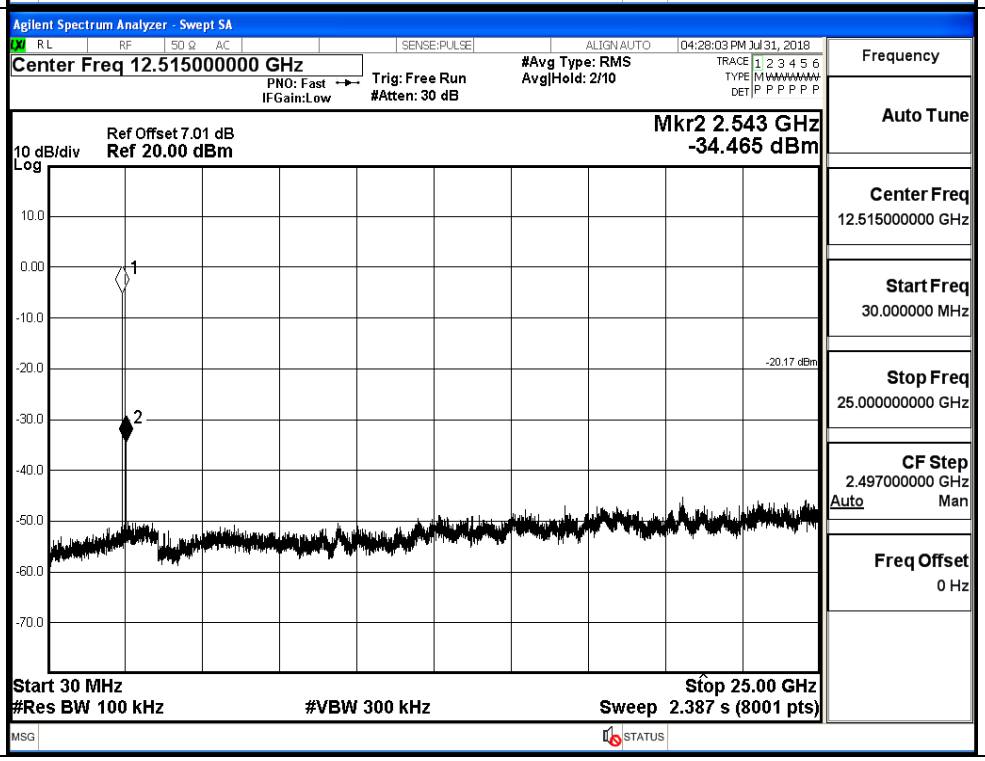
Pref		
Puw		

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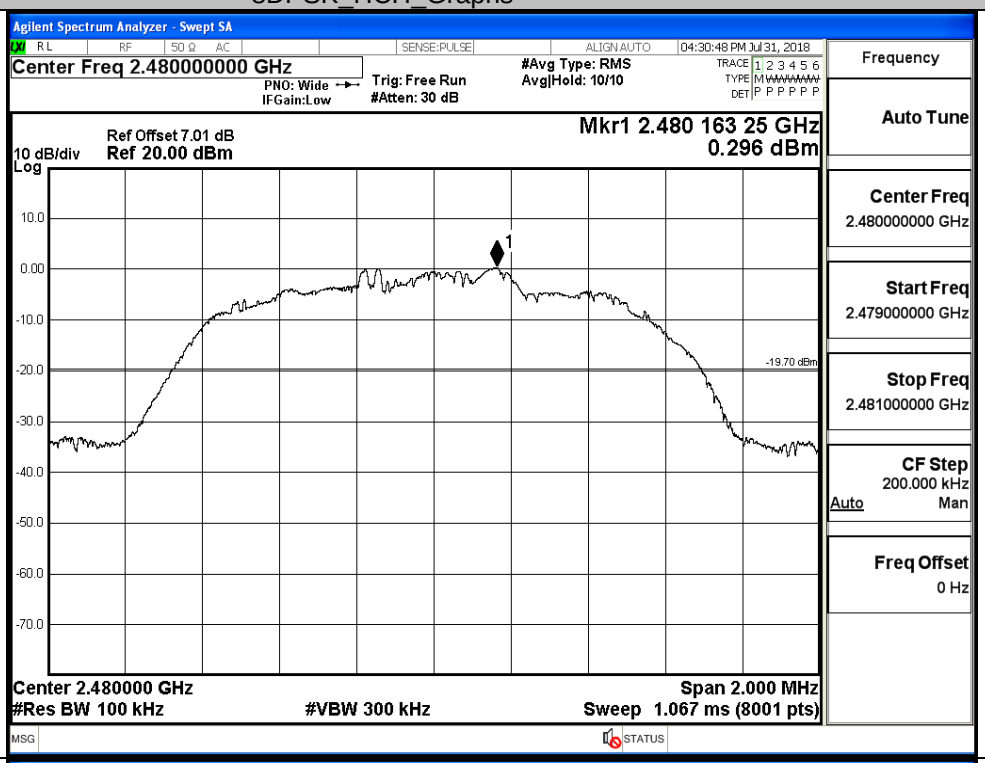
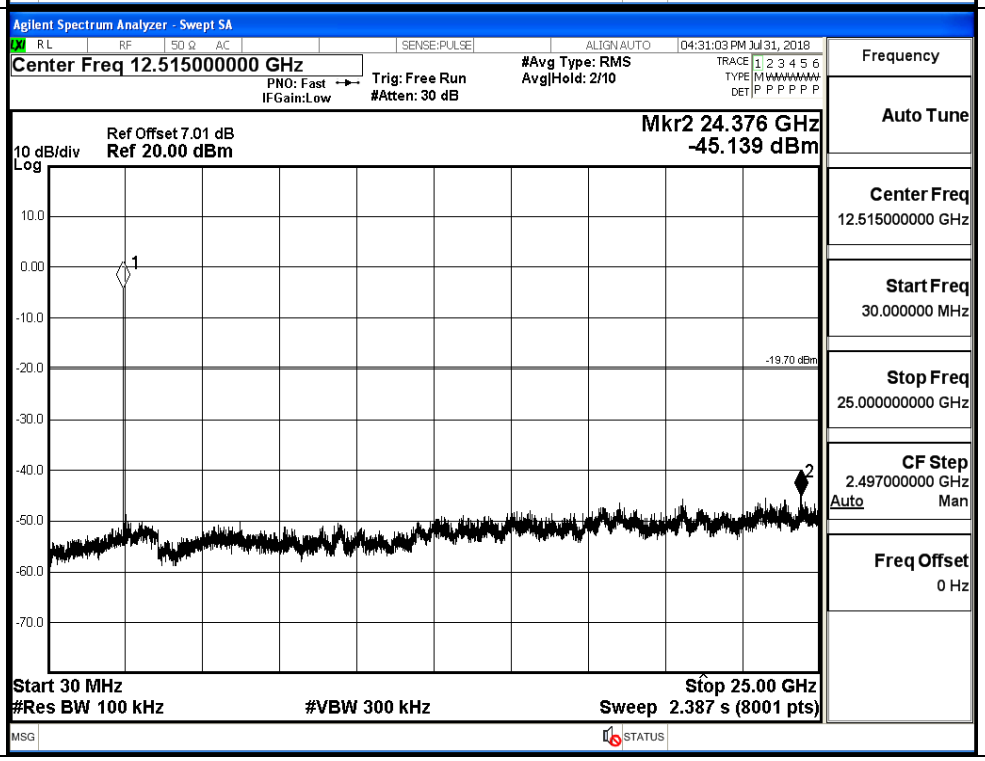
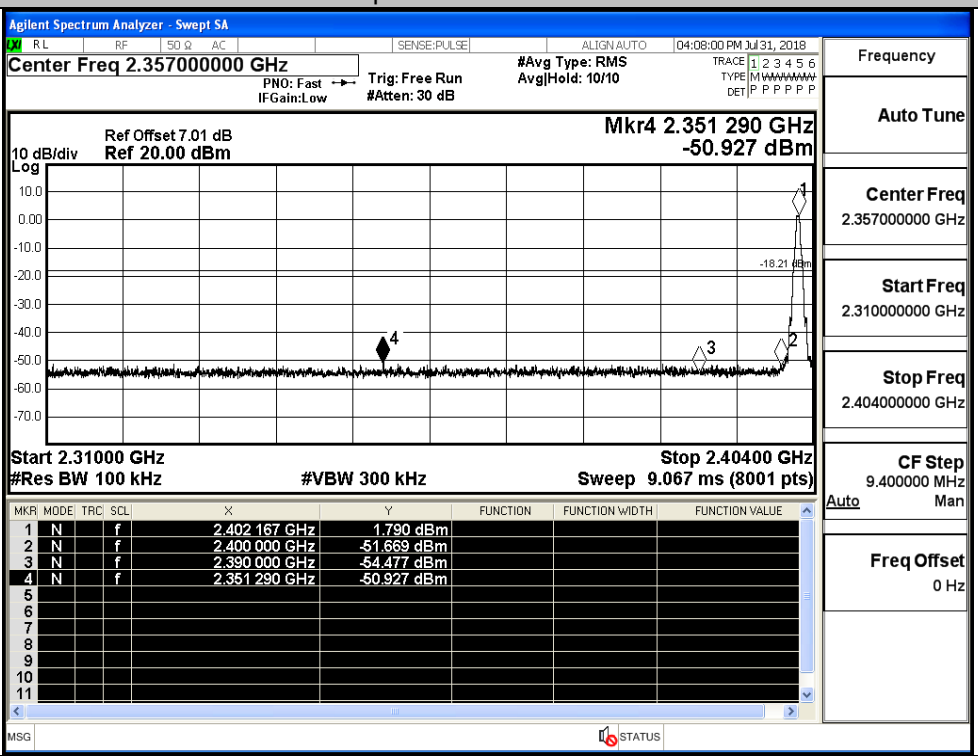
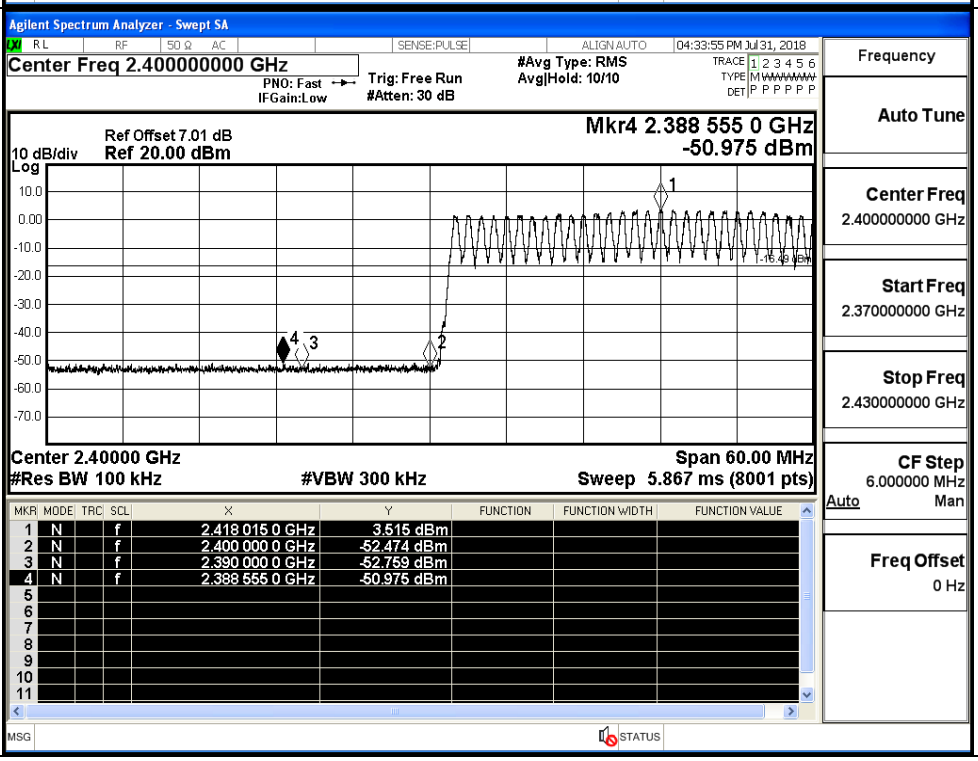
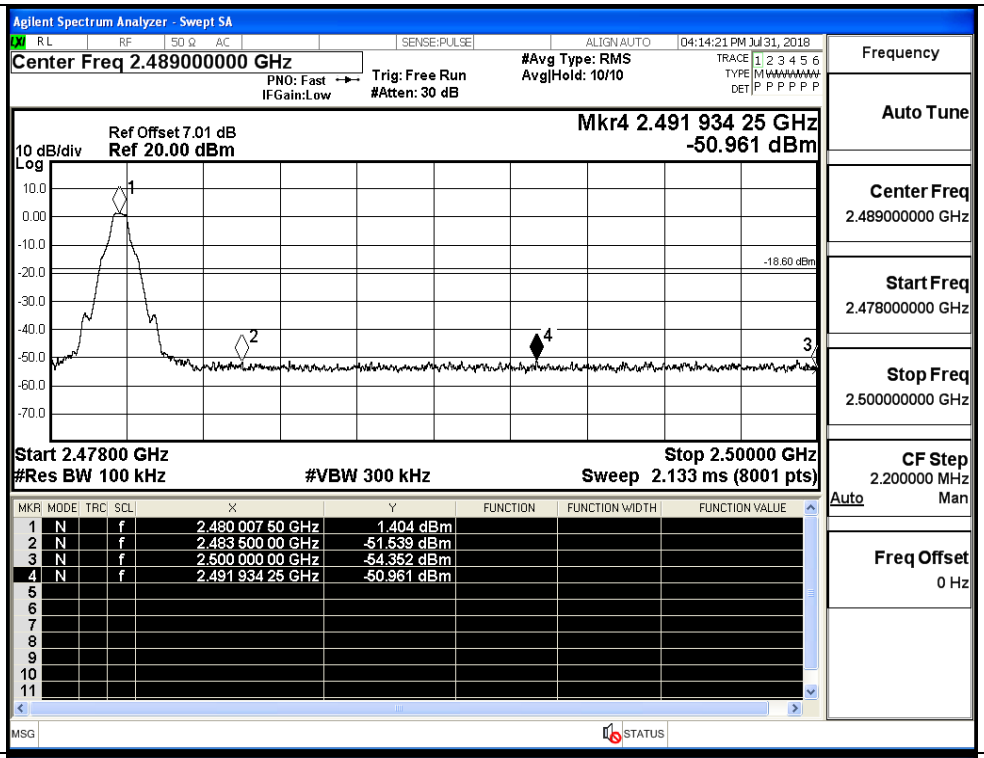
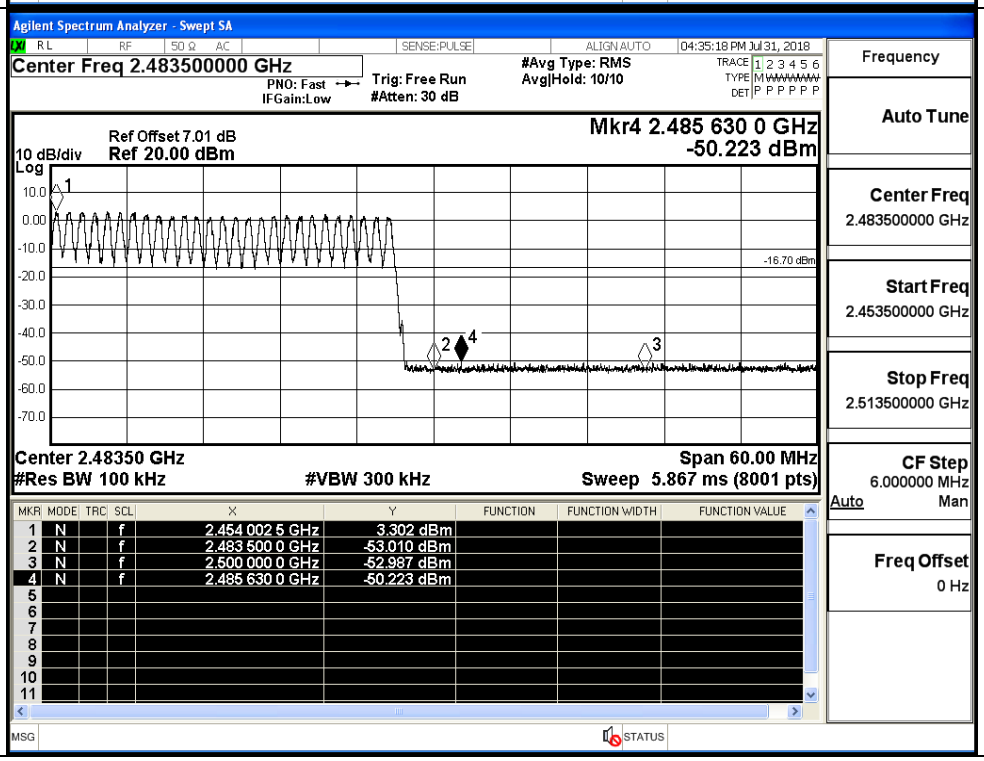
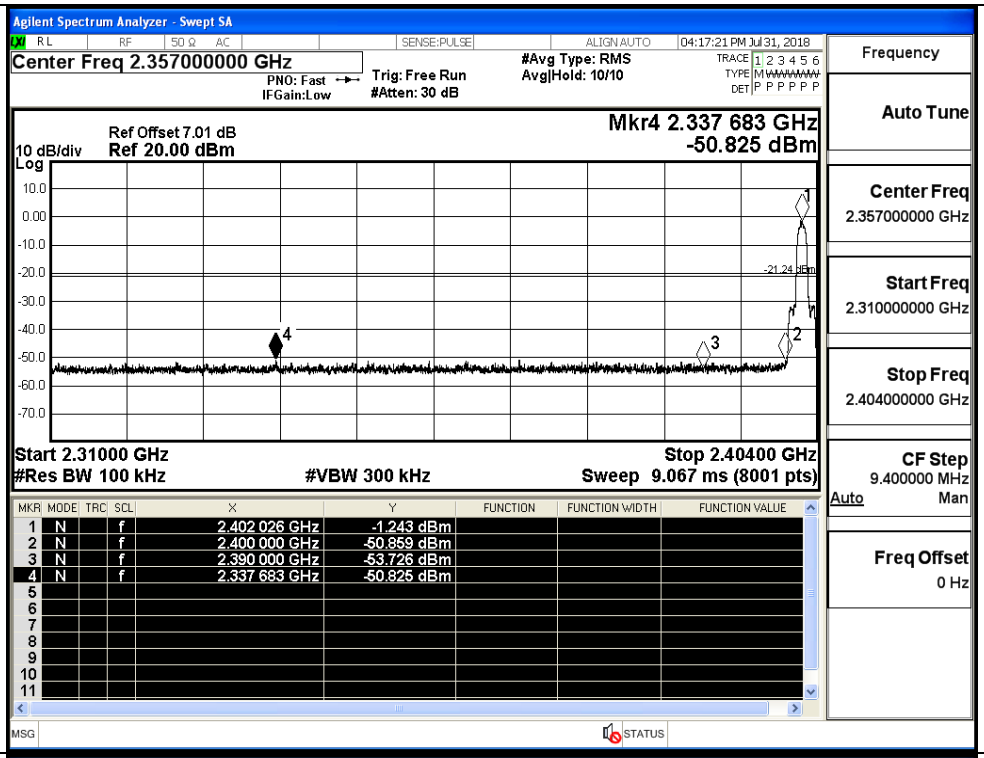
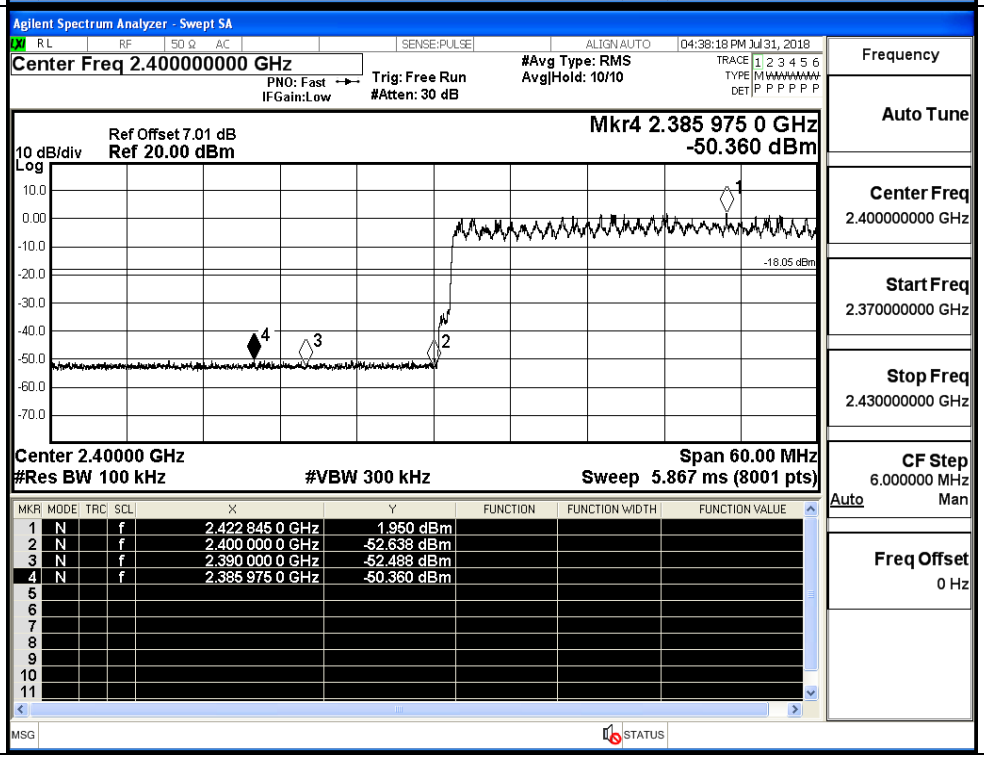
Pref		
Puw		

A.7 Band-edge for RF Conducted Emissions

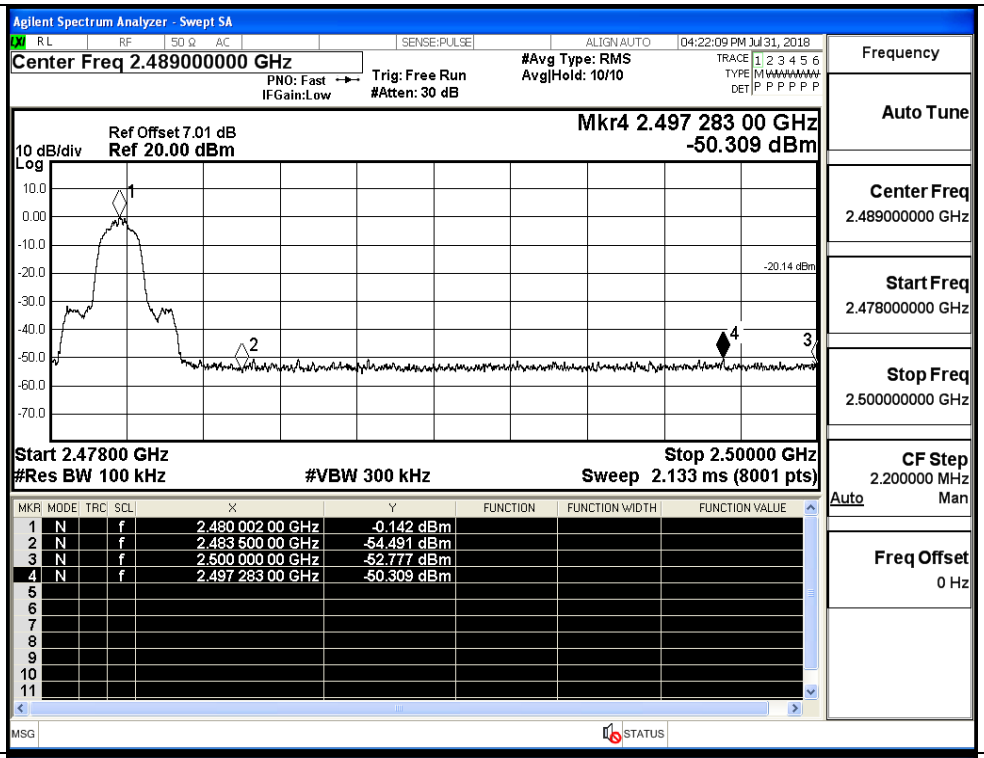
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	1.790	Off	-50.927	-18.21	PASS
			3.515	On	-50.975	-16.49	PASS
	HCH	2480	1.404	Off	-50.961	-18.6	PASS
			3.302	On	-50.223	-16.7	PASS
π/4DQPSK	LCH	2402	-1.243	Off	-50.825	-21.24	PASS
			1.950	On	-50.360	-18.05	PASS
	HCH	2480	-0.142	Off	-50.309	-20.14	PASS
			1.289	On	-50.231	-18.71	PASS
8DPSK	LCH	2402	0.585	Off	-50.837	-19.42	PASS
			2.027	On	-50.358	-17.97	PASS
	HCH	2480	0.290	Off	-50.299	-19.71	PASS
			1.899	On	-50.132	-18.1	PASS

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

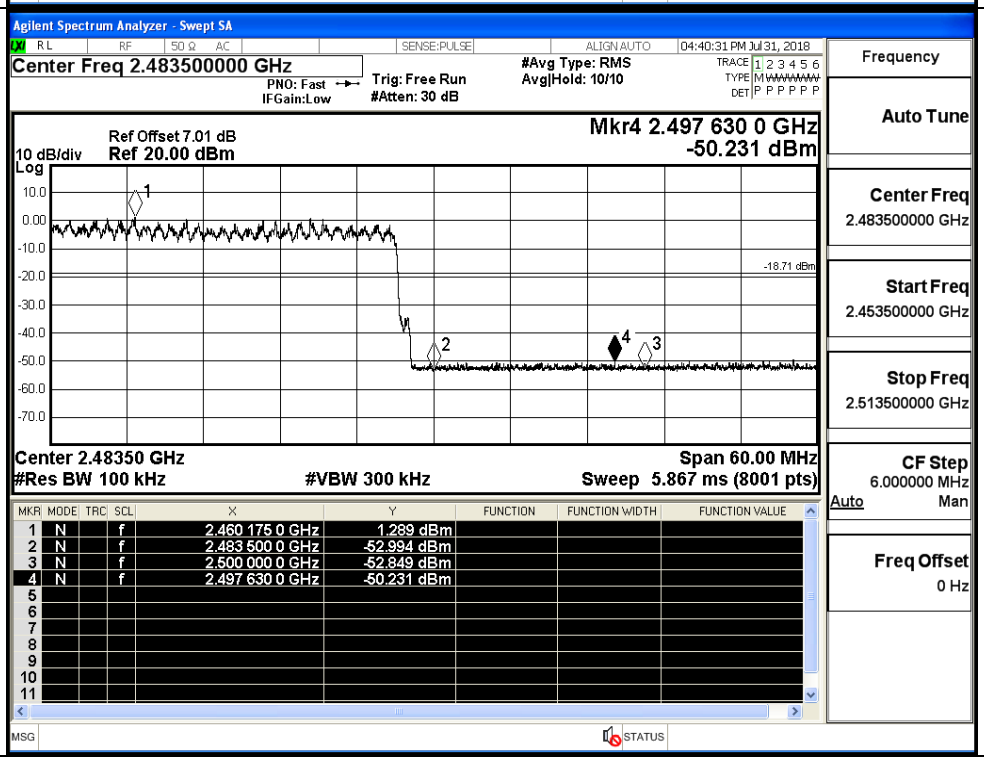
GFSK/HCH/No Hop	
GFSK/HCH/Hop	

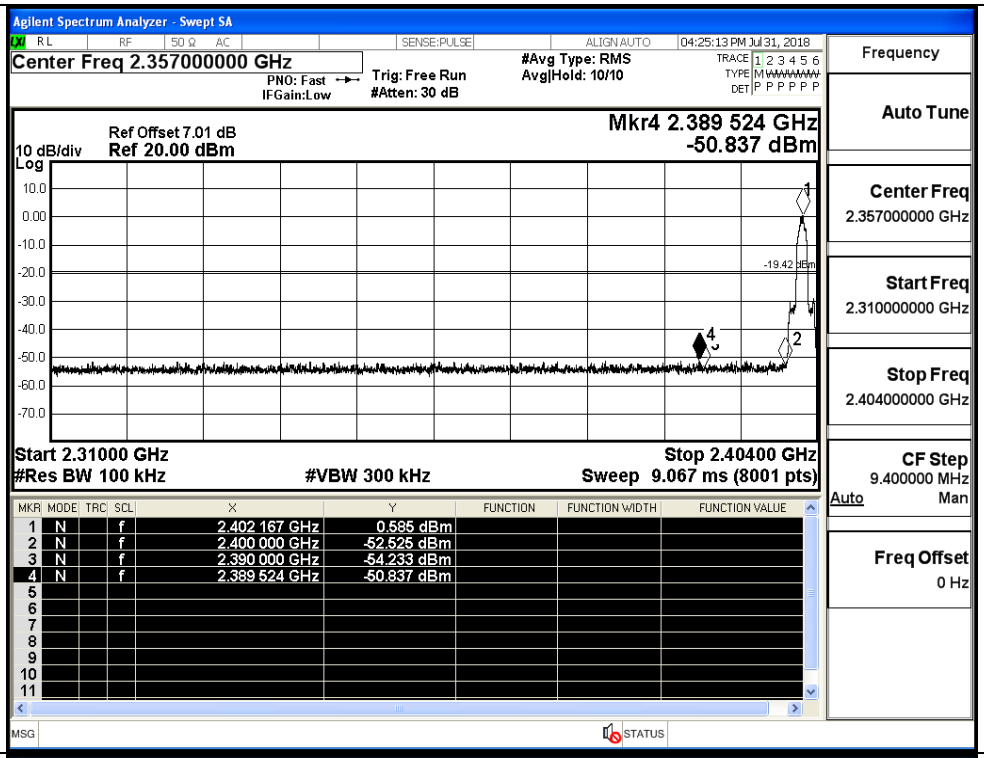
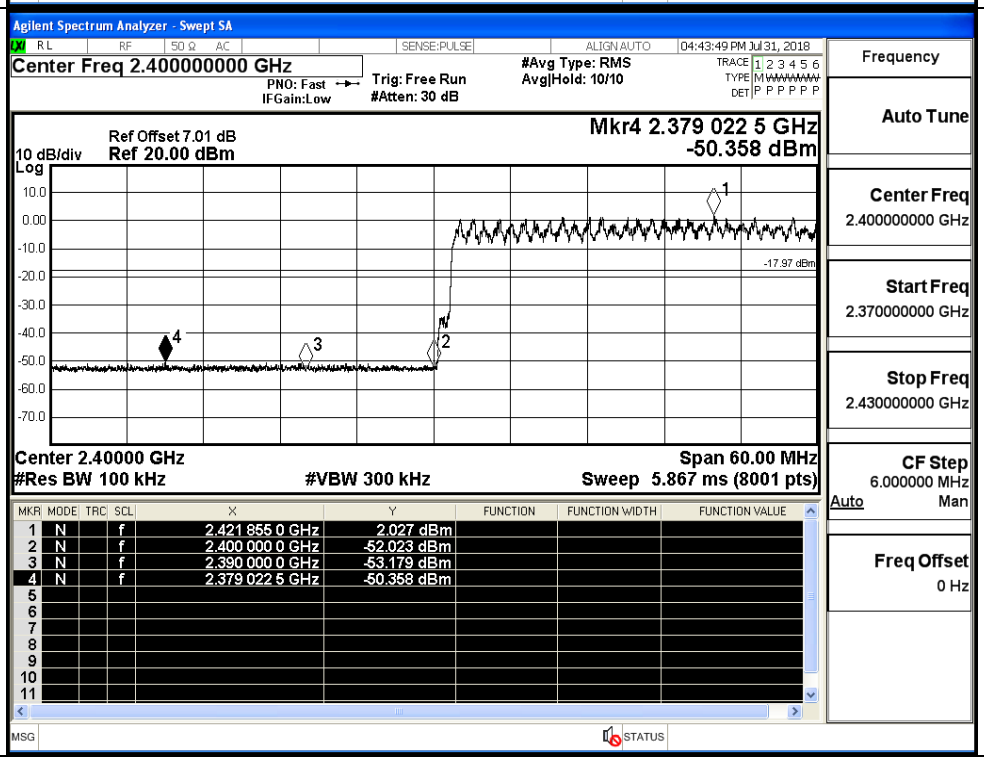
π/4DQPSK/LCH/No Hop	
π/4DQPSK/LCH/Hop	

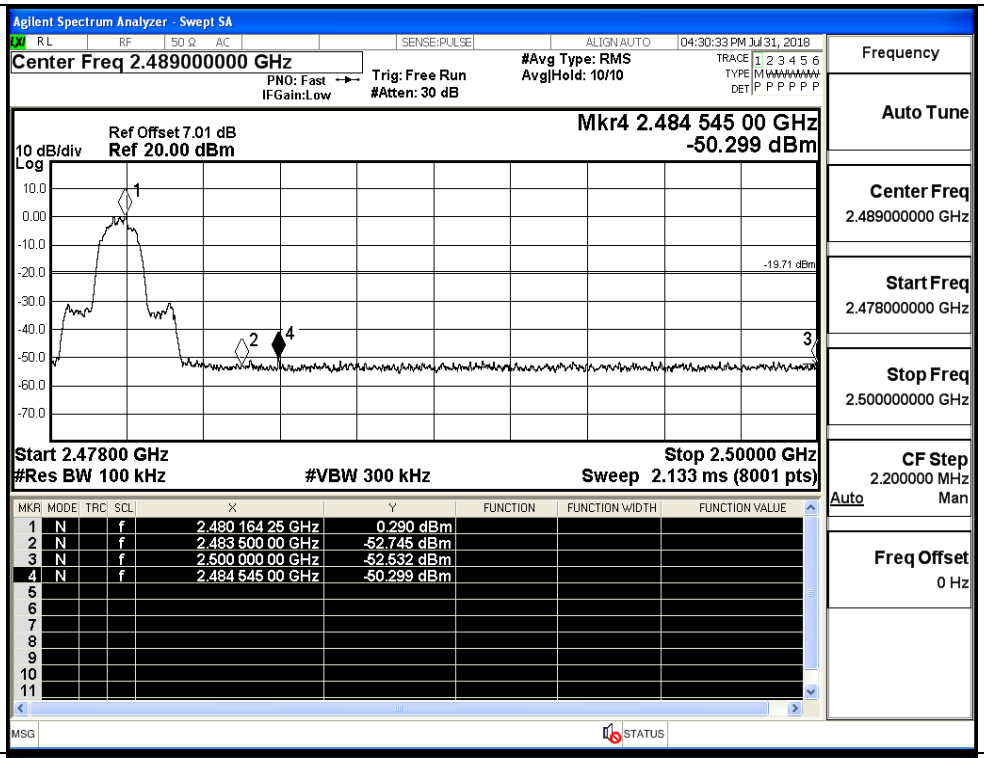
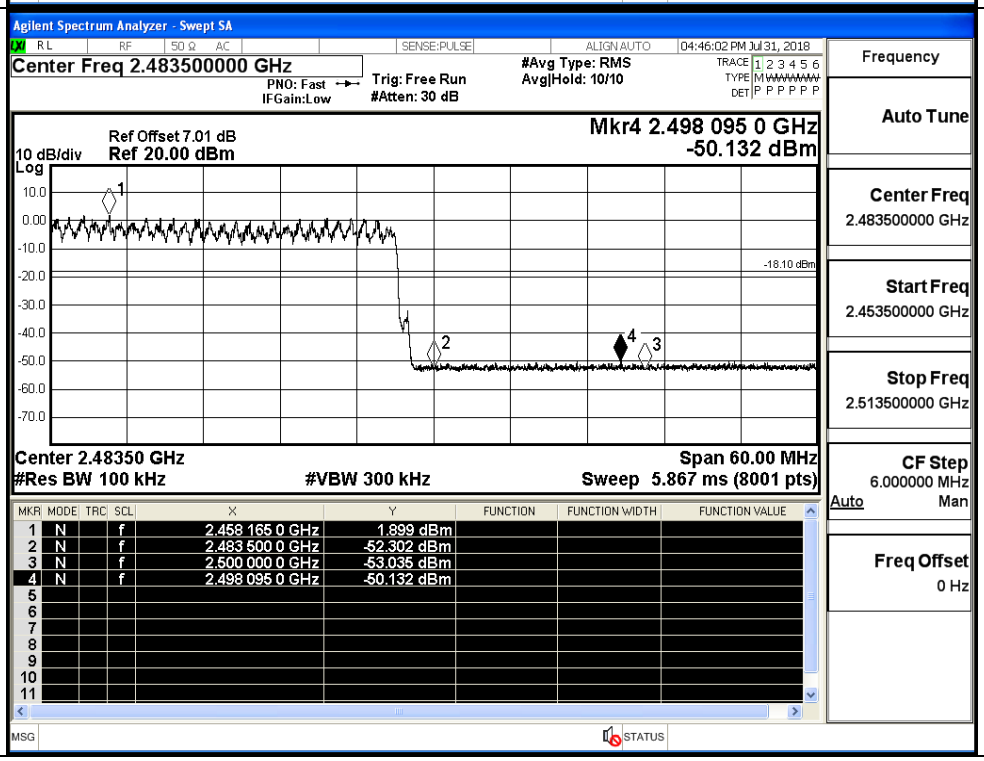
π/4DQPSK/HCH/No Hop



π/4DQPSK/HCH/Hop



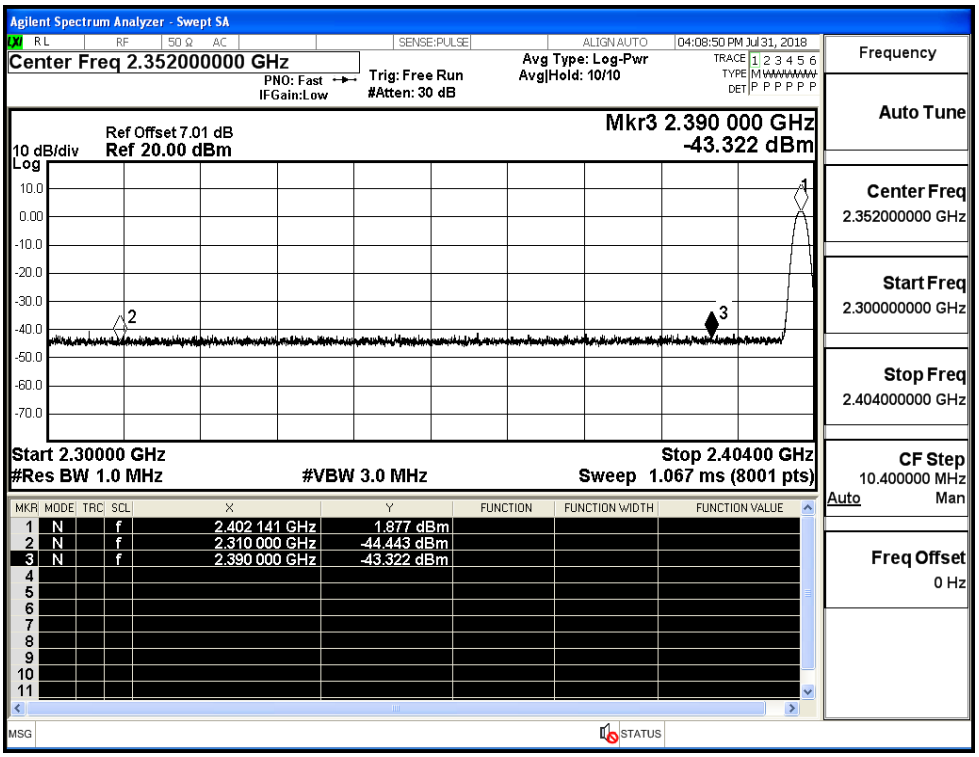
8DPSK/LCH/No Hop	
8DPSK/LCH/Hop	

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

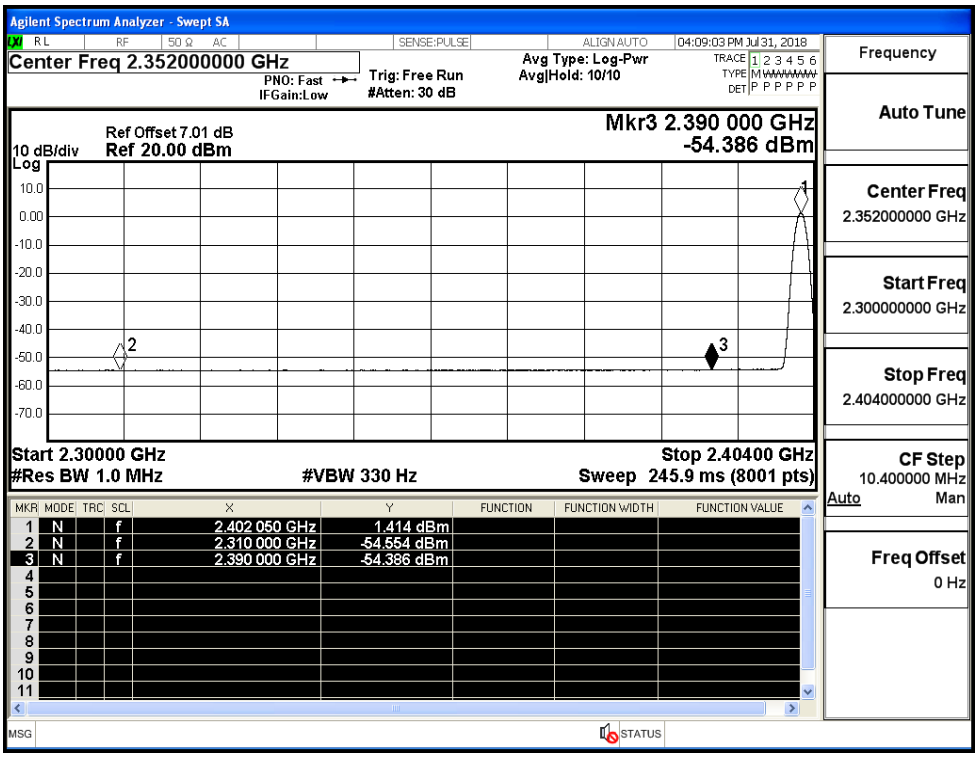
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-44.44	2.0	0	52.81	PEAK	74	PASS
	Off	2310.0	-54.55	2.0	0	42.70	AV	54	PASS
	Off	2390.0	-43.32	2.0	0	53.94	PEAK	74	PASS
	Off	2390.0	-54.39	2.0	0	42.87	AV	54	PASS
	Off	2483.5	-44.81	2.0	0	52.45	PEAK	74	PASS
	Off	2483.5	-54.00	2.0	0	43.26	AV	54	PASS
	Off	2500.0	-44.38	2.0	0	52.88	PEAK	74	PASS
	Off	2500.0	-54.02	2.0	0	43.24	AV	54	PASS
π/4DQPSK	Off	2310.0	-44.38	2.0	0	52.88	PEAK	74	PASS
	Off	2310.0	-54.44	2.0	0	42.82	AV	54	PASS
	Off	2390.0	-43.76	2.0	0	53.49	PEAK	74	PASS
	Off	2390.0	-54.35	2.0	0	42.91	AV	54	PASS
	Off	2483.5	-43.47	2.0	0	53.79	PEAK	74	PASS
	Off	2483.5	-53.99	2.0	0	43.27	AV	54	PASS
	Off	2500.0	-42.54	2.0	0	54.72	PEAK	74	PASS
	Off	2500.0	-54.02	2.0	0	43.24	AV	54	PASS
8DPSK	Off	2310.0	-44.41	2.0	0	52.85	PEAK	74	PASS
	Off	2310.0	-54.61	2.0	0	42.65	AV	54	PASS
	Off	2390.0	-44.00	2.0	0	53.26	PEAK	74	PASS
	Off	2390.0	-54.35	2.0	0	42.91	AV	54	PASS
	Off	2483.5	-43.09	2.0	0	54.17	PEAK	74	PASS
	Off	2483.5	-53.81	2.0	0	43.45	AV	54	PASS
	Off	2500.0	-44.51	2.0	0	52.75	PEAK	74	PASS
	Off	2500.0	-53.93	2.0	0	43.32	AV	54	PASS

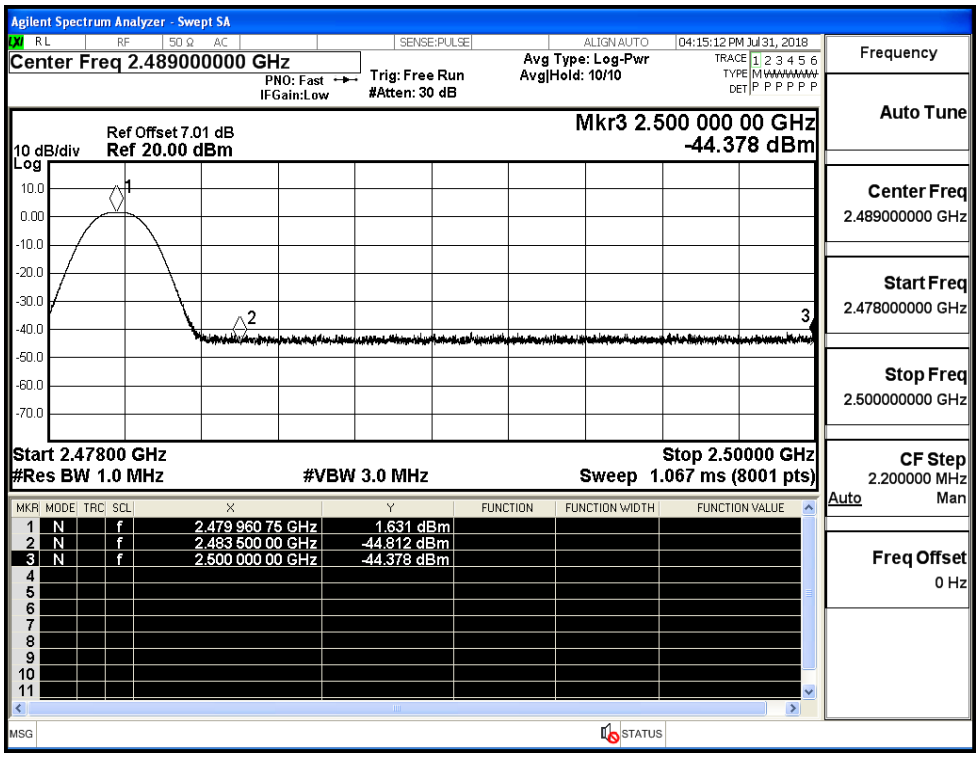
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



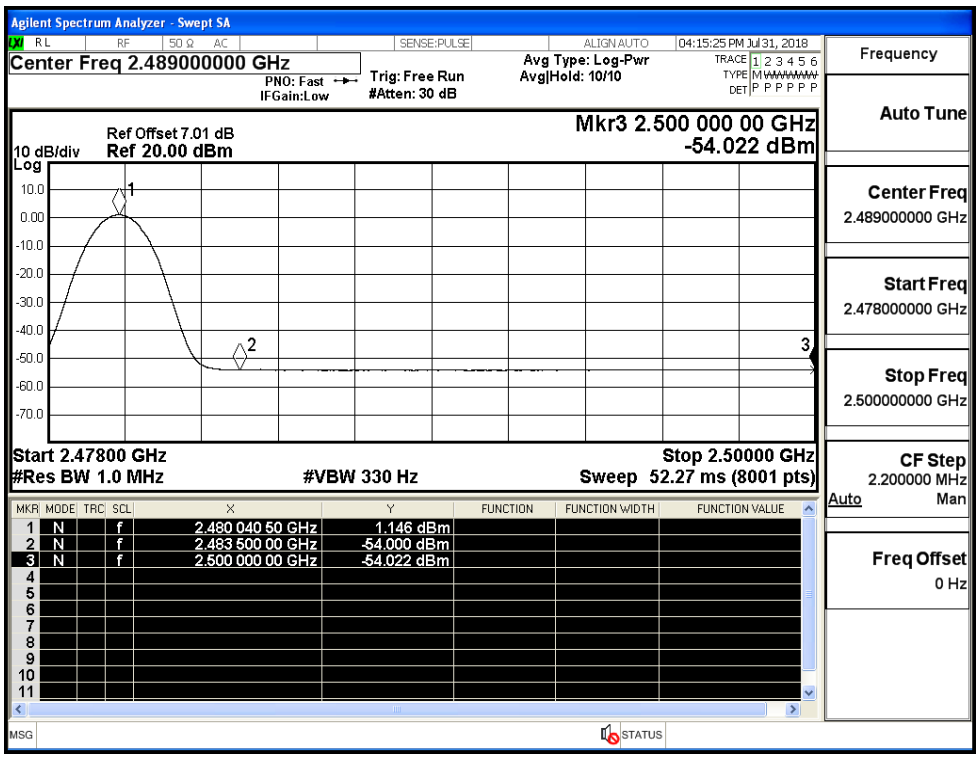
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



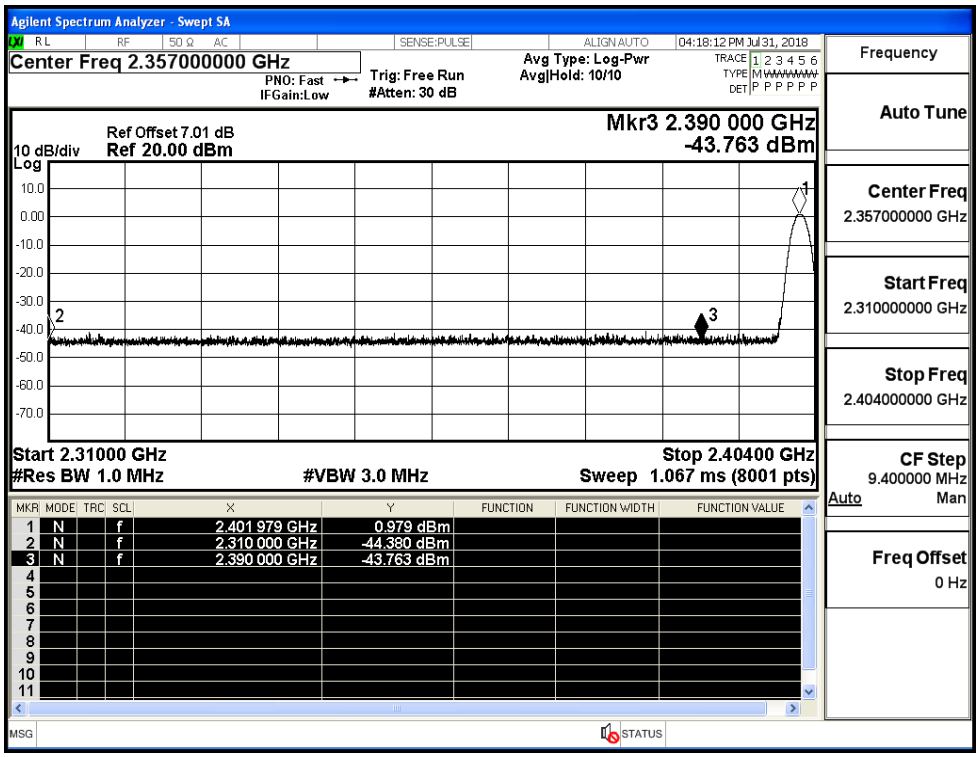
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



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



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



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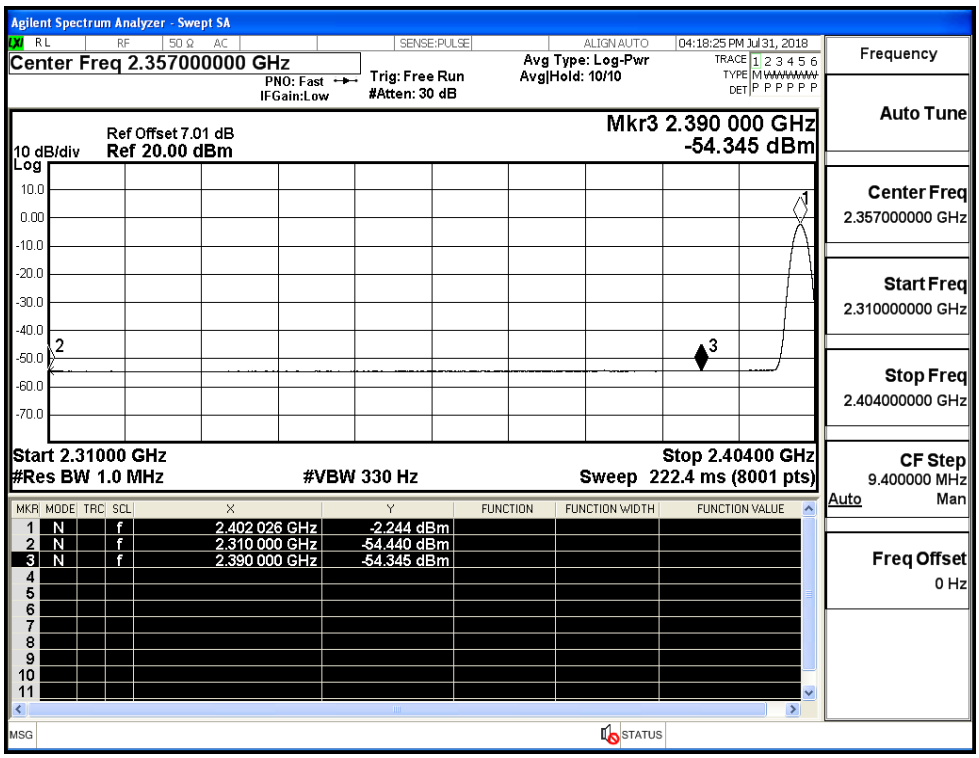
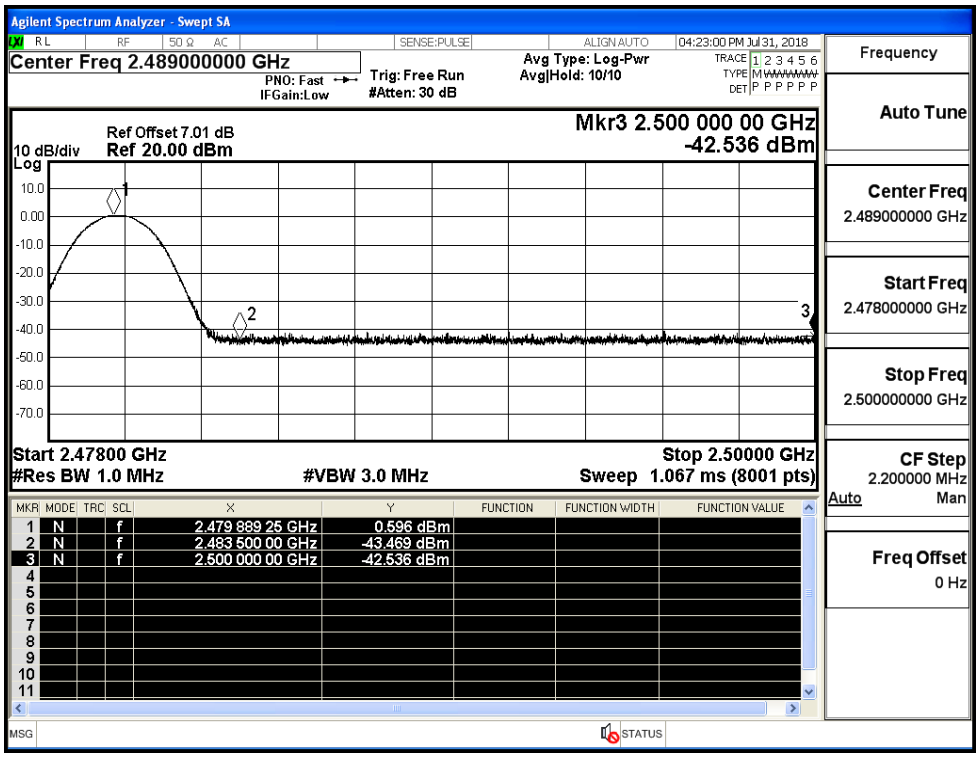
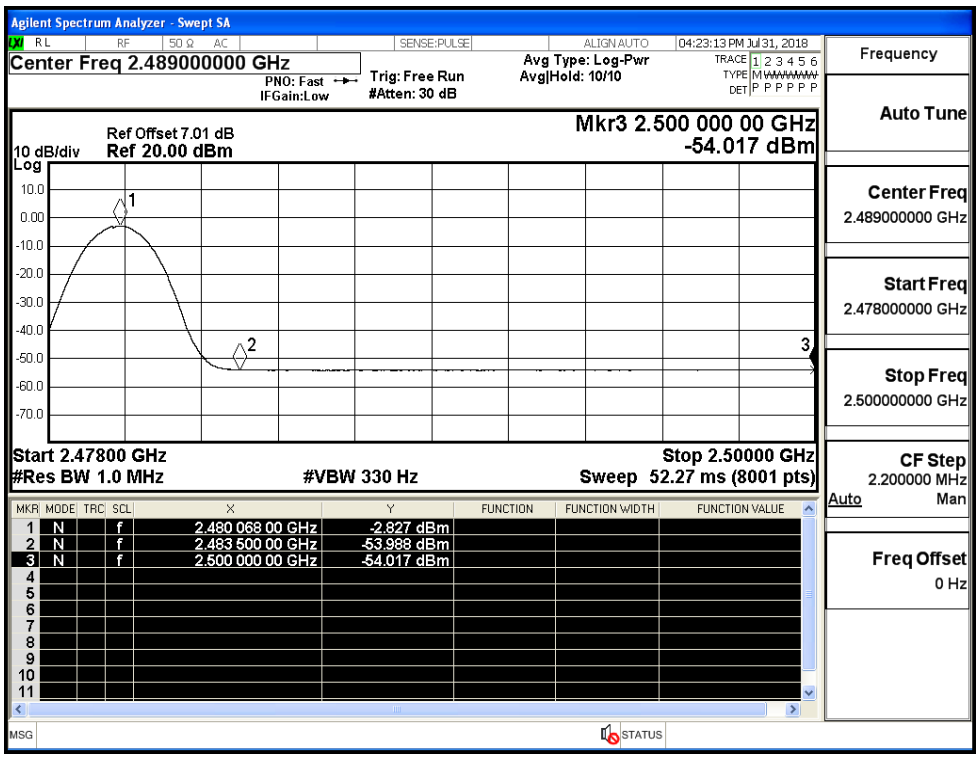


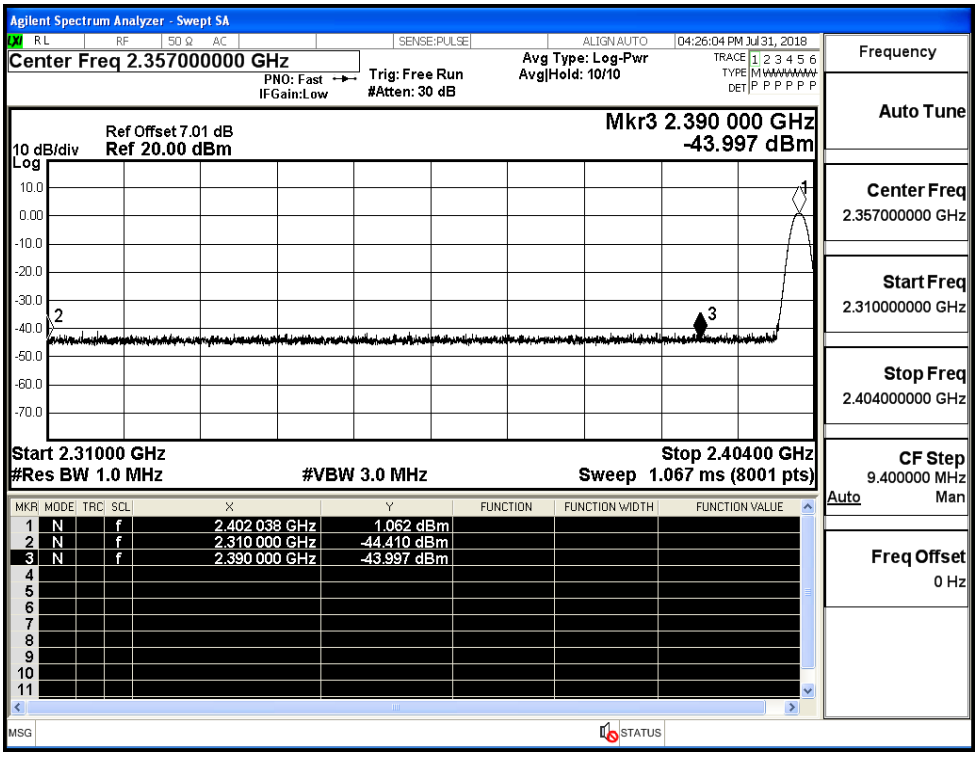
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



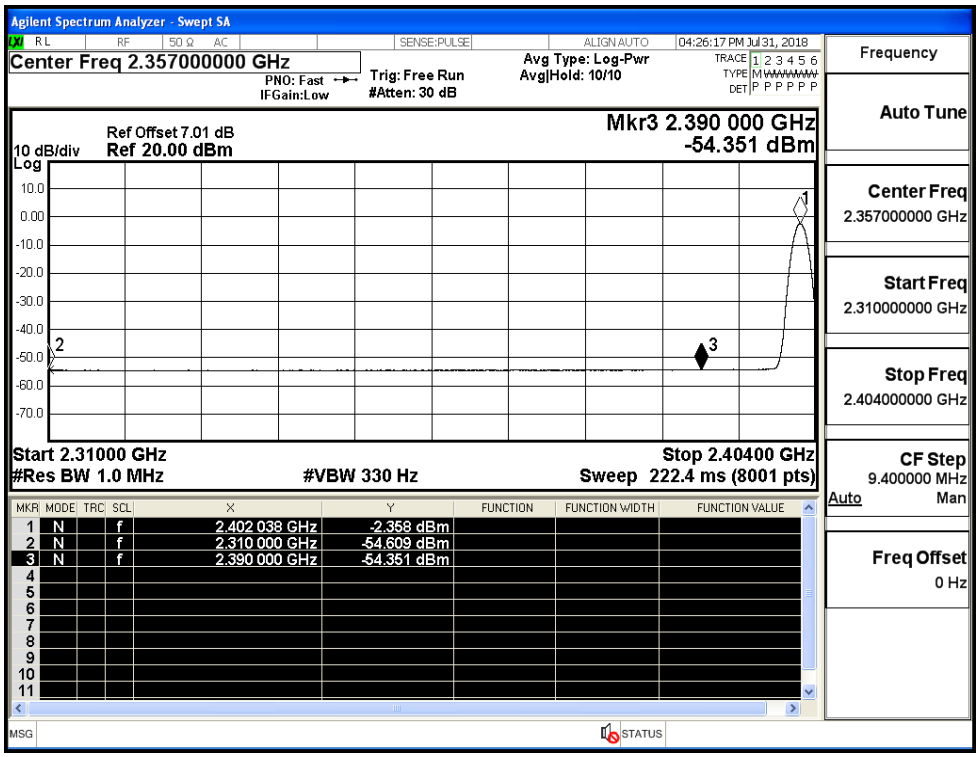
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



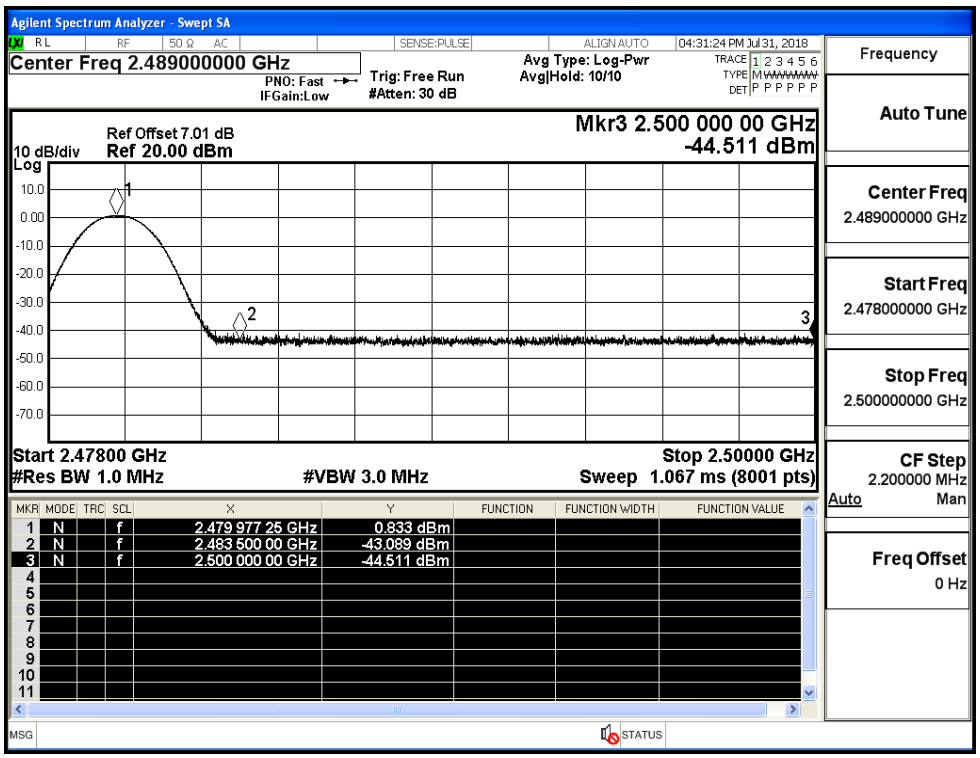
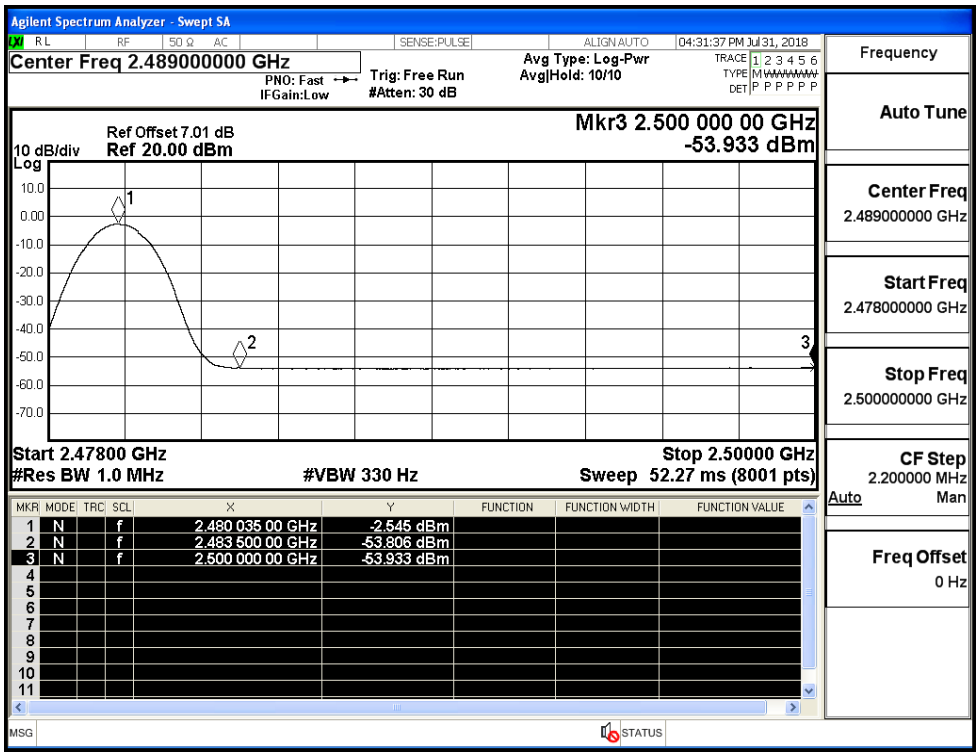
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)