Appendix A

RF Test Data for BT V4.2 (BDR/EDR) (Conducted Measurement)

Product Name: Neckband Wireless Sport Earphones

Trade Mark: AWEI

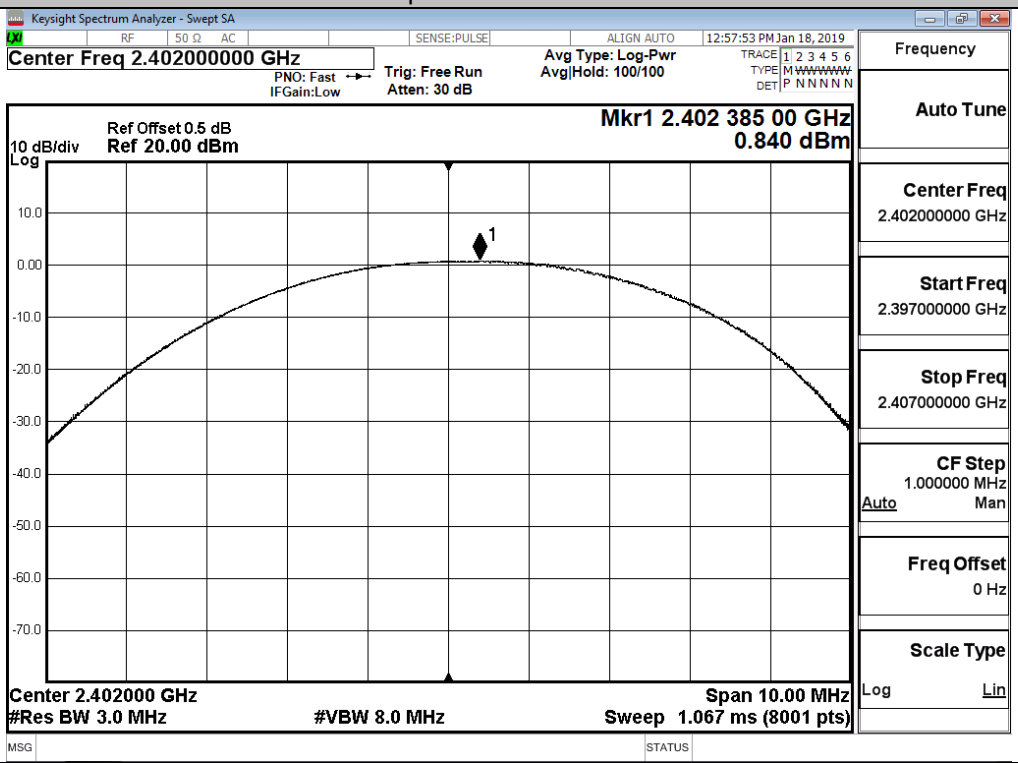
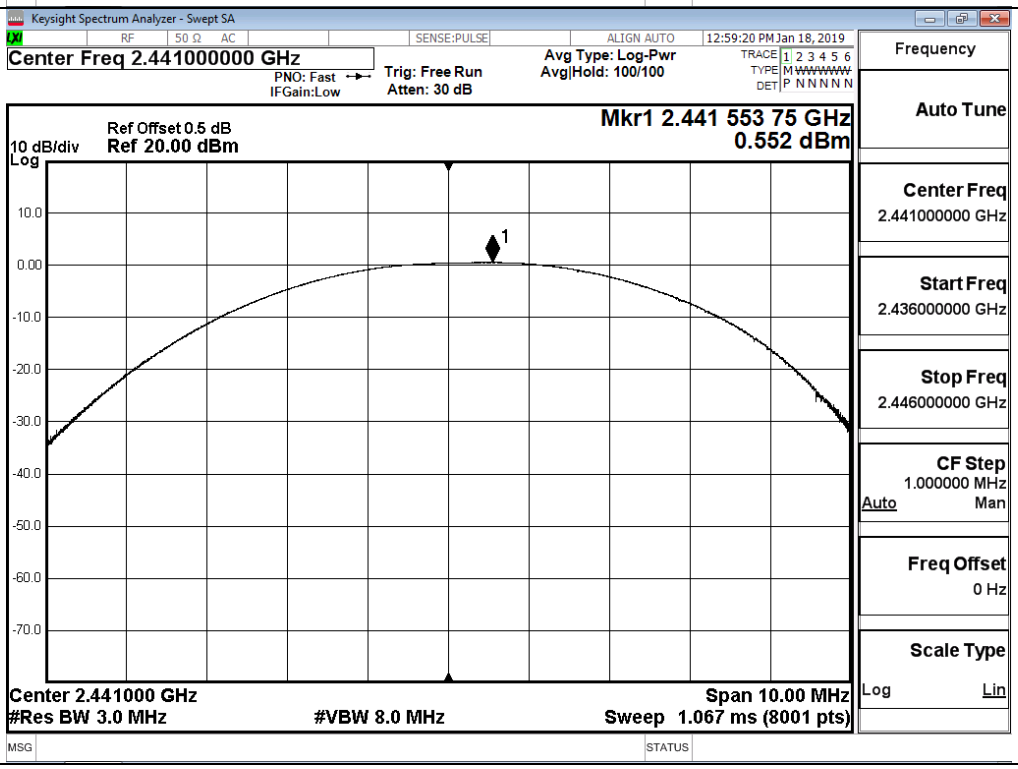
Test Model: G10BL

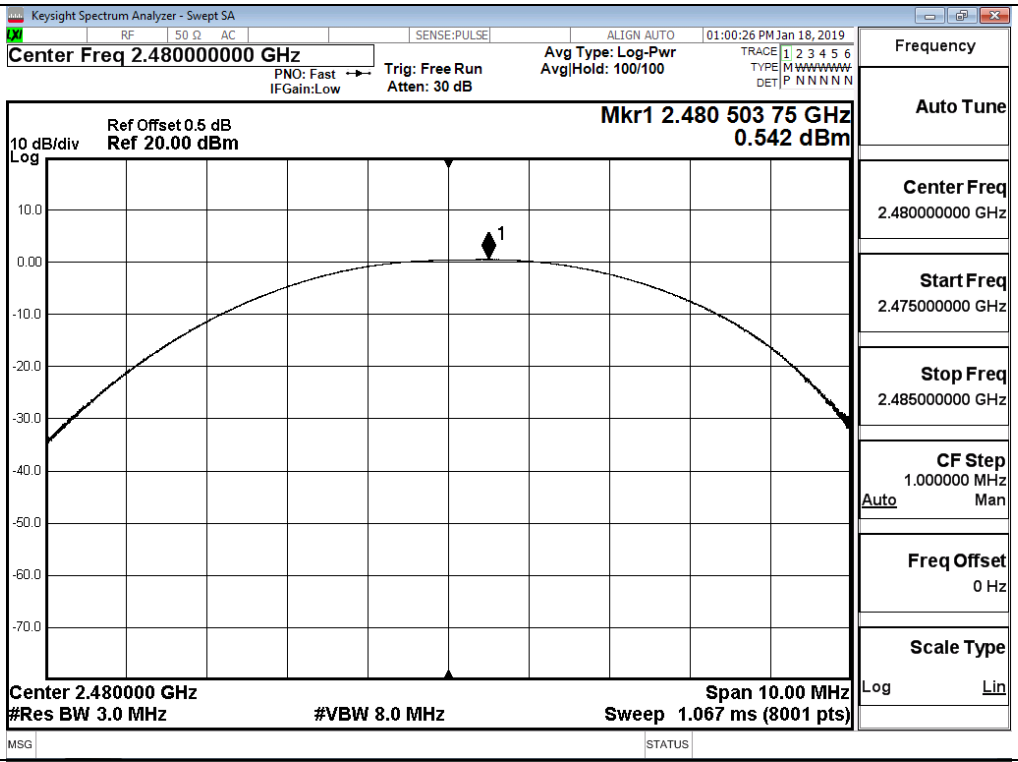
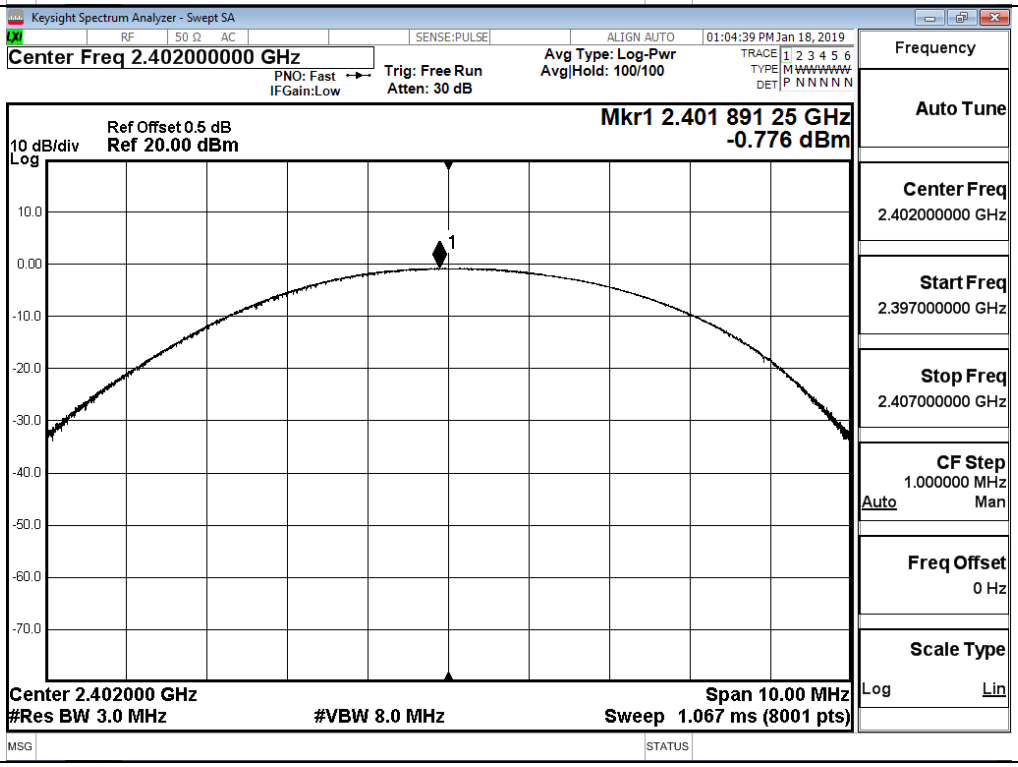
Environmental Conditions

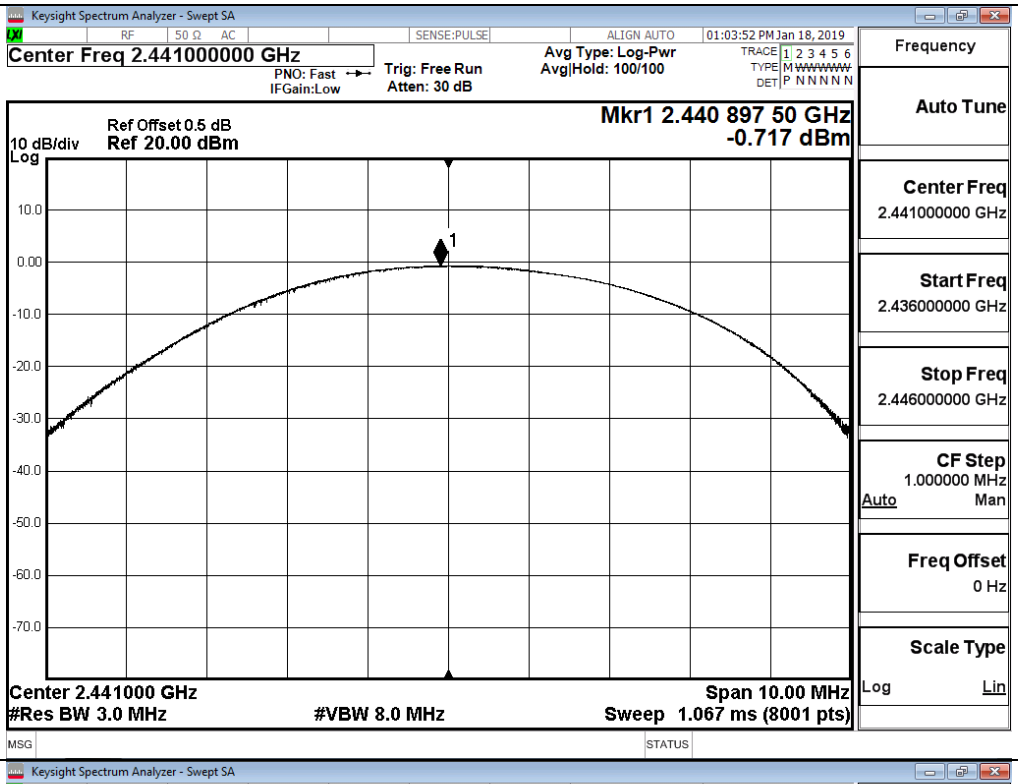
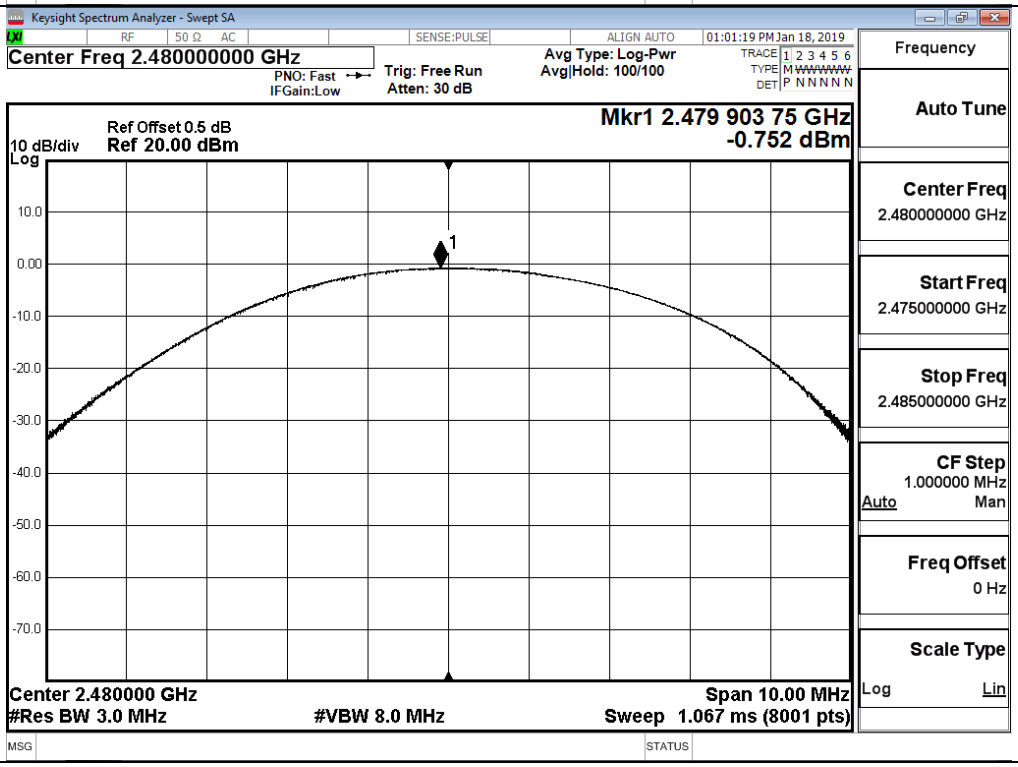
Temperature:	23.5 °C
Relative Humidity:	55%
ATM Pressure:	100.0 kPa
Test Engineer:	Mina.Xu
Supervised by:	Jayden.Zhuo

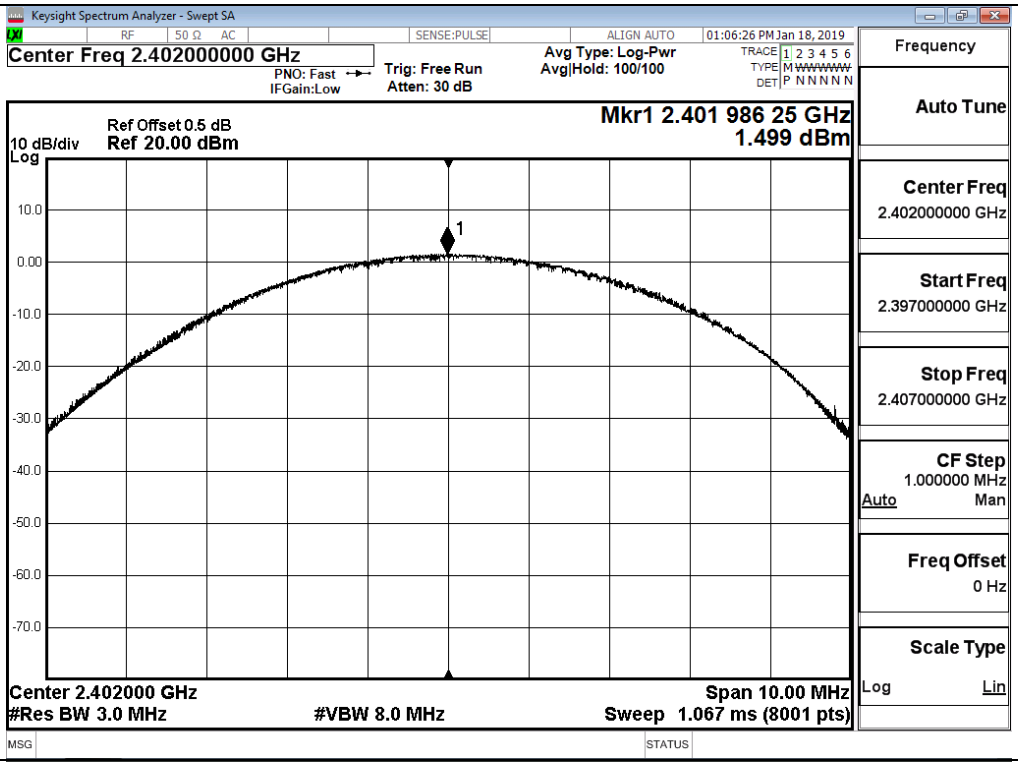
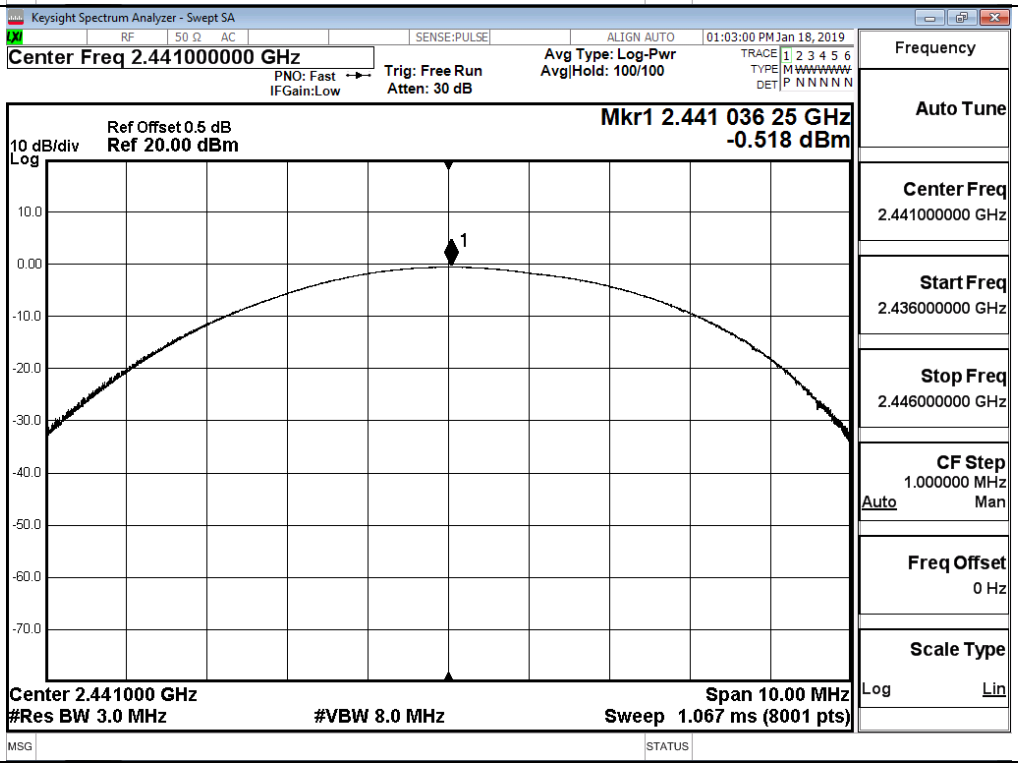
A.1 Maximum Conducted Peak Output Power

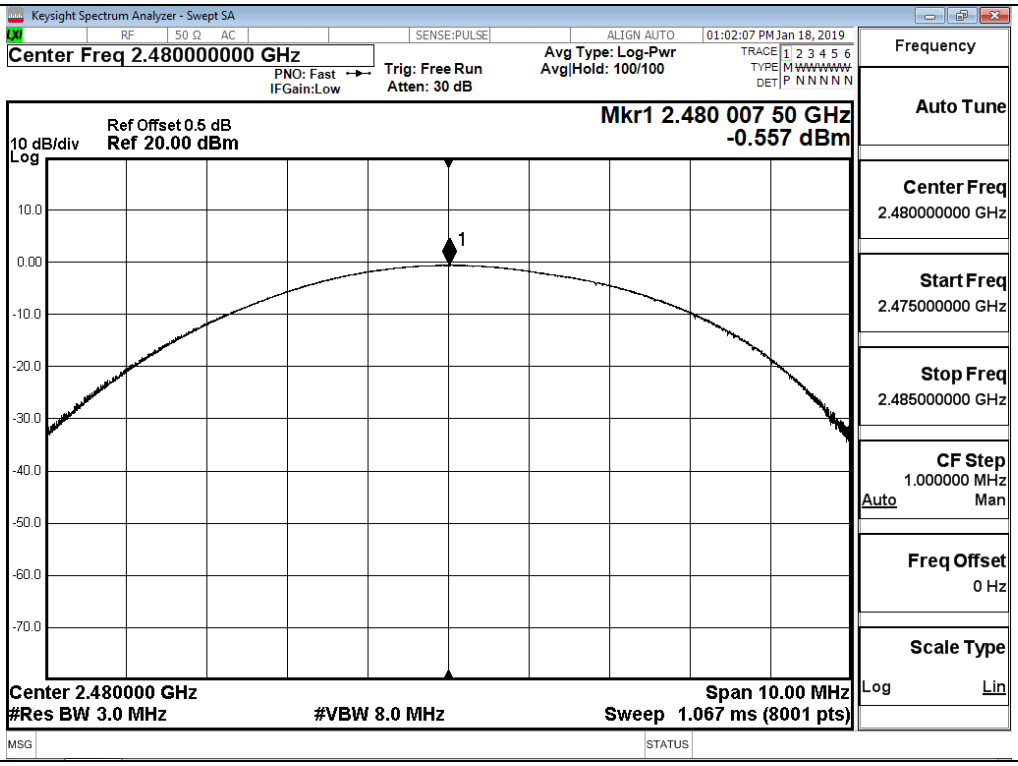
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.840	21	PASS
	MCH	0.552	21	PASS
	HCH	0.542	21	PASS
π/4DQPSK	LCH	-0.776	21	PASS
	MCH	-0.717	21	PASS
	HCH	-0.752	21	PASS
8DPSK	LCH	1.499	21	PASS
	MCH	-0.518	21	PASS
	HCH	-0.557	21	PASS

Test Graphs	
GFSK/LCH	
GFSK/MCH	

GFSK/HCH	
π/4DQPSK/LCH	

π/4DQPSK/MCH	
π/4DQPSK/HCH	

8DPSK/LCH	
8DPSK/MCH	

8DPSK/HCH	

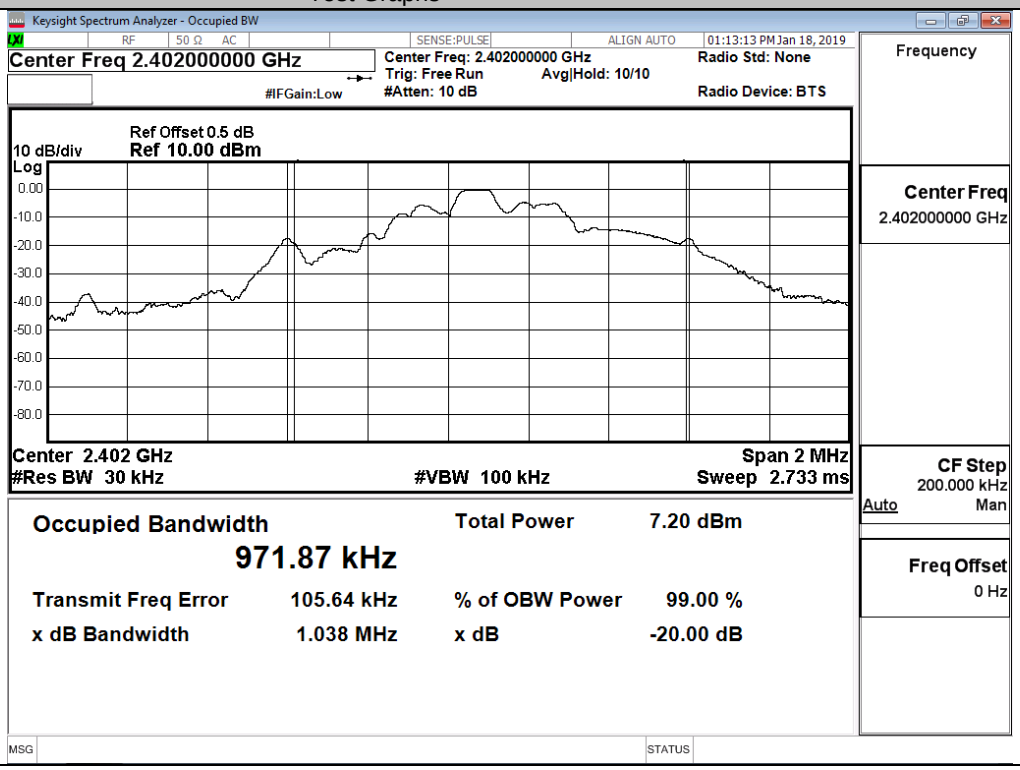
Keysight Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:PULSE
ALIGN AUTO
01:02:07 PM Jan 18, 2019
Center Freq 2.480000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 100/100
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Ref Offset 0.5 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 2.480 007 50 GHz
-0.557 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
Scale Type
Log
Lin

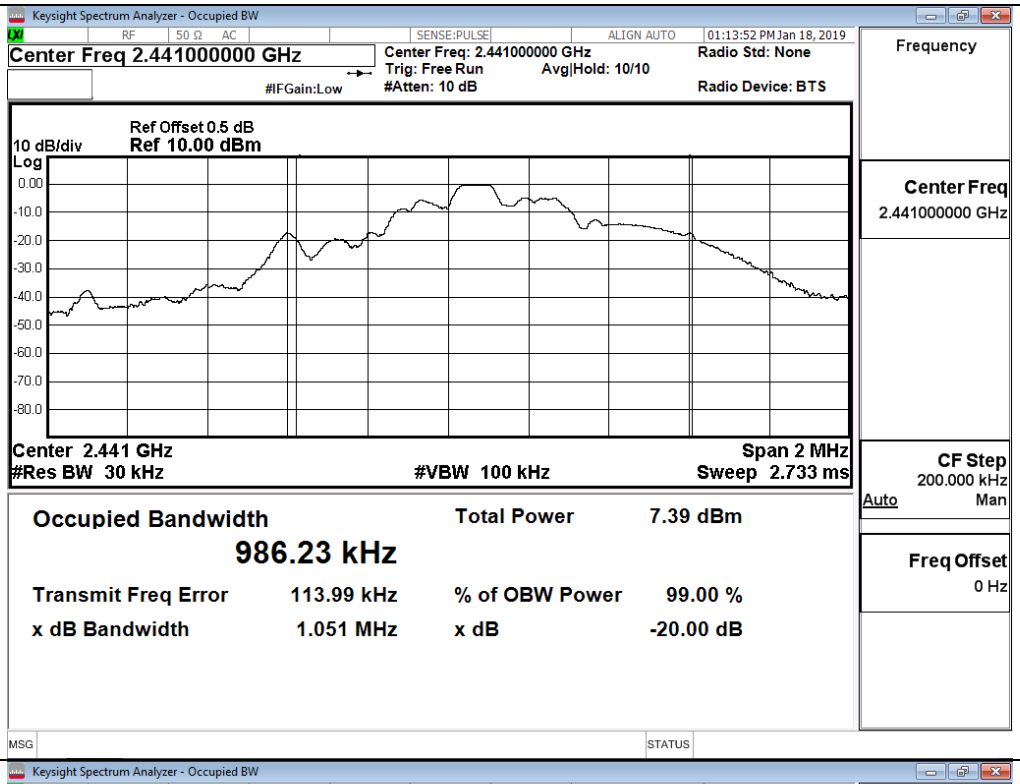
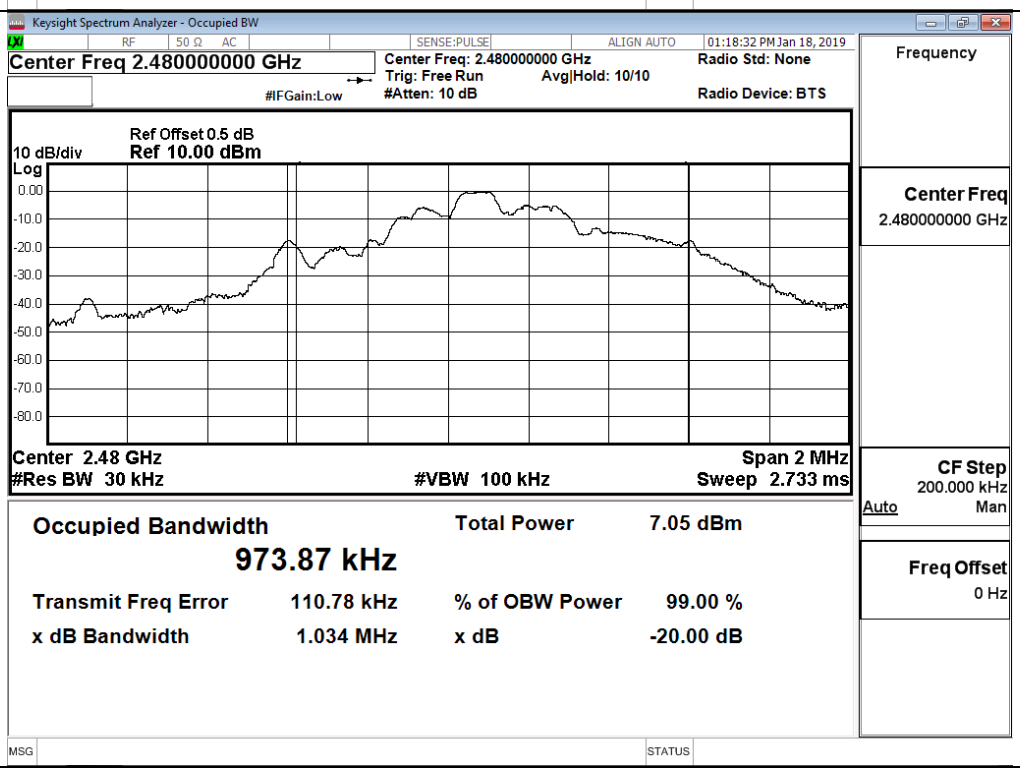
A.2 99% and 20dB Bandwidth

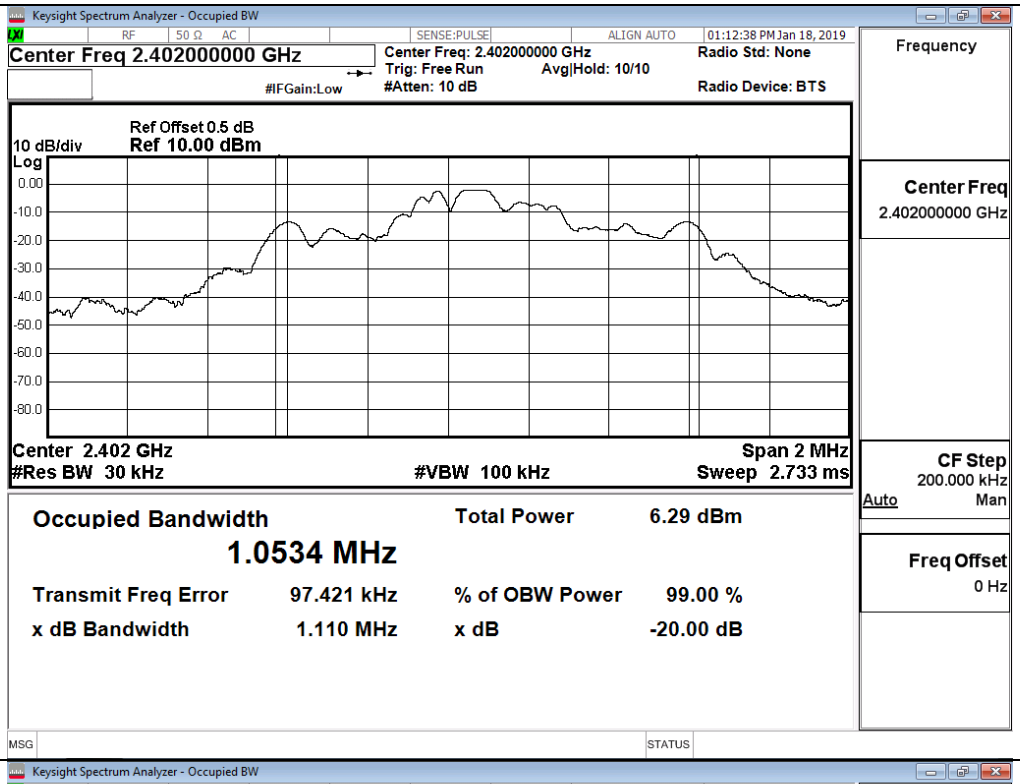
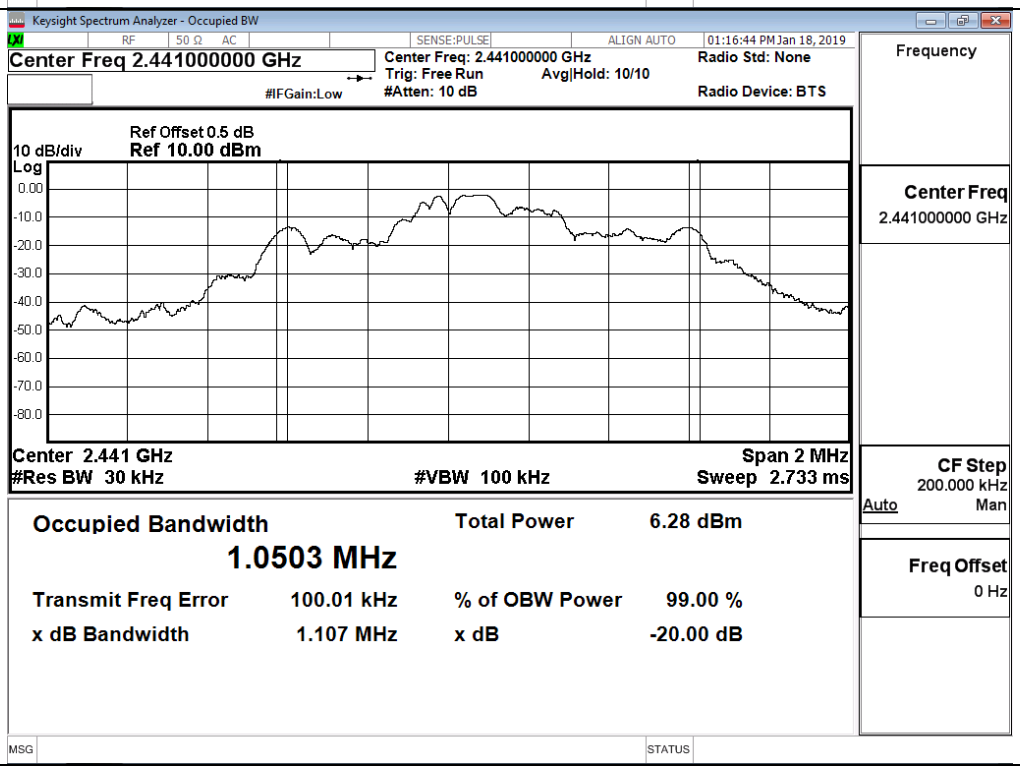
Mode	Channel.	99% Bandwidth [MHz]	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.97187	1.038	Not Specified	PASS
	MCH	0.98623	1.051	Not Specified	PASS
	HCH	0.97387	1.034	Not Specified	PASS
π/4DQPSK	LCH	1.0534	1.110	Not Specified	PASS
	MCH	1.0503	1.107	Not Specified	PASS
	HCH	1.0499	1.108	Not Specified	PASS
8DPSK	LCH	1.1241	1.187	Not Specified	PASS
	MCH	1.1202	1.186	Not Specified	PASS
	HCH	1.1271	1.175	Not Specified	PASS

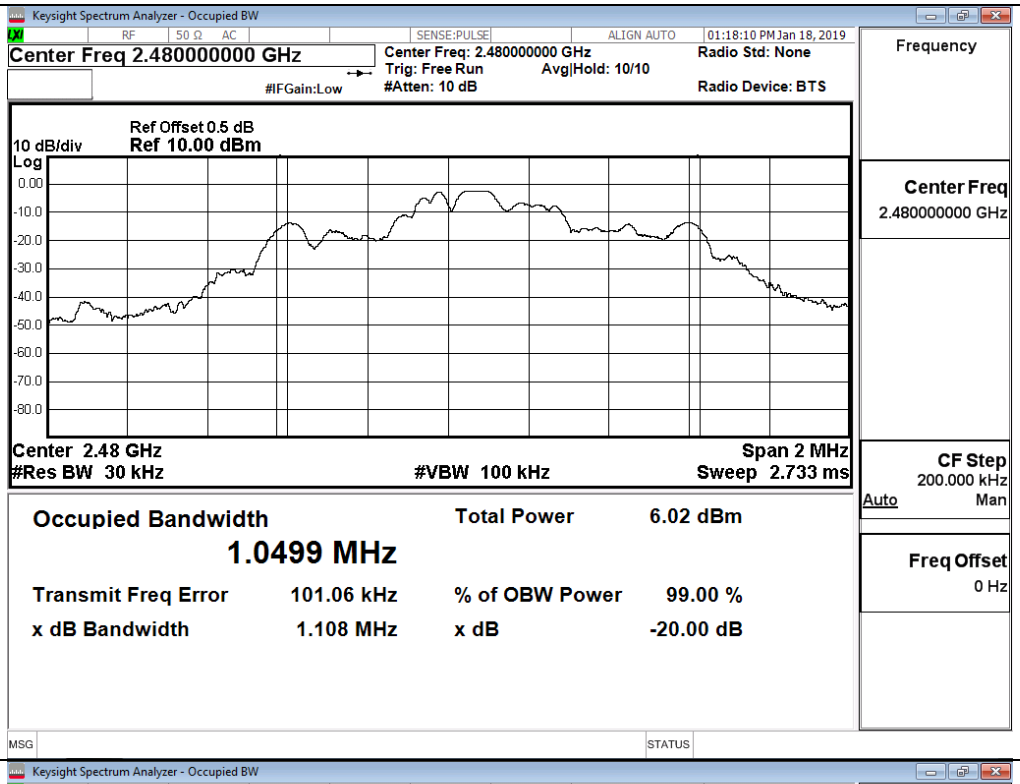
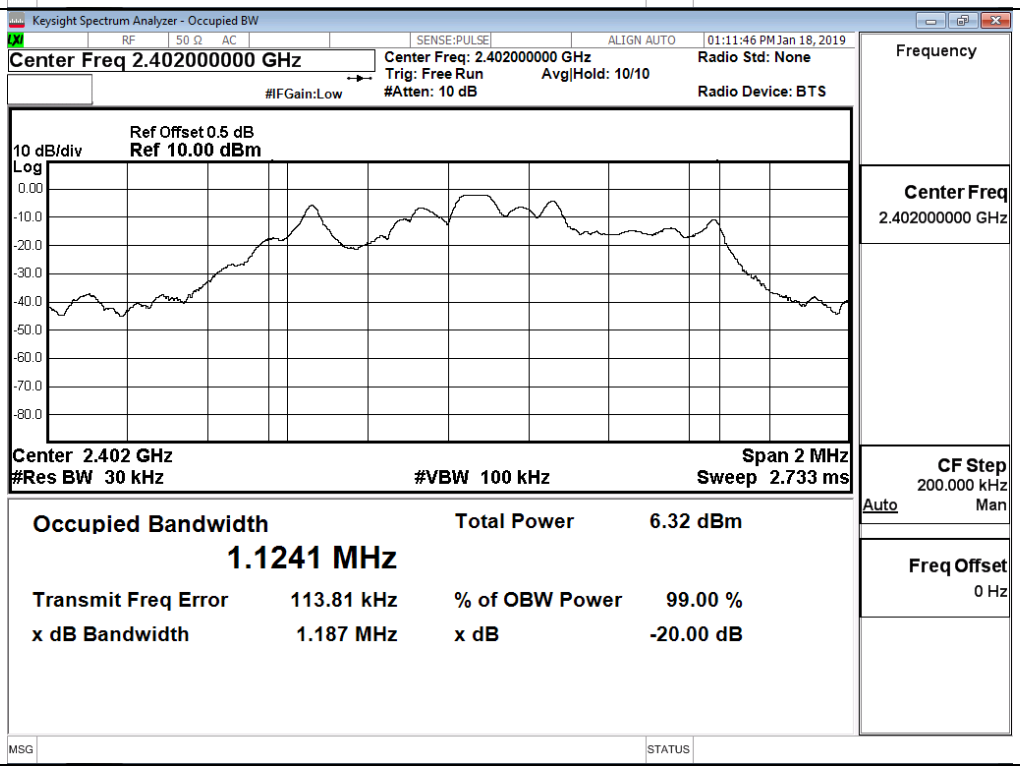
Test Graphs

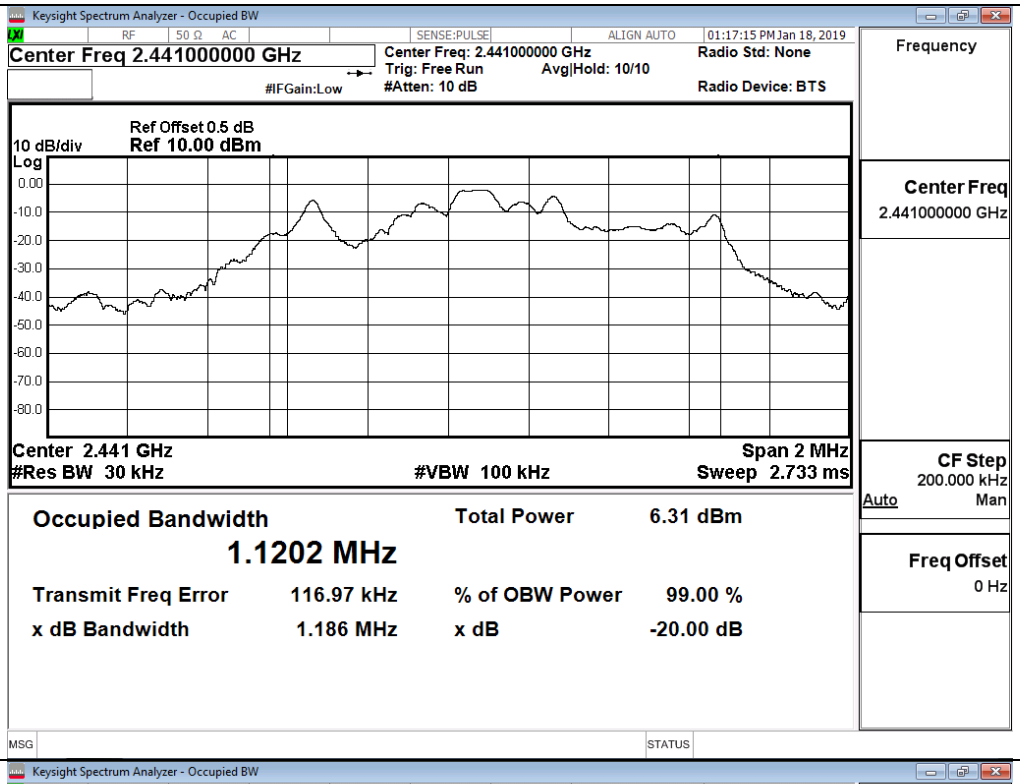
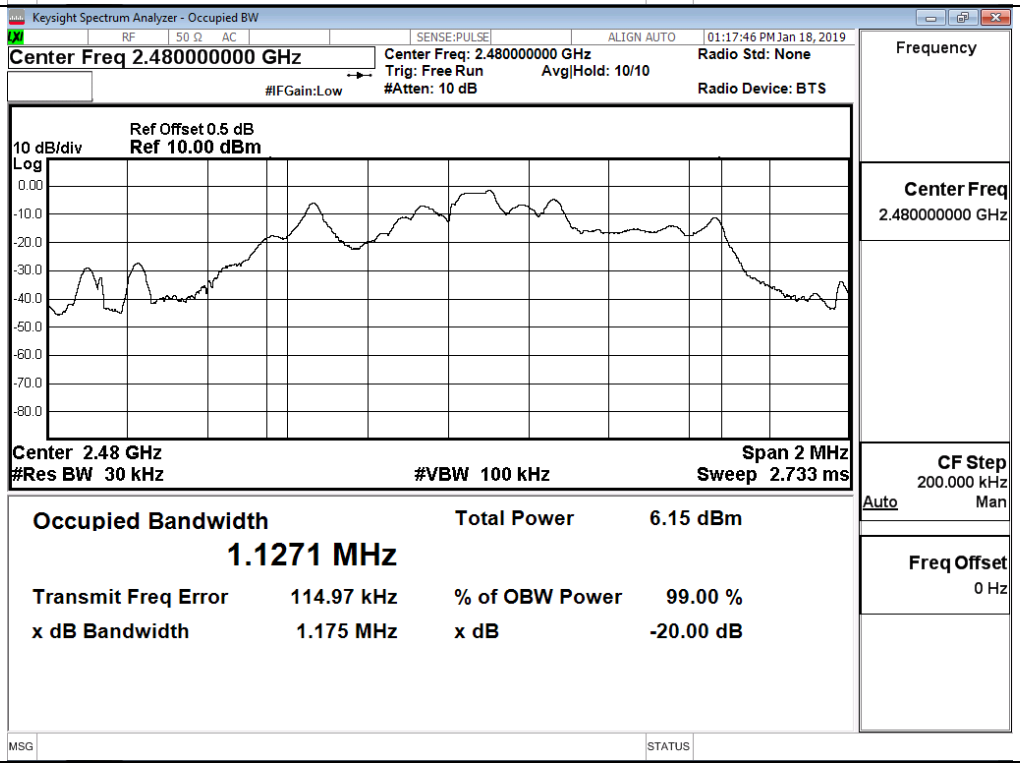
GFSK/LCH



GFSK/MCH	
GFSK/HCH	

π/4DQPSK/LCH	
π/4DQPSK/MCH	

π/4DQPSK/HCH	
8DPSK/LCH	

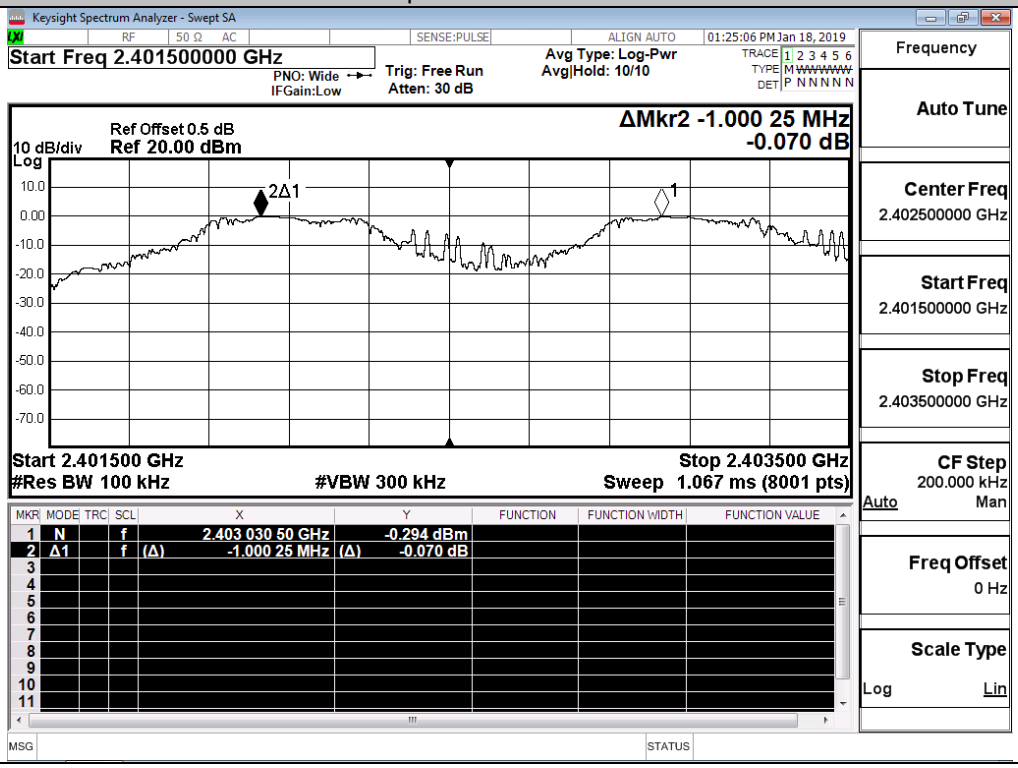
8DPSK/MCH	
8DPSK/HCH	

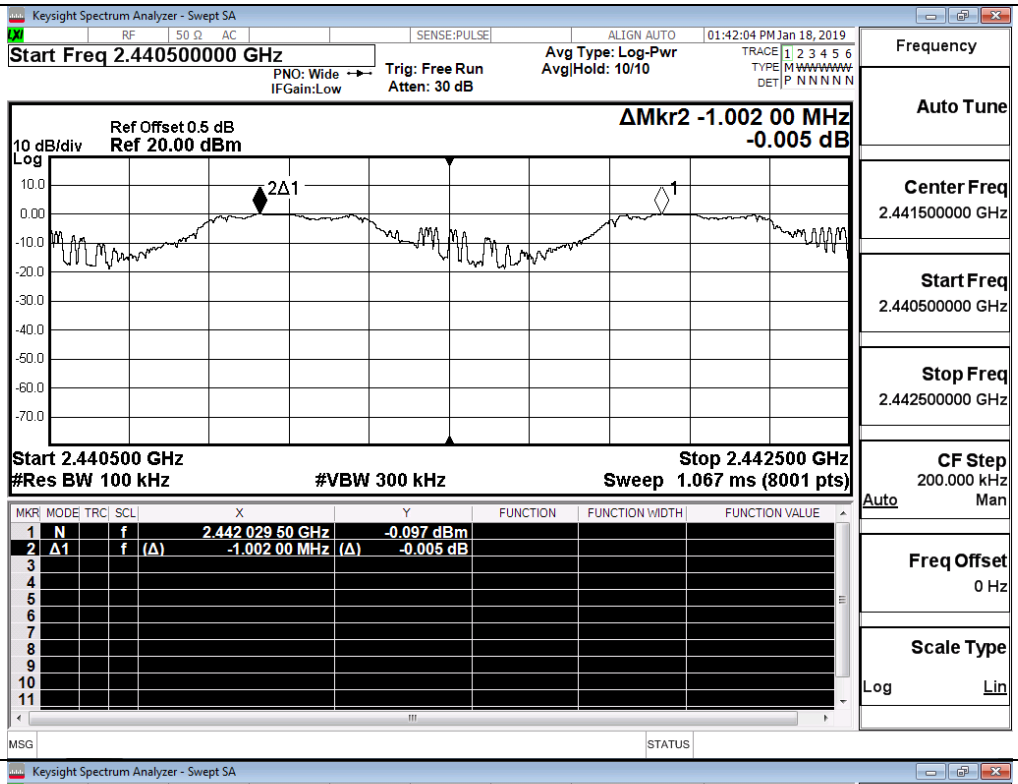
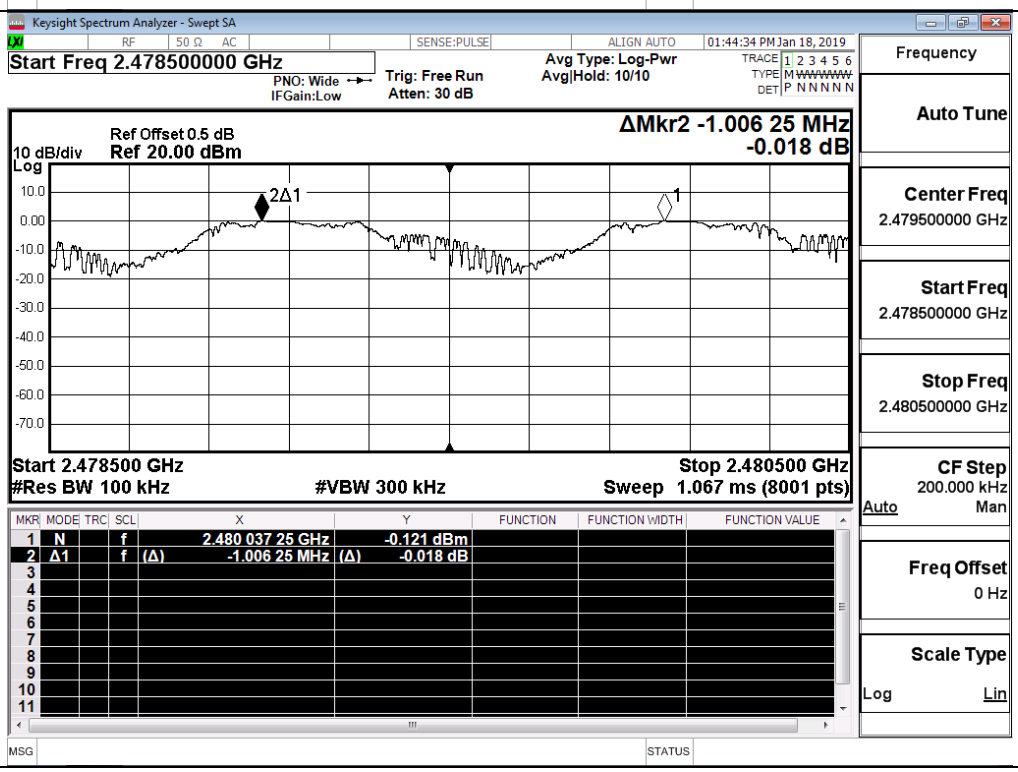
A.3 Carrier Frequency Separation

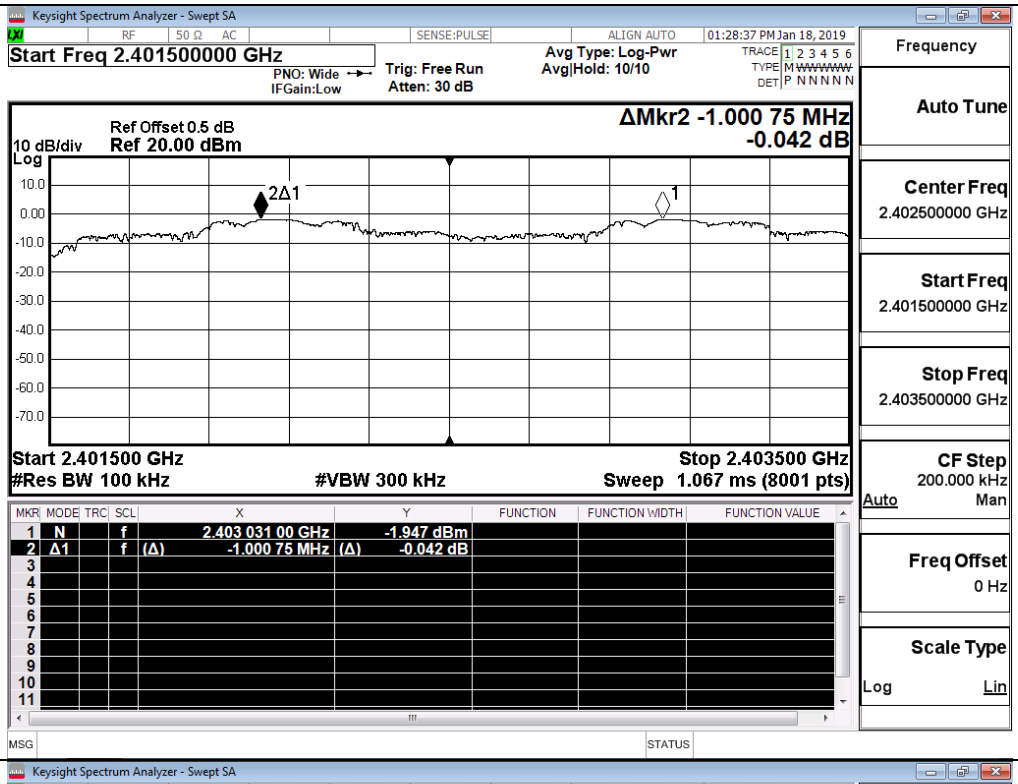
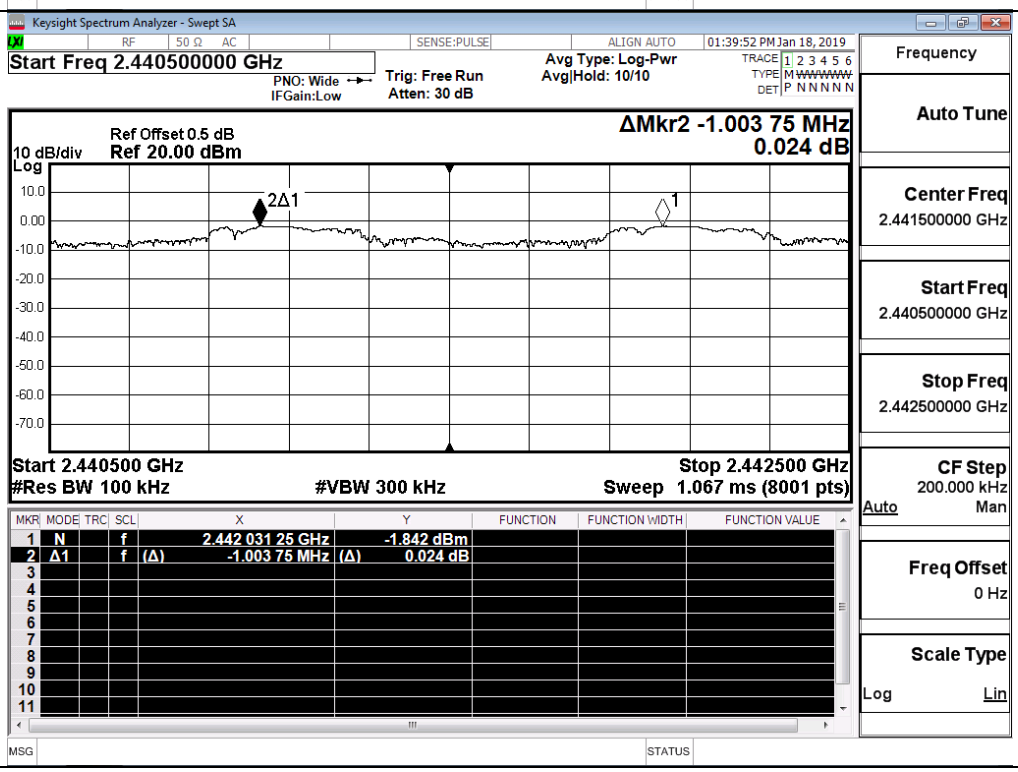
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.000	0.6920	PASS
	MCH	1.002	0.7047	PASS
	HCH	1.006	0.6893	PASS
π/4DQPSK	LCH	1.001	0.740	PASS
	MCH	1.004	0.738	PASS
	HCH	1.001	0.739	PASS
8DPSK	LCH	1.001	0.791	PASS
	MCH	0.999	0.791	PASS
	HCH	1.003	0.783	PASS

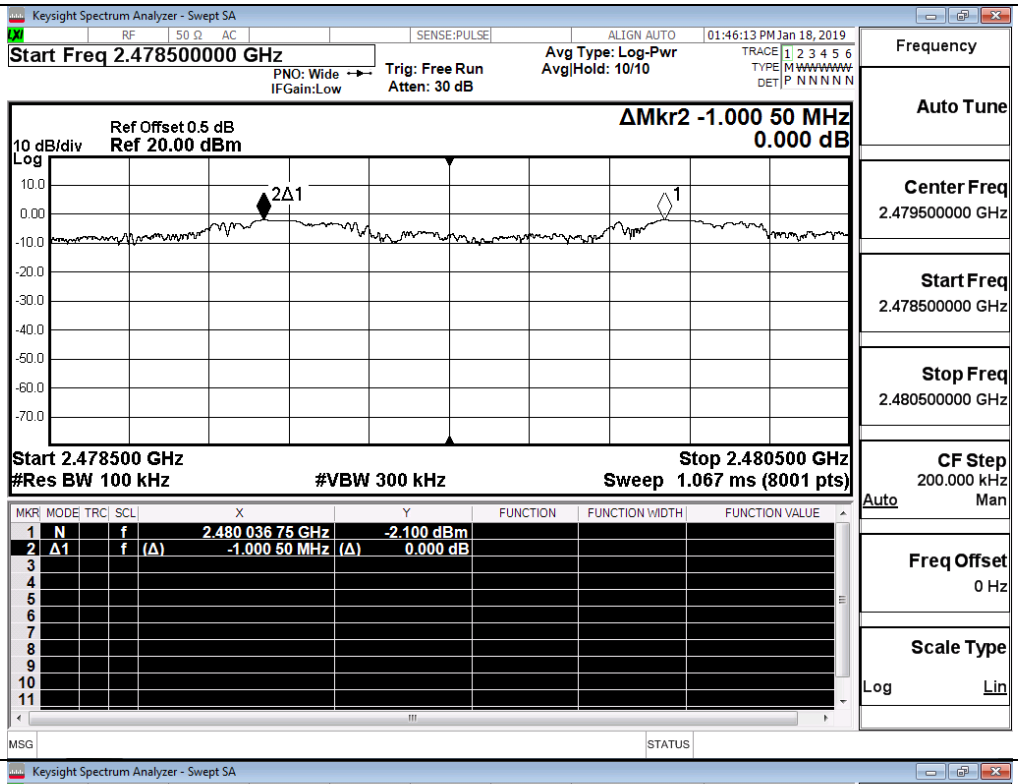
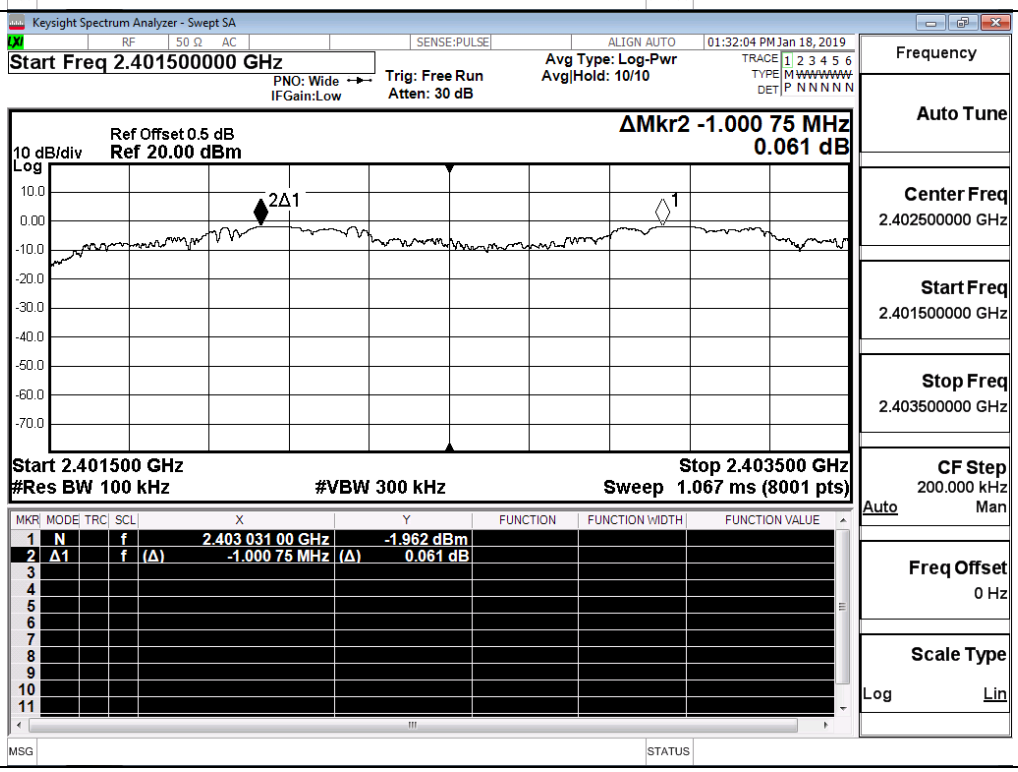
Test Graphs

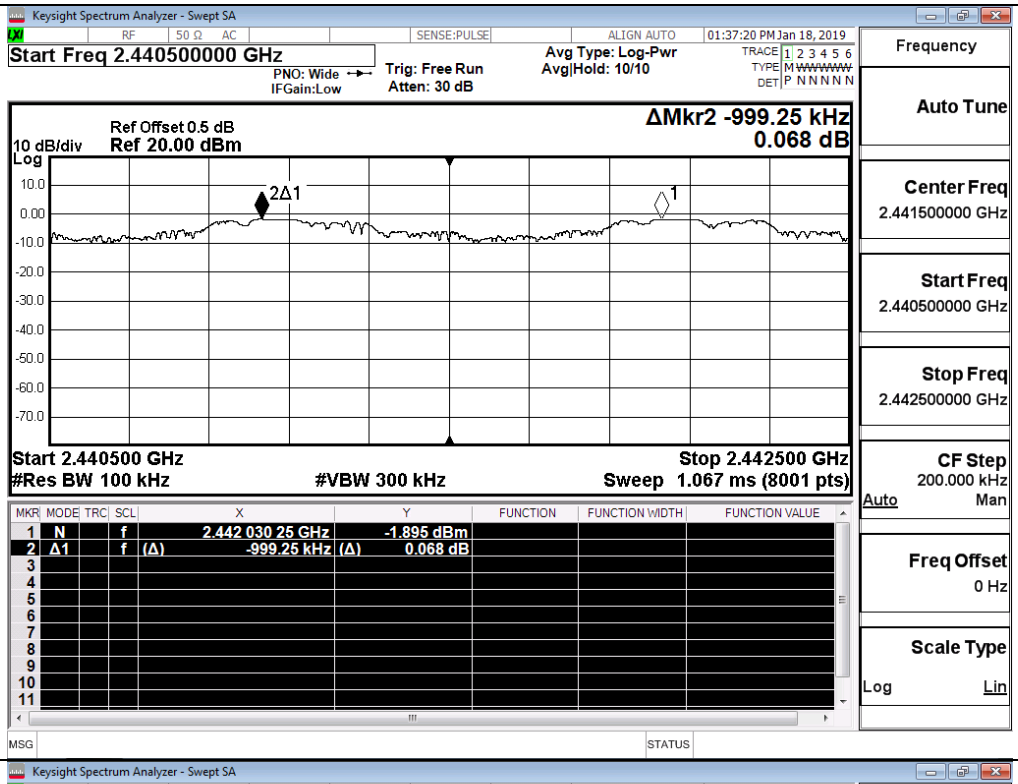
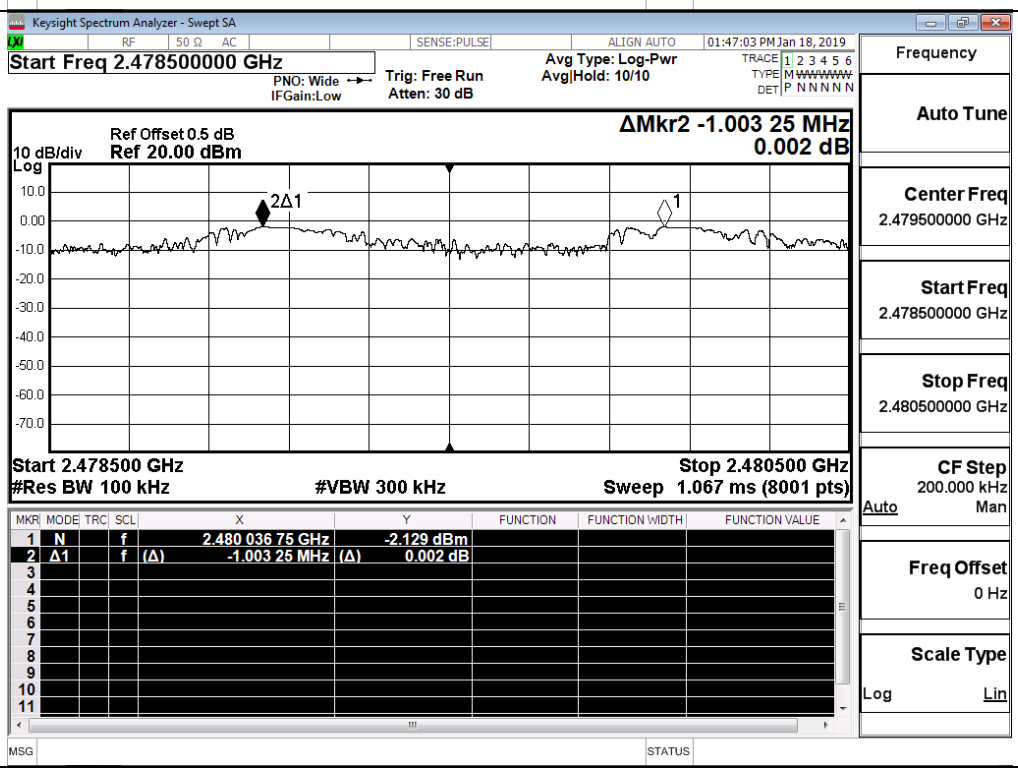
GFSK/LCH



GFSK/MCH	
GFSK/HCH	

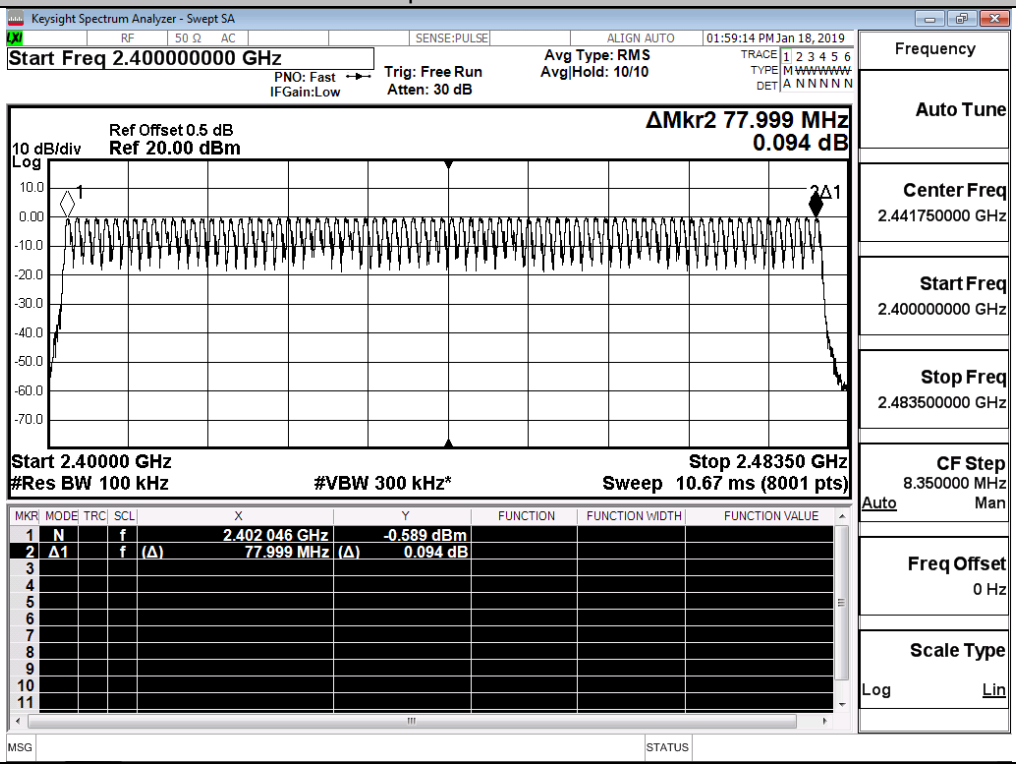
π/4DQPSK/LCH	
π/4DQPSK/MCH	

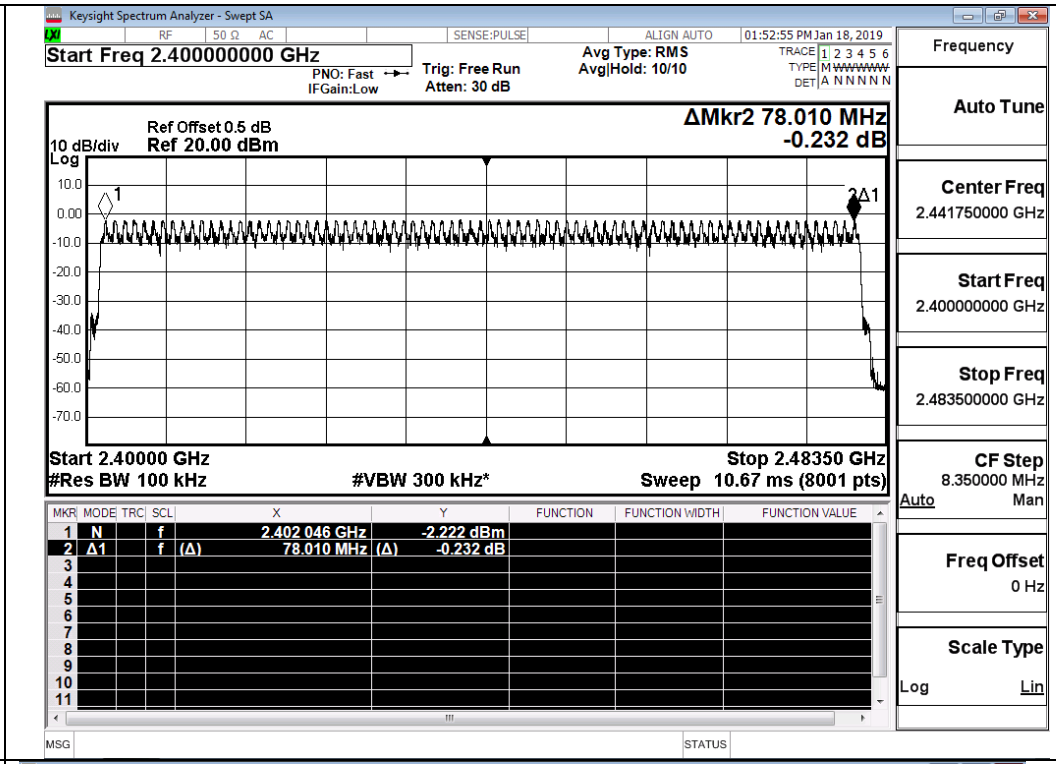
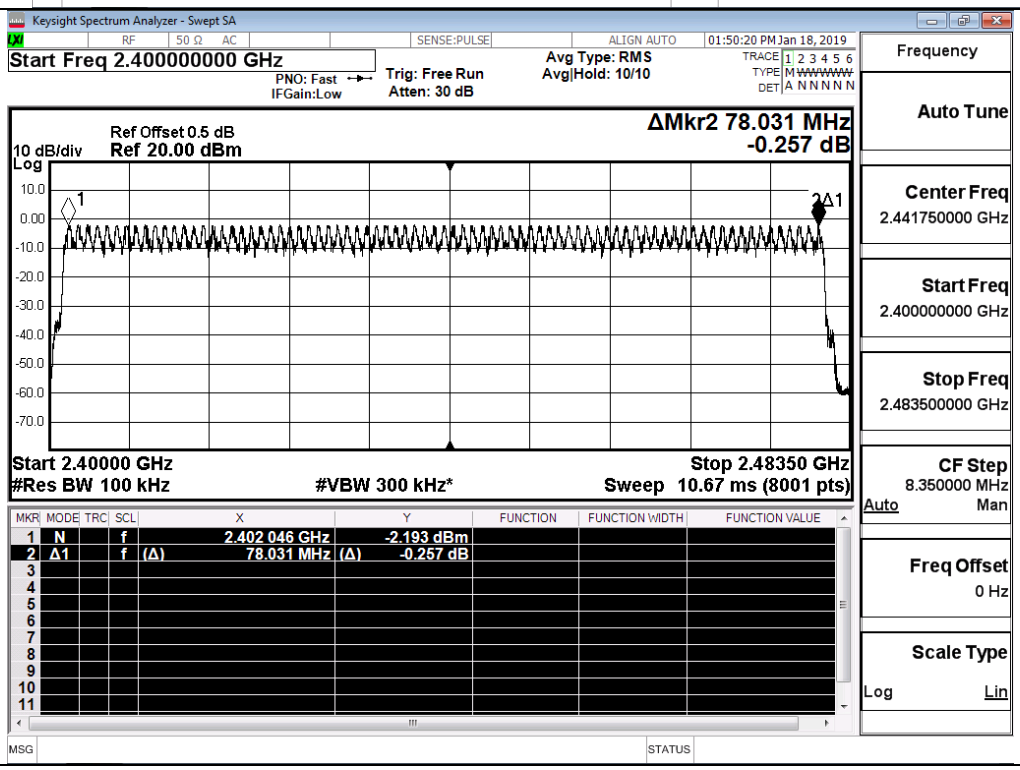
π/4DQPSK/HCH	
8DPSK/LCH	

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	

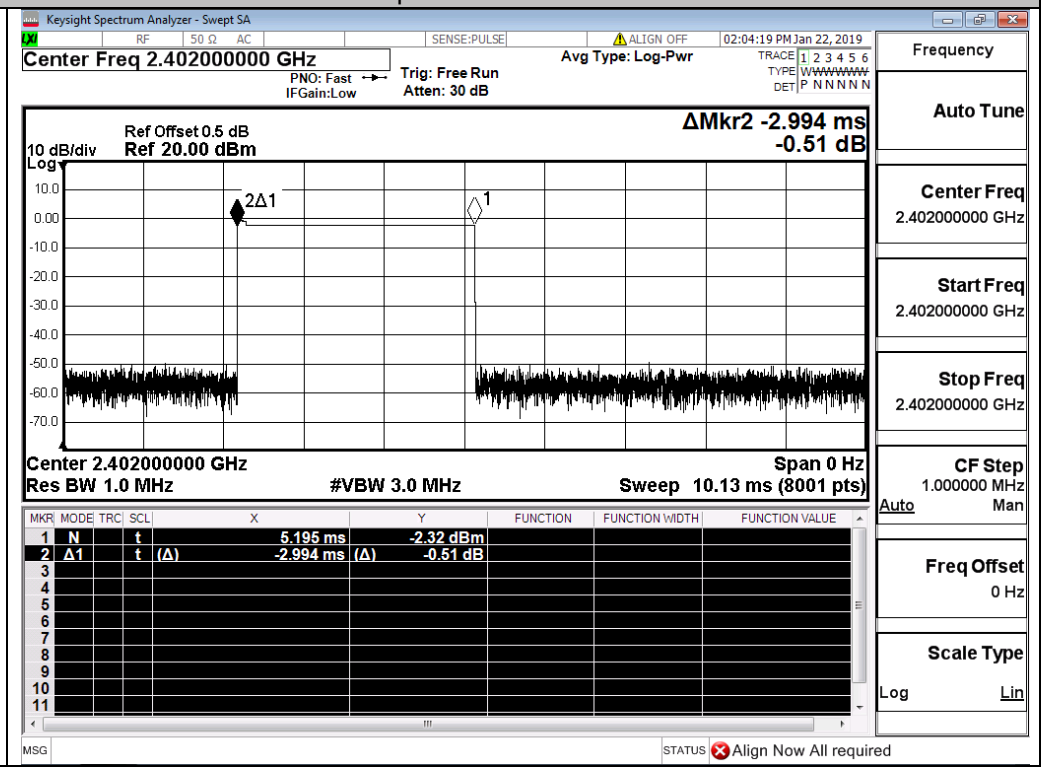
π/4DQPSK/Hop	
8DPSK/Hop	

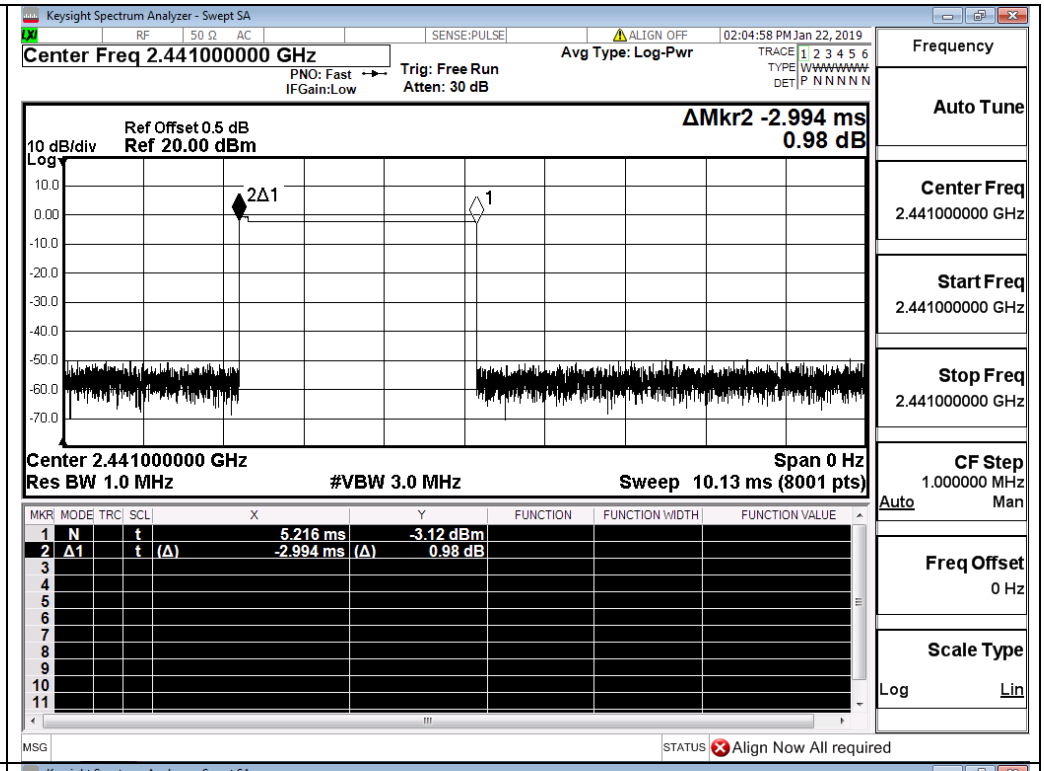
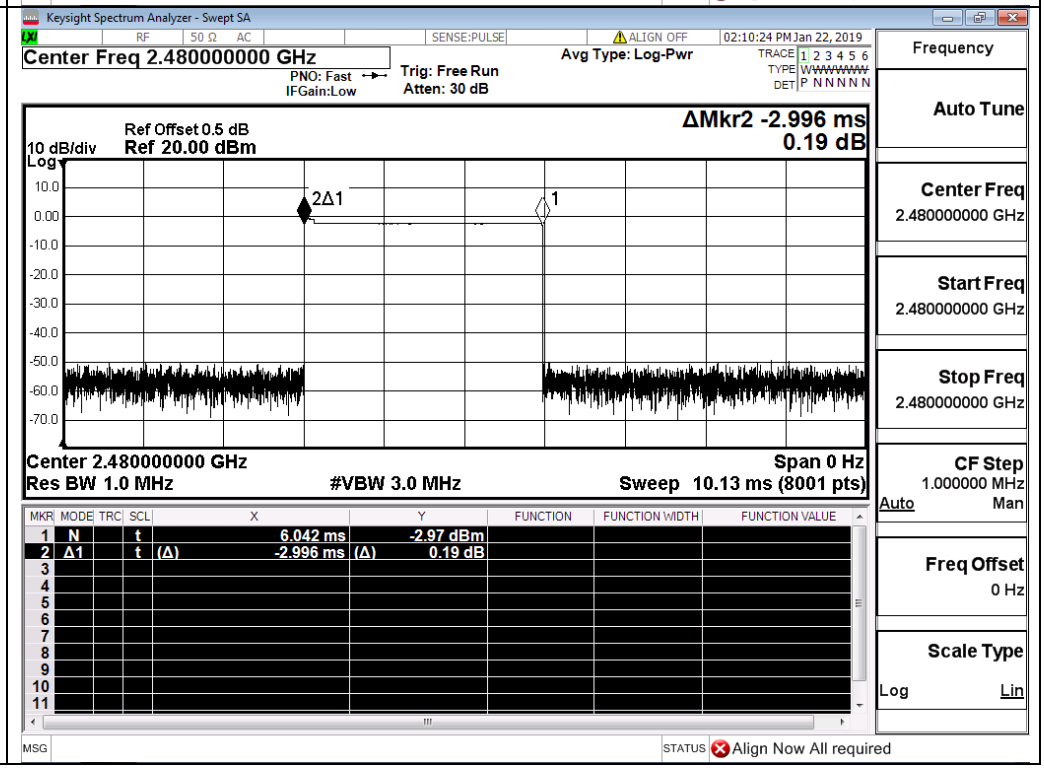
A.5 Dwell Time

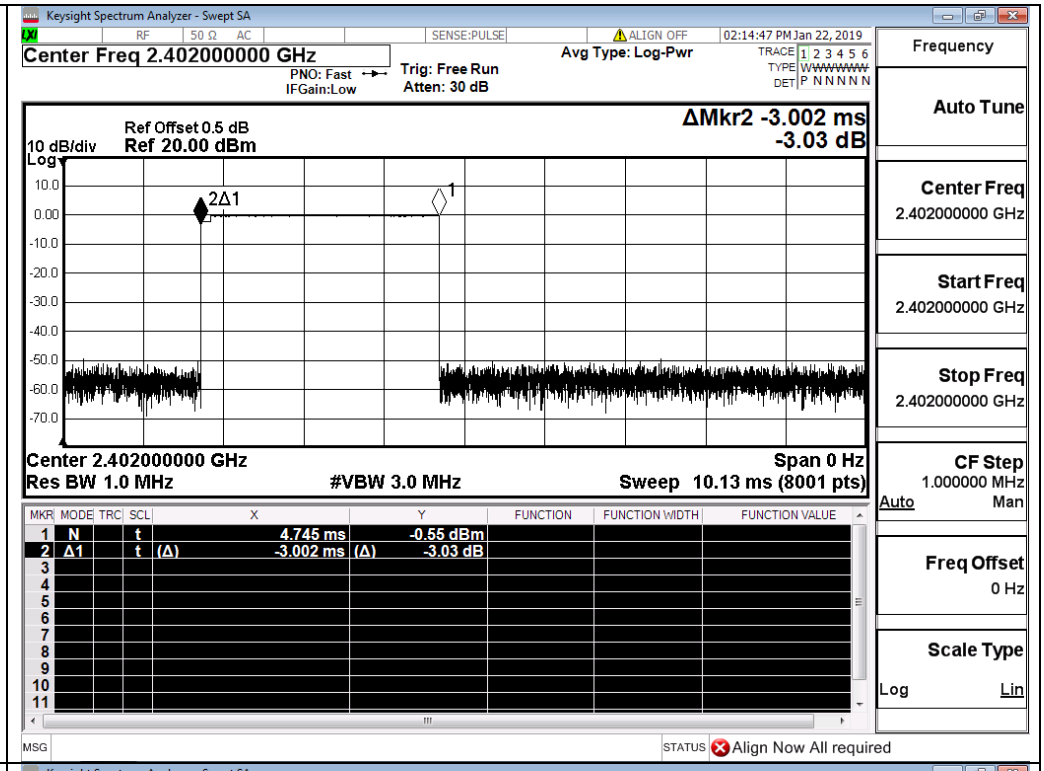
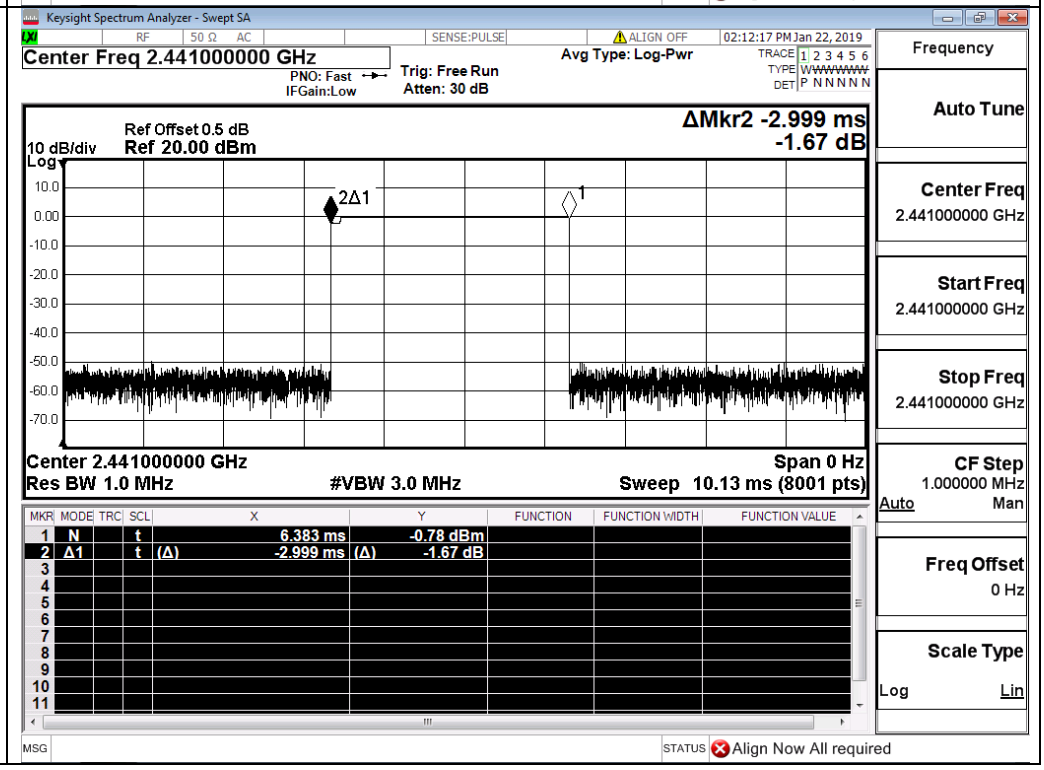
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.994	106.7	0.319	0.4	PASS
	DH5	MCH	2.994	106.7	0.319	0.4	PASS
	DH5	HCH	2.996	106.7	0.320	0.4	PASS
π/4DQPSK	2DH5	LCH	3.002	106.7	0.320	0.4	PASS
	2DH5	MCH	2.999	106.7	0.320	0.4	PASS
	2DH5	HCH	3.002	106.7	0.320	0.4	PASS
8DPSK	3DH5	LCH	2.998	106.7	0.320	0.4	PASS
	3DH5	MCH	2.986	106.7	0.319	0.4	PASS
	3DH5	HCH	2.993	106.7	0.319	0.4	PASS

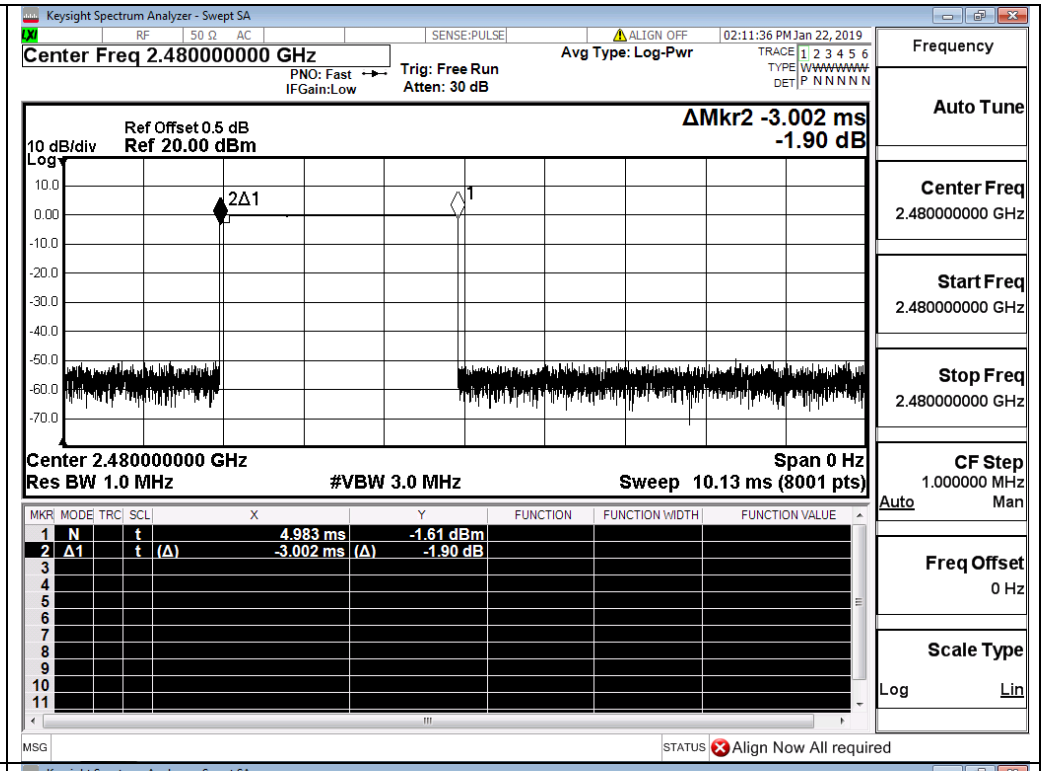
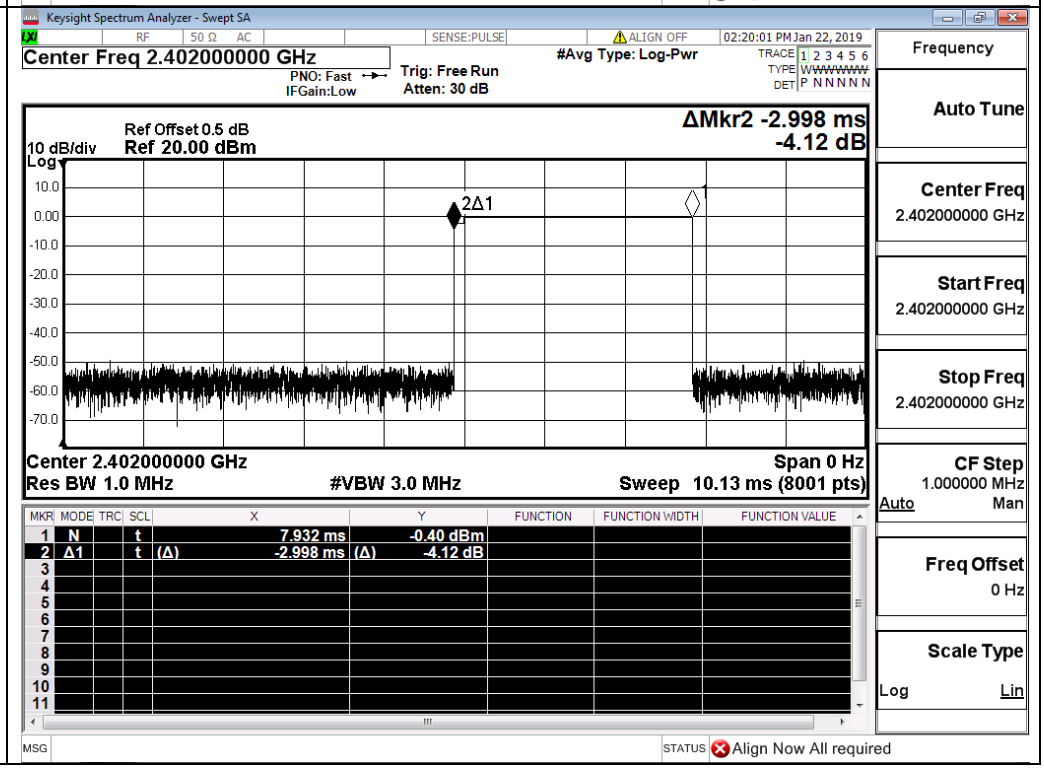
Test Graphs

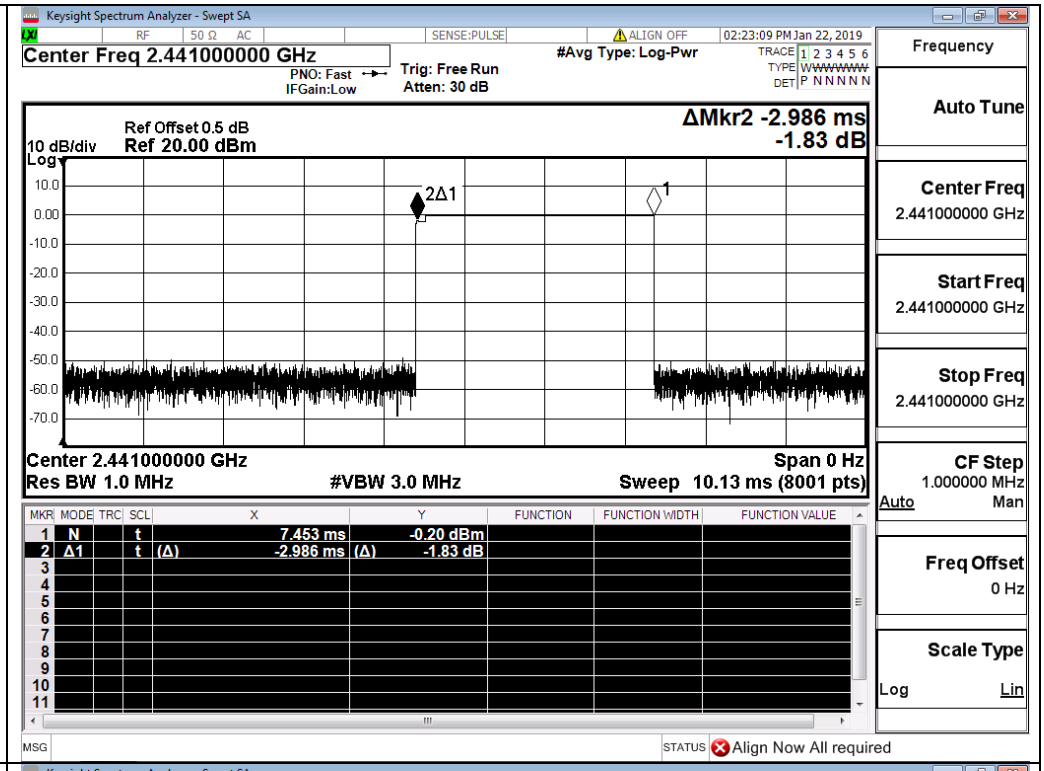
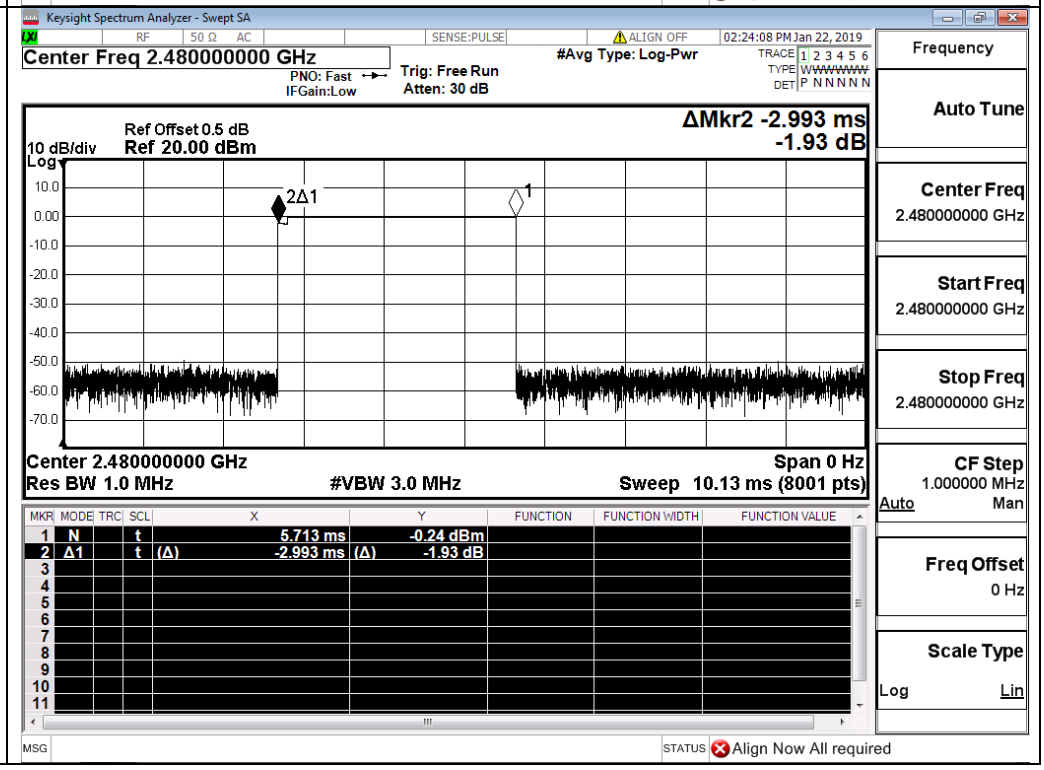
GFSK_DH5/LCH



GFSK_DH5/MCH	
GFSK_DH5/HCH	

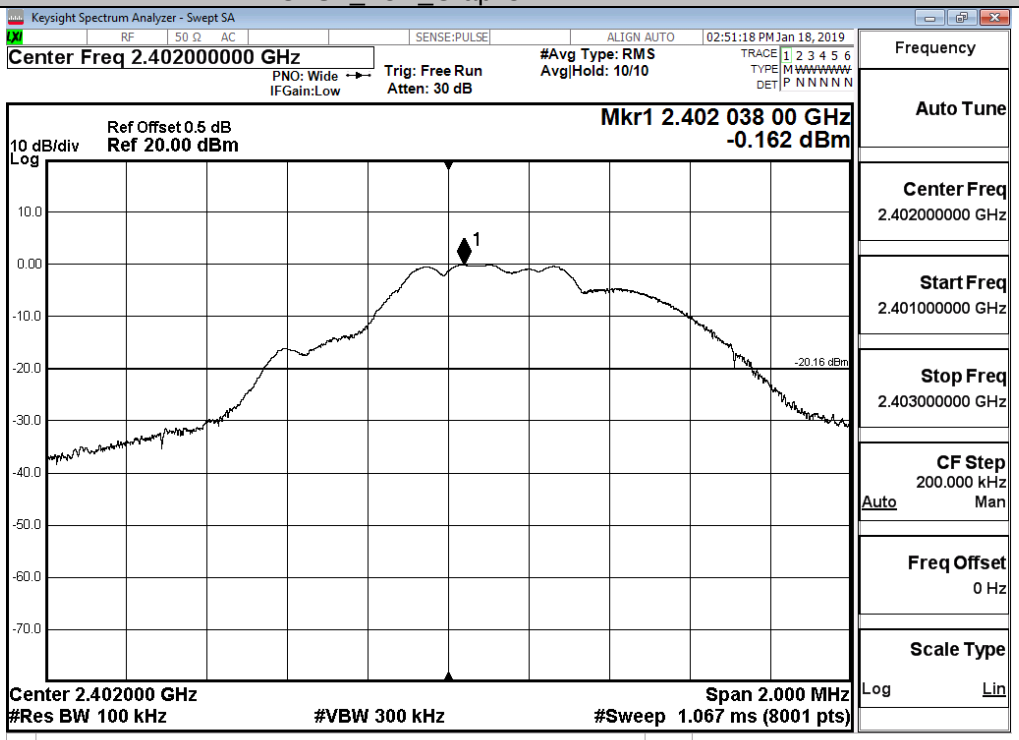
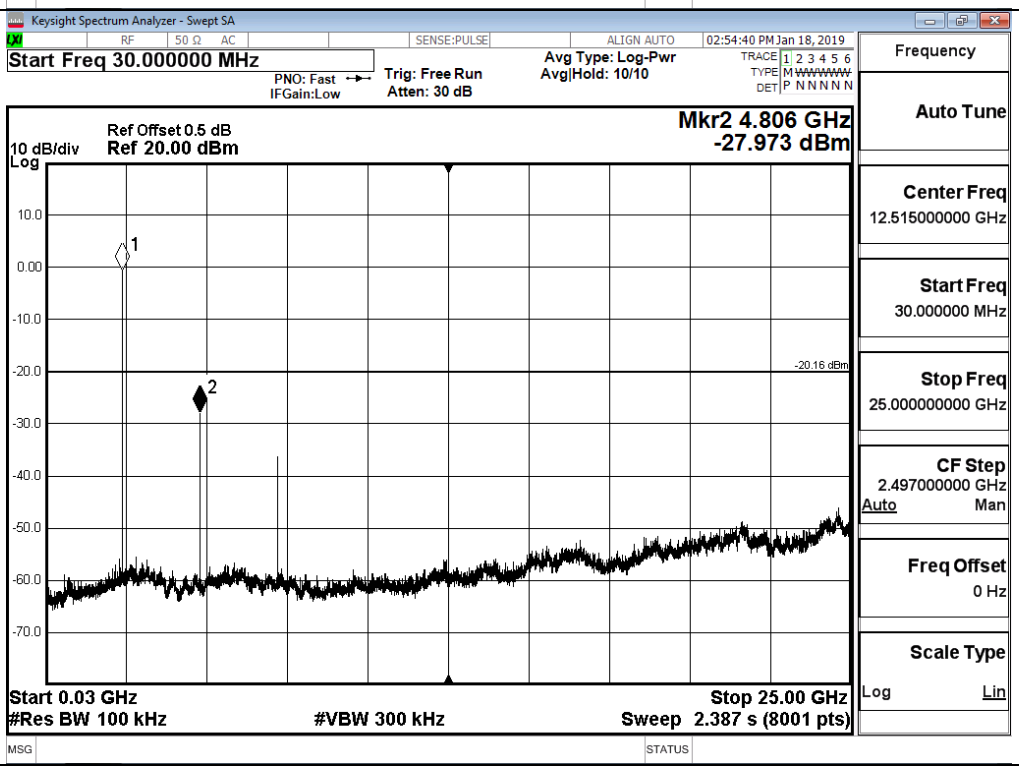
π/4DQPSK _2DH5/LCH	
π/4DQPSK _2DH5/MCH	

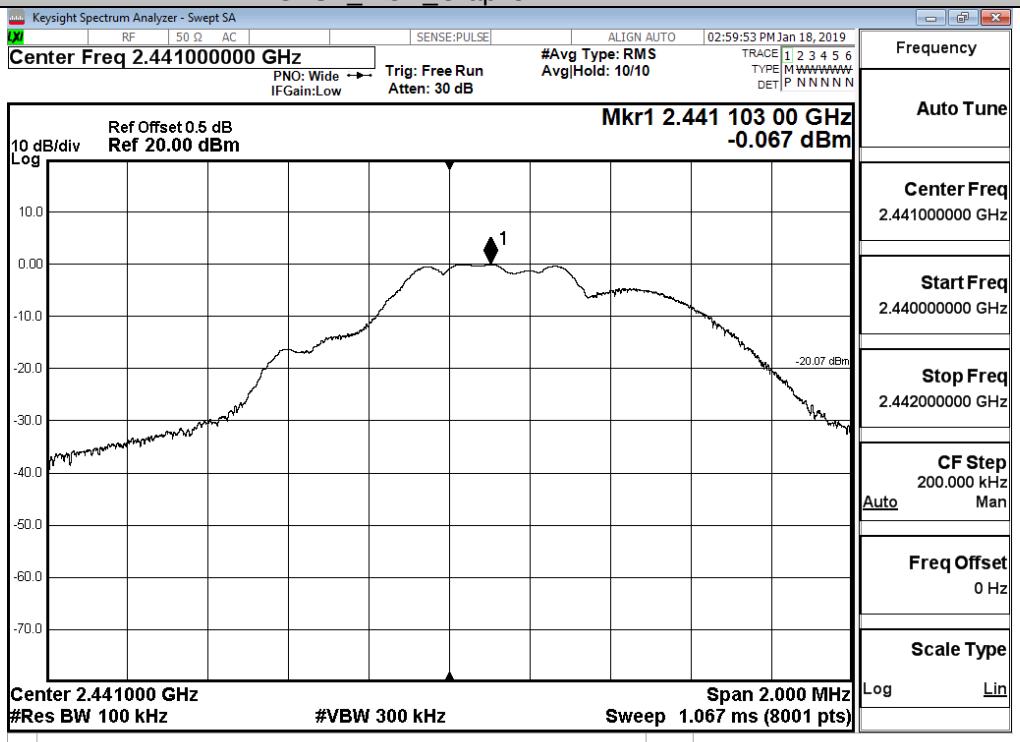
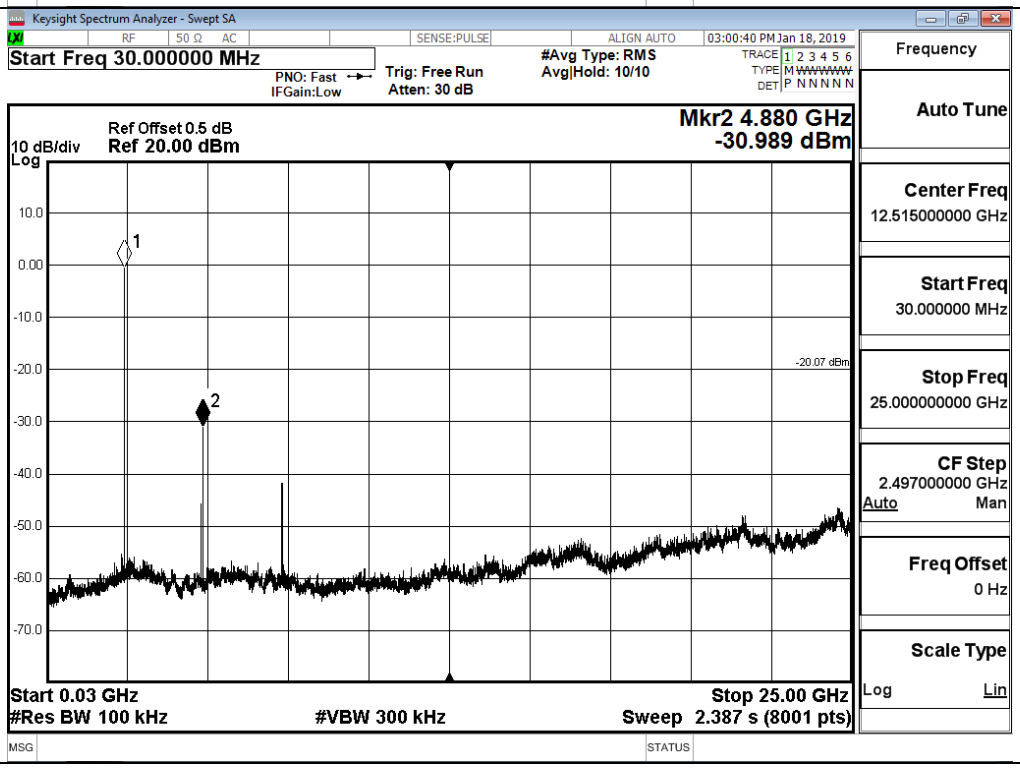
π/4DQPSK _2DH5/HCH	
8DPSK _3DH5/LCH	

8DPSK _3DH5/MCH	
8DPSK _3DH5/HCH	

A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.162	-27.973	-20.16	PASS
	MCH	-0.067	-30.989	-20.07	PASS
	HCH	-0.058	-34.843	-20.06	PASS
π/4DQPSK	LCH	-1.799	-33.448	-21.80	PASS
	MCH	-1.873	-35.402	-20.87	PASS
	HCH	-2.061	-39.447	-22.06	PASS
8DPSK	LCH	-0.093	-34.496	-20.09	PASS
	MCH	-1.887	-37.109	-21.89	PASS
	HCH	-2.067	-38.418	-22.07	PASS

GFSK_LCH_Graphs	
Pref	
Puw	

GFSK_MCH_Graphs	
Pref	
Puw	

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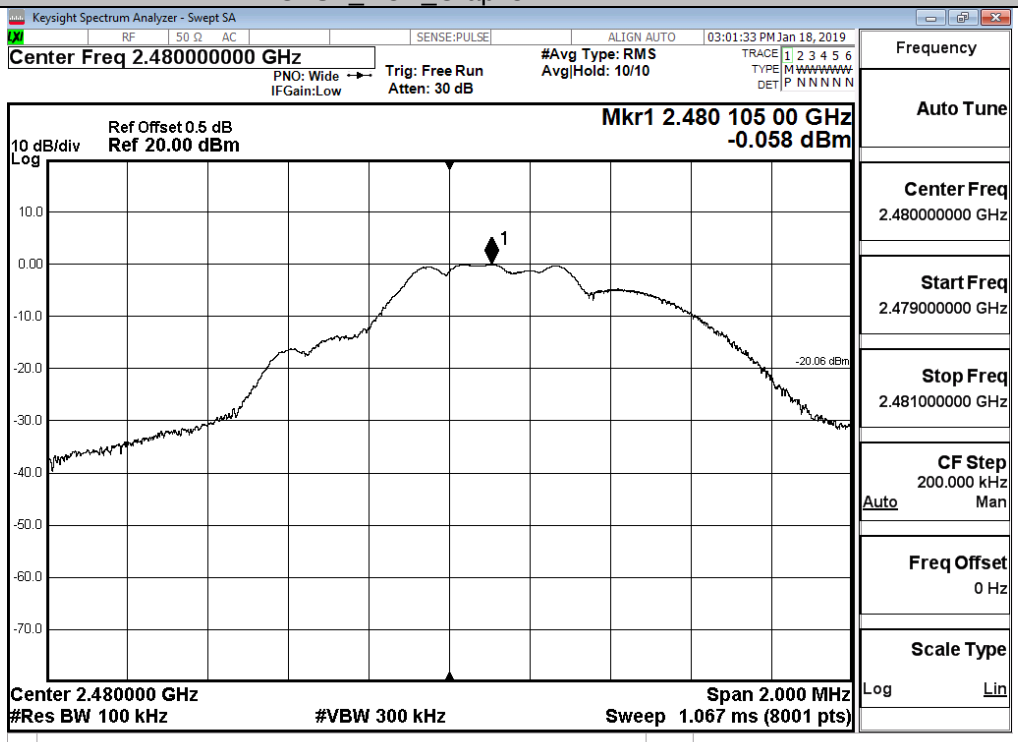
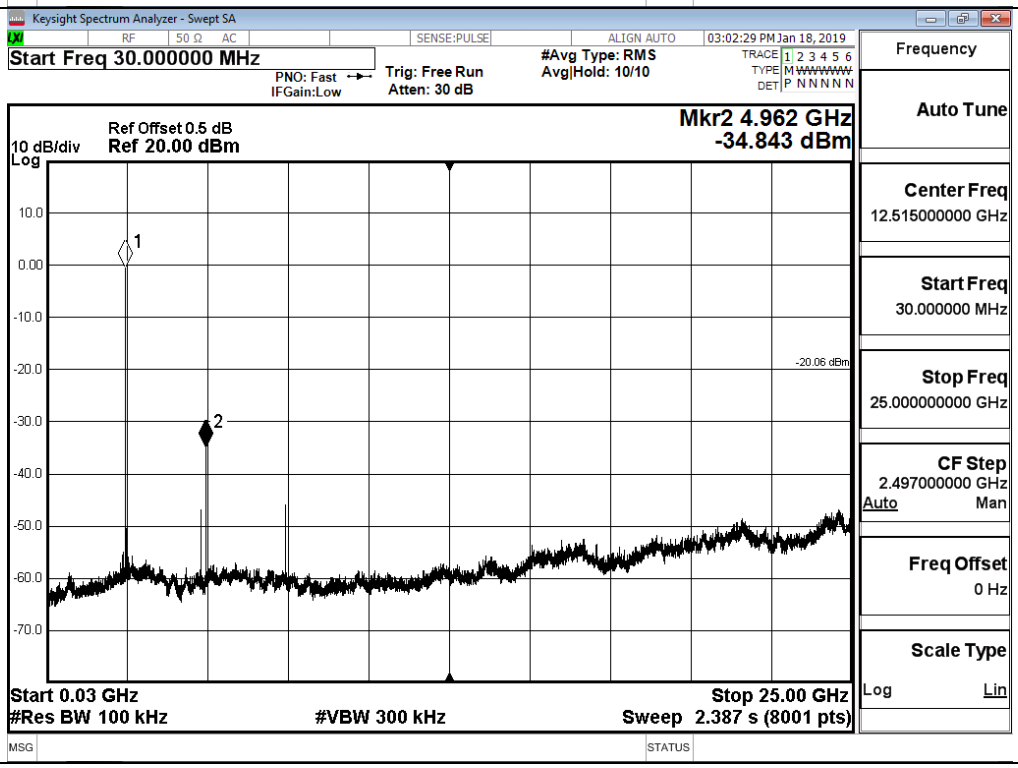
Pref	
Puw	

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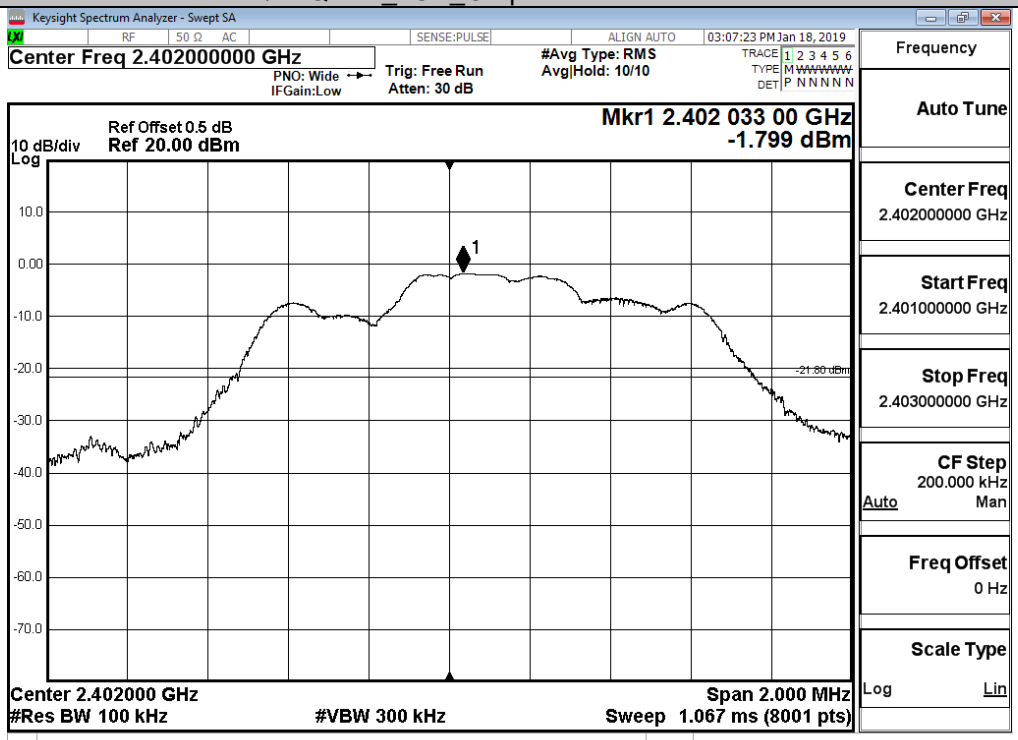
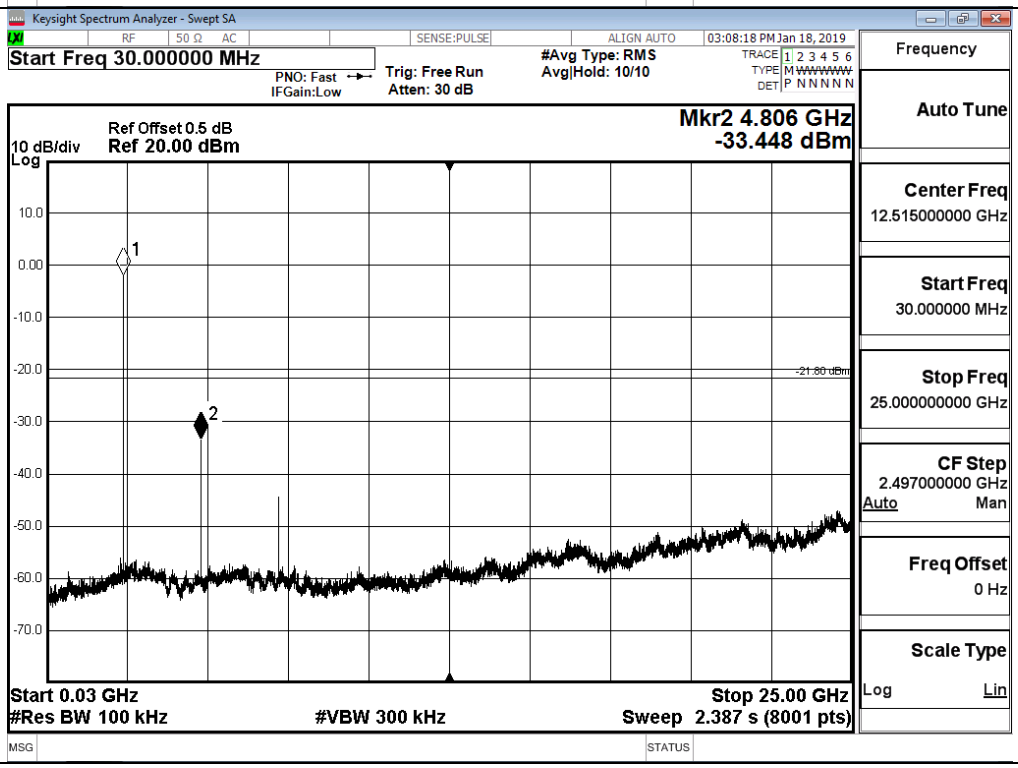
Pref	
Puw	

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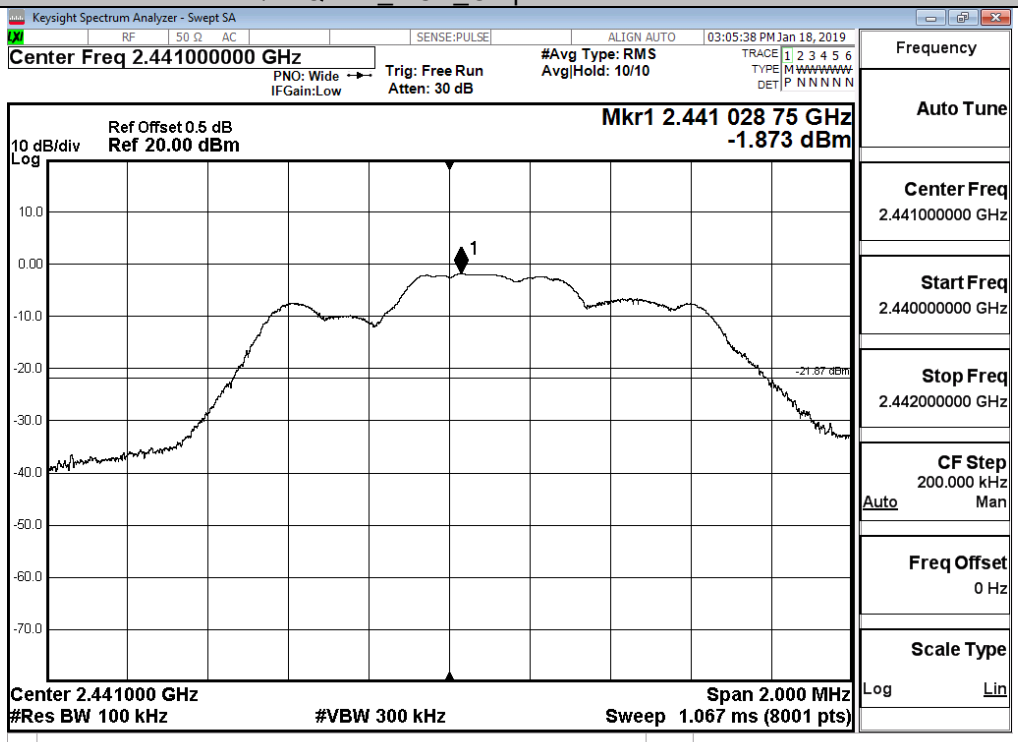
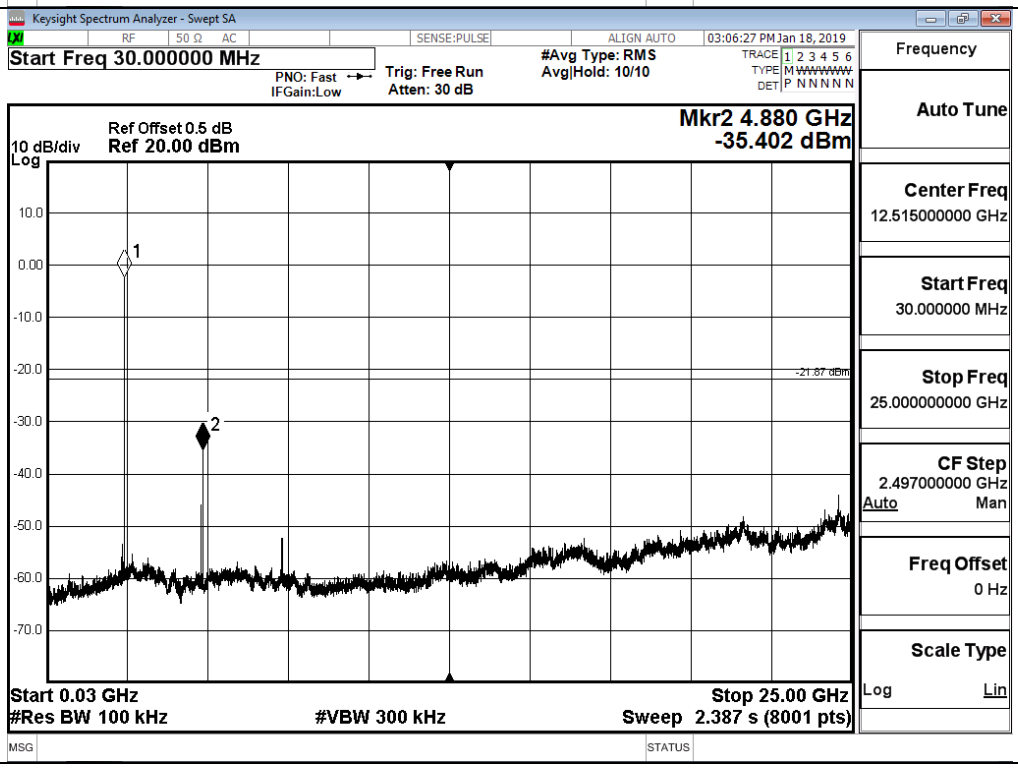
Pref	
Puw	

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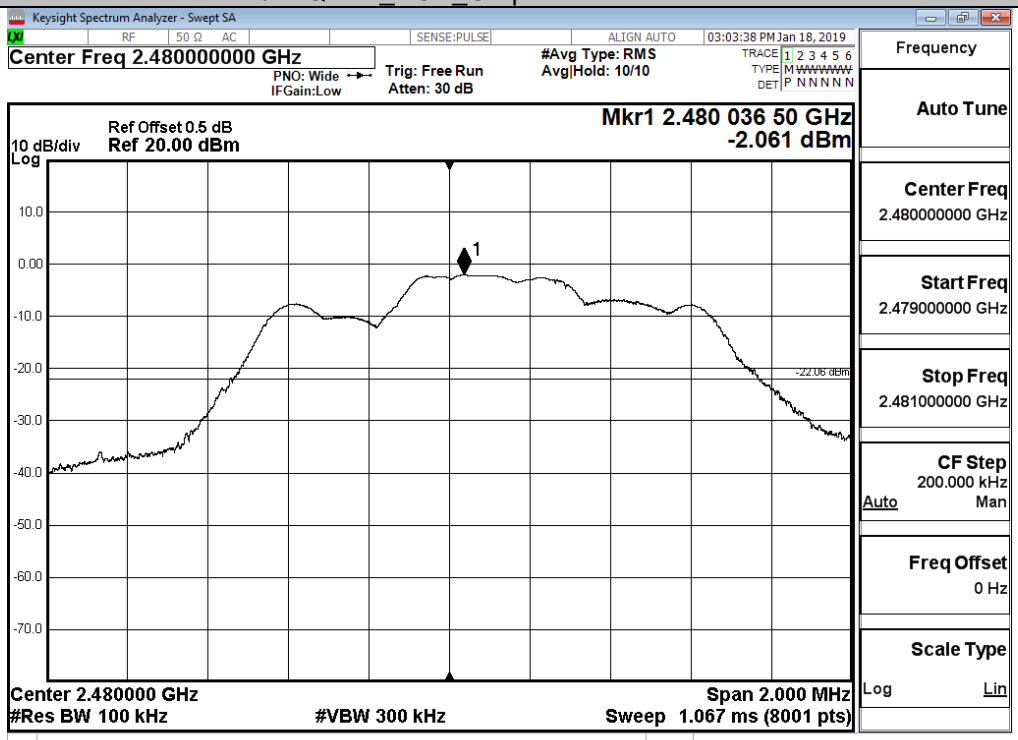
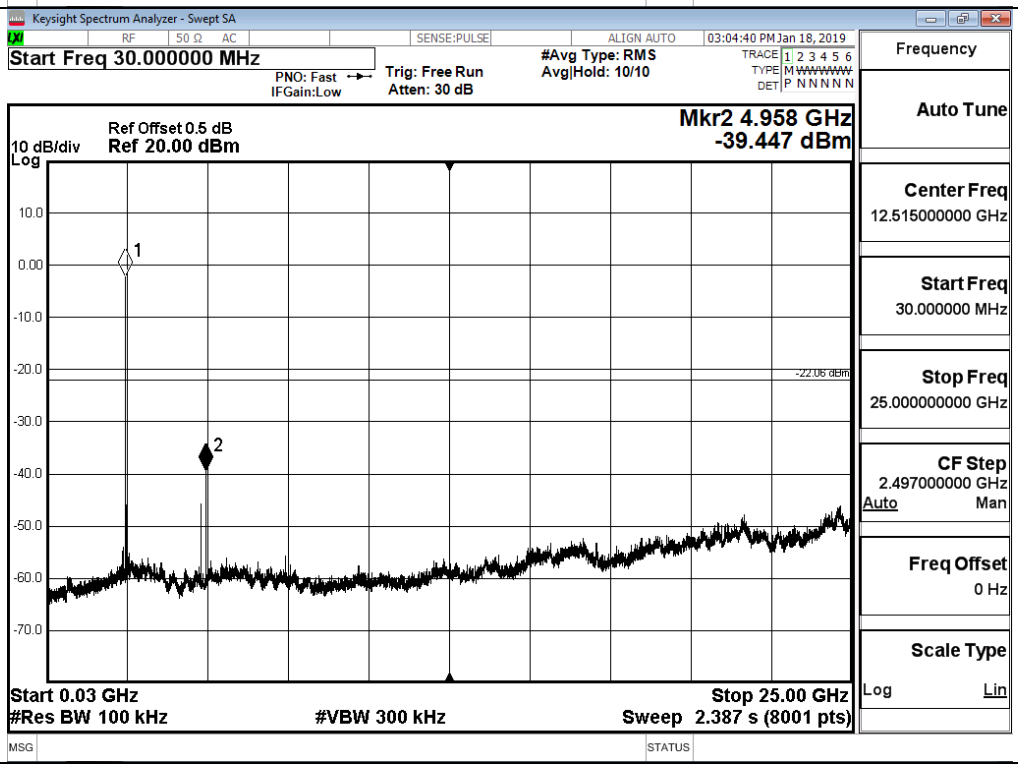
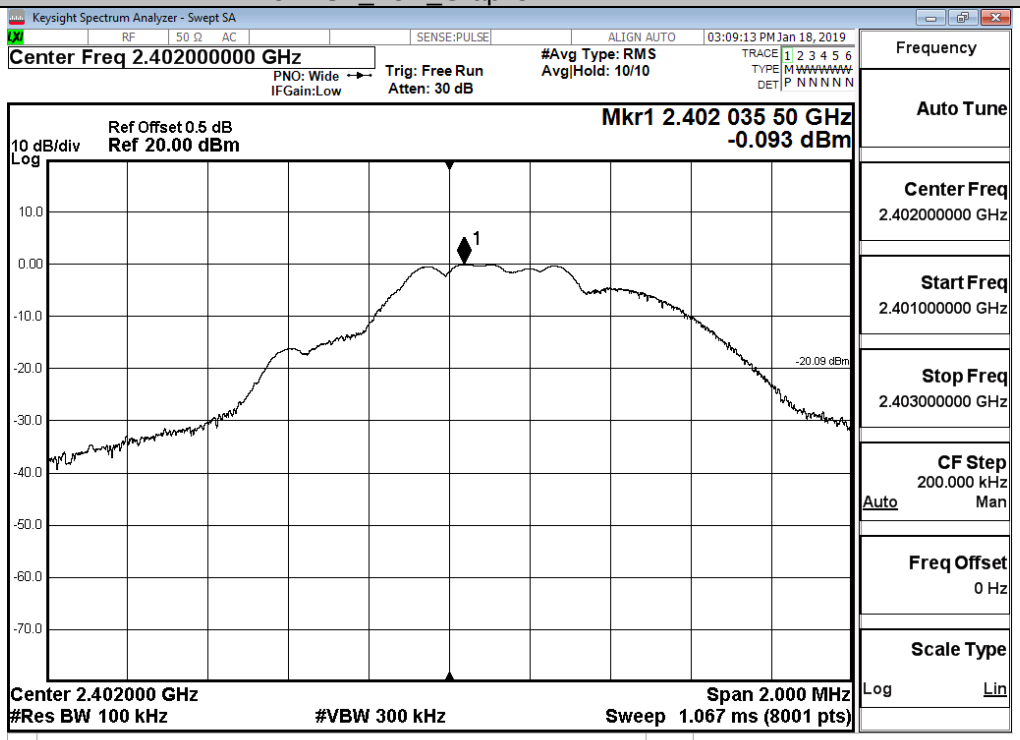
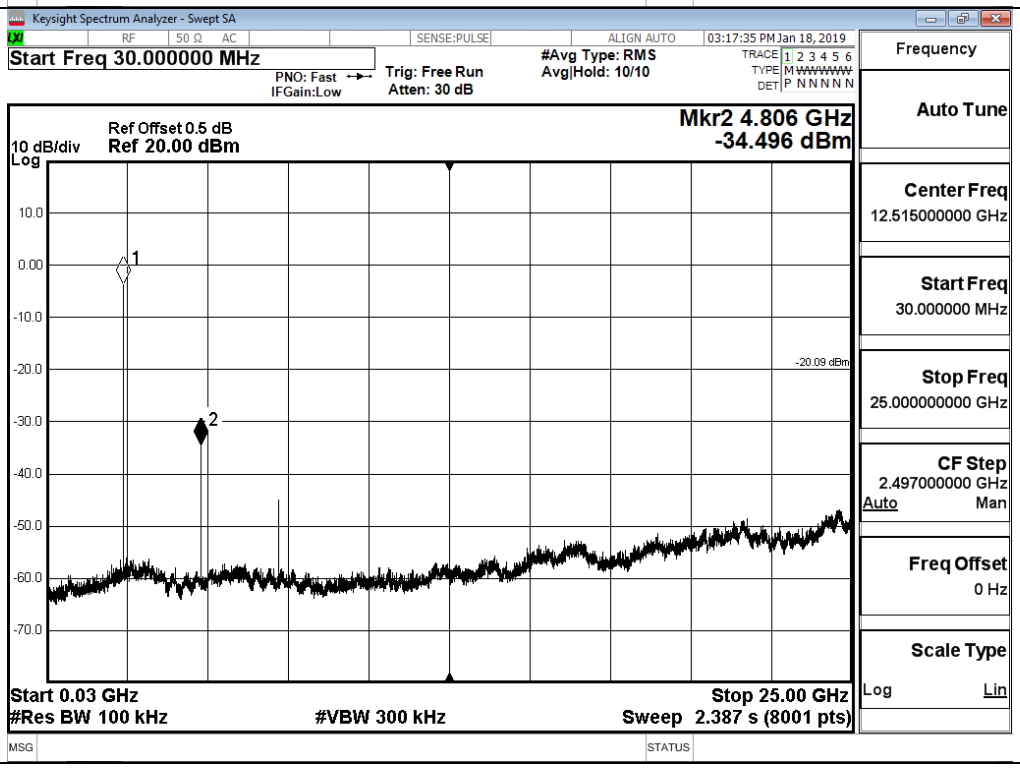
Pref	
Puw	

8DPSK_LCH_Graphs	
Pref	
Puw	

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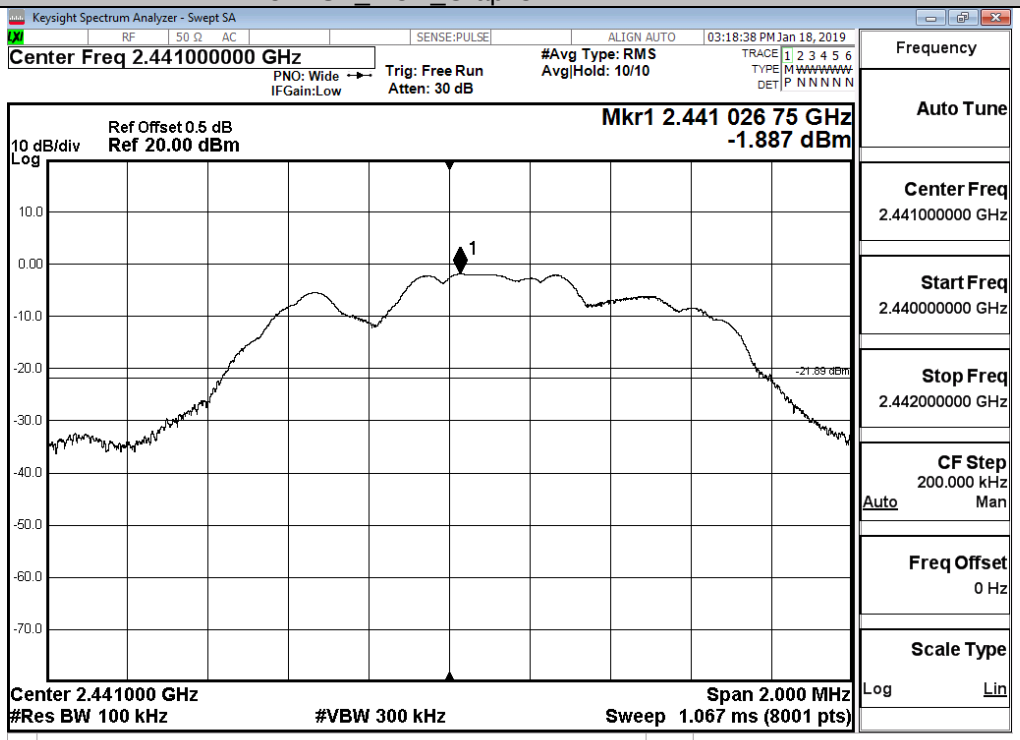
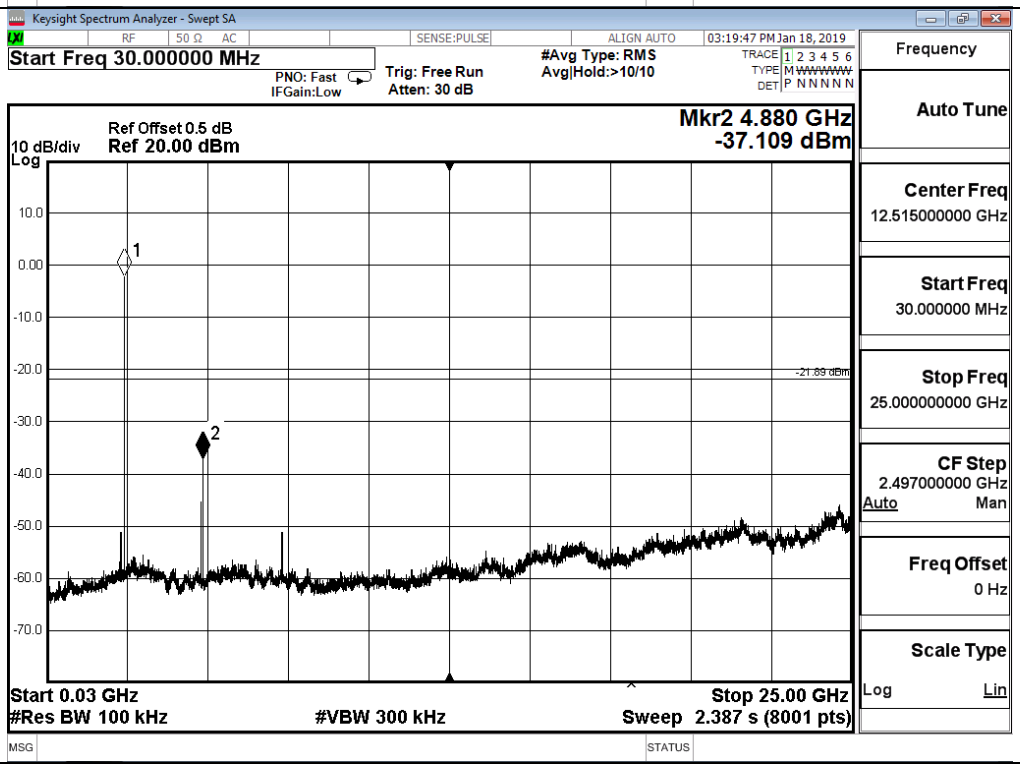
Pref	
Puw	

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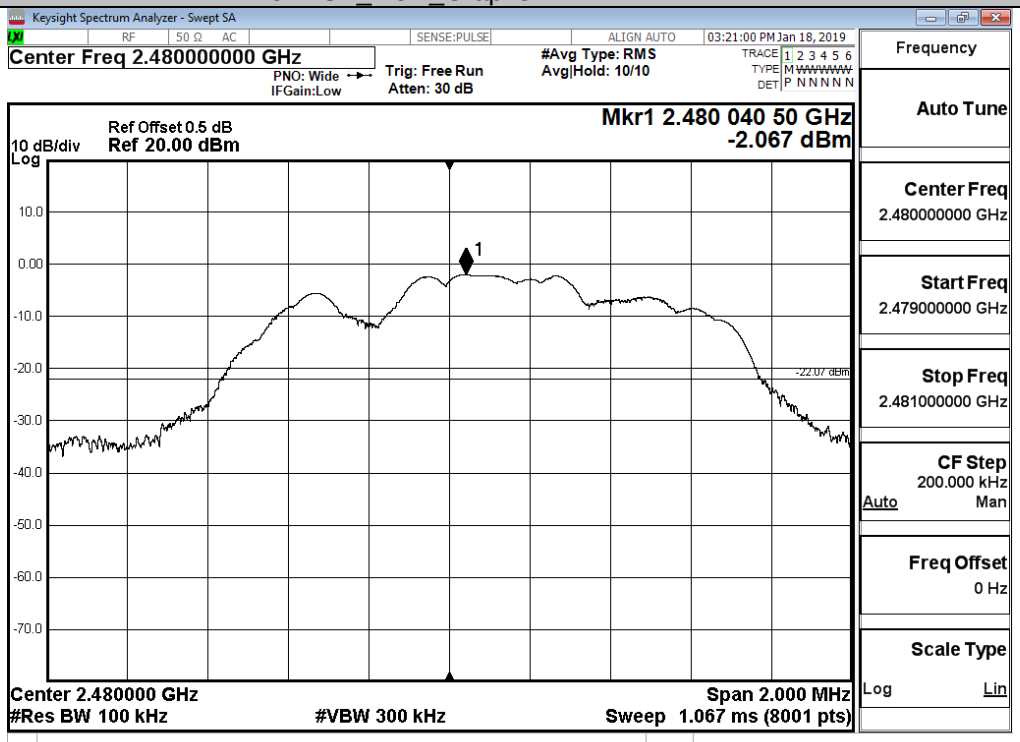
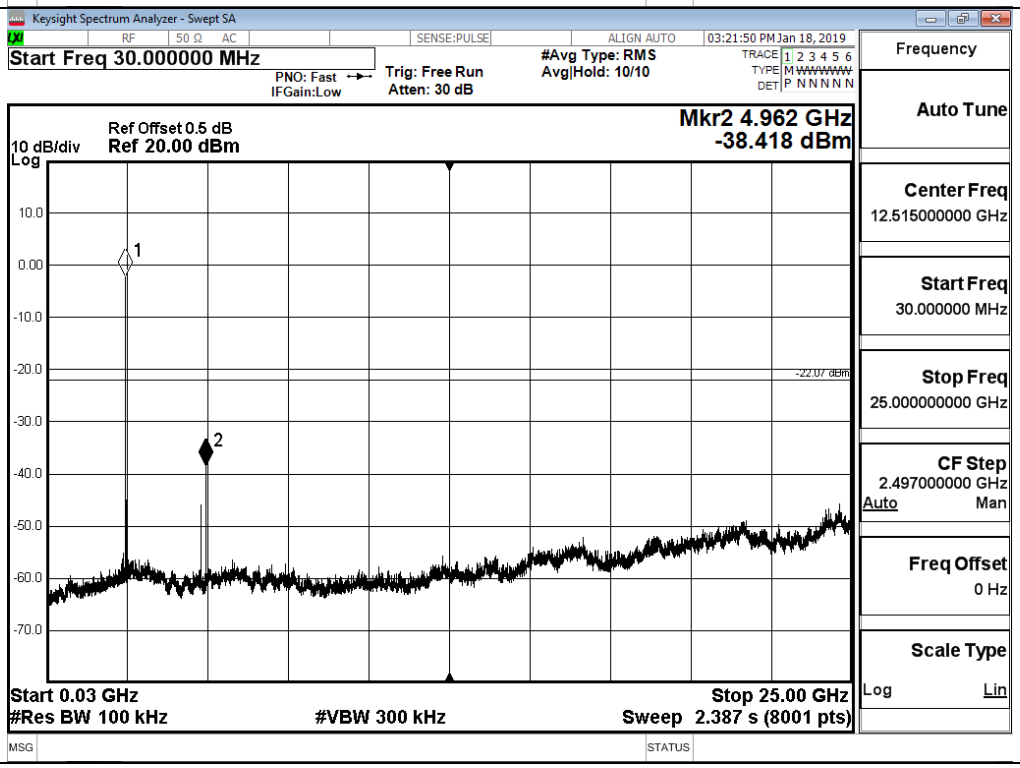
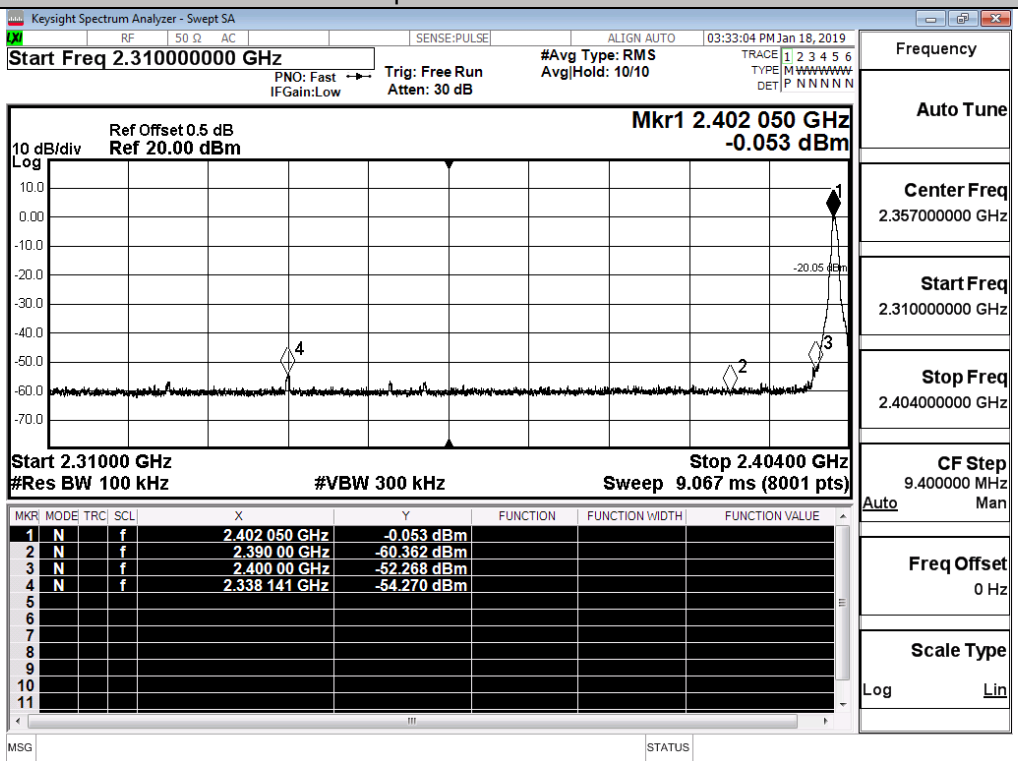
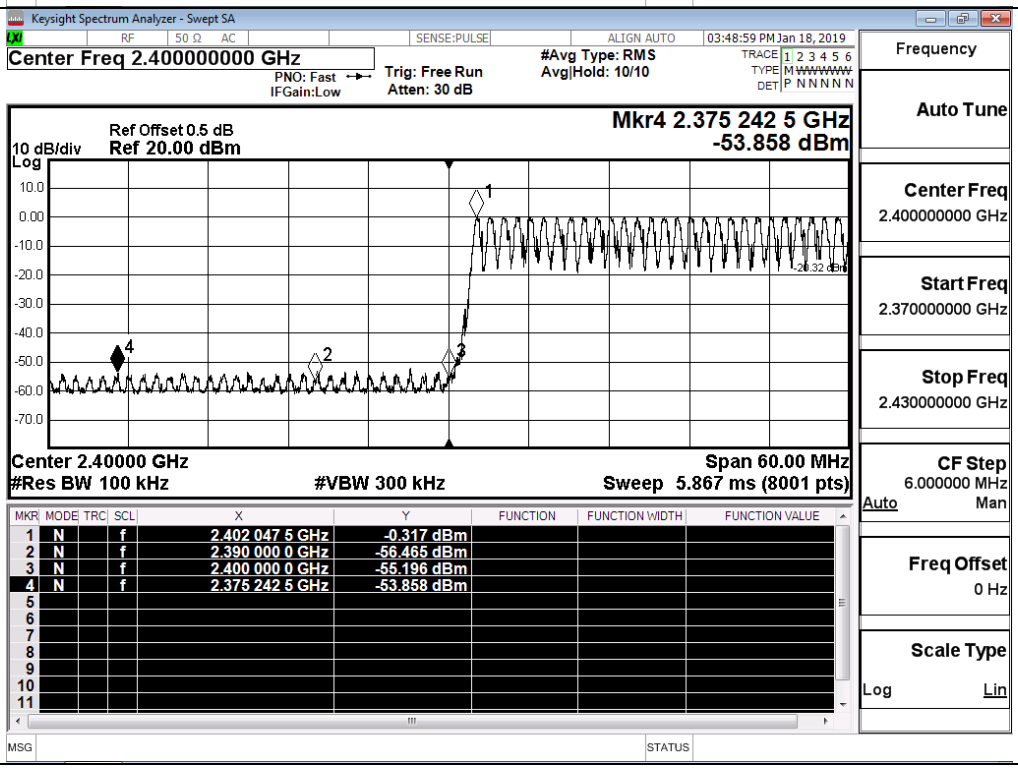
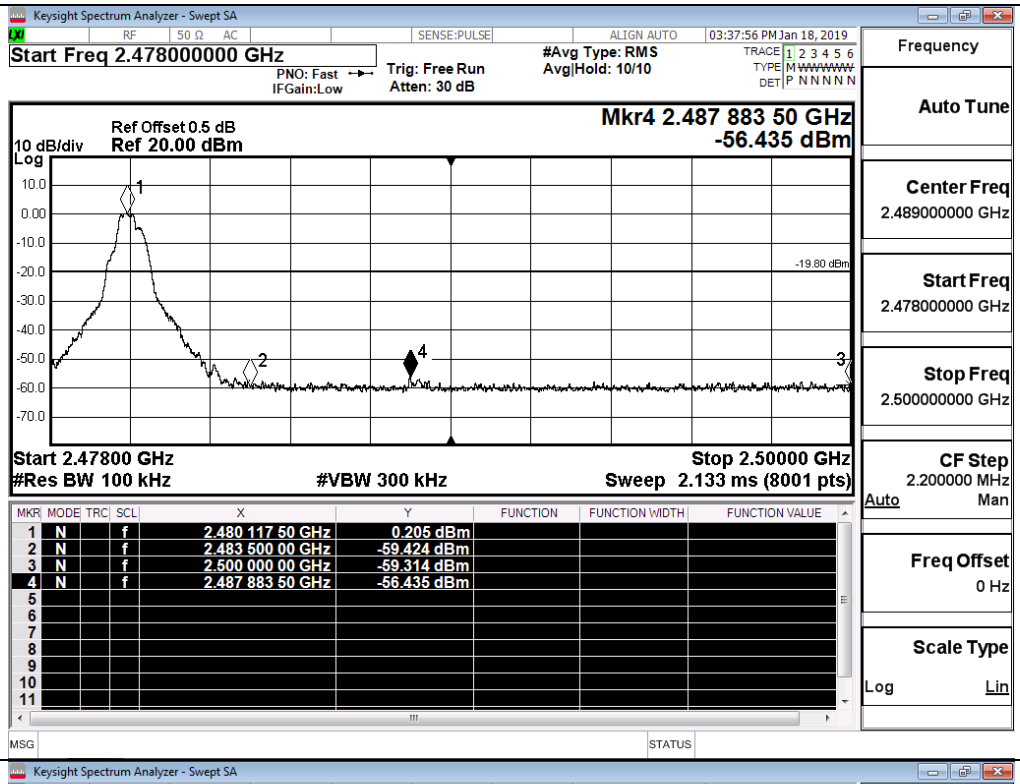
Pref	
Puw	

A.7 Band-edge for RF Conducted Emissions

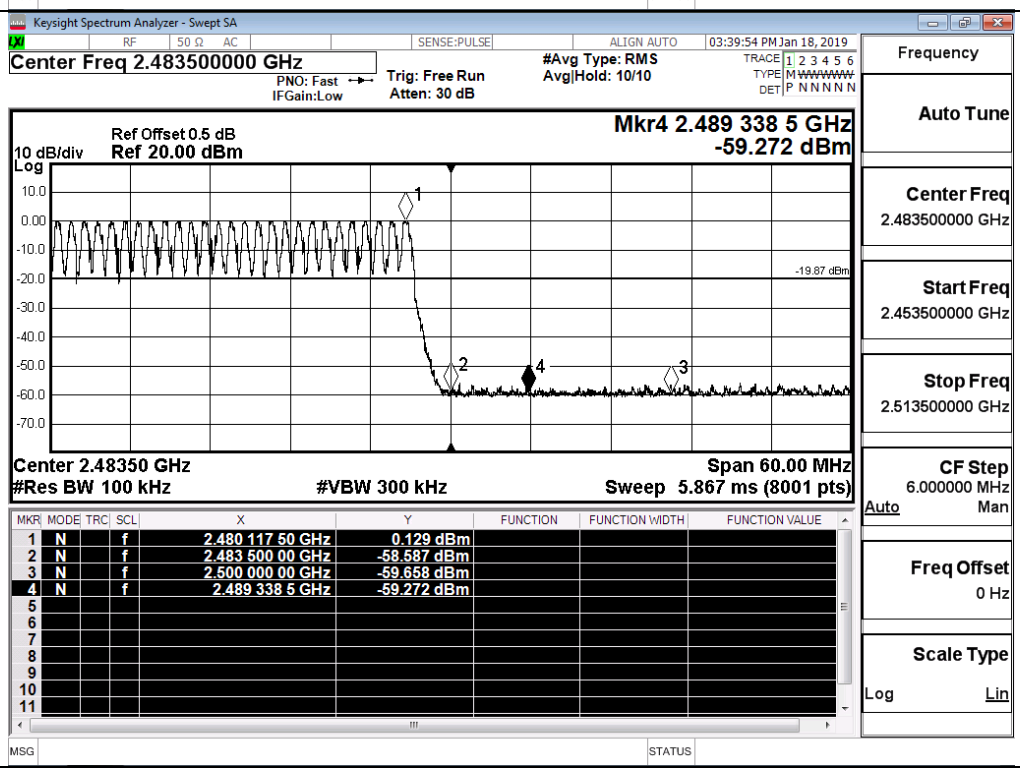
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-0.053	Off	-54.270	-20.05	PASS
			-0.317	On	-53.858	-20.32	PASS
	HCH	2480	0.205	Off	-56.435	-19.80	PASS
			0.129	On	-59.272	-19.87	PASS
π/4DQPSK	LCH	2402	-1.820	Off	-54.453	-21.82	PASS
			-1.826	On	-54.693	-21.83	PASS
	HCH	2480	-1.858	Off	-56.661	-21.86	PASS
			-2.089	On	-55.371	-22.09	PASS
8DPSK	LCH	2402	-1.729	Off	-55.784	-21.73	PASS
			-1.989	On	-53.878	-21.99	PASS
	HCH	2480	-1.778	Off	-57.225	-21.78	PASS
			-1.950	On	-55.374	-21.95	PASS

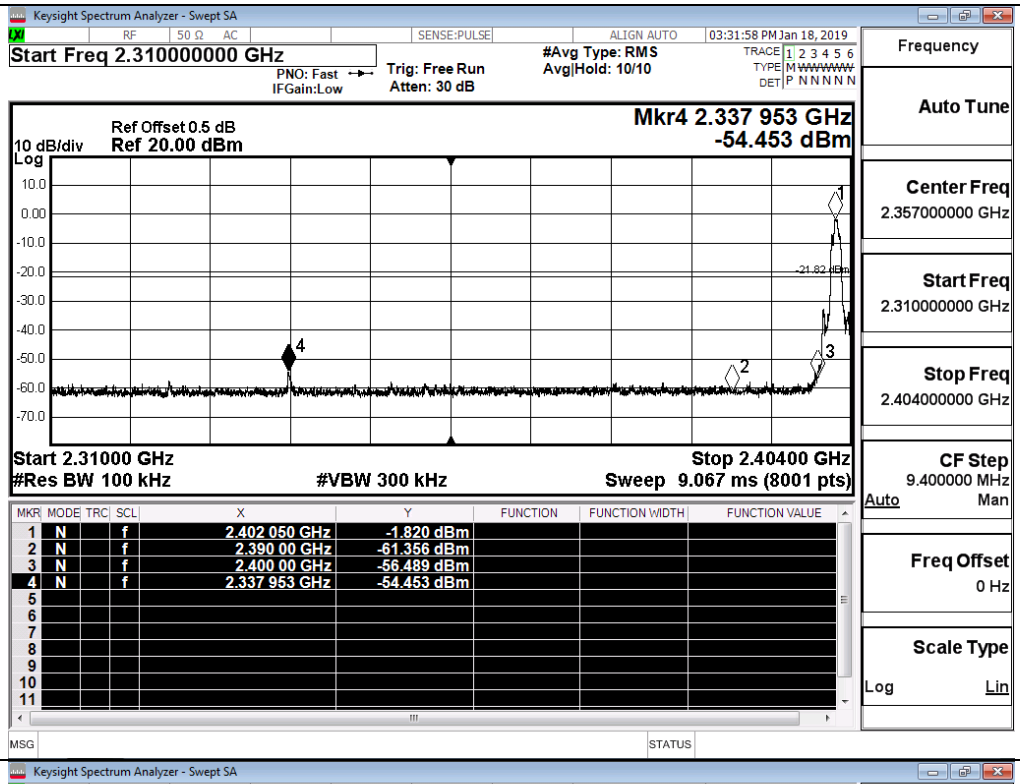
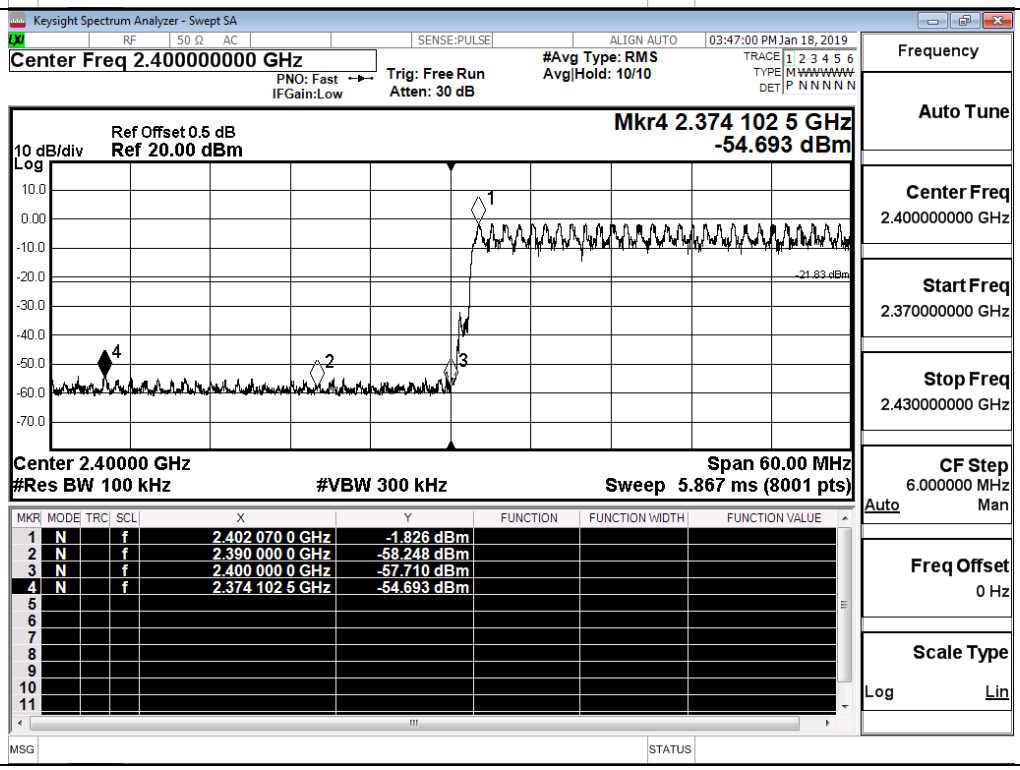
Test Graphs	
GFSK/LCH/No Hop	
GFSK/LCH/Hop	

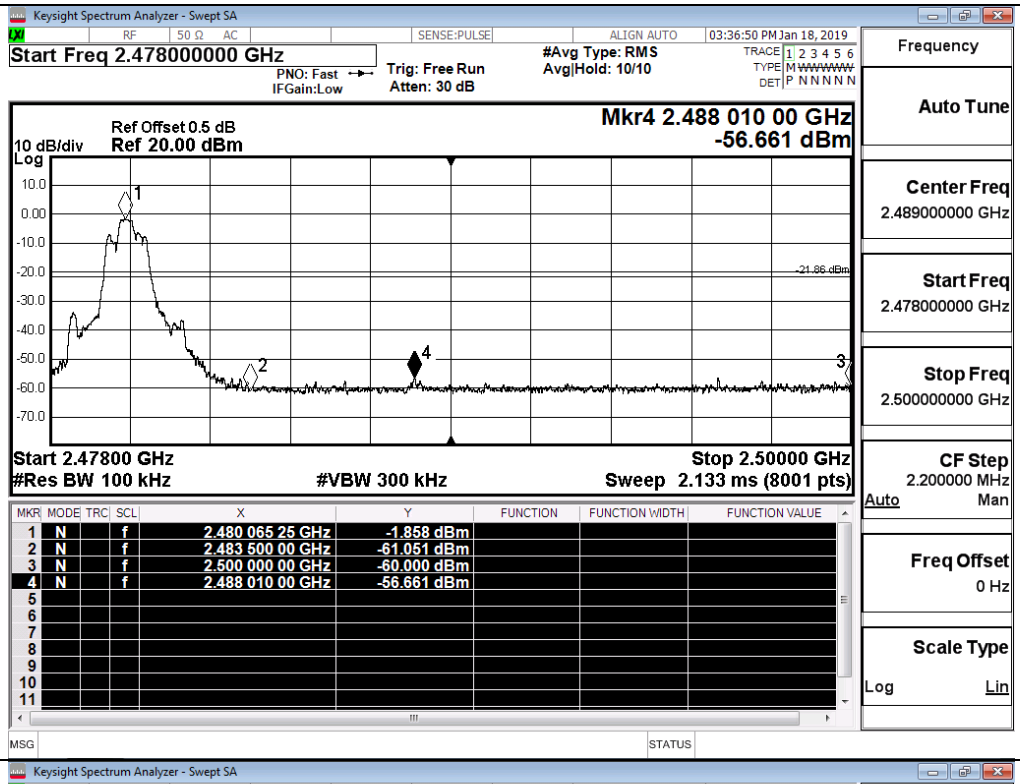
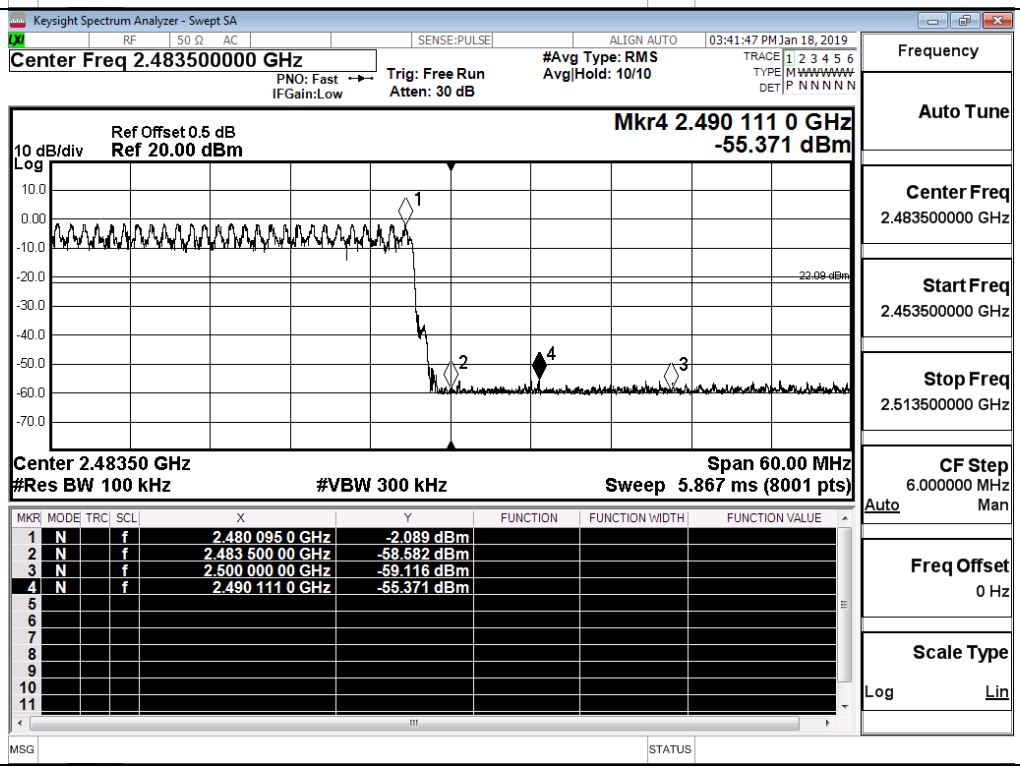
GFSK/HCH/No Hop

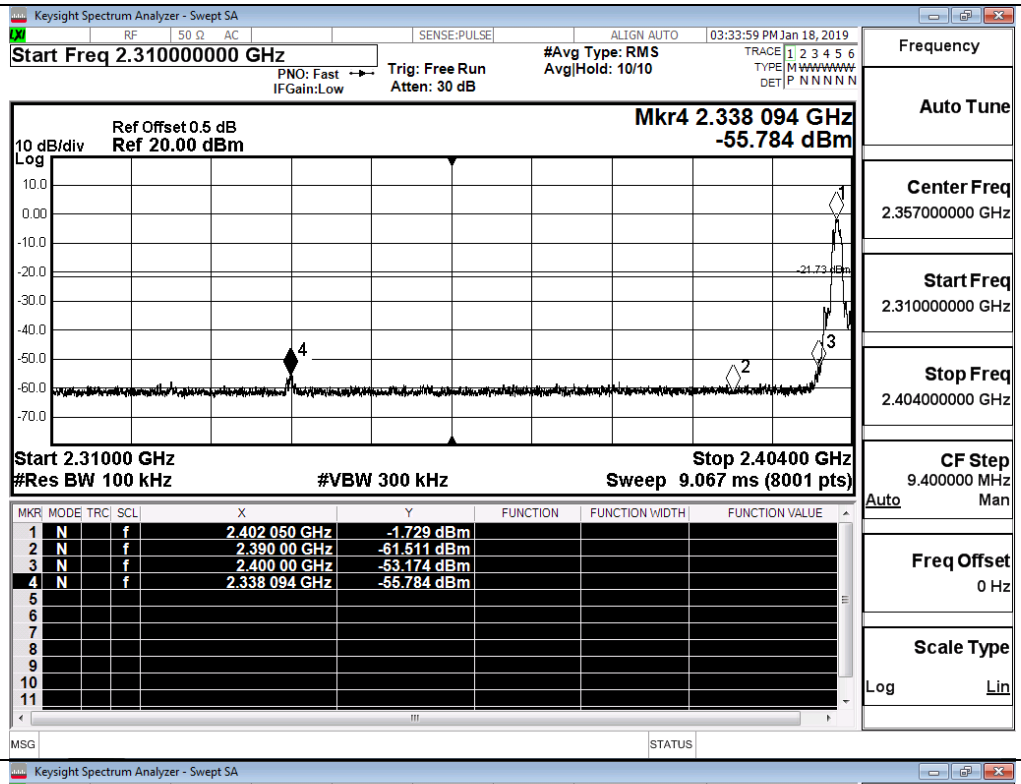
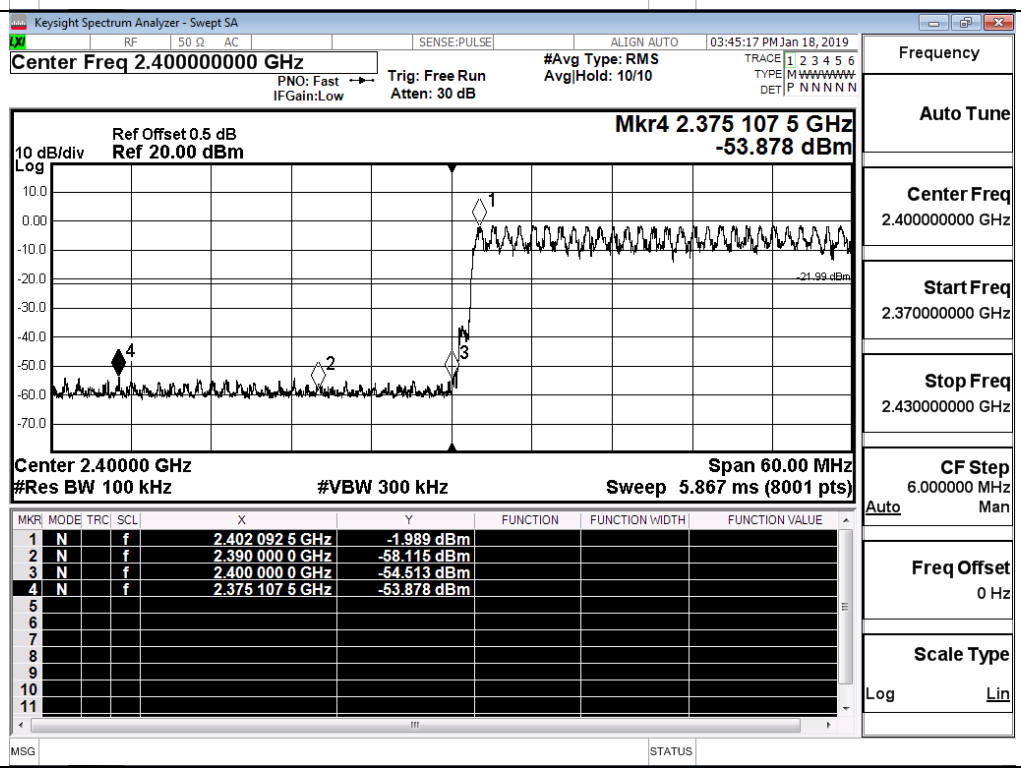


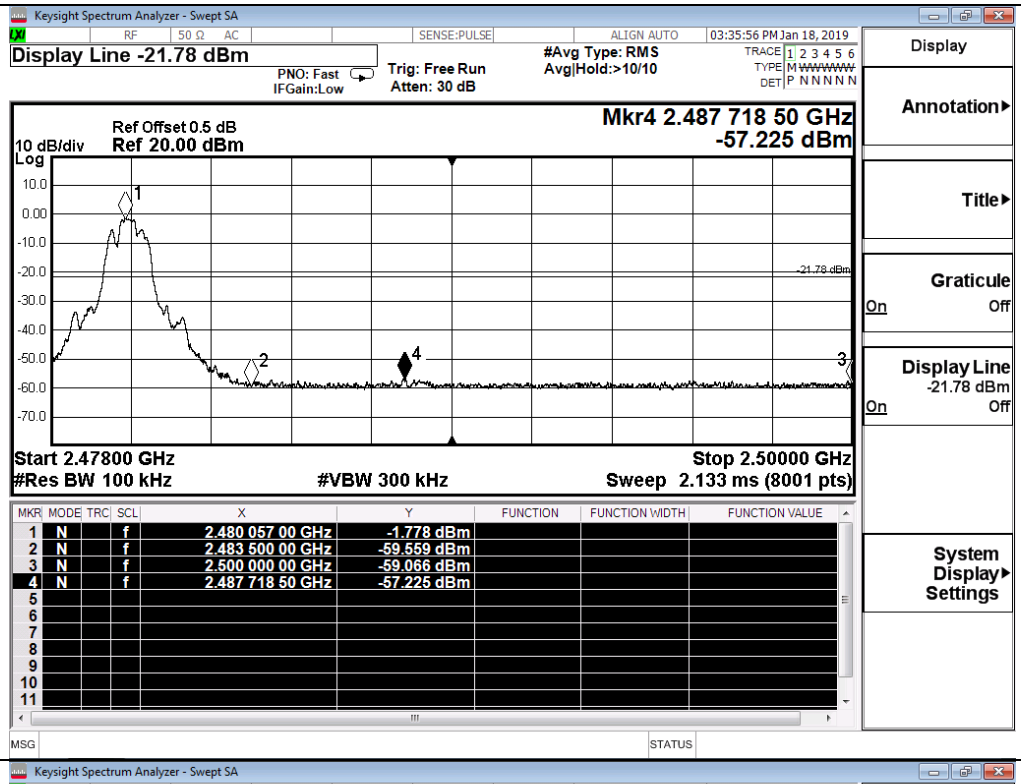
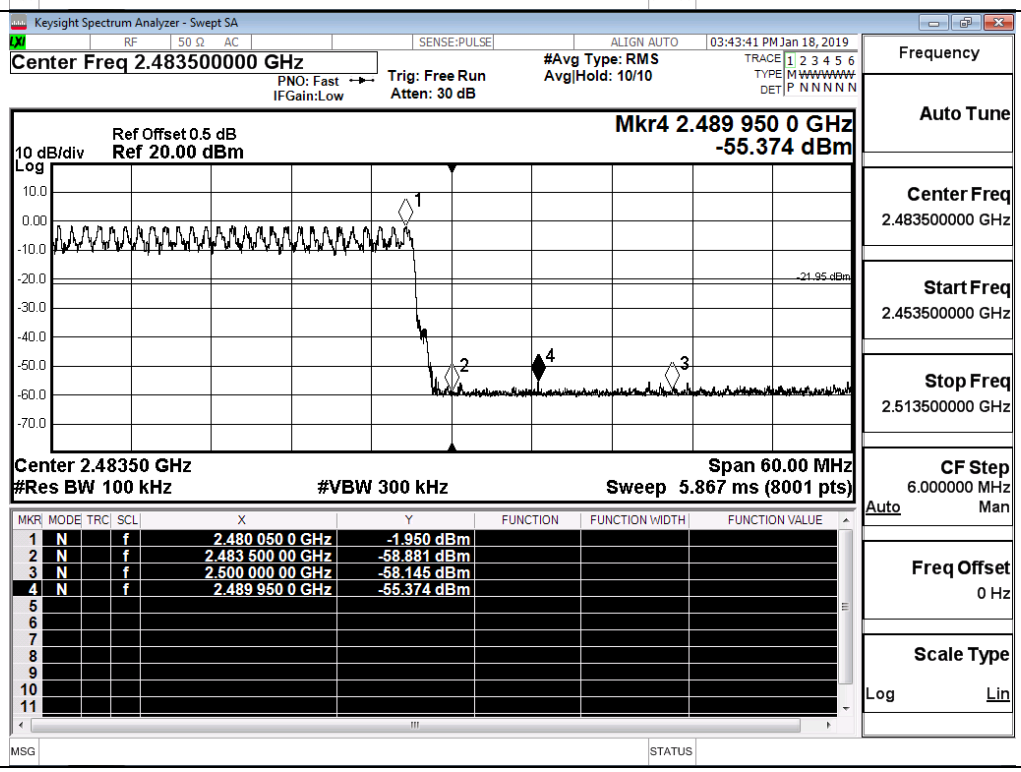
GFSK/HCH/Hop



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

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

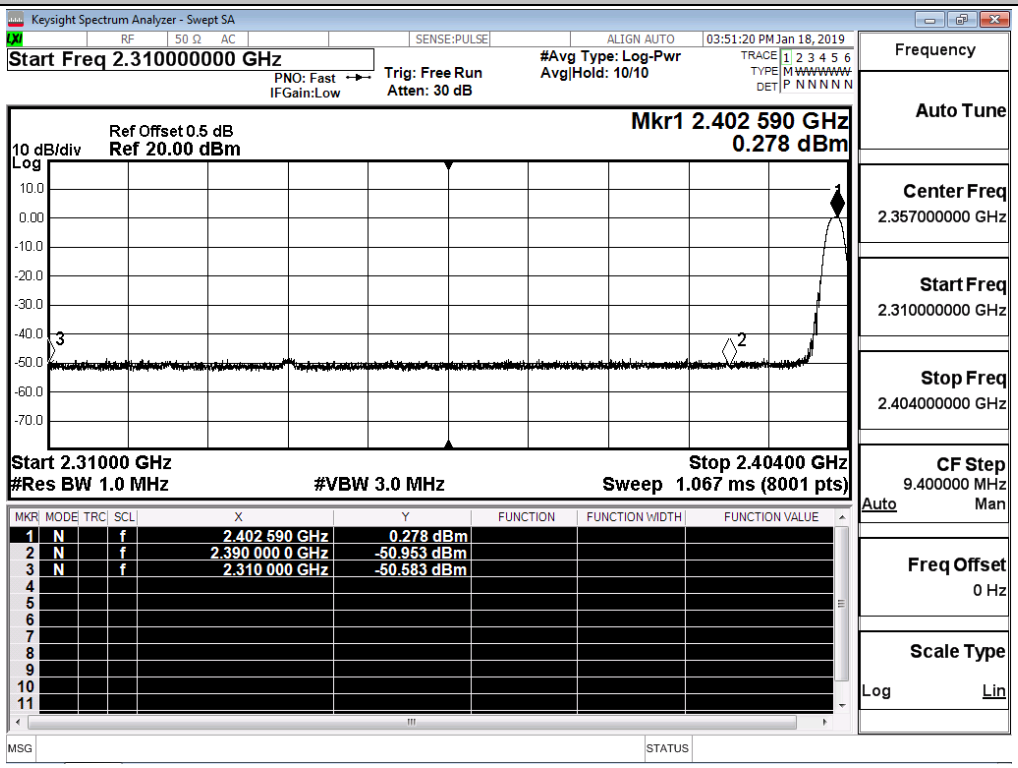
8DPSK/LCH/No Hop	
8DPSK/LCH/Hop	

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

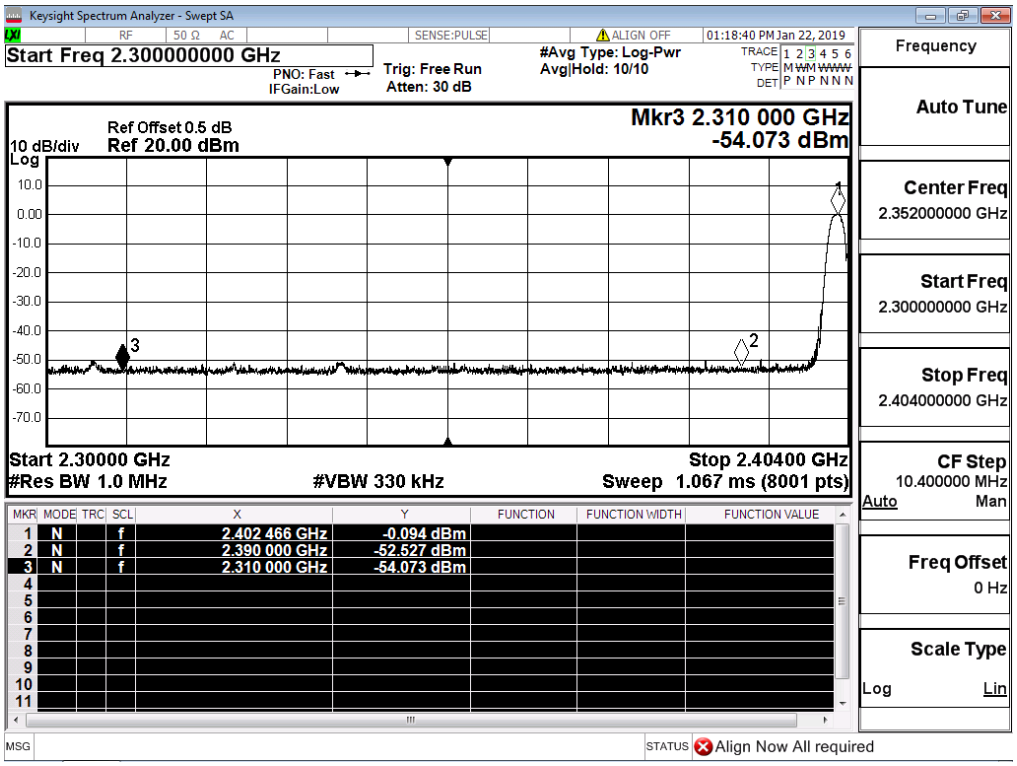
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-50.583	2	0	46.68	PEAK	74	PASS
	Off	2310.0	-54.073	2	0	43.19	AV	54	PASS
	Off	2390.0	-50.953	2	0	46.31	PEAK	74	PASS
	Off	2390.0	-52.527	2	0	44.73	AV	54	PASS
	Off	2483.5	-45.288	2	0	51.97	PEAK	74	PASS
	Off	2483.5	-51.004	2	0	46.26	AV	54	PASS
	Off	2500.0	-50.055	2	0	47.21	PEAK	74	PASS
	Off	2500.0	-52.855	2	0	44.41	AV	54	PASS
π/4DQPSK	Off	2310.0	-51.584	2	0	45.68	PEAK	74	PASS
	Off	2310.0	-54.293	2	0	42.97	AV	54	PASS
	Off	2390.0	-51.117	2	0	46.14	PEAK	74	PASS
	Off	2390.0	-54.503	2	0	42.76	AV	54	PASS
	Off	2483.5	-47.098	2	0	50.16	PEAK	74	PASS
	Off	2483.5	-50.958	2	0	46.30	AV	54	PASS
	Off	2500.0	-48.968	2	0	48.29	PEAK	74	PASS
	Off	2500.0	-51.867	2	0	45.39	AV	54	PASS
8DPSK	Off	2310.0	-51.804	2	0	45.46	PEAK	74	PASS
	Off	2310.0	-54.082	2	0	43.18	AV	54	PASS
	Off	2390.0	-50.532	2	0	46.73	PEAK	74	PASS
	Off	2390.0	-53.461	2	0	43.80	AV	54	PASS
	Off	2483.5	-46.167	2	0	51.09	PEAK	74	PASS
	Off	2483.5	-50.569	2	0	46.69	AV	54	PASS
	Off	2500.0	-49.484	2	0	47.78	PEAK	74	PASS
	Off	2500.0	-52.796	2	0	44.46	AV	54	PASS

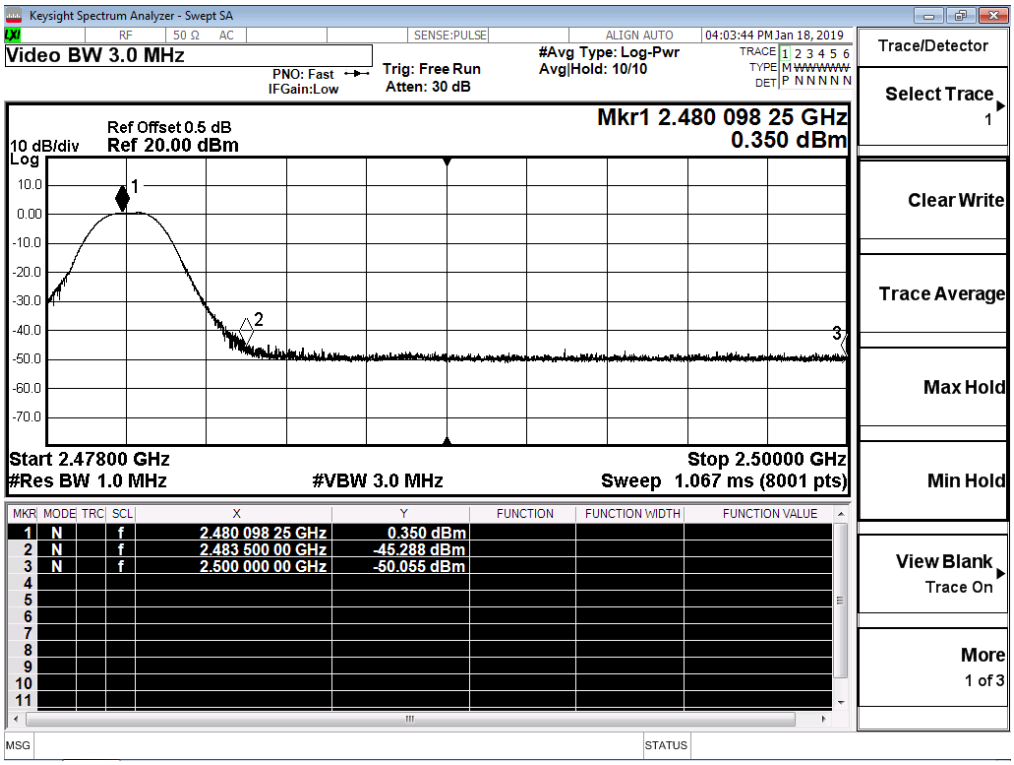
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



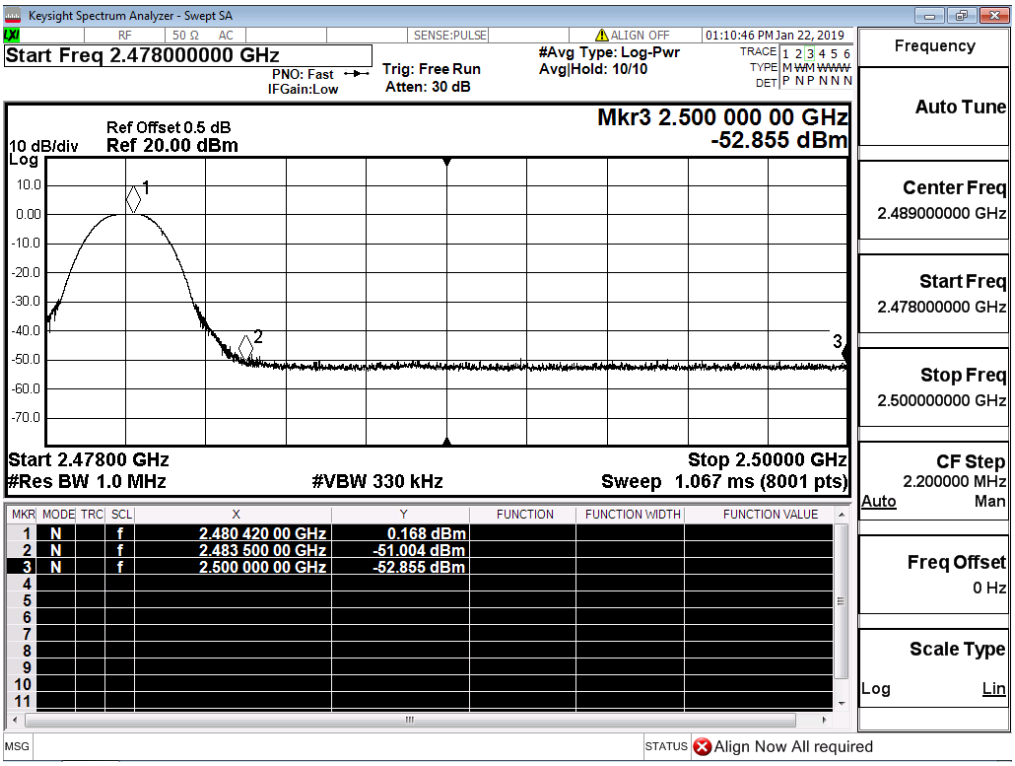
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



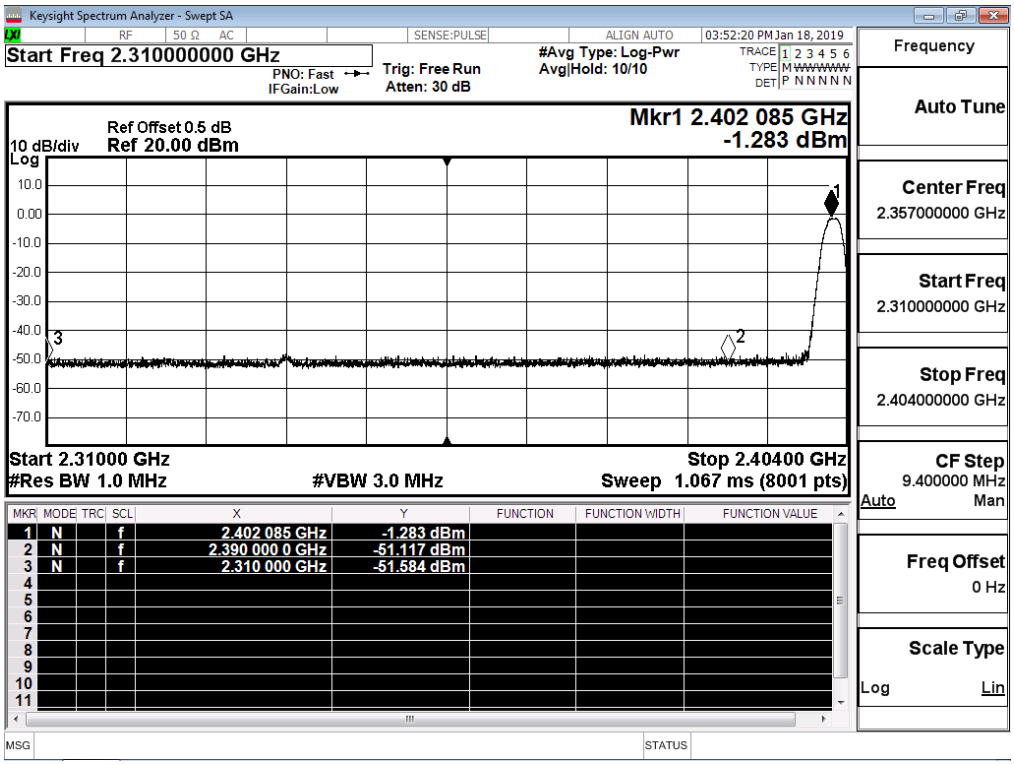
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



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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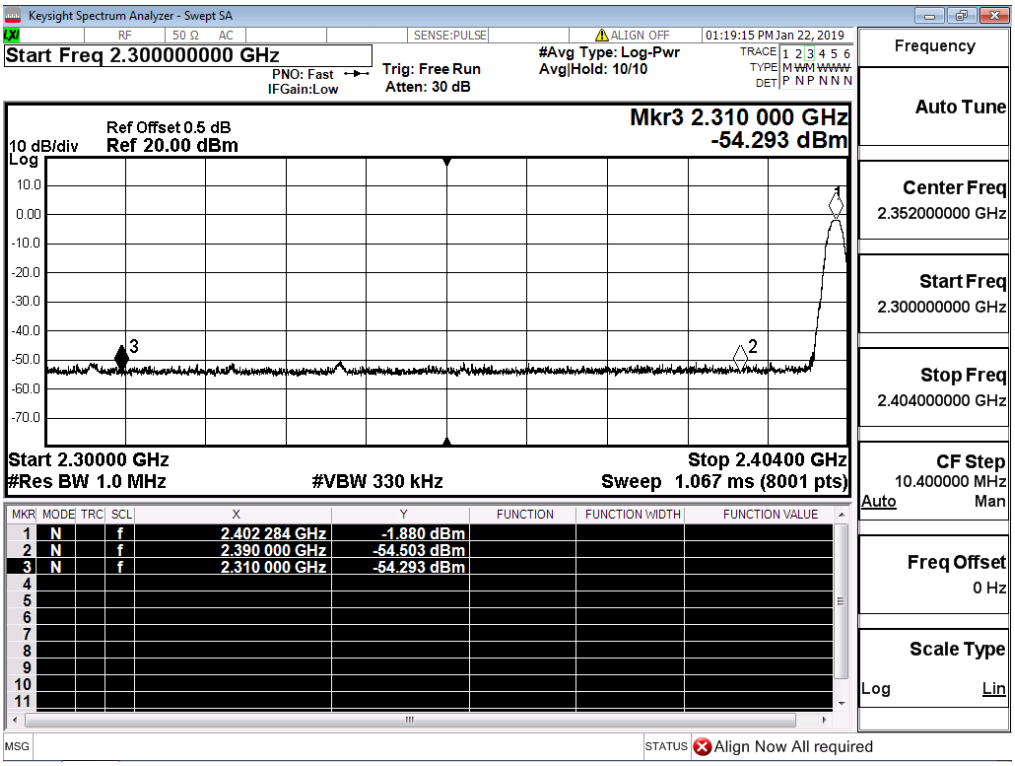
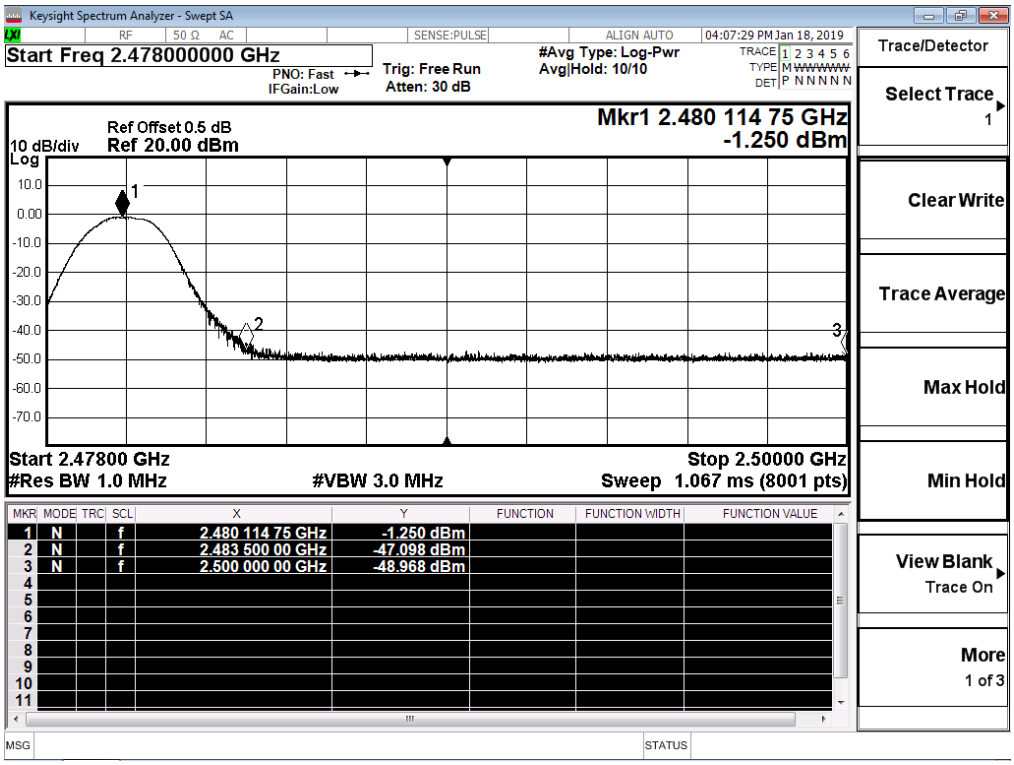
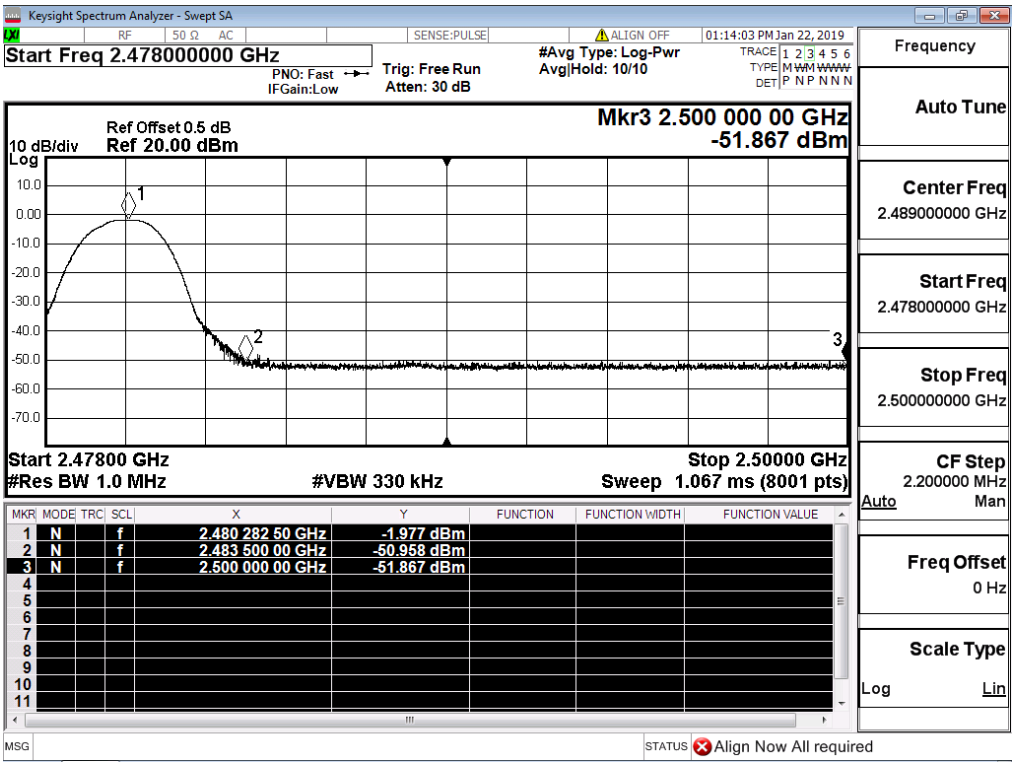


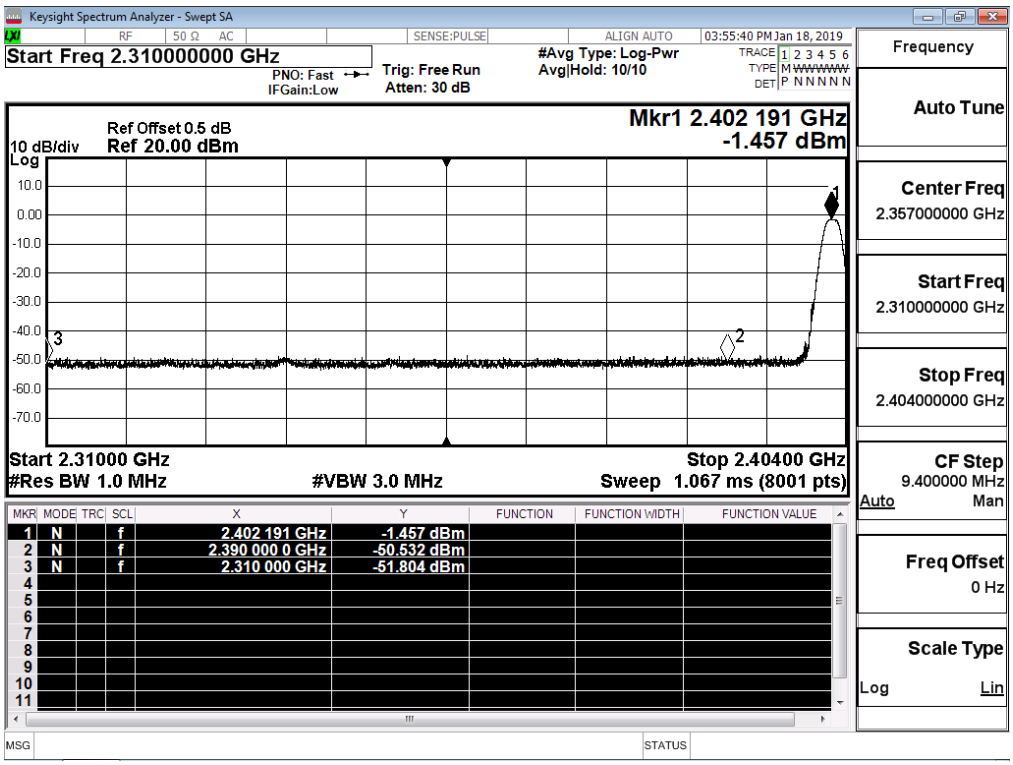
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



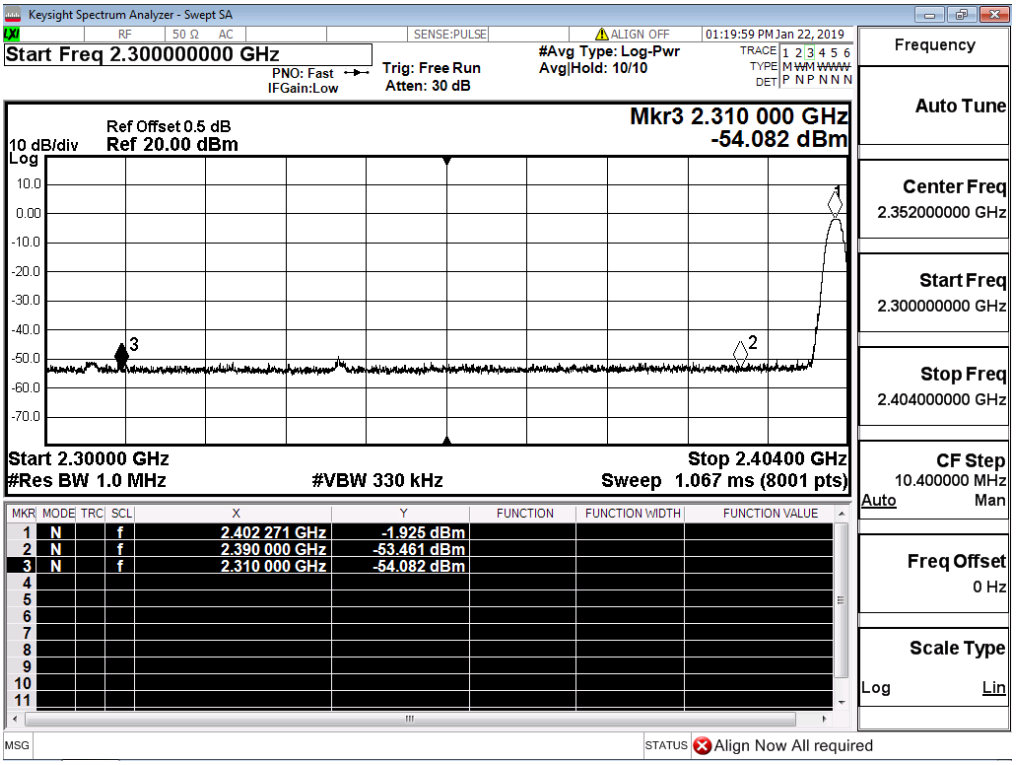
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



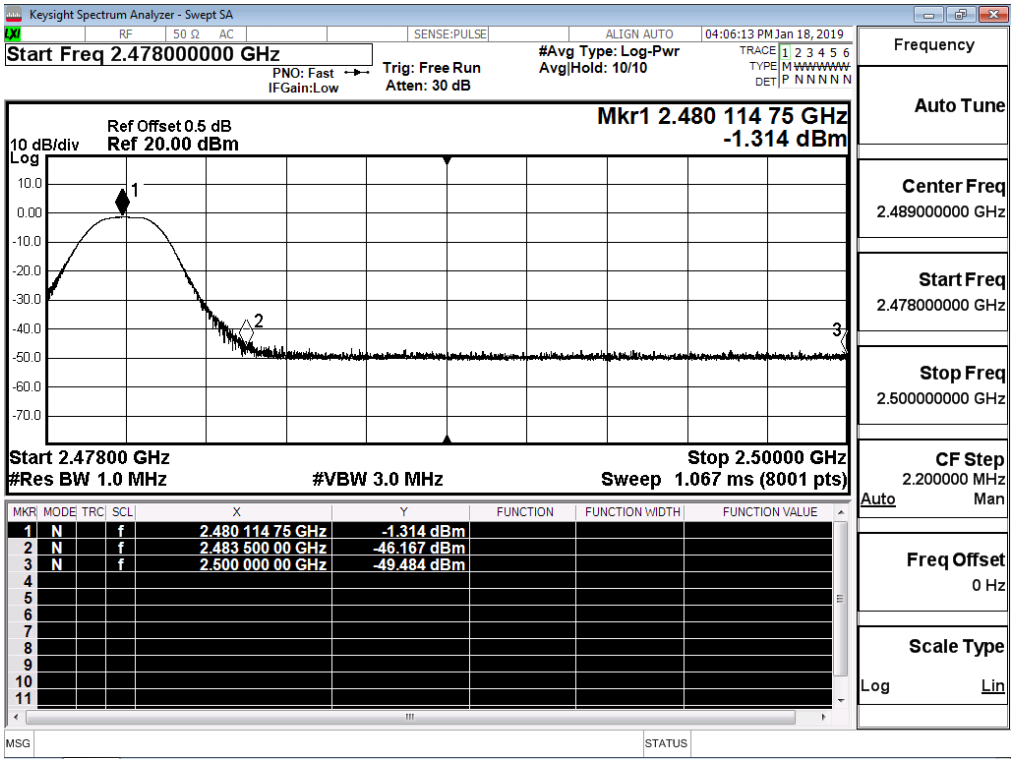
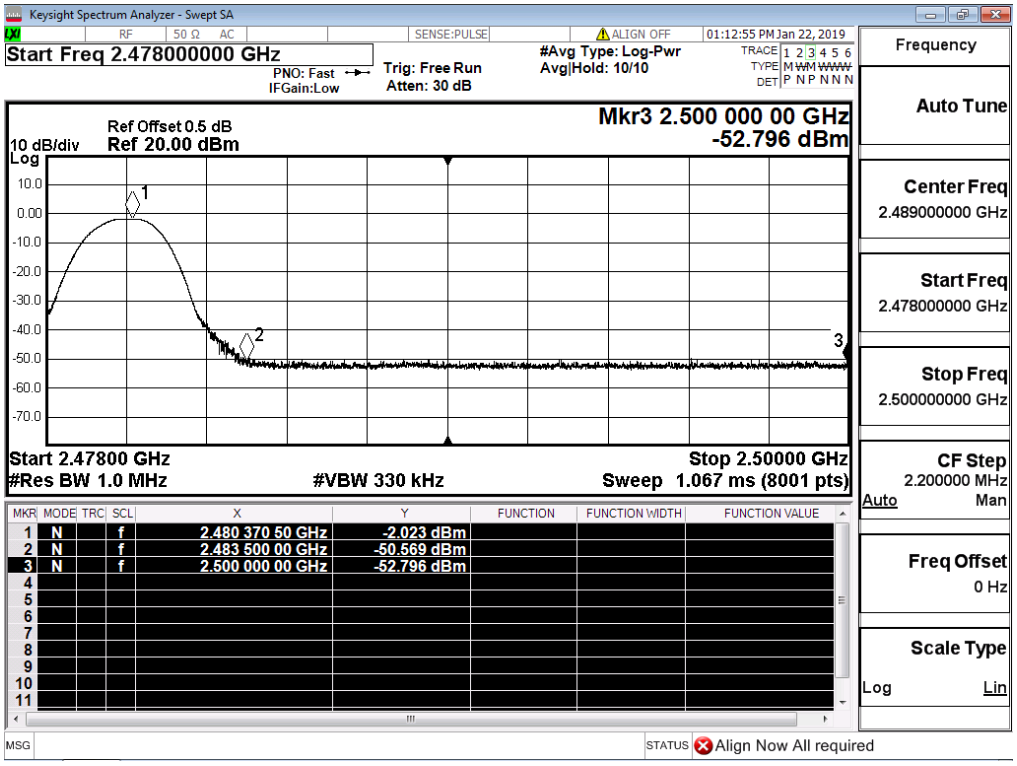
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)