Appendix A

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

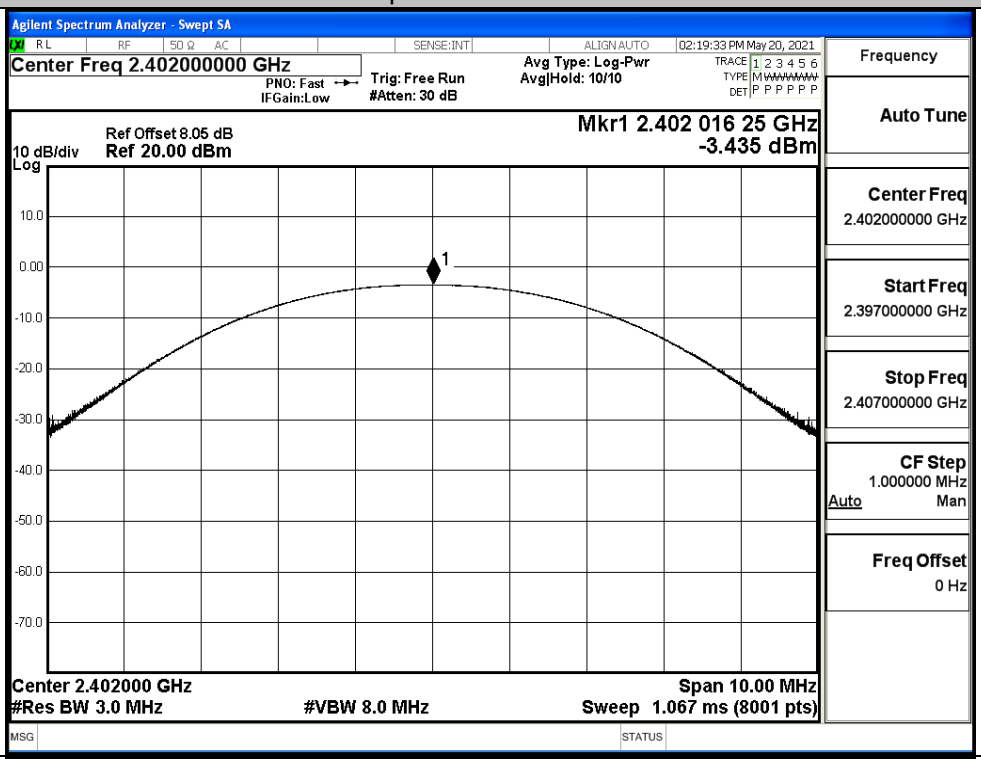
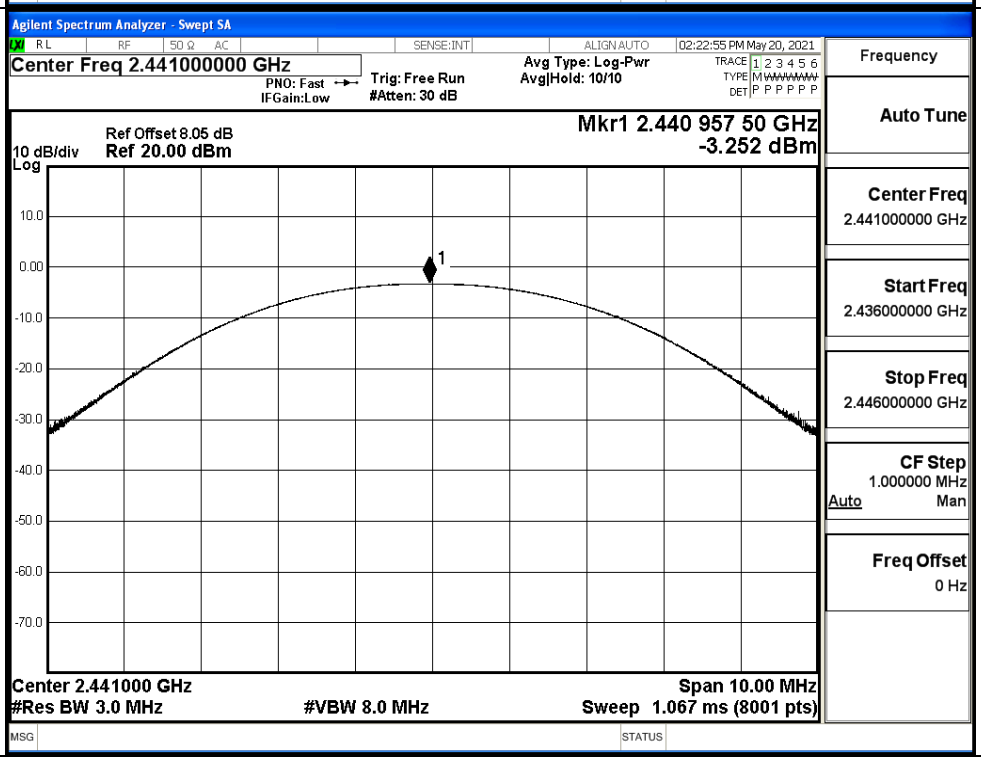
Product Name: Laptop
Trade Mark: N/A
Test Model: ACL1

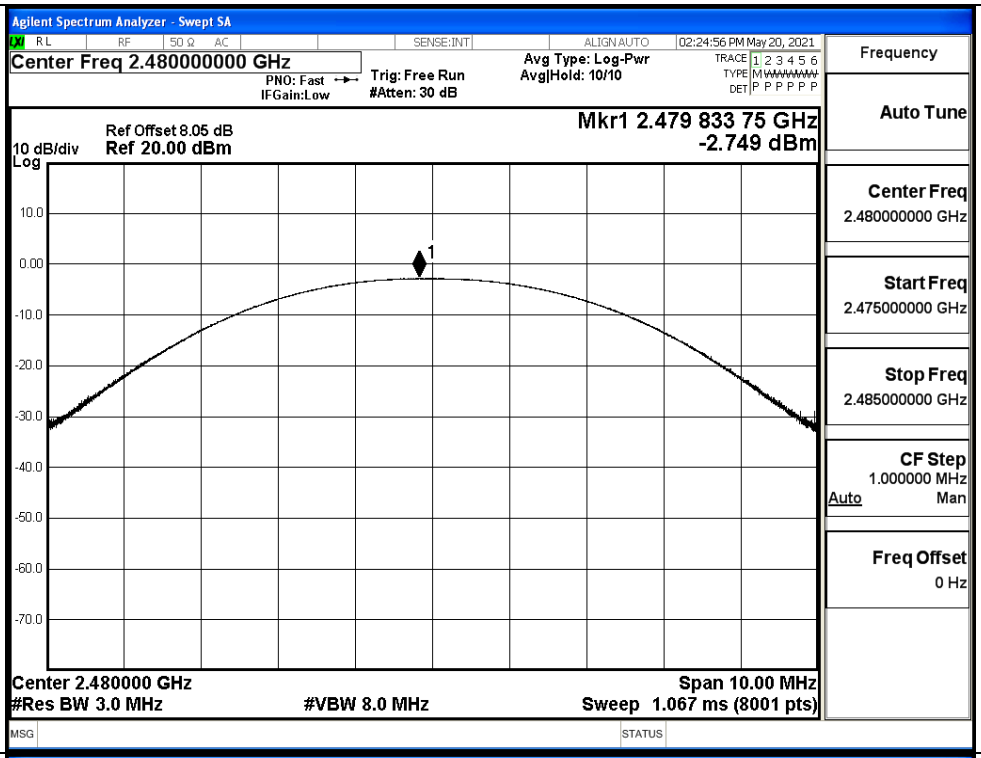
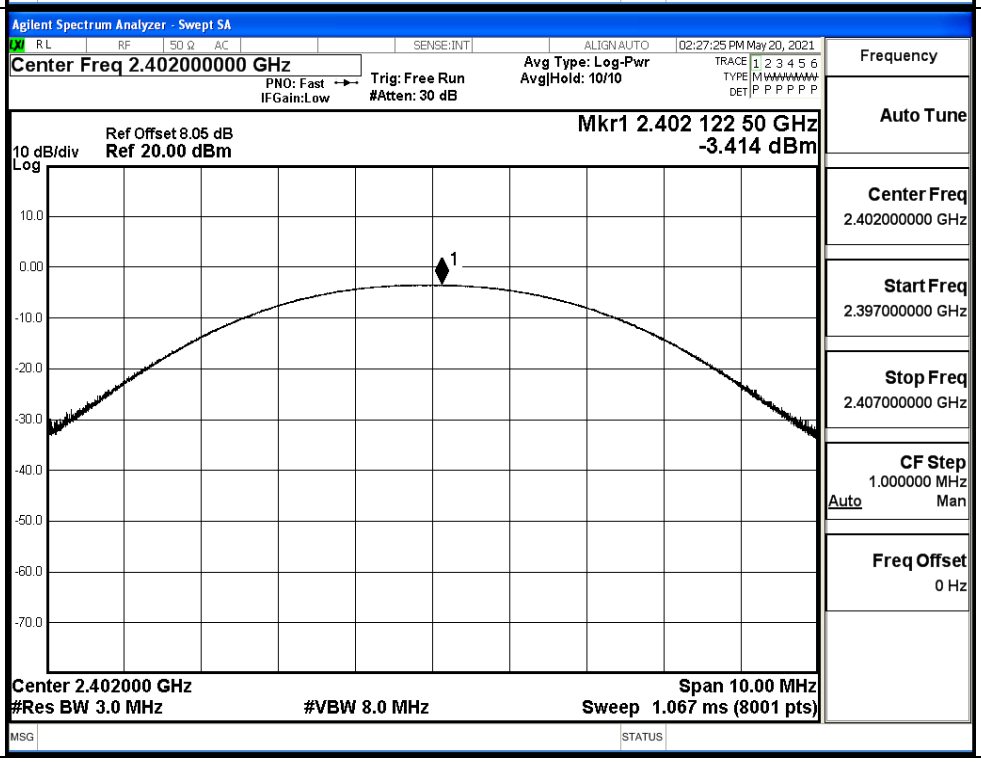
Environmental Conditions

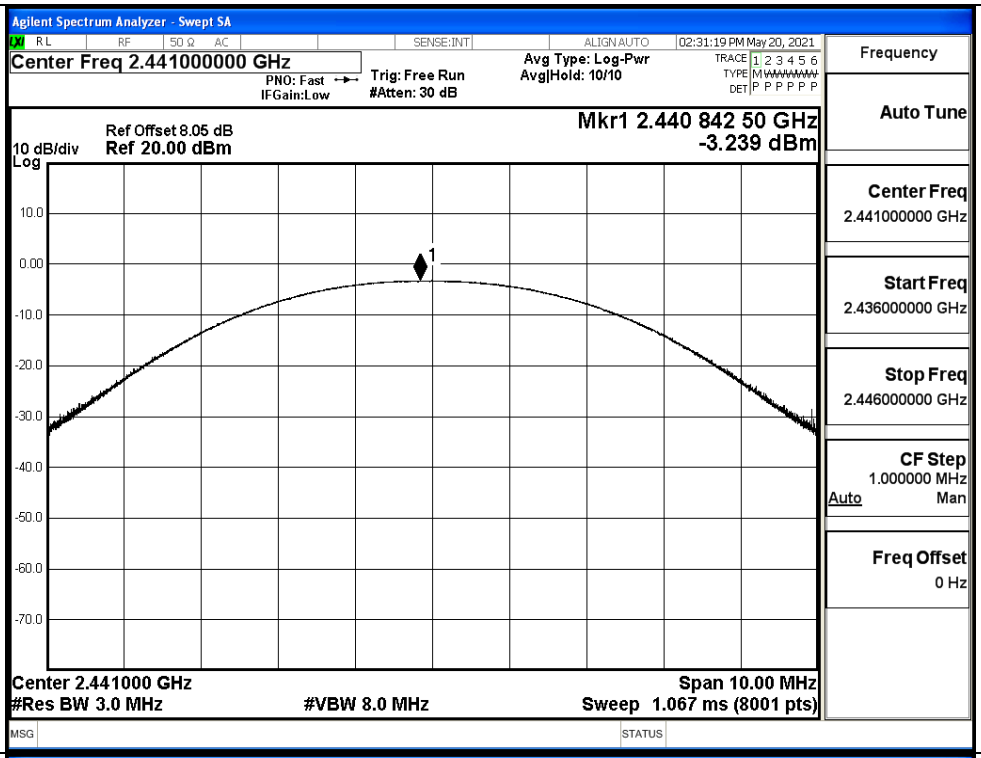
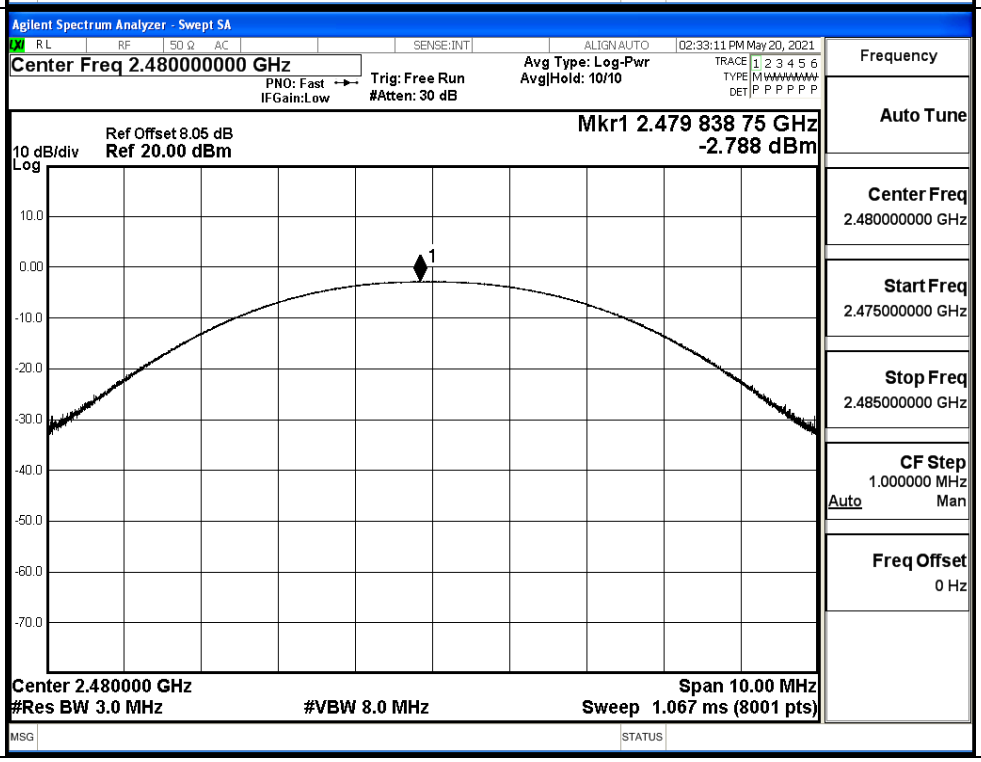
Temperature:	24.6° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Kay Hu
Supervised by:	Li Huan

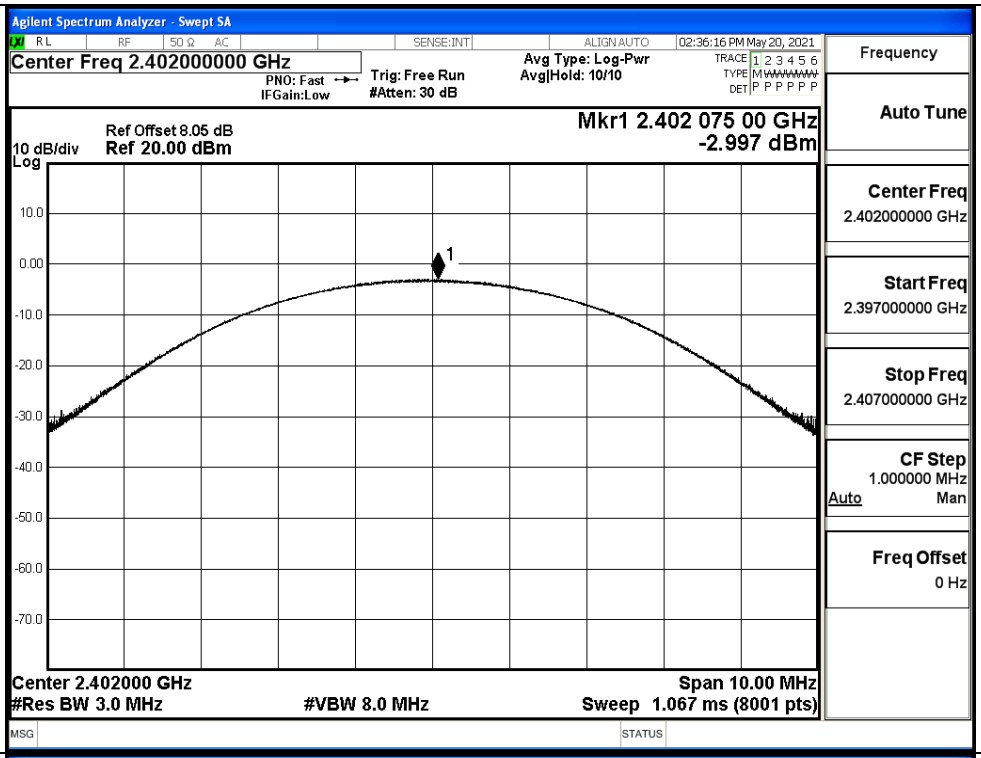
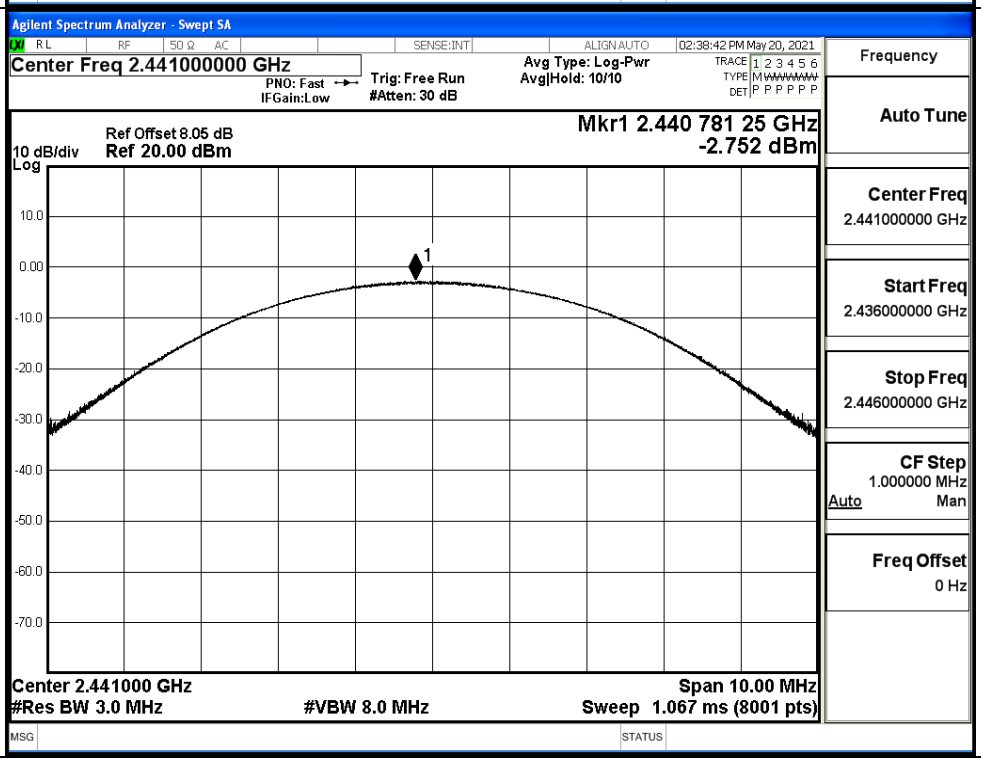
A.1 Maxmum Conducted Peak Output Power

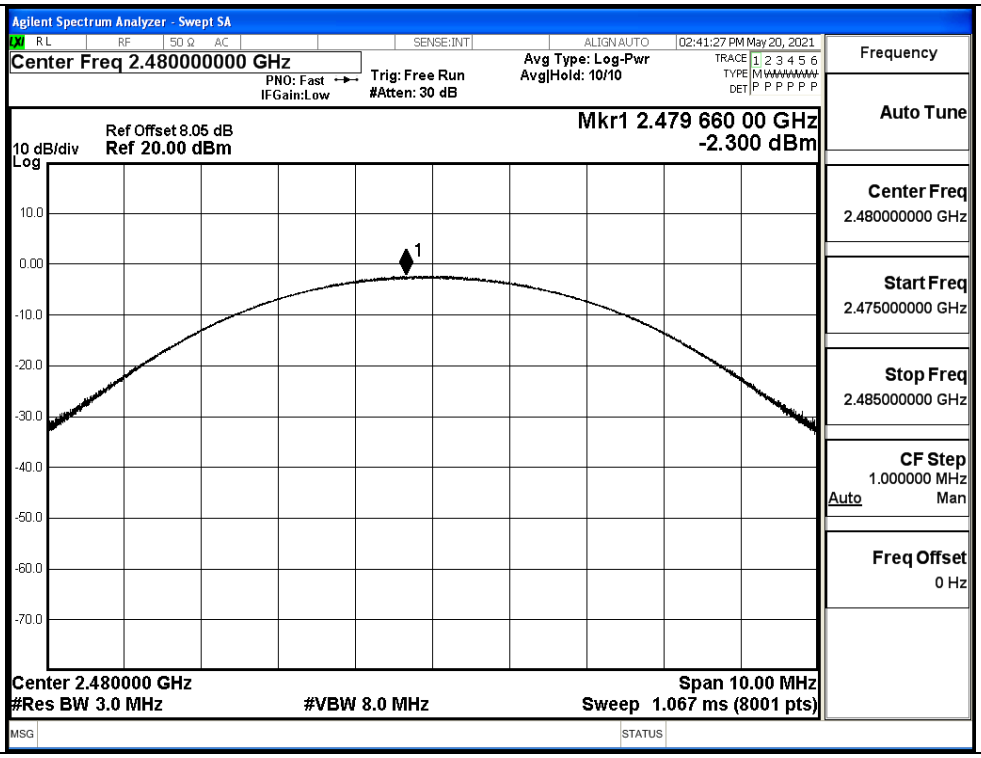
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-3.435	21	PASS
	MCH	-3.252	21	PASS
	HCH	-2.749	21	PASS
π/4DQPSK	LCH	-3.414	21	PASS
	MCH	-3.239	21	PASS
	HCH	-2.788	21	PASS
8DPSK	LCH	-2.997	21	PASS
	MCH	-2.752	21	PASS
	HCH	-2.300	21	PASS

Test Graphs		
GFSK/LCH		
GFSK/MCH		

GFSK/HCH	
π/4DQPSK/LCH	

π/4DQPSK/MCH		
π/4DQPSK/HCH		

8DPSK/LCH	
8DPSK/MCH	

8DPSK/HCH	

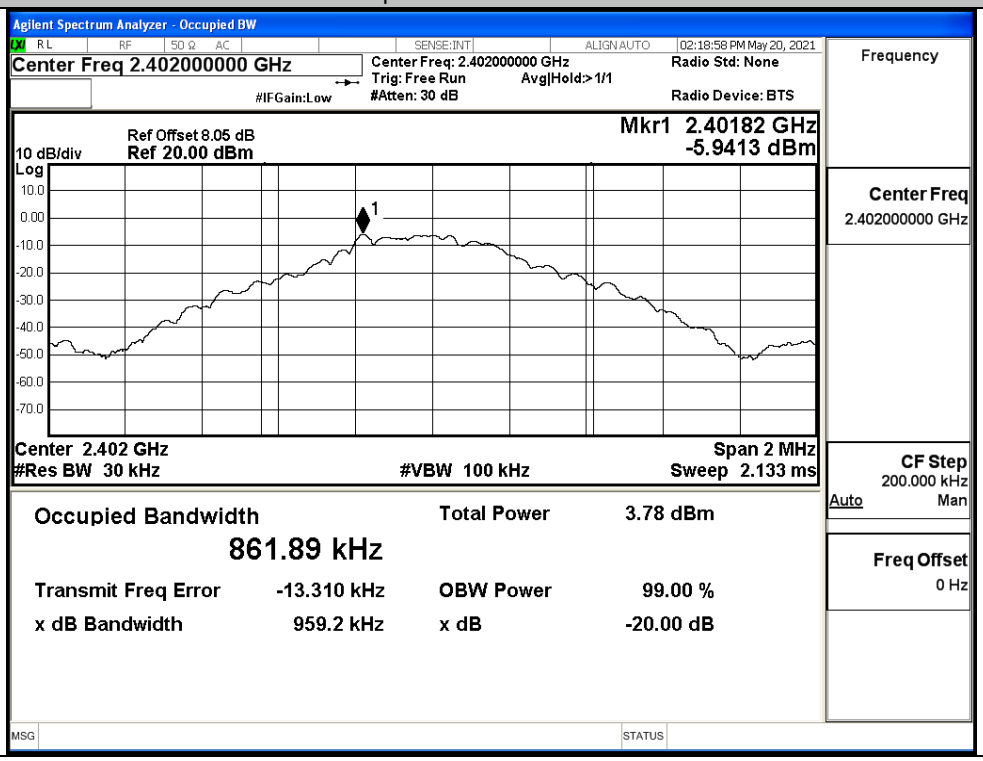
Agilent Spectrum Analyzer - Swept SA
Center Freq 2.480000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 10/10
02:41:27 PM May 20, 2021
Ref Offset 8.05 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 2.479 660 00 GHz
-2.300 dBm
Center 2.480000 GHz
#Res BW 3.0 MHz
#VBW 8.0 MHz
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

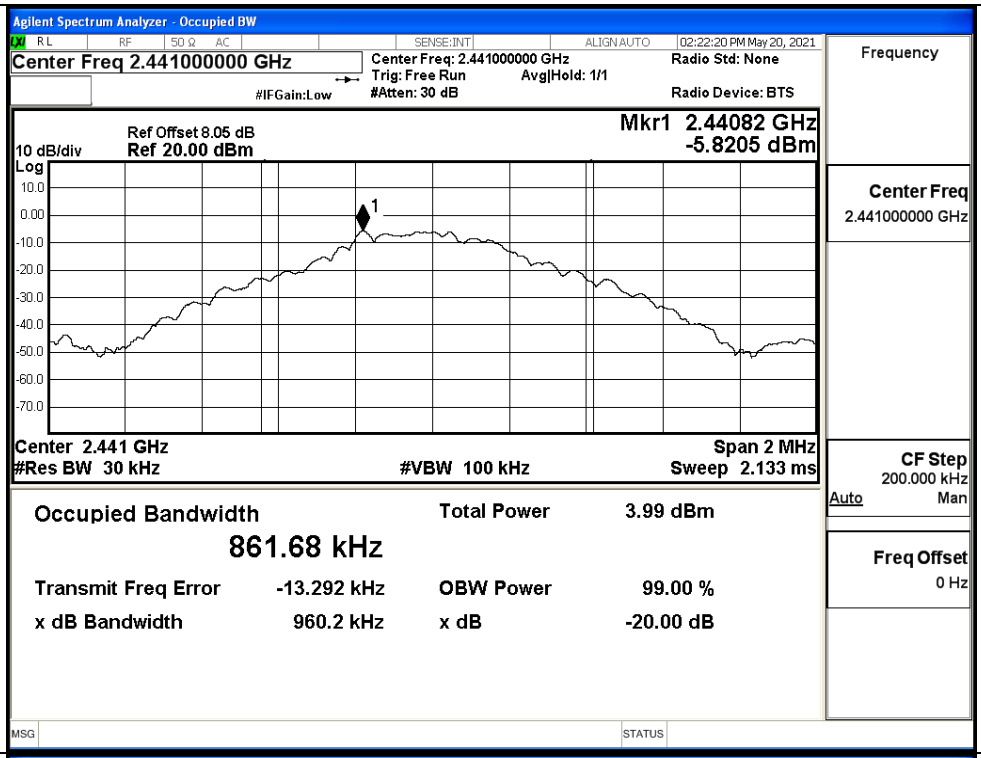
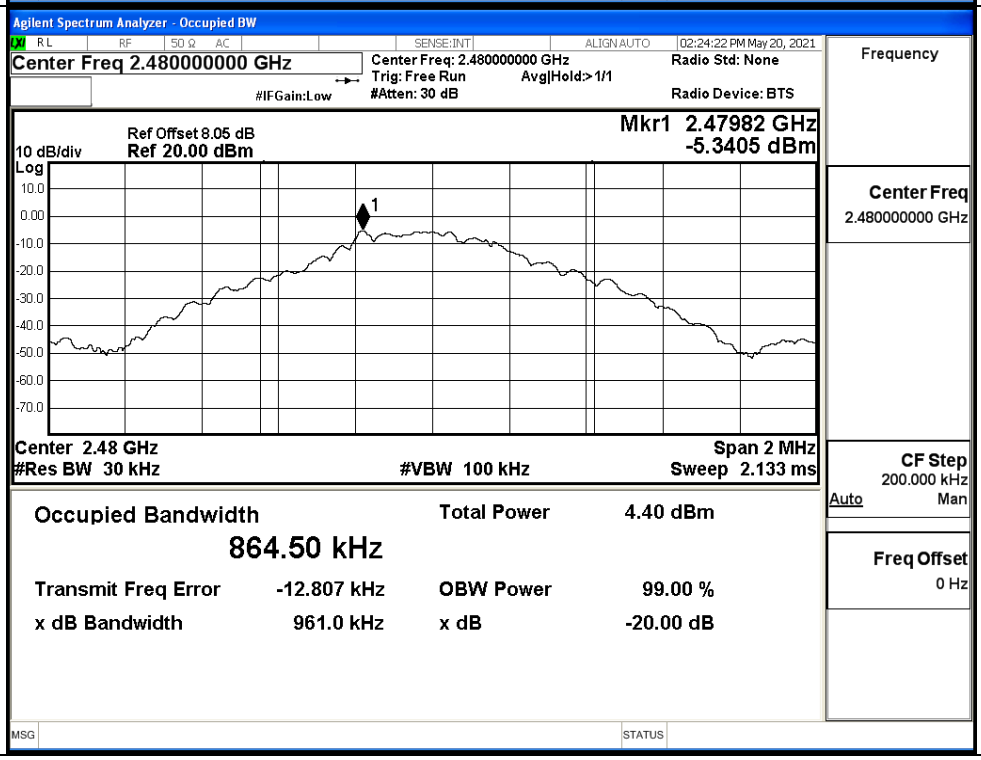
A.2 20dB Bandwidth

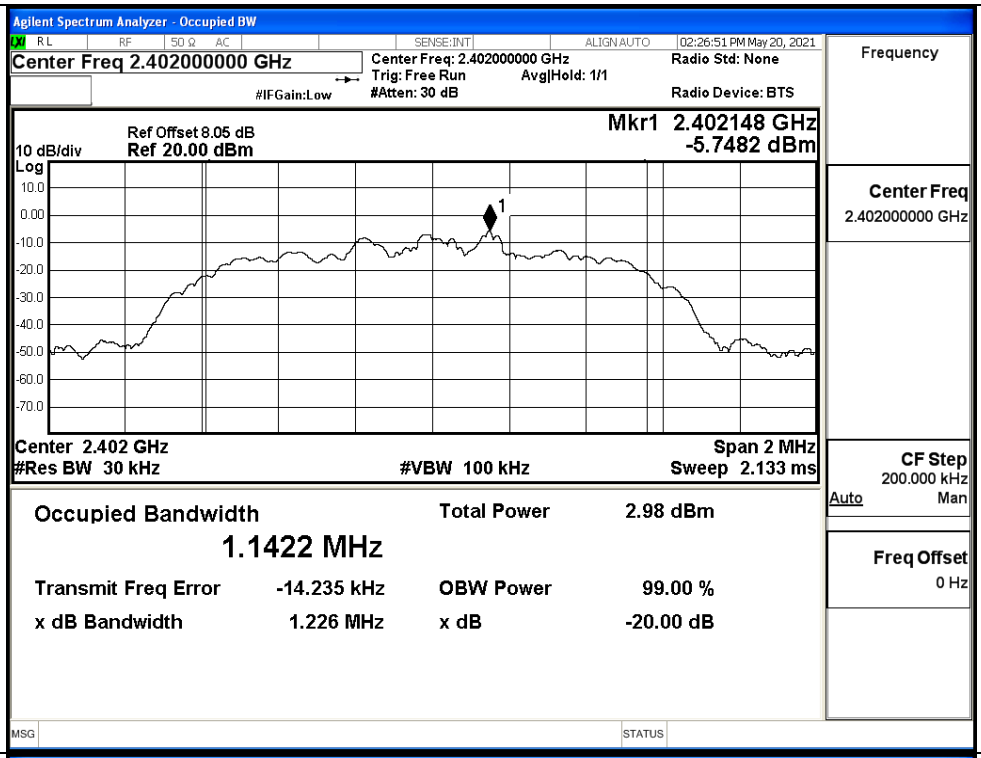
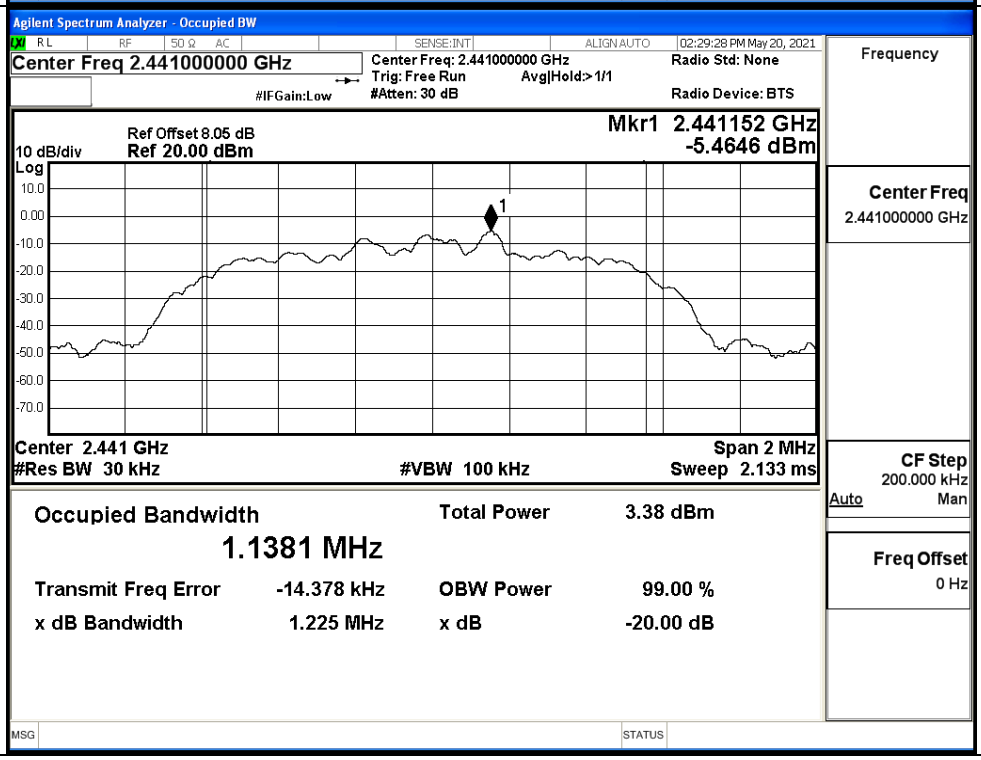
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9592	Not Specified	PASS
	MCH	0.9602	Not Specified	PASS
	HCH	0.9610	Not Specified	PASS
π/4DQPSK	LCH	1.226	Not Specified	PASS
	MCH	1.225	Not Specified	PASS
	HCH	1.225	Not Specified	PASS
8DPSK	LCH	1.264	Not Specified	PASS
	MCH	1.264	Not Specified	PASS
	HCH	1.268	Not Specified	PASS

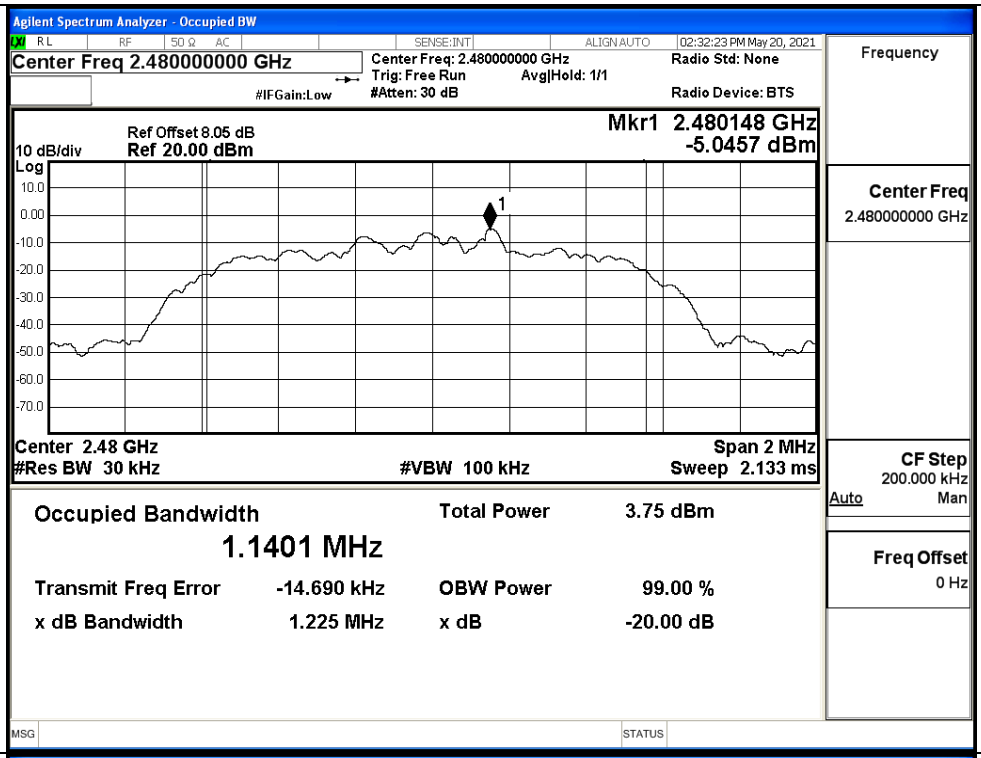
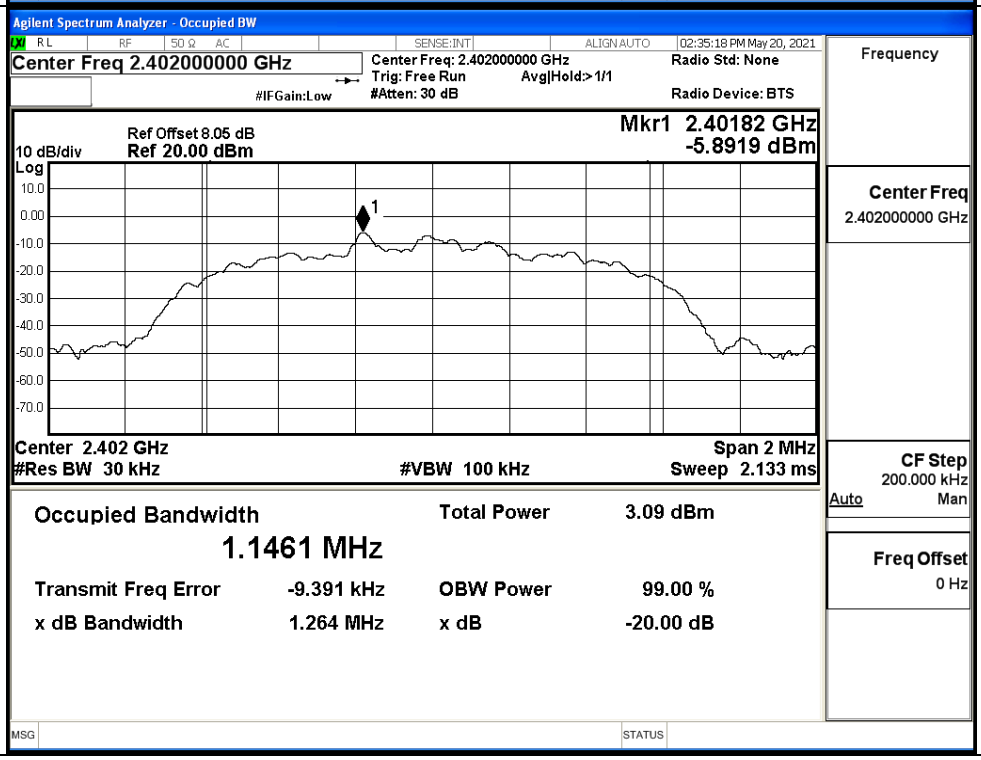
Test Graphs

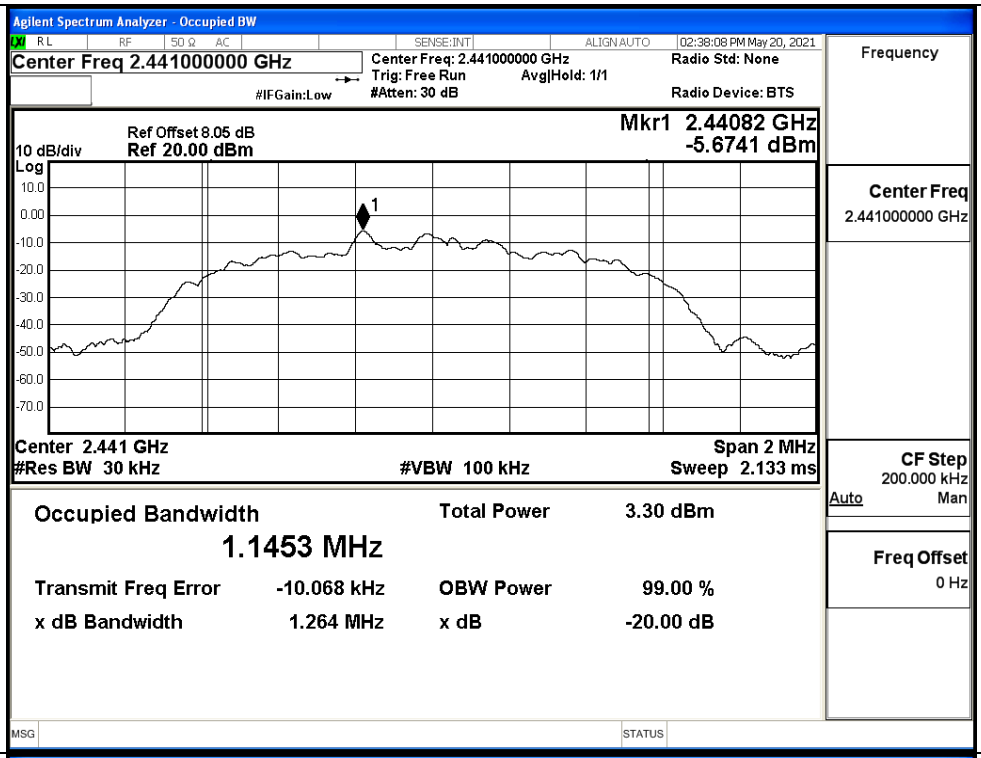
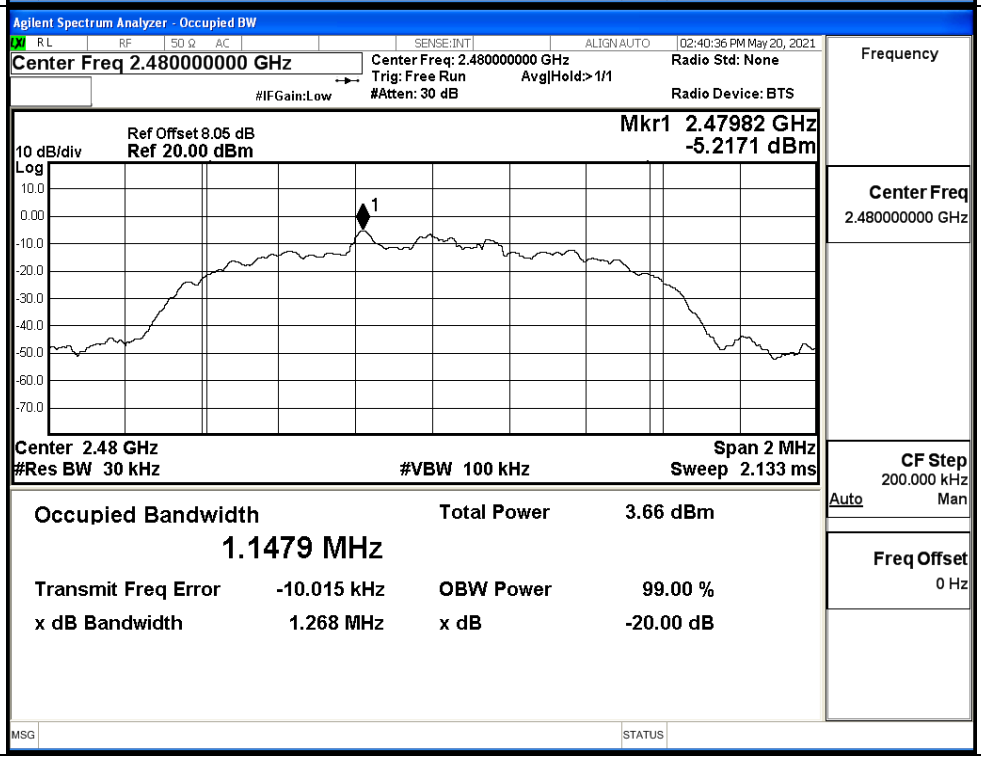
GFSK/LCH



GFSK/MCH	
GFSK/HCH	

π/4DQPSK/LCH	
π/4DQPSK/MCH	

π/4DQPSK/HCH	
8DPSK/LCH	

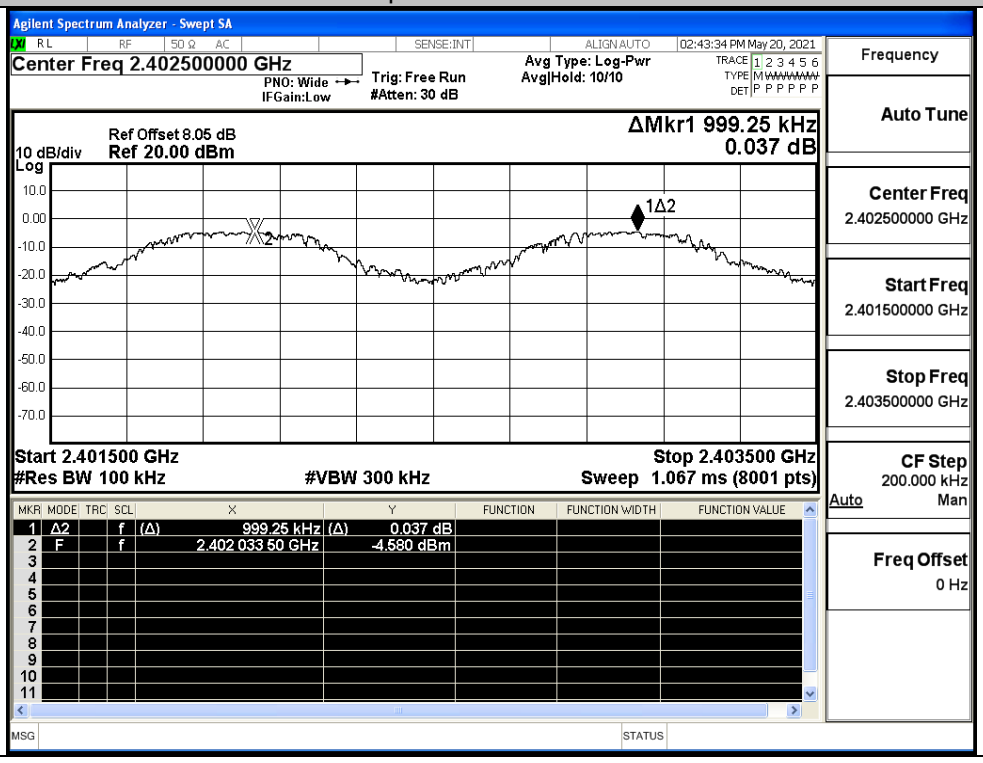
8DPSK/MCH	
8DPSK/HCH	

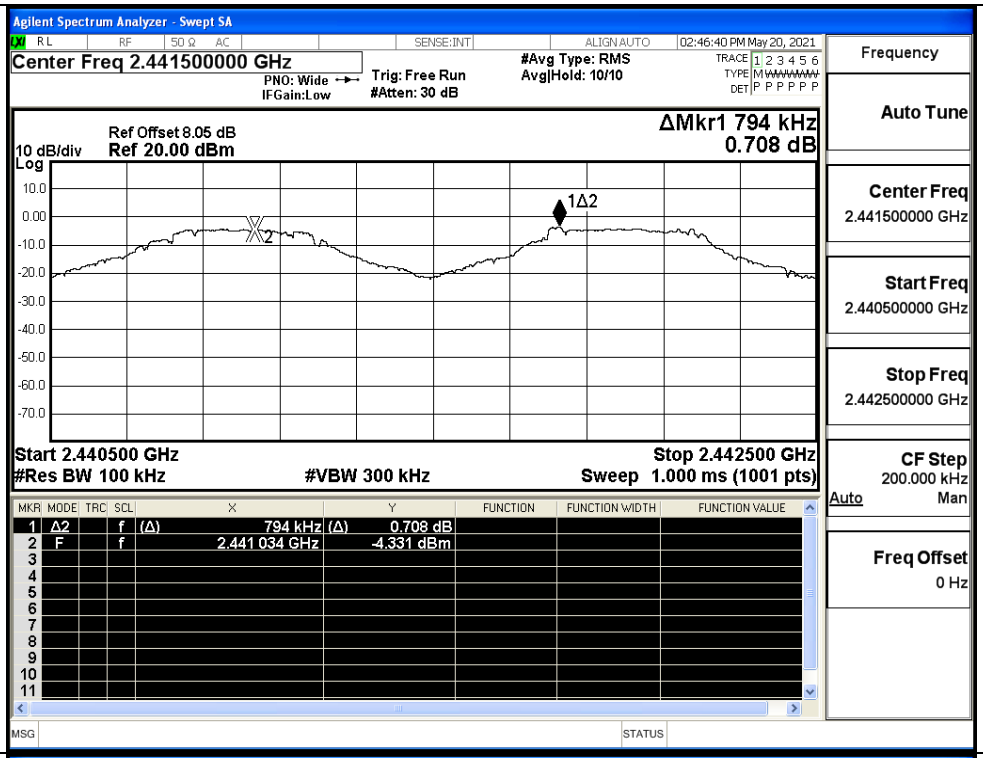
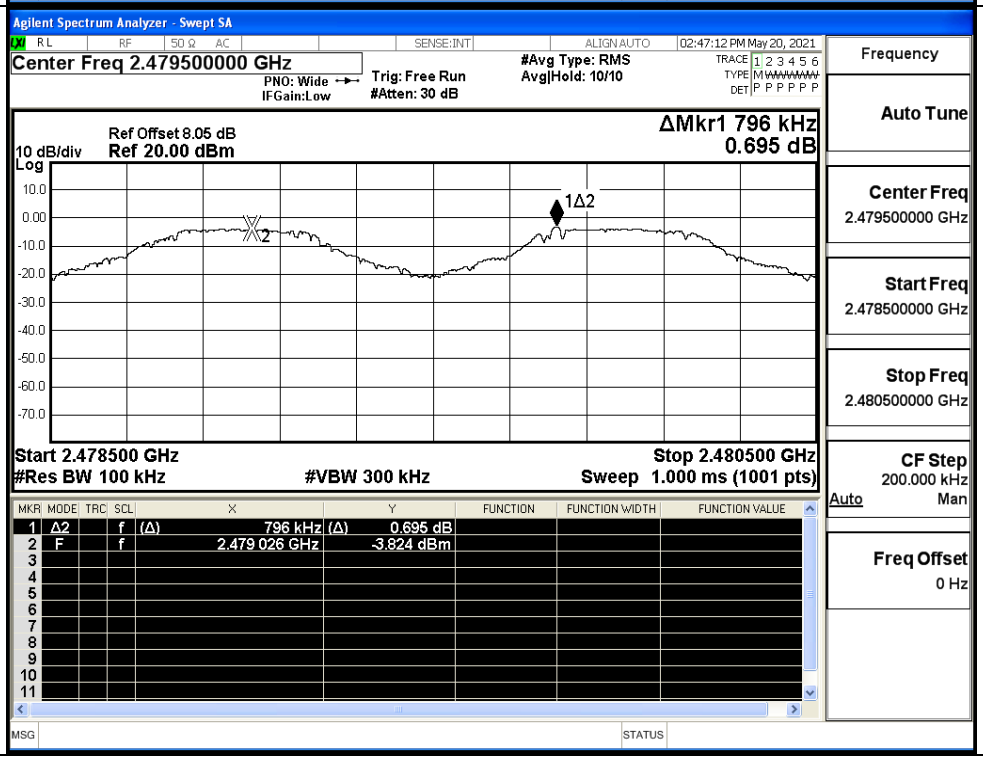
A.3 Carrier Frequency Separation

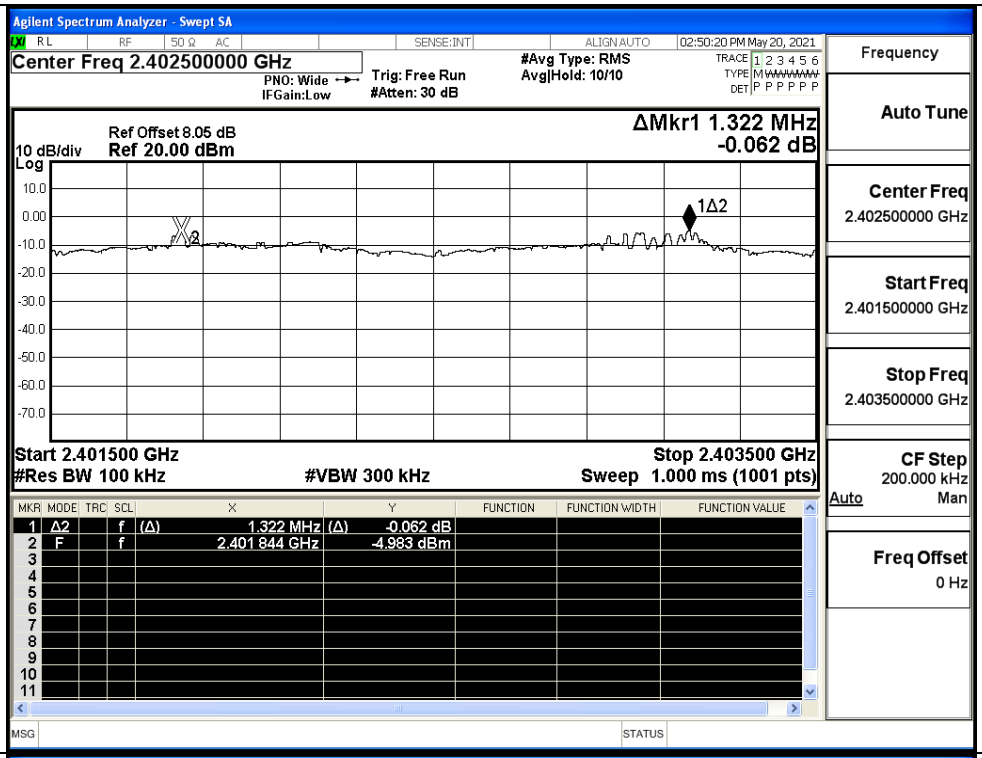
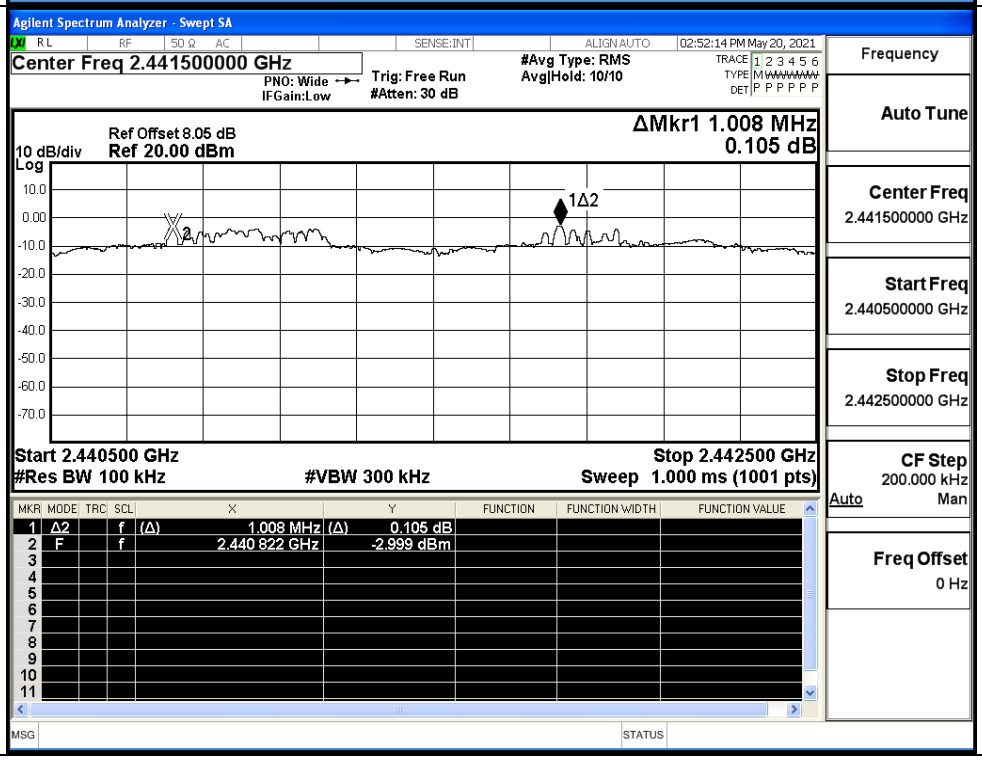
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.999	0.641	PASS
	MCH	0.794	0.641	PASS
	HCH	0.796	0.641	PASS
π/4DQPSK	LCH	1.322	0.817	PASS
	MCH	1.008	0.817	PASS
	HCH	1.368	0.817	PASS
8DPSK	LCH	0.872	0.845	PASS
	MCH	1.158	0.845	PASS
	HCH	0.880	0.845	PASS

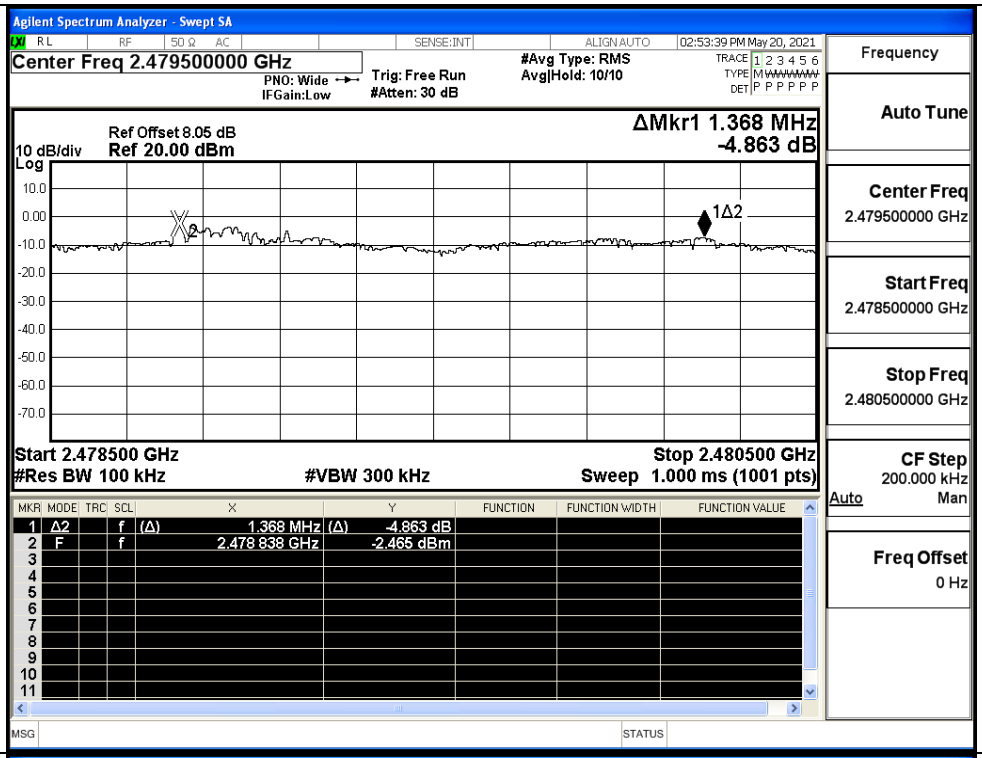
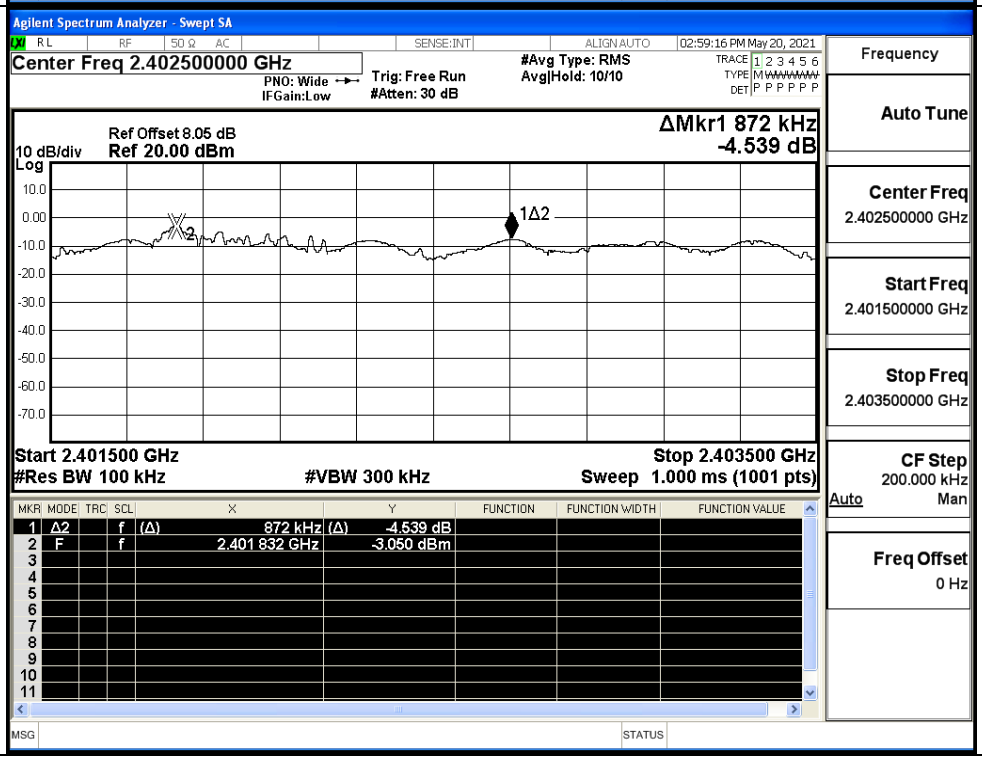
Test Graphs

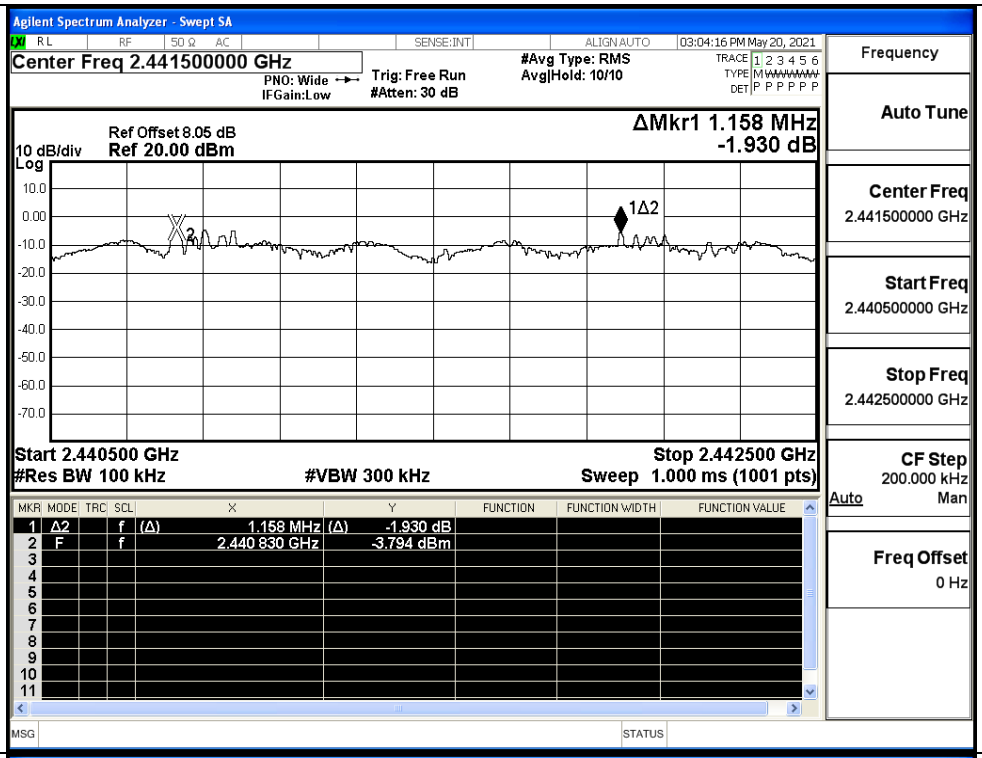
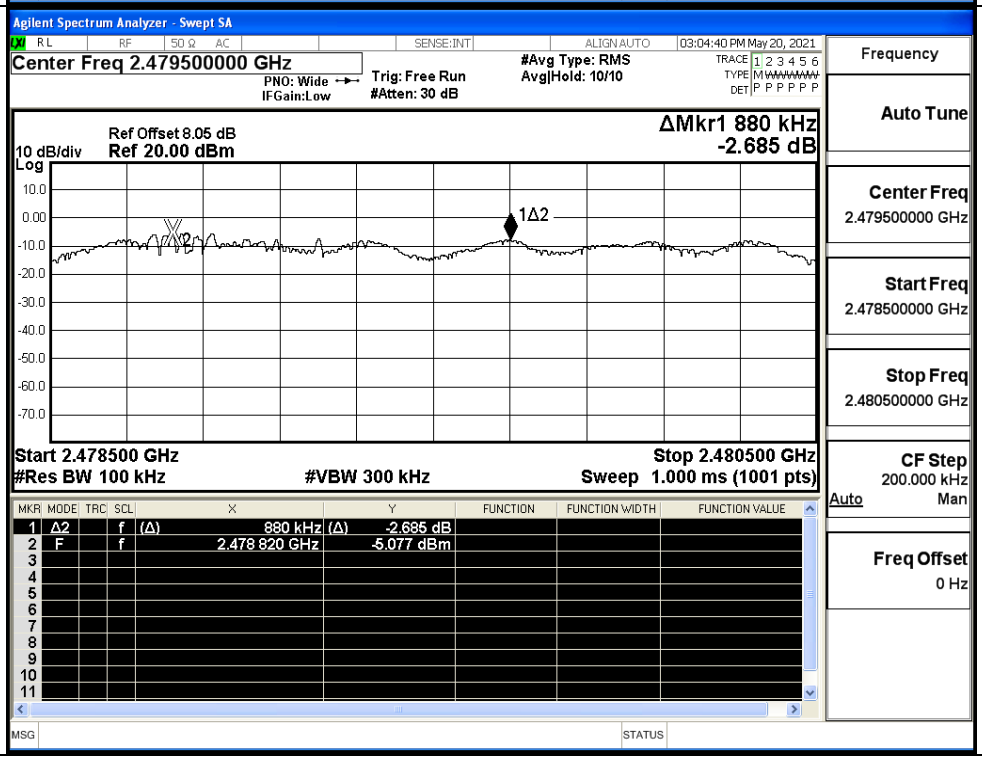
GFSK/LCH



GFSK/MCH	
GFSK/HCH	

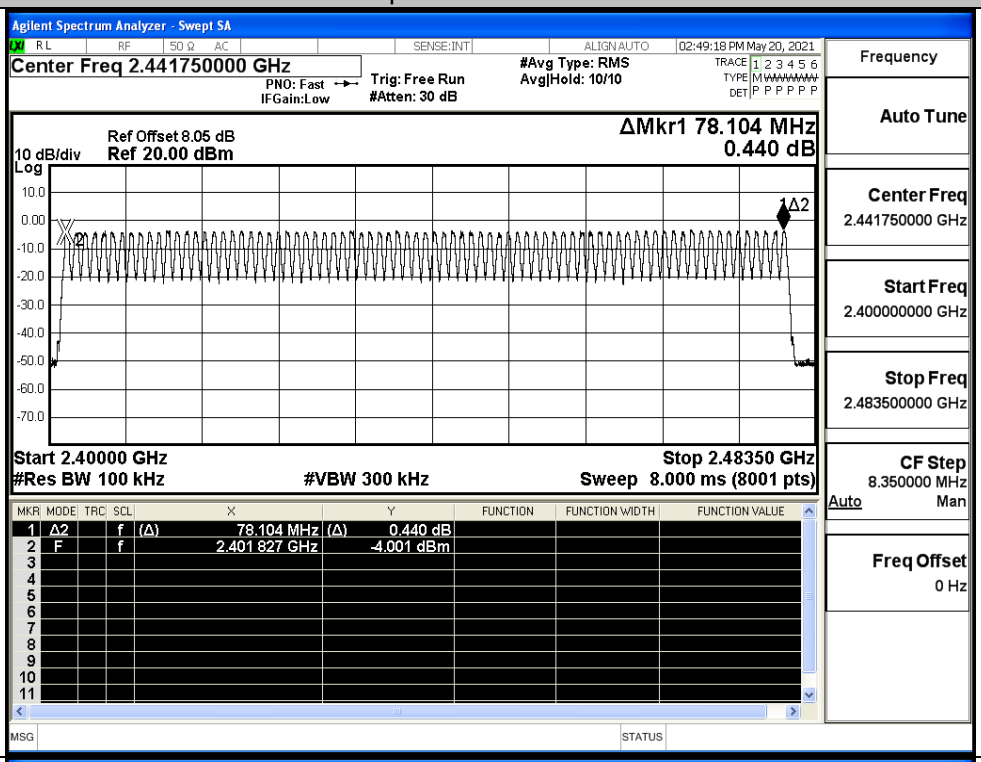
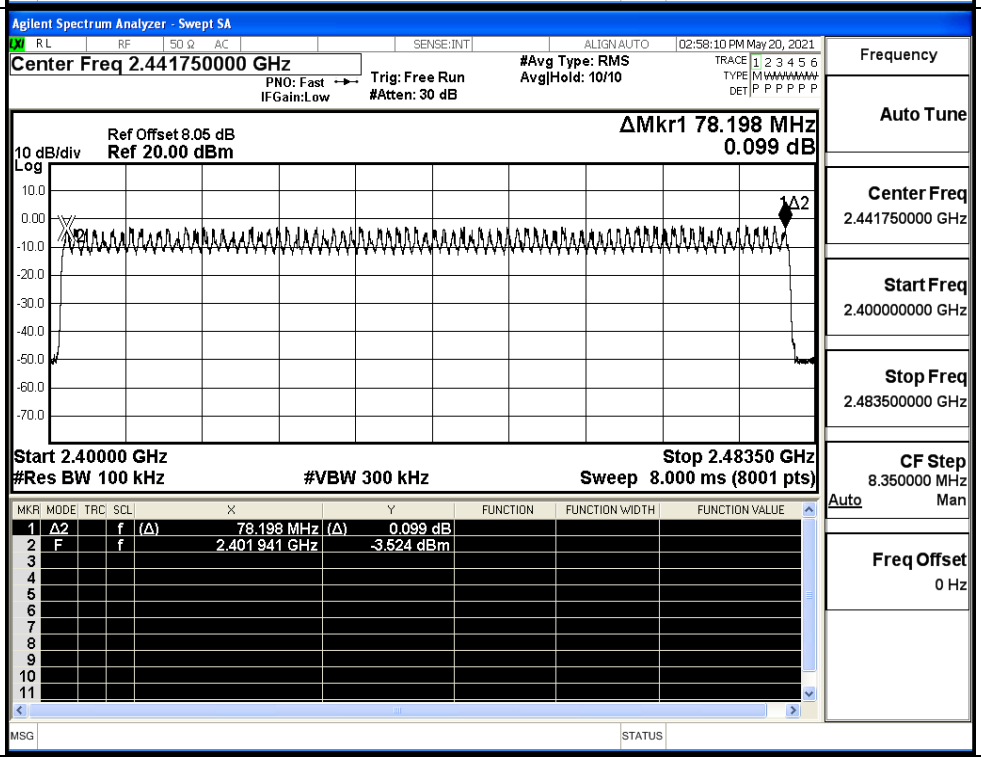
π/4DQPSK/LCH	
π/4DQPSK/MCH	

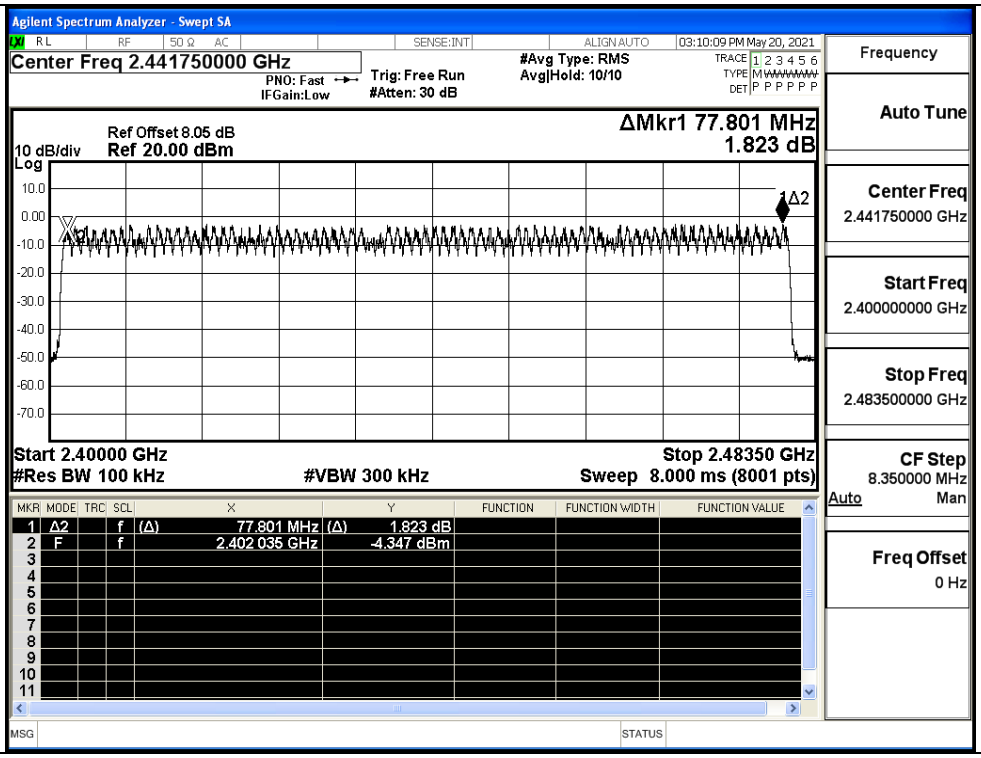
π/4DQPSK/HCH	
8DPSK/LCH	

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	

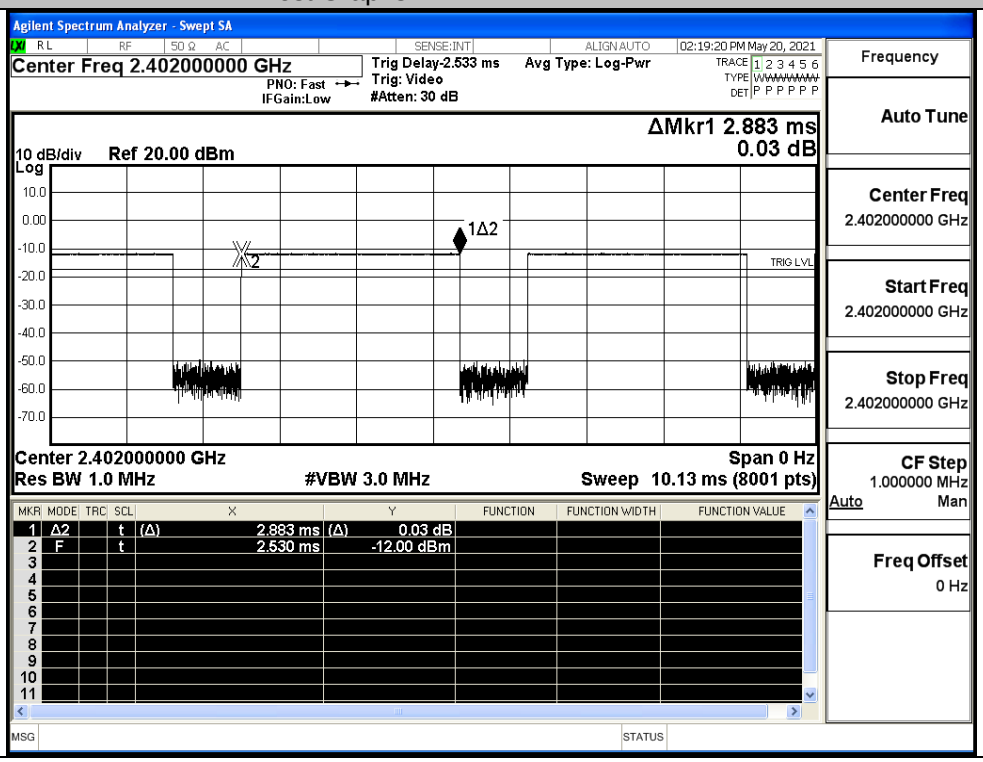
Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441750000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 10/10
03:10:09 PM May 20, 2021
Ref Offset 8.05 dB
10 dB/div
Log
Ref 20.00 dBm
ΔMkr1 77.801 MHz
1.823 dB
Start 2.40000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.48350 GHz
Sweep 8.000 ms (8001 pts)
1 Δ2 f (Δ) 77.801 MHz (Δ) 1.823 dB
2 F f 2.402 035 GHz -4.347 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

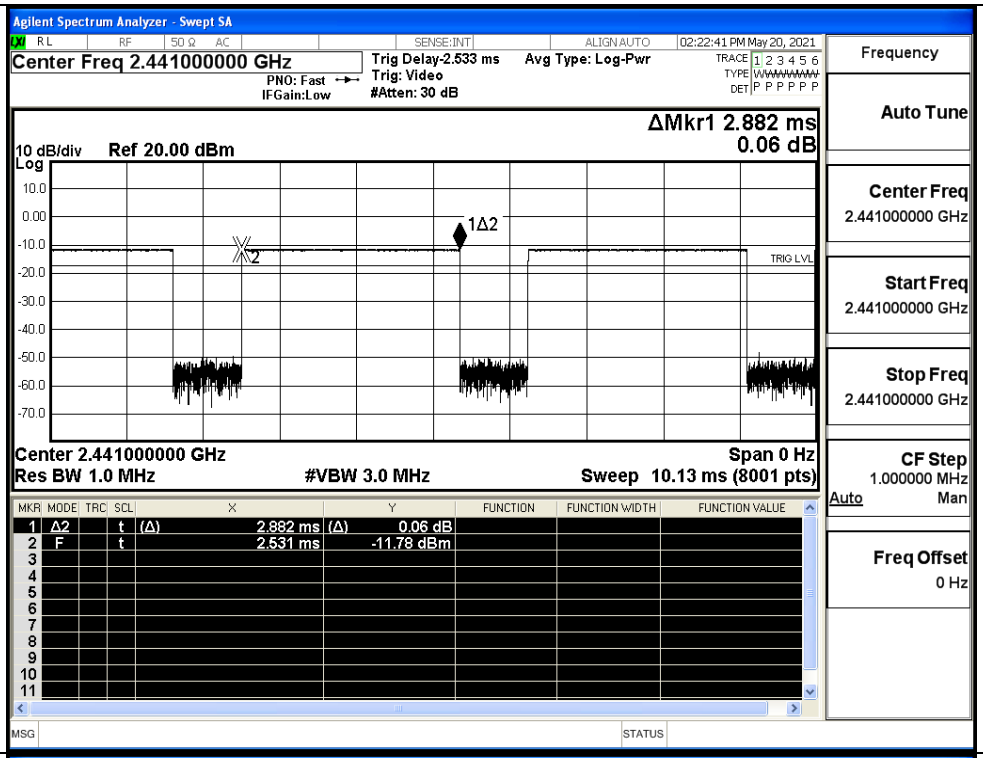
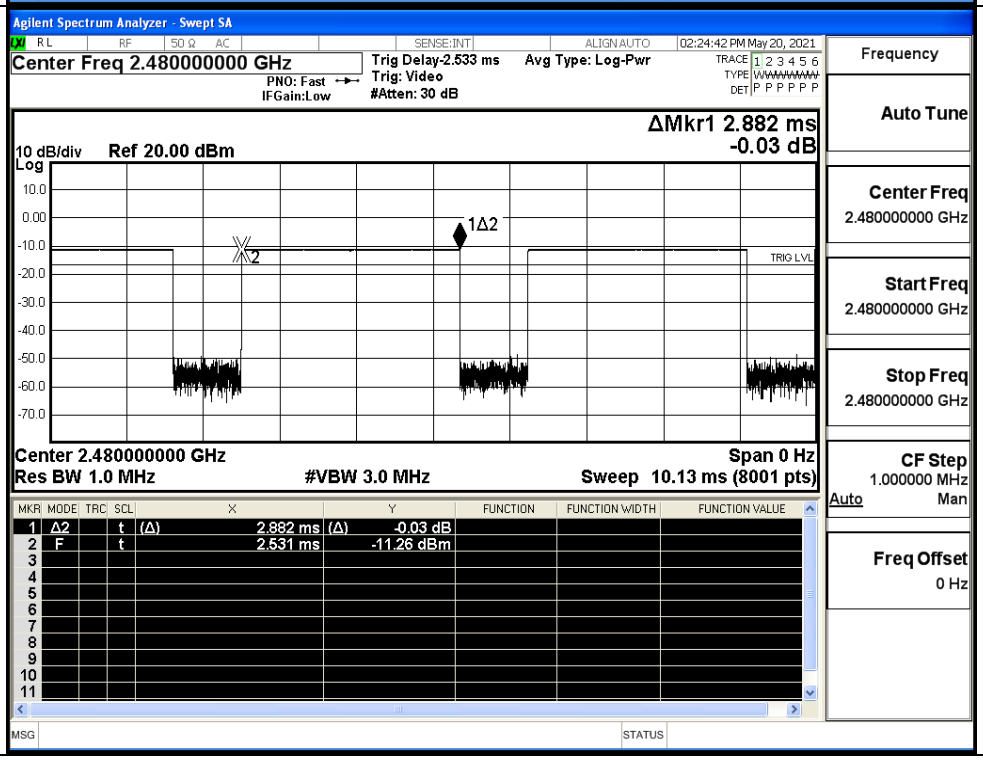
A.5 Dwell Time

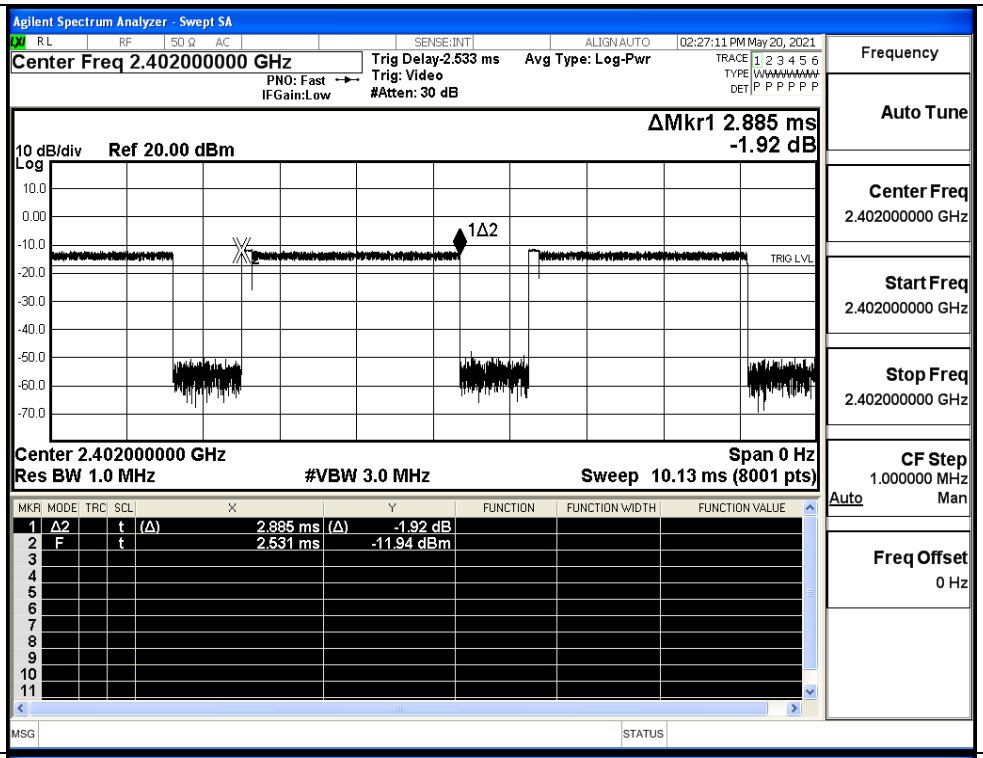
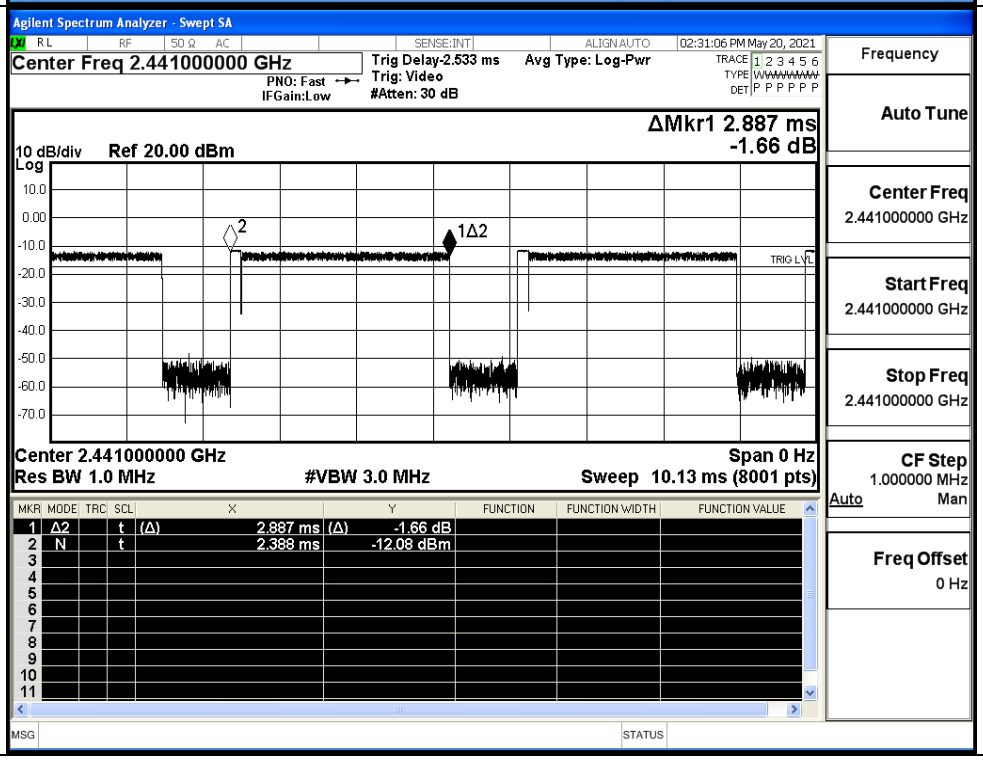
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
π/4DQPSK	2DH5	LCH	2.88	106.7	0.308	0.4	PASS
	2DH5	MCH	2.88	106.7	0.015	0.4	PASS
	2DH5	HCH	2.88	106.7	0.015	0.4	PASS
8DPSK	3DH5	LCH	2.88	106.7	0.015	0.4	PASS
	3DH5	MCH	2.88	106.7	0.308	0.4	PASS
	3DH5	HCH	2.88	106.7	0.015	0.4	PASS

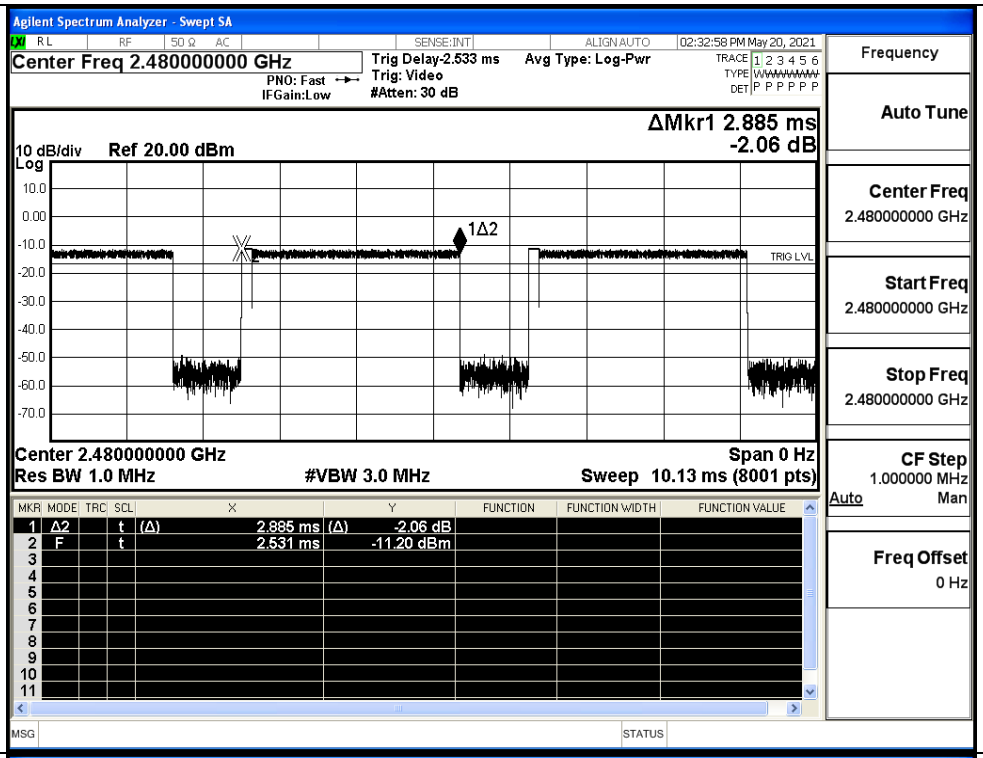
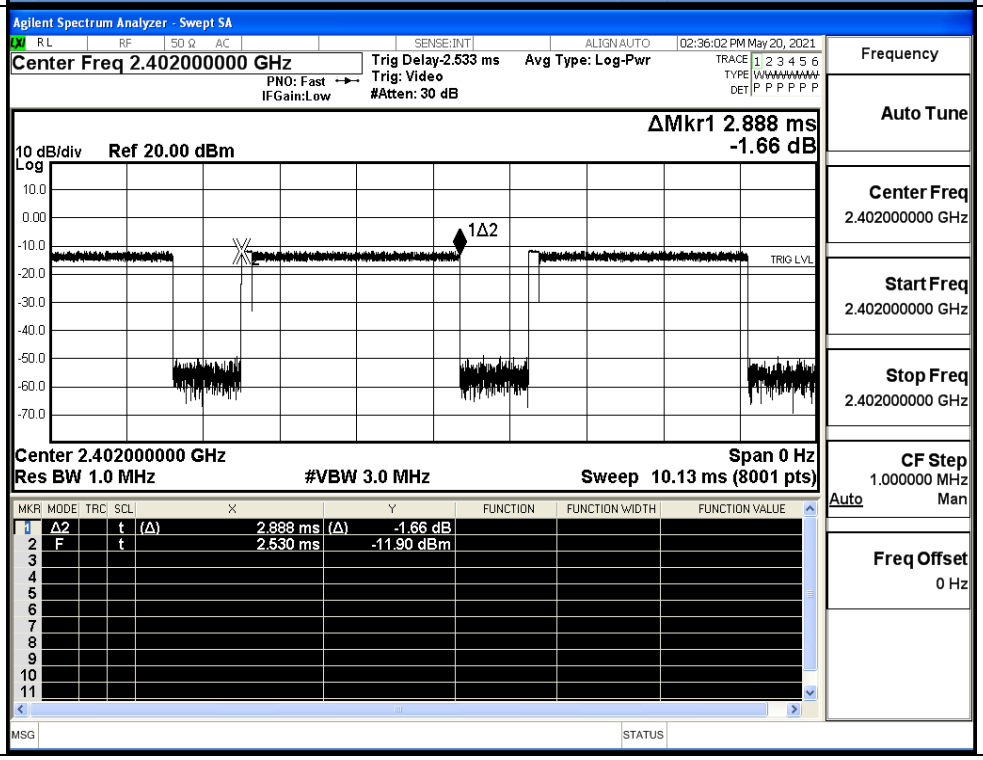
Test Graphs

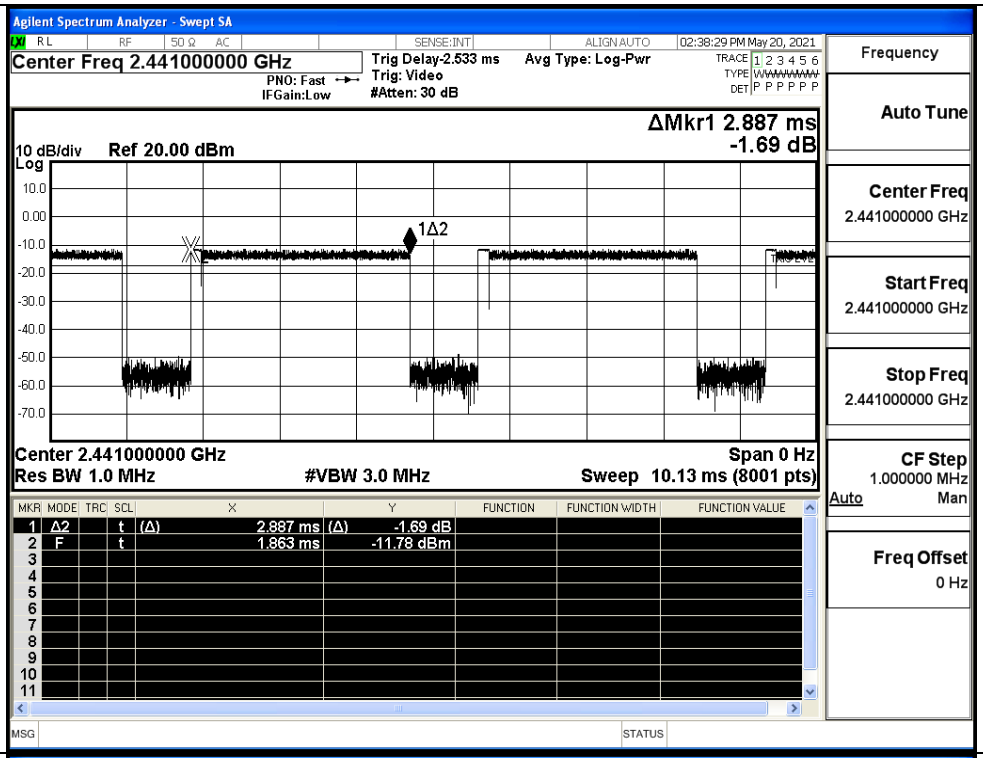
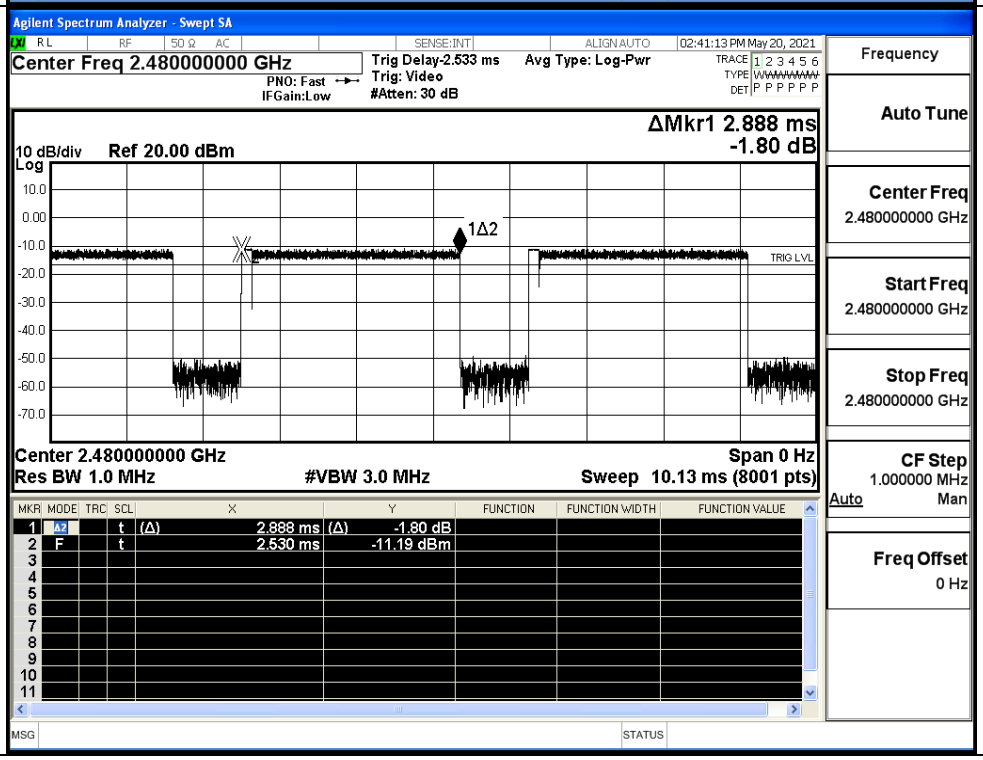
GFSK_DH5/LCH



GFSK_DH5/MCH	
GFSK_DH5/HCH	

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

π/4DQPSK _2DH5/HCH	
8DPSK _3DH5/LCH	

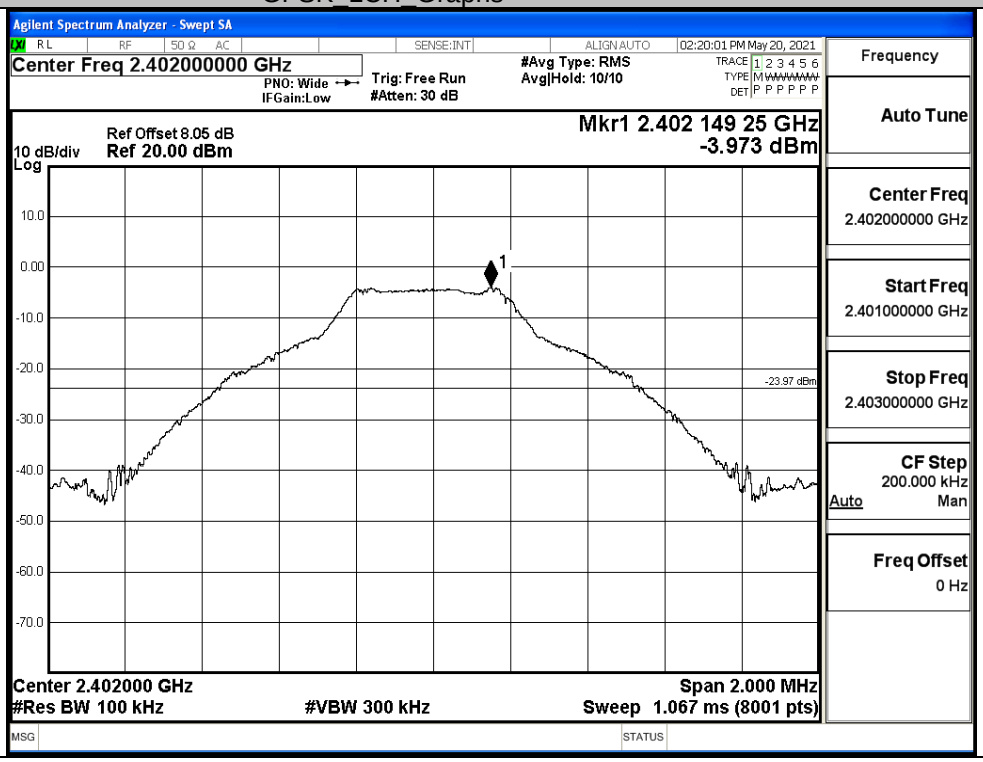
8DPSK _3DH5/MCH	
8DPSK _3DH5/HCH	

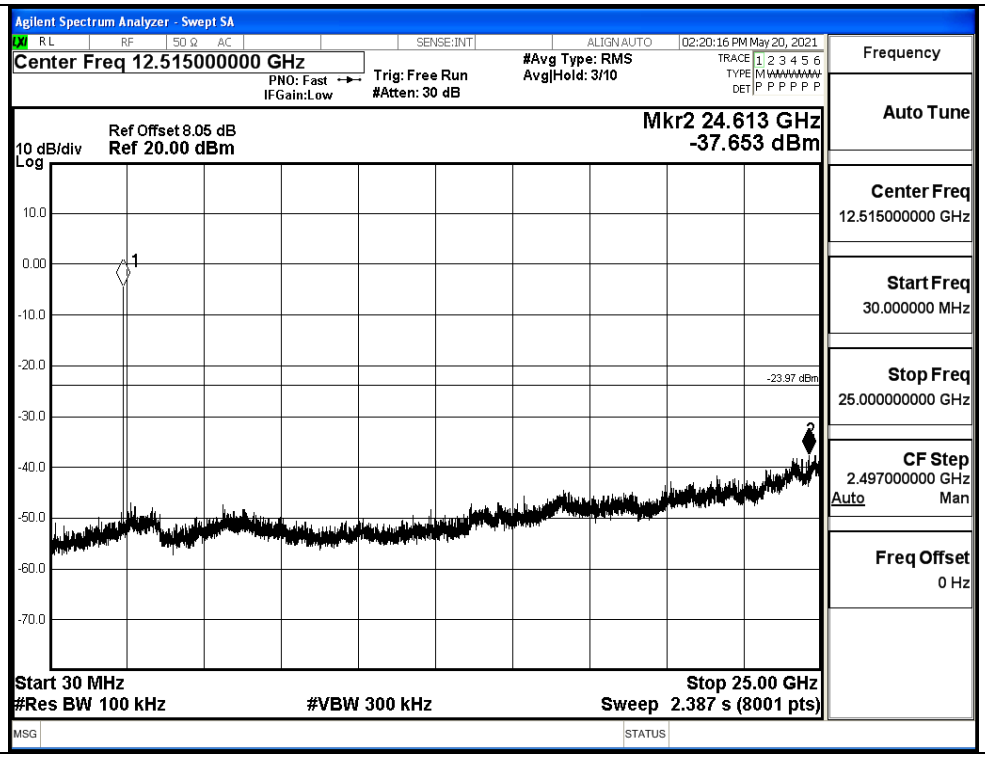
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-3.973	-37.653	-23.973	PASS
	MCH	-3.657	-37.990	-23.657	PASS
	HCH	-3.195	-36.989	-23.195	PASS
π/4DQPSK	LCH	-3.873	-37.078	-23.873	PASS
	MCH	-3.664	-37.601	-23.664	PASS
	HCH	-3.095	-37.911	-23.095	PASS
8DPSK	LCH	-3.756	-37.126	-23.756	PASS
	MCH	-3.604	-37.996	-23.604	PASS
	HCH	-3.112	-37.022	-23.112	PASS

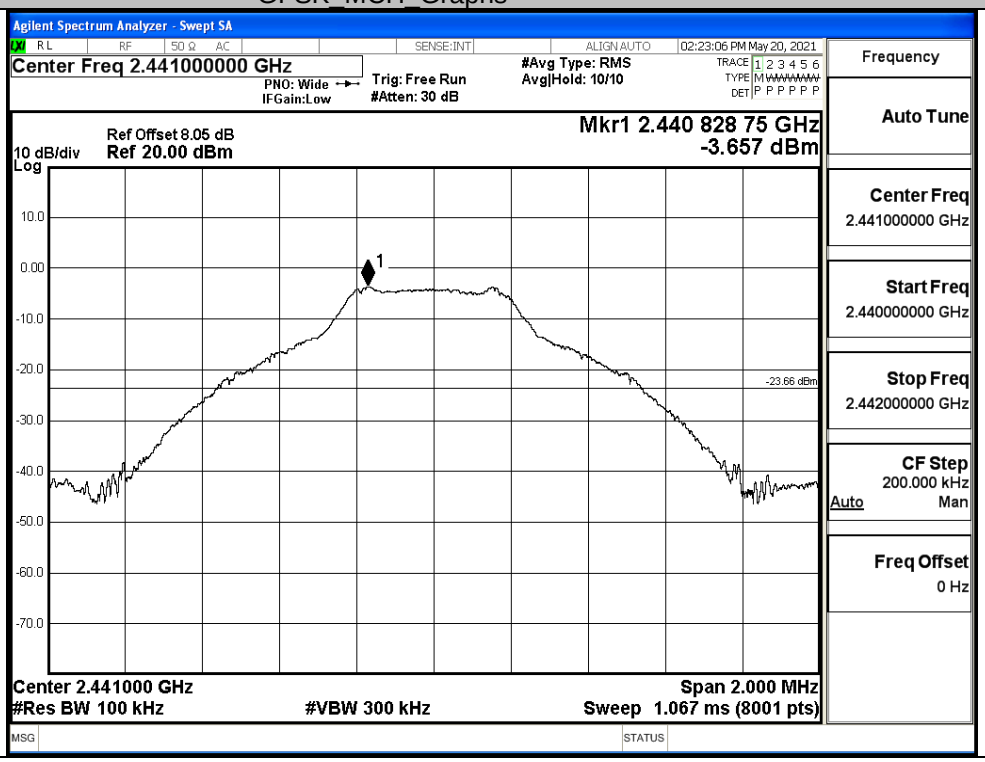
GFSK_LCH_Graphs

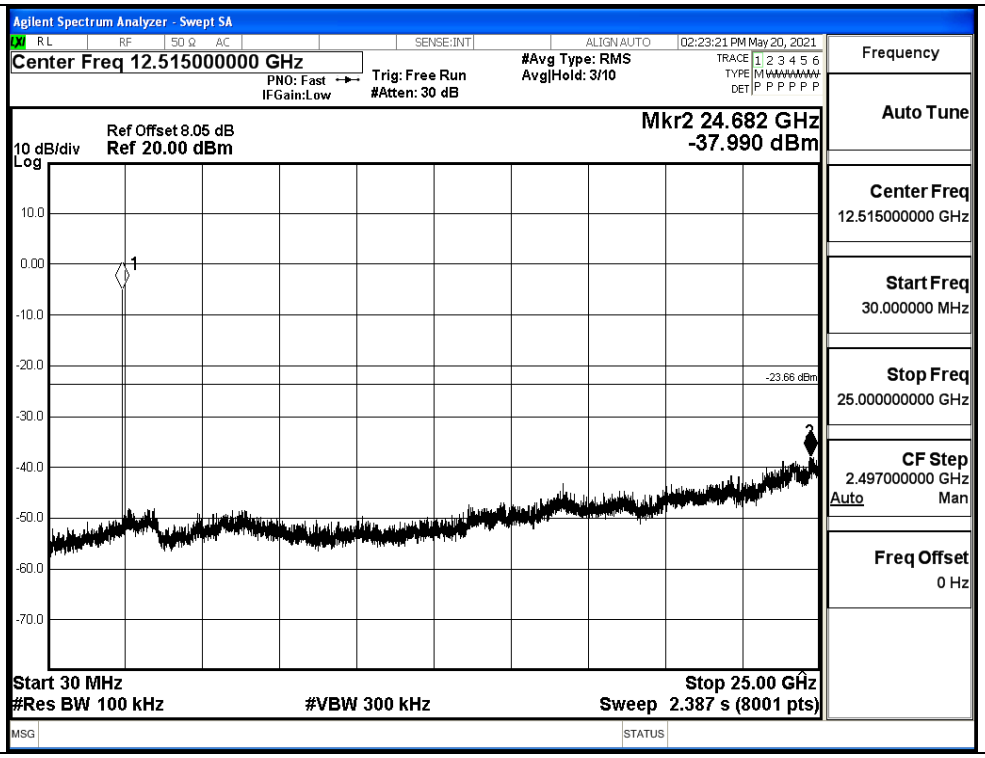
Pref



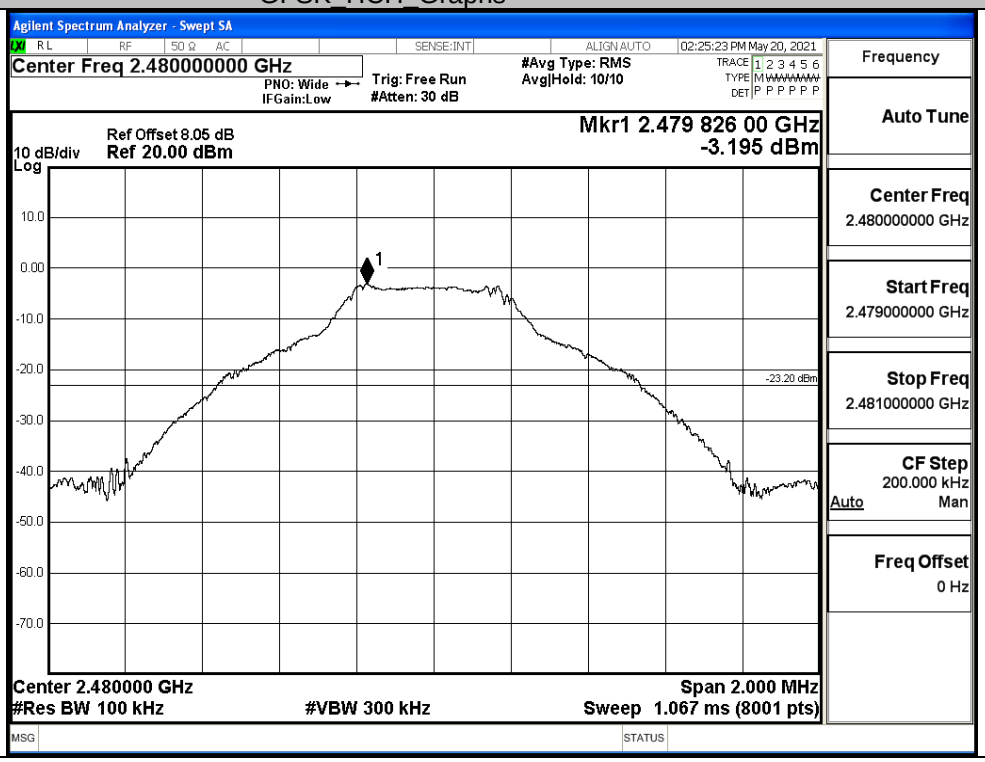
Puw	

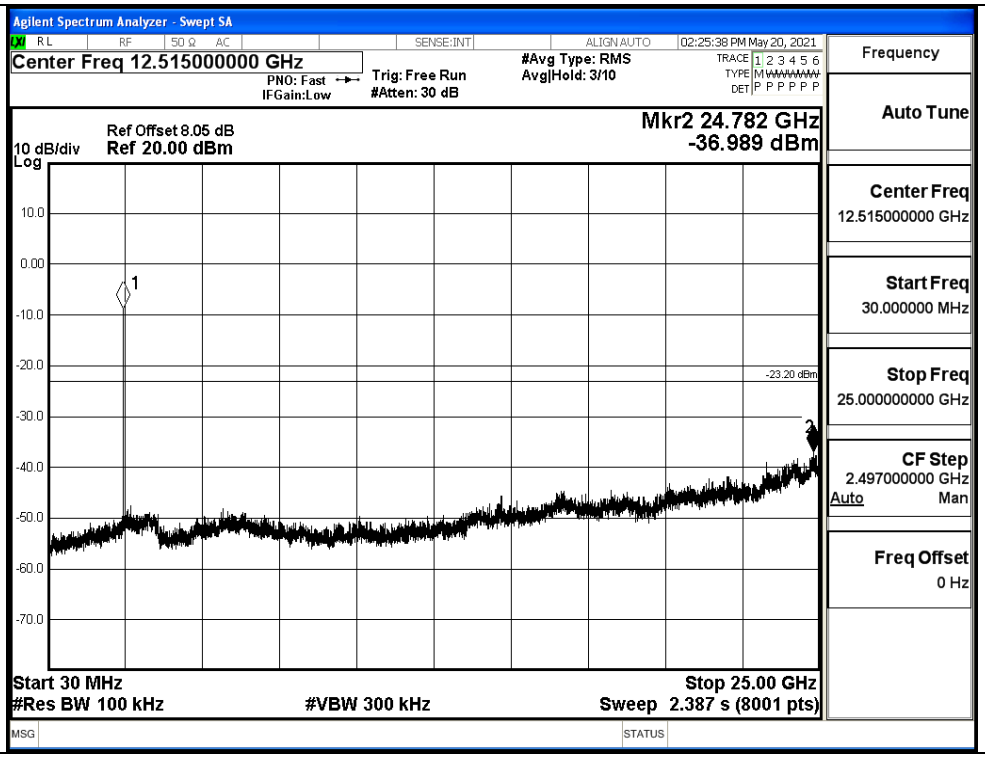
GFSK_MCH_Graphs

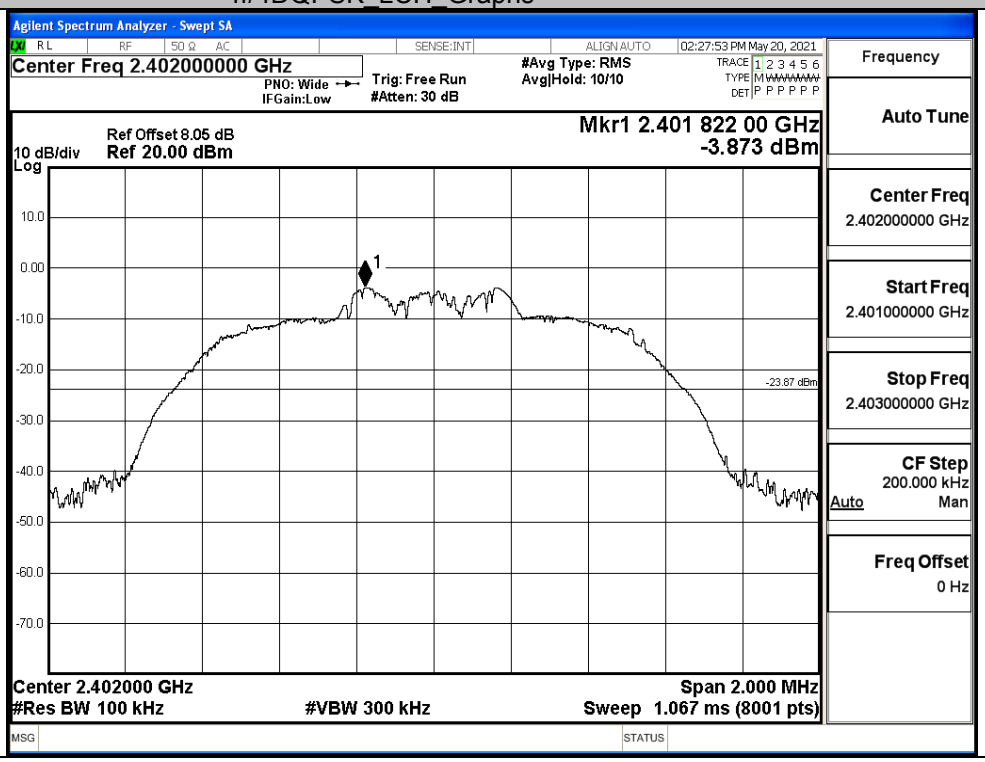
Pref	

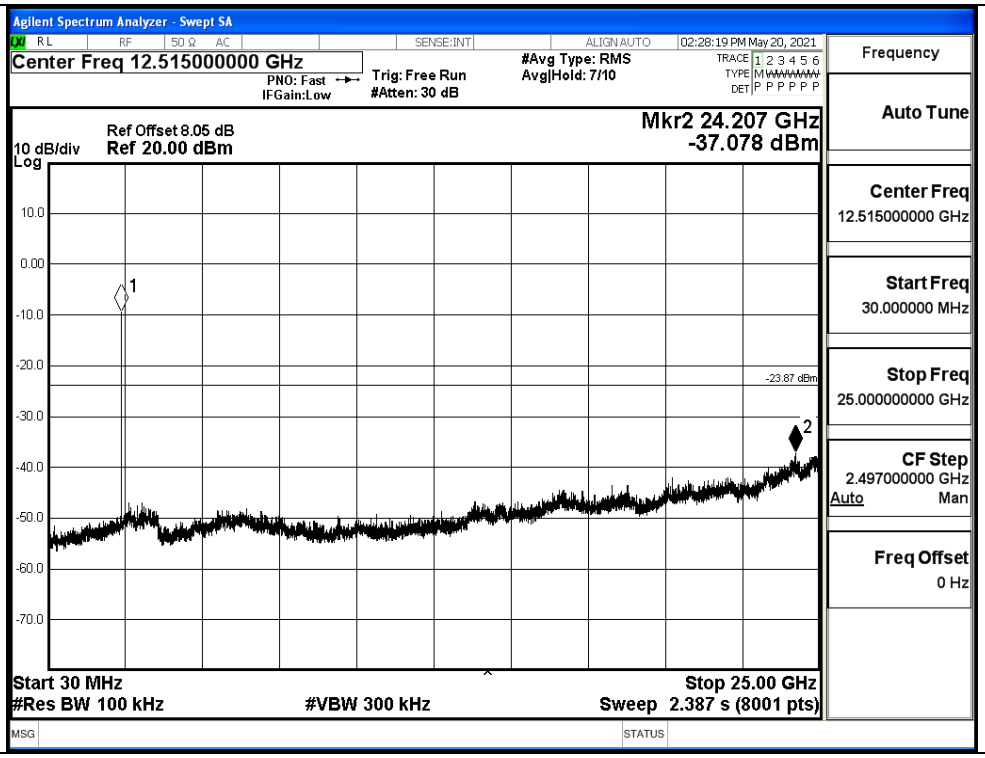
Puw	

GFSK_HCH_Graphs

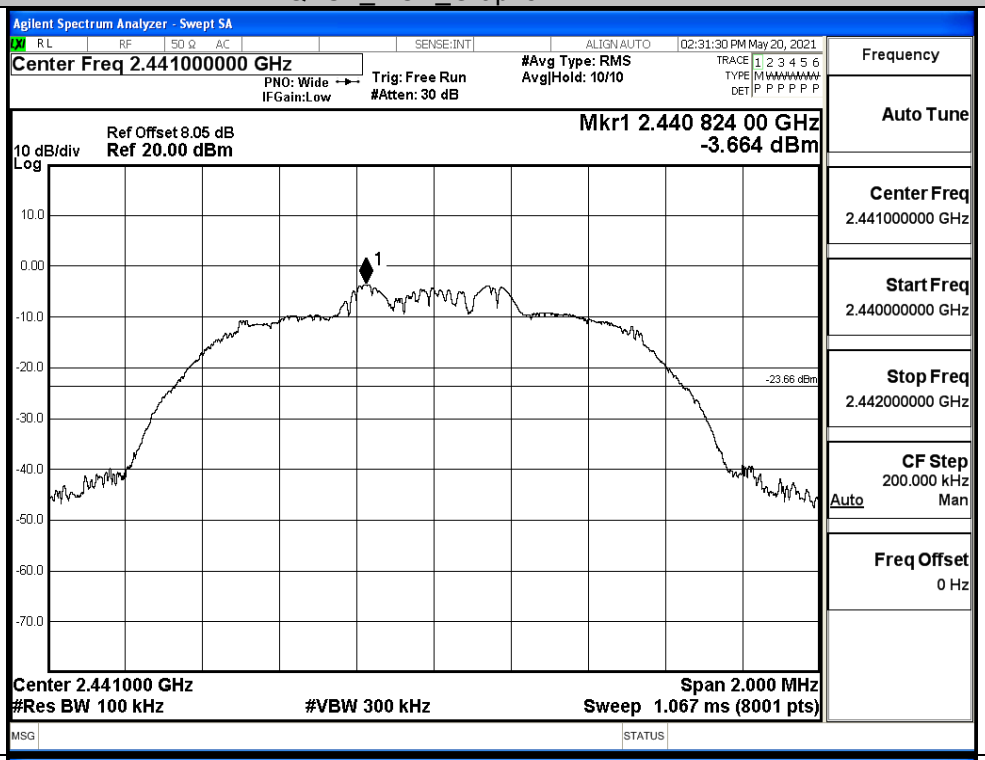
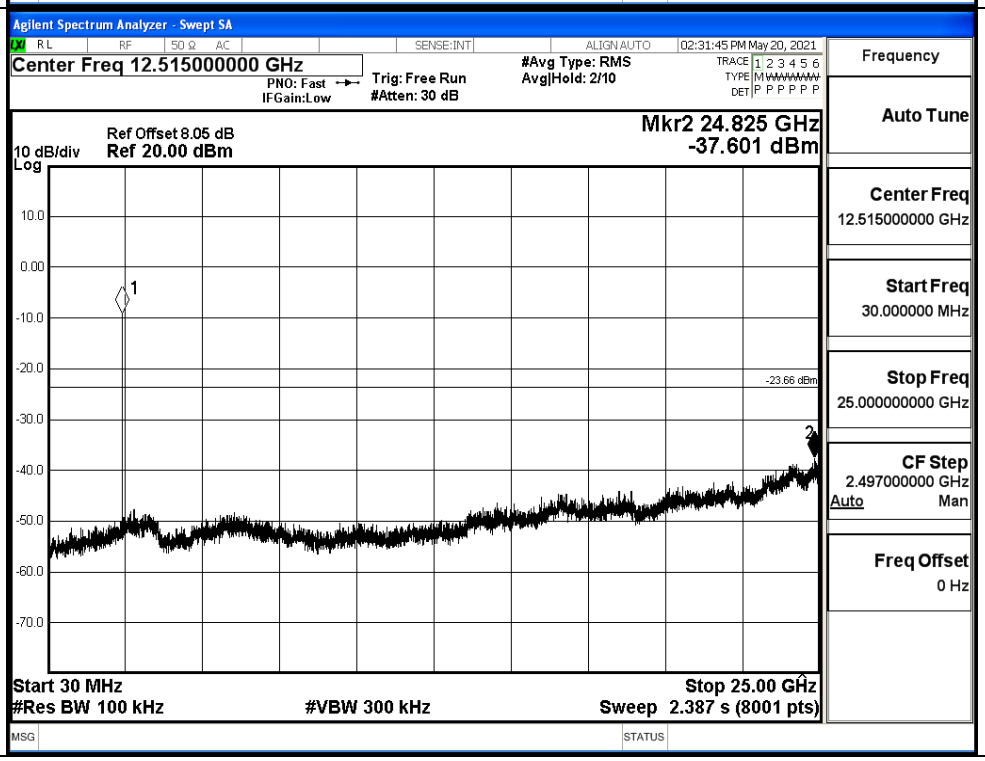
Pref	

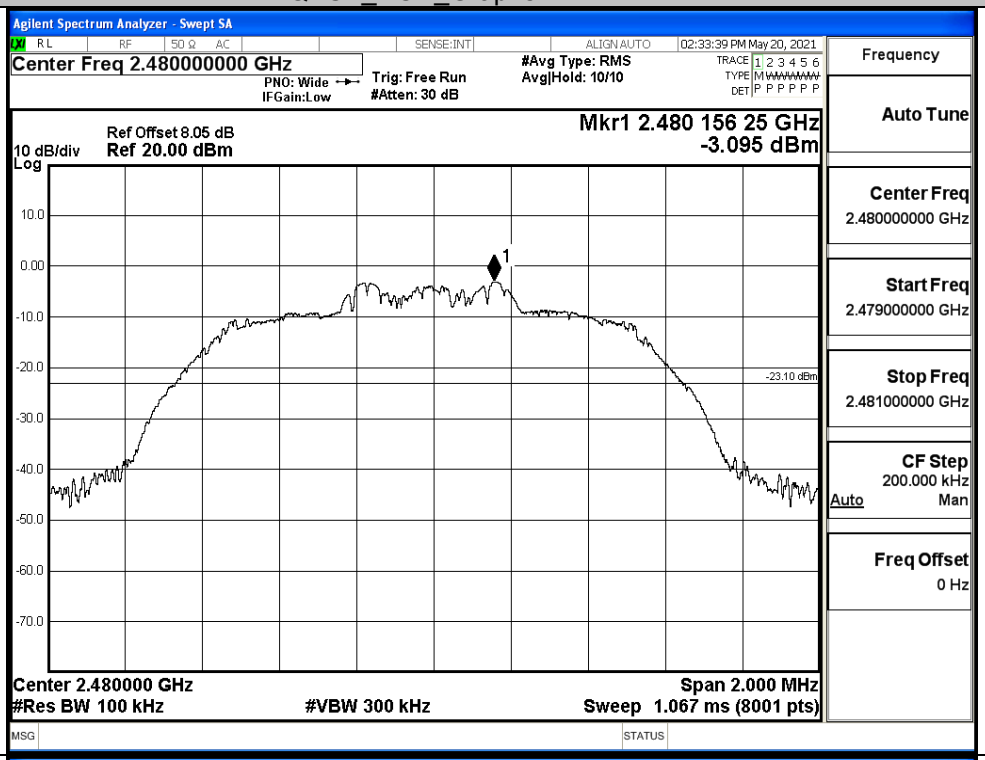
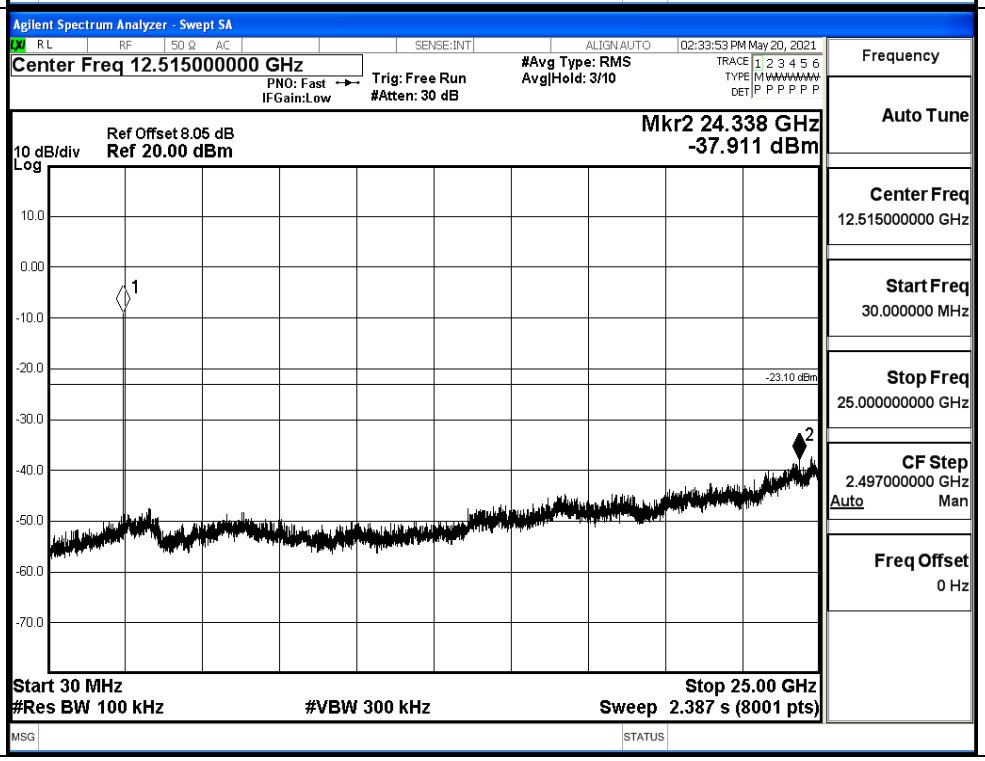
Puw	

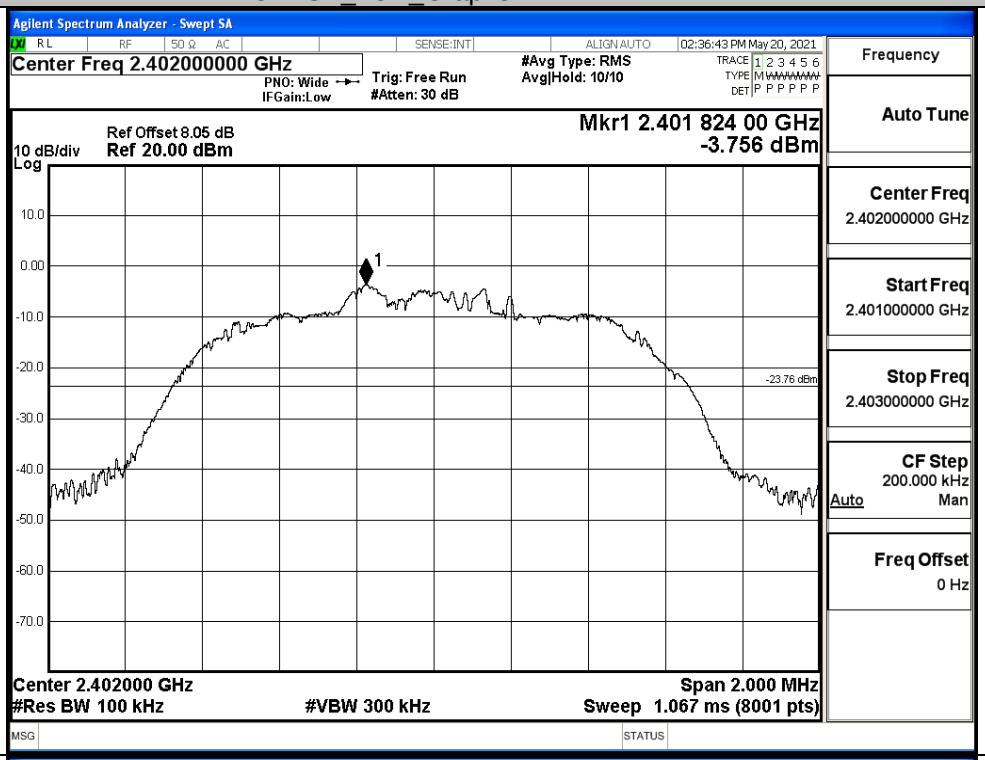
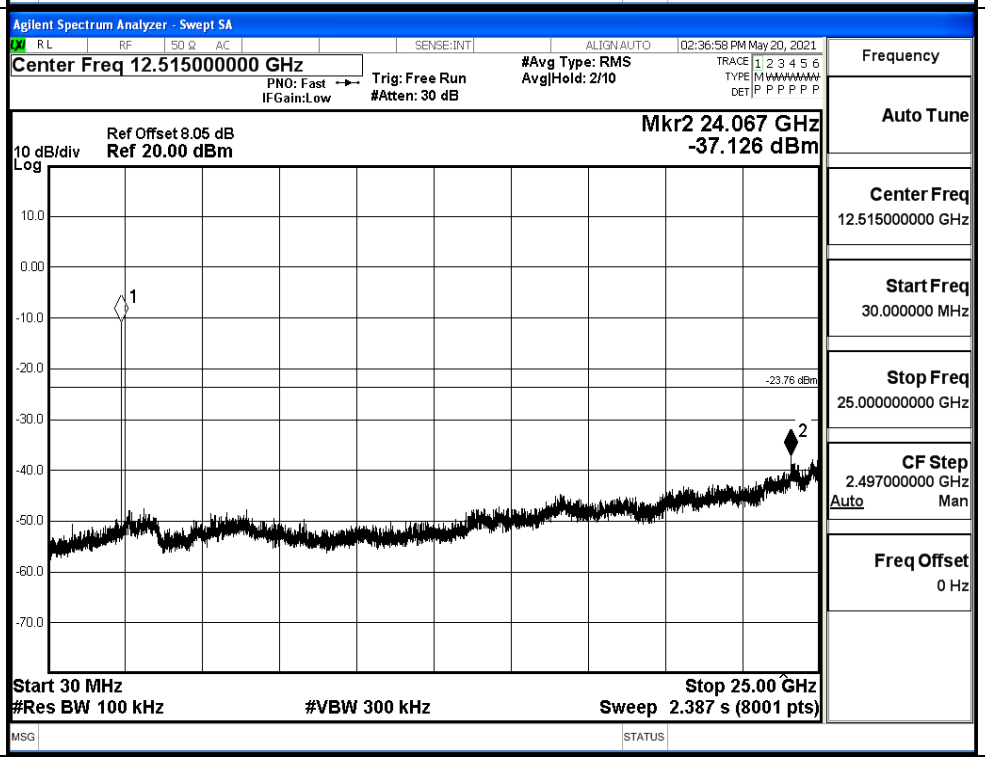
π/4DQPSK_LCH_Graphs	
Pref	

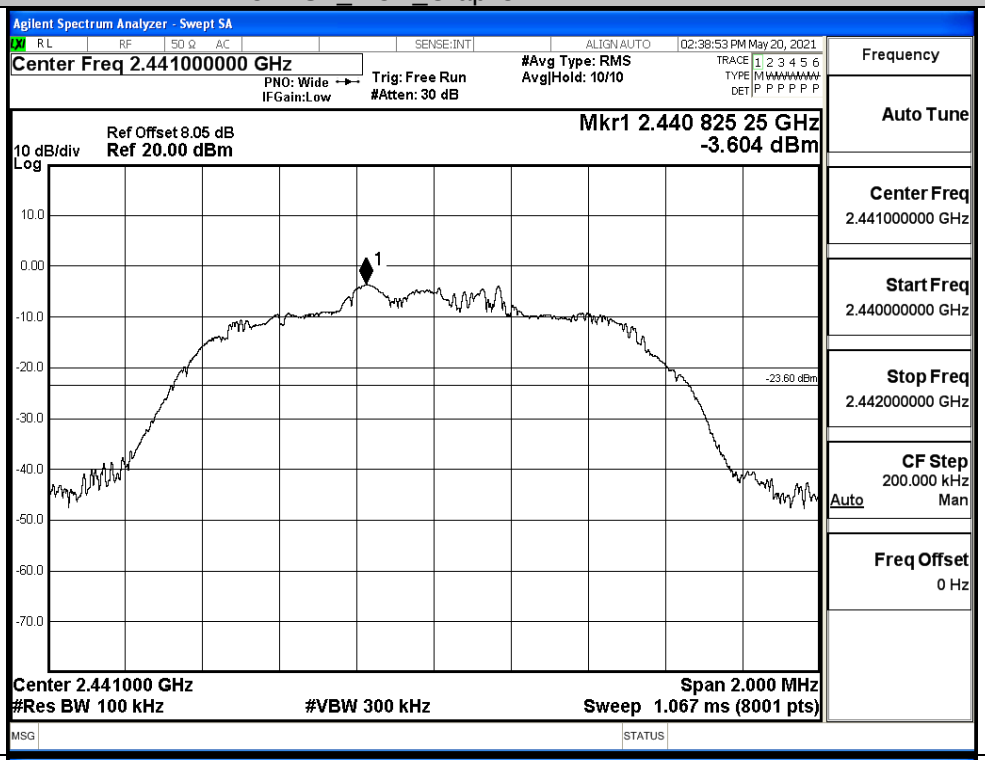
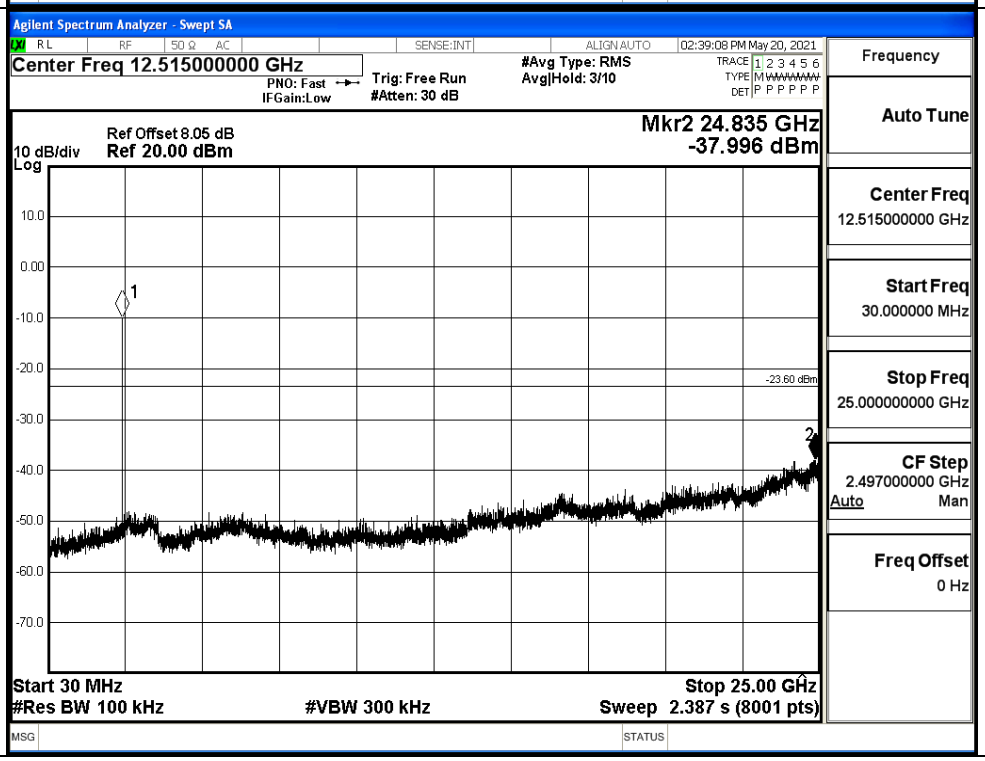
Puw		

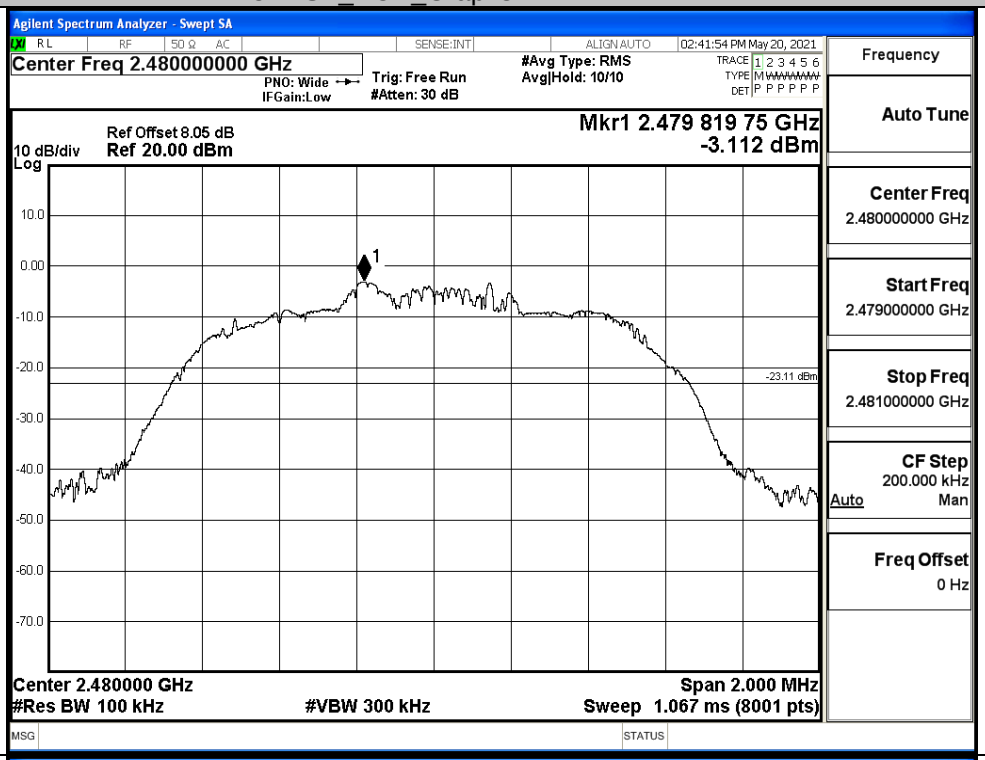
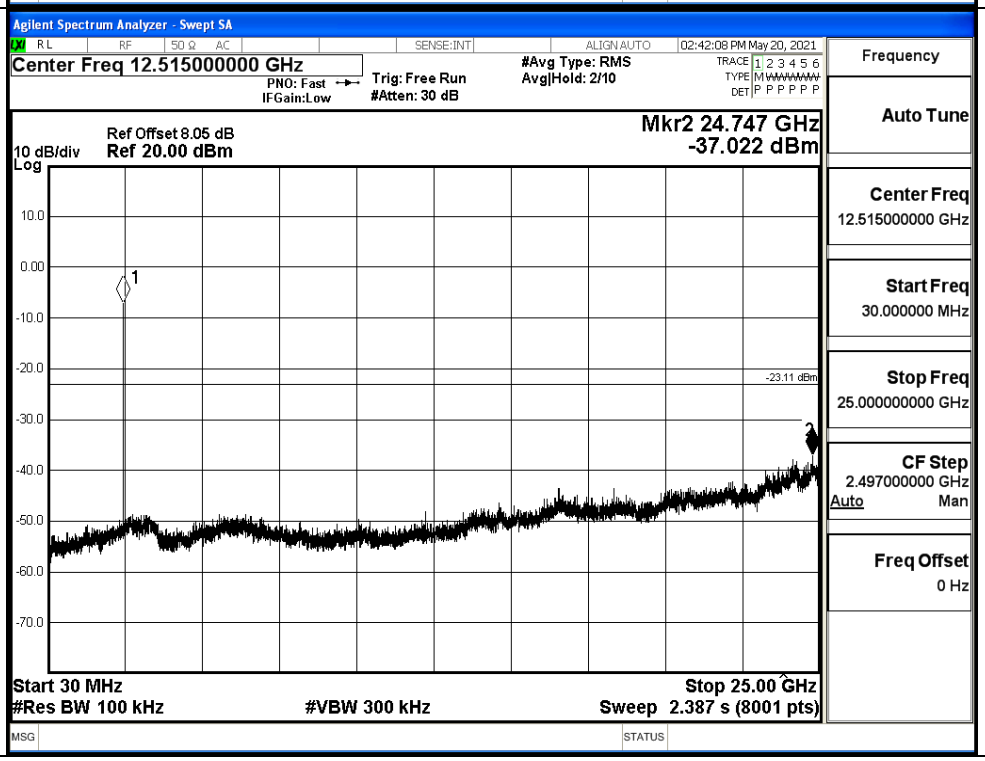
Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
02:28:19 PM May 20, 2021
Center Freq 12.515000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 7/10
TRACE 1 2 3 4 5 6
TYPE M
DET P P P P P
Ref Offset 8.05 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr2 24.207 GHz
-37.078 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-23.87 dBm
1
2
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

π/4DQPSK_MCH_Graphs			
Pref			
Puw			

π/4DQPSK_HCH_Graphs			
Pref			
Puw			

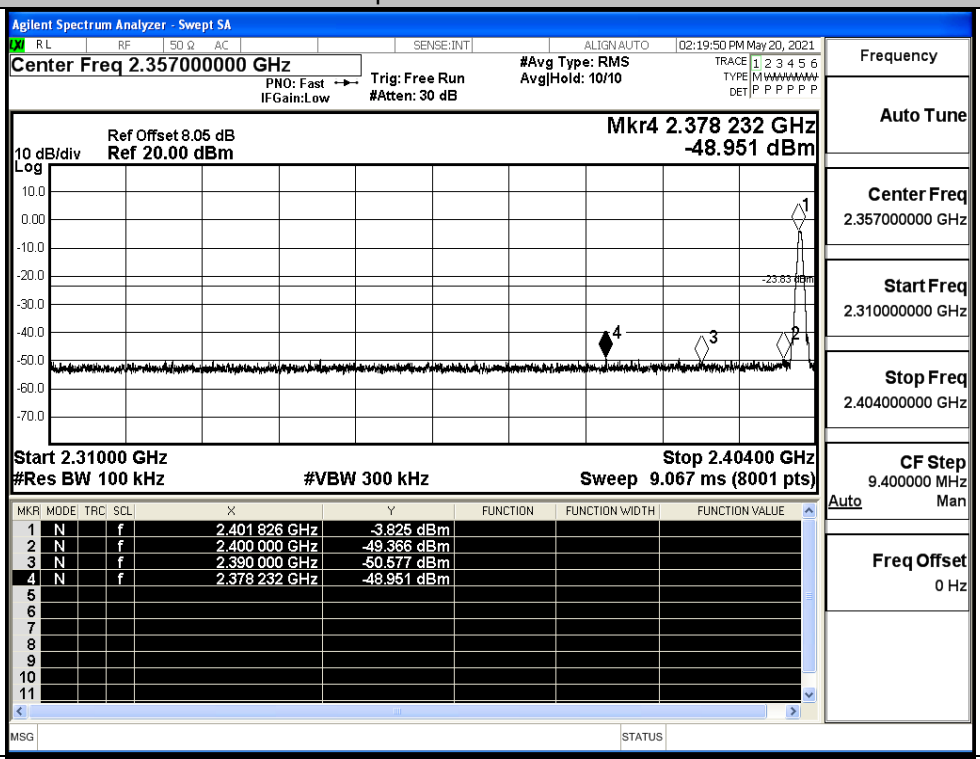
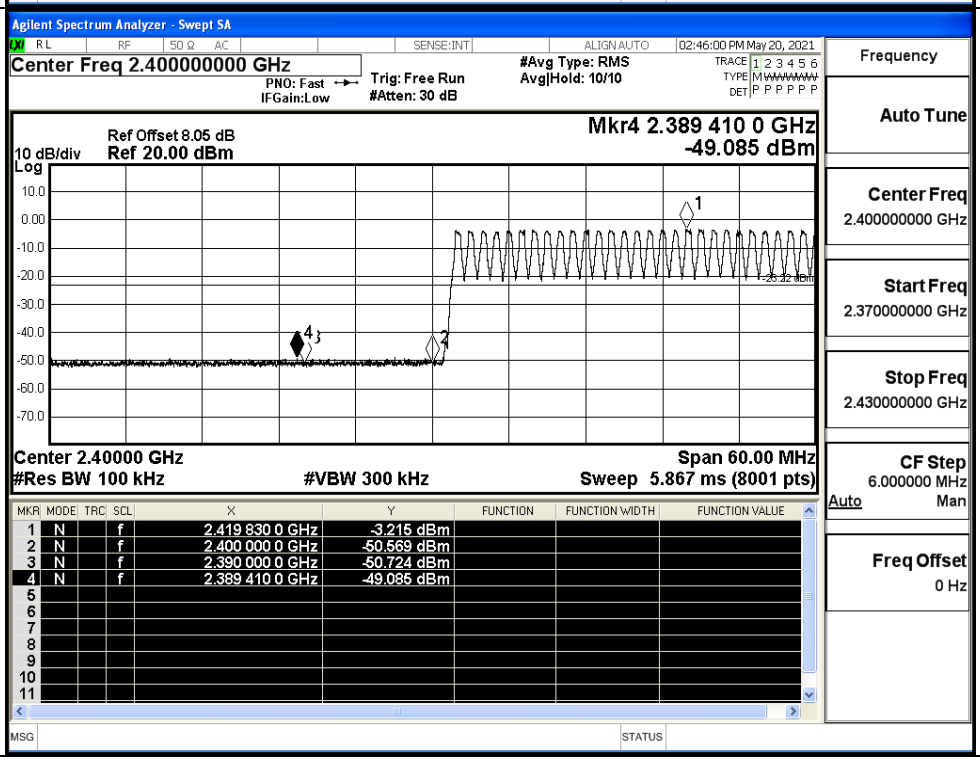
8DPSK_LCH_Graphs			
Pref			
Puw			

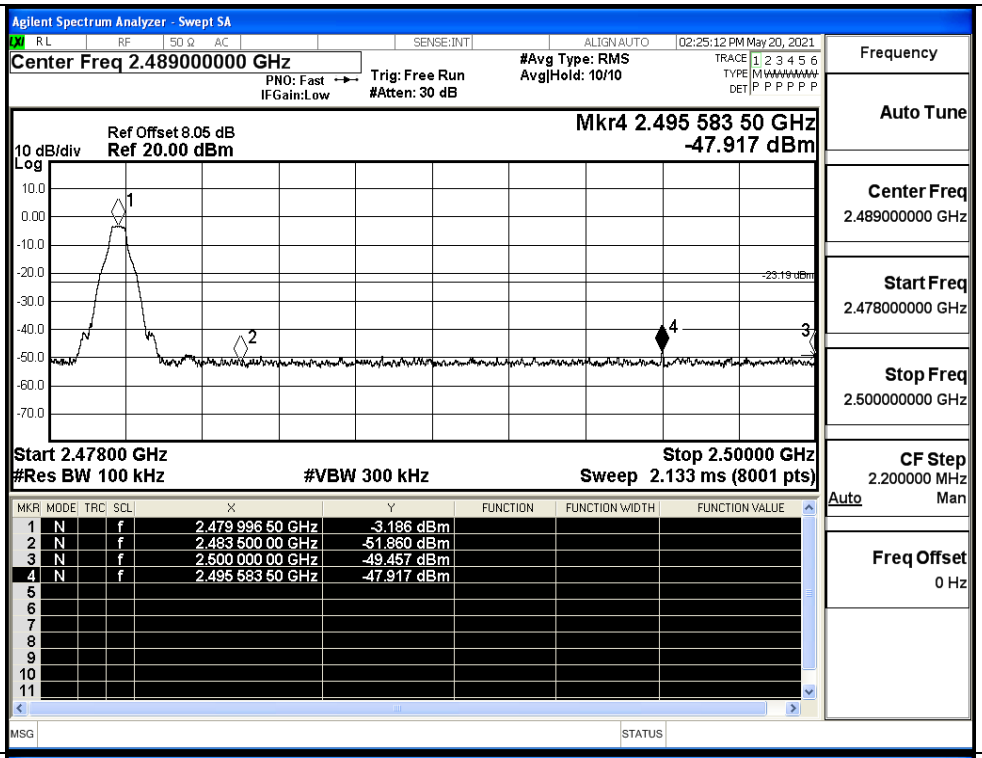
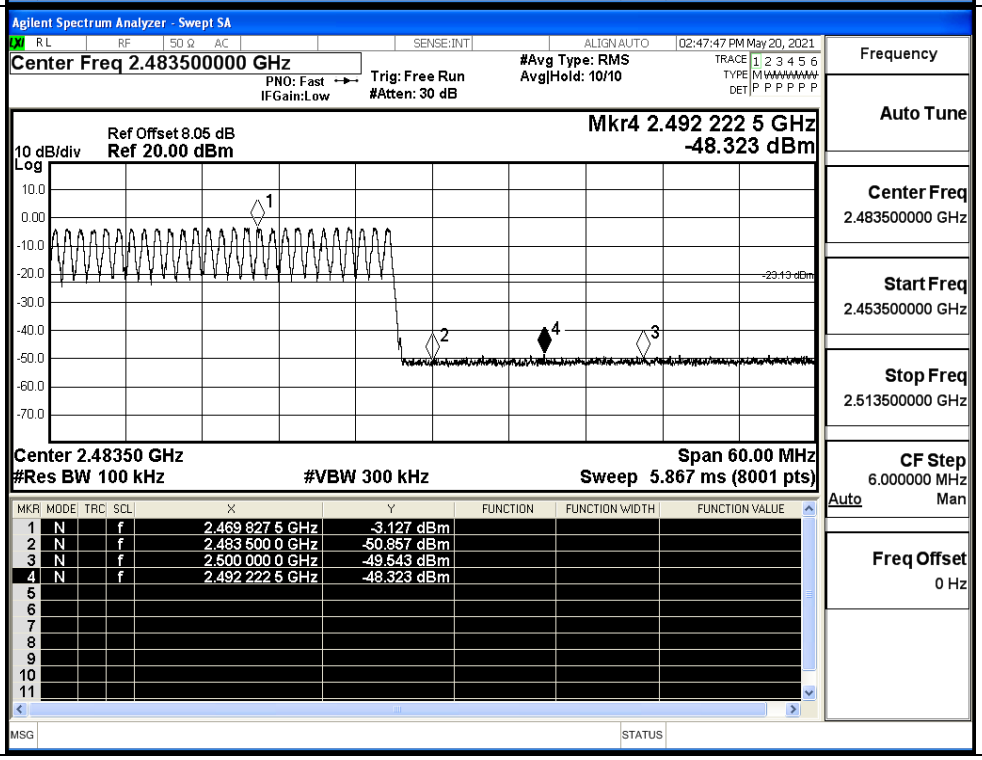
8DPSK_MCH_Graphs			
Pref			
Puw			

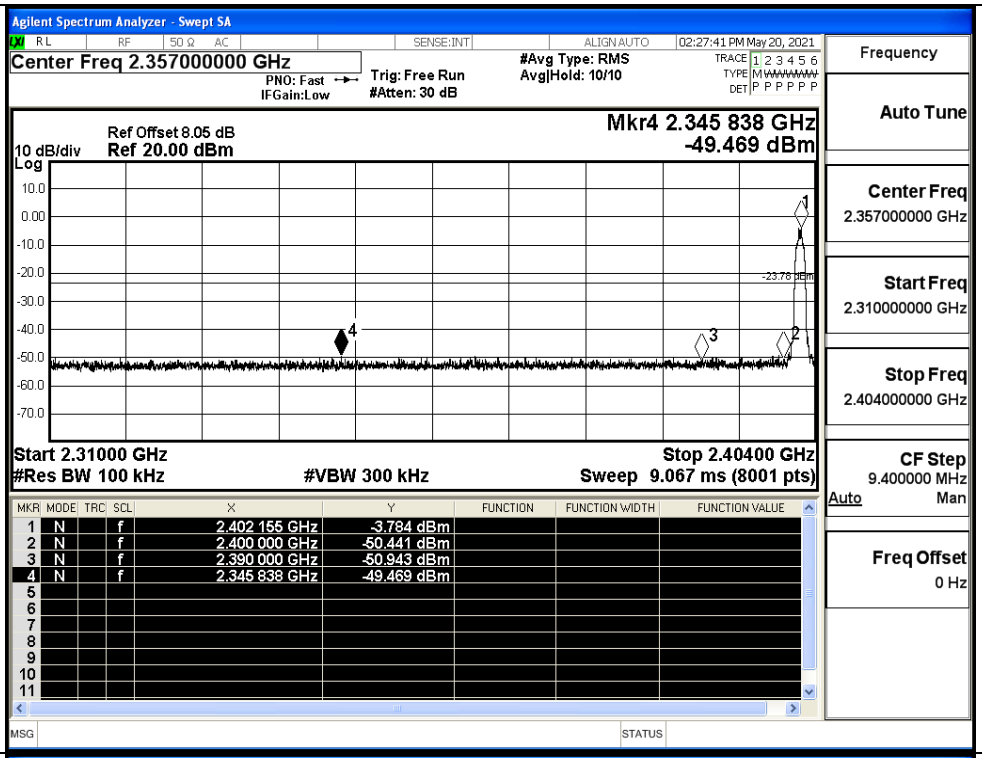
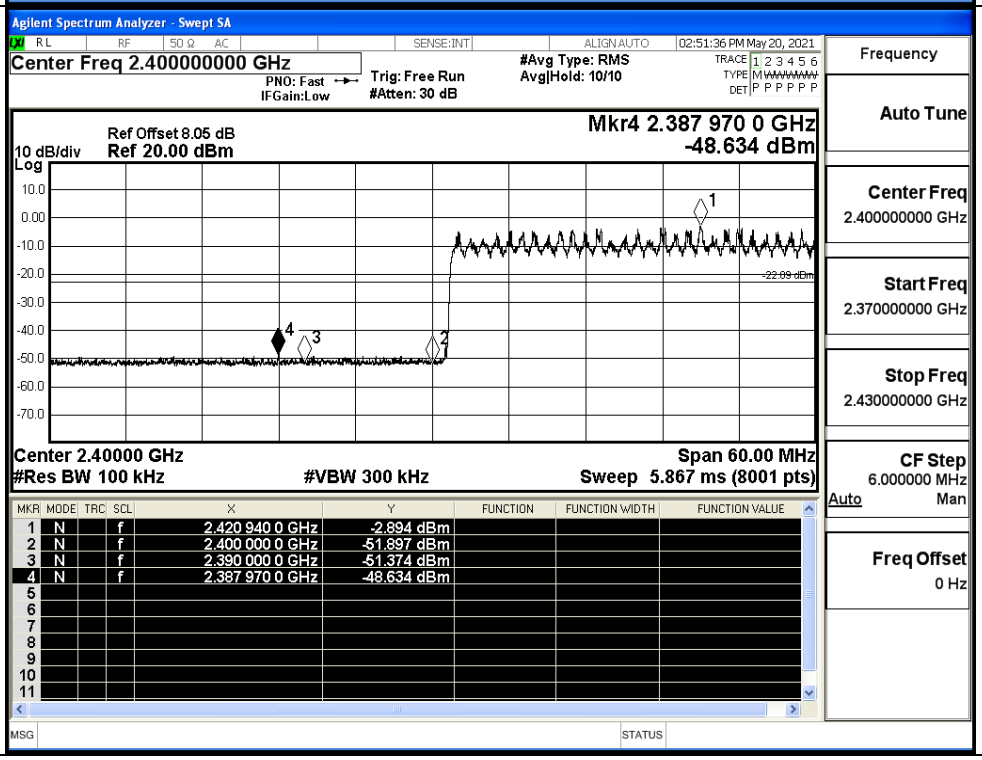
8DPSK_HCH_Graphs			
Pref			
Puw			

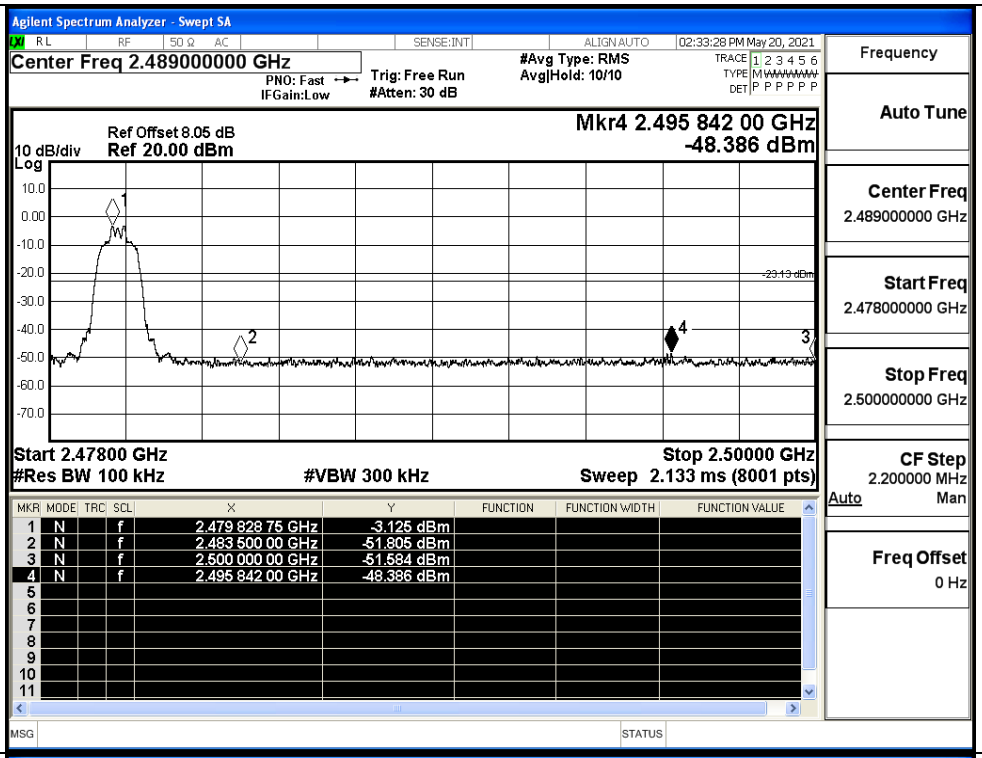
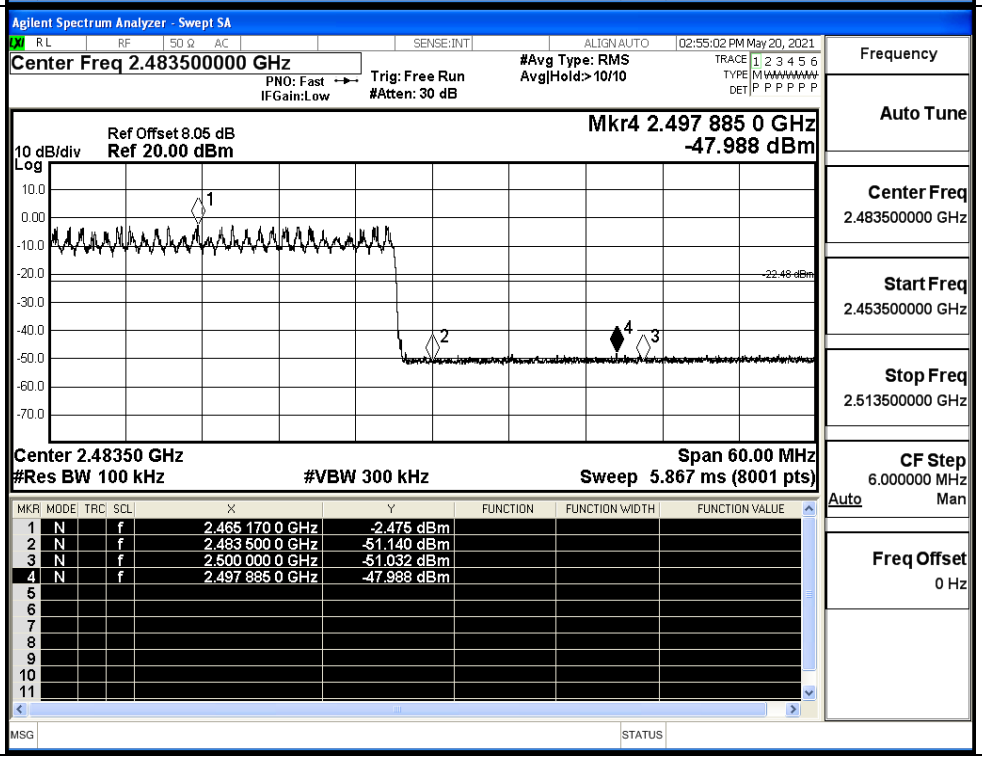
A.7 Band-edge for RF Conducted Emissions

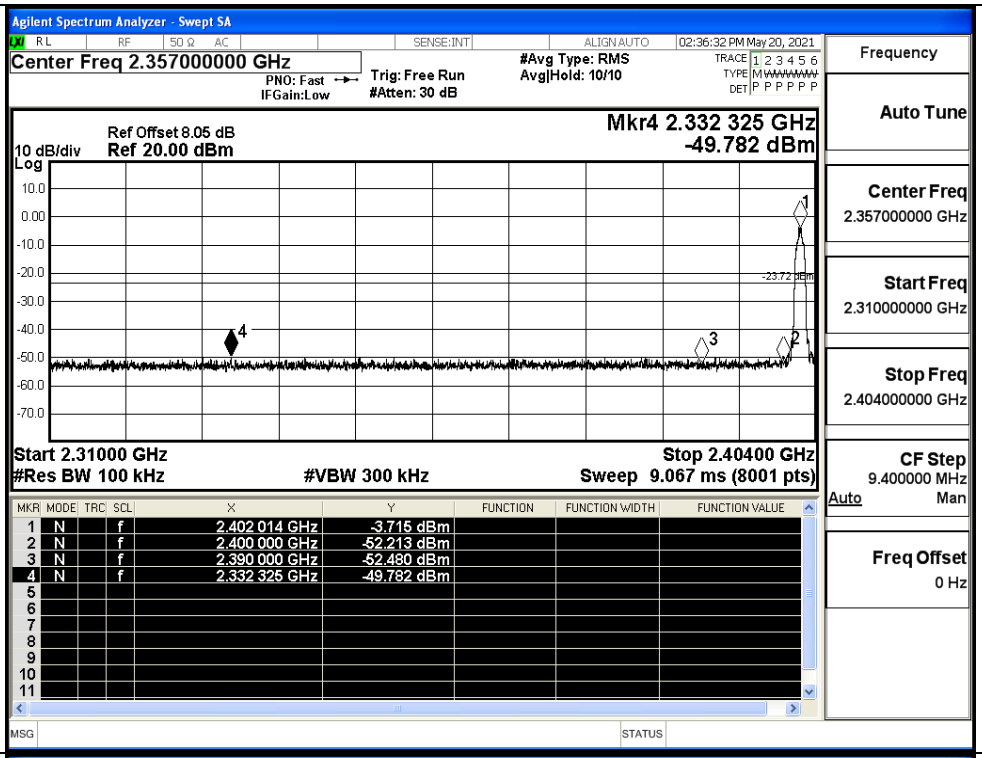
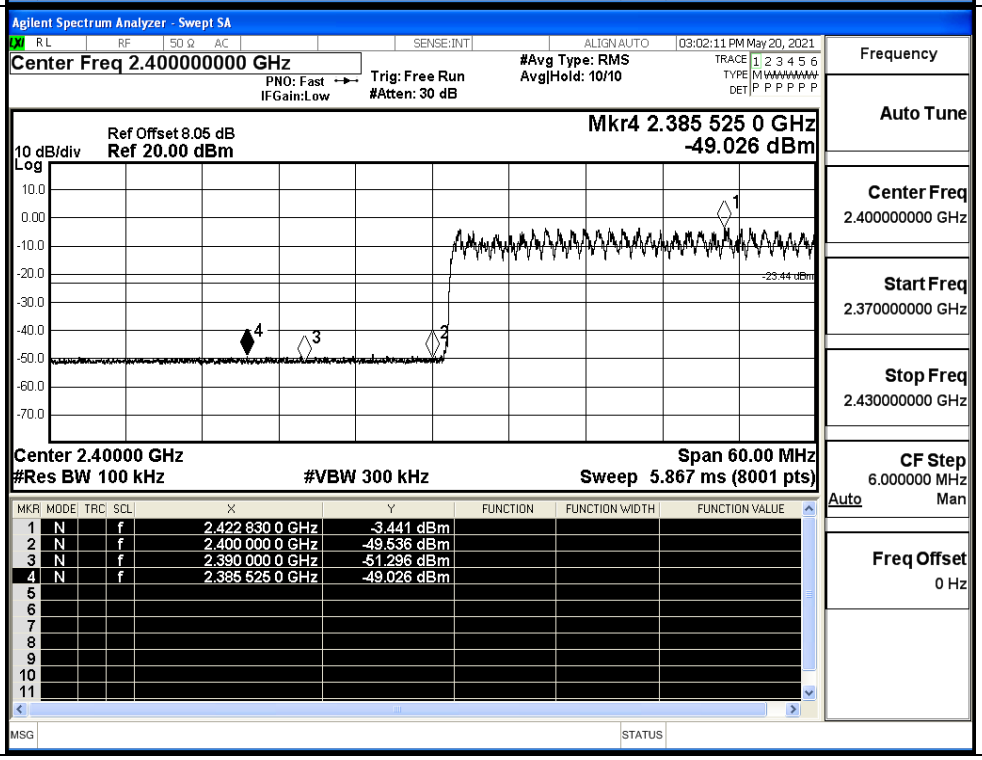
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-3.825	Off	-48.951	-23.83	PASS
			-3.215	On	-49.085	-23.22	PASS
	HCH	2480	-3.186	Off	-47.917	-23.19	PASS
			-3.127	On	-48.323	-23.13	PASS
π/4DQPSK	LCH	2402	-3.784	Off	-49.469	-23.78	PASS
			-2.894	On	-48.634	-22.89	PASS
	HCH	2480	-3.125	Off	-48.386	-23.13	PASS
			-2.475	On	-47.988	-22.48	PASS
8DPSK	LCH	2402	-3.715	Off	-49.782	-23.72	PASS
			-3.441	On	-49.026	-23.44	PASS
	HCH	2480	-3.104	Off	-49.356	-23.1	PASS
			-3.226	On	-48.883	-23.23	PASS

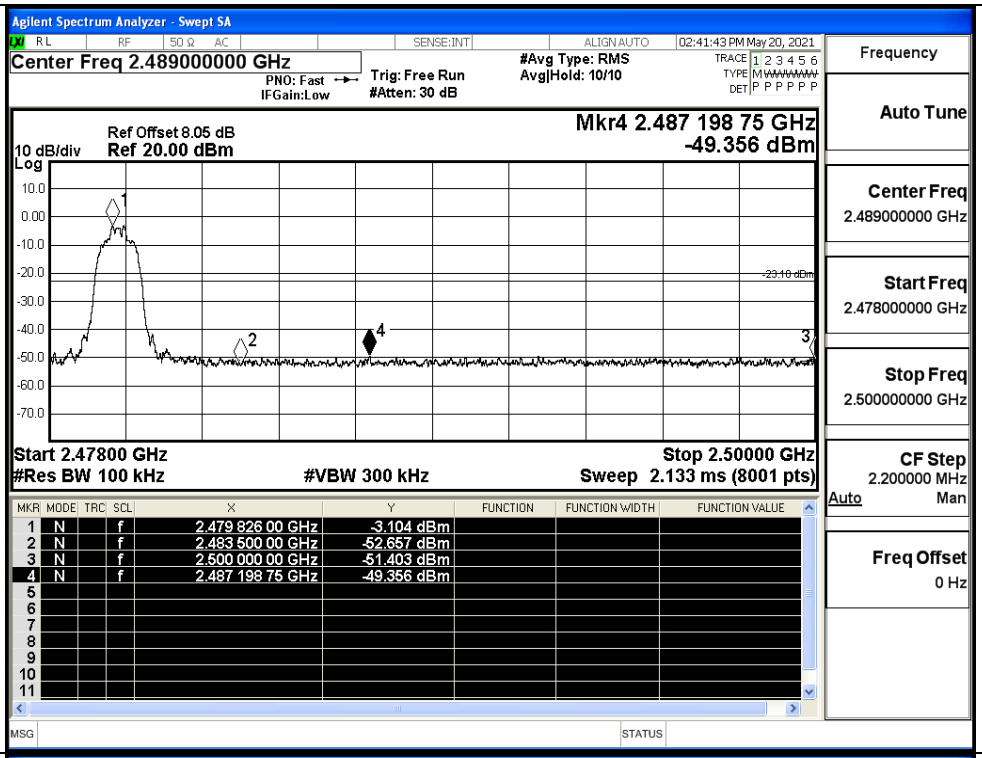
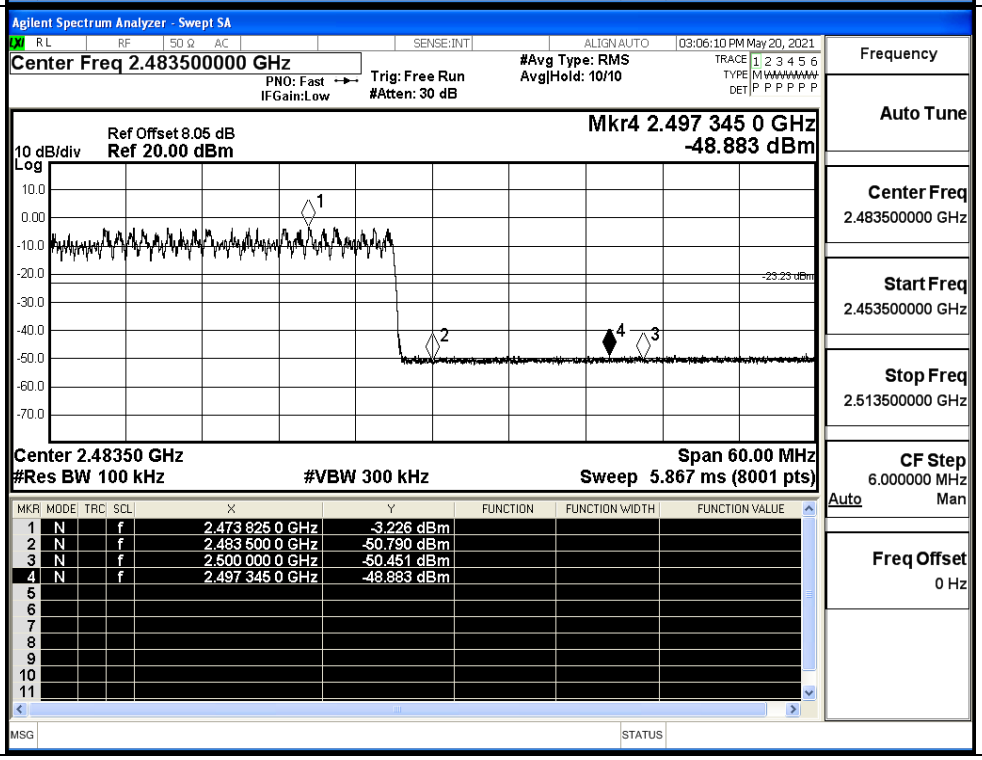
Test Graphs	
GFSK/LCH/No Hop	
GFSK/LCH/Hop	

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	

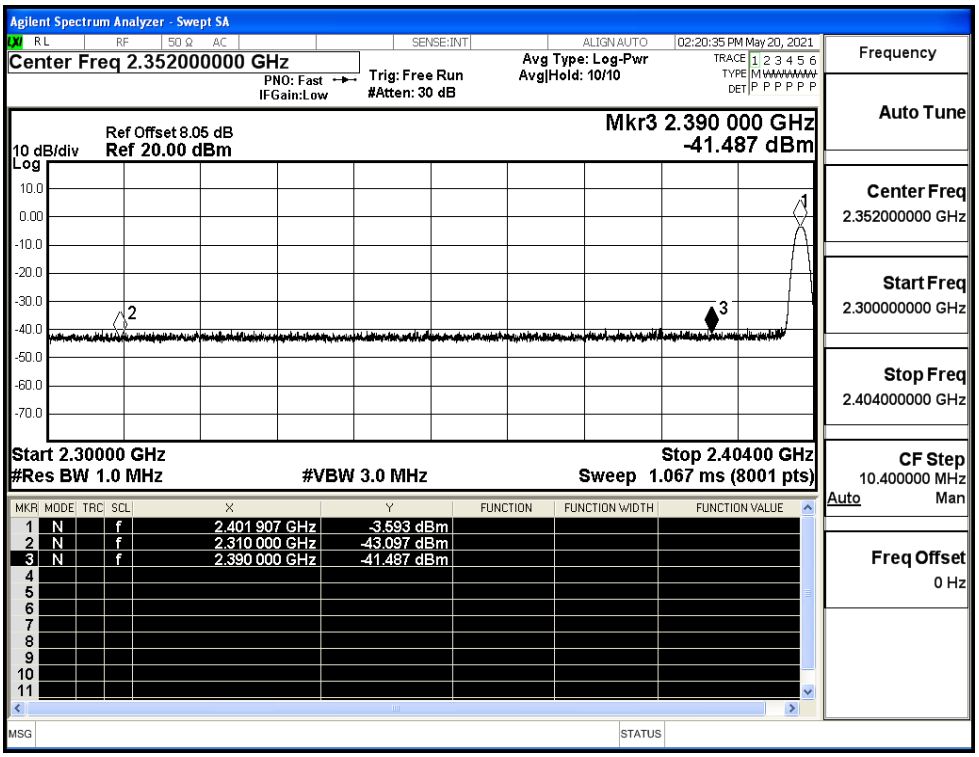
8DPSK/LCH/No Hop	
8DPSK/LCH/Hop	

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

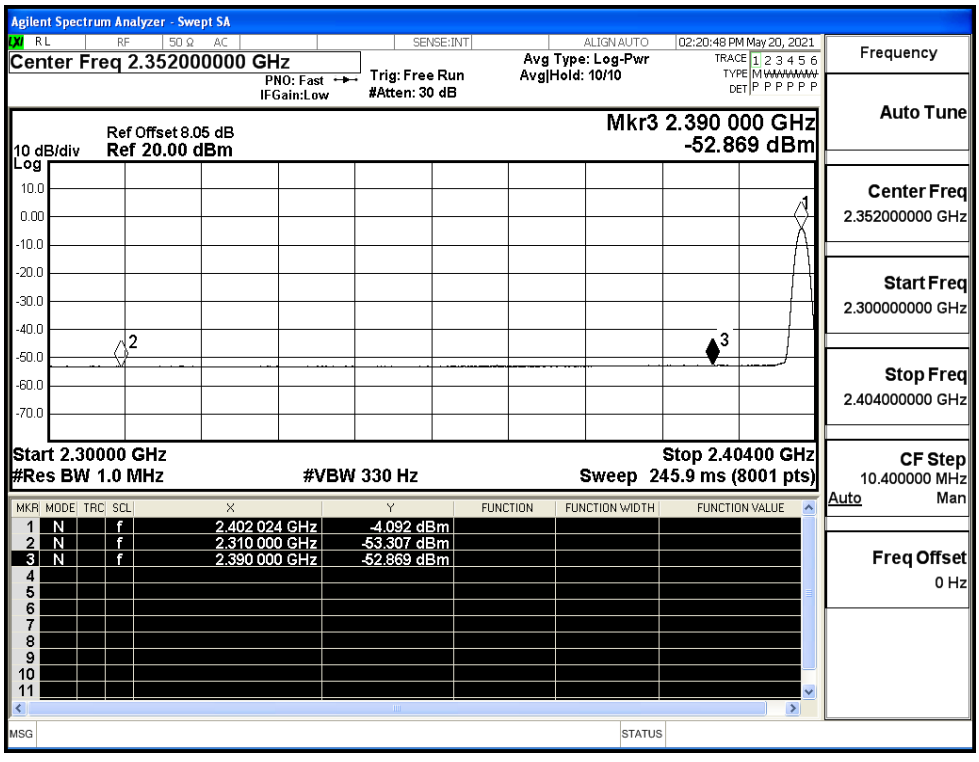
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.10	2.0	0	52.16	PEAK	74	PASS
	Off	2310.0	-53.31	2.0	0	41.95	AV	54	PASS
	Off	2390.0	-41.49	2.0	0	53.77	PEAK	74	PASS
	Off	2390.0	-52.87	2.0	0	42.39	AV	54	PASS
	Off	2483.5	-42.10	2.0	0	53.15	PEAK	74	PASS
	Off	2483.5	-52.40	2.0	0	42.85	AV	54	PASS
	Off	2500.0	-41.25	2.0	0	54.01	PEAK	74	PASS
	Off	2500.0	-52.22	2.0	0	43.04	AV	54	PASS
π/4DQPSK	Off	2310.0	-40.60	2.0	0	54.66	PEAK	74	PASS
	Off	2310.0	-53.20	2.0	0	42.05	AV	54	PASS
	Off	2390.0	-42.96	2.0	0	52.30	PEAK	74	PASS
	Off	2390.0	-52.92	2.0	0	42.34	AV	54	PASS
	Off	2483.5	-42.30	2.0	0	52.96	PEAK	74	PASS
	Off	2483.5	-52.29	2.0	0	42.97	AV	54	PASS
	Off	2500.0	-42.43	2.0	0	52.83	PEAK	74	PASS
	Off	2500.0	-52.26	2.0	0	42.99	AV	54	PASS
8DPSK	Off	2310.0	-43.56	2.0	0	51.70	PEAK	74	PASS
	Off	2310.0	-53.22	2.0	0	42.03	AV	54	PASS
	Off	2390.0	-42.67	2.0	0	52.59	PEAK	74	PASS
	Off	2390.0	-52.90	2.0	0	42.36	AV	54	PASS
	Off	2483.5	-41.35	2.0	0	53.91	PEAK	74	PASS
	Off	2483.5	-52.41	2.0	0	42.85	AV	54	PASS
	Off	2500.0	-41.80	2.0	0	53.45	PEAK	74	PASS
	Off	2500.0	-52.19	2.0	0	43.07	AV	54	PASS

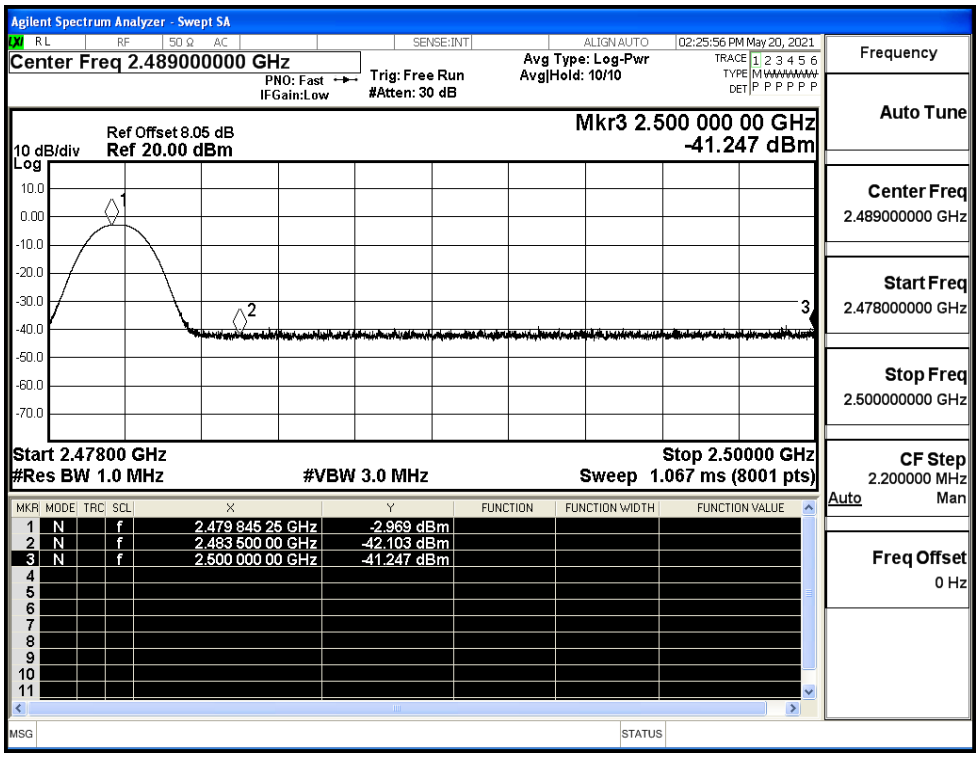
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



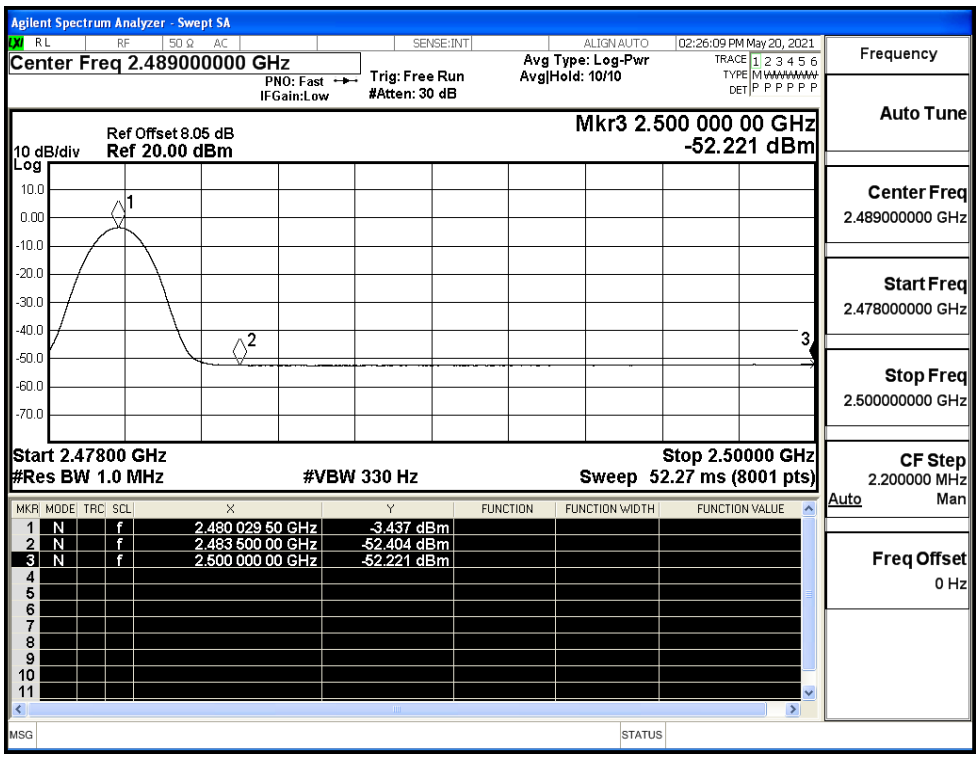
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



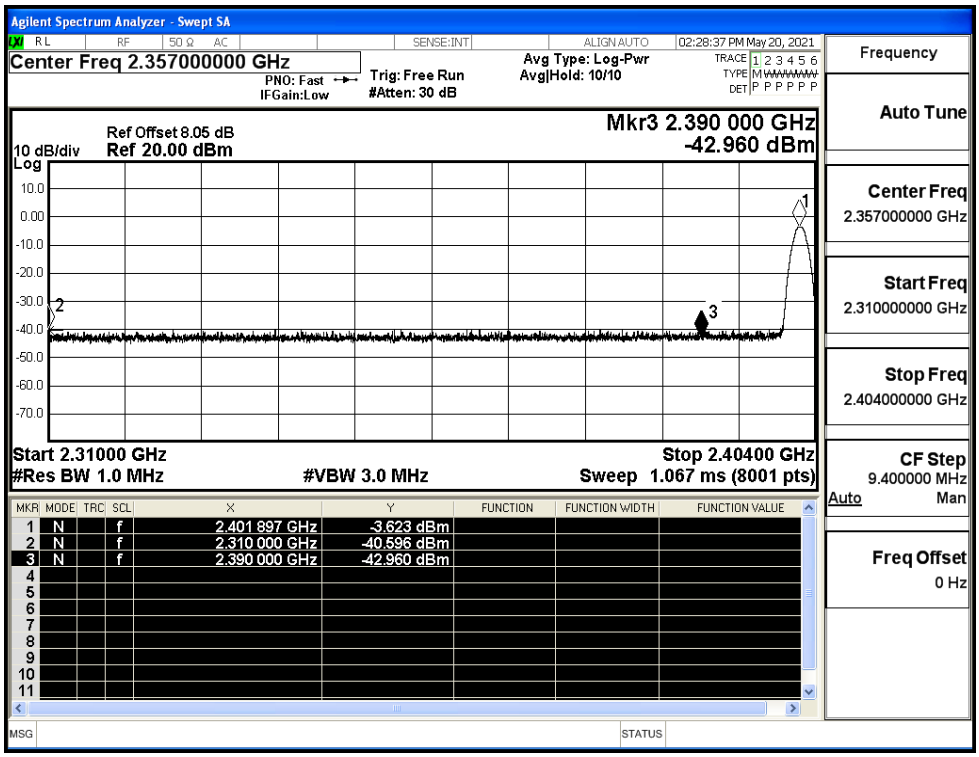
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



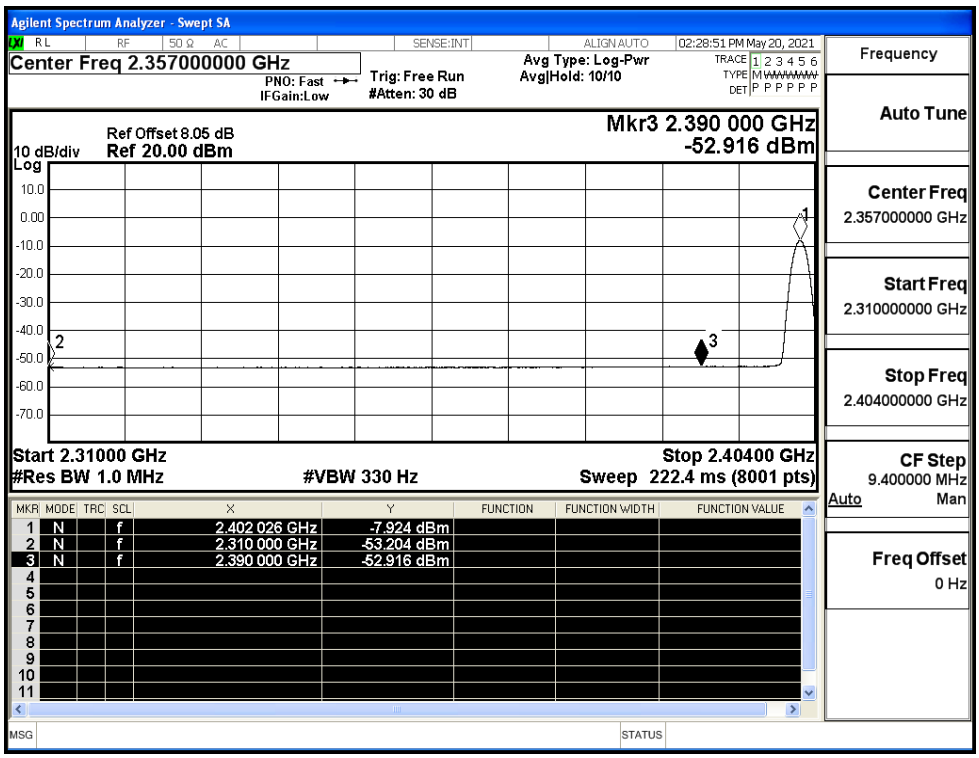
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



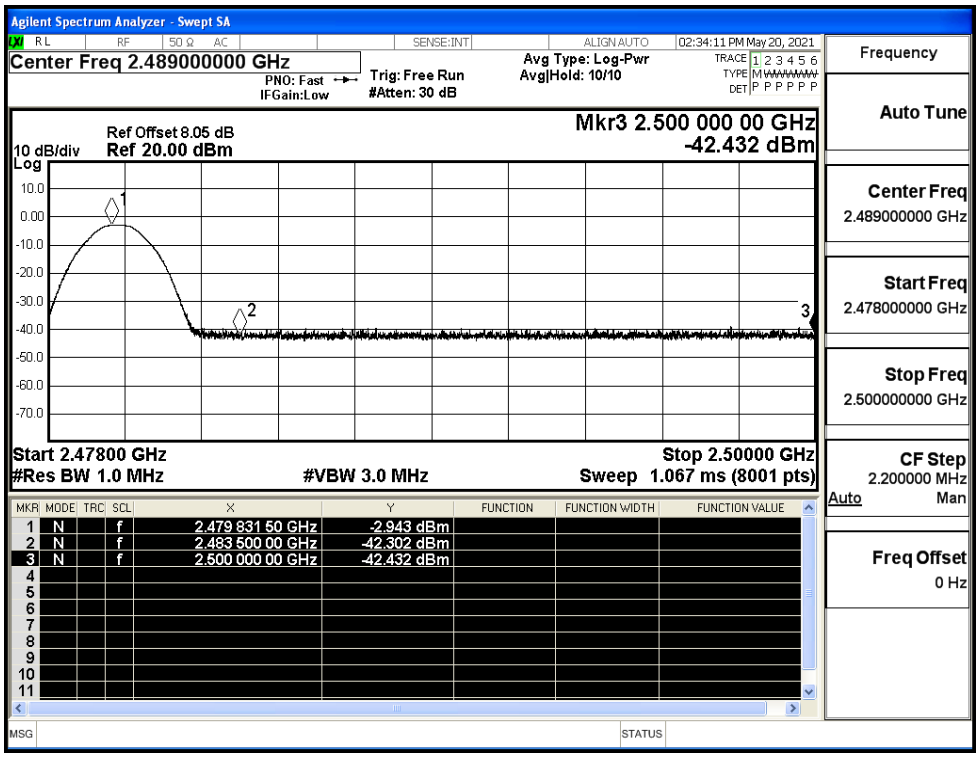
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



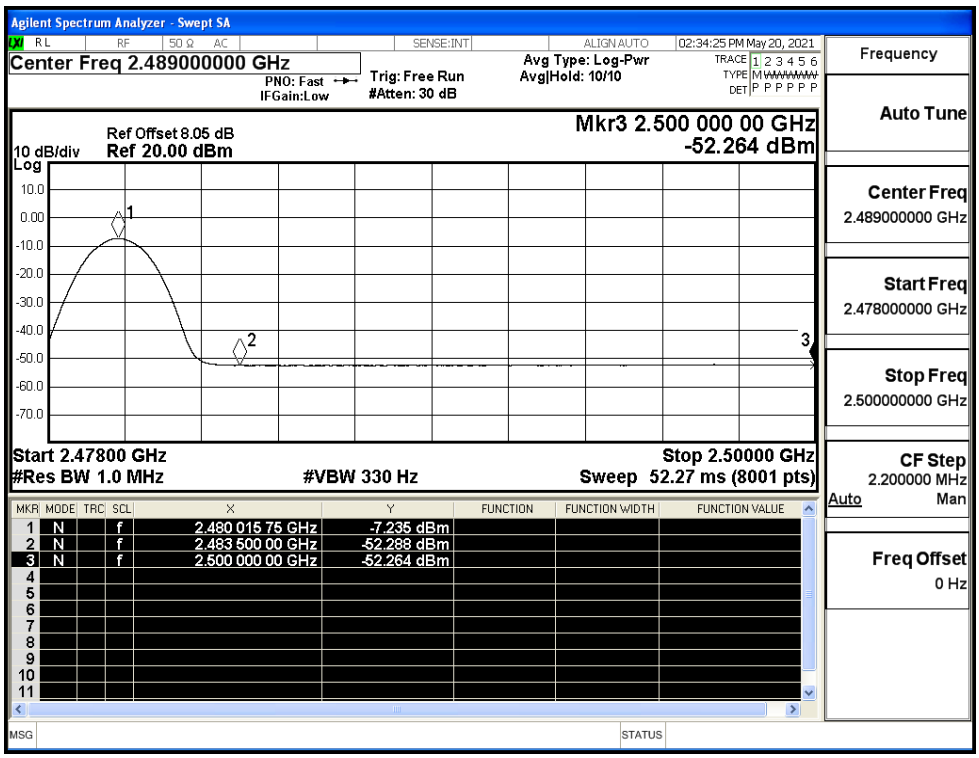
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



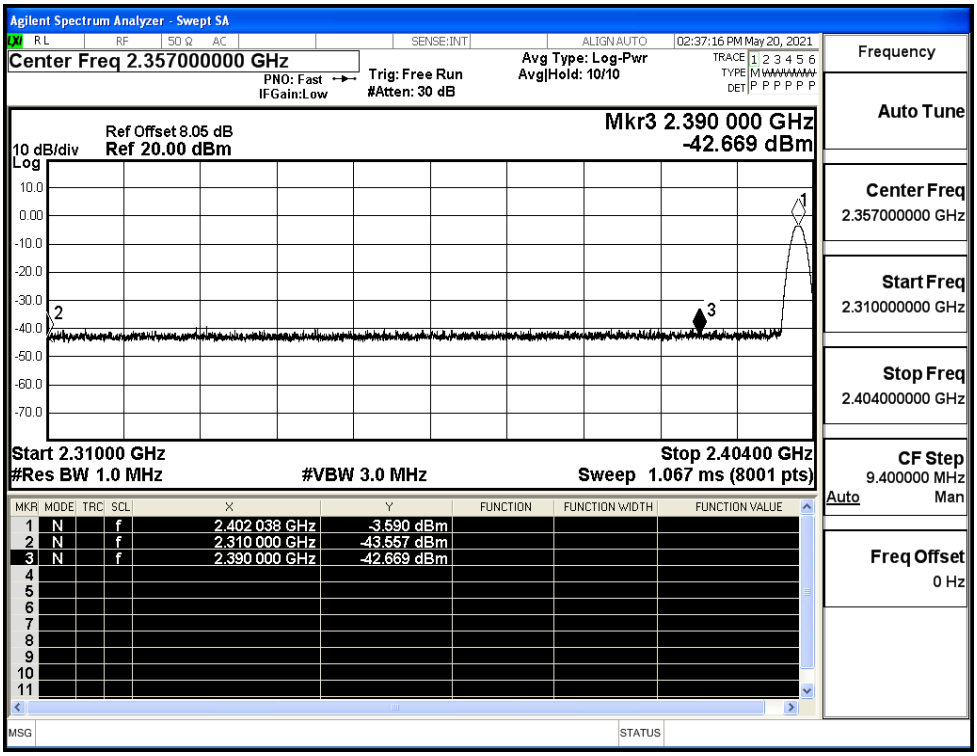
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



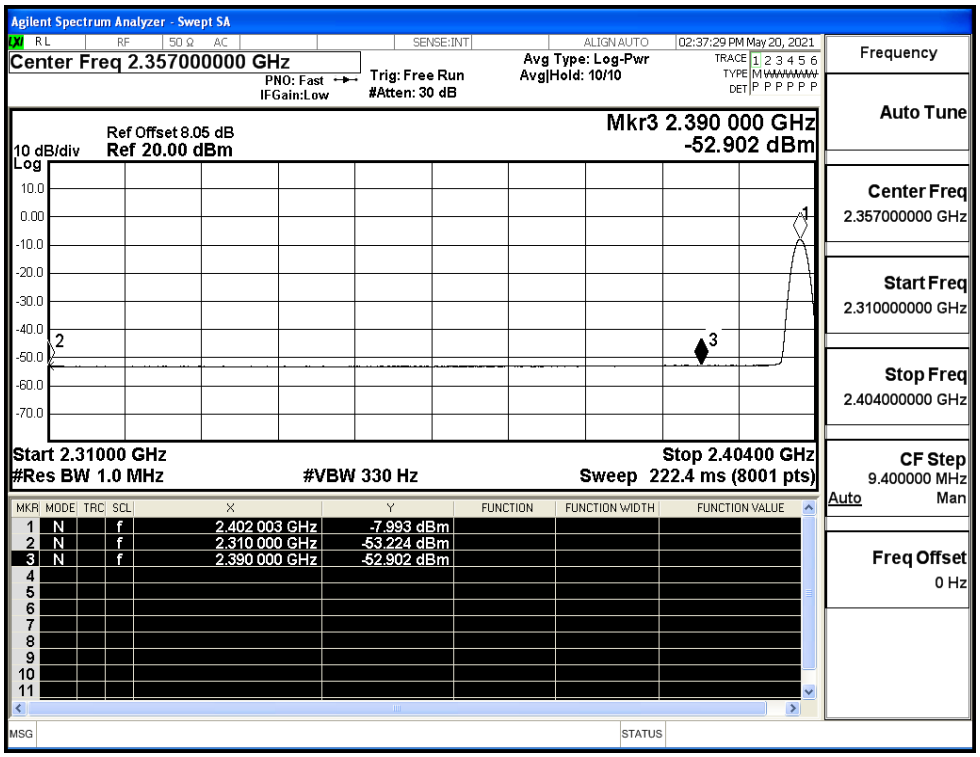
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



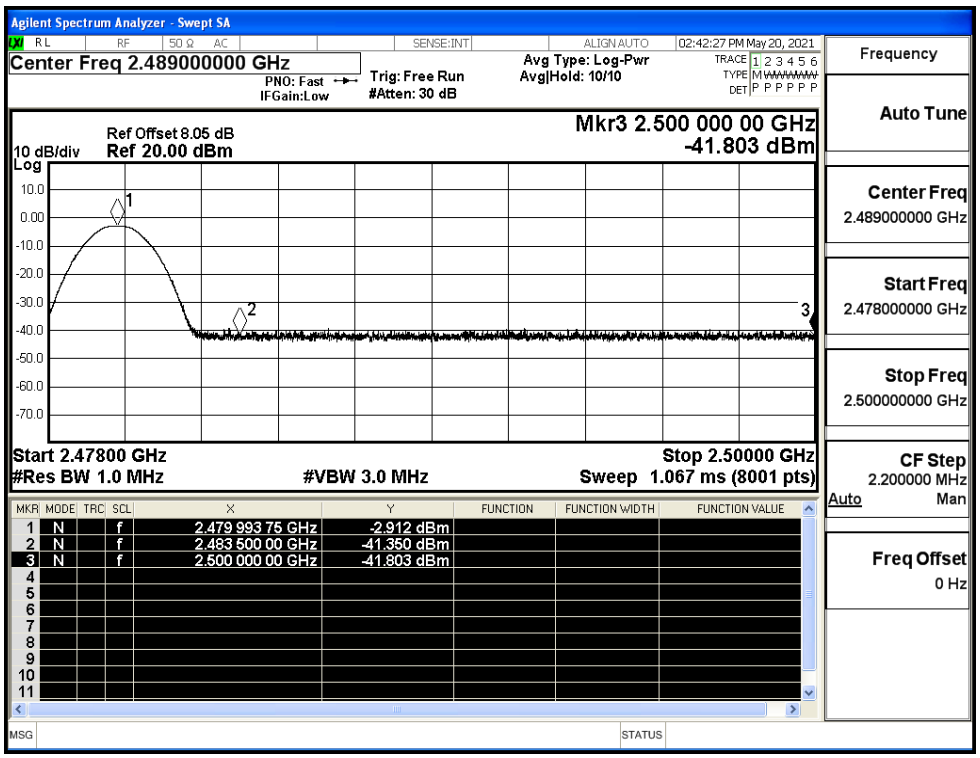
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)