Appendix A

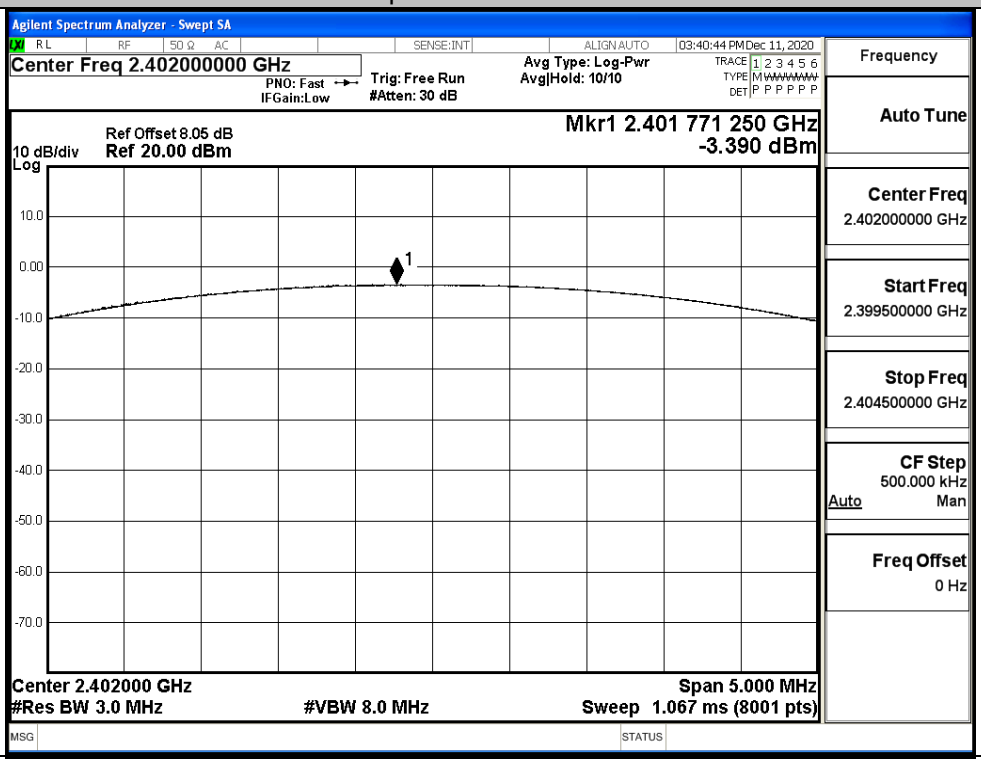
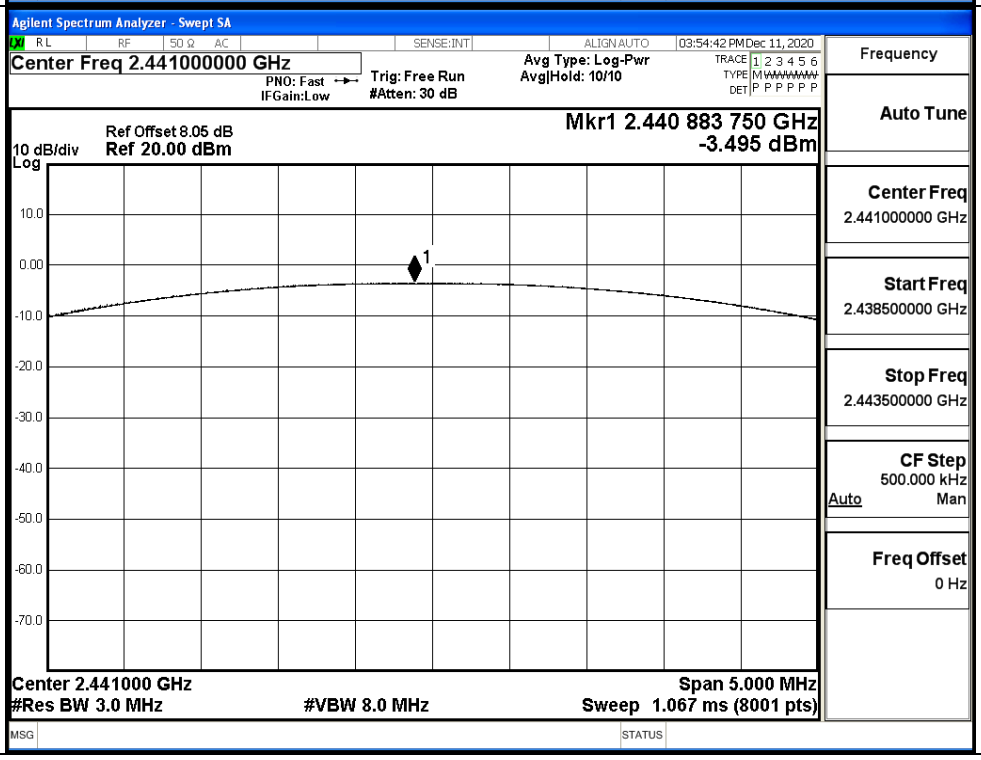
RF Test Data for BT V4.1(BDR/EDR) (Conducted Measurement)
Product Name: IPTV Set-Top Box
Trade Mark: N/A
Test Model: SML-5041W

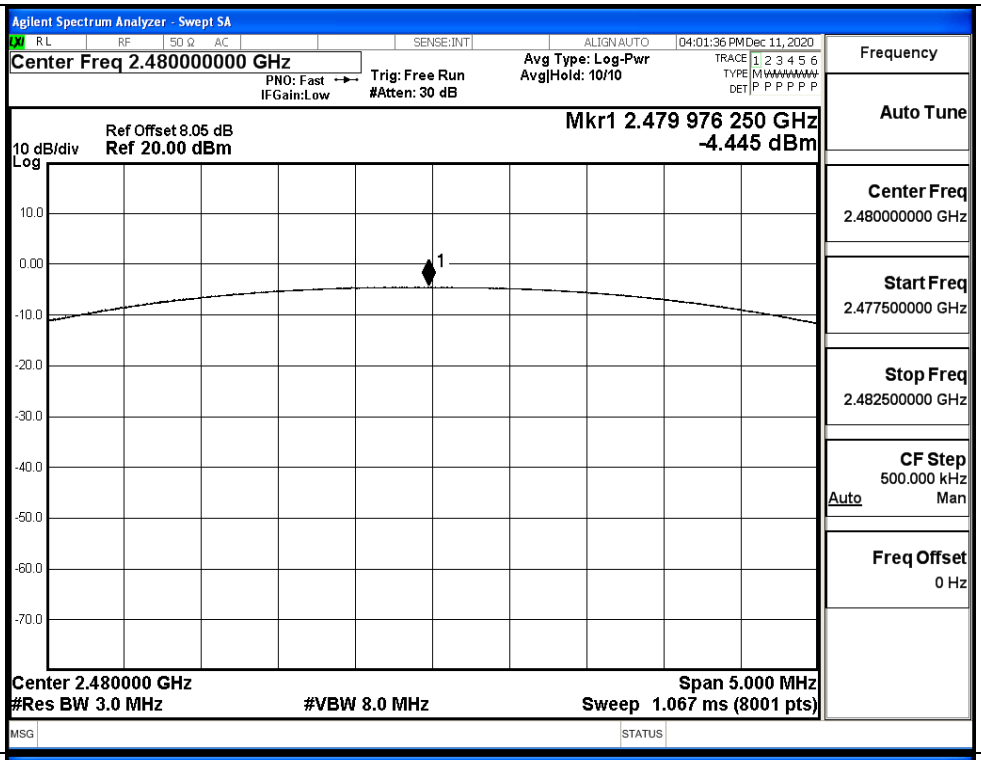
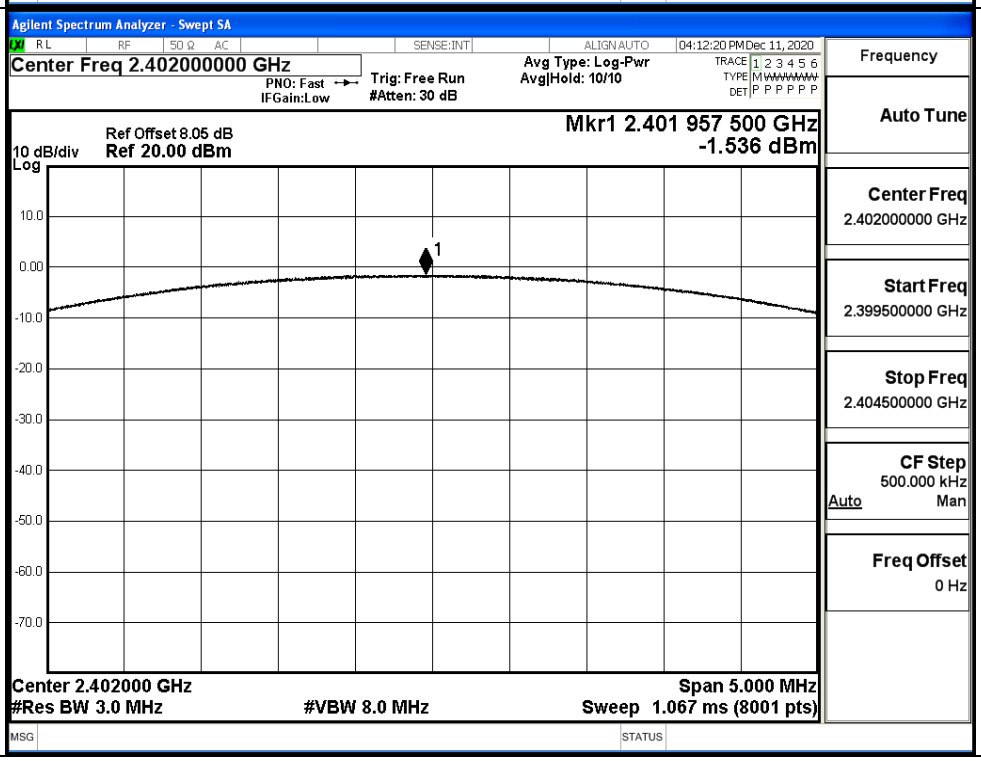
Environmental Conditions

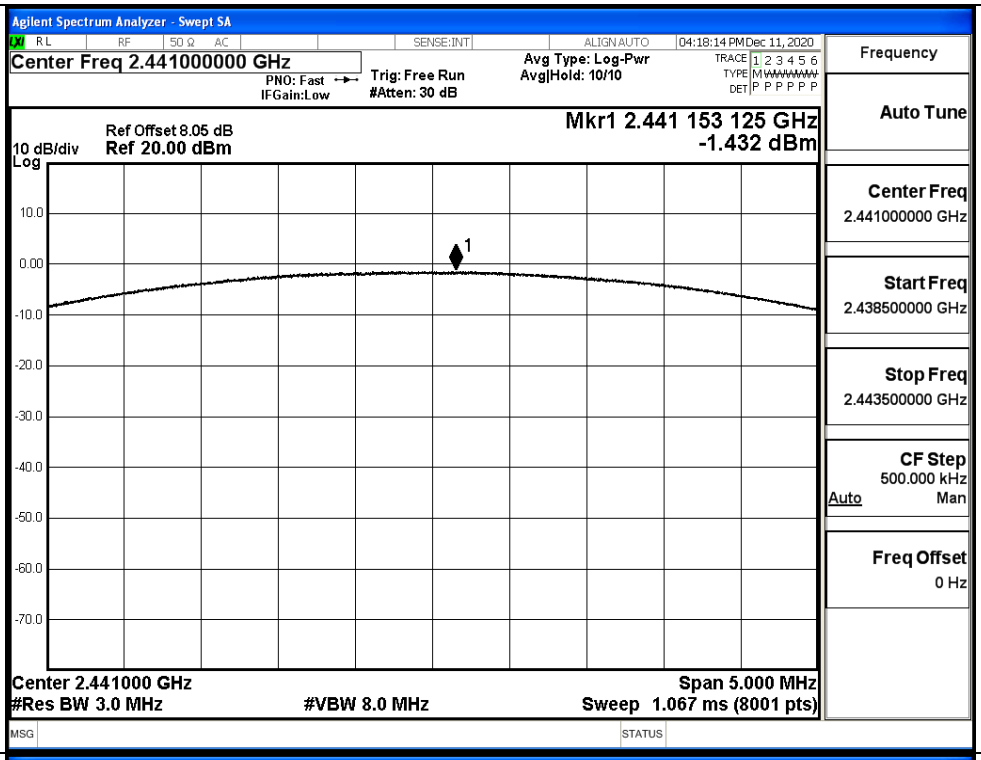
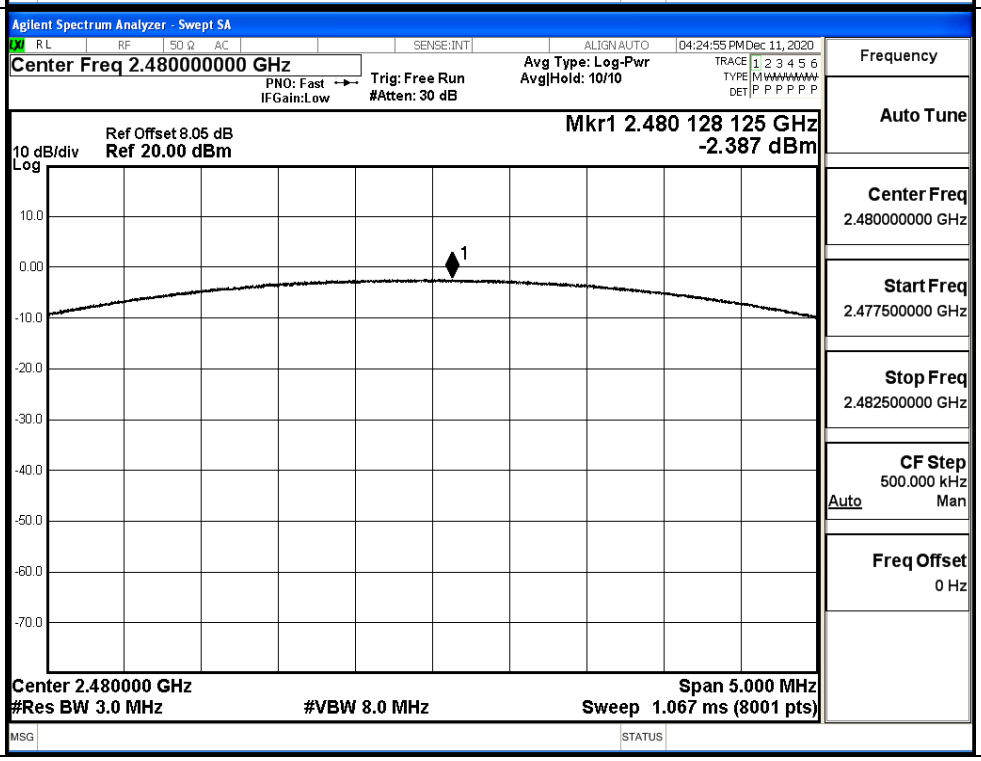
Temperature:	22.3° C
Relative Humidity:	53.6%
ATM Pressure:	100.0 kPa
Test Engineer:	Diamond Lu
Supervised by:	Li Huan

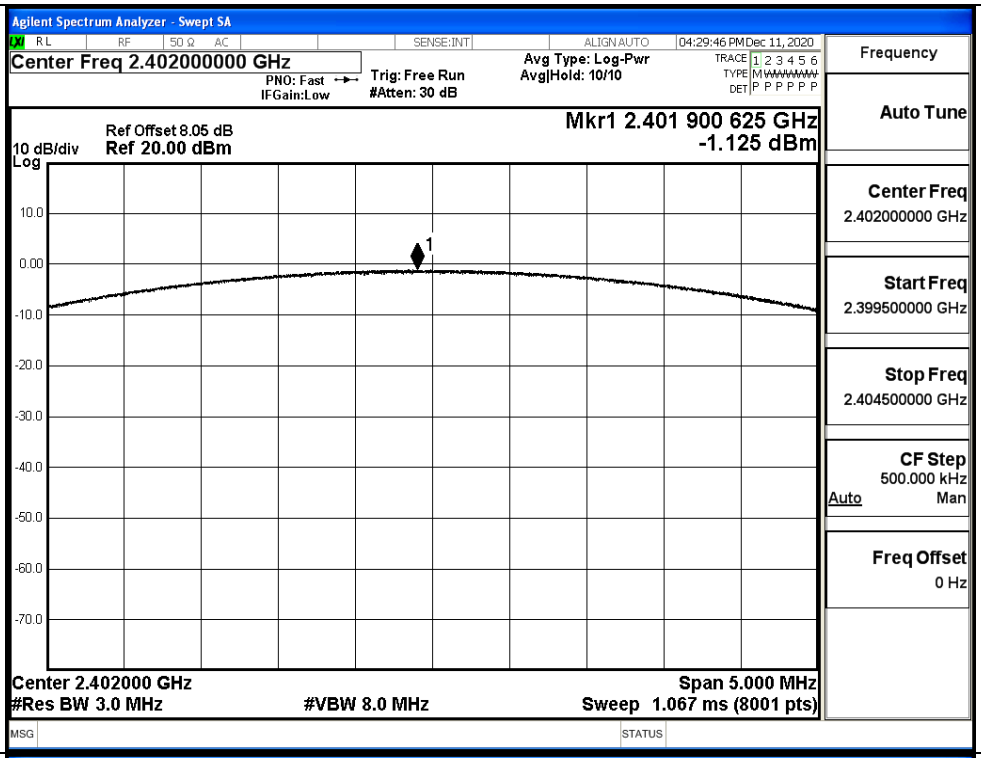
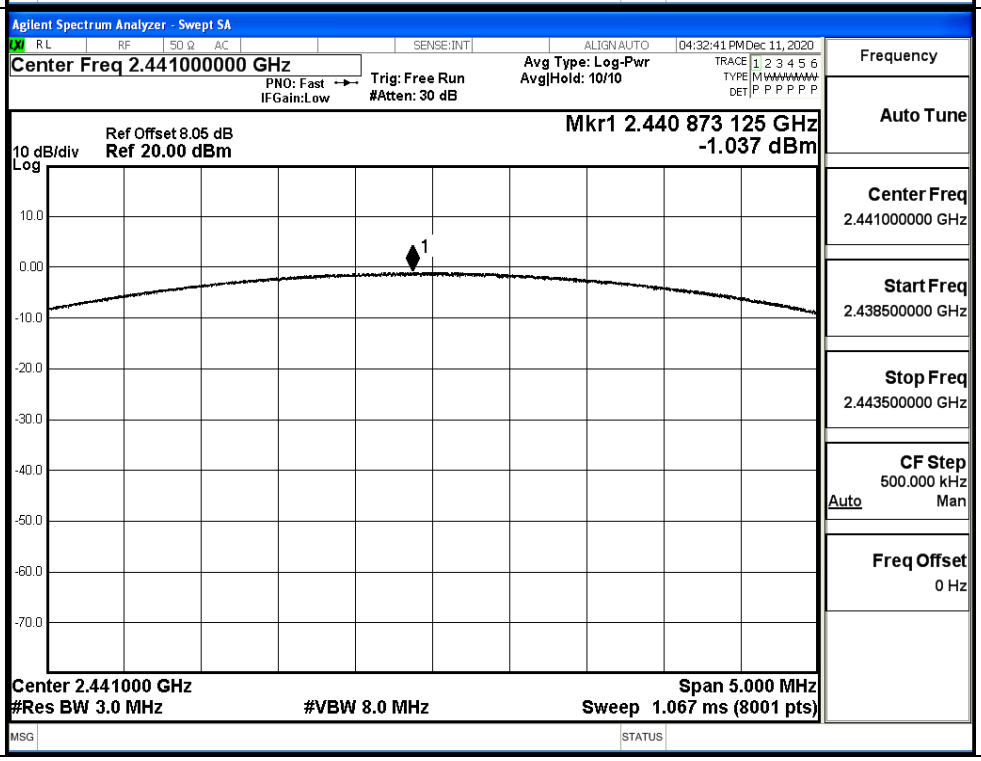
A.1 Maxmum Conducted Peak Output Power

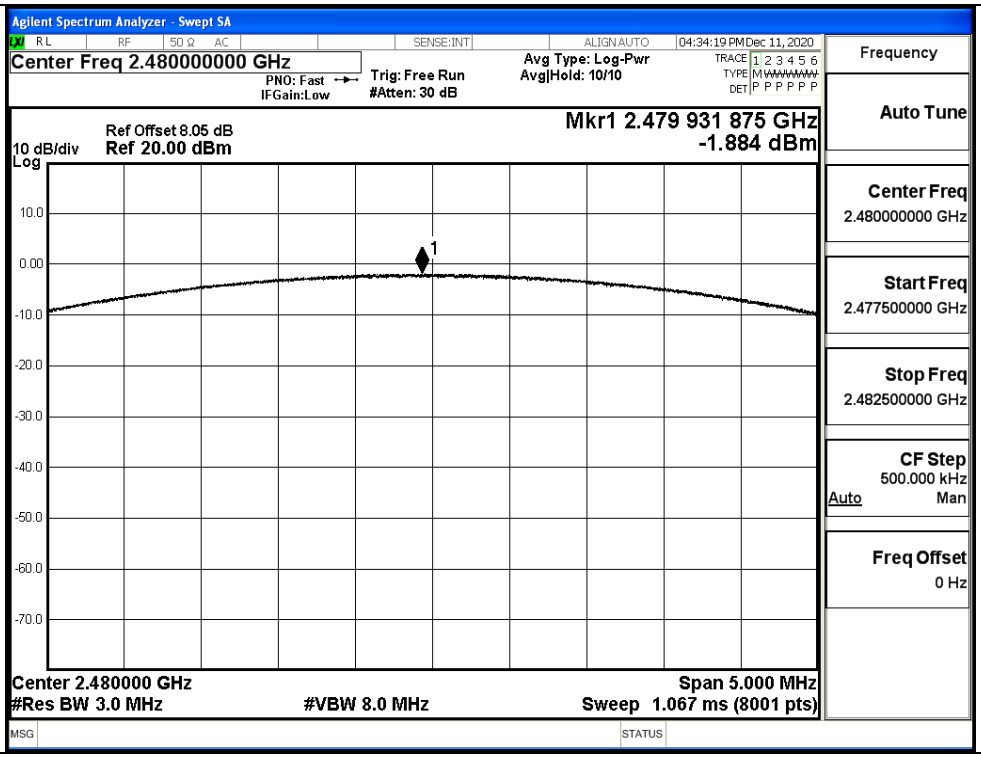
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-3.390	21	PASS
	MCH	-3.495	21	PASS
	HCH	-4.445	21	PASS
π/4DQPSK	LCH	-1.536	21	PASS
	MCH	-1.432	21	PASS
	HCH	-2.387	21	PASS
8DPSK	LCH	-1.125	21	PASS
	MCH	-1.037	21	PASS
	HCH	-1.884	21	PASS

Test Graphs		
GFSK/LCH		
GFSK/MCH		

GFSK/HCH	
π/4DQPSK/LCH	

π/4DQPSK/MCH	
π/4DQPSK/HCH	

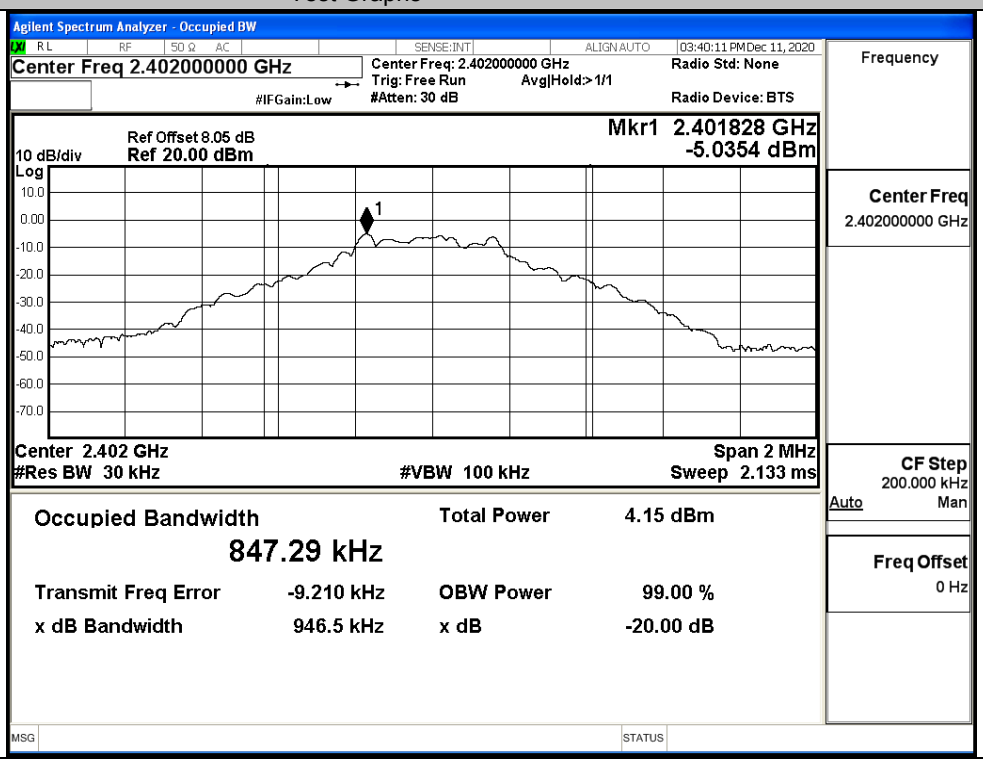
8DPSK/LCH	
8DPSK/MCH	

8DPSK/HCH		

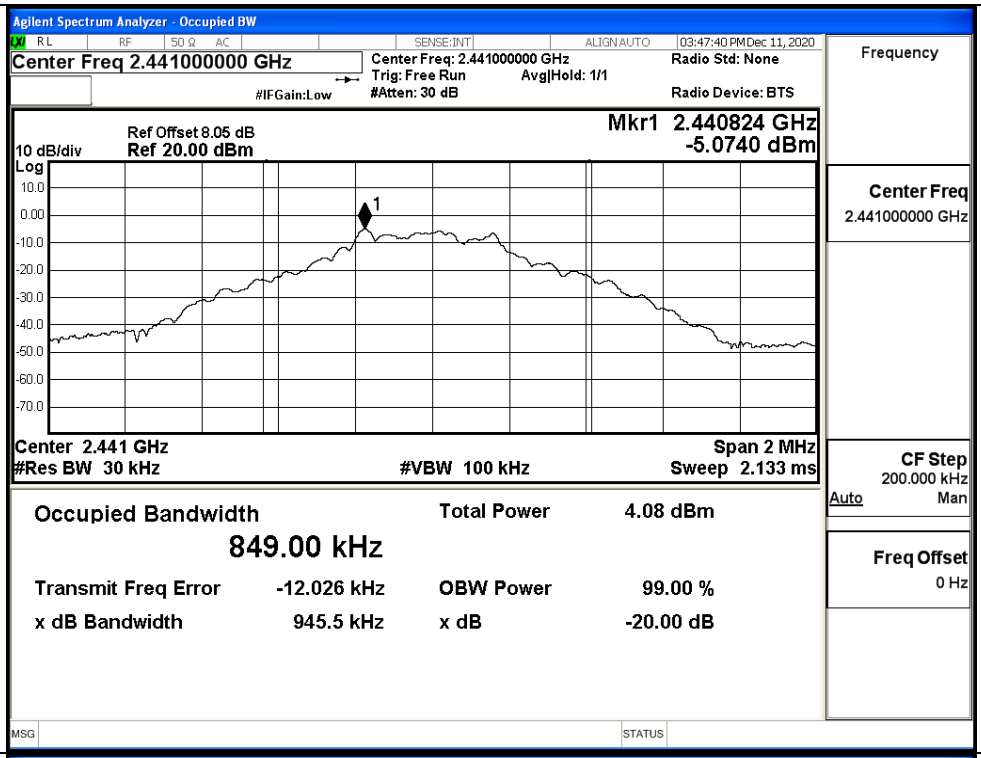
Agilent Spectrum Analyzer - Swept SA
Center Freq 2.480000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 10/10
04:34:19 PM Dec 11, 2020
Ref Offset 8.05 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 2.479 931 875 GHz
-1.884 dBm
Center 2.480000 GHz
#Res BW 3.0 MHz
#VBW 8.0 MHz
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

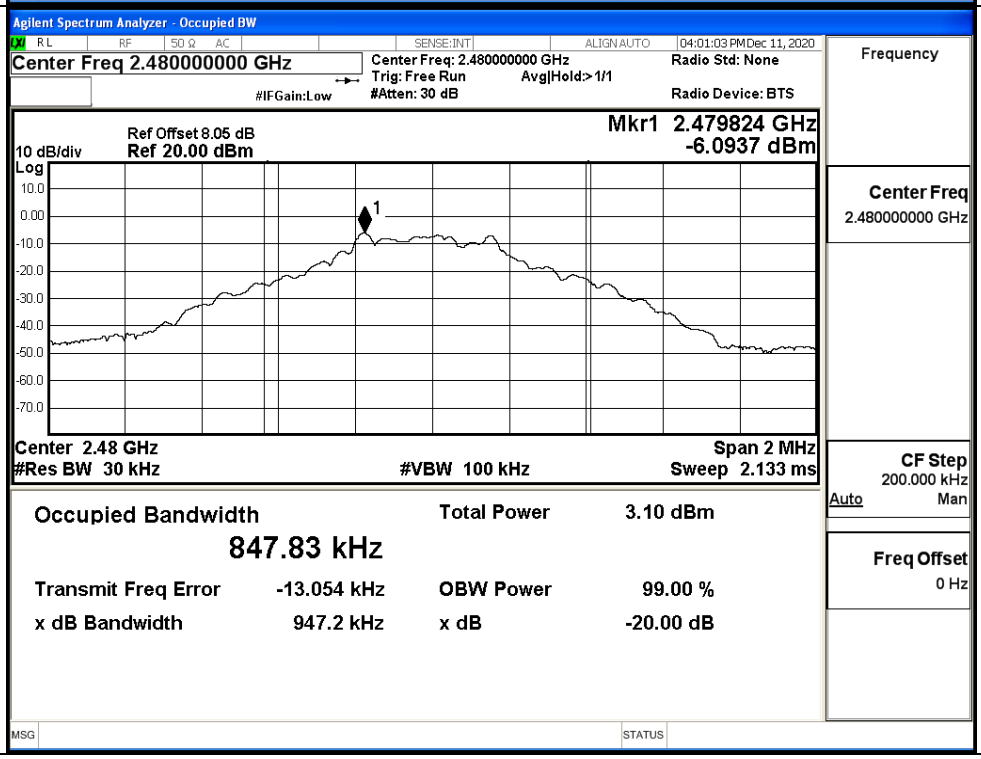
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9465	Not Specified	PASS
	MCH	0.9455	Not Specified	PASS
	HCH	0.9472	Not Specified	PASS
π/4DQPSK	LCH	1.290	Not Specified	PASS
	MCH	1.289	Not Specified	PASS
	HCH	1.289	Not Specified	PASS
8DPSK	LCH	1.303	Not Specified	PASS
	MCH	1.300	Not Specified	PASS
	HCH	1.304	Not Specified	PASS

Test Graphs	
GFSK/LCH	

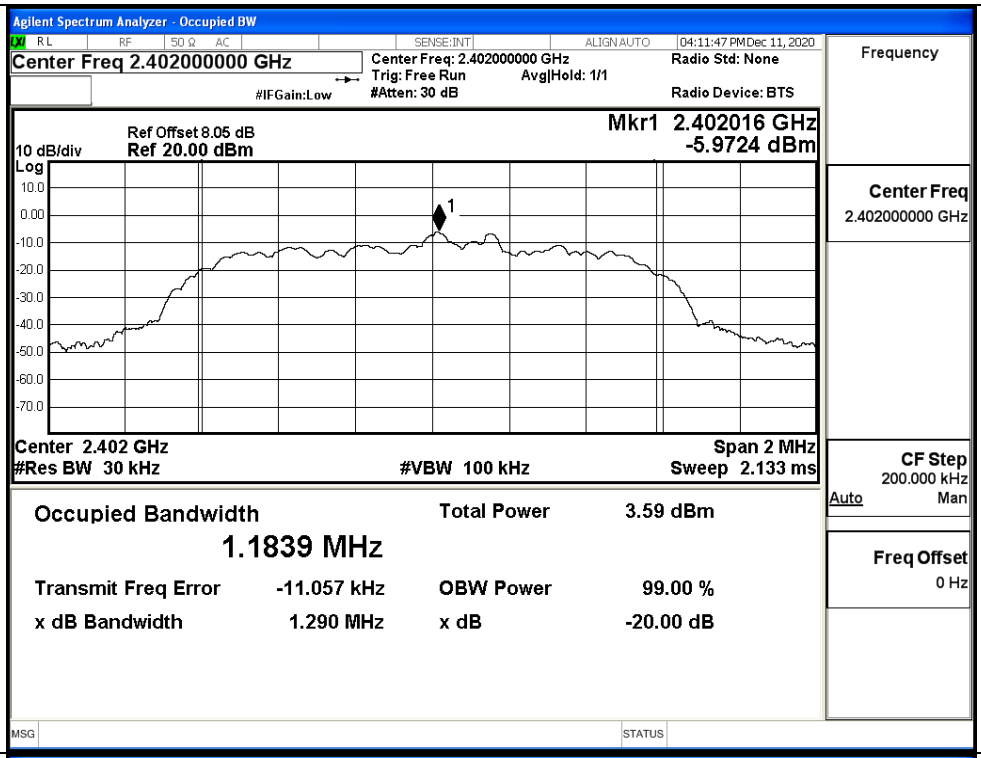
GFSK/MCH



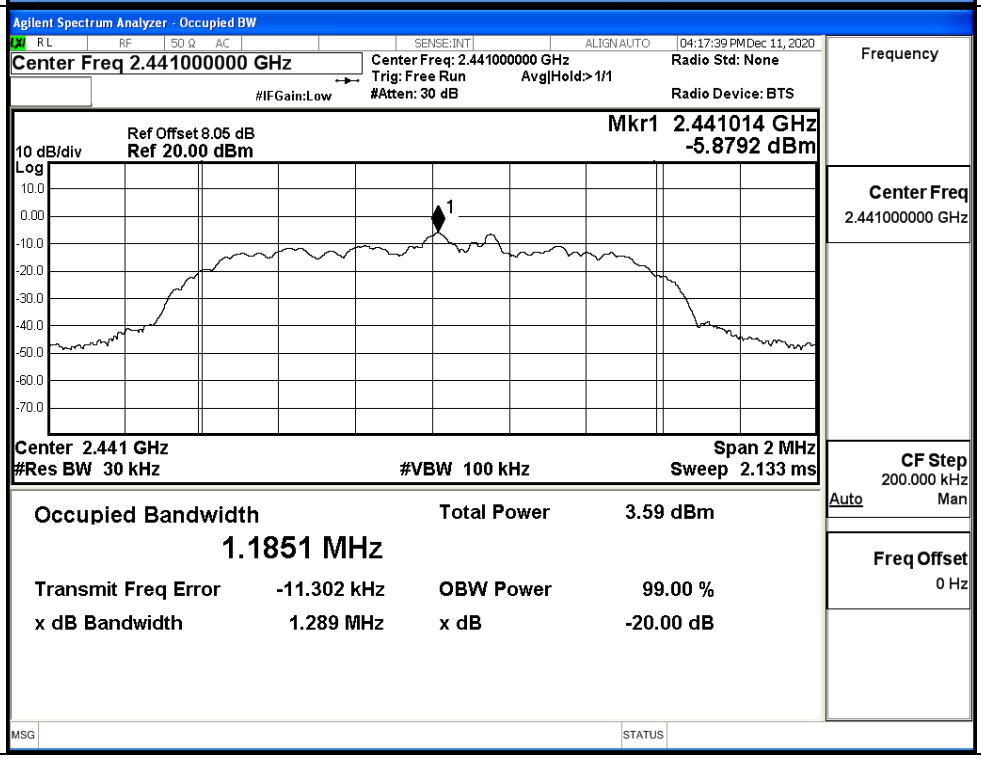
GFSK/HCH



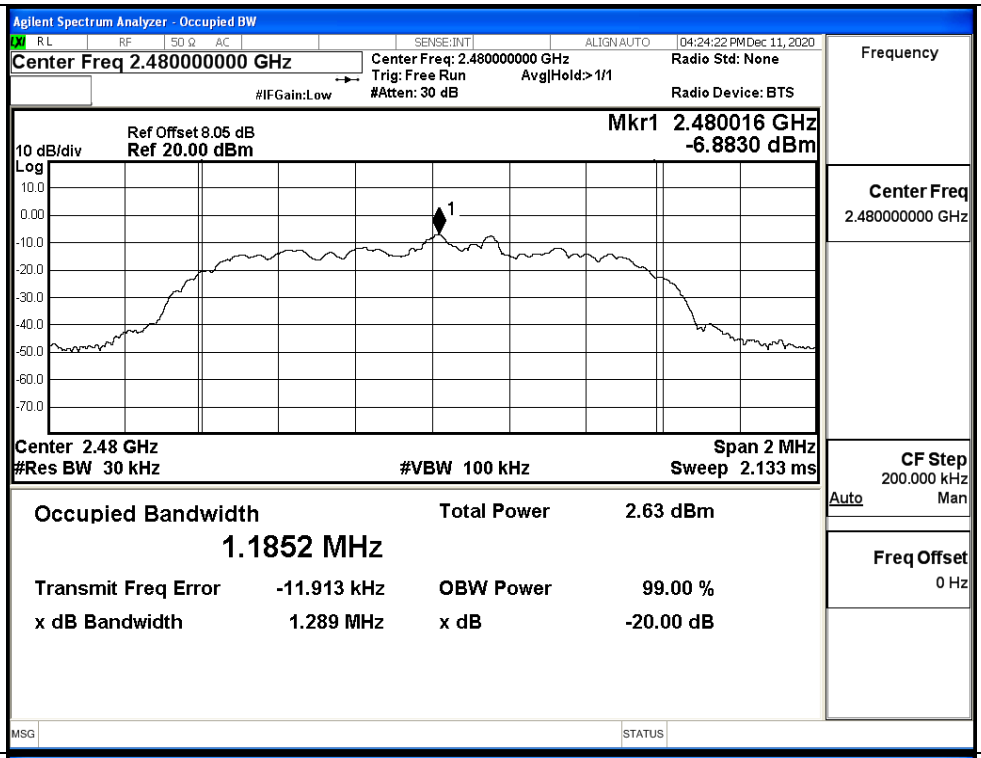
π/4DQPSK/LCH



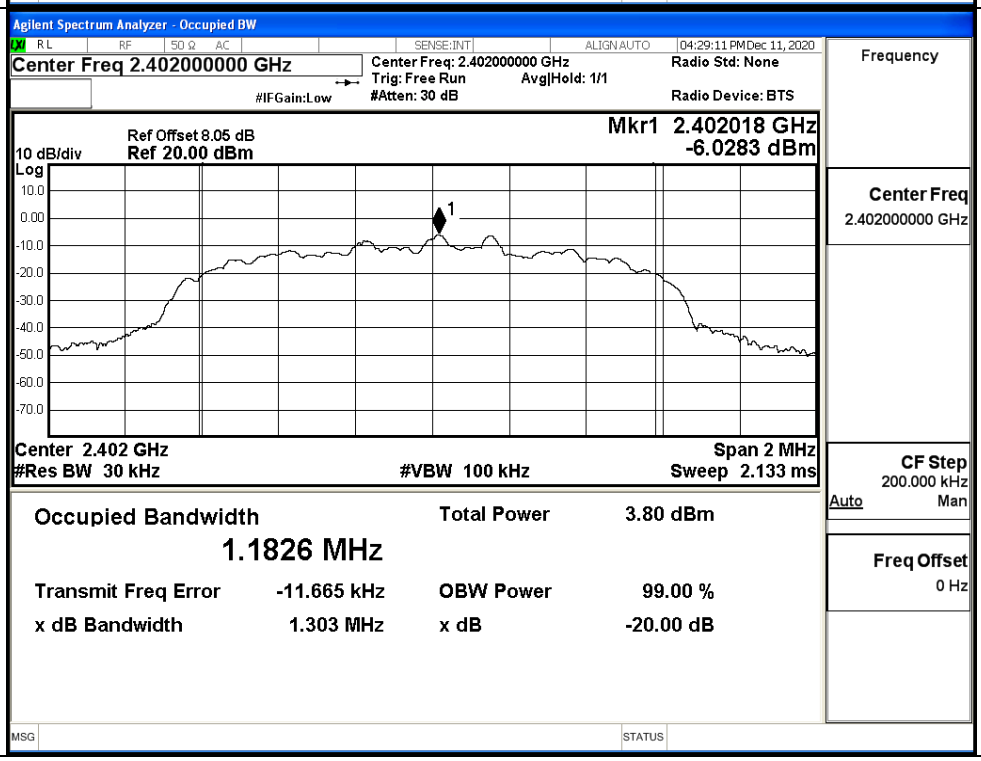
π/4DQPSK/MCH



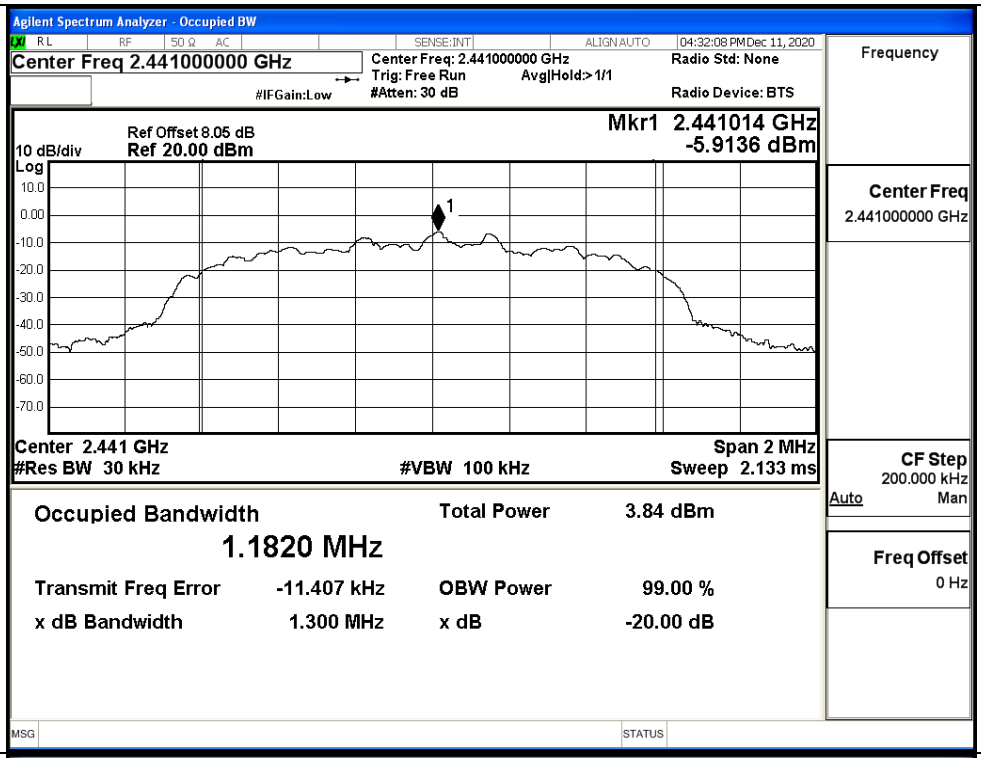
π/4DQPSK/HCH



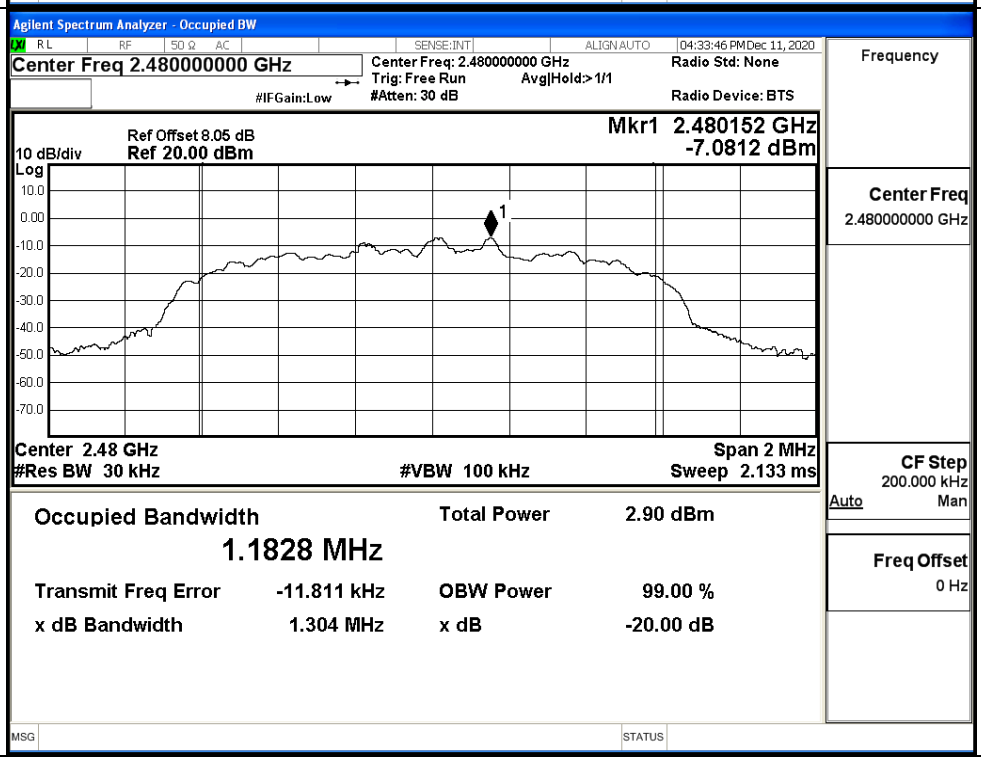
8DPSK/LCH



8DPSK/MCH

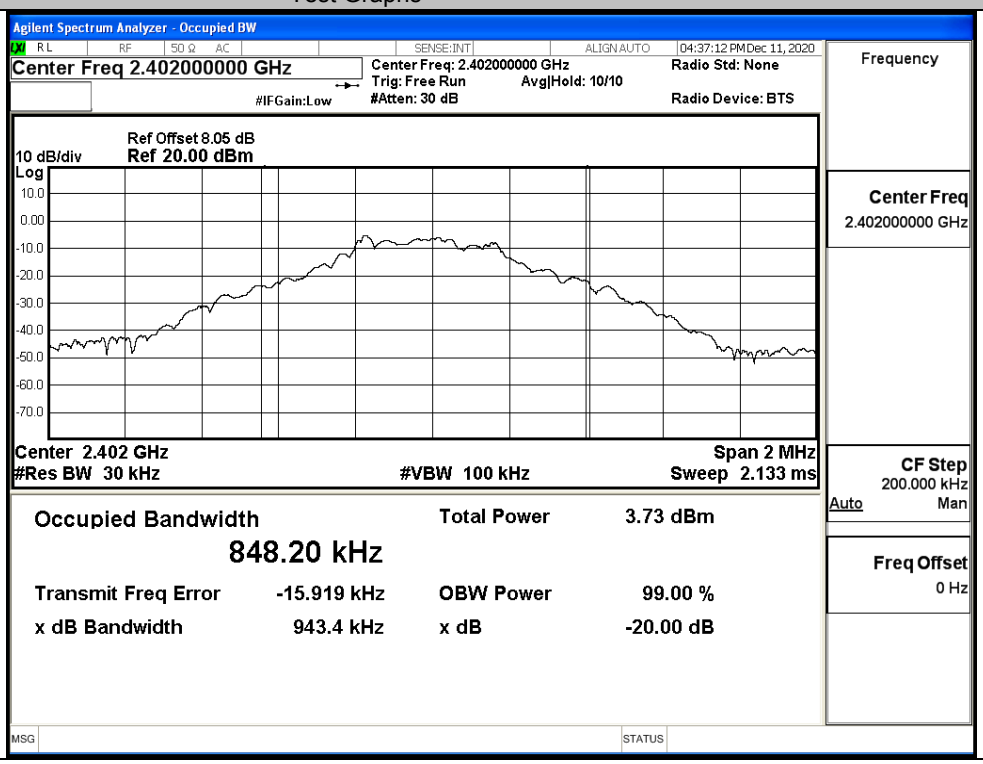


8DPSK/HCH



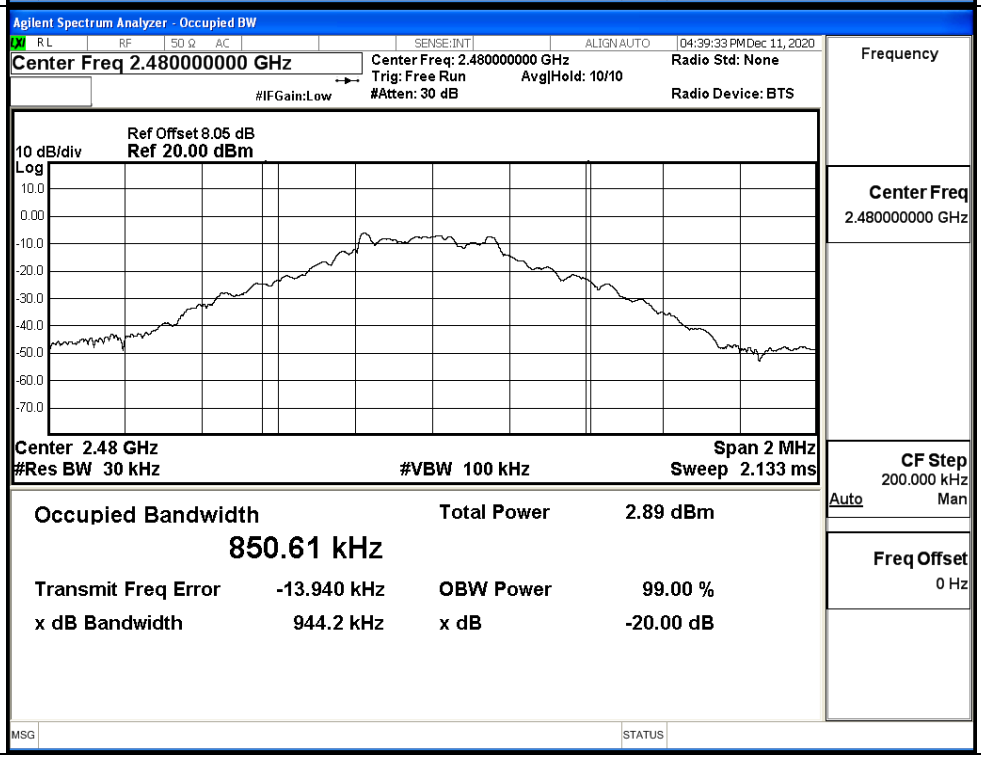
A.3 Occupied Bandwidth

Mode	Channel.	Occupied Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.84820	Not Specified	PASS
	MCH	0.84782	Not Specified	PASS
	HCH	0.85061	Not Specified	PASS
π/4DQPSK	LCH	1.1919	Not Specified	PASS
	MCH	1.1785	Not Specified	PASS
	HCH	1.1846	Not Specified	PASS
8DPSK	LCH	1.1858	Not Specified	PASS
	MCH	1.1833	Not Specified	PASS
	HCH	1.1843	Not Specified	PASS

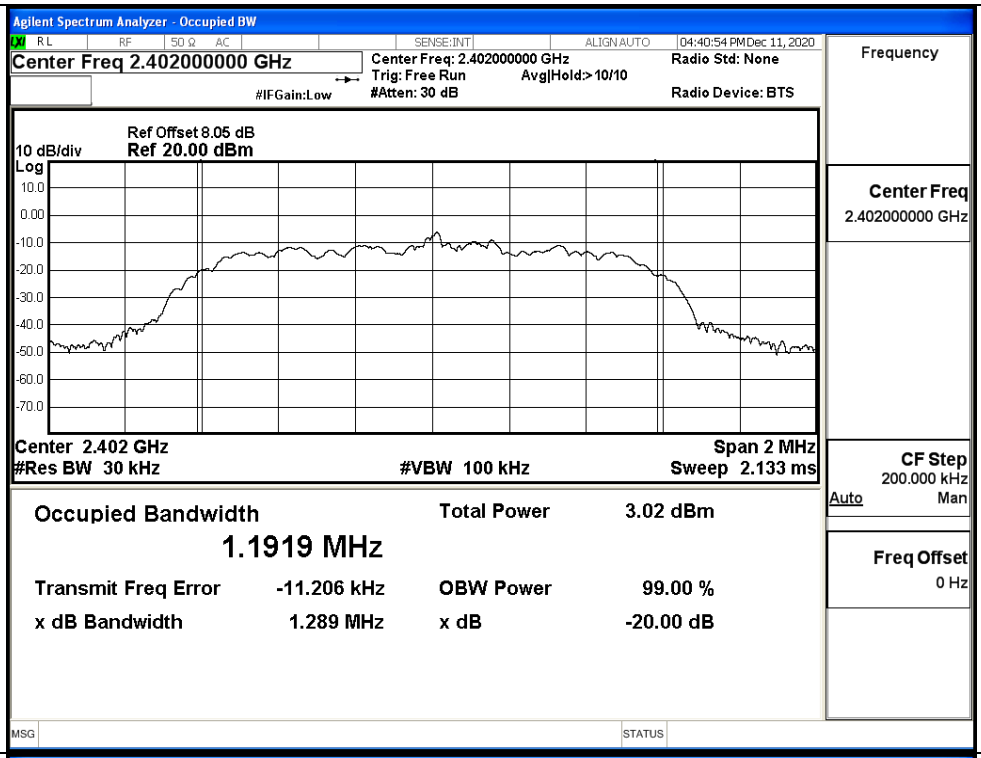
Test Graphs	
GFSK/LCH	

GFSK/MCH

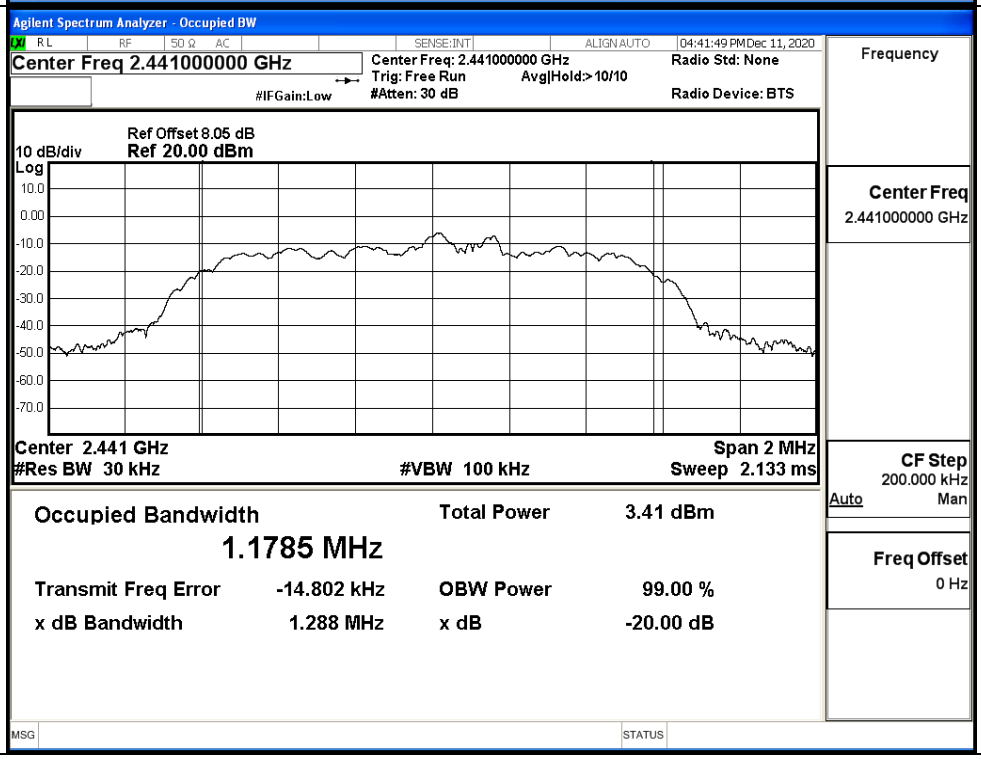
GFSK/HCH



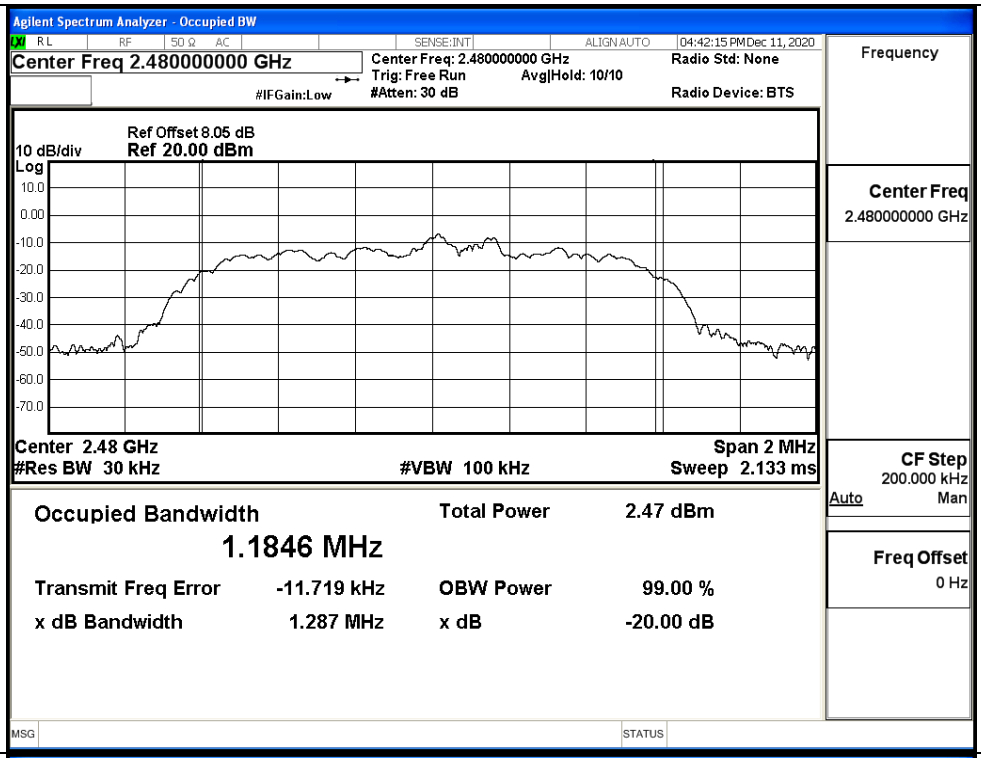
π/4DQPSK/LCH



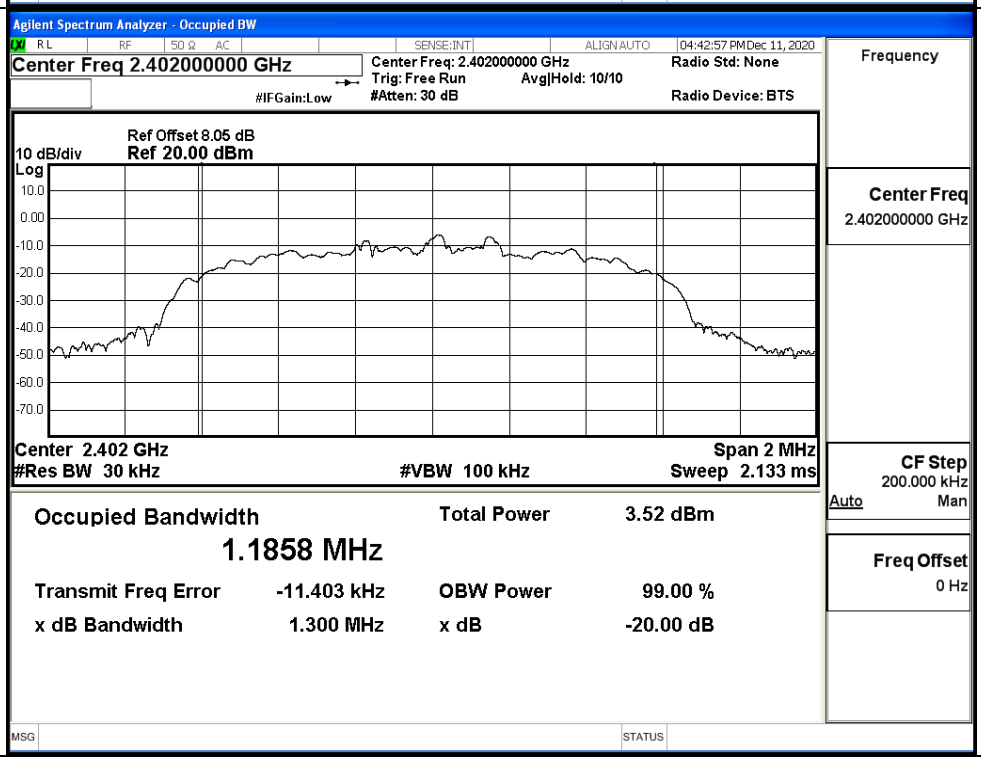
π/4DQPSK/MCH

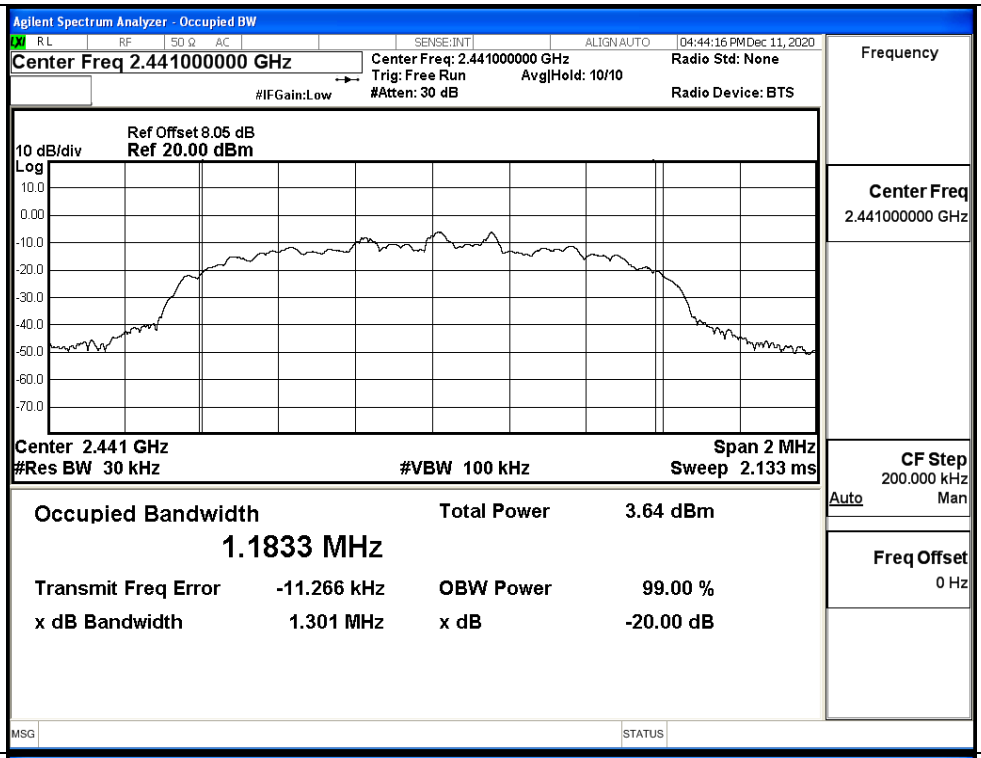
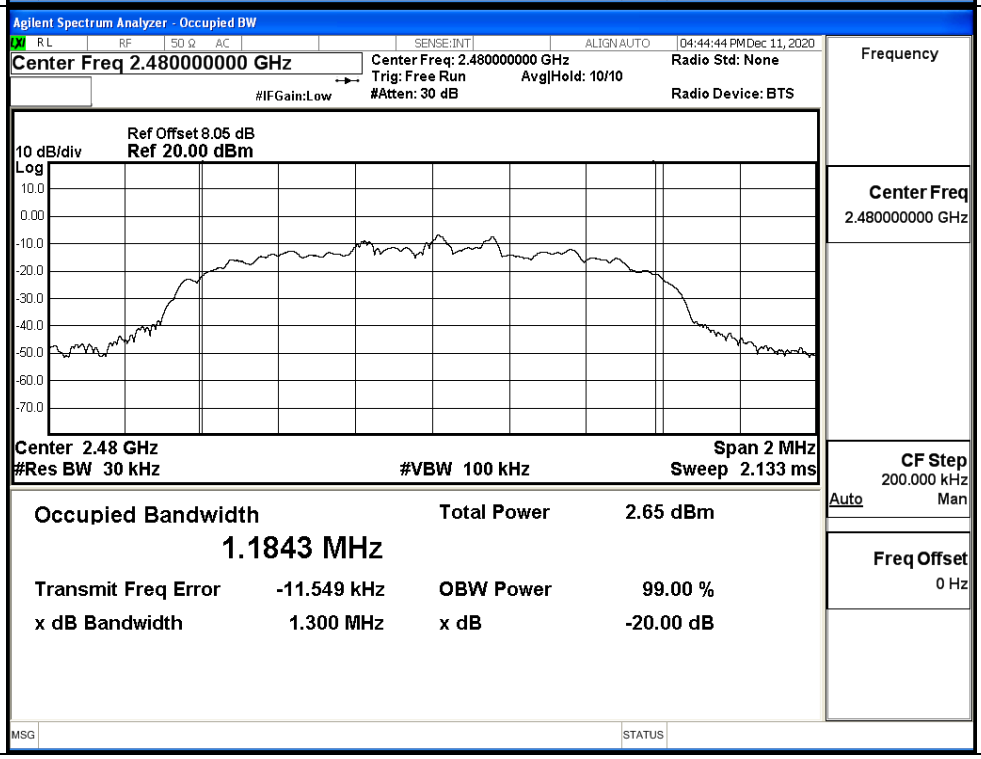


π/4DQPSK/HCH



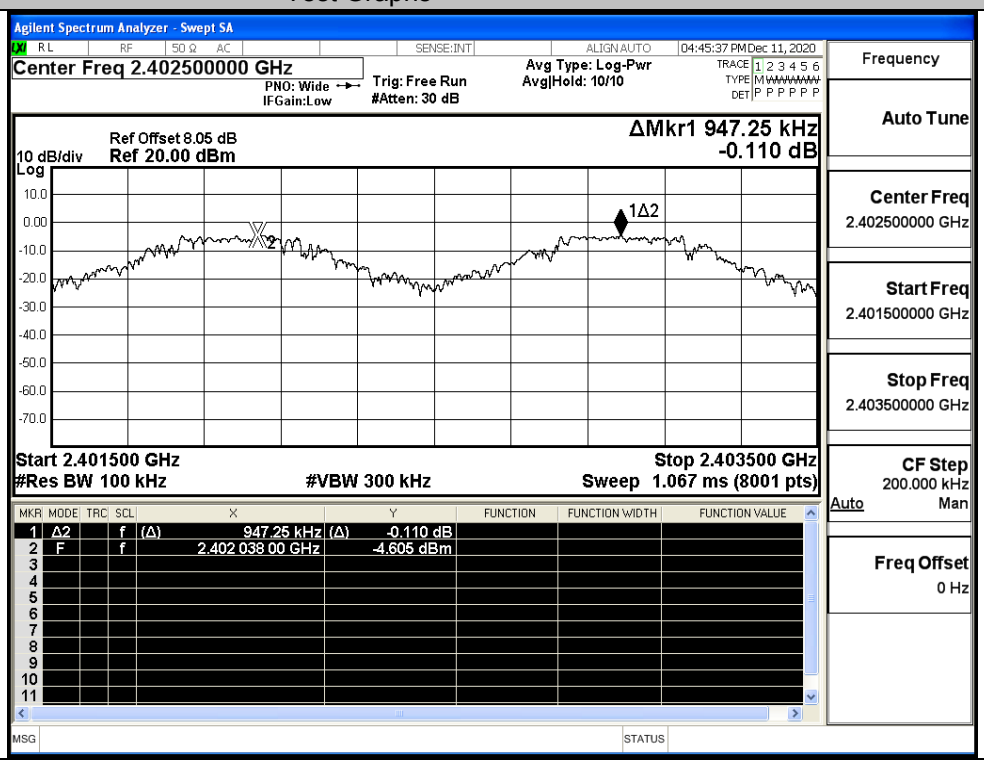
8DPSK/LCH

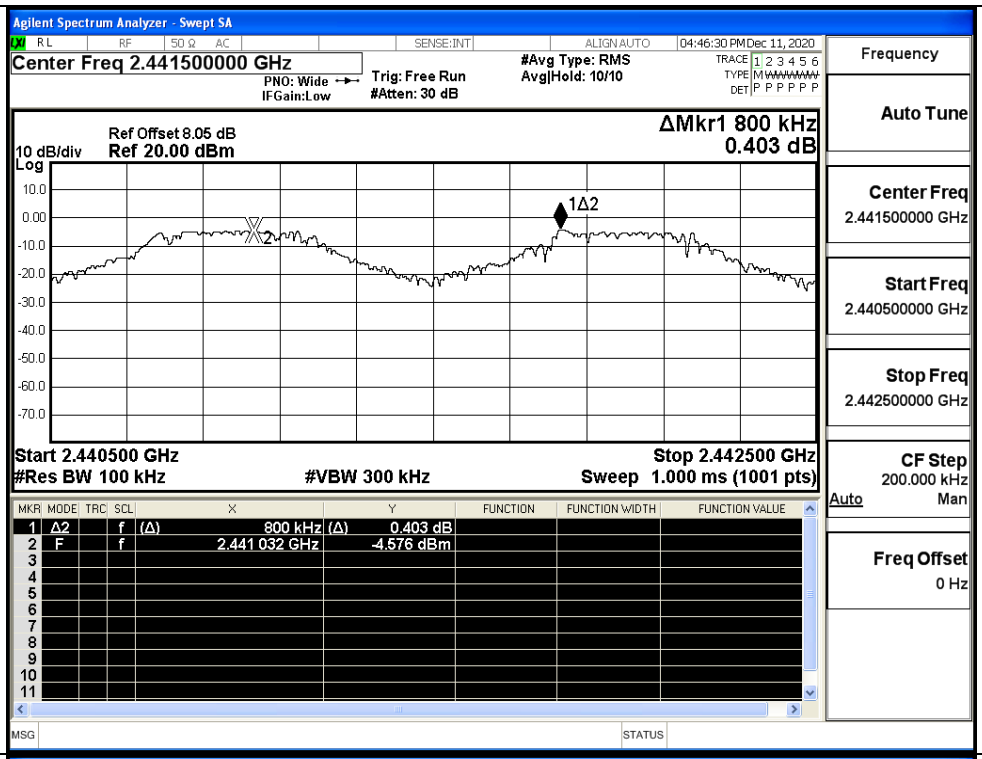
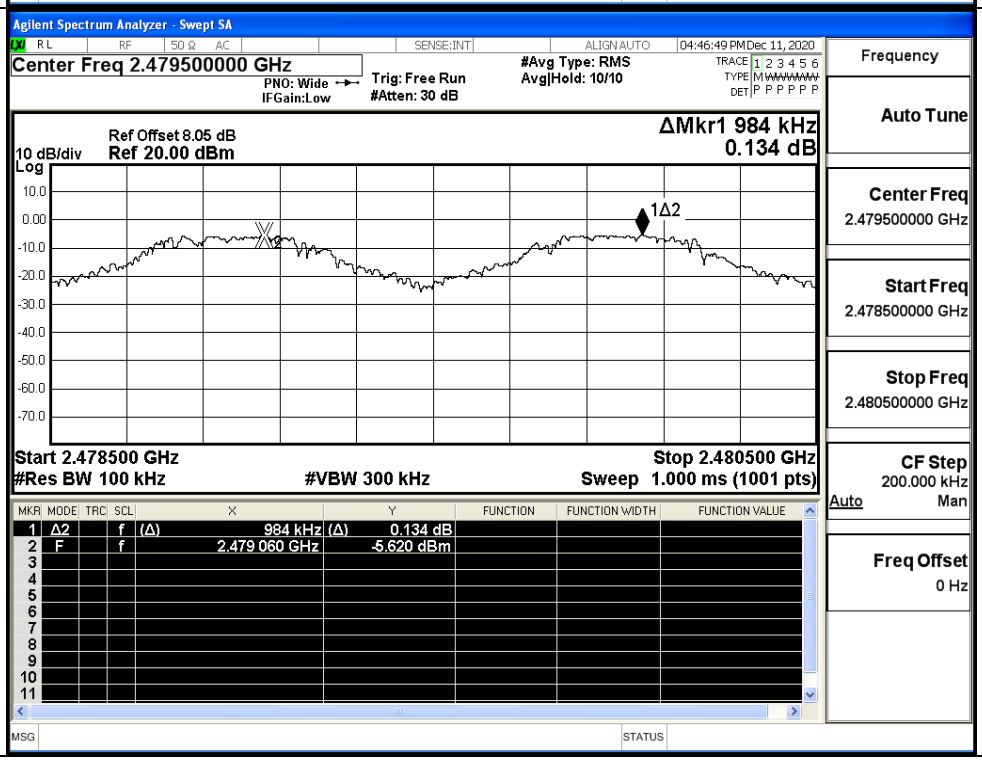


8DPSK/MCH		
8DPSK/HCH		

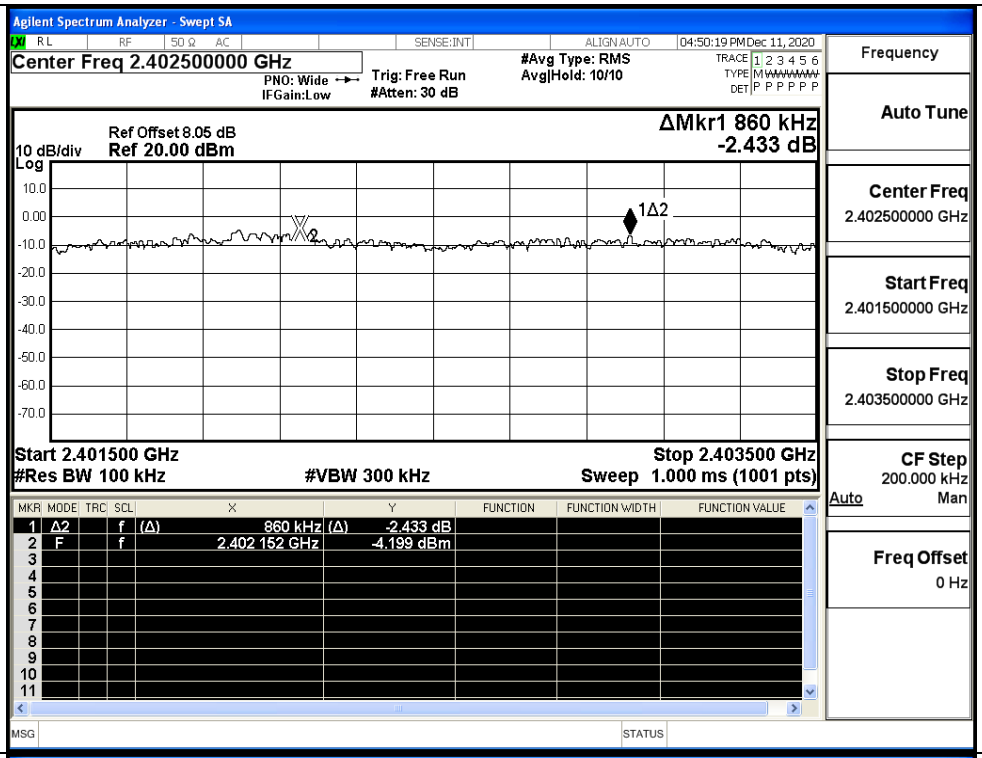
A.4 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.947	0.631	PASS
	MCH	0.800	0.631	PASS
	HCH	0.984	0.631	PASS
π/4DQPSK	LCH	0.860	0.860	PASS
	MCH	0.932	0.860	PASS
	HCH	1.078	0.860	PASS
8DPSK	LCH	1.098	0.869	PASS
	MCH	1.216	0.869	PASS
	HCH	1.074	0.869	PASS

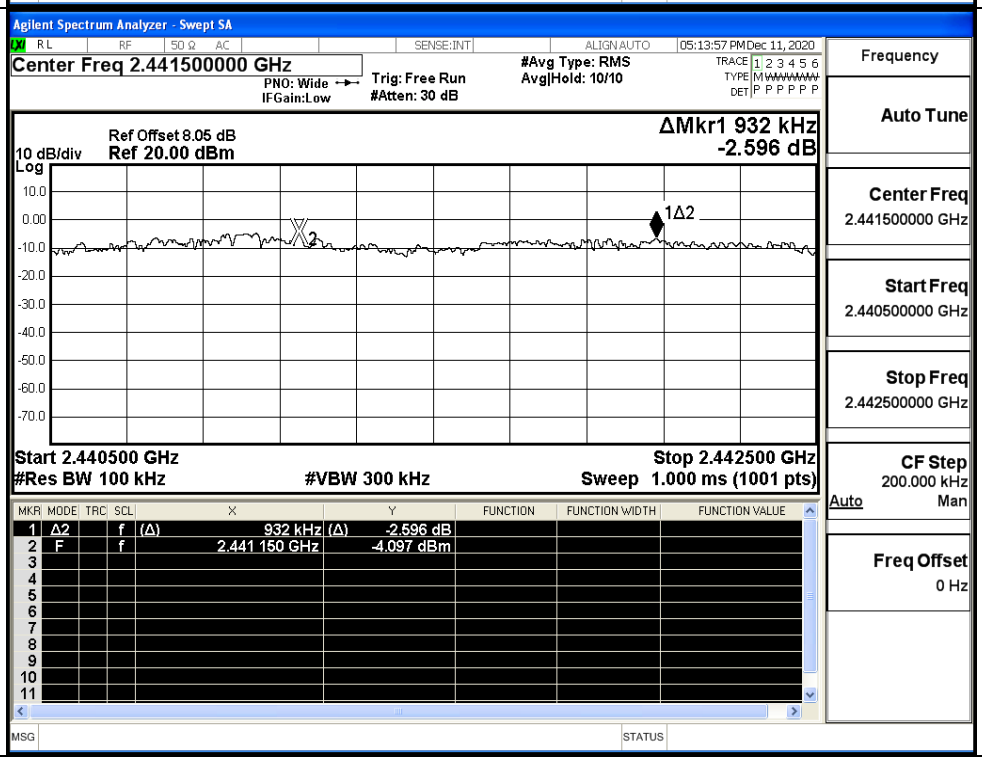
Test Graphs		
GFSK/LCH		

GFSK/MCH		
GFSK/HCH		

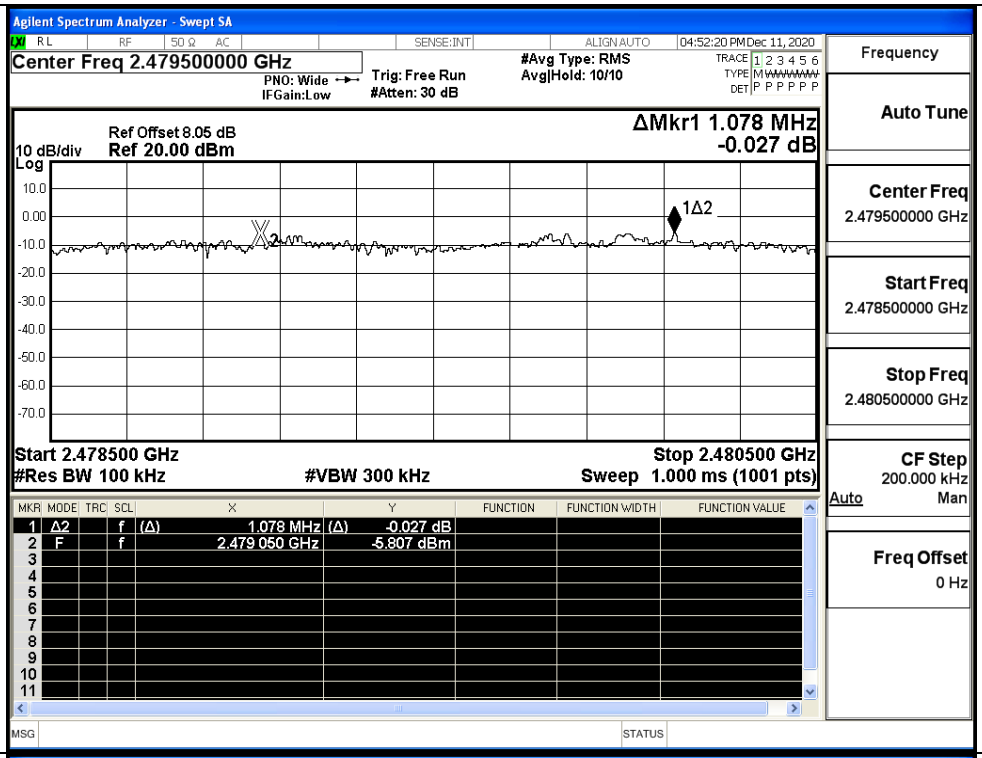
π/4DQPSK/LCH



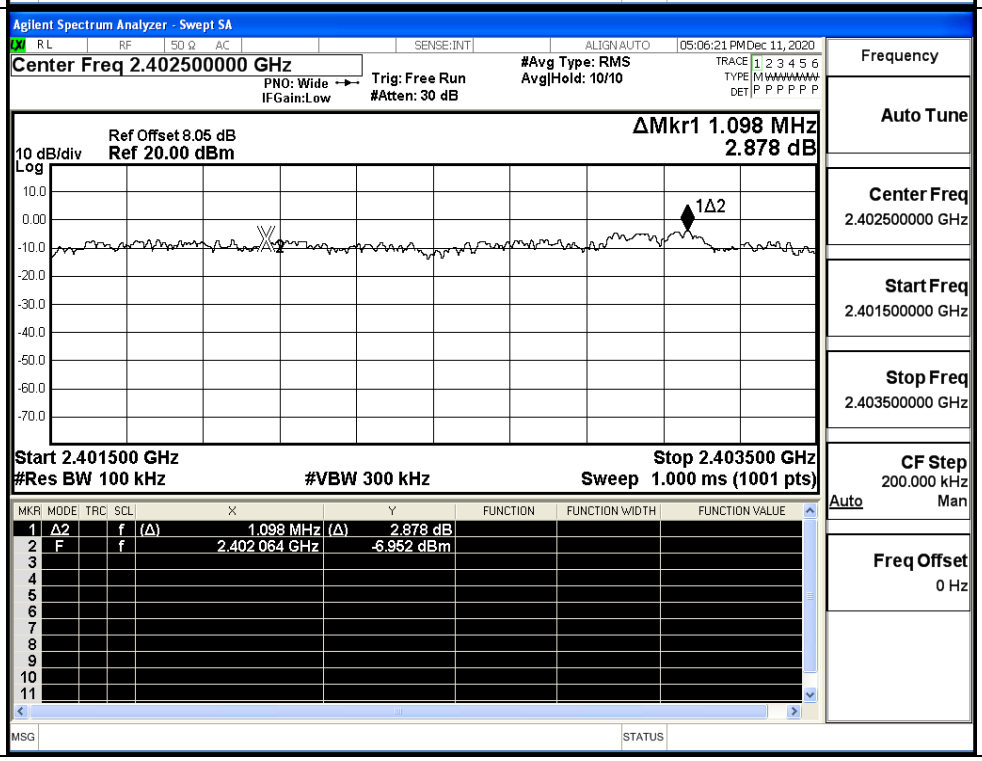
π/4DQPSK/MCH

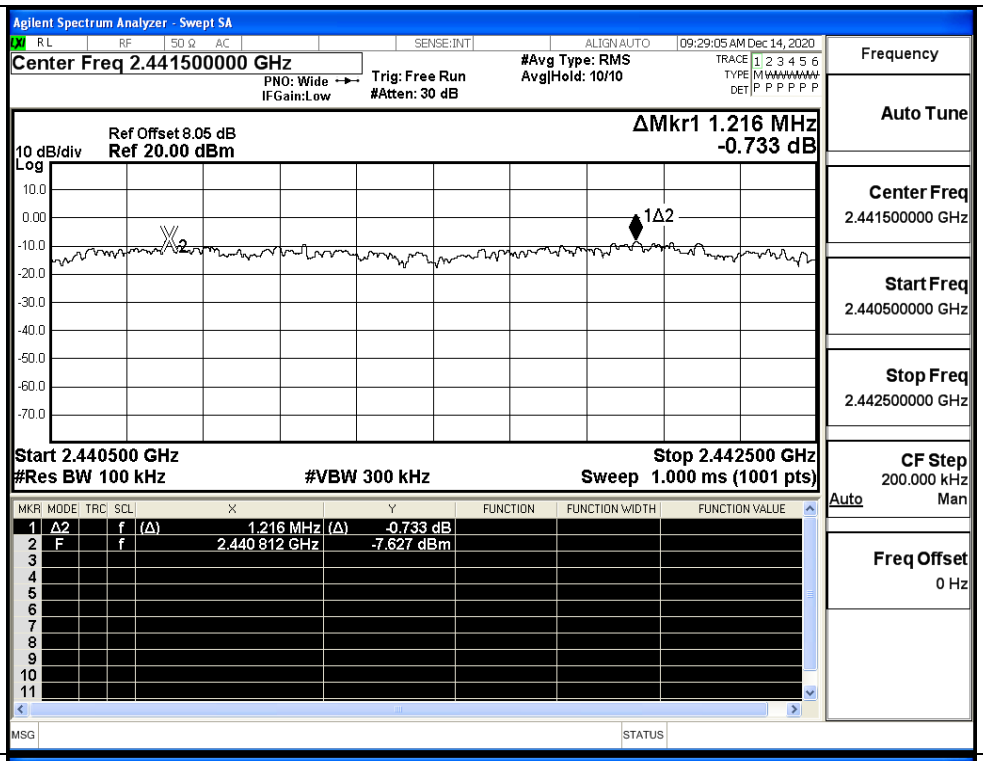
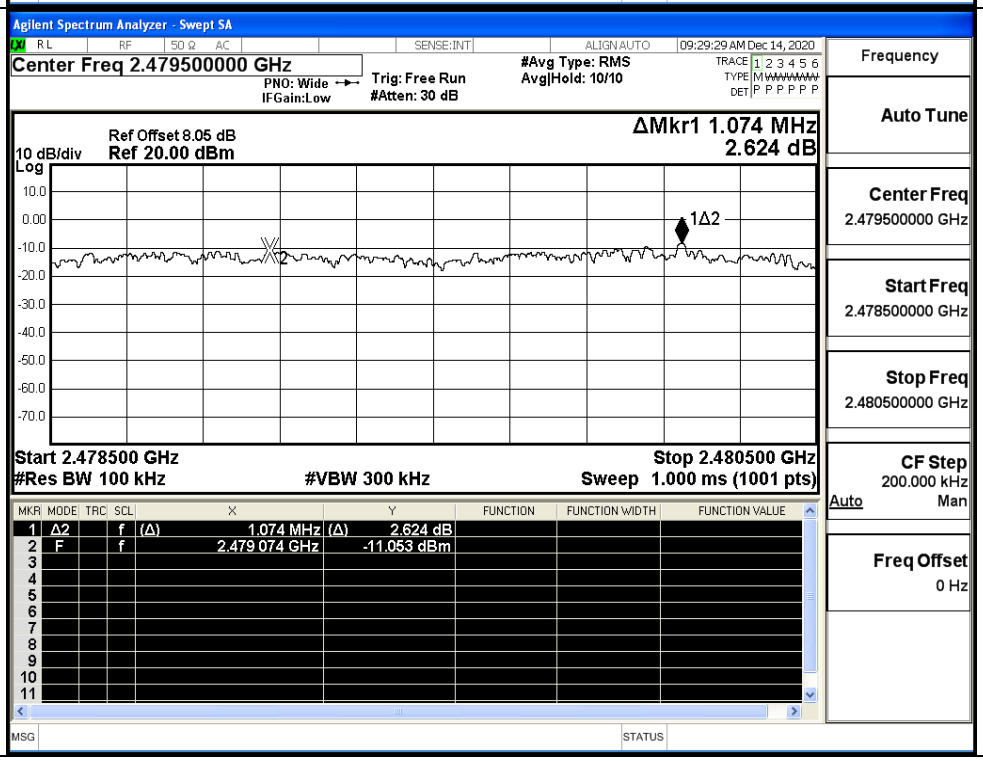


π/4DQPSK/HCH



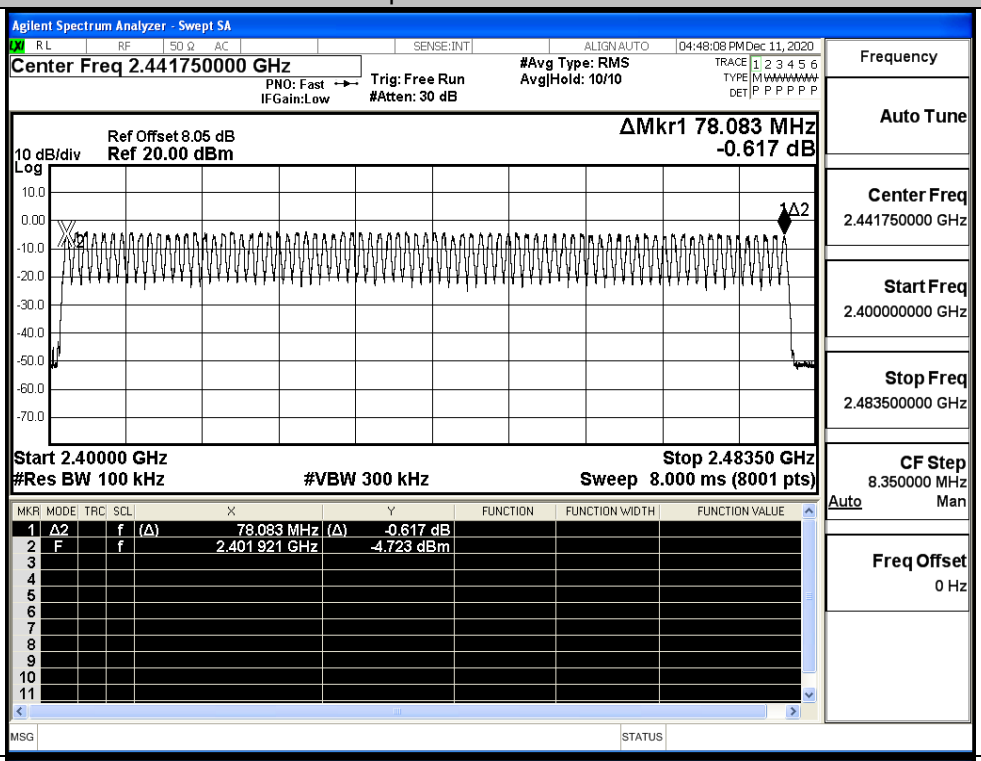
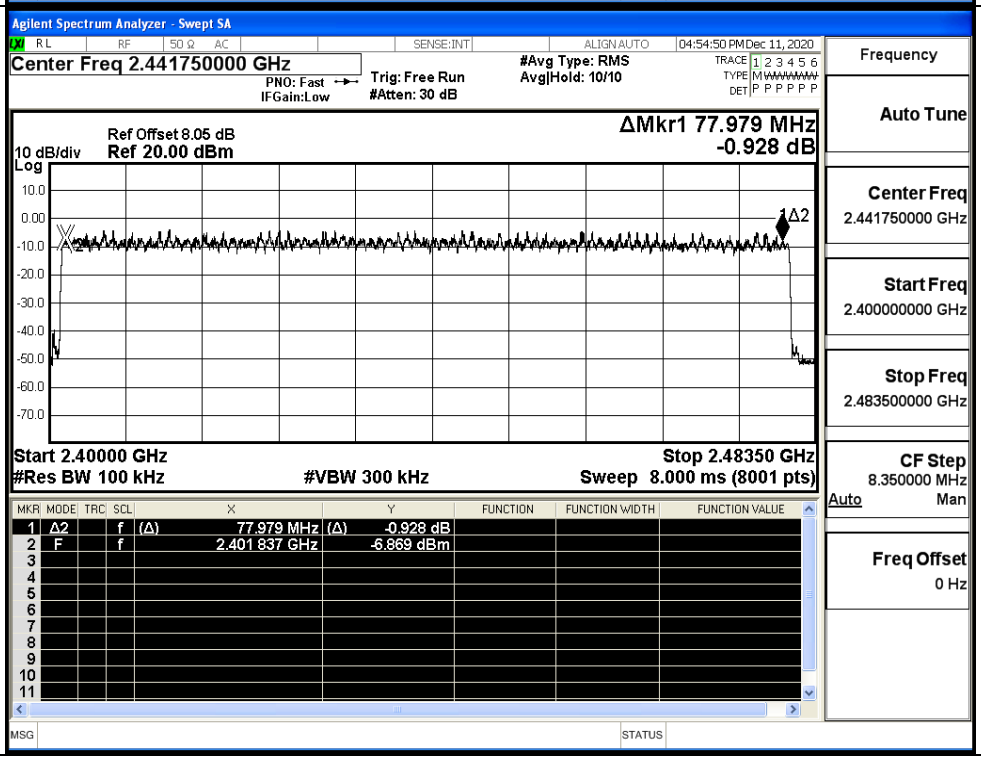
8DPSK/LCH

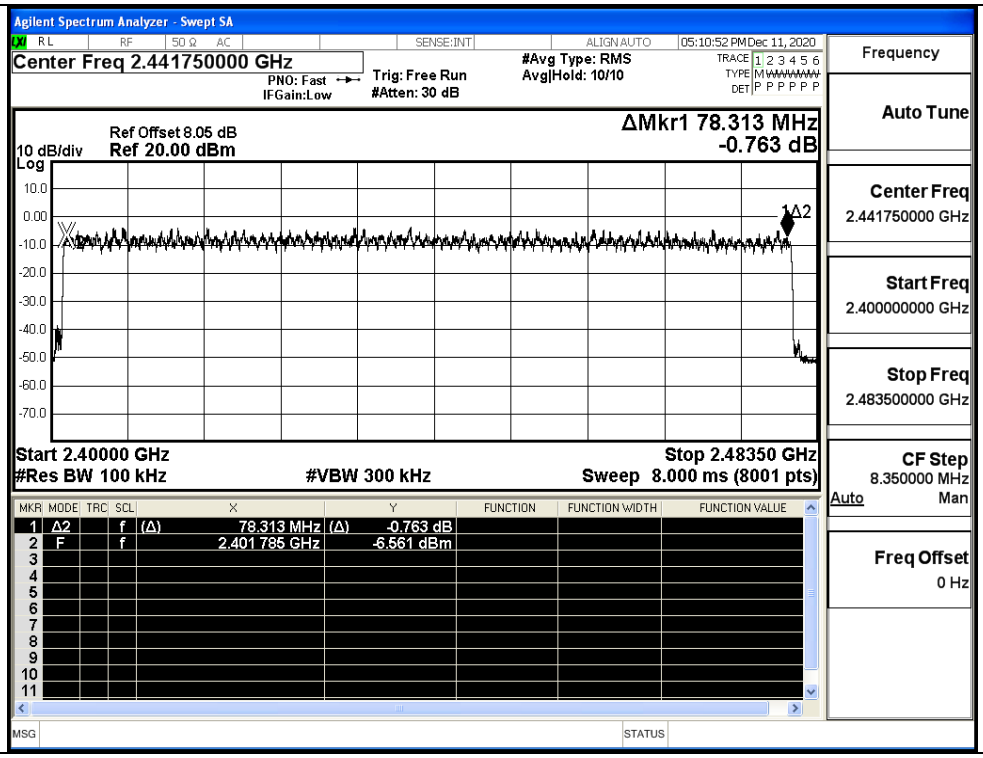


8DPSK/MCH		
8DPSK/HCH		

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

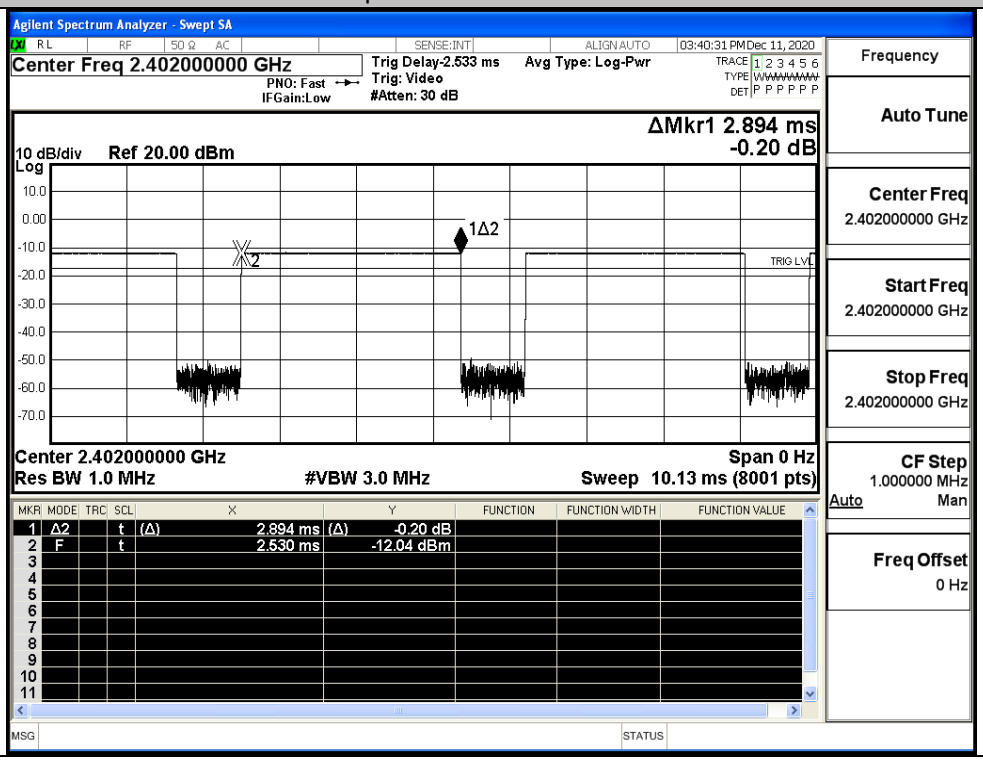
Test Graphs	
GFSK/Hop	
π/4DQPSK/Hop	

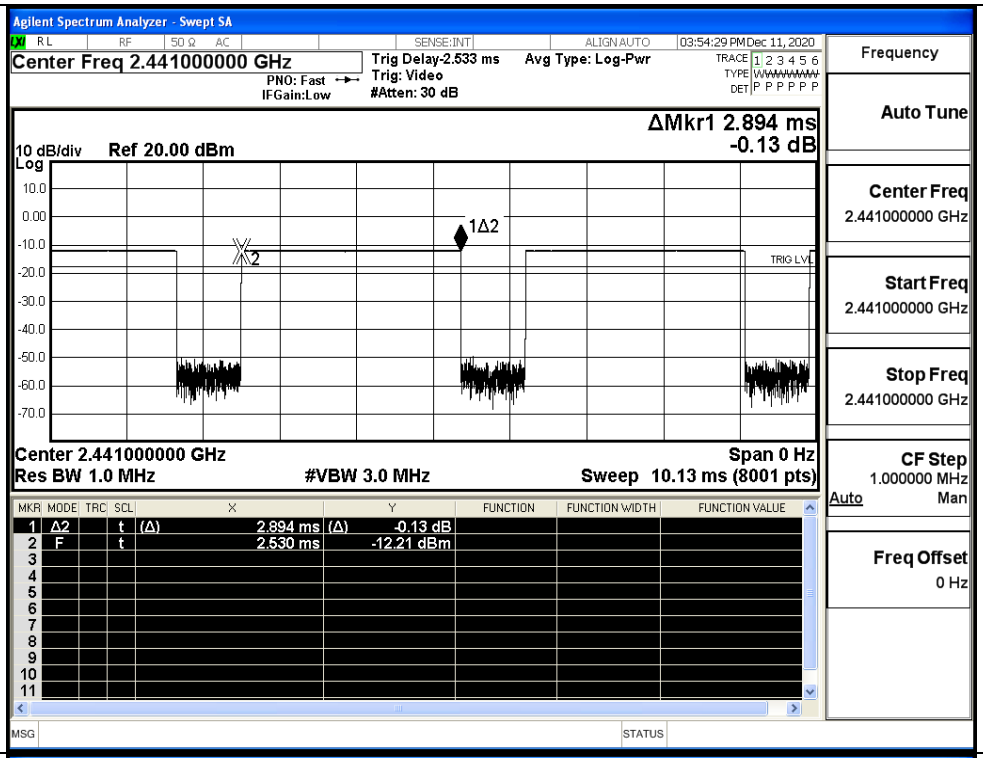
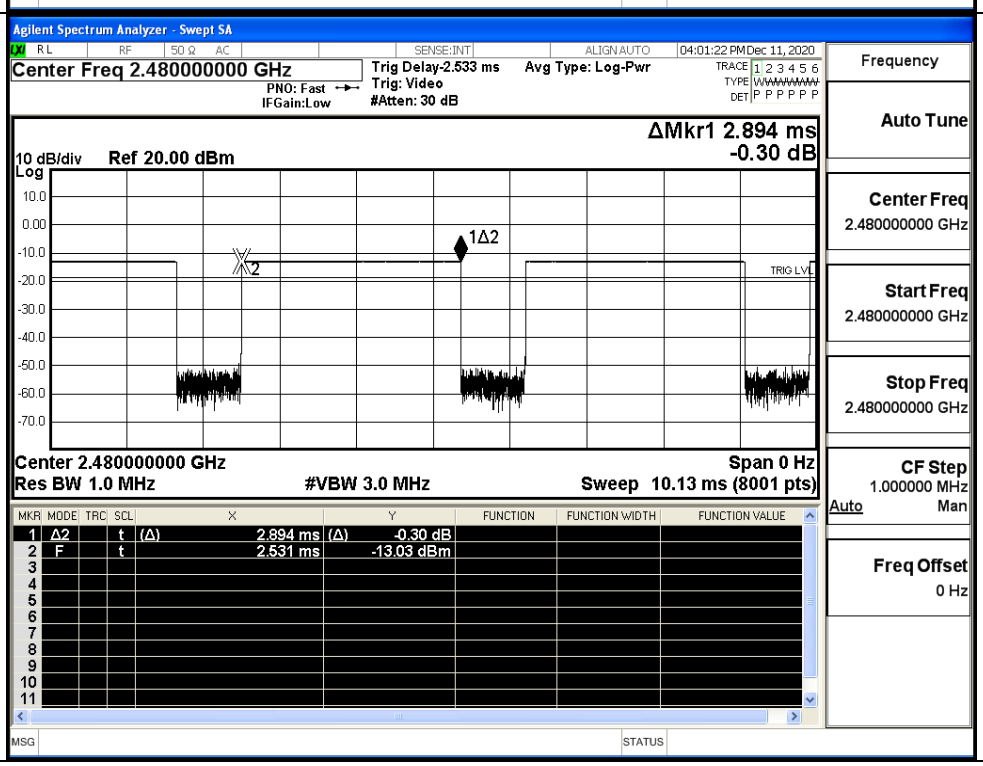
8DPSK/Hop	

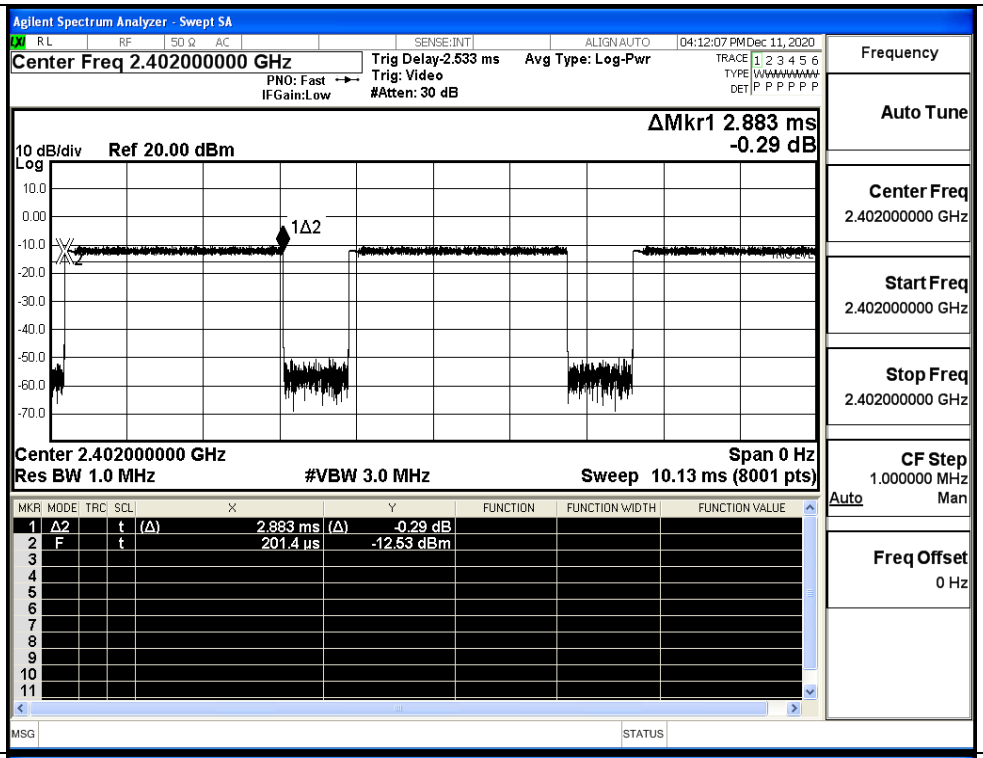
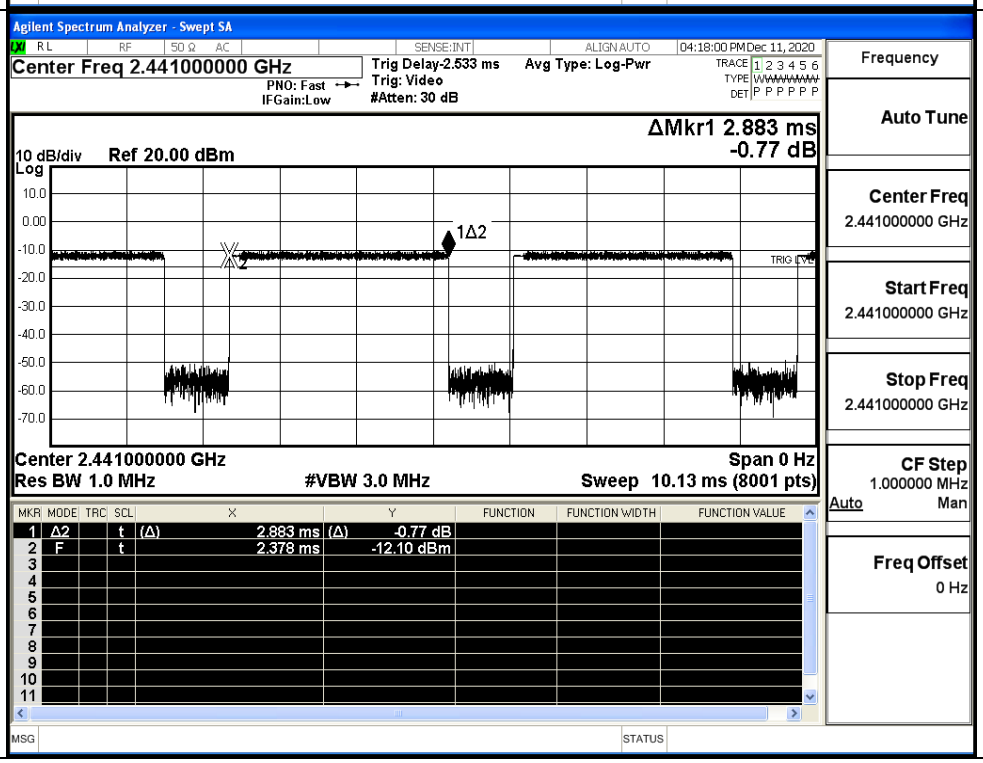
Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441750000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 10/10
05:10:52 PM Dec 11, 2020
Ref Offset 8.05 dB
10 dB/div
Ref 20.00 dBm
ΔMkr1 78.313 MHz
-0.763 dB
Start 2.40000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.48350 GHz
Sweep 8.000 ms (8001 pts)
1 Δ2 f (Δ) 78.313 MHz (Δ) -0.763 dB
2 F f 2.401 785 GHz -6.561 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

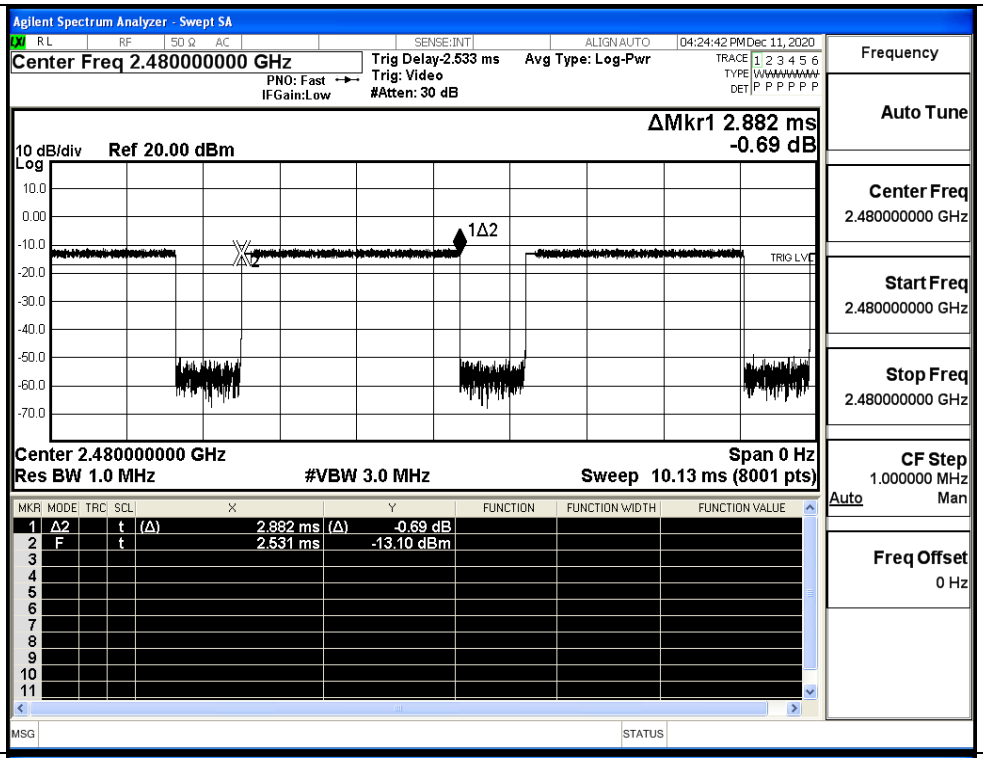
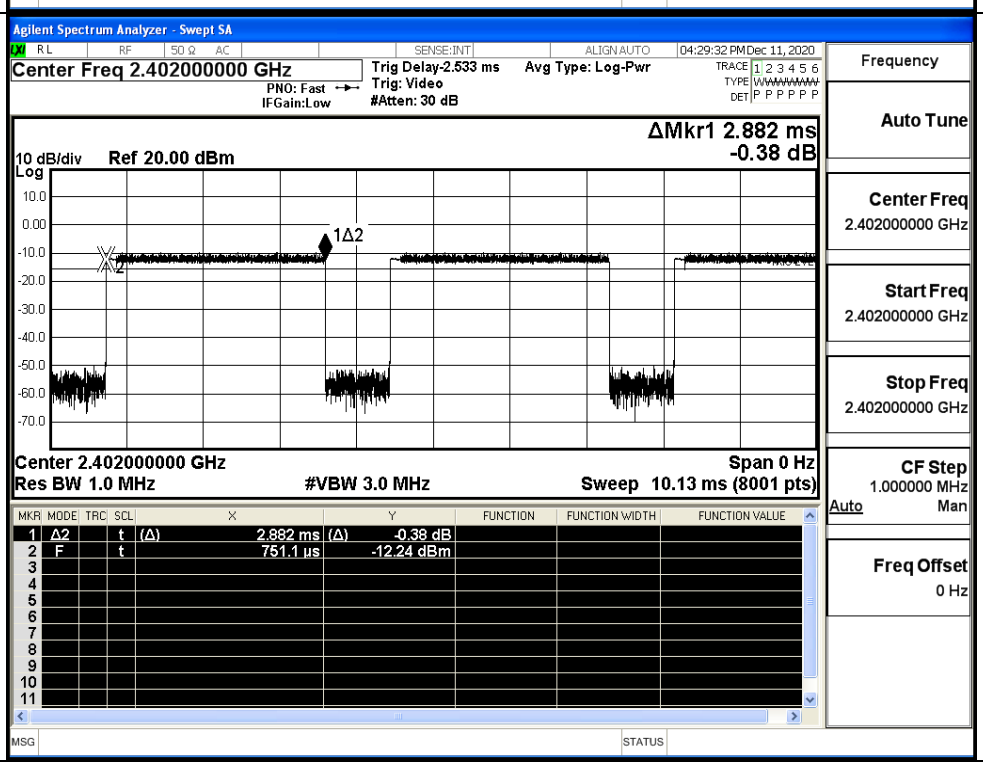
A.6 Dwell Time

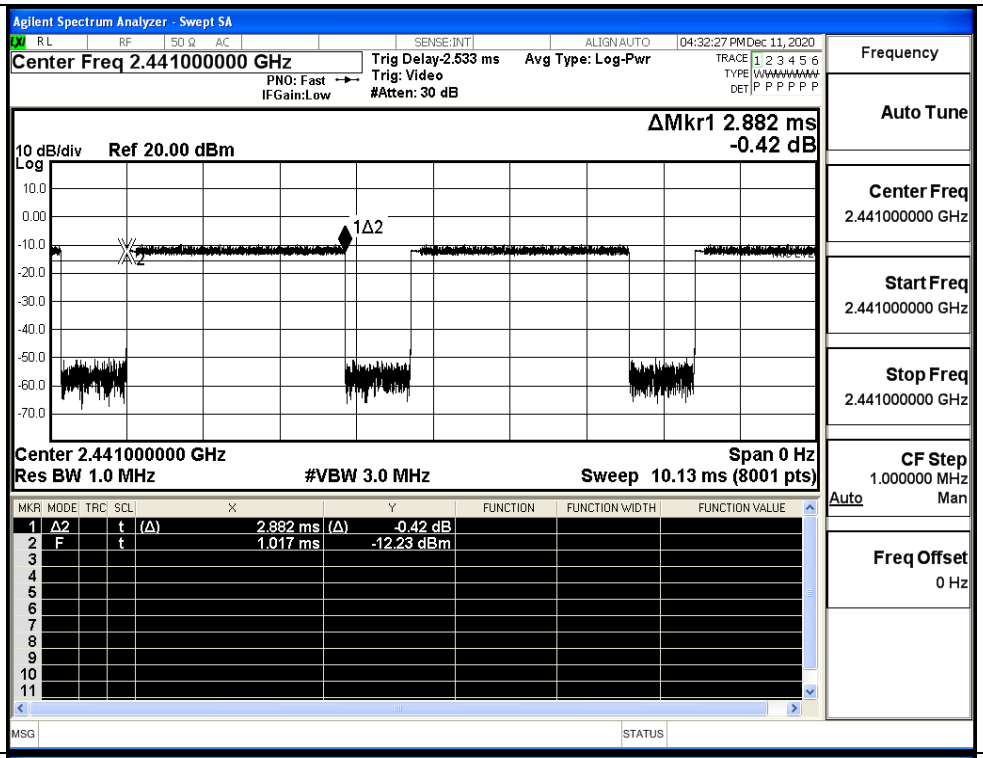
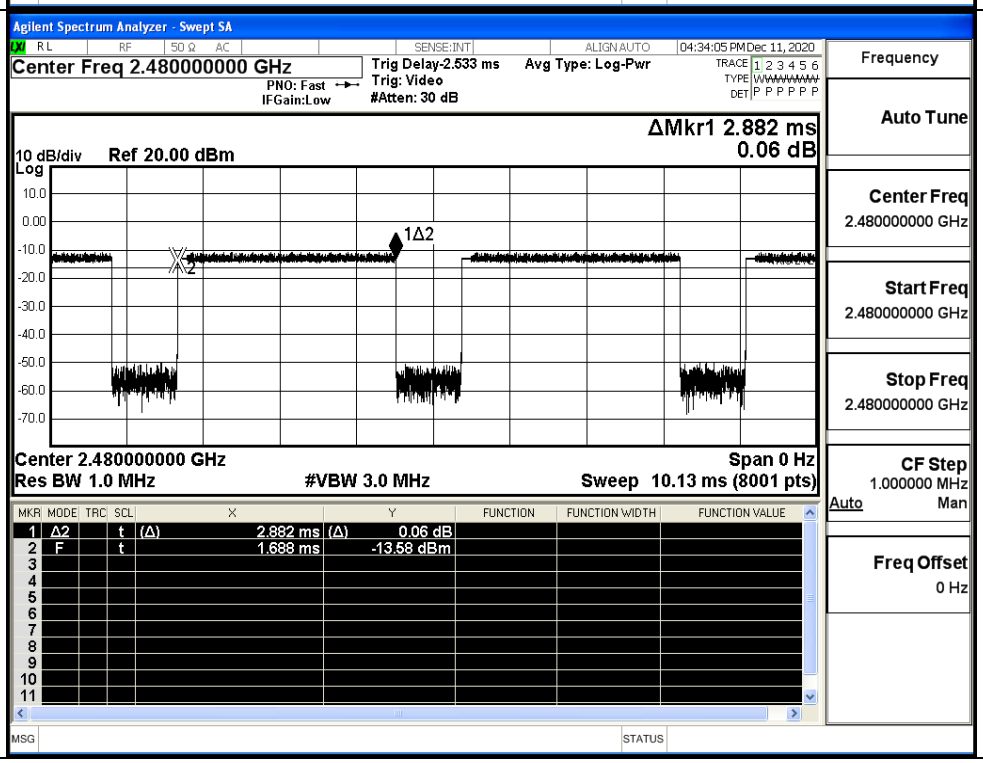
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.89	106.7	0.308	0.4	PASS
	DH5	MCH	2.89	106.7	0.308	0.4	PASS
	DH5	HCH	2.89	106.7	0.308	0.4	PASS
π/4DQPSK	2DH5	LCH	2.89	106.7	0.307	0.4	PASS
	2DH5	MCH	2.89	106.7	0.307	0.4	PASS
	2DH5	HCH	2.89	106.7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

Test Graphs	
GFSK_DH5/LCH	

GFSK_DH5/MCH	
GFSK_DH5/HCH	

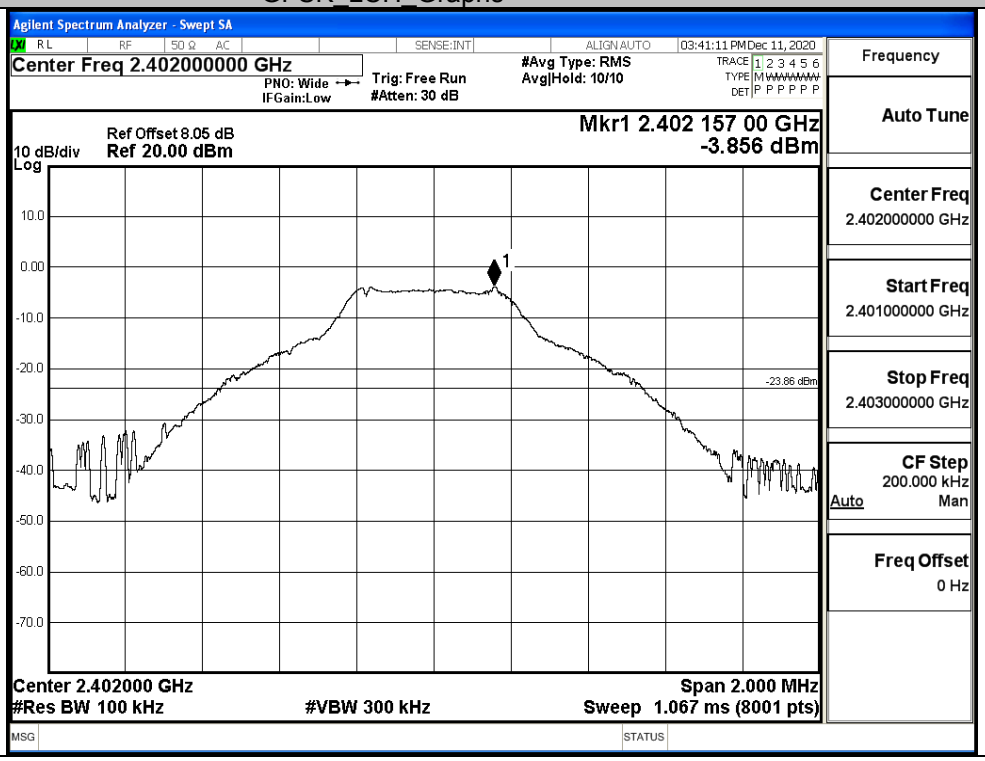
π/4DQPSK _2DH5/LCH	
π/4DQPSK _2DH5/MCH	

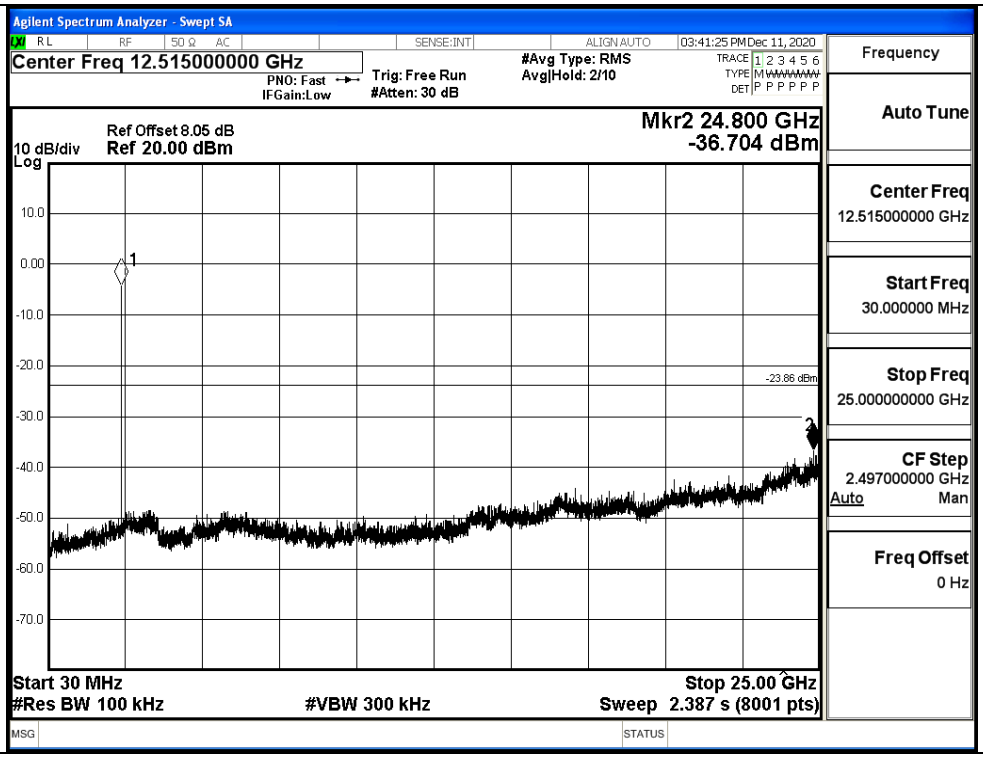
π/4DQPSK _2DH5/HCH	
8DPSK _3DH5/LCH	

8DPSK _3DH5/MCH	
8DPSK _3DH5/HCH	

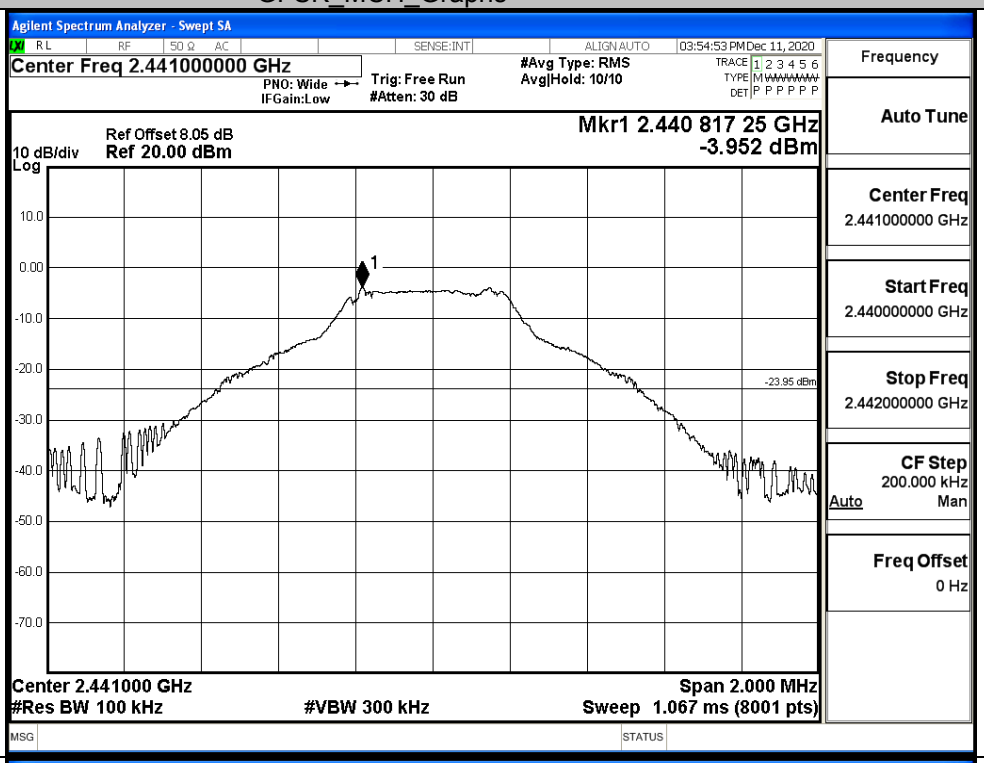
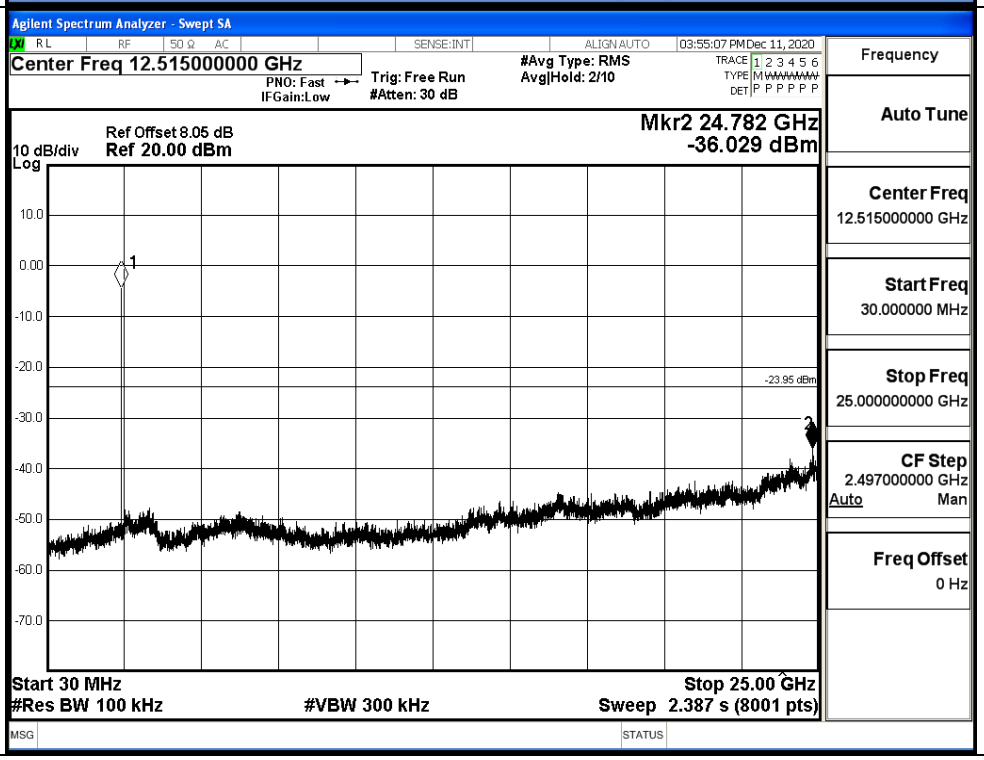
A.7 RF Conducted Spurious Emissions

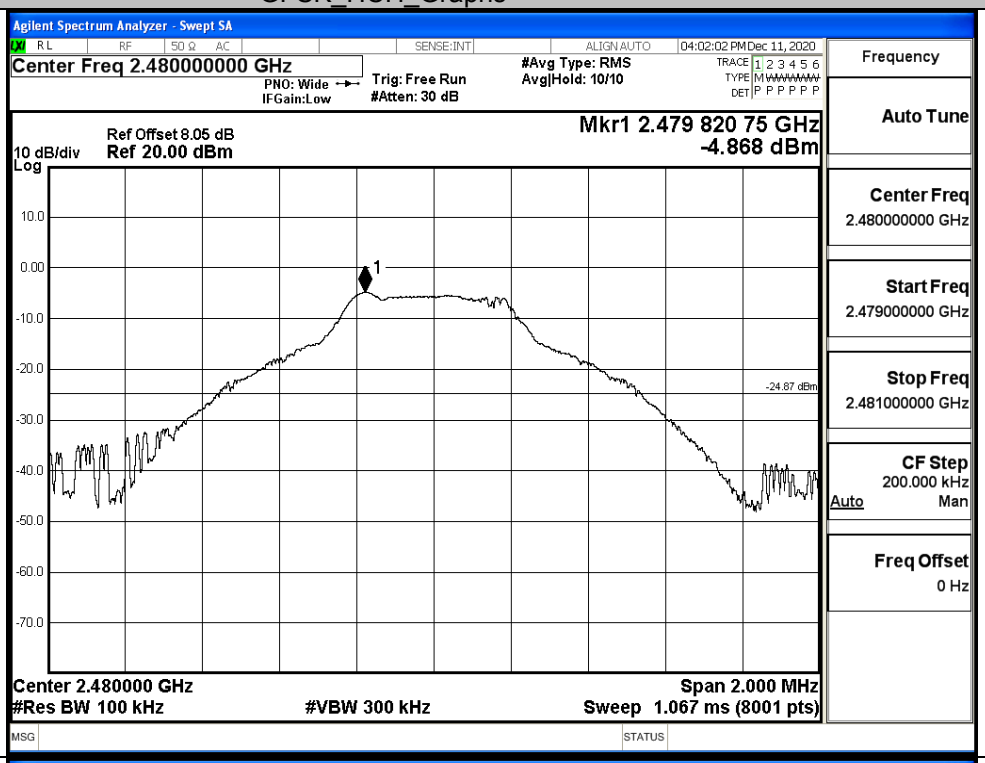
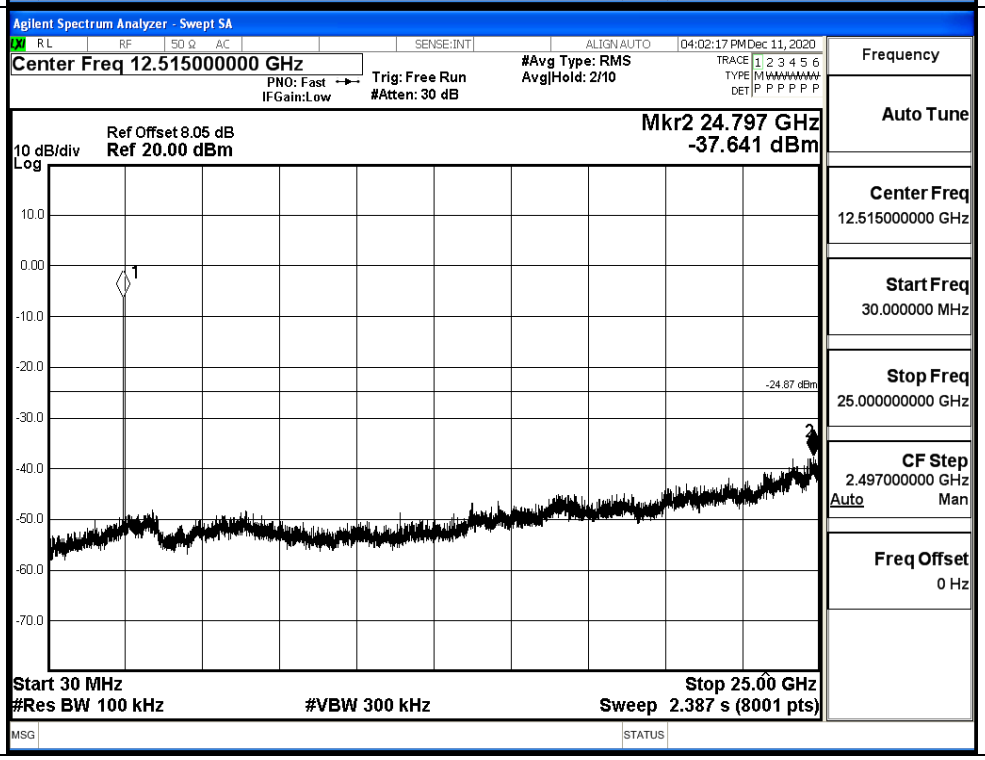
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-3.856	-36.704	-23.856	PASS
	MCH	-3.952	-36.029	-23.952	PASS
	HCH	-4.868	-37.641	-24.868	PASS
π/4DQPSK	LCH	-4.653	-38.174	-24.653	PASS
	MCH	-4.344	-38.420	-24.344	PASS
	HCH	-5.178	-37.544	-25.178	PASS
8DPSK	LCH	-4.024	-37.495	-24.024	PASS
	MCH	-3.951	-37.794	-23.951	PASS
	HCH	-4.811	-36.806	-24.811	PASS

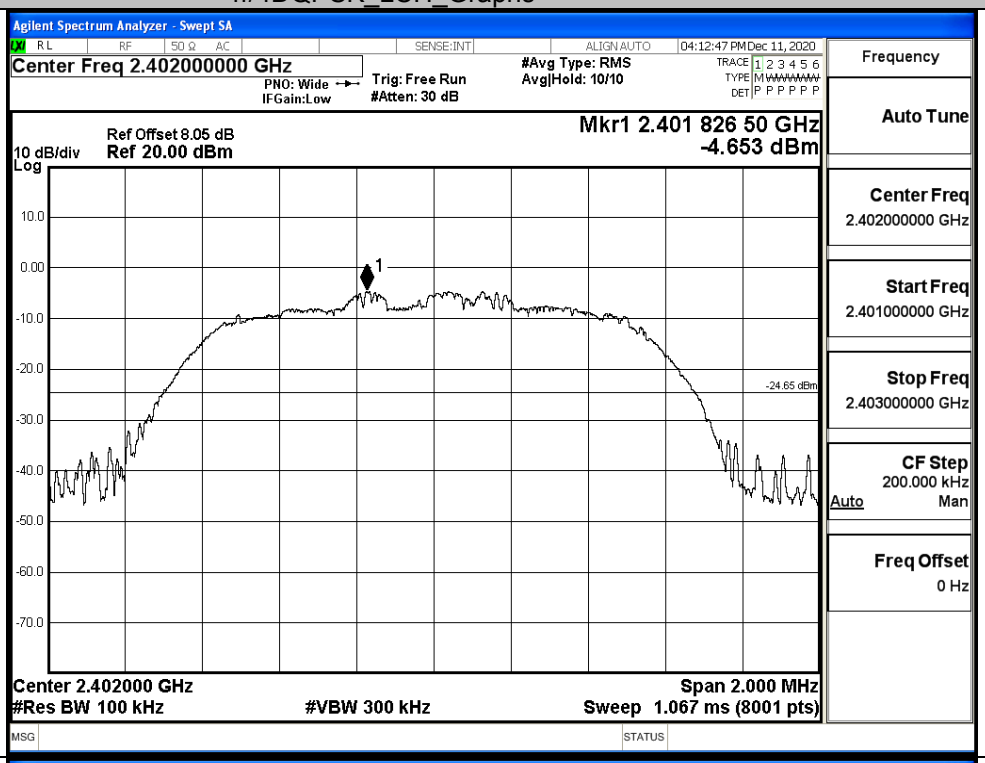
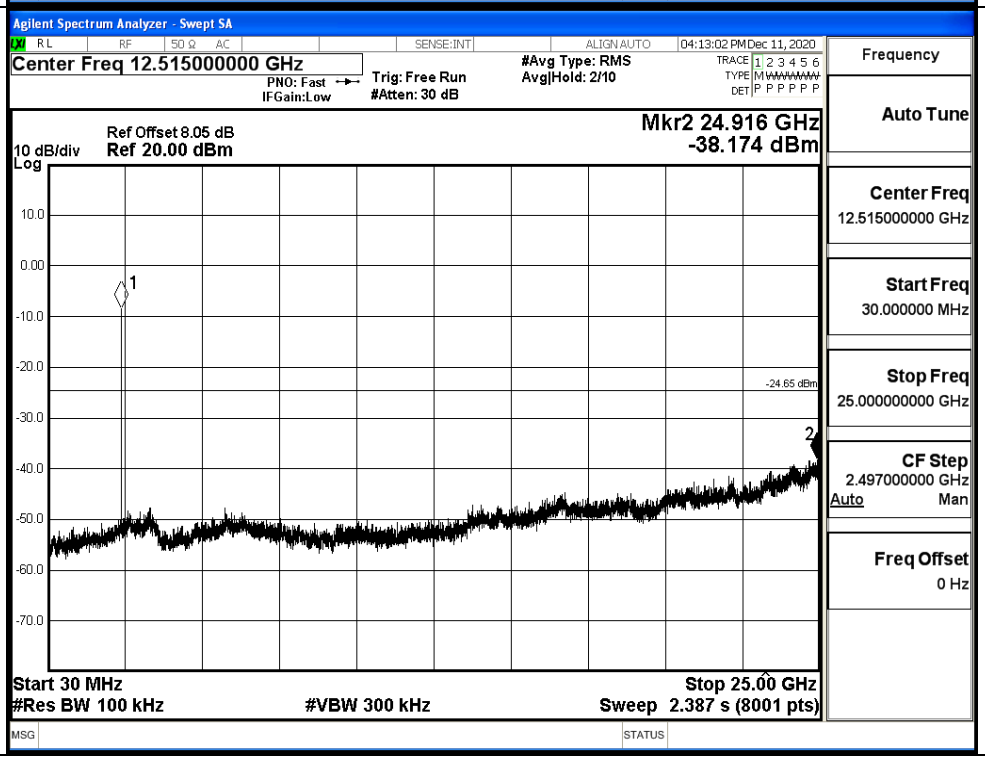
GFSK_LCH_Graphs		
Pref		

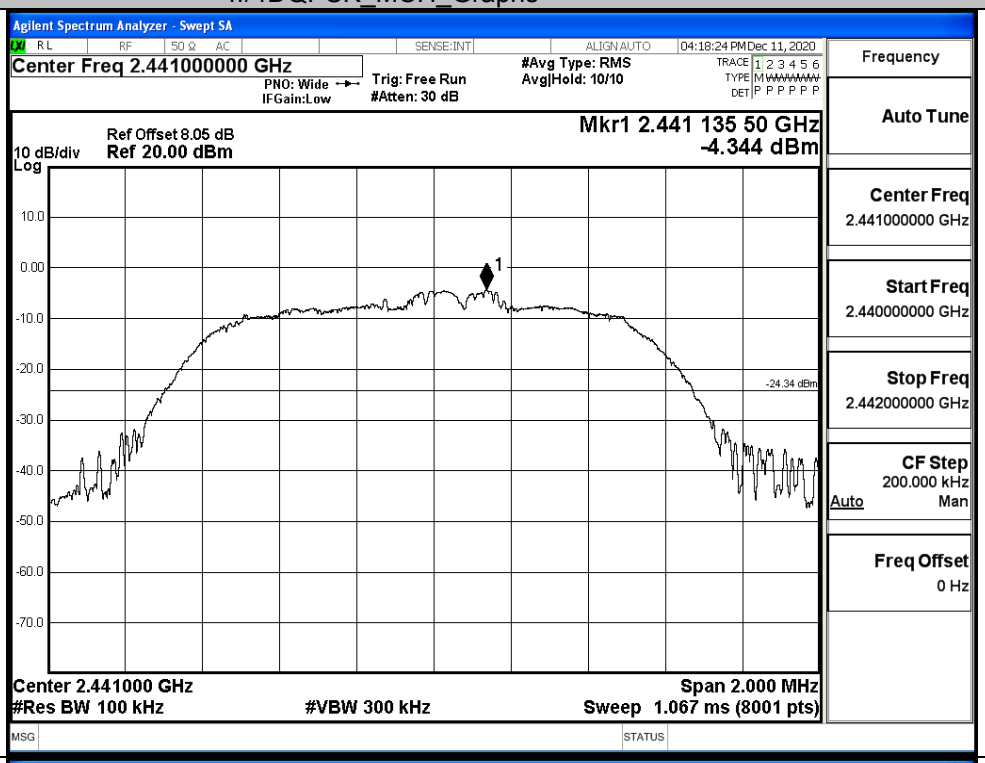
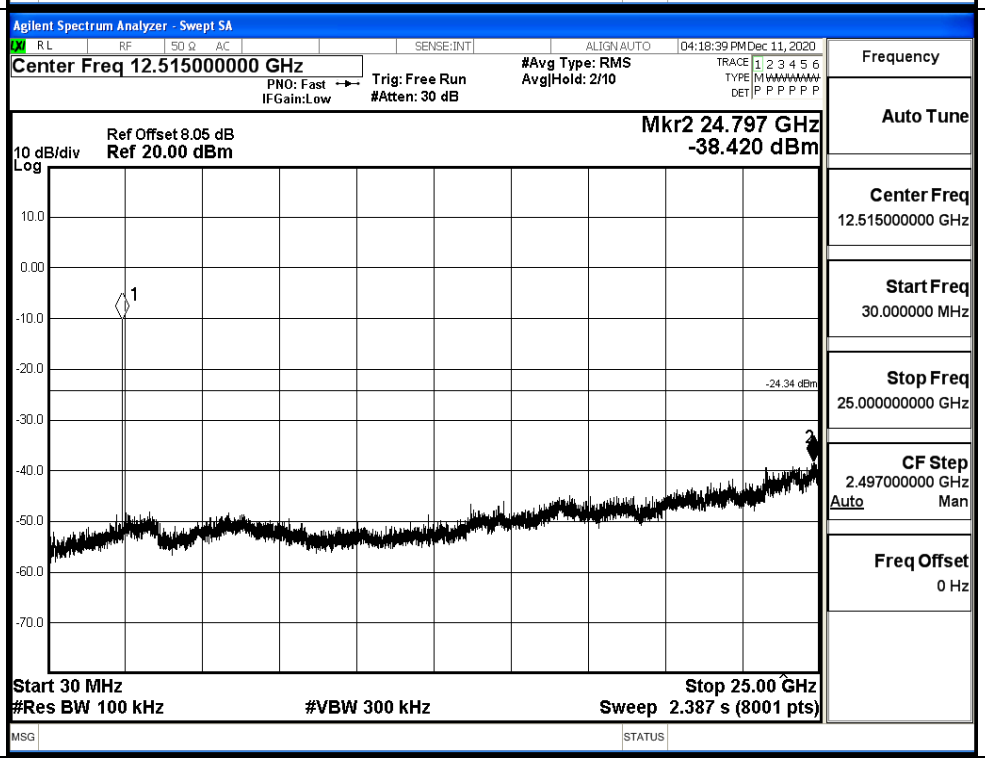
Puw		

Agilent Spectrum Analyzer - Swept SA
Center Freq 12.515000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 2/10
03:41:25 PM Dec 11, 2020
Ref Offset 8.05 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr2 24.800 GHz
-36.704 dBm
-23.86 dBm
Start 30 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.00 GHz
Sweep 2.387 s (8001 pts)
Frequency
Auto Tune
Center Freq
12.515000000 GHz
Start Freq
30.000000 MHz
Stop Freq
25.000000000 GHz
CF Step
2.497000000 GHz
Auto
Man
Freq Offset
0 Hz

GFSK_MCH_Graphs		
Pref		
Puw		

GFSK_HCH_Graphs		
Pref		
Puw		

π/4DQPSK_LCH_Graphs		
Pref		
Puw		

π/4DQPSK_MCH_Graphs			
Pref			
Puw			

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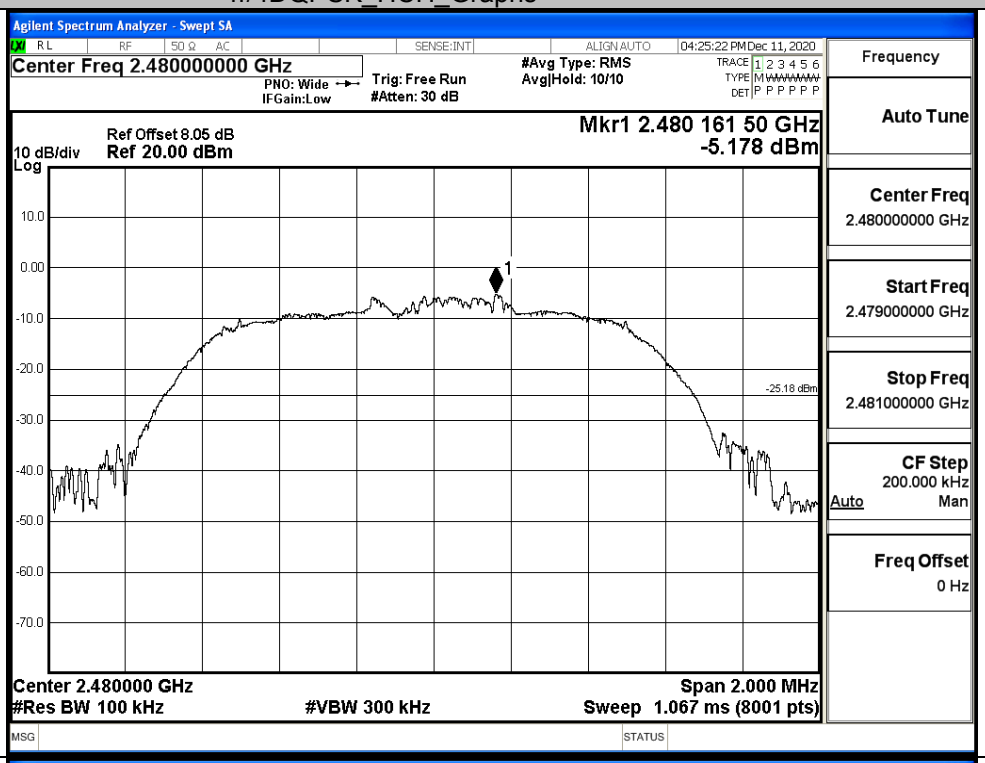
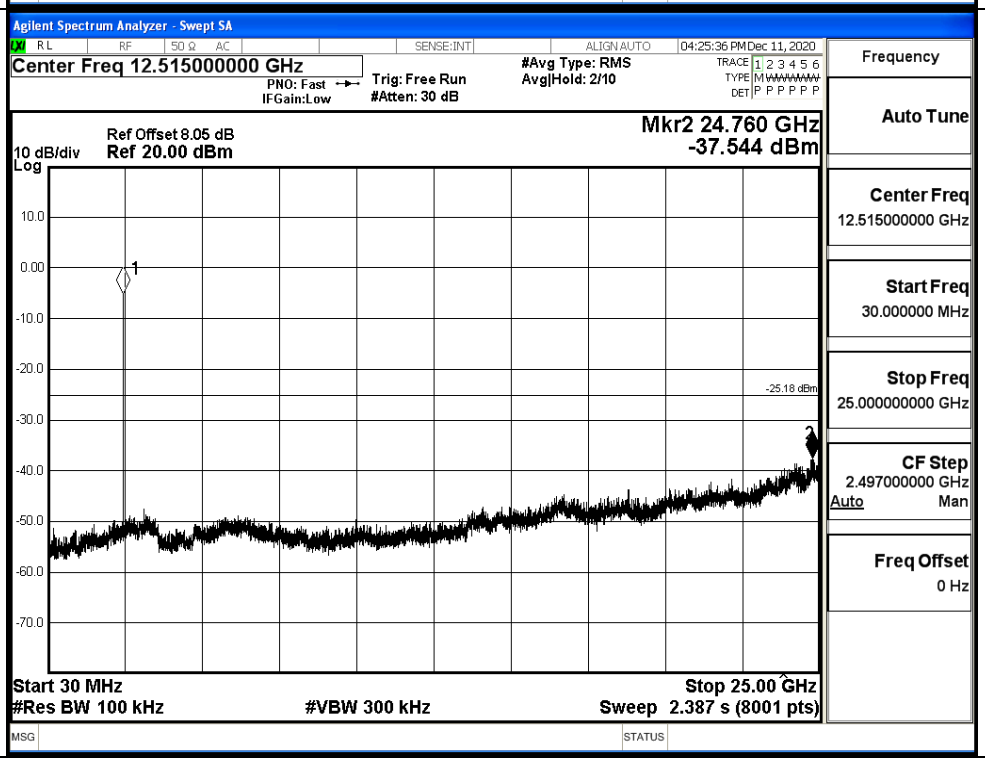
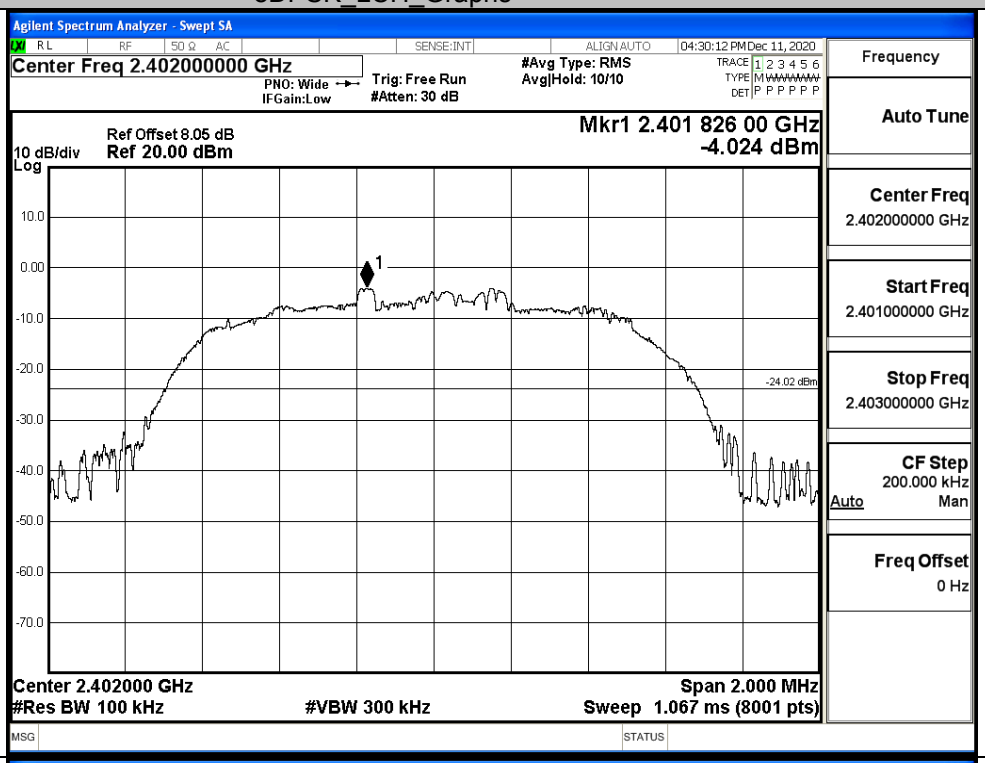
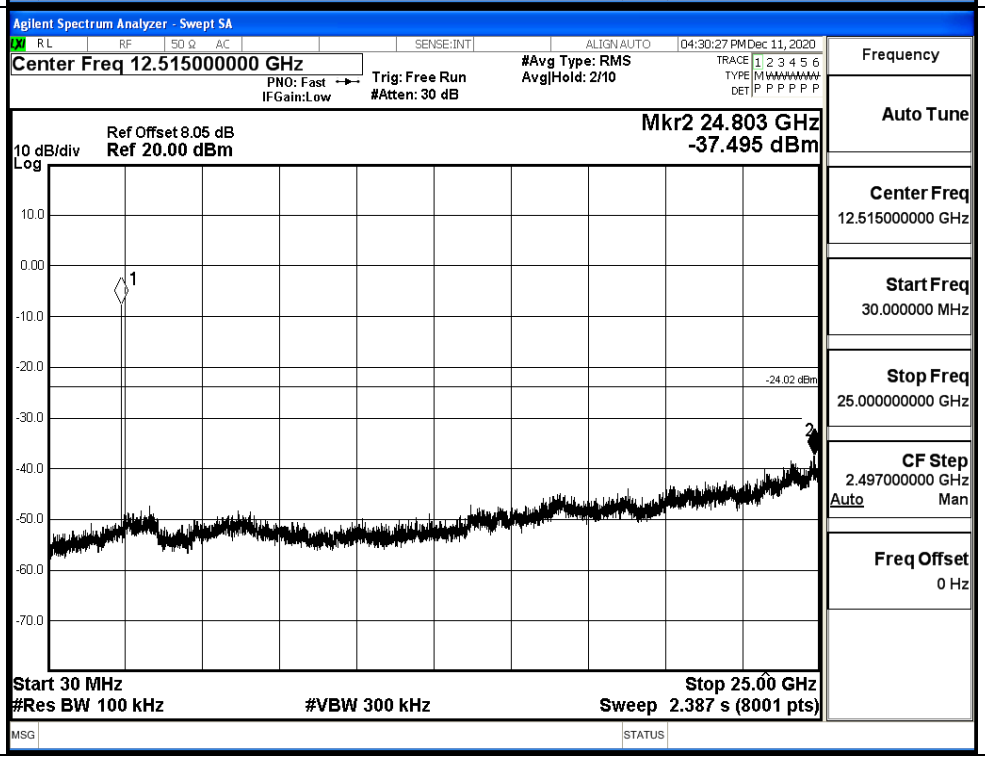
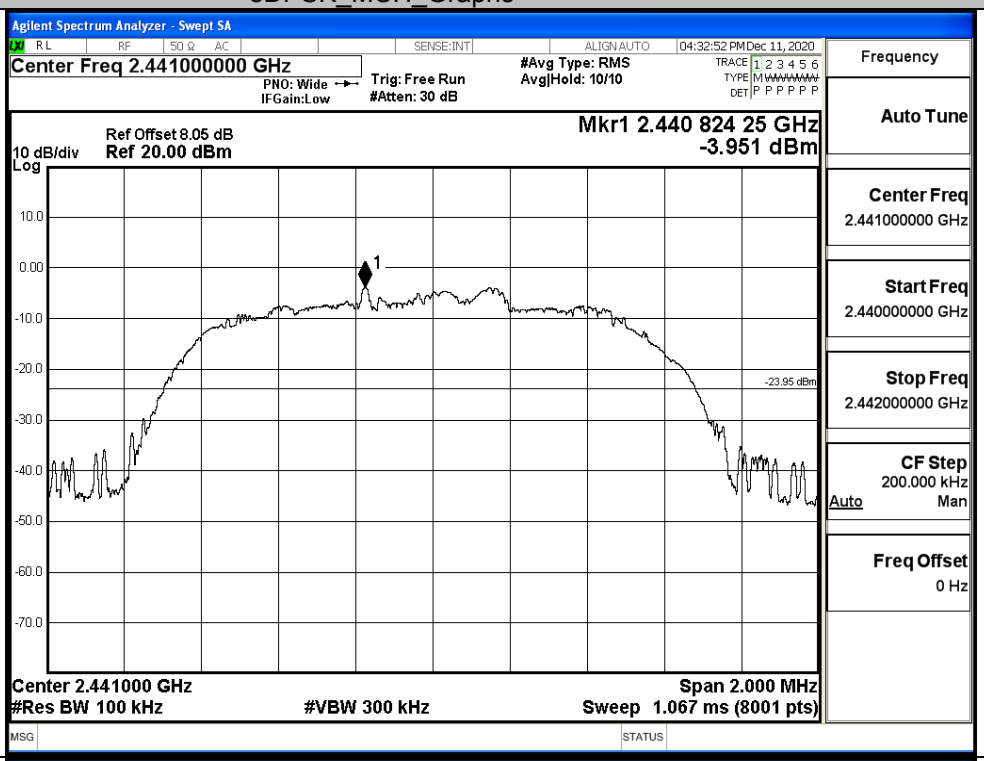
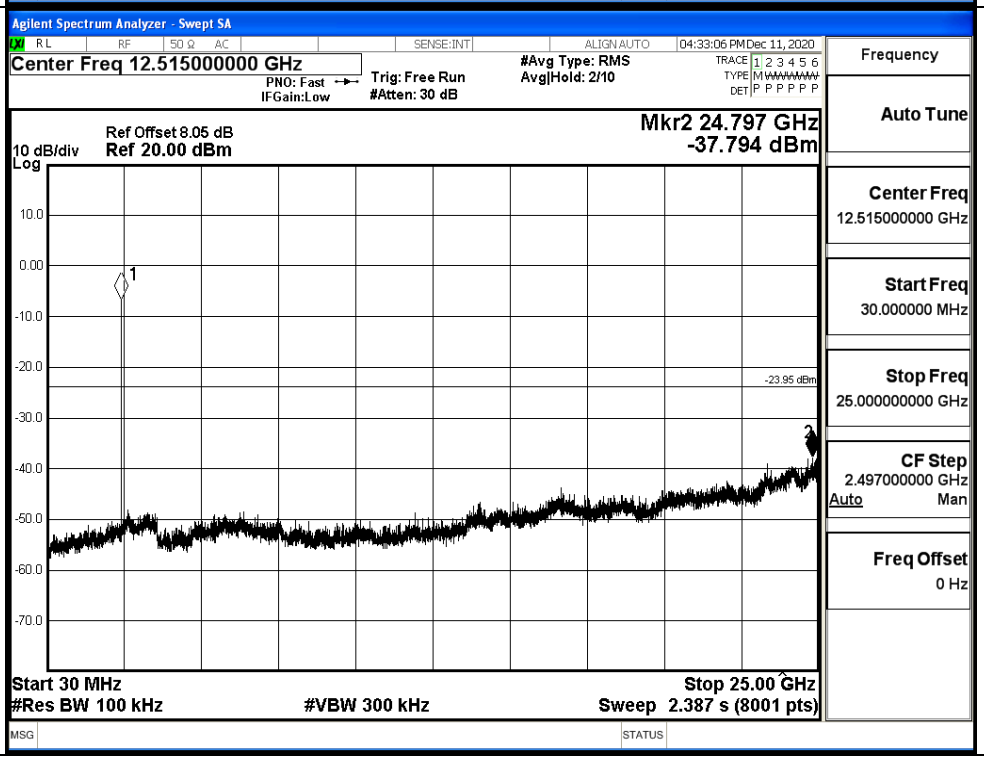
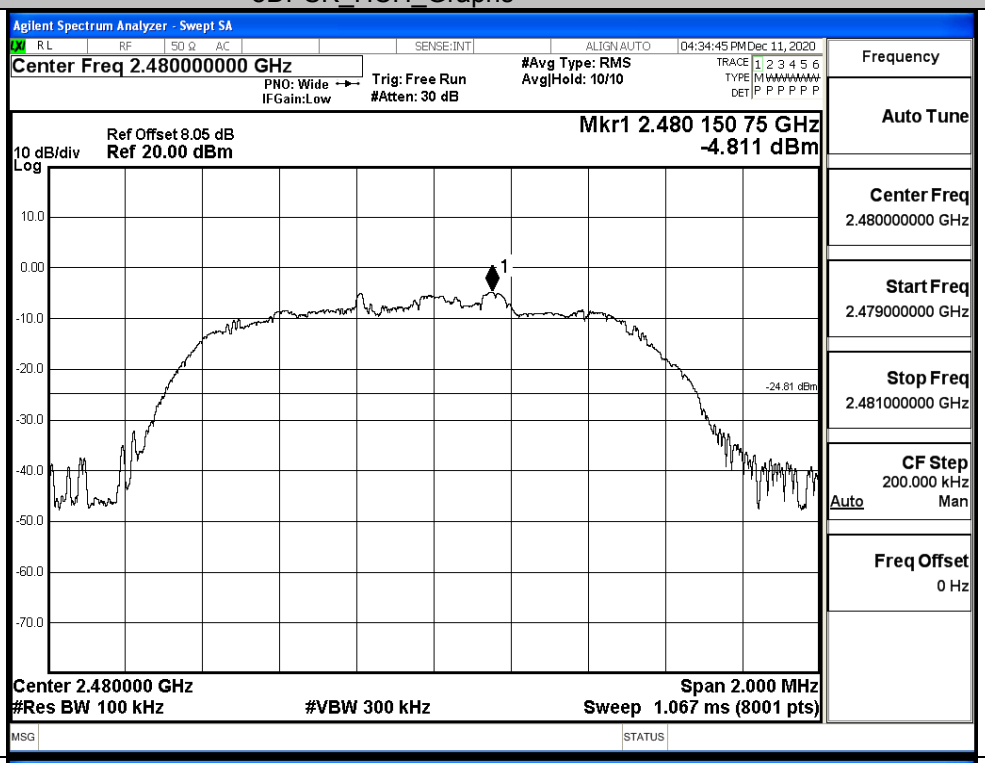
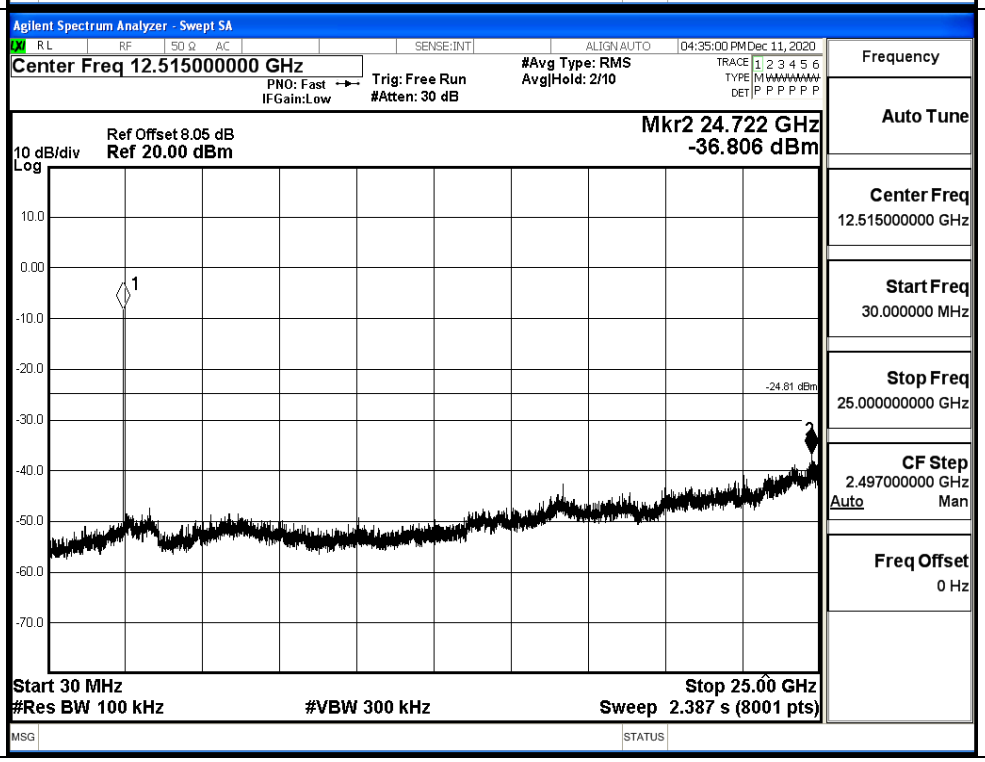
Pref			
Puw			

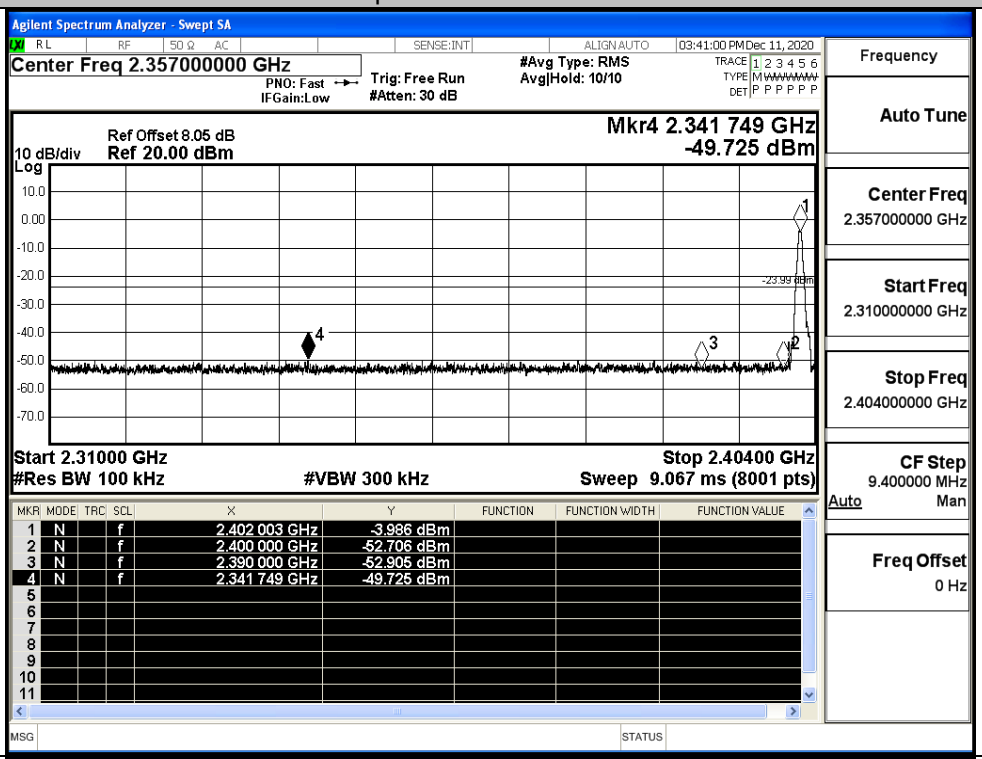
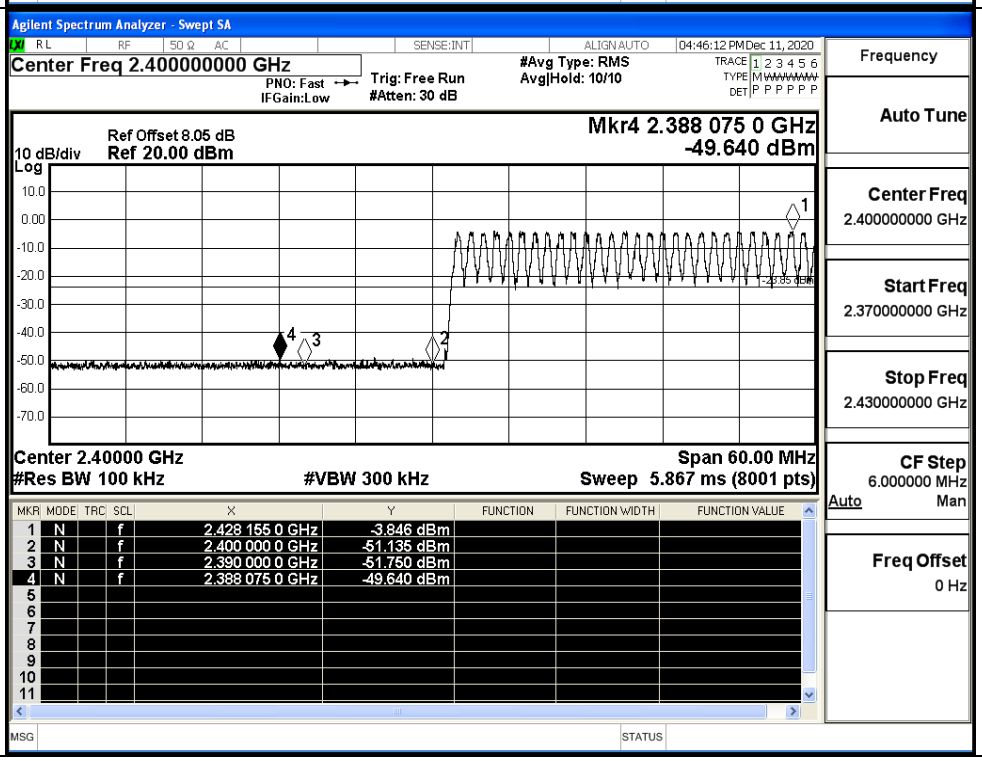
8DPSK_LCH_Graphs		
Pref		
Puw		

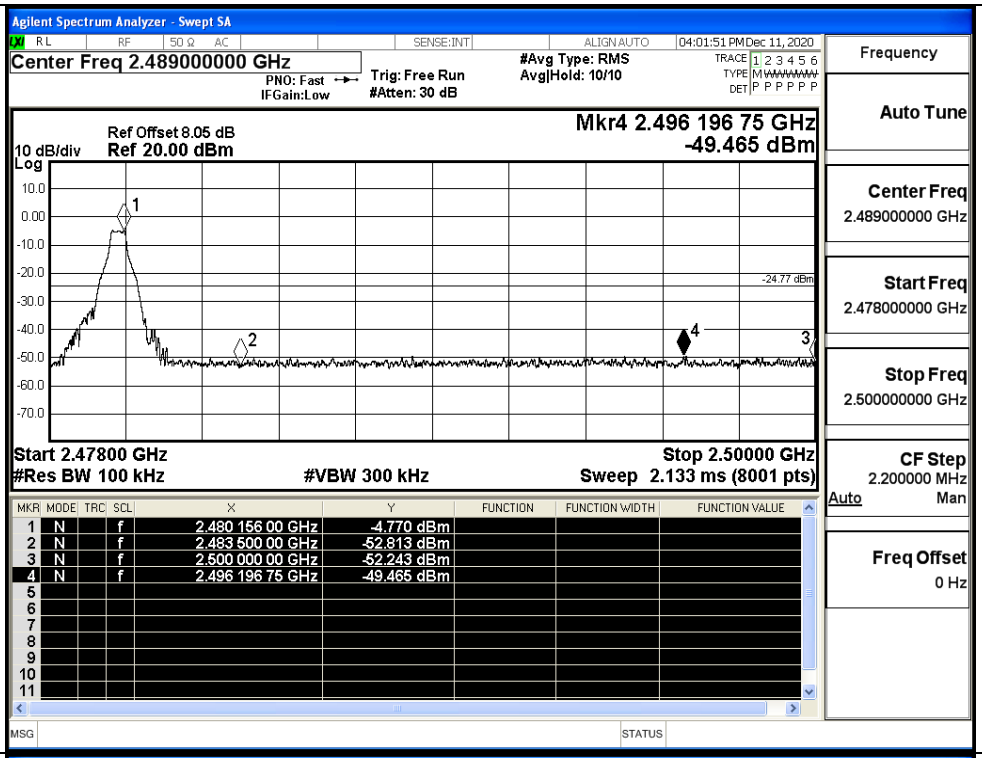
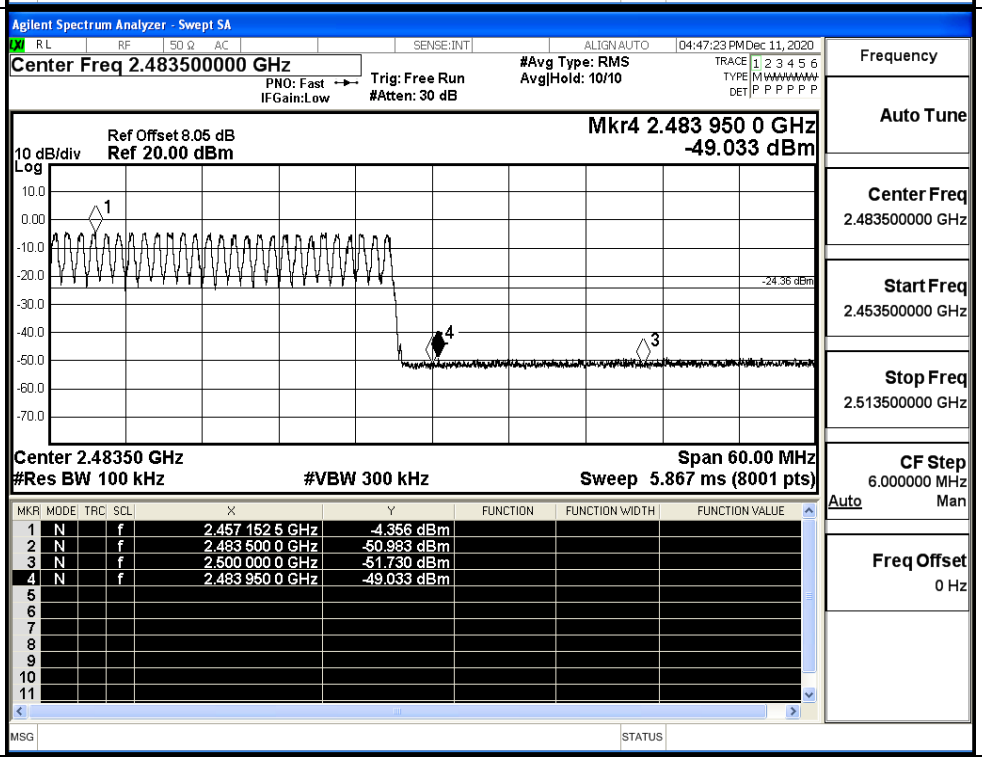
8DPSK_MCH_Graphs		
Pref		
Puw		

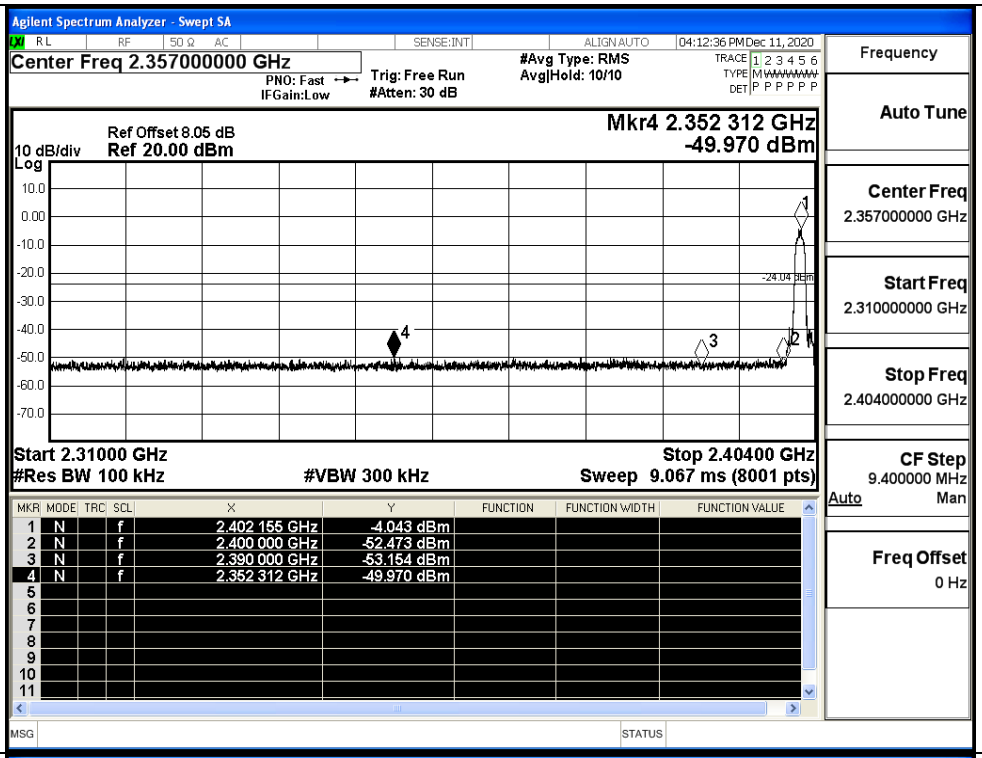
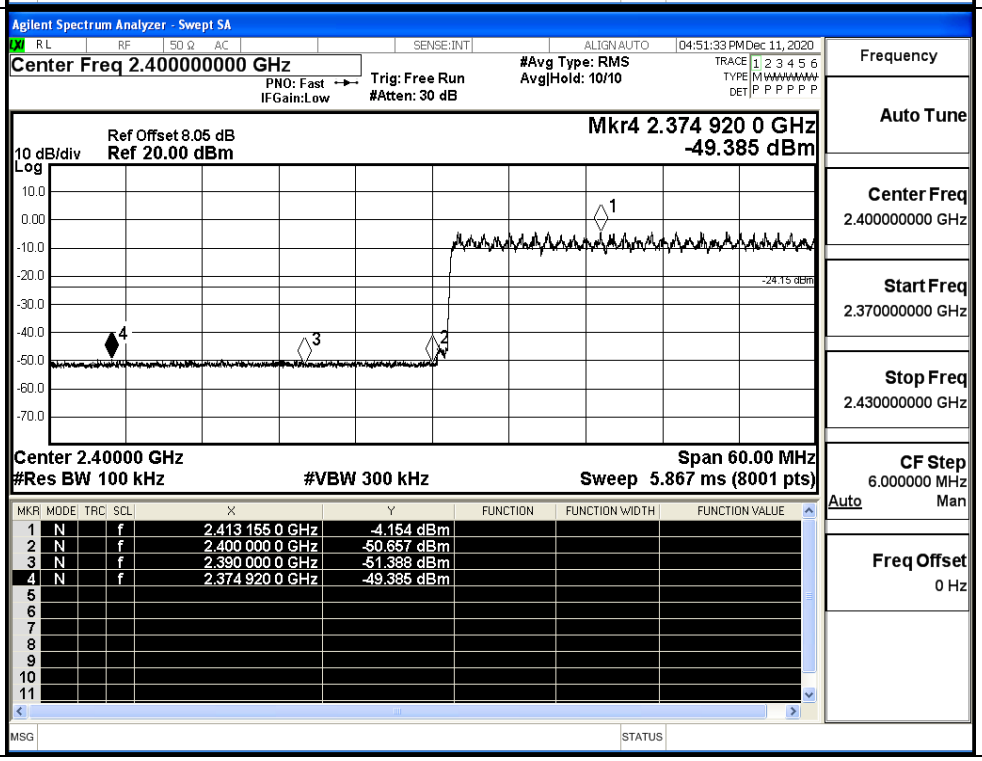
8DPSK_HCH_Graphs		
Pref		
Puw		

A.8 Band-edge for RF Conducted Emissions

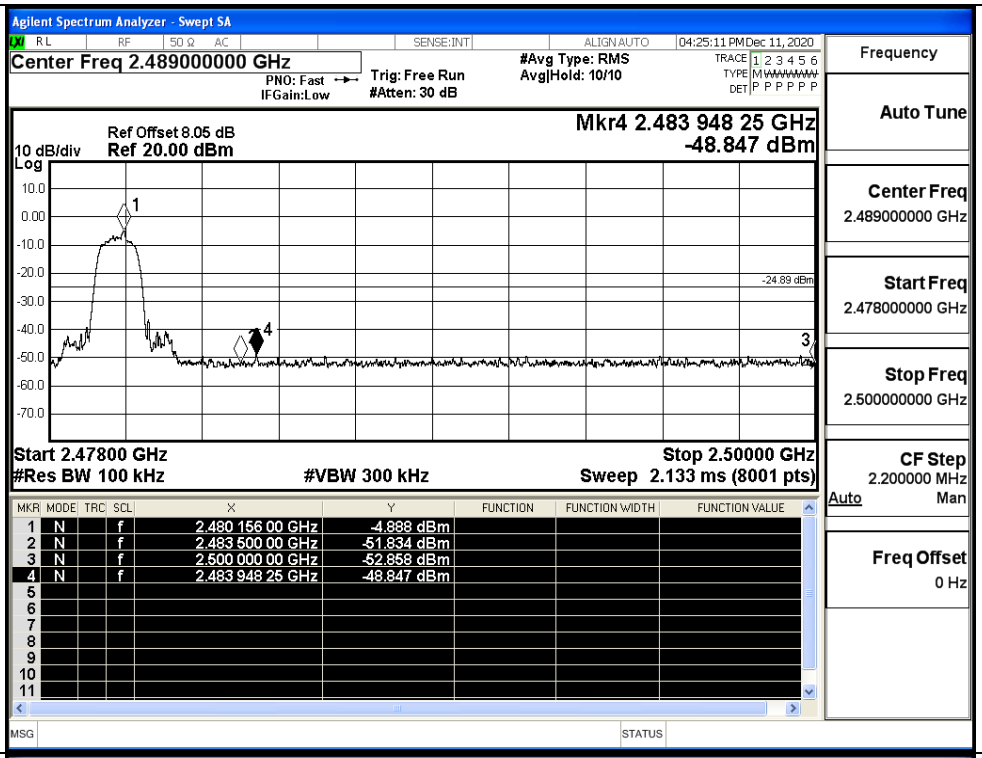
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-3.986	Off	-49.725	-23.99	PASS
			-3.846	On	-49.640	-23.85	PASS
	HCH	2480	-4.770	Off	-49.465	-24.77	PASS
			-4.356	On	-49.033	-24.36	PASS
π/4DQPSK	LCH	2402	-4.043	Off	-49.970	-24.04	PASS
			-4.154	On	-49.385	-24.15	PASS
	HCH	2480	-4.888	Off	-48.847	-24.89	PASS
			-4.582	On	-48.313	-24.58	PASS
8DPSK	LCH	2402	-4.161	Off	-49.763	-24.16	PASS
			-3.857	On	-49.325	-23.86	PASS
	HCH	2480	-4.787	Off	-49.574	-24.79	PASS
			-4.287	On	-48.997	-24.29	PASS

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

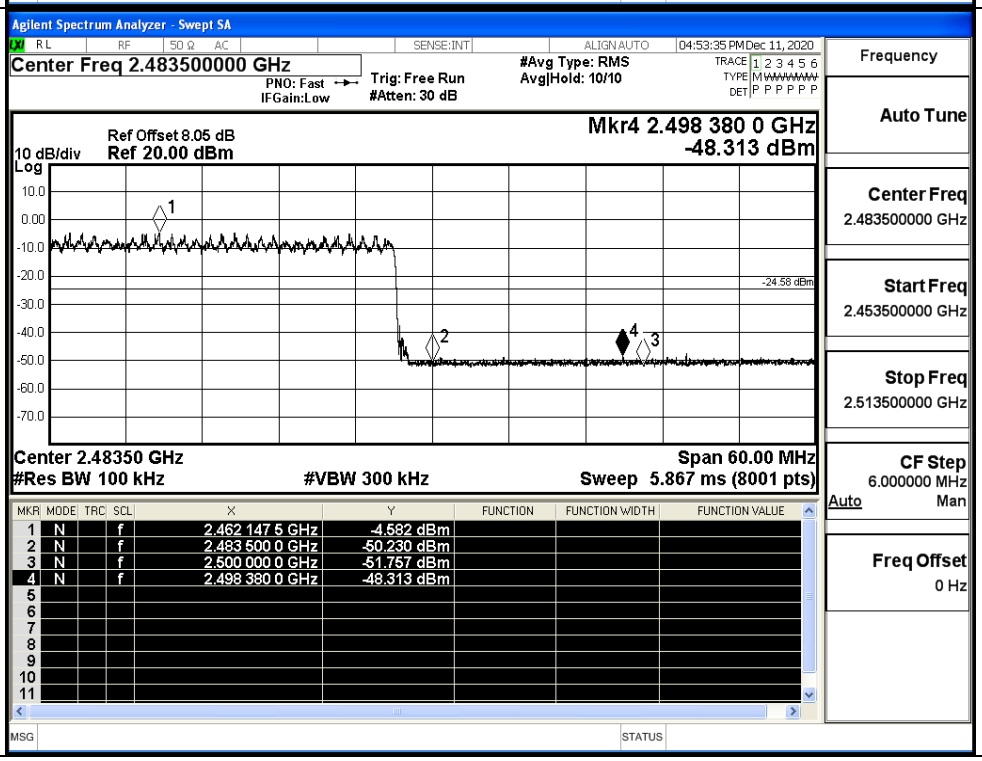
GFSK/HCH/No Hop	
GFSK/HCH/Hop	

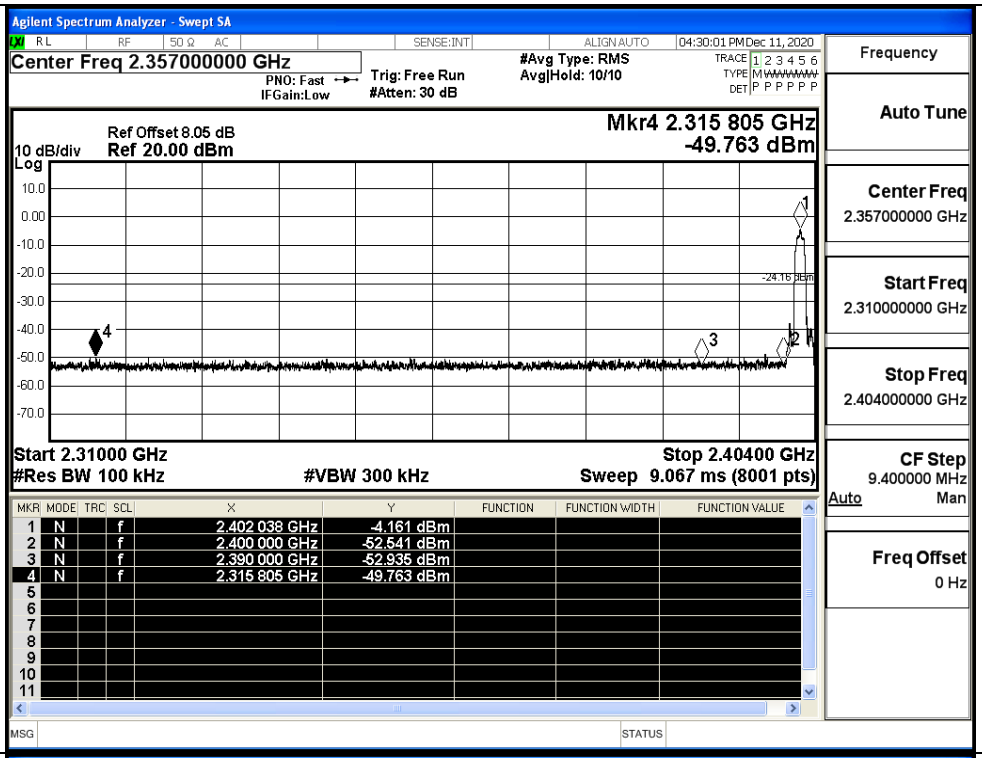
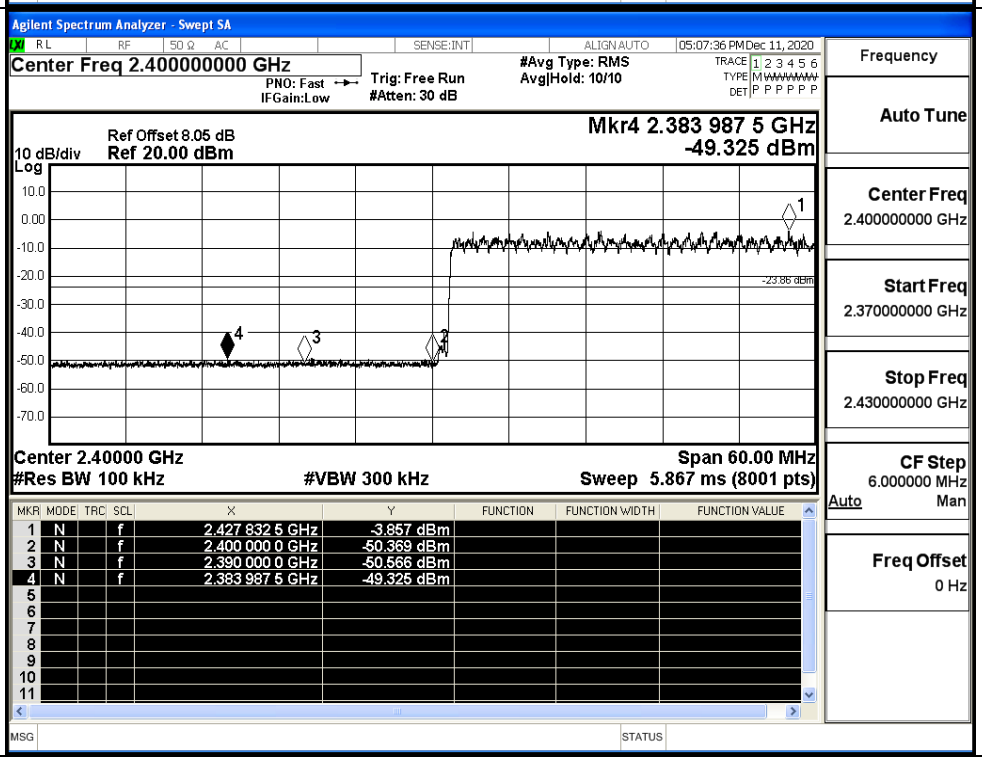
π/4DQPSK/LCH/No Hop	
π/4DQPSK/LCH/Hop	

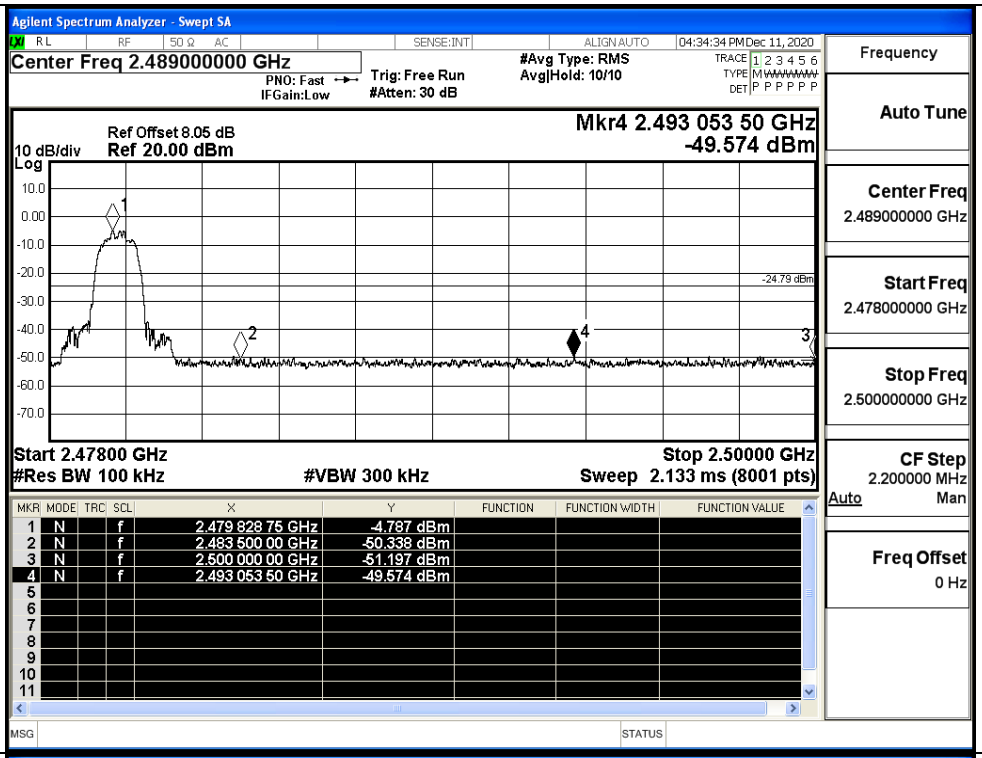
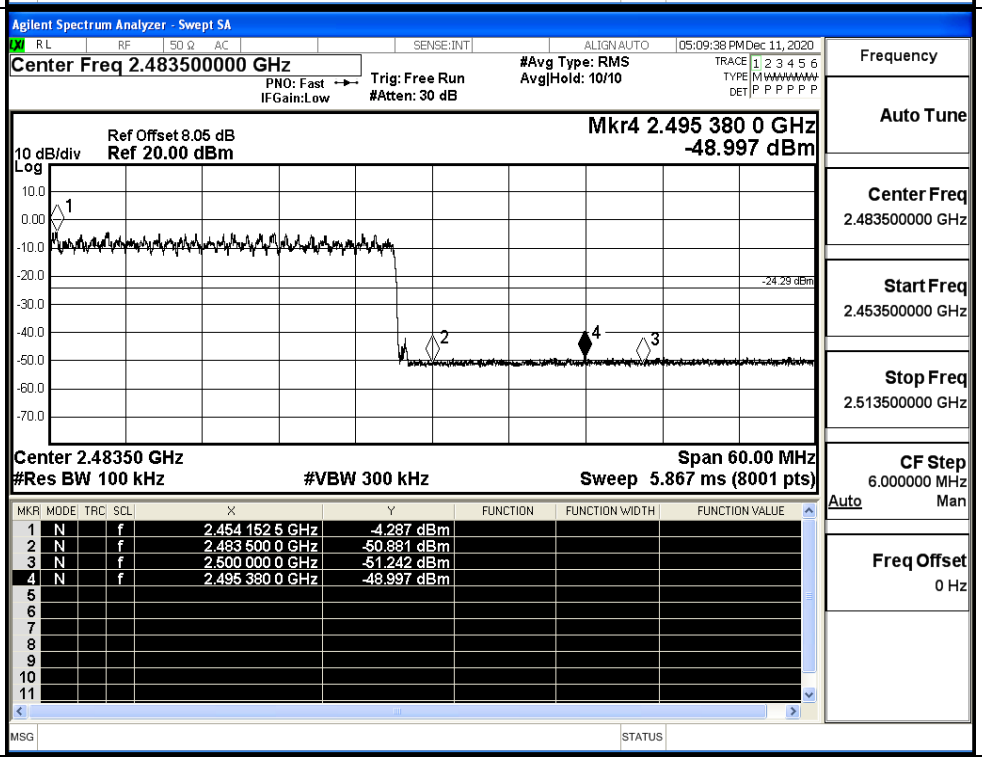
π/4DQPSK/HCH/No Hop



π/4DQPSK/HCH/Hop



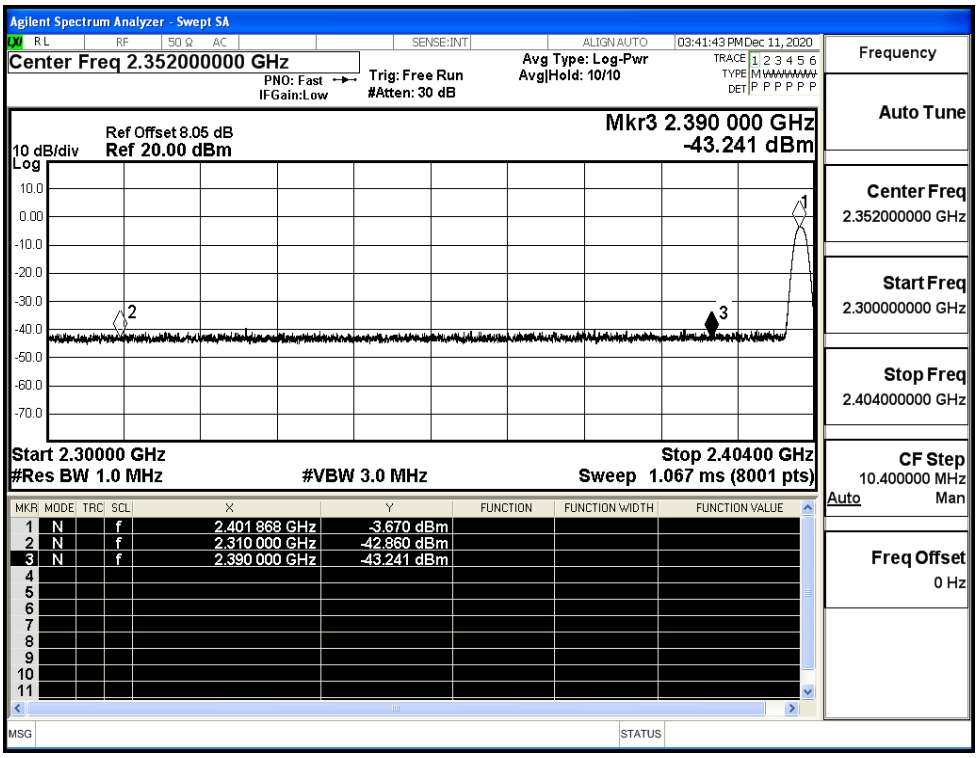
8DPSK/LCH/No Hop	
8DPSK/LCH/Hop	

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

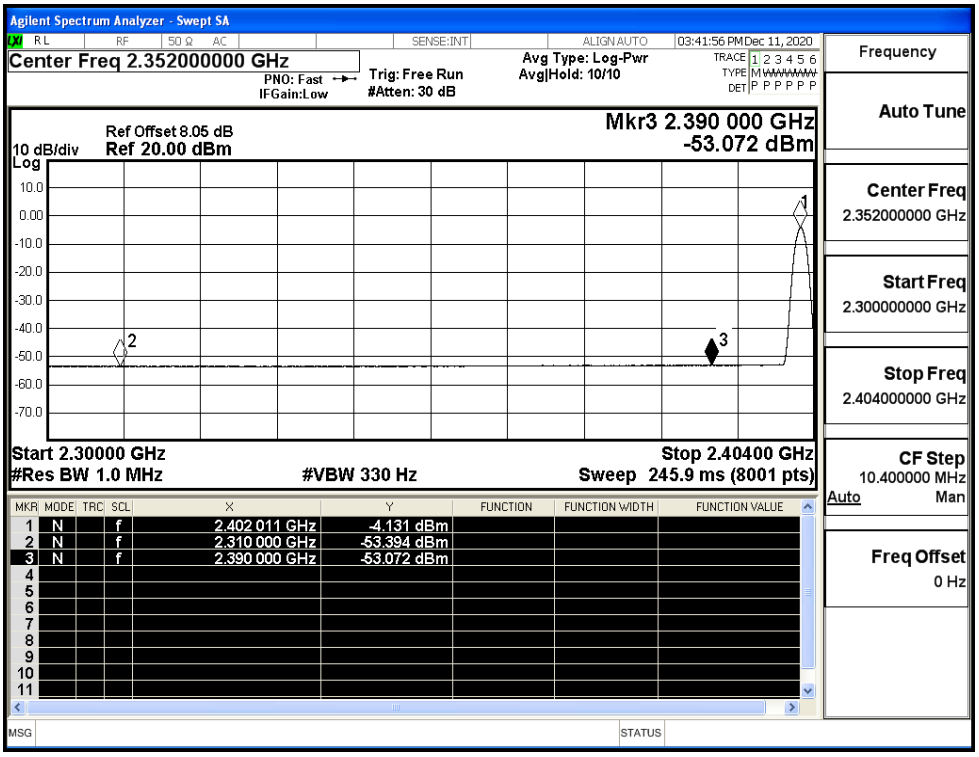
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-42.86	3.0	0	53.40	PEAK	74	PASS
	Off	2310.0	-53.39	3.0	0	42.86	AV	54	PASS
	Off	2390.0	-43.24	3.0	0	53.02	PEAK	74	PASS
	Off	2390.0	-53.07	3.0	0	43.19	AV	54	PASS
	Off	2483.5	-41.69	3.0	0	54.57	PEAK	74	PASS
	Off	2483.5	-52.55	3.0	0	43.71	AV	54	PASS
	Off	2500.0	-42.05	3.0	0	54.21	PEAK	74	PASS
	Off	2500.0	-52.49	3.0	0	43.77	AV	54	PASS
π/4DQPSK	Off	2310.0	-42.74	3.0	0	53.52	PEAK	74	PASS
	Off	2310.0	-53.41	3.0	0	42.84	AV	54	PASS
	Off	2390.0	-43.36	3.0	0	52.90	PEAK	74	PASS
	Off	2390.0	-53.06	3.0	0	43.20	AV	54	PASS
	Off	2483.5	-42.36	3.0	0	53.90	PEAK	74	PASS
	Off	2483.5	-52.59	3.0	0	43.67	AV	54	PASS
	Off	2500.0	-42.96	3.0	0	53.30	PEAK	74	PASS
	Off	2500.0	-52.38	3.0	0	43.88	AV	54	PASS
8DPSK	Off	2310.0	-43.90	3.0	0	52.35	PEAK	74	PASS
	Off	2310.0	-53.26	3.0	0	42.99	AV	54	PASS
	Off	2390.0	-43.01	3.0	0	53.25	PEAK	74	PASS
	Off	2390.0	-53.17	3.0	0	43.09	AV	54	PASS
	Off	2483.5	-42.77	3.0	0	53.48	PEAK	74	PASS
	Off	2483.5	-52.51	3.0	0	43.75	AV	54	PASS
	Off	2500.0	-42.50	3.0	0	53.76	PEAK	74	PASS
	Off	2500.0	-52.51	3.0	0	43.75	AV	54	PASS

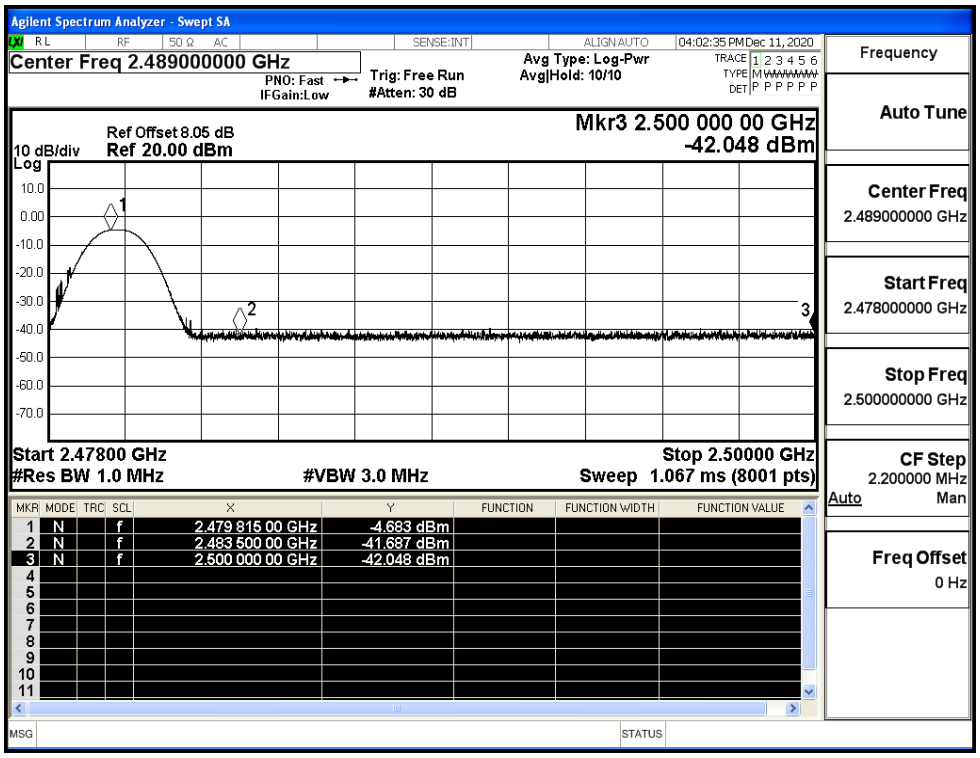
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



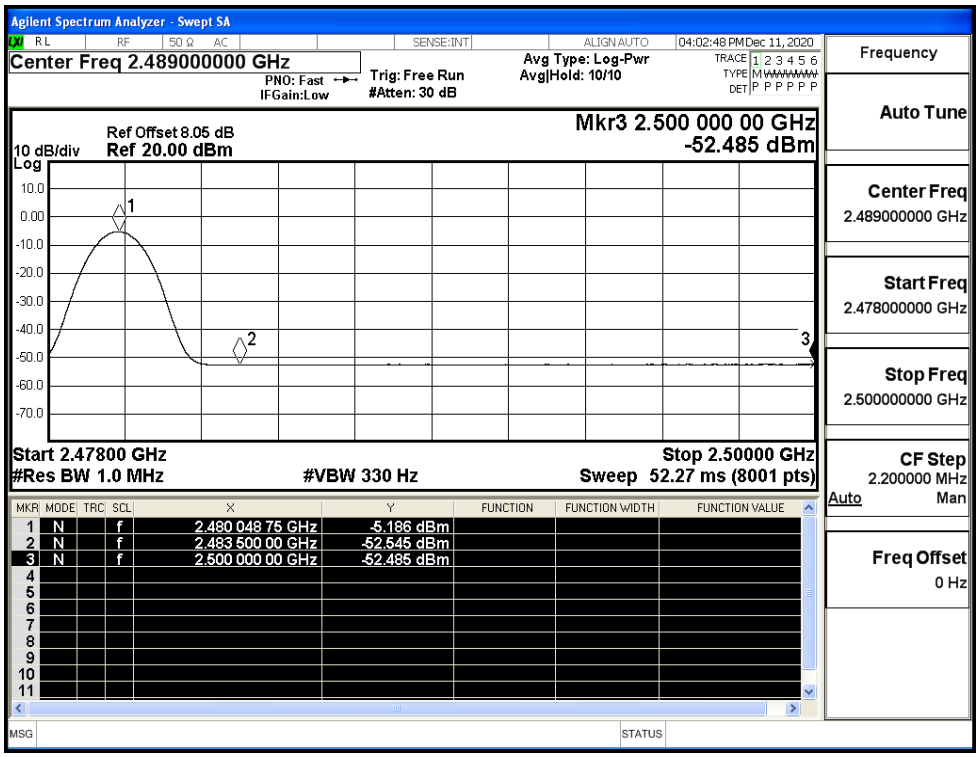
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



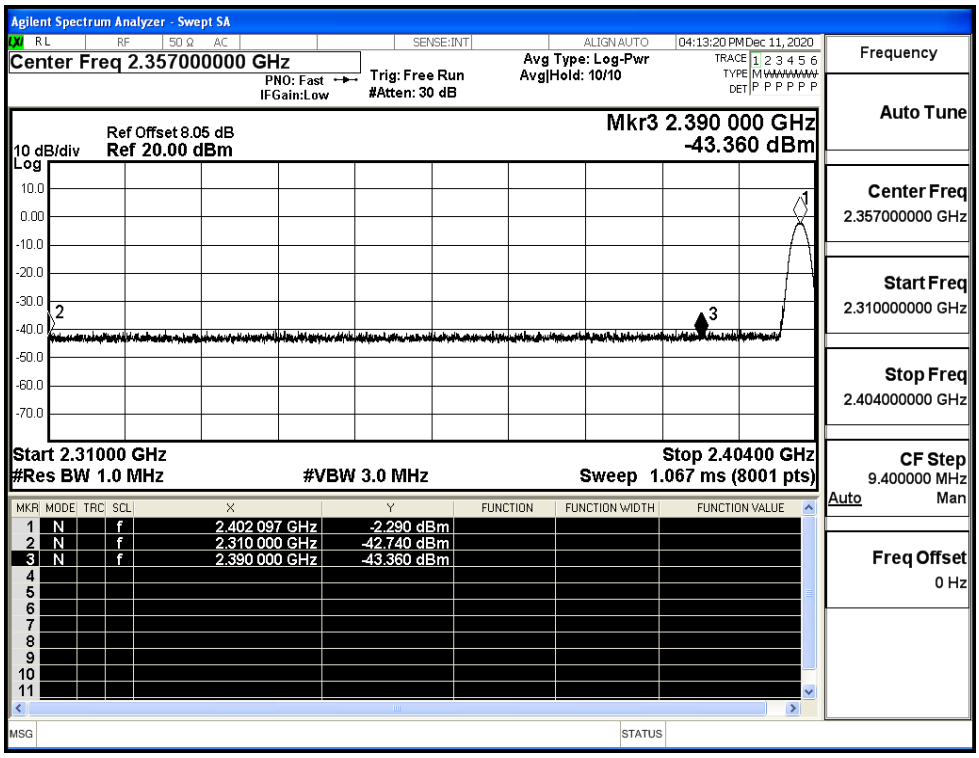
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



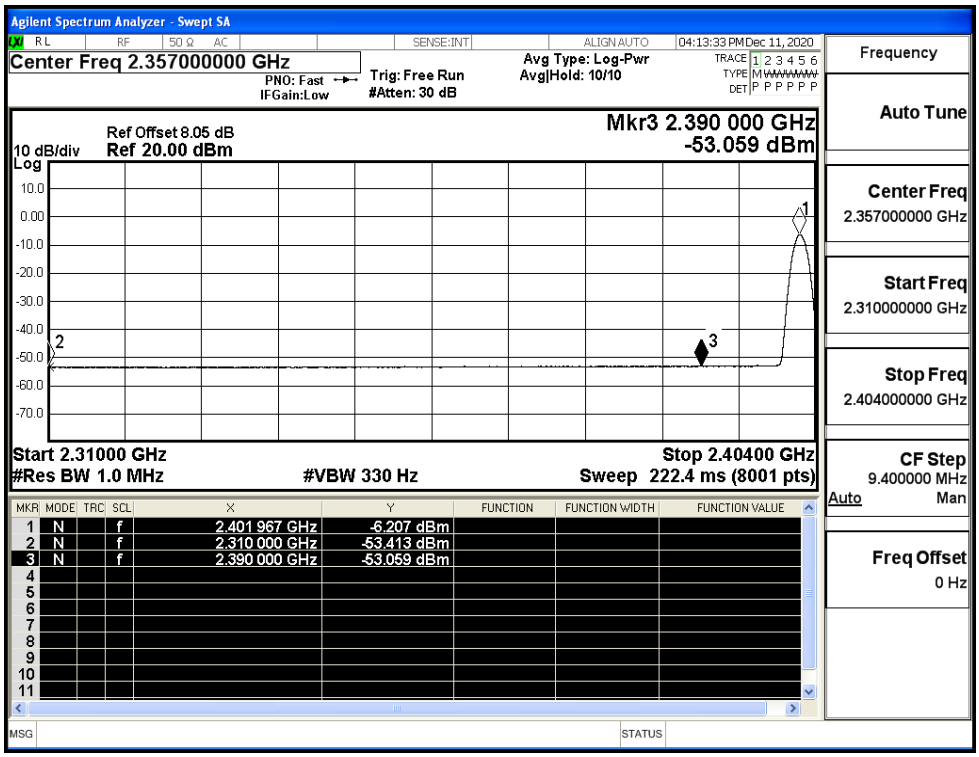
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



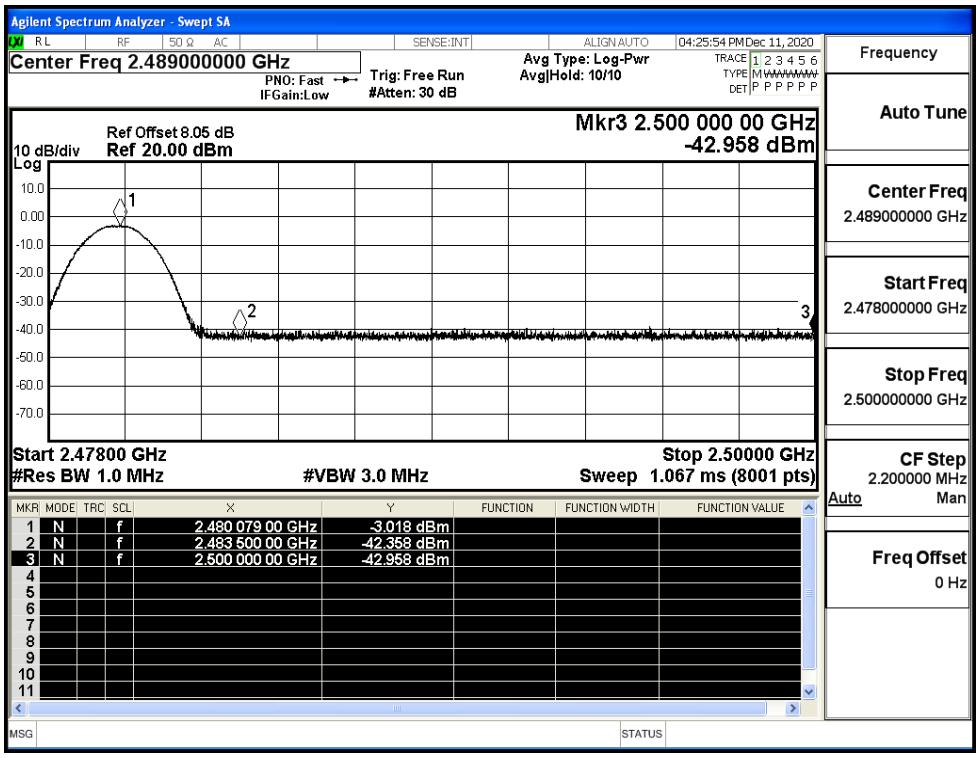
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



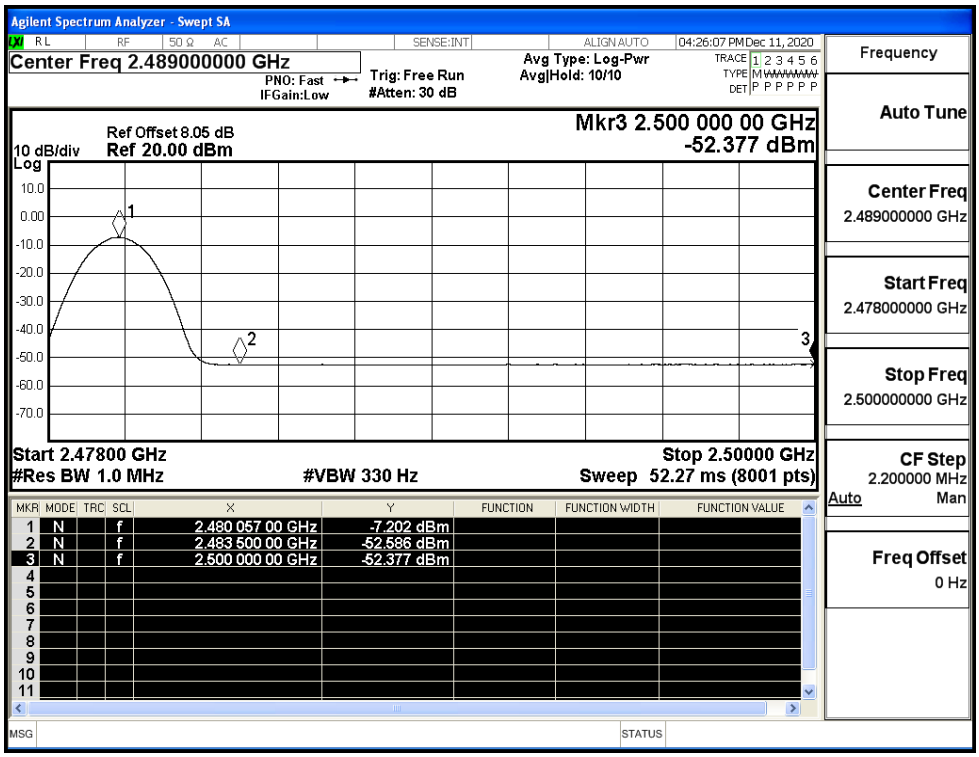
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



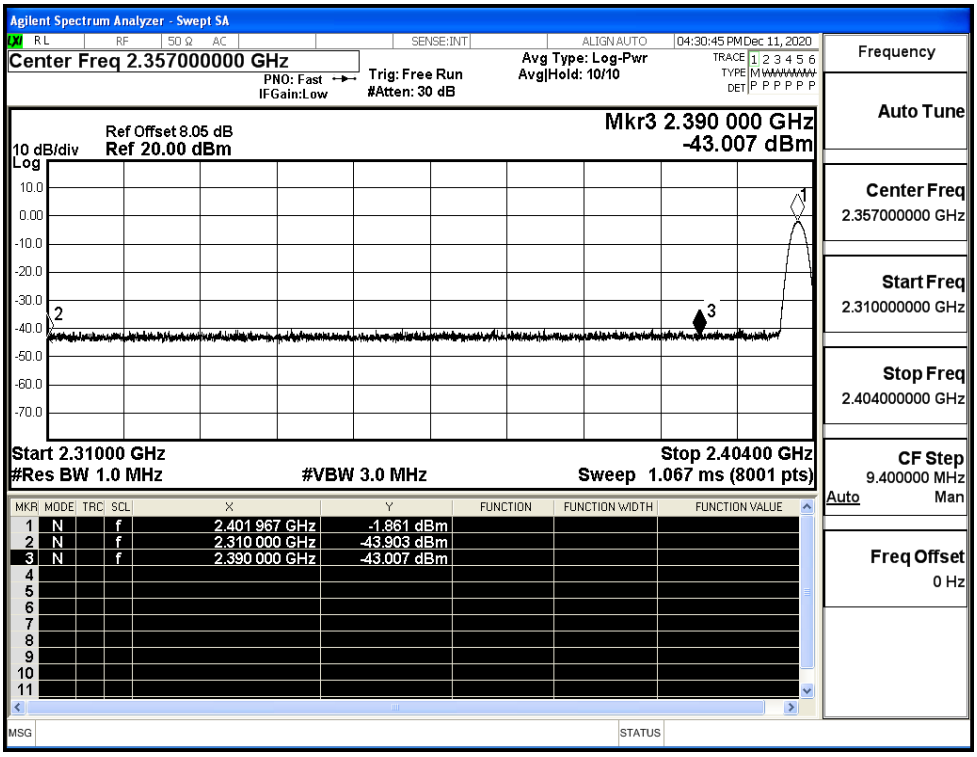
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



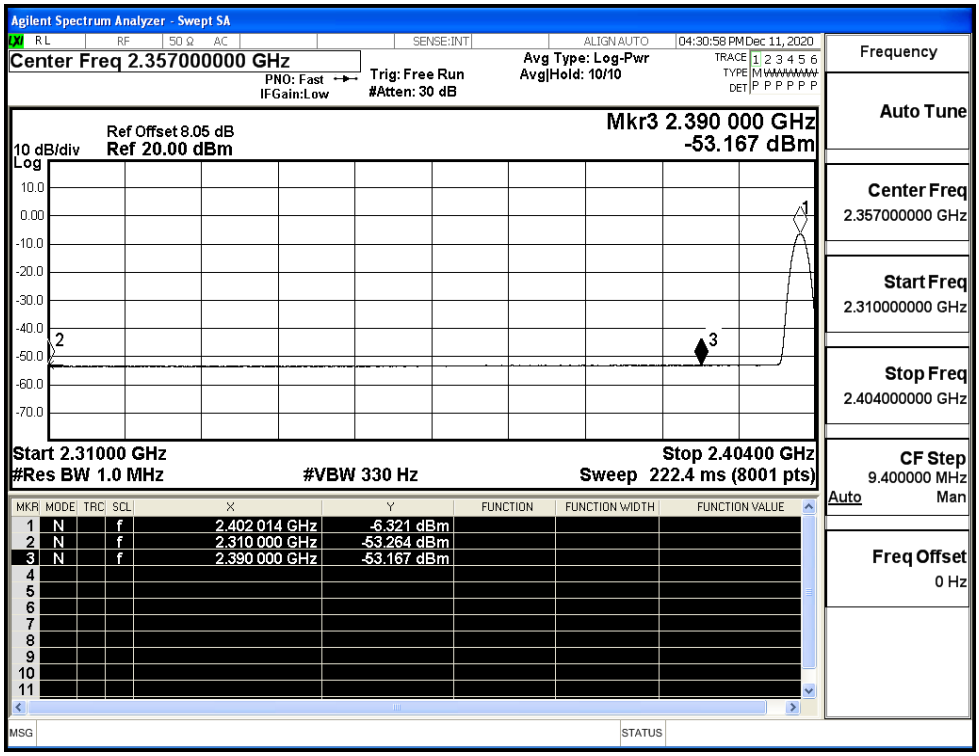
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



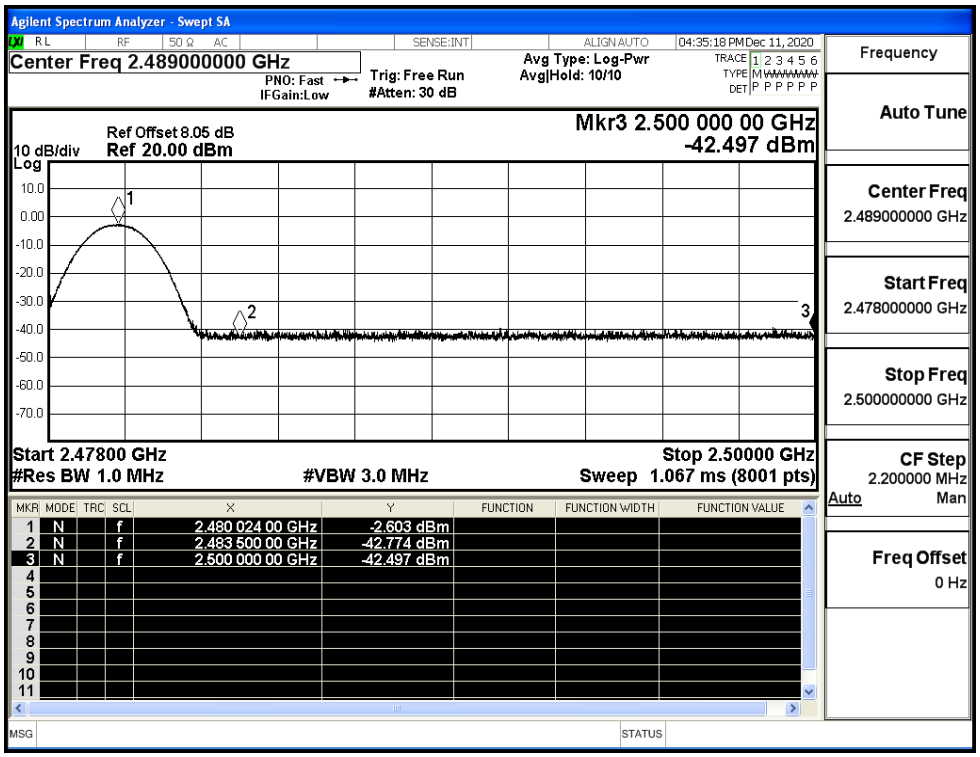
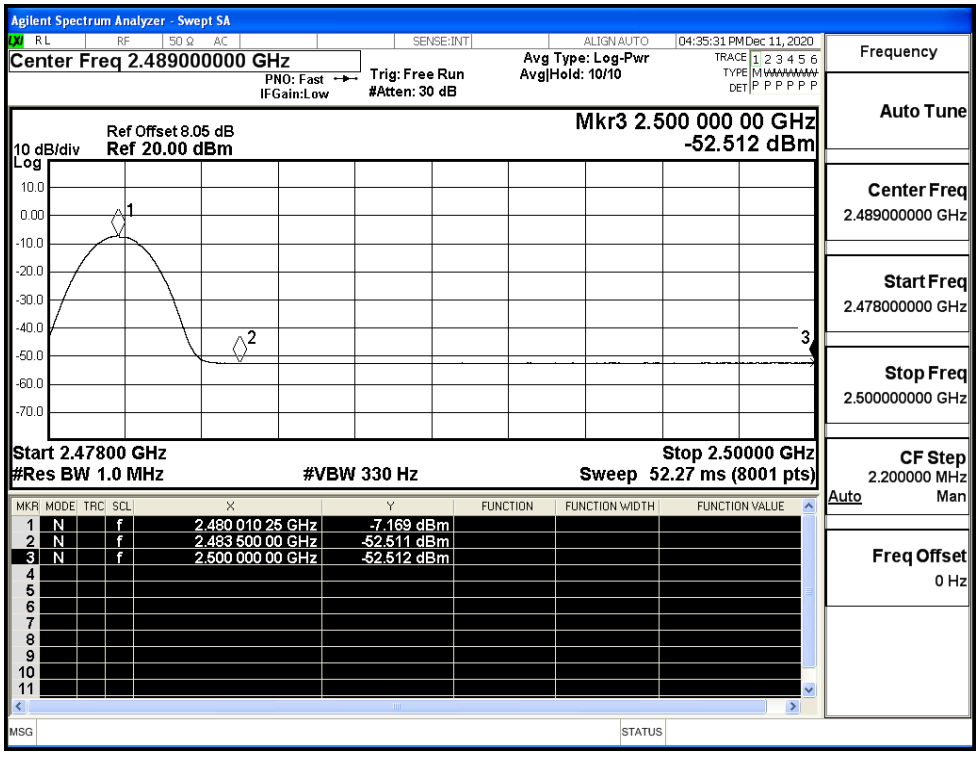
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)