Appendix A

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

Product Name: Music Planet

Trade Mark: Cosmic Island

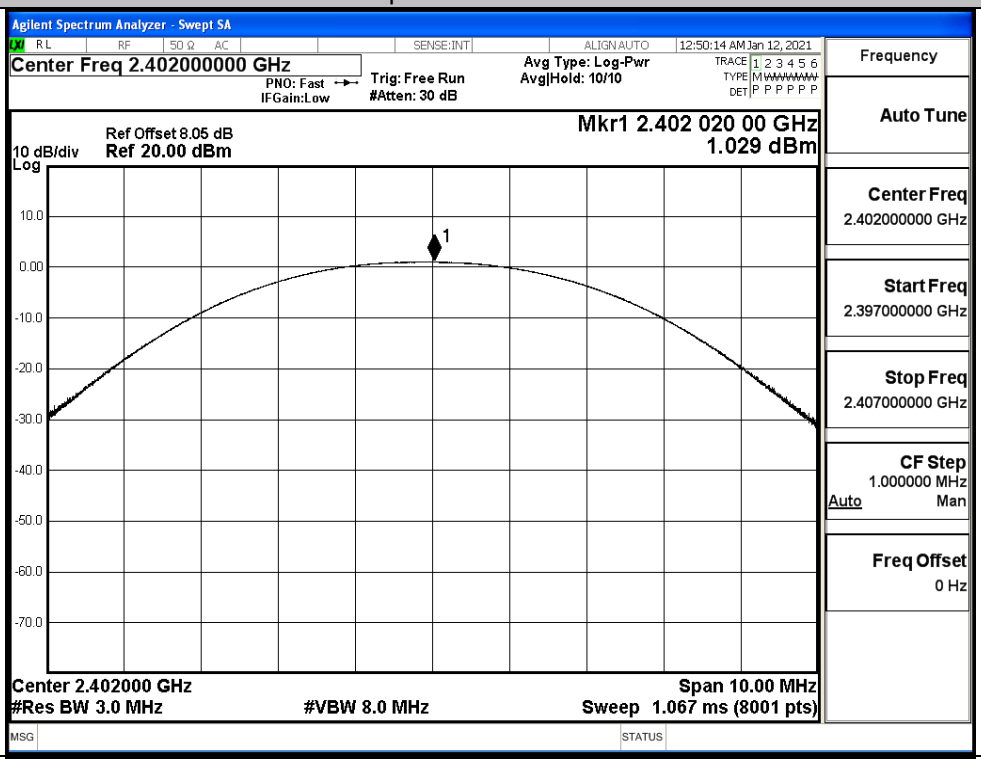
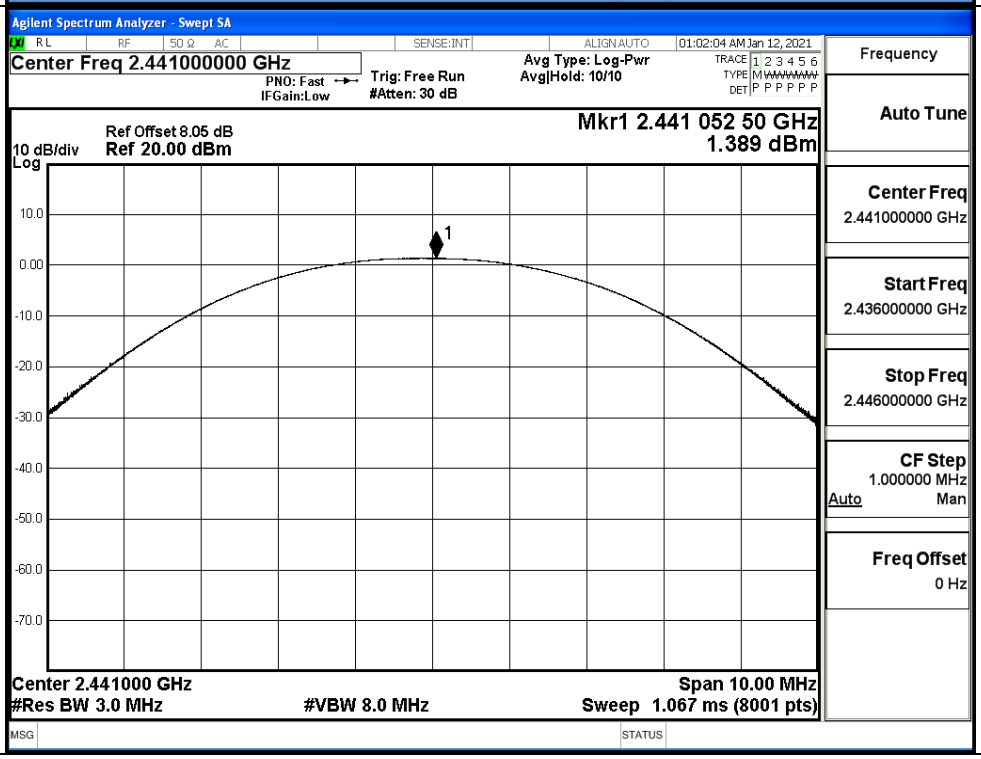
Test Model: MP-1

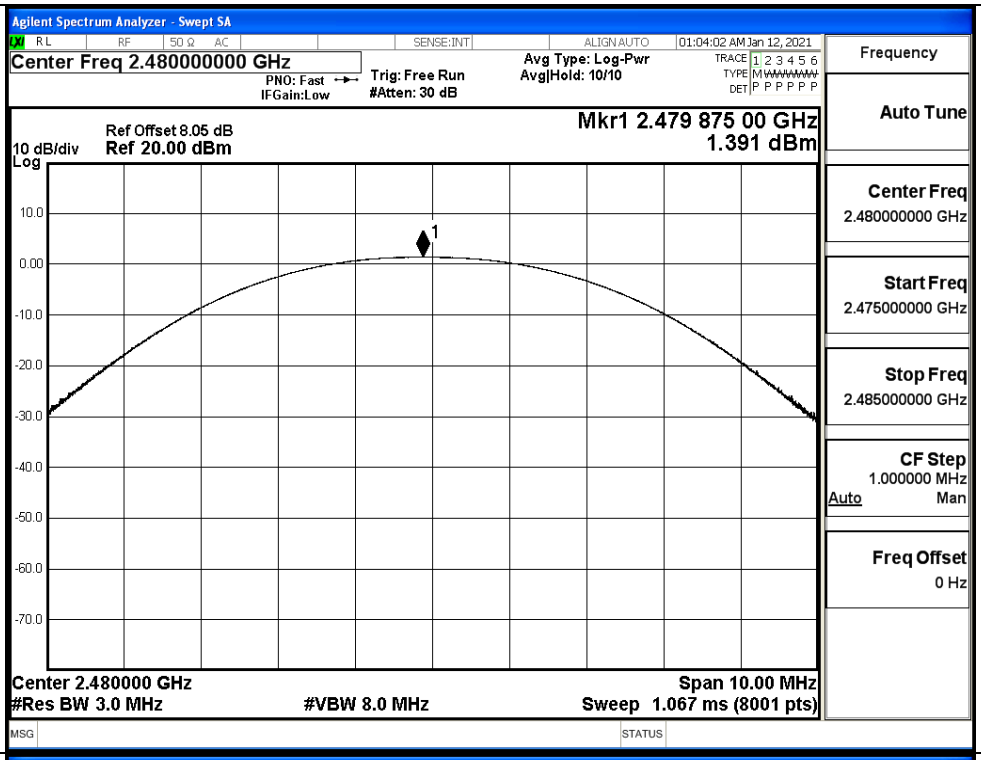
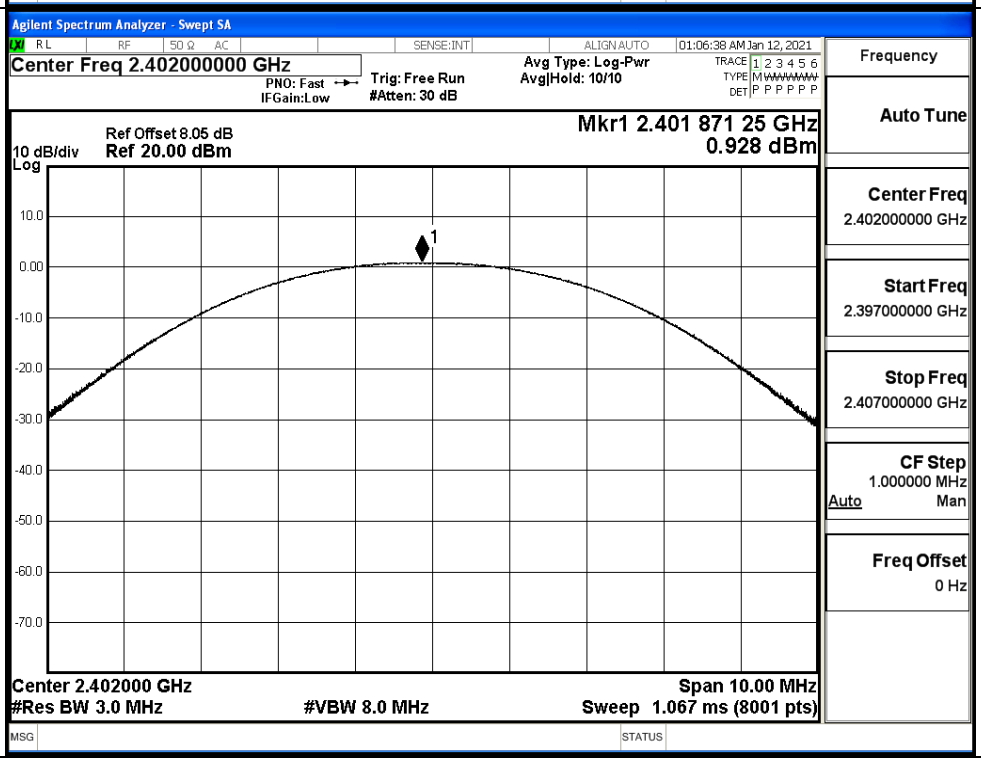
Environmental Conditions

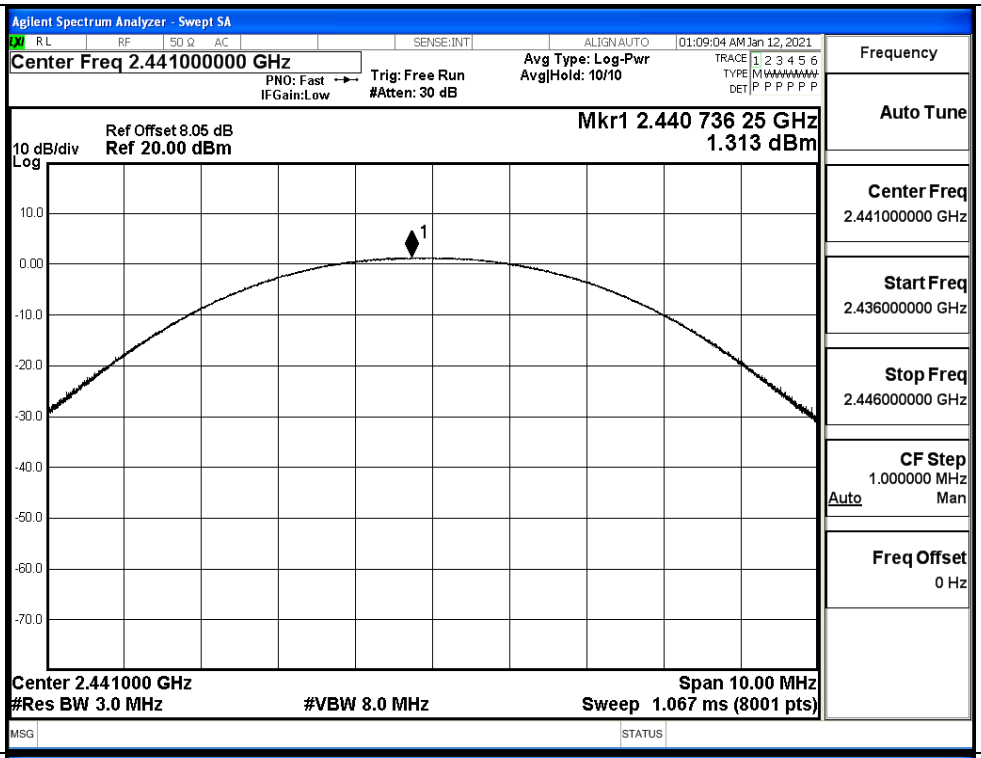
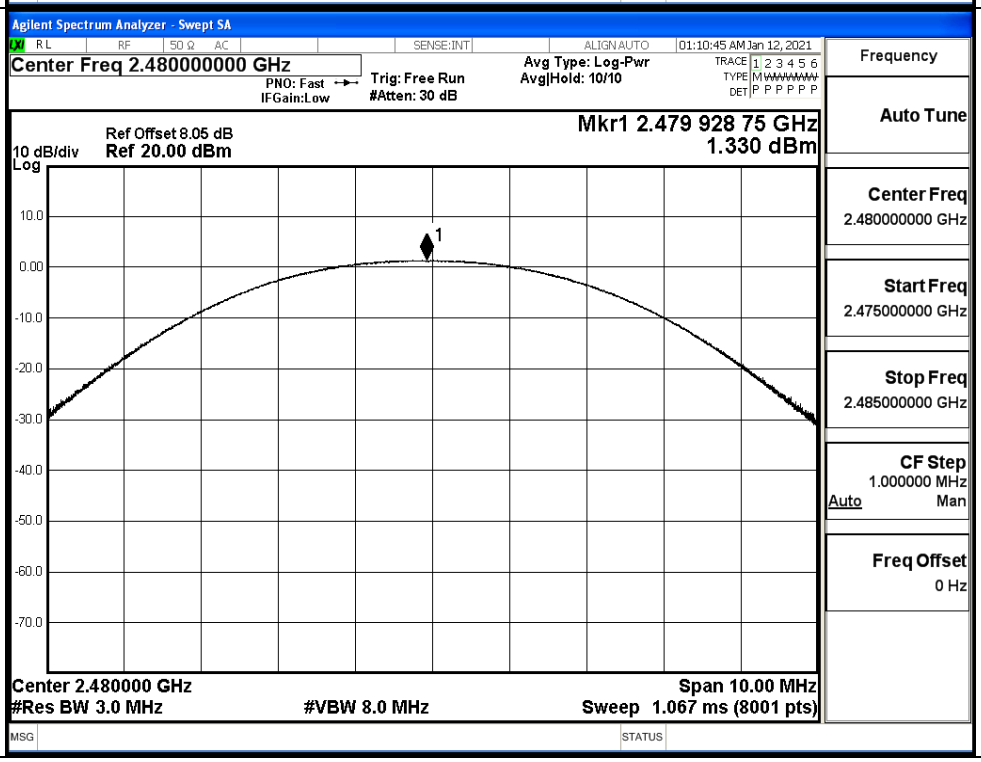
Temperature:	25.3 ° C
Relative Humidity:	53.6%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Li
Supervised by:	Li Huan

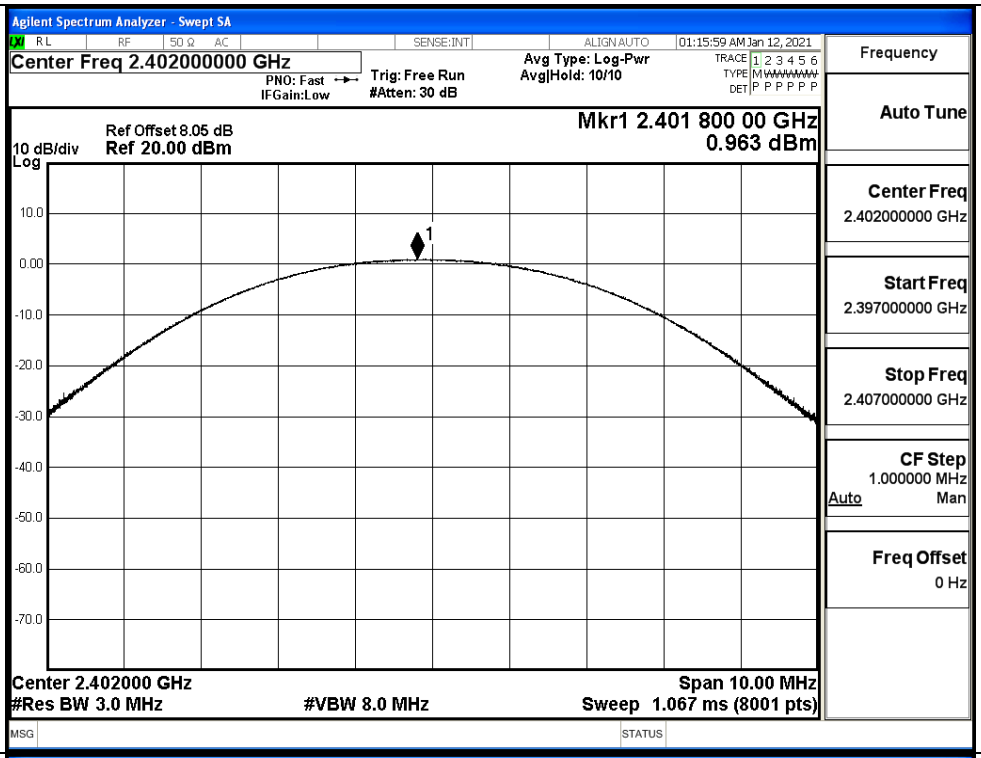
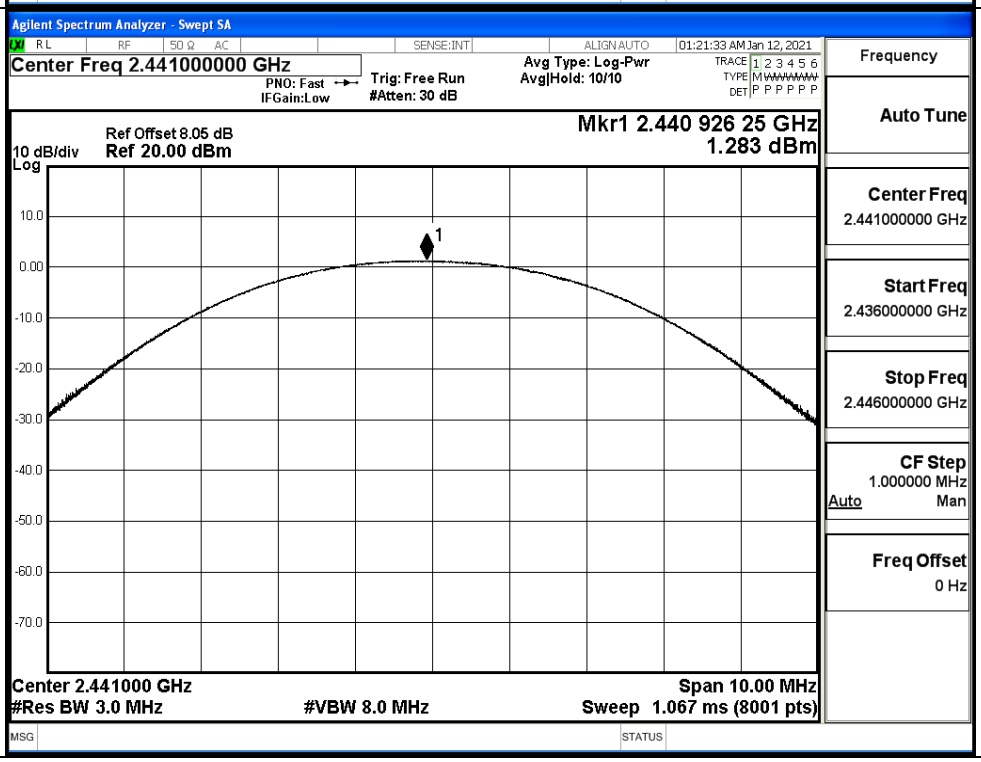
A.1 Maxmum Conducted Peak Output Power

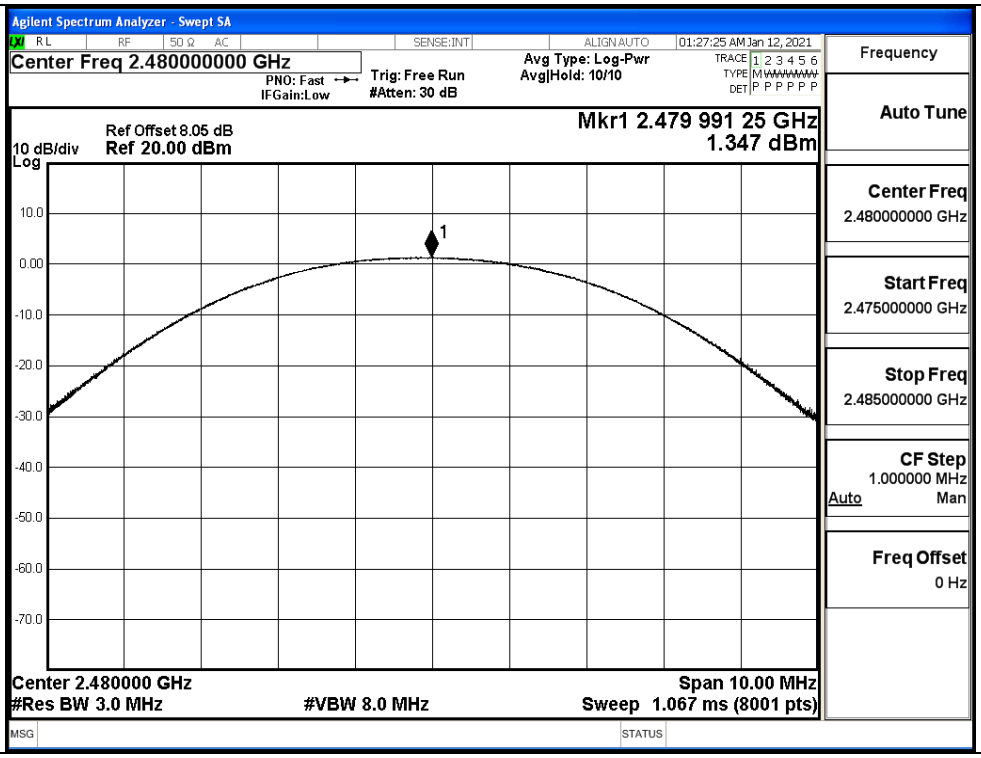
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.029	21	PASS
	MCH	1.389	21	PASS
	HCH	1.391	21	PASS
π/4DQPSK	LCH	0.928	21	PASS
	MCH	1.313	21	PASS
	HCH	1.330	21	PASS
8DPSK	LCH	0.963	21	PASS
	MCH	1.283	21	PASS
	HCH	1.347	21	PASS

Test Graphs		
GFSK/LCH		
GFSK/MCH		

GFSK/HCH	
π/4DQPSK/LCH	

π/4DQPSK/MCH	
π/4DQPSK/HCH	

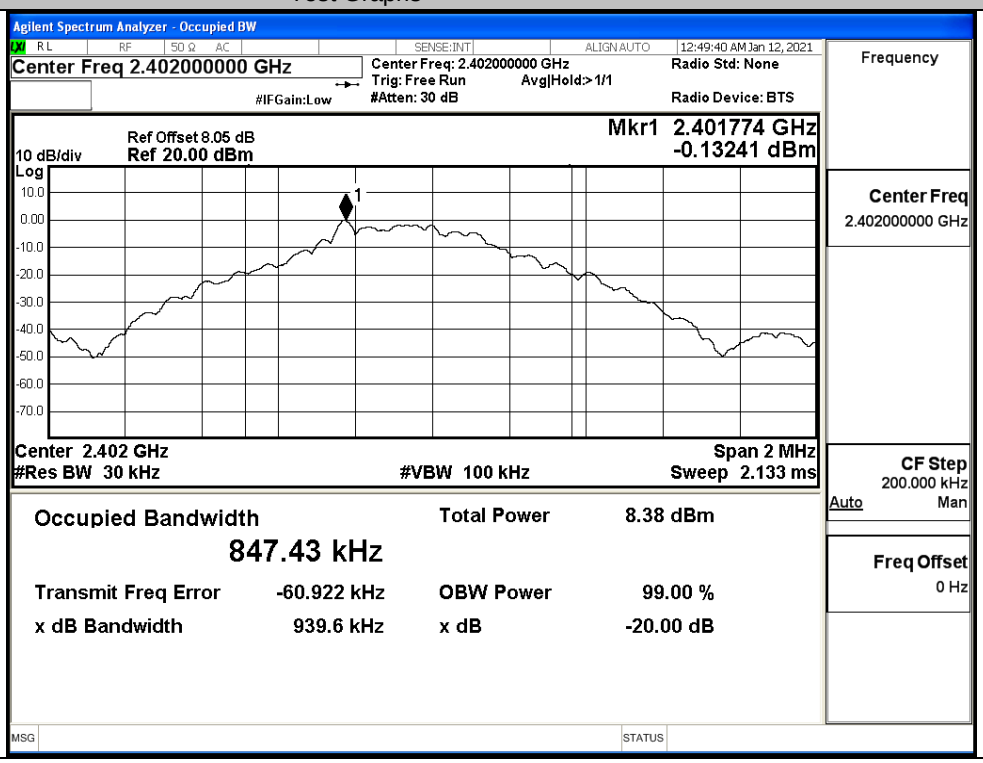
8DPSK/LCH	
8DPSK/MCH	

8DPSK/HCH		

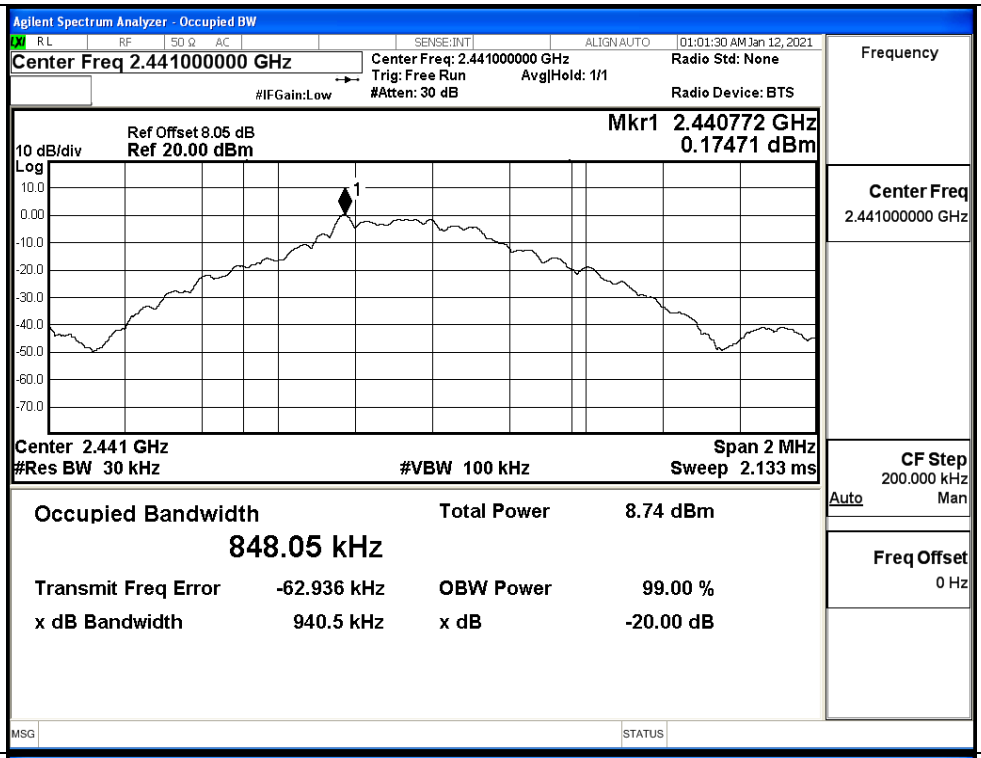
Agilent Spectrum Analyzer - Swept SA
Center Freq 2.480000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 10/10
01:27:25 AM Jan 12, 2021
Ref Offset 8.05 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 2.479 991 25 GHz
1.347 dBm
Center 2.480000 GHz
#Res BW 3.0 MHz
#VBW 8.0 MHz
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

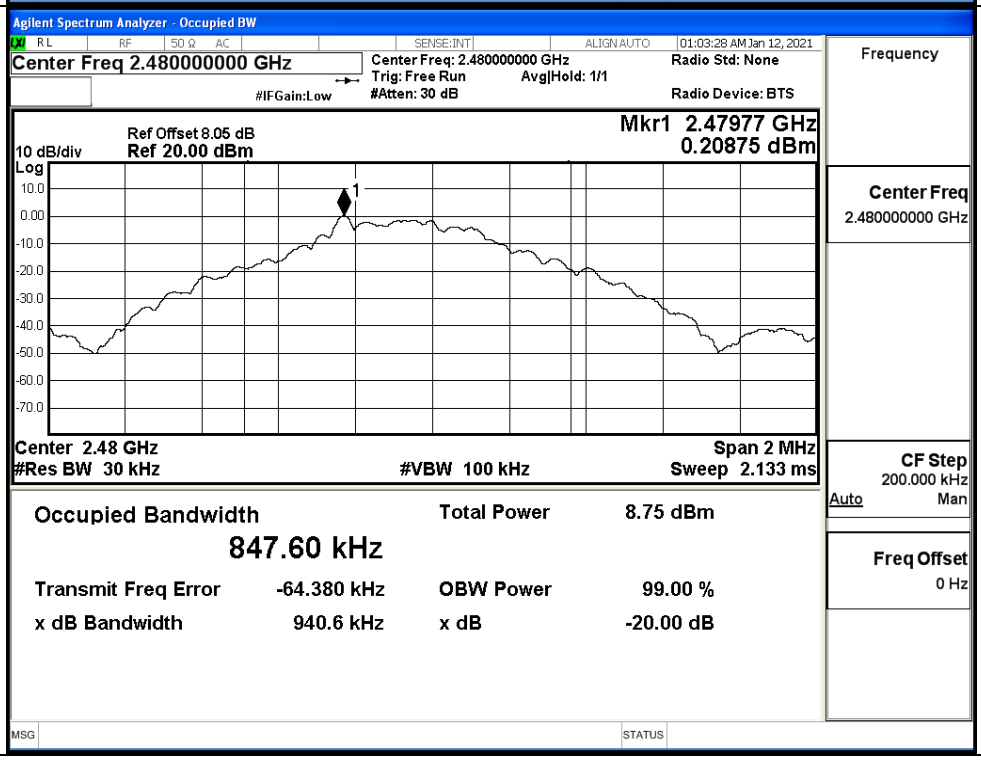
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9396	Not Specified	PASS
	MCH	0.9405	Not Specified	PASS
	HCH	0.9406	Not Specified	PASS
π/4DQPSK	LCH	1.272	Not Specified	PASS
	MCH	1.275	Not Specified	PASS
	HCH	1.268	Not Specified	PASS
8DPSK	LCH	1.247	Not Specified	PASS
	MCH	1.248	Not Specified	PASS
	HCH	1.248	Not Specified	PASS

Test Graphs	
GFSK/LCH	

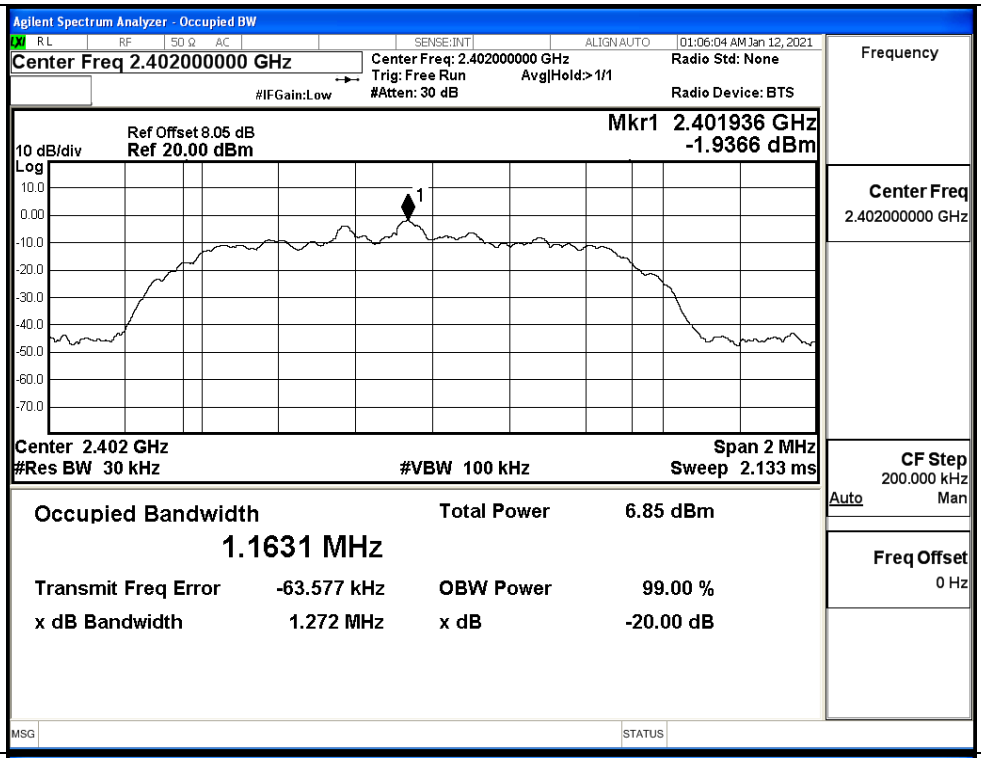
GFSK/MCH



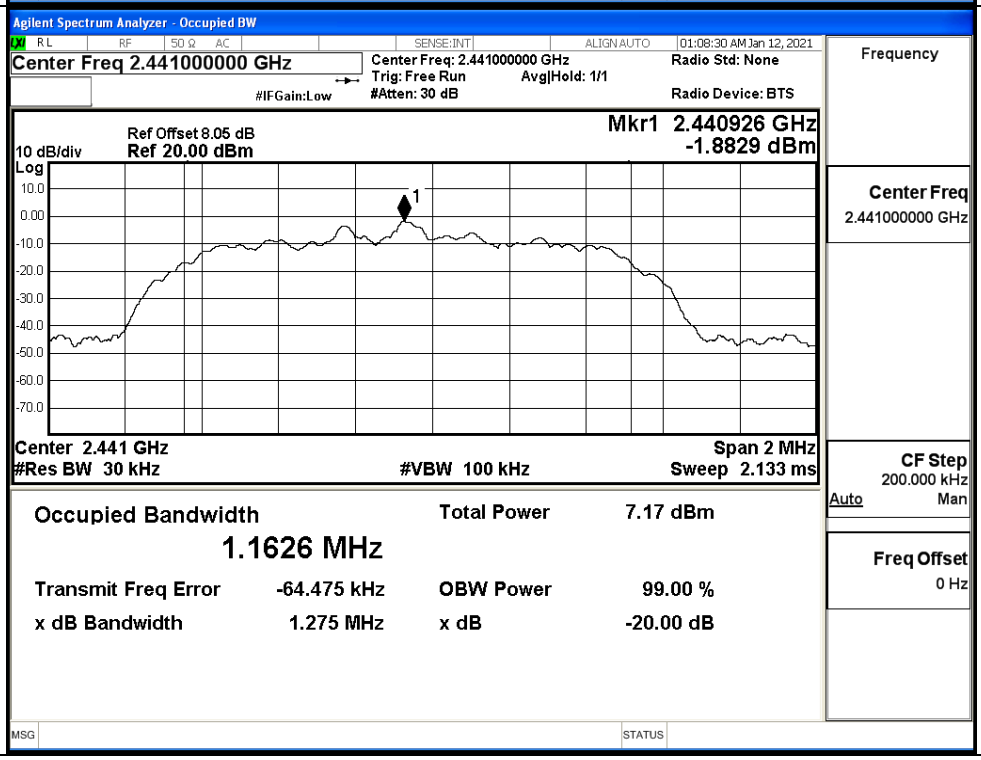
GFSK/HCH



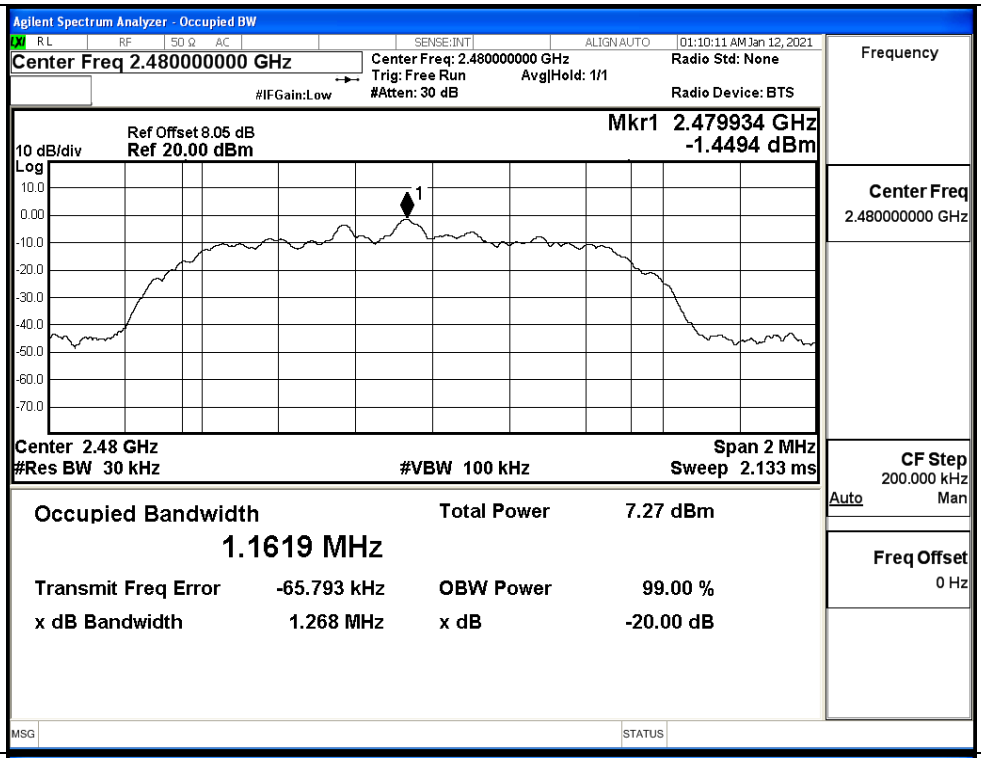
π/4DQPSK/LCH



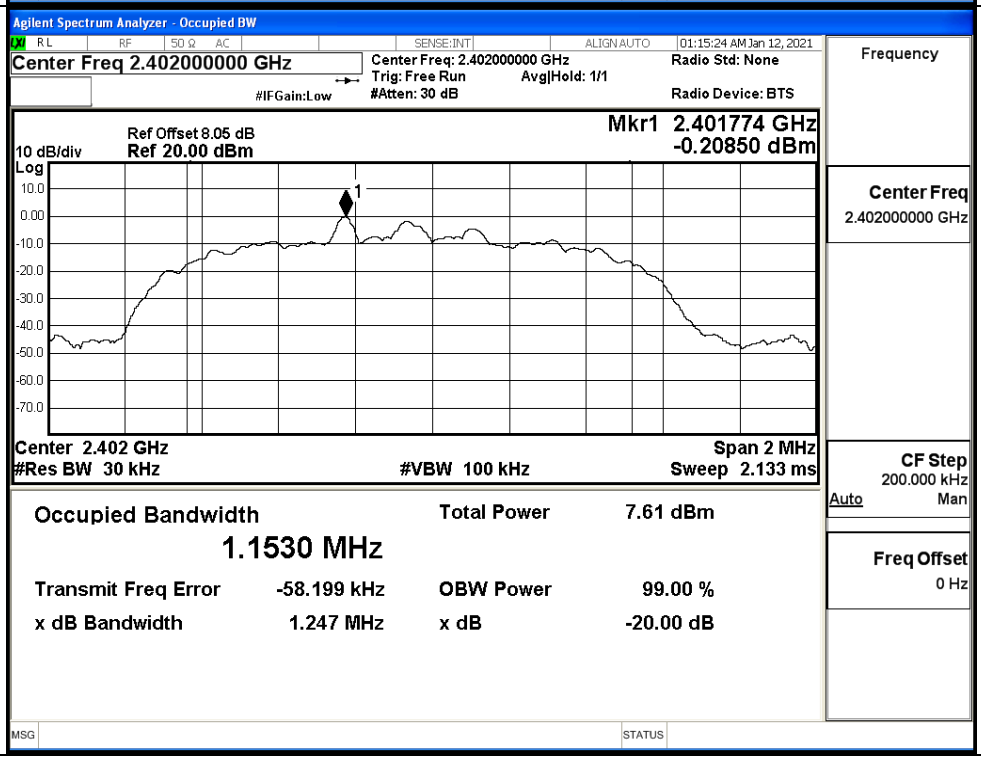
π/4DQPSK/MCH



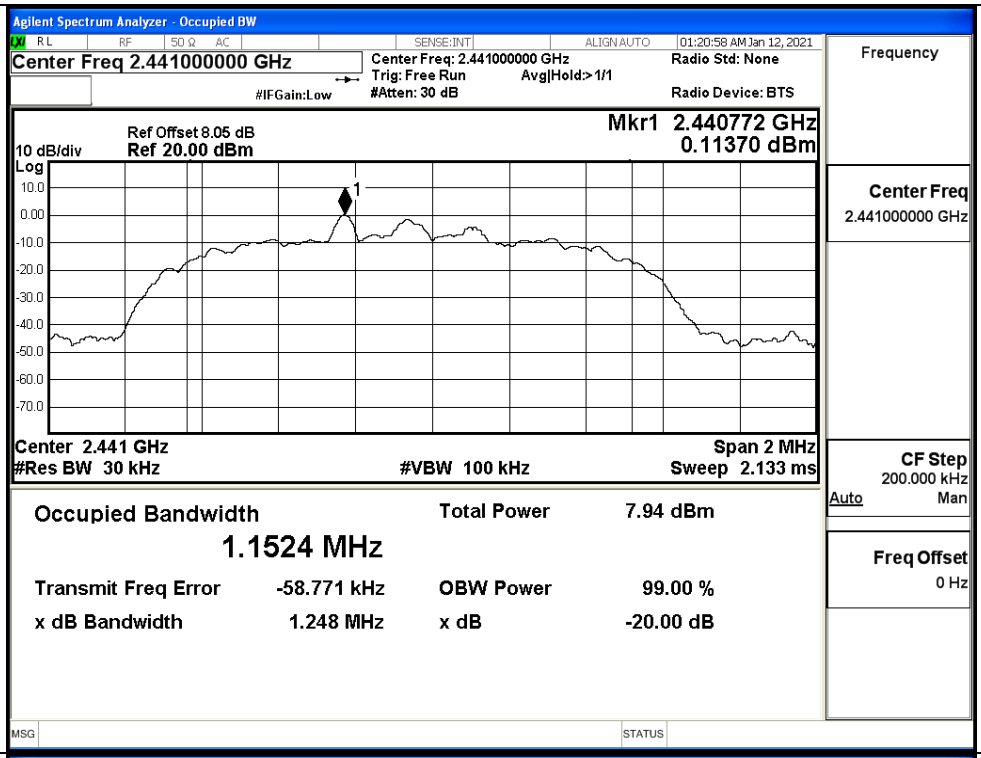
π/4DQPSK/HCH



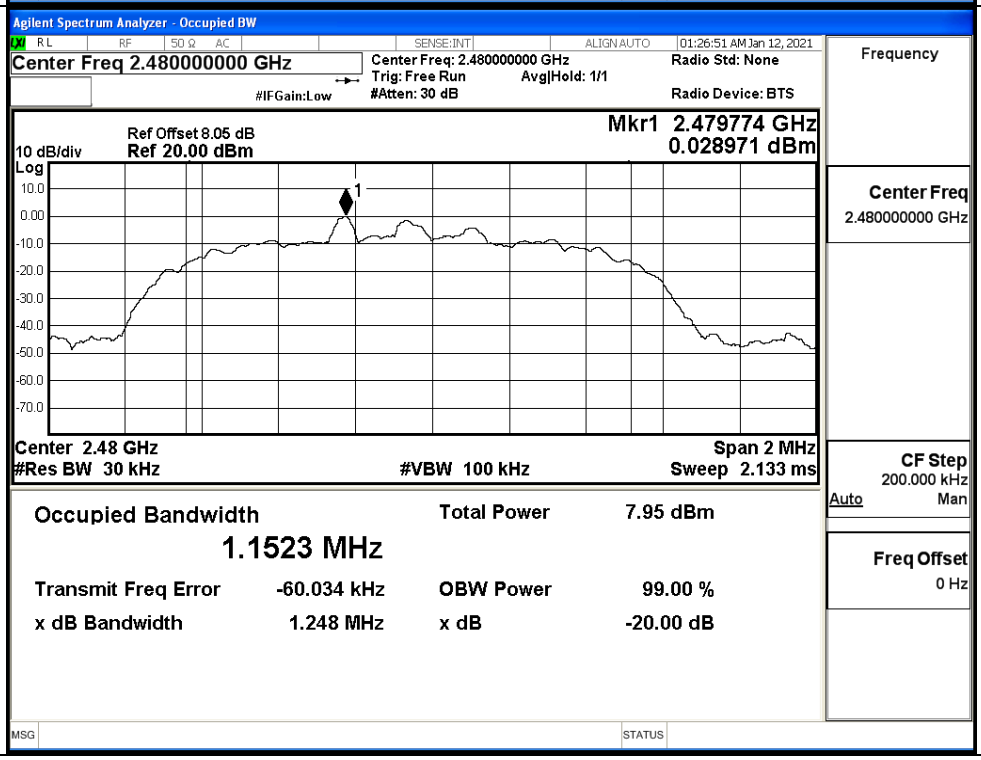
8DPSK/LCH



8DPSK/MCH

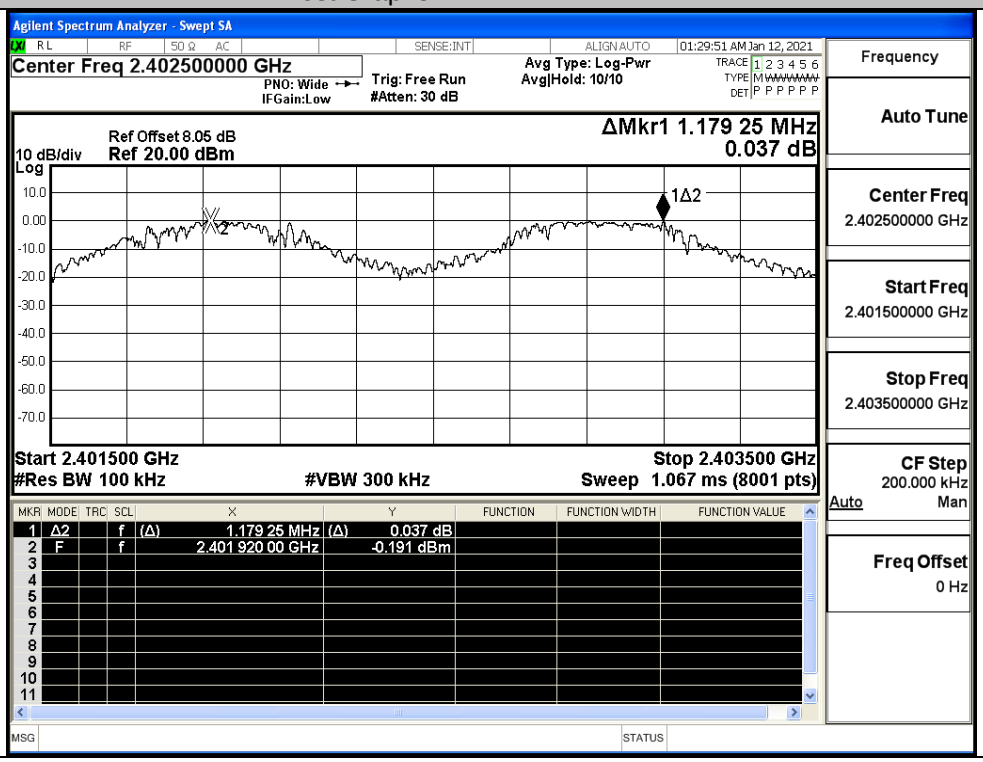


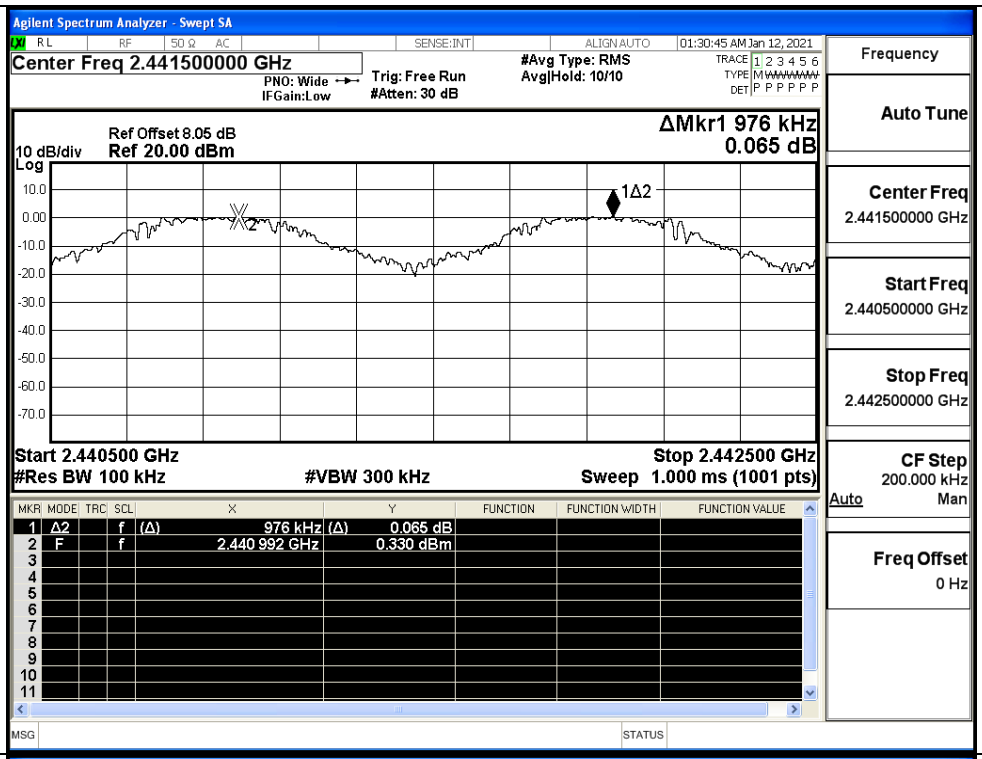
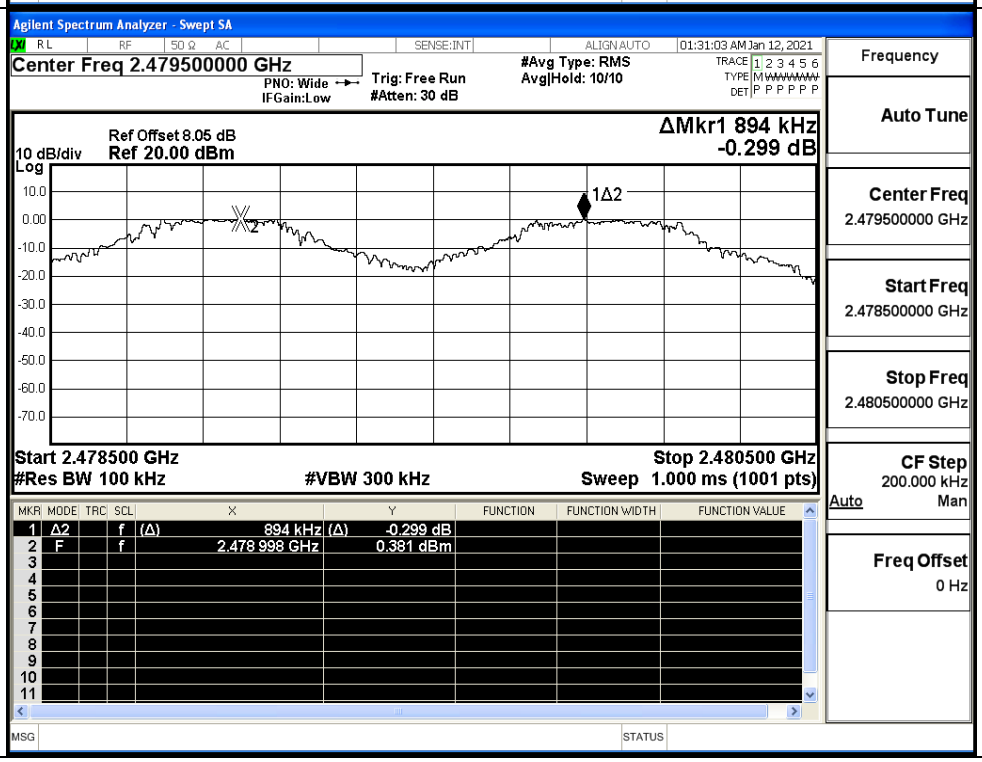
8DPSK/HCH



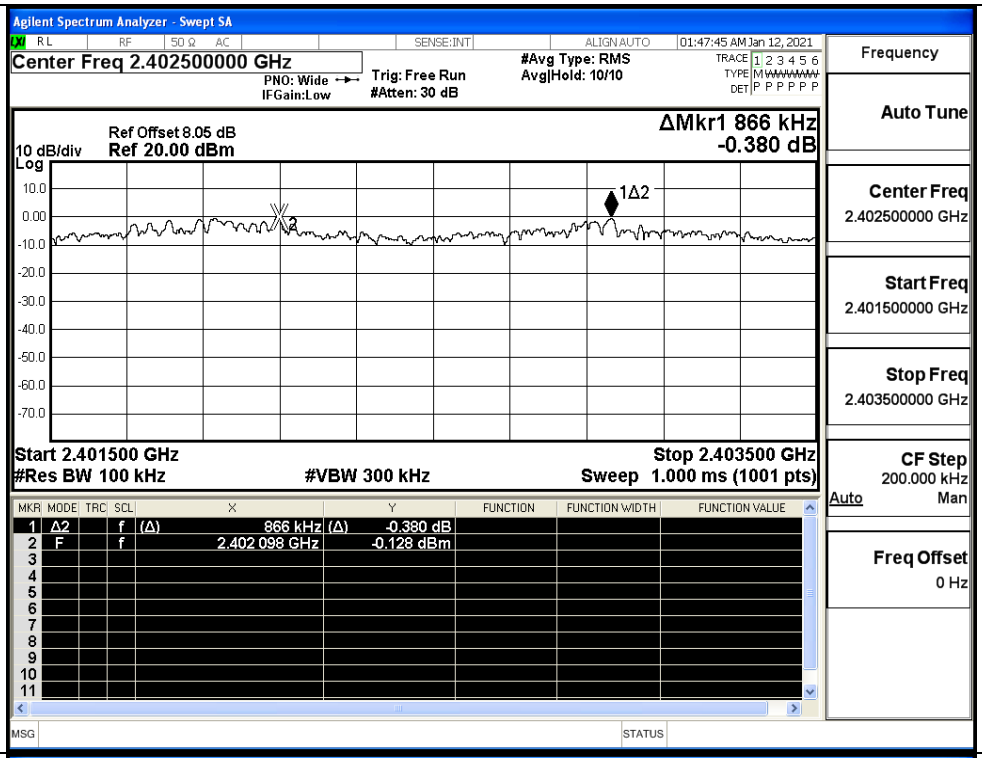
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.179	0.627	PASS
	MCH	0.976	0.627	PASS
	HCH	0.894	0.627	PASS
π/4DQPSK	LCH	0.866	0.850	PASS
	MCH	1.136	0.850	PASS
	HCH	0.898	0.850	PASS
8DPSK	LCH	1.034	0.832	PASS
	MCH	1.054	0.832	PASS
	HCH	0.854	0.832	PASS

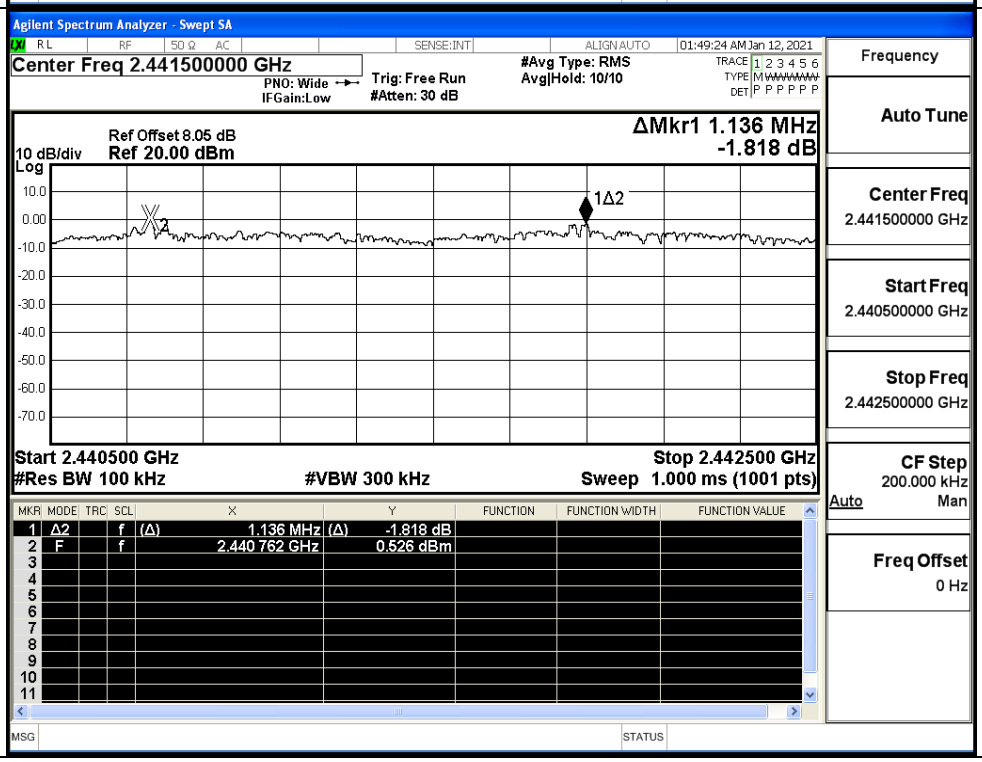
Test Graphs	
GFSK/LCH	

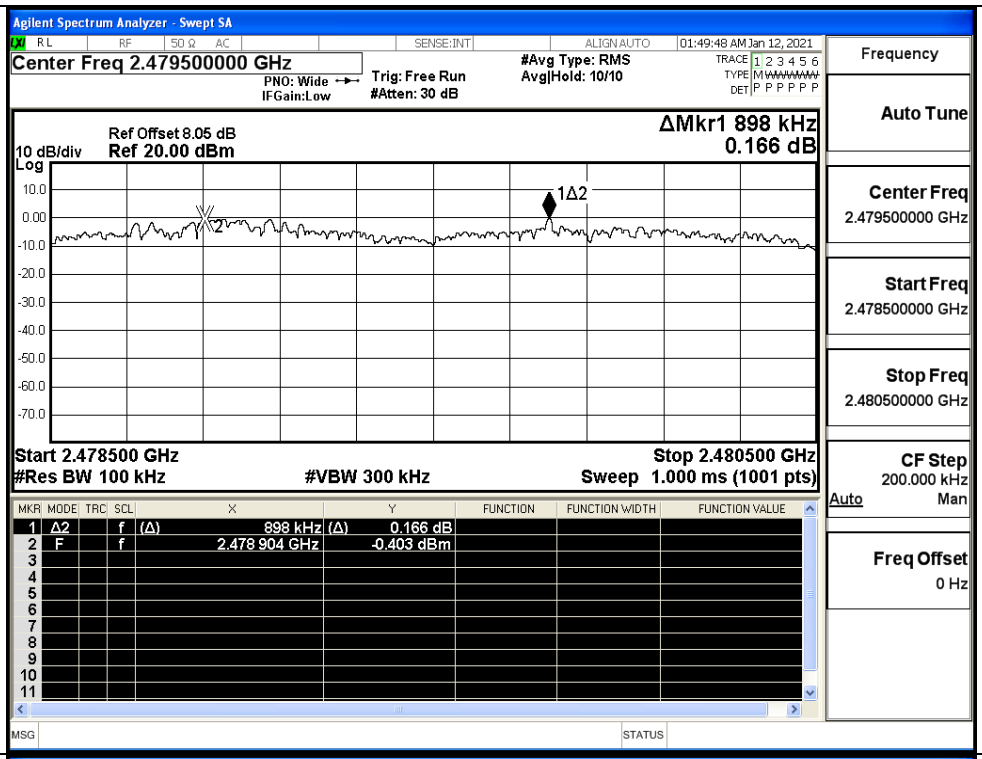
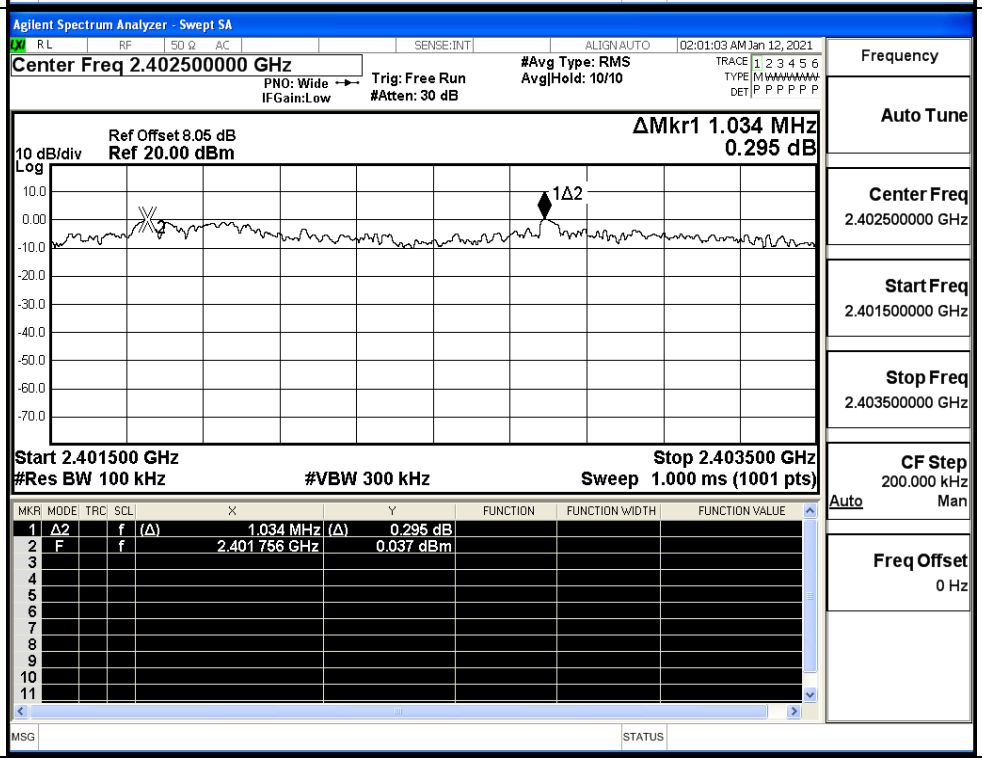
GFSK/MCH		
GFSK/HCH		

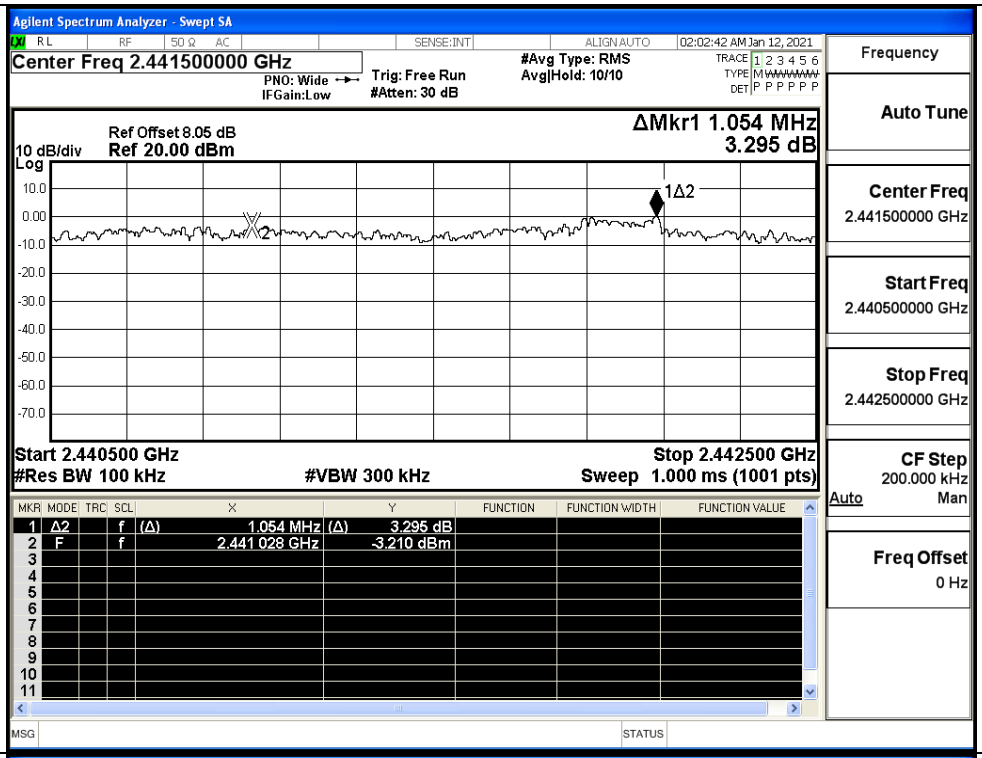
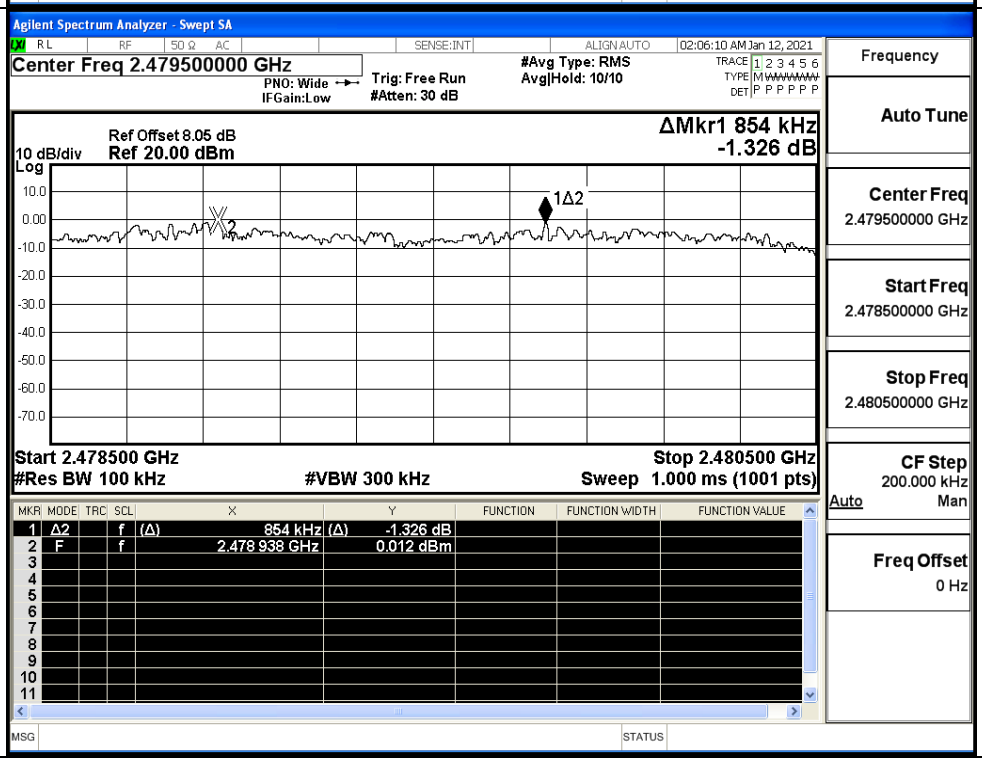
π/4DQPSK/LCH



π/4DQPSK/MCH

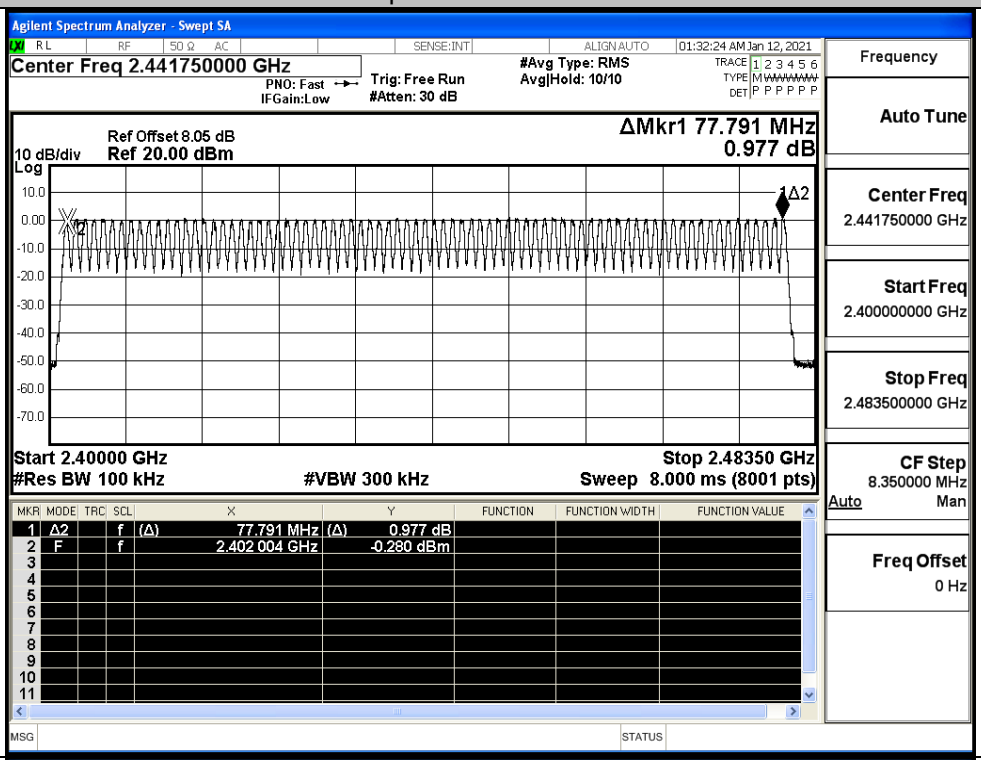
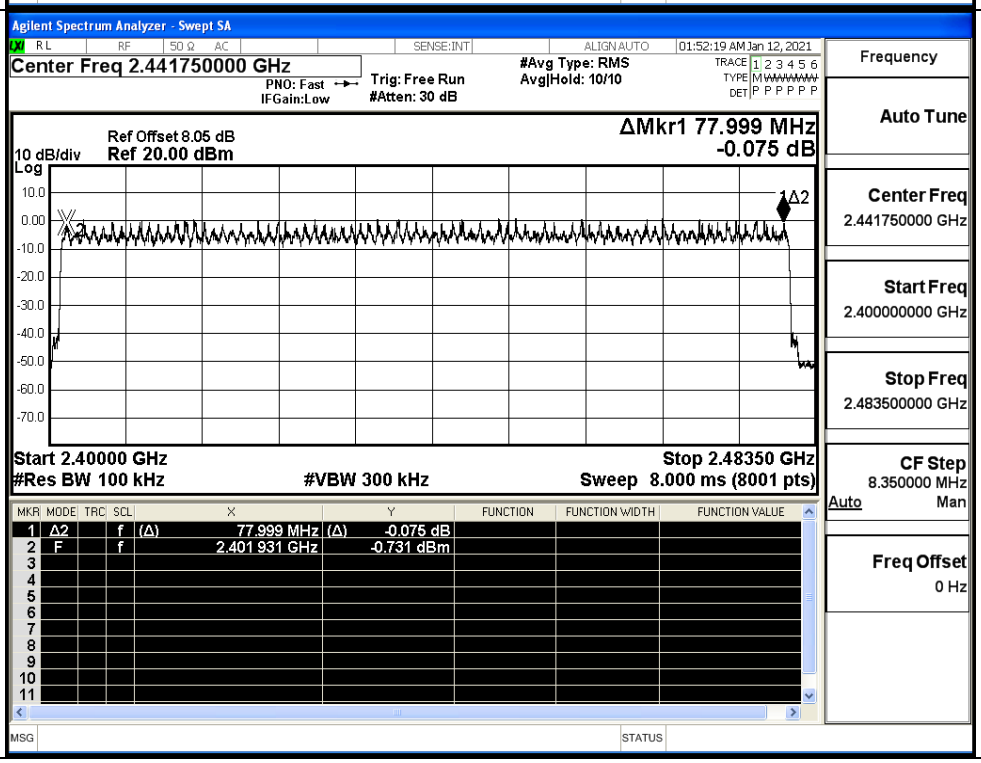


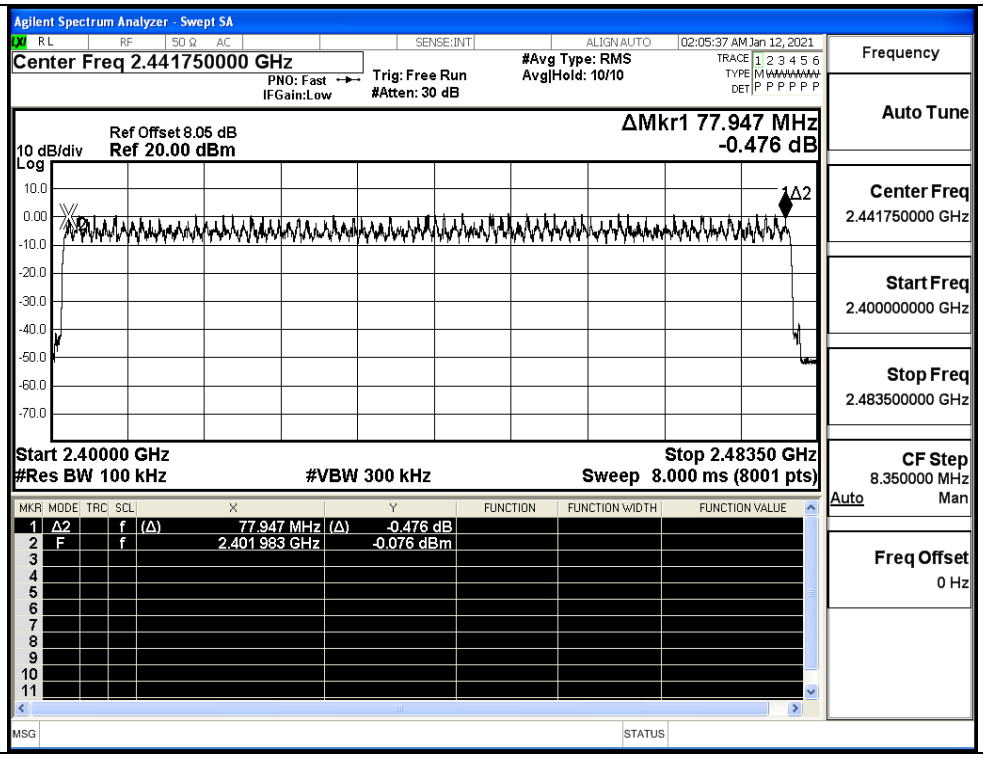
π/4DQPSK/HCH		
8DPSK/LCH		

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	

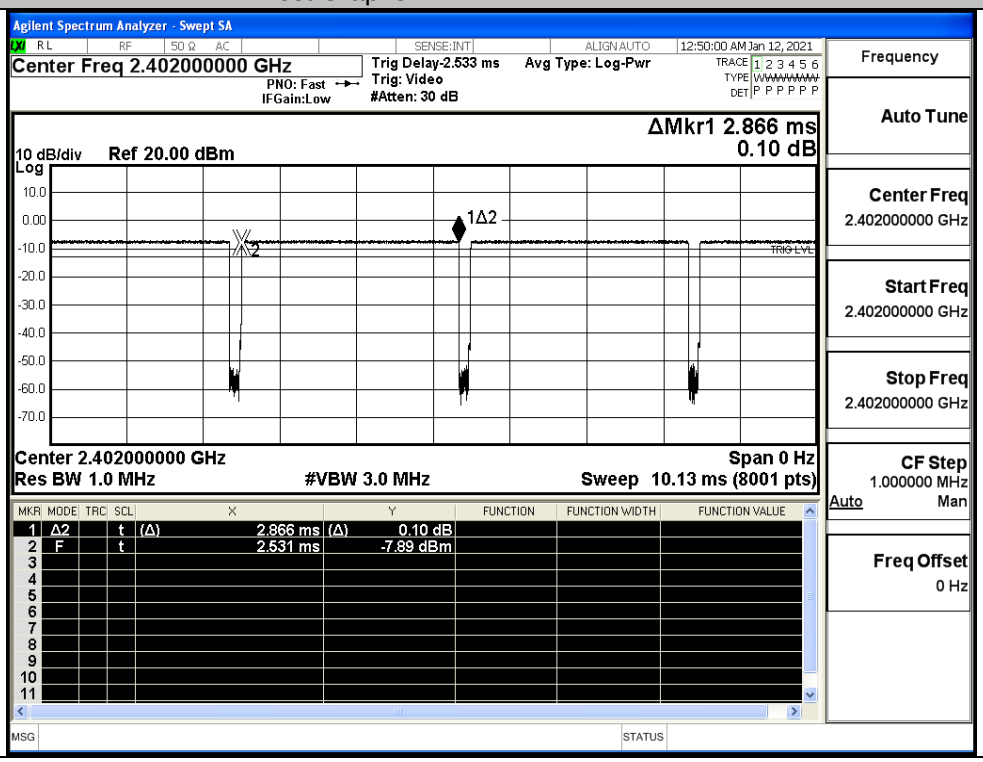
Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441750000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 10/10
02:05:37 AM Jan 12, 2021
Ref Offset 8.05 dB
10 dB/div
Ref 20.00 dBm
ΔMkr1 77.947 MHz
-0.476 dB
Start 2.40000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.48350 GHz
Sweep 8.000 ms (8001 pts)
1 Δ2 f (Δ) 77.947 MHz (Δ) -0.476 dB
2 F f 2.401 983 GHz -0.076 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

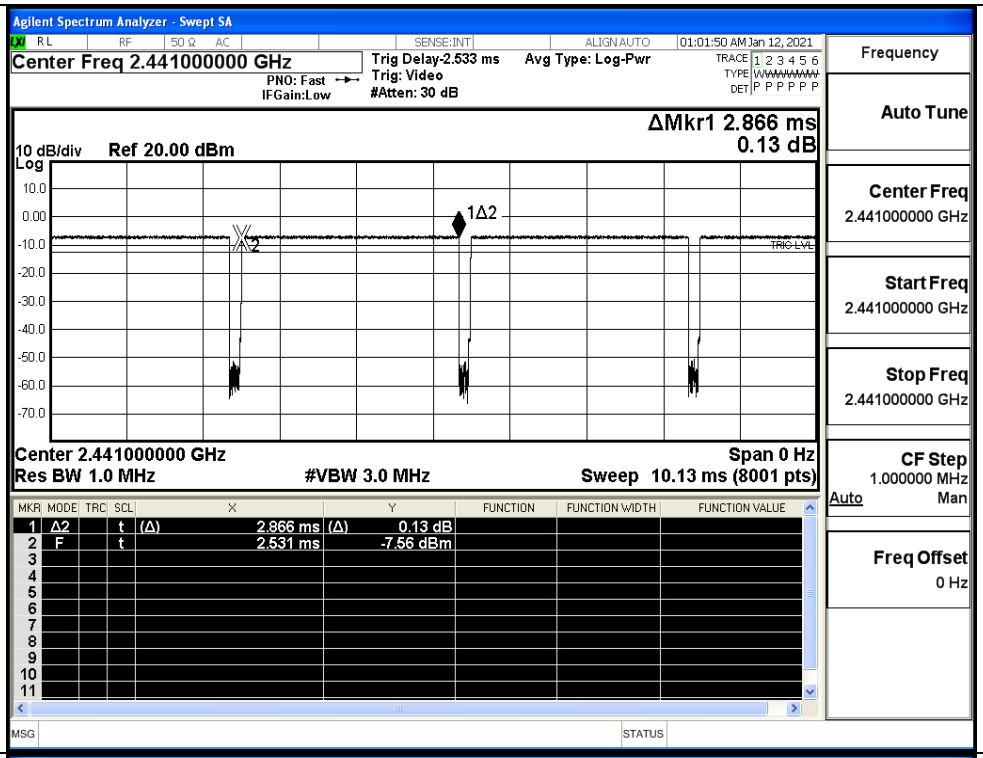
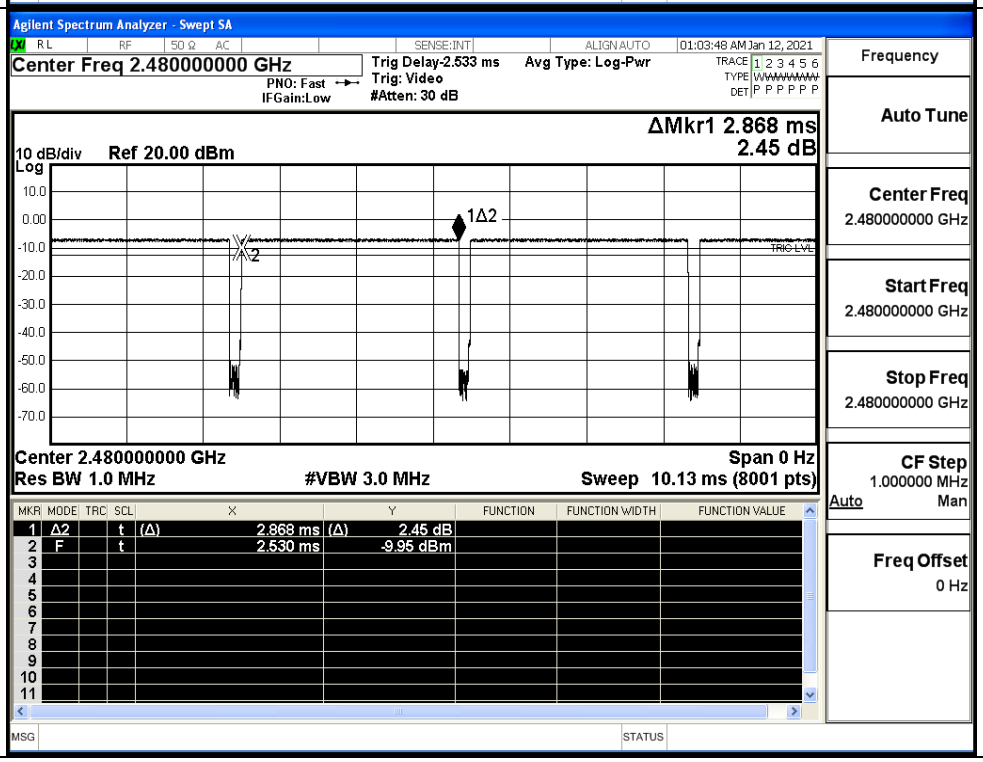
A.5 Dwell Time

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.87	106.7	0.306	0.4	PASS
	DH5	MCH	2.87	106.7	0.306	0.4	PASS
	DH5	HCH	2.87	106.7	0.306	0.4	PASS
π/4DQPSK	2DH5	LCH	2.87	106.7	0.307	0.4	PASS
	2DH5	MCH	2.87	106.7	0.307	0.4	PASS
	2DH5	HCH	2.87	106.7	0.307	0.4	PASS
8DPSK	3DH5	LCH	2.87	106.7	0.307	0.4	PASS
	3DH5	MCH	2.87	106.7	0.307	0.4	PASS
	3DH5	HCH	2.87	106.7	0.307	0.4	PASS

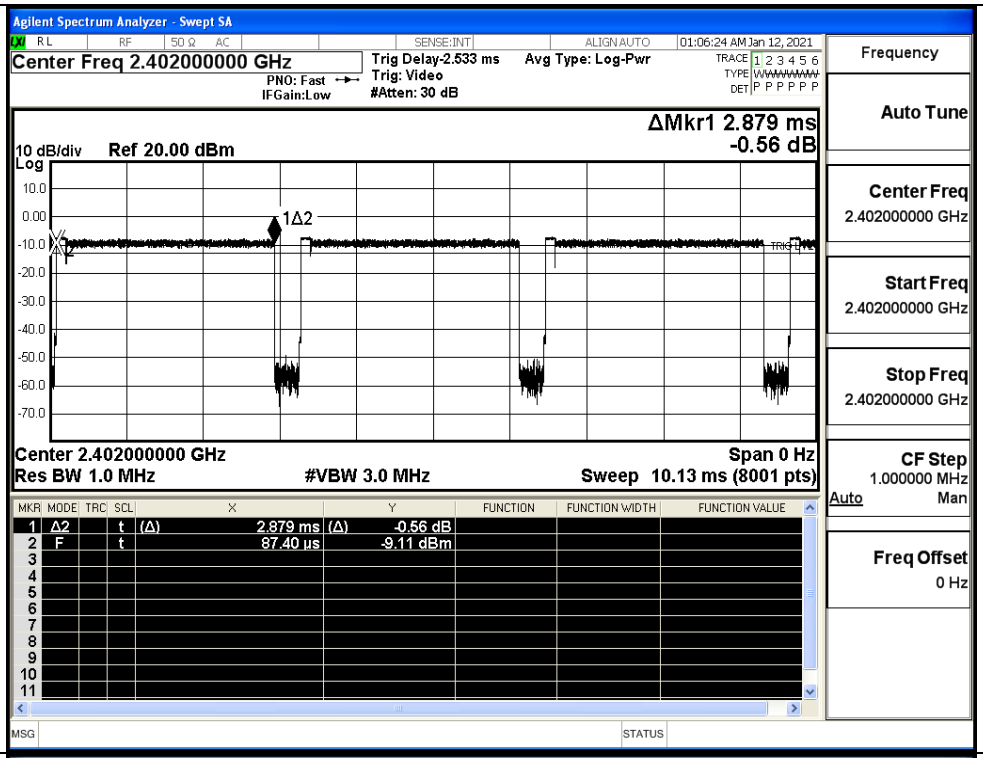
Test Graphs

GFSK_DH5/LCH

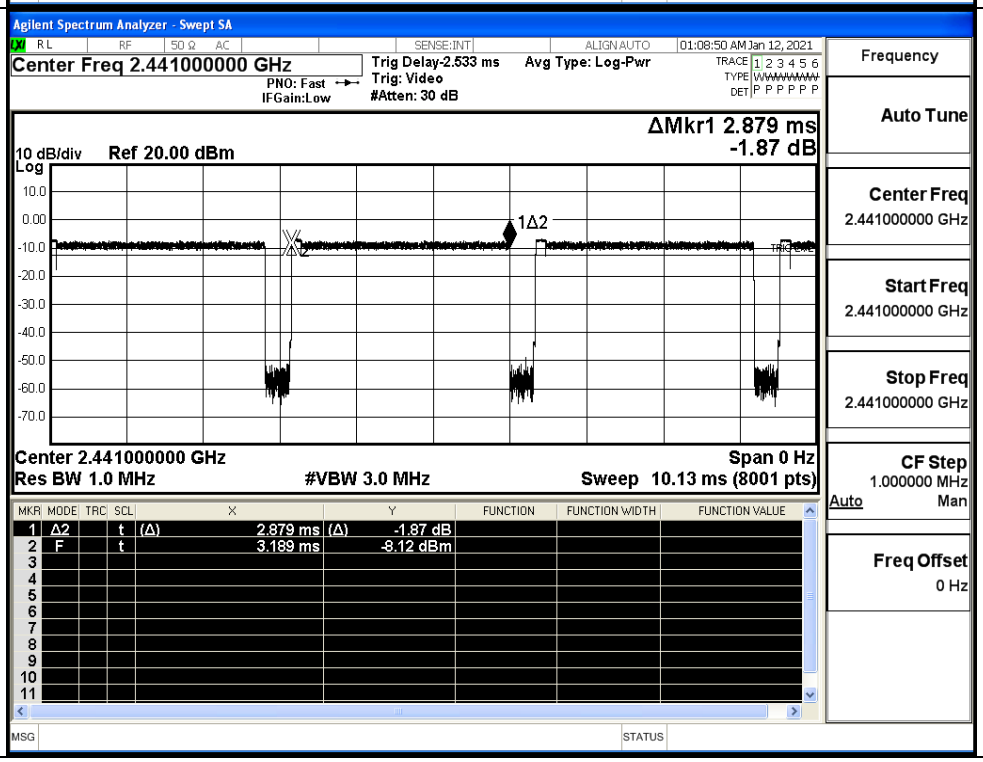


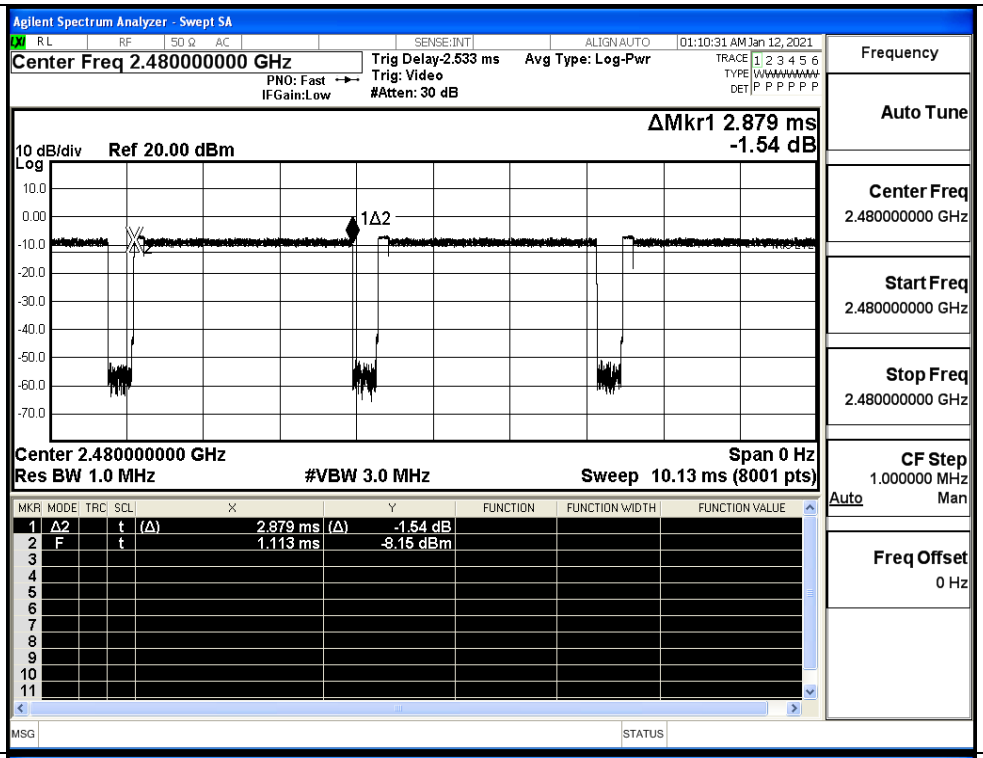
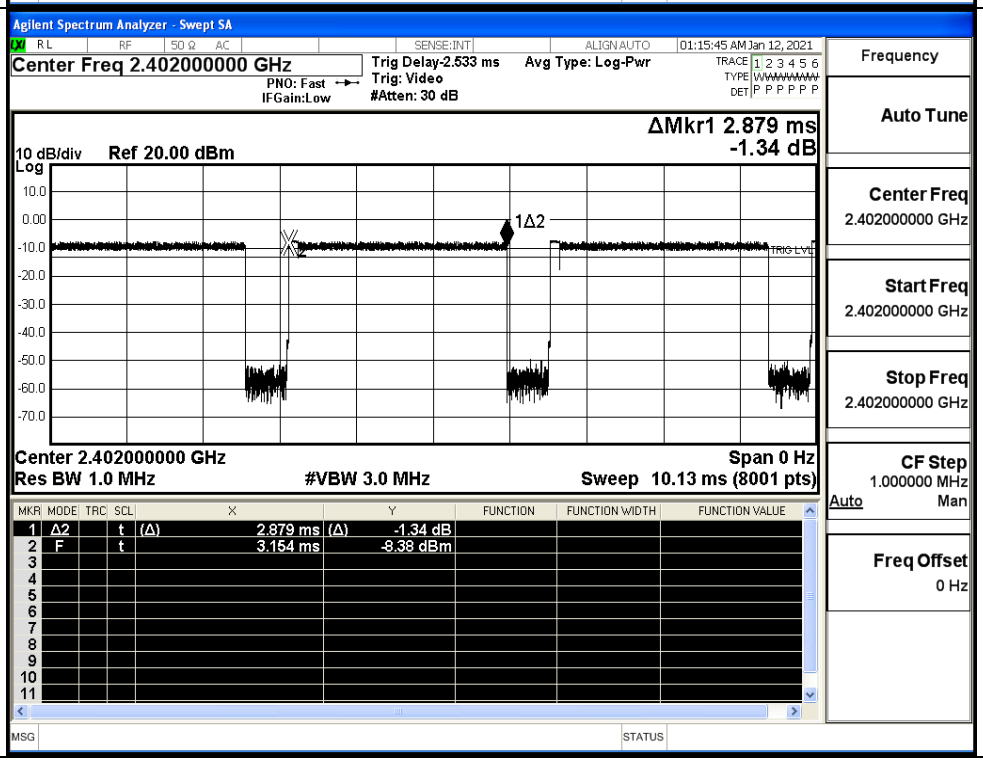
GFSK_DH5/MCH	
GFSK_DH5/HCH	

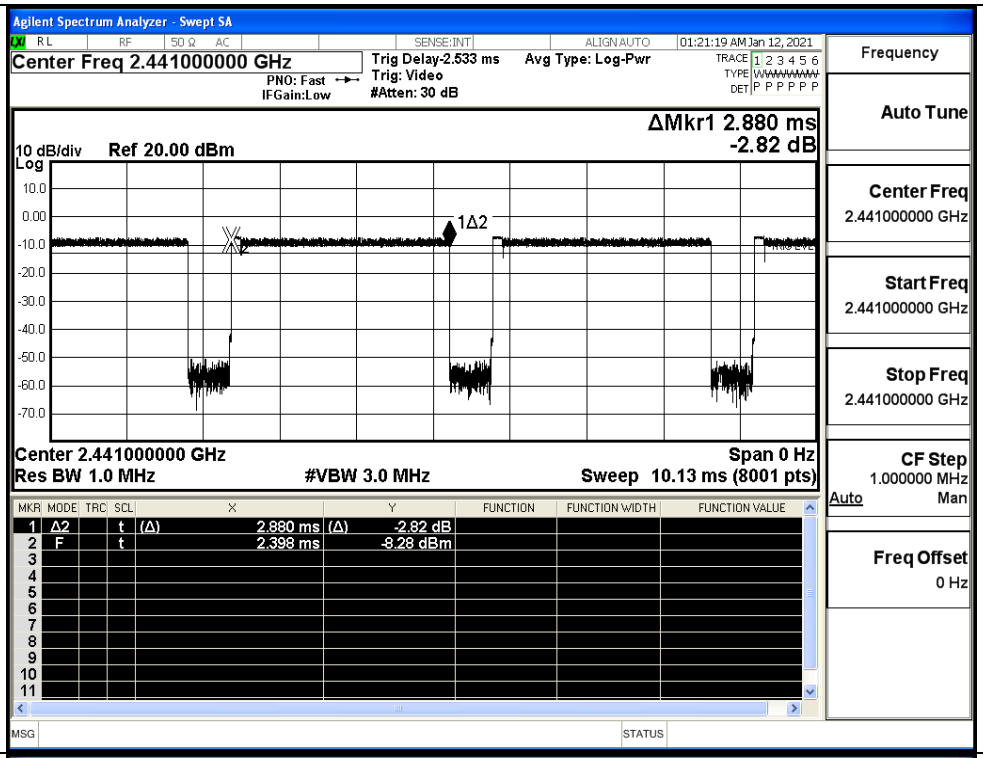
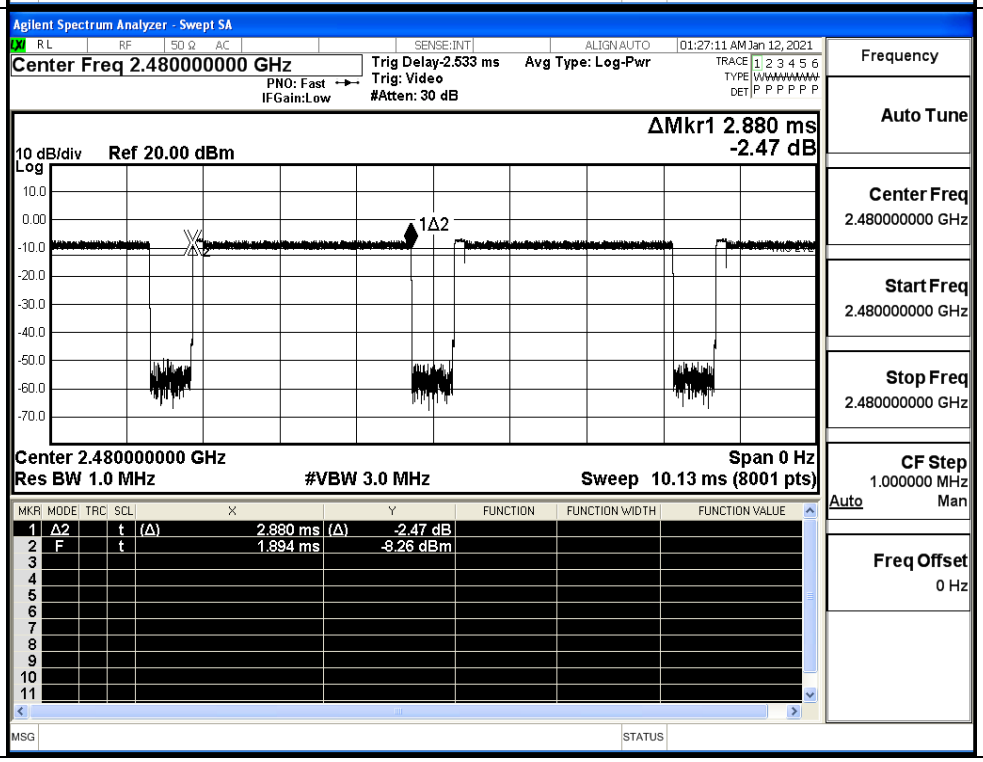
π/4DQPSK
_2DH5/LCH



π/4DQPSK
_2DH5/MCH

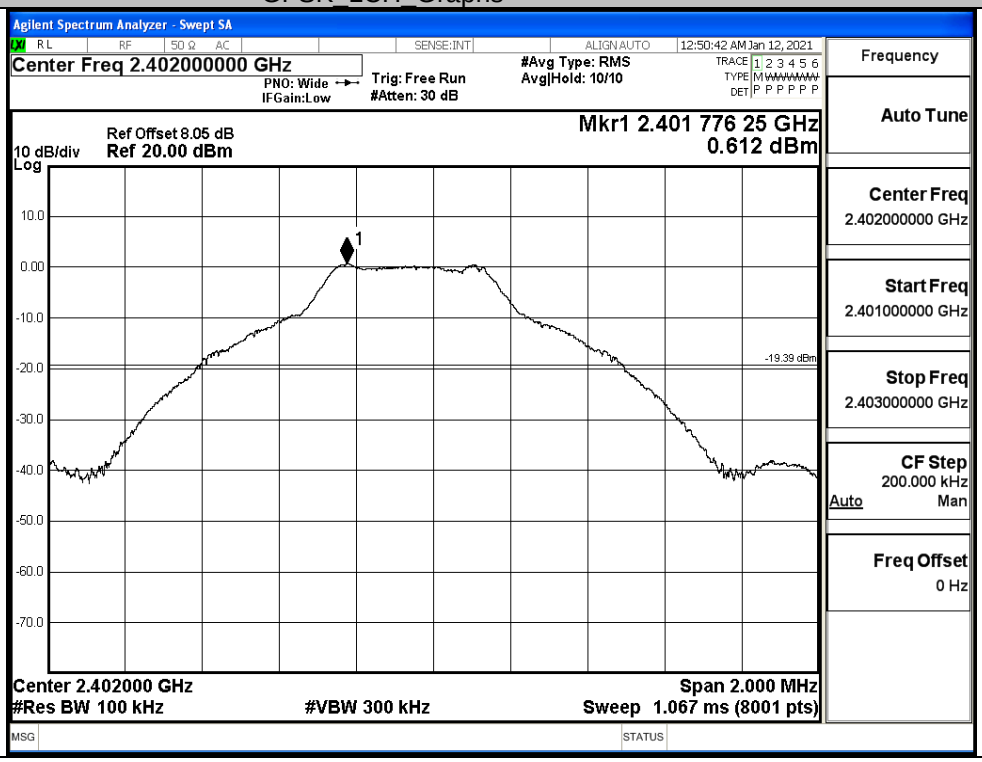


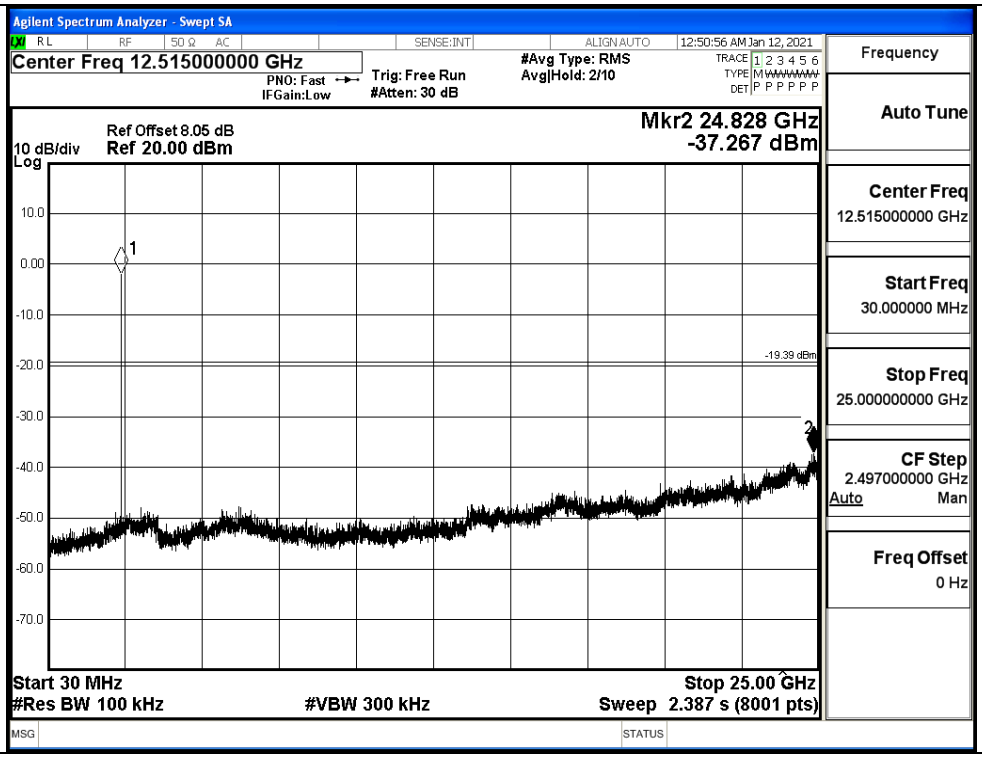
π/4DQPSK _2DH5/HCH	
8DPSK _3DH5/LCH	

8DPSK _3DH5/MCH	
8DPSK _3DH5/HCH	

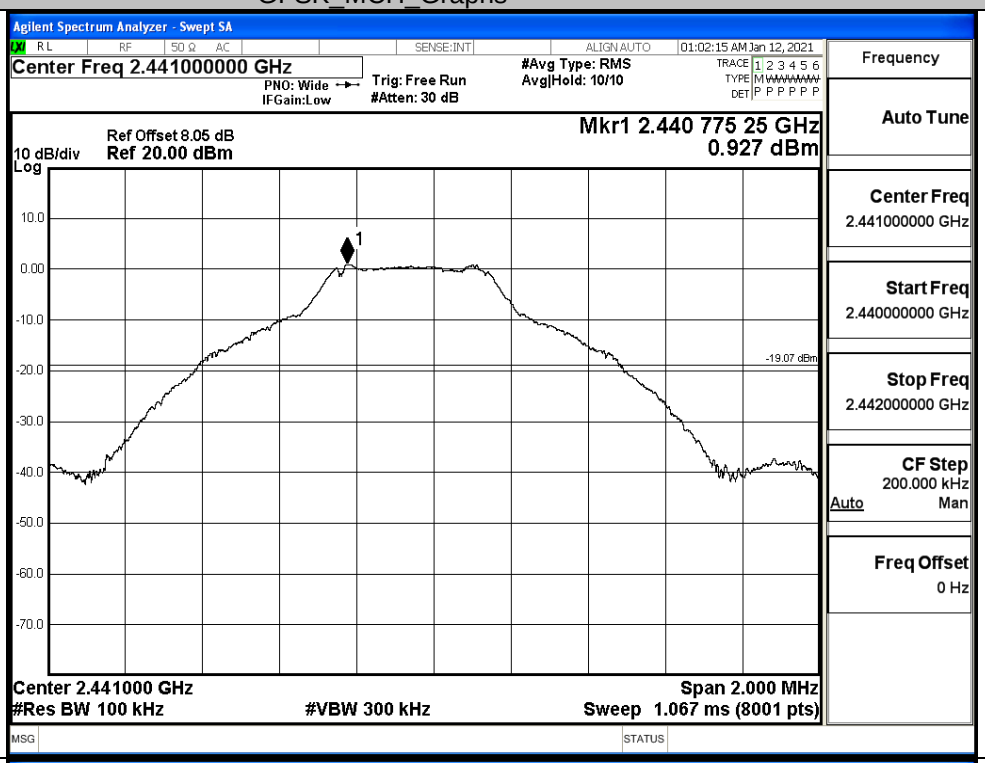
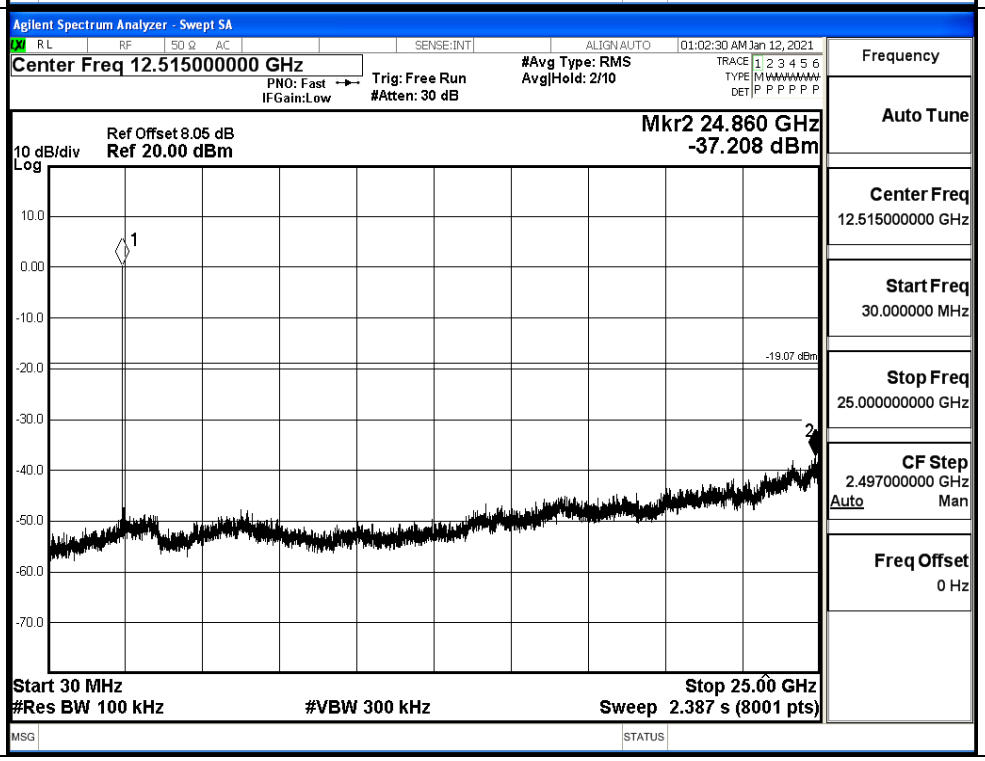
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.612	-37.267	-19.388	PASS
	MCH	0.927	-37.208	-19.073	PASS
	HCH	0.986	-37.706	-19.014	PASS
π/4DQPSK	LCH	0.239	-37.772	-19.761	PASS
	MCH	0.747	-37.548	-19.253	PASS
	HCH	0.722	-36.753	-19.278	PASS
8DPSK	LCH	0.55	-37.812	-19.450	PASS
	MCH	0.886	-37.596	-19.114	PASS
	HCH	0.777	-37.809	-19.223	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
12:50:56 AM Jan 12, 2021
Ref Offset 8.05 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr2 24.828 GHz
-37.267 dBm
-19.39 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		

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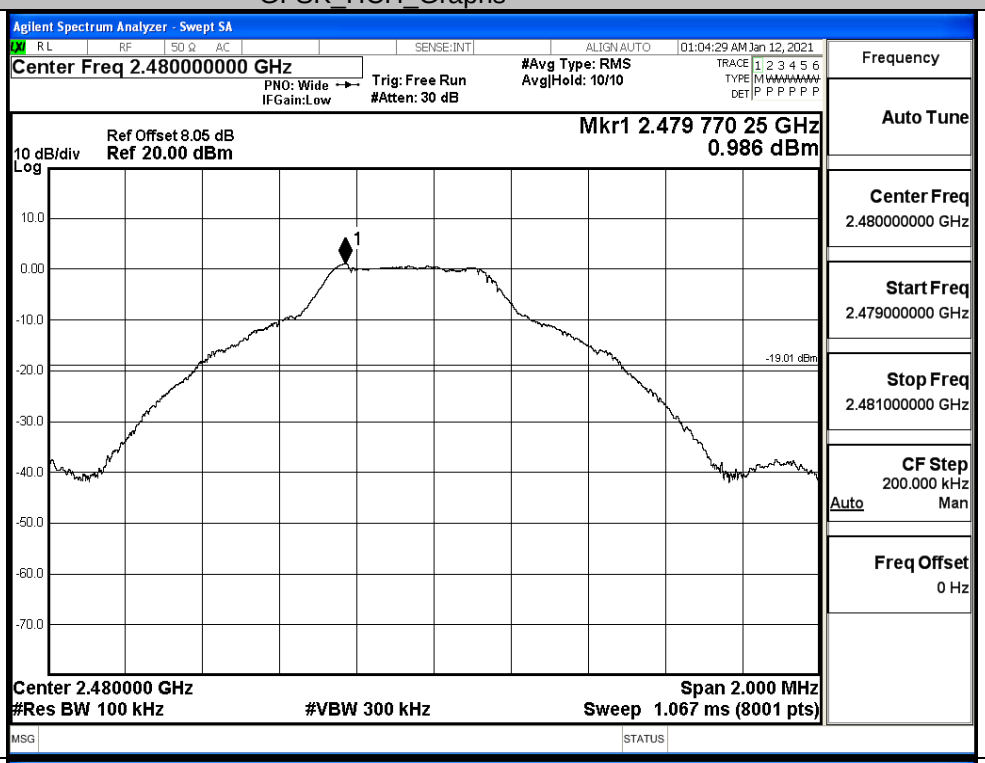
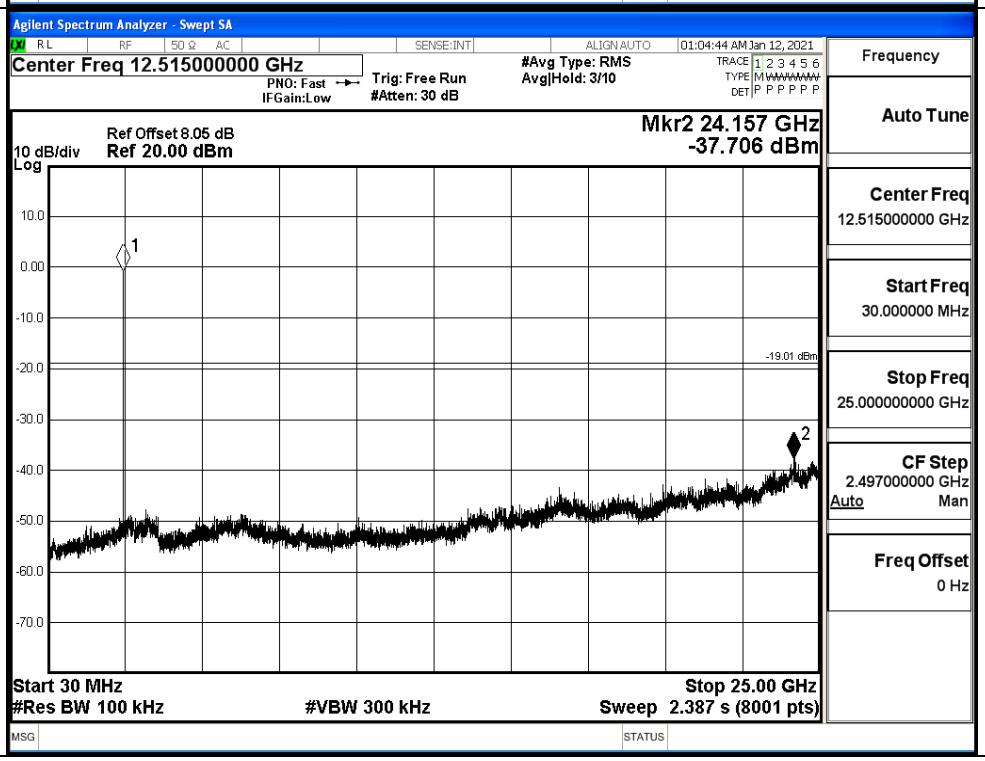
Pref			
Puw			

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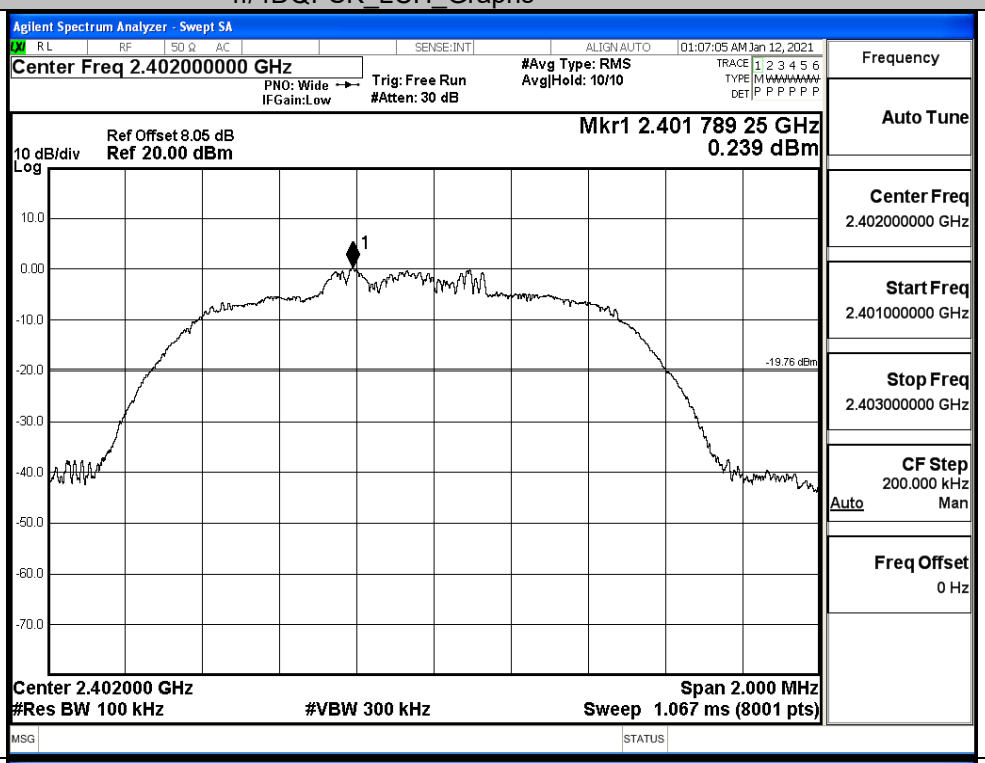
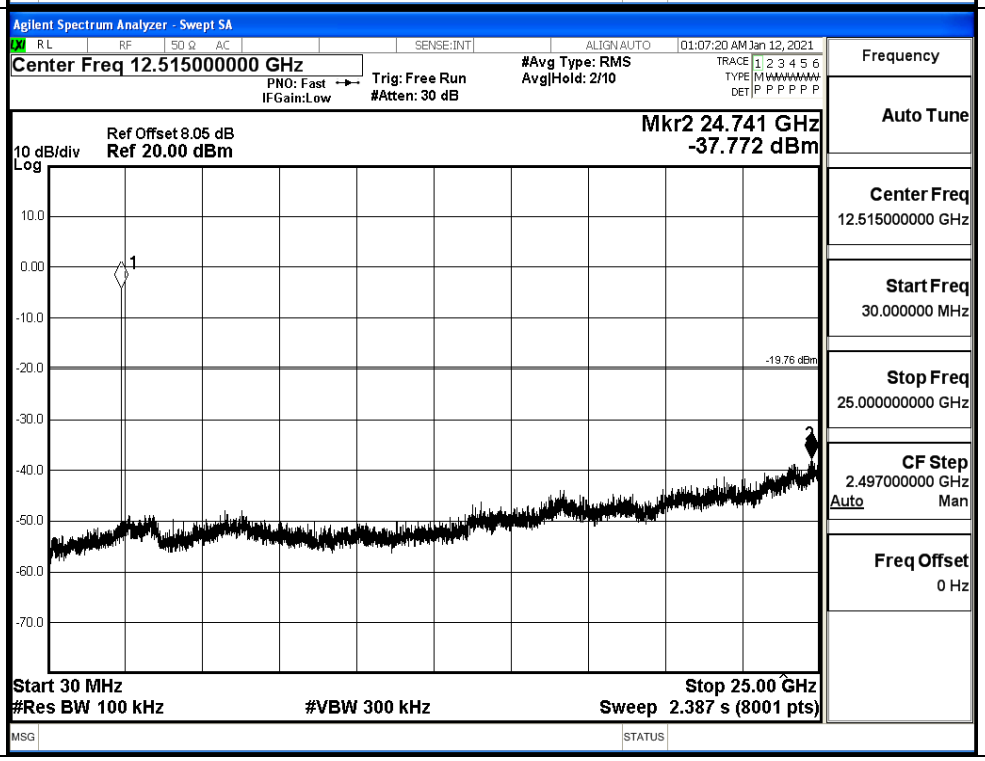
Pref		
Puw		

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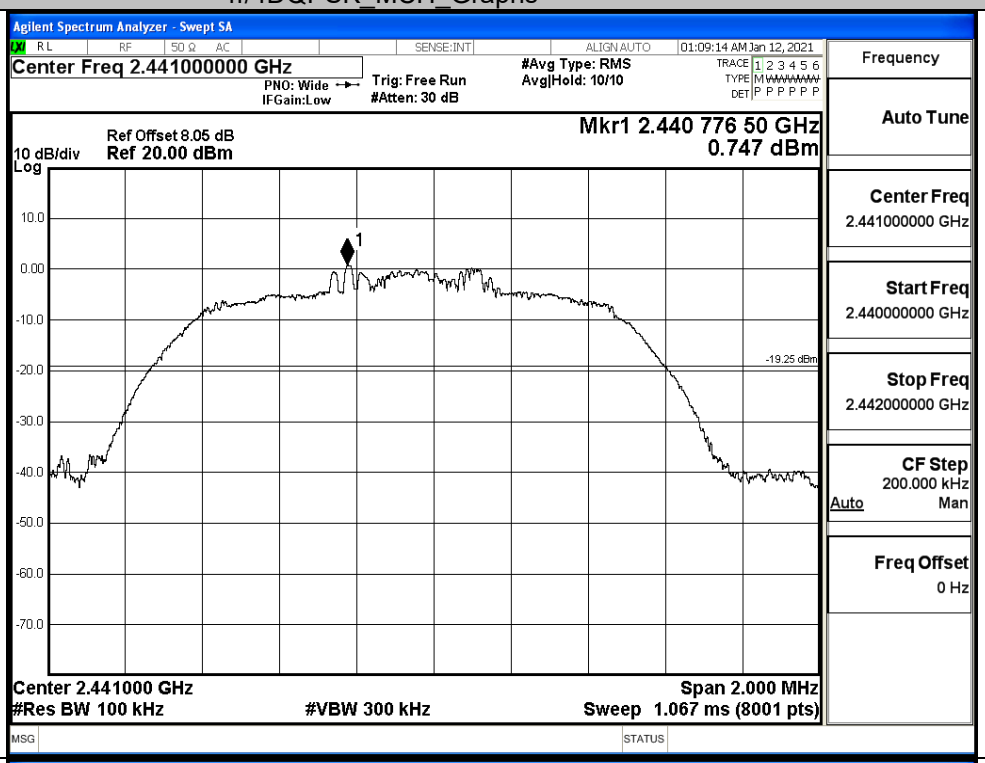
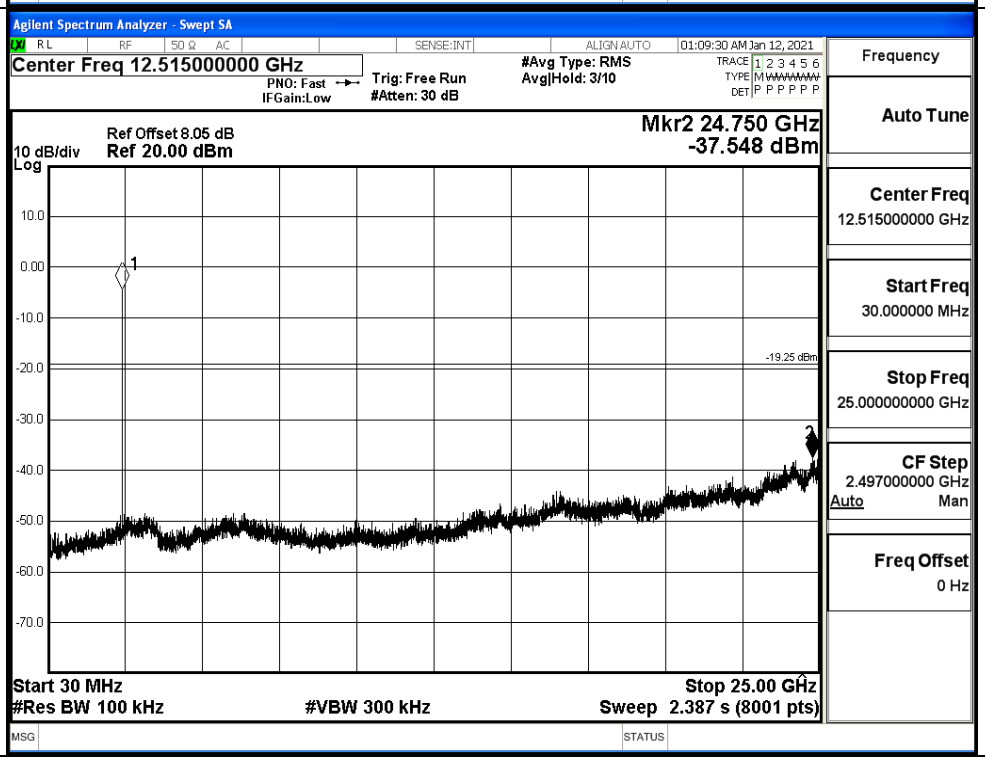
Pref			
Puw			

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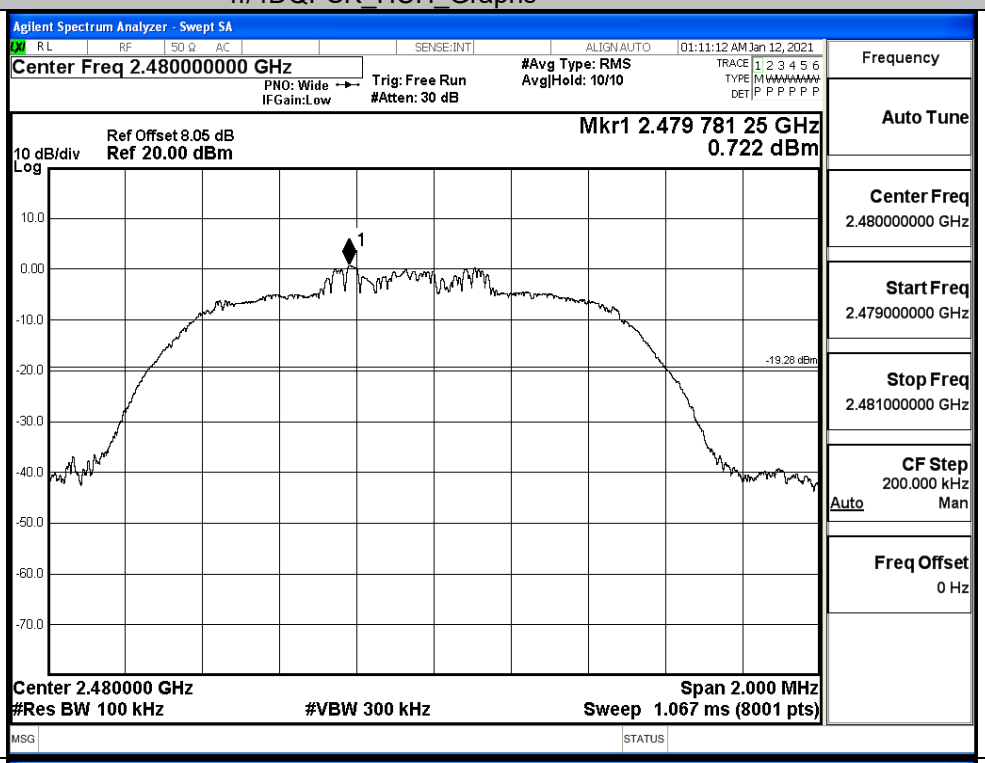
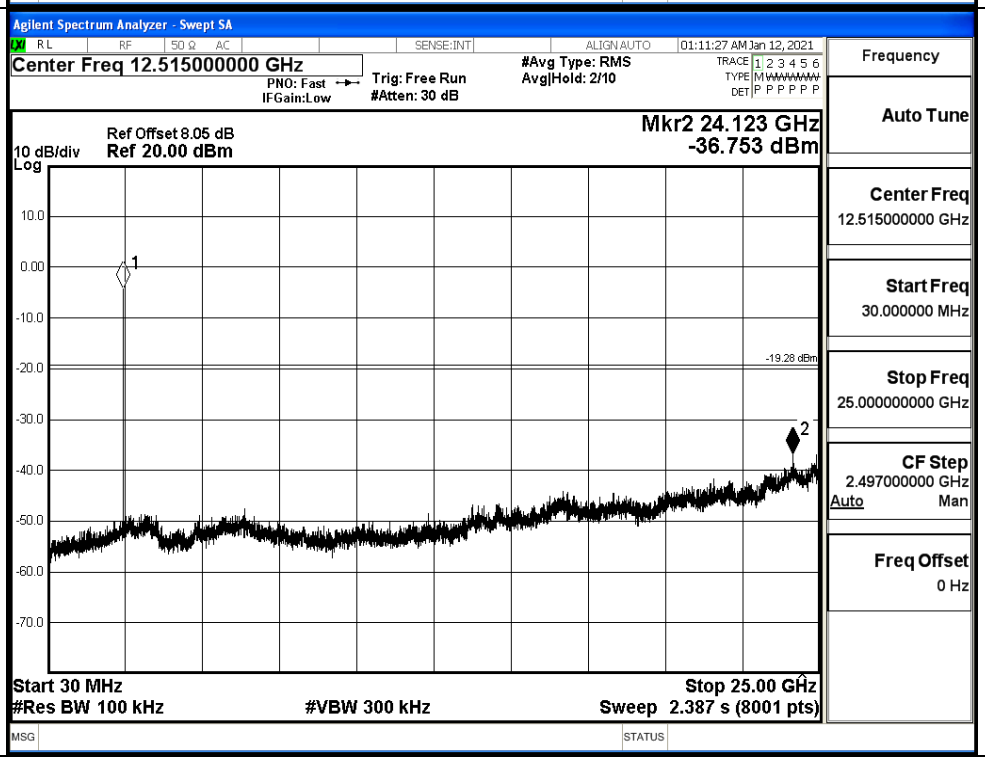
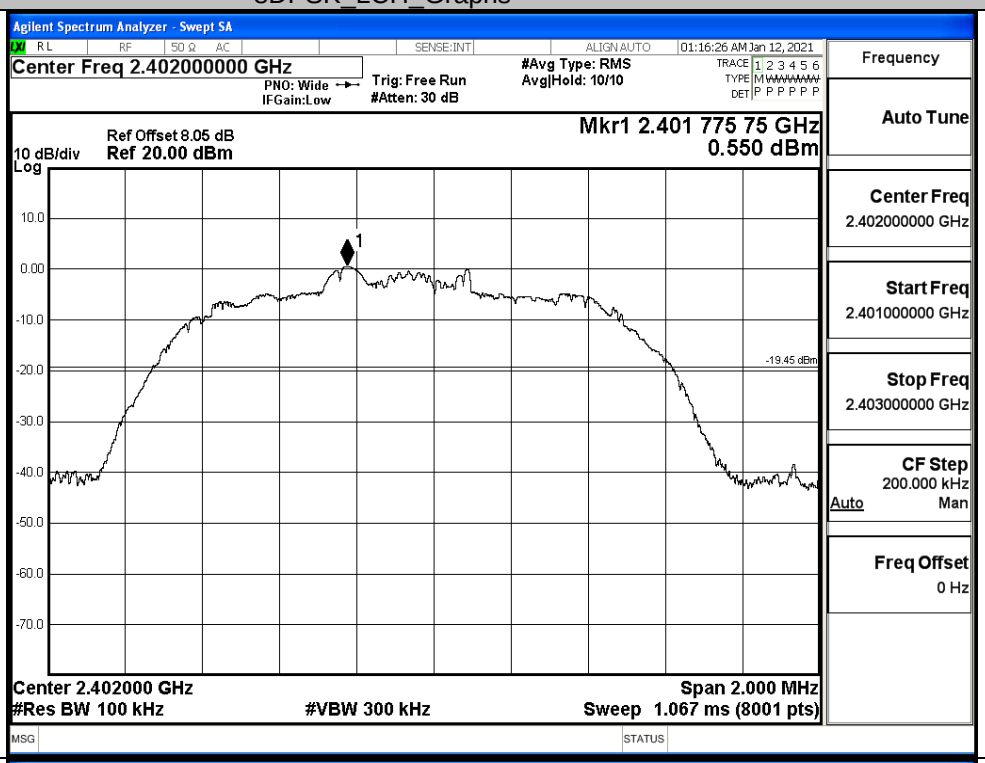
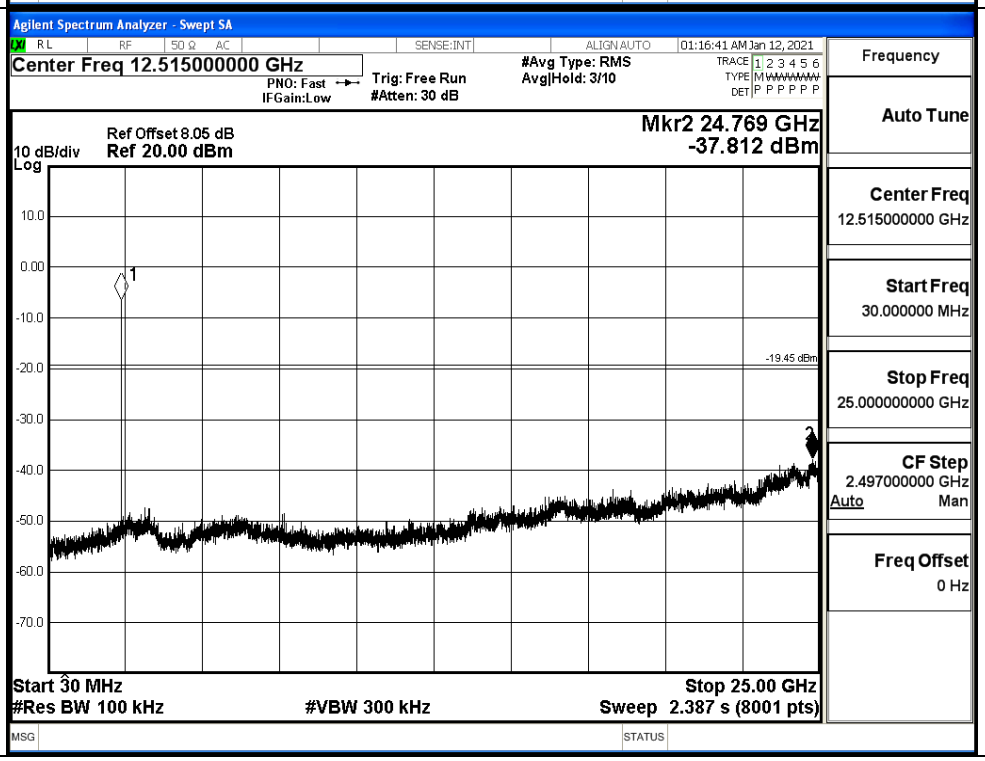
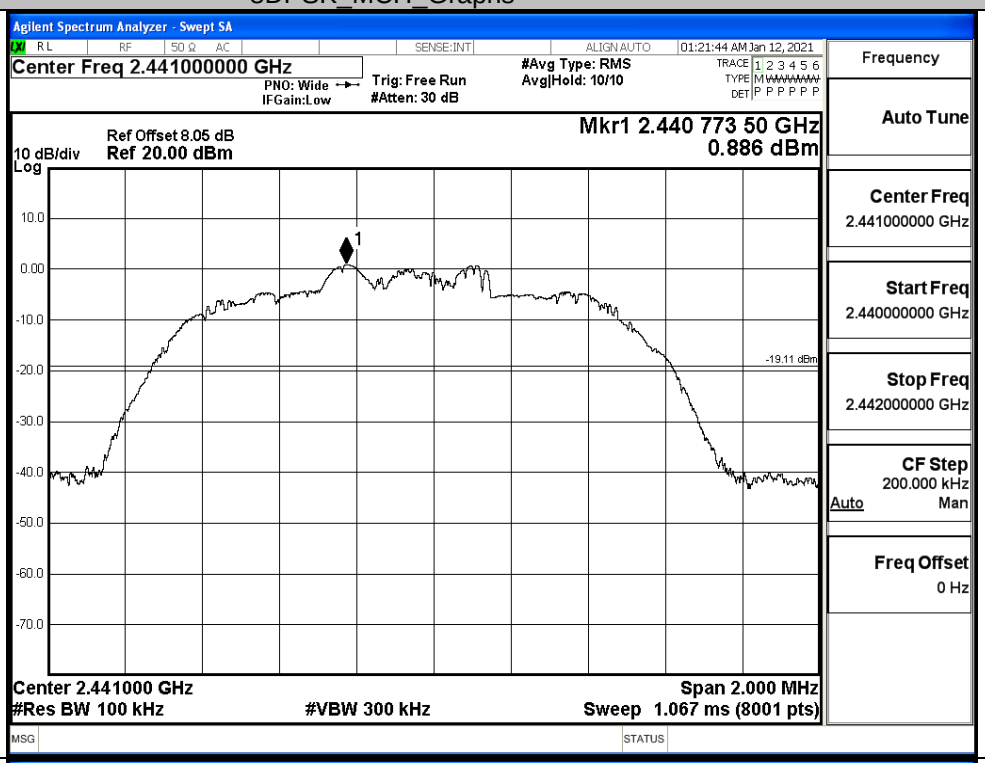
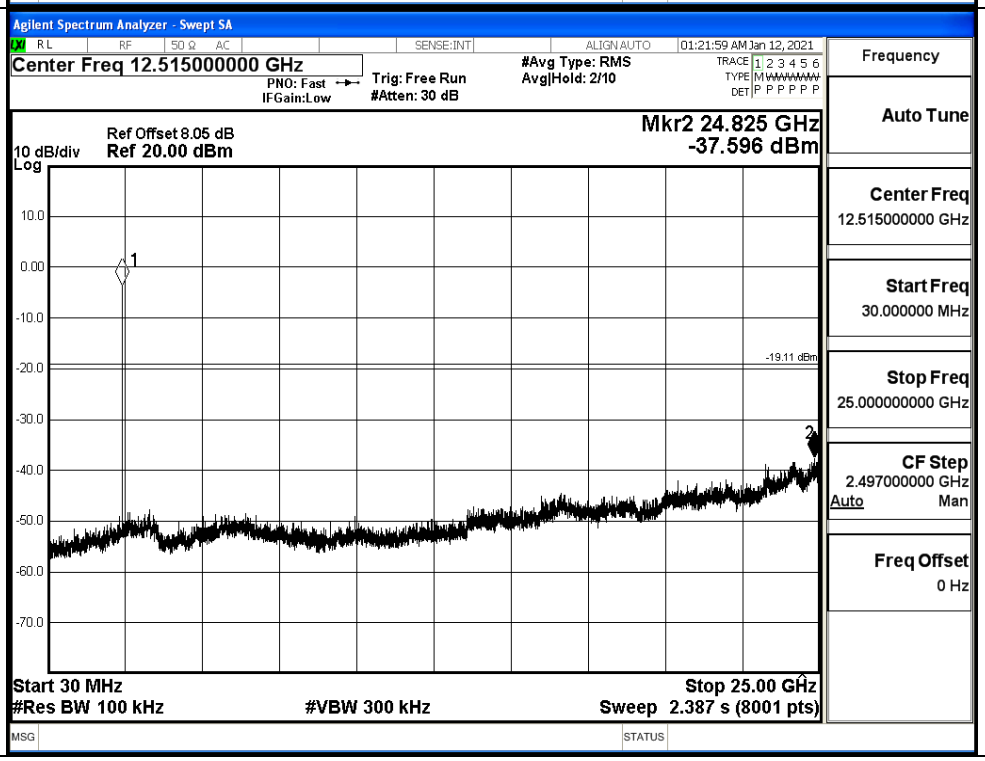
Pref			
Puw			

8DPSK_LCH_Graphs		
Pref		
Puw		

8DPSK_MCH_Graphs		
Pref		
Puw		

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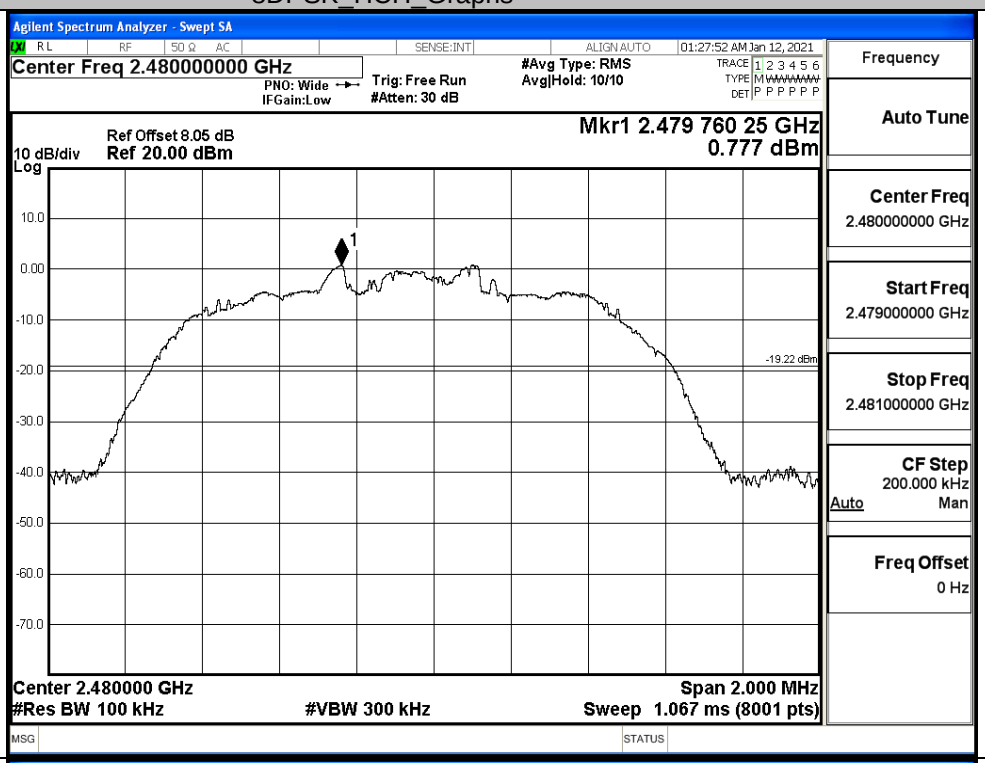
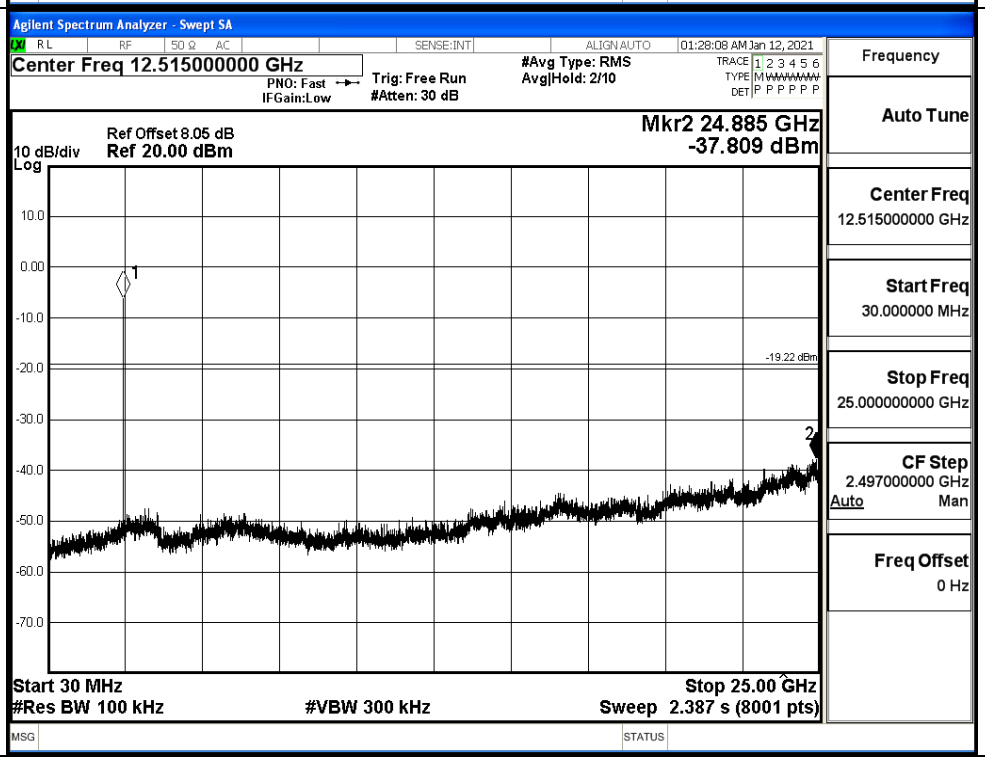
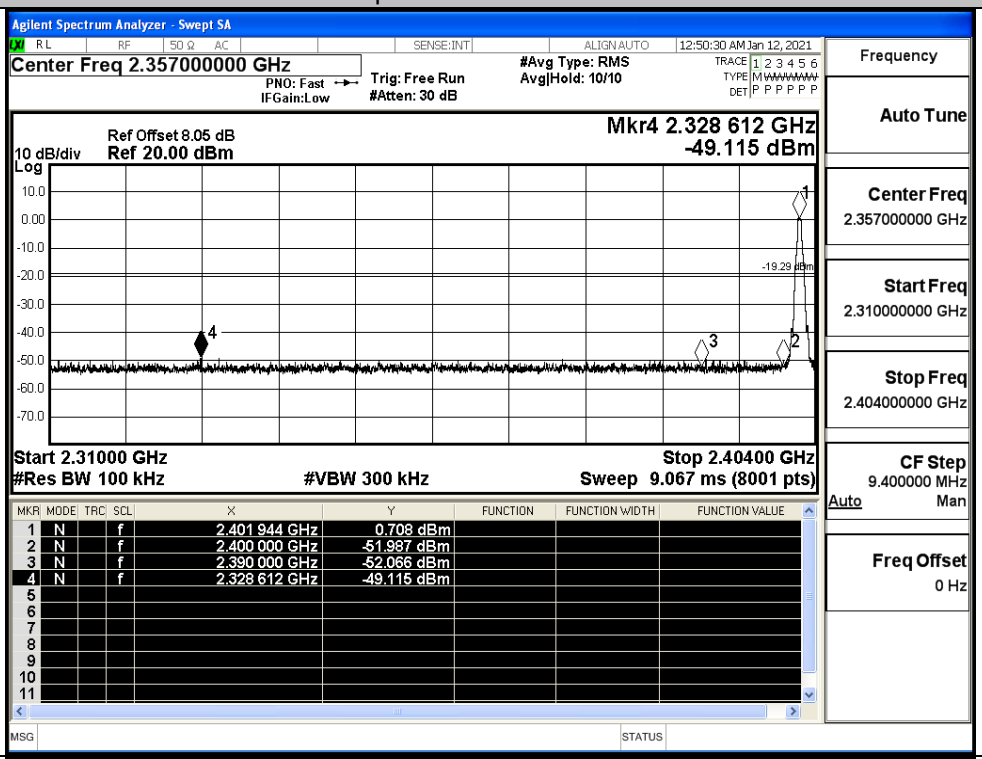
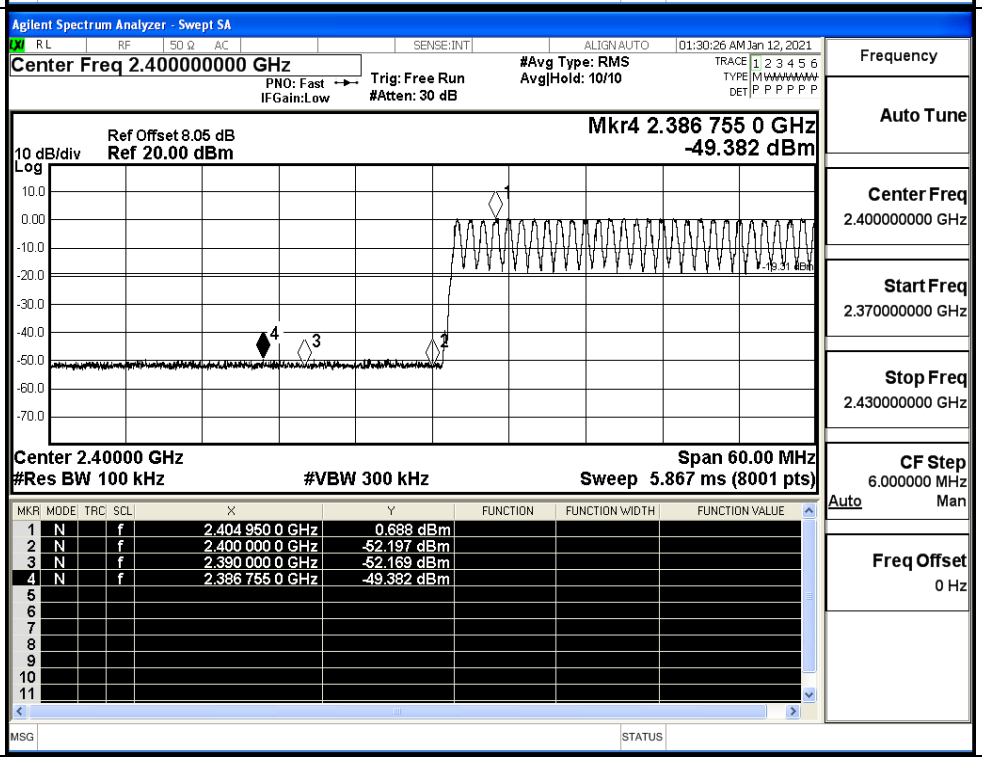
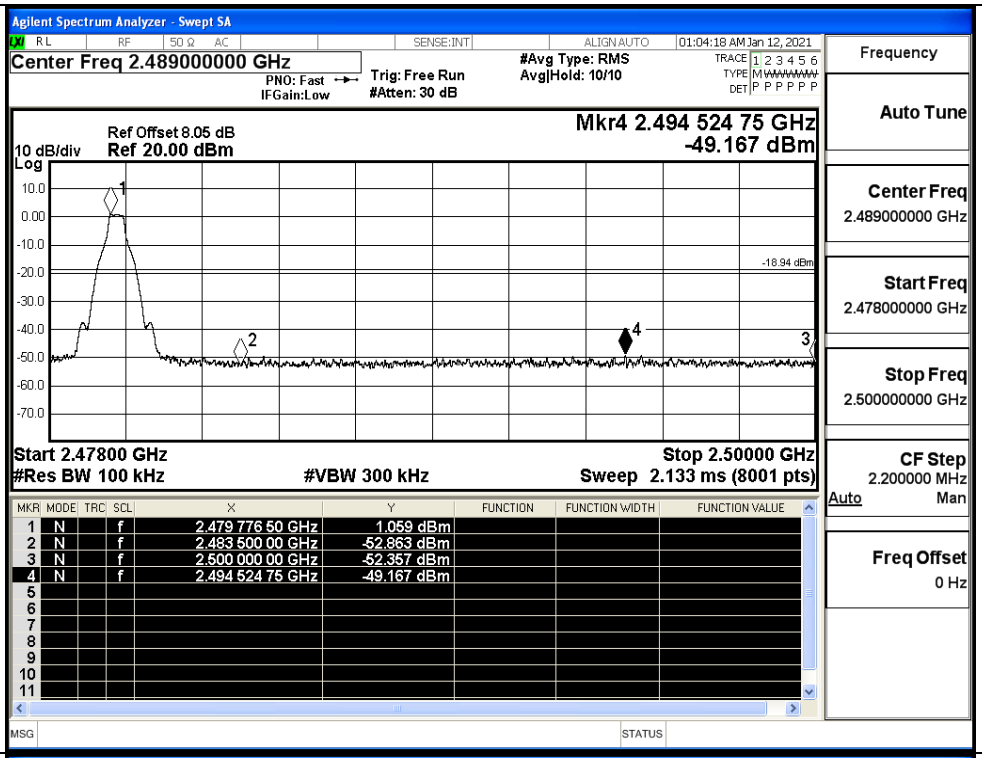
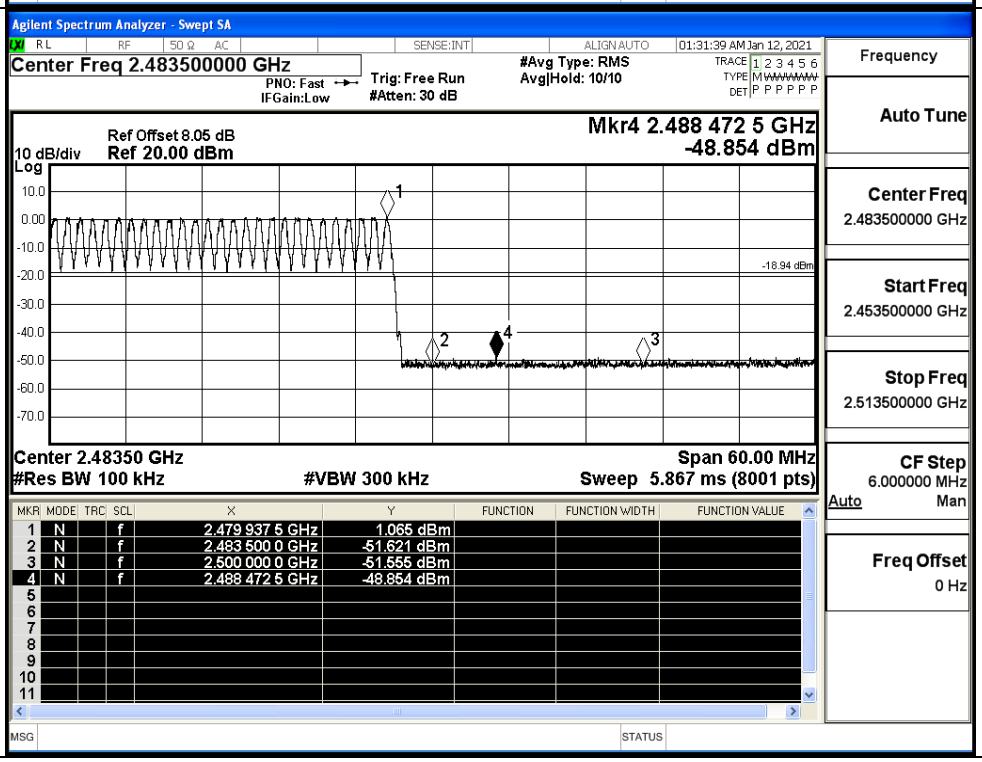
Pref		
Puw		

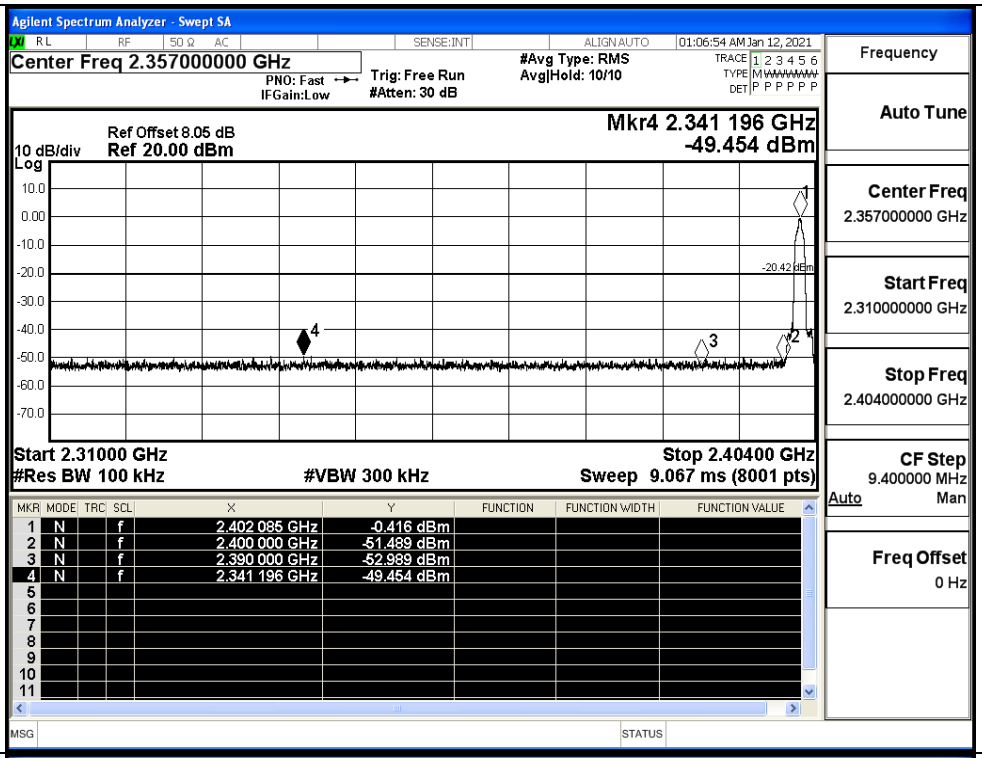
A.7 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	0.708	Off	-49.115	-19.29	PASS
			0.688	On	-49.382	-19.31	PASS
	HCH	2480	1.059	Off	-49.167	-18.94	PASS
			1.065	On	-48.854	-18.94	PASS
π/4DQPSK	LCH	2402	-0.416	Off	-49.454	-20.42	PASS
			0.633	On	-49.500	-19.37	PASS
	HCH	2480	0.897	Off	-48.573	-19.1	PASS
			0.524	On	-48.139	-19.48	PASS
8DPSK	LCH	2402	0.563	Off	-48.984	-19.44	PASS
			0.695	On	-48.691	-19.31	PASS
	HCH	2480	0.966	Off	-49.181	-19.03	PASS
			1.002	On	-47.562	-19	PASS

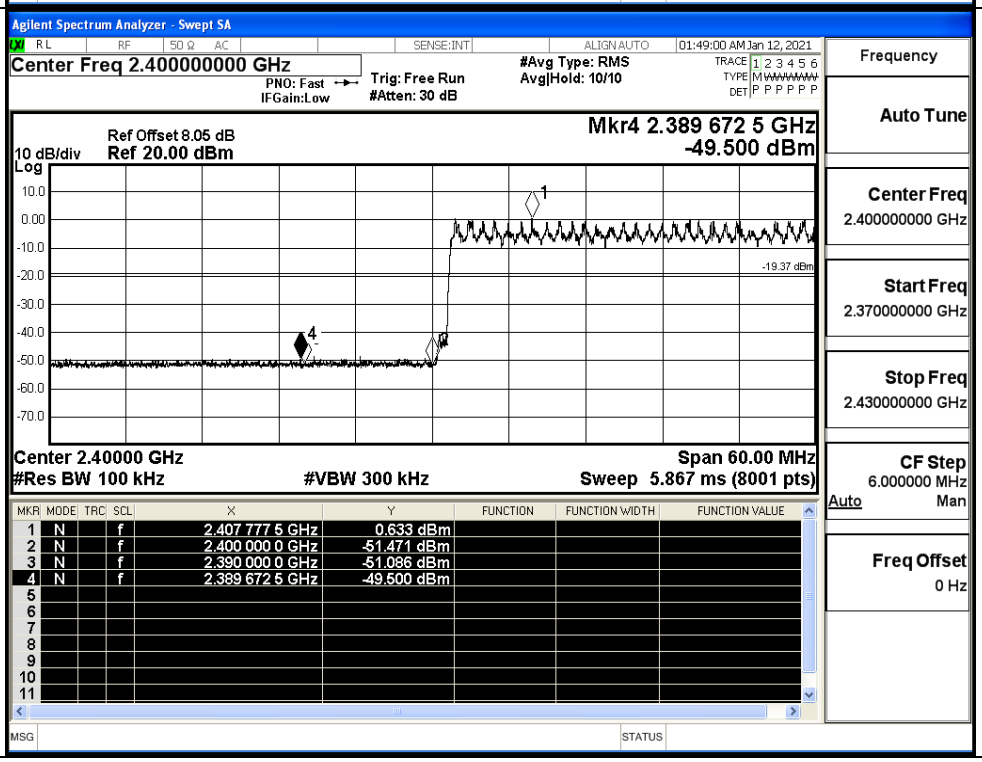
Test Graphs	
GFSK/LCH/No Hop	
GFSK/LCH/Hop	

GFSK/HCH/No Hop	
GFSK/HCH/Hop	

π/4DQPSK/LCH/No Hop



π/4DQPSK/LCH/Hop



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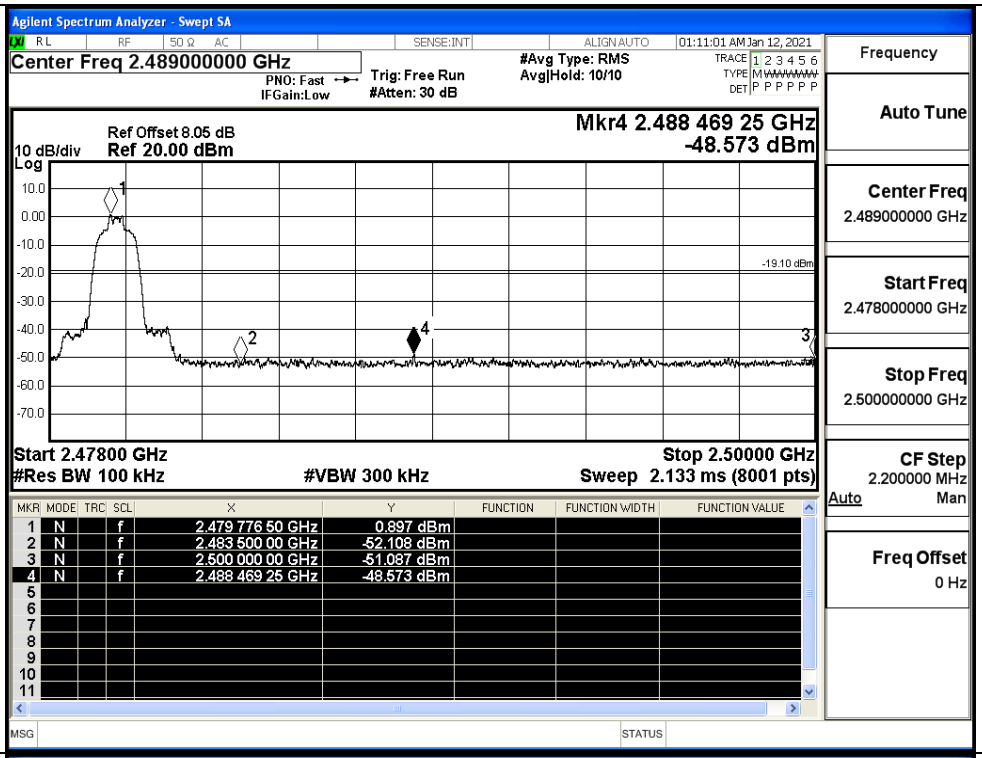

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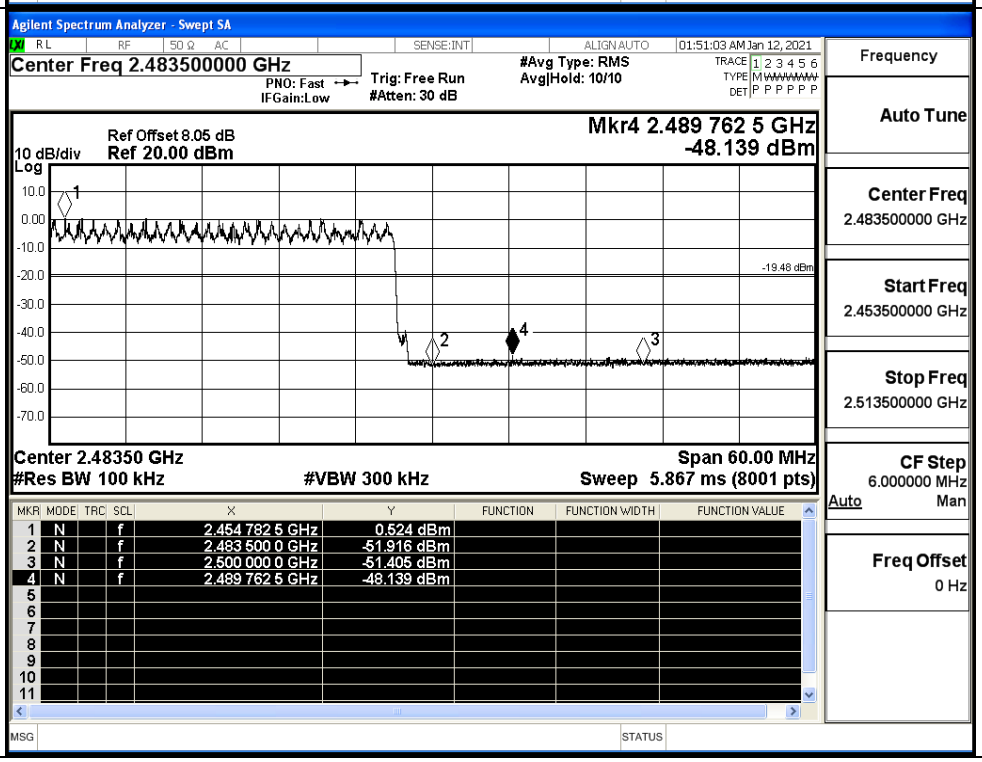
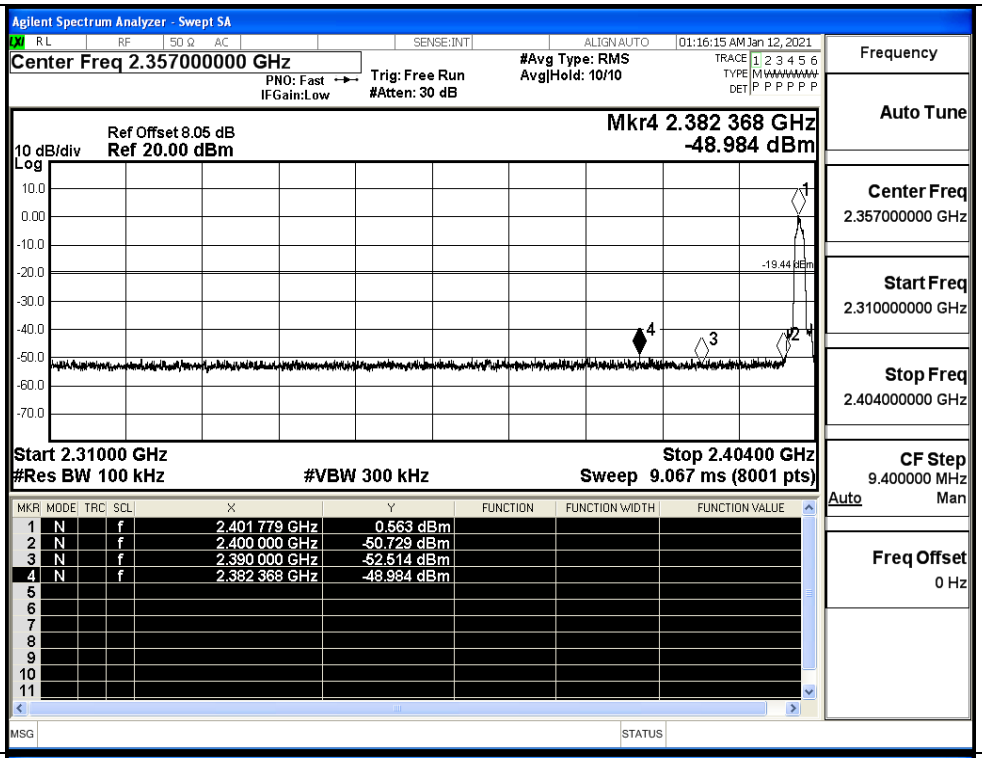
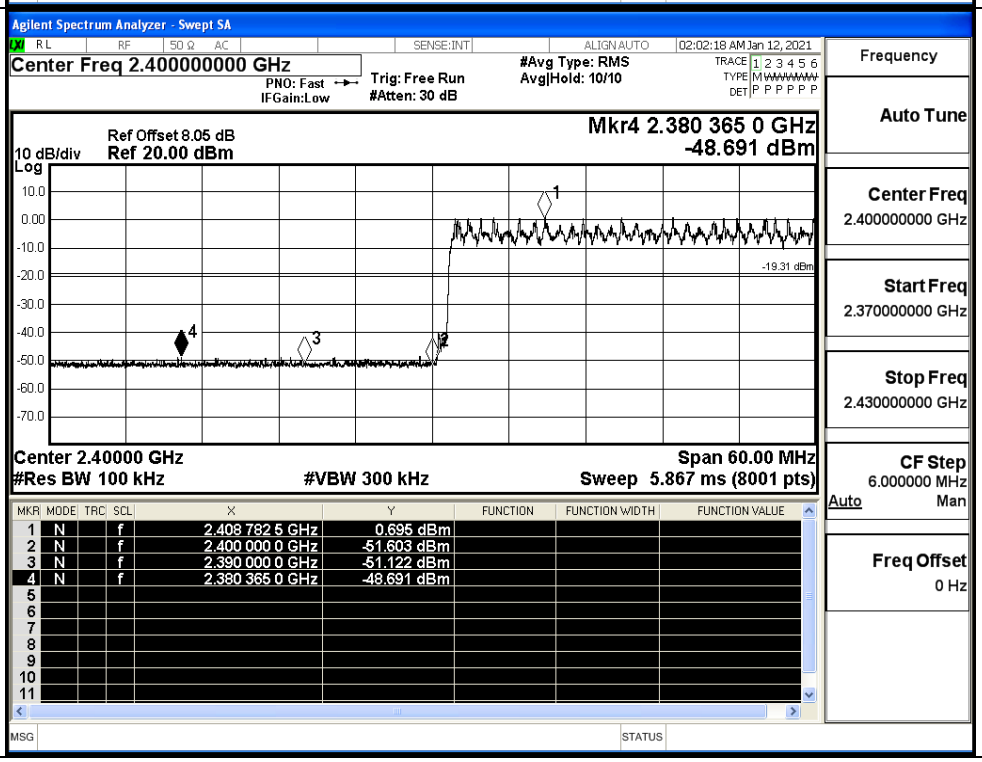
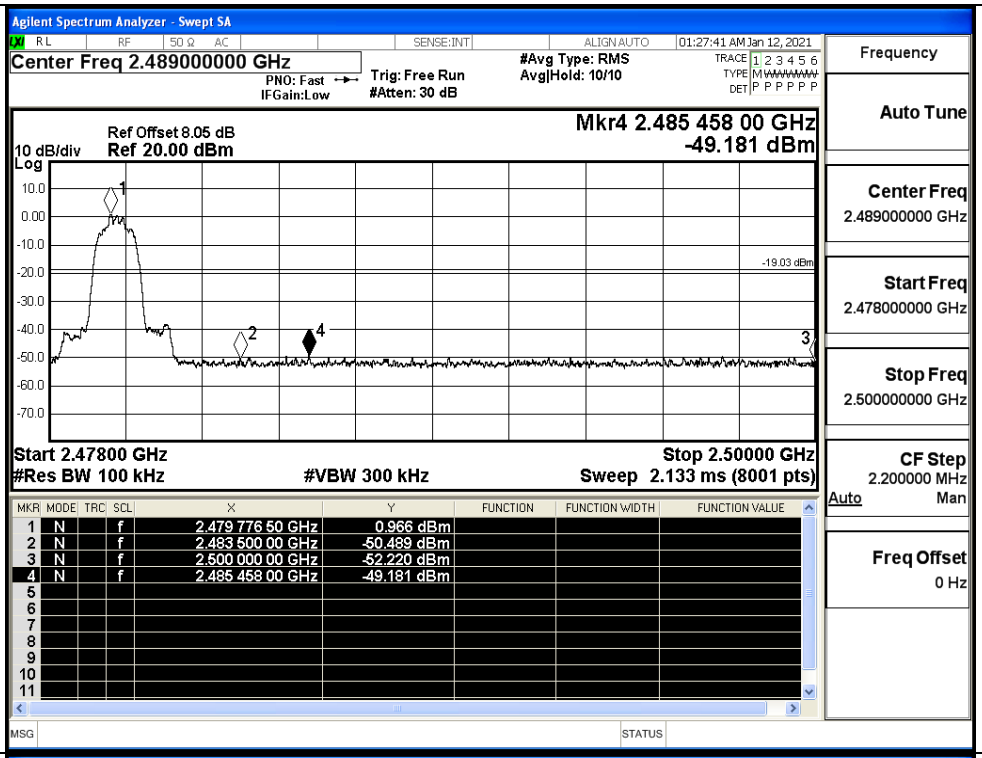
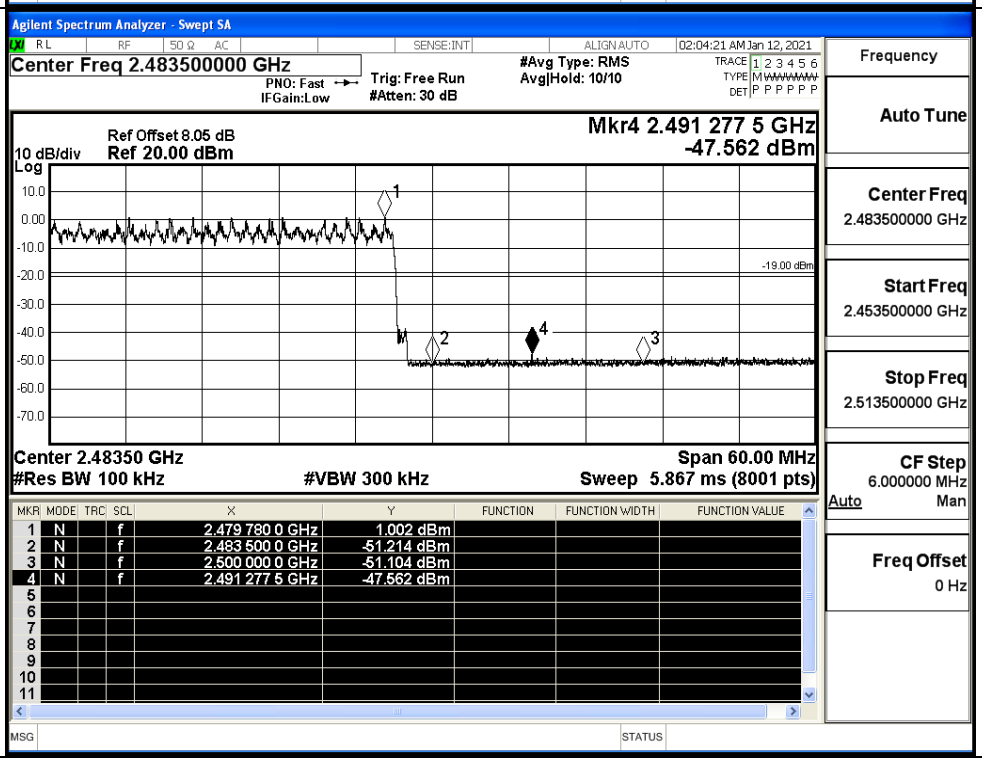


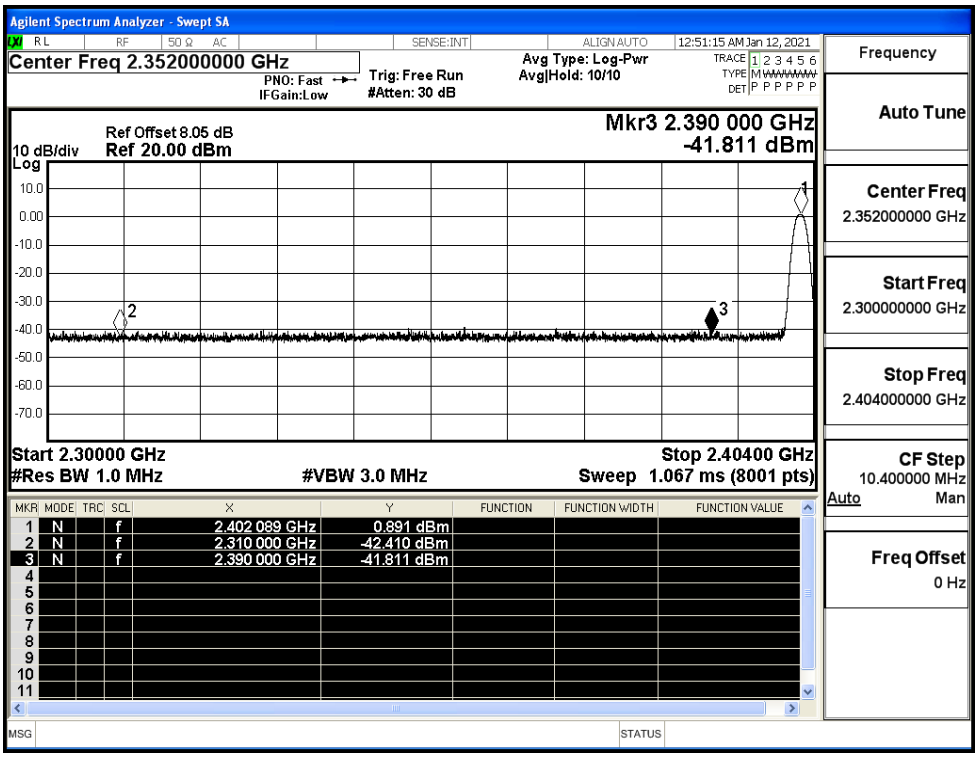
8DPSK/LCH/No Hop	
8DPSK/LCH/Hop	

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

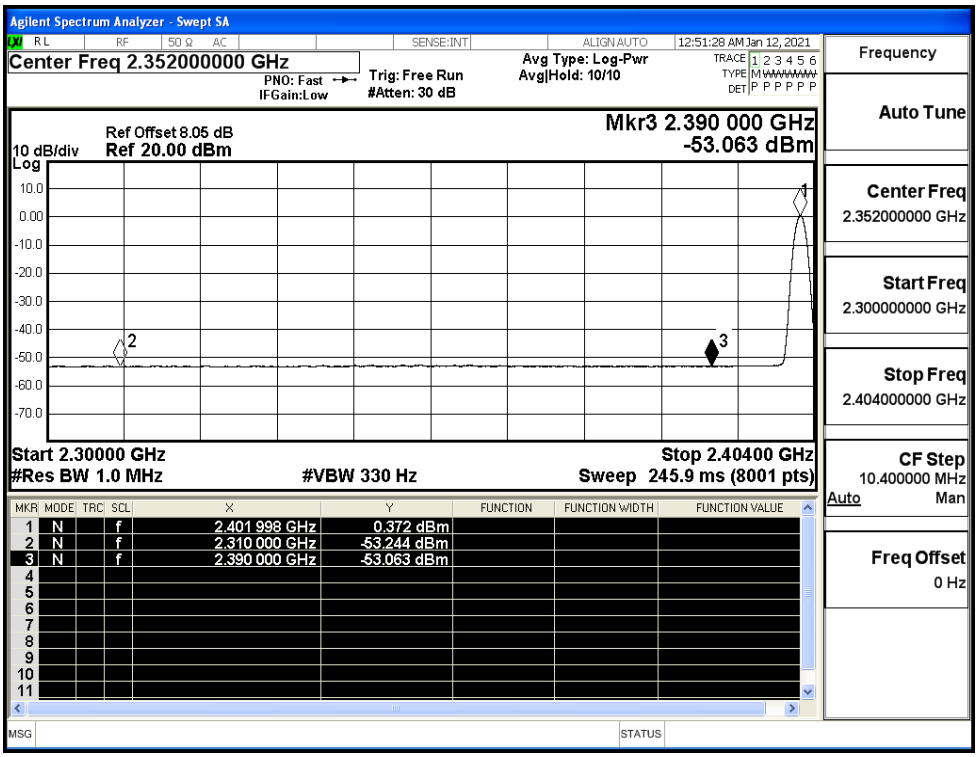
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-42.41	2.0	0	54.85	PEAK	74	PASS
	Off	2310.0	-53.24	2.0	0	44.02	AV	54	PASS
	Off	2390.0	-41.81	2.0	0	55.45	PEAK	74	PASS
	Off	2390.0	-53.06	2.0	0	44.20	AV	54	PASS
	Off	2483.5	-42.08	2.0	0	55.18	PEAK	74	PASS
	Off	2483.5	-52.47	2.0	0	44.79	AV	54	PASS
	Off	2500.0	-41.91	2.0	0	55.35	PEAK	74	PASS
	Off	2500.0	-52.50	2.0	0	44.76	AV	54	PASS
π/4DQPSK	Off	2310.0	-43.22	2.0	0	54.04	PEAK	74	PASS
	Off	2310.0	-53.23	2.0	0	44.03	AV	54	PASS
	Off	2390.0	-40.83	2.0	0	56.43	PEAK	74	PASS
	Off	2390.0	-53.14	2.0	0	44.12	AV	54	PASS
	Off	2483.5	-41.93	2.0	0	55.33	PEAK	74	PASS
	Off	2483.5	-52.41	2.0	0	44.85	AV	54	PASS
	Off	2500.0	-42.85	2.0	0	54.41	PEAK	74	PASS
	Off	2500.0	-52.55	2.0	0	44.71	AV	54	PASS
8DPSK	Off	2310.0	-43.46	2.0	0	53.80	PEAK	74	PASS
	Off	2310.0	-53.30	2.0	0	43.96	AV	54	PASS
	Off	2390.0	-42.95	2.0	0	54.31	PEAK	74	PASS
	Off	2390.0	-53.11	2.0	0	44.15	AV	54	PASS
	Off	2483.5	-41.47	2.0	0	55.79	PEAK	74	PASS
	Off	2483.5	-52.49	2.0	0	44.77	AV	54	PASS
	Off	2500.0	-43.17	2.0	0	54.09	PEAK	74	PASS
	Off	2500.0	-52.39	2.0	0	44.87	AV	54	PASS

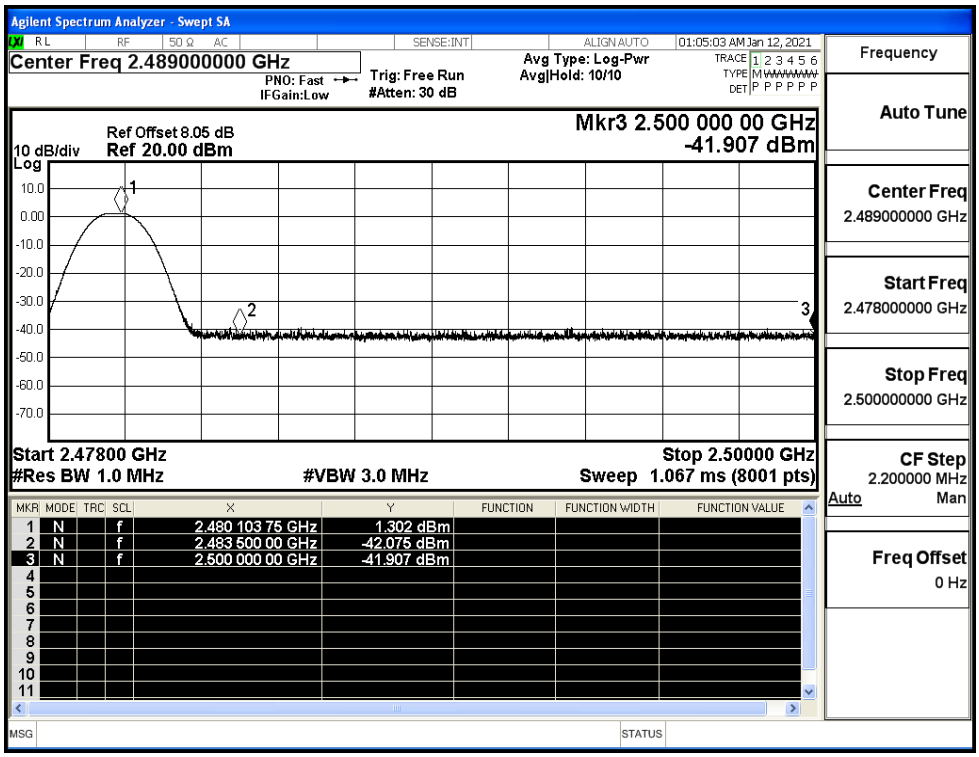
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



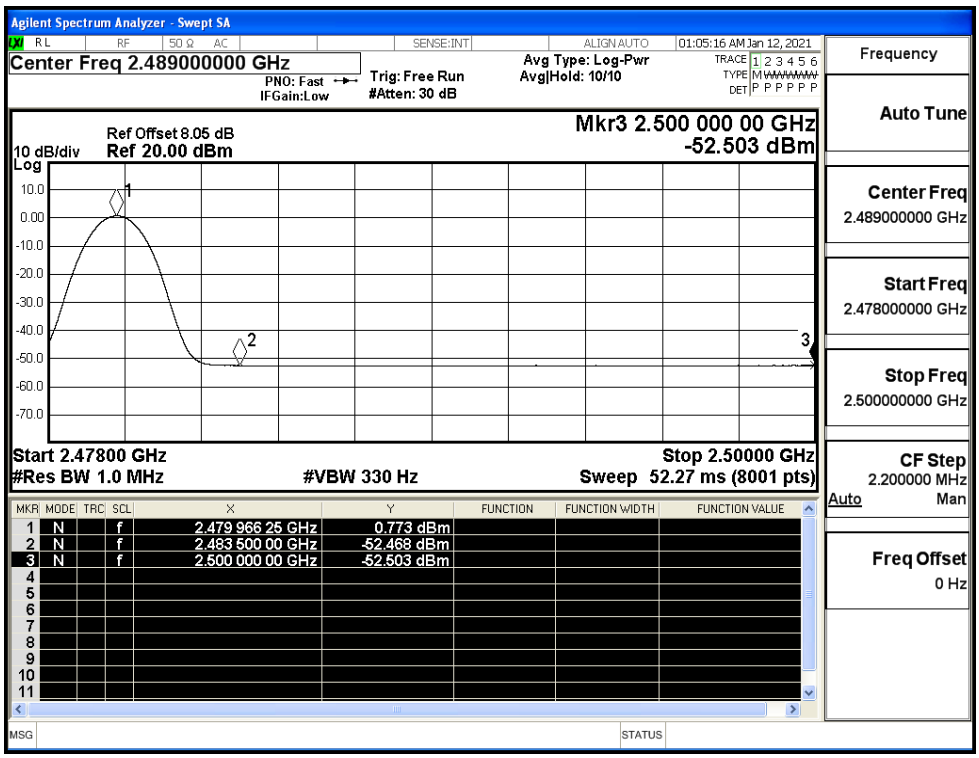
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



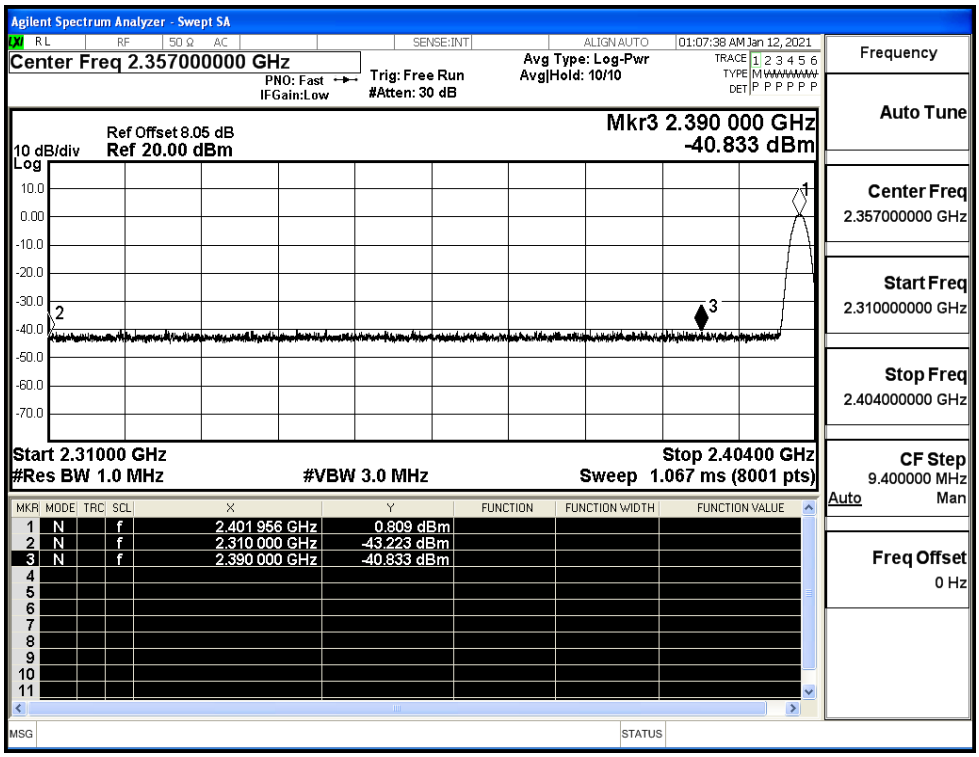
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



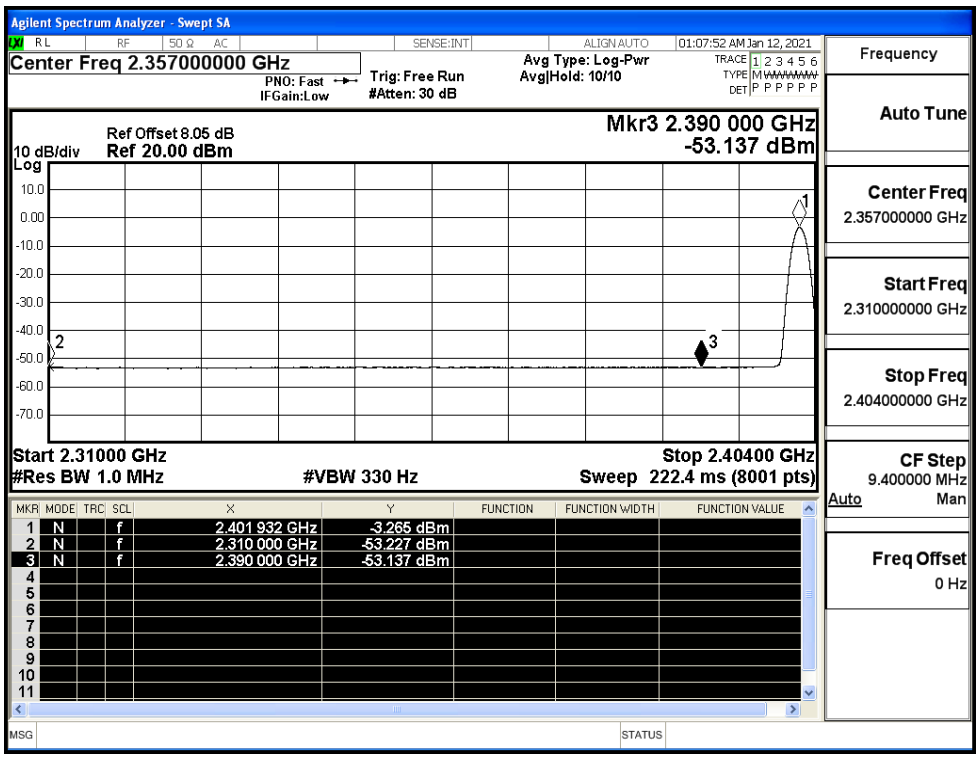
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



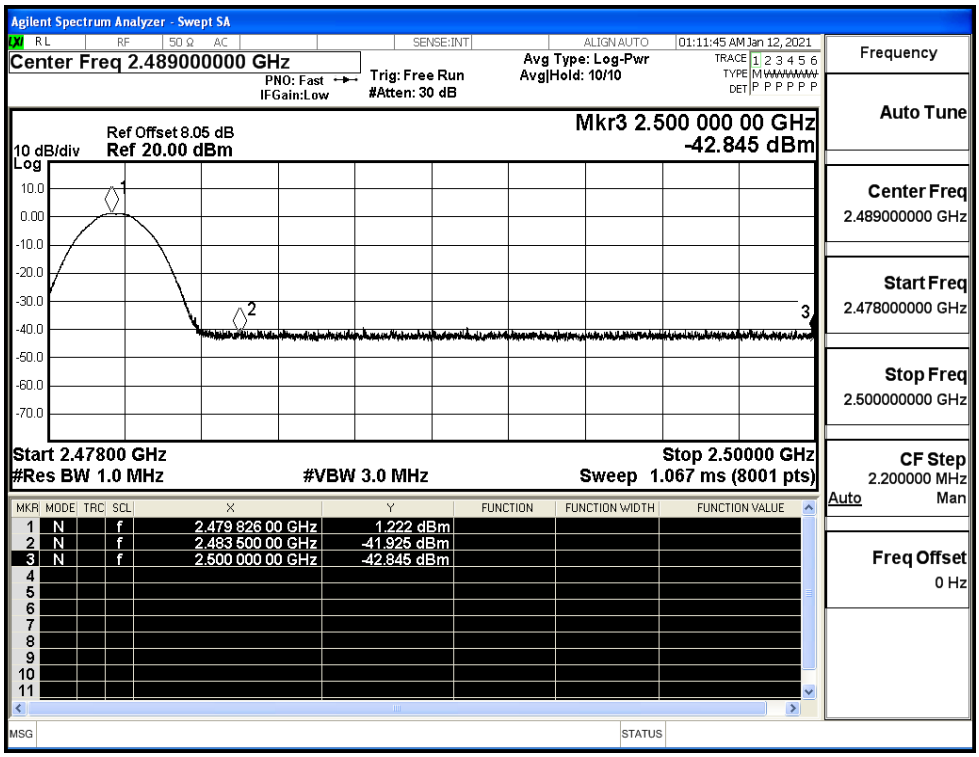
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



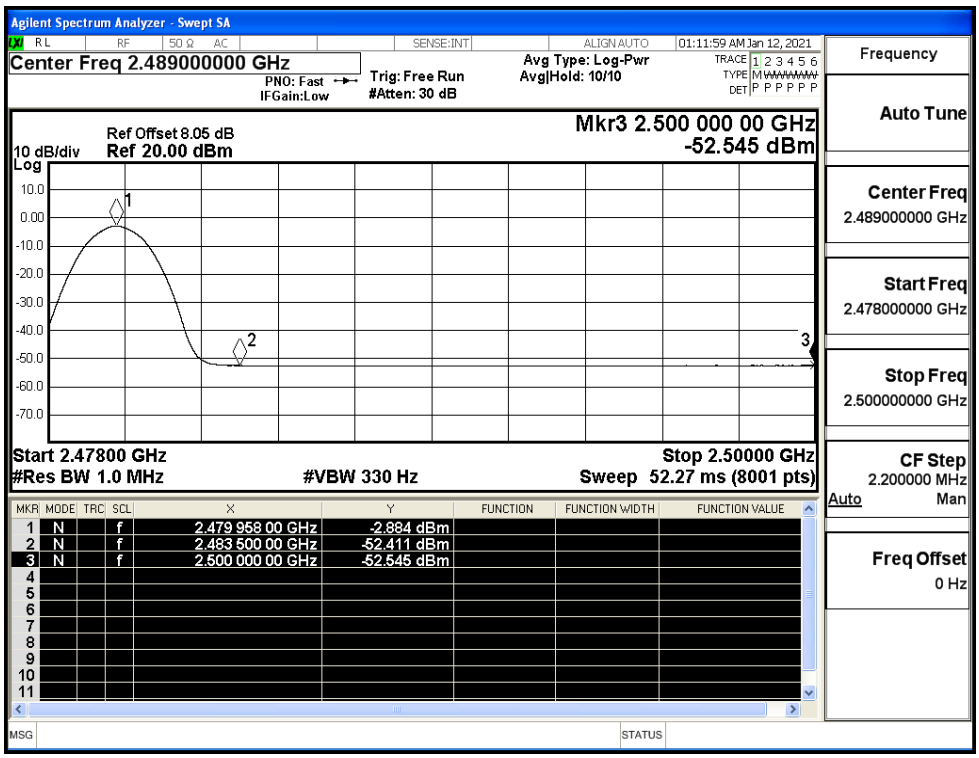
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



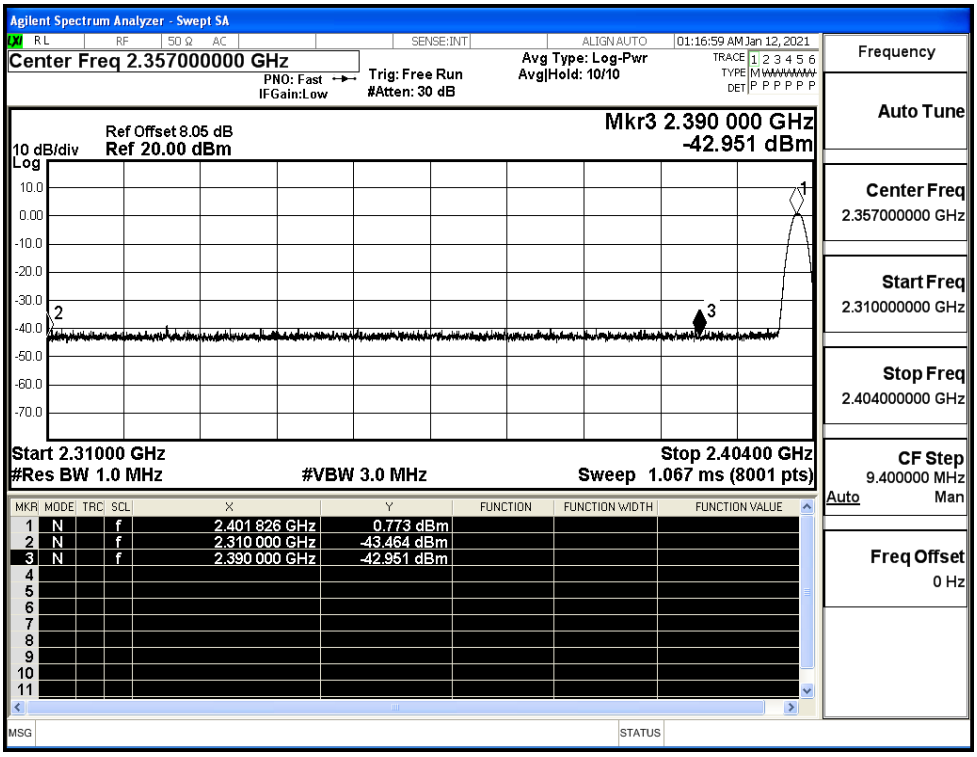
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



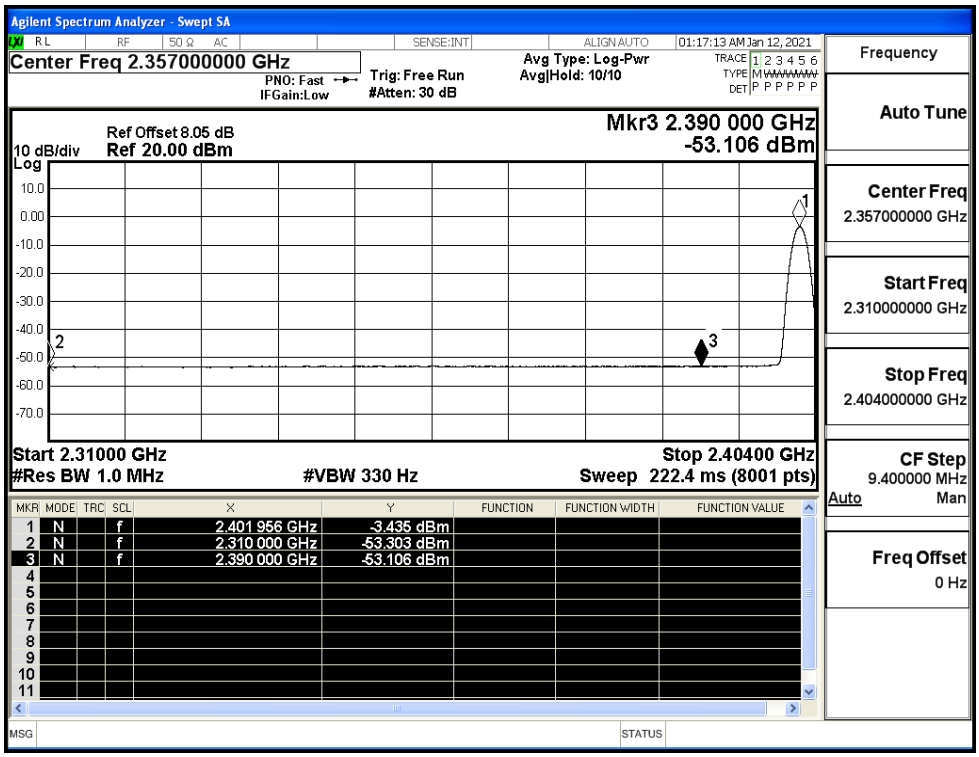
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



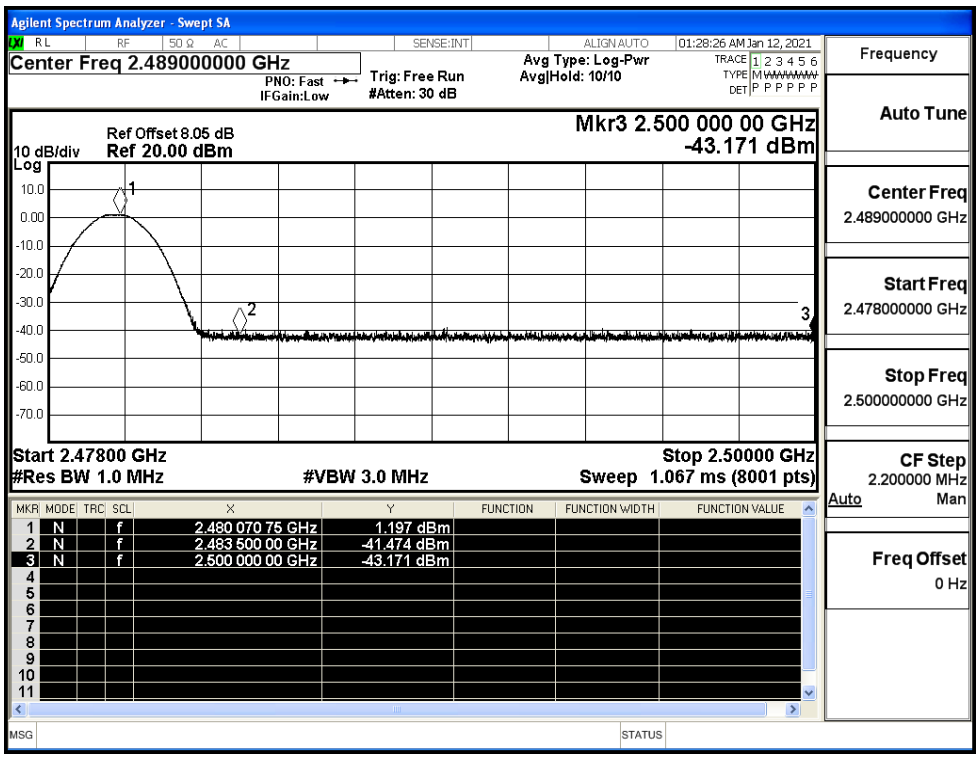
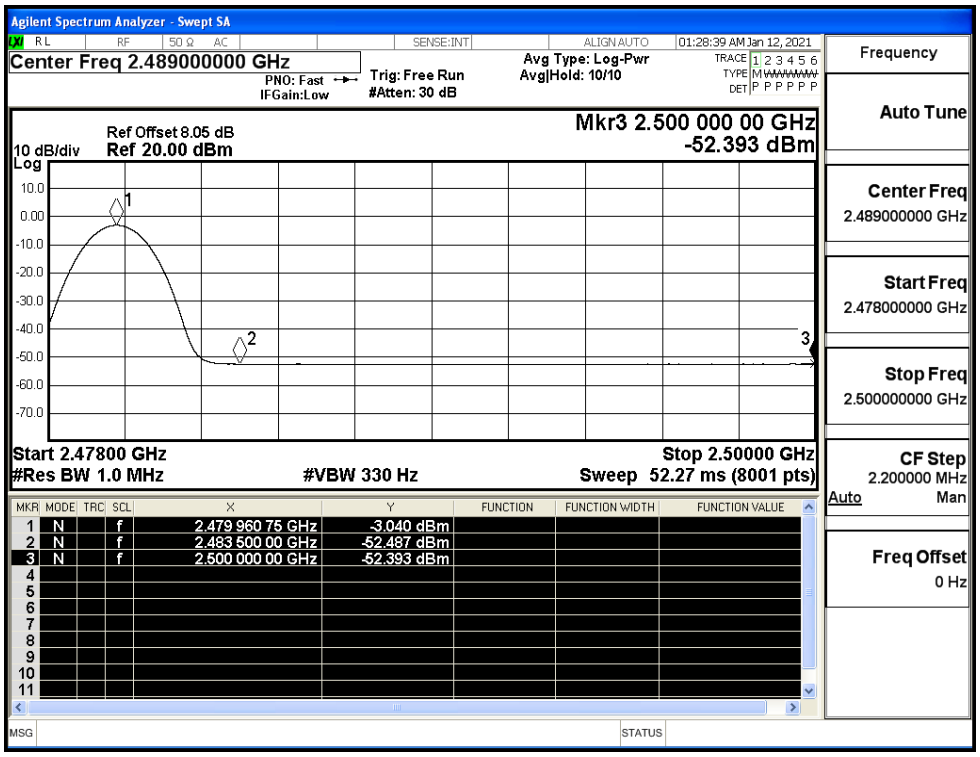
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)