Appendix A

RF Test Data for BT V5.1(BDR/EDR) (Conducted Measurement)

Product Name: MULTIMEDIA PROJECTOR

Trade Mark: GPX, iLive, KJM

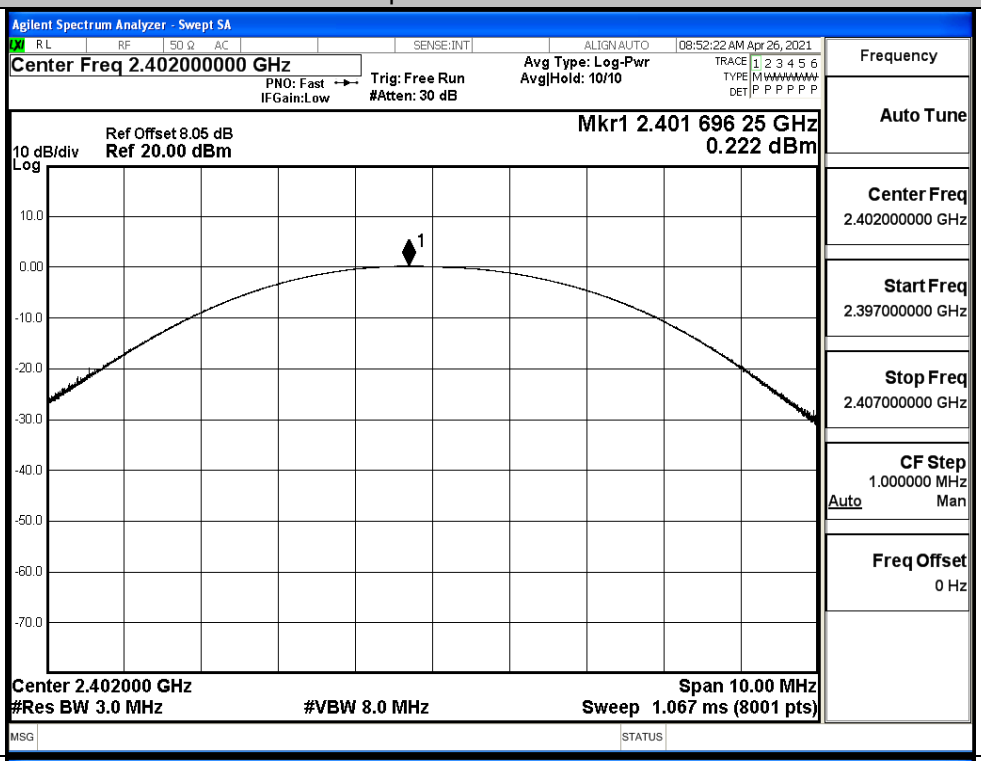
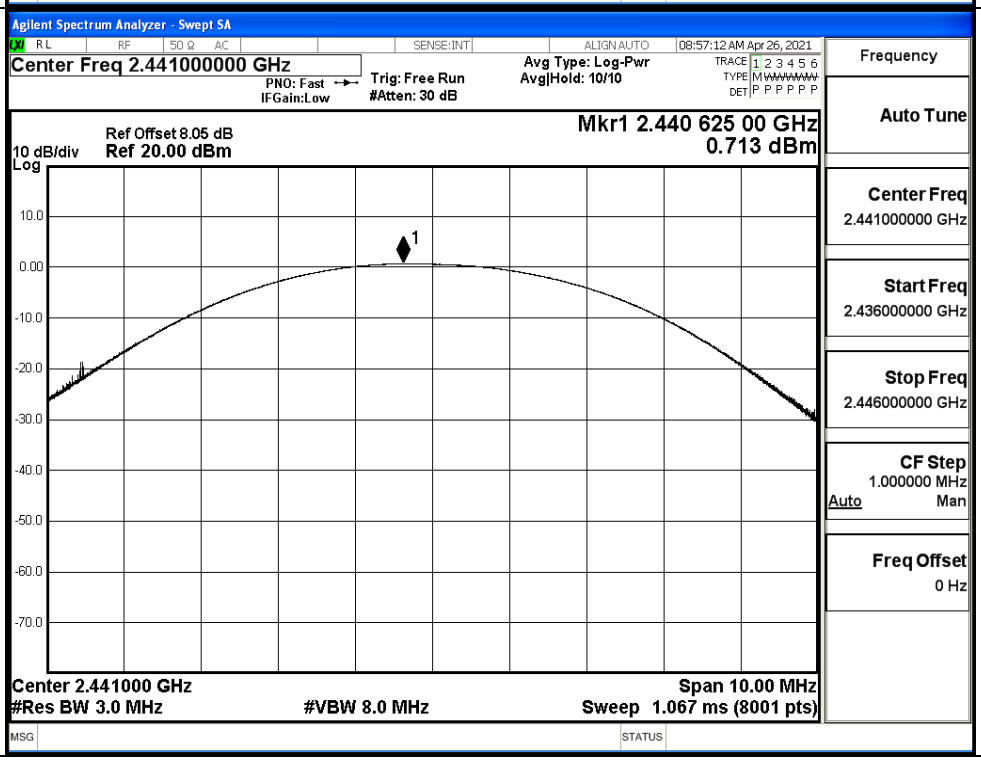
Test Model: PJ770B

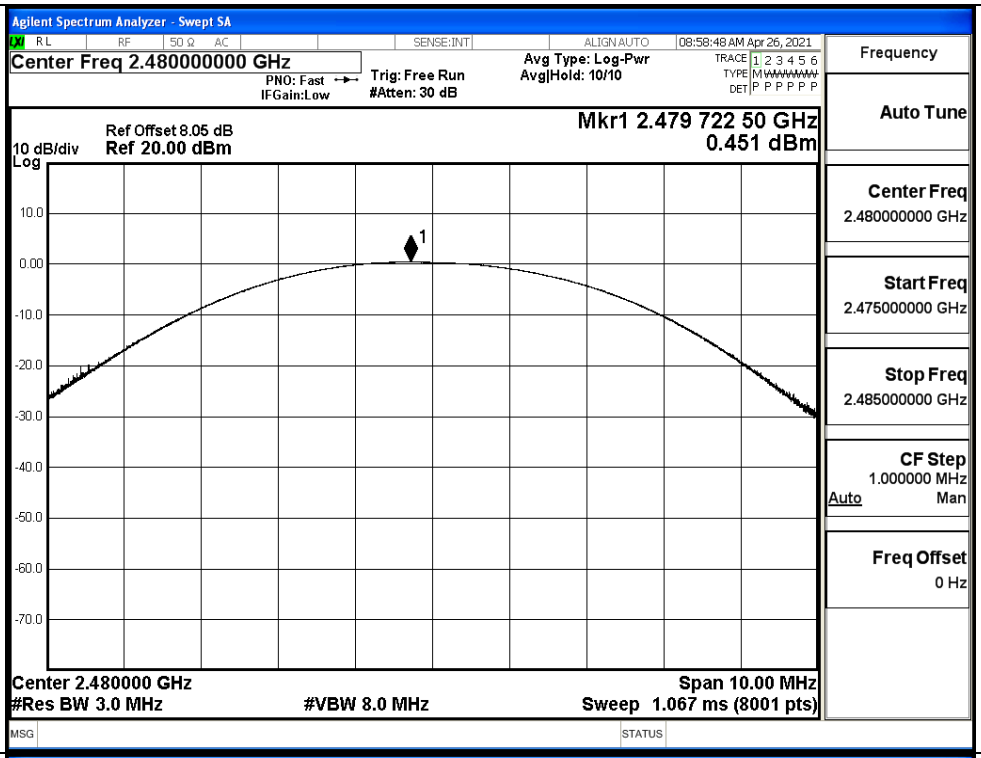
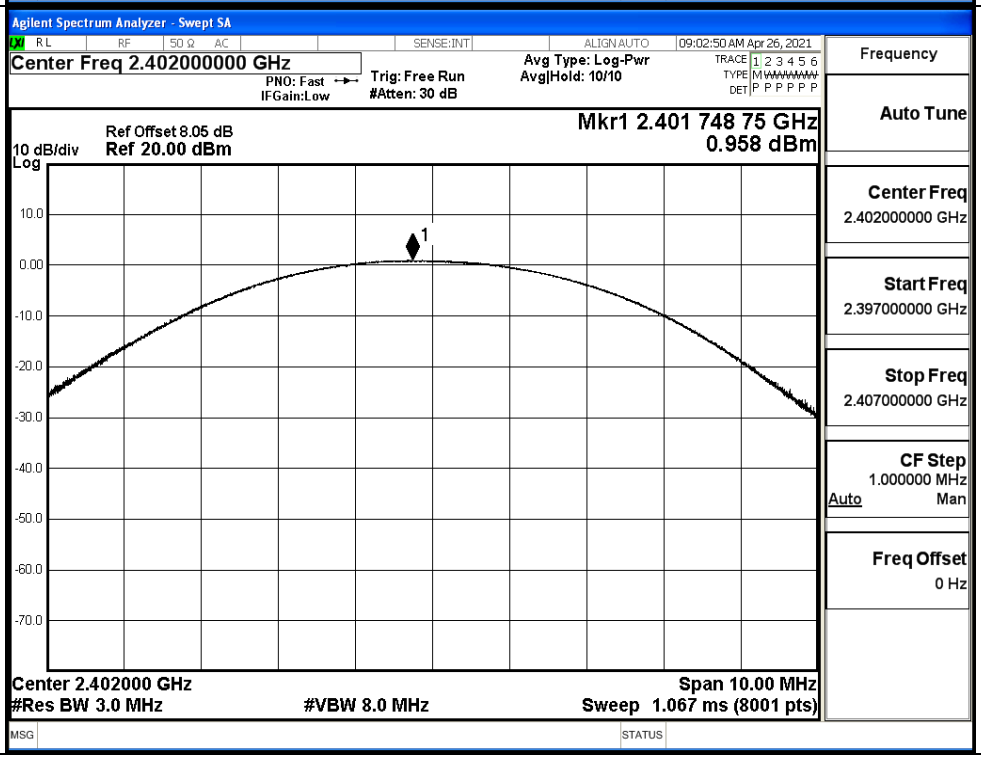
Environmental Conditions

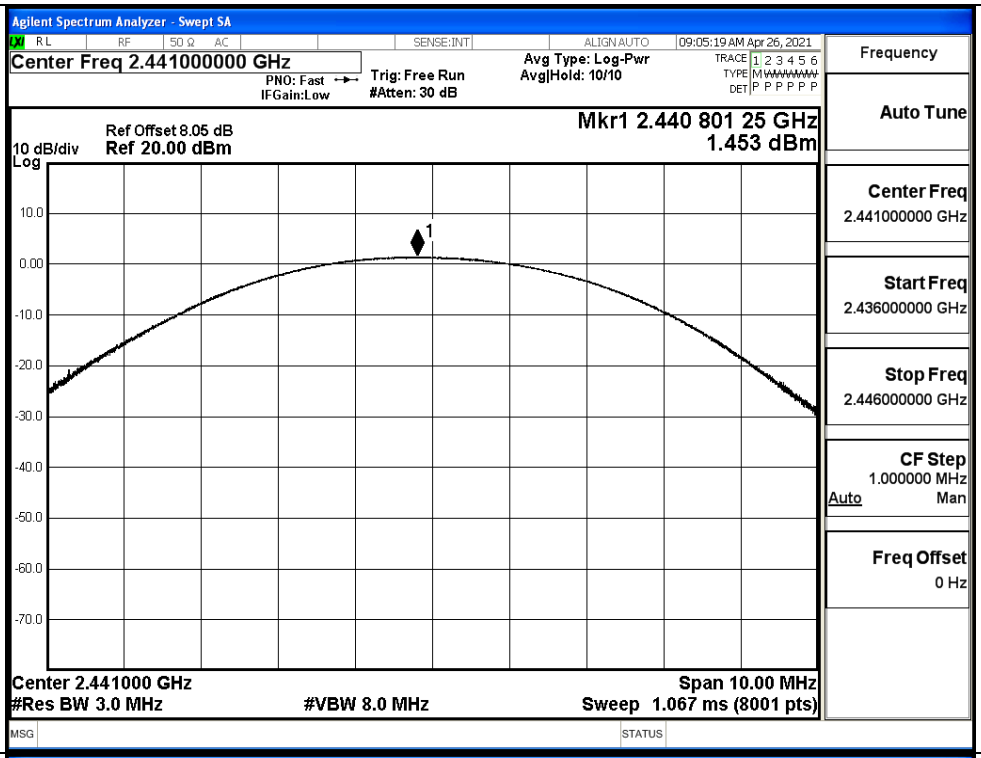
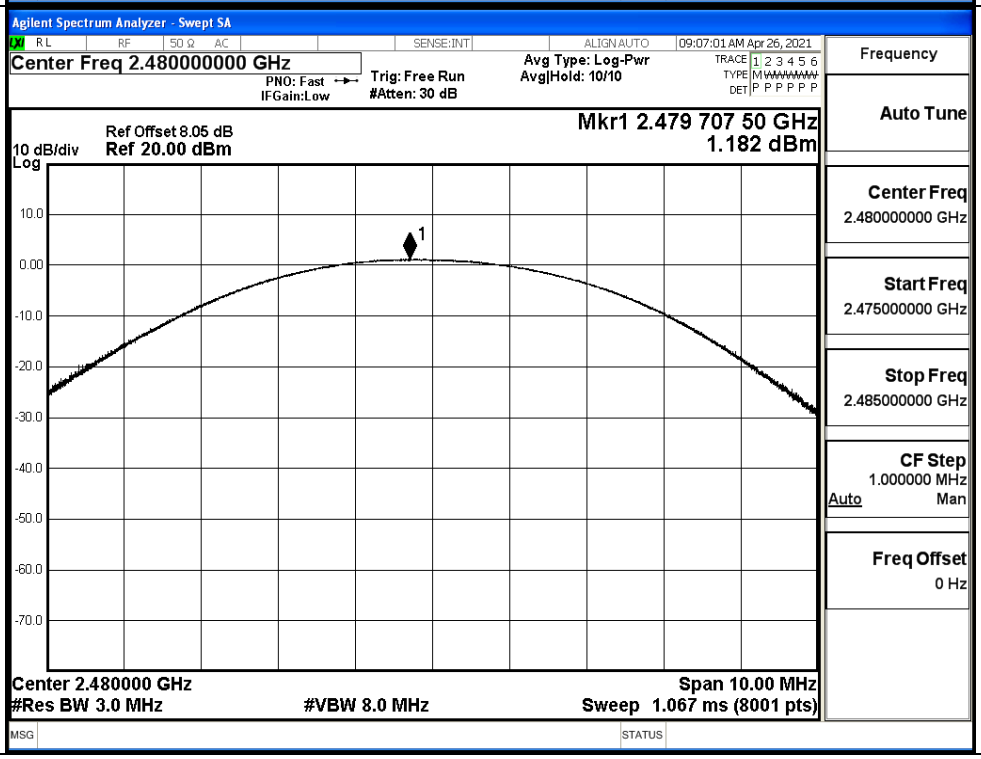
Temperature:	24.6° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Ben Jin
Supervised by:	Li Huan

A.1 Maxmum Conducted Peak Output Power

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.222	30	PASS
	MCH	0.713	30	PASS
	HCH	0.451	30	PASS
π/4DQPSK	LCH	0.958	21	PASS
	MCH	1.453	21	PASS
	HCH	1.182	21	PASS

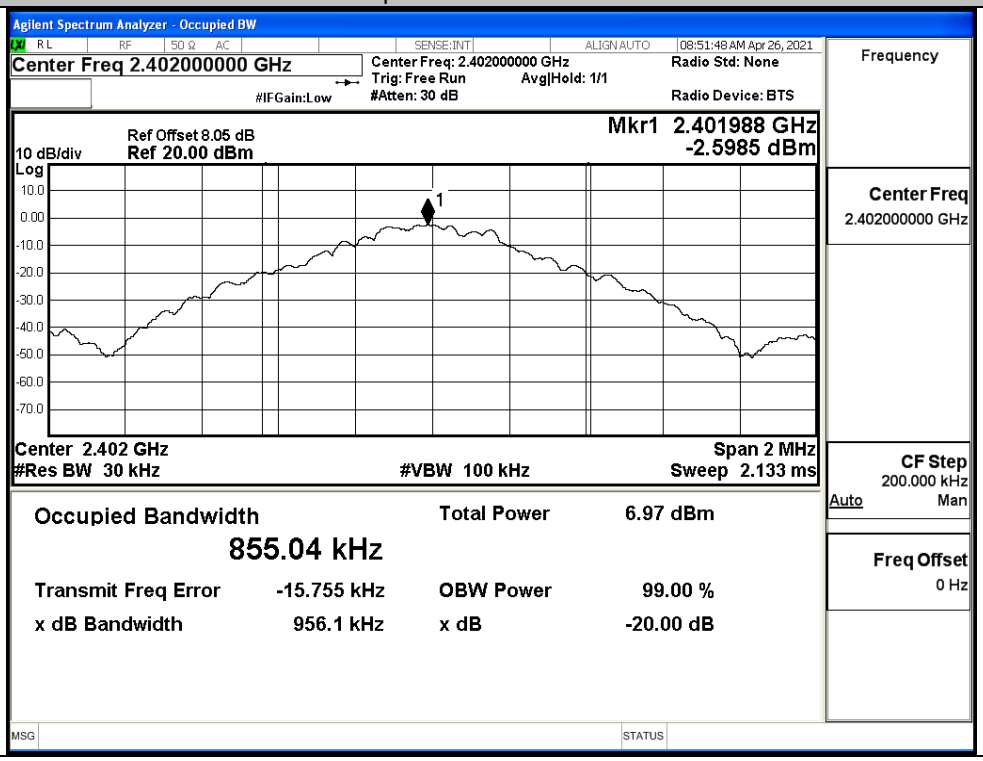
Test Graphs		
GFSK/LCH		
GFSK/MCH		

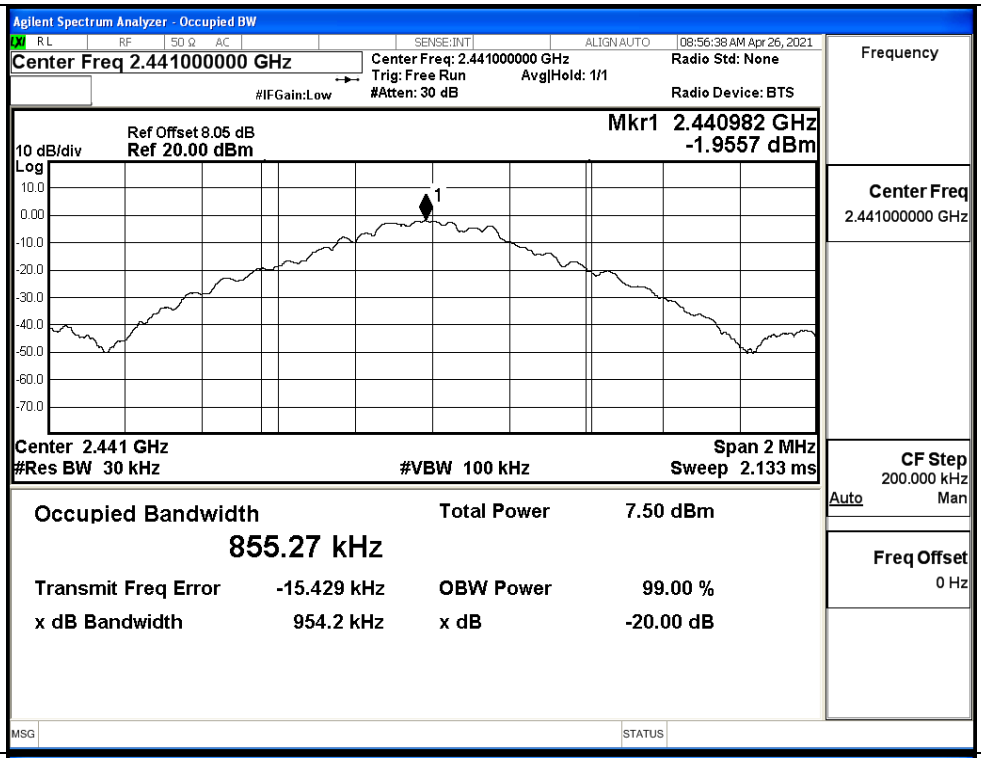
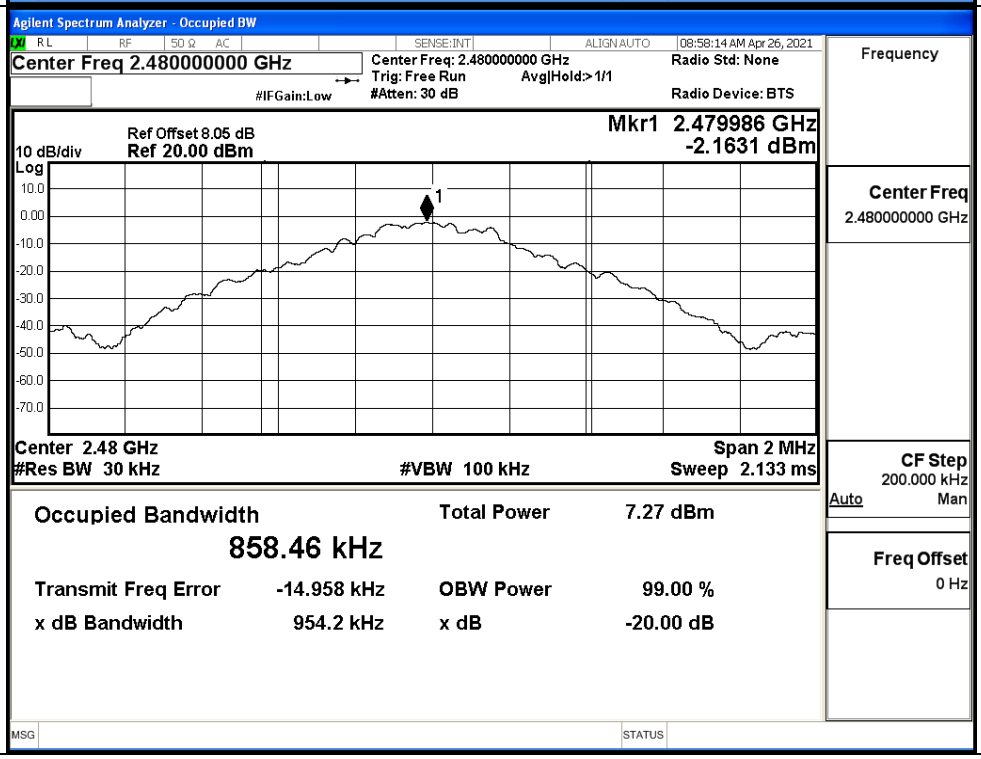
GFSK/HCH		
π/4DQPSK/LCH		

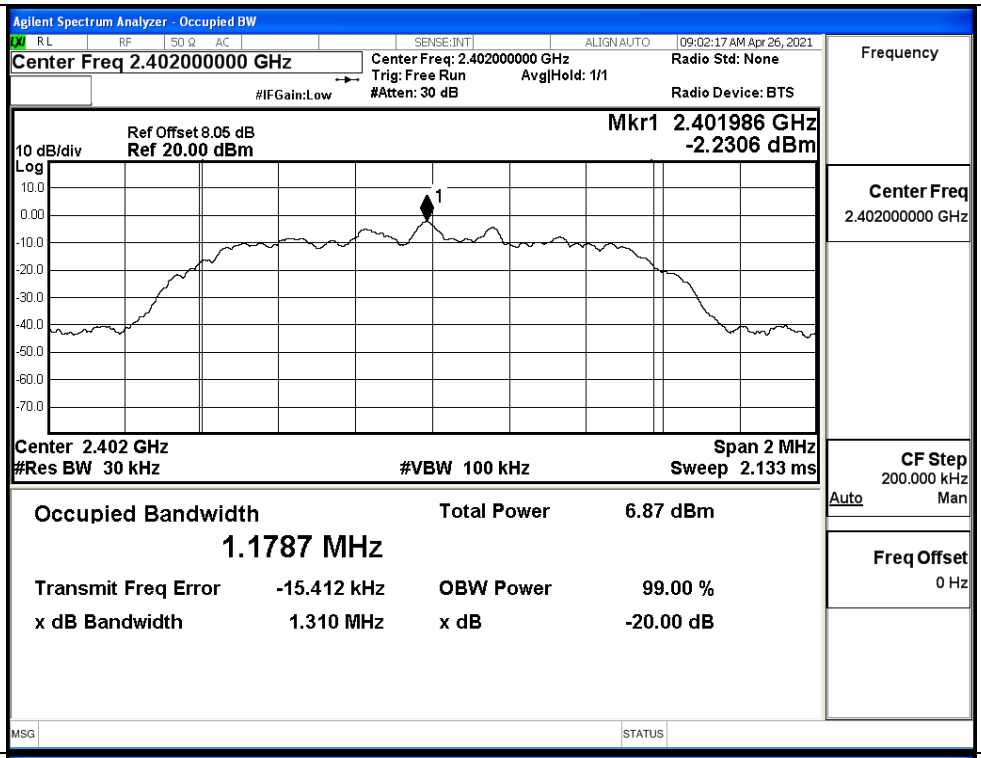
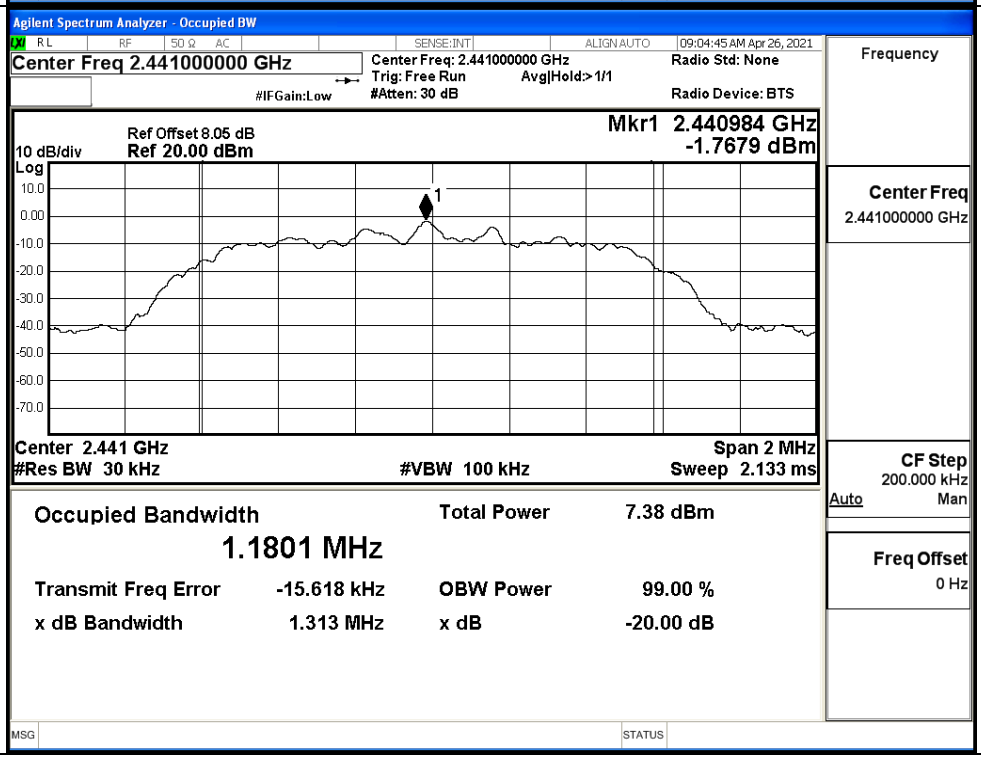
π/4DQPSK/MCH		
π/4DQPSK/HCH		

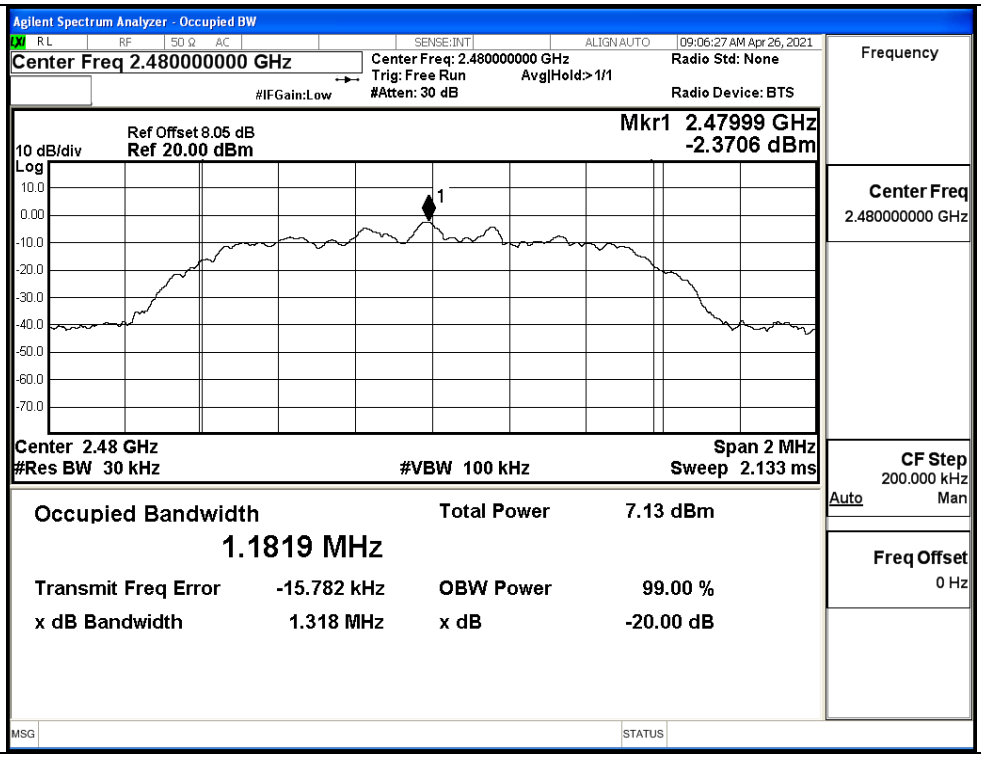
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9561	Not Specified	PASS
	MCH	0.9542	Not Specified	PASS
	HCH	0.9542	Not Specified	PASS
π/4DQPSK	LCH	1.310	Not Specified	PASS
	MCH	1.313	Not Specified	PASS
	HCH	1.318	Not Specified	PASS

Test Graphs	
GFSK/LCH	

GFSK/MCH	
GFSK/HCH	

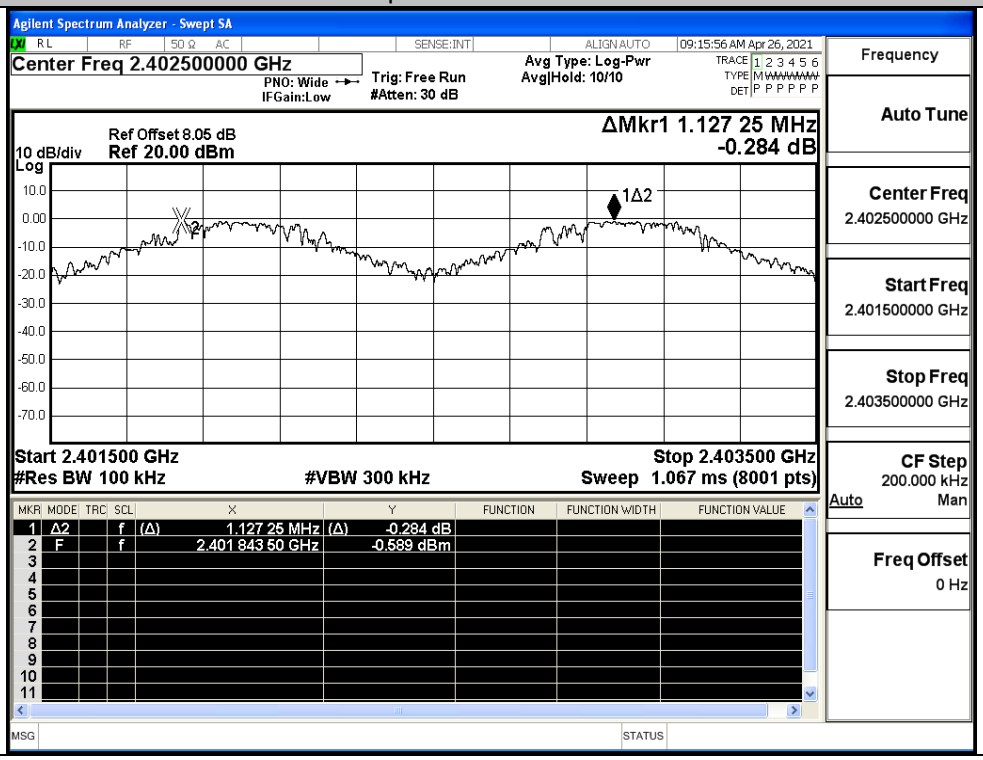
π/4DQPSK/LCH	
π/4DQPSK/MCH	

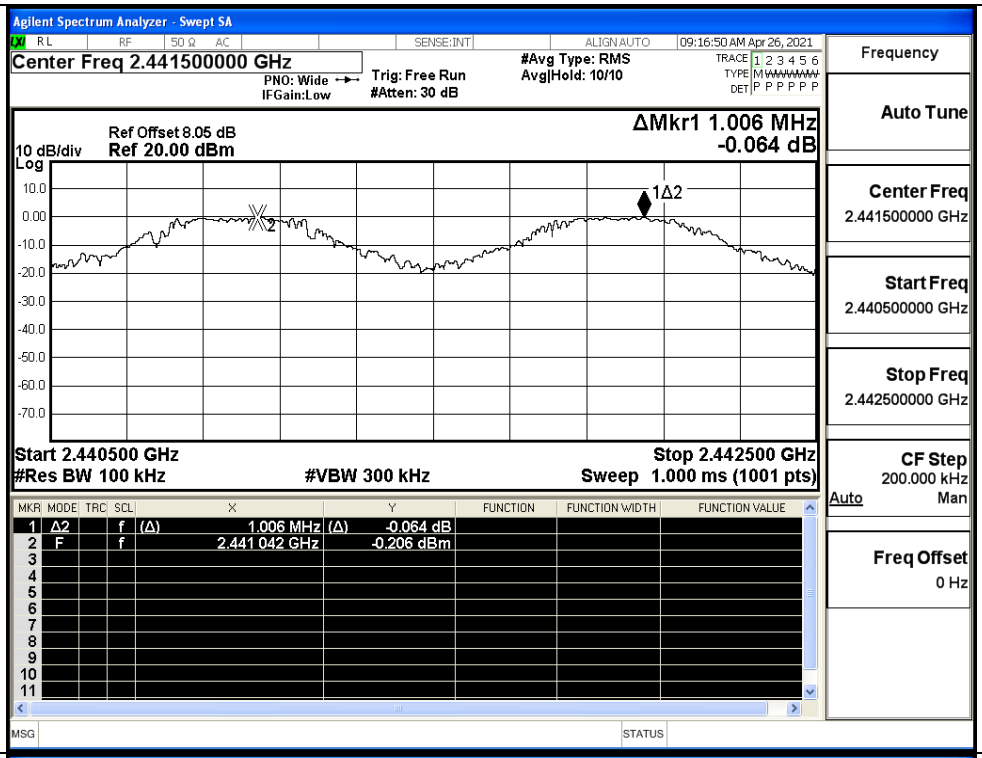
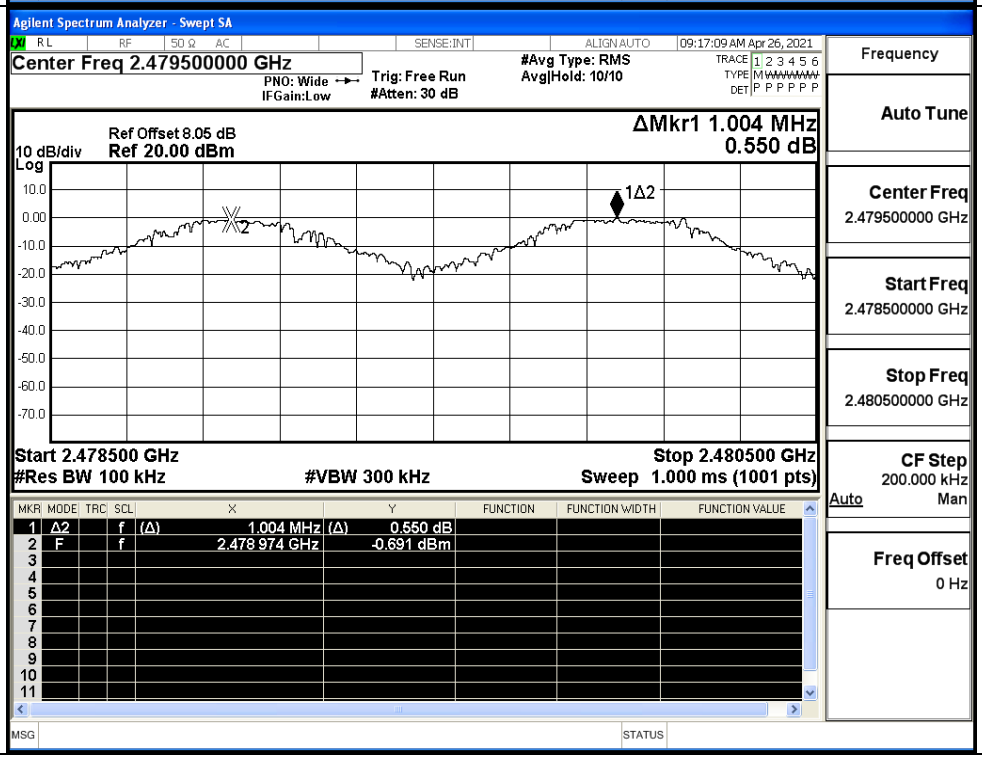
π/4DQPSK/HCH	

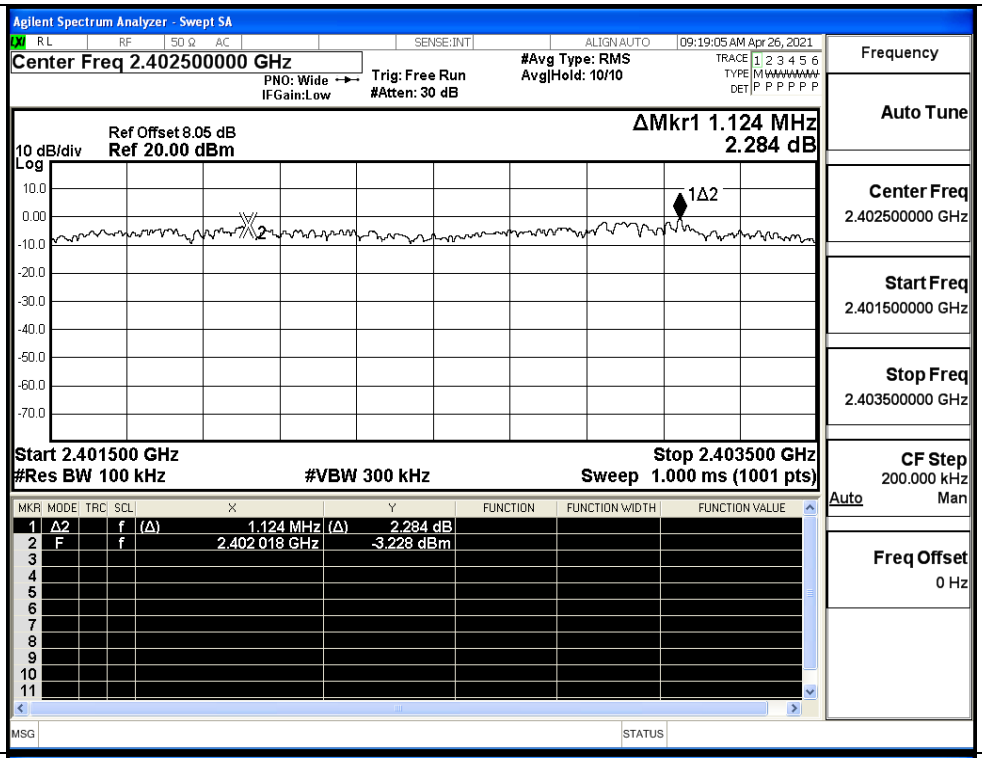
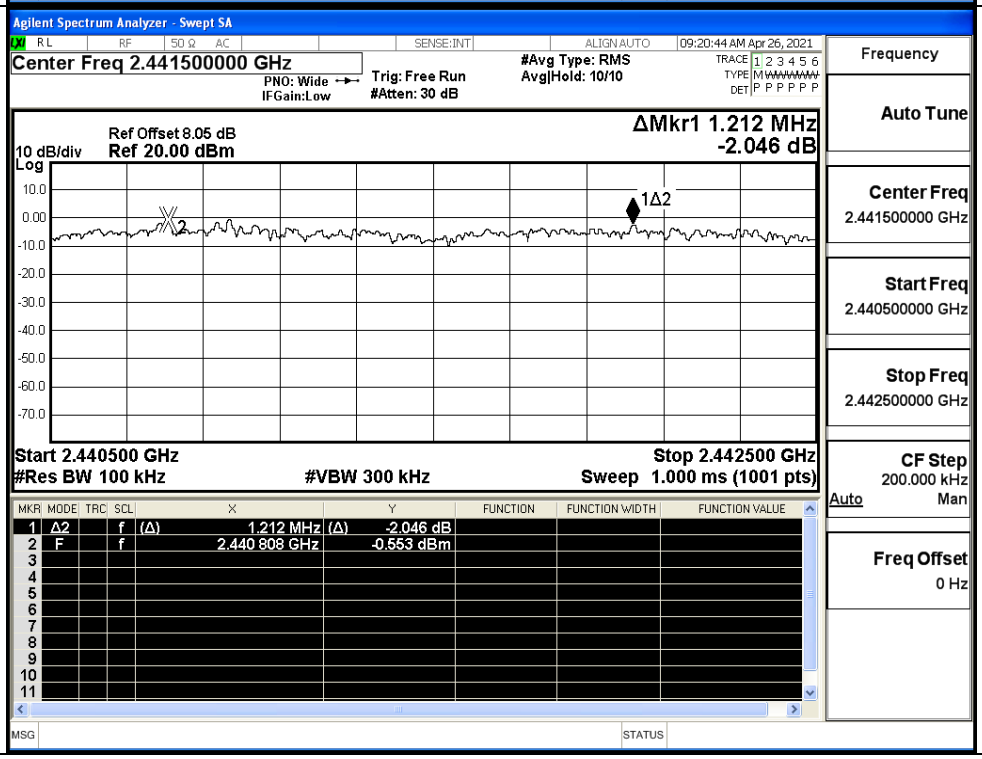
Agilent Spectrum Analyzer - Occupied BW
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
09:06:27 AM Apr 26, 2021
Center Freq 2.480000000 GHz
Center Freq: 2.480000000 GHz
Trig: Free Run
Avg|Hold:>1/1
#IFGain:Low
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Ref Offset 8.05 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 2.47999 GHz
-2.3706 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
1
Center 2.48 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2 MHz
Sweep 2.133 ms
Occupied Bandwidth
1.1819 MHz
Total Power 7.13 dBm
Transmit Freq Error -15.782 kHz
OBW Power 99.00 %
x dB Bandwidth 1.318 MHz
x dB -20.00 dB
MSG
STATUS
Frequency
Center Freq
2.480000000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz

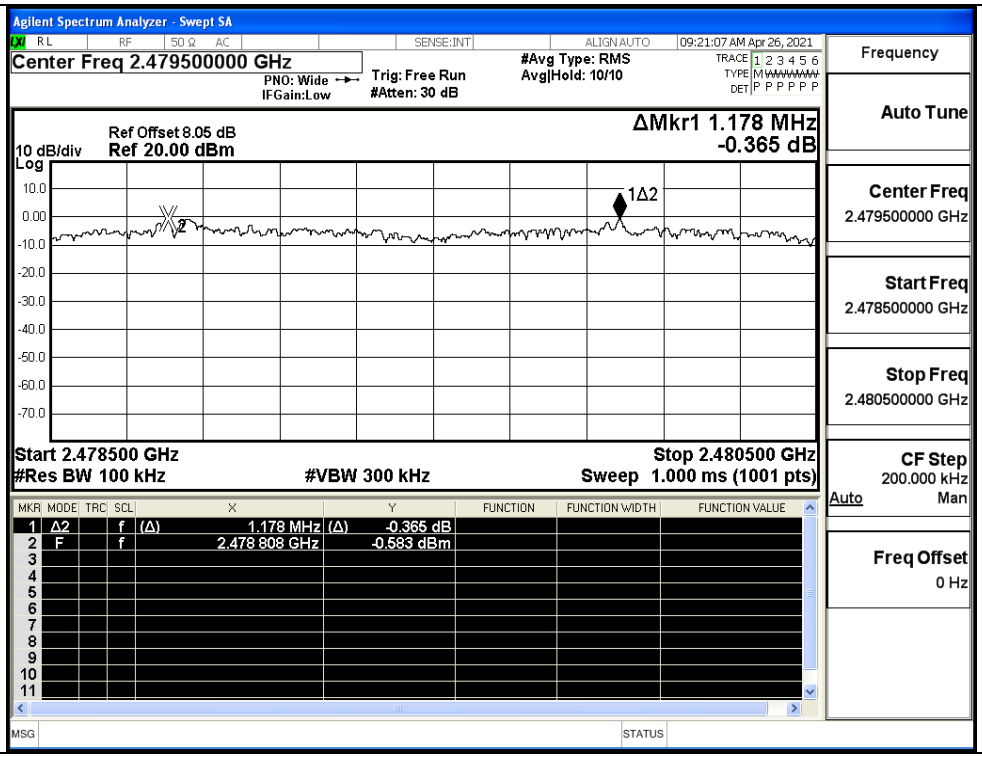
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.127	0.637	PASS
	MCH	1.006	0.637	PASS
	HCH	1.004	0.637	PASS
π/4DQPSK	LCH	1.124	0.879	PASS
	MCH	1.212	0.879	PASS
	HCH	1.178	0.879	PASS

Test Graphs	
GFSK/LCH	

GFSK/MCH	
GFSK/HCH	

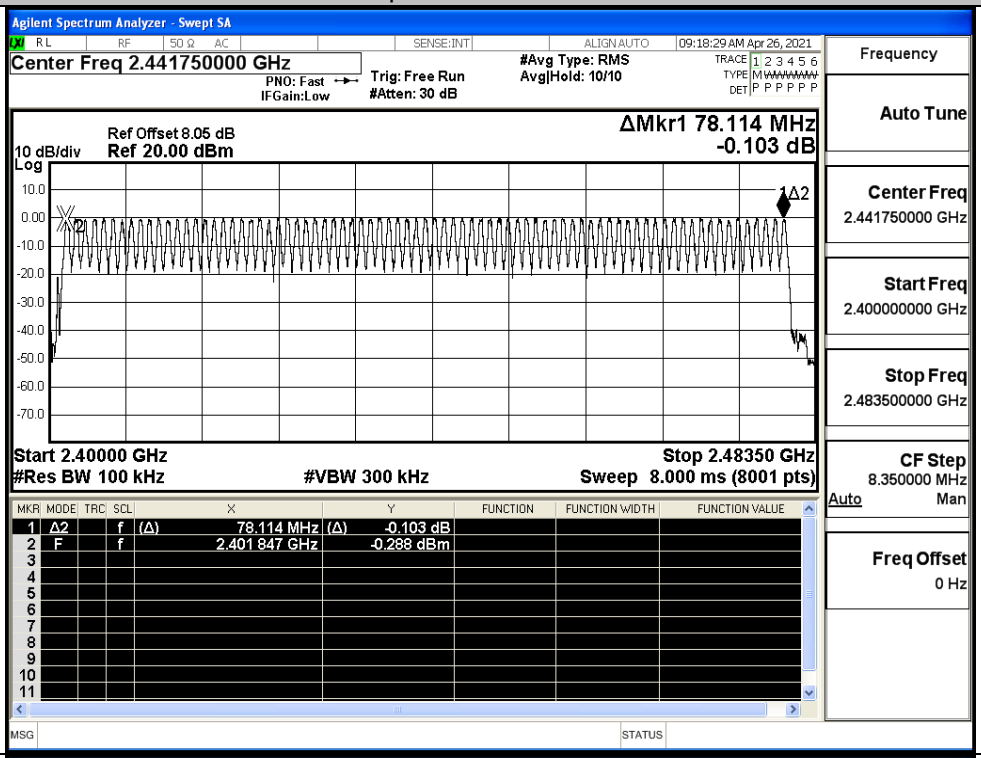
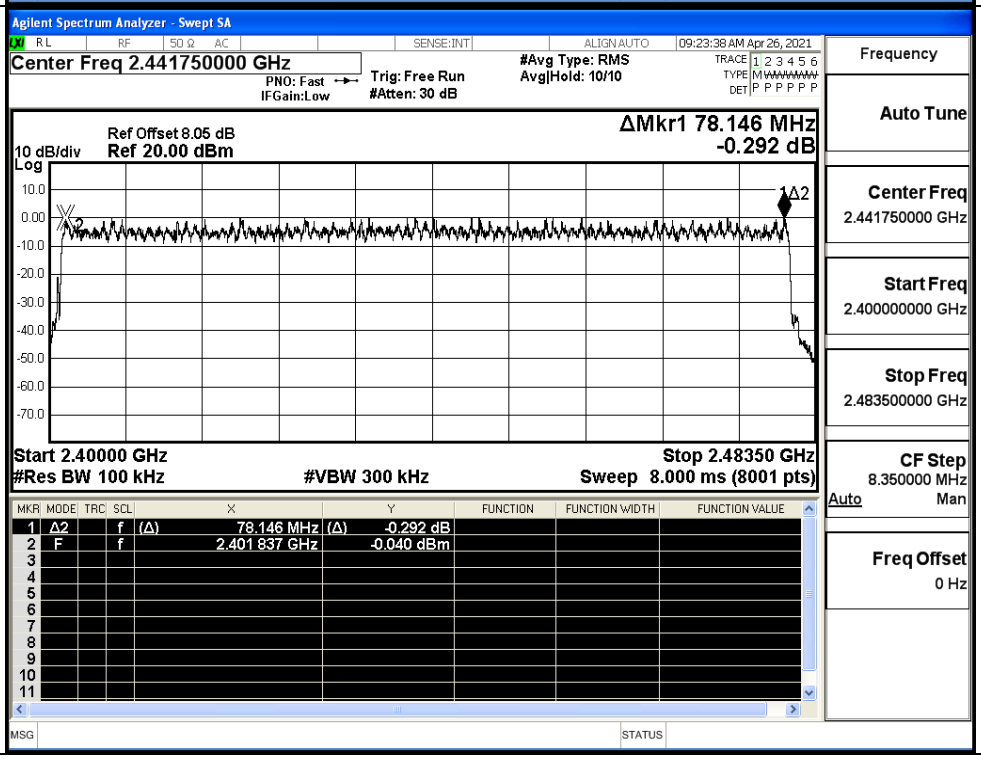
π/4DQPSK/LCH	
π/4DQPSK/MCH	

π/4DQPSK/HCH	

Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
09:21:07 AM Apr 26, 2021
Center Freq 2.479500000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 10/10
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
ΔMkr1 1.178 MHz
-0.365 dB
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
1Δ2
Start 2.478500 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.480500 GHz
Sweep 1.000 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 Δ2 f (Δ) 1.178 MHz (Δ) -0.365 dB
2 F f 2.478 808 GHz -0.583 dBm
MSG
STATUS
Frequency
Auto Tune
Center Freq
2.479500000 GHz
Start Freq
2.478500000 GHz
Stop Freq
2.480500000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz

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

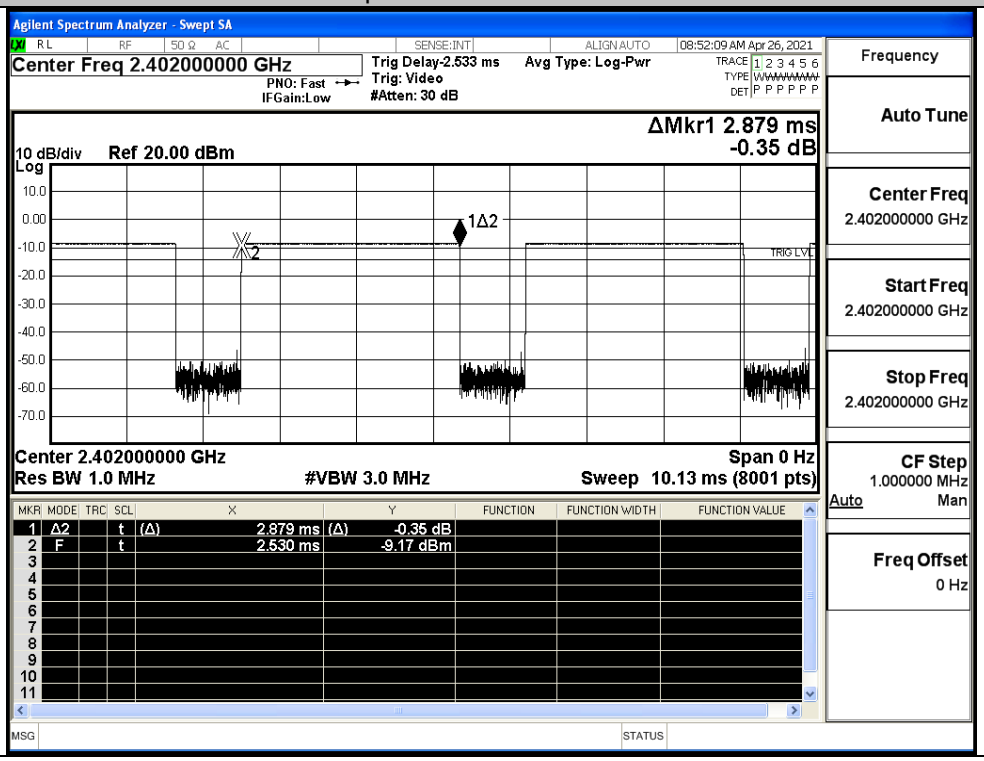
Test Graphs	
GFSK/Hop	
π/4DQPSK/Hop	

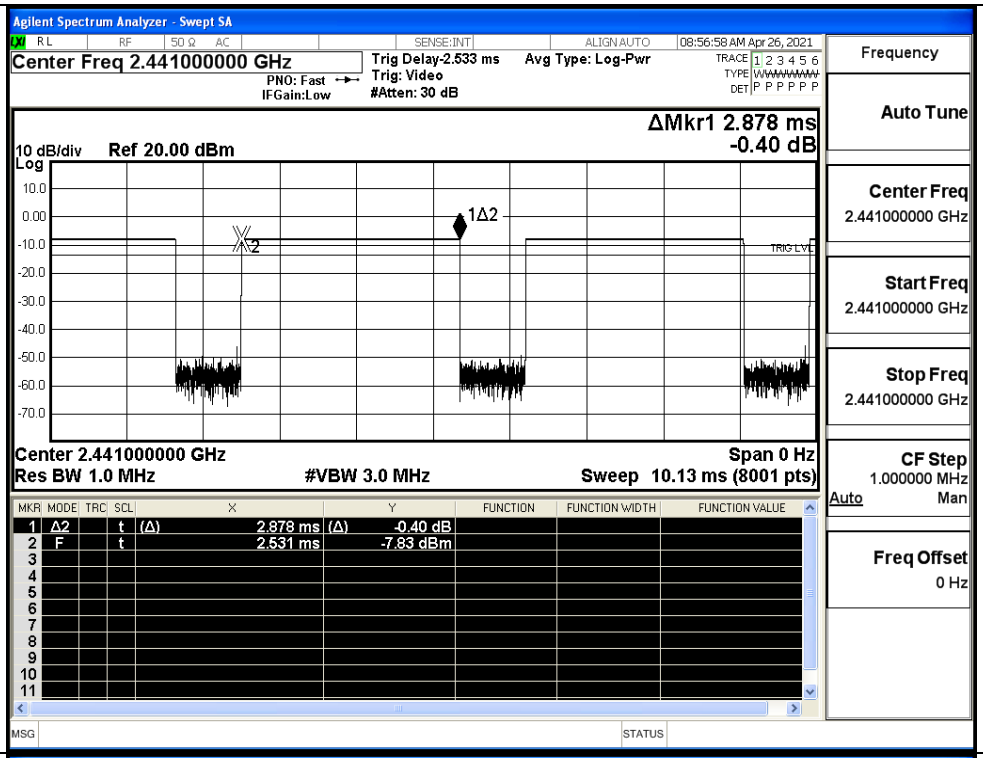
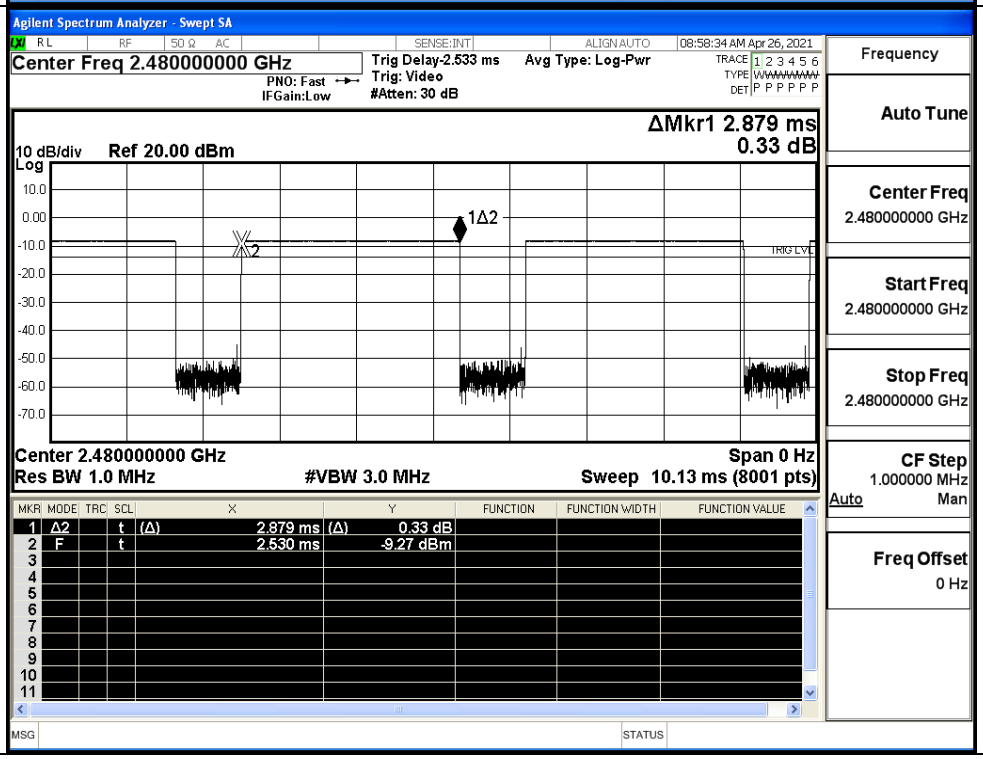
A.5 Dwell Time

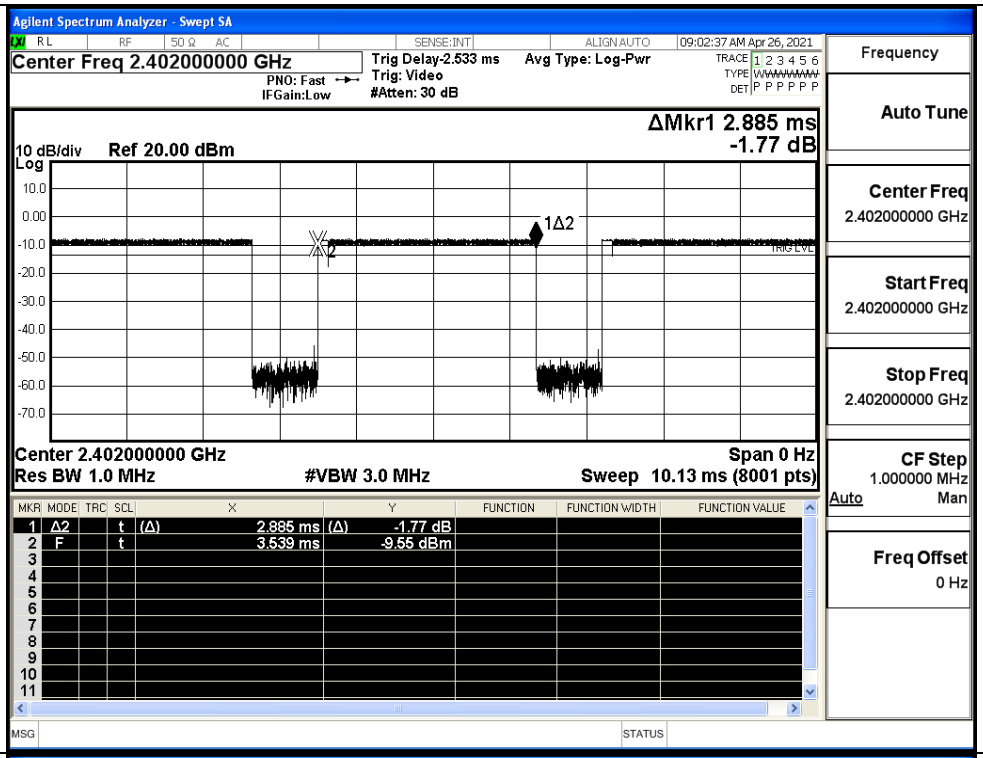
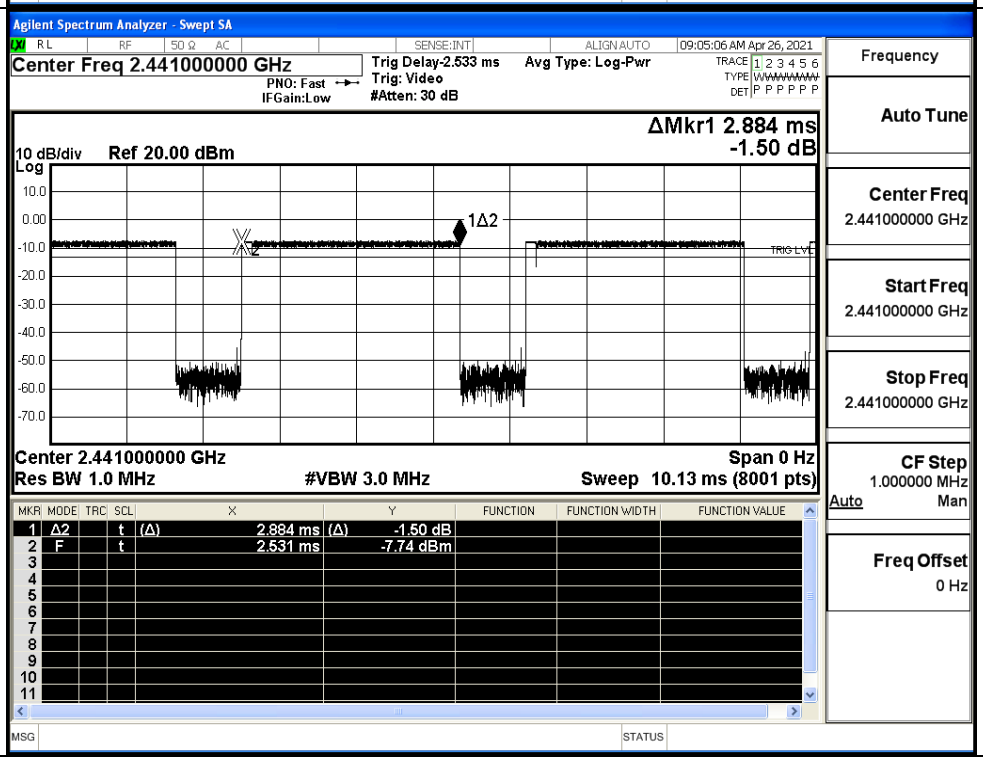
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
π/4DQPSK	2DH5	LCH	2.88	106.7	0.308	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88	106.7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

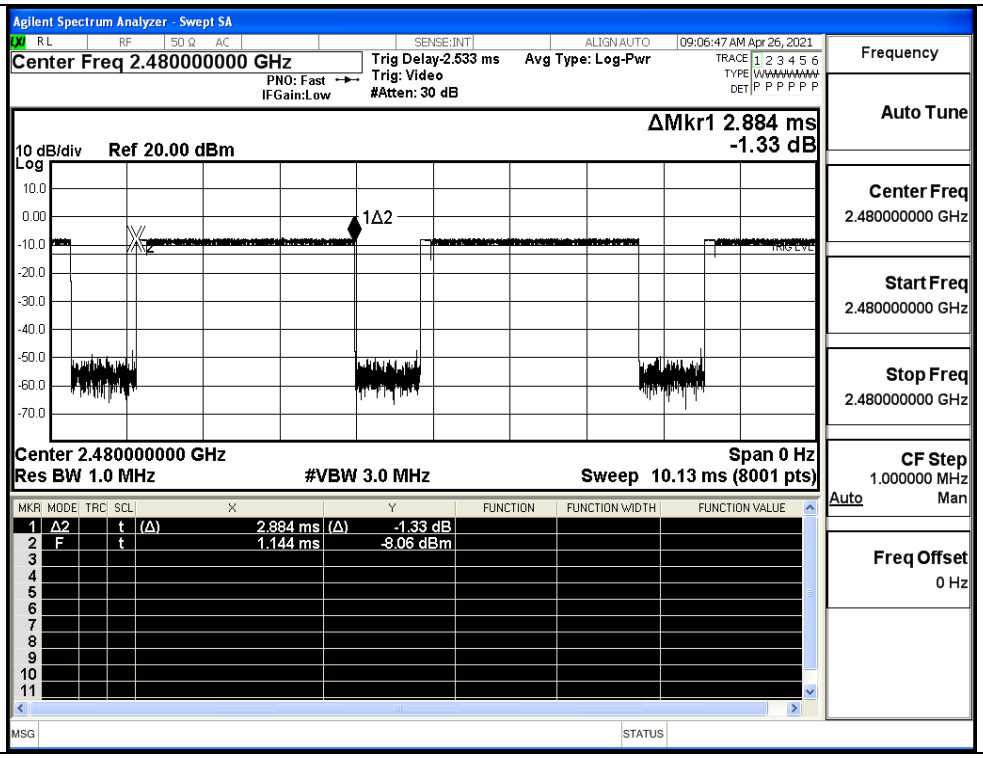
Test Graphs

GFSK_DH5/LCH



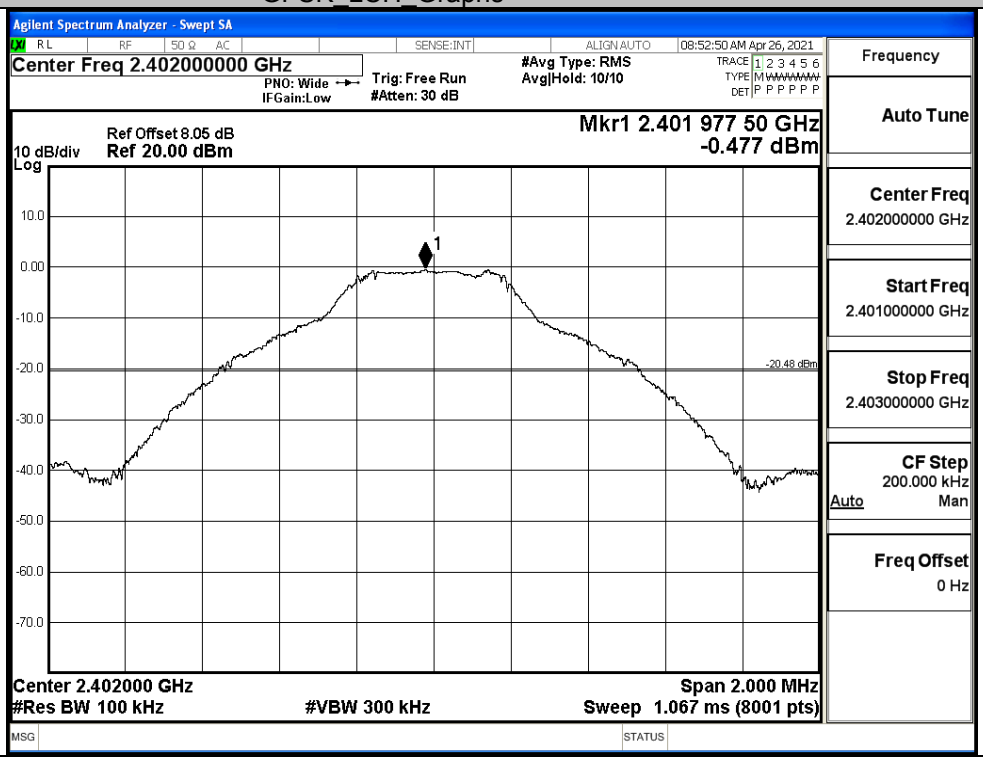
GFSK_DH5/MCH	
GFSK_DH5/HCH	

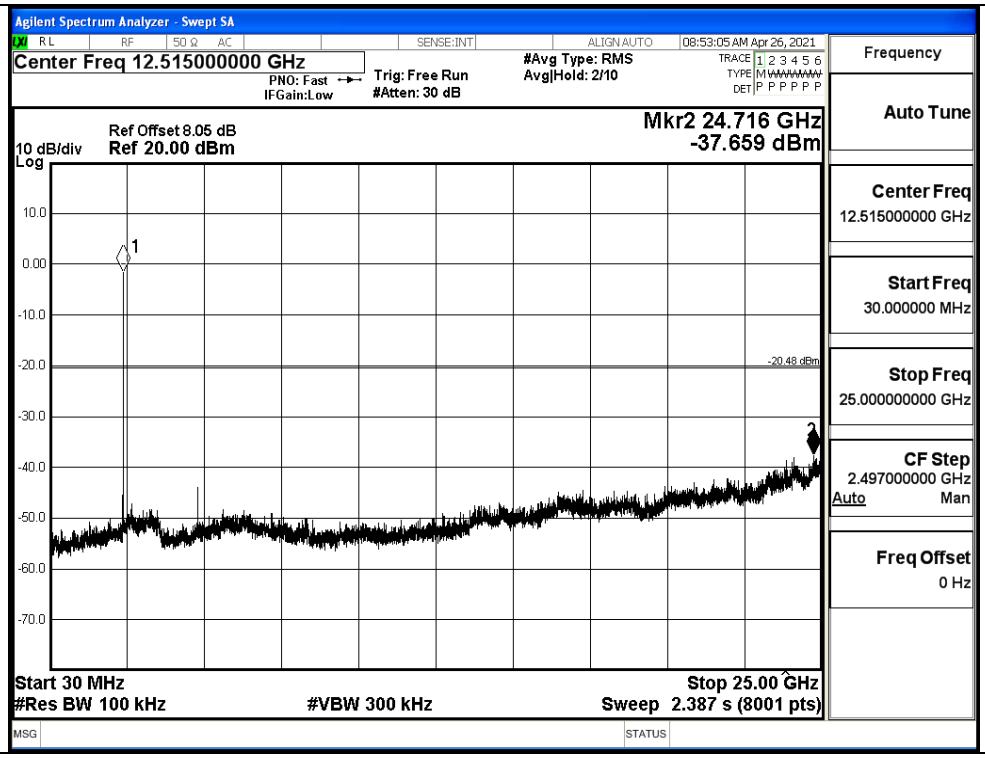
π/4DQPSK _2DH5/LCH	
π/4DQPSK _2DH5/MCH	

π/4DQPSK _2DH5/HCH	

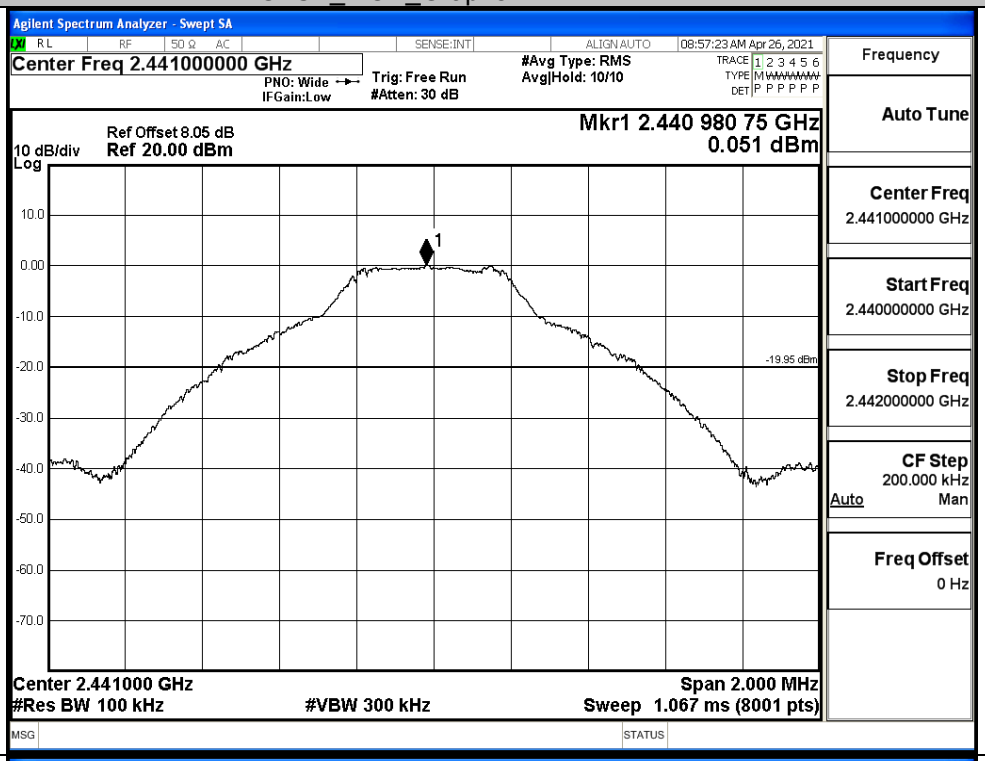
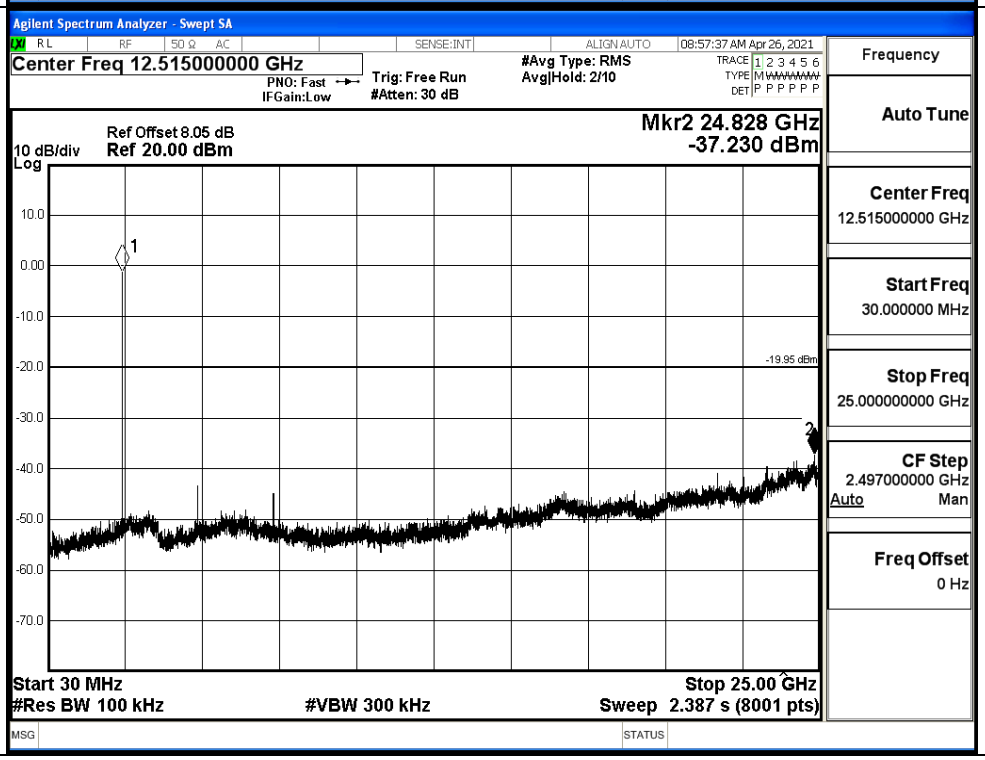
A.6 RF Conducted Spurious Emissions

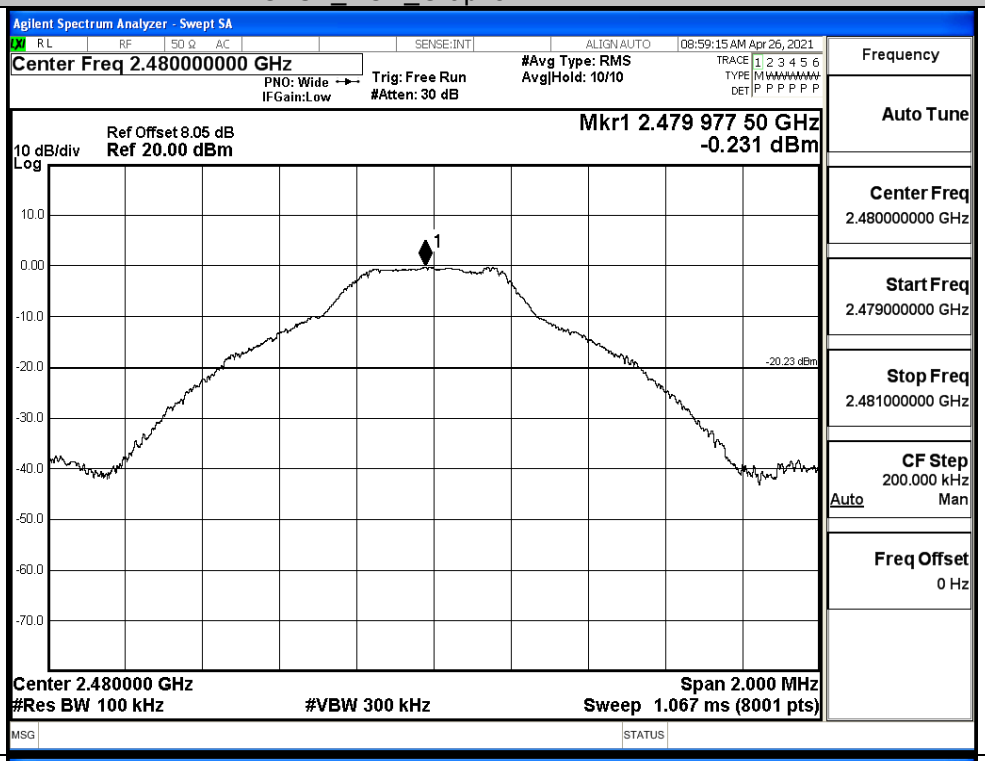
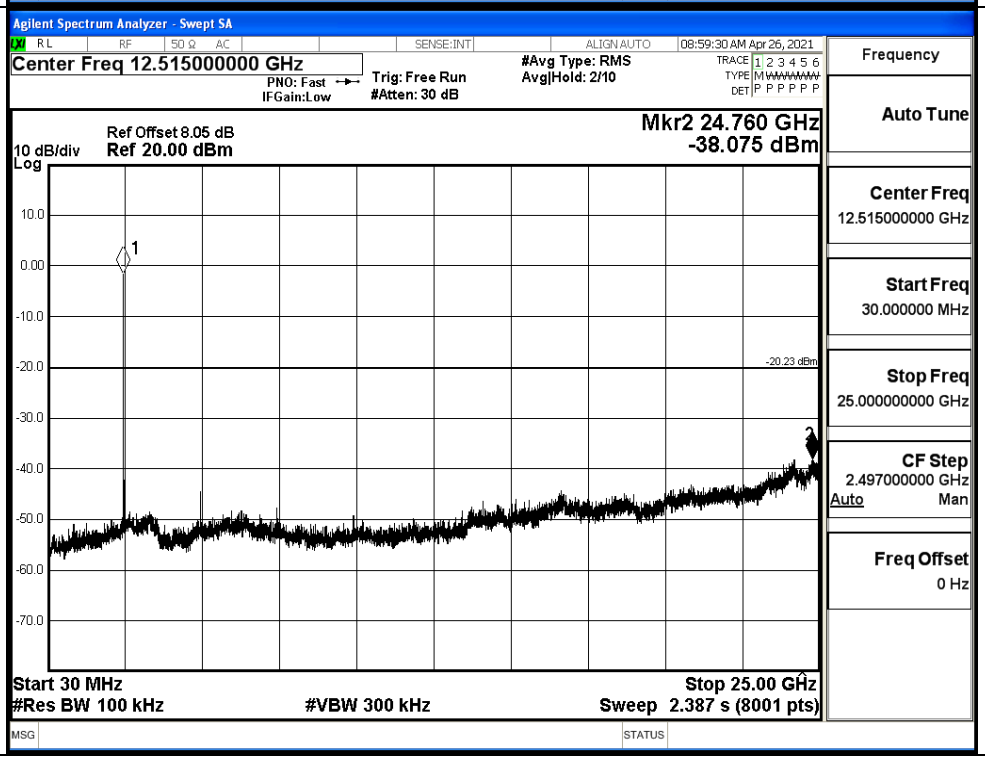
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.477	-37.659	-20.477	PASS
	MCH	0.051	-37.230	-19.949	PASS
	HCH	-0.231	-38.075	-20.231	PASS
π/4DQPSK	LCH	-0.204	-37.505	-20.204	PASS
	MCH	0.235	-37.457	-19.765	PASS
	HCH	-0.253	-37.934	-20.253	PASS

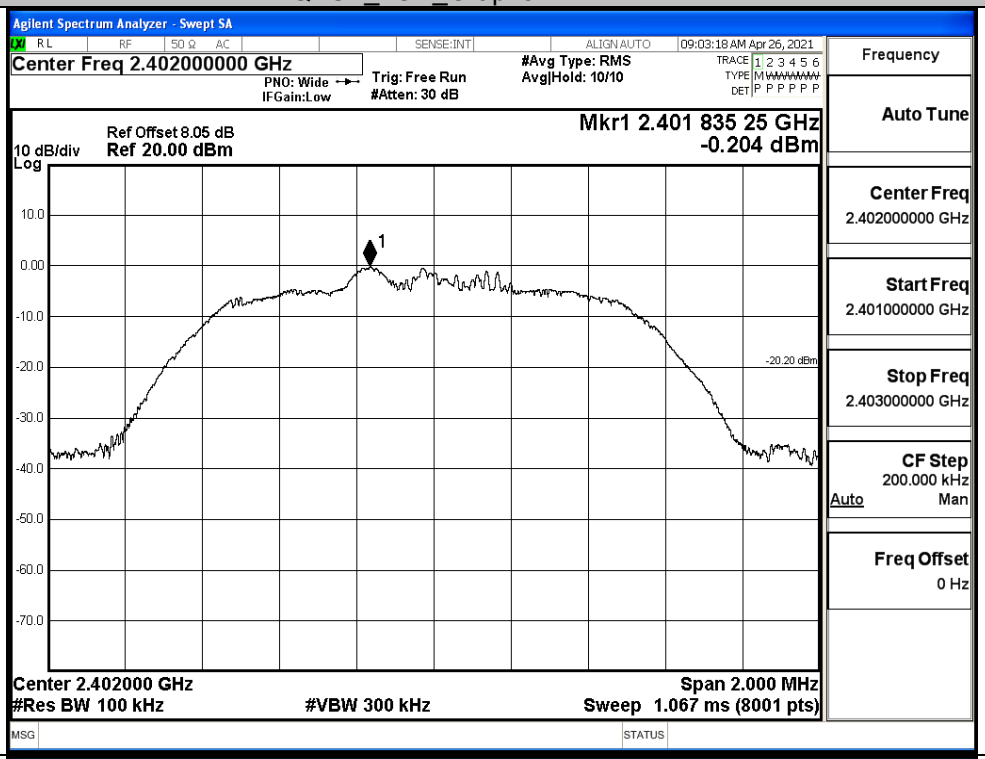
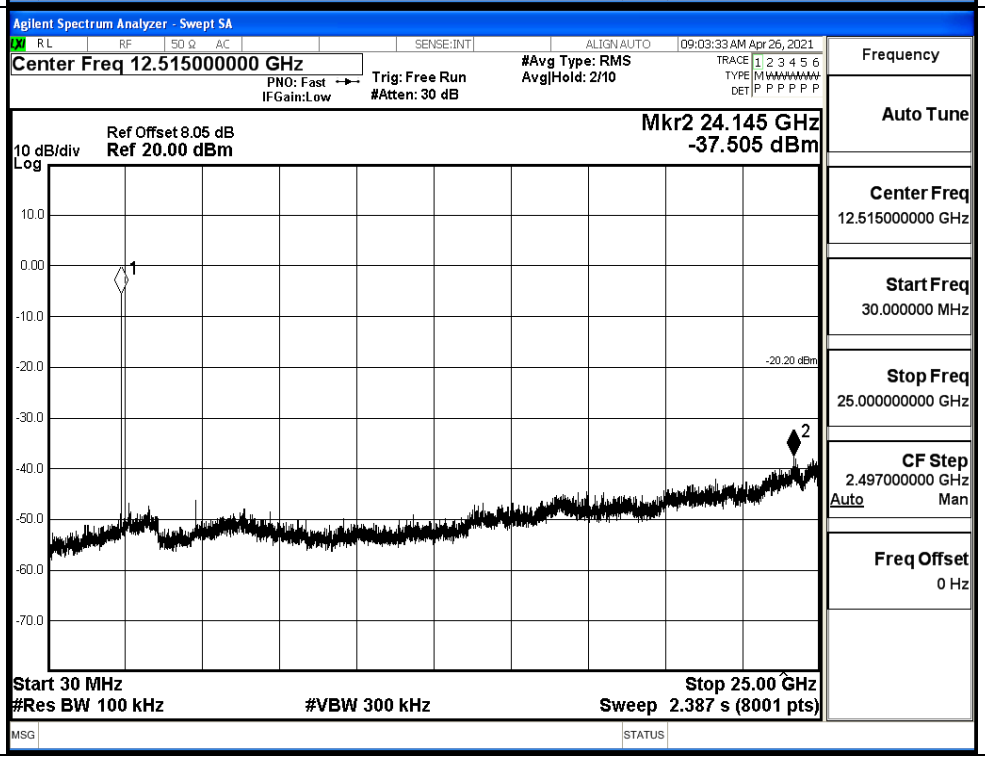
GFSK_LCH_Graphs	
Pref	

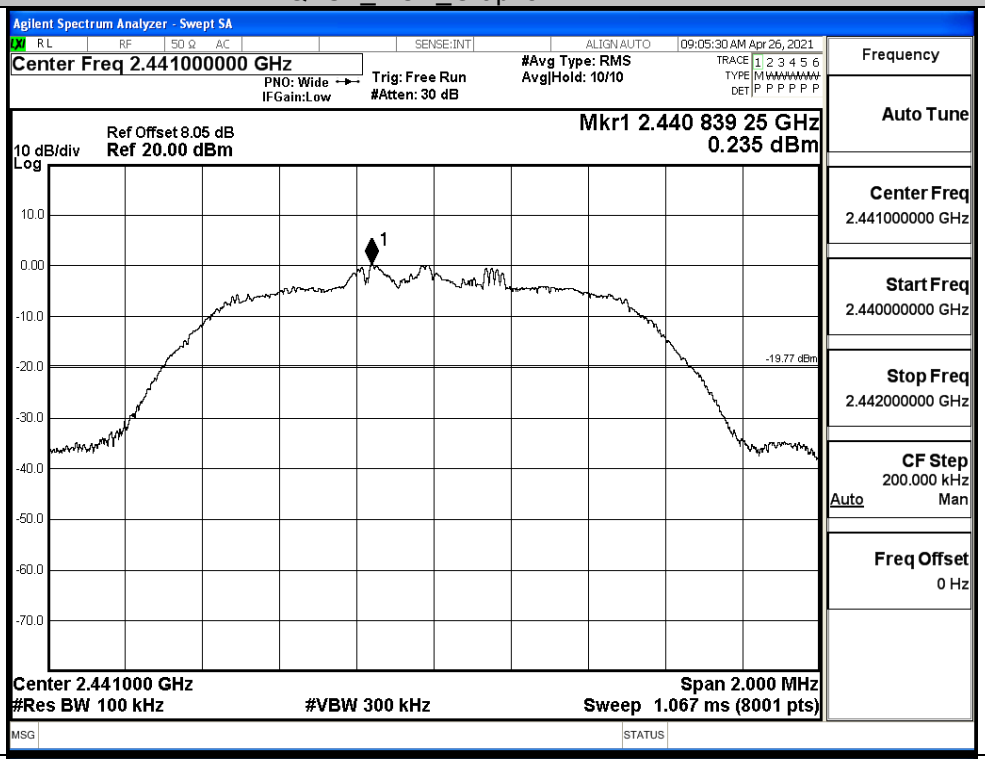
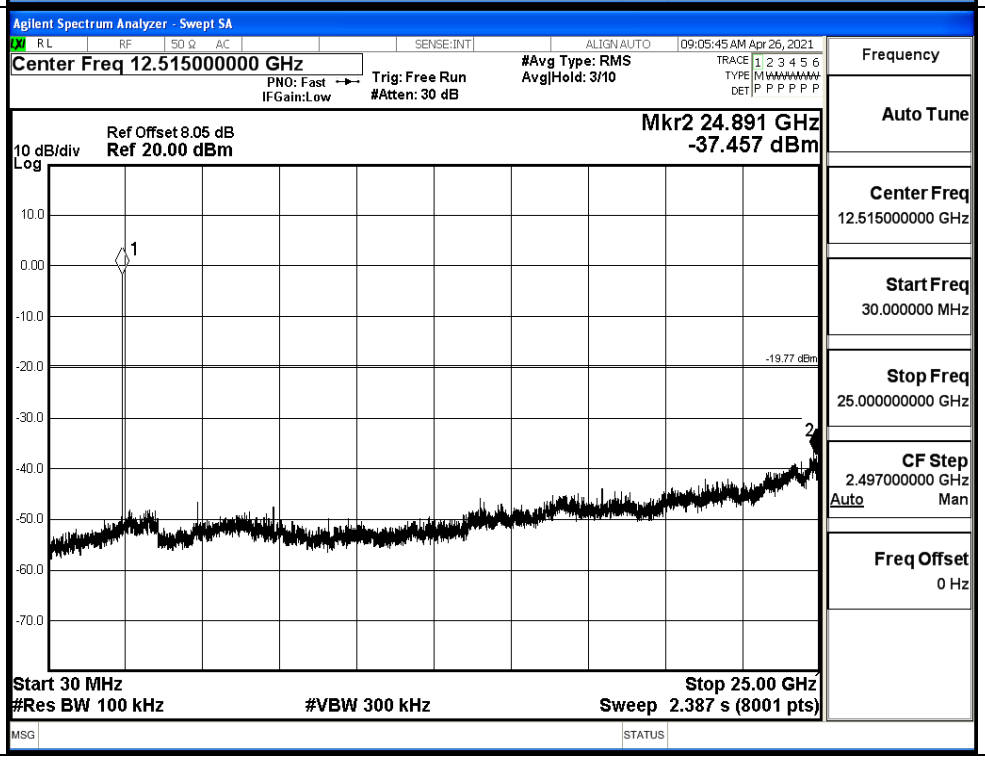
Puw		

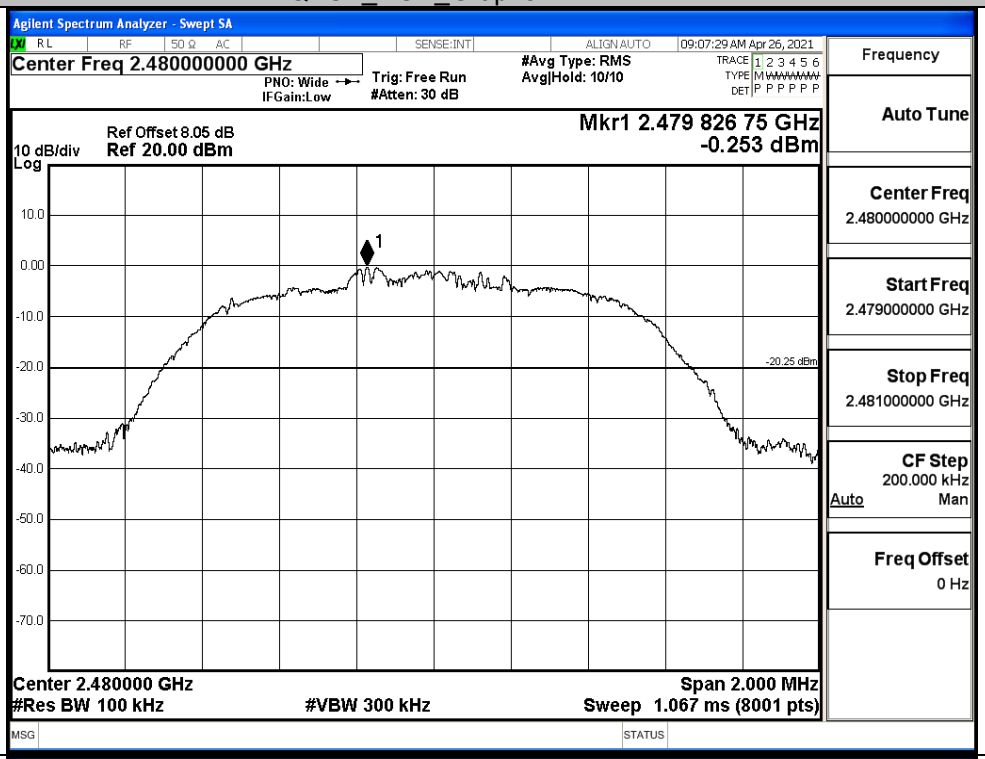
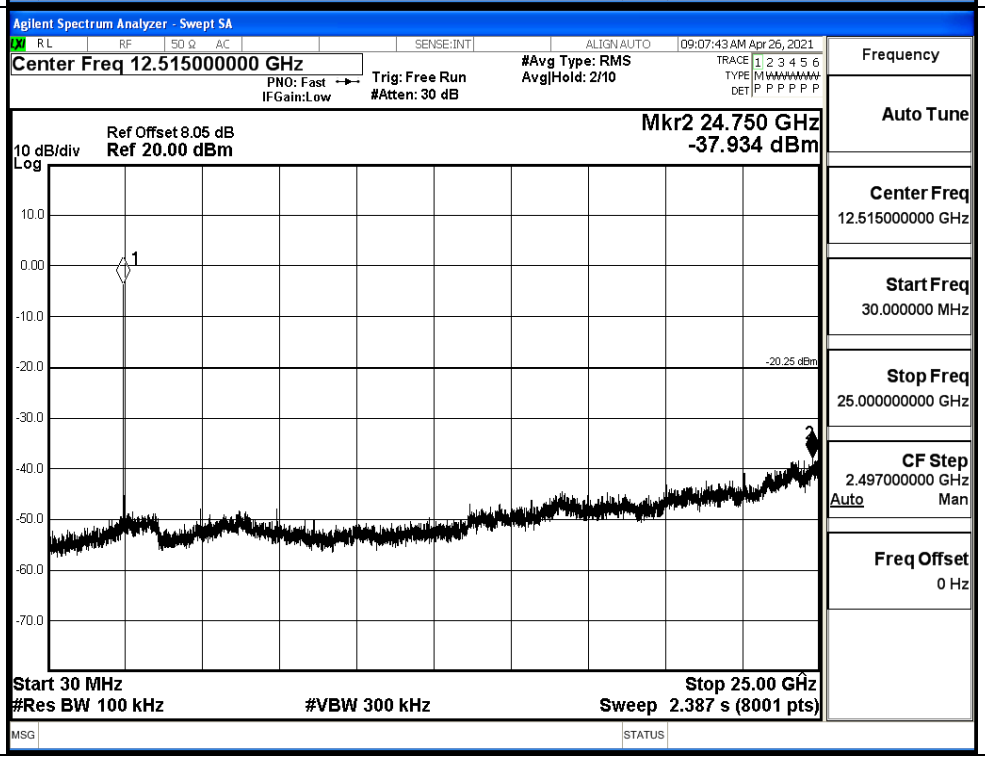
Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
08:53:05 AM Apr 26, 2021
Center Freq 12.515000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 2/10
TRACE 1 2 3 4 5 6
TYPE M
DET P P P P P
Ref Offset 8.05 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr2 24.716 GHz
-37.659 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-20.48 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
MSG
STATUS

GFSK_MCH_Graphs		
Pref		
Puw		

GFSK_HCH_Graphs		
Pref		
Puw		

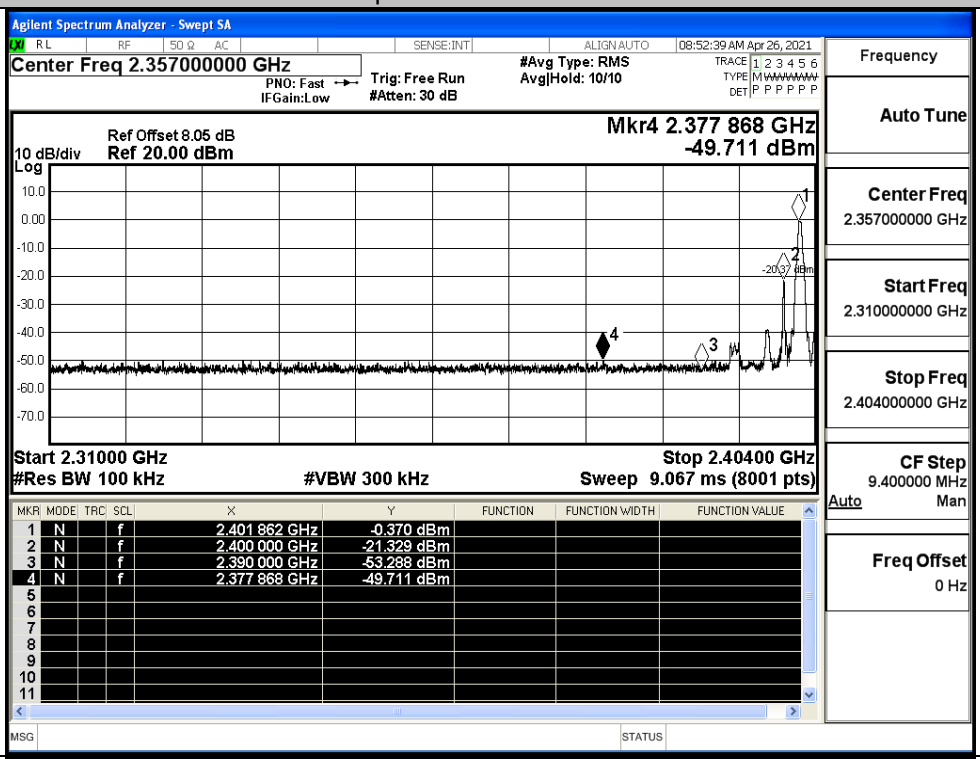
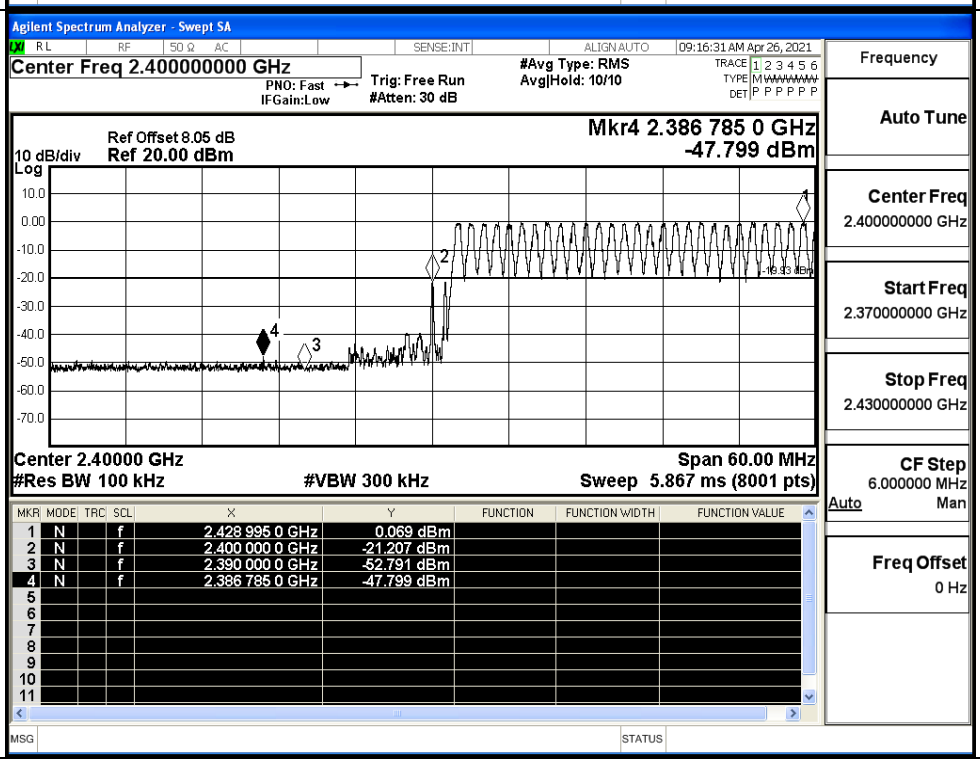
π/4DQPSK_LCH_Graphs		
Pref		
Puw		

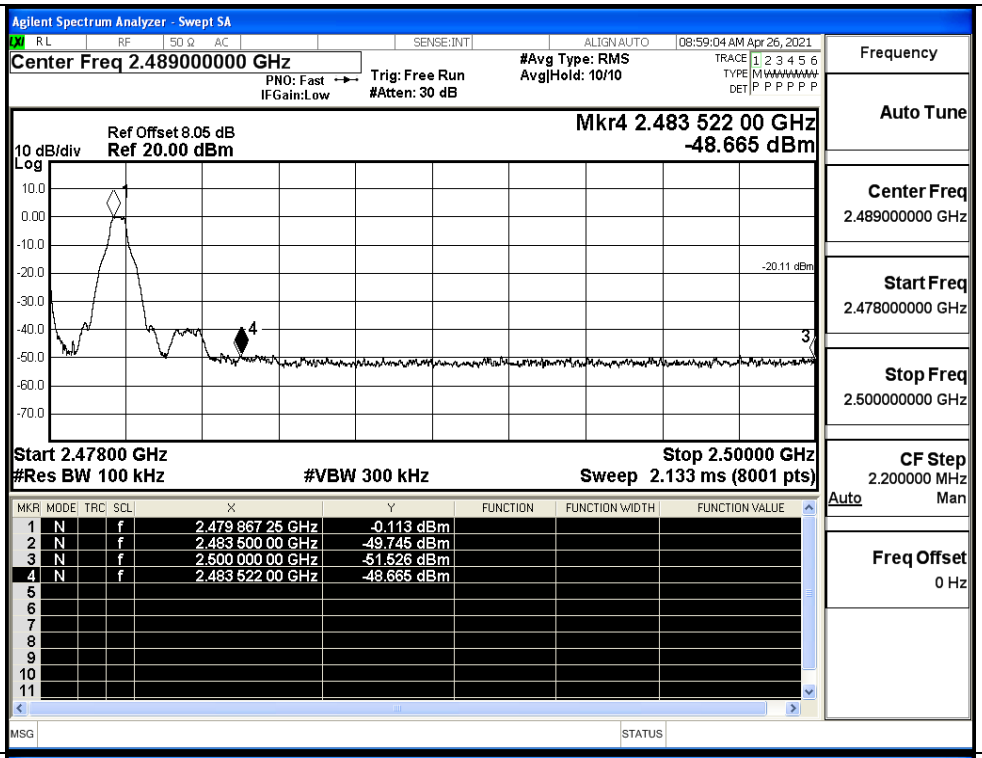
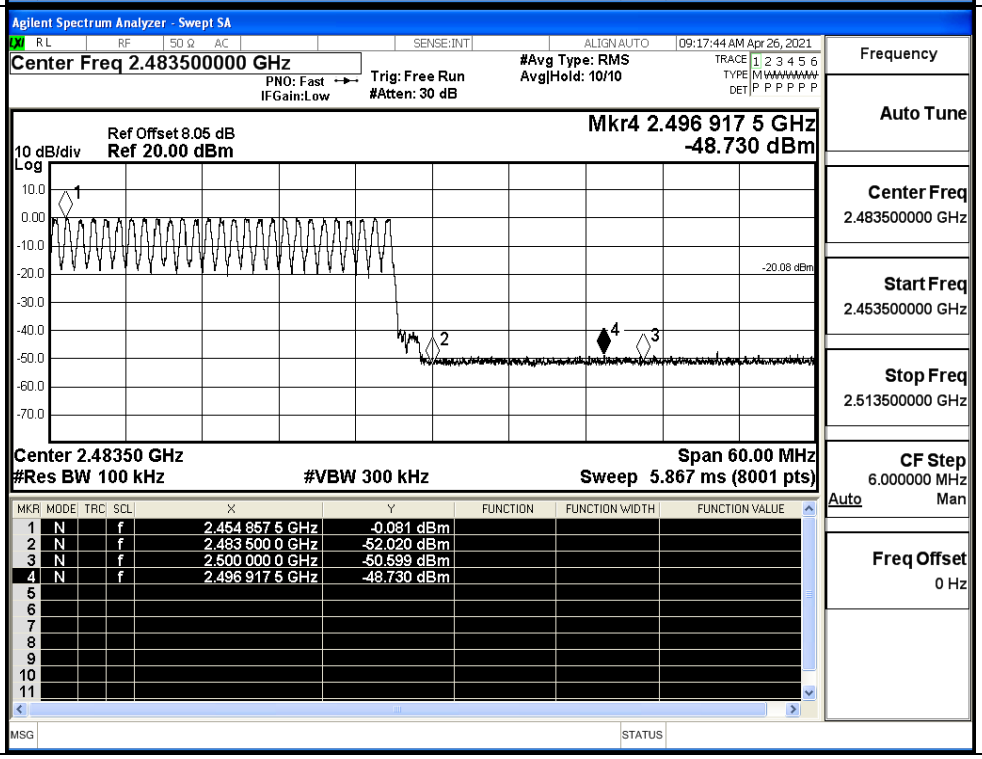
π/4DQPSK_MCH_Graphs		
Pref		
Puw		

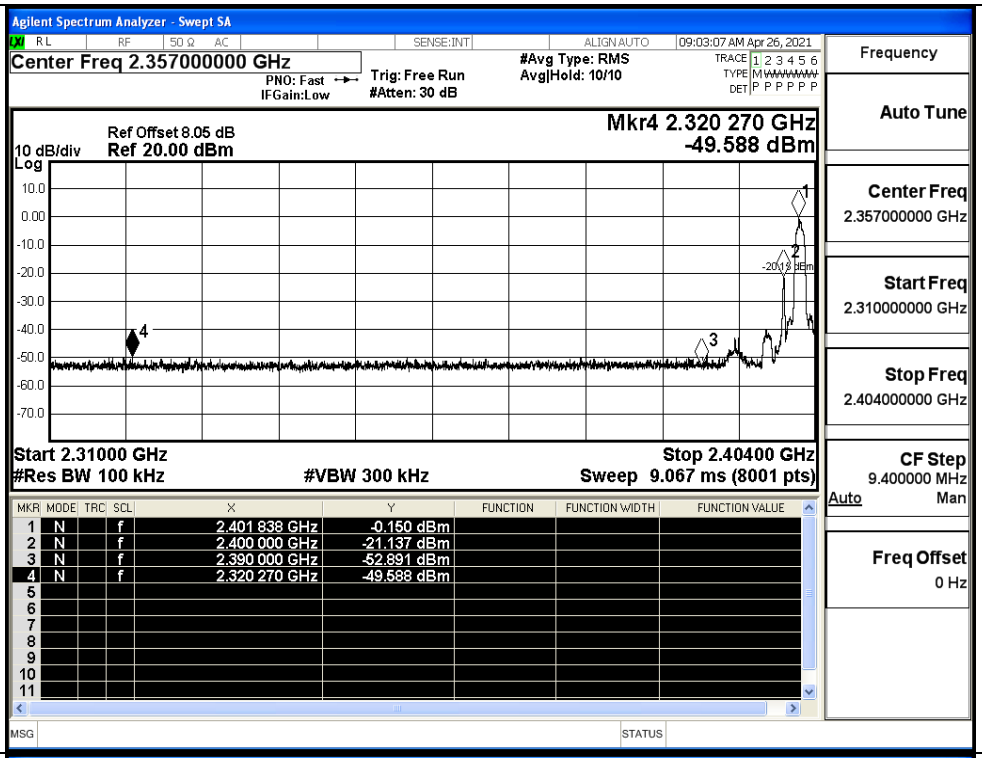
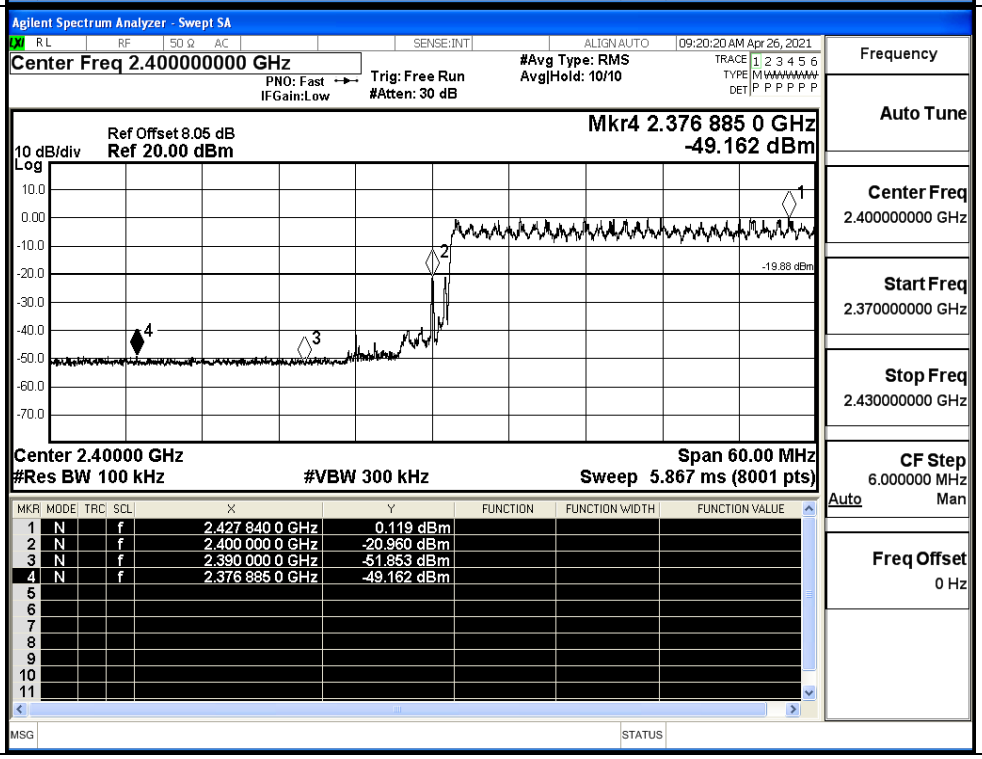
π/4DQPSK_HCH_Graphs		
Pref		
Puw		

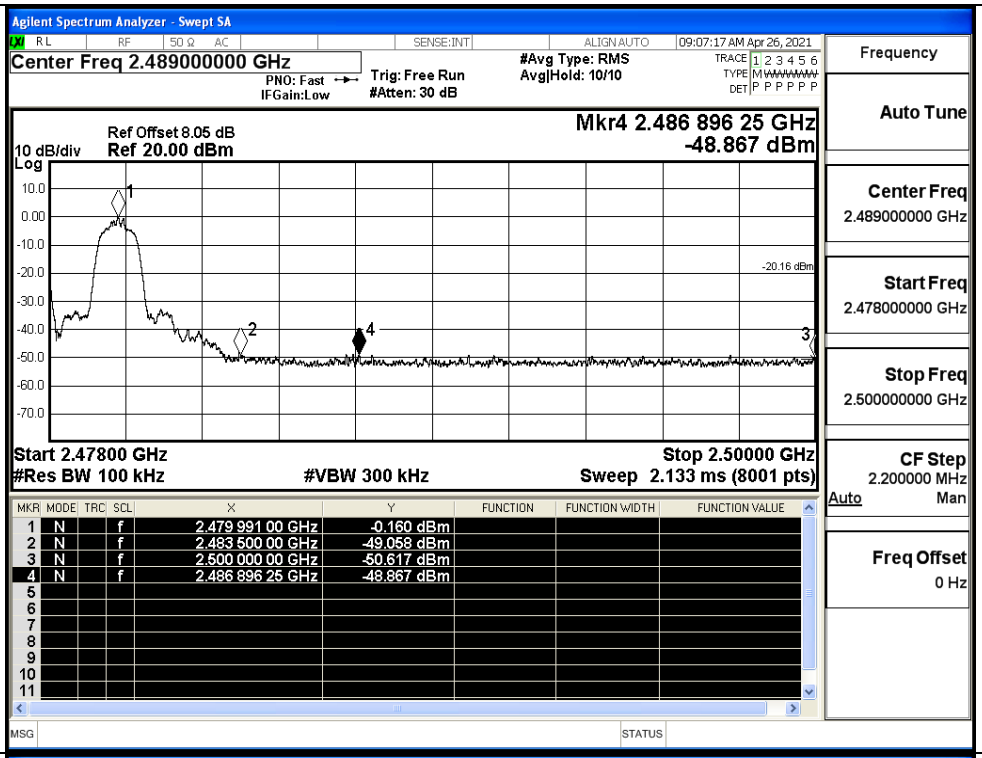
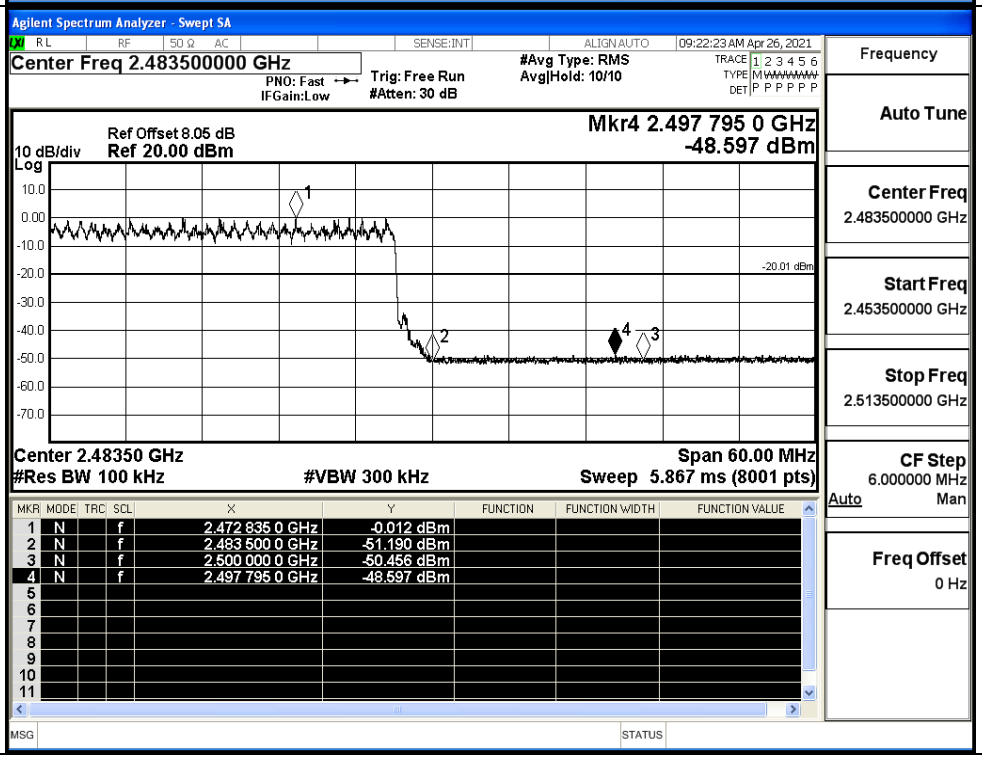
A.7 Band-edge for RF Conducted Emissions

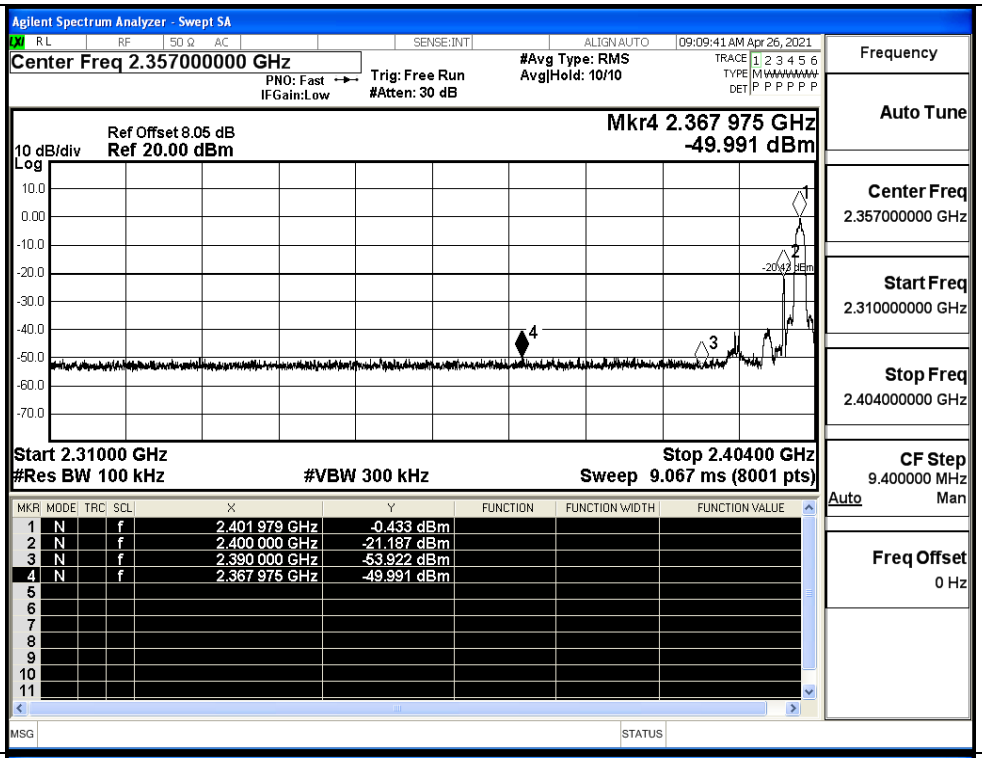
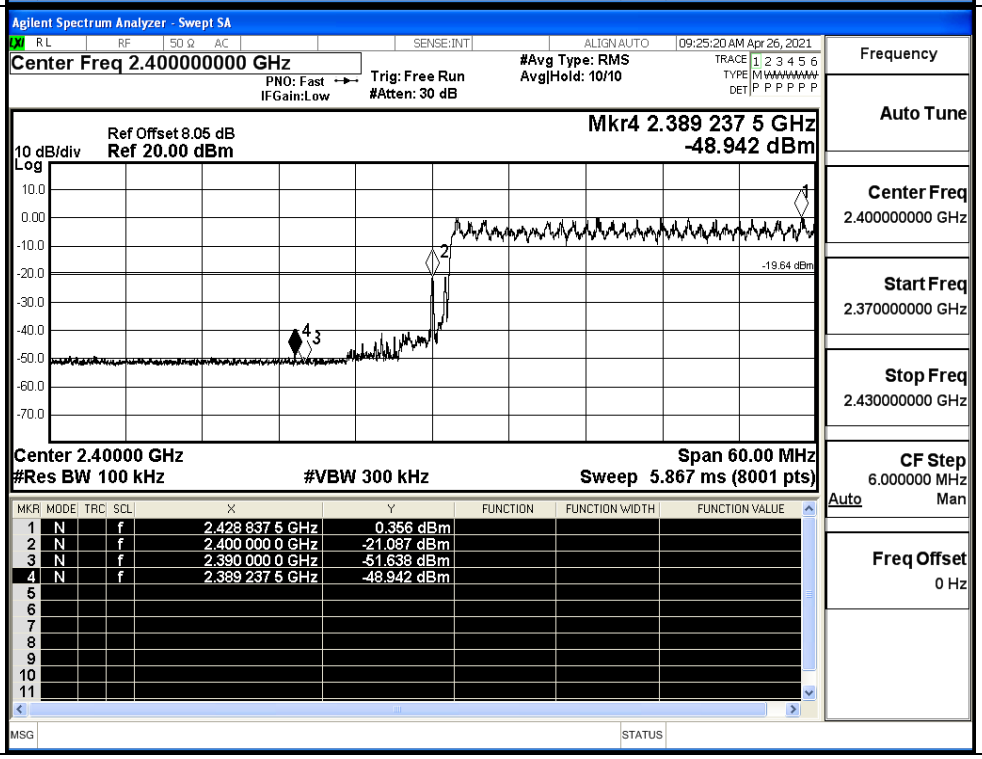
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-0.370	Off	-49.711	-20.37	PASS
			0.069	On	-47.799	-19.93	PASS
	HCH	2480	-0.113	Off	-48.665	-20.11	PASS
			-0.081	On	-48.730	-20.08	PASS
π/4DQPSK	LCH	2402	-0.150	Off	-49.588	-20.15	PASS
			0.119	On	-49.162	-19.88	PASS
	HCH	2480	-0.160	Off	-48.867	-20.16	PASS
			-0.012	On	-48.597	-20.01	PASS

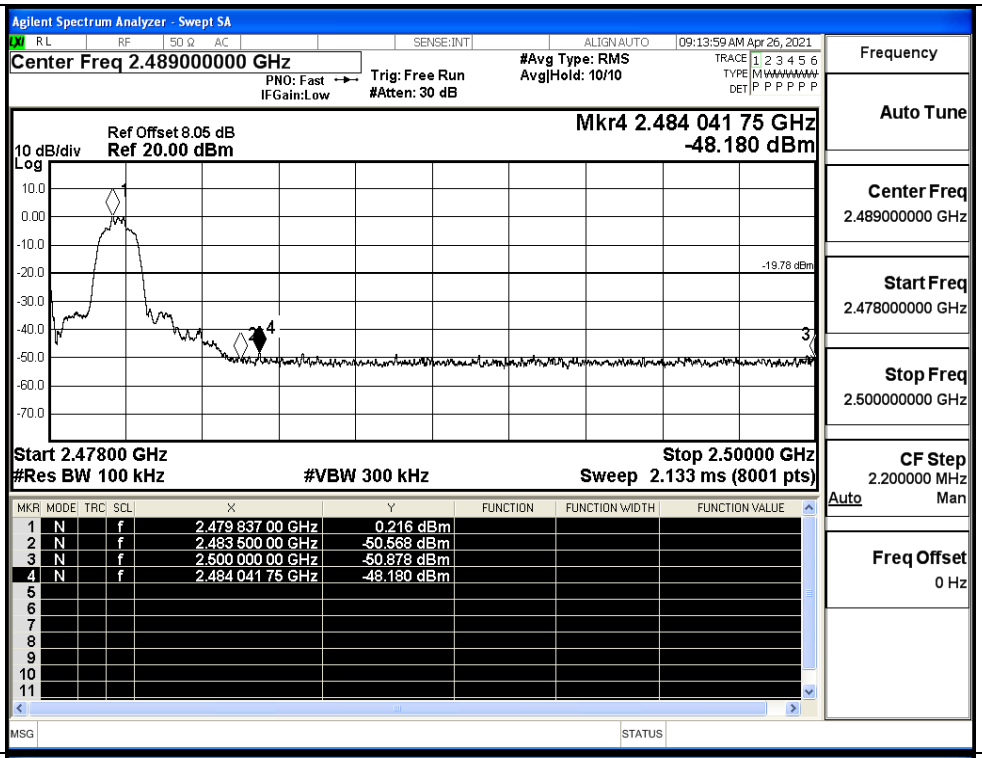
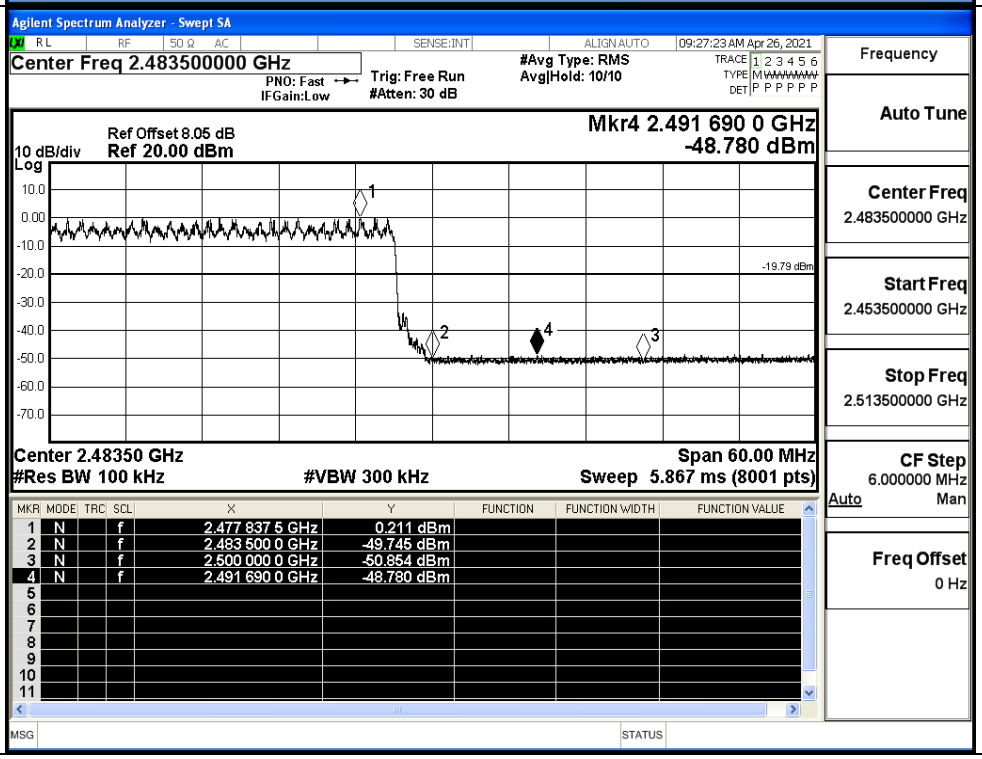
Test Graphs	
GFSK/LCH/No Hop	
GFSK/LCH/Hop	

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	

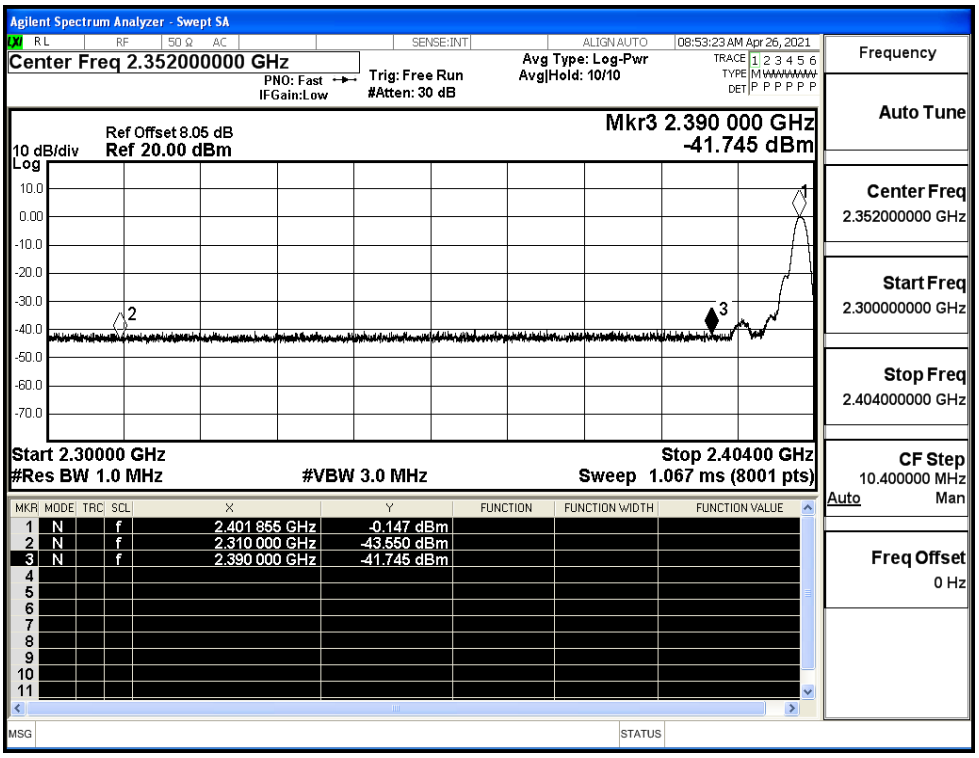
8DPSK/LCH/No Hop	
8DPSK/LCH/Hop	

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

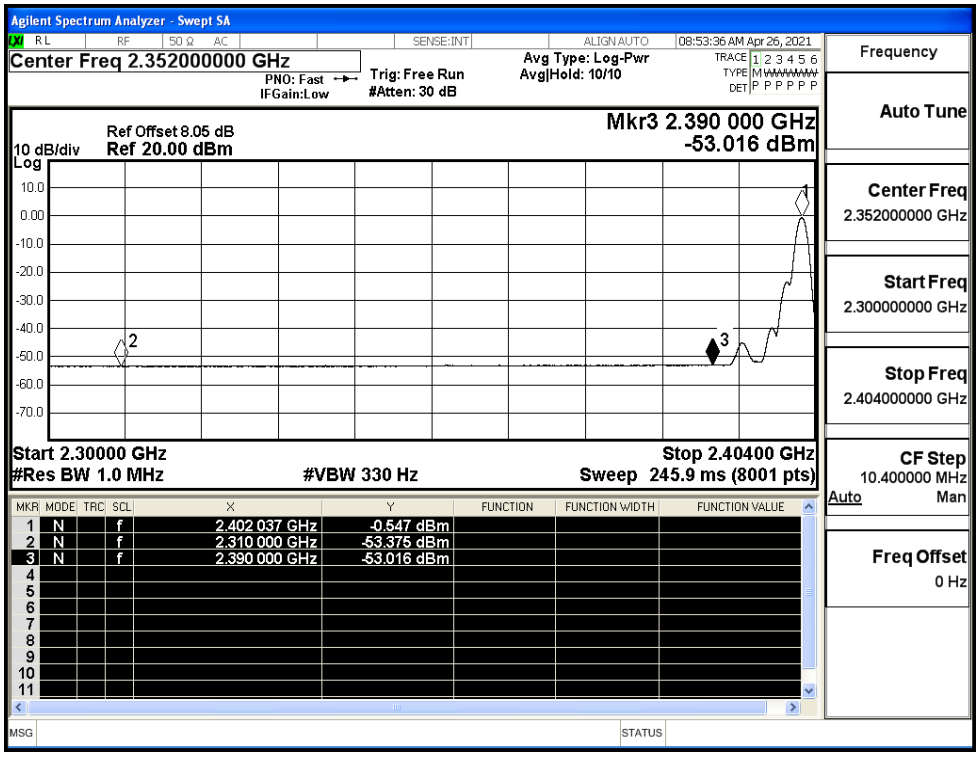
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.55	2.0	0	51.71	PEAK	74	PASS
	Off	2310.0	-53.38	2.0	0	41.88	AV	54	PASS
	Off	2390.0	-41.75	2.0	0	53.51	PEAK	74	PASS
	Off	2390.0	-53.02	2.0	0	42.24	AV	54	PASS
	Off	2483.5	-41.01	2.0	0	54.25	PEAK	74	PASS
	Off	2483.5	-50.26	2.0	0	45.00	AV	54	PASS
	Off	2500.0	-39.42	2.0	0	55.83	PEAK	74	PASS
	Off	2500.0	-52.39	2.0	0	42.87	AV	54	PASS
π/4DQPSK	Off	2310.0	-42.49	2.0	0	52.77	PEAK	74	PASS
	Off	2310.0	-53.40	2.0	0	41.86	AV	54	PASS
	Off	2390.0	-41.88	2.0	0	53.38	PEAK	74	PASS
	Off	2390.0	-52.95	2.0	0	42.31	AV	54	PASS
	Off	2483.5	-39.66	2.0	0	55.60	PEAK	74	PASS
	Off	2483.5	-50.21	2.0	0	45.05	AV	54	PASS
	Off	2500.0	-41.03	2.0	0	54.22	PEAK	74	PASS
	Off	2500.0	-52.37	2.0	0	42.89	AV	54	PASS
8DPSK	Off	2310.0	-43.37	2.0	0	51.89	PEAK	74	PASS
	Off	2310.0	-53.38	2.0	0	41.88	AV	54	PASS
	Off	2390.0	-42.87	2.0	0	52.38	PEAK	74	PASS
	Off	2390.0	-52.98	2.0	0	42.28	AV	54	PASS
	Off	2483.5	-39.61	2.0	0	55.65	PEAK	74	PASS
	Off	2483.5	-50.20	2.0	0	45.05	AV	54	PASS
	Off	2500.0	-41.99	2.0	0	53.27	PEAK	74	PASS
	Off	2500.0	-52.38	2.0	0	42.87	AV	54	PASS

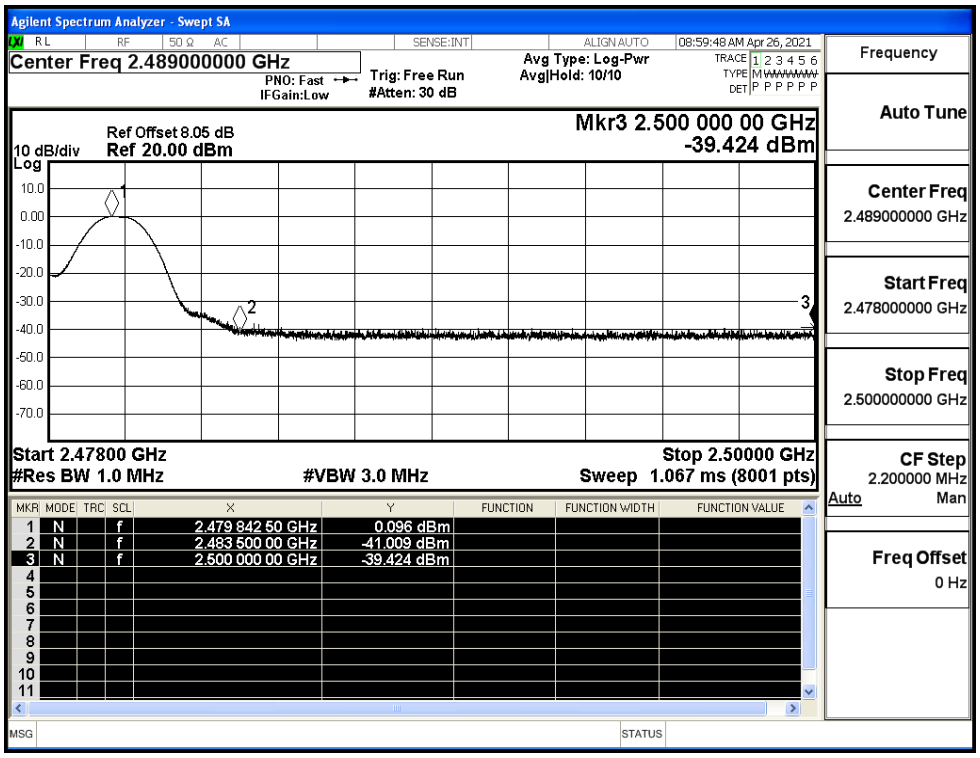
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



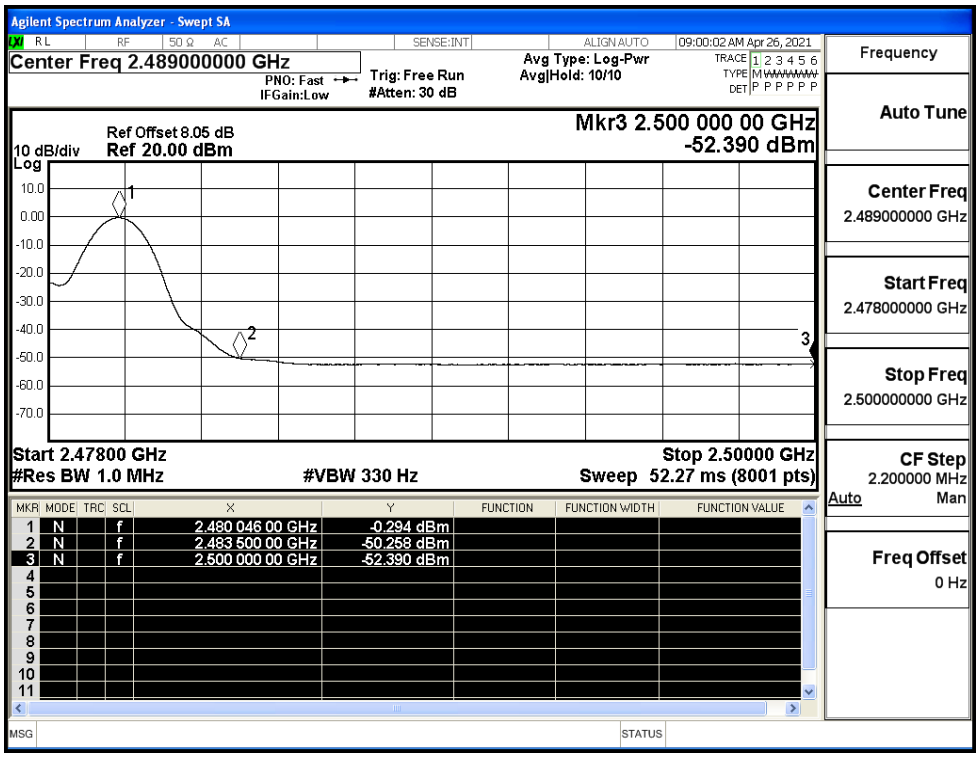
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



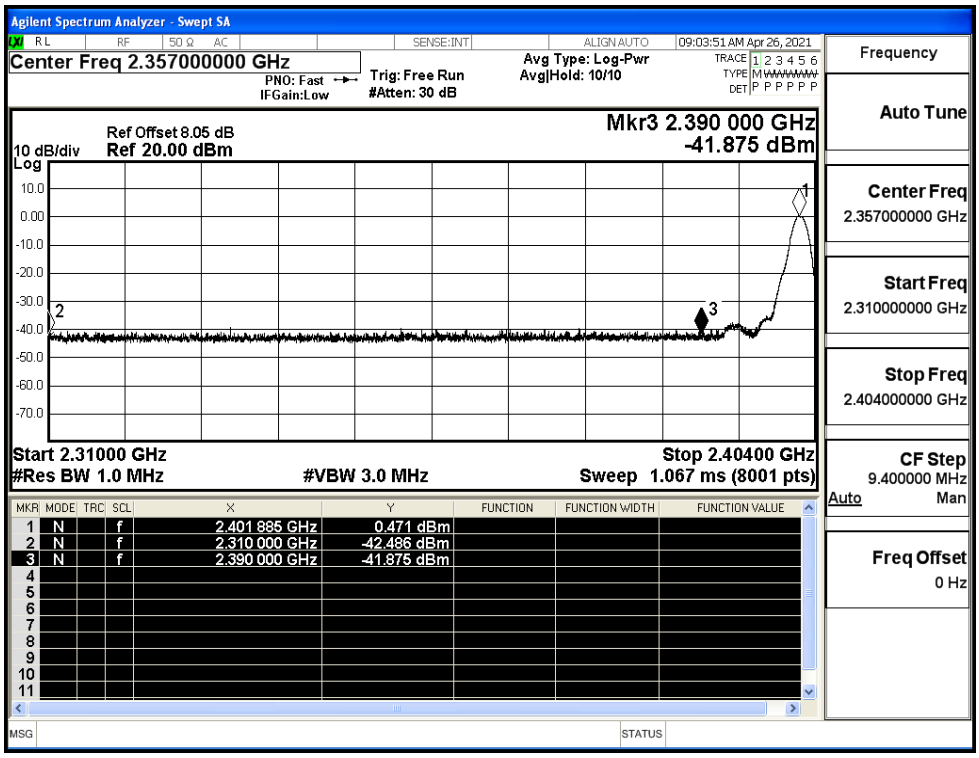
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



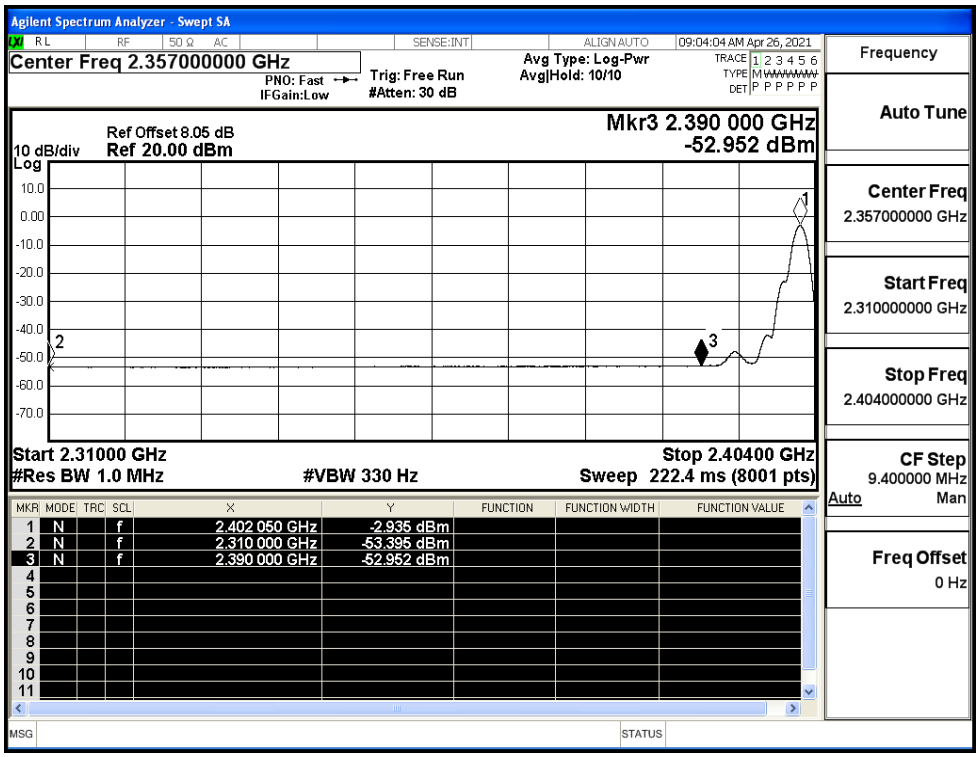
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



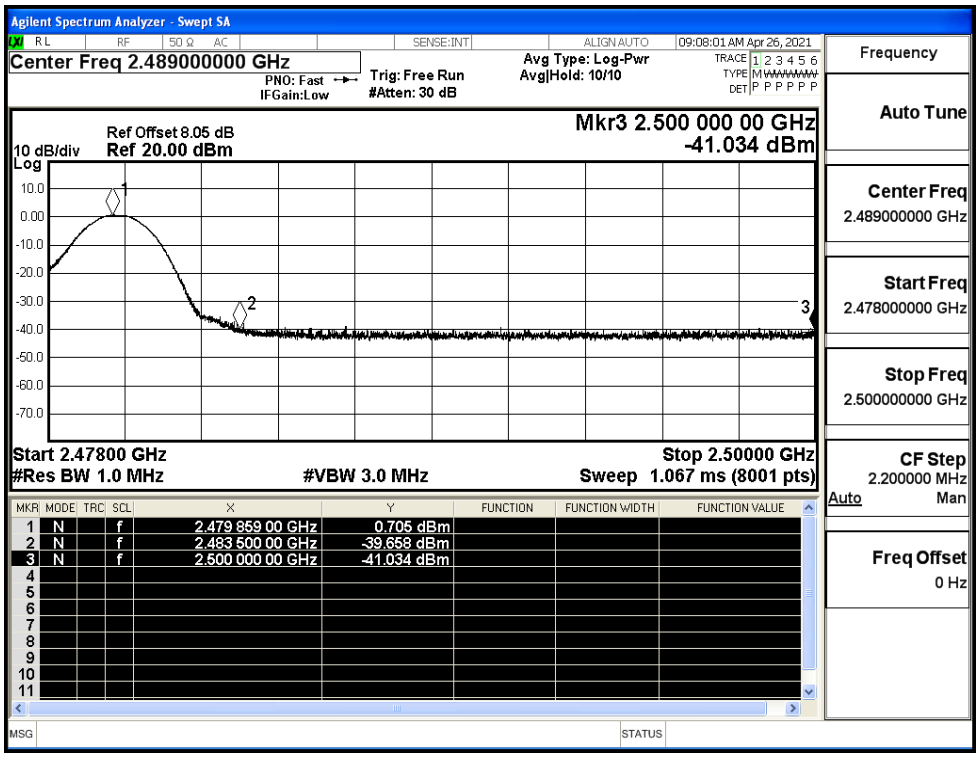
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



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)