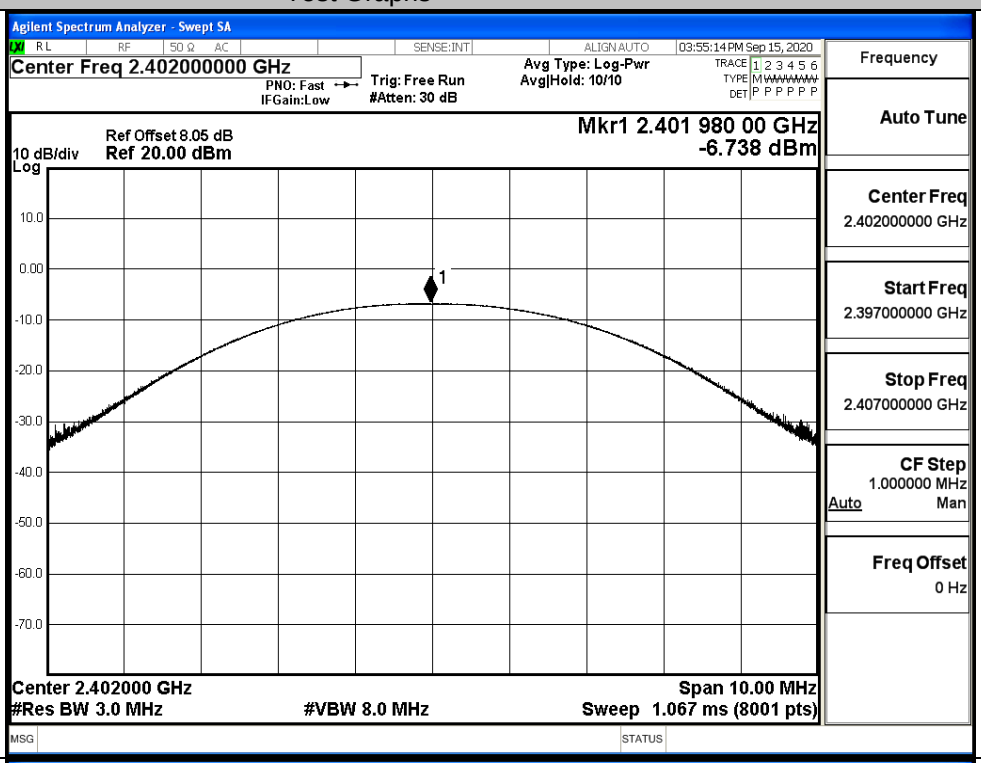
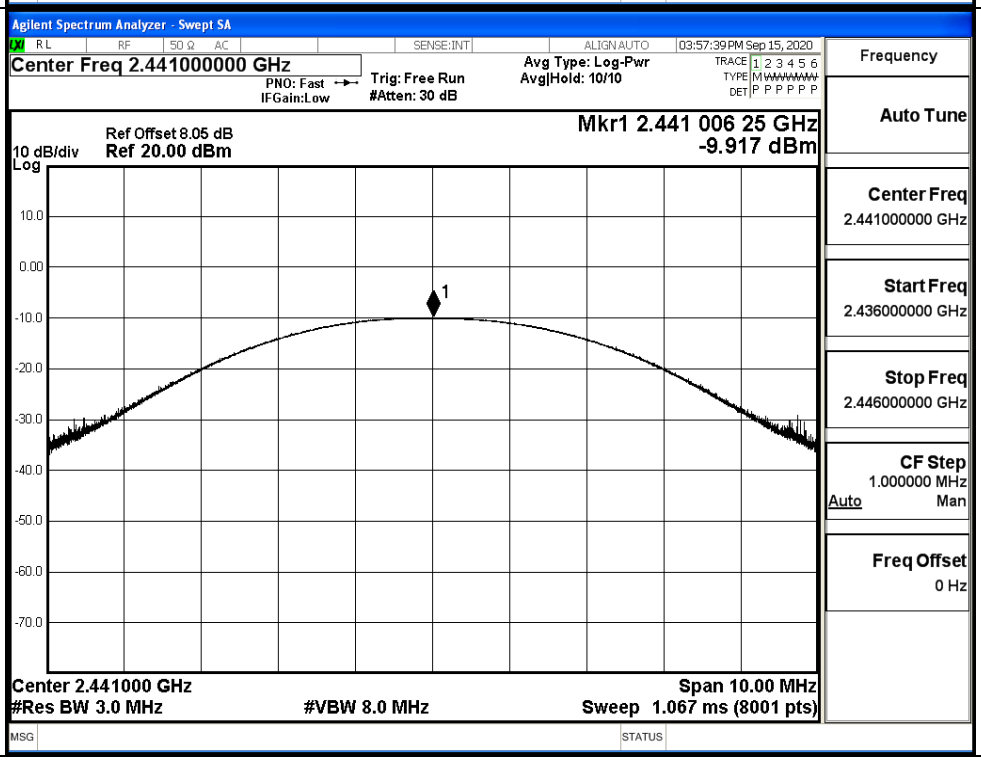
Appendix A
RF Test Data for BT V5.0(BDR/EDR) (Conducted Measurement)
Product Name: Trolley Rechargeable Speaker
Trade Mark: PearTronics
Test Model: PT 1243

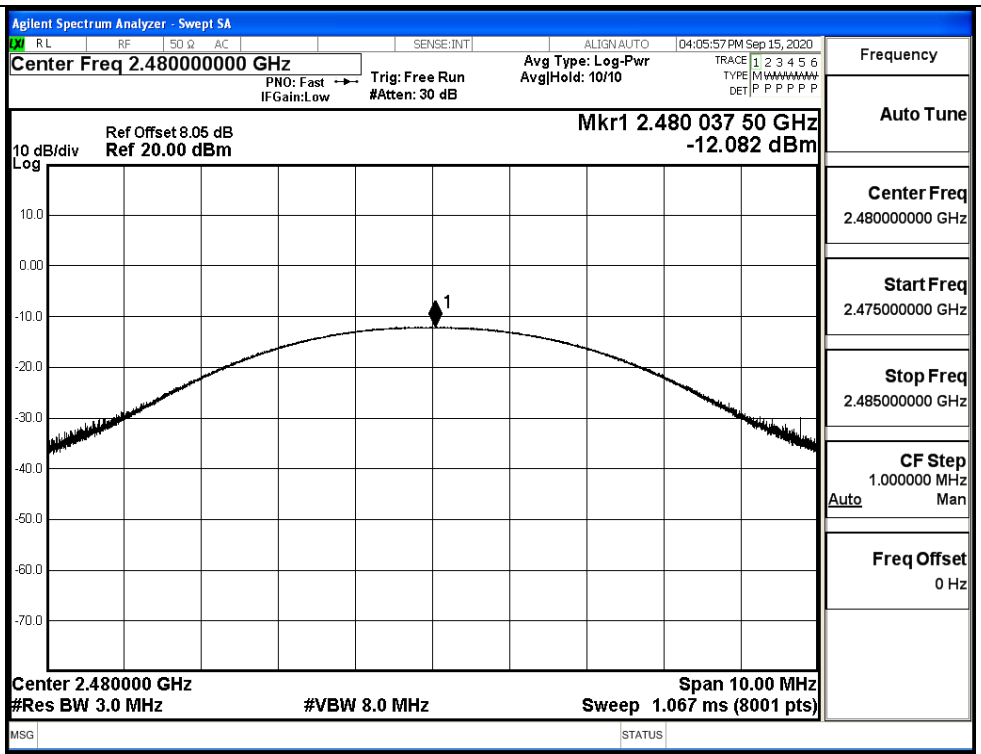
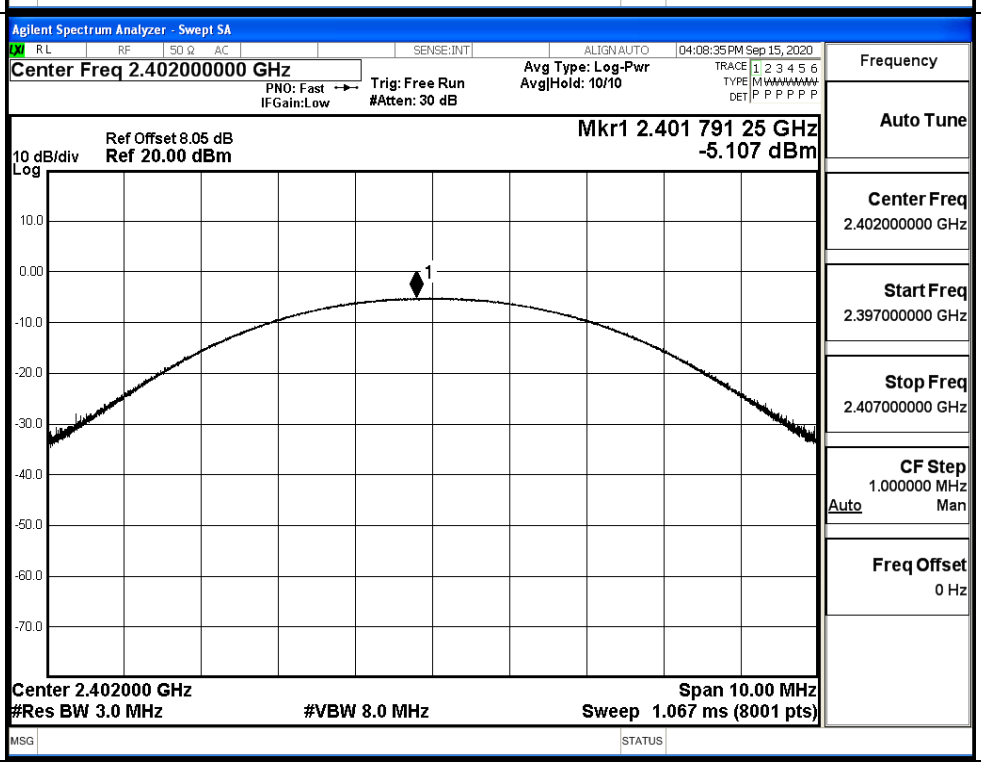
Environmental Conditions

Temperature:	22.6° C
Relative Humidity:	53.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Li
Supervised by:	Li Huan

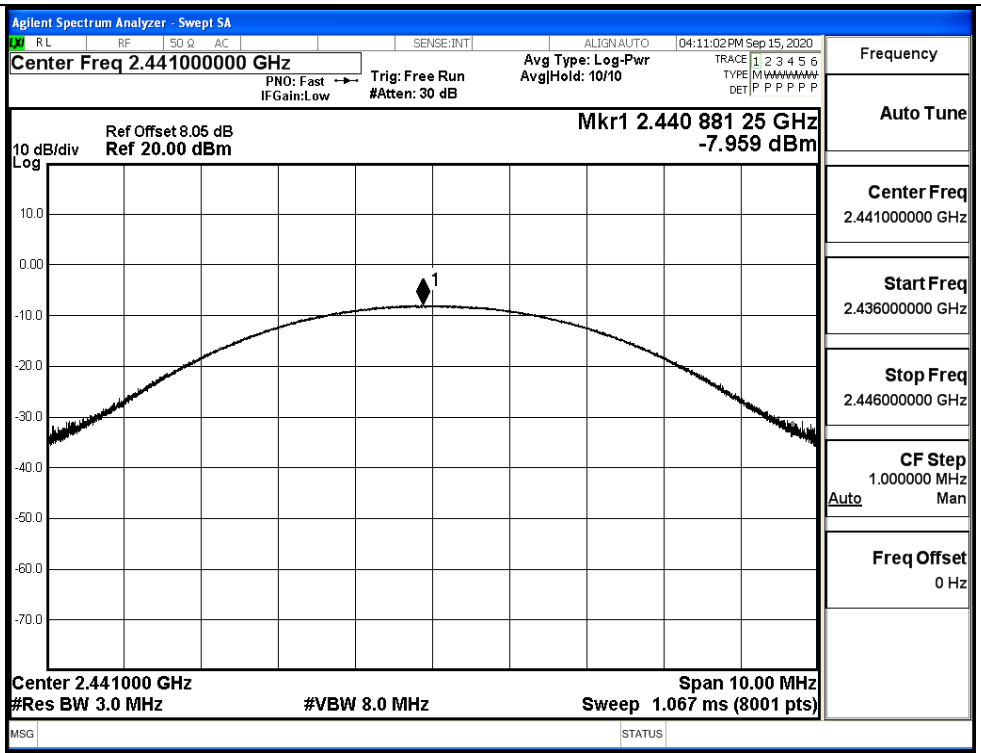
A.1 Maxmum Conducted Peak Output Power

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-6.738	21	PASS
	MCH	-9.917	21	PASS
	HCH	-12.082	21	PASS
π/4DQPSK	LCH	-5.107	21	PASS
	MCH	-7.959	21	PASS
	HCH	-10.111	21	PASS
8DPSK	LCH	-4.548	21	PASS
	MCH	-6.907	21	PASS
	HCH	-8.993	21	PASS

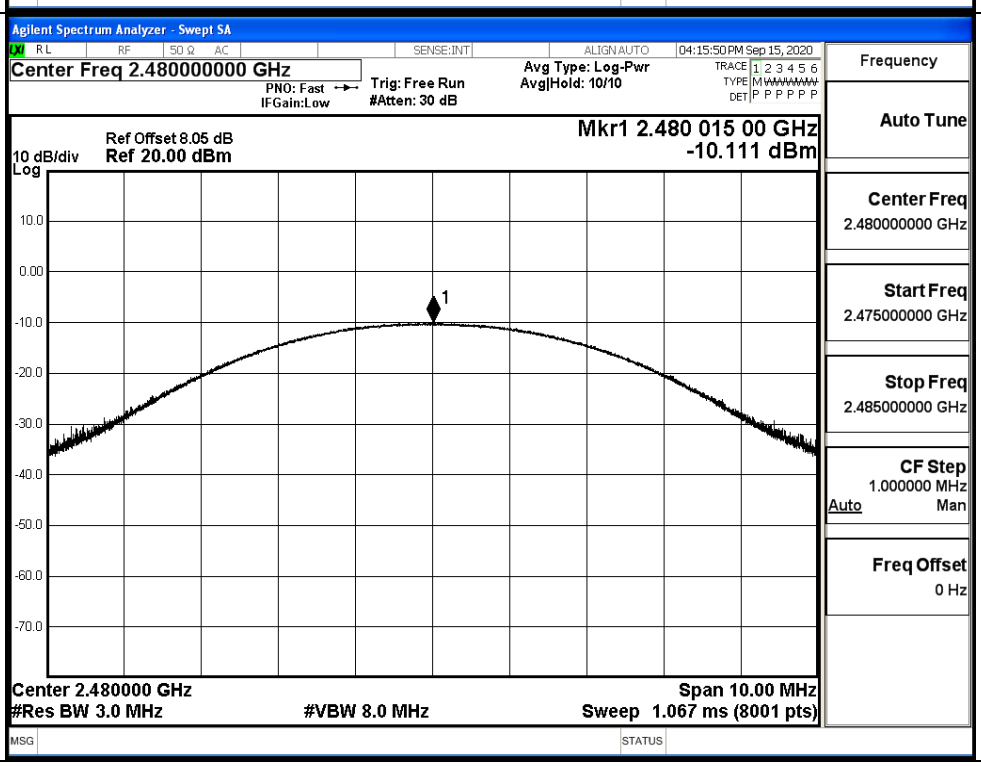
Test Graphs		
GFSK/LCH		
GFSK/MCH		

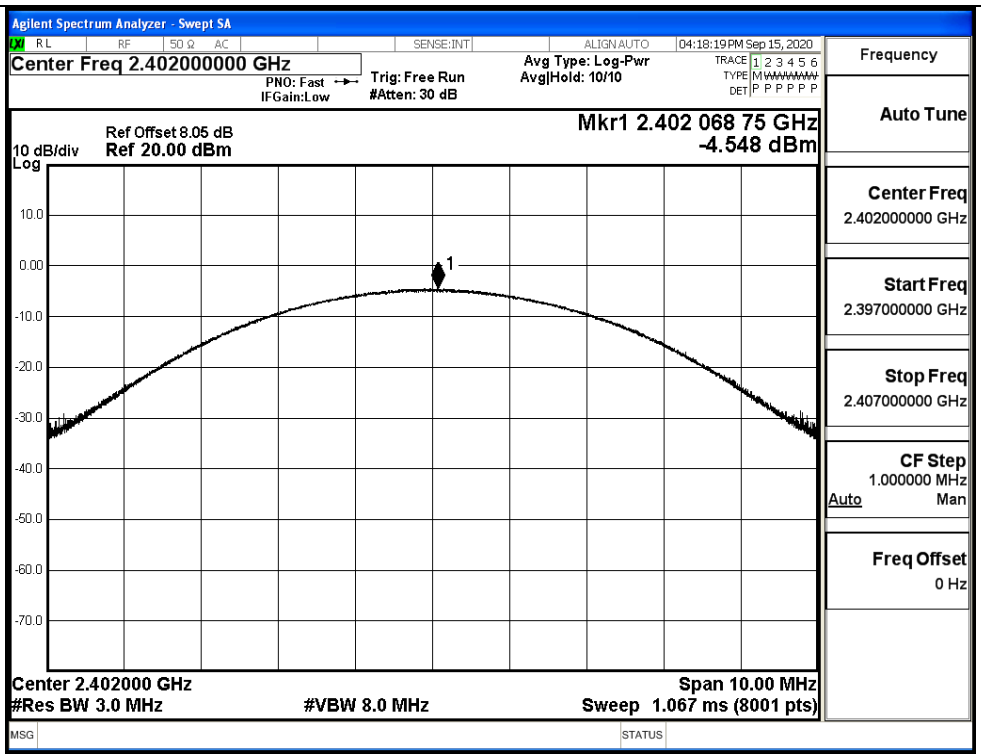
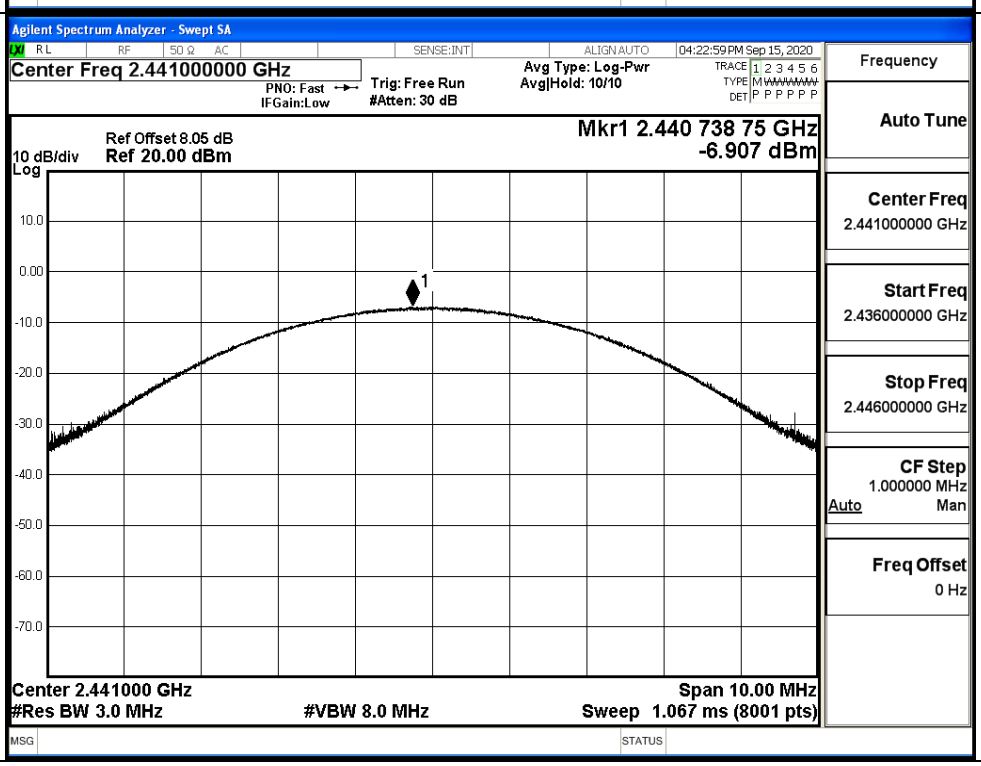
GFSK/HCH	
π/4DQPSK/LCH	

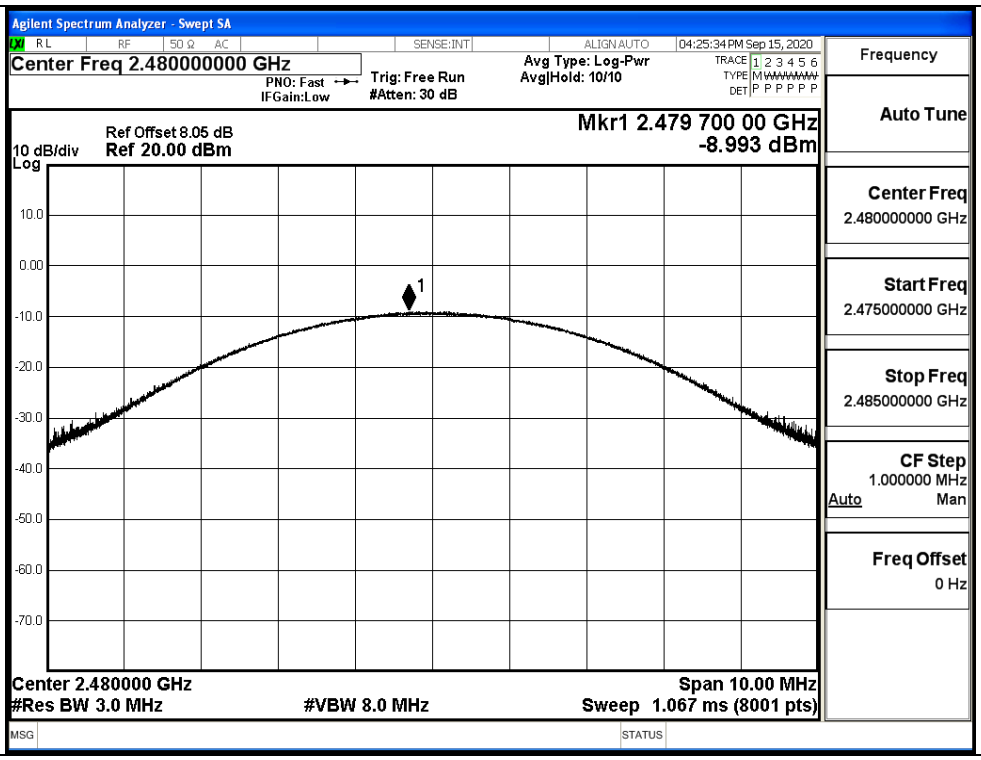
π/4DQPSK/MCH



π/4DQPSK/HCH



8DPSK/LCH	
8DPSK/MCH	

8DPSK/HCH	

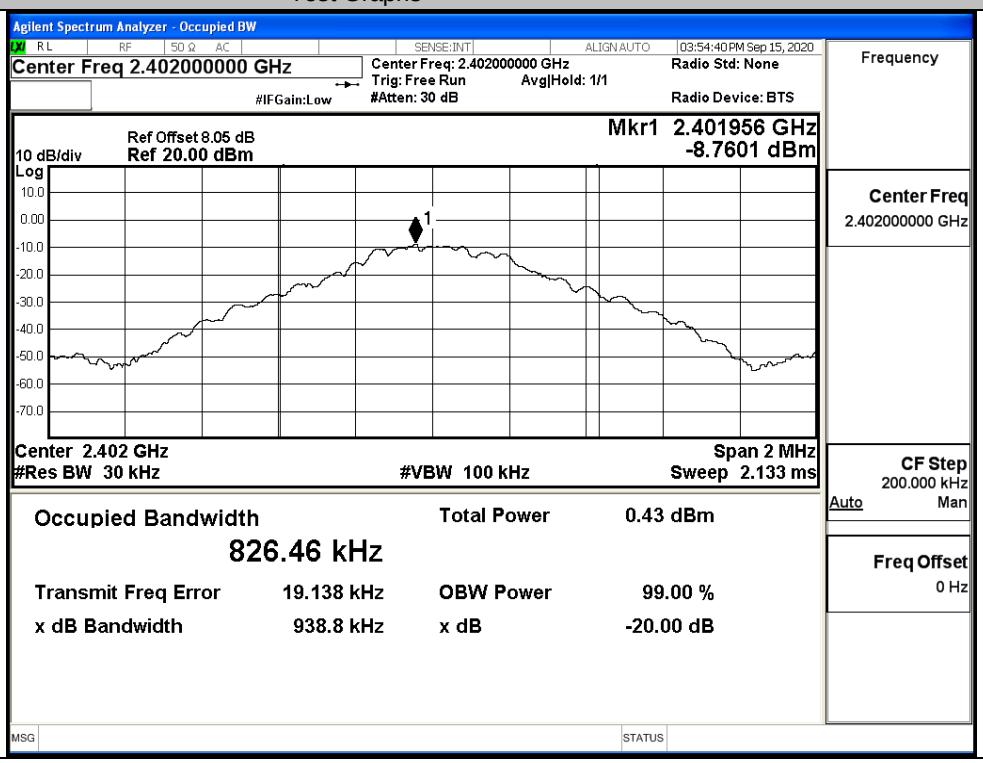
Agilent Spectrum Analyzer - Swept SA
Center Freq 2.480000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 10/10
04:25:34 PM Sep 15, 2020
Ref Offset 8.05 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 2.479 700 00 GHz
-8.993 dBm
Center 2.480000 GHz
#Res BW 3.0 MHz
#VBW 8.0 MHz
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

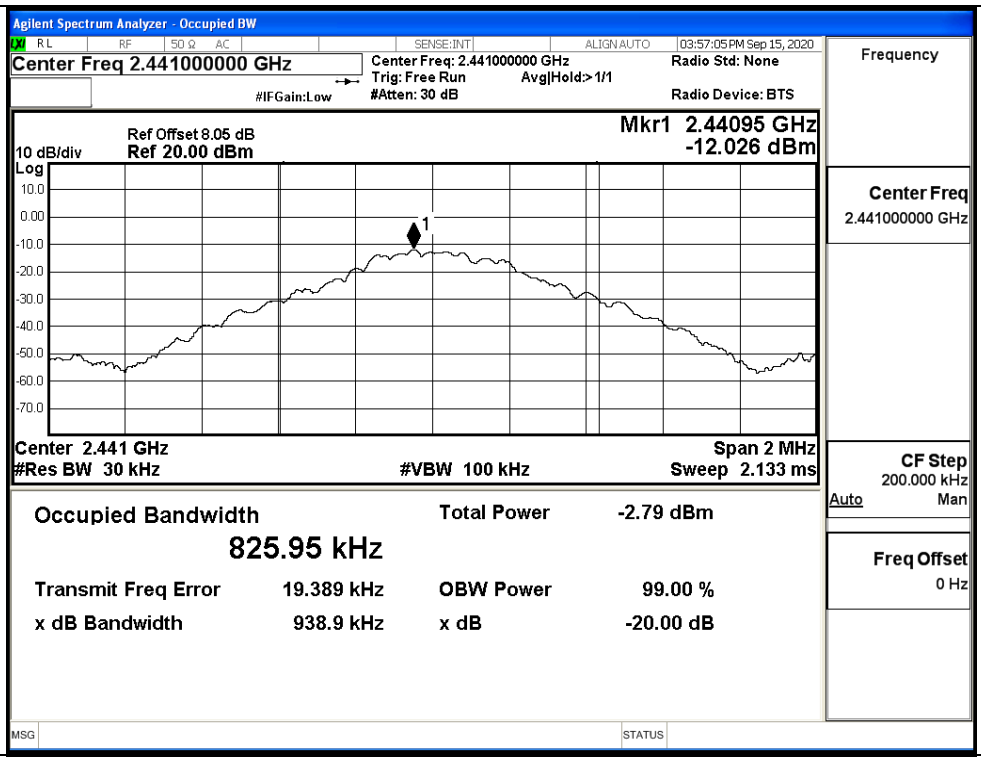
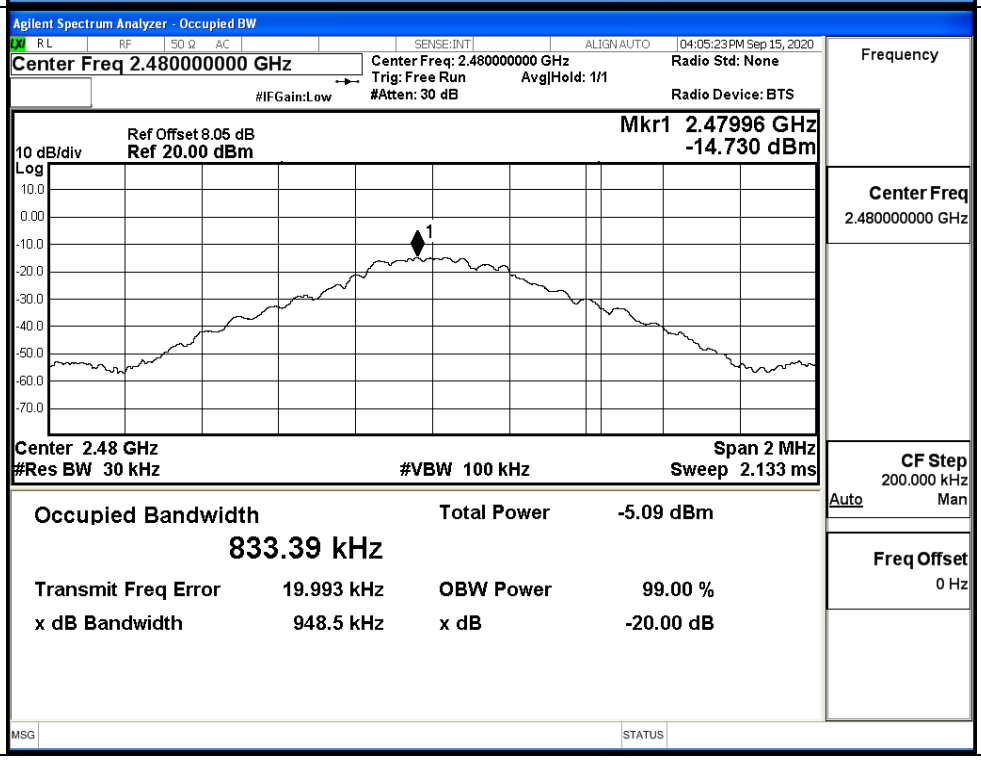
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9388	Not Specified	PASS
	MCH	0.9389	Not Specified	PASS
	HCH	0.9485	Not Specified	PASS
π/4DQPSK	LCH	1.286	Not Specified	PASS
	MCH	1.308	Not Specified	PASS
	HCH	1.288	Not Specified	PASS
8DPSK	LCH	1.295	Not Specified	PASS
	MCH	1.303	Not Specified	PASS
	HCH	1.299	Not Specified	PASS

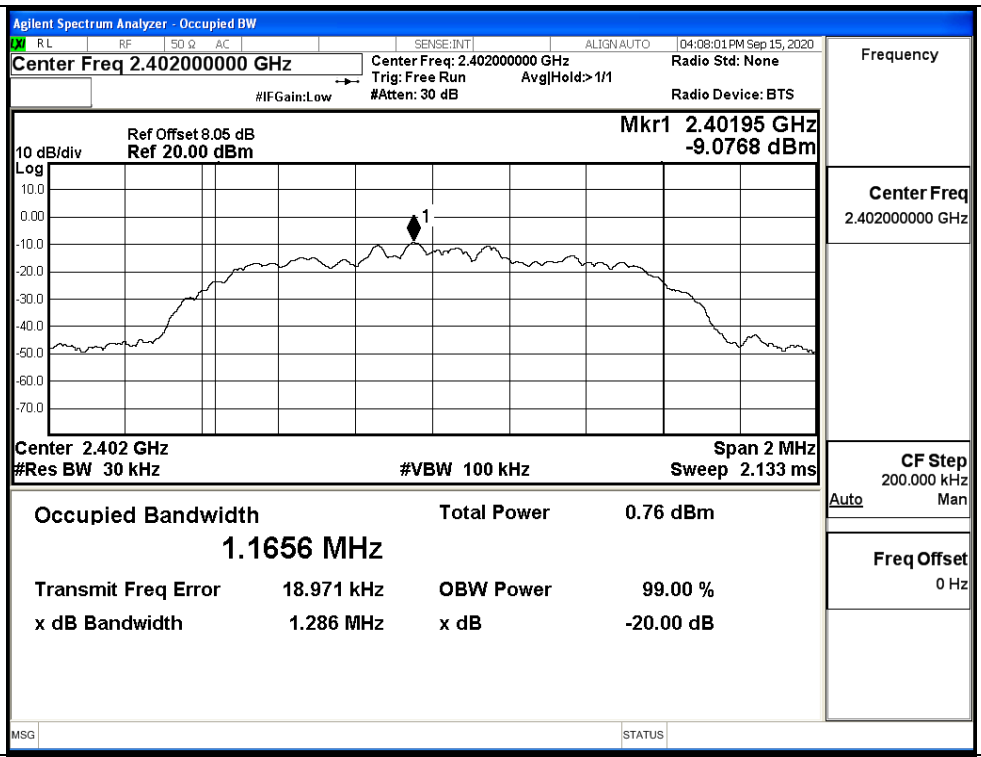
Test Graphs

GFSK/LCH

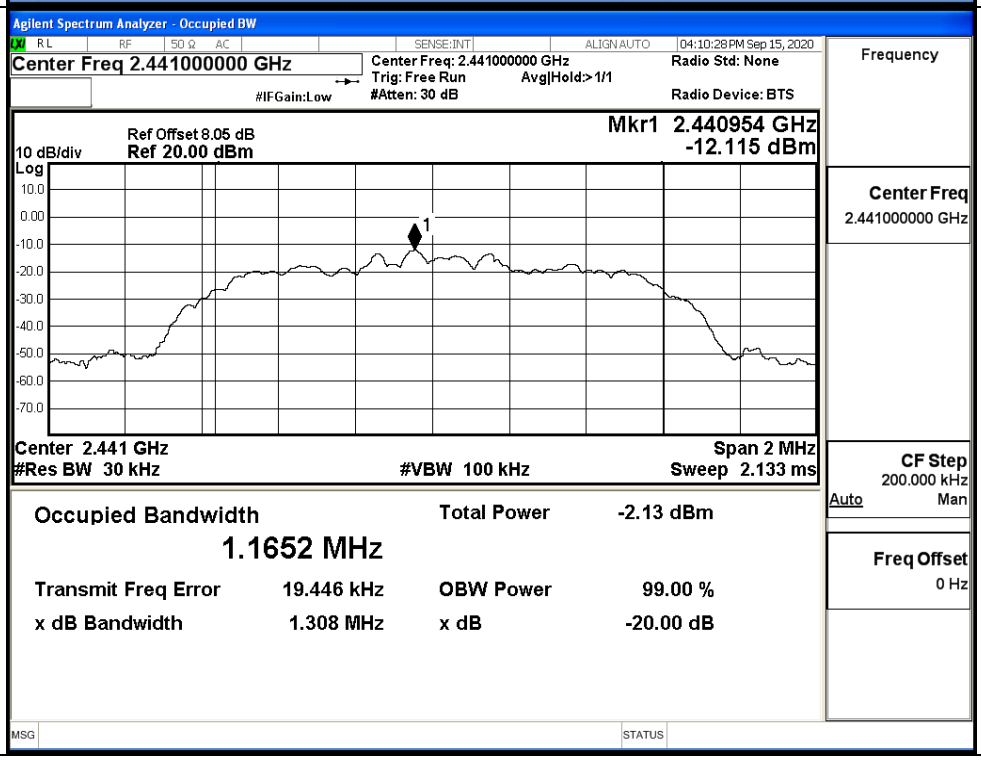


GFSK/MCH	
GFSK/HCH	

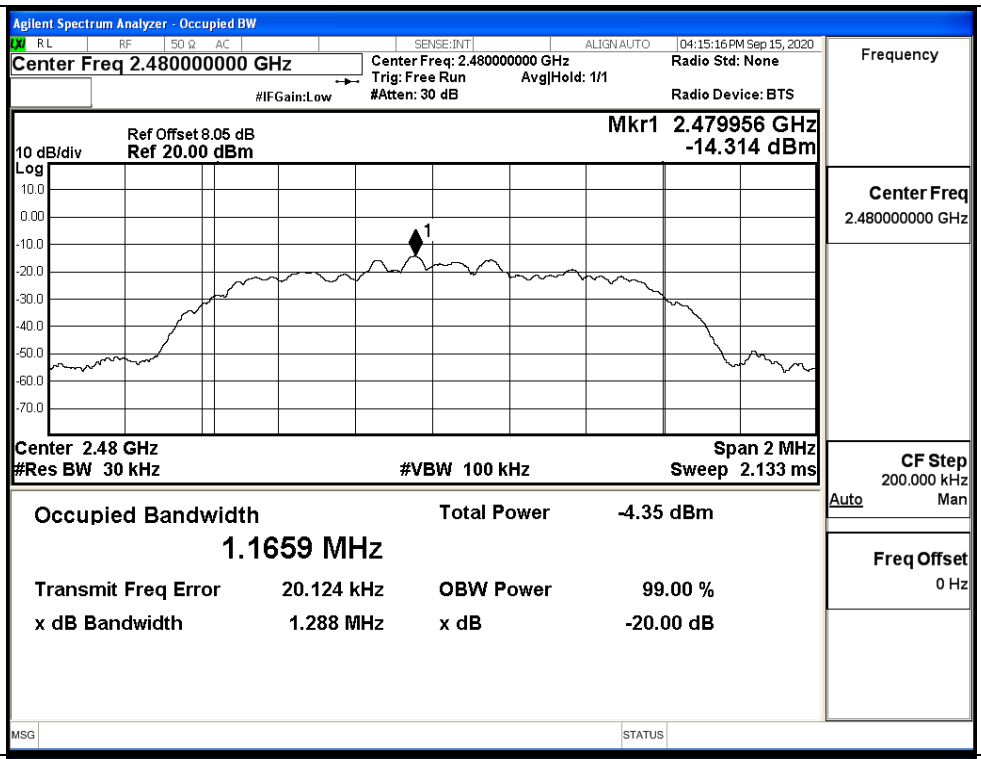
π/4DQPSK/LCH



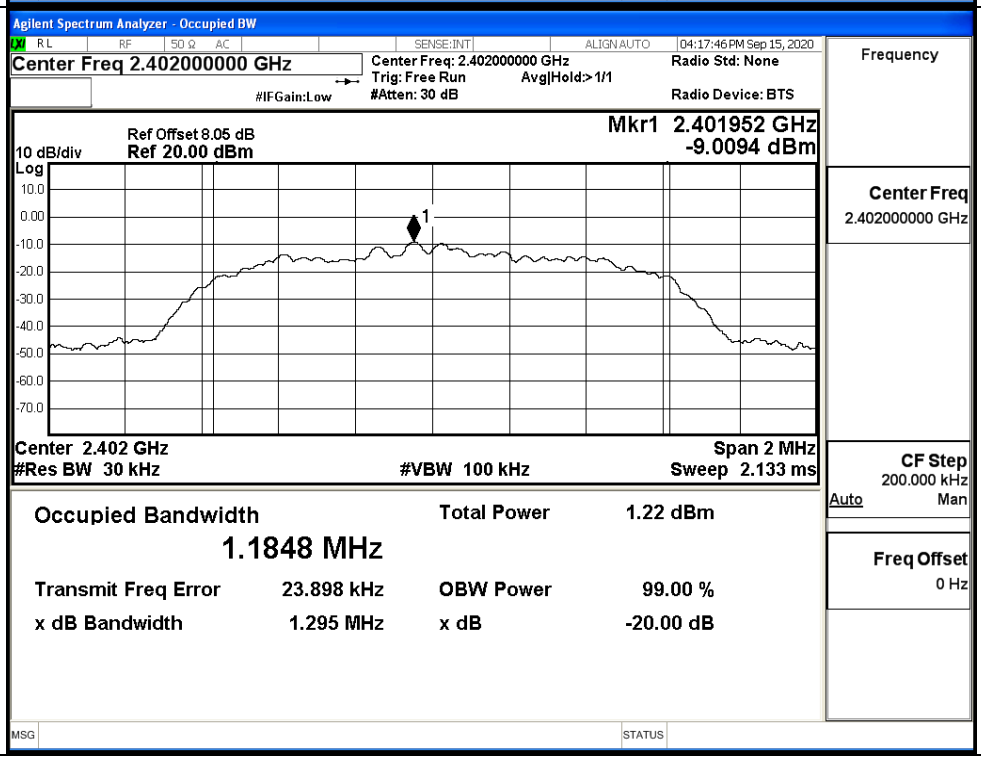
π/4DQPSK/MCH

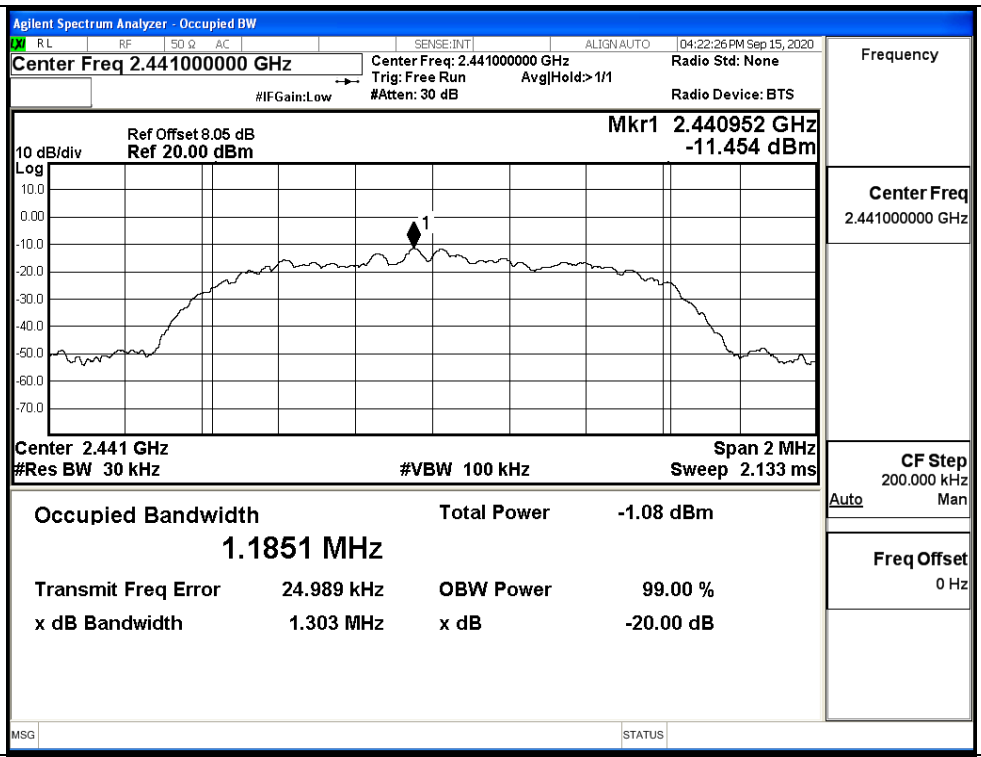
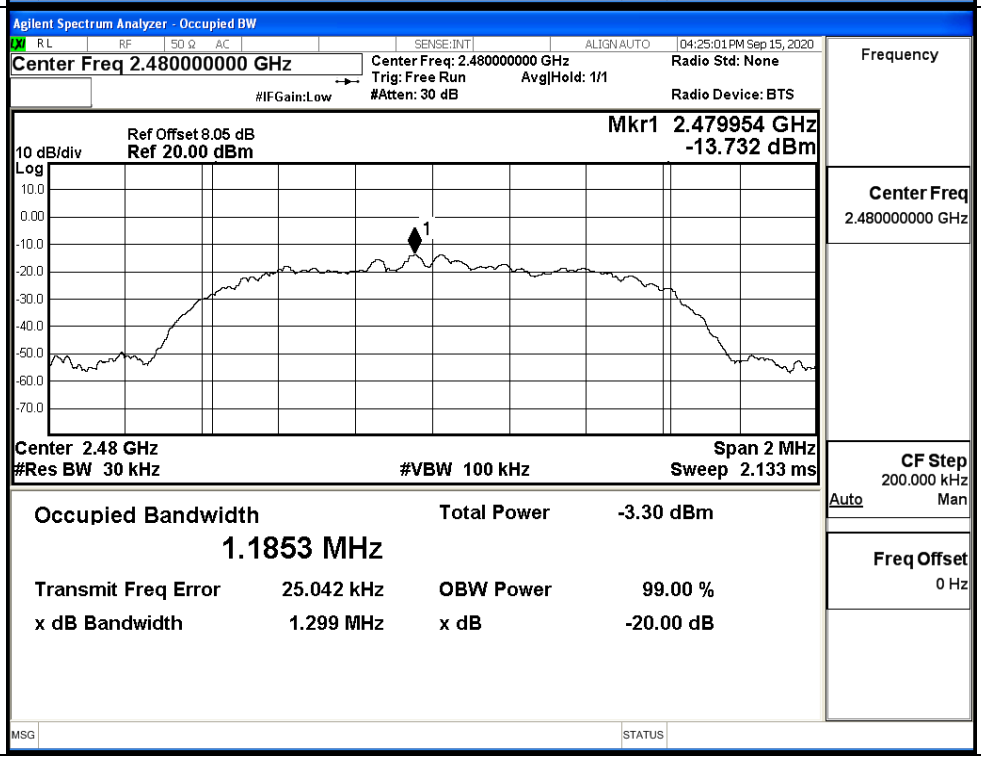


π/4DQPSK/HCH



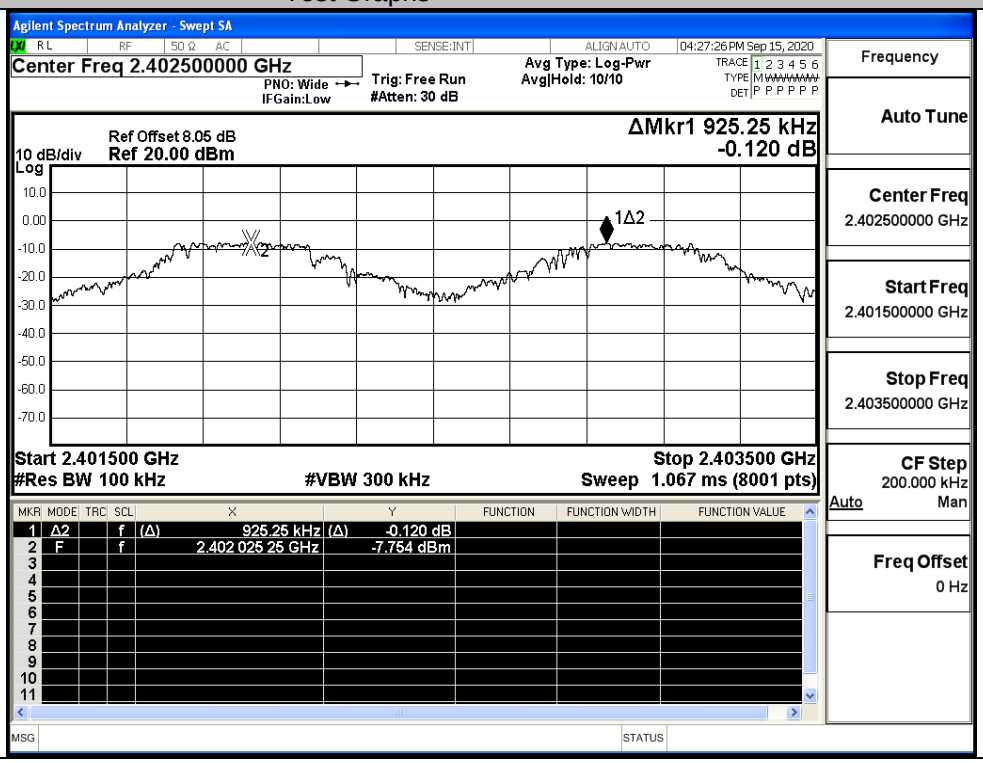
8DPSK/LCH

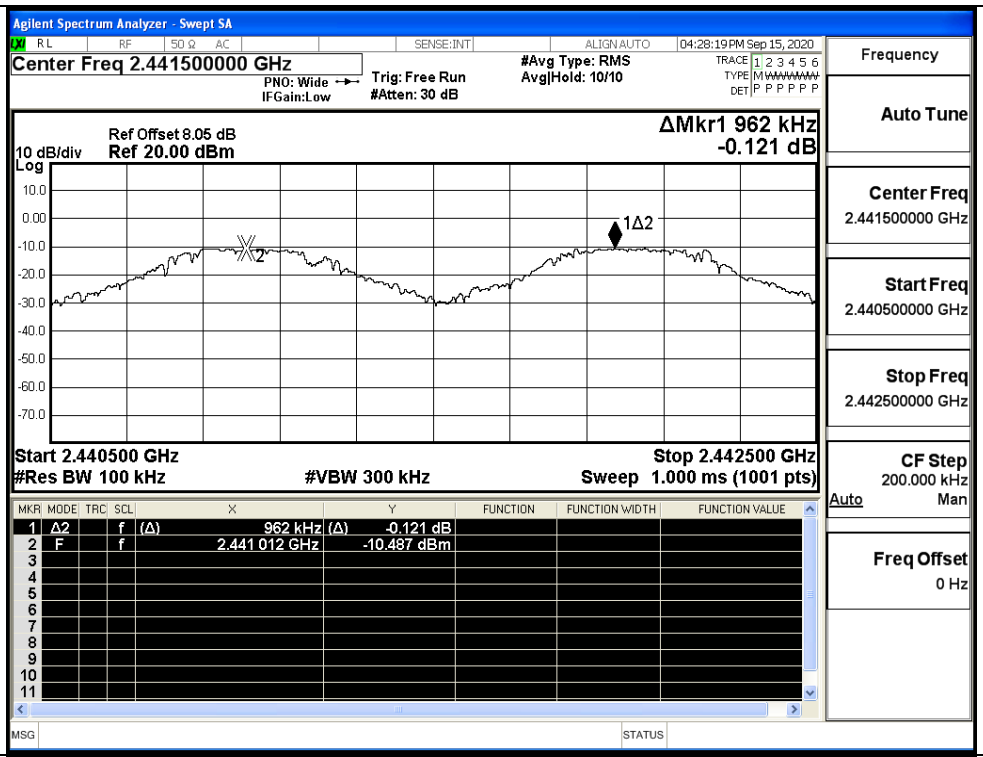
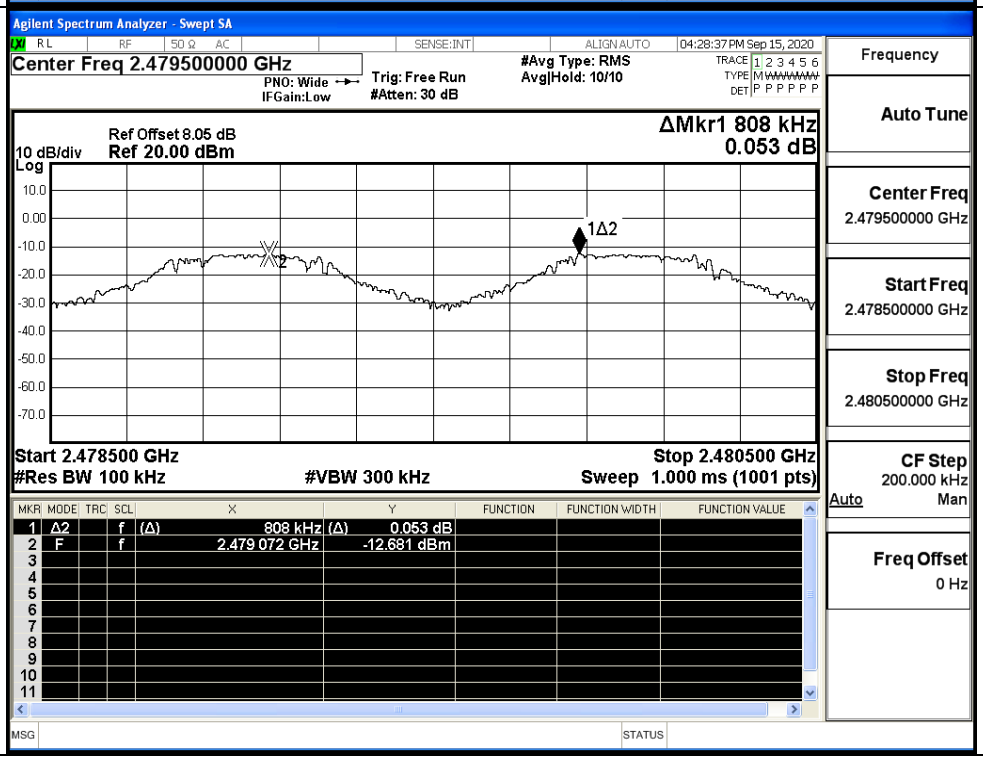


8DPSK/MCH	
8DPSK/HCH	

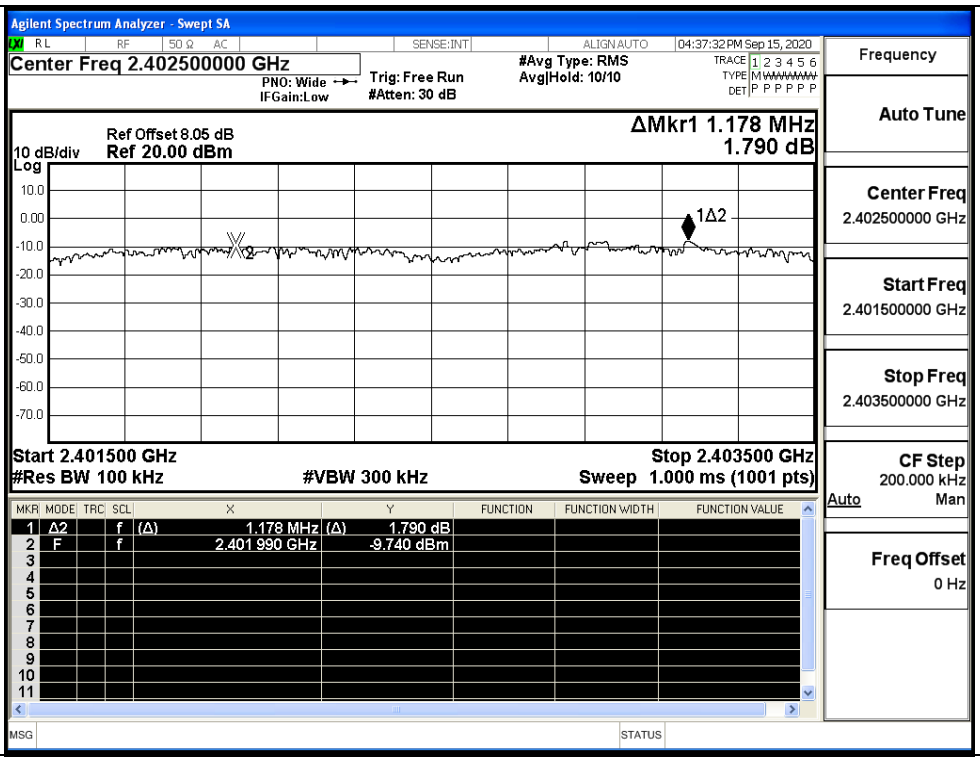
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.925	0.632	PASS
	MCH	0.962	0.632	PASS
	HCH	0.808	0.632	PASS
π/4DQPSK	LCH	1.178	0.872	PASS
	MCH	1.012	0.872	PASS
	HCH	1.208	0.872	PASS
8DPSK	LCH	1.028	0.869	PASS
	MCH	1.034	0.869	PASS
	HCH	1.188	0.869	PASS

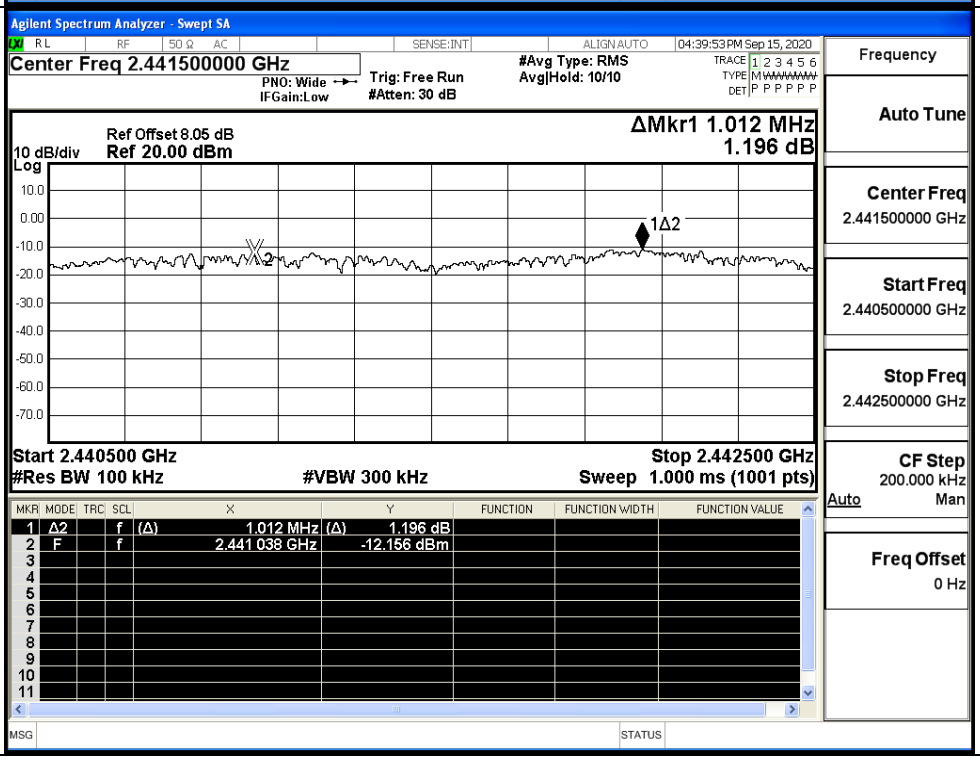
Test Graphs		
GFSK/LCH		

GFSK/MCH	
GFSK/HCH	

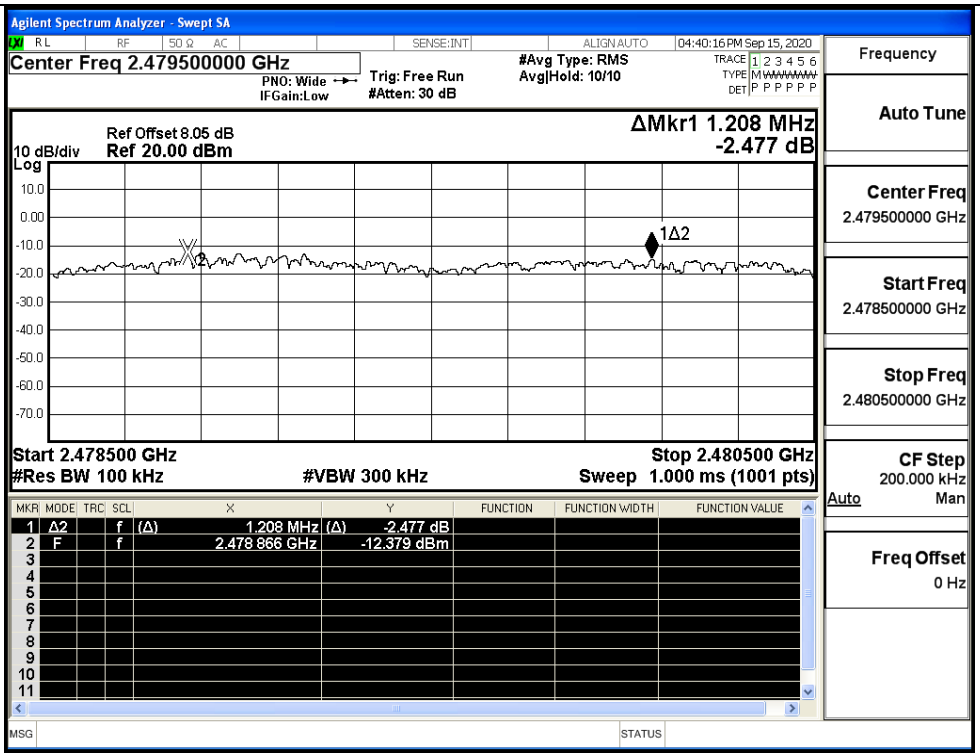
π/4DQPSK/LCH



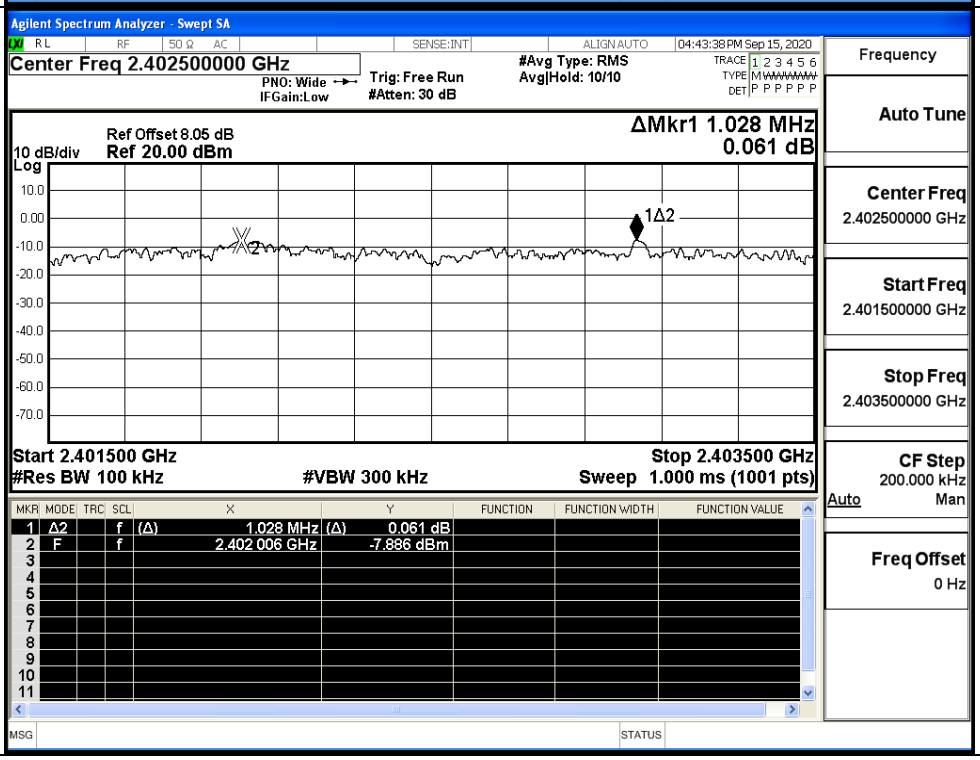
π/4DQPSK/MCH



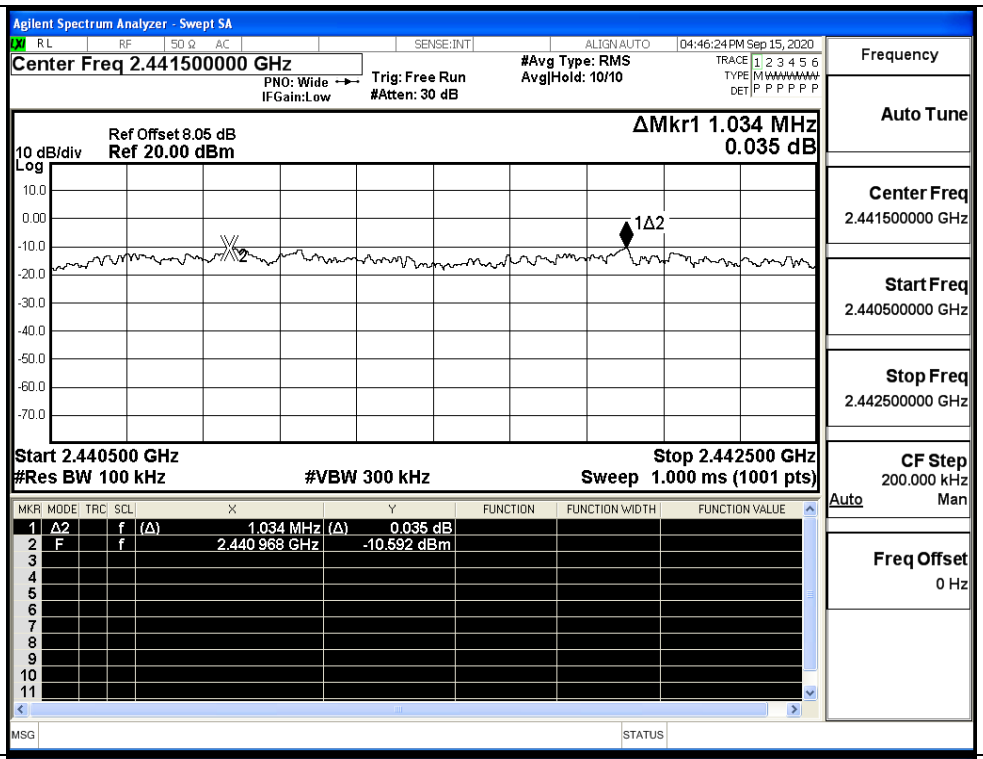
π/4DQPSK/HCH



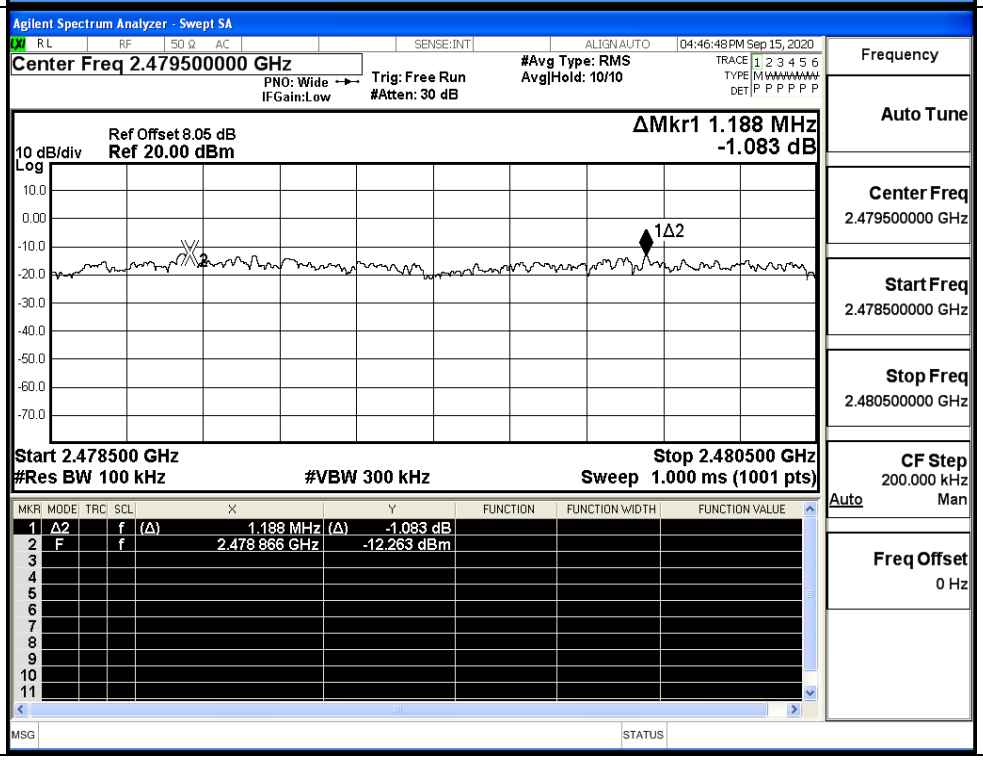
8DPSK/LCH



8DPSK/MCH

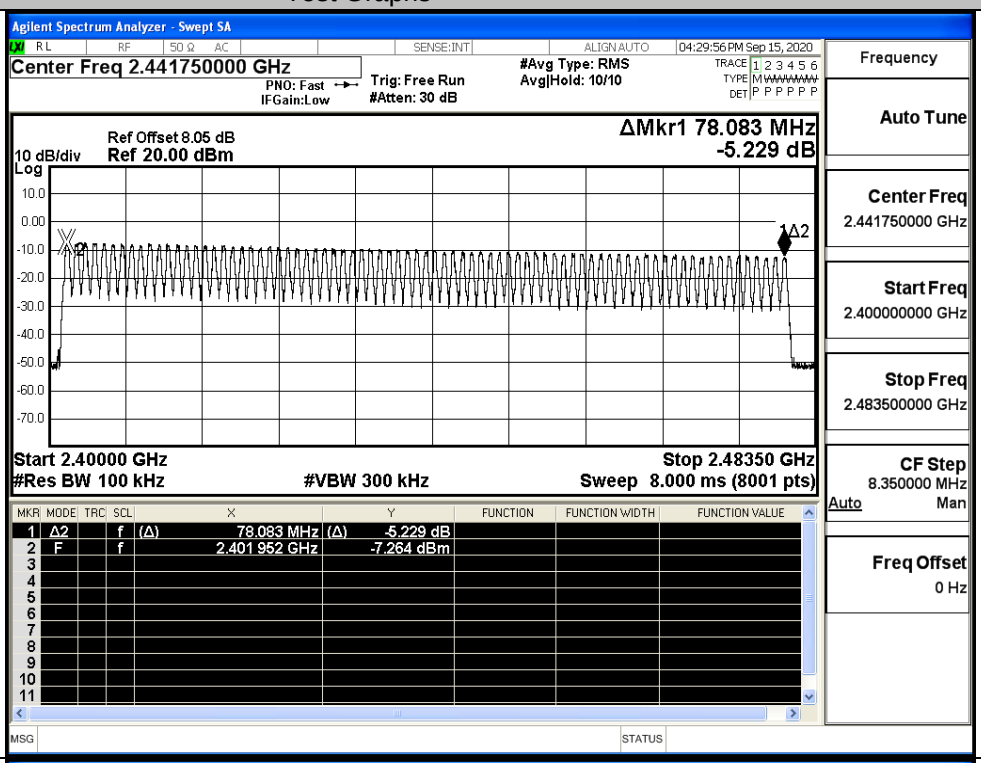
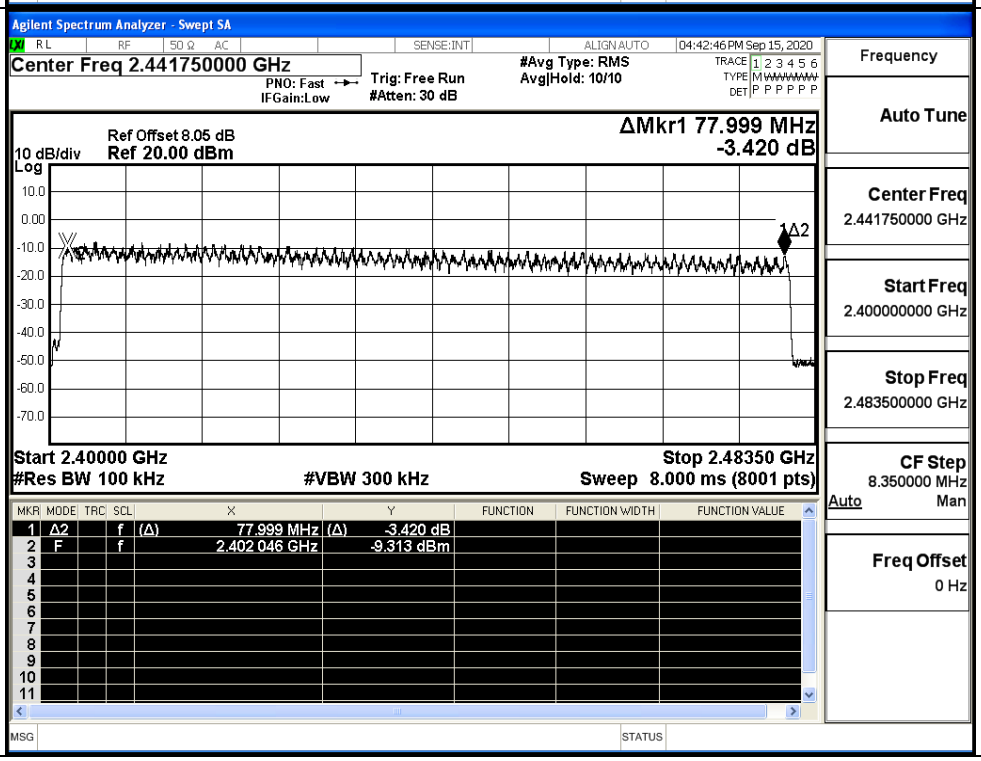


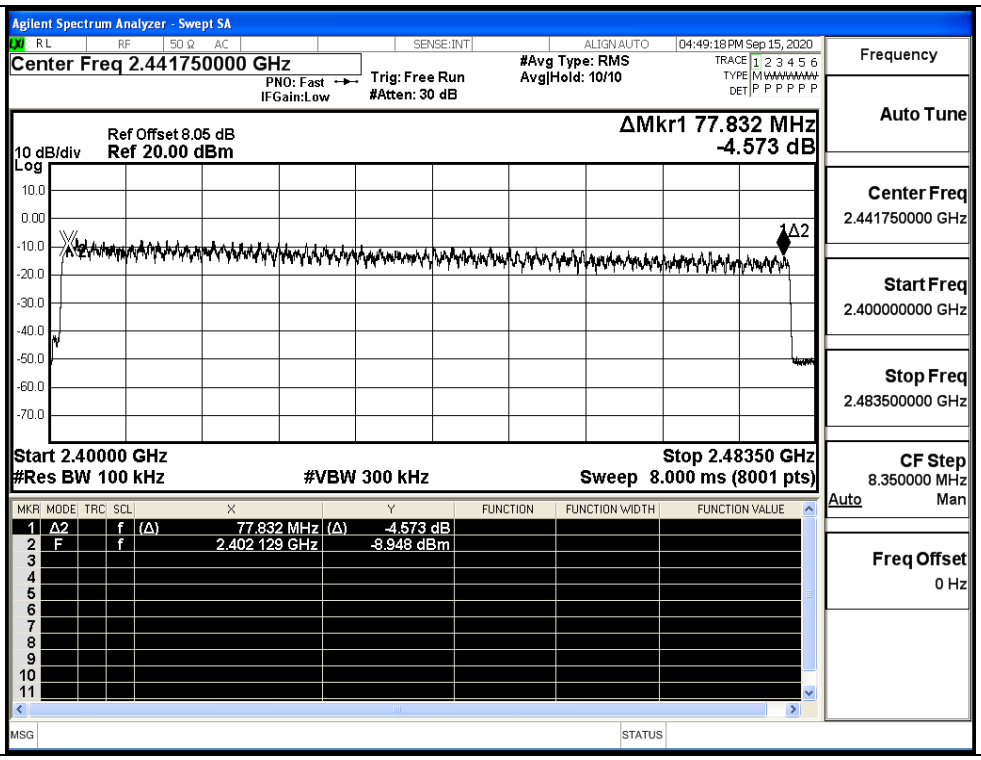
8DPSK/HCH



A.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

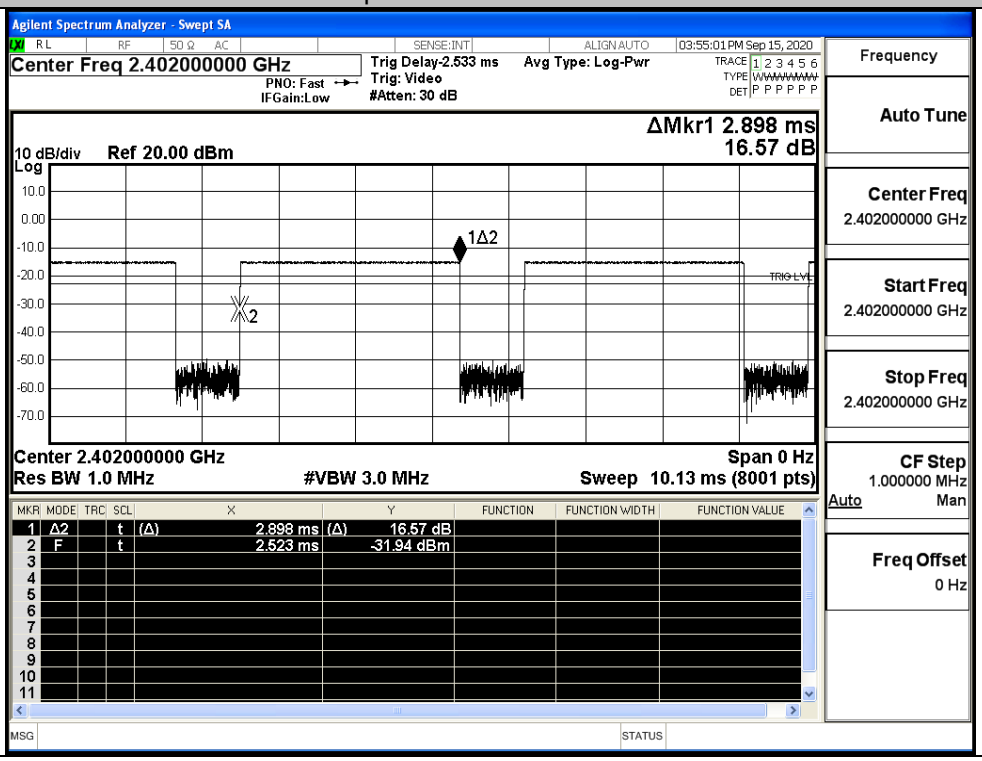
Test Graphs	
GFSK/Hop	
π/4DQPSK/Hop	

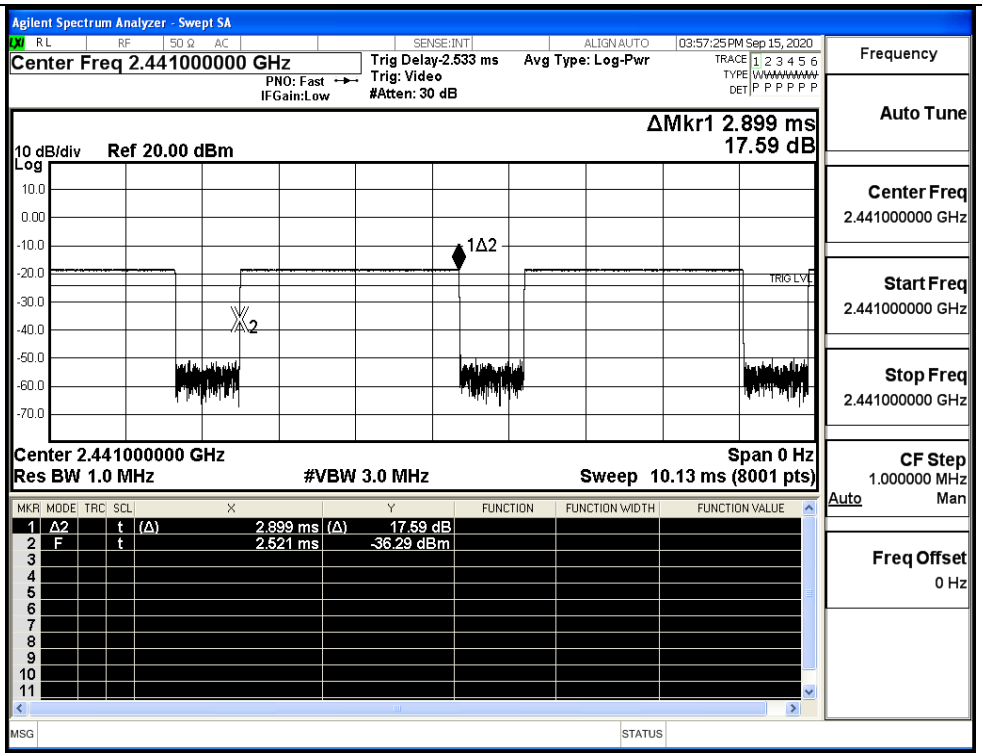
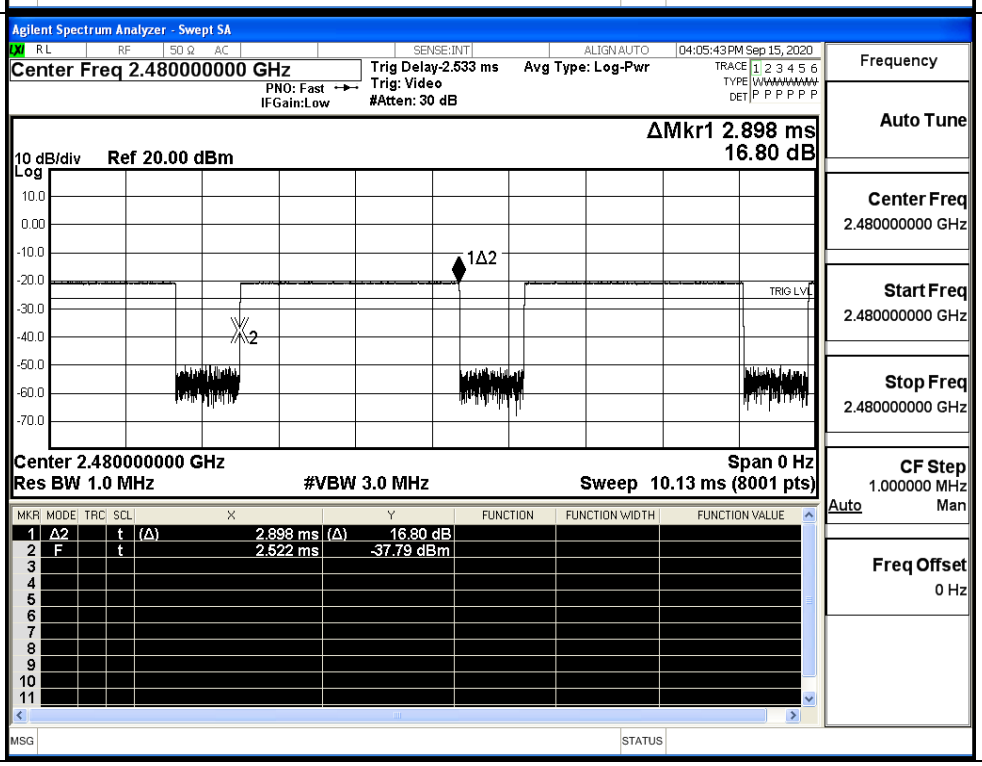
8DPSK/Hop	

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
04:49:18 PM Sep 15, 2020
Ref Offset 8.05 dB
10 dB/div
Ref 20.00 dBm
Log
ΔMkr1 77.832 MHz
-4.573 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) 77.832 MHz (Δ) -4.573 dB
2 F f 2.402 129 GHz -8.948 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

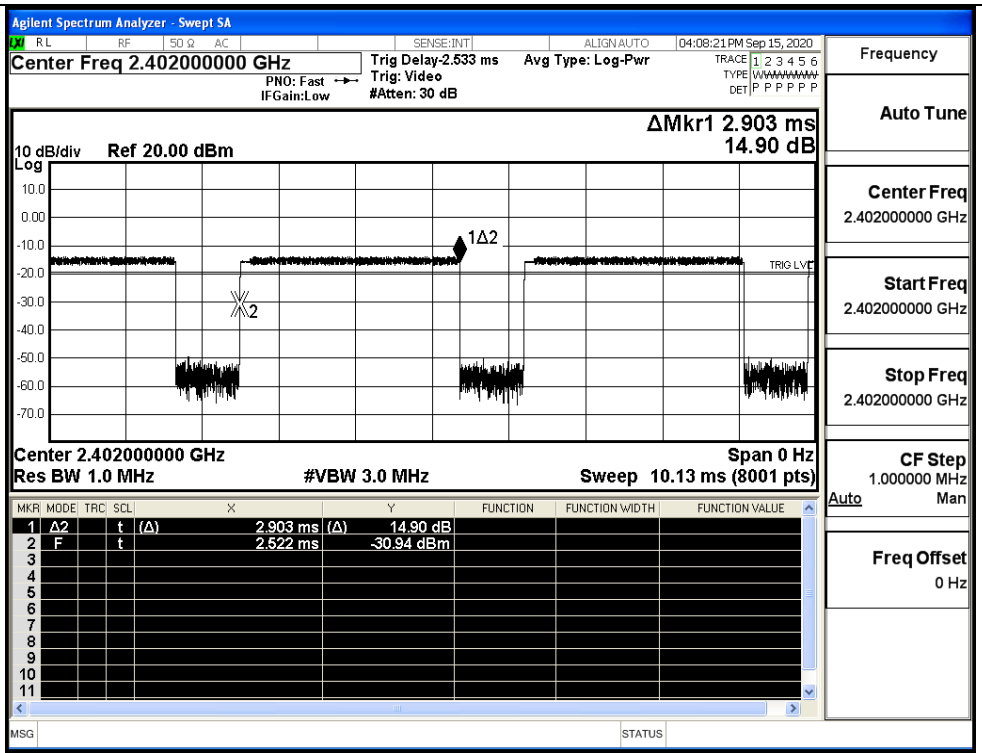
A.5 Dwell Time

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.9	106.7	0.309	0.4	PASS
	DH5	MCH	2.9	106.7	0.309	0.4	PASS
	DH5	HCH	2.9	106.7	0.309	0.4	PASS
π/4DQPSK	2DH5	LCH	2.9	106.7	0.309	0.4	PASS
	2DH5	MCH	2.9	106.7	0.309	0.4	PASS
	2DH5	HCH	2.9	106.7	0.309	0.4	PASS
8DPSK	3DH5	LCH	2.9	106.7	0.31	0.4	PASS
	3DH5	MCH	2.9	106.7	0.31	0.4	PASS
	3DH5	HCH	2.9	106.7	0.31	0.4	PASS

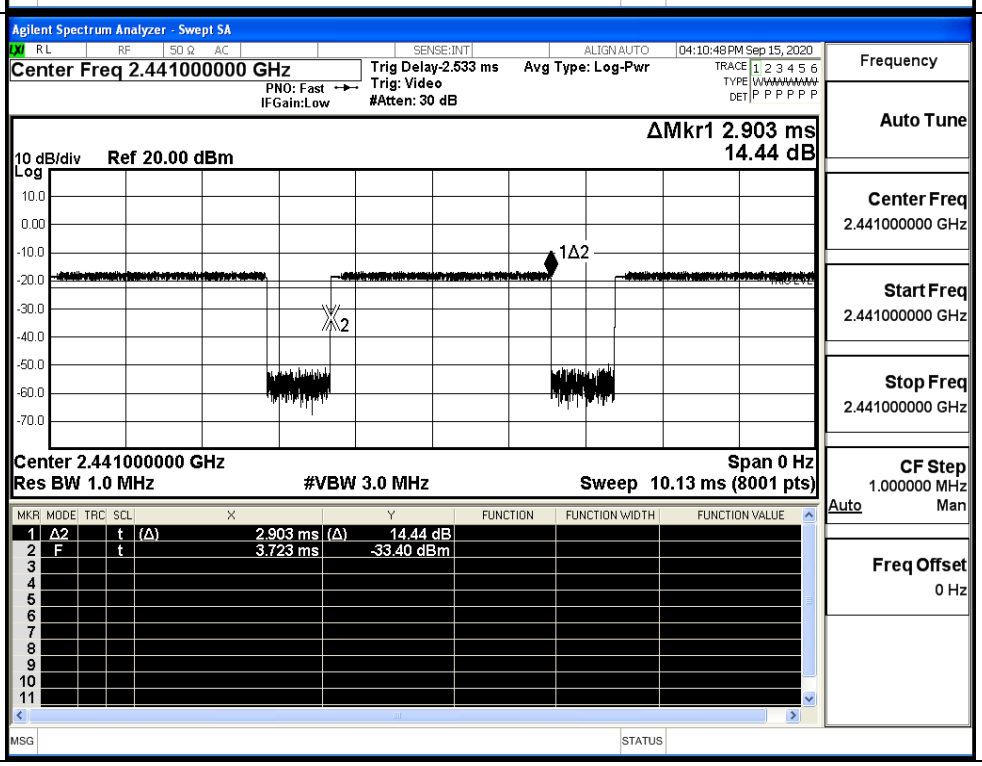
Test Graphs	
GFSK_DH5/LCH	

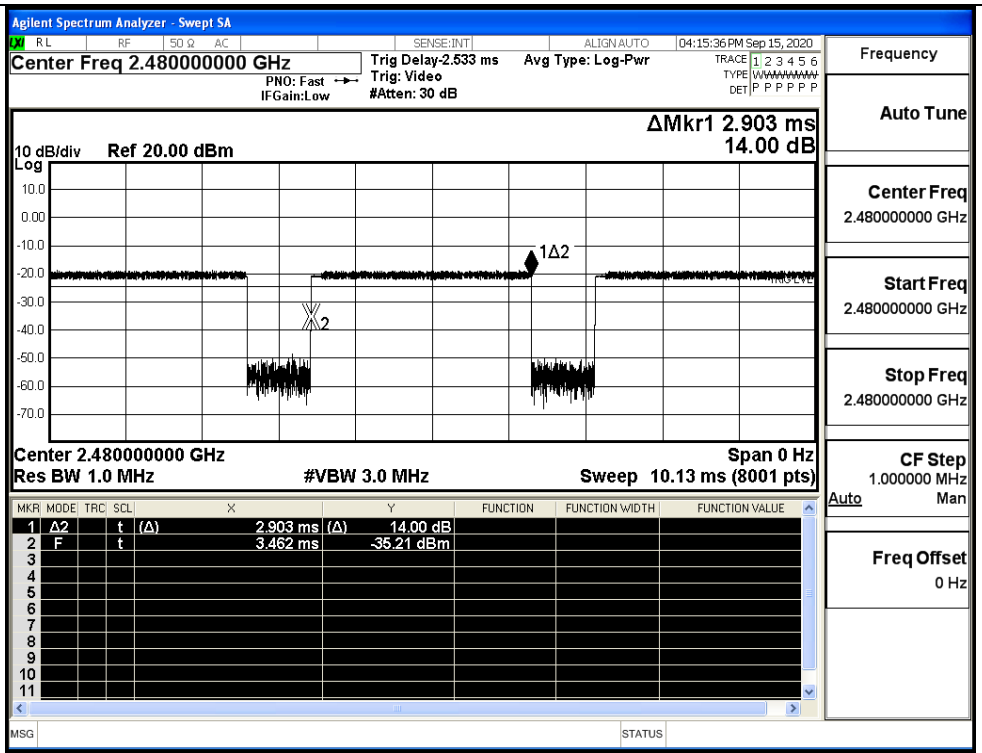
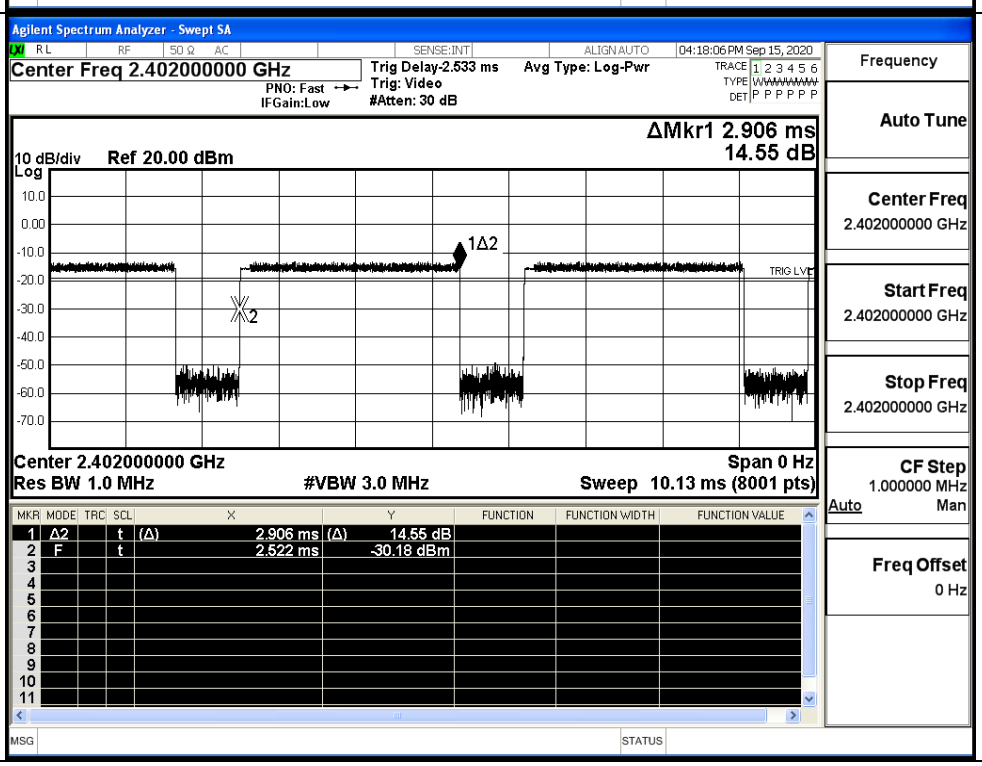
GFSK_DH5/MCH	
GFSK_DH5/HCH	

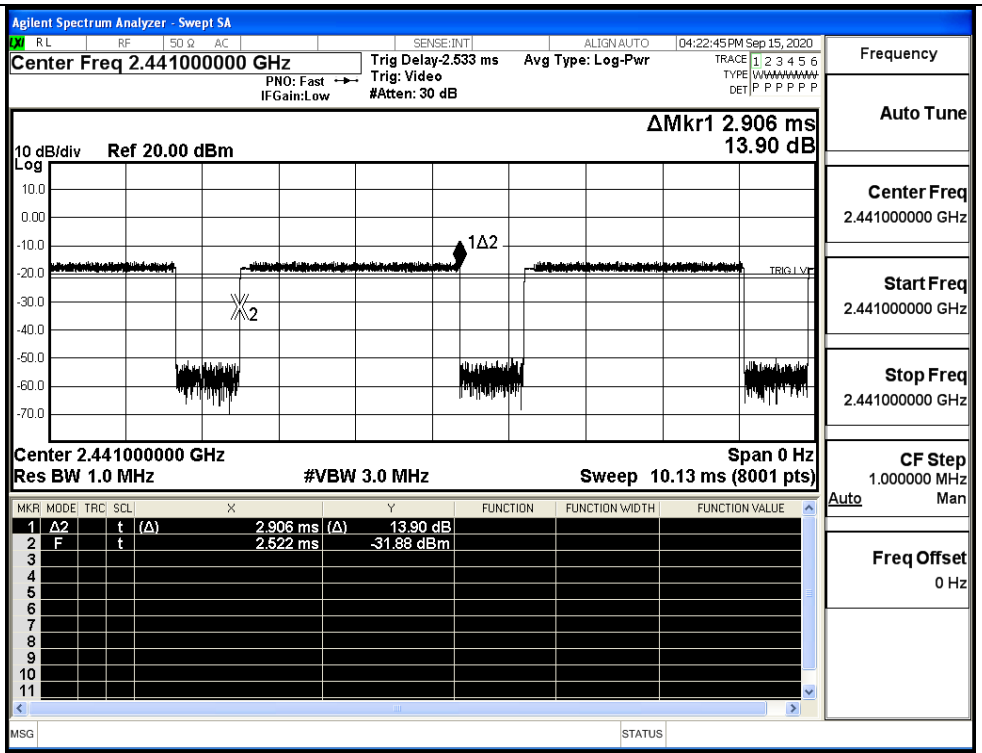
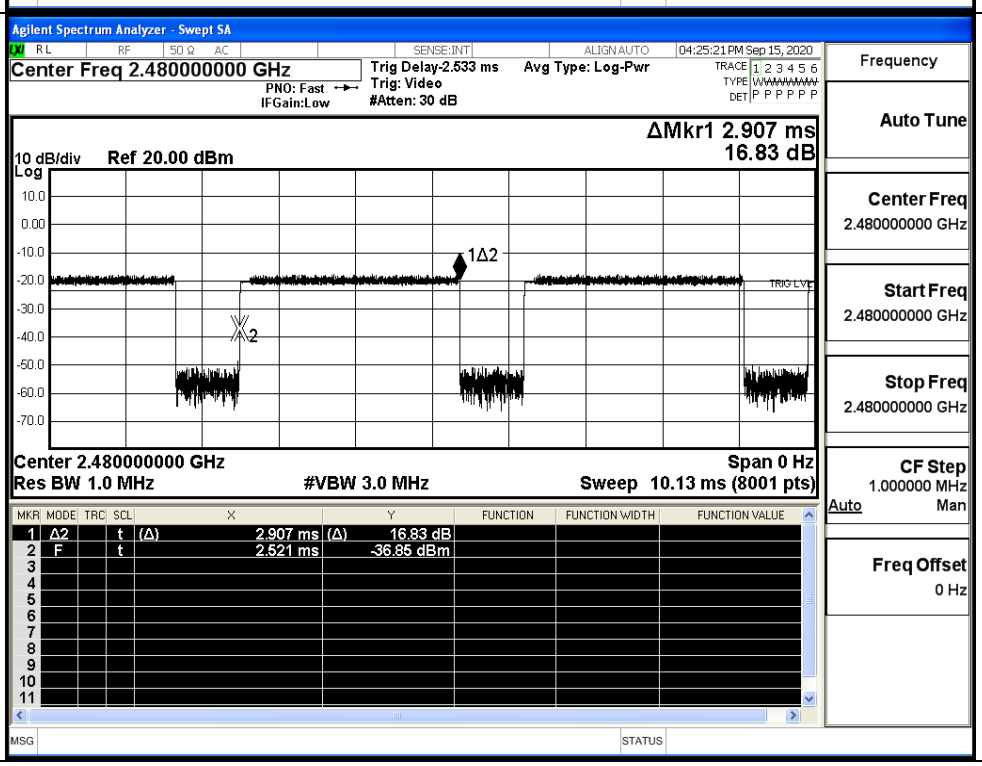
π/4DQPSK
_2DH5/LCH



π/4DQPSK
_2DH5/MCH



π/4DQPSK _2DH5/HCH	
8DPSK _3DH5/LCH	

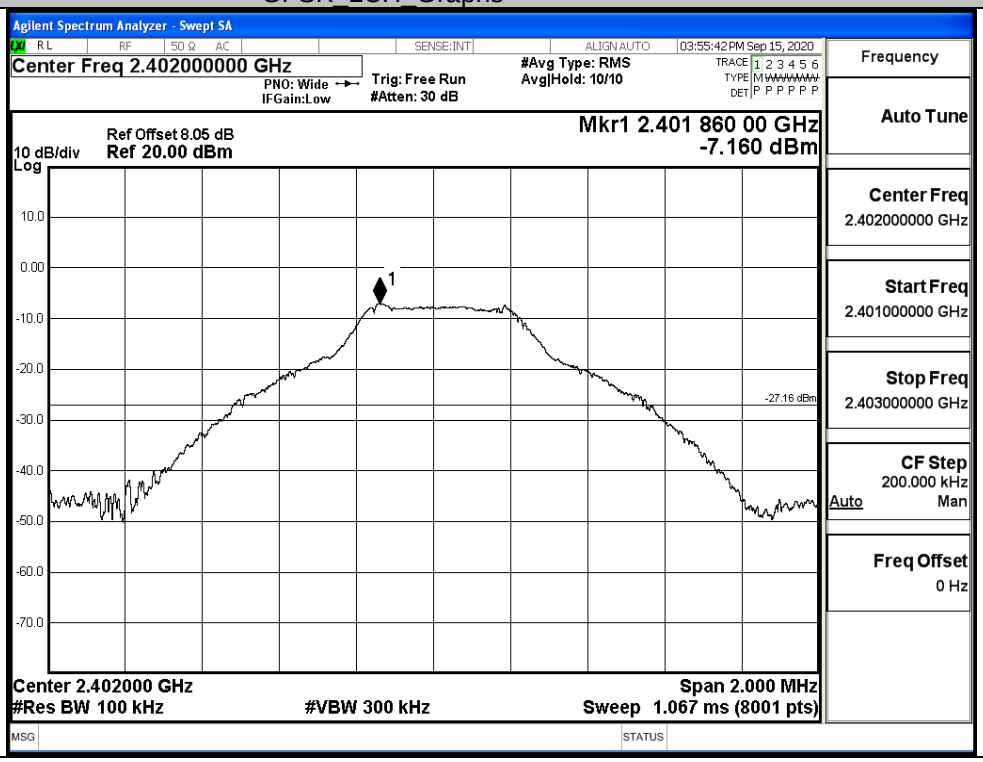
8DPSK _3DH5/MCH	
8DPSK _3DH5/HCH	

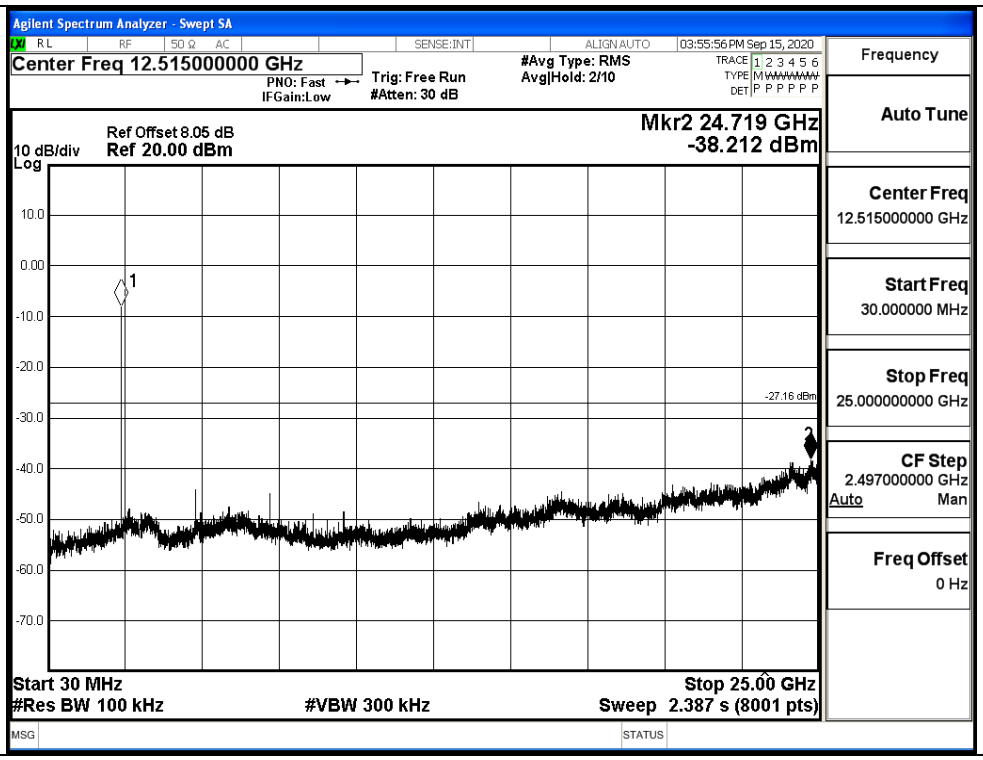
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-7.16	-38.212	-27.160	PASS
	MCH	-10.472	-37.837	-30.472	PASS
	HCH	-12.748	-37.939	-32.748	PASS
π/4DQPSK	LCH	-7.719	-38.120	-27.719	PASS
	MCH	-10.881	-37.863	-30.881	PASS
	HCH	-12.843	-35.932	-32.843	PASS
8DPSK	LCH	-7.567	-38.307	-27.567	PASS
	MCH	-10.01	-38.443	-30.010	PASS
	HCH	-12.188	-37.933	-32.188	PASS

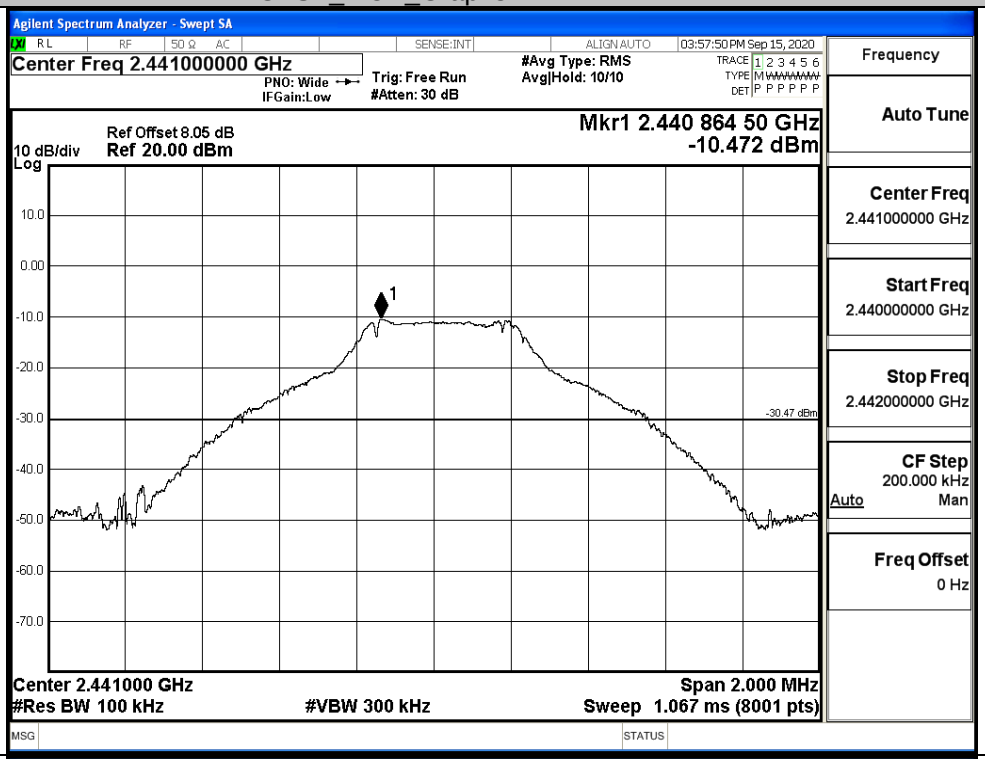
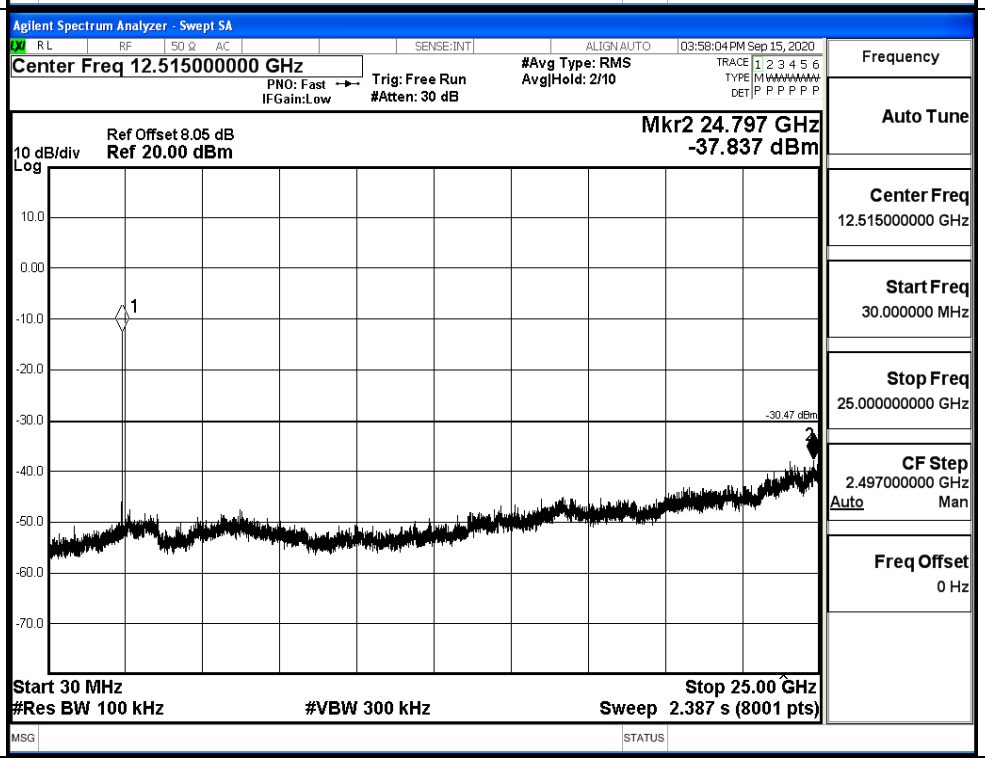
GFSK_LCH_Graphs

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
03:55:56 PM Sep 15, 2020
Ref Offset 8.05 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr2 24.719 GHz
-38.212 dBm
-27.16 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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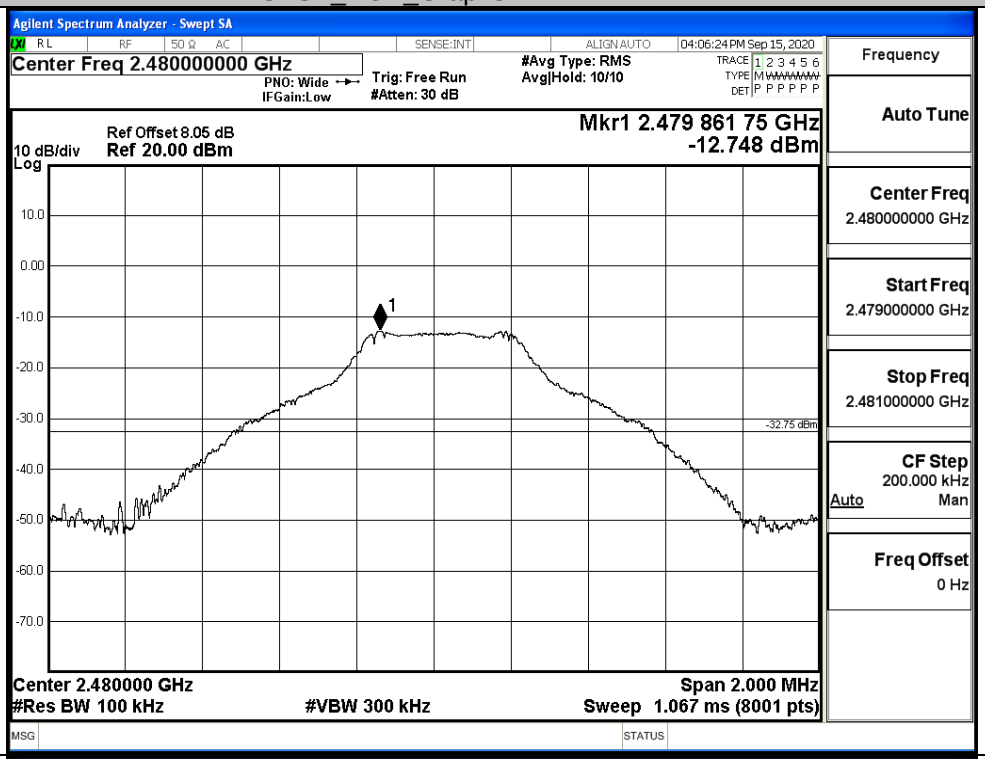
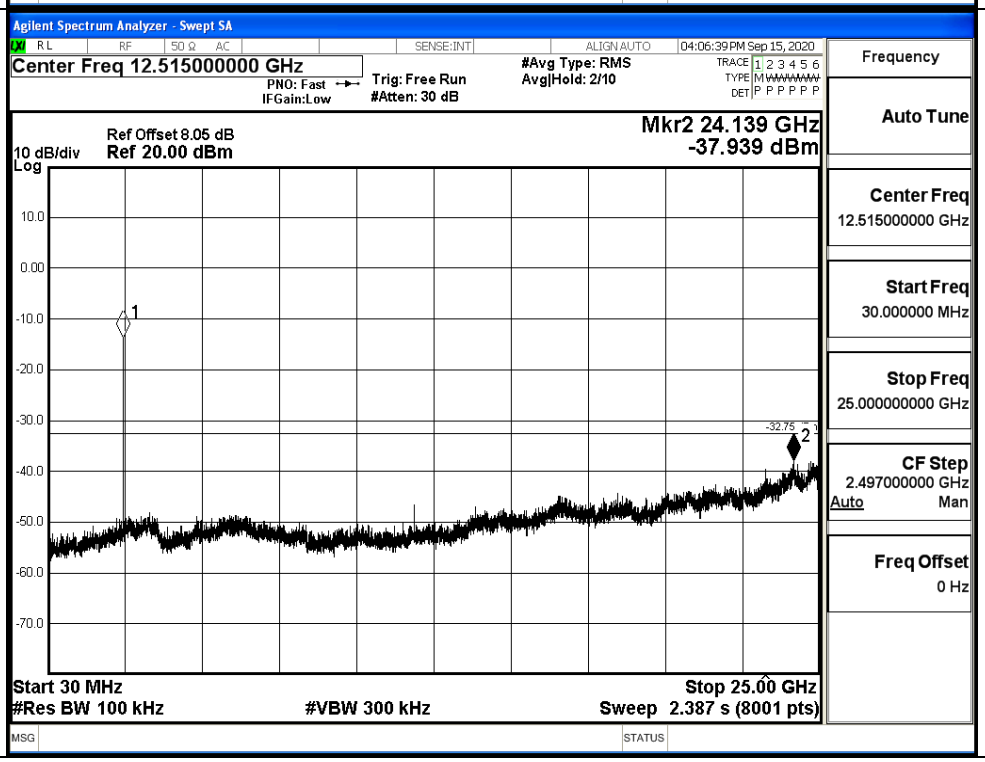
Pref			
Puw			

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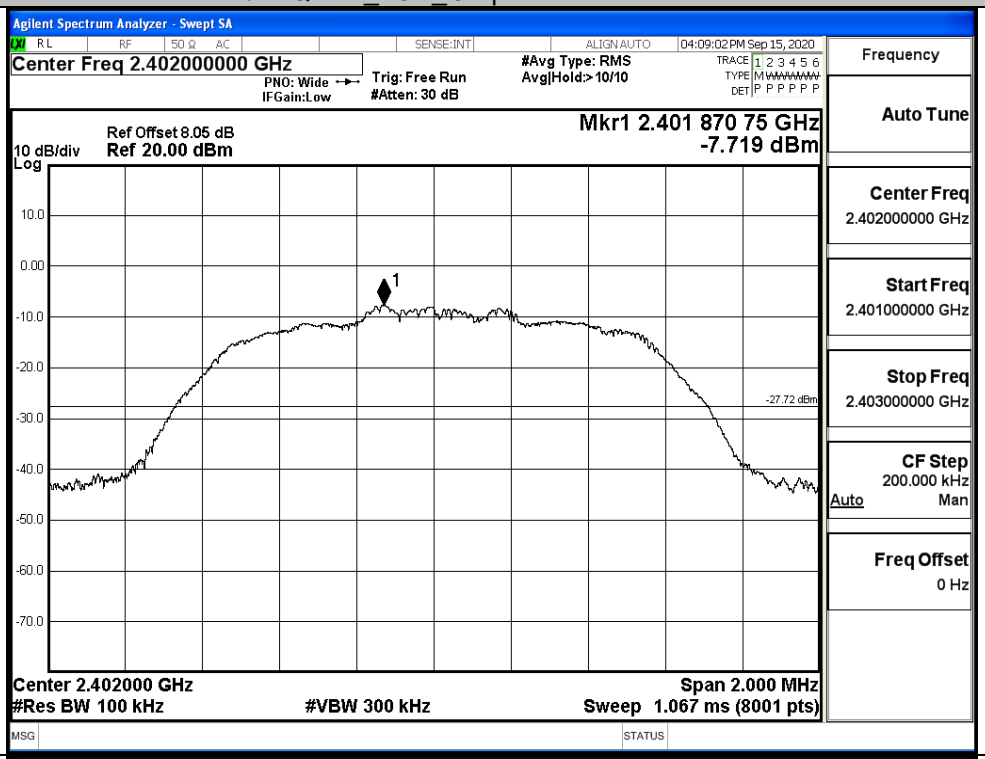
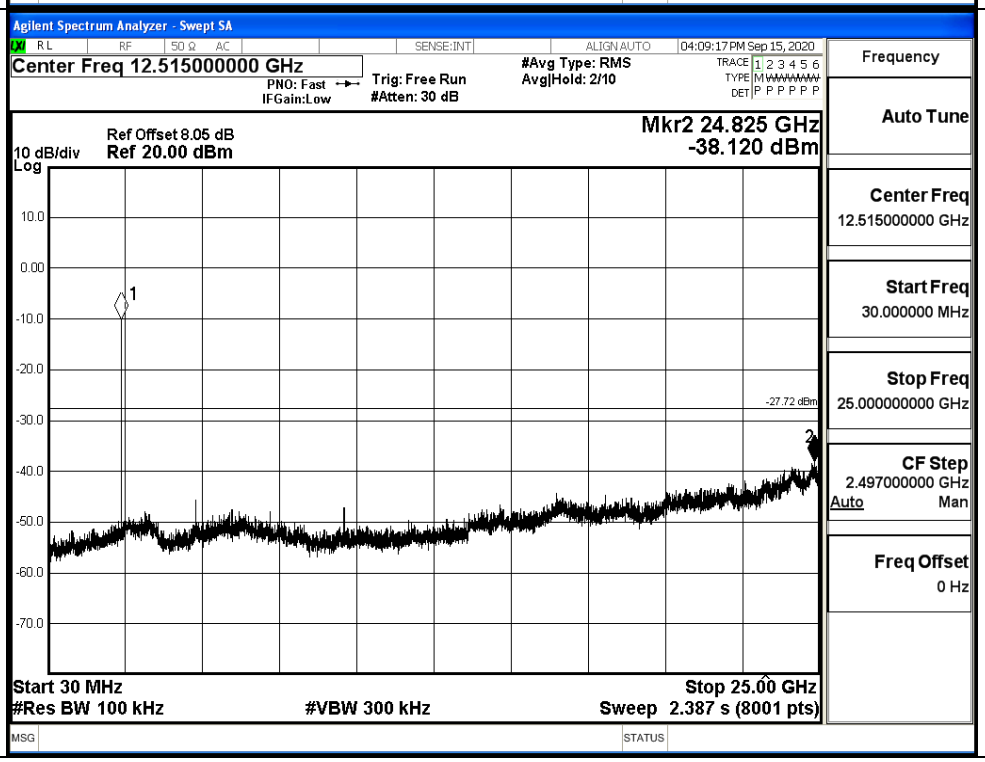
Pref			
Puw			

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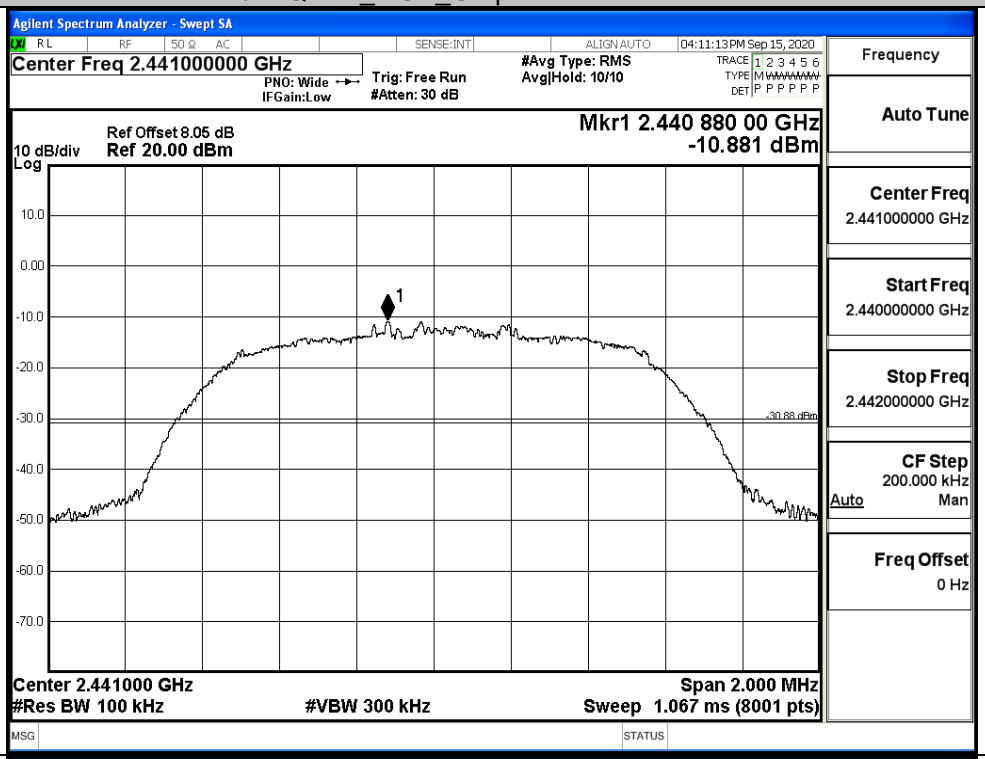
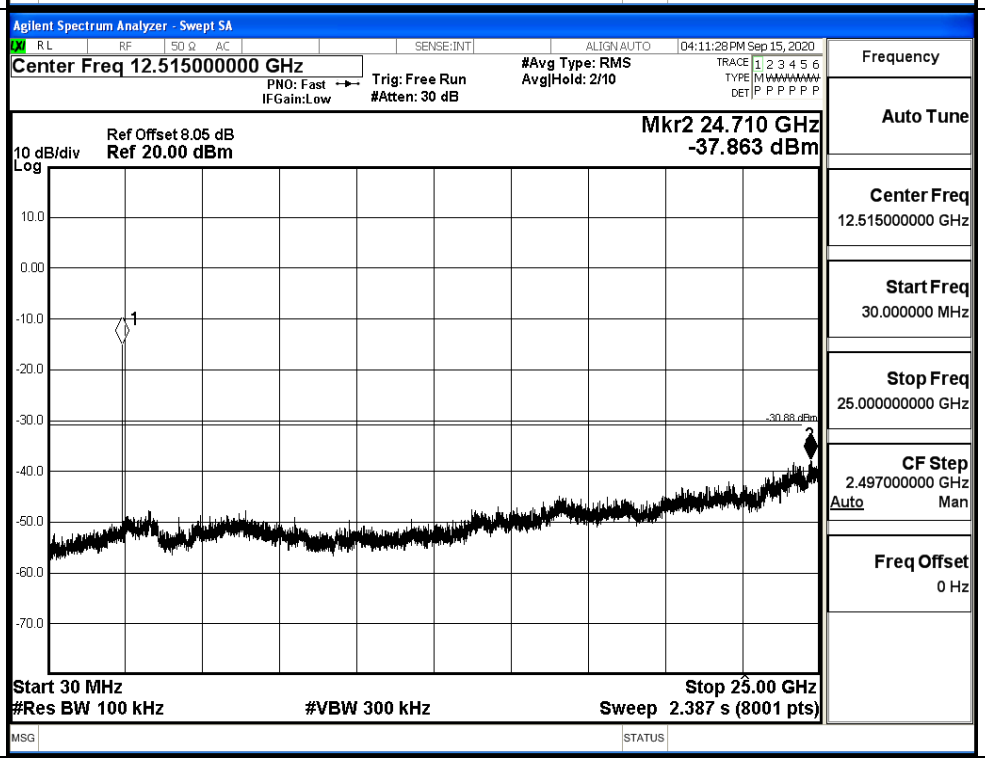
Pref			
Puw			

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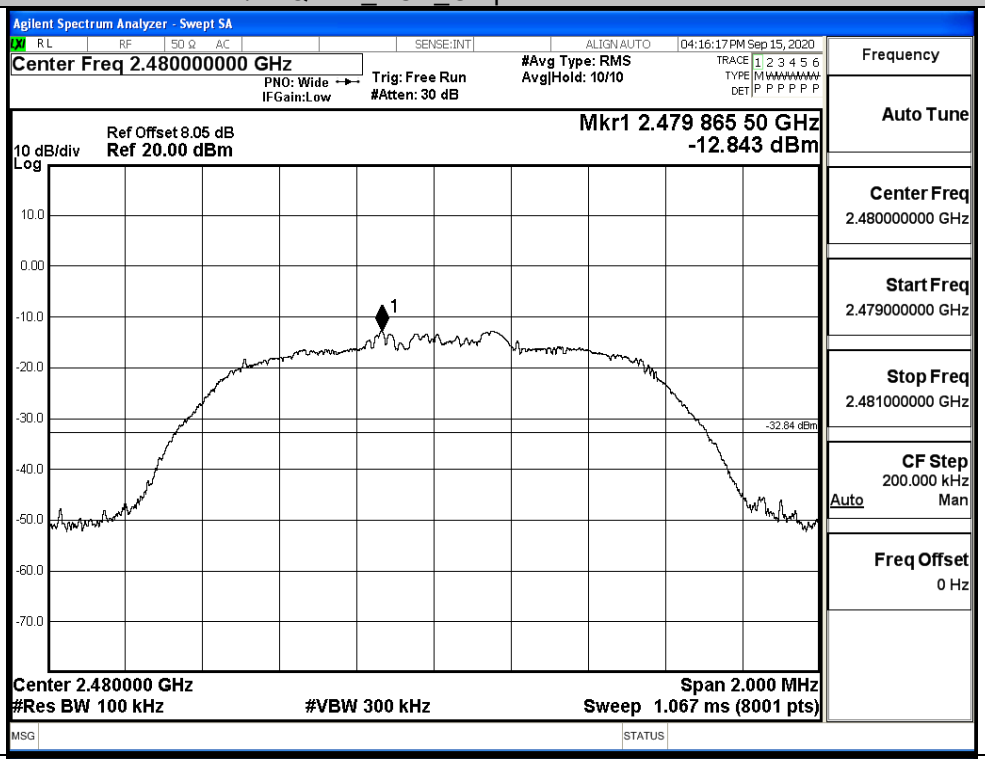
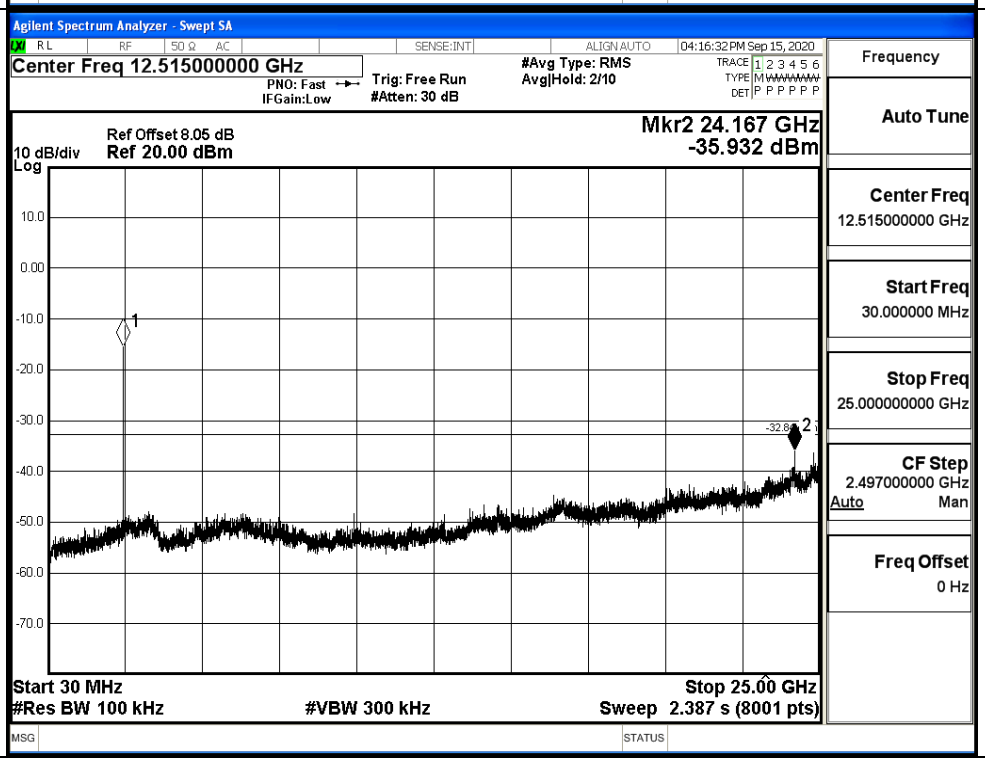
Pref			
Puw			

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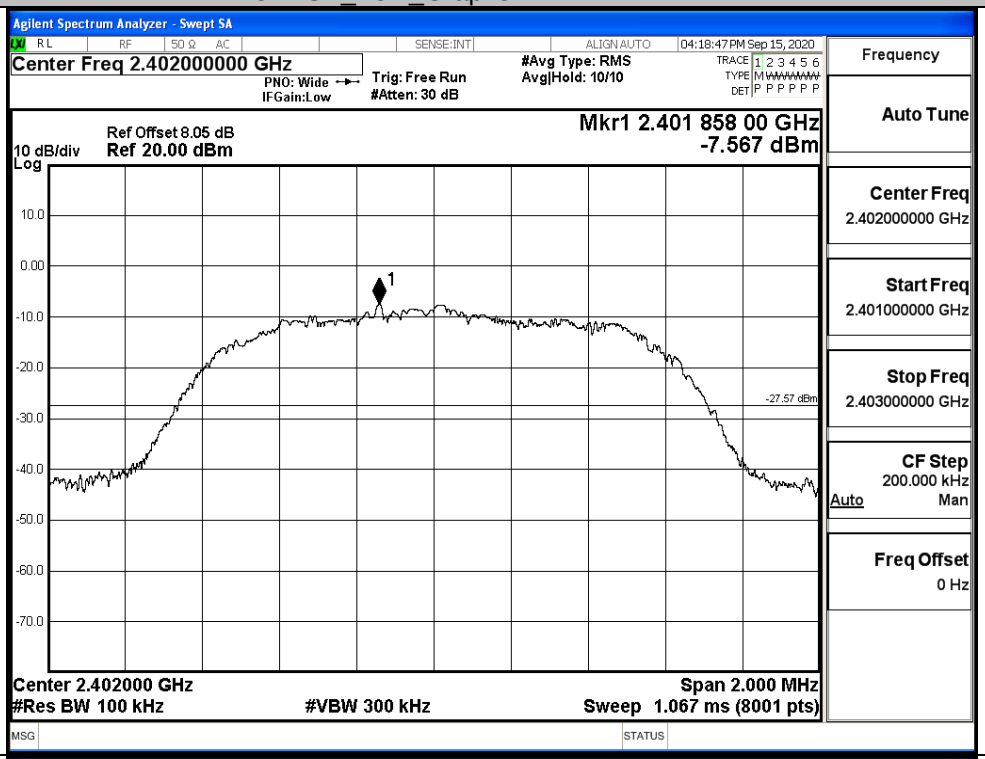
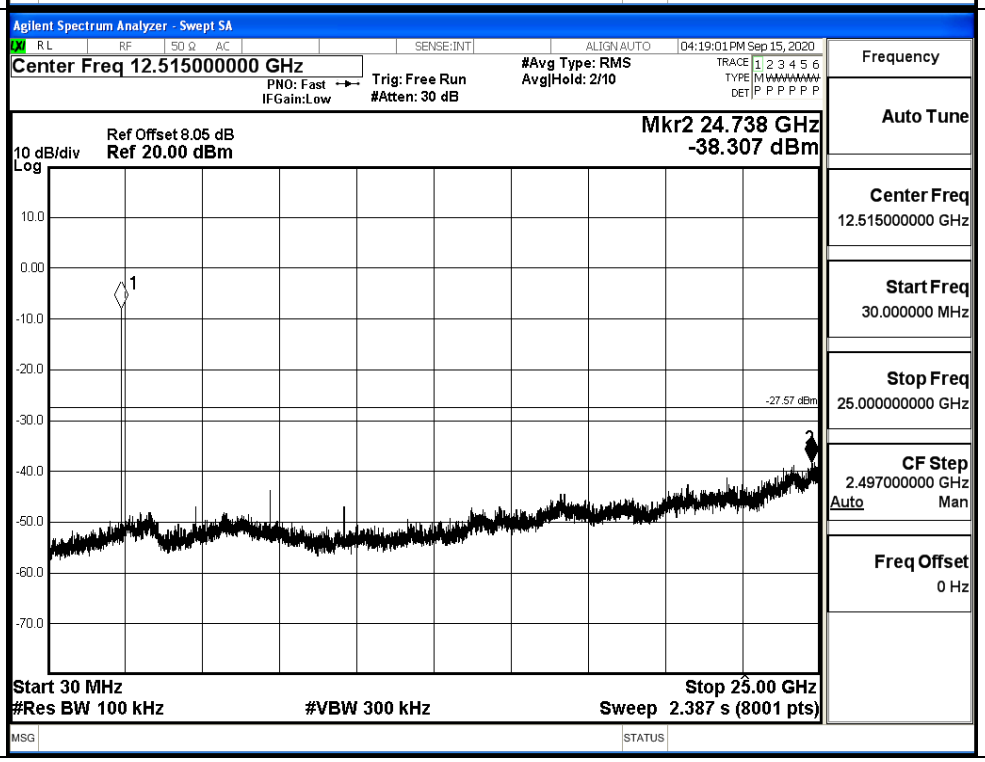
Pref		
Puw		

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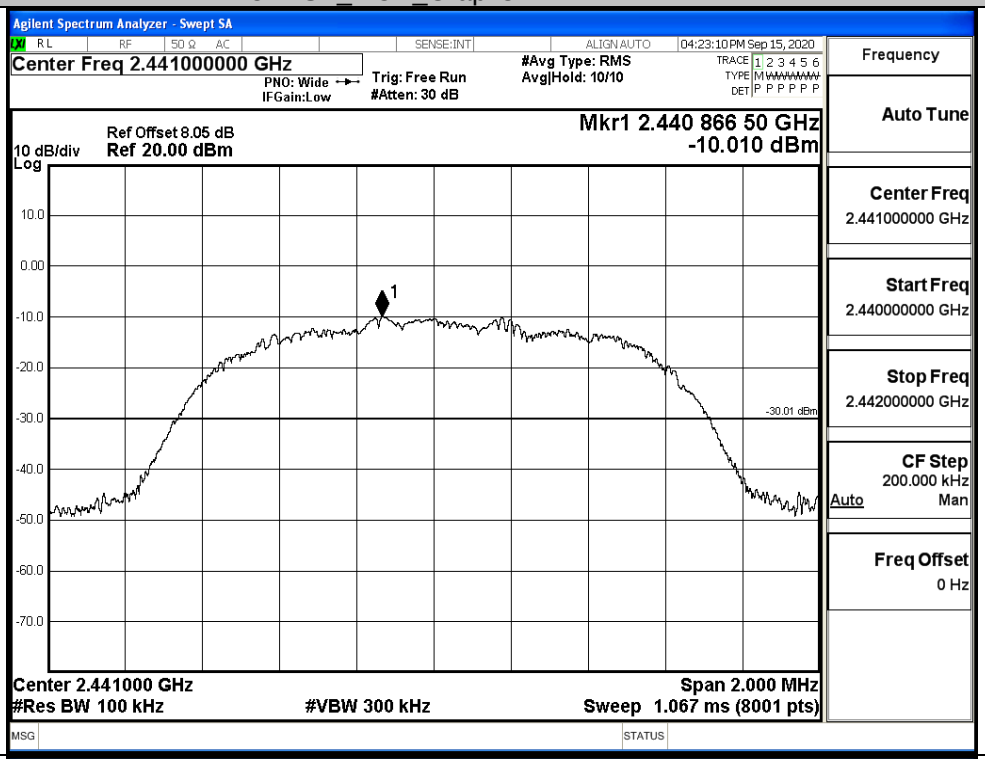
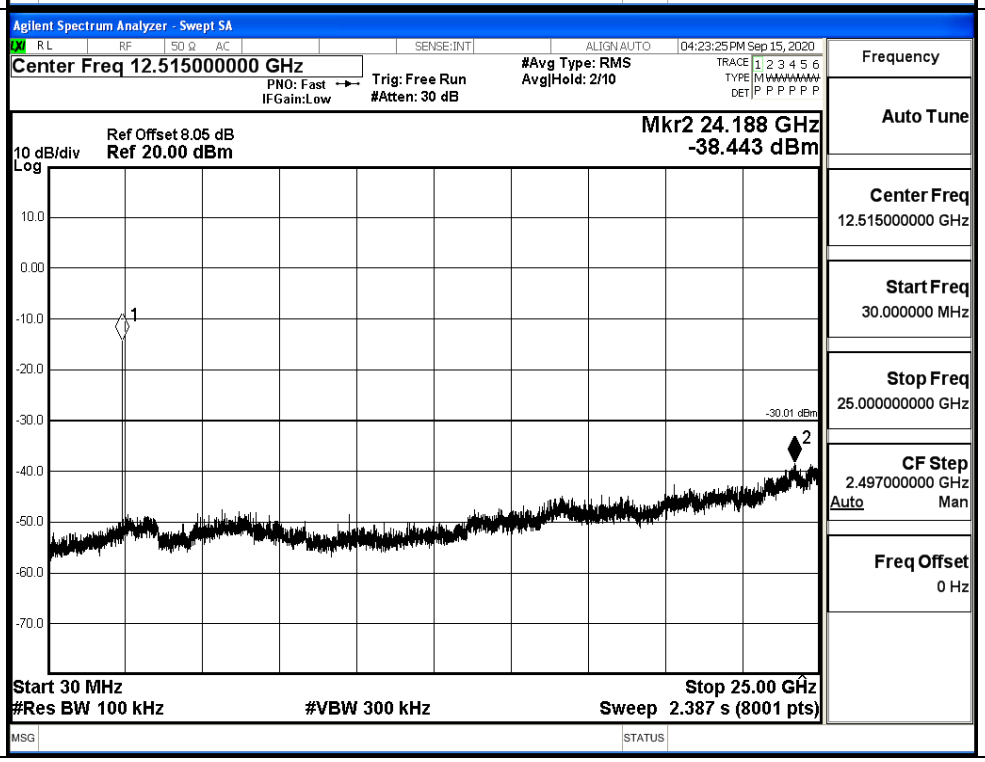
Pref		
Puw		

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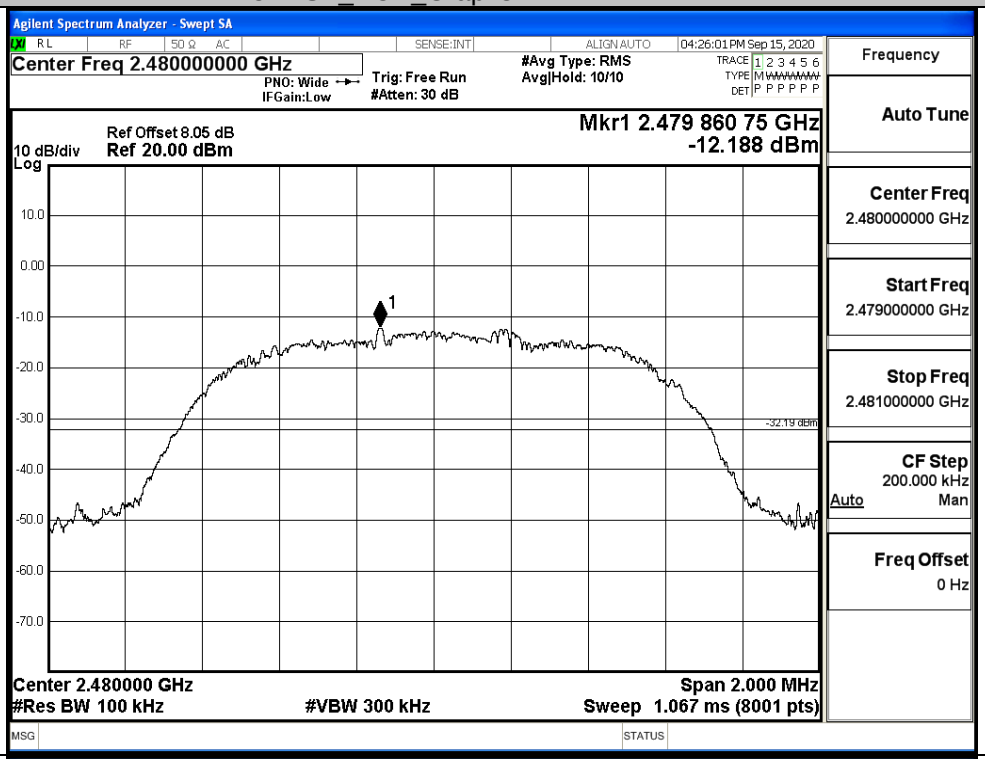
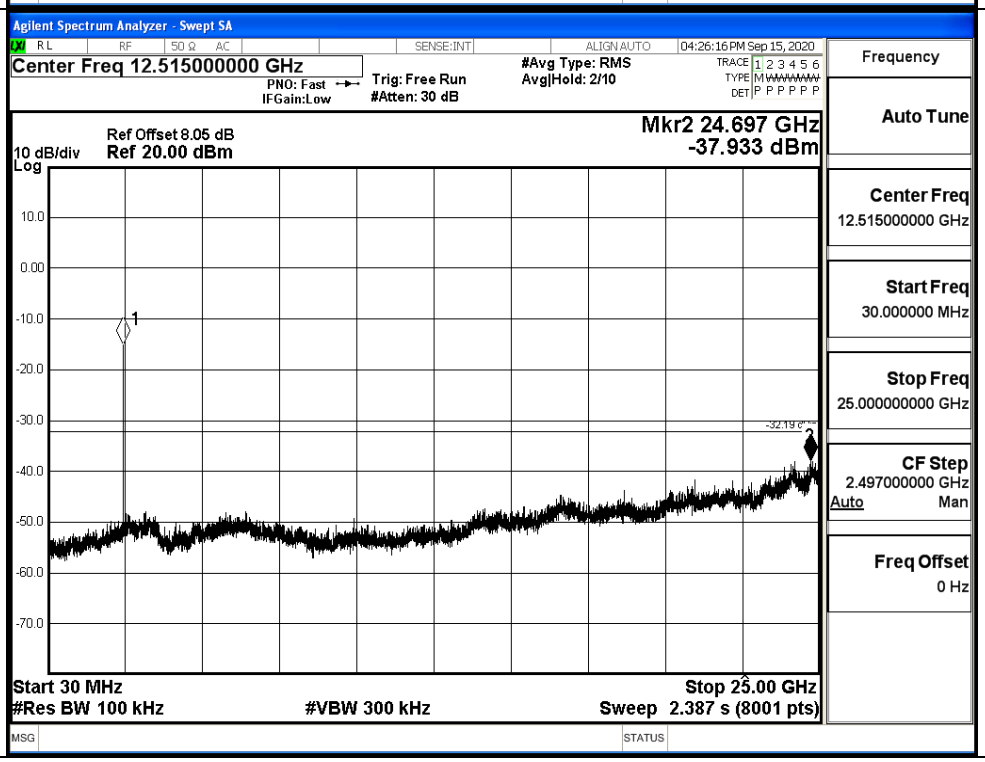
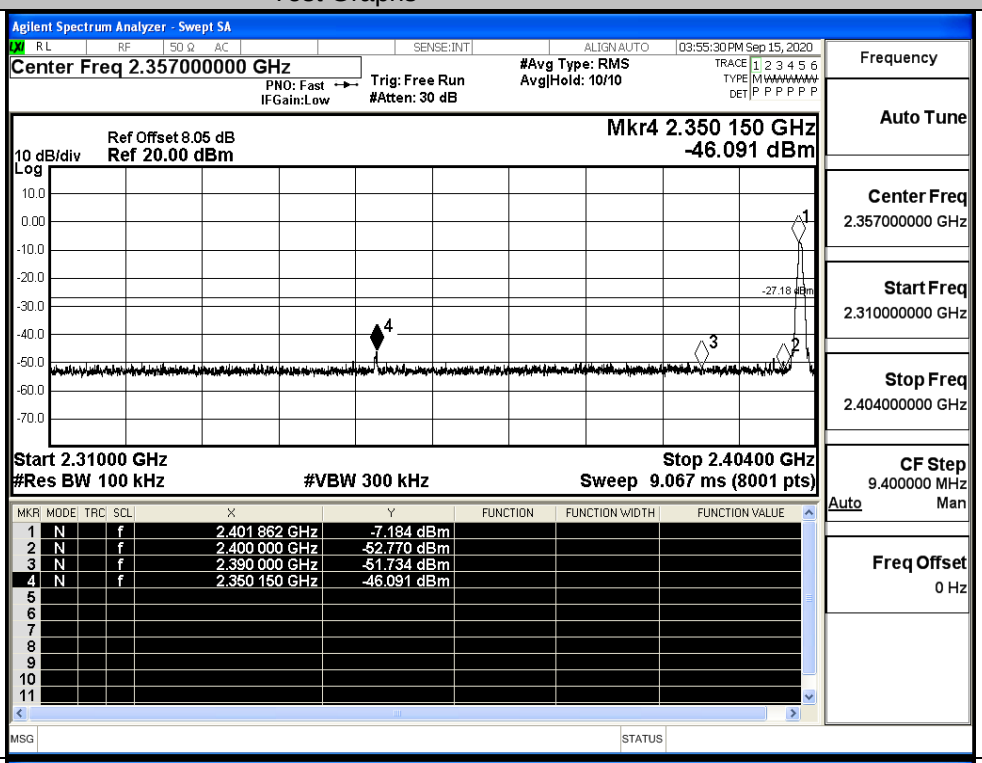
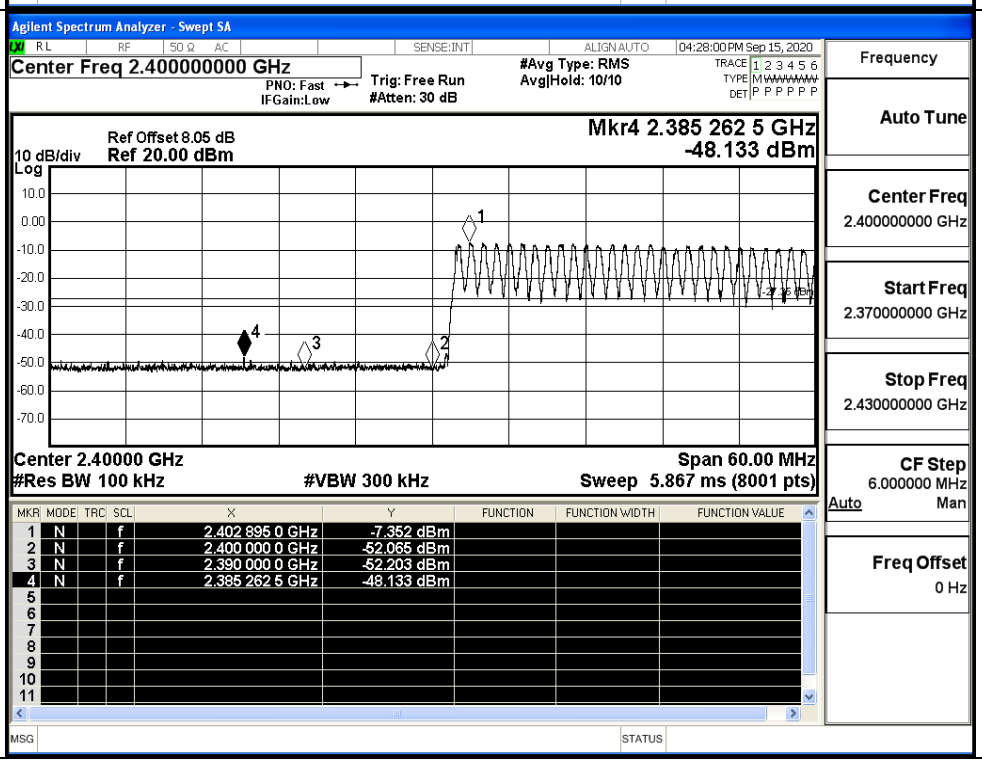
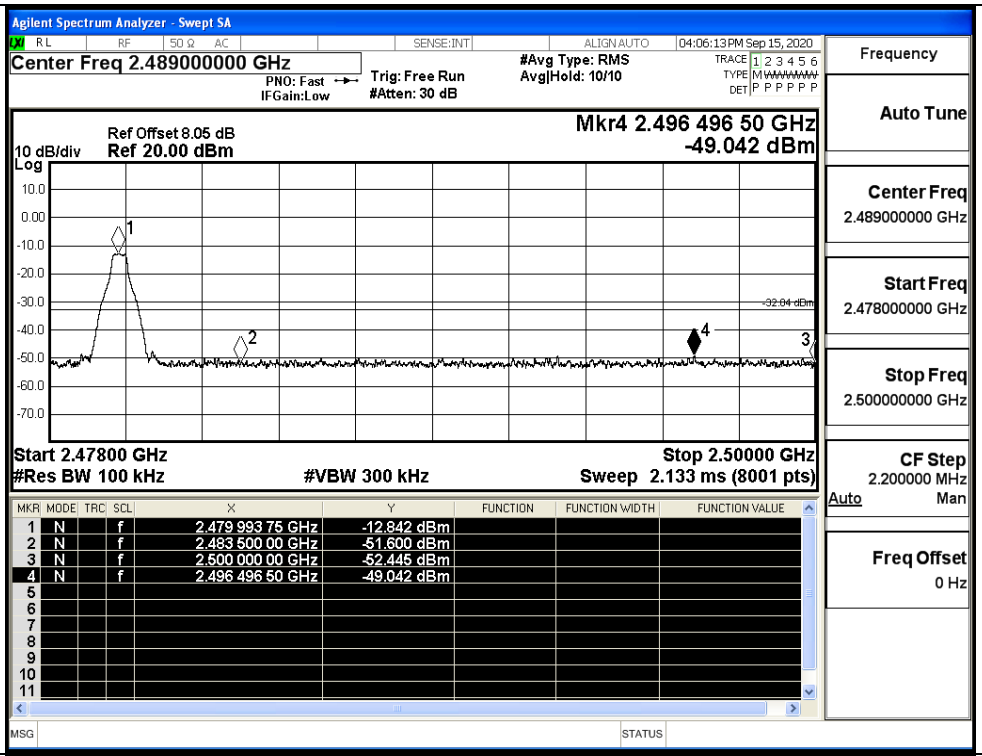
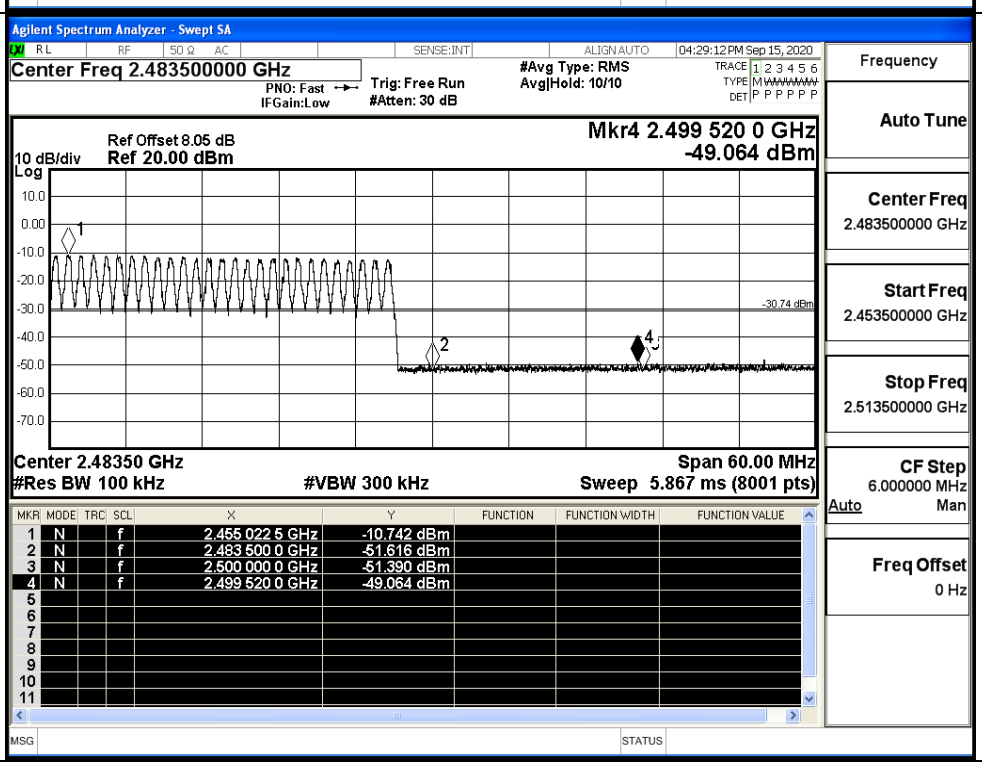
Pref		
Puw		

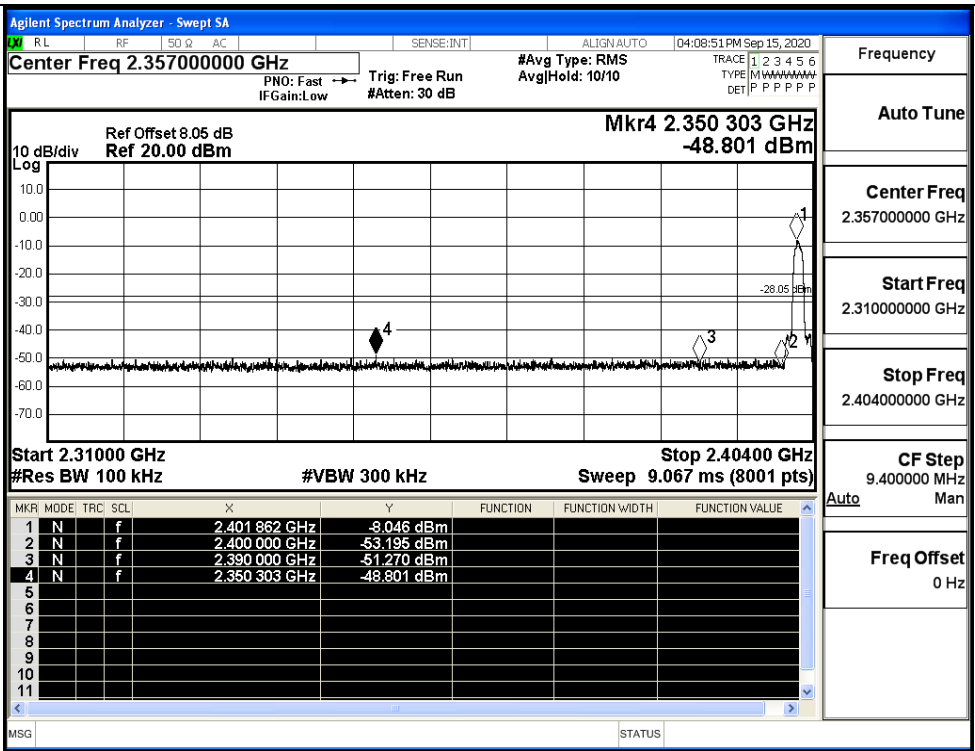
A.7 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-7.184	Off	-46.091	-27.18	PASS
			-7.352	On	-48.133	-27.35	PASS
	HCH	2480	-12.842	Off	-49.042	-32.84	PASS
			-10.742	On	-49.064	-30.74	PASS
π/4DQPSK	LCH	2402	-8.046	Off	-48.801	-28.05	PASS
			-7.369	On	-48.194	-27.37	PASS
	HCH	2480	-12.807	Off	-49.955	-32.81	PASS
			-11.222	On	-48.773	-31.22	PASS
8DPSK	LCH	2402	-7.606	Off	-49.403	-27.61	PASS
			-7.932	On	-49.549	-27.93	PASS
	HCH	2480	-12.040	Off	-48.848	-32.04	PASS
			-10.853	On	-48.415	-30.85	PASS

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

GFSK/HCH/No Hop	
GFSK/HCH/Hop	

π/4DQPSK/LCH/No Hop



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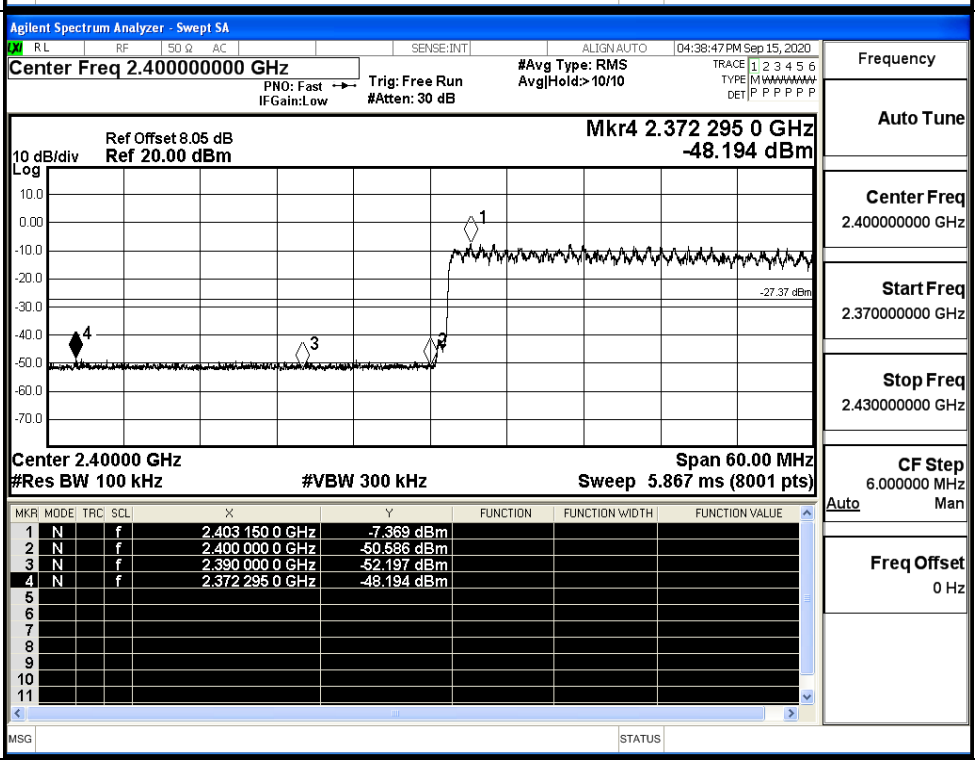

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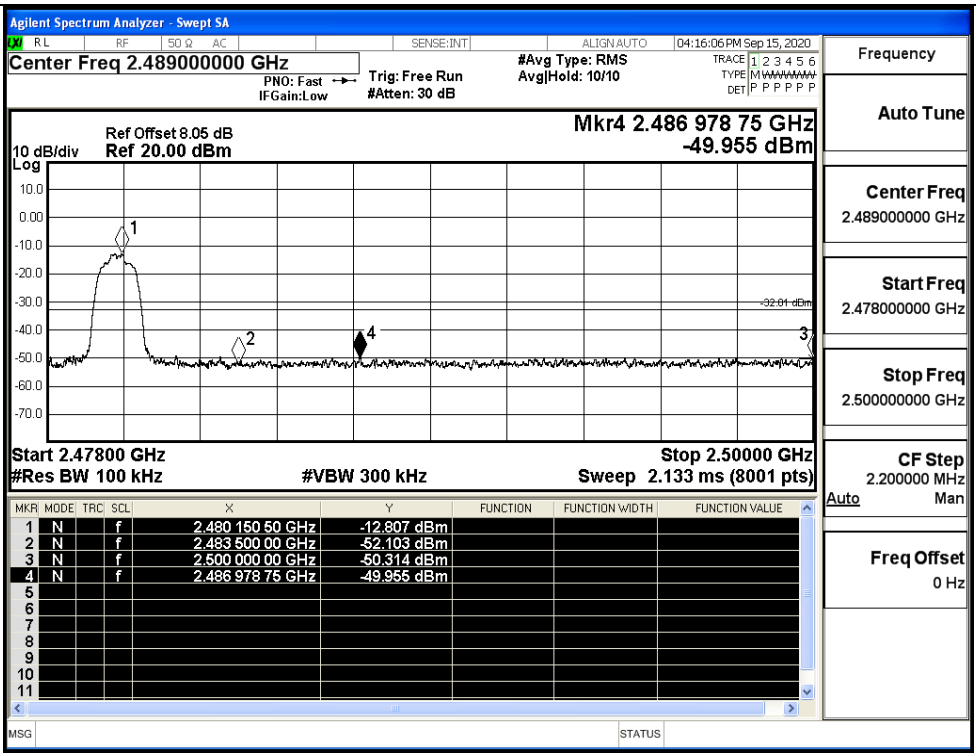

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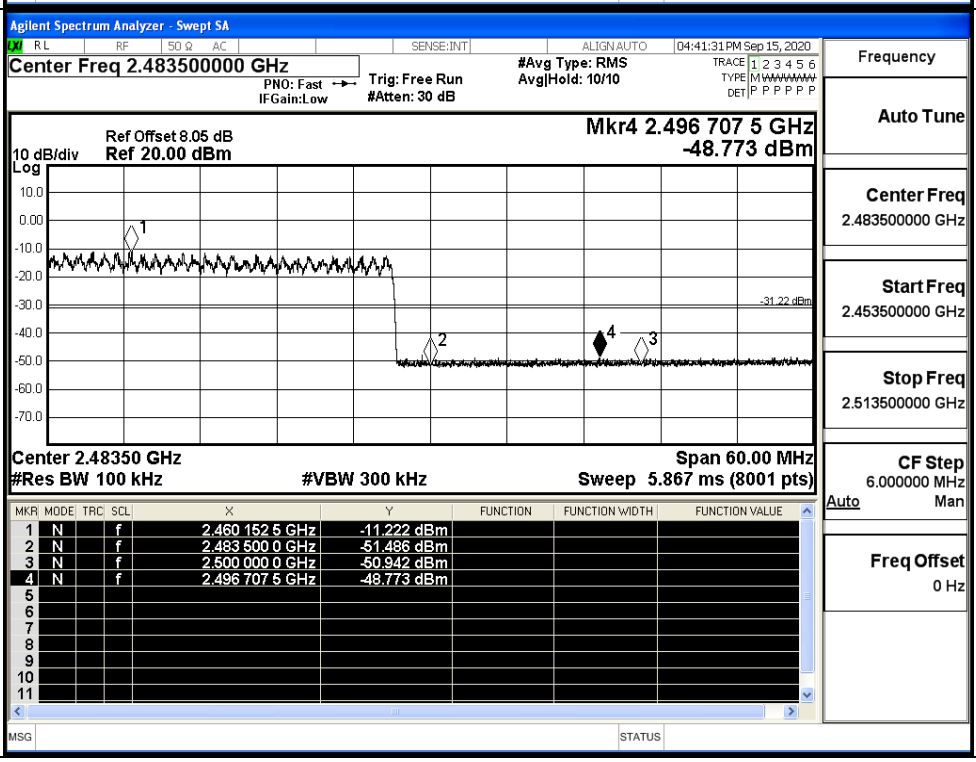
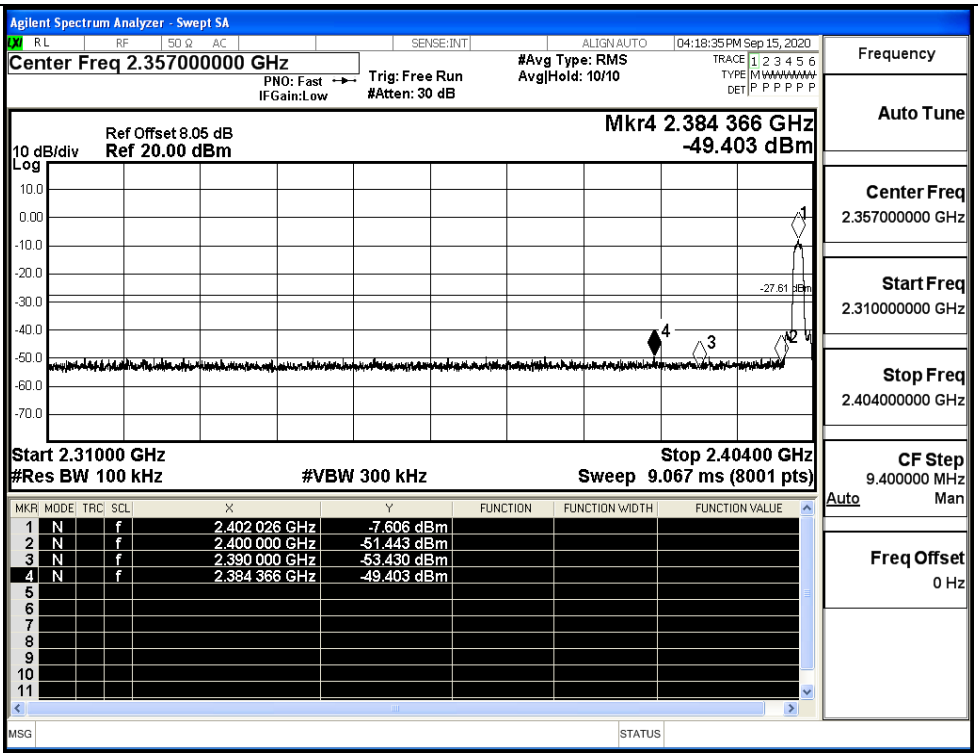
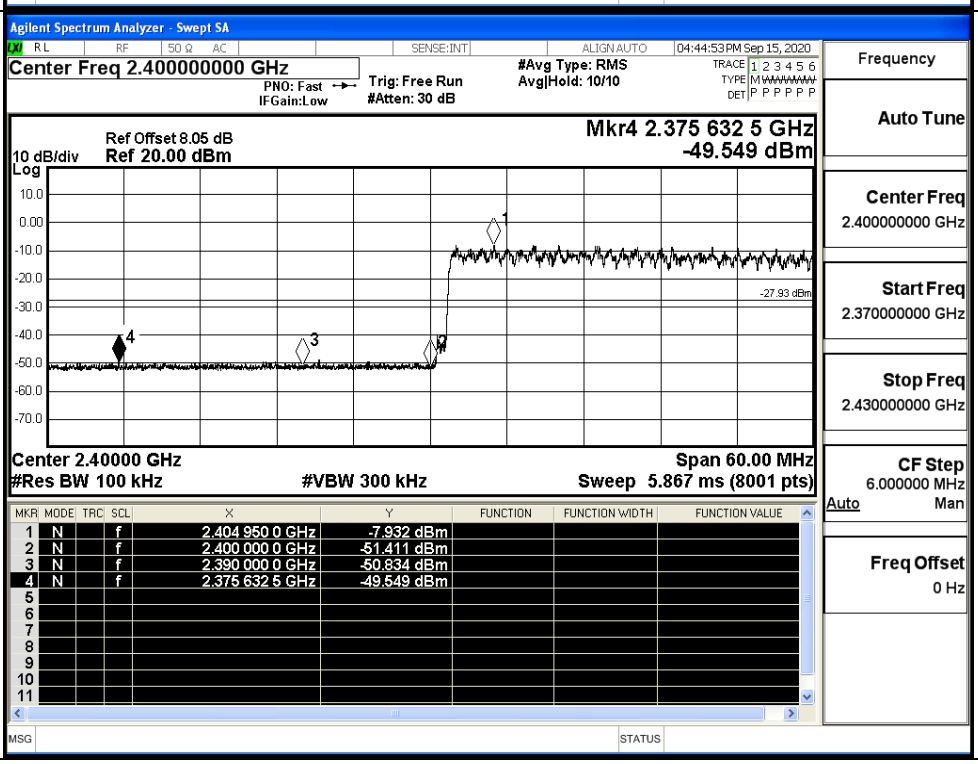
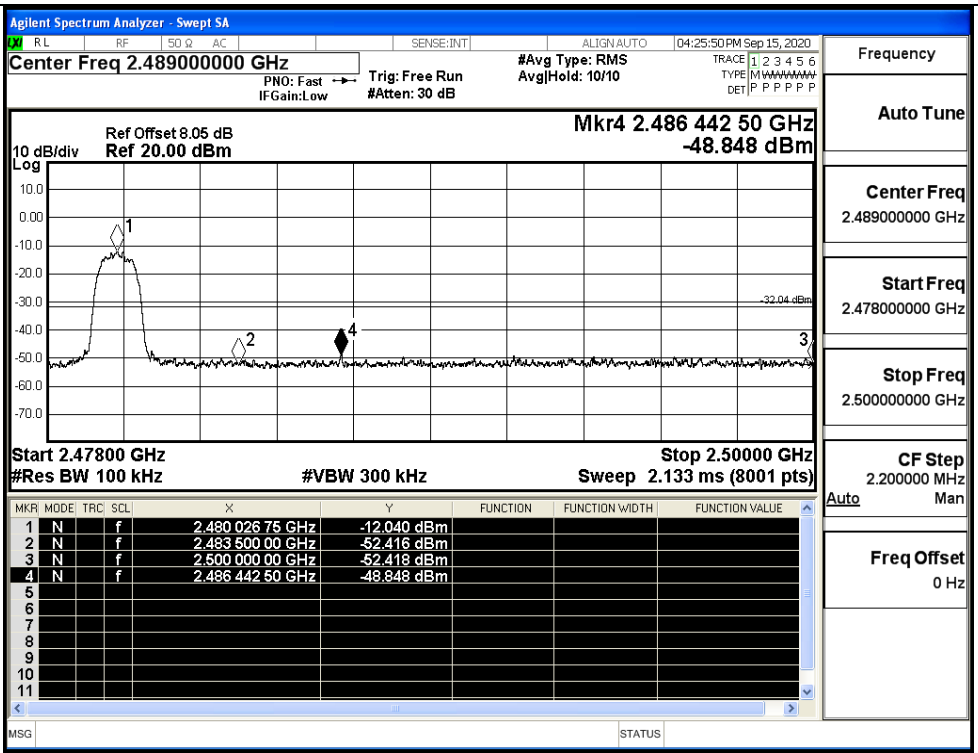
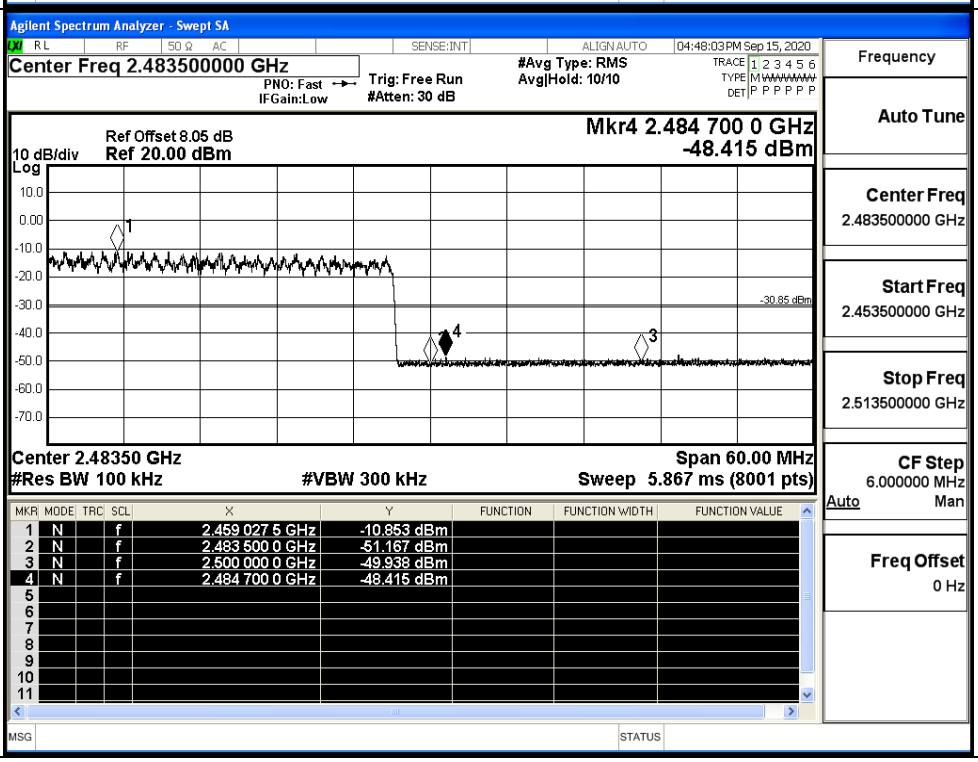


8DPSK/LCH/No Hop



8DPSK/LCH/Hop

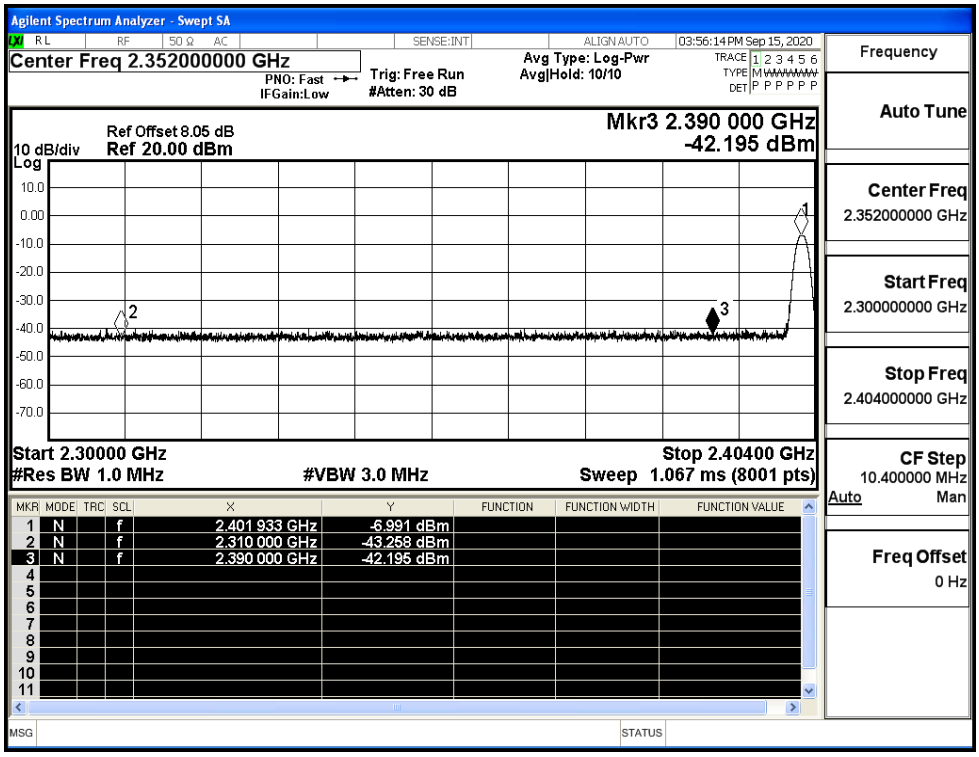


8DPSK/HCH/No Hop	
8DPSK/HCH/Hop	

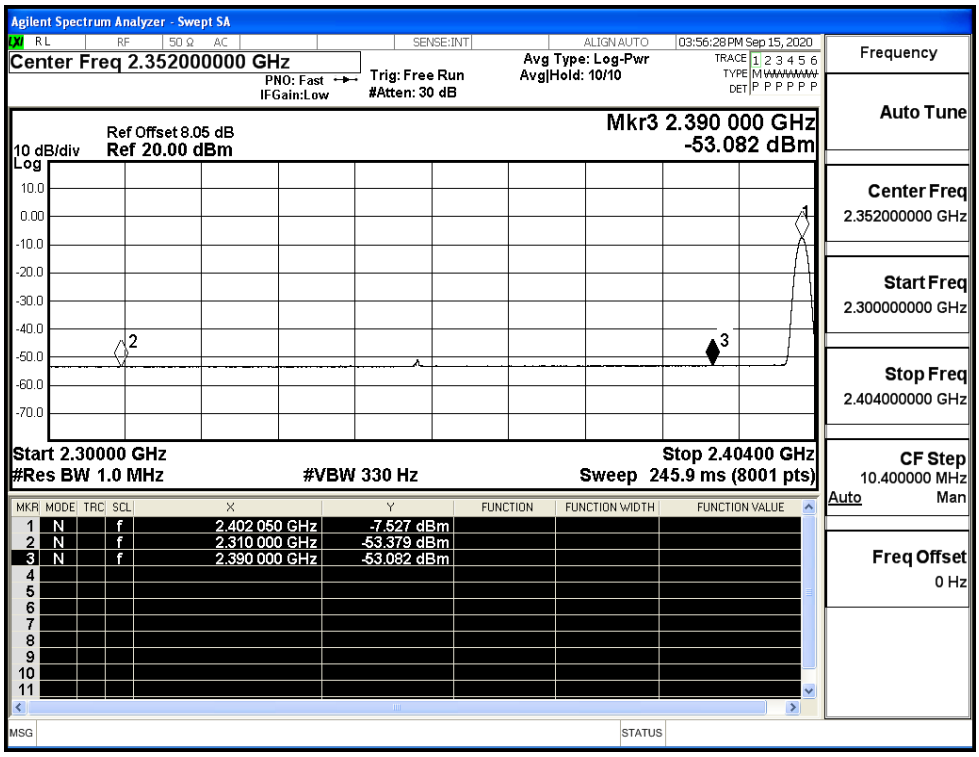
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.26	2.0	0	53.97	PEAK	74	PASS
	Off	2310.0	-53.38	2.0	0	43.85	AV	54	PASS
	Off	2390.0	-42.20	2.0	0	55.03	PEAK	74	PASS
	Off	2390.0	-53.08	2.0	0	44.15	AV	54	PASS
	Off	2483.5	-42.09	2.0	0	55.14	PEAK	74	PASS
	Off	2483.5	-52.49	2.0	0	44.74	AV	54	PASS
	Off	2500.0	-42.53	2.0	0	54.70	PEAK	74	PASS
	Off	2500.0	-52.37	2.0	0	44.86	AV	54	PASS
π/4DQPSK	Off	2310.0	-42.64	2.0	0	54.59	PEAK	74	PASS
	Off	2310.0	-53.31	2.0	0	43.92	AV	54	PASS
	Off	2390.0	-43.62	2.0	0	53.61	PEAK	74	PASS
	Off	2390.0	-53.02	2.0	0	44.21	AV	54	PASS
	Off	2483.5	-41.94	2.0	0	55.29	PEAK	74	PASS
	Off	2483.5	-52.61	2.0	0	44.62	AV	54	PASS
	Off	2500.0	-40.64	2.0	0	56.59	PEAK	74	PASS
	Off	2500.0	-52.32	2.0	0	44.91	AV	54	PASS
8DPSK	Off	2310.0	-43.79	2.0	0	53.44	PEAK	74	PASS
	Off	2310.0	-53.31	2.0	0	43.92	AV	54	PASS
	Off	2390.0	-43.40	2.0	0	53.83	PEAK	74	PASS
	Off	2390.0	-52.96	2.0	0	44.27	AV	54	PASS
	Off	2483.5	-43.48	2.0	0	53.75	PEAK	74	PASS
	Off	2483.5	-52.53	2.0	0	44.70	AV	54	PASS
	Off	2500.0	-43.21	2.0	0	54.02	PEAK	74	PASS
	Off	2500.0	-52.35	2.0	0	44.88	AV	54	PASS

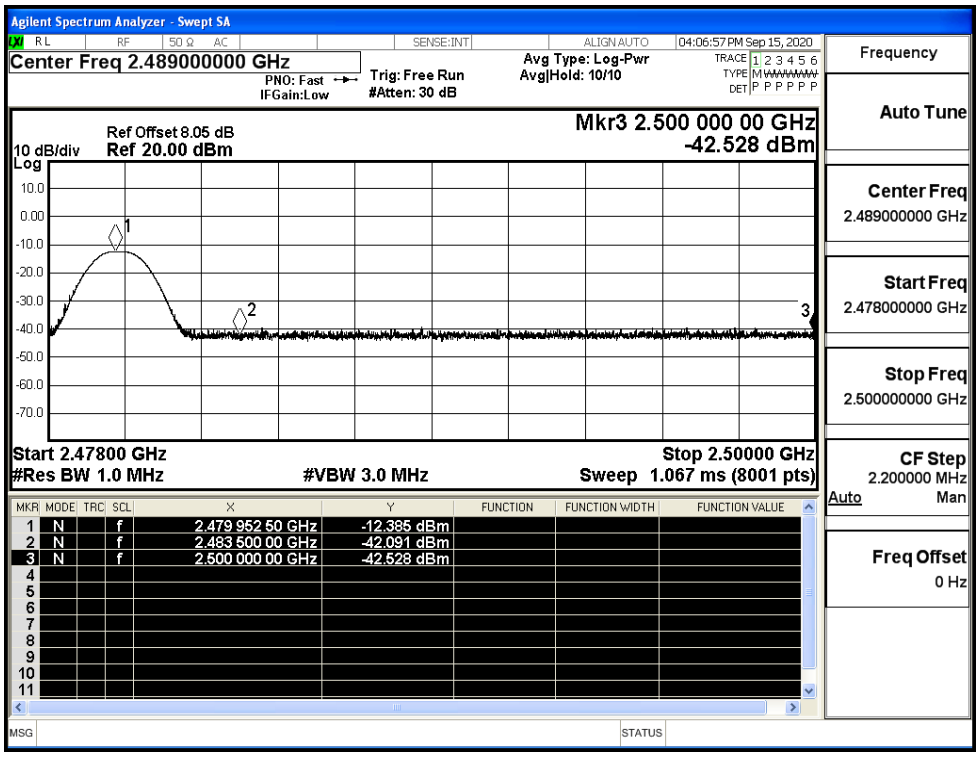
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



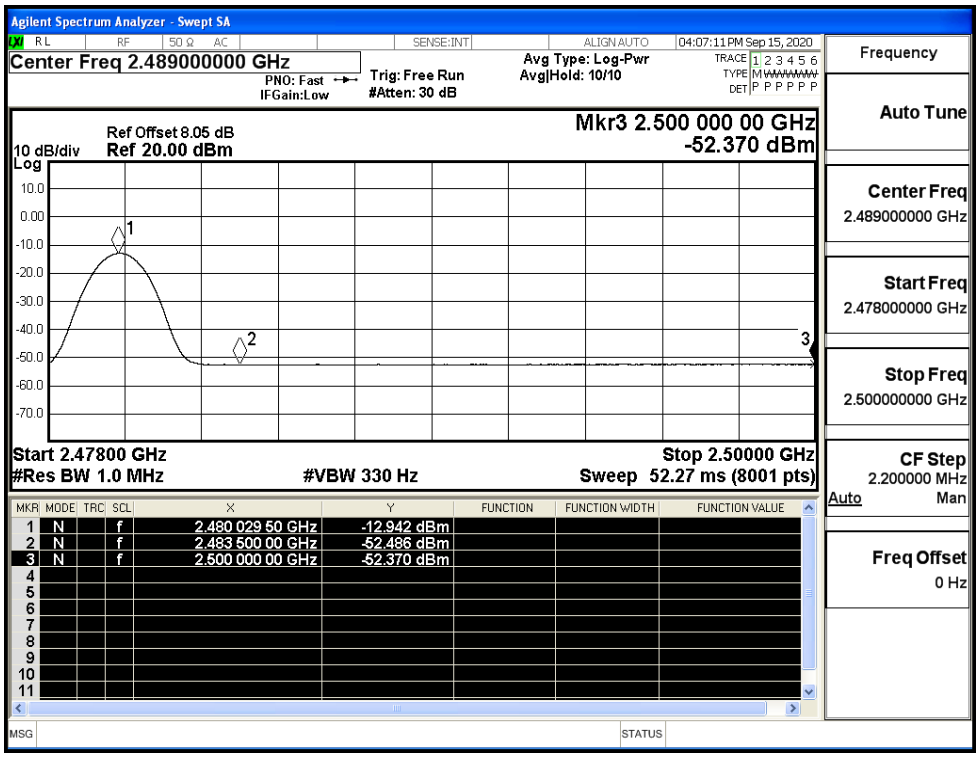
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



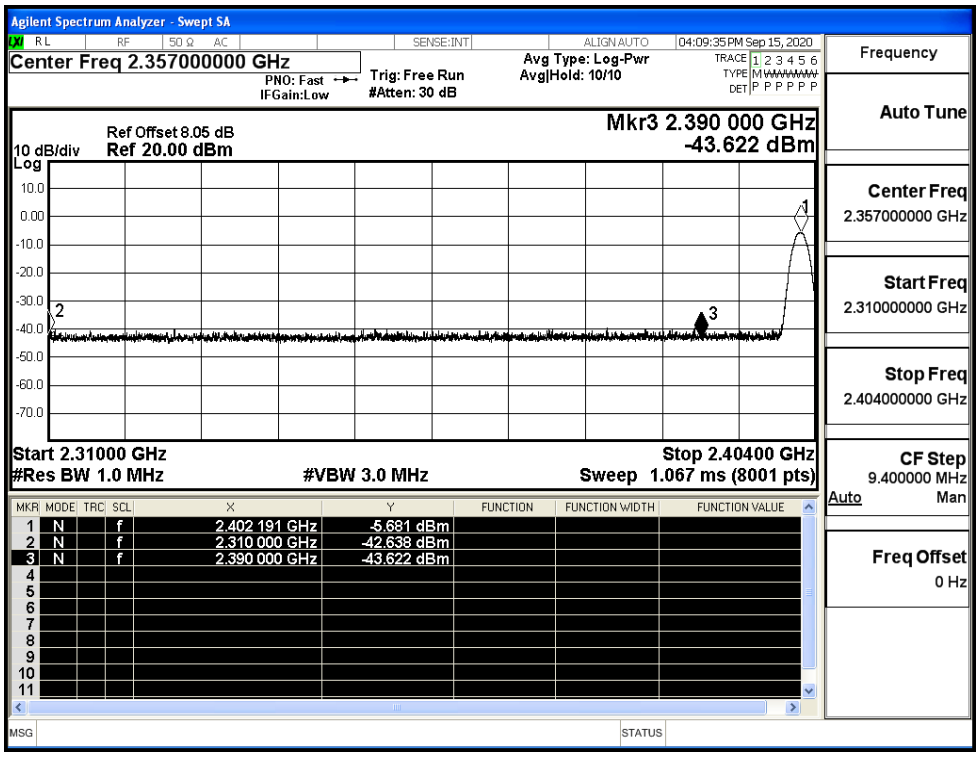
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



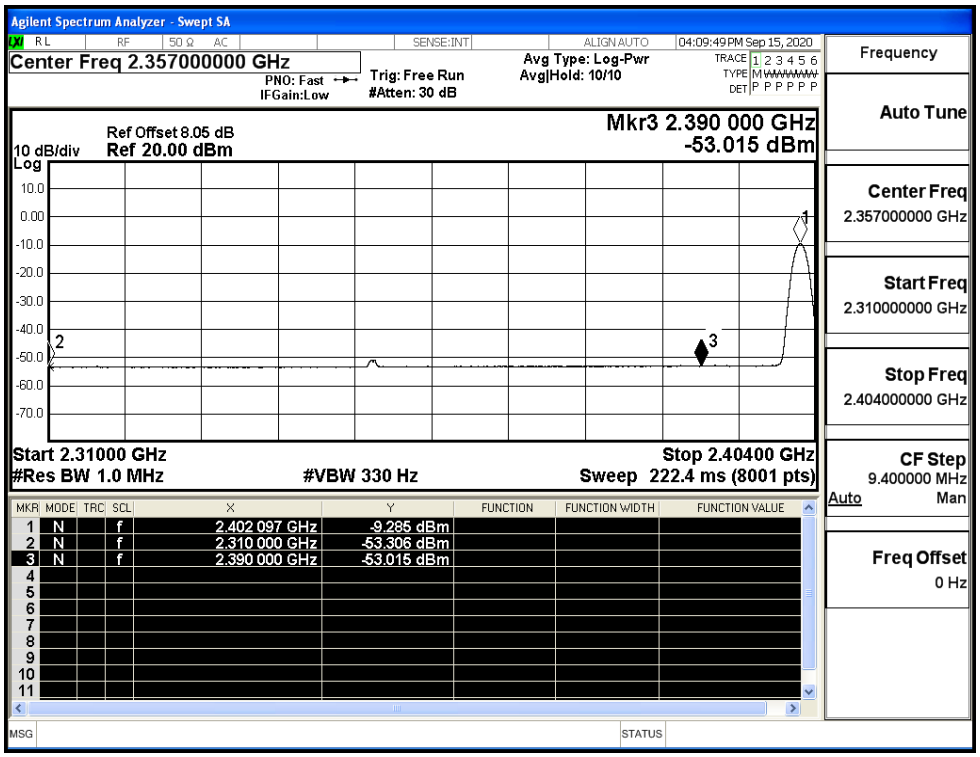
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



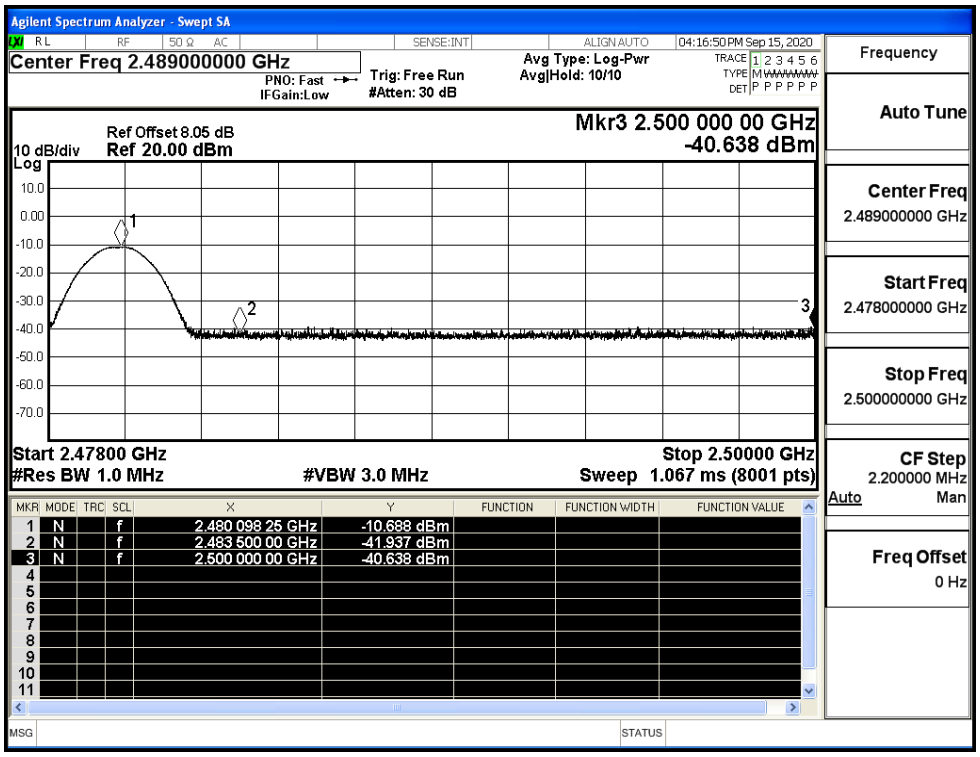
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



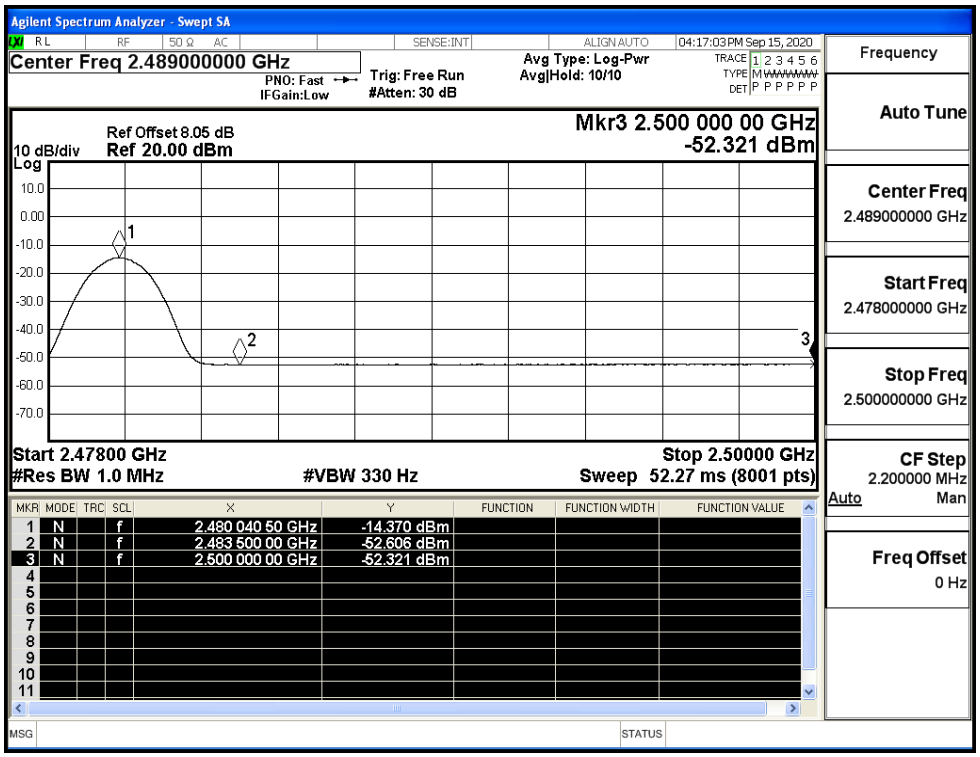
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



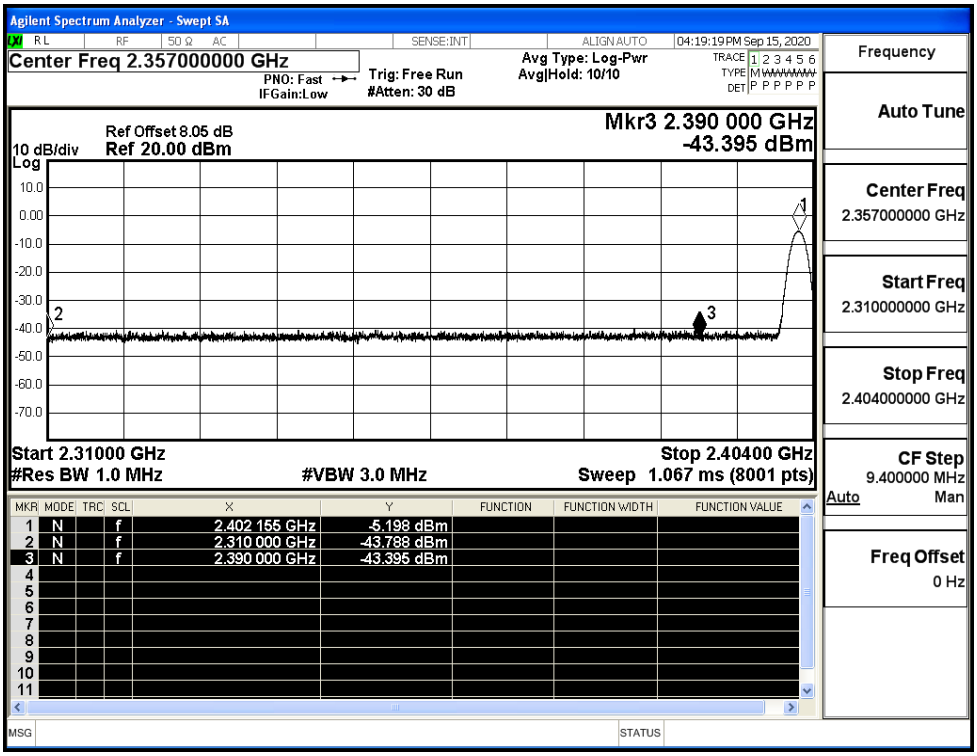
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



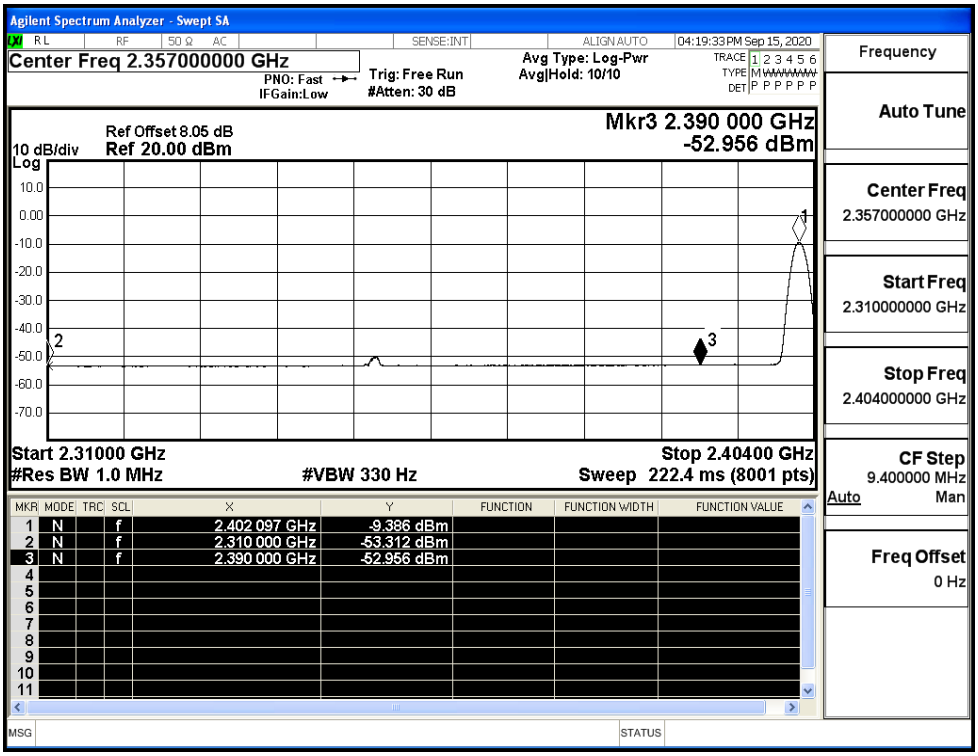
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



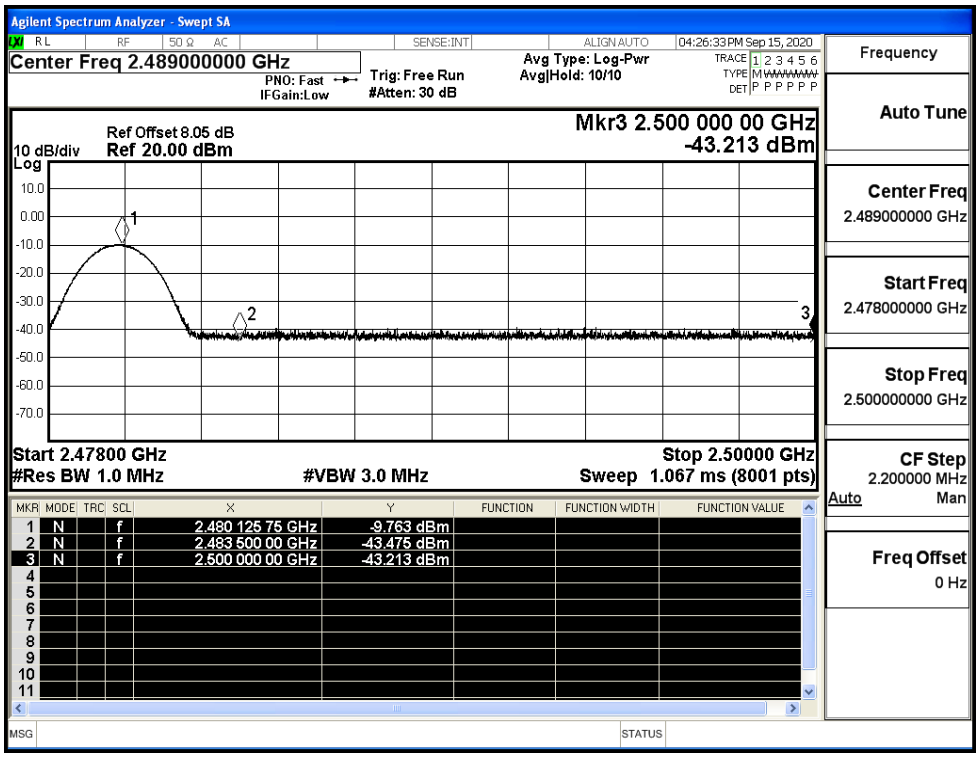
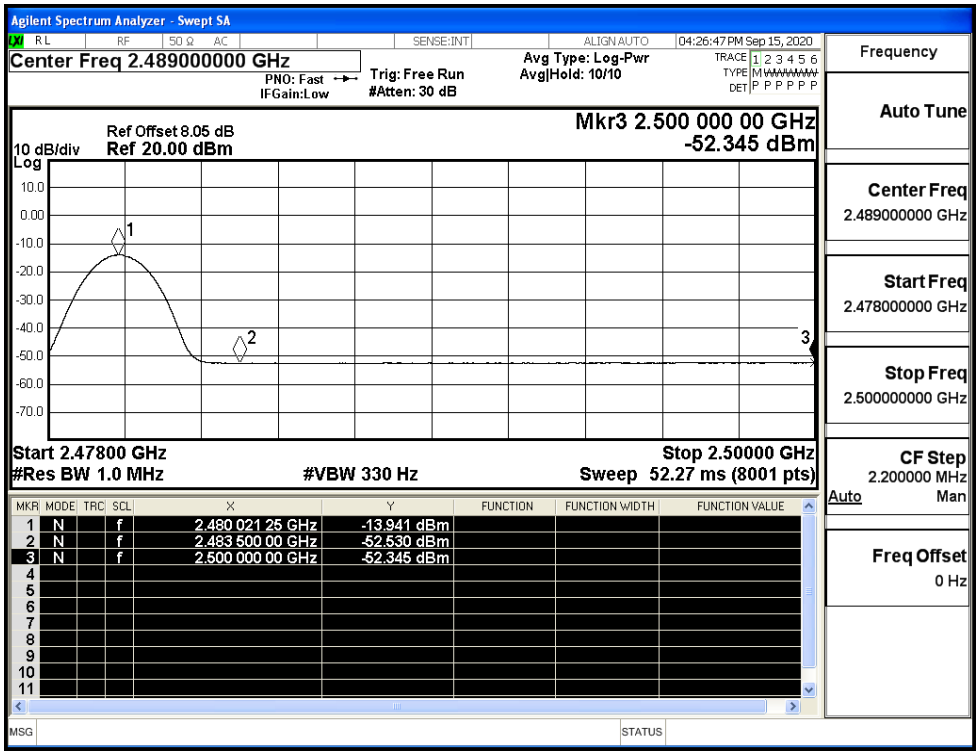
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)