Appendix A
RF Test Data for BT(BDR/EDR) (Conducted Measurement)

Product Name: Bluetooth Speaker

Trade Mark: N/A

Test Model: B107

FCC ID: 2ATOY-B107

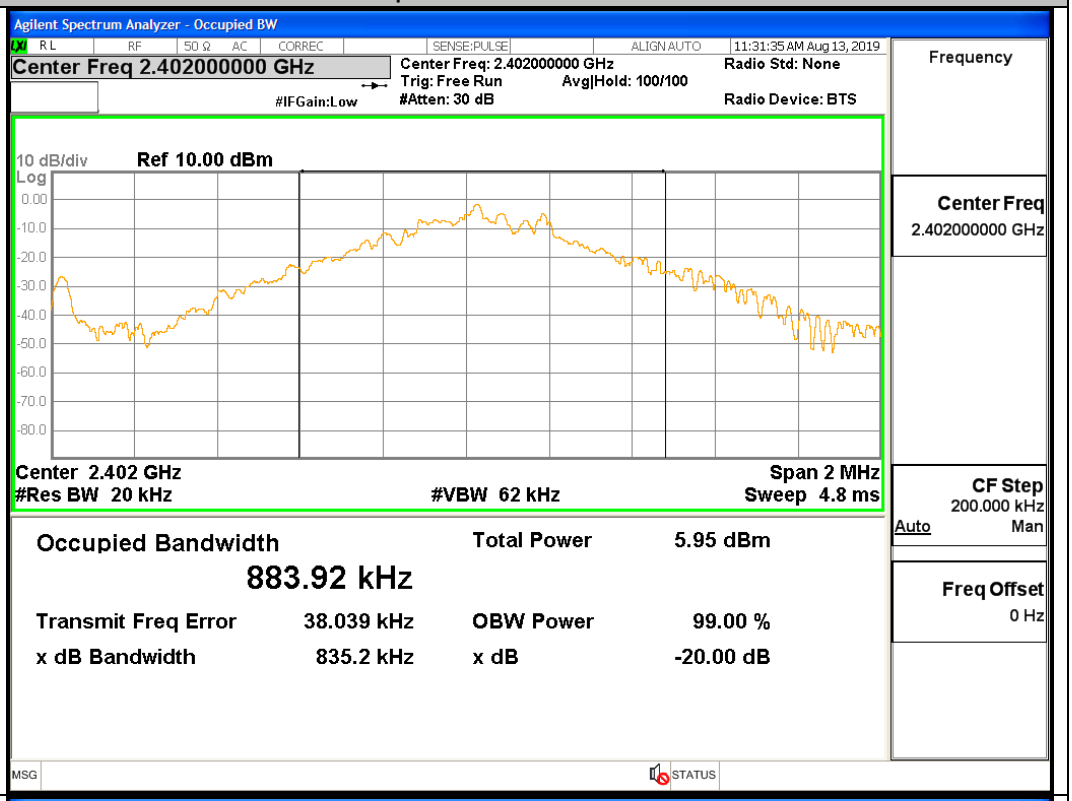
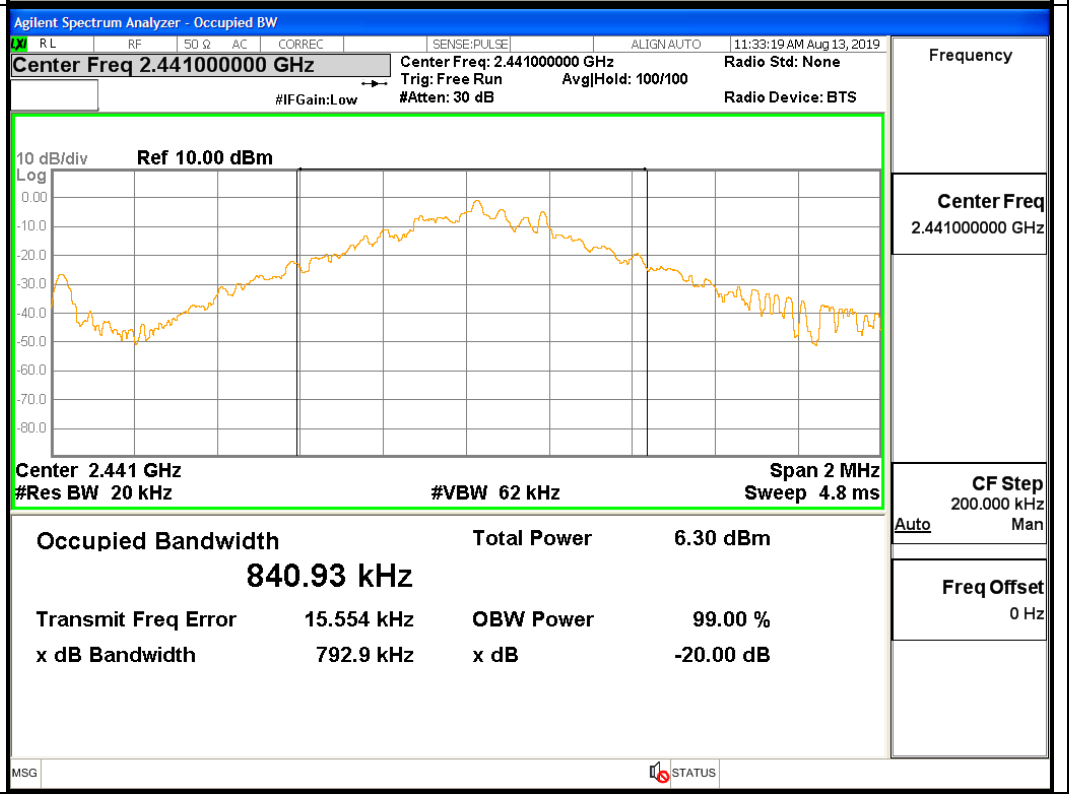
Environmental Conditions

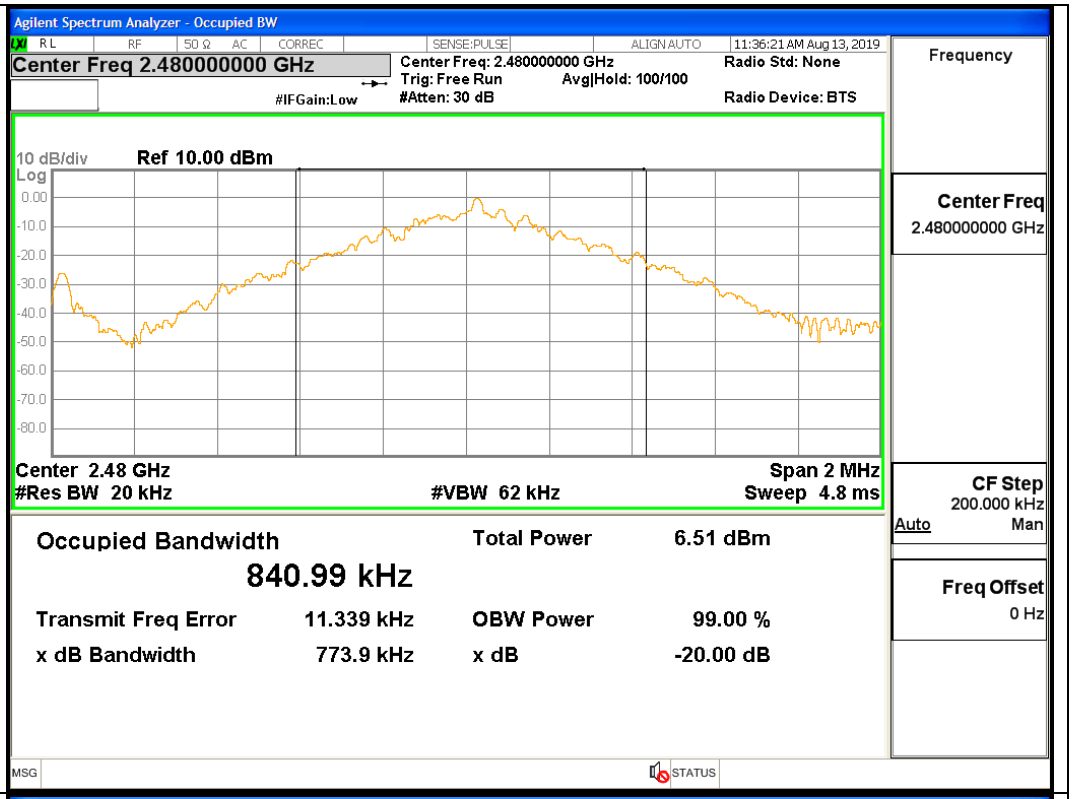
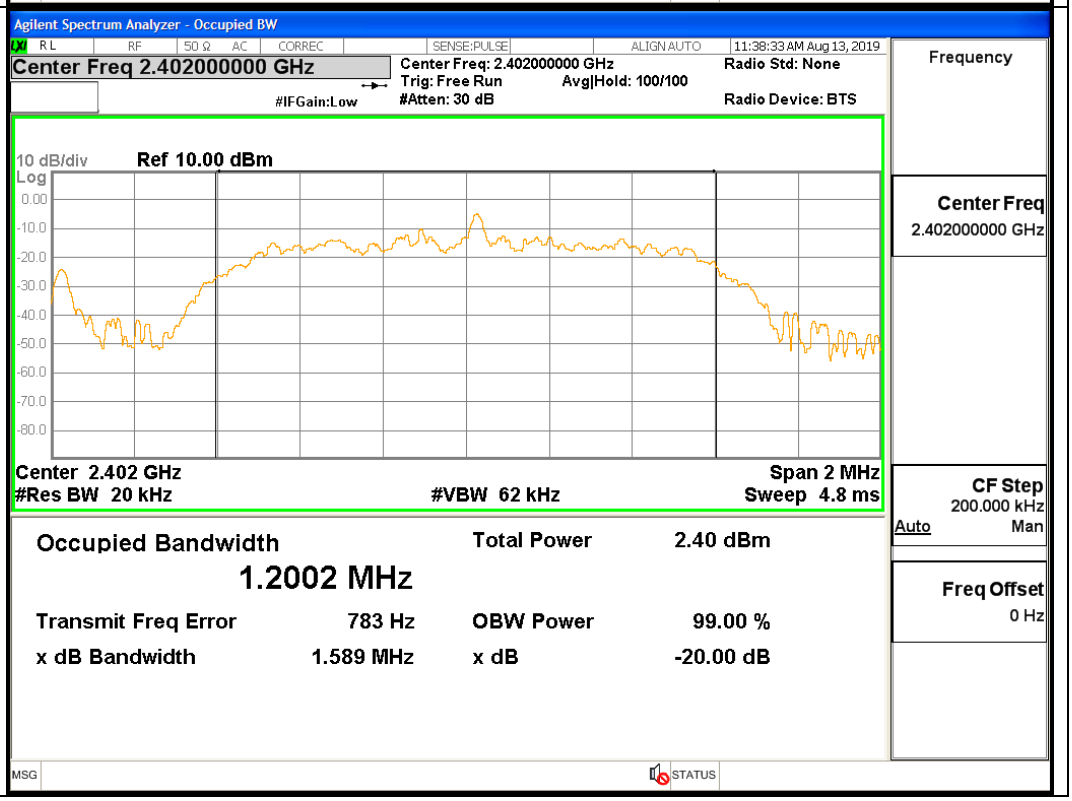
Temperature:	23.3 ° C
Relative Humidity:	50%
ATM Pressure:	100.0 kPa
Test Engineer:	Gary Qian
Supervised by:	Eden Hu

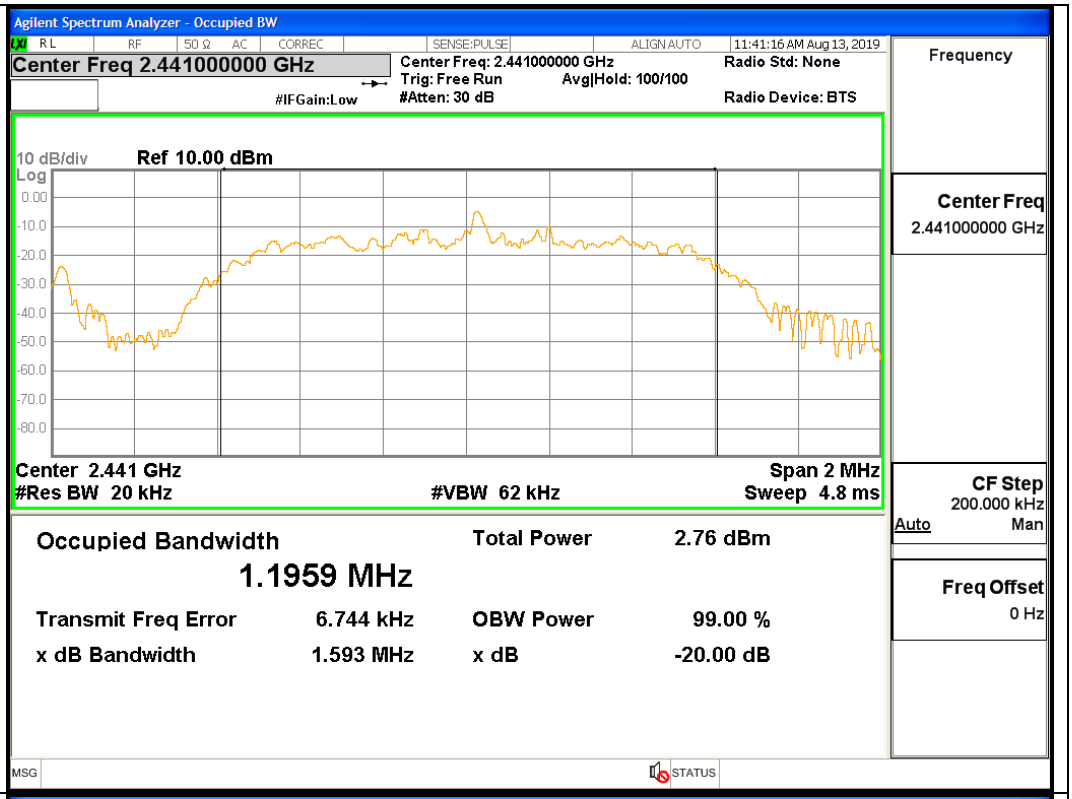
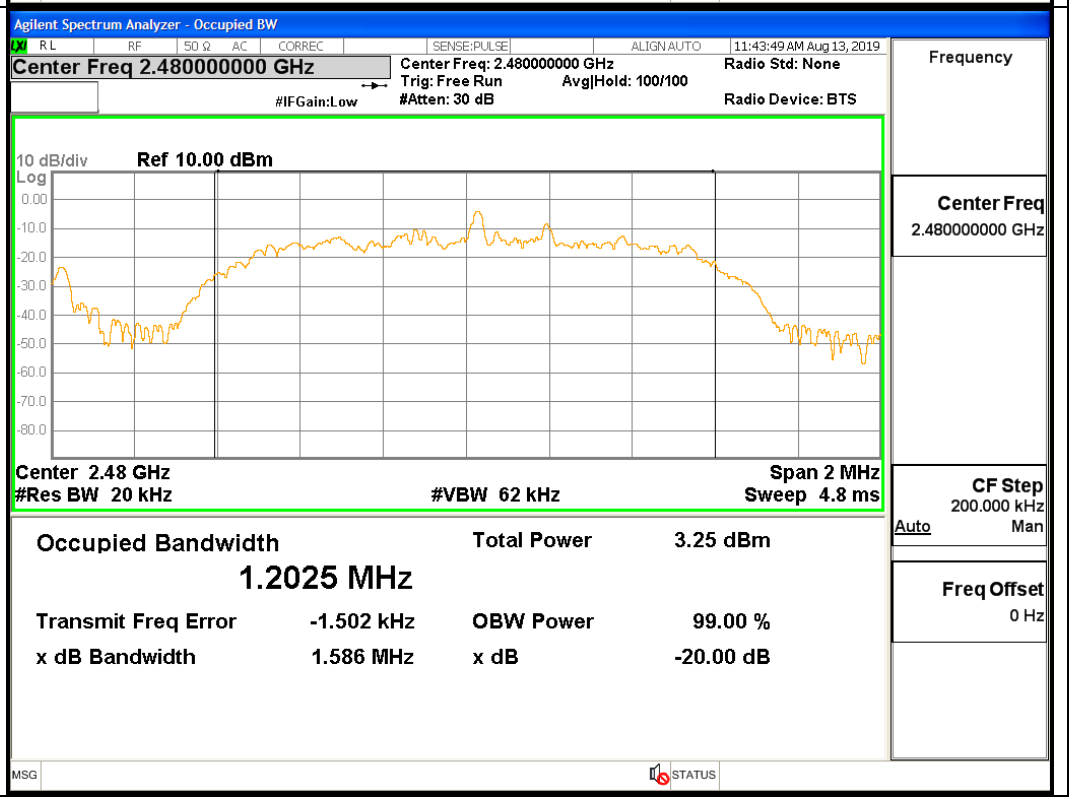
A.1 20 dB Bandwidth

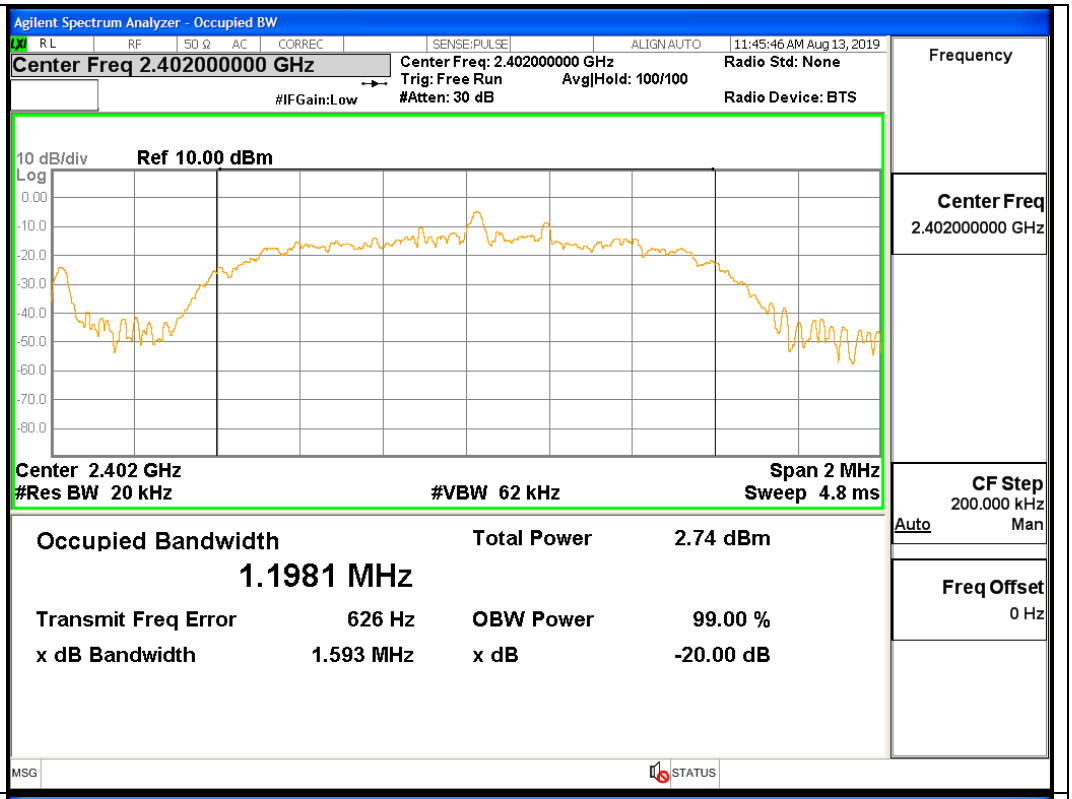
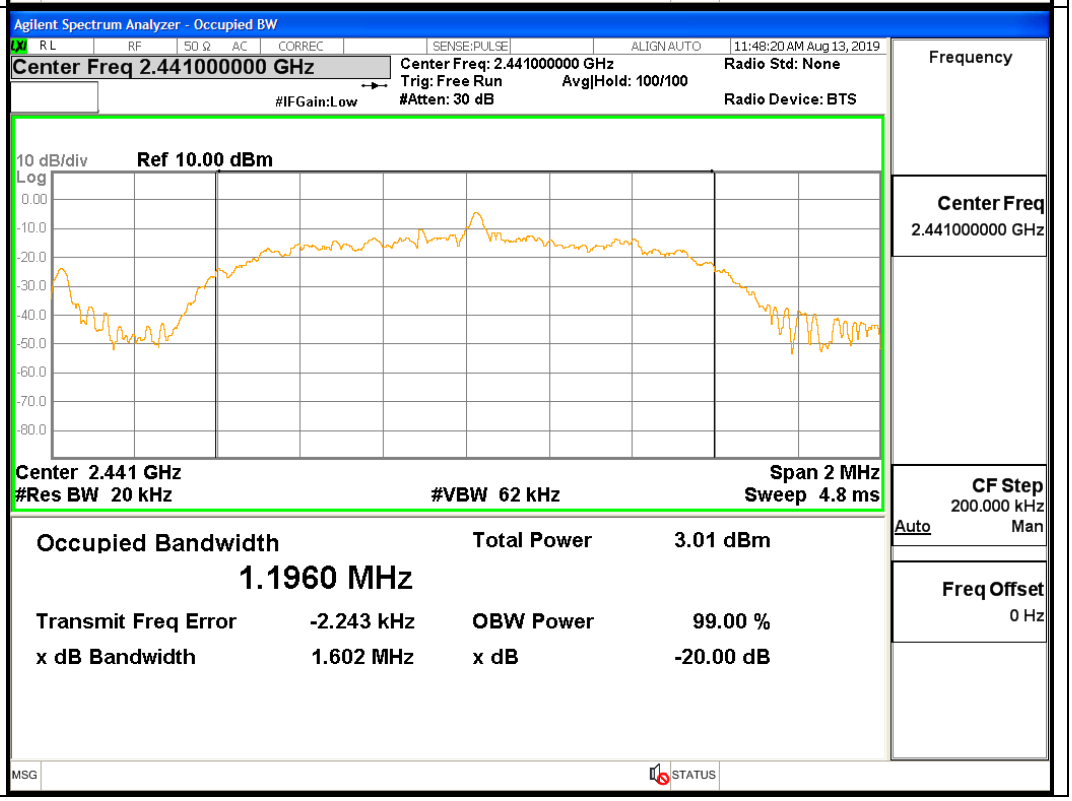
Mode	Channel.	20dB Bandwidth [MHz]	Limit(MHz)	Verdict
GFSK	LCH	0.835	Not Specified	PASS
GFSK	MCH	0.793	Not Specified	PASS
GFSK	HCH	0.774	Not Specified	PASS
π/4DQPSK	LCH	1.589	Not Specified	PASS
π/4DQPSK	MCH	1.593	Not Specified	PASS
π/4DQPSK	HCH	1.586	Not Specified	PASS
8DPSK	LCH	1.593	Not Specified	PASS
8DPSK	MCH	1.602	Not Specified	PASS
8DPSK	HCH	1.601	Not Specified	PASS

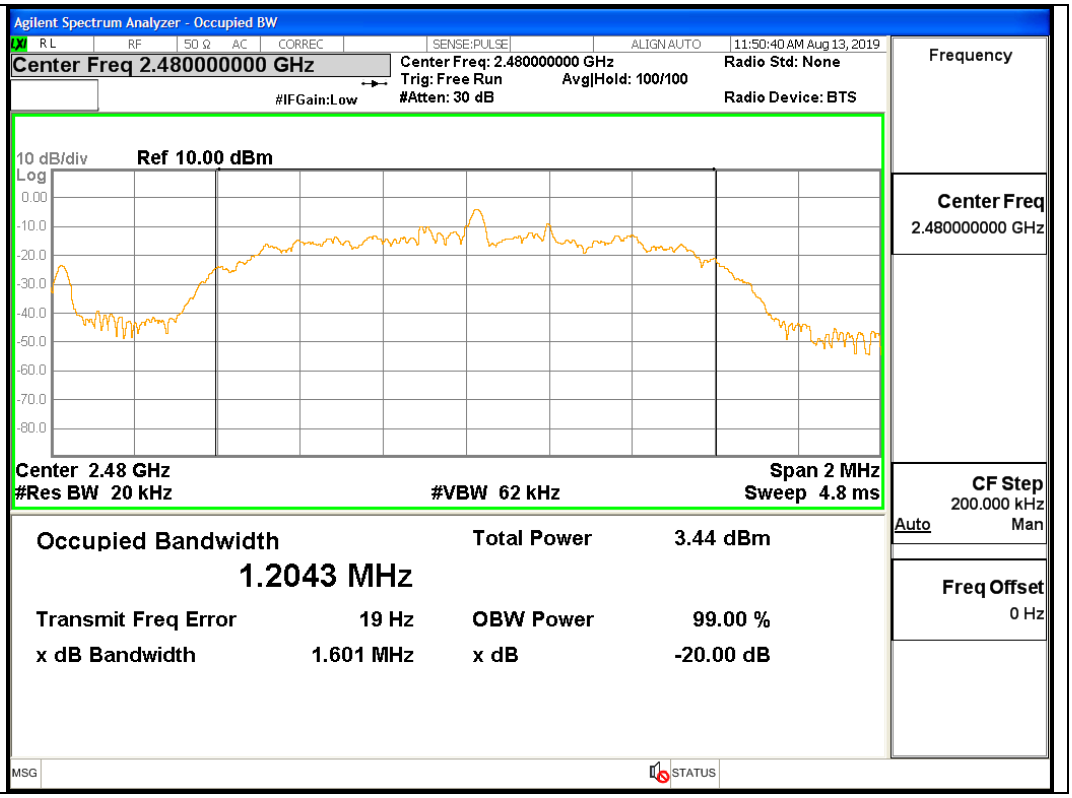
Test Graph

Graphs	
GFSK/LCH	
GFSK/MCH	

GFSK/HCH	
π/4DQPSK/LCH	

π/4DQPSK/MCH	
π/4DQPSK/HCH	

8DPSK/LCH	
8DPSK/MCH	

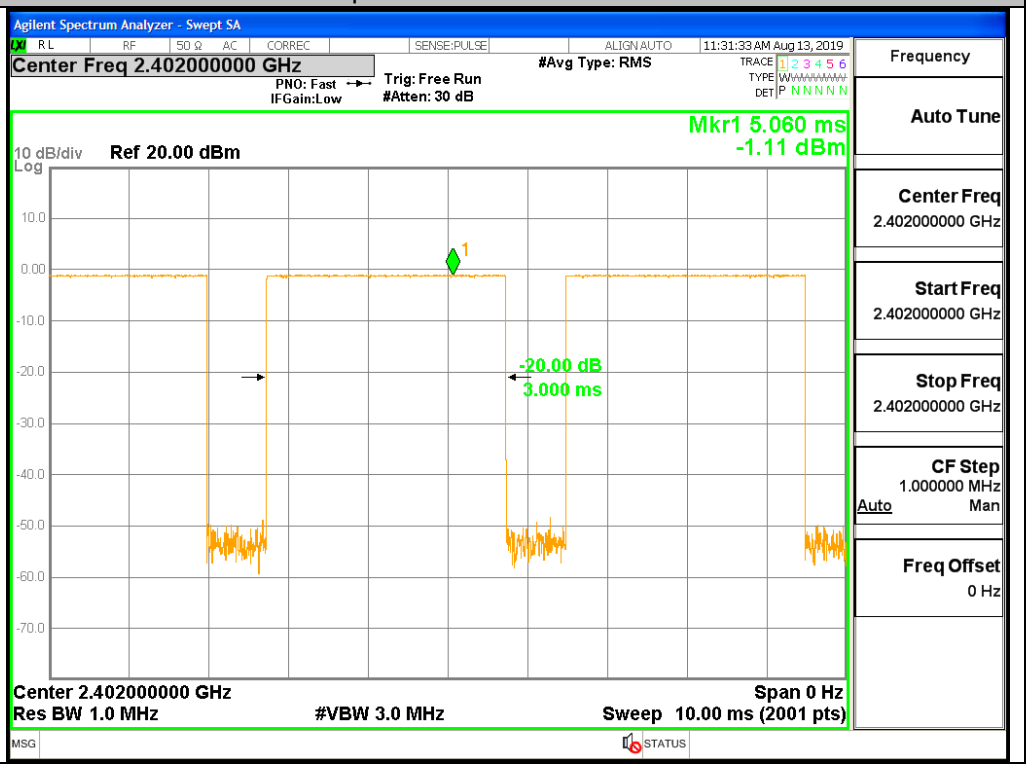
8DPSK/HCH	

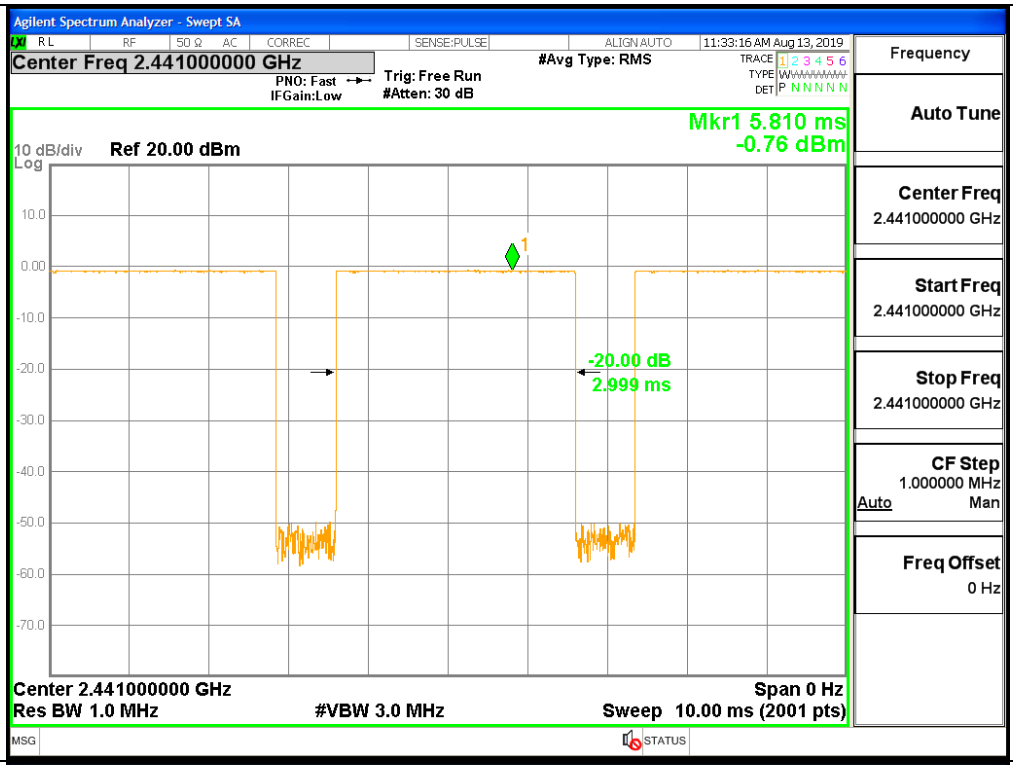
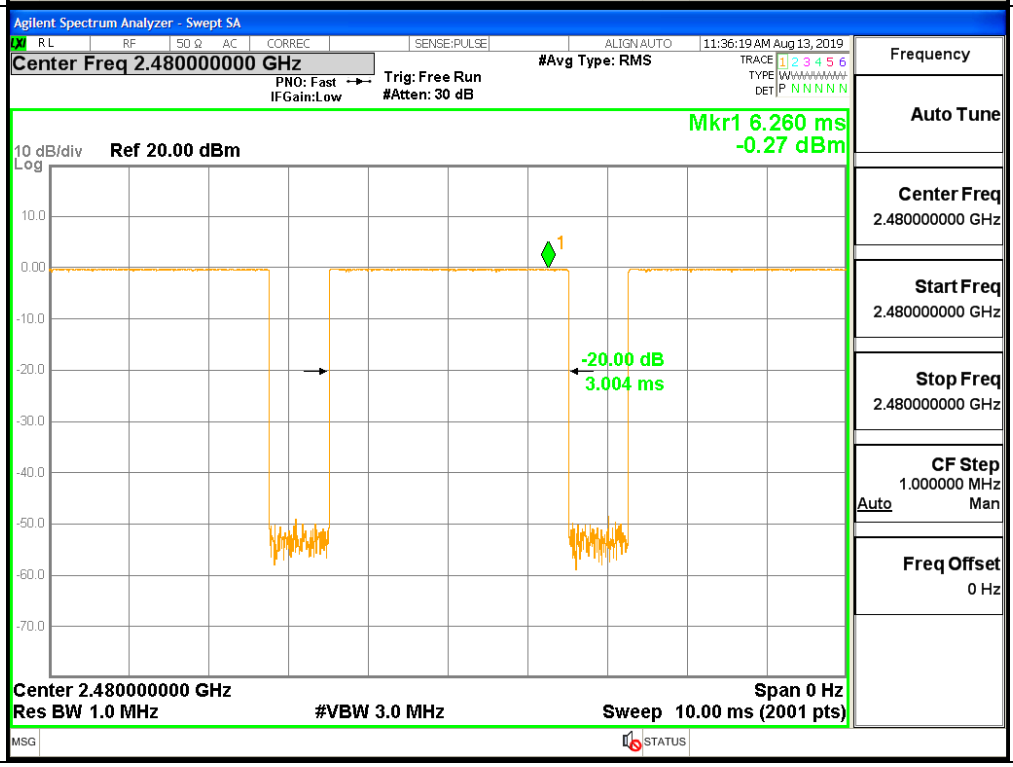
Agilent Spectrum Analyzer - Occupied BW
RL
RF
50 Ω AC
CORREC
SENSE:PULSE
ALIGN AUTO
11:50:40 AM Aug 13, 2019
Center Freq 2.480000000 GHz
Center Freq: 2.480000000 GHz
Trig: Free Run
Avg|Hold: 100/100
#IFGain:Low
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Frequency
10 dB/div
Log
Ref 10.00 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center Freq
2.480000000 GHz
Center 2.48 GHz
#Res BW 20 kHz
#VBW 62 kHz
Span 2 MHz
Sweep 4.8 ms
CF Step
200.000 kHz
Auto
Man
Occupied Bandwidth
1.2043 MHz
Total Power
3.44 dBm
Transmit Freq Error
19 Hz
OBW Power
99.00 %
x dB Bandwidth
1.601 MHz
x dB
-20.00 dB
Freq Offset
0 Hz
MSG
STATUS

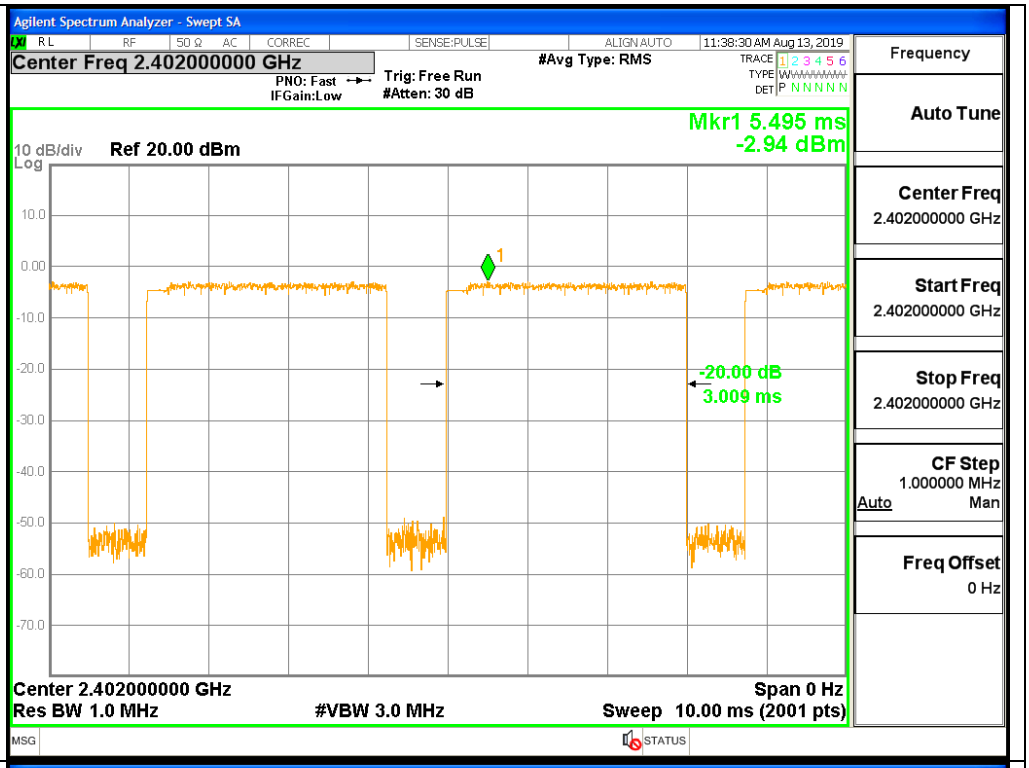
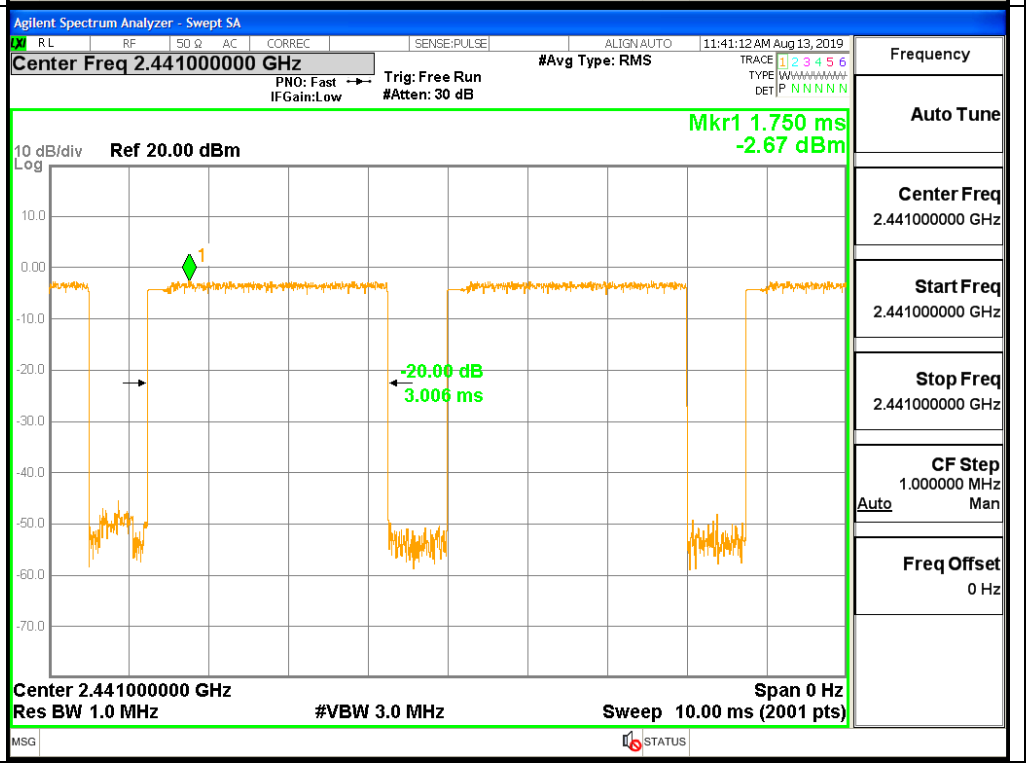
A.2 Dwell Time

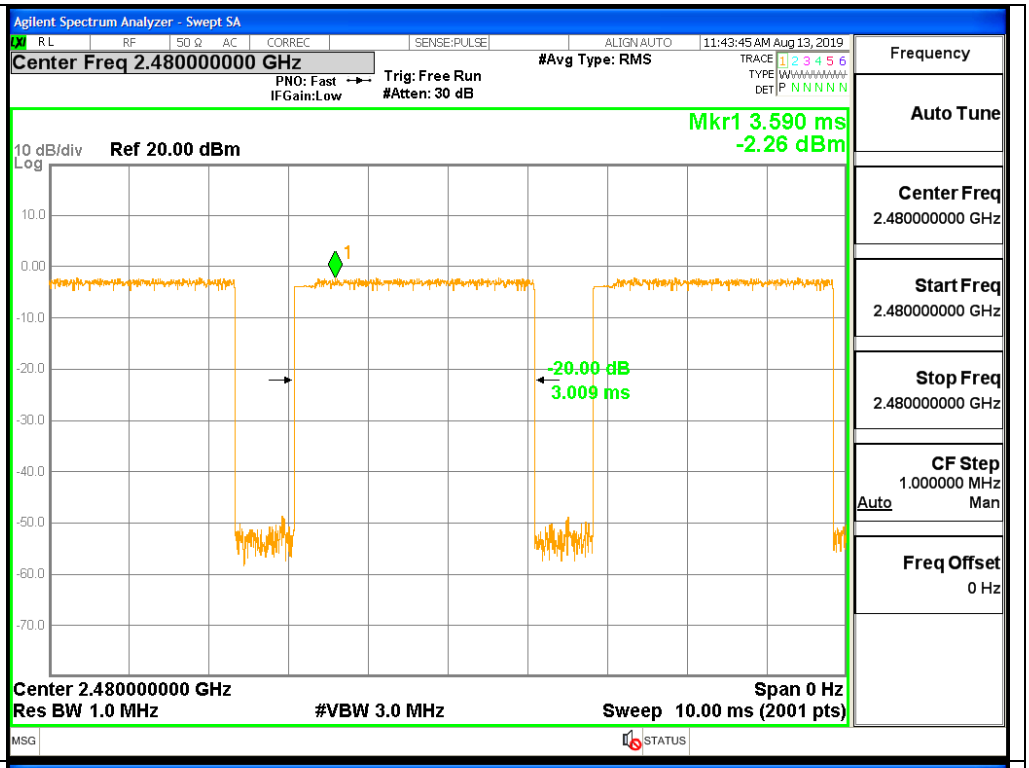
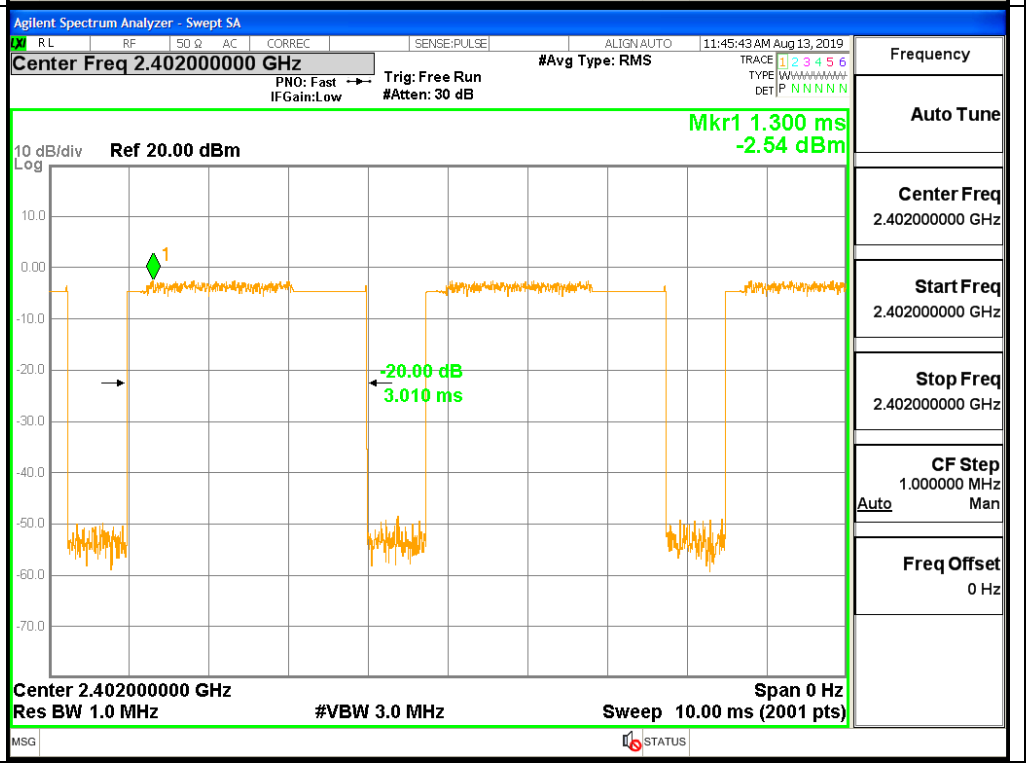
Mode	Packet	Channel	Burst Width [s/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	0.003000	106.7	0.320092	0.4	PASS
GFSK	DH5	MCH	0.002999	106.7	0.319999	0.4	PASS
GFSK	DH5	HCH	0.003004	106.7	0.320507	0.4	PASS
π/4DQPSK	2DH5	LCH	0.003009	106.7	0.321017	0.4	PASS
π/4DQPSK	2DH5	MCH	0.003006	106.7	0.320788	0.4	PASS
π/4DQPSK	2DH5	HCH	0.003009	106.7	0.321024	0.4	PASS
8DPSK	3DH5	LCH	0.00301	106.7	0.321123	0.4	PASS
8DPSK	3DH5	MCH	0.003008	106.7	0.320996	0.4	PASS
8DPSK	3DH5	HCH	0.003009	106.7	0.321026	0.4	PASS

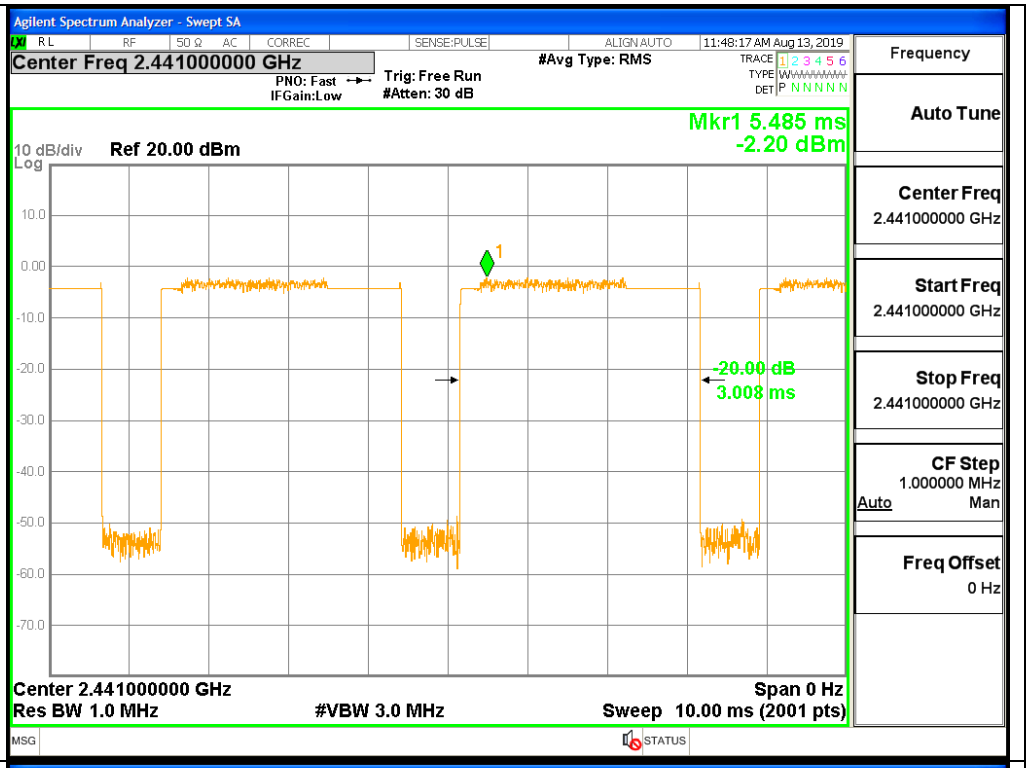
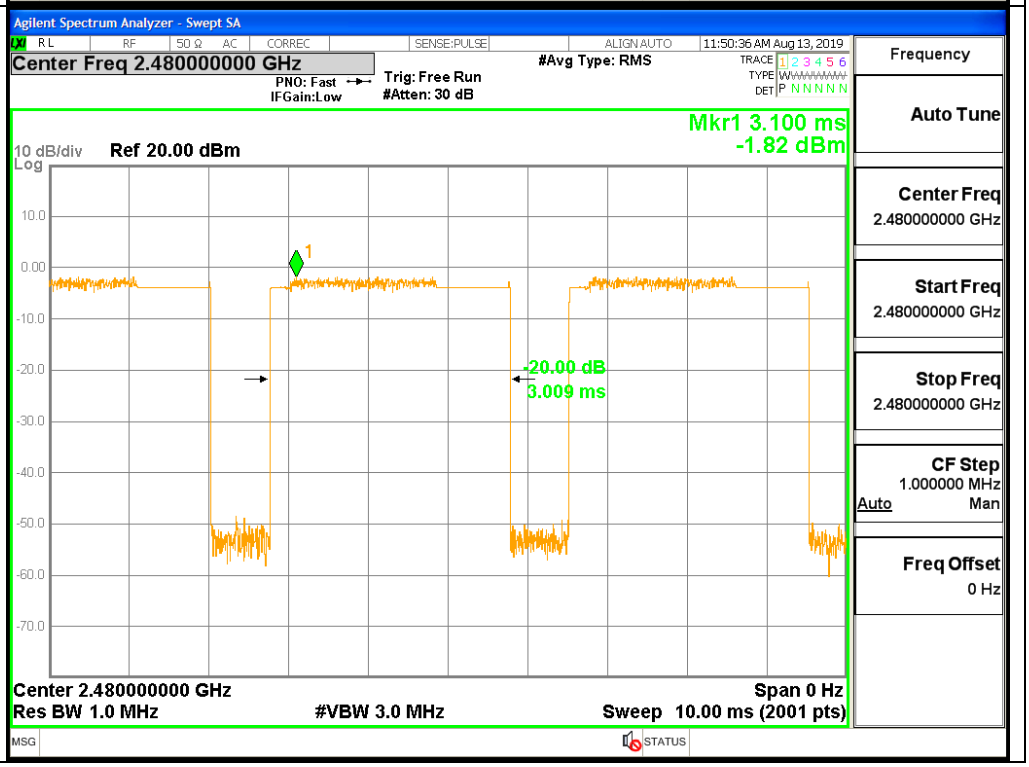
Test Graph

Graphs	
GFSK_DH5/LCH	

GFSK_DH5/MCH	
GFSK_DH5/HCH	

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

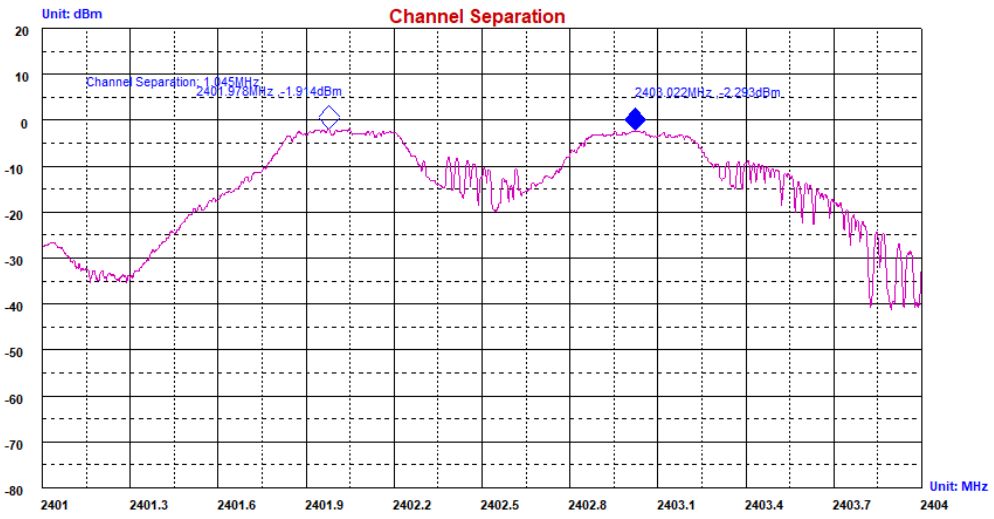
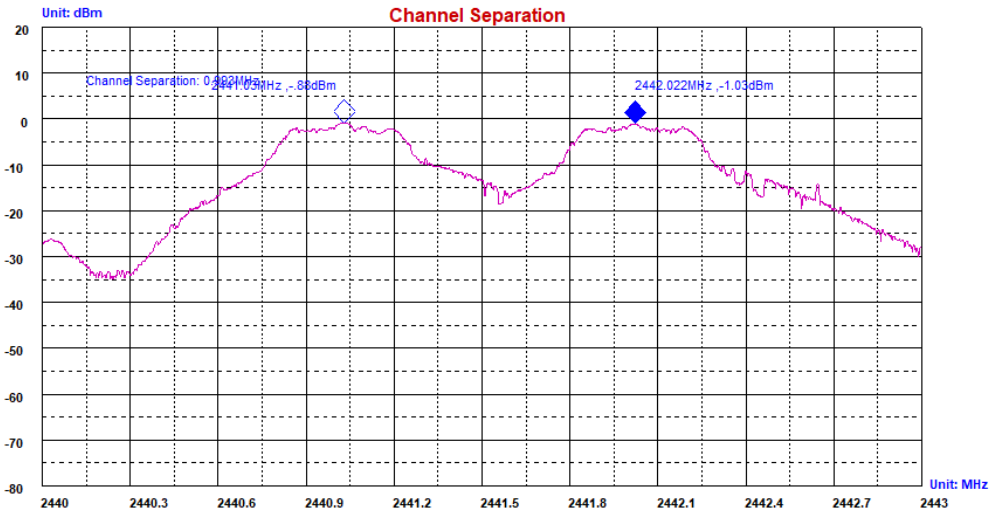
π/4DQPSK _2DH5/HCH	
8DPSK _3DH5/LCH	

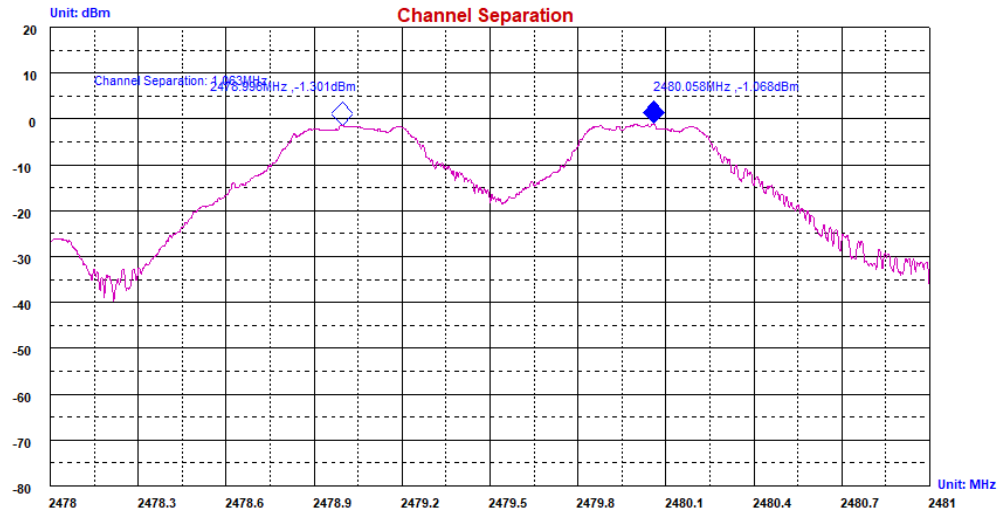
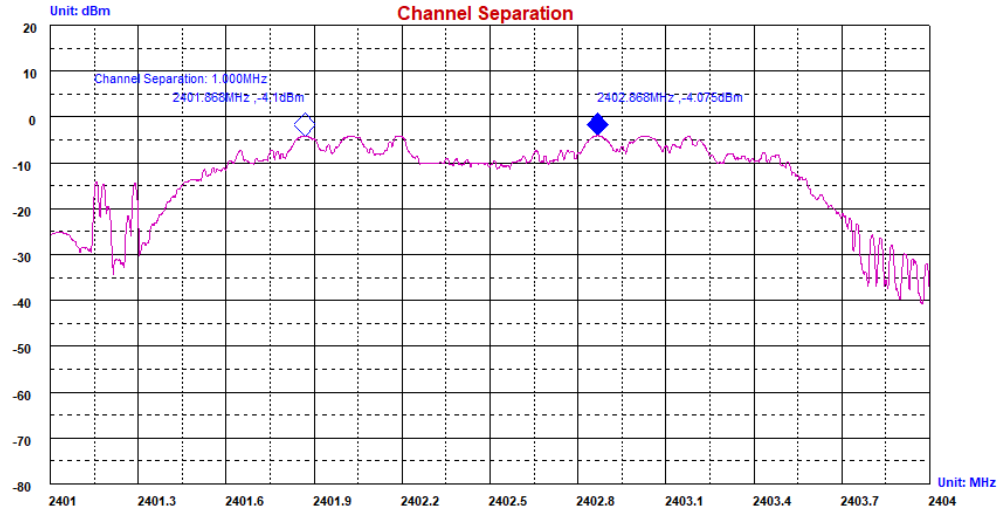
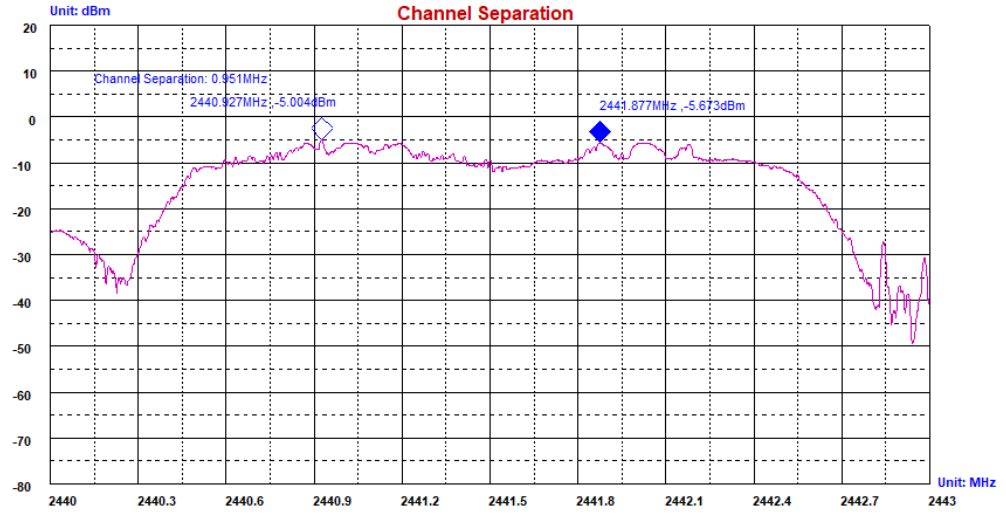
8DPSK _3DH5/MCH	
8DPSK _3DH5/HCH	

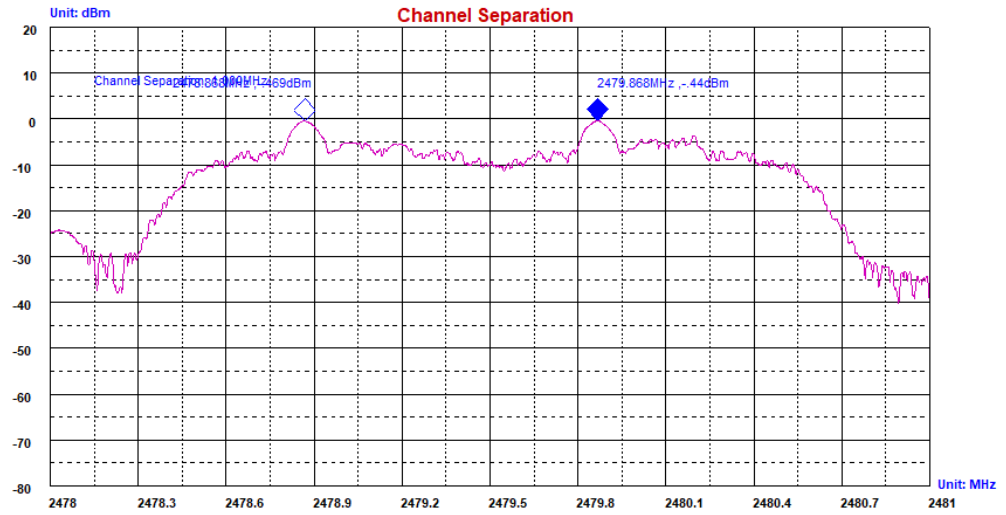
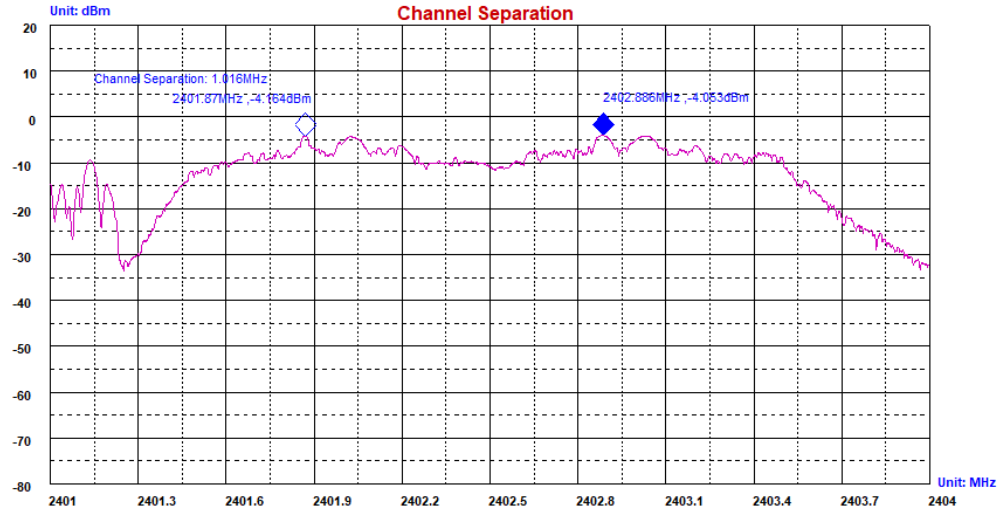
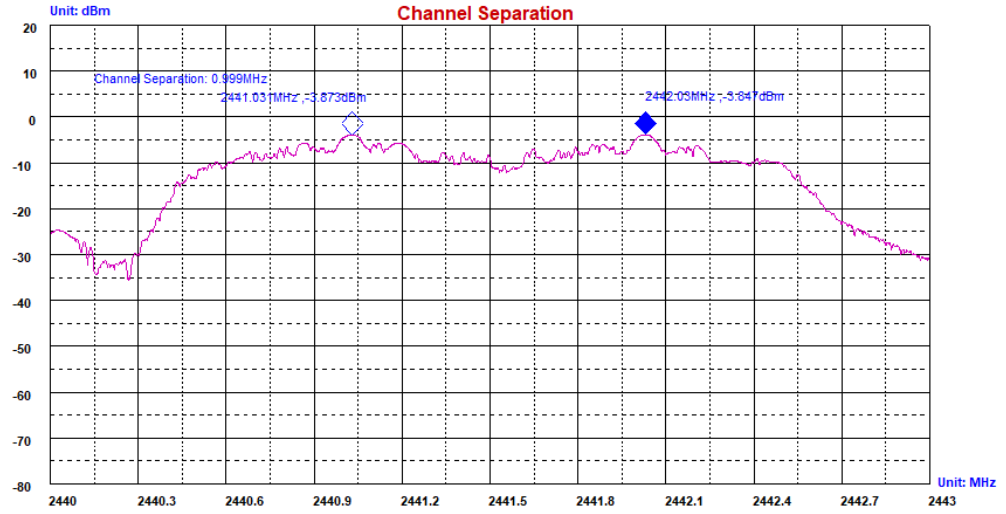
A.3 Carrier Frequency Separation

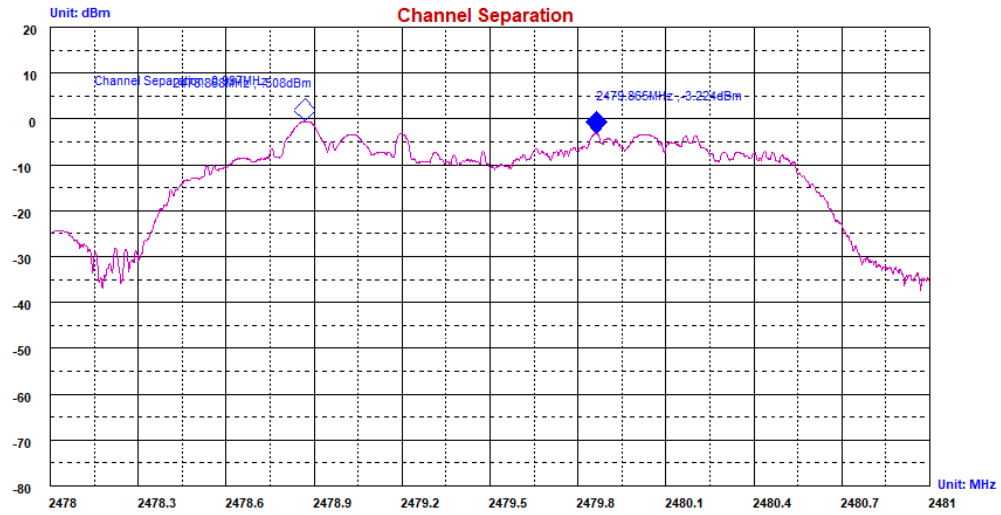
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.045	0.623	PASS
GFSK	MCH	0.993	0.625	PASS
GFSK	HCH	1.063	0.626	PASS
π/4DQPSK	LCH	0.712	0.828	PASS
π/4DQPSK	MCH	1.000	0.823	PASS
π/4DQPSK	HCH	1.000	0.857	PASS
8DPSK	LCH	1.016	0.834	PASS
8DPSK	MCH	0.999	0.841	PASS
8DPSK	HCH	0.997	0.836	PASS

Test Graph

Graphs	
GFSK/LCH	
GFSK/MCH	

GFSK/HCH	
π/4DQPSK/LCH	
π/4DQPSK/MCH	

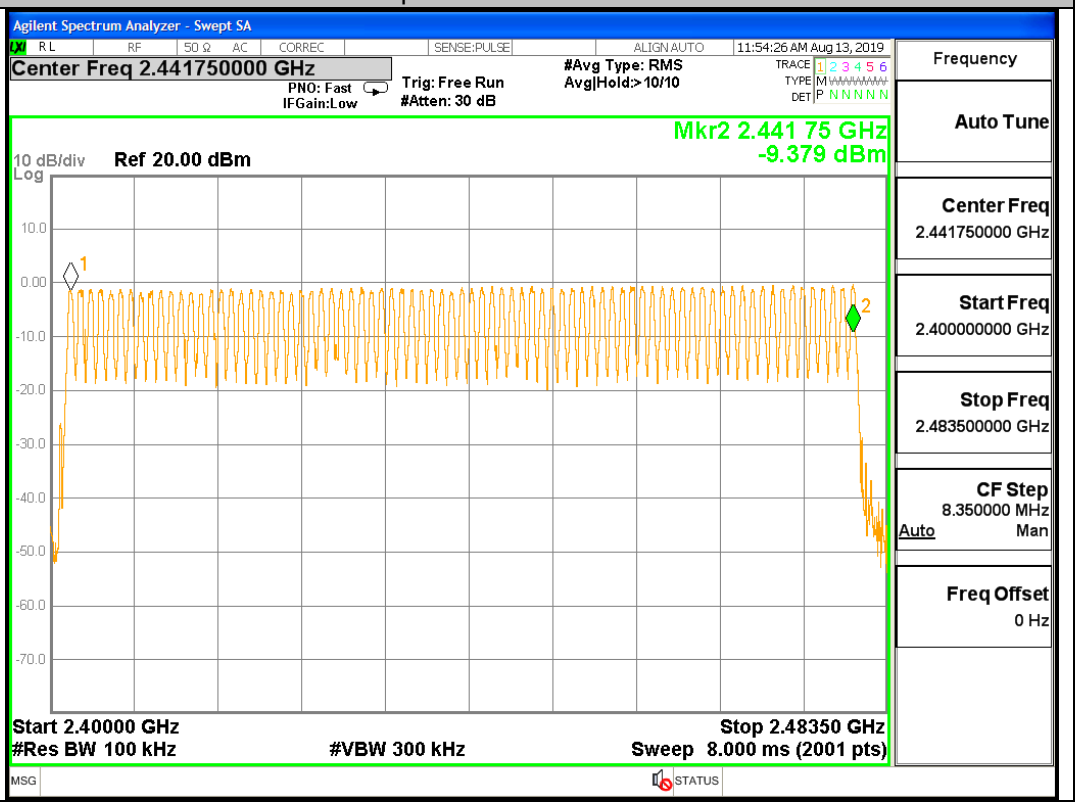
π/4DQPSK/HCH	
8DPSK/LCH	
8DPSK/MCH	

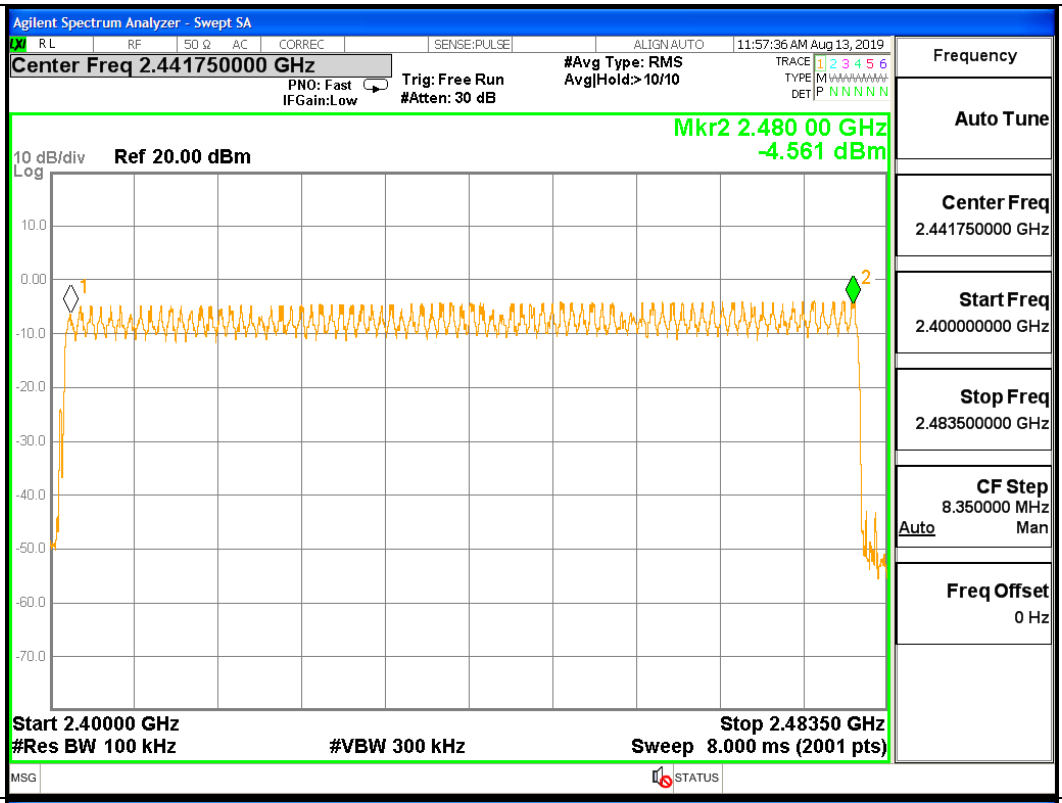
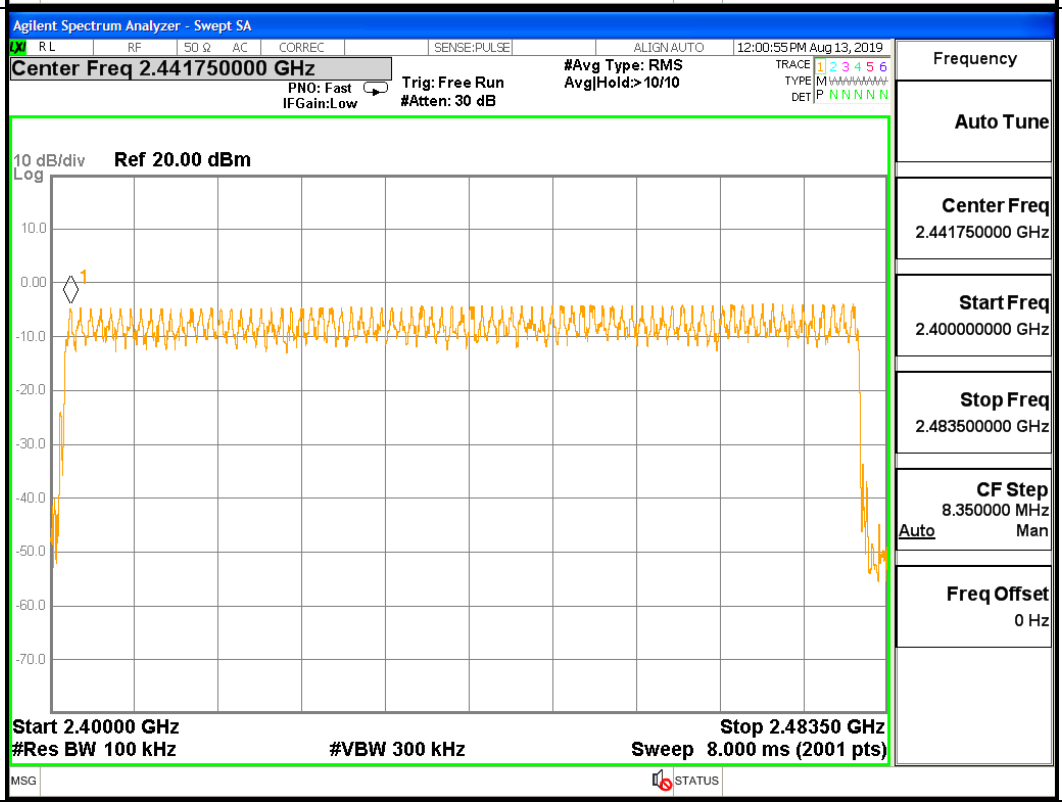
8DPSK/HCH	 Unit: dBm Channel Separation 20 10 0 -10 -20 -30 -40 -50 -60 -70 -80 2479.865MHz -3.224dBm 2478 2478.3 2478.6 2478.9 2479.2 2479.5 2479.8 2480.1 2480.4 2480.7 2481 Unit: MHz

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 Graph

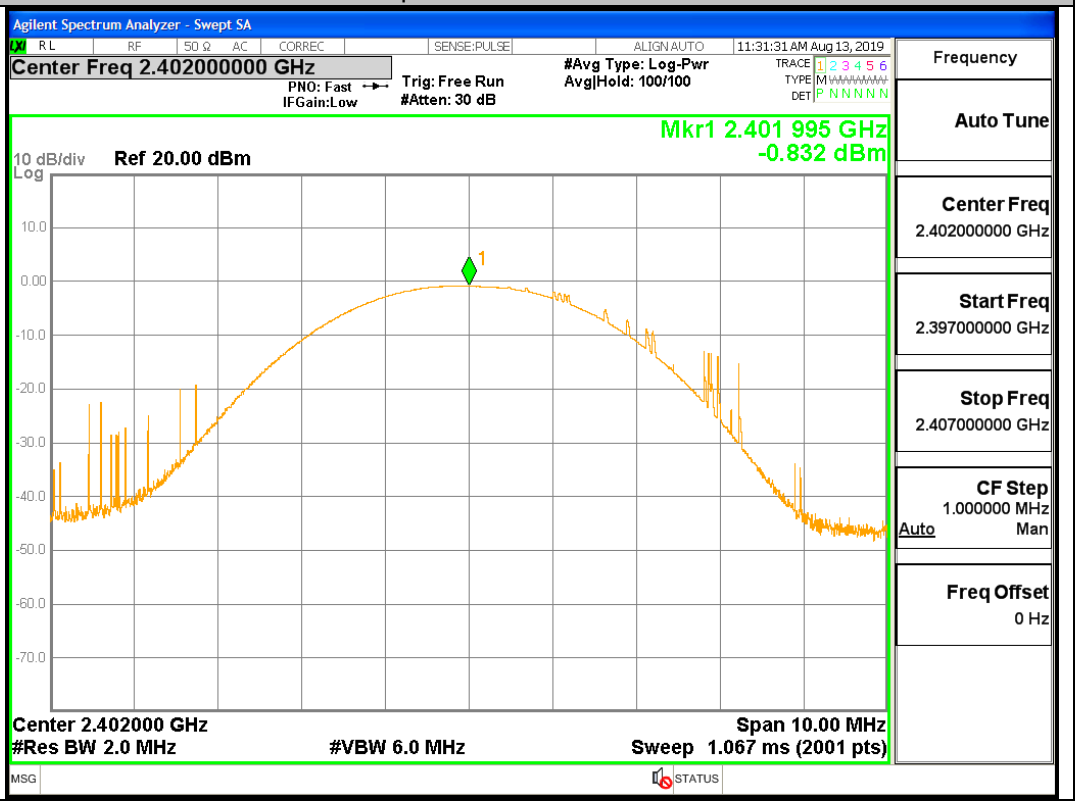
Graphs	
GFSK/Hop	

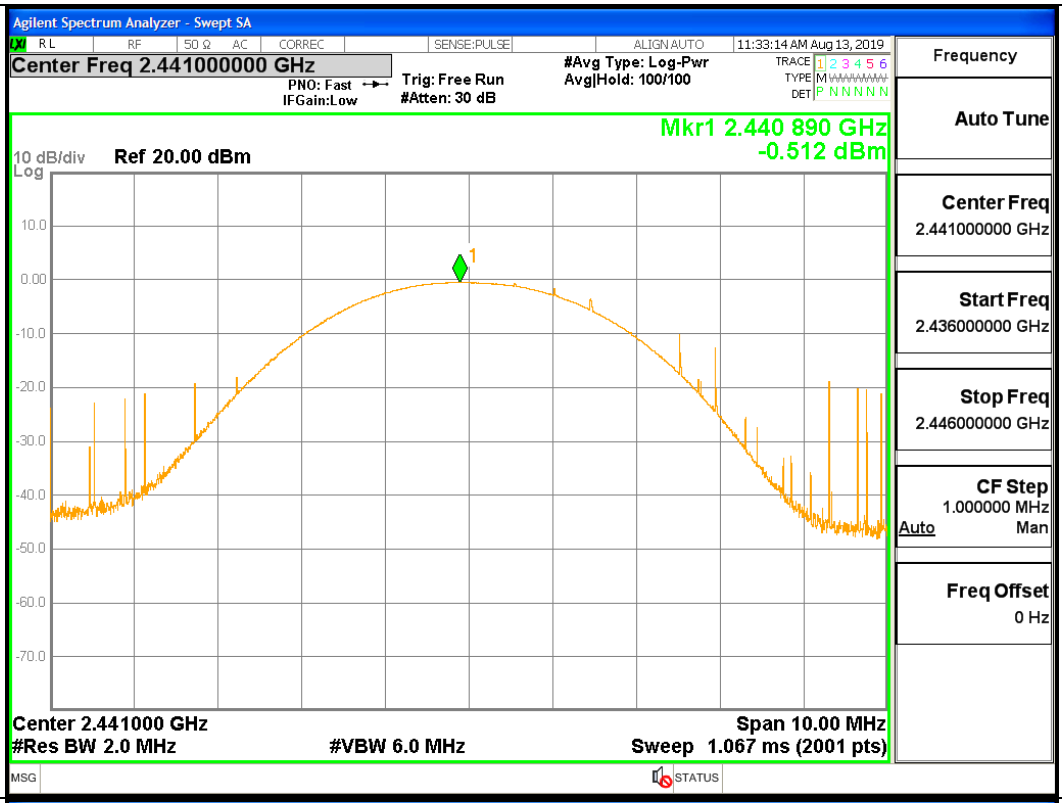
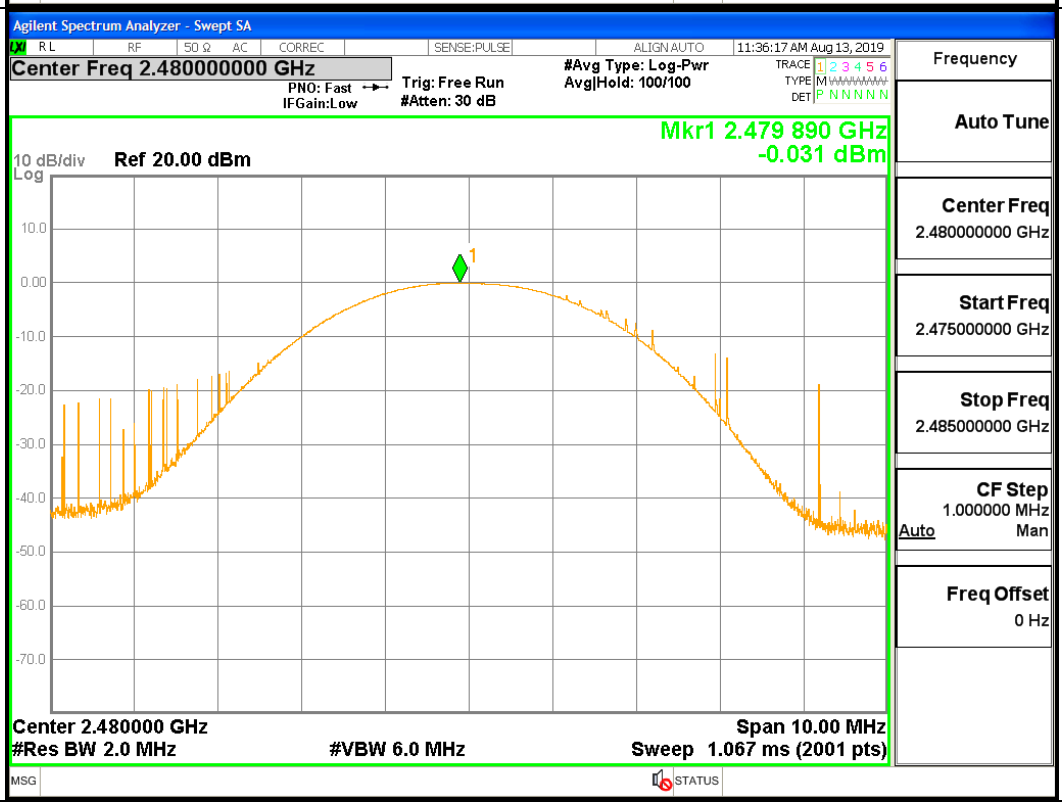
π/4DQPSK/Hop	
8DPSK/Hop	

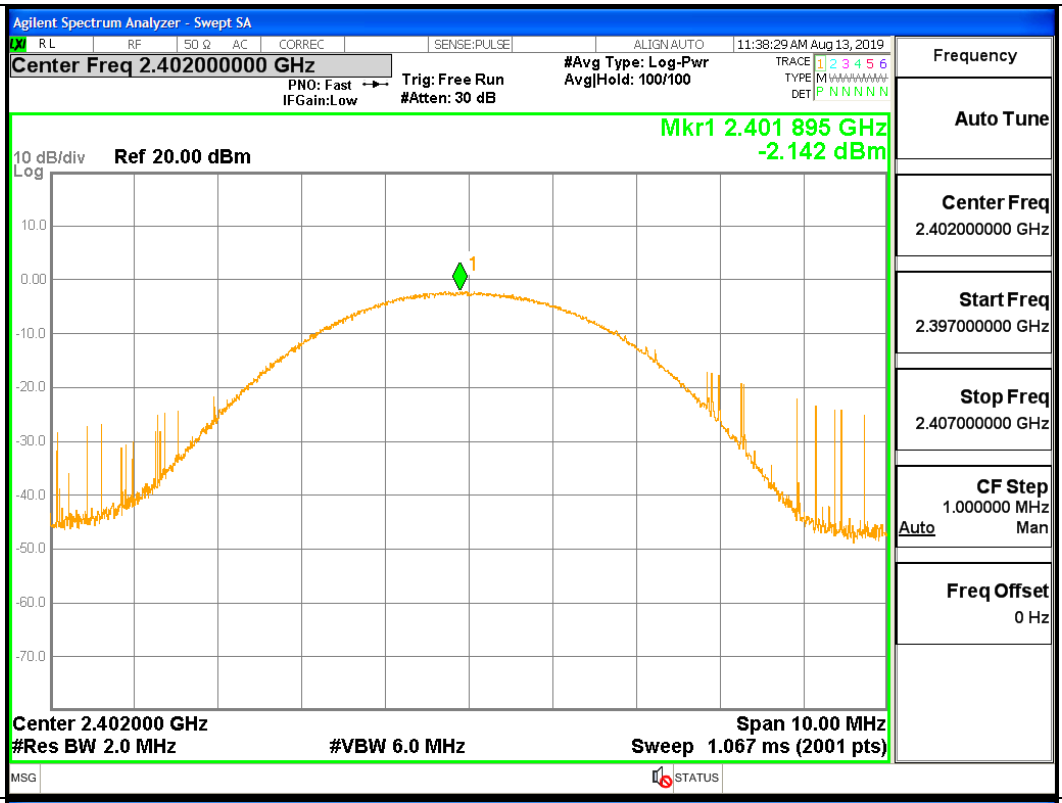
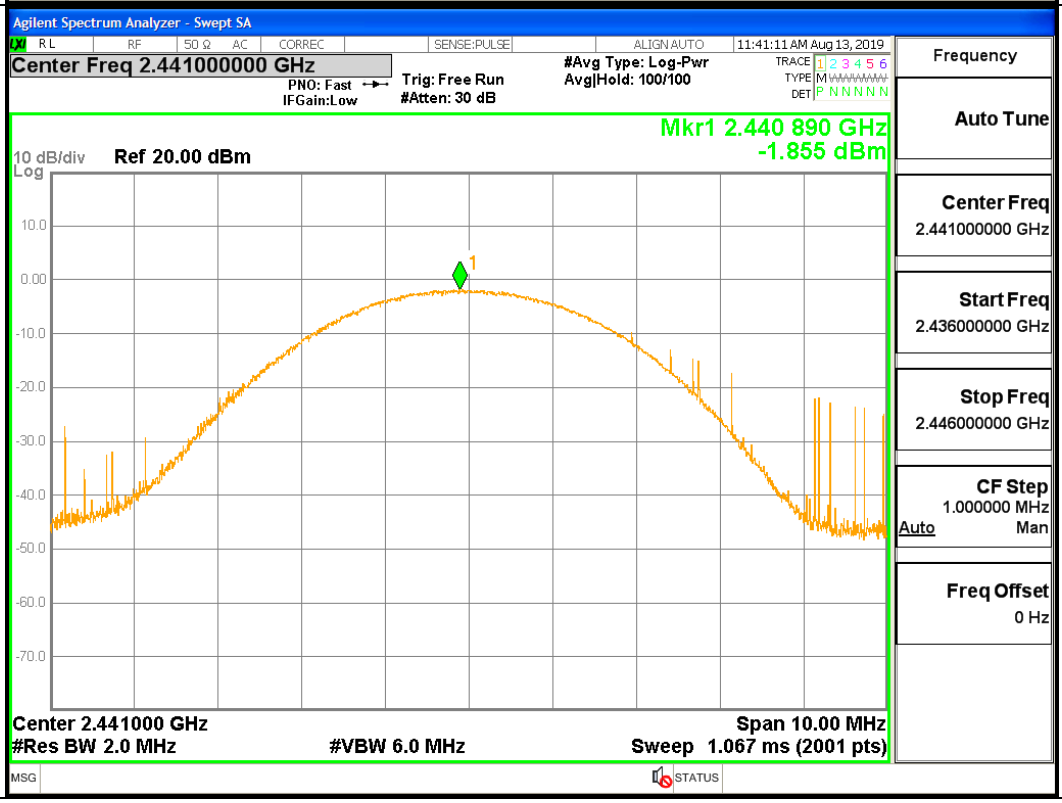
A.5 Conducted Peak Output Power

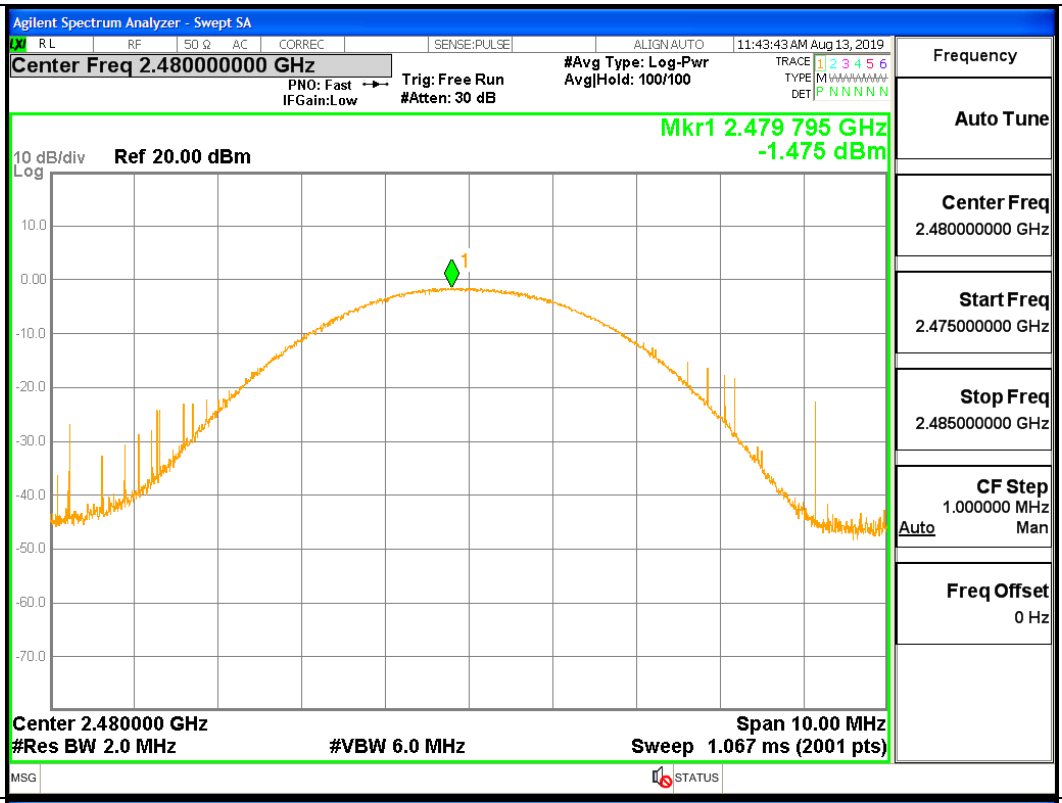
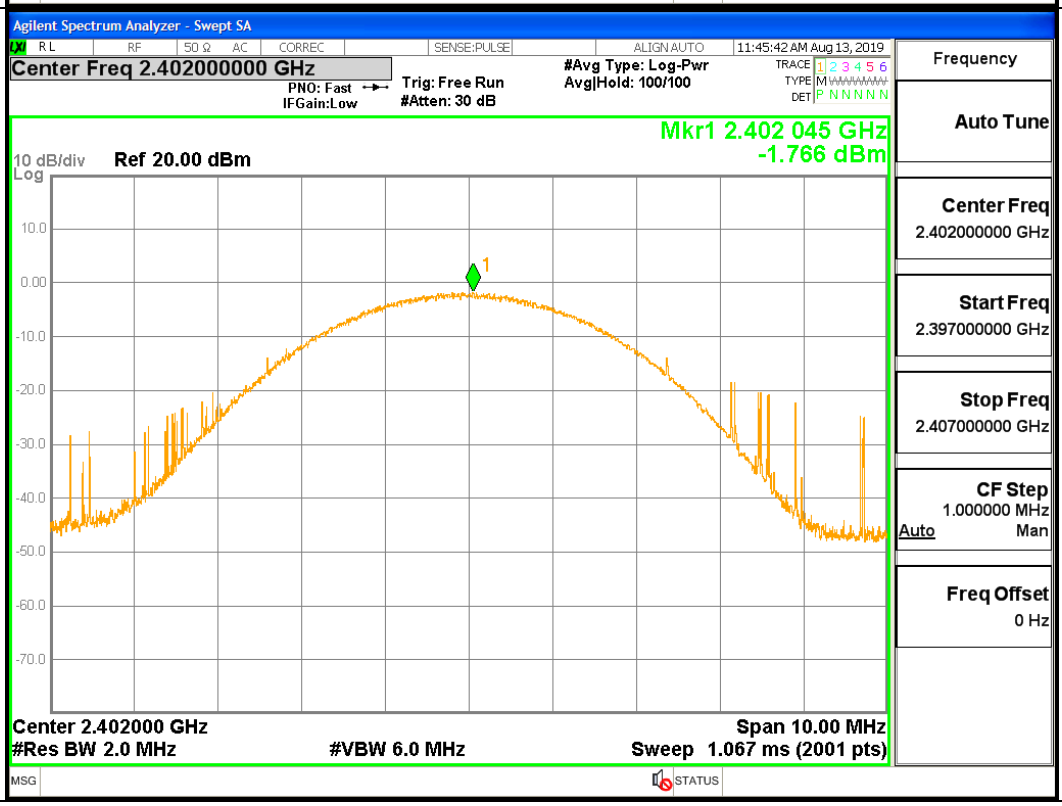
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.832	21	PASS
GFSK	MCH	-0.512	21	PASS
GFSK	HCH	-0.031	21	PASS
π/4DQPSK	LCH	-2.142	21	PASS
π/4DQPSK	MCH	-1.855	21	PASS
π/4DQPSK	HCH	-1.475	21	PASS
8DPSK	LCH	-1.766	21	PASS
8DPSK	MCH	-1.426	21	PASS
8DPSK	HCH	-1.114	21	PASS

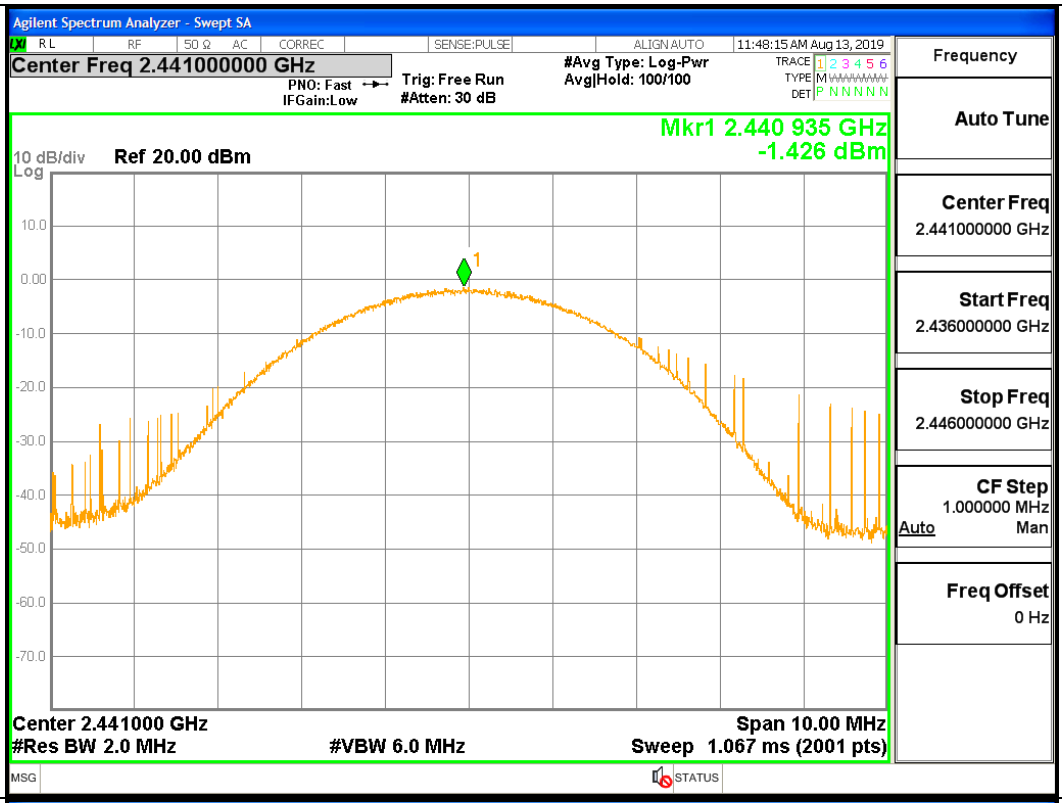
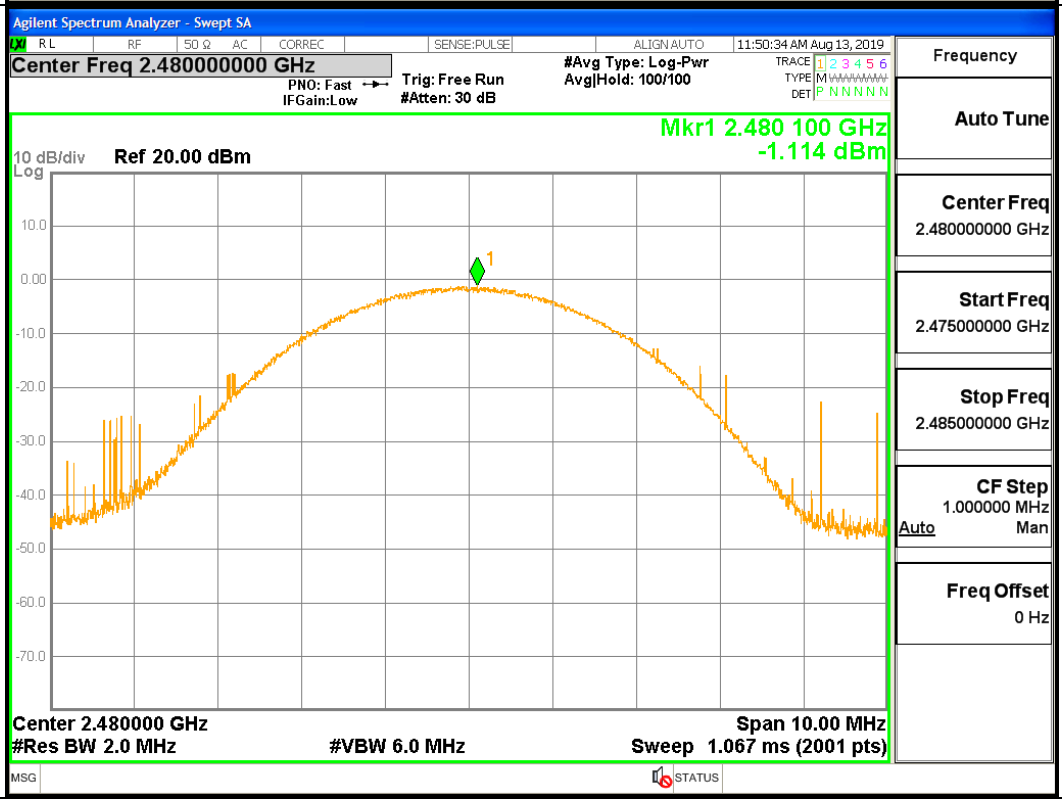
Test Graph

Graphs	
GFSK/LCH	

GFSK/MCH	
GFSK/HCH	

π/4DQPSK/LCH	
π/4DQPSK/MCH	

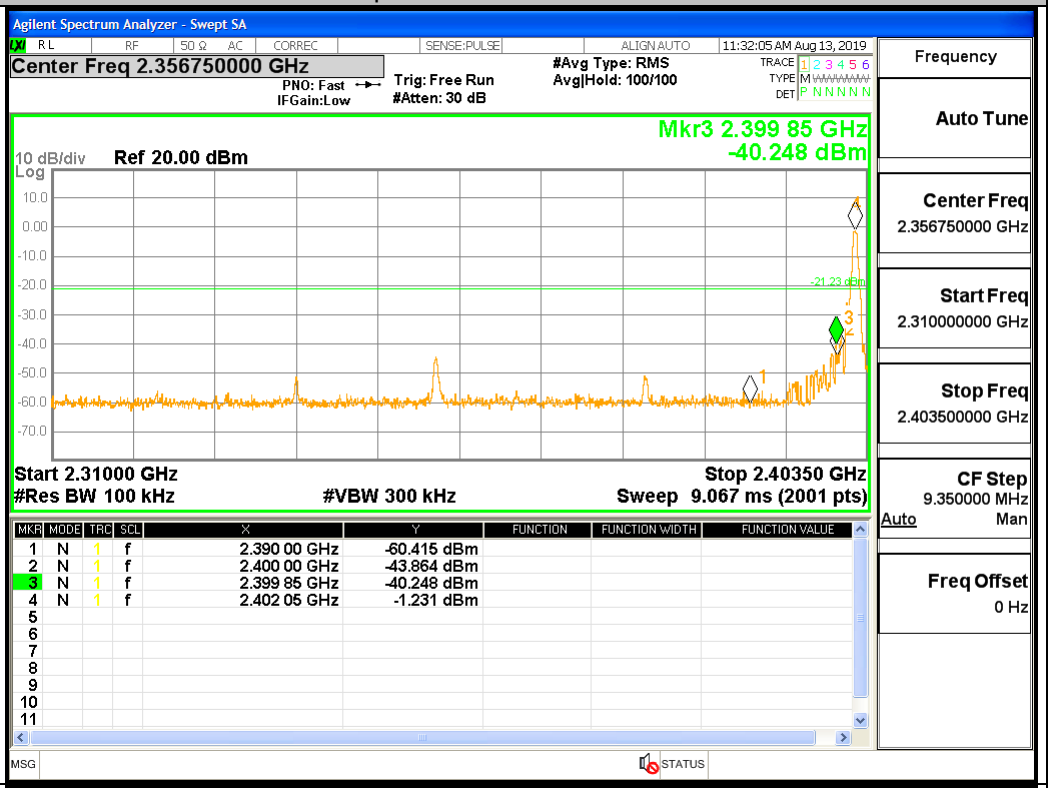
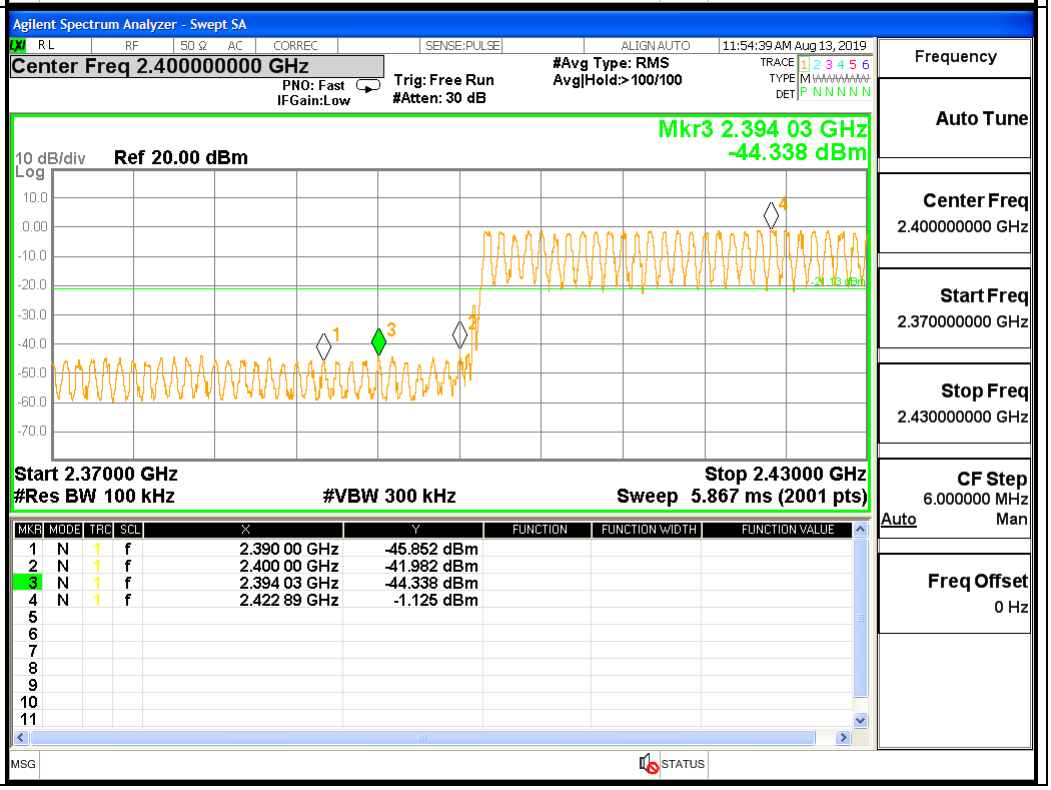
π/4DQPSK/HCH	
8DPSK/LCH	

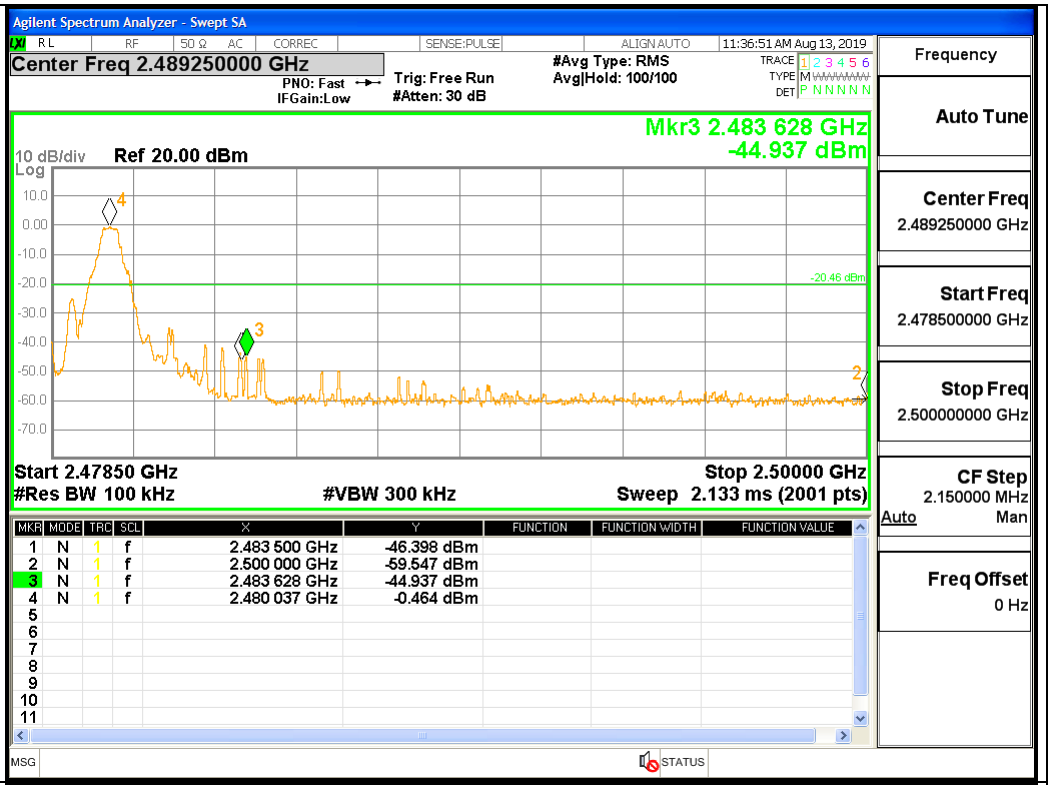
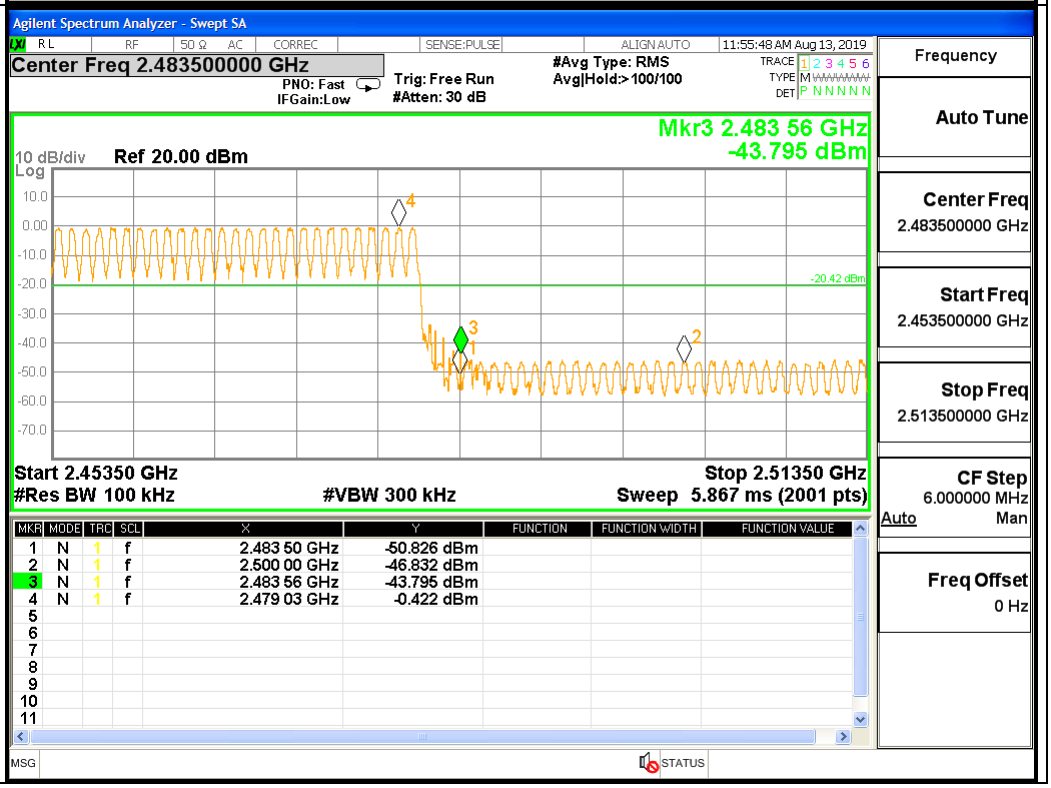
8DPSK/MCH	
8DPSK/HCH	

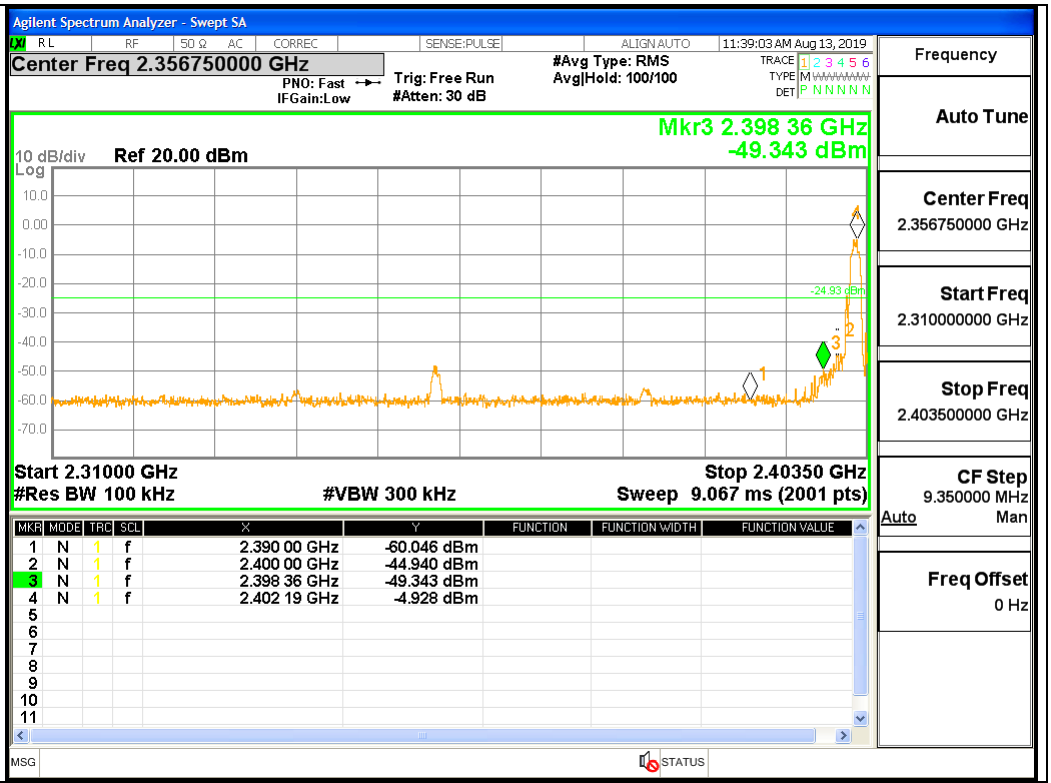
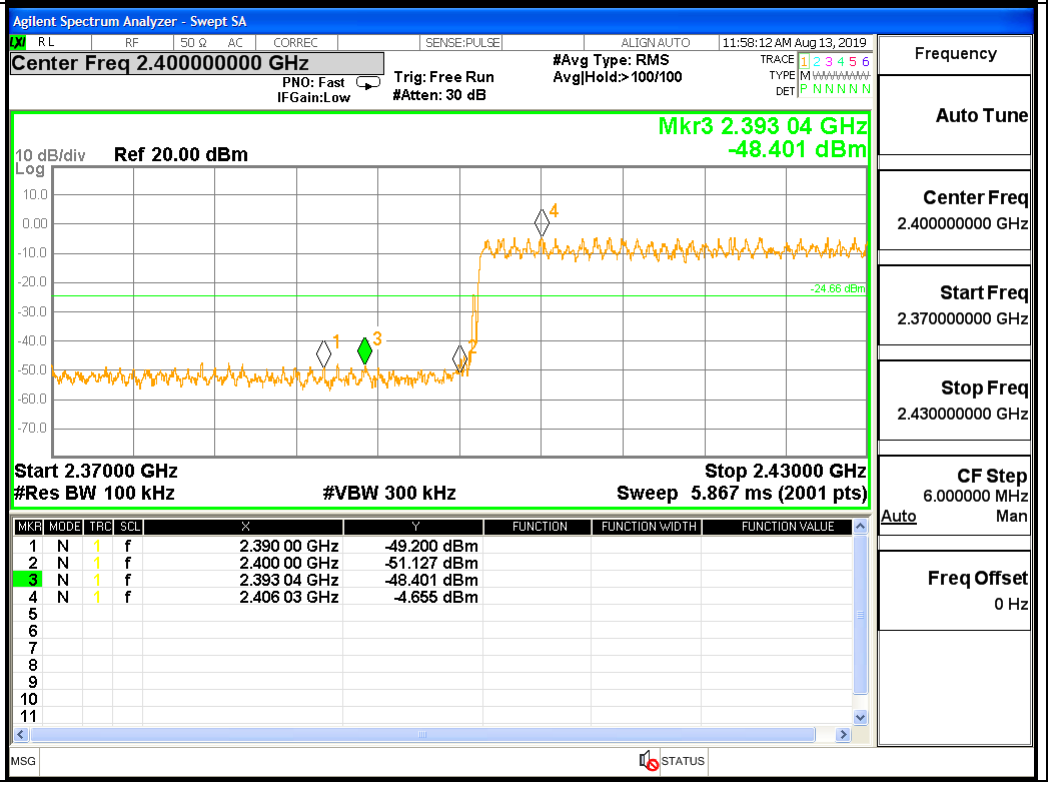
A.6 Band-edge for RF Conducted Emissions

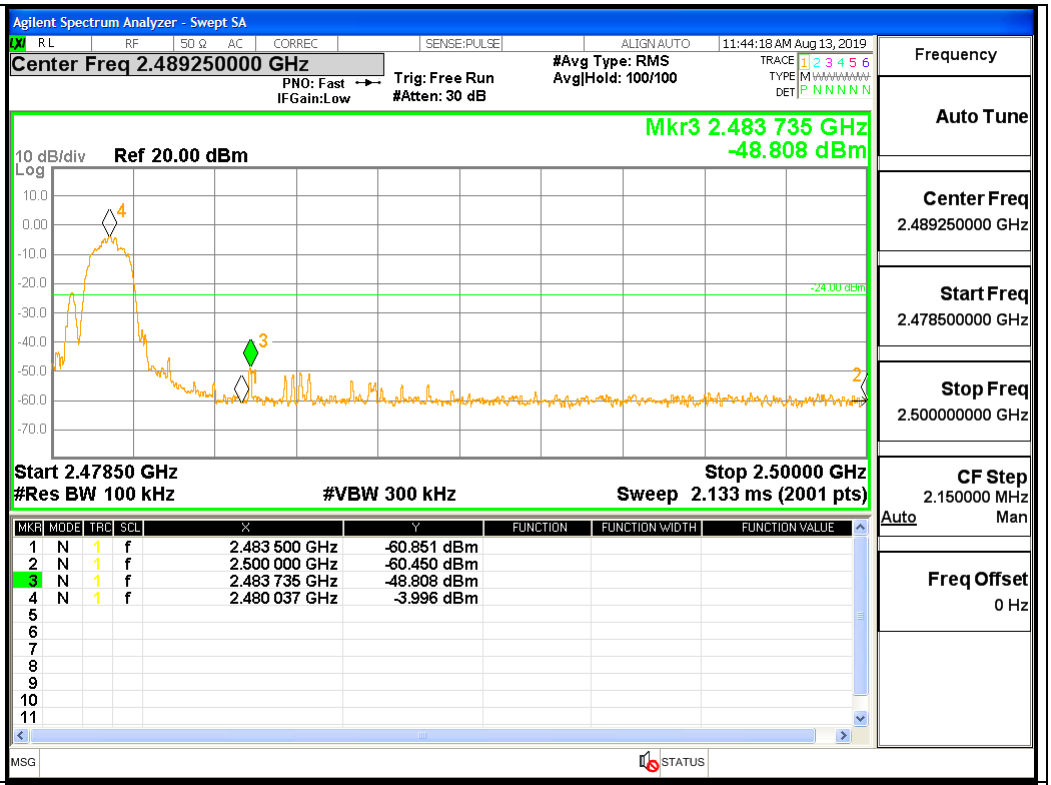
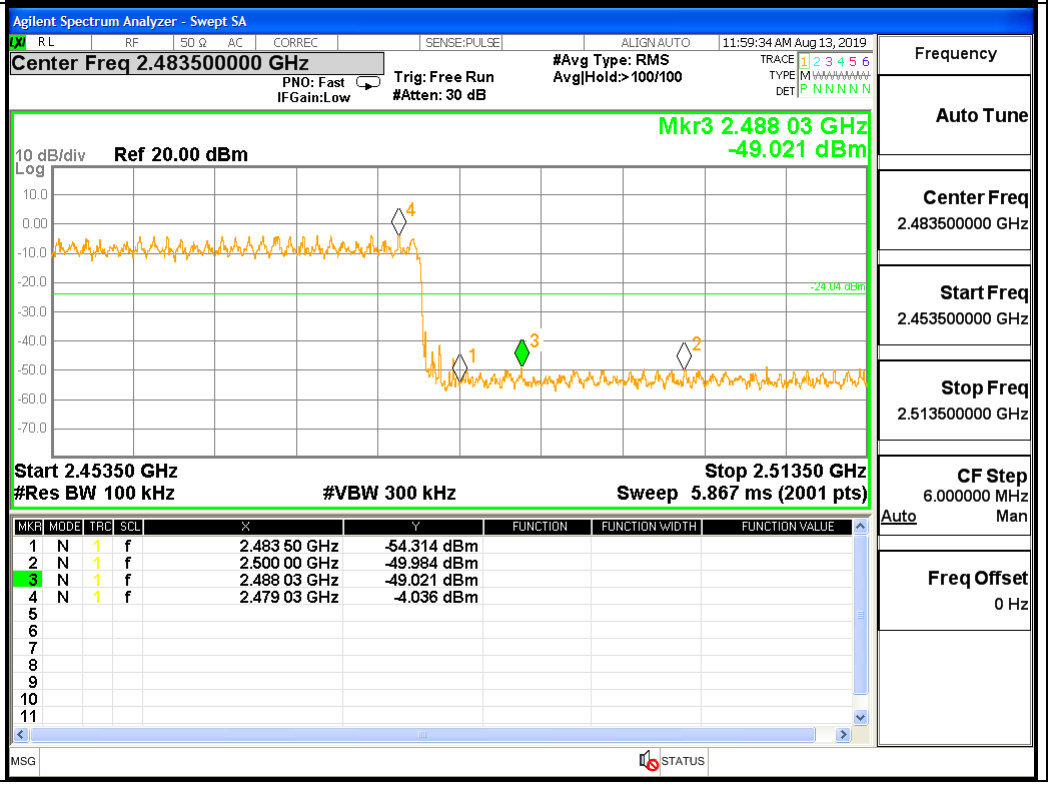
Type	Carrier Frequency(MHz)	Frequency(MHz)	Carrier Frequency Power [dBm]	Bandedge Peak(dBm)	Upper limit(dBm)	Conclusion
1DH5	2402	2399.854	-1.231	-40.248	-21.231	Pass
1DH5	2480	2483.628	-0.464	-44.937	-20.464	Pass
2DH5	2402	2400	-4.928	-44.94	-24.928	Pass
2DH5	2480	2483.735	-3.996	-48.808	-23.996	Pass
3DH5	2402	2399.76	-4.826	-43.777	-24.826	Pass
3DH5	2480	2483.51	-4.01	-47.362	-24.01	Pass
1DH5-Hopping	2402	2400	-1.125	-41.98	-21.125	Pass
1DH5-Hopping	2480	2483.56	-0.422	-43.795	-20.422	Pass
2DH5-Hopping	2402	2393.04	-4.655	-48.401	-24.655	Pass
2DH5-Hopping	2480	2488.03	-4.036	-49.021	-24.036	Pass
3DH5-Hopping	2402	2399.76	-4.513	-44.074	-24.513	Pass
3DH5-Hopping	2480	2483.71	-3.953	-47.103	-23.953	Pass

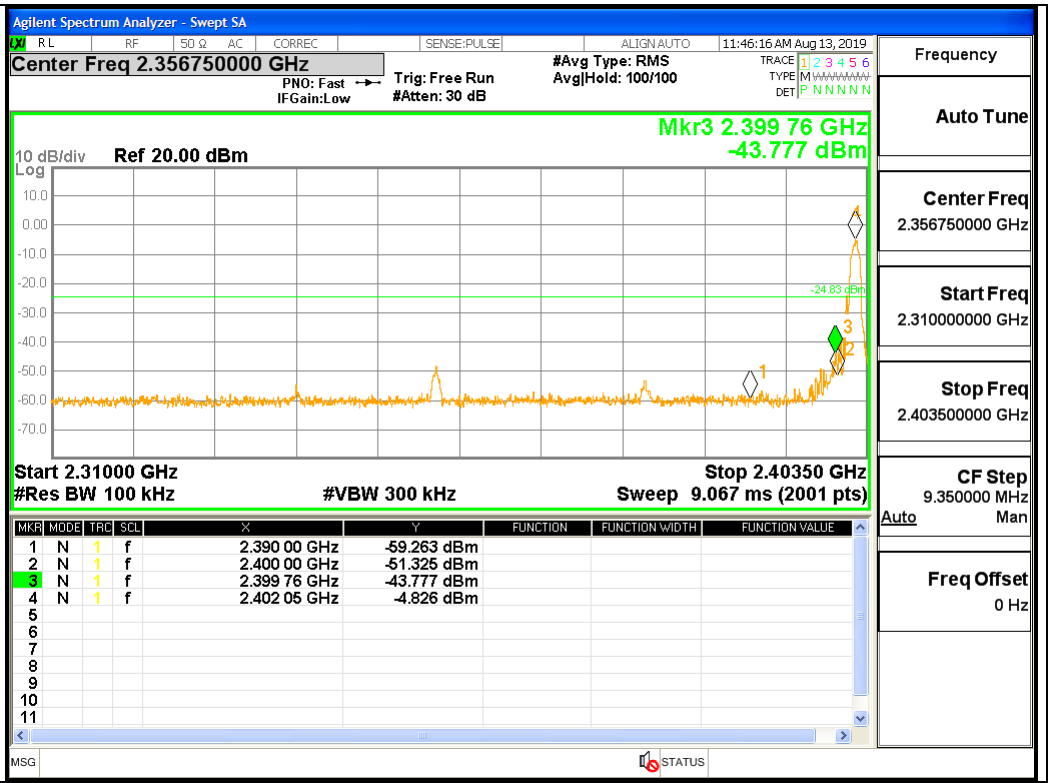
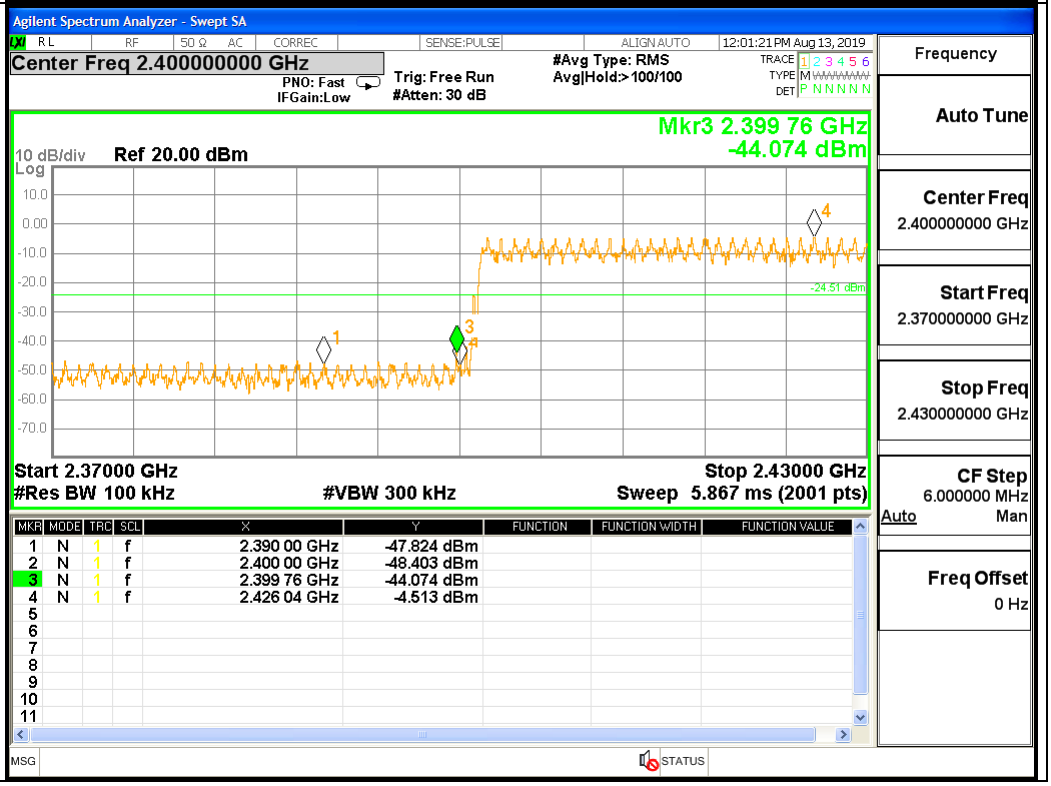
Test Graph

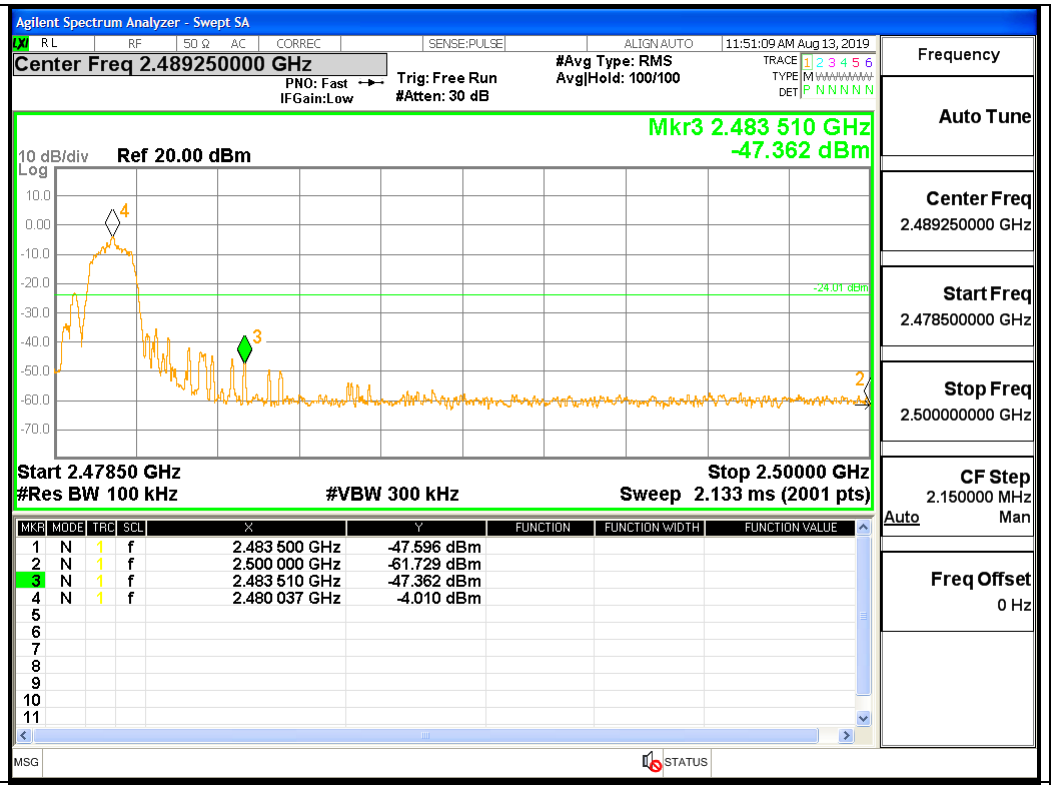
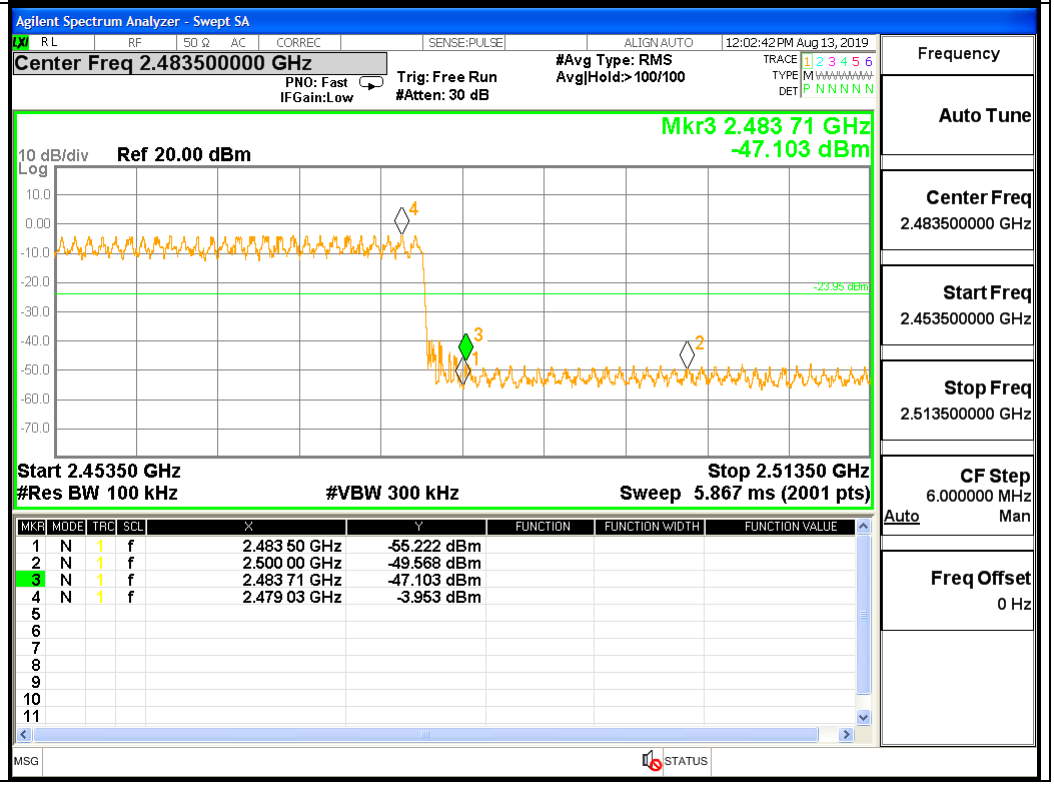
Graphs	
GFSK/LCH/No Hop	
GFSK/LCH/Hop	

GFSK/HCH/No Hop	
GFSK/HCH/Hop	

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

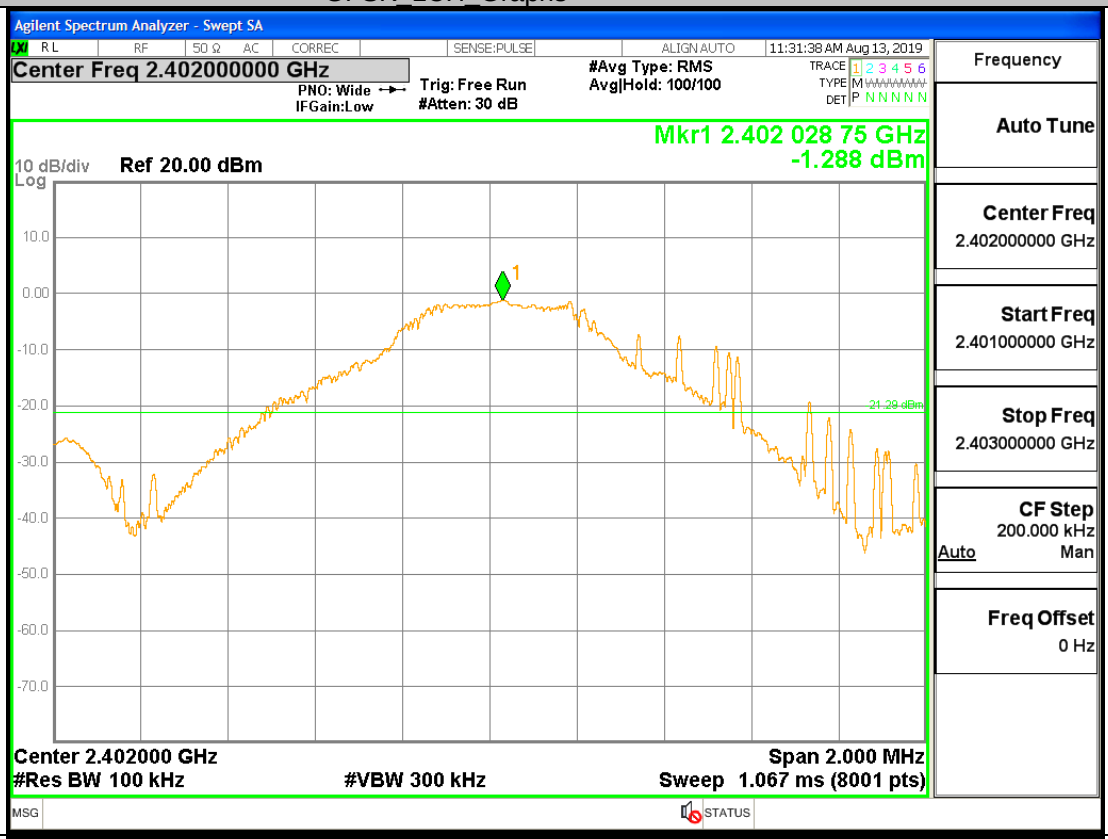
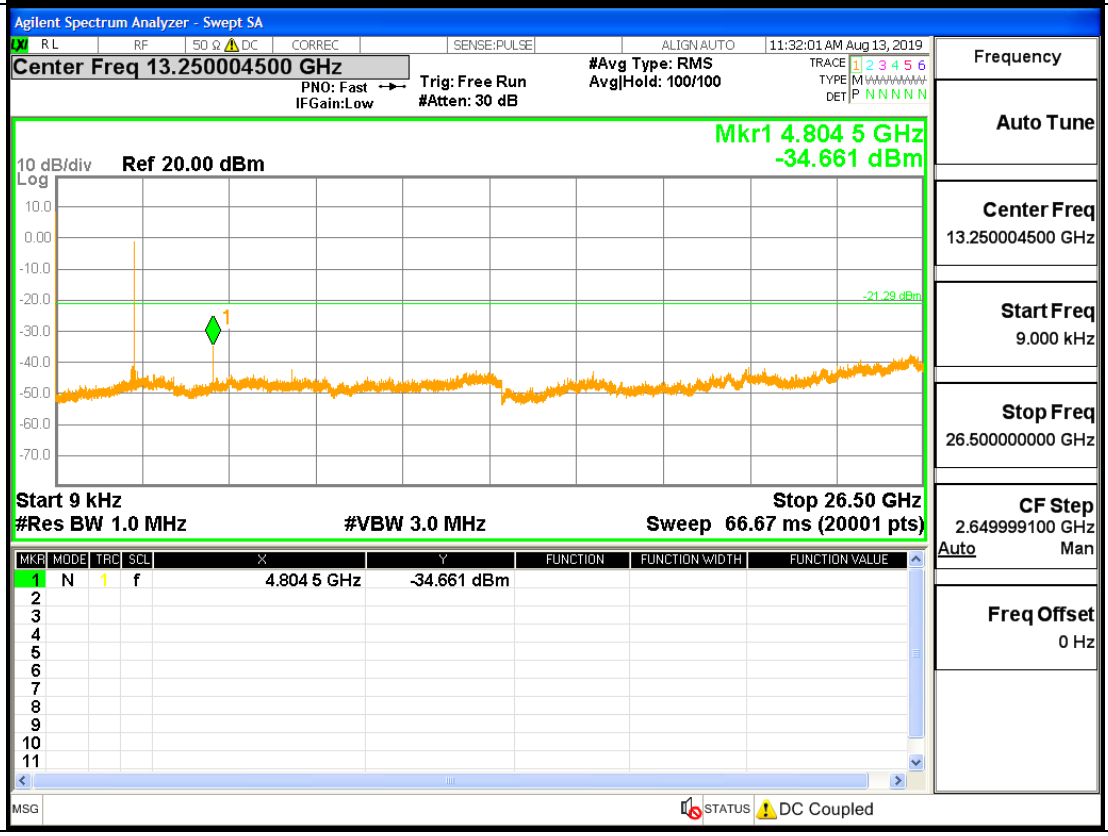
π/4DQPSK/HCH/No Hop	
π/4DQPSK/HCH/Hop	

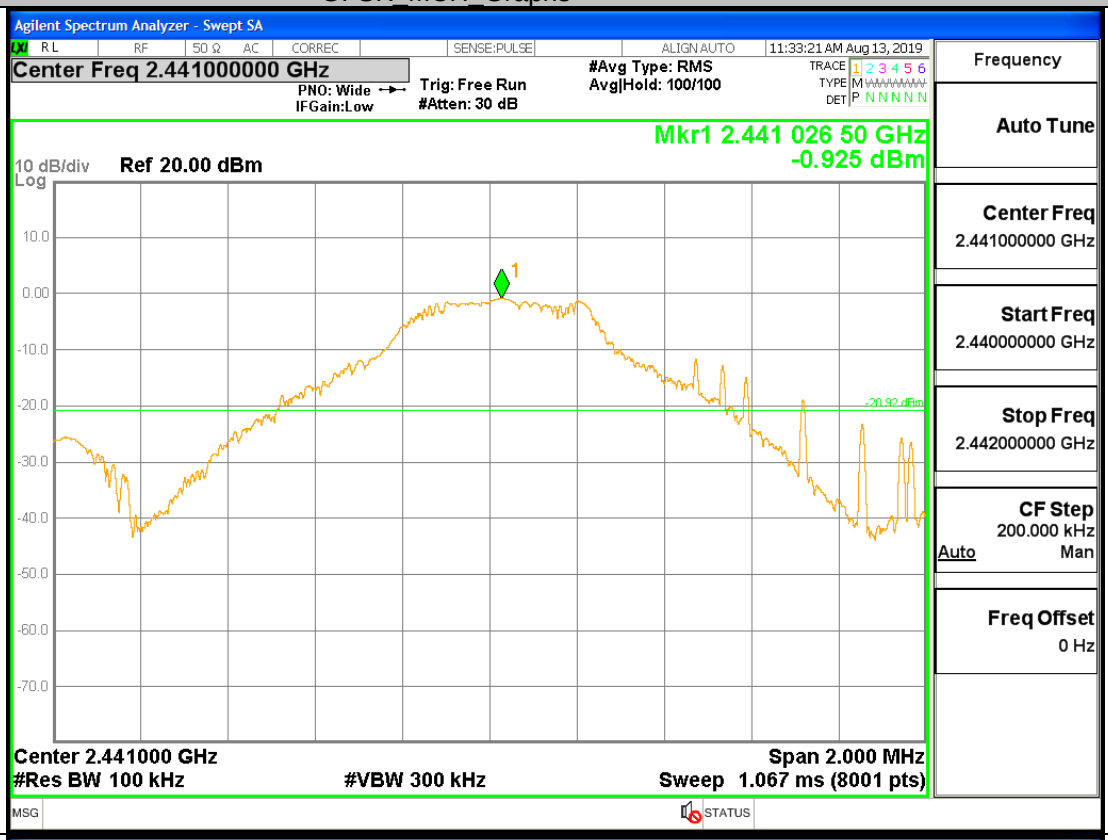
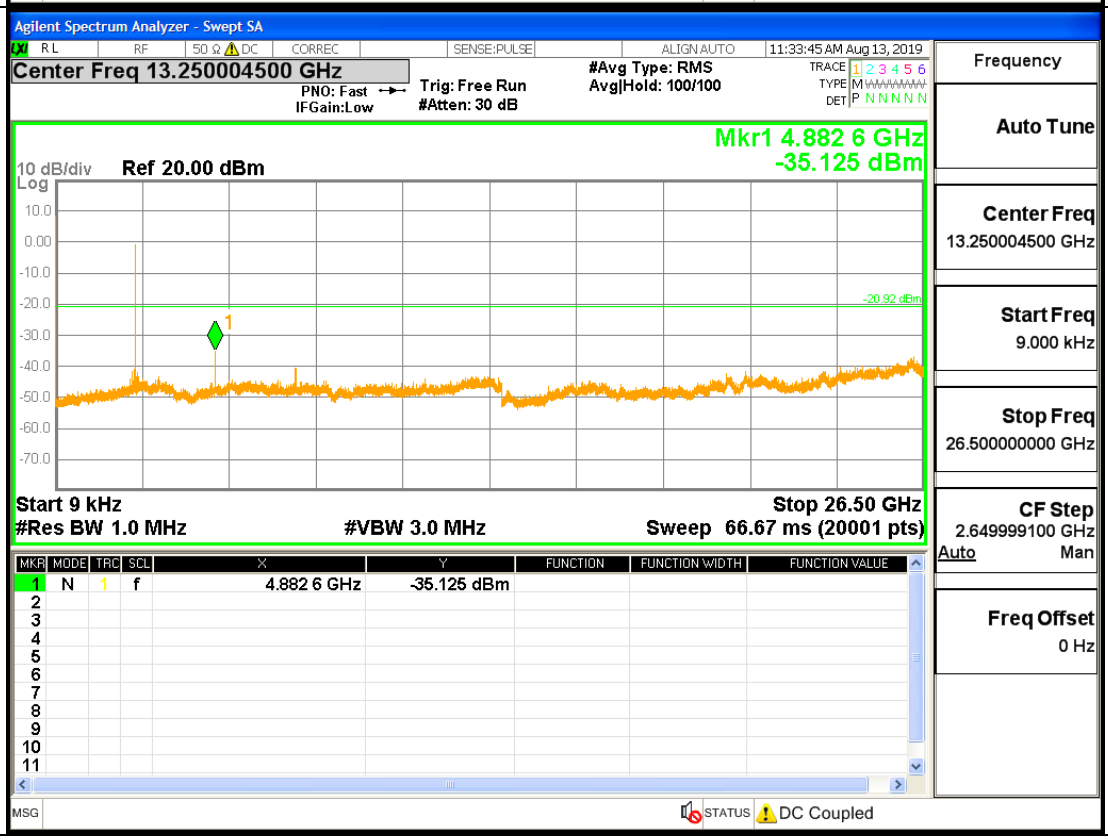
8DPSK/LCH/No Hop	
8DPSK/LCH/Hop	

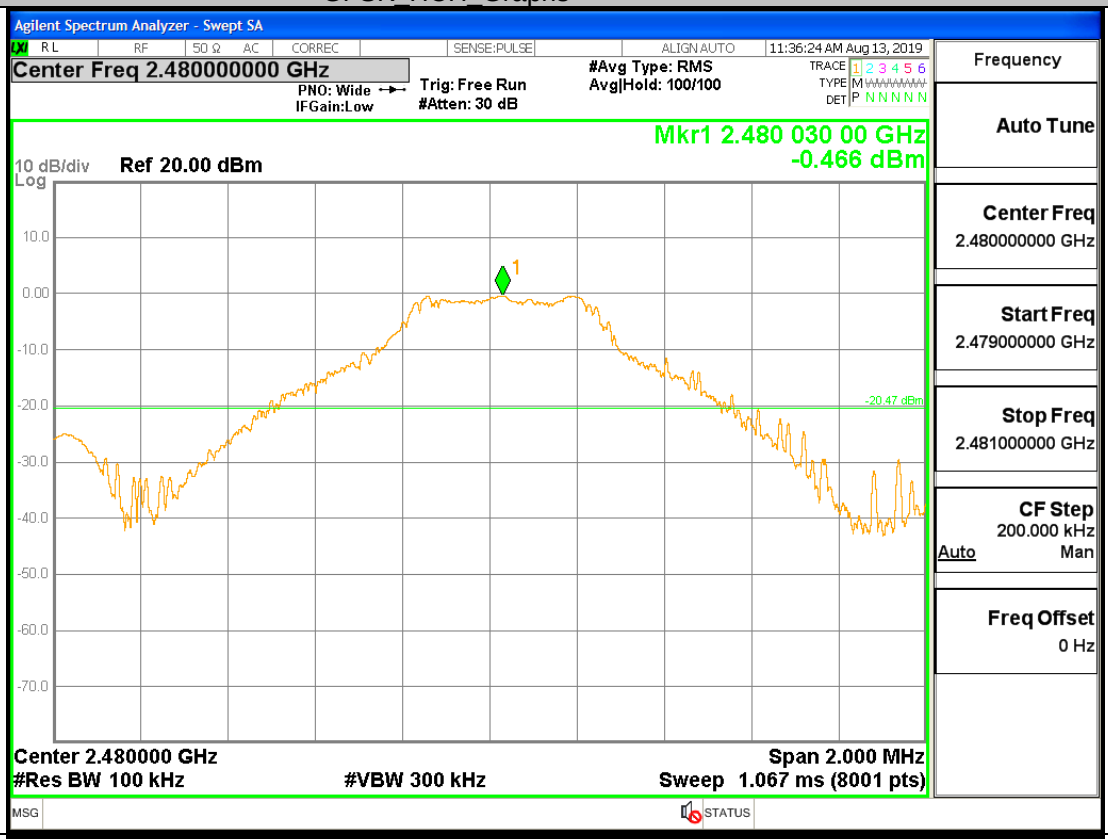
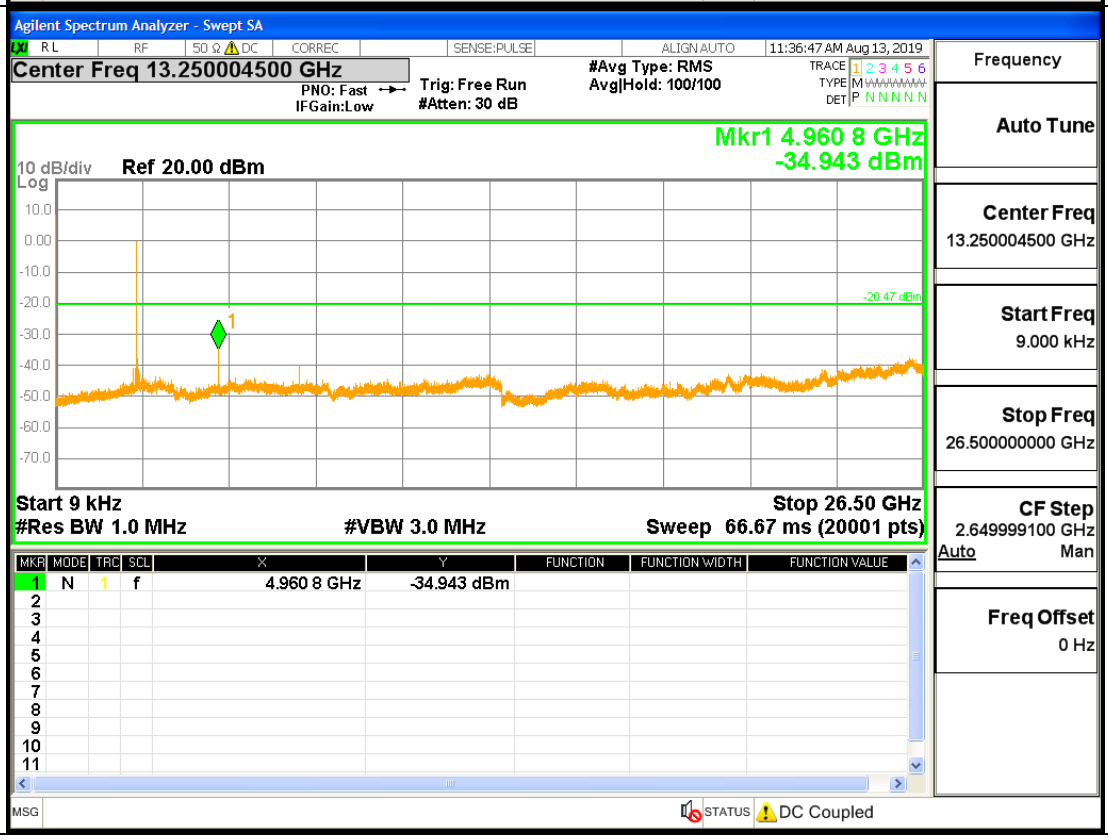
8DPSK/HCH/No Hop	
8DPSK/HCH/Hop	

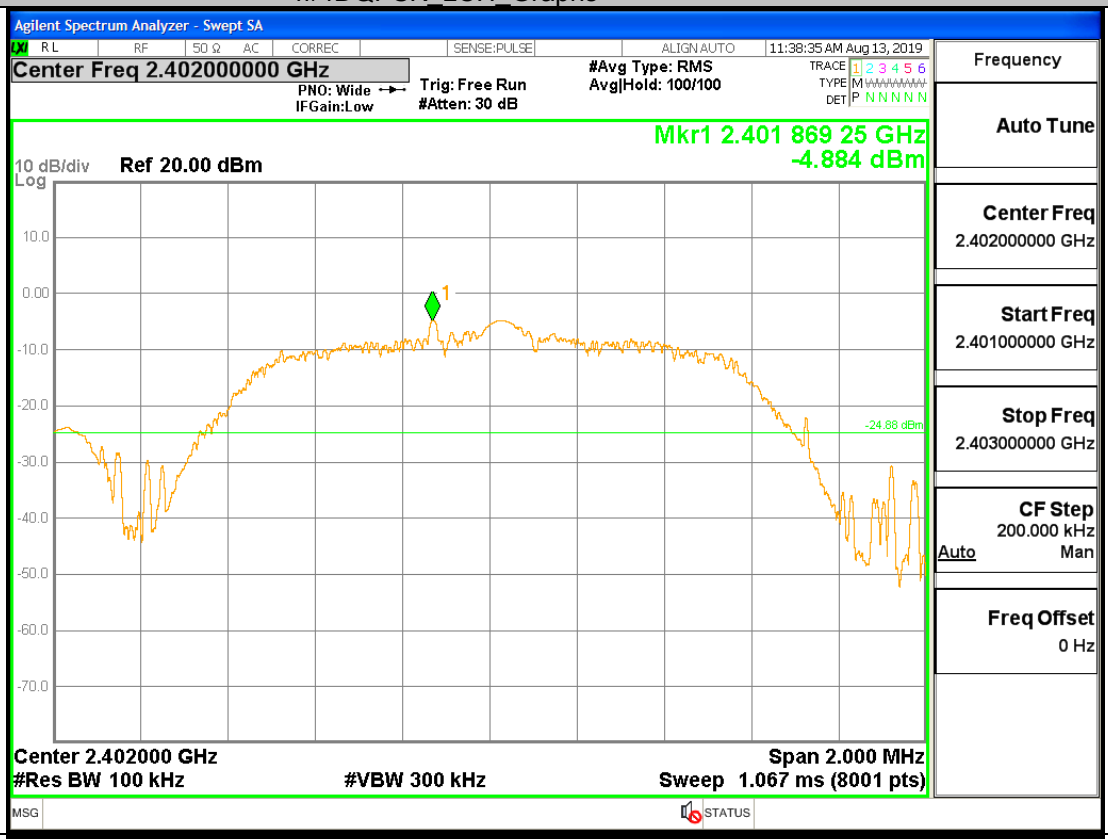
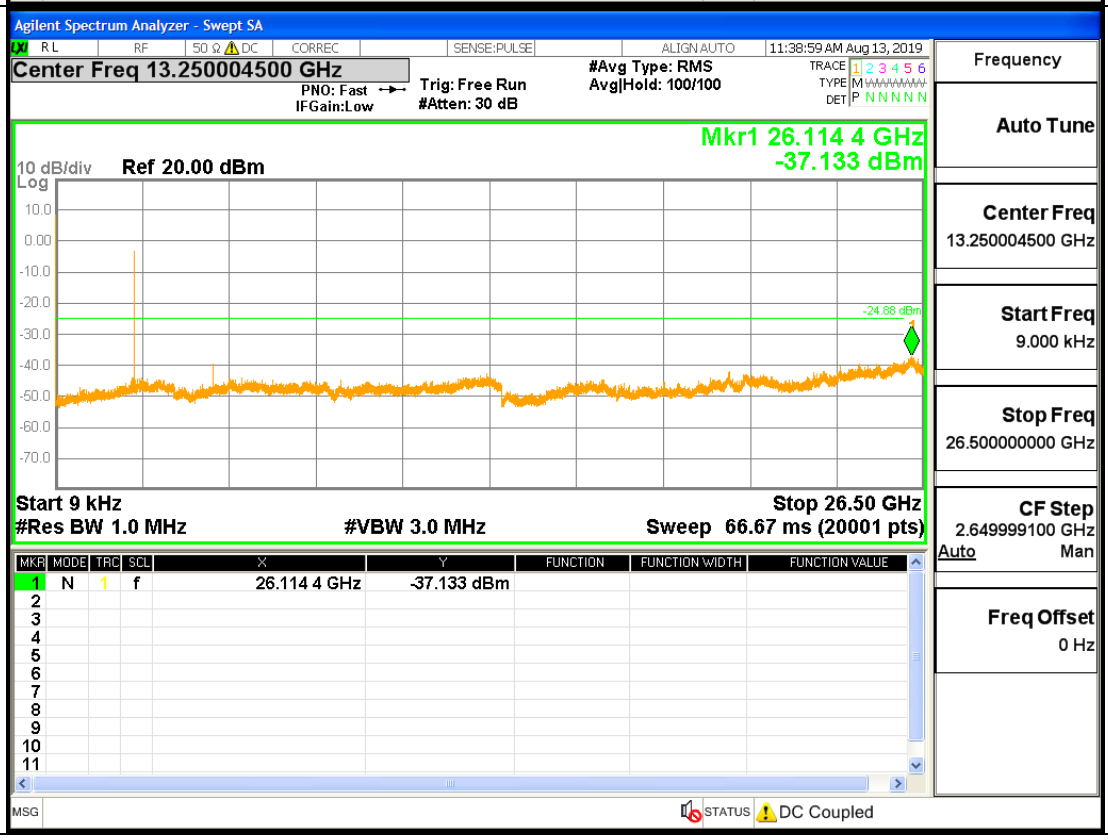
A.7 RF Conducted Spurious Emissions

Test Graph

GFSK_LCH_Graphs	
Pref	
Puw	

GFSK_MCH_Graphs	
Pref	
Puw	

GFSK_HCH_Graphs	
Pref	
Puw	

π/4DQPSK_LCH_Graphs	
Pref	
Puw	

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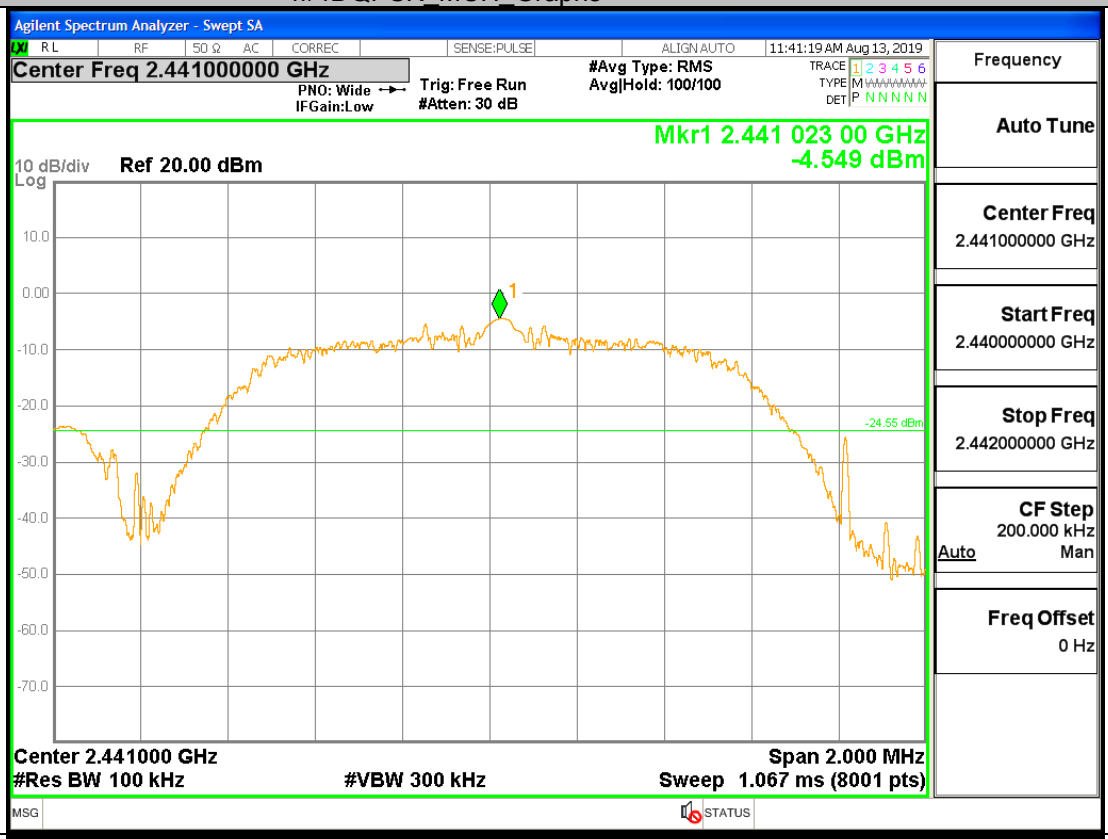
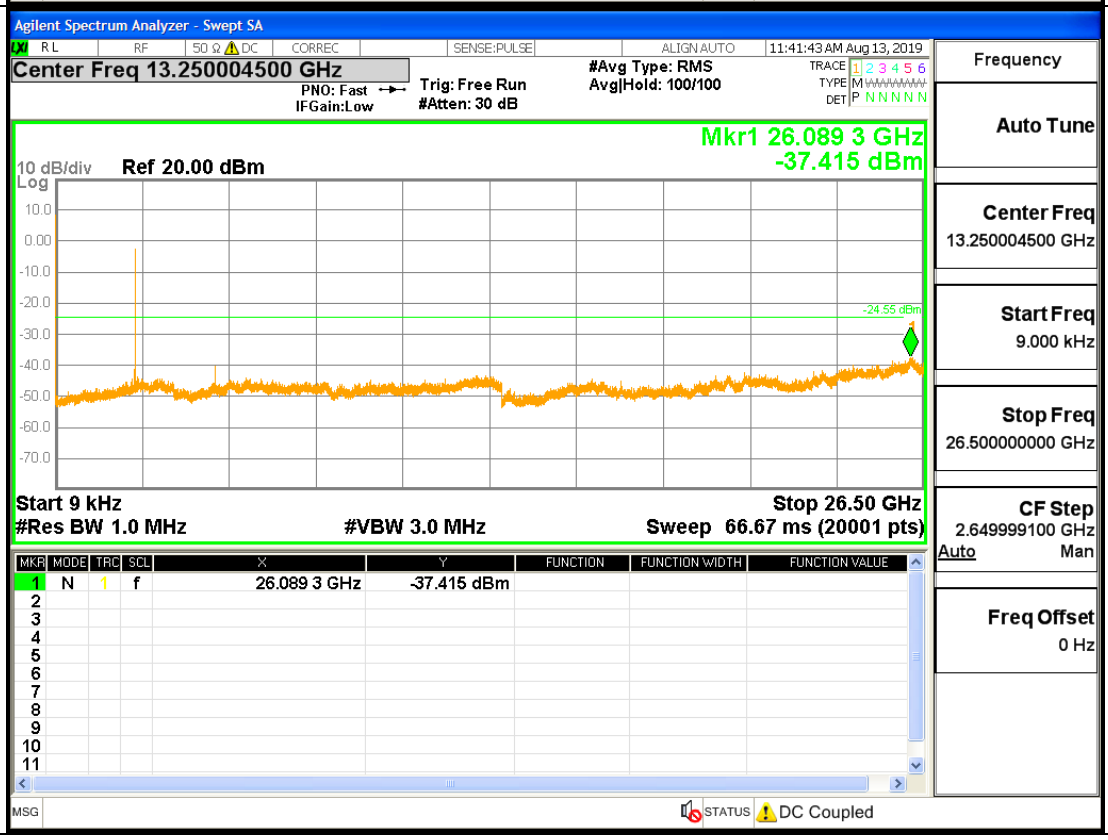
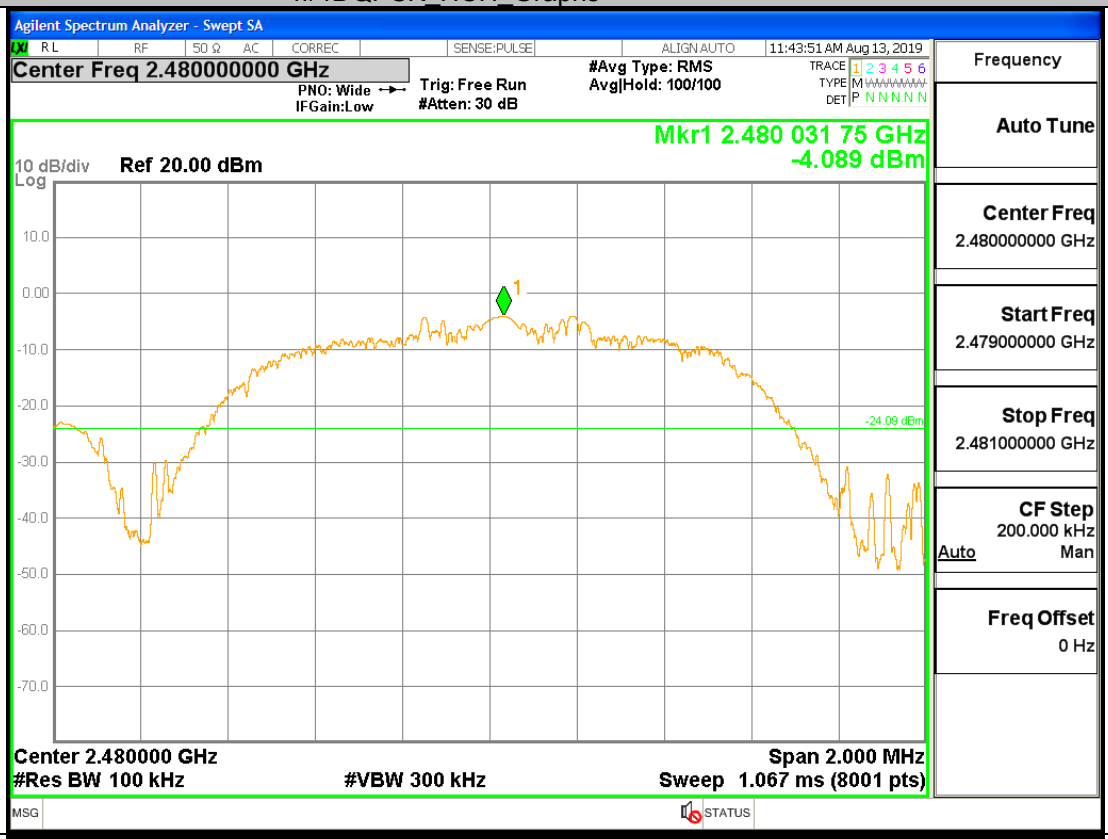
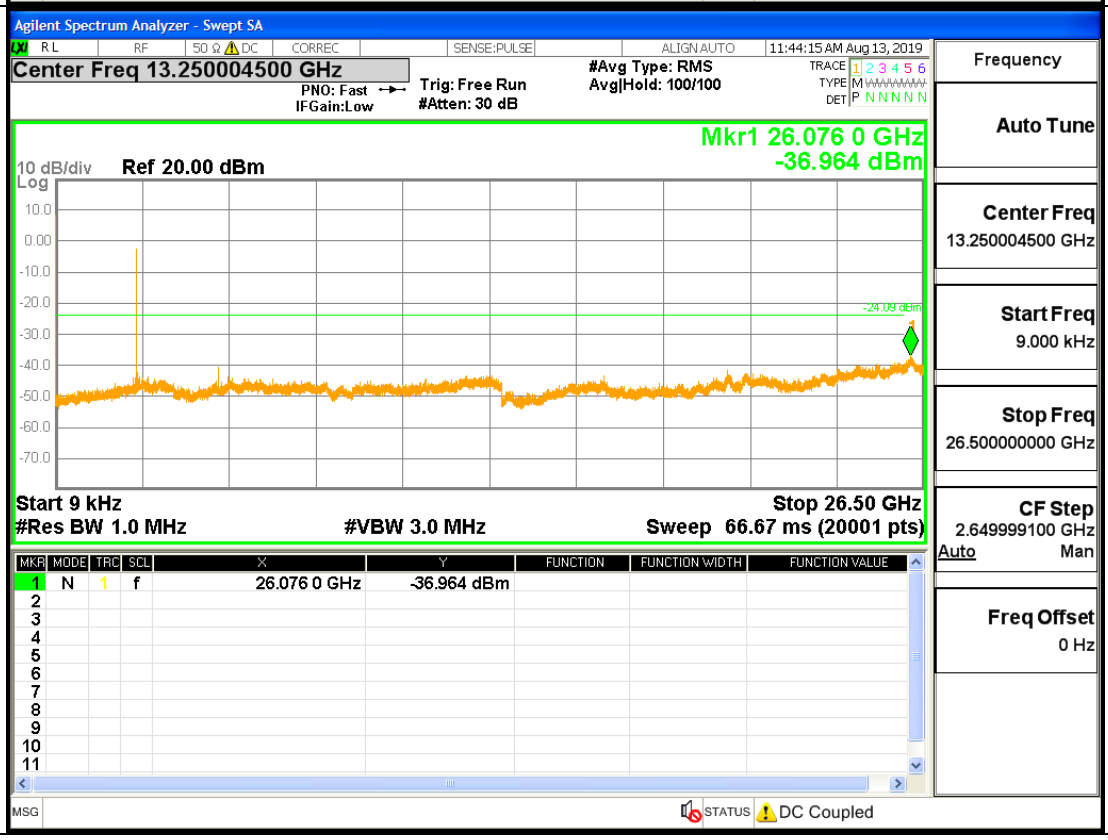
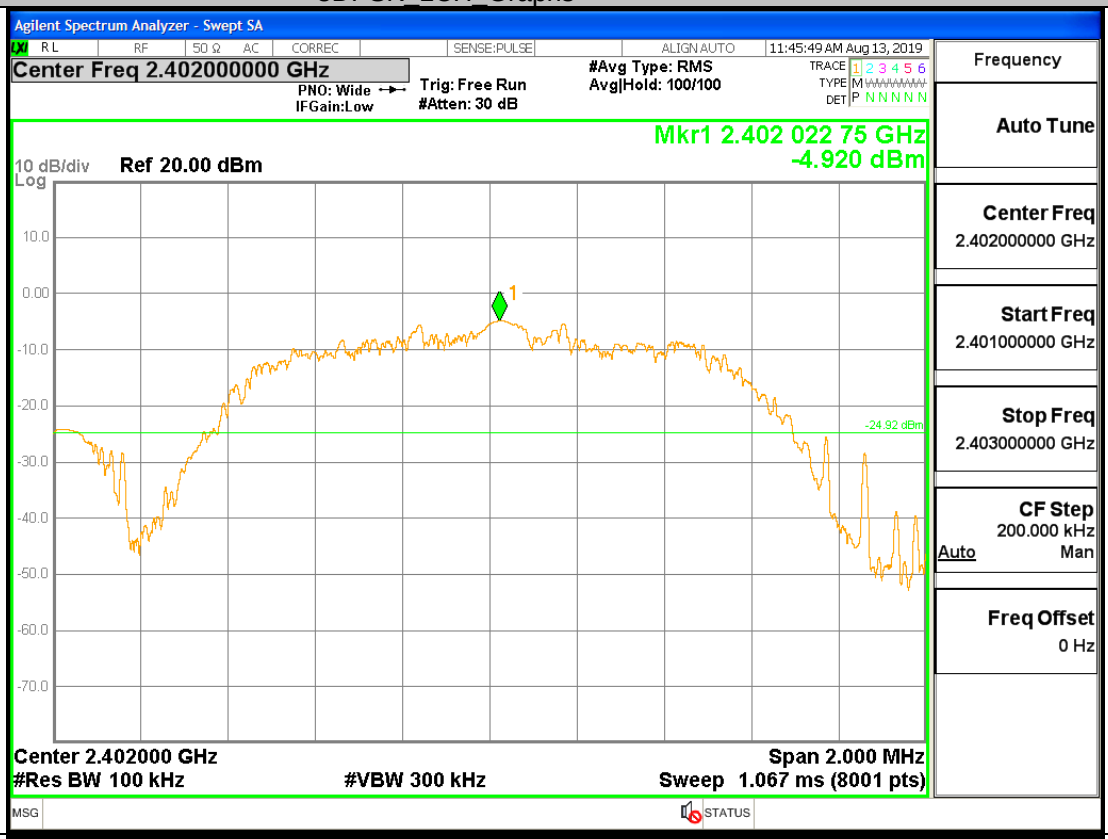
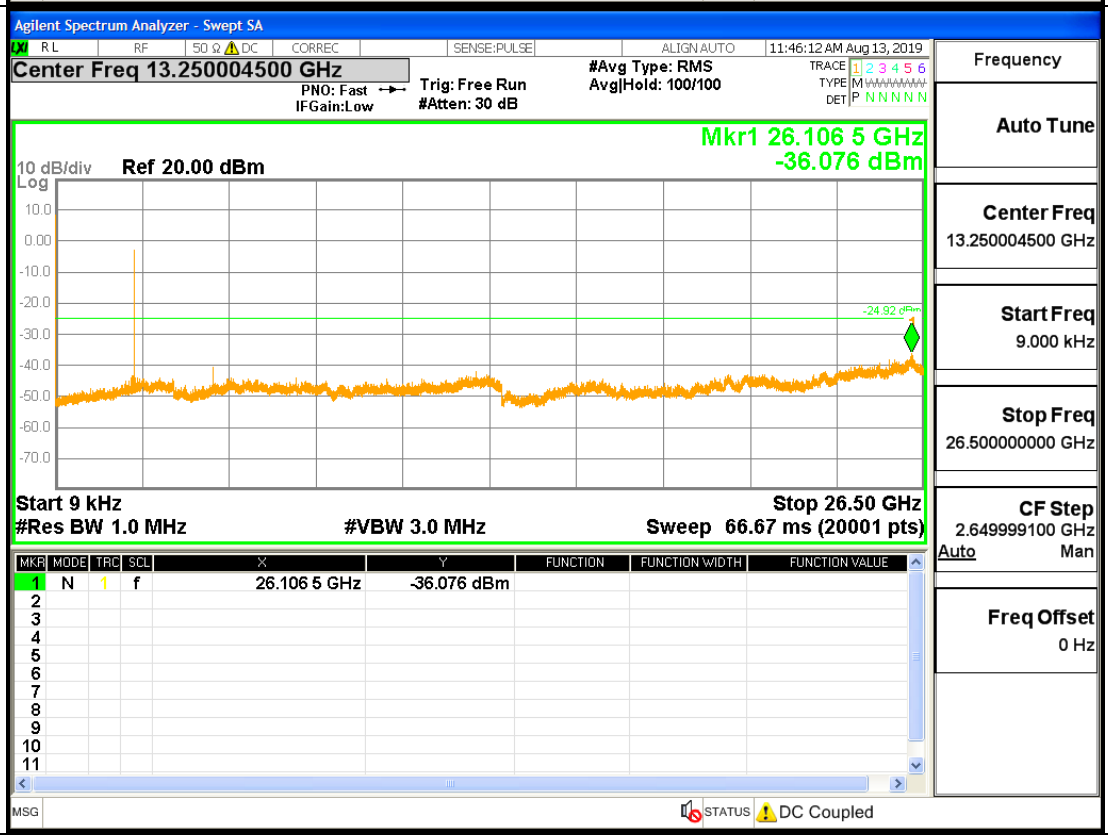
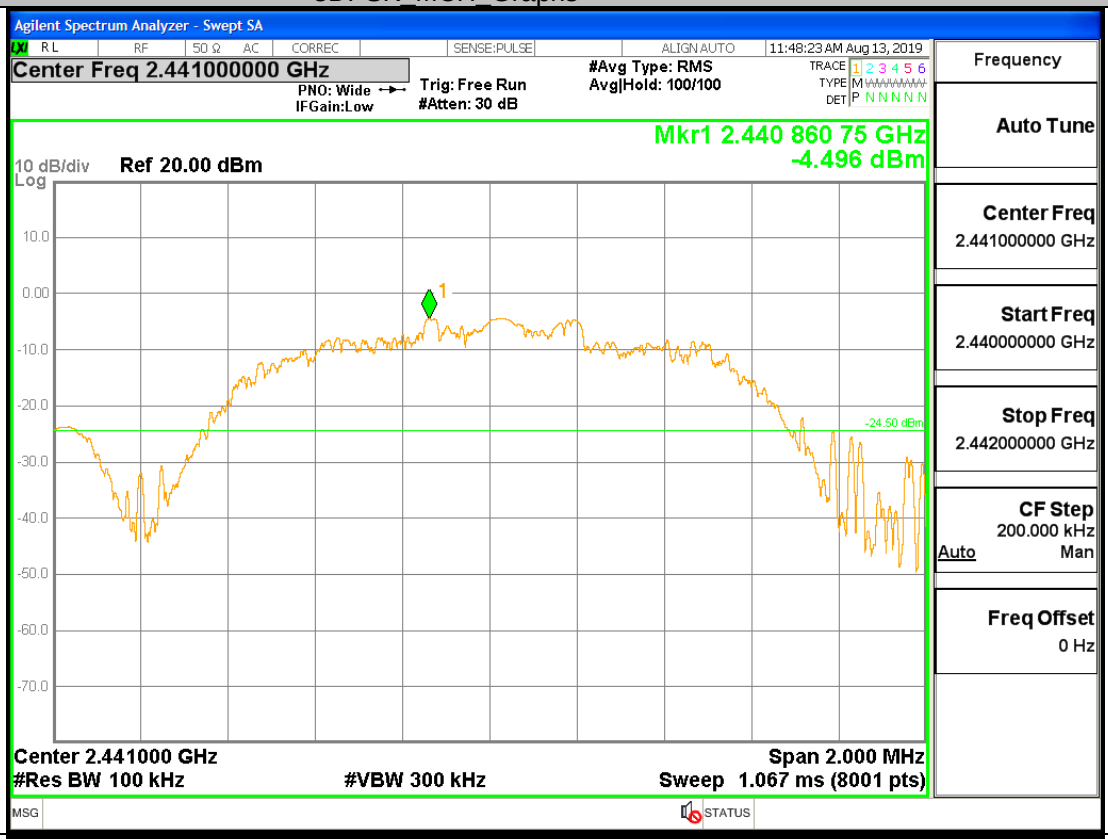
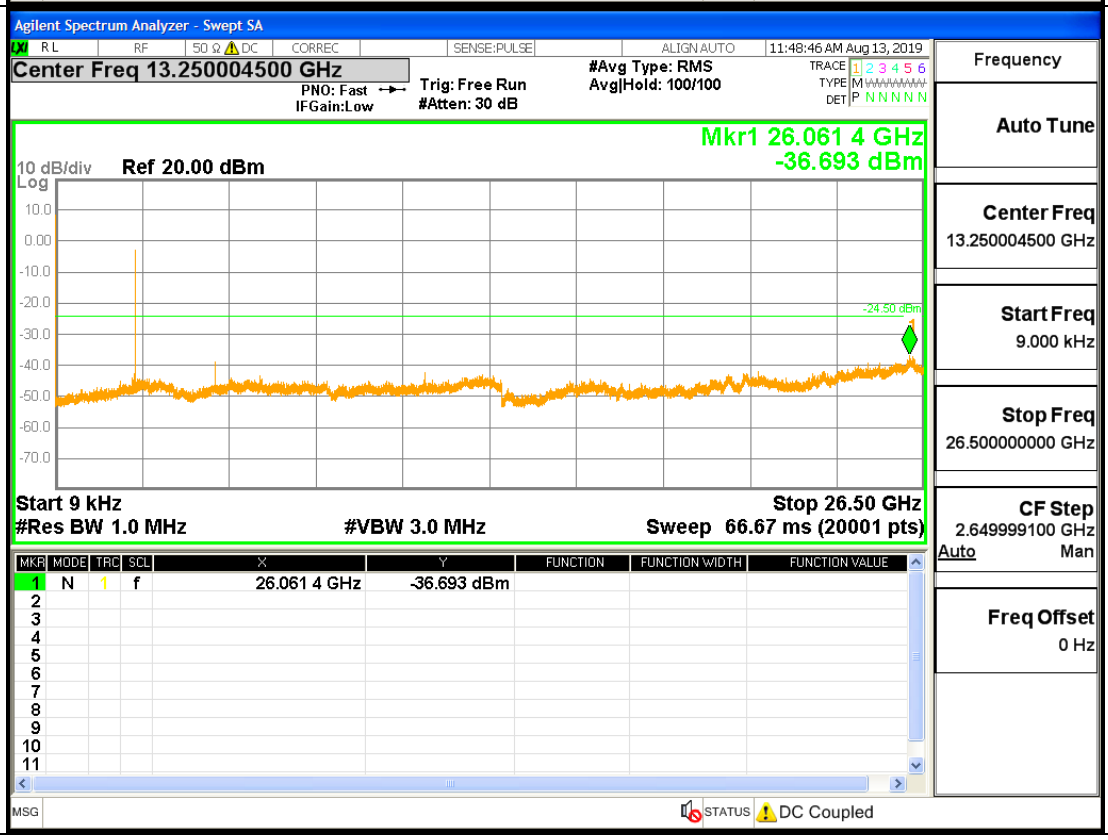
Pref	
Puw	

π/4DQPSK_HCH_Graphs	
Pref	
Puw	

8DPSK_LCH_Graphs	
Pref	
Puw	

8DPSK_MCH_Graphs	
Pref	
Puw	

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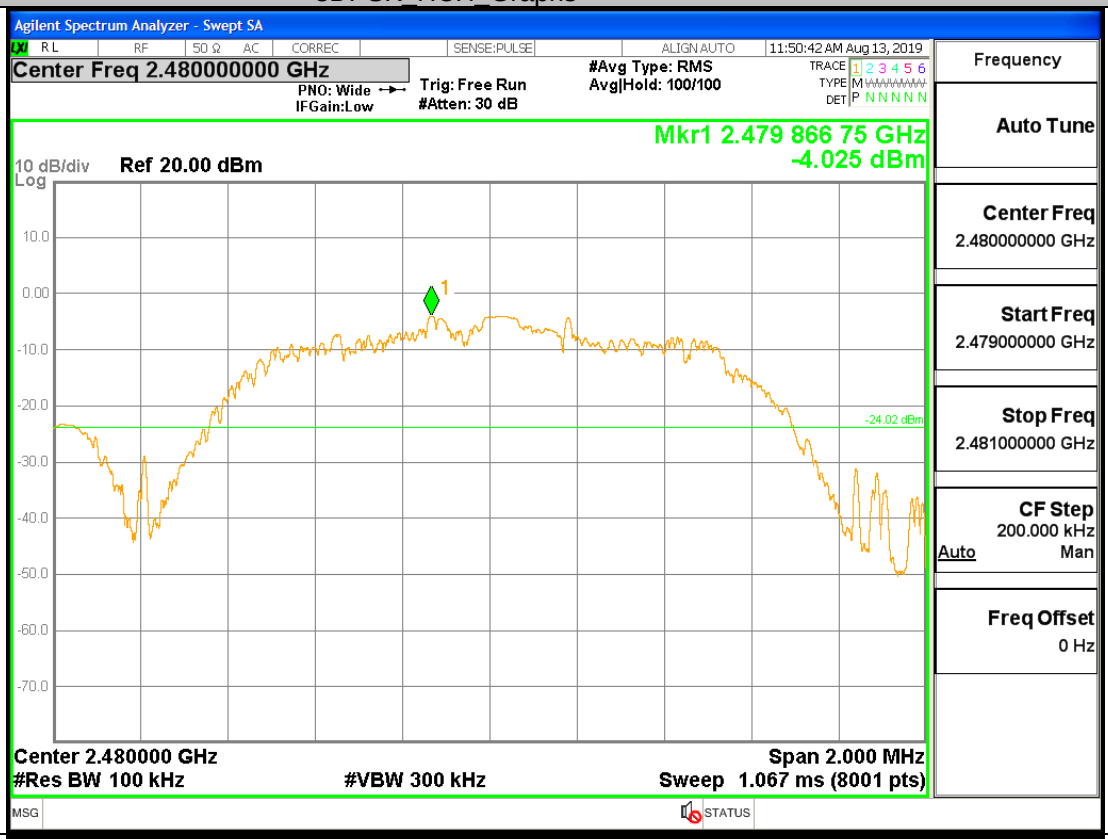
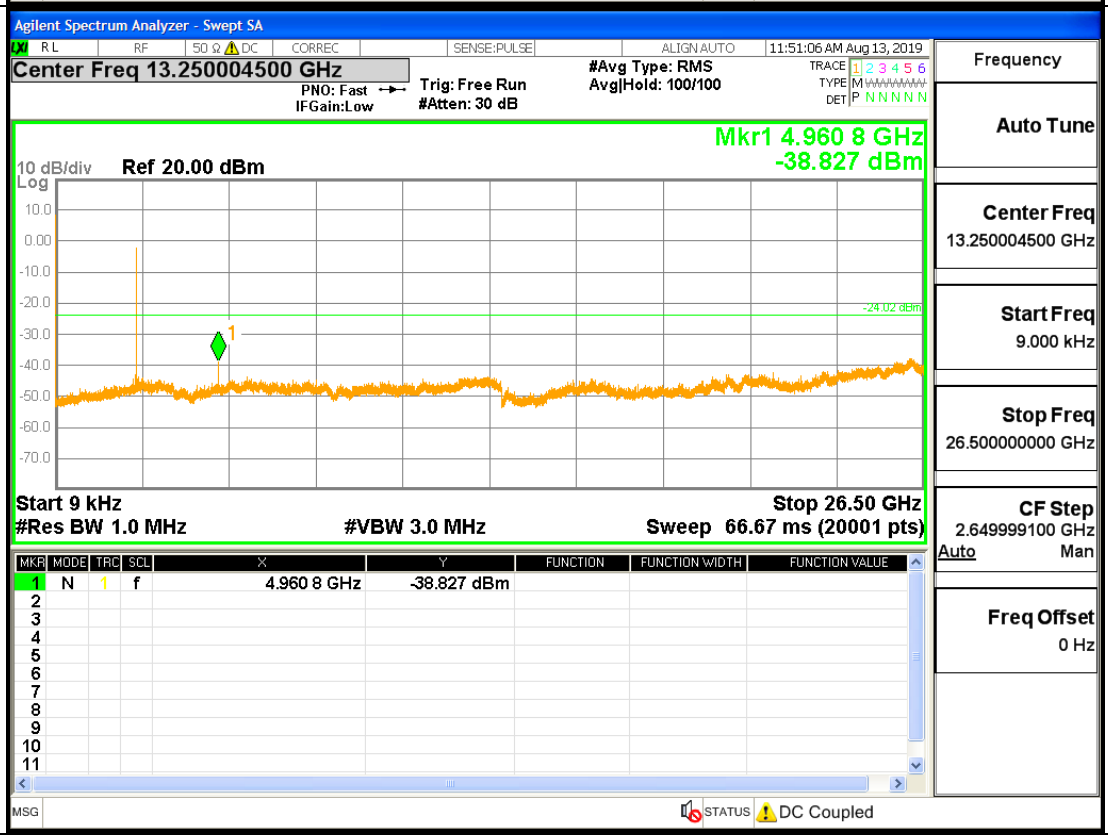
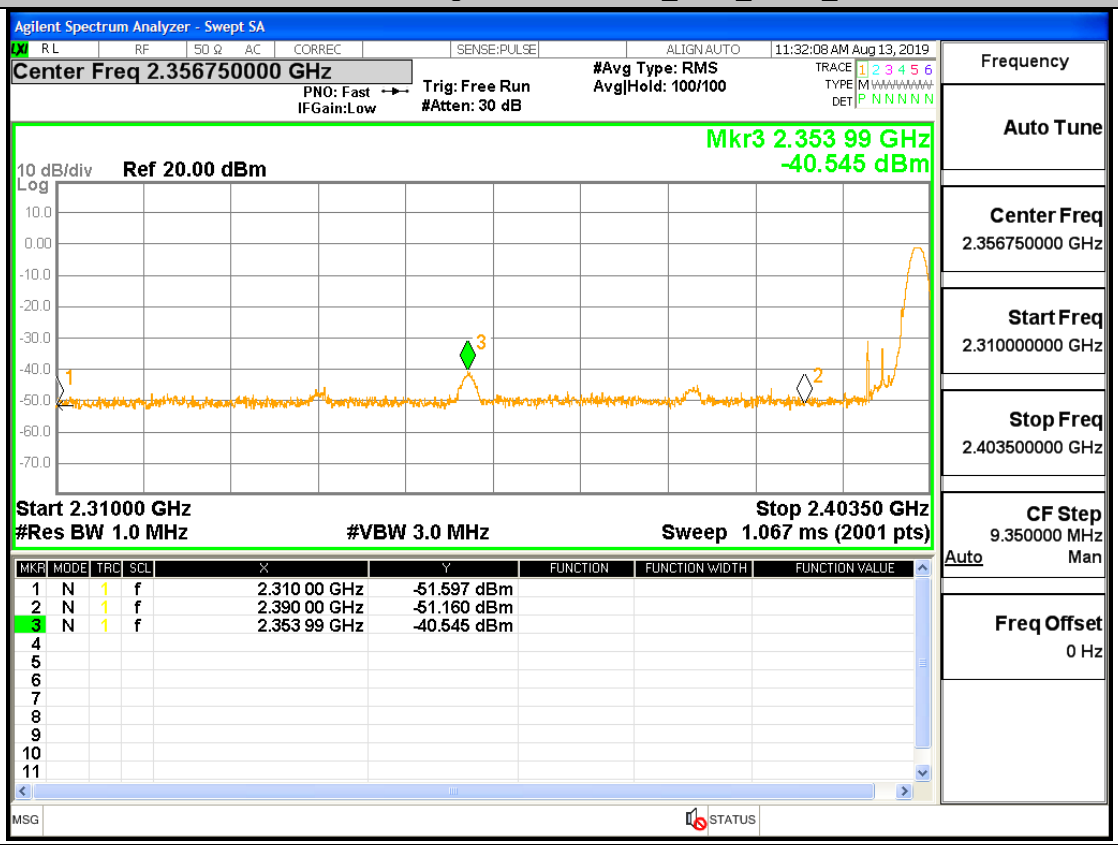
Pref	
Puw	

A.8 Restrict-band band-edge measurements

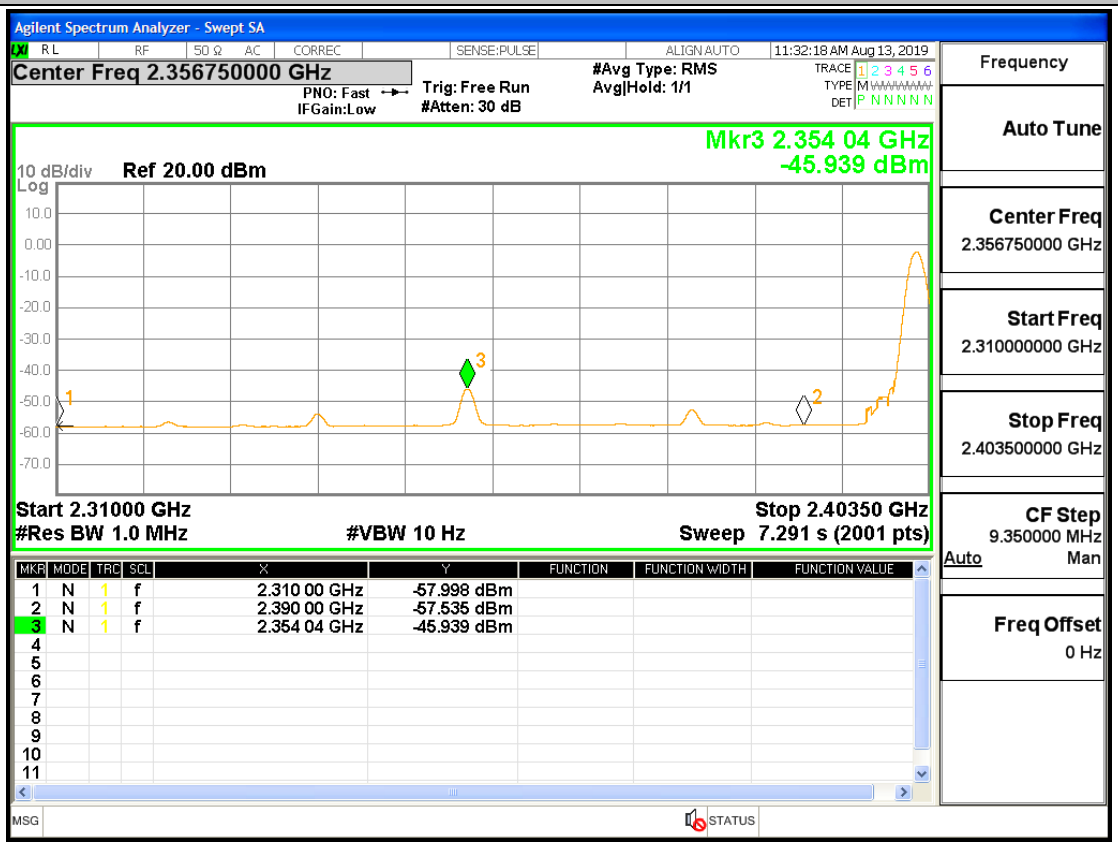
Type	Carrier Frequency (MHz)	Frequency(MHz)	Gain	Ground Factor	Peak Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2353.99	2.00	0.00	-40.55	56.66	74	Pass
1DH5	2480	2483.93	2.00	0.00	-25.31	71.89	74	Pass
2DH5	2402	2353.71	2.00	0.00	-43.35	53.85	74	Pass
2DH5	2480	2483.99	2.00	0.00	-29.16	68.04	74	Pass
3DH5	2402	2353.80	2.00	0.00	-43.30	53.90	74	Pass
3DH5	2480	2483.57	2.00	0.00	-28.06	69.14	74	Pass

Type	Carrier Frequency (MHz)	Frequency(MHz)	Gain	Ground Factor	Average Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402.00	2353.99	2.00	0.00	-45.94	51.26	54	Pass
1DH5	2480.00	2483.93	2.00	0.00	-47.15	50.05	54	Pass
2DH5	2402.00	2353.71	2.00	0.00	-49.73	47.47	54	Pass
2DH5	2480.00	2483.99	2.00	0.00	-51.76	45.44	54	Pass
3DH5	2402.00	2353.80	2.00	0.00	-49.85	47.35	54	Pass
3DH5	2480.00	2483.57	2.00	0.00	-55.69	41.51	54	Pass

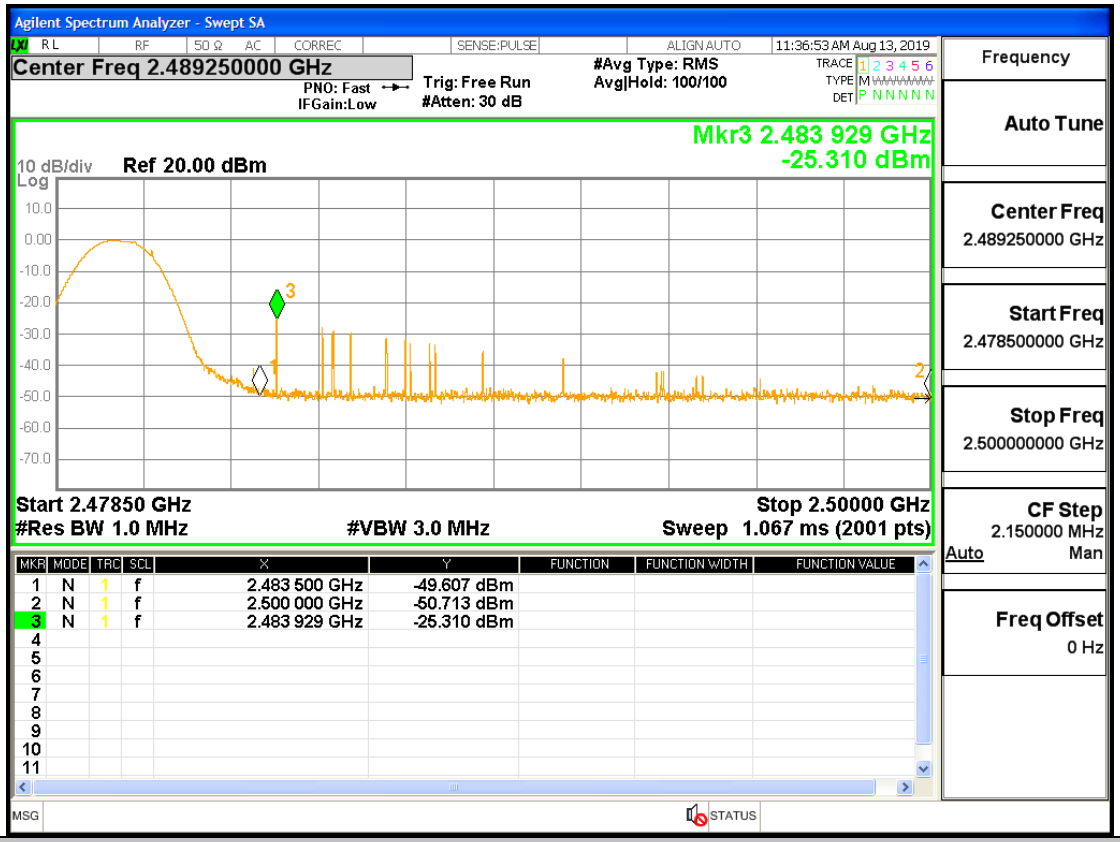
Restrict-band band-edge measurements_2402_PEAK_DH5



Restrict-band band-edge measurements_2402_AV_DH5

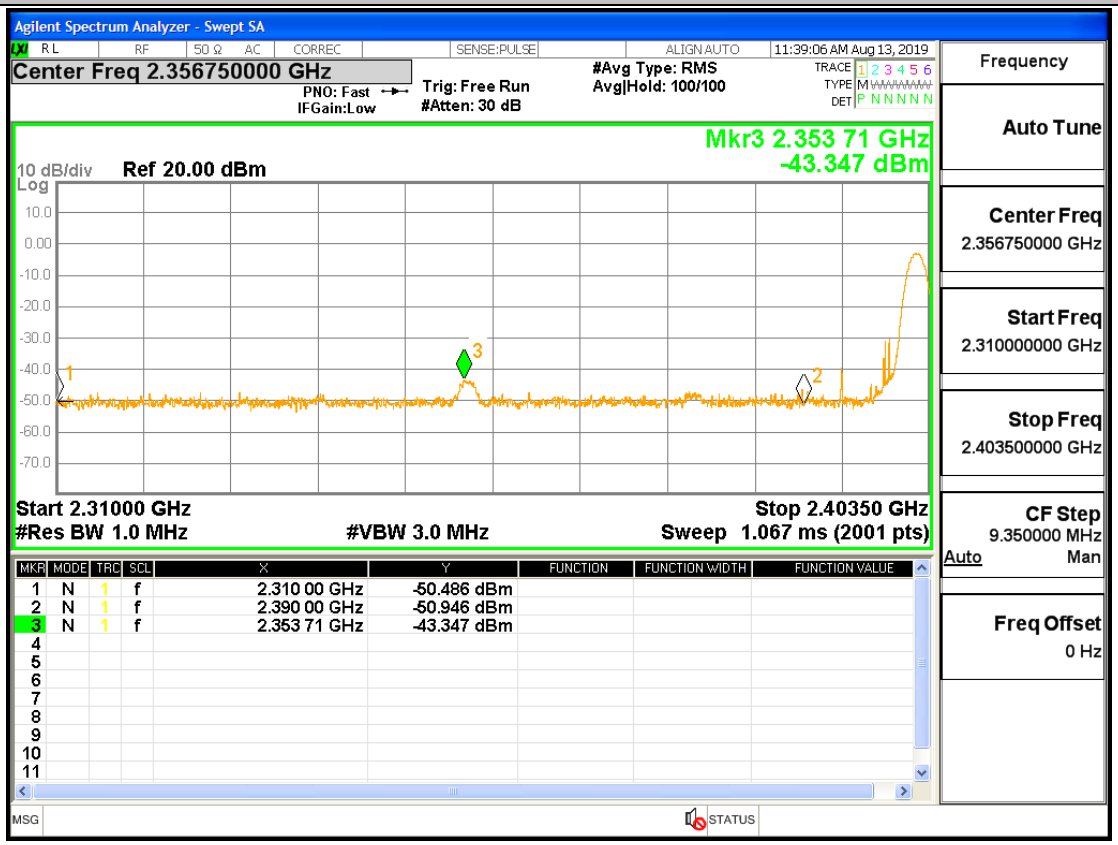


Restrict-band band-edge measurements_2480_PEAK_DH5

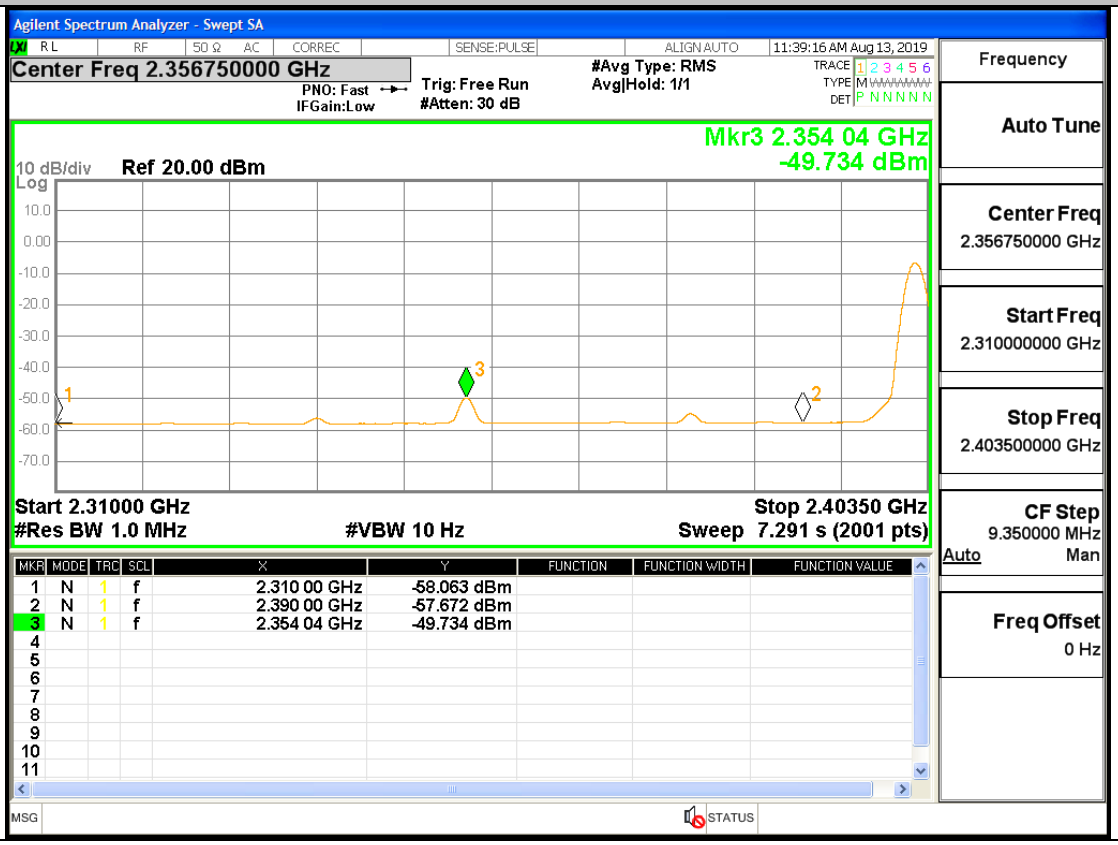


Restrict-band band-edge measurements_2480_AV_DH5

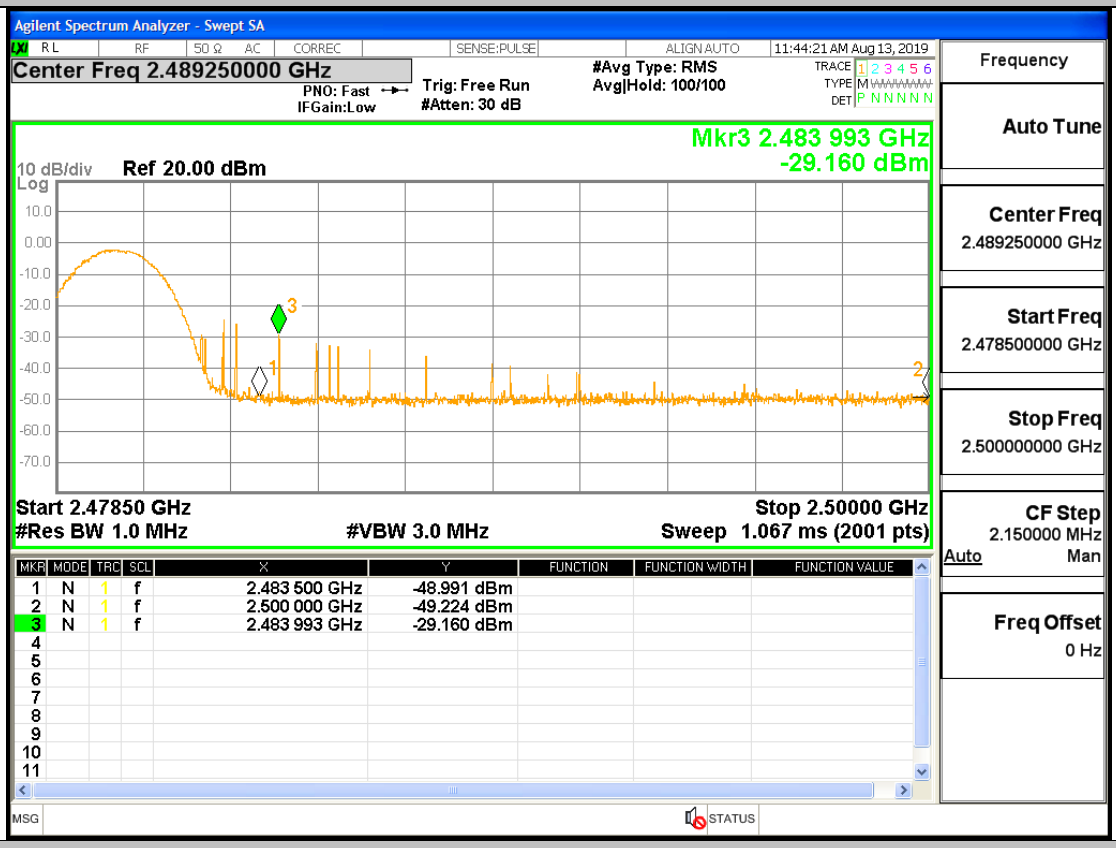
Restrict-band band-edge measurements_2402_PEAK_2DH5



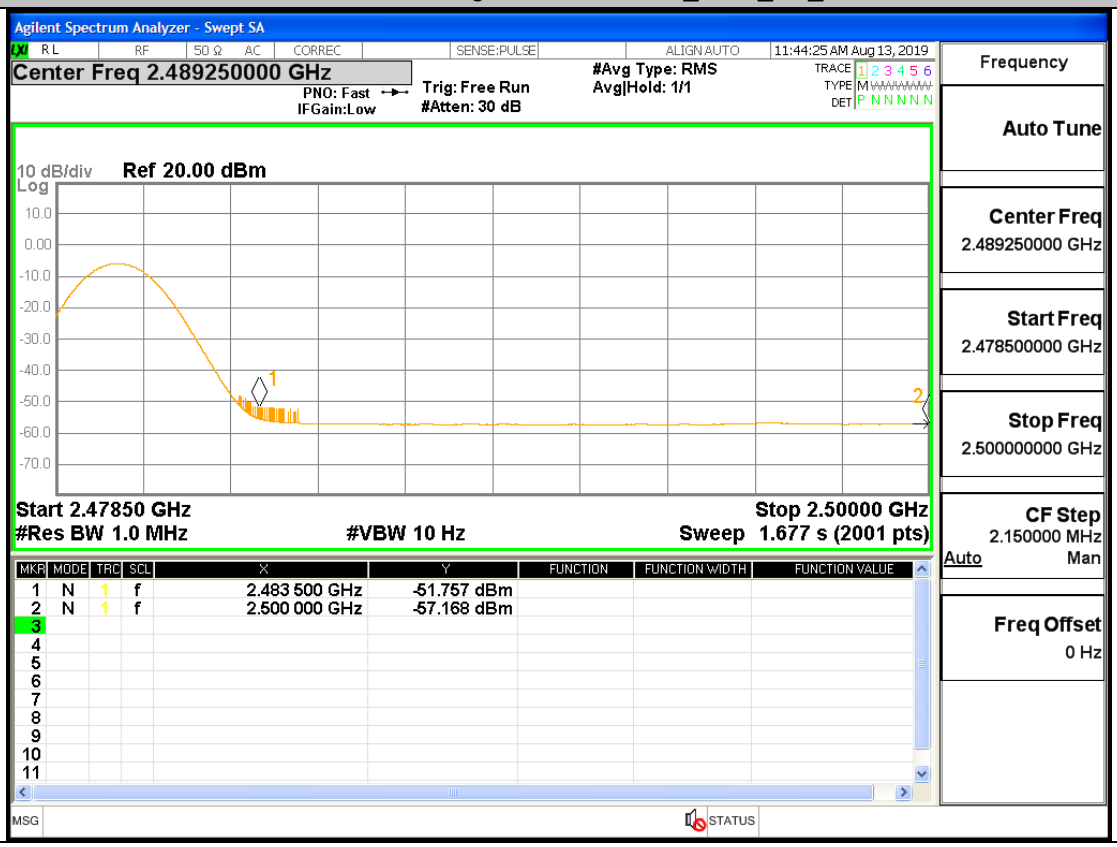
Restrict-band band-edge measurements_2402_AV_2DH5



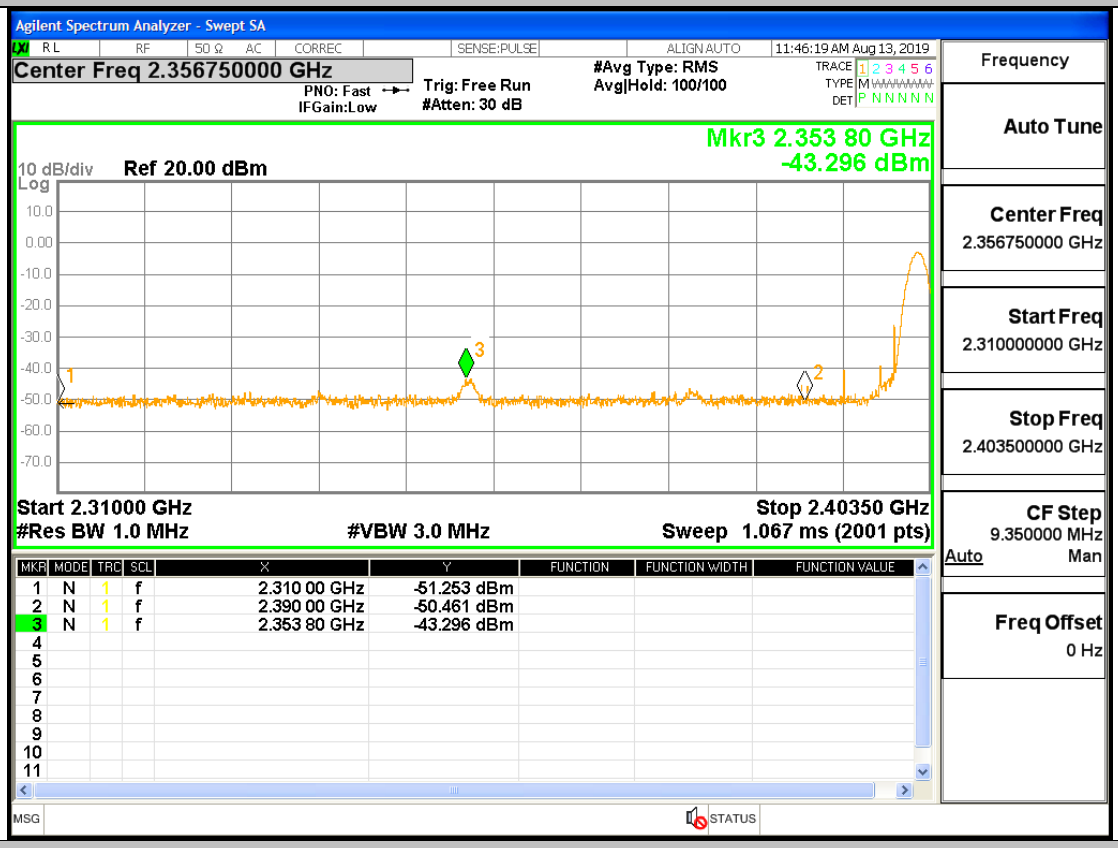
Restrict-band band-edge measurements_2480_PEAK_2DH5



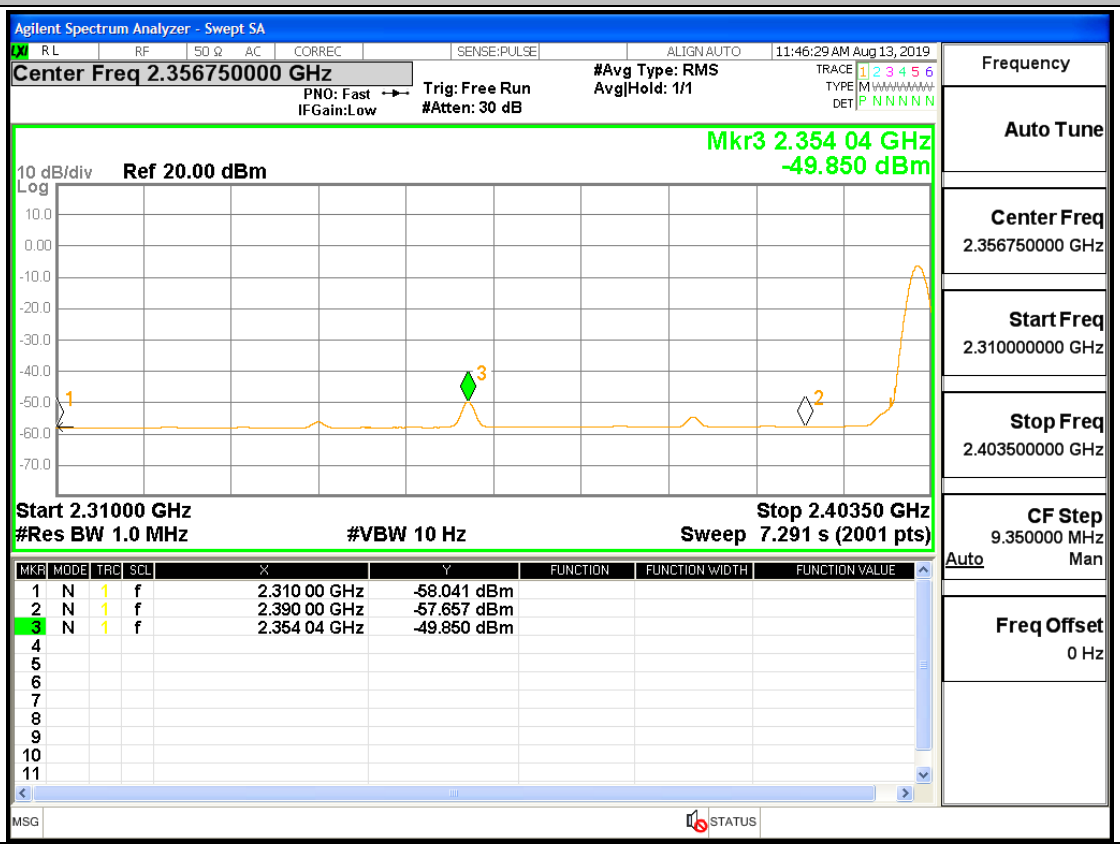
Restrict-band band-edge measurements_2480_AV_2DH5



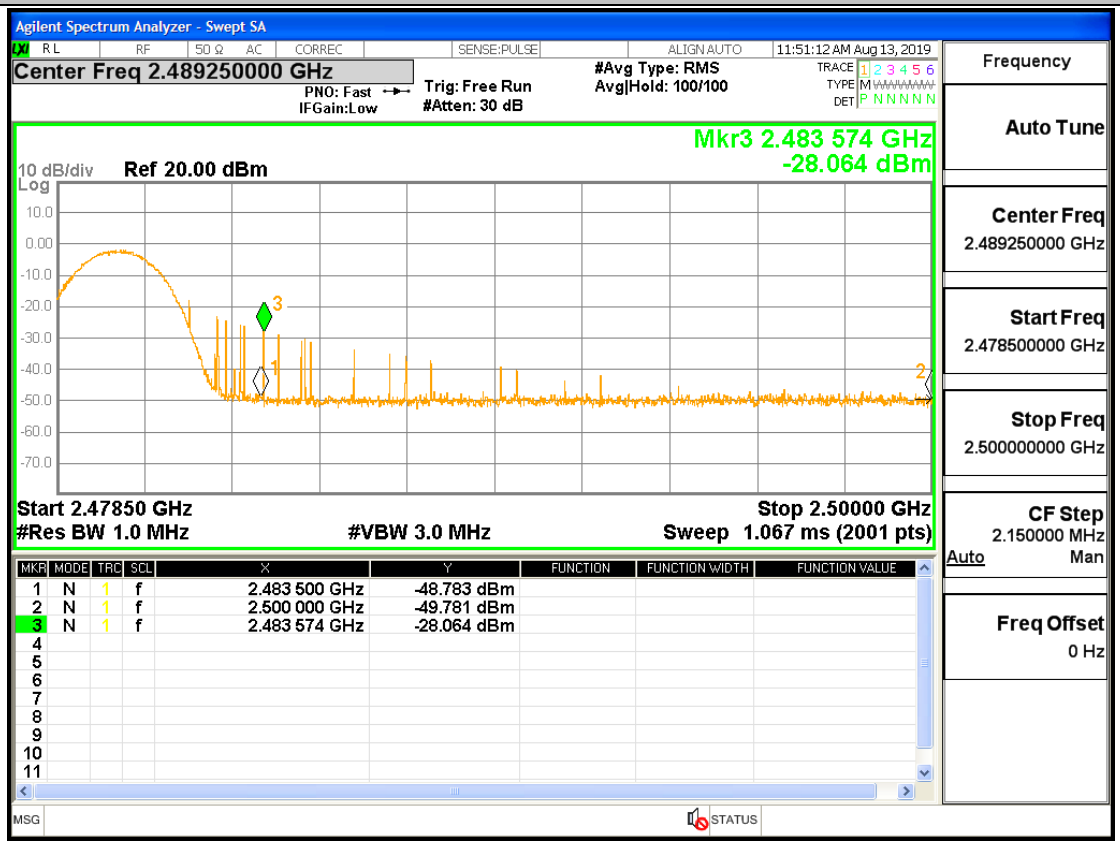
Restrict-band band-edge measurements_2402_PEAK_3DH5



Restrict-band band-edge measurements_2402_AV_3DH5



Restrict-band band-edge measurements_2480_PEAK_3DH5



Restrict-band band-edge measurements_2480_AV_3DH5