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

Product Name: Bluetooth serial port module

Trade Mark: HC

Test Model: HC-02

FCC ID: 2AEJQHC-02

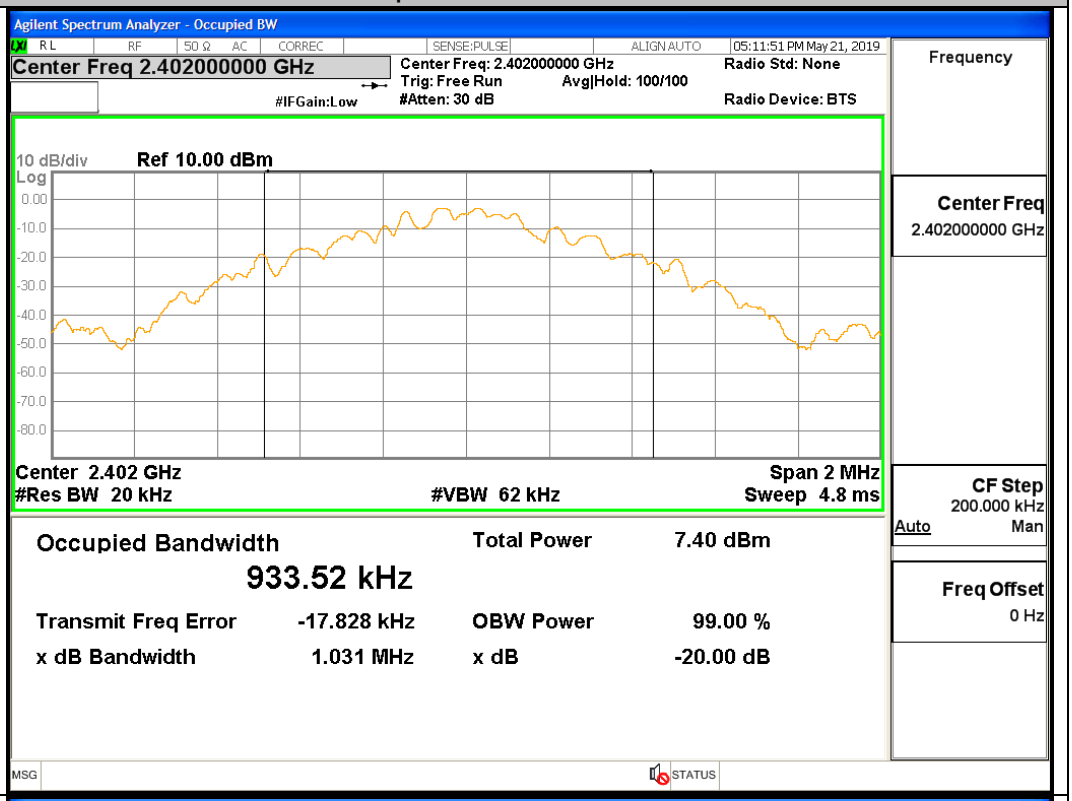
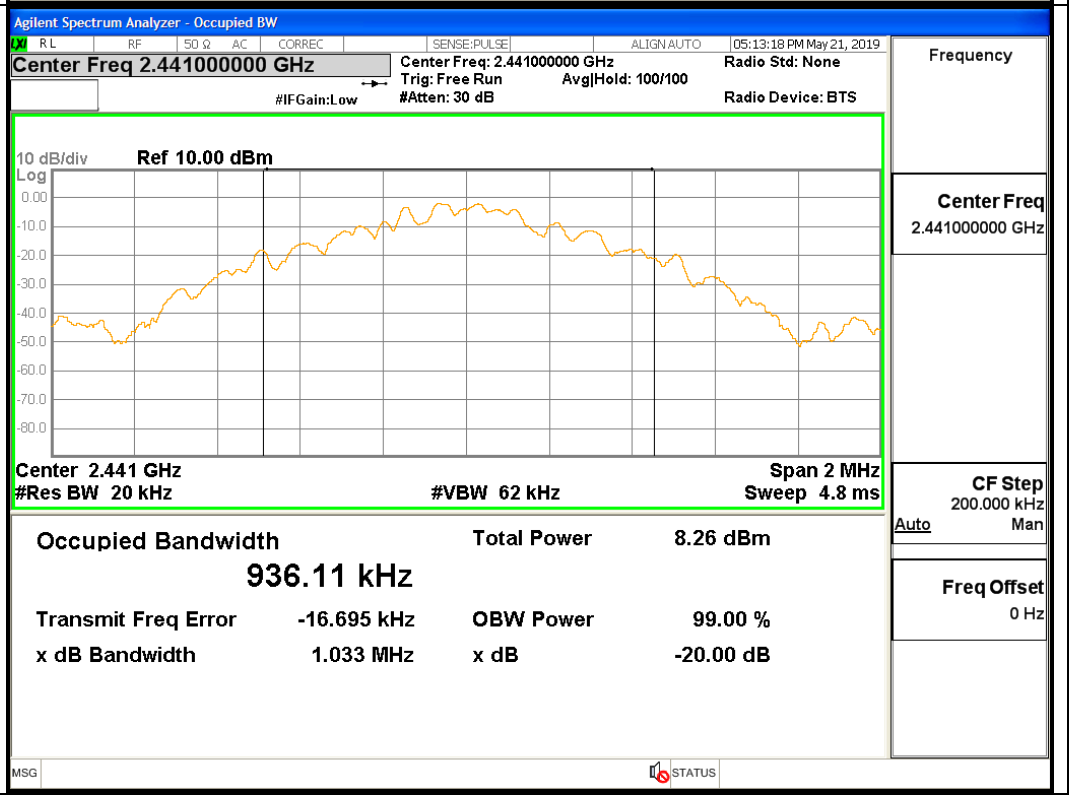
Environmental Conditions

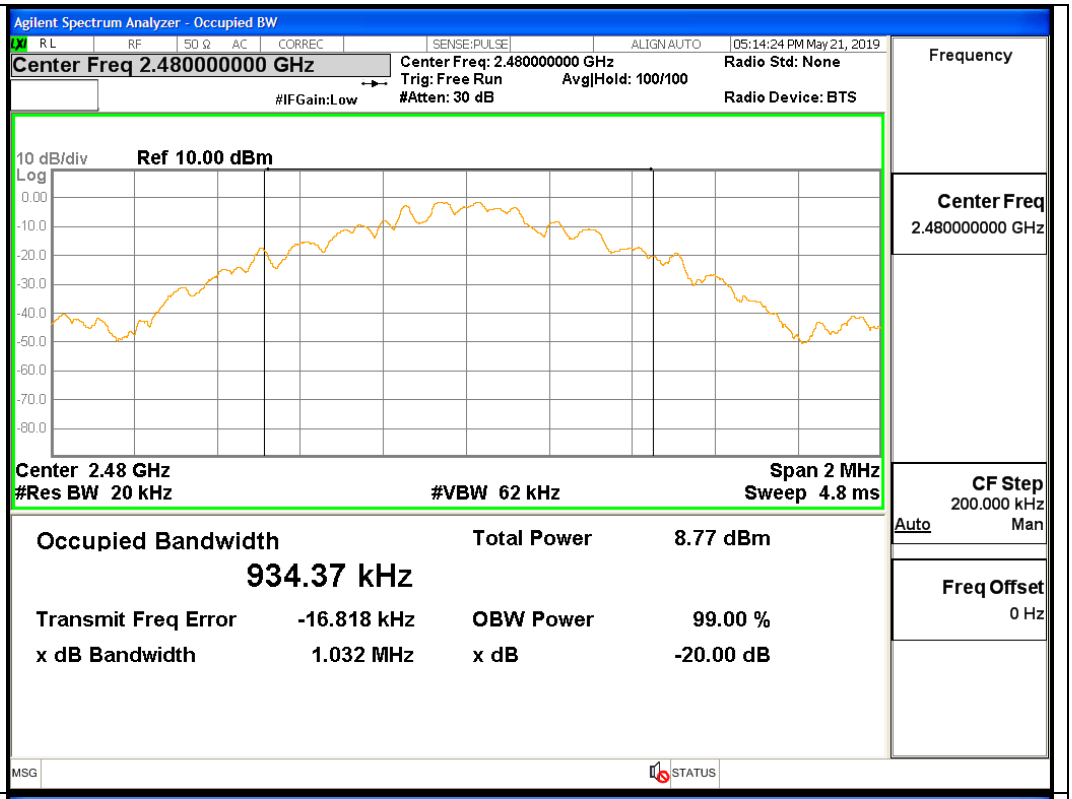
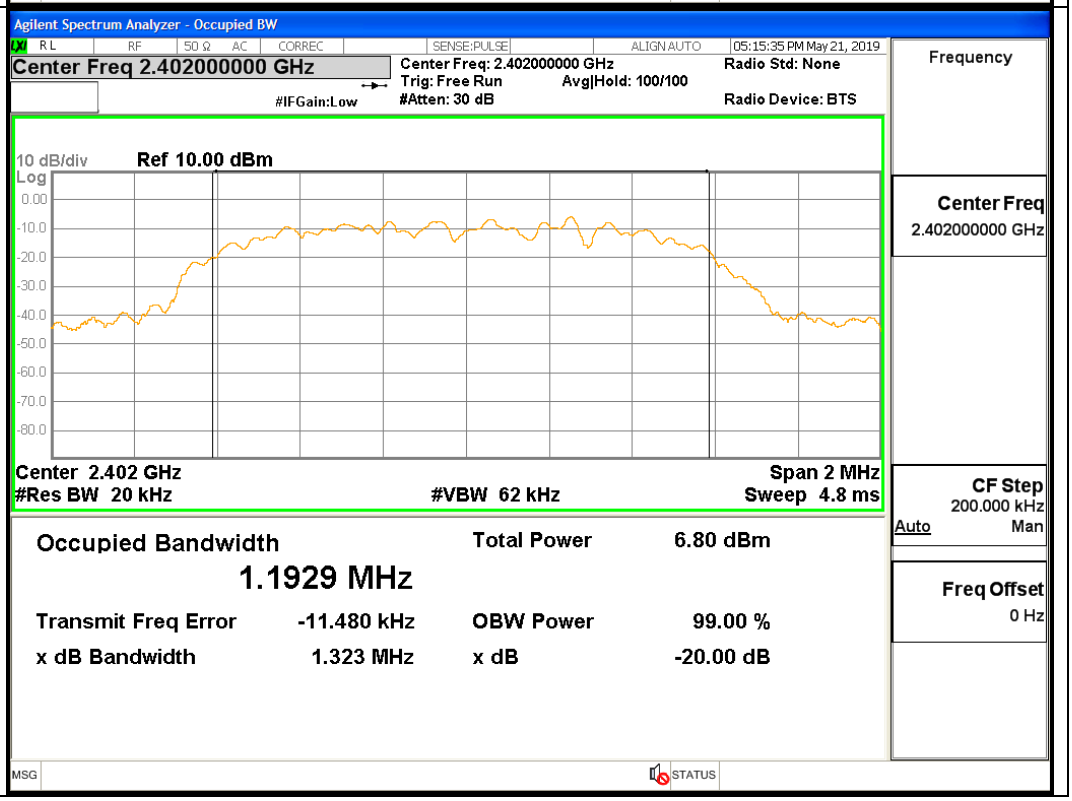
Temperature:	21.3 ° C
Relative Humidity:	50%
ATM Pressure:	100.0 kPa
Test Engineer:	Gary Qian
Supervised by:	Eden Hu

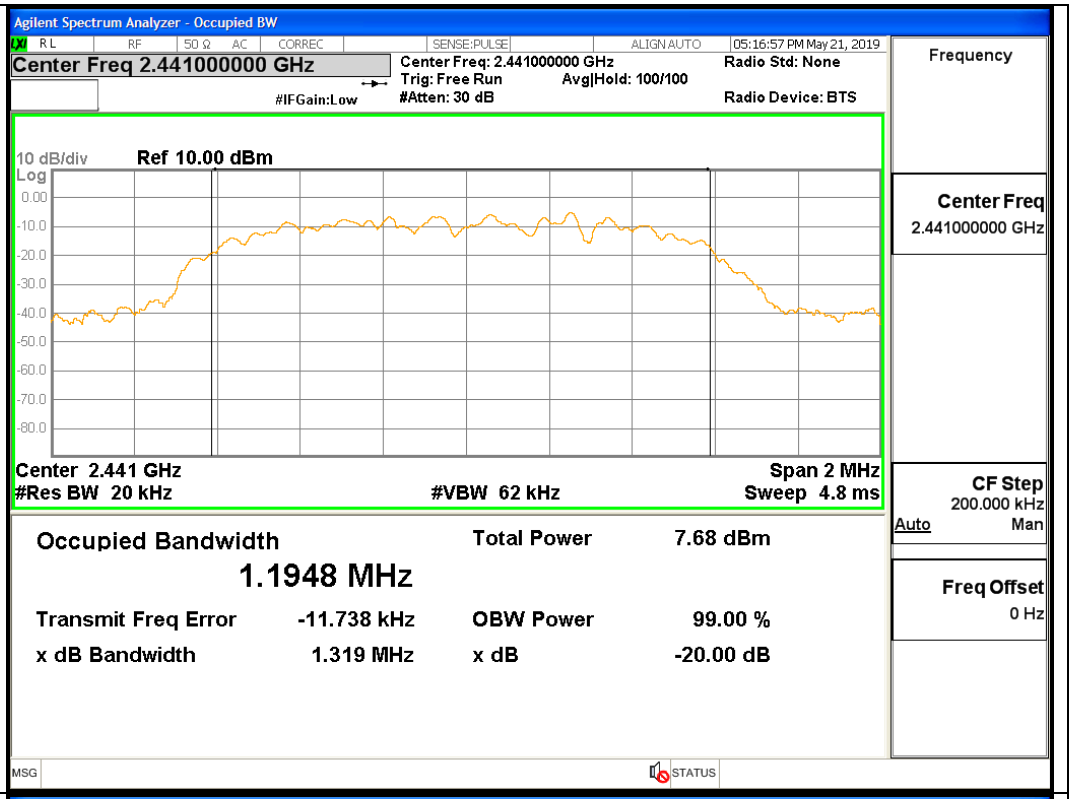
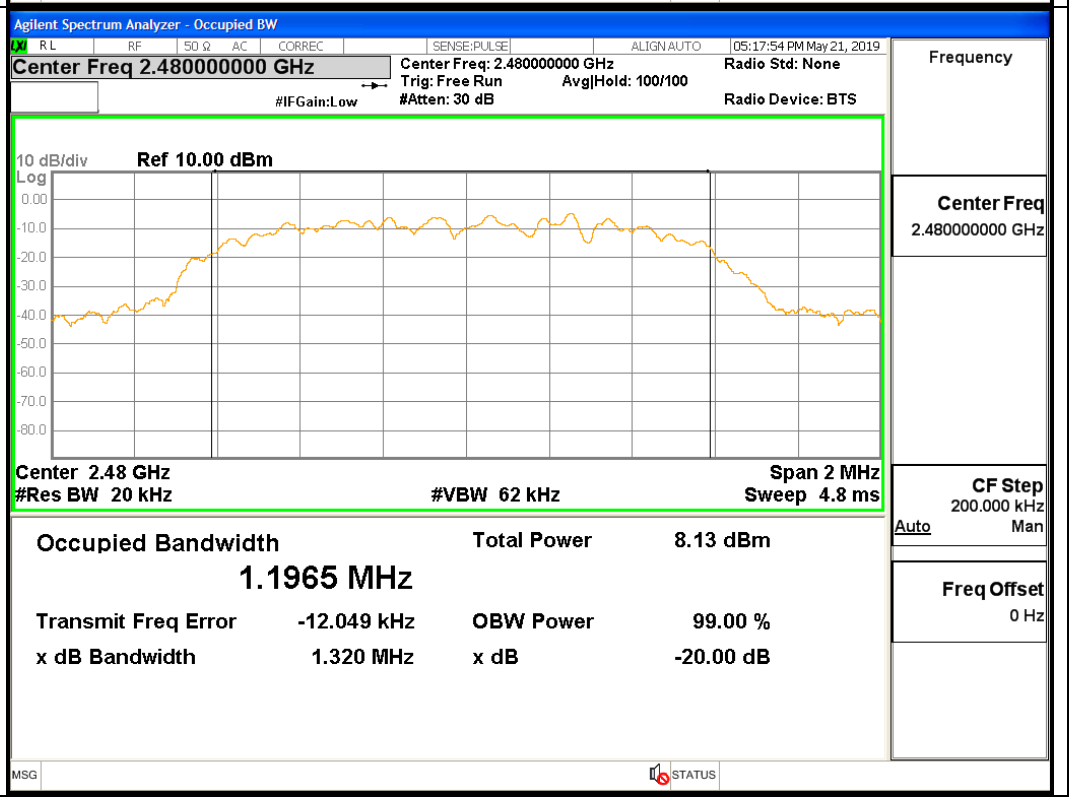
A.1 20 dB Bandwidth

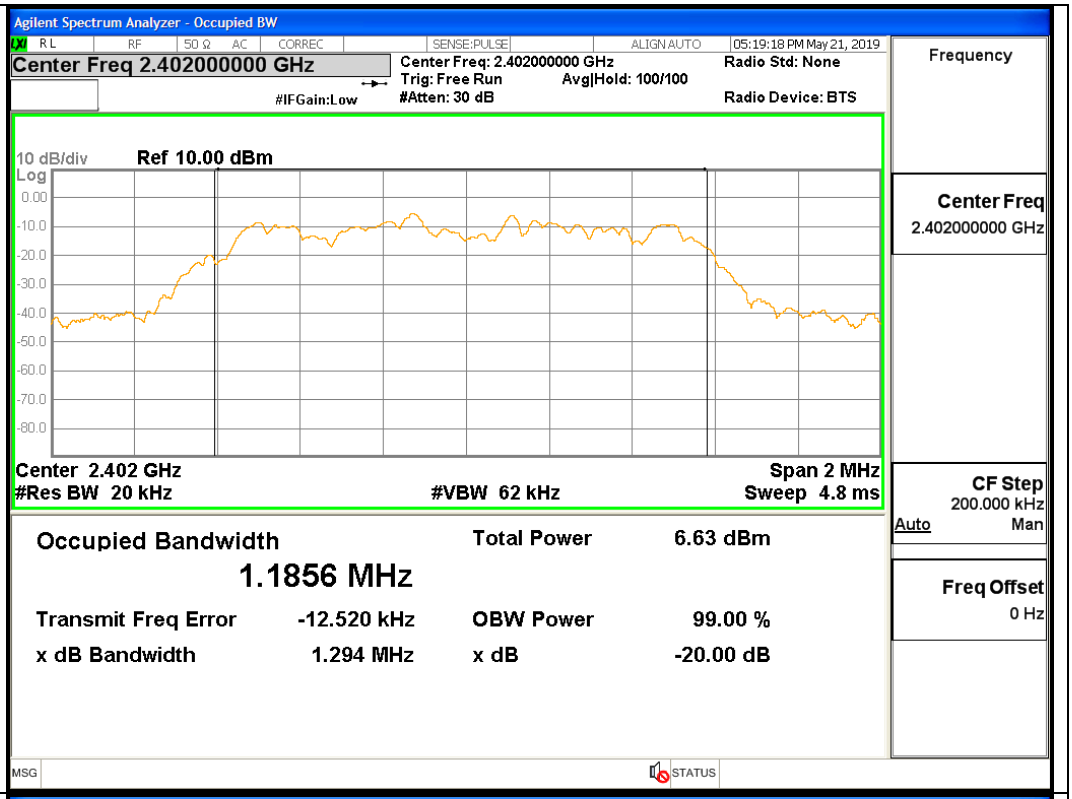
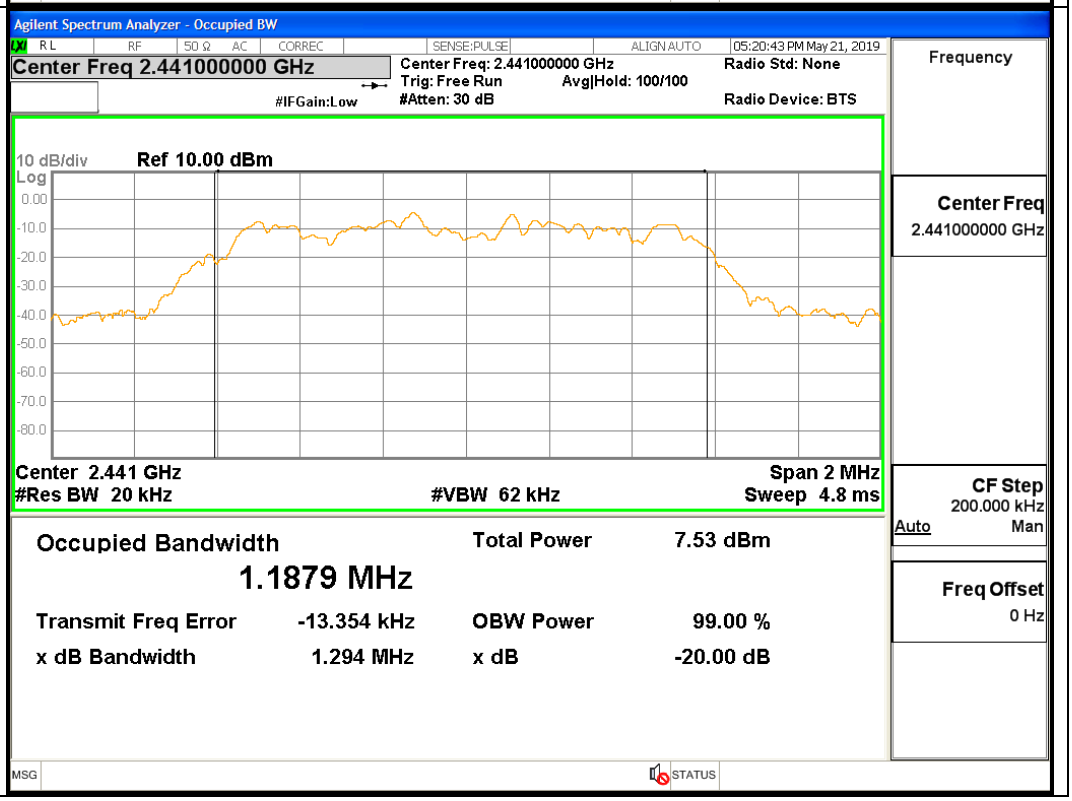
Mode	Channel.	20dB Bandwidth [MHz]	Limit(MHz)	Verdict
GFSK	LCH	1.031	Not Specified	PASS
GFSK	MCH	1.033	Not Specified	PASS
GFSK	HCH	1.032	Not Specified	PASS
π/4DQPSK	LCH	1.323	Not Specified	PASS
π/4DQPSK	MCH	1.319	Not Specified	PASS
π/4DQPSK	HCH	1.320	Not Specified	PASS
8DPSK	LCH	1.294	Not Specified	PASS
8DPSK	MCH	1.294	Not Specified	PASS
8DPSK	HCH	1.299	Not Specified	PASS

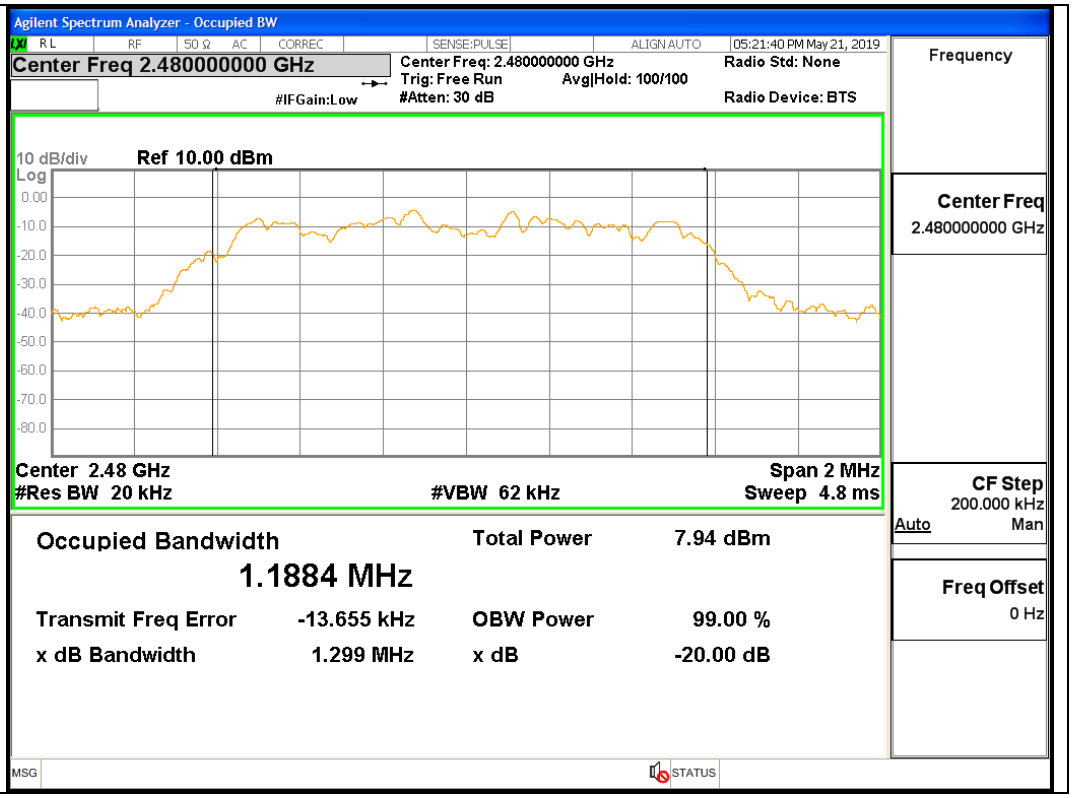
Test Graph

Graphs	
GFSK/LCH	
GFSK/MCH	

GFSK/HCH	
π/4DQPSK/LCH	

π/4DQPSK/MCH	
π/4DQPSK/HCH	

8DPSK/LCH	
8DPSK/MCH	

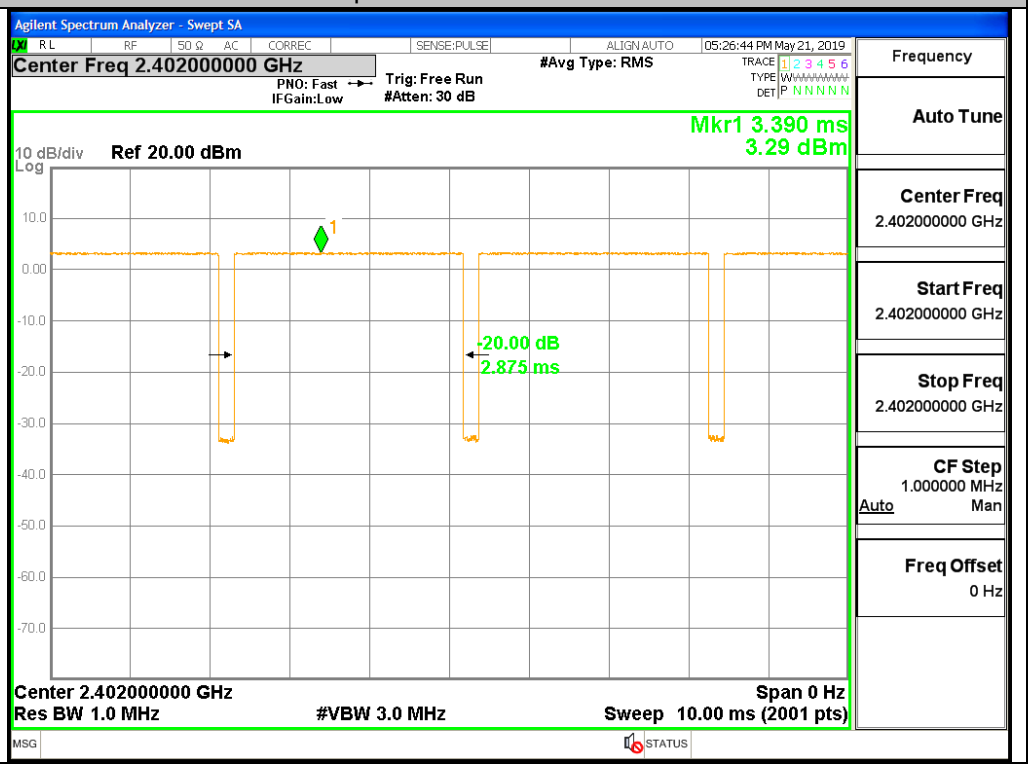
8DPSK/HCH	

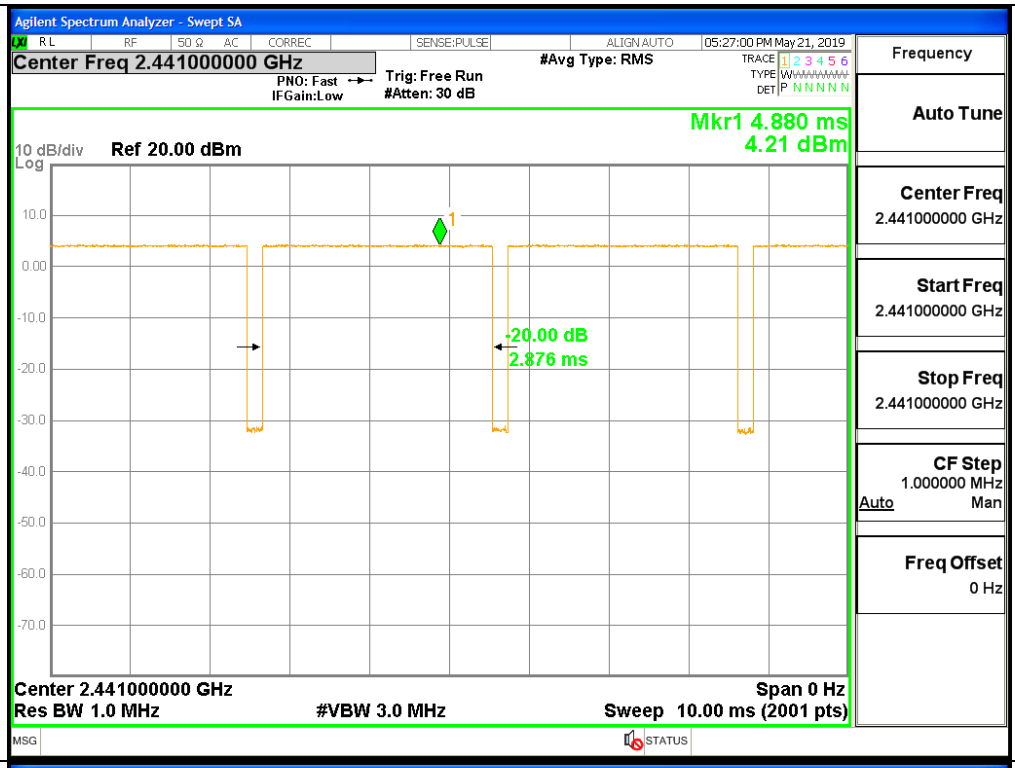
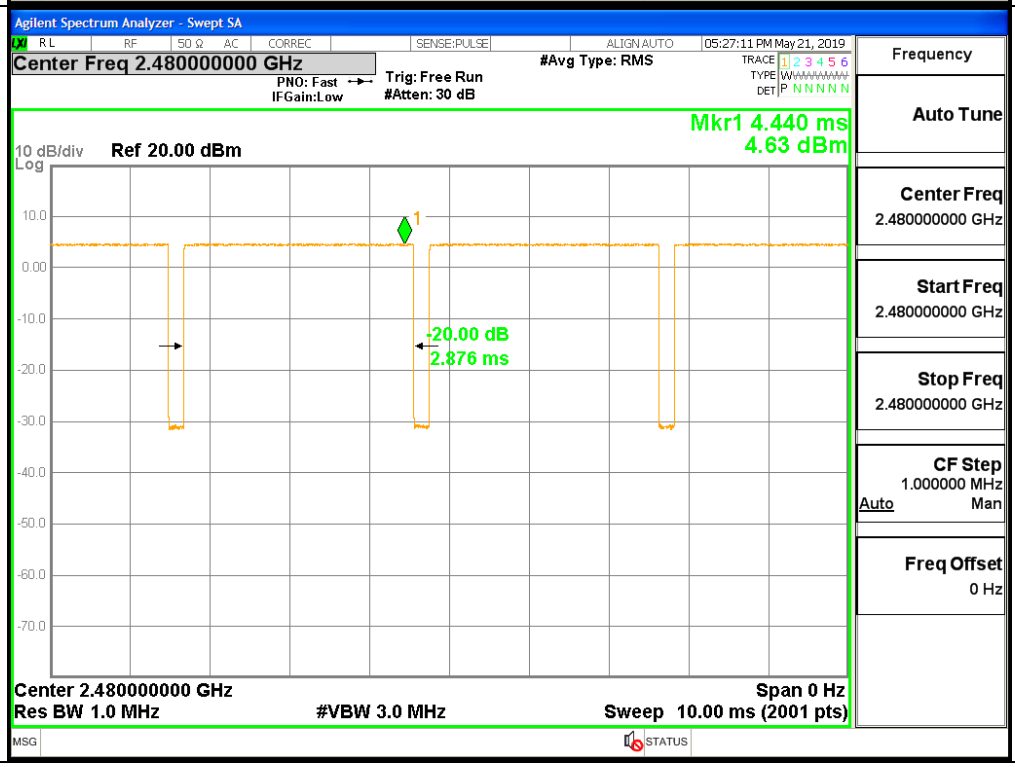
Agilent Spectrum Analyzer - Occupied BW
RL
RF
50 Ω AC
CORREC
SENSE:PULSE
ALIGN AUTO
05:21:40 PM May 21, 2019
Center Freq 2.480000000 GHz
Center Freq: 2.480000000 GHz
Trig: Free Run
Avg|Hold: 100/100
#IFGain:Low
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Frequency
10 dB/div
Log
Ref 10.00 dBm
0.00
-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
1.1884 MHz
Total Power
7.94 dBm
Transmit Freq Error
-13.655 kHz
OBW Power
99.00 %
x dB Bandwidth
1.299 MHz
x dB
-20.00 dB
Freq Offset
0 Hz
MSG
STATUS

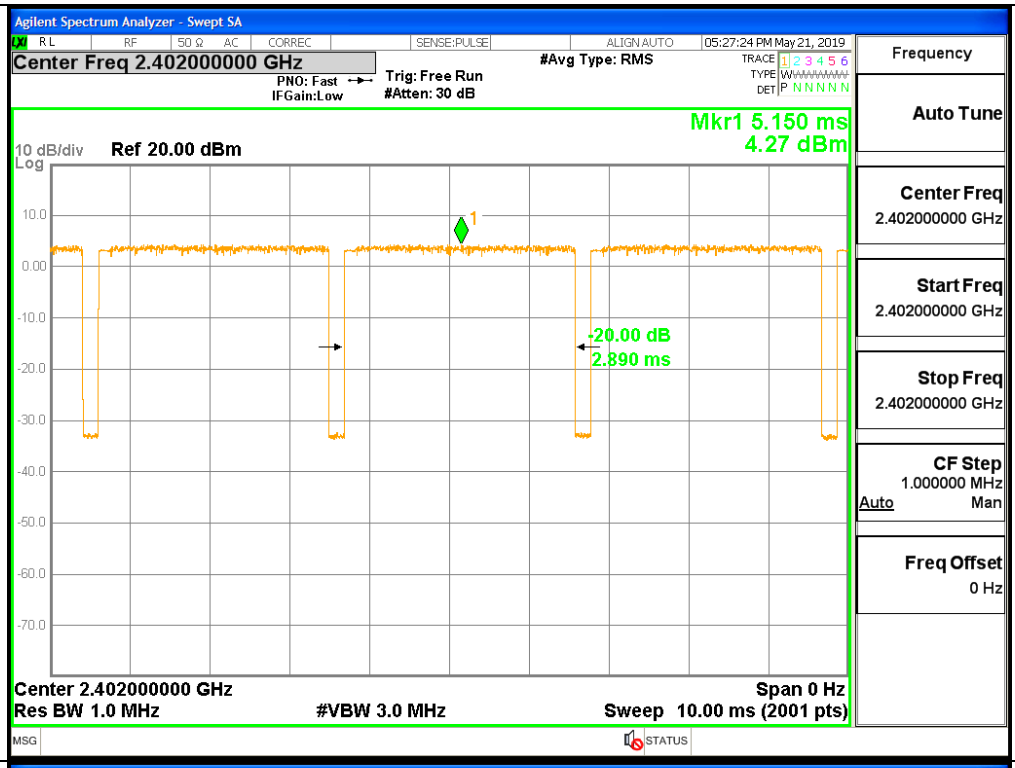
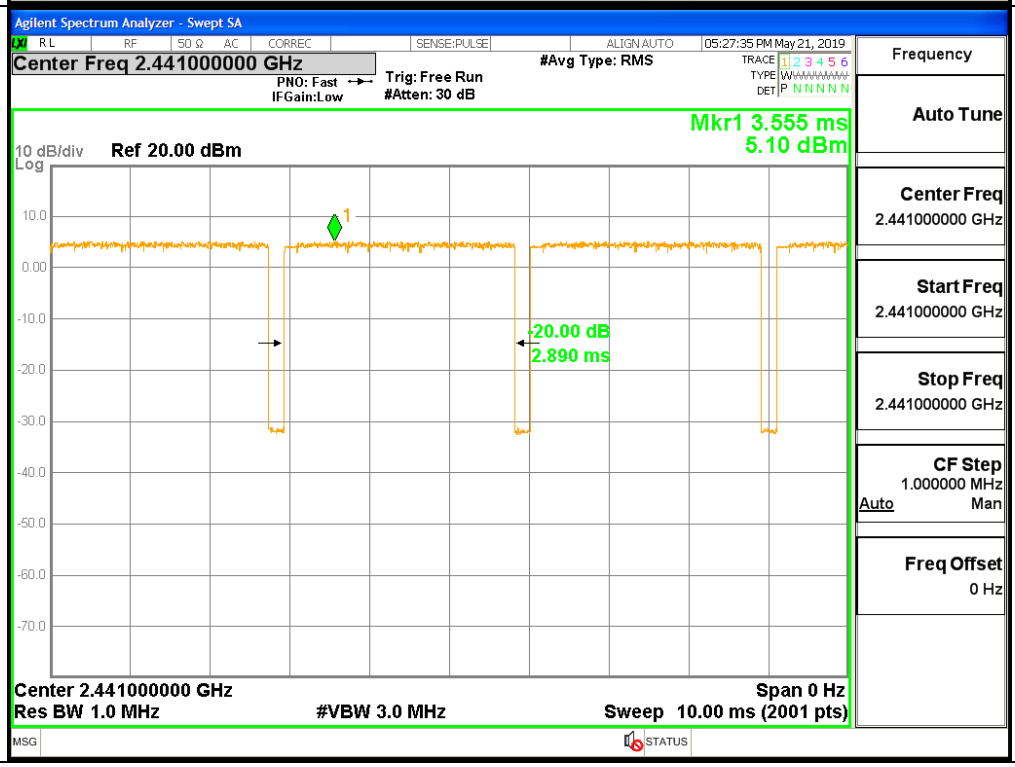
A.2 Dwell Time

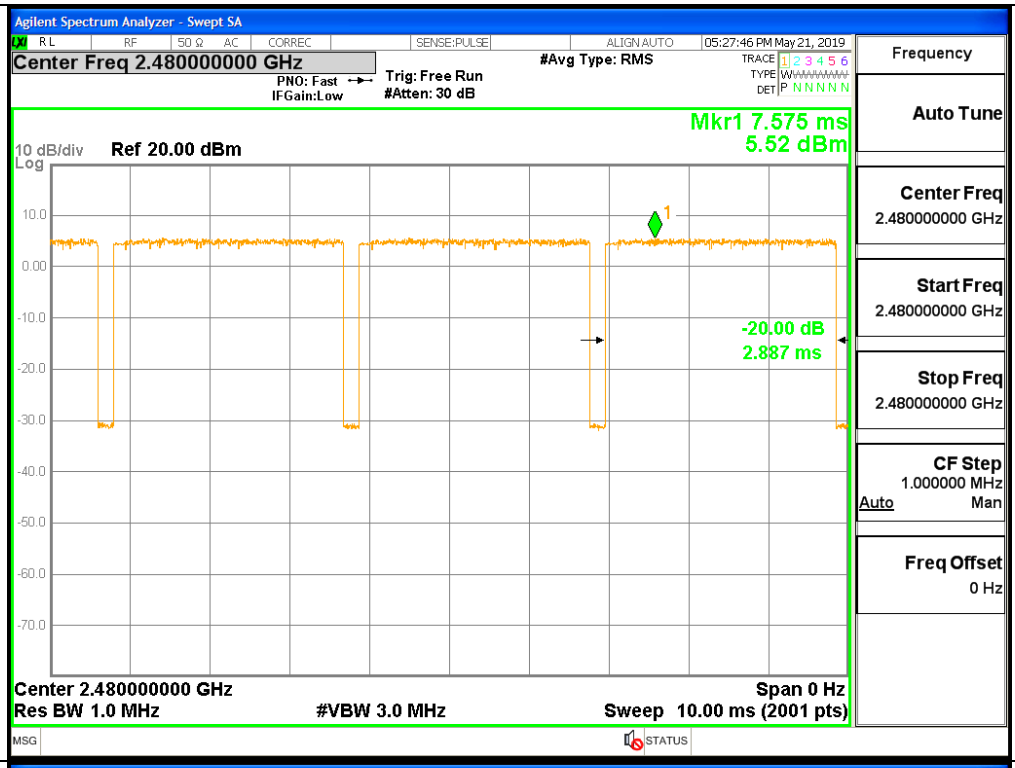
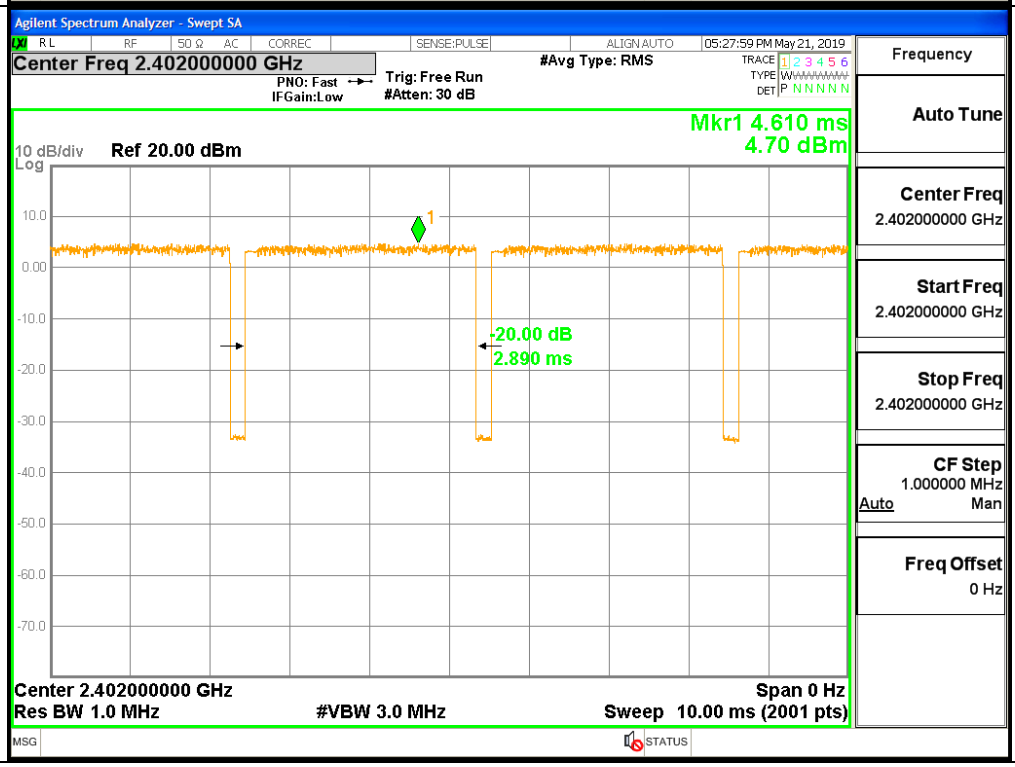
Mode	Packet	Channel	Burst Width [s/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	0.002875	106.7	0.306811	0.4	PASS
GFSK	DH5	MCH	0.002876	106.7	0.306817	0.4	PASS
GFSK	DH5	HCH	0.002876	106.7	0.306829	0.4	PASS
π/4DQPSK	2DH5	LCH	0.002890	106.7	0.308374	0.4	PASS
π/4DQPSK	2DH5	MCH	0.002890	106.7	0.308387	0.4	PASS
π/4DQPSK	2DH5	HCH	0.002887	106.7	0.308062	0.4	PASS
8DPSK	3DH5	LCH	0.002890	106.7	0.308377	0.4	PASS
8DPSK	3DH5	MCH	0.002890	106.7	0.308383	0.4	PASS
8DPSK	3DH5	HCH	0.002894	106.7	0.308768	0.4	PASS

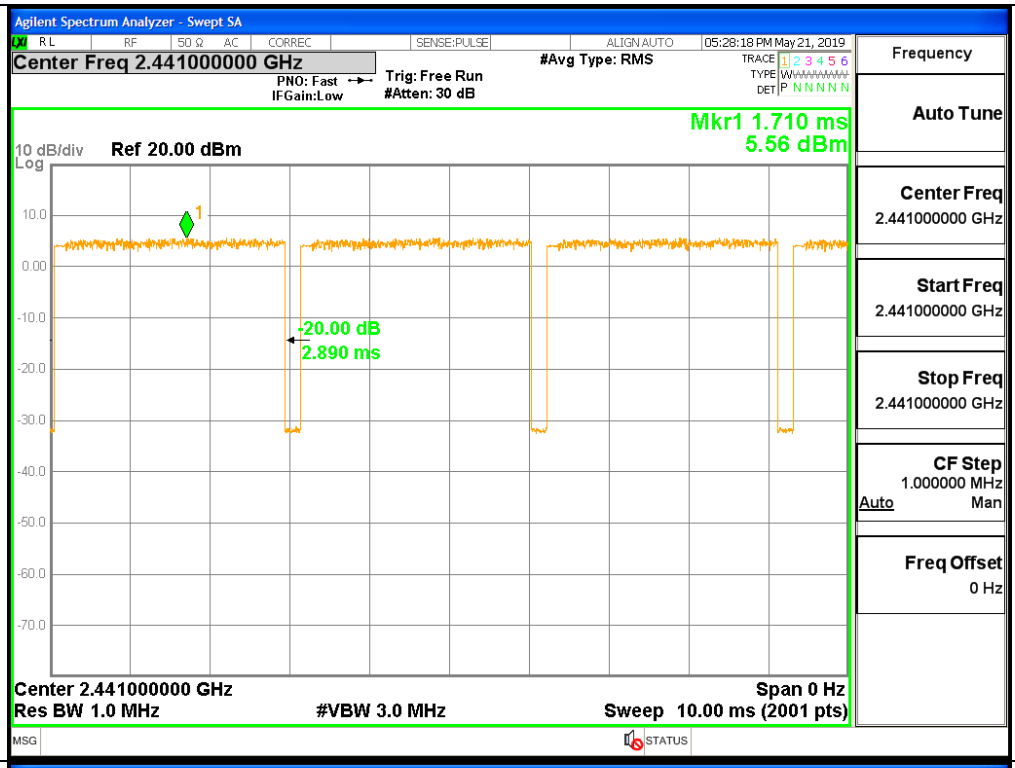
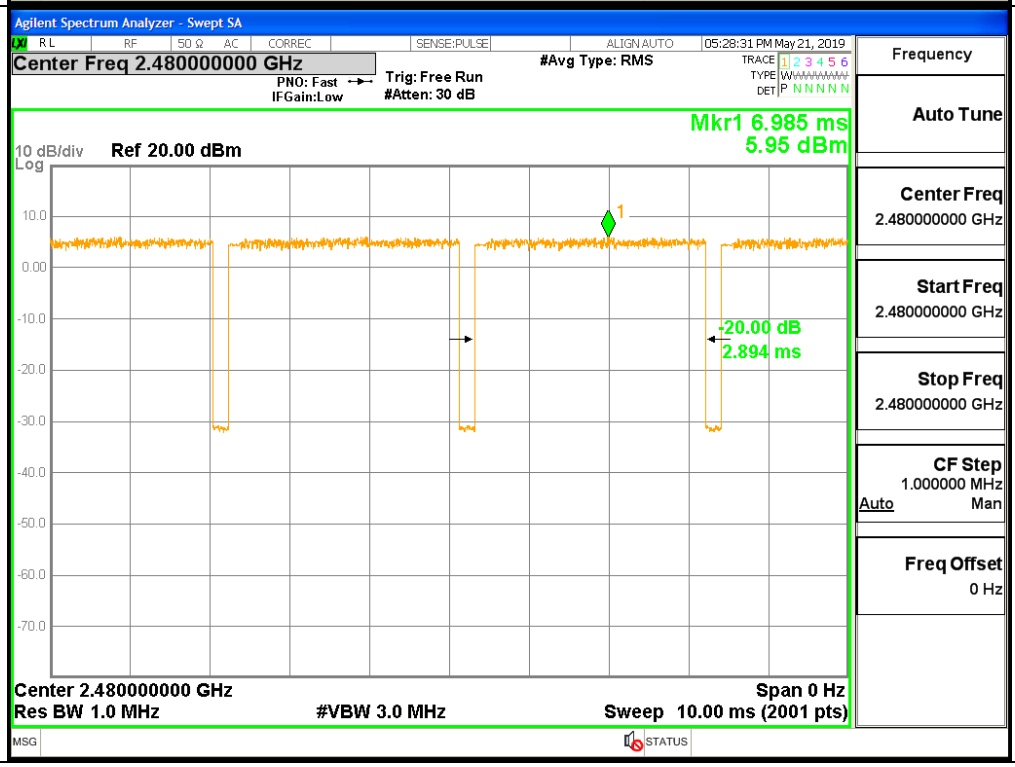
Test Graph

Graphs	
GFSK_DH5/LCH	

GFSK_DH5/MCH	
GFSK_DH5/HCH	

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

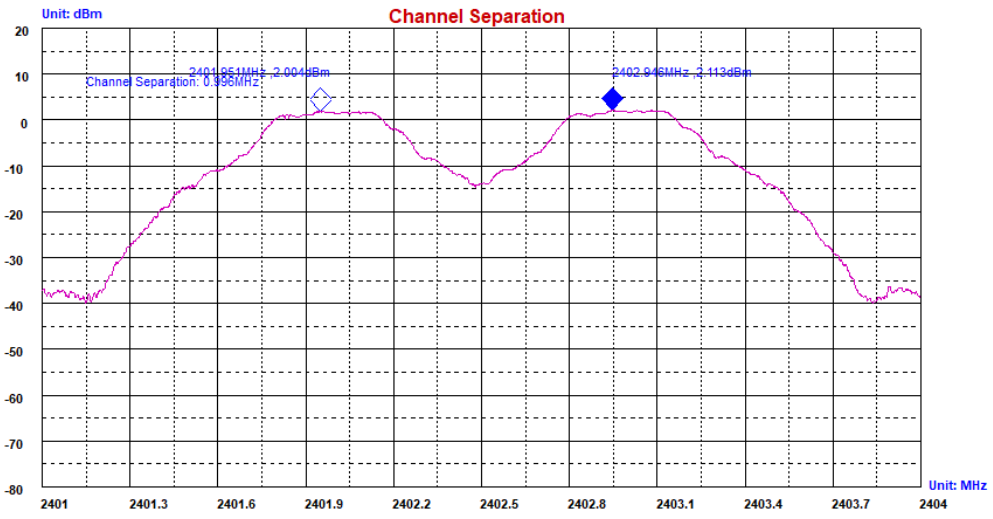
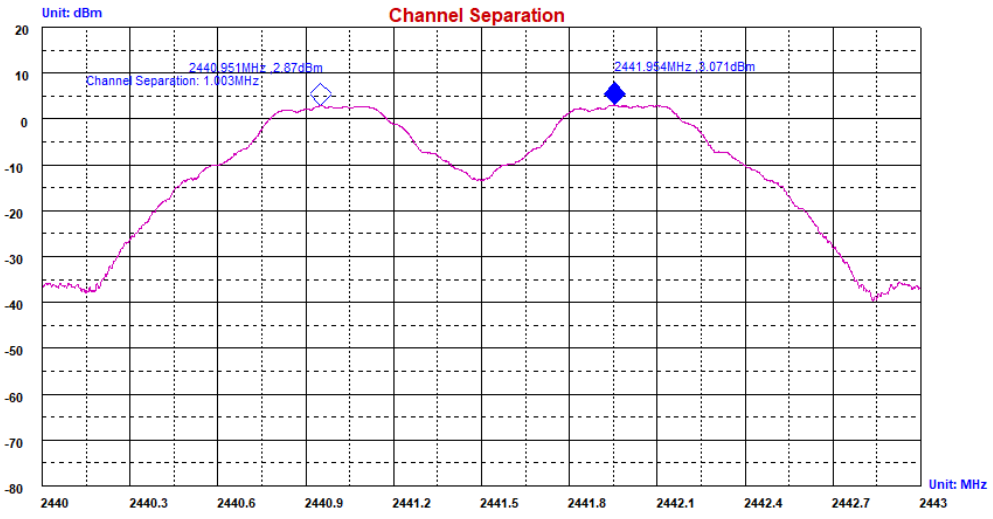
π/4DQPSK _2DH5/HCH	
8DPSK _3DH5/LCH	

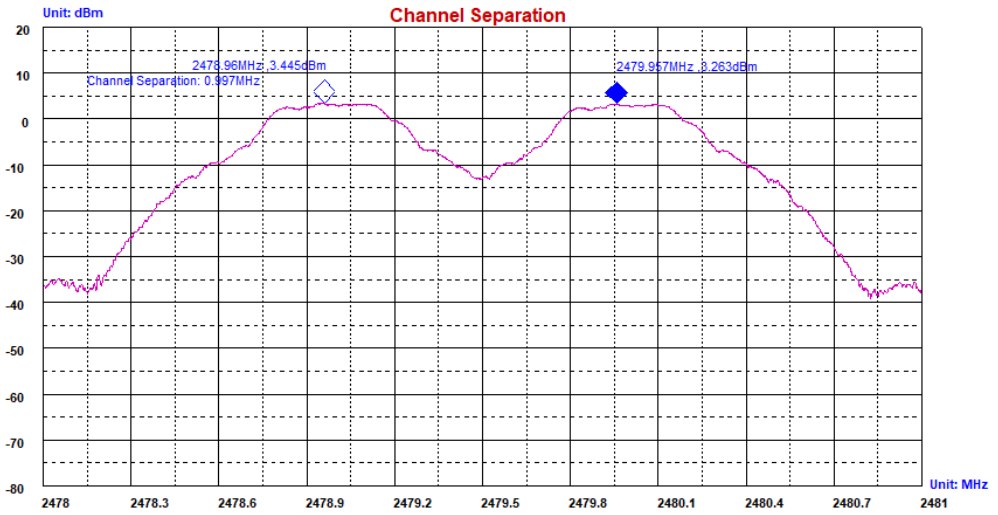
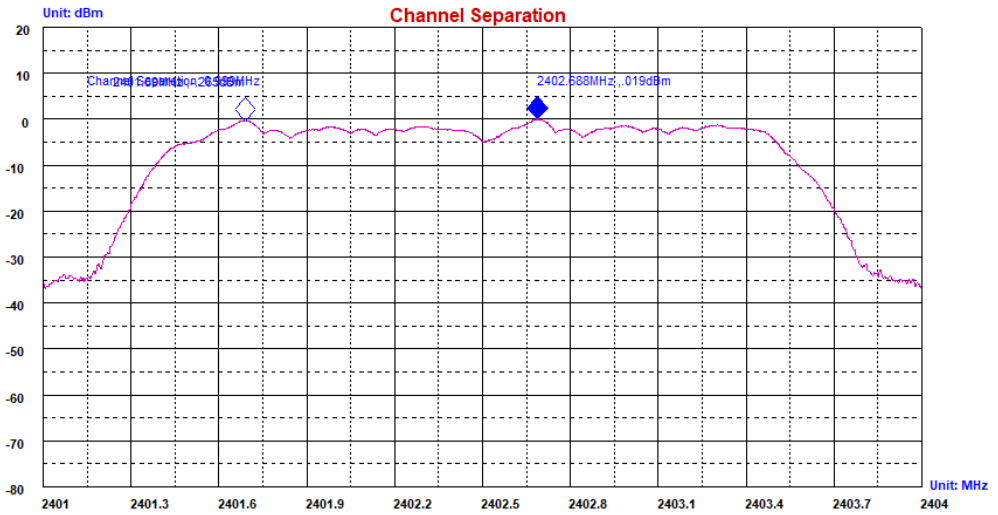
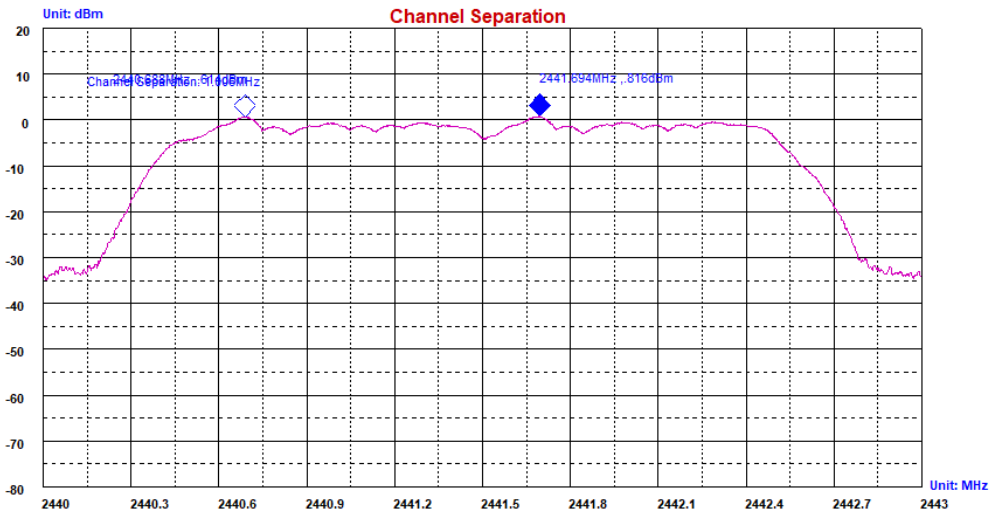
8DPSK _3DH5/MCH	
8DPSK _3DH5/HCH	

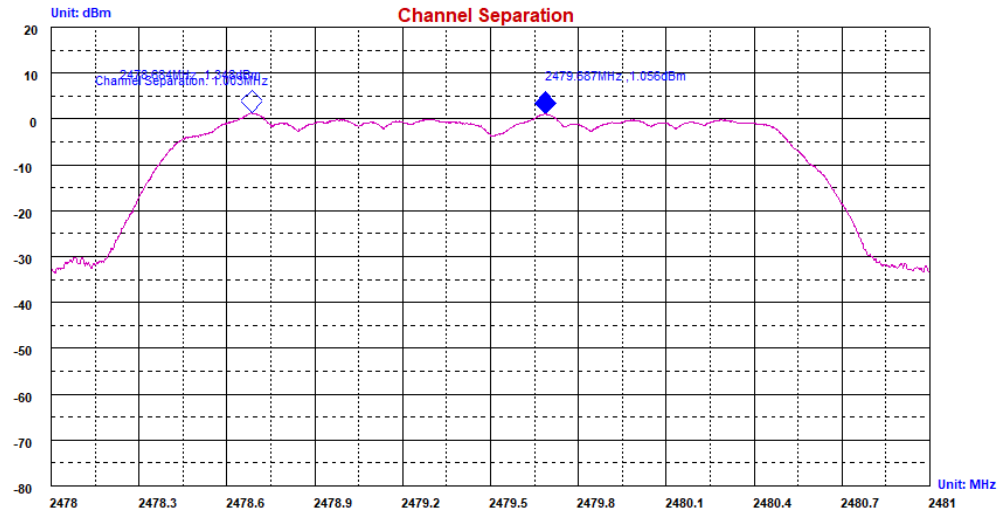
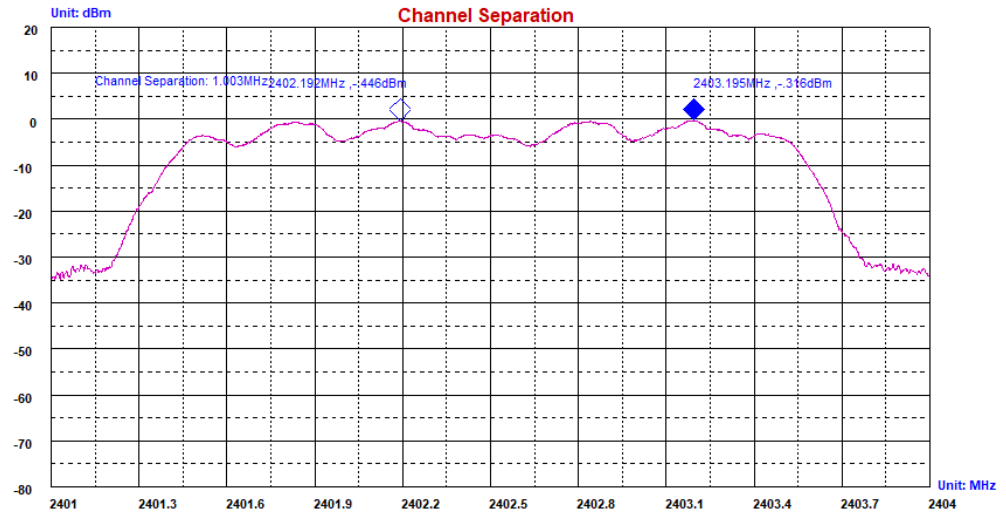
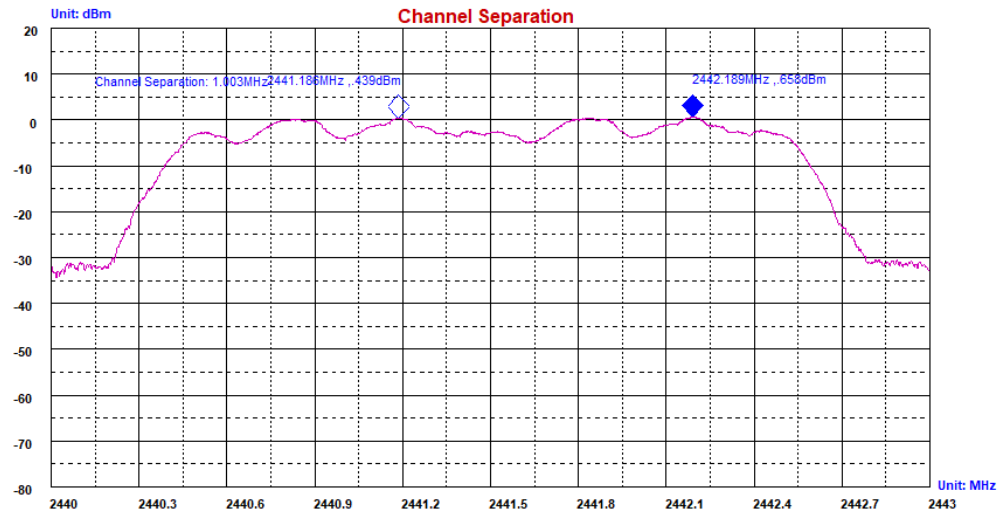
A.3 Carrier Frequency Separation

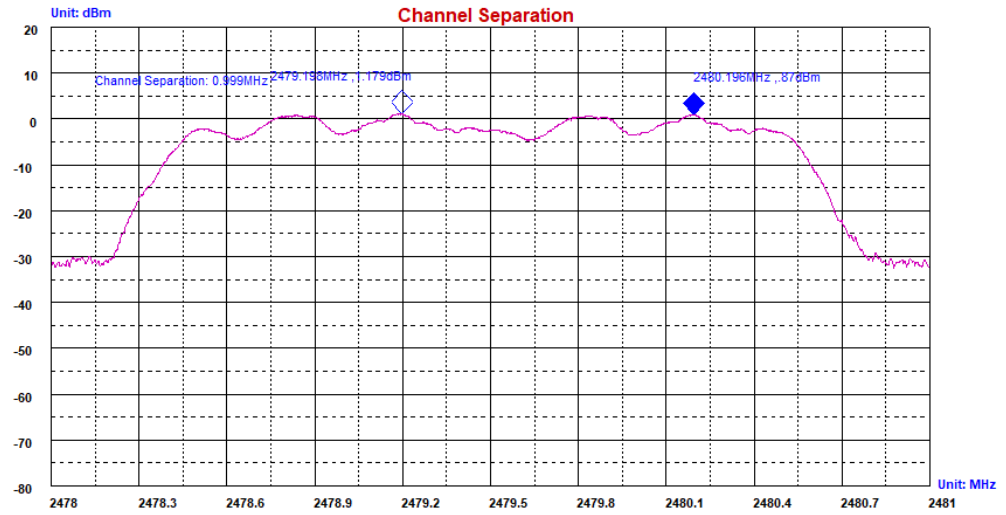
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.996	0.687	PASS
GFSK	MCH	1.003	0.689	PASS
GFSK	HCH	0.997	0.688	PASS
π/4DQPSK	LCH	0.999	0.882	PASS
π/4DQPSK	MCH	1.006	0.879	PASS
π/4DQPSK	HCH	1.003	0.880	PASS
8DPSK	LCH	1.003	0.863	PASS
8DPSK	MCH	1.003	0.863	PASS
8DPSK	HCH	0.999	0.866	PASS

Test Graph

Graphs	
GFSK/LCH	
GFSK/MCH	

GFSK/HCH	
π/4DQPSK/LCH	
π/4DQPSK/MCH	

π/4DQPSK/HCH	
8DPSK/LCH	
8DPSK/MCH	

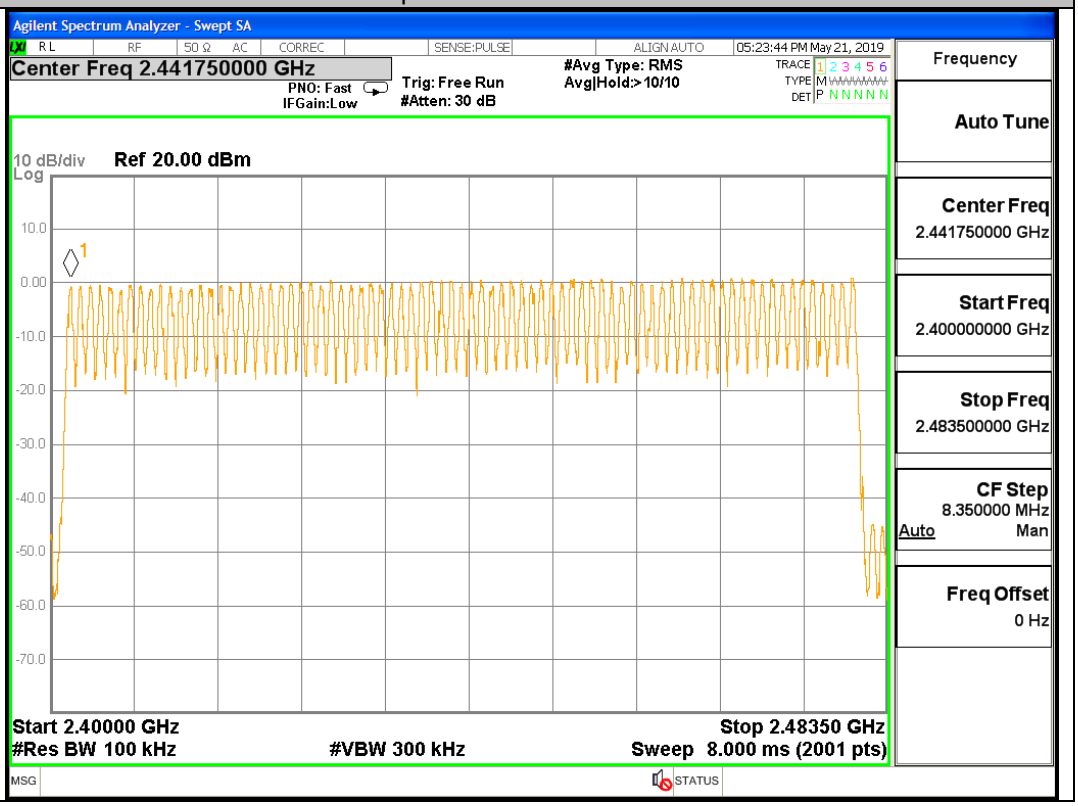
8DPSK/HCH	

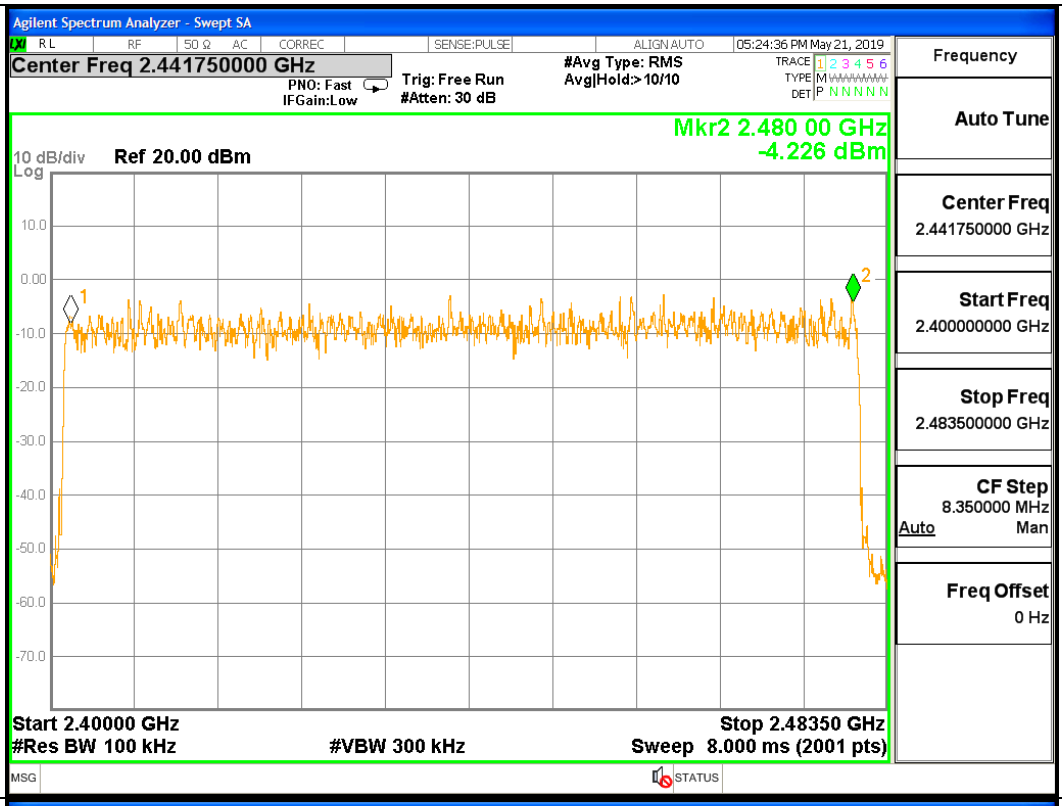
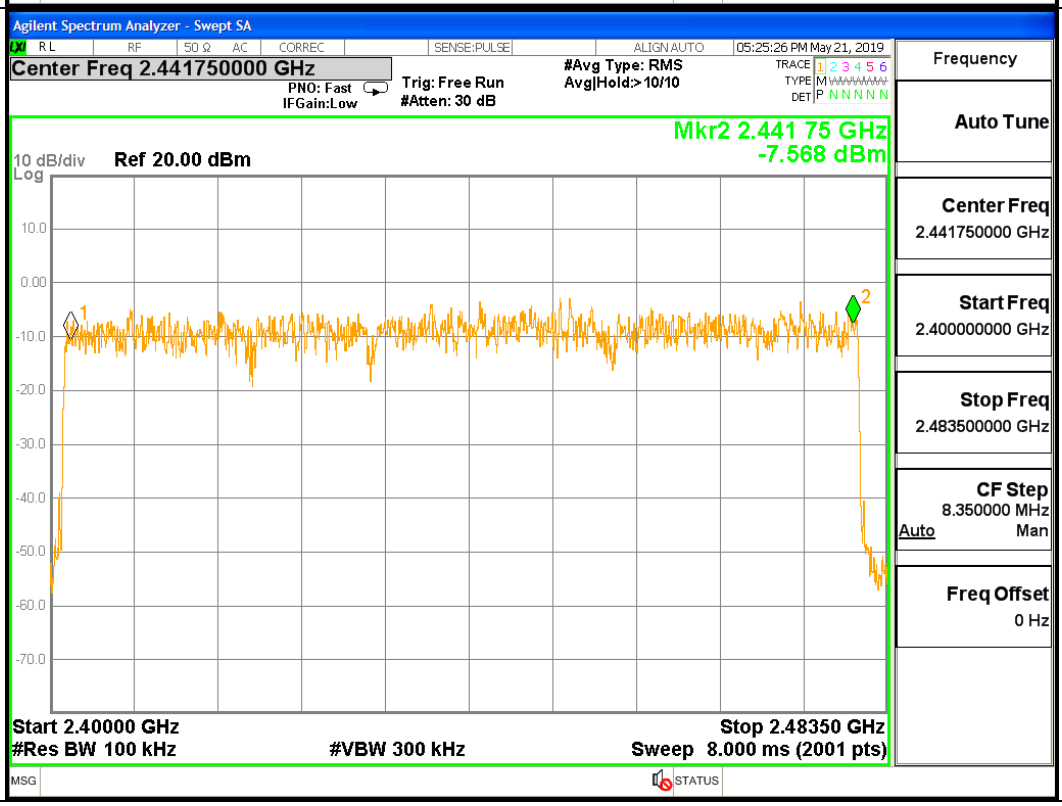
Unit: dBm
Channel Separation
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Channel Separation: 0.999MHz
2479.198MHz ,1.179dBm
2480.196MHz ,.878Bm
Unit: MHz
2478
2478.3
2478.6
2478.9
2479.2
2479.5
2479.8
2480.1
2480.4
2480.7
2481

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

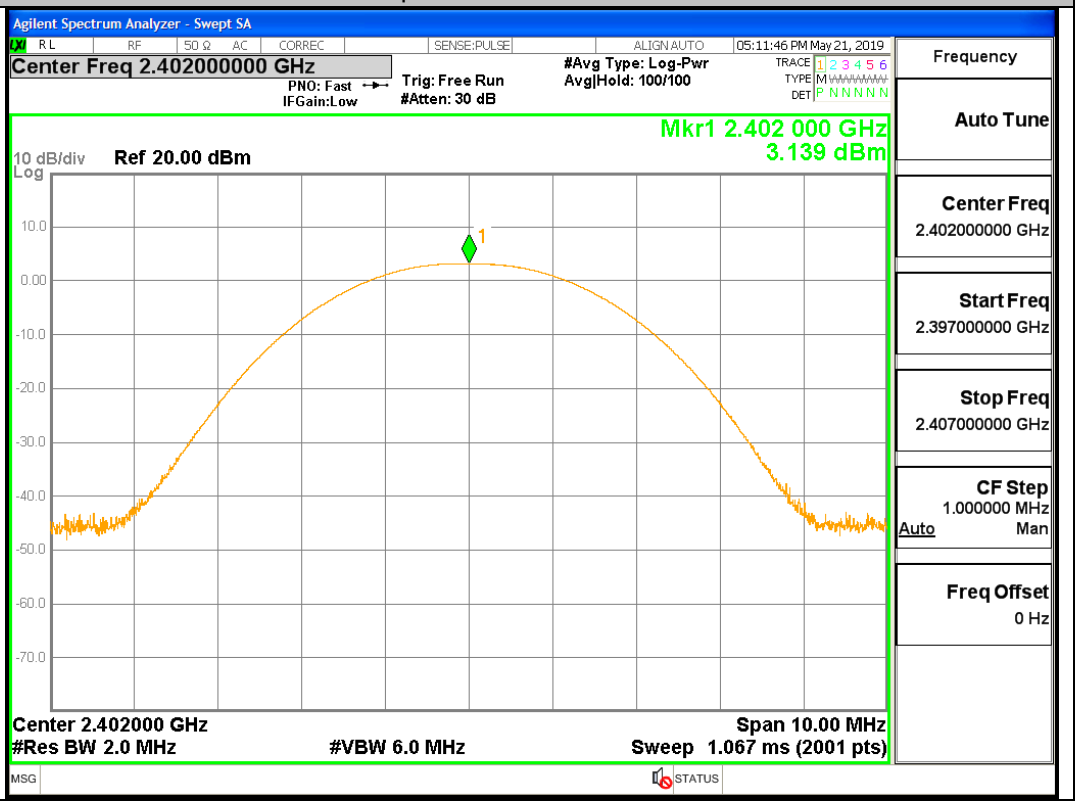
Graphs	
GFSK/Hop	

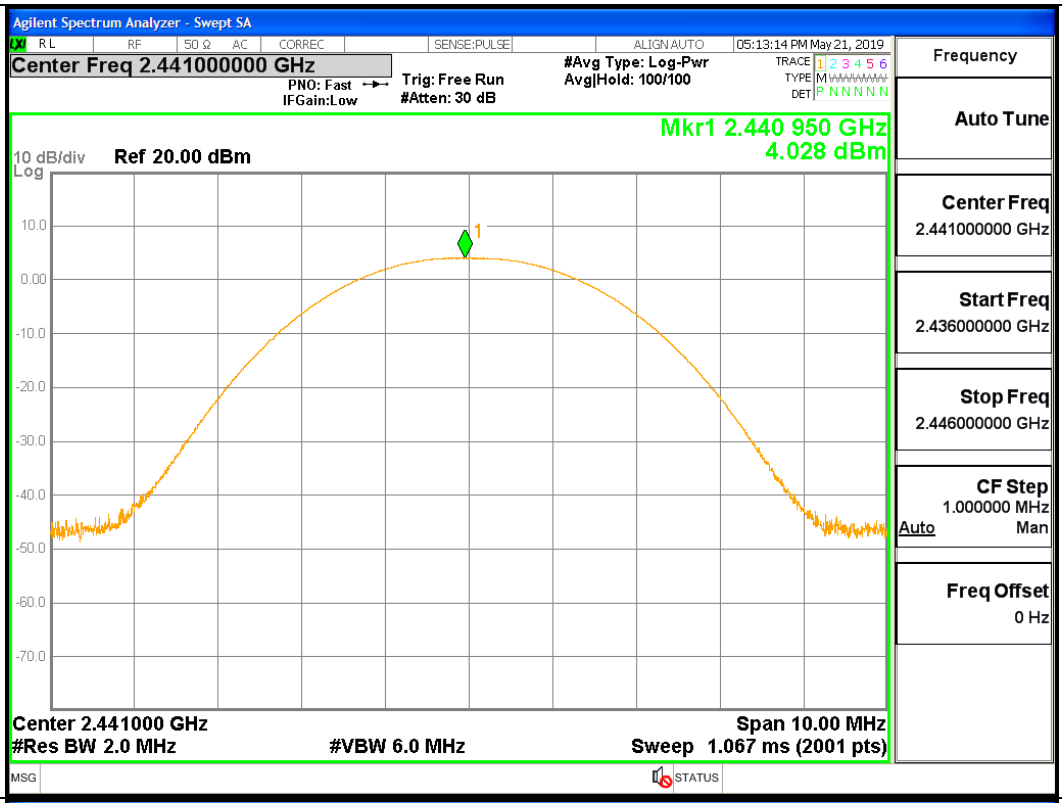
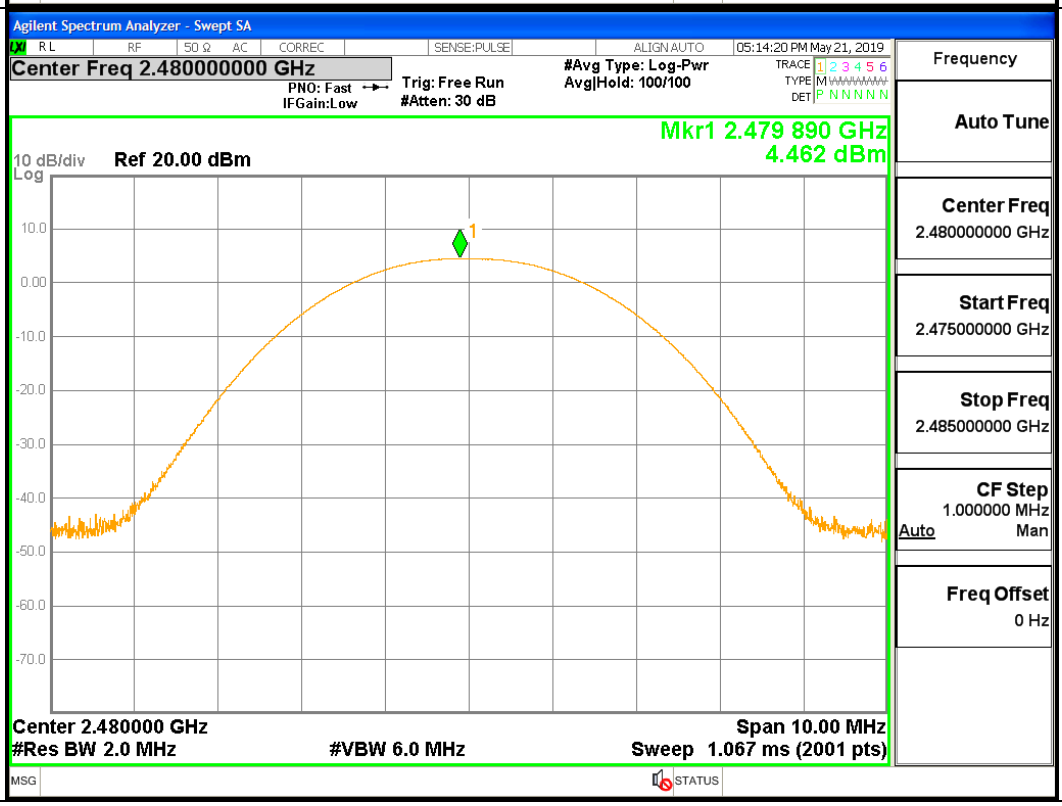
π/4DQPSK/Hop	
8DPSK/Hop	

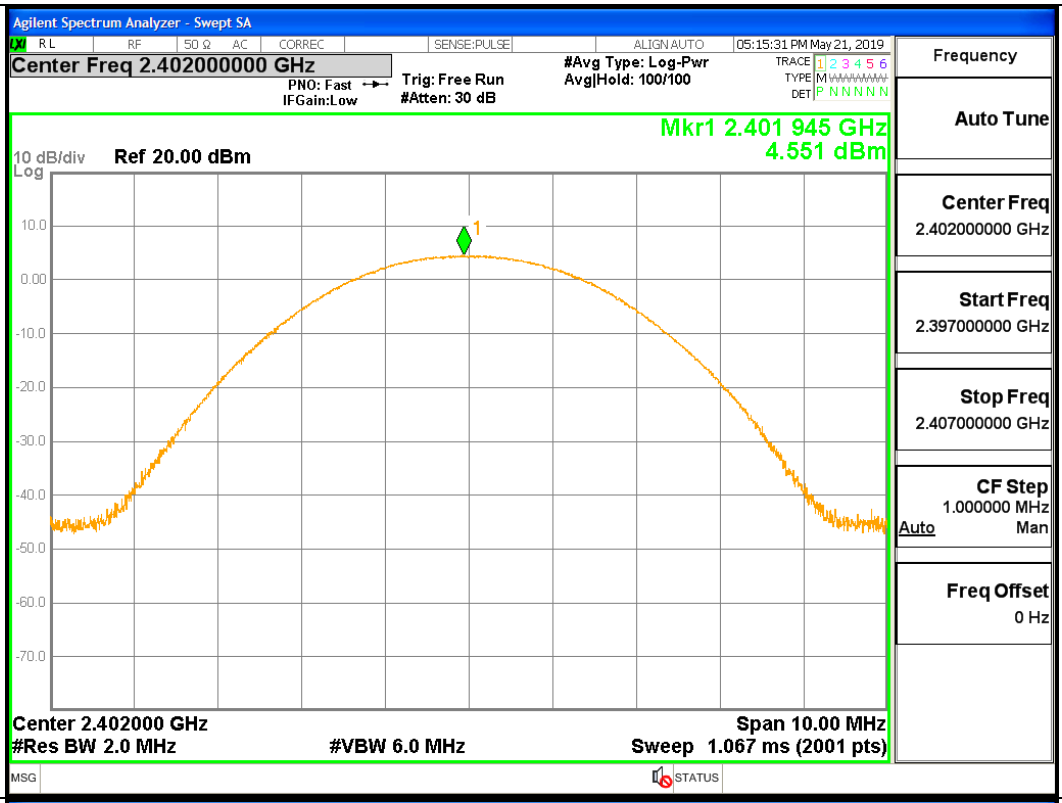
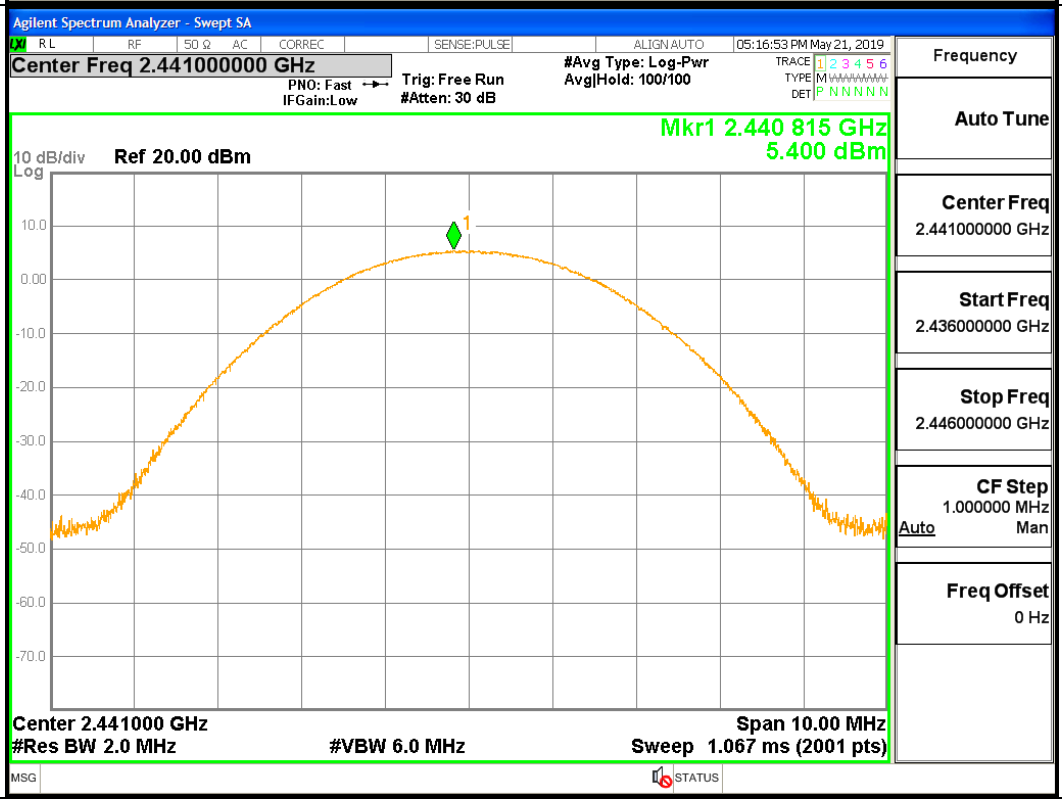
A.5 Conducted Peak Output Power

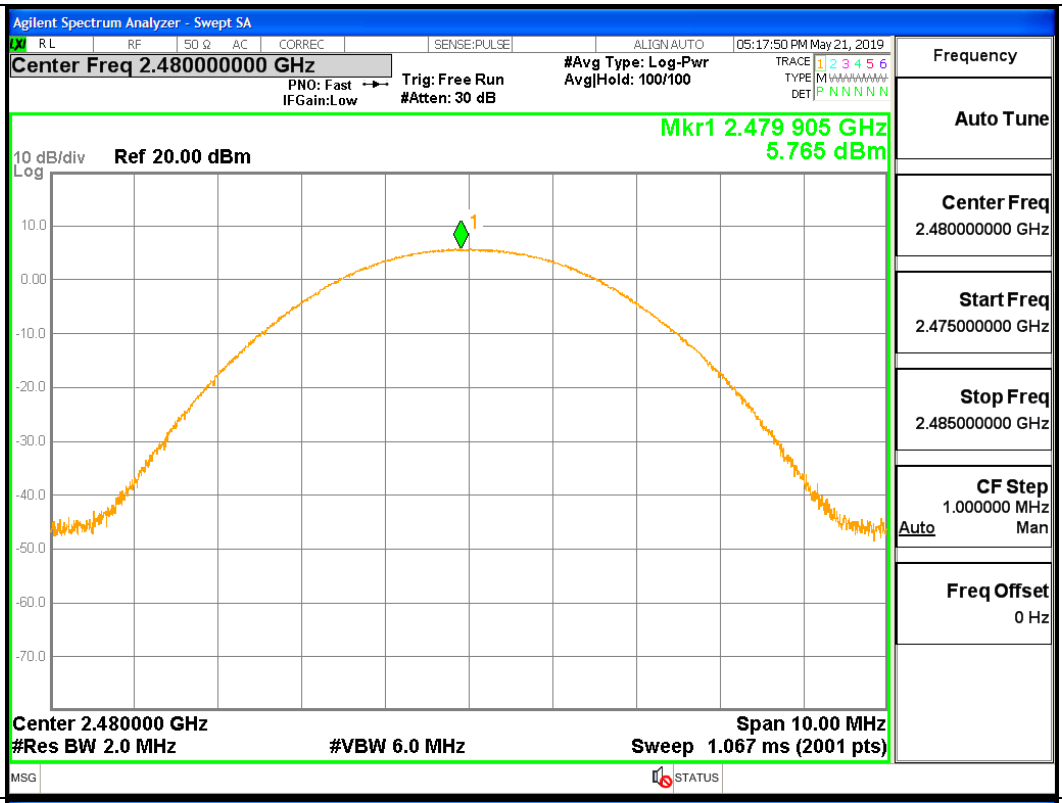
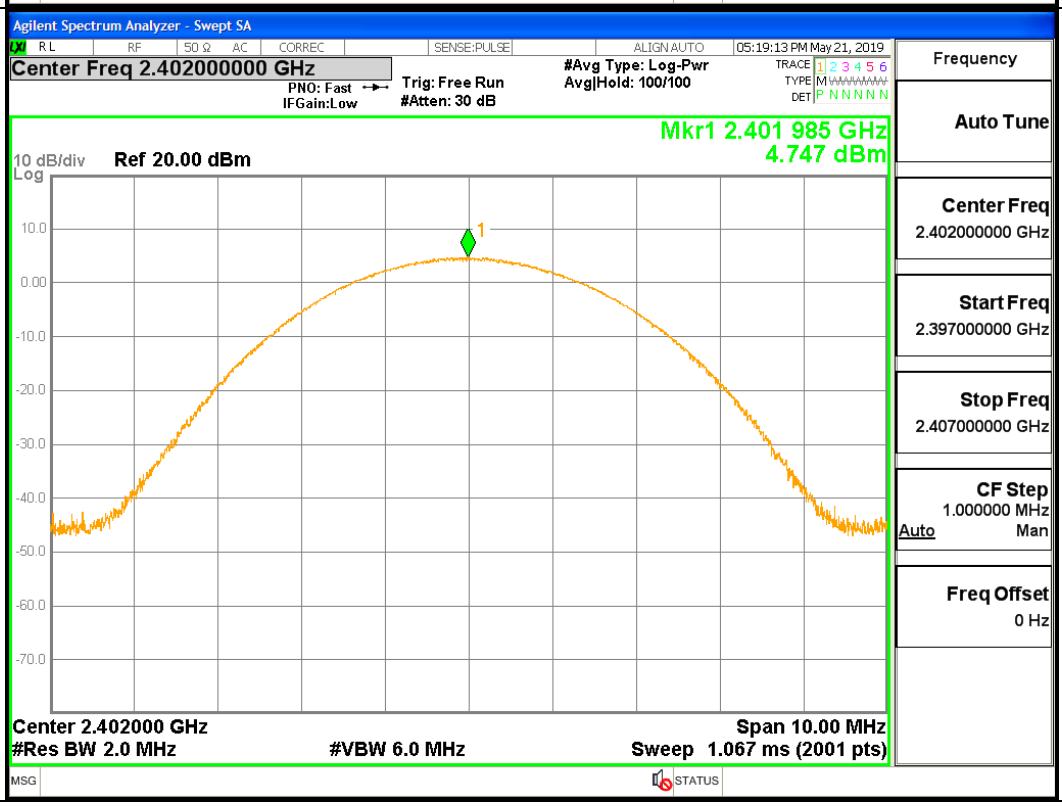
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	3.139	21	PASS
GFSK	MCH	4.028	21	PASS
GFSK	HCH	4.462	21	PASS
π/4DQPSK	LCH	4.551	21	PASS
π/4DQPSK	MCH	5.400	21	PASS
π/4DQPSK	HCH	5.765	21	PASS
8DPSK	LCH	4.747	21	PASS
8DPSK	MCH	5.549	21	PASS
8DPSK	HCH	5.910	21	PASS

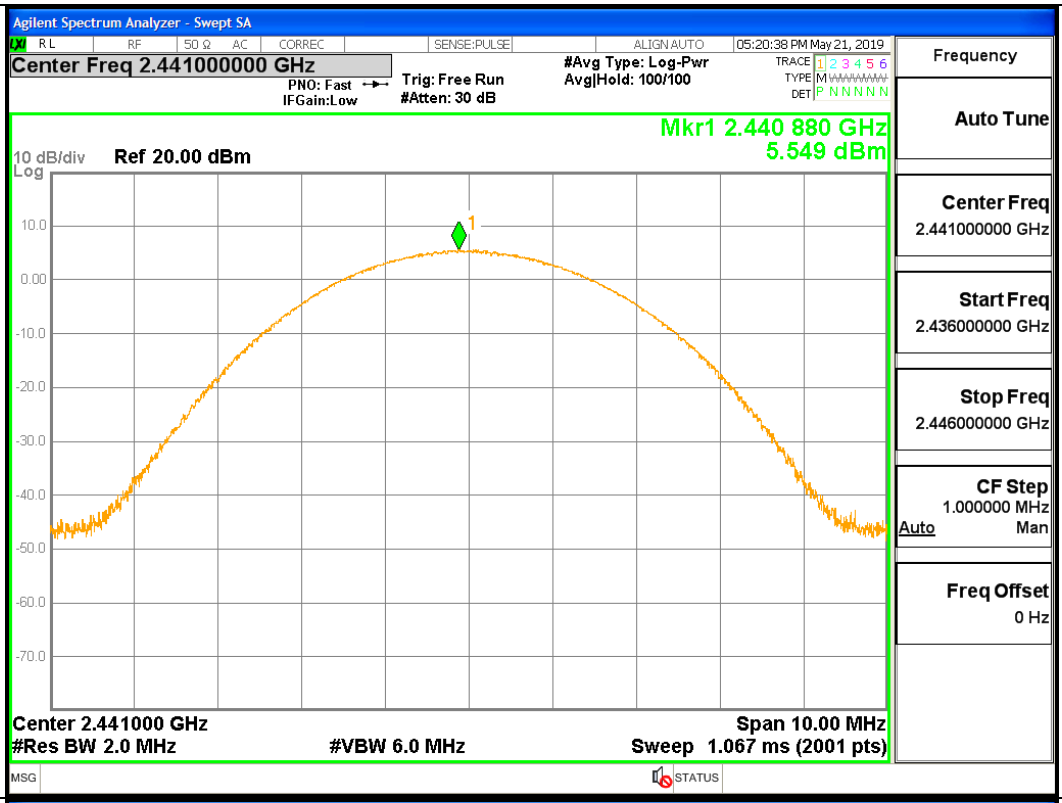
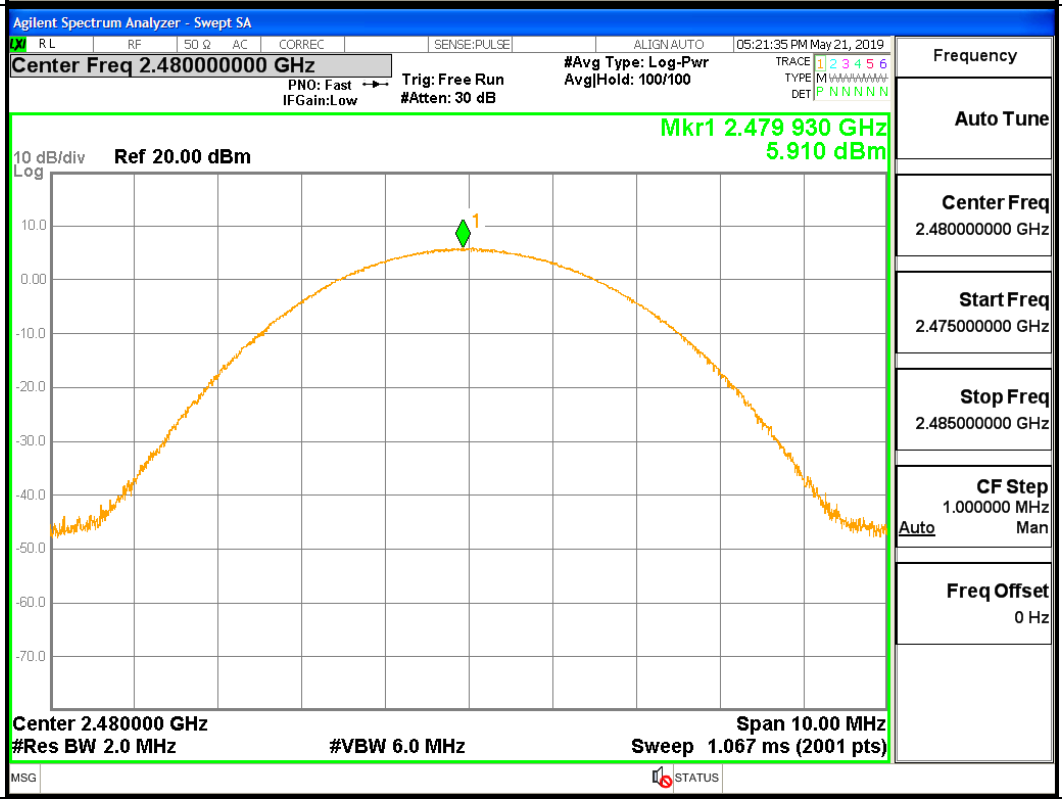
Test Graph

Graphs	
GFSK/LCH	

GFSK/MCH	
GFSK/HCH	

π/4DQPSK/LCH	
π/4DQPSK/MCH	

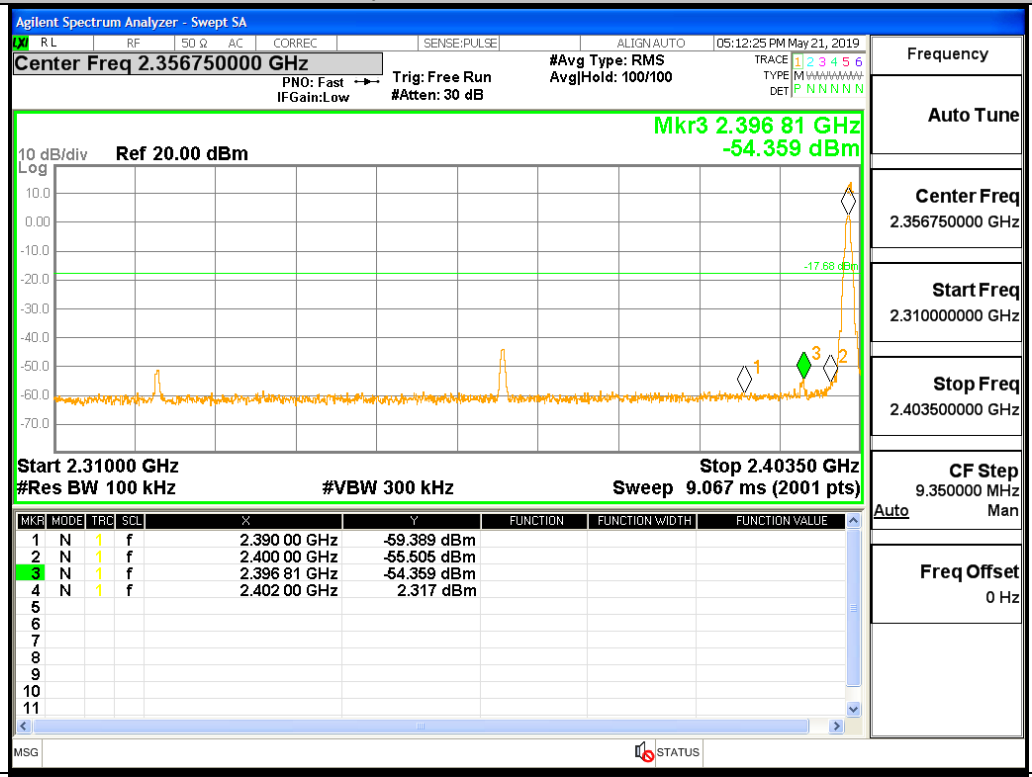
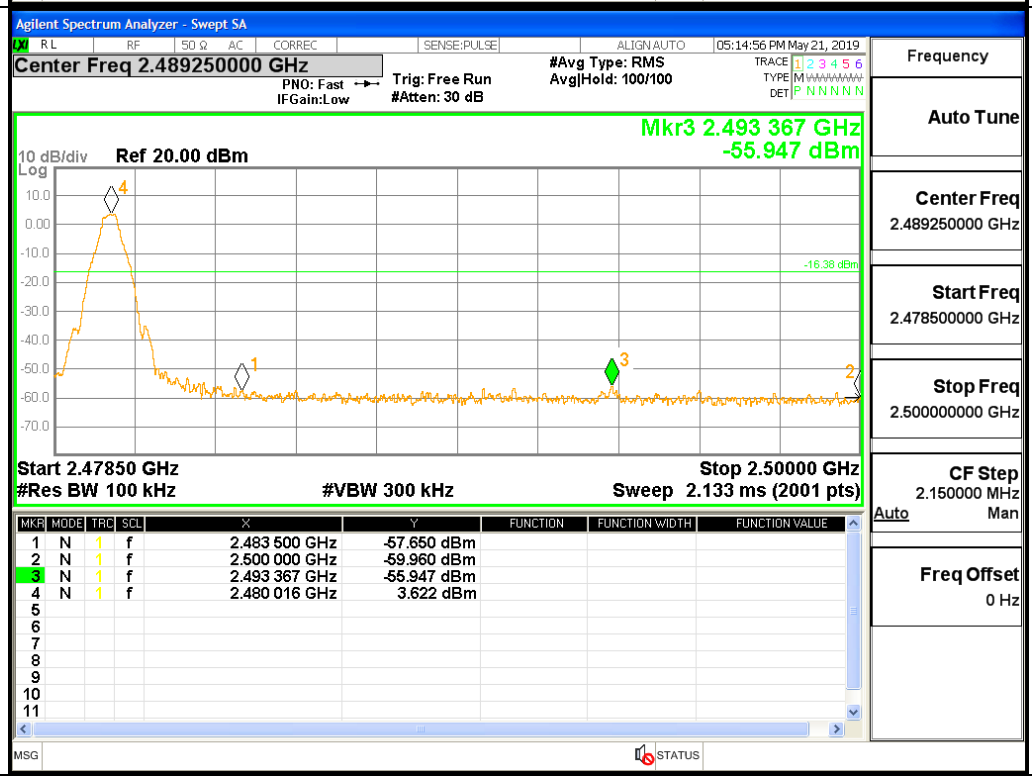
π/4DQPSK/HCH	
8DPSK/LCH	

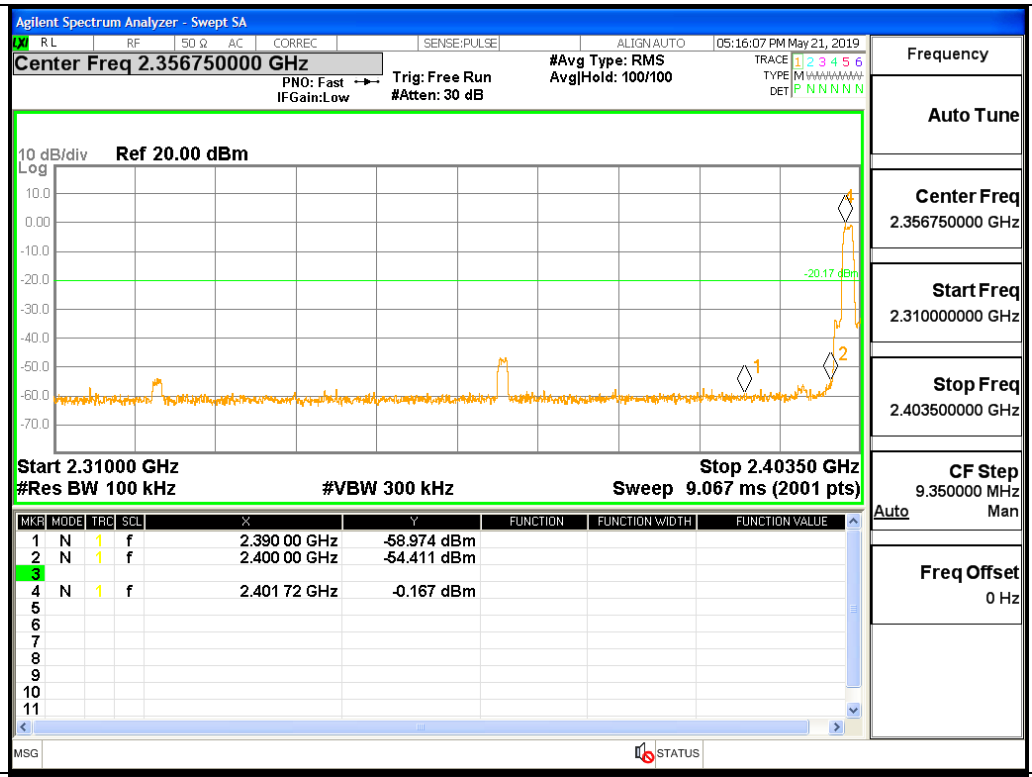
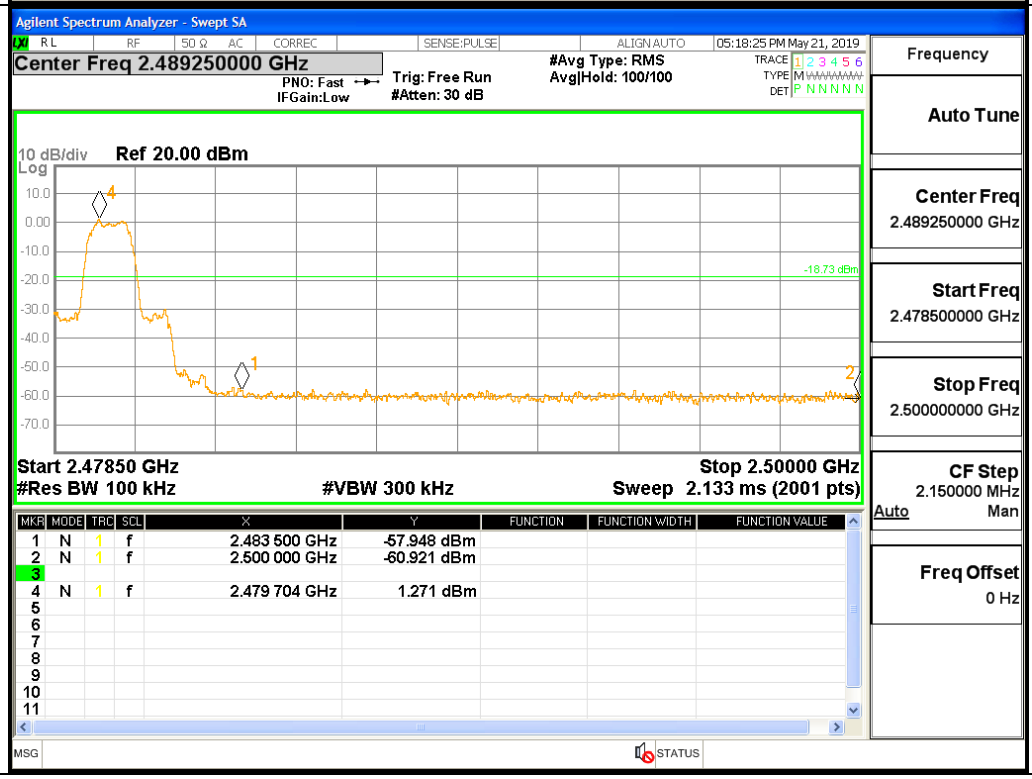
8DPSK/MCH	
8DPSK/HCH	

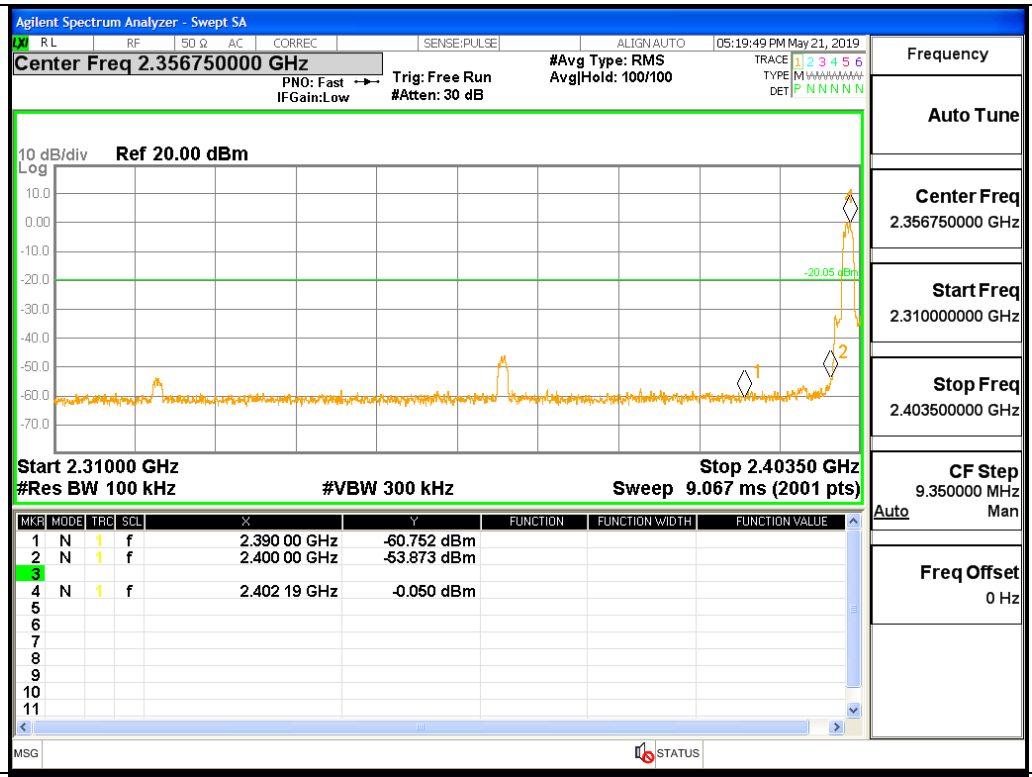
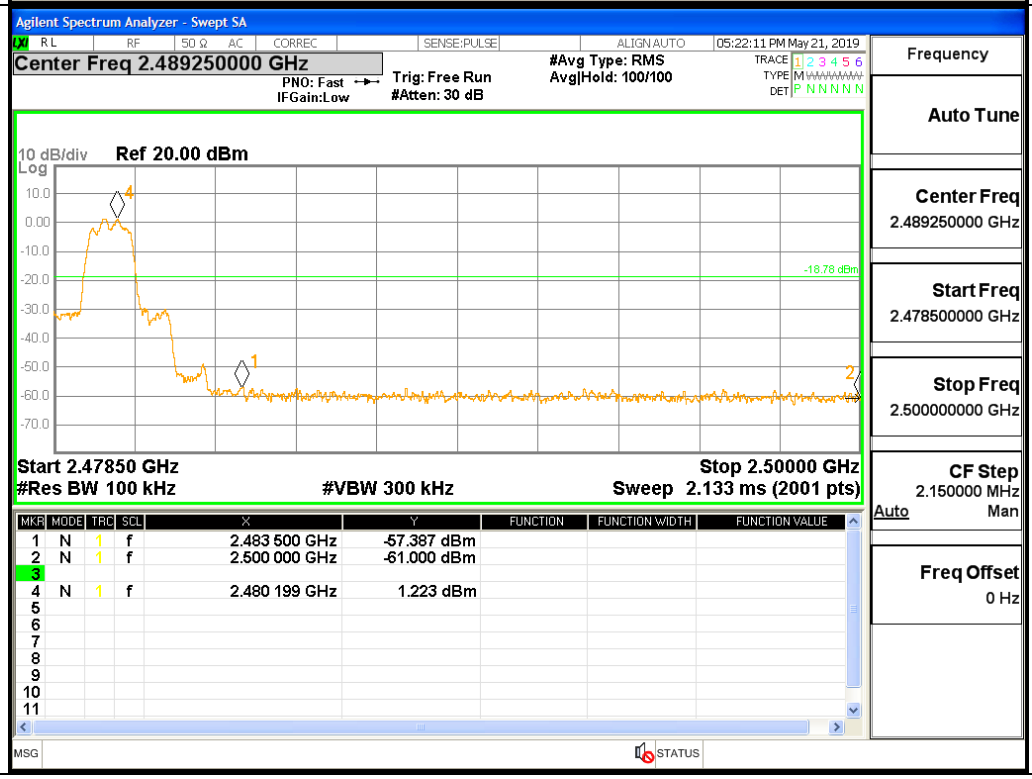
A.6 Band-edge for RF Conducted Emissions

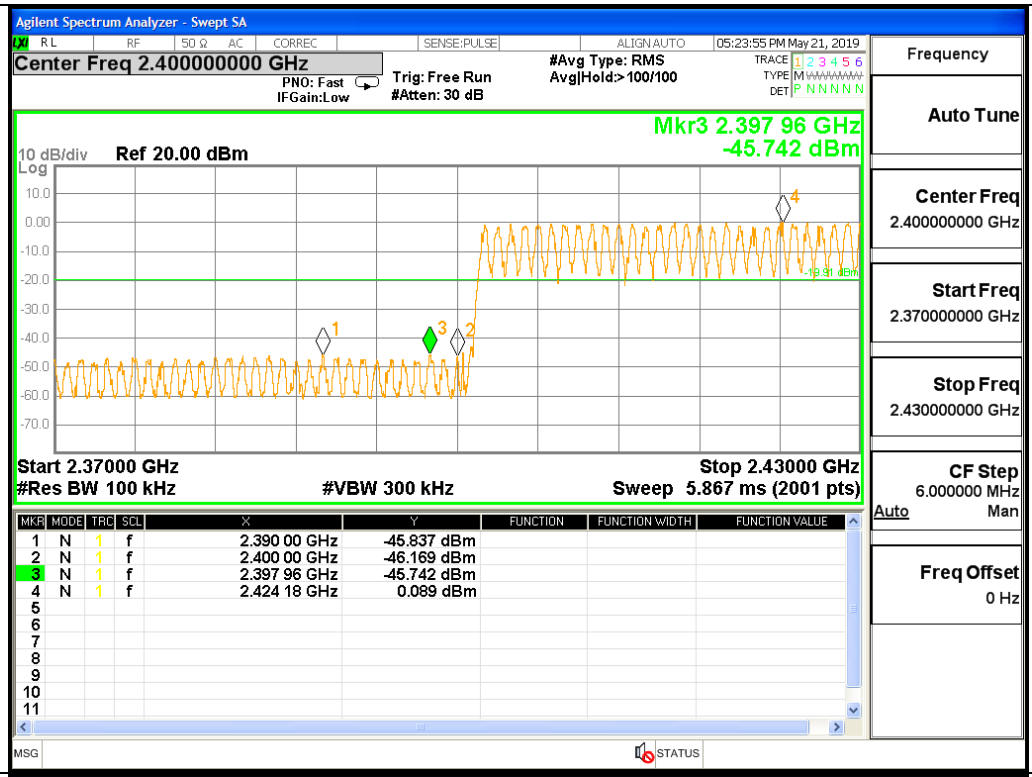
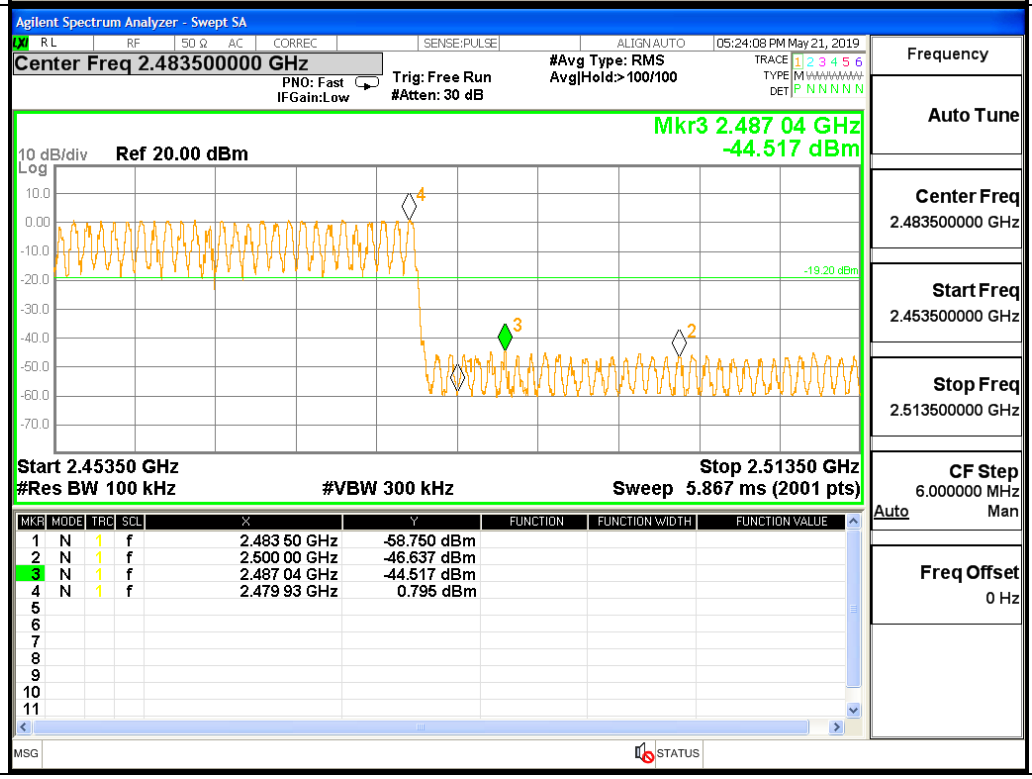
Type	Carrier Frequency(MHz)	Frequency(MHz)	Carrier Frequency Power [dBm]	Bandedge Peak(dBm)	Upper limit(dBm)	Conclusion
1DH5	2402	2396.81	2.317	-54.36	-17.683	Pass
1DH5	2480	2493.37	3.622	-55.95	-16.378	Pass
2DH5	2402	2400.00	-0.167	-54.41	-20.167	Pass
2DH5	2480	2483.50	1.271	-57.95	-18.729	Pass
3DH5	2402	2400.00	-0.050	-53.87	-20.050	Pass
3DH5	2480	2483.50	1.223	-57.39	-18.777	Pass
1DH5-Hopping	2402	2397.96	0.089	-45.74	-19.911	Pass
1DH5-Hopping	2480	2487.04	0.795	-44.52	-19.205	Pass
2DH5-Hopping	2402	2398.08	-3.619	-50.96	-23.619	Pass
2DH5-Hopping	2480	2486.95	-2.690	-48.48	-22.690	Pass
3DH5-Hopping	2402	2399.88	-3.552	-51.27	-23.552	Pass
3DH5-Hopping	2480	2488.18	-2.827	-48.92	-22.827	Pass

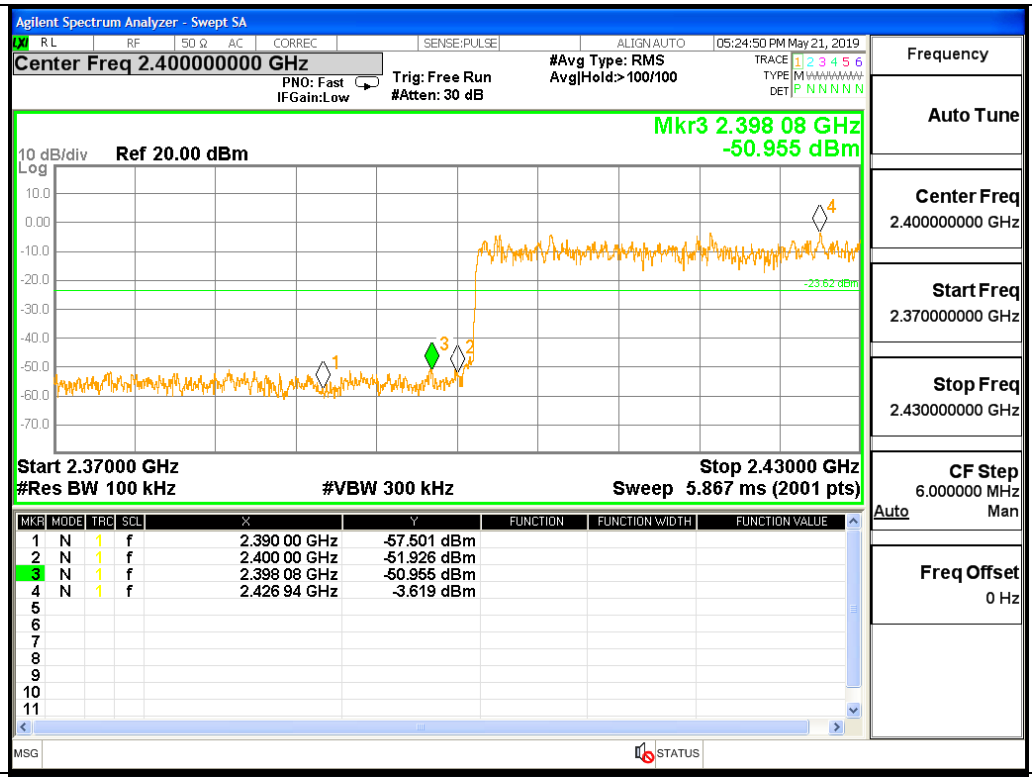
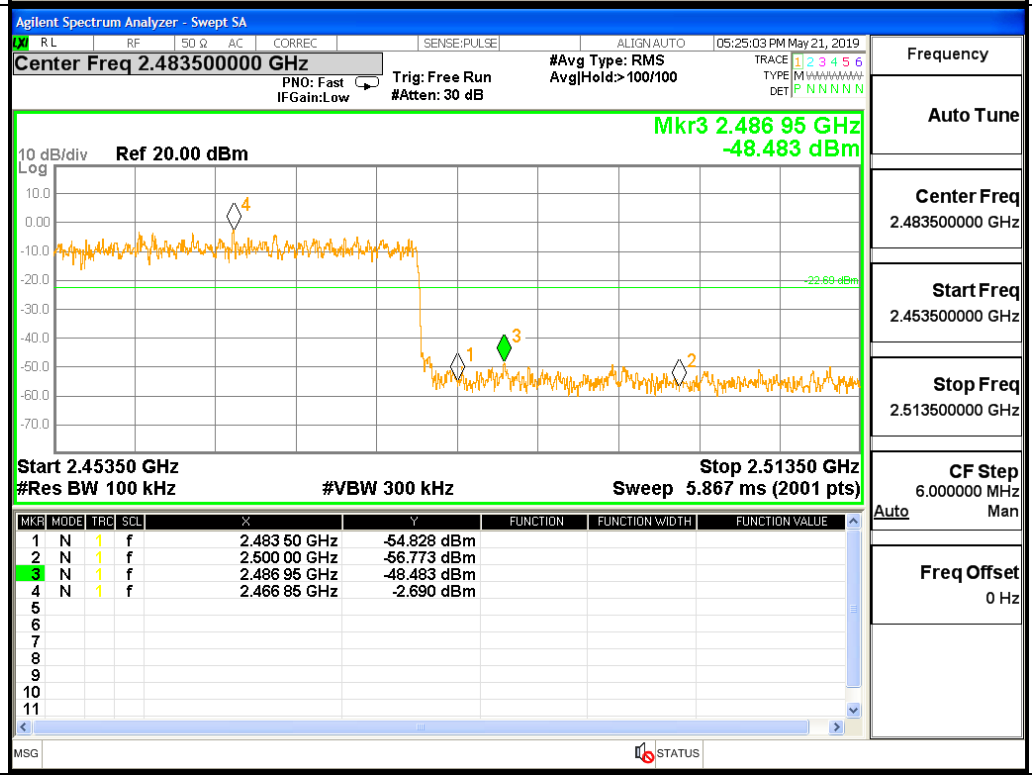
Test Graph

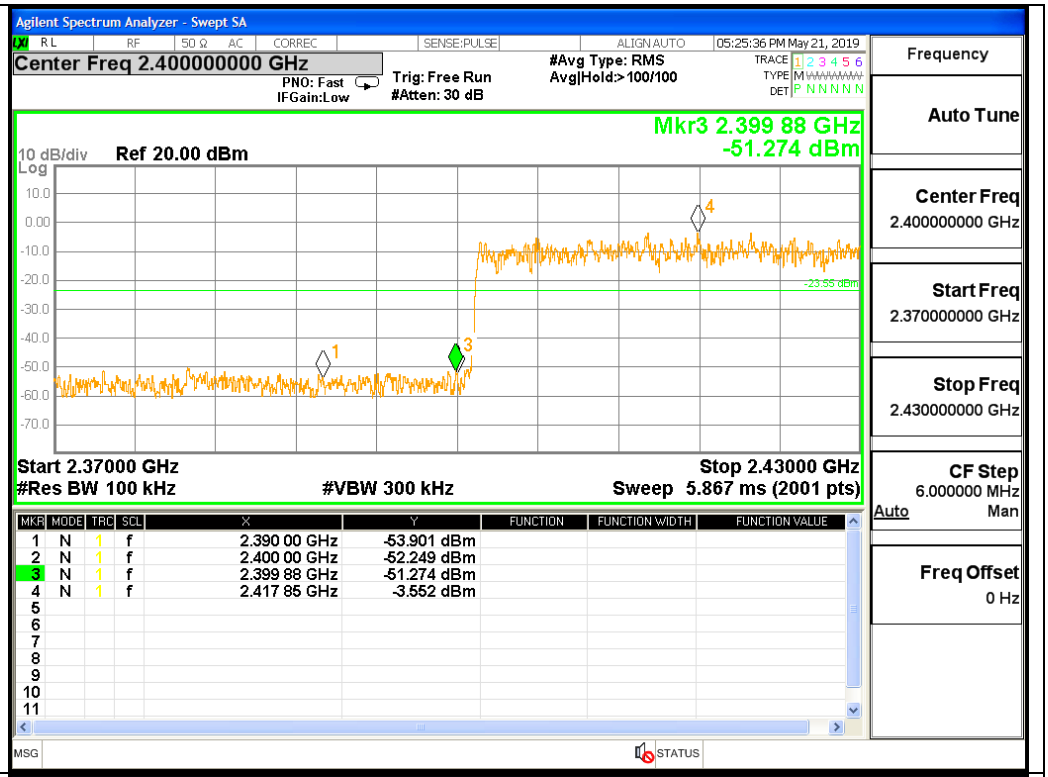
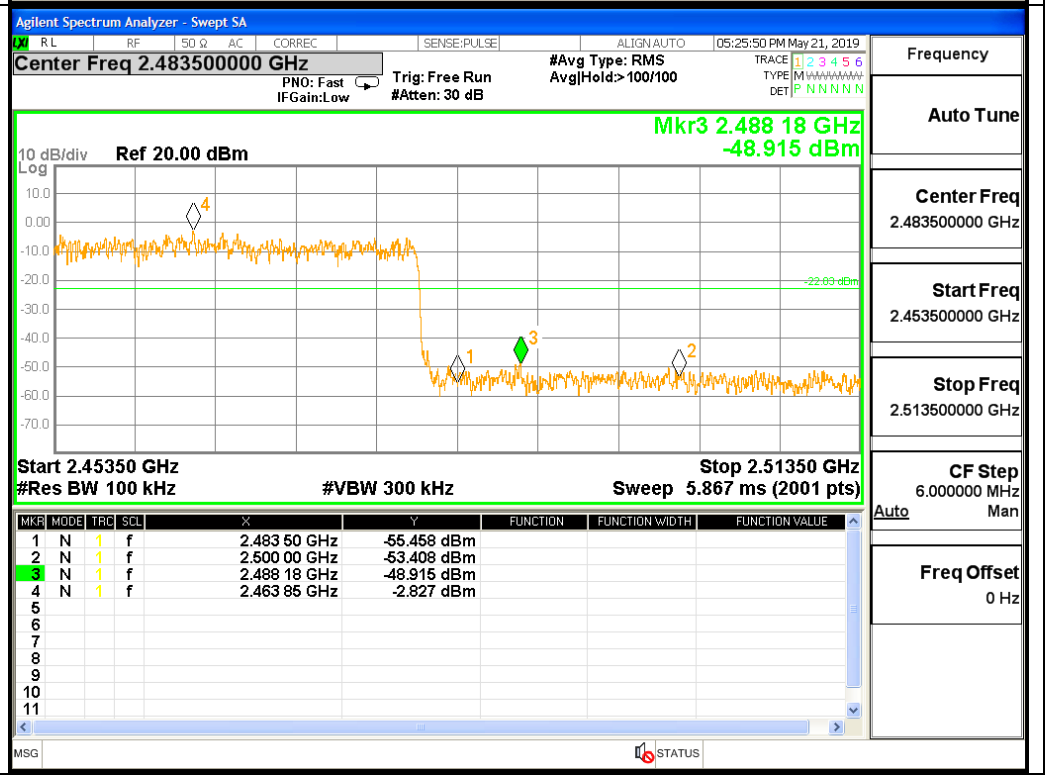
Graphs	
GFSK/LCH/No Hop	
GFSK/HCH/No Hop	

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

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

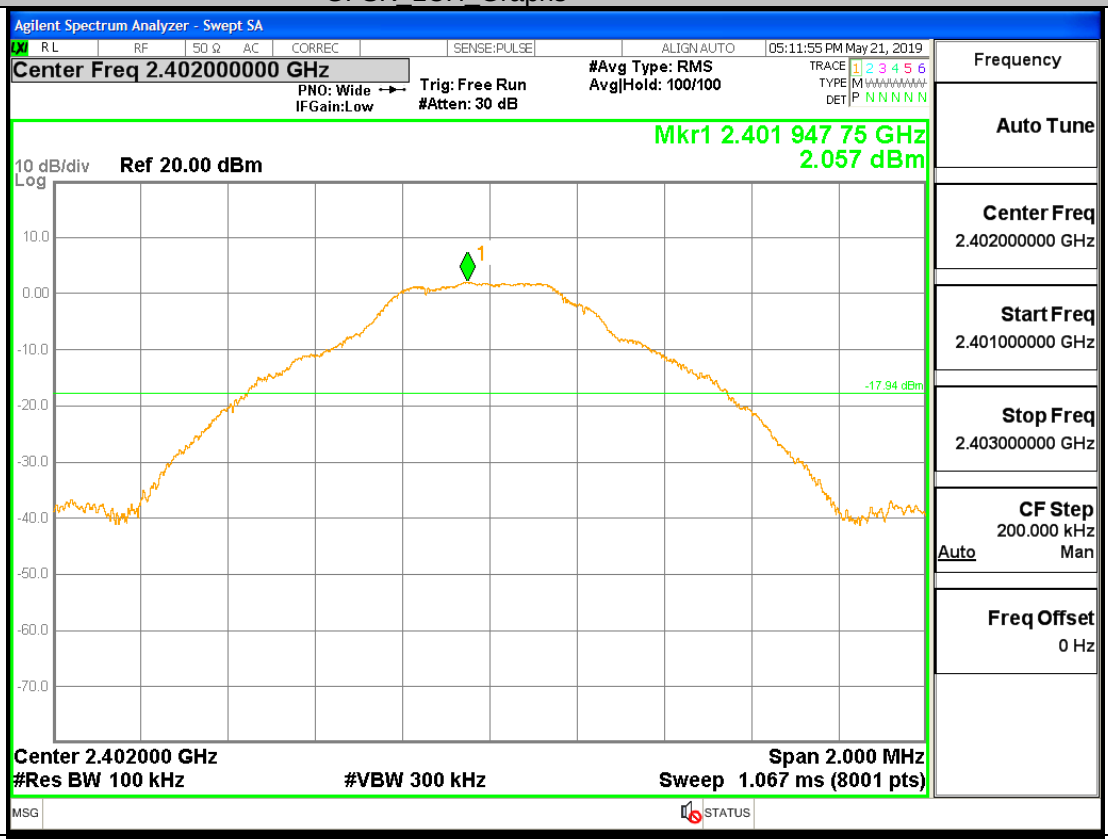
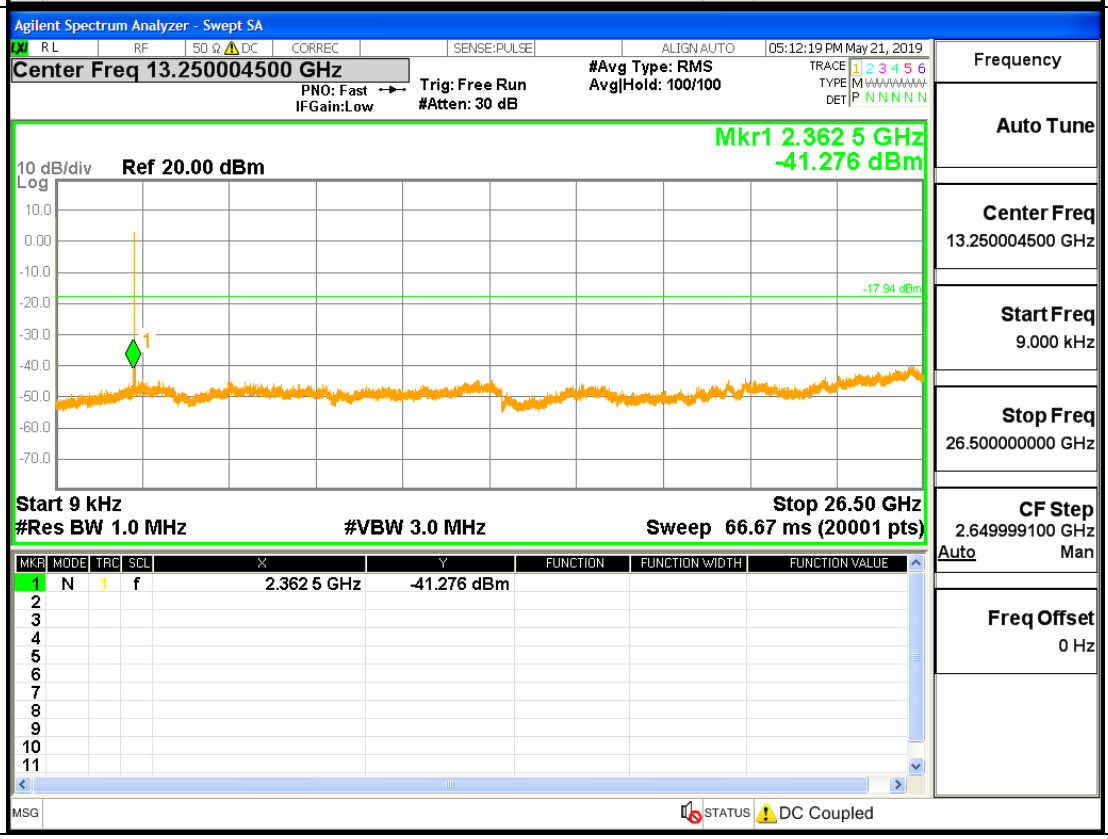
GFSK/LCH/Hop	
GFSK/HCH/Hop	

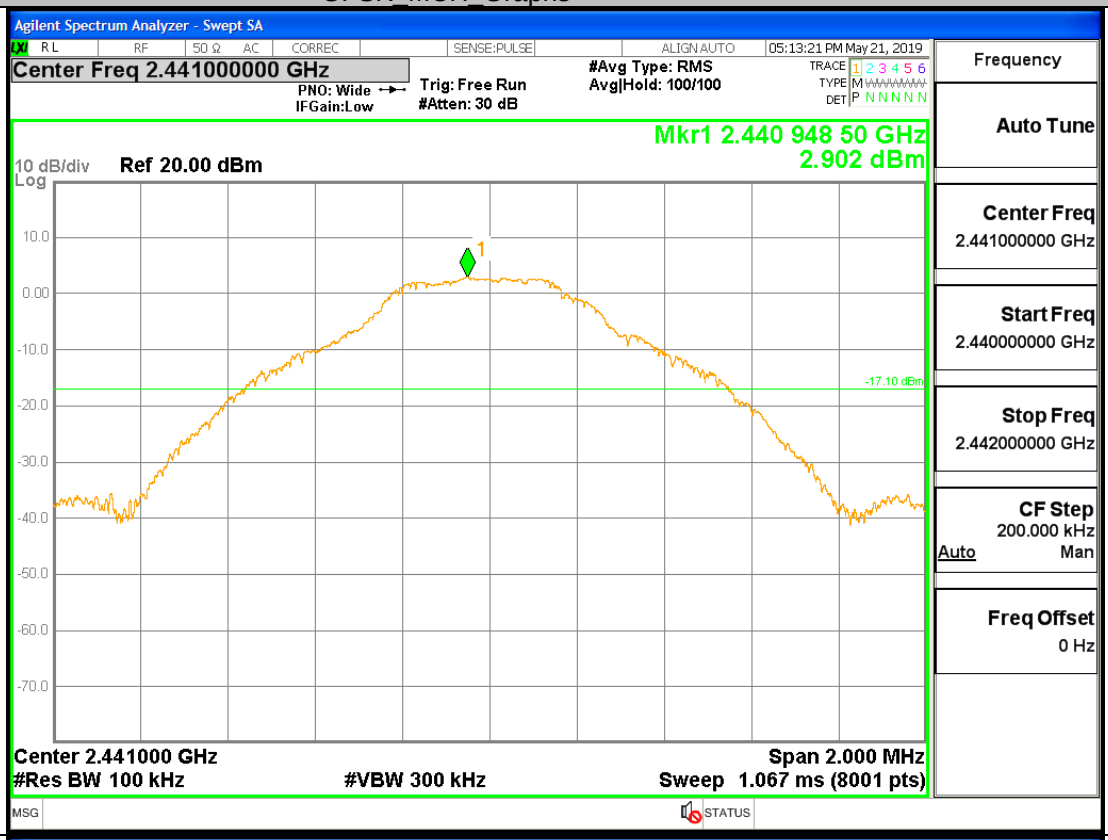
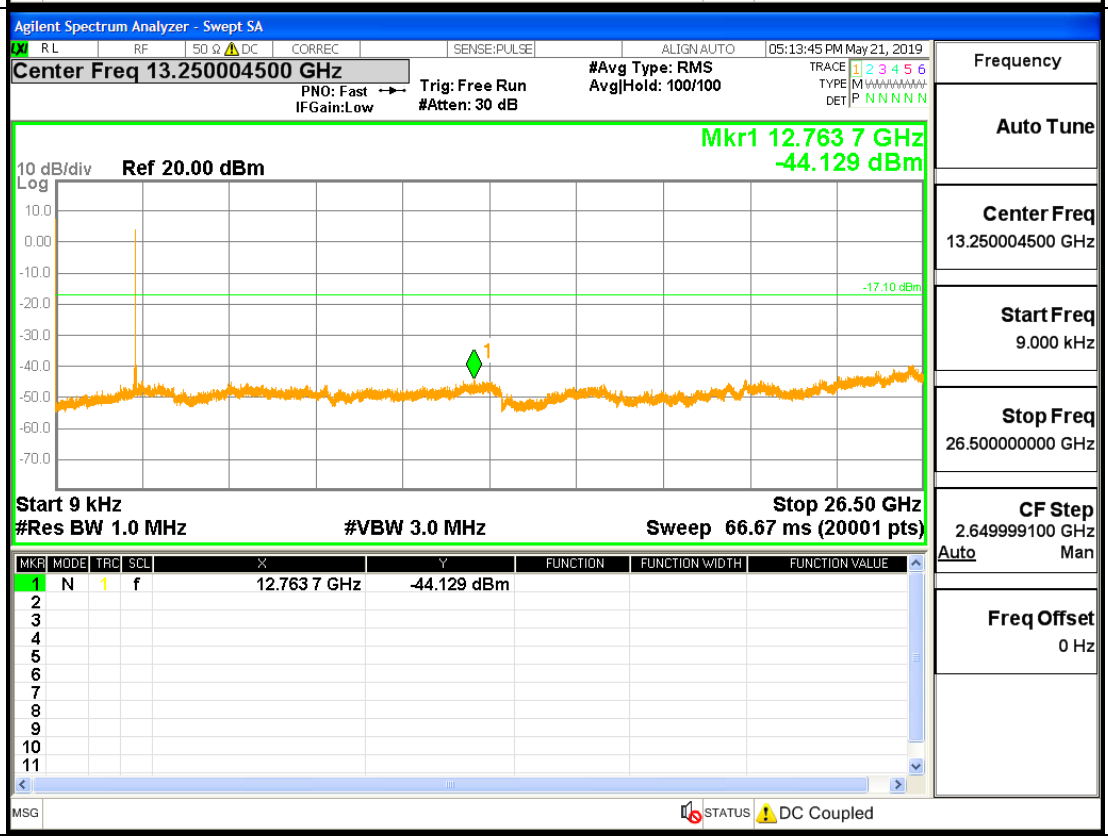
π /4DQPSK/LCH/Hop	
π /4DQPSK/HCH/Hop	

8DPSK/LCH/Hop	
8DPSK/HCH/Hop	

A.7 RF Conducted Spurious Emissions

Test Graph

GFSK_LCH_Graphs	
Pref	
Puw	

GFSK_MCH_Graphs	
Pref	
Puw	

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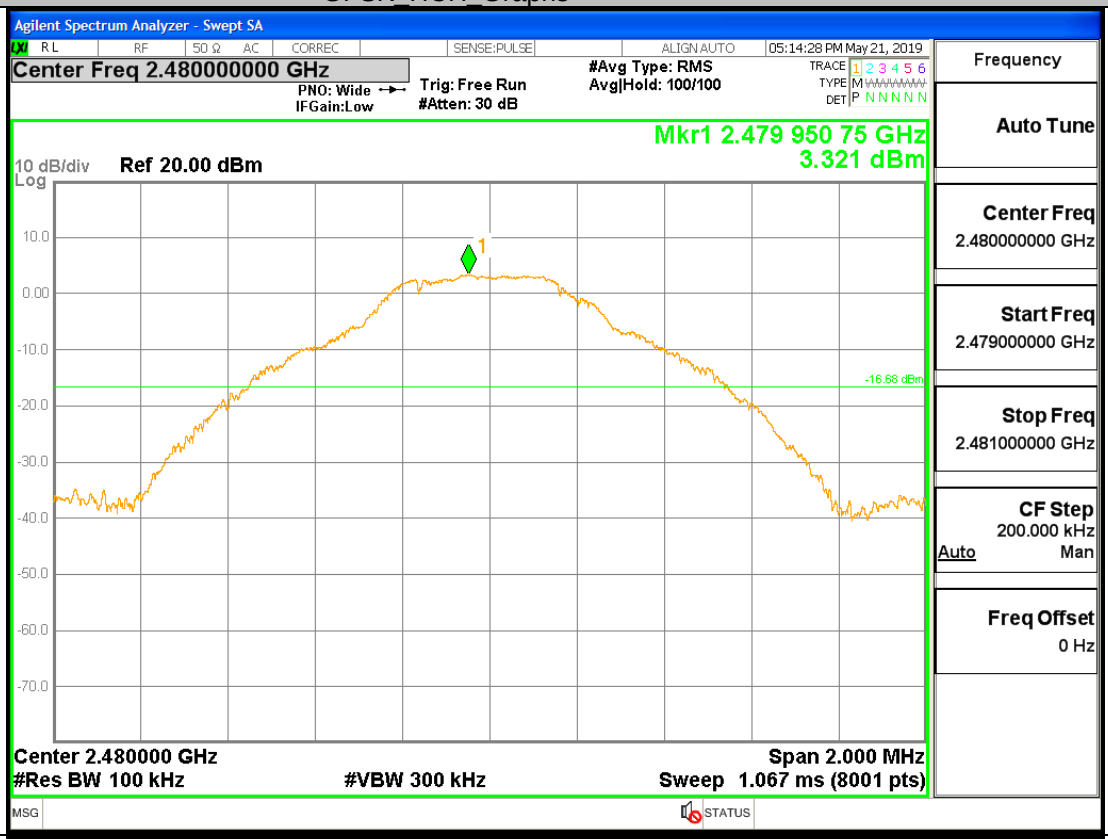
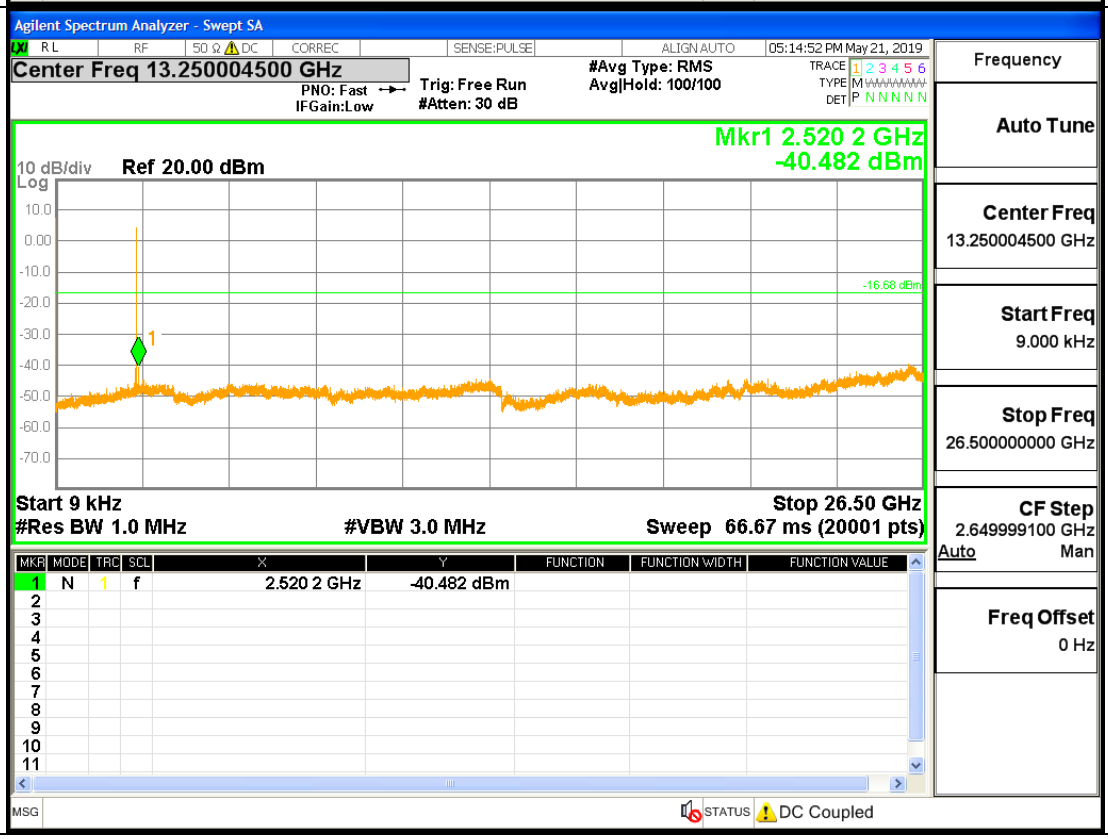
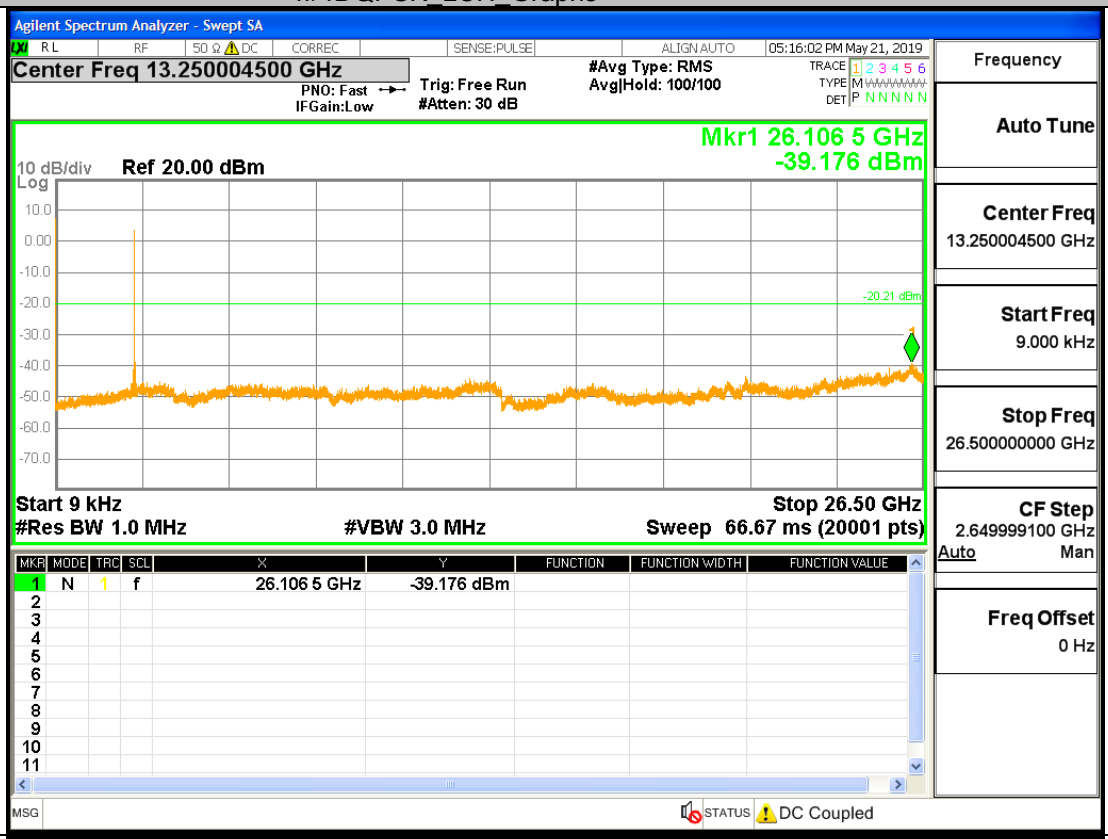
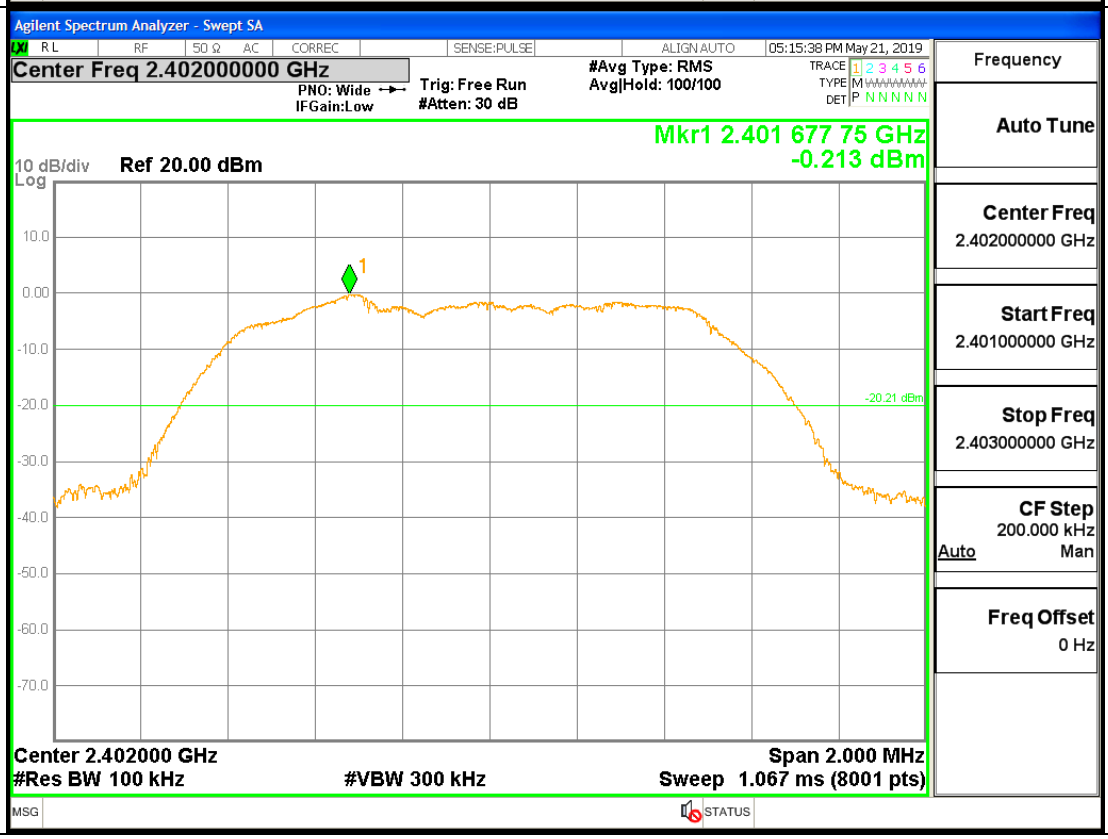
Pref	
Puw	

π/4DQPSK_LCH_Graphs	
Pref	
Puw	

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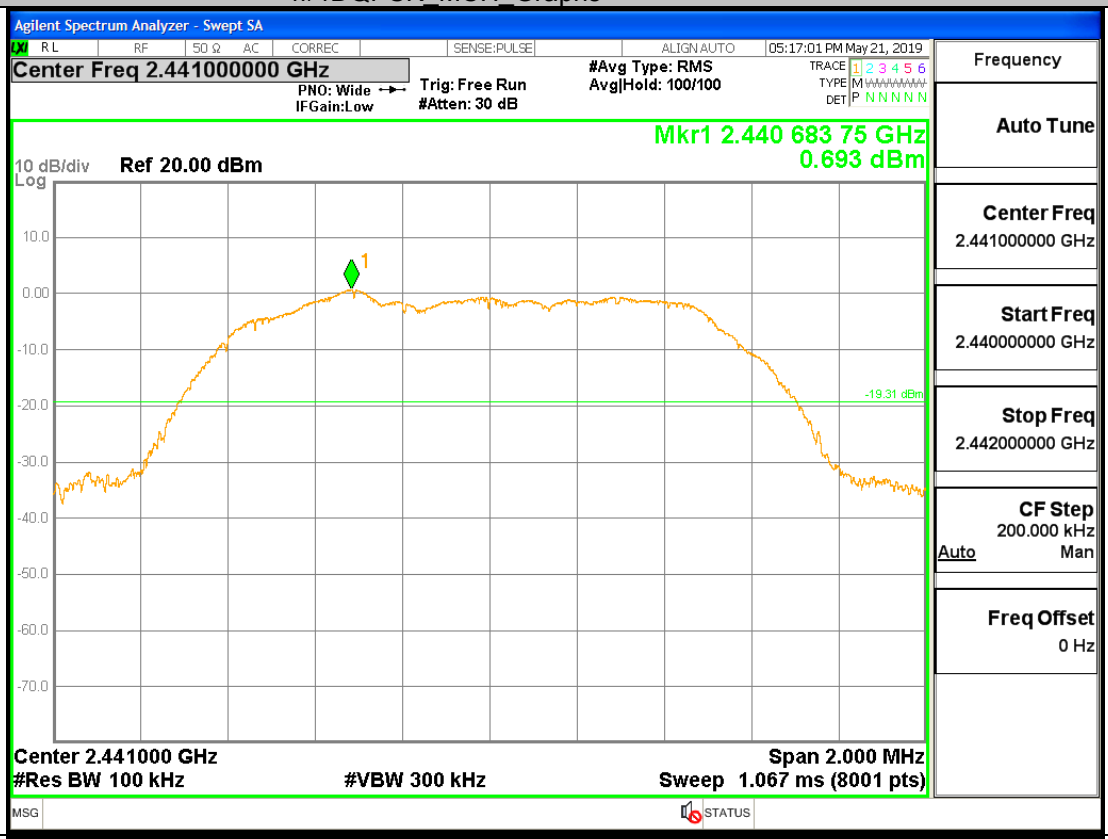
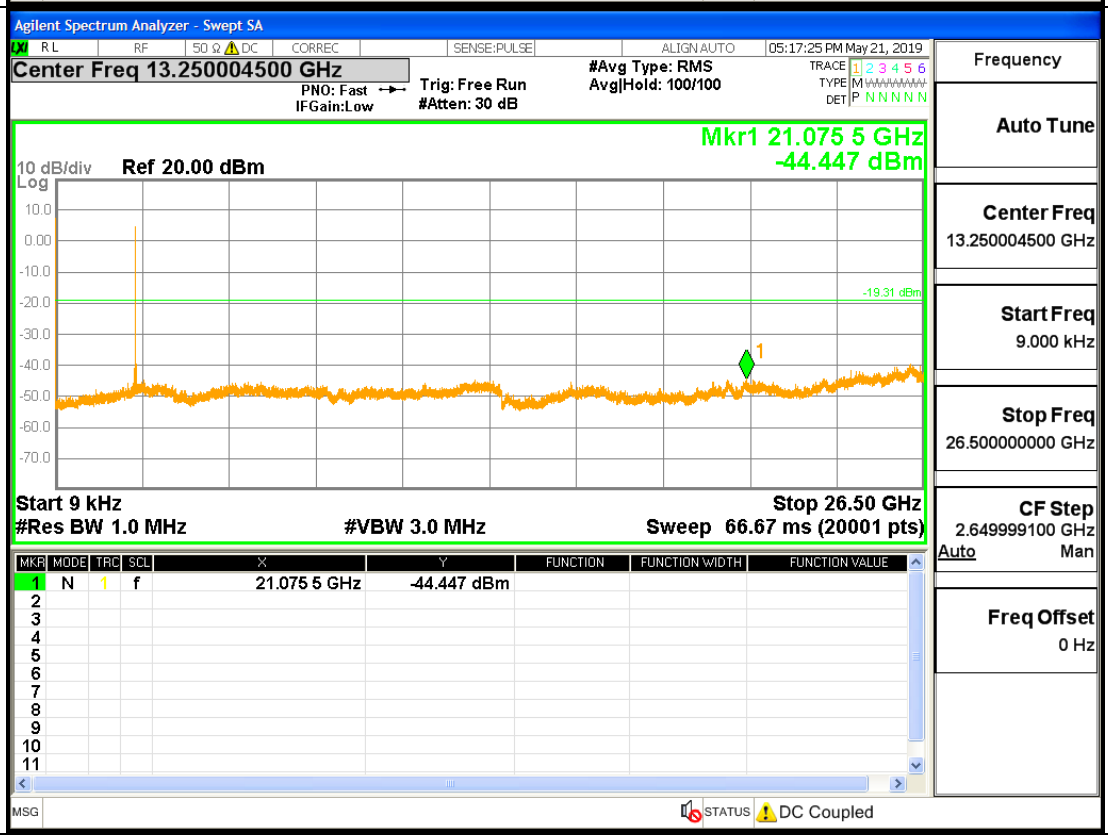
Pref	
Puw	

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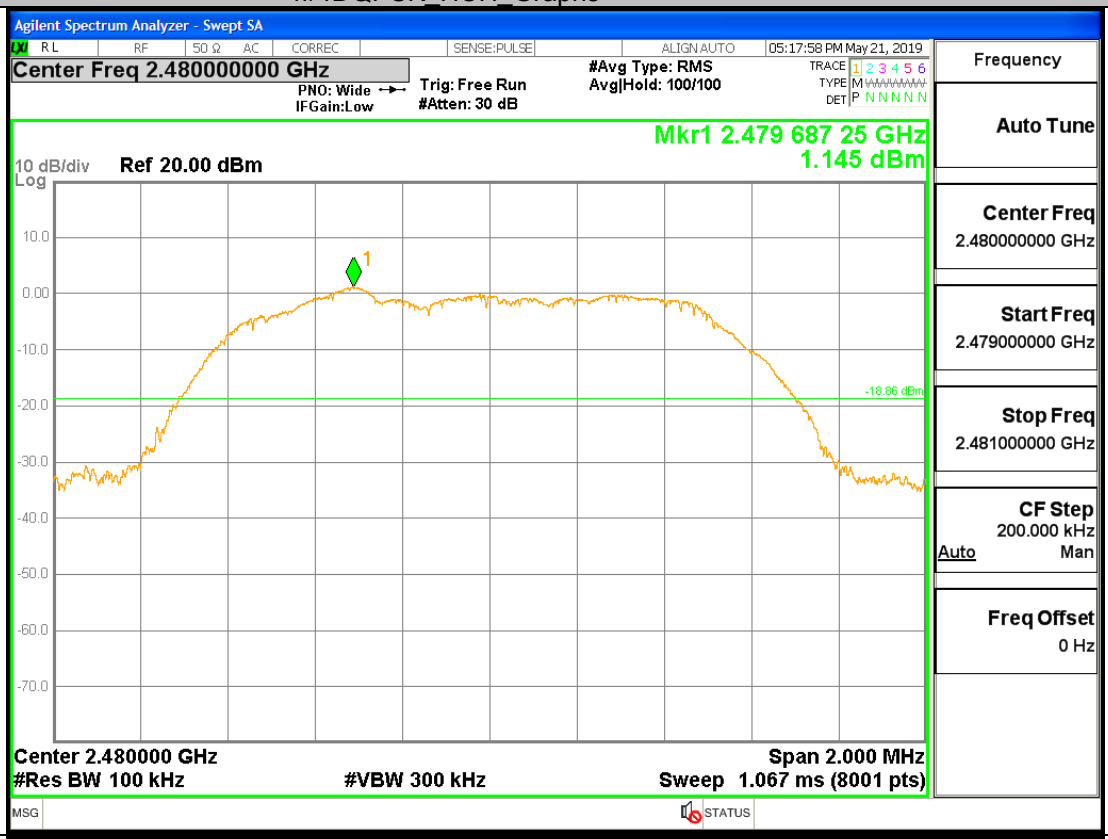
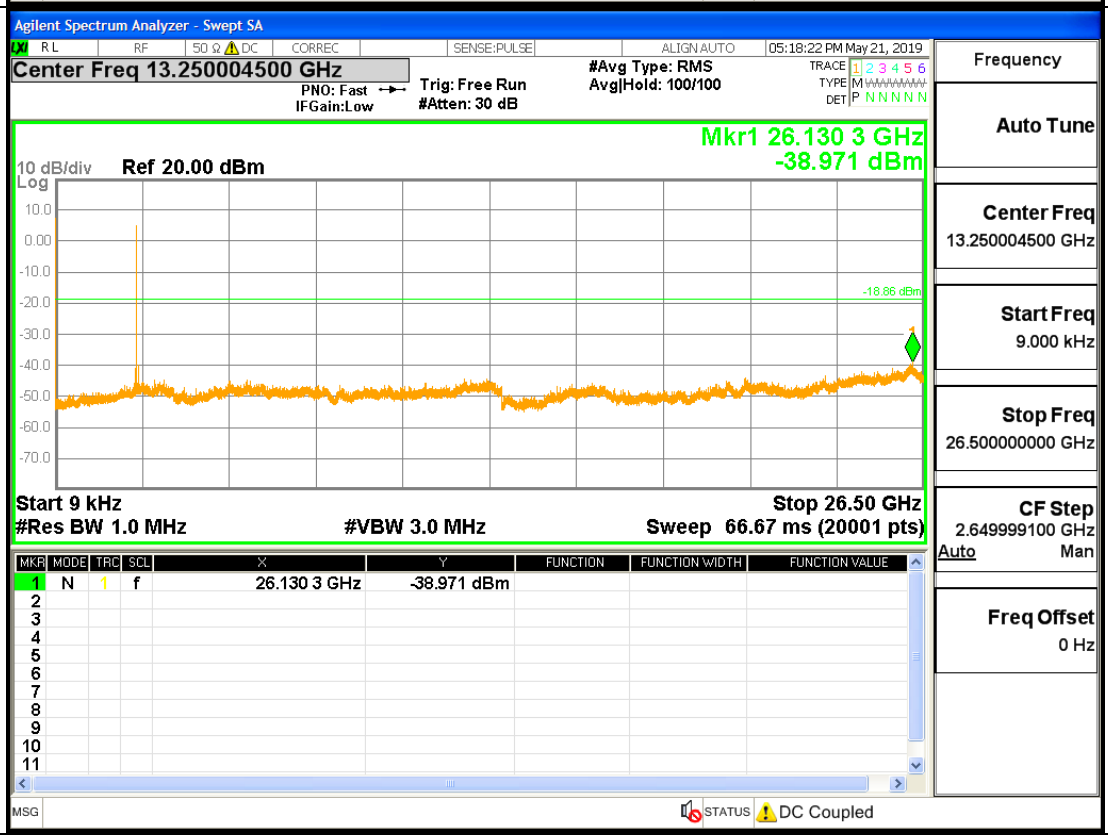
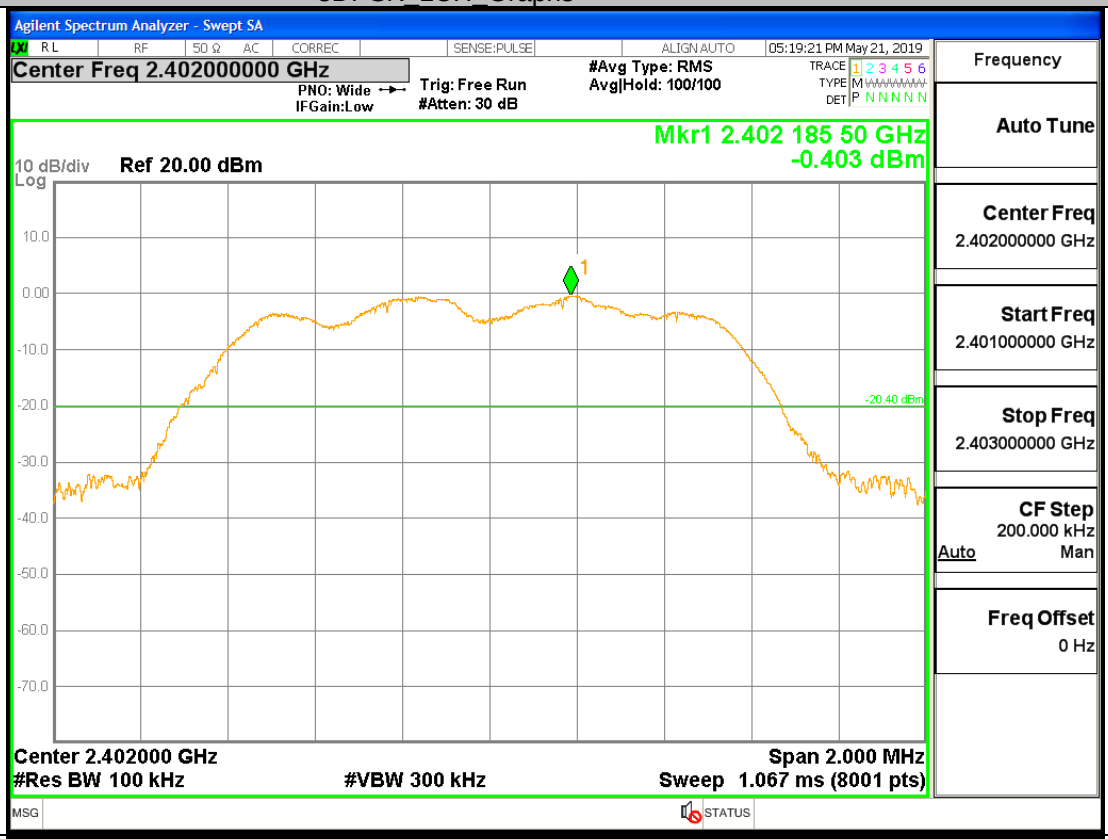
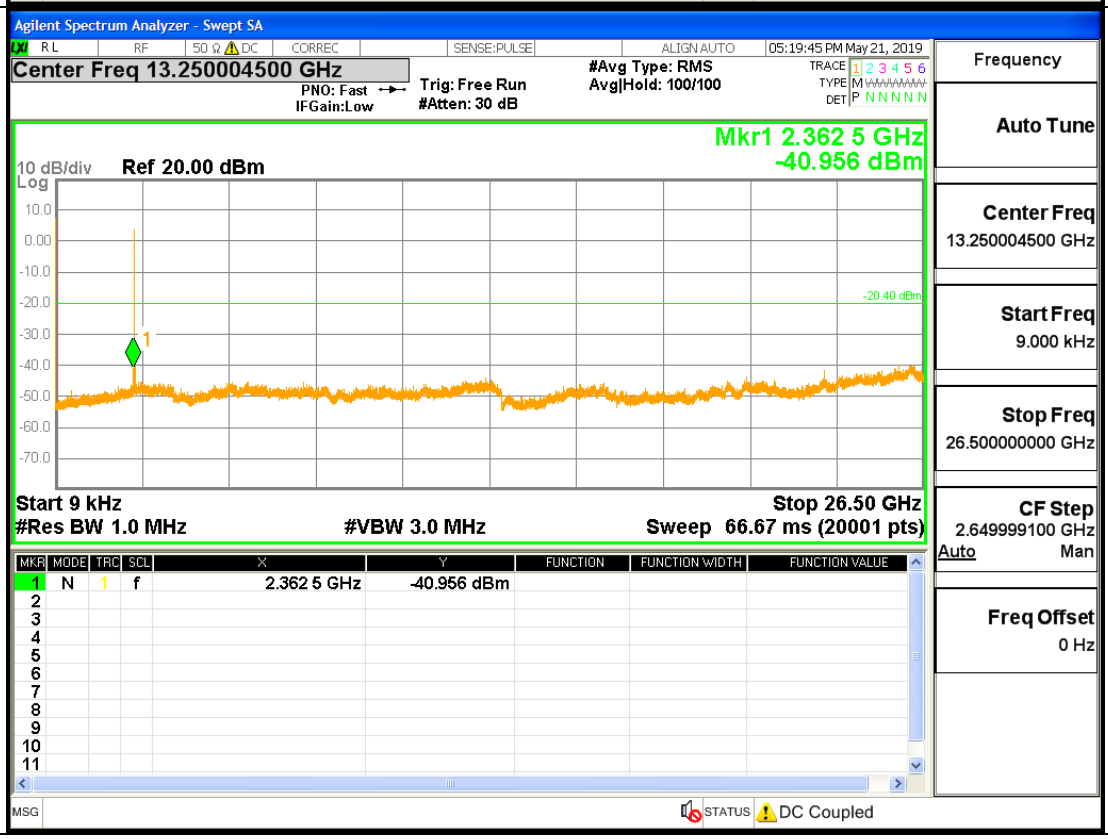
Pref	
Puw	

8DPSK_LCH_Graphs	
Pref	
Puw	

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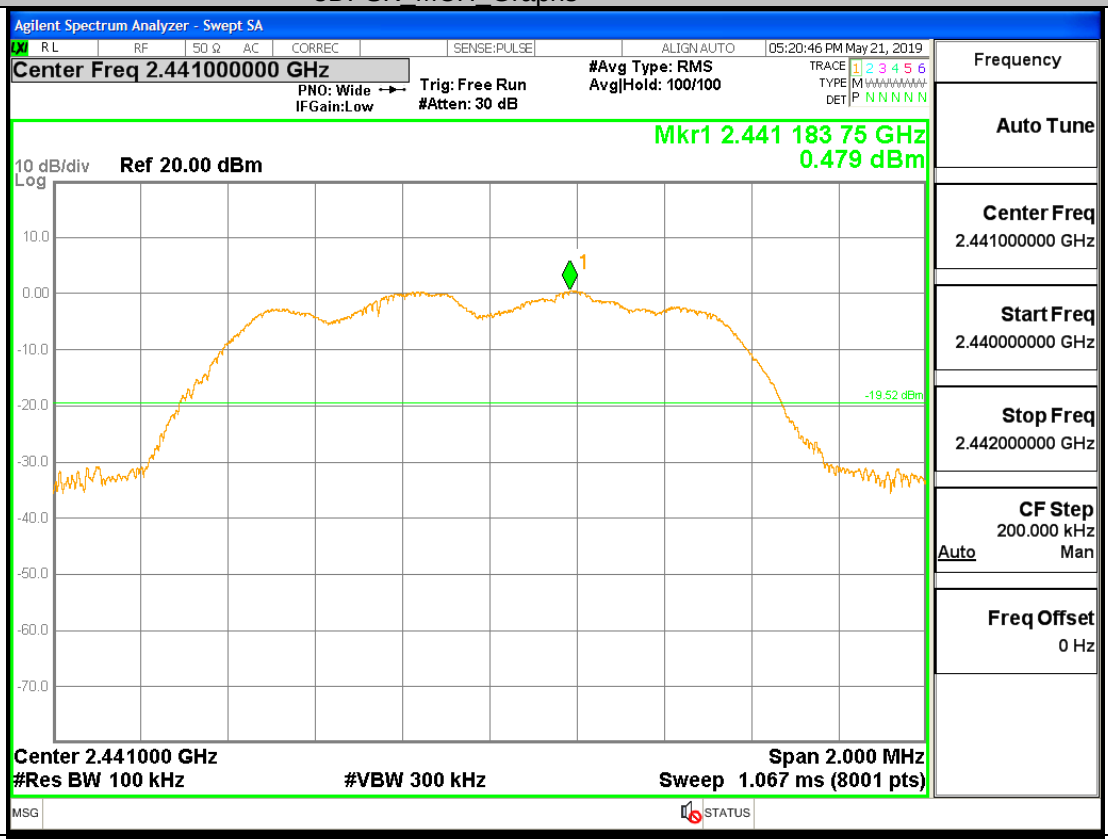
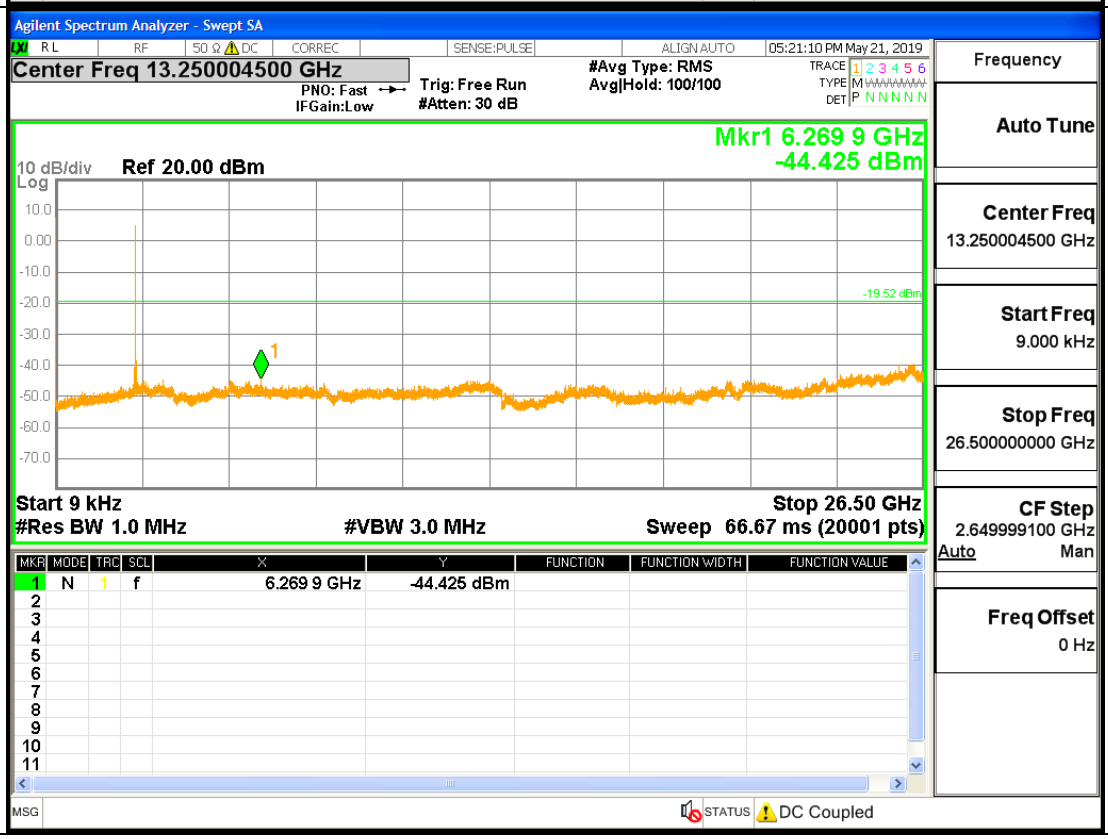
Pref	
Puw	

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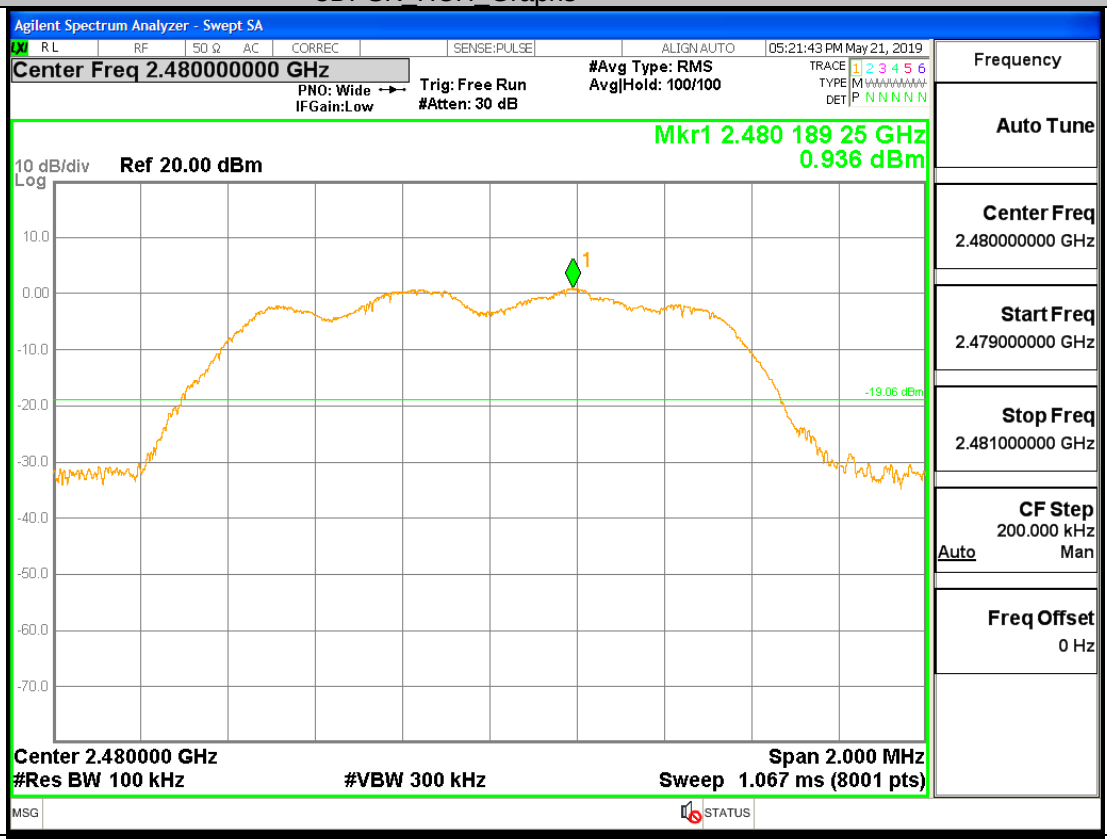
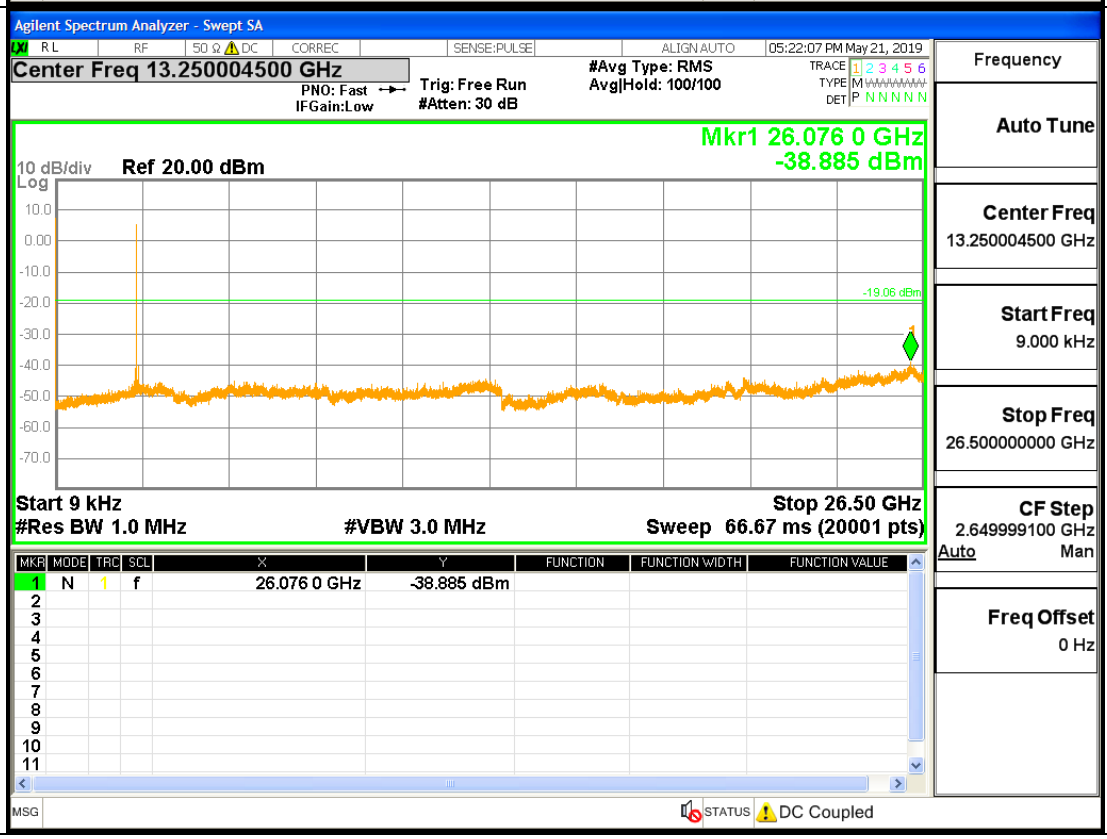
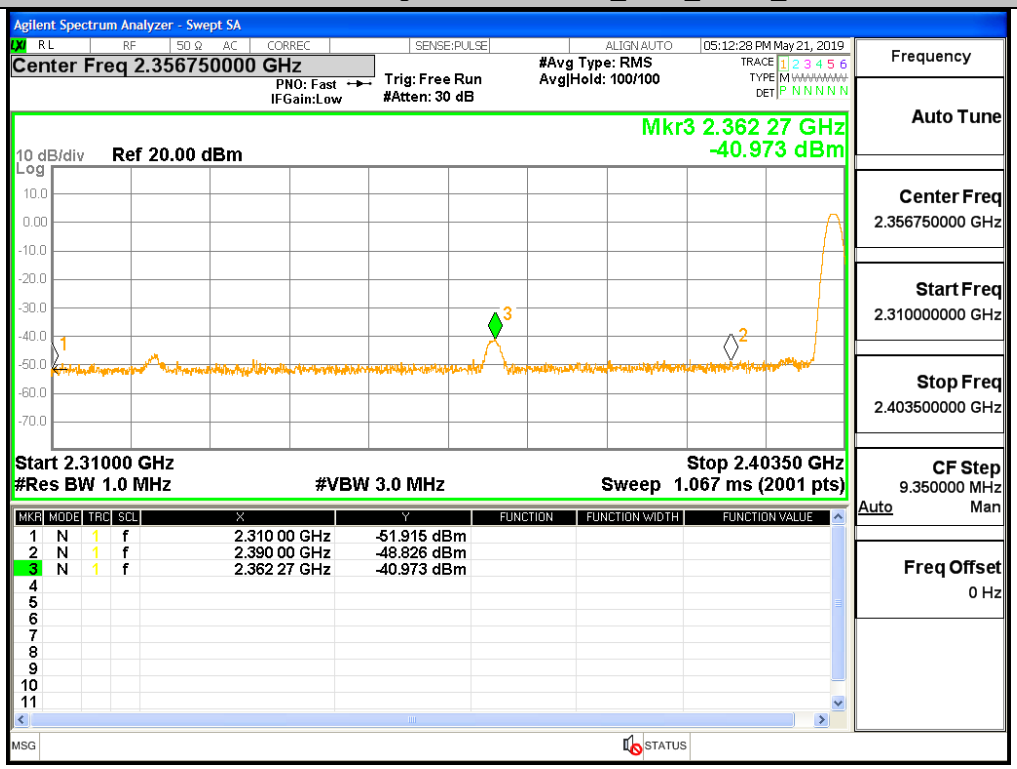
Pref	
Puw	

A.8 Restrict-band band-edge measurements

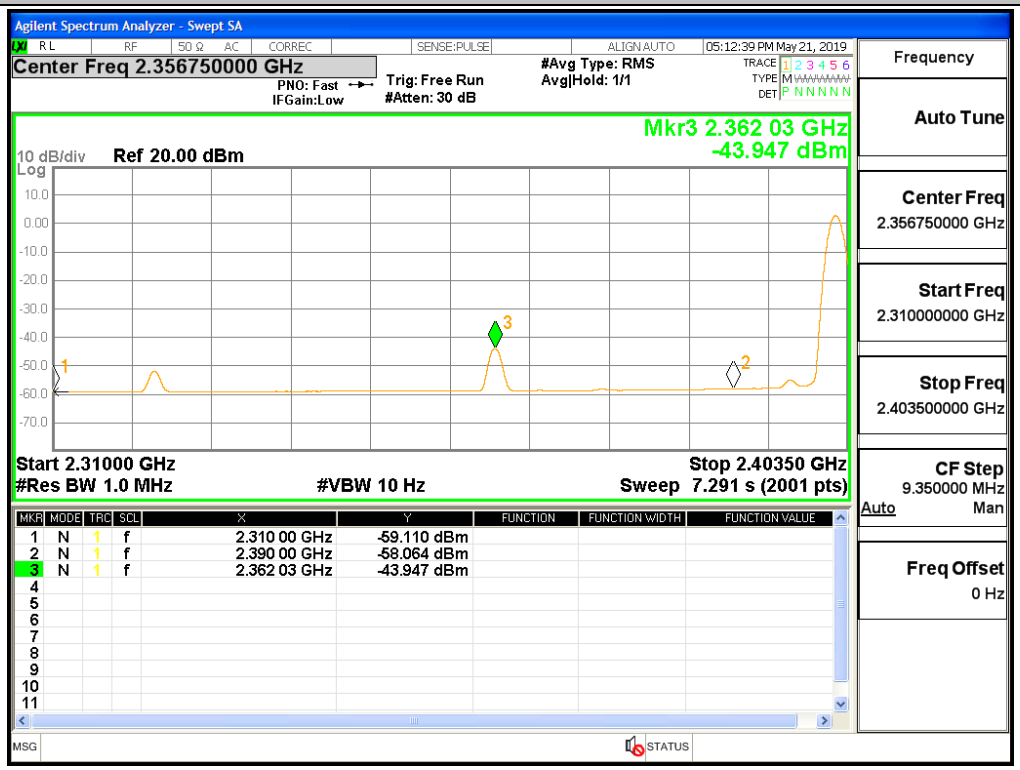
Type	Carrier Frequency (MHz)	Frequency(MHz)	Gain	Ground Factor	Peak Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2362.3	2.00	0.00	-40.97	56.23	74	Pass
1DH5	2480	2483.5	2.00	0.00	-49.27	47.93	74	Pass
2DH5	2402	2361.8	2.00	0.00	-41.12	56.08	74	Pass
2DH5	2480	2483.5	2.00	0.00	-49.23	47.97	74	Pass
3DH5	2402	2362.1	2.00	0.00	-41.26	55.94	74	Pass
3DH5	2480	2483.5	2.00	0.00	-49.15	48.05	74	Pass

Type	Carrier Frequency (MHz)	Frequency(MHz)	Gain	Ground Factor	Average Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2362.0	2.00	0.00	-43.95	53.25	54	Pass
1DH5	2480	2483.5	2.00	0.00	-53.90	43.30	54	Pass
2DH5	2402	2362.0	2.00	0.00	-45.31	51.89	54	Pass
2DH5	2480	2483.5	2.00	0.00	-52.55	44.65	54	Pass
3DH5	2402	2362.0	2.00	0.00	-45.31	51.89	54	Pass
3DH5	2480	2483.5	2.00	0.00	-52.38	44.82	54	Pass

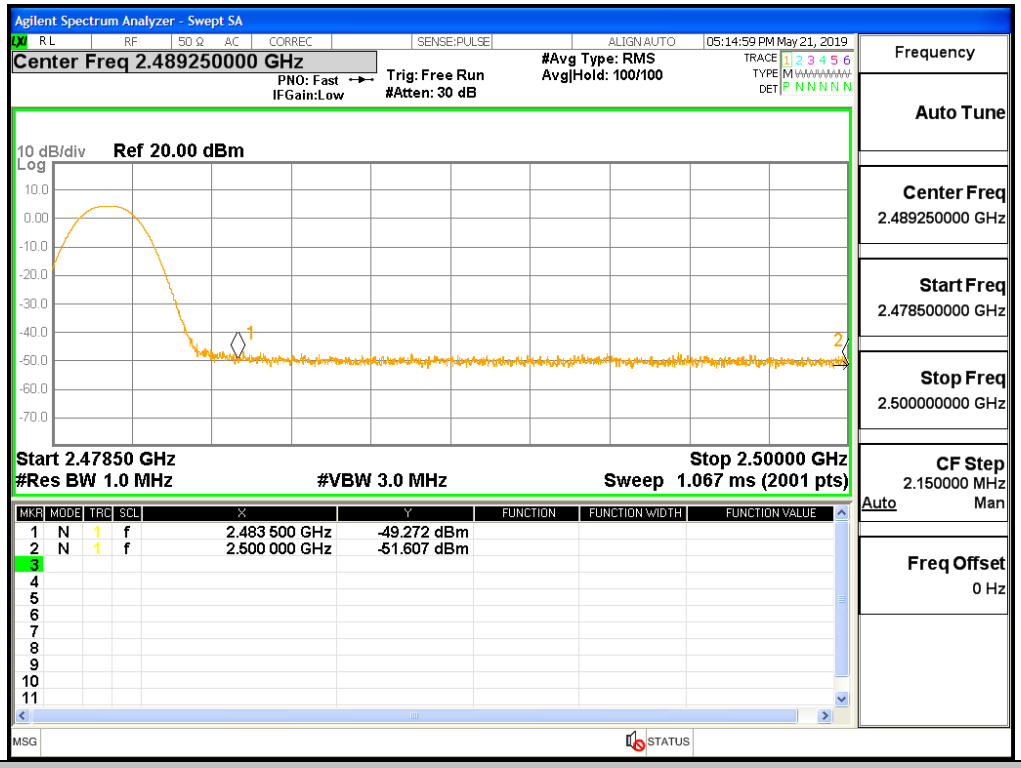
Restrict-band band-edge measurements_2402_PEAK_DH5



Restrict-band band-edge measurements_2402_AV_DH5

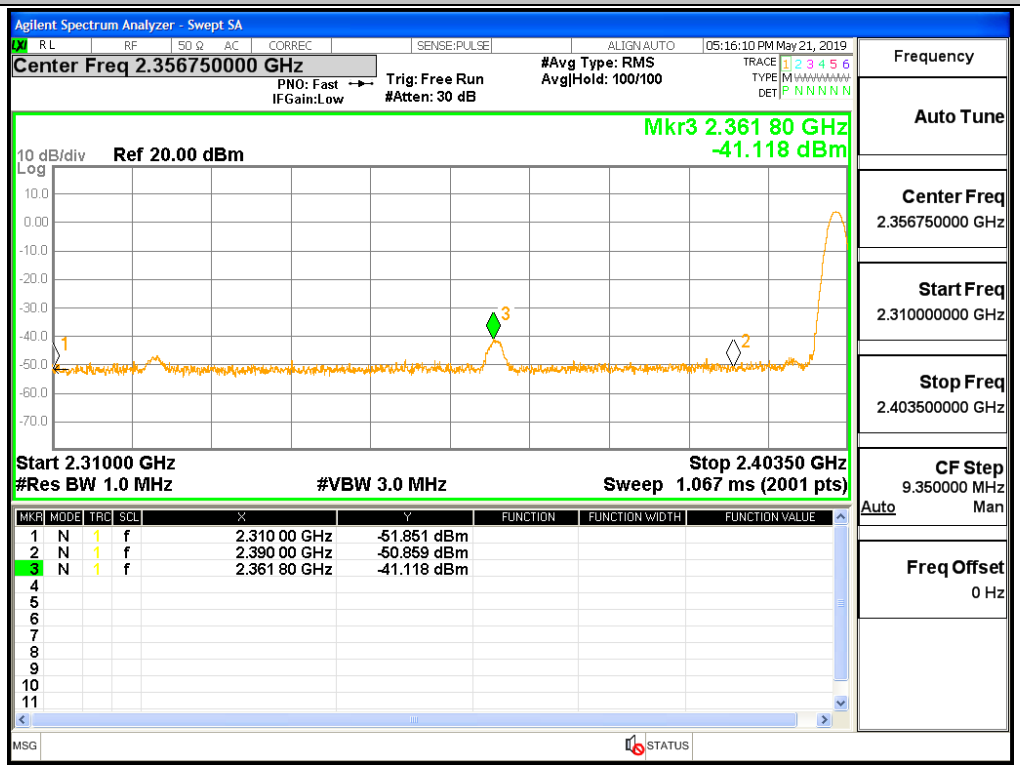


Restrict-band band-edge measurements_2480_PEAK_DH5

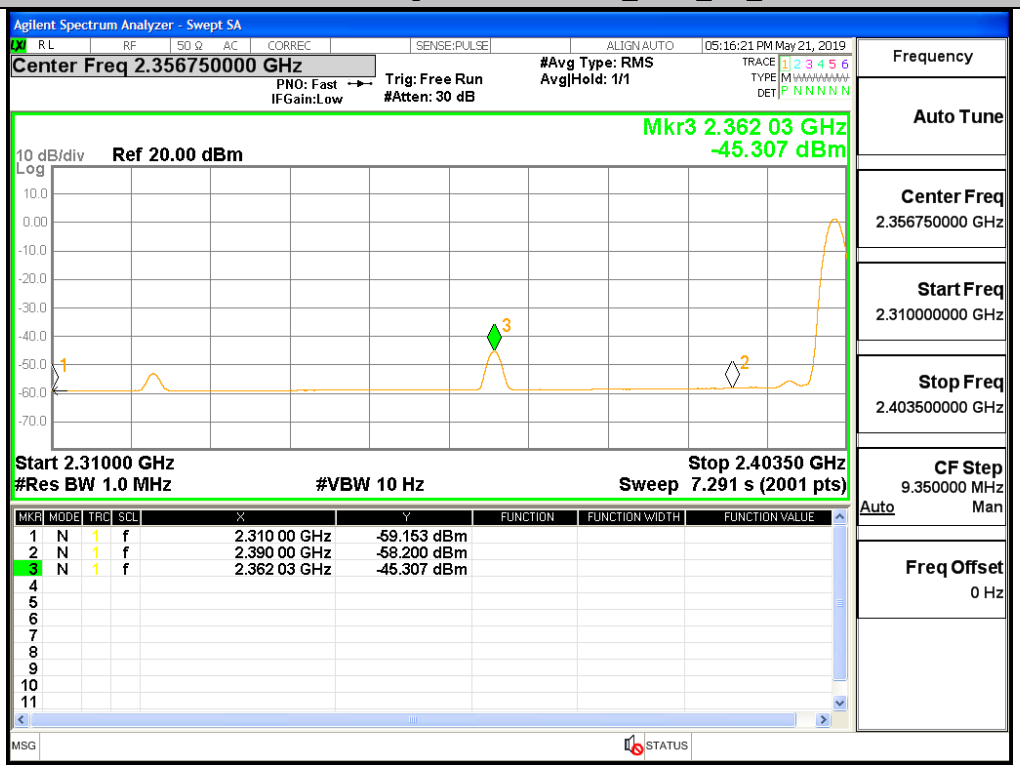


Restrict-band band-edge measurements_2480_AV_DH5

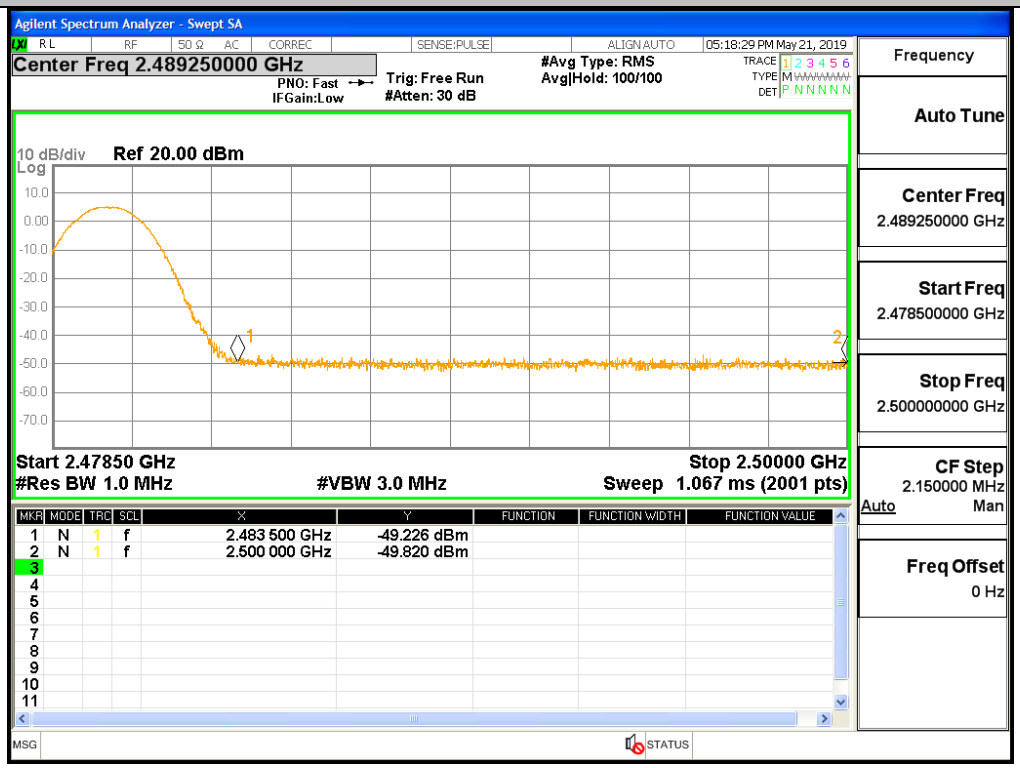
Restrict-band band-edge measurements_2402_PEAK_2DH5



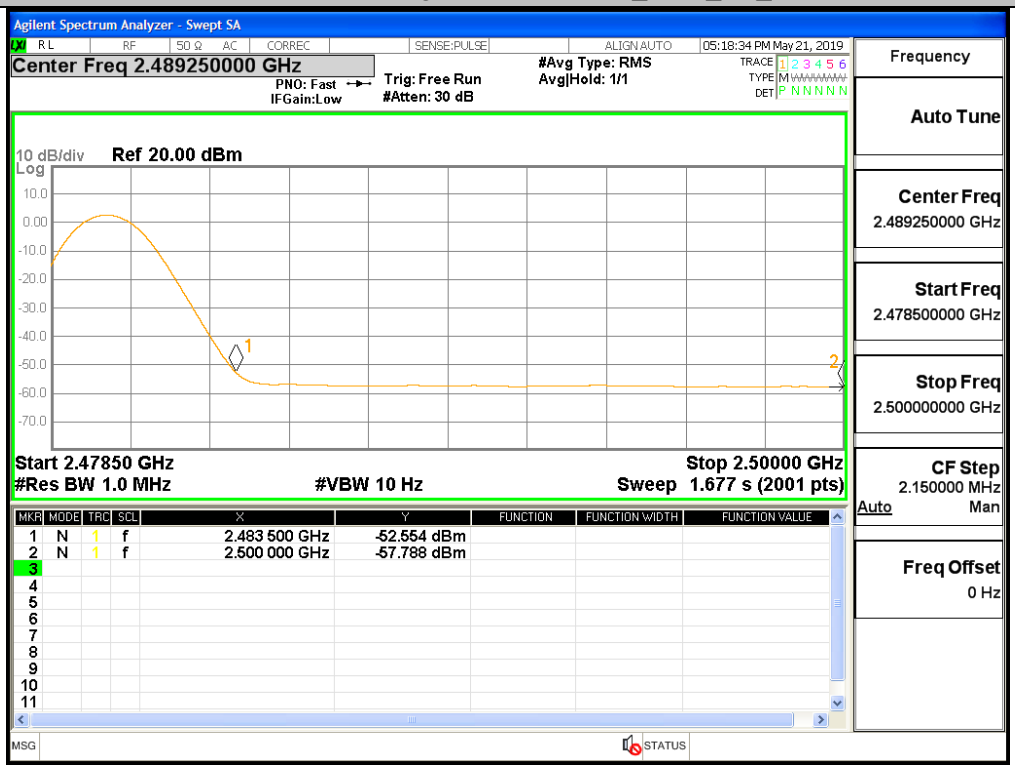
Restrict-band band-edge measurements_2402_AV_2DH5



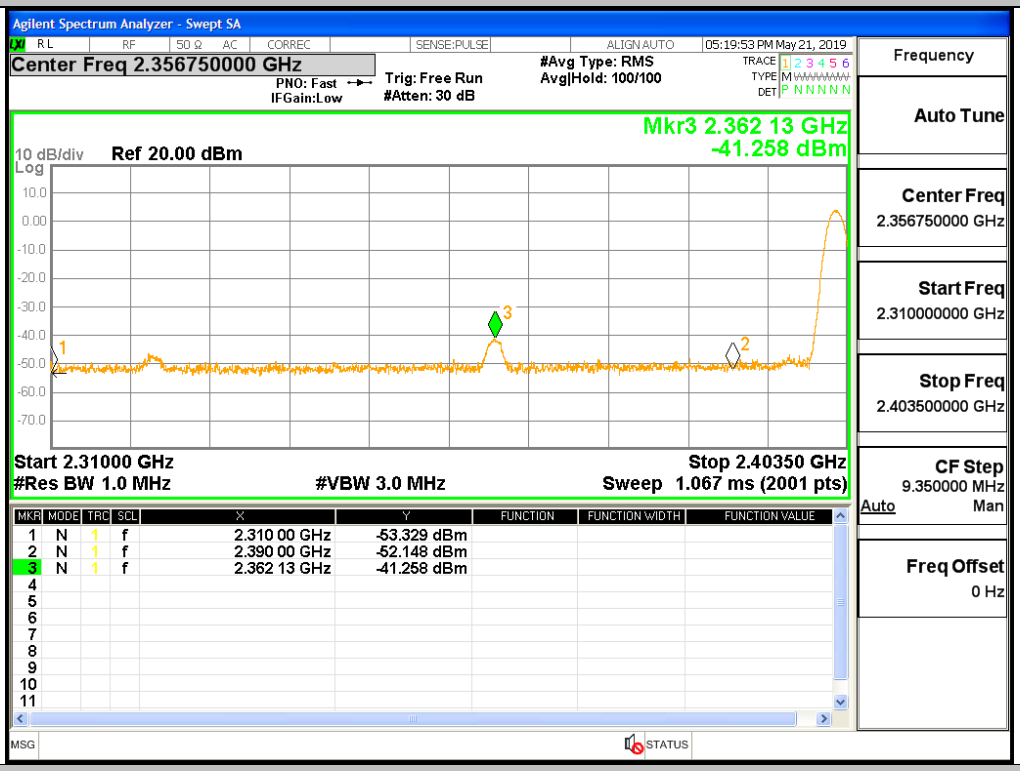
Restrict-band band-edge measurements_2480_PEAK_2DH5



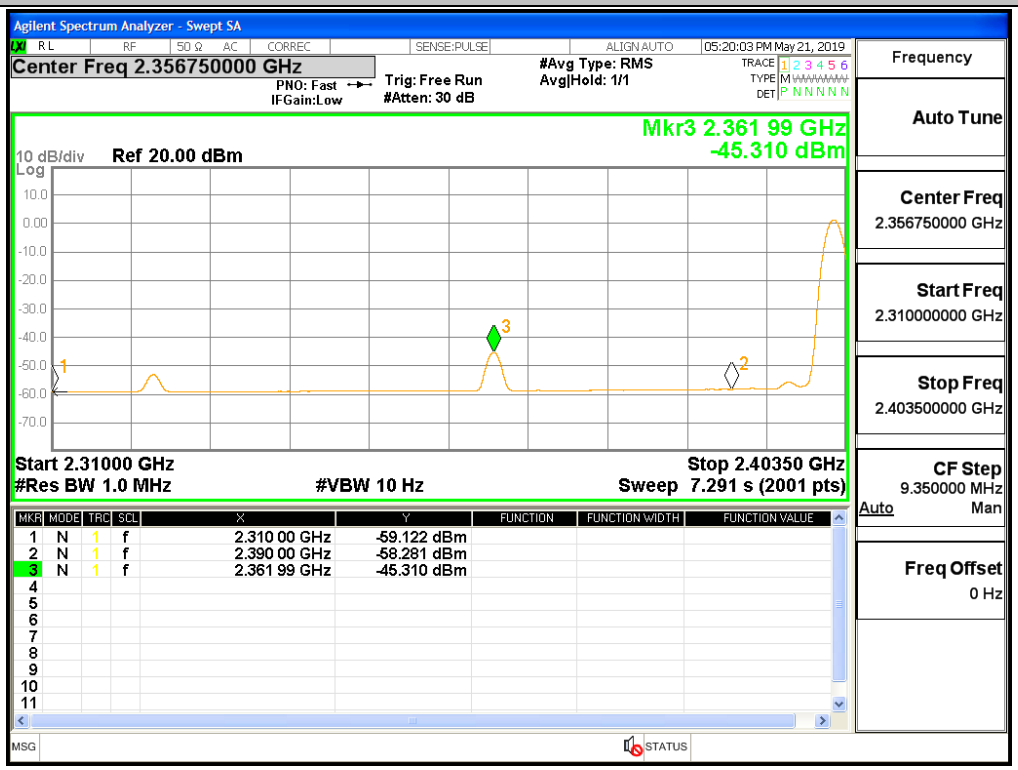
Restrict-band band-edge measurements_2480_AV_2DH5



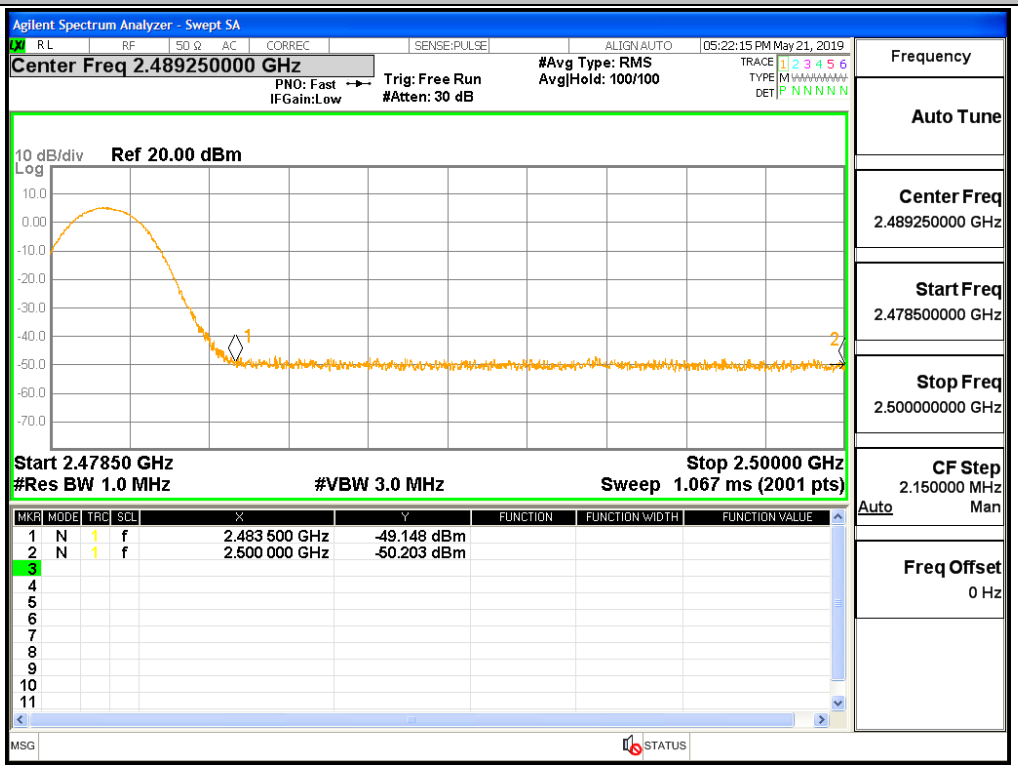
Restrict-band band-edge measurements_2402_PEAK_3DH5



Restrict-band band-edge measurements_2402_AV_3DH5



Restrict-band band-edge measurements_2480_PEAK_3DH5



Restrict-band band-edge measurements_2480_AV_3DH5