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

Product Name: TRUE WIRELESS EARBUDS WITH CHARGING CASE

Trade Mark: N/A

Test Model:RT18

FCC ID: QIF-RT18

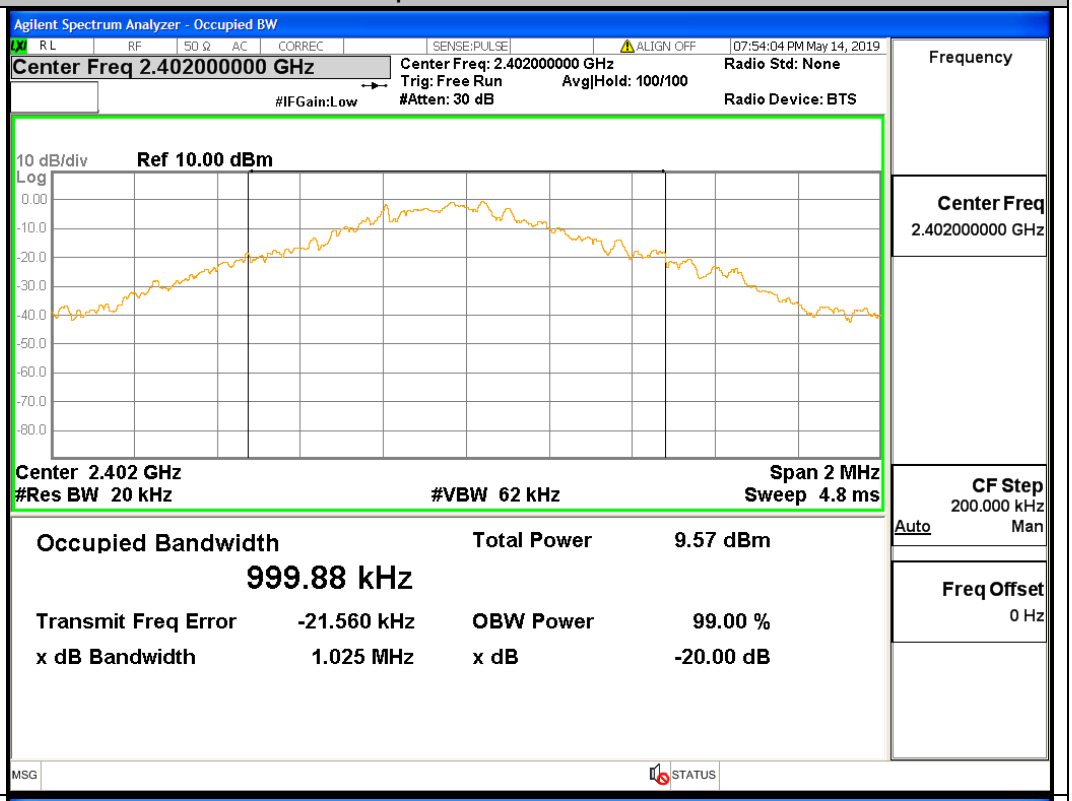
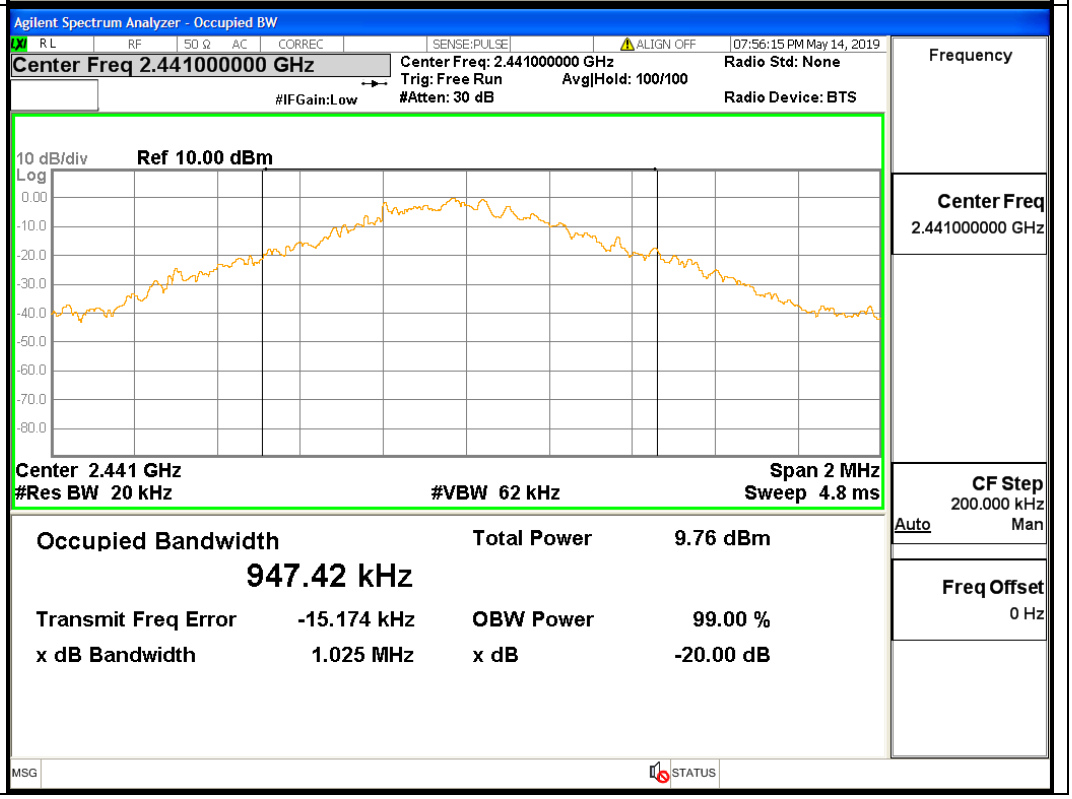
Environmental Conditions

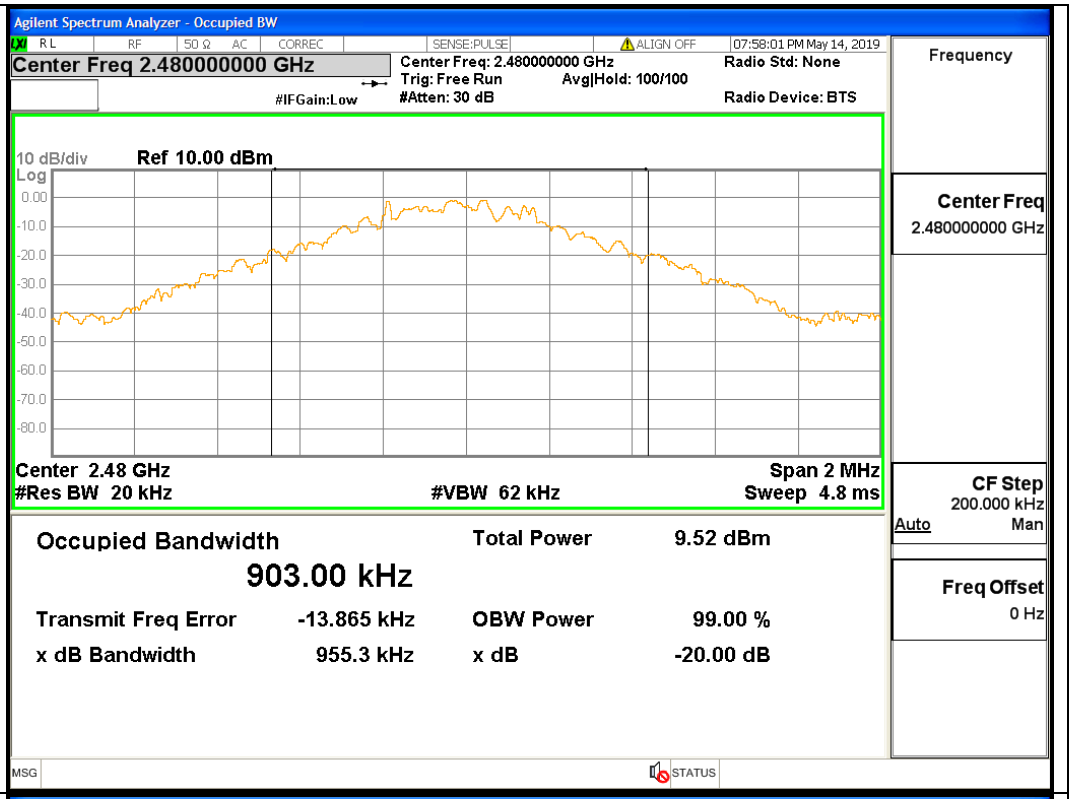
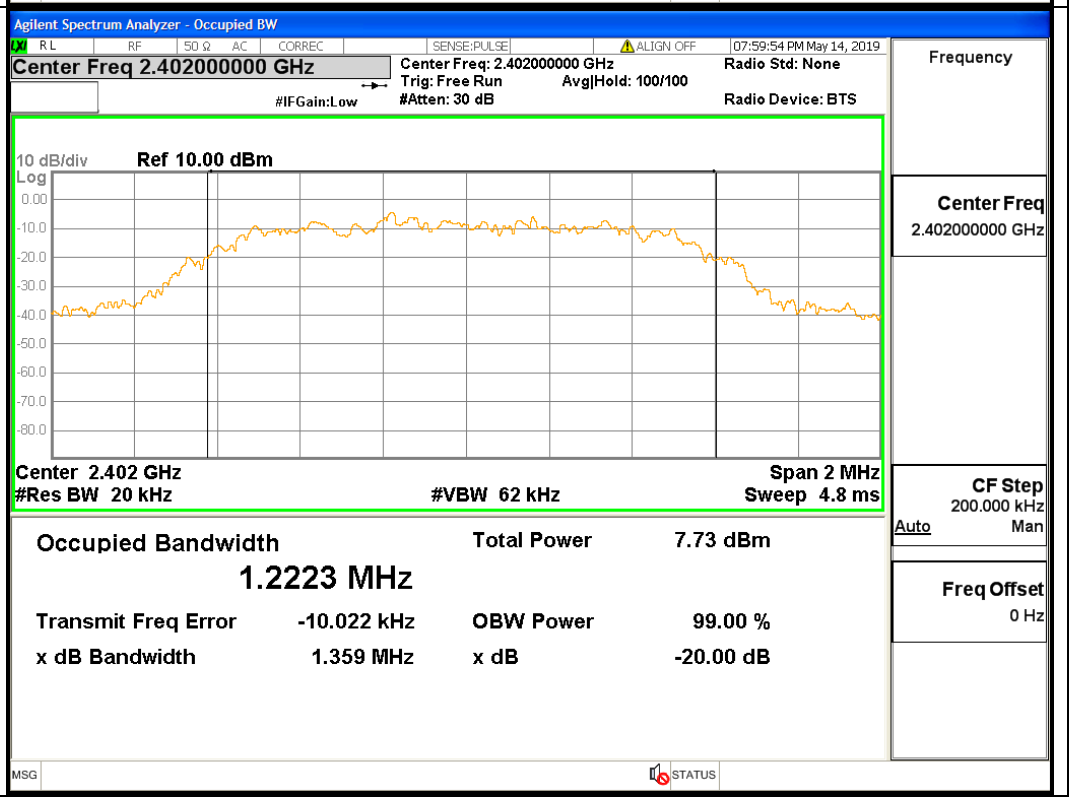
Temperature:	23.7 ° C
Relative Humidity:	50%
ATM Pressure:	100.0 kPa
Test Engineer:	Gary Qian
Supervised by:	Eden Hu

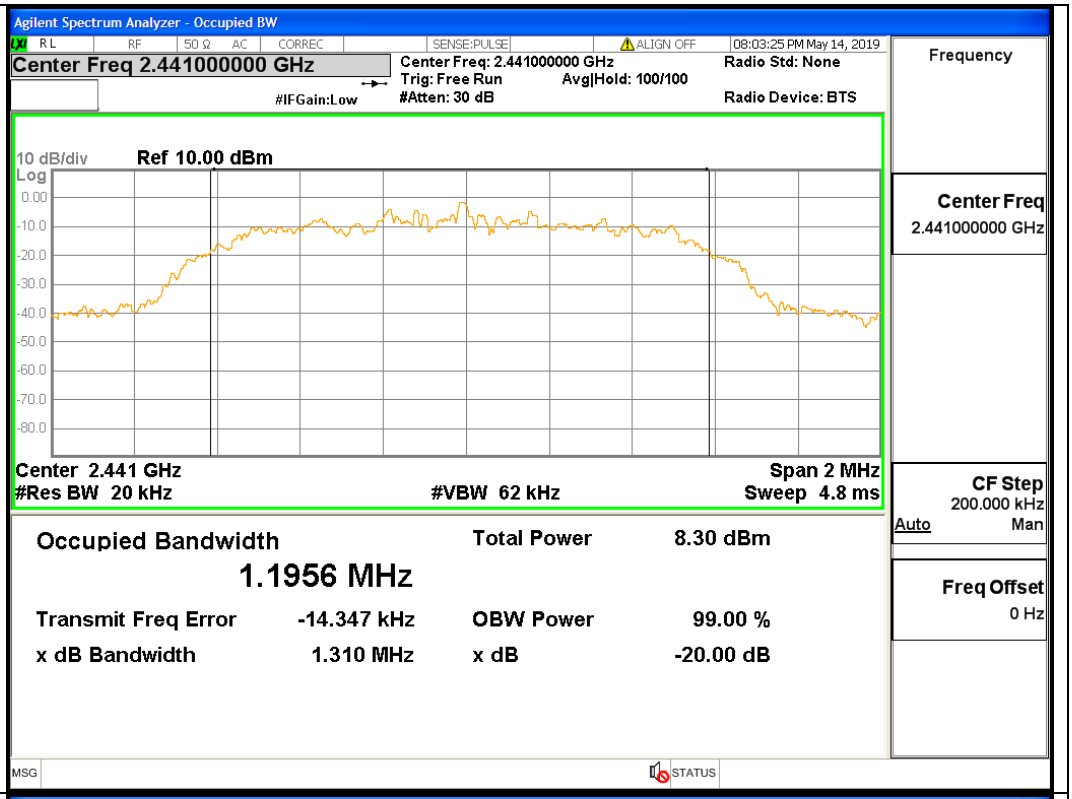
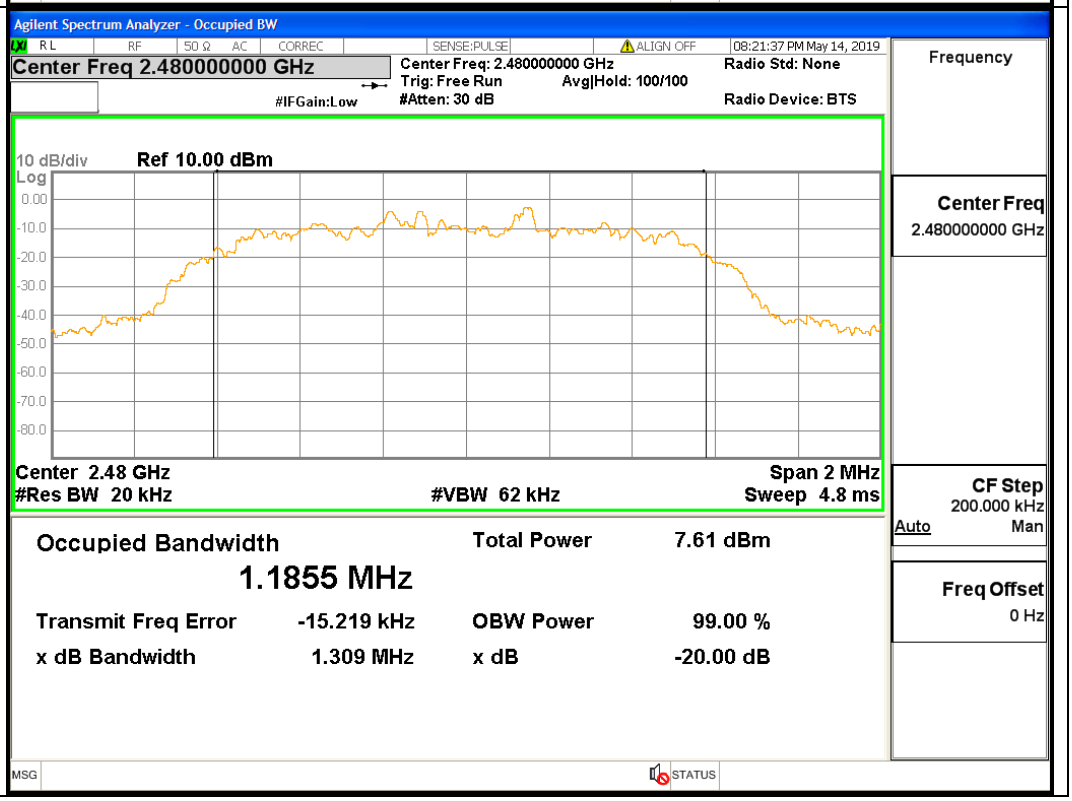
A.1 20 dB Bandwidth

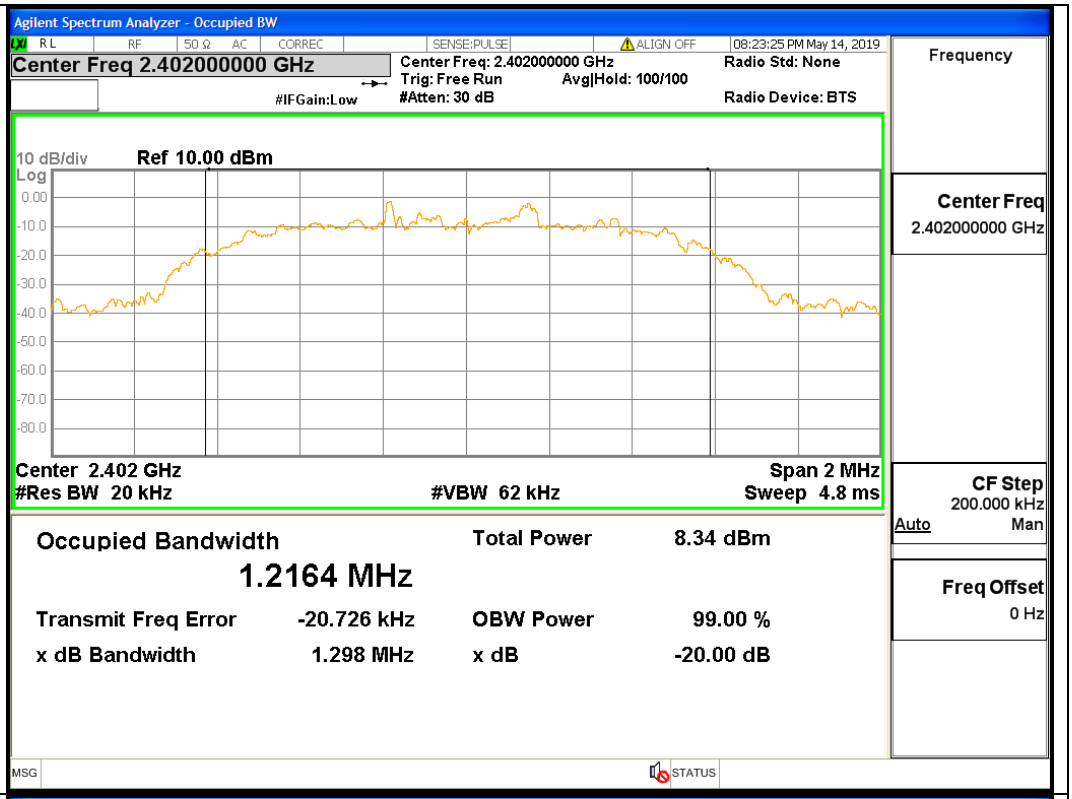
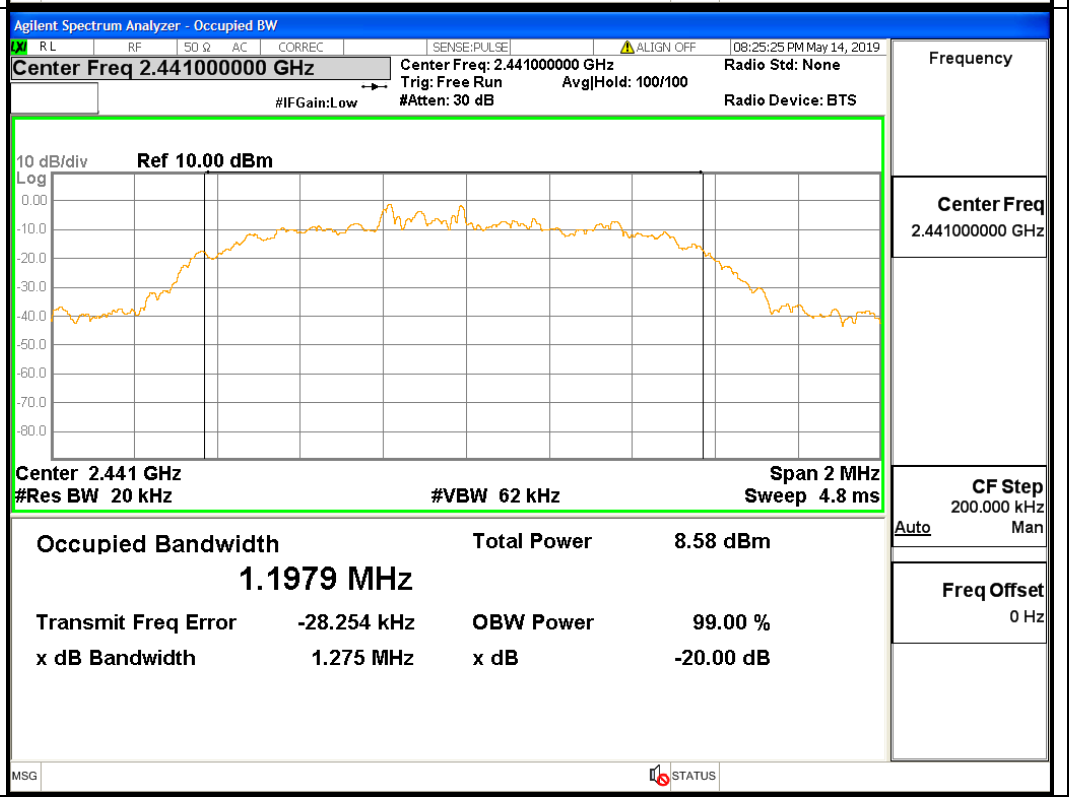
Mode	Channel.	20dB Bandwidth [MHz]	Limit(MHz)	Verdict
GFSK	LCH	1.025	Not Specified	PASS
GFSK	MCH	1.025	Not Specified	PASS
GFSK	HCH	0.955	Not Specified	PASS
π/4DQPSK	LCH	1.359	Not Specified	PASS
π/4DQPSK	MCH	1.310	Not Specified	PASS
π/4DQPSK	HCH	1.309	Not Specified	PASS
8DPSK	LCH	1.298	Not Specified	PASS
8DPSK	MCH	1.275	Not Specified	PASS
8DPSK	HCH	1.272	Not Specified	PASS

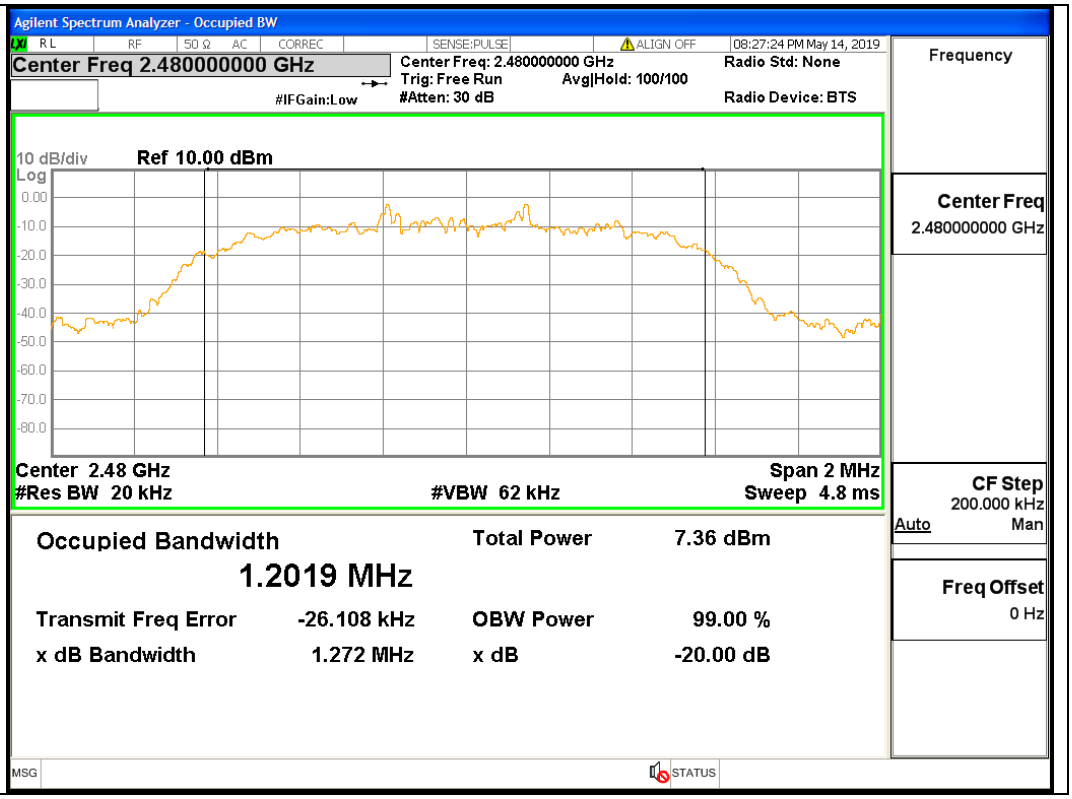
Test Graph

Graphs	
GFSK/LCH	
GFSK/MCH	

GFSK/HCH	
π/4DQPSK/LCH	

π/4DQPSK/MCH	
π/4DQPSK/HCH	

8DPSK/LCH	
8DPSK/MCH	

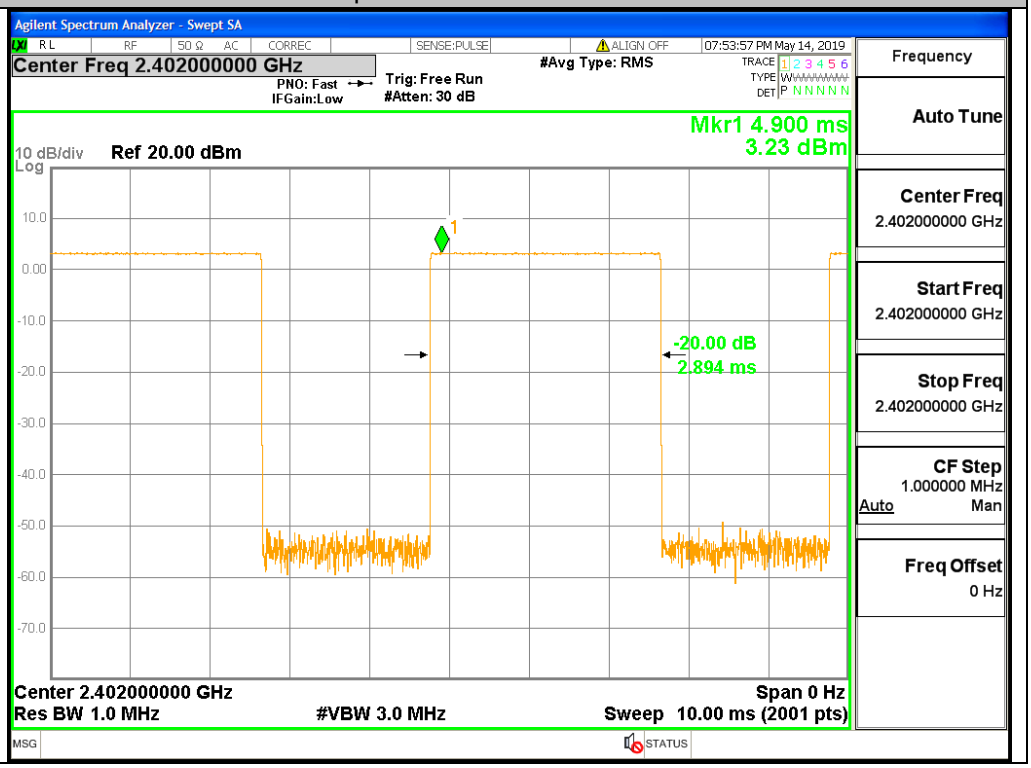
8DPSK/HCH	

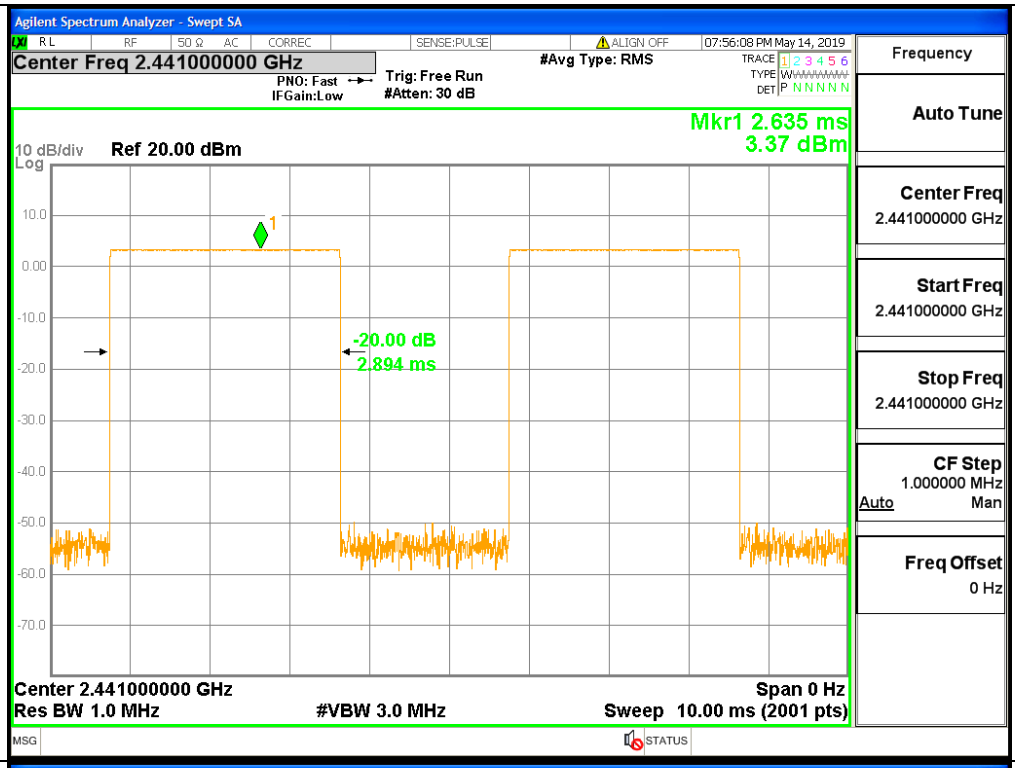
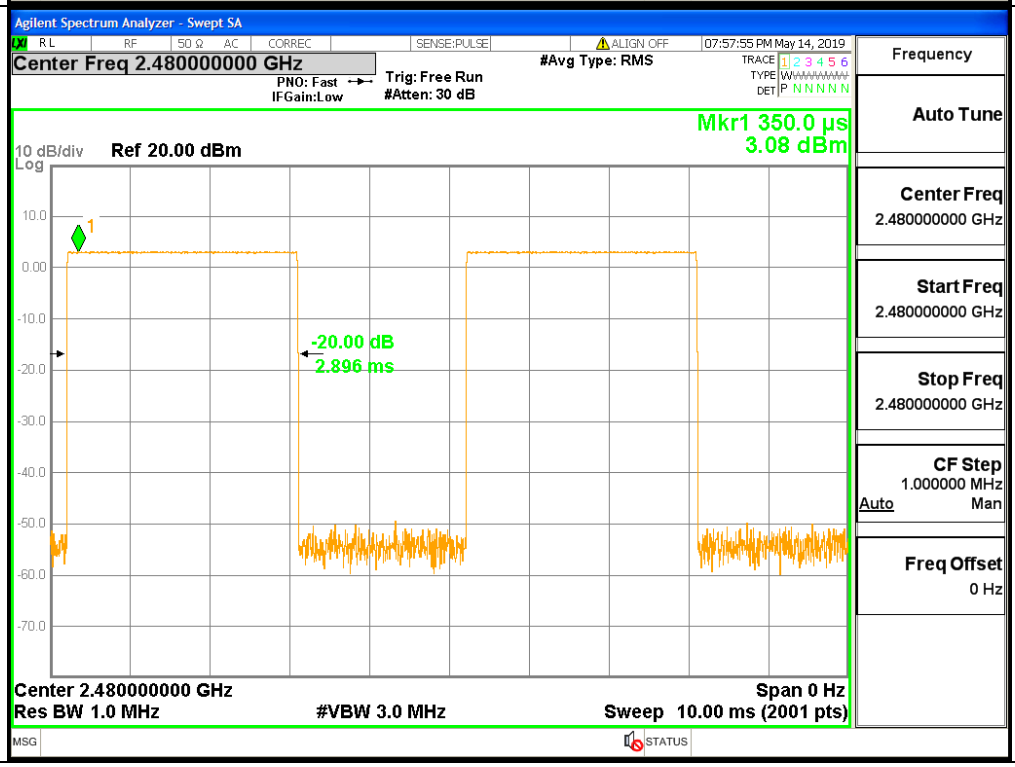
Agilent Spectrum Analyzer - Occupied BW
RL
RF
50 Ω AC
CORREC
SENSE:PULSE
ALIGN OFF
08:27:24 PM May 14, 2019
Center Freq 2.480000000 GHz
Center Freq: 2.480000000 GHz
Trig: Free Run
Avg|Hold: 100/100
#IFGain:Low
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Frequency
10 dB/div
Log
Ref 10.00 dBm
0.00
-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
1.2019 MHz
Total Power
7.36 dBm
Transmit Freq Error
-26.108 kHz
OBW Power
99.00 %
x dB Bandwidth
1.272 MHz
x dB
-20.00 dB
Freq Offset
0 Hz
MSG
STATUS

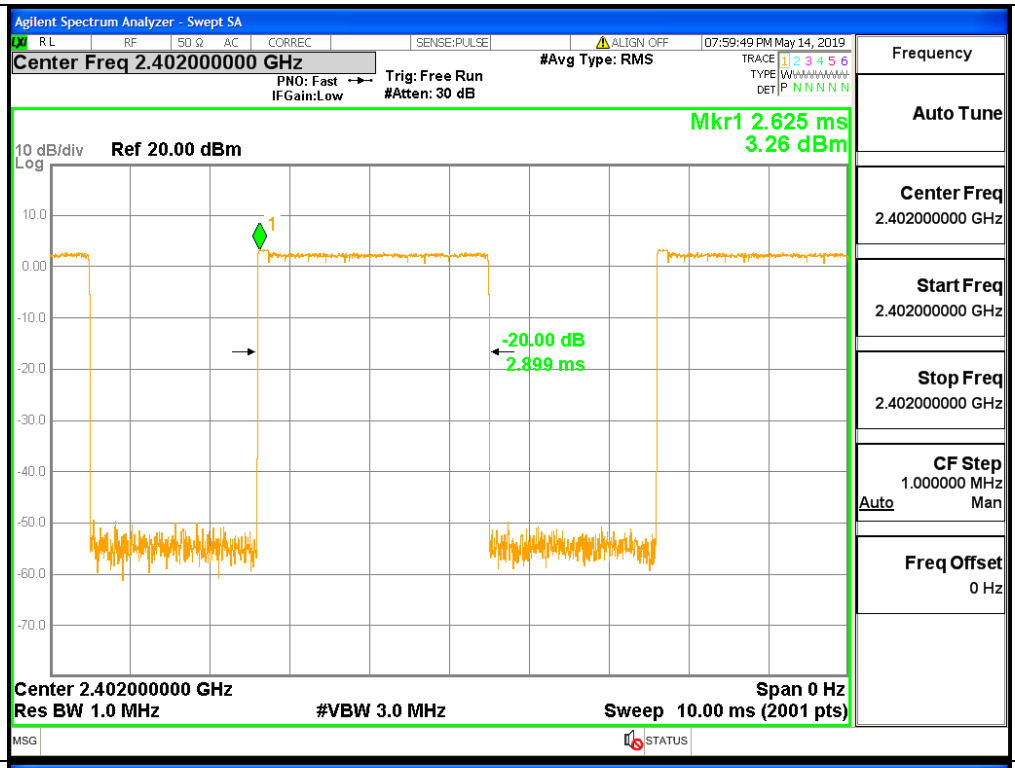
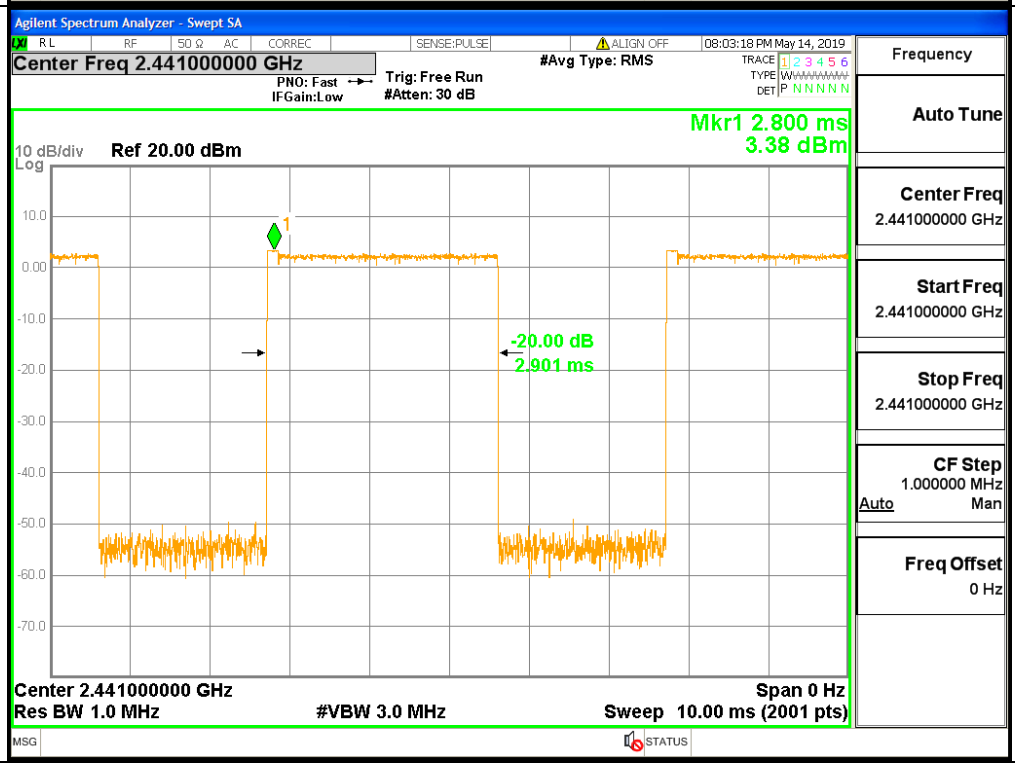
A.2 Dwell Time

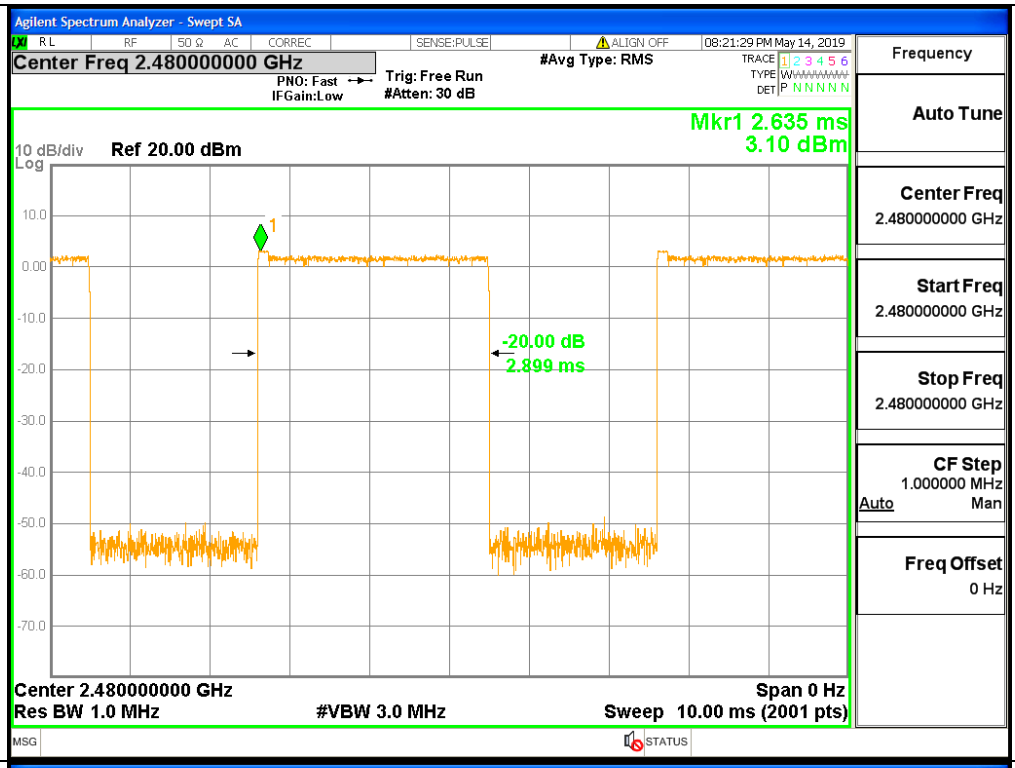
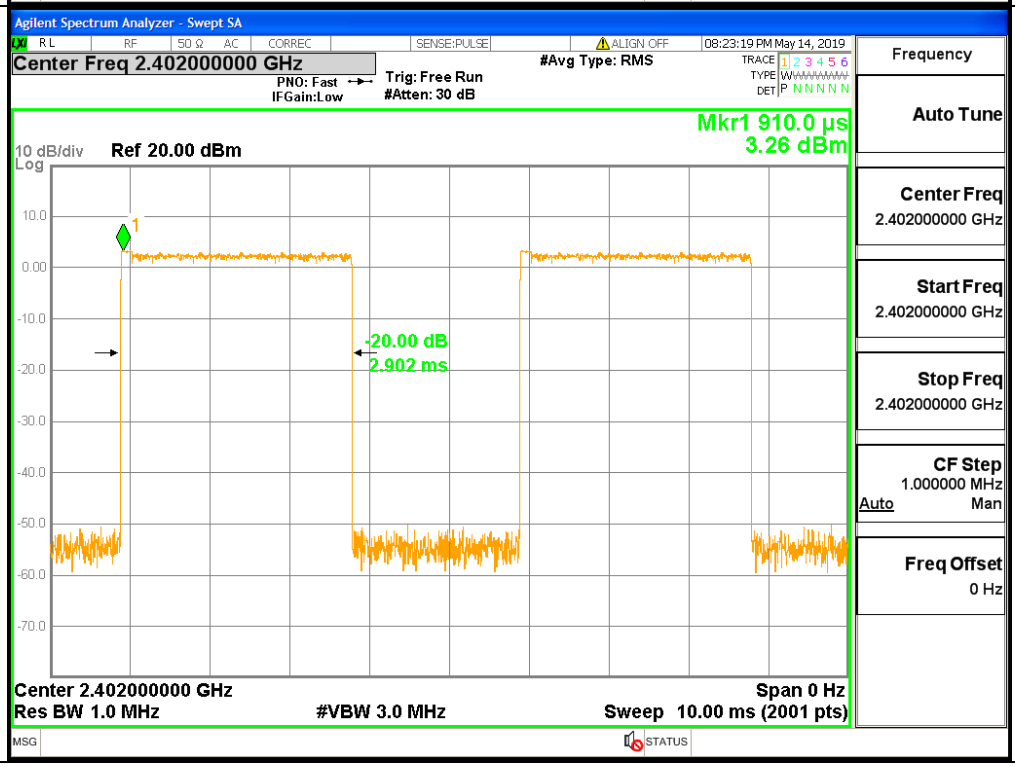
Mode	Packet	Channel	Burst Width [s/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	0.002894	106.7	0.308764	0.4	PASS
GFSK	DH5	MCH	0.002894	106.7	0.308760	0.4	PASS
GFSK	DH5	HCH	0.002896	106.7	0.309004	0.4	PASS
π/4DQPSK	2DH5	LCH	0.002899	106.7	0.309272	0.4	PASS
π/4DQPSK	2DH5	MCH	0.002901	106.7	0.309584	0.4	PASS
π/4DQPSK	2DH5	HCH	0.002899	106.7	0.309304	0.4	PASS
8DPSK	3DH5	LCH	0.002902	106.7	0.309621	0.4	PASS
8DPSK	3DH5	MCH	0.002900	106.7	0.309473	0.4	PASS
8DPSK	3DH5	HCH	0.002900	106.7	0.309436	0.4	PASS

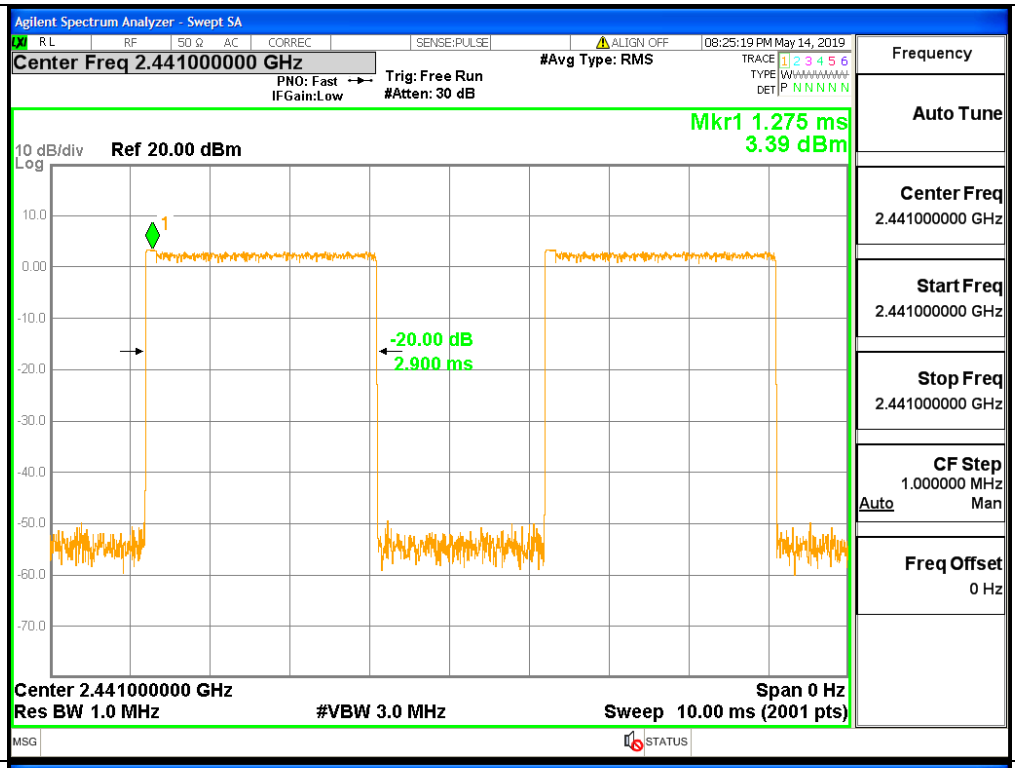
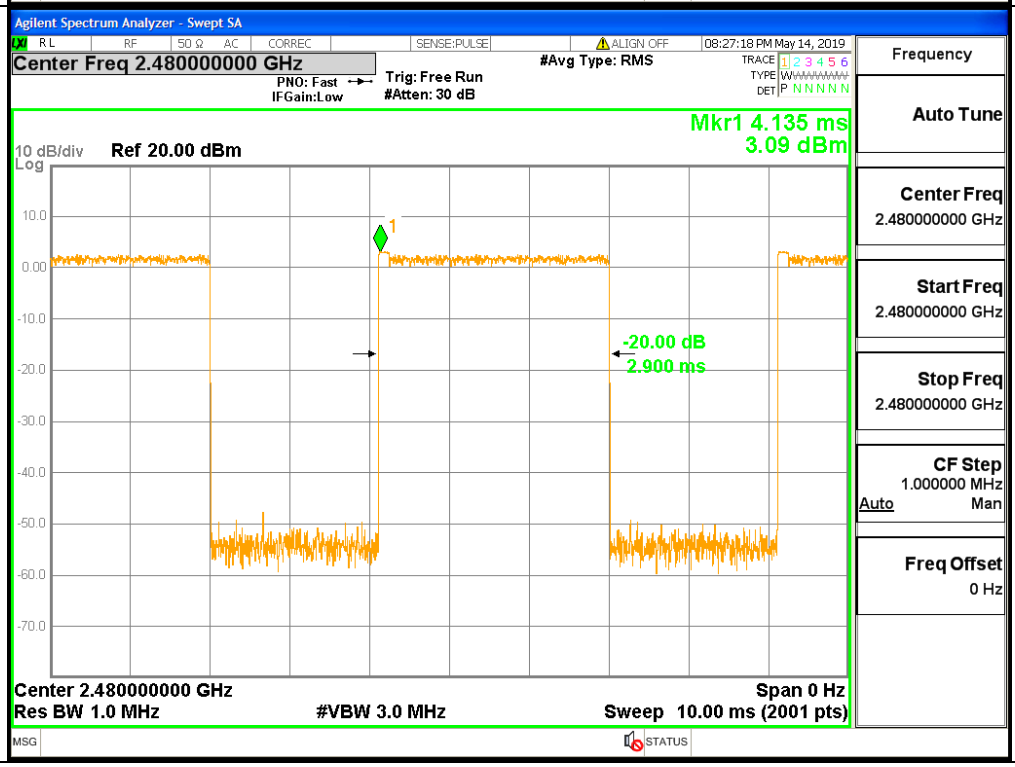
Test Graph

Graphs	
GFSK_DH5/LCH	

GFSK_DH5/MCH	
GFSK_DH5/HCH	

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

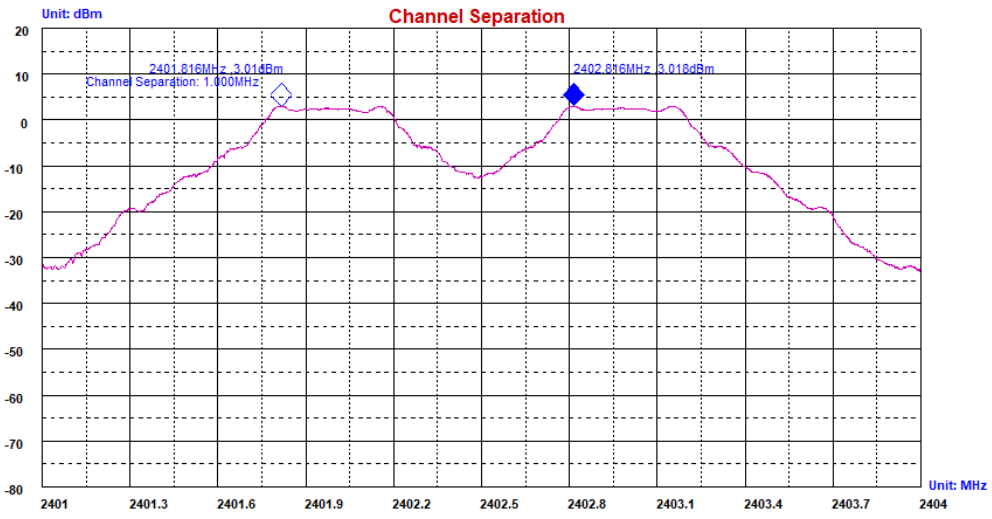
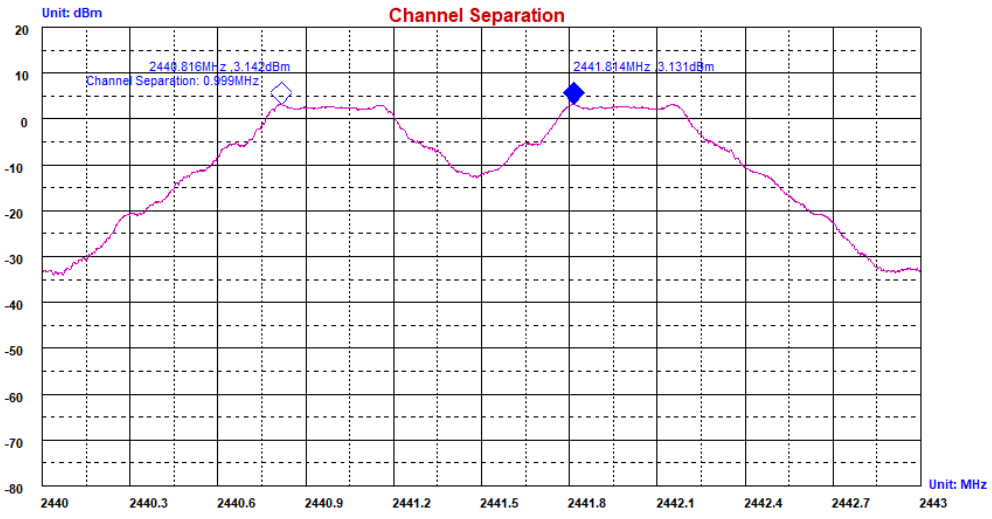
π/4DQPSK _2DH5/HCH	
8DPSK _3DH5/LCH	

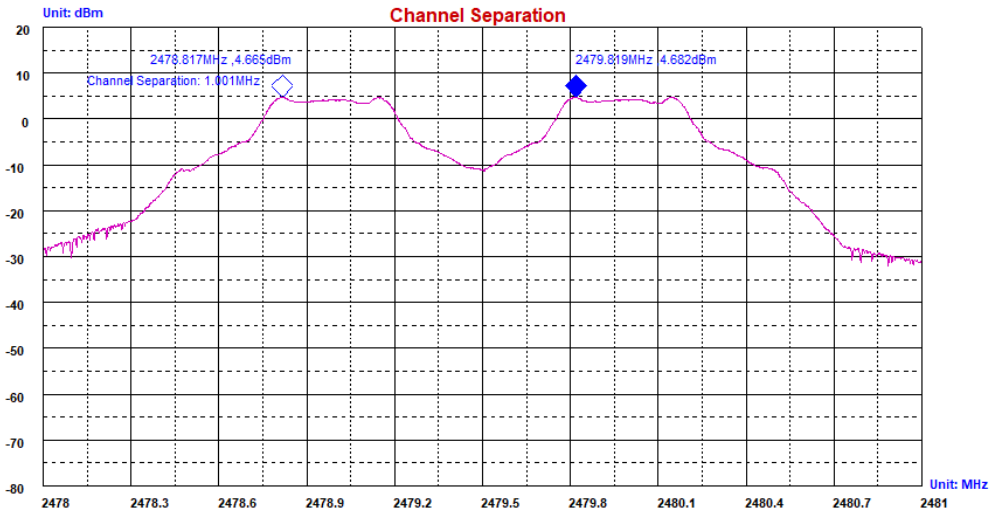
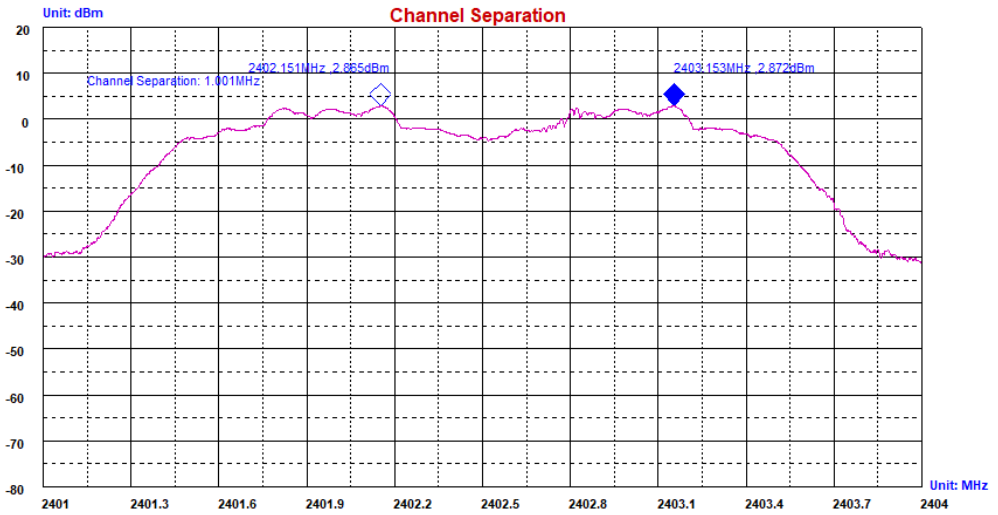
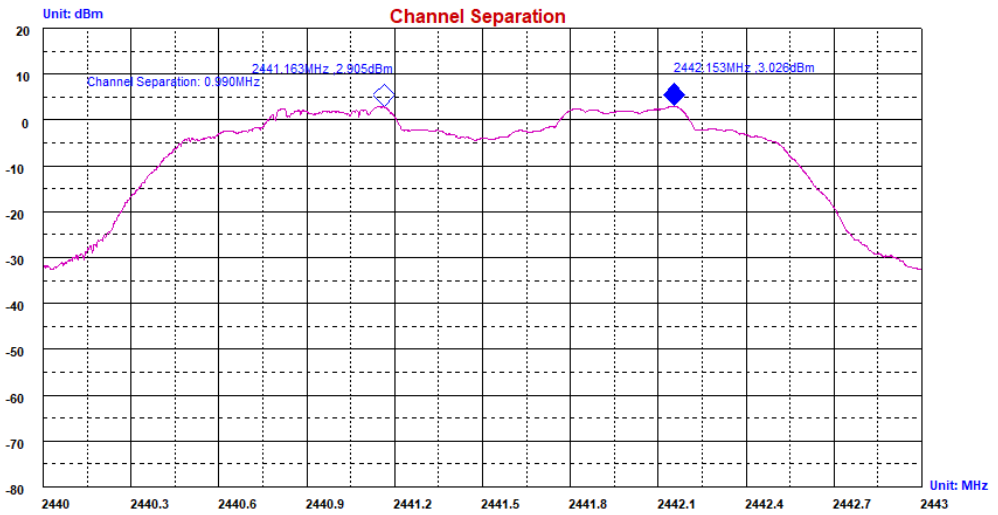
8DPSK _3DH5/MCH	
8DPSK _3DH5/HCH	

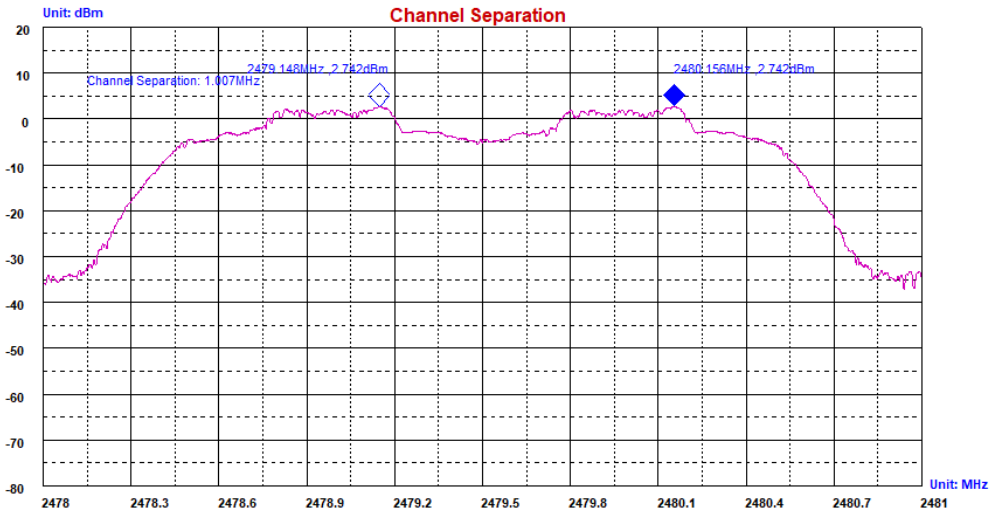
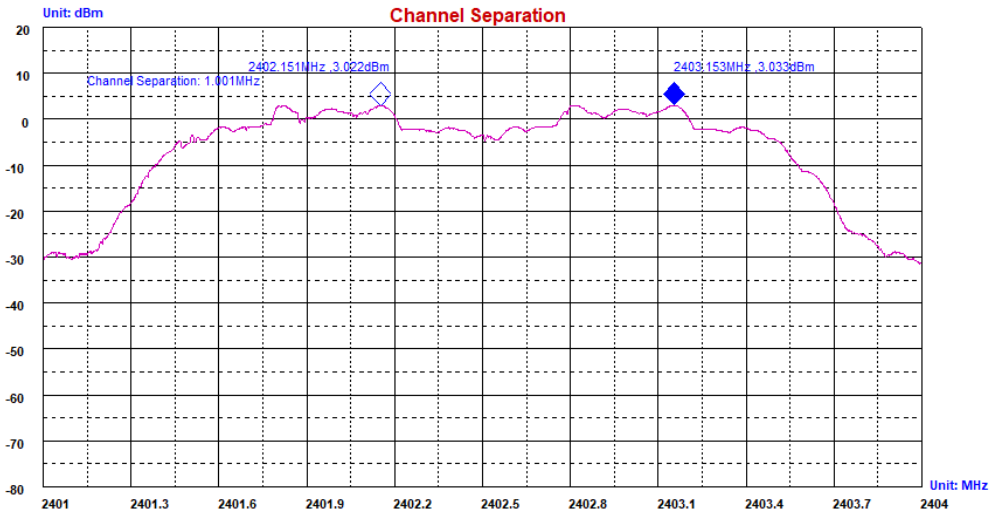
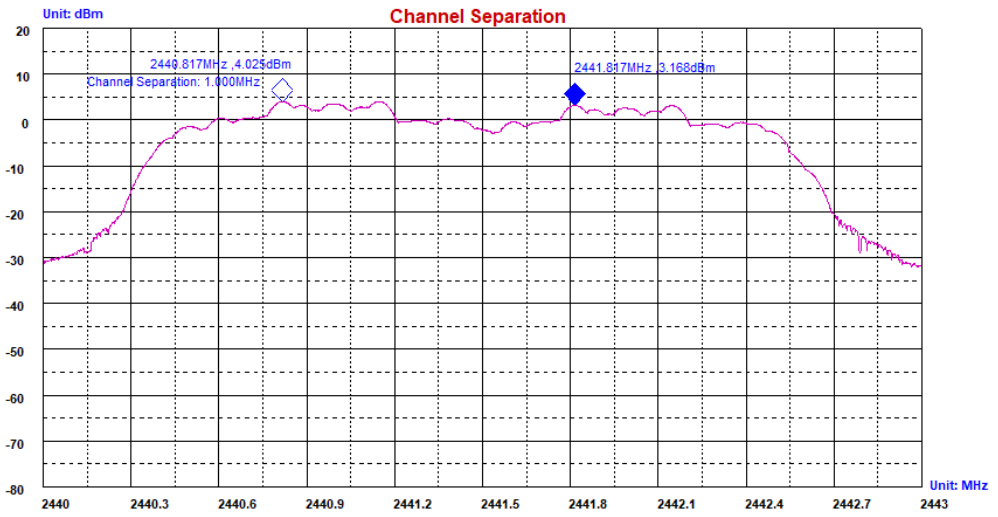
A.3 Carrier Frequency Separation

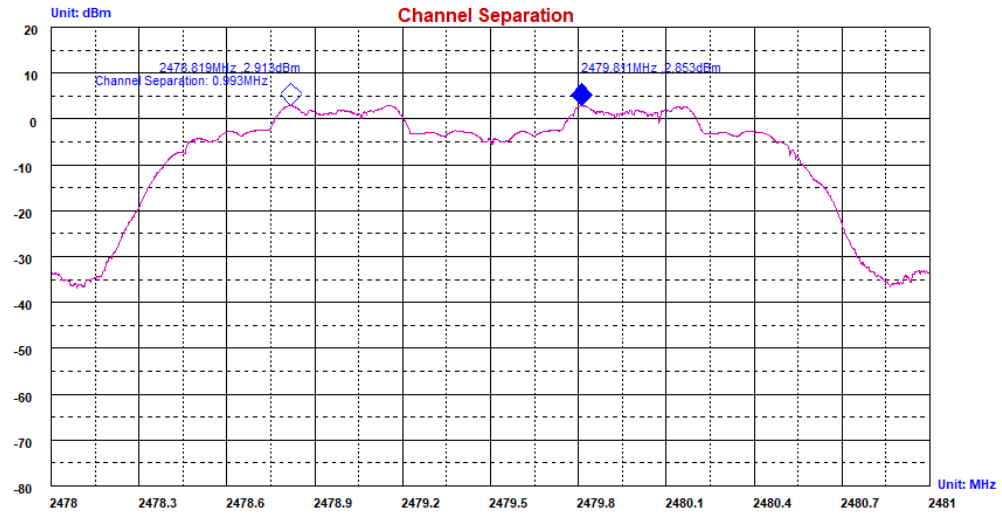
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.000	0.683	PASS
GFSK	MCH	0.999	0.683	PASS
GFSK	HCH	1.001	0.637	PASS
π/4DQPSK	LCH	1.001	0.906	PASS
π/4DQPSK	MCH	0.990	0.873	PASS
π/4DQPSK	HCH	1.007	0.873	PASS
8DPSK	LCH	1.001	0.865	PASS
8DPSK	MCH	1.000	0.850	PASS
8DPSK	HCH	0.993	0.848	PASS

Test Graph

Graphs	
GFSK/LCH	
GFSK/MCH	

GFSK/HCH	
π/4DQPSK/LCH	
π/4DQPSK/MCH	

π/4DQPSK/HCH	
8DPSK/LCH	
8DPSK/MCH	

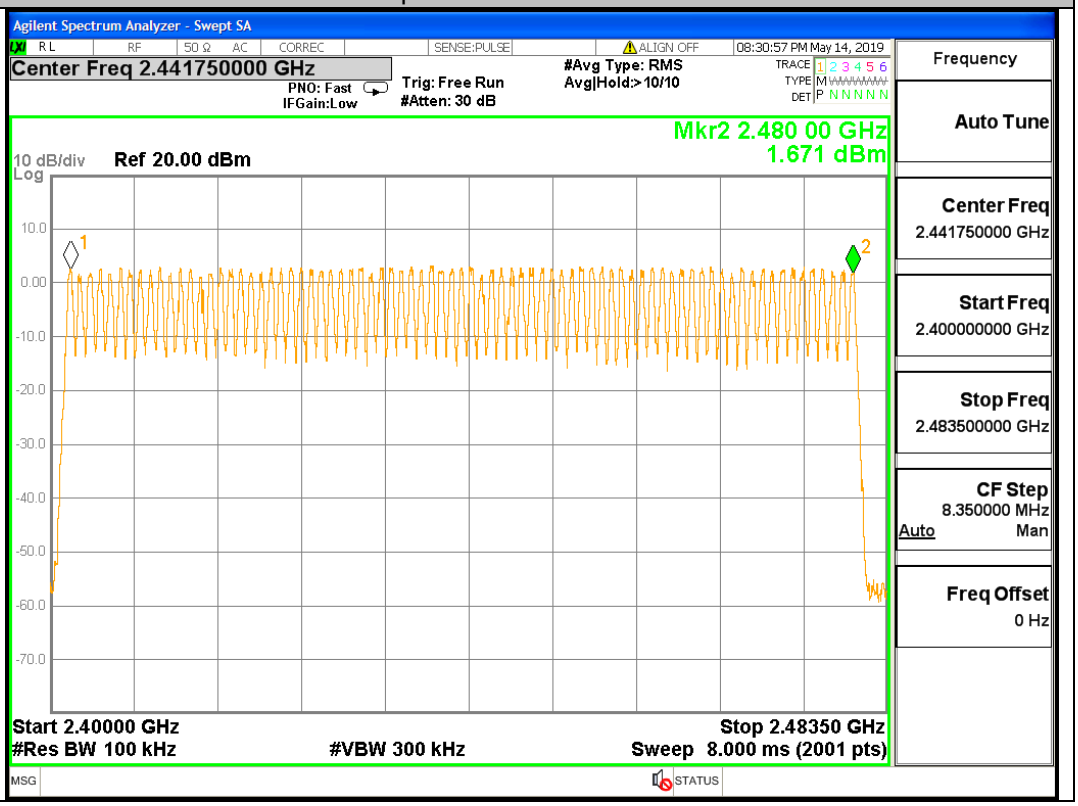
8DPSK/HCH	

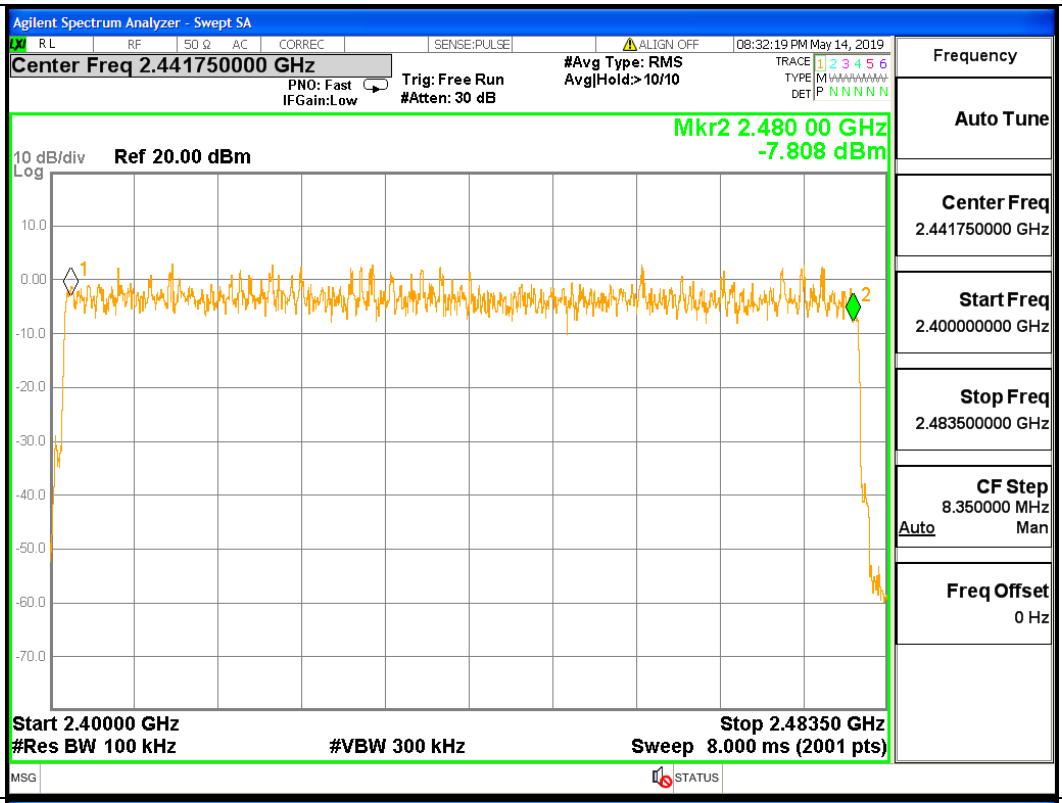
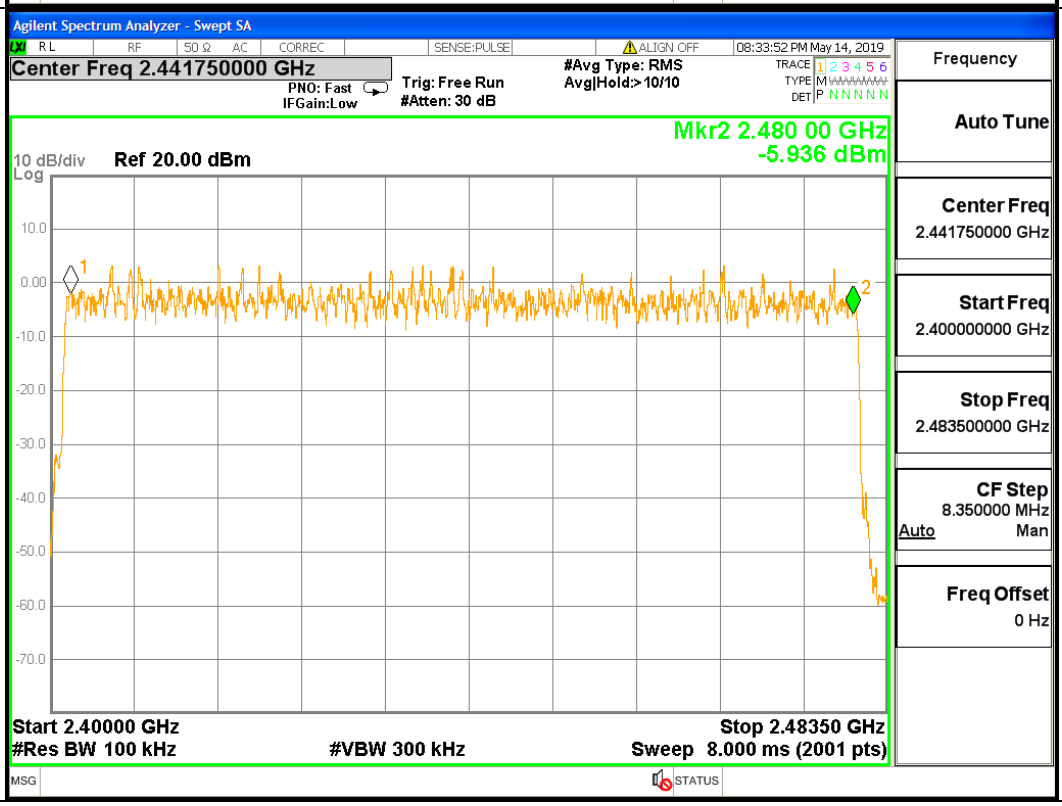
Unit: dBm
Channel Separation
2478.819MHz 2.913dBm
Channel Separation: 0.993MHz
2479.811MHz 2.853dBm
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
2478
2478.3
2478.6
2478.9
2479.2
2479.5
2479.8
2480.1
2480.4
2480.7
2481
Unit: MHz

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

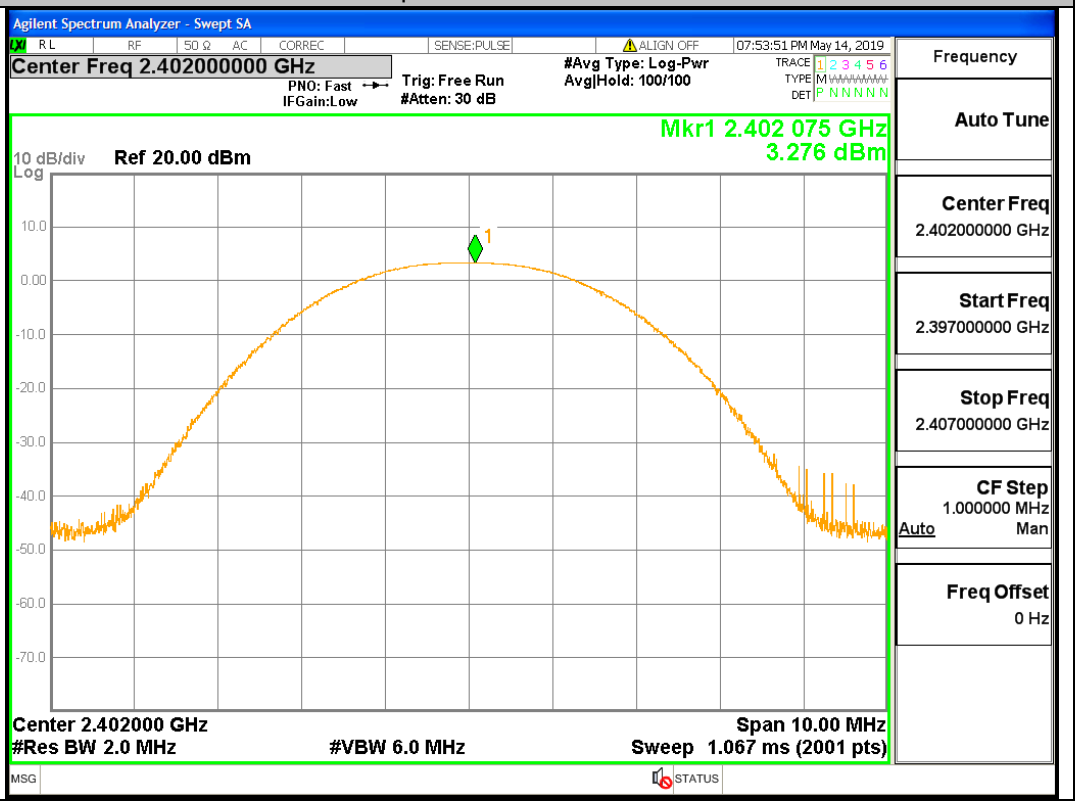
Graphs	
GFSK/Hop	

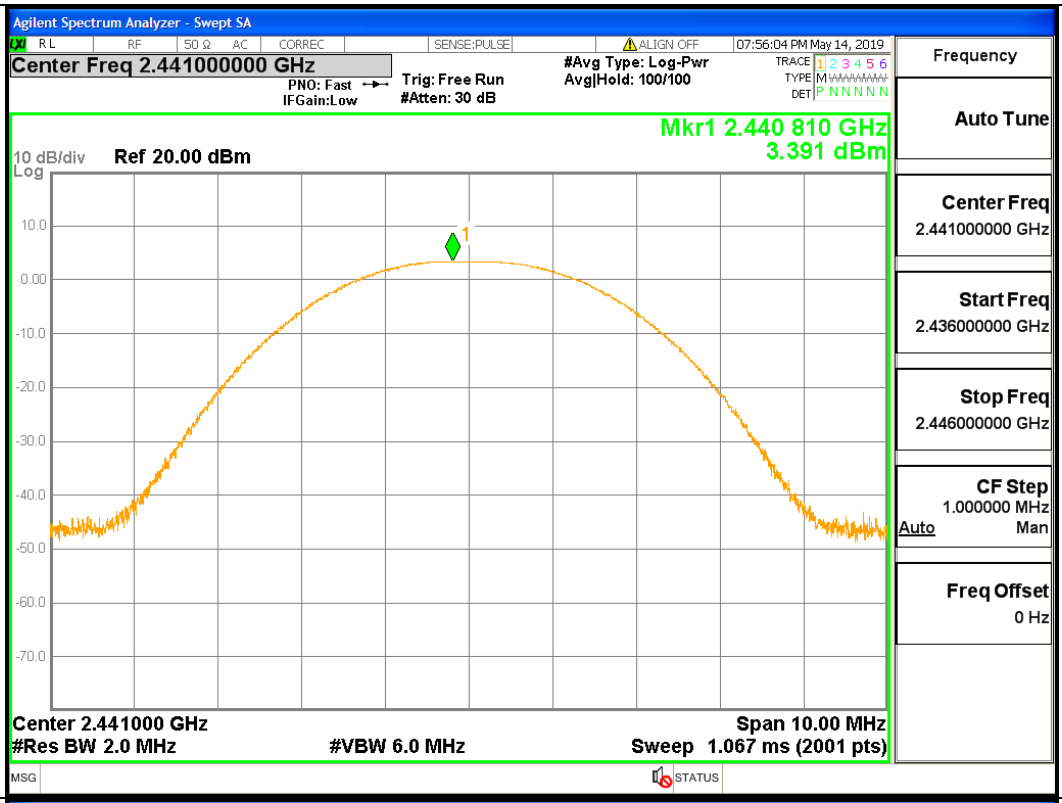
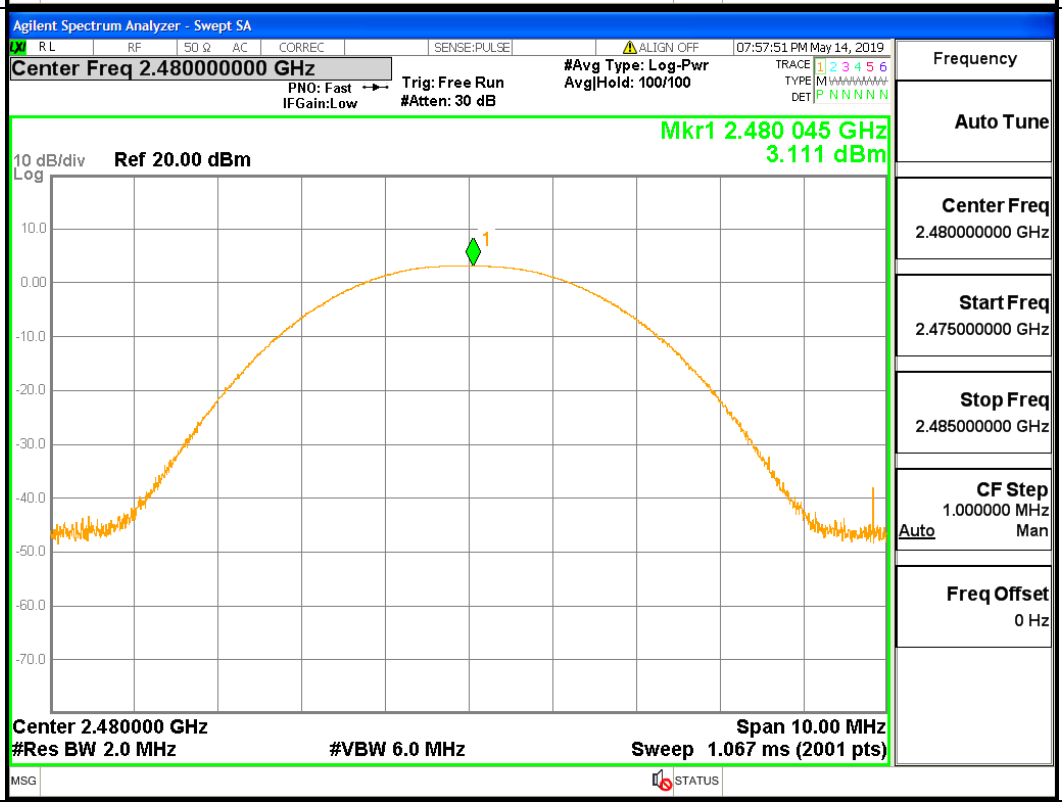
π/4DQPSK/Hop	
8DPSK/Hop	

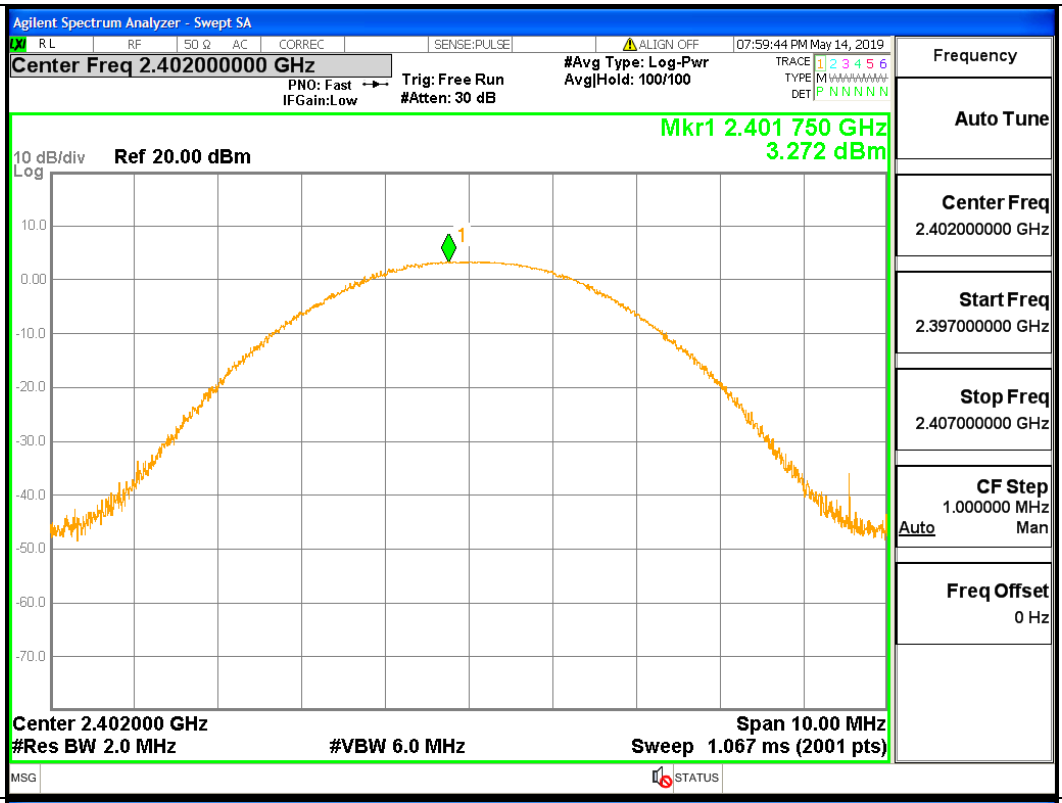
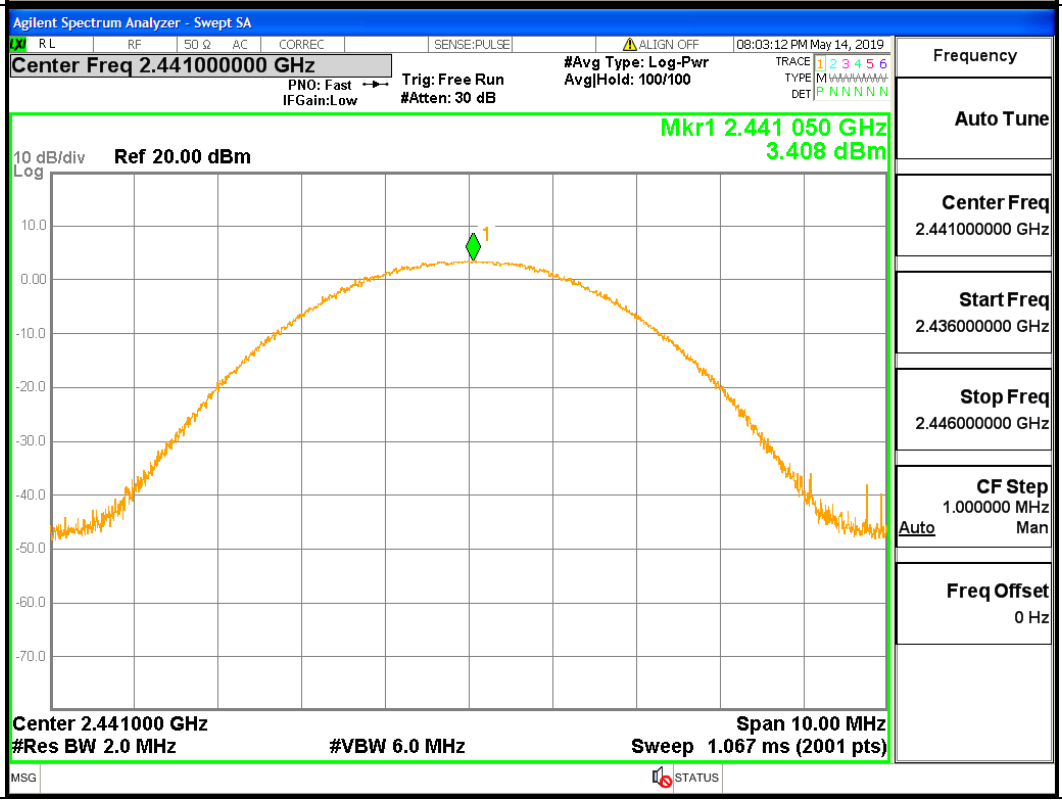
A.5 Conducted Peak Output Power

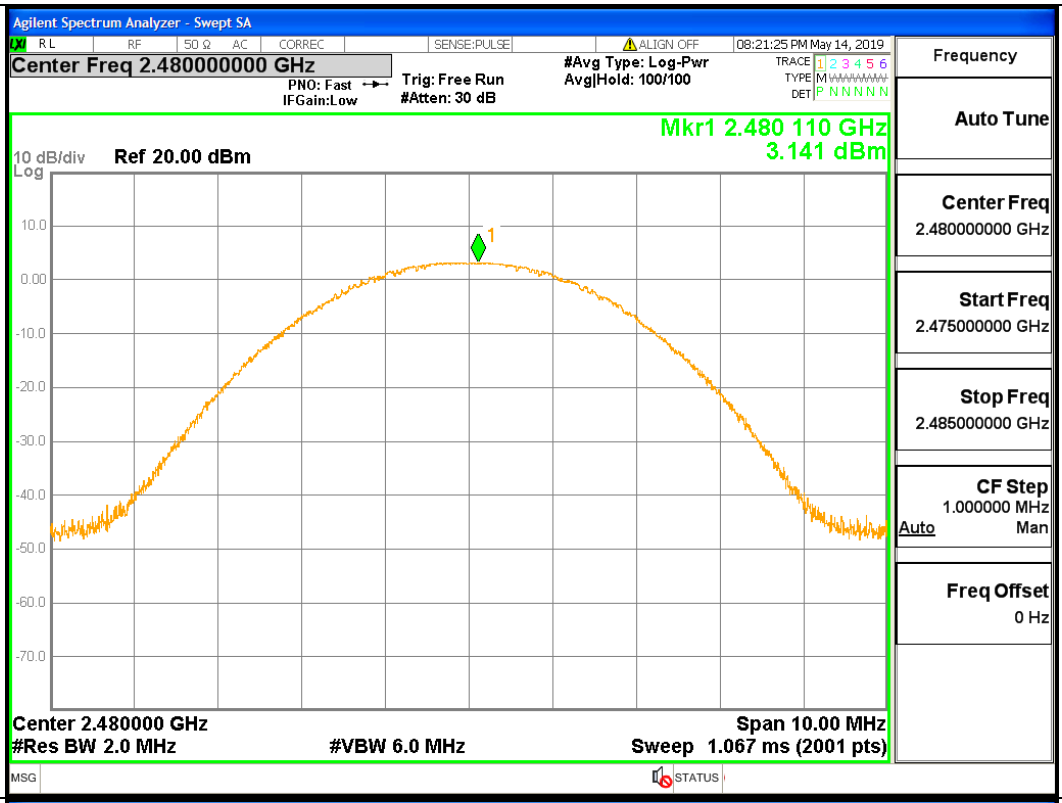
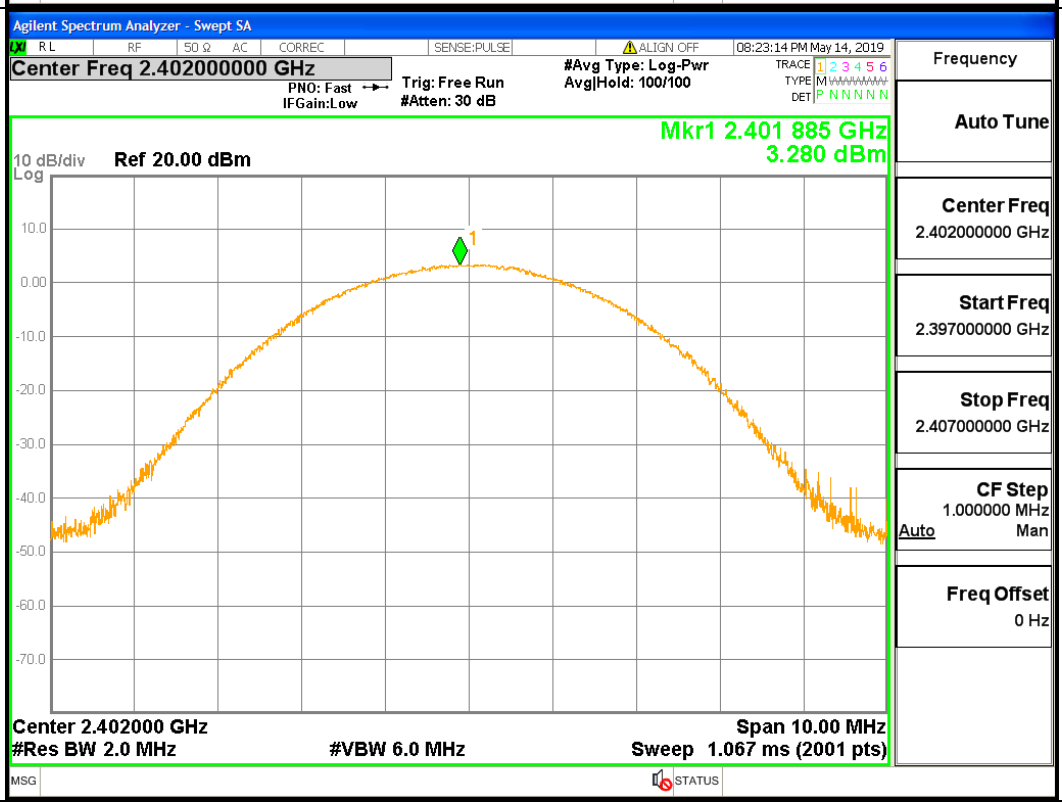
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	3.276	21	PASS
GFSK	MCH	3.391	21	PASS
GFSK	HCH	3.111	21	PASS
π/4DQPSK	LCH	3.272	21	PASS
π/4DQPSK	MCH	3.408	21	PASS
π/4DQPSK	HCH	3.141	21	PASS
8DPSK	LCH	3.280	21	PASS
8DPSK	MCH	3.400	21	PASS
8DPSK	HCH	3.136	21	PASS

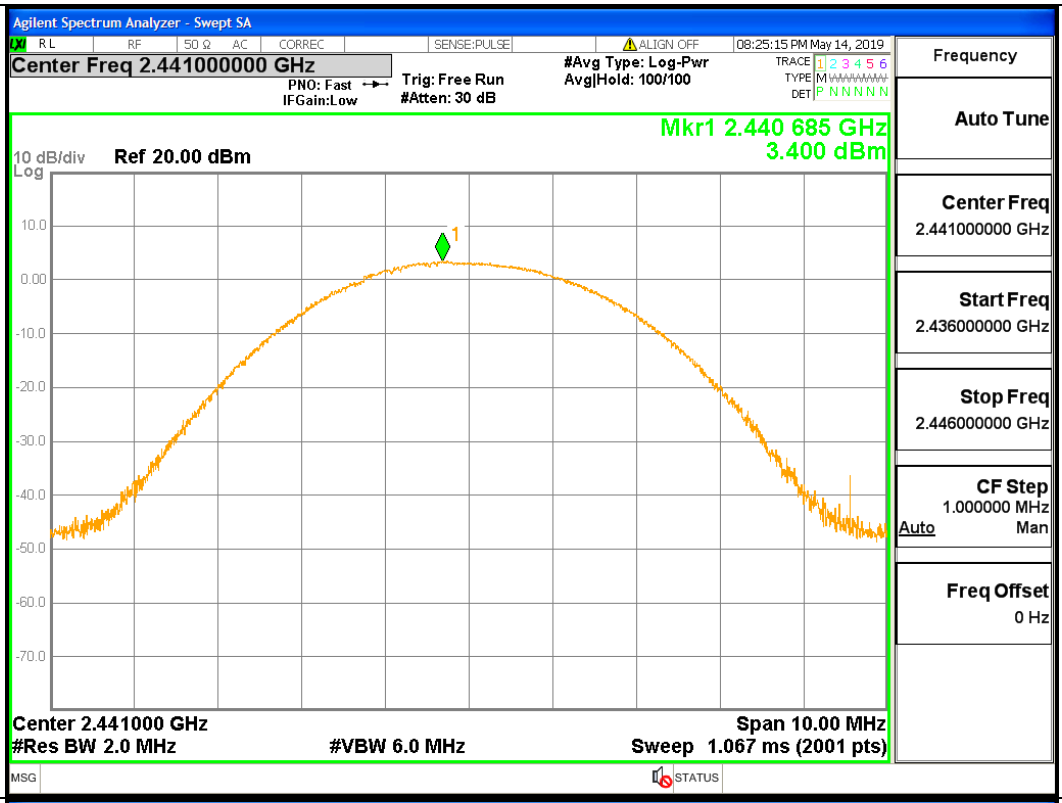
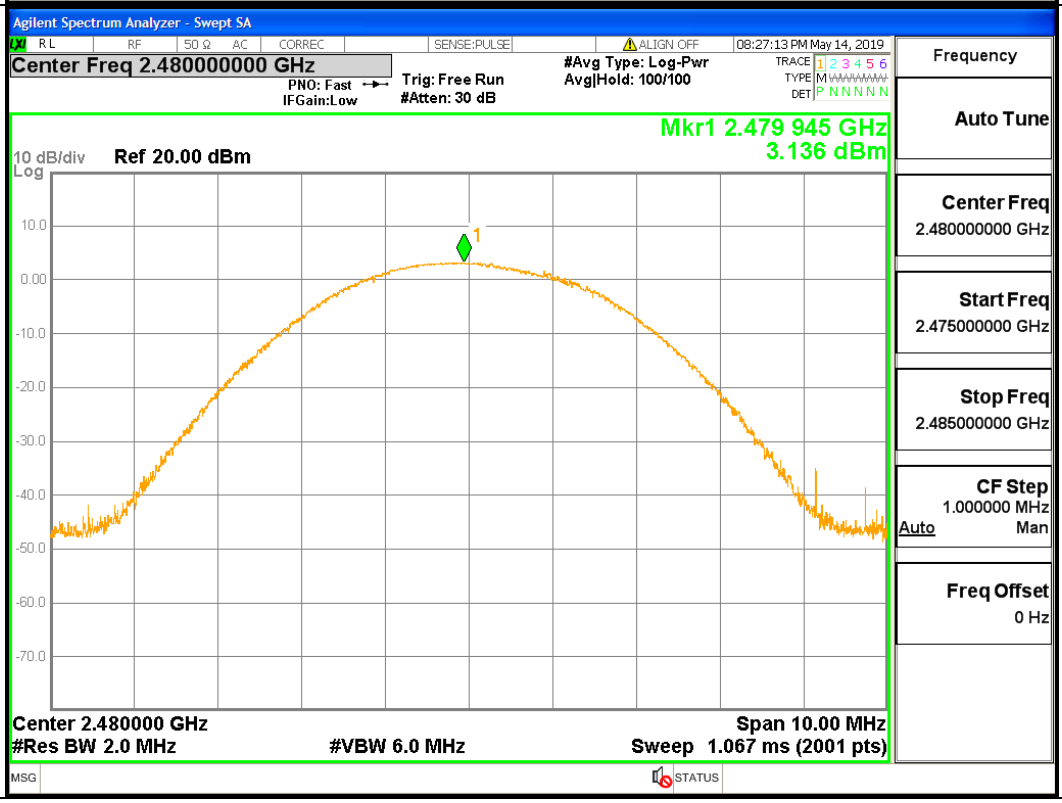
Test Graph

Graphs	
GFSK/LCH	

GFSK/MCH	
GFSK/HCH	

π/4DQPSK/LCH	
π/4DQPSK/MCH	

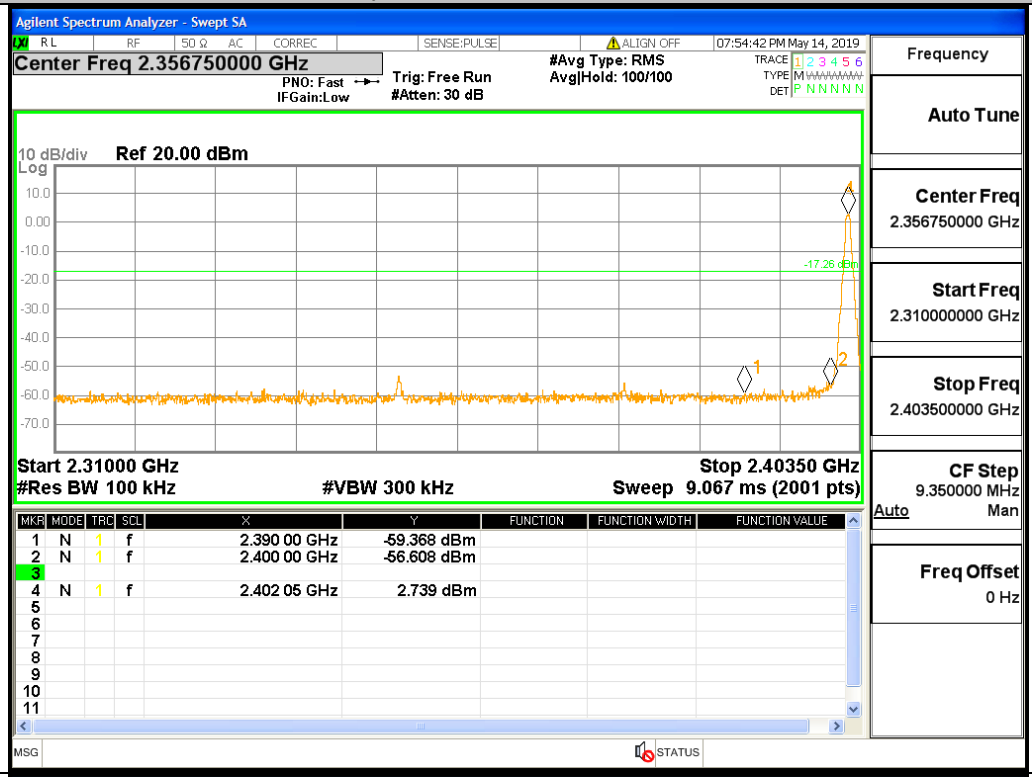
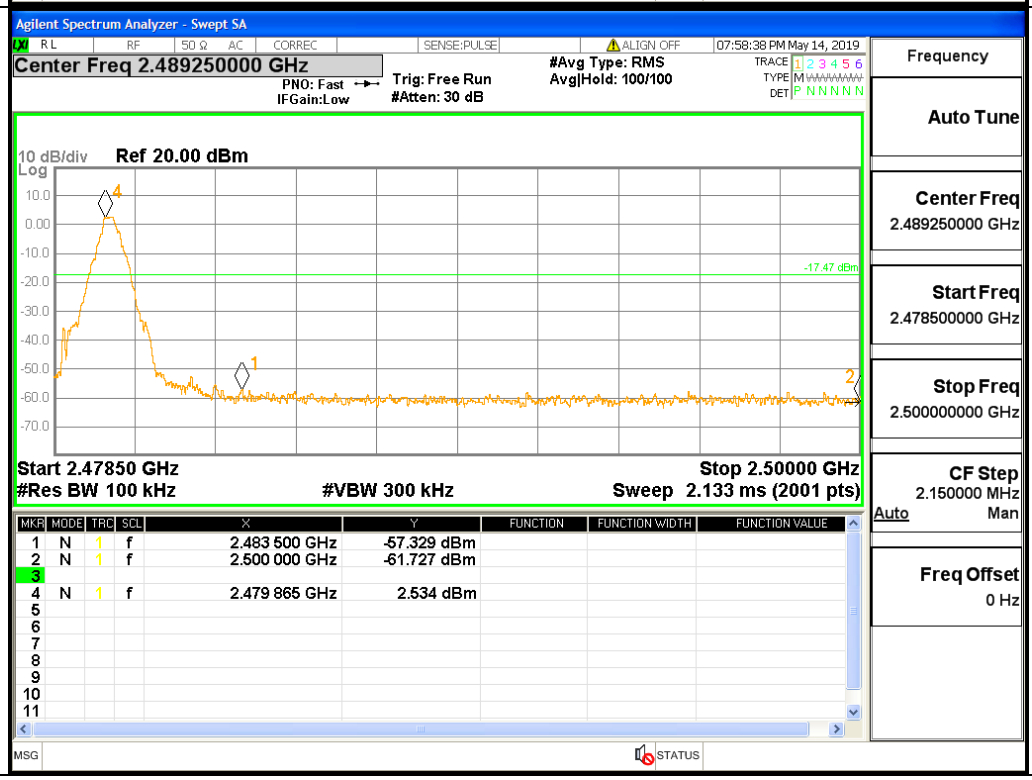
π/4DQPSK/HCH	
8DPSK/LCH	

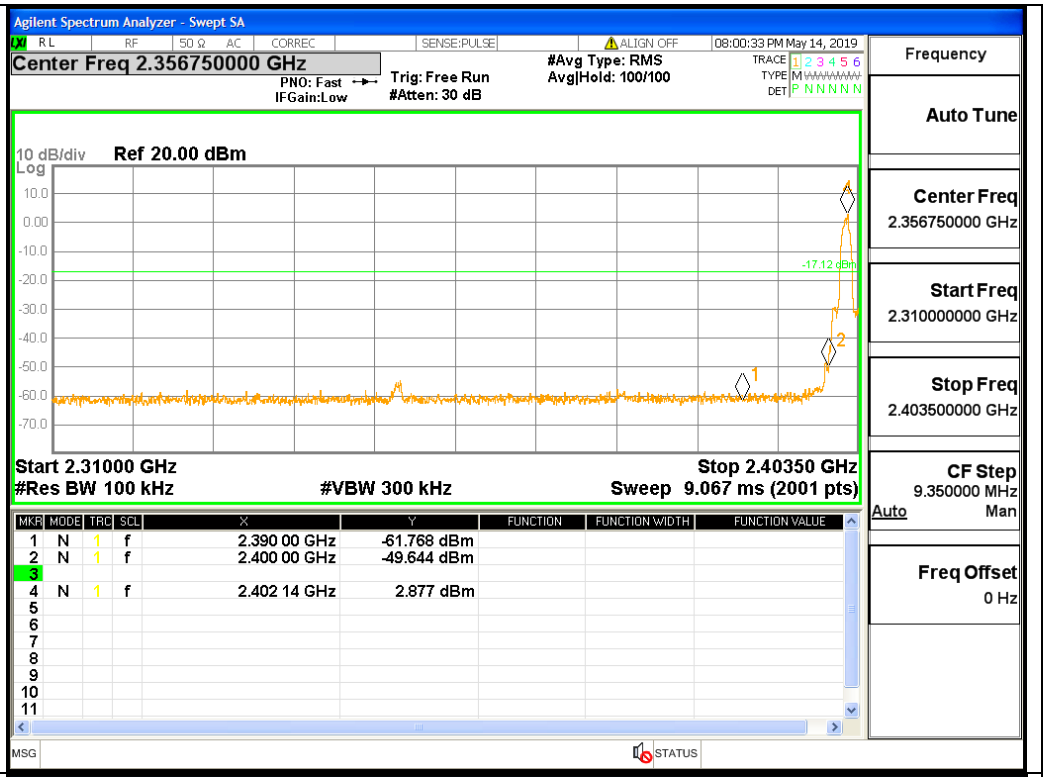
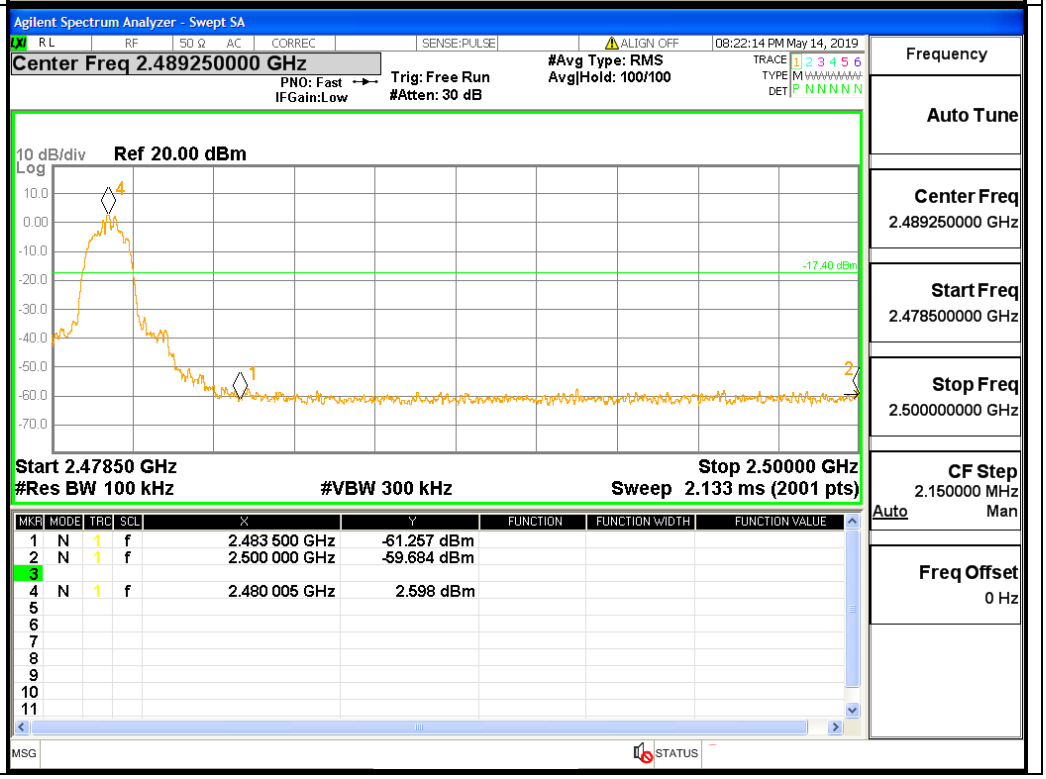
8DPSK/MCH	
8DPSK/HCH	

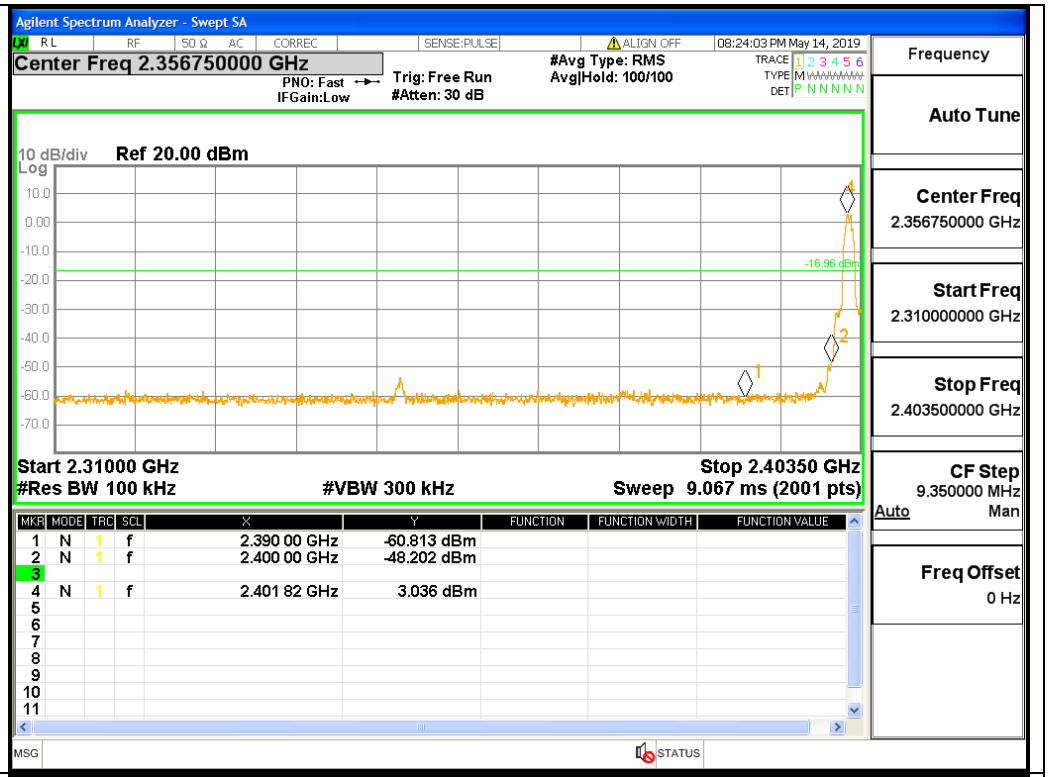
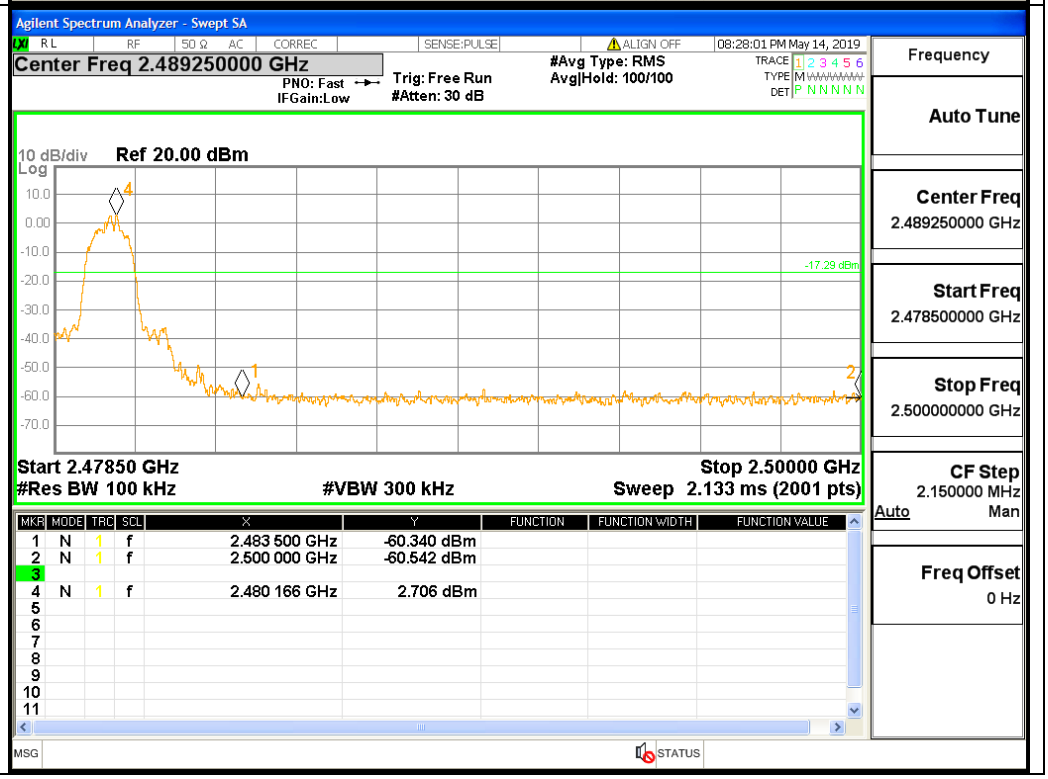
A.6 Band-edge for RF Conducted Emissions

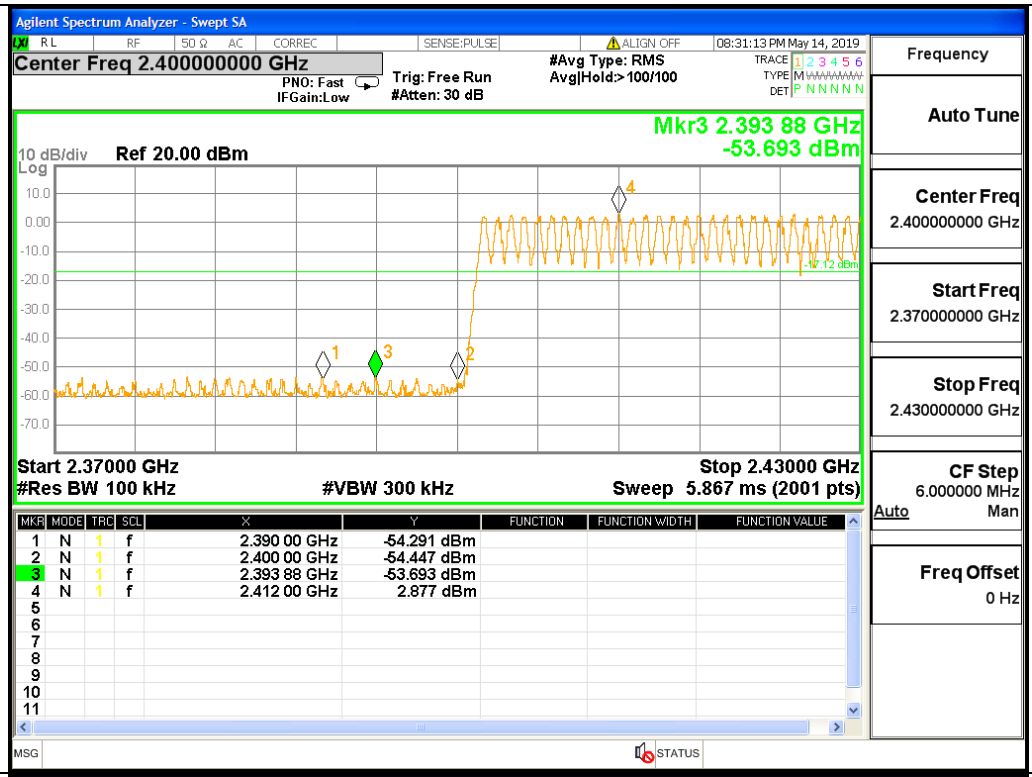
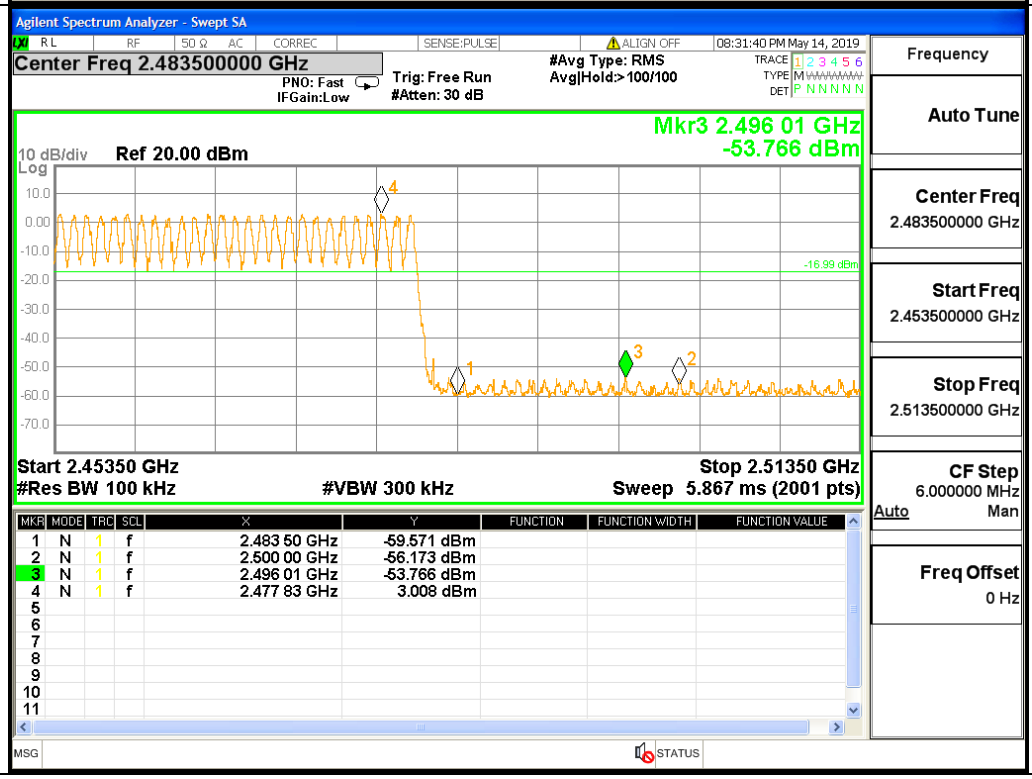
Type	Carrier Frequency(MHz)	Frequency(MHz)	Carrier Frequency Power [dBm]	Bandedge Peak(dBm)	Upper limit(dBm)	Conclusion
1DH5	2402	2400	2.739	-56.61	-17.261	Pass
1DH5	2480	2483.5	2.534	-57.33	-17.466	Pass
2DH5	2402	2400	2.877	-49.64	-17.123	Pass
2DH5	2480	2500	2.598	-59.68	-17.402	Pass
3DH5	2402	2400	3.036	-48.20	-16.964	Pass
3DH5	2480	2483.5	2.706	-60.34	-17.294	Pass
1DH5-Hopping	2402	2393.88	2.877	-53.69	-17.123	Pass
1DH5-Hopping	2480	2496.01	3.008	-53.77	-16.992	Pass
2DH5-Hopping	2402	2400	2.817	-53.30	-17.183	Pass
2DH5-Hopping	2480	2500	2.111	-58.40	-17.889	Pass
3DH5-Hopping	2402	2399.58	2.764	-48.48	-17.236	Pass
3DH5-Hopping	2480	2484.88	1.966	-54.46	-18.034	Pass

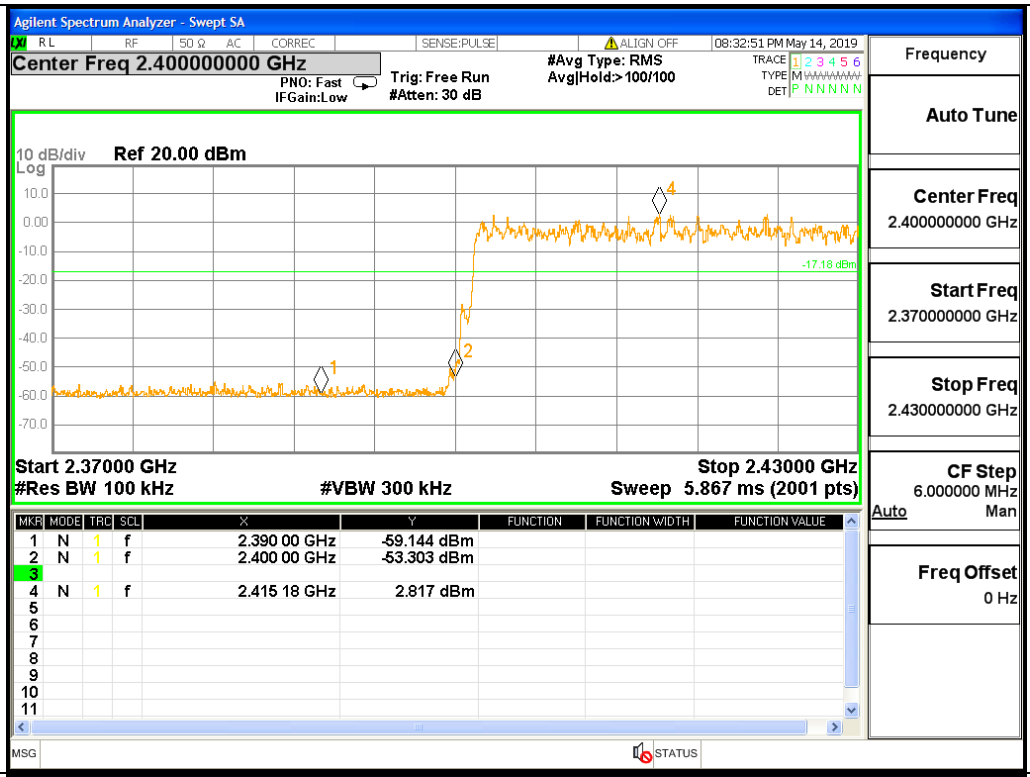
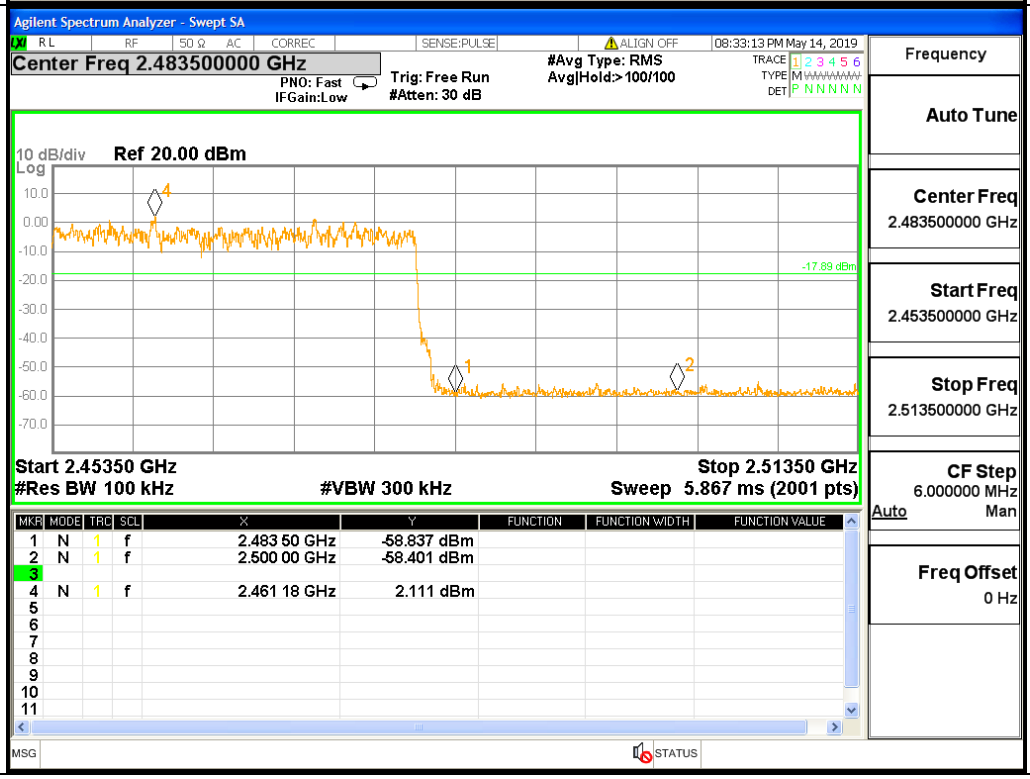
Test Graph

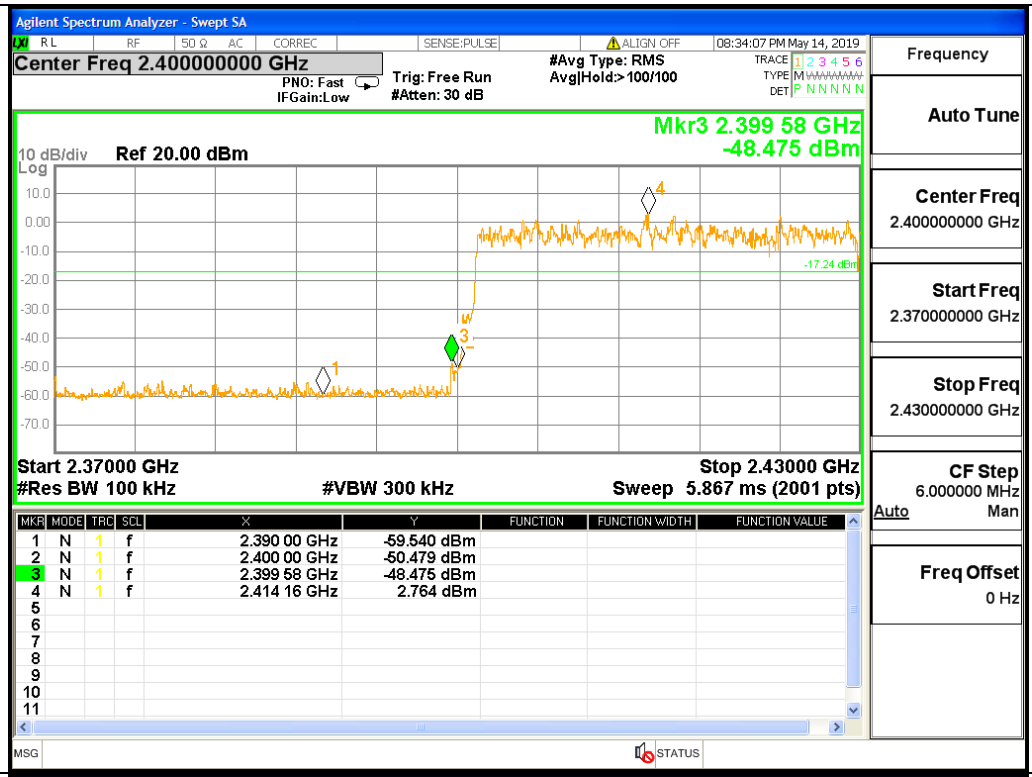
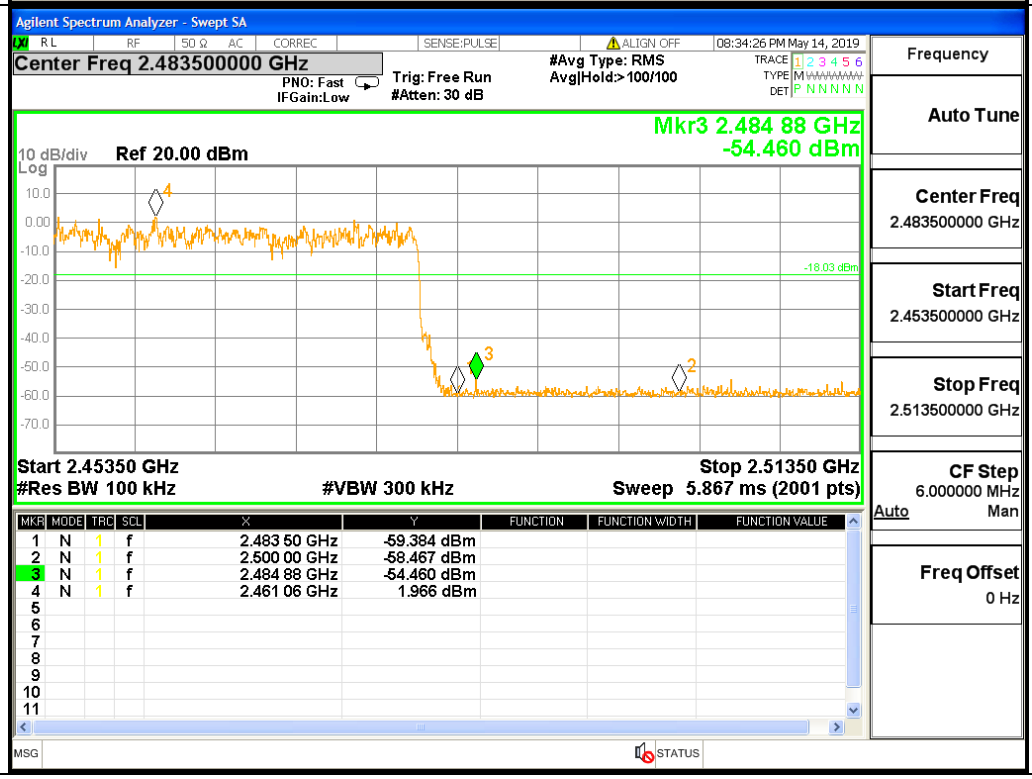
Graphs	
GFSK/LCH/No Hop	
GFSK/HCH/No Hop	

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

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

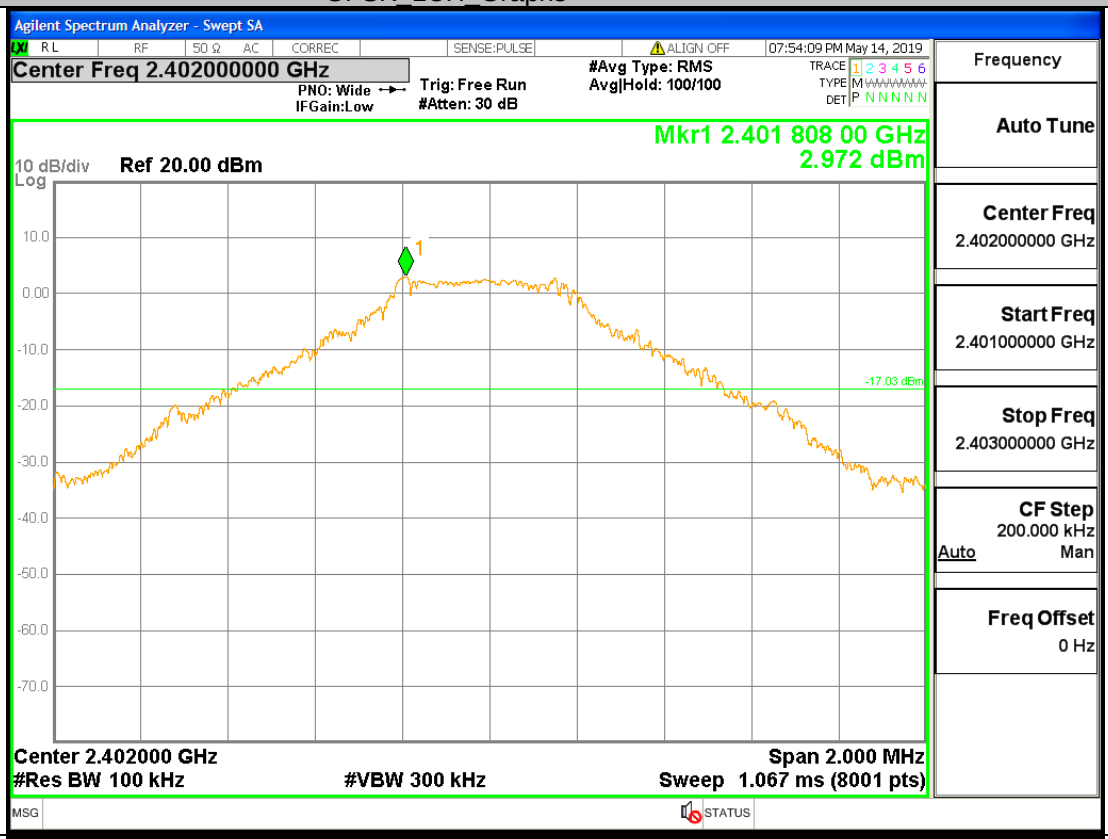
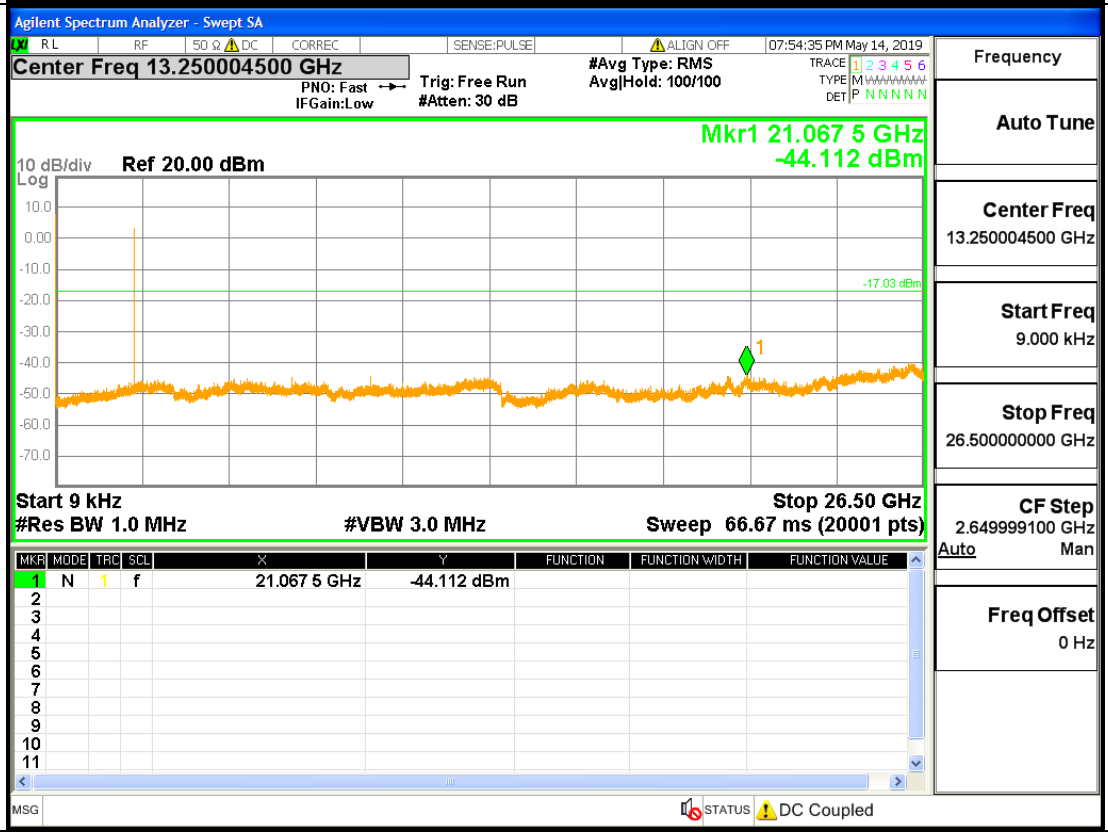
GFSK/LCH/Hop	
GFSK/HCH/Hop	

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	

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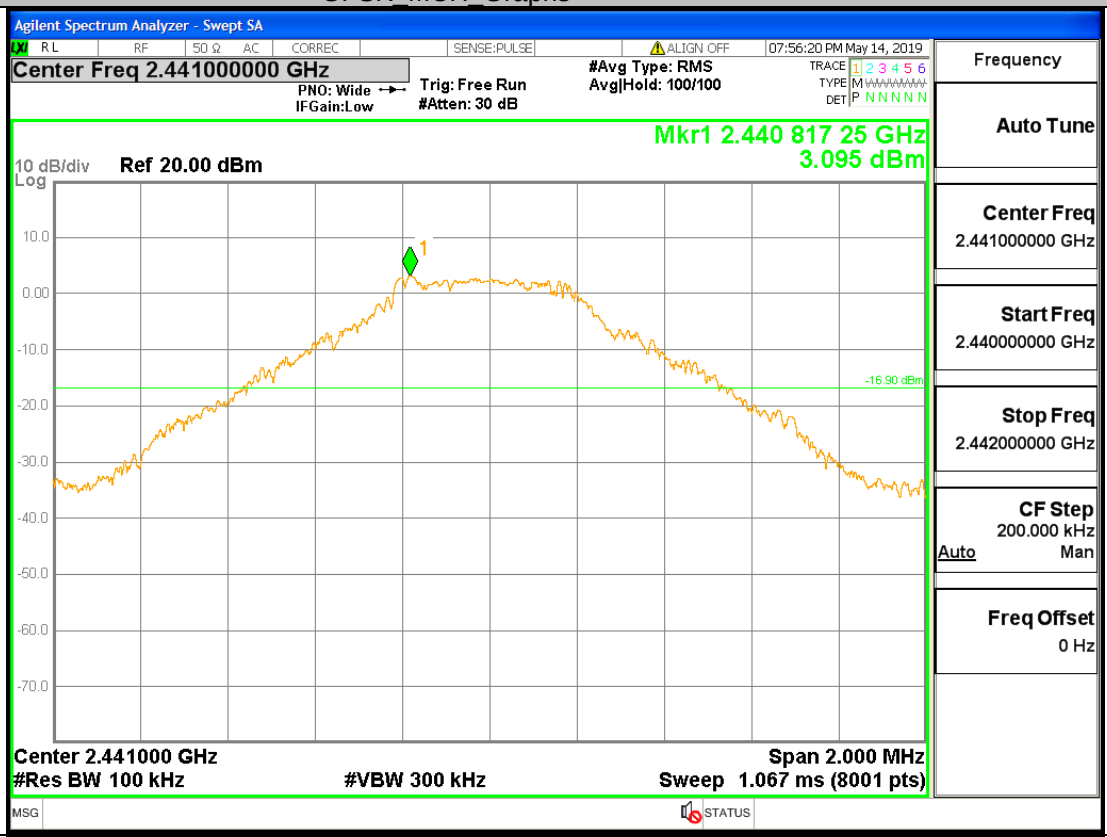
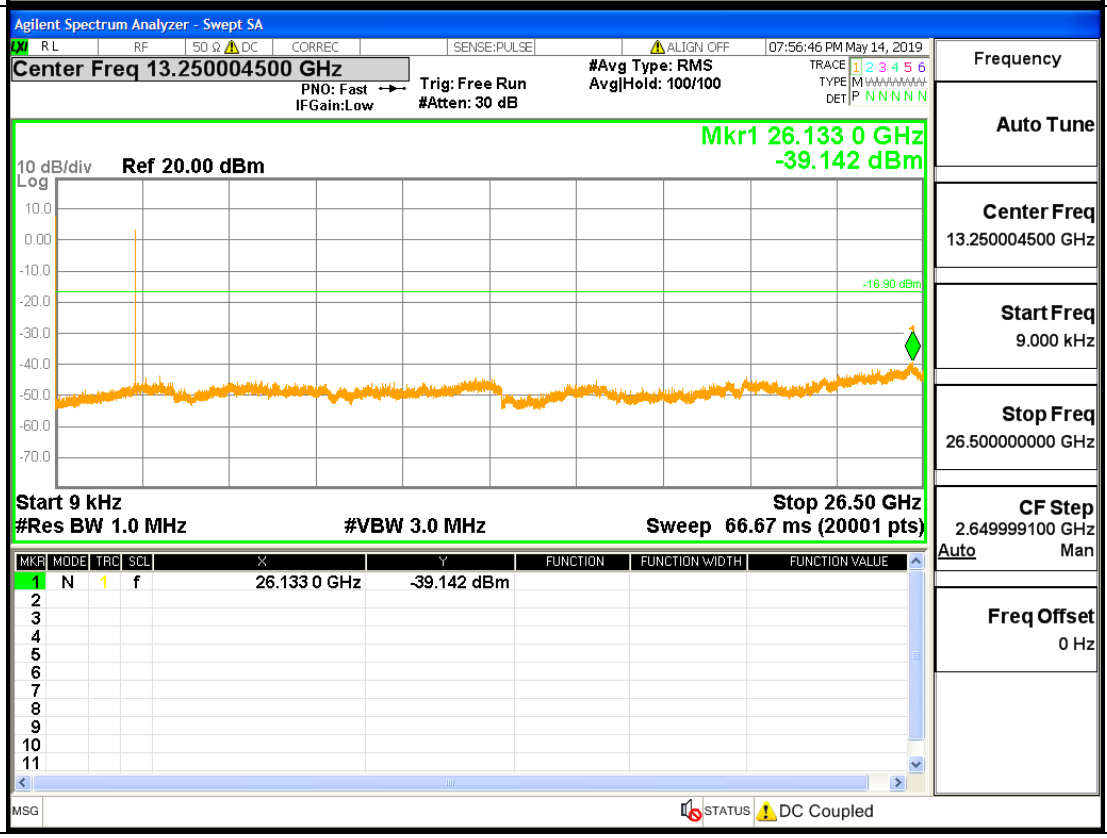
Pref	
Puw	

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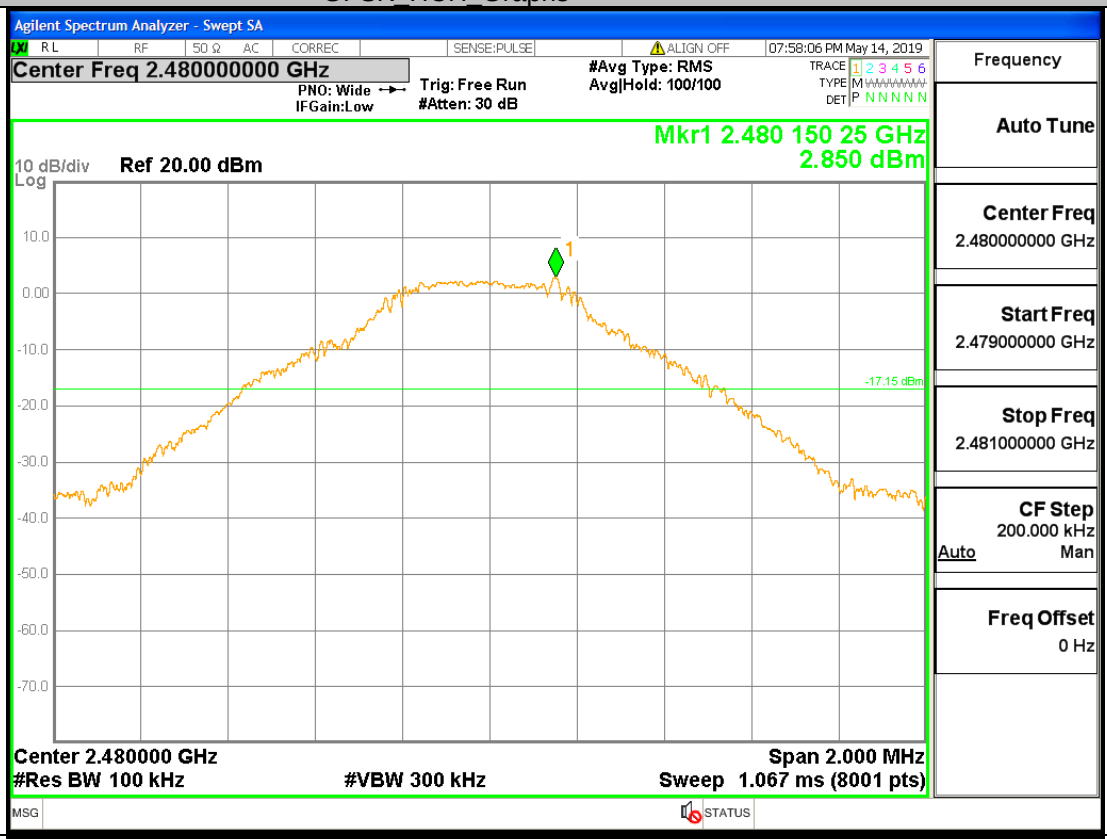
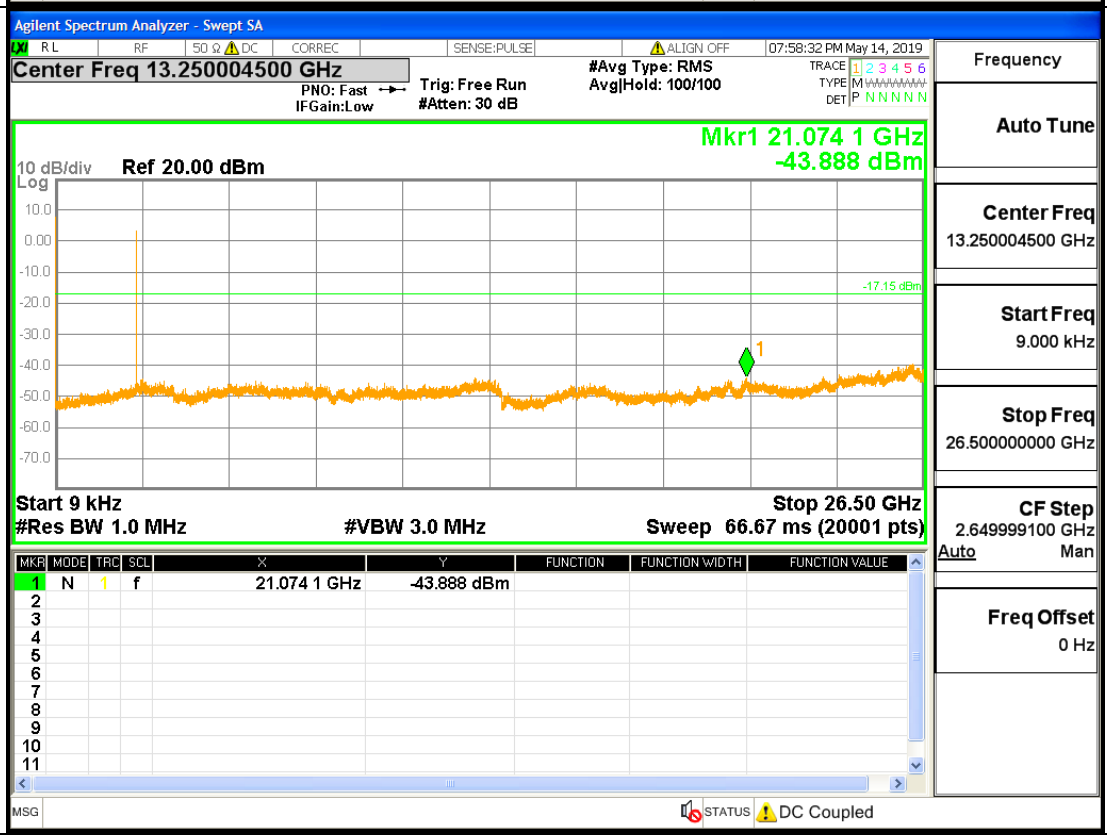
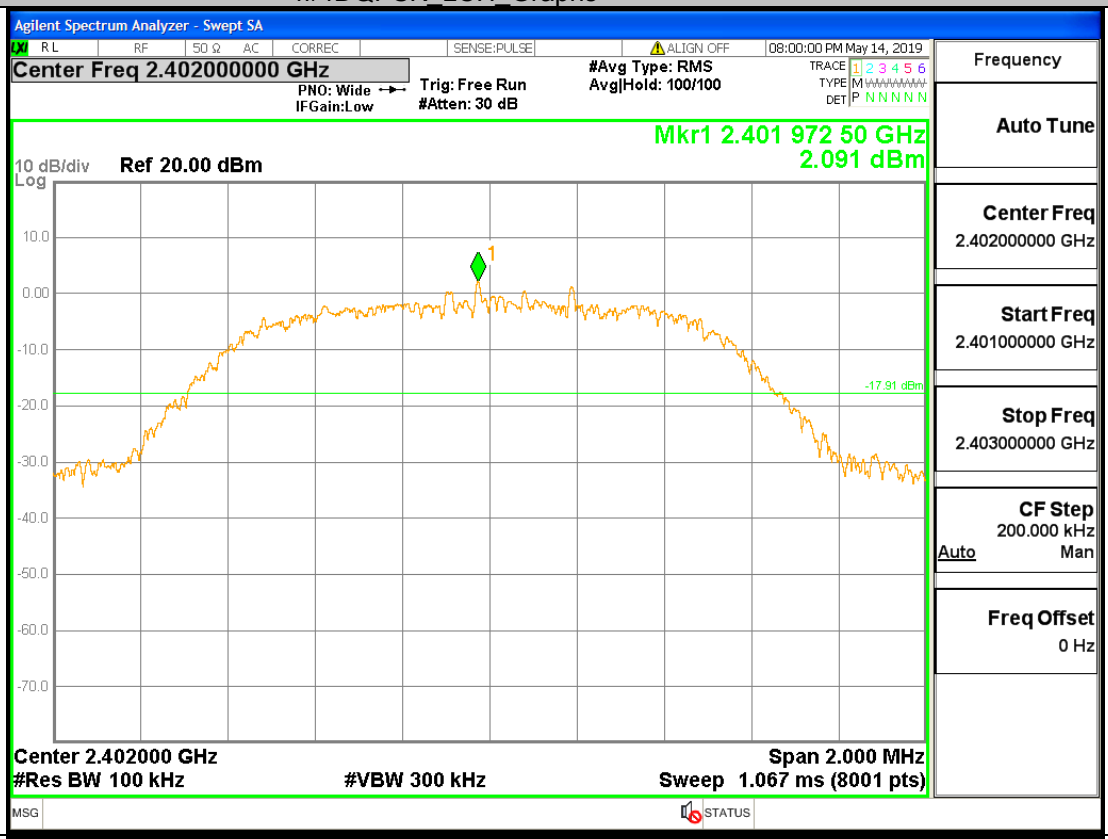
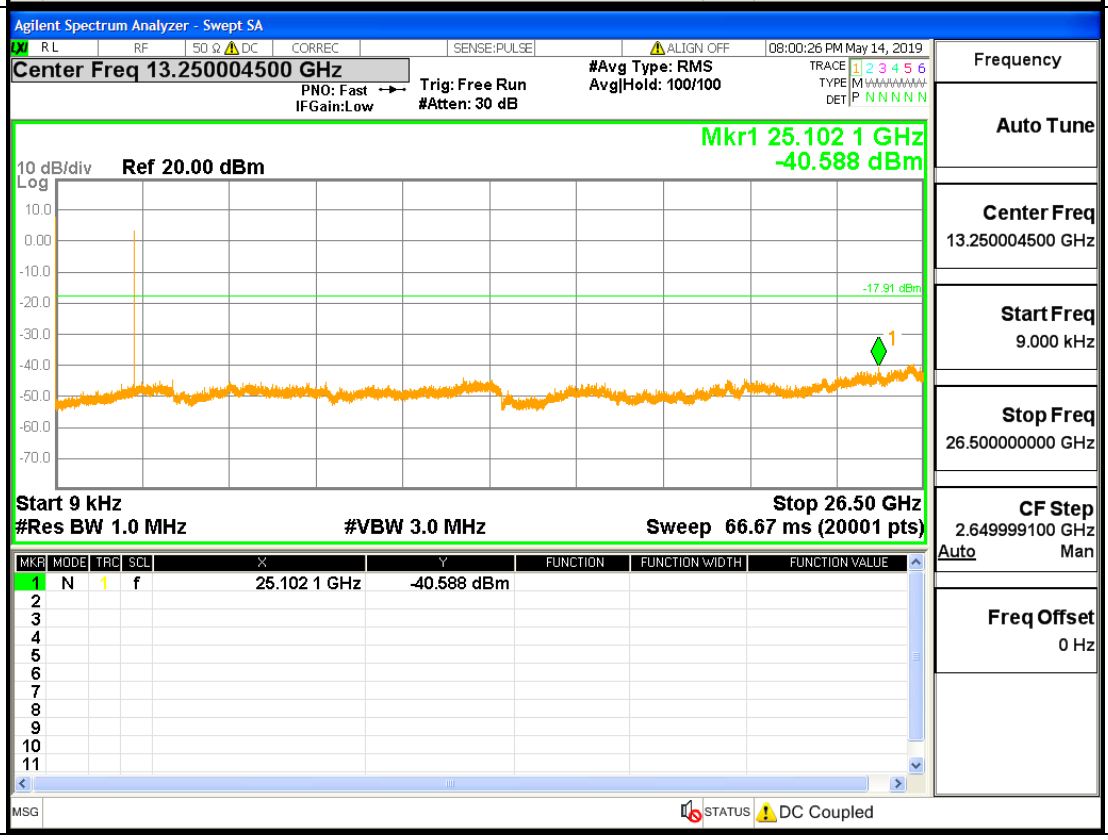
Pref	
Puw	

π/4DQPSK_LCH_Graphs	
Pref	
Puw	

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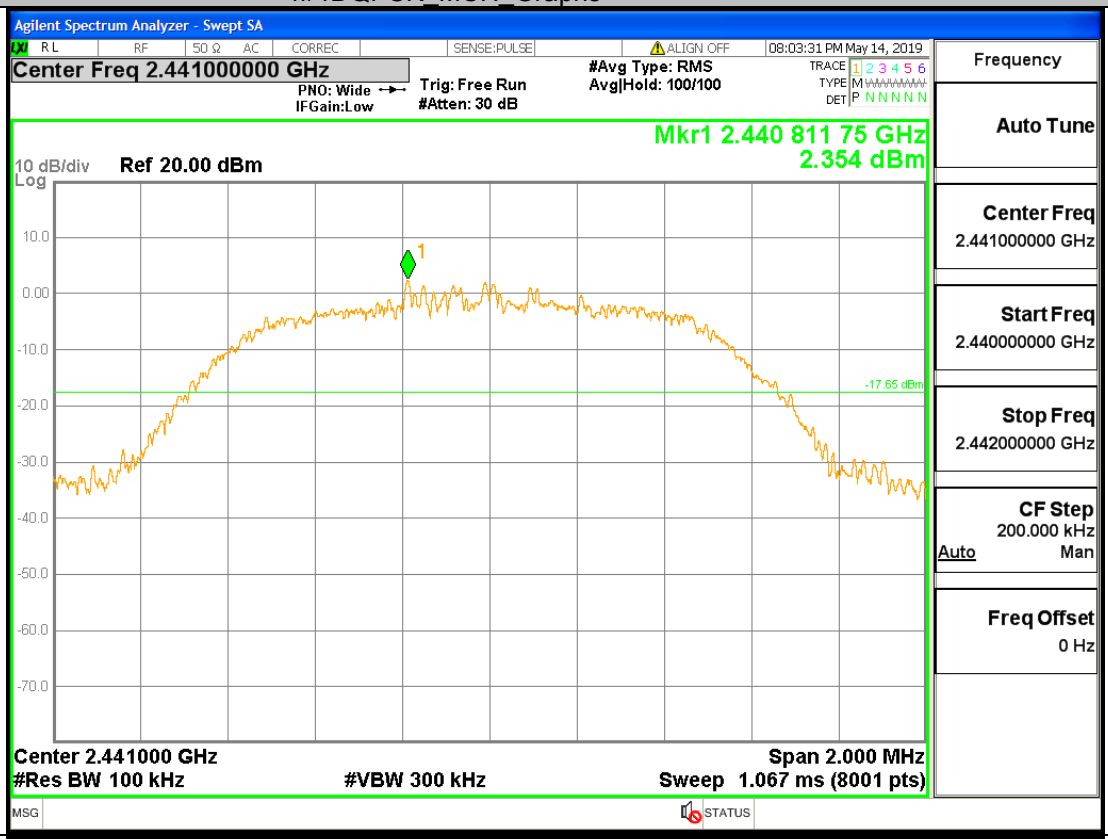
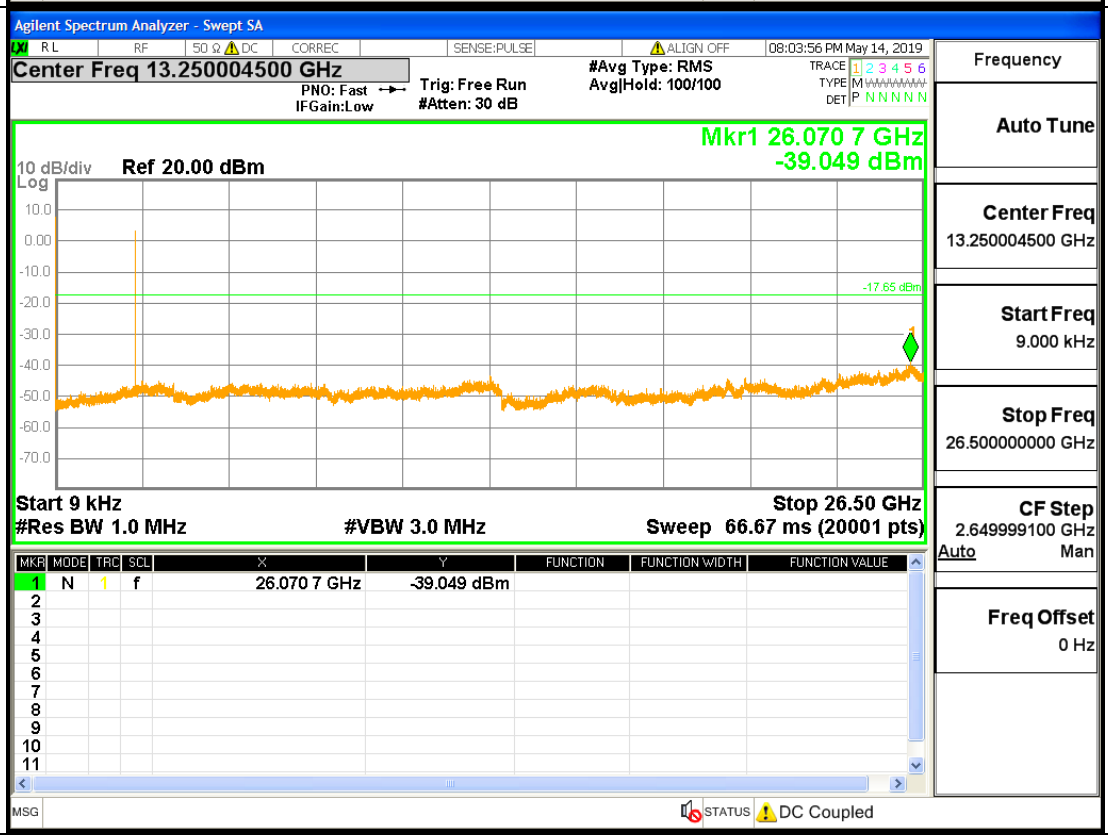
Pref	
Puw	

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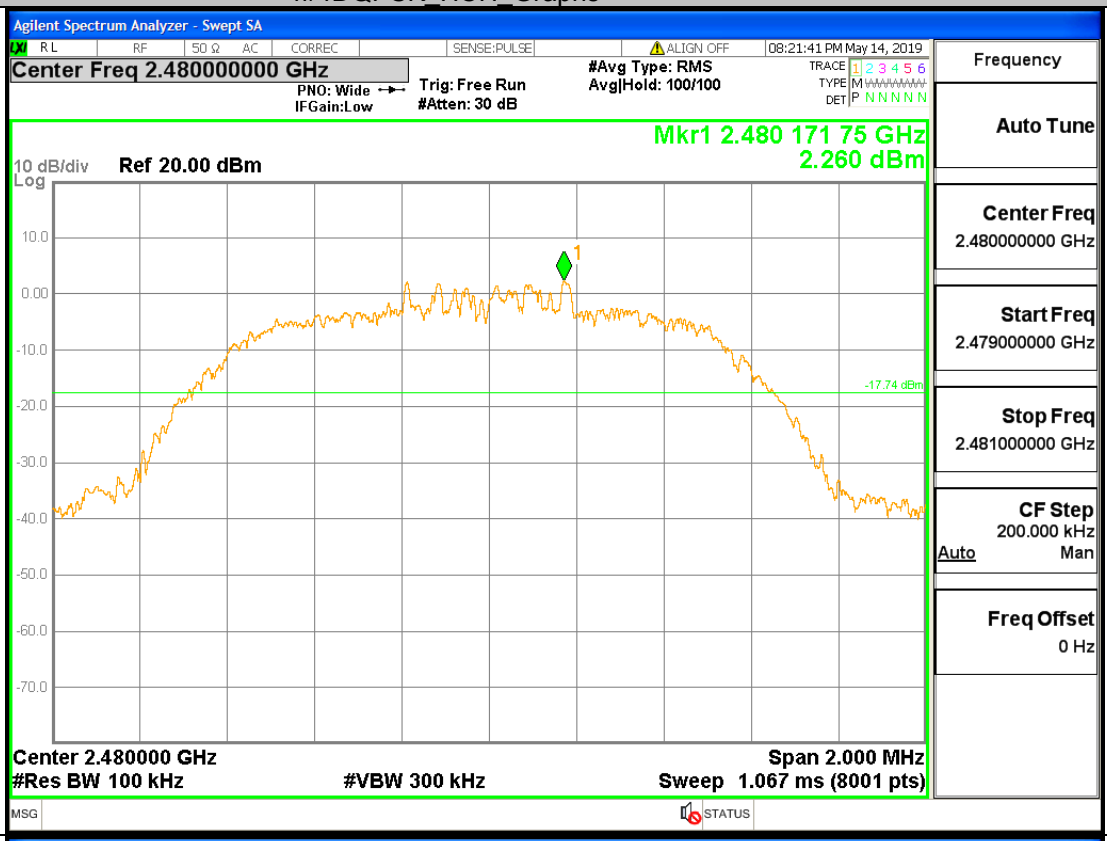
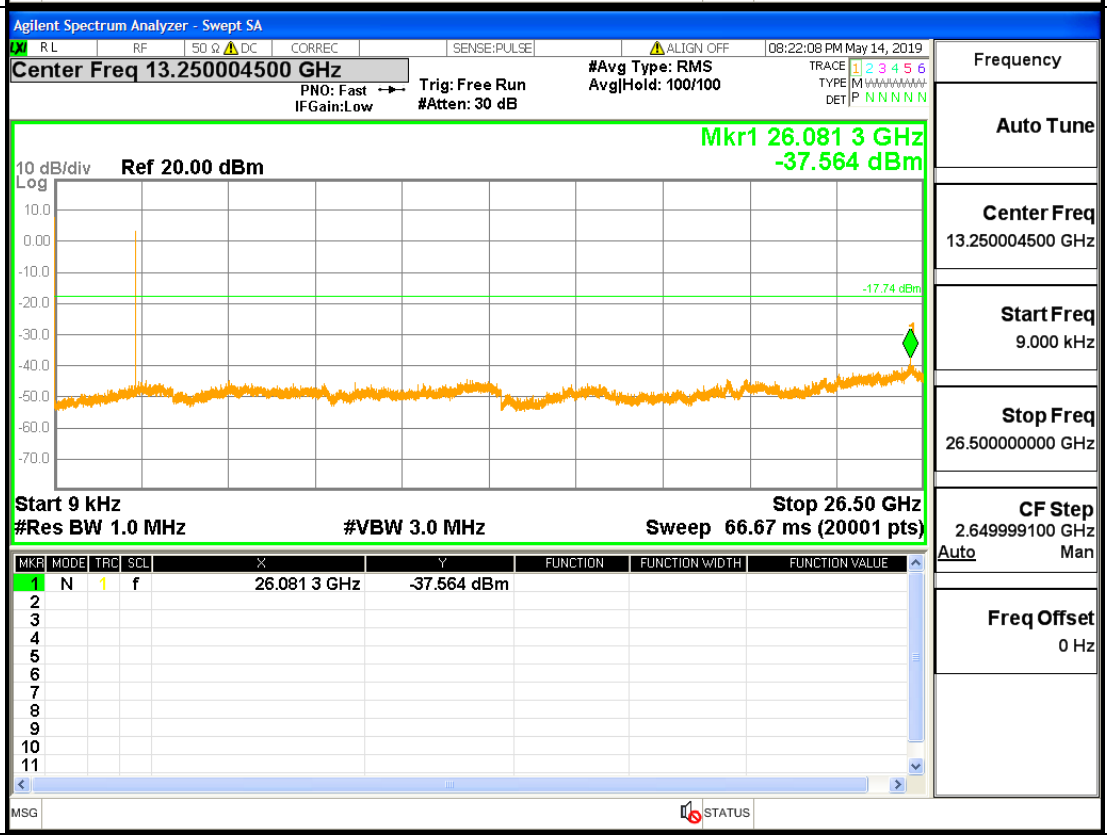
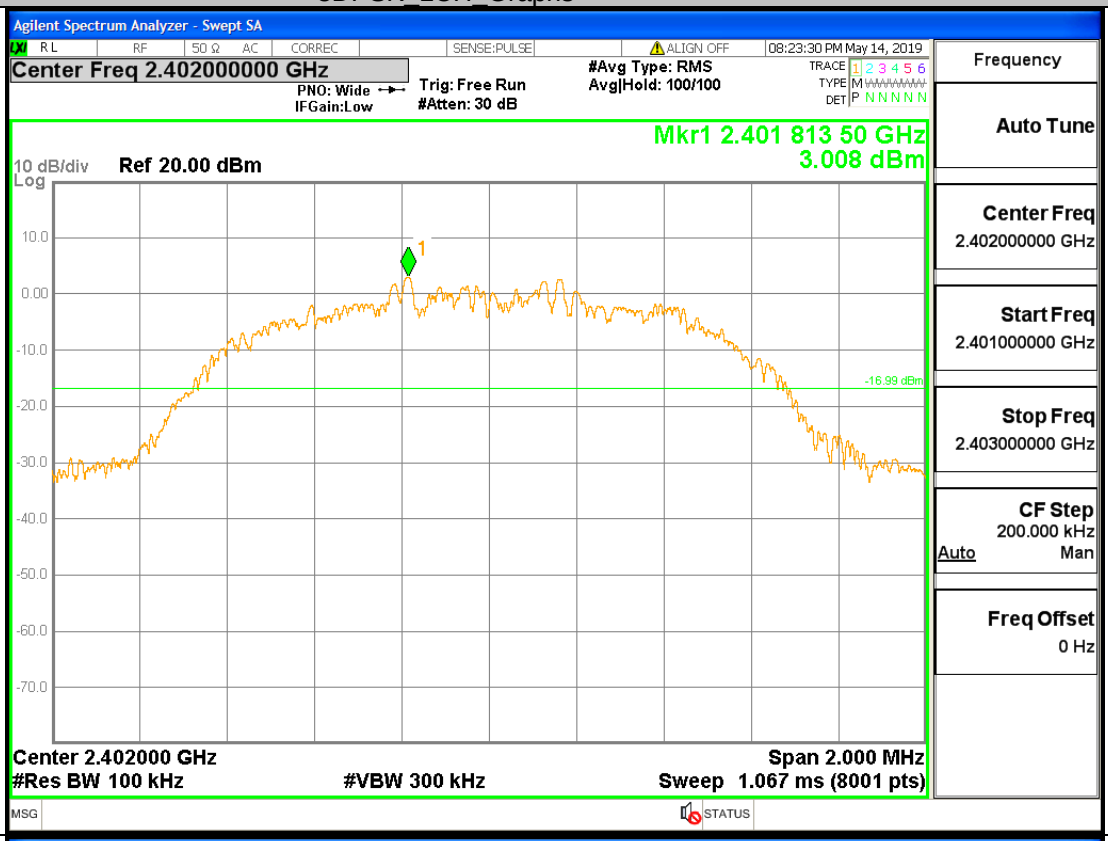
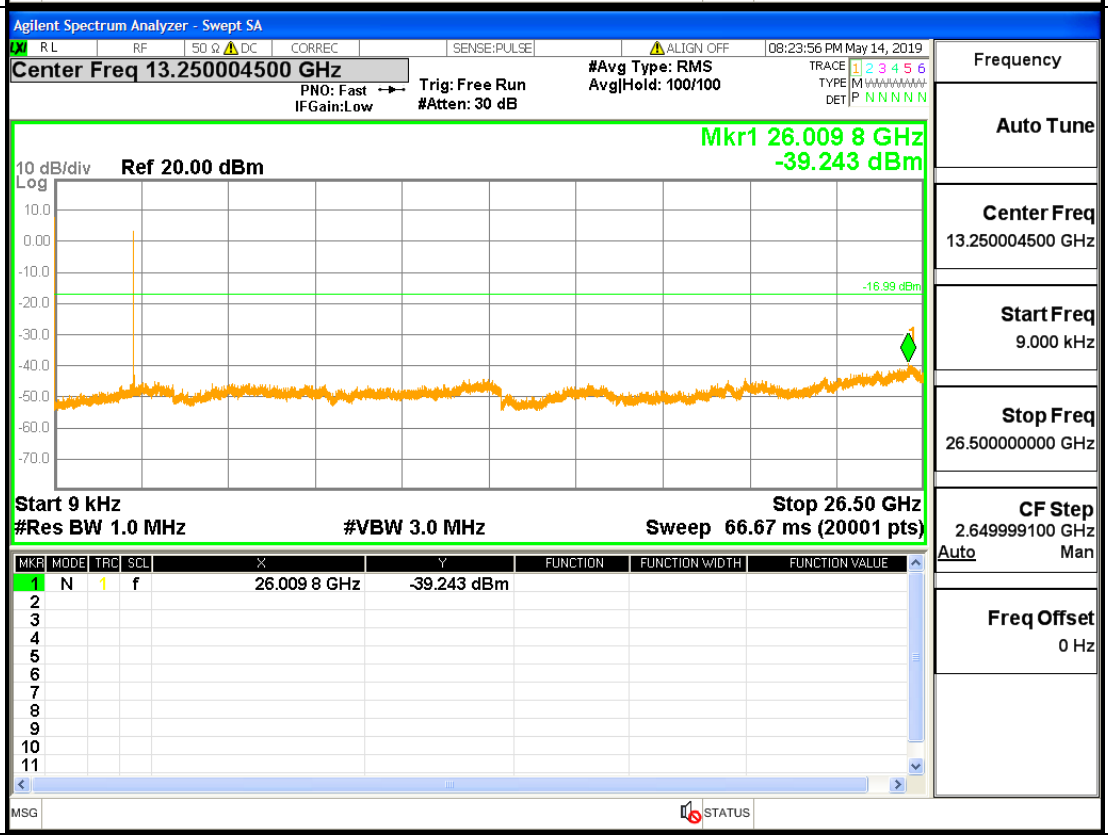
Pref	
Puw	

8DPSK_LCH_Graphs	
Pref	
Puw	

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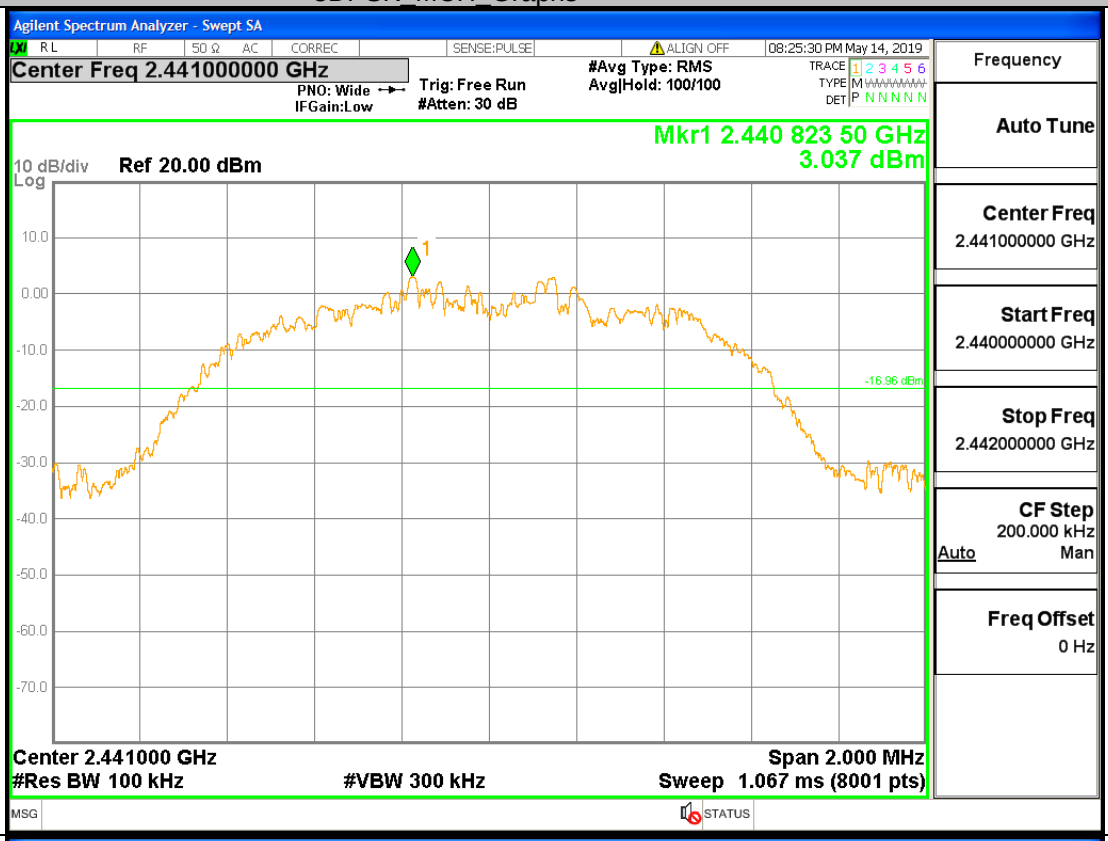
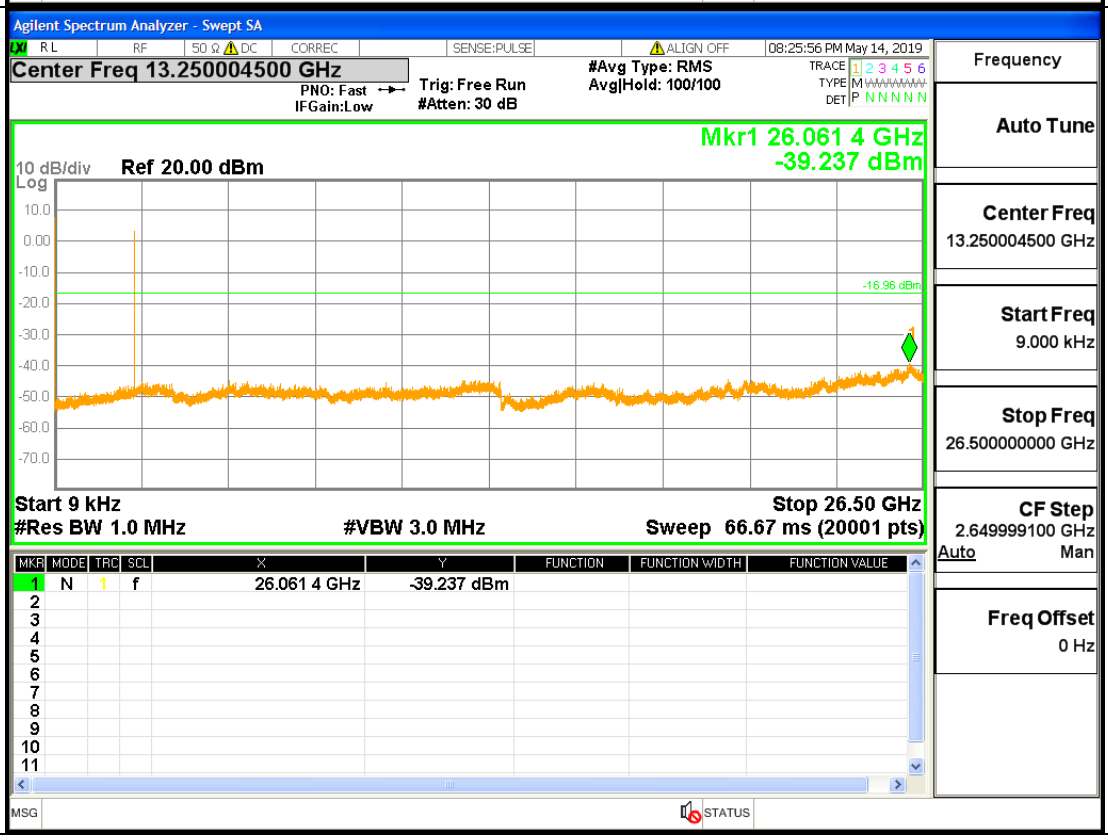
Pref	
Puw	

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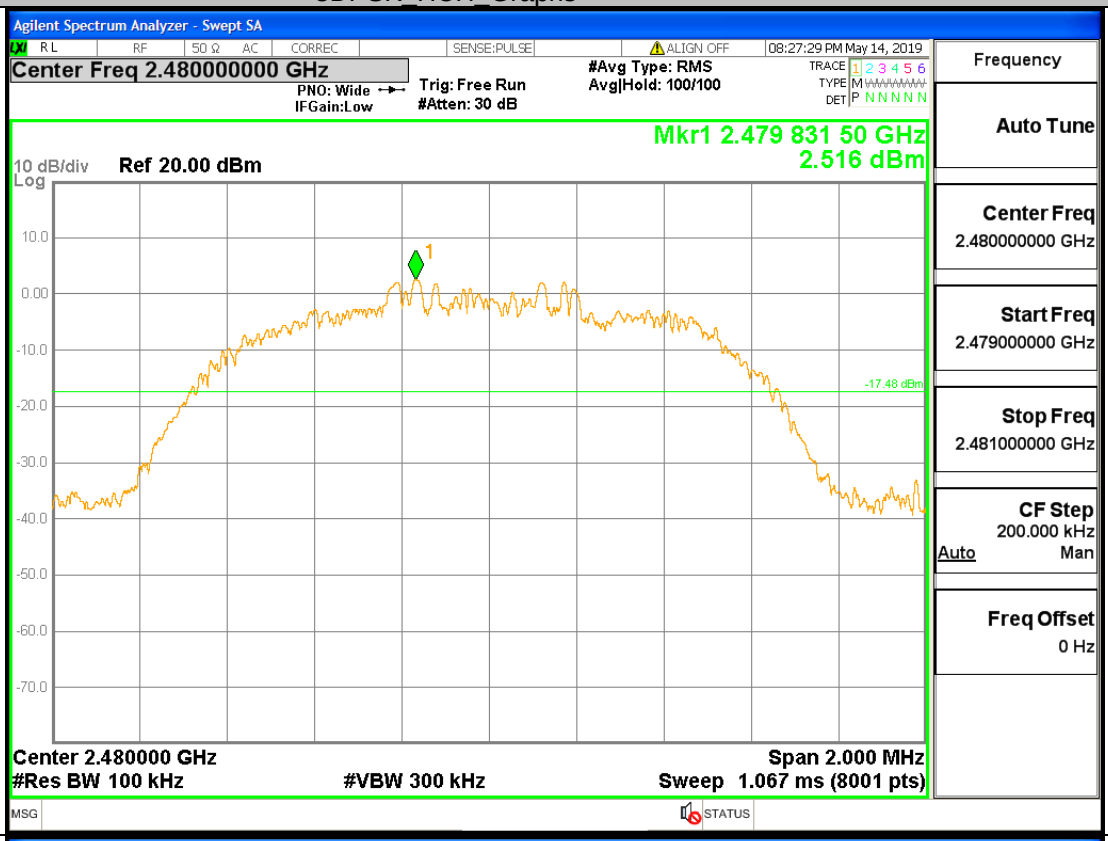
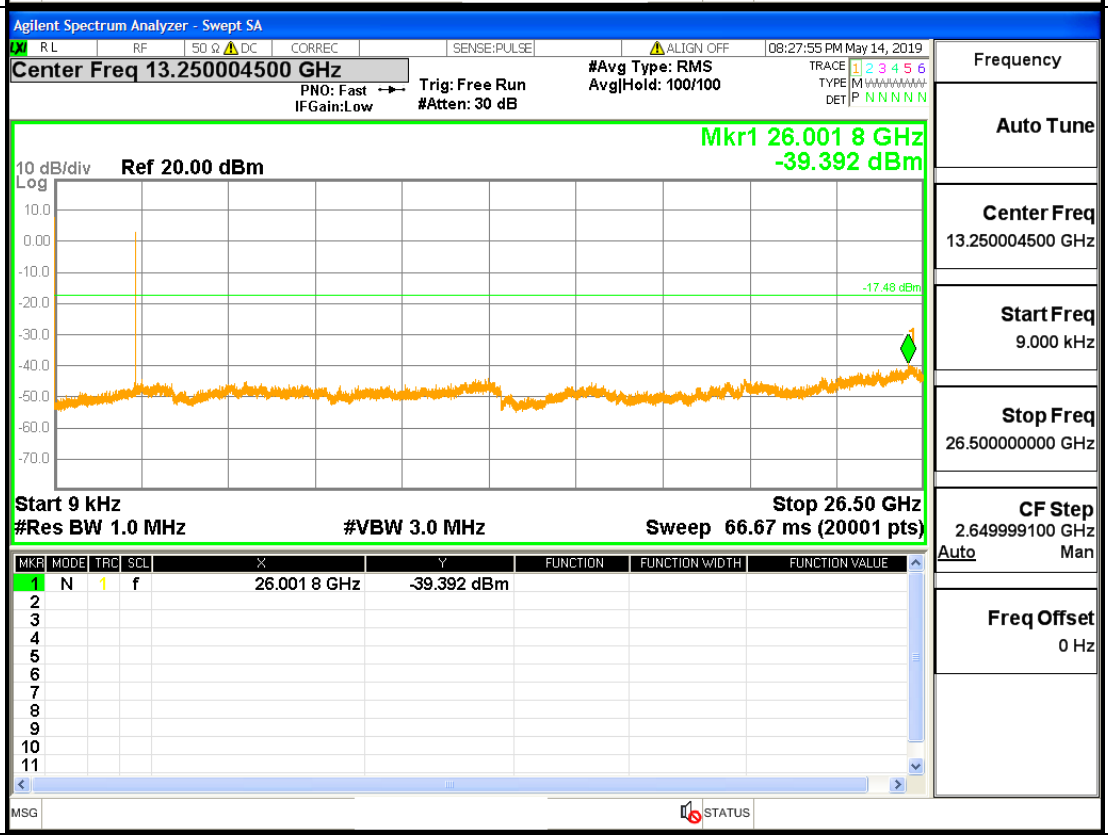
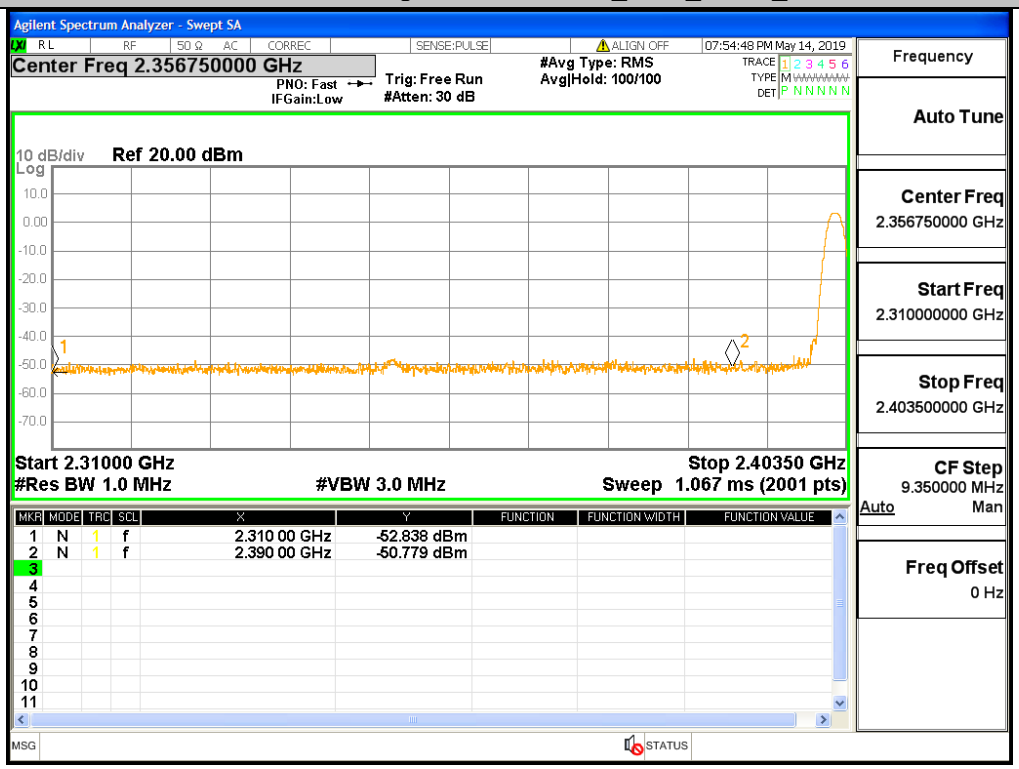
Pref	
Puw	

A.8 Restrict-band band-edge measurements

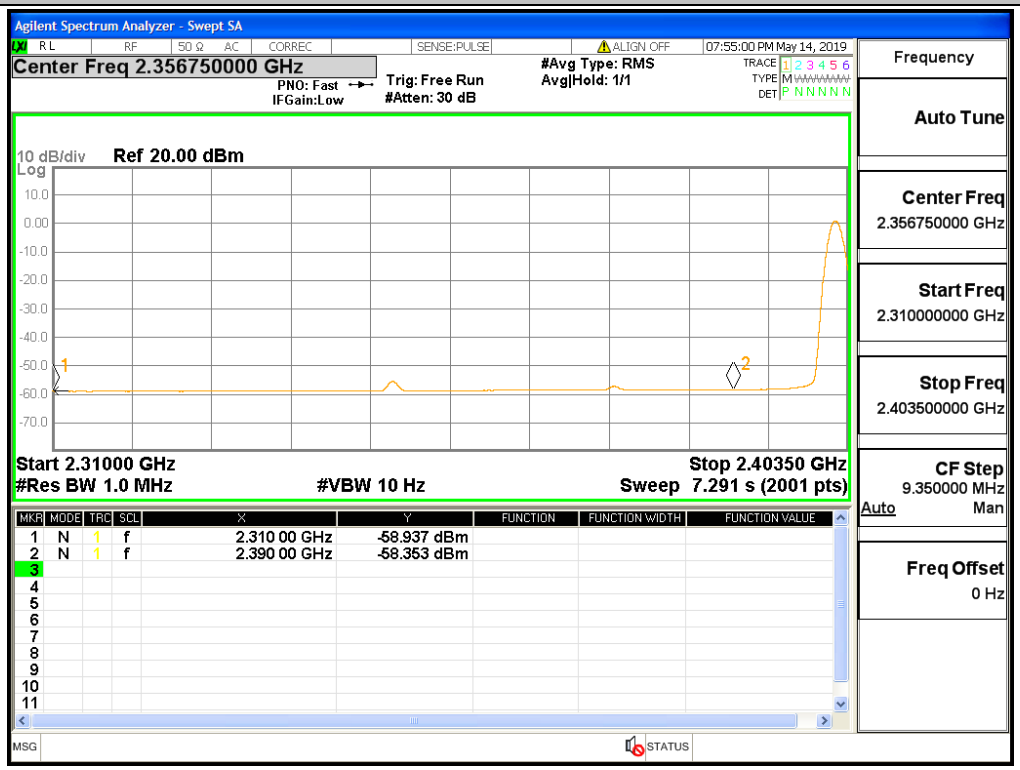
Type	Carrier Frequency (MHz)	Frequency(MHz)	Gain	Ground Factor	Peak Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2390.0	2.00	0.00	-50.78	46.42	74	Pass
1DH5	2480	2483.8	2.00	0.00	-39.60	57.60	74	Pass
2DH5	2402	2390.0	2.00	0.00	-51.58	45.62	74	Pass
2DH5	2480	2483.5	2.00	0.00	-47.72	49.48	74	Pass
3DH5	2402	2390.0	2.00	0.00	-52.18	45.02	74	Pass
3DH5	2480	2485.2	2.00	0.00	-44.32	52.88	74	Pass

Type	Carrier Frequency (MHz)	Frequency(MHz)	Gain	Ground Factor	Average Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2390.0	2.00	0.00	-58.35	38.85	54	Pass
1DH5	2480	2483.5	2.00	0.00	-55.46	41.74	54	Pass
2DH5	2402	2390.0	2.00	0.00	-58.49	38.71	54	Pass
2DH5	2480	2483.5	2.00	0.00	-55.40	41.80	54	Pass
3DH5	2402	2390.0	2.00	0.00	-58.45	38.75	54	Pass
3DH5	2480	2483.5	2.00	0.00	-55.39	41.81	54	Pass

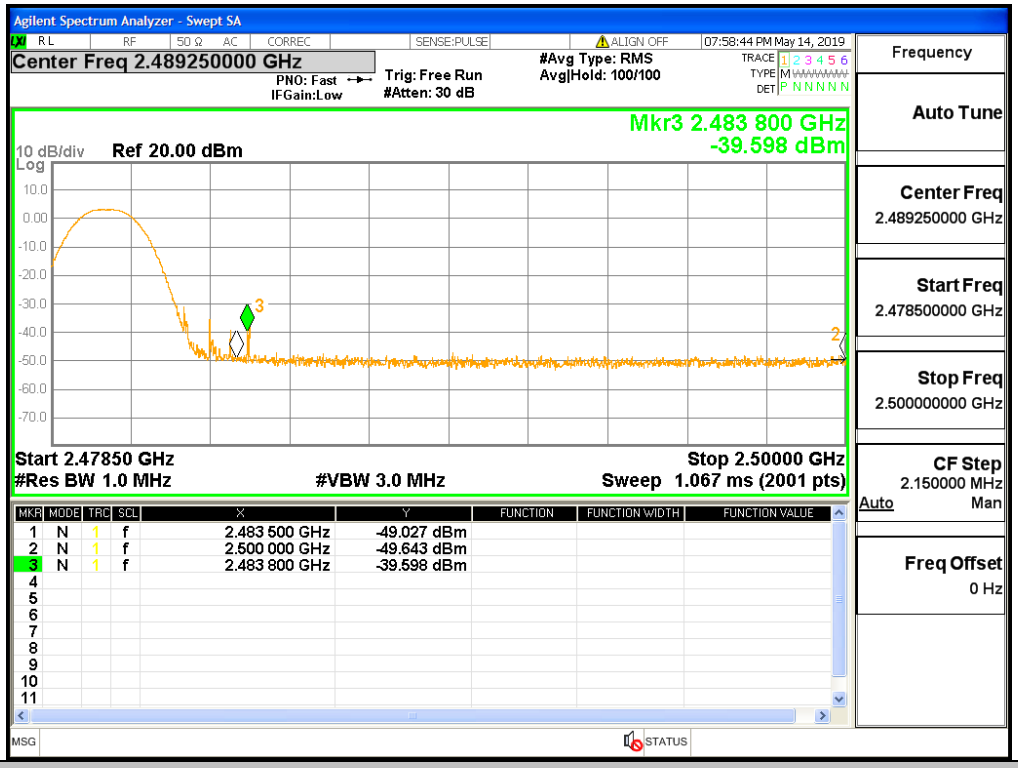
Restrict-band band-edge measurements_2402_PEAK_DH5



Restrict-band band-edge measurements_2402_AV_DH5

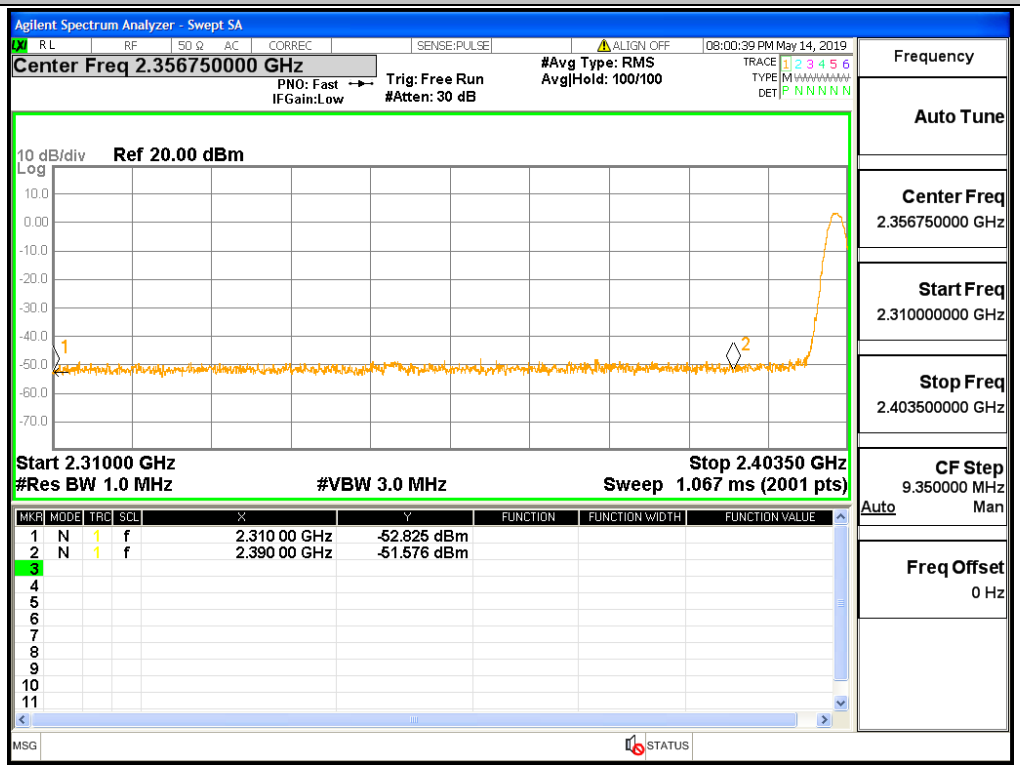


Restrict-band band-edge measurements_2480_PEAK_DH5

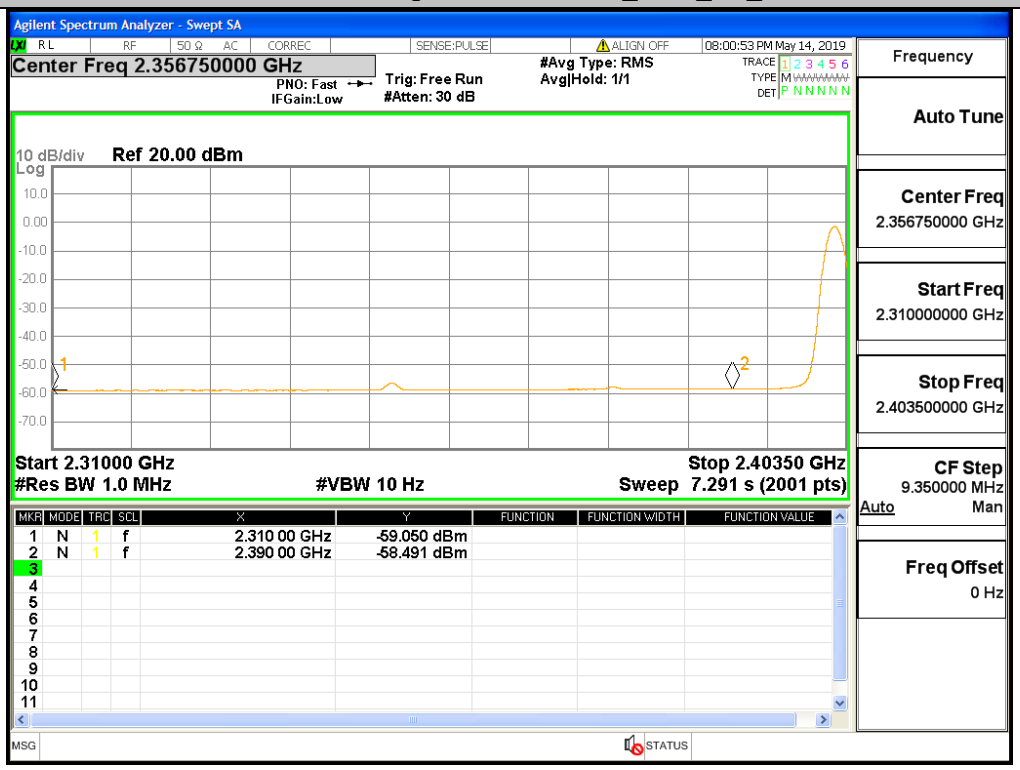


Restrict-band band-edge measurements_2480_AV_DH5

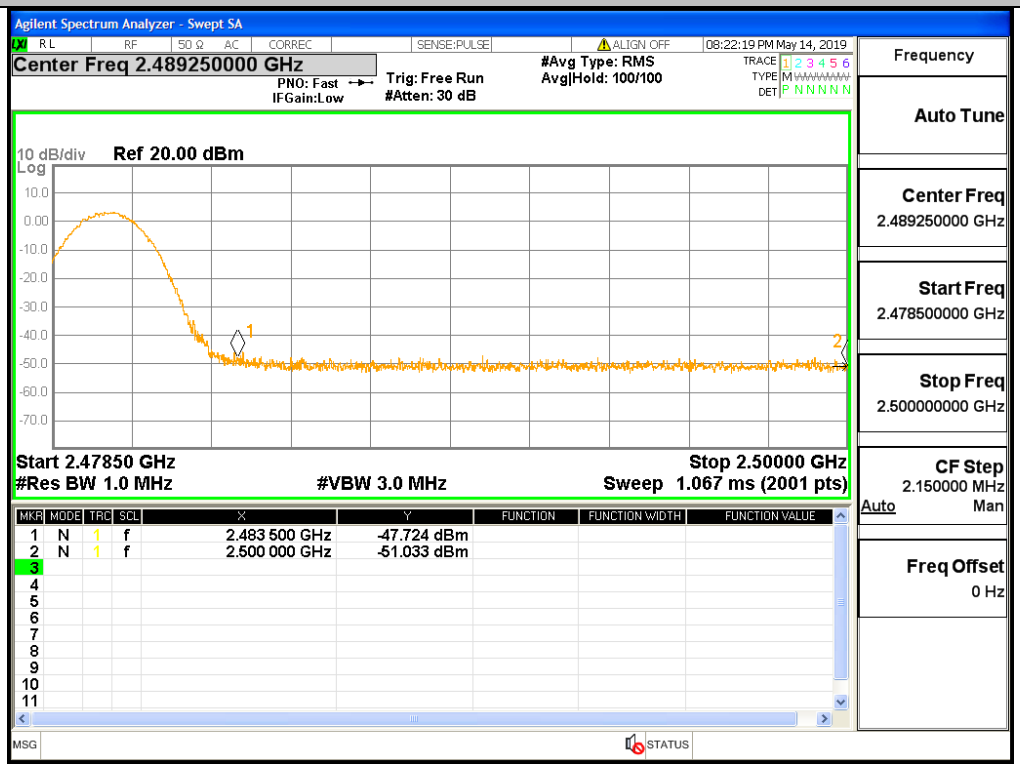
Restrict-band band-edge measurements_2402_PEAK_2DH5



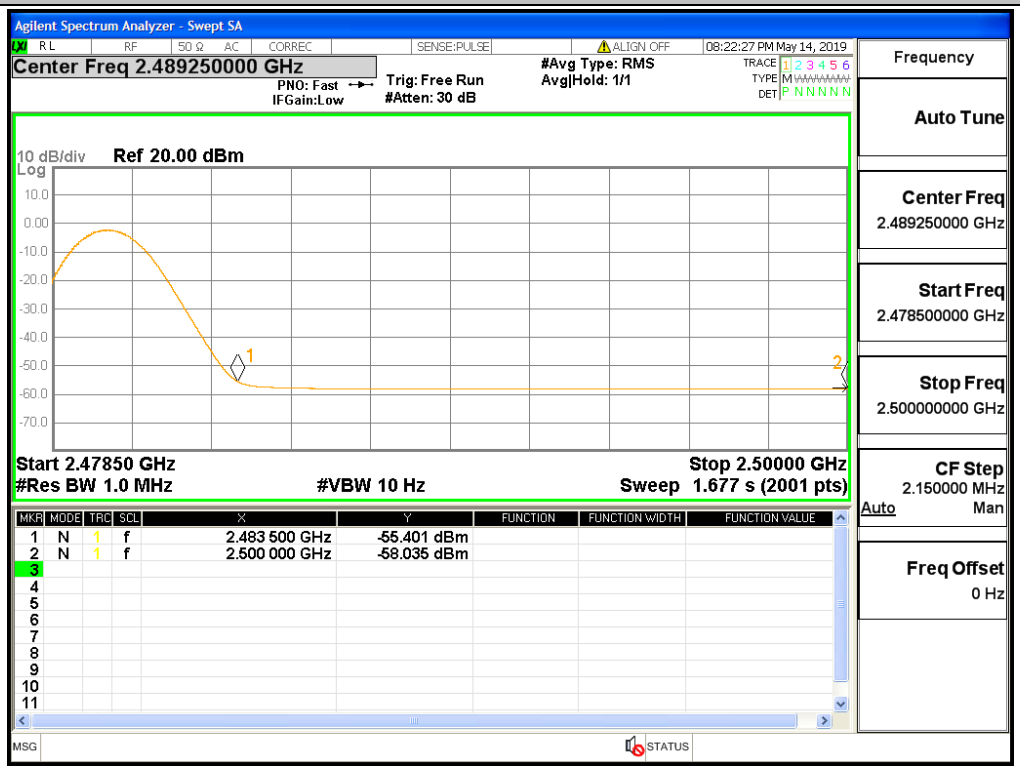
Restrict-band band-edge measurements_2402_AV_2DH5



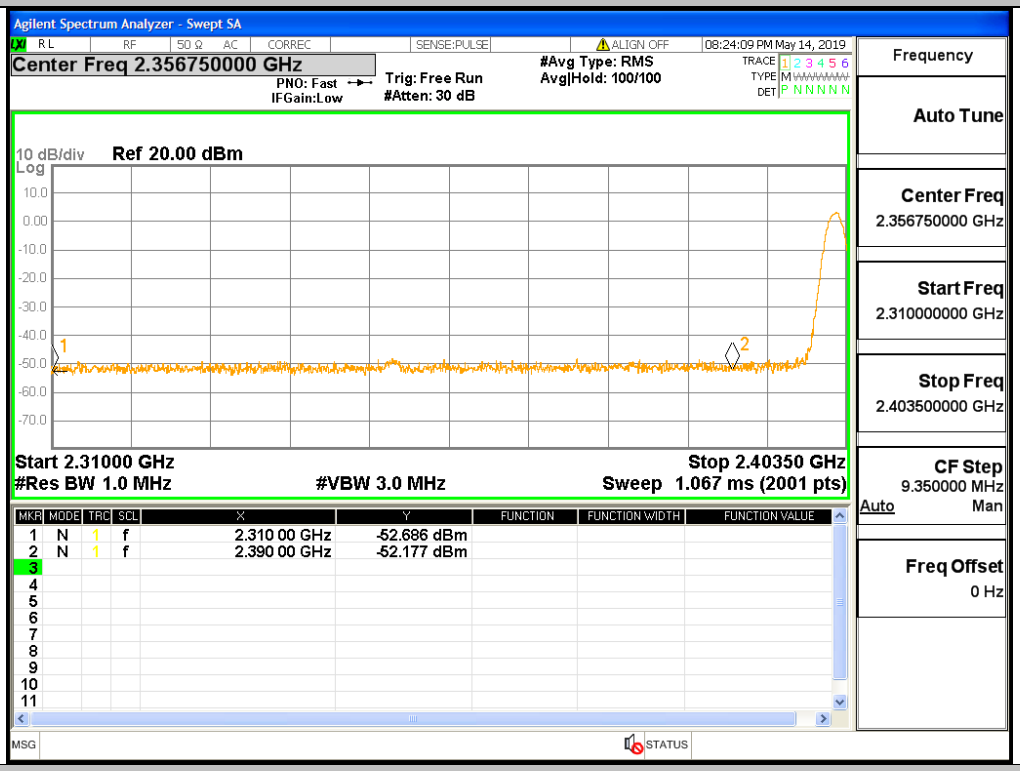
Restrict-band band-edge measurements_2480_PEAK_2DH5



Restrict-band band-edge measurements_2480_AV_2DH5

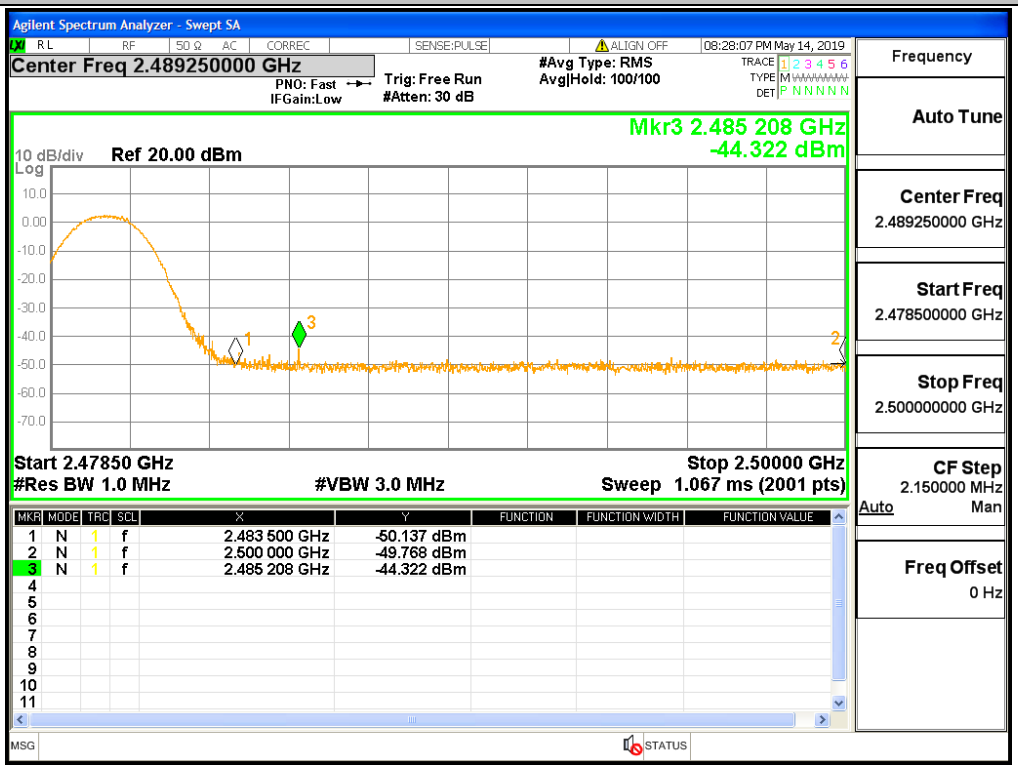


Restrict-band band-edge measurements_2402_PEAK_3DH5



Restrict-band band-edge measurements_2402_AV_3DH5

Restrict-band band-edge measurements_2480_PEAK_3DH5



Restrict-band band-edge measurements_2480_AV_3DH5