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

Product Name: Multimedia Car players

Trade Mark: Power Acoustik , Soundstream, Nakamichi

Test Model: CPAA-70D

FCC ID: 2AVFC-CPAA-70D

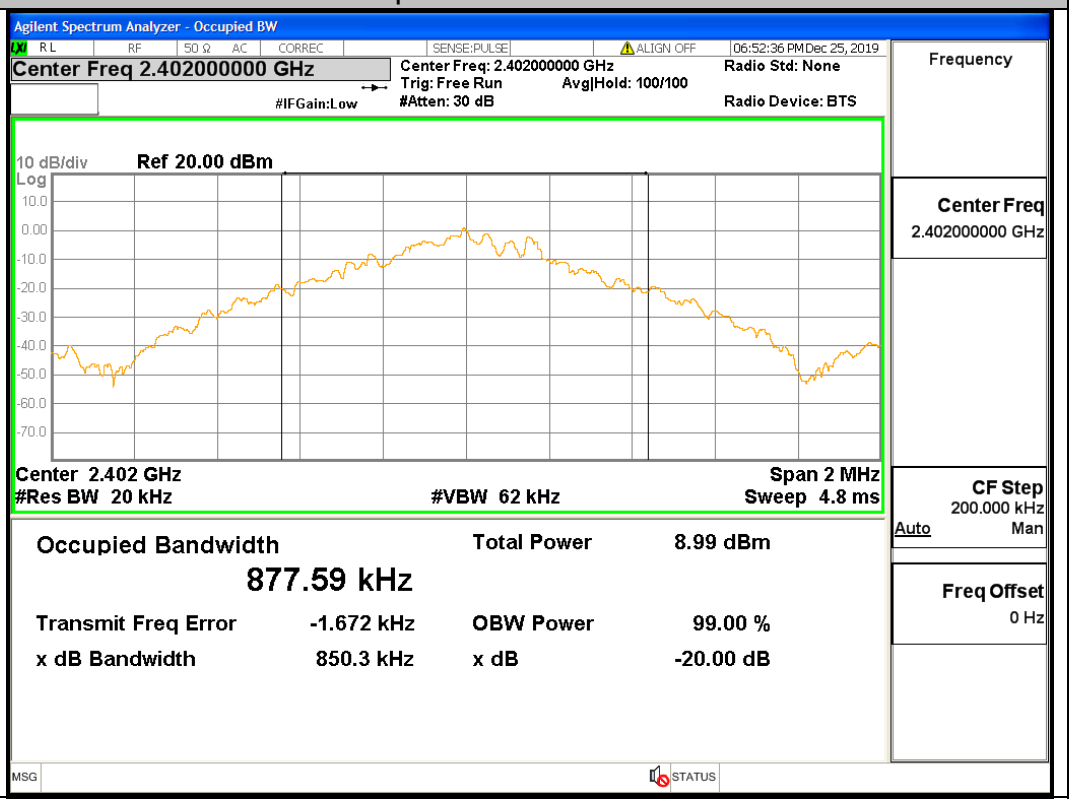
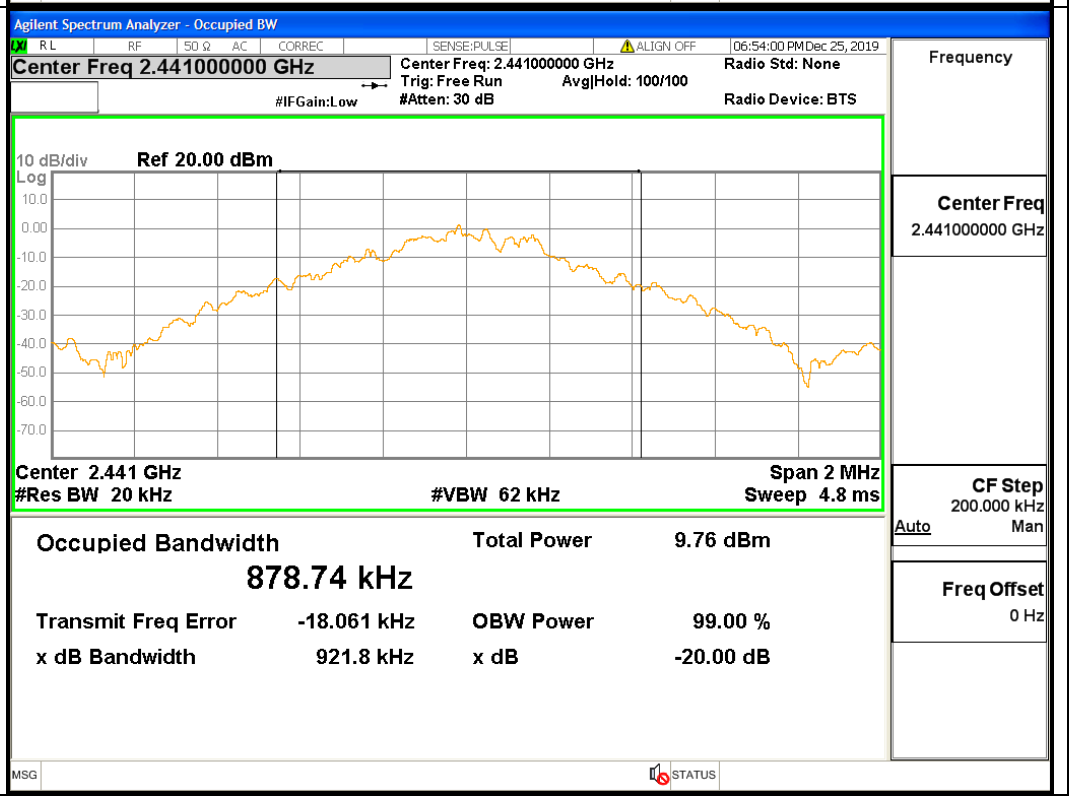
Environmental Conditions

Temperature:	22.7° C
Relative Humidity:	50%
ATM Pressure:	100.0 kPa
Test Engineer:	Gary Qian
Supervised by:	Eden Hu

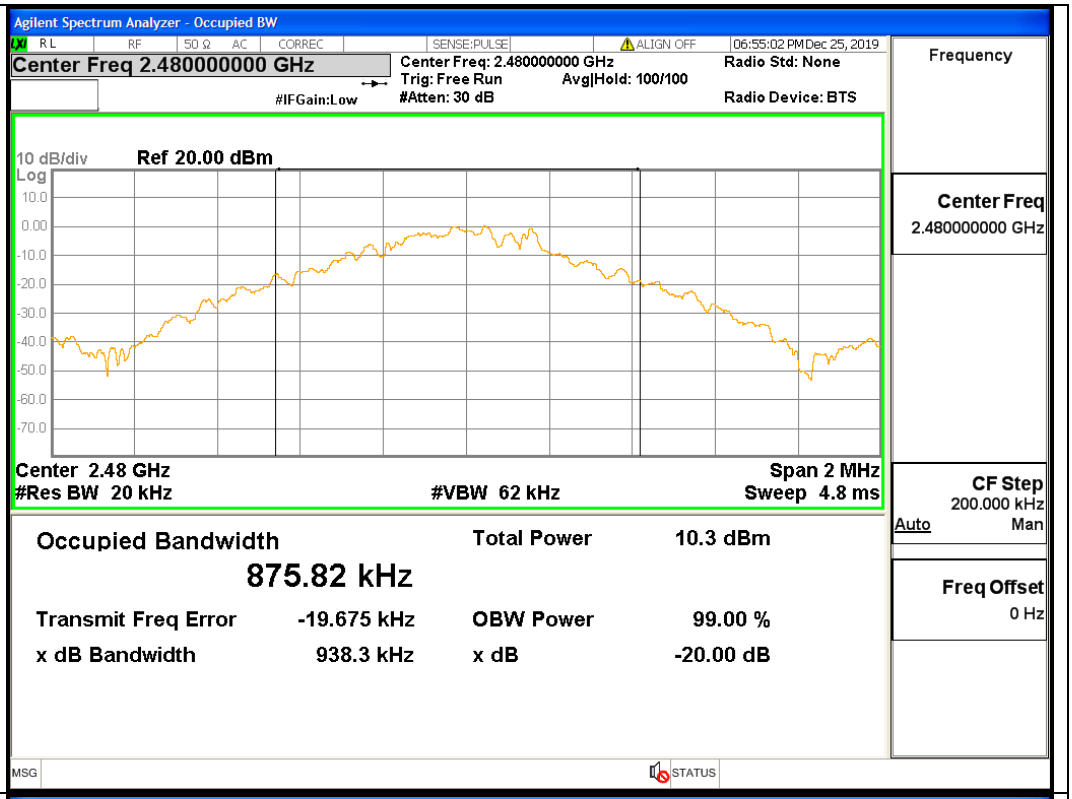
A.1 20 dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit(MHz)	Verdict
GFSK	LCH	0.850	Not Specified	PASS
GFSK	MCH	0.922	Not Specified	PASS
GFSK	HCH	0.938	Not Specified	PASS
π/4DQPSK	LCH	1.22	Not Specified	PASS
π/4DQPSK	MCH	1.199	Not Specified	PASS
π/4DQPSK	HCH	1.223	Not Specified	PASS
8DPSK	LCH	1.241	Not Specified	PASS
8DPSK	MCH	1.317	Not Specified	PASS
8DPSK	HCH	1.229	Not Specified	PASS

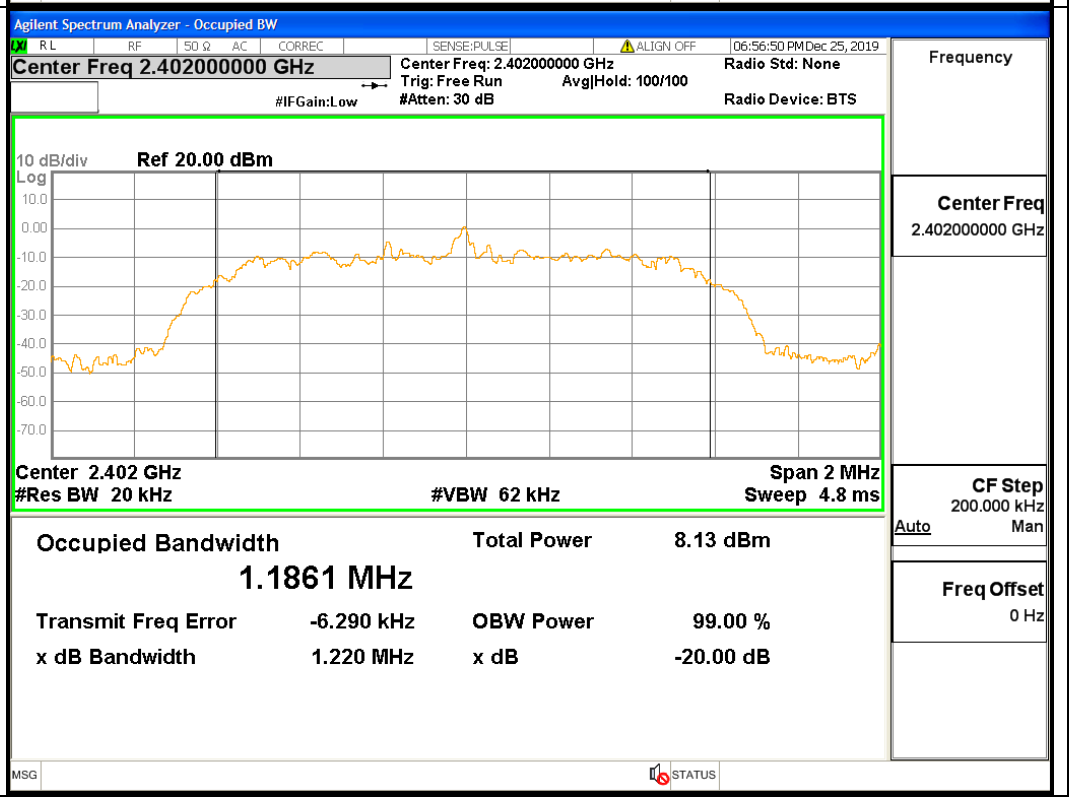
Test Graph

Graphs	
GFSK/LCH	
GFSK/MCH	

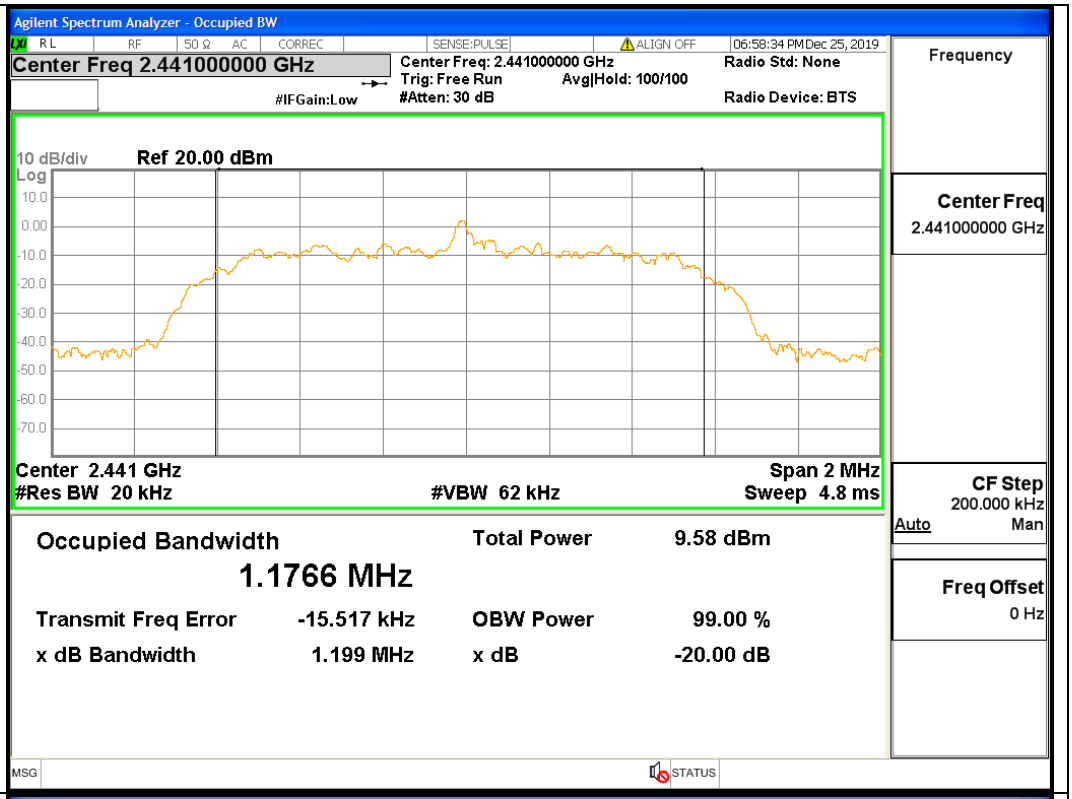
GFSK/HCH



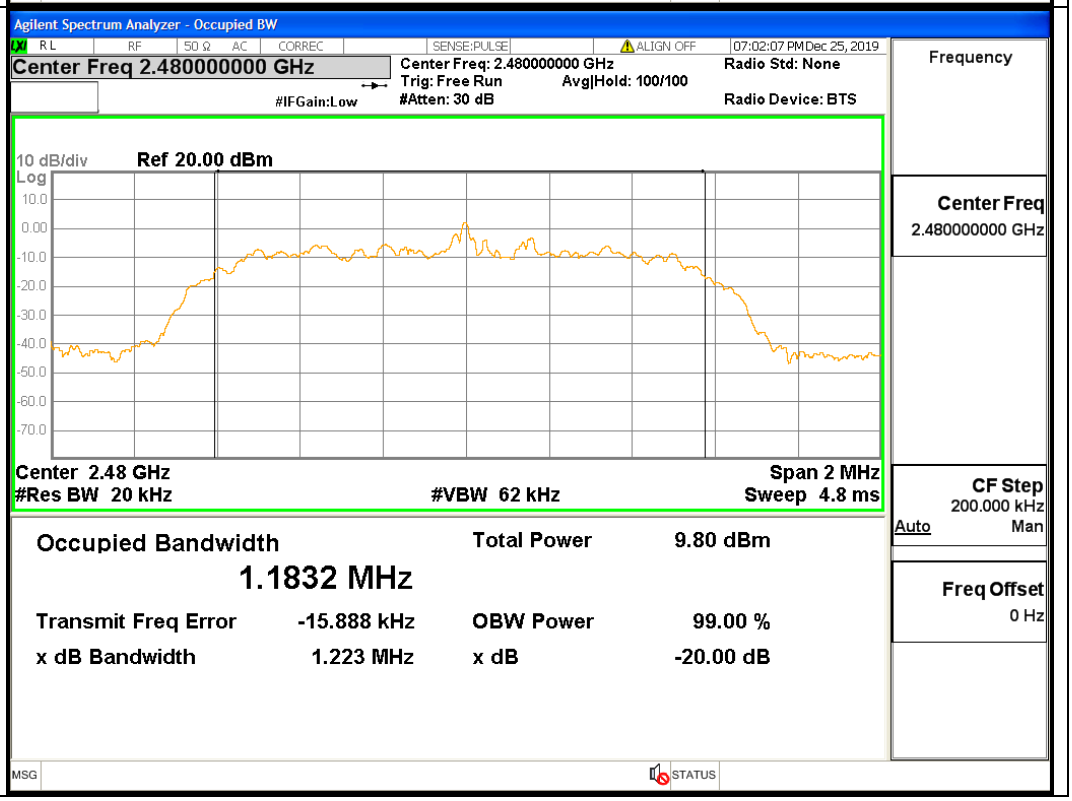
π/4DQPSK/LCH



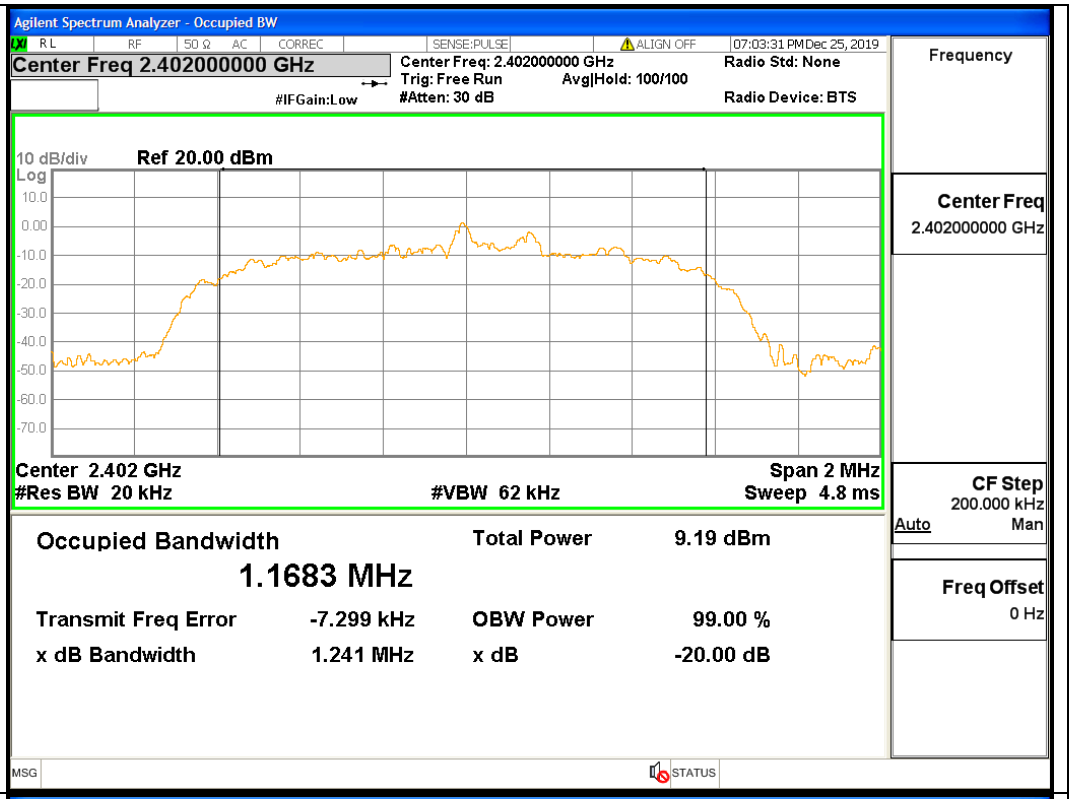
π/4DQPSK/MCH



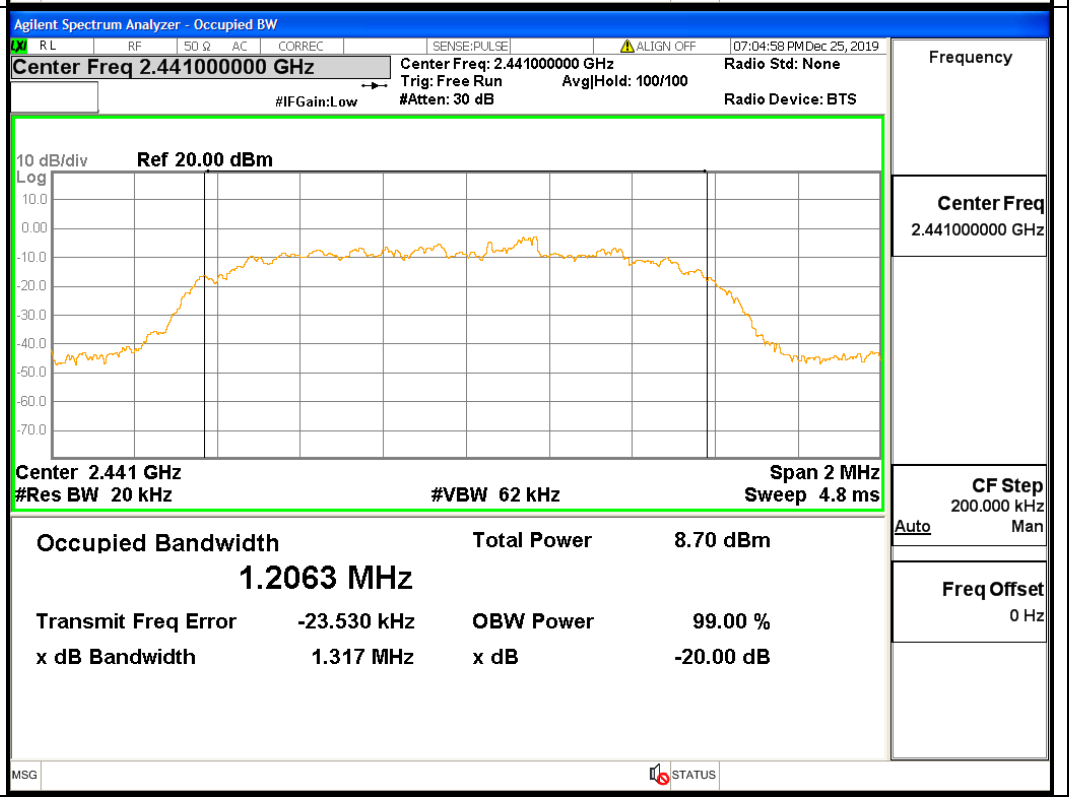
π/4DQPSK/HCH

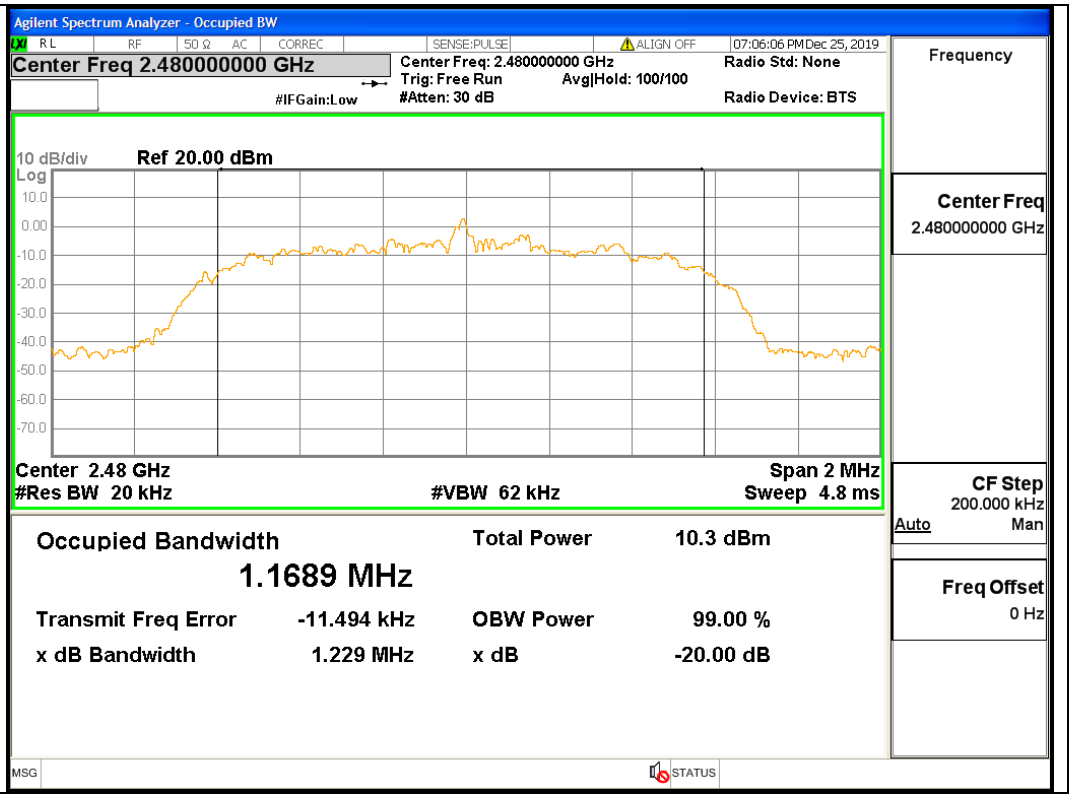


8DPSK/LCH



8DPSK/MCH



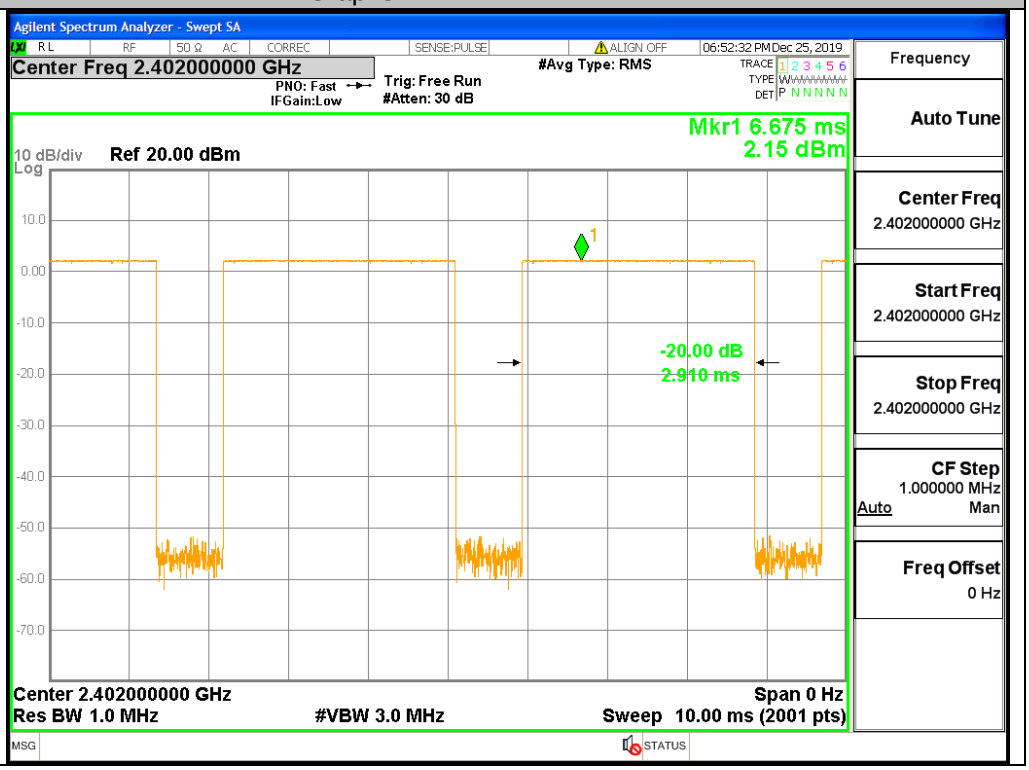
8DPSK/HCH	

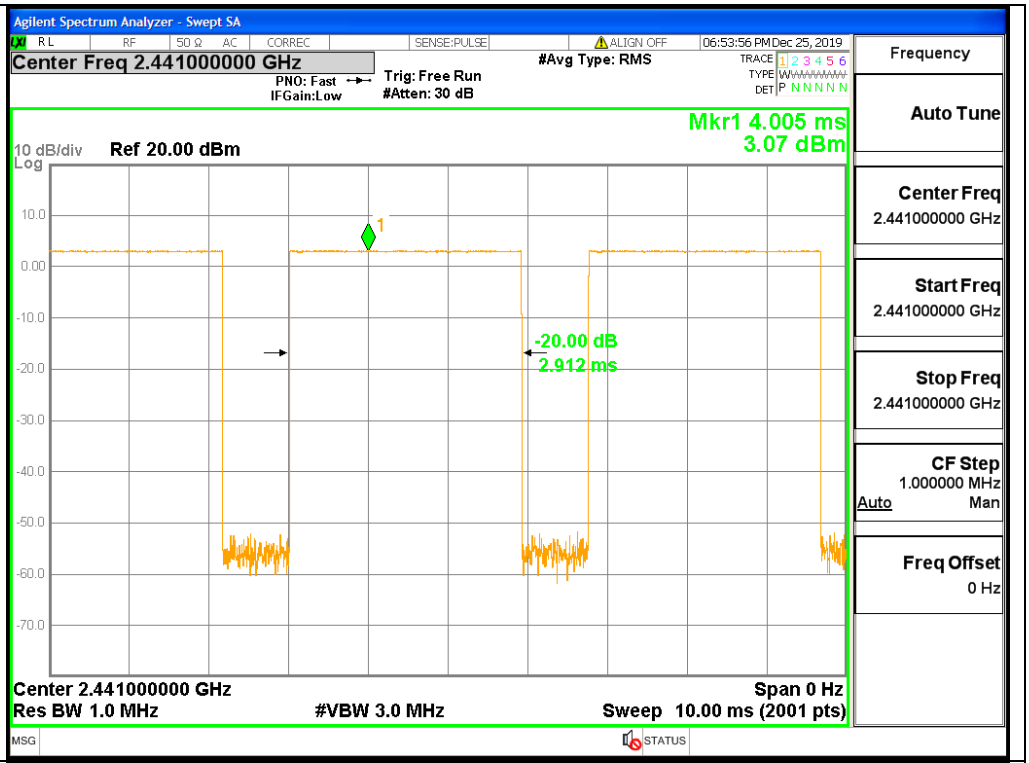
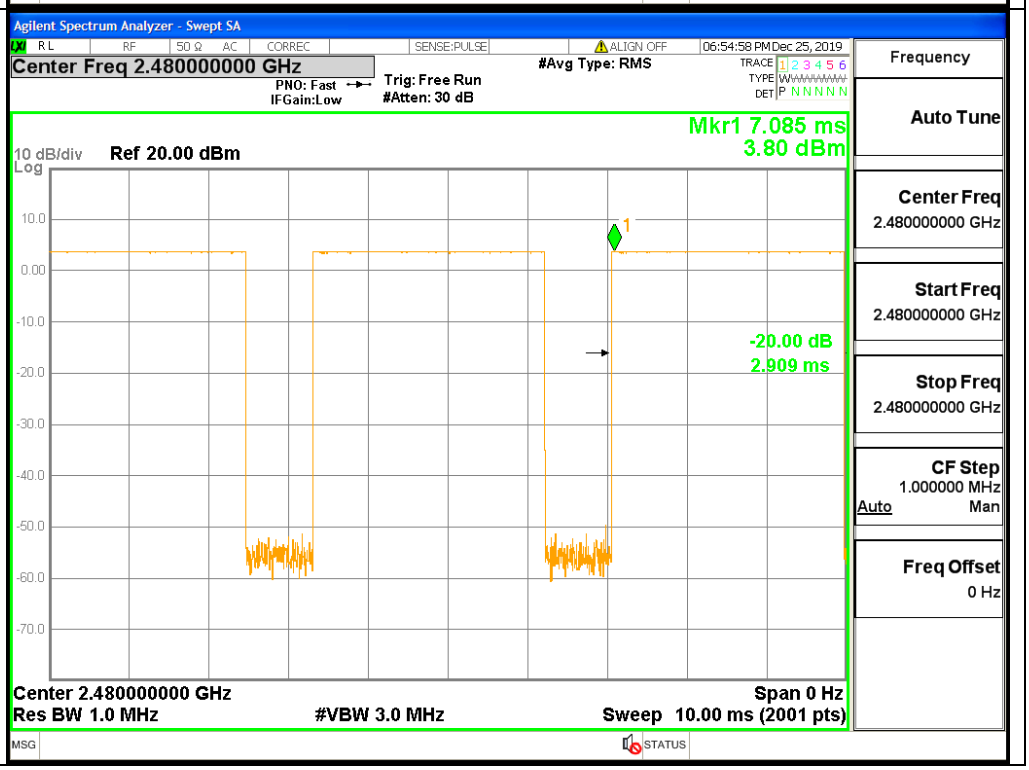
Agilent Spectrum Analyzer - Occupied BW
RL
RF
50 Ω AC
CORREC
SENSE:PULSE
ALIGN OFF
07:06:06 PM Dec 25, 2019
Center Freq 2.480000000 GHz
Center Freq: 2.480000000 GHz
Trig: Free Run
Avg|Hold: 100/100
#Atten: 30 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
Frequency
10 dB/div
Ref 20.00 dBm
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
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
1.1689 MHz
Total Power
10.3 dBm
Freq Offset
0 Hz
Transmit Freq Error
-11.494 kHz
OBW Power
99.00 %
x dB Bandwidth
1.229 MHz
x dB
-20.00 dB
MSG
STATUS

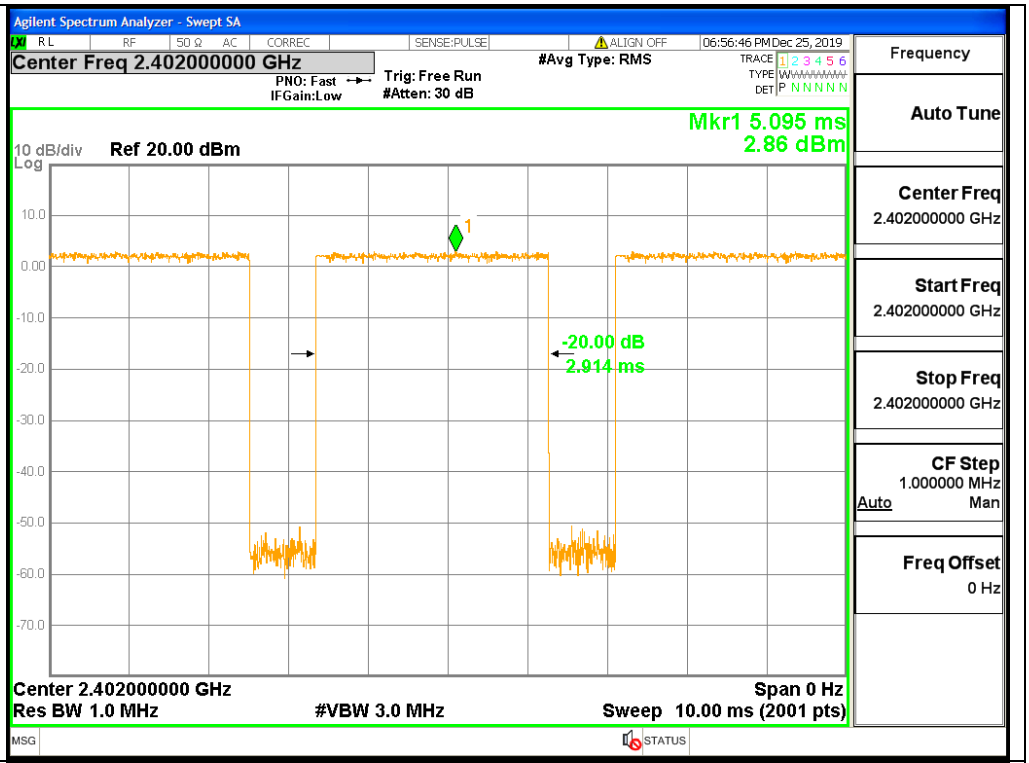
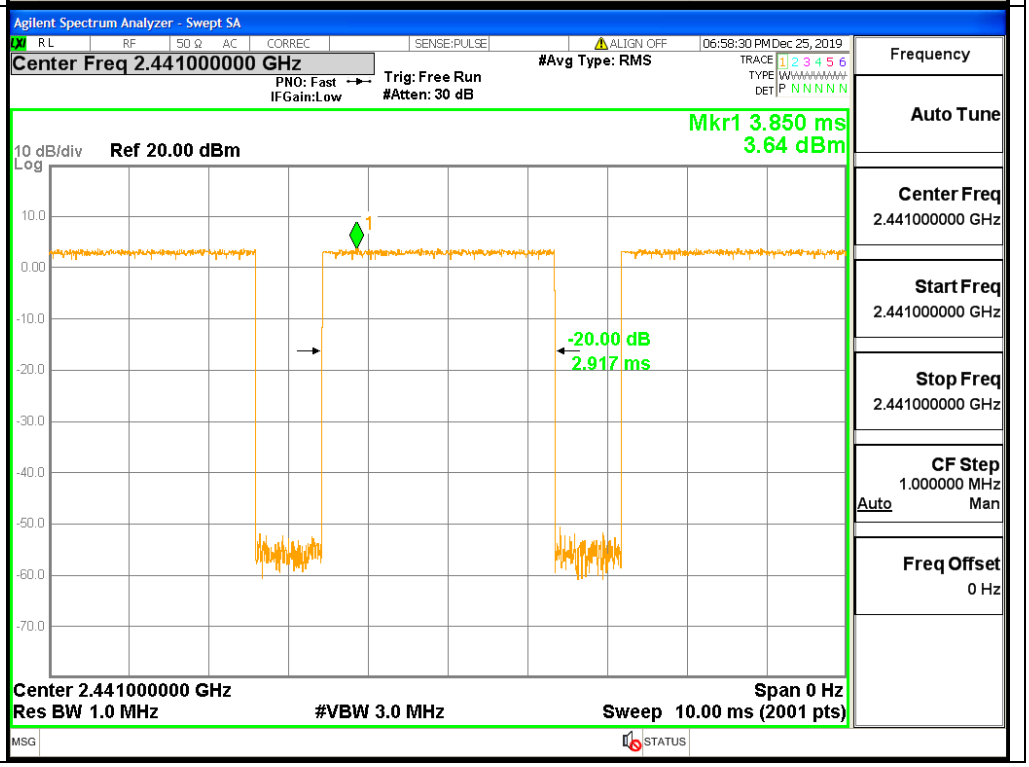
A.2 Dwell Time

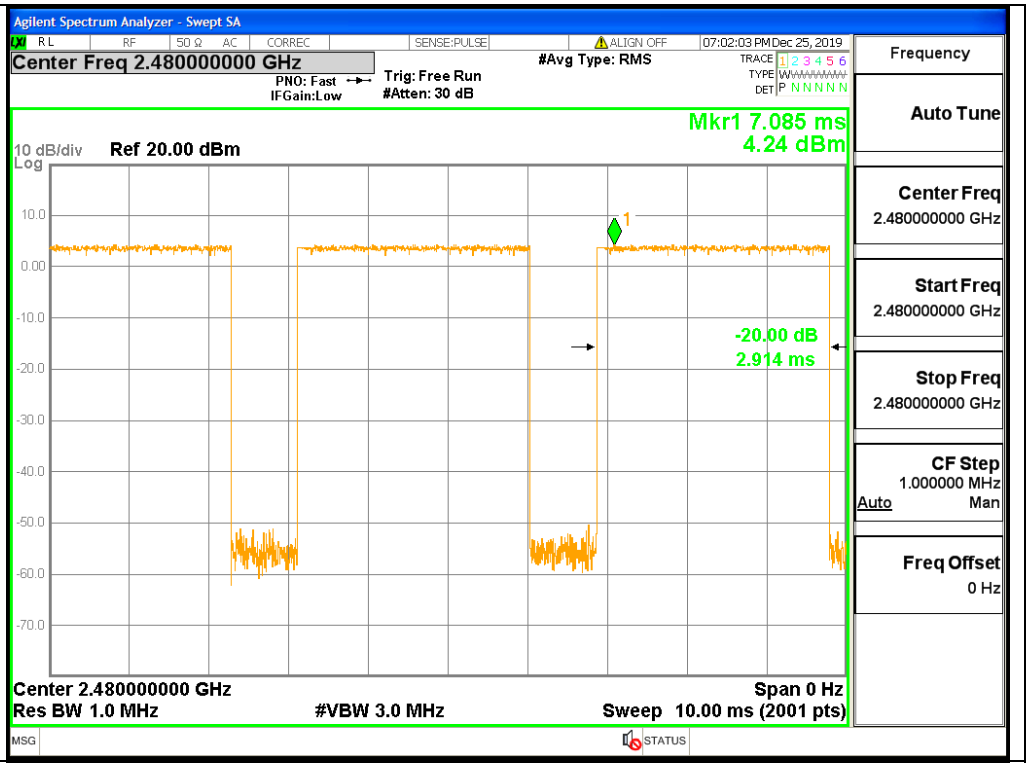
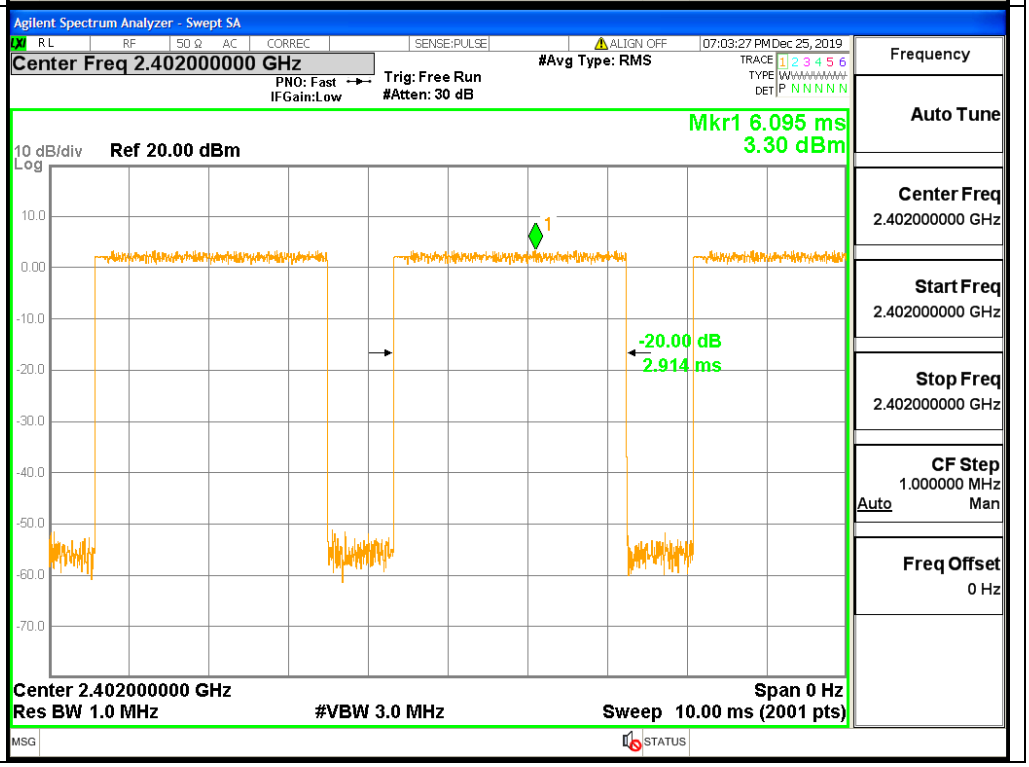
Mode	Packet	Channel	Burst Width [s/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	0.002910	106.7	0.310468	0.4	PASS
GFSK	DH5	MCH	0.002912	106.7	0.310741	0.4	PASS
GFSK	DH5	HCH	0.002909	106.7	0.310417	0.4	PASS
π/4DQPSK	2DH5	LCH	0.002914	106.7	0.310935	0.4	PASS
π/4DQPSK	2DH5	MCH	0.002917	106.7	0.311205	0.4	PASS
π/4DQPSK	2DH5	HCH	0.002914	106.7	0.310933	0.4	PASS
8DPSK	3DH5	LCH	0.002914	106.7	0.310926	0.4	PASS
8DPSK	3DH5	MCH	0.002914	106.7	0.310965	0.4	PASS
8DPSK	3DH5	HCH	0.002914	106.7	0.310972	0.4	PASS

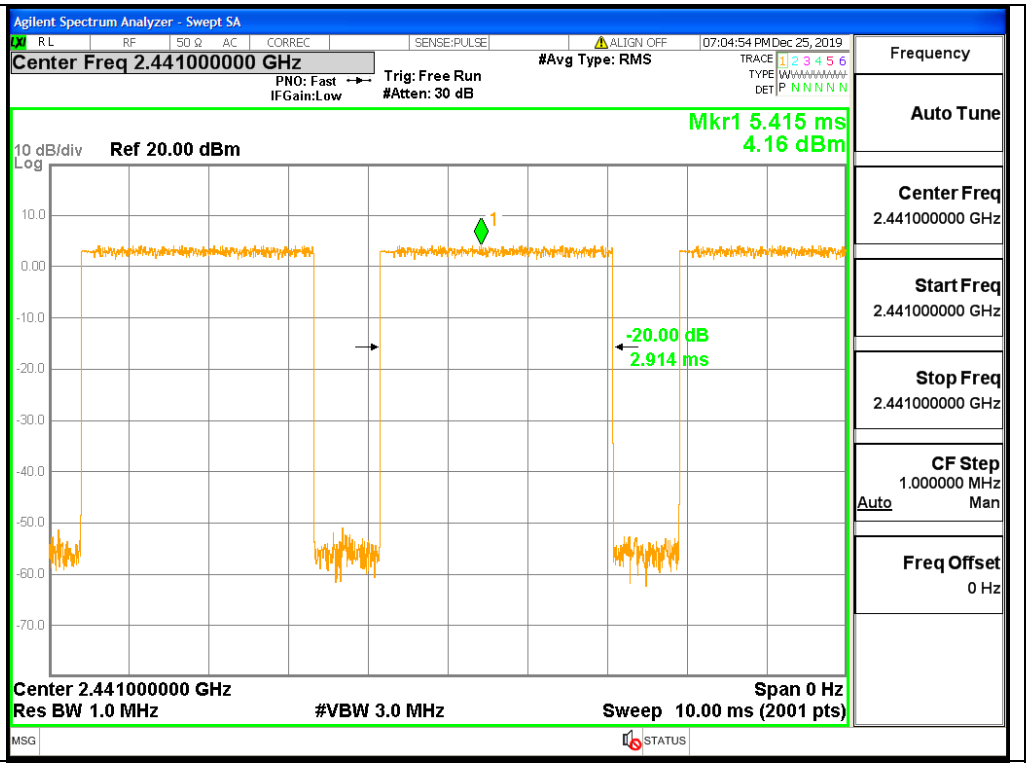
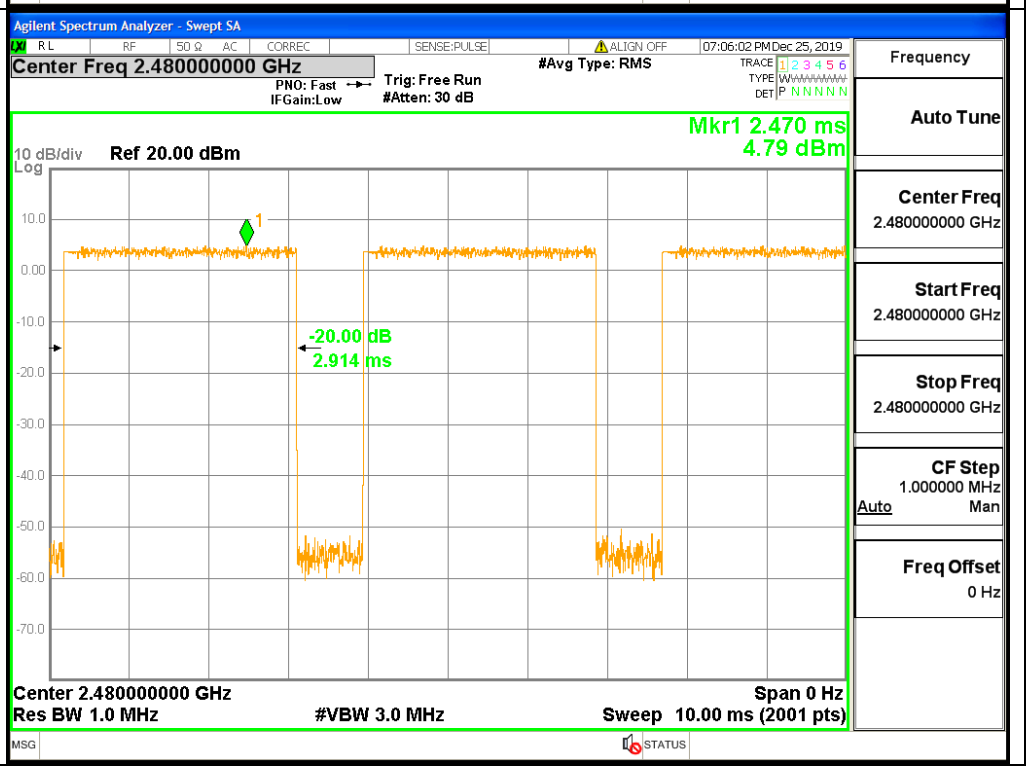
Test Graph

Graphs	
GFSK_DH5/LCH	

GFSK_DH5/MCH	
GFSK_DH5/HCH	

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

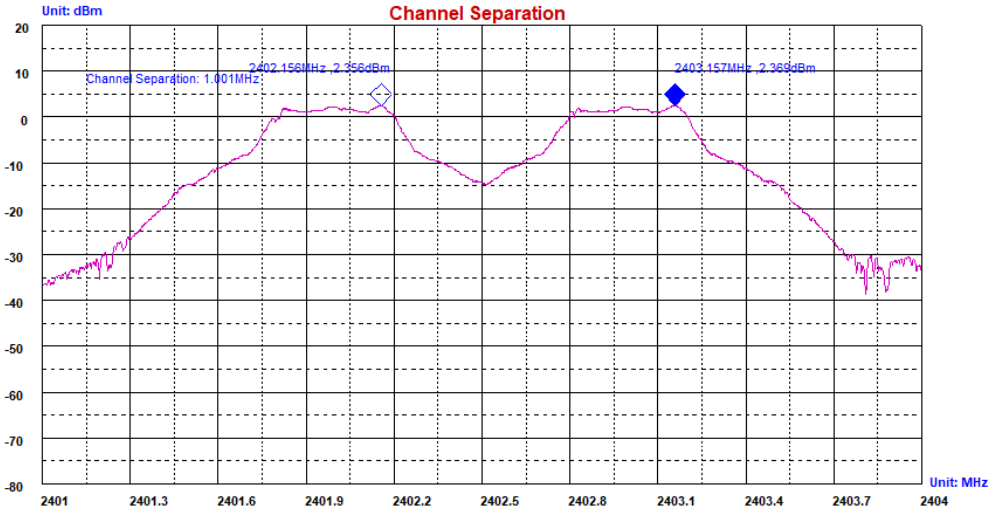
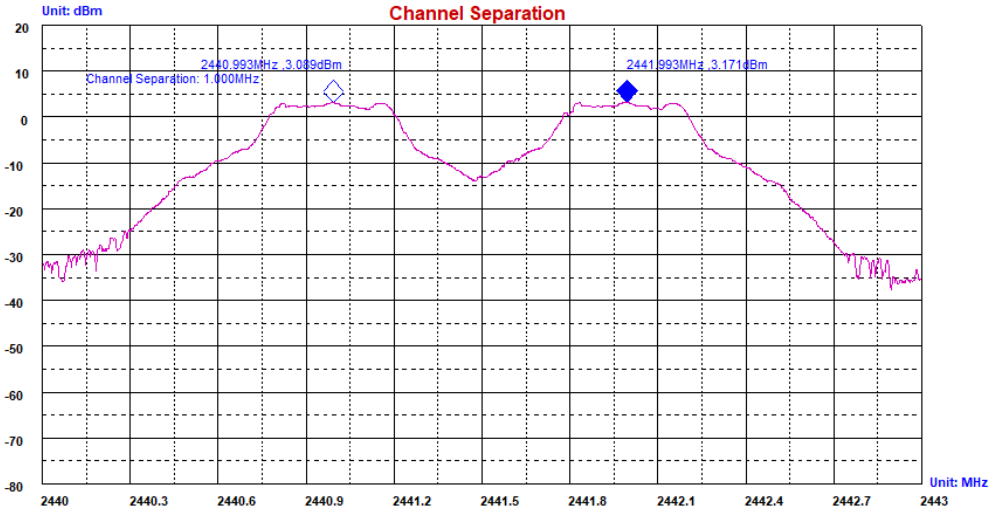
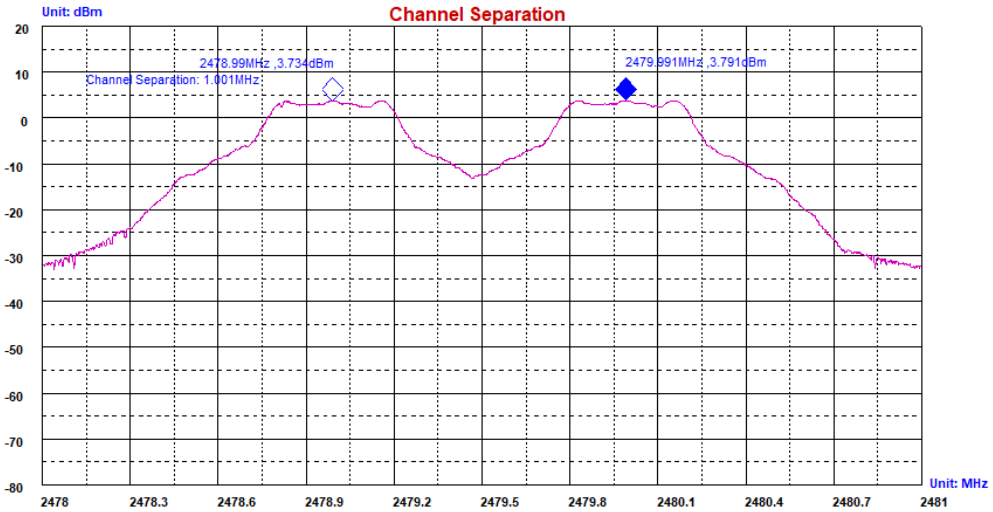
π/4DQPSK _2DH5/HCH	
8DPSK _3DH5/LCH	

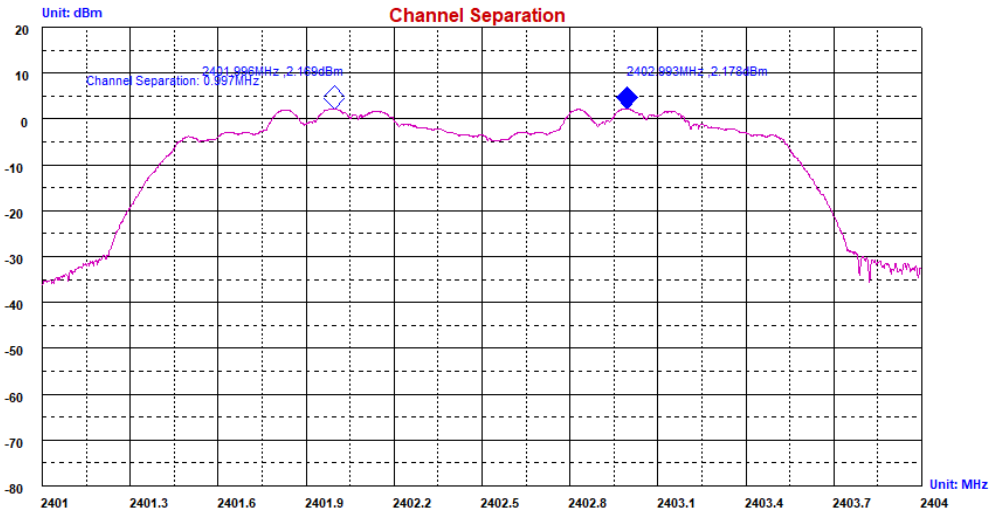
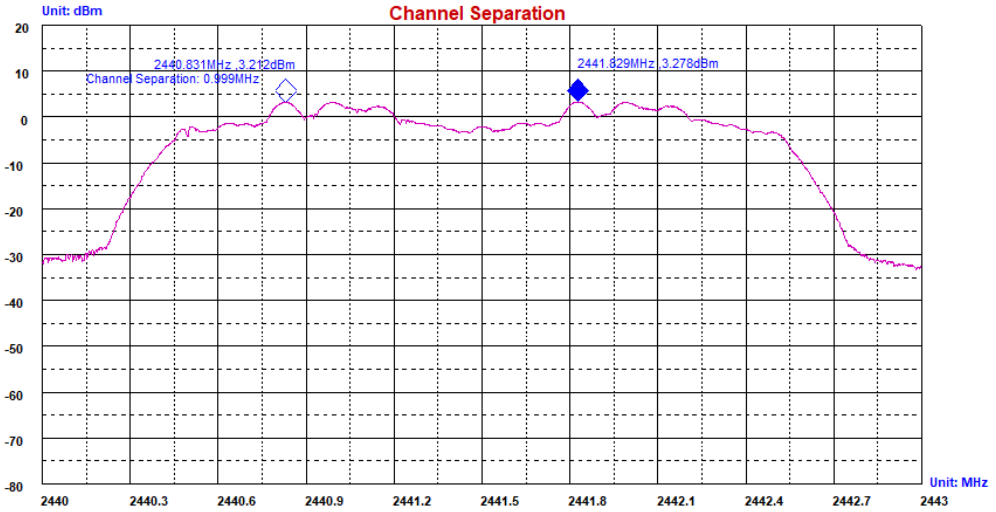
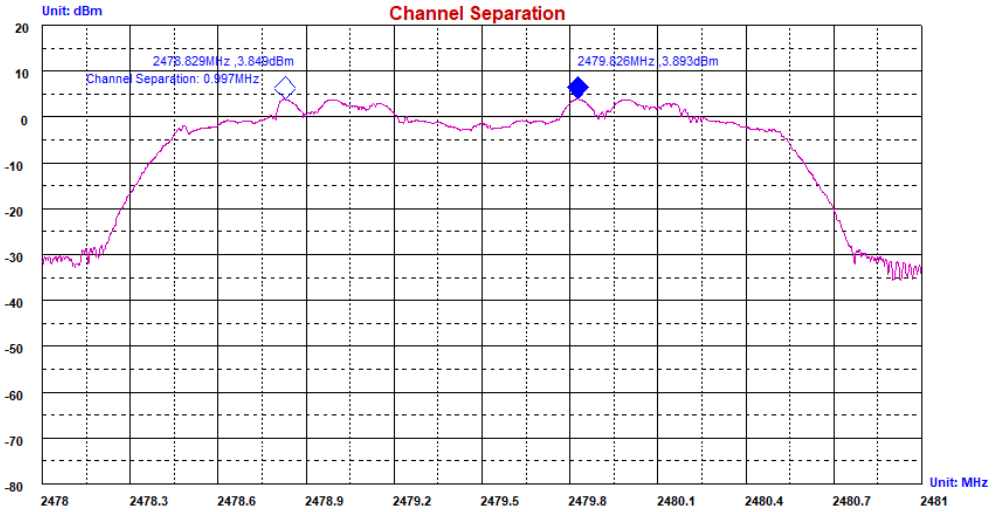
8DPSK _3DH5/MCH	
8DPSK _3DH5/HCH	

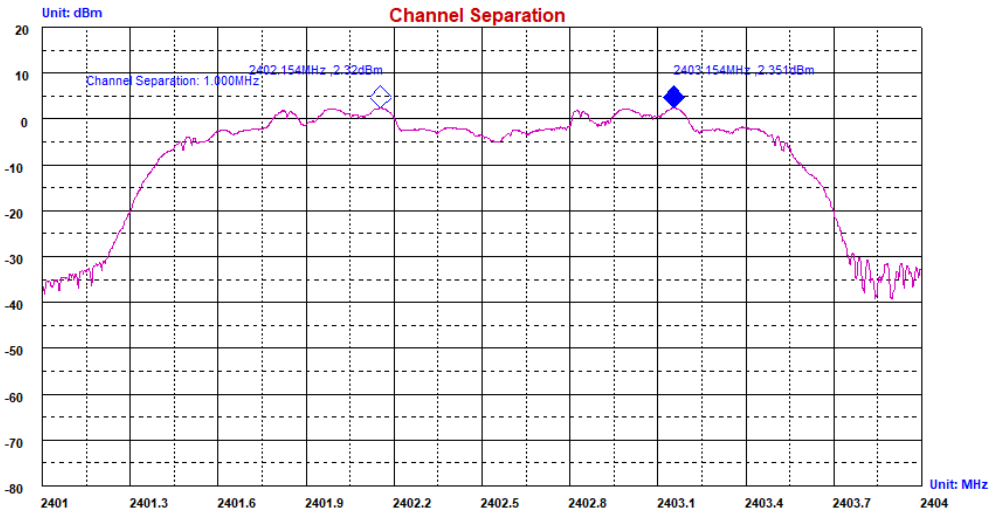
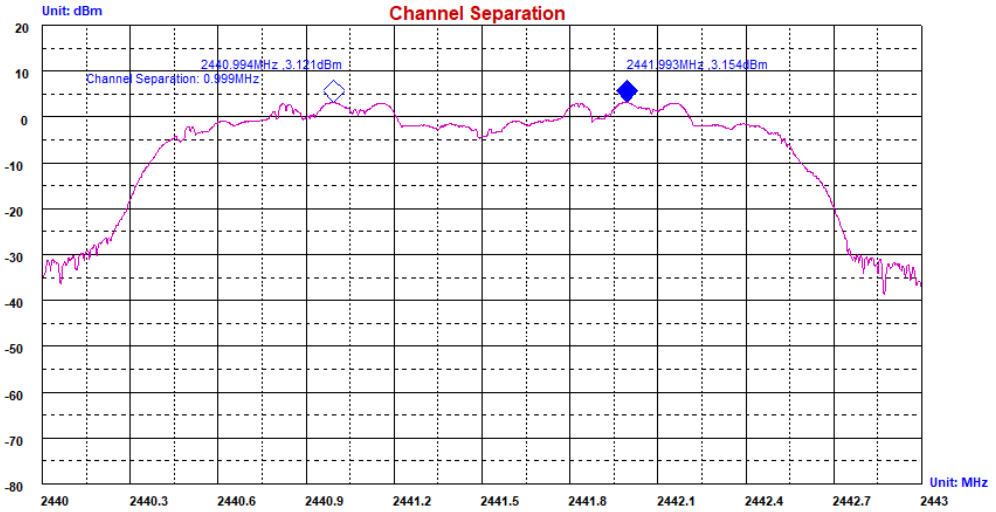
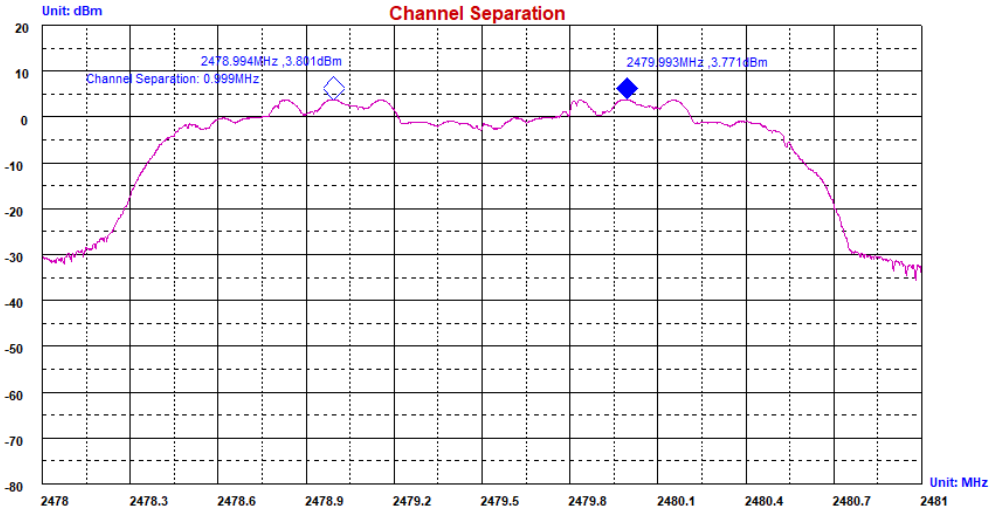
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.001	0.567	PASS
GFSK	MCH	1.000	0.615	PASS
GFSK	HCH	1.001	0.625	PASS
π/4DQPSK	LCH	0.997	0.813	PASS
π/4DQPSK	MCH	0.999	0.799	PASS
π/4DQPSK	HCH	0.997	0.815	PASS
8DPSK	LCH	1.000	0.827	PASS
8DPSK	MCH	0.999	0.878	PASS
8DPSK	HCH	0.999	0.819	PASS

Test Graph

Graphs	
GFSK/LCH	
GFSK/MCH	
GFSK/HCH	

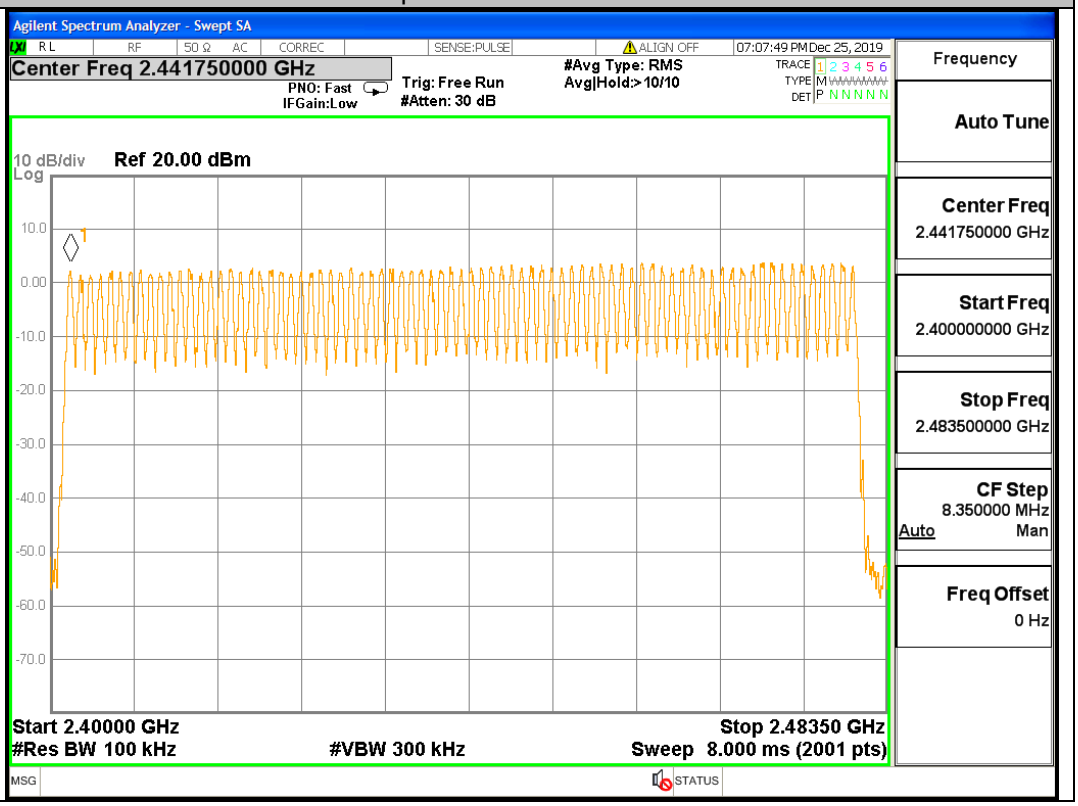
π/4DQPSK/LCH	
π/4DQPSK/MCH	
π/4DQPSK/HCH	

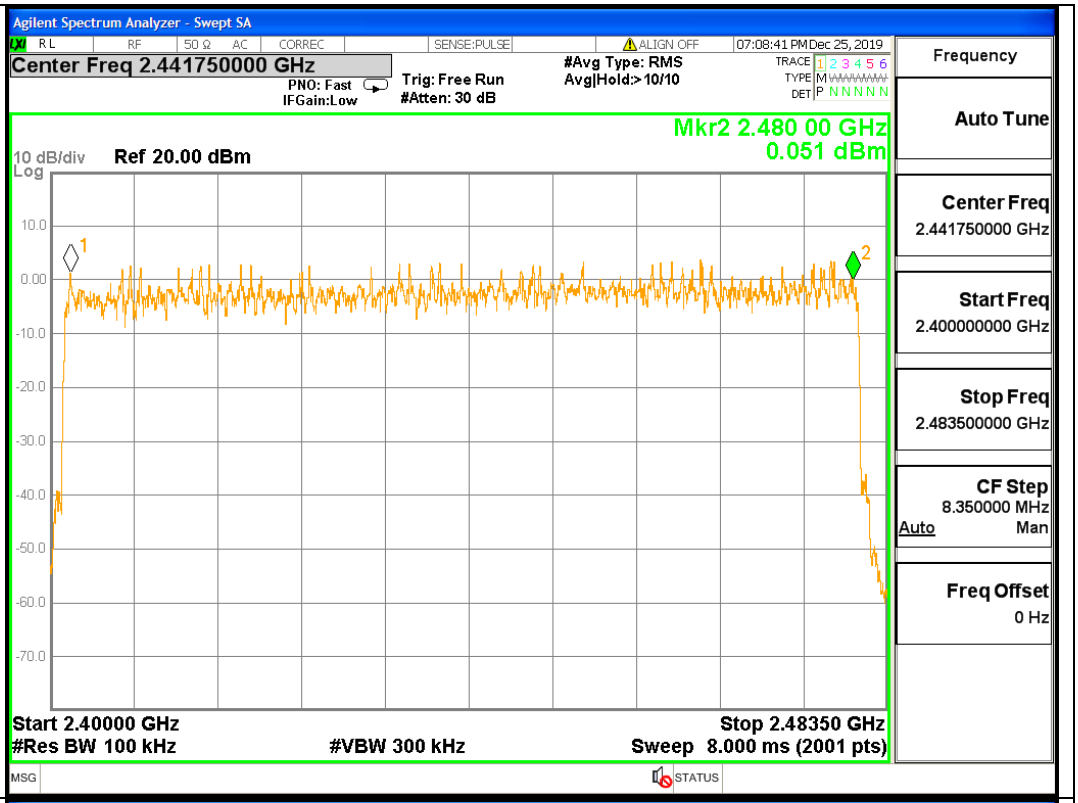
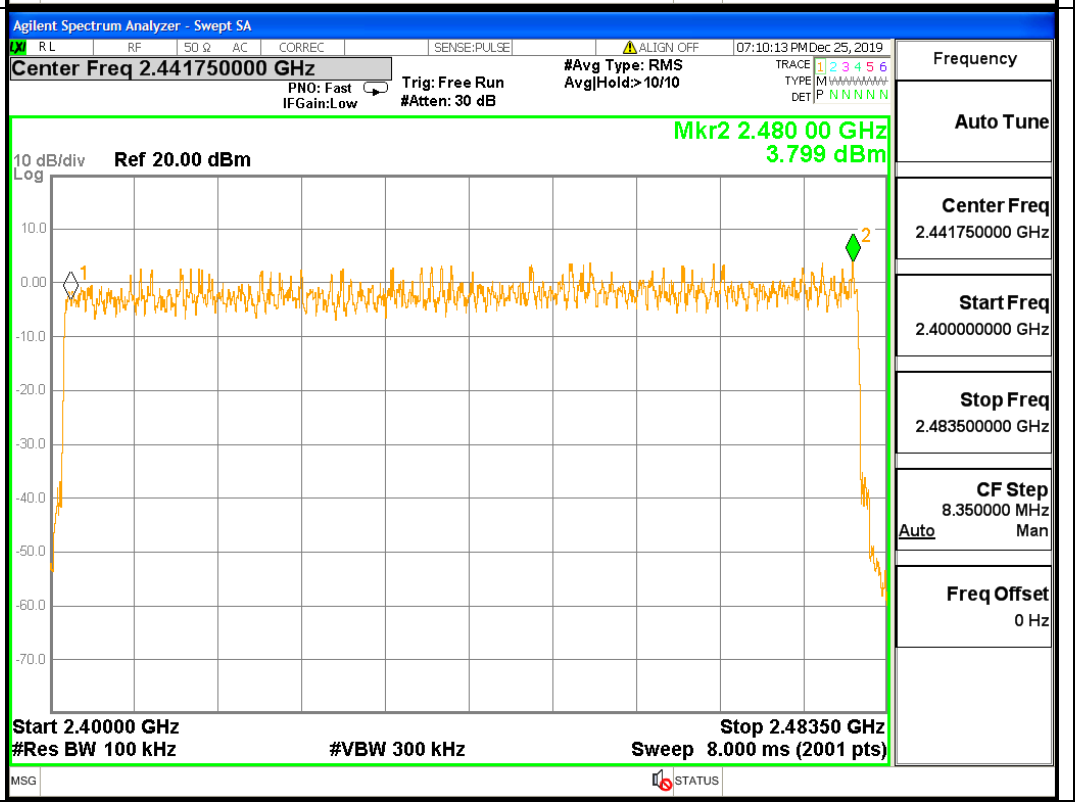
8DPSK/LCH	
8DPSK/MCH	
8DPSK/HCH	

A.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

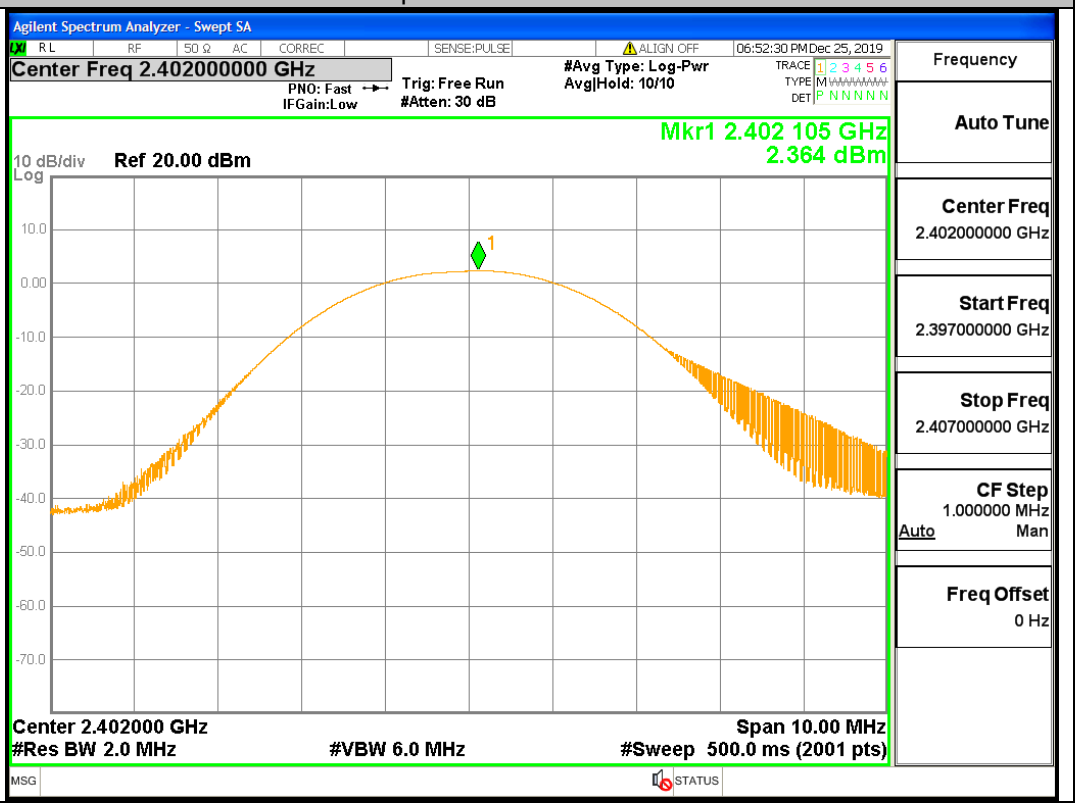
Graphs	
GFSK/Hop	

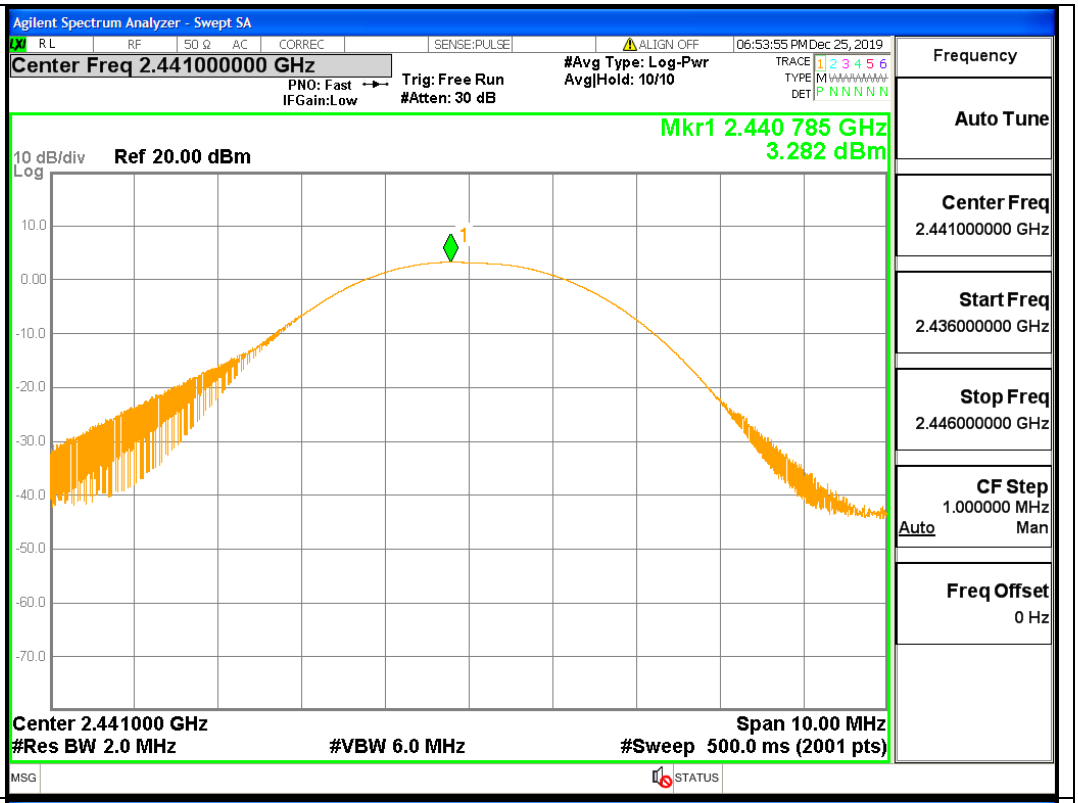
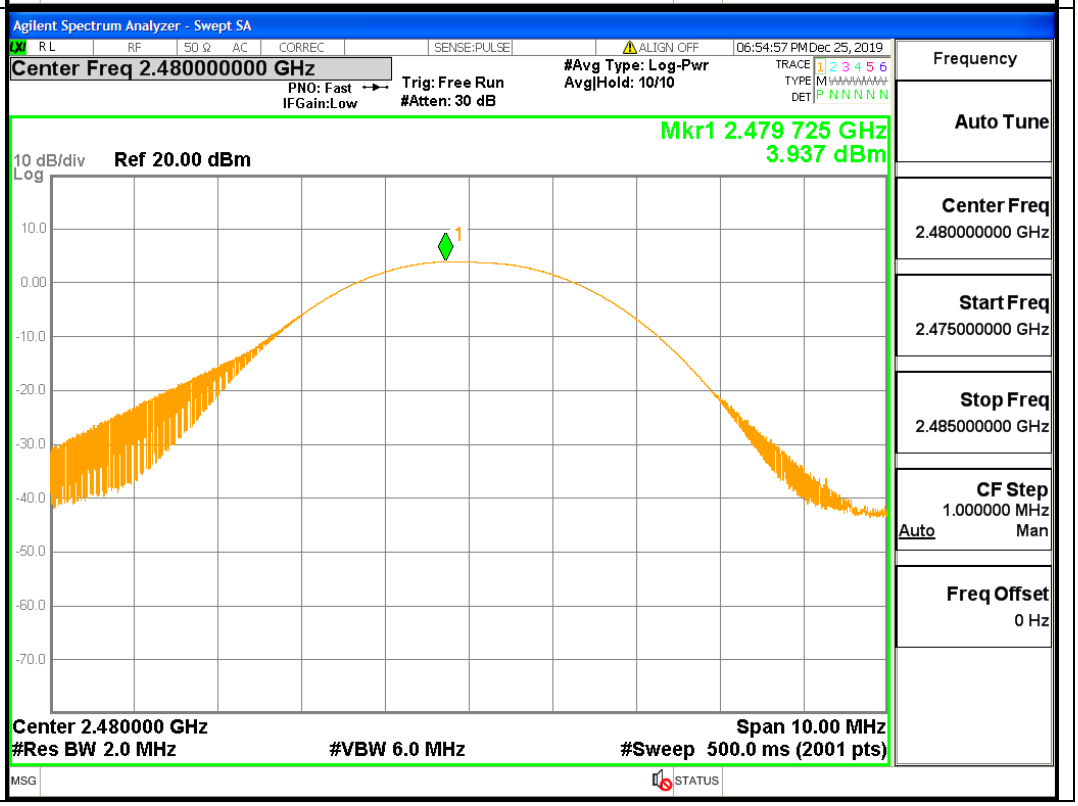
π/4DQPSK/Hop	
8DPSK/Hop	

A.5 Conducted Peak Output Power

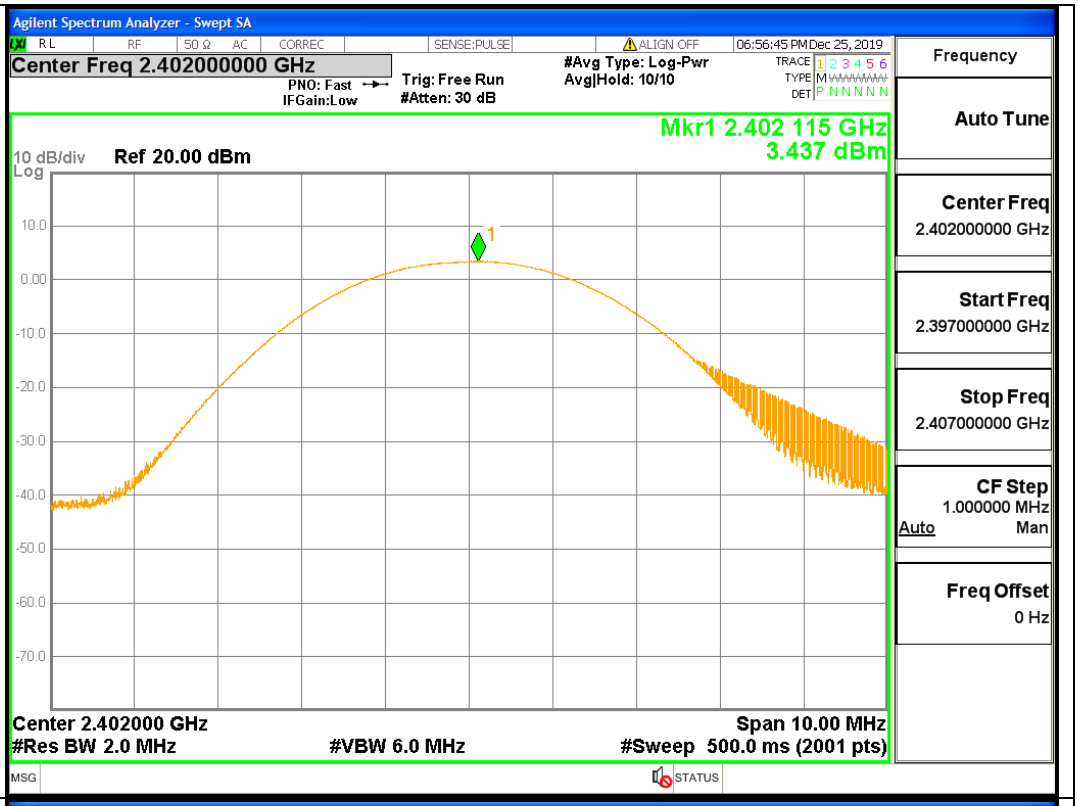
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2.364	21	PASS
GFSK	MCH	3.282	21	PASS
GFSK	HCH	3.937	21	PASS
π/4DQPSK	LCH	3.437	21	PASS
π/4DQPSK	MCH	4.240	21	PASS
π/4DQPSK	HCH	4.875	21	PASS
8DPSK	LCH	3.748	21	PASS
8DPSK	MCH	4.619	21	PASS
8DPSK	HCH	5.256	21	PASS

Test Graph

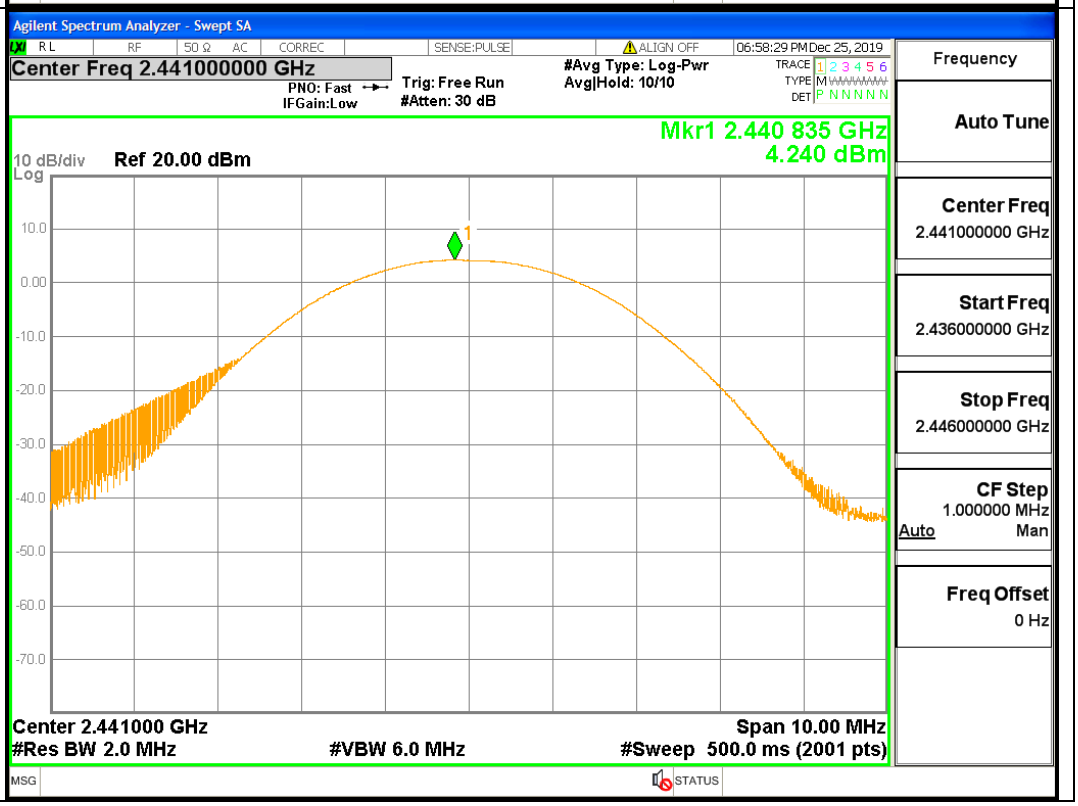
Graphs	
GFSK/LCH	

GFSK/MCH	
GFSK/HCH	

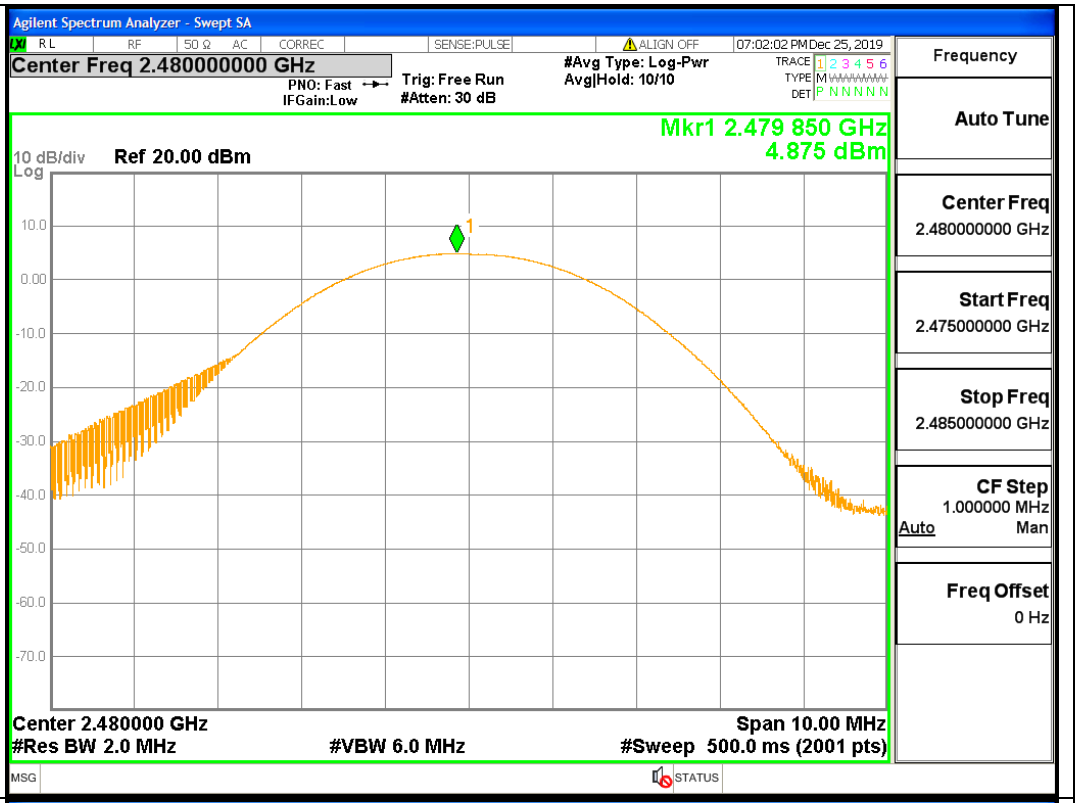
π/4DQPSK/LCH



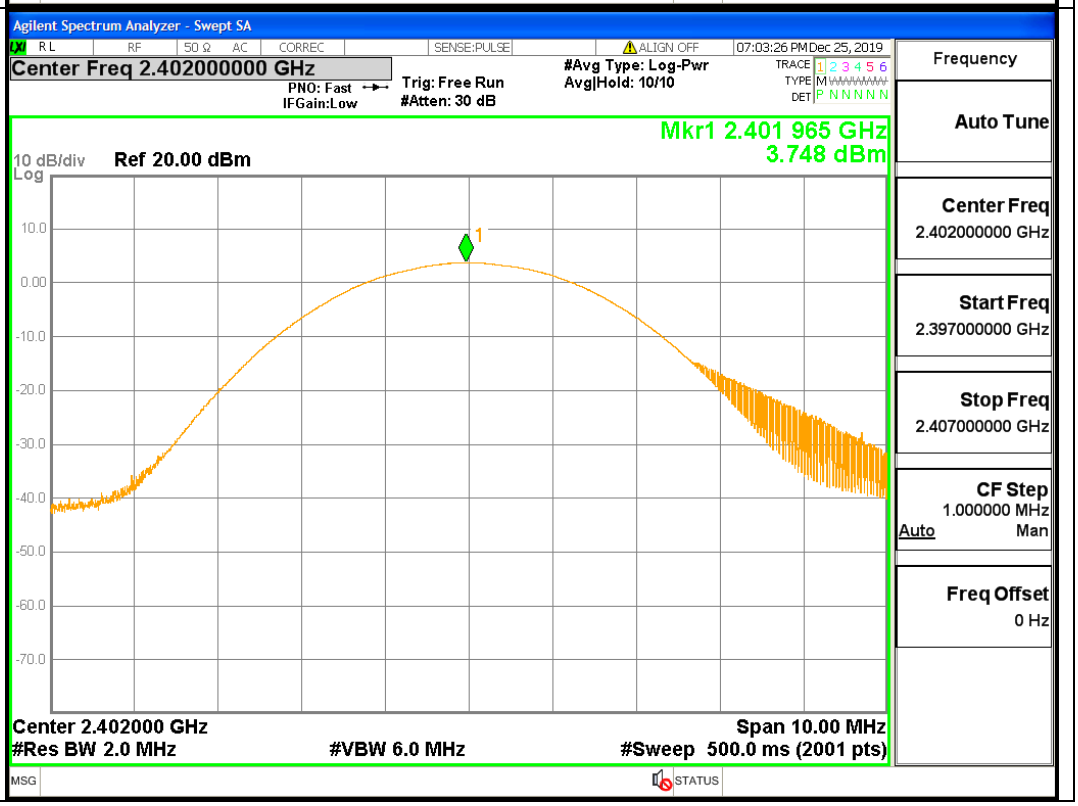
π/4DQPSK/MCH

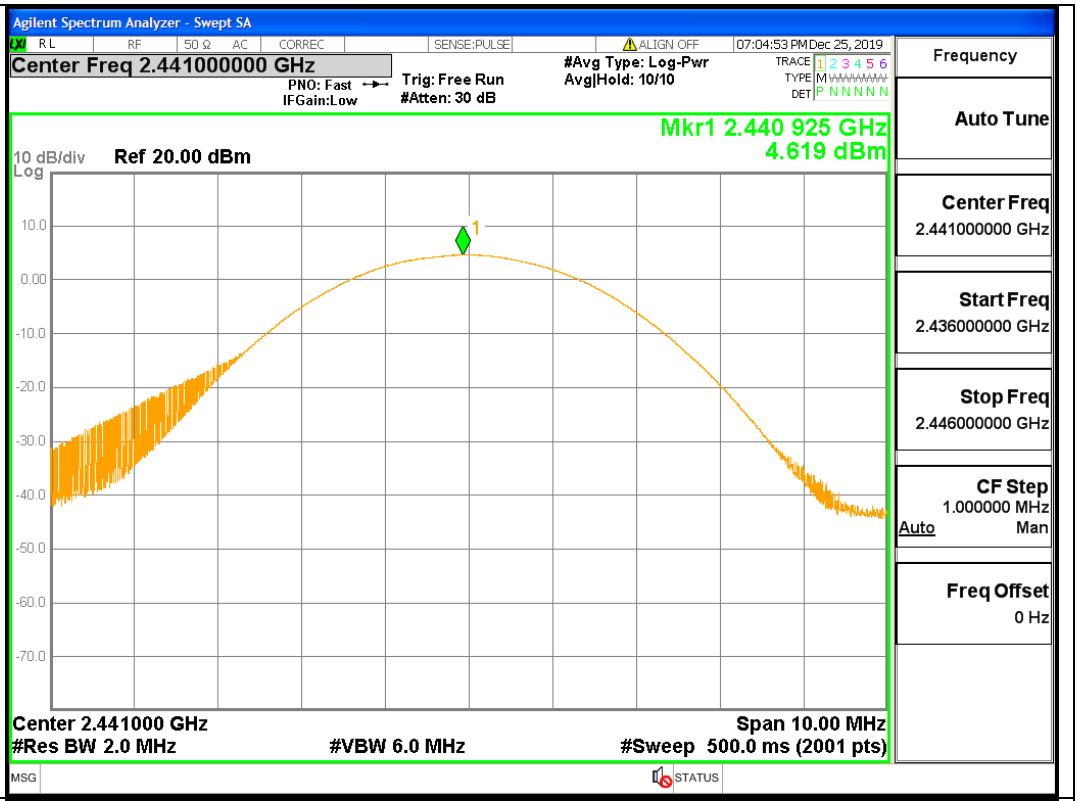
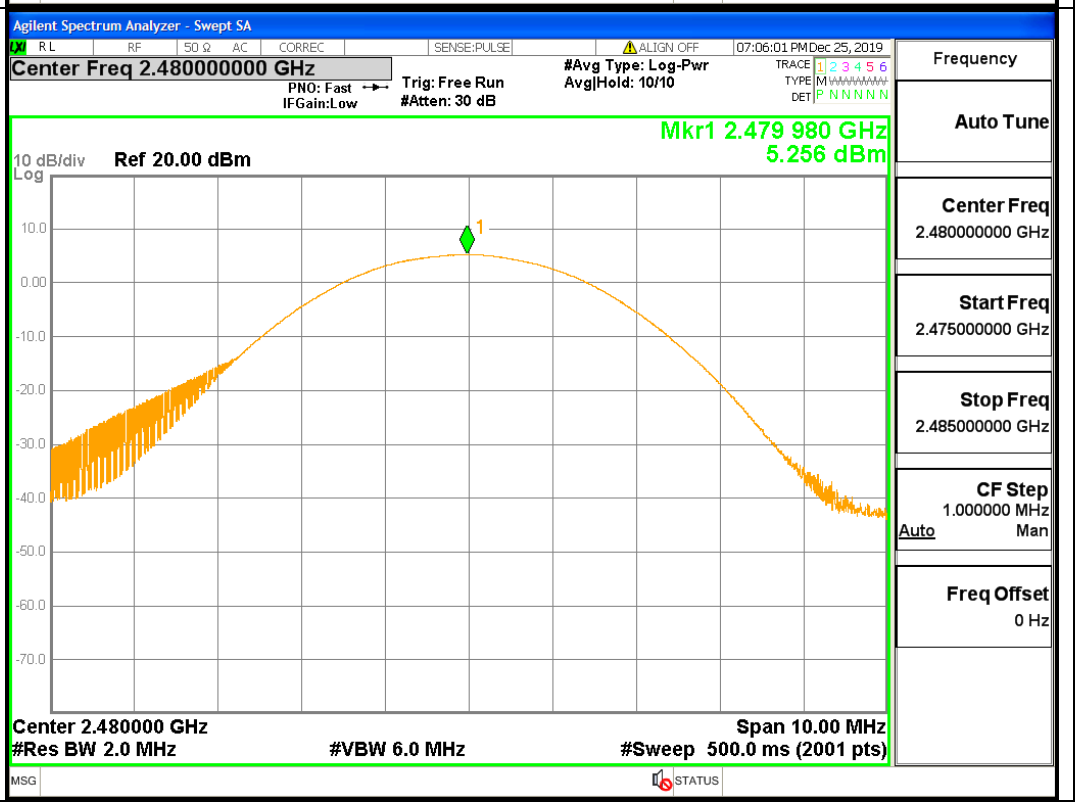


π/4DQPSK/HCH



8DPSK/LCH

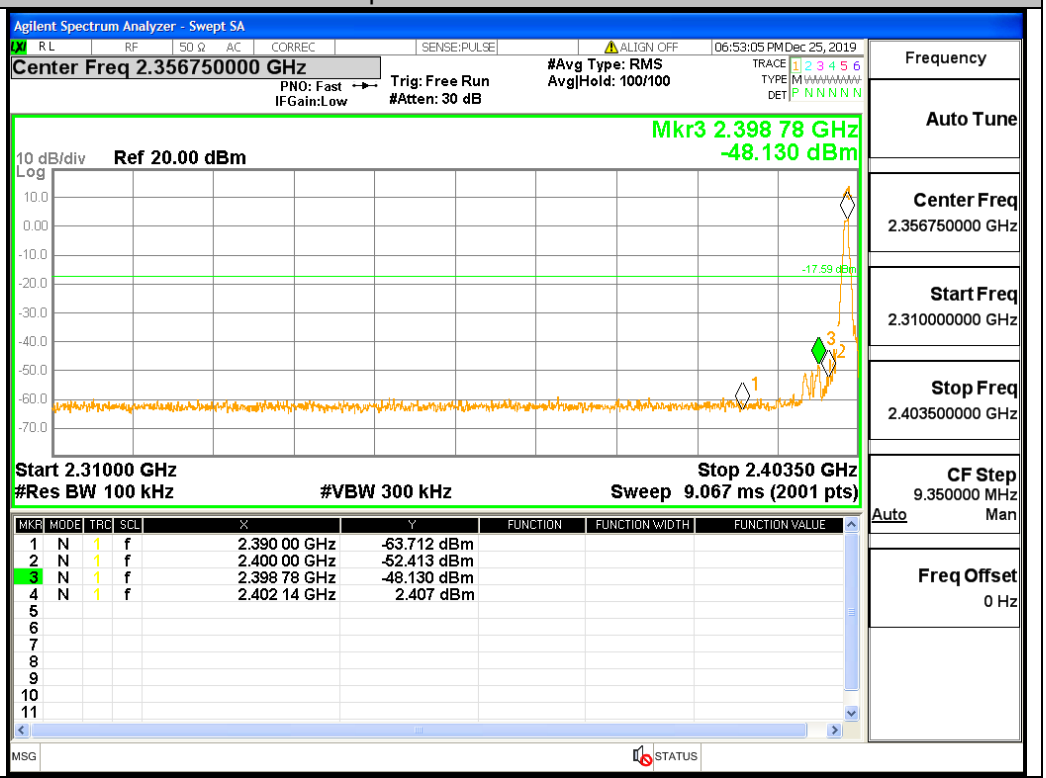
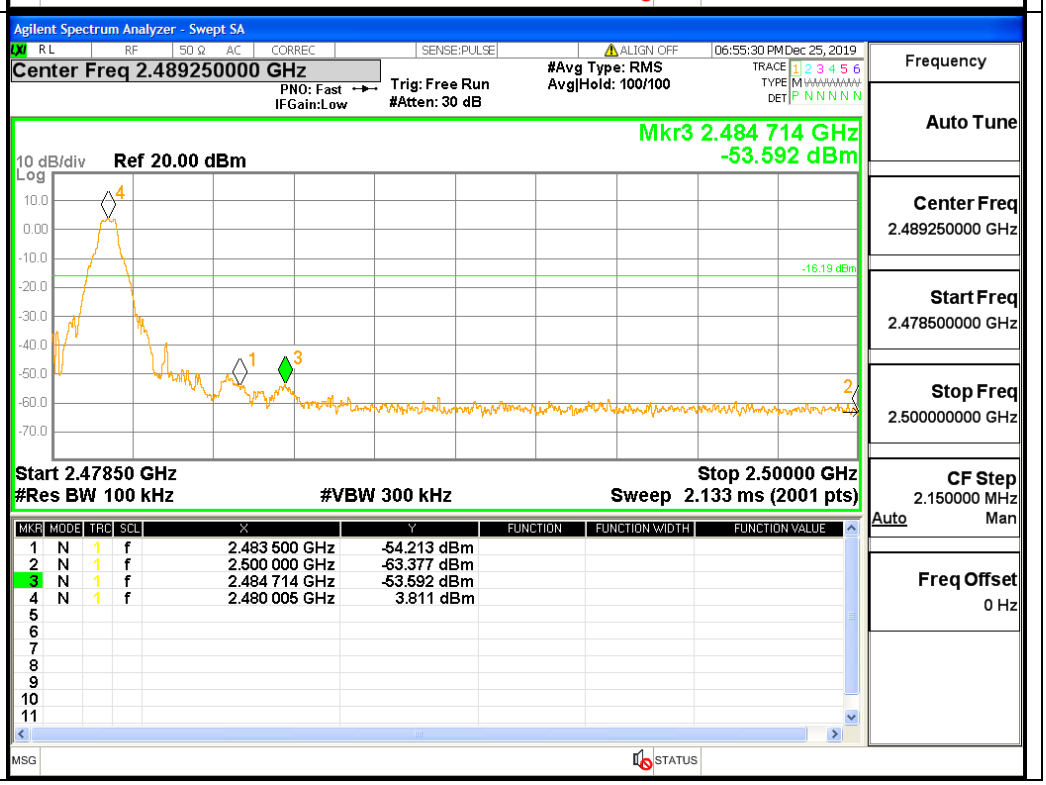


8DPSK/MCH	
8DPSK/HCH	

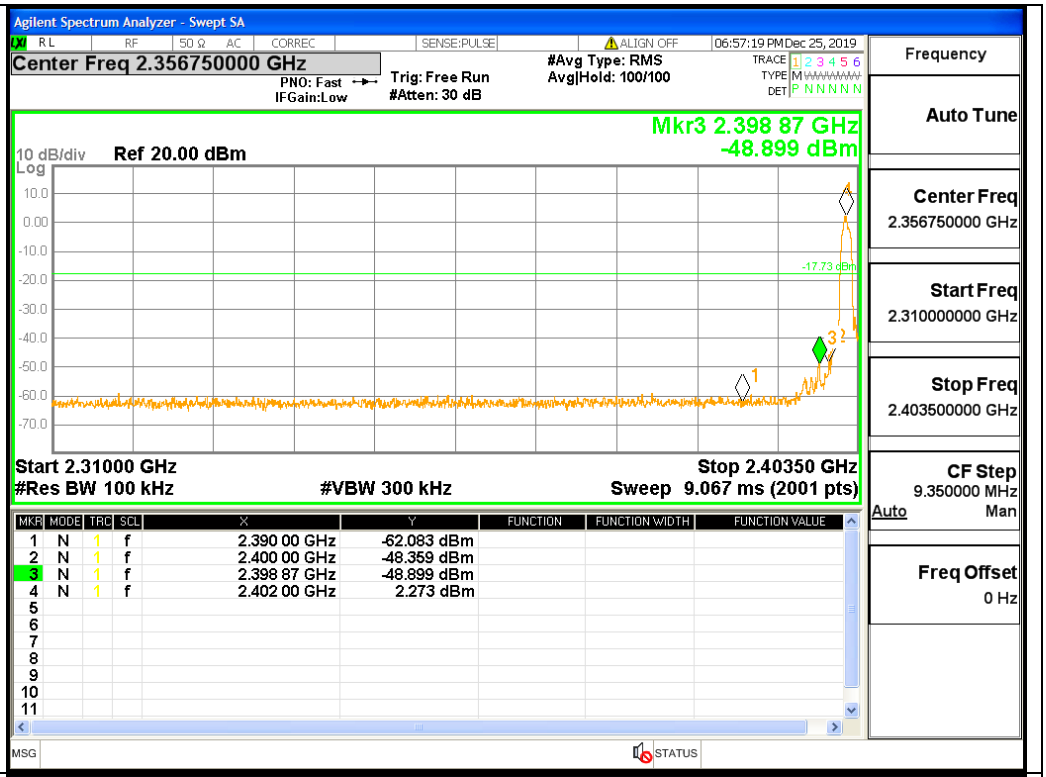
A.6 Band-edge for RF Conducted Emissions

Type	Carrier Frequency(MHz)	Frequency(MHz)	Carrier Frequency Power [dBm]	Bandedge Peak(dBm)	Upper limit(dBm)	Conclusion
1DH5	2402	2398.778	2.407	-48.13	-17.593	Pass
1DH5	2480	2484.714	3.811	-53.592	-16.189	Pass
2DH5	2402	2400	2.273	-48.36	-17.727	Pass
2DH5	2480	2484.004	3.798	-50.604	-16.202	Pass
3DH5	2402	2397.984	1.784	-48.334	-18.216	Pass
3DH5	2480	2483.5	2.401	-54.95	-17.599	Pass
1DH5-Hopping	2402	2399.76	2.509	-49.449	-17.491	Pass
1DH5-Hopping	2480	2483.5	3.575	-56.48	-16.425	Pass
2DH5-Hopping	2402	2397.99	2.678	-47.741	-17.322	Pass
2DH5-Hopping	2480	2483.5	3.773	-59.44	-16.227	Pass
3DH5-Hopping	2402	2399.76	2.748	-49.486	-17.252	Pass
3DH5-Hopping	2480	2483.5	3.45	-58.51	-16.55	Pass

Test Graph

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

π/4DQPSK/LCH/No Hop



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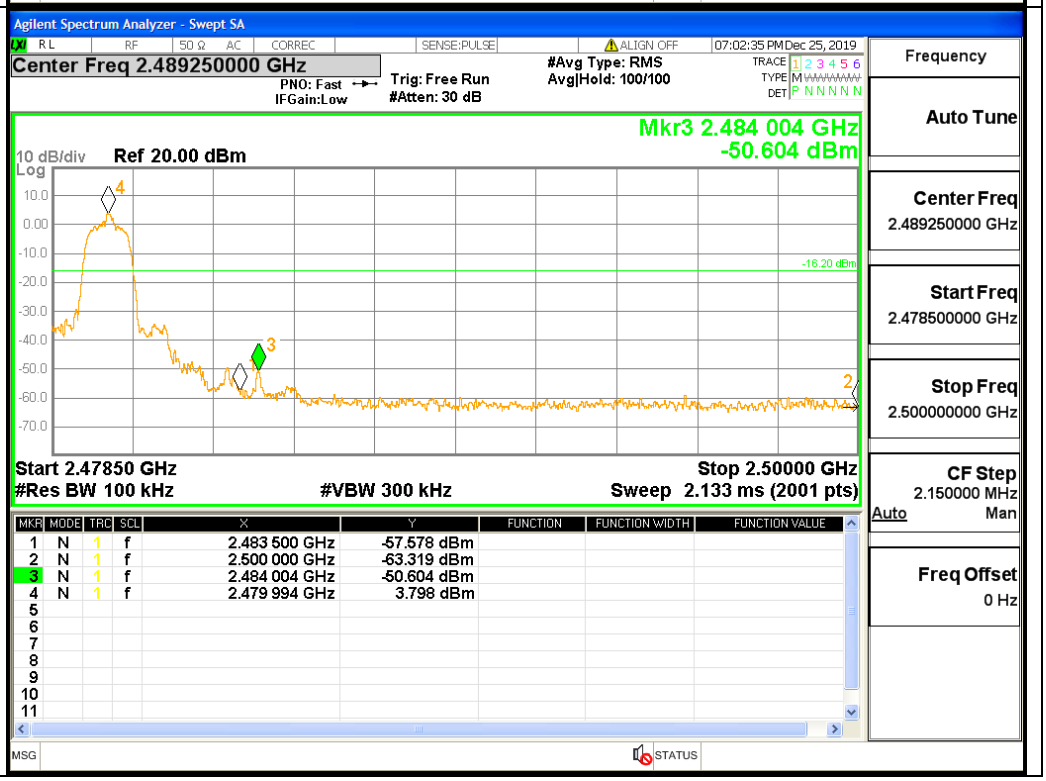
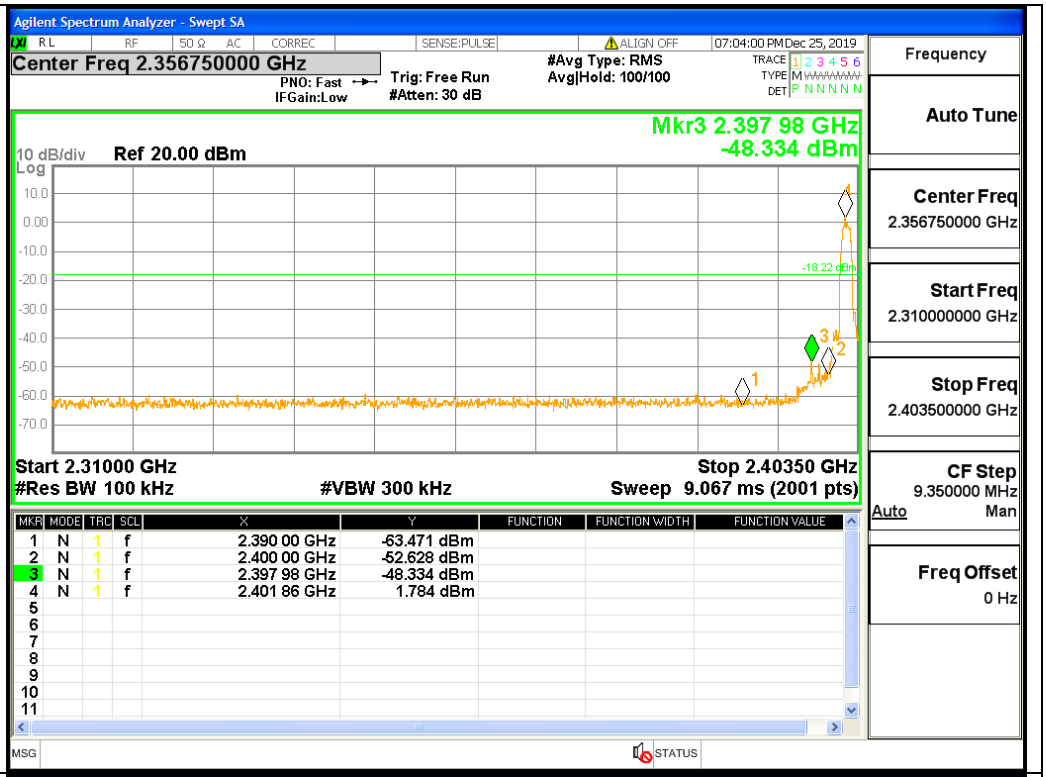


8DPSK/LCH/No Hop



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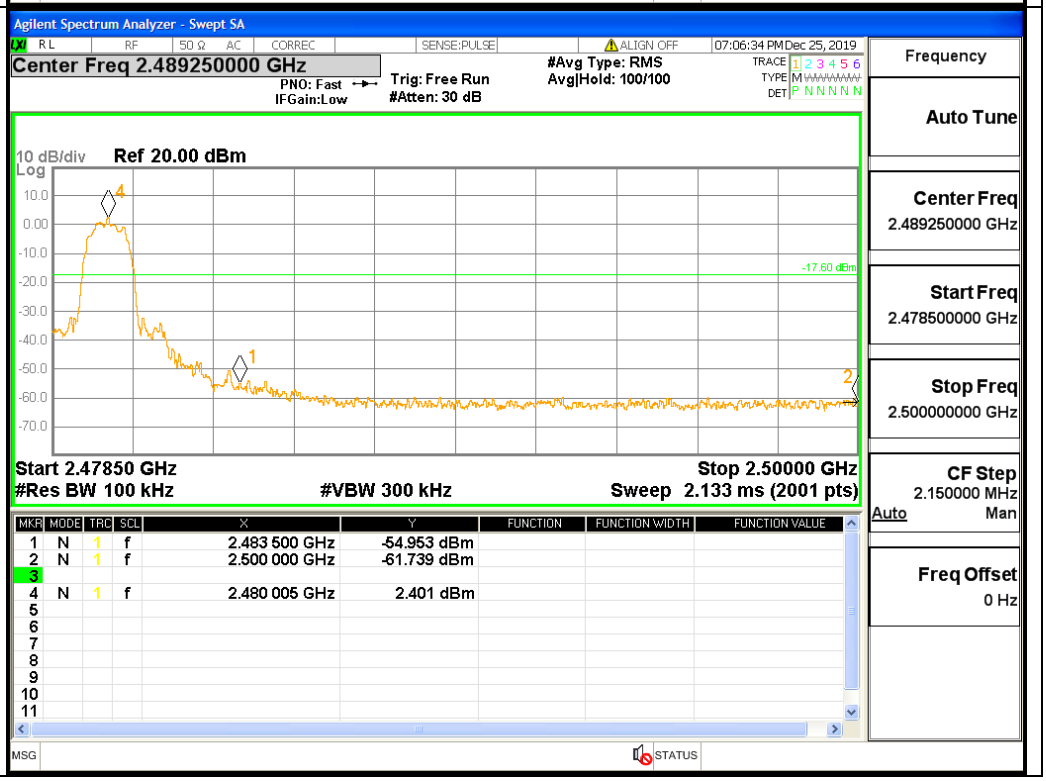
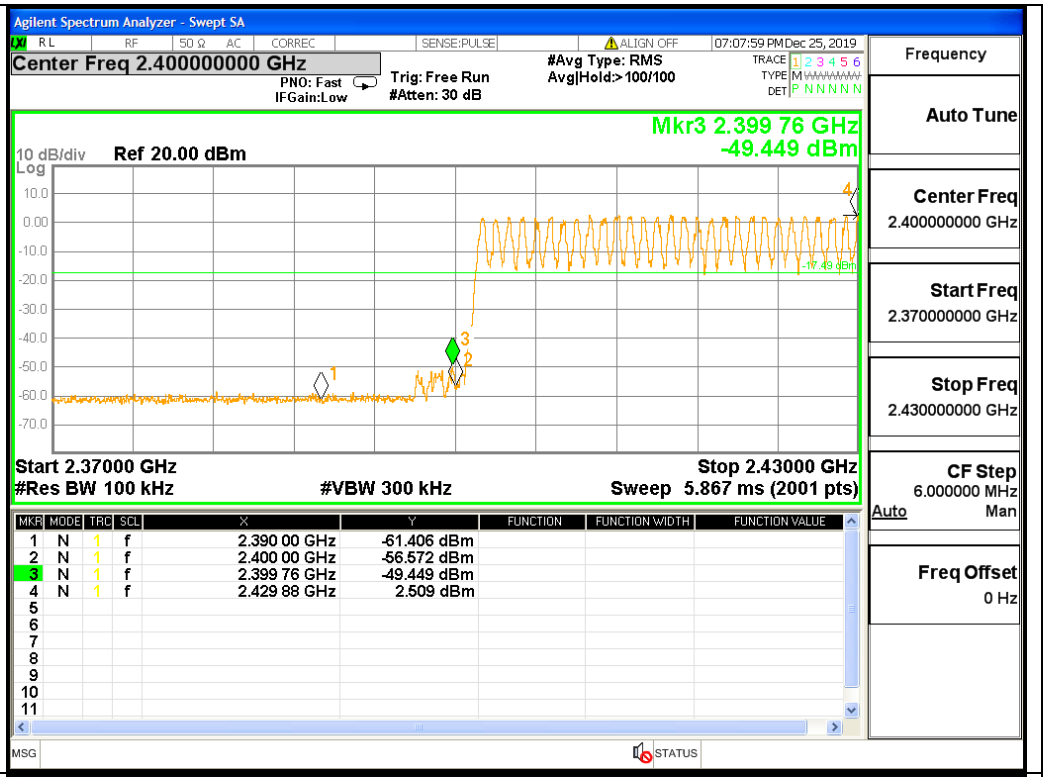
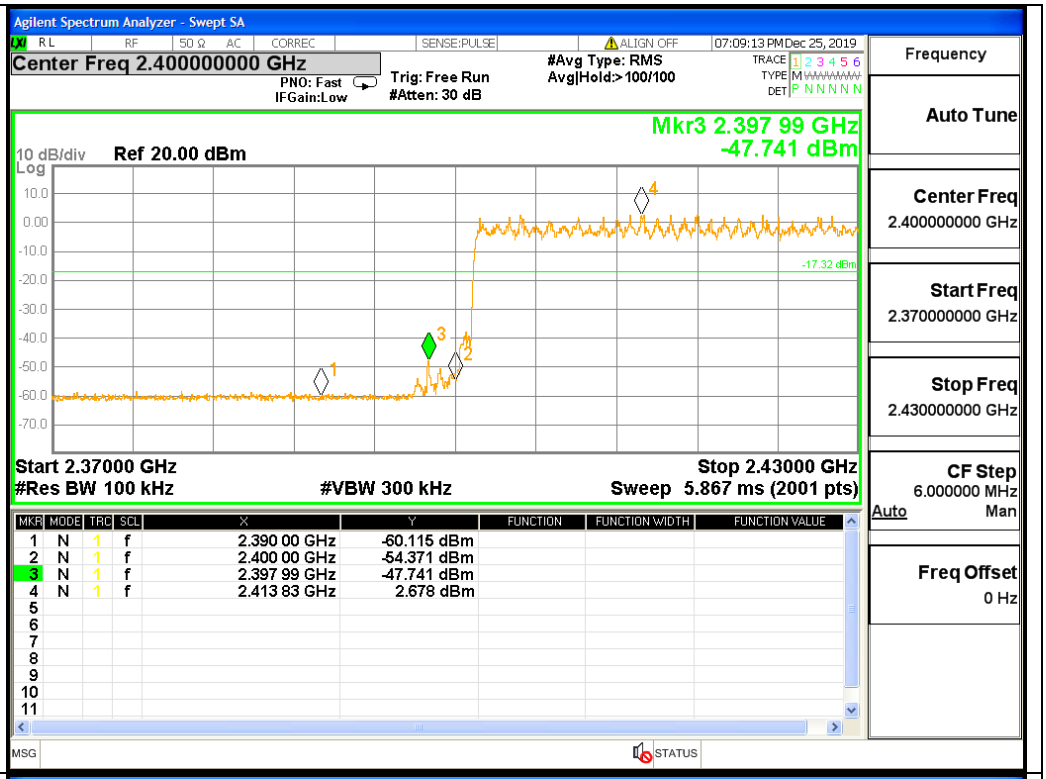


GFSK/LCH/Hop



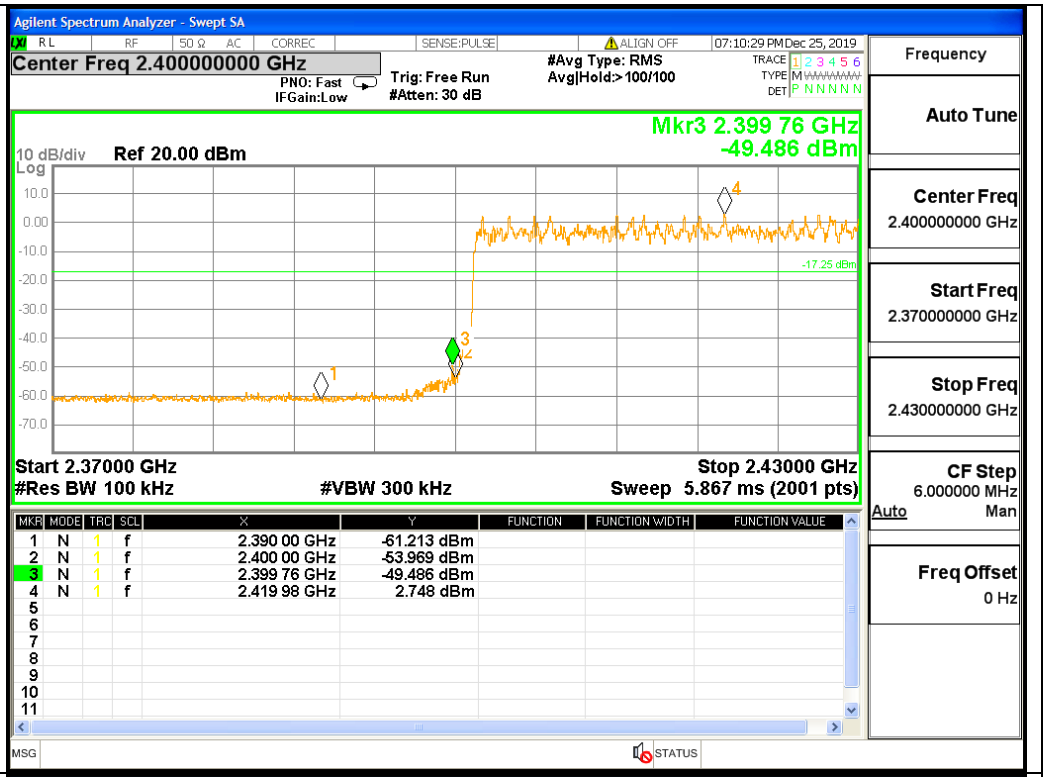
GFSK/HCH/Hop

π/4DQPSK/LCH/Hop

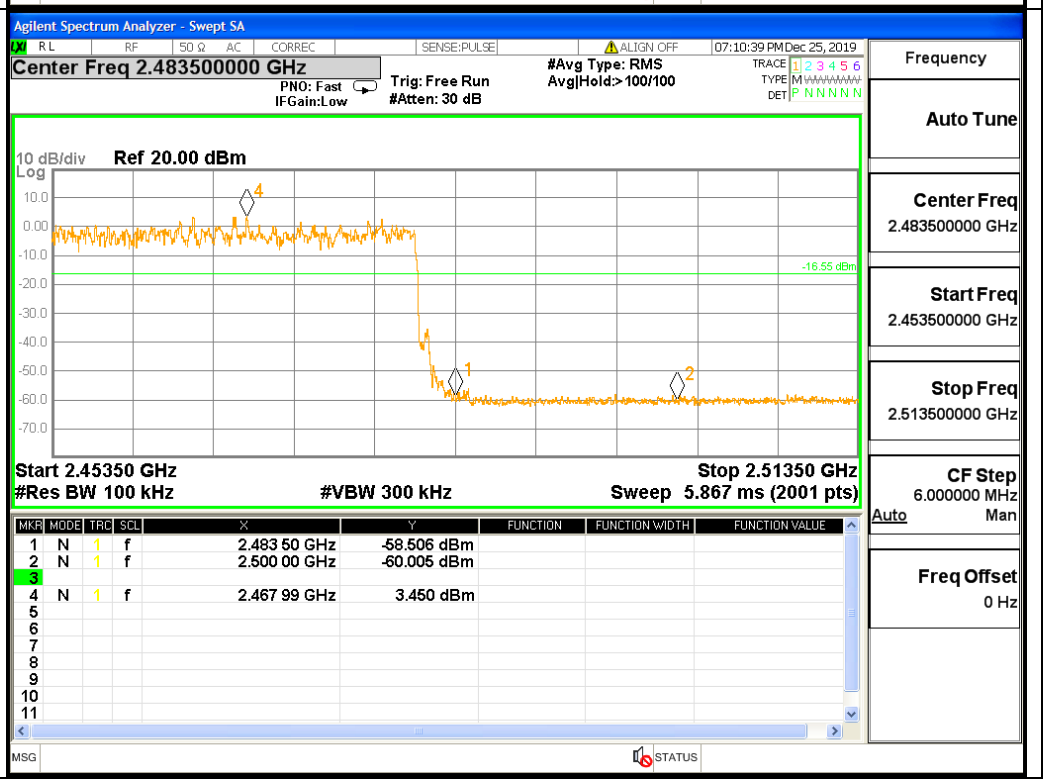


π /4DQPSK/HCH/Hop

8DPSK/LCH/Hop

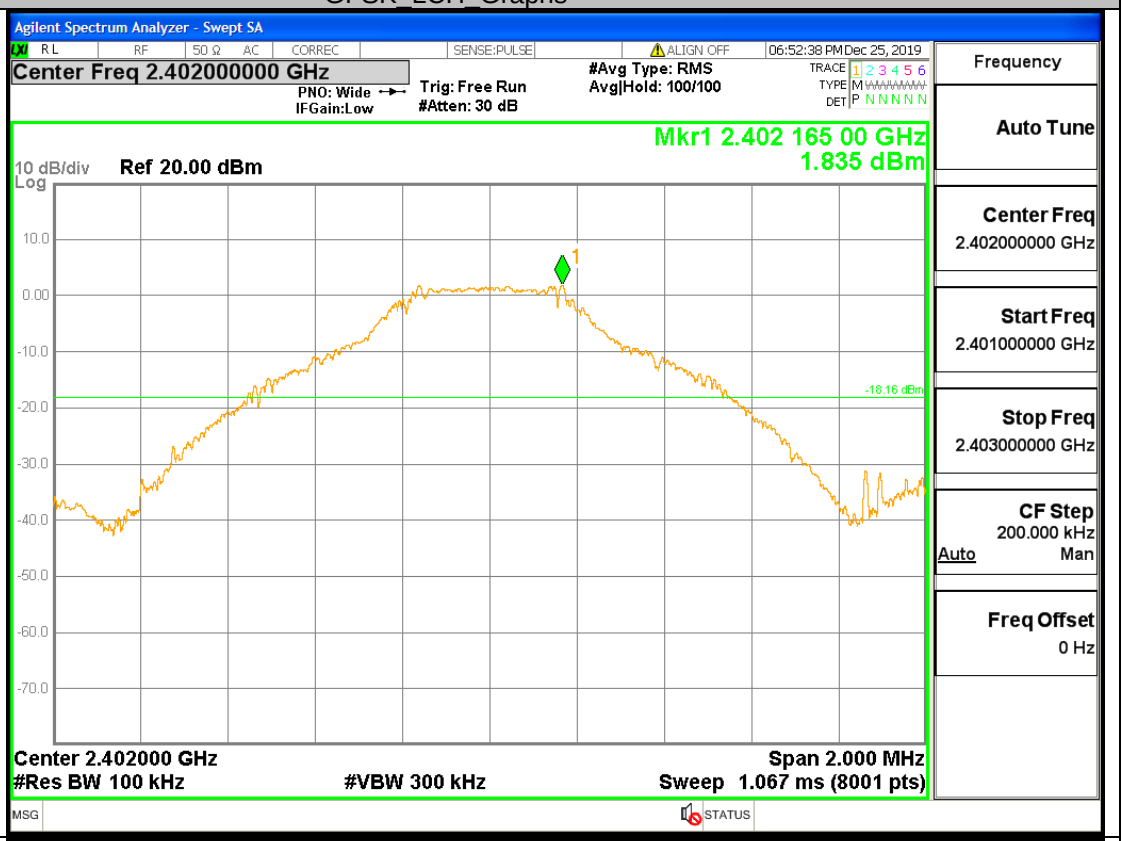
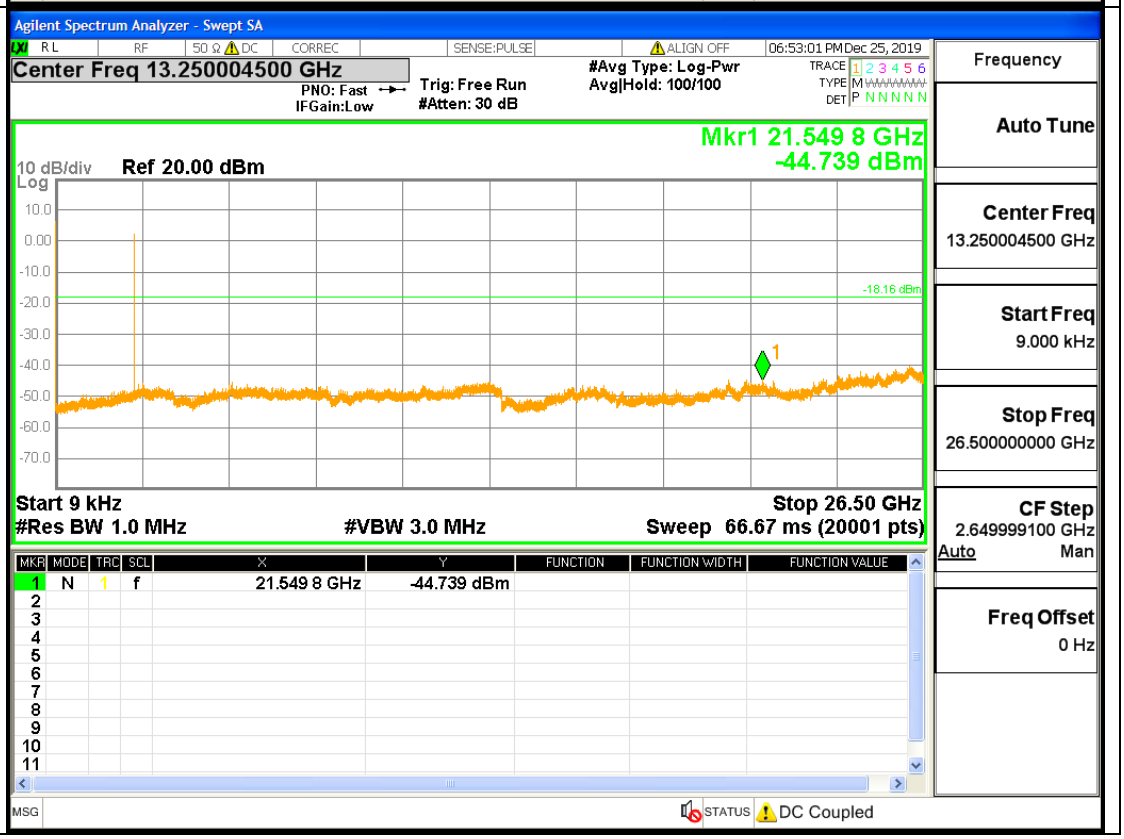


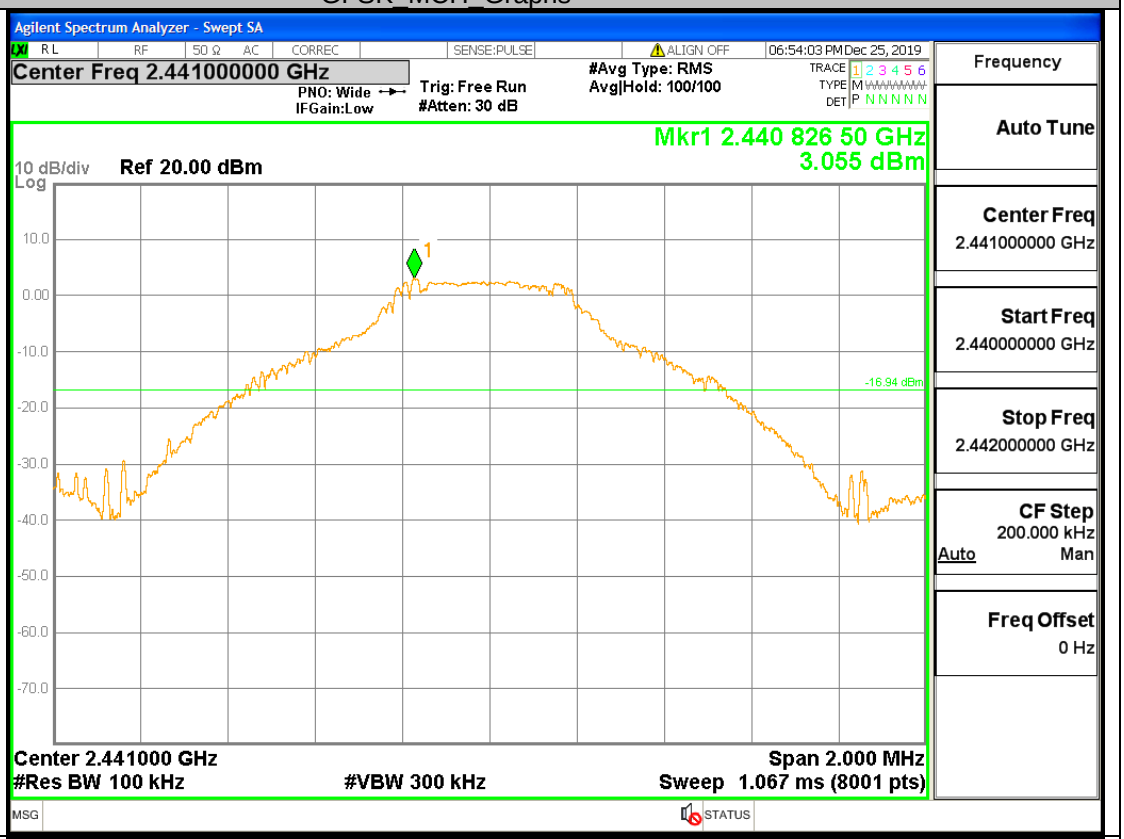
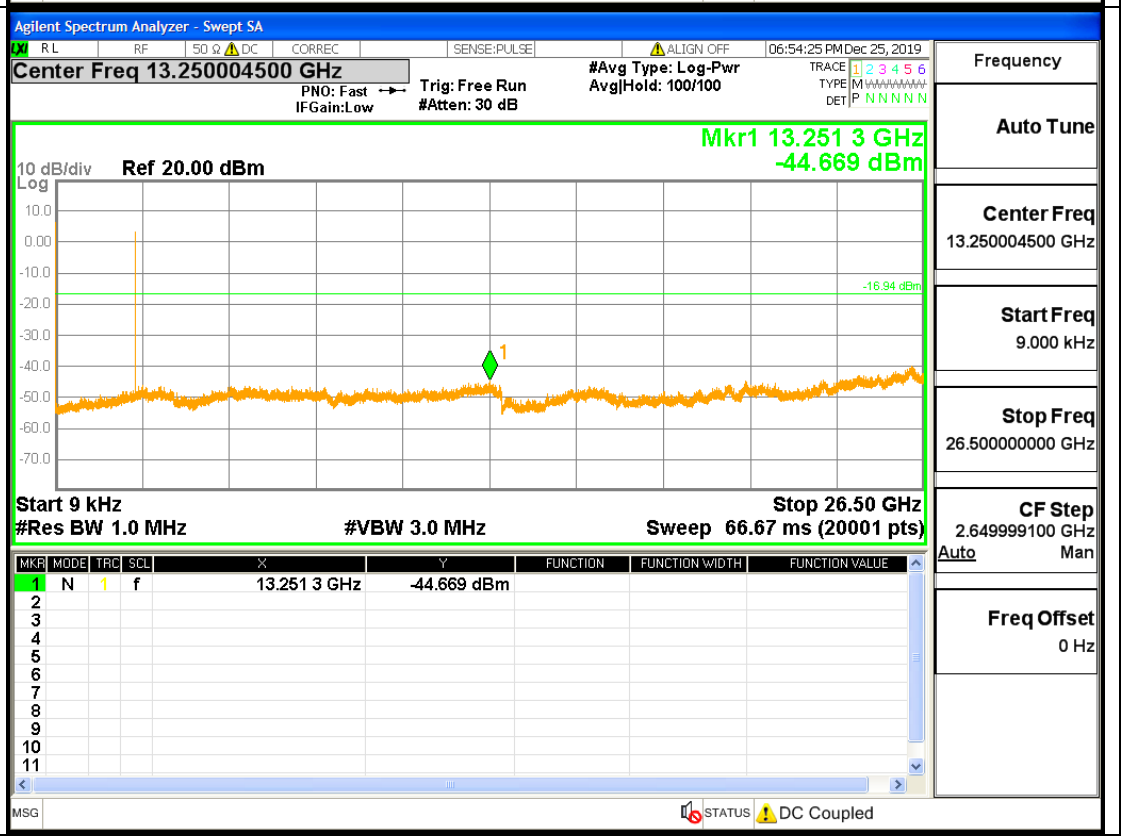
8DPSK/HCH/Hop



A.7 RF Conducted Spurious Emissions

Test Graph

GFSK_LCH_Graphs	
Pref	
Puw	

GFSK_MCH_Graphs	
Pref	
Puw	

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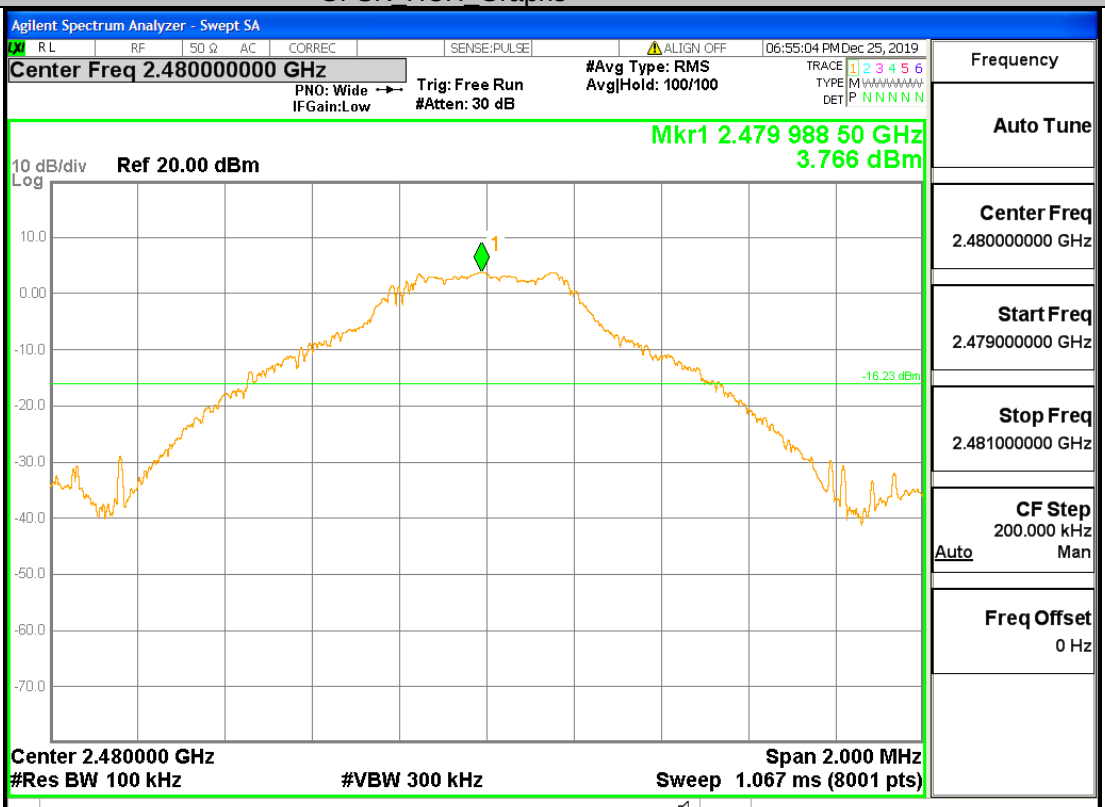
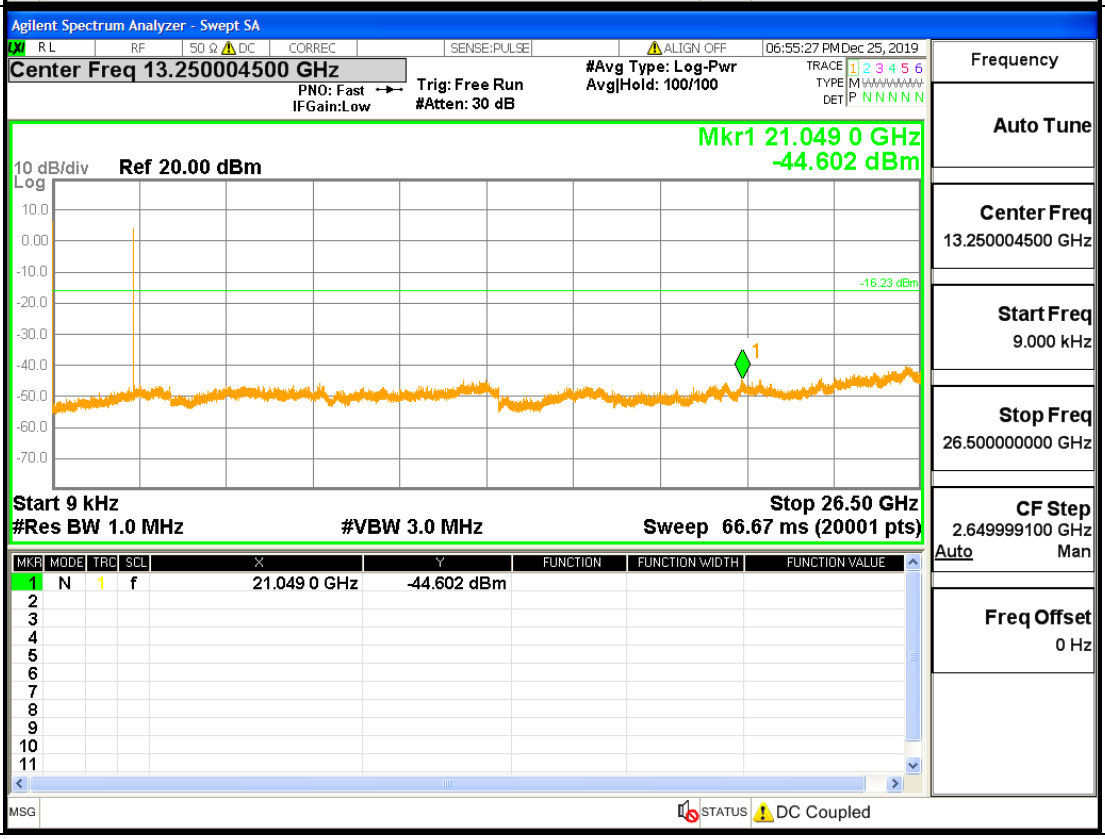
Pref	
Puw	

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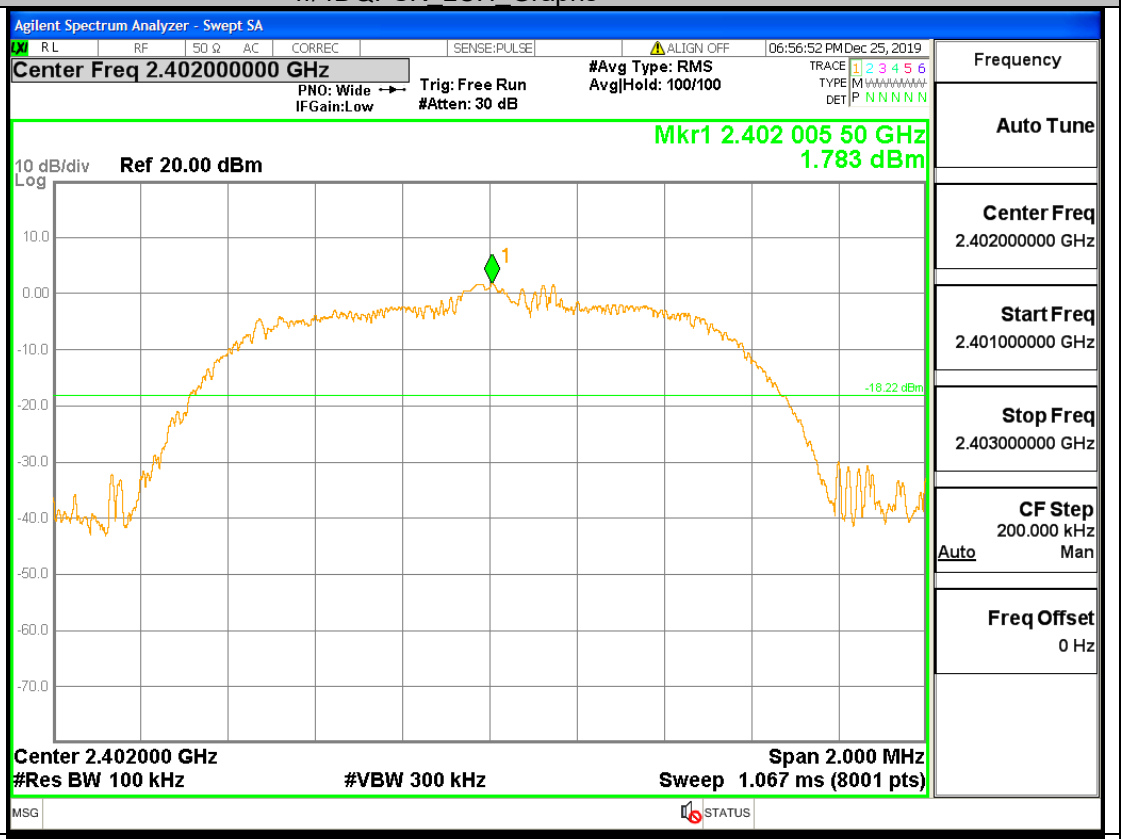
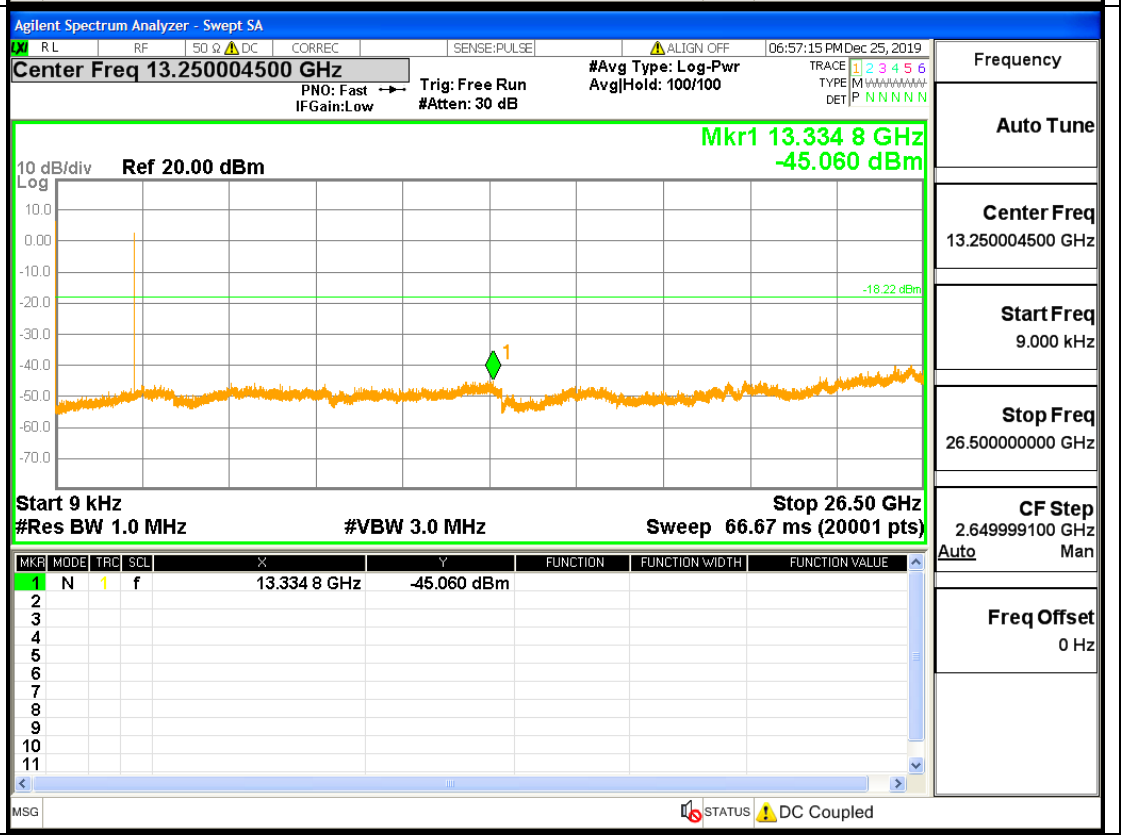
Pref	
Puw	

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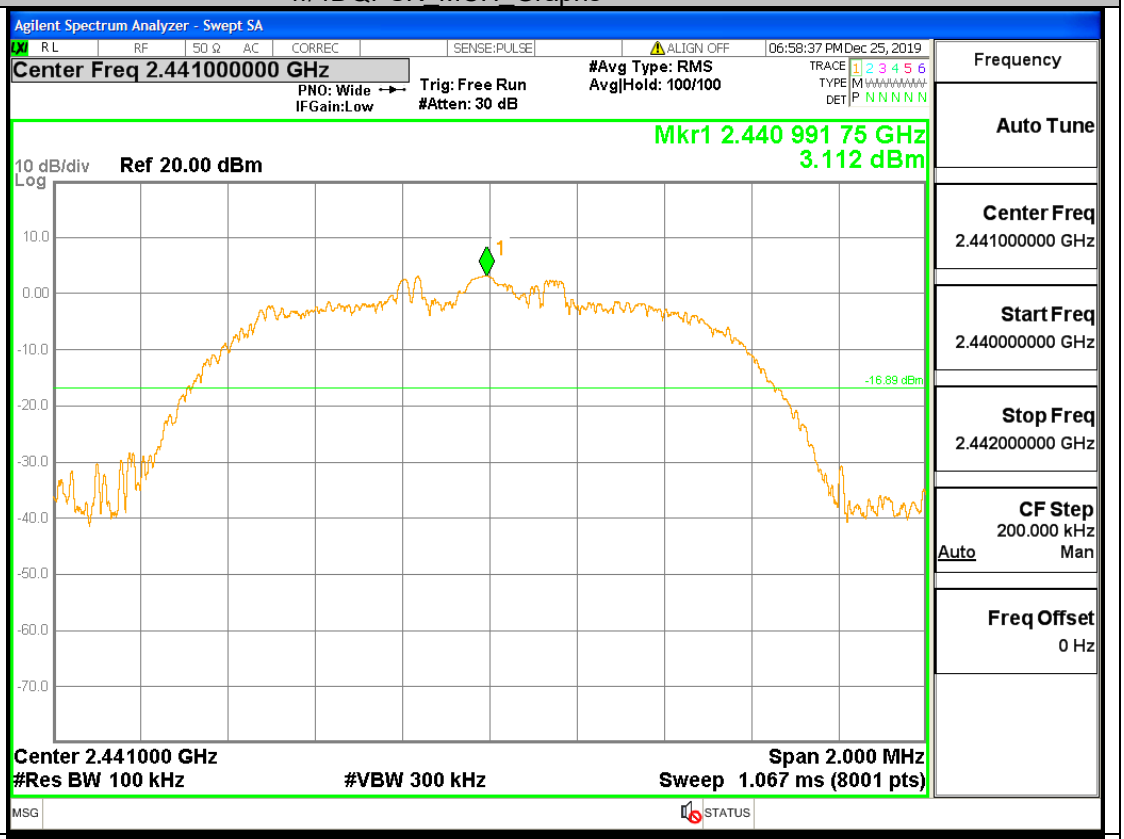
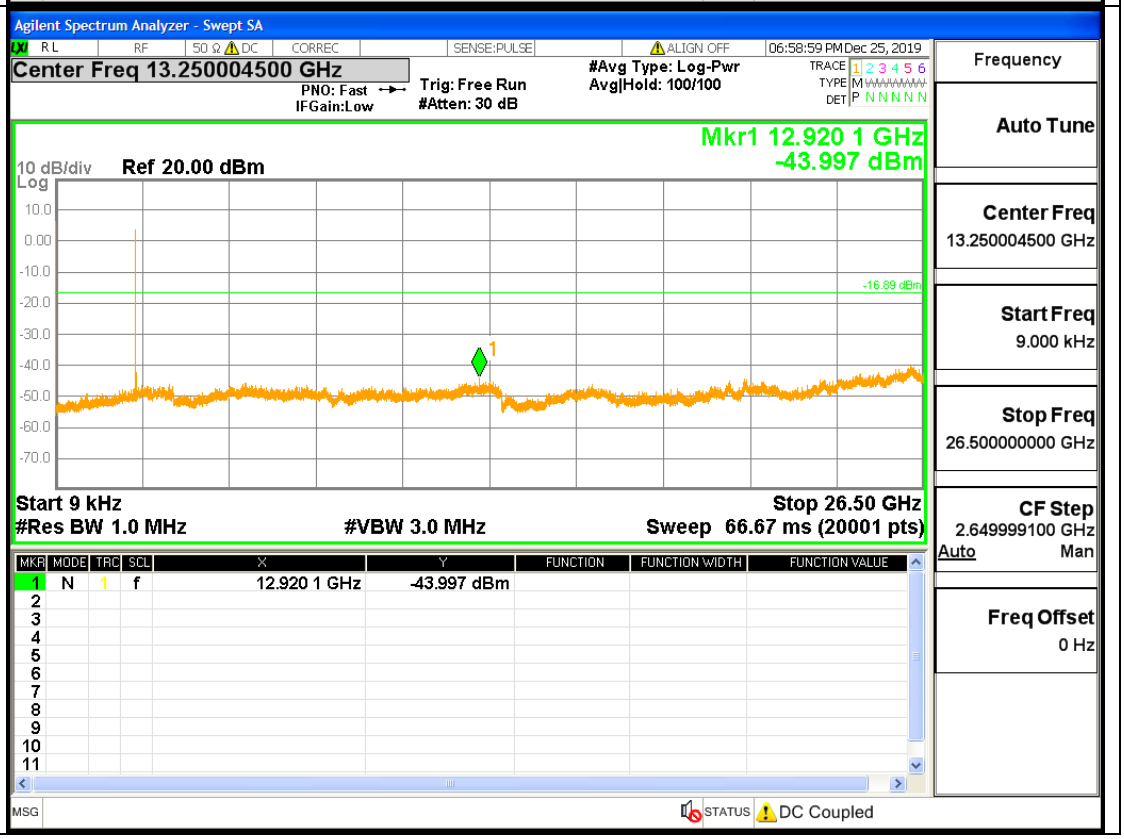
Pref	
Puw	

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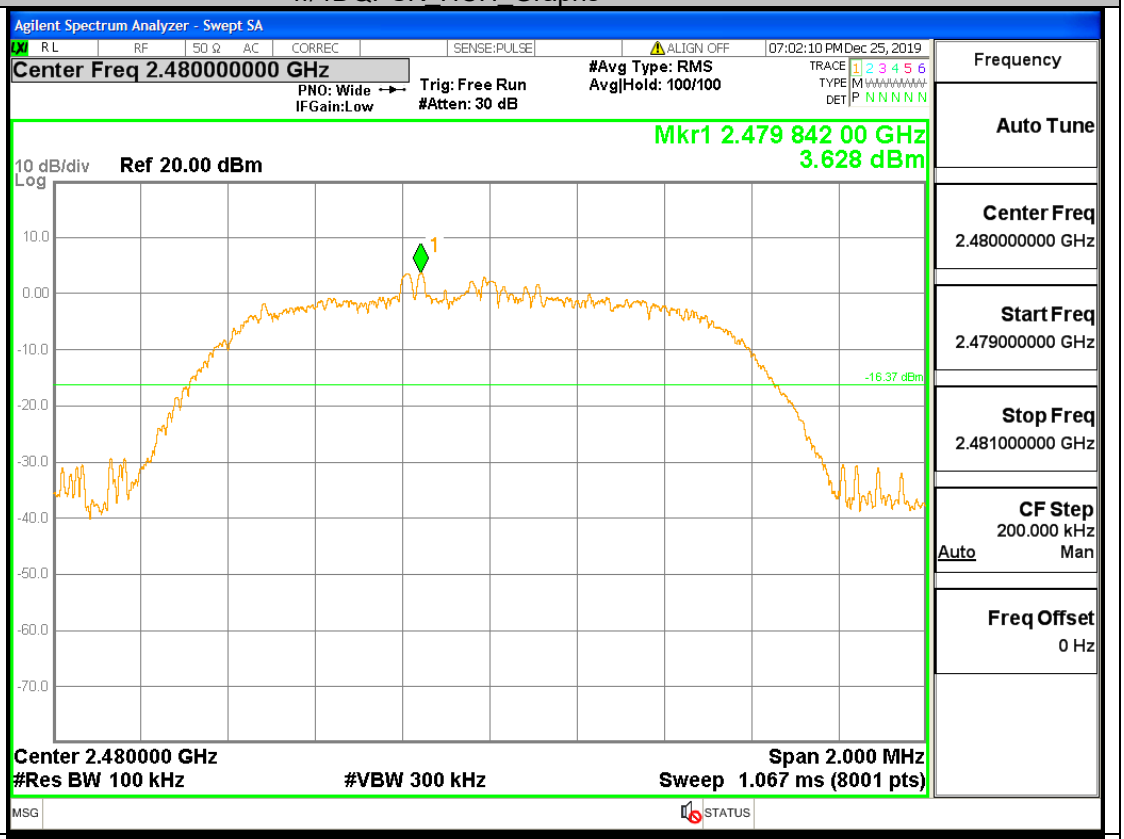
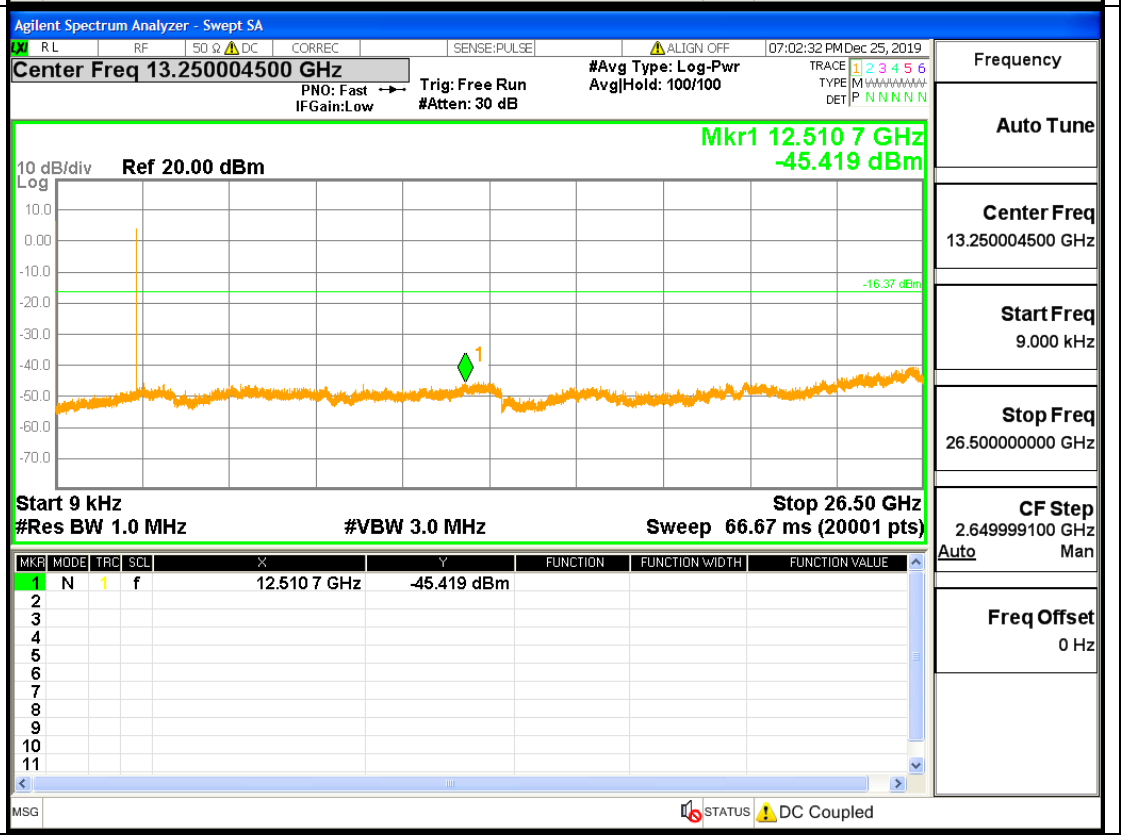
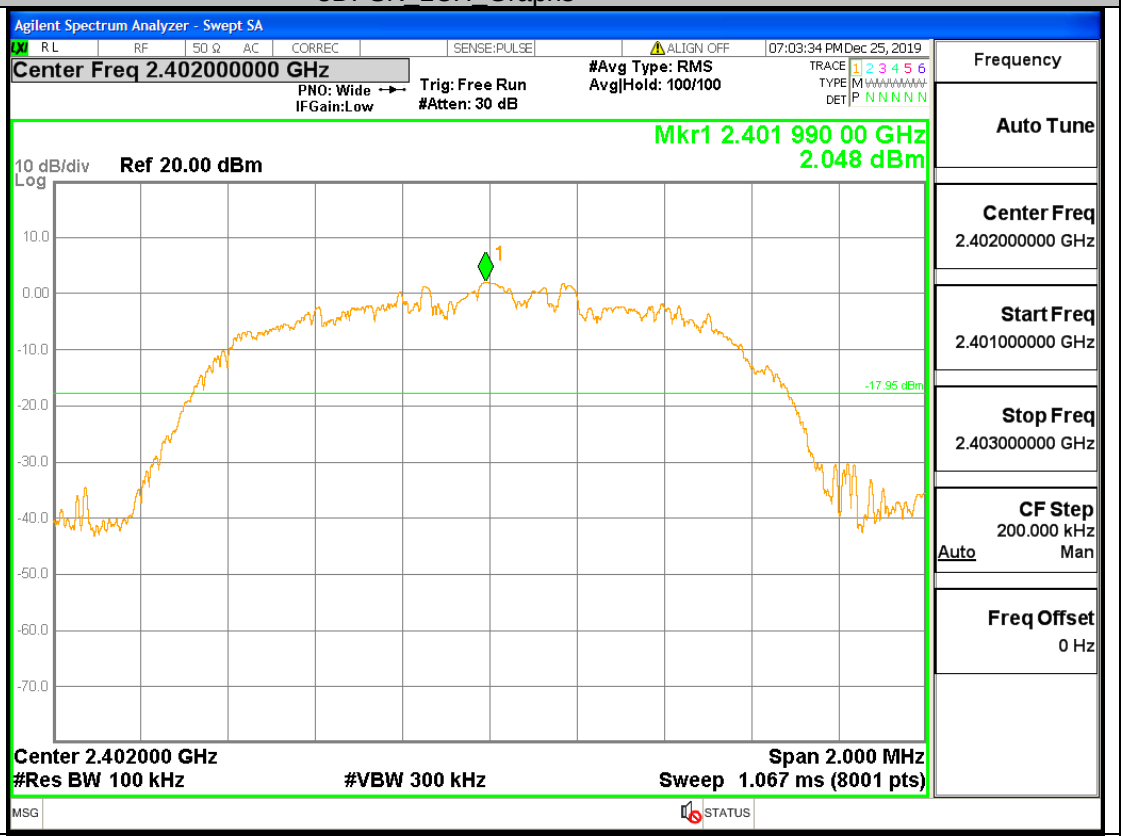
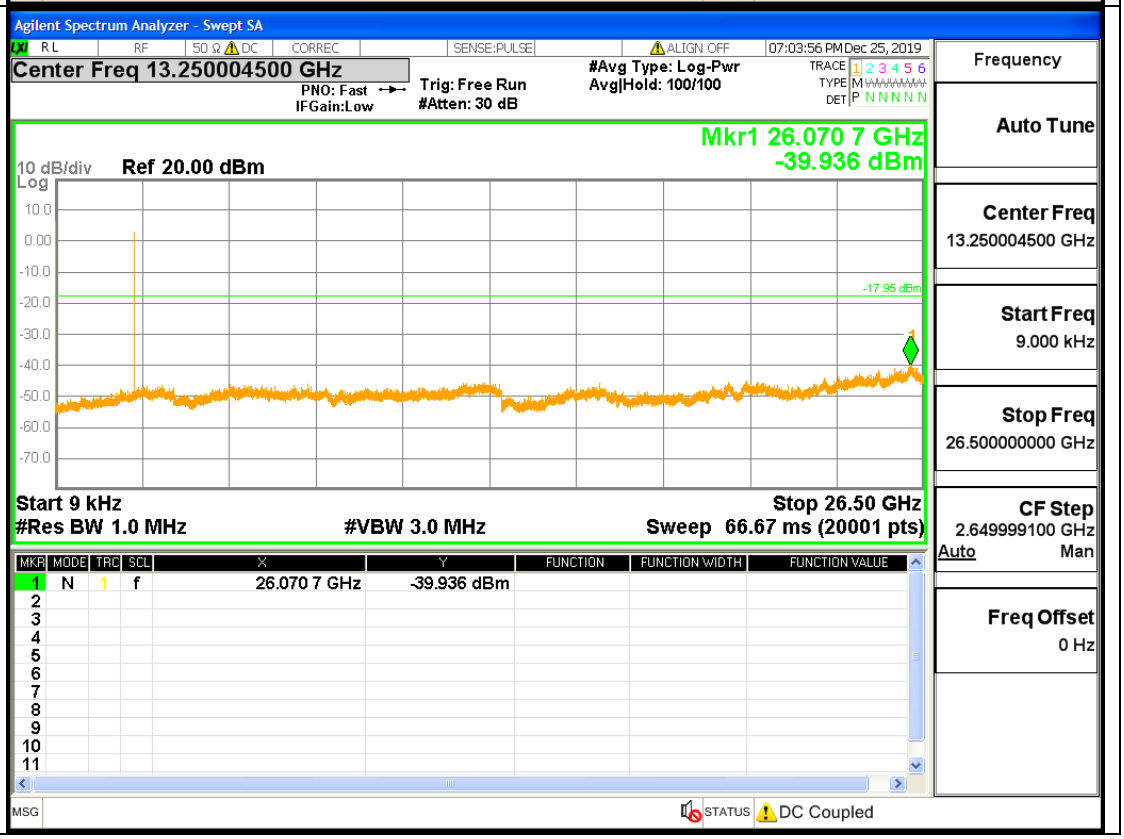
Pref	
Puw	

8DPSK_LCH_Graphs	
Pref	
Puw	

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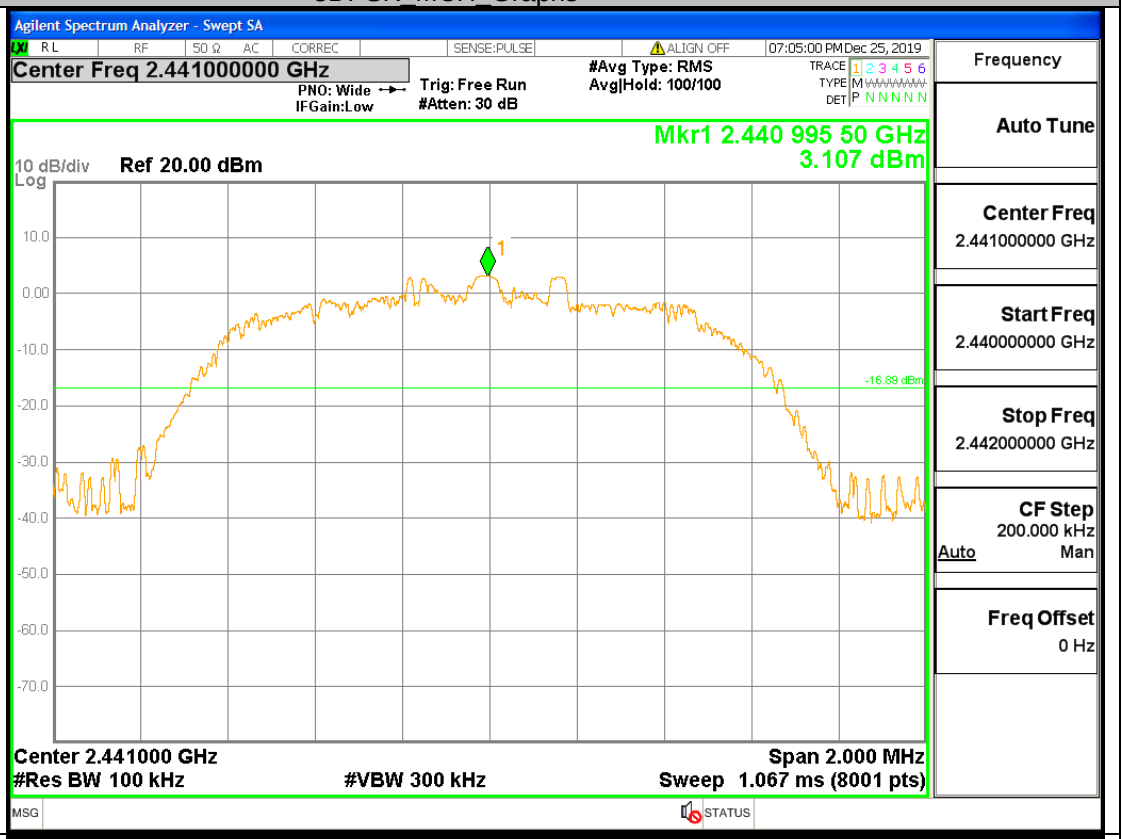
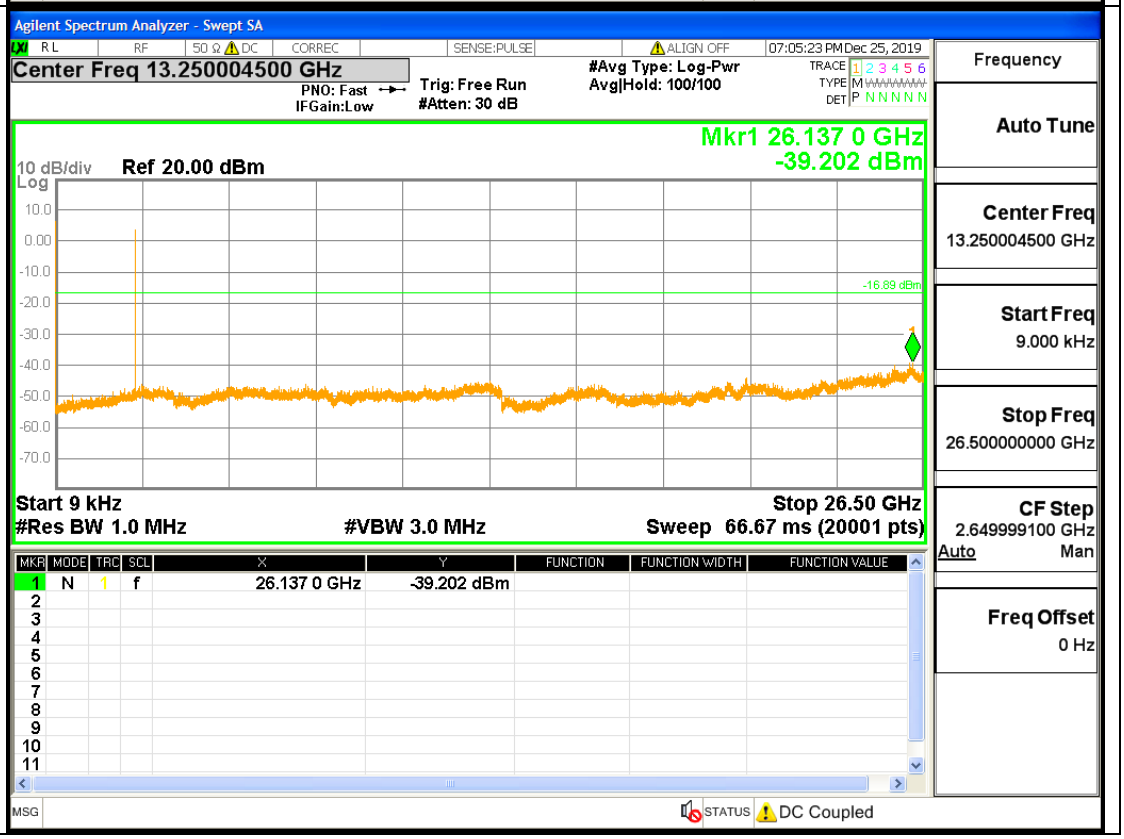
Pref	
Puw	

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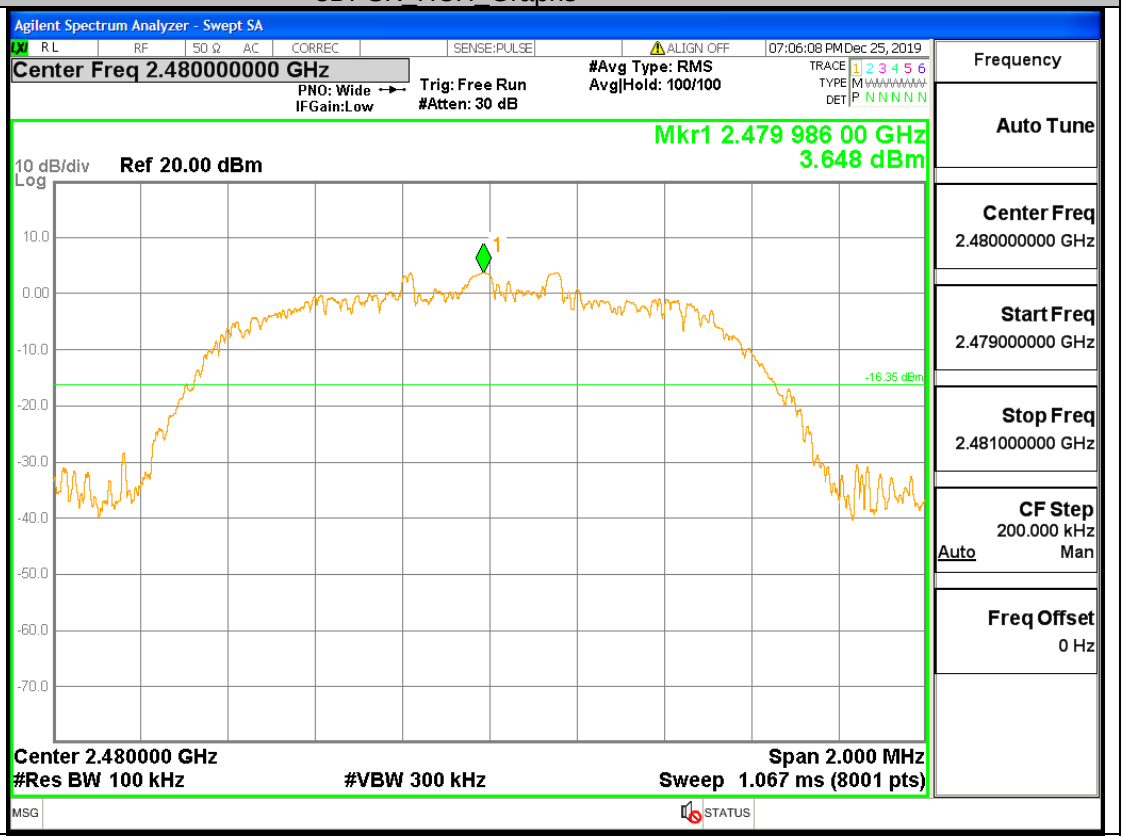
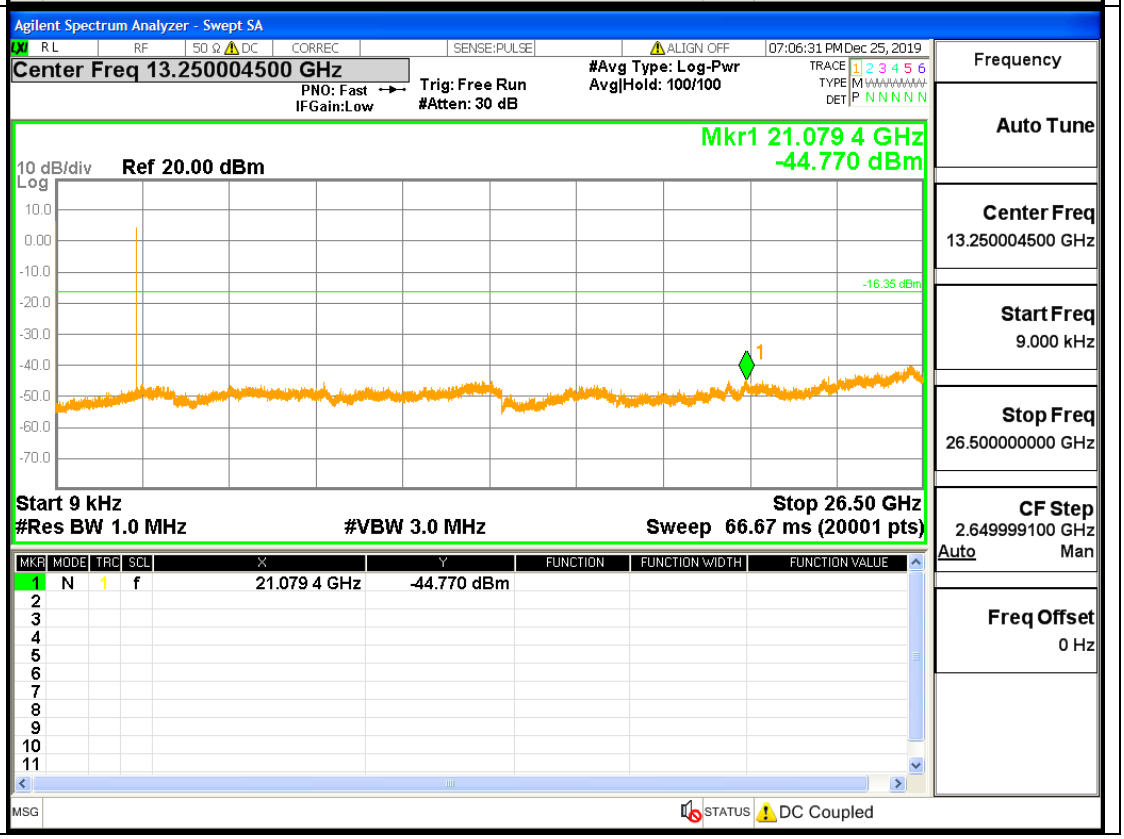
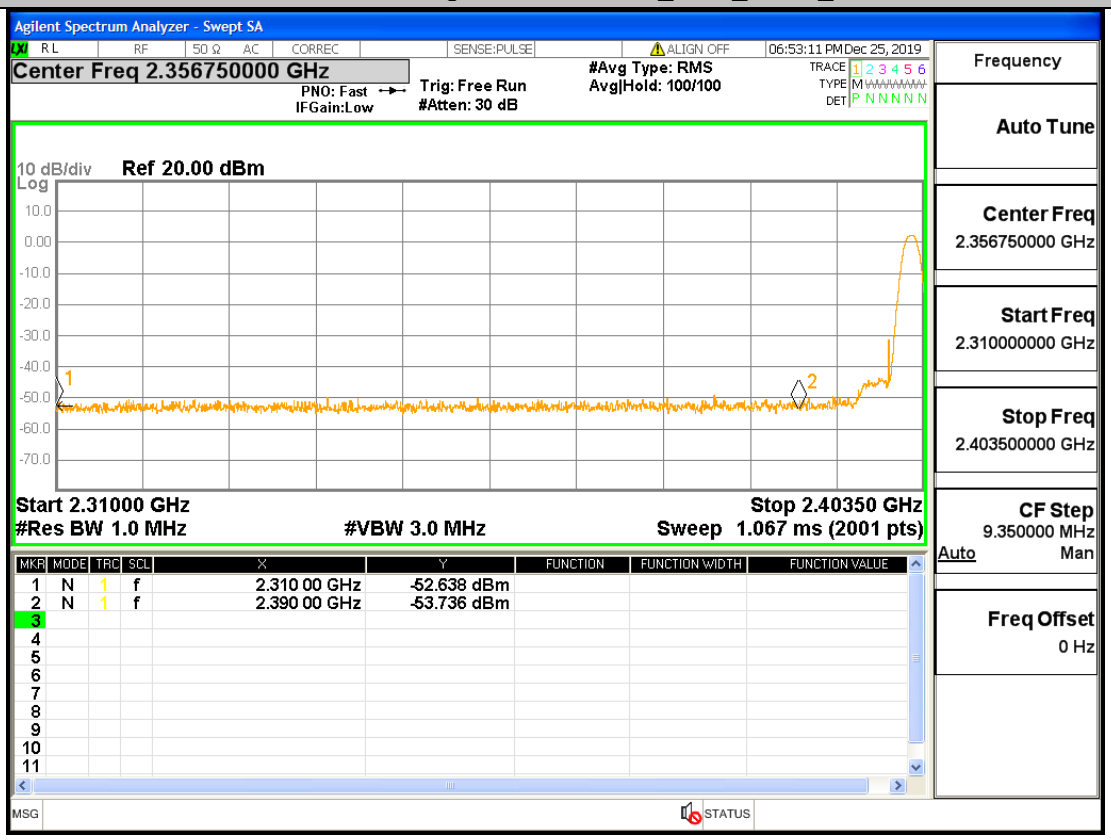
Pref	
Puw	

A.8 Restrict-band band-edge measurements

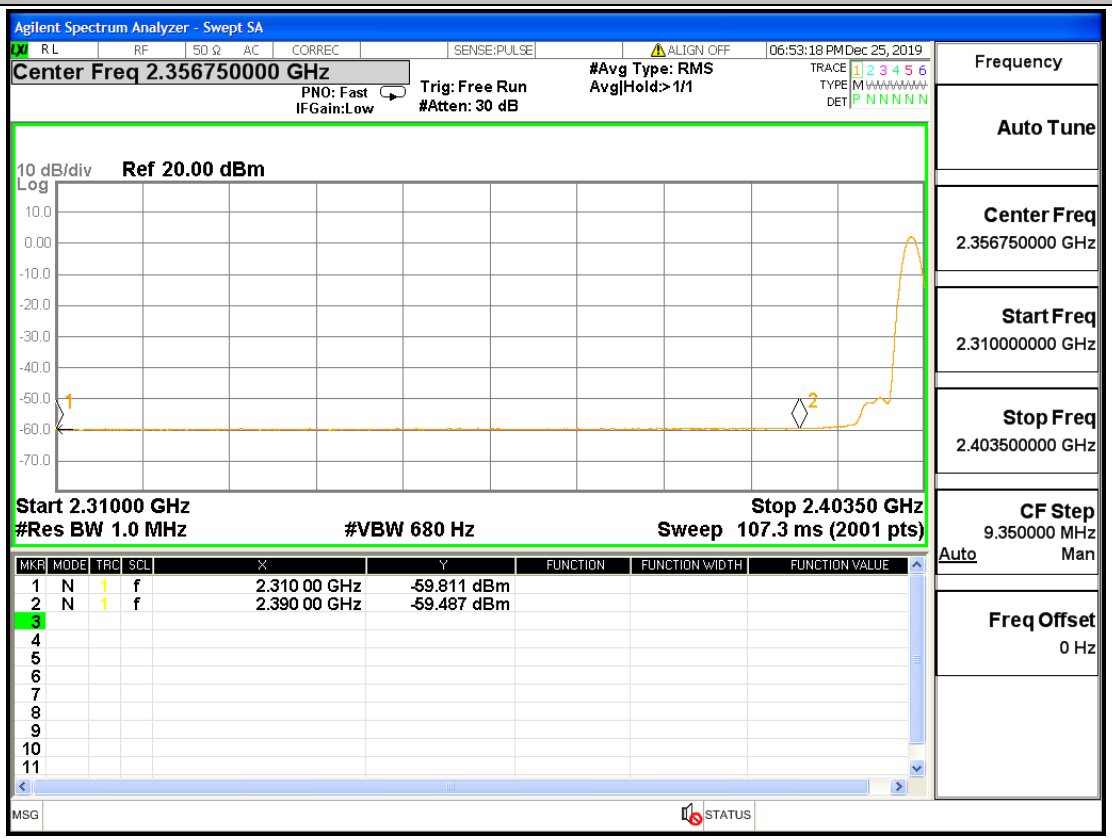
Type	Carrier Frequency (MHz)	Frequency(MHz)	Gain	Ground Factor	Peak Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2310	2.00	0.00	-52.638	44.562	74	Pass
1DH5	2480	2483.5	2.00	0.00	-44.386	52.814	74	Pass
2DH5	2402	2310	2.00	0.00	-53.483	43.717	74	Pass
2DH5	2480	2483.5	2.00	0.00	-46.279	50.921	74	Pass
3DH5	2402	2310	2.00	0.00	-52.967	44.233	74	Pass
3DH5	2480	2483.5	2.00	0.00	-45.753	51.447	74	Pass

Type	Carrier Frequency (MHz)	Frequency(MHz)	Gain	Ground Factor	Average Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2310	2.00	0.00	-59.487	37.713	54	Pass
1DH5	2480	2483.5	2.00	0.00	-49.715	47.485	54	Pass
2DH5	2402	2310	2.00	0.00	-59.469	37.731	54	Pass
2DH5	2480	2483.5	2.00	0.00	-50.036	47.164	54	Pass
3DH5	2402	2310	2.00	0.00	-59.478	37.722	54	Pass
3DH5	2480	2483.5	2.00	0.00	-50.154	47.046	54	Pass

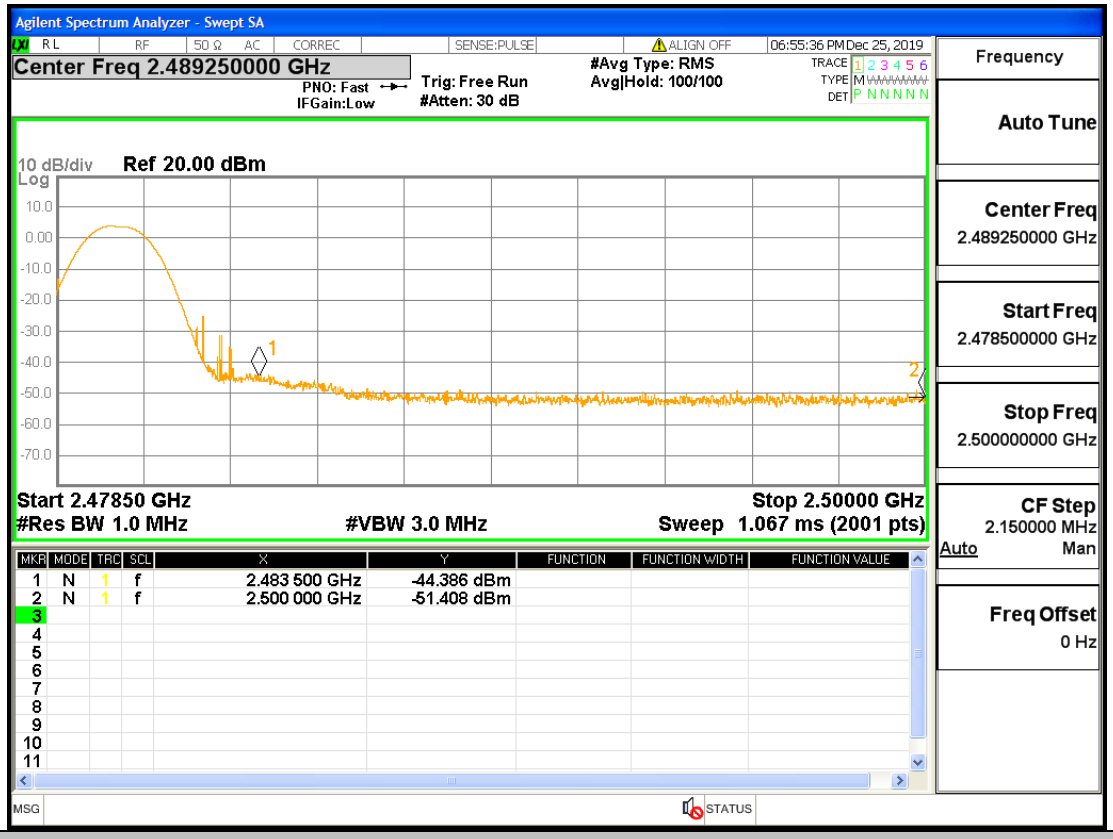
Restrict-band band-edge measurements_2402_PEAK_DH5



Restrict-band band-edge measurements_2402_AV_DH5

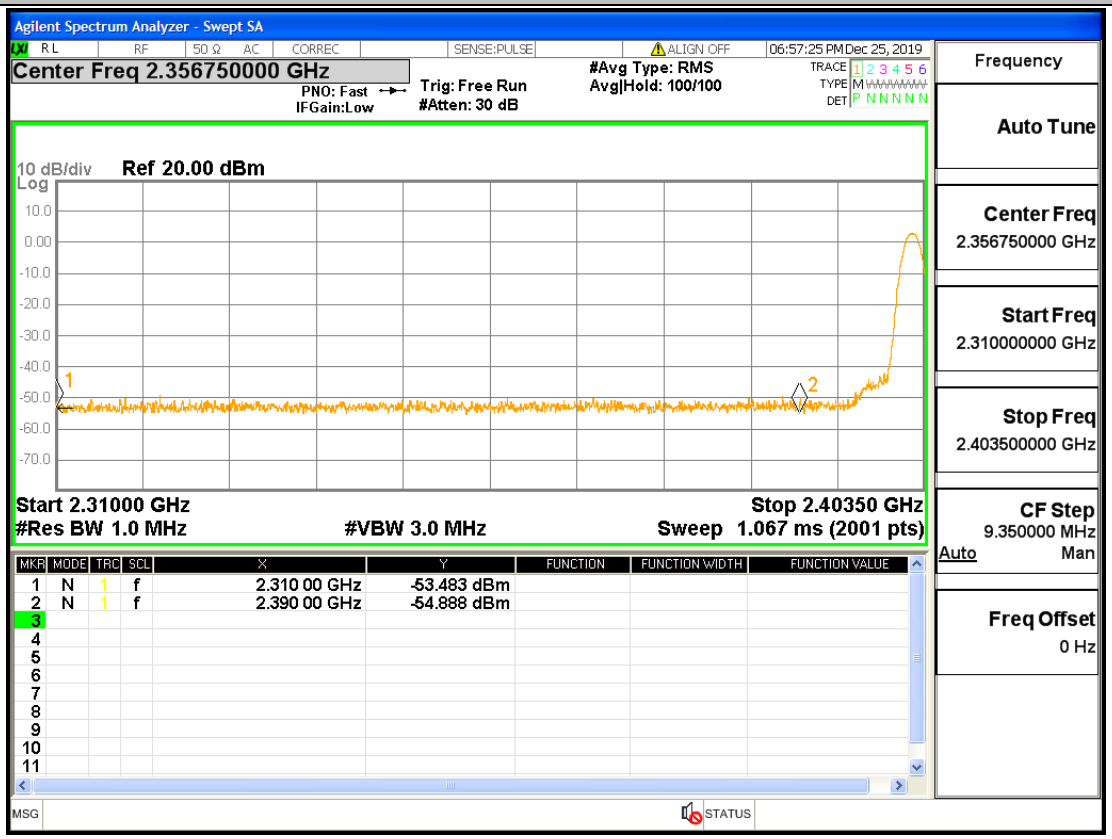


Restrict-band band-edge measurements_2480_PEAK_DH5



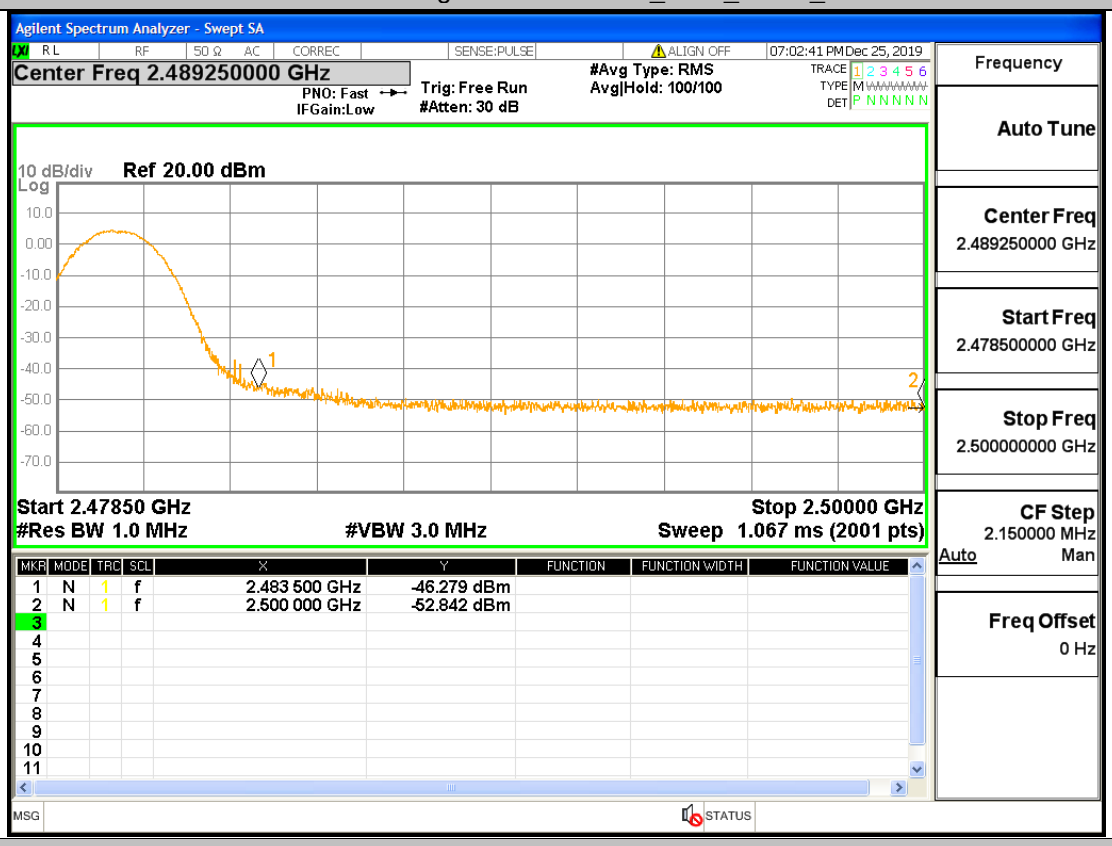
Restrict-band band-edge measurements_2480_AV_DH5

Restrict-band band-edge measurements_2402_PEAK_2DH5

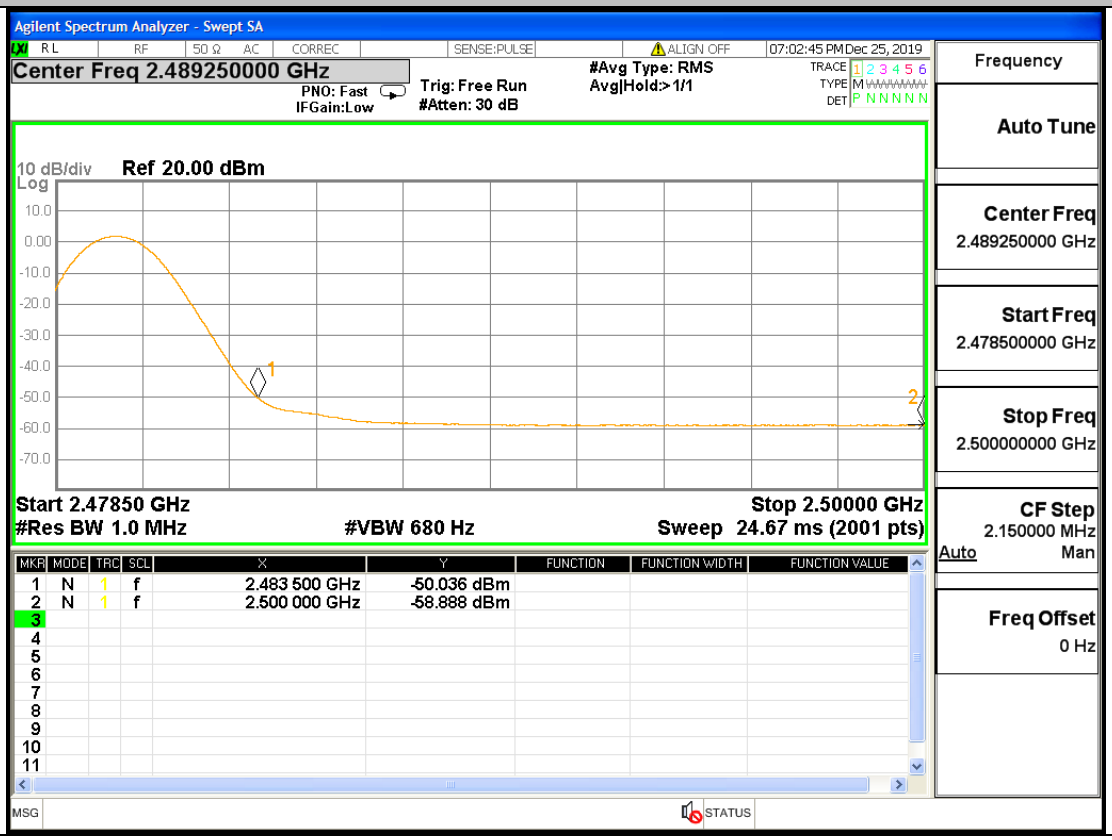


Restrict-band band-edge measurements_2402_AV_2DH5

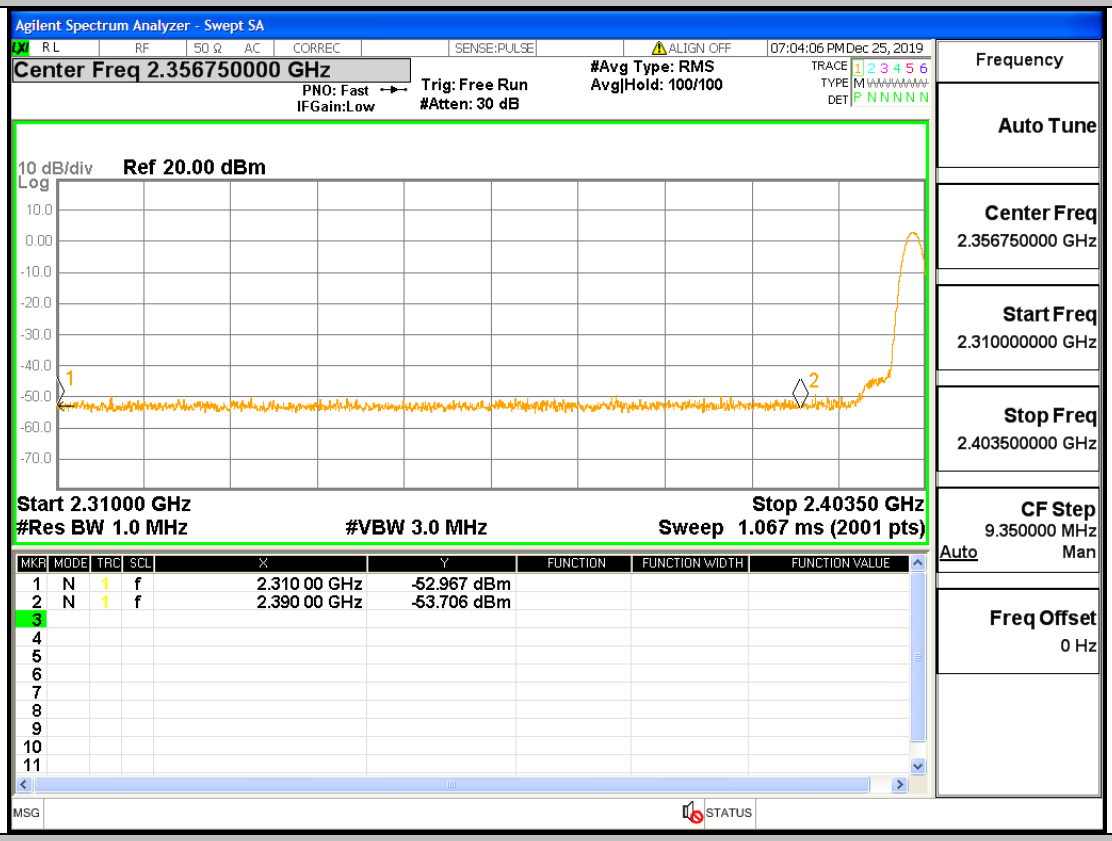
Restrict-band band-edge measurements_2480_PEAK_2DH5



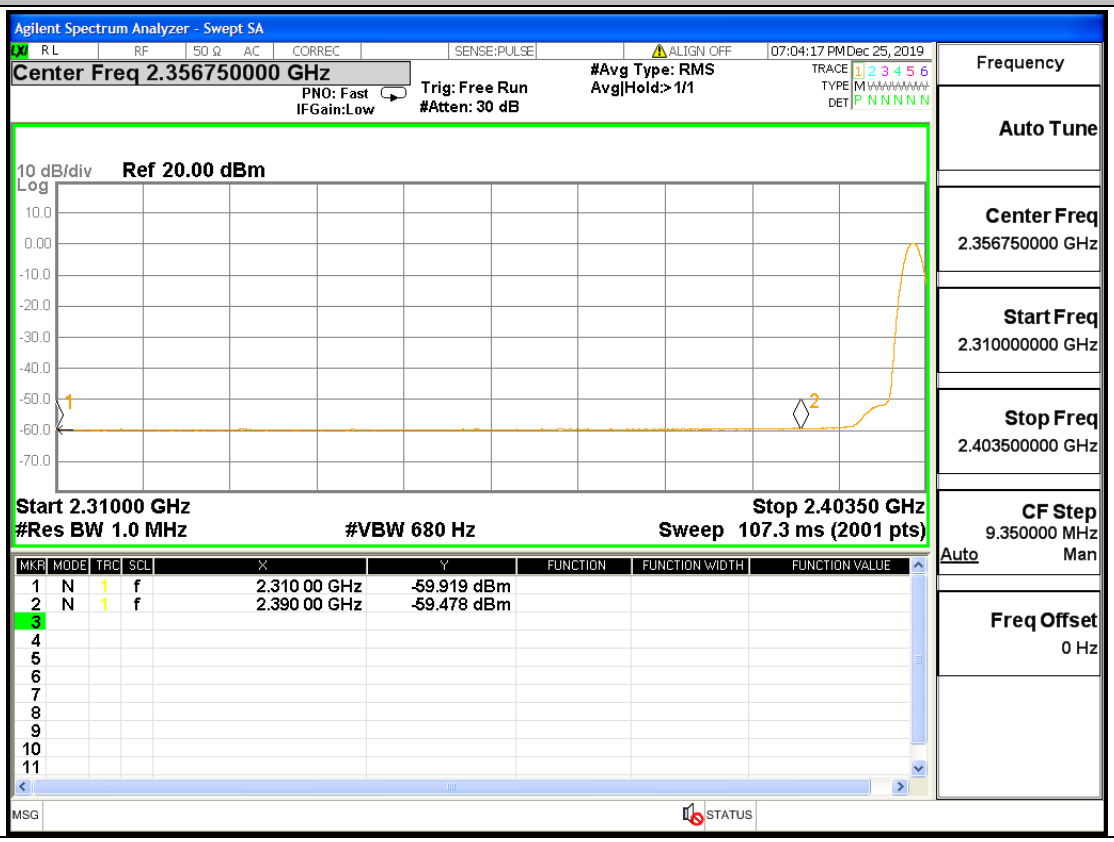
Restrict-band band-edge measurements_2480_AV_2DH5



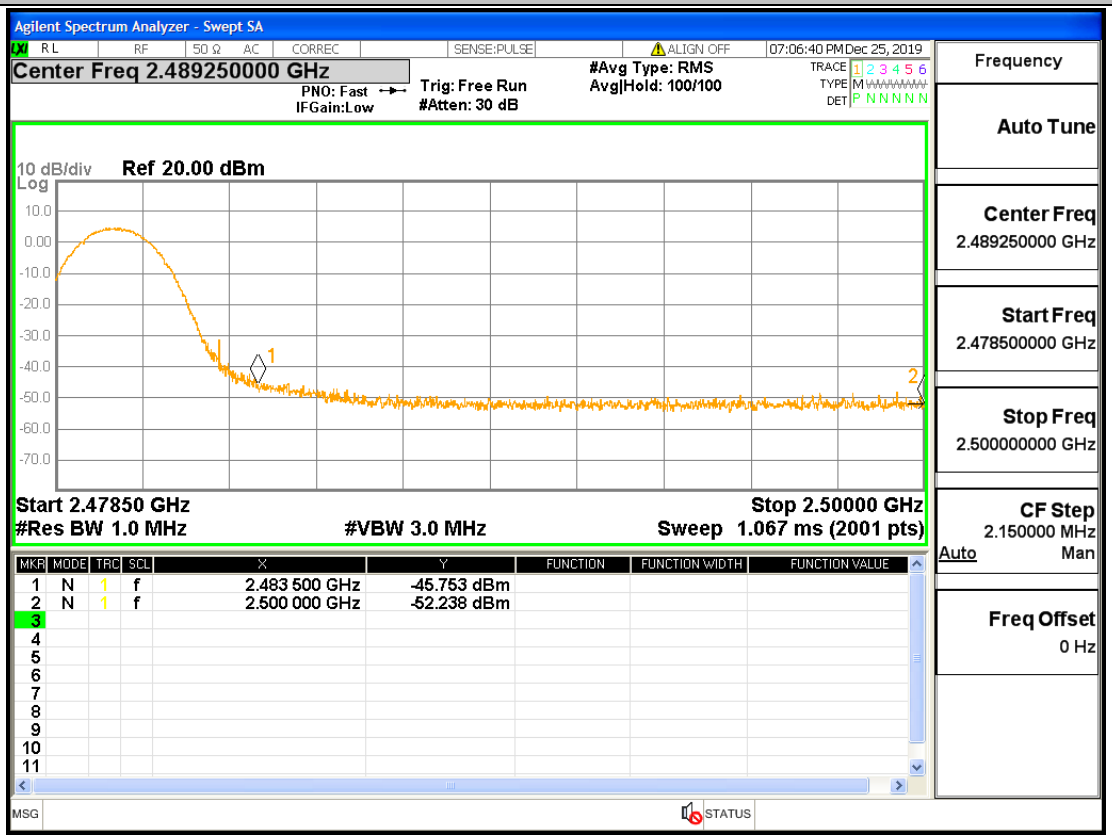
Restrict-band band-edge measurements_2402_PEAK_3DH5



Restrict-band band-edge measurements_2402_AV_3DH5



Restrict-band band-edge measurements_2480_PEAK_3DH5



Restrict-band band-edge measurements_2480_AV_3DH5