

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

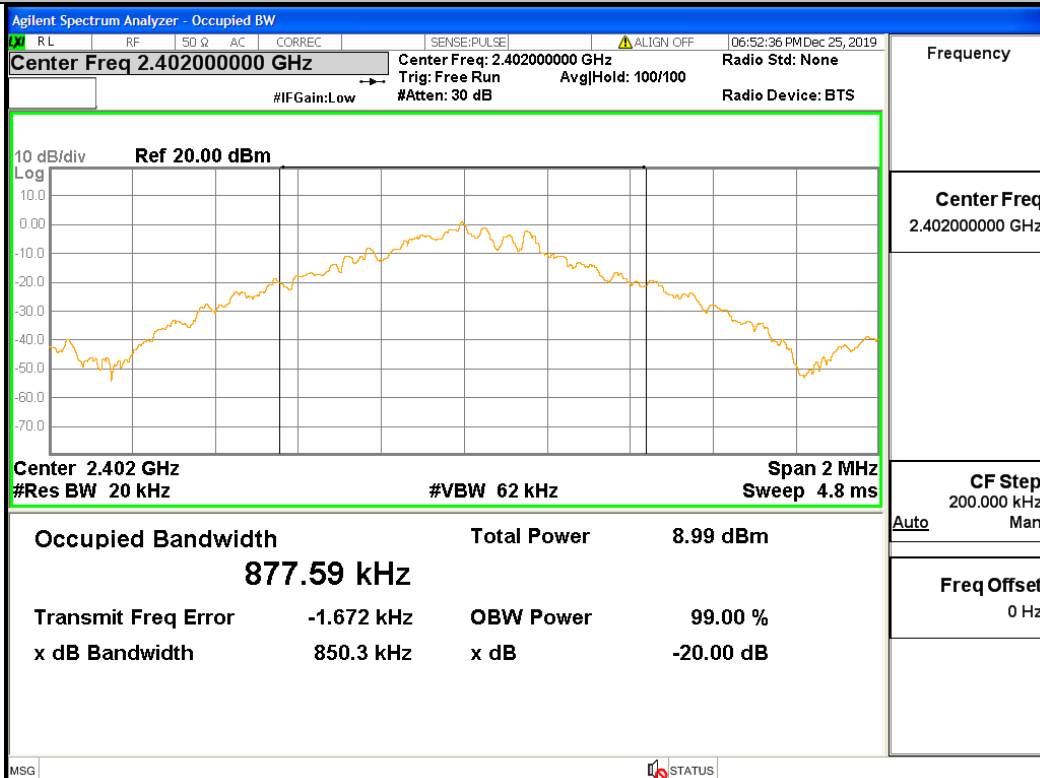
A.1 20 dB Bandwidth

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
$\pi/4$ DQPSK	LCH	1.22	Not Specified	PASS
$\pi/4$ DQPSK	MCH	1.199	Not Specified	PASS
$\pi/4$ DQPSK	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



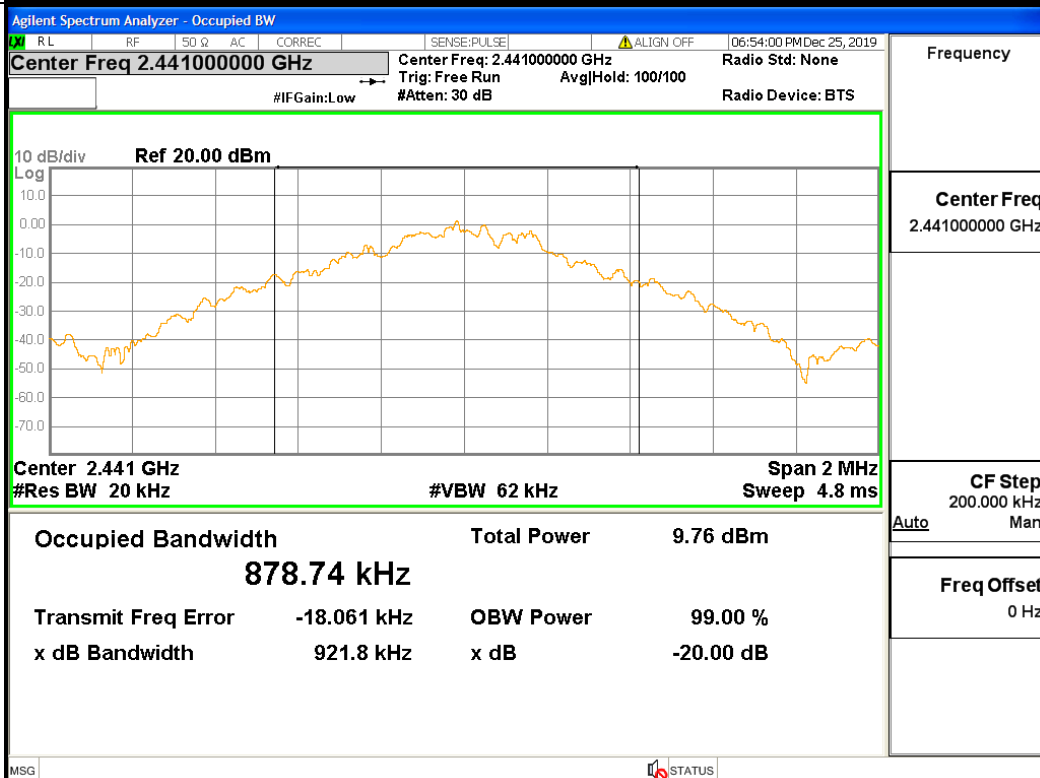
Frequency

Center Freq
2.40200000 GHz

CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz

GFSK/MCH

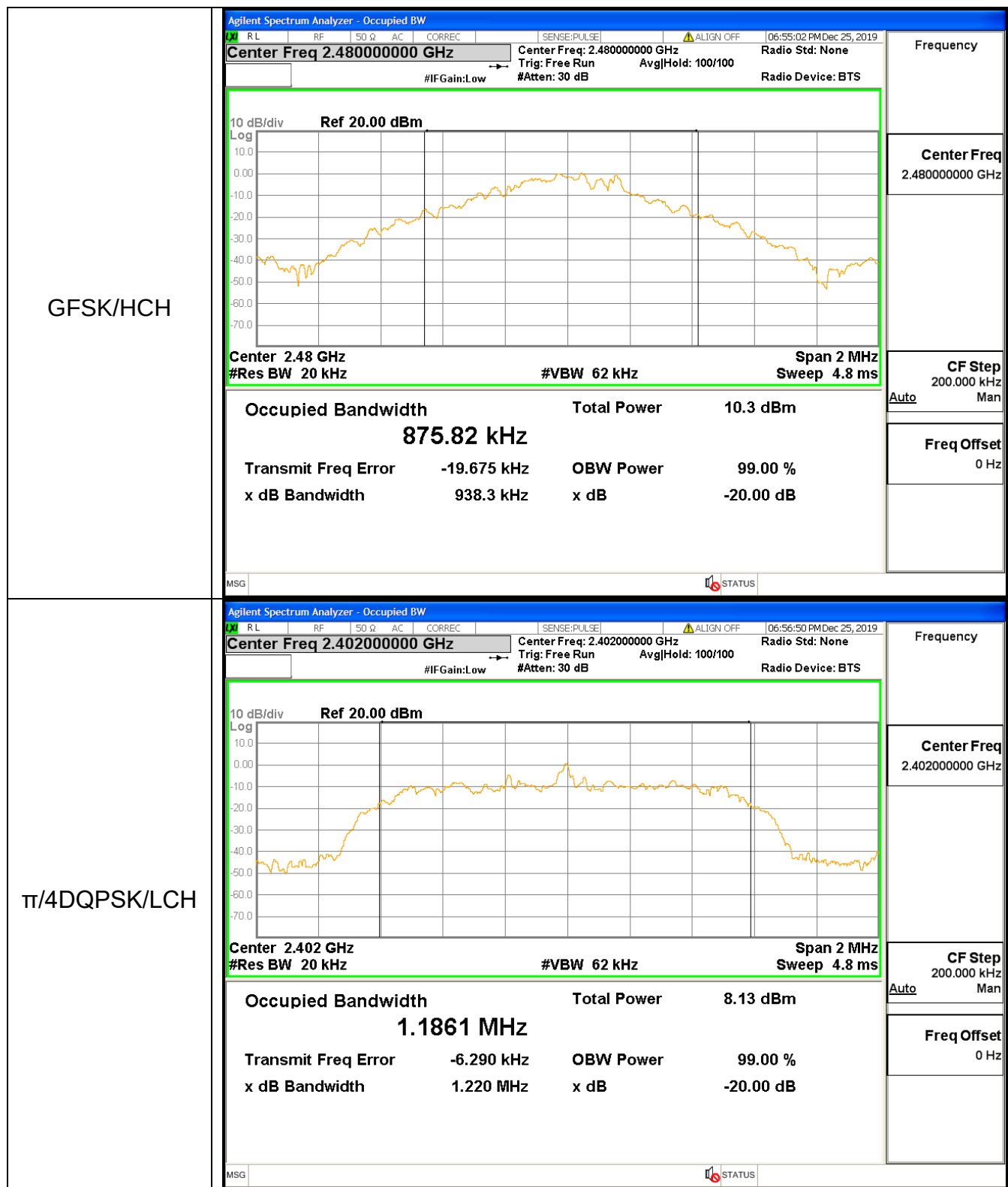


Frequency

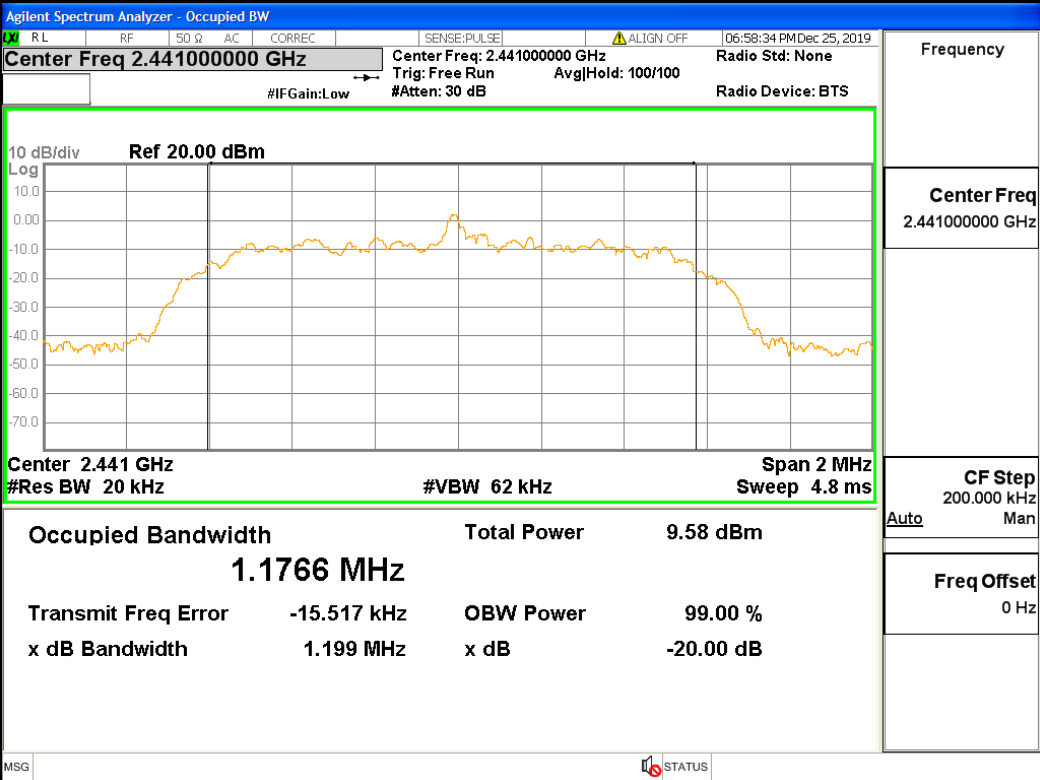
Center Freq
2.44100000 GHz

CF Step
200.000 kHz
Auto Man

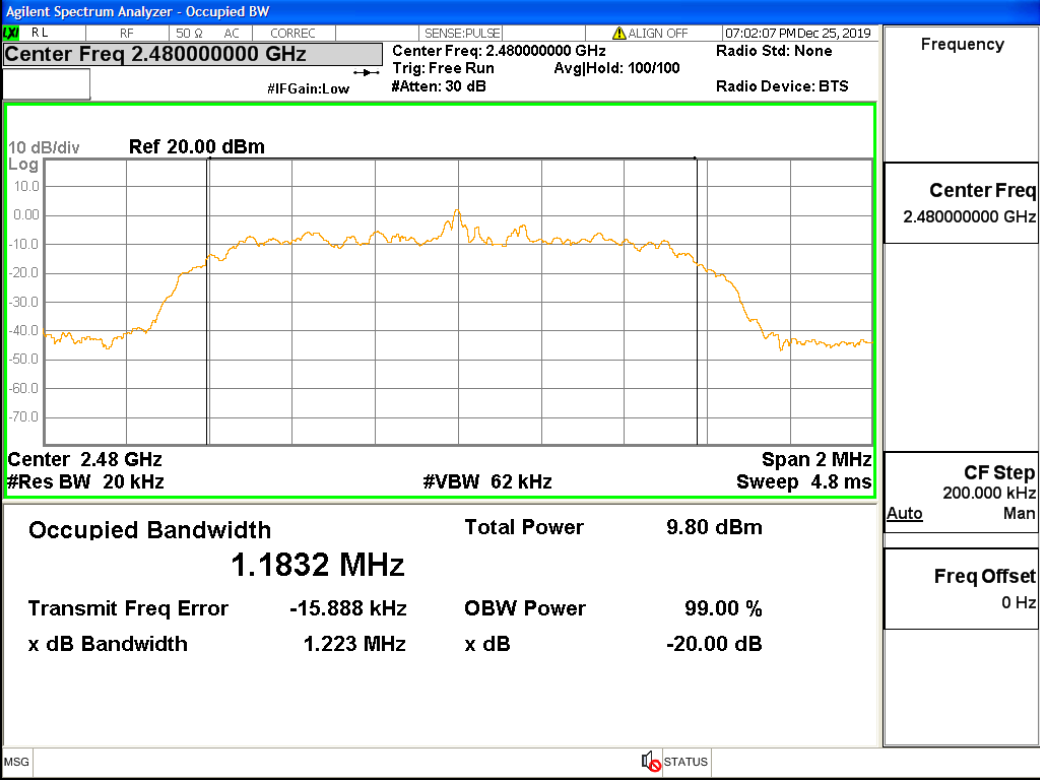
Freq Offset
0 Hz

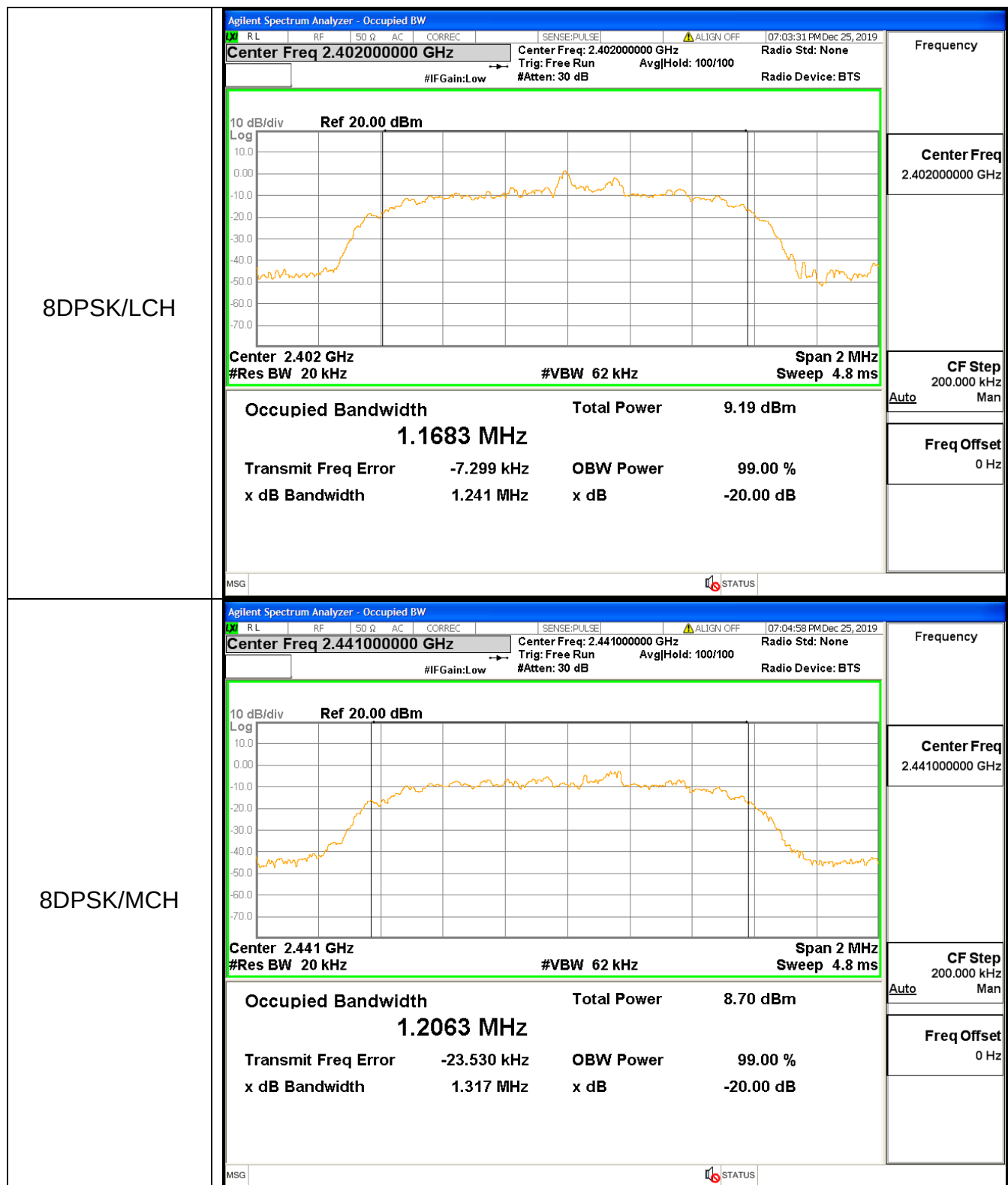


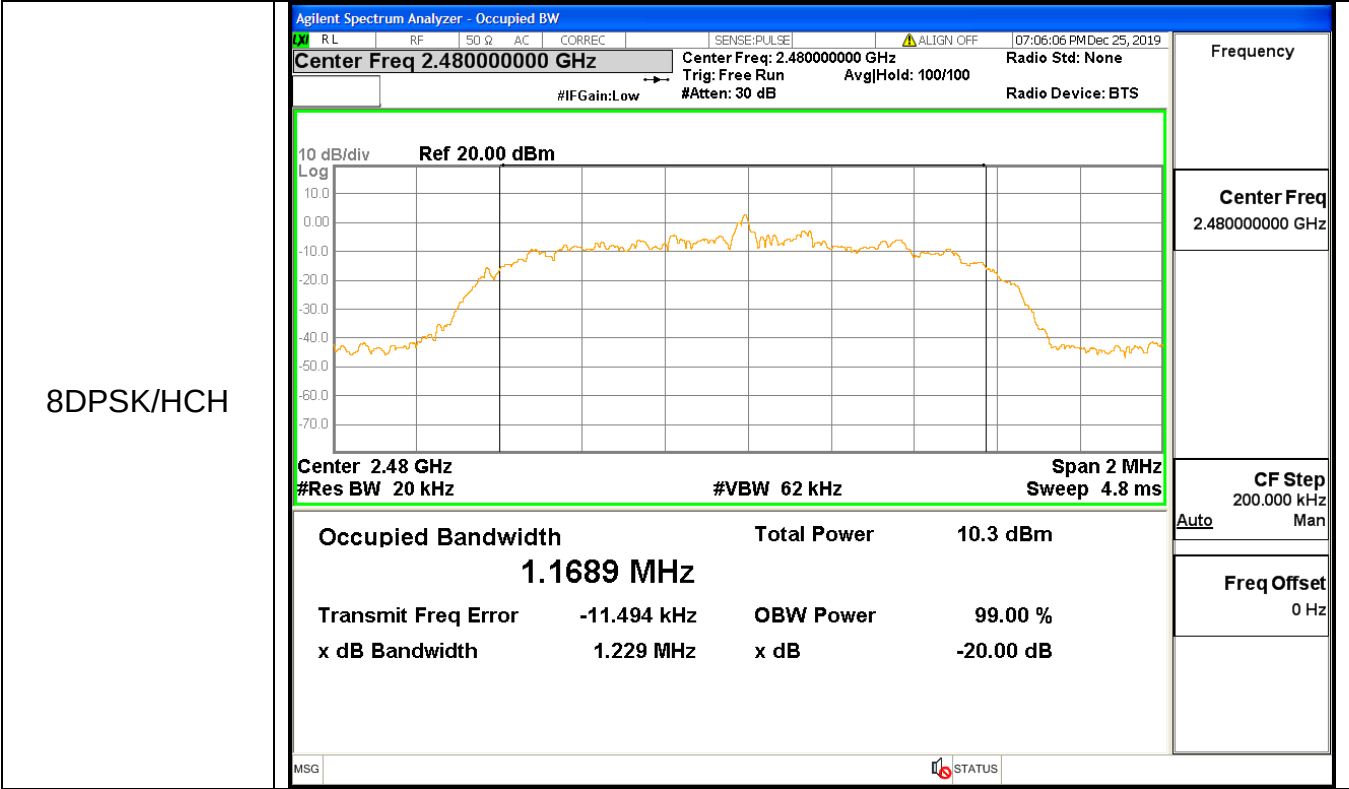
π /4DQPSK/MCH



π /4DQPSK/HCH



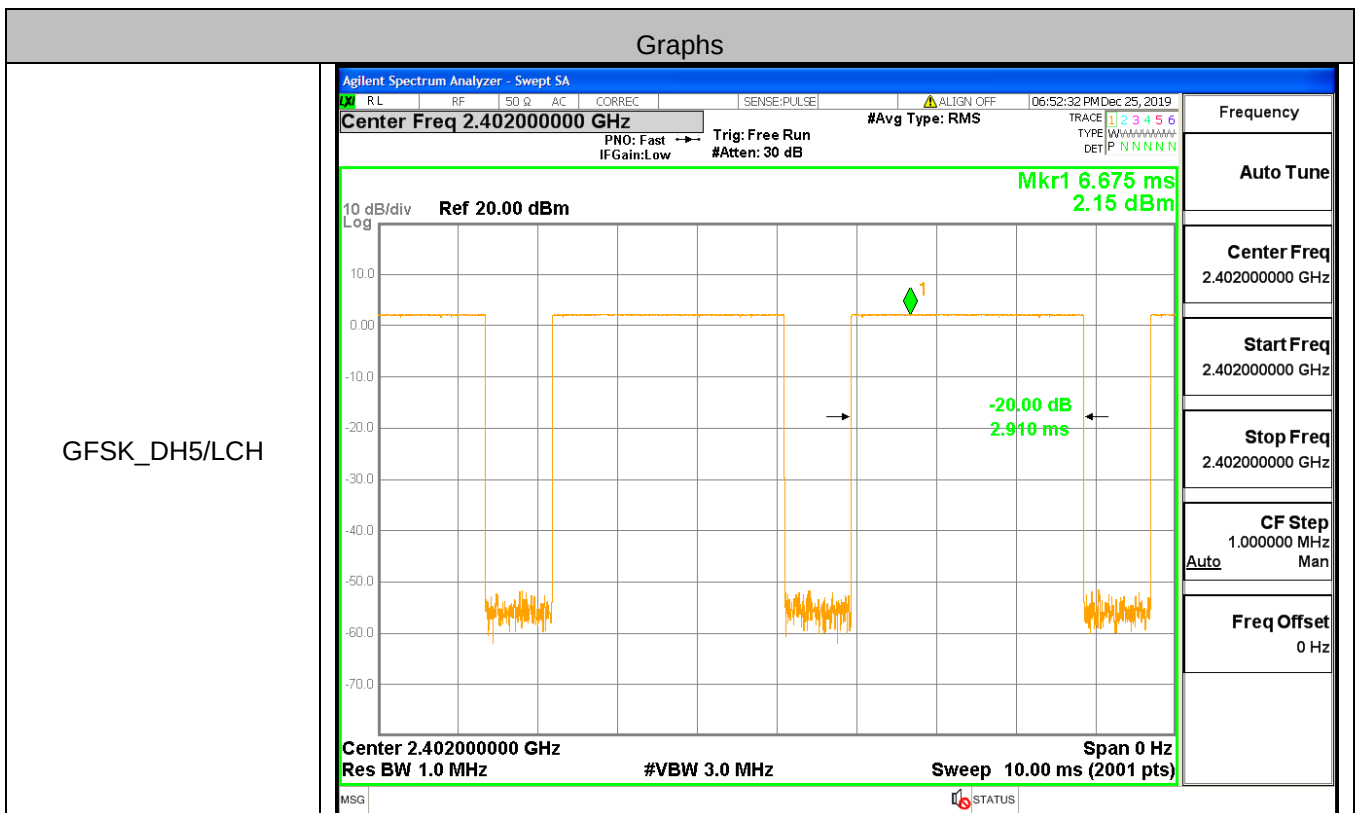


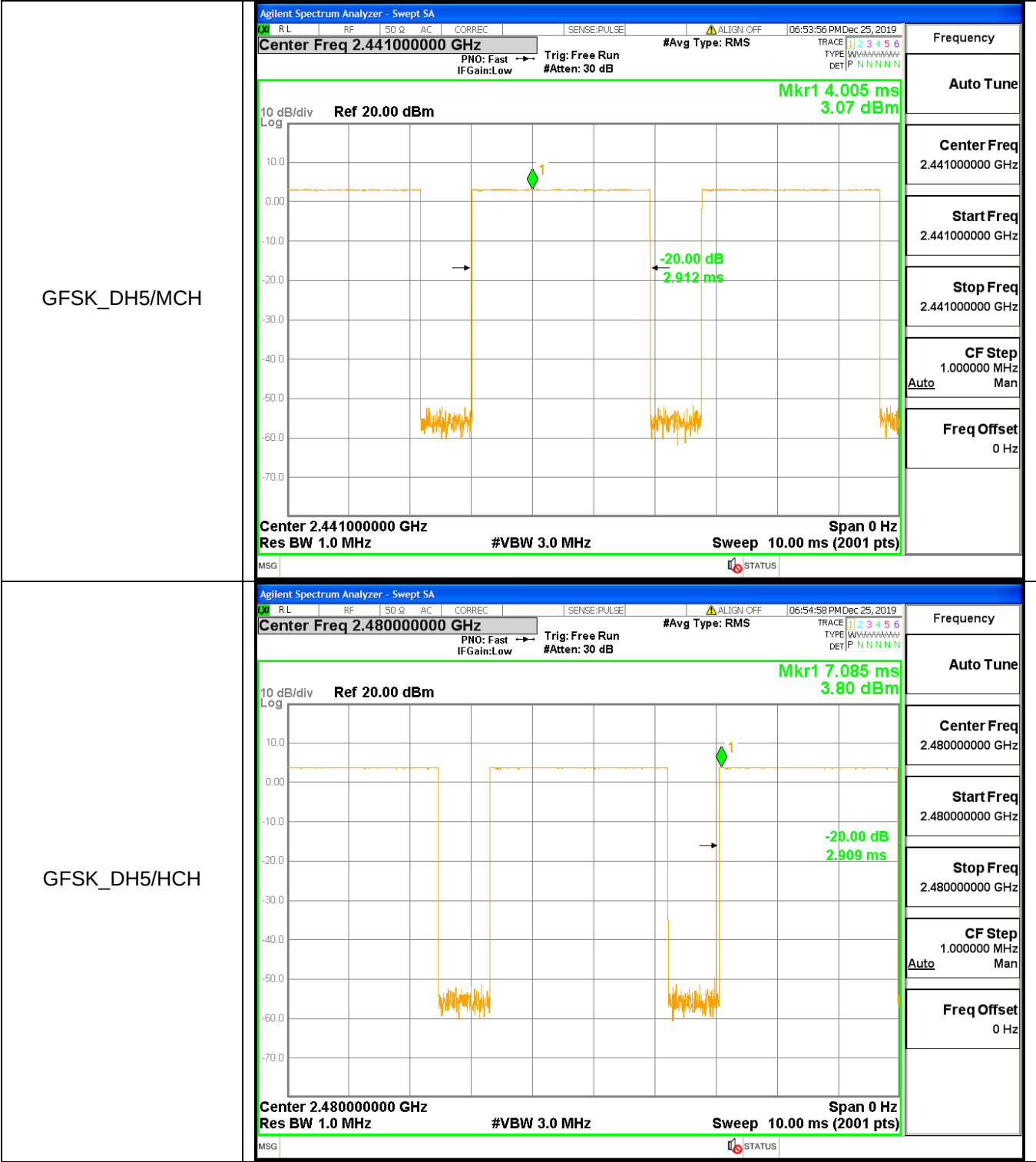


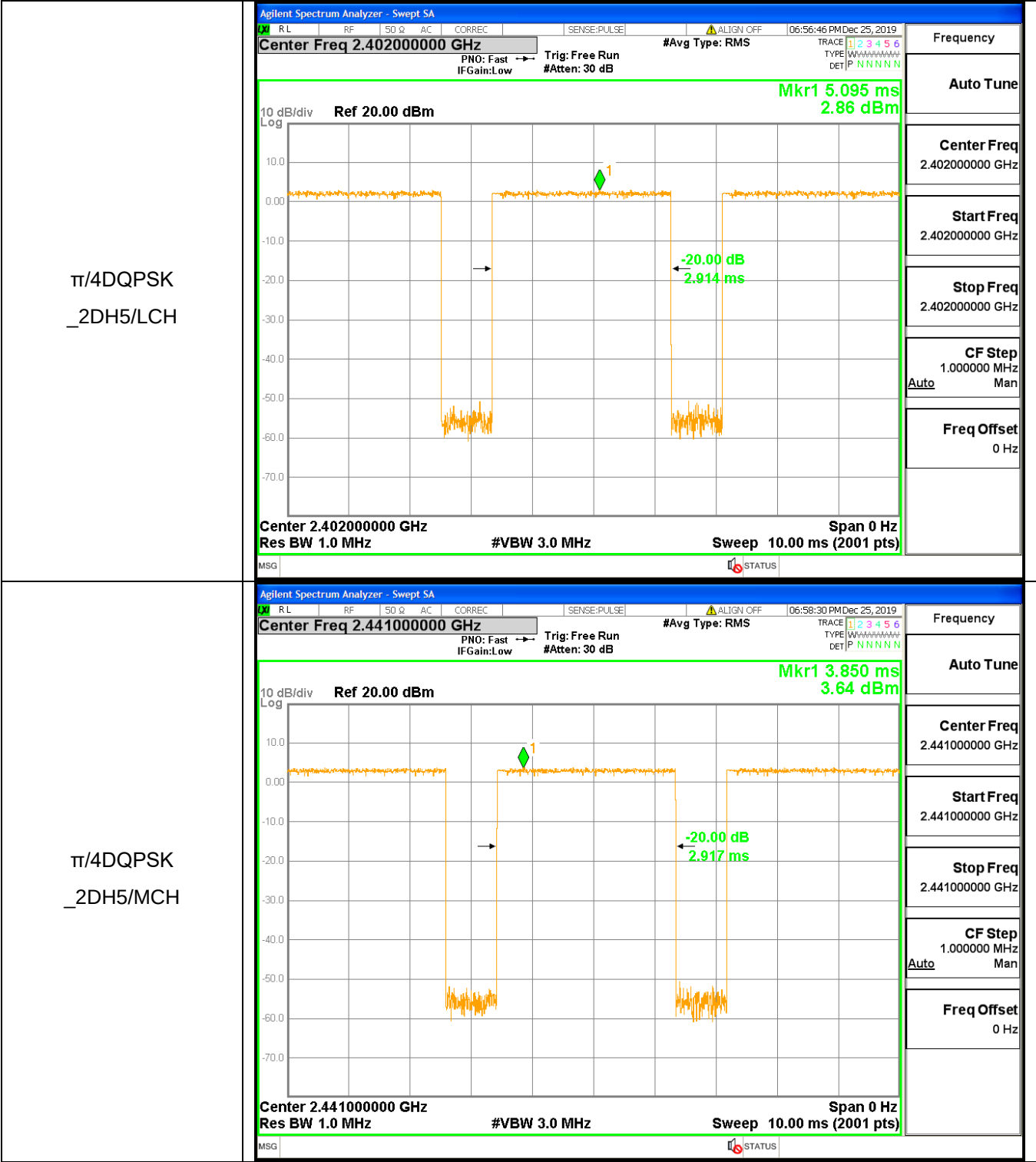
A.2 Dwell Time

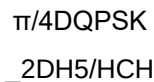
Mode	Packet	Channel	Burst Width [s/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	0.002910	106.7	0.310468	0.4	PASS
GFSK	DH5	MCH	0.002912	106.7	0.310741	0.4	PASS
GFSK	DH5	HCH	0.002909	106.7	0.310417	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	0.002914	106.7	0.310935	0.4	PASS
$\pi/4$ DQPSK	2DH5	MCH	0.002917	106.7	0.311205	0.4	PASS
$\pi/4$ DQPSK	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

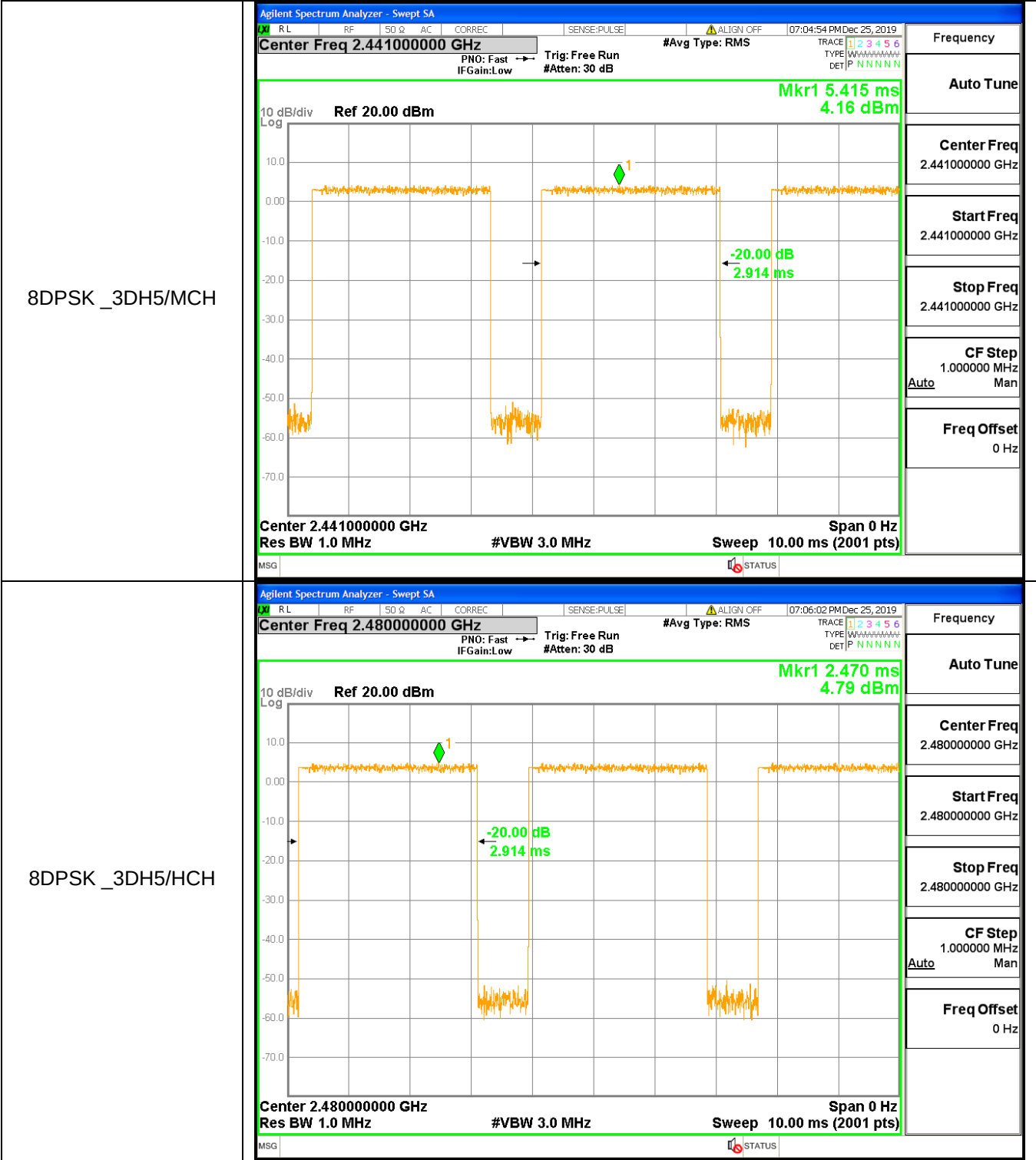
Test Graph







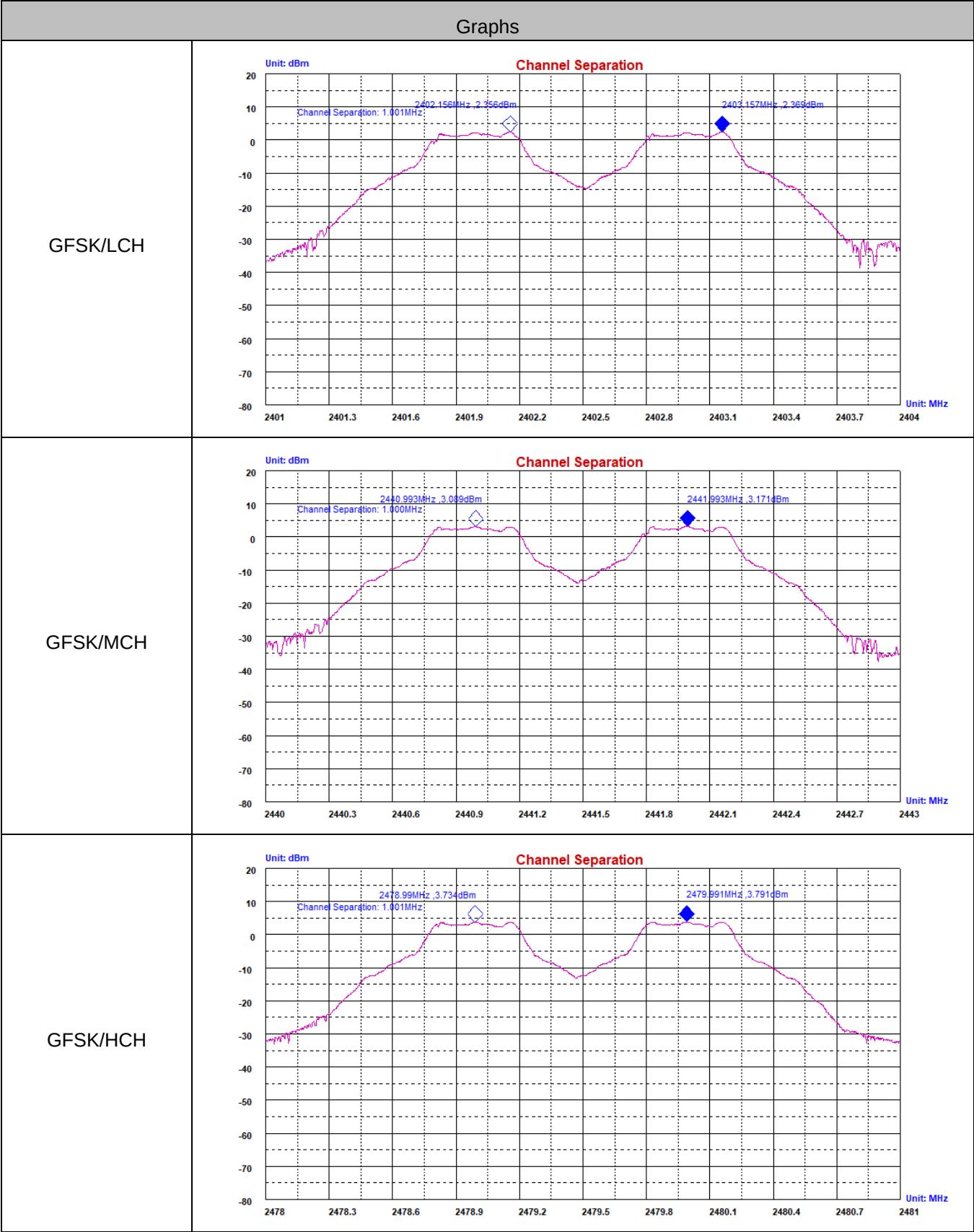


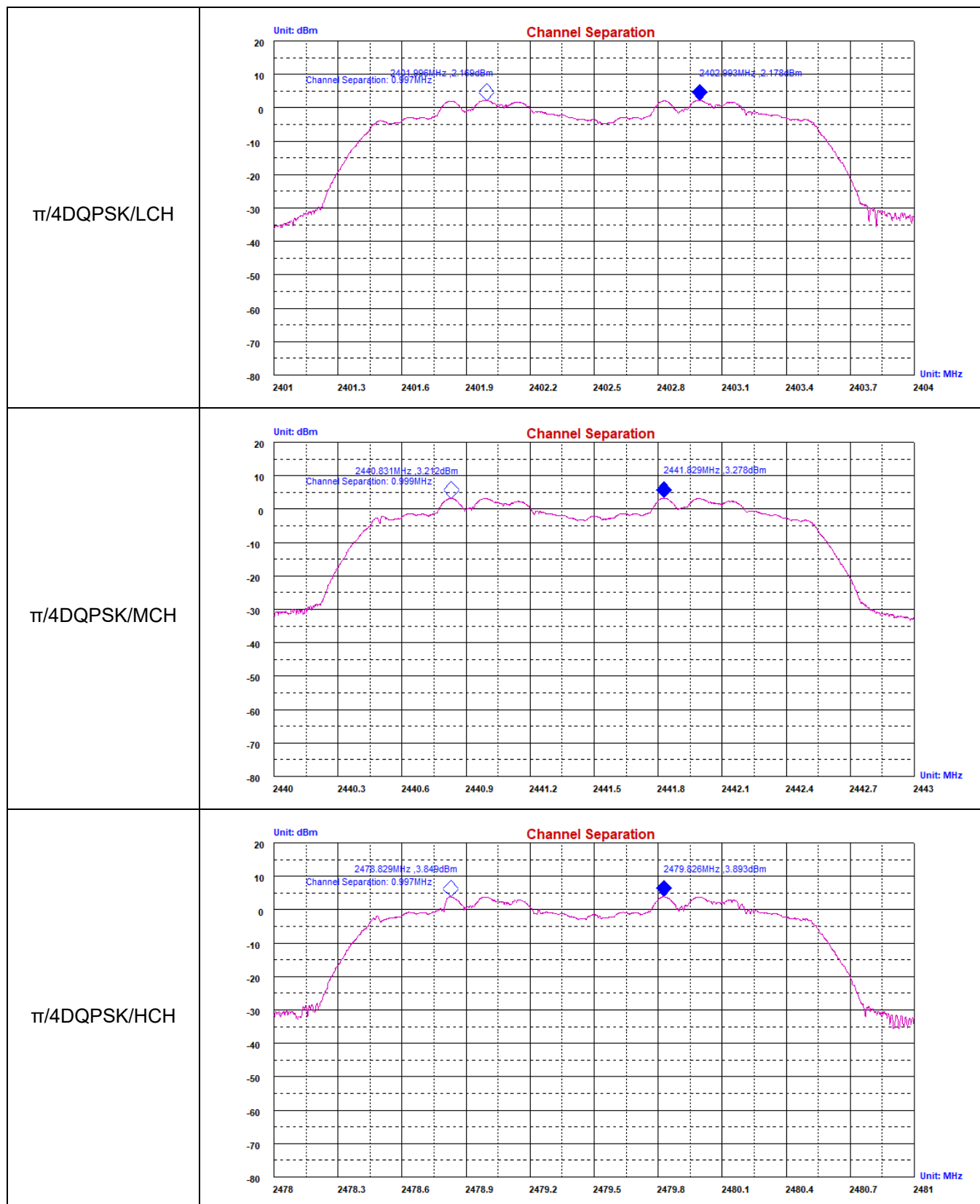


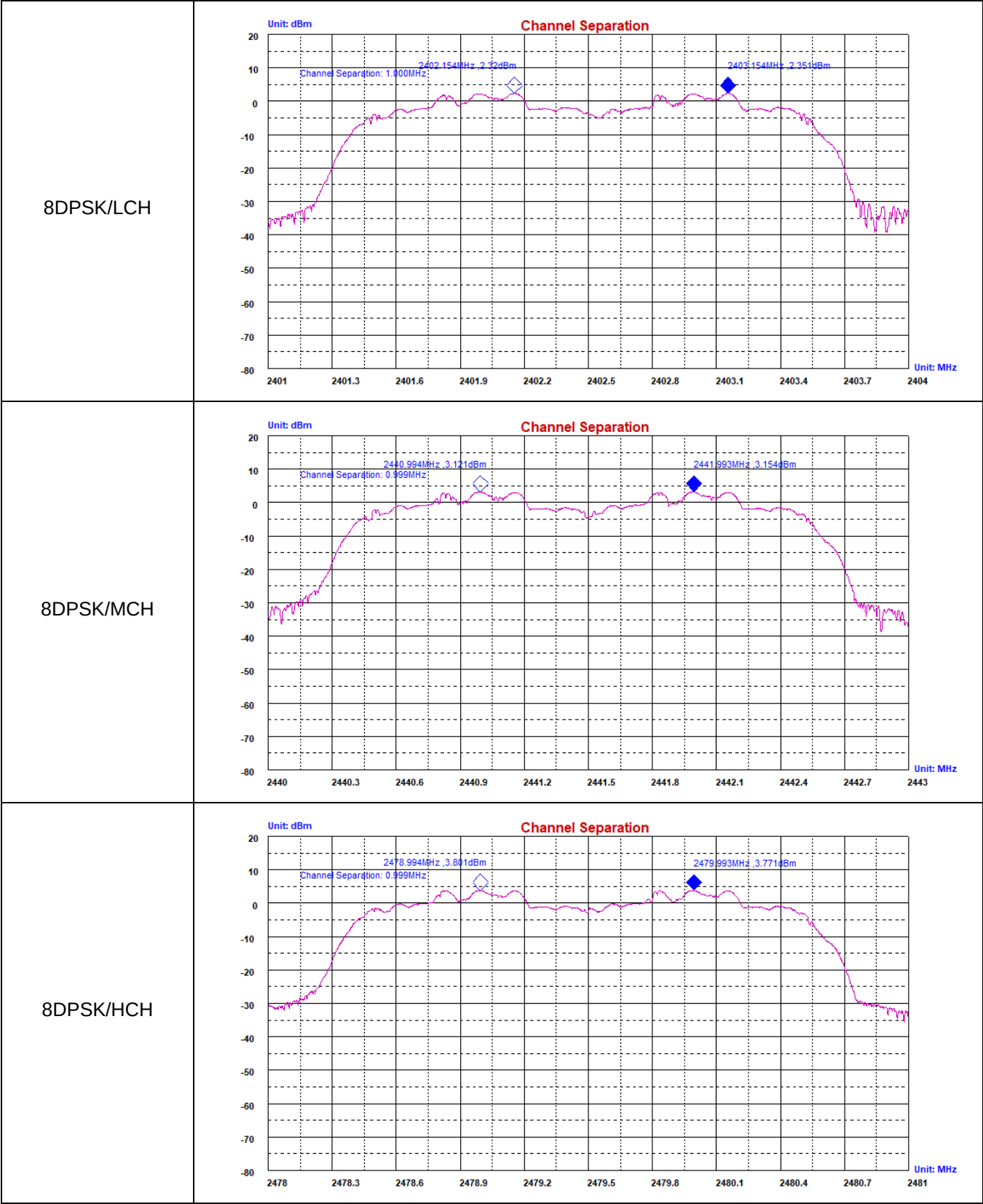
A.3 Carrier Frequency Separation

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
$\pi/4$ DQPSK	LCH	0.997	0.813	PASS
$\pi/4$ DQPSK	MCH	0.999	0.799	PASS
$\pi/4$ DQPSK	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



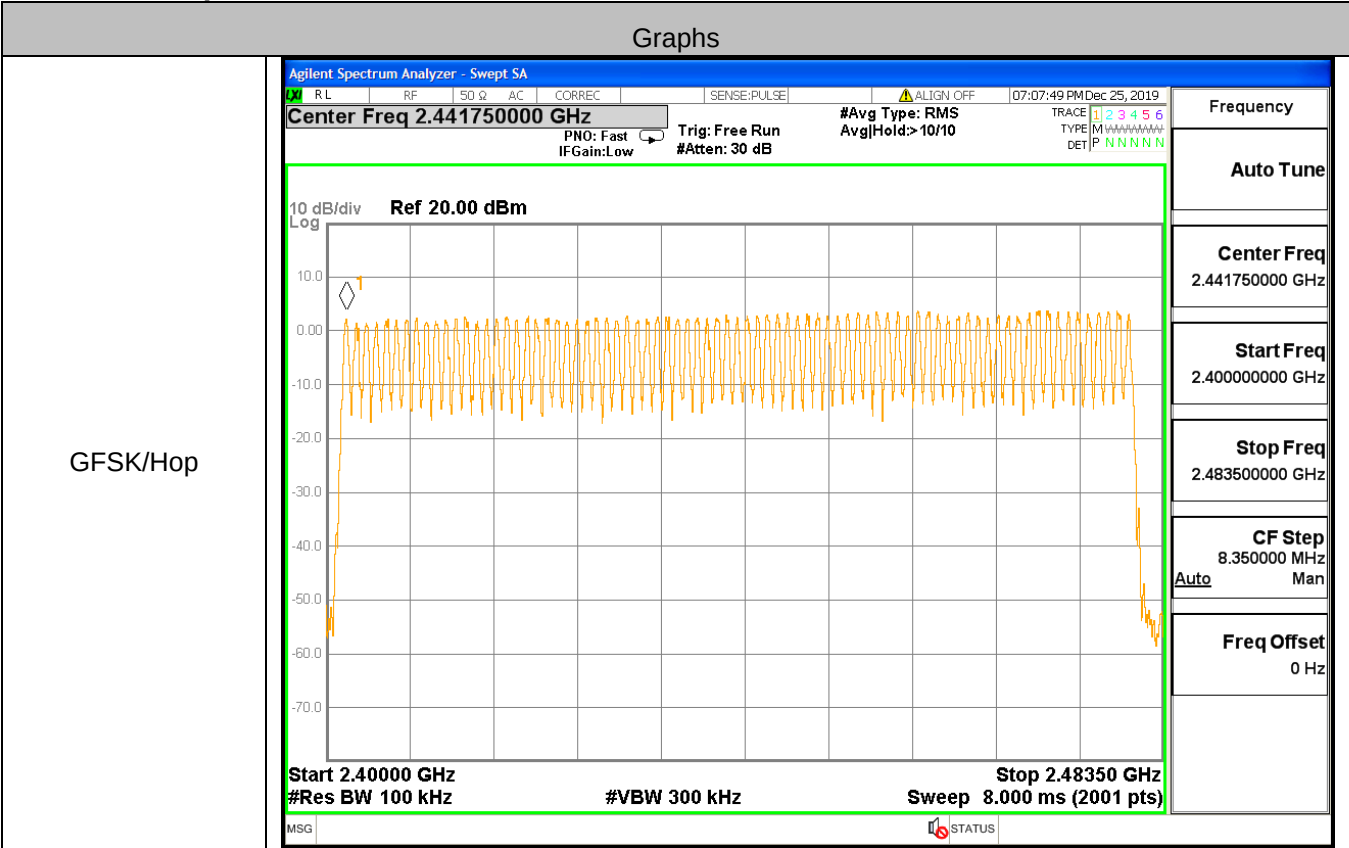


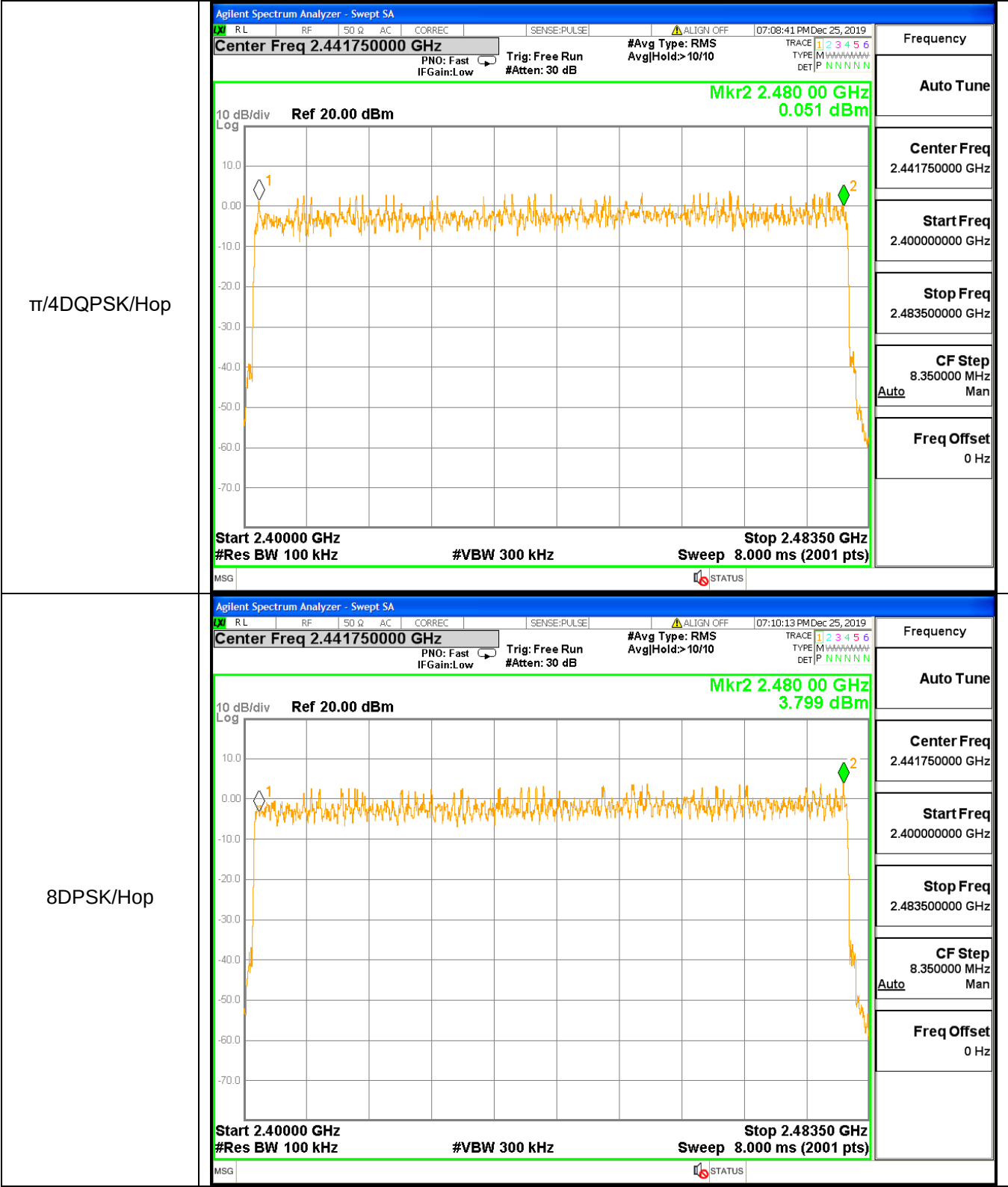


A.4 Hopping Channel Number

Mode	Channel.	Number of Hopping Channel[N]	Limit[N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

Test Graph

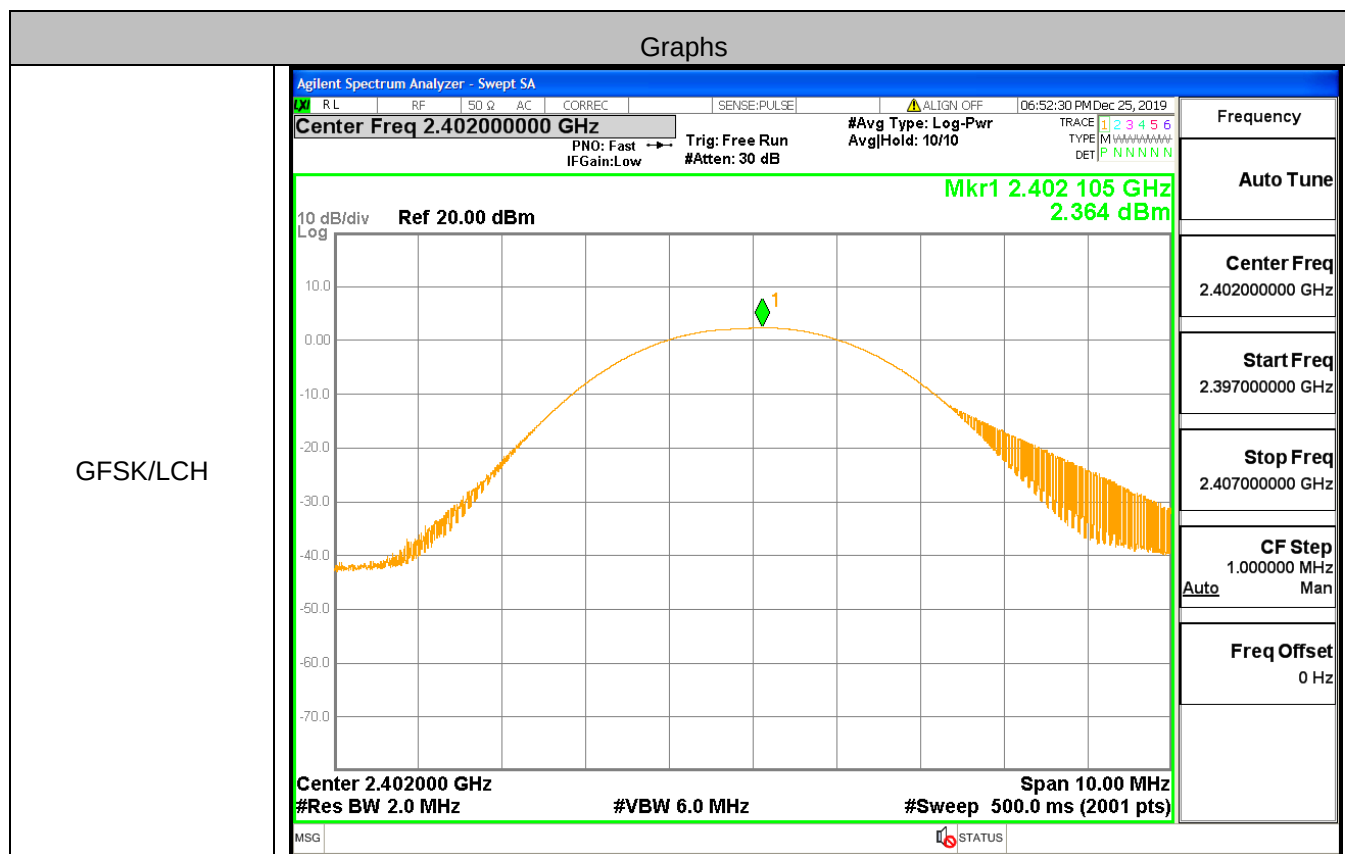


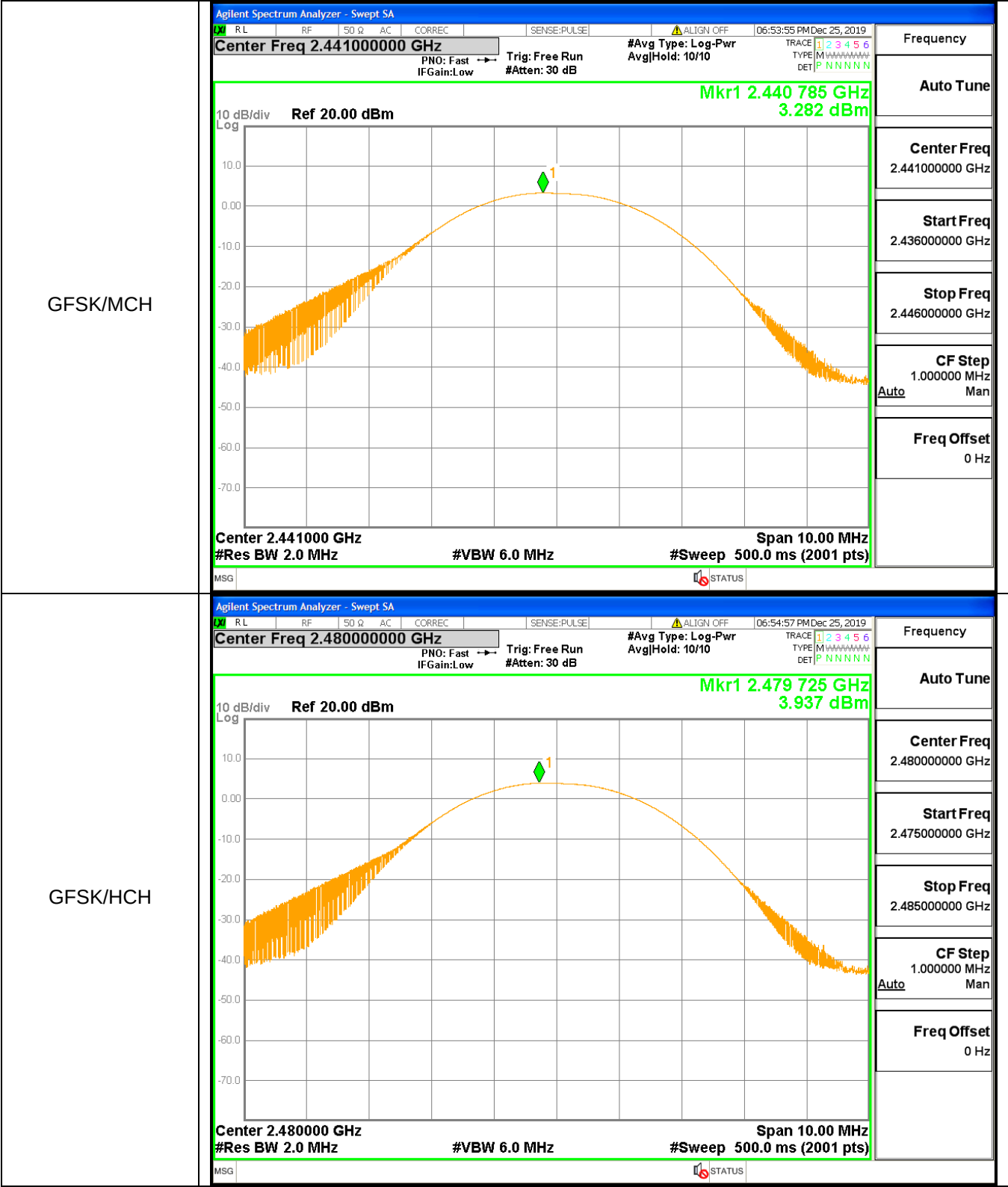


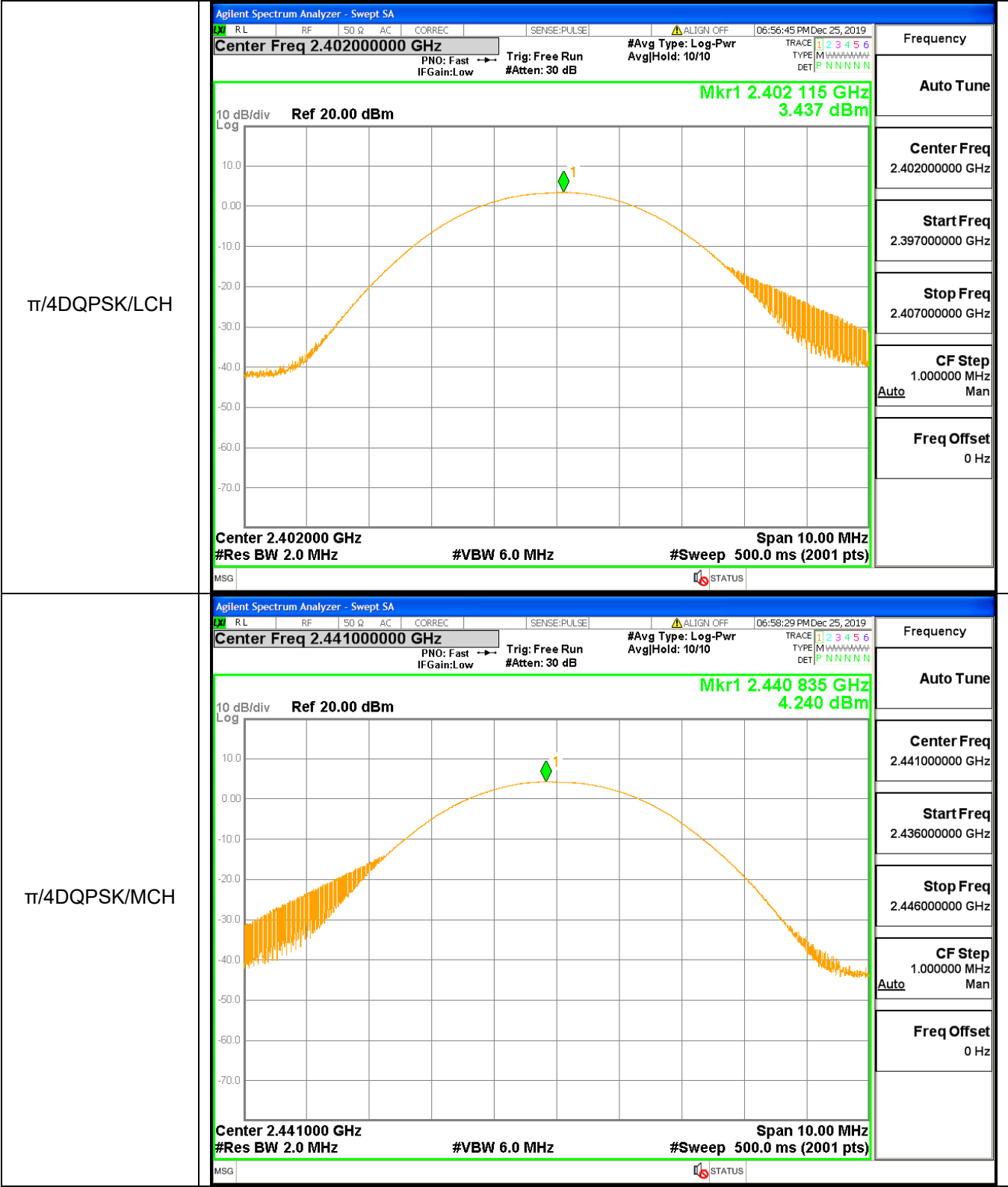
A.5 Conducted Peak Output Power

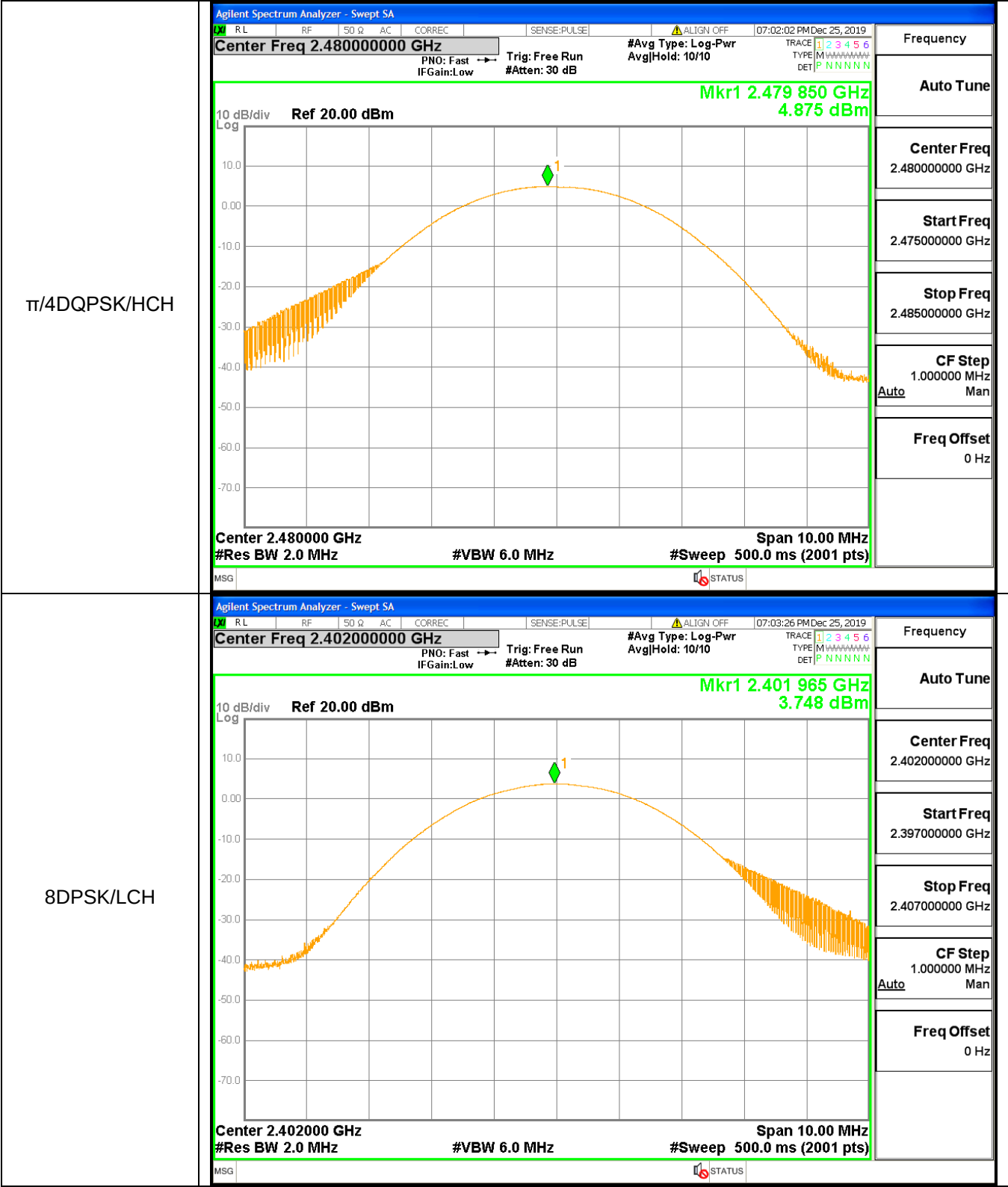
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2.364	21	PASS
GFSK	MCH	3.282	21	PASS
GFSK	HCH	3.937	21	PASS
$\pi/4$ DQPSK	LCH	3.437	21	PASS
$\pi/4$ DQPSK	MCH	4.240	21	PASS
$\pi/4$ DQPSK	HCH	4.875	21	PASS
8DPSK	LCH	3.748	21	PASS
8DPSK	MCH	4.619	21	PASS
8DPSK	HCH	5.256	21	PASS

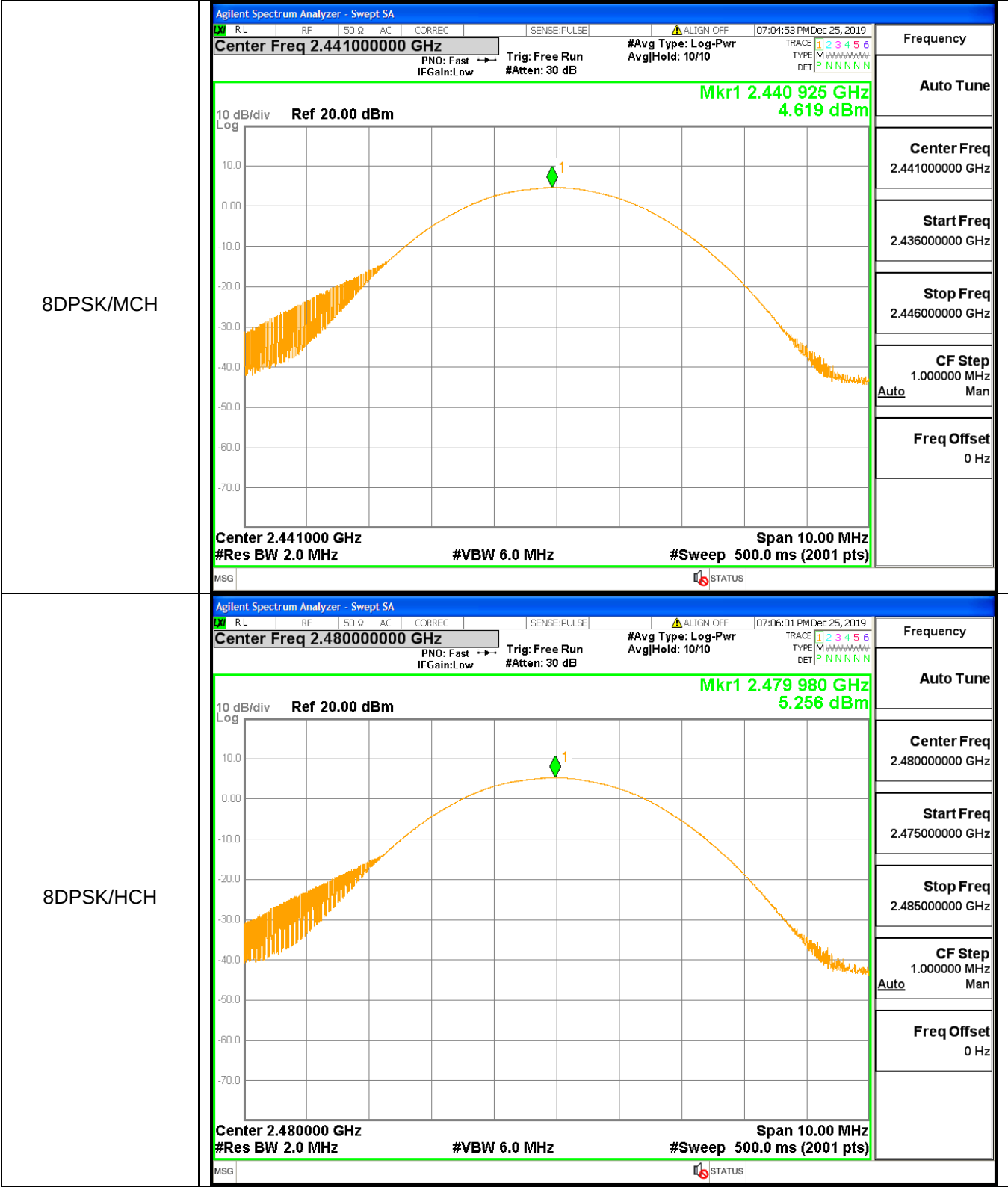
Test Graph











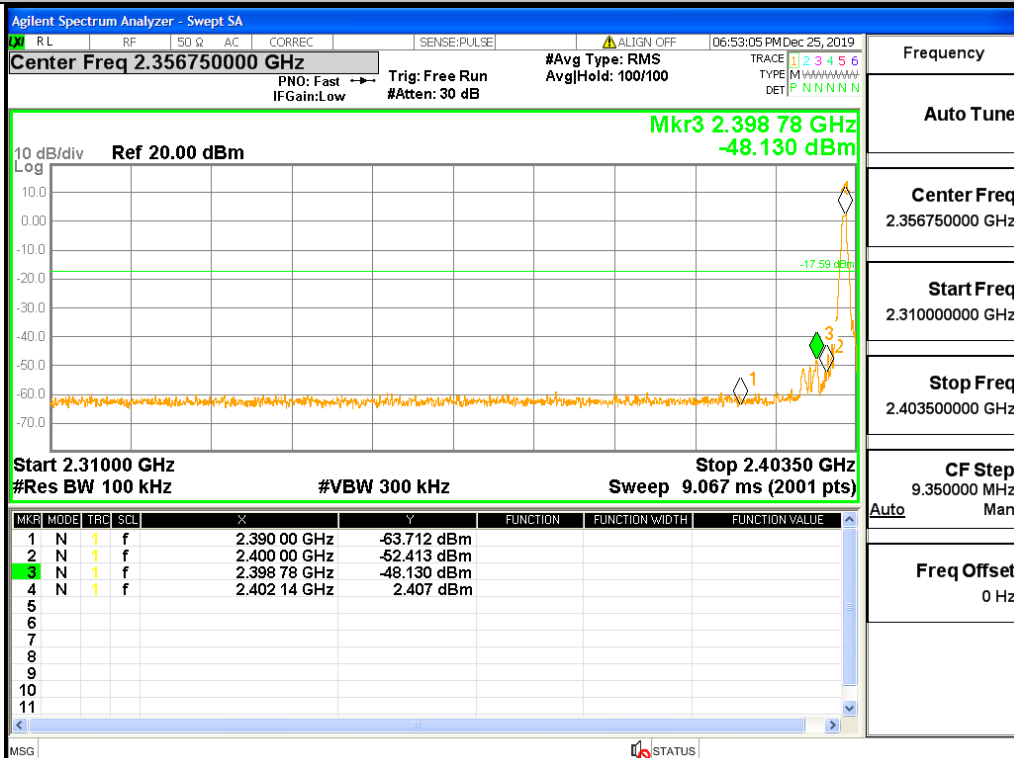
A.6 Band-edge for RF Conducted Emissions

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

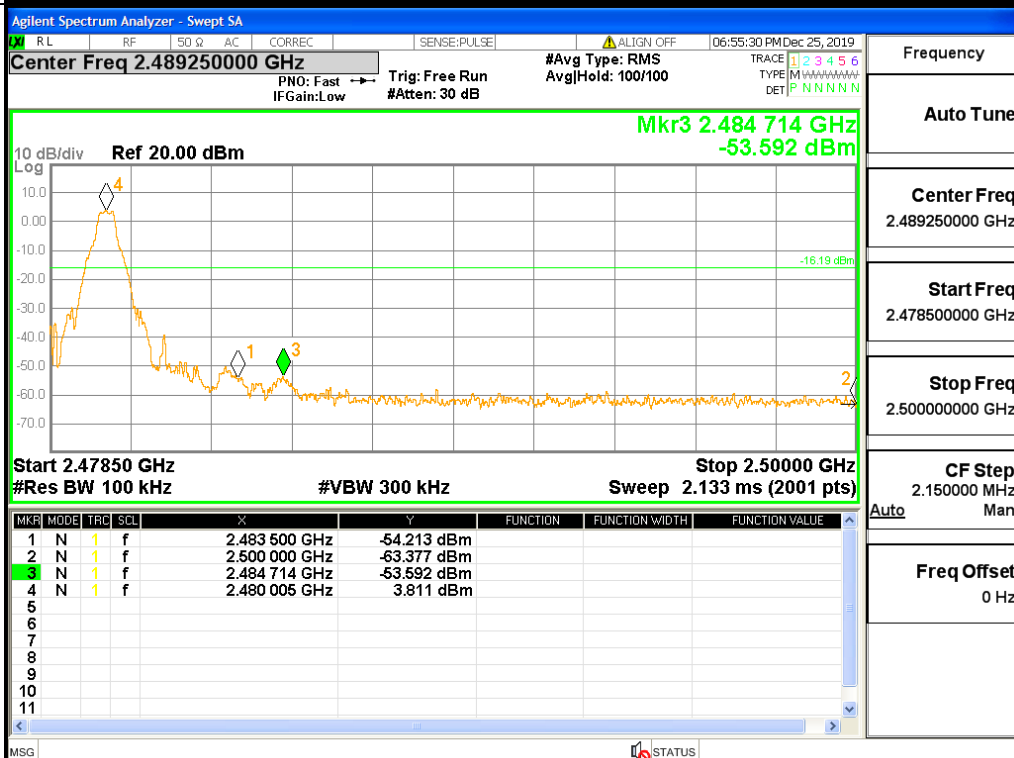
Test Graph

Graphs

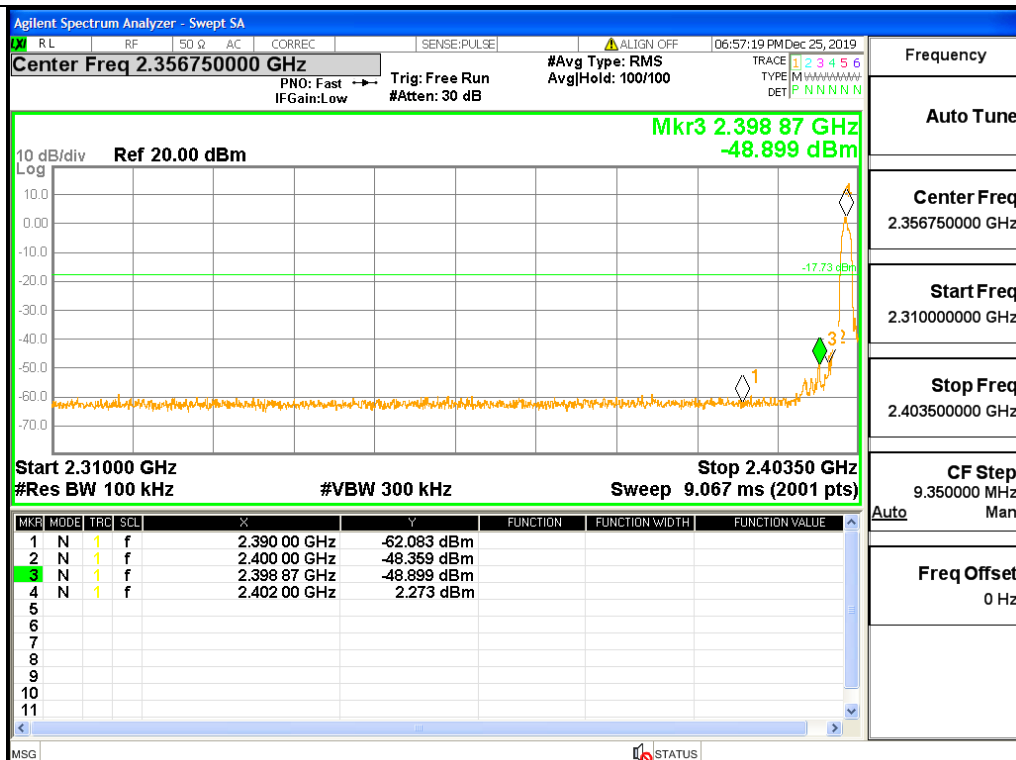
GFSK/LCH/No Hop



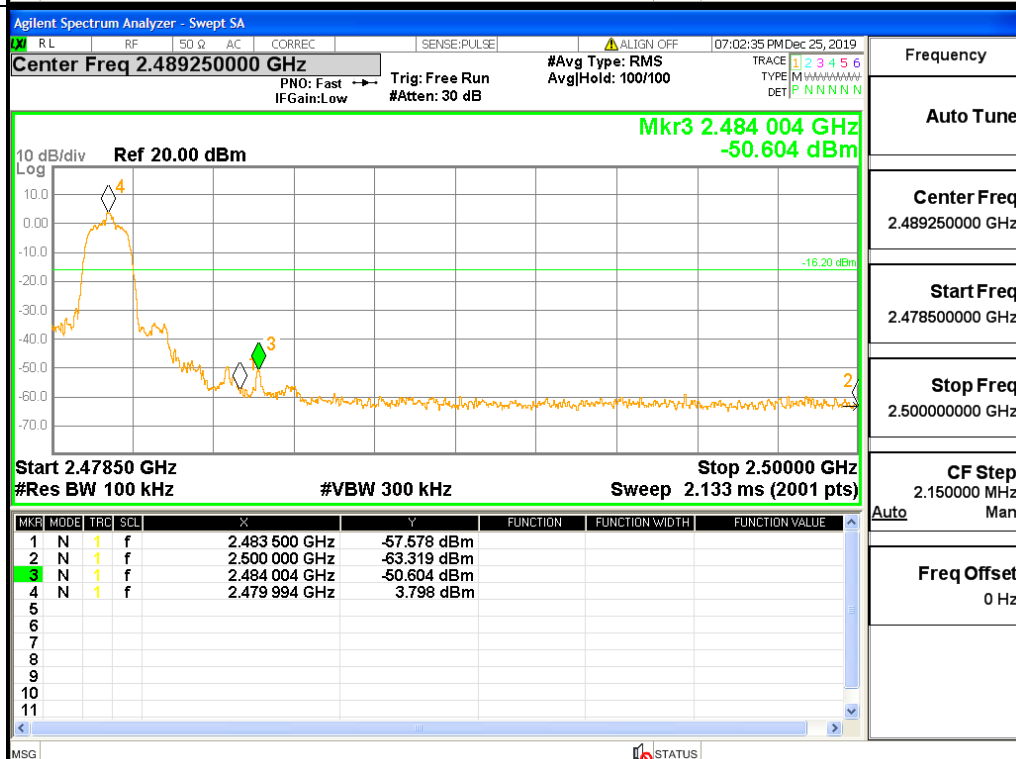
GFSK/HCH/No Hop



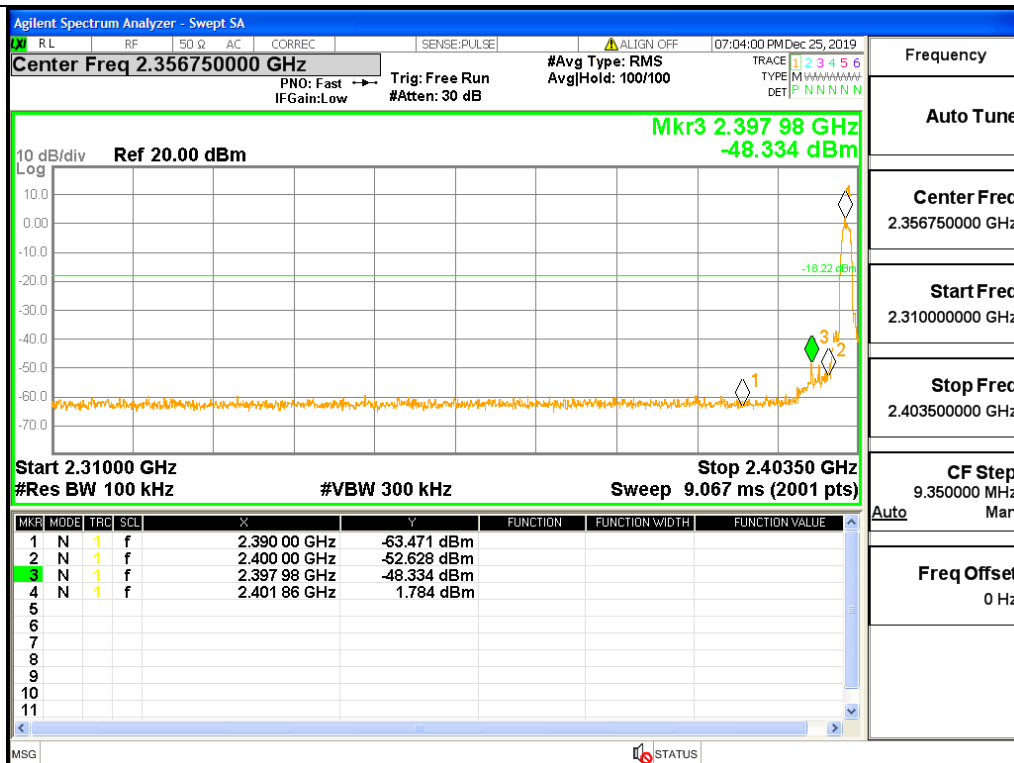
$\pi/4$ DQPSK/LCH/No
Hop



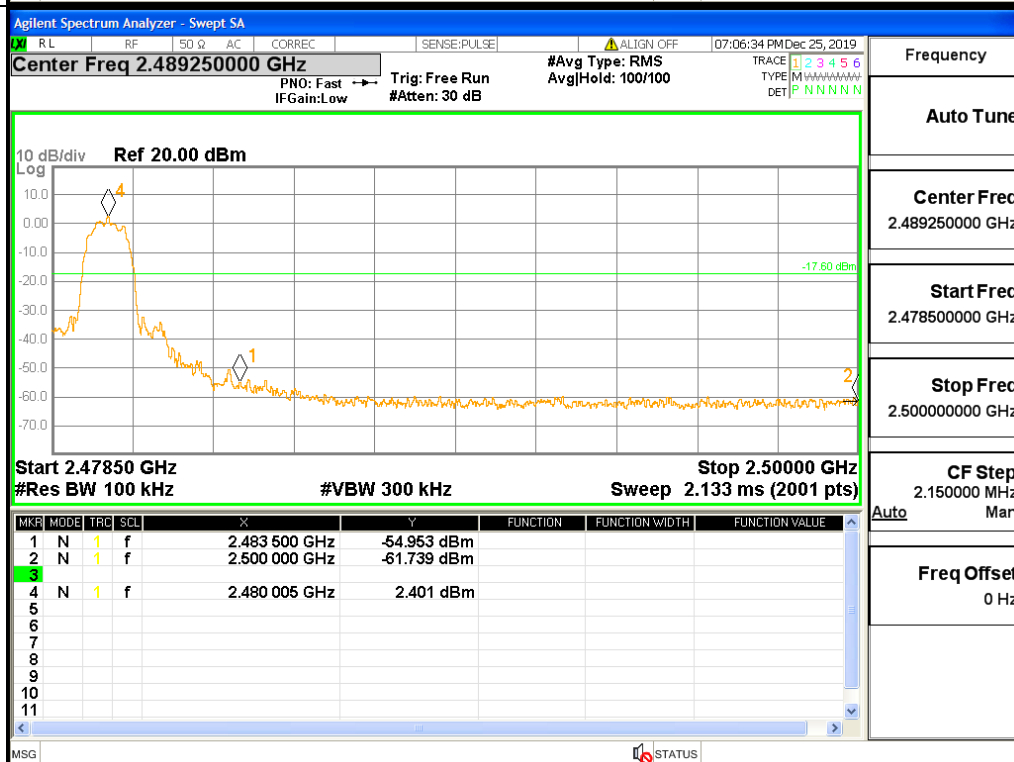
$\pi/4$ DQPSK/HCH/No
Hop



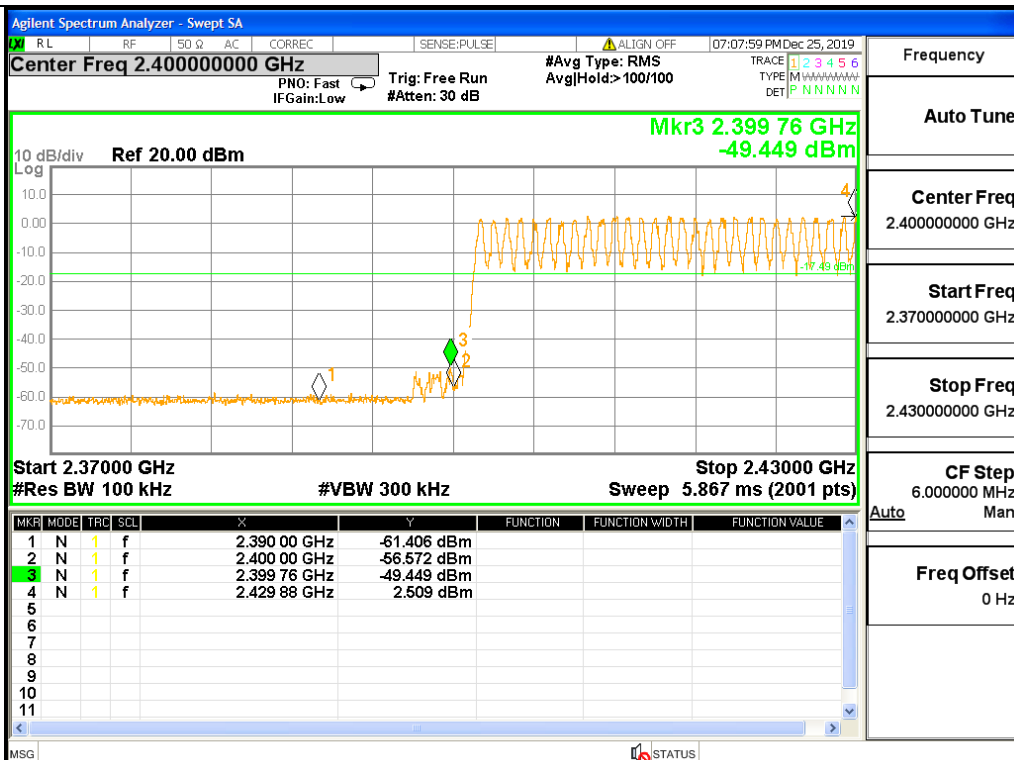
8DPSK/LCH/No Hop



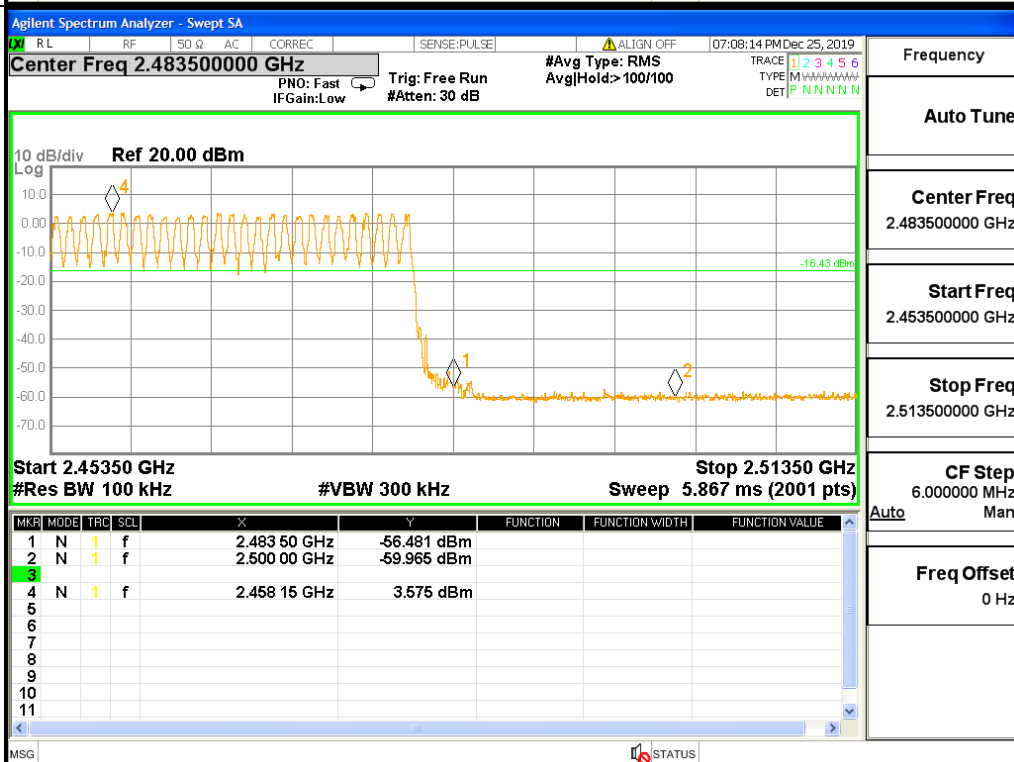
8DPSK/HCH/No Hop



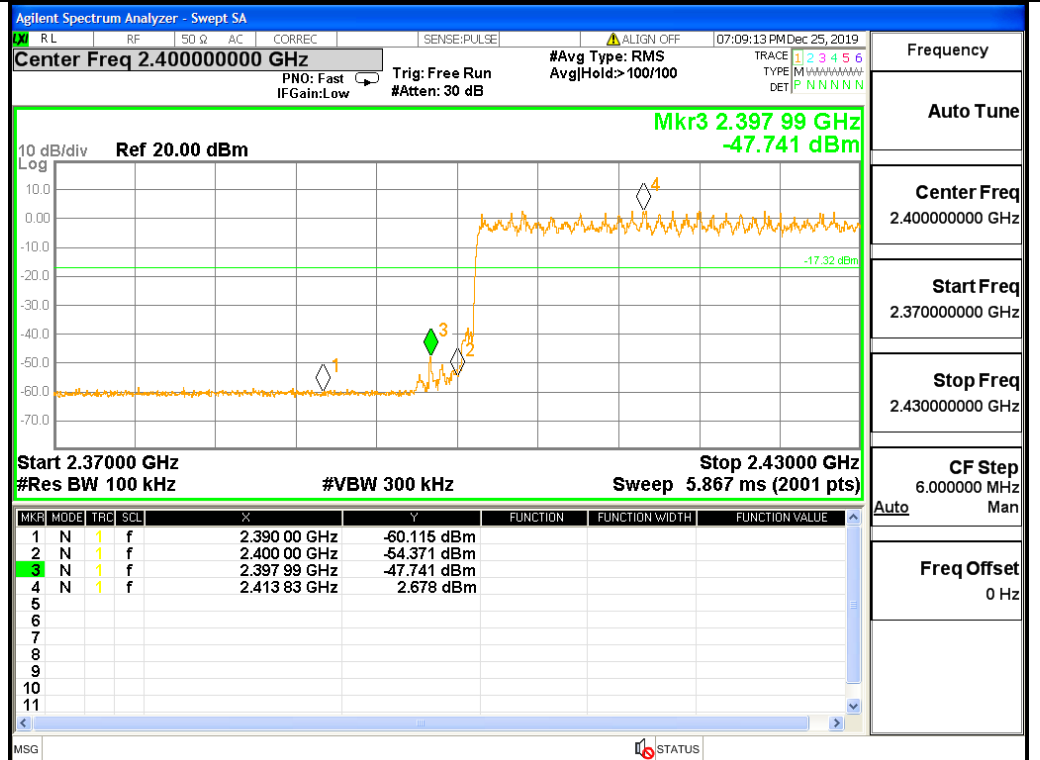
GFSK/LCH/Hop



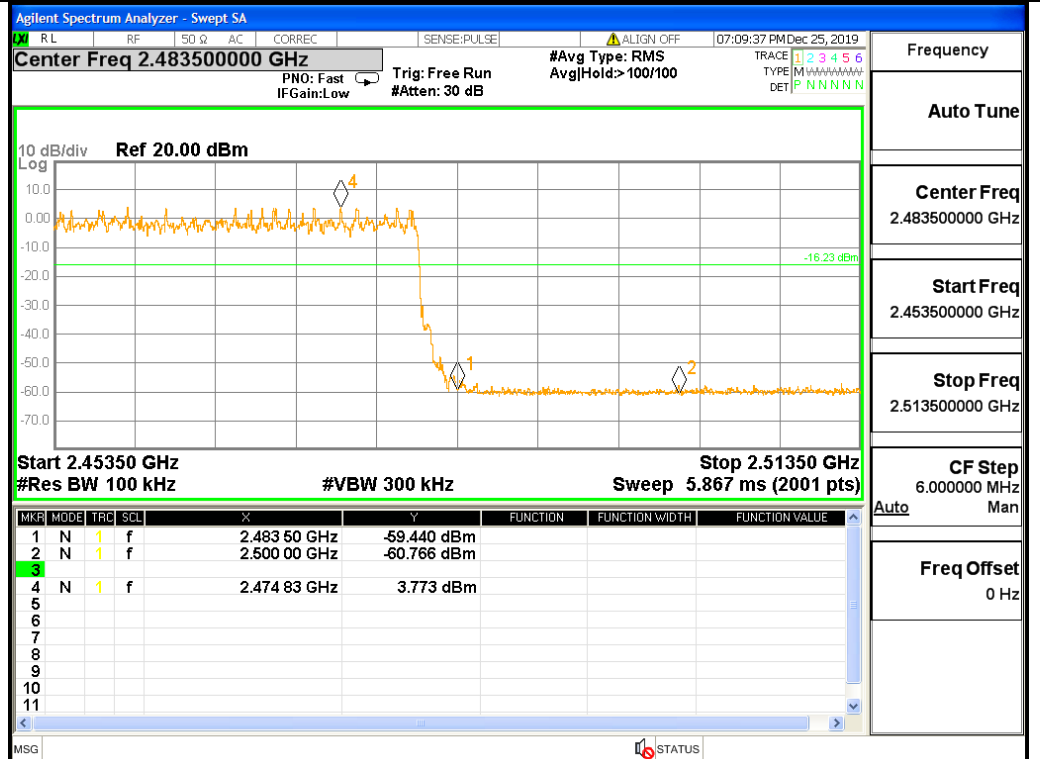
GFSK/HCH/Hop



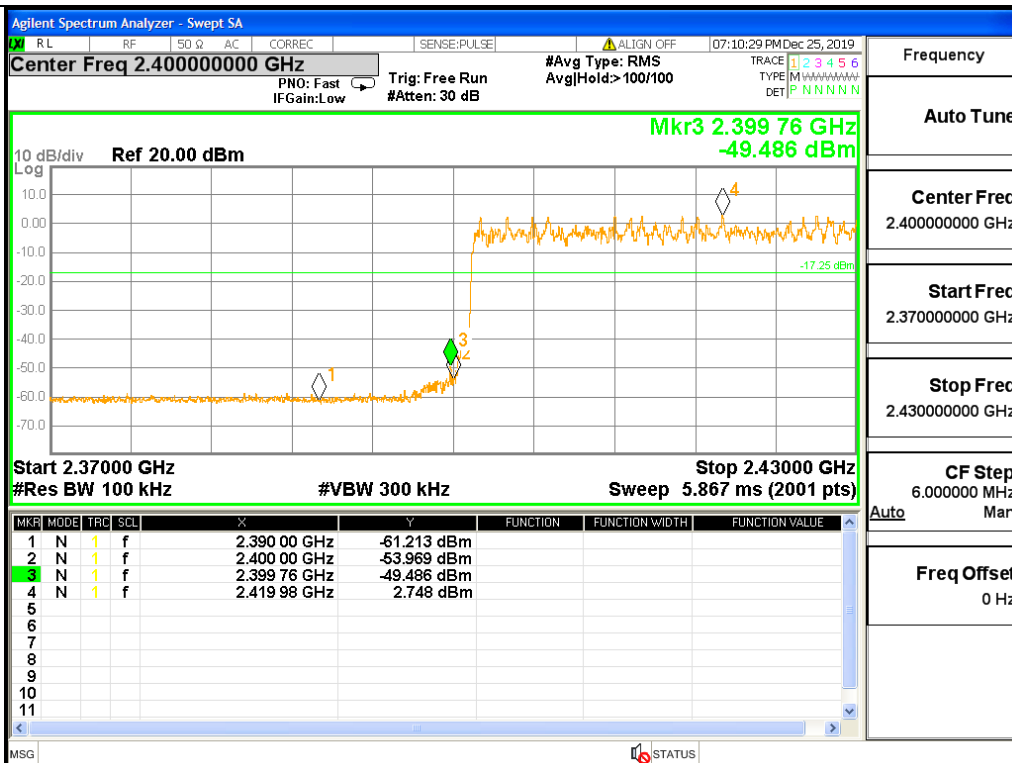
$\pi/4$ DQPSK/LCH/Hop



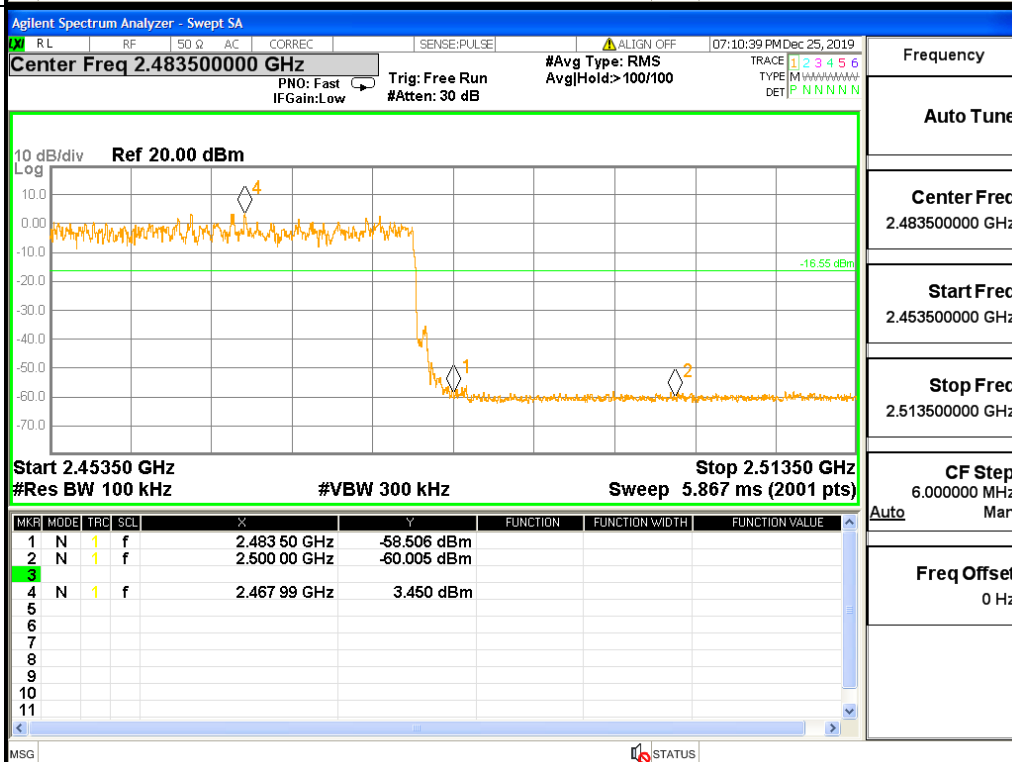
$\pi/4$ DQPSK/HCH/Hop



8DPSK/LCH/Hop

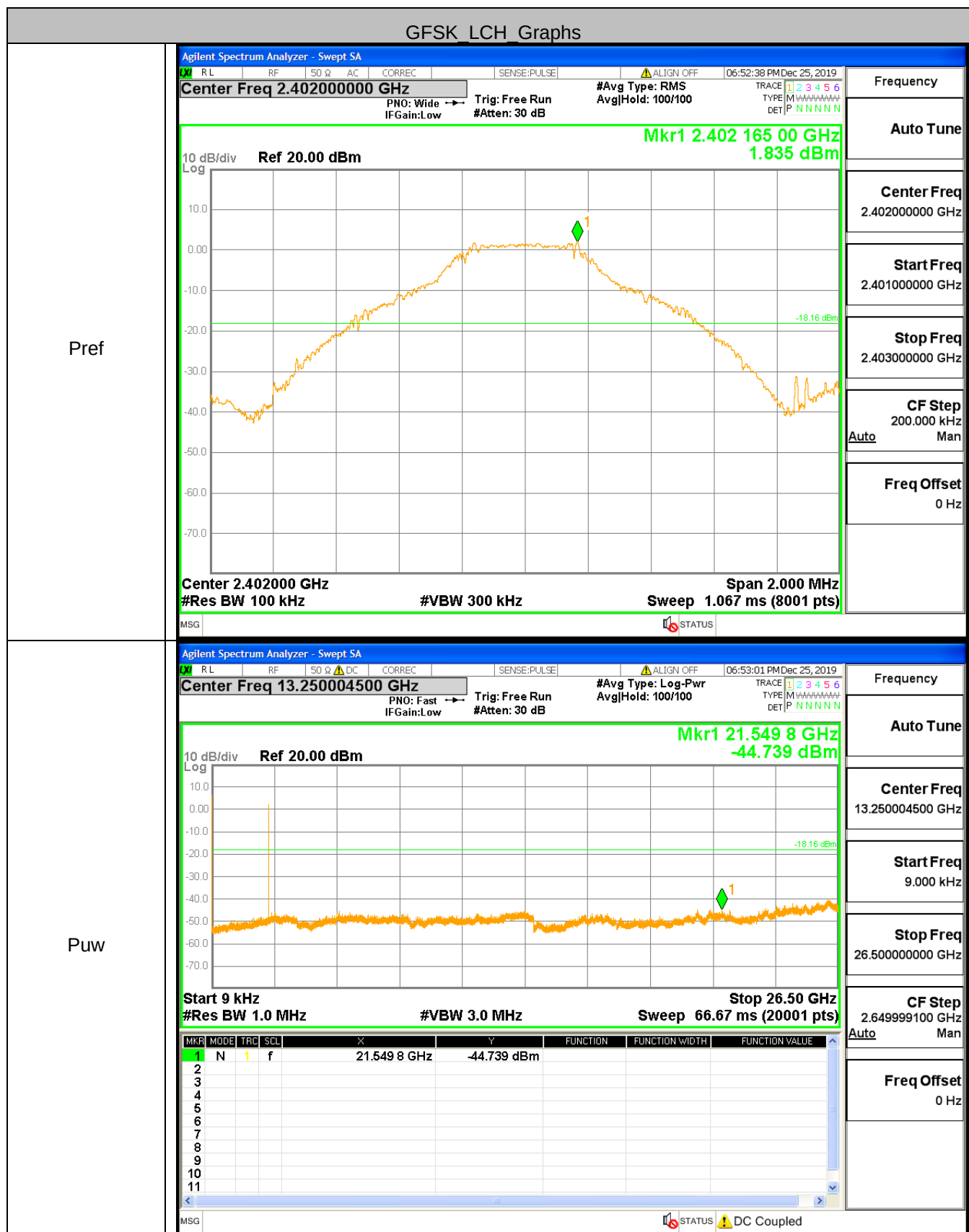


8DPSK/HCH/Hop



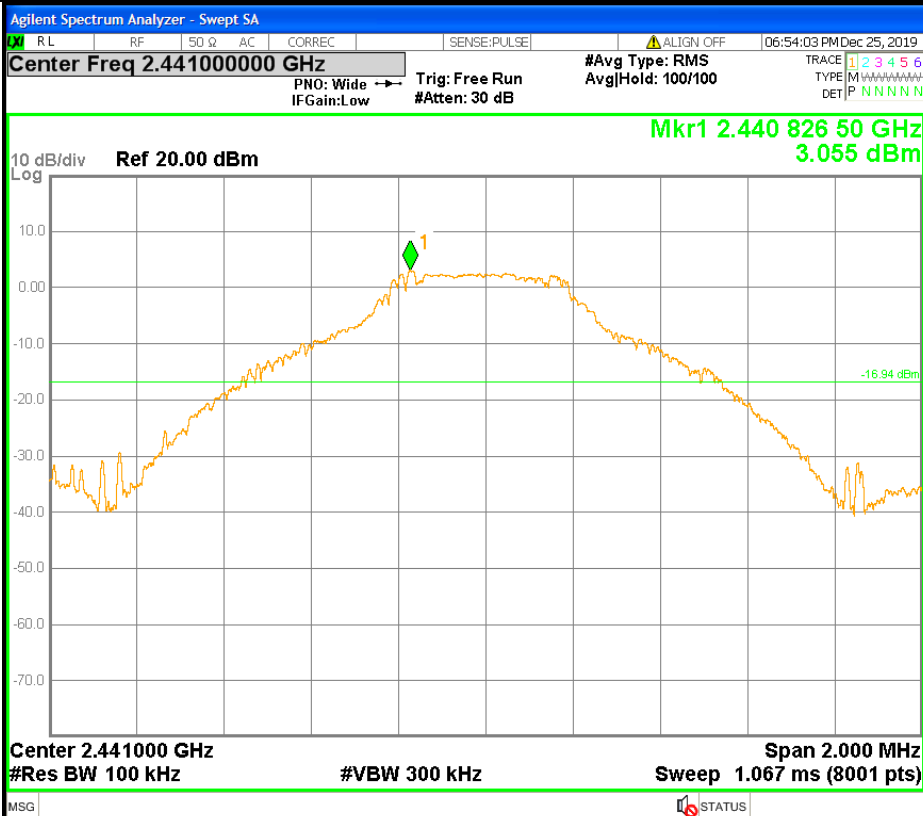
A.7 RF Conducted Spurious Emissions

Test Graph



GFSK MCH Graphs

Pref



Frequency

Auto Tune

Center Freq
2.441000000 GHz

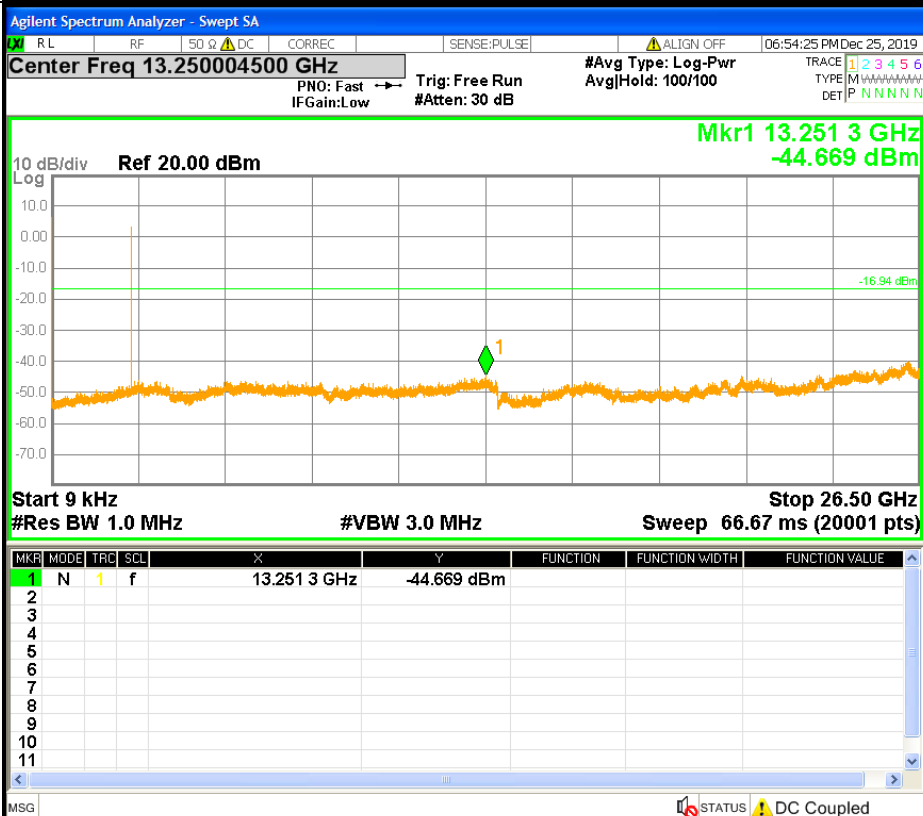
Start Freq
2.440000000 GHz

Stop Freq
2.442000000 GHz

CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz

Puw



Frequency

Auto Tune

Center Freq
13.250004500 GHz

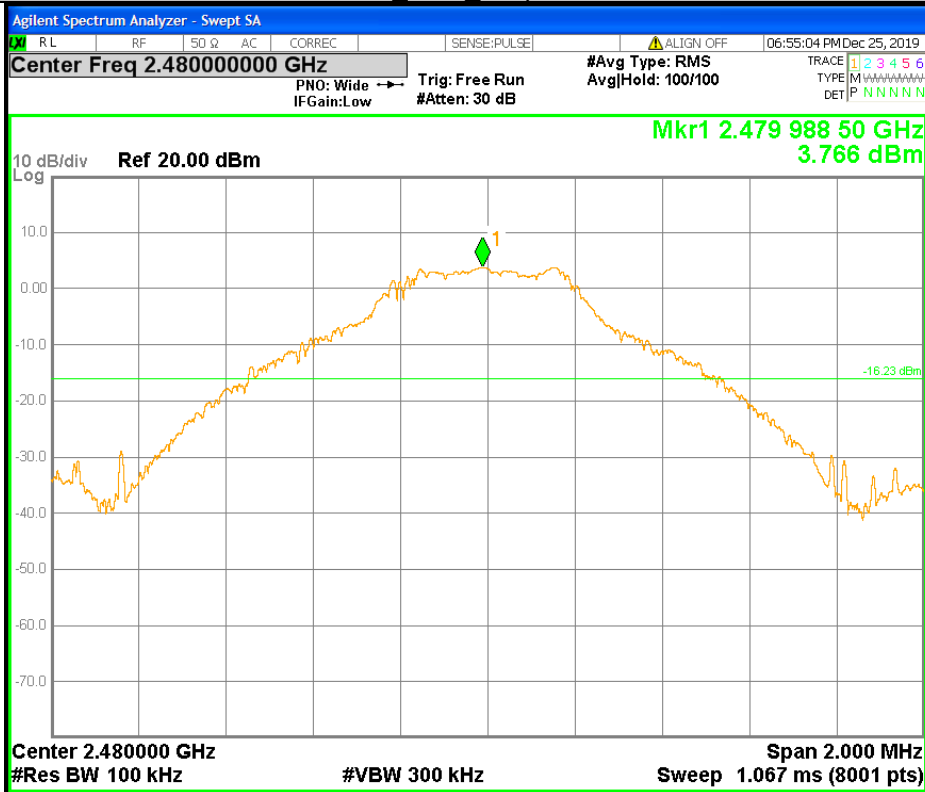
Start Freq
9.000 kHz

Stop Freq
26.500000000 GHz

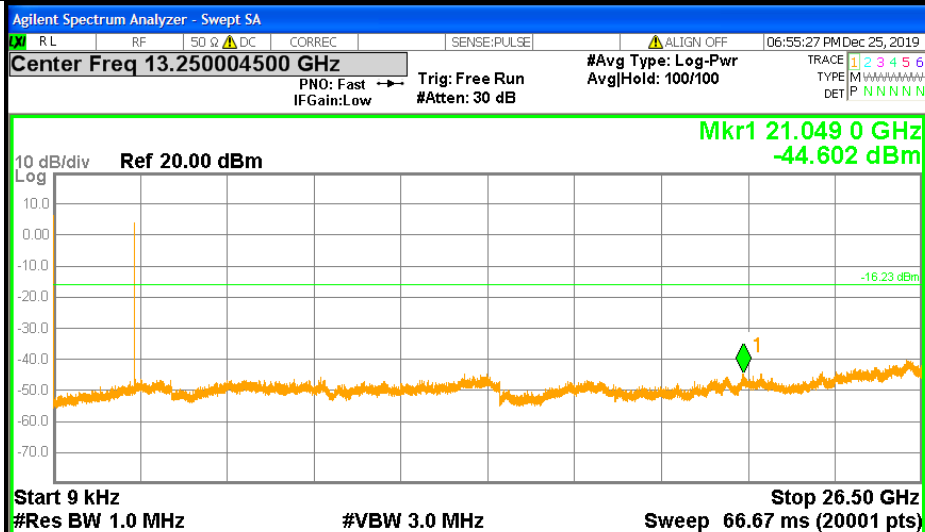
CF Step
2.649999100 GHz
Auto Man

Freq Offset
0 Hz

GFSK HCH Graphs

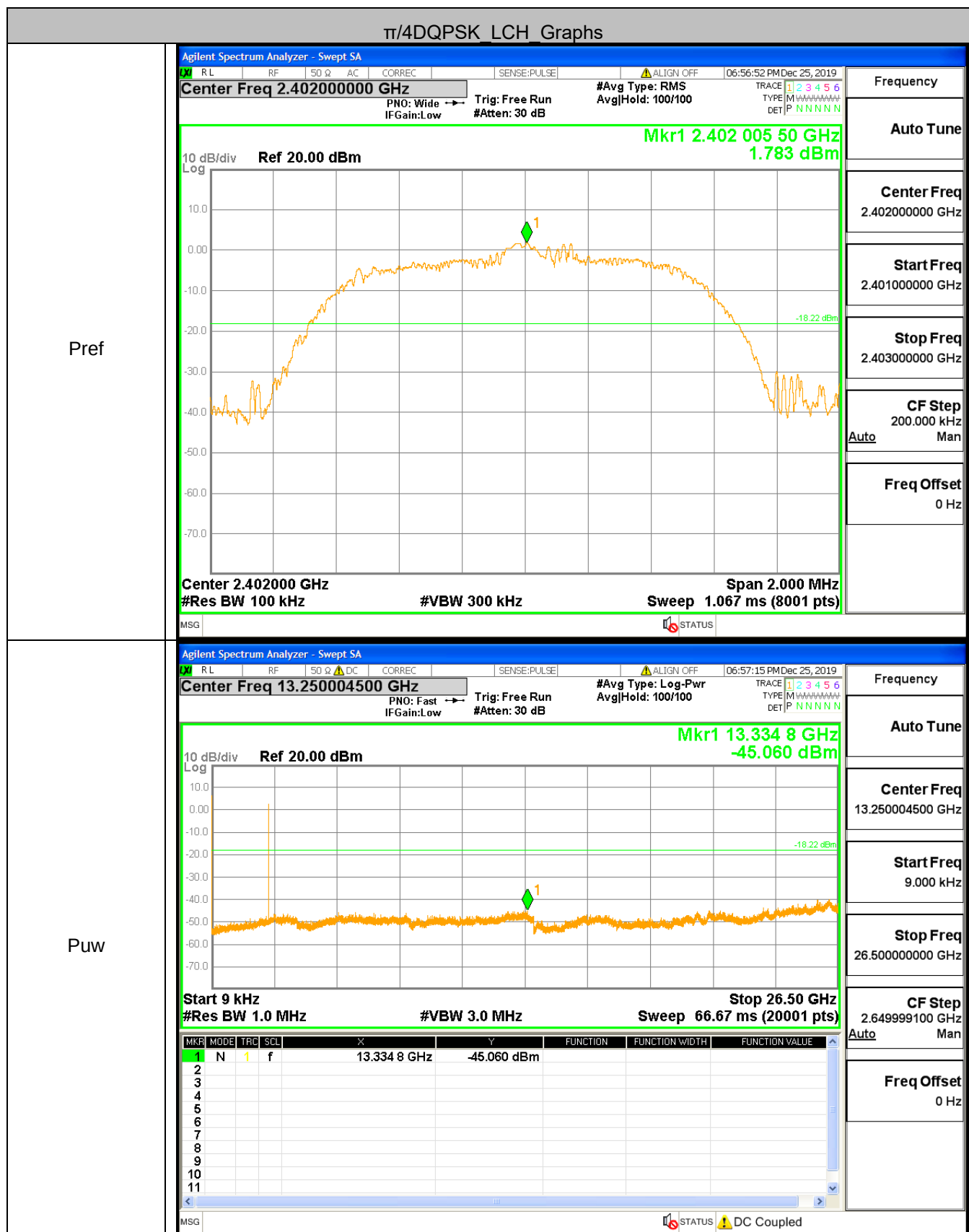


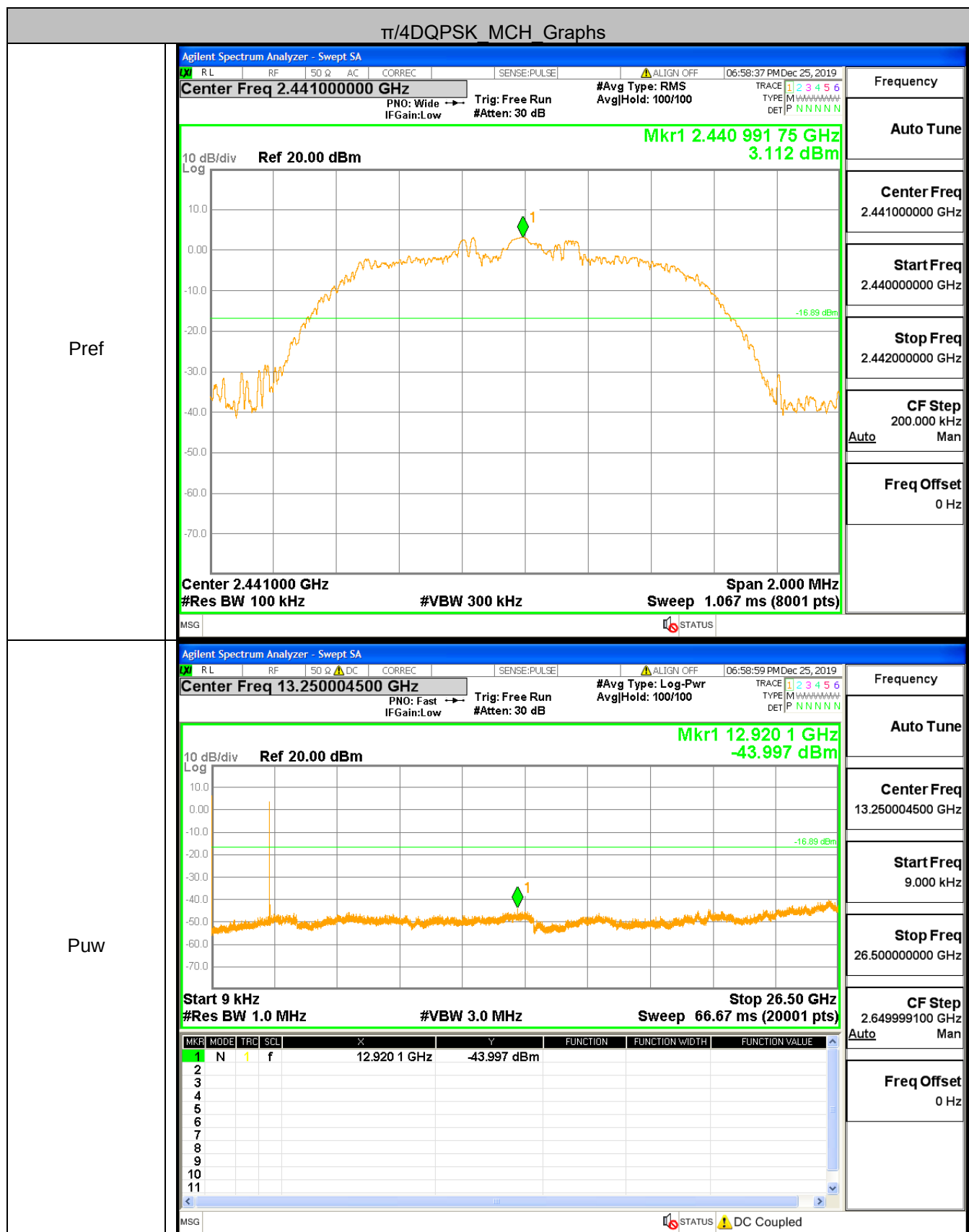
Frequency
Auto Tune
Center Freq 2.480000000 GHz
Start Freq 2.479000000 GHz
Stop Freq 2.481000000 GHz
CF Step 200.000 kHz
Auto Man
Freq Offset 0 Hz

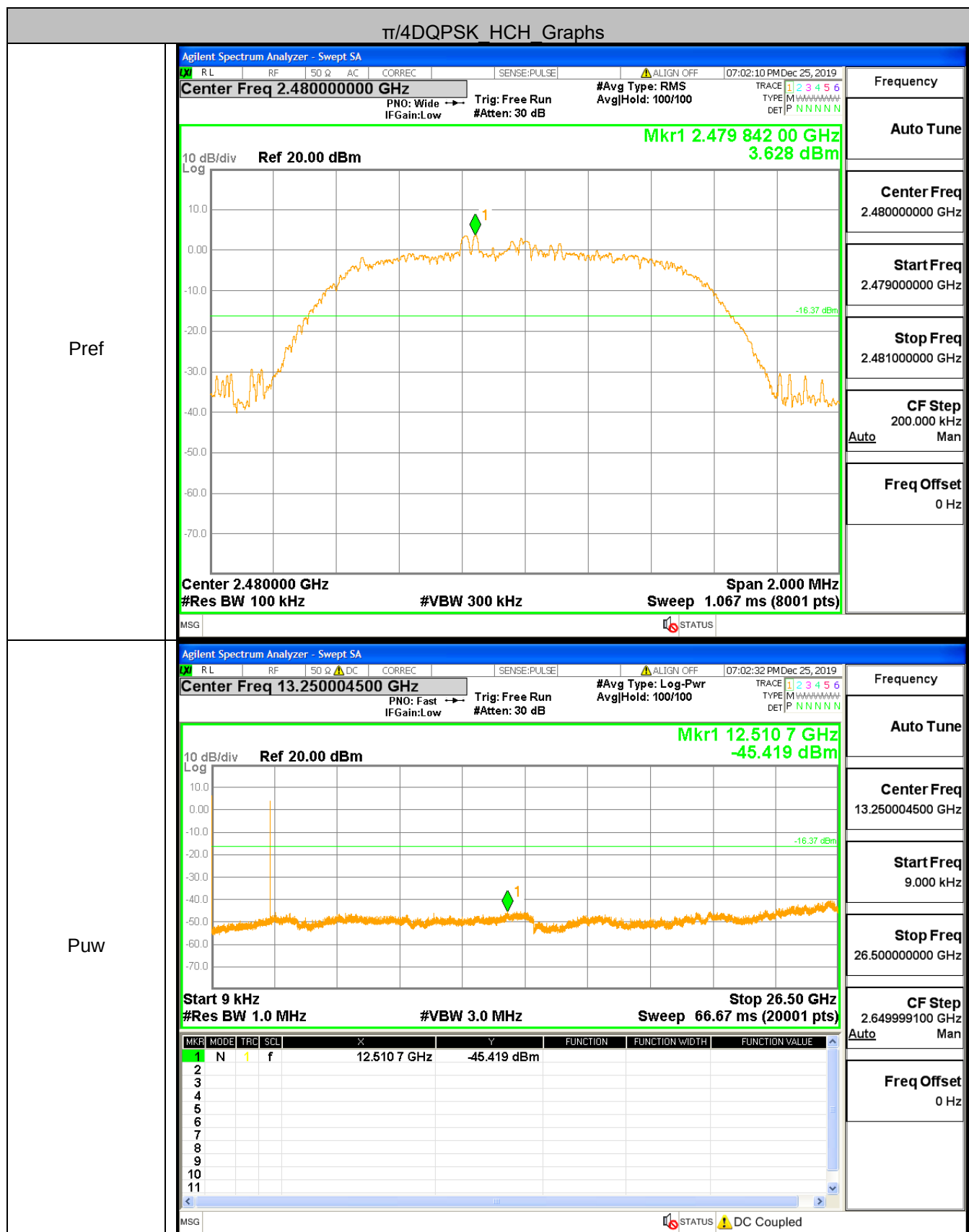


MkF	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	21.049 0 GHz	-44.602 dBm			
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								

Frequency
Auto Tune
Center Freq 13.250004500 GHz
Start Freq 9.000 kHz
Stop Freq 26.500000000 GHz
CF Step 2.649999100 GHz
<u>Auto</u> Man
Freq Offset 0 Hz

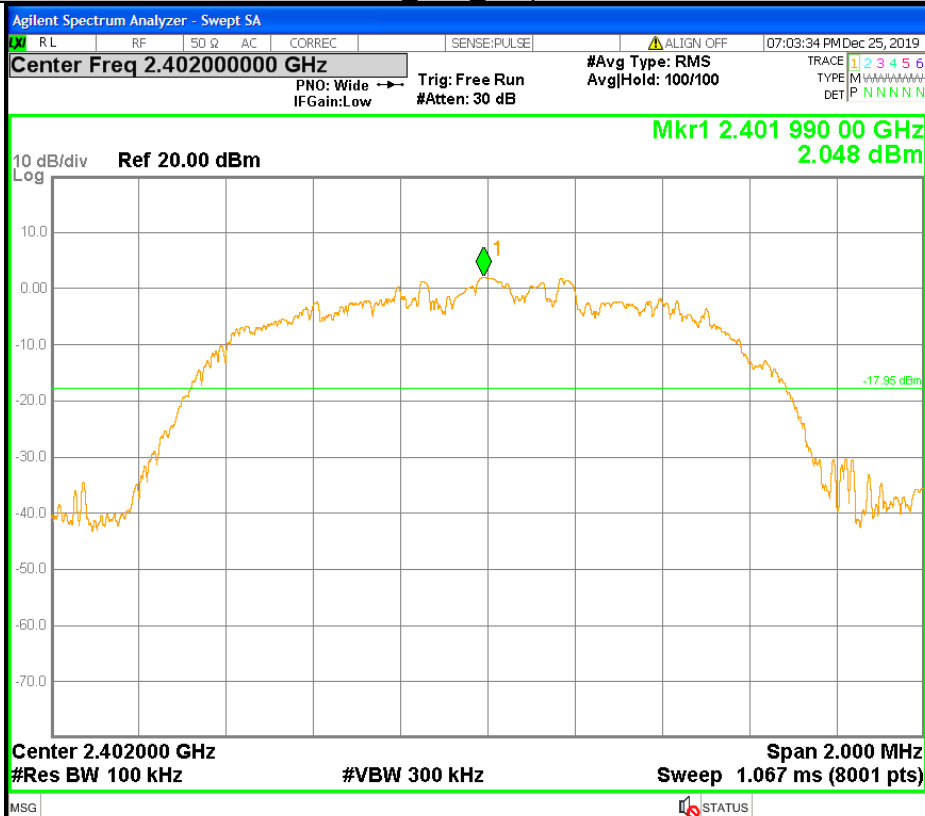




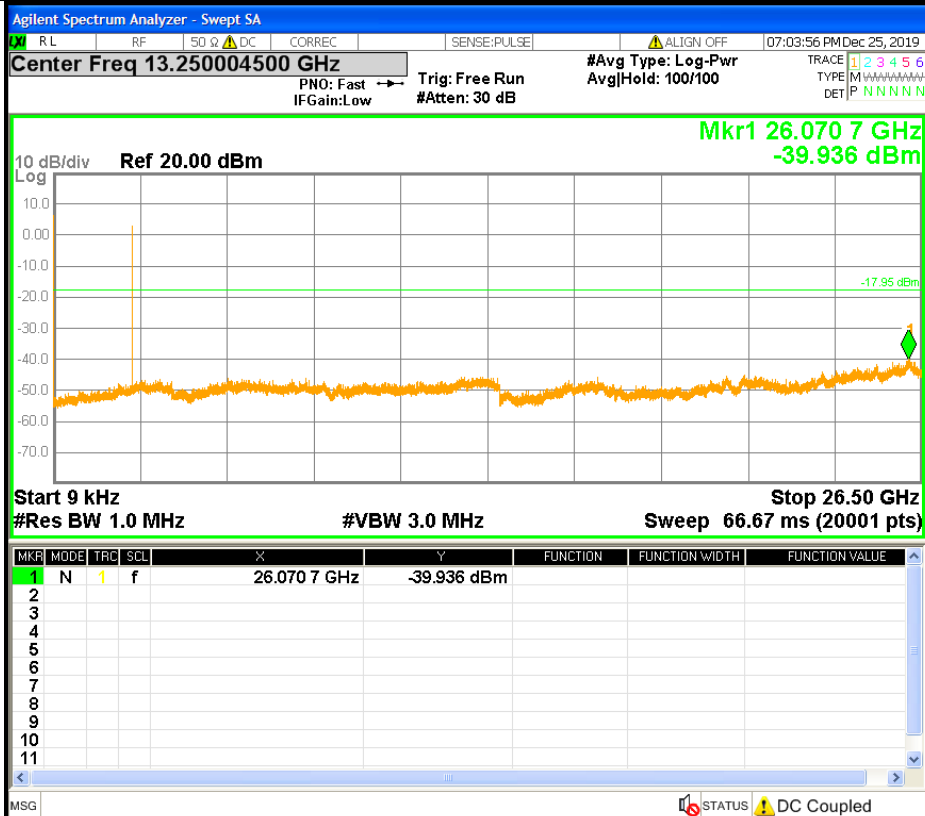


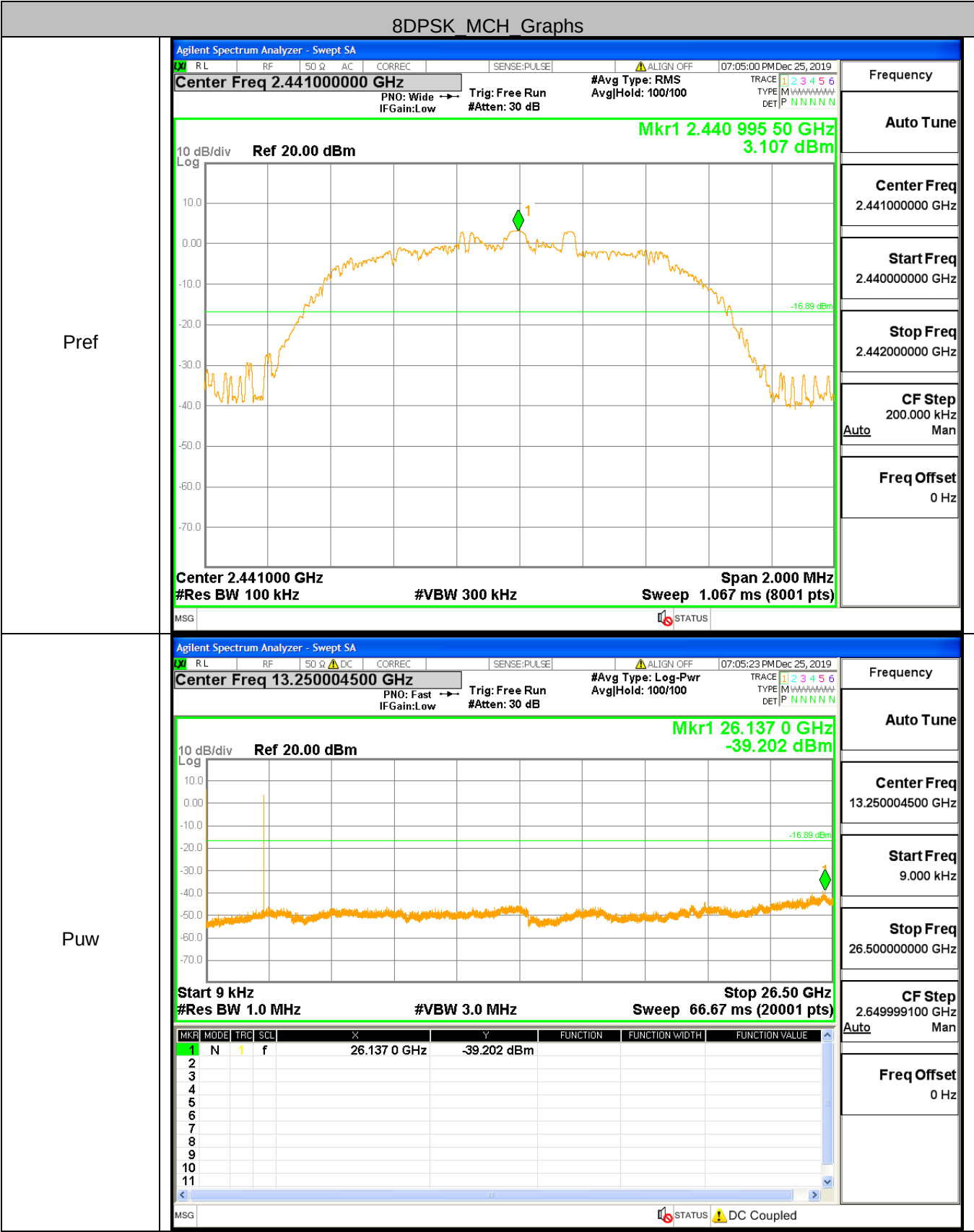
8DPSK LCH Graphs

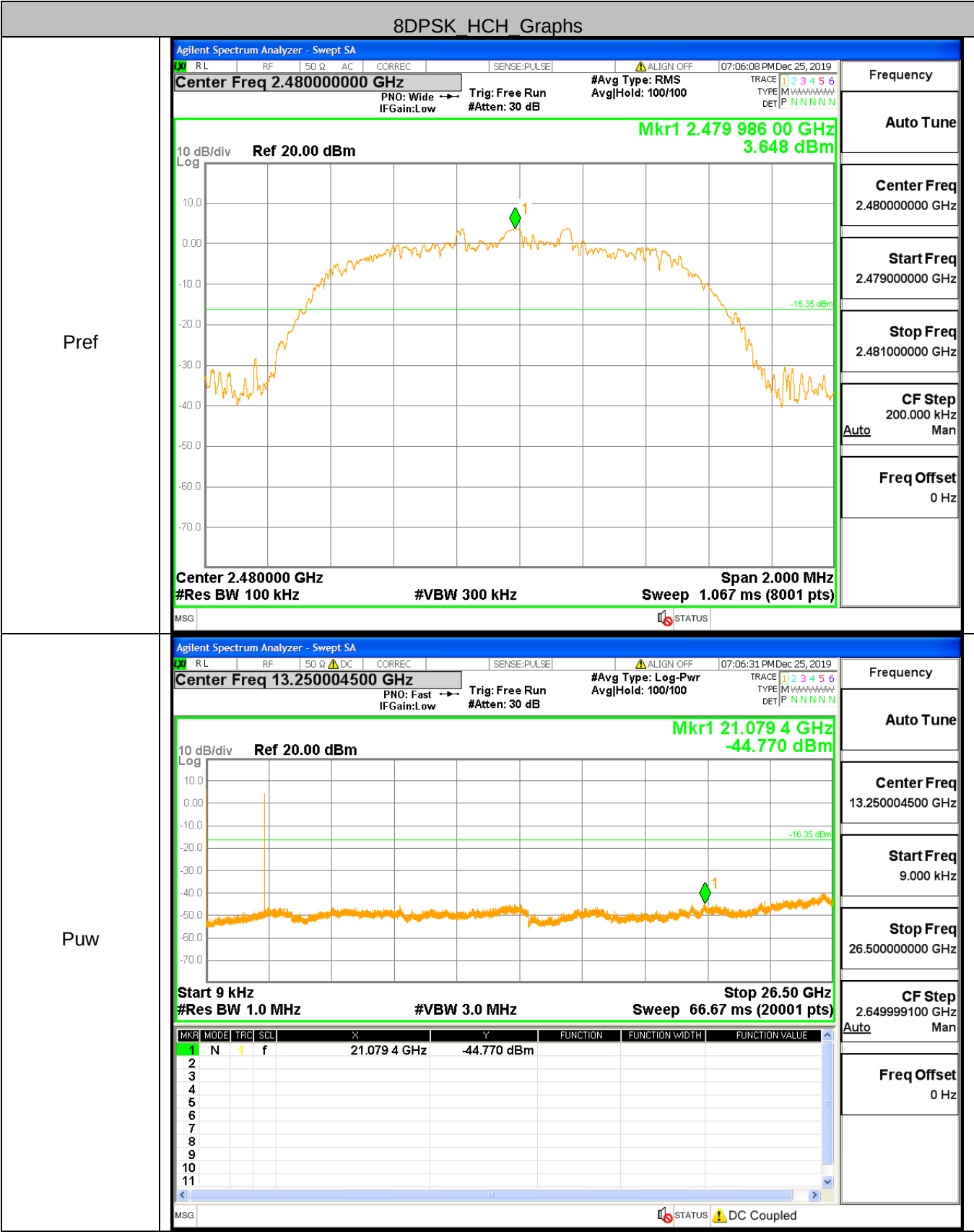
Pref



Puw





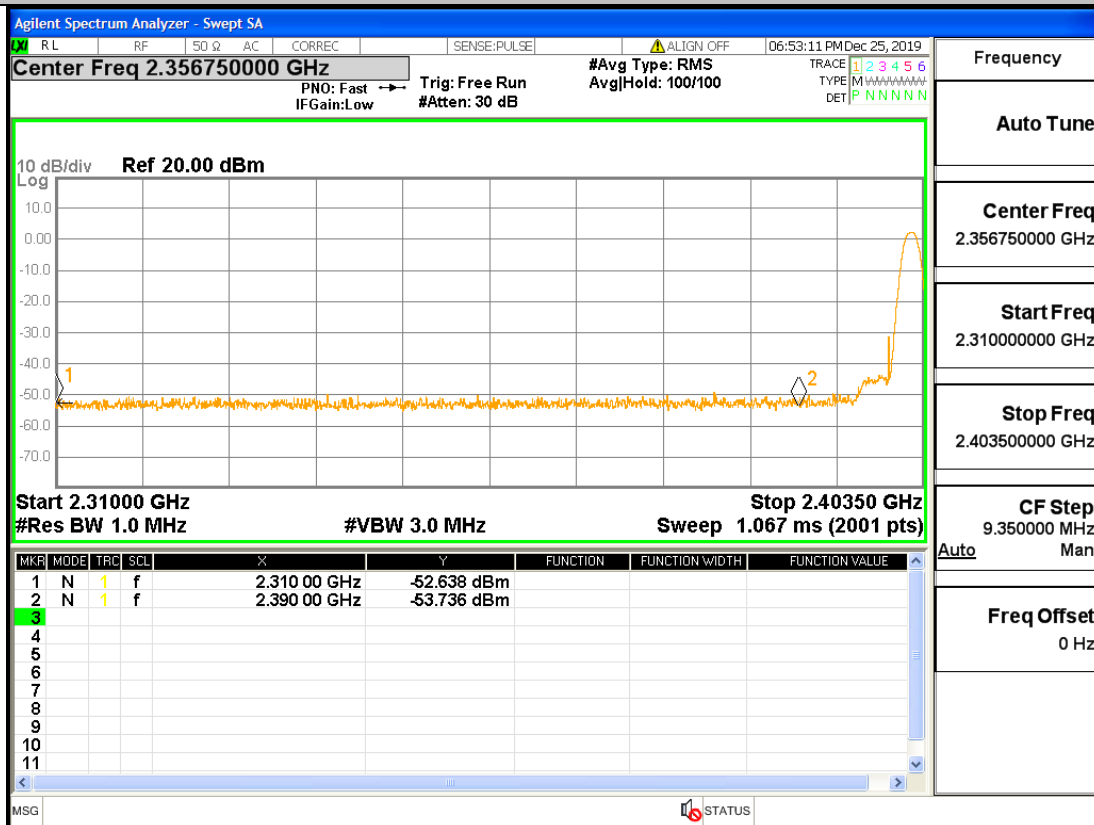


A.8 Restrict-band band-edge measurements

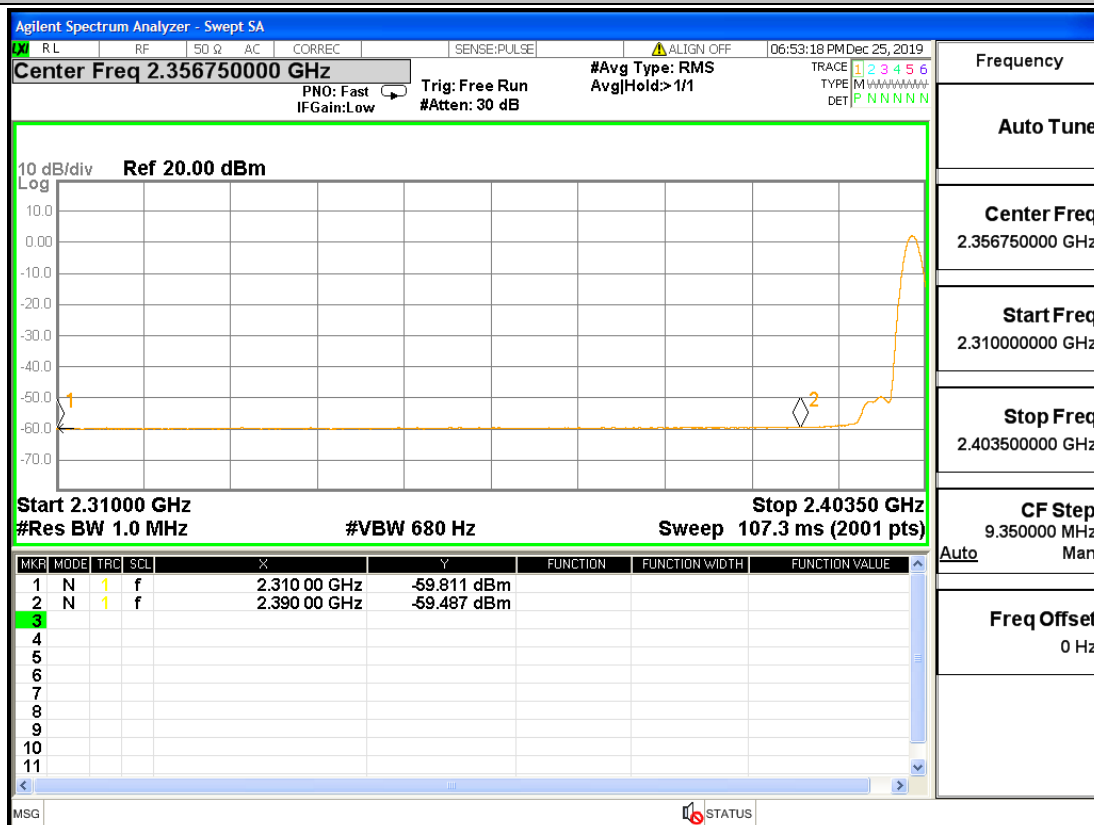
Type	Carrier Frequency (MHz)	Frequency(MHz)	Gain	Ground Factor	Peak Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2310	2.00	0.00	-52.638	44.562	74	Pass
1DH5	2480	2483.5	2.00	0.00	-44.386	52.814	74	Pass
2DH5	2402	2310	2.00	0.00	-53.483	43.717	74	Pass
2DH5	2480	2483.5	2.00	0.00	-46.279	50.921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

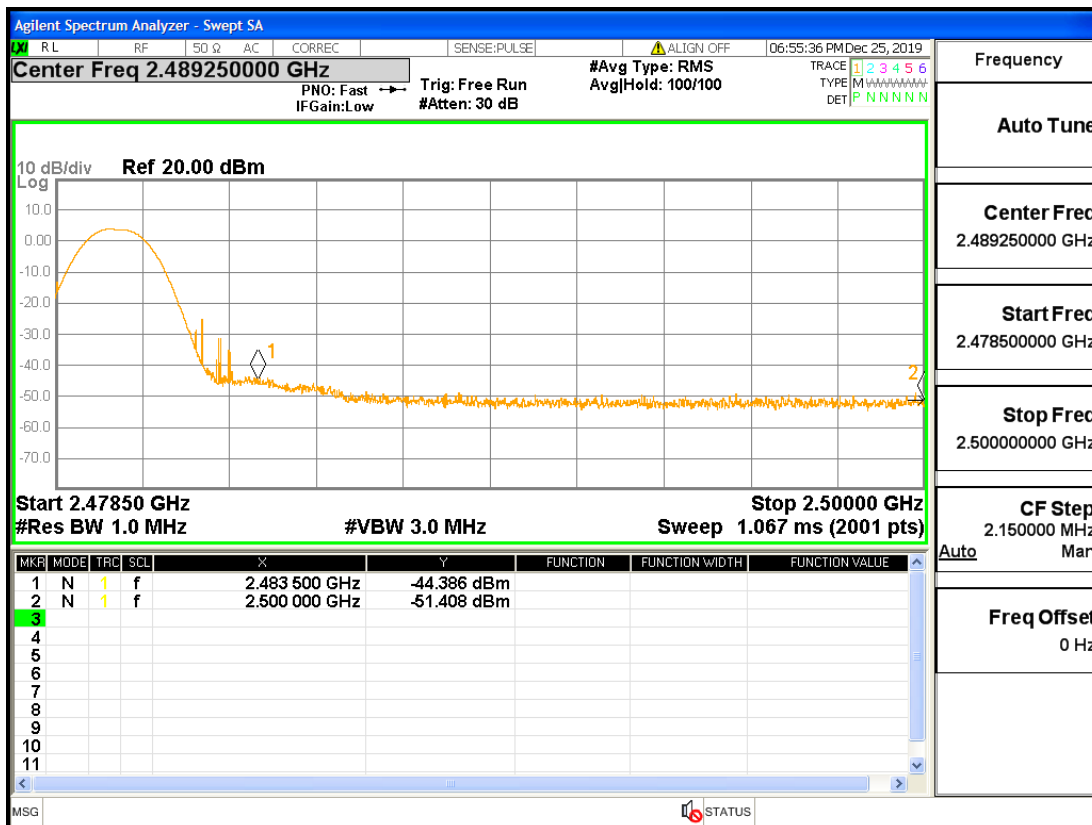
Restrict-band band-edge measurements_2402_PEAK_DH5



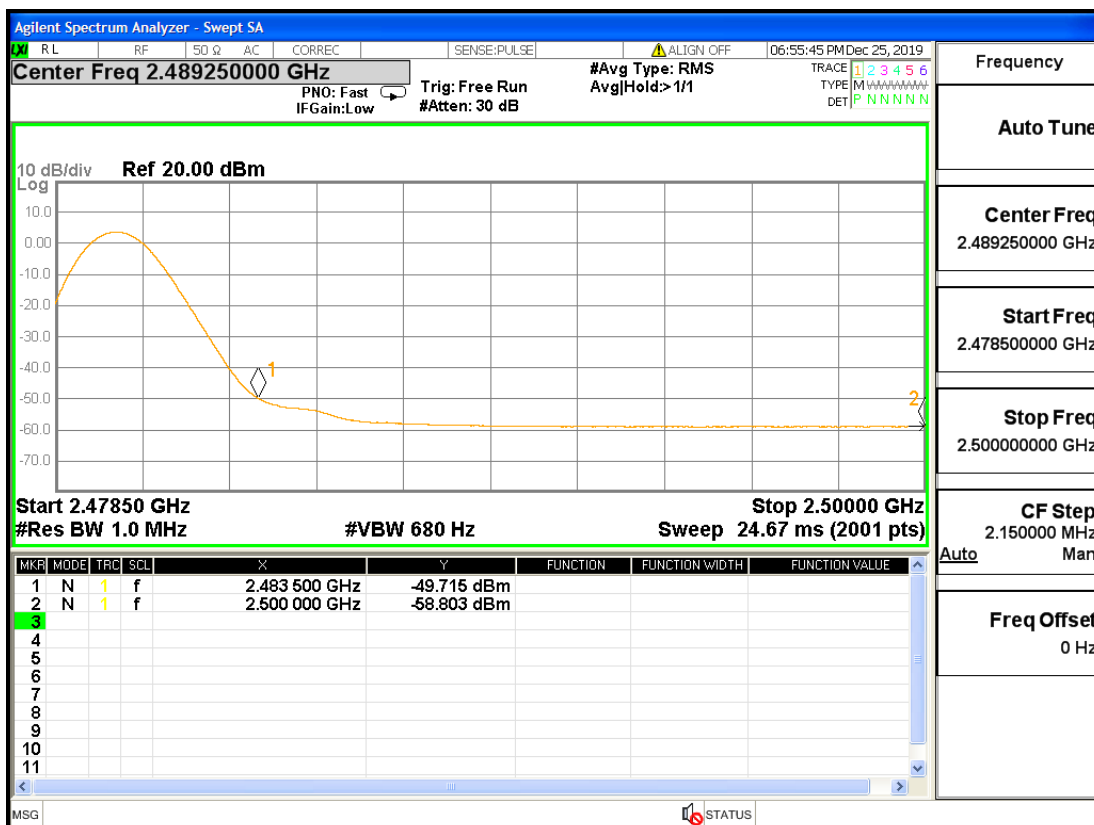
Restrict-band band-edge measurements_2402_AV_DH5



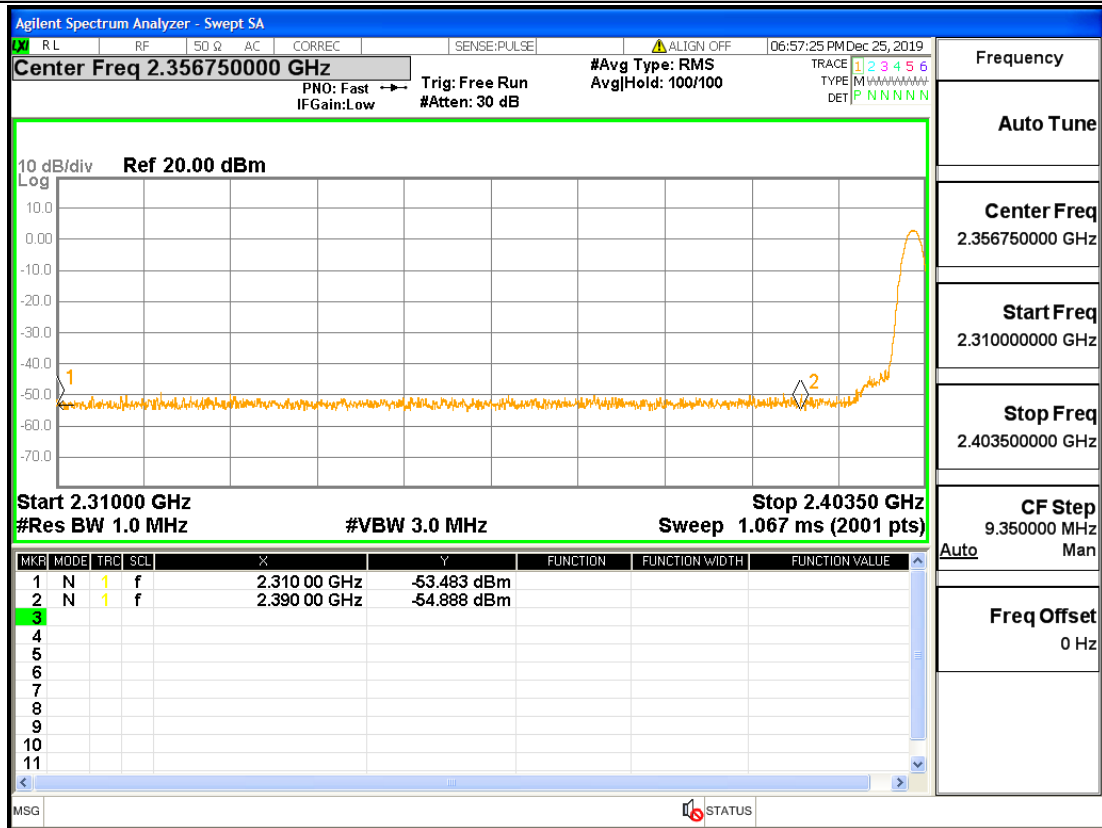
Restrict-band band-edge measurements_2480_PEAK_DH5



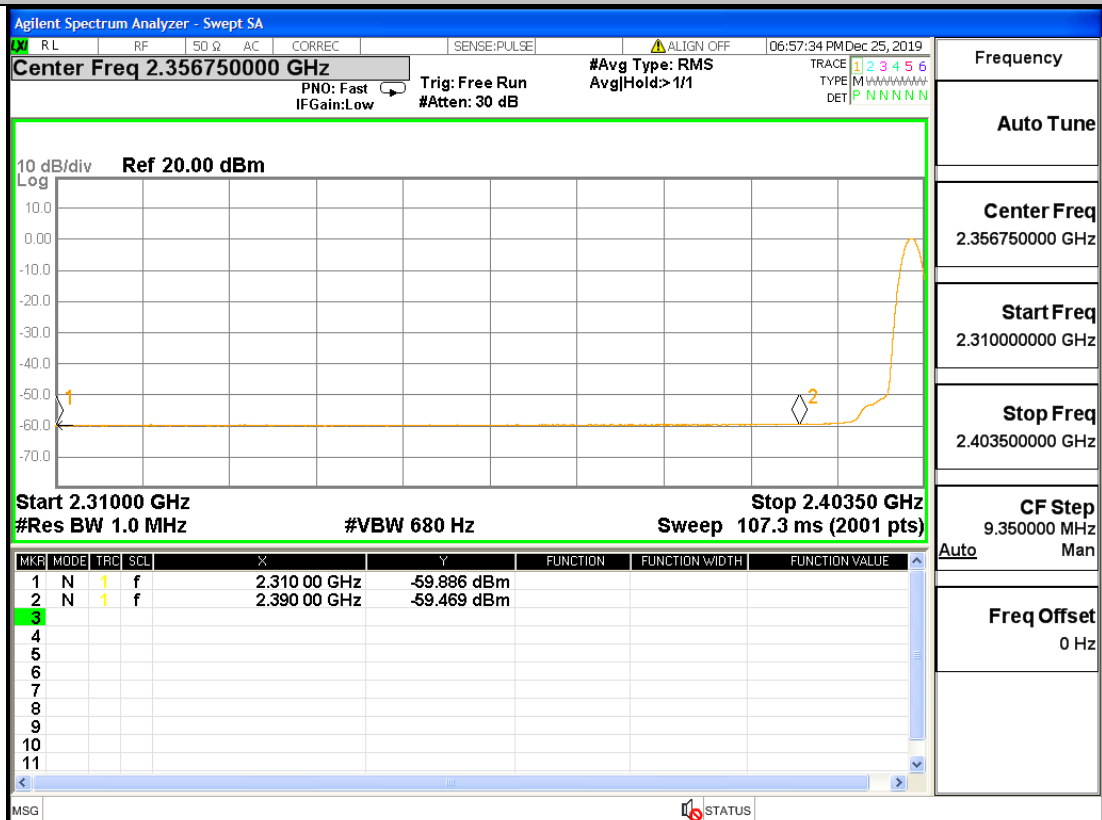
Restrict-band band-edge measurements_2480_AV_DH5



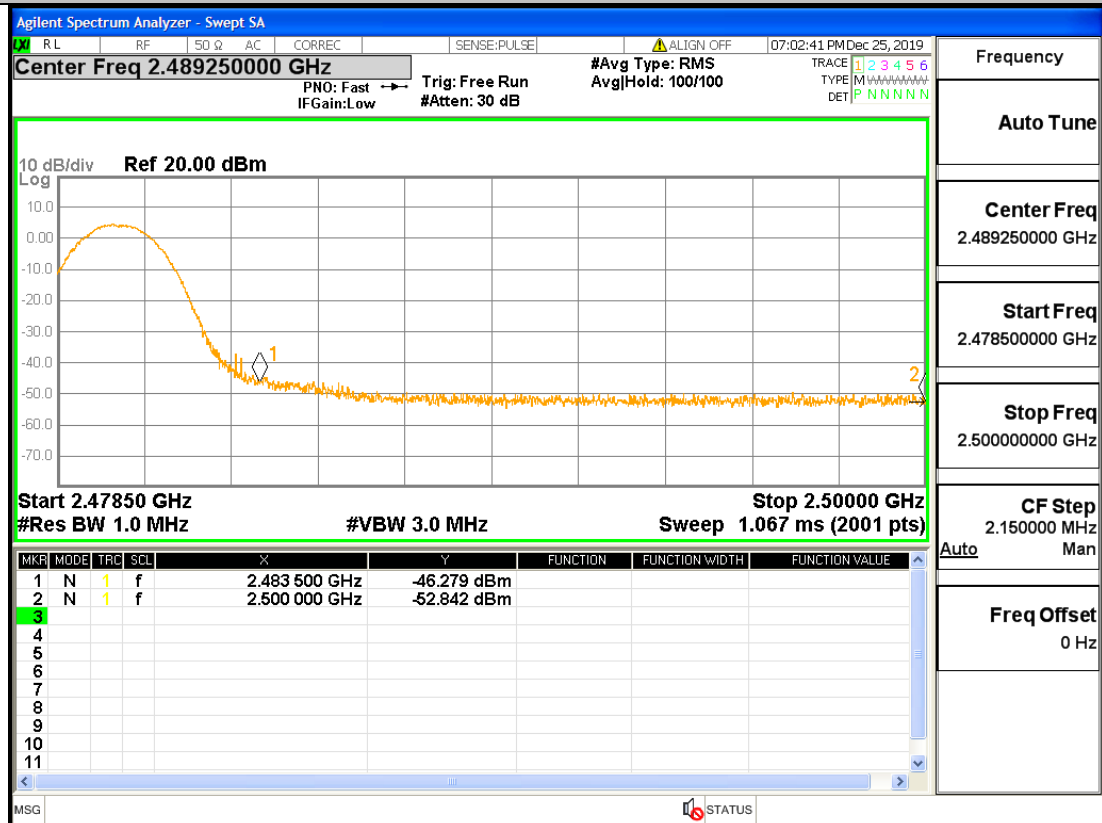
Restrict-band band-edge measurements_2402_PEAK_2DH5



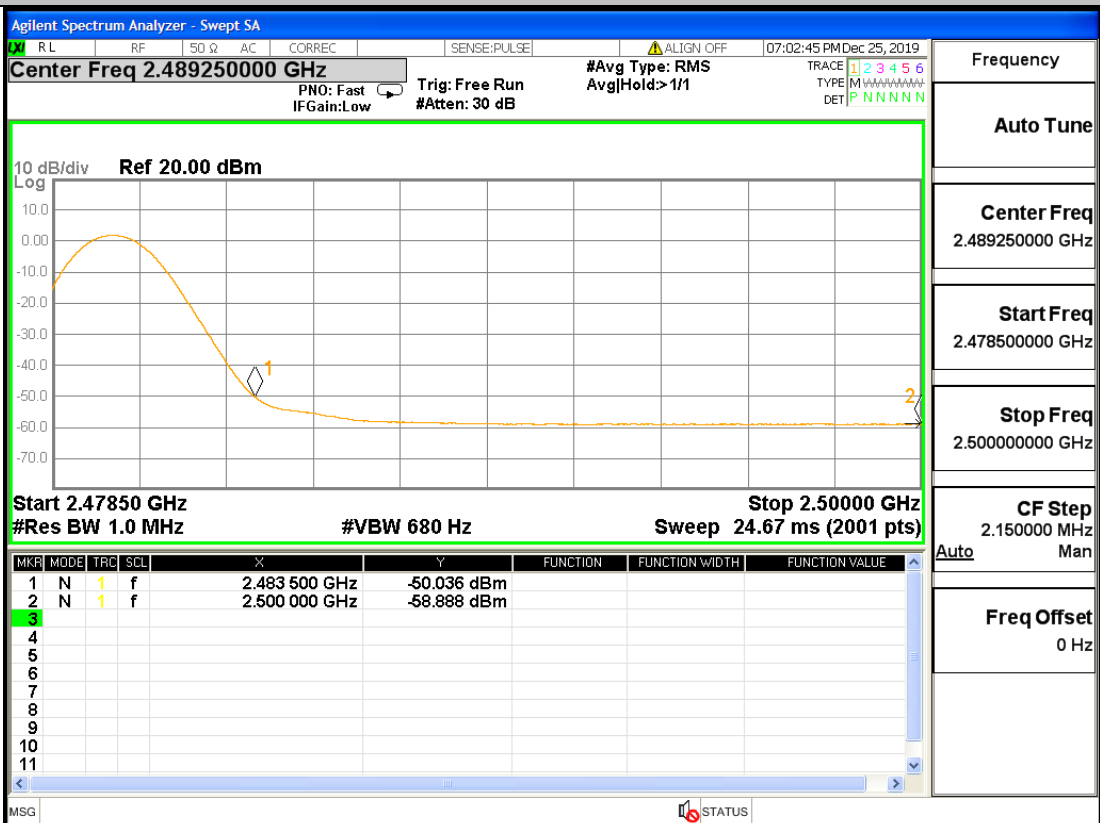
Restrict-band band-edge measurements_2402_AV_2DH5



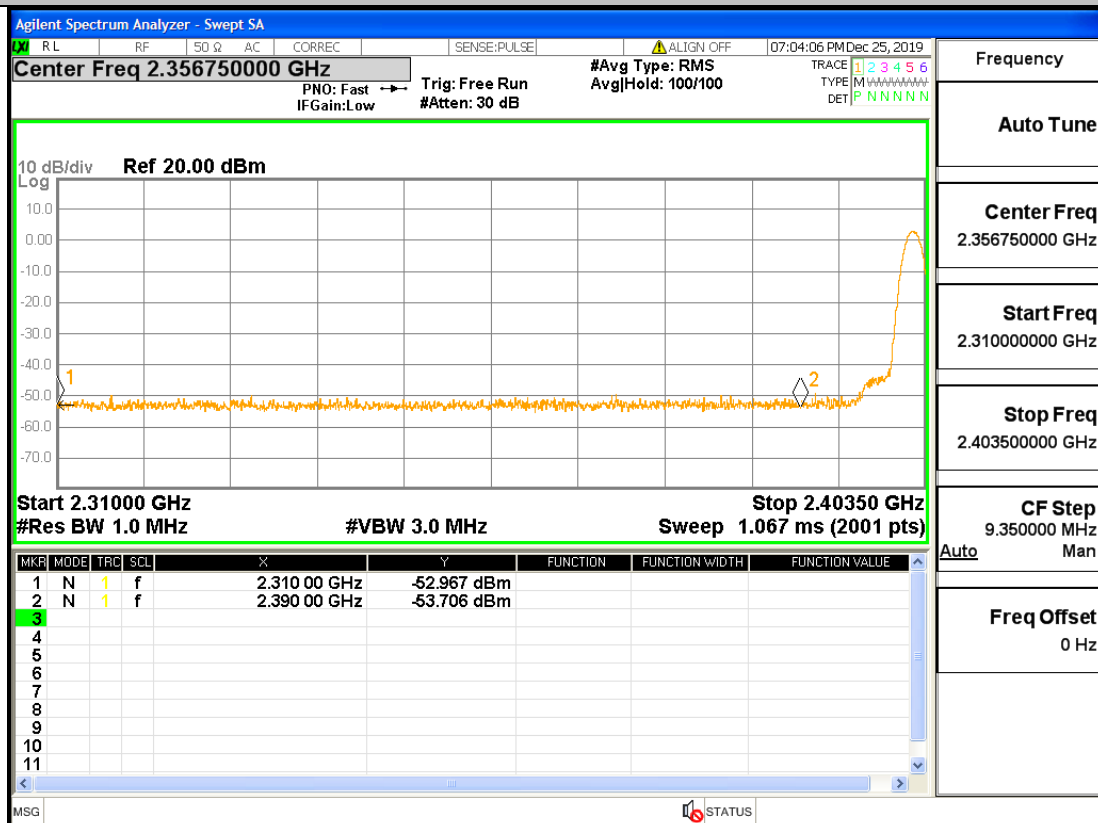
Restrict-band band-edge measurements_2480_PEAK_2DH5



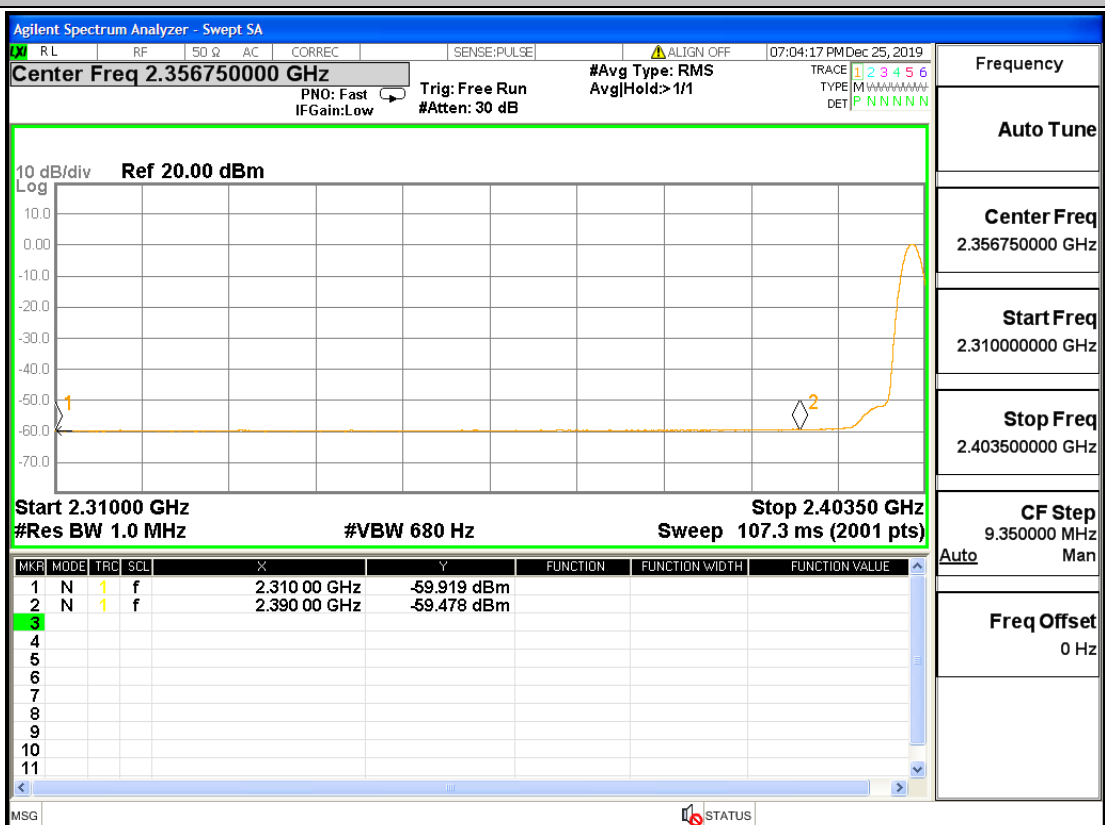
Restrict-band band-edge measurements_2480_AV_2DH5



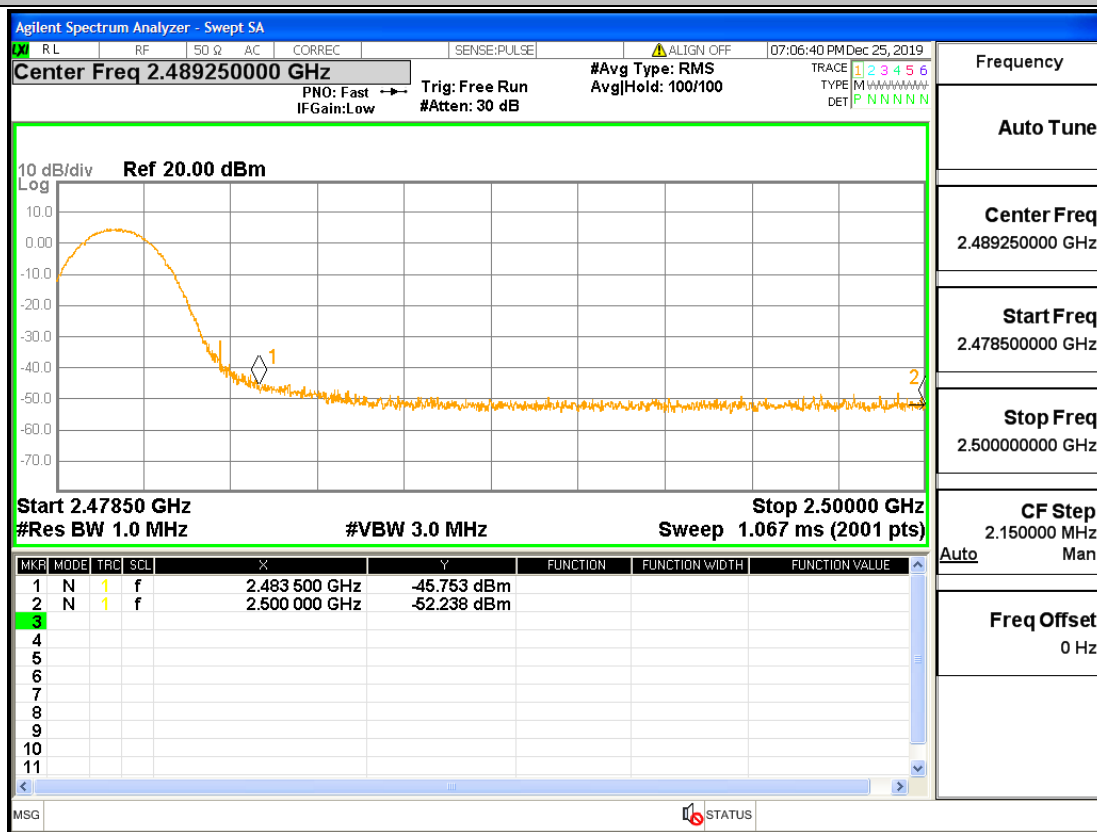
Restrict-band band-edge measurements_2402_PEAK_3DH5



Restrict-band band-edge measurements_2402_AV_3DH5



Restrict-band band-edge measurements_2480_PEAK_3DH5



Restrict-band band-edge measurements_2480_AV_3DH5

