

Appendix A

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

Product Name: truly wireless earbuds

Trade Mark: JT

Test Model: T1 PODS

FCC ID: 2ASUT-T1PODS

Environmental Conditions

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

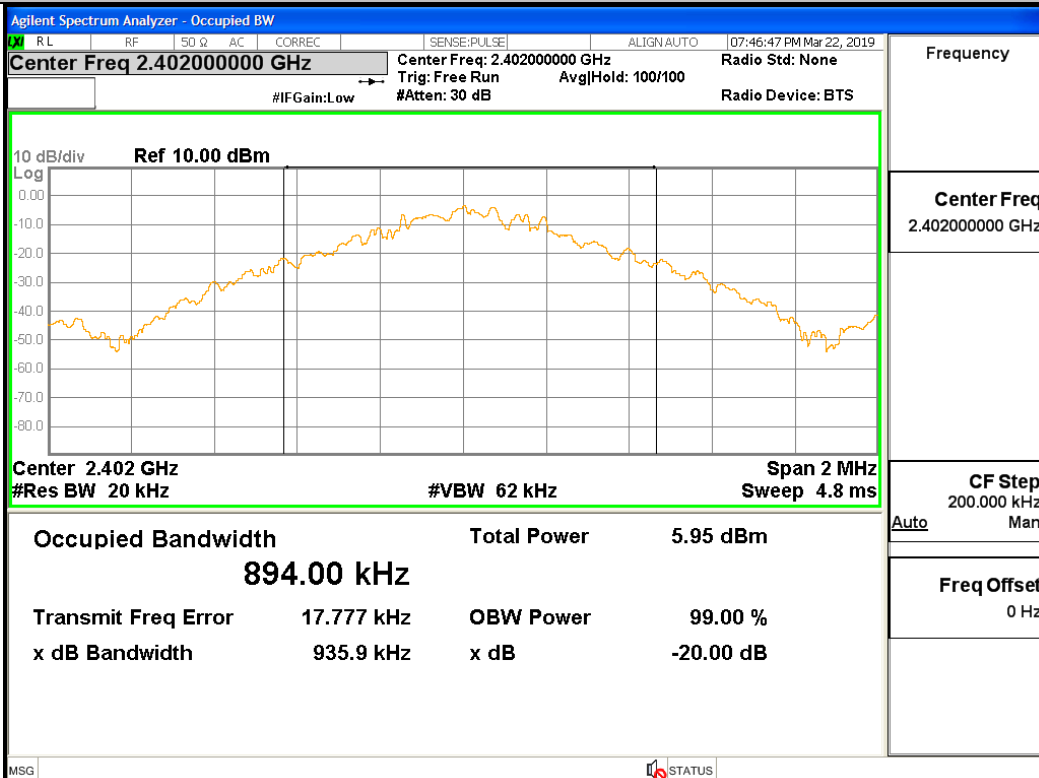
A.1 20 dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit(MHz)	Verdict
GFSK	LCH	0.936	Not Specified	PASS
GFSK	MCH	0.796	Not Specified	PASS
GFSK	HCH	0.796	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.191	Not Specified	PASS
$\pi/4$ DQPSK	MCH	1.226	Not Specified	PASS
$\pi/4$ DQPSK	HCH	1.271	Not Specified	PASS
8DPSK	LCH	1.233	Not Specified	PASS
8DPSK	MCH	1.231	Not Specified	PASS
8DPSK	HCH	1.302	Not Specified	PASS

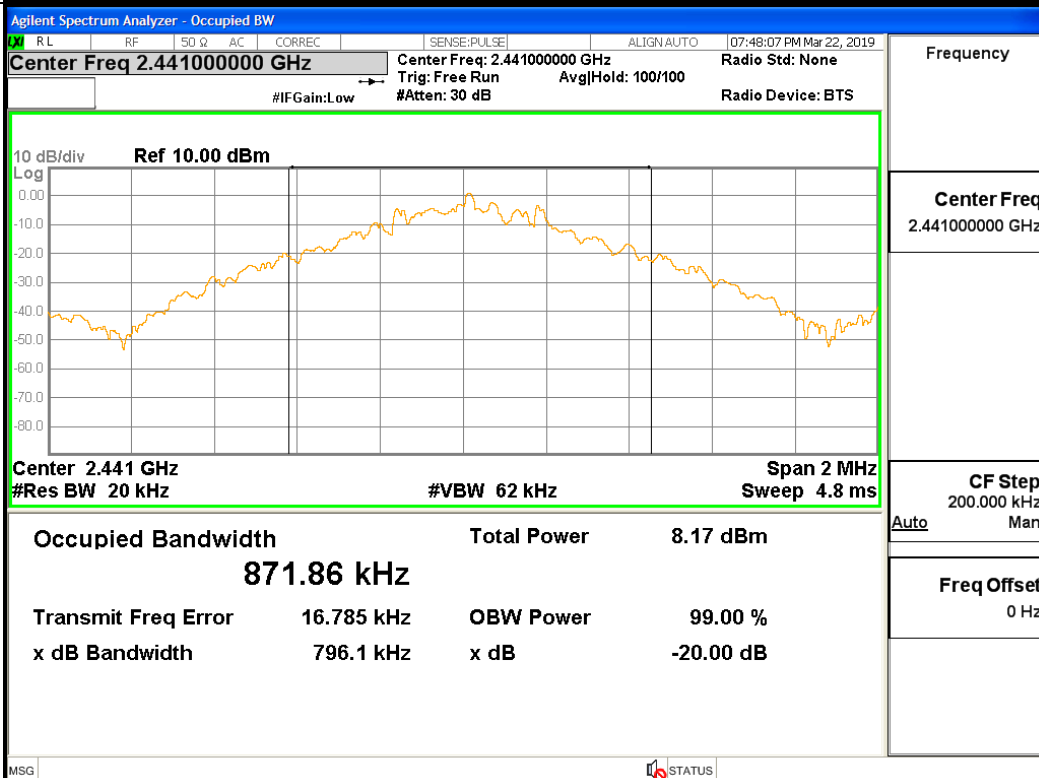
Test Graph

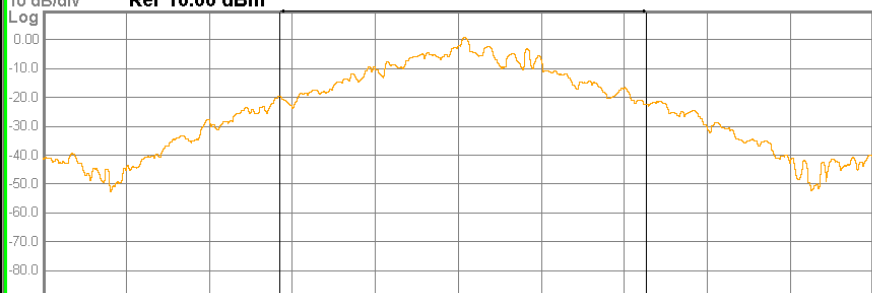
Graphs

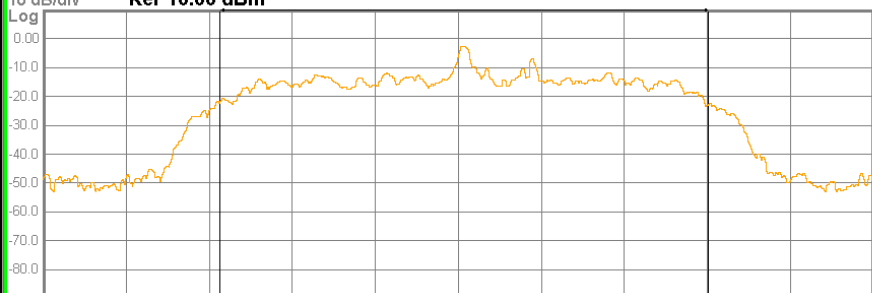
GFSK/LCH



GFSK/MCH



GFSK/HCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC CORREC SENSE:PULSE ALIGN:AUTO 07:49:12 PM Mar 22, 2019 Center Freq 2.480000000 GHz Center Freq: 2.480000000 GHz Radio Std: None #IFGain:Low #Atten: 30 dB AvgHold: 100/100 Radio Device: BTS 10 dB/div Ref 10.00 dBm  Center 2.48 GHz #Res BW 20 kHz #VBW 62 kHz Span 2 MHz Sweep 4.8 ms Occupied Bandwidth 876.67 kHz Total Power 8.10 dBm Transmit Freq Error 13.290 kHz OBW Power 99.00 % x dB Bandwidth 795.8 kHz x dB -20.00 dB MSG  STATUS						
	Frequency	Center Freq 2.480000000 GHz					
	Auto	CF Step 200.000 kHz Man					
	Freq Offset 0 Hz						

π/4DQPSK/LCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC CORREC SENSE:PULSE ALIGN:AUTO 07:50:30 PM Mar 22, 2019 Center Freq 2.402000000 GHz Center Freq: 2.402000000 GHz Radio Std: None #IFGain:Low #Atten: 30 dB AvgHold: 100/100 Radio Device: BTS 10 dB/div Ref 10.00 dBm  Center 2.402 GHz #Res BW 20 kHz #VBW 62 kHz Span 2 MHz Sweep 4.8 ms Occupied Bandwidth 1.1710 MHz Total Power 4.18 dBm Transmit Freq Error 15.310 kHz OBW Power 99.00 % x dB Bandwidth 1.191 MHz x dB -20.00 dB MSG  STATUS						
	Frequency	Center Freq 2.402000000 GHz					
	Auto	CF Step 200.000 kHz Man					
	Freq Offset 0 Hz						

Center Freq 2.402000000 GHz

Center Freq: 2.402000000 GHz

Radio Std: None

#IFGain:Low

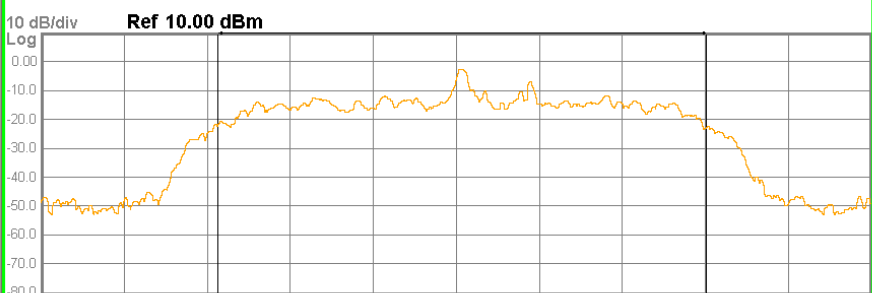
#Atten: 30 dB

AvgHold: 100/100

Radio Device: BTS

10 dB/div

Ref 10.00 dBm



Center 2.402 GHz

#Res BW 20 kHz

#VBW 62 kHz

Span 2 MHz

Sweep 4.8 ms

Occupied Bandwidth

1.1710 MHz

Total Power

4.18 dBm

Transmit Freq Error

15.310 kHz

OBW Power

99.00 %

x dB Bandwidth

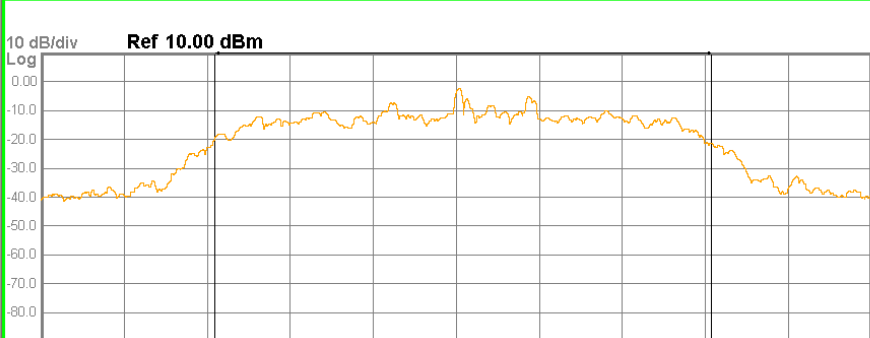
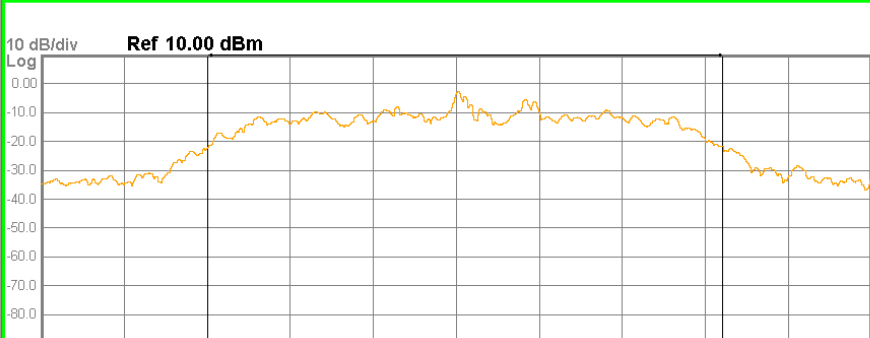
1.191 MHz

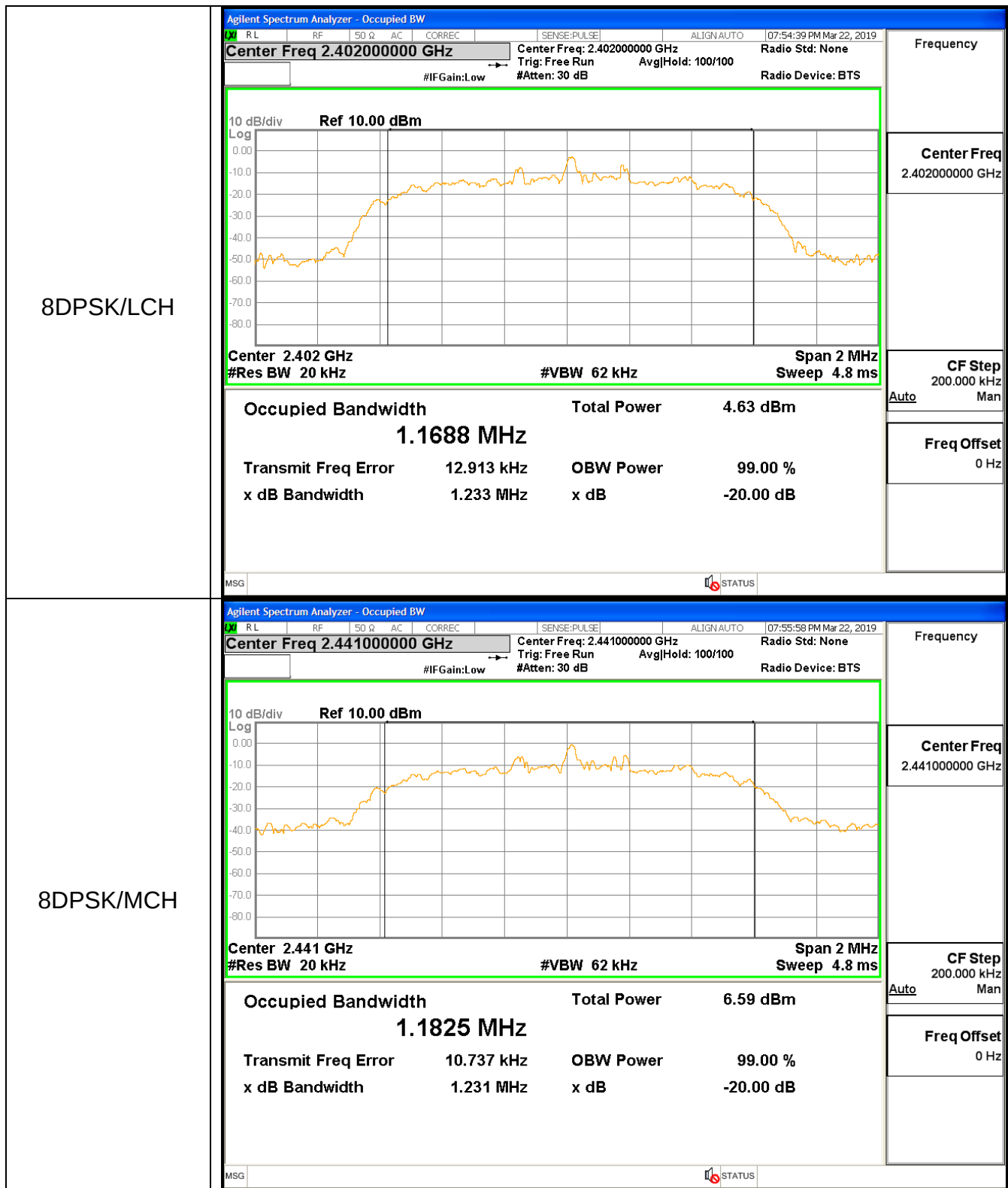
x dB

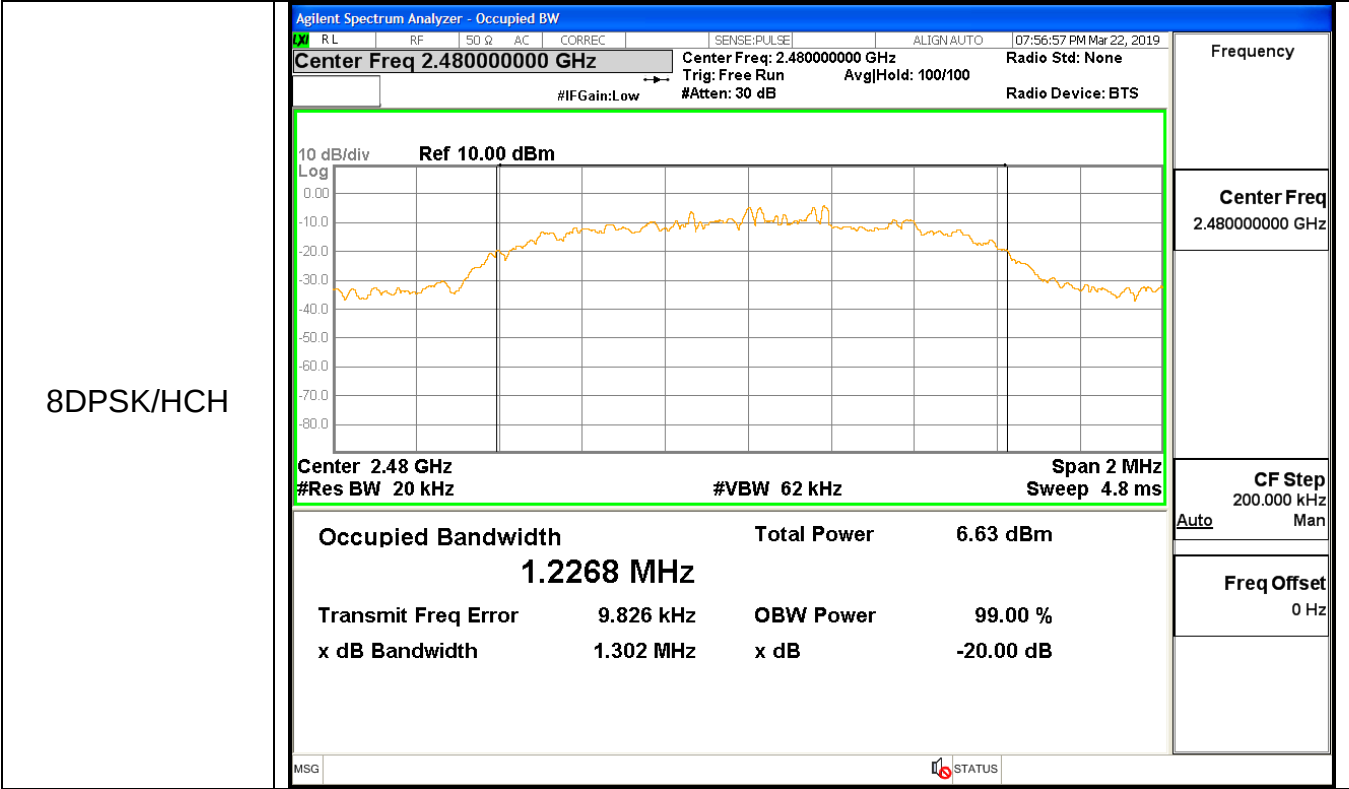
-20.00 dB

MSG

STATUS

π/4DQPSK/MCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC CORREC SENSE:PULSE ALIGN: AUTO 07:51:58 PM Mar 22, 2019 Center Freq 2.441000000 GHz Center Freq: 2.441000000 GHz Radio Std: None #IFGain: Low #Atten: 30 dB AvgHold: 100/100 Radio Device: BTS  10 dB/div Ref 10.00 dBm Center 2.441 GHz Span 2 MHz #Res BW 20 kHz #VBW 62 kHz Sweep 4.8 ms Occupied Bandwidth 1.1933 MHz Total Power 5.71 dBm Transmit Freq Error 17.565 kHz OBW Power 99.00 % x dB Bandwidth 1.226 MHz x dB -20.00 dB MSG STATUS	Frequency Center Freq 2.441000000 GHz CF Step 200.000 kHz Auto Man Freq Offset 0 Hz
	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC CORREC SENSE:PULSE ALIGN: AUTO 07:53:06 PM Mar 22, 2019 Center Freq 2.480000000 GHz Center Freq: 2.480000000 GHz Radio Std: None #IFGain: Low #Atten: 30 dB AvgHold: 100/100 Radio Device: BTS  10 dB/div Ref 10.00 dBm Center 2.48 GHz Span 2 MHz #Res BW 20 kHz #VBW 62 kHz Sweep 4.8 ms Occupied Bandwidth 1.2352 MHz Total Power 6.37 dBm Transmit Freq Error 22.488 kHz OBW Power 99.00 % x dB Bandwidth 1.271 MHz x dB -20.00 dB MSG STATUS	Frequency Center Freq 2.480000000 GHz CF Step 200.000 kHz Auto Man Freq Offset 0 Hz

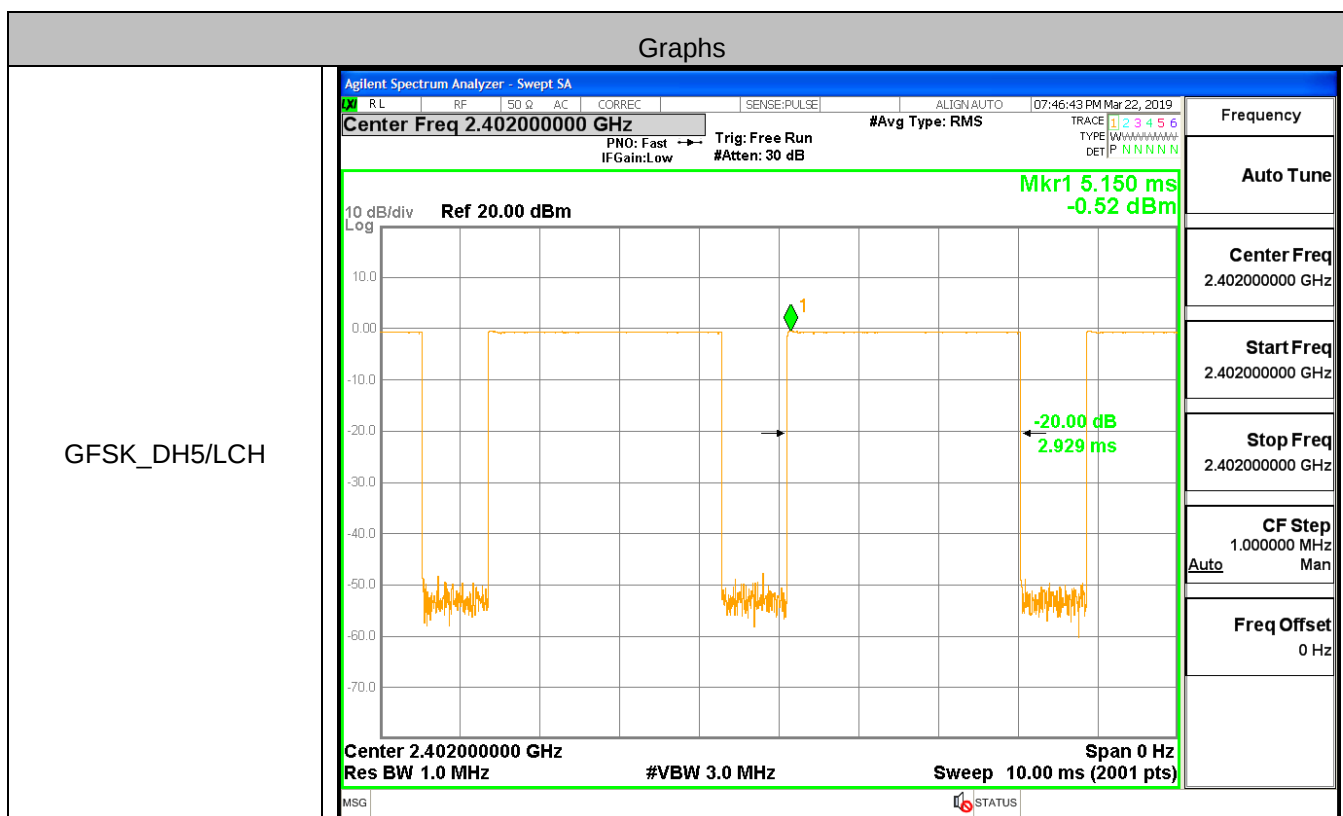


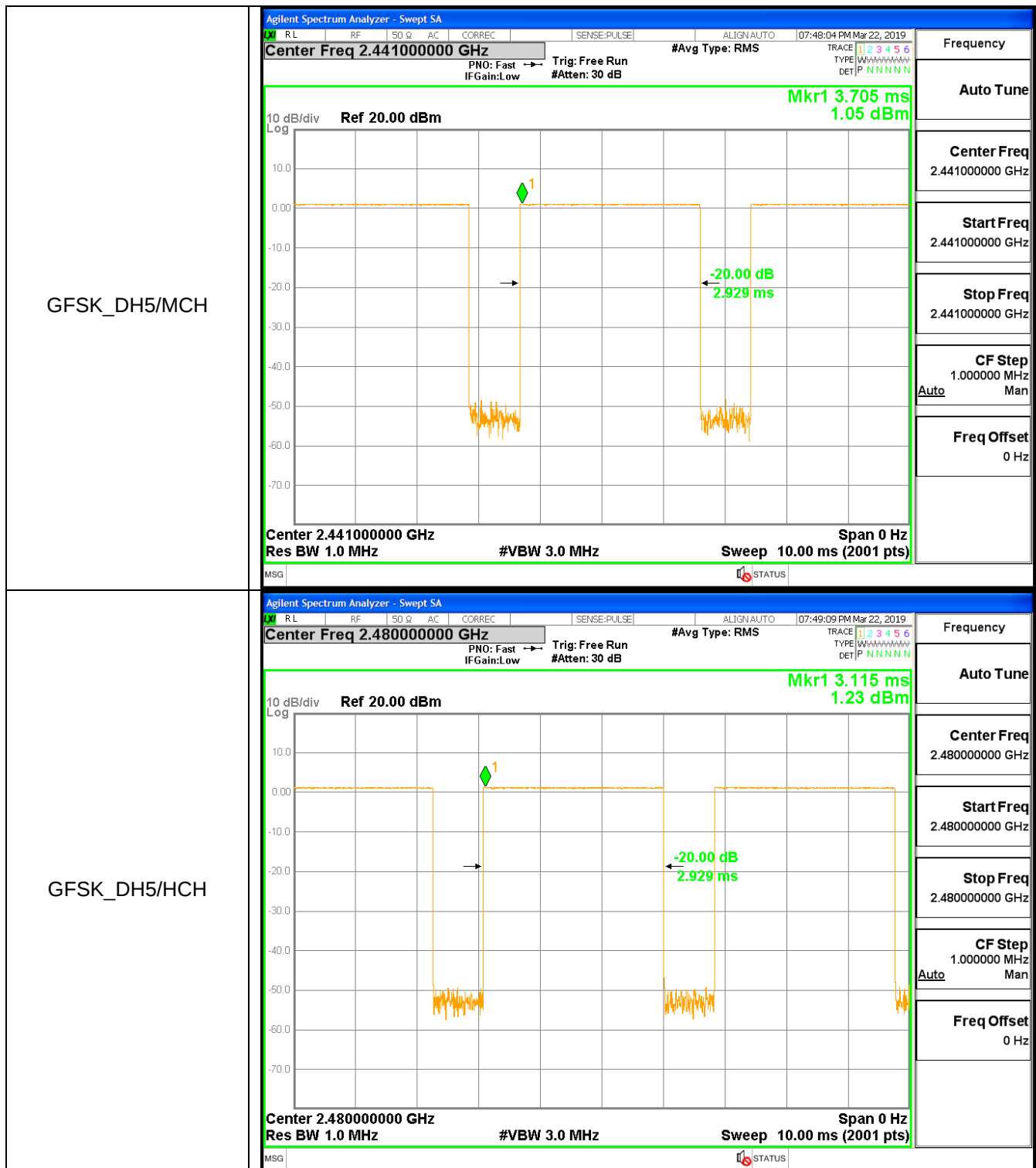


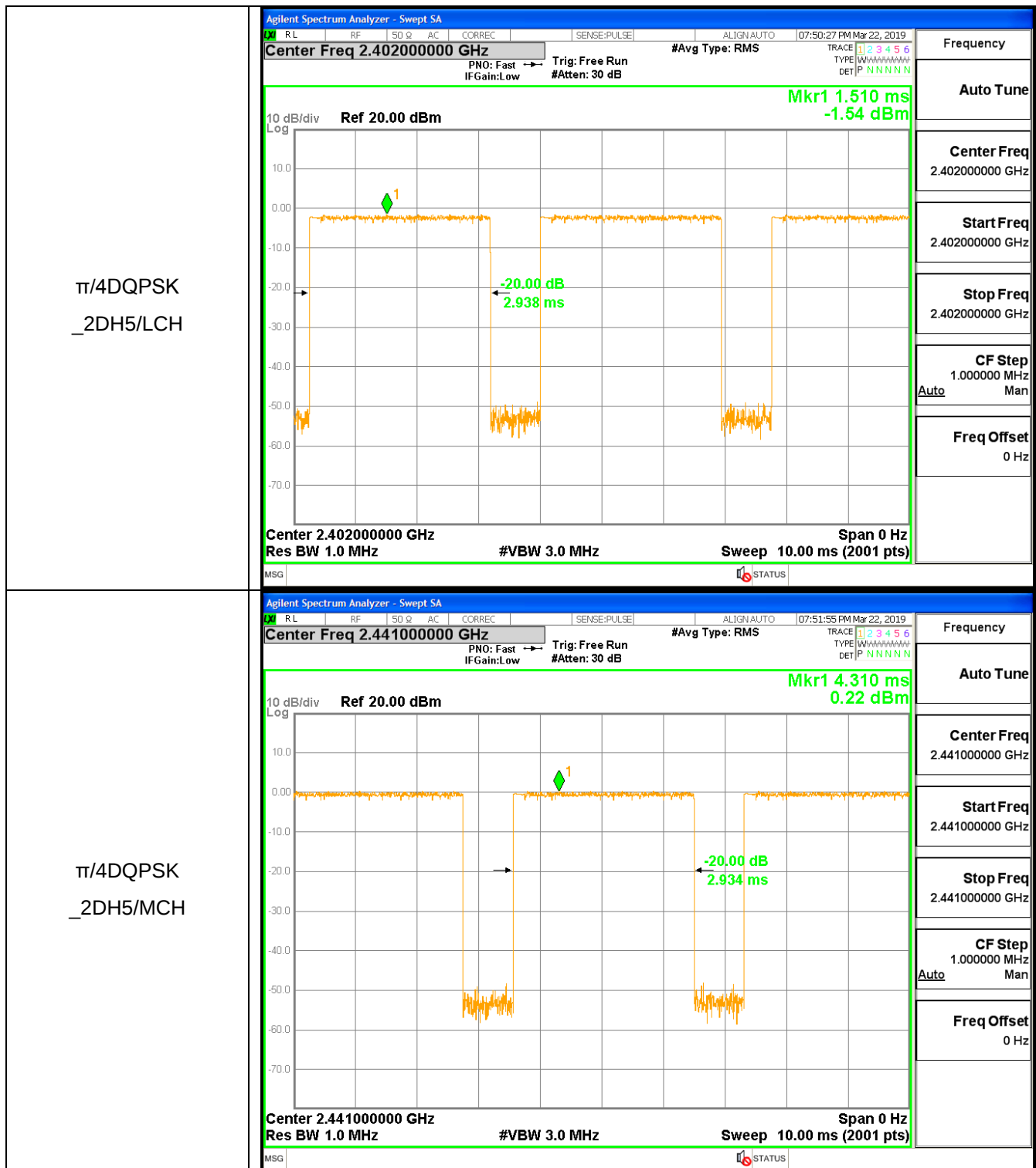
A.2 Dwell Time

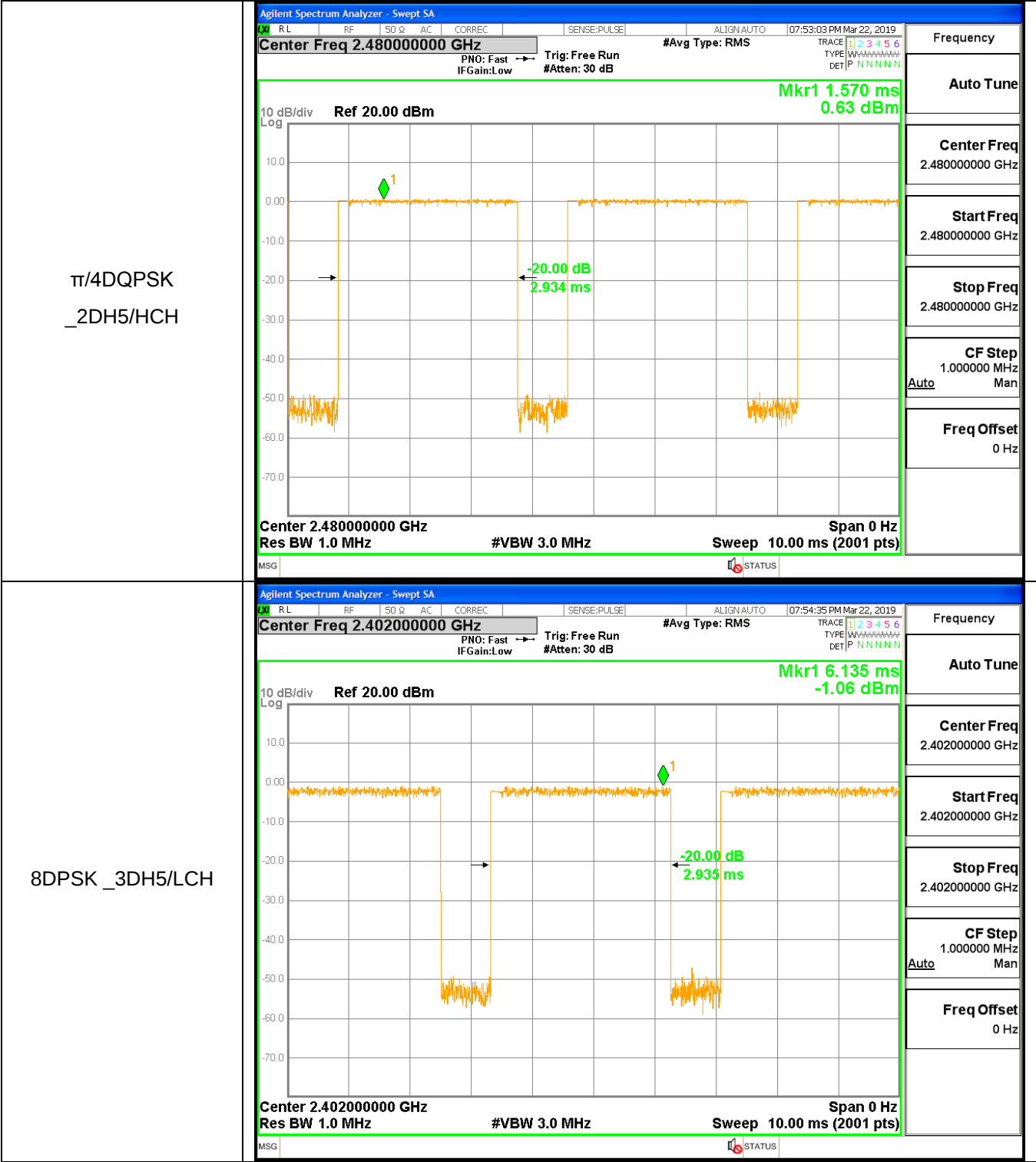
Mode	Packet	Channel	Burst Width [s/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	0.002929	106.7	0.312512	0.4	PASS
GFSK	DH5	MCH	0.002929	106.7	0.312501	0.4	PASS
GFSK	DH5	HCH	0.002929	106.7	0.312508	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	0.002938	106.7	0.313448	0.4	PASS
$\pi/4$ DQPSK	2DH5	MCH	0.002934	106.7	0.313018	0.4	PASS
$\pi/4$ DQPSK	2DH5	HCH	0.002934	106.7	0.313029	0.4	PASS
8DPSK	3DH5	LCH	0.002935	106.7	0.313216	0.4	PASS
8DPSK	3DH5	MCH	0.002934	106.7	0.313109	0.4	PASS
8DPSK	3DH5	HCH	0.002937	106.7	0.313376	0.4	PASS

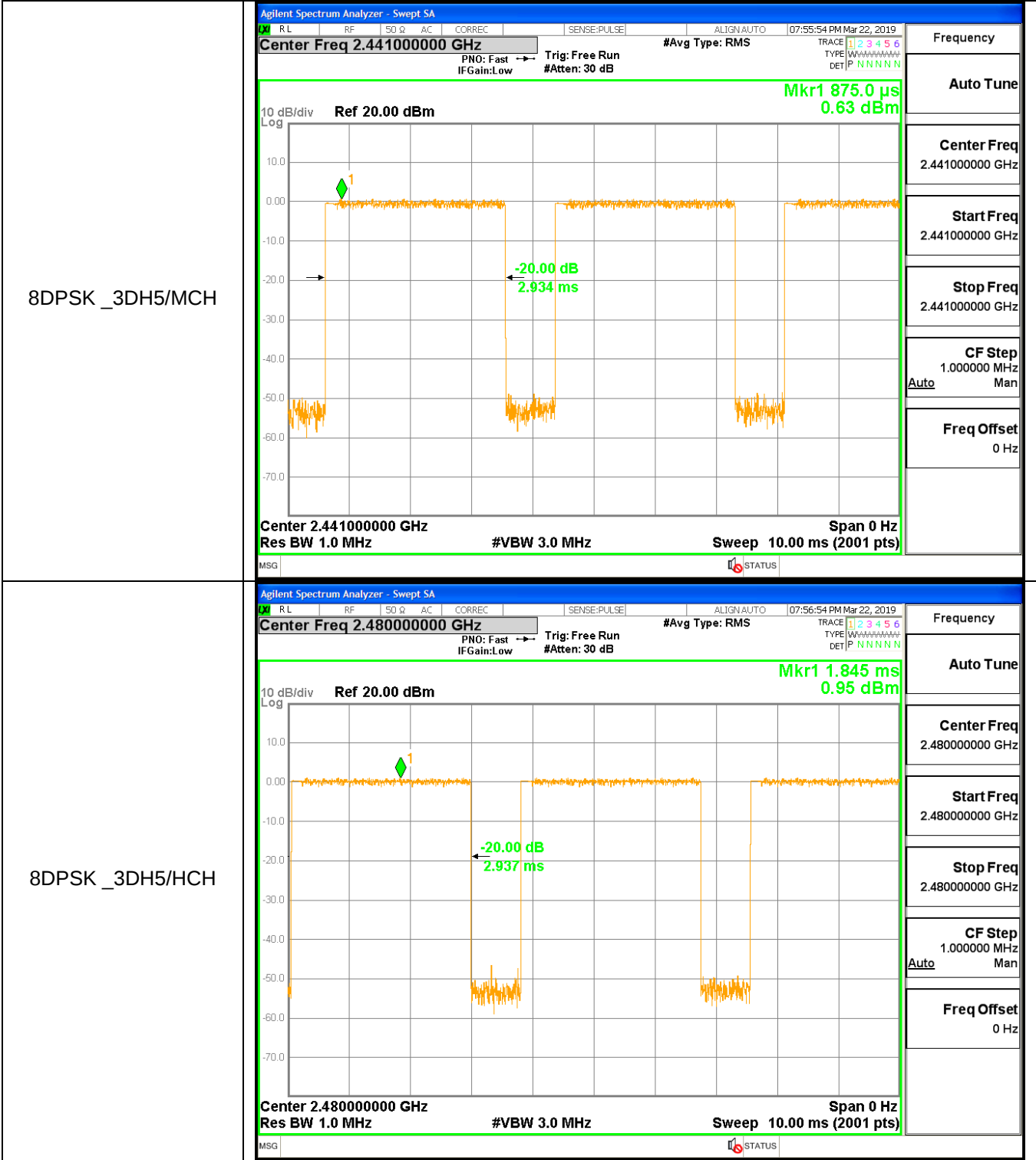
Test Graph







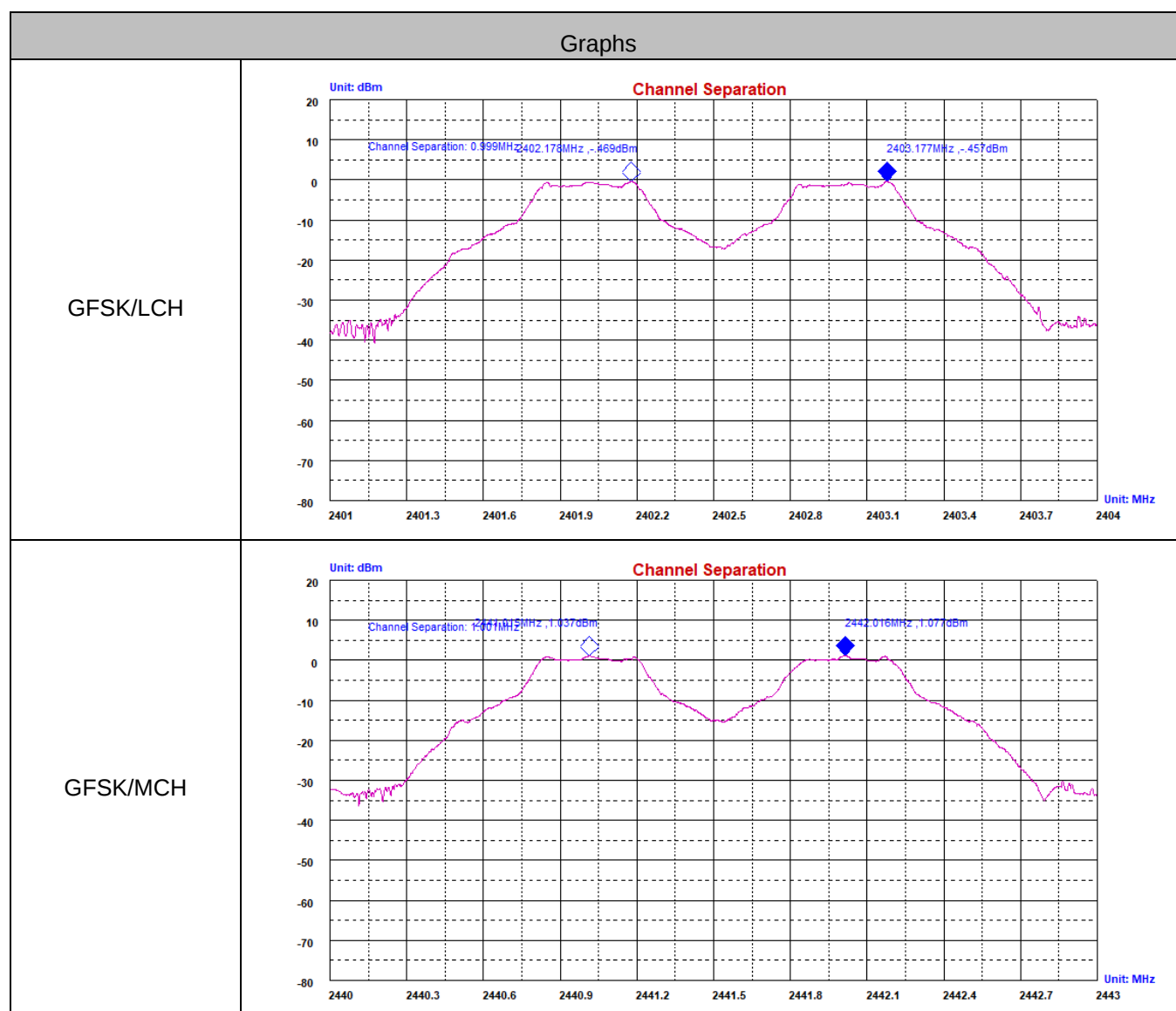


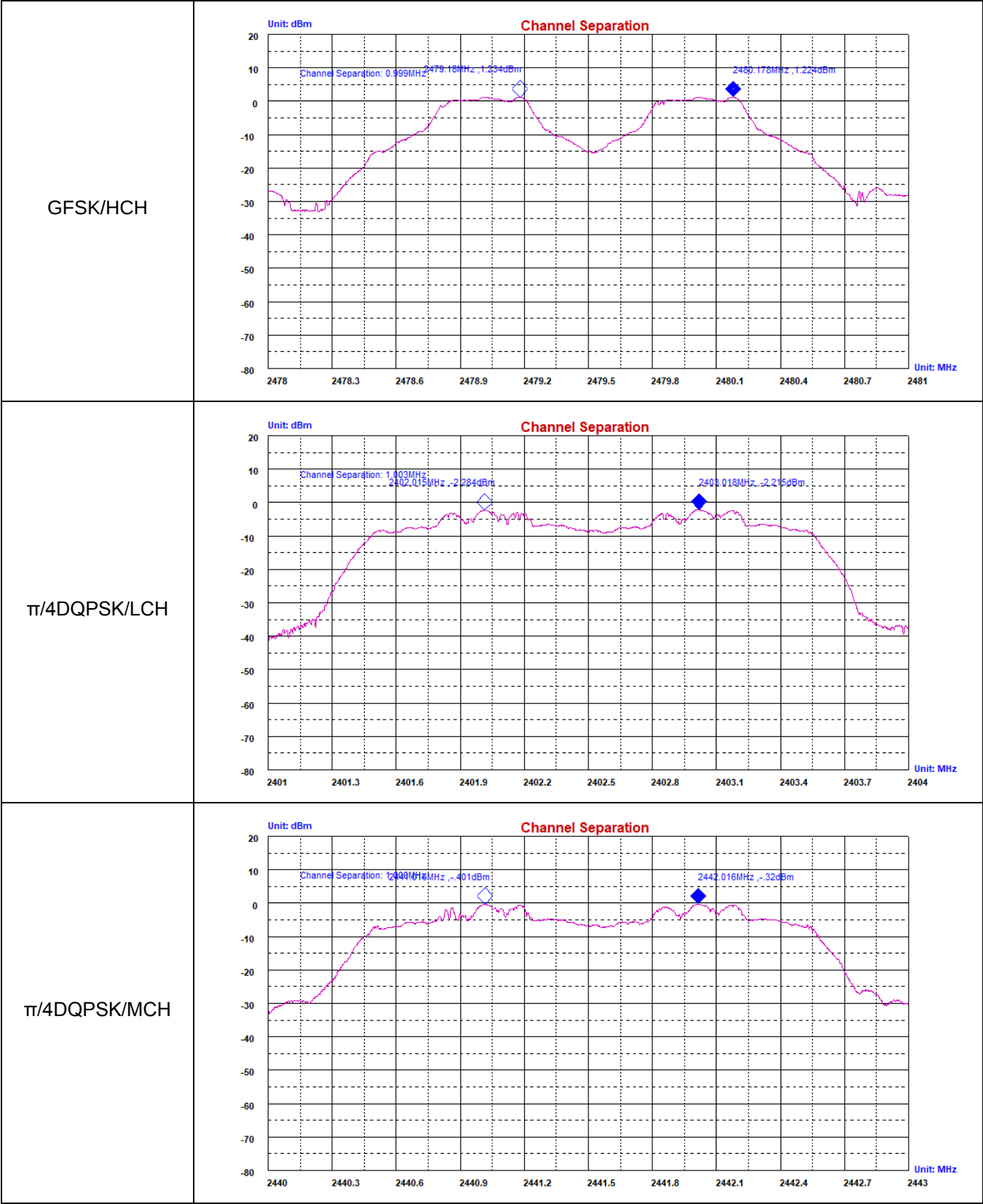


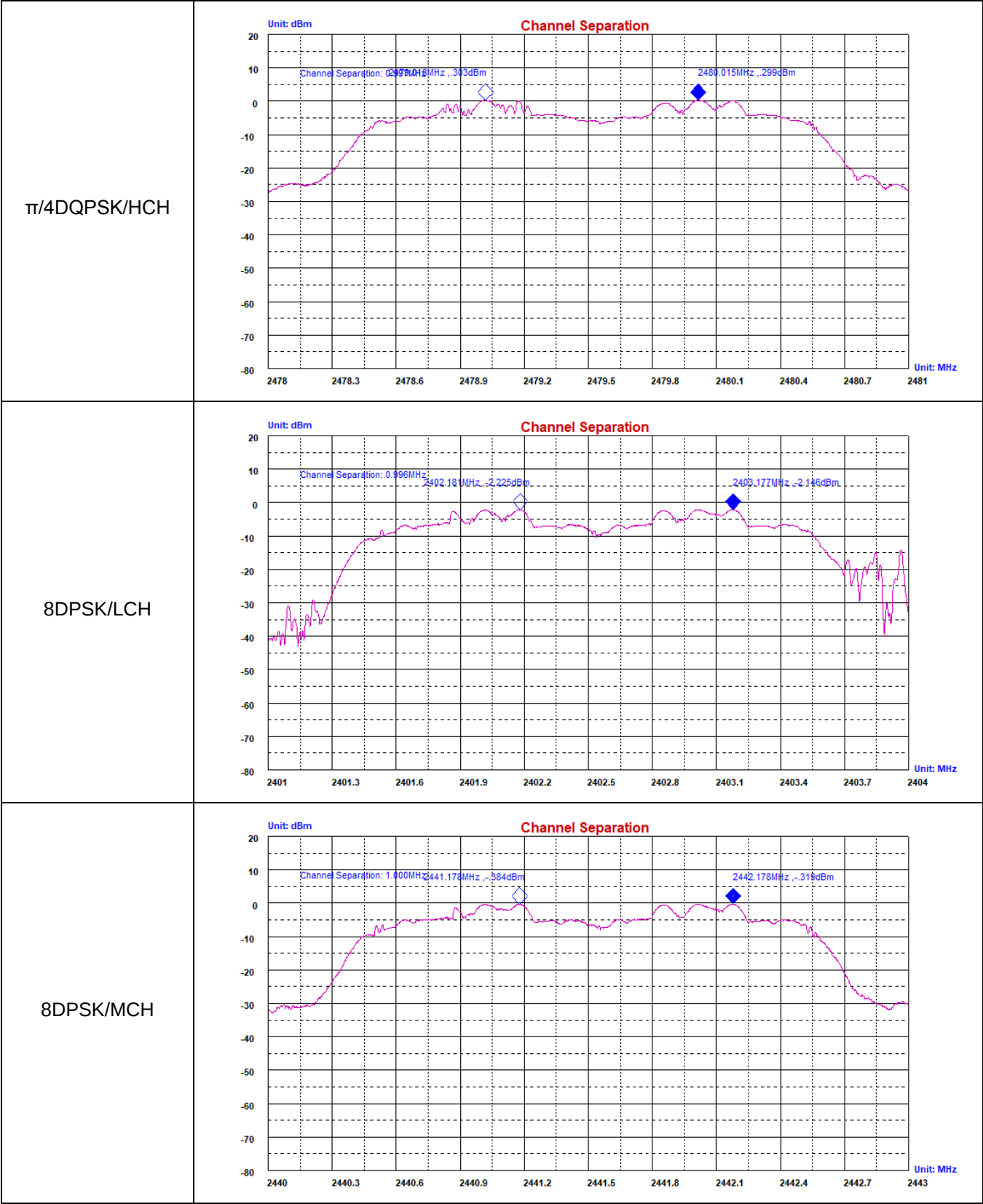
A.3 Carrier Frequency Separation

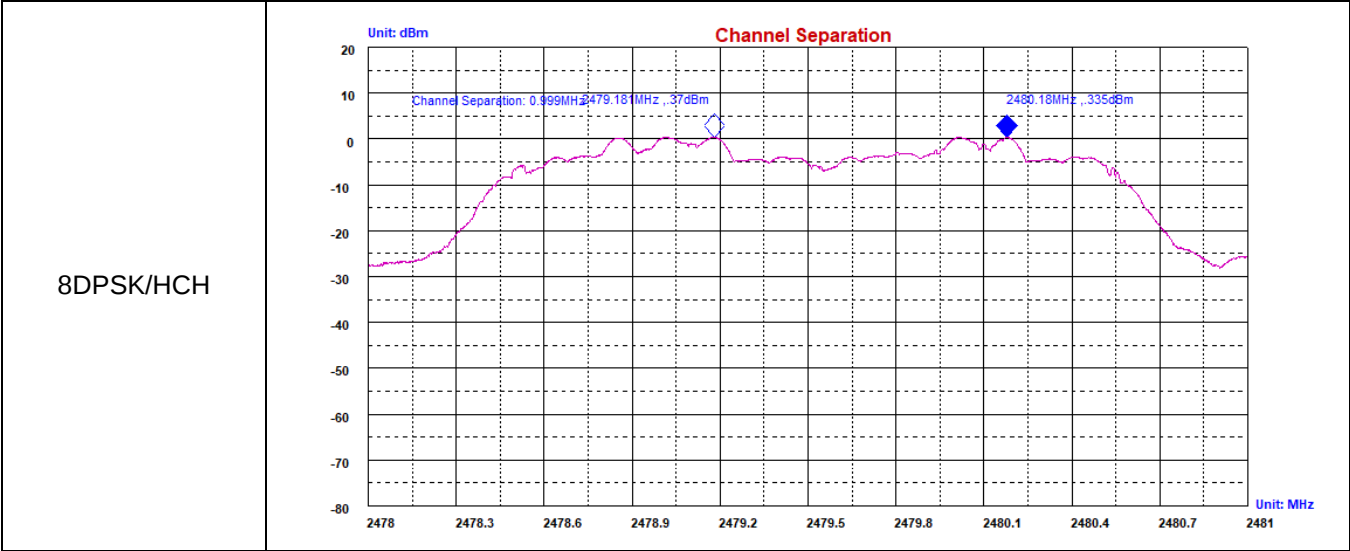
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.999	0.624	PASS
GFSK	MCH	1.001	0.531	PASS
GFSK	HCH	0.999	0.531	PASS
$\pi/4$ DQPSK	LCH	1.003	0.794	PASS
$\pi/4$ DQPSK	MCH	1.000	0.817	PASS
$\pi/4$ DQPSK	HCH	0.997	0.849	PASS
8DPSK	LCH	0.996	0.822	PASS
8DPSK	MCH	1.000	0.821	PASS
8DPSK	HCH	0.999	0.868	PASS

Test Graph





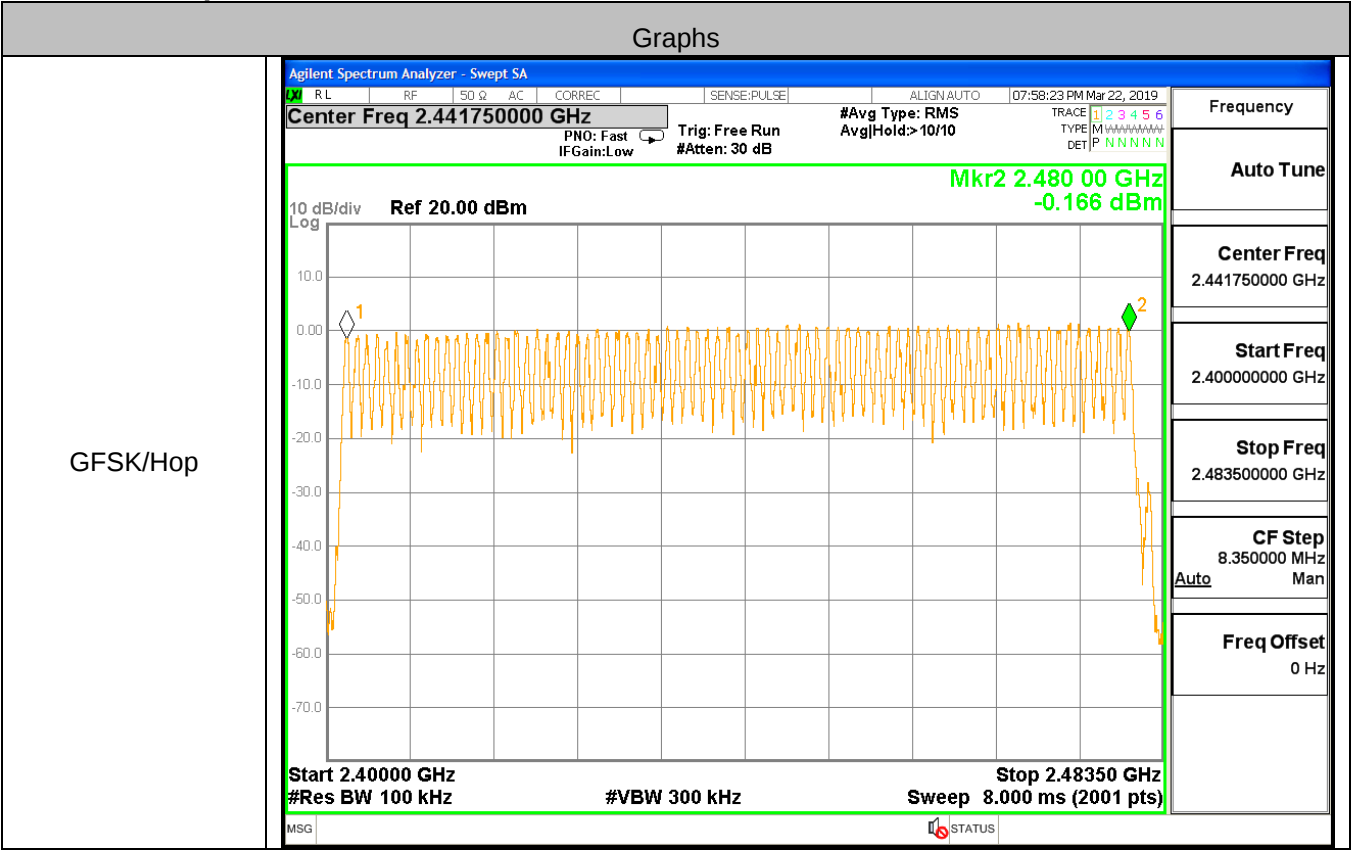


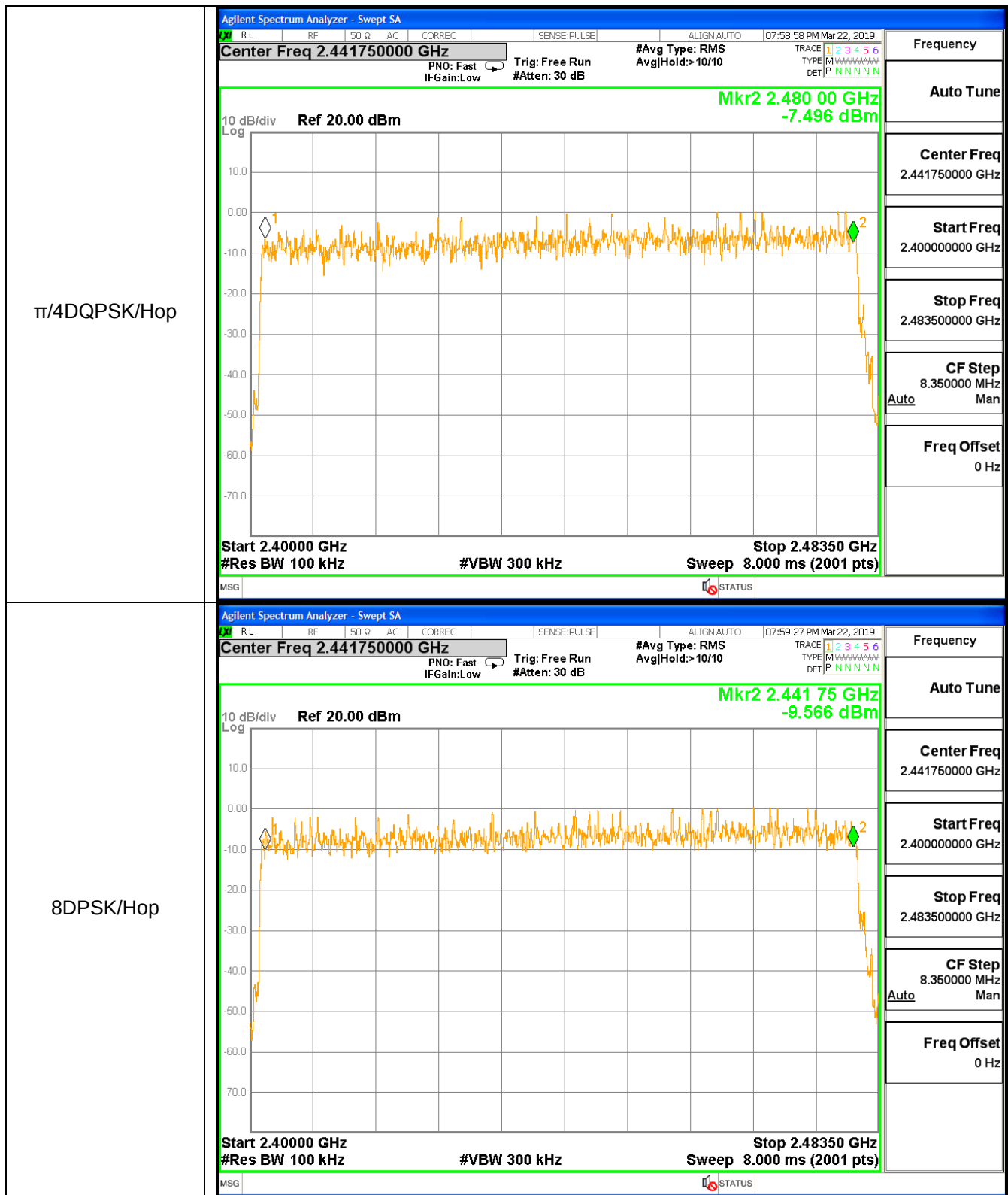


A.4 Hopping Channel Number

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

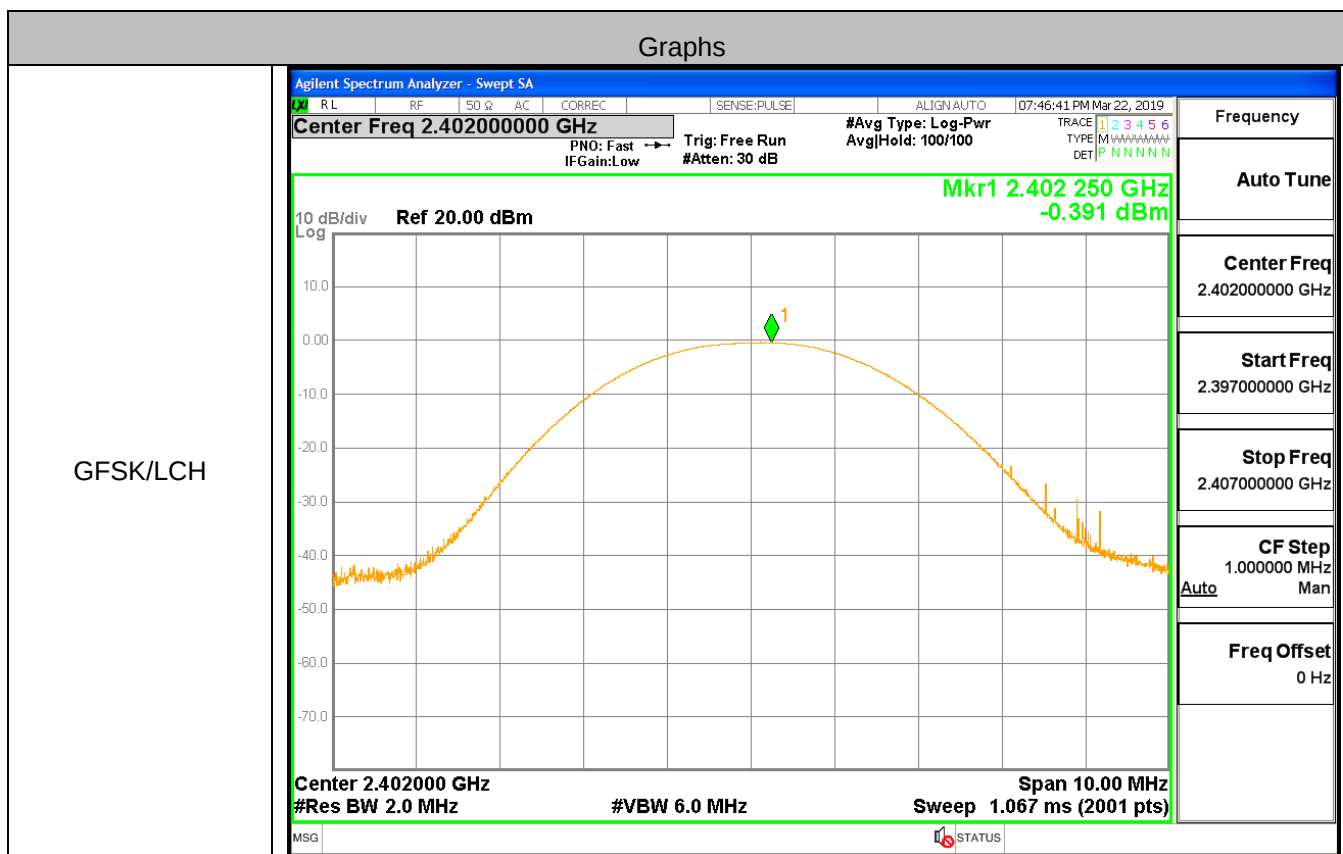


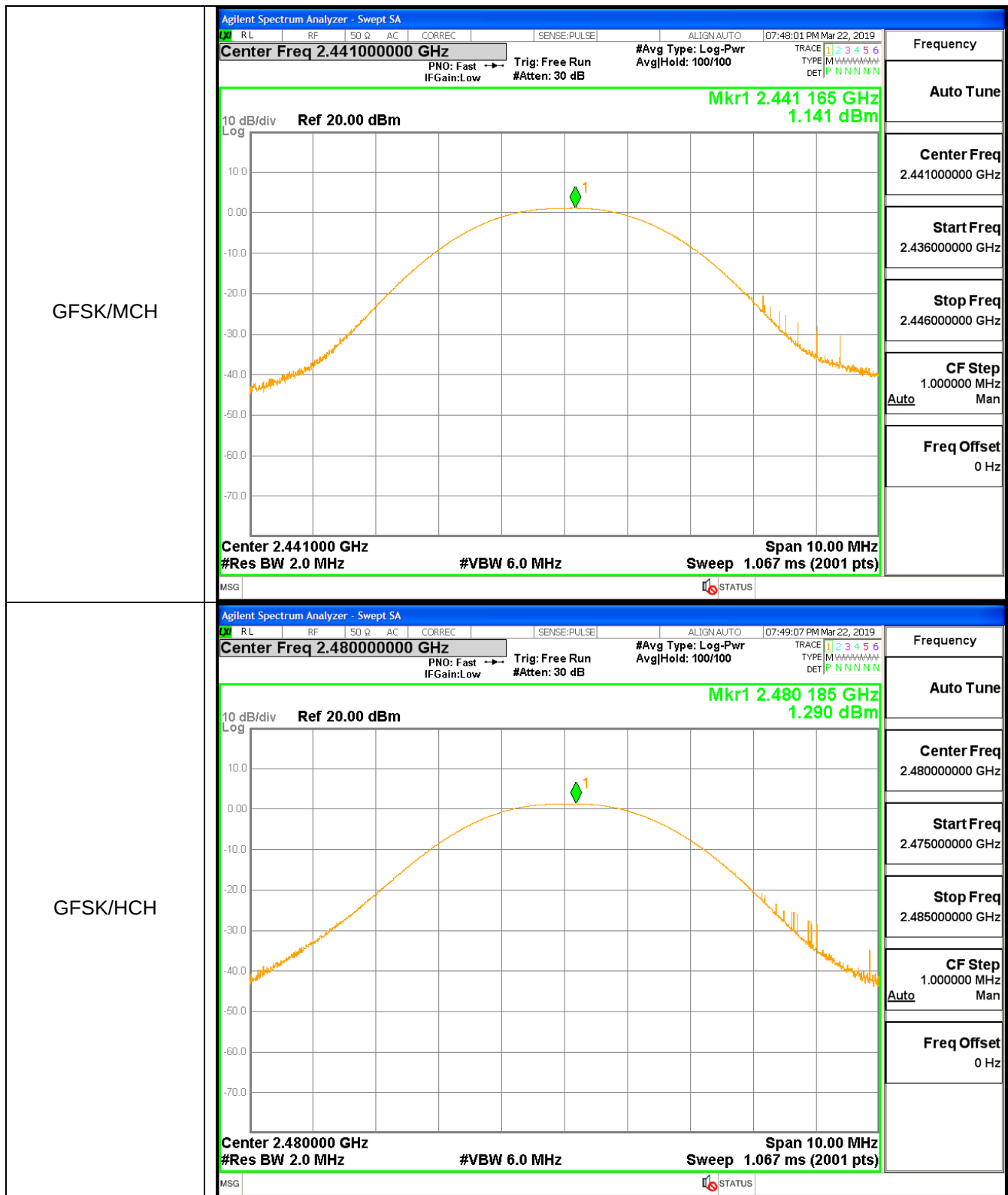


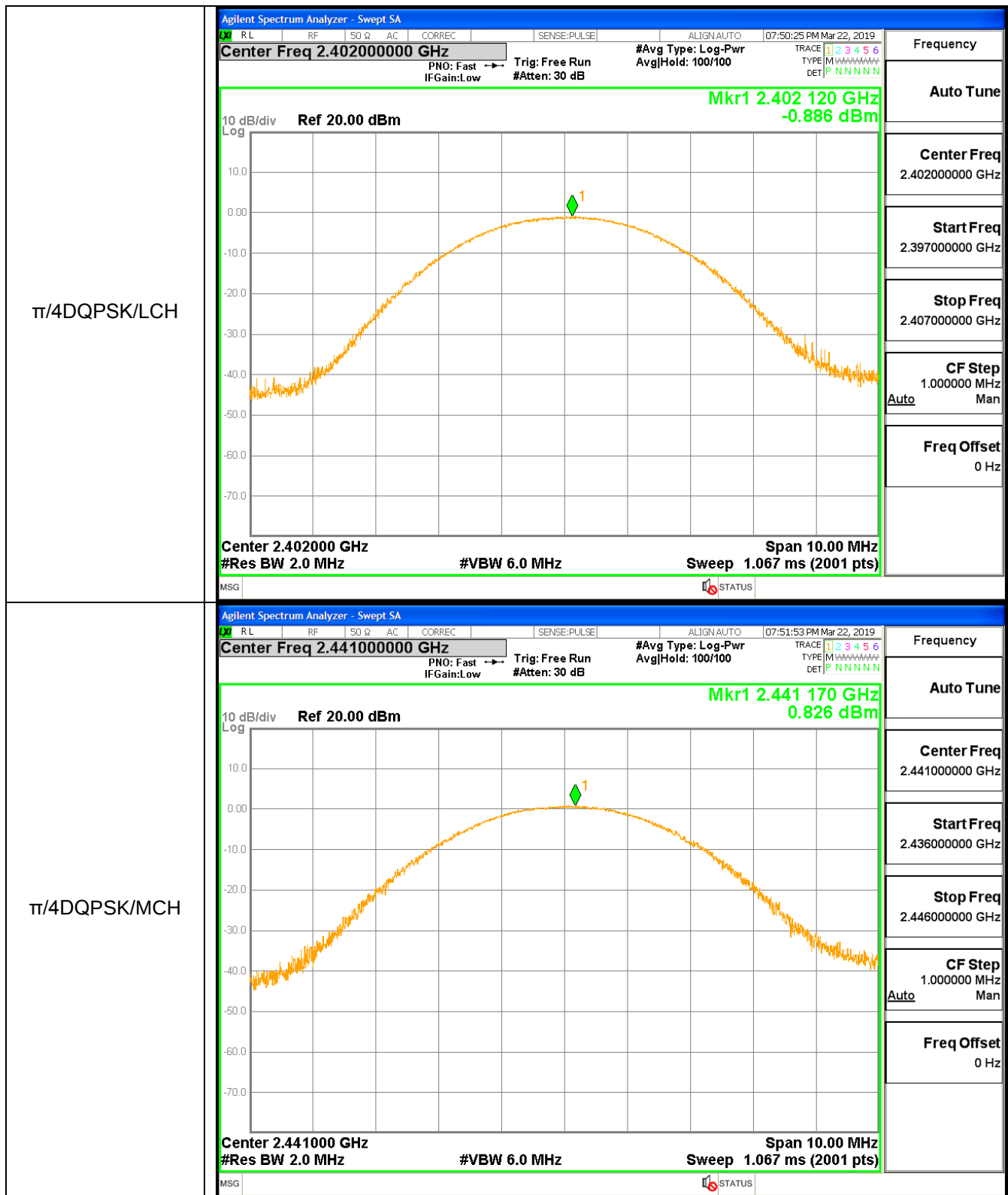
A.5 Conducted Peak Output Power

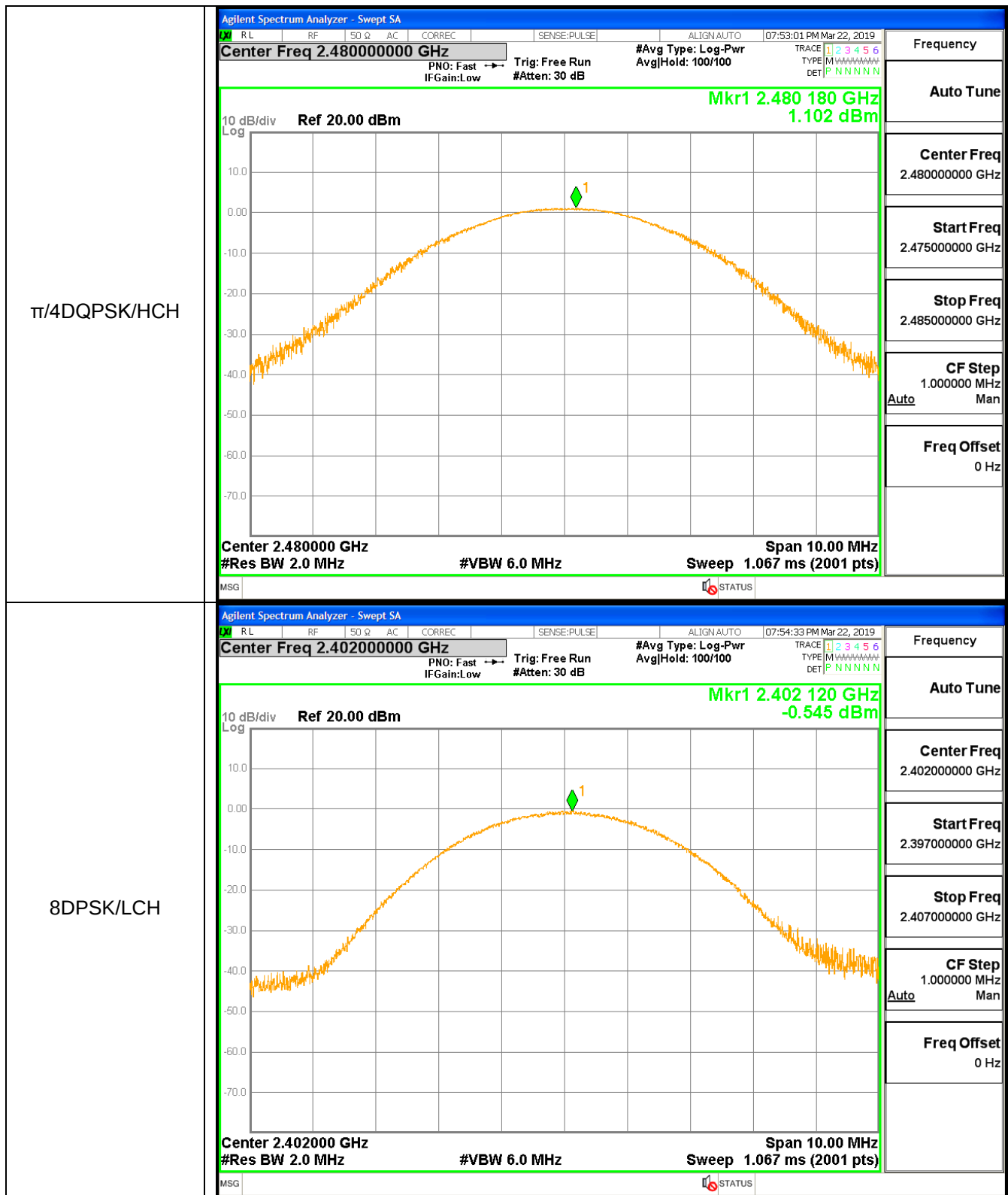
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.391	21	PASS
GFSK	MCH	1.141	21	PASS
GFSK	HCH	1.290	21	PASS
$\pi/4$ DQPSK	LCH	-0.886	21	PASS
$\pi/4$ DQPSK	MCH	0.826	21	PASS
$\pi/4$ DQPSK	HCH	1.102	21	PASS
8DPSK	LCH	-0.545	21	PASS
8DPSK	MCH	1.119	21	PASS
8DPSK	HCH	1.285	21	PASS

Test Graph









Frequency

Auto Tune

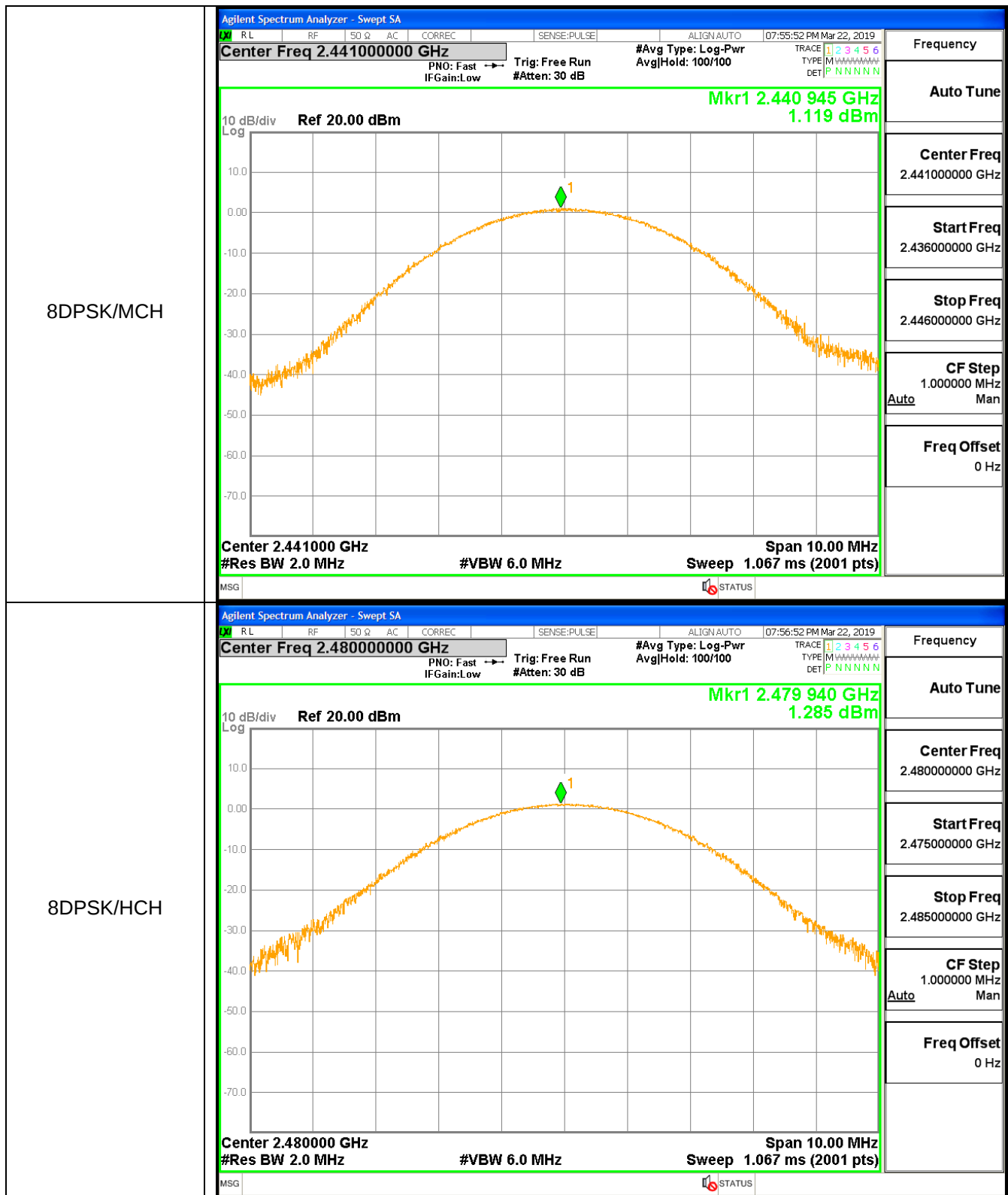
Center Freq
2.480000000 GHz

Start Freq
2.475000000 GHz

Stop Freq
2.485000000 GHz

CF Step
1.000000 MHz
Auto Man

Freq Offset
0 Hz



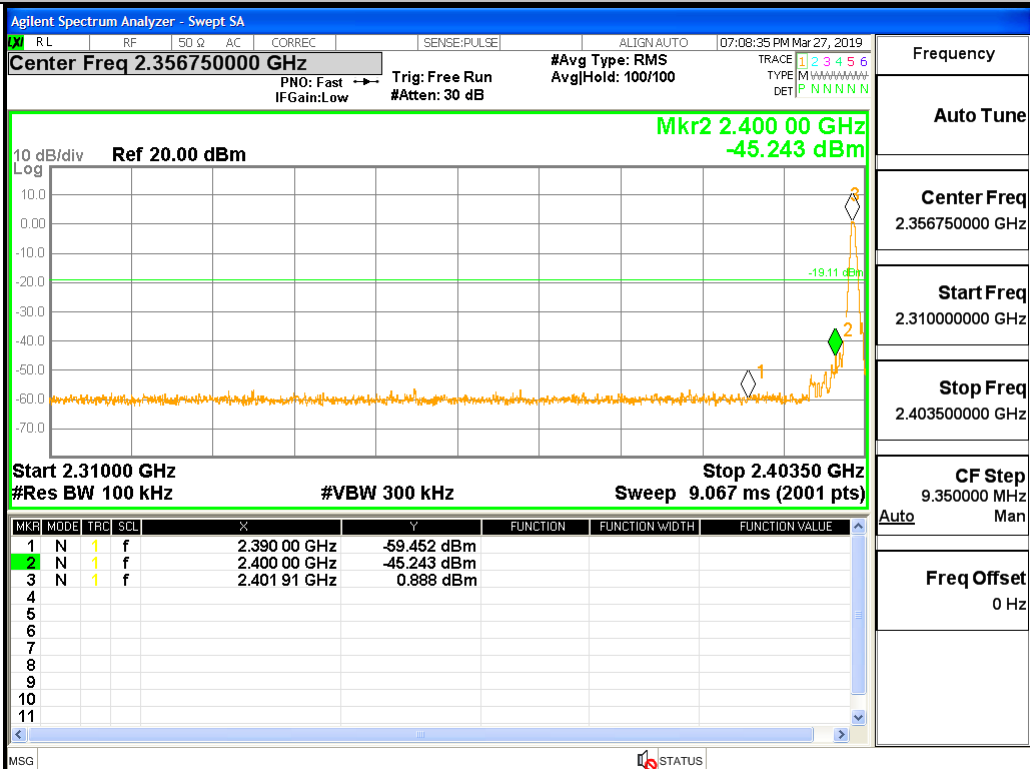
A.6 Band-edge for RF Conducted Emissions

Type	Carrier Frequency(MHz)	Frequency(MHz)	Carrier Frequency Power [dBm]	Bandedge Peak(dBm)	Upper limit(dBm)	Conclusion
1DH5	2402	2390	0.888	-59.45	-19.112	Pass
1DH5	2402	2400	0.888	-45.24	-19.112	Pass
1DH5-Hopping	2402	2390	2.147	-58.51	-17.853	Pass
1DH5-Hopping	2402	2400	2.147	-56.00	-17.853	Pass
1DH5	2480	2483.5	2.897	-50.51	-17.103	Pass
1DH5	2480	2500	2.897	-61.44	-17.103	Pass
1DH5-Hopping	2480	2483.5	2.839	-52.08	-17.161	Pass
1DH5-Hopping	2480	2500	2.839	-59.46	-17.161	Pass
2DH5	2402	2390	-0.68	-60.39	-20.68	Pass
2DH5	2402	2400	-0.68	-52.94	-20.68	Pass
2DH5-Hopping	2480	2483.5	1.889	-51.41	-18.111	Pass
2DH5-Hopping	2480	2500	1.889	-56.94	-18.111	Pass
2DH5	2480	2483.5	1.923	-47.83	-18.077	Pass
2DH5	2480	2500	1.923	-59.36	-18.077	Pass
2DH5-Hopping	2402	2390	0.342	-58.20	-19.658	Pass
2DH5-Hopping	2402	2400	0.342	-53.32	-19.658	Pass
3DH5	2402	2390	-0.721	-59.67	-20.721	Pass
3DH5	2402	2400	-0.721	-53.07	-20.721	Pass
3DH5-Hopping	2402	2390	0.589	-57.59	-19.411	Pass
3DH5-Hopping	2402	2400	0.589	-55.48	-19.411	Pass
3DH5	2480	2483.5	1.917	-45.30	-18.083	Pass
3DH5	2480	2500	1.917	-60.91	-18.083	Pass
3DH5-Hopping	2480	2483.5	1.945	-50.31	-18.055	Pass
3DH5-Hopping	2480	2500	1.945	-57.39	-18.055	Pass

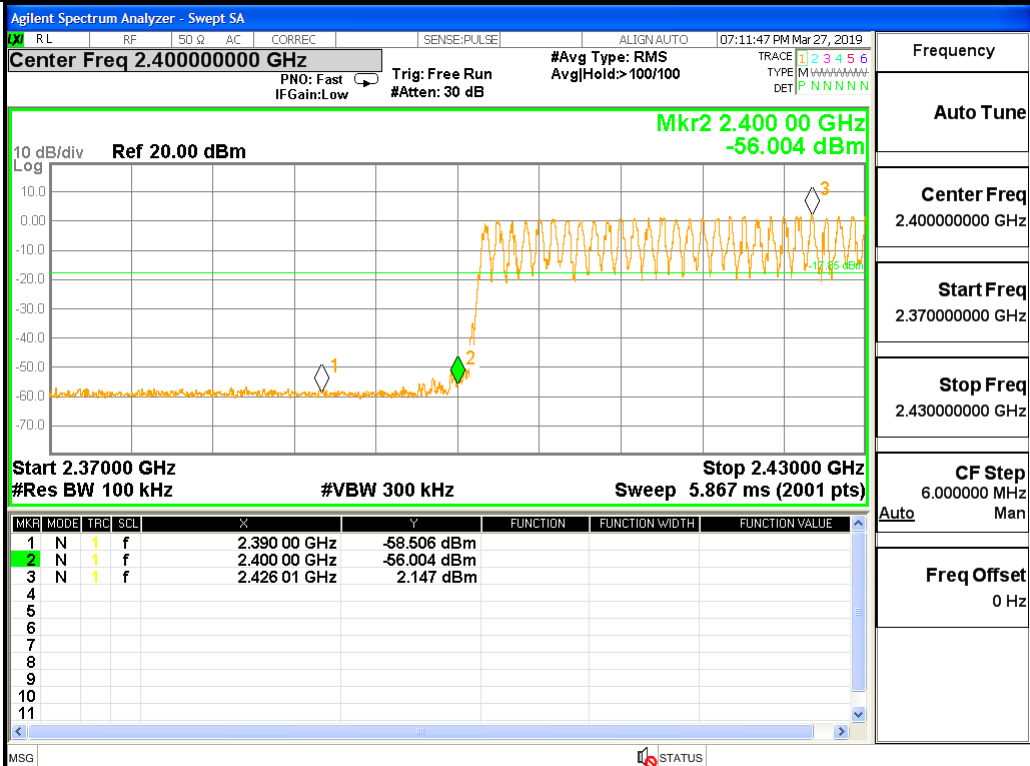
Test Graph

Graphs

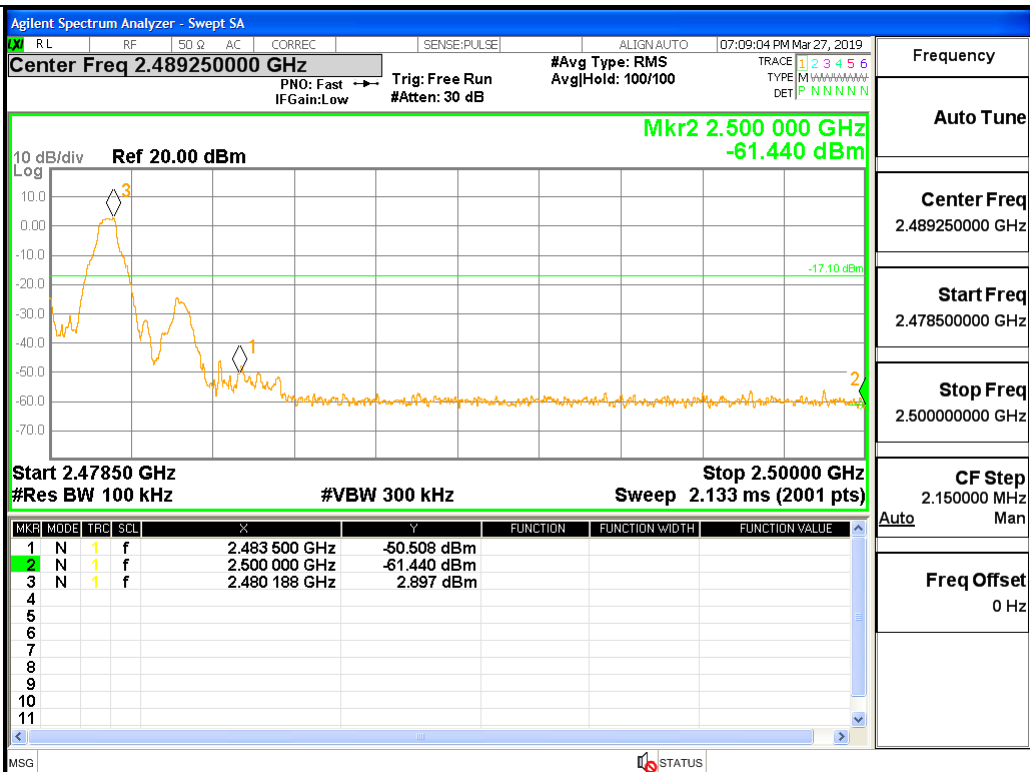
GFSK/LCH/No Hop



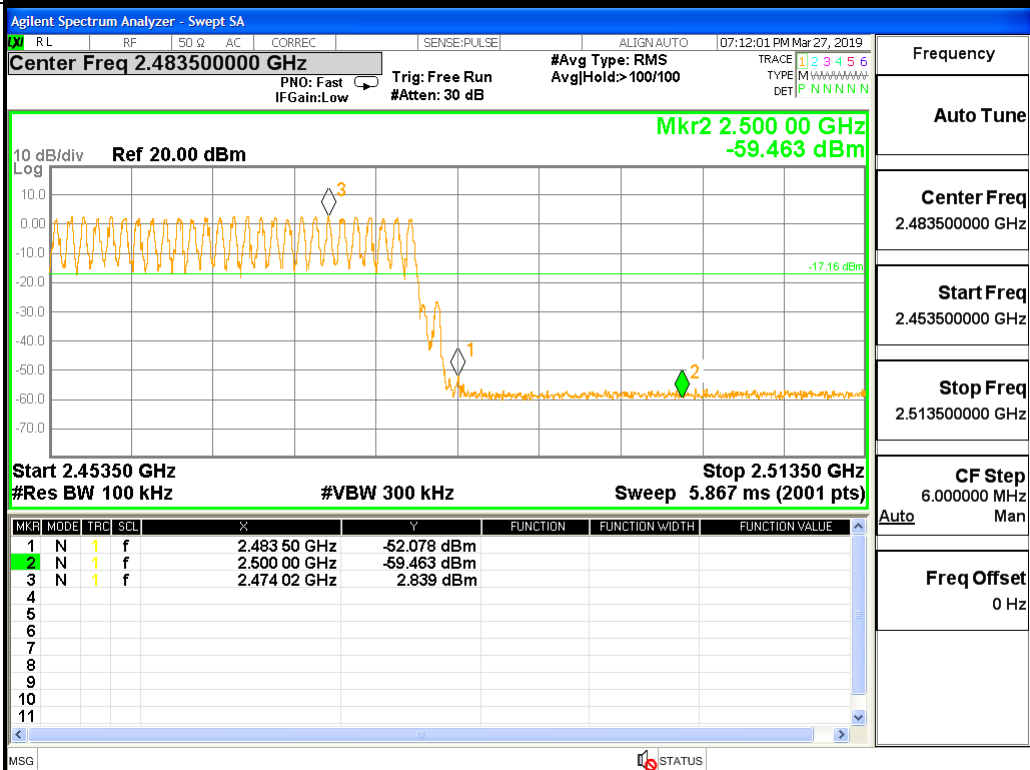
GFSK/LCH/Hop



GFSK/HCH/No Hop

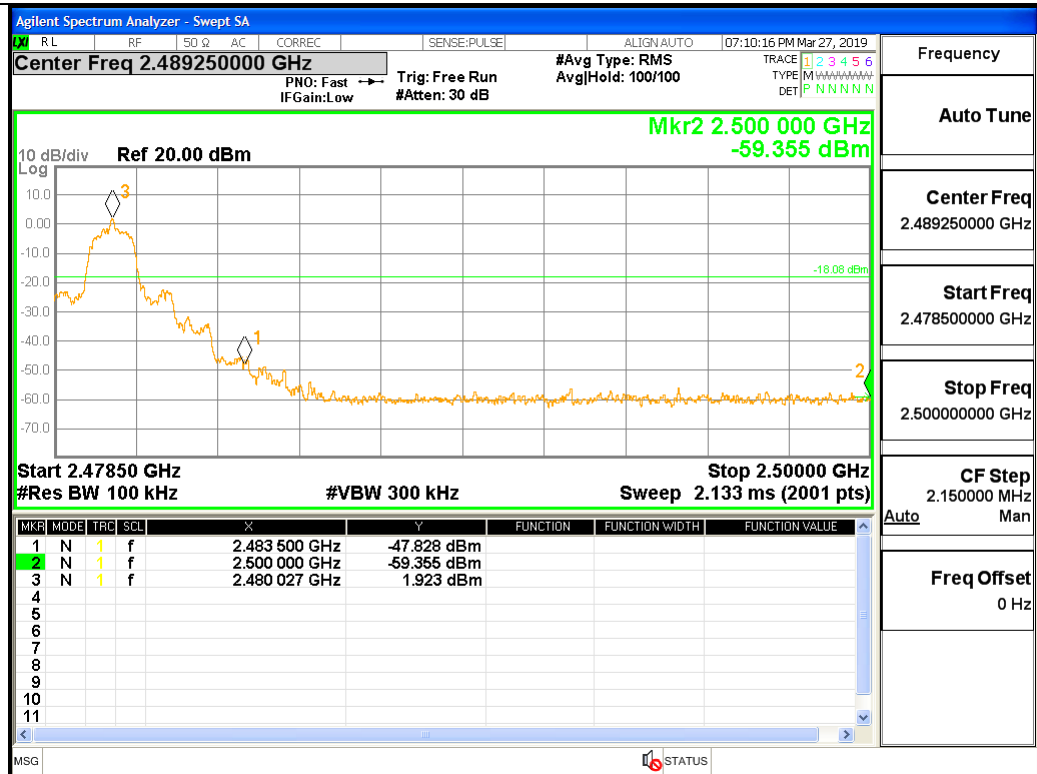


GFSK/HCH/Hop

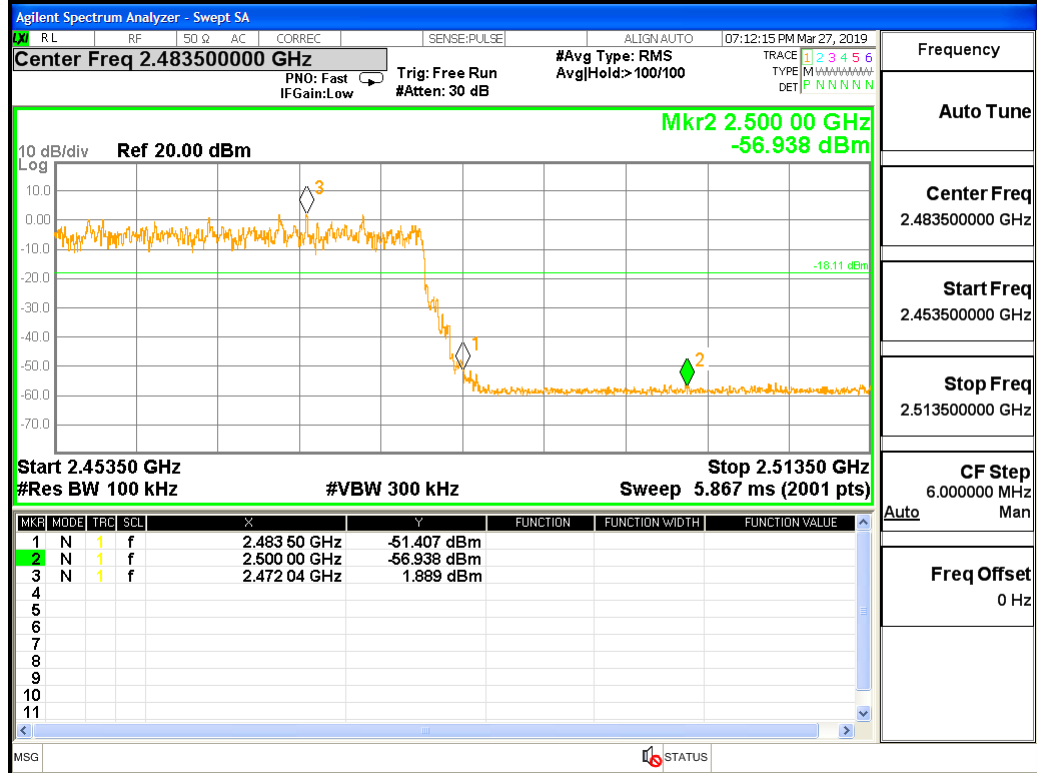




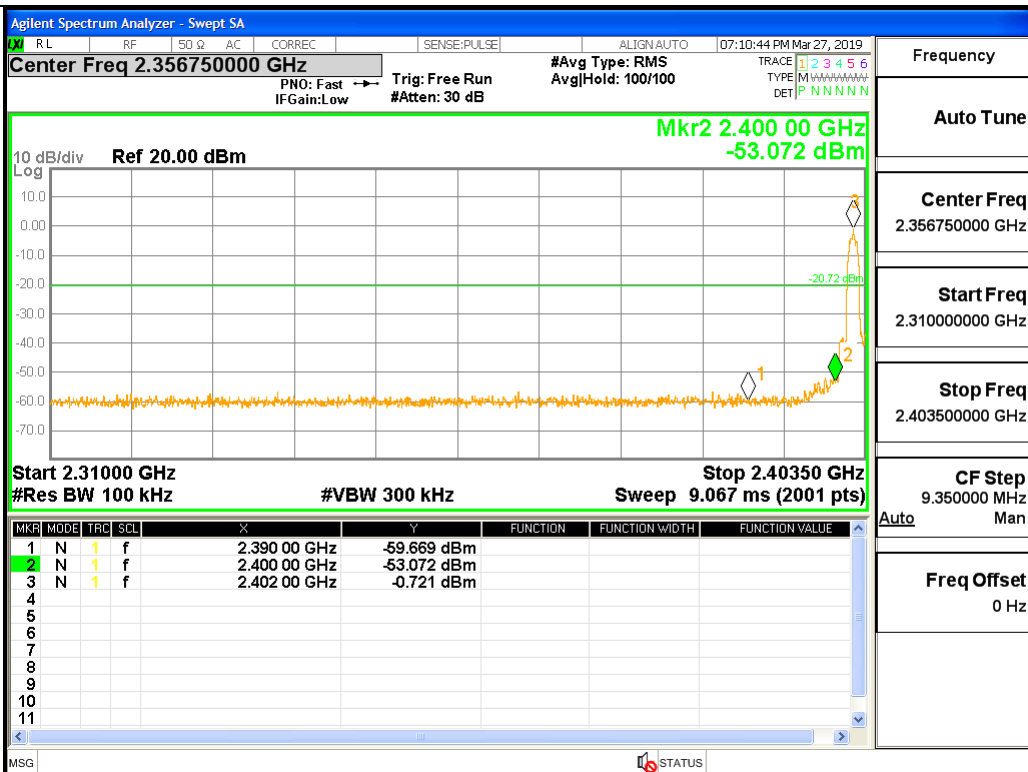
$\pi/4$ DQPSK/HCH/No
Hop



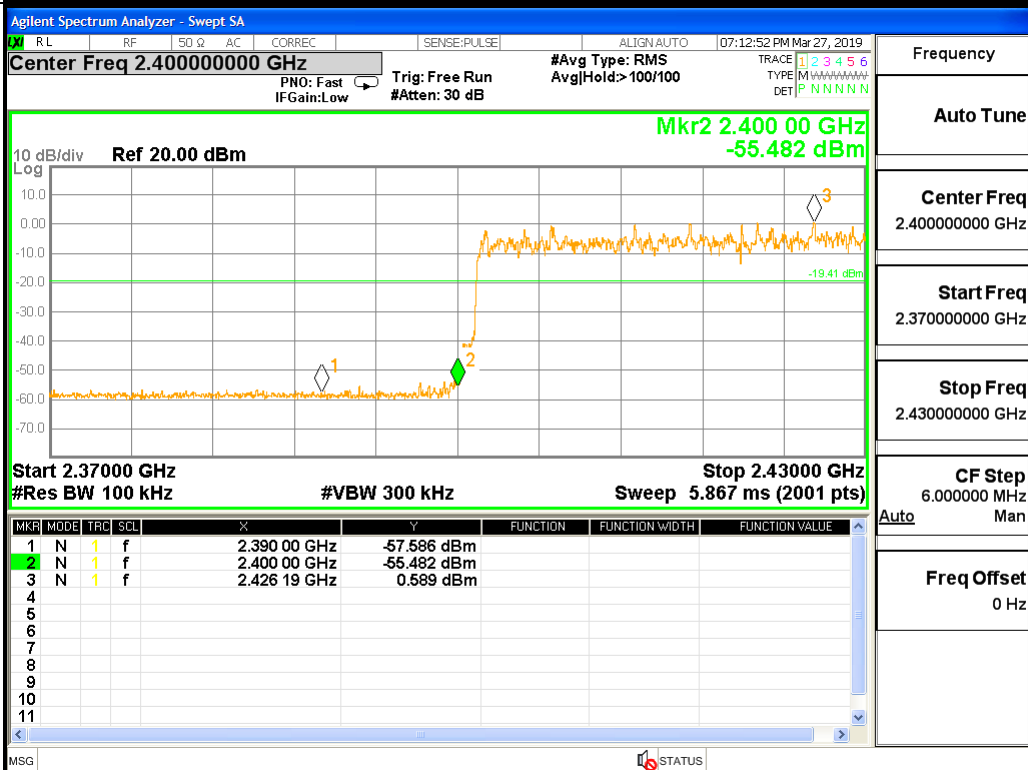
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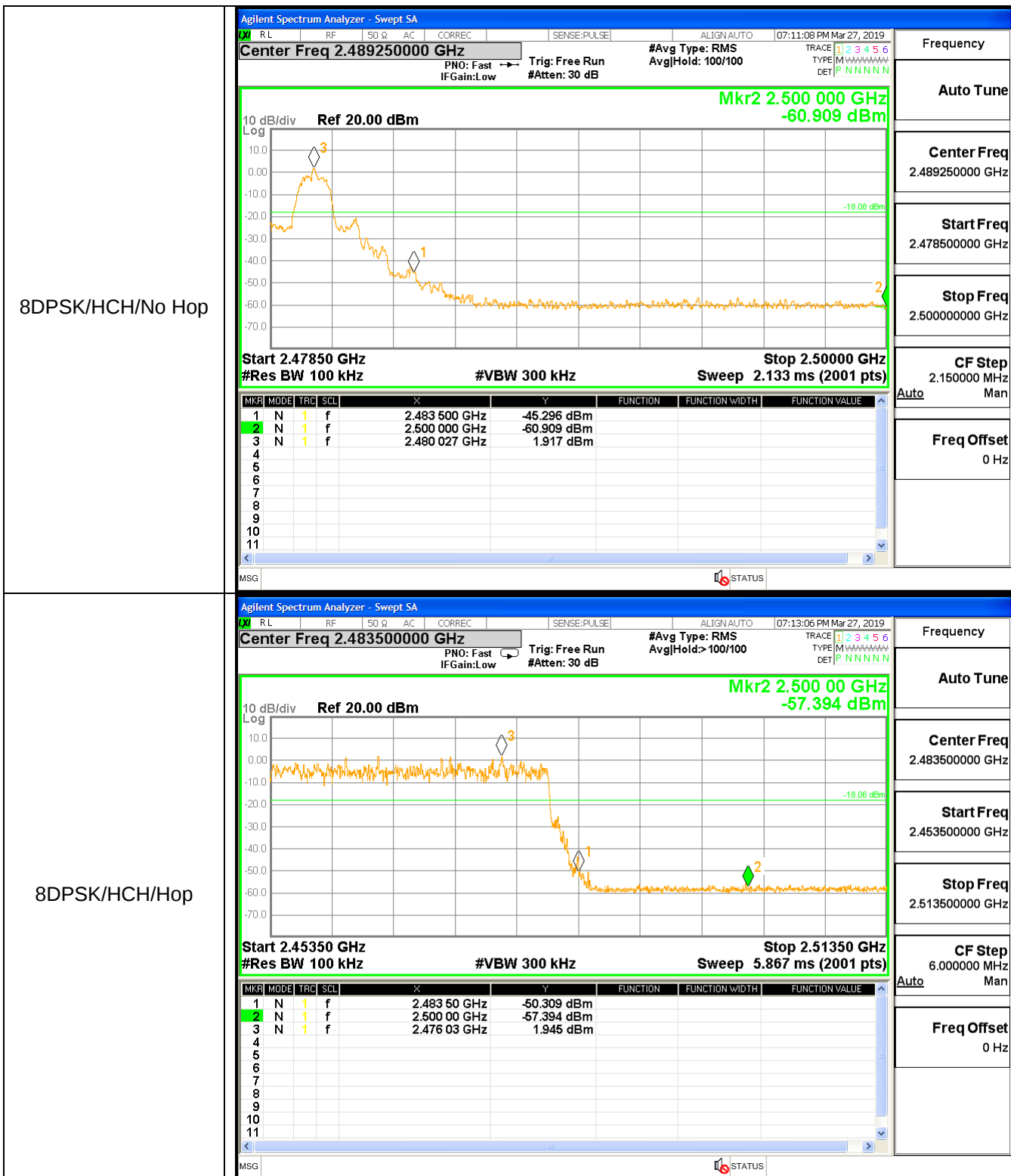


8DPSK/LCH/No Hop

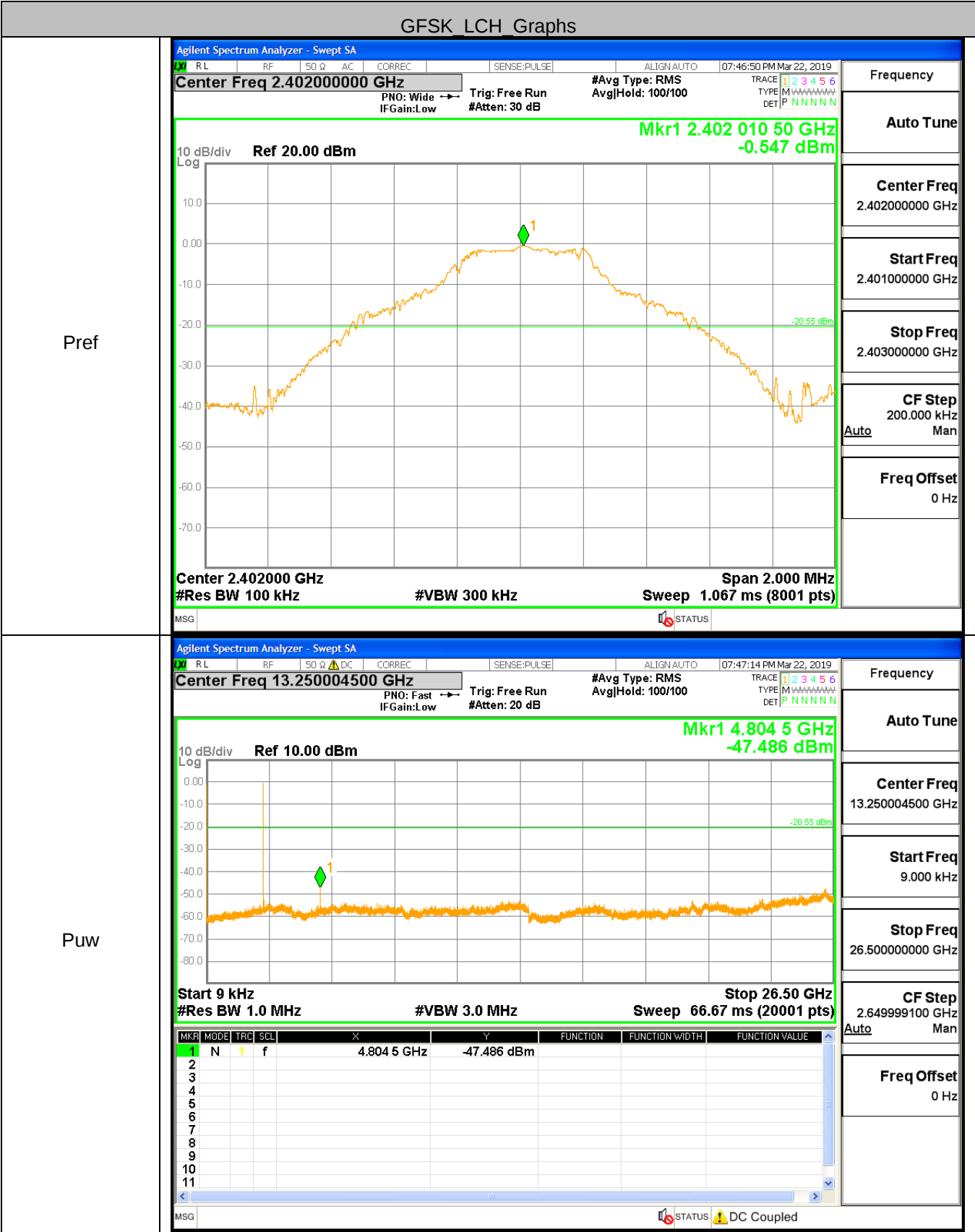


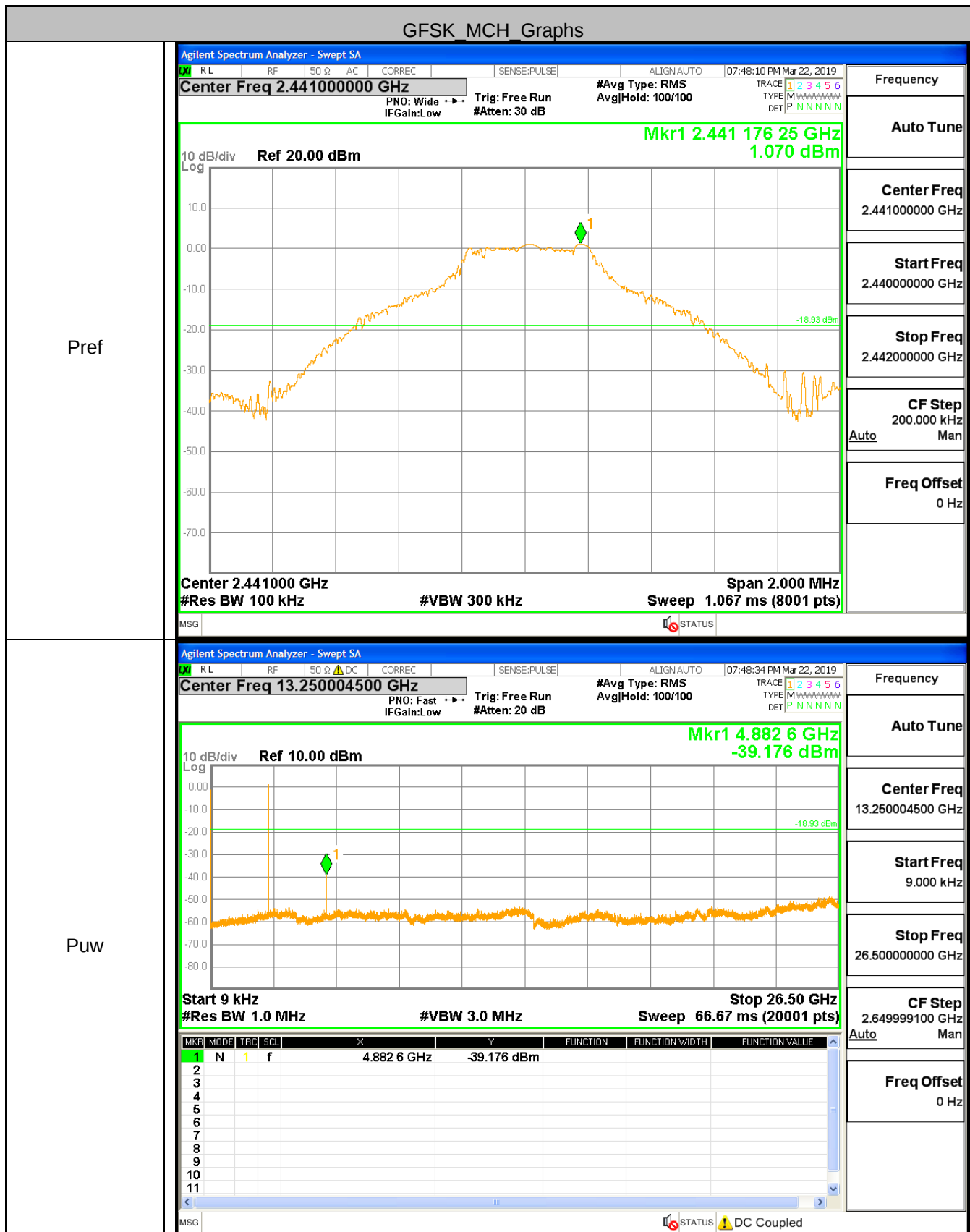
8DPSK/LCH/Hop





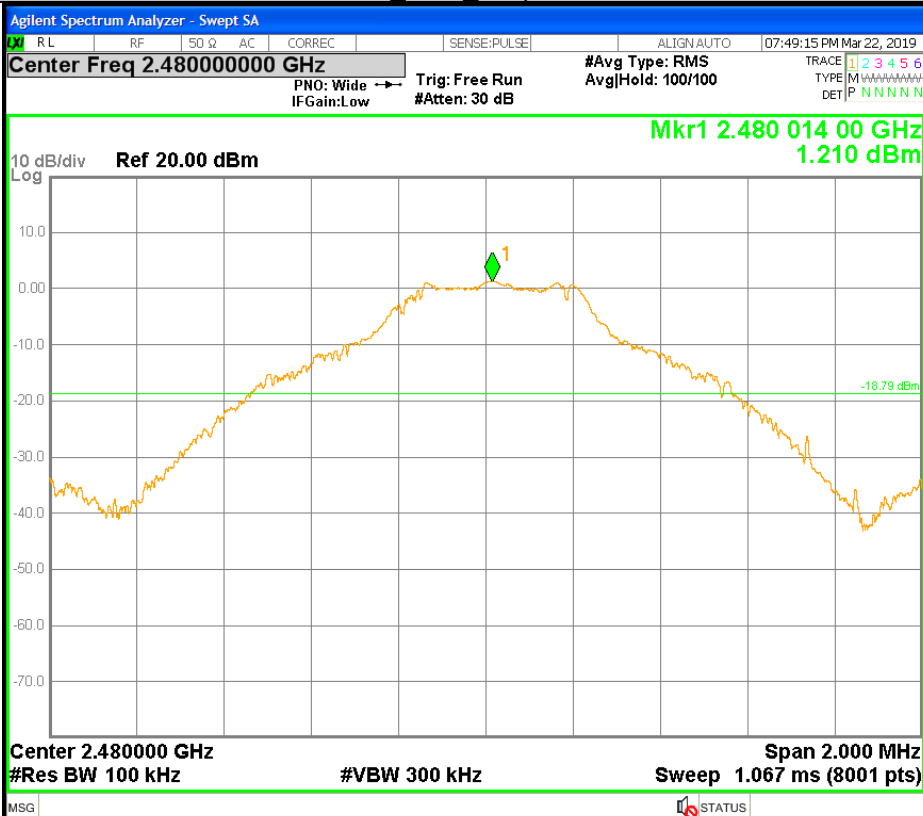
A.7 RF Conducted Spurious Emissions
Test Graph



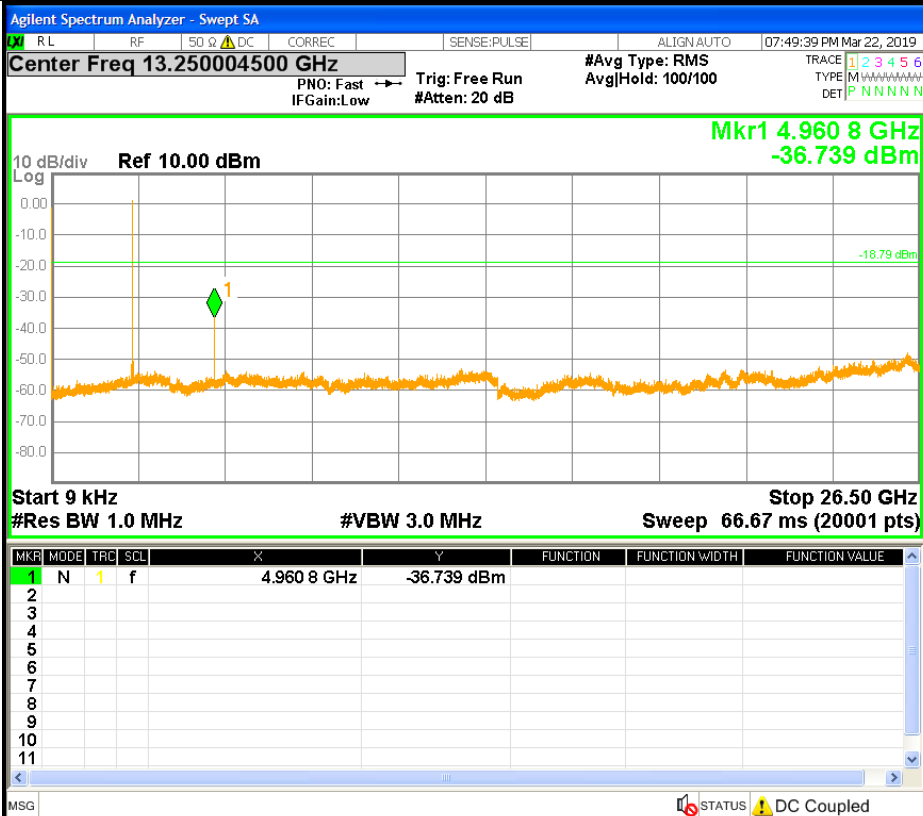


GFSK HCH Graphs

Pref

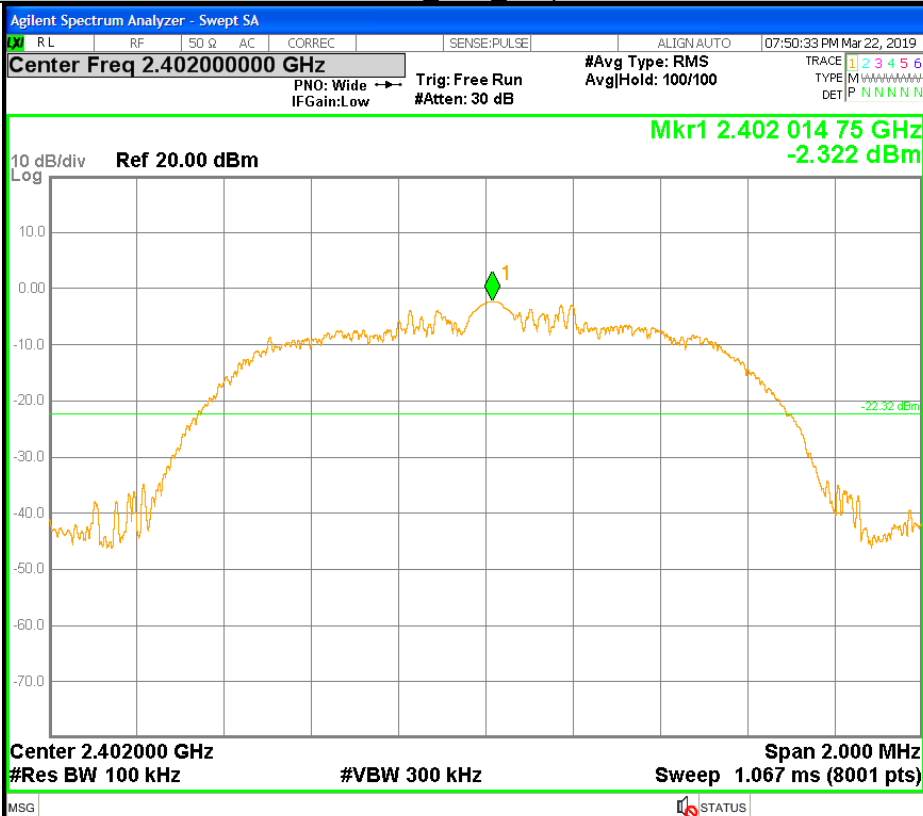


Puw

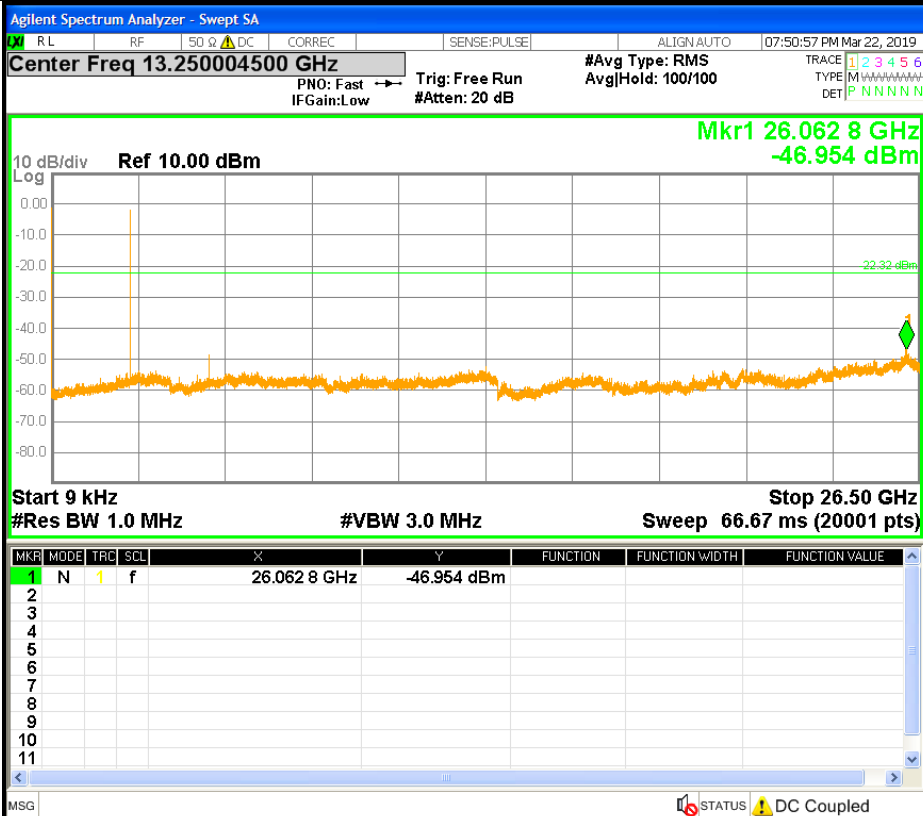


$\pi/4$ DQPSK LCH Graphs

Pref

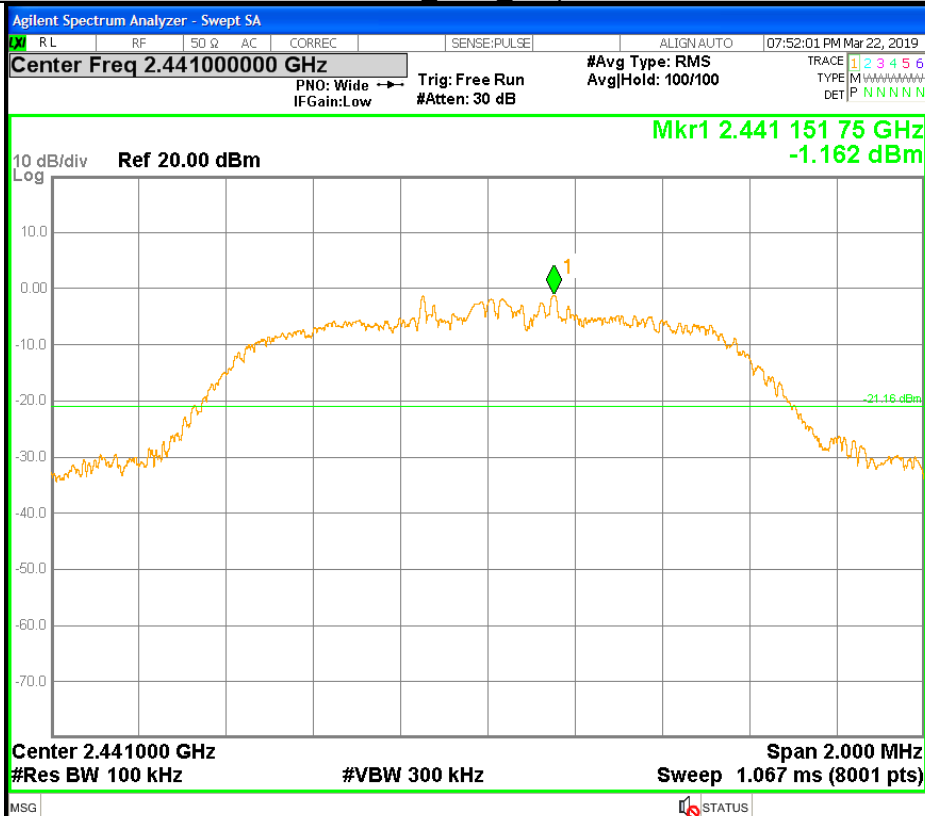


Puw

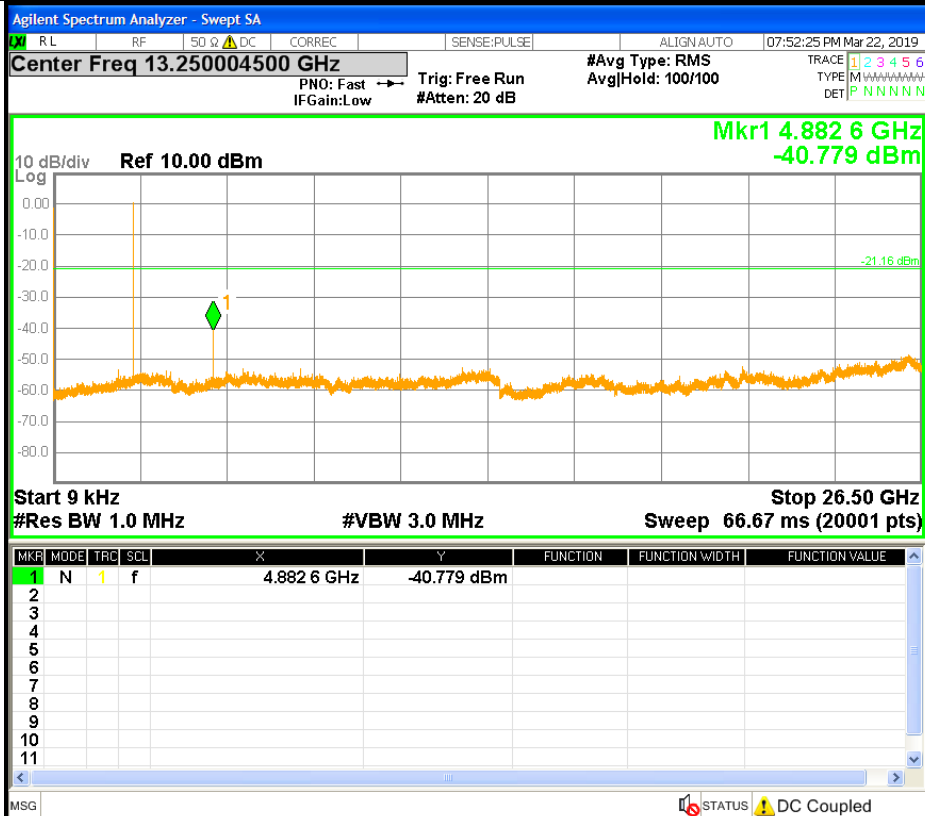


$\pi/4$ DQPSK MCH Graphs

Pref

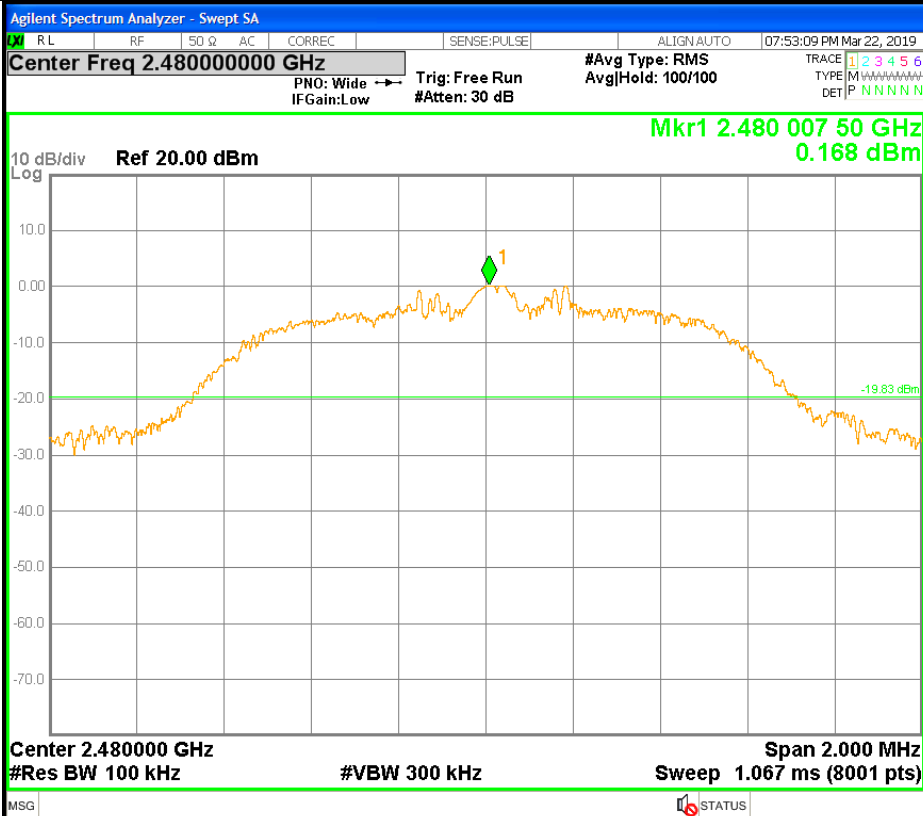


Puw

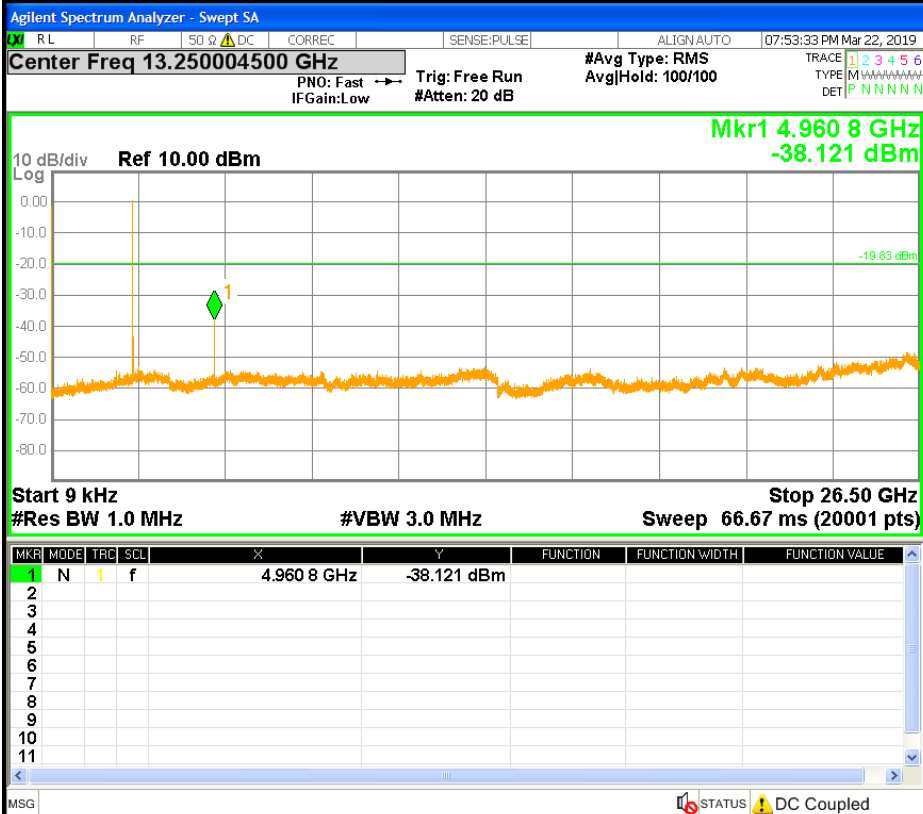


$\pi/4$ DQPSK HCH Graphs

Pref

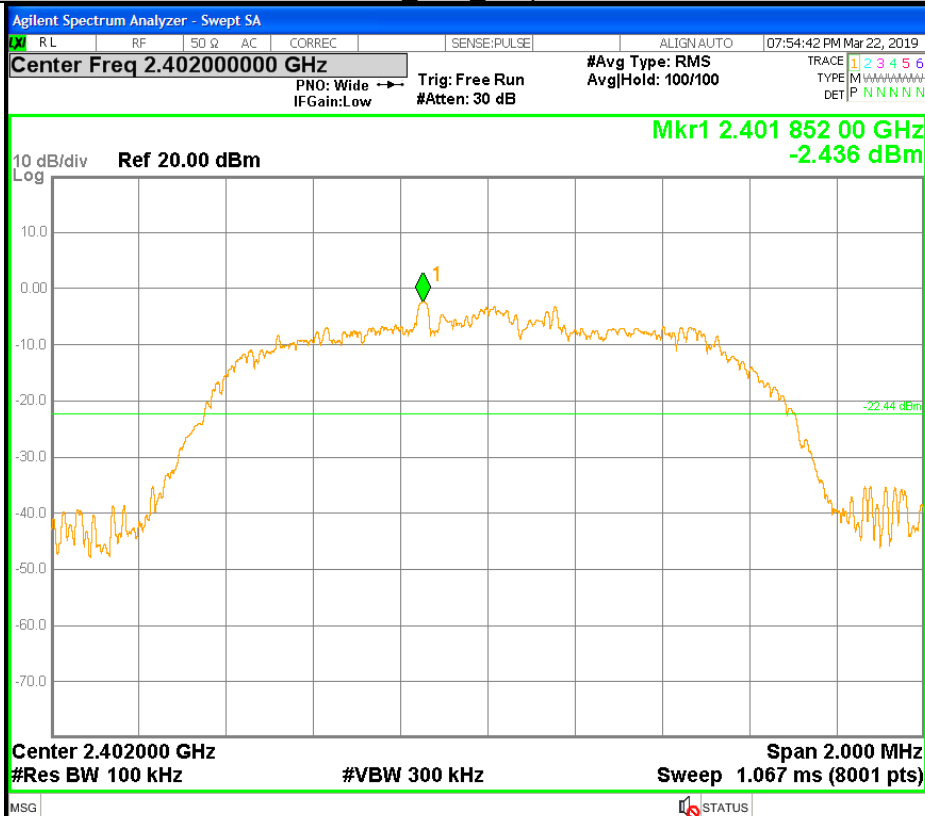


Puw

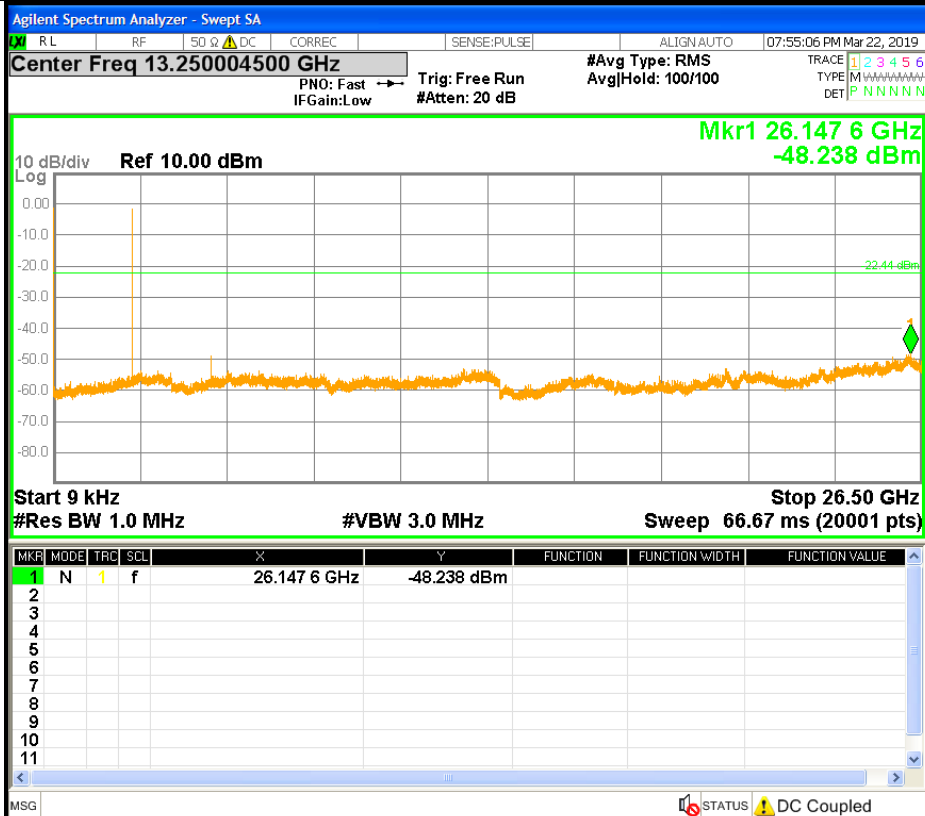


8DPSK LCH Graphs

Pref

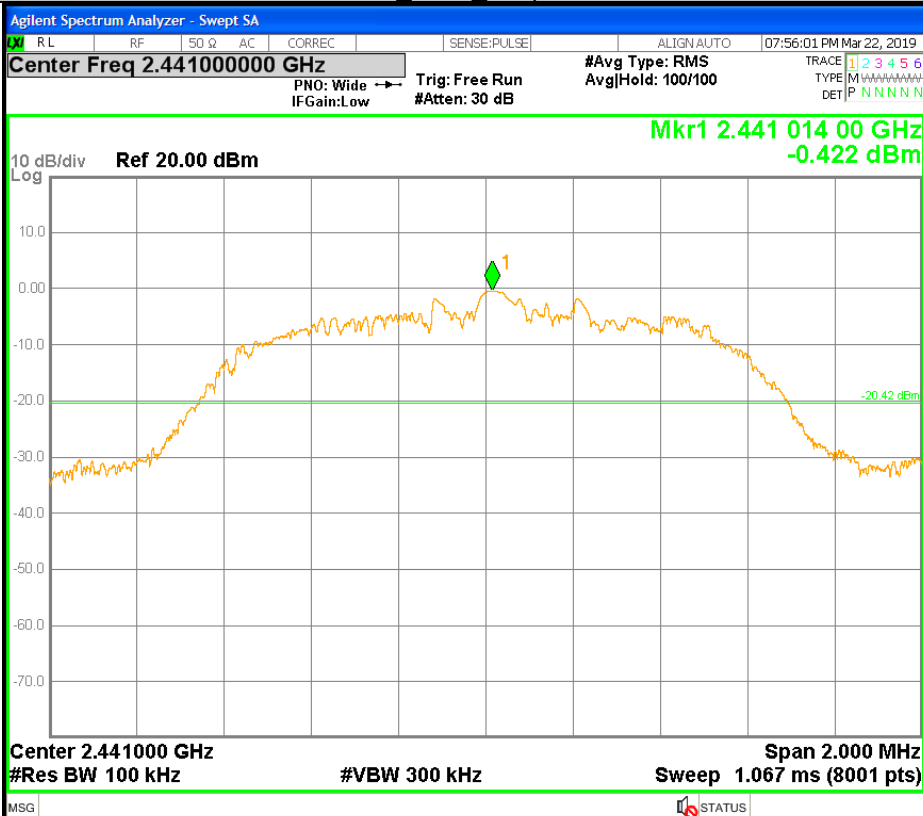


Puw

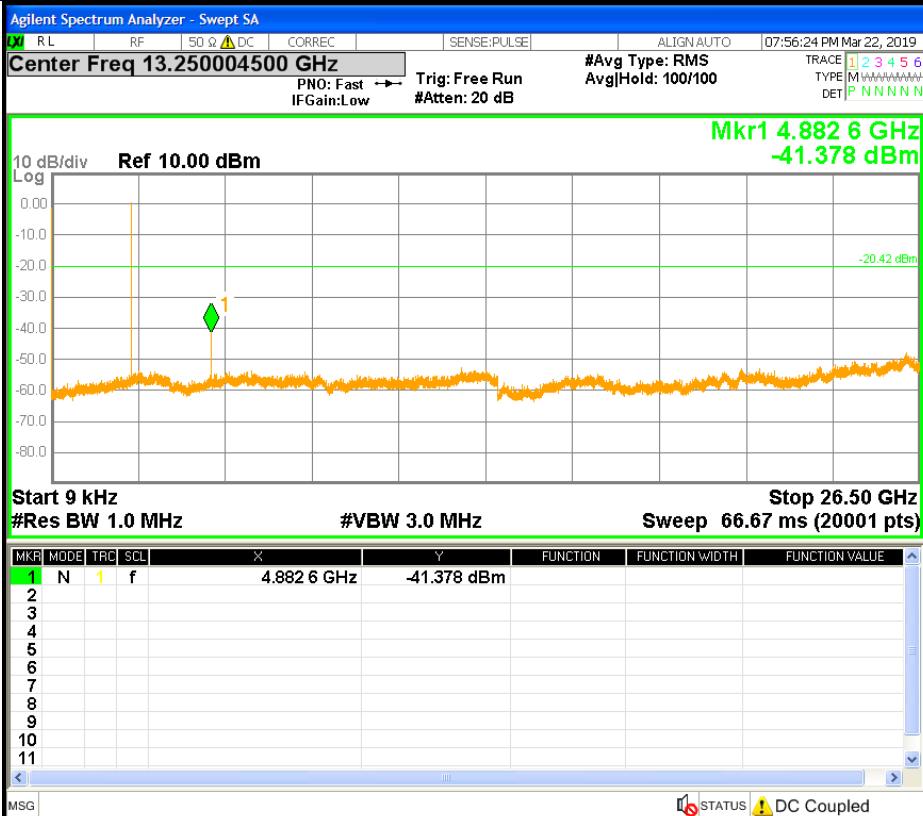


8DPSK MCH Graphs

Pref

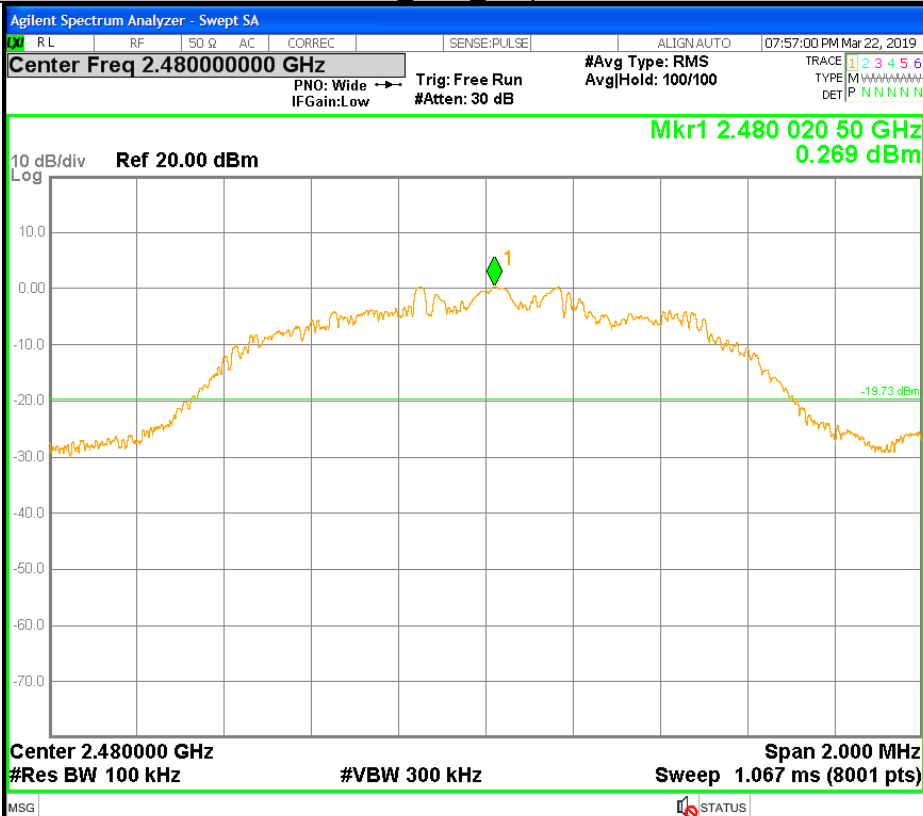


Puw

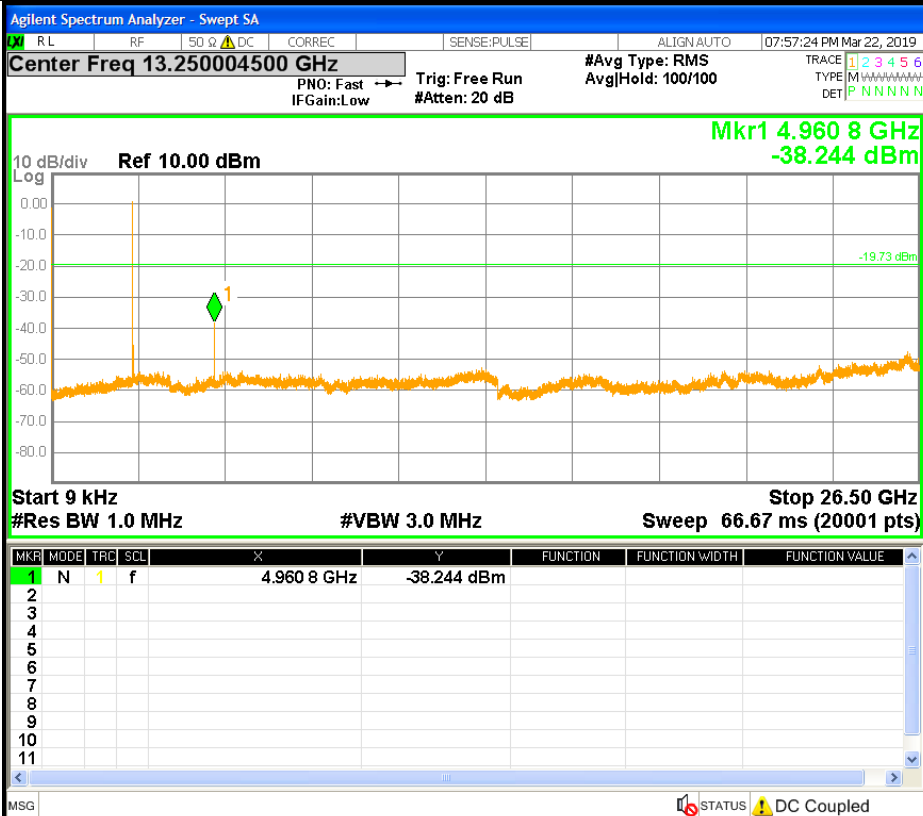


8DPSK HCH Graphs

Pref

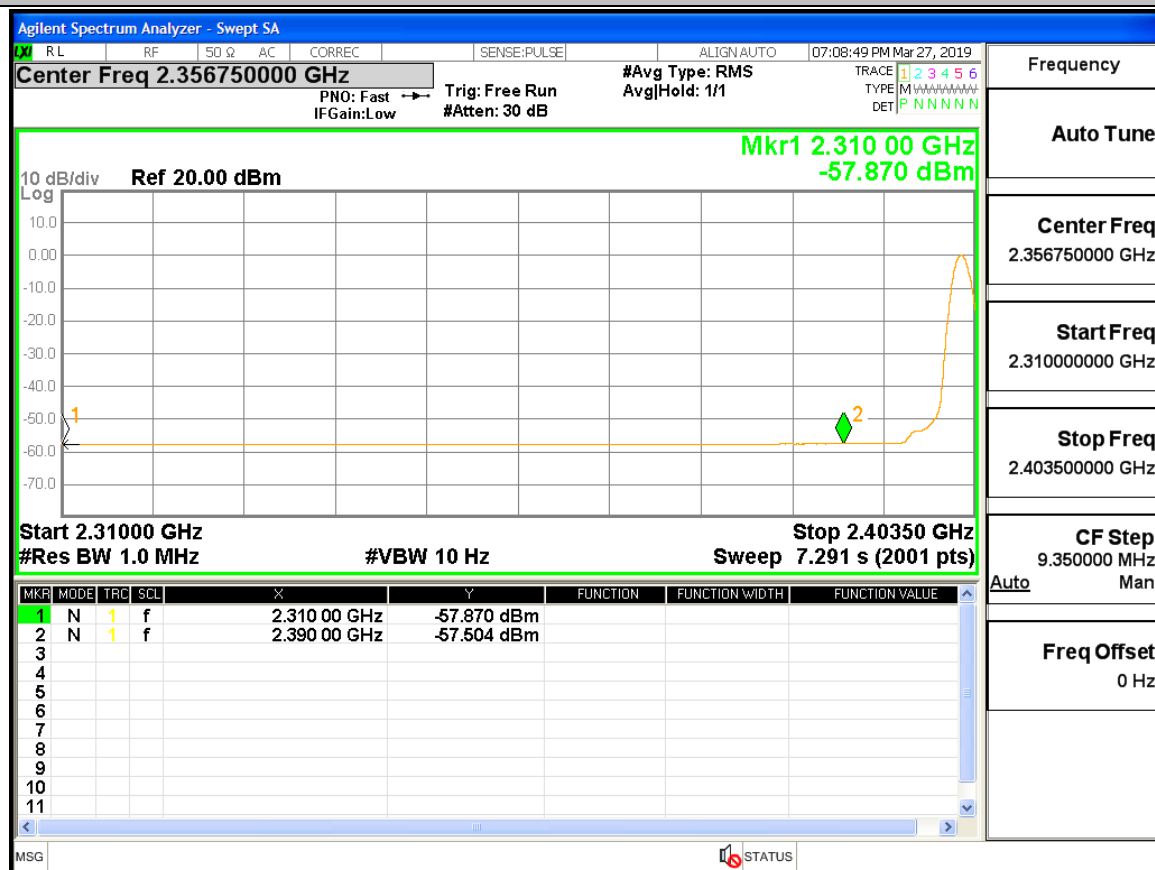
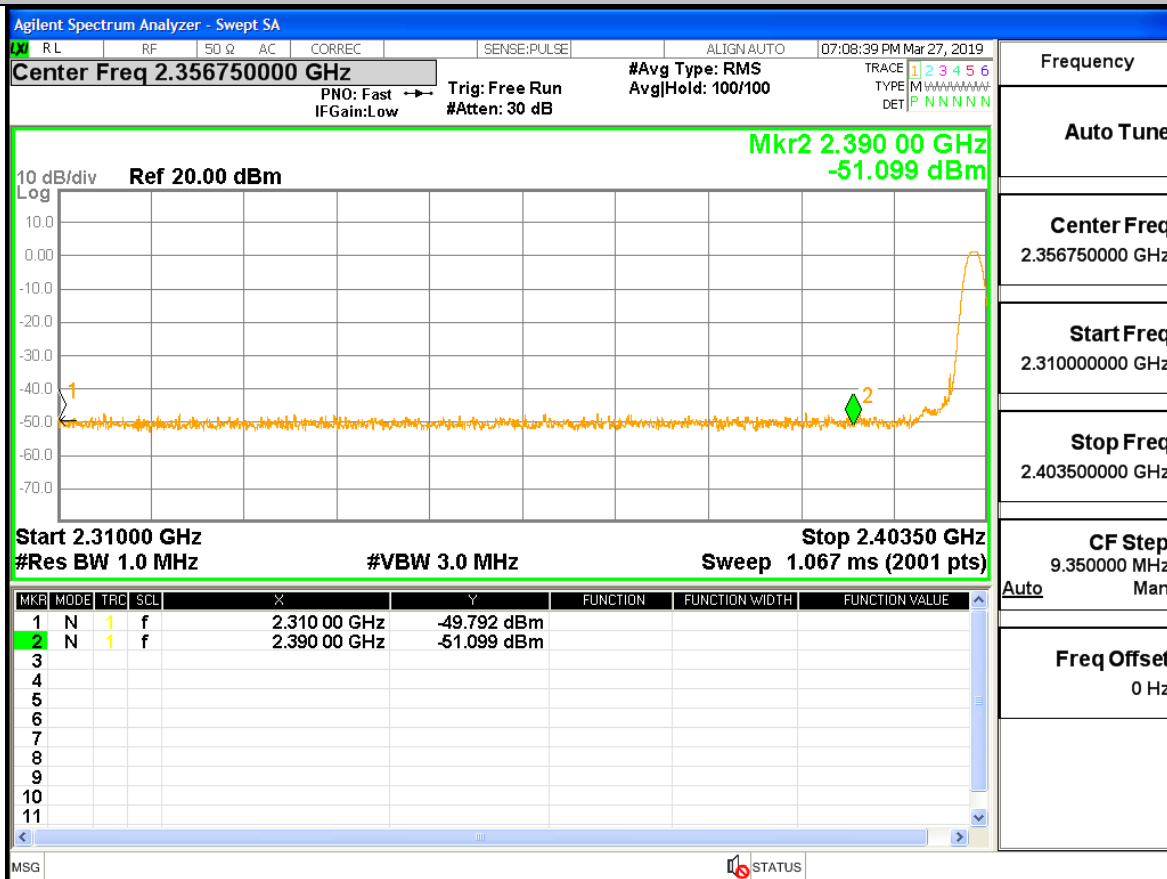


Puw

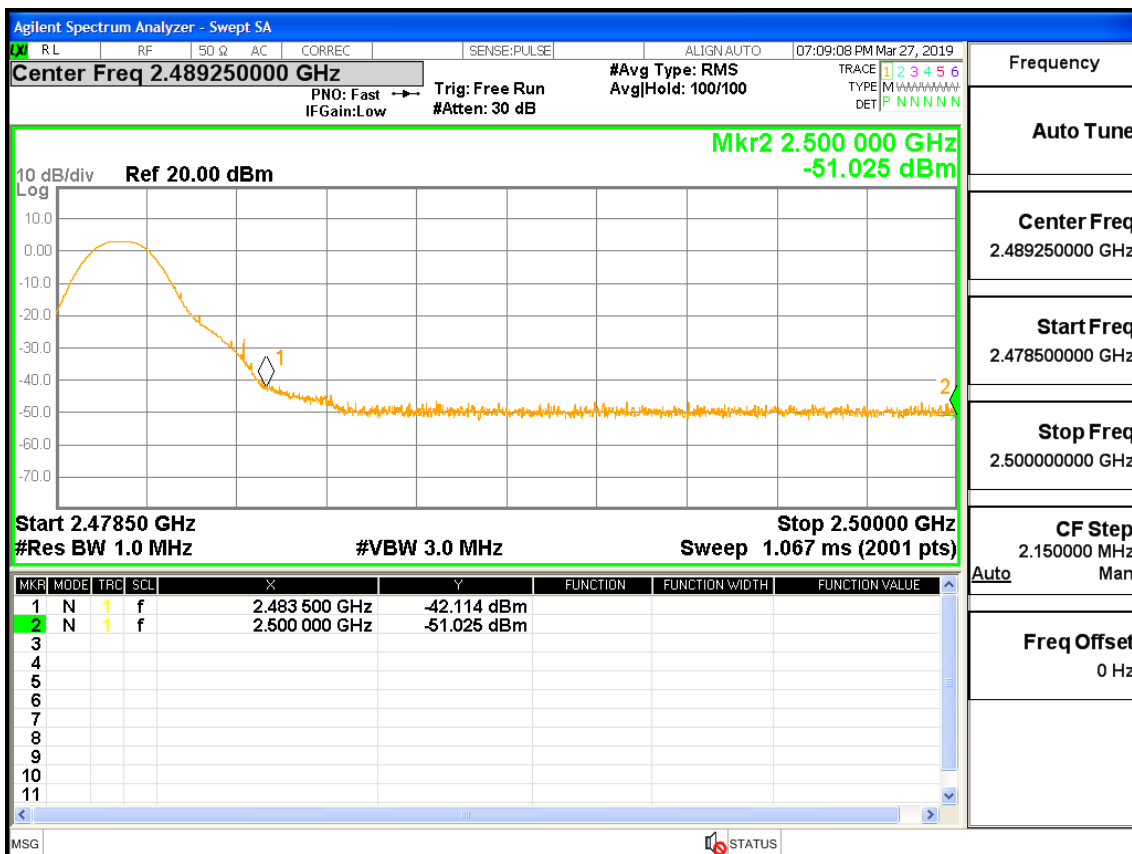


A.8 Restrict-band band-edge measurements

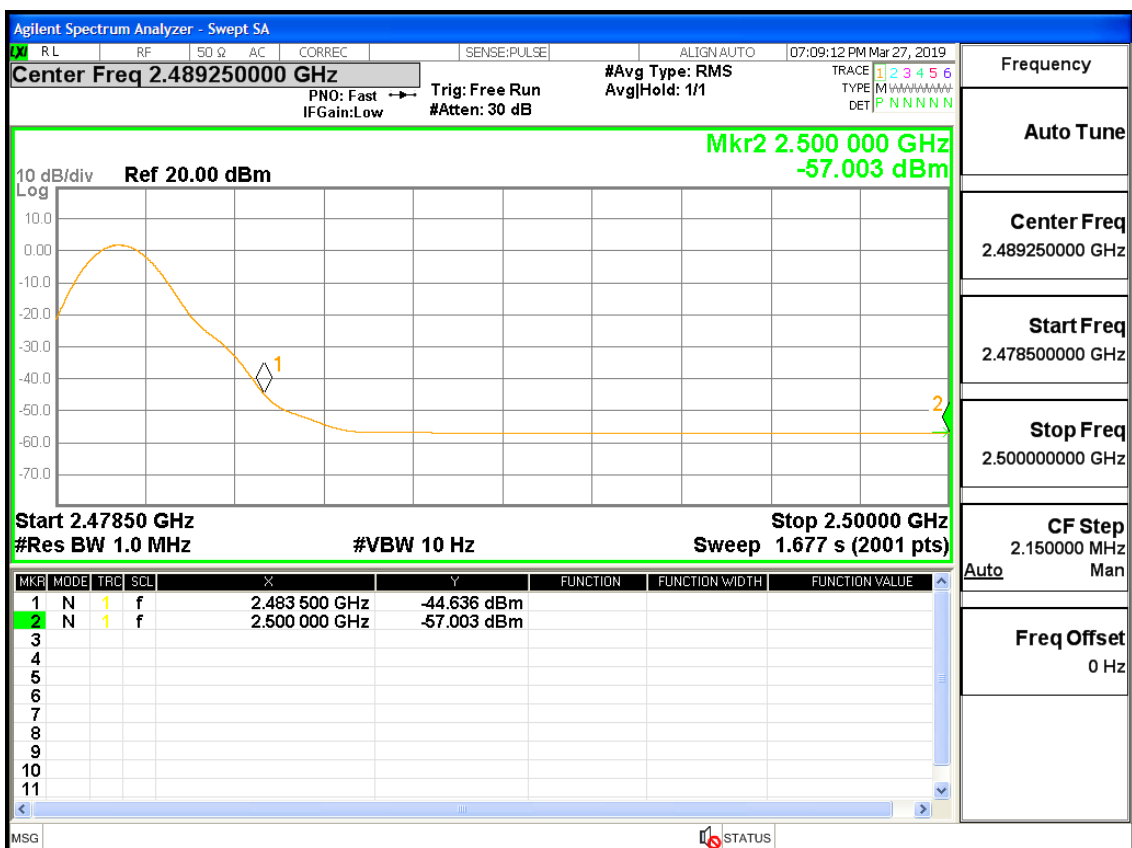
Type	Carrier Frequency (MHz)	Frequency(MHz)	Gain	Ground Factor	Peak Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Average Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2310	2.00	0.00	-49.79	47.41	74	-57.87	39.33	54	Pass
1DH5	2402	2390	2.00	0.00	-51.10	46.10	74	-57.50	39.70	54	Pass
1DH5	2480	2483.5	2.00	0.00	-42.11	55.09	74	-44.64	52.56	54	Pass
1DH5	2480	2500	2.00	0.00	-51.02	46.18	74	-57.00	40.20	54	Pass
2DH5	2402	2310	2.00	0.00	-49.44	47.76	74	-57.84	39.36	54	Pass
2DH5	2402	2390	2.00	0.00	-50.87	46.33	74	-57.53	39.67	54	Pass
2DH5	2480	2483.5	2.00	0.00	-35.00	62.20	74	-44.58	52.62	54	Pass
2DH5	2480	2500	2.00	0.00	-49.50	47.70	74	-57.02	40.18	54	Pass
3DH5	2402	2310	2.00	0.00	-48.70	48.50	74	-57.86	39.34	54	Pass
3DH5	2402	2390	2.00	0.00	-51.18	46.02	74	-57.53	39.67	54	Pass
3DH5	2480	2483.5	2.00	0.00	-35.13	62.07	74	-44.26	52.94	54	Pass
3DH5	2480	2500	2.00	0.00	-50.54	46.66	74	-56.99	40.21	54	Pass



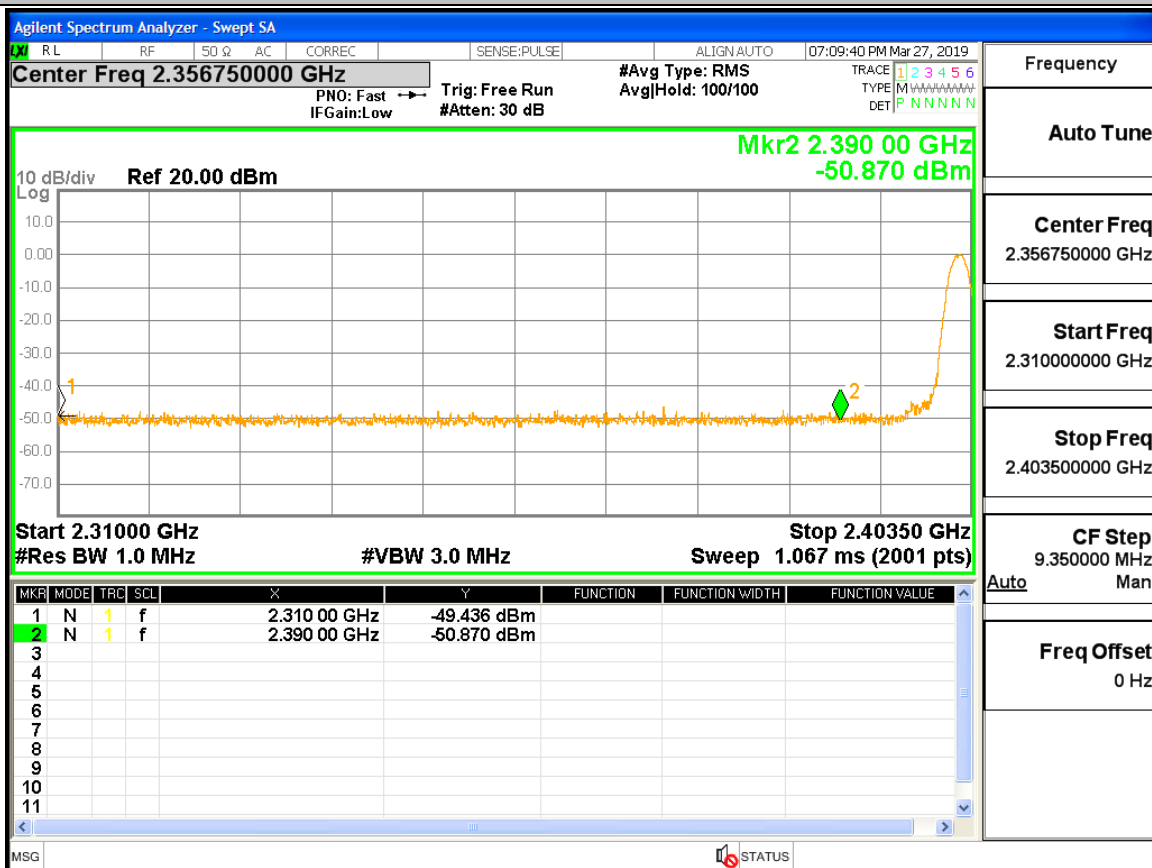
Restrict-band band-edge measurements_2480_PEAK_DH5



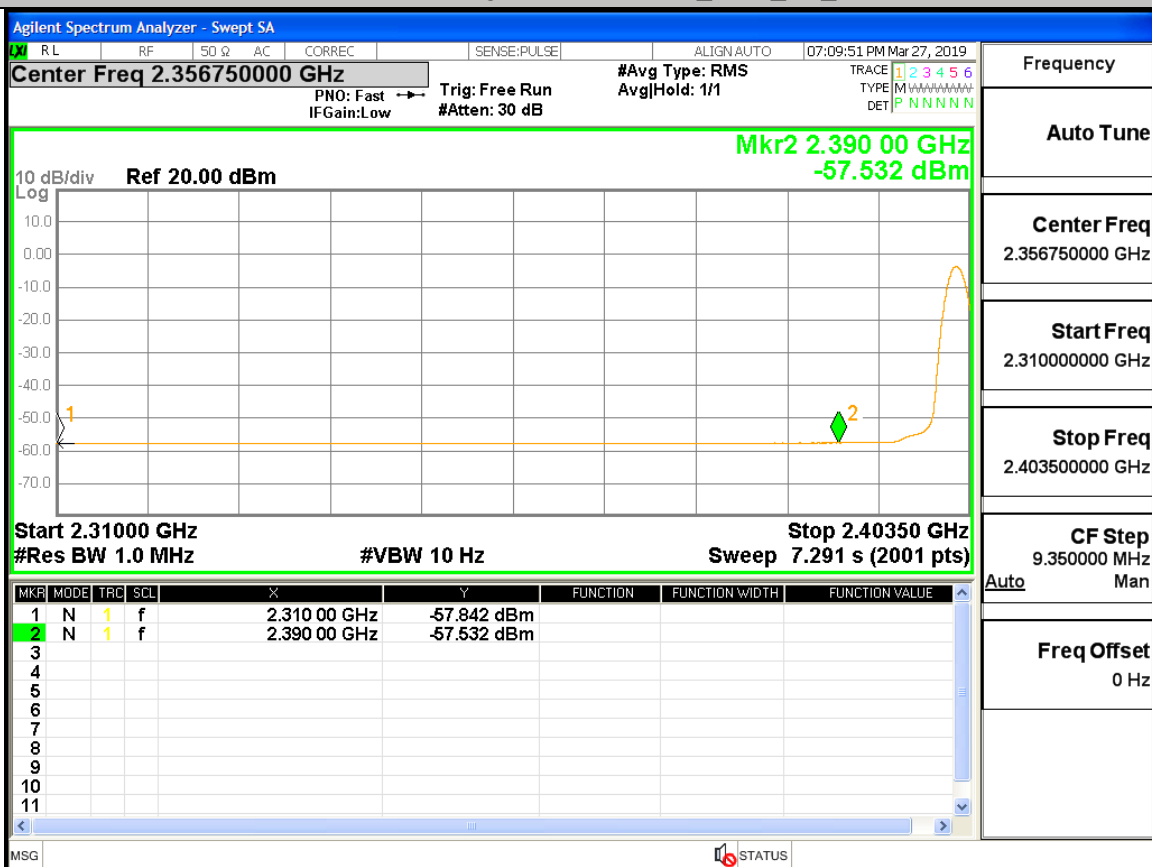
Restrict-band band-edge measurements_2480_AV_DH5



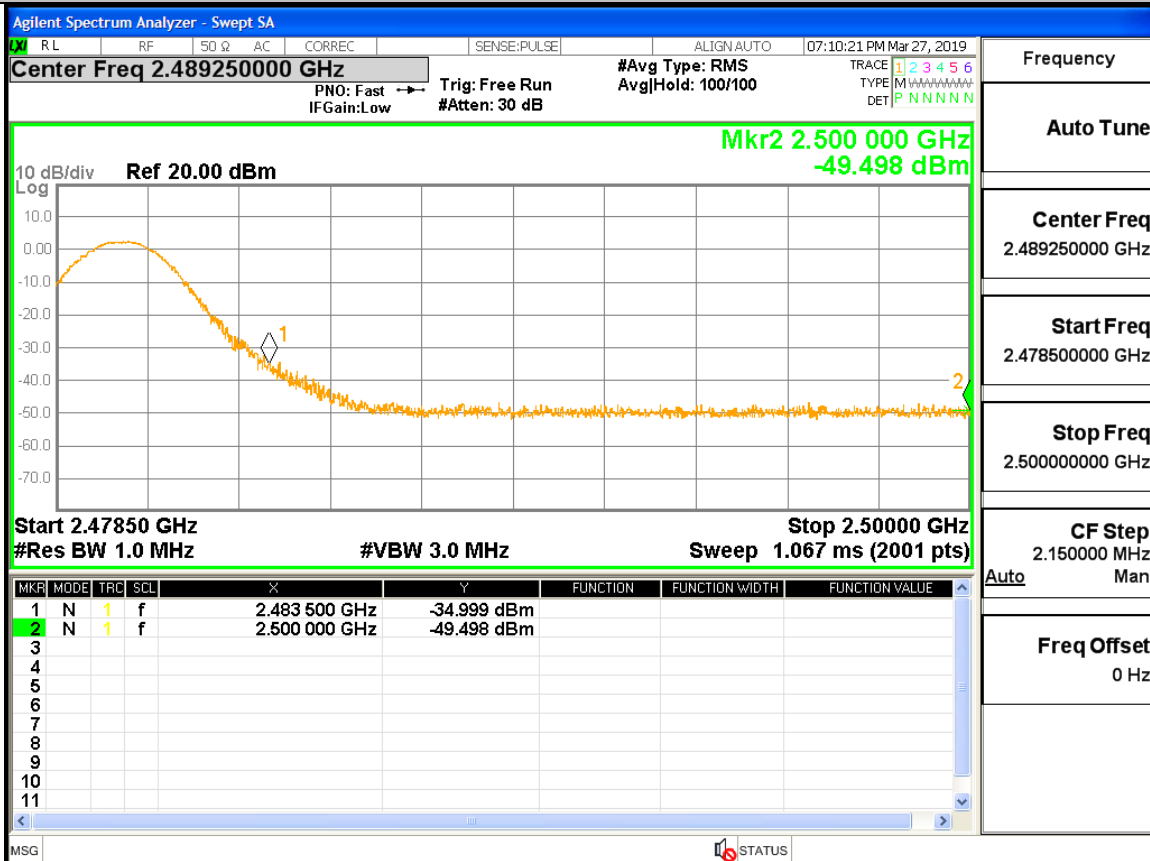
Restrict-band band-edge measurements_2402_PEAK_2DH5



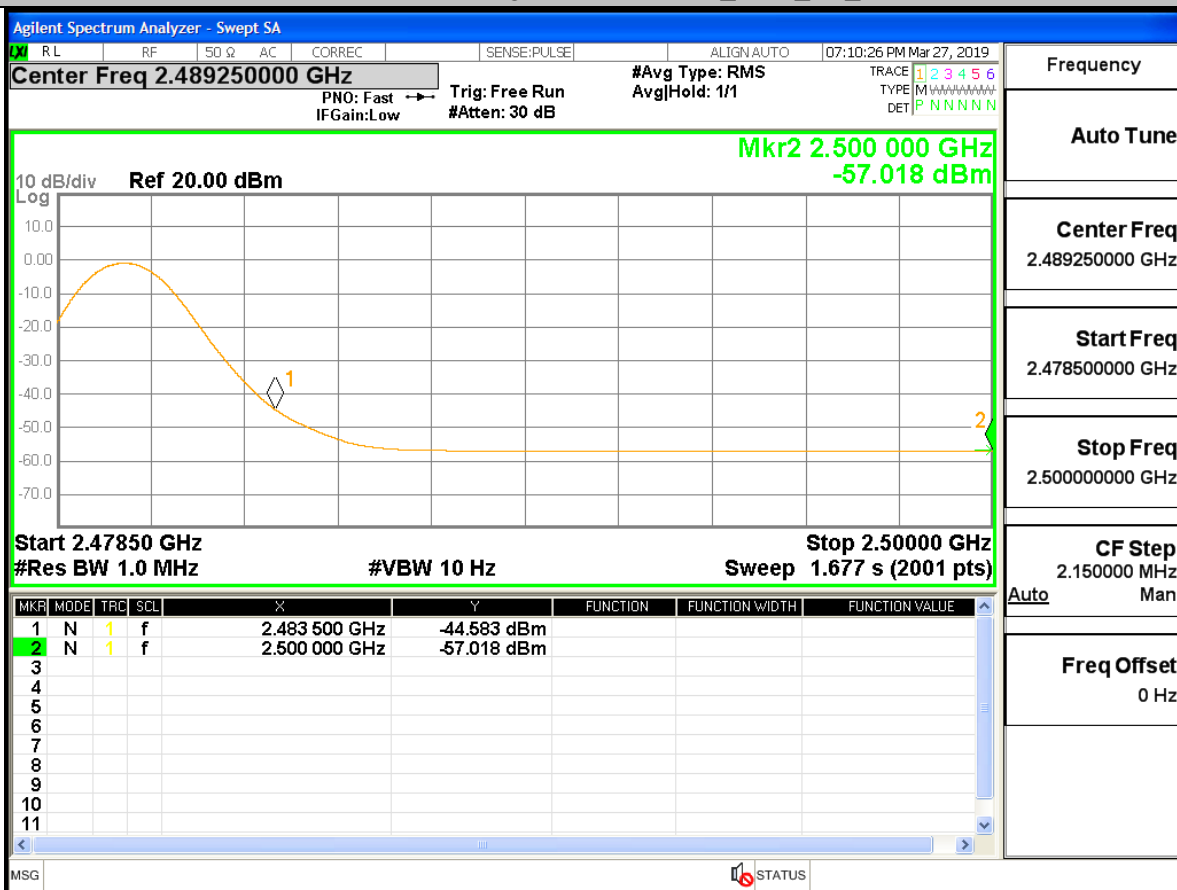
Restrict-band band-edge measurements_2402_AV_2DH5



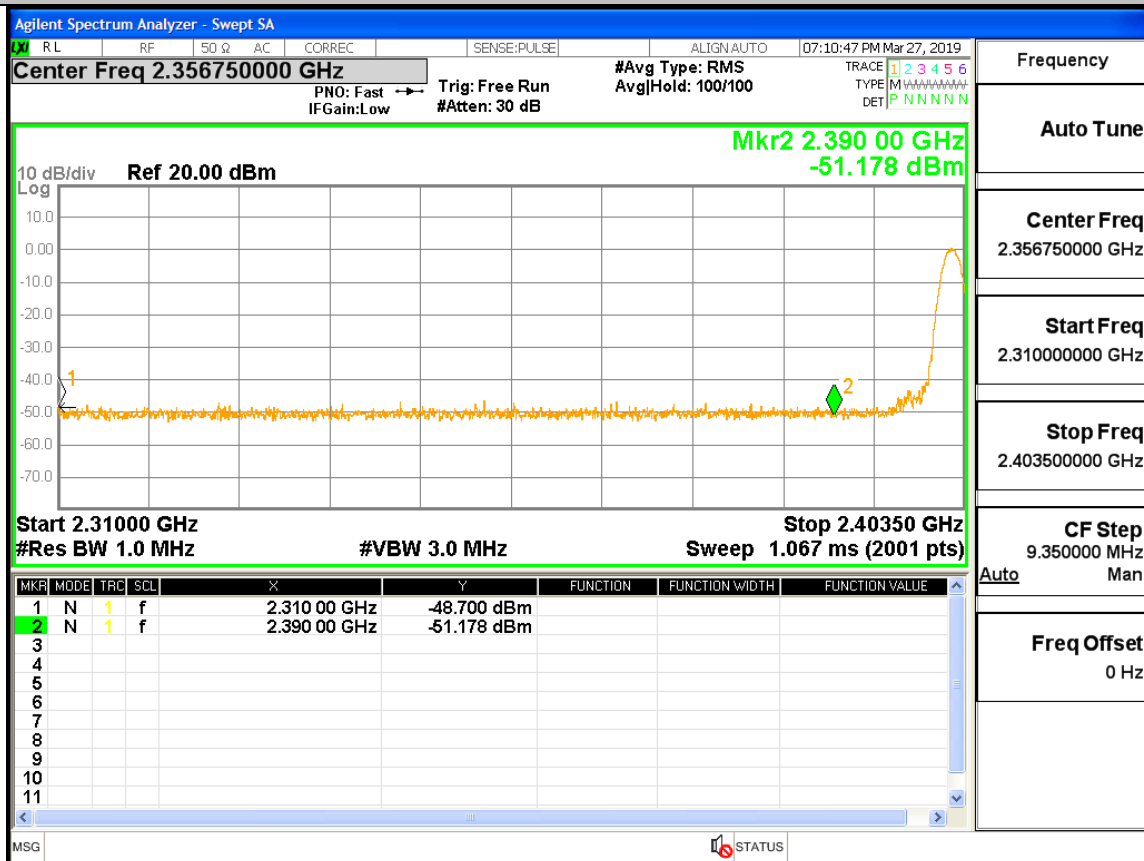
Restrict-band band-edge measurements_2480_PEAK_2DH5



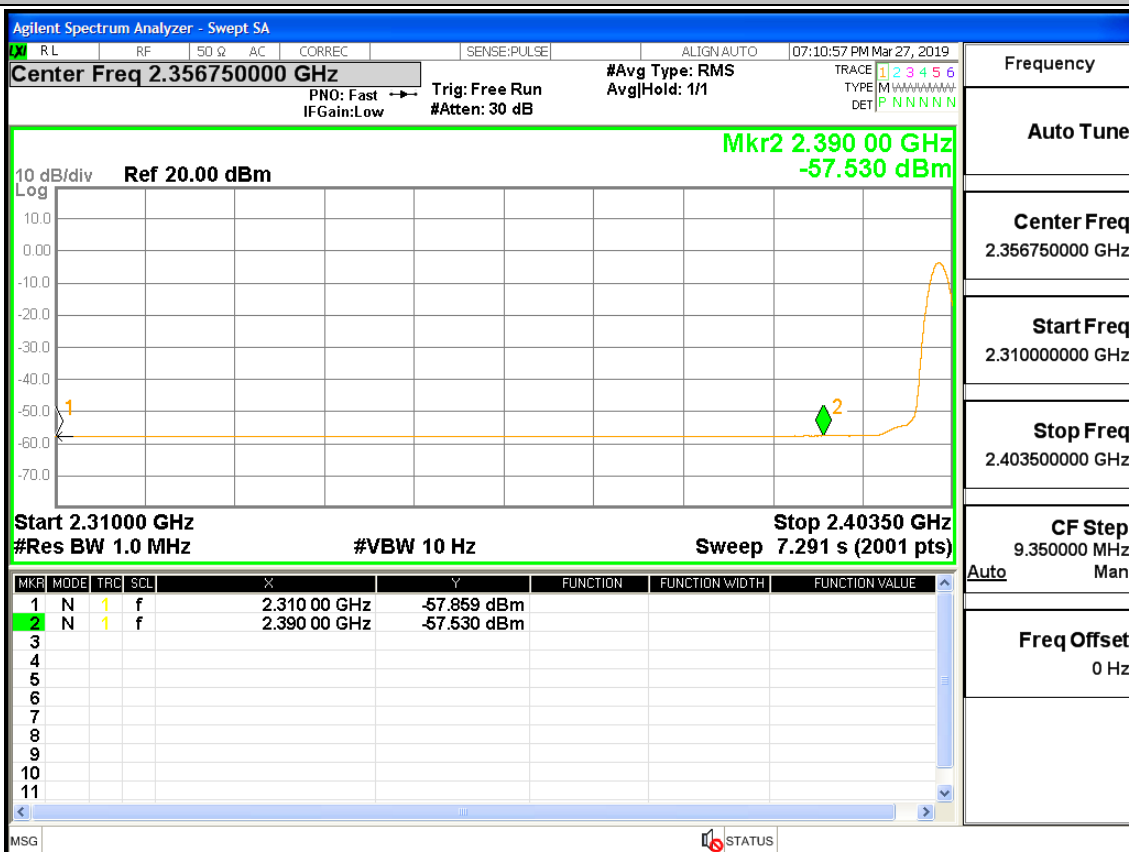
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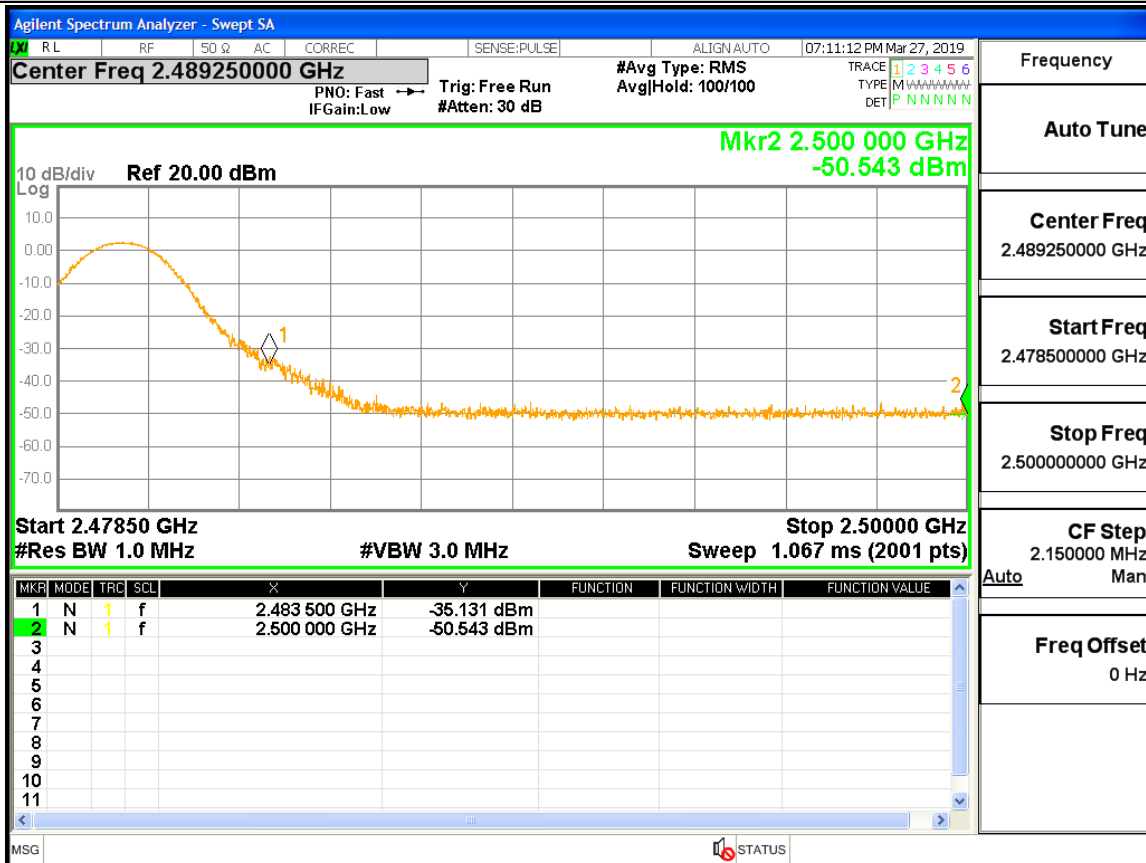
Restrict-band band-edge measurements_2402_PEAK_3DH5



Restrict-band band-edge measurements_2402_AV_3DH5



Restrict-band band-edge measurements_2480_PEAK_3DH5



Restrict-band band-edge measurements_2480_AV_3DH5

