

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

Product Name: Mobile Phone

Trade Mark: Krip

Test Model: K5b

FCC ID: 2APX7K5B

Environmental Conditions

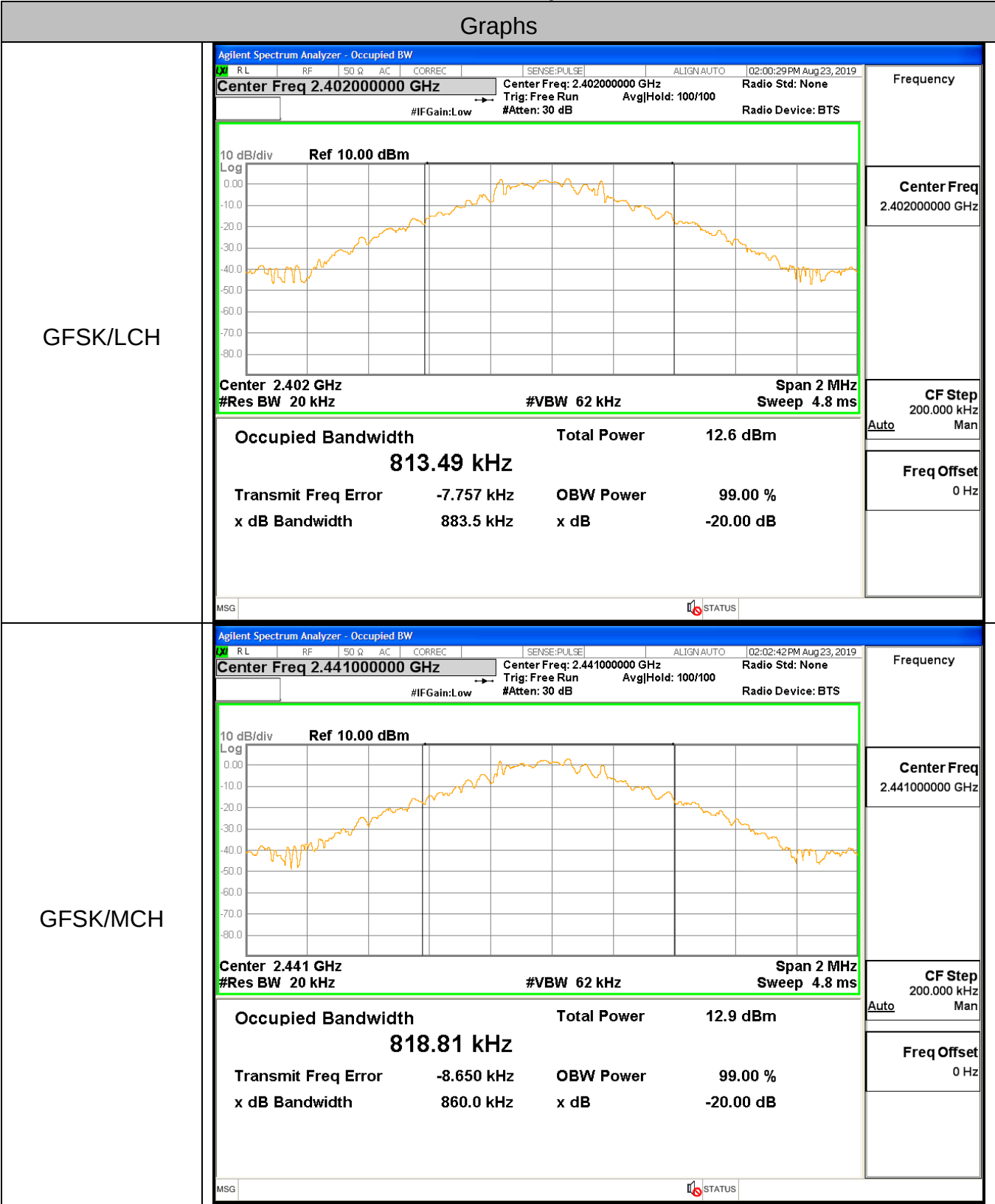
Temperature:	23.5° C
Relative Humidity:	50%
ATM Pressure:	100.0 kPa
Test Engineer:	Gary Qian
Supervised by:	Eden Hu

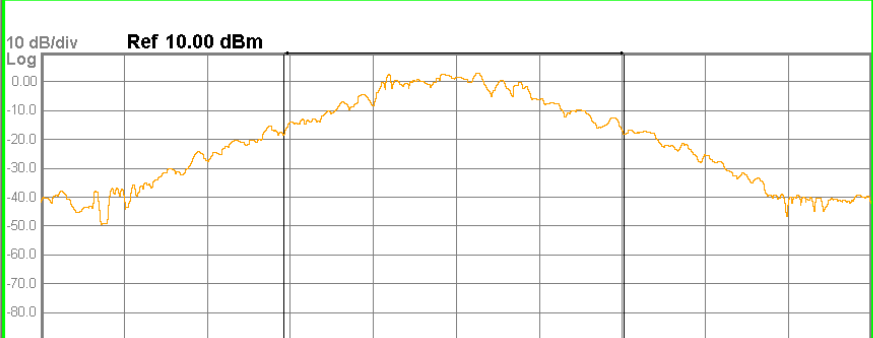
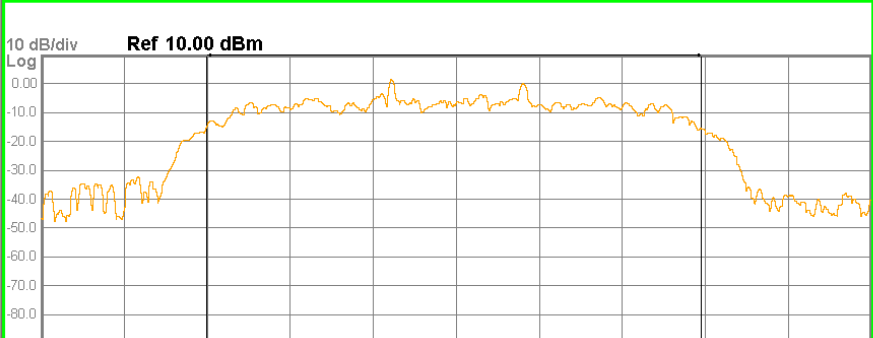
A.1 20 dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit(MHz)	Verdict
GFSK	LCH	0.884	Not Specified	PASS
GFSK	MCH	0.860	Not Specified	PASS
GFSK	HCH	0.885	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.266	Not Specified	PASS
$\pi/4$ DQPSK	MCH	1.265	Not Specified	PASS
$\pi/4$ DQPSK	HCH	1.267	Not Specified	PASS
8DPSK	LCH	1.305	Not Specified	PASS
8DPSK	MCH	1.268	Not Specified	PASS
8DPSK	HCH	1.263	Not Specified	PASS

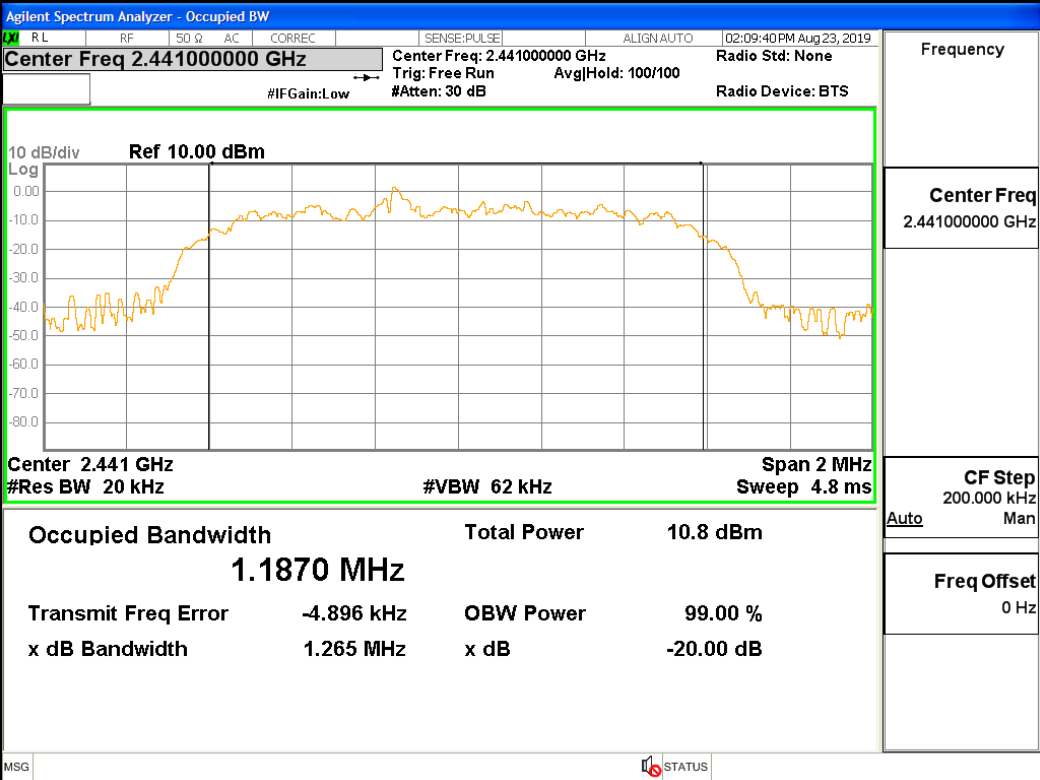
Test Graph

Graphs

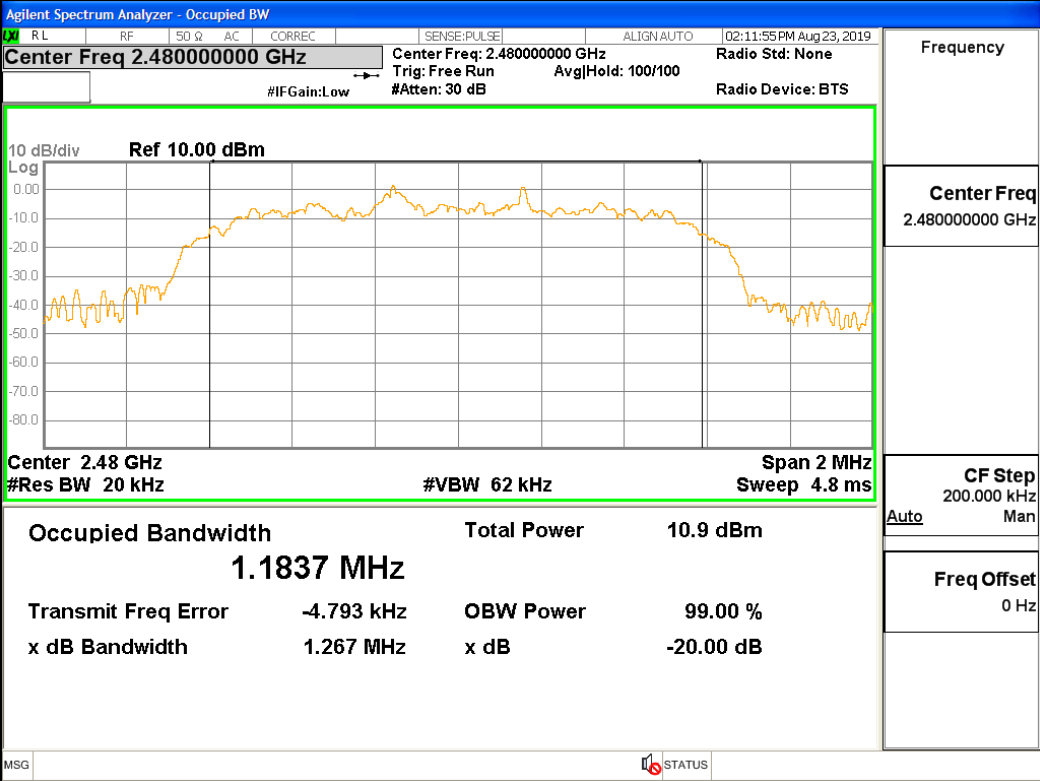


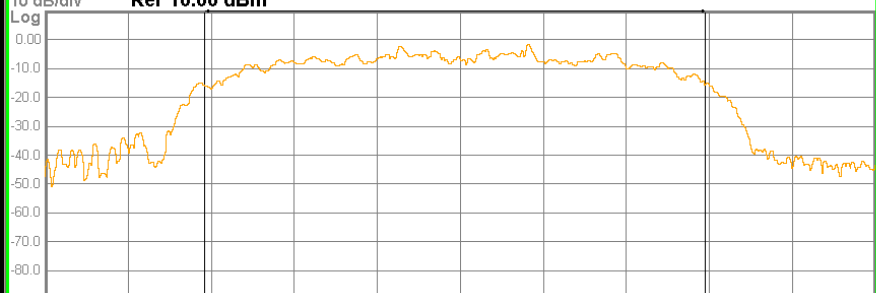
GFSK/HCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC CORREC SENSE:PULSE ALIGN:AUTO 02:04:20 PM Aug 23, 2019 Center Freq 2.480000000 GHz Center Freq: 2.480000000 GHz Radio Std: None #IFGain:Low #Atten: 30 dB AvgHold: 100/100 Radio Device: BTS										Frequency
	10 dB/div Ref 10.00 dBm Log 										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 816.52 kHz Total Power 13.1 dBm Transmit Freq Error -5.722 kHz OBW Power 99.00 % x dB Bandwidth 885.1 kHz x dB -20.00 dB										Freq Offset 0 Hz
π/4DQPSK/LCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC CORREC SENSE:PULSE ALIGN:AUTO 02:06:34 PM Aug 23, 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										Frequency
	10 dB/div Ref 10.00 dBm Log 										Center Freq 2.402000000 GHz
	Center 2.402 GHz #Res BW 20 kHz #VBW 62 kHz Span 2 MHz Sweep 4.8 ms										CF Step 200.000 kHz Auto Man
	Occupied Bandwidth 1.1897 MHz Total Power 10.6 dBm Transmit Freq Error -4.650 kHz OBW Power 99.00 % x dB Bandwidth 1.266 MHz x dB -20.00 dB										Freq Offset 0 Hz

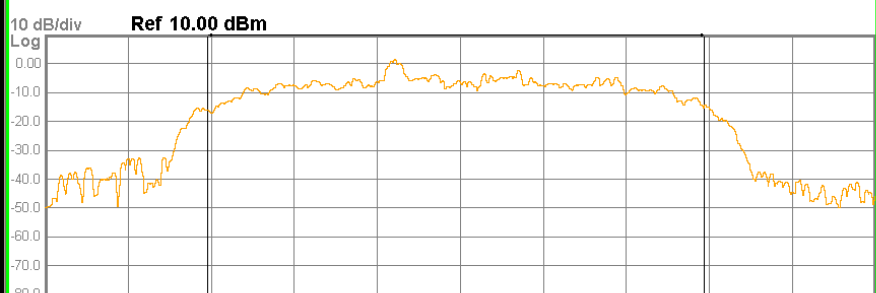
π /4DQPSK/MCH

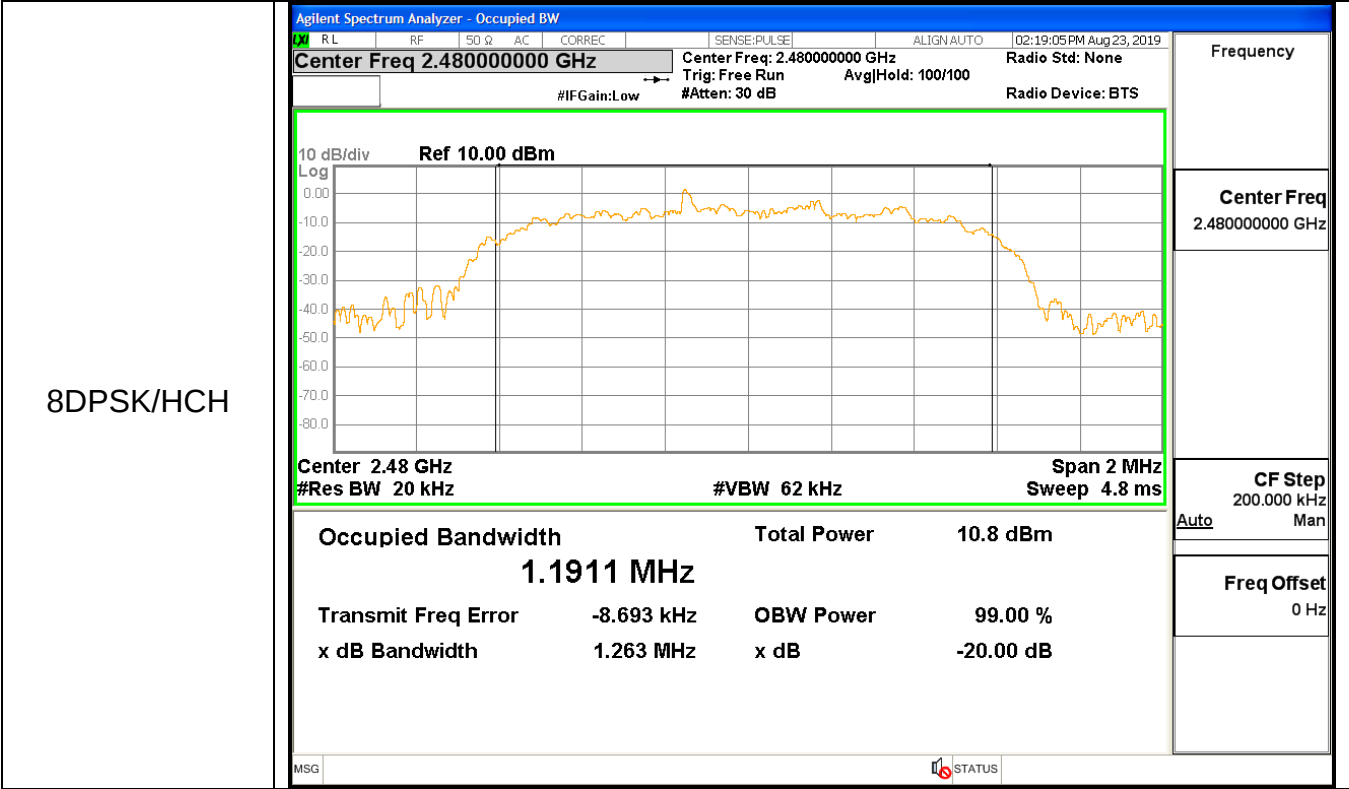


π /4DQPSK/HCH



8DPSK/LCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC CORREC SENSE:PULSE ALIGN:AUTO 02:13:28 PM Aug 23, 2019 Center Freq 2.402000000 GHz Center Freq: 2.402000000 GHz Trig: Free Run Avg Hold: 100/100 #IFGain:Low #Atten: 30 dB Radio Std: None Radio Device: BTS 10 dB/div Log Ref 10.00 dBm  Center 2.402 GHz #Res BW 20 kHz #VBW 62 kHz Span 2 MHz Sweep 4.8 ms Occupied Bandwidth 1.2008 MHz Total Power 10.5 dBm Transmit Freq Error -12.137 kHz OBW Power 99.00 % x dB Bandwidth 1.305 MHz x dB -20.00 dB MSG STATUS										Frequency
	Center Freq 2.402000000 GHz										
	CF Step 200.000 kHz Auto Man										
	Freq Offset 0 Hz										

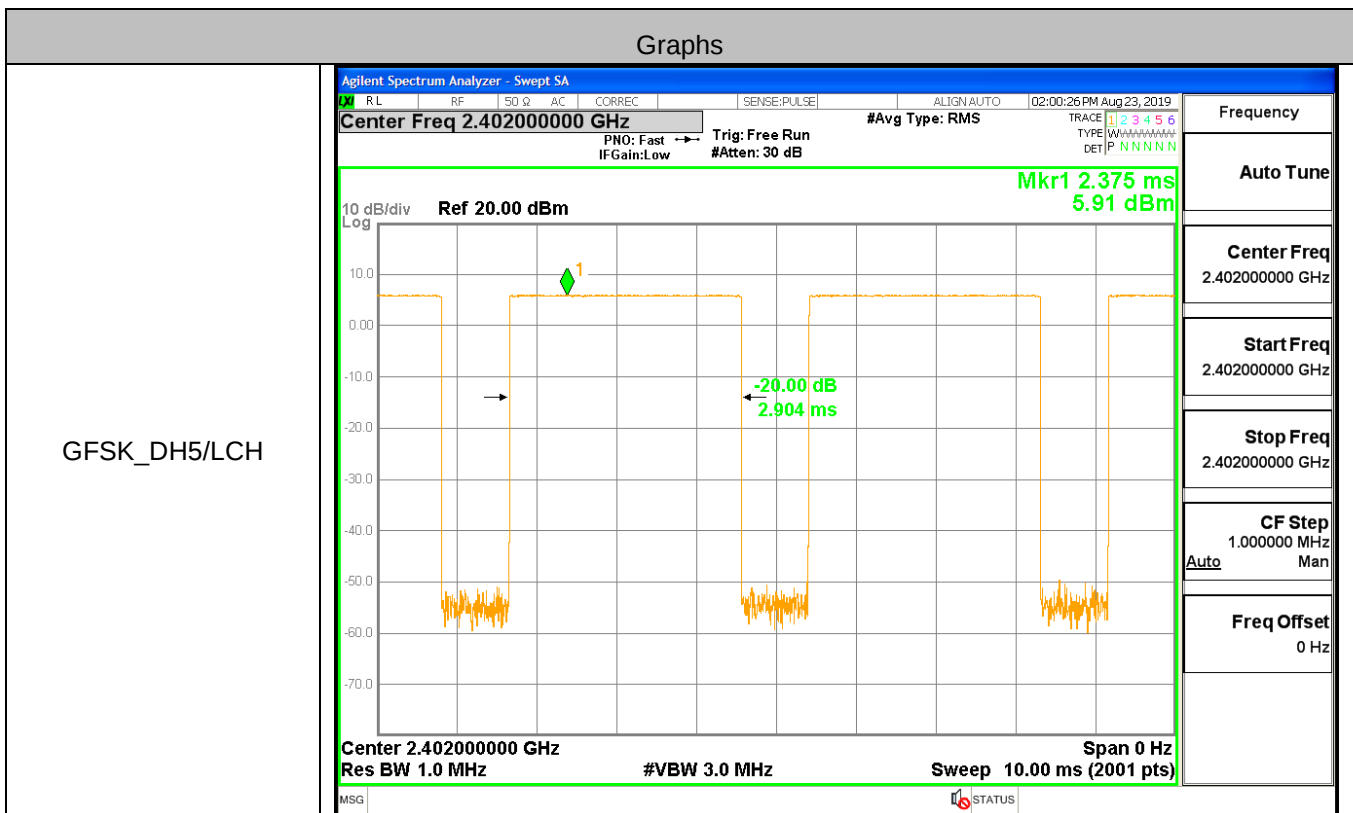
8DPSK/MCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC CORREC SENSE:PULSE ALIGN:AUTO 02:15:07 PM Aug 23, 2019 Center Freq 2.441000000 GHz Center Freq: 2.441000000 GHz Trig: Free Run Avg Hold: 100/100 #IFGain:Low #Atten: 30 dB Radio Std: None Radio Device: BTS 10 dB/div Log Ref 10.00 dBm  Center 2.441 GHz #Res BW 20 kHz #VBW 62 kHz Span 2 MHz Sweep 4.8 ms Occupied Bandwidth 1.1928 MHz Total Power 10.9 dBm Transmit Freq Error -10.071 kHz OBW Power 99.00 % x dB Bandwidth 1.268 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										

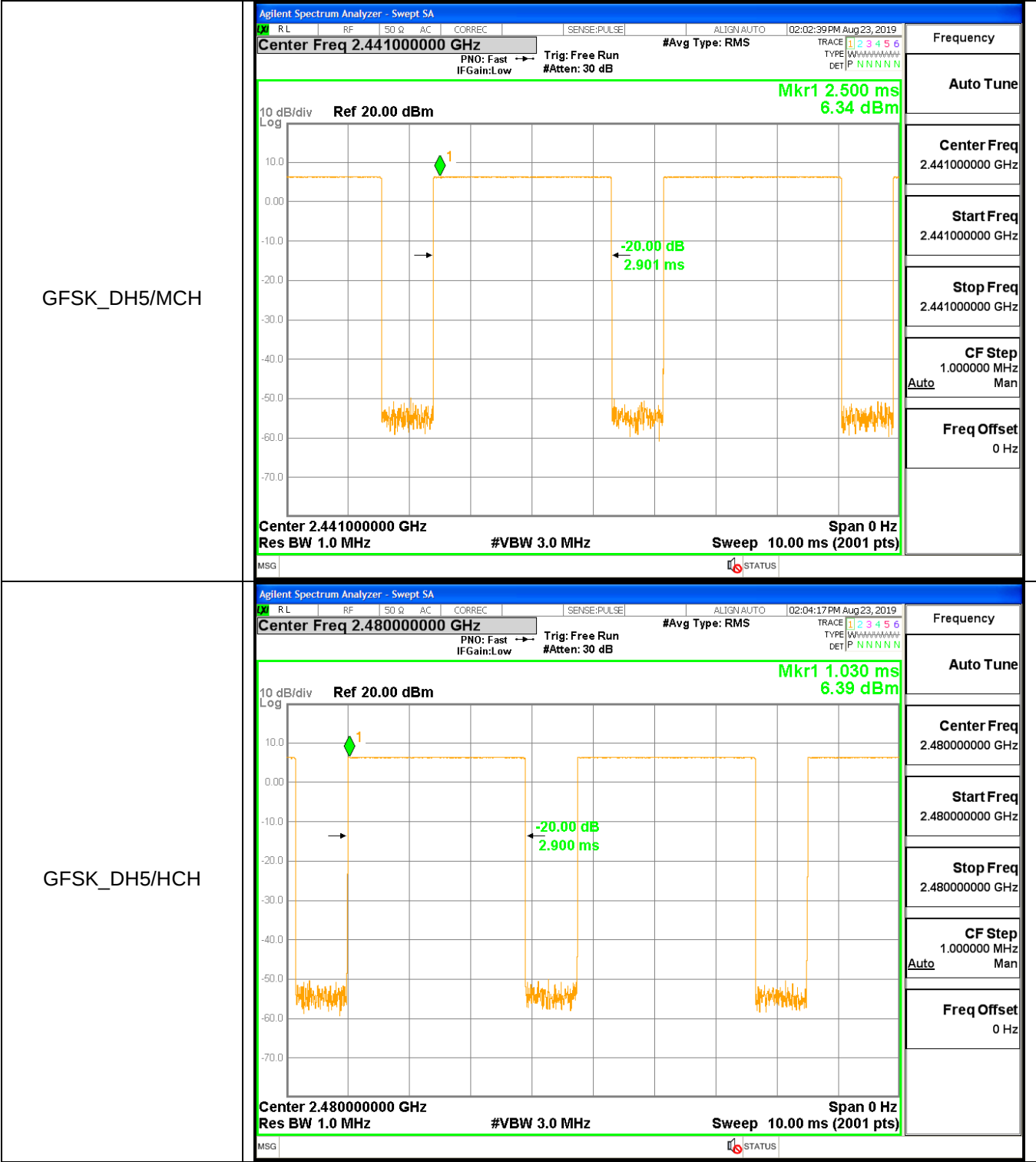


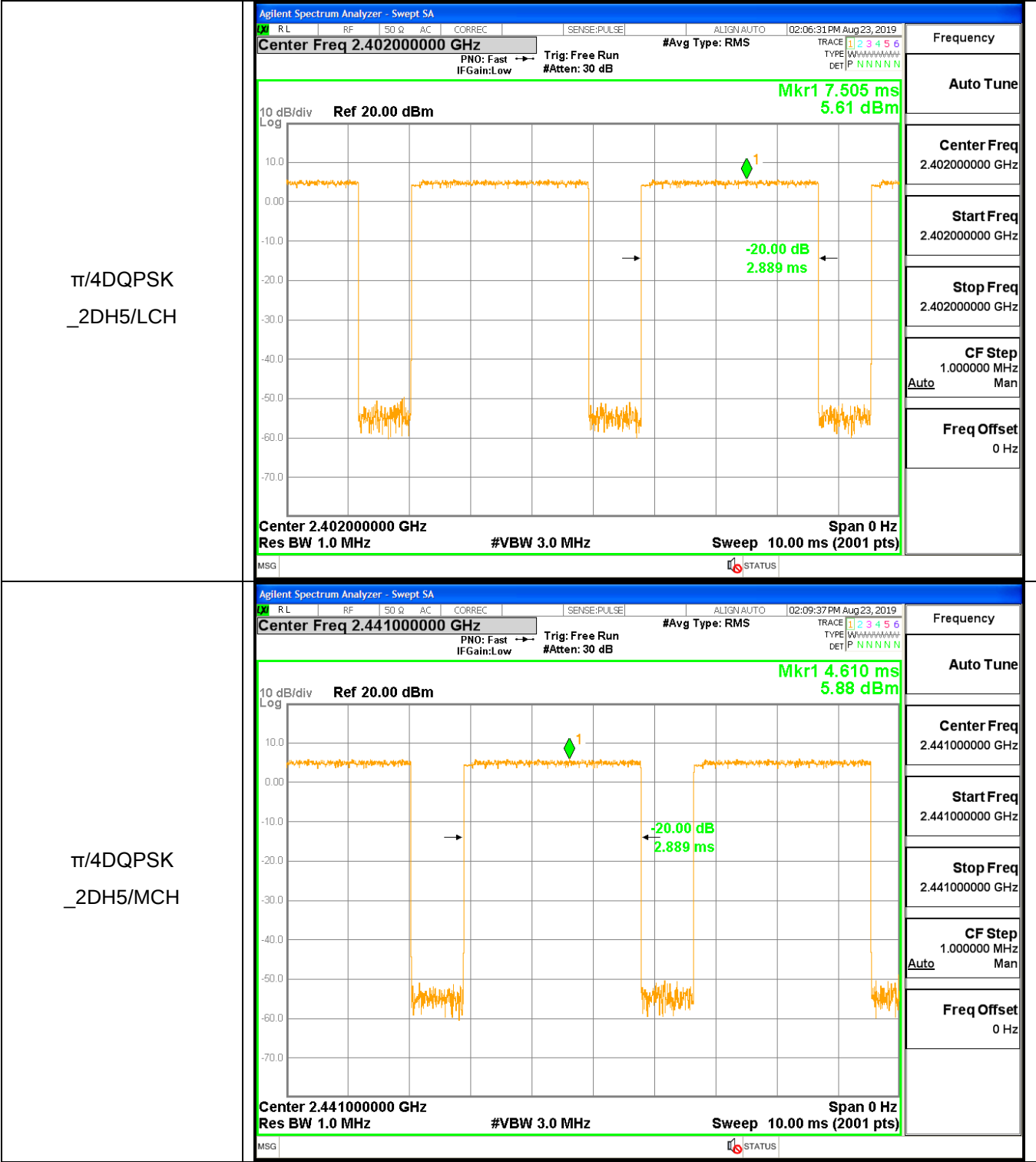
A.2 Dwell Time

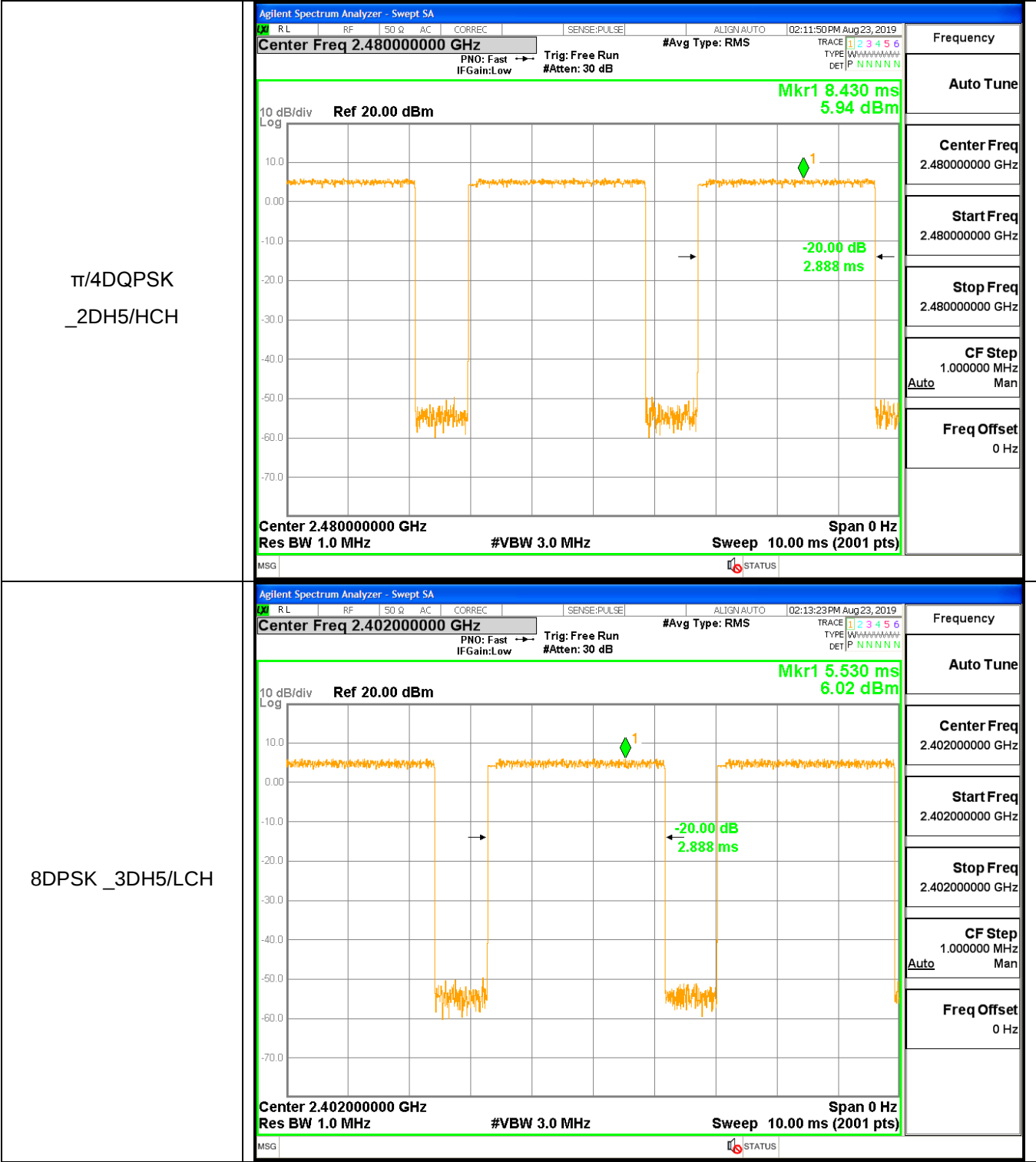
Mode	Packet	Channel	Burst Width [s/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	0.002904	106.7	0.309808	0.4	PASS
GFSK	DH5	MCH	0.002901	106.7	0.309516	0.4	PASS
GFSK	DH5	HCH	0.0029	106.7	0.309436	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	0.002889	106.7	0.308213	0.4	PASS
$\pi/4$ DQPSK	2DH5	MCH	0.002889	106.7	0.30822	0.4	PASS
$\pi/4$ DQPSK	2DH5	HCH	0.002888	106.7	0.3082	0.4	PASS
8DPSK	3DH5	LCH	0.002888	106.7	0.308201	0.4	PASS
8DPSK	3DH5	MCH	0.002888	106.7	0.308191	0.4	PASS
8DPSK	3DH5	HCH	0.002884	106.7	0.307739	0.4	PASS

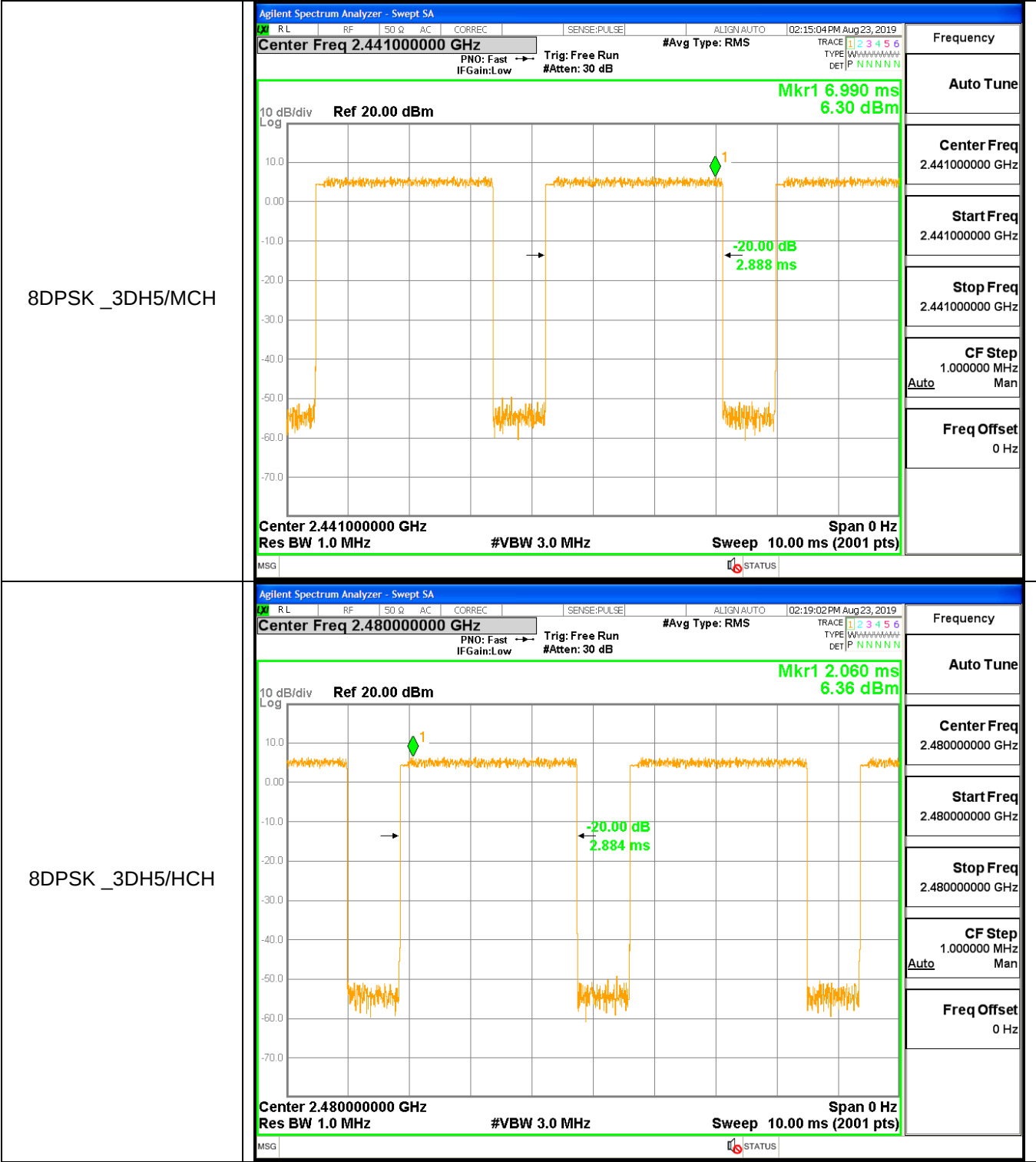
Test Graph







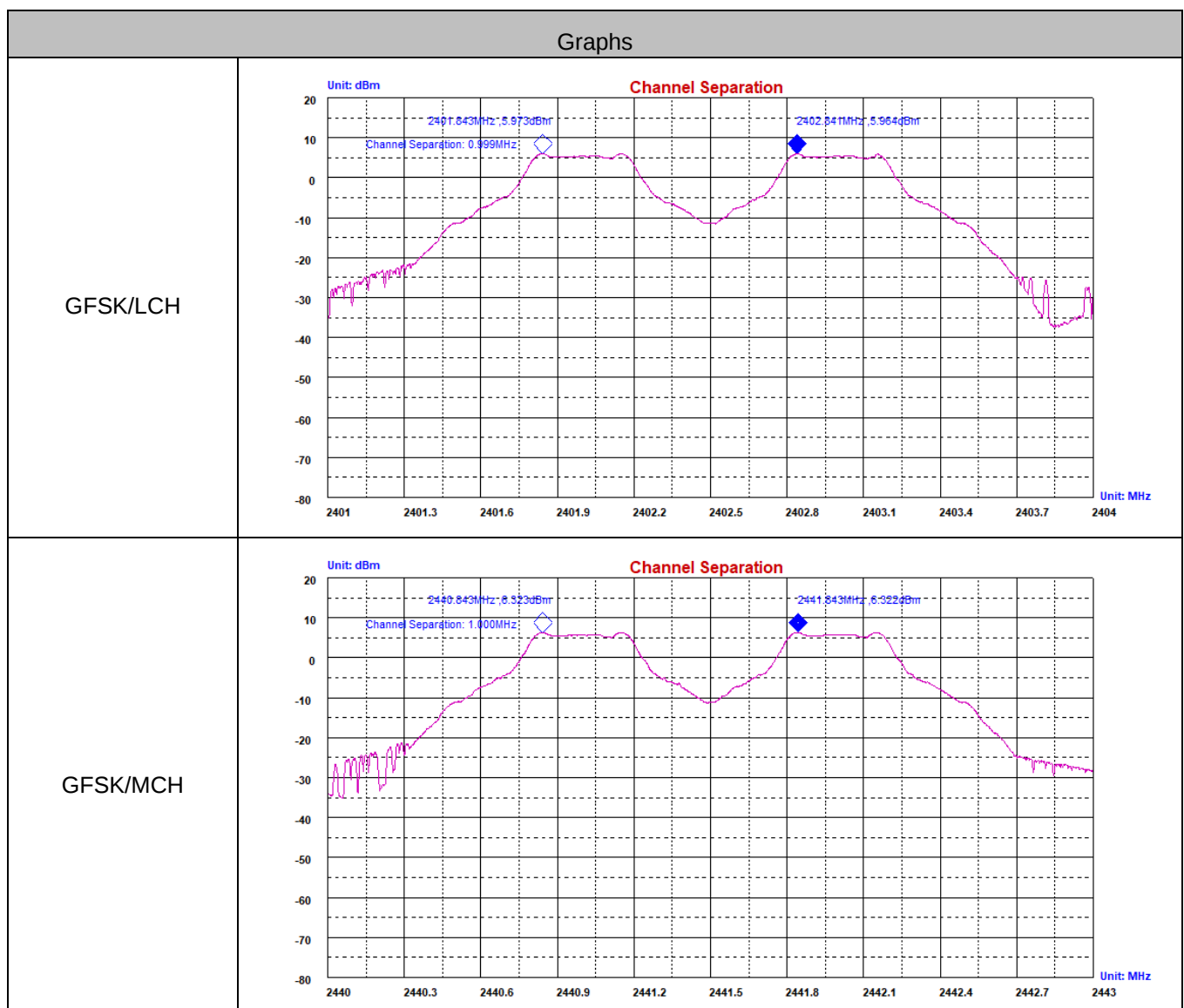


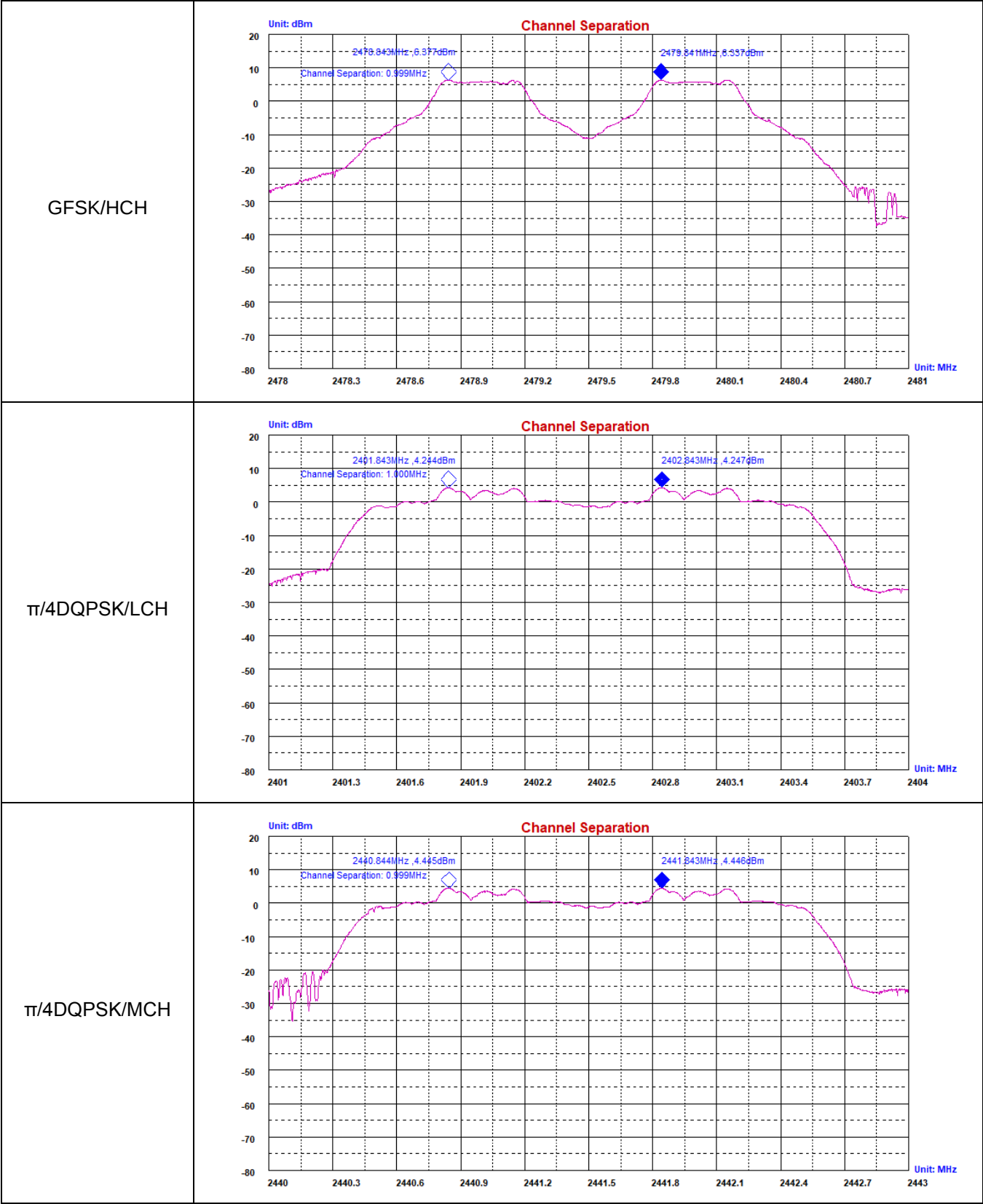


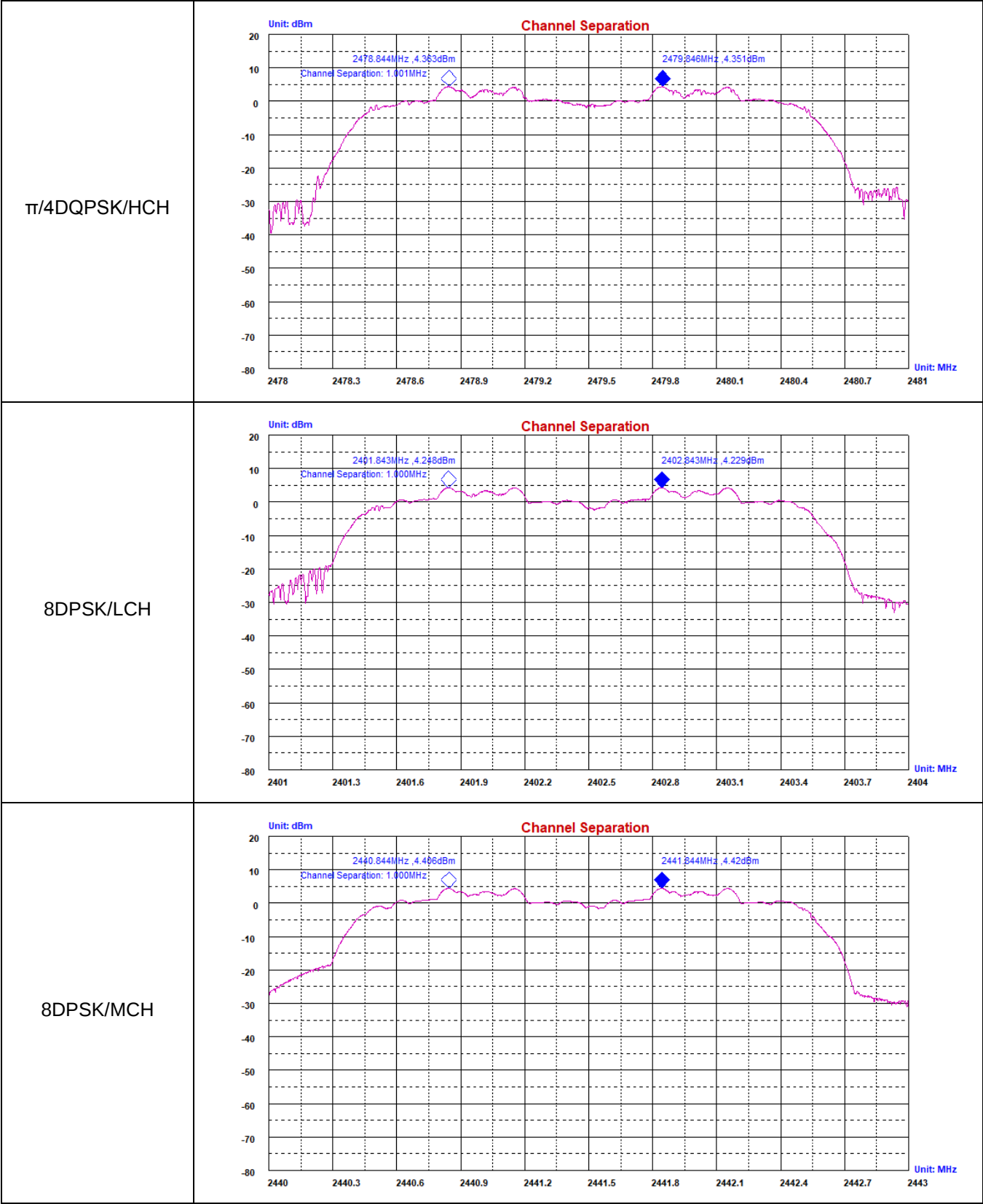
A.3 Carrier Frequency Separation

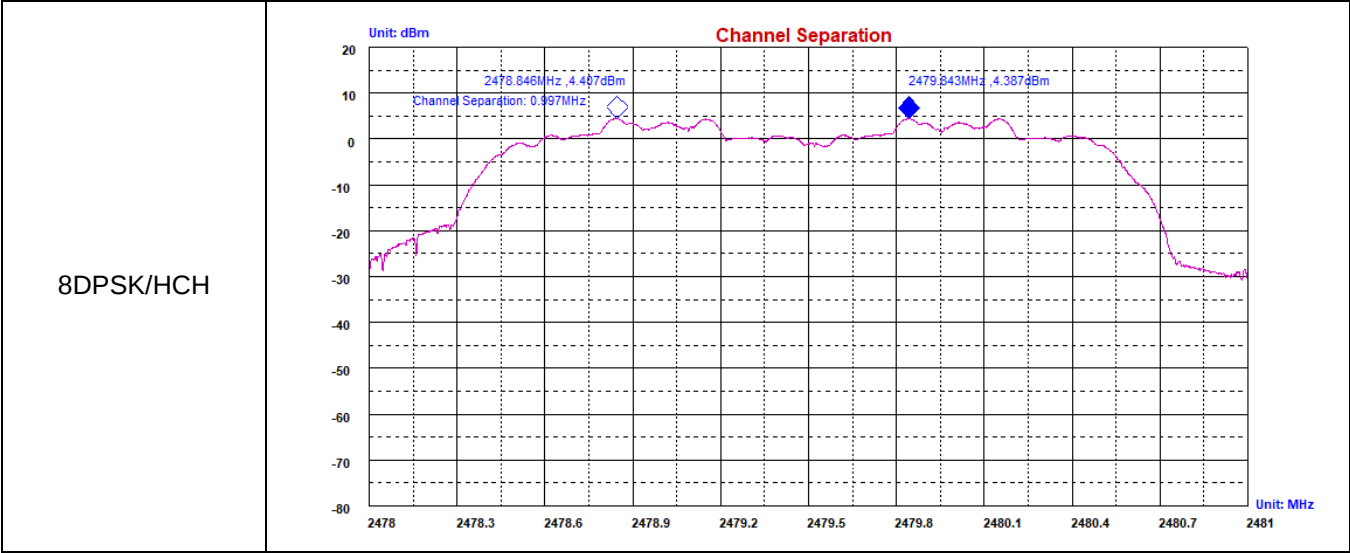
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.999	0.589	PASS
GFSK	MCH	1.000	0.573	PASS
GFSK	HCH	0.999	0.590	PASS
$\pi/4$ DQPSK	LCH	1.000	0.844	PASS
$\pi/4$ DQPSK	MCH	0.999	0.843	PASS
$\pi/4$ DQPSK	HCH	1.001	0.845	PASS
8DPSK	LCH	1.000	0.870	PASS
8DPSK	MCH	1.000	0.845	PASS
8DPSK	HCH	0.997	0.842	PASS

Test Graph





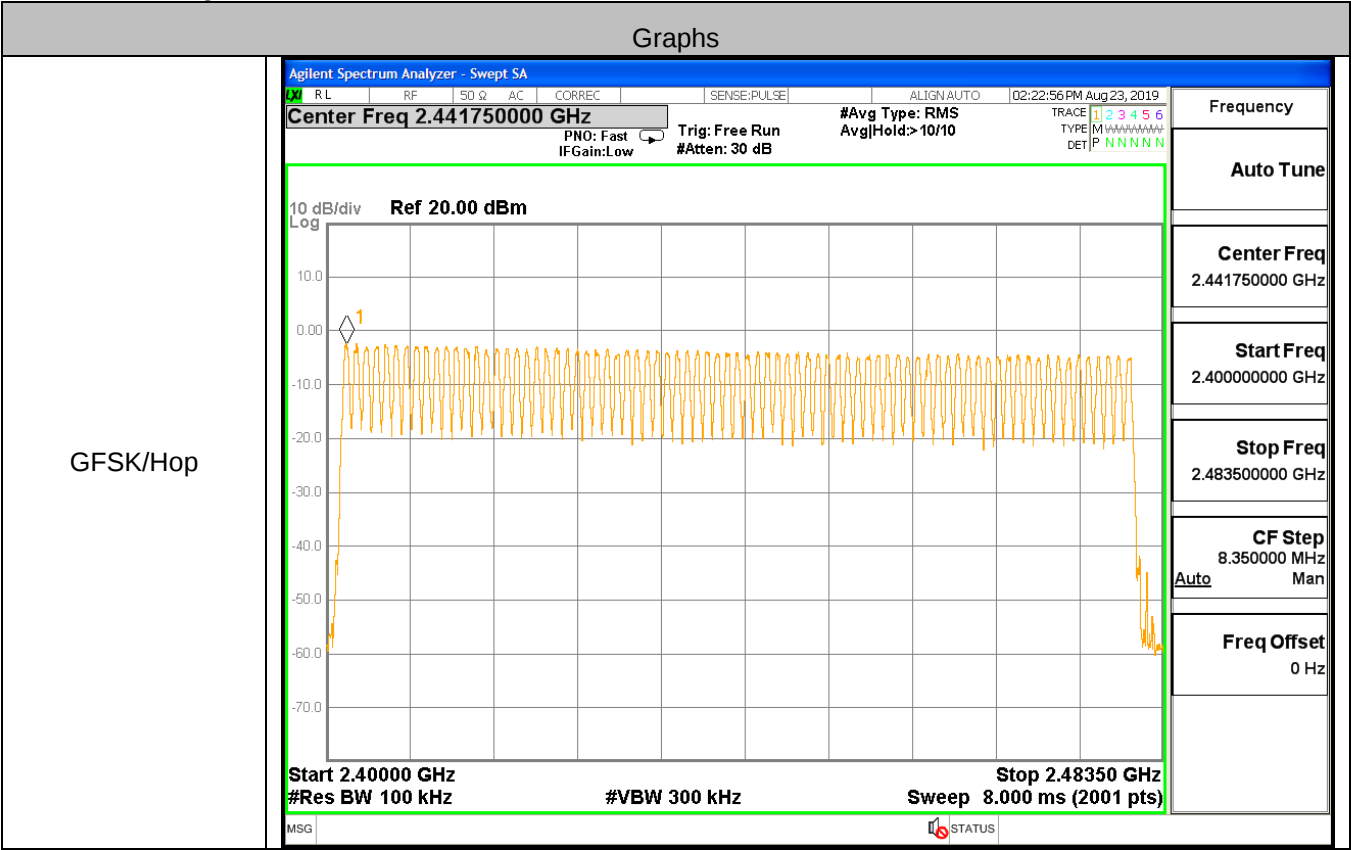


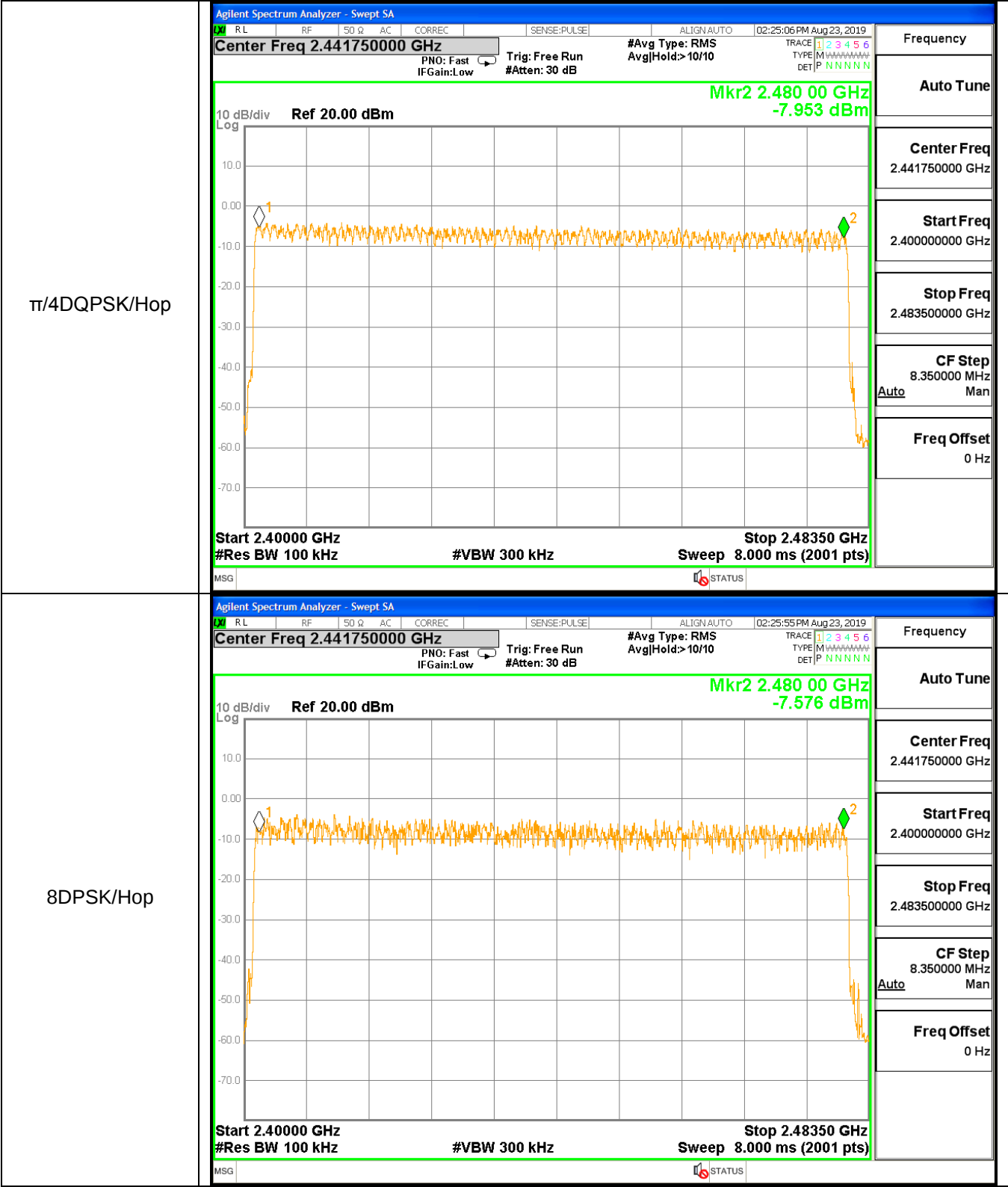


A.4 Hopping Channel Number

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

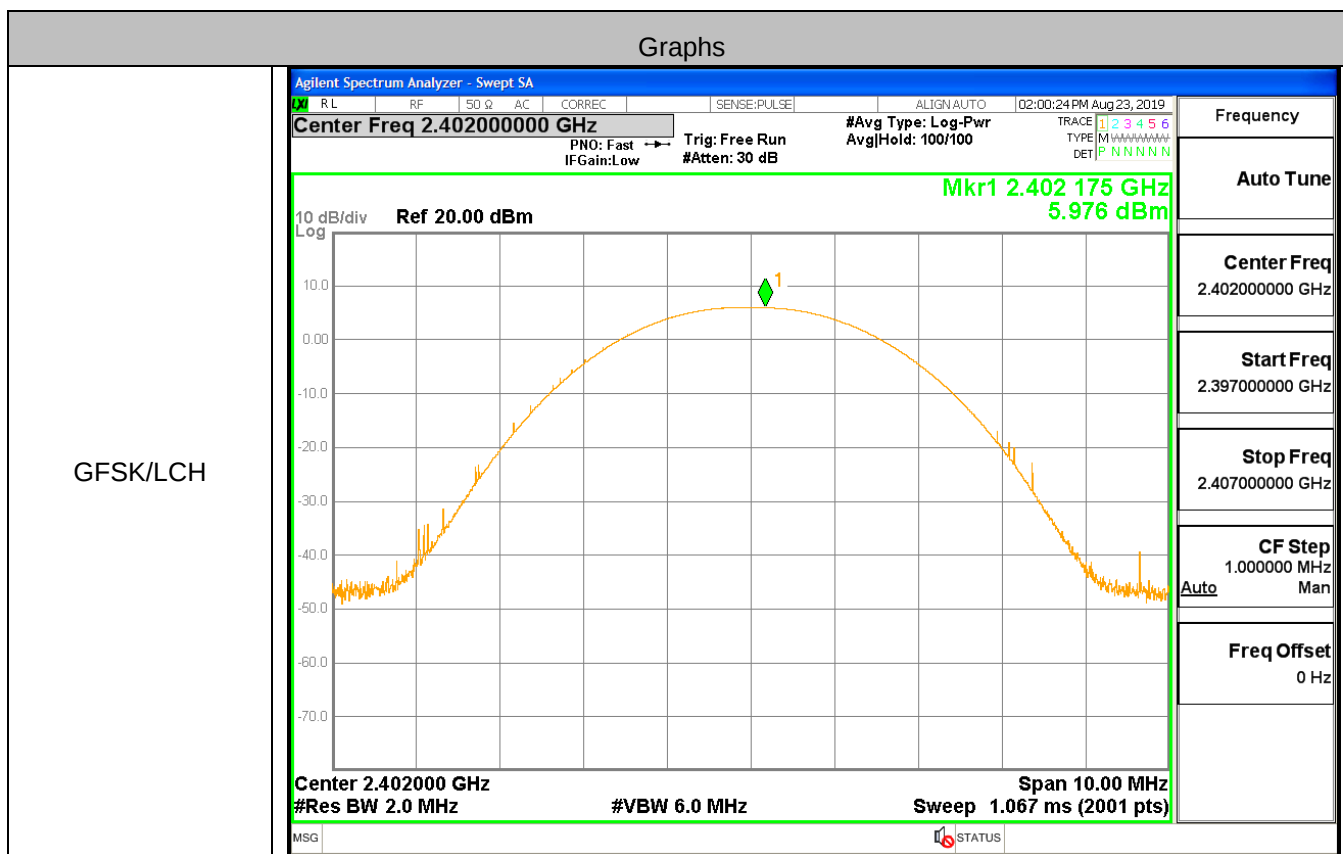


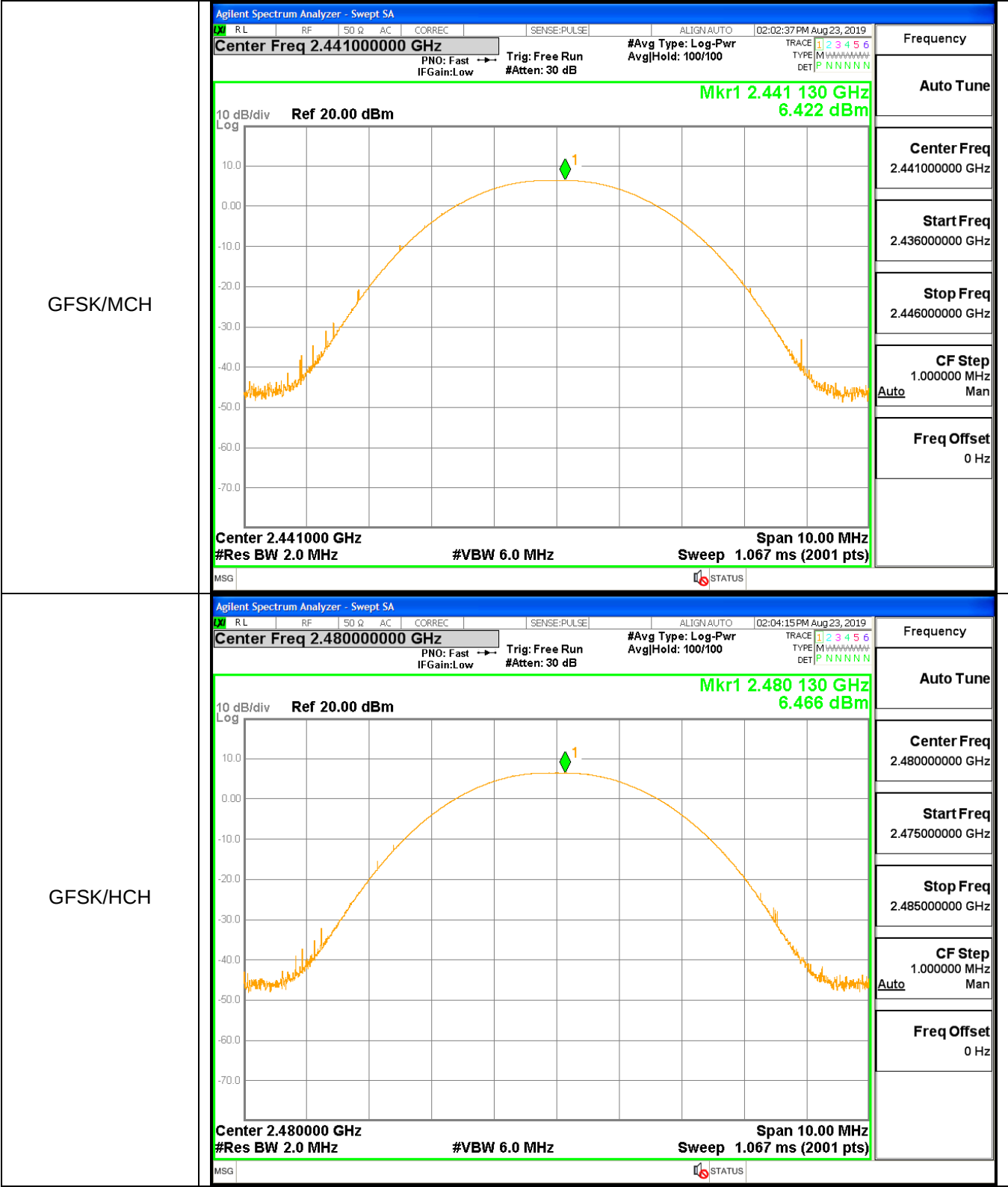


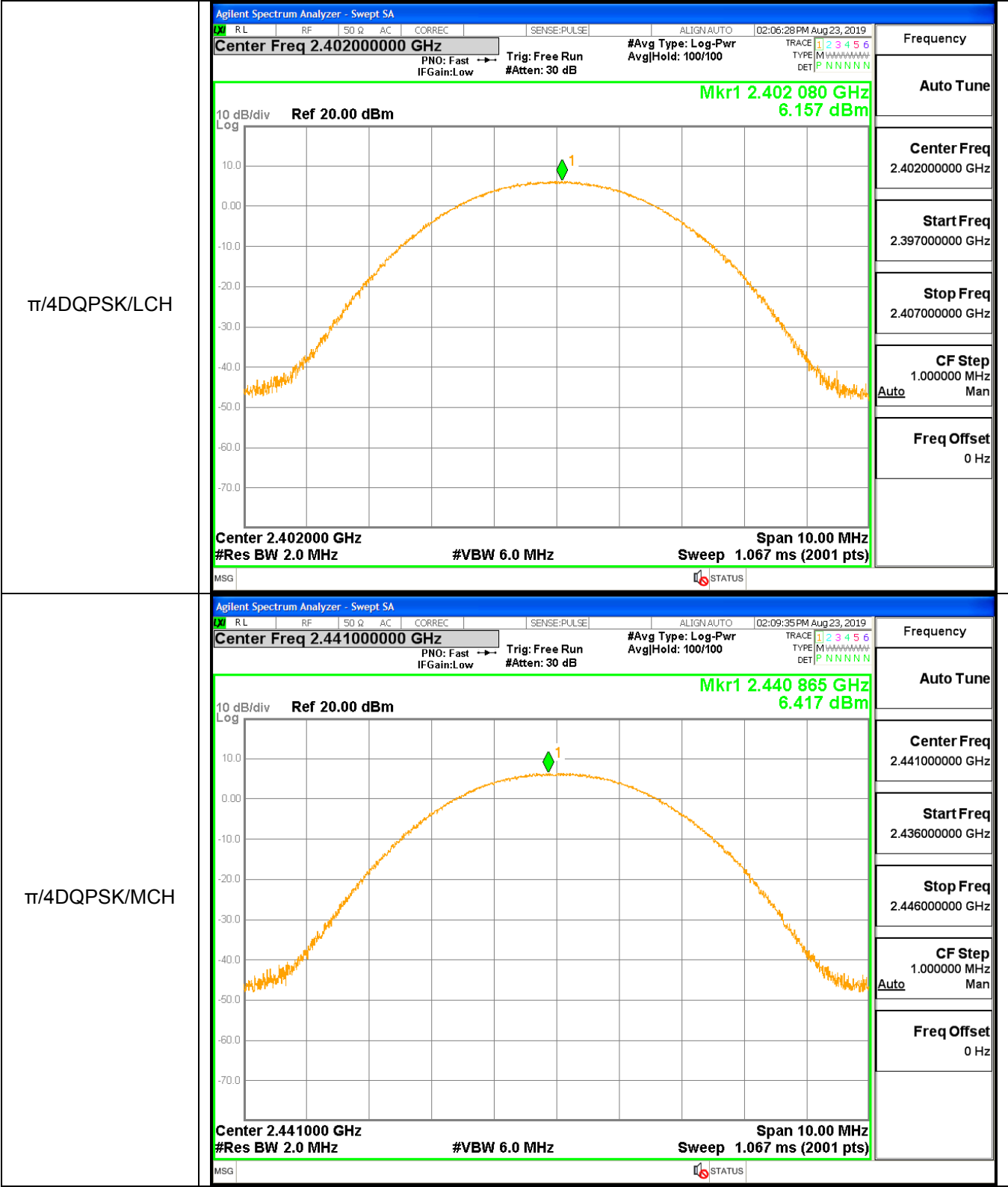
A.5 Conducted Peak Output Power

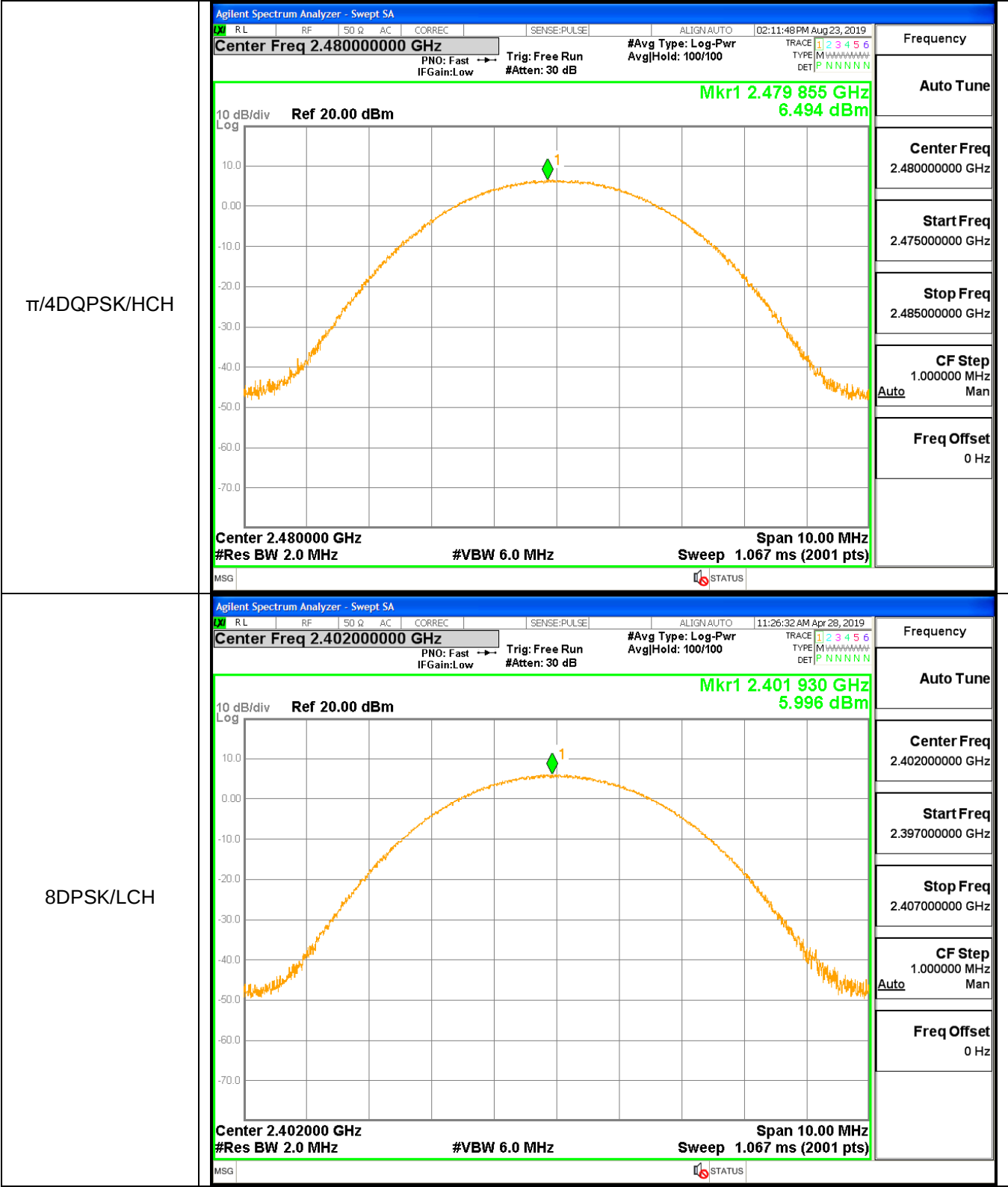
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	5.976	21	PASS
GFSK	MCH	6.422	21	PASS
GFSK	HCH	6.466	21	PASS
$\pi/4$ DQPSK	LCH	6.157	21	PASS
$\pi/4$ DQPSK	MCH	6.417	21	PASS
$\pi/4$ DQPSK	HCH	6.494	21	PASS
8DPSK	LCH	6.469	21	PASS
8DPSK	MCH	6.774	21	PASS
8DPSK	HCH	6.865	21	PASS

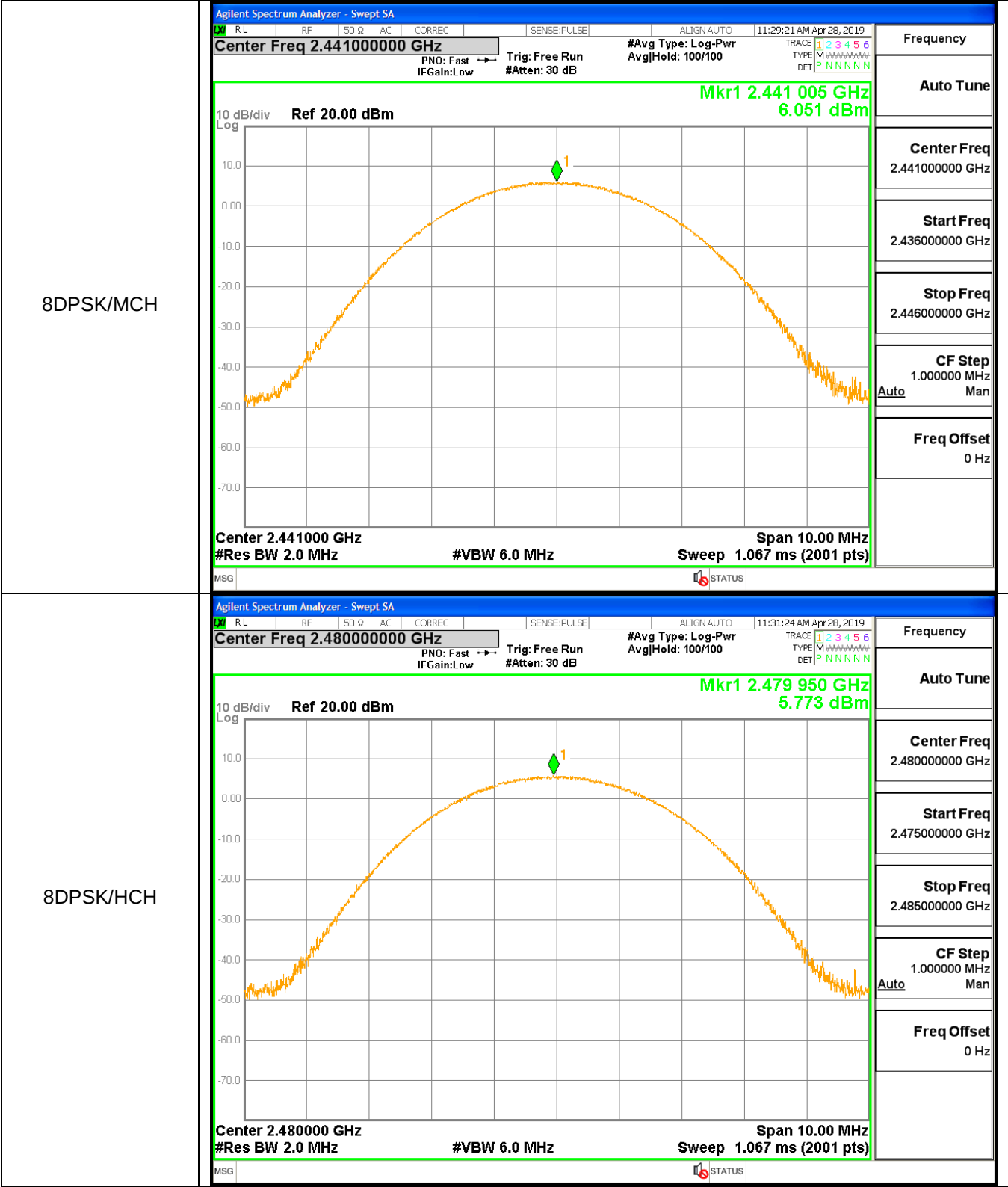
Test Graph









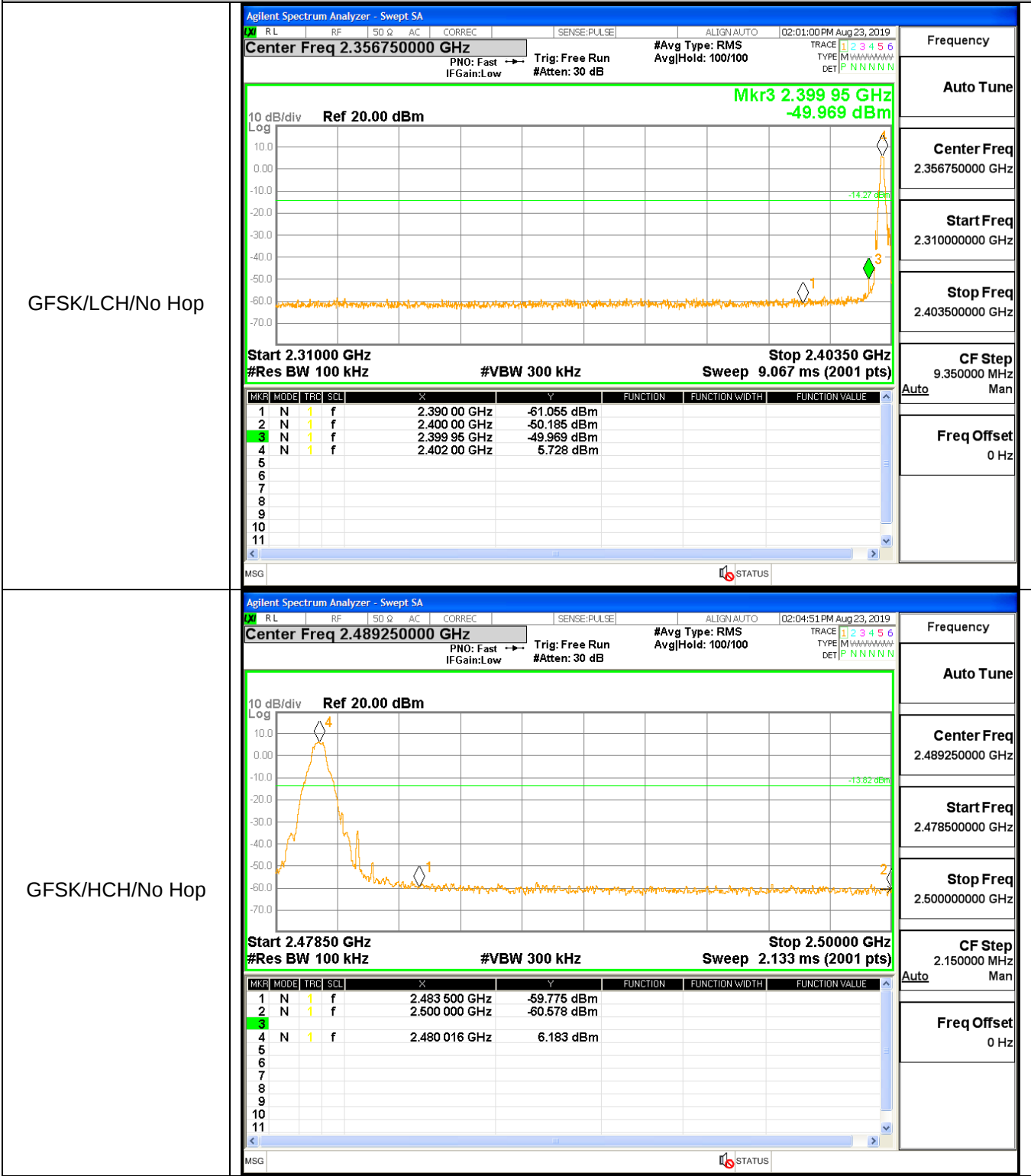


A.6 Band-edge for RF Conducted Emissions

Type	Carrier Frequency(MHz)	Frequency(MHz)	Carrier Frequency Power [dBm]	Bandedge Peak(dBm)	Upper limit(dBm)	Conclusion
1DH5	2402	2399.947	5.728	-49.969	-14.272	Pass
1DH5	2480	2483.5	6.183	-59.78	-13.817	Pass
2DH5	2402	2400	2.721	-54.55	-17.279	Pass
2DH5	2480	2483.5	3.894	-59.43	-16.106	Pass
3DH5	2402	2400	4.196	-53.26	-15.804	Pass
3DH5	2480	2483.5	2.966	-58.85	-17.034	Pass
1DH5-Hopping	2402	2399.7	-2.529	-46.191	-22.529	Pass
1DH5-Hopping	2480	2498.41	-4.331	-53.489	-24.331	Pass
2DH5-Hopping	2402	2399.58	-4.717	-53.551	-24.717	Pass
2DH5-Hopping	2480	2500	-5.753	-59.54	-25.753	Pass
3DH5-Hopping	2402	2399.22	-3.686	-52.103	-23.686	Pass
3DH5-Hopping	2480	2483.5	-5.515	-58.58	-25.515	Pass

Test Graph

Graphs



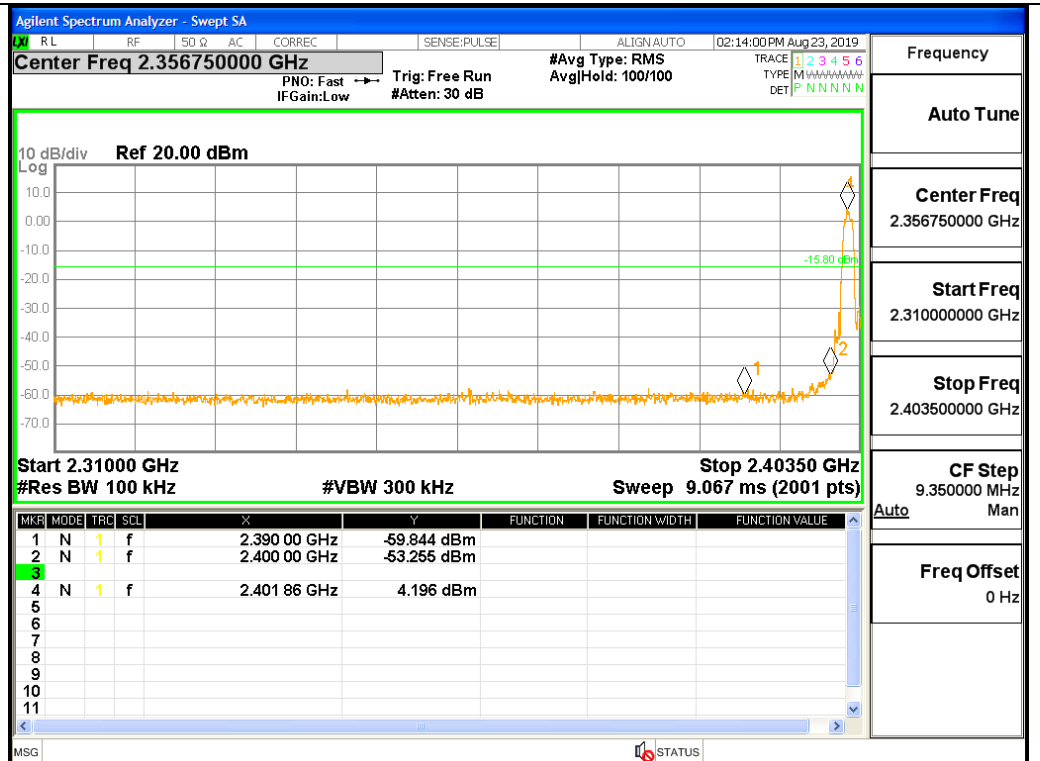
π /4DQPSK/LCH/No Hop

MkR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.390 00 GHz	-62.403 dBm			
2	N	1	f	2.400 00 GHz	-54.550 dBm			
3	N	1	f	2.402 00 GHz	2.721 dBm			

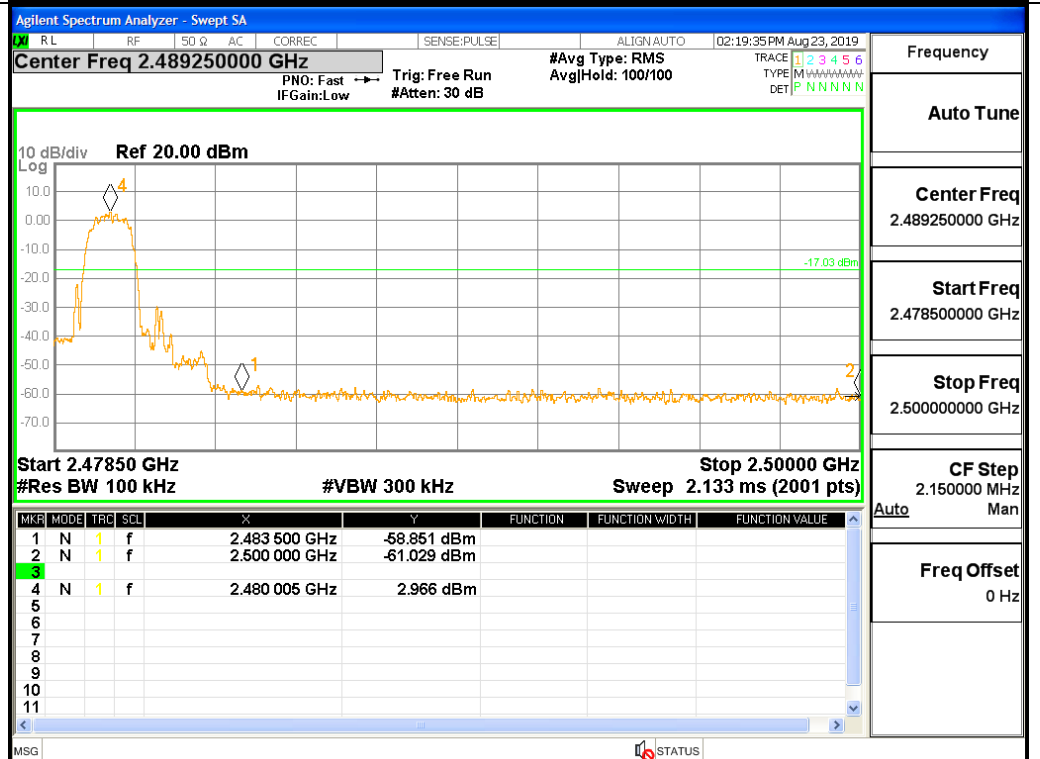
π /4DQPSK/HCH/No Hop

MkR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.483 500 GHz	-59.428 dBm			
2	N	1	f	2.500 000 GHz	-62.009 dBm			
3	N	1	f	2.480 156 GHz	3.894 dBm			

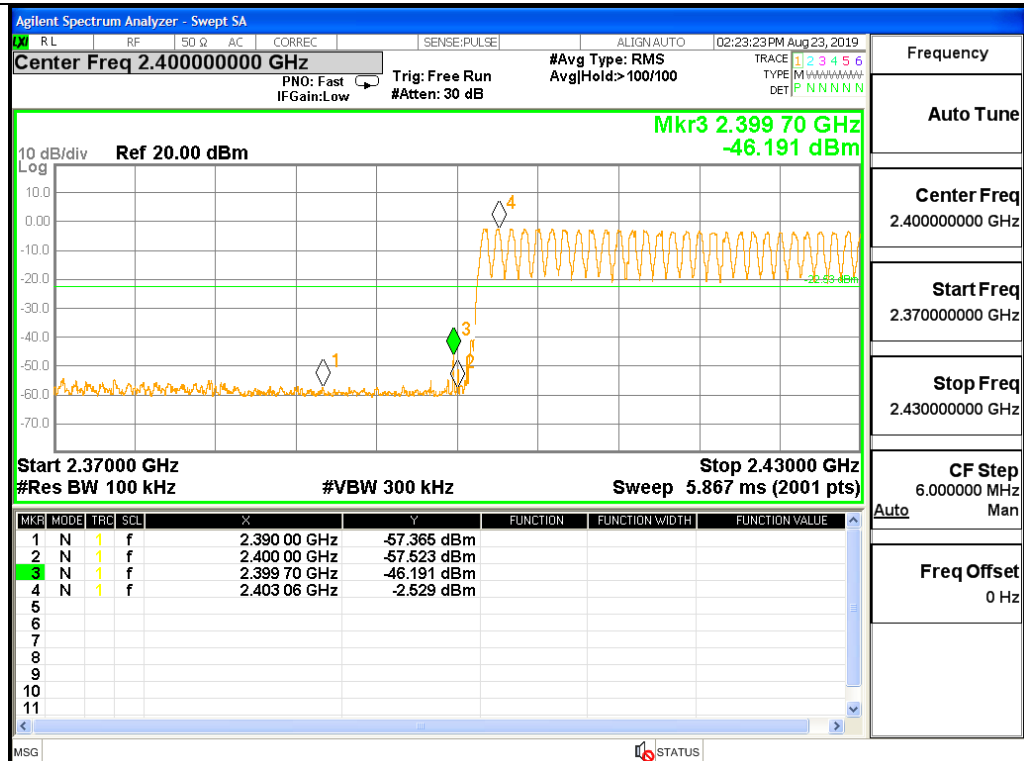
8DPSK/LCH/No Hop



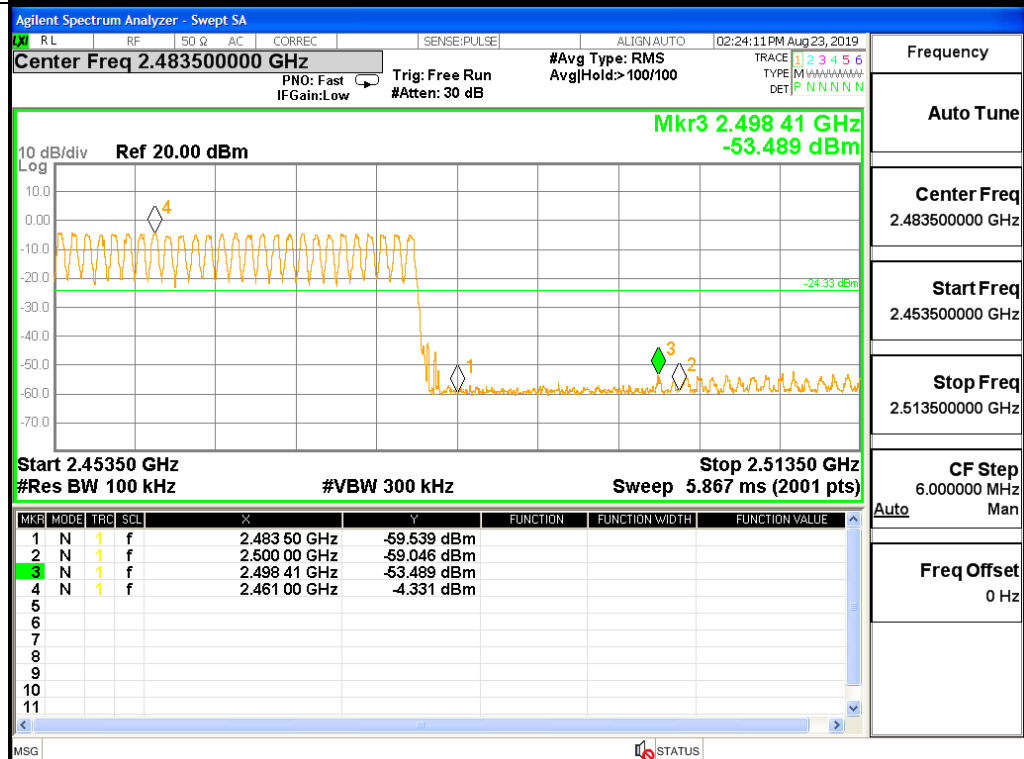
8DPSK/HCH/No Hop



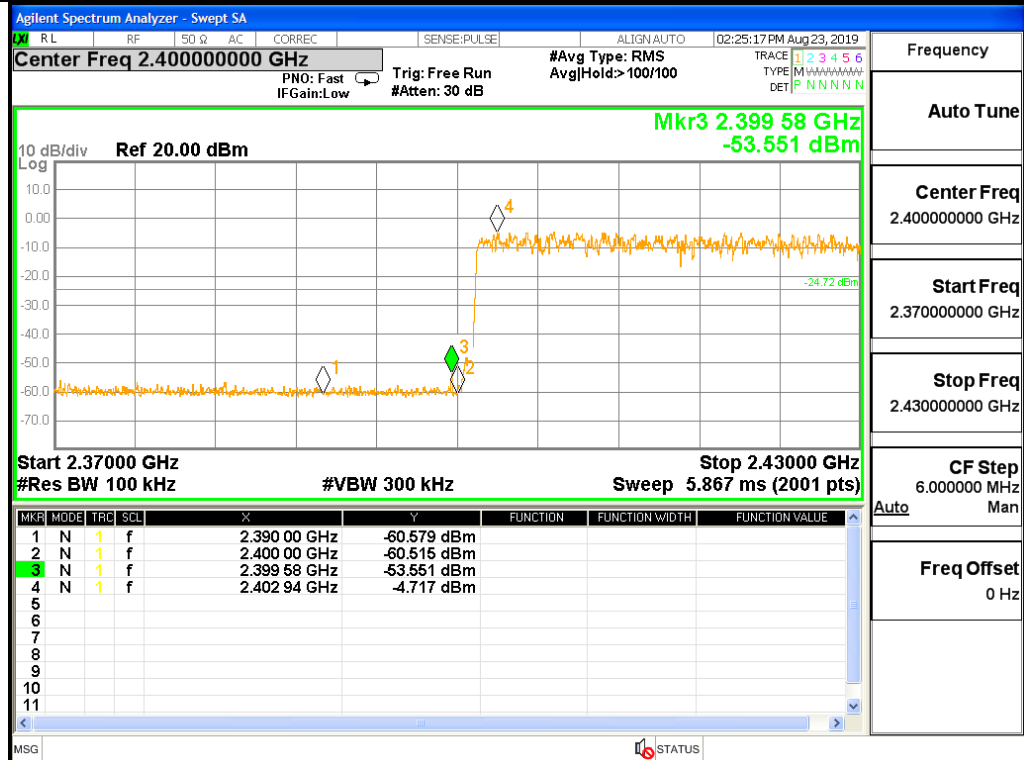
GFSK/LCH/Hop



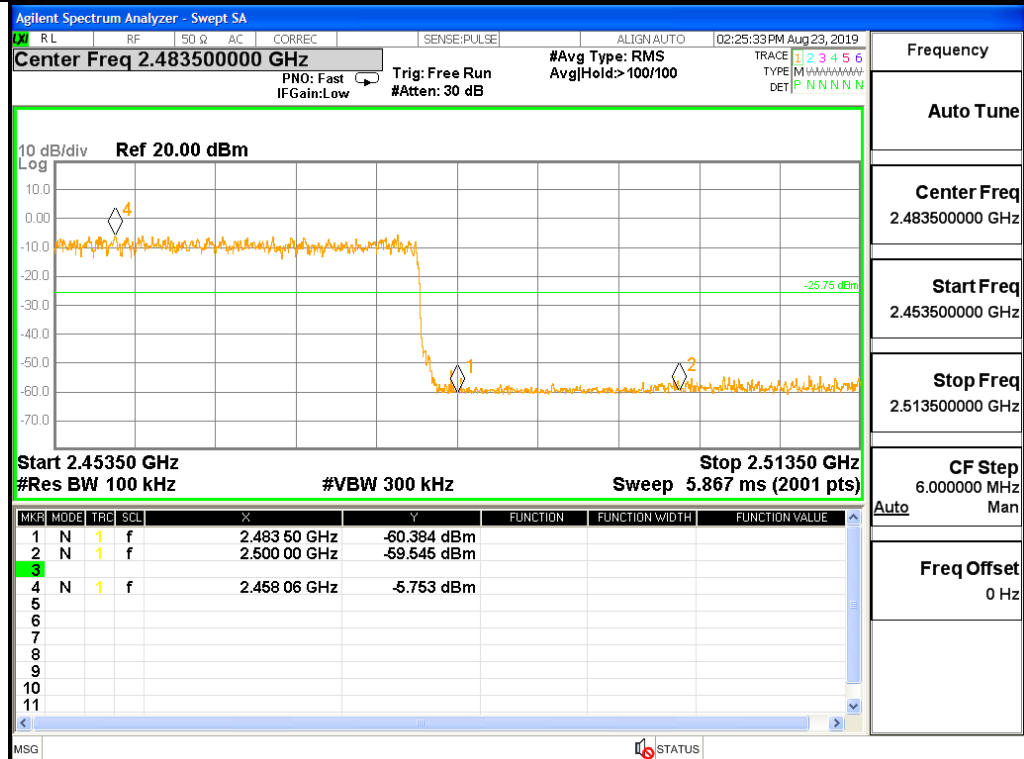
GFSK/HCH/Hop



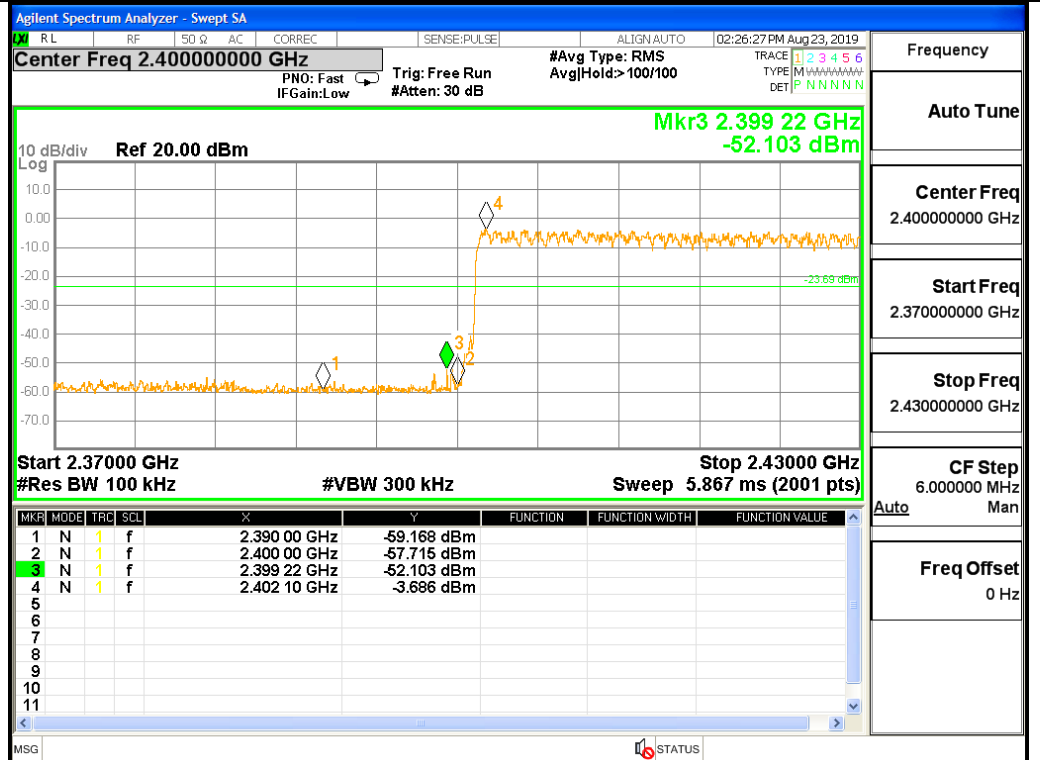
π /4DQPSK/LCH/Hop



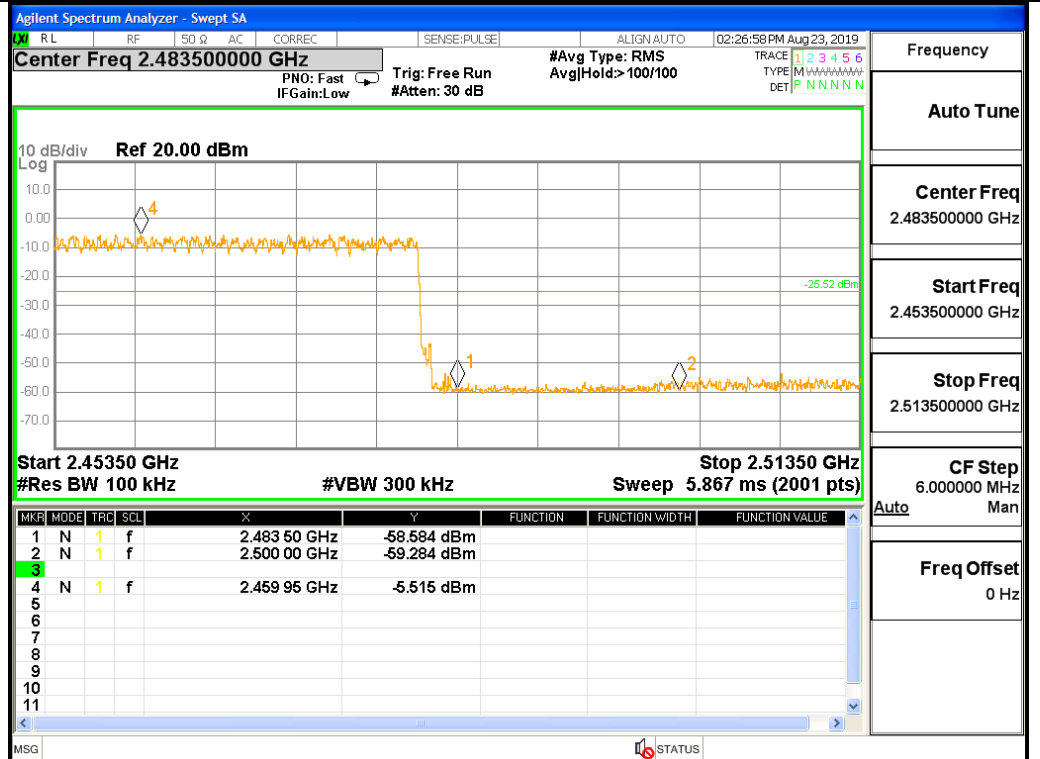
π /4DQPSK/HCH/Hop



8DPSK/LCH/Hop

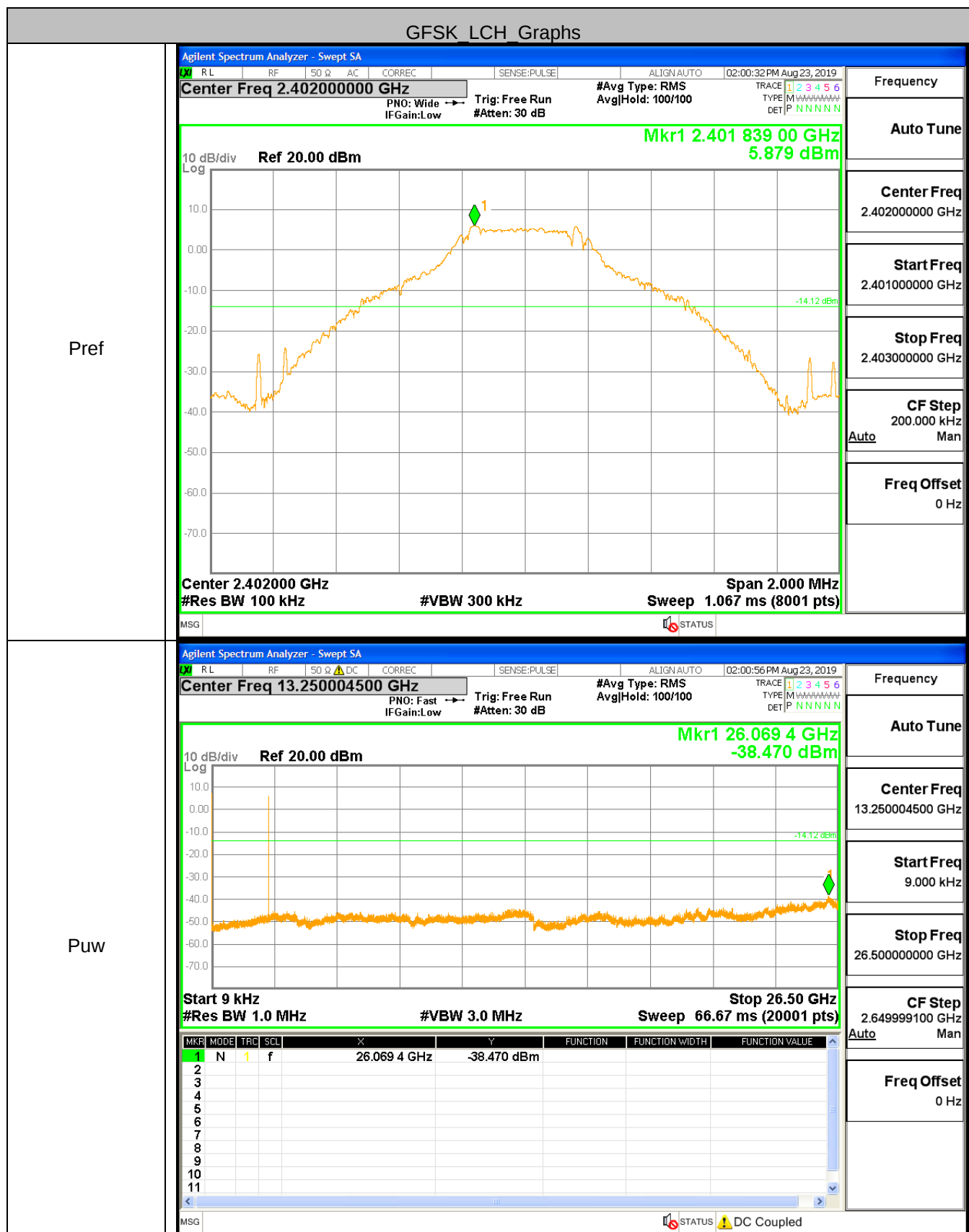


8DPSK/HCH/Hop

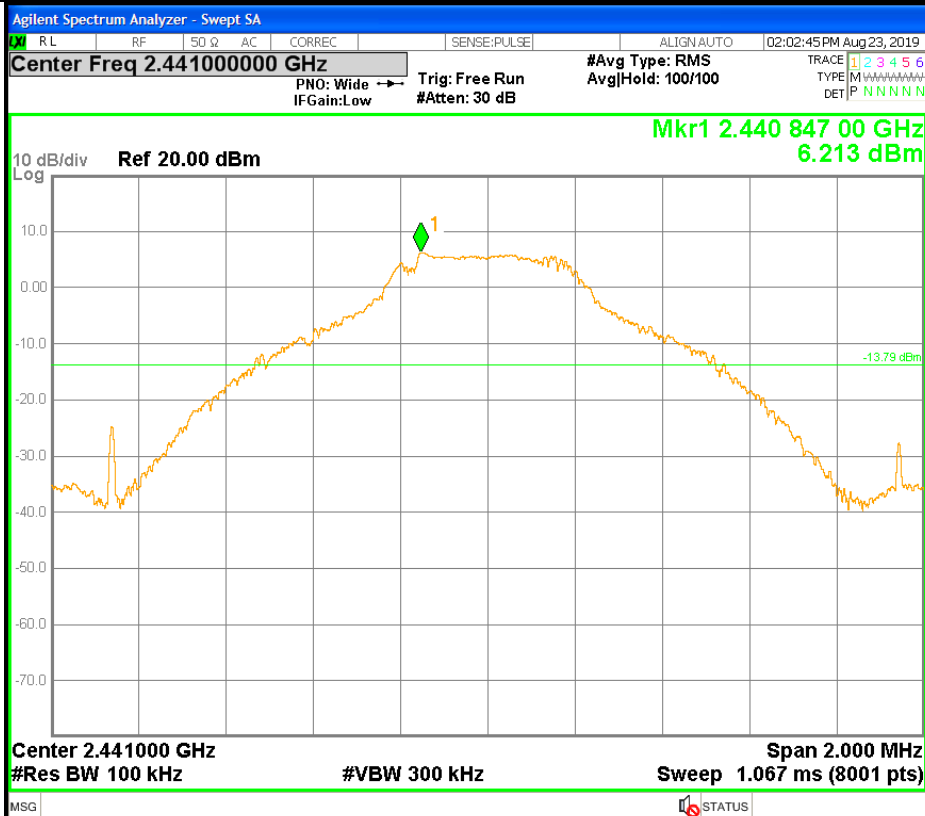


A.7 RF Conducted Spurious Emissions

Test Graph

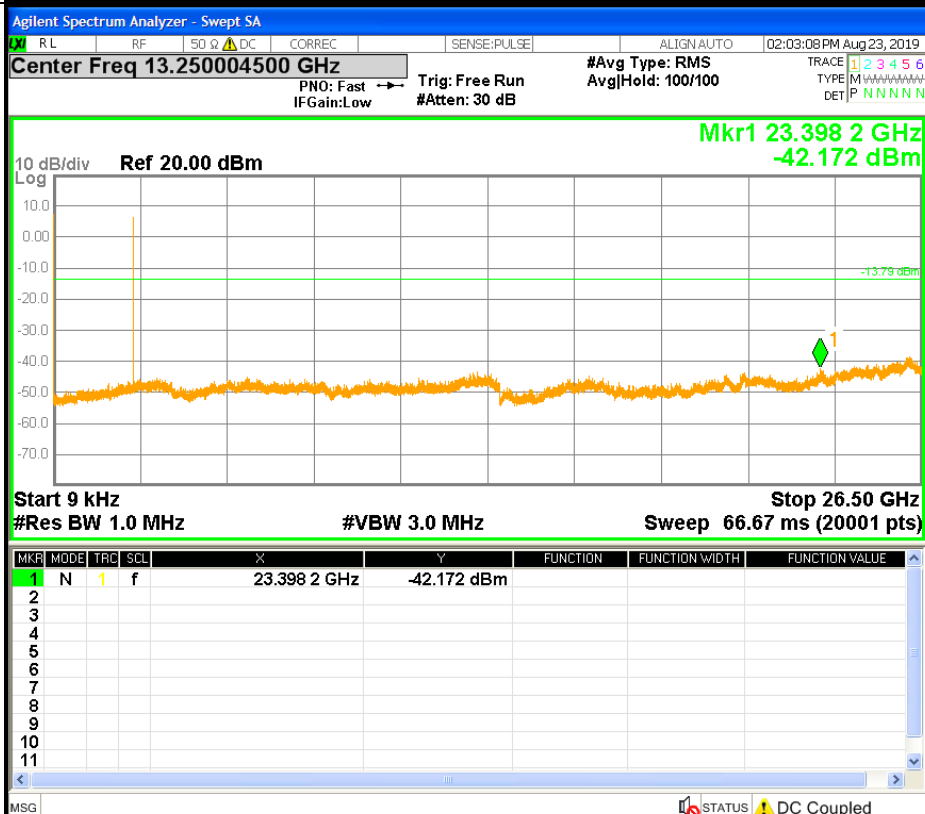


GFSK MCH_Graphs

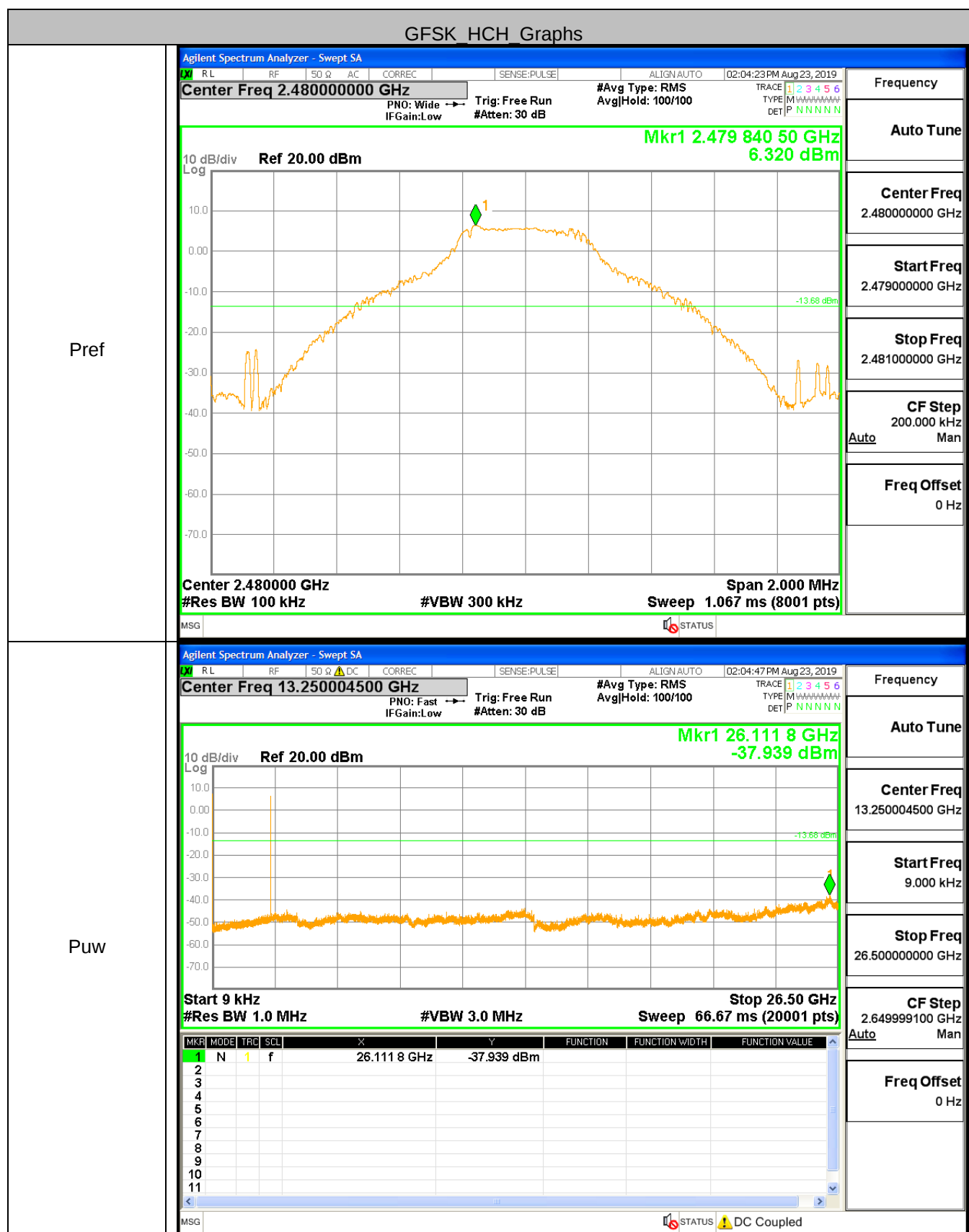


Frequency	
Auto Tune	
Center Freq	2.441000000 GHz
Start Freq	2.440000000 GHz
Stop Freq	2.442000000 GHz
CF Step	200.000 kHz
<u>Auto</u>	Man
Freq Offset	0 Hz

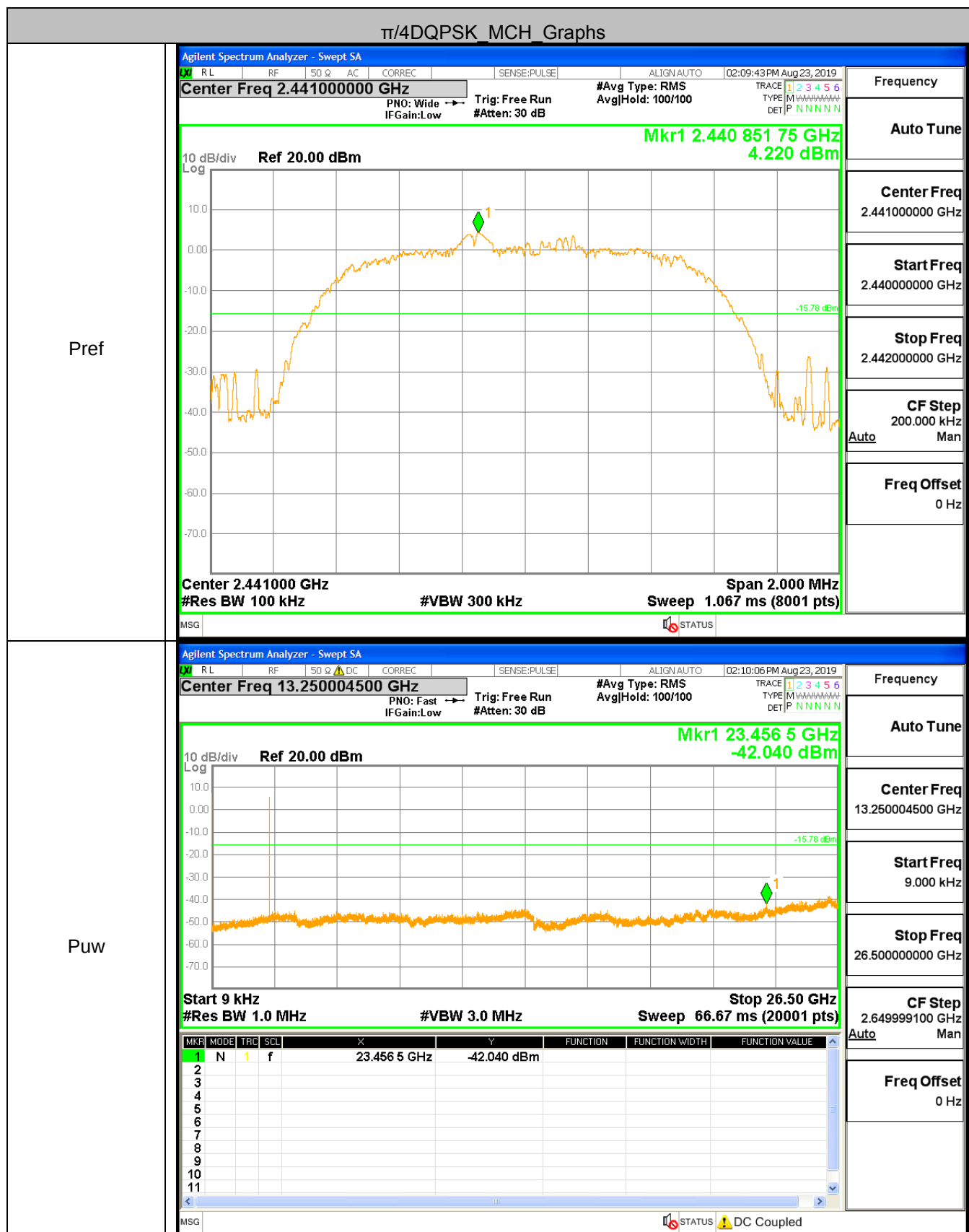
Puw

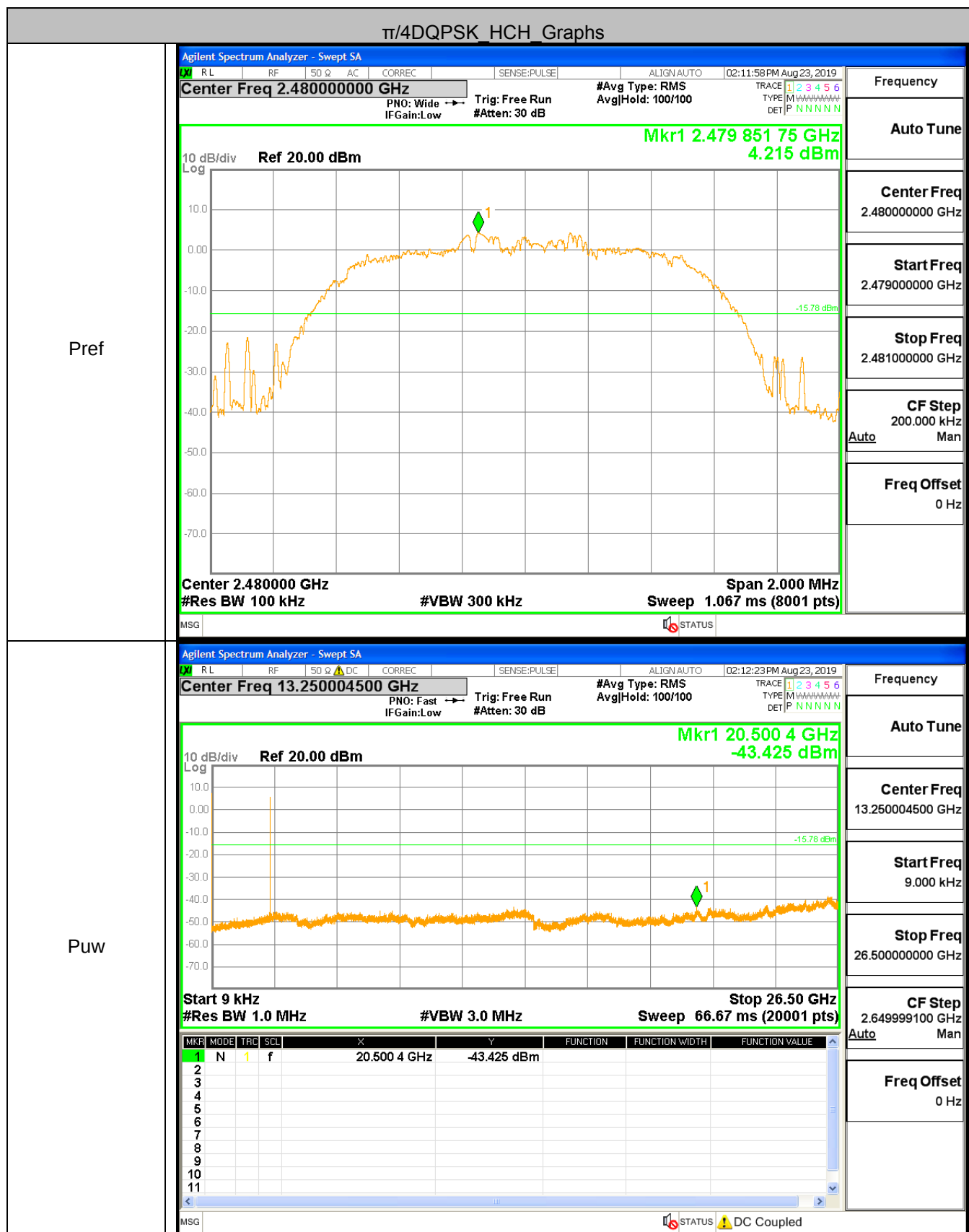


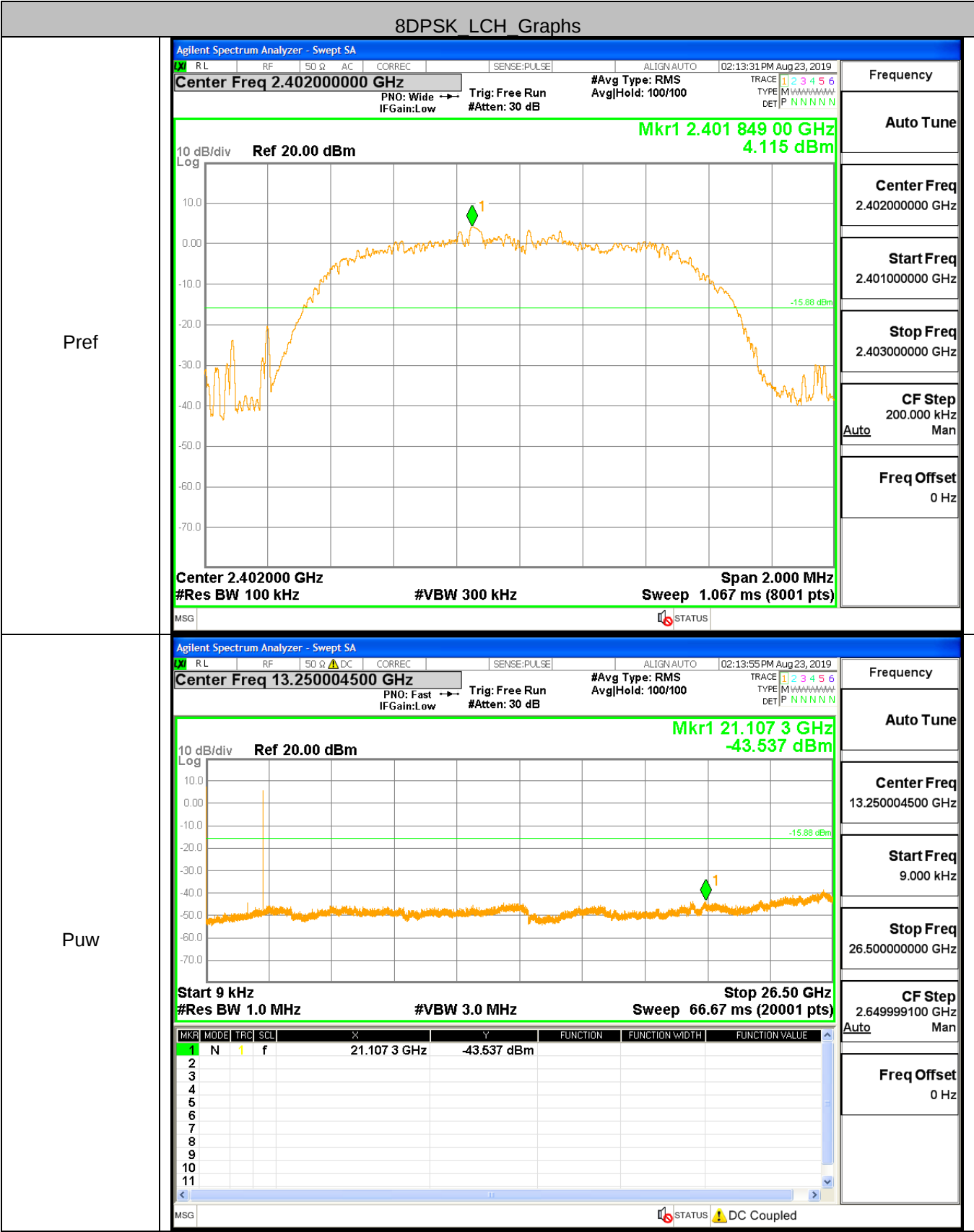
Frequency	
Auto Tune	
Center Freq	13.250004500 GHz
Start Freq	9.000 kHz
Stop Freq	26.500000000 GHz
CF Step	2.649999100 GHz
<u>Auto</u>	Man
Freq Offset	0 Hz

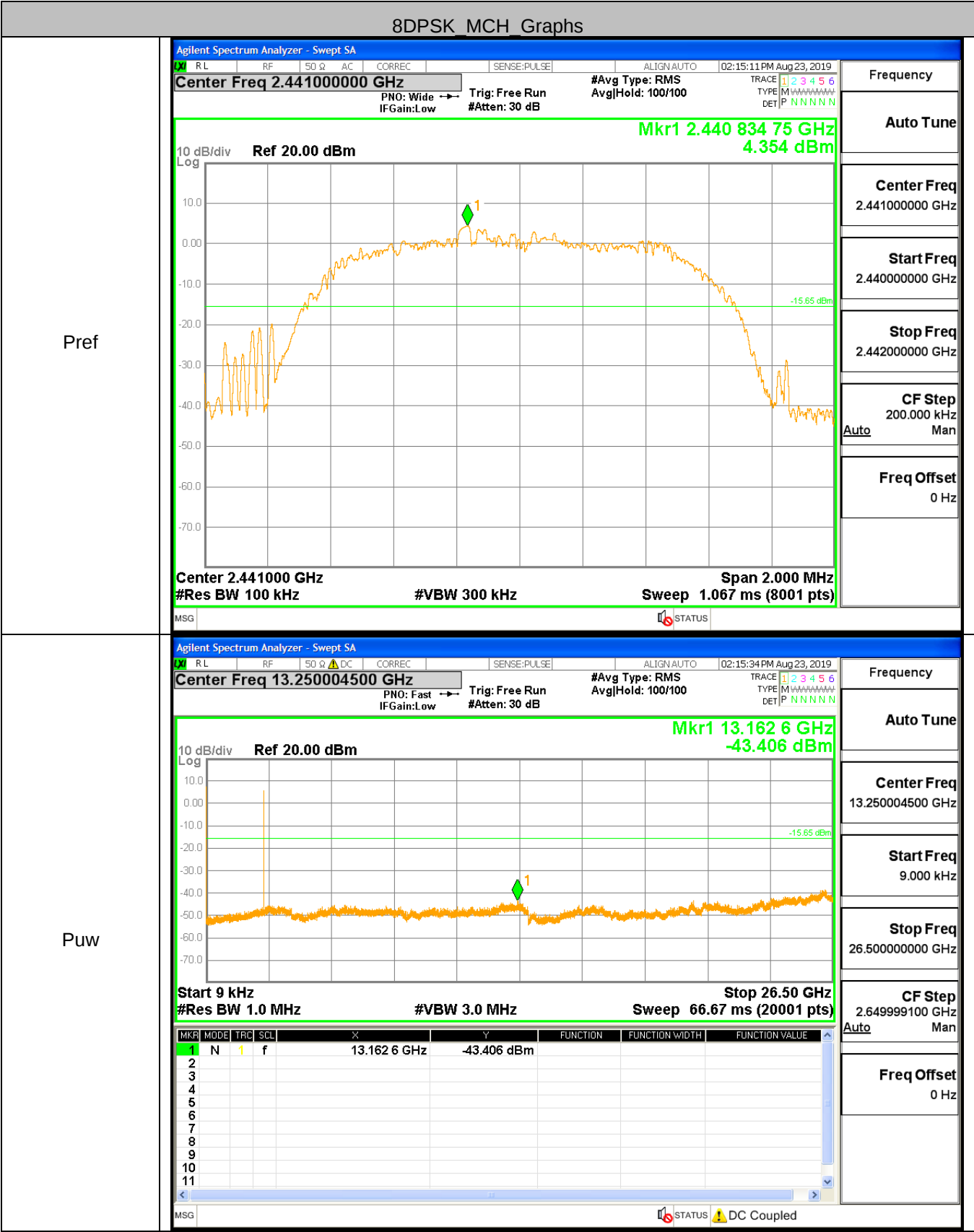


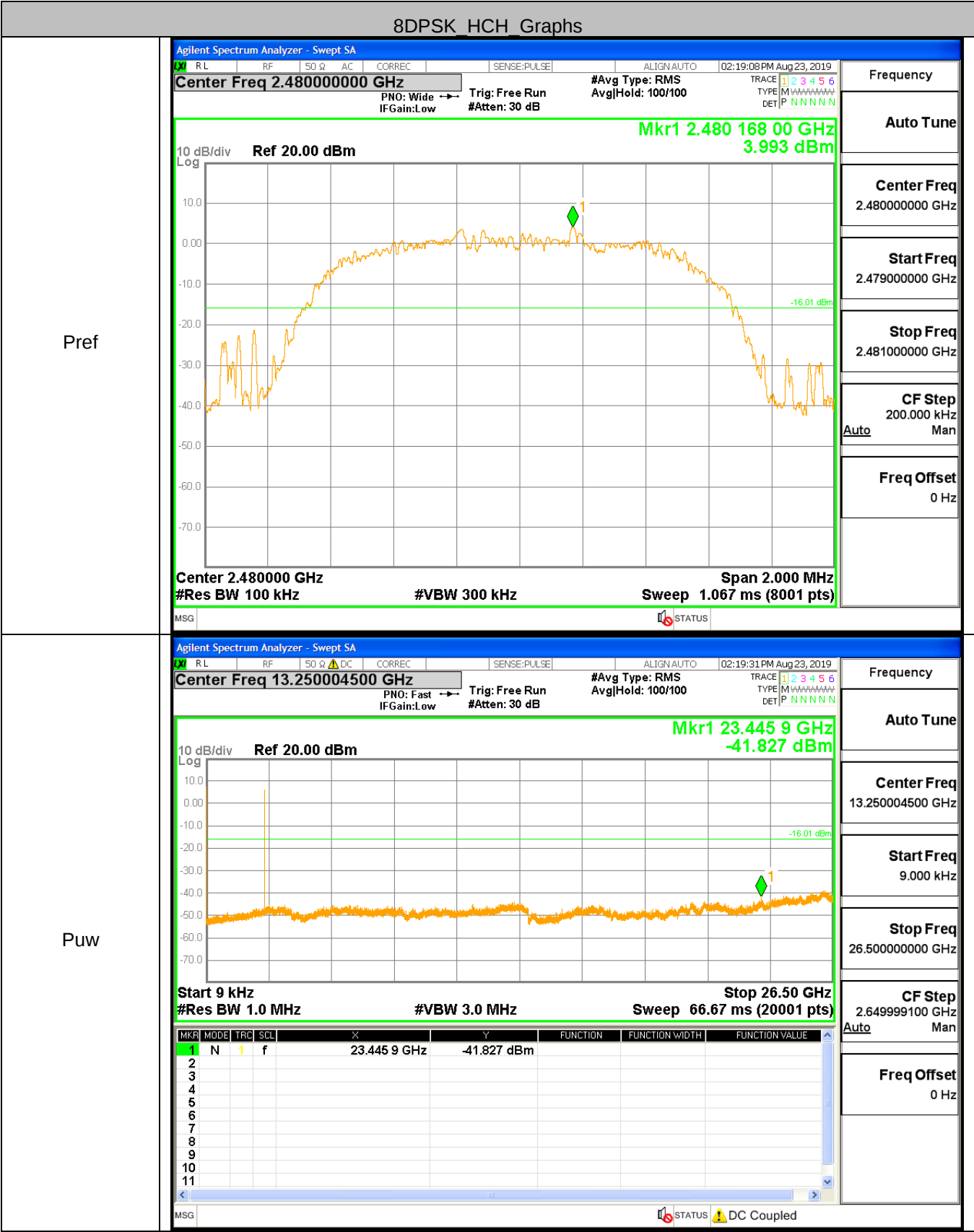










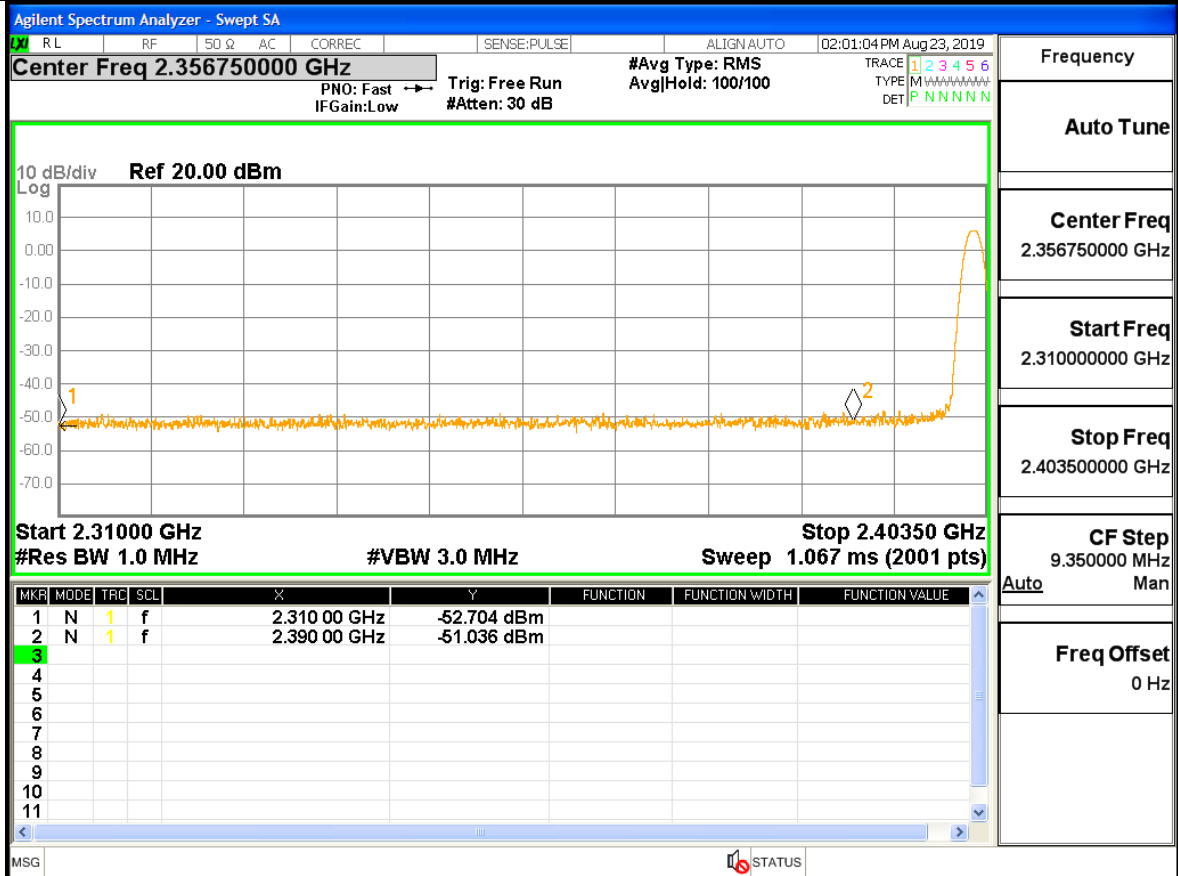


A.8 Restrict-band band-edge measurements

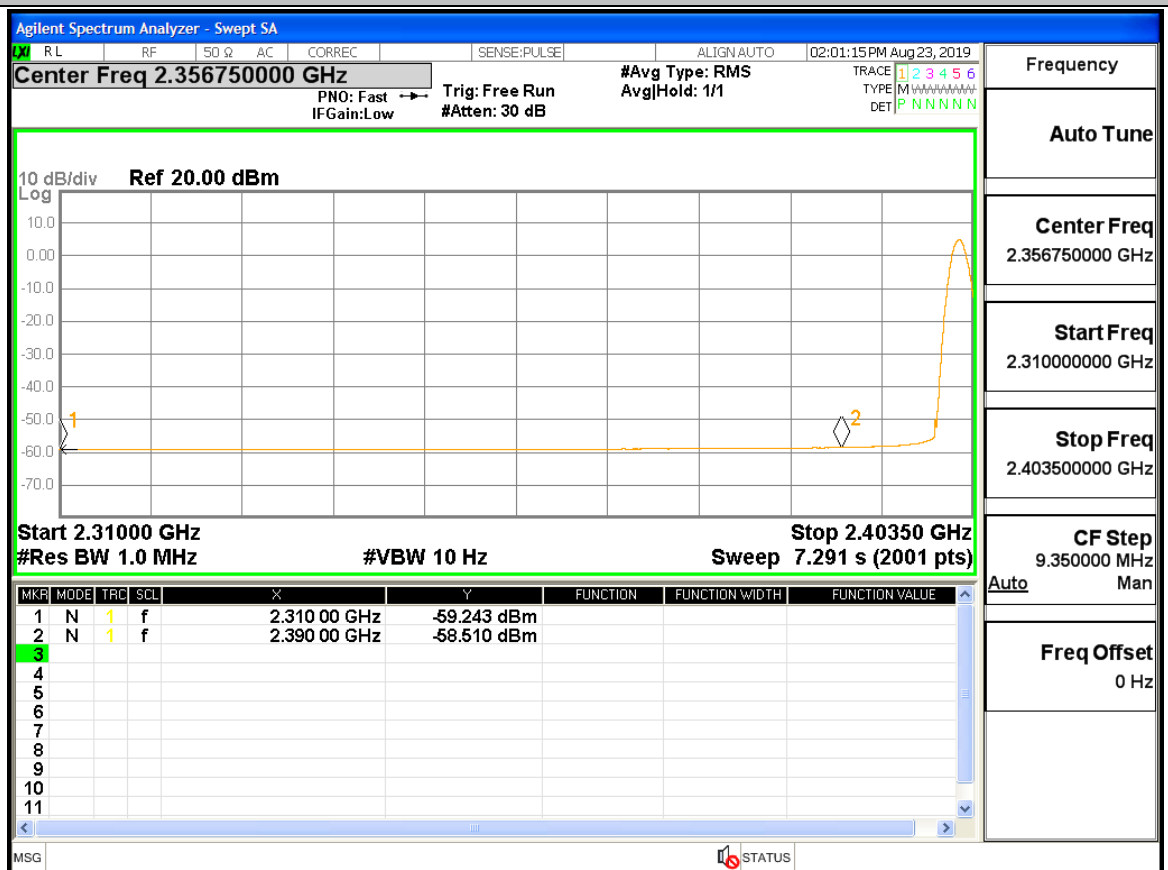
Type	Carrier Frequency (MHz)	Frequency(MHz)	Gain	Ground Factor	Peak Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2390.00	2.00	0.00	-51.04	46.16	74	Pass
1DH5	2480	2494.18	2.00	0.00	-47.09	50.11	74	Pass
2DH5	2402	2310.00	2.00	0.00	-52.10	45.10	74	Pass
2DH5	2480	2486.08	2.00	0.00	-46.96	50.24	74	Pass
3DH5	2402	2390.00	2.00	0.00	-52.01	45.19	74	Pass
3DH5	2480	2484.22	2.00	0.00	-47.65	49.55	74	Pass

Type	Carrier Frequency (MHz)	Frequency(MHz)	Gain	Ground Factor	Average Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2390.00	2.00	0.00	-58.51	38.69	54	Pass
1DH5	2480	2494.18	2.00	0.00	-53.47	43.73	54	Pass
2DH5	2402	2310.00	2.00	0.00	-58.67	38.53	54	Pass
2DH5	2480	2486.08	2.00	0.00	-52.96	44.24	54	Pass
3DH5	2402	2390.00	2.00	0.00	-58.68	38.52	54	Pass
3DH5	2480	2484.22	2.00	0.00	-58.42	38.78	54	Pass

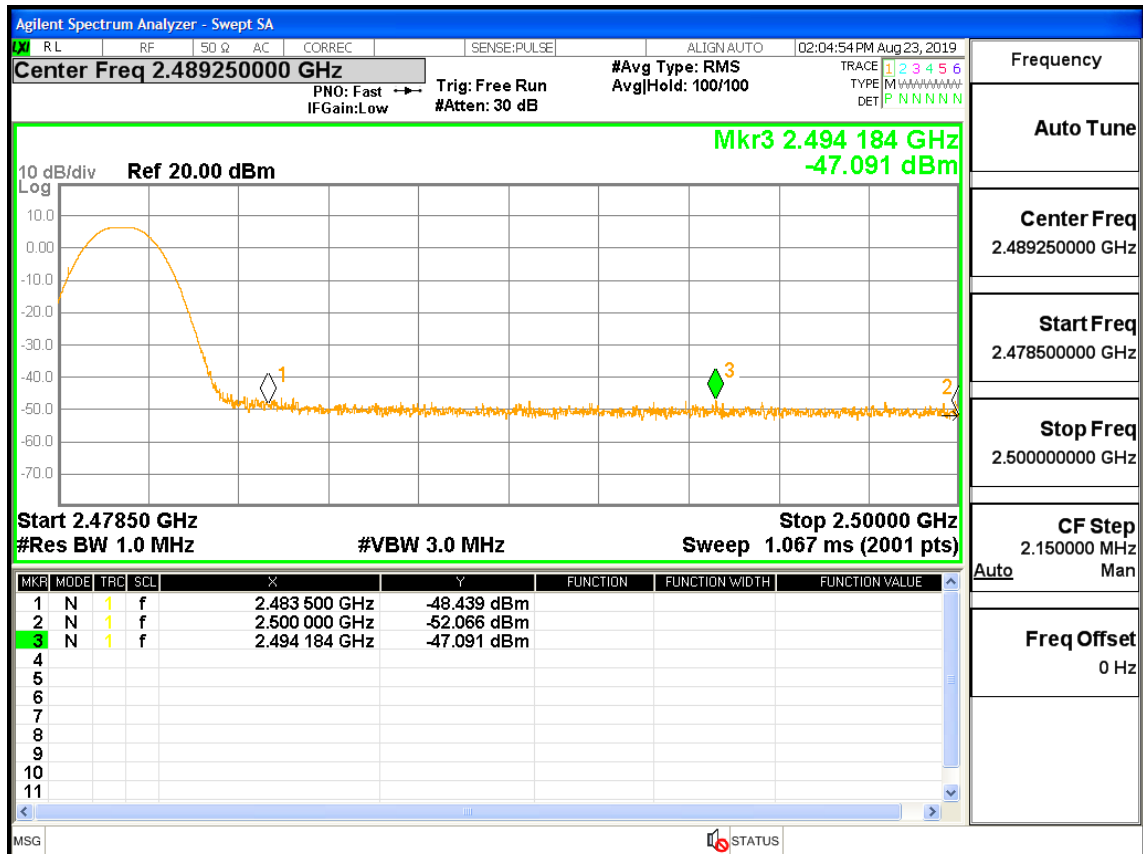
Restrict-band band-edge measurements_2402_PEAK_DH5



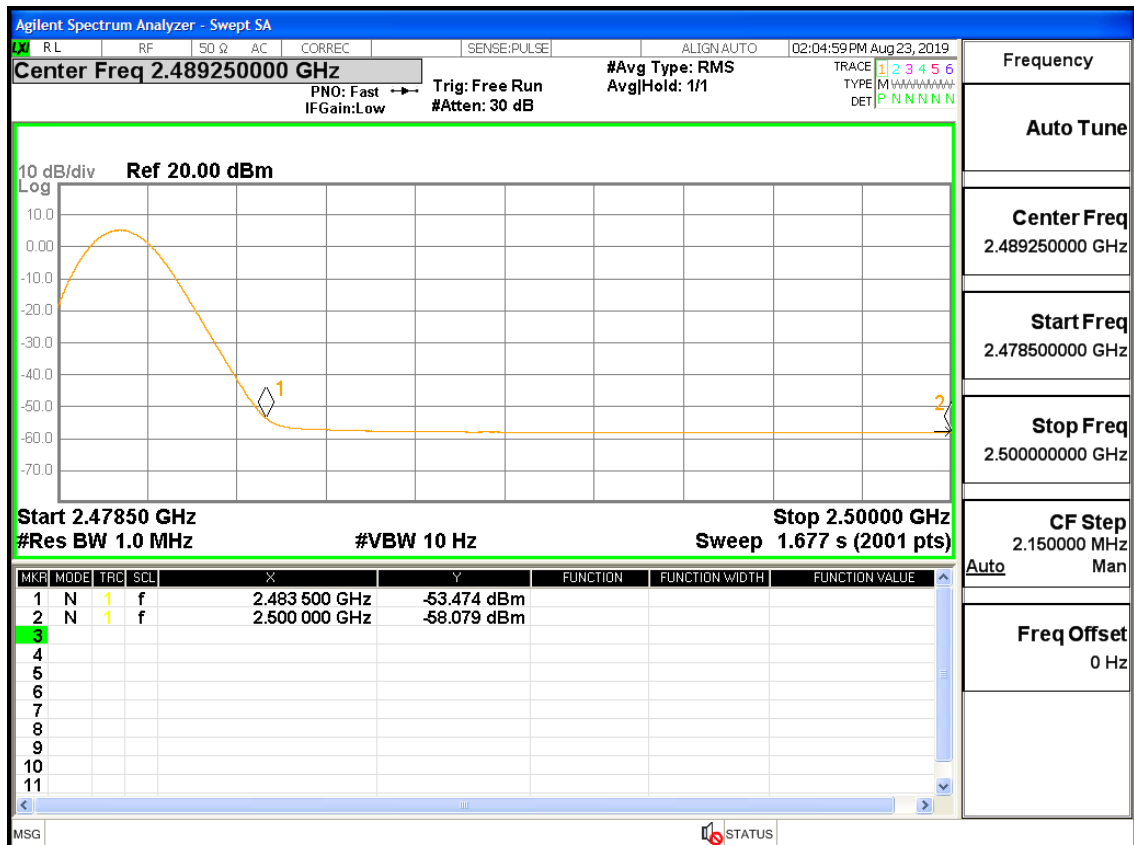
Restrict-band band-edge measurements_2402_AV_DH5



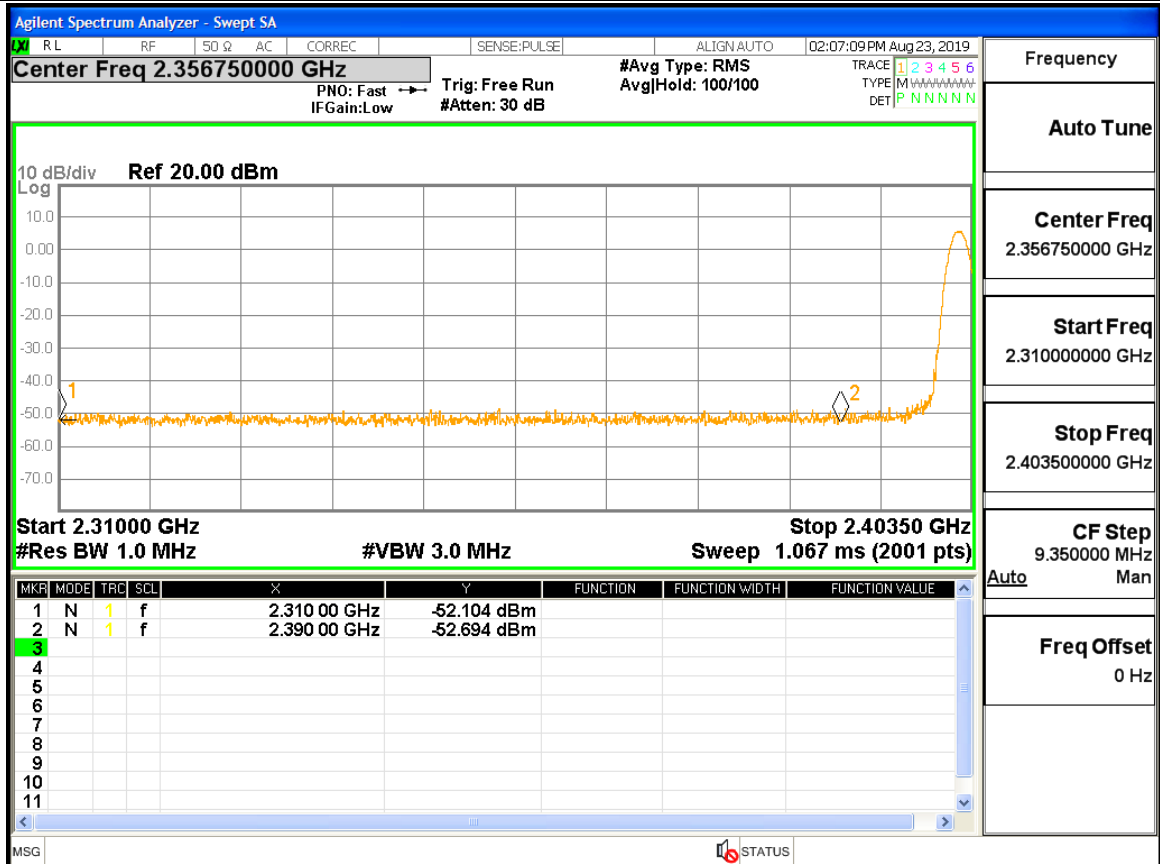
Restrict-band band-edge measurements_2480_PEAK_DH5



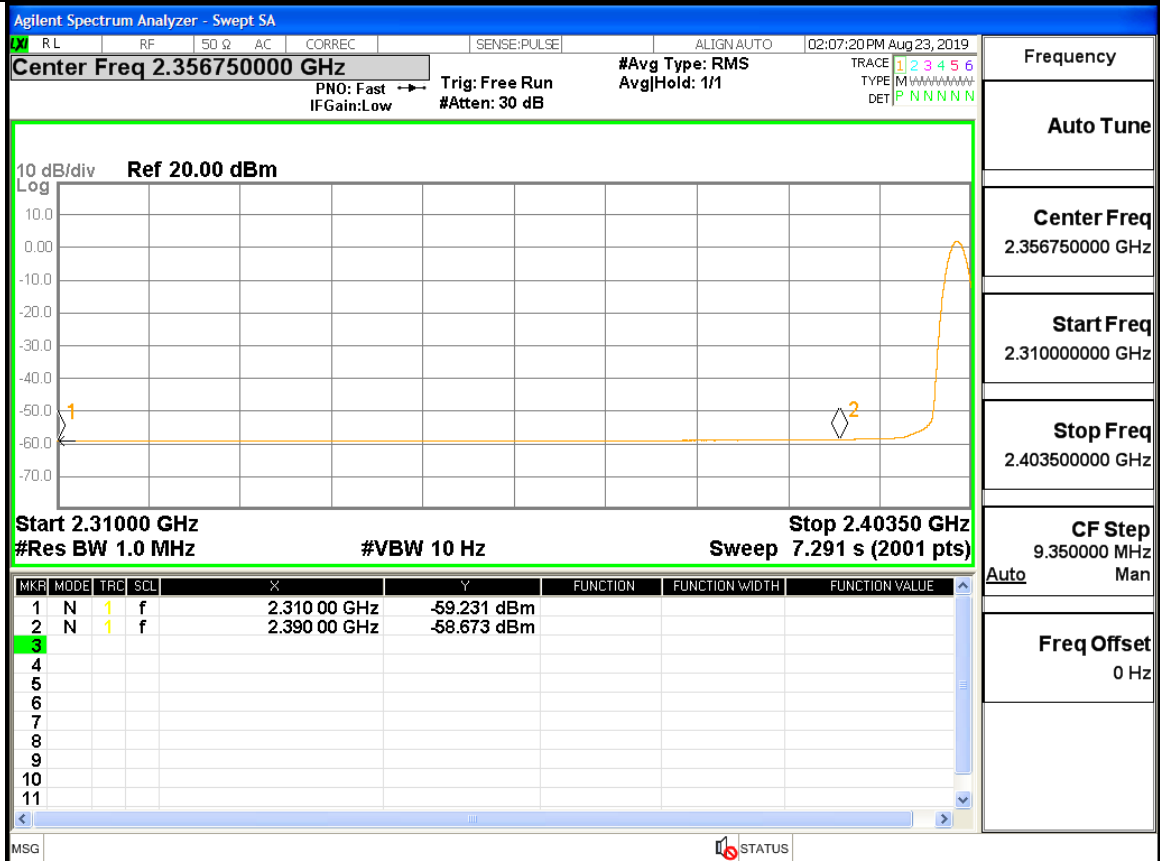
Restrict-band band-edge measurements_2480_AV_DH5



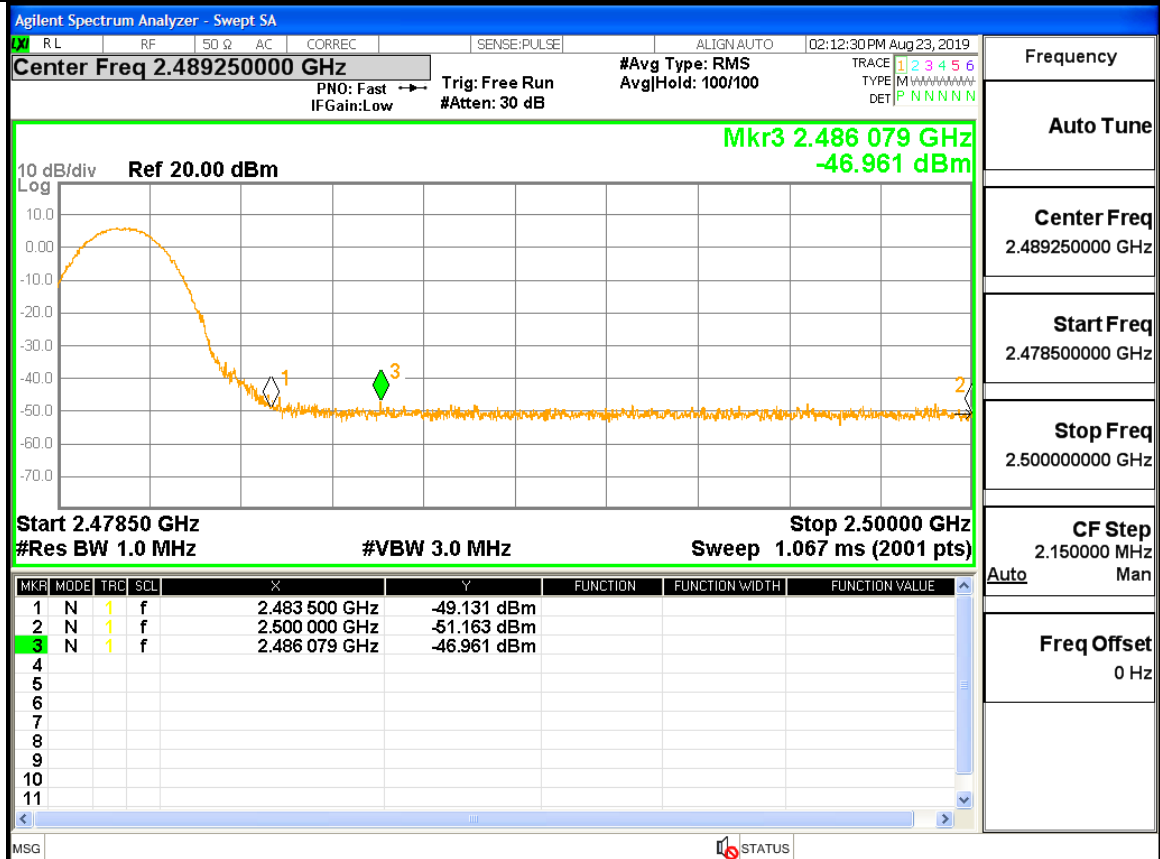
Restrict-band band-edge measurements_2402_PEAK_2DH5



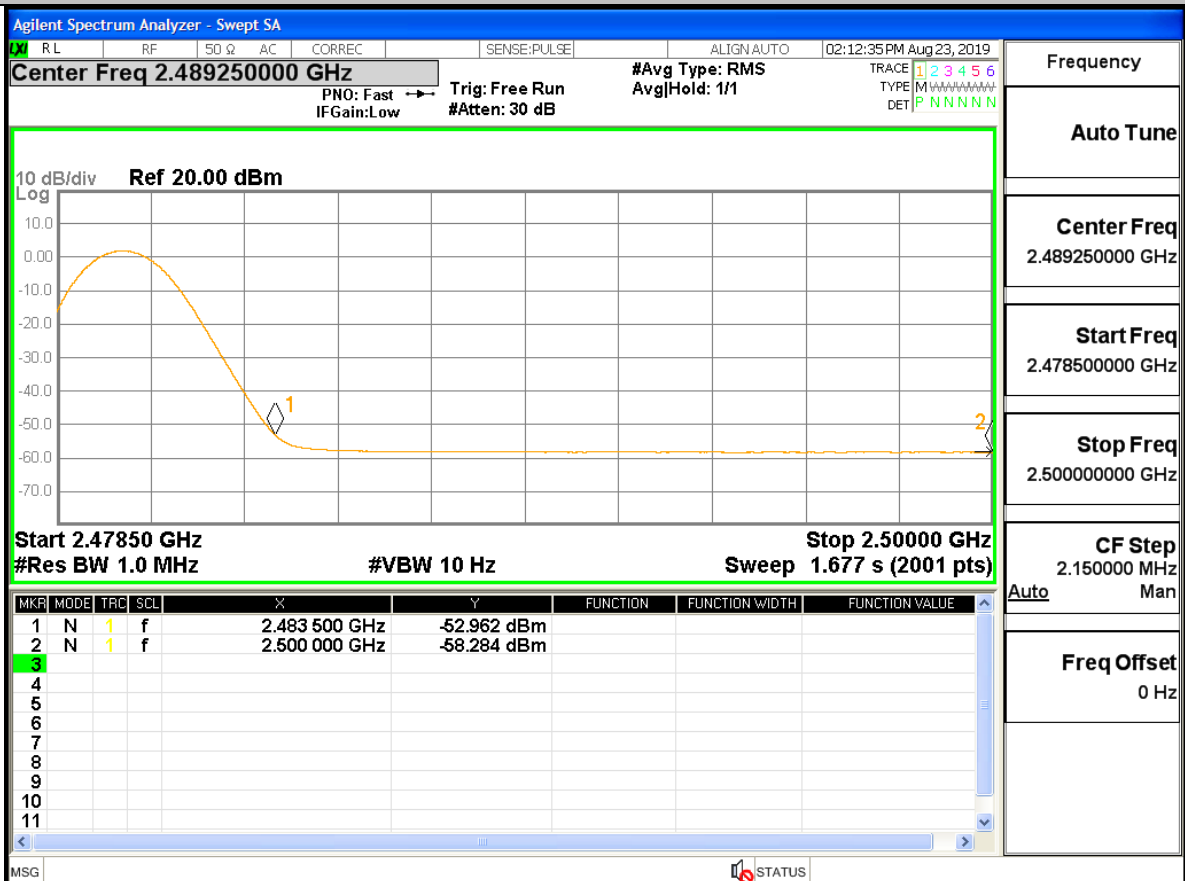
Restrict-band band-edge measurements_2402_AV_2DH5



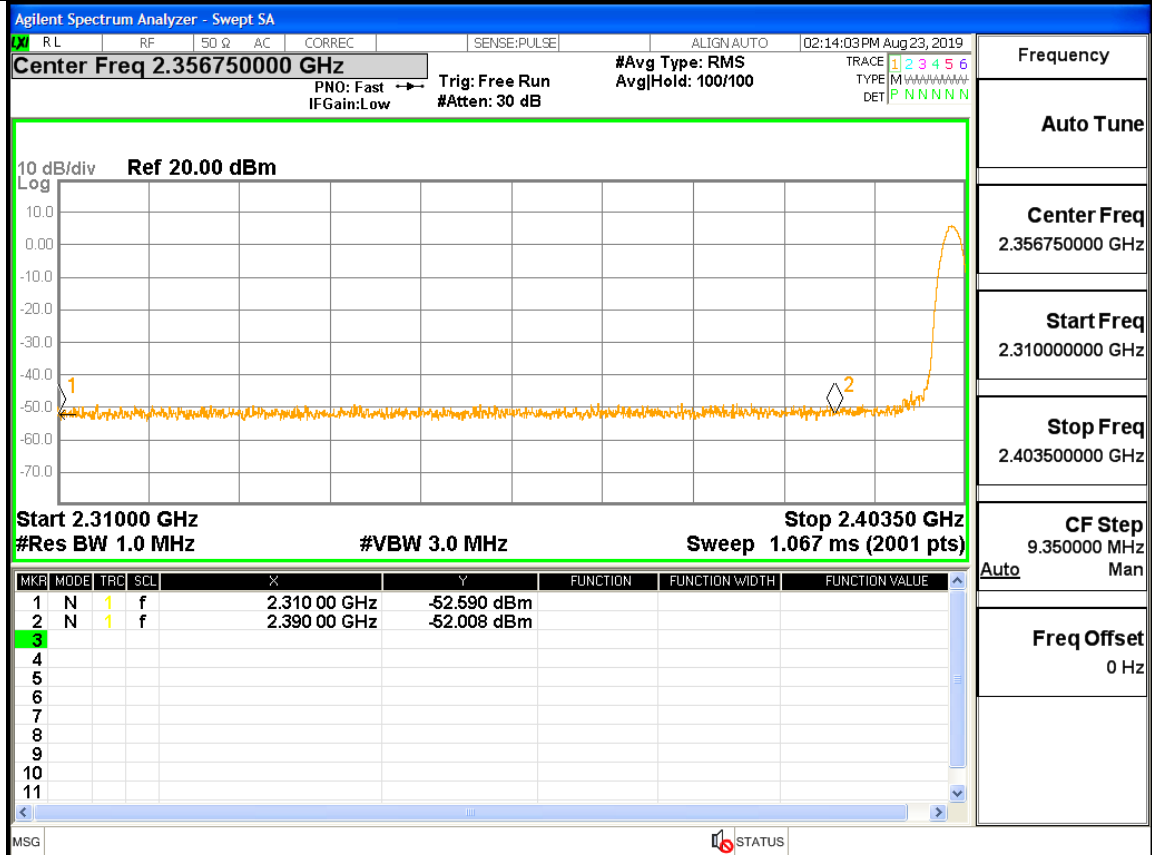
Restrict-band band-edge measurements_2480_PEAK_2DH5



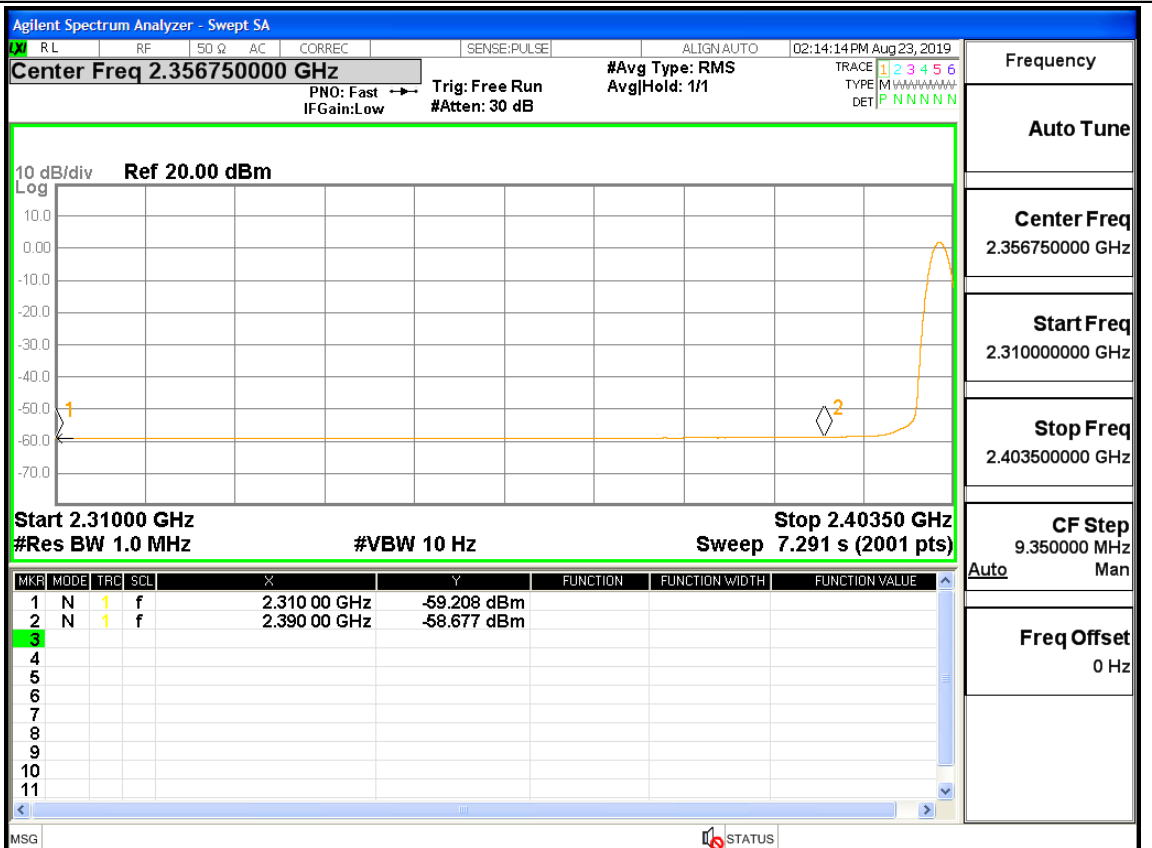
Restrict-band band-edge measurements_2480_AV_2DH5



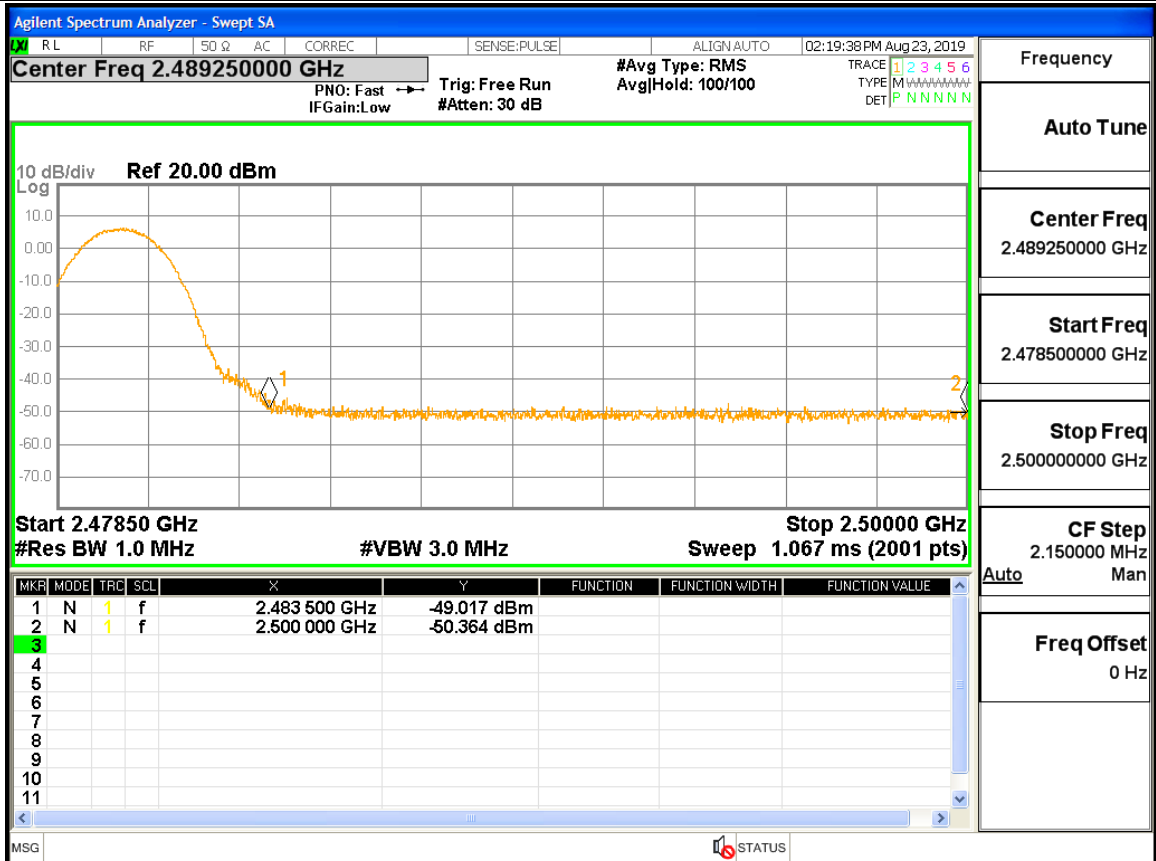
Restrict-band band-edge measurements_2402_PEAK_3DH5



Restrict-band band-edge measurements_2402_AV_3DH5



Restrict-band band-edge measurements_2480_PEAK_3DH5



Restrict-band band-edge measurements_2480_AV_3DH5

