

Appendix A

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

Product Name: JoneR Translator

Trade Mark: JoneR

Test Model: PH01

FCC ID: 2ARVJ-PH01

Environmental Conditions

Temperature:	22.9 ° C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Gary Qian
Supervised by:	Eden Hu

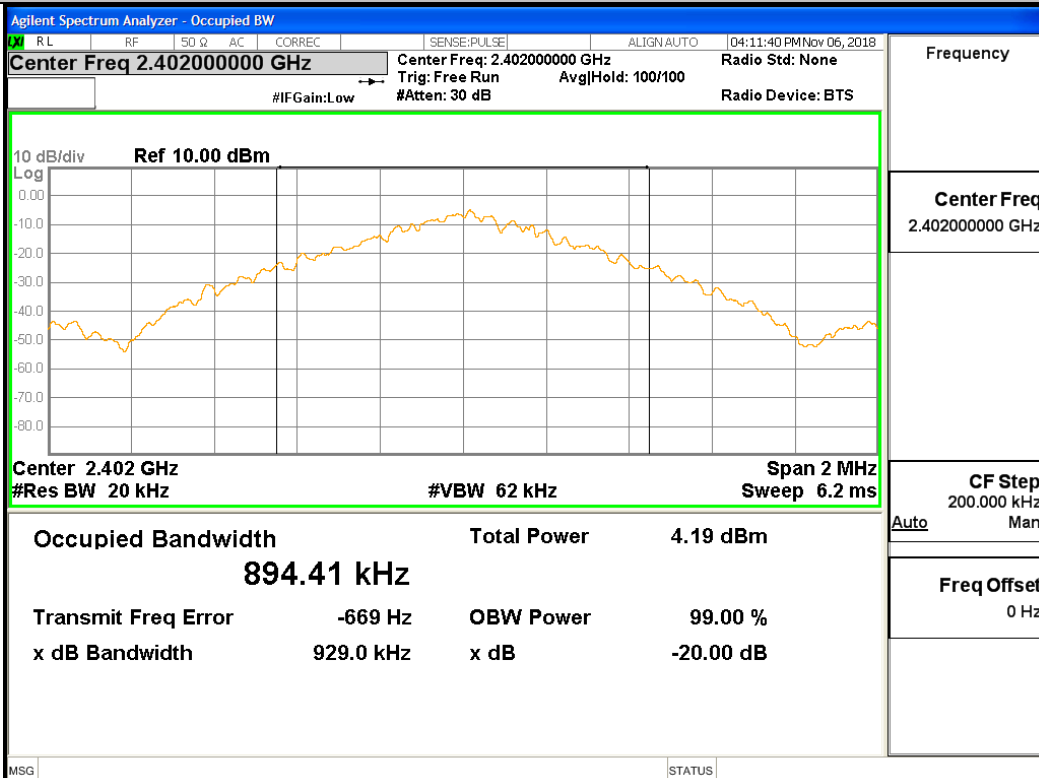
A.1 20 dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit(MHz)	Verdict
GFSK	LCH	0.929	Not Specified	PASS
GFSK	MCH	0.962	Not Specified	PASS
GFSK	HCH	0.936	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.349	Not Specified	PASS
$\pi/4$ DQPSK	MCH	1.339	Not Specified	PASS
$\pi/4$ DQPSK	HCH	1.336	Not Specified	PASS
8DPSK	LCH	1.346	Not Specified	PASS
8DPSK	MCH	1.344	Not Specified	PASS
8DPSK	HCH	1.338	Not Specified	PASS

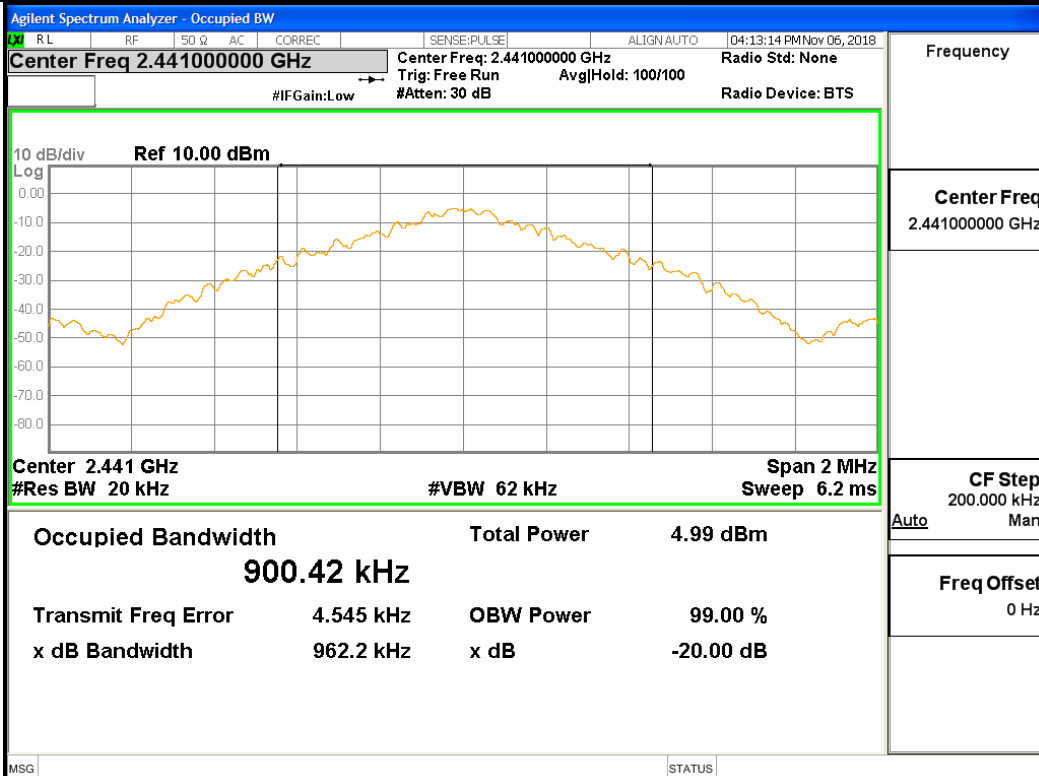
Test Graph

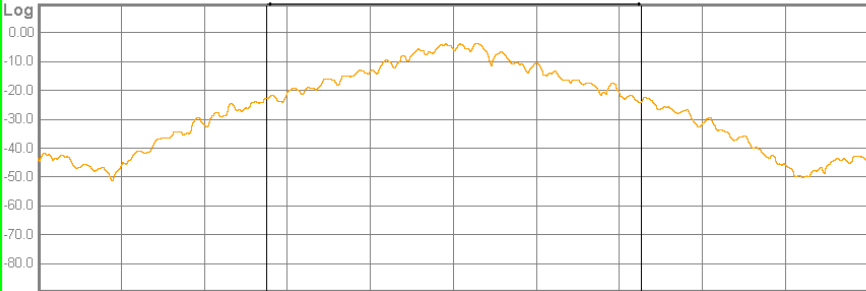
Graphs

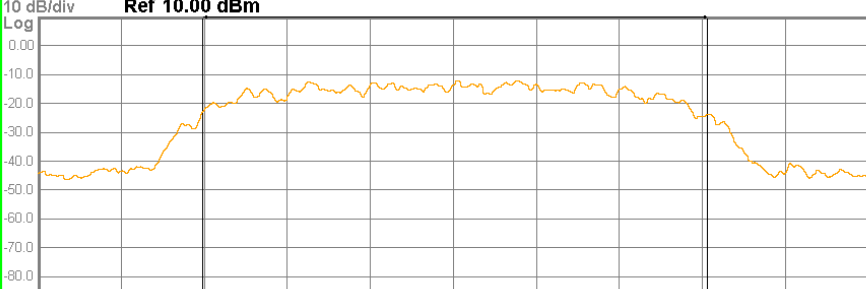
GFSK/LCH



GFSK/MCH



GFSK/HCH	Agilent Spectrum Analyzer - Occupied BW				SENSE:PULSE				ALIGN:AUTO		04:14:16 PM Nov 06, 2018		Frequency				
	Center Freq 2.480000000 GHz				Center Freq: 2.480000000 GHz				Radio Std: None				Center Freq 2.480000000 GHz				
	#IFGain:Low				#Atten: 30 dB				AvgHold: 100/100				Radio Device: BTS				
													CF Step 200.000 kHz Man				
	Center 2.48 GHz #Res BW 20 kHz												#VBW 62 kHz		Span 2 MHz Sweep 6.2 ms		Auto
Occupied Bandwidth												Total Power		6.12 dBm		Freq Offset 0 Hz	
899.35 kHz																	
Transmit Freq Error												2.041 kHz		OBW Power		99.00 %	
x dB Bandwidth												936.0 kHz		x dB		-20.00 dB	
MSG												STATUS					

π/4DQPSK/LCH	Agilent Spectrum Analyzer - Occupied BW				SENSE:PULSE				ALIGN:AUTO		04:15:18 PM Nov 06, 2018		Frequency				
	Center Freq 2.402000000 GHz				Center Freq: 2.402000000 GHz				Radio Std: None				Center Freq 2.402000000 GHz				
	#IFGain:Low				#Atten: 30 dB				AvgHold: 100/100				Radio Device: BTS				
													CF Step 200.000 kHz Man				
	Center 2.402 GHz #Res BW 20 kHz												#VBW 62 kHz		Span 2 MHz Sweep 6.2 ms		Auto
Occupied Bandwidth												Total Power		2.21 dBm		Freq Offset 0 Hz	
1.2088 MHz																	
Transmit Freq Error												5.875 kHz		OBW Power		99.00 %	
x dB Bandwidth												1.349 MHz		x dB		-20.00 dB	
MSG												STATUS					

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 6.2 ms

Occupied Bandwidth

1.2088 MHz

Total Power

2.21 dBm

Transmit Freq Error

5.875 kHz

OBW Power

99.00 %

x dB Bandwidth

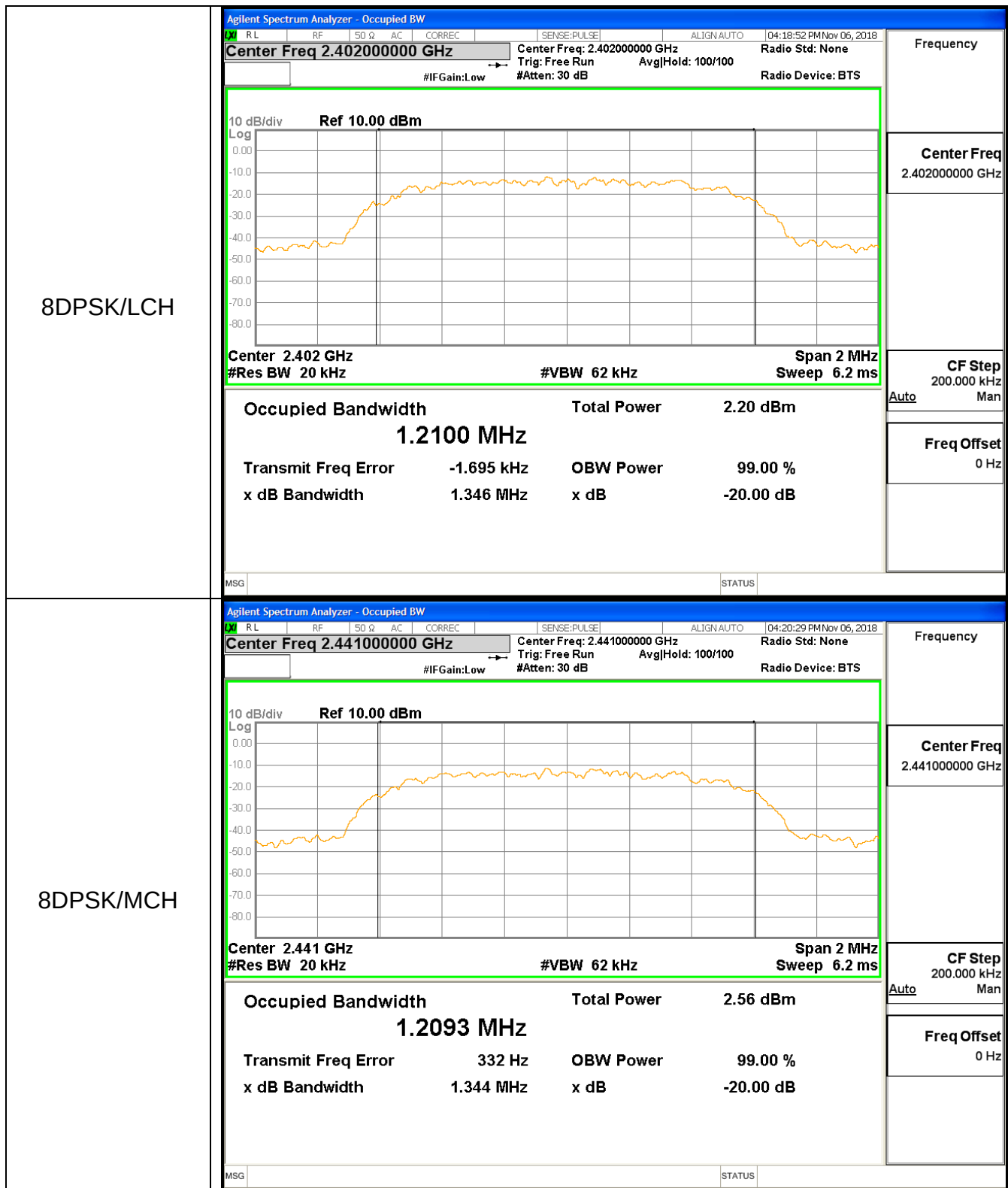
1.349 MHz

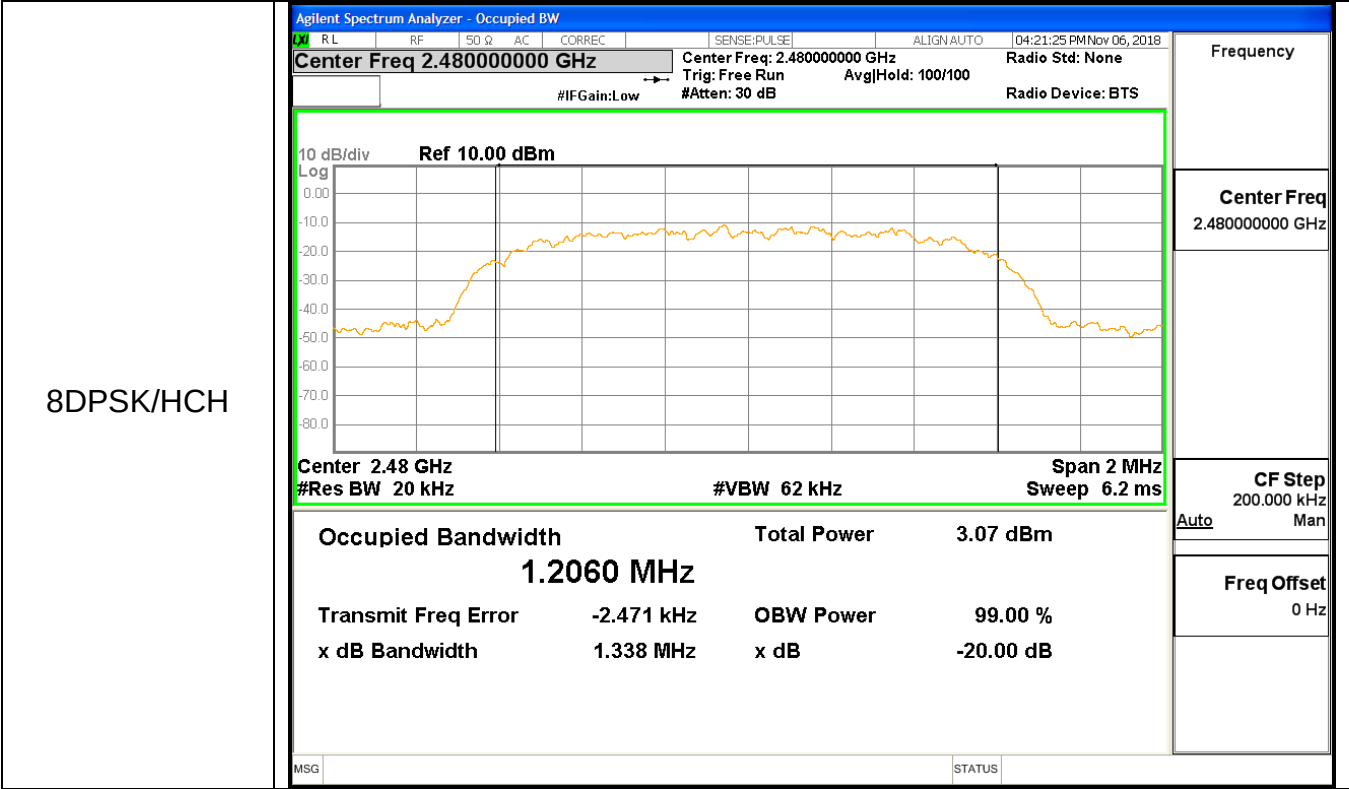
x dB

-20.00 dB

Agilent Spectrum Analyzer - Occupied BW				Frequency			
☒ R L	RF	50 Ω	AC	CORREC	SENSE:PULSE	ALIGN:AUTO	04:16:30 PM Nov 06, 2018
Center Freq 2.441000000 GHz				Center Freq: 2.441000000 GHz Trig: Free Run #Atten: 30 dB		Radio Std: None Radio Device: BTS	
				#IFGain: Low			
The spectrum plot shows a signal centered at 2.441 GHz. The y-axis is logarithmic power density from -80.0 to 10 dB/div. The x-axis is frequency from 2.439 MHz to 2.443 MHz. A green box highlights the main signal band.							
Center 2.441 GHz #Res BW 20 kHz				#VBW 62 kHz		Span 2 MHz Sweep 6.2 ms	
Occupied Bandwidth				Total Power		2.78 dBm	
1.2007 MHz							
Transmit Freq Error				52 Hz		OBW Power	
						99.00 %	
x dB Bandwidth				1.339 MHz		x dB	
						-20.00 dB	
MSG				STATUS			

Agilent Spectrum Analyzer - Occupied BW				Frequency			
☒ R L	RF	50 Ω	AC	CORREC	SENSE:PULSE	ALIGN:AUTO	04:17:25 PM Nov 06, 2018
Center Freq 2.480000000 GHz				Center Freq: 2.480000000 GHz Trig: Free Run #Atten: 30 dB		Radio Std: None Radio Device: BTS	
				#IFGain: Low			
The spectrum plot shows a signal centered at 2.480 GHz. The y-axis is logarithmic power density from -80.0 to 10 dB/div. The x-axis is frequency from 2.478 MHz to 2.482 MHz. A green box highlights the main signal band.							
Center 2.48 GHz #Res BW 20 kHz				#VBW 62 kHz		Span 2 MHz Sweep 6.2 ms	
Occupied Bandwidth				Total Power		3.18 dBm	
1.2020 MHz							
Transmit Freq Error				2.417 kHz		OBW Power	
						99.00 %	
x dB Bandwidth				1.336 MHz		x dB	
						-20.00 dB	
MSG				STATUS			

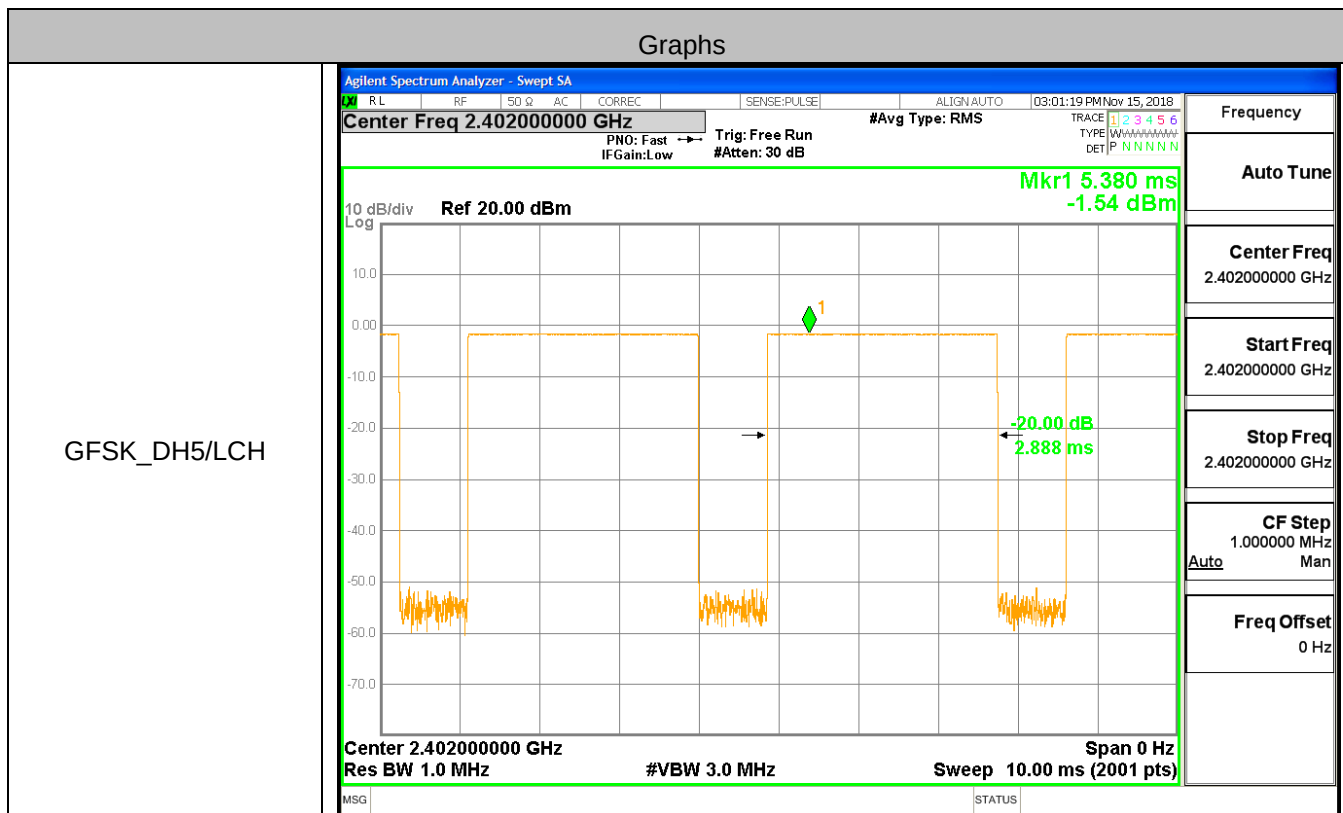


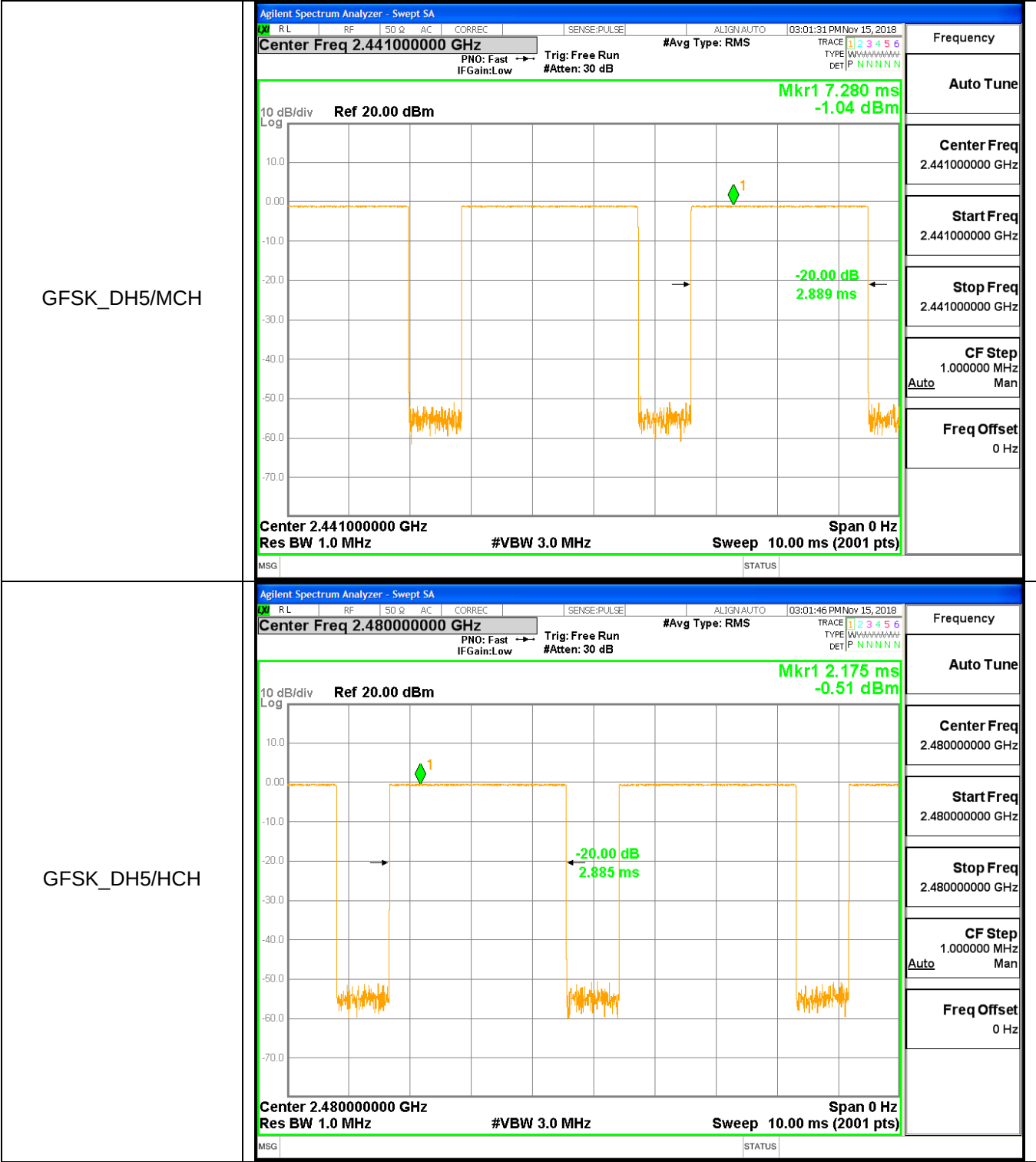


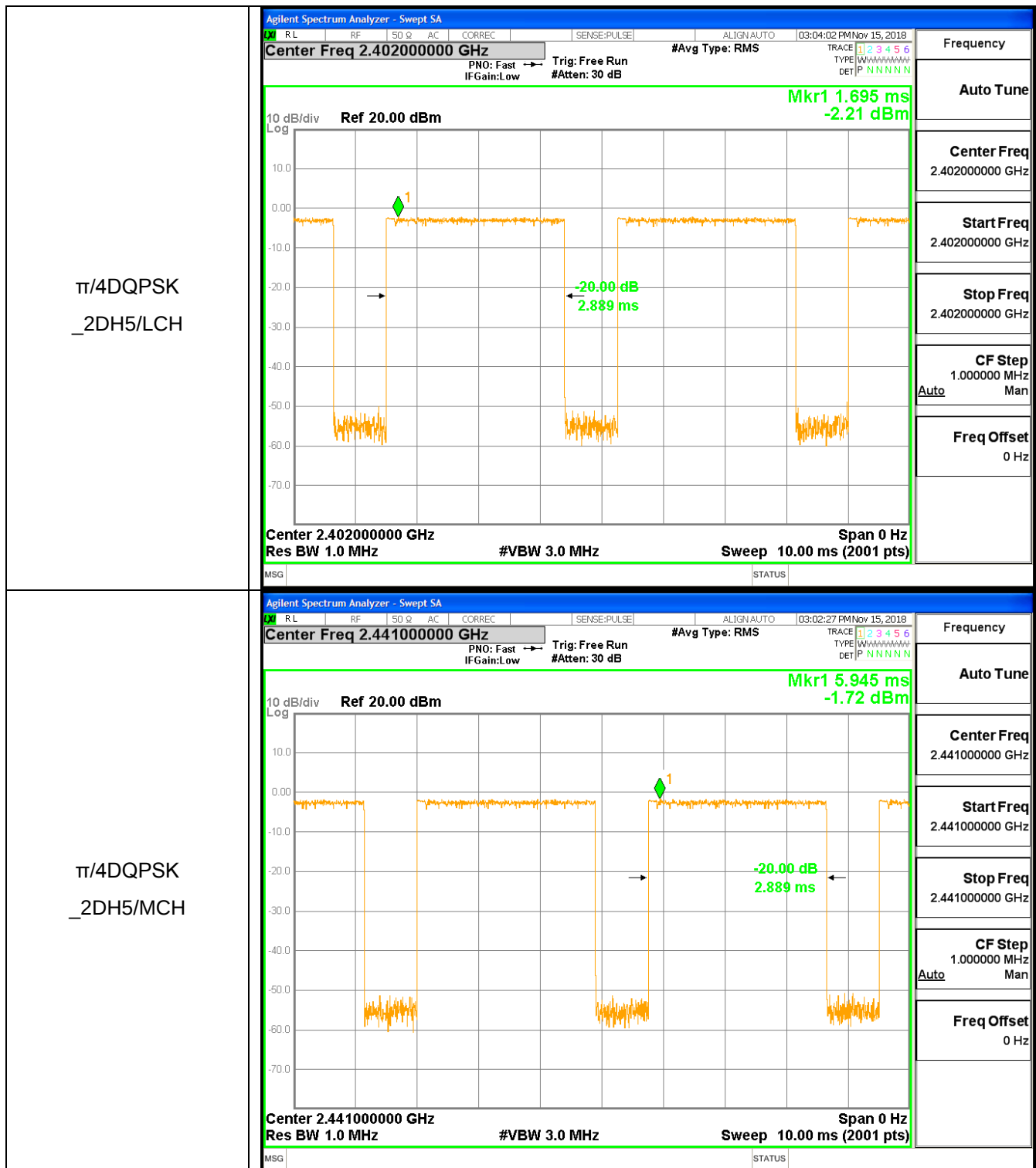
A.2 Dwell Time

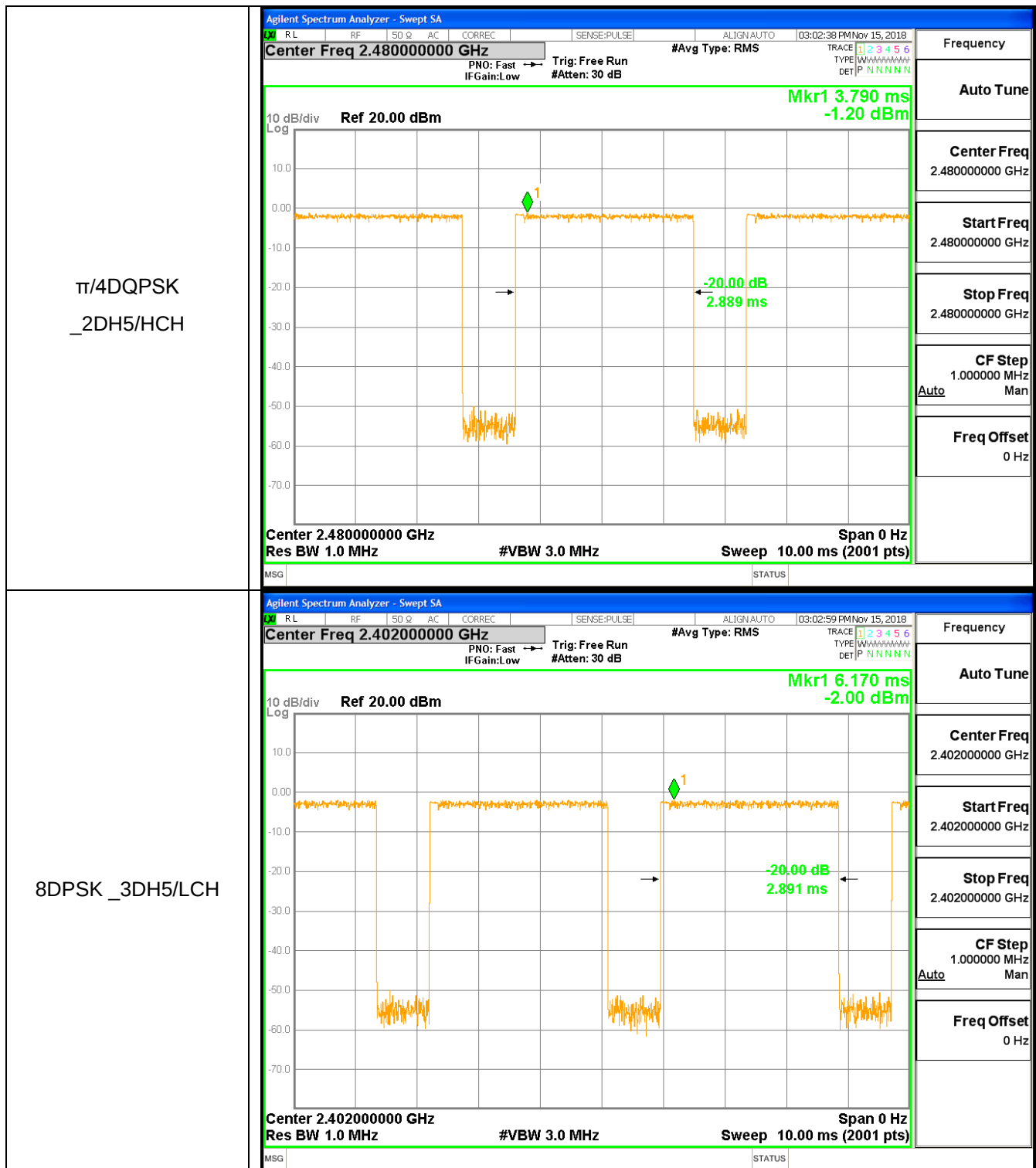
Mode	Packet	Channel	Burst Width [s/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	0.002888204	106.7	0.308171374	0.4	PASS
GFSK	DH5	MCH	0.002888504	106.7	0.308203337	0.4	PASS
GFSK	DH5	HCH	0.002885346	106.7	0.307866401	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	0.002888825	106.7	0.308237583	0.4	PASS
$\pi/4$ DQPSK	2DH5	MCH	0.002889312	106.7	0.308289601	0.4	PASS
$\pi/4$ DQPSK	2DH5	HCH	0.002888871	106.7	0.30824251	0.4	PASS
8DPSK	3DH5	LCH	0.002891176	106.7	0.308488501	0.4	PASS
8DPSK	3DH5	MCH	0.002888892	106.7	0.308244817	0.4	PASS
8DPSK	3DH5	HCH	0.002893651	106.7	0.308752526	0.4	PASS

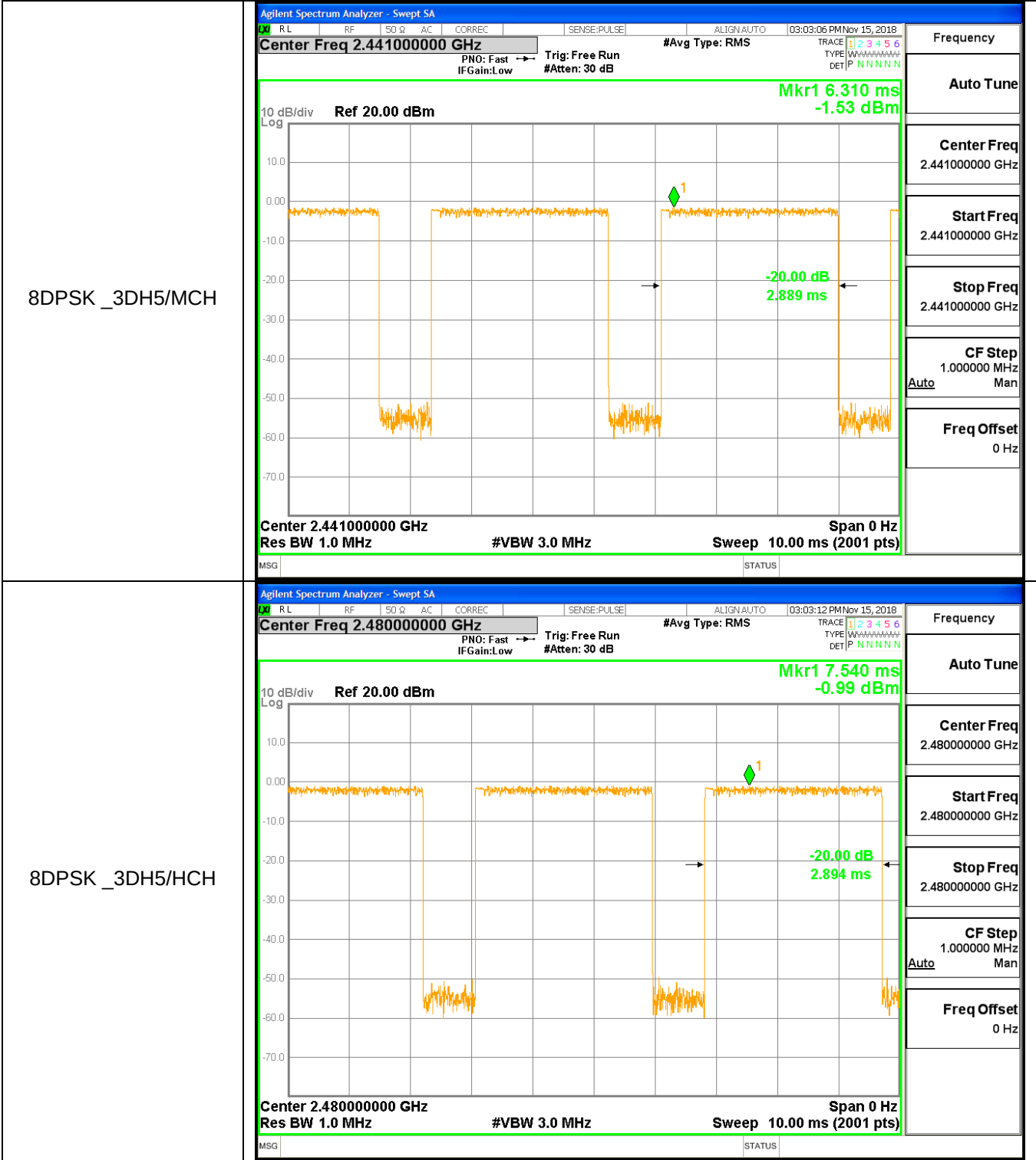
Test Graph







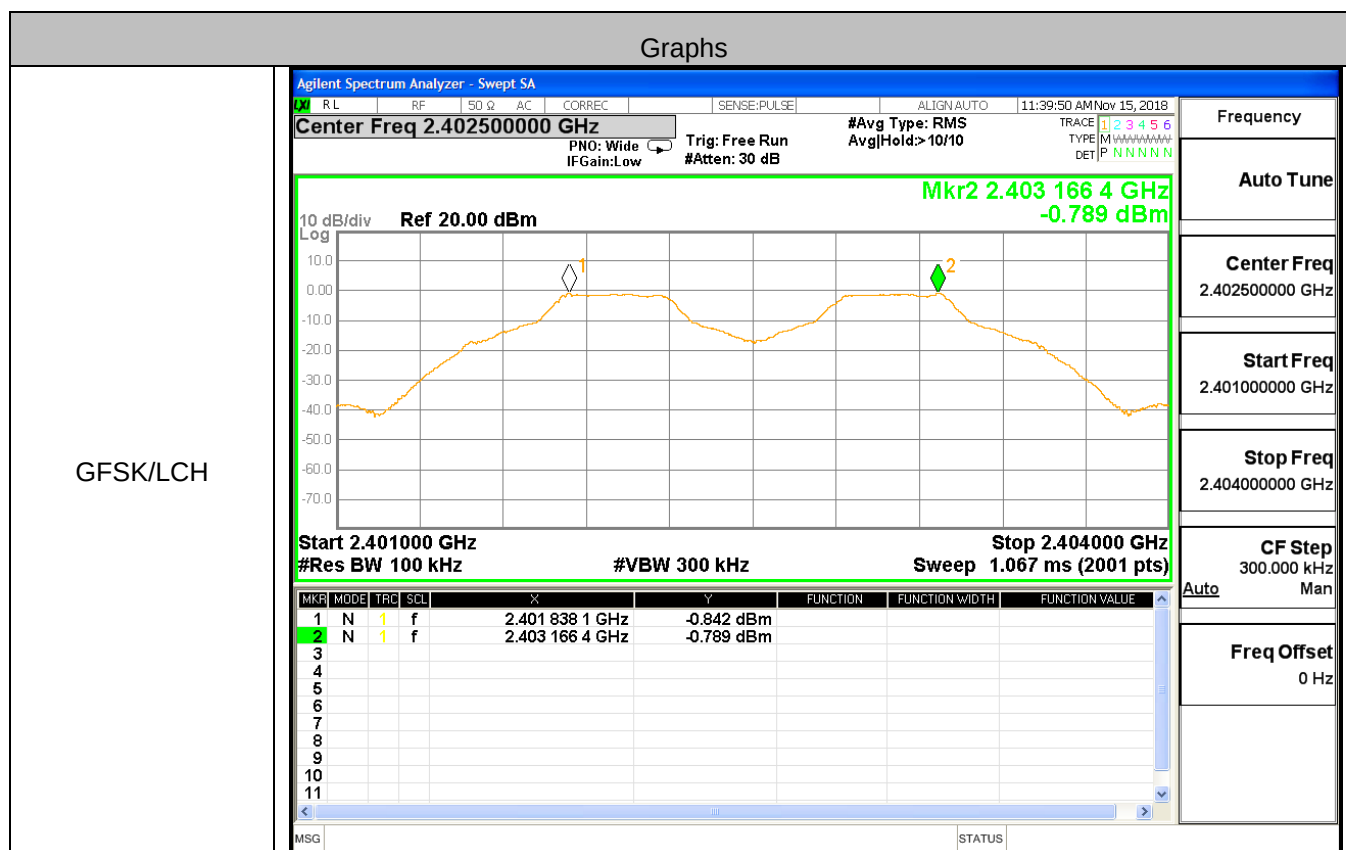


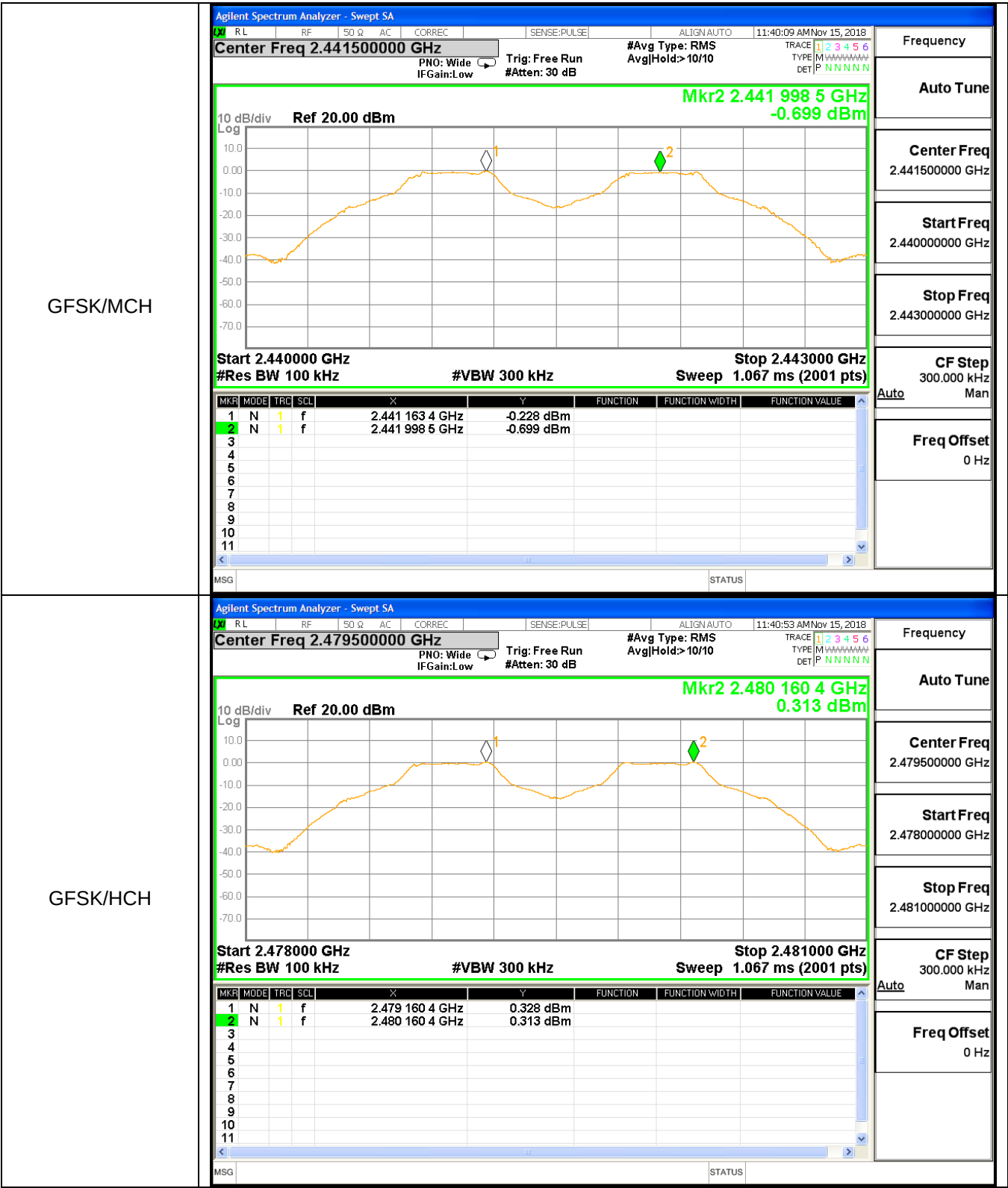


A.3 Carrier Frequency Separation

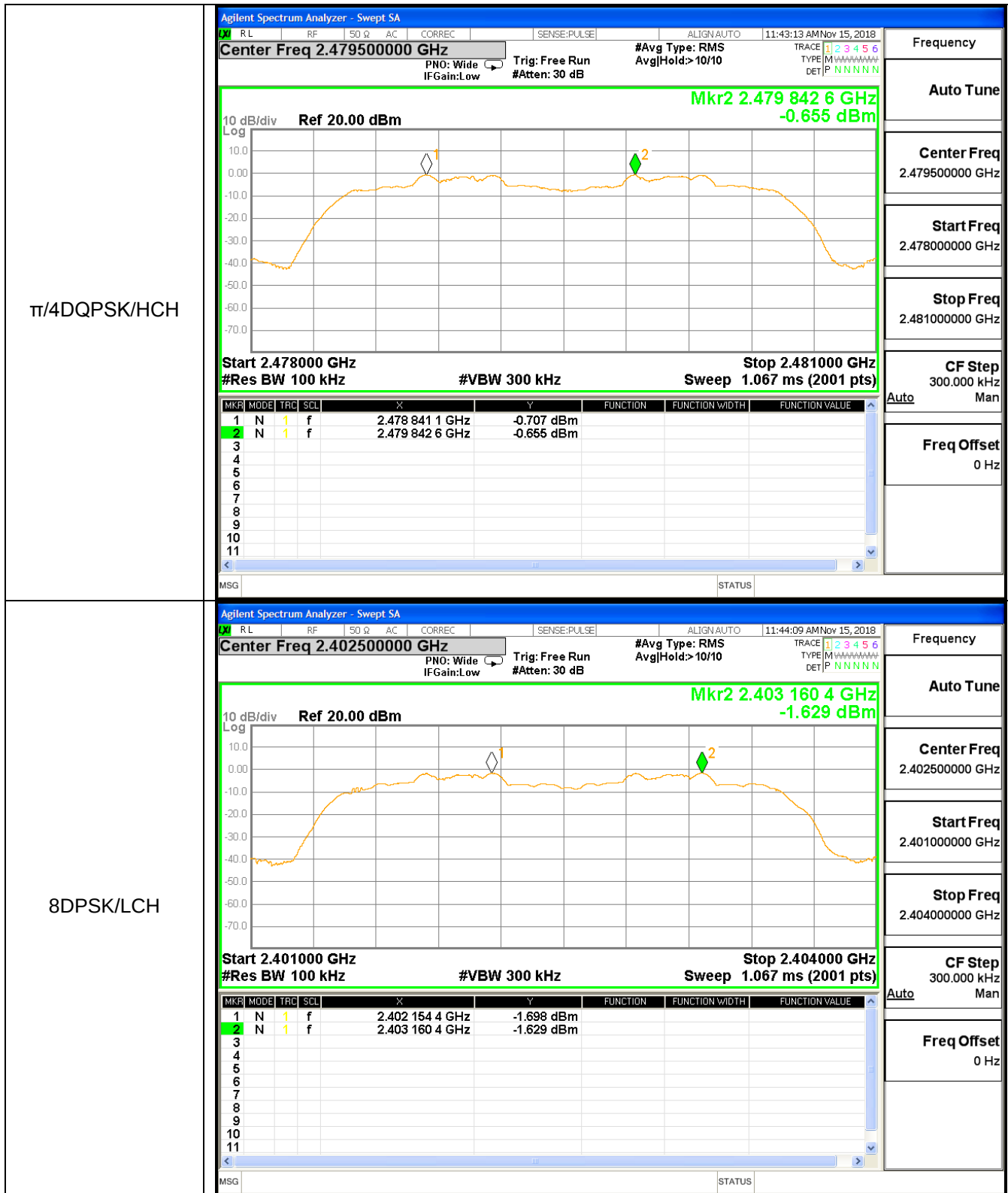
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.328	0.619	PASS
GFSK	MCH	0.835	0.641	PASS
GFSK	HCH	1.000	0.624	PASS
$\pi/4$ DQPSK	LCH	0.999	0.899	PASS
$\pi/4$ DQPSK	MCH	1.001	0.893	PASS
$\pi/4$ DQPSK	HCH	1.001	0.891	PASS
8DPSK	LCH	1.006	0.897	PASS
8DPSK	MCH	1.001	0.896	PASS
8DPSK	HCH	0.994	0.892	PASS

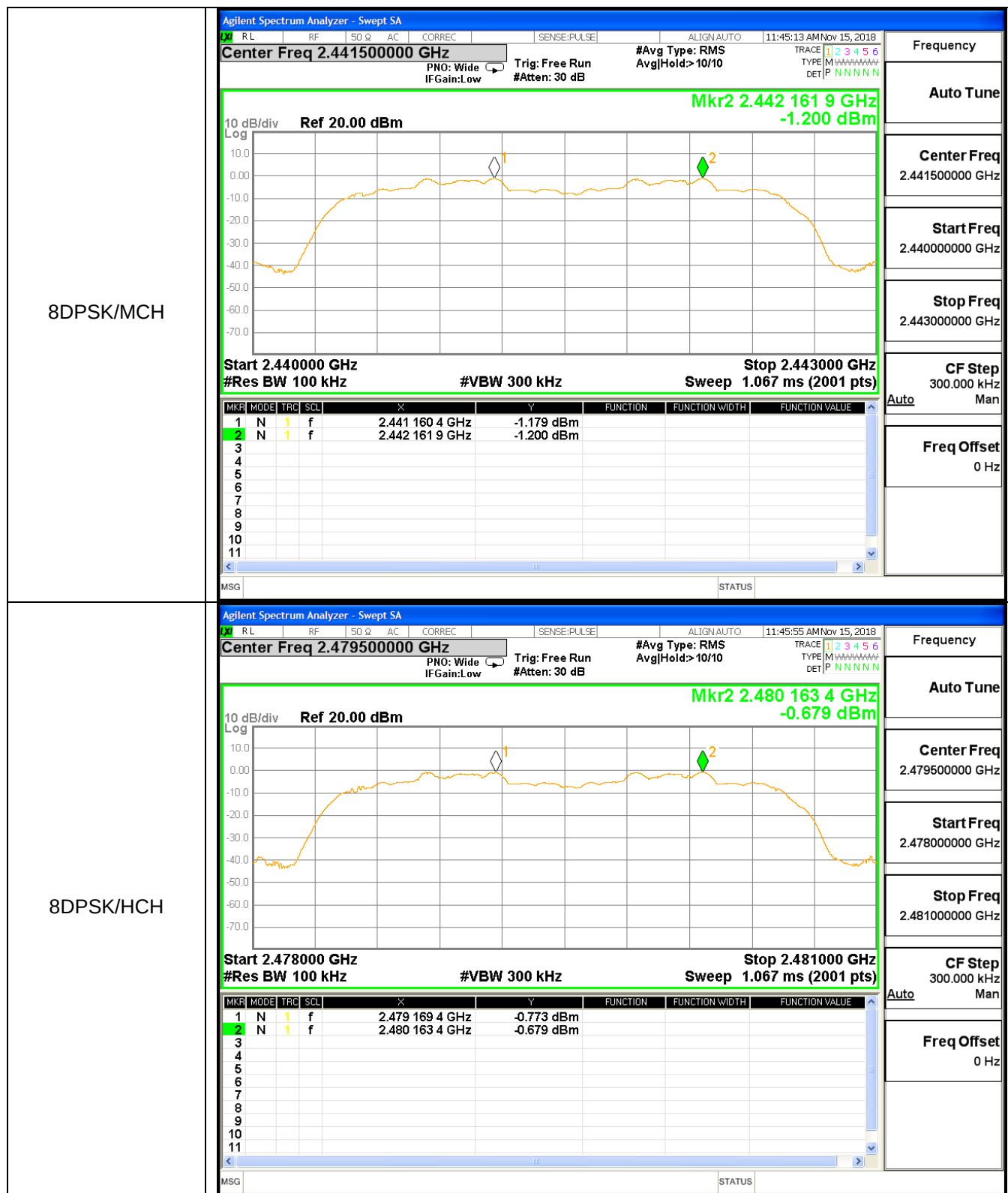
Test Graph







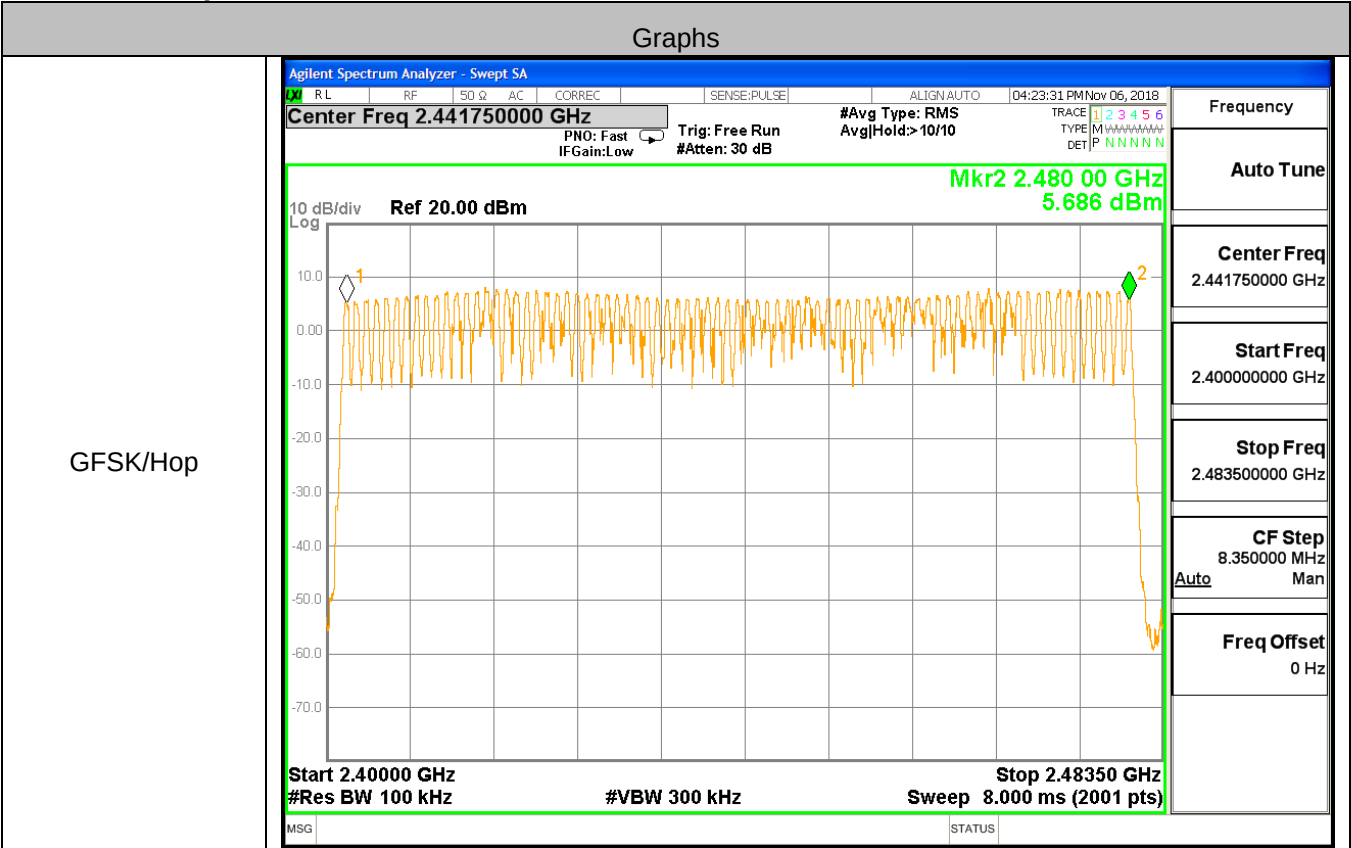




A.4 Hopping Channel Number

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

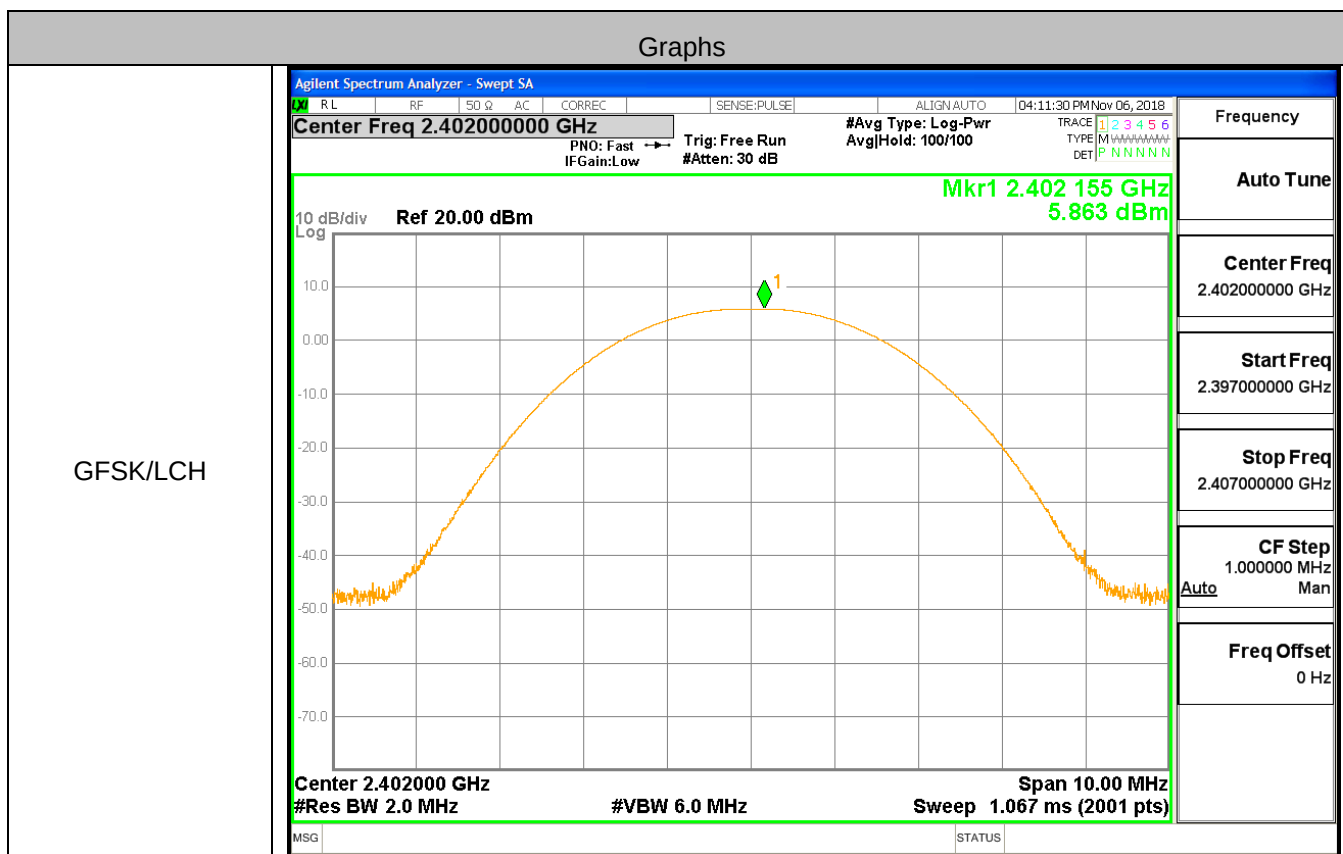
Test Graph

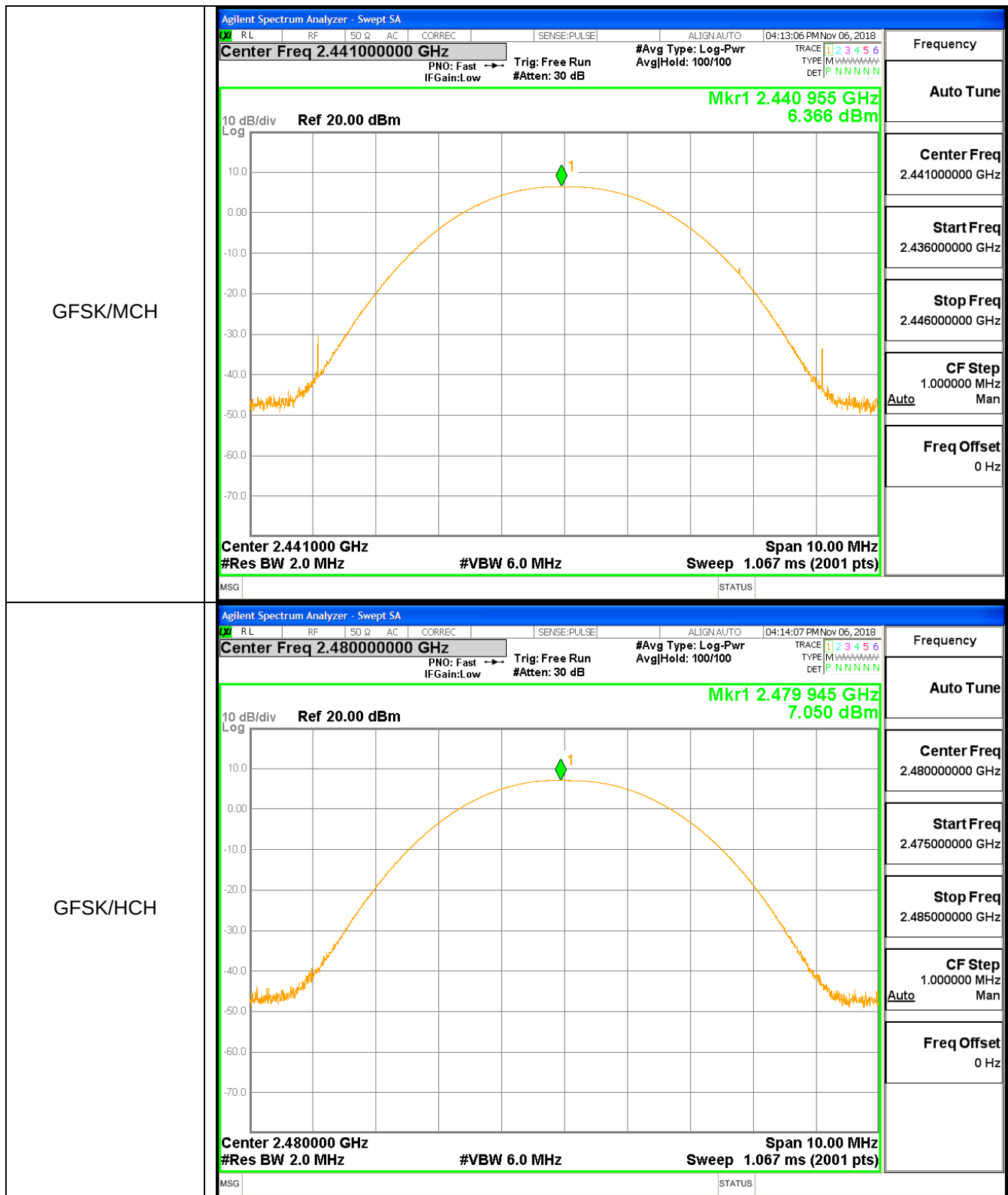


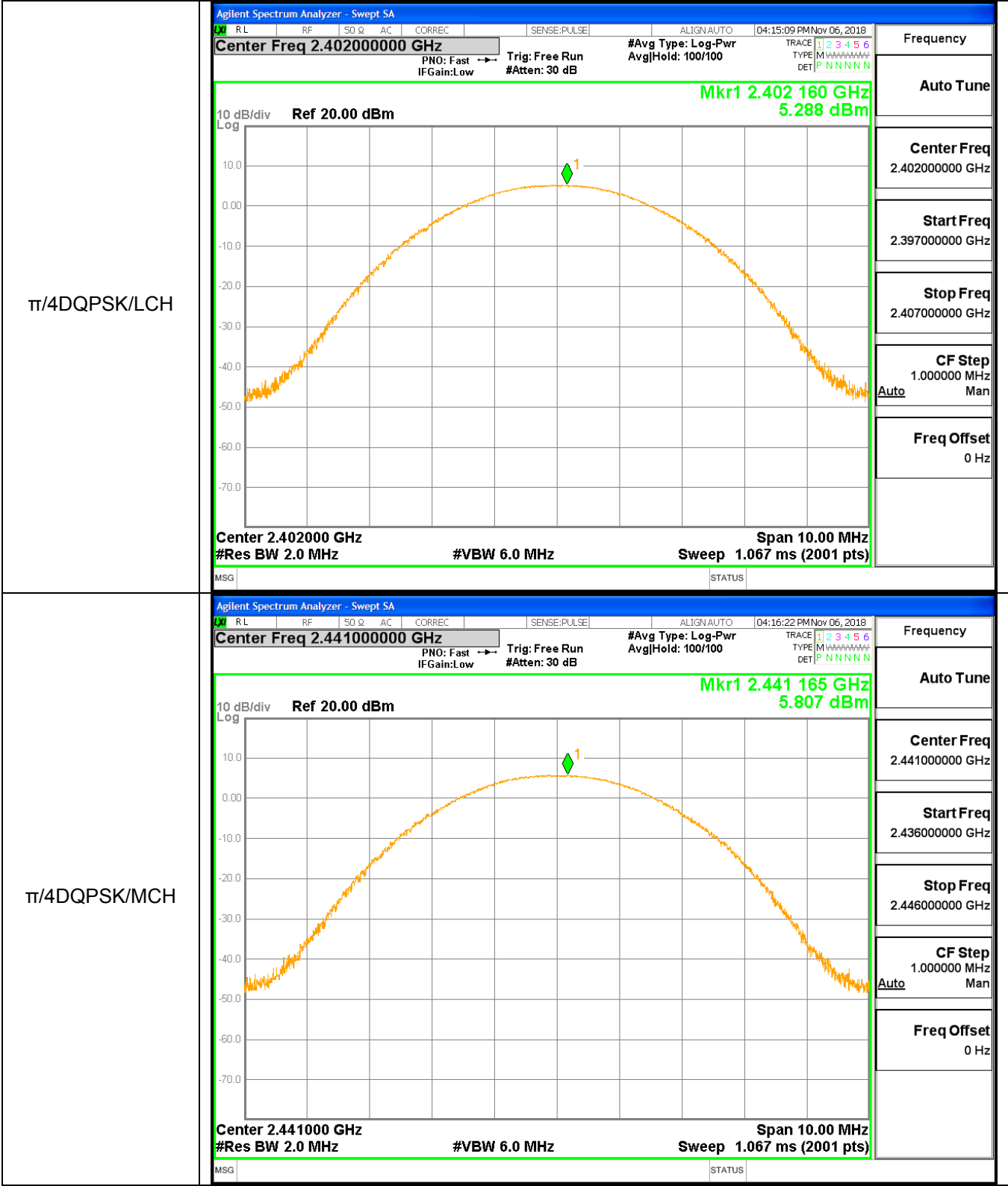
A.5 Conducted Peak Output Power

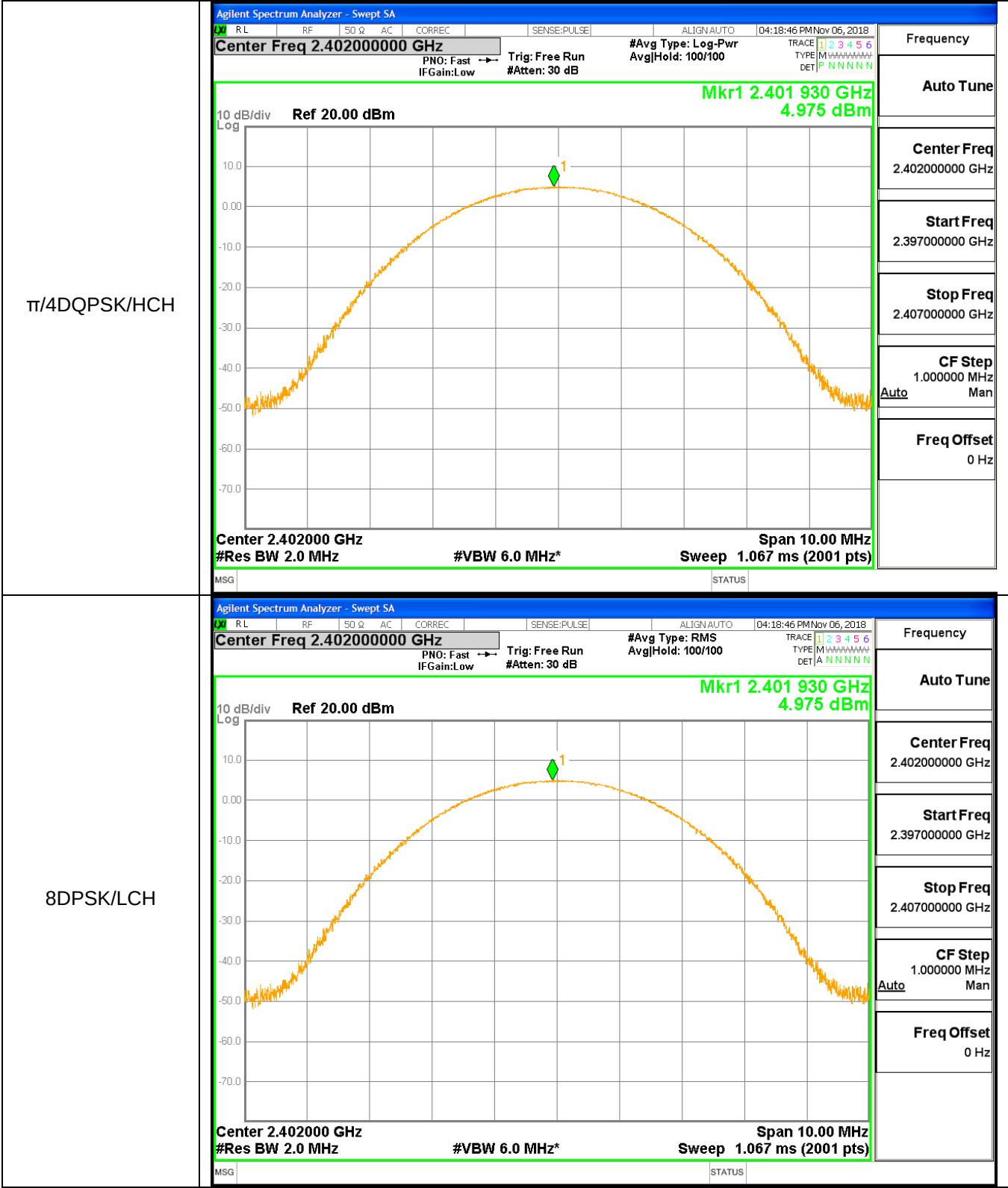
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	5.863	21	PASS
GFSK	MCH	6.366	21	PASS
GFSK	HCH	7.050	21	PASS
$\pi/4$ DQPSK	LCH	5.288	21	PASS
$\pi/4$ DQPSK	MCH	5.807	21	PASS
$\pi/4$ DQPSK	HCH	6.369	21	PASS
8DPSK	LCH	4.975	21	PASS
8DPSK	MCH	5.693	21	PASS
8DPSK	HCH	6.511	21	PASS

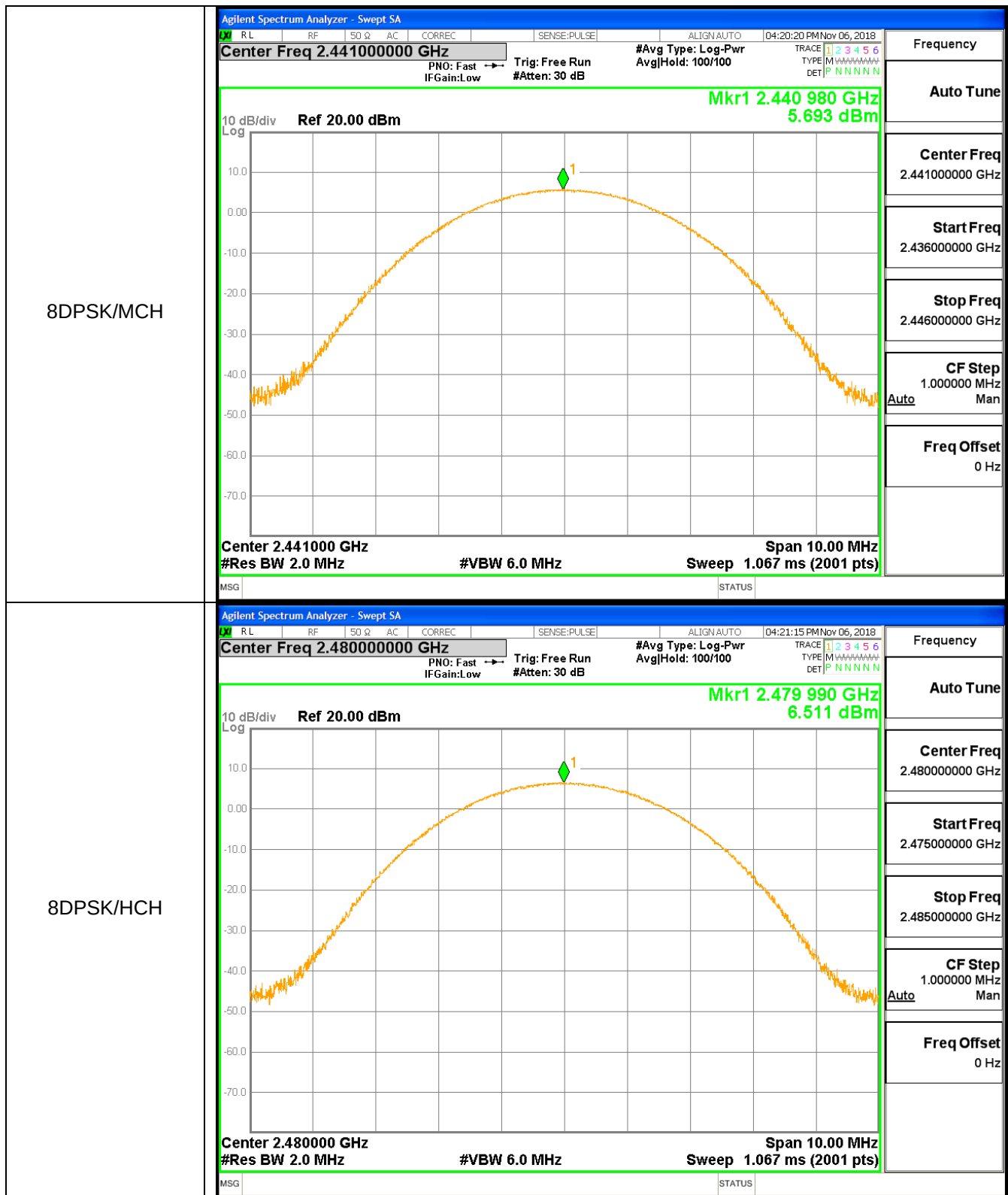
Test Graph







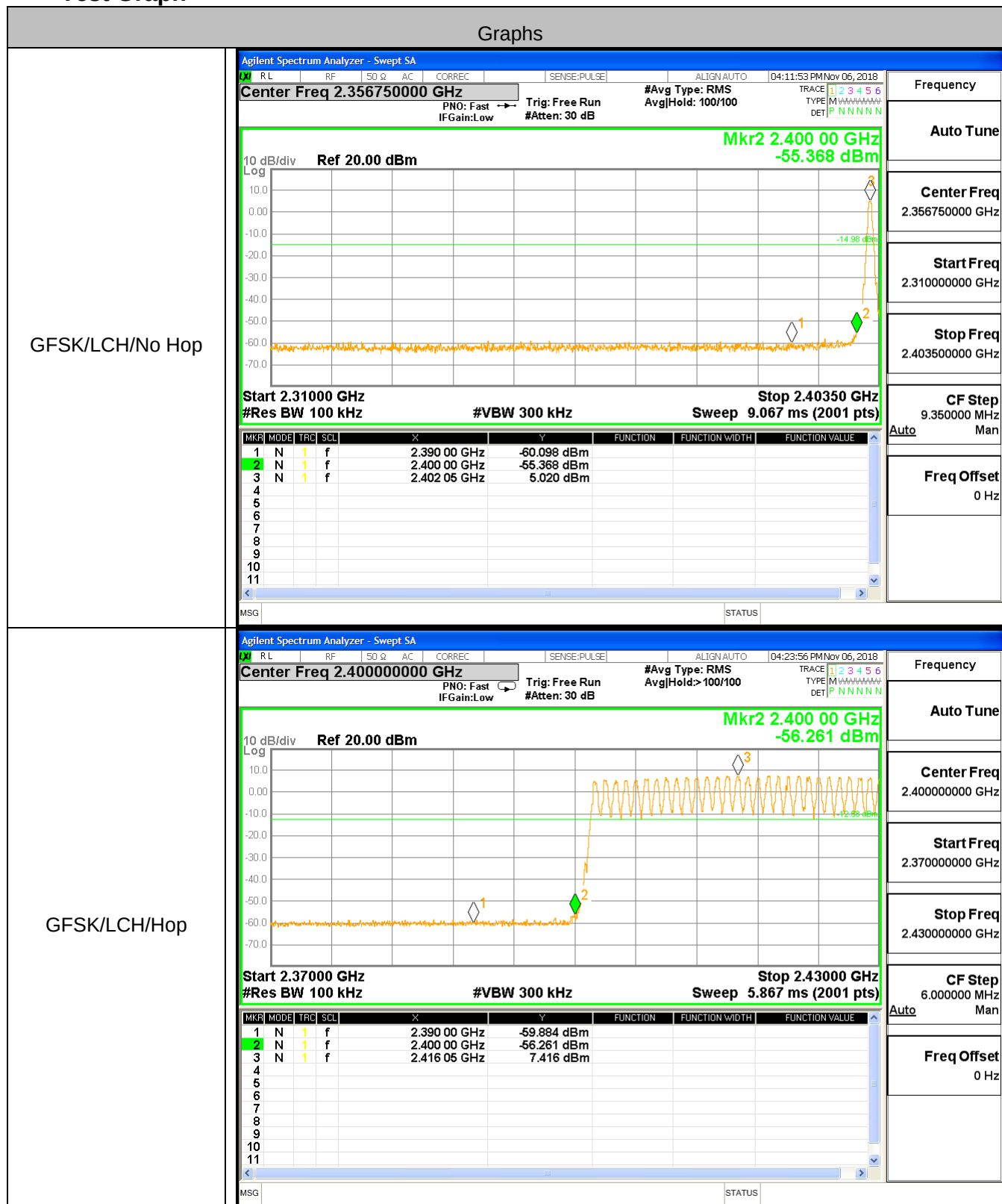


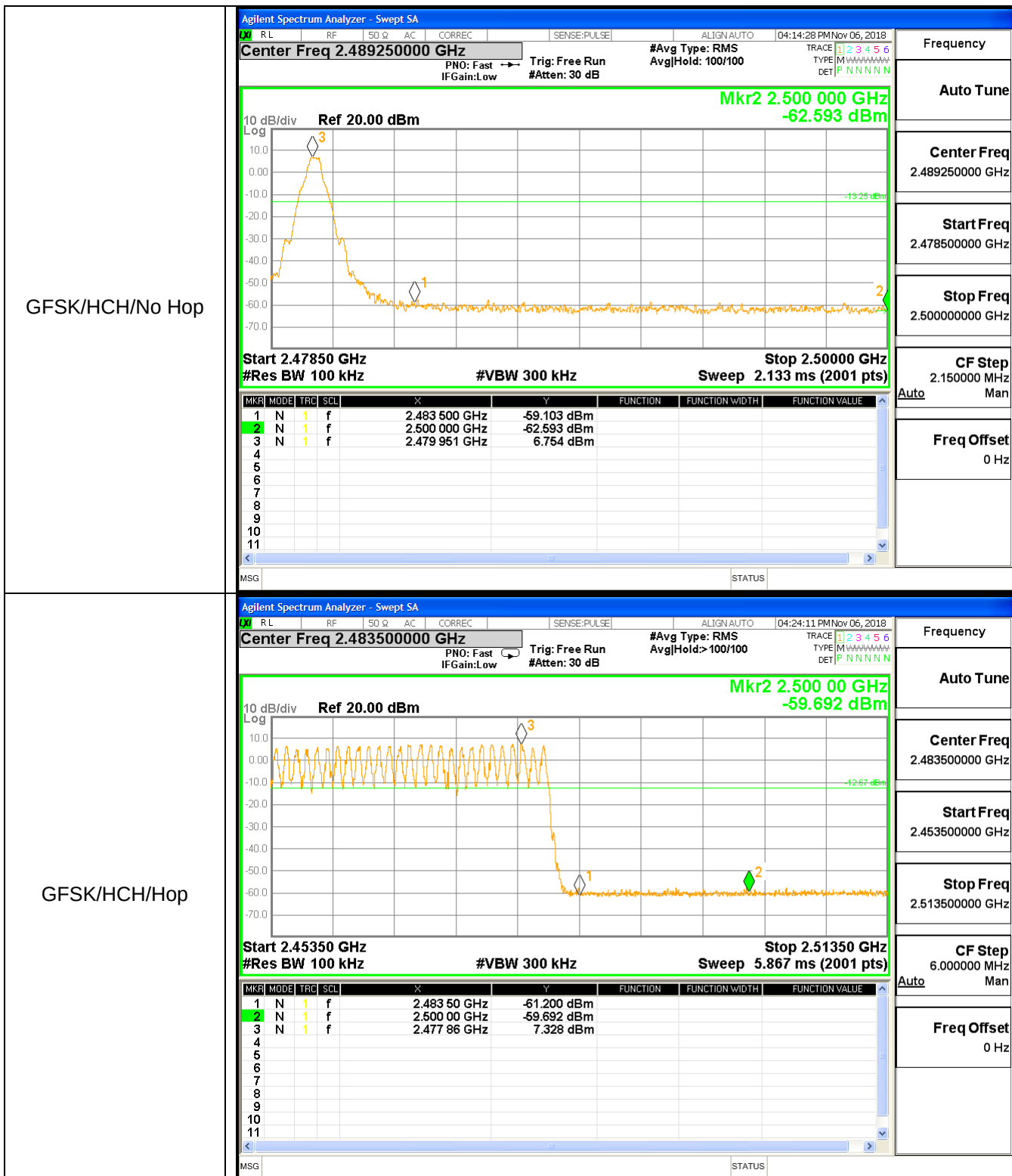


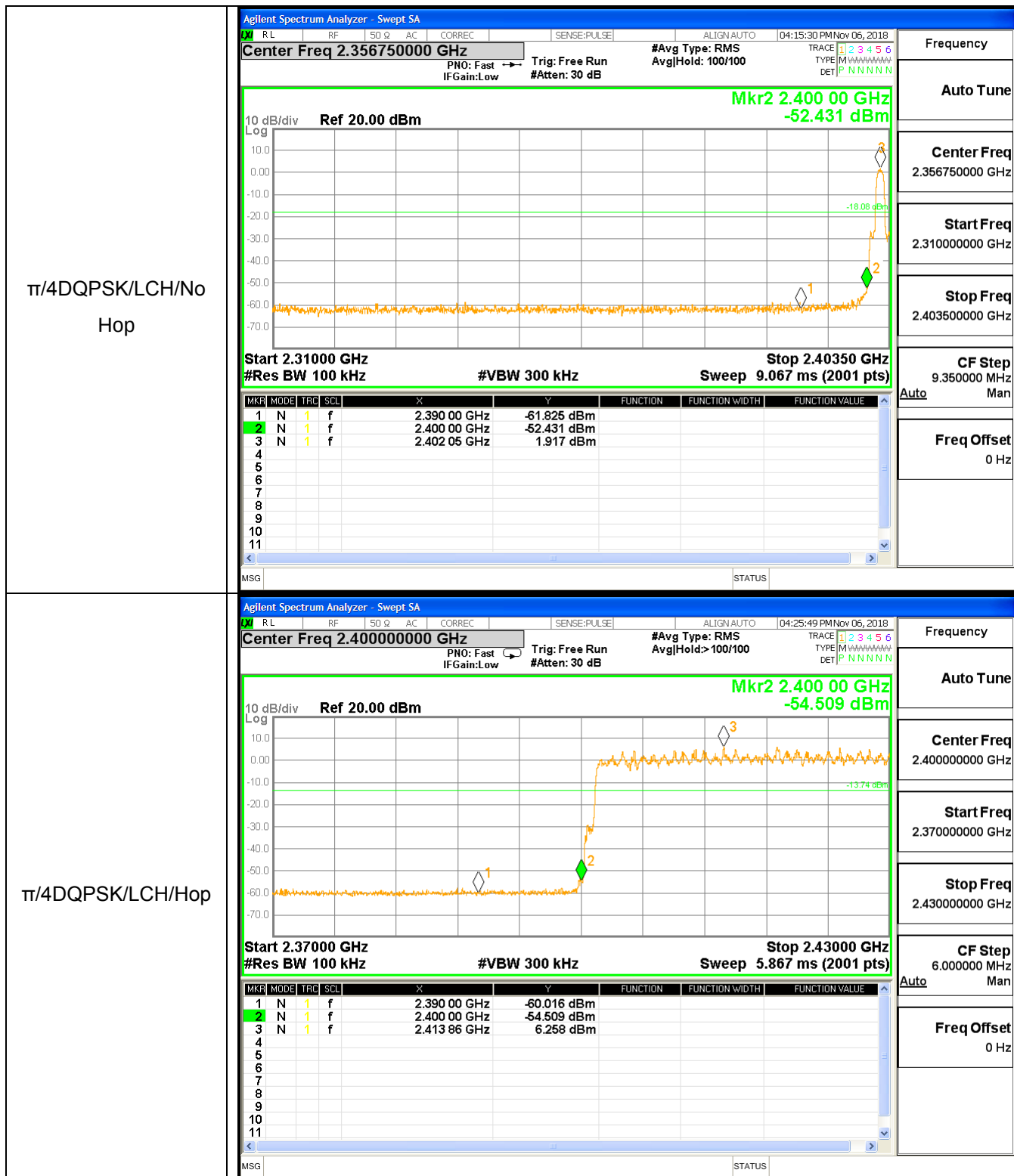
A.6 Band-edge for RF Conducted Emissions

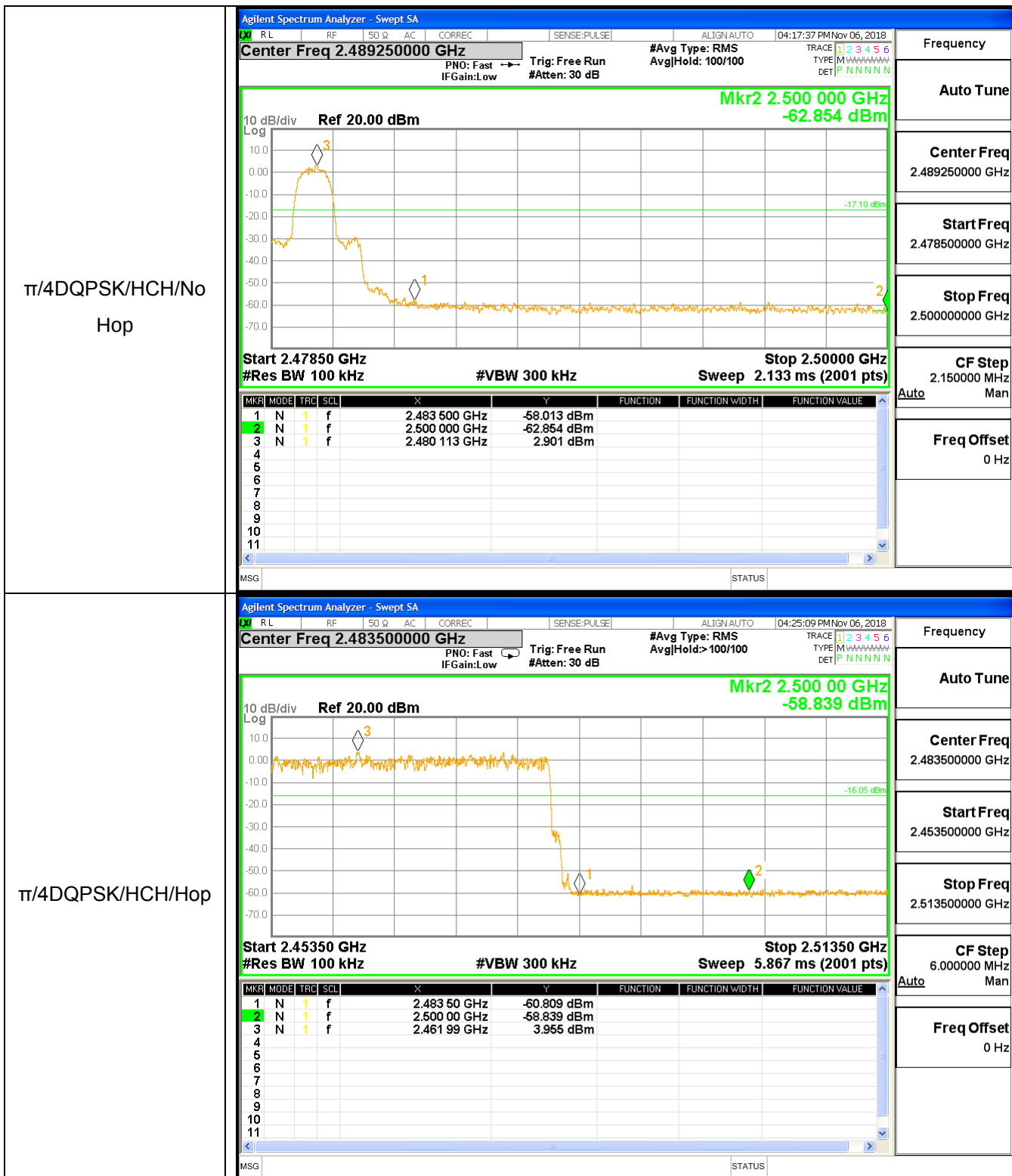
Type	Carrier Frequency(MHz)	Frequency(MHz)	Carrier Frequency Power [dBm]	Bandedge Peak(dBm)	Upper limit(dBm)	Conclusion
1DH5	2402	2390	5.020	-60.10	-14.98	Pass
1DH5	2402	2400	5.020	-55.37	-14.98	Pass
1DH5-Hopping	2402	2390	7.416	-59.88	-12.584	Pass
1DH5-Hopping	2402	2400	7.416	-56.26	-12.584	Pass
1DH5	2480	2483.5	6.754	-59.1	-13.246	Pass
1DH5	2480	2500	6.754	-62.59	-13.246	Pass
1DH5-Hopping	2480	2483.5	7.328	-61.2	-12.672	Pass
1DH5-Hopping	2480	2500	7.328	-59.69	-12.672	Pass
2DH5	2402	2390	1.917	-61.82	-18.083	Pass
2DH5	2402	2400	1.917	-52.43	-18.083	Pass
2DH5-Hopping	2480	2483.5	3.955	-60.81	-16.045	Pass
2DH5-Hopping	2480	2500	3.955	-58.84	-16.045	Pass
2DH5	2480	2483.5	2.901	-58.01	-17.099	Pass
2DH5	2480	2500	2.901	-62.85	-17.099	Pass
2DH5-Hopping	2402	2390	6.258	-60.02	-13.742	Pass
2DH5-Hopping	2402	2400	6.258	-54.51	-13.742	Pass
3DH5	2402	2390	2.506	-61.99	-17.494	Pass
3DH5	2402	2400	2.506	-51.18	-17.494	Pass
3DH5-Hopping	2402	2390	6.326	-61.18	-13.674	Pass
3DH5-Hopping	2402	2400	6.326	-54.9	-13.674	Pass
3DH5	2480	2483.5	5.009	-57.21	-14.991	Pass
3DH5	2480	2500	5.009	-62.04	-14.991	Pass
3DH5-Hopping	2480	2483.5	5.933	-59.93	-14.067	Pass
3DH5-Hopping	2480	2500	5.933	-59.82	-14.067	Pass

Test Graph

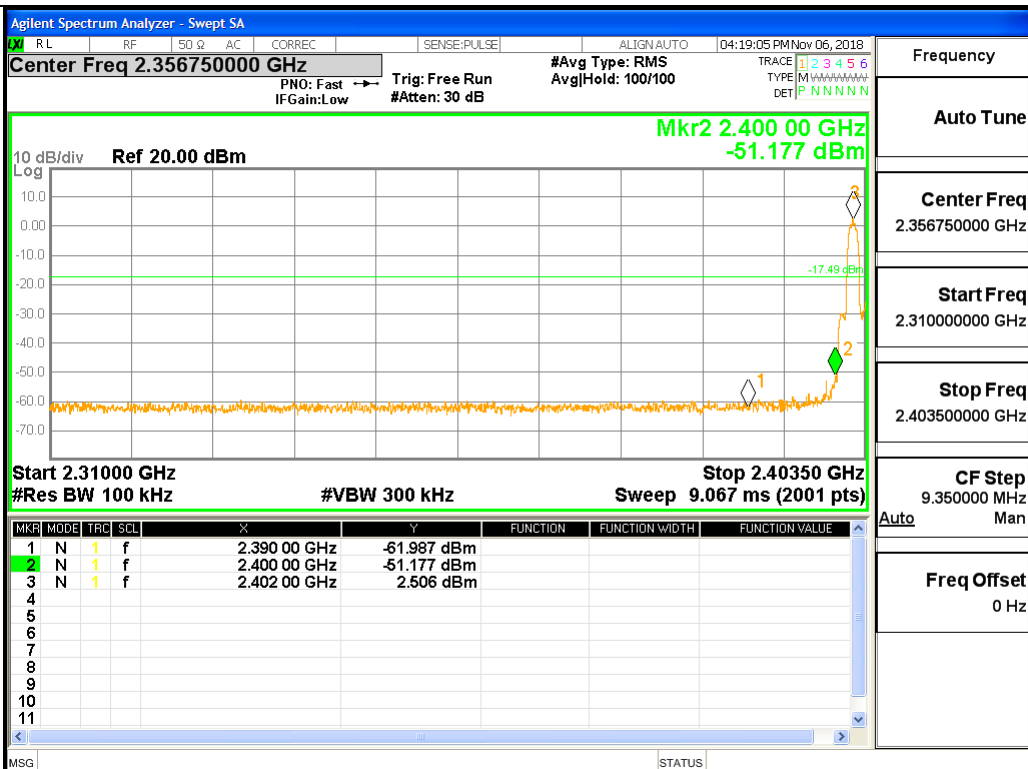




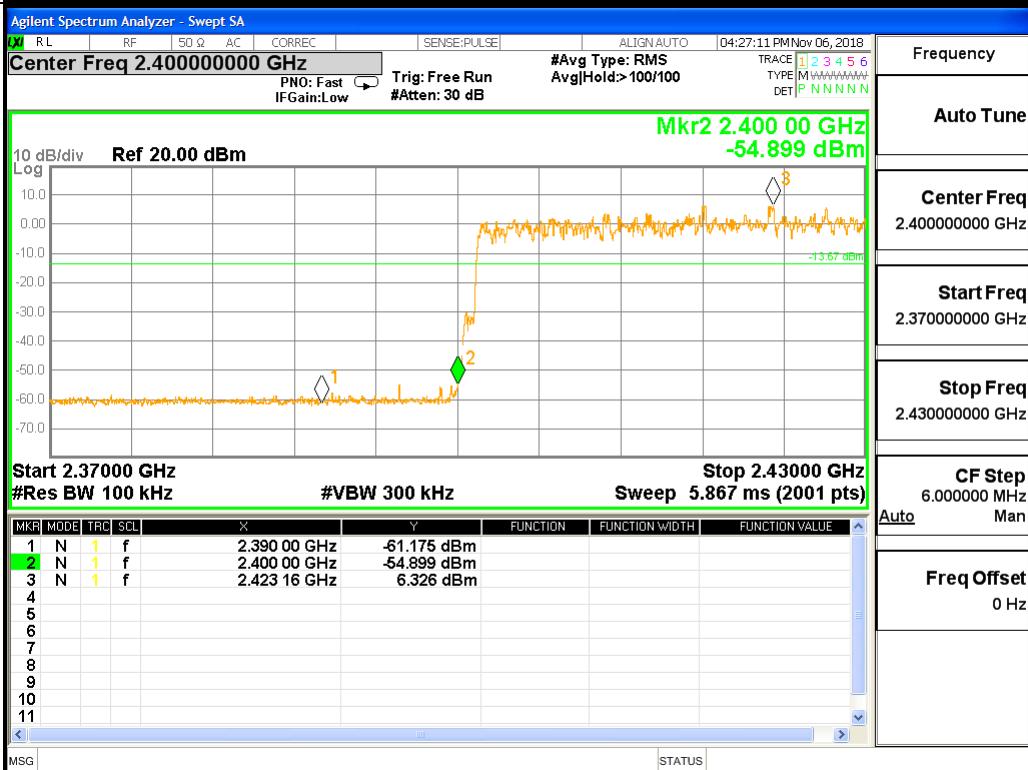




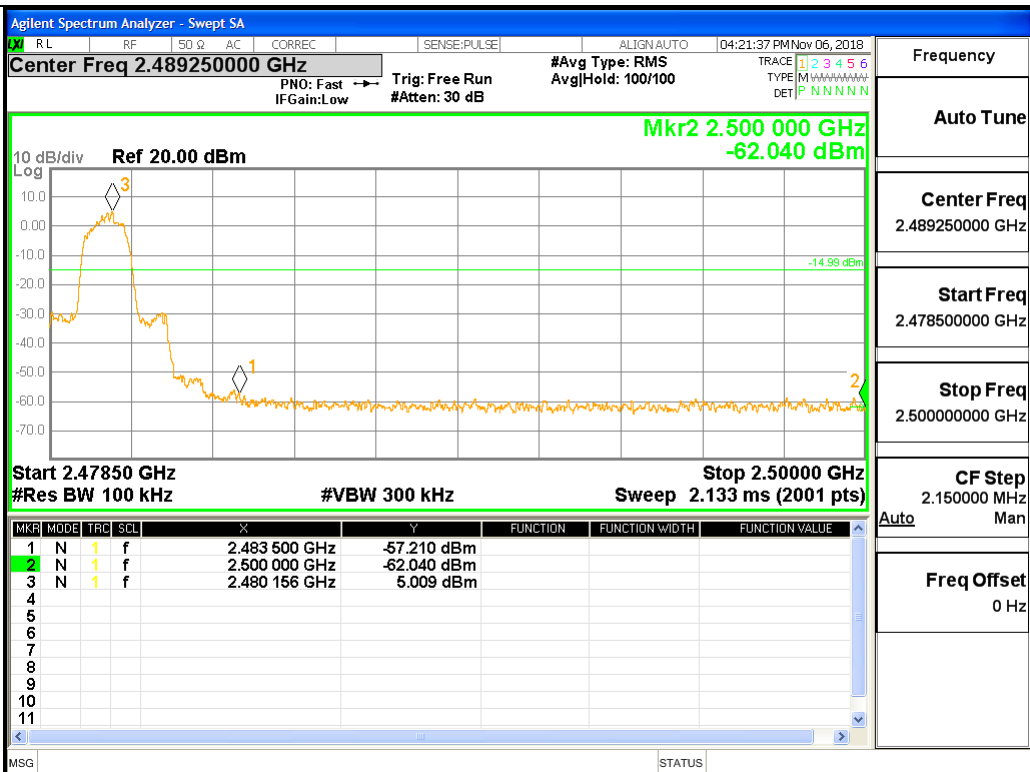
8DPSK/LCH/No Hop



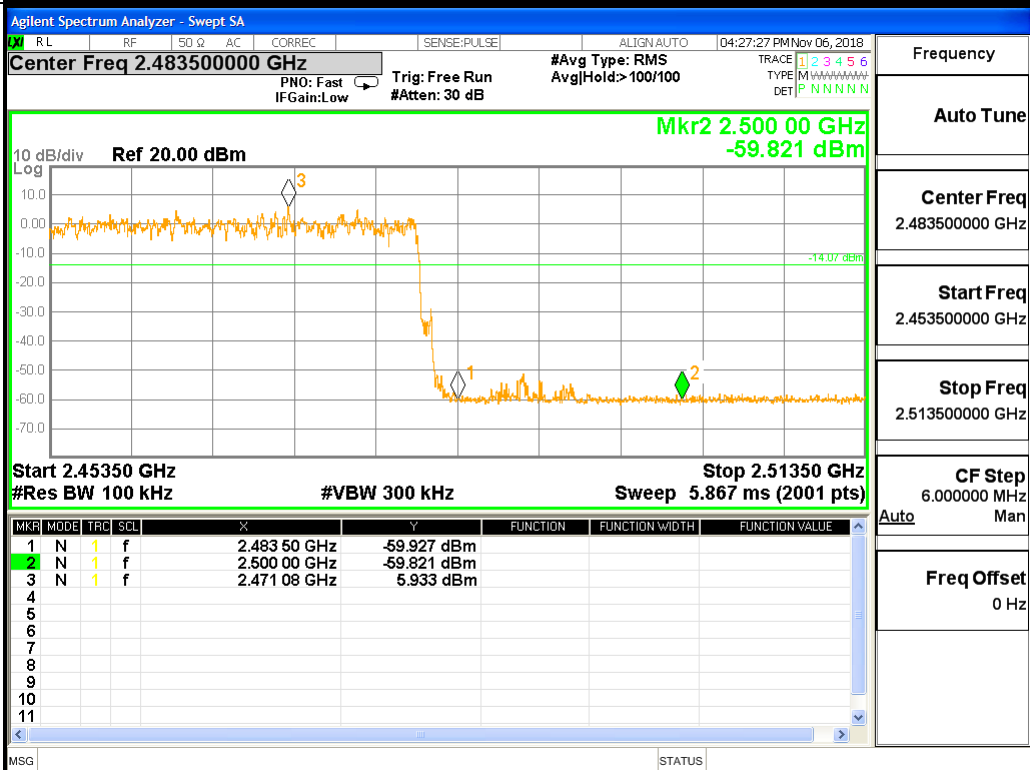
8DPSK/LCH/Hop



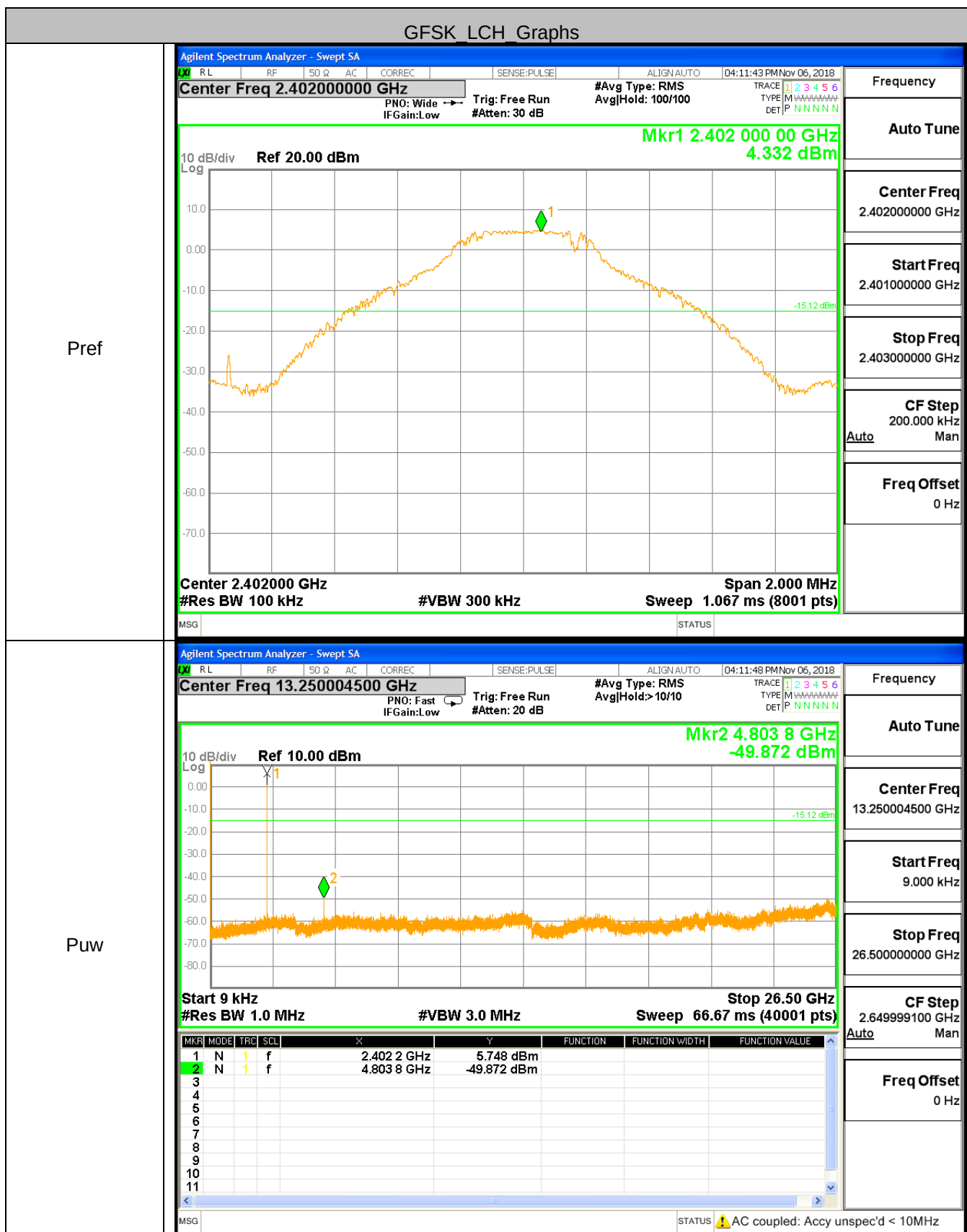
8DPSK/HCH/No Hop

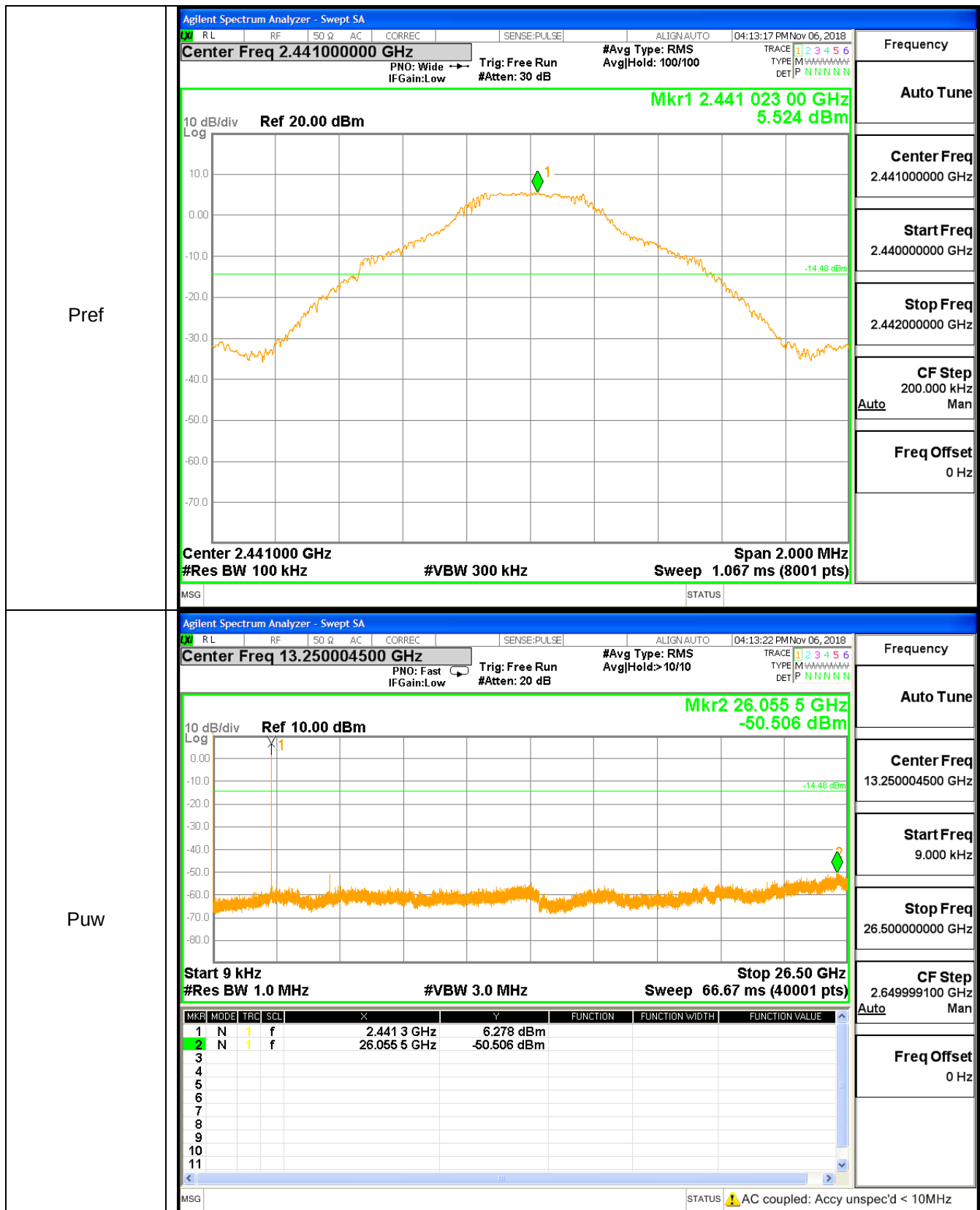


8DPSK/HCH/Hop



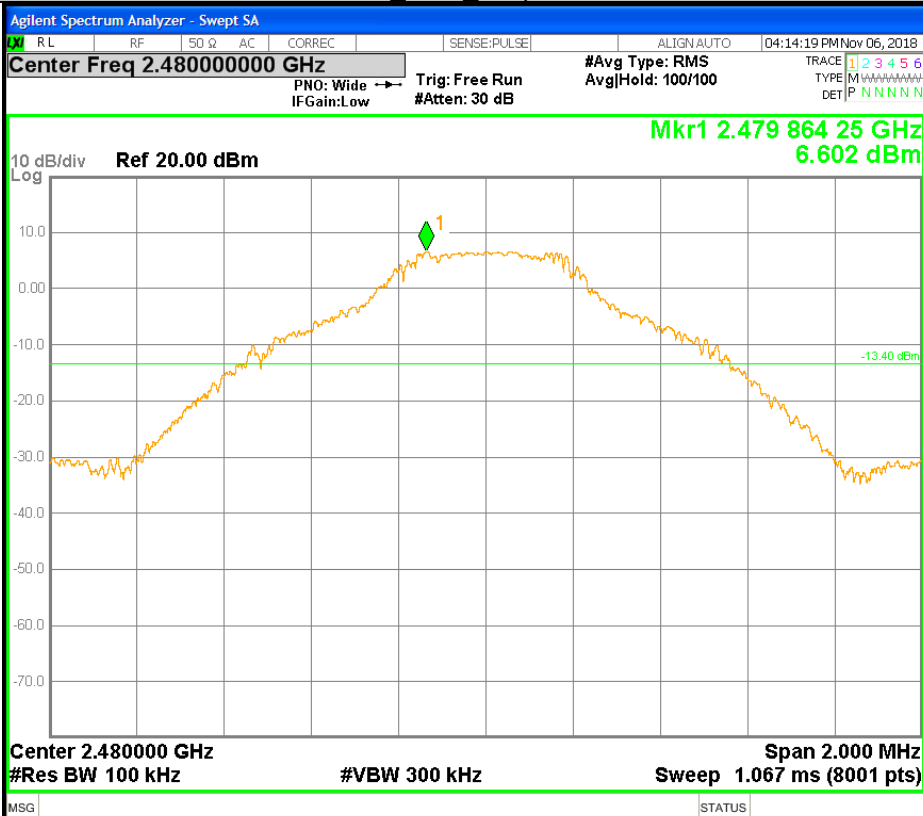
A.7 RF Conducted Spurious Emissions Test Graph



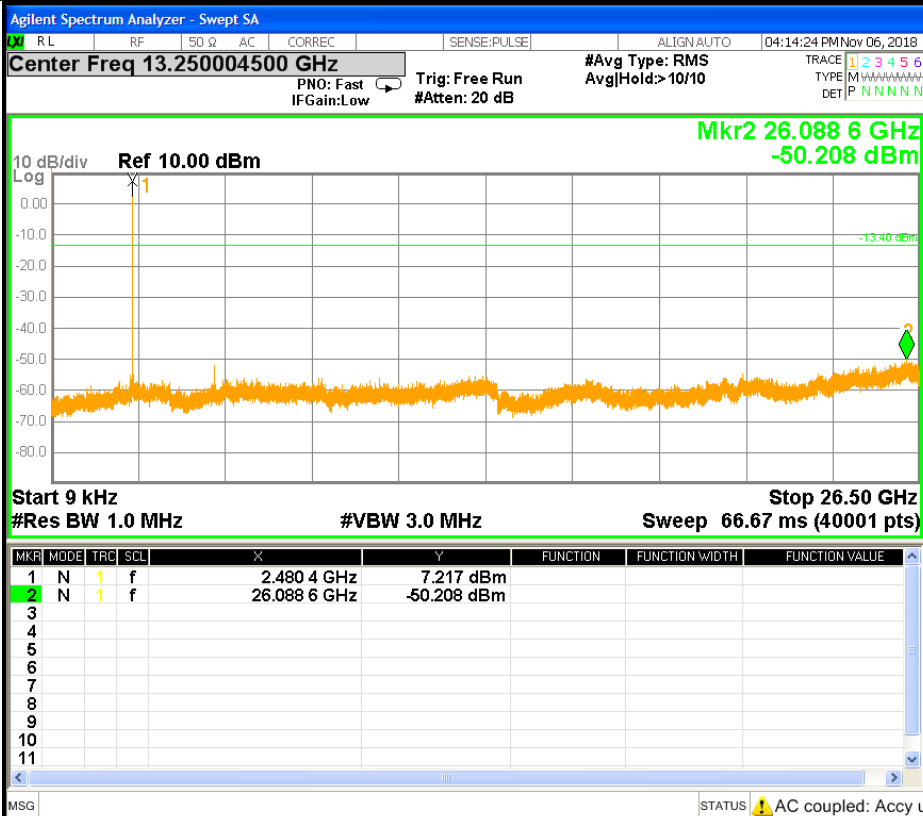


GFSK HCH Graphs

Pref

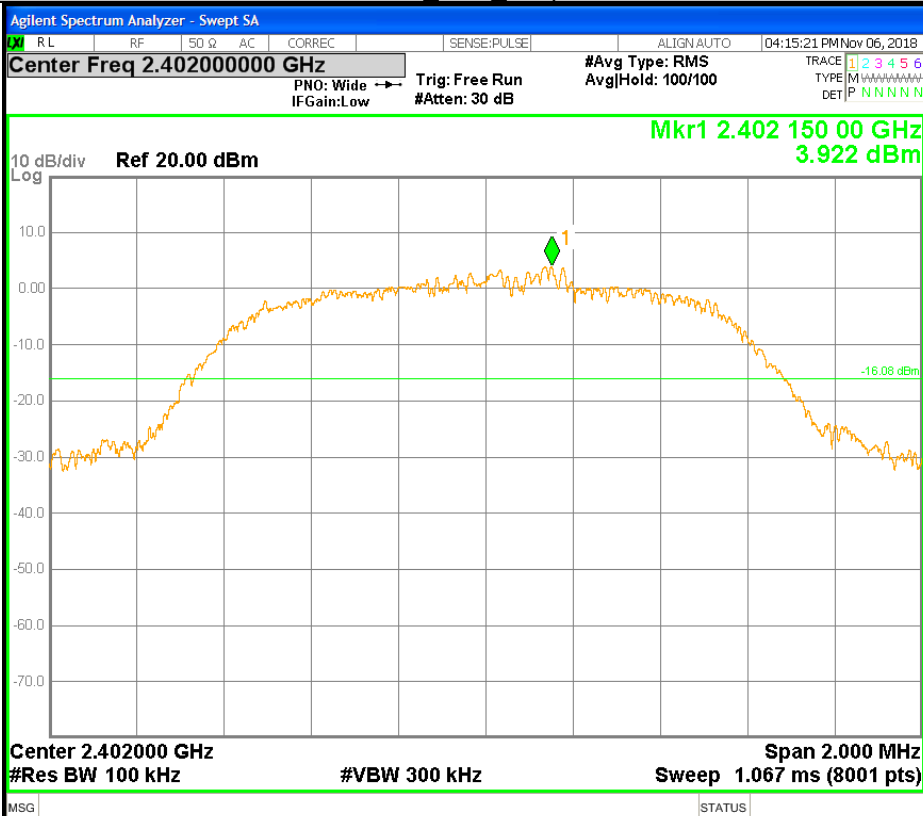


Puw

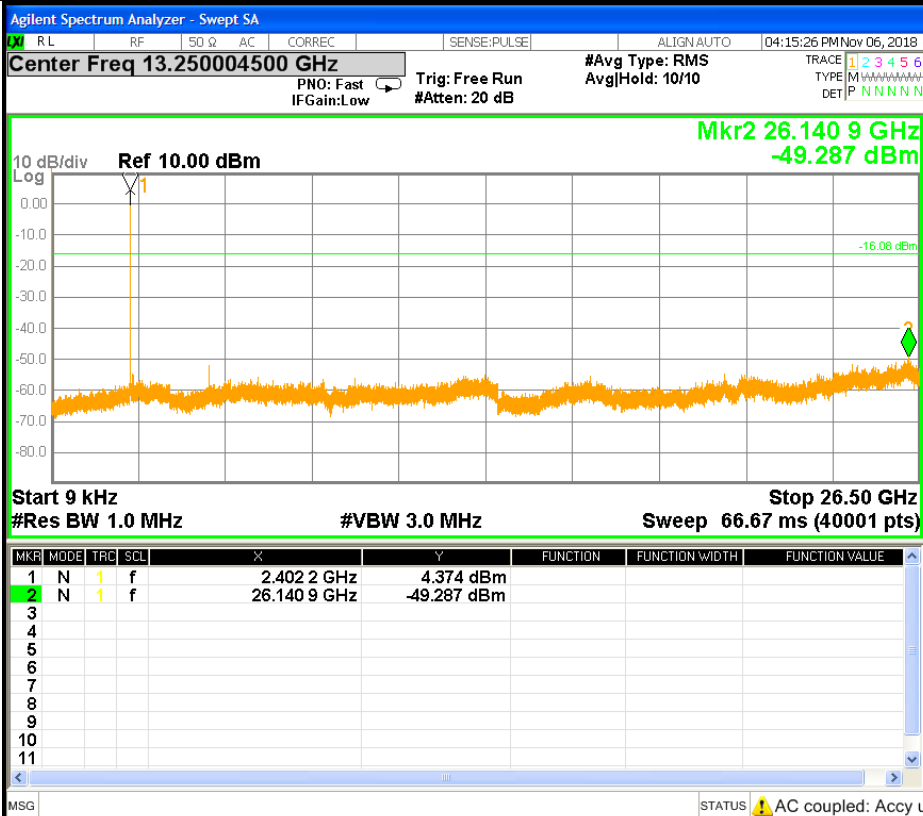


$\pi/4$ DQPSK LCH Graphs

Pref

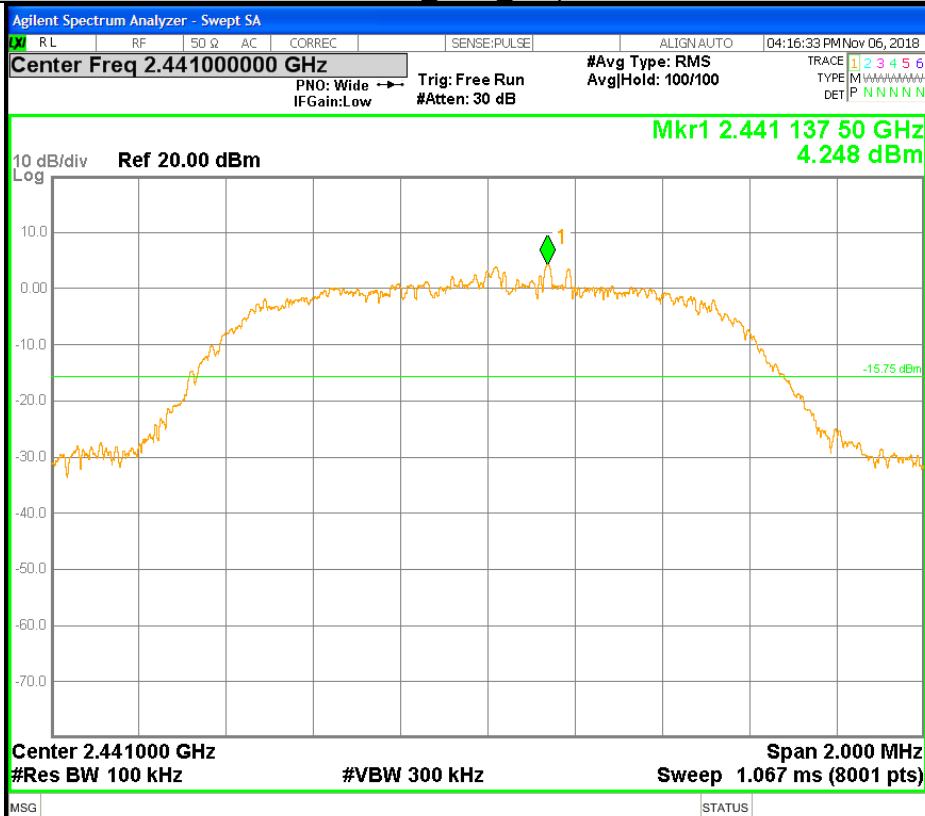


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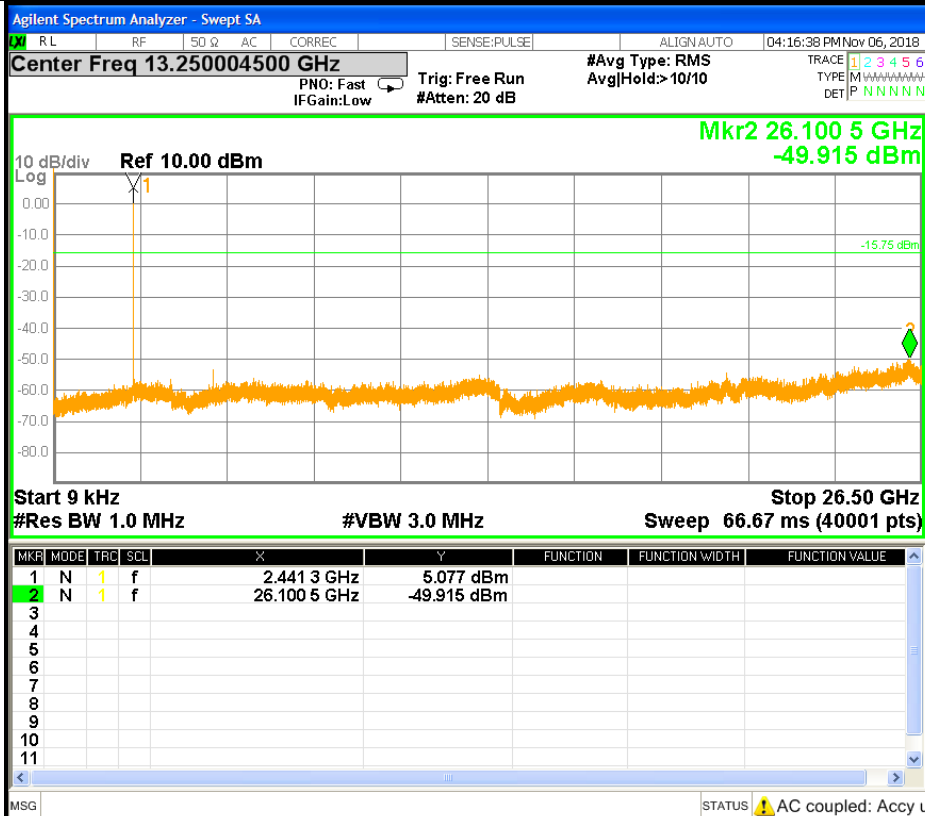


$\pi/4$ DQPSK MCH Graphs

Pref

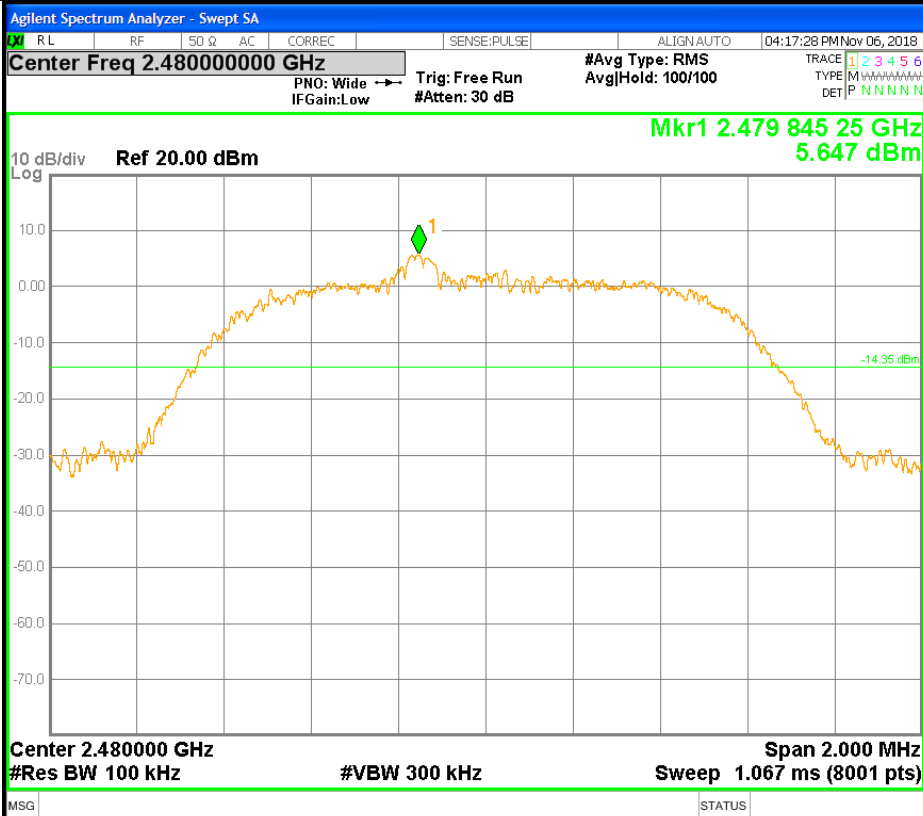


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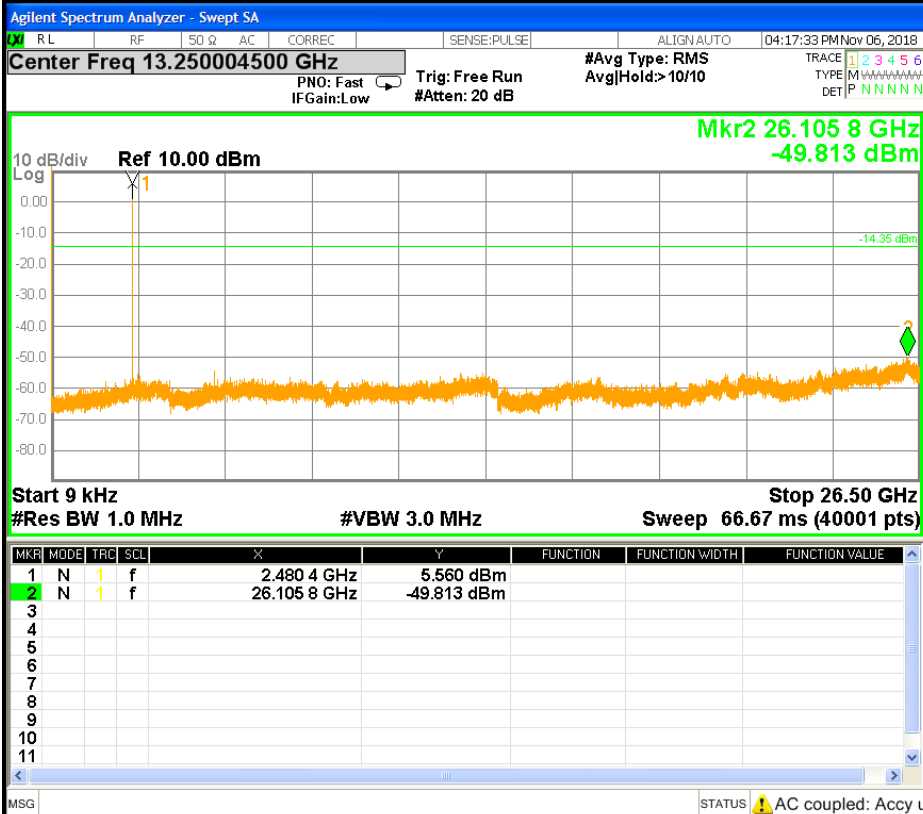


$\pi/4$ DQPSK HCH Graphs

Pref

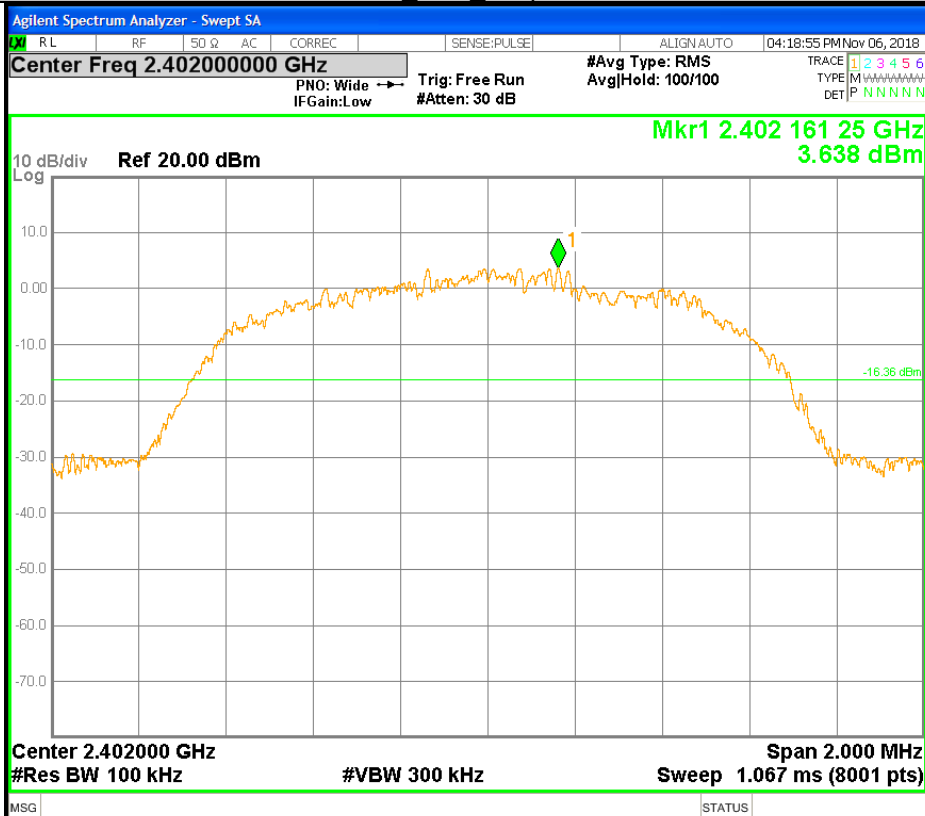


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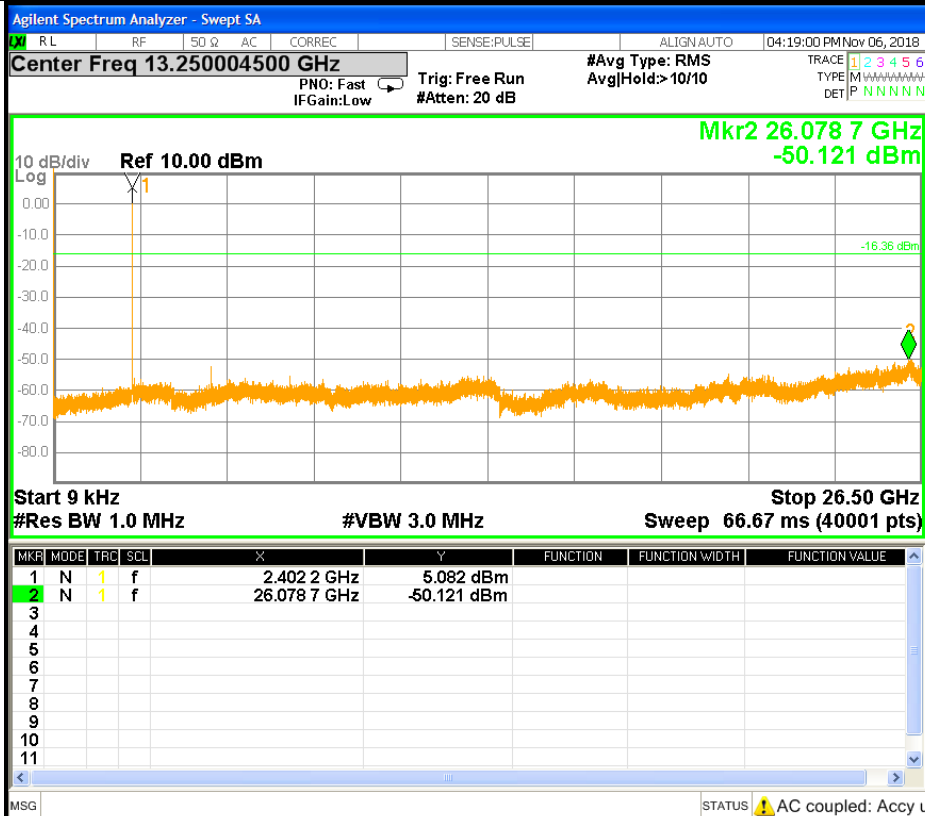


8DPSK LCH Graphs

Pref

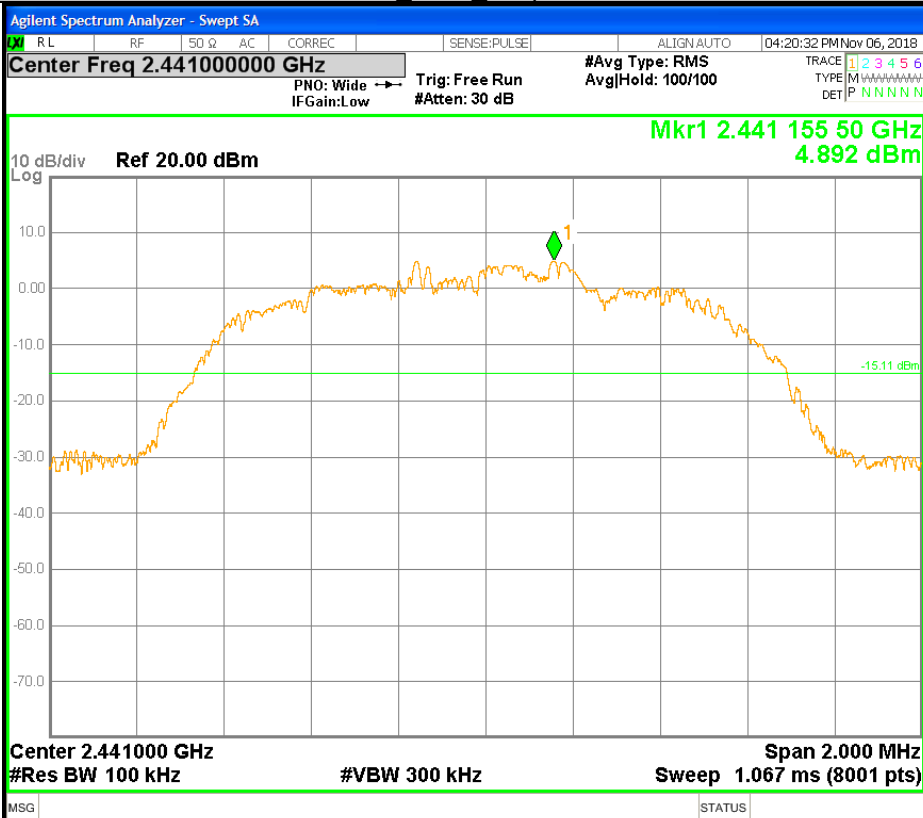


Puw

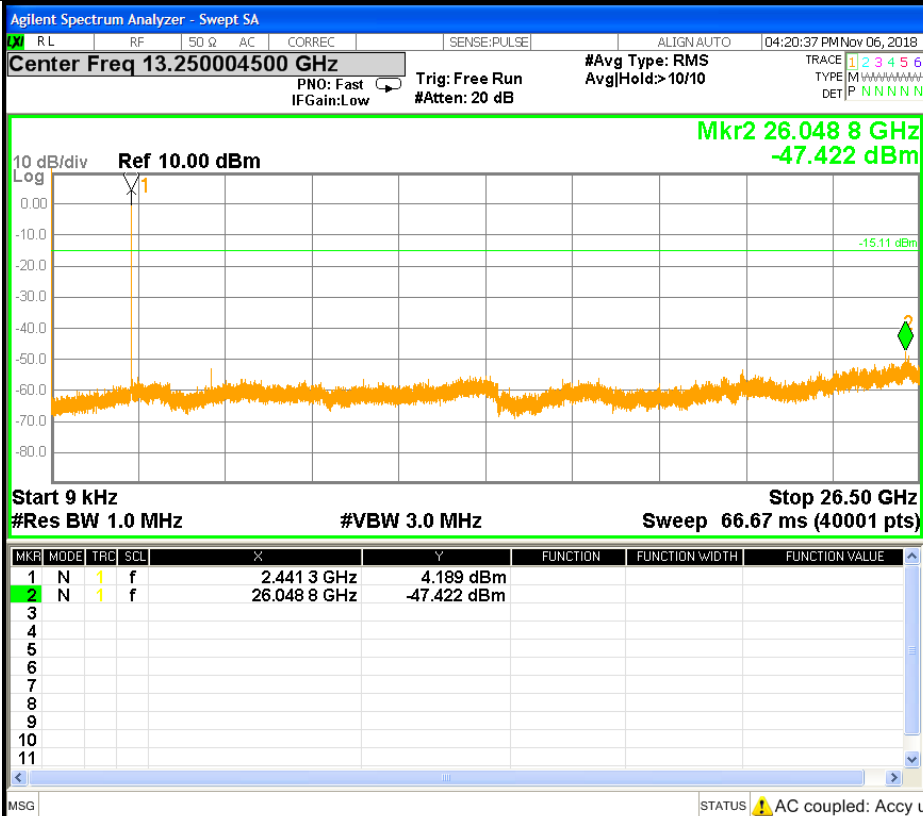


8DPSK MCH Graphs

Pref

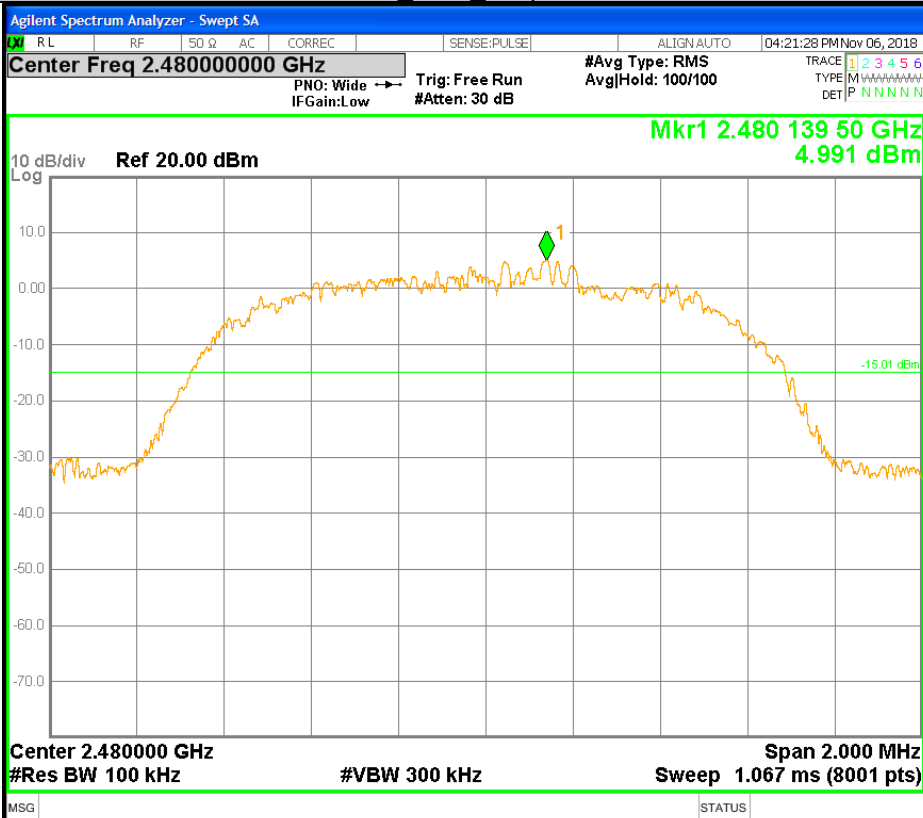


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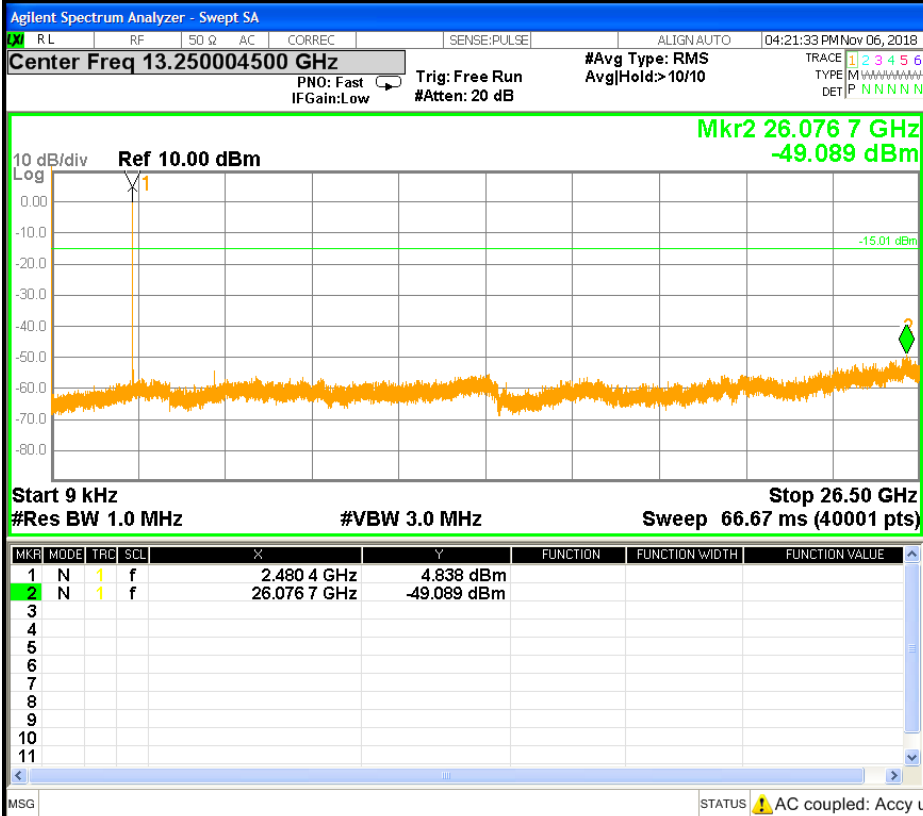


8DPSK HCH Graphs

Pref



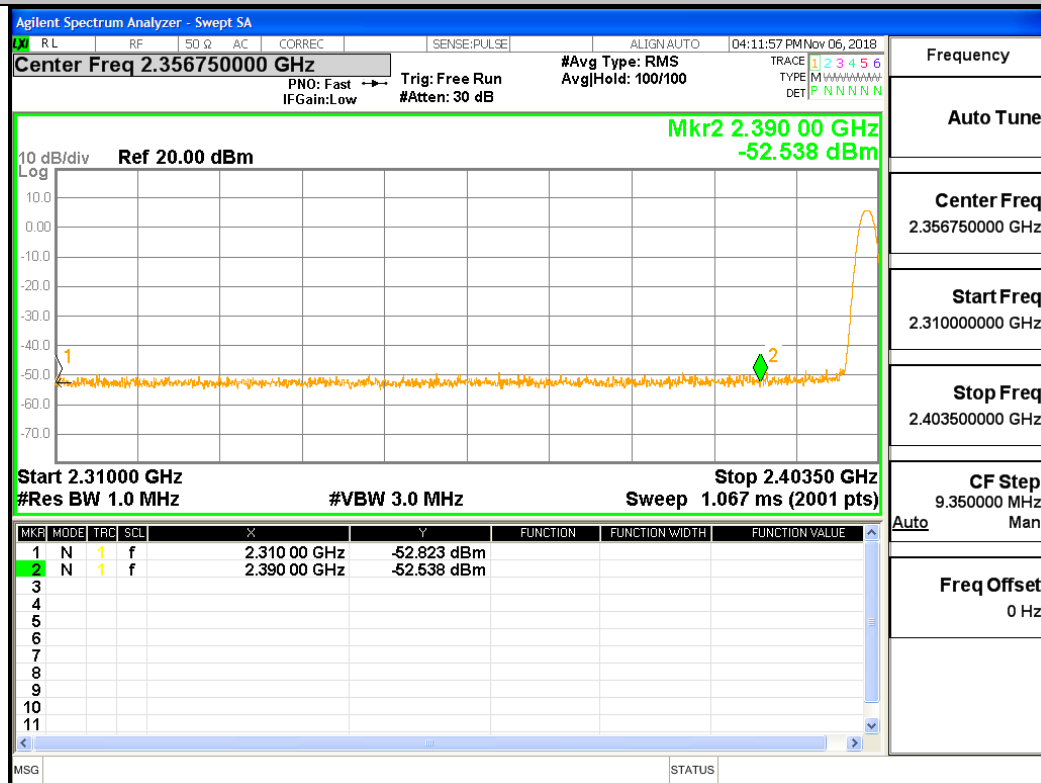
Puw



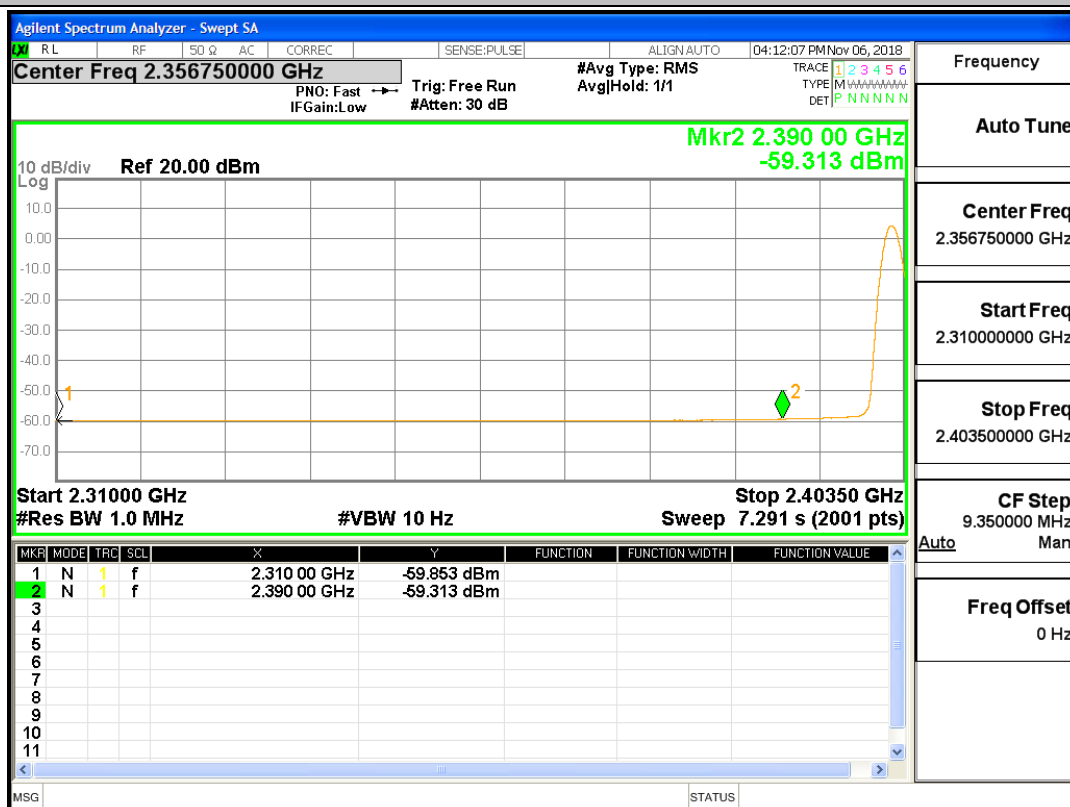
A.8 Restrict-band band-edge measurements

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	0	-52.82	44.38	74	-59.85	37.35	54	Pass
1DH5	2402	2390	2	0	-52.54	44.66	74	-59.31	37.89	54	Pass
1DH5	2480	2483.5	2	0	-50.3	46.9	74	-53.4	43.8	54	Pass
1DH5	2480	2500	2	0	-51.62	45.58	74	-59.03	38.17	54	Pass
2DH5	2402	2310	2	0	-51.49	45.71	74	-59.87	37.33	54	Pass
2DH5	2402	2390	2	0	-51.05	46.15	74	-59.22	37.98	54	Pass
2DH5	2480	2483.5	2	0	-48.86	48.34	74	-52.65	44.55	54	Pass
2DH5	2480	2500	2	0	-51.01	46.19	74	-59.06	38.14	54	Pass
3DH5	2402	2310	2	0	-52.94	44.26	74	-59.86	37.34	54	Pass
3DH5	2402	2390	2	0	-51.26	45.94	74	-59.26	37.94	54	Pass
3DH5	2480	2483.5	2	0	-47.37	49.83	74	-52.81	44.39	54	Pass
3DH5	2480	2500	2	0	-50.92	46.28	74	-59.02	38.18	54	Pass

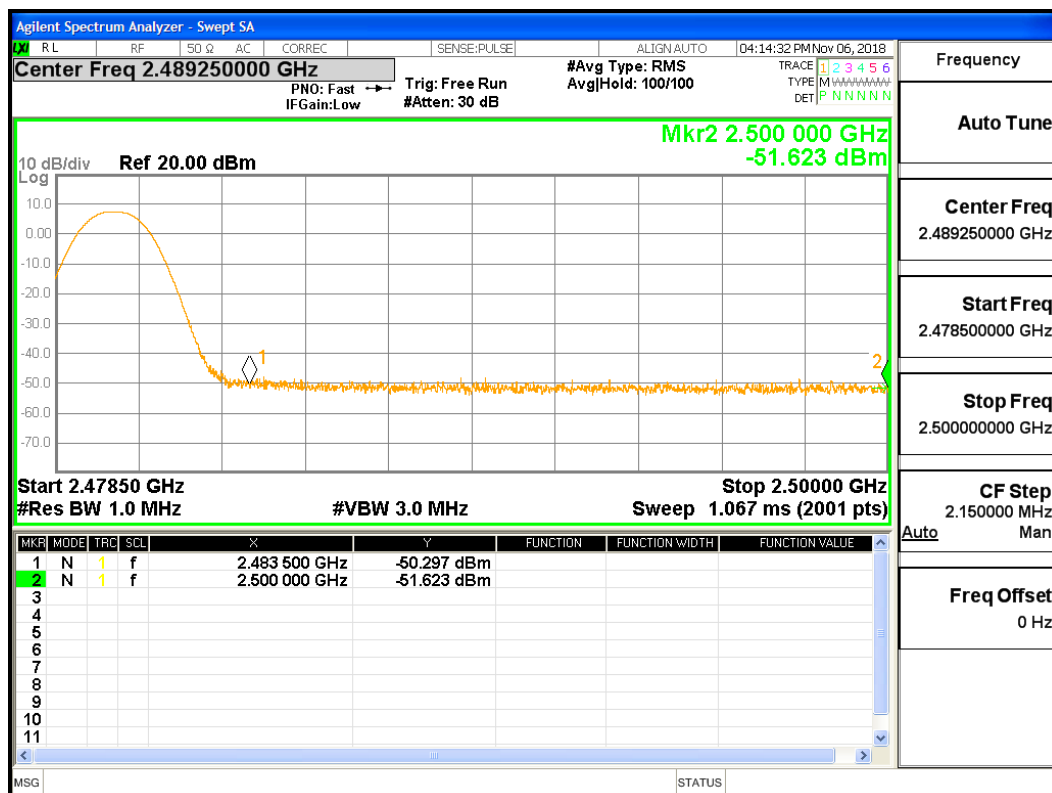
Restrict-band band-edge measurements_2402_PEAK_DH5



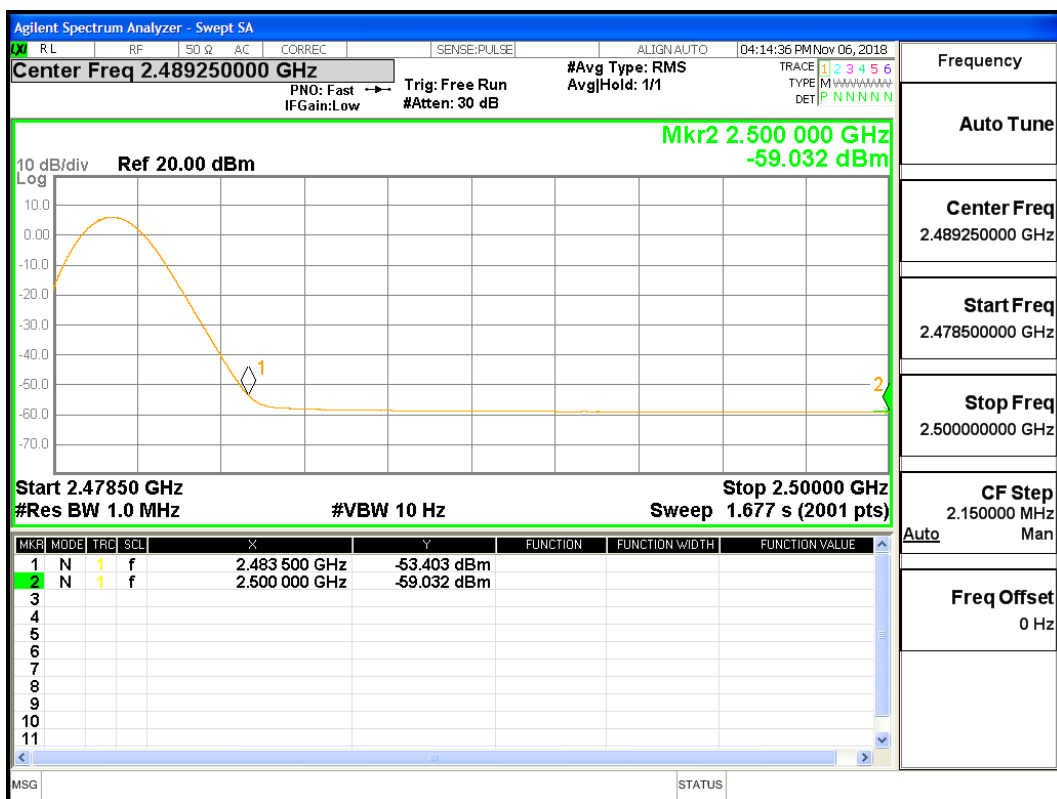
Restrict-band band-edge measurements_2402_AV_DH5



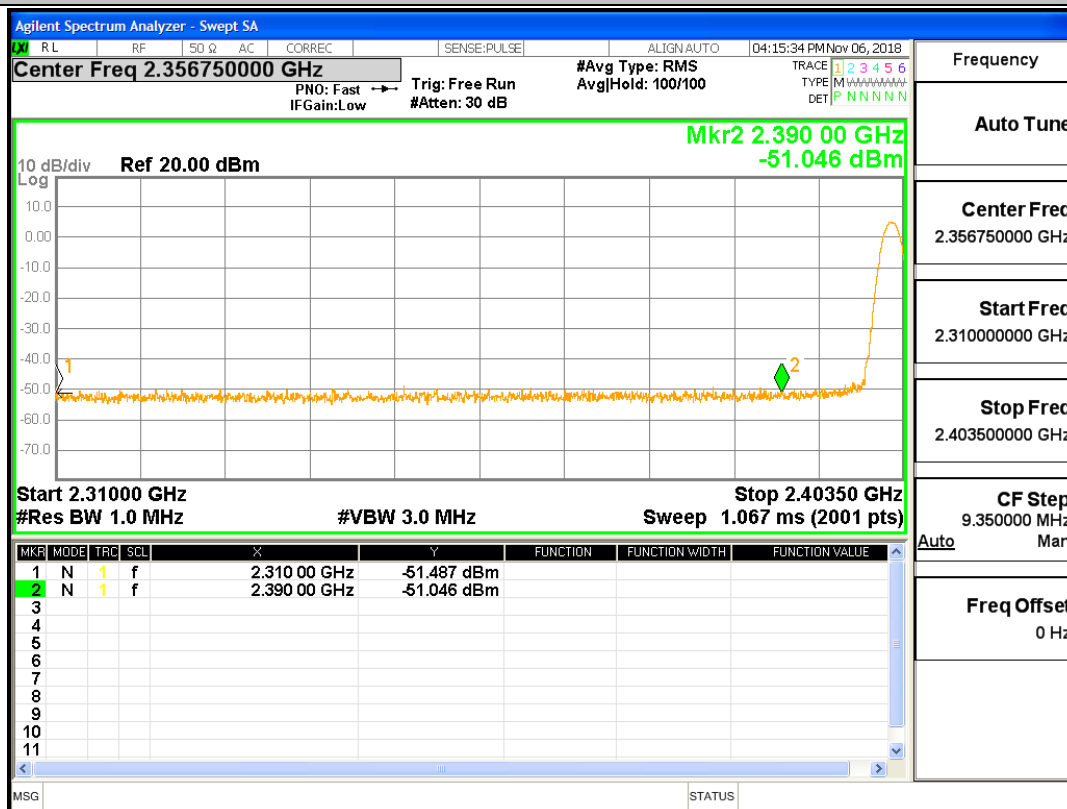
Restrict-band band-edge measurements_2480_PEAK_DH5



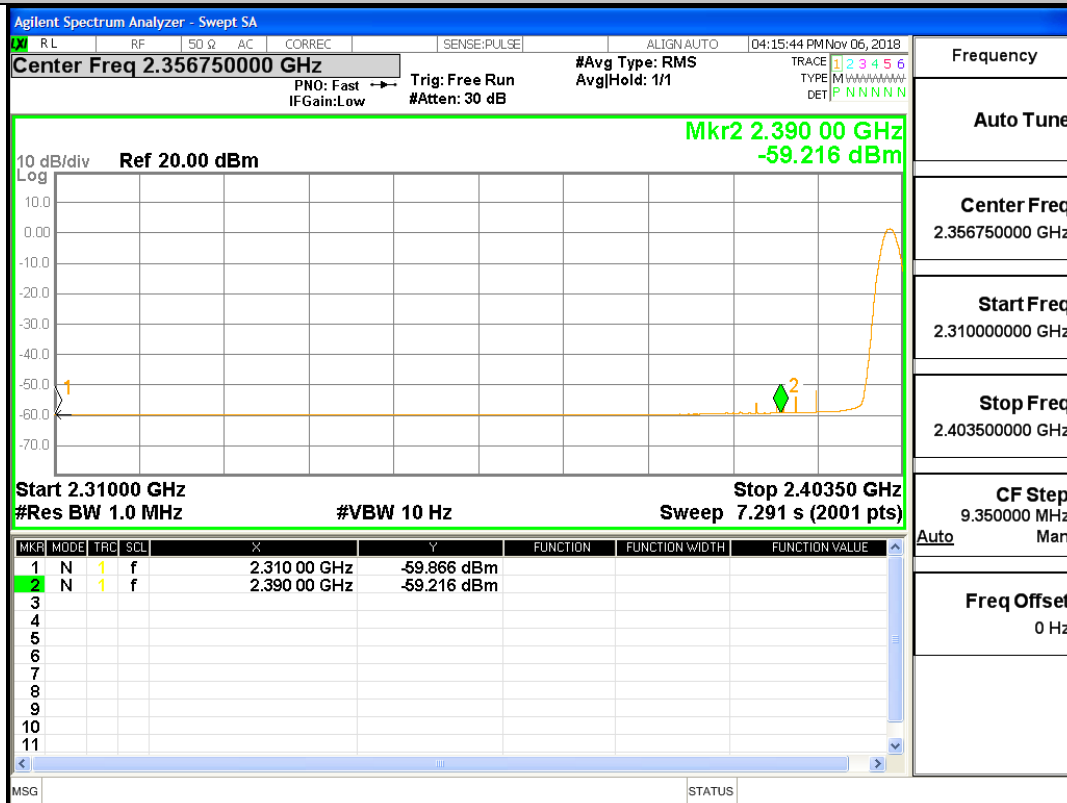
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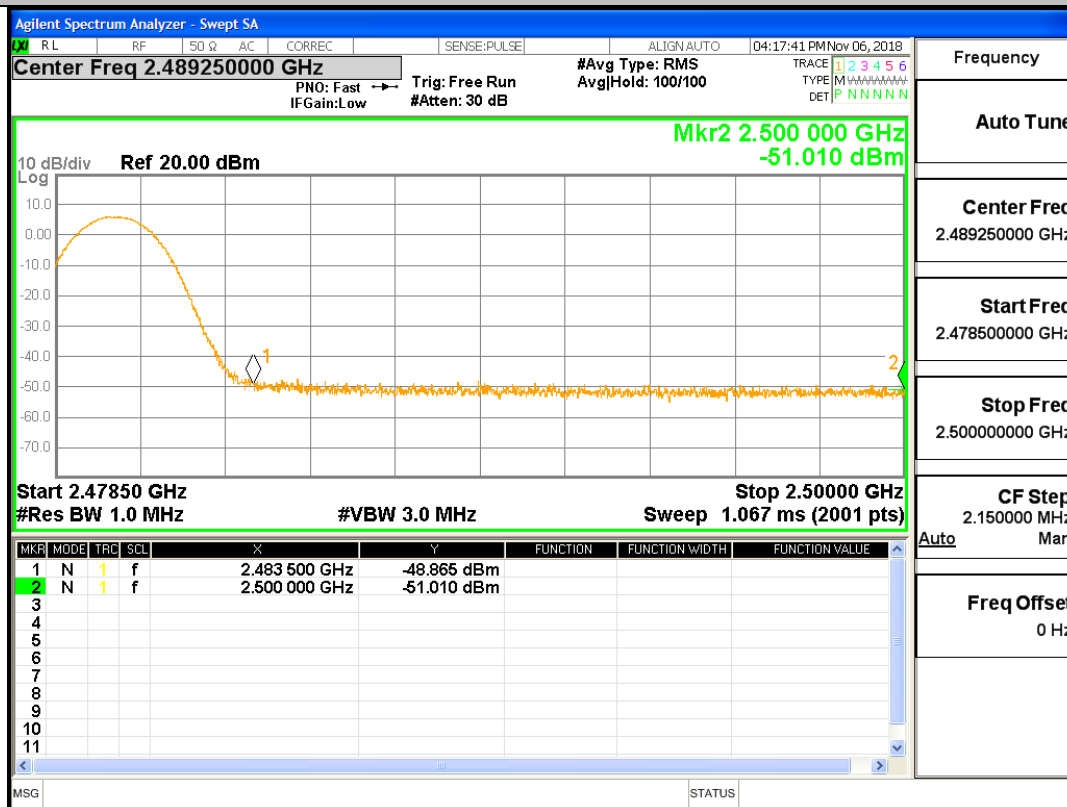
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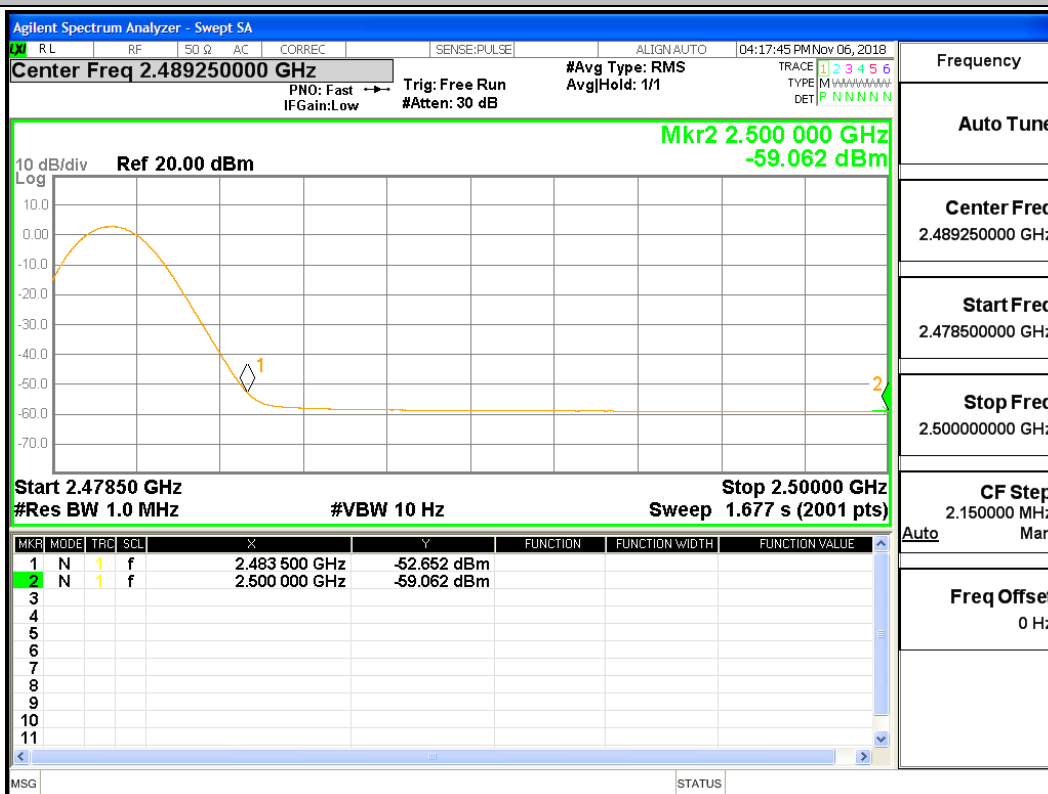
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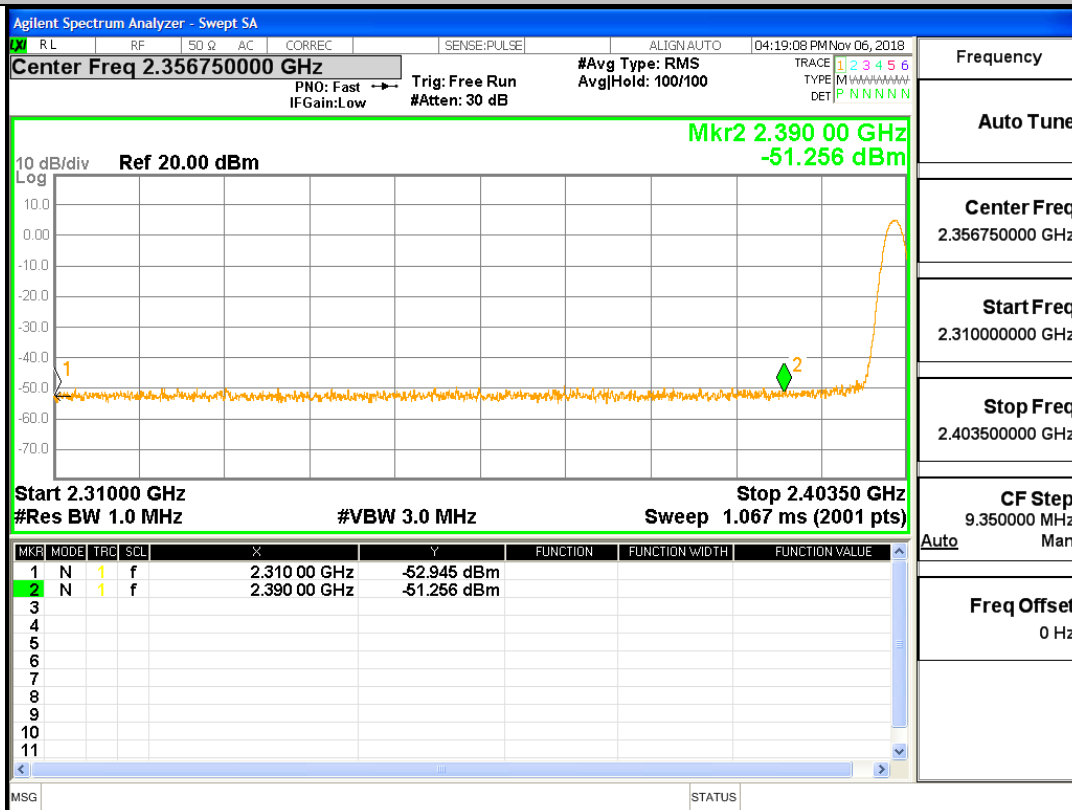
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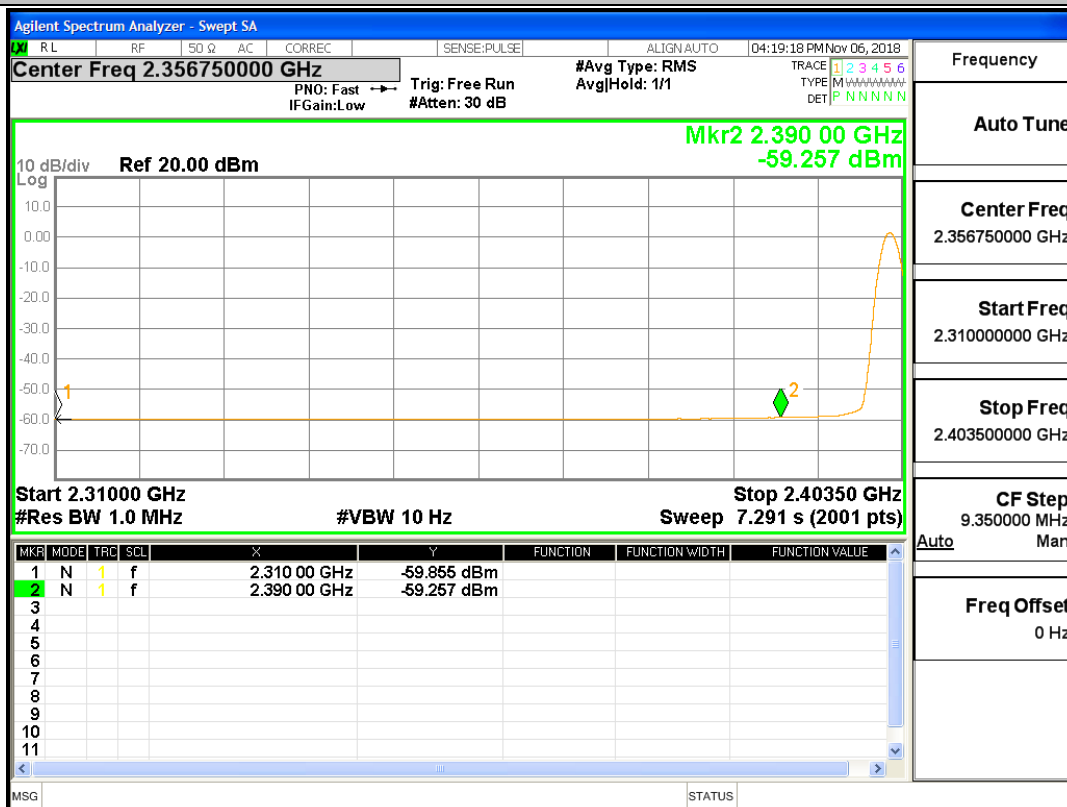
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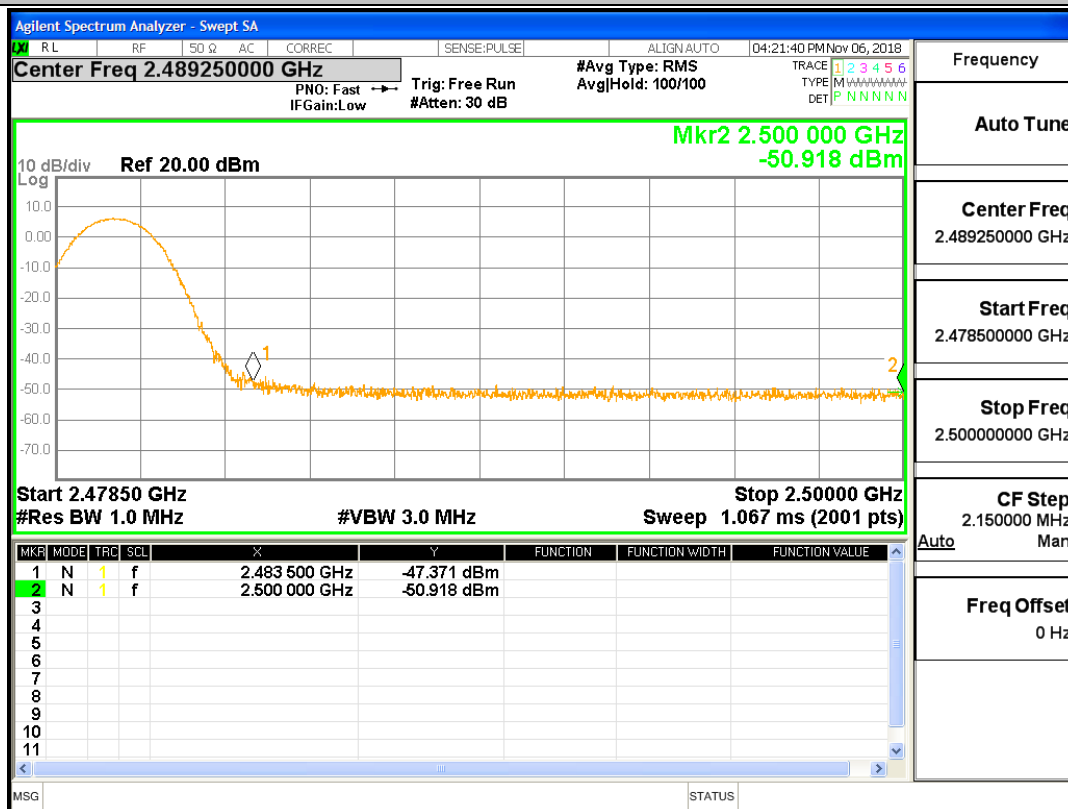
Restrict-band band-edge measurements_2402_PEAK_3DH5



Restrict-band band-edge measurements_2402_AV_3DH5



Restrict-band band-edge measurements_2480_PEAK_3DH5



Restrict-band band-edge measurements_2480_AV_3DH5

