

Appendix A

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

Product Name: 4G Mobile phone

Trade Mark: NYX Mobile

Test Model: Nickel

FCC ID: YPVITALCOMNICKEL

Environmental Conditions

Temperature:	22.5° C
Relative Humidity:	50%
ATM Pressure:	100.0 kPa
Test Engineer:	Gary Qian
Supervised by:	Eden Hu

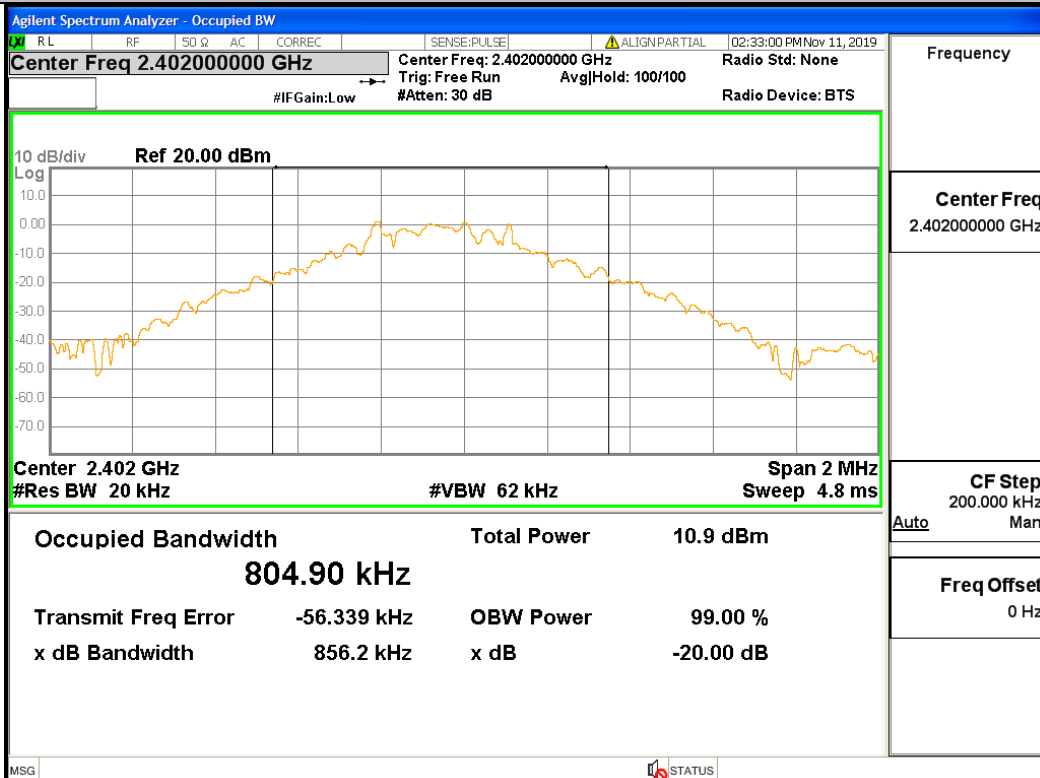
A.1 20 dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit(MHz)	Verdict
GFSK	LCH	0.856	Not Specified	PASS
GFSK	MCH	0.883	Not Specified	PASS
GFSK	HCH	0.884	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.266	Not Specified	PASS
$\pi/4$ DQPSK	MCH	1.266	Not Specified	PASS
$\pi/4$ DQPSK	HCH	1.268	Not Specified	PASS
8DPSK	LCH	1.309	Not Specified	PASS
8DPSK	MCH	1.270	Not Specified	PASS
8DPSK	HCH	1.264	Not Specified	PASS

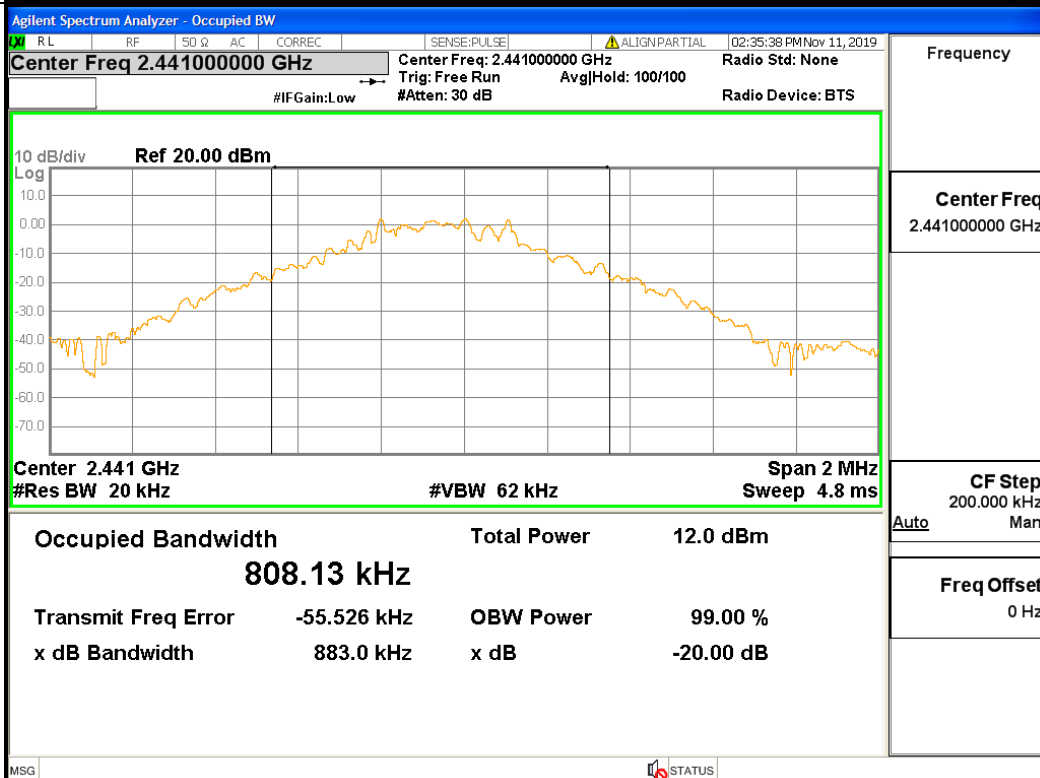
Test Graph

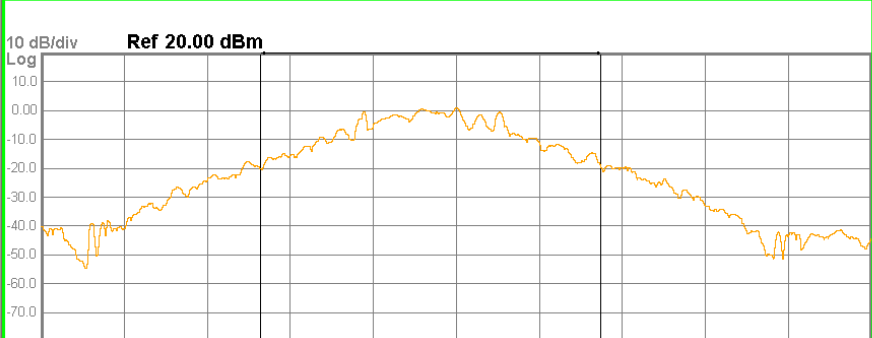
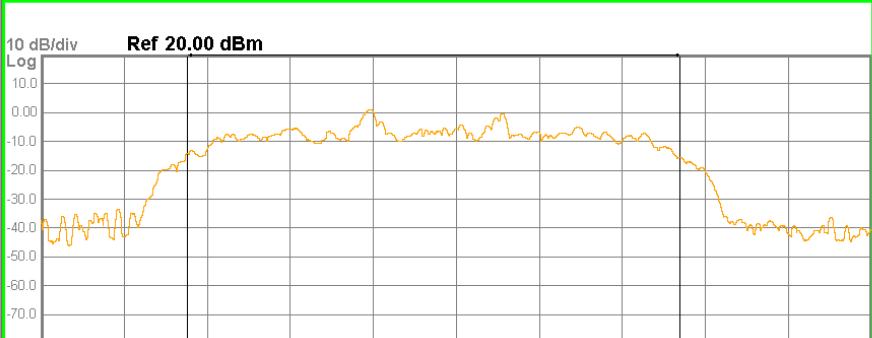
Graphs

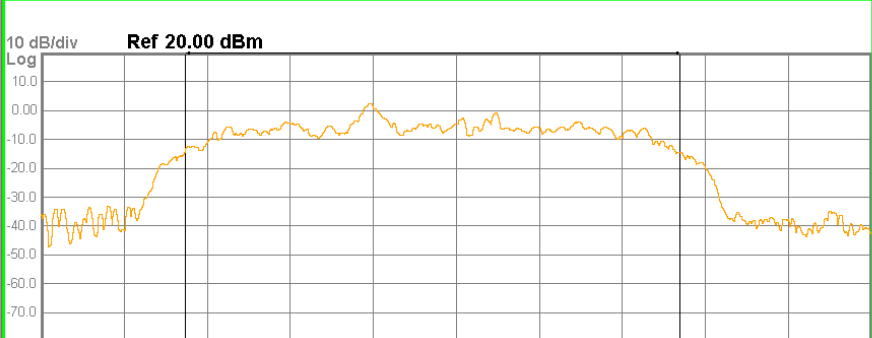
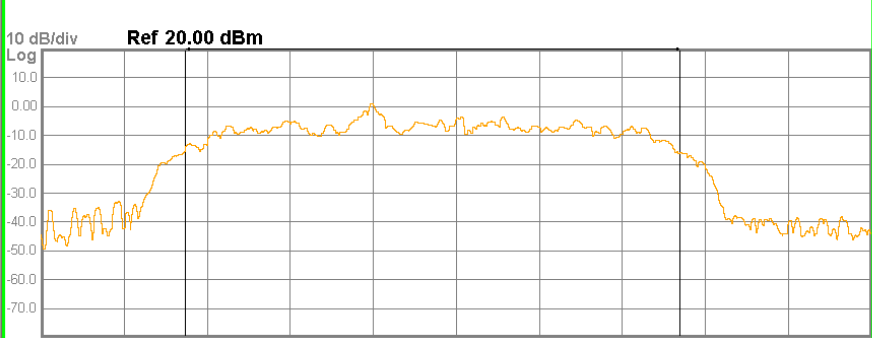
GFSK/LCH

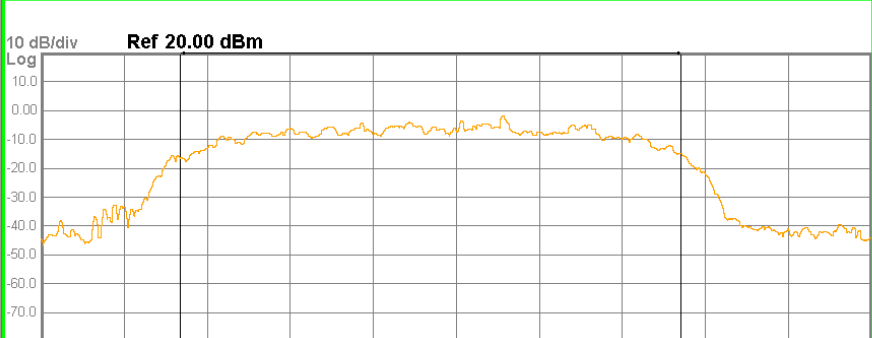
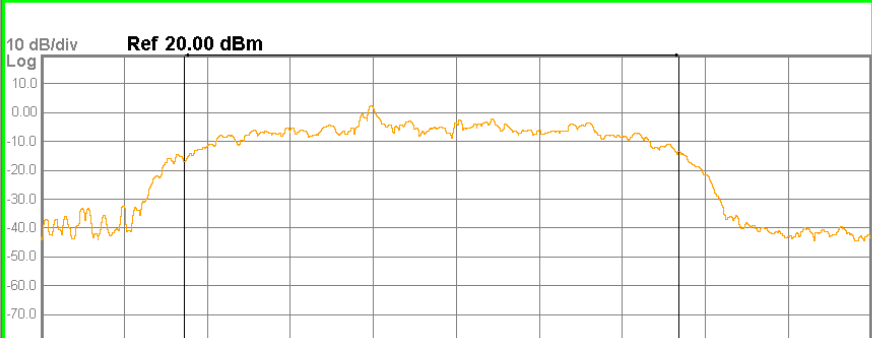


GFSK/MCH

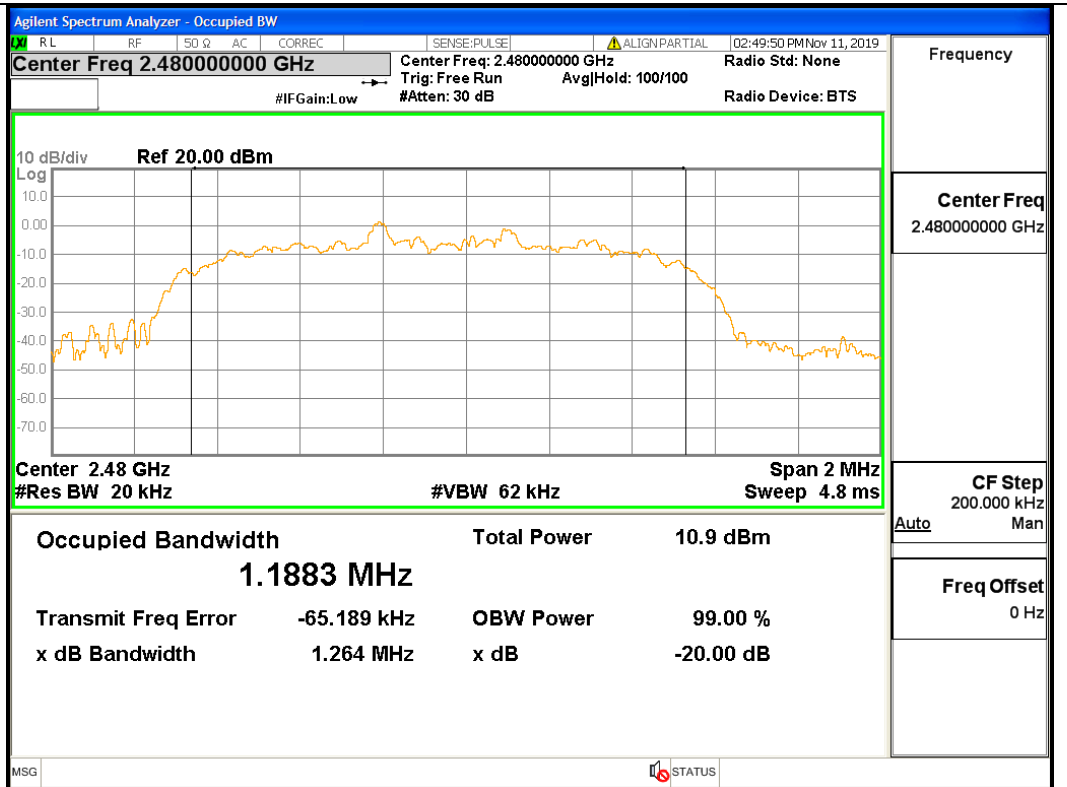


GFSK/HCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC CORREC SENSE:PULSE ALIGN:PARTIAL 02:36:56 PM Nov 11, 2019 Center Freq 2.480000000 GHz Center Freq: 2.480000000 GHz Radio Std: None #IFGain:Low #Atten: 30 dB AvgHold: 100/100 Radio Device: BTS  10 dB/div Ref 20.00 dBm Center 2.48 GHz Span 2 MHz #Res BW 20 kHz #VBW 62 kHz Sweep 4.8 ms Occupied Bandwidth 816.41 kHz Total Power 10.8 dBm Transmit Freq Error -61.584 kHz OBW Power 99.00 % x dB Bandwidth 884.0 kHz x dB -20.00 dB MSG STATUS	Frequency Center Freq 2.480000000 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:PARTIAL 02:38:33 PM Nov 11, 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 20.00 dBm Center 2.402 GHz Span 2 MHz #Res BW 20 kHz #VBW 62 kHz Sweep 4.8 ms Occupied Bandwidth 1.1840 MHz Total Power 10.6 dBm Transmit Freq Error -53.765 kHz OBW Power 99.00 % x dB Bandwidth 1.266 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

π/4DQPSK/MCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC CORREC SENSE:PULSE ALIGN:PARTIAL 02:40:46 PM Nov 11, 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  Center 2.441 GHz Span 2 MHz #Res BW 20 kHz #VBW 62 kHz Sweep 4.8 ms Occupied Bandwidth 1.1856 MHz Total Power 11.8 dBm Transmit Freq Error -55.993 kHz OBW Power 99.00 % x dB Bandwidth 1.266 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
π/4DQPSK/HCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC CORREC SENSE:PULSE ALIGN:PARTIAL 02:41:47 PM Nov 11, 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  Center 2.48 GHz Span 2 MHz #Res BW 20 kHz #VBW 62 kHz Sweep 4.8 ms Occupied Bandwidth 1.1883 MHz Total Power 10.6 dBm Transmit Freq Error -57.398 kHz OBW Power 99.00 % x dB Bandwidth 1.268 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

8DPSK/LCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC CORREC SENSE:PULSE ALIGN:PARTIAL 02:45:58 PM Nov 11, 2019 Center Freq 2.40200000 GHz Center Freq: 2.40200000 GHz Radio Std: None #IFGain:Low #Atten: 30 dB AvgHold: 100/100 Radio Device: BTS  10 dB/div Ref 20.00 dBm Center 2.402 GHz Span 2 MHz #Res BW 20 kHz #VBW 62 kHz Sweep 4.8 ms Occupied Bandwidth 1.2022 MHz Total Power 10.1 dBm Transmit Freq Error -61.949 kHz OBW Power 99.00 % x dB Bandwidth 1.309 MHz x dB -20.00 dB MSG STATUS	Frequency Center Freq 2.40200000 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:PARTIAL 02:47:43 PM Nov 11, 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 20.00 dBm Center 2.441 GHz Span 2 MHz #Res BW 20 kHz #VBW 62 kHz Sweep 4.8 ms Occupied Bandwidth 1.1887 MHz Total Power 11.6 dBm Transmit Freq Error -59.082 kHz OBW Power 99.00 % x dB Bandwidth 1.270 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

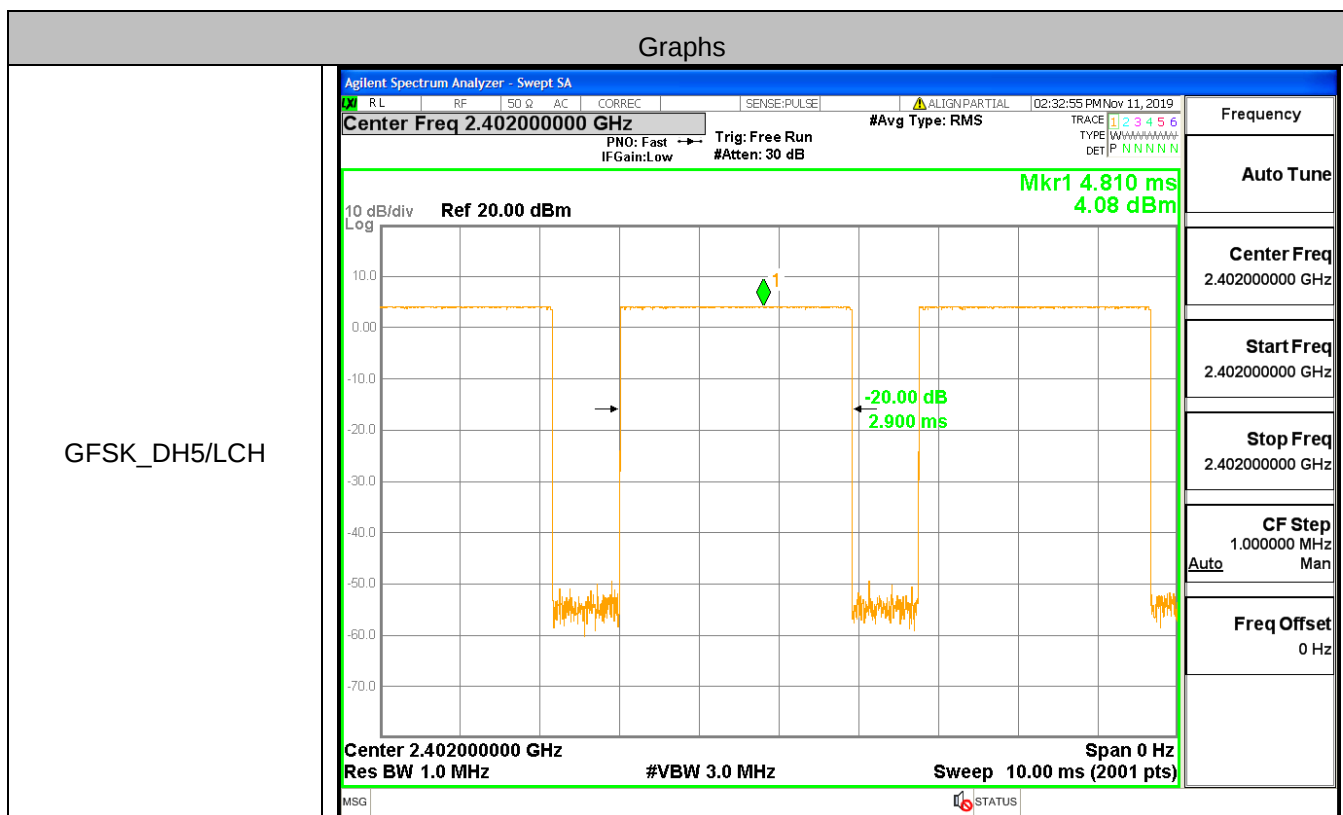
8DPSK/HCH

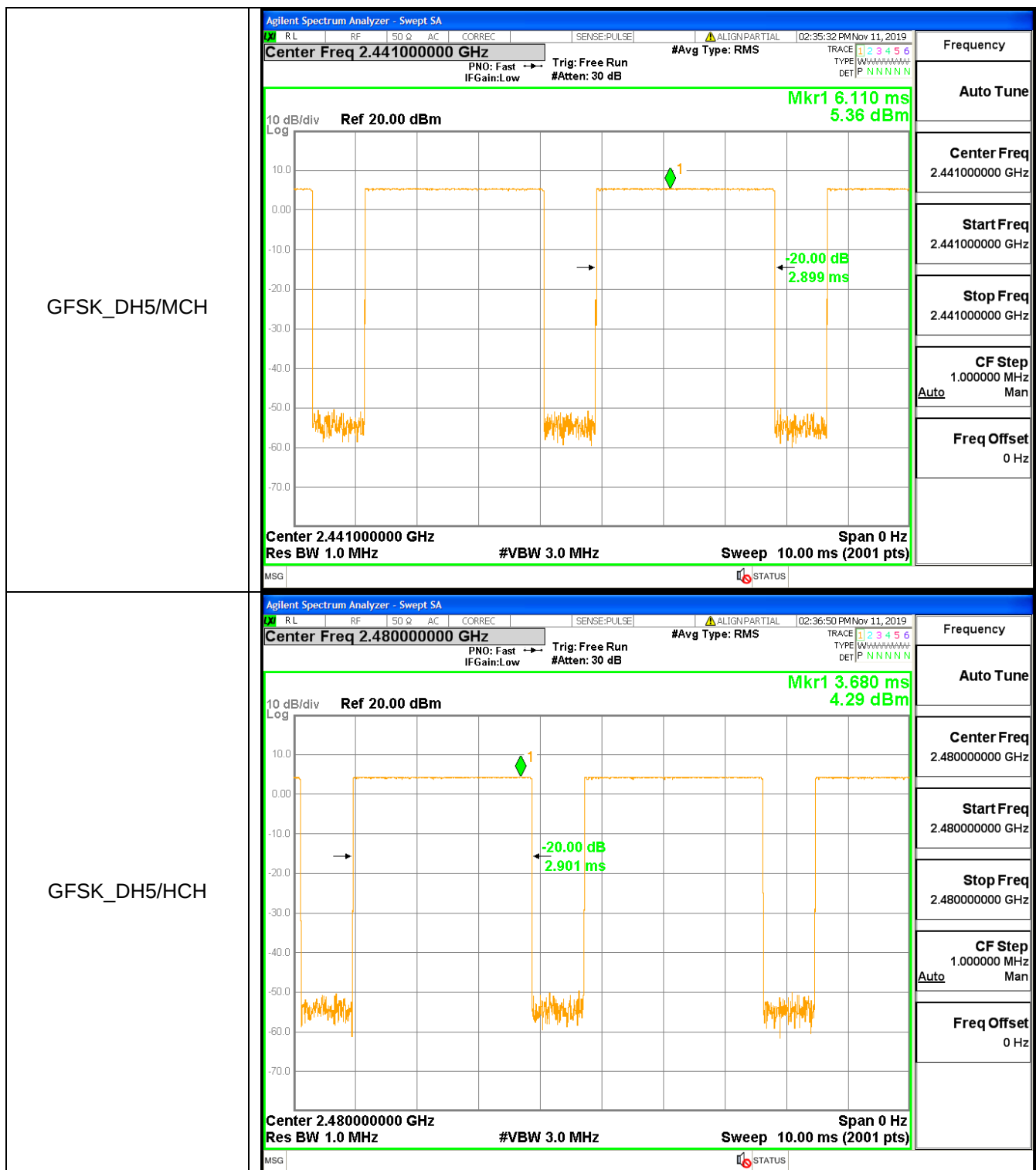


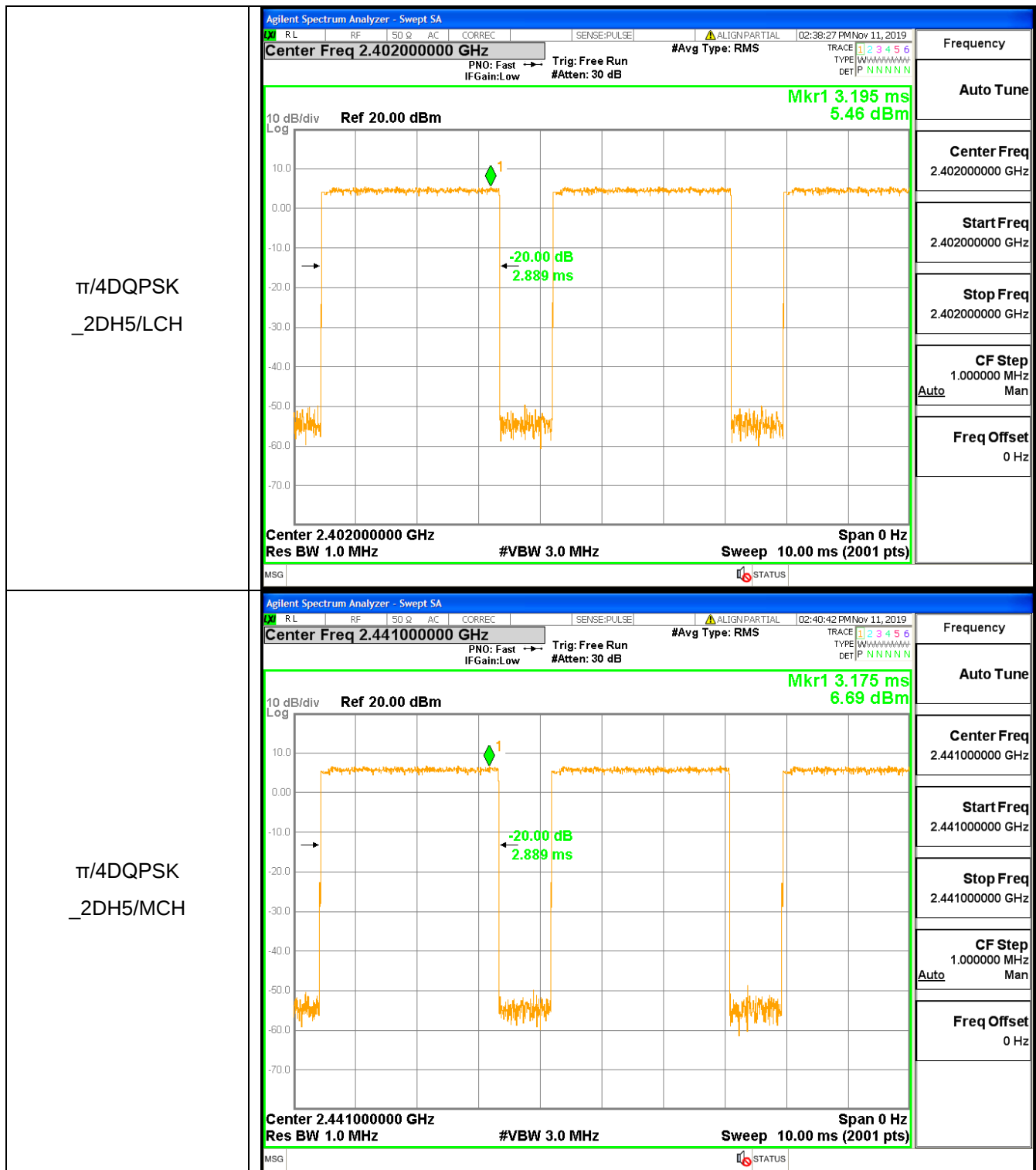
A.2 Dwell Time

Mode	Packet	Channel	Burst Width [s/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	0.002900	106.7	0.3094	0.4	PASS
GFSK	DH5	MCH	0.002899	106.7	0.3094	0.4	PASS
GFSK	DH5	HCH	0.002901	106.7	0.3095	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	0.002889	106.7	0.3083	0.4	PASS
$\pi/4$ DQPSK	2DH5	MCH	0.002889	106.7	0.3083	0.4	PASS
$\pi/4$ DQPSK	2DH5	HCH	0.002890	106.7	0.3084	0.4	PASS
8DPSK	3DH5	LCH	0.002889	106.7	0.3083	0.4	PASS
8DPSK	3DH5	MCH	0.002890	106.7	0.3083	0.4	PASS
8DPSK	3DH5	HCH	0.002890	106.7	0.3083	0.4	PASS

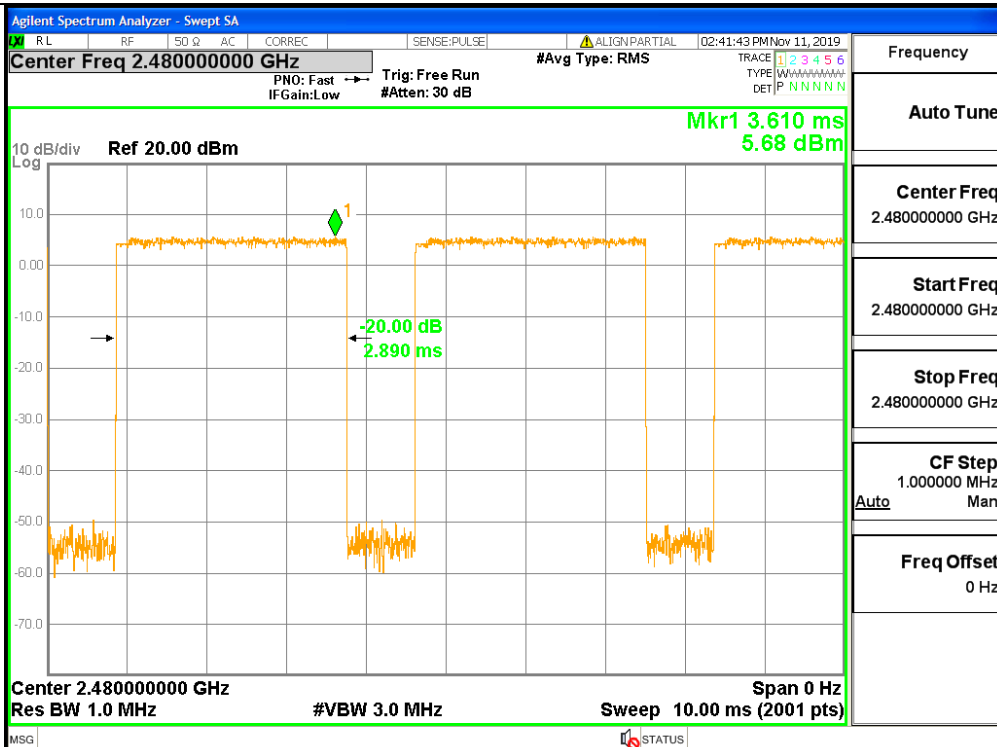
Test Graph



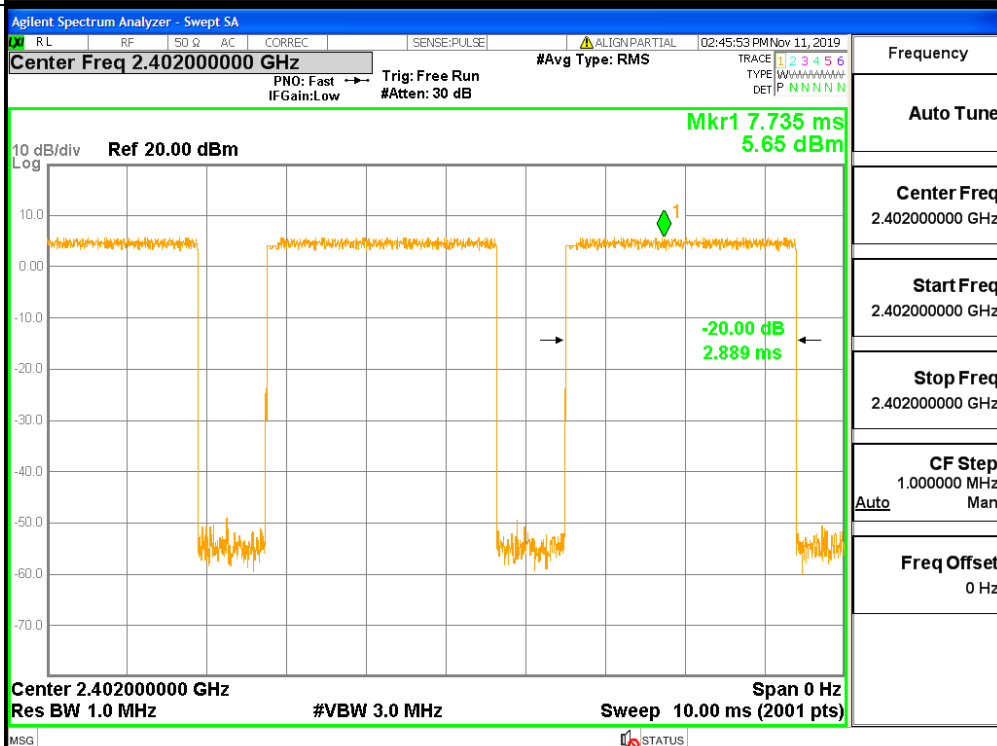


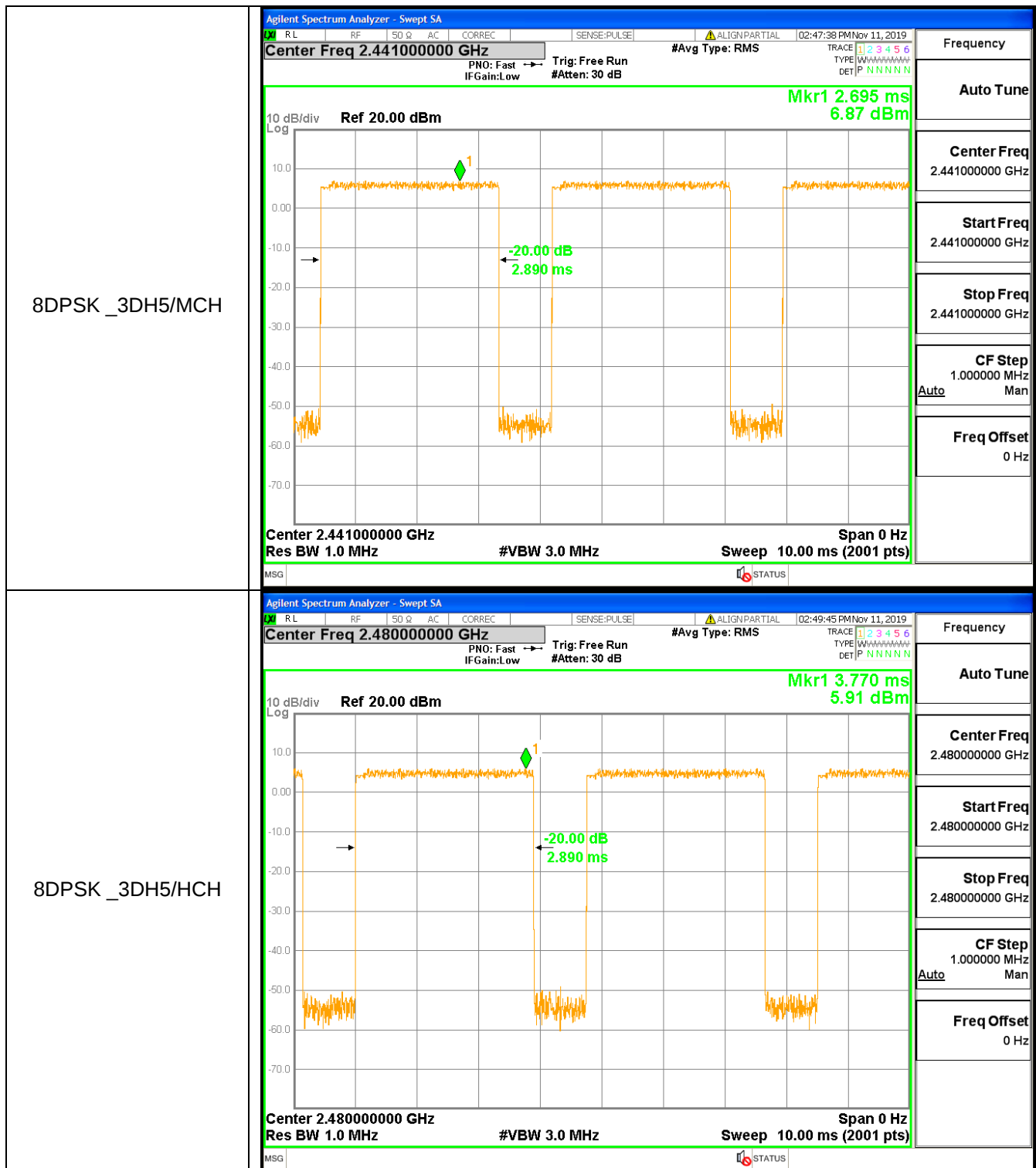


$\pi/4$ DQPSK
_2DH5/HCH



8DPSK_3DH5/LCH

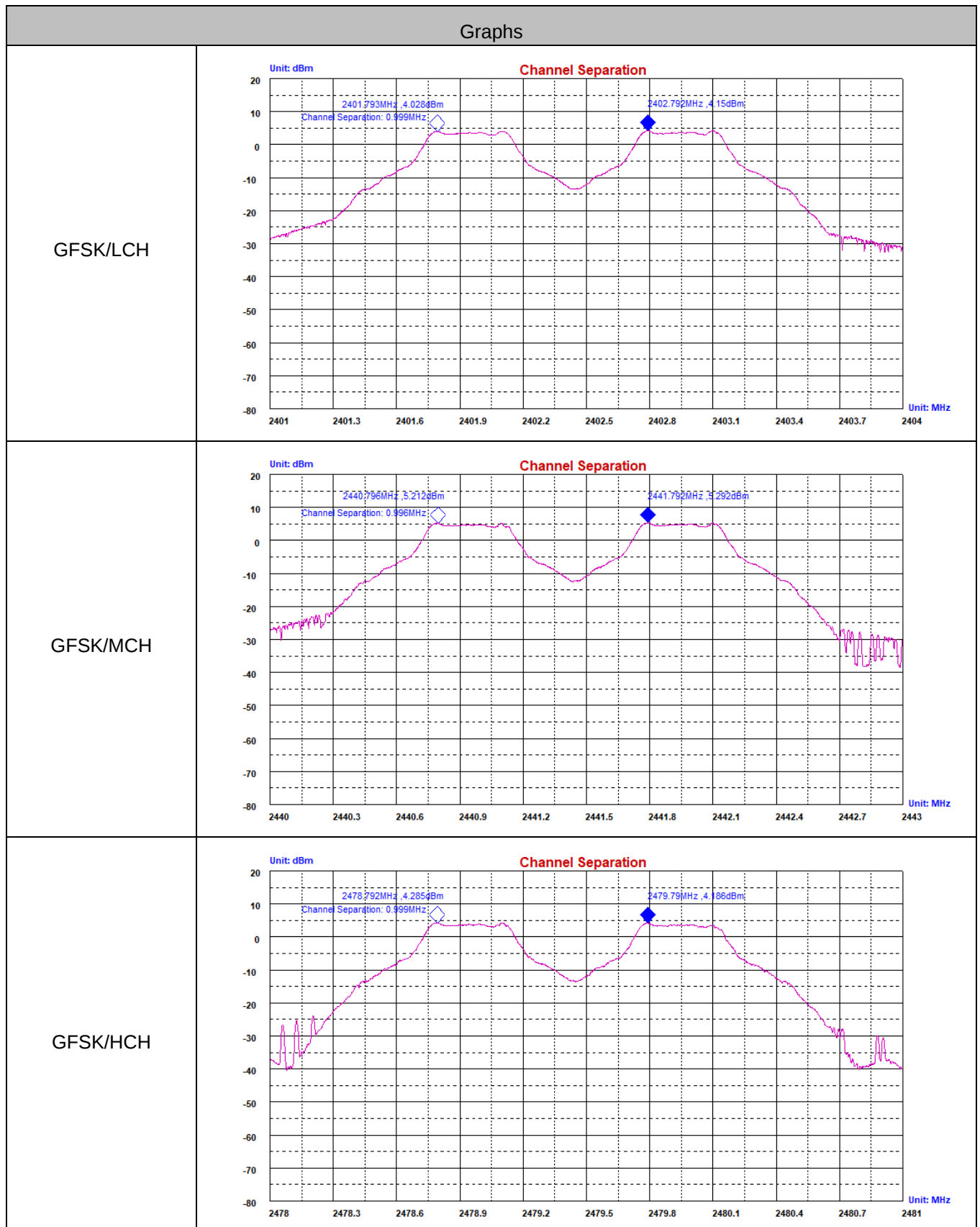


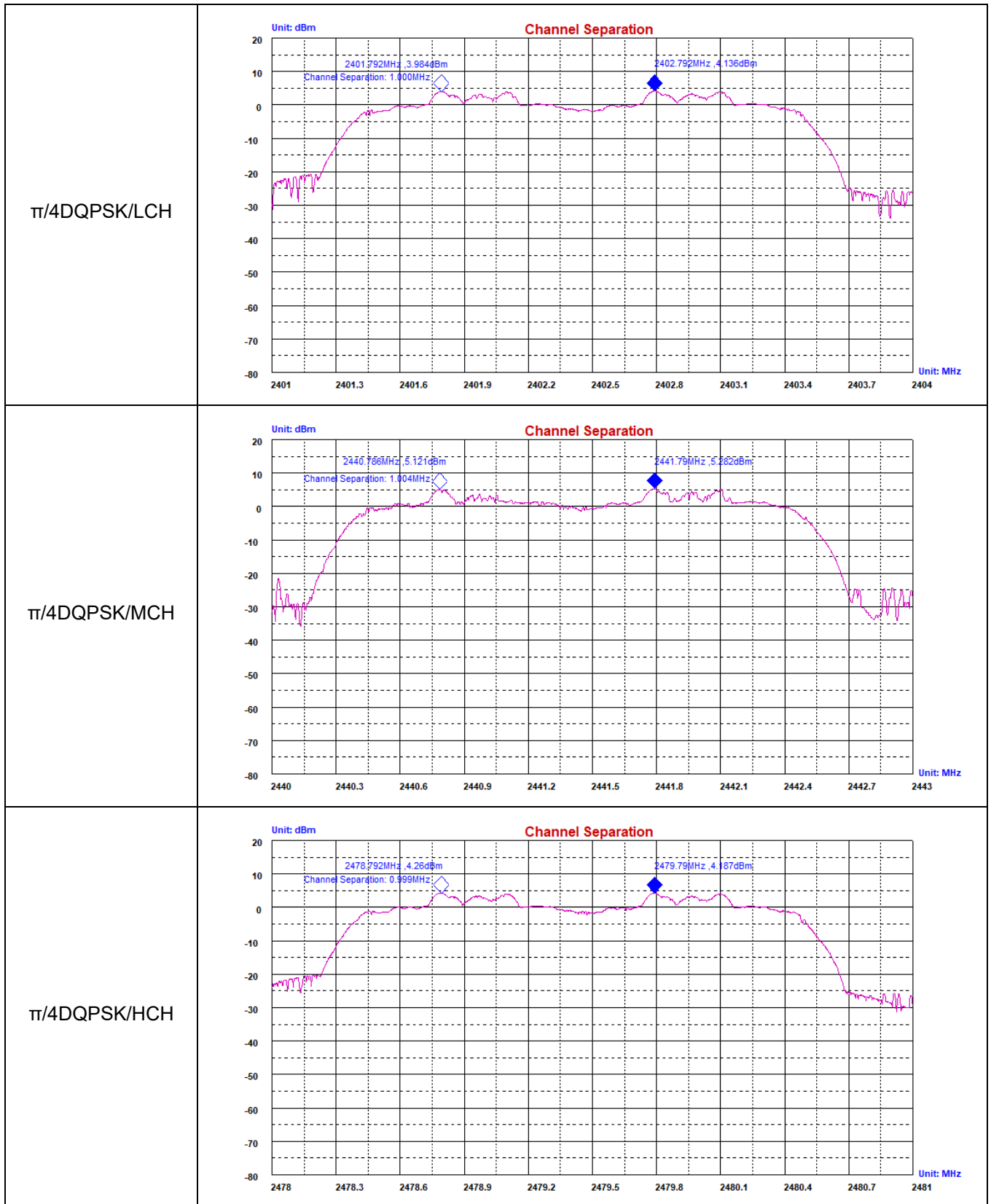


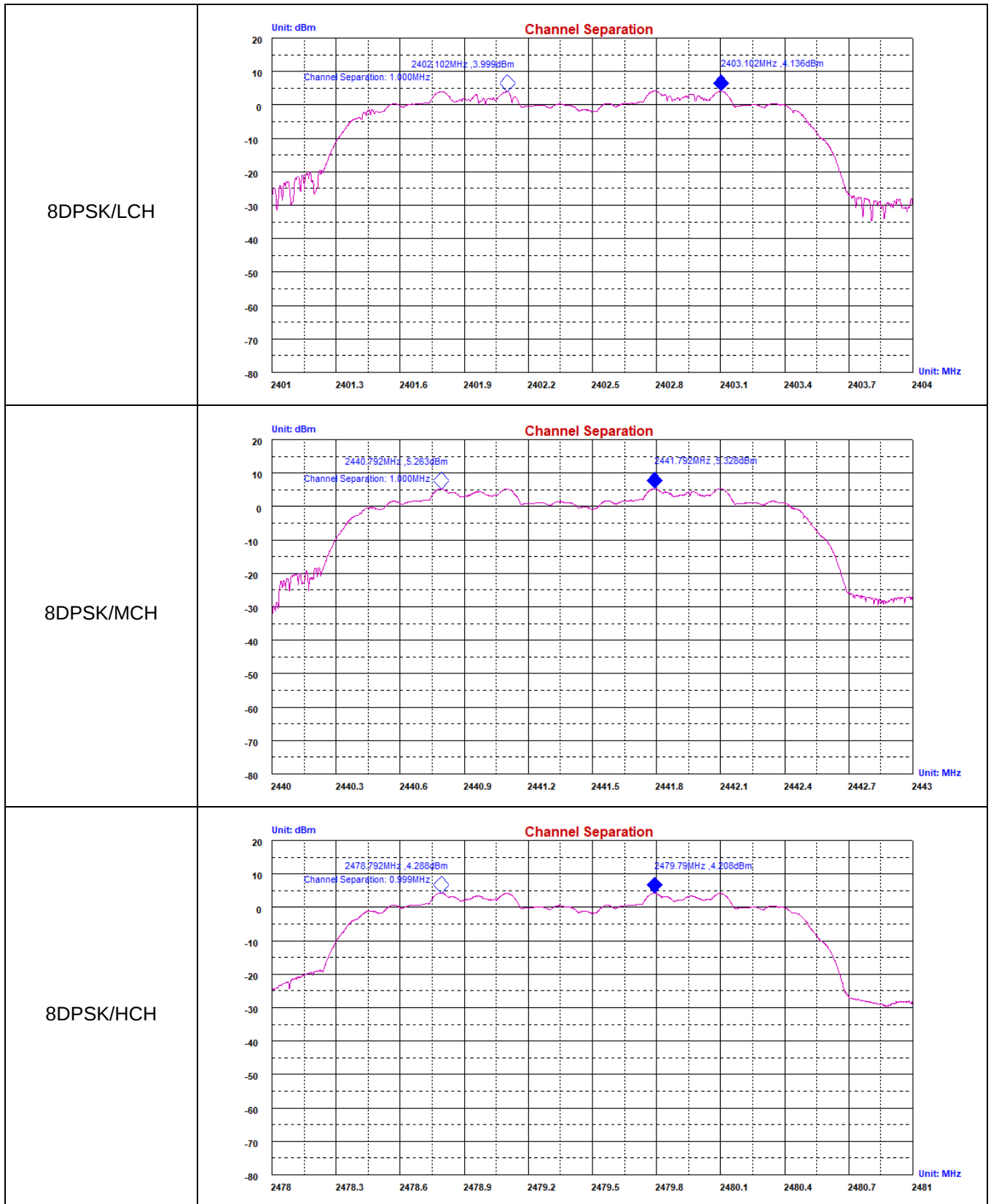
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.999	0.571	PASS
GFSK	MCH	0.996	0.589	PASS
GFSK	HCH	0.999	0.589	PASS
$\pi/4$ DQPSK	LCH	1.000	0.844	PASS
$\pi/4$ DQPSK	MCH	1.004	0.844	PASS
$\pi/4$ DQPSK	HCH	0.999	0.845	PASS
8DPSK	LCH	1.000	0.873	PASS
8DPSK	MCH	1.000	0.843	PASS
8DPSK	HCH	0.999	0.843	PASS

Test Graph



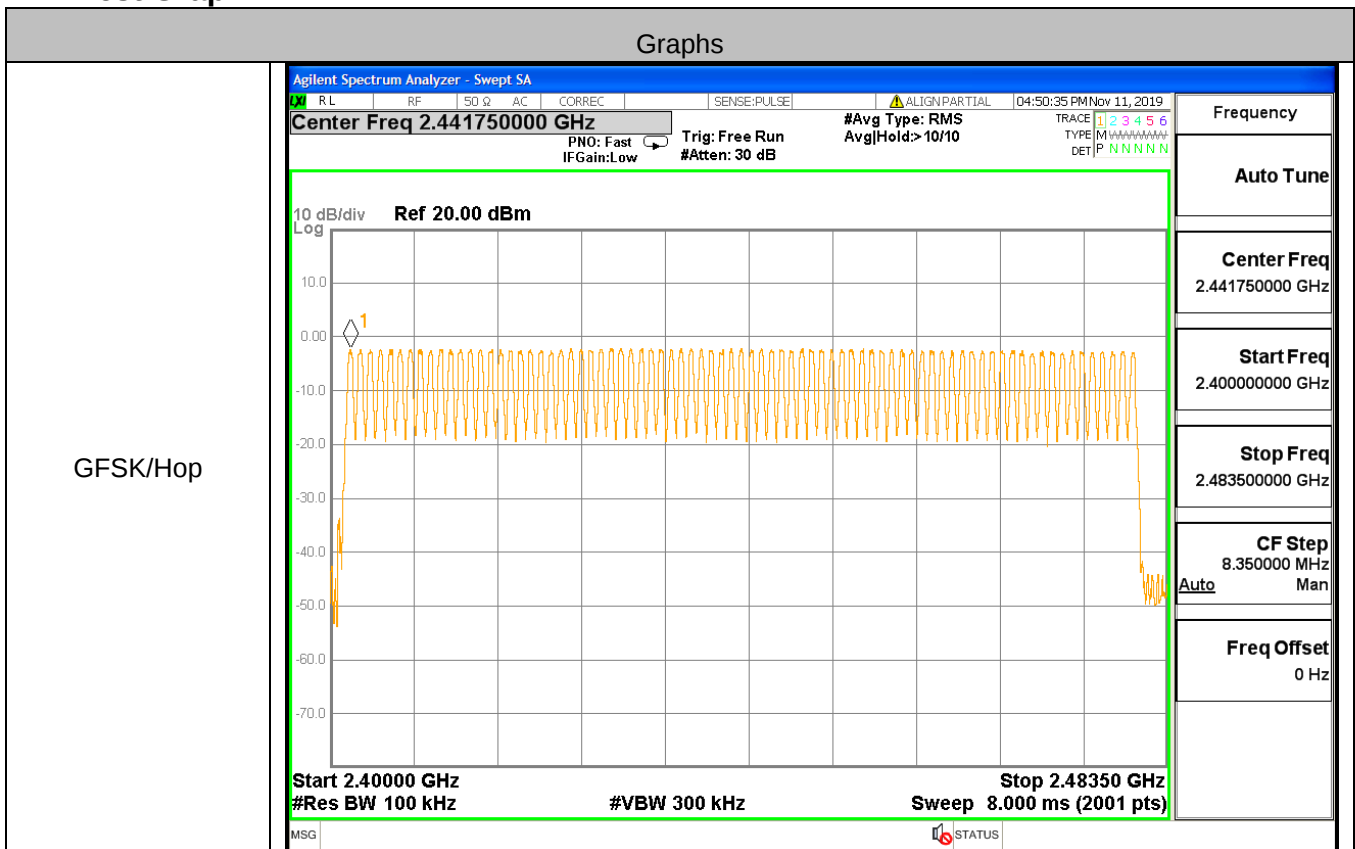


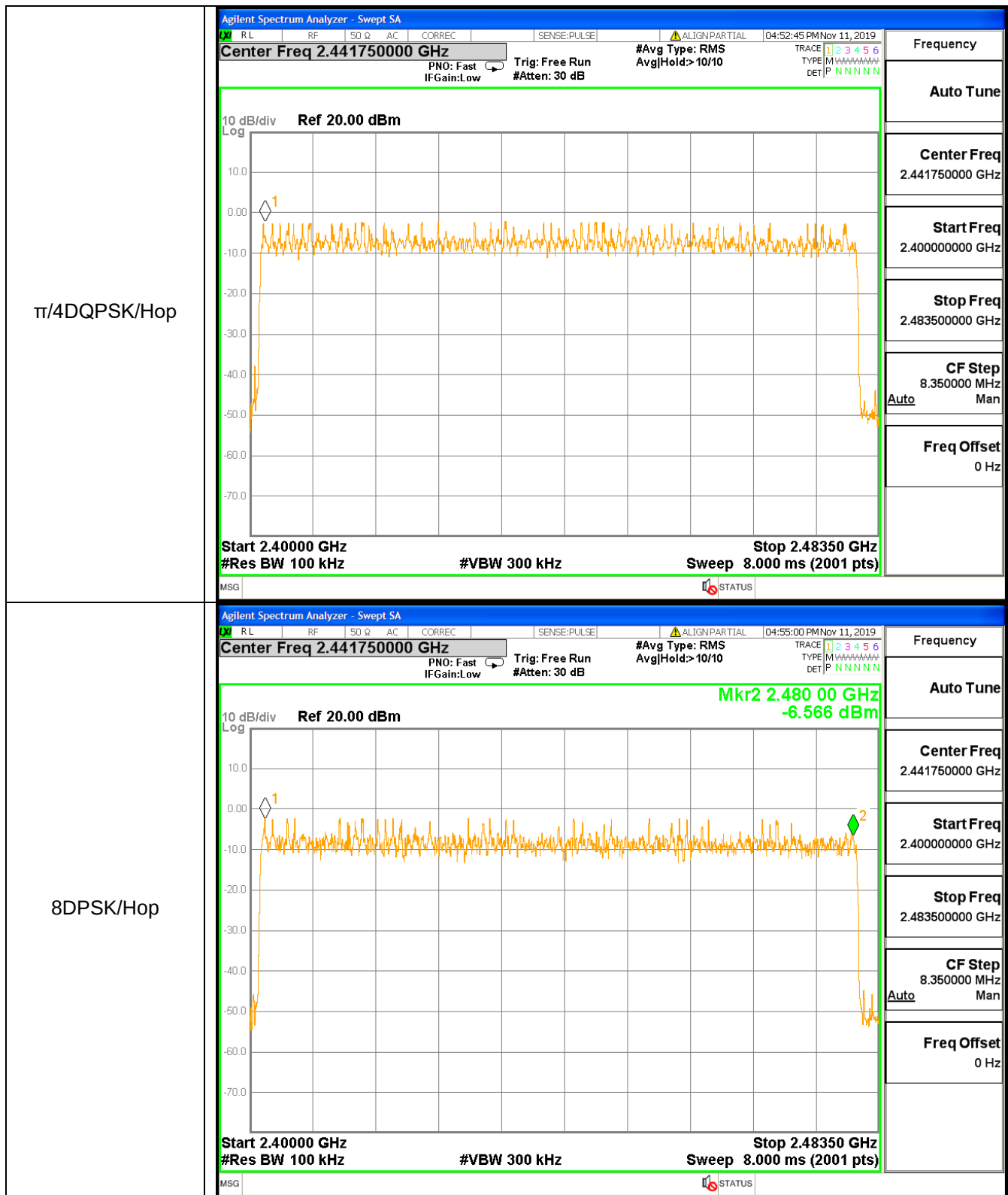


A.4 Hopping Channel Number

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

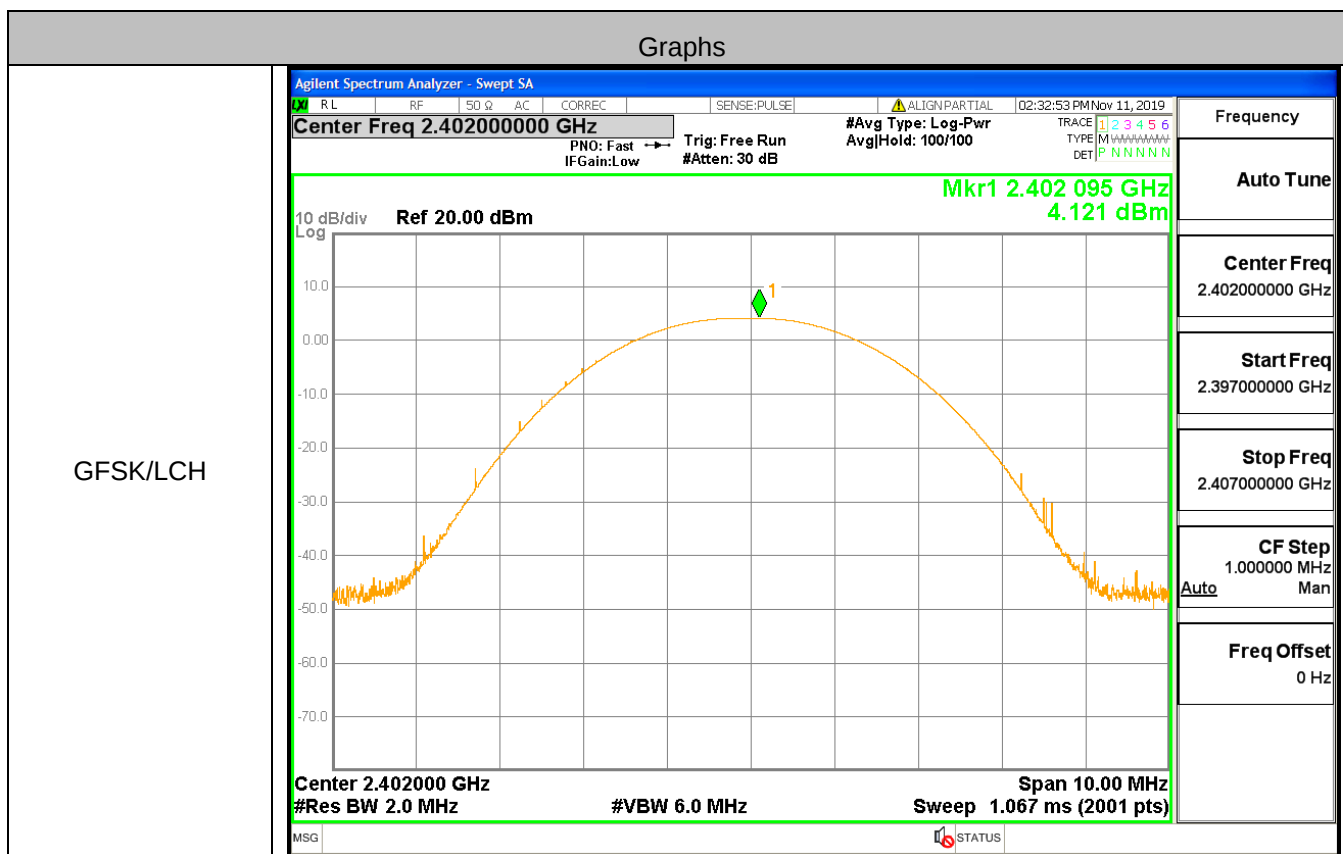




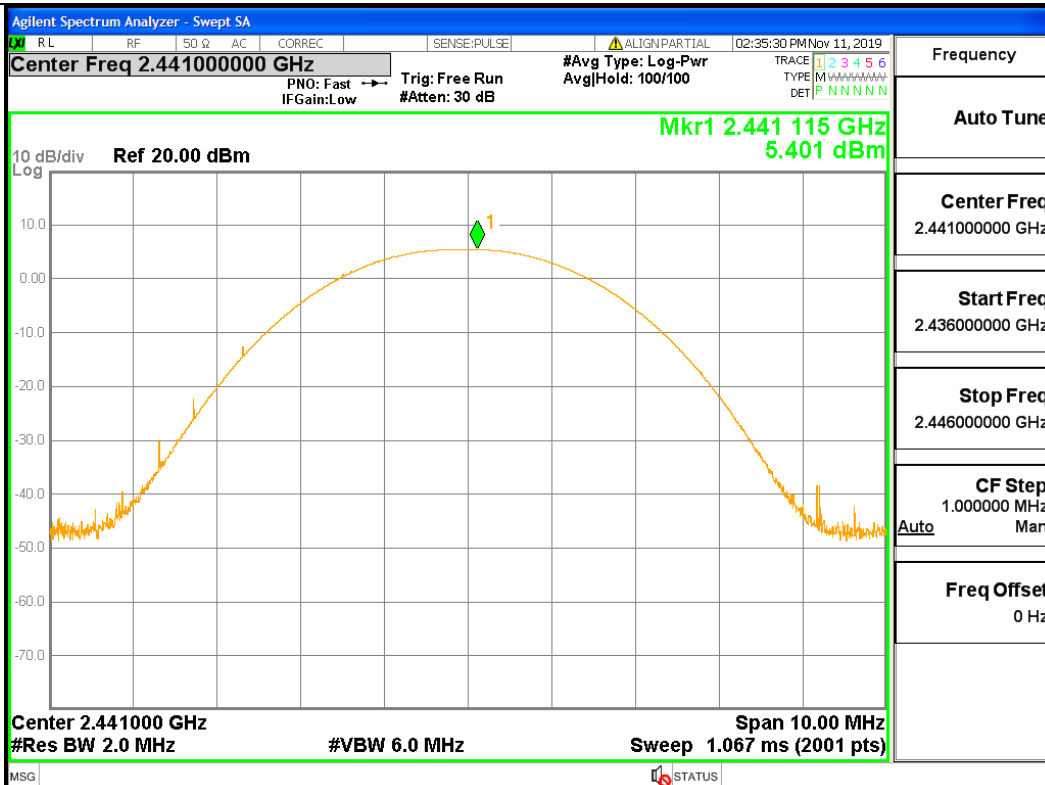
A.5 Conducted Peak Output Power

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	4.121	21	PASS
GFSK	MCH	5.401	21	PASS
GFSK	HCH	4.347	21	PASS
$\pi/4$ DQPSK	LCH	5.829	21	PASS
$\pi/4$ DQPSK	MCH	7.073	21	PASS
$\pi/4$ DQPSK	HCH	6.124	21	PASS
8DPSK	LCH	6.123	21	PASS
8DPSK	MCH	7.322	21	PASS
8DPSK	HCH	6.407	21	PASS

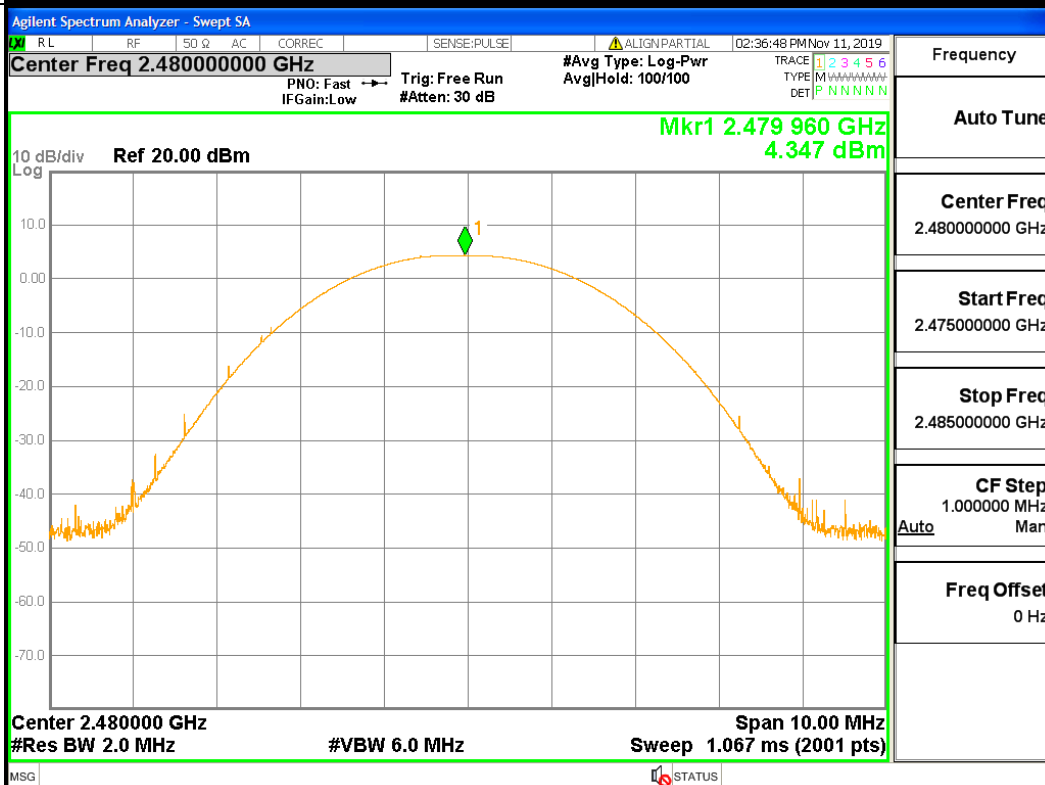
Test Graph

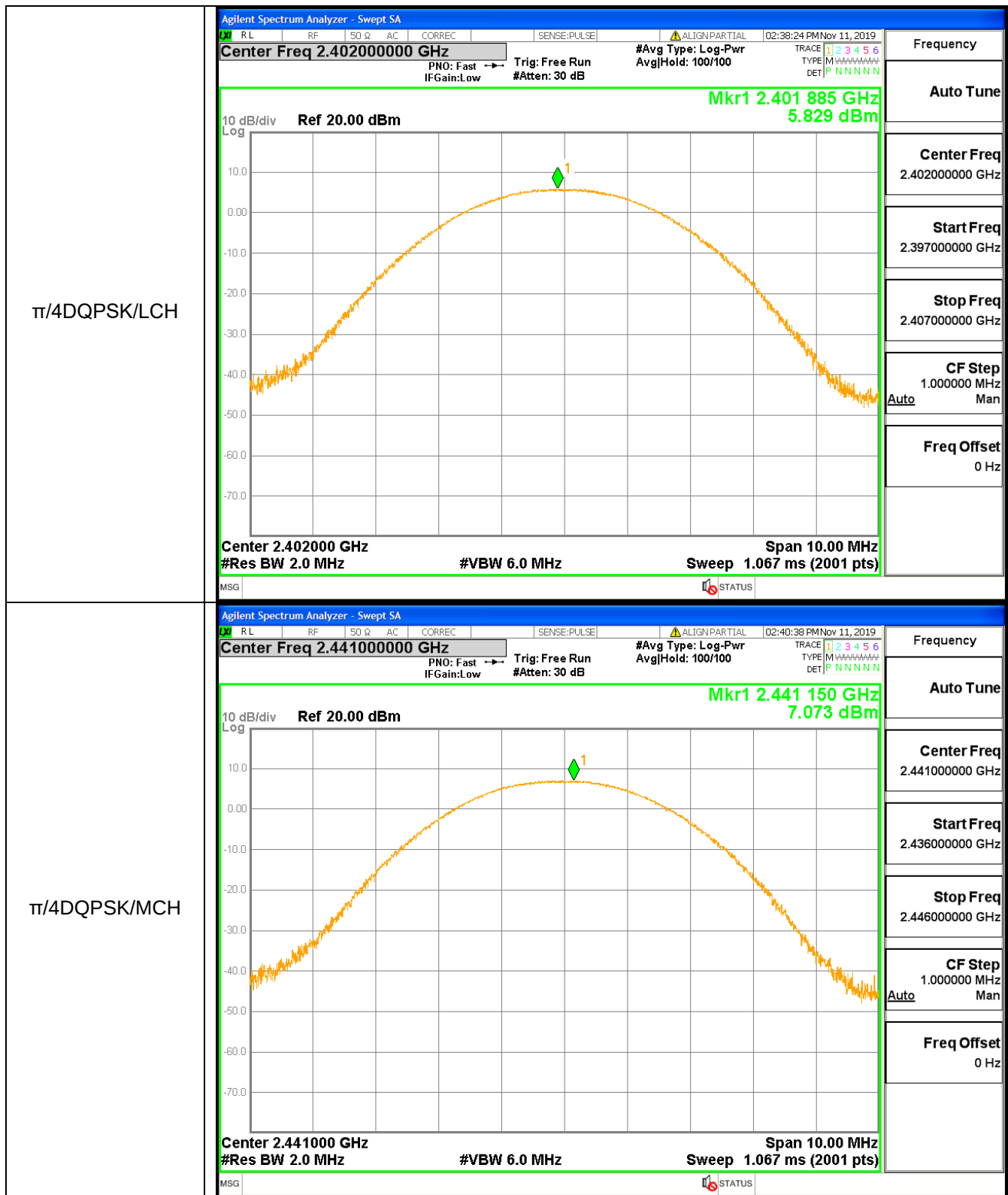


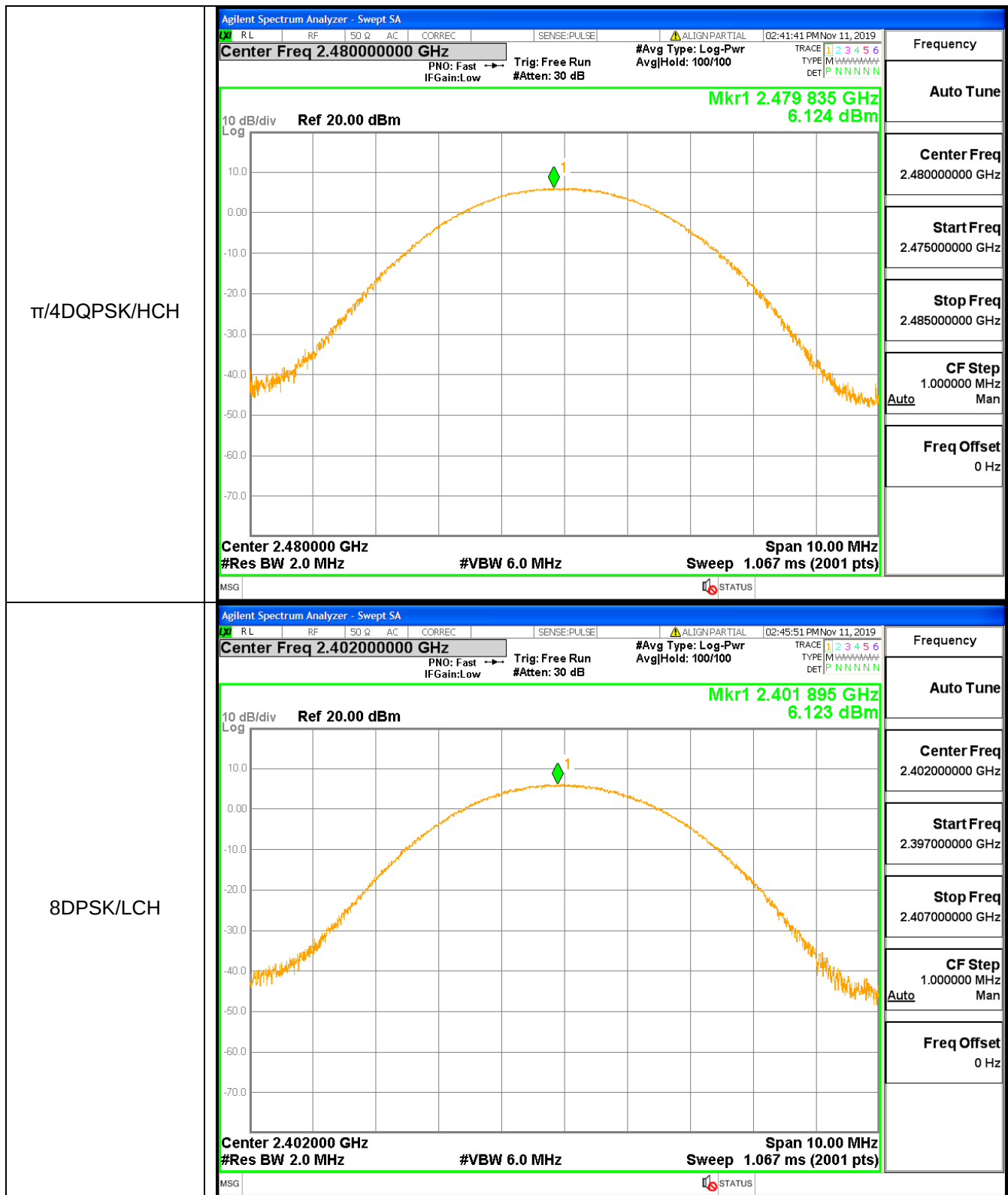
GFSK/MCH

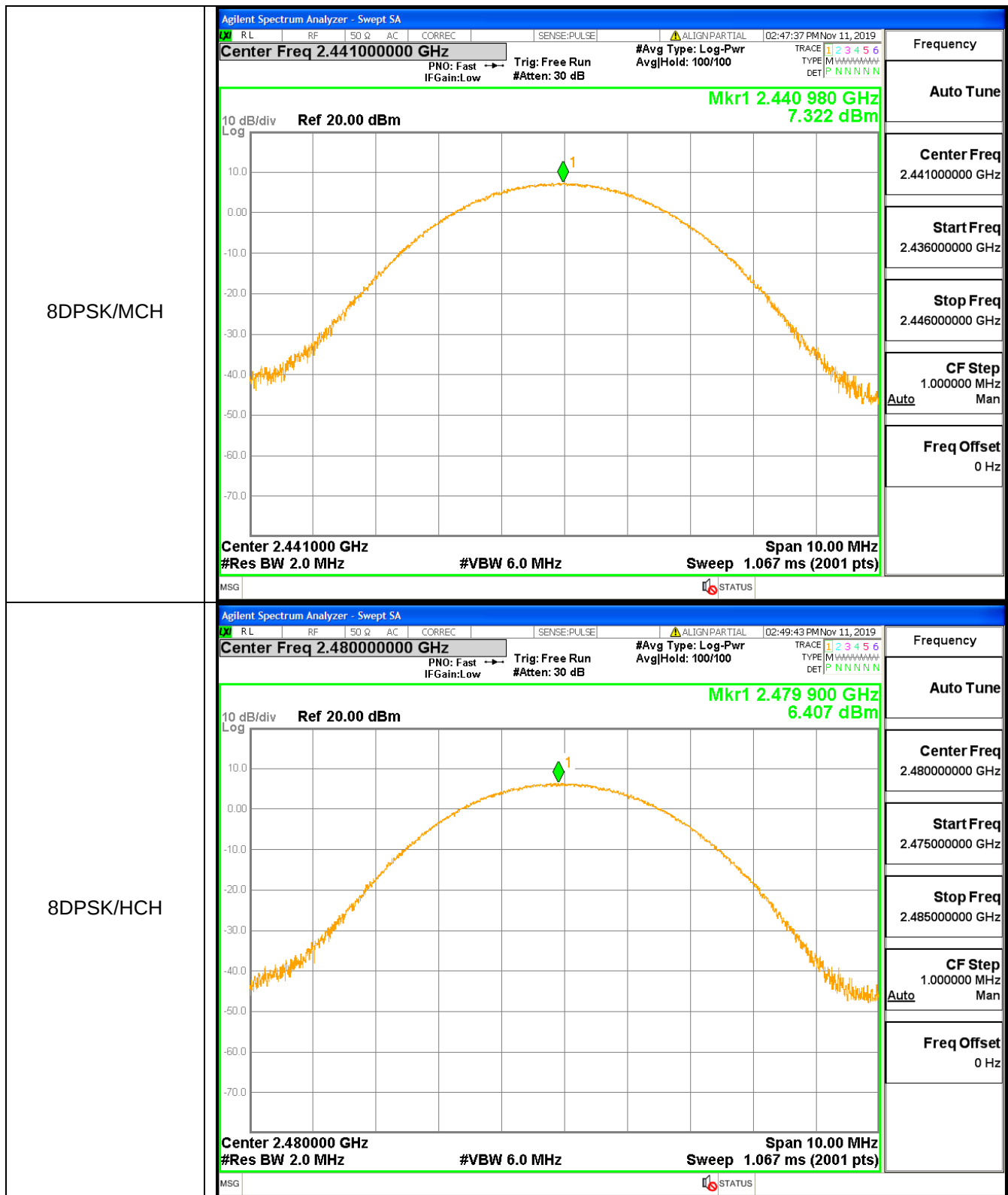


GFSK/HCH









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	2400	4.030	-60.110	-15.970	Pass
1DH5	2480	2490.83	3.983	-56.816	-16.017	Pass
2DH5	2402	2399.48	3.999	-45.265	-16.001	Pass
2DH5	2480	2483.5	3.786	-58.410	-16.214	Pass
3DH5	2402	2399.48	3.985	-44.853	-16.015	Pass
3DH5	2480	2483.5	4.197	-56.450	-15.803	Pass
1DH5-Hopping	2402	2398.74	-2.302	-41.737	-22.302	Pass
1DH5-Hopping	2480	2483.5	-2.416	-45.670	-22.416	Pass
2DH5-Hopping	2402	2399.85	-2.346	-38.819	-22.346	Pass
2DH5-Hopping	2480	2483.5	-2.438	-47.340	-22.438	Pass
3DH5-Hopping	2402	2400	-2.306	-39.210	-22.306	Pass
3DH5-Hopping	2480	2483.5	-2.432	-46.400	-22.432	Pass

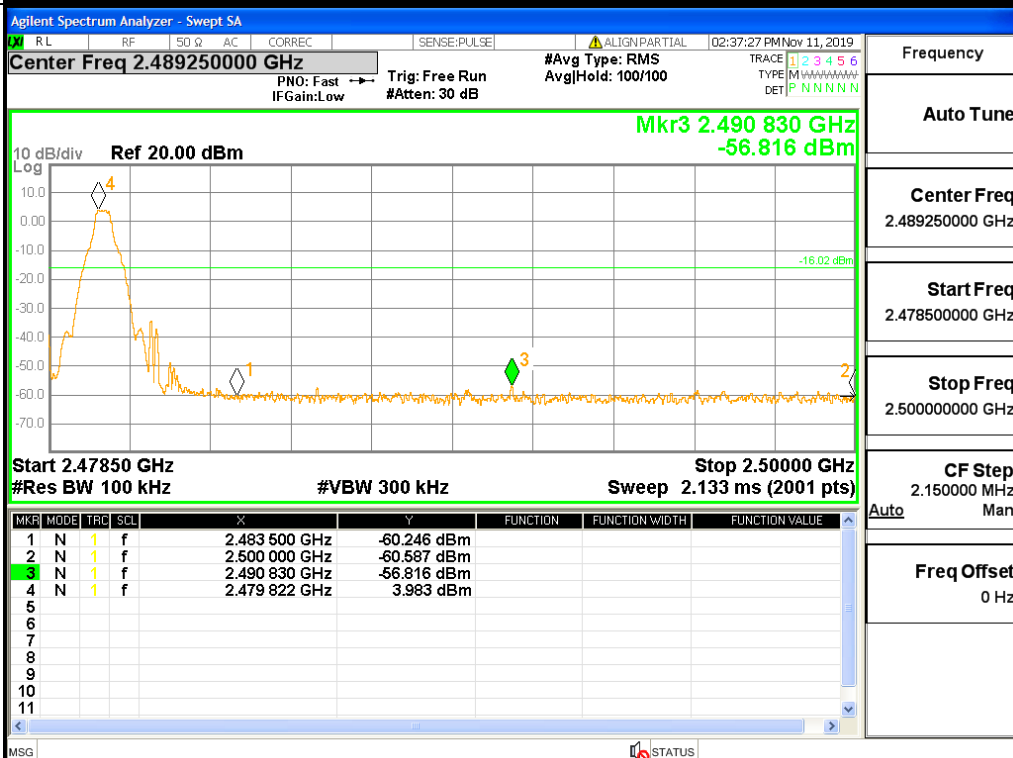
Test Graph

Graphs

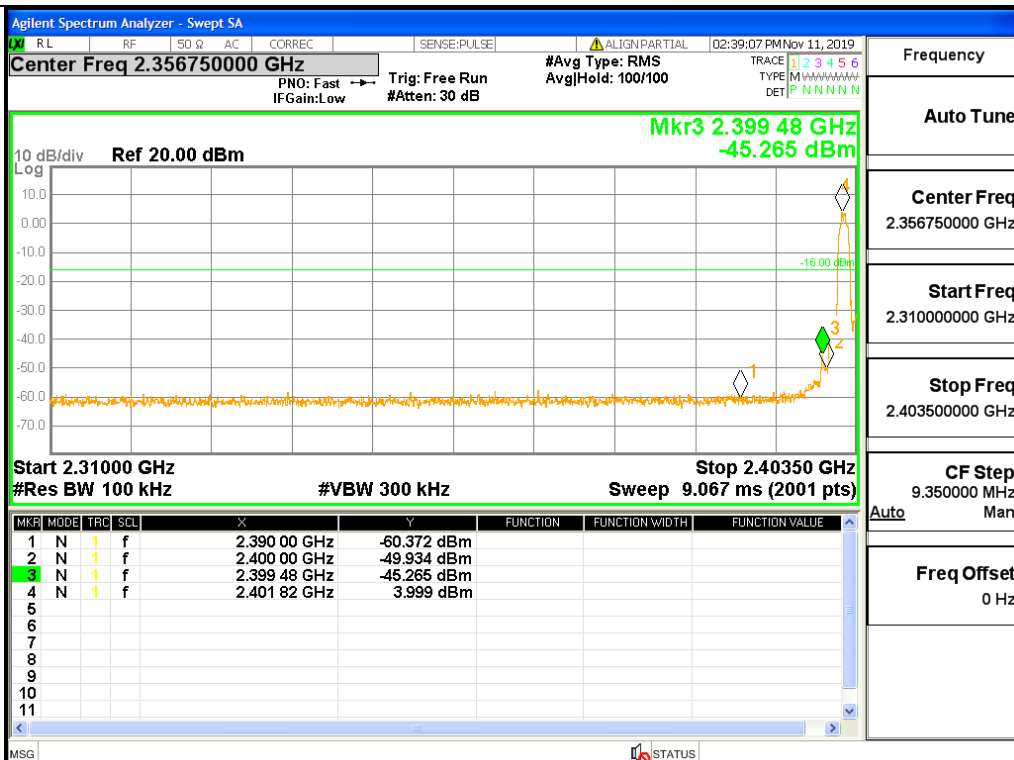
GFSK/LCH/No Hop



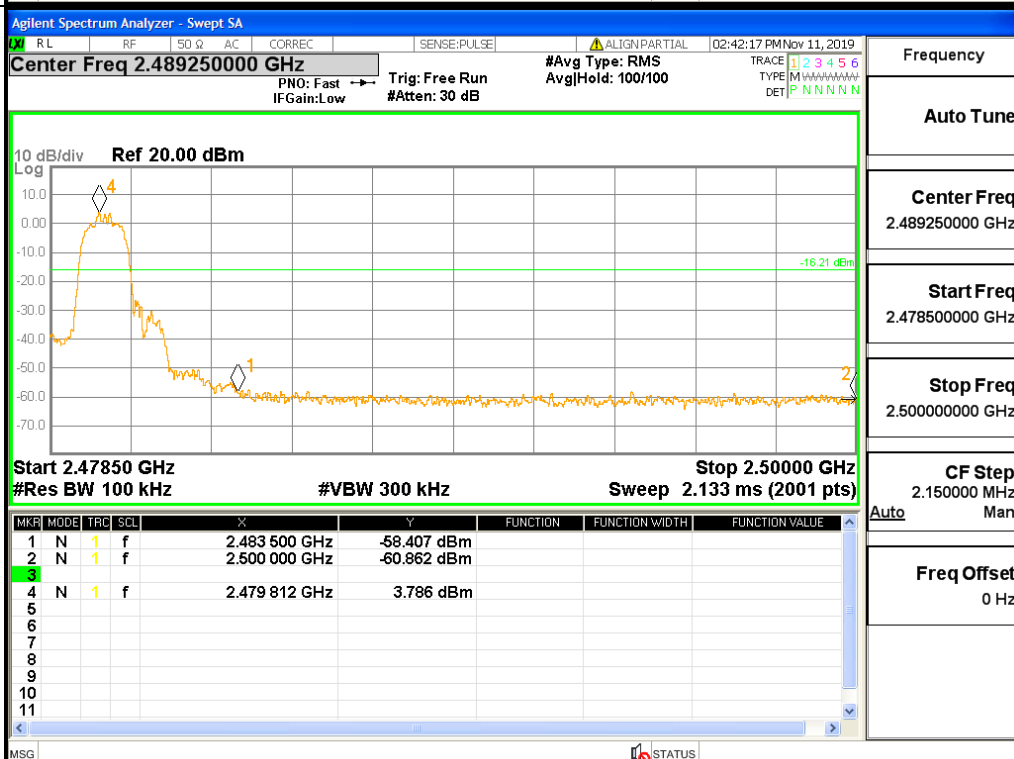
GFSK/HCH/No Hop



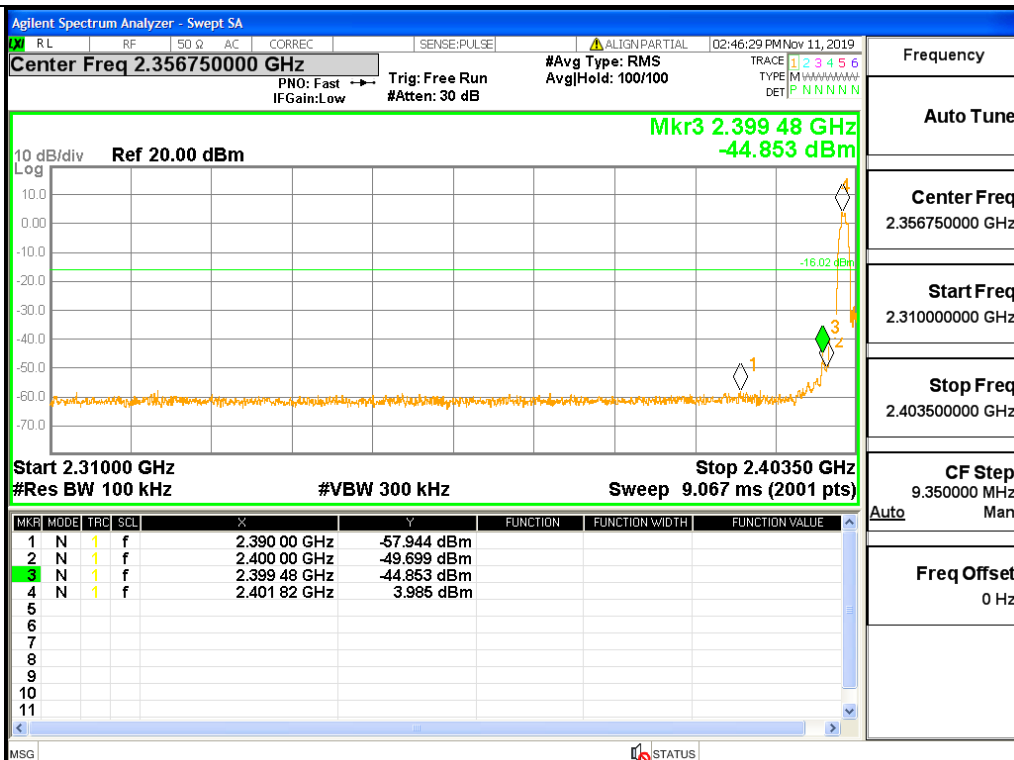
$\pi/4$ DQPSK/LCH/No
Hop



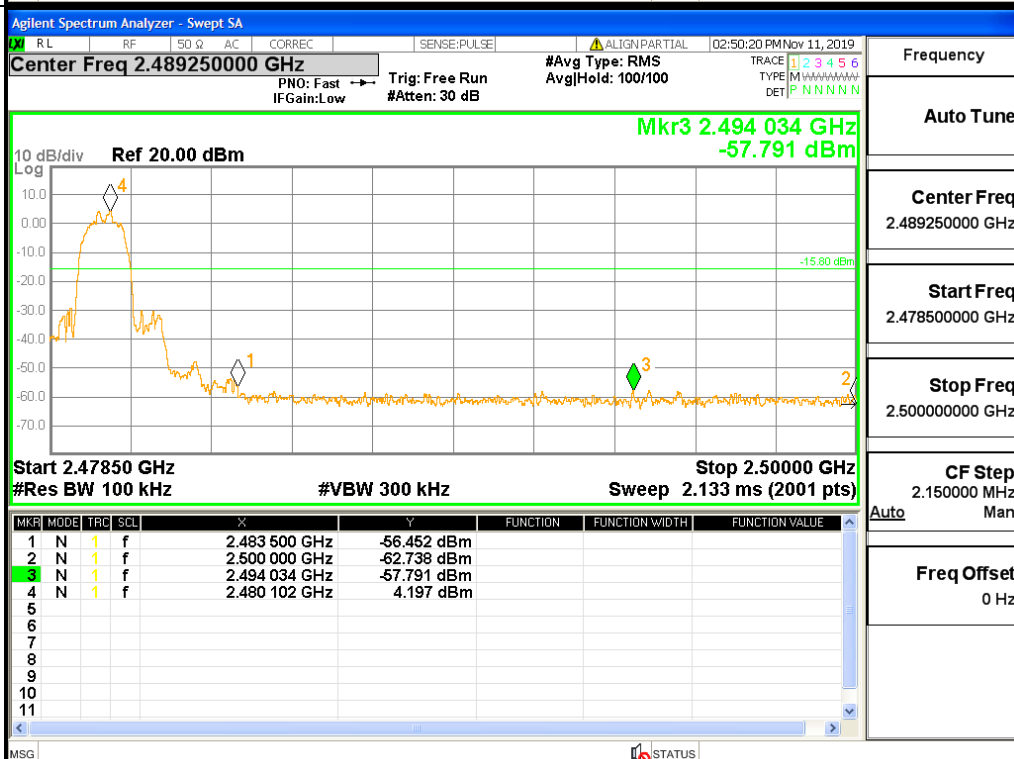
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Hop



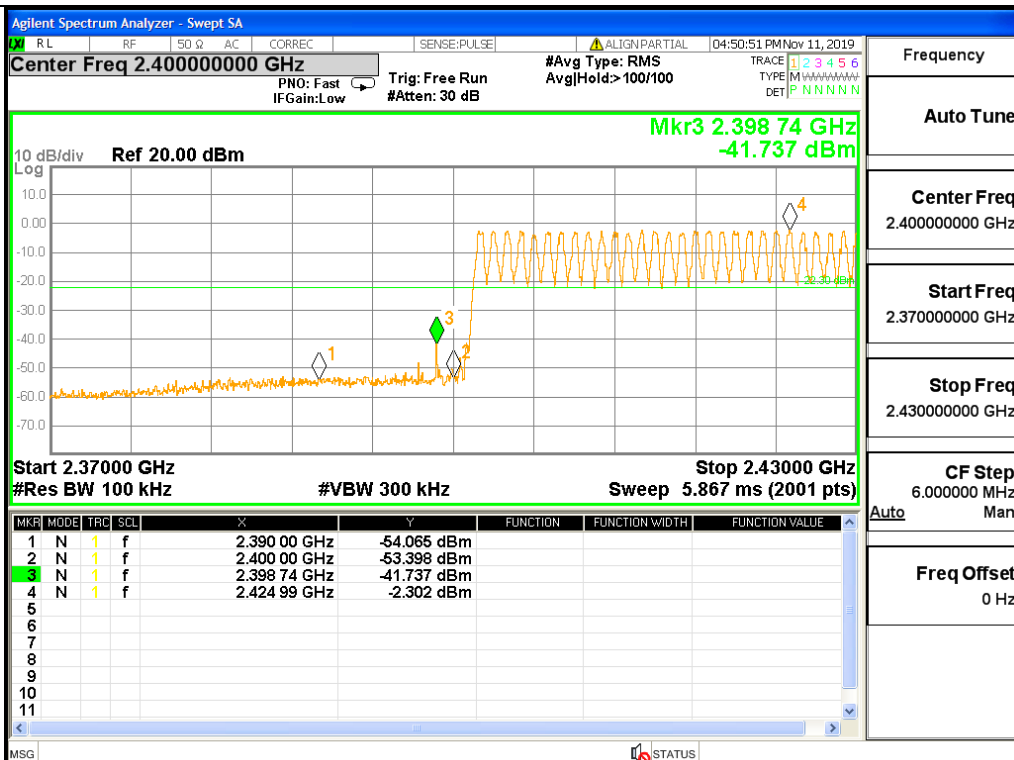
8DPSK/LCH/No Hop



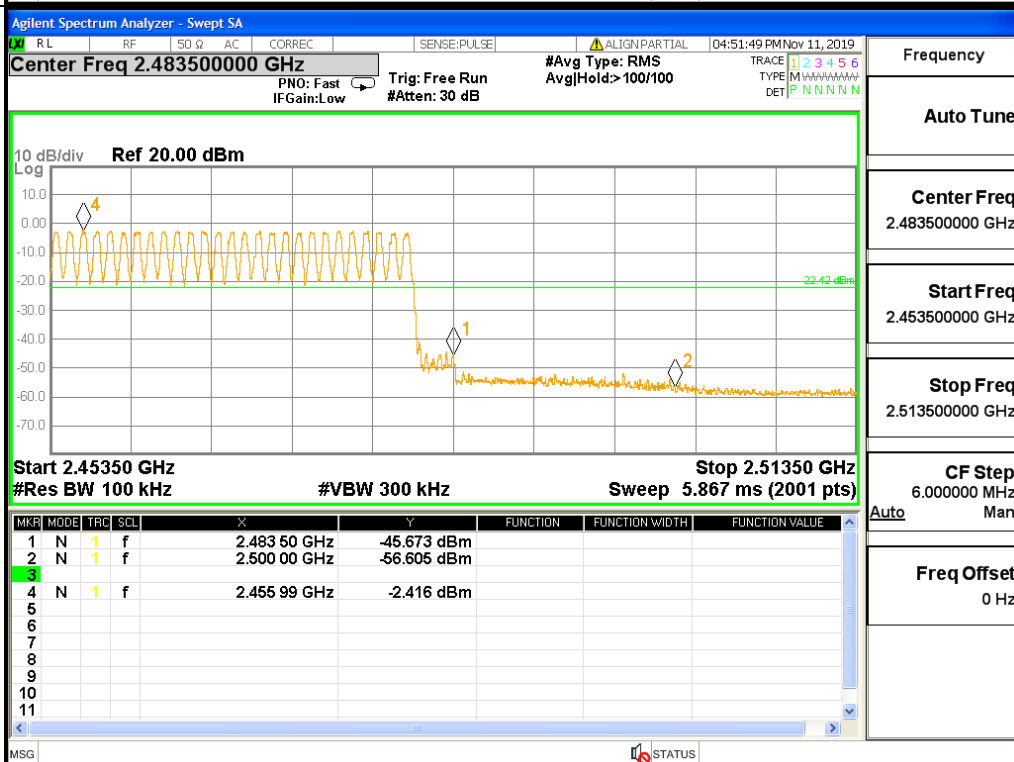
8DPSK/HCH/No Hop

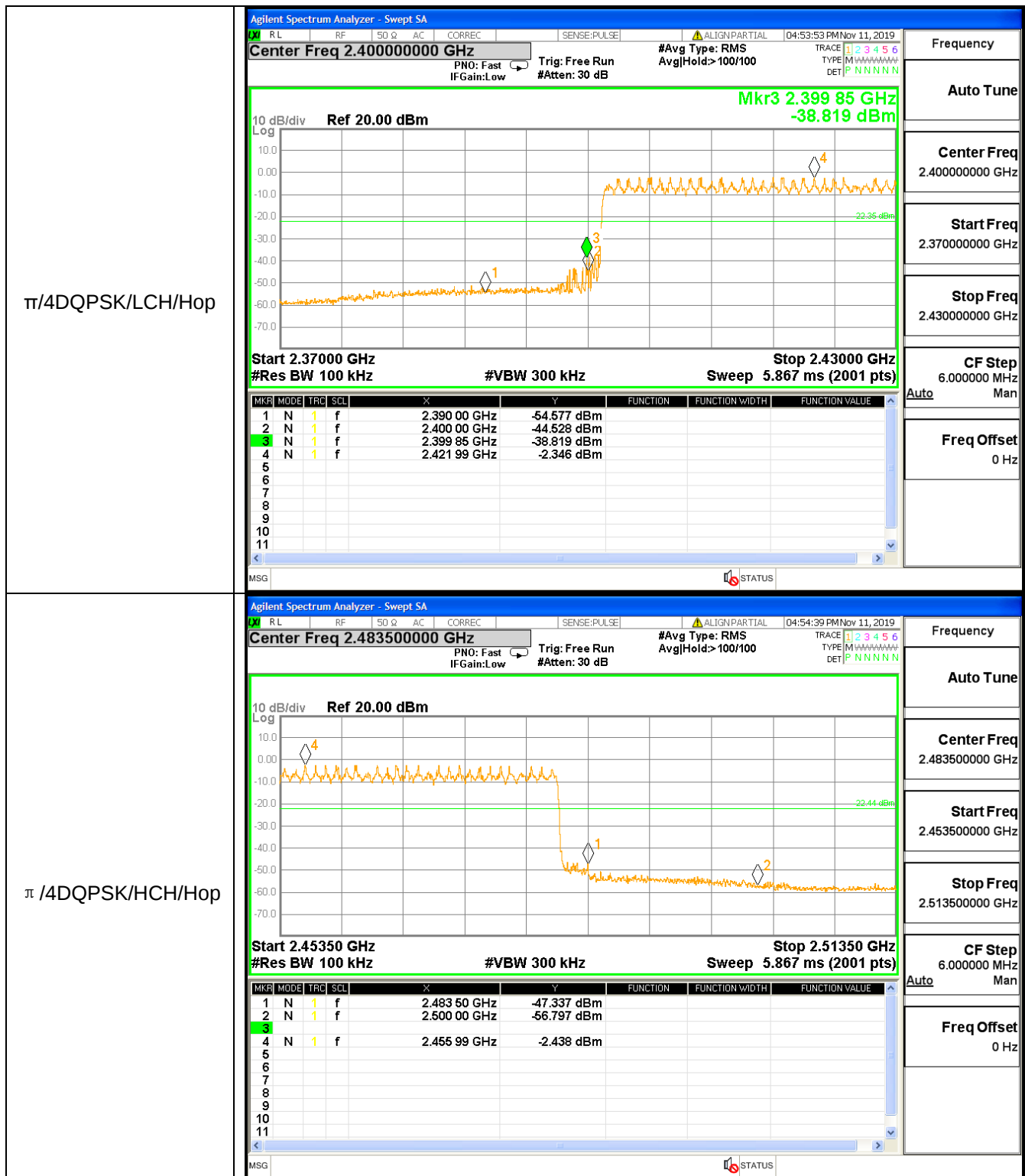


GFSK/LCH/Hop

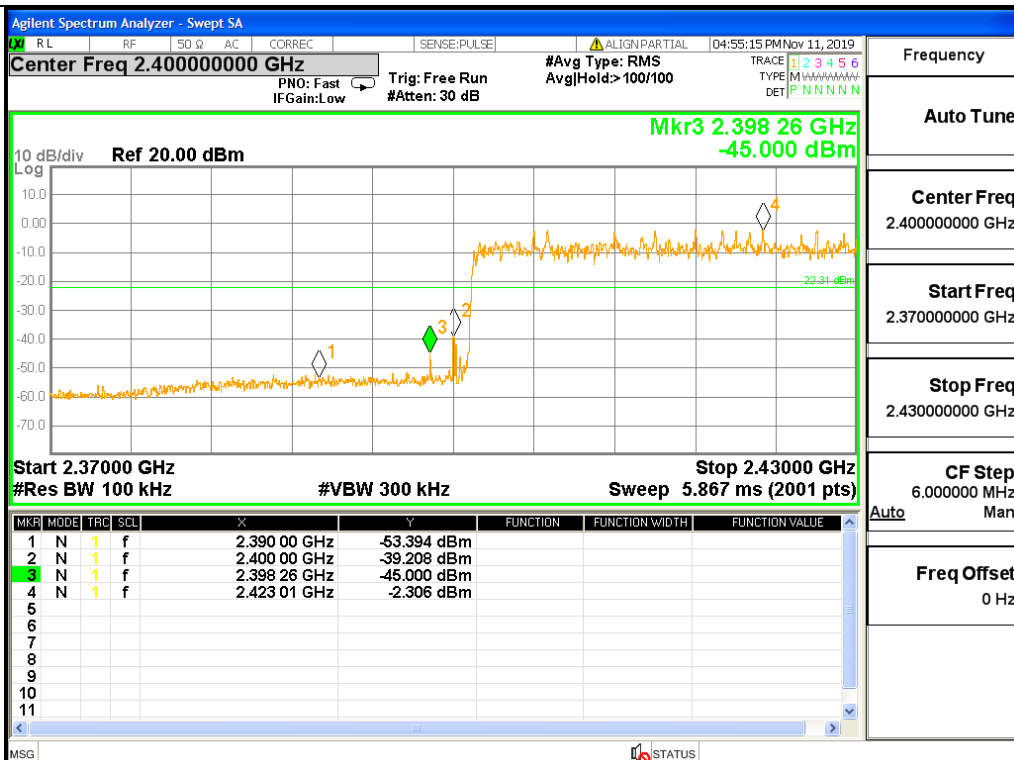


GFSK/HCH/Hop

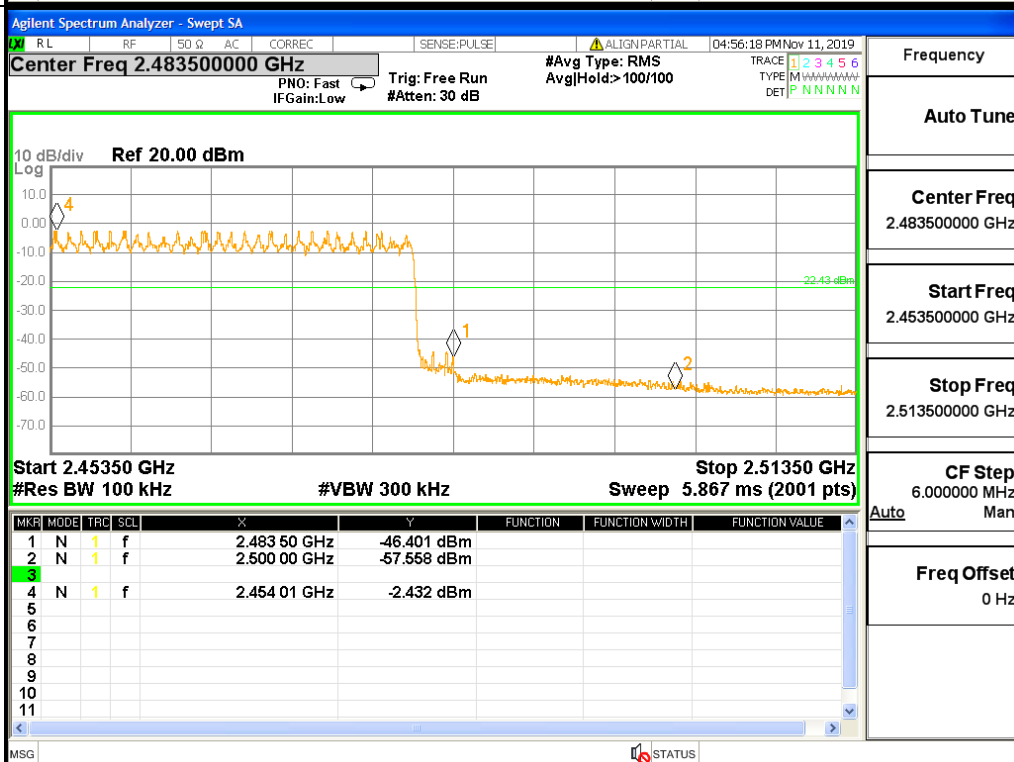




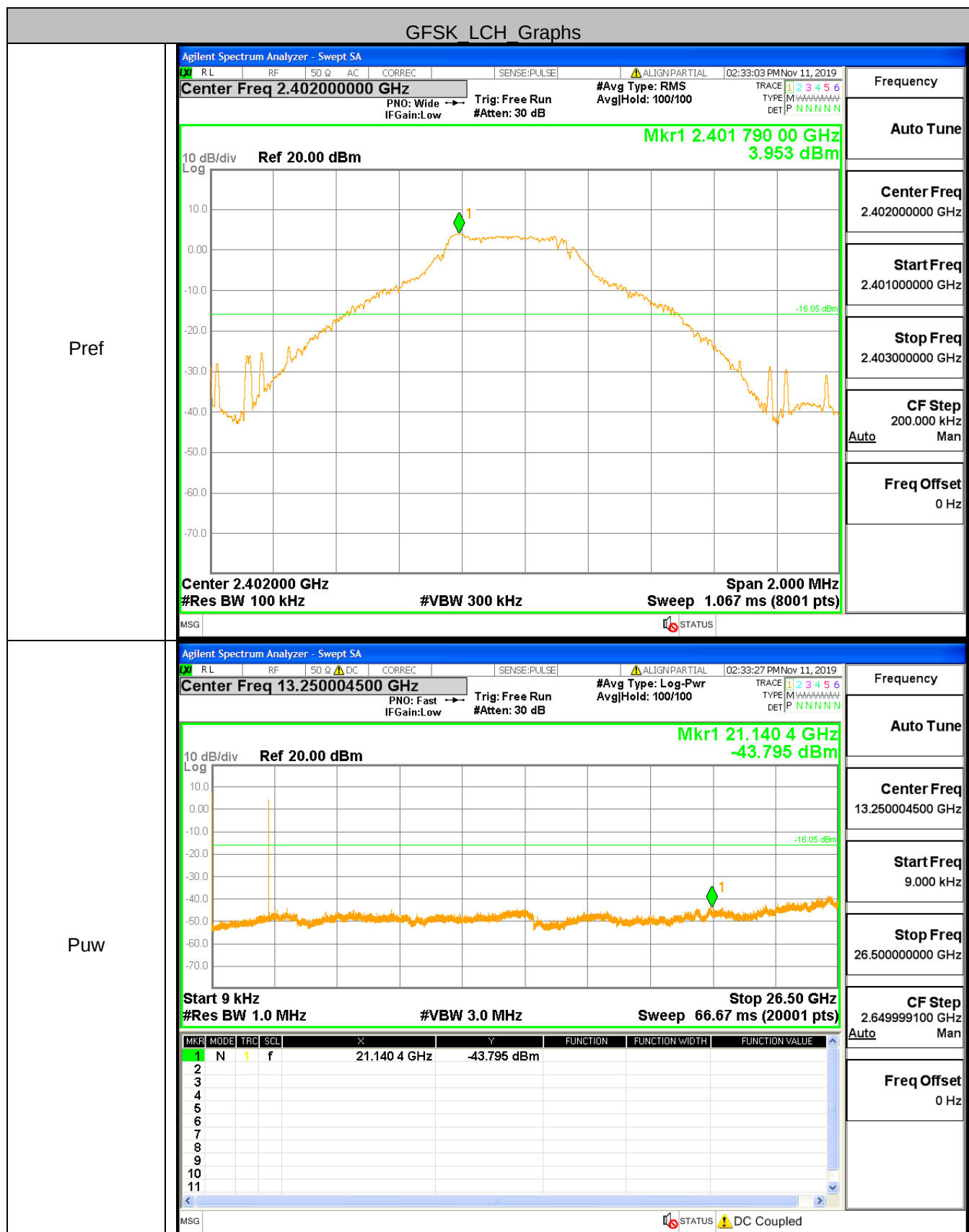
8DPSK/LCH/Hop



8DPSK/HCH/Hop

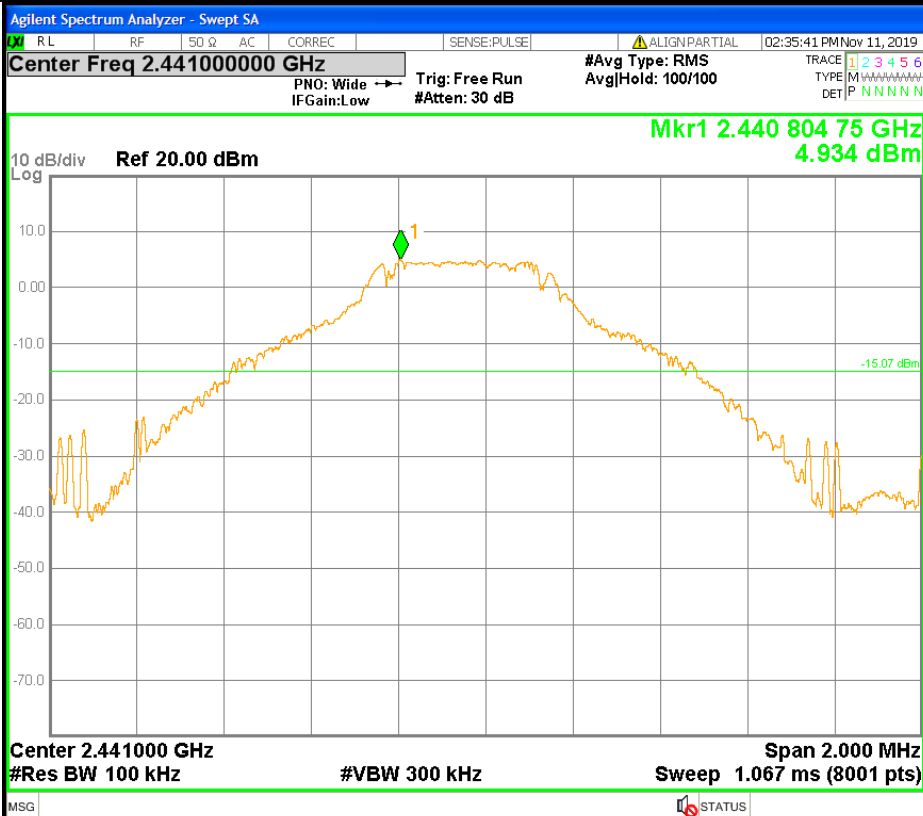


A.7 RF Conducted Spurious Emissions Test Graph



GFSK MCH Graphs

Pref



Frequency

Auto Tune

Center Freq
2.441000000 GHz

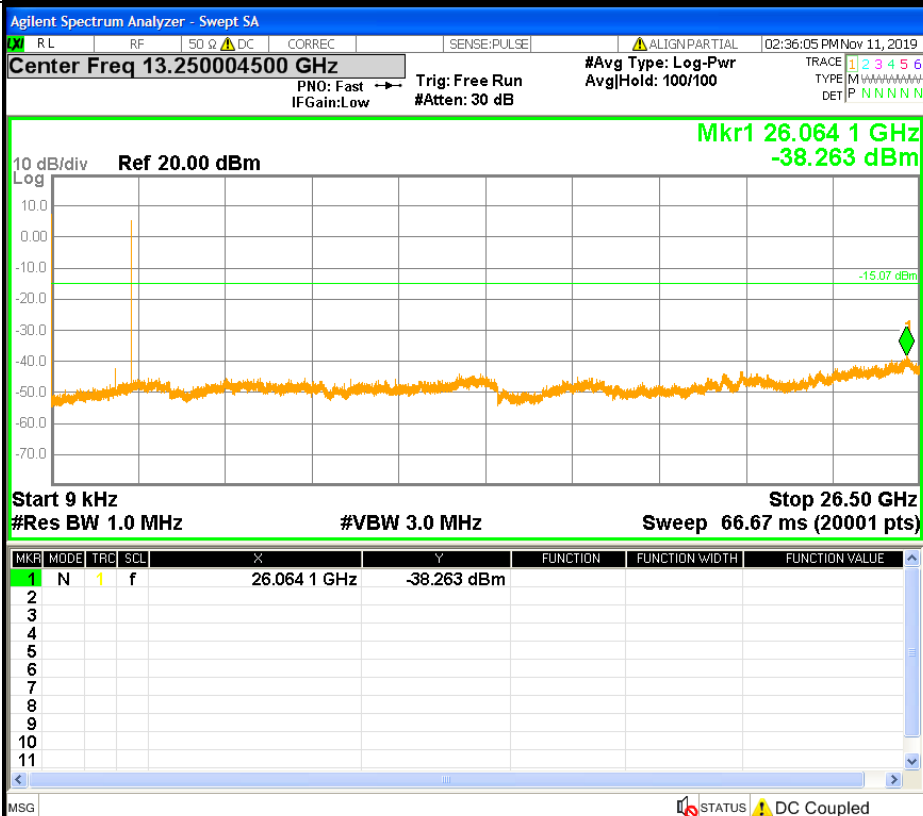
Start Freq
2.440000000 GHz

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

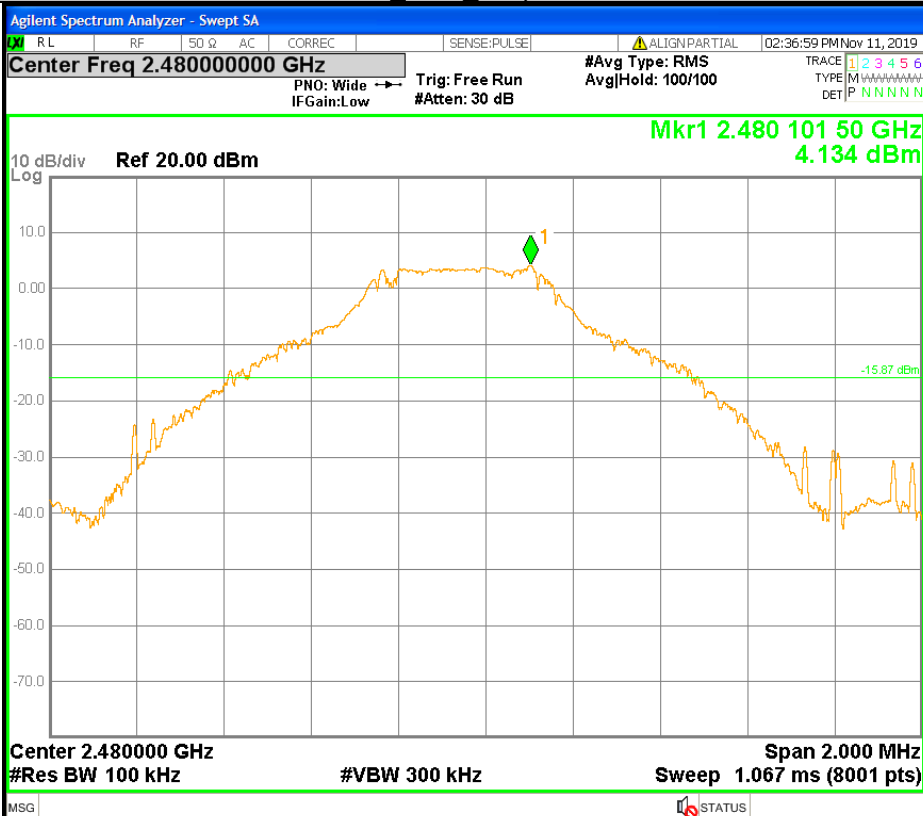
Stop Freq
26.500000000 GHz

CF Step
2.649999100 GHz
Auto Man

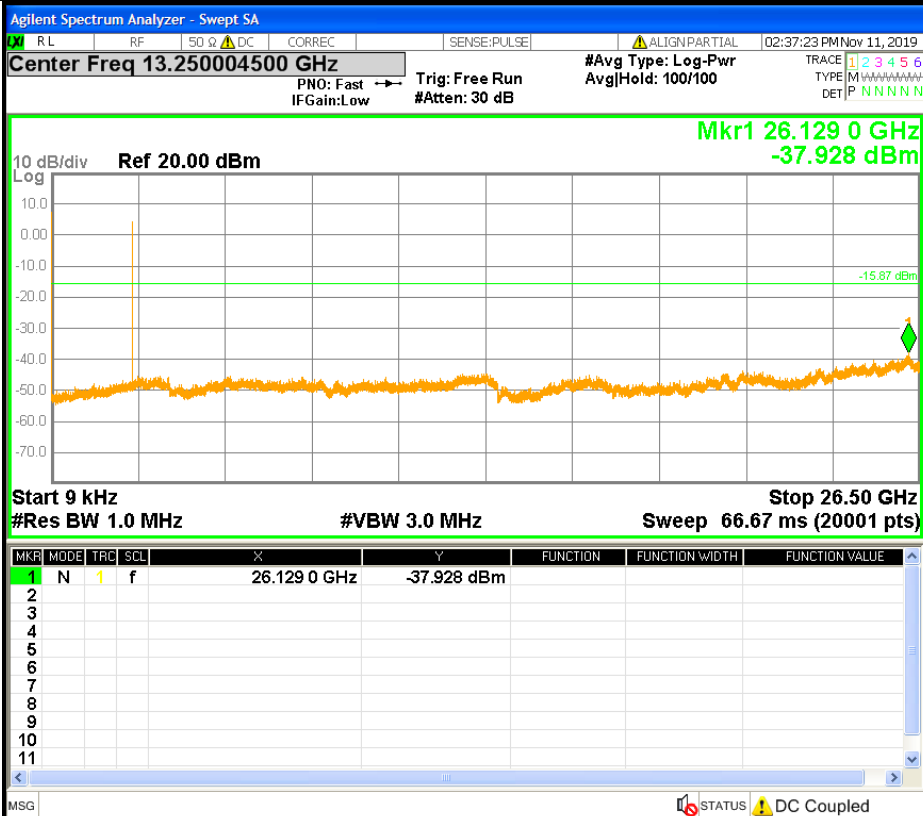
Freq Offset
0 Hz

GFSK HCH Graphs

Pref

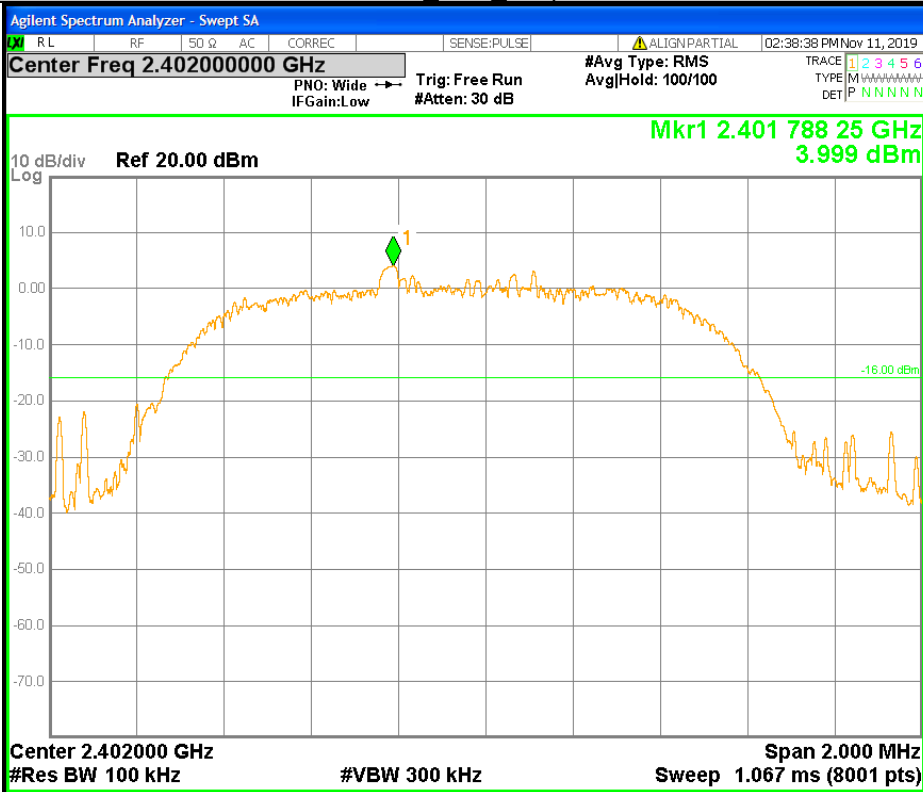


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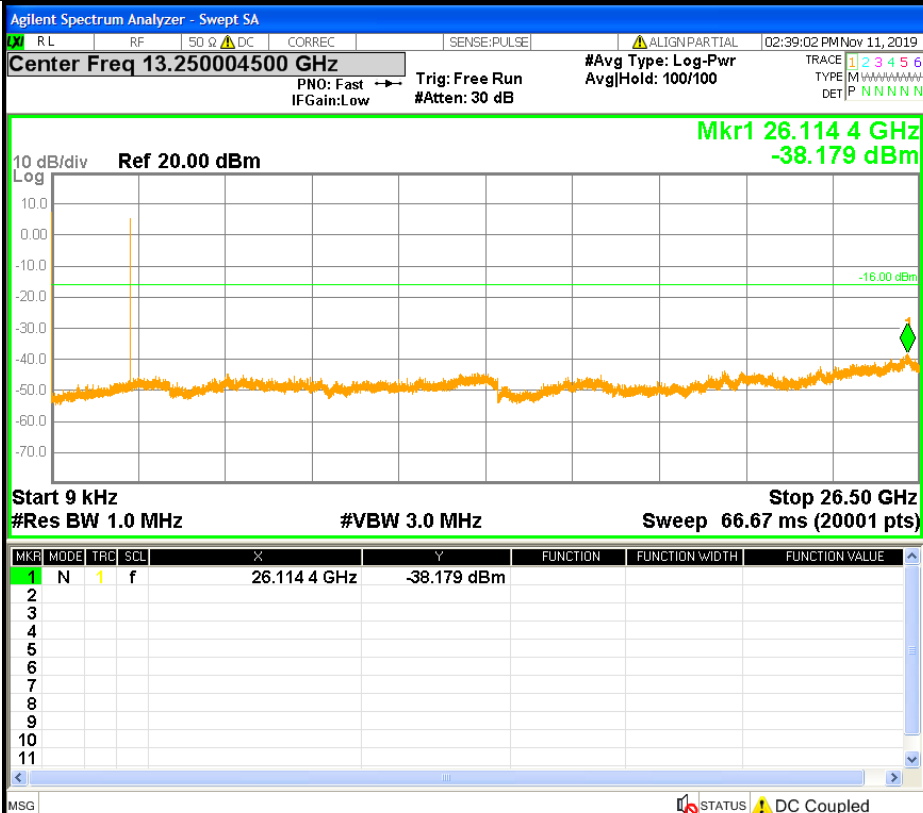


$\pi/4$ DQPSK LCH Graphs

Pref

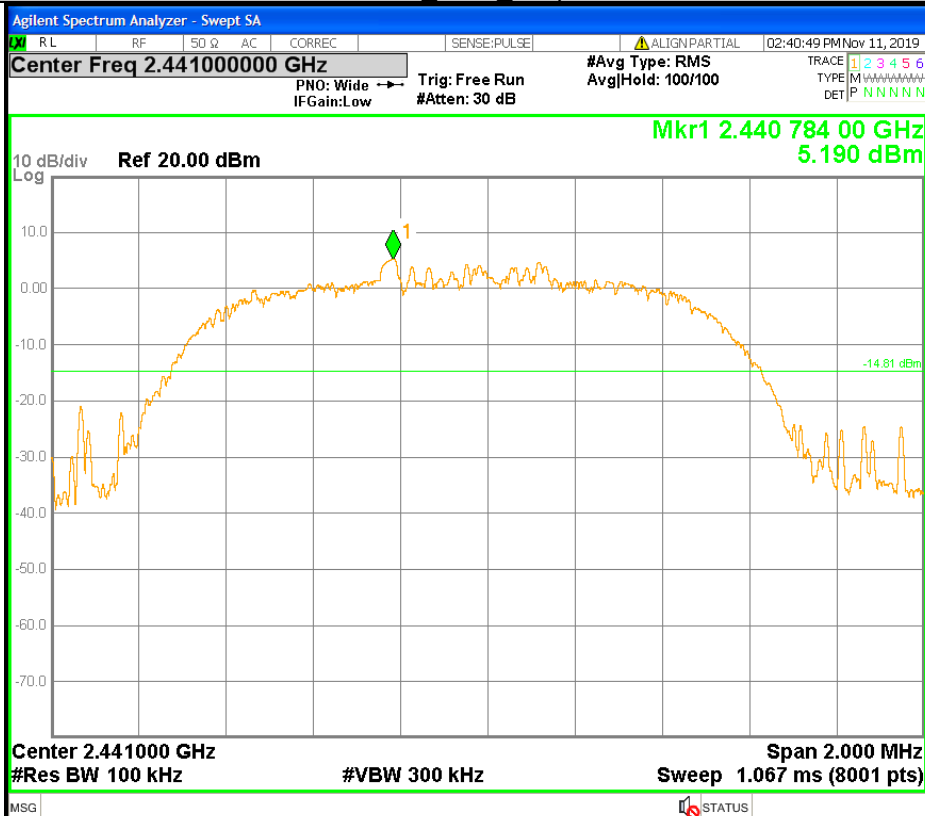


Puw



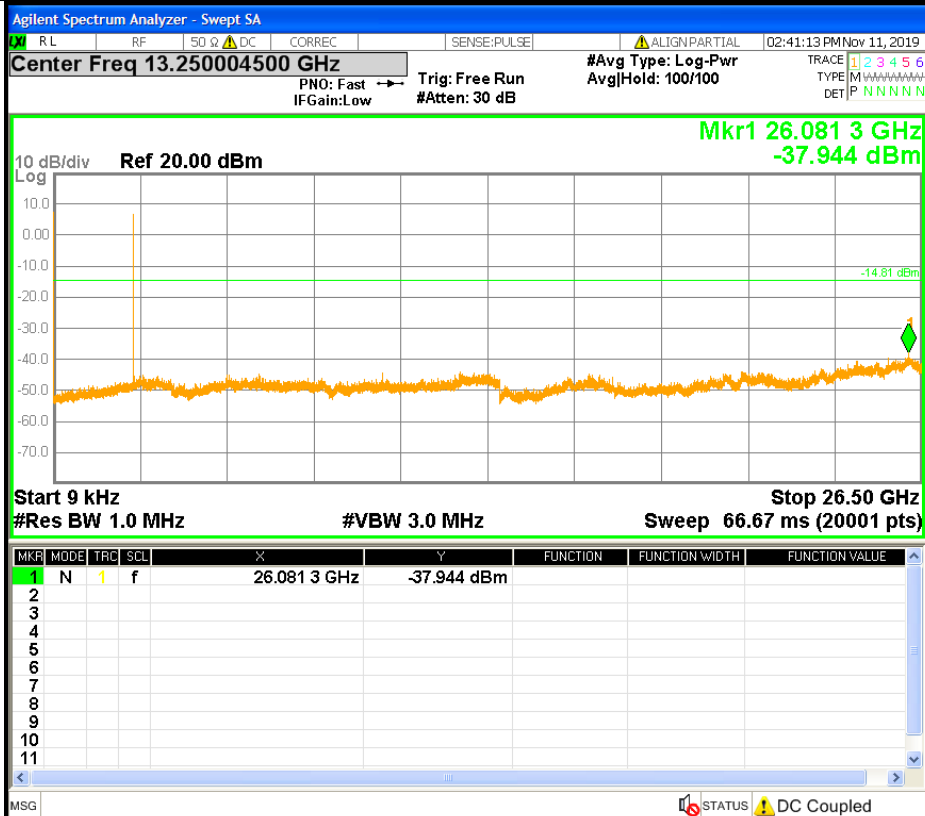
$\pi/4$ DQPSK MCH Graphs

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

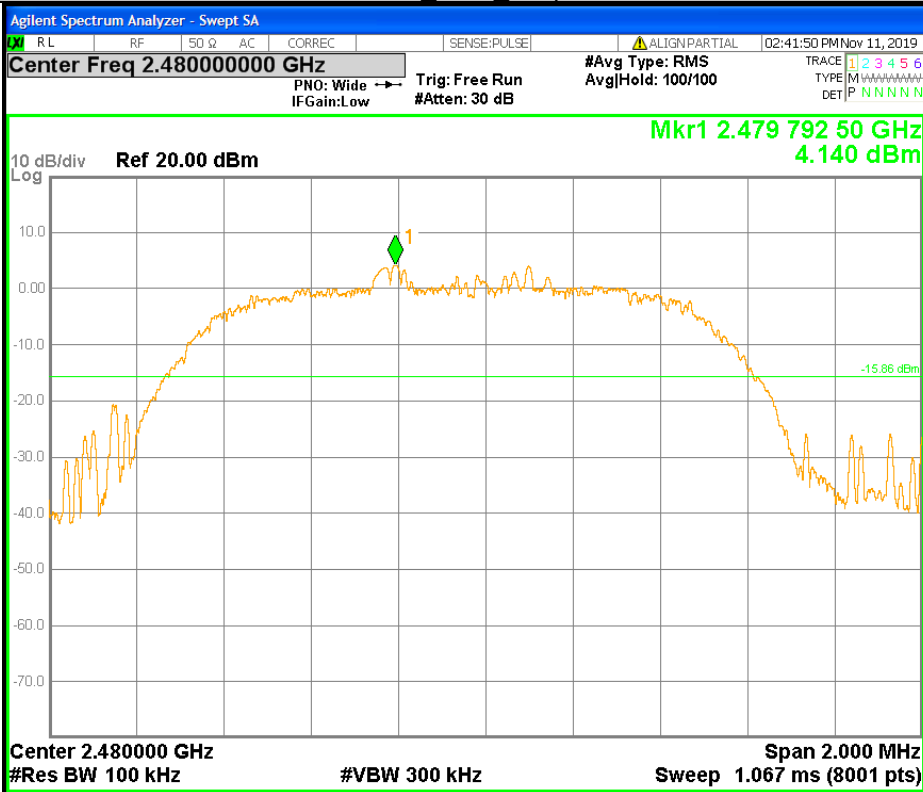
Puw



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

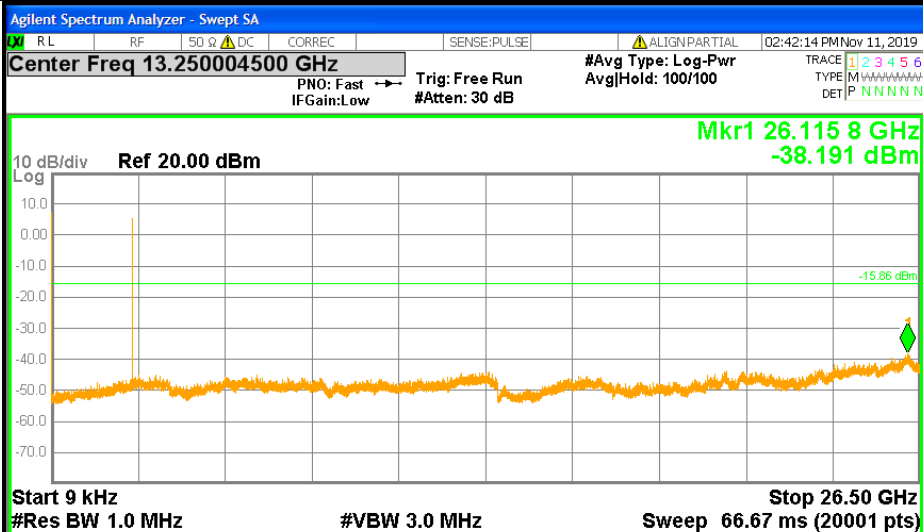
$\pi/4$ DQPSK HCH Graphs

Pref



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

Puw

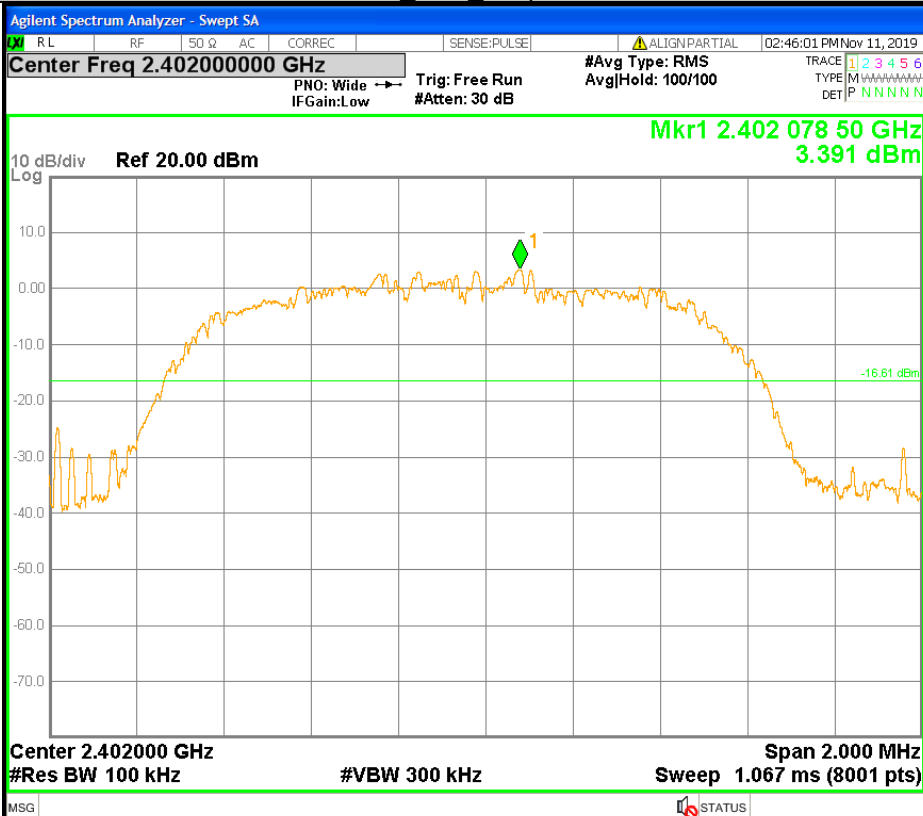


Frequency
Auto Tune
Center Freq 13.250004500 GHz
Start Freq 9.000 kHz
Stop Freq 26.500000000 GHz
CF Step 2.649999100 GHz Auto Man
Freq Offset 0 Hz

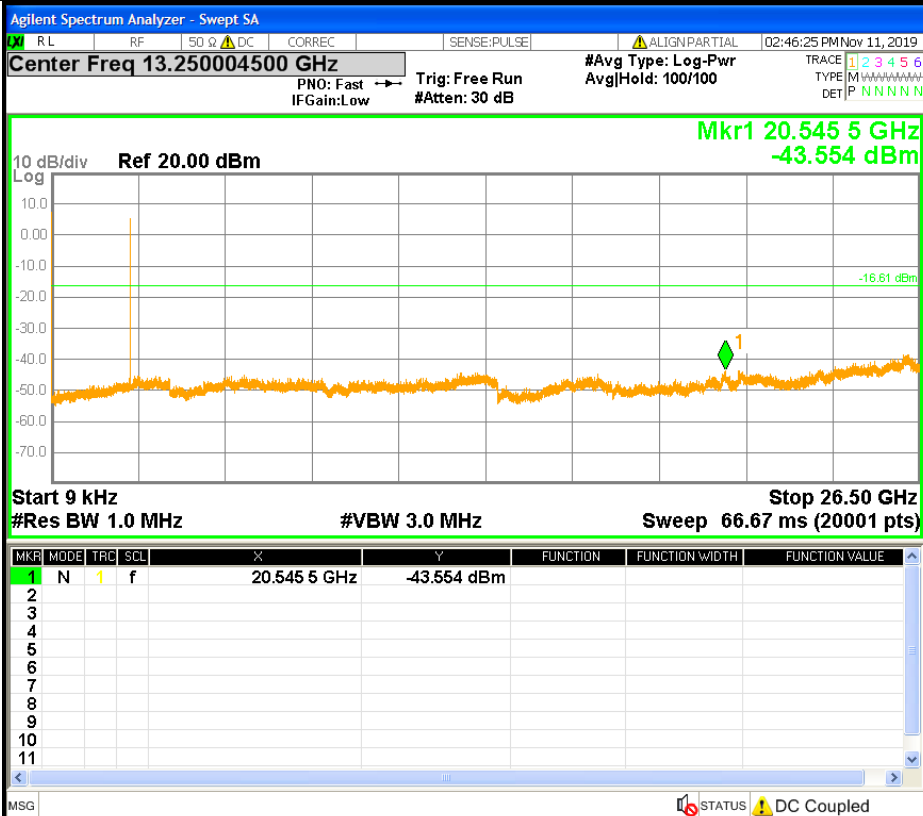
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	26.115 8 GHz	-38.191 dBm			
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								

8DPSK LCH Graphs

Pref

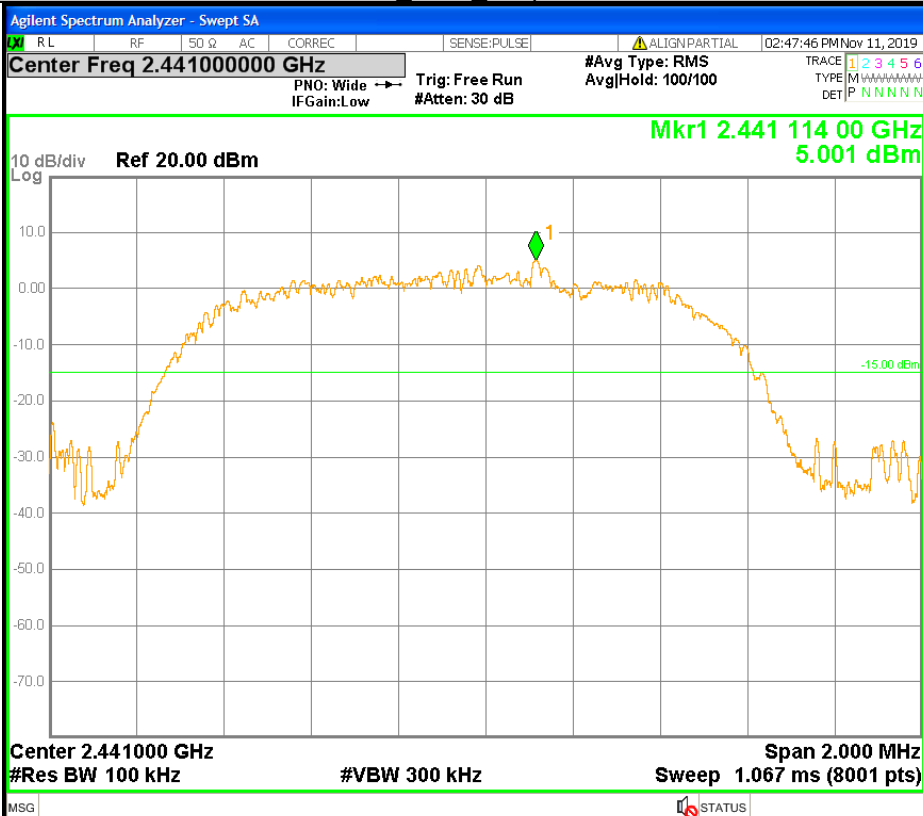


Puw

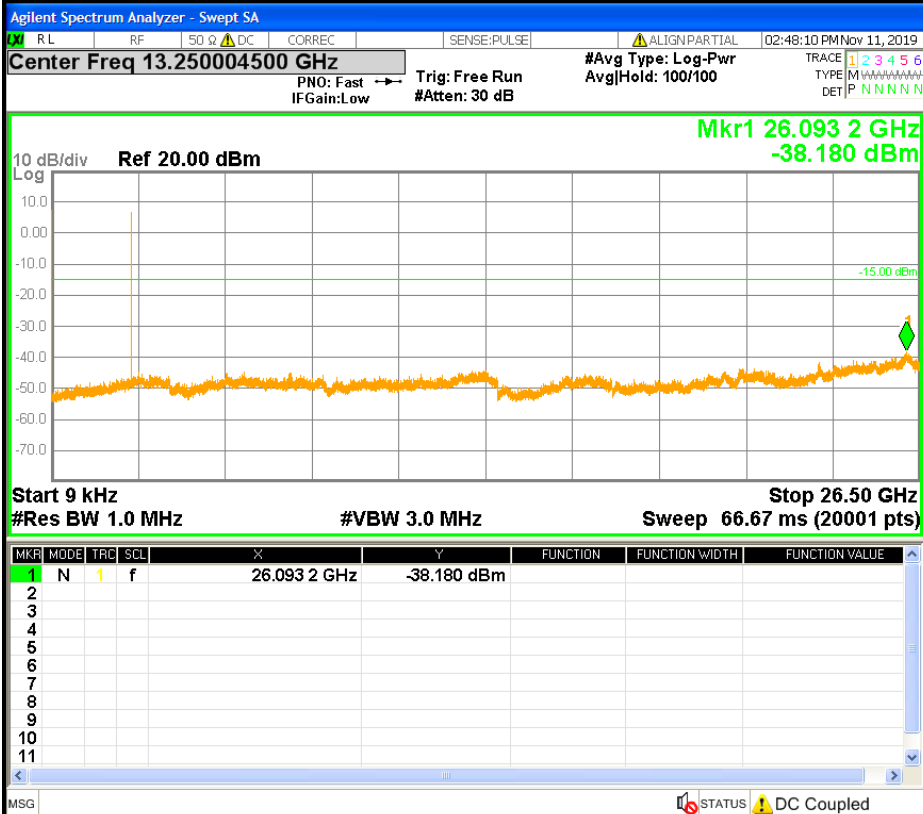


8DPSK MCH Graphs

Pref

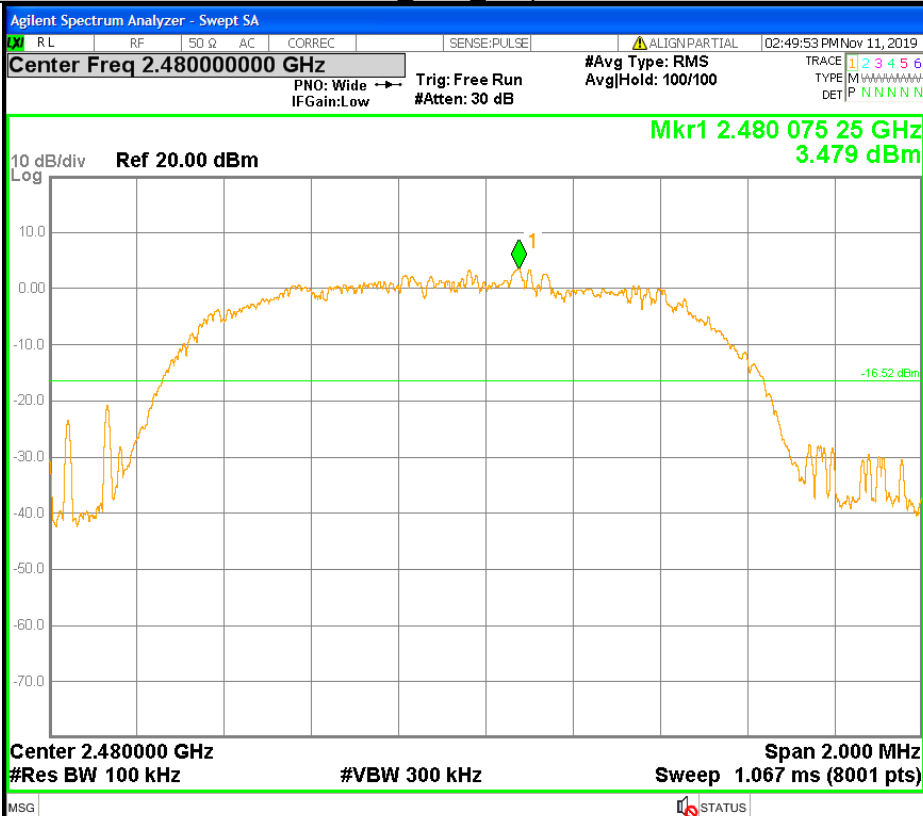


Puw

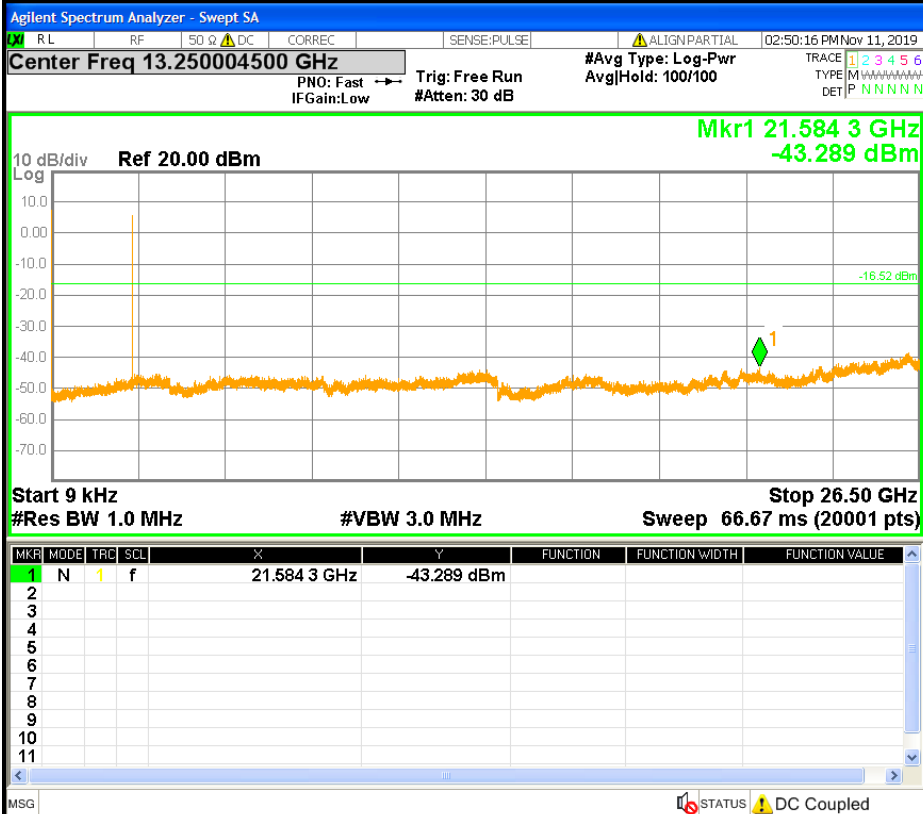


8DPSK HCH Graphs

Pref



Puw

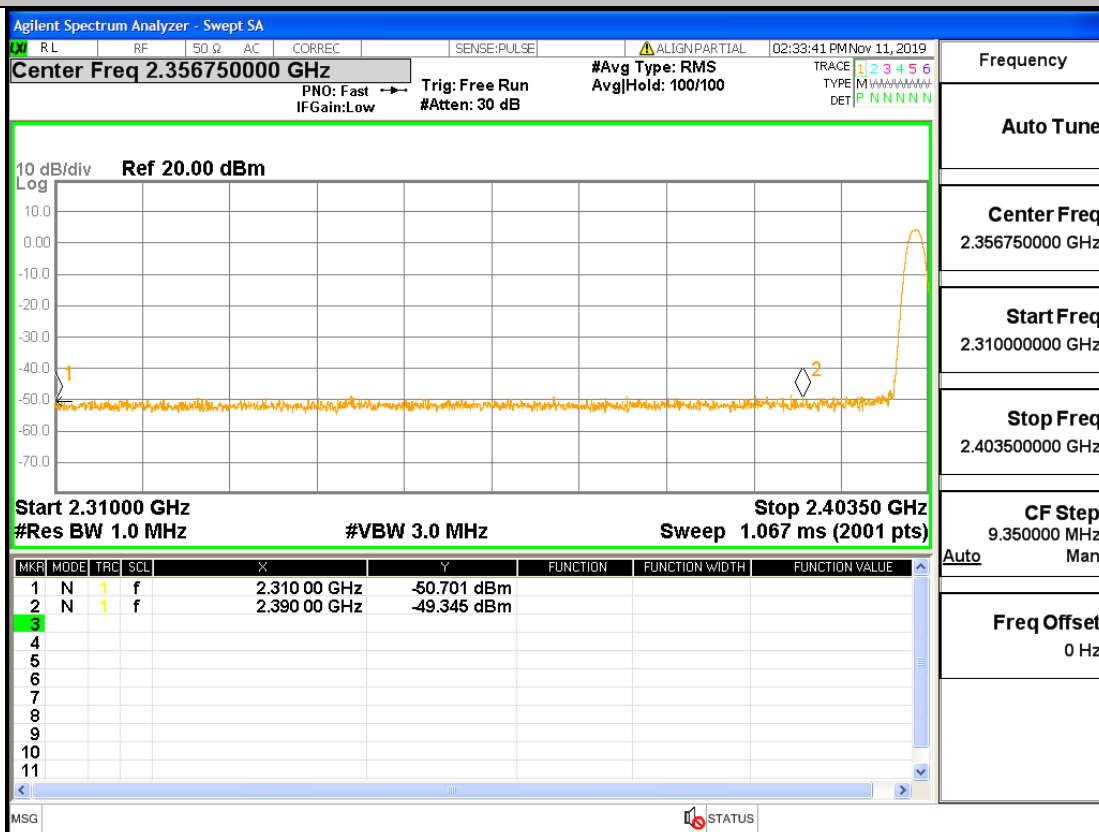


A.8 Restrict-band band-edge measurements

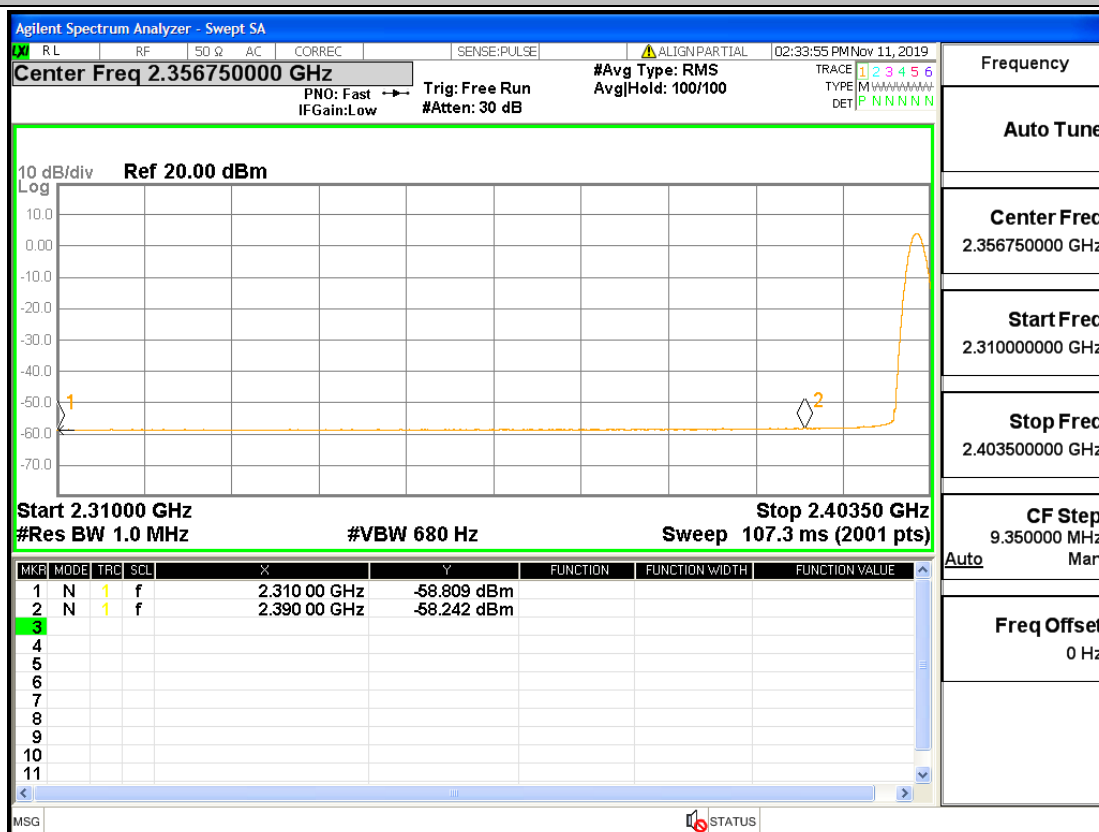
Type	Carrier Frequency (MHz)	Frequency(M Hz)	Gain	Ground Factor	Peak Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2390	2.10	0.00	-49.34	47.96	74	Pass
1DH5	2480	2484.251	2.10	0.00	-46.34	50.96	74	Pass
2DH5	2402	2390	2.10	0.00	-50.48	46.82	74	Pass
2DH5	2480	2484.477	2.10	0.00	-45.436	51.86	74	Pass
3DH5	2402	2390	2.10	0.00	-50.34	46.96	74	Pass
3DH5	2480	2483.5	2.10	0.00	-47.51	49.79	74	Pass

Type	Carrier Frequency (MHz)	Frequency(M Hz)	Gain	Ground Factor	Average Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2390	2.10	0.00	-58.24	39.06	54	Pass
1DH5	2480	2484.251	2.10	0.00	-53.10	44.20	54	Pass
2DH5	2402	2390	2.10	0.00	-58.30	39.00	54	Pass
2DH5	2480	2484.477	2.10	0.00	-50.78	46.52	54	Pass
3DH5	2402	2390	2.10	0.00	-58.29	39.01	54	Pass
3DH5	2480	2483.5	2.10	0.00	-50.75	46.55	54	Pass

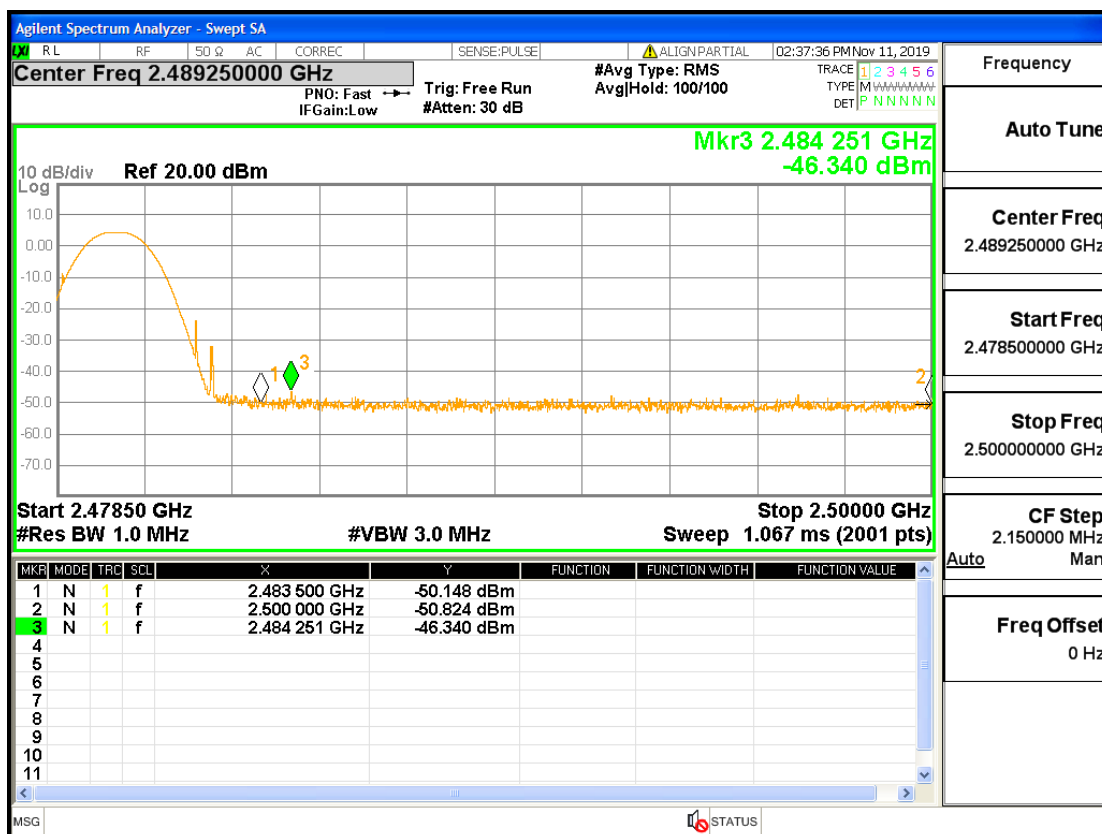
Restrict-band band-edge measurements_2402_PEAK_DH5



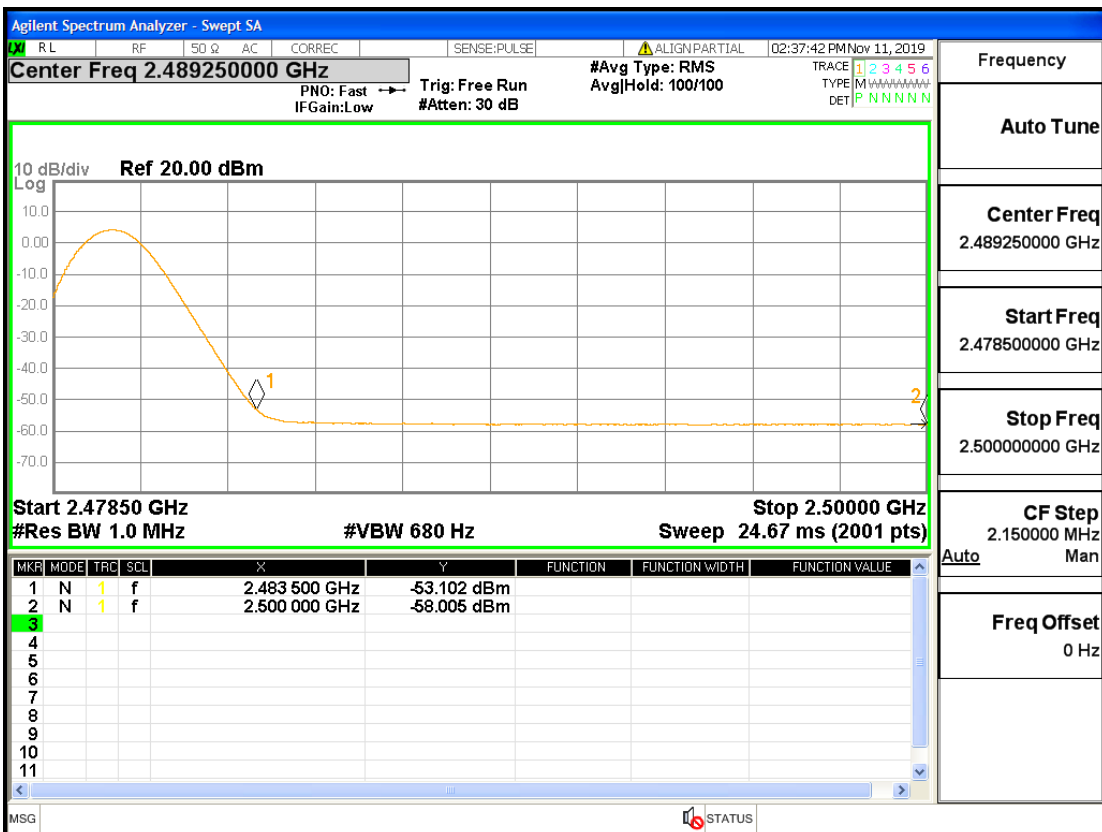
Restrict-band band-edge measurements_2402_AV_DH5



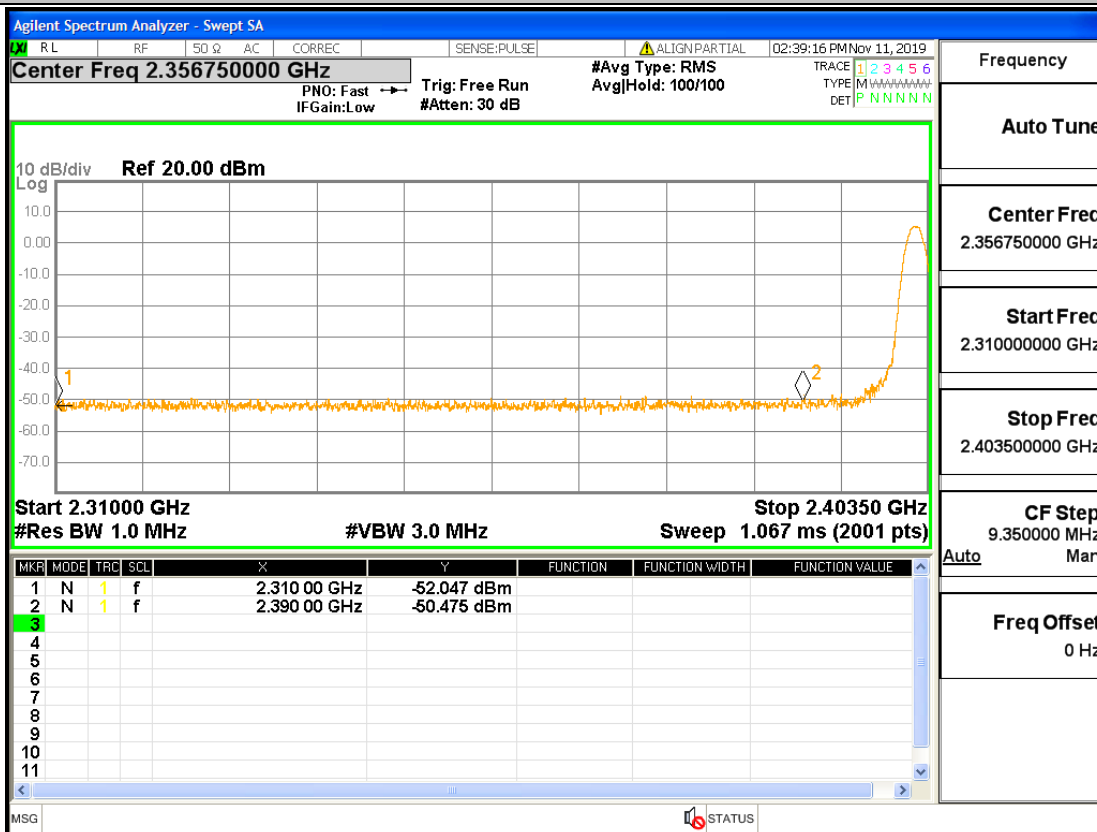
Restrict-band band-edge measurements_2480_PEAK_DH5



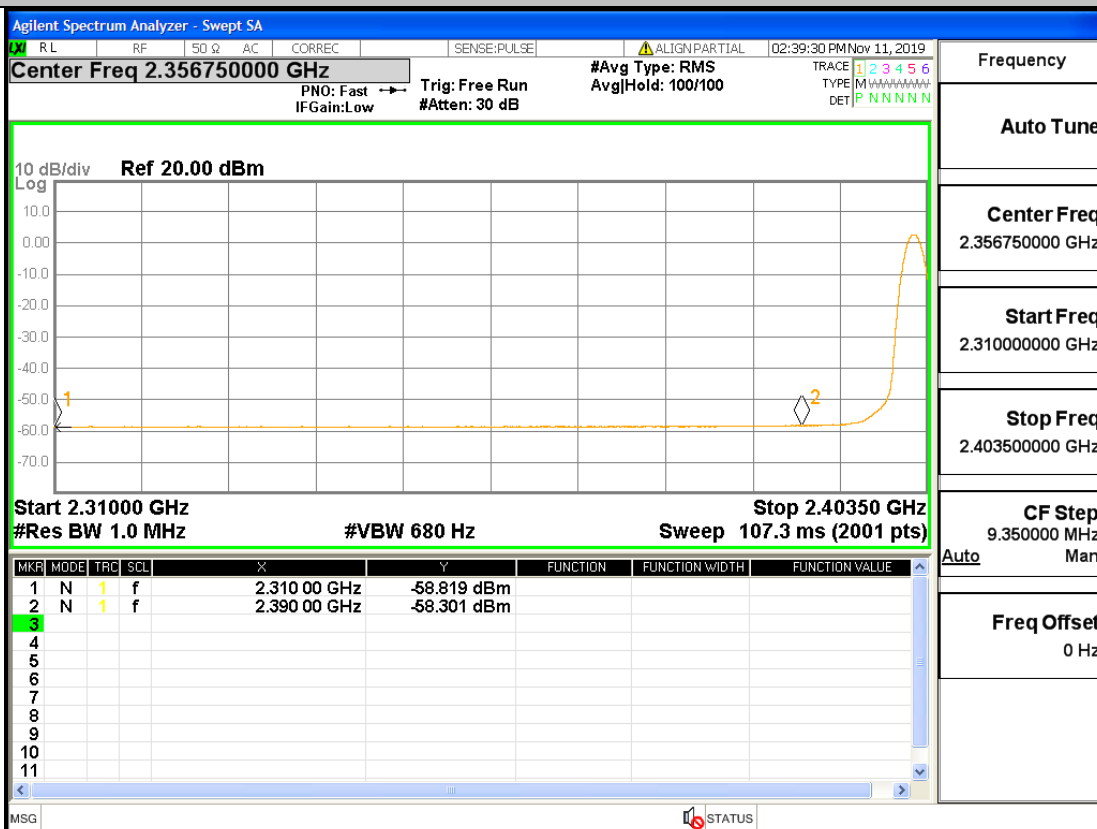
Restrict-band band-edge measurements_2480_AV_DH5



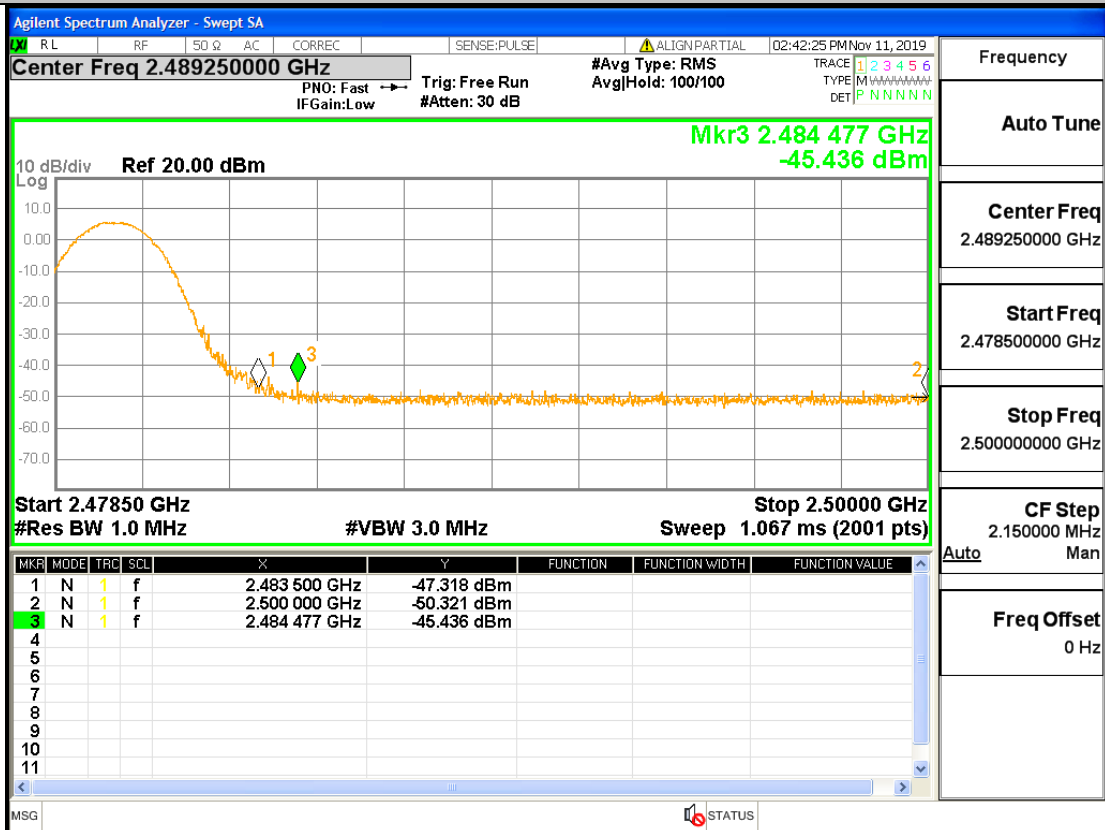
Restrict-band band-edge measurements_2402_PEAK_2DH5



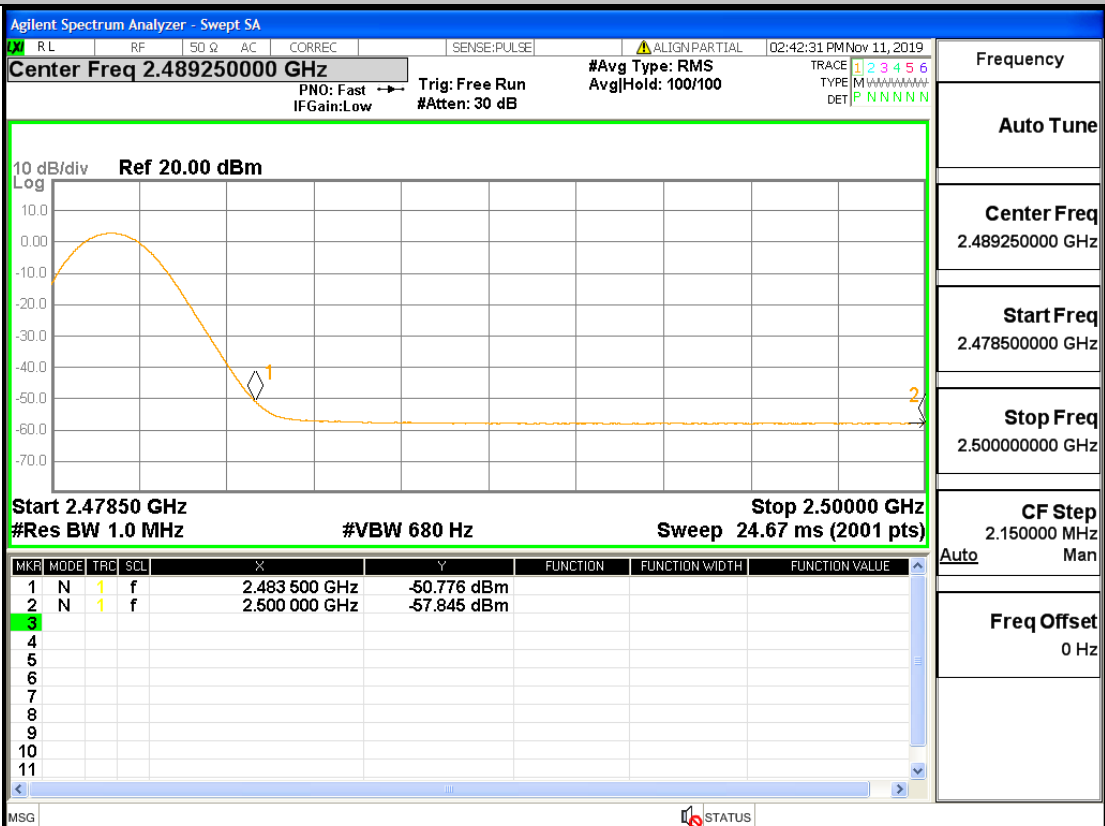
Restrict-band band-edge measurements_2402_AV_2DH5



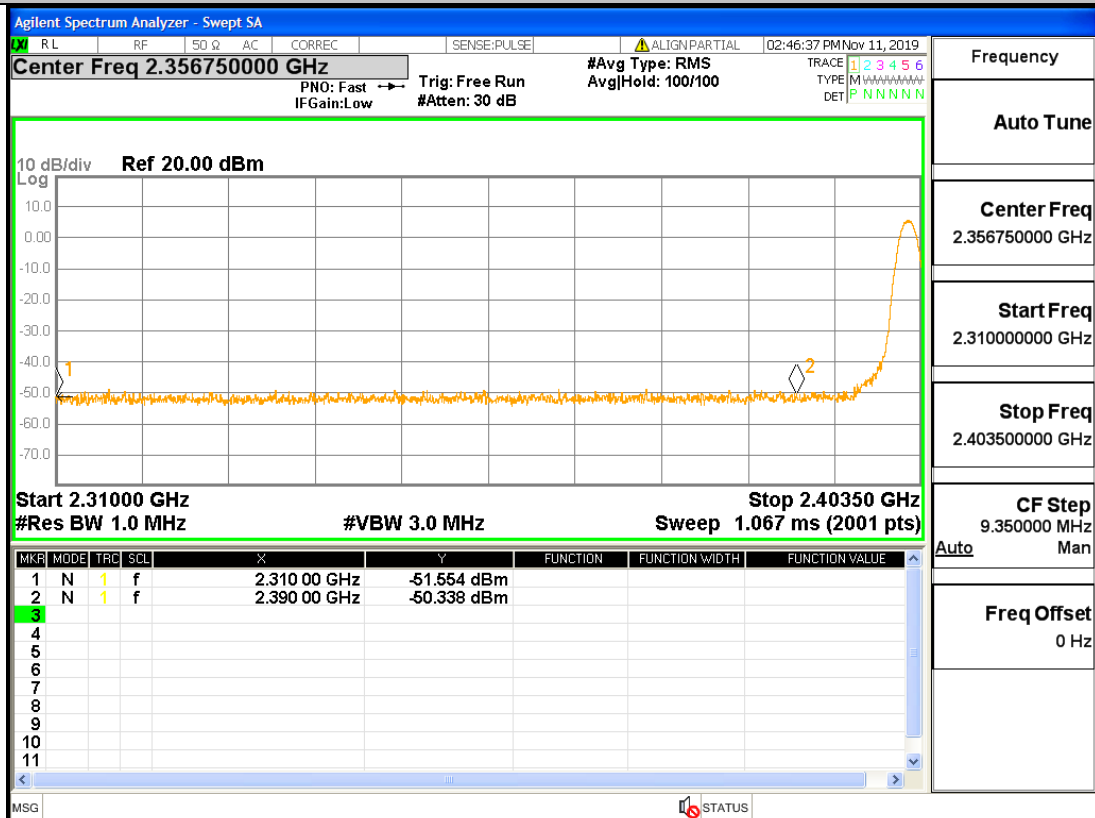
Restrict-band band-edge measurements_2480_PEAK_2DH5



Restrict-band band-edge measurements_2480_AV_2DH5



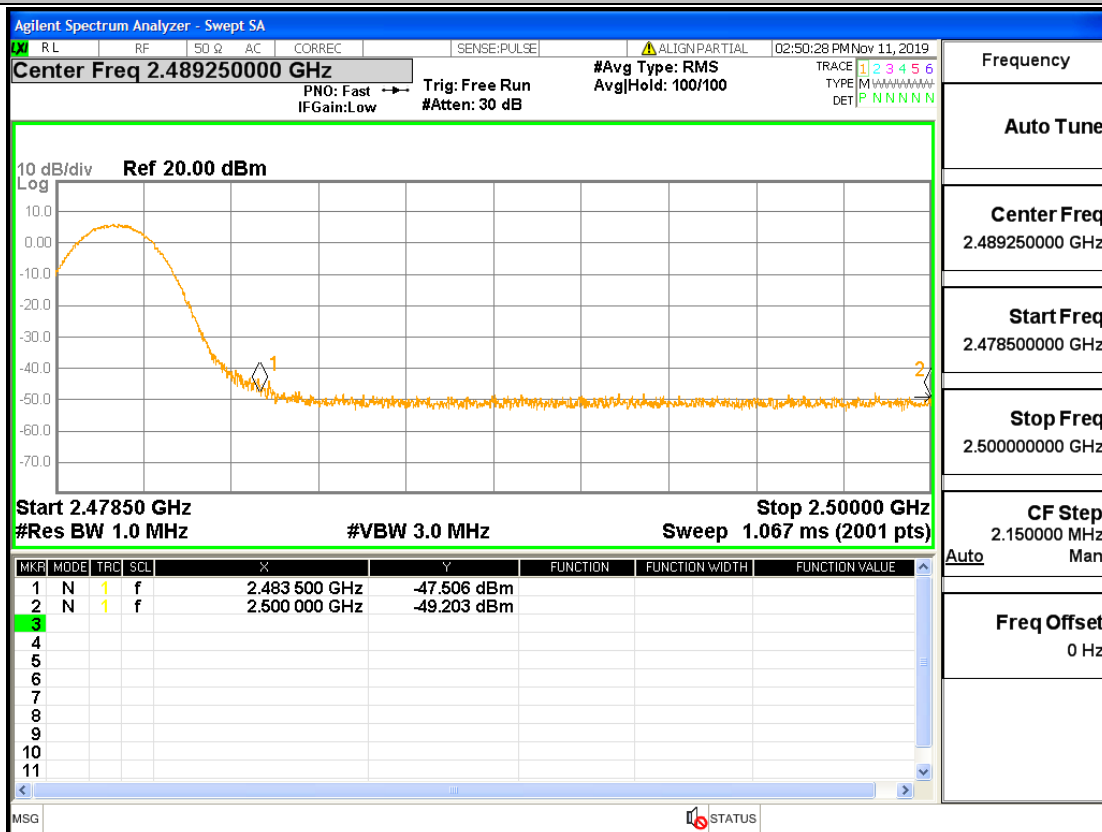
Restrict-band band-edge measurements 2402 PEAK 3DH5



Restrict-band band-edge measurements 2402 AV 3DH5



Restrict-band band-edge measurements_2480_PEAK_3DH5



Restrict-band band-edge measurements_2480_AV_3DH5

