

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

Product Name: Bluetooth Headphones

Trade Mark: Altec Lansing

Test Model: MZX250

FCC ID: 2AL9B-MZX250

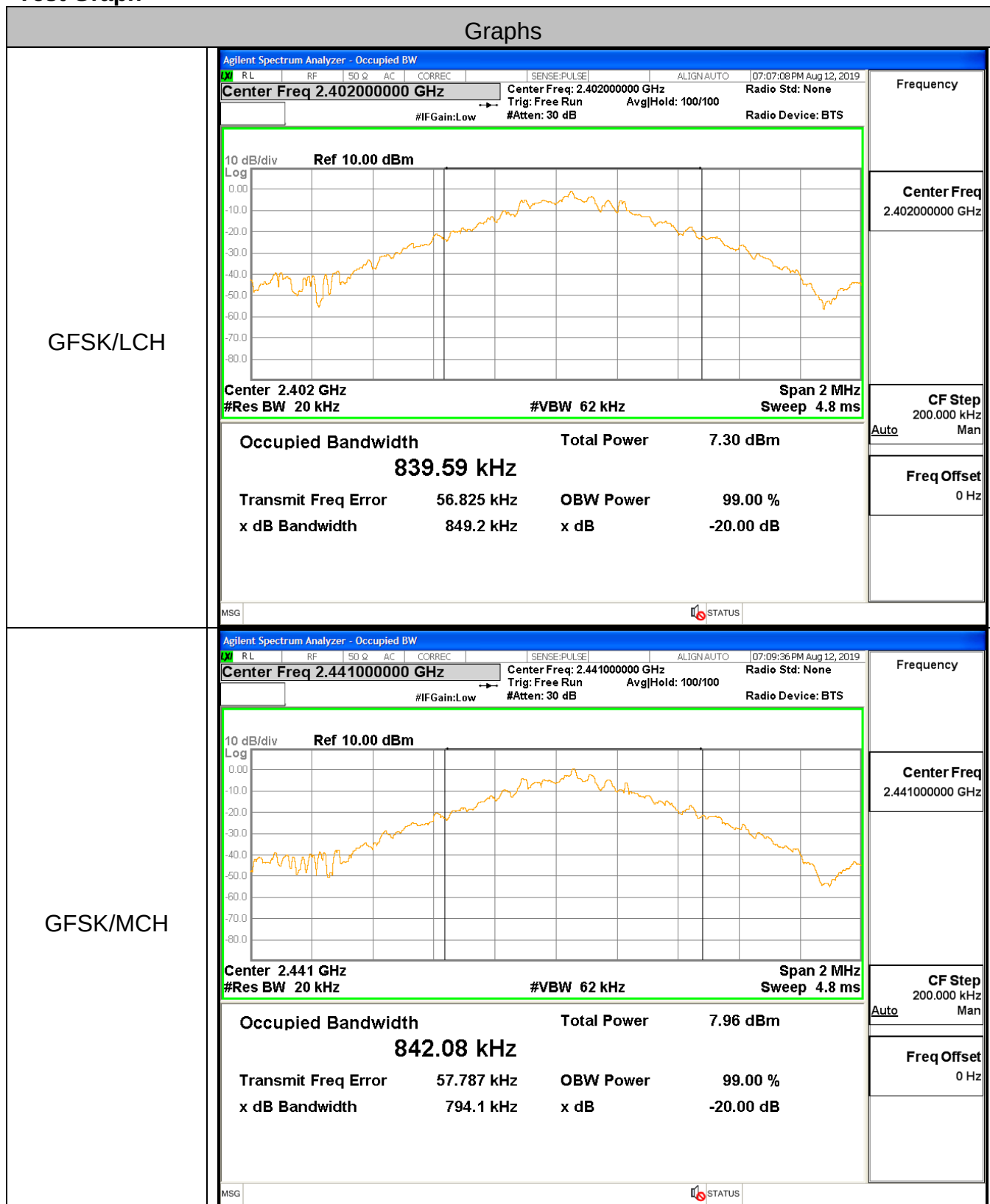
Environmental Conditions

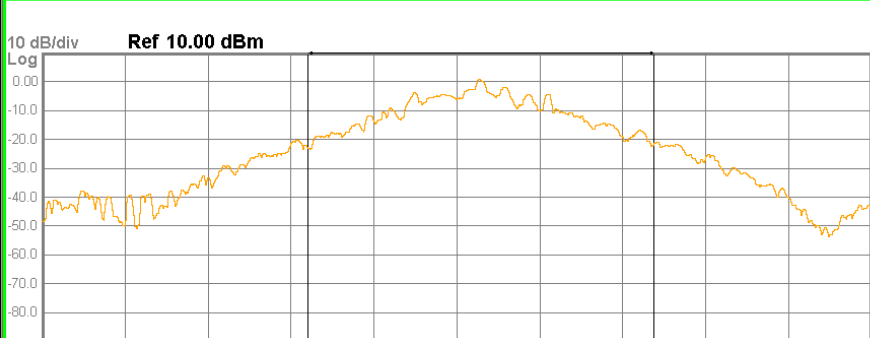
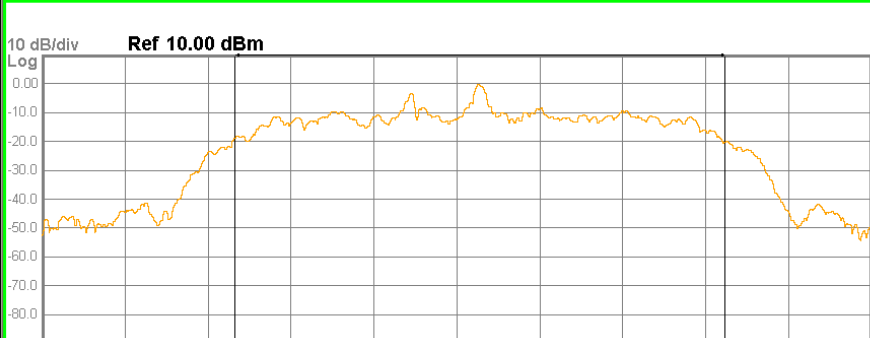
Temperature:	24.1℃
Relative Humidity:	55%
ATM Pressure:	100.0 kPa
Test Engineer:	Gary Qian
Supervised by:	Eden Hu

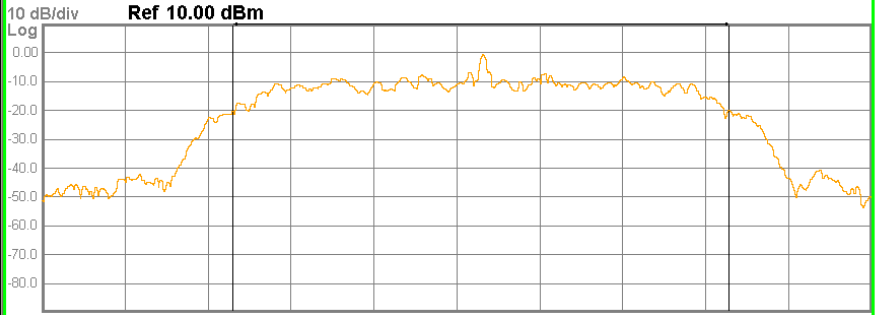
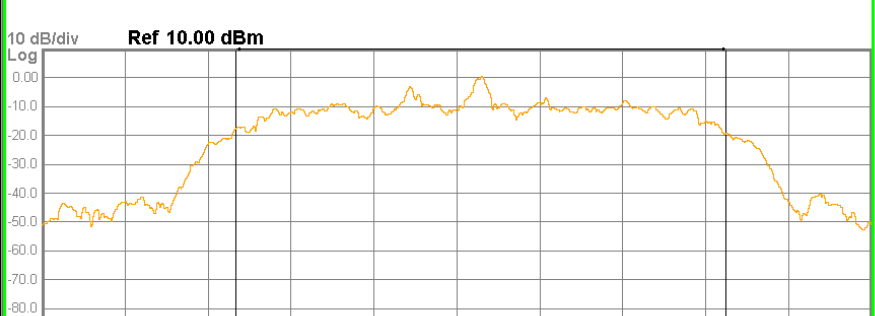
A.1 20 dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit(MHz)	Verdict
GFSK	LCH	0.849	Not Specified	PASS
GFSK	MCH	0.794	Not Specified	PASS
GFSK	HCH	0.796	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.194	Not Specified	PASS
$\pi/4$ DQPSK	MCH	1.205	Not Specified	PASS
$\pi/4$ DQPSK	HCH	1.196	Not Specified	PASS

Test Graph



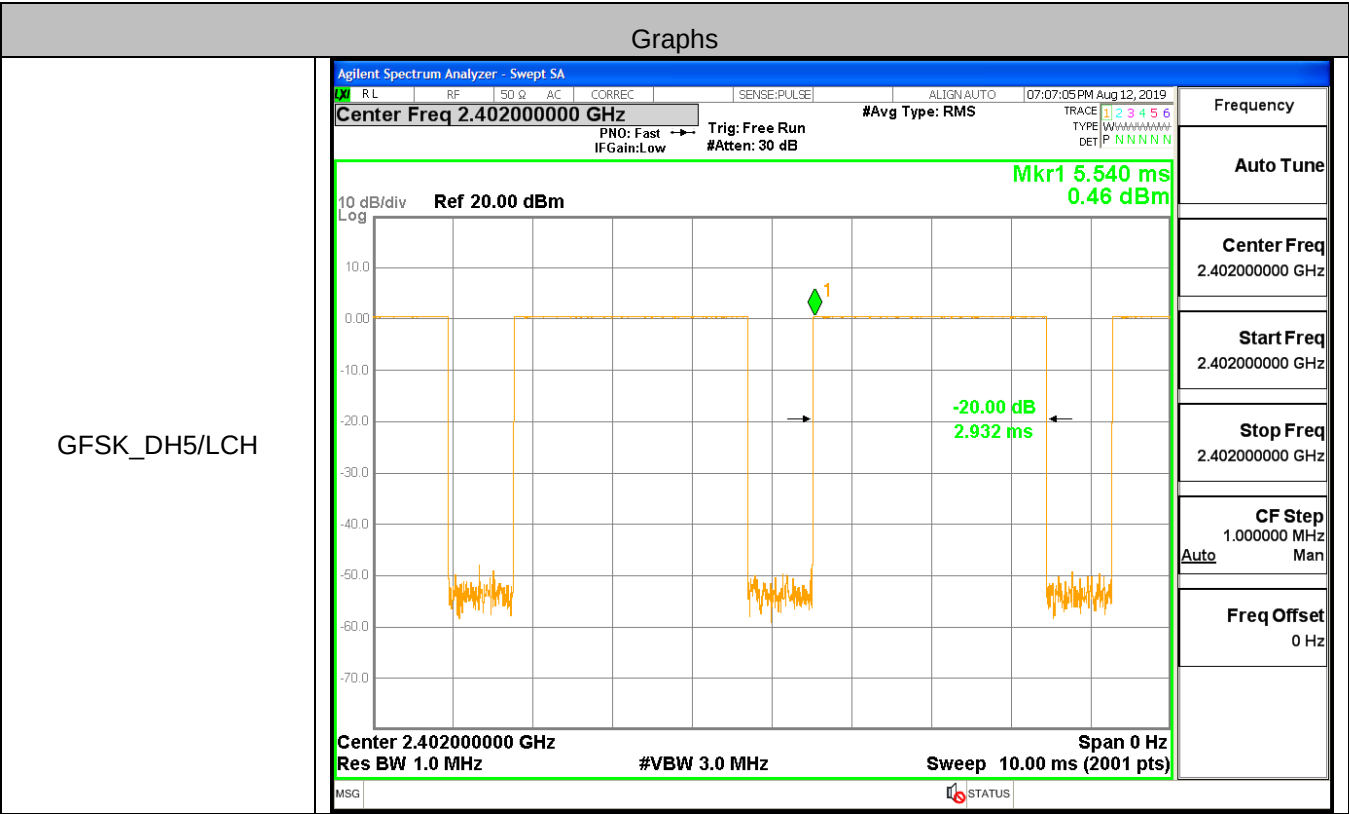
GFSK/HCH	Agilent Spectrum Analyzer - Occupied BW Center Freq 2.480000000 GHz Center Freq: 2.480000000 GHz Trig: Free Run #IFGain: Low #Atten: 30 dB Radio Std: None Radio Device: BTS Frequency Center Freq 2.480000000 GHz CF Step 200.000 kHz Freq Offset 0 Hz 10 dB/div Ref 10.00 dBm  Center 2.48 GHz #Res BW 20 kHz #VBW 62 kHz Span 2 MHz Sweep 4.8 ms Occupied Bandwidth 832.35 kHz Total Power 8.43 dBm Transmit Freq Error 58.329 kHz OBW Power 99.00 % x dB Bandwidth 796.4 kHz x dB -20.00 dB MSG STATUS
π/4DQPSK/LCH	Agilent Spectrum Analyzer - Occupied BW Center Freq 2.402000000 GHz Center Freq: 2.402000000 GHz Trig: Free Run #IFGain: Low #Atten: 30 dB Radio Std: None Radio Device: BTS Frequency Center Freq 2.402000000 GHz CF Step 200.000 kHz Freq Offset 0 Hz 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 1.1753 MHz Total Power 6.94 dBm Transmit Freq Error 57.335 kHz OBW Power 99.00 % x dB Bandwidth 1.194 MHz x dB -20.00 dB MSG STATUS

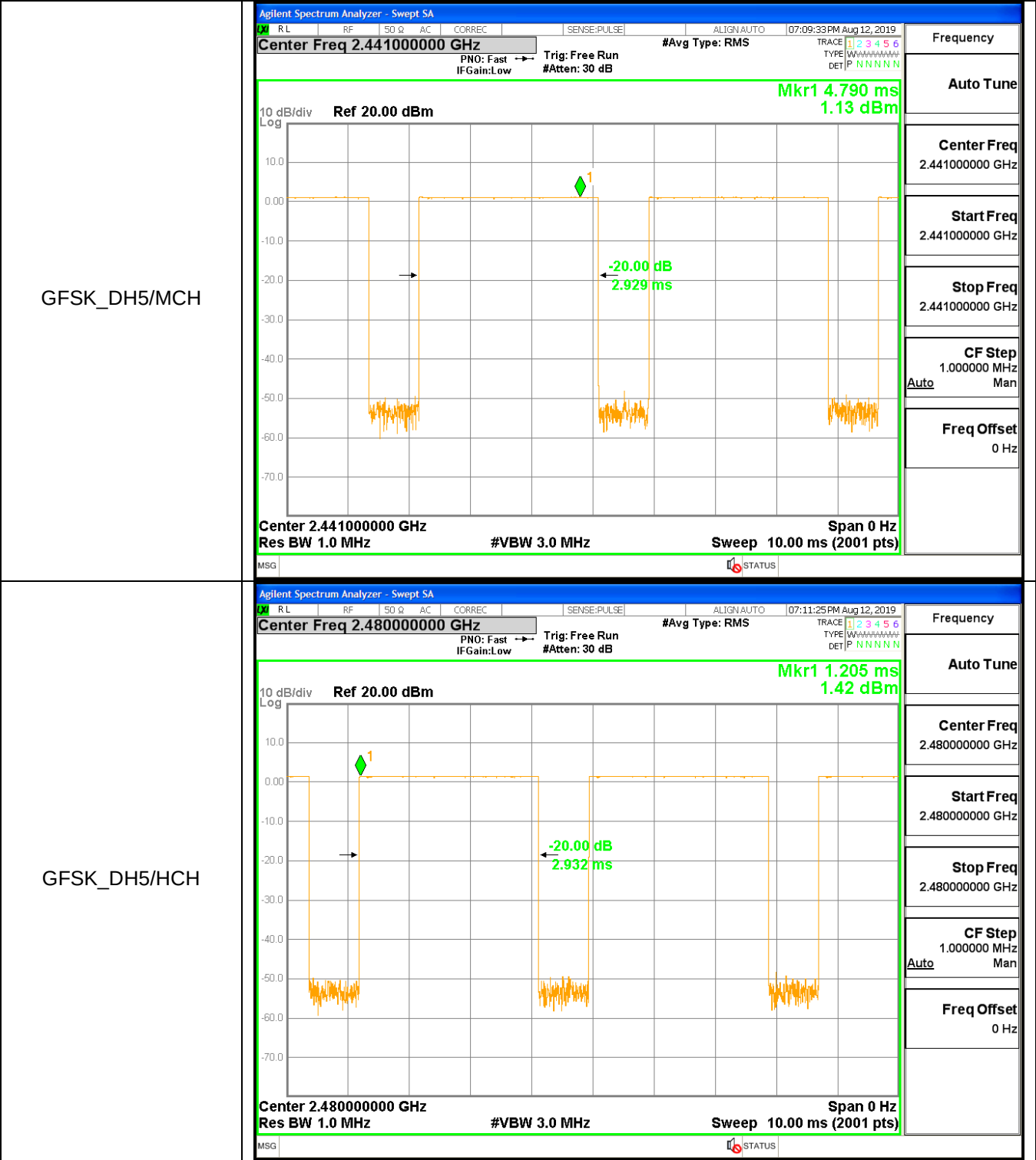
π/4DQPSK/MCH	Agilent Spectrum Analyzer - Occupied BW Center Freq 2.441000000 GHz Center Freq: 2.441000000 GHz Trig: Free Run Avg/Hold: 100/100 Radio Std: None Radio Device: BTS 10 dB/div Ref 10.00 dBm  Center 2.441 GHz #Res BW 20 kHz #VBW 62 kHz Span 2 MHz Sweep 4.8 ms Occupied Bandwidth 1.1897 MHz Total Power 6.78 dBm Transmit Freq Error 59.622 kHz OBW Power 99.00 % x dB Bandwidth 1.205 MHz x dB -20.00 dB MSG STATUS
π/4DQPSK/HCH	Agilent Spectrum Analyzer - Occupied BW Center Freq 2.480000000 GHz Center Freq: 2.480000000 GHz Trig: Free Run Avg/Hold: 100/100 Radio Std: None 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 1.1776 MHz Total Power 7.85 dBm Transmit Freq Error 58.942 kHz OBW Power 99.00 % x dB Bandwidth 1.196 MHz x dB -20.00 dB MSG STATUS

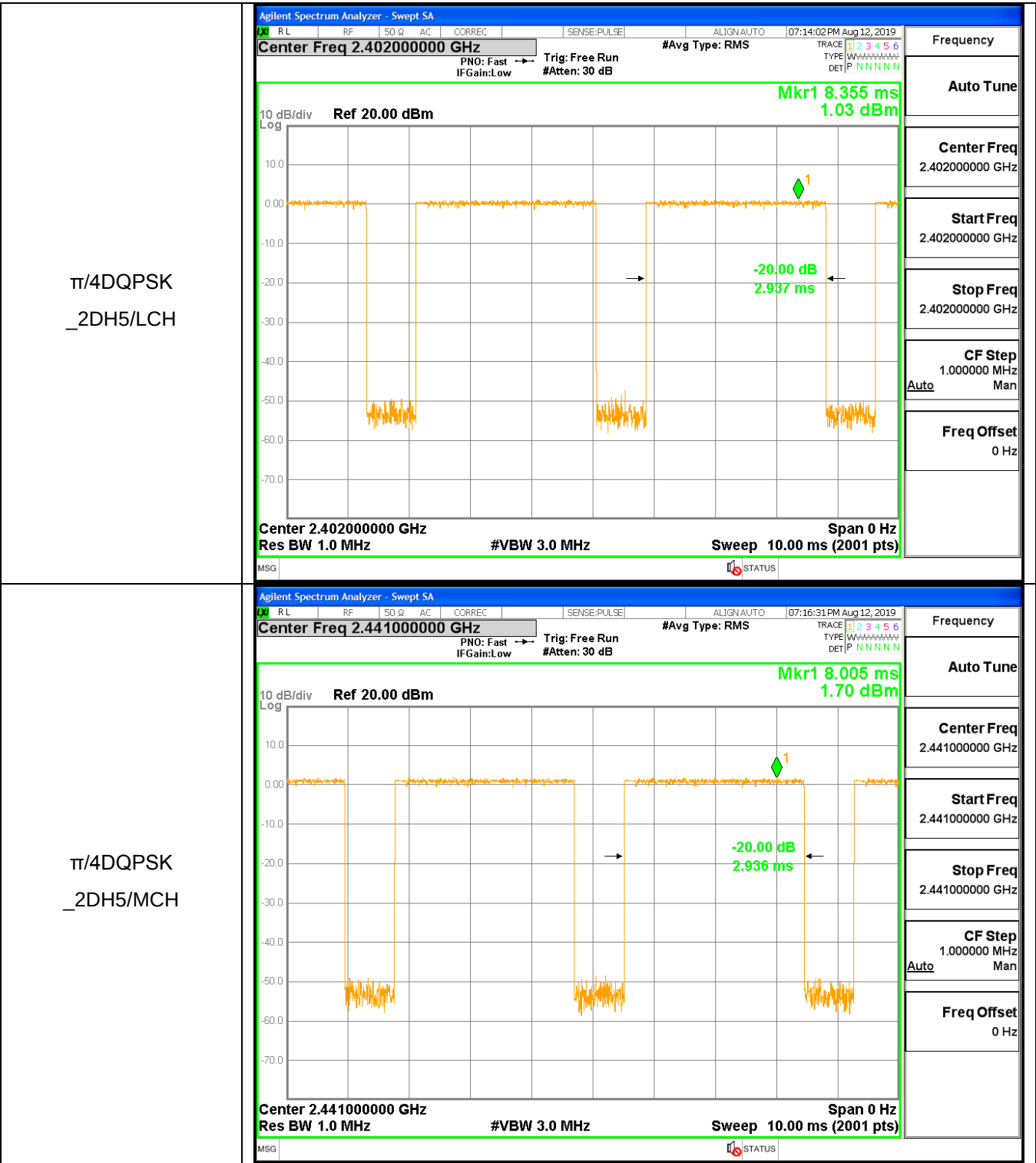
A.2 Dwell Time

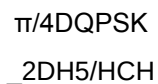
Mode	Packet	Channel	Burst Width [s/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	0.002932	106.7	0.312811	0.4	PASS
GFSK	DH5	MCH	0.002929	106.7	0.312506	0.4	PASS
GFSK	DH5	HCH	0.002932	106.7	0.312809	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	0.002937	106.7	0.313343	0.4	PASS
$\pi/4$ DQPSK	2DH5	MCH	0.002936	106.7	0.313312	0.4	PASS
$\pi/4$ DQPSK	2DH5	HCH	0.002938	106.7	0.313536	0.4	PASS

Test Graph





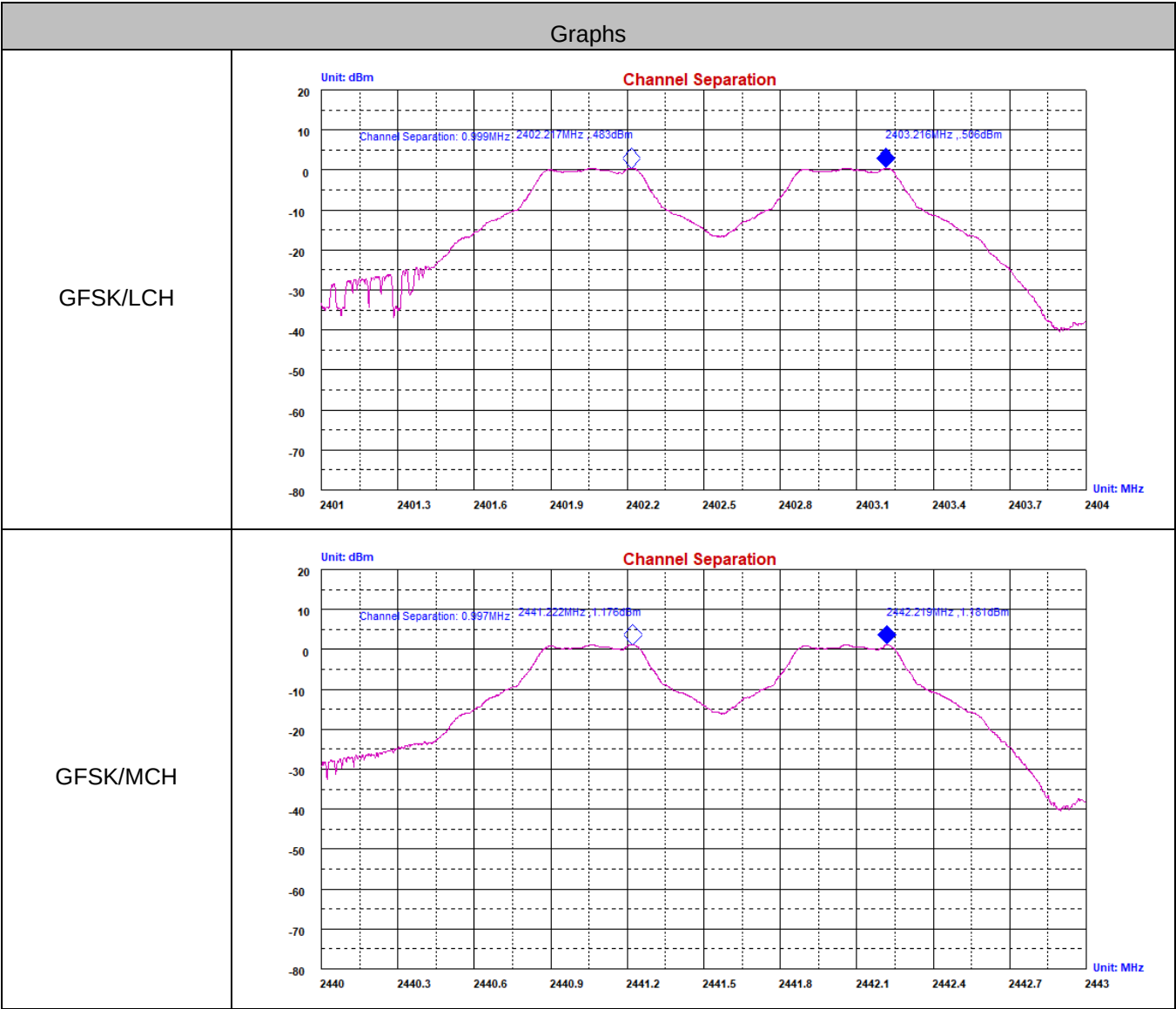


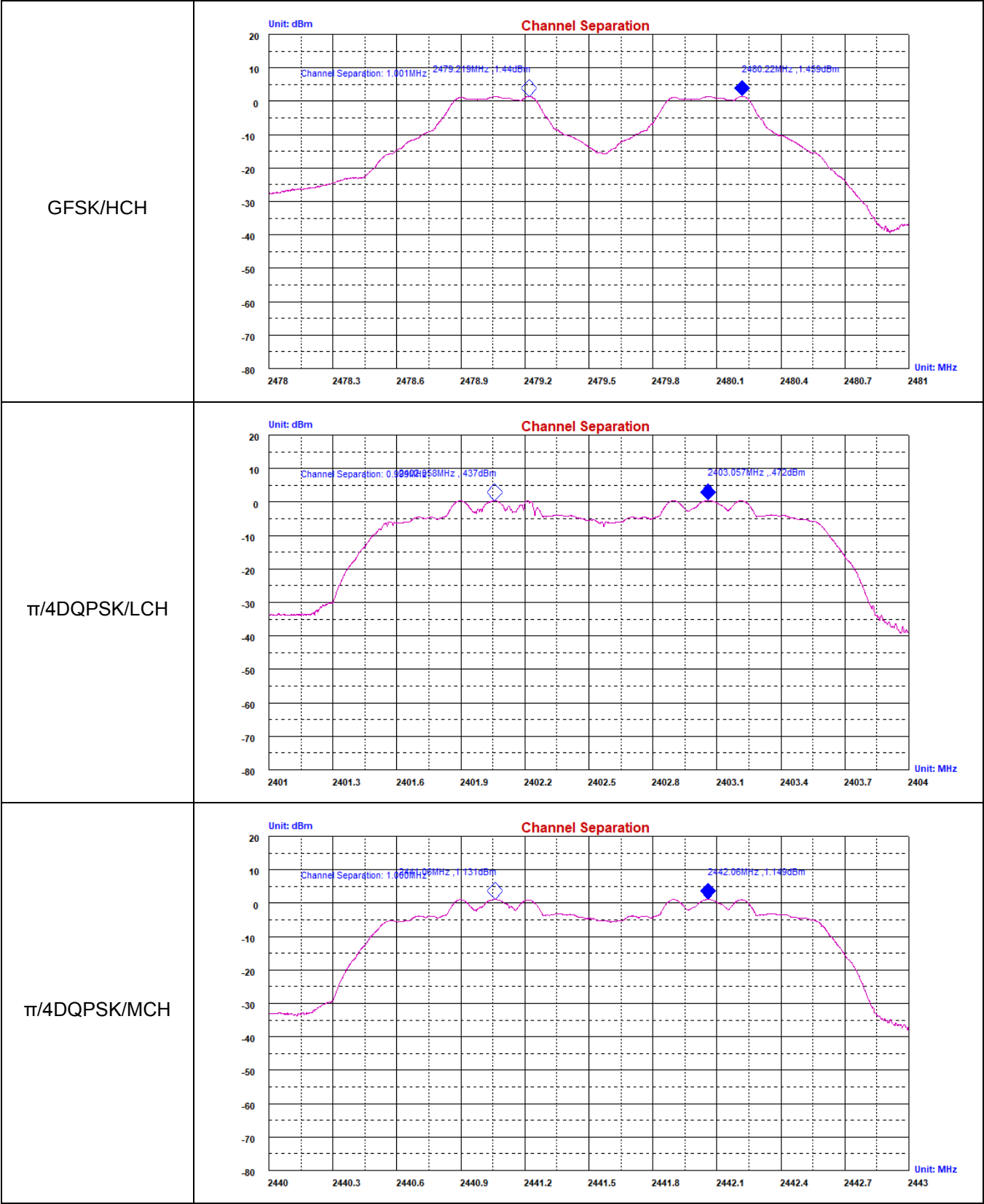


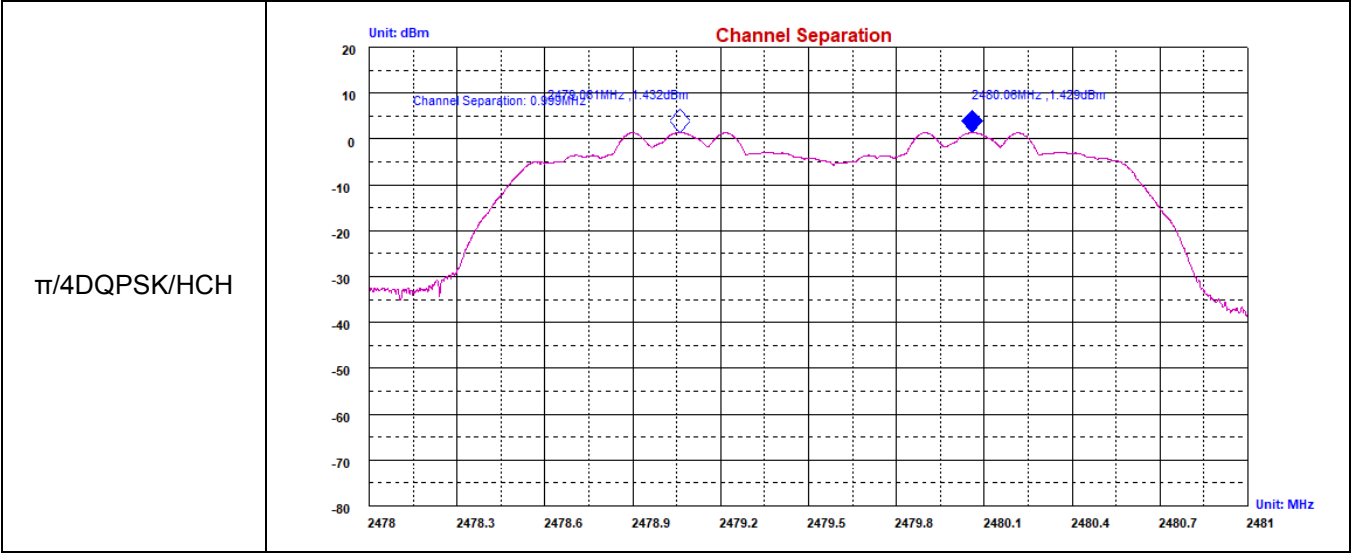
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.999	0.566	PASS
GFSK	MCH	0.997	0.529	PASS
GFSK	HCH	1.001	0.797	PASS
π /4DQPSK	LCH	0.999	0.796	PASS
π /4DQPSK	MCH	1.000	0.803	PASS
π /4DQPSK	HCH	0.999	0.797	PASS

Test Graph



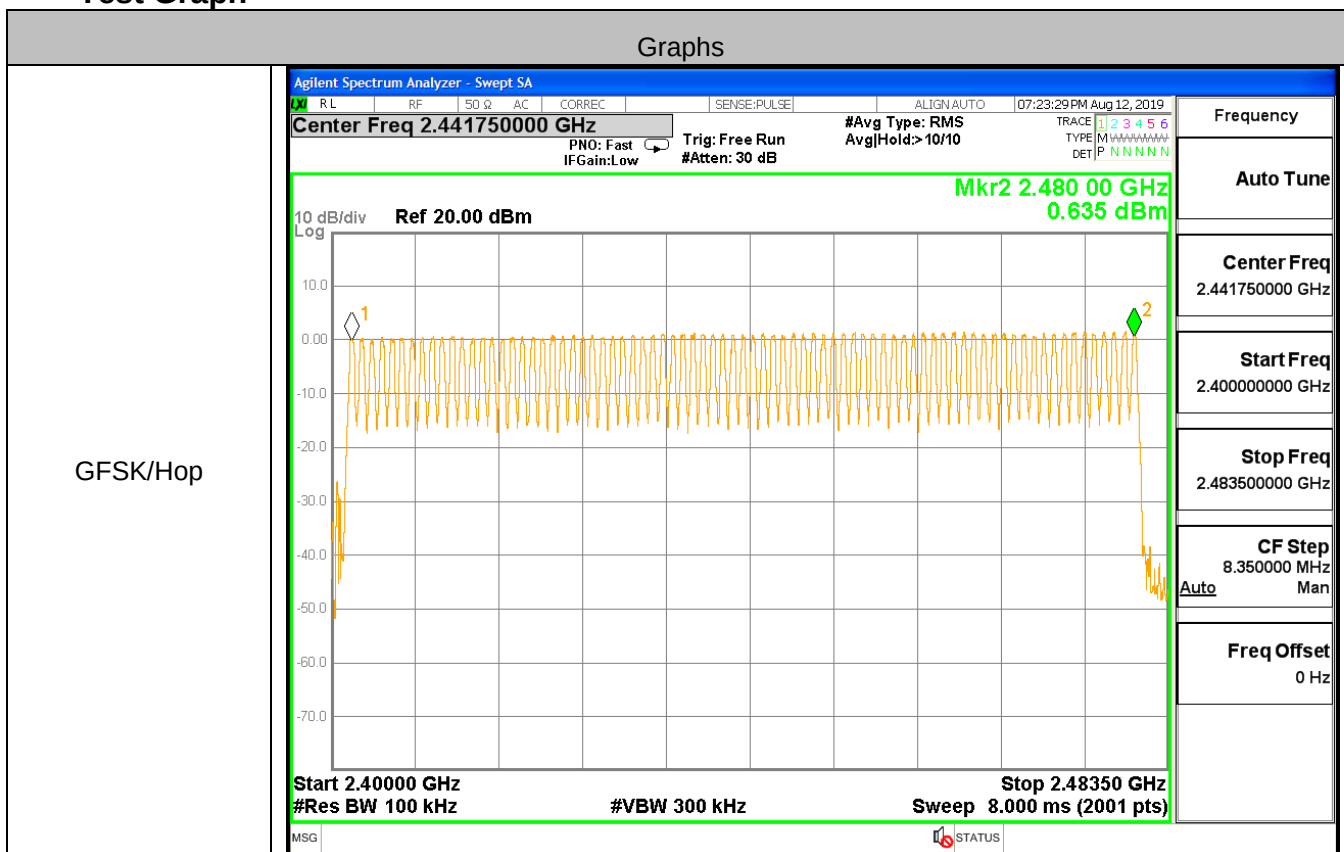


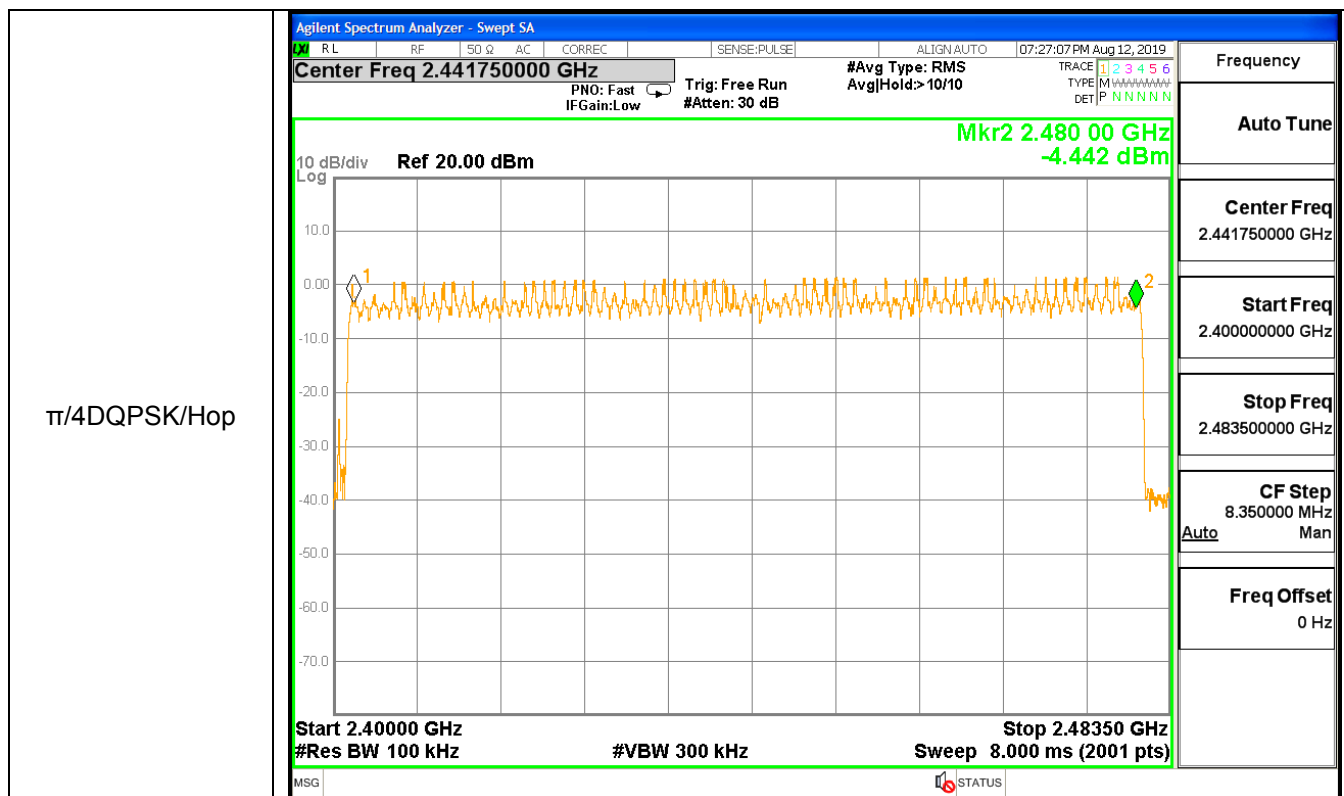


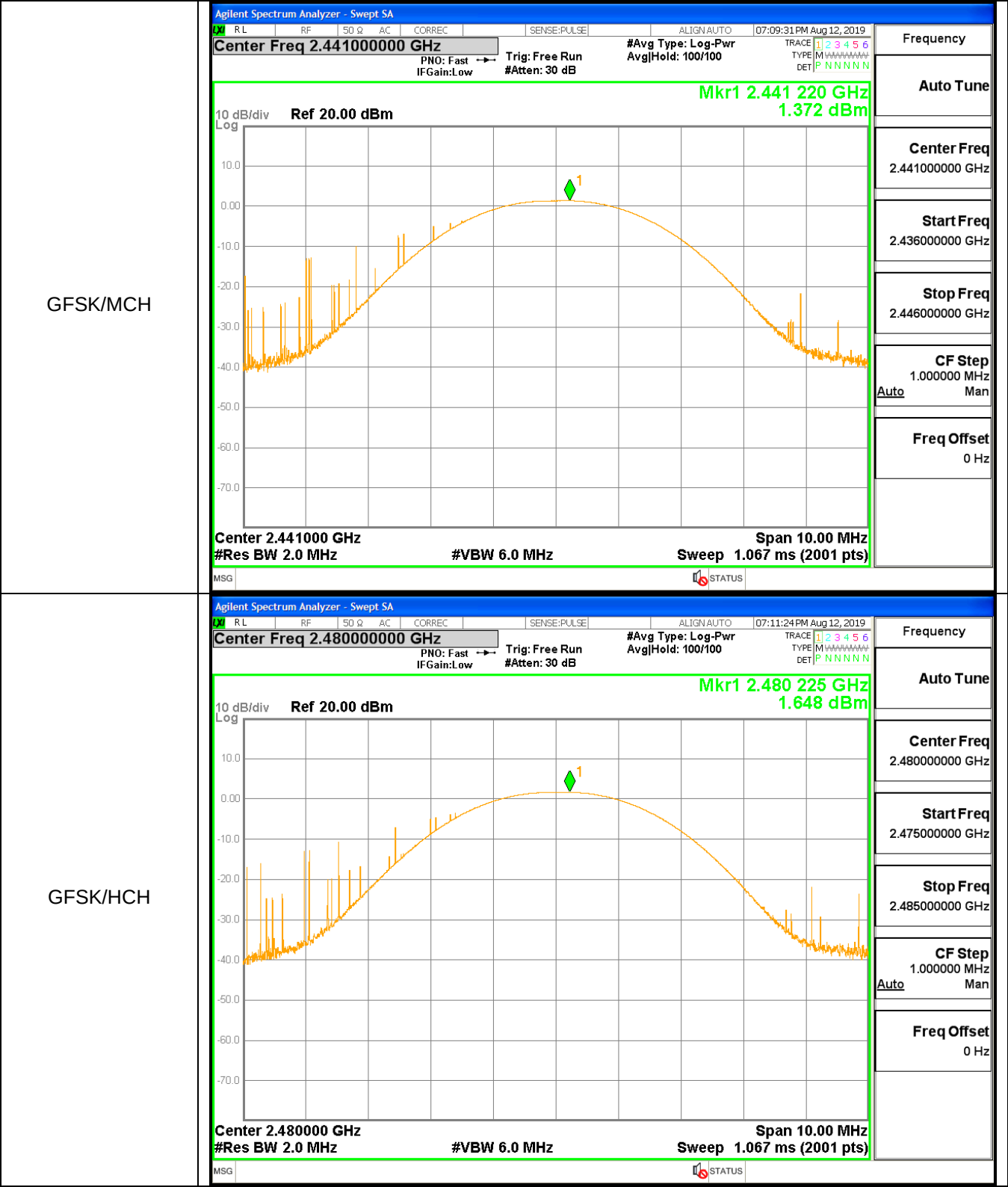
A.4 Hopping Channel Number

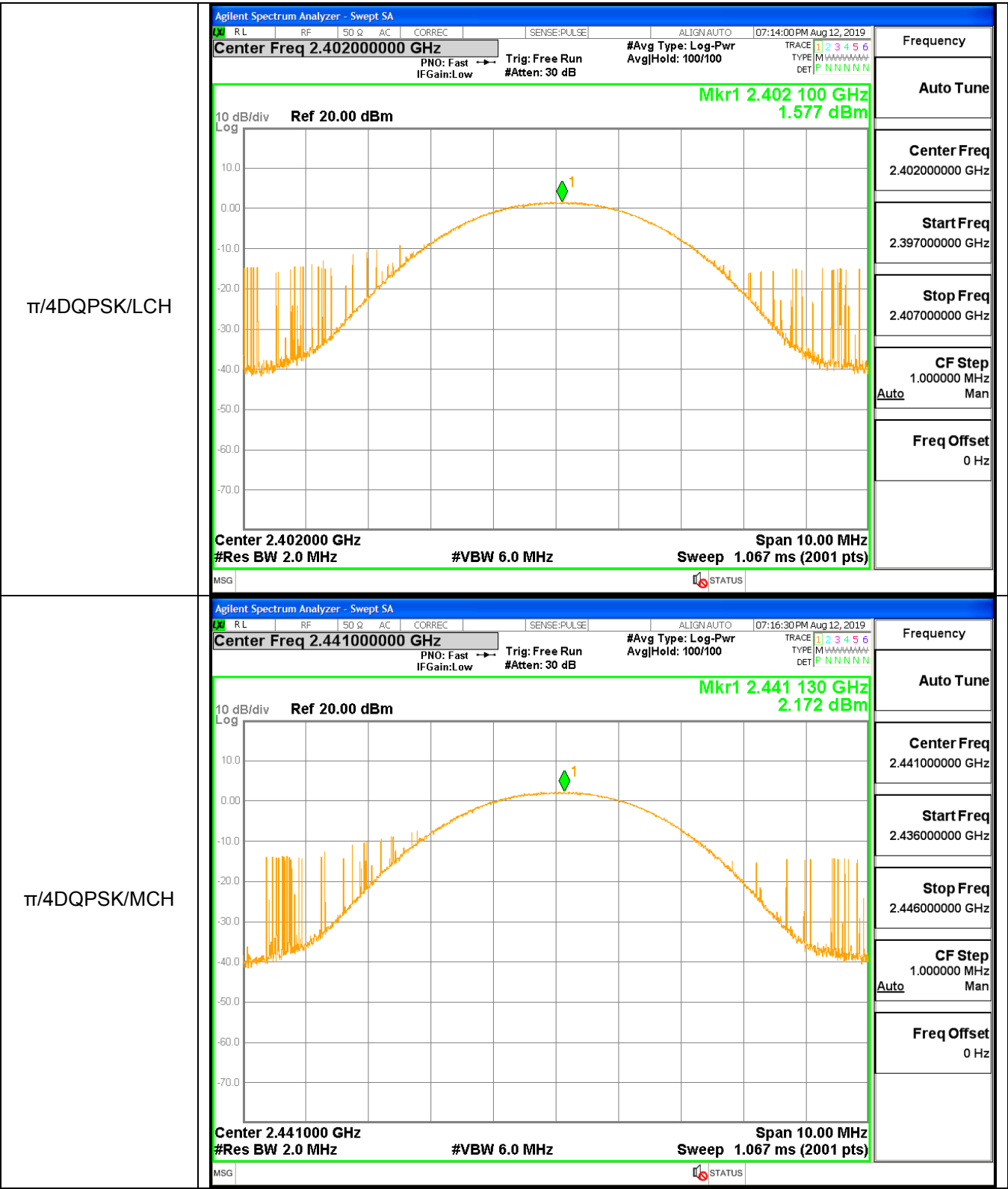
Mode	Channel.	Number of Hopping Channel[N]	Limit[N]	Verdict
GFSK	Hop	79	≥ 15	PASS
$\pi/4$ DQPSK	Hop	79	≥ 15	PASS

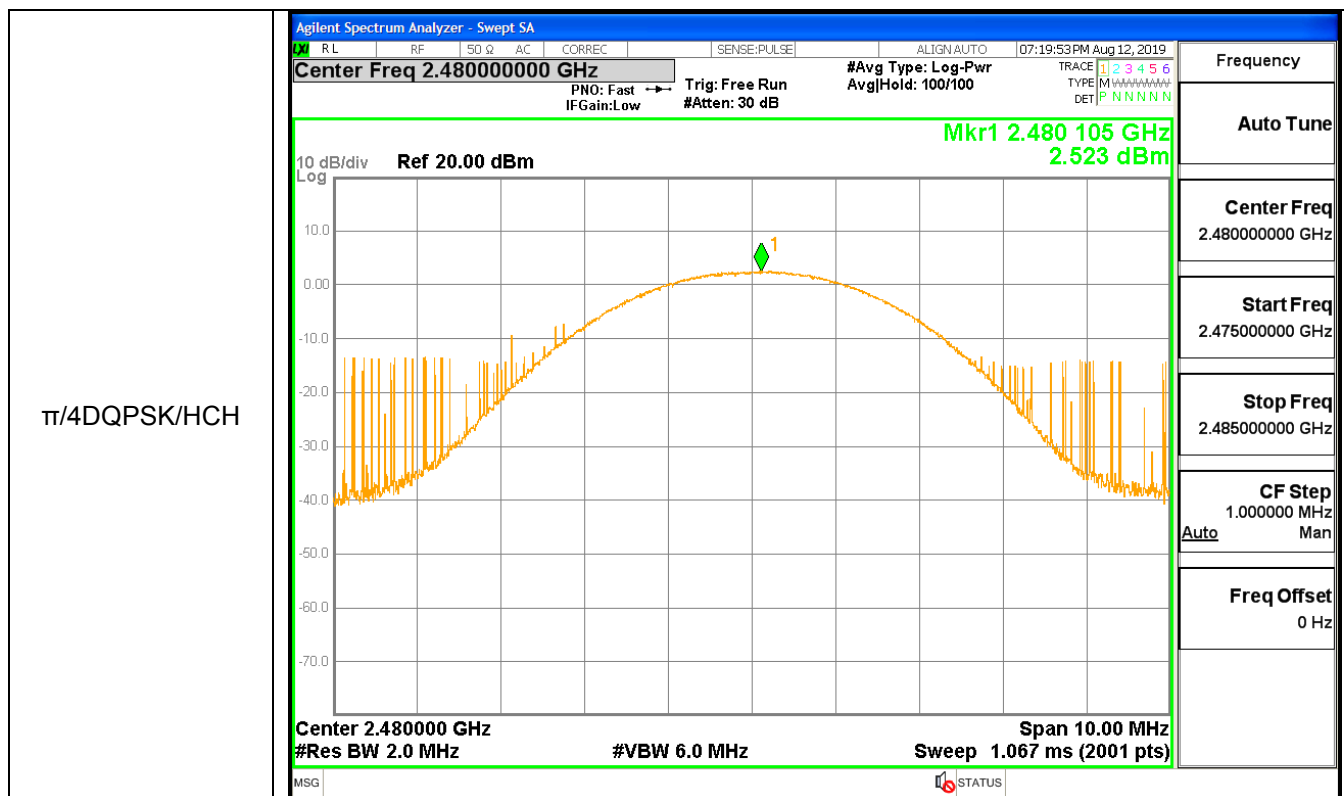
Test Graph











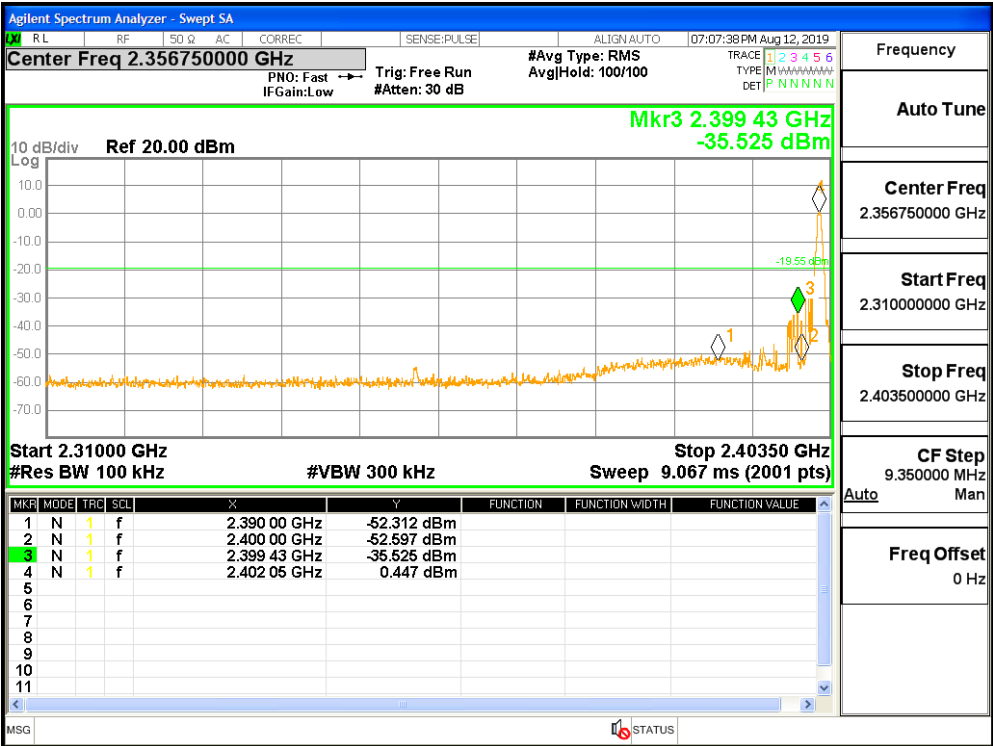
A.6 Band-edge for RF Conducted Emissions

Type	Carrier Frequency(MHz)	Frequency(MHz)	Carrier Frequency Power [dBm]	Bandedge Peak(dBm)	Upper limit(dBm)	Conclusion
1DH5	2402	2399.433	0.447	-35.525	-19.553	Pass
1DH5	2480	2483.5	1.338	-43.45	-18.662	Pass
2DH5	2402	2399.012	0.257	-36.03	-19.743	Pass
2DH5	2480	2484.23	1.416	-38.321	-18.584	Pass
1DH5-Hopping	2402	2398.47	0.76	-39.015	-19.24	Pass
1DH5-Hopping	2480	2483.5	1.476	-43.97	-18.524	Pass
2DH5-Hopping	2402	2400	0.671	-34.19	-19.329	Pass
2DH5-Hopping	2480	2484.1	1.458	-39.418	-18.542	Pass

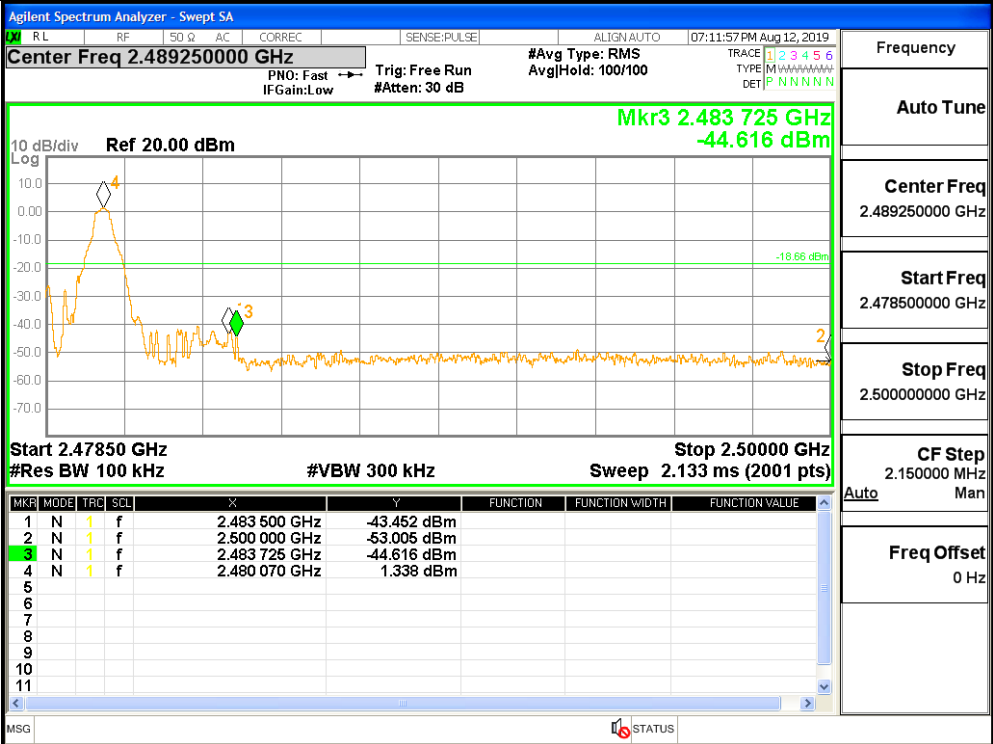
Test Graph

Graphs

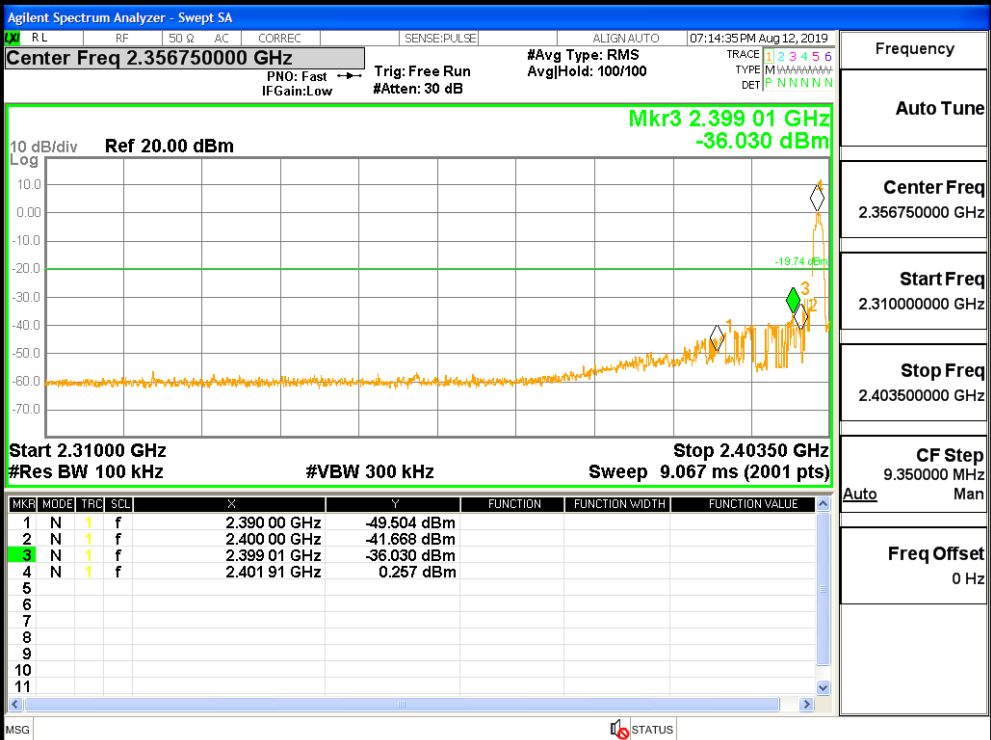
GFSK/LCH/No Hop



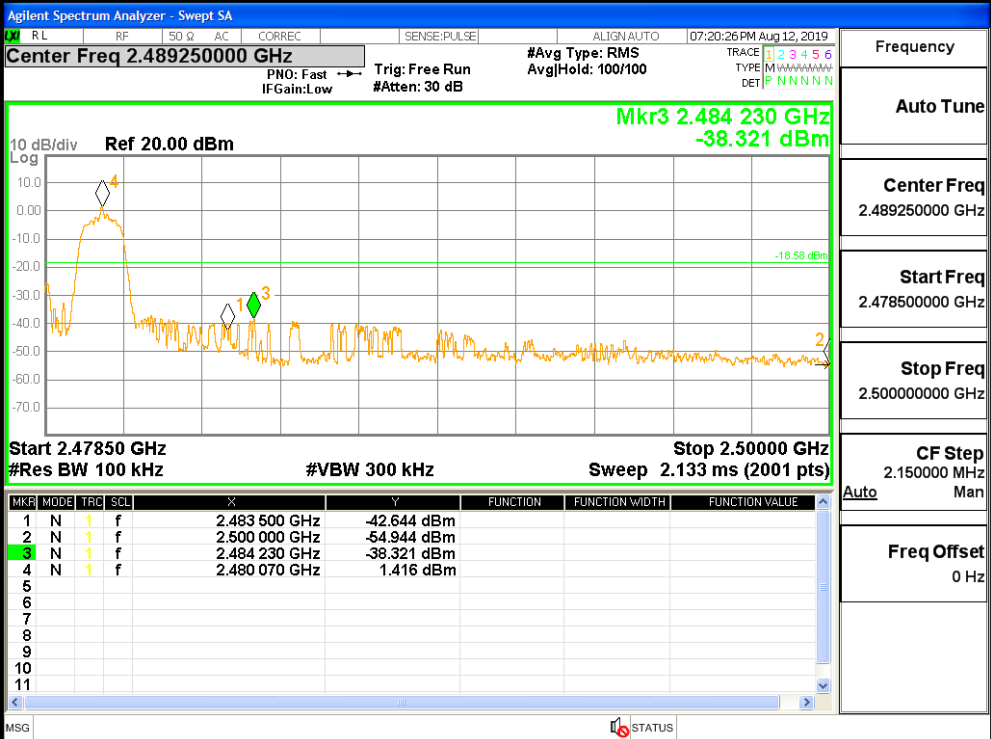
GFSK/HCH/No Hop



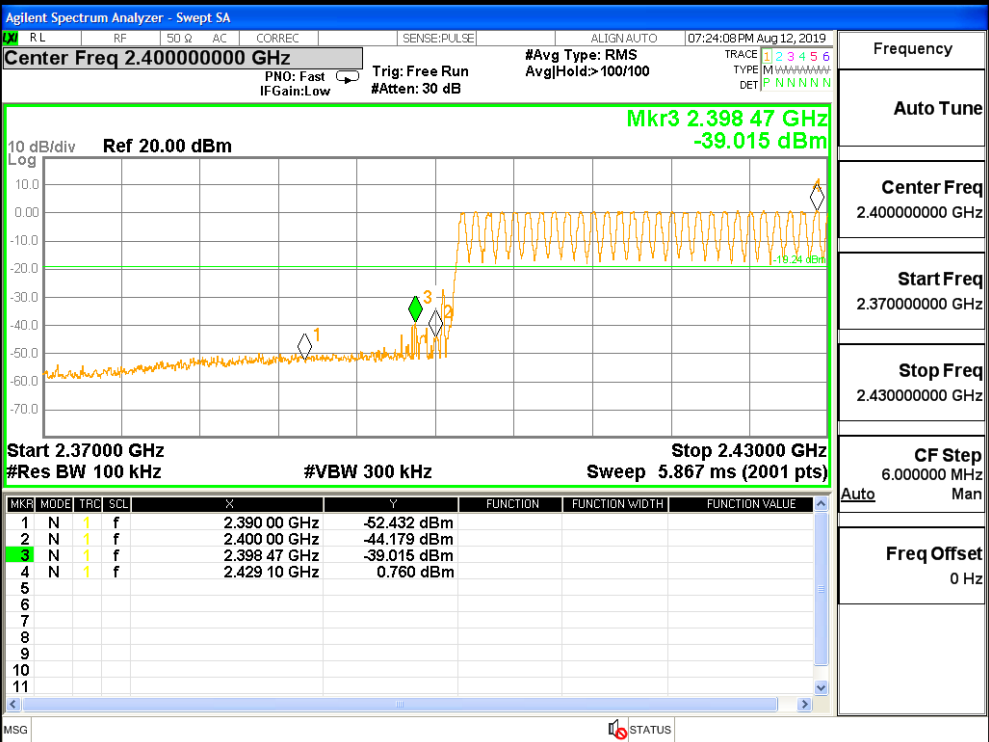
π /4DQPSK/LCH/No
Hop



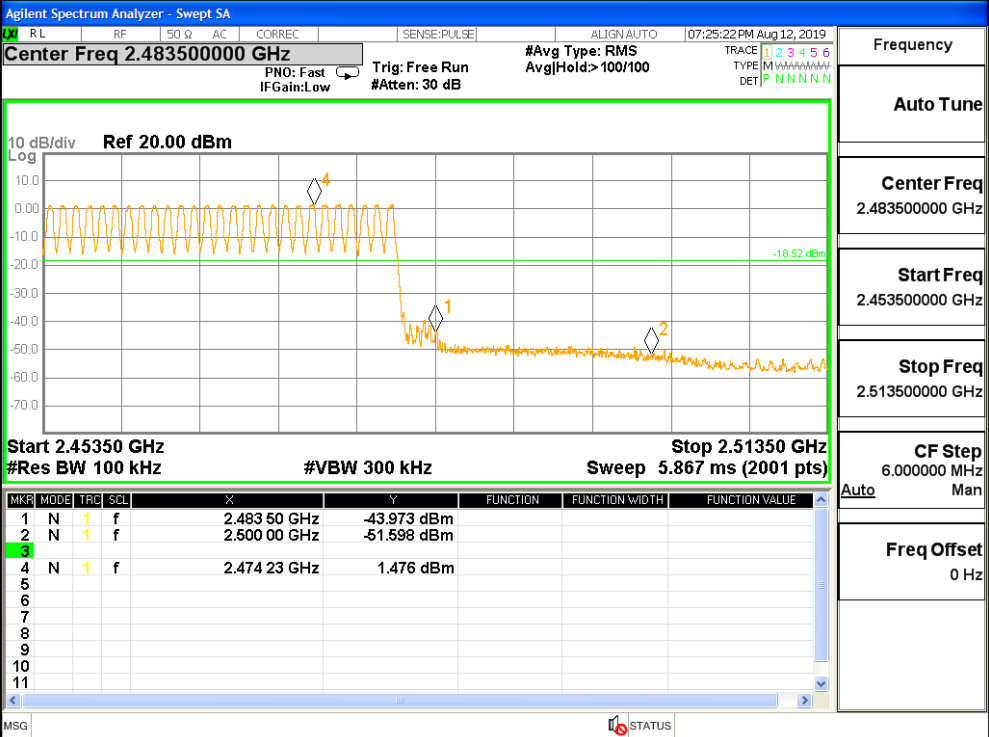
π /4DQPSK/HCH/No
Hop



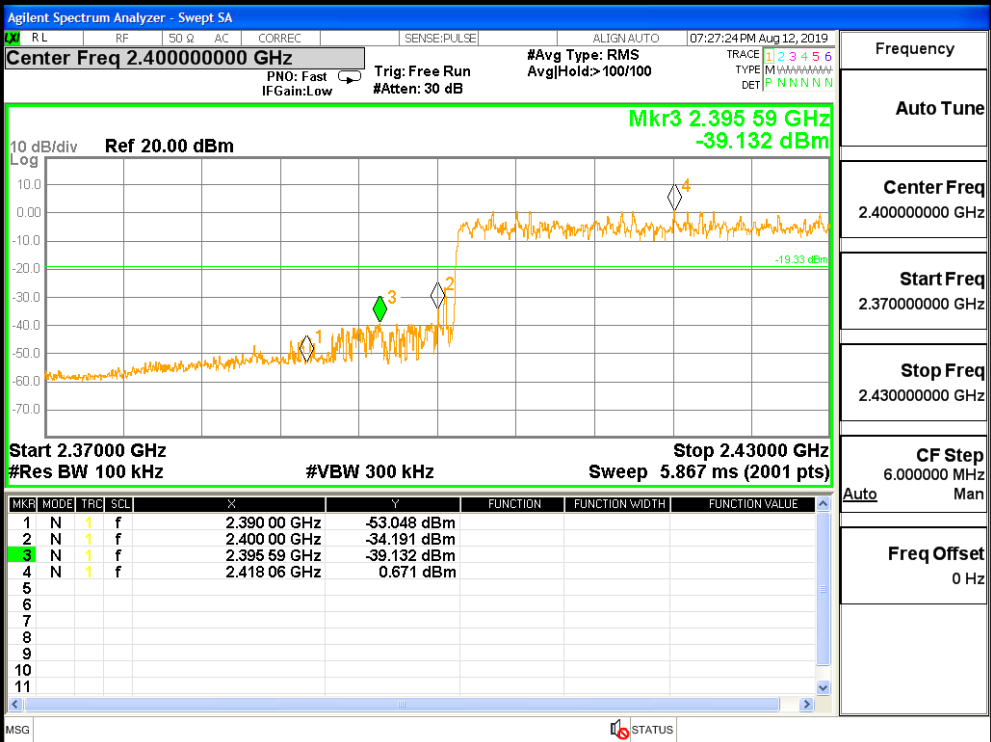
GFSK/LCH/Hop



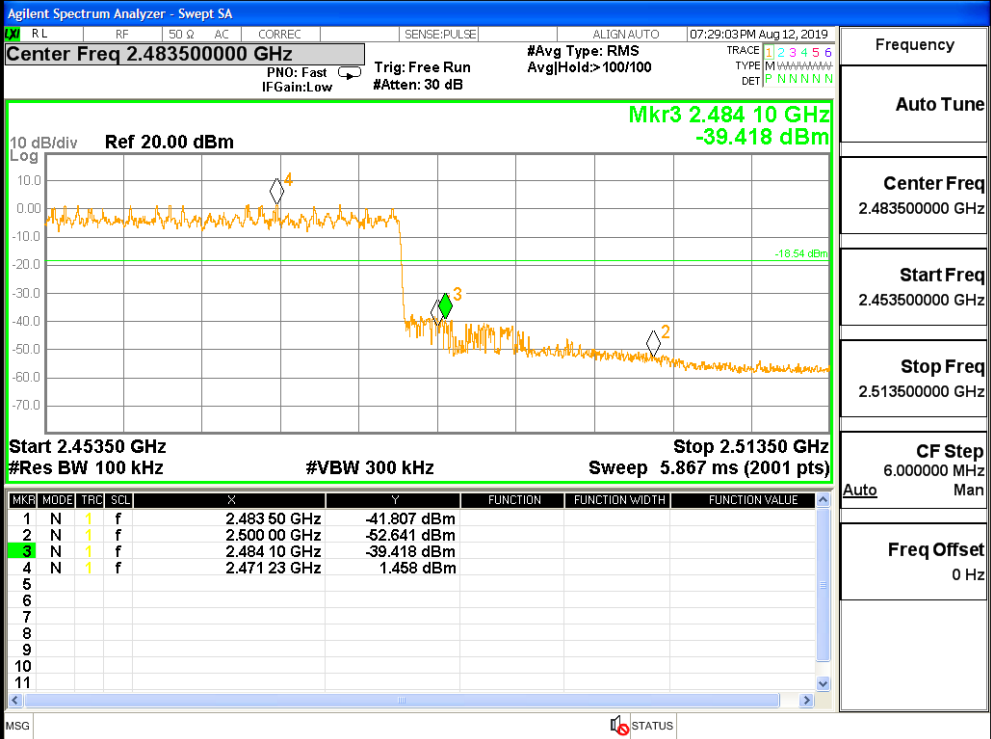
GFSK/HCH/Hop



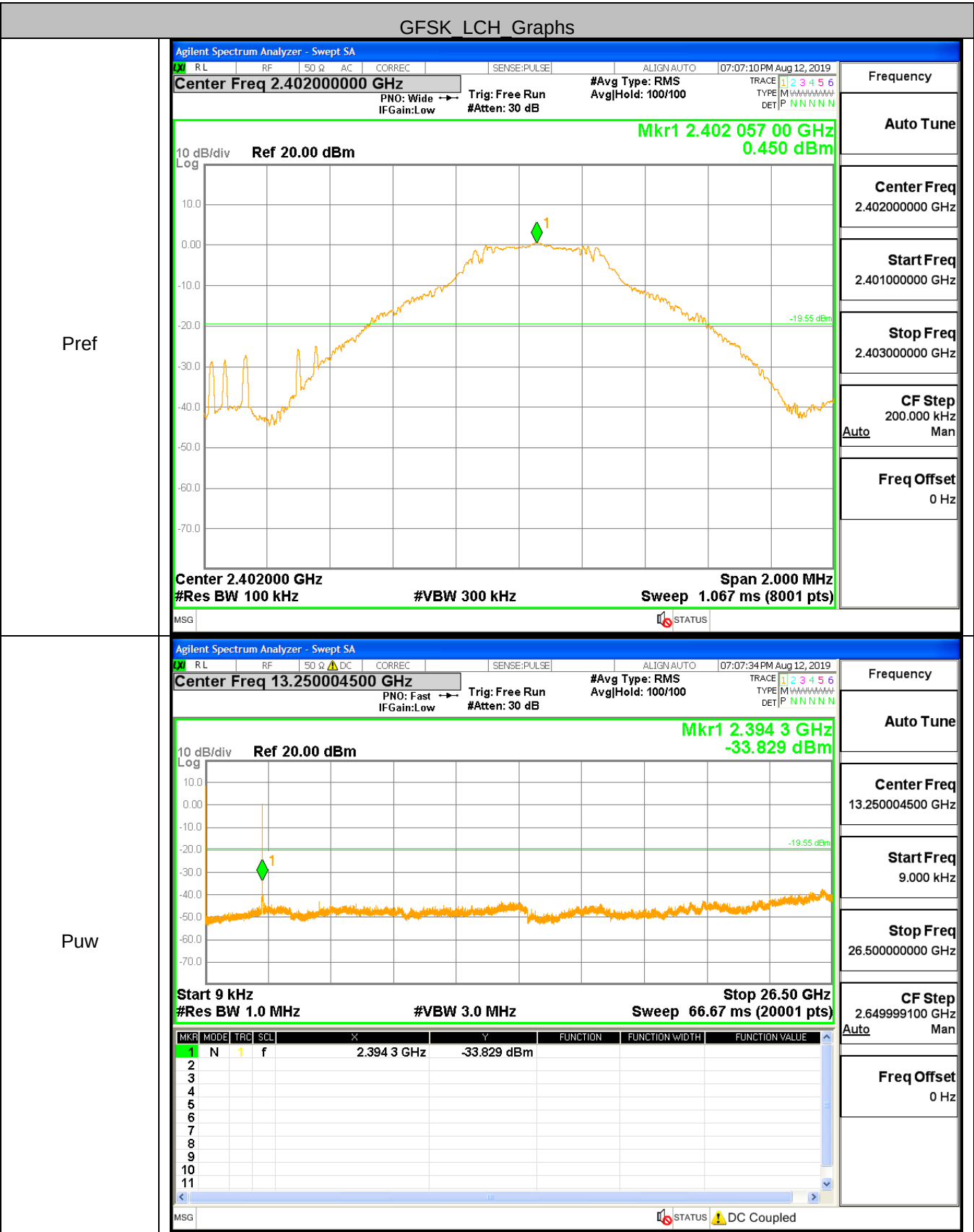
π /4DQPSK/LCH/Hop



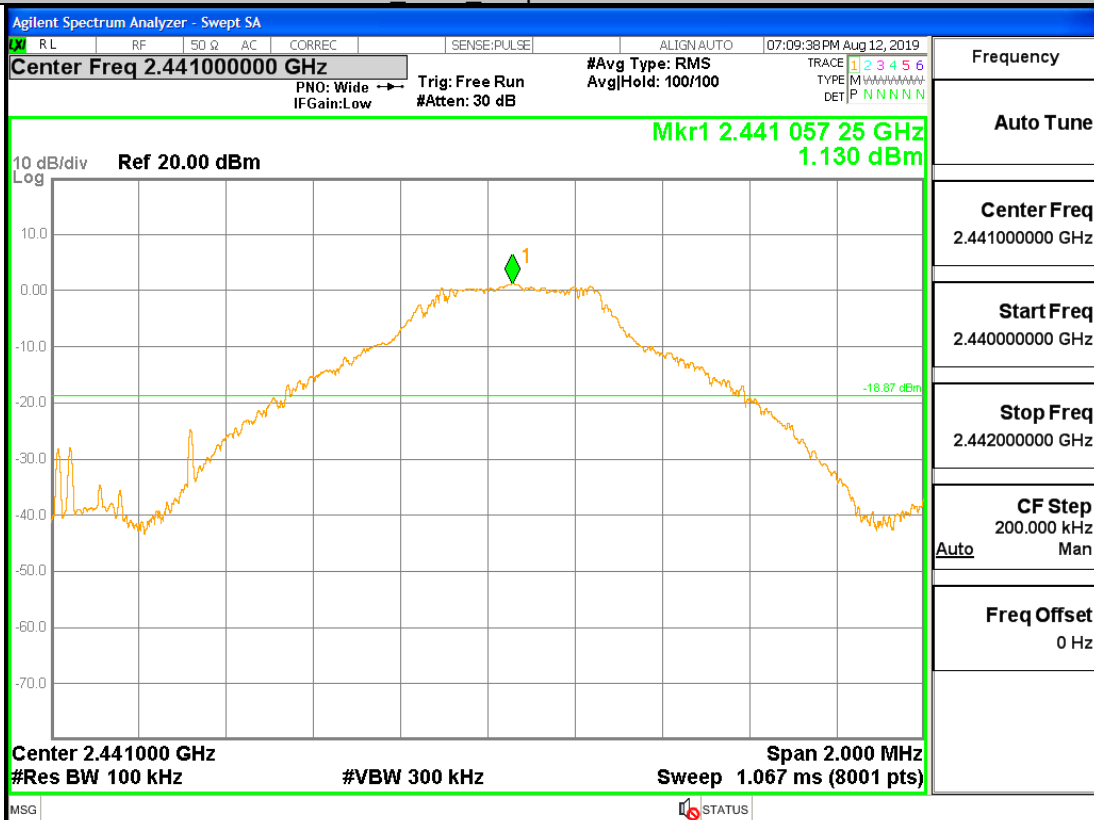
π /4DQPSK/HCH/Hop



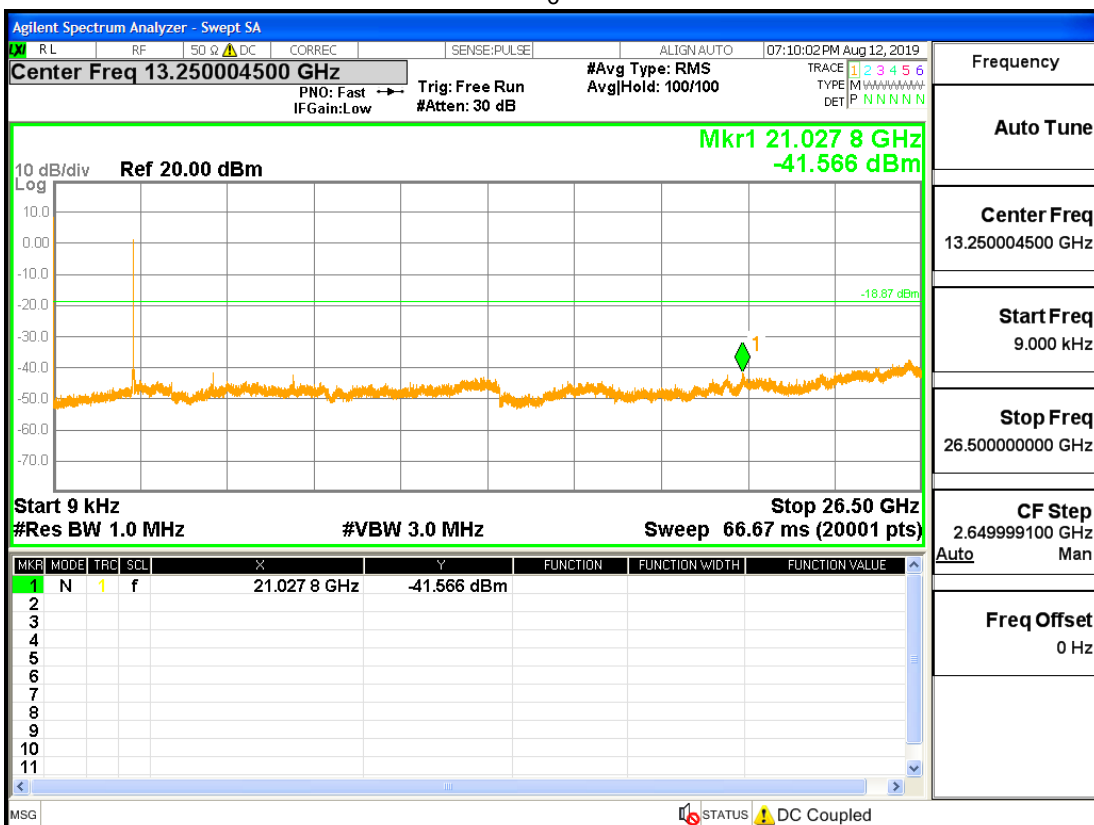
A.7 RF Conducted Spurious Emissions
Test Graph



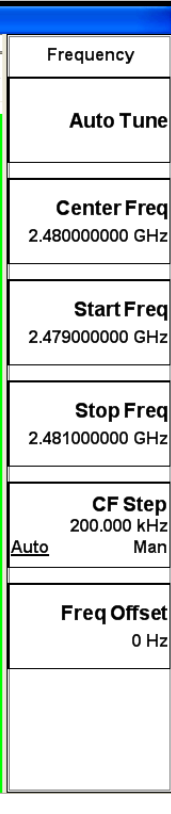
GFSK MCH Graphs



0

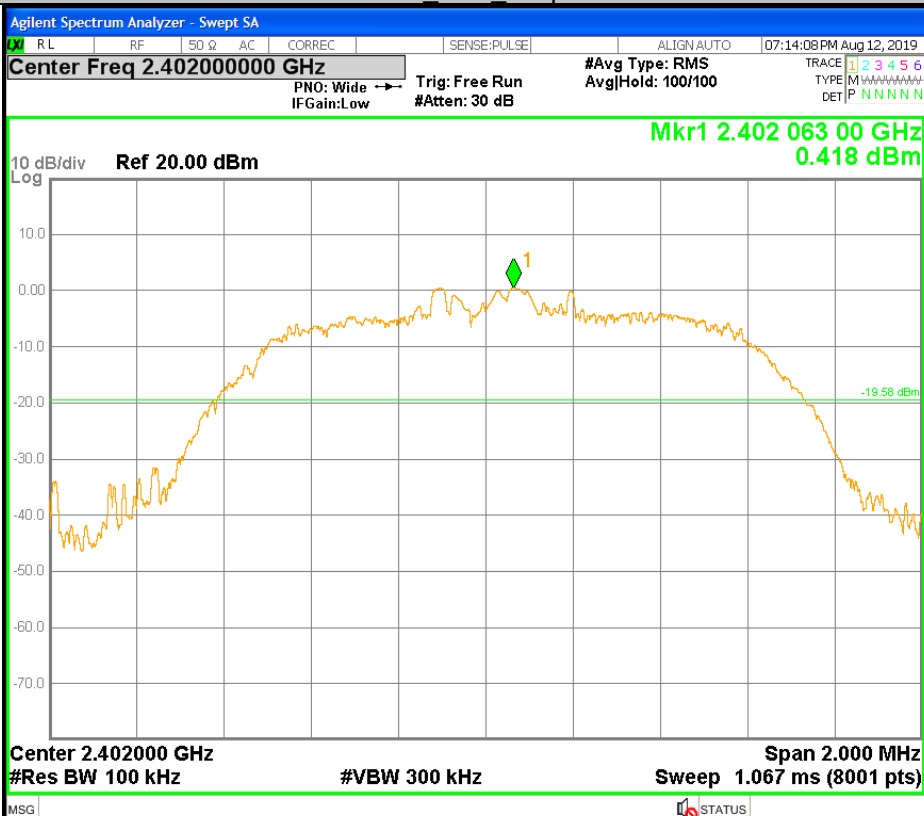


GFSK HCH Graphs

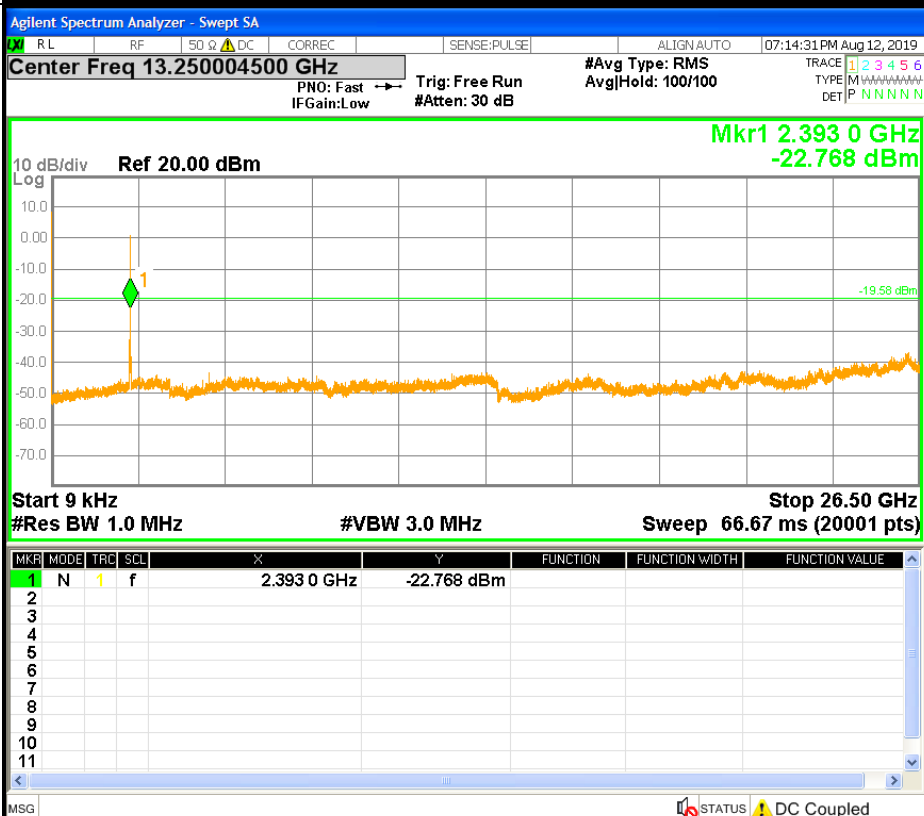


Frequency	
Auto Tune	
Center Freq 13.250004500 GHz	
Start Freq 9.000 kHz	
Stop Freq 26.500000000 GHz	
CF Step 2.649999100 GHz	Auto
Freq Offset 0 Hz	

$\pi/4$ DQPSK LCH Graphs

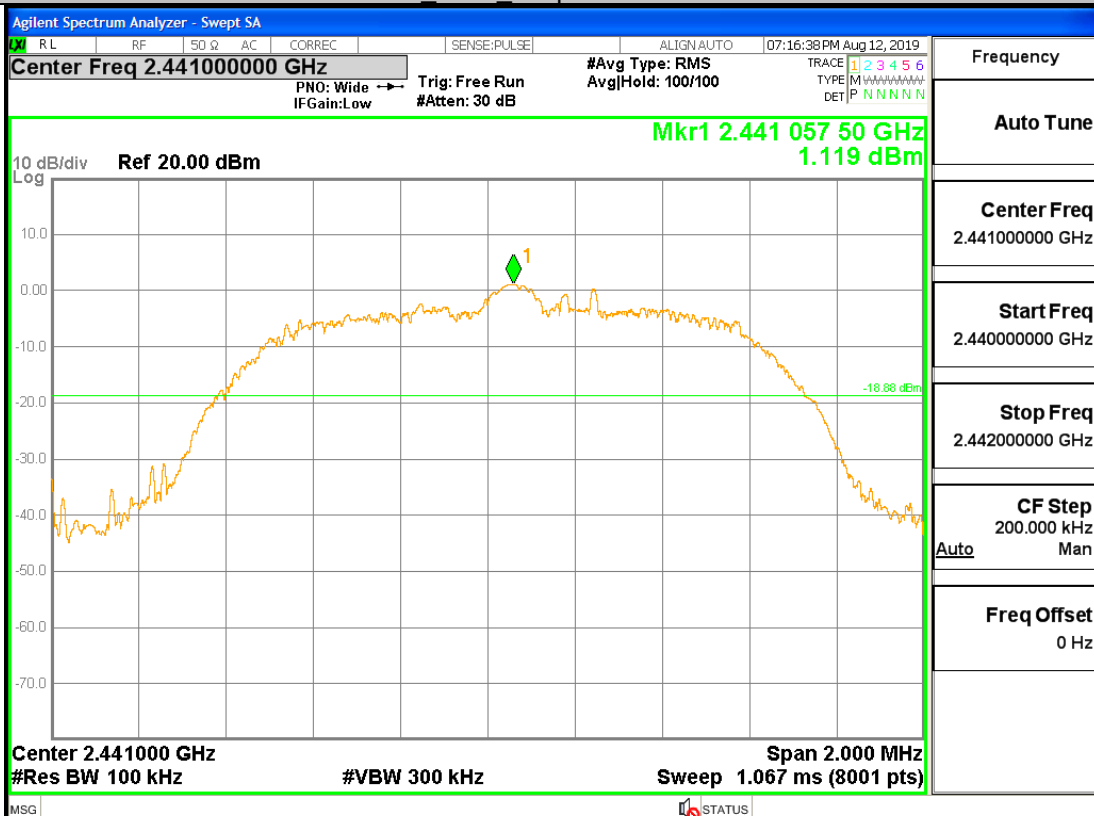


Frequency	
Auto Tune	
Center Freq	2.402000000 GHz
Start Freq	2.401000000 GHz
Stop Freq	2.403000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

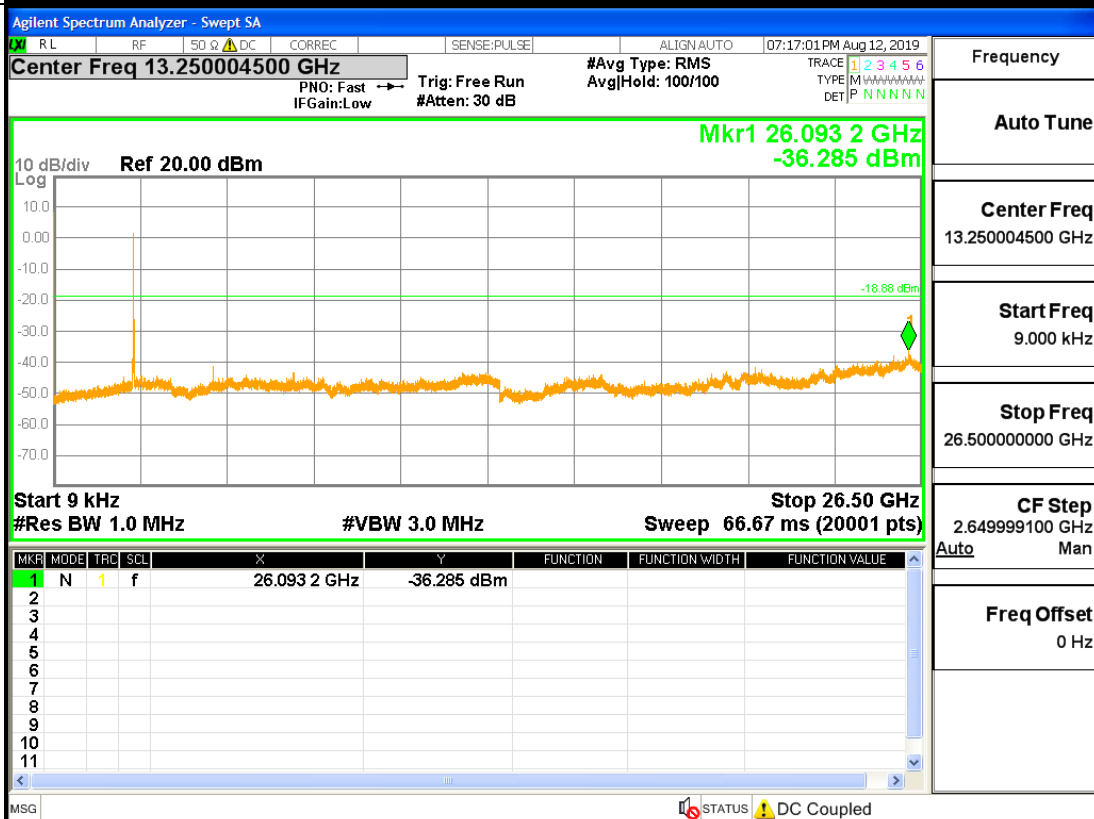


Frequency	
Auto Tune	
Center Freq	13.250004500 GHz
Start Freq	9.000 kHz
Stop Freq	26.500000000 GHz
CF Step	2.649999100 GHz
Auto	Man
Freq Offset	0 Hz

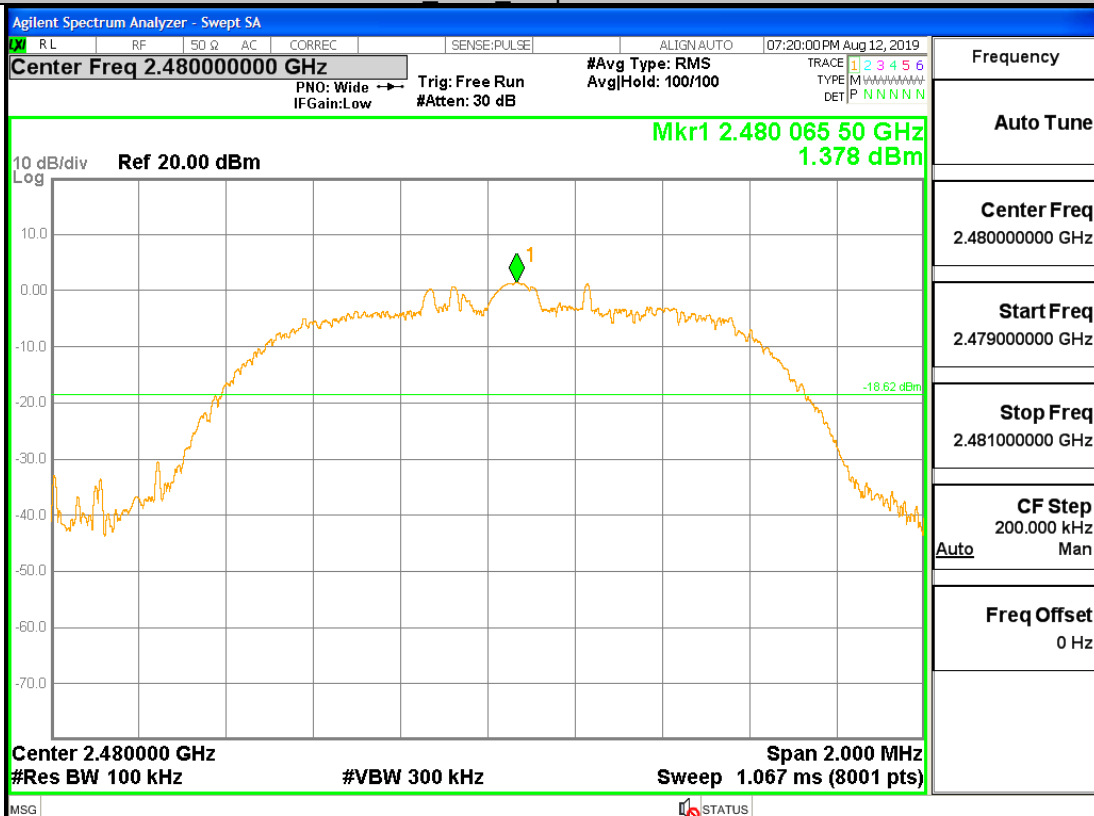
$\pi/4$ DQPSK MCH Graphs



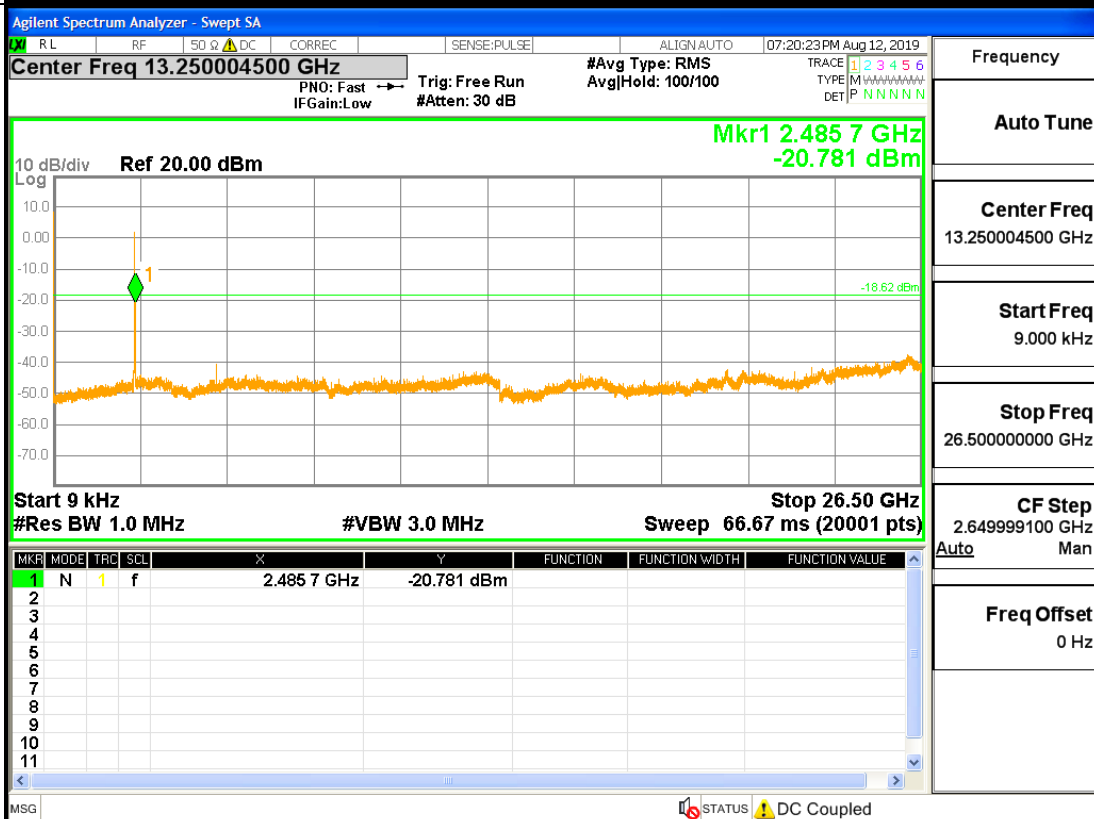
PuW



$\pi/4$ DQPSK HCH Graphs



PuW

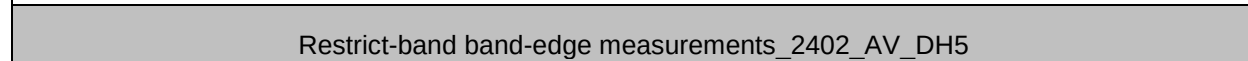


A.8 Restrict-band measurements

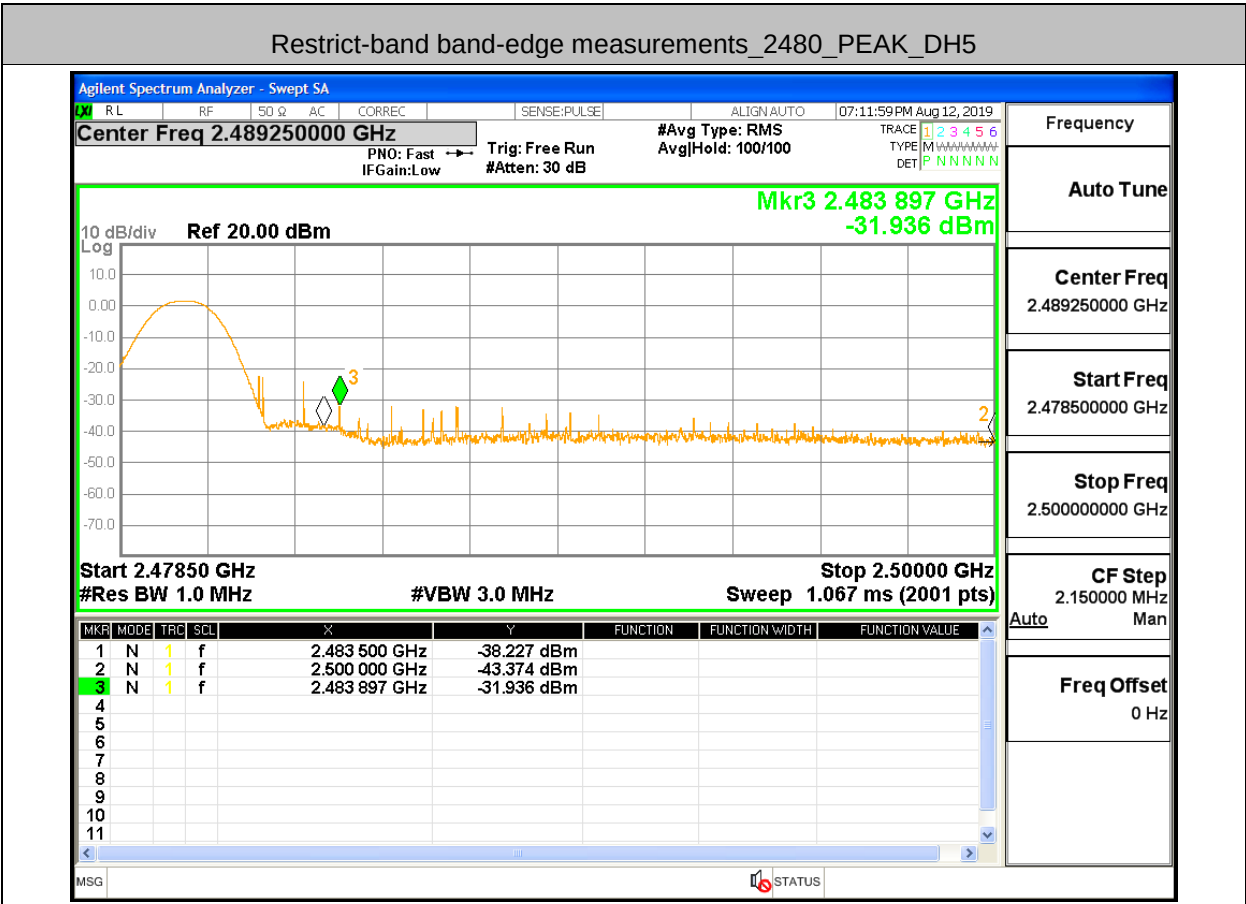
Type	Carrier Frequency (MHz)	Frequency(M Hz)	Gain	Ground Factor	Peak Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2388.77	2.00	0.00	-37.15	60.05	74	Pass
1DH5	2480	2483.90	2.00	0.00	-31.94	65.26	74	Pass
2DH5	2402	2387.89	2.00	0.00	-28.09	69.11	74	Pass
2DH5	2480	2483.50	2.00	0.00	-35.97	61.23	74	Pass

Type	Carrier Frequency (MHz)	Frequency(M Hz)	Gain	Ground Factor	Average Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2388.77	2.00	0.00	-50.37	46.83	54	Pass
1DH5	2480	2483.90	2.00	0.00	-44.32	52.88	54	Pass
2DH5	2402	2387.89	2.00	0.00	-49.70	47.50	54	Pass
2DH5	2480	2484.38	2.00	0.00	-45.39	51.81	54	Pass

Restrict-band band-edge measurements_2402_PEAK_DH5



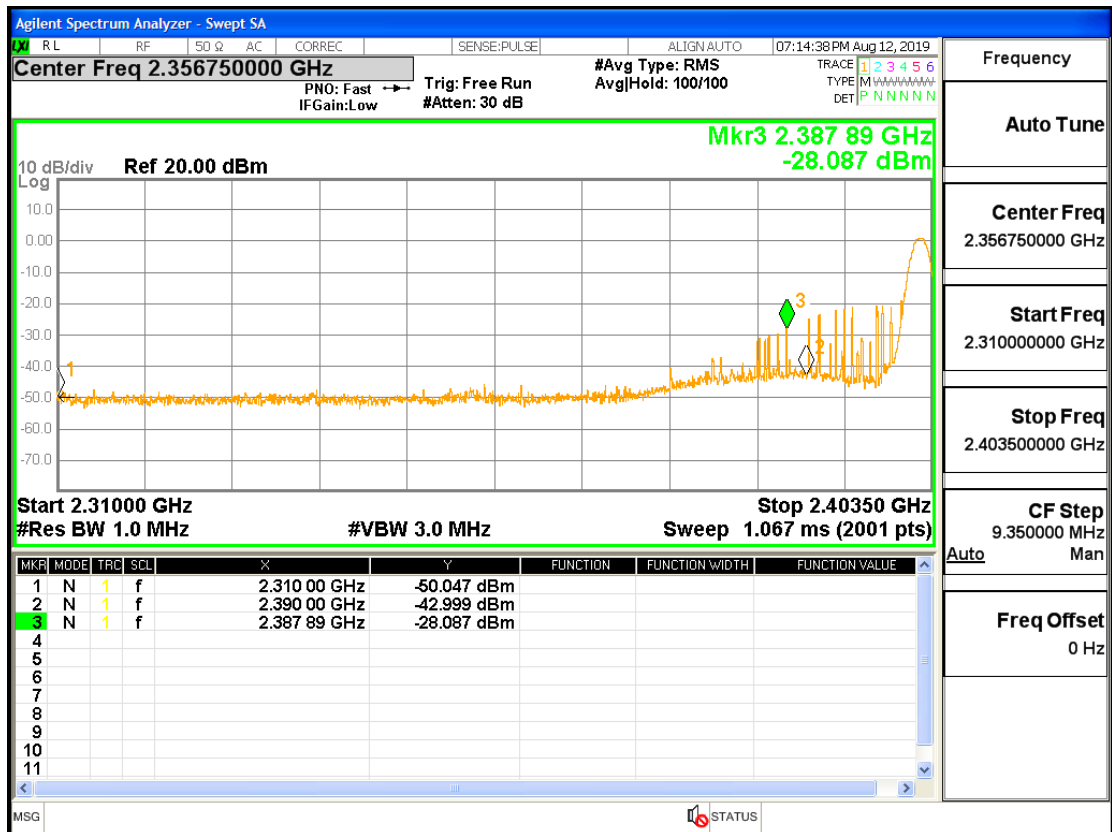
Restrict-band band-edge measurements_2480_PEAK_DH5



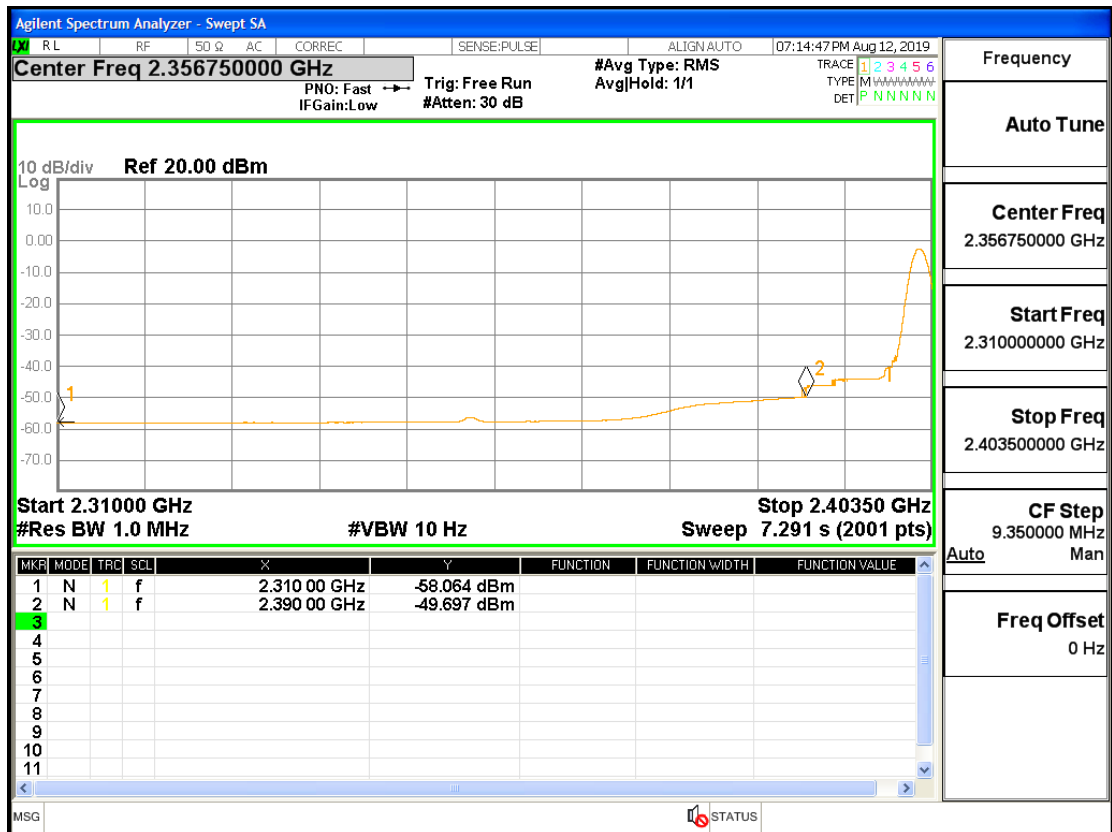
Restrict-band band-edge measurements_2480_AV_DH5



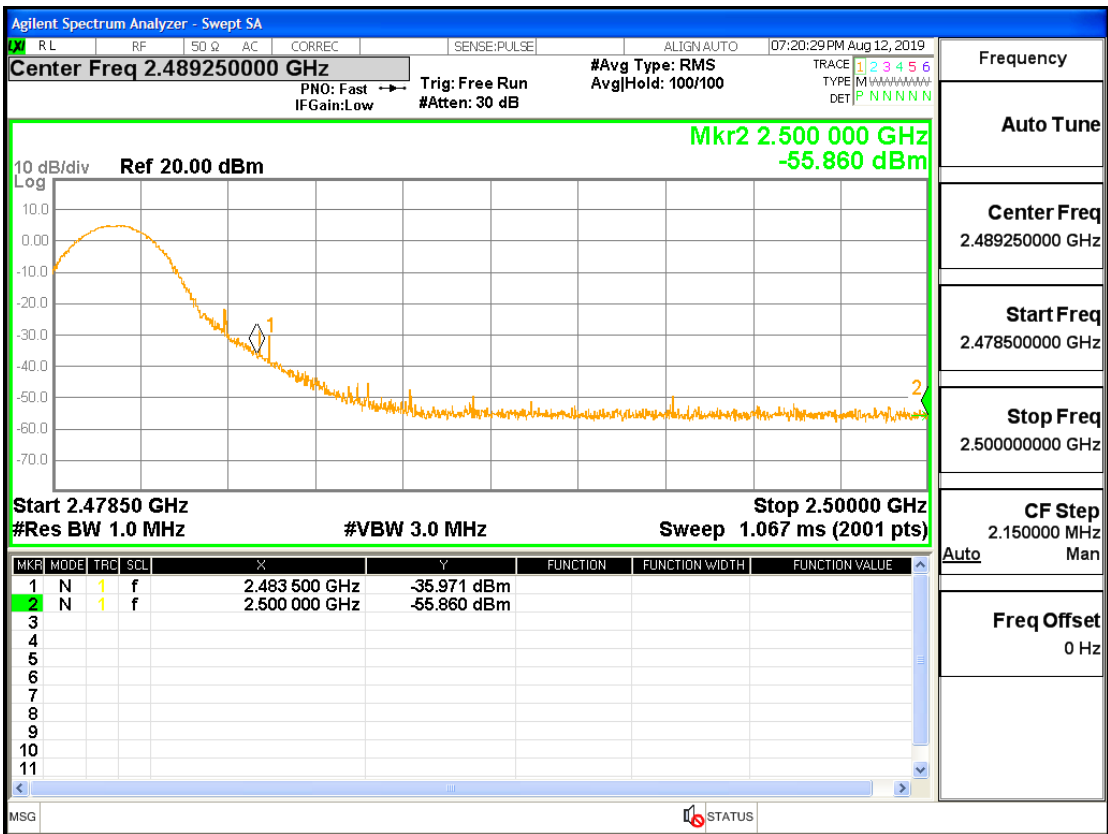
Restrict-band band-edge measurements_2402_PEAK_2DH5



Restrict-band band-edge measurements_2402_AV_2DH5



Restrict-band band-edge measurements_2480_PEAK_2DH5



Restrict-band band-edge measurements_2480_AV_2DH5

