

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

Product Name: Bluetooth Headphone

Trade Mark: N/A

Test Model: W08

FCC ID: QIF-W08

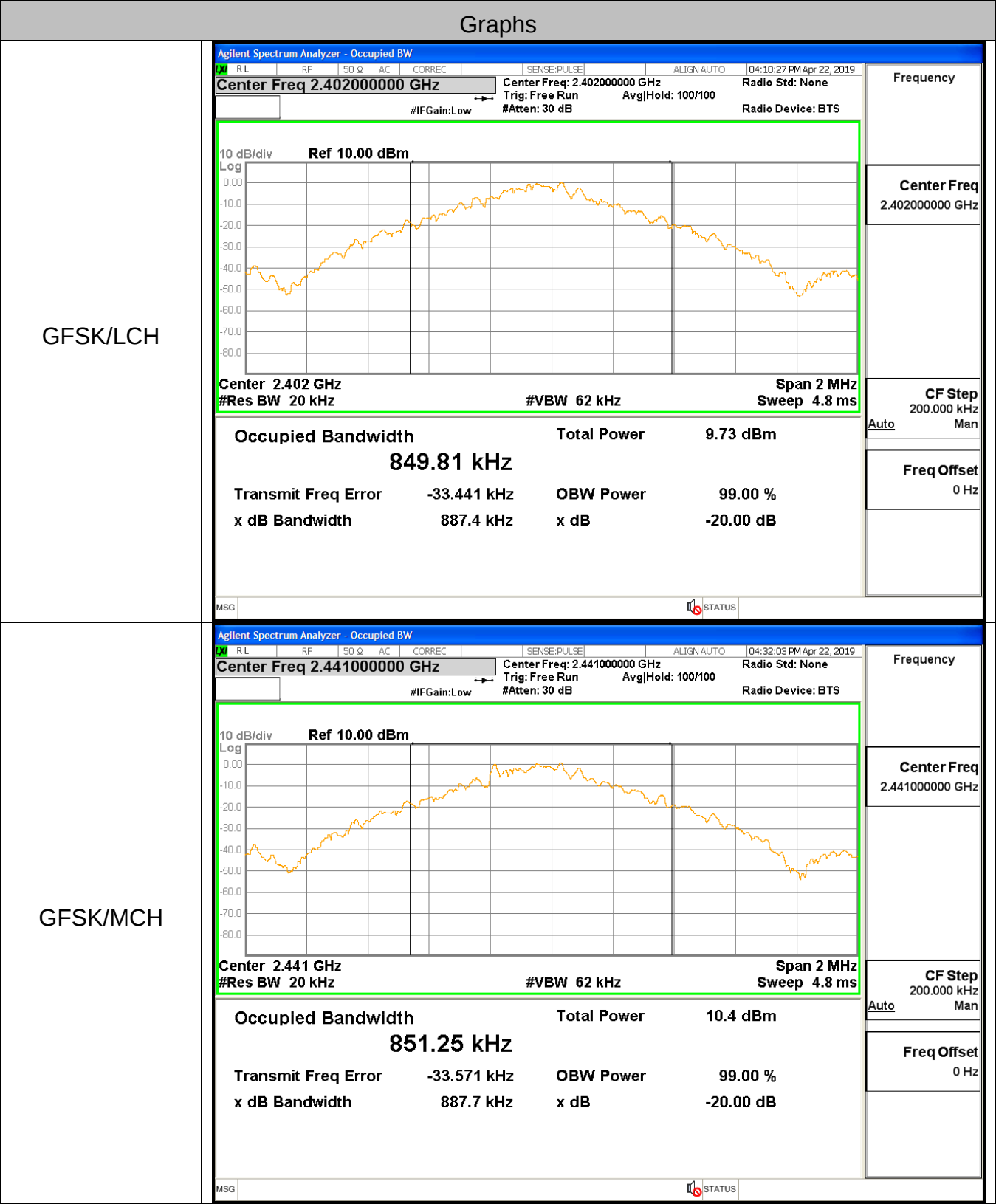
Environmental Conditions

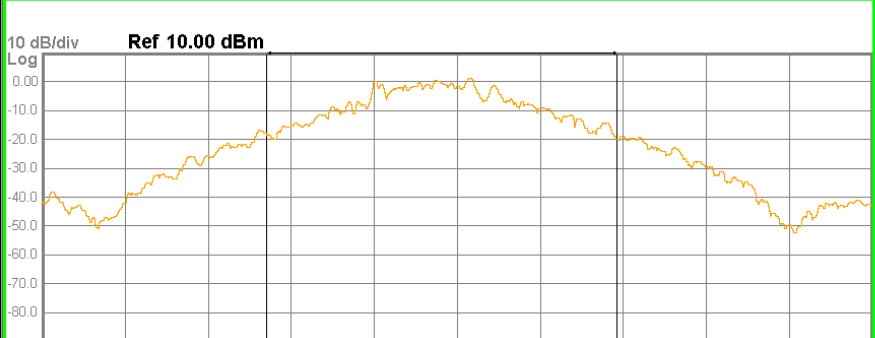
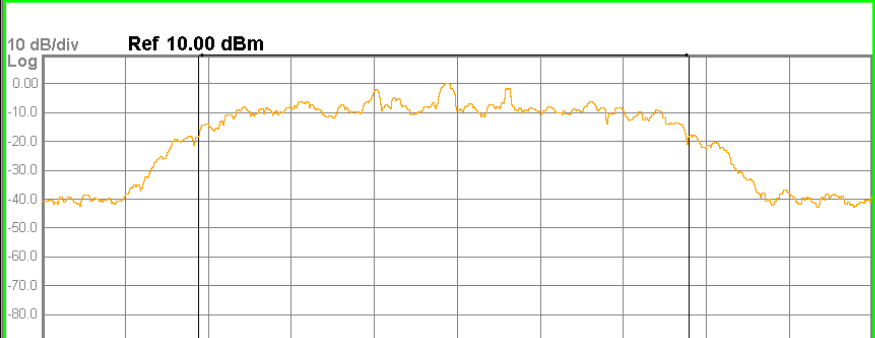
Temperature:	24.1℃
Relative Humidity:	55%
ATM Pressure:	100.0 kPa
Test Engineer:	Gary Qian
Supervised by:	Eden Hu

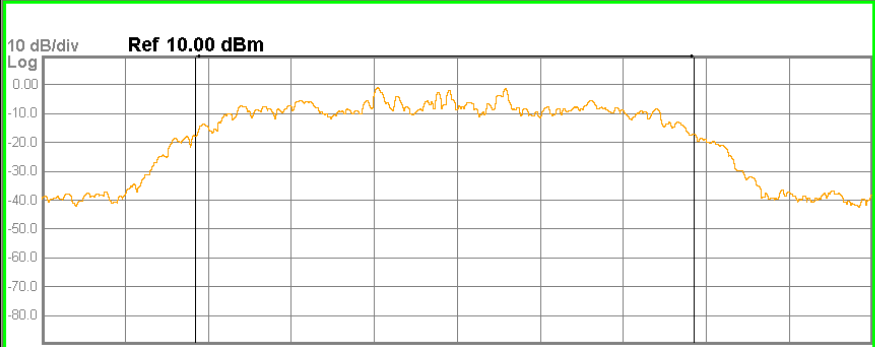
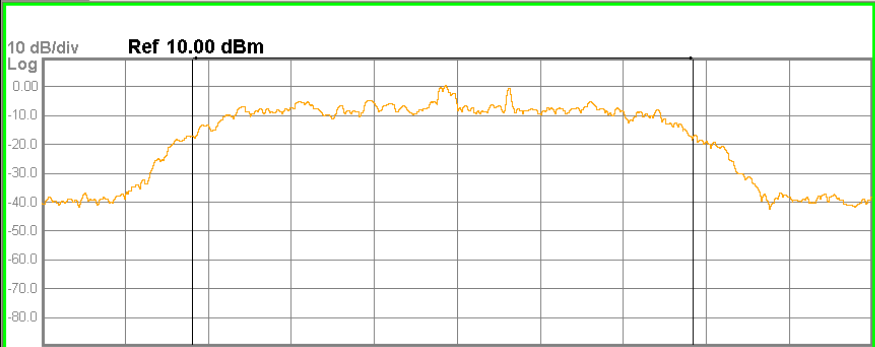
A.1 20 dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit(MHz)	Verdict
GFSK	LCH	0.887	Not Specified	PASS
GFSK	MCH	0.888	Not Specified	PASS
GFSK	HCH	0.883	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.264	Not Specified	PASS
$\pi/4$ DQPSK	MCH	1.332	Not Specified	PASS
$\pi/4$ DQPSK	HCH	1.304	Not Specified	PASS

Test Graph



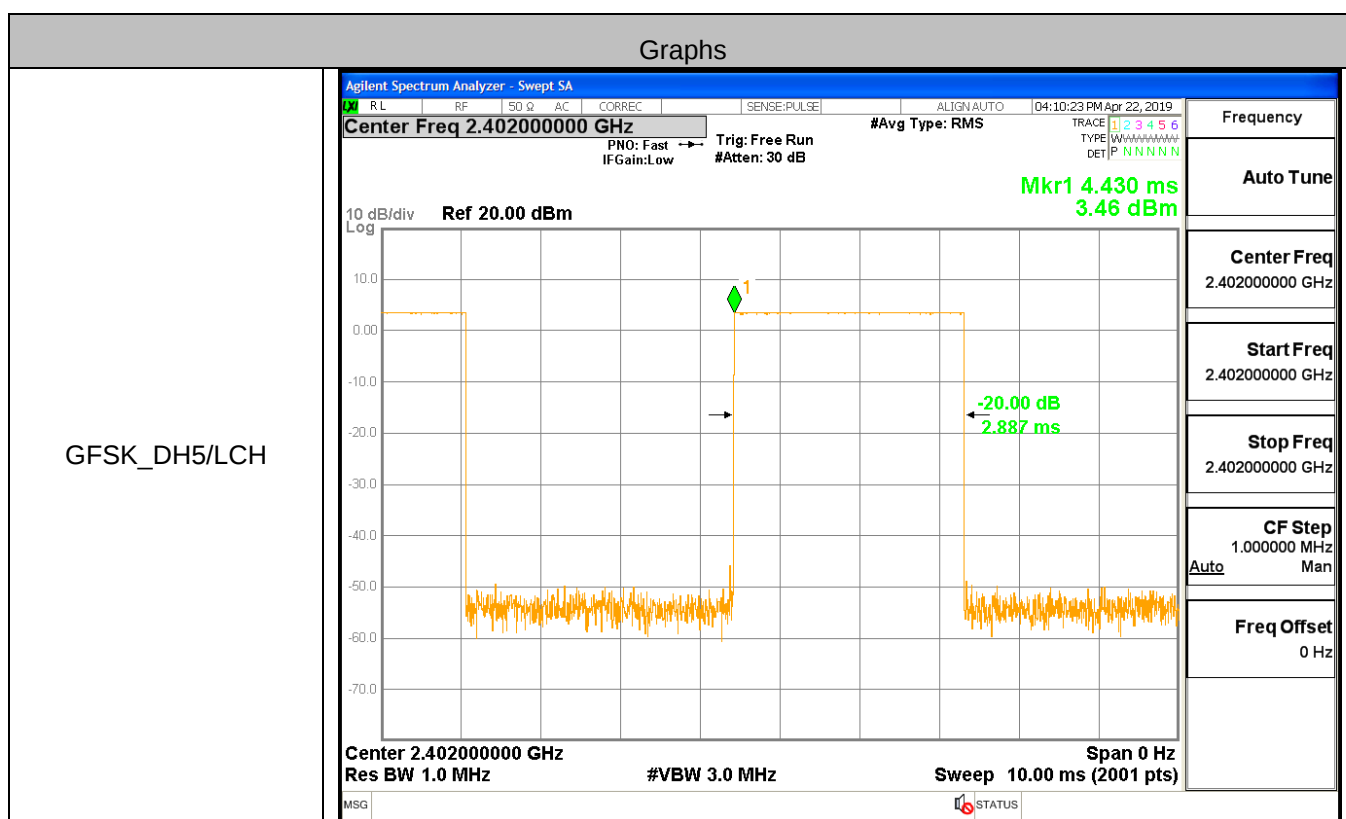
GFSK/HCH	Agilent Spectrum Analyzer - Occupied BW Center Freq 2.480000000 GHz Center Freq: 2.480000000 GHz Trig: Free Run #IFGain: Low #Atten: 30 dB ALIGN AUTO Radio Std: None Radio Device: BTS 10 dB/div Ref 10.00 dBm  Center 2.48 GHz #Res BW 20 kHz #VBW 62 kHz Span 2 MHz Sweep 4.8 ms Occupied Bandwidth 842.00 kHz Total Power 10.8 dBm Transmit Freq Error -37.659 kHz OBW Power 99.00 % x dB Bandwidth 883.2 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 ALIGN AUTO Radio Std: None 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 1.1816 MHz Total Power 9.47 dBm Transmit Freq Error -32.947 kHz OBW Power 99.00 % x dB Bandwidth 1.264 MHz x dB -20.00 dB MSG STATUS

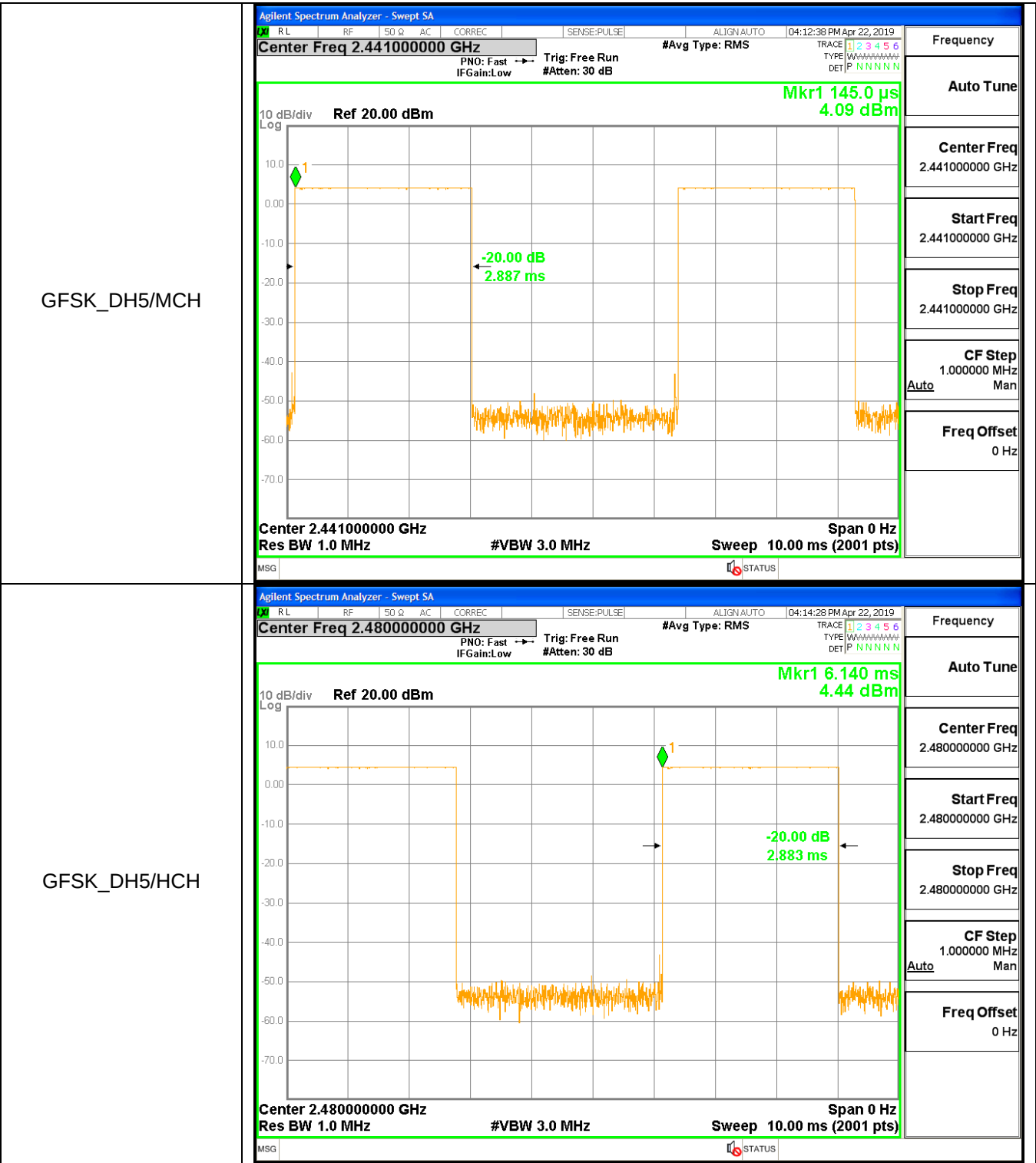
$\pi/4$ DQPSK/MCH	Agilent Spectrum Analyzer - Occupied BW Center Freq 2.441000000 GHz Center Freq: 2.441000000 GHz Trig: Free Run Avg/Hold: 100/100 Radio Std: None Radio Device: BTS 10 dB/div Ref 10.00 dBm  Center 2.441 GHz #Res BW 20 kHz #VBW 62 kHz Span 2 MHz Sweep 4.8 ms Occupied Bandwidth 1.1988 MHz Total Power 9.66 dBm Transmit Freq Error -29.124 kHz OBW Power 99.00 % x dB Bandwidth 1.332 MHz x dB -20.00 dB Frequency Center Freq 2.441000000 GHz CF Step 200.000 kHz Man Freq Offset 0 Hz
	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 1.2009 MHz Total Power 10.0 dBm Transmit Freq Error -33.242 kHz OBW Power 99.00 % x dB Bandwidth 1.304 MHz x dB -20.00 dB Frequency Center Freq 2.480000000 GHz CF Step 200.000 kHz Man Freq Offset 0 Hz

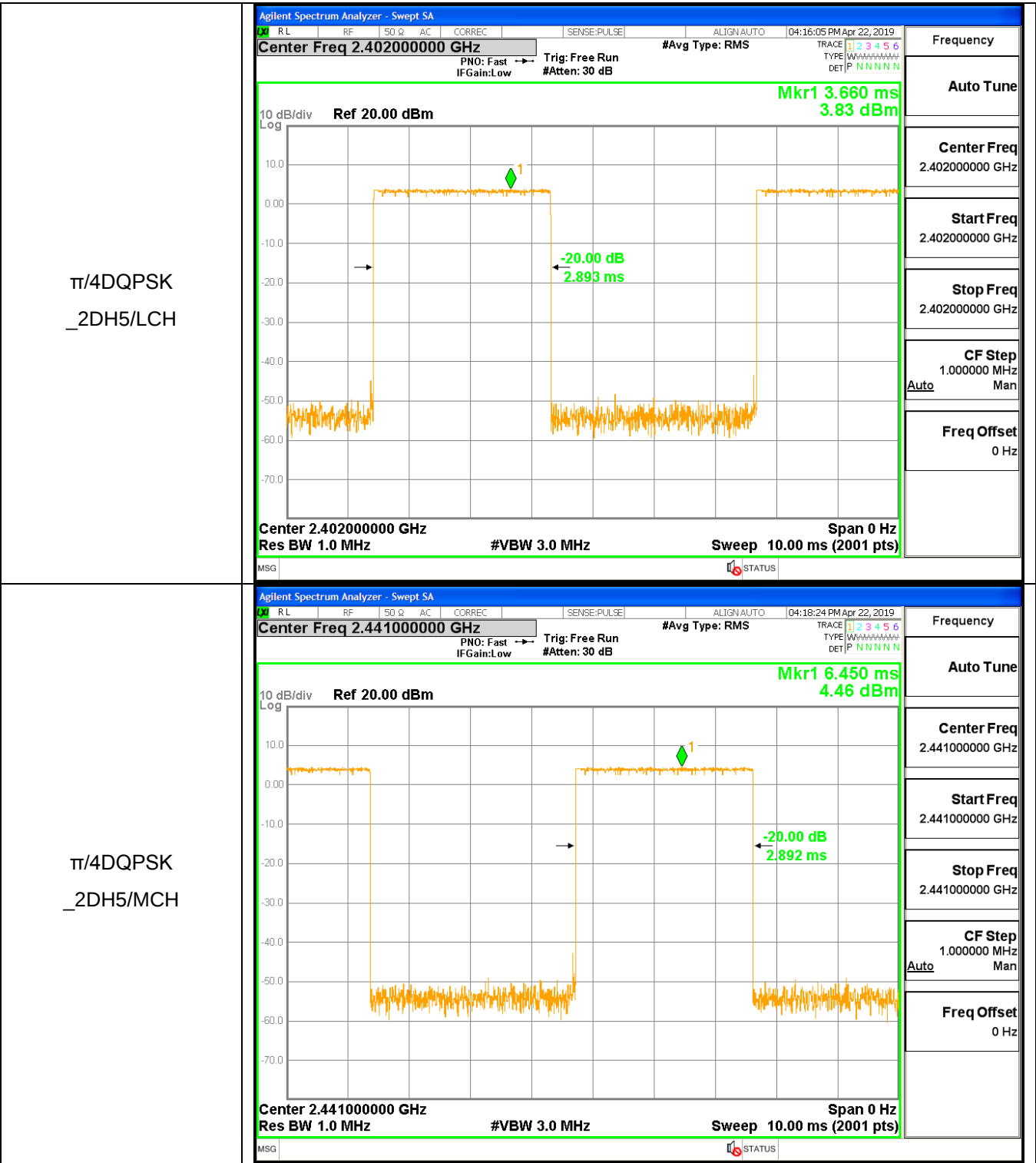
A.2 Dwell Time

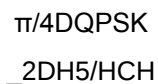
Mode	Packet	Channel	Burst Width [s/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	0.002887	106.7	0.308081	0.4	PASS
GFSK	DH5	MCH	0.002887	106.7	0.308033	0.4	PASS
GFSK	DH5	HCH	0.002883	106.7	0.307653	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	0.002893	106.7	0.308672	0.4	PASS
$\pi/4$ DQPSK	2DH5	MCH	0.002892	106.7	0.308623	0.4	PASS
$\pi/4$ DQPSK	2DH5	HCH	0.002893	106.7	0.308677	0.4	PASS

Test Graph





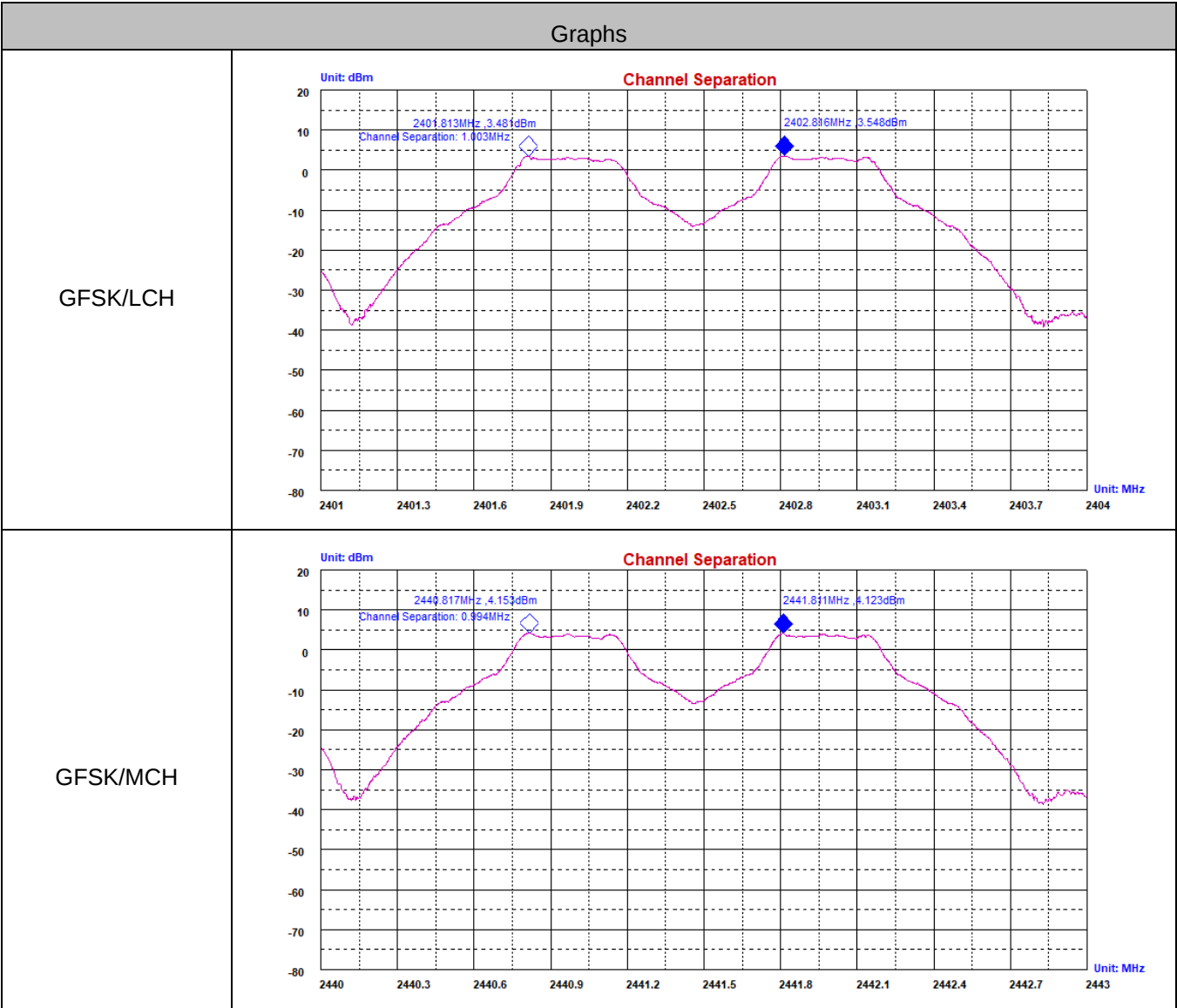


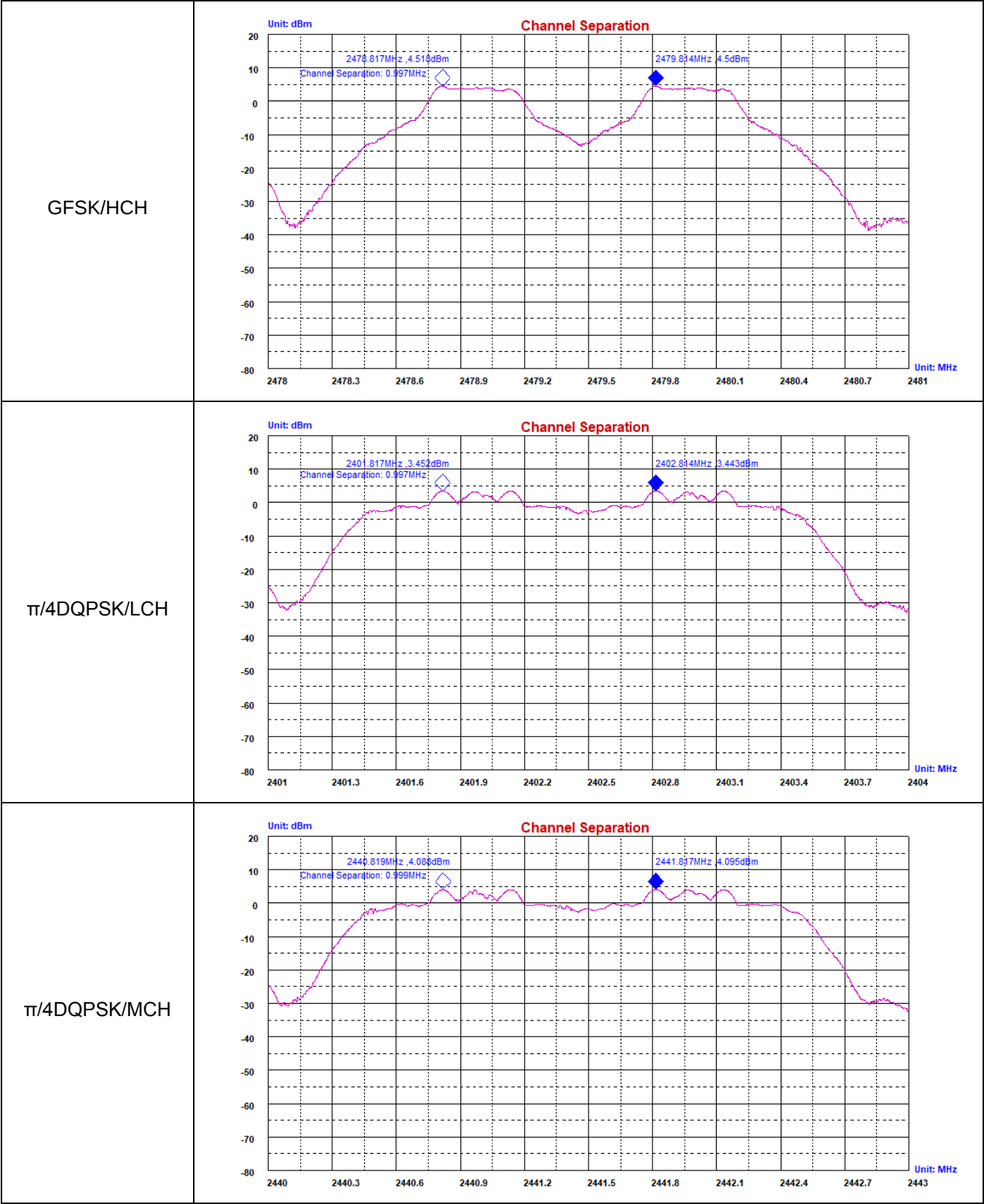


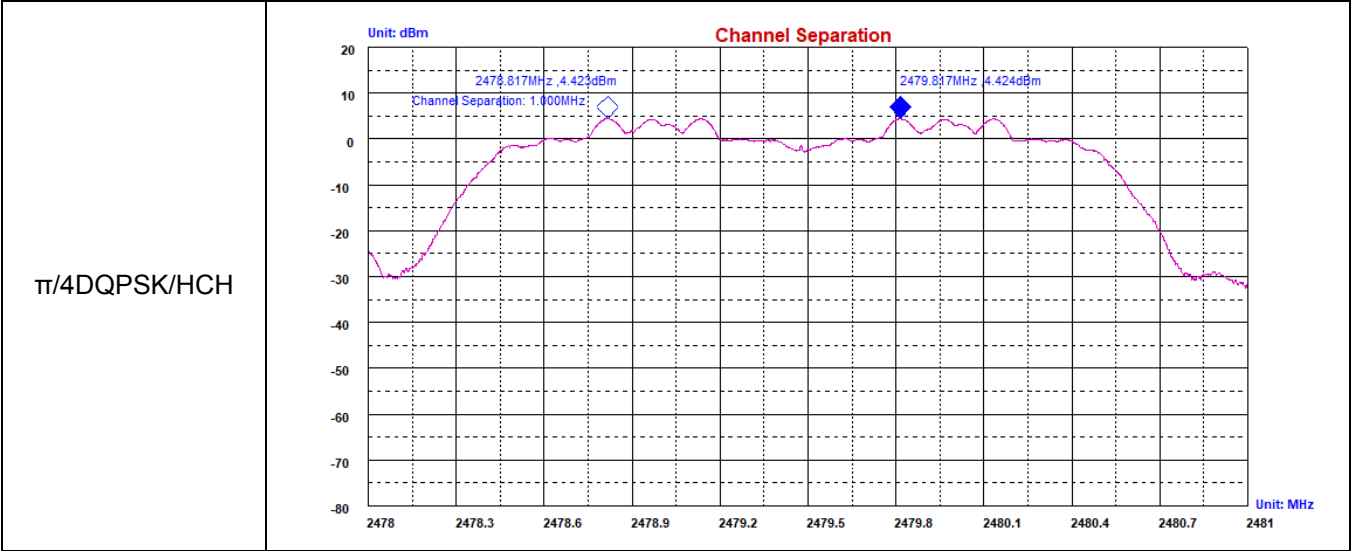
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.003	0.591	PASS
GFSK	MCH	0.994	0.592	PASS
GFSK	HCH	1.060	0.589	PASS
π /4DQPSK	LCH	0.997	0.843	PASS
π /4DQPSK	MCH	0.999	0.888	PASS
π /4DQPSK	HCH	1.000	0.869	PASS

Test Graph



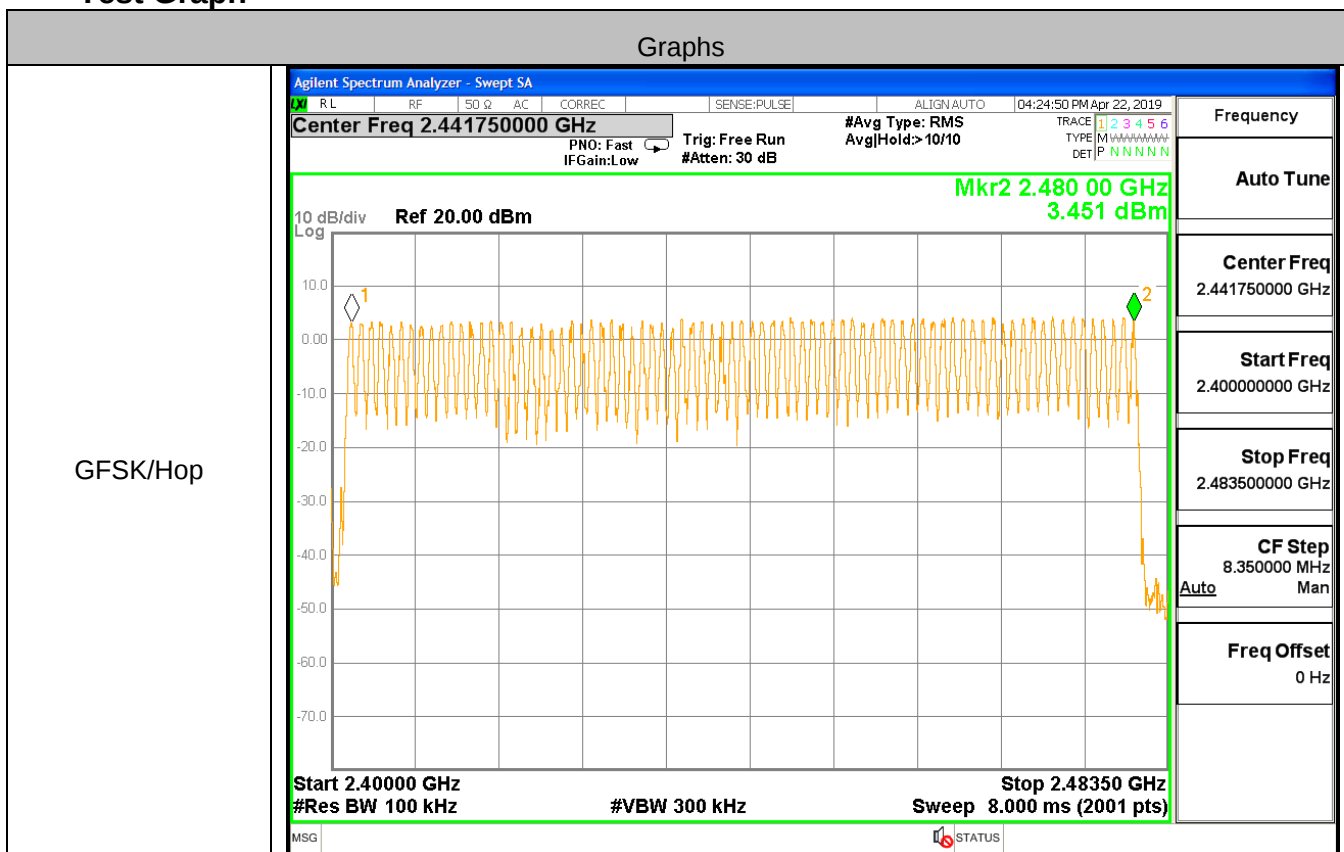


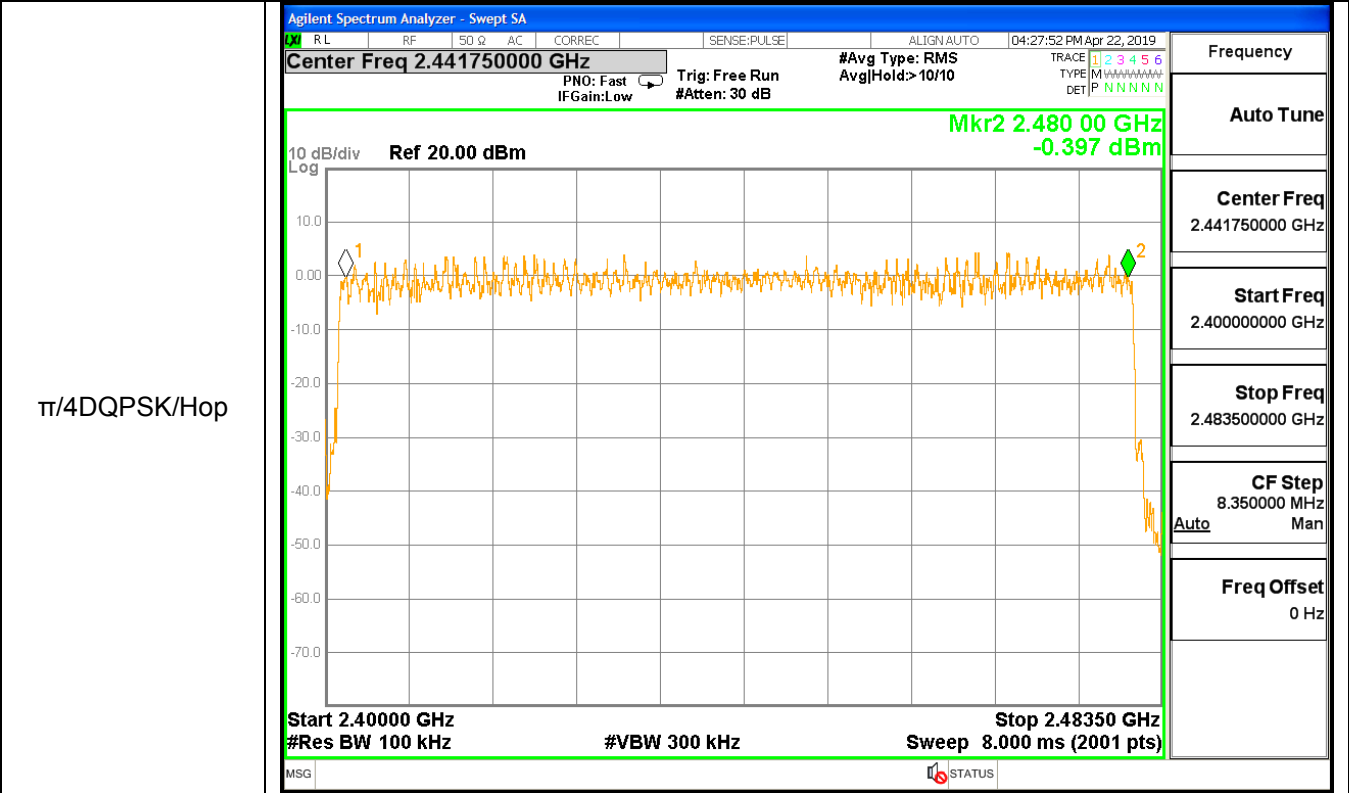


A.4 Hopping Channel Number

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

Test Graph

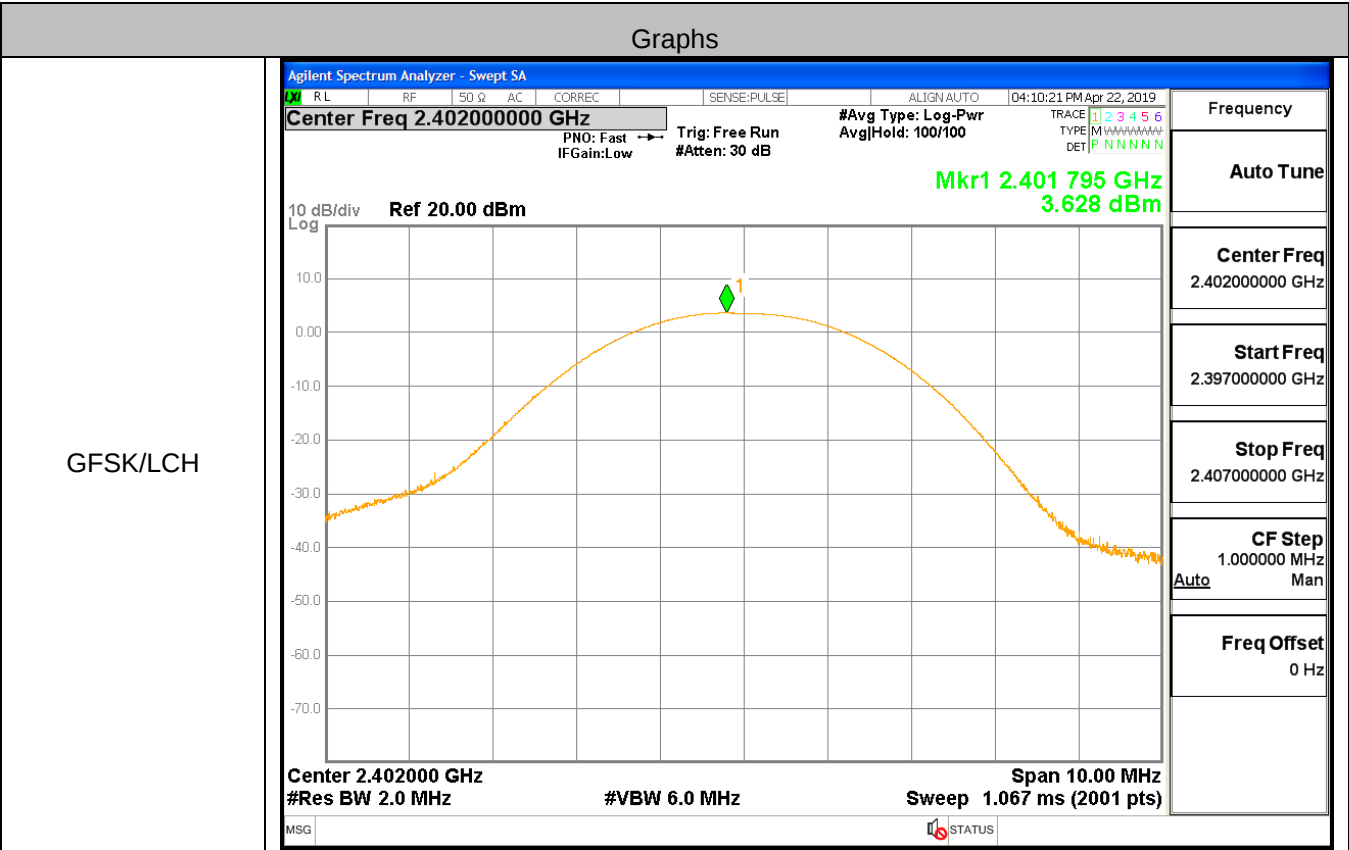


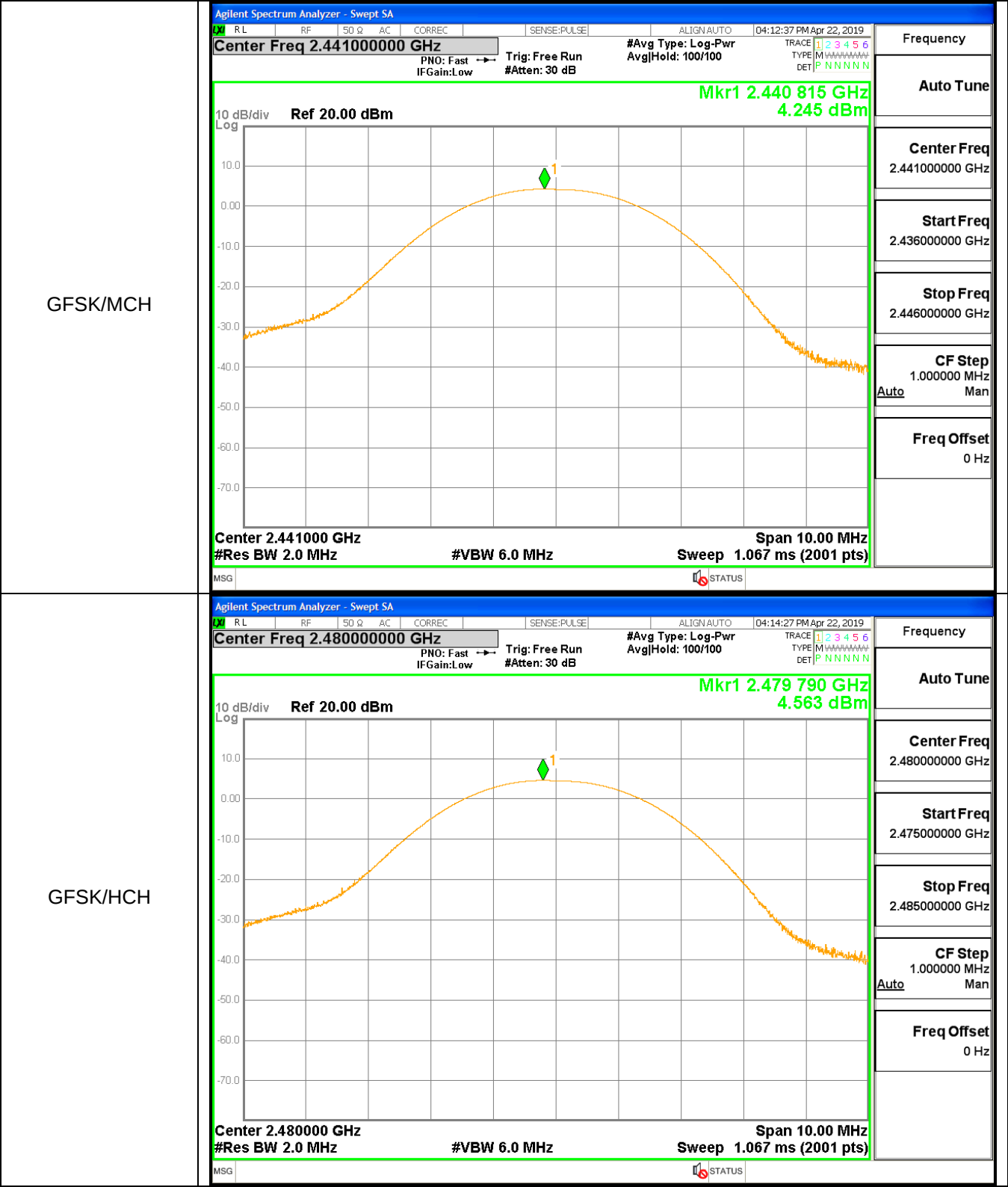


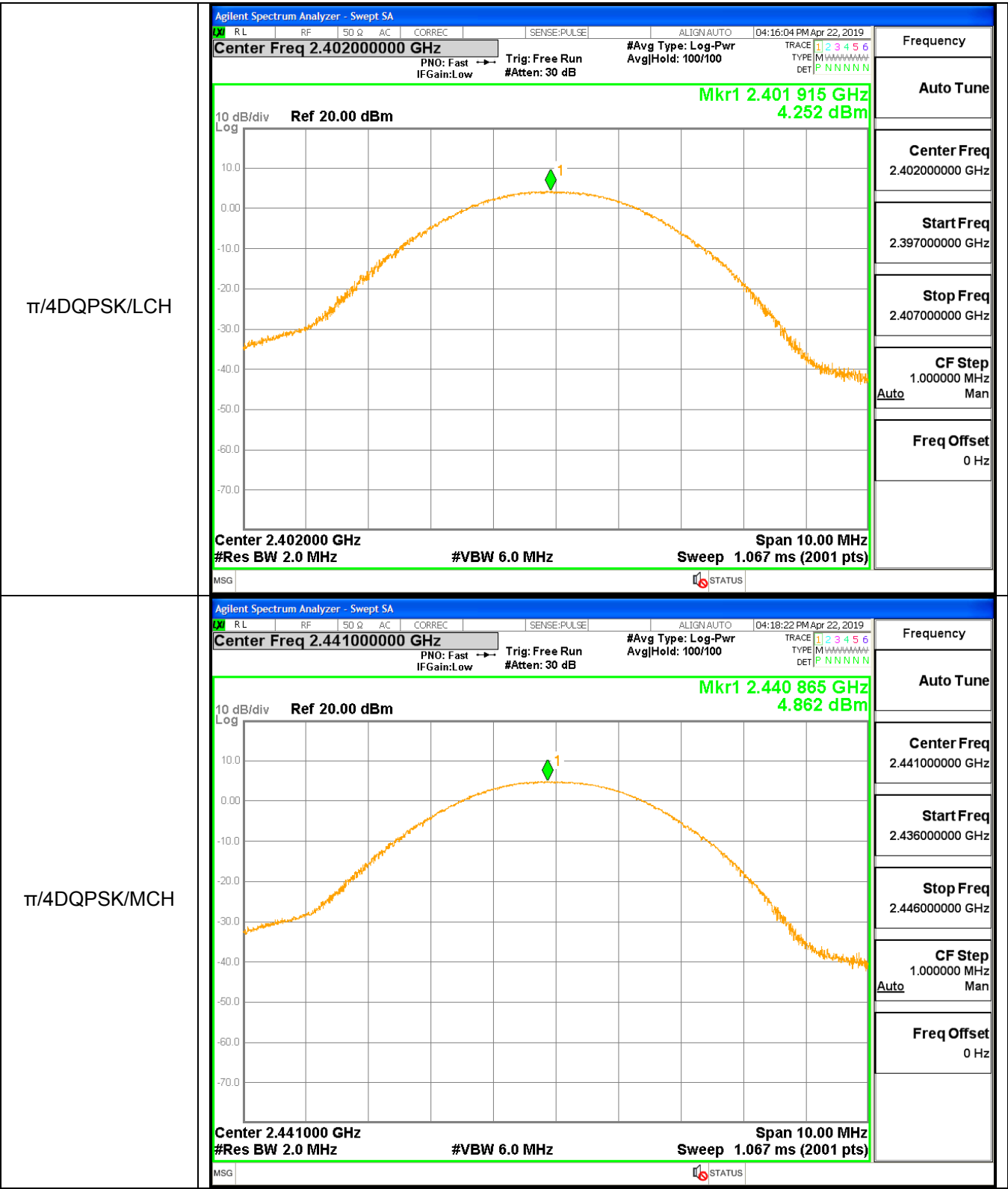
A.5 Conducted Peak Output Power

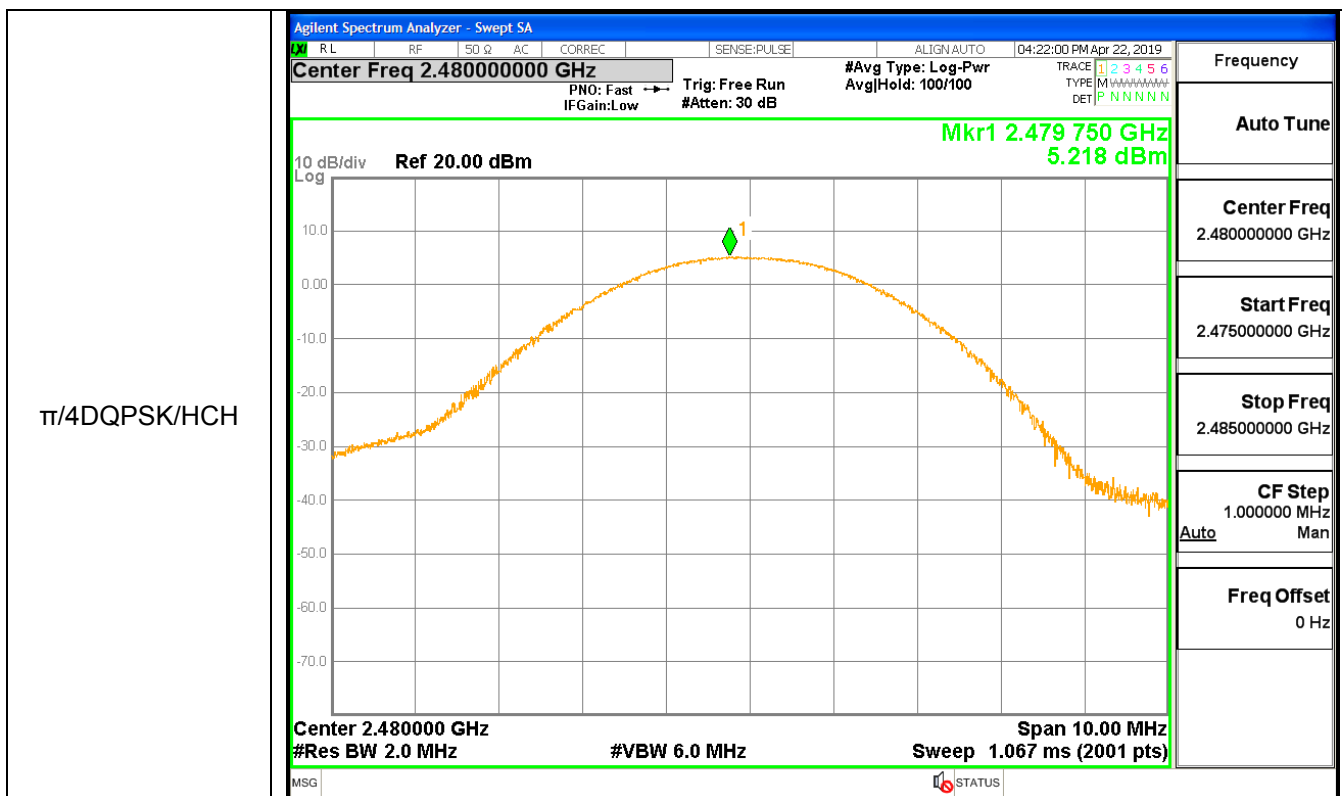
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	3.628	21	PASS
GFSK	MCH	4.245	21	PASS
GFSK	HCH	4.563	21	PASS
$\pi/4$ DQPSK	LCH	4.252	21	PASS
$\pi/4$ DQPSK	MCH	4.862	21	PASS
$\pi/4$ DQPSK	HCH	5.218	21	PASS

Test Graph









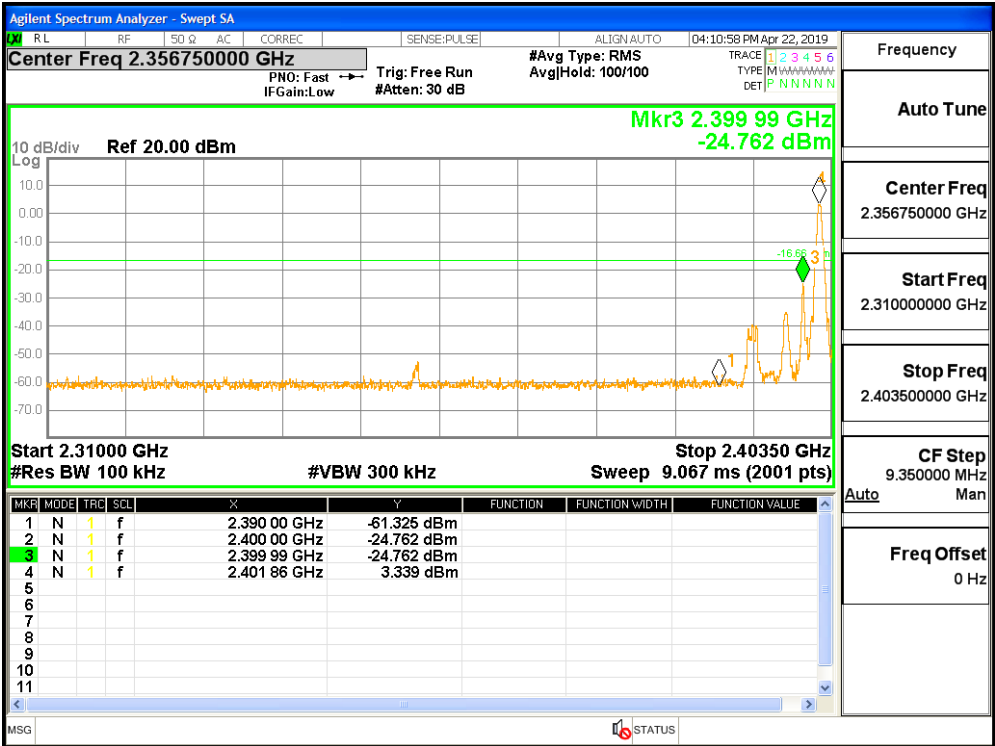
A.6 Band-edge for RF Conducted Emissions

Type	Carrier Frequency(MHz)	Frequency(MHz)	Carrier Frequency Power [dBm]	Bandedge Peak(dBm)	Upper limit(dBm)	Conclusion
1DH5	2402	2400	3.34	-24.76	-16.66	Pass
1DH5	2480	2483.983	4.13	-44.22	-15.87	Pass
2DH5	2402	2400	0.65	-26.80	-19.35	Pass
2DH5	2480	2483.5	1.62	-46.62	-18.38	Pass
1DH5-Hopping	2402	2399.97	3.88	-27.61	-16.12	Pass
1DH5-Hopping	2480	2484.43	4.27	-44.24	-15.73	Pass
2DH5-Hopping	2402	2400	3.23	-24.59	-16.77	Pass
2DH5-Hopping	2480	2486.14	4.22	-47.82	-15.78	Pass

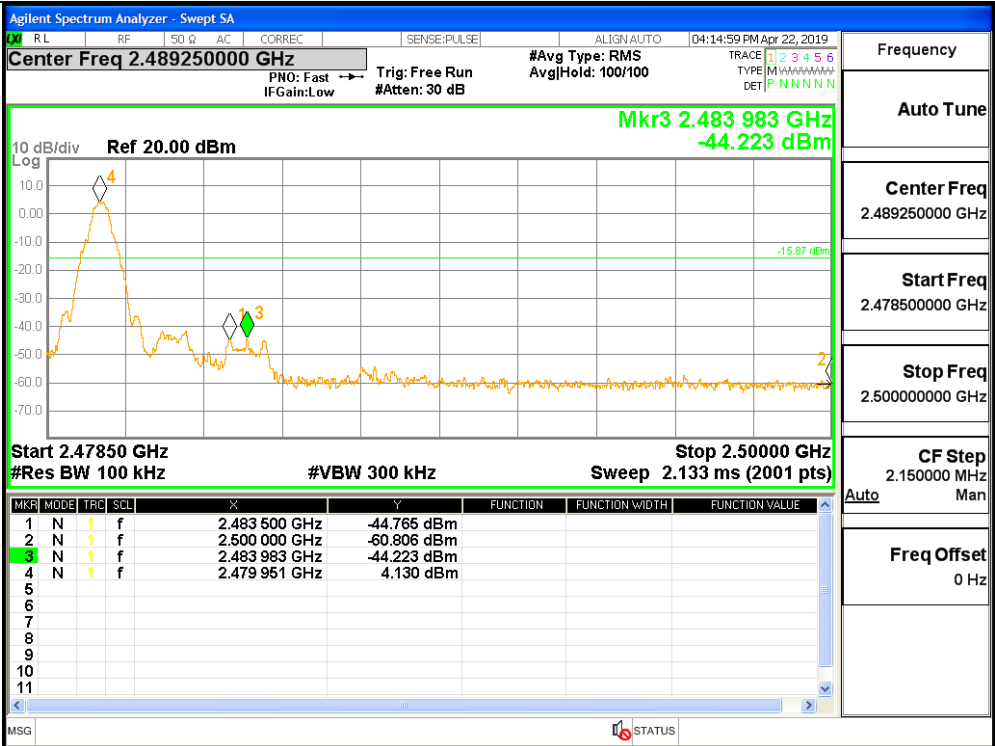
Test Graph

Graphs

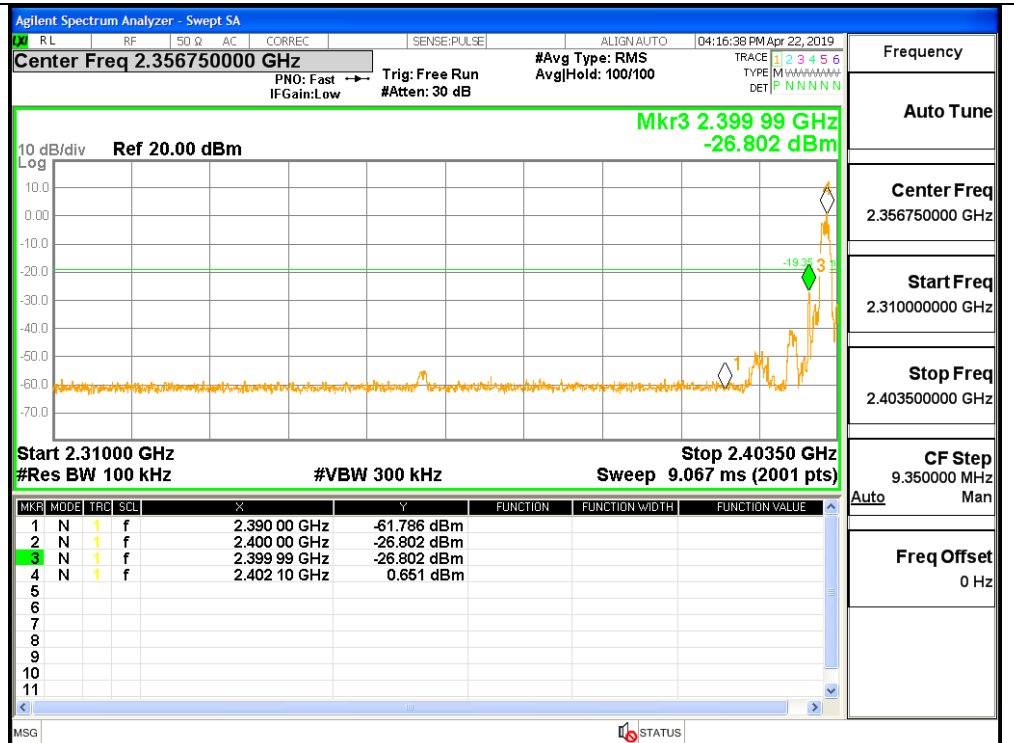
GFSK/LCH/No Hop



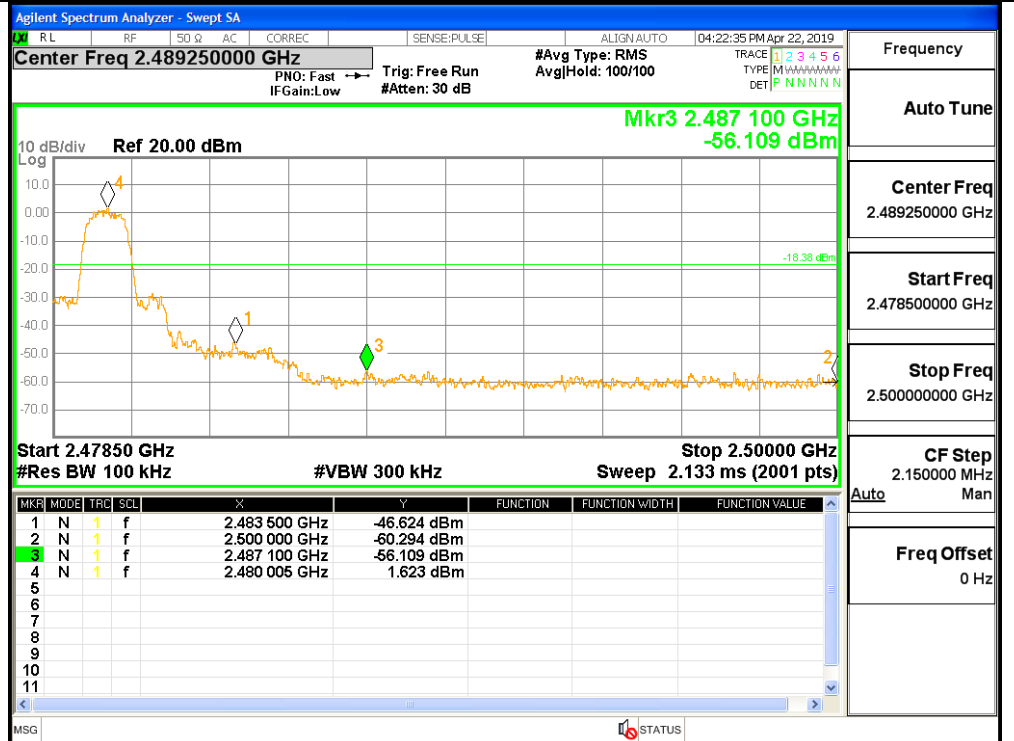
GFSK/HCH/No Hop



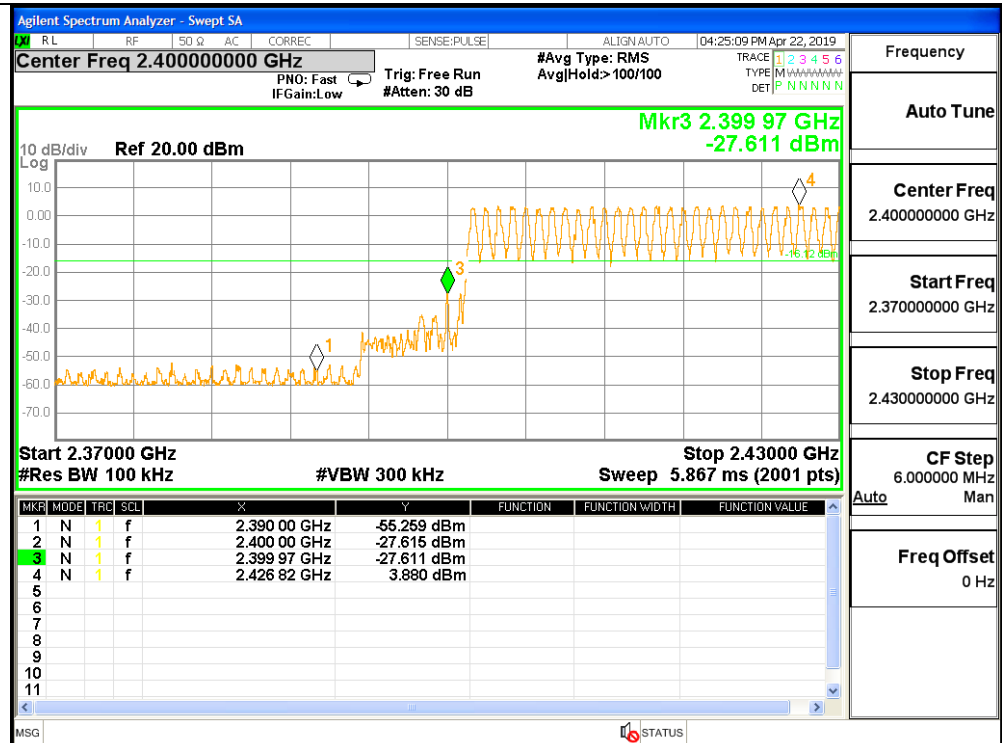
π /4DQPSK/LCH/No
Hop



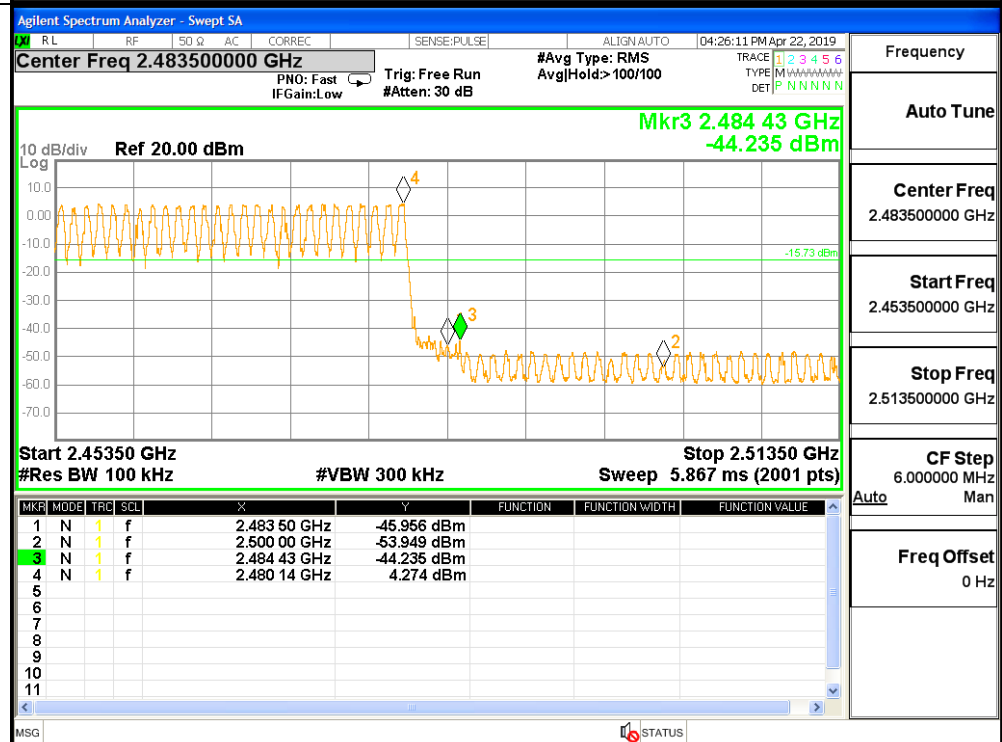
π /4DQPSK/HCH/No
Hop



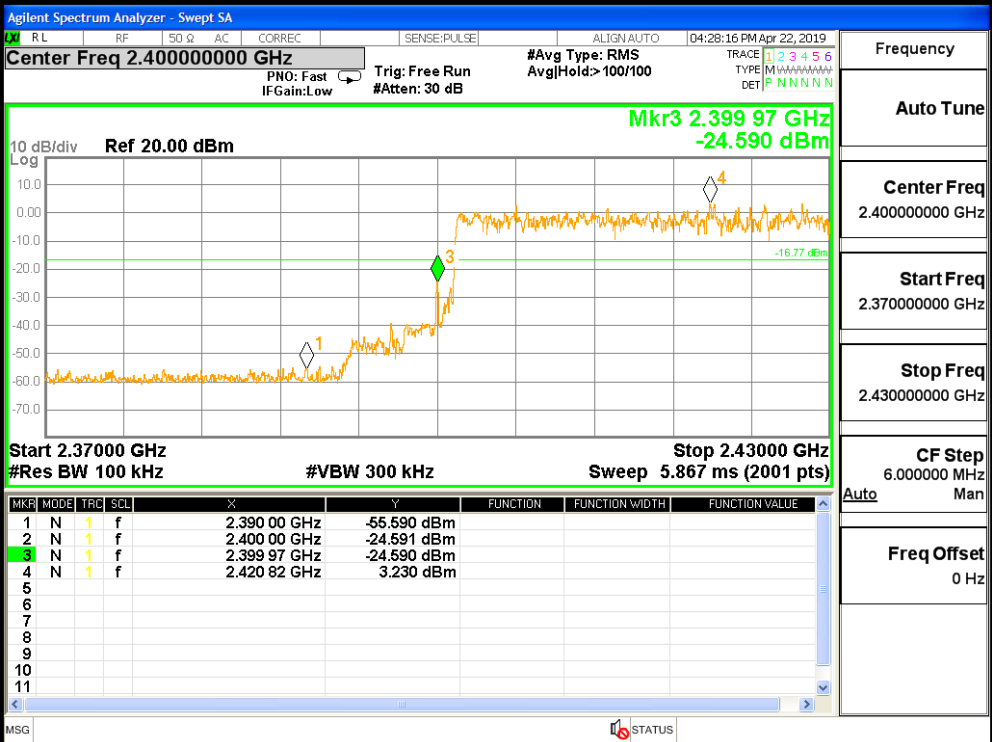
GFSK/LCH/Hop



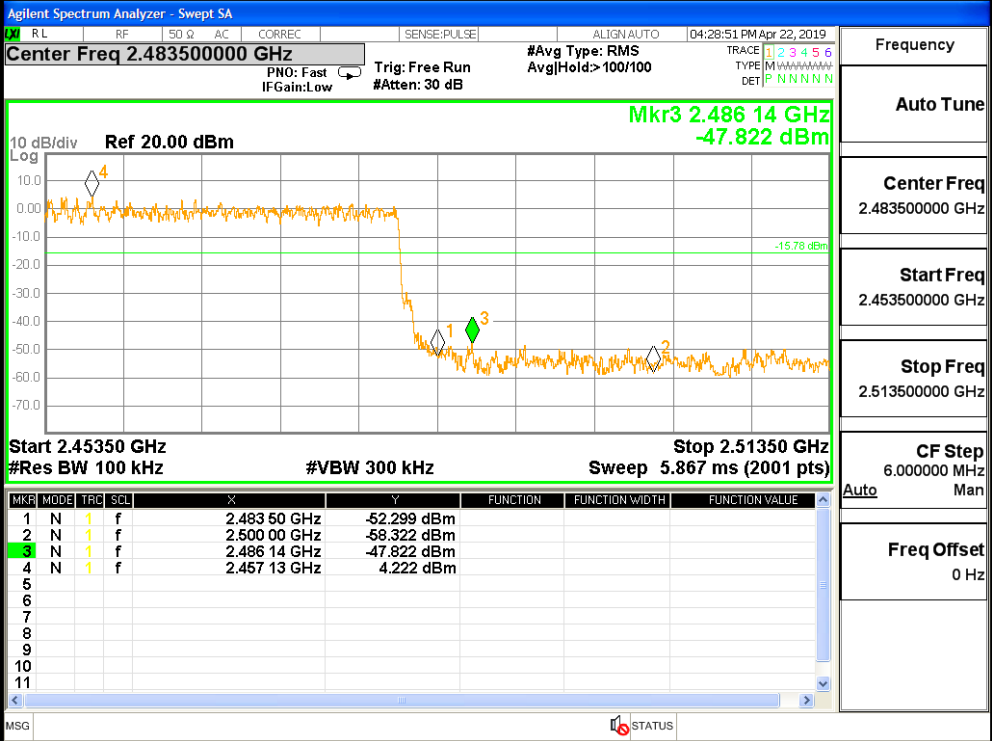
GFSK/HCH/Hop



π /4DQPSK/LCH/Hop



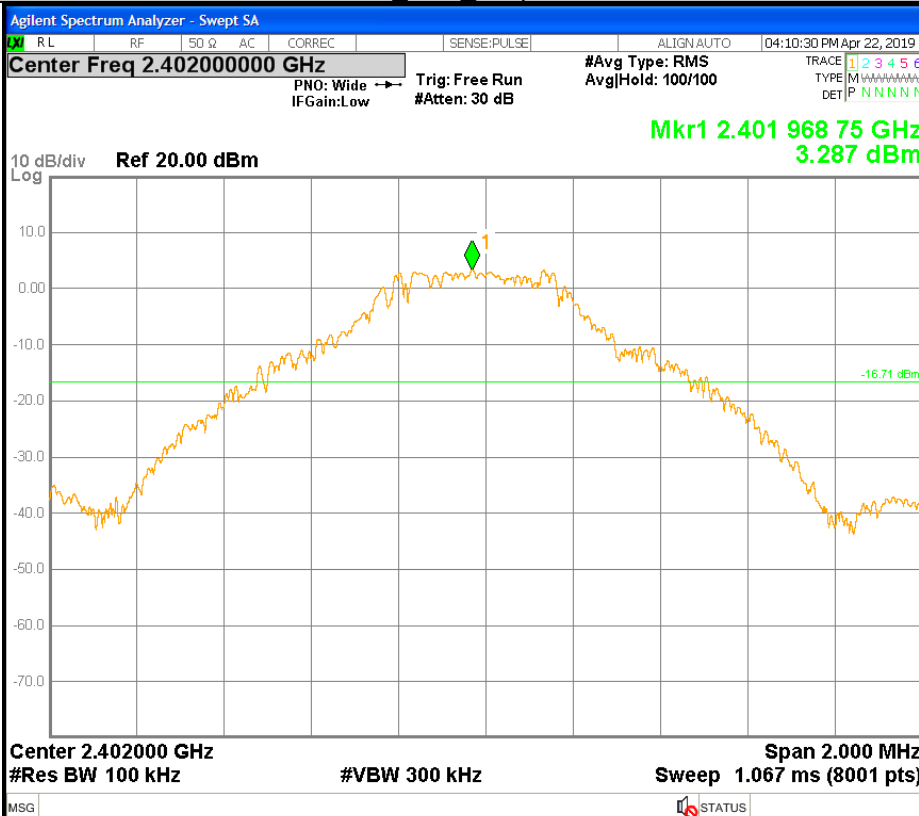
π /4DQPSK/HCH/Hop



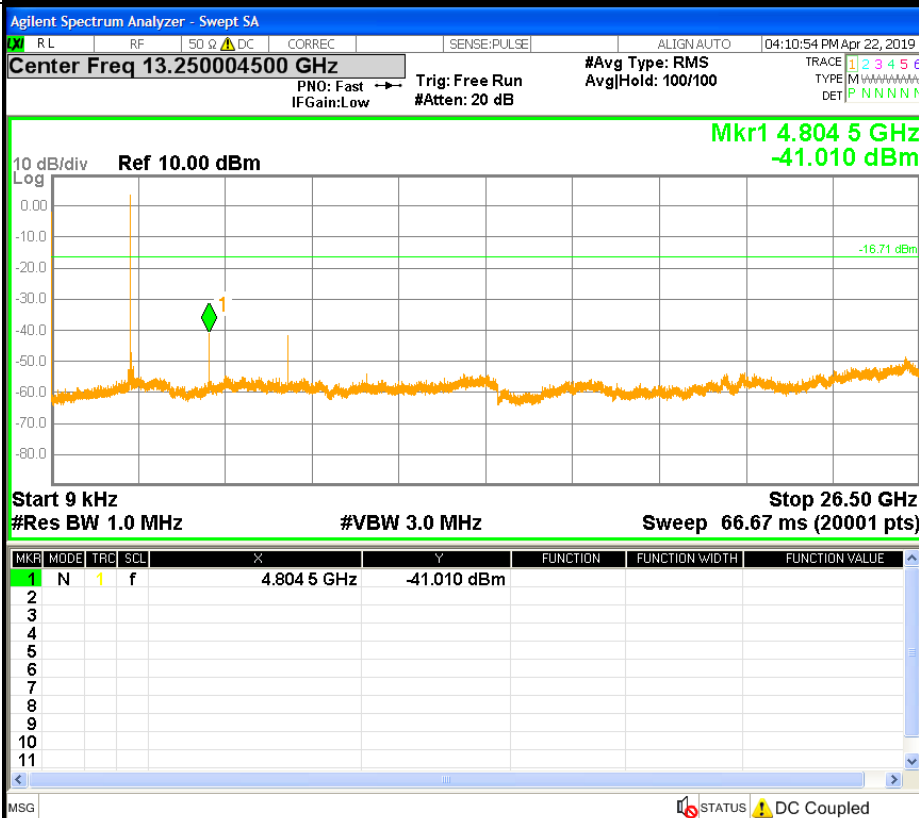
Test Graph

GFSK LCH Graphs

Pref



Puw



Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC CORREC SENSE:PULSE ALIGN AUTO 04:12:44 PM Apr 22, 2019

Center Freq 2.441000000 GHz

PNO: Wide → Trig: Free Run #Atn: 30 dB

#Avg Type: RMS Avg/Hold: 100/100

TRACE 1 2 3 4 5 6
TYPE M N N N N N N
DET P N N N N N N

Frequency

Auto Tune

Center Freq 2.441000000 GHz

Start Freq 2.440000000 GHz

Stop Freq 2.442000000 GHz

CF Step 200.000 kHz Man

Freq Offset 0 Hz

10 dB/div Log Ref 20.00 dBm

Mkr1 2.440 828 75 GHz 3.414 dBm

-16.59 dBm

Center 2.441000 GHz Span 2.000 MHz

#Res BW 100 kHz Sweep 1.067 ms (8001 pts)

#VBW 300 kHz

MSG STATUS

Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω DC CORREC SENSE:PULSE ALIGN AUTO 04:13:08 PM Apr 22, 2019

Center Freq 13.250004500 GHz #Avg Type: RMS Avg/Hold: 100/100

PNO: Fast Trg: Free Run IFGain:Low #Atten: 20 dB

TRACE 1 2 3 4 5 6
TYPE M N N N N N N
DET P N N N N N N

Mkr1 7.323 3 GHz -38.460 dBm

10 dB/div Log Ref 10.00 dBm

Start 9 kHz Stop 26.50 GHz
#Res BW 1.0 MHz #VBW 3.0 MHz Sweep 66.67 ms (20001 pts)

MkR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	7.323 3 GHz	-38.460 dBm			
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								

MSG STATUS DC Coupled

Frequency

Auto Tune

Center Freq
13.250004500 GHz

Start Freq
9.000 kHz

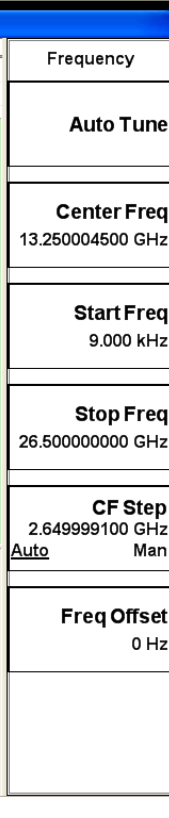
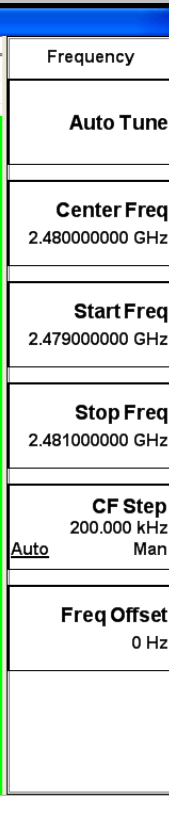
Stop Freq
26.500000000 GHz

CF Step
2.649999100 GHz

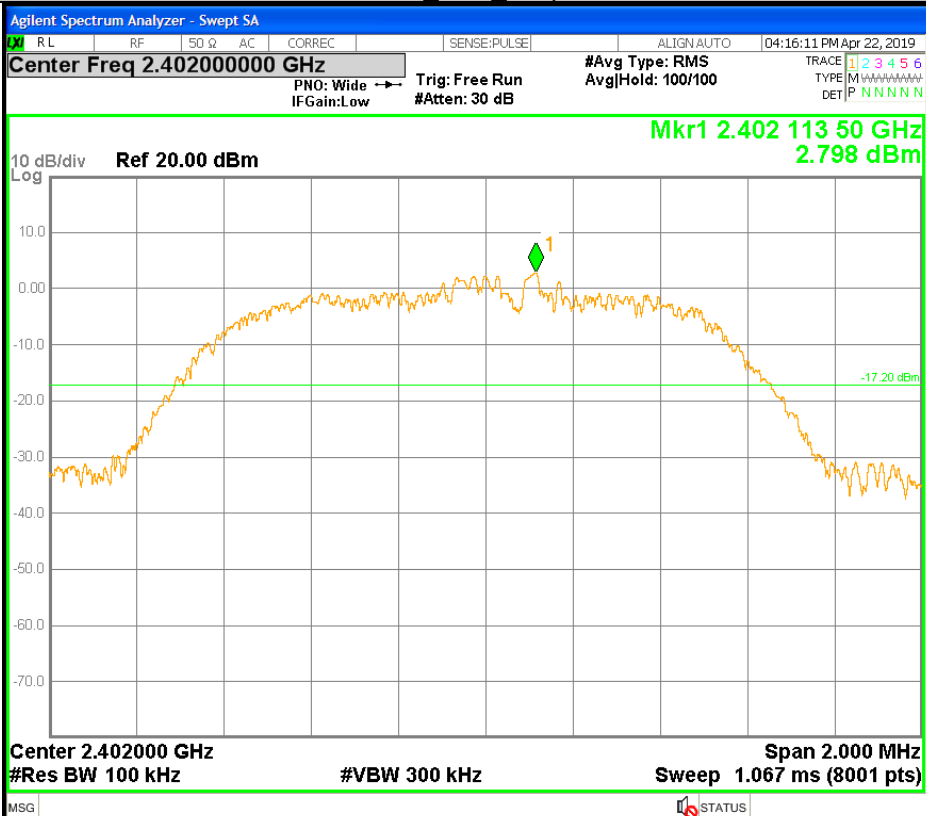
Auto Man

Freq Offset
0 Hz

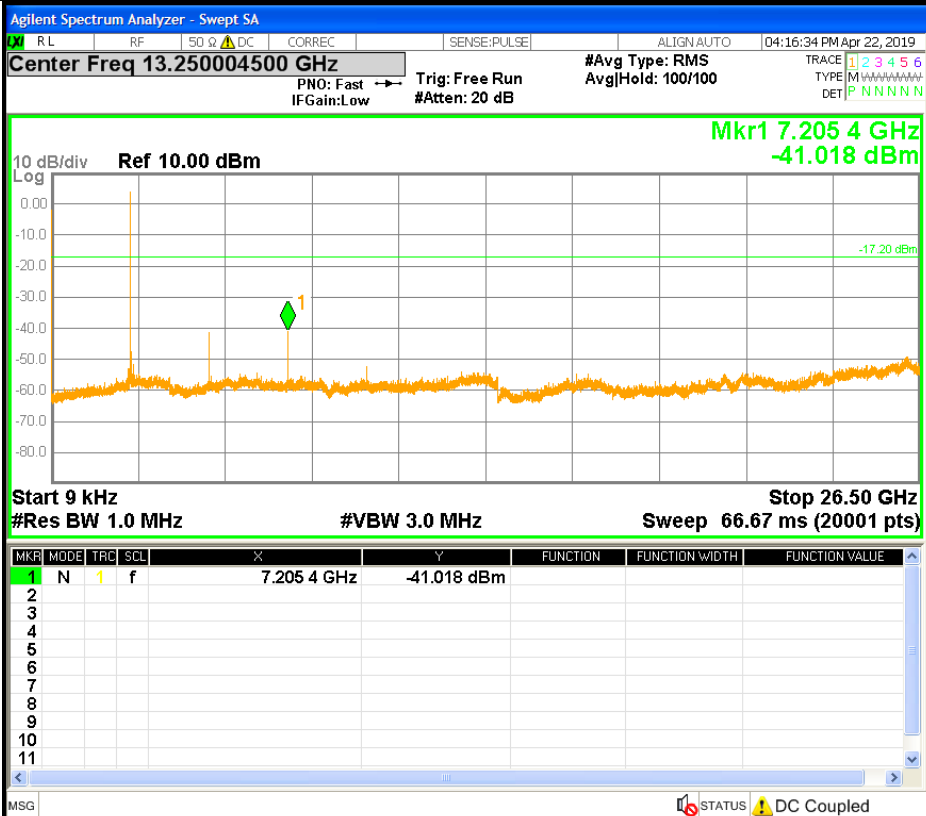
GFSK HCH Graphs



$\pi/4$ DQPSK LCH Graphs

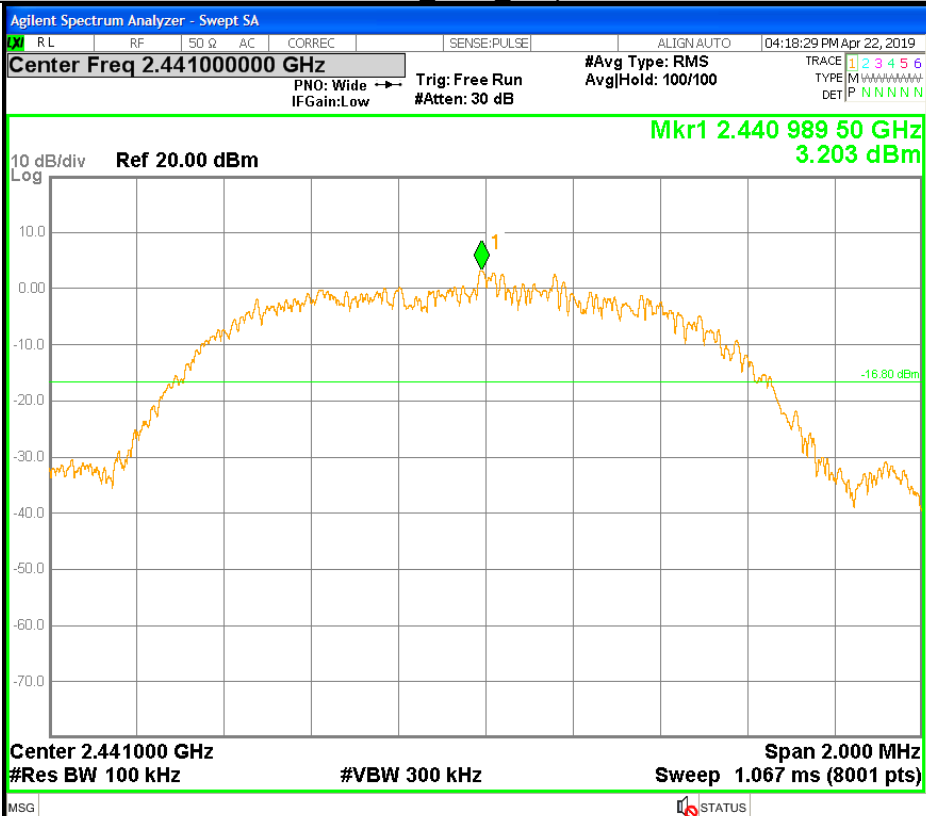


Frequency	
Auto Tune	
Center Freq	2.402000000 GHz
Start Freq	2.401000000 GHz
Stop Freq	2.403000000 GHz
CF Step	200.000 kHz
to Man	
Freq Offset	0 Hz



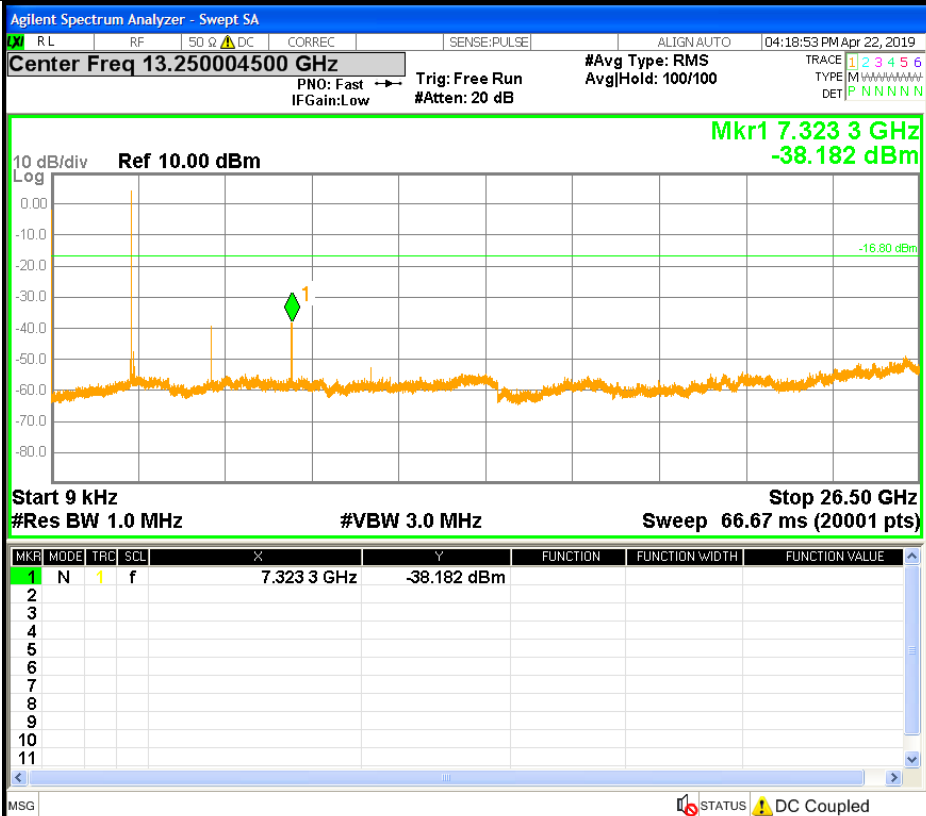
Frequency
Auto Tune
Center Freq
3.250004500 GHz
Start Freq
9.000 kHz
Stop Freq
5.500000000 GHz
CF Step
2.649999100 GHz
to Man
Freq Offset
0 Hz

$\pi/4$ DQPSK MCH Graphs



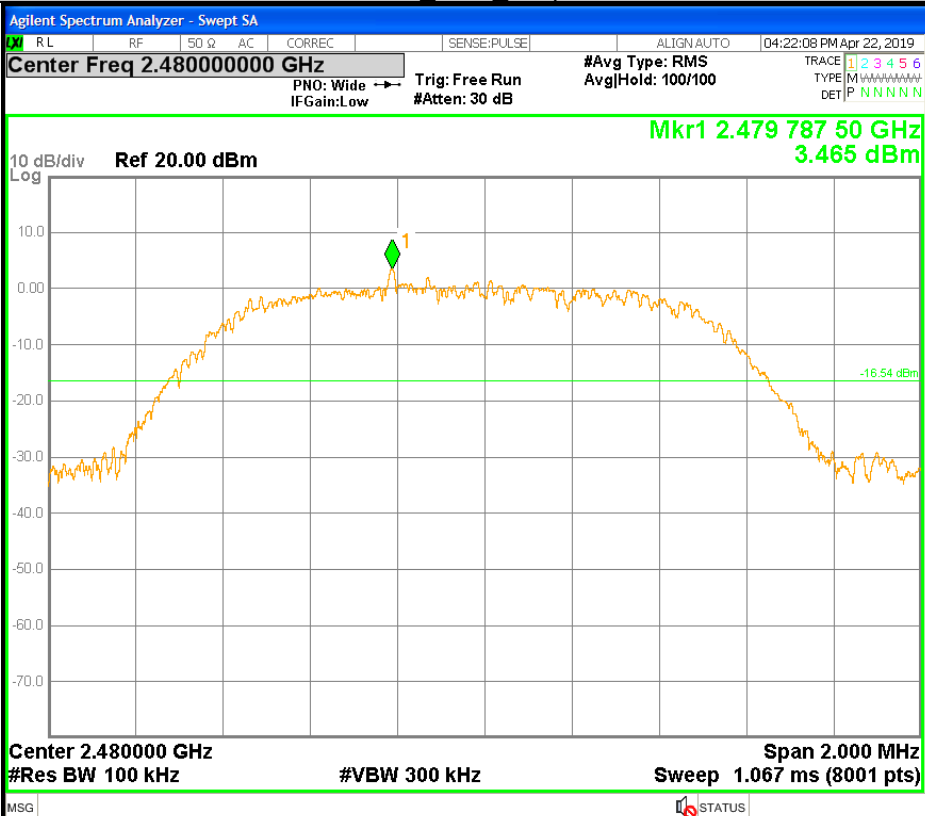
Frequency
Auto Tune
Center Freq 2.441000000 GHz
Start Freq 2.440000000 GHz
Stop Freq 2.442000000 GHz
CF Step 200.000 kHz
Auto Man
Freq Offset 0 Hz

Puw



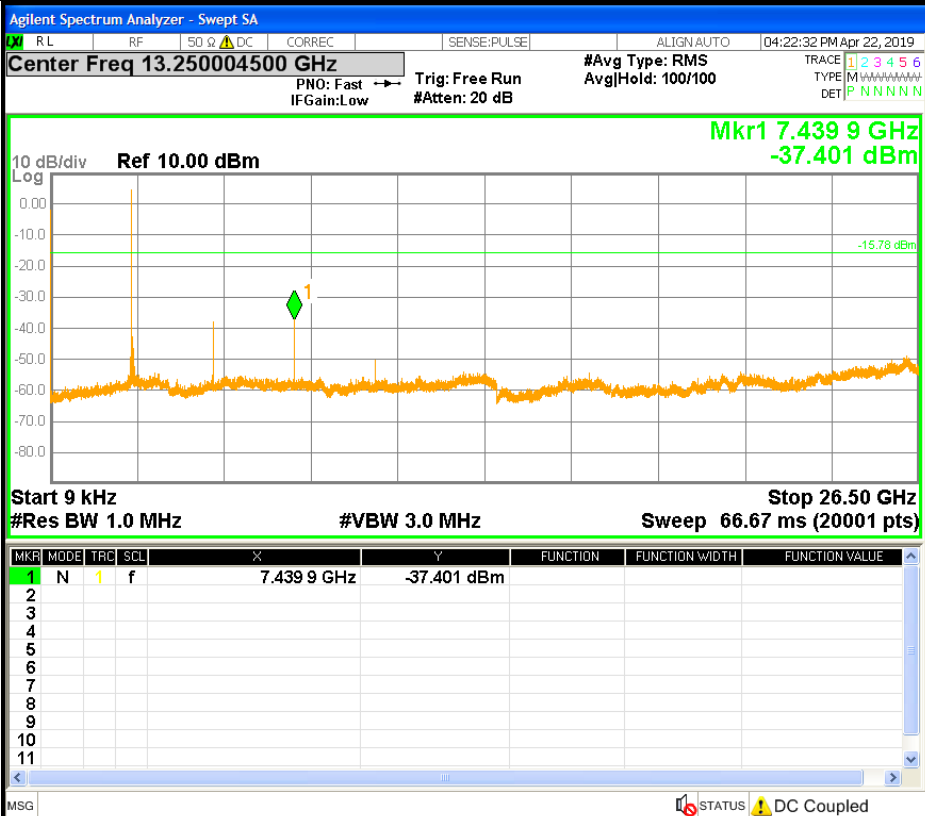
Frequency
Auto Tune
Center Freq 13.250004500 GHz
Start Freq 9.000 kHz
Stop Freq 26.500000000 GHz
CF Step 2.649999100 GHz Auto Man
Freq Offset 0 Hz

$\pi/4$ DQPSK HCH Graphs



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



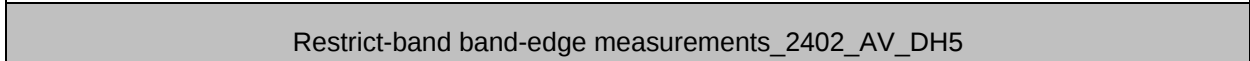
Frequency
Auto Tune
Center Freq 13.250004500 GHz
Start Freq 9.000 kHz
Stop Freq 26.500000000 GHz
CF Step 2.649999100 GHz Auto Man
Freq Offset 0 Hz

A.8 Restrict-band band-edge measurements

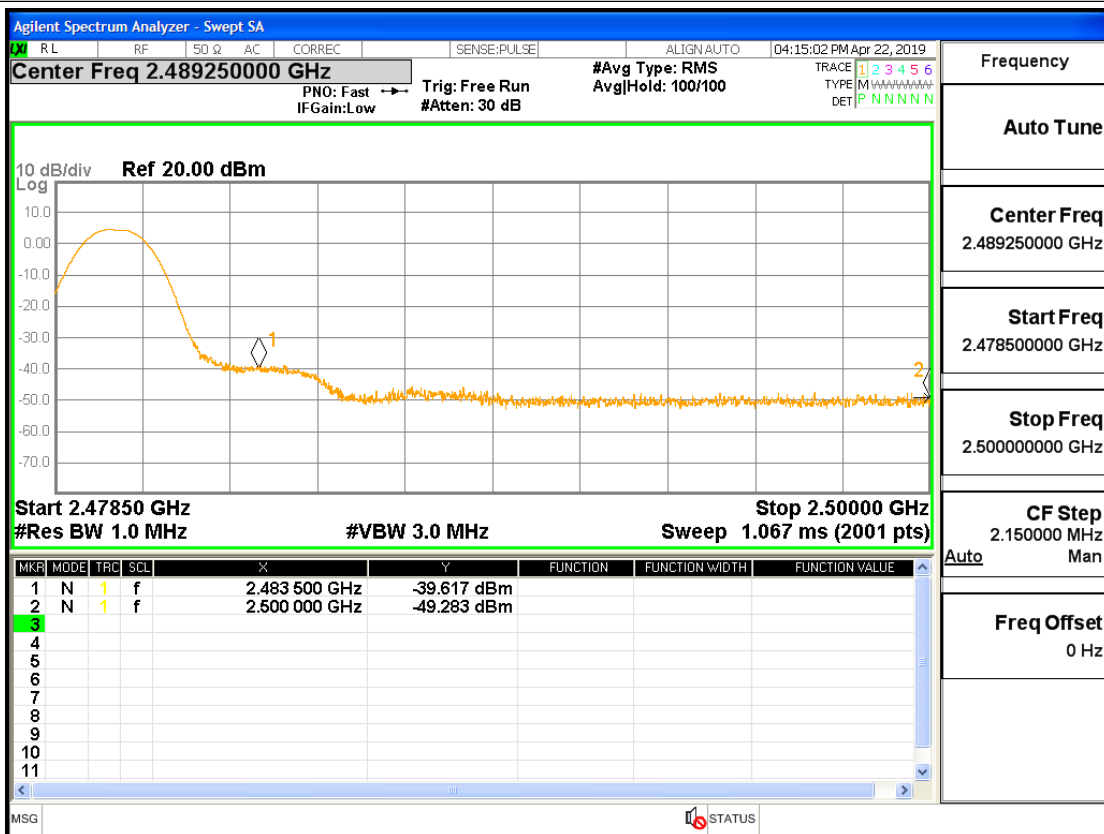
Type	Carrier Frequency (MHz)	Frequency (MHz)	Gain	Ground Factor	Peak Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2390.00	2.00	0.00	-51.09	46.11	74	Pass
1DH5	2480	2483.50	2.00	0.00	-39.62	57.58	74	Pass
2DH5	2402	2310.00	2.00	0.00	-50.47	46.73	74	Pass
2DH5	2480	2483.50	2.00	0.00	-40.23	56.97	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	-58.23	38.97	54	Pass
1DH5	2480	2483.50	2.00	0.00	-47.22	49.98	54	Pass
2DH5	2402	2390.00	2.00	0.00	-58.23	38.97	54	Pass
2DH5	2480	2483.50	2.00	0.00	-48.89	48.31	54	Pass

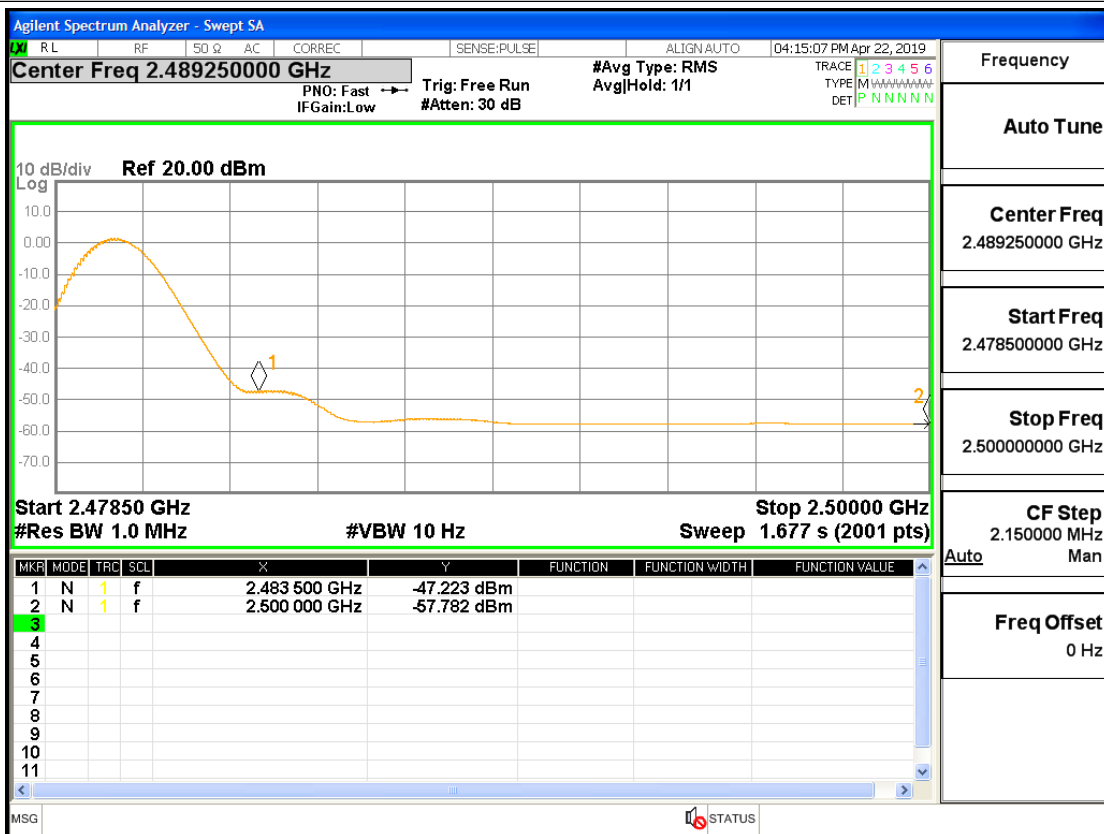
Restrict-band band-edge measurements_2402_PEAK_DH5



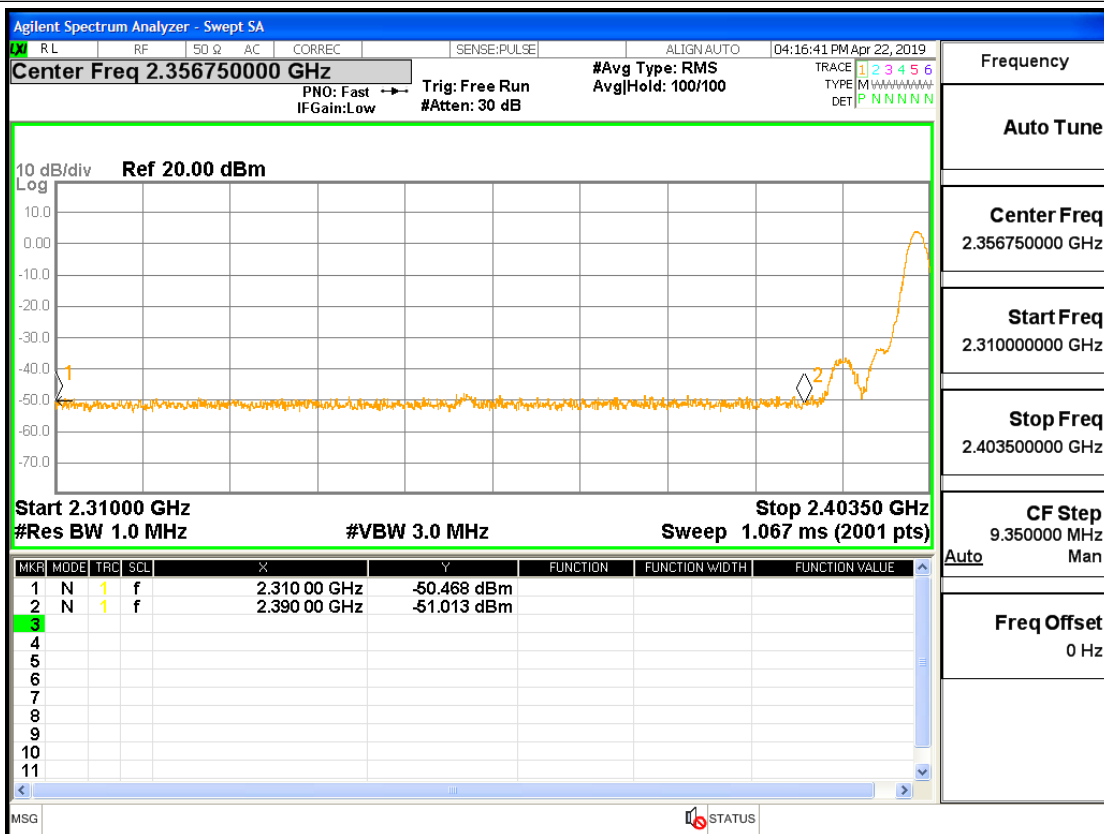
Restrict-band band-edge measurements 2480 PEAK DH5



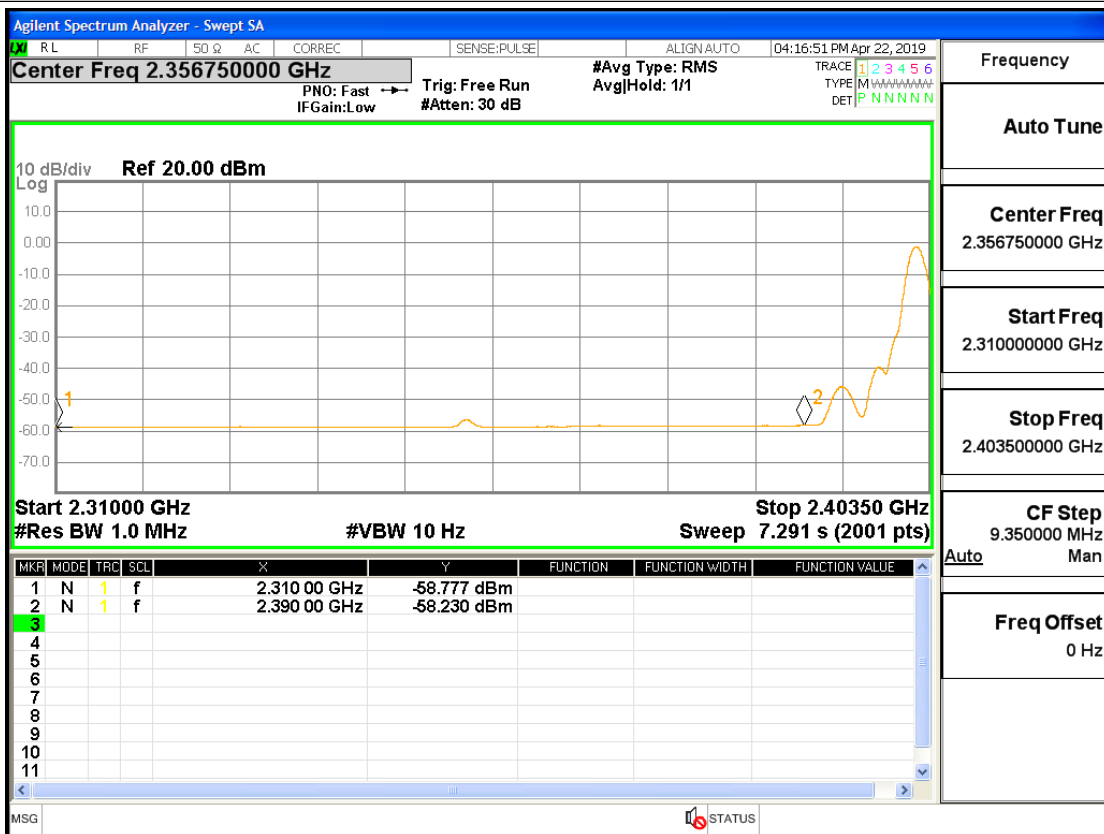
Restrict-band band-edge measurements 2480 AV DH5



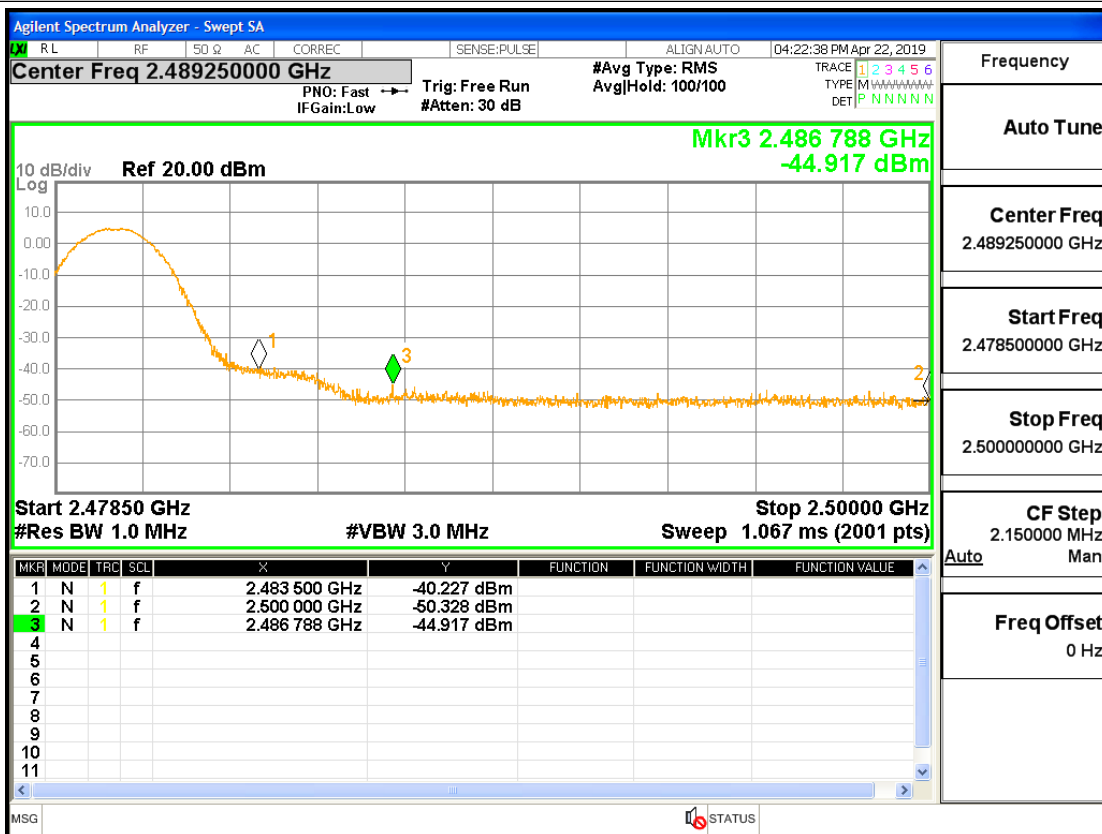
Restrict-band band-edge measurements 2402 PEAK 2DH5



Restrict-band band-edge measurements_2402_AV_2DH5



Restrict-band band-edge measurements 2480 PEAK 2DH5



Restrict-band band-edge measurements_2480_AV_2DH5

