

Appendix A

RF Test Data for BT V5.0(BDR/EDR) (Conducted Measurement)

Product Name: sofa sound

Test Model: HYK-658

Environmental Conditions

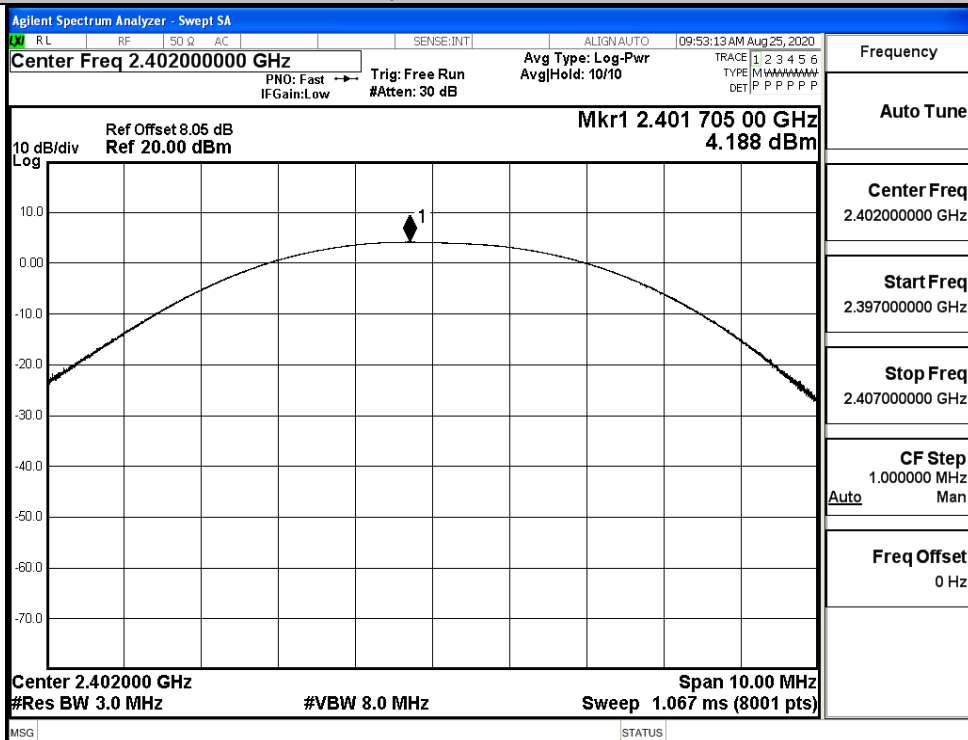
Temperature:	24.5° C
Relative Humidity:	53.9%
ATM Pressure:	100.0 kPa
Test Engineer:	Jam Zheng
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

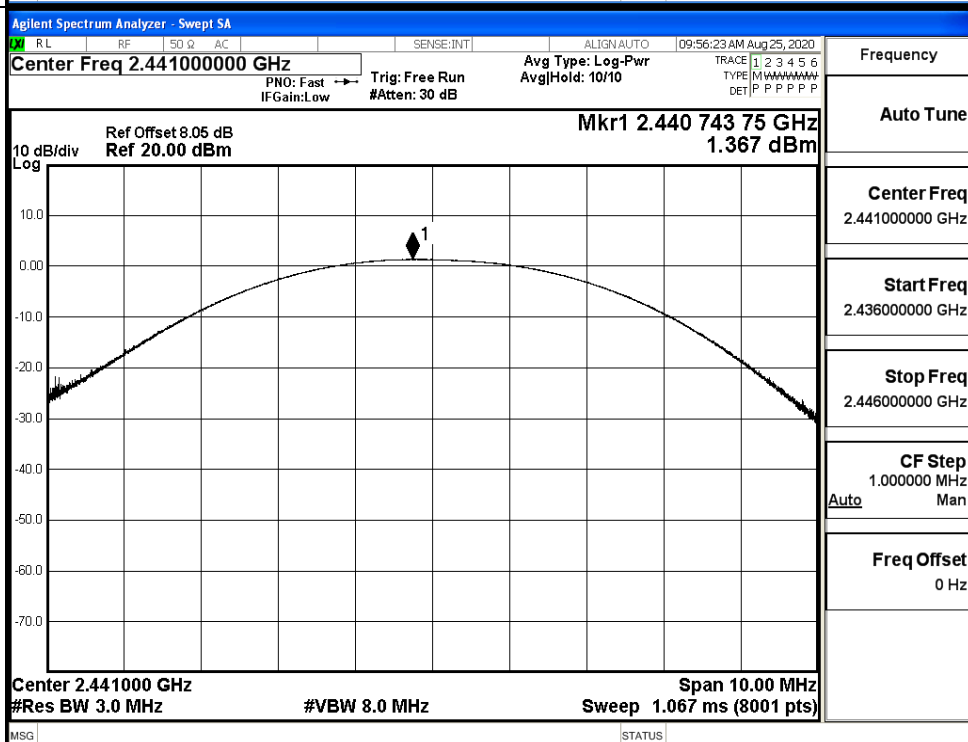
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	4.188	21	PASS
	MCH	1.367	21	PASS
	HCH	1.142	21	PASS
$\pi/4$ DQPSK	LCH	4.387	21	PASS
	MCH	2.227	21	PASS
	HCH	1.971	21	PASS

Test Graphs

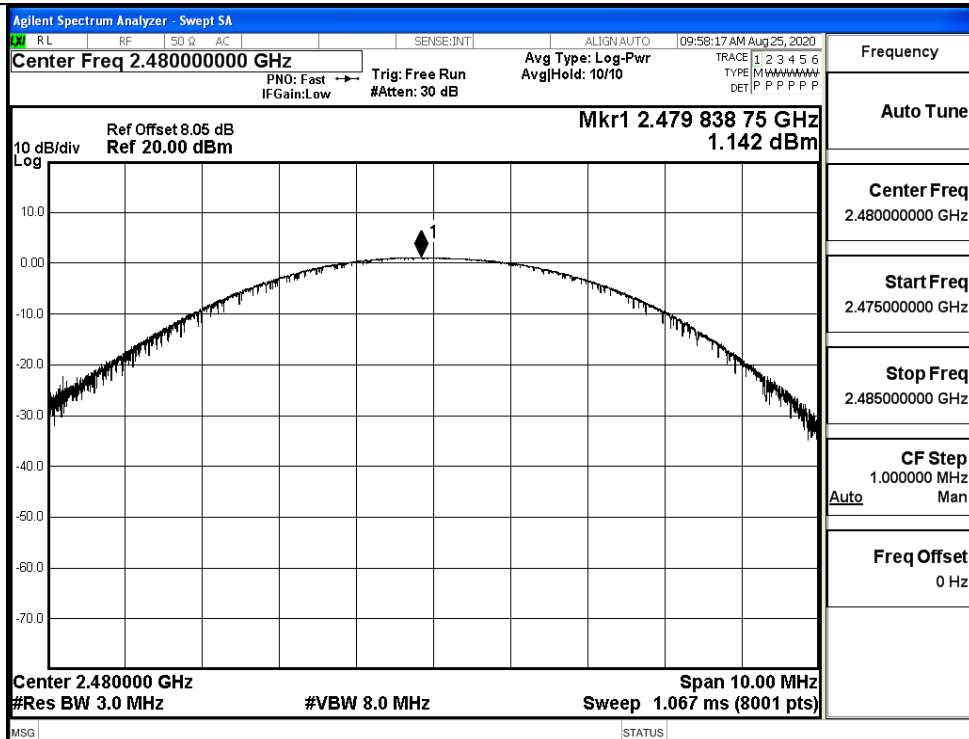
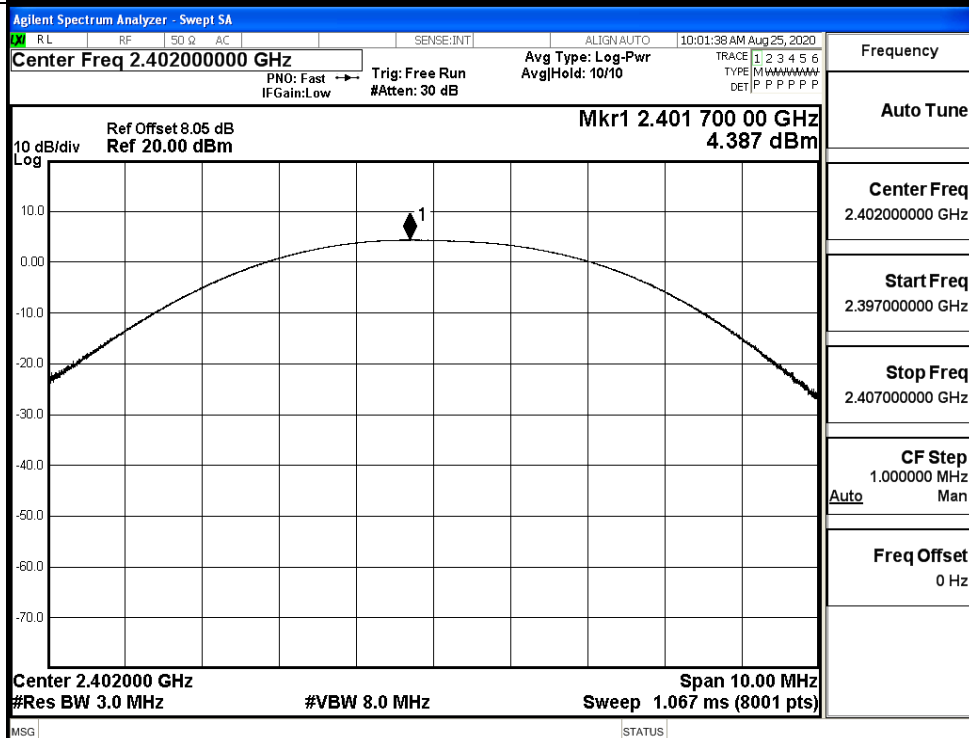
GFSK/LCH

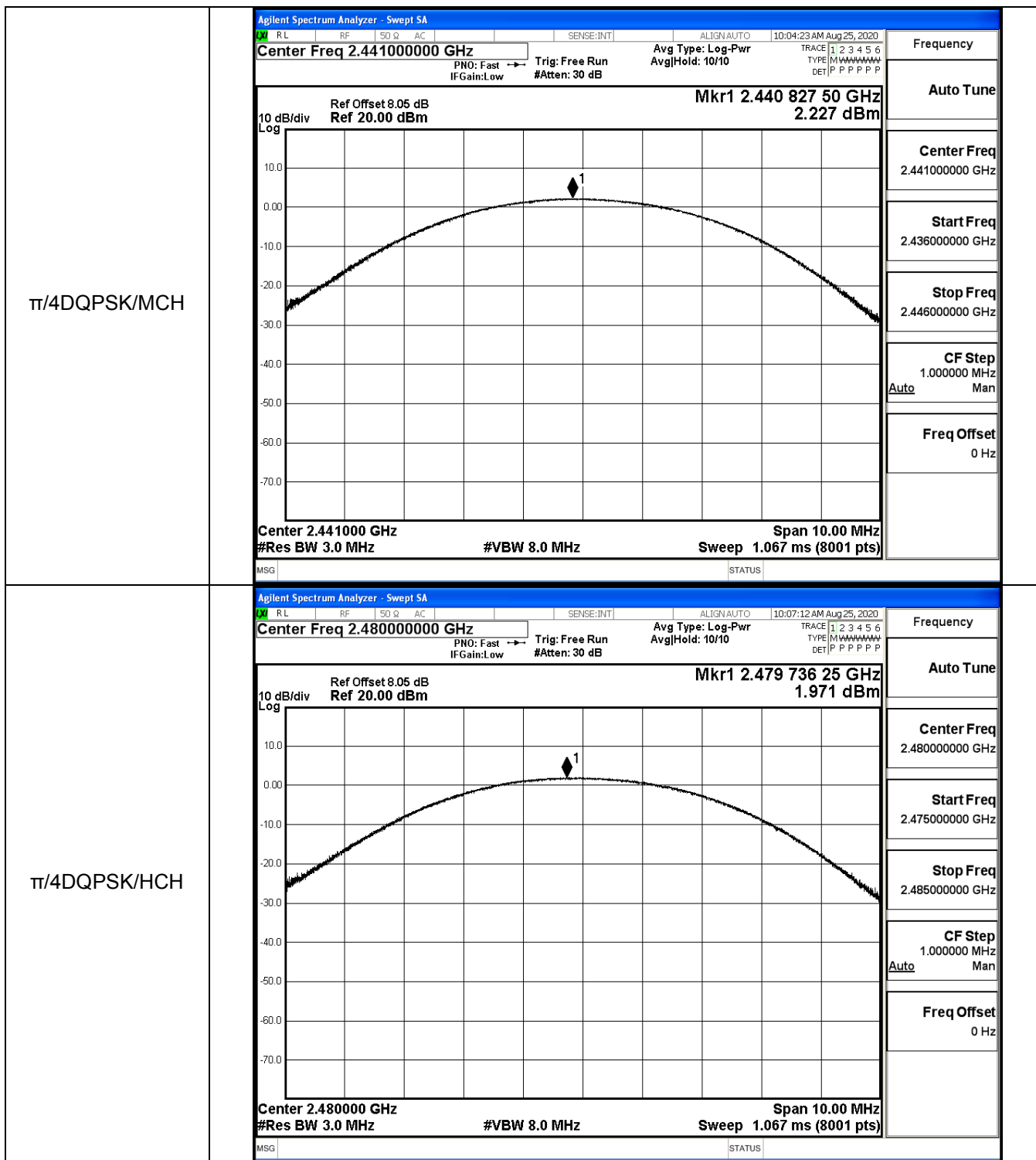


GFSK/MCH



GFSK/HCH

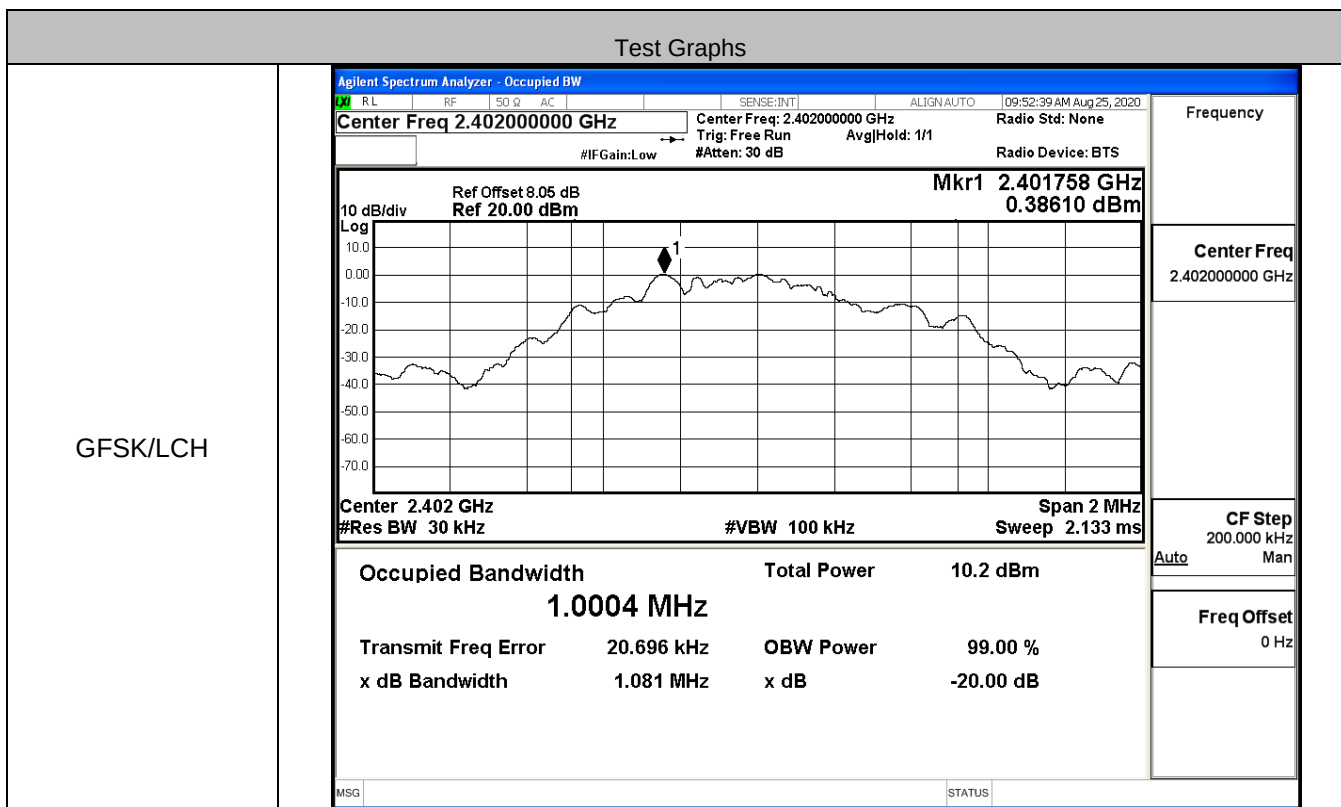
 π /4DQPSK/LCH



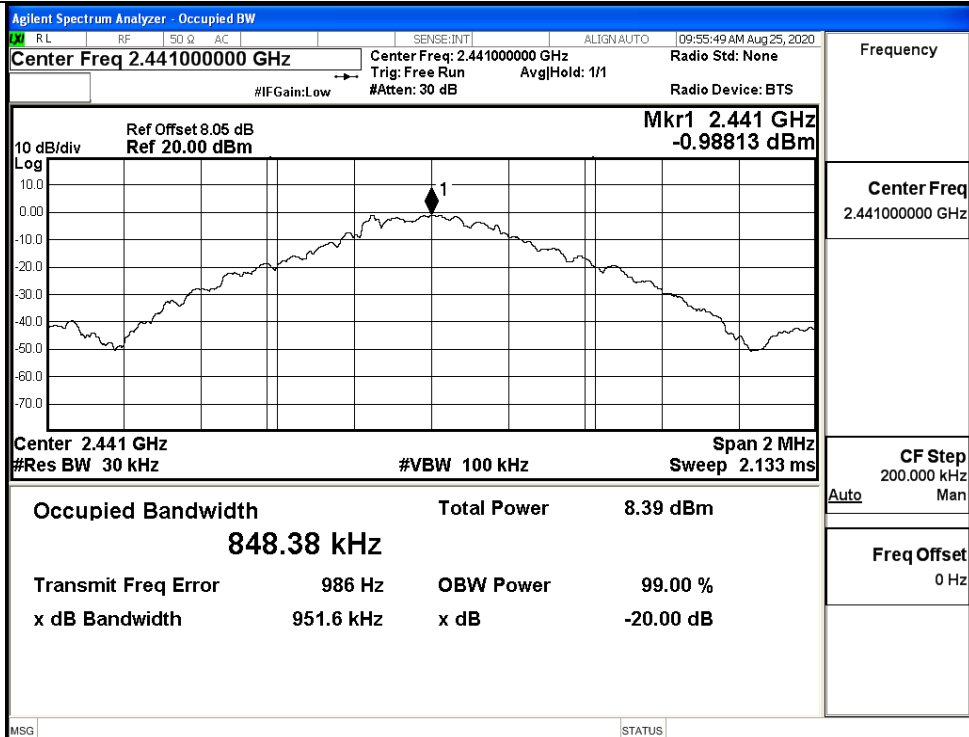
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.081	Not Specified	PASS
	MCH	0.9516	Not Specified	PASS
	HCH	0.9526	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.081	Not Specified	PASS
	MCH	1.317	Not Specified	PASS
	HCH	1.319	Not Specified	PASS

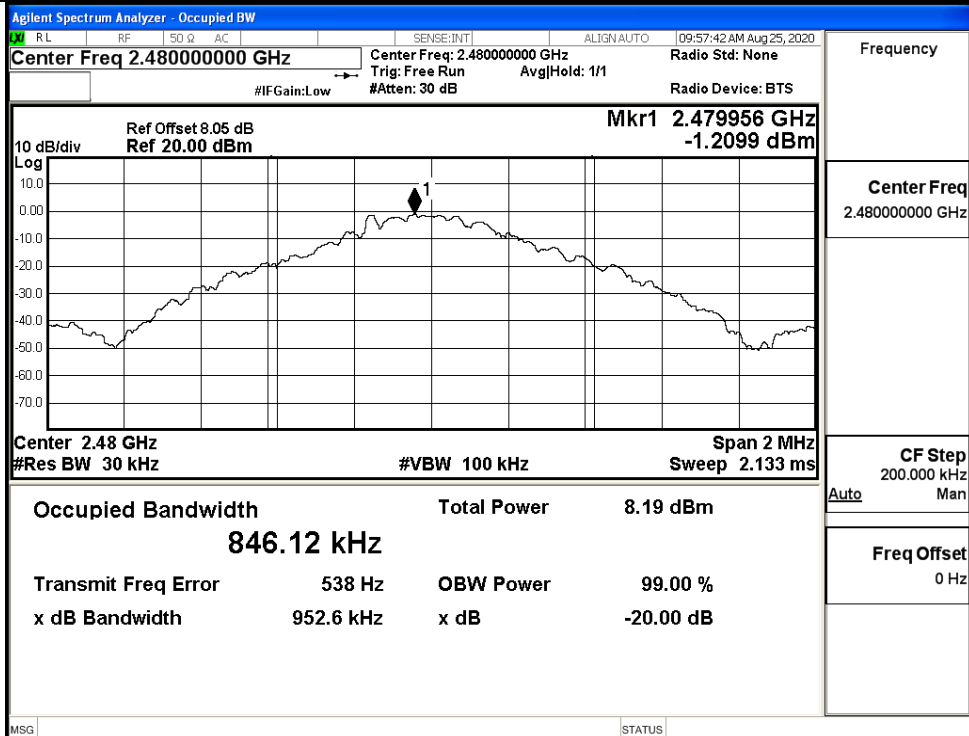
Test Graphs

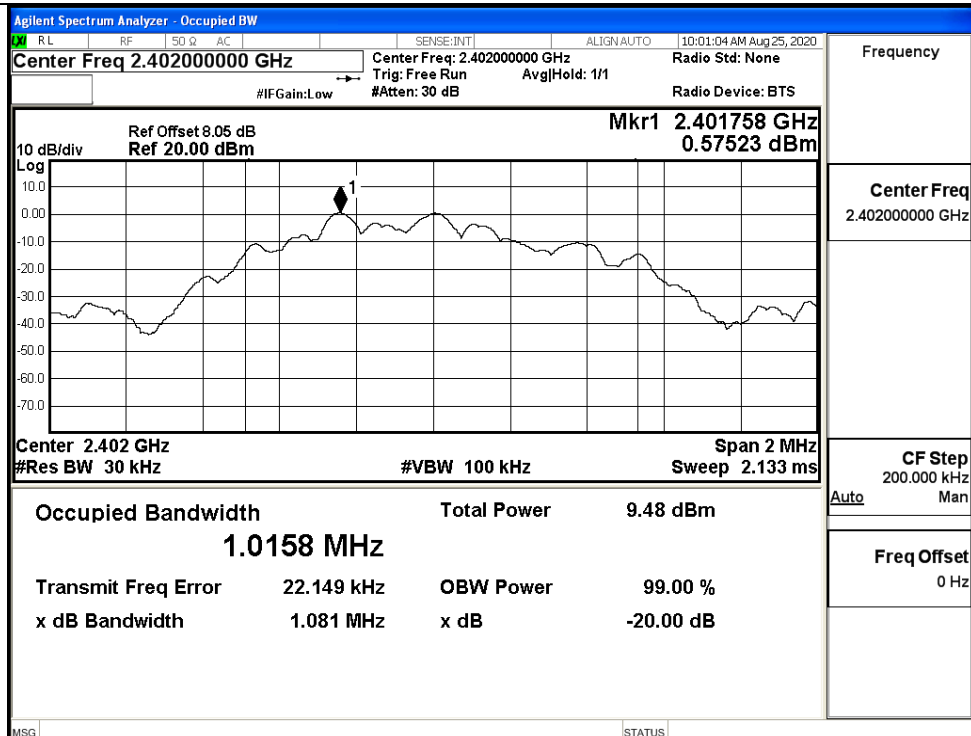


GFSK/MCH



GFSK/HCH

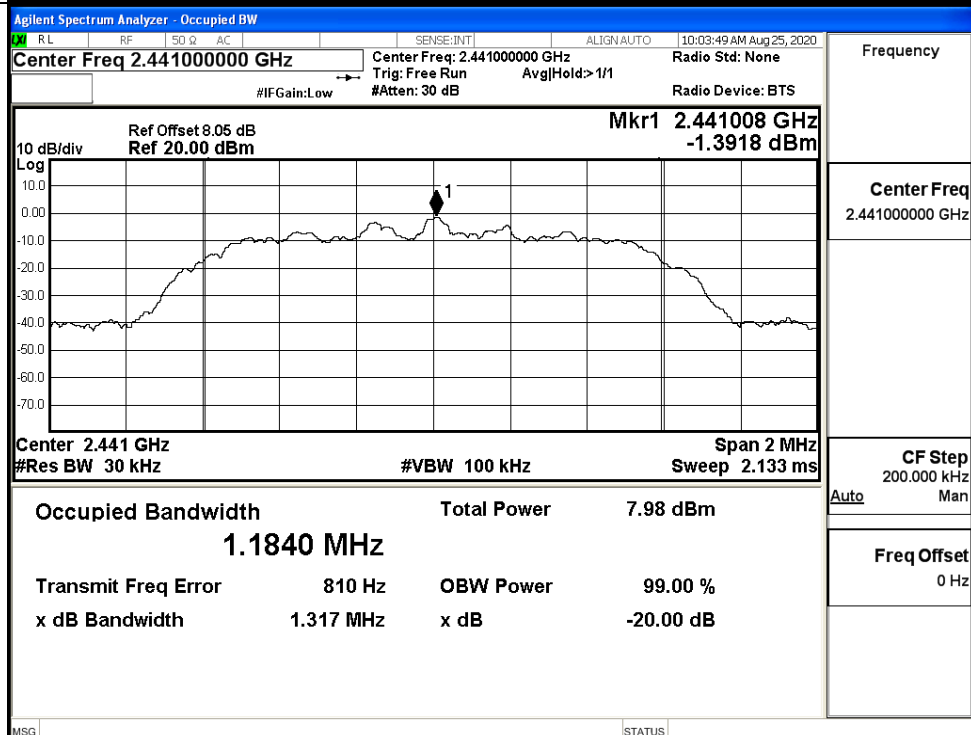


$\pi/4$ DQPSK/LCH

Frequency

Center Freq
2.40200000 GHzCF Step
200.000 kHz
Man

Auto

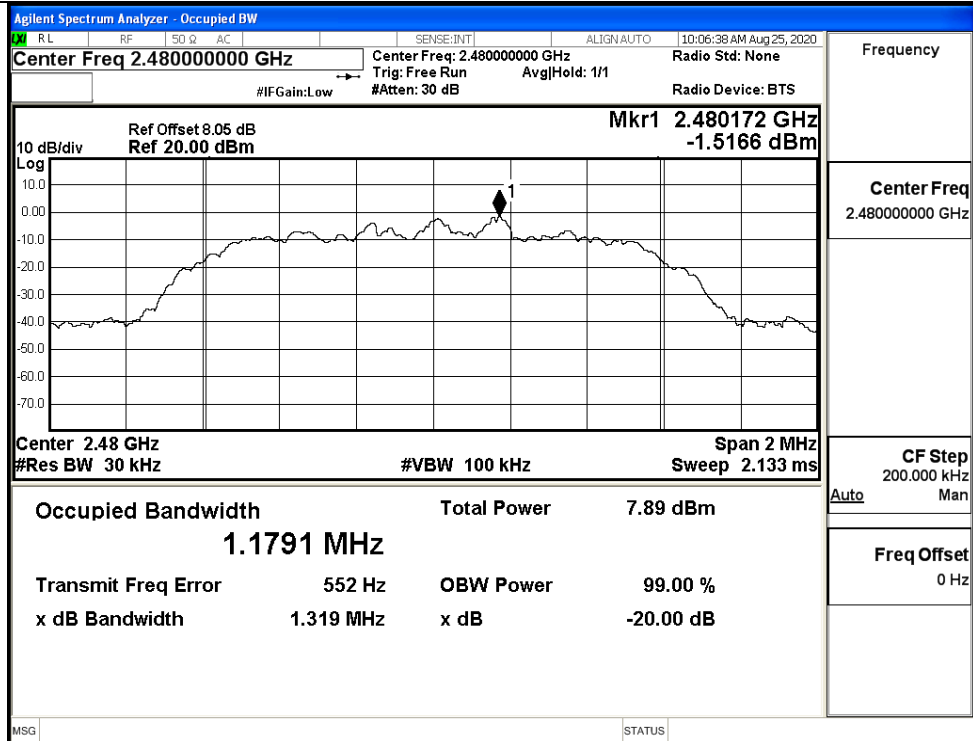
Freq Offset
0 Hz $\pi/4$ DQPSK/MCH

Frequency

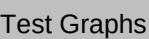
Center Freq
2.44100000 GHzCF Step
200.000 kHz
Man

Auto

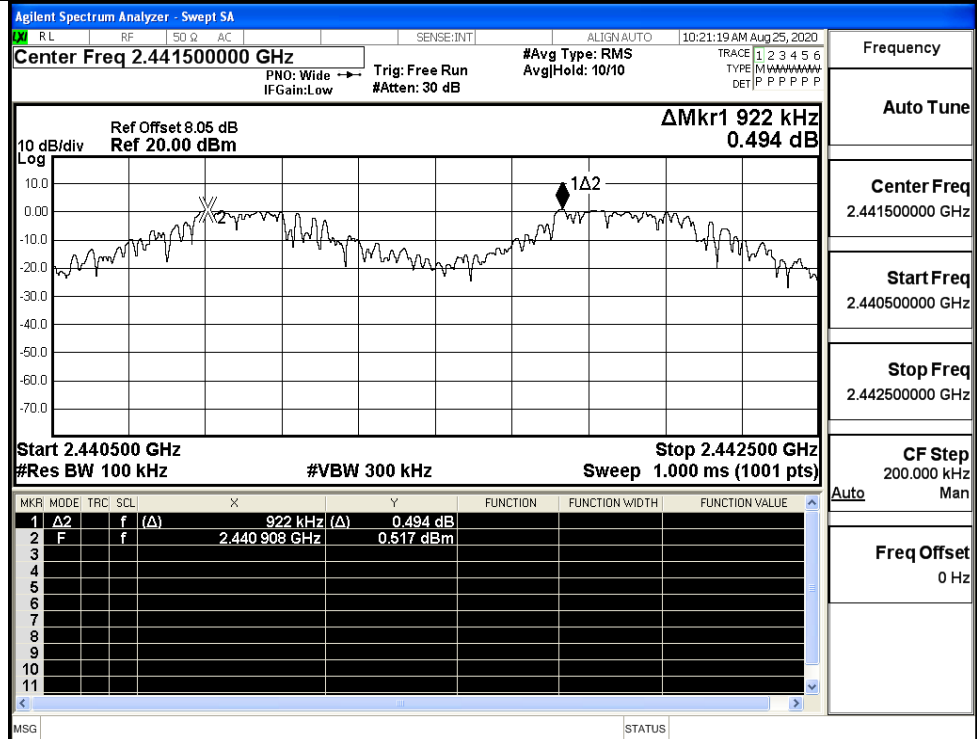
Freq Offset
0 Hz

$\pi/4$ DQPSK/HCH

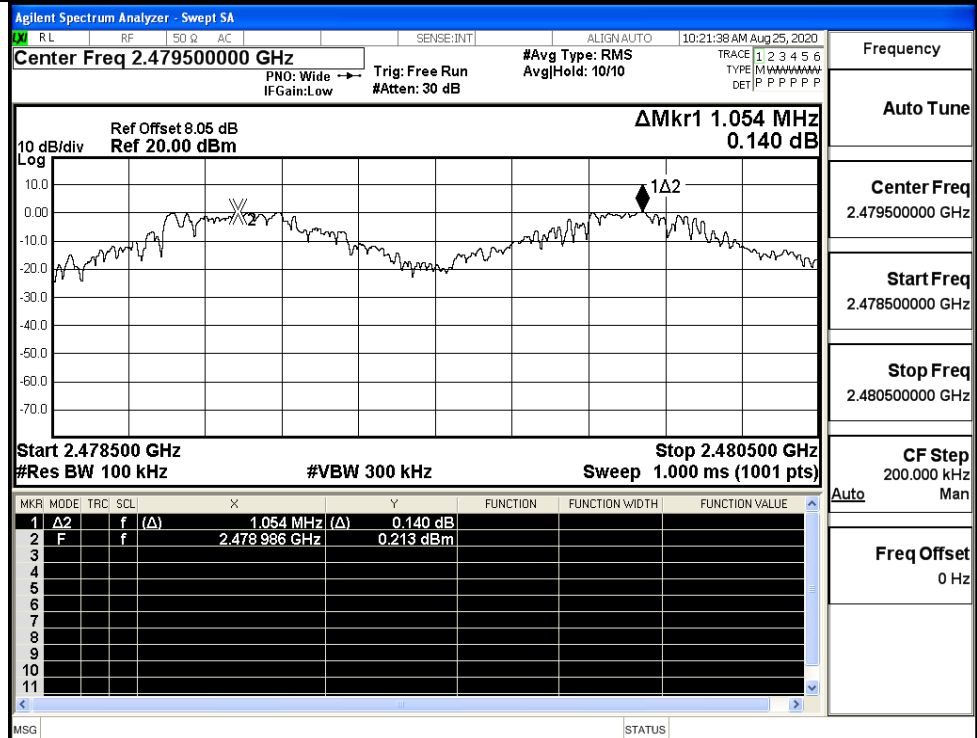
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.313	0.721	PASS
	MCH	0.922	0.721	PASS
	HCH	1.054	0.721	PASS
$\pi/4$ DQPSK	LCH	1.254	0.879	PASS
	MCH	1.268	0.879	PASS
	HCH	1.222	0.879	PASS

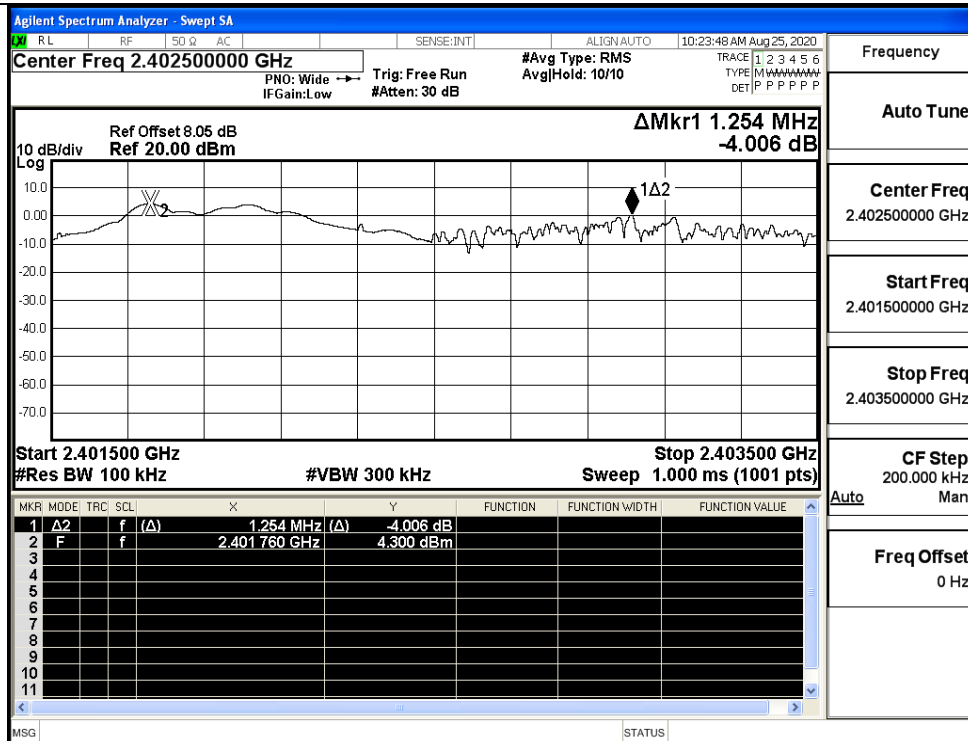
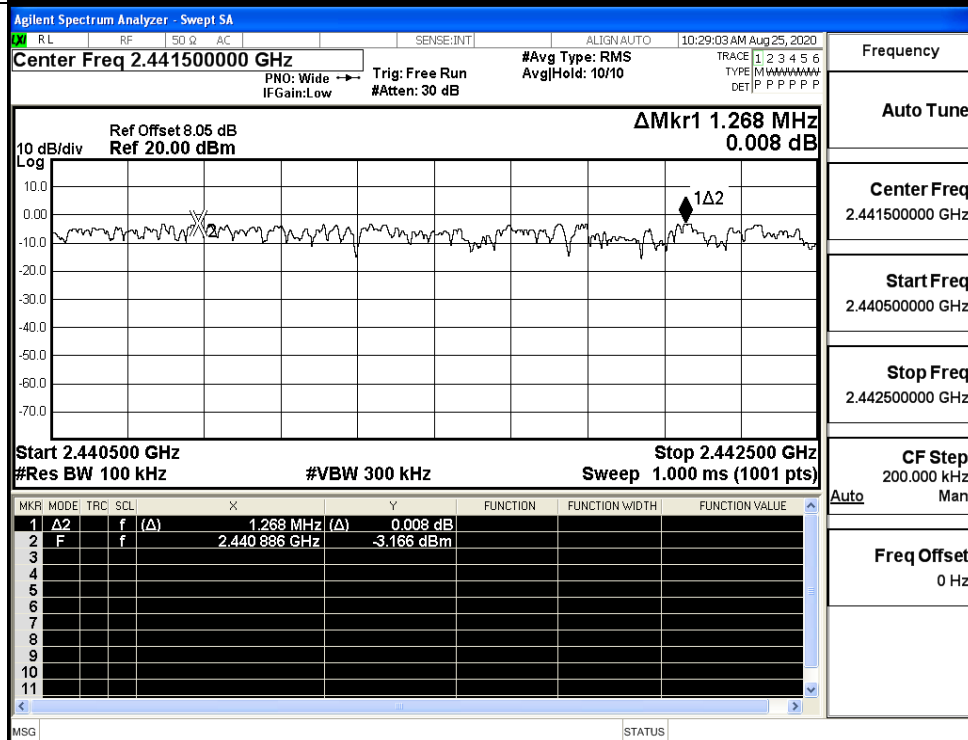


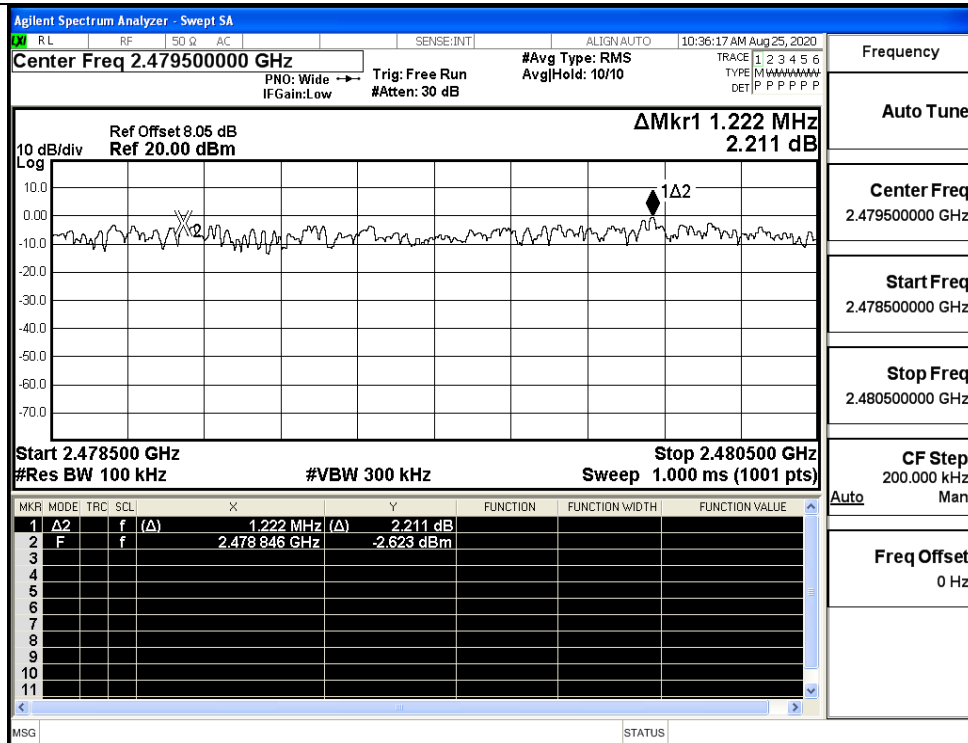
GFSK/MCH



GFSK/HCH



$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

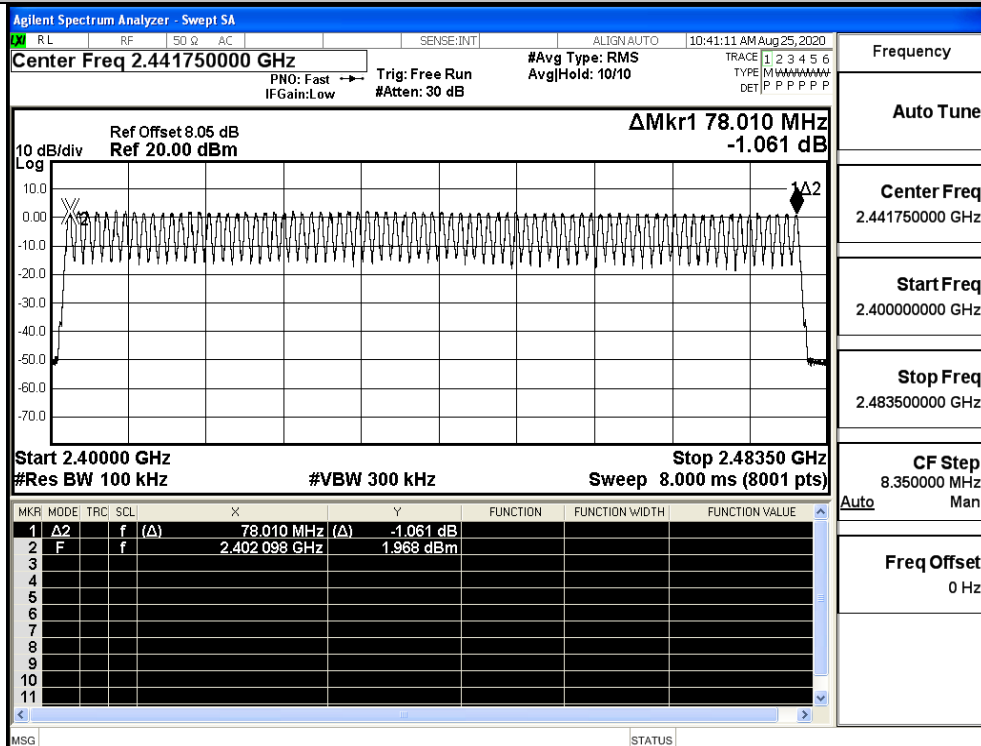
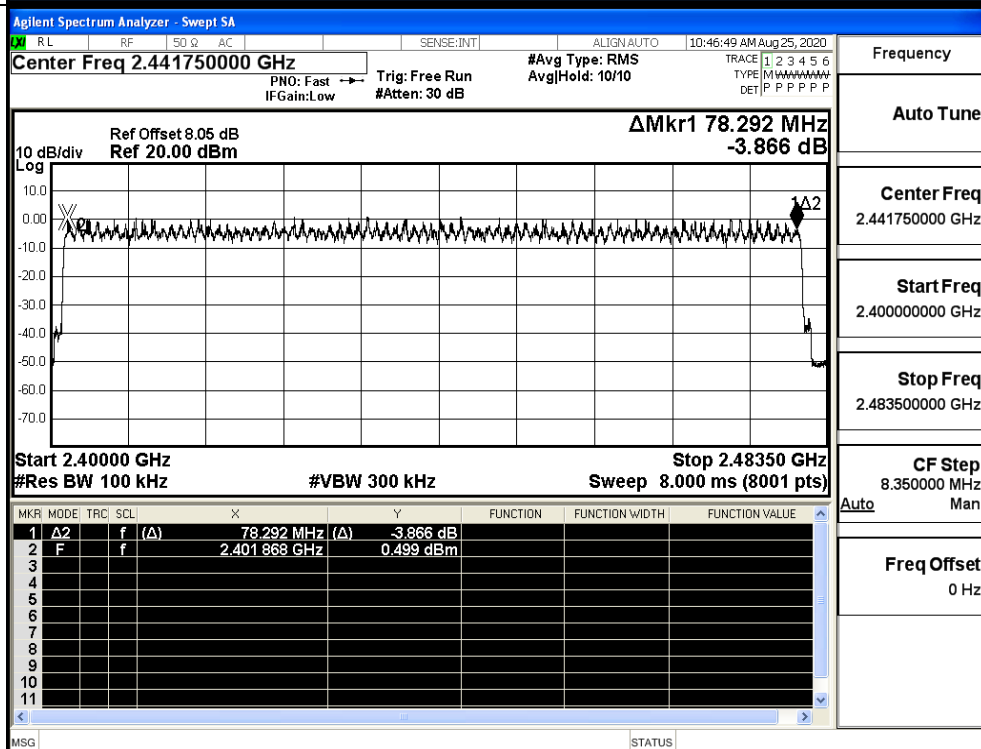
$\pi/4$ DQPSK/HCH

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 Graphs

GFSK/Hop

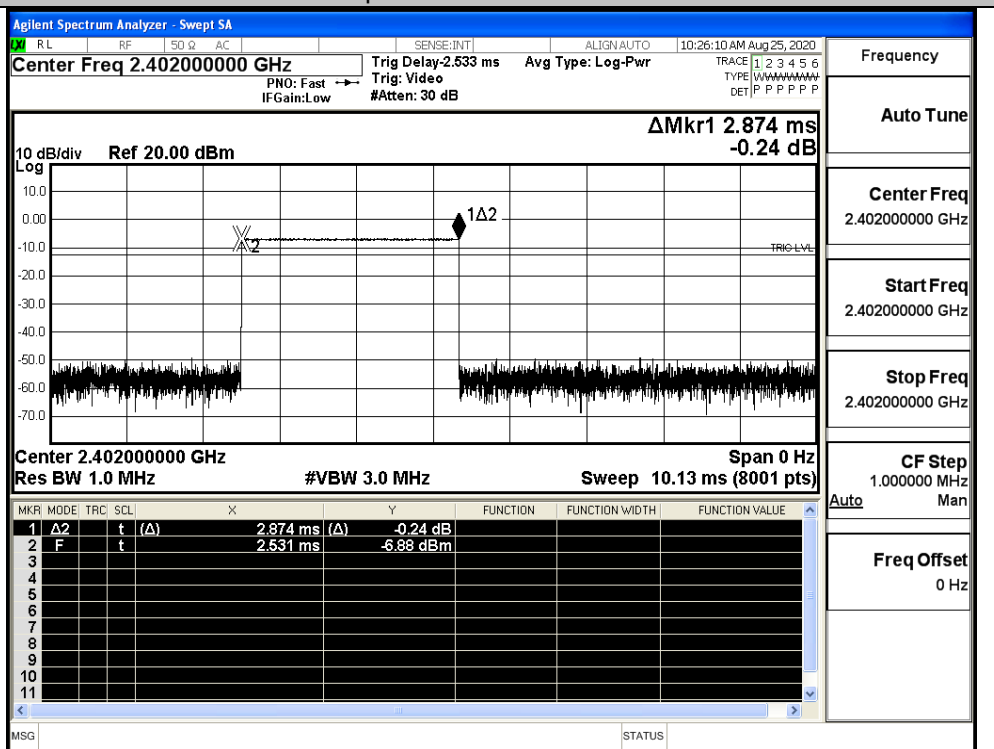
 $\pi/4$ DQPSK/Hop

A.5 Dwell Time

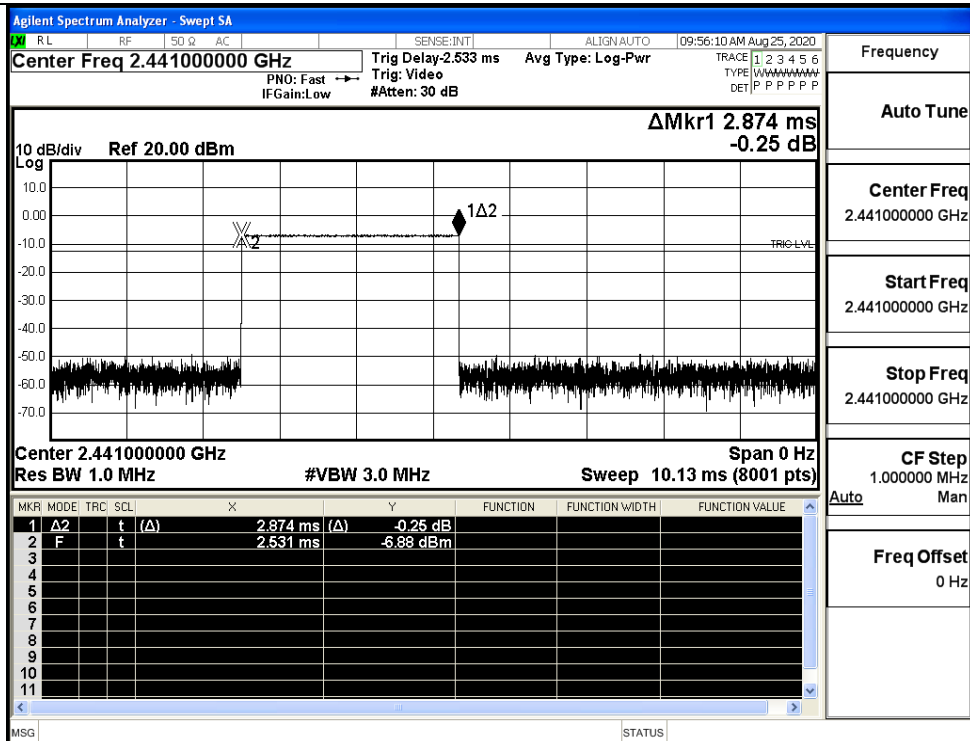
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.874	106.7	0.307	0.4	PASS
	DH5	MCH	2.874	106.7	0.307	0.4	PASS
	DH5	HCH	2.874	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.880	106.7	0.307	0.4	PASS
	2DH5	MCH	2.880	106.7	0.307	0.4	PASS
	2DH5	HCH	2.880	106.7	0.307	0.4	PASS

Test Graphs

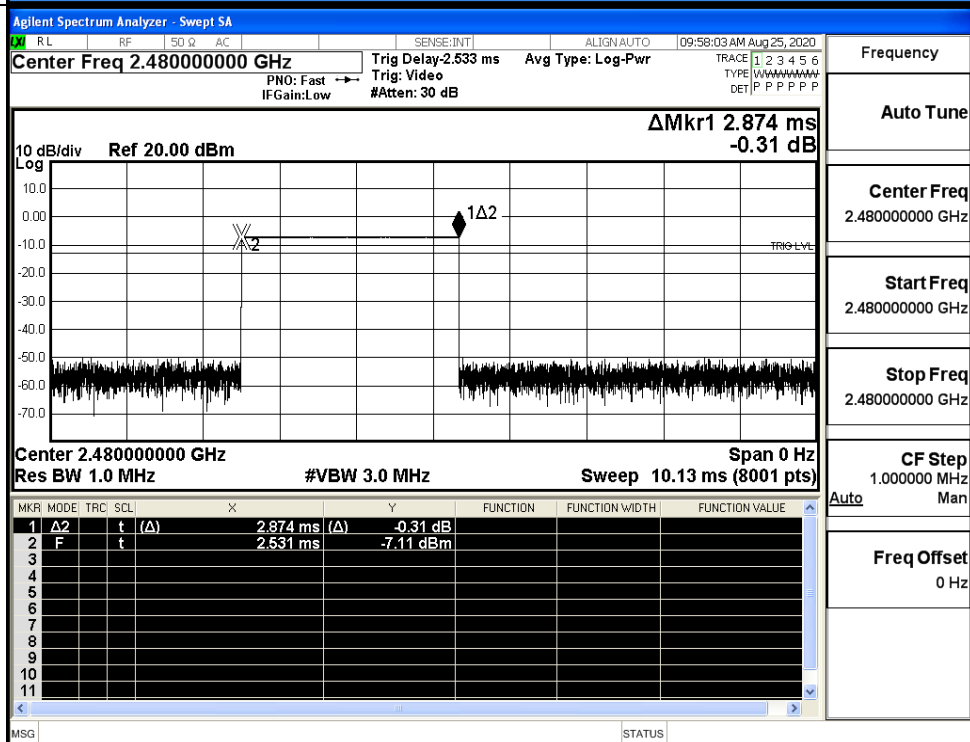
GFSK_DH5/LCH



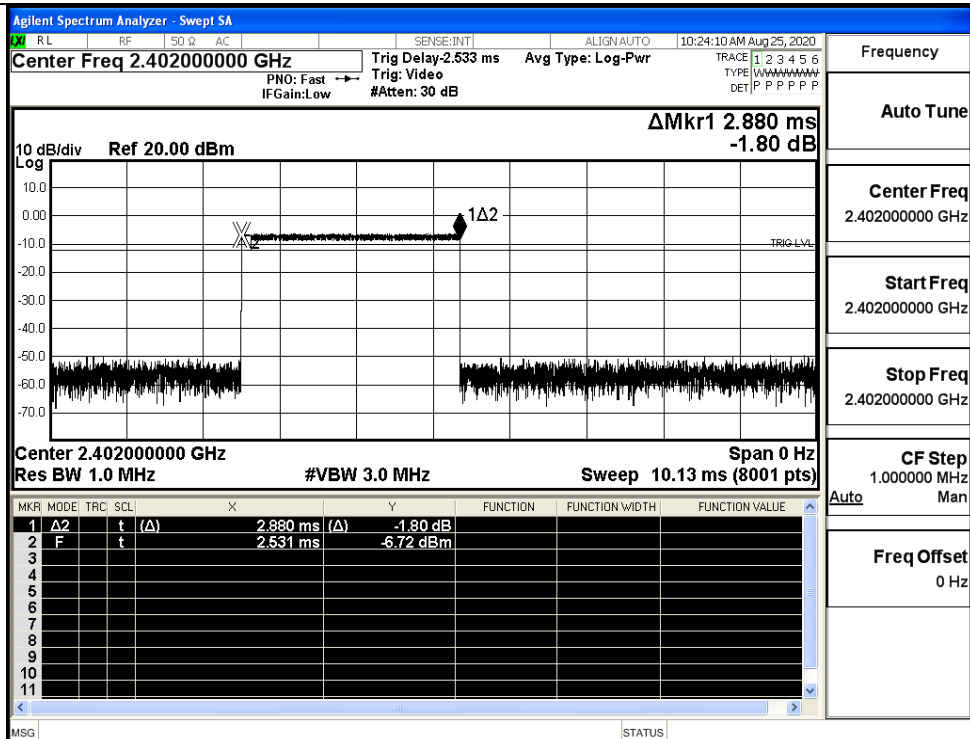
GFSK_DH5/MCH



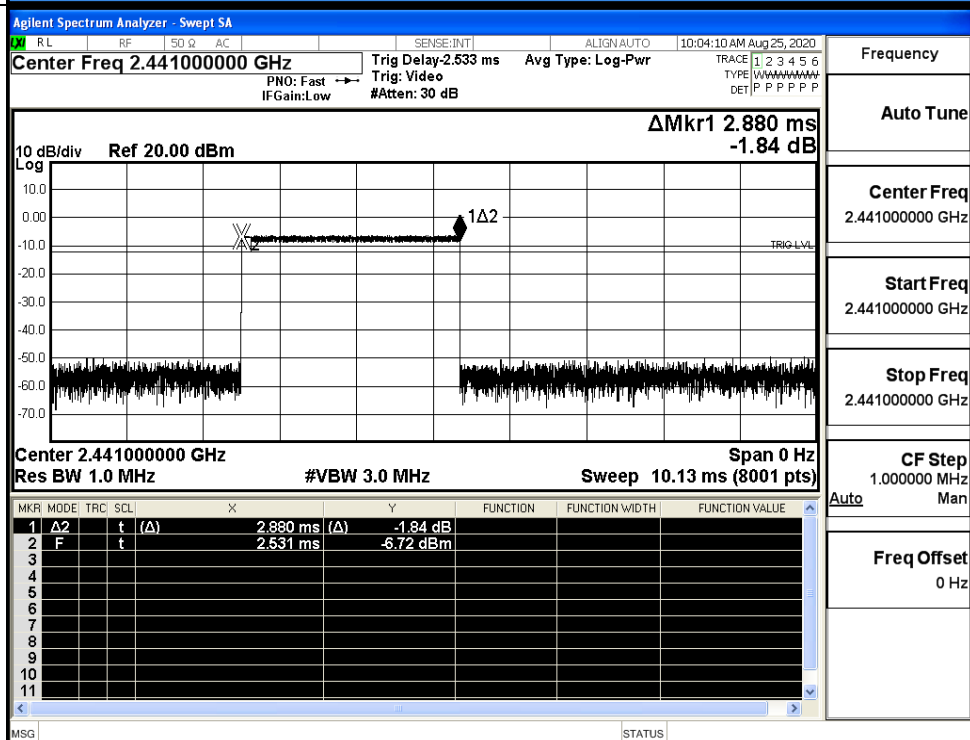
GFSK_DH5/HCH



$\pi/4$ DQPSK
_2DH5/LCH



$\pi/4$ DQPSK
_2DH5/MCH



Agilent Spectrum Analyzer - Swept SA

Center Freq 2.480000000 GHz
 PNO: Fast → IF Gain: Low
 Trg Delay: 2.533 ms
 Trg: Video
 #Atten: 30 dB
 ALIGN AUTO
 10:06:58 AM Aug 25, 2020
 TRACE 1 2 3 4 5 6
 TYPE W W W W W W W W
 DET P P P P P P P

Frequency
 Auto Tune
 Center Freq 2.480000000 GHz
 Start Freq 2.480000000 GHz
 Stop Freq 2.480000000 GHz
 CF Step 1.000000 MHz
 Auto Man

10 dB/div Ref 20.00 dBm
 Log
 ΔMkr1 2.880 ms
 -1.29 dB
 1Δ2
 TRIG-LVL

Center 2.480000000 GHz
 Res BW 1.0 MHz
 #VBW 3.0 MHz
 Sweep 10.13 ms (8001 pts)
 Span 0 Hz

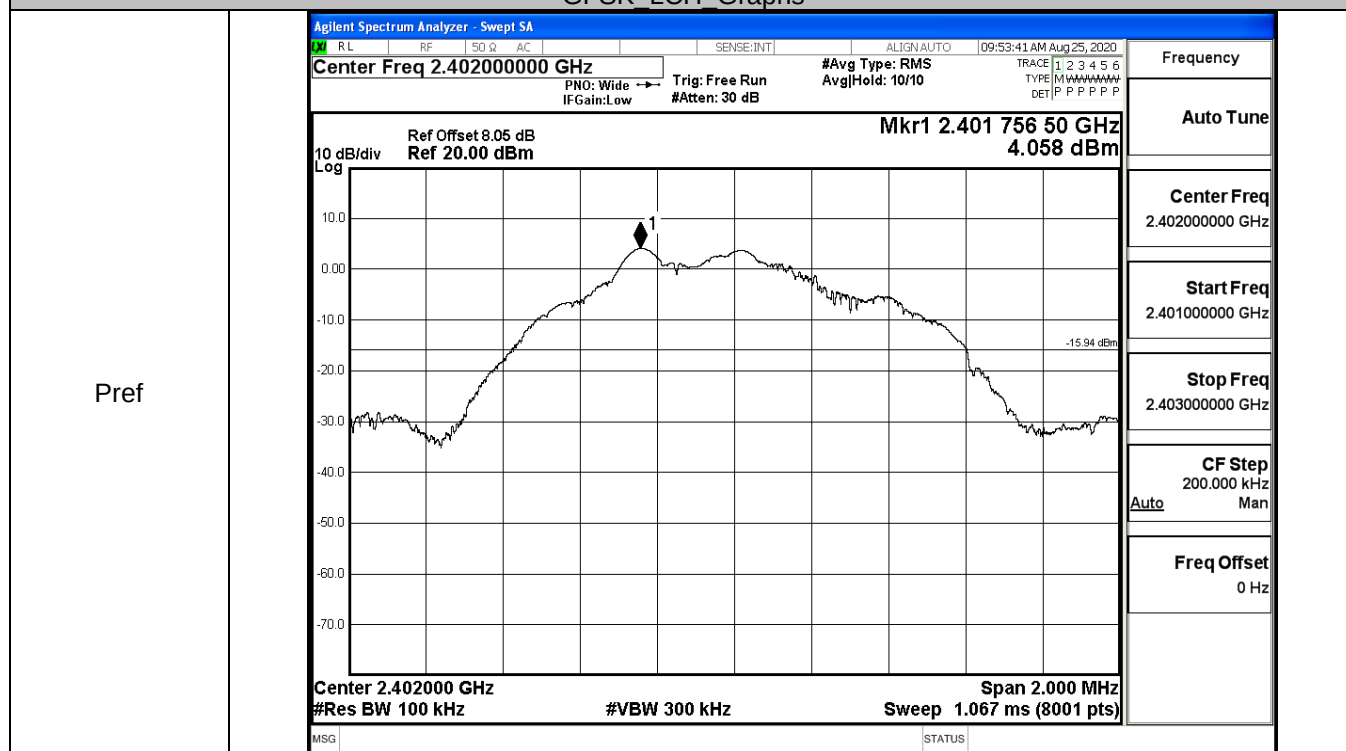
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	Δ2	t	(Δ)	2.880 ms	(Δ)	-1.29 dB		
2	F	t		2.531 ms		-7.10 dBm		
3								
4								
5								
6								
7								
8								
9								
10								
11								

MSG STATUS

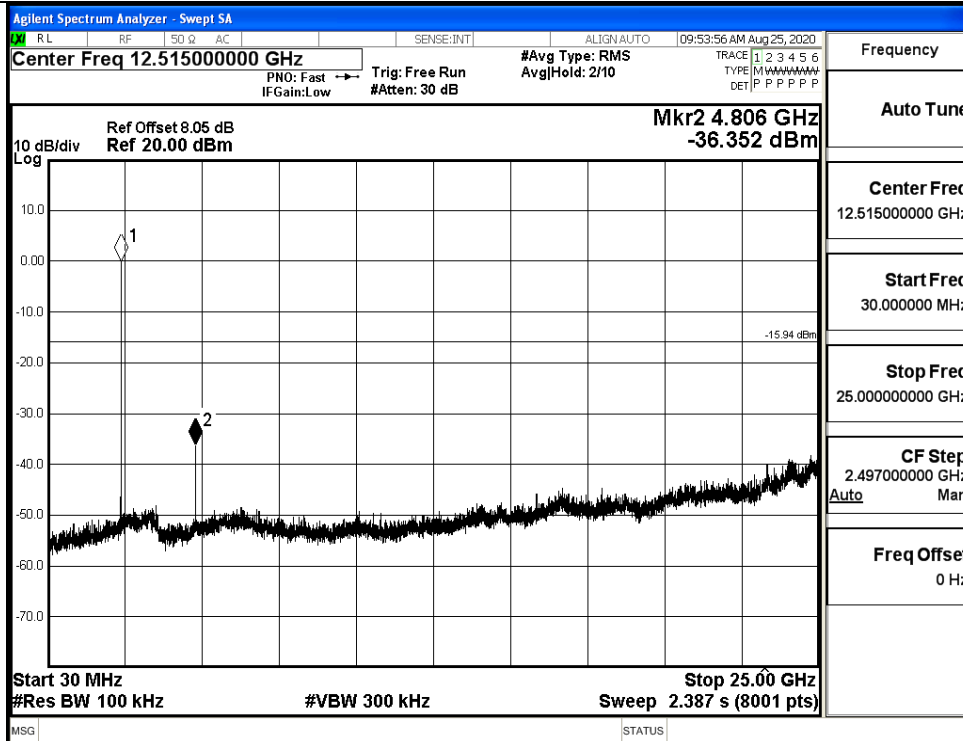
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	4.058	-36.352	-15.942	PASS
	MCH	0.809	-38.991	-19.191	PASS
	HCH	0.835	-37.738	-19.165	PASS
$\pi/4$ DQPSK	LCH	4.284	-34.749	-15.716	PASS
	MCH	1.242	-38.144	-18.758	PASS
	HCH	1.106	-38.636	-18.894	PASS

GFSK LCH Graphs

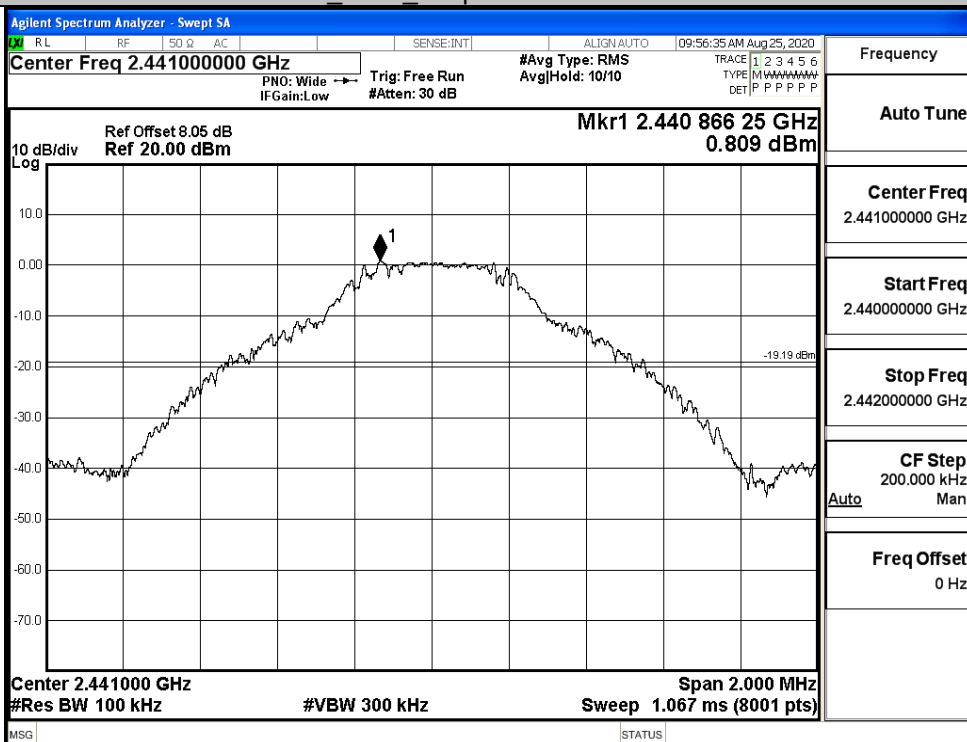


Puw

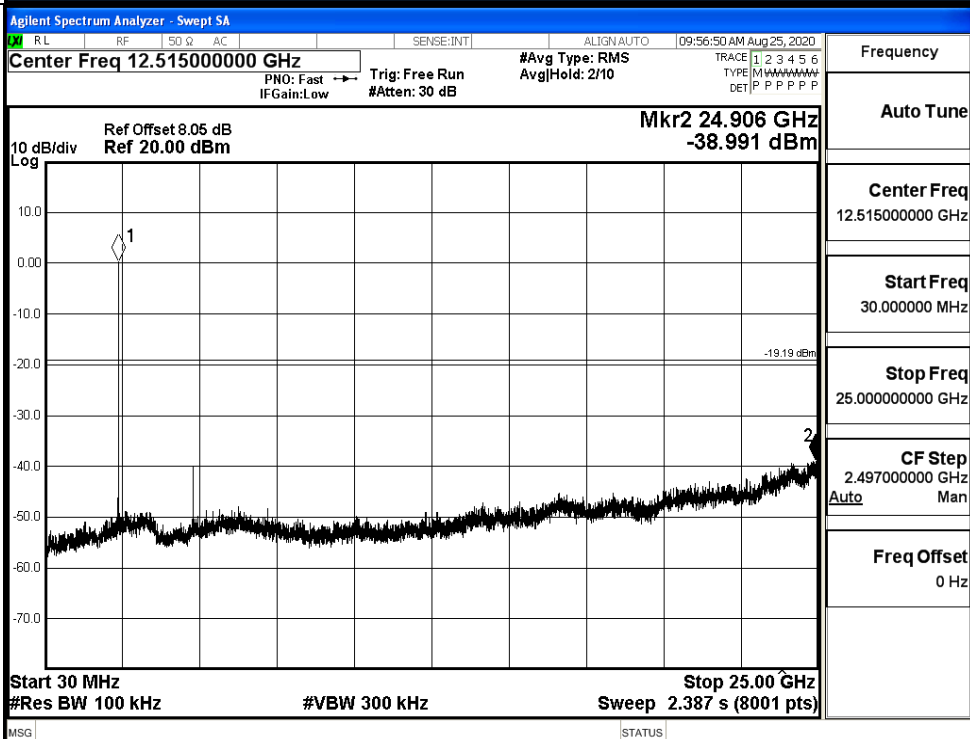


GFSK_MCH_Graphs

Pref

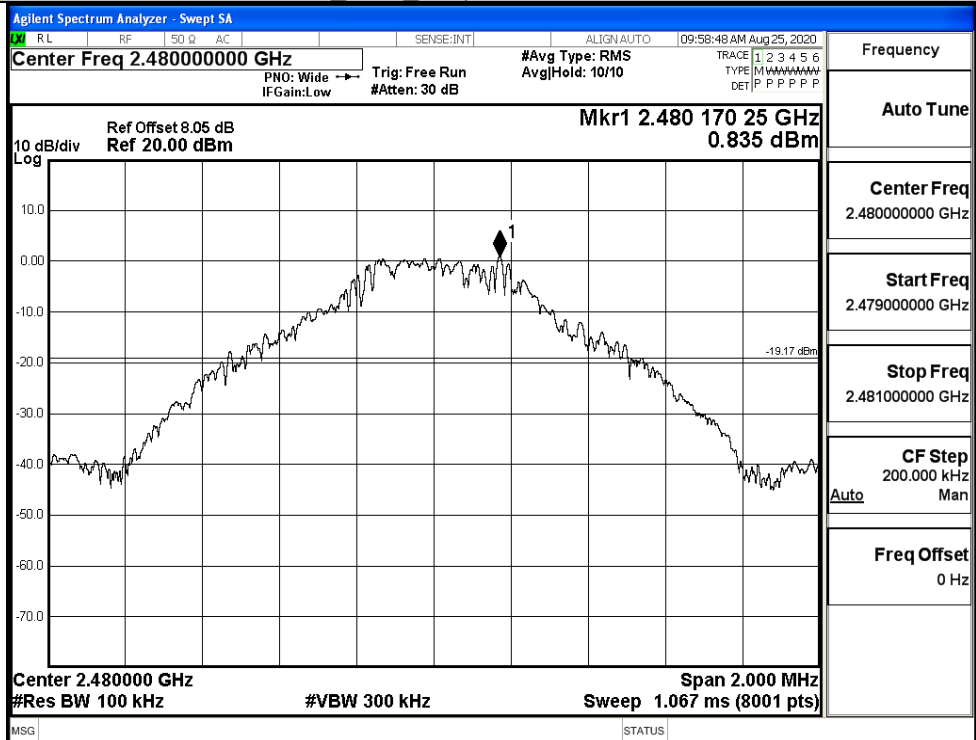


Puw

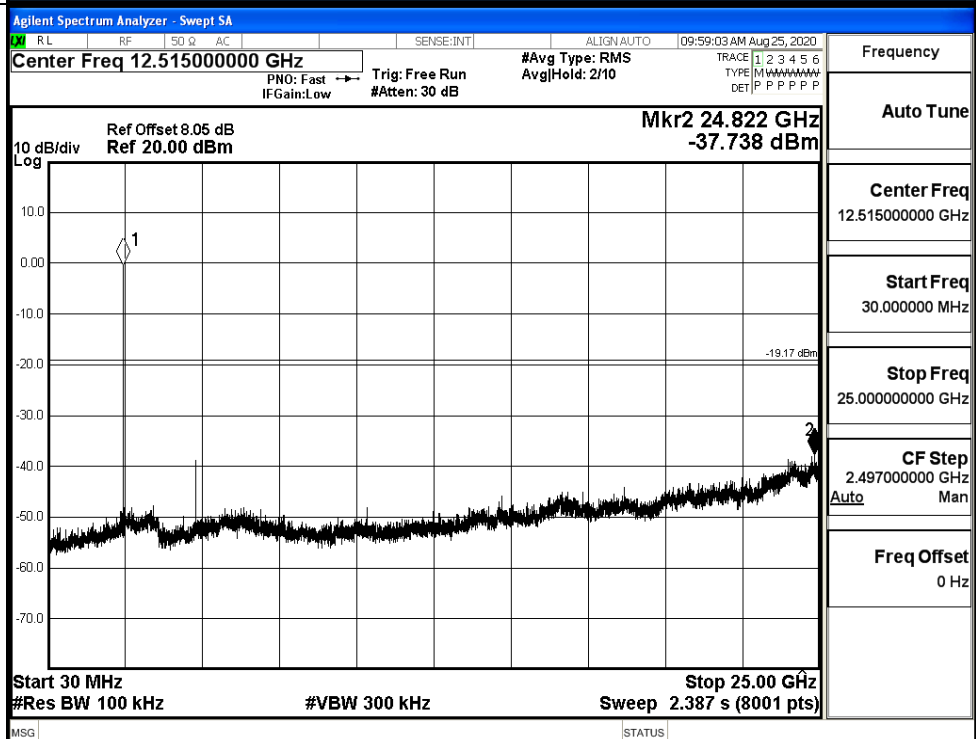


GFSK HCH Graphs

Pref

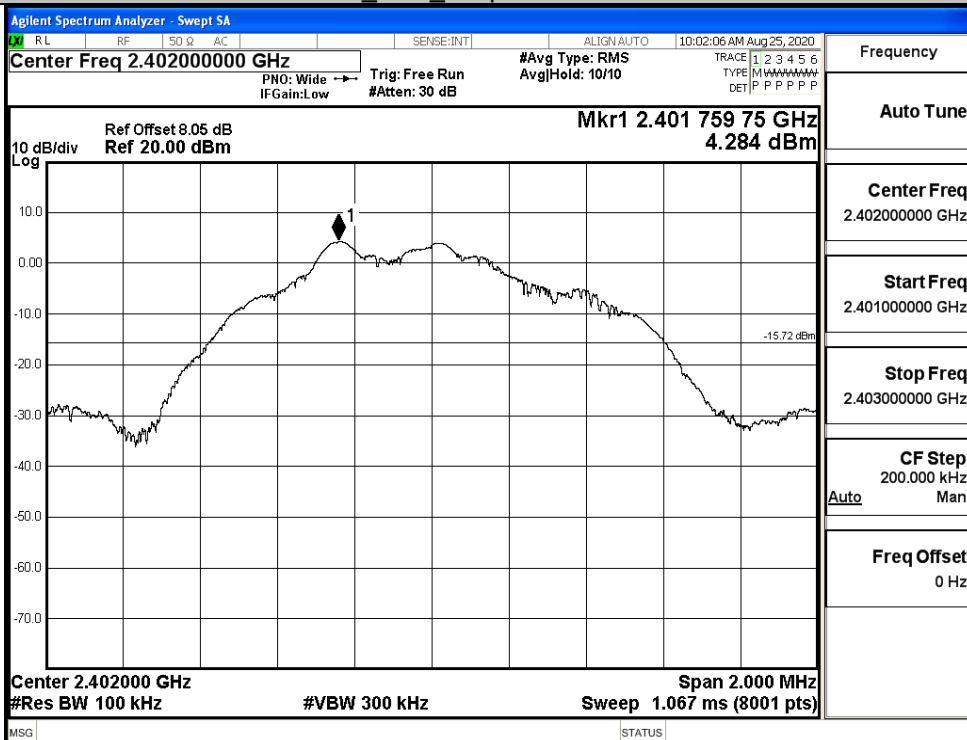


Puw

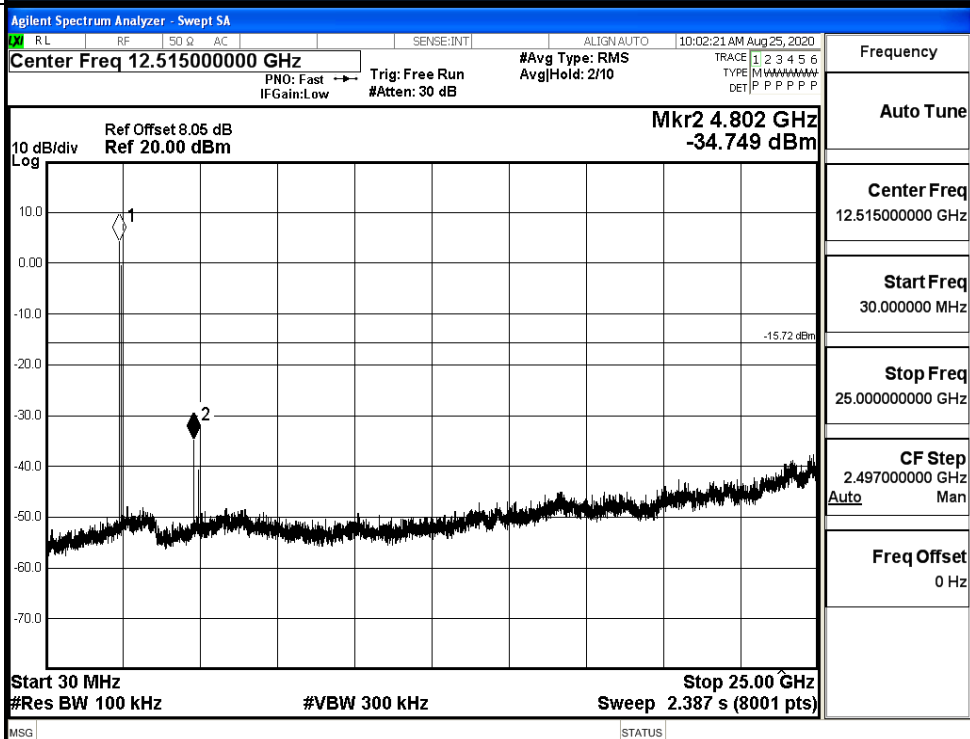


$\pi/4$ DQPSK_LCH_Graphs

Pref

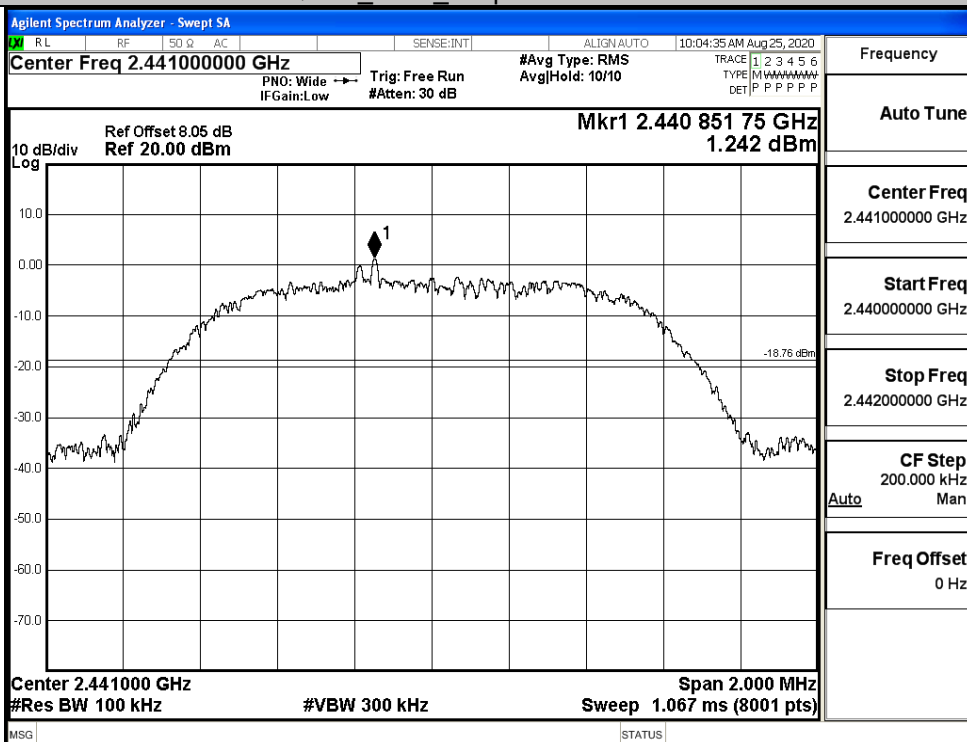


Puw

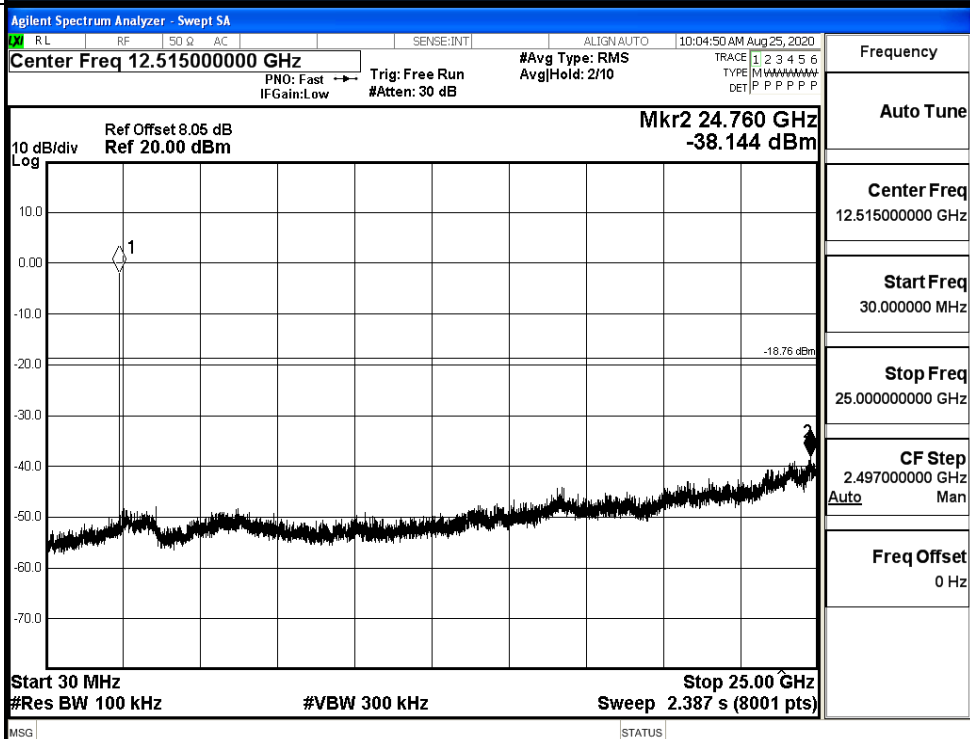


π /4DQPSK_MCH_Graphs

Pref

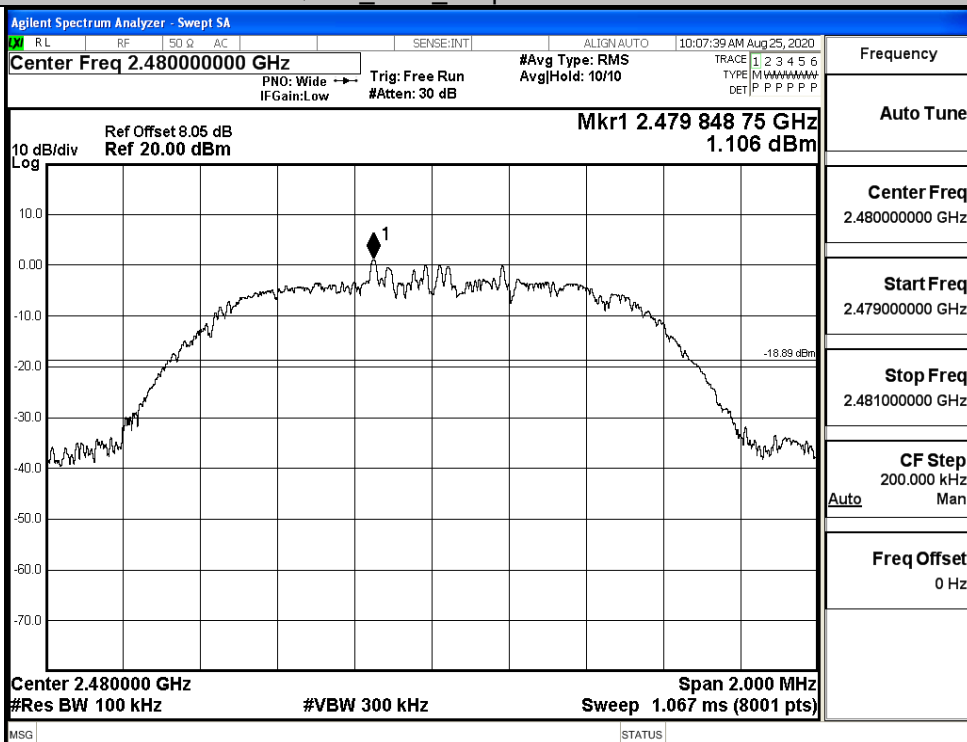


Puw

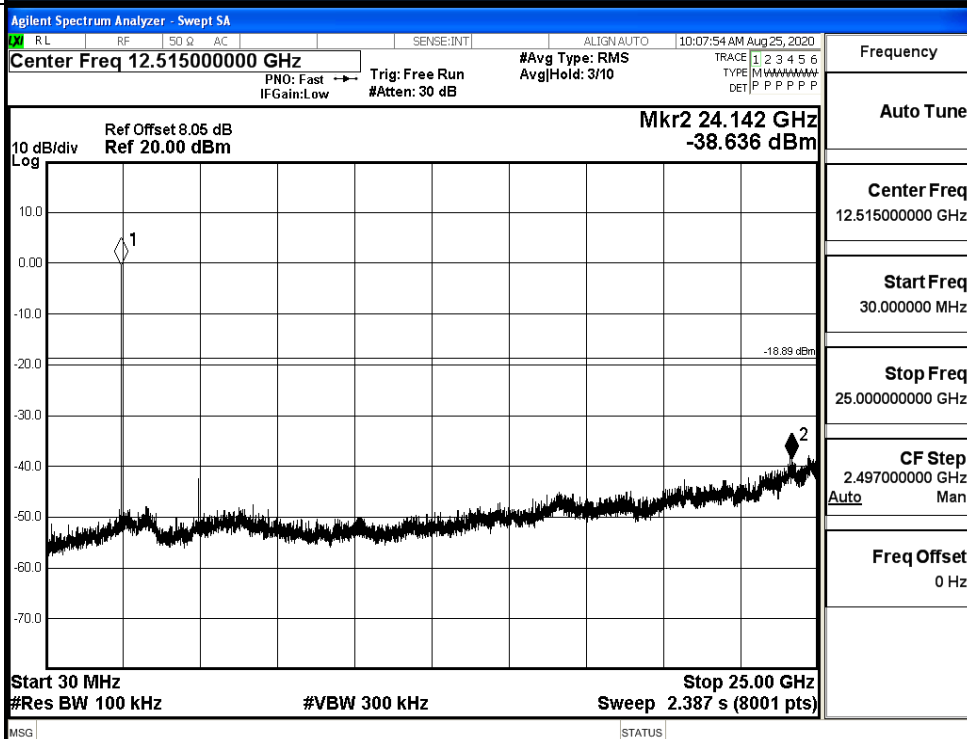


π /4DQPSK_HCH_Graphs

Pref



Puw

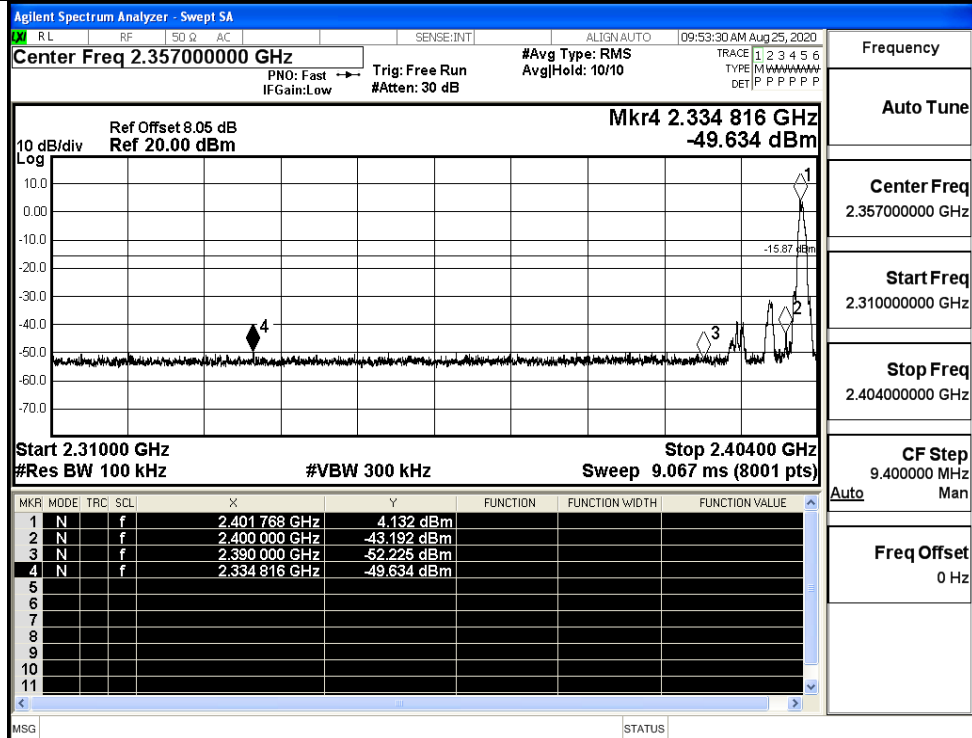


A.7 Band-edge for RF Conducted Emissions

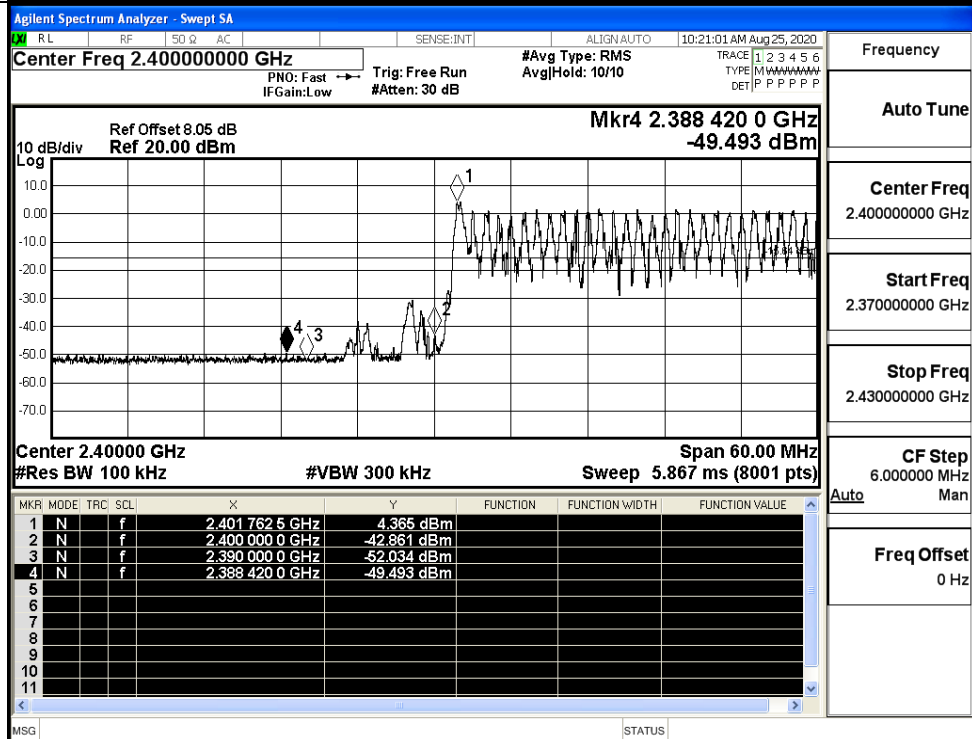
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	4.132	Off	-49.634	-15.87	PASS
			4.365	On	-49.493	-15.64	PASS
	HCH	2480	0.769	Off	-44.666	-19.23	PASS
			1.444	On	-48.439	-18.56	PASS
$\pi/4$ DQPSK	LCH	2402	4.300	Off	-49.525	-15.7	PASS
			4.358	On	-49.041	-15.64	PASS
	HCH	2480	-0.325	Off	-48.922	-20.33	PASS
			1.250	On	-49.076	-18.75	PASS

Test Graphs

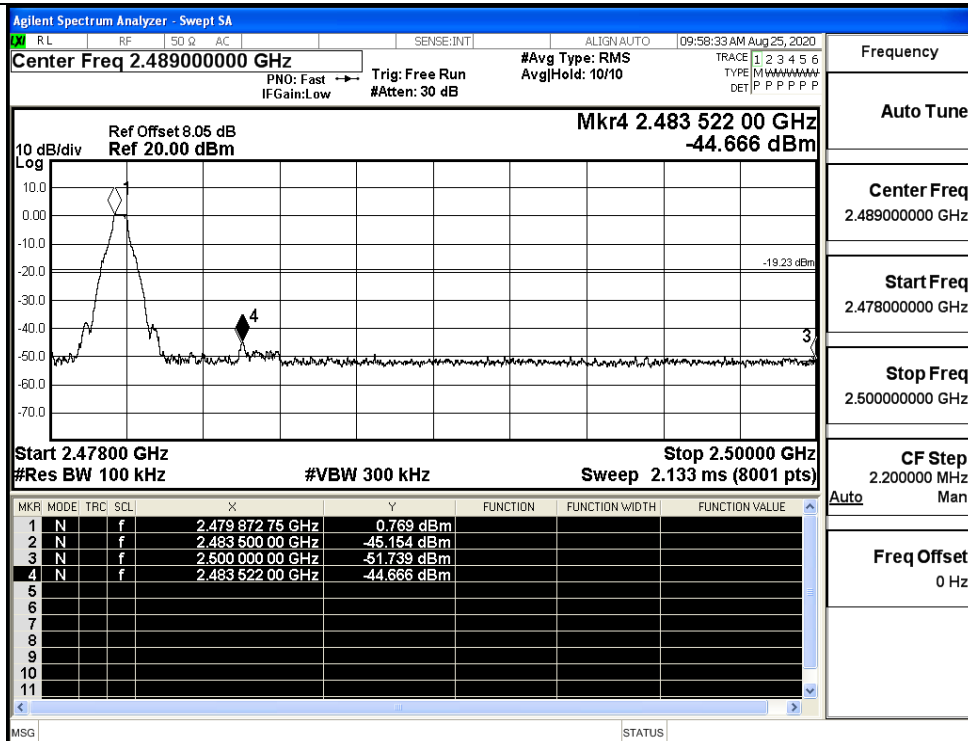
GFSK/LCH/No Hop



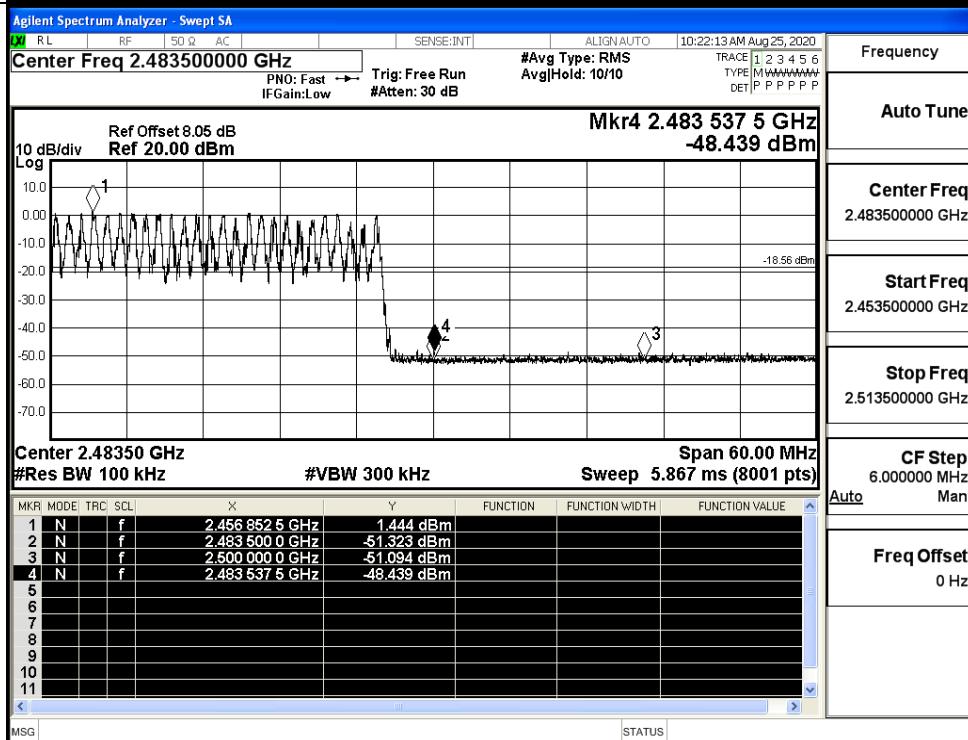
GFSK/LCH/Hop



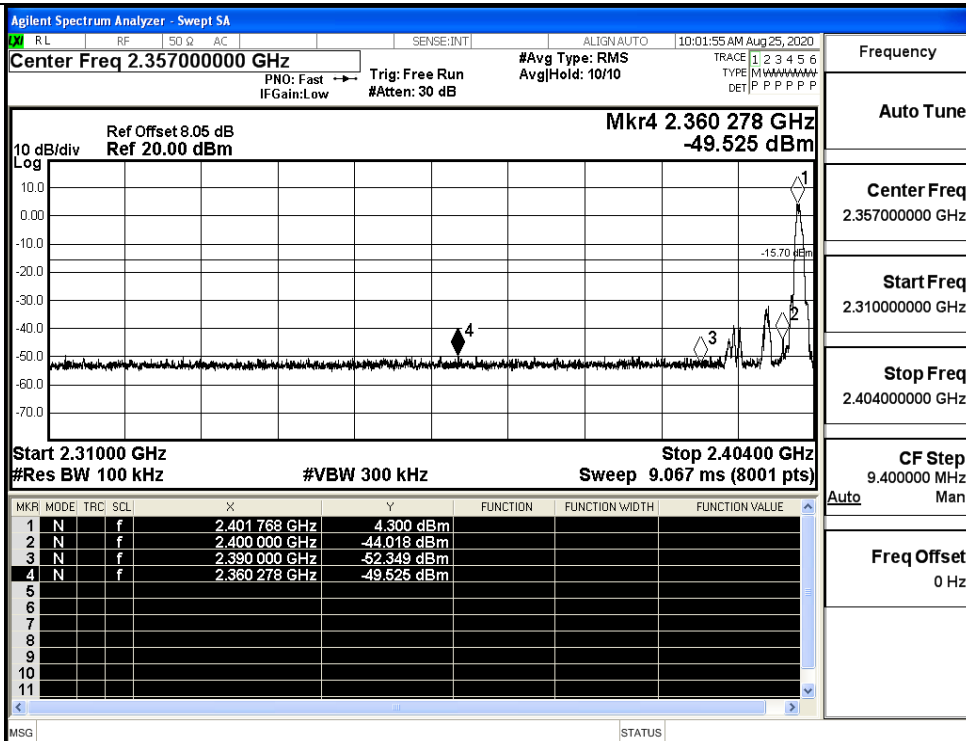
GFSK/HCH/No Hop



GFSK/HCH/Hop



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



Frequency

Auto Tune

Center Freq
2.357000000 GHz

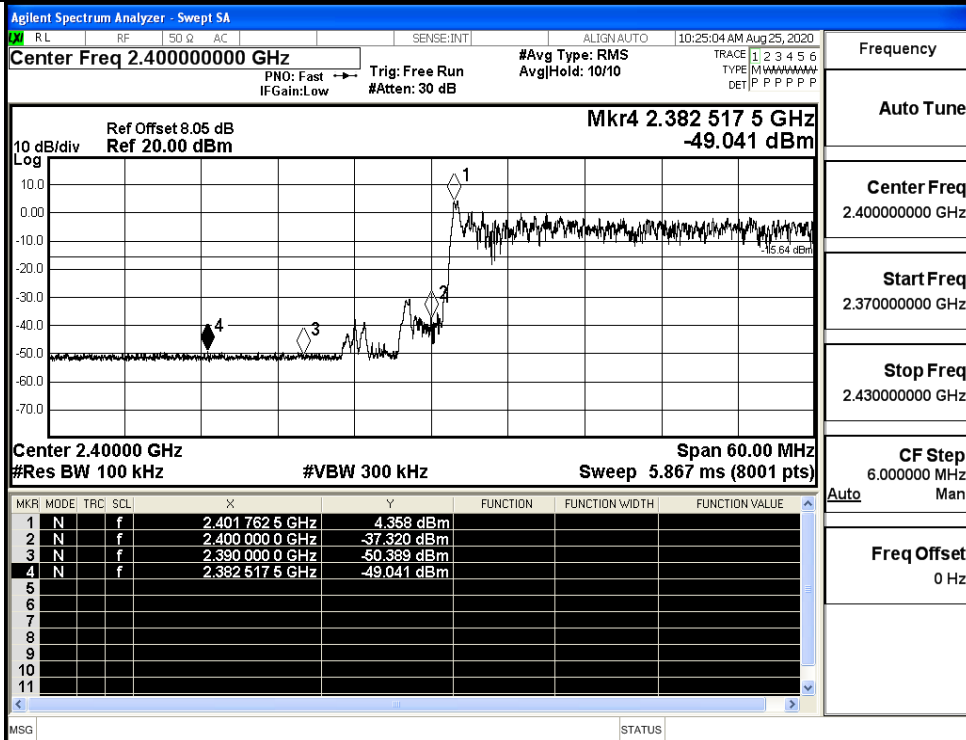
Start Freq
2.310000000 GHz

Stop Freq
2.404000000 GHz

CF Step
9.400000 MHz
Auto Man

Freq Offset
0 Hz

$\pi/4$ DQPSK/LCH/Hop



Frequency

Auto Tune

Center Freq
2.400000000 GHz

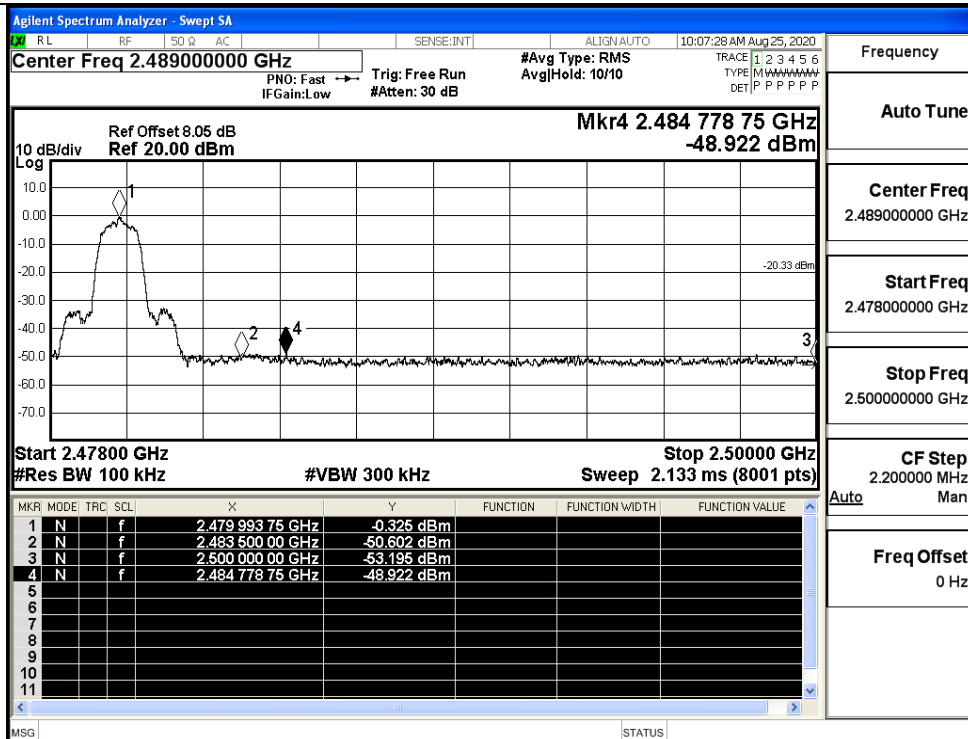
Start Freq
2.370000000 GHz

Stop Freq
2.430000000 GHz

CF Step
6.000000 MHz
Auto Man

Freq Offset
0 Hz

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



Frequency

Auto Tune

Center Freq
2.489000000 GHz

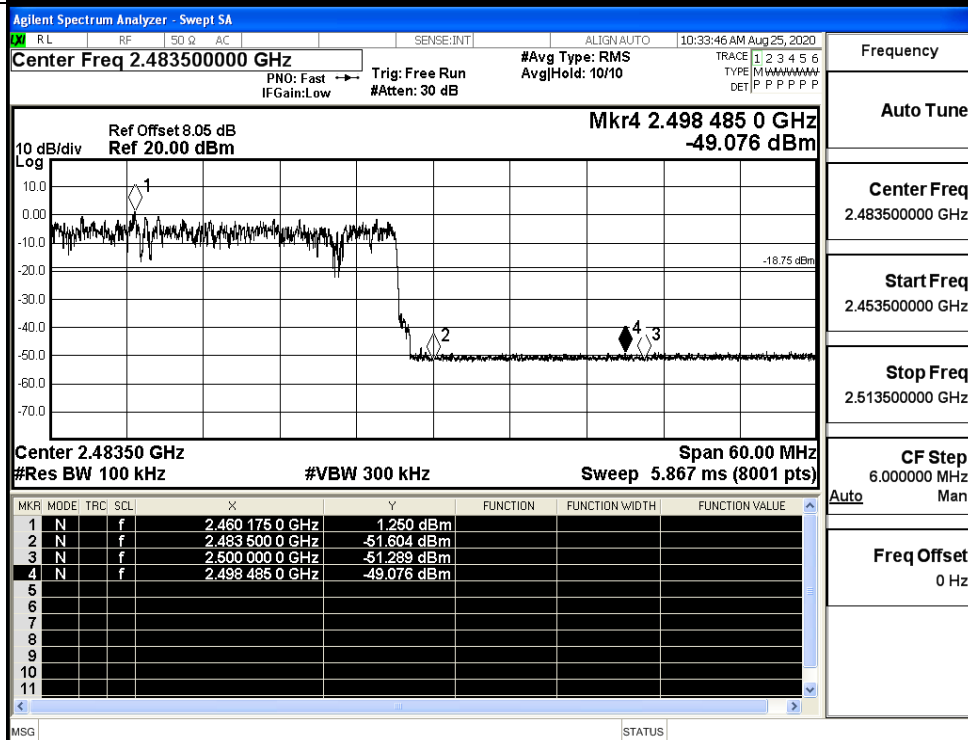
Start Freq
2.478000000 GHz

Stop Freq
2.500000000 GHz

CF Step
2.200000 MHz
Auto Man

Freq Offset
0 Hz

$\pi/4$ DQPSK/HCH/Hop



Frequency

Auto Tune

Center Freq
2.483500000 GHz

Start Freq
2.453500000 GHz

Stop Freq
2.513500000 GHz

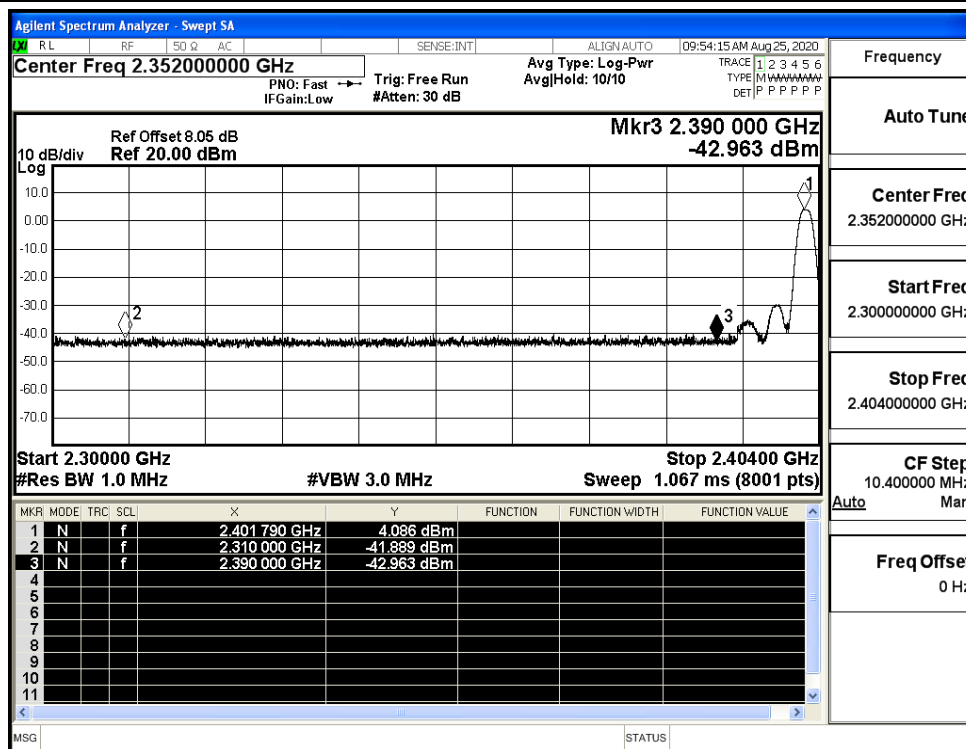
CF Step
6.000000 MHz
Auto Man

Freq Offset
0 Hz

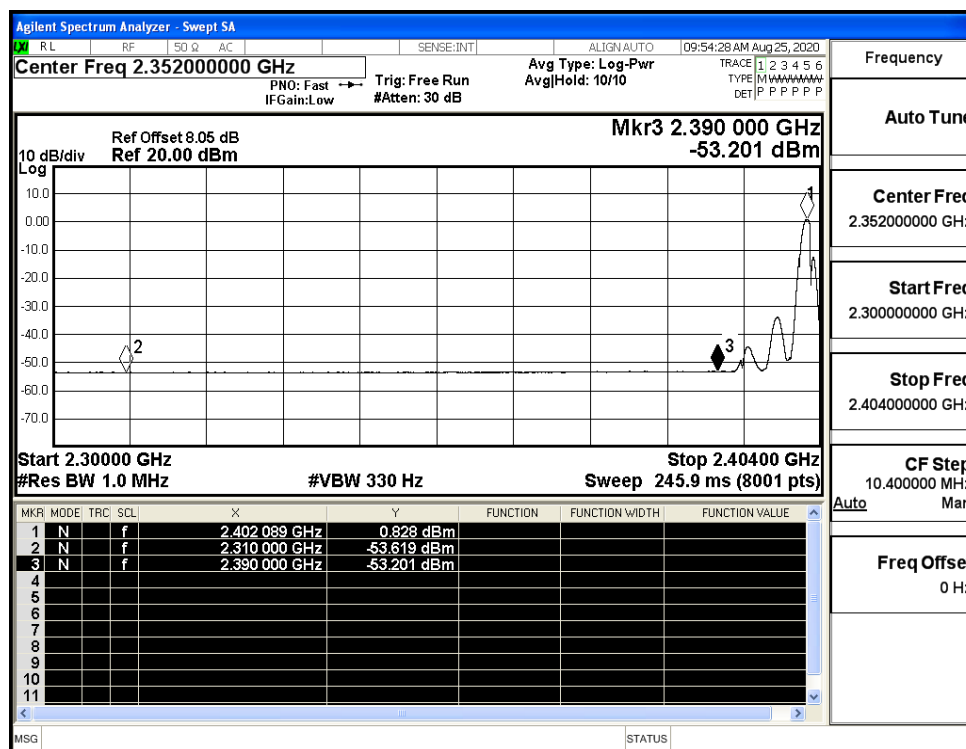
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-41.89	2.0	0	55.34	PEAK	74	PASS
	Off	2310.0	-53.62	2.0	0	43.61	AV	54	PASS
	Off	2390.0	-42.96	2.0	0	54.27	PEAK	74	PASS
	Off	2390.0	-53.20	2.0	0	44.03	AV	54	PASS
	Off	2483.5	-37.54	2.0	0	59.69	PEAK	74	PASS
	Off	2483.5	-48.56	2.0	0	48.67	AV	54	PASS
	Off	2500.0	-42.72	2.0	0	54.51	PEAK	74	PASS
	Off	2500.0	-52.31	2.0	0	44.92	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.32	2.0	0	53.91	PEAK	74	PASS
	Off	2310.0	-53.15	2.0	0	44.11	AV	54	PASS
	Off	2390.0	-43.21	2.0	0	54.02	PEAK	74	PASS
	Off	2390.0	-52.86	2.0	0	44.37	AV	54	PASS
	Off	2483.5	-40.02	2.0	0	57.21	PEAK	74	PASS
	Off	2483.5	-49.83	2.0	0	47.40	AV	54	PASS
	Off	2500.0	-42.31	2.0	0	54.92	PEAK	74	PASS
	Off	2500.0	-52.38	2.0	0	44.85	AV	54	PASS

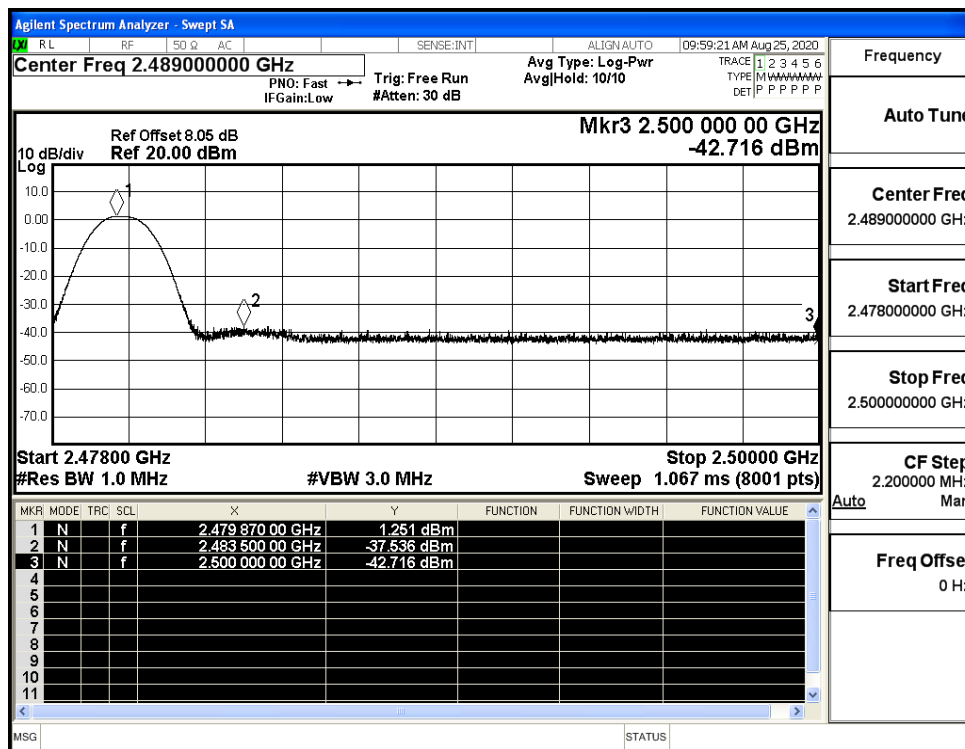
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



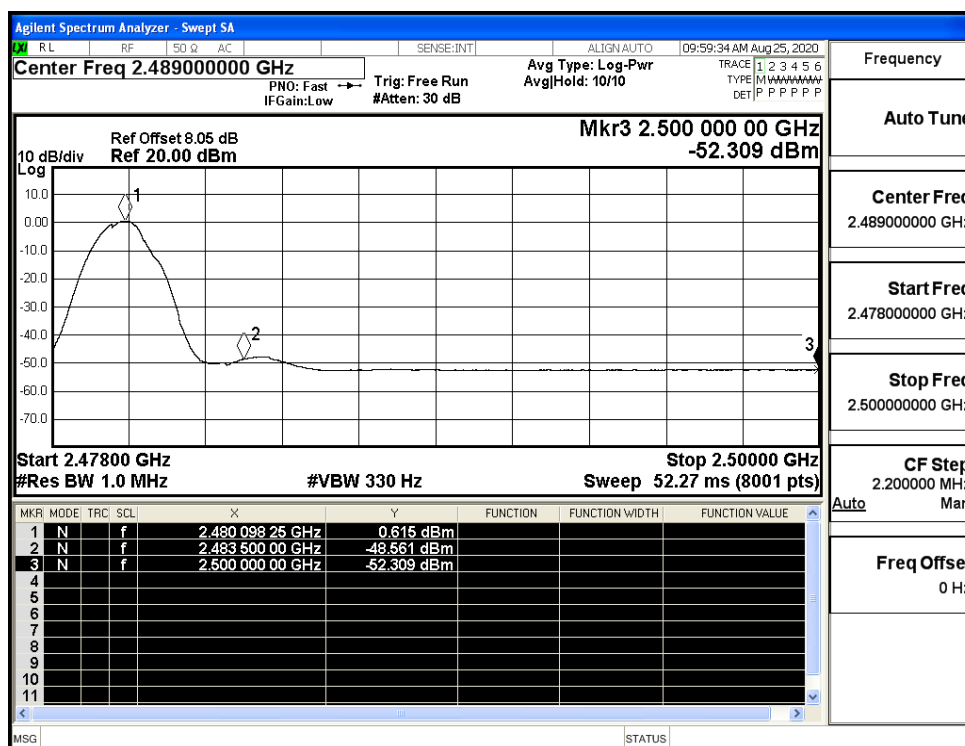
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



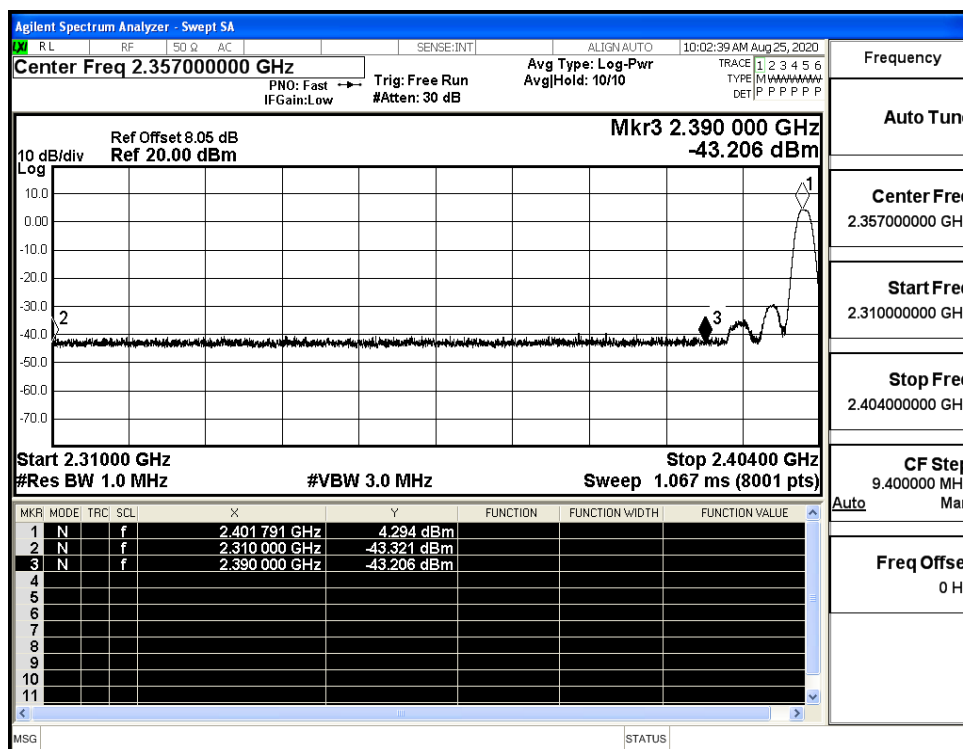
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



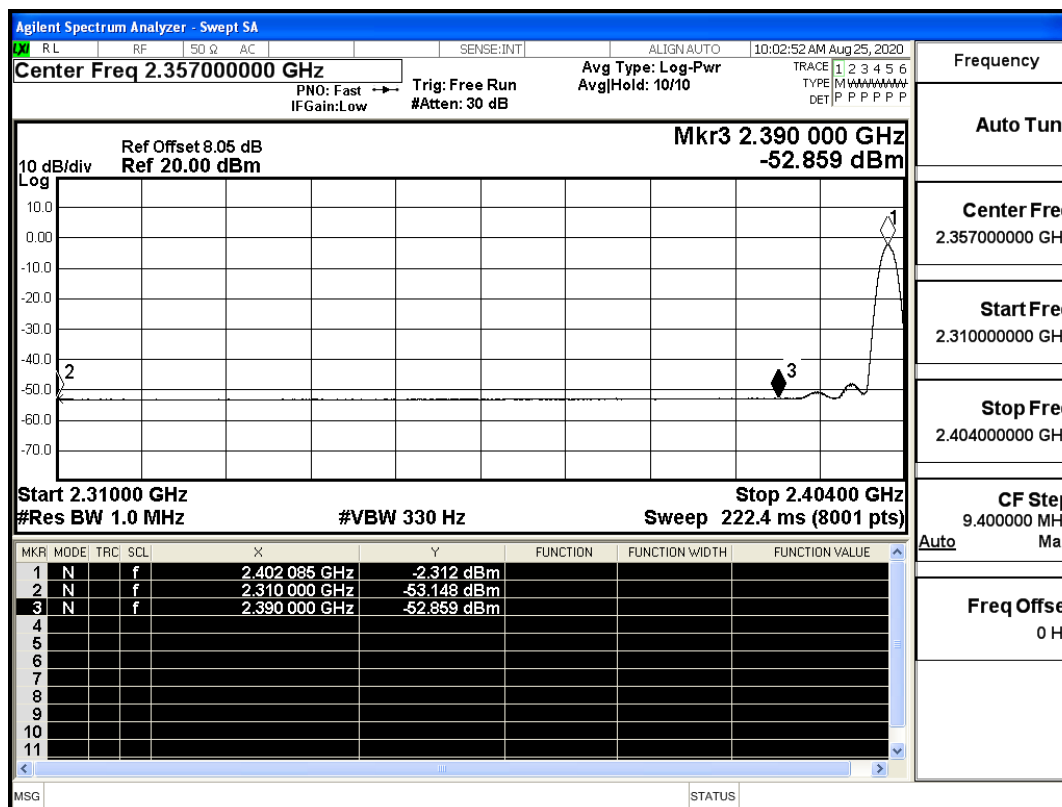
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)

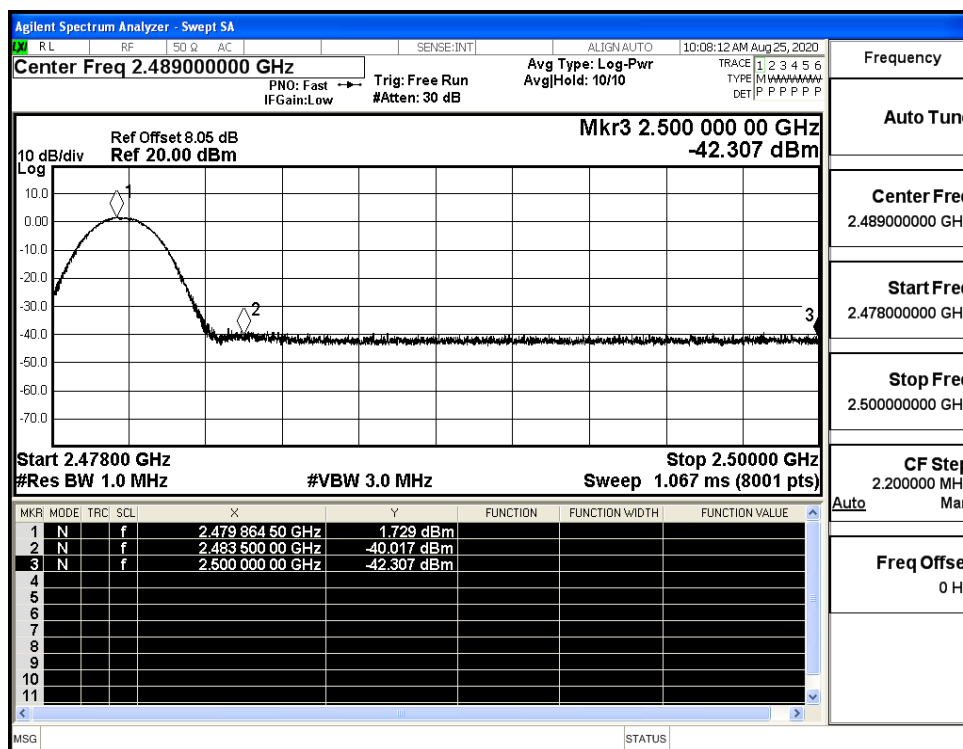


Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (High Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (High Channel)