

Appendix A

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

Product Name: Bluetooth Speaker

Trade Mark: N/A

Test Model: ANC-BS949R

Environmental Conditions

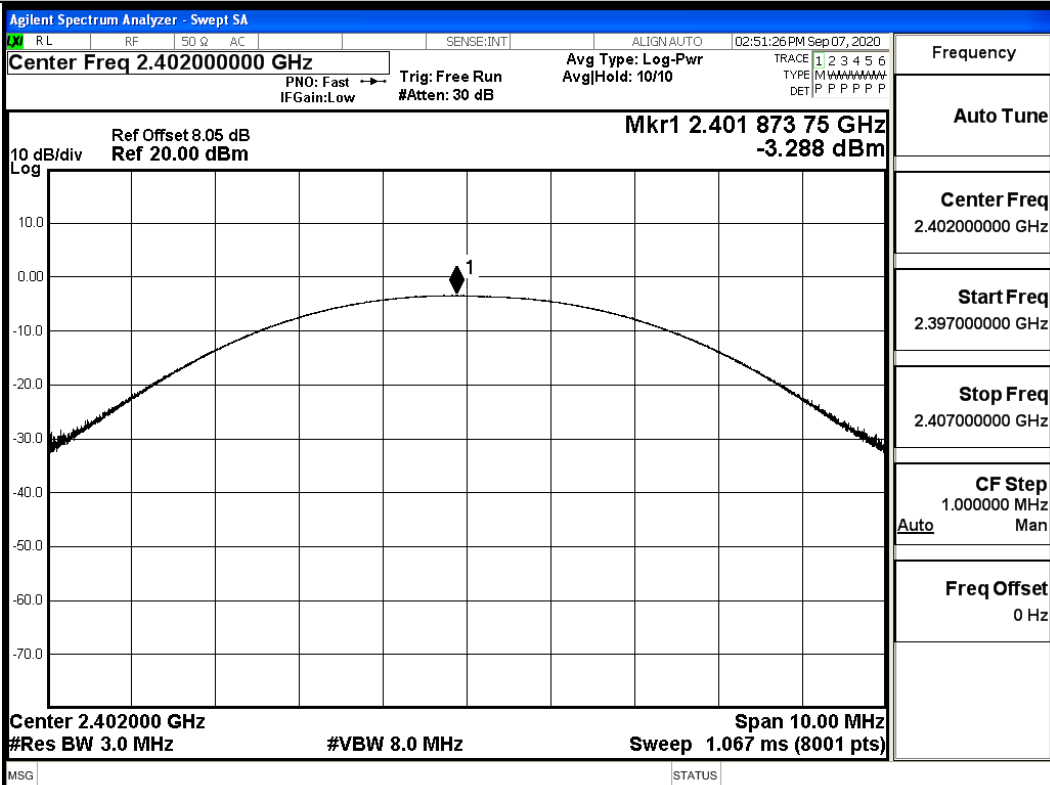
Temperature:	25 ° C
Relative Humidity:	50%
ATM Pressure:	100.0 kPa
Test Engineer:	Jenny Wu
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

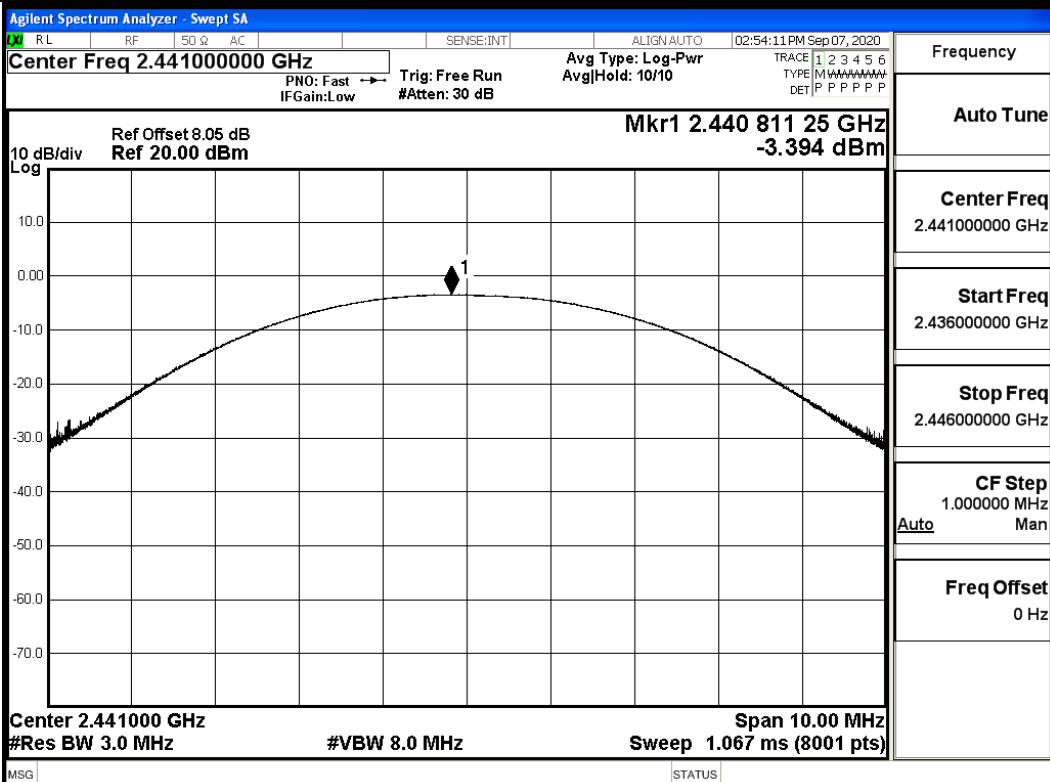
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-3.288	21	PASS
	MCH	-3.394	21	PASS
	HCH	-3.657	21	PASS
$\pi/4$ DQPSK	LCH	-2.570	21	PASS
	MCH	-2.690	21	PASS
	HCH	-2.934	21	PASS

Test Graphs

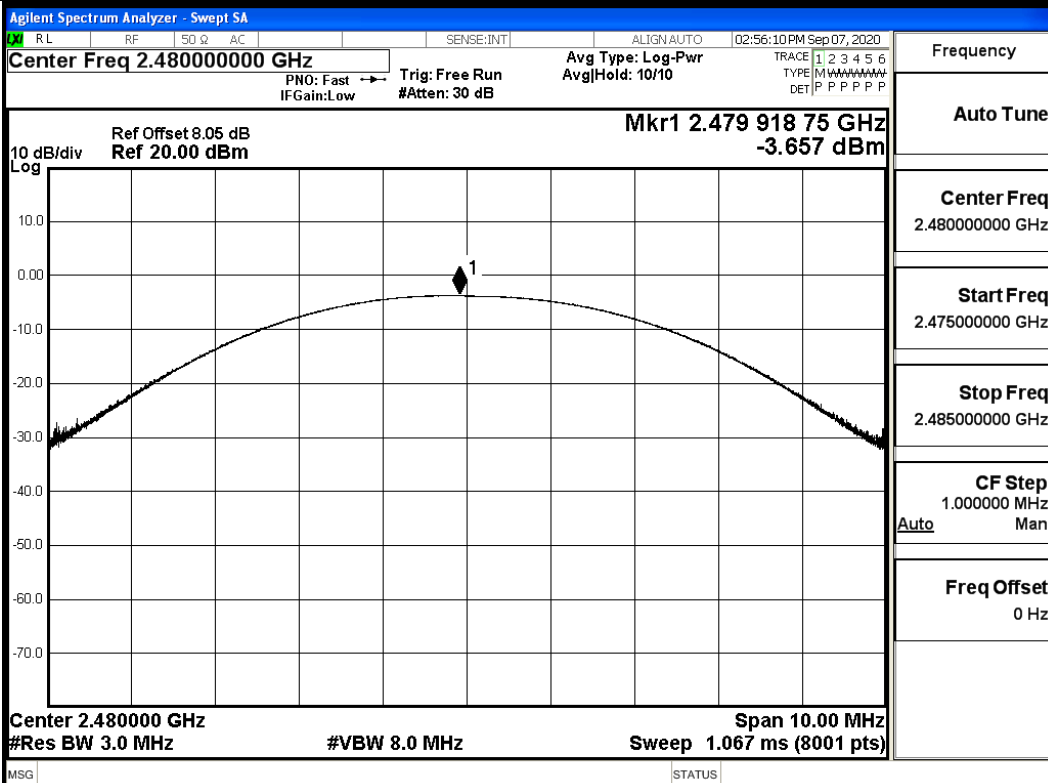
GFSK/LCH



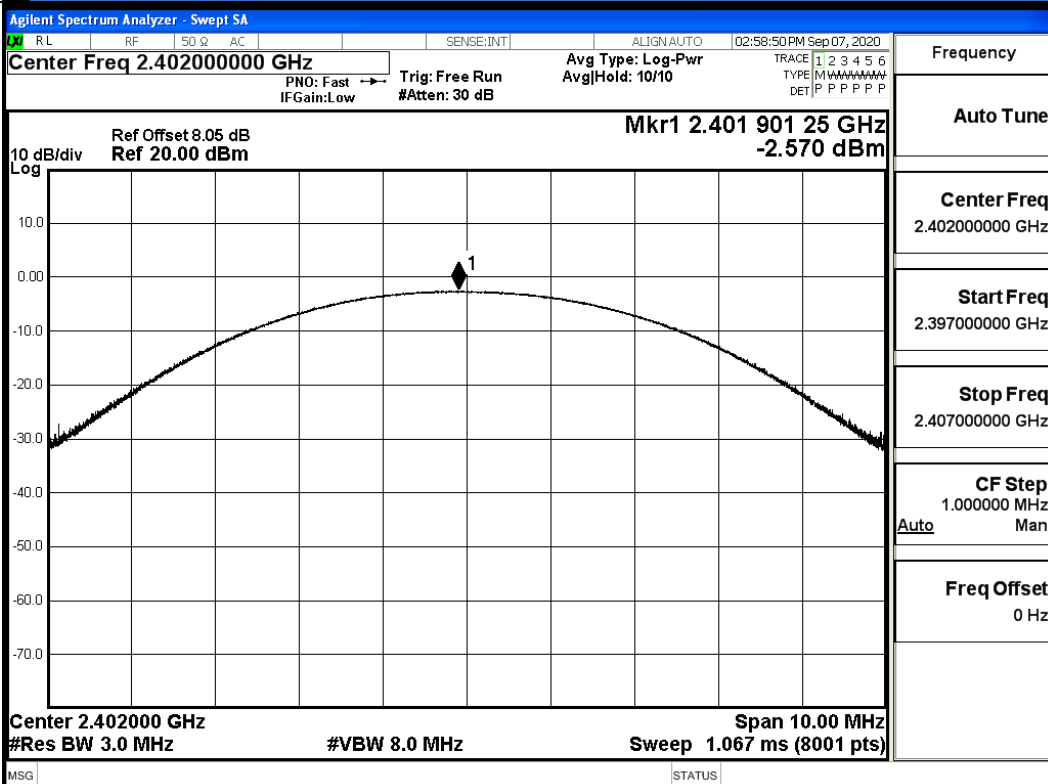
GFSK/MCH

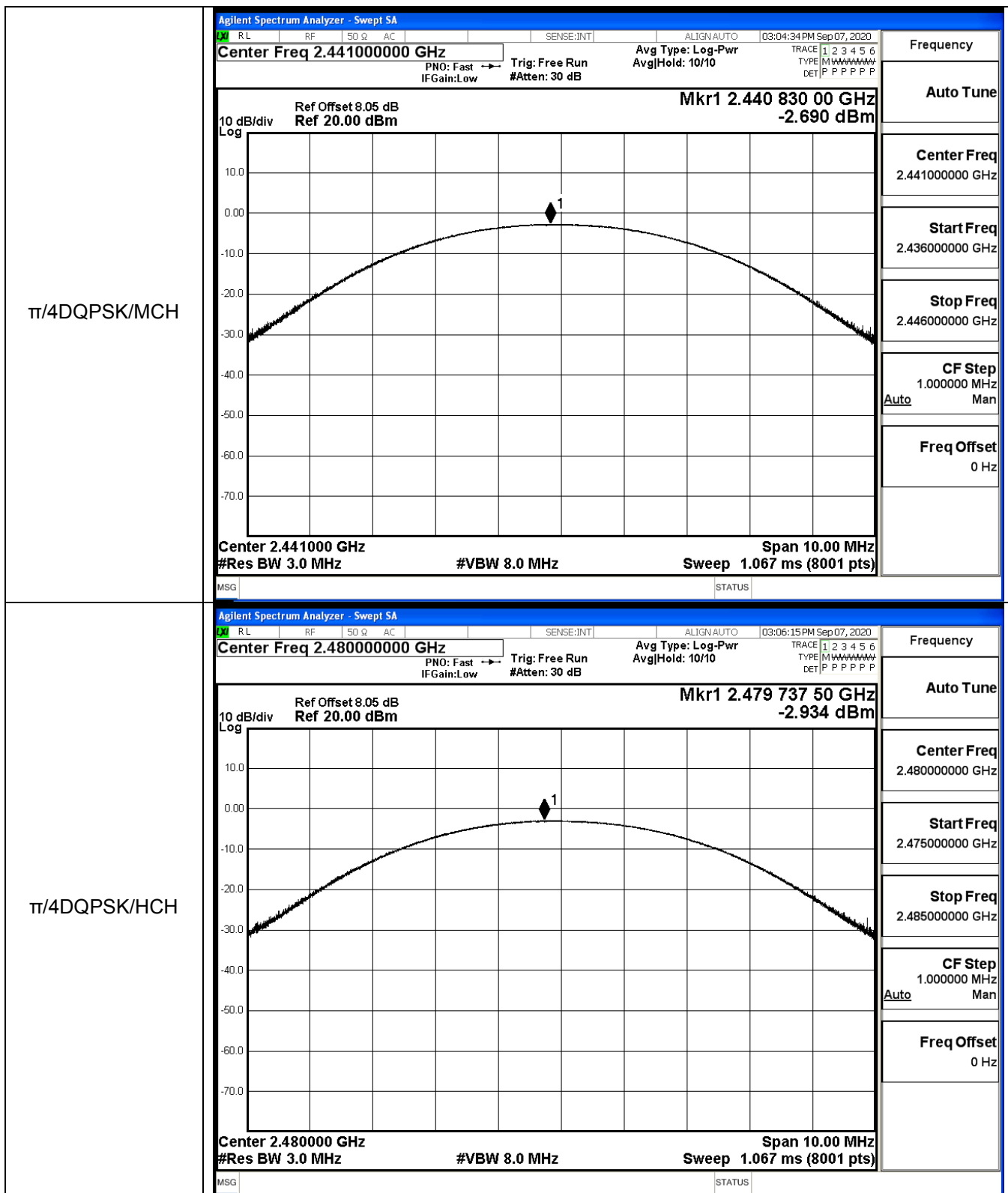


GFSK/HCH



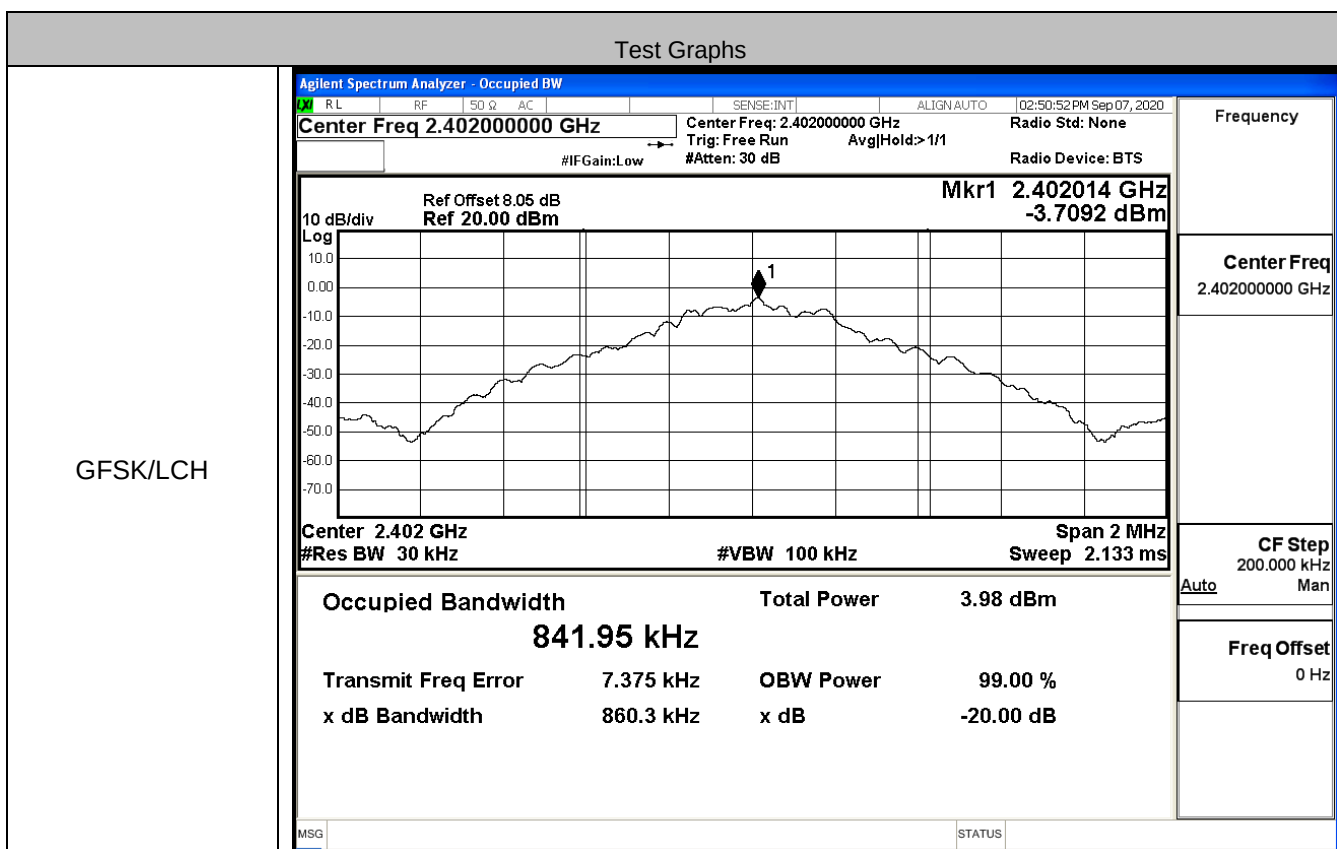
$\pi/4$ DQPSK/LCH



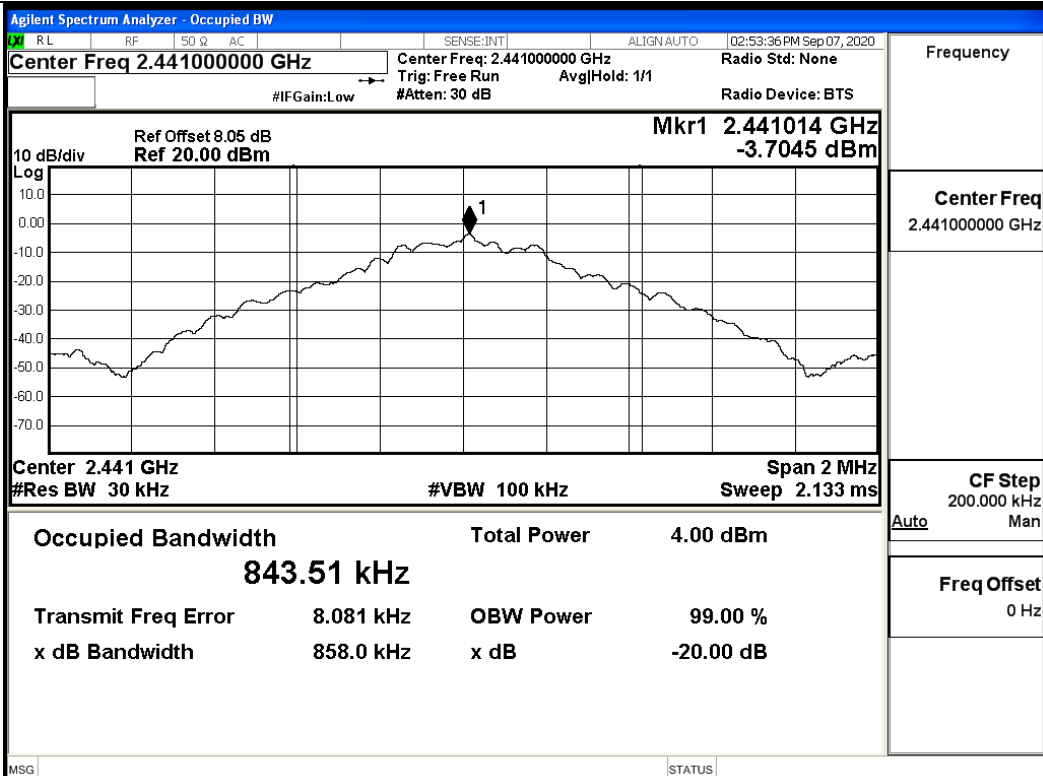


A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.8603	Not Specified	PASS
	MCH	0.8580	Not Specified	PASS
	HCH	0.8615	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.238	Not Specified	PASS
	MCH	1.240	Not Specified	PASS
	HCH	1.240	Not Specified	PASS

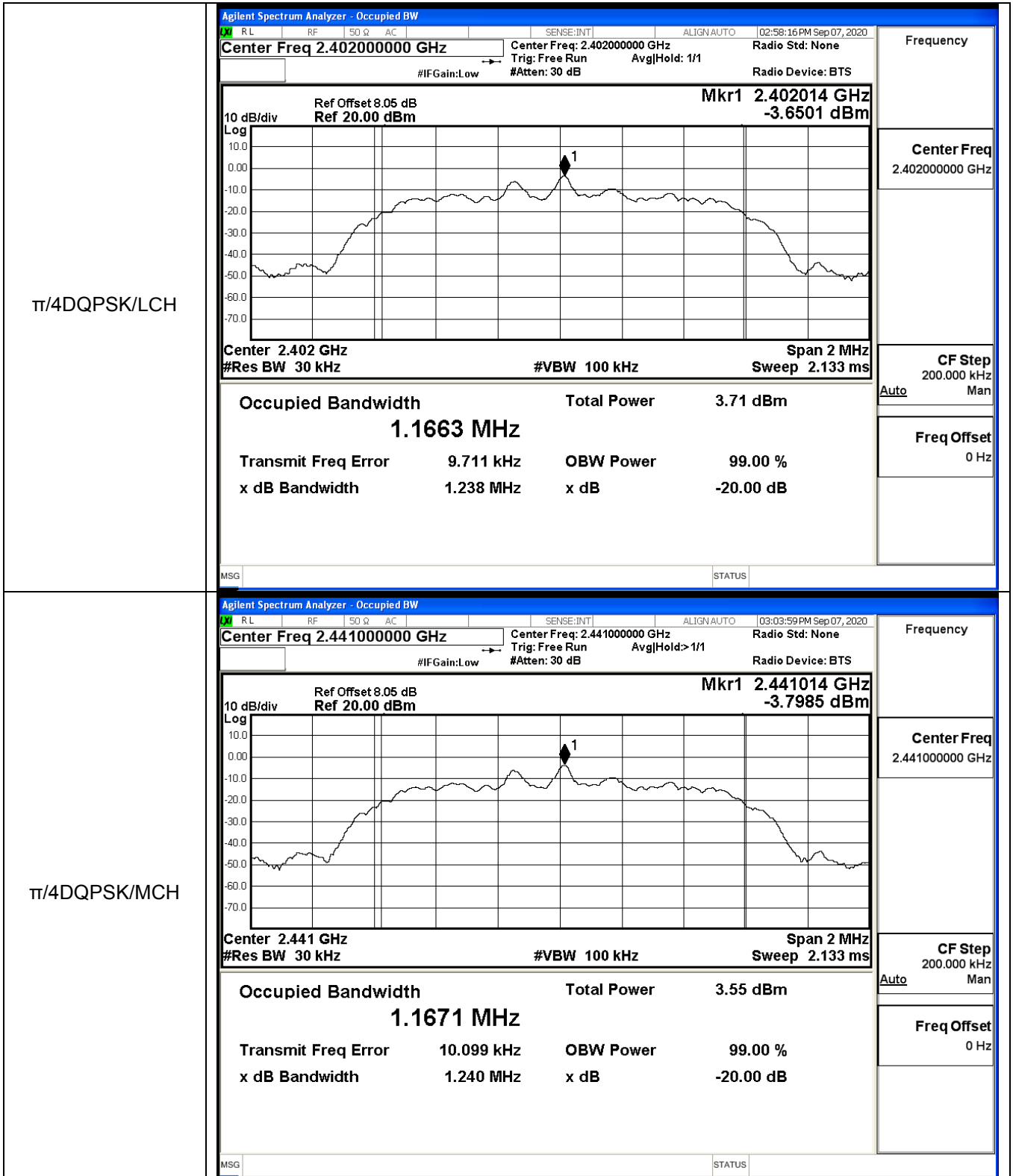


GFSK/MCH

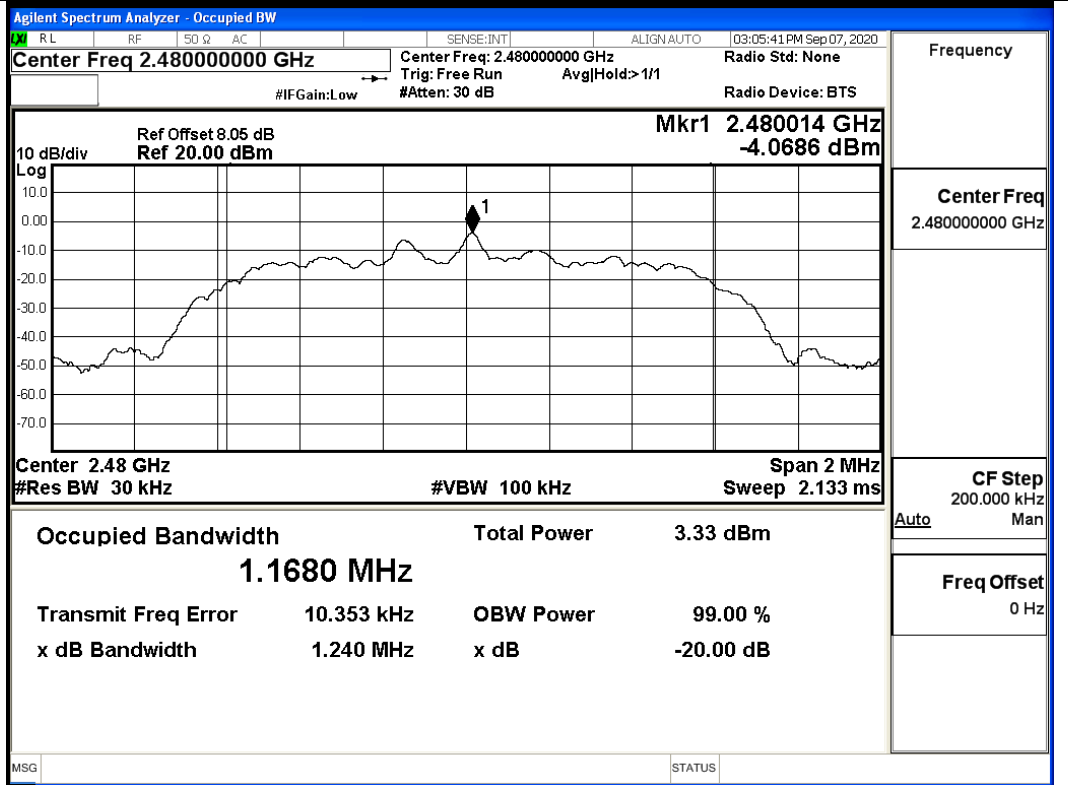


GFSK/HCH





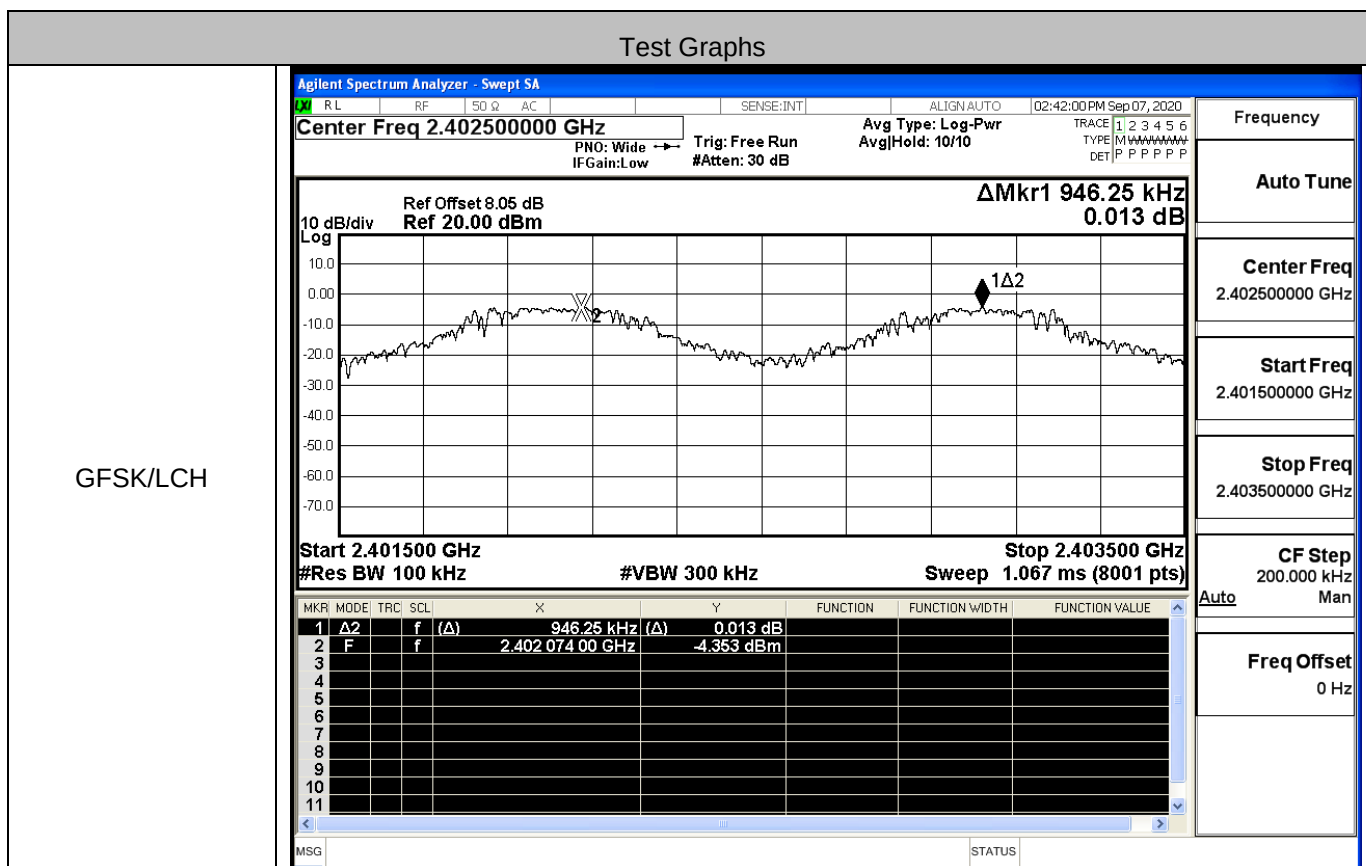
$\pi/4$ DQPSK/HCH



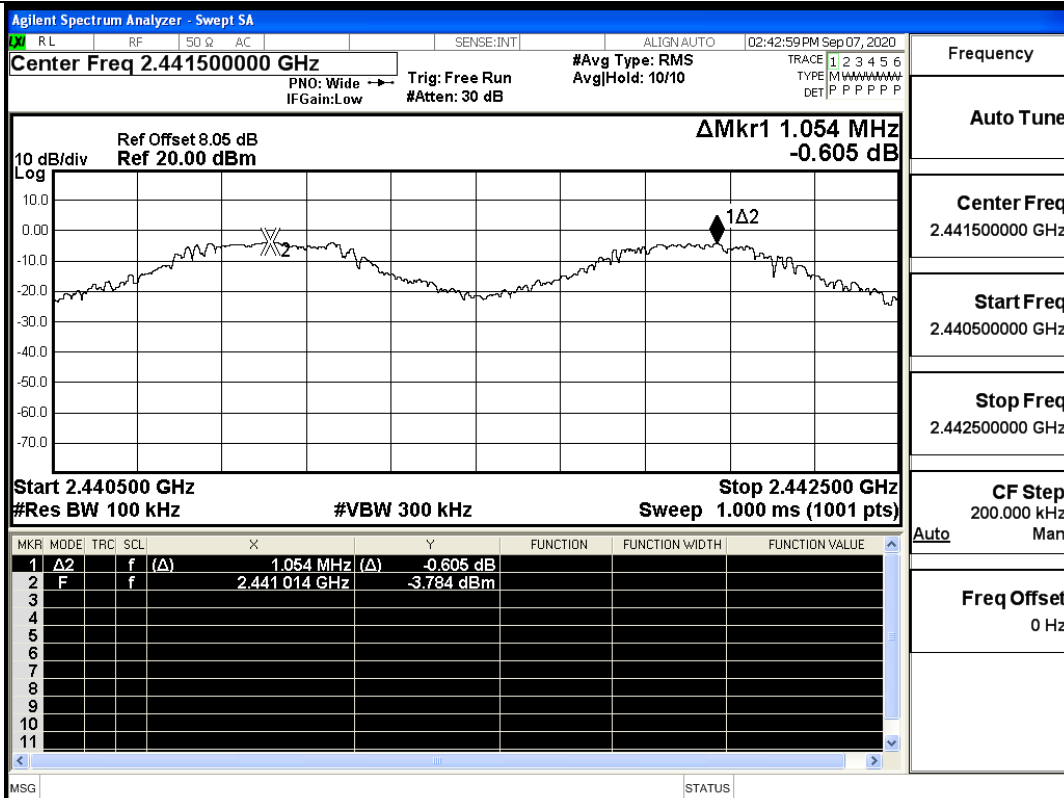
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.946	0.574	PASS
	MCH	1.054	0.572	PASS
	HCH	0.846	0.574	PASS
$\pi/4$ DQPSK	LCH	0.832	0.825	PASS
	MCH	0.878	0.827	PASS
	HCH	0.950	0.827	PASS

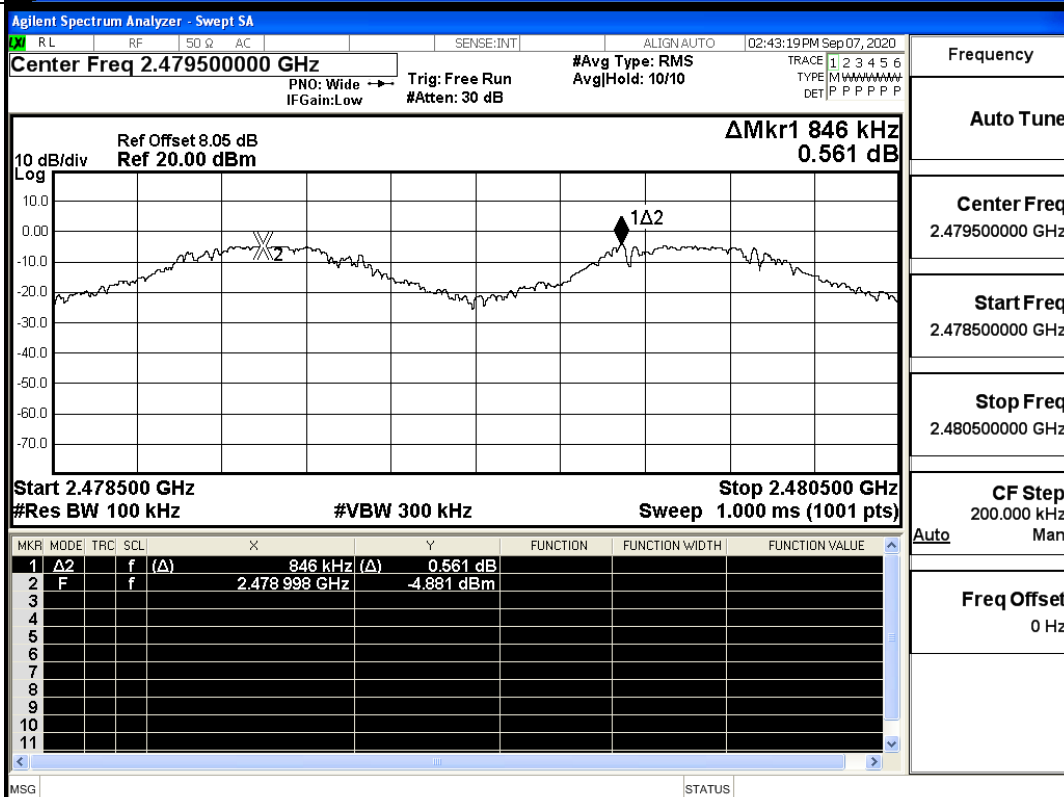
Test Graphs



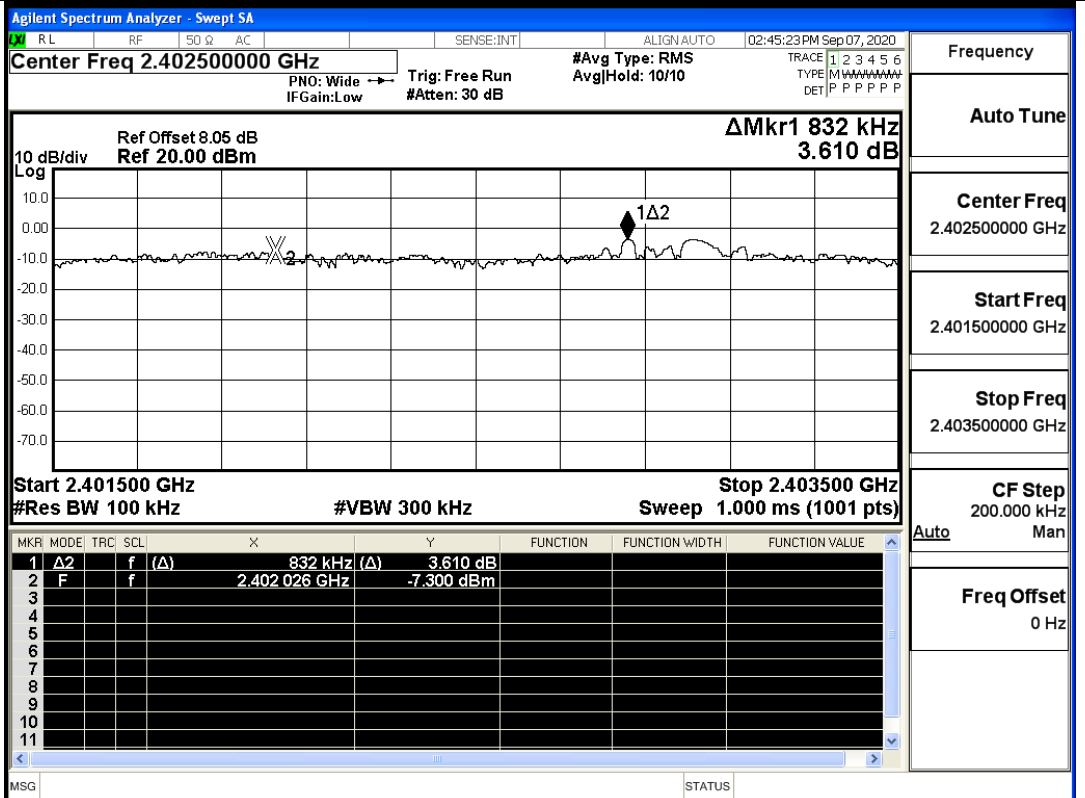
GFSK/MCH



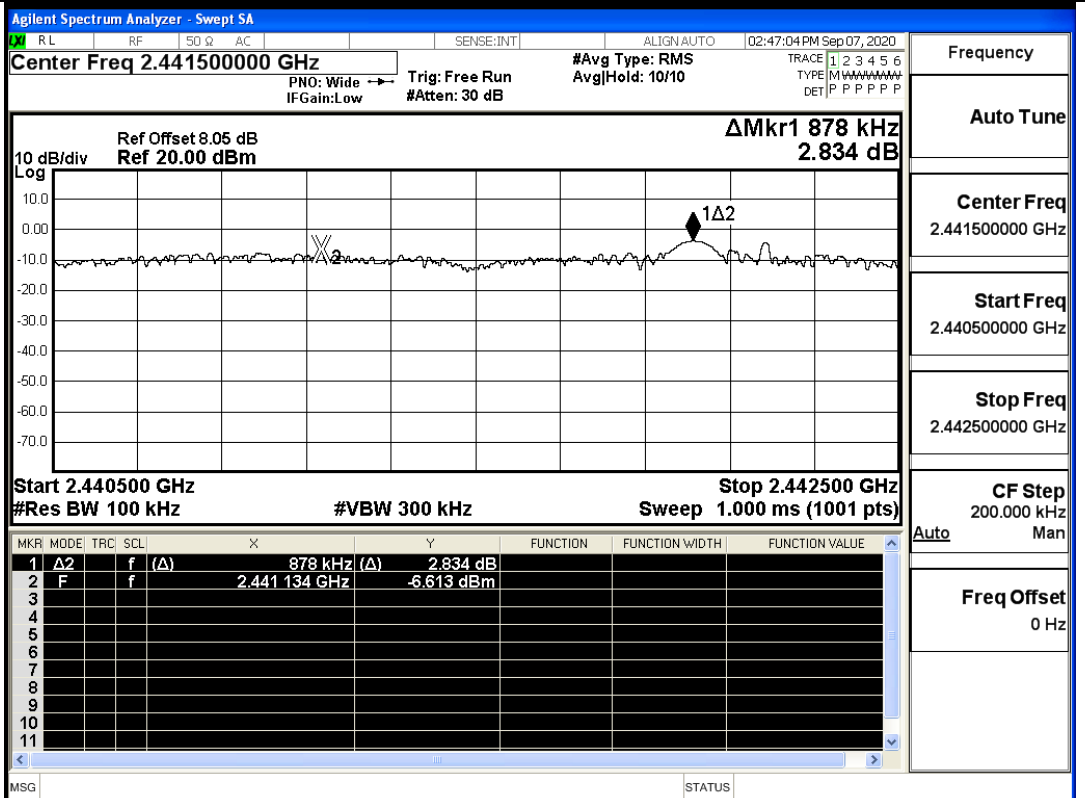
GFSK/HCH



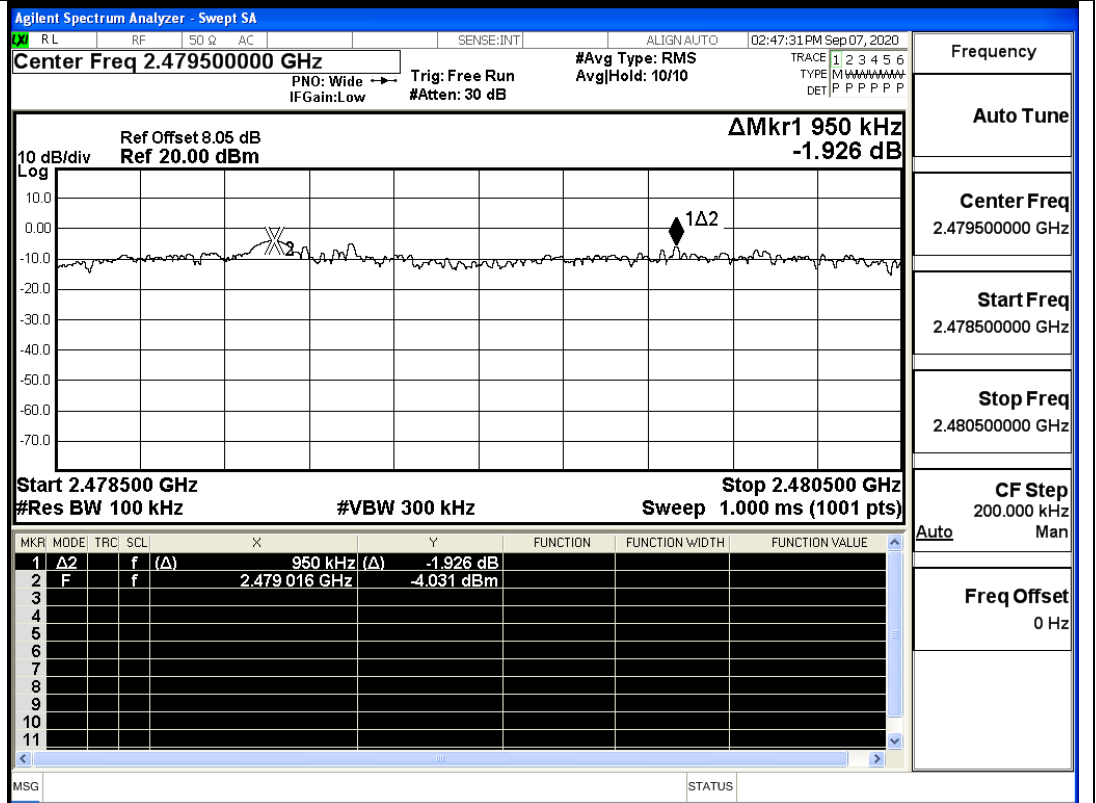
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH

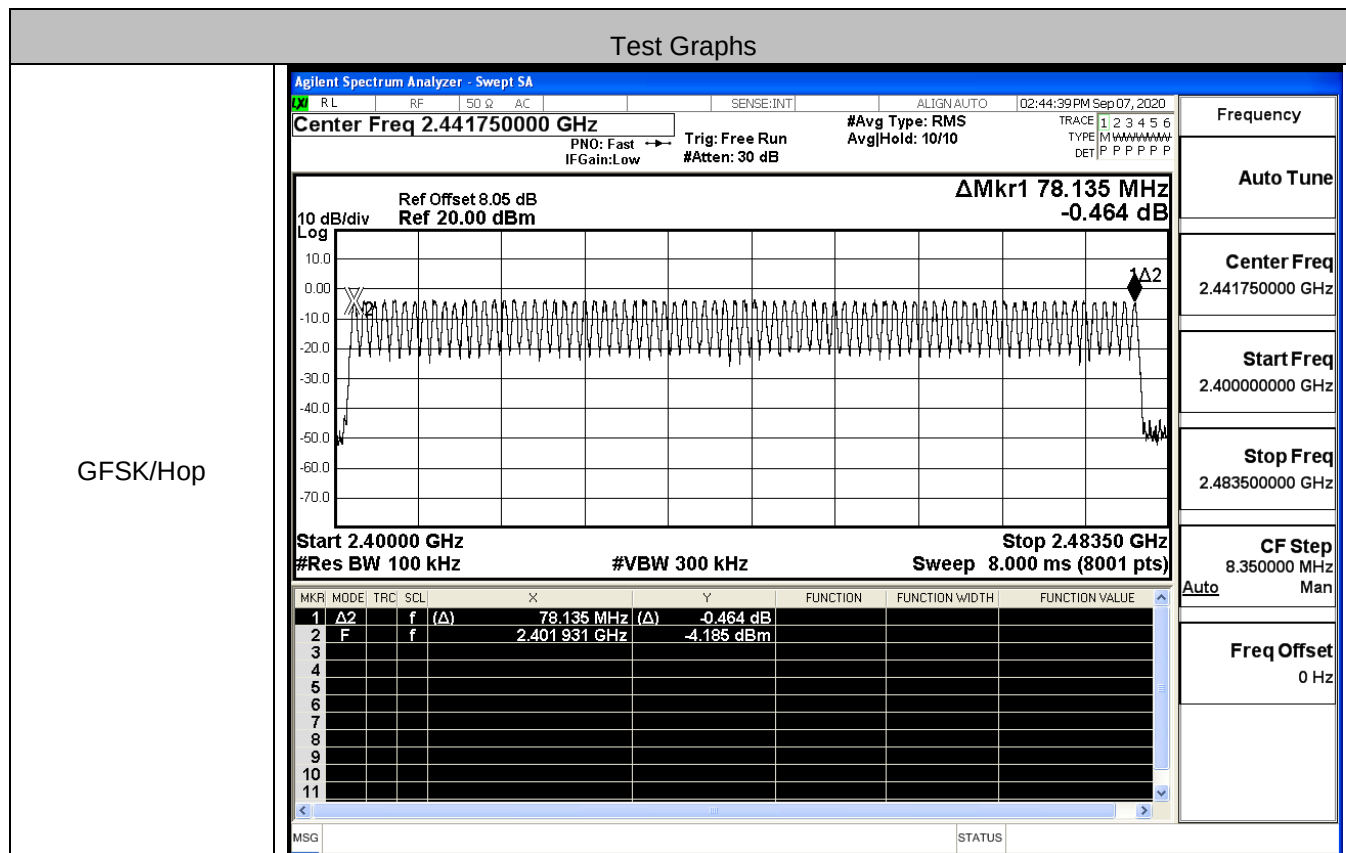


$\pi/4$ DQPSK/HCH

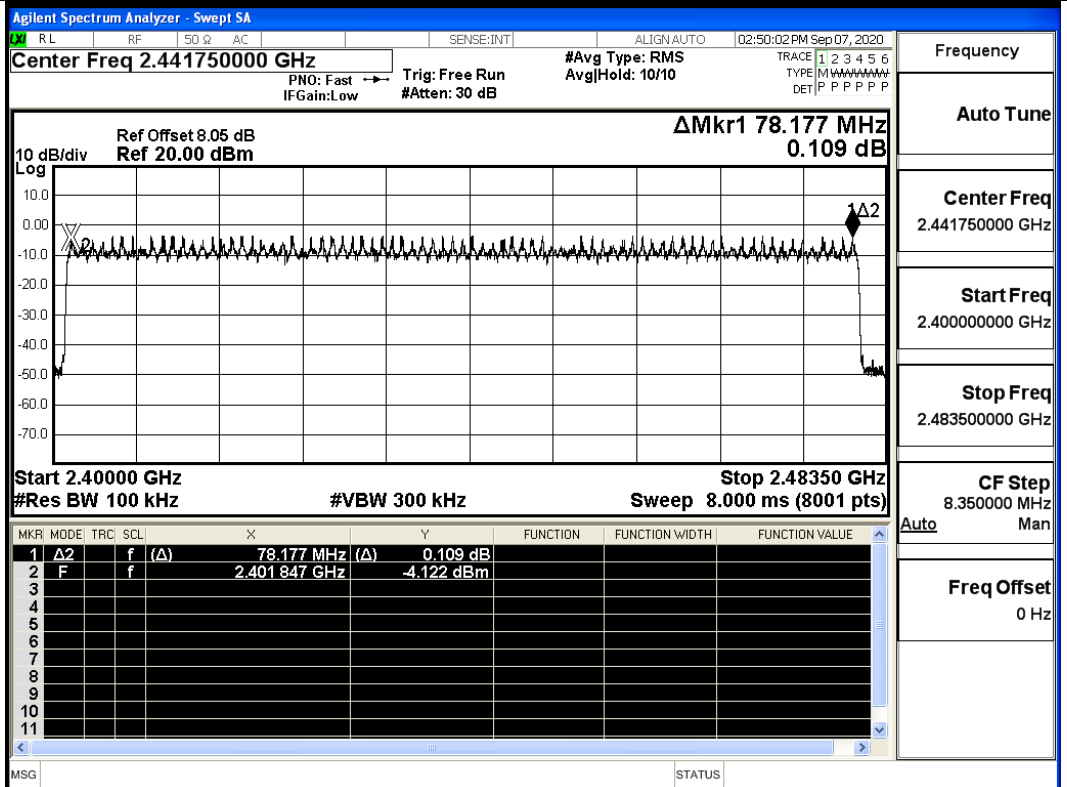


A.4 Hopping Channel Number

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

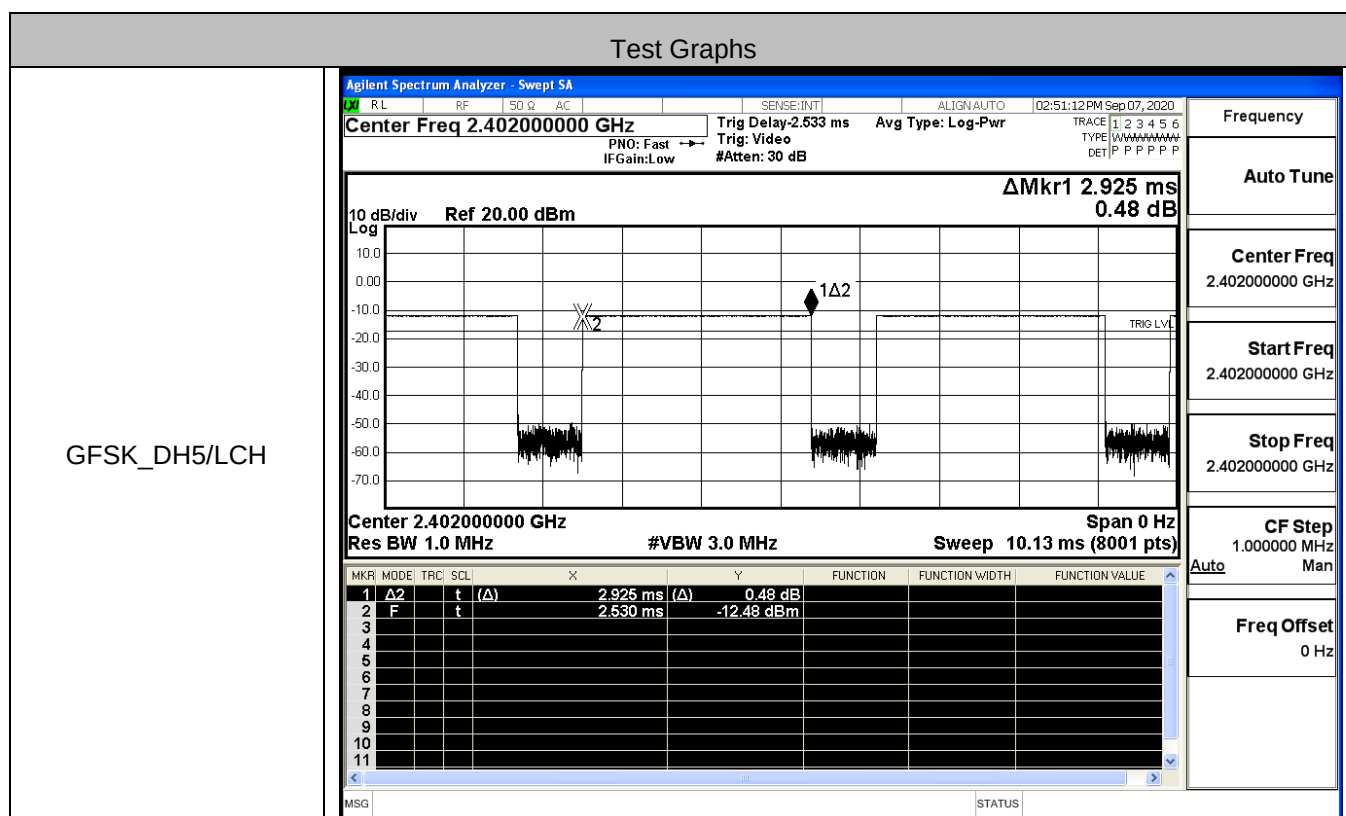


$\pi/4$ DQPSK/Hop

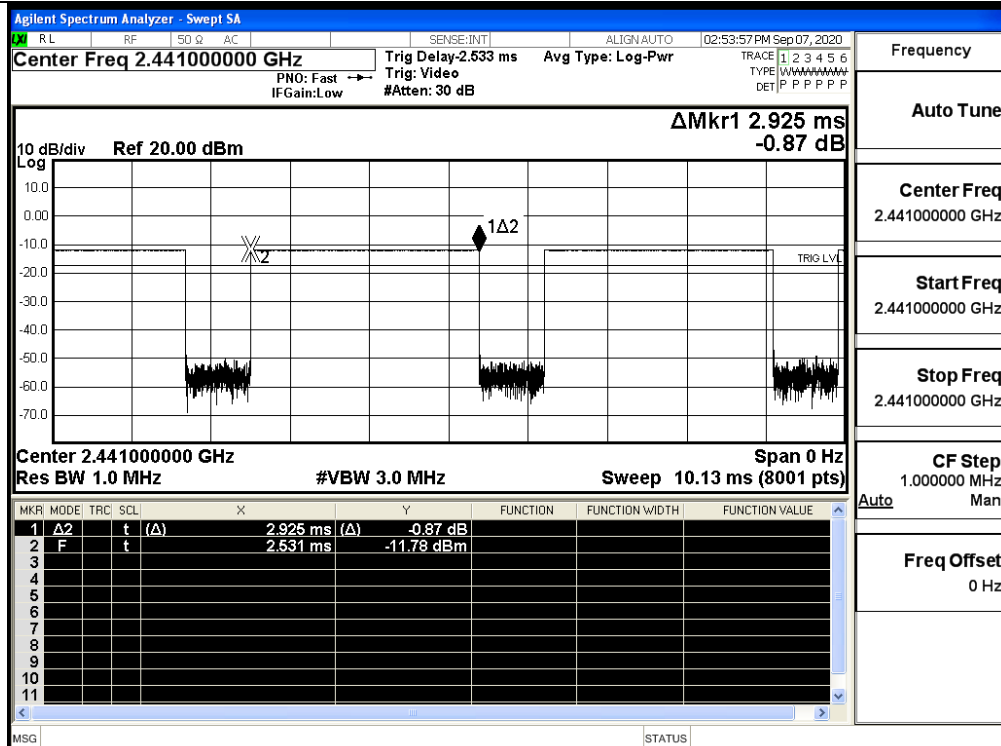


A.5 Dwell Time

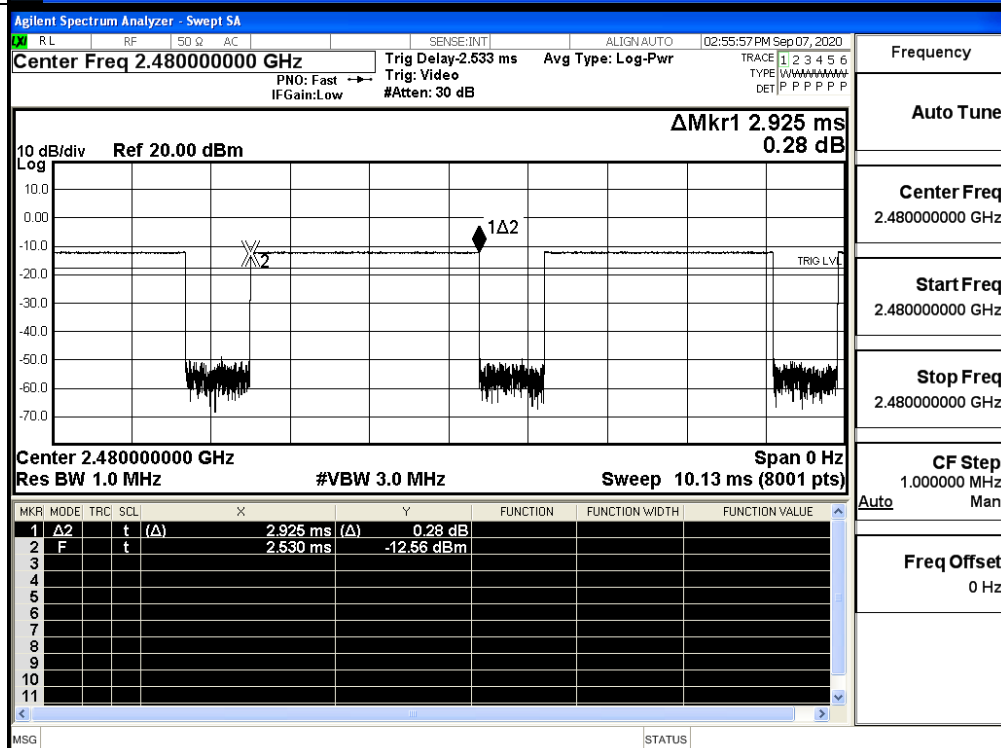
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.92	106.7	0.312	0.4	PASS
	DH5	MCH	2.92	106.7	0.312	0.4	PASS
	DH5	HCH	2.92	106.7	0.312	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.92	106.7	0.313	0.4	PASS
	2DH5	MCH	2.92	106.7	0.313	0.4	PASS
	2DH5	HCH	2.92	106.7	0.313	0.4	PASS



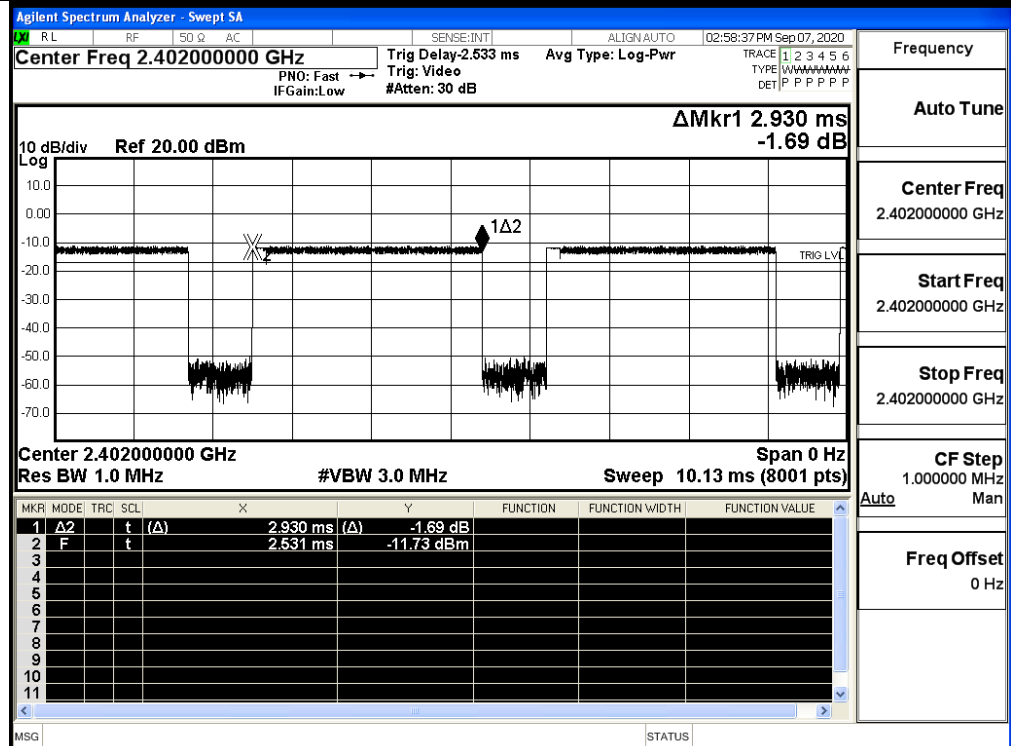
GFSK_DH5/MCH



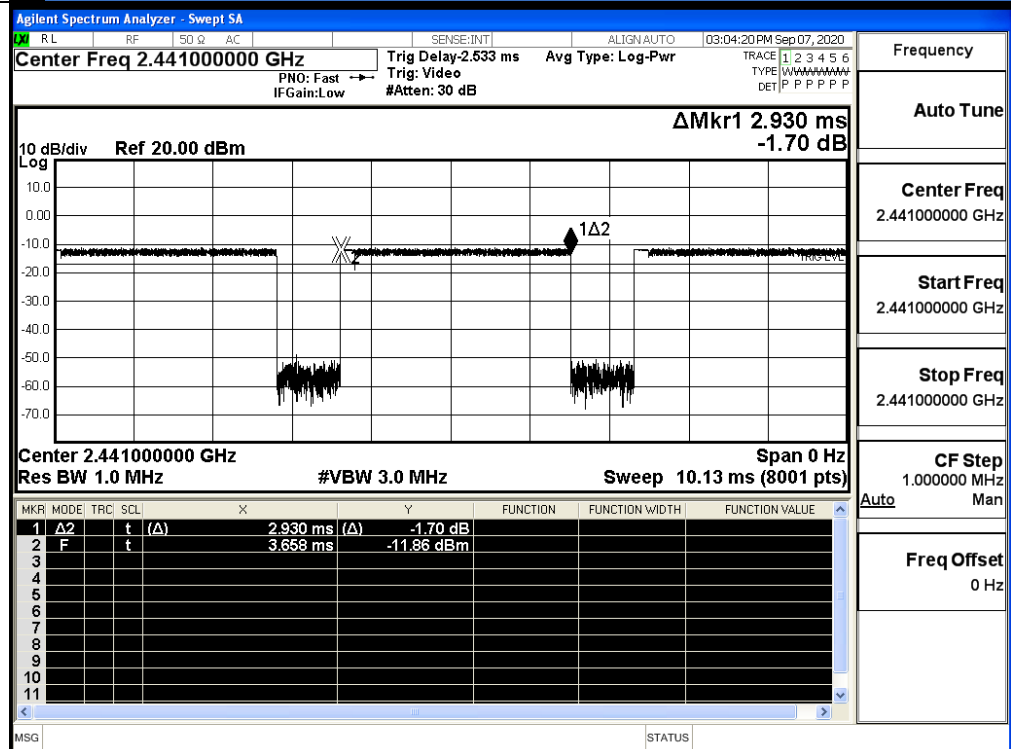
GFSK_DH5/HCH



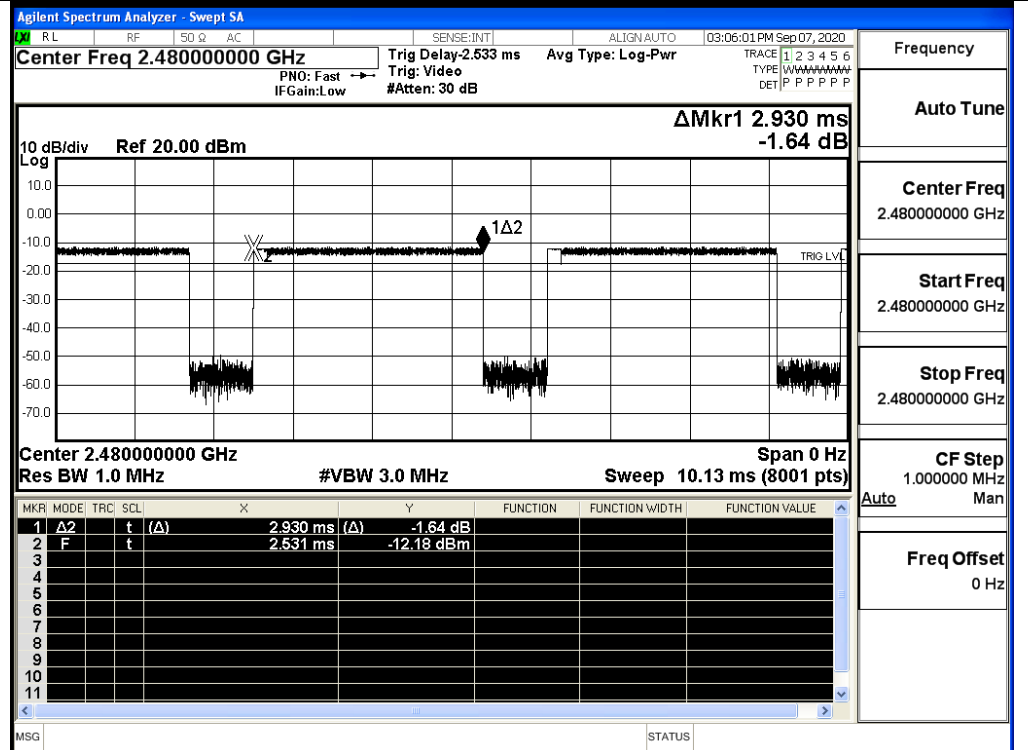
$\pi/4$ DQPSK
_2DH5/LCH



$\pi/4$ DQPSK
_2DH5/MCH

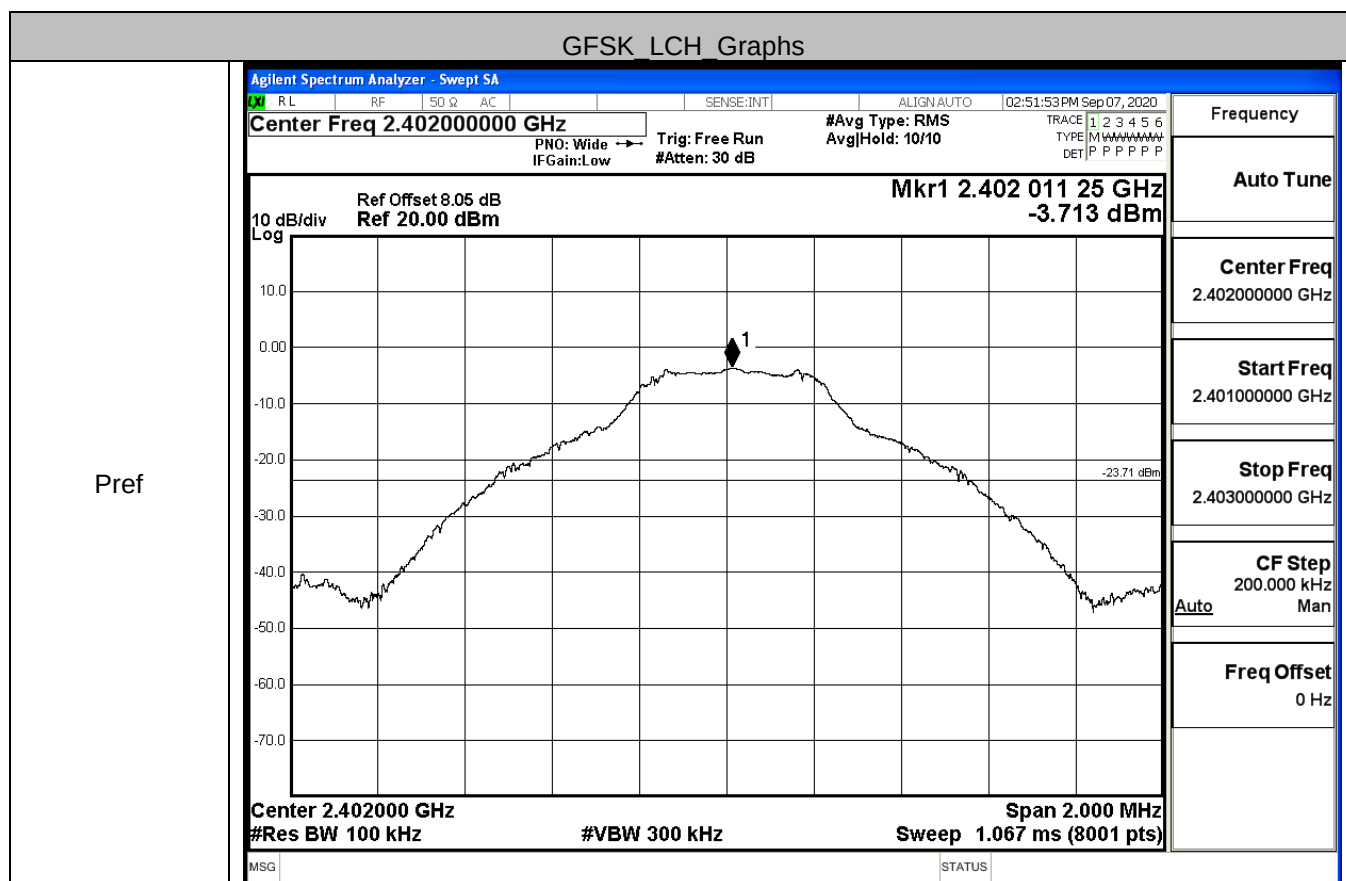


$\pi/4$ DQPSK
_2DH5/HCH

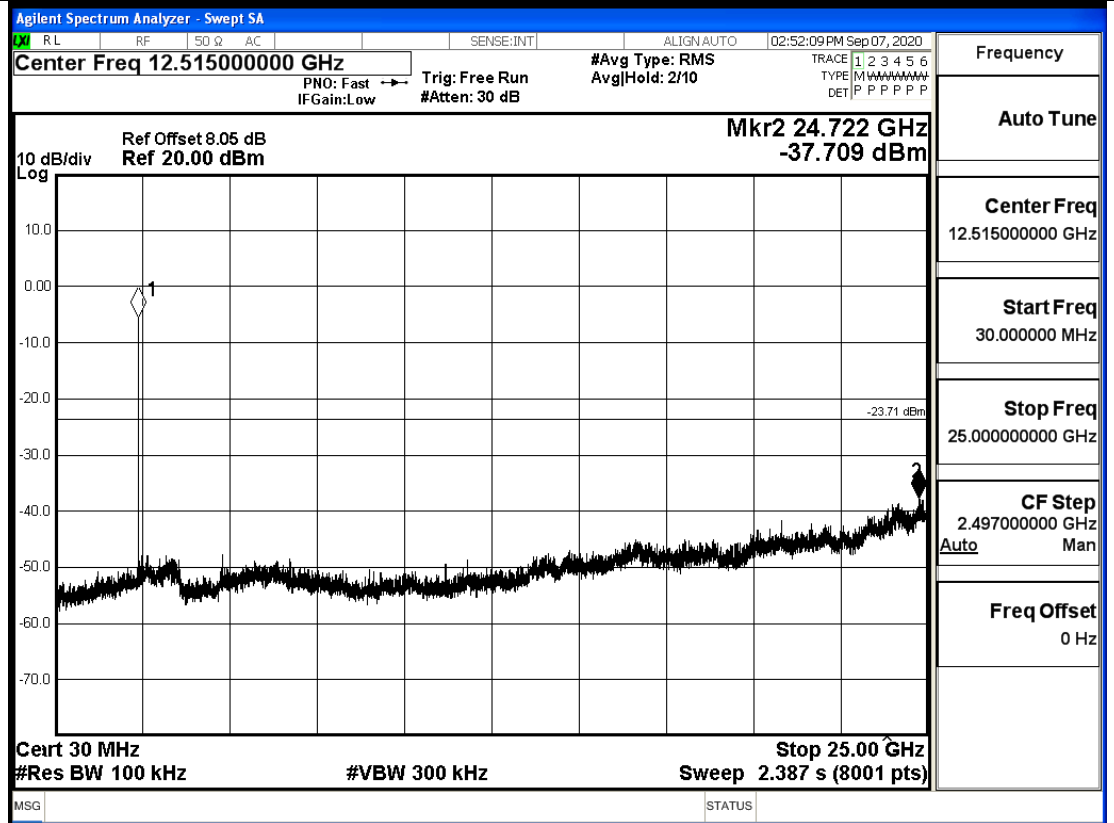


A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-3.713	-37.709	-23.713	PASS
	MCH	-3.728	-37.140	-23.728	PASS
	HCH	-3.985	-38.129	-23.985	PASS
$\pi/4$ DQPSK	LCH	-3.704	-38.019	-23.704	PASS
	MCH	-3.754	-36.958	-23.754	PASS
	HCH	-4.079	-37.974	-24.079	PASS

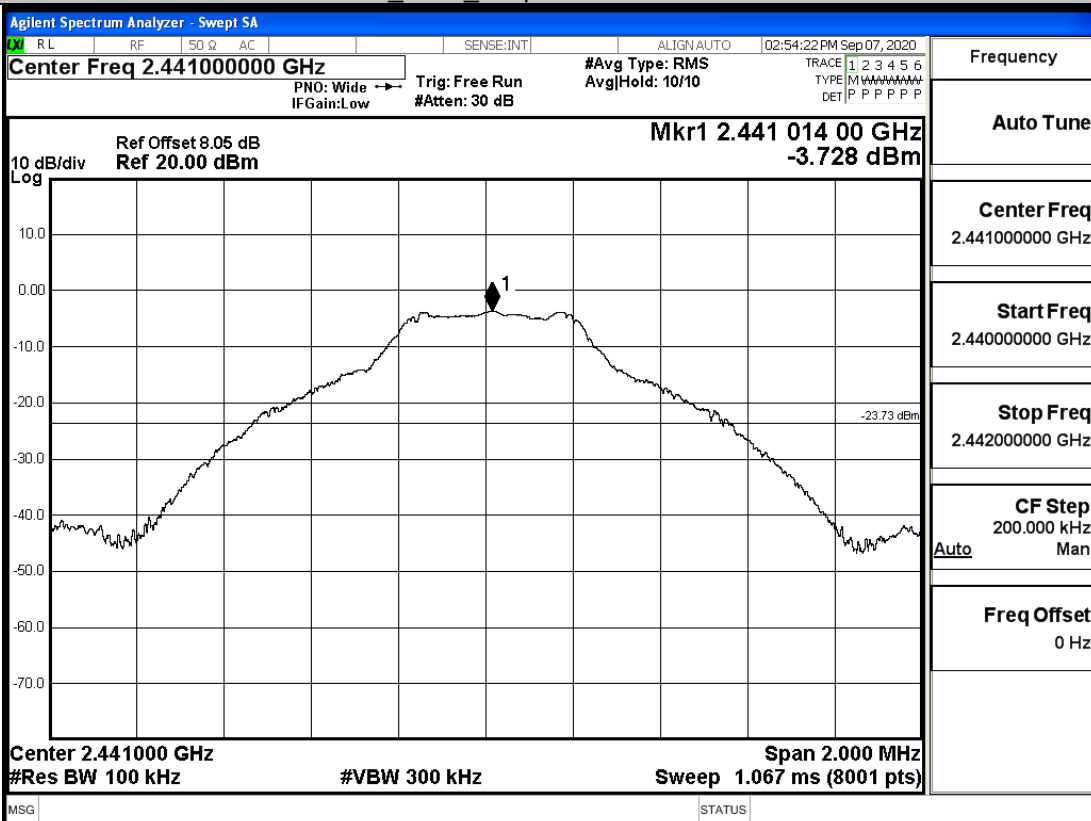


Puw

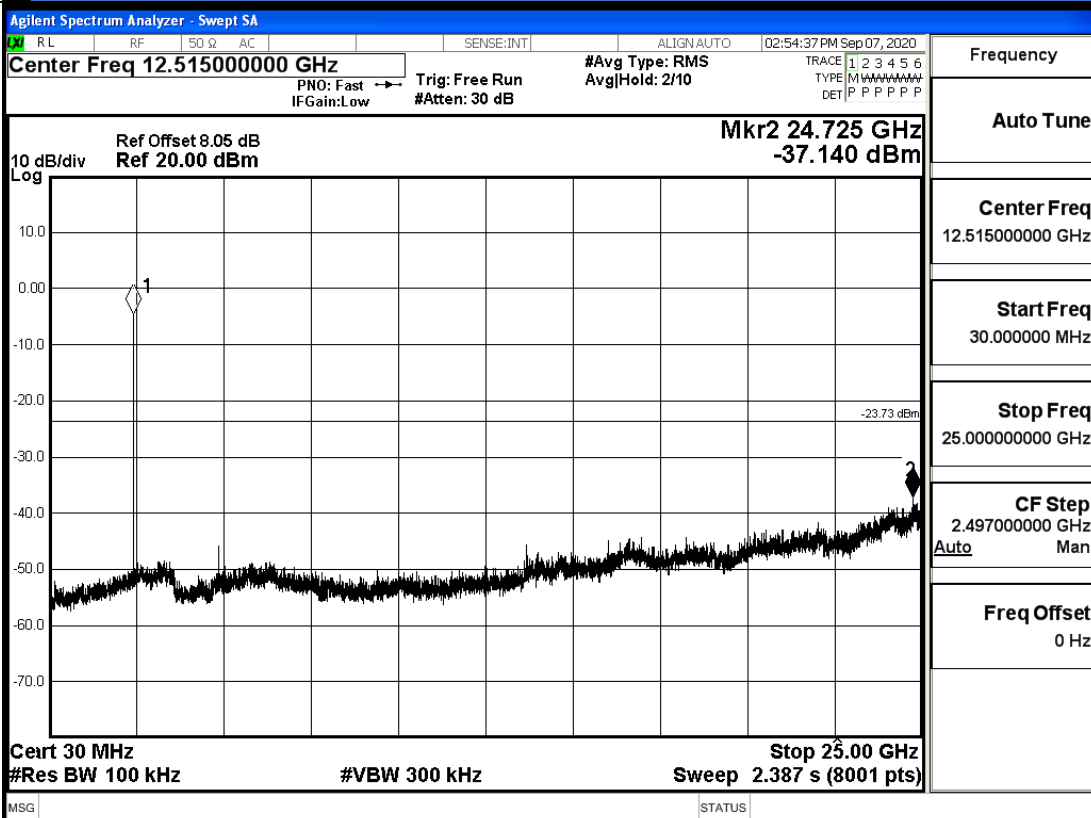


GFSK_MCH_Graphs

Pref



Puw

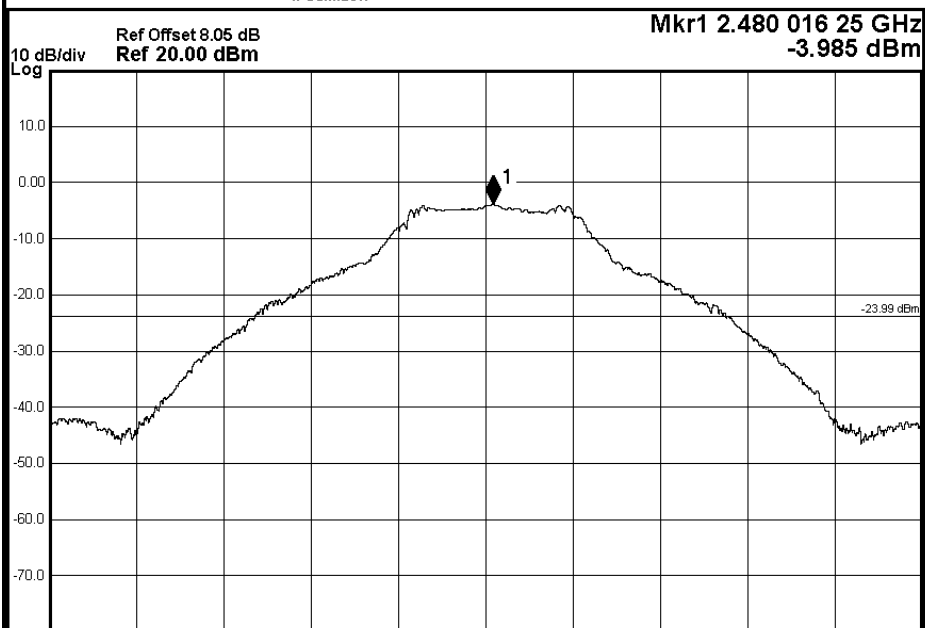


GFSK_HCH_Graphs

Pref

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.48000000 GHz
 PNO: Wide → Trig: Free Run
 IF Gain: Low #Atten: 30 dB
 #Avg Type: RMS
 Avg/Hold: 10/10
 TRAC 1 2 3 4 5 6
 TYPE M W W W W W W W
 DET P P P P P P



Center 2.480000 GHz Span 2.000 MHz
 #Res BW 100 kHz #VBW 300 kHz Sweep 1.067 ms (8001 pts)

MSG

STATUS

Frequency

Auto Tune

Center Freq
 2.480000000 GHz

Start Freq
 2.479000000 GHz

Stop Freq
 2.481000000 GHz

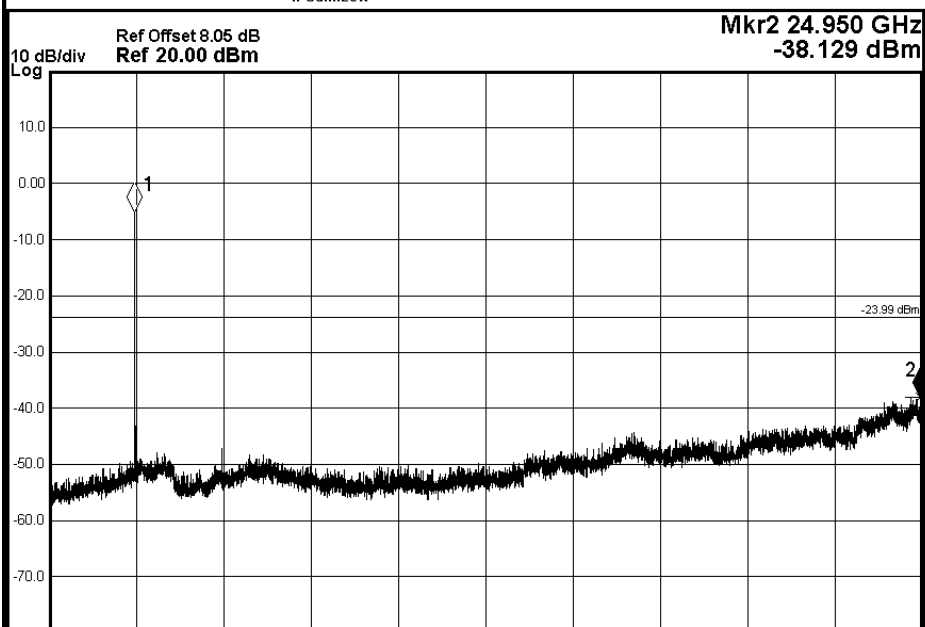
CF Step
 200.000 kHz
 Auto Man

Freq Offset
 0 Hz

Puw

Agilent Spectrum Analyzer - Swept SA

Center Freq 12.51500000 GHz
 PNO: Fast → Trig: Free Run
 IF Gain: Low #Atten: 30 dB
 #Avg Type: RMS
 Avg/Hold: 2/10
 TRAC 1 2 3 4 5 6
 TYPE M W W W W W W W
 DET P P P P P P



Cent 30 MHz Stop 25.00 GHz
 #Res BW 100 kHz #VBW 300 kHz Sweep 2.387 s (8001 pts)

MSG

STATUS

Frequency

Auto Tune

Center Freq
 12.515000000 GHz

Start Freq
 30.000000 MHz

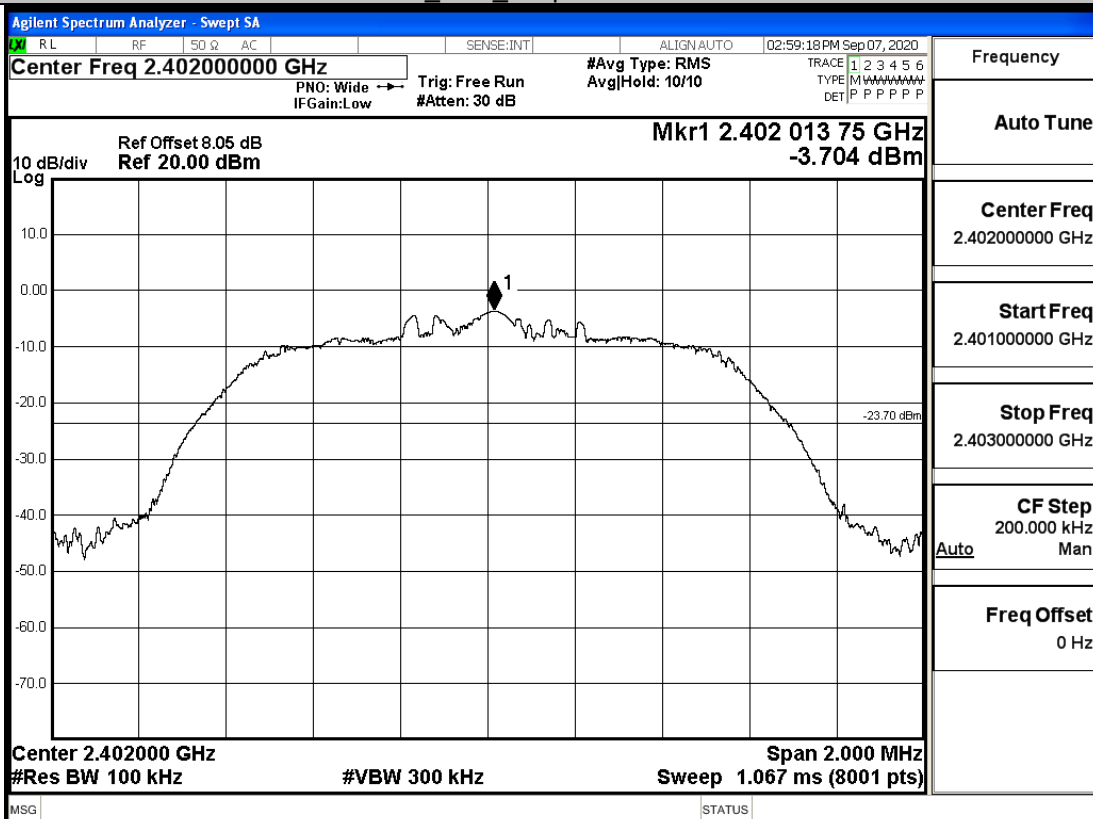
Stop Freq
 25.000000000 GHz

CF Step
 2.497000000 GHz
 Auto Man

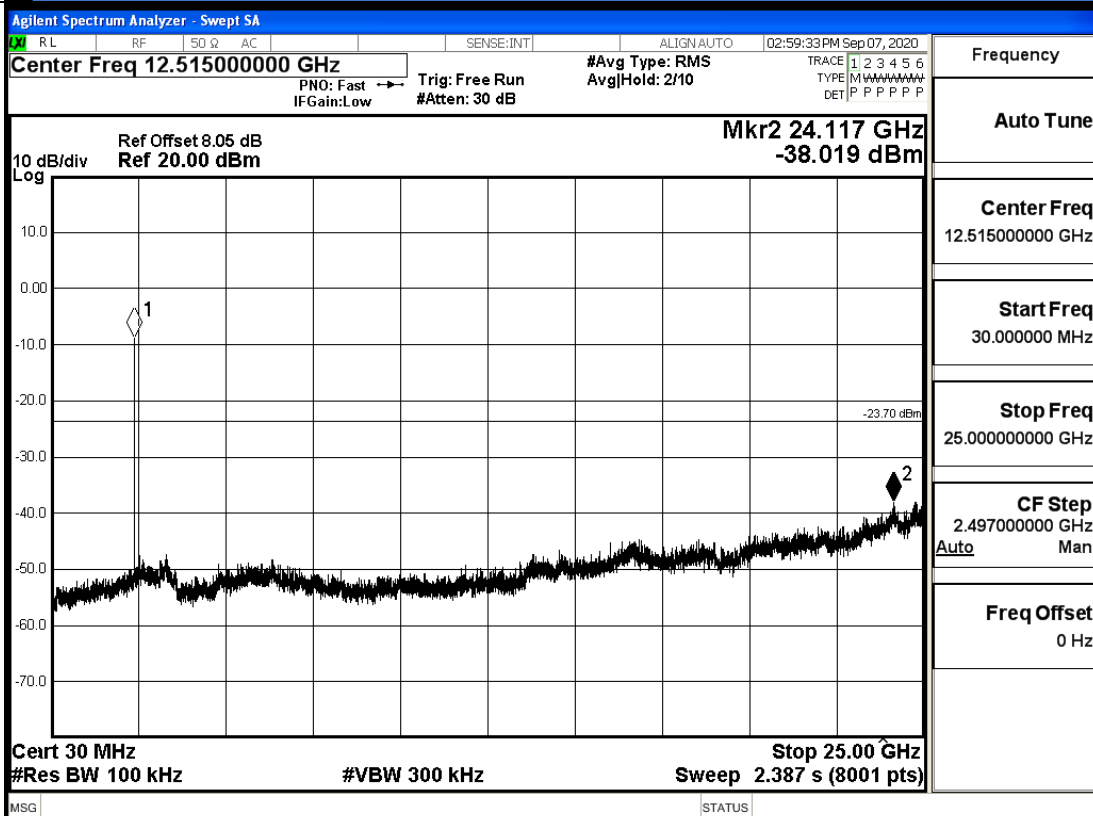
Freq Offset
 0 Hz

$\pi/4$ DQPSK_LCH_Graphs

Pref

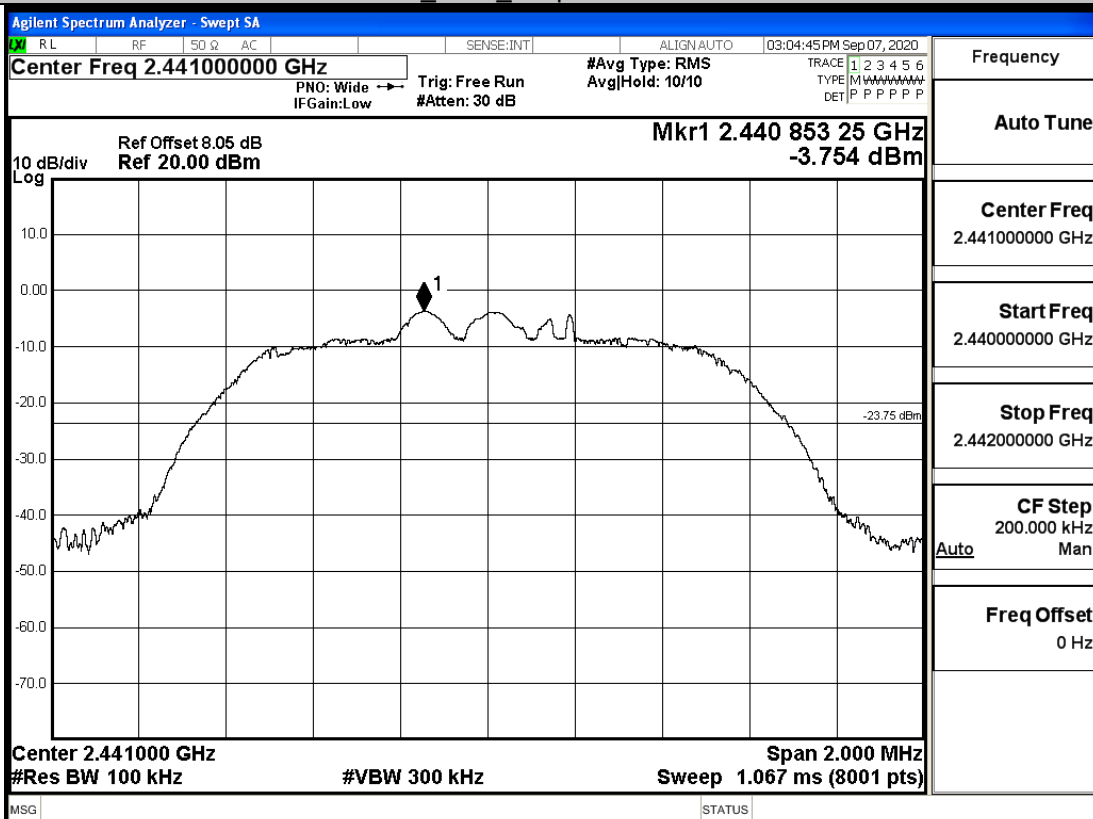


Puw

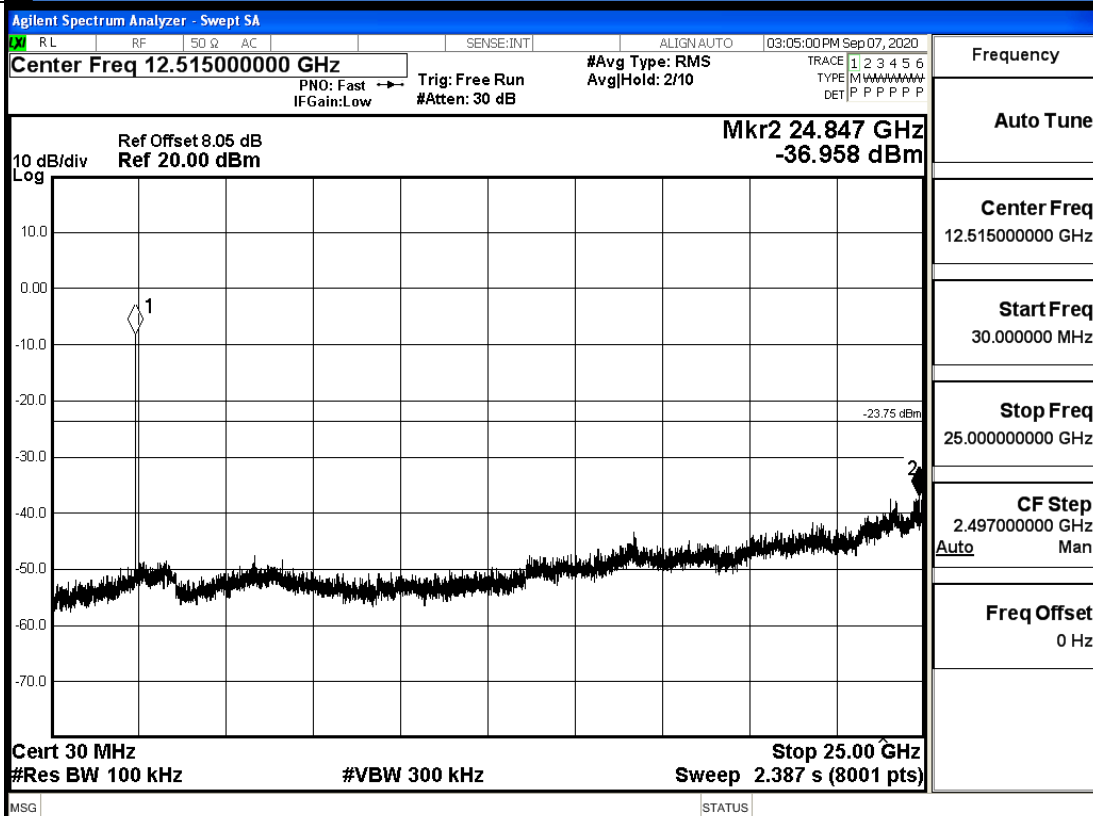


$\pi/4$ DQPSK_MCH_Graphs

Pref

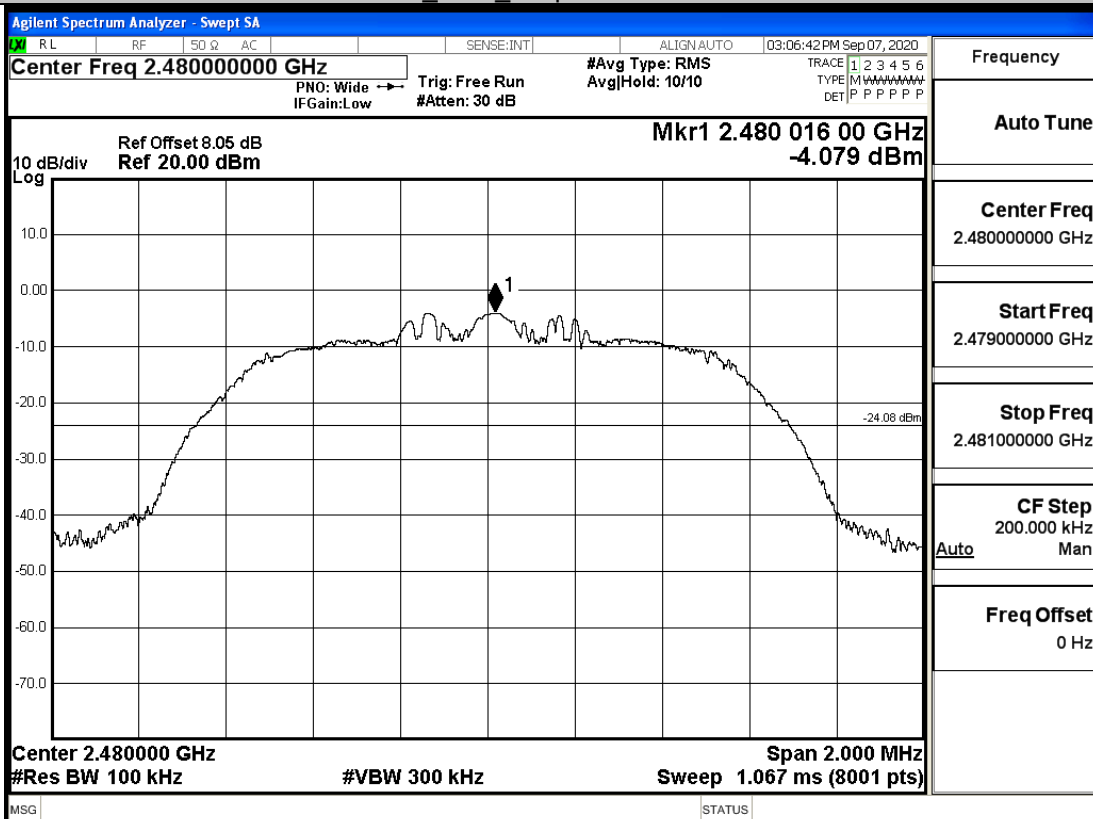


Puw

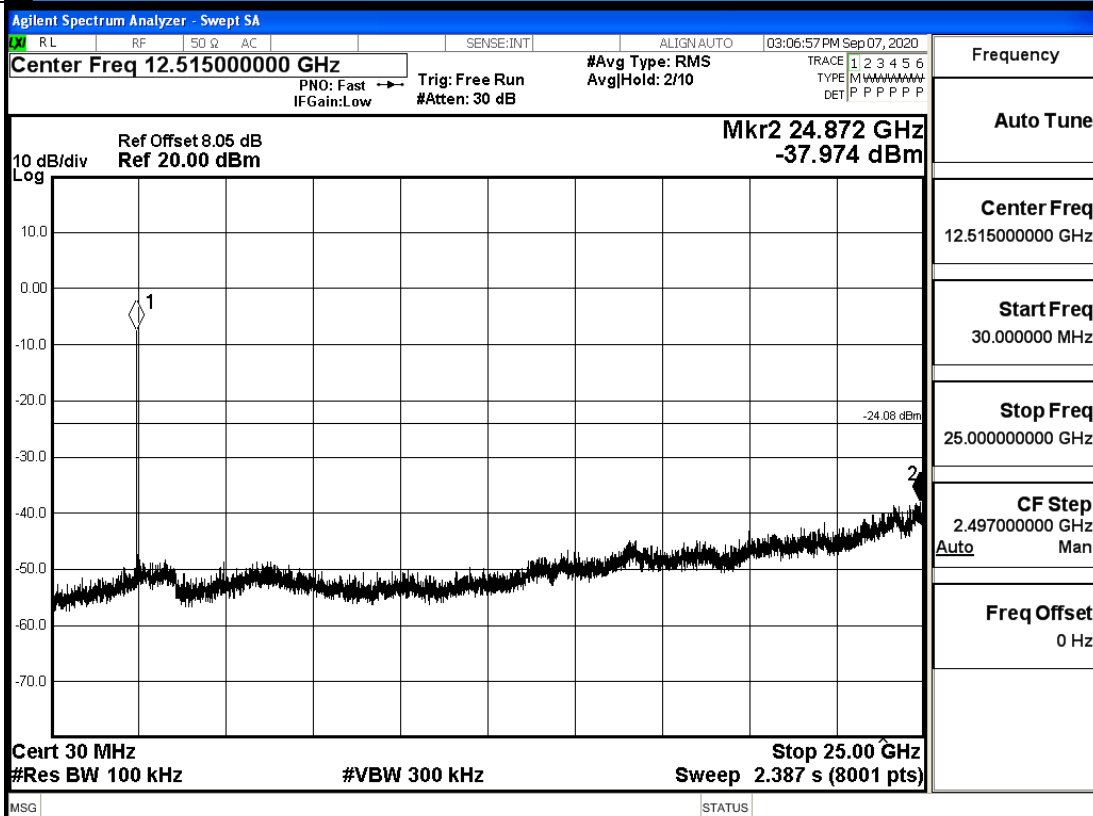


$\pi/4$ DQPSK_HCH_Graphs

Pref



Puw

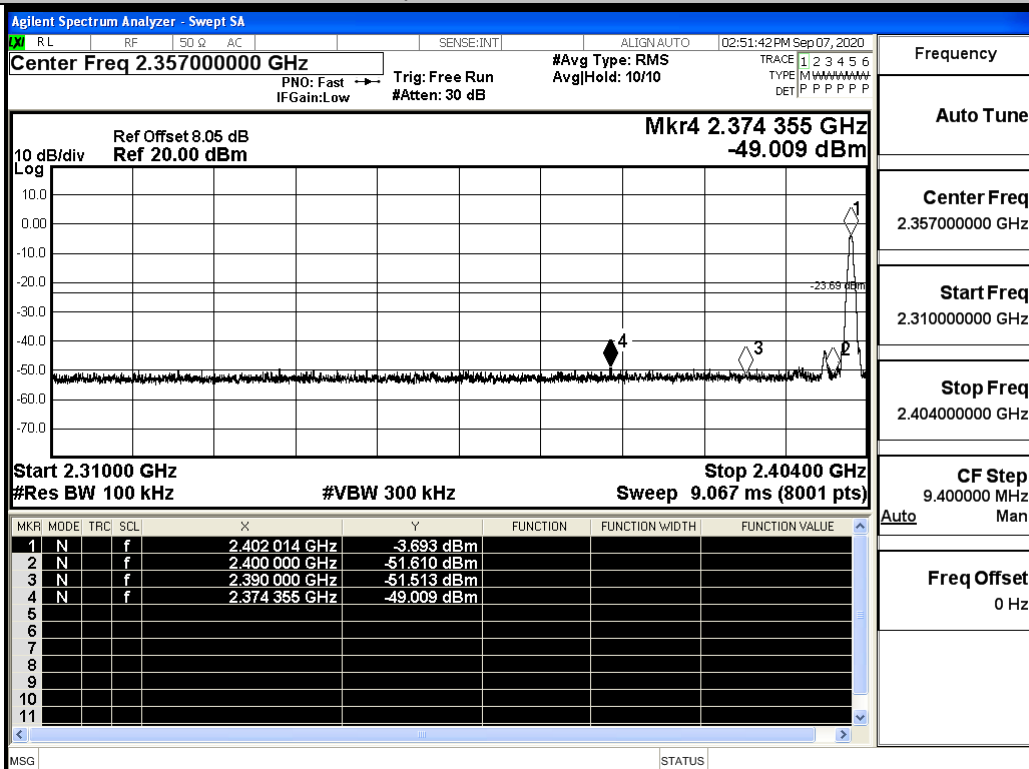


A.7 Band-edge for RF Conducted Emissions

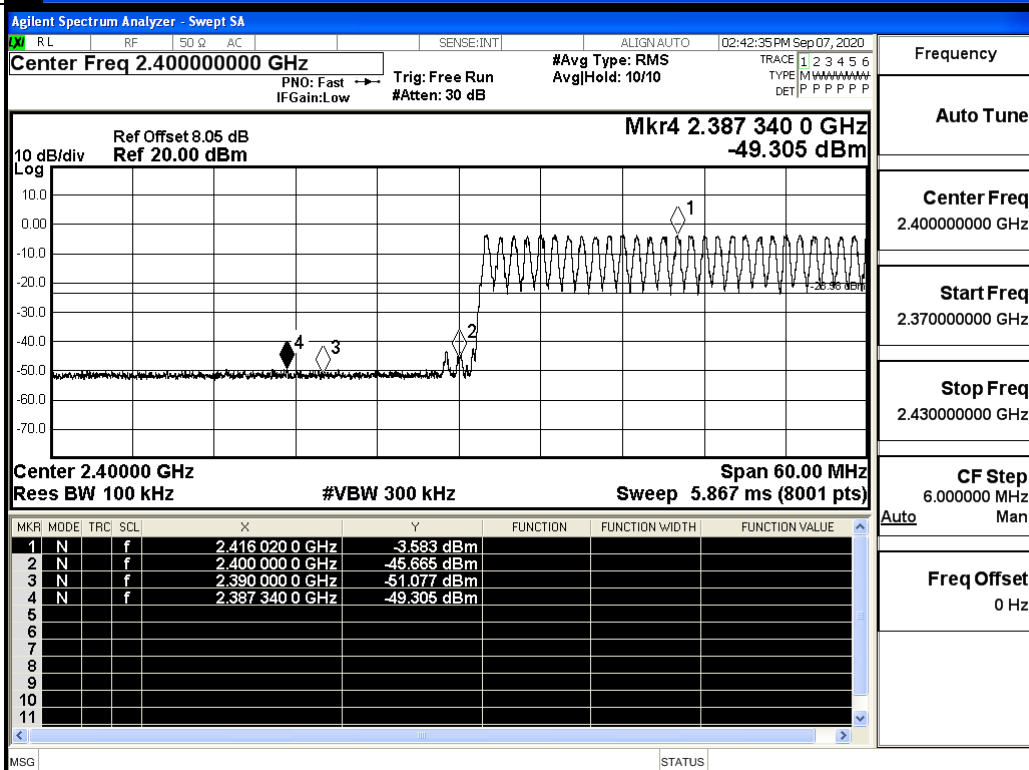
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-3.693	Off	-49.009	-23.69	PASS
			-3.583	On	-49.305	-23.58	PASS
	HCH	2480	-3.937	Off	-43.281	-23.94	PASS
			-3.765	On	-45.266	-23.77	PASS
$\pi/4$ DQPSK	LCH	2402	-4.366	Off	-47.874	-24.37	PASS
			-3.507	On	-48.832	-23.51	PASS
	HCH	2480	-3.999	Off	-47.320	-24	PASS
			-3.625	On	-48.402	-23.63	PASS

Test Graphs

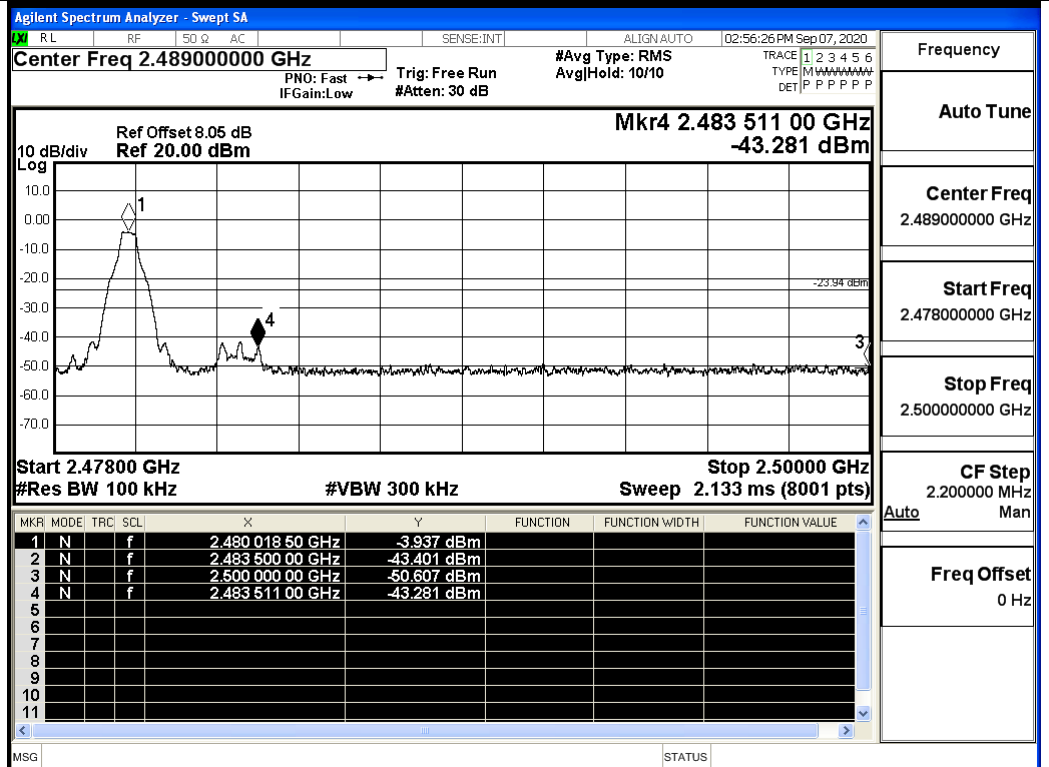
GFSK/LCH/No Hop



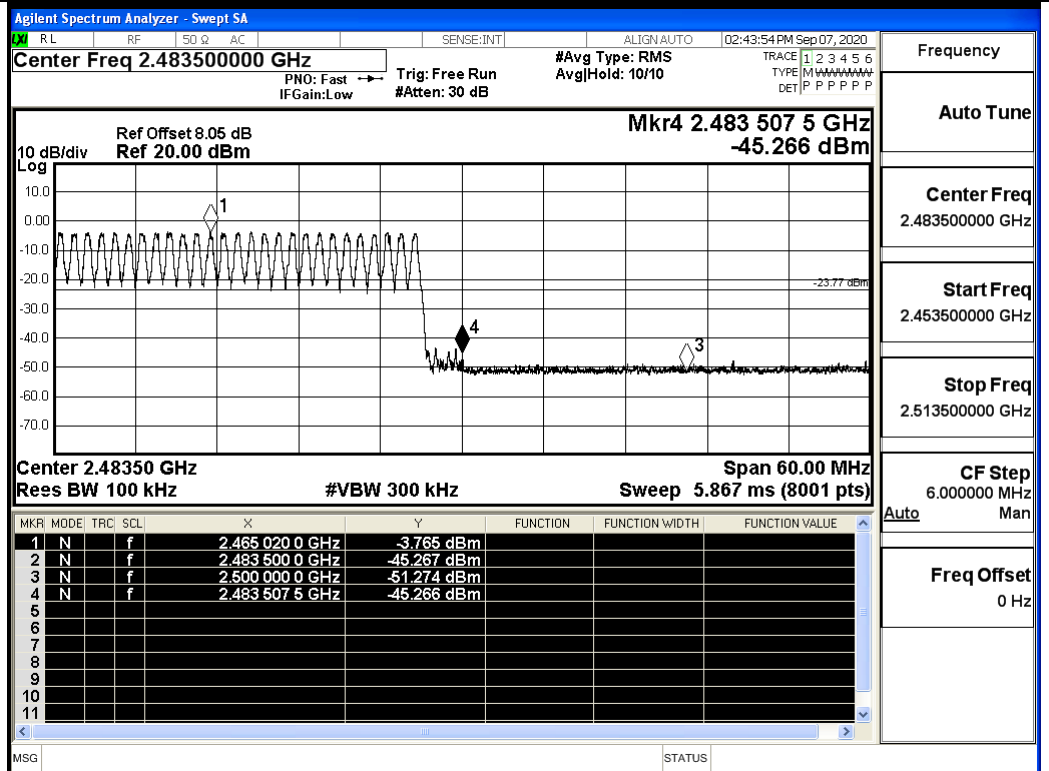
GFSK/LCH/Hop



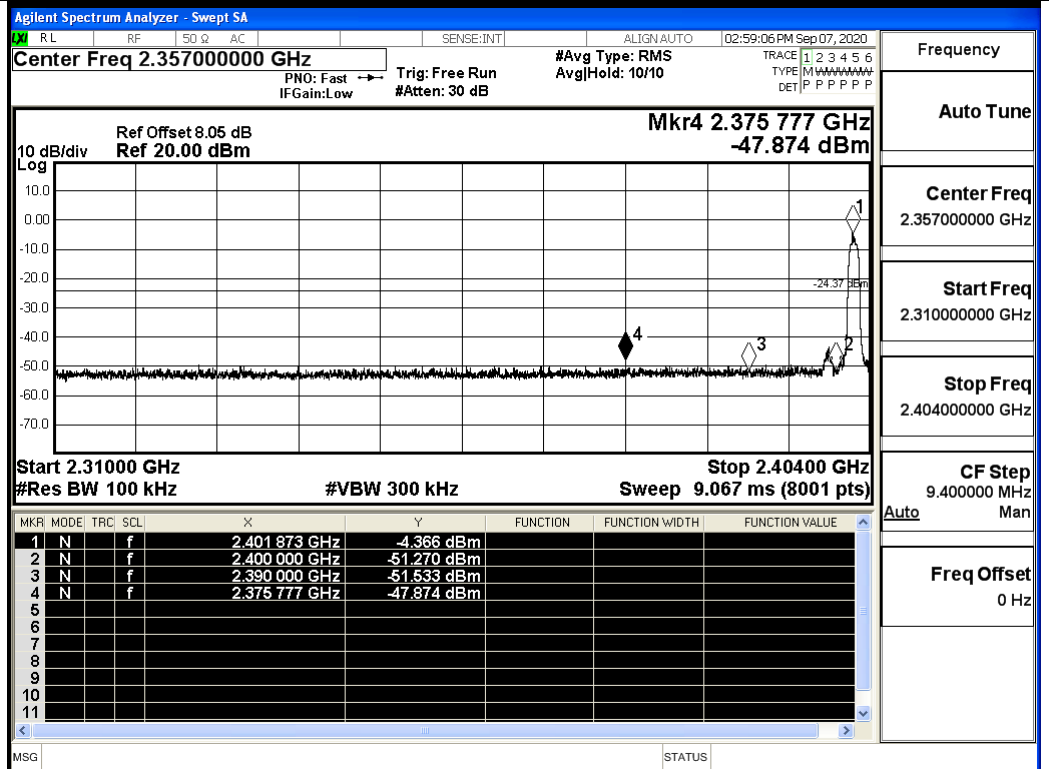
GFSK/HCH/No Hop



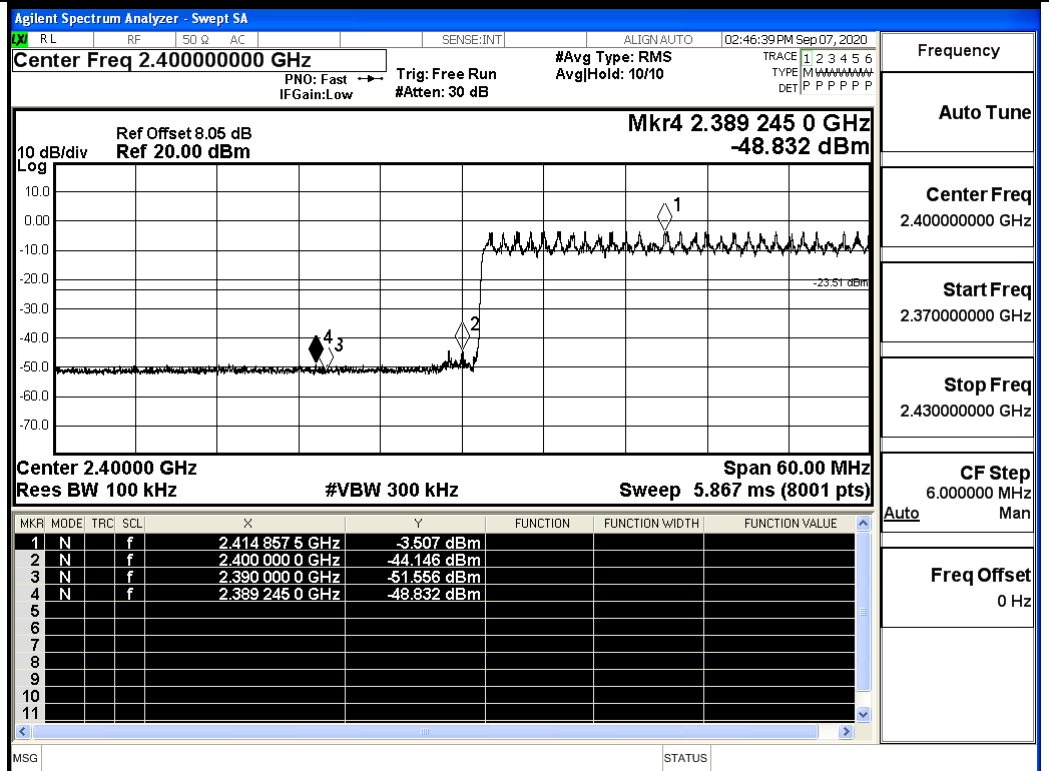
GFSK/HCH/Hop



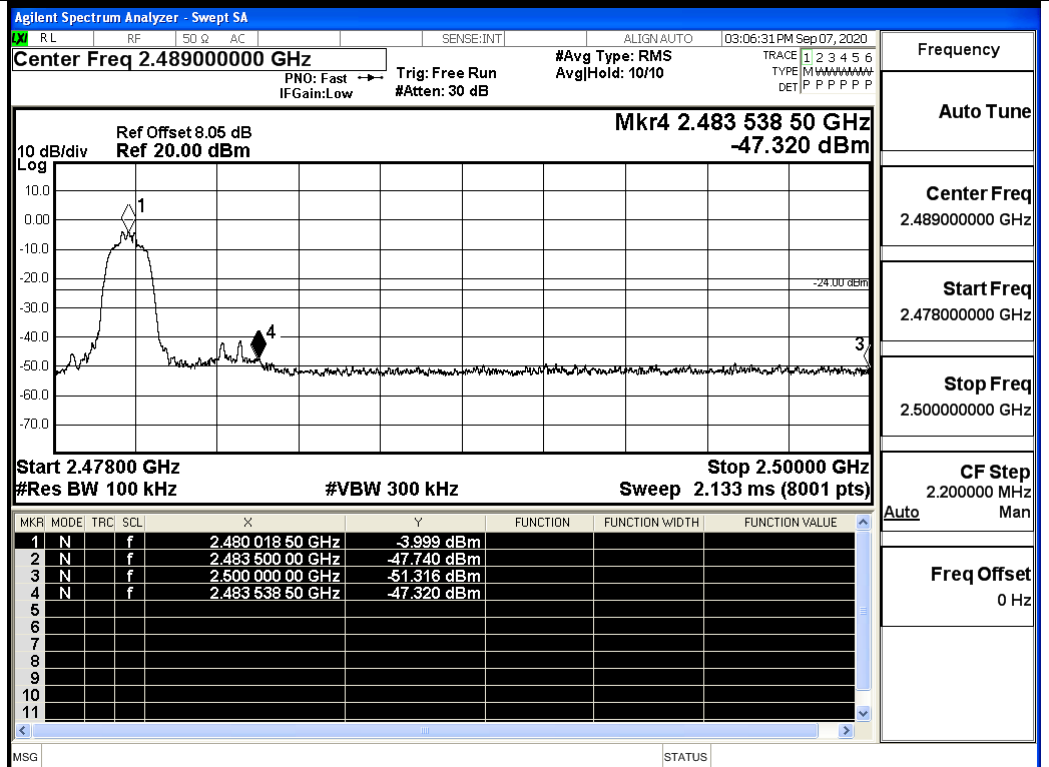
$\pi/4$ DQPSK/LCH/No
Hop



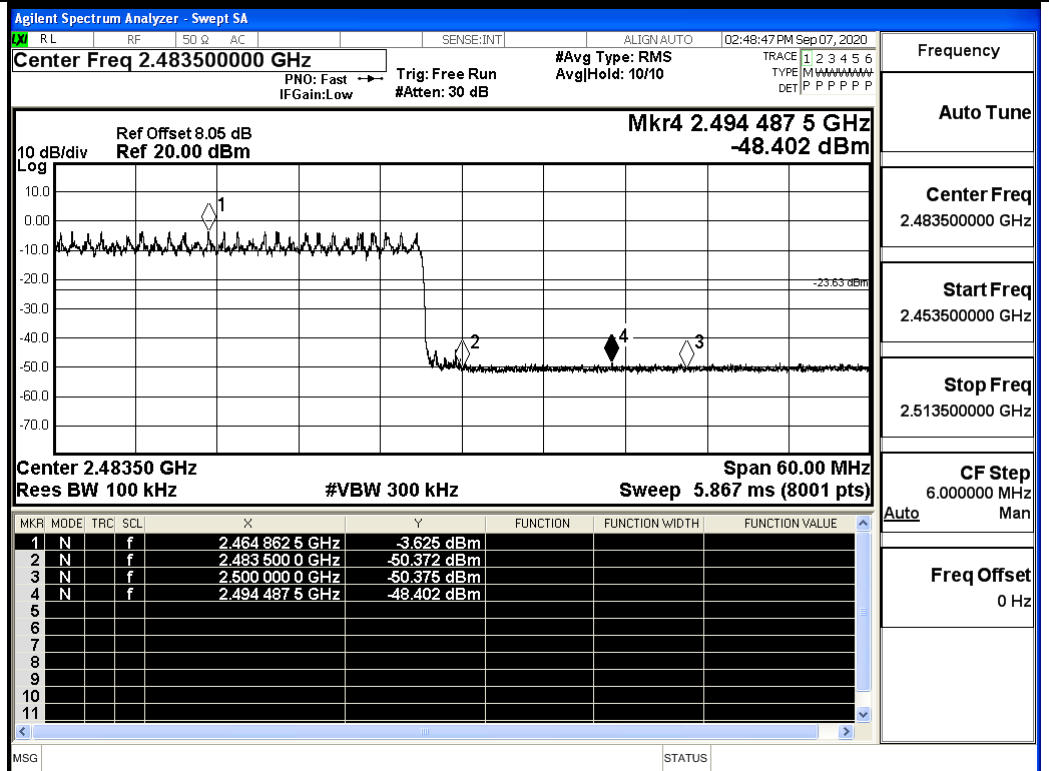
$\pi/4$ DQPSK/LCH/Hop



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



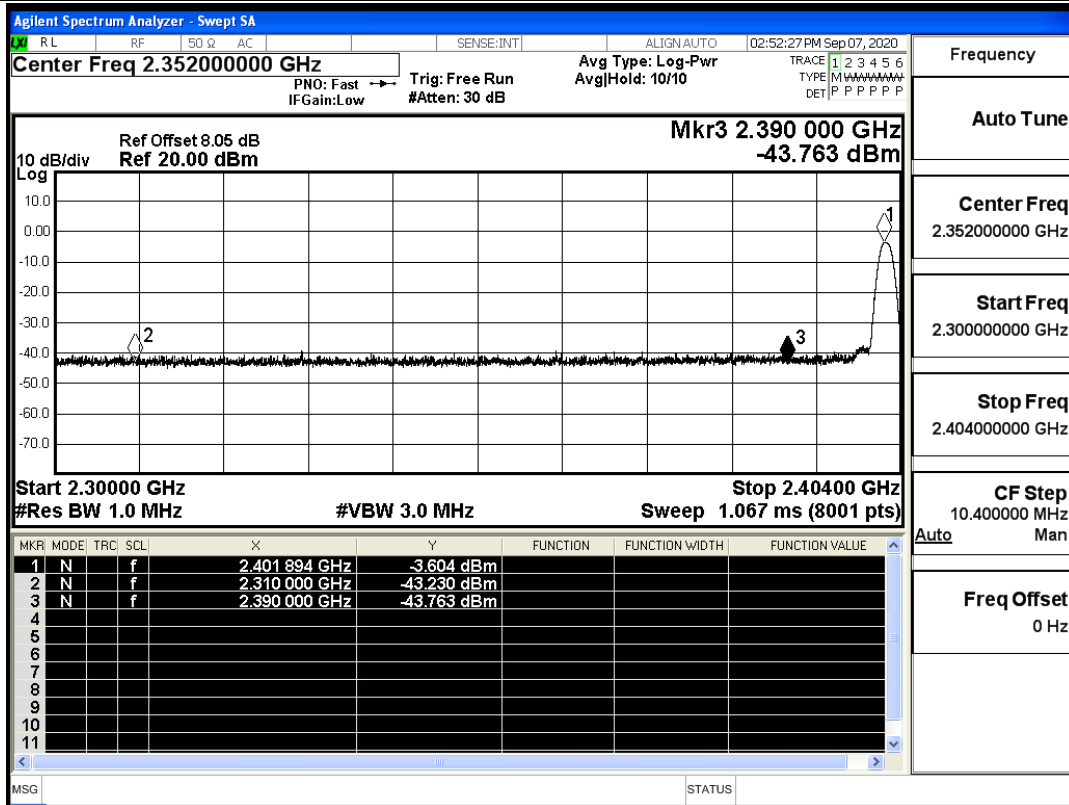
$\pi/4$ DQPSK/HCH/Hop



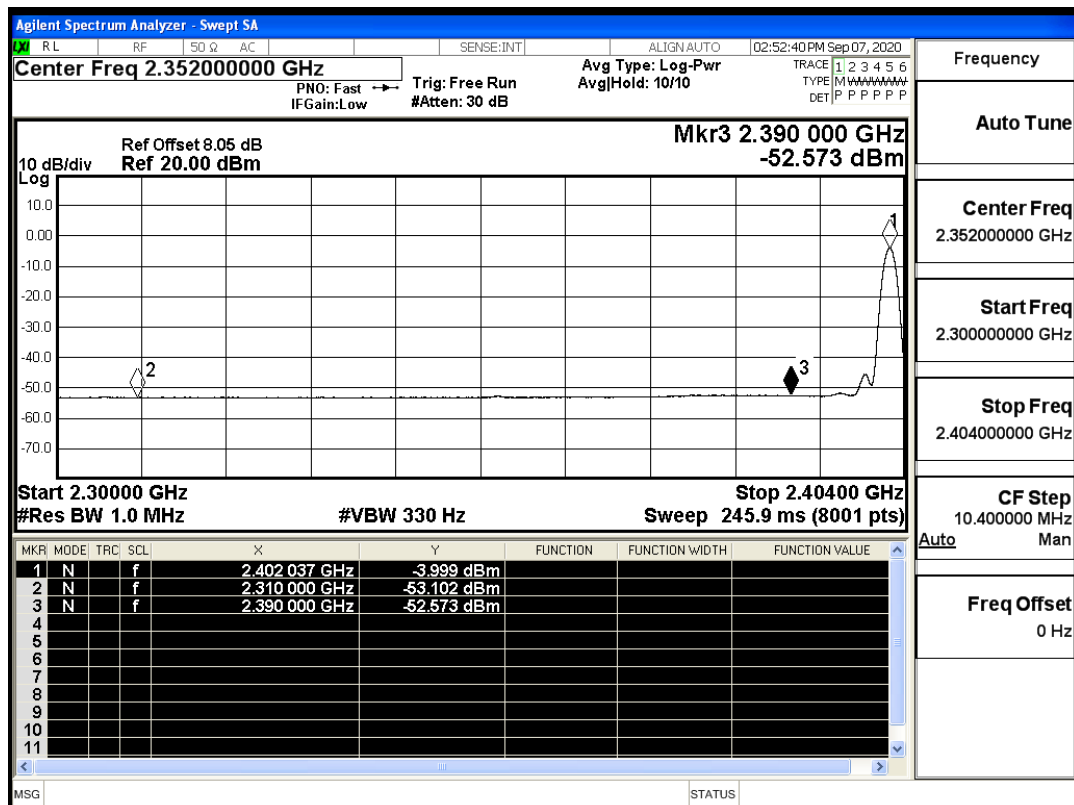
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.23	2.0	0	52.03	PEAK	74	PASS
	Off	2310.0	-53.10	2.0	0	42.16	AV	54	PASS
	Off	2390.0	-43.76	2.0	0	51.49	PEAK	74	PASS
	Off	2390.0	-52.57	2.0	0	42.68	AV	54	PASS
	Off	2483.5	-38.50	2.0	0	56.76	PEAK	74	PASS
	Off	2483.5	-46.94	2.0	0	48.31	AV	54	PASS
	Off	2500.0	-41.64	2.0	0	53.62	PEAK	74	PASS
	Off	2500.0	-51.89	2.0	0	43.36	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.51	2.0	0	52.74	PEAK	74	PASS
	Off	2310.0	-53.12	2.0	0	42.14	AV	54	PASS
	Off	2390.0	-42.16	2.0	0	53.10	PEAK	74	PASS
	Off	2390.0	-52.58	2.0	0	42.68	AV	54	PASS
	Off	2483.5	-39.24	2.0	0	56.02	PEAK	74	PASS
	Off	2483.5	-49.33	2.0	0	45.92	AV	54	PASS
	Off	2500.0	-41.27	2.0	0	53.98	PEAK	74	PASS
	Off	2500.0	-52.01	2.0	0	43.25	AV	54	PASS

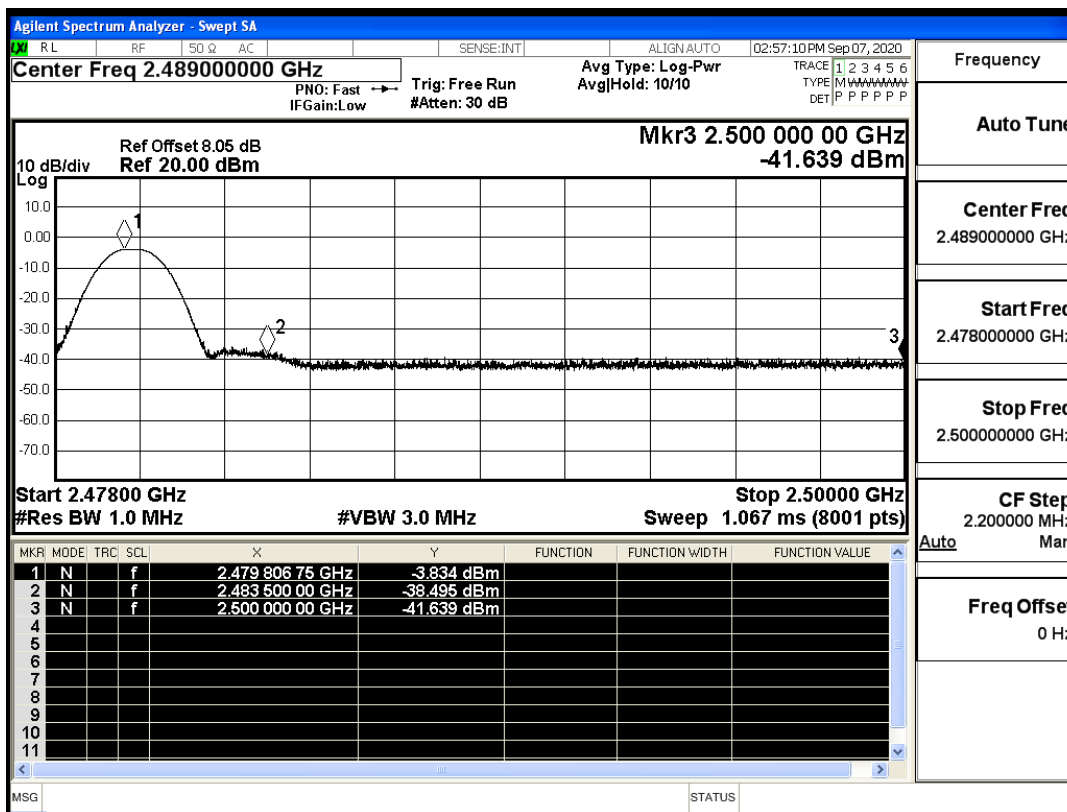
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



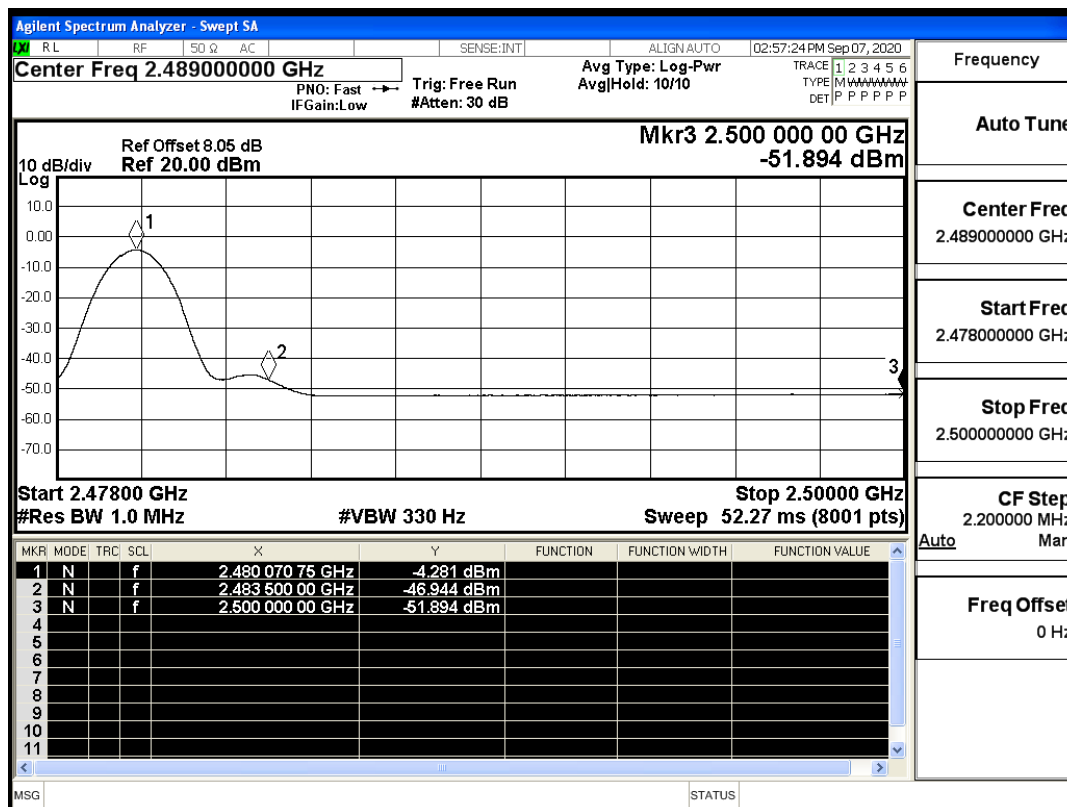
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



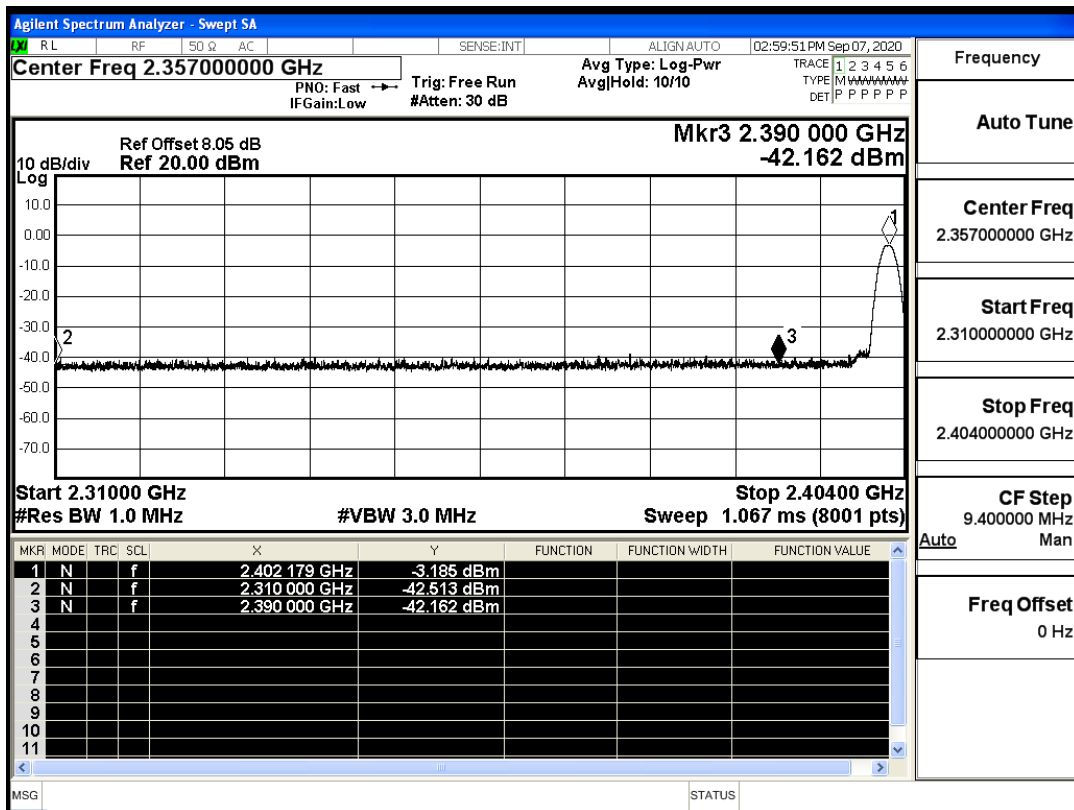
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



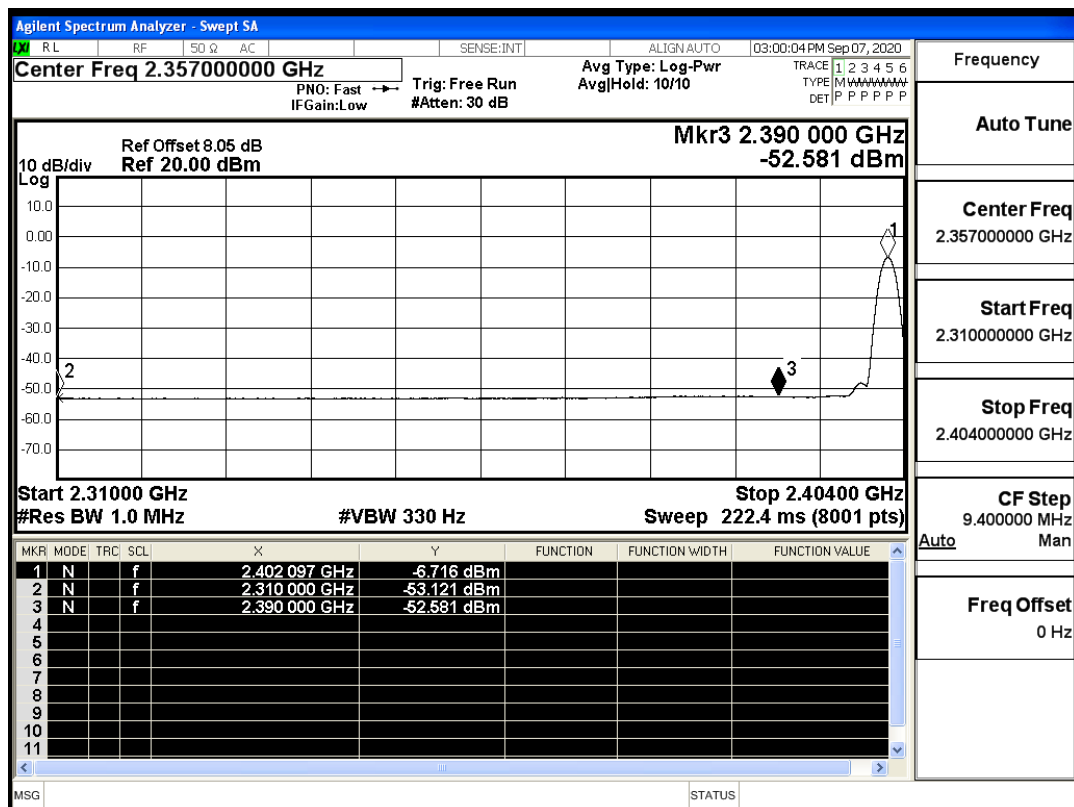
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



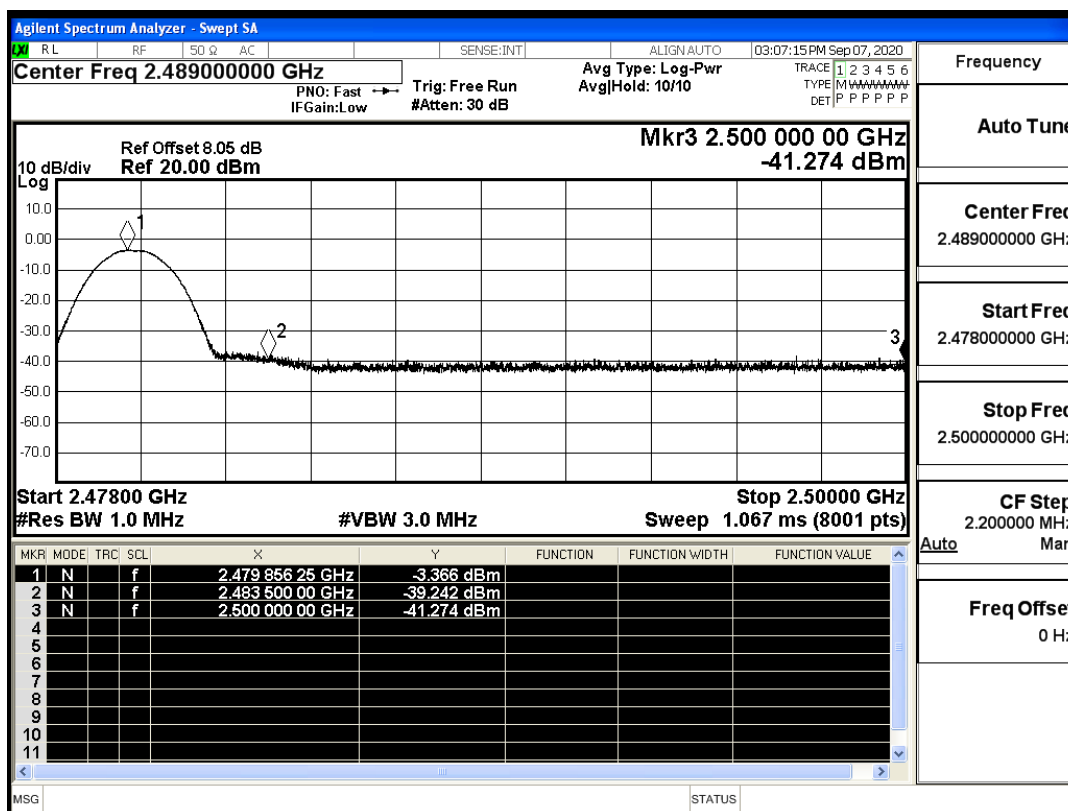
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)



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



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



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

