

Appendix A

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

Product Name: Starry Sleep Aid

Trade Mark: N/A

Test Model: S8

Environmental Conditions

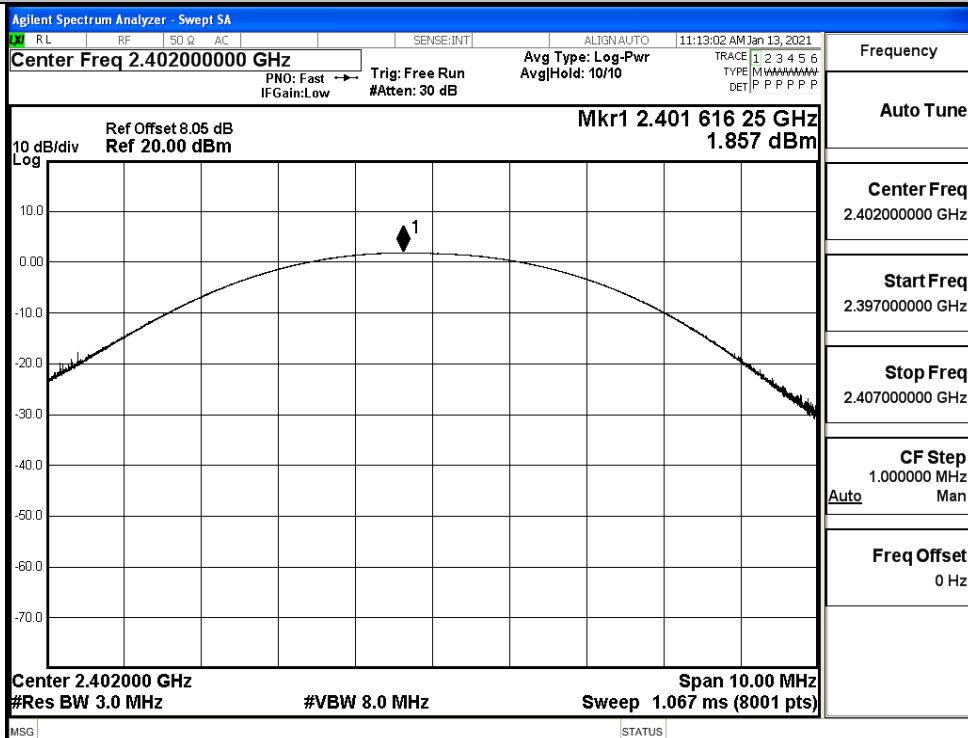
Temperature:	22.1° C
Relative Humidity:	53.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Carl Fu
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

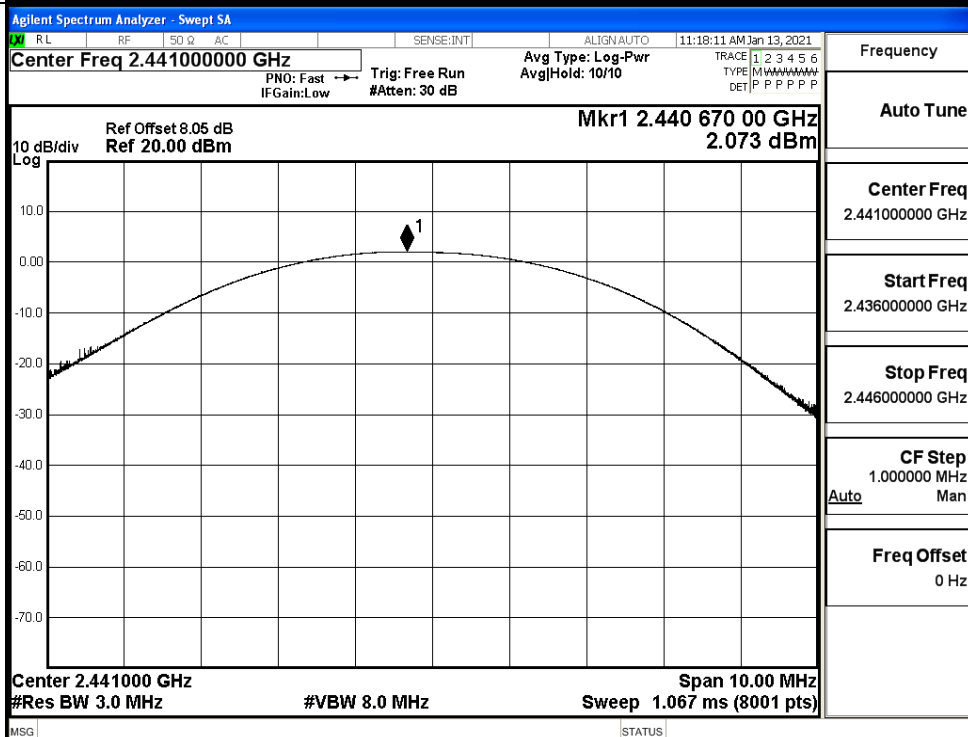
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.857	21	PASS
	MCH	2.073	21	PASS
	HCH	2.068	21	PASS
$\pi/4$ DQPSK	LCH	2.614	21	PASS
	MCH	2.805	21	PASS
	HCH	2.765	21	PASS

Test Graphs

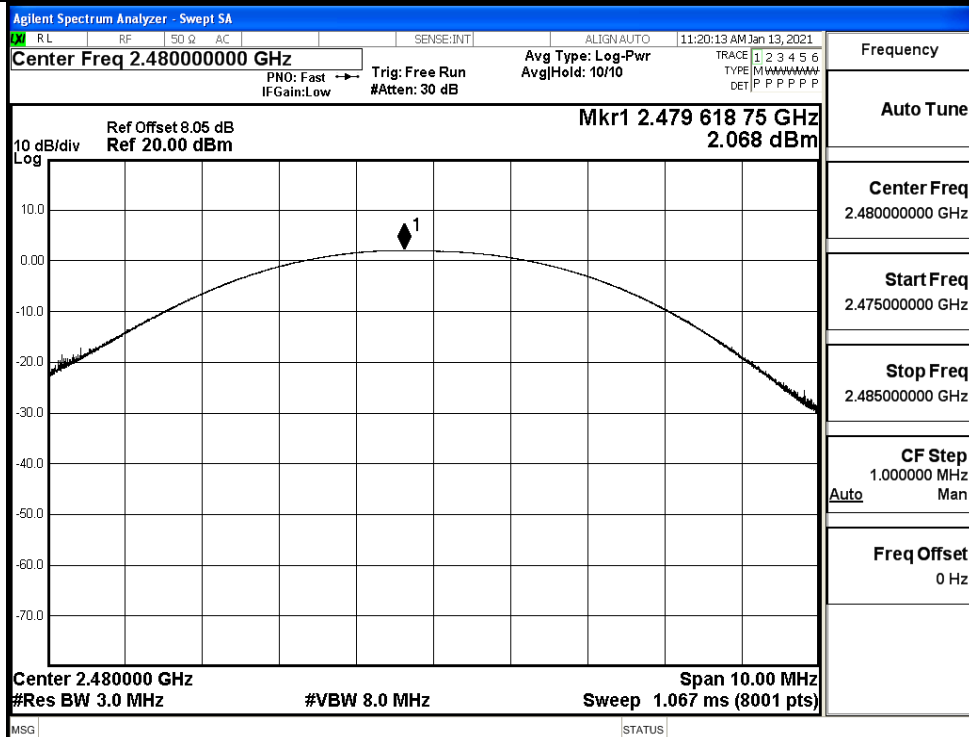
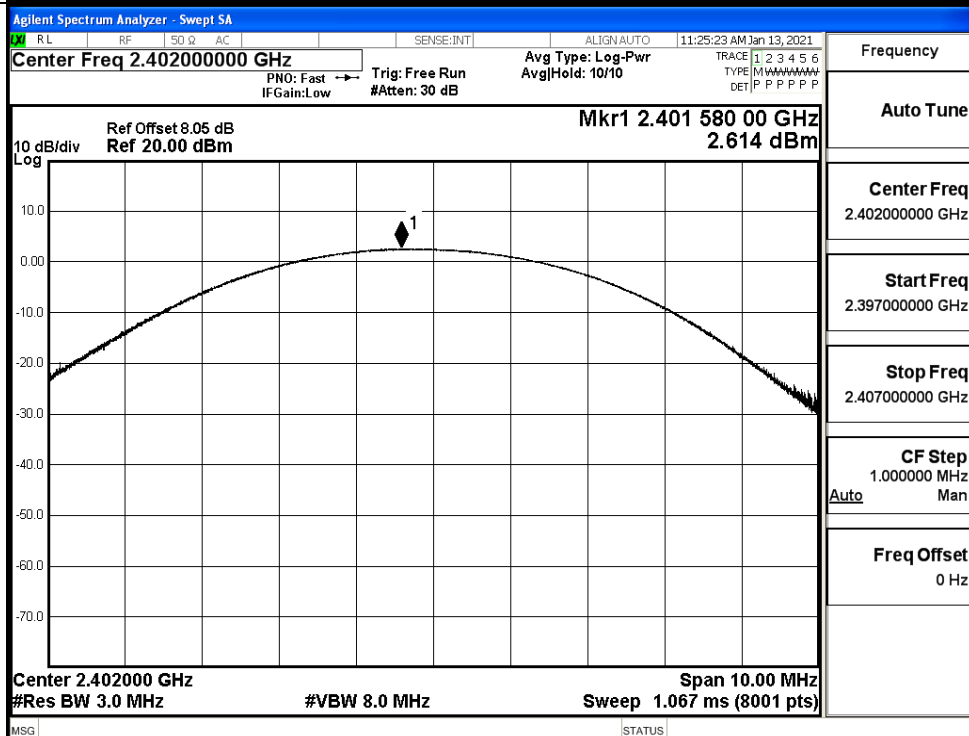
GFSK/LCH

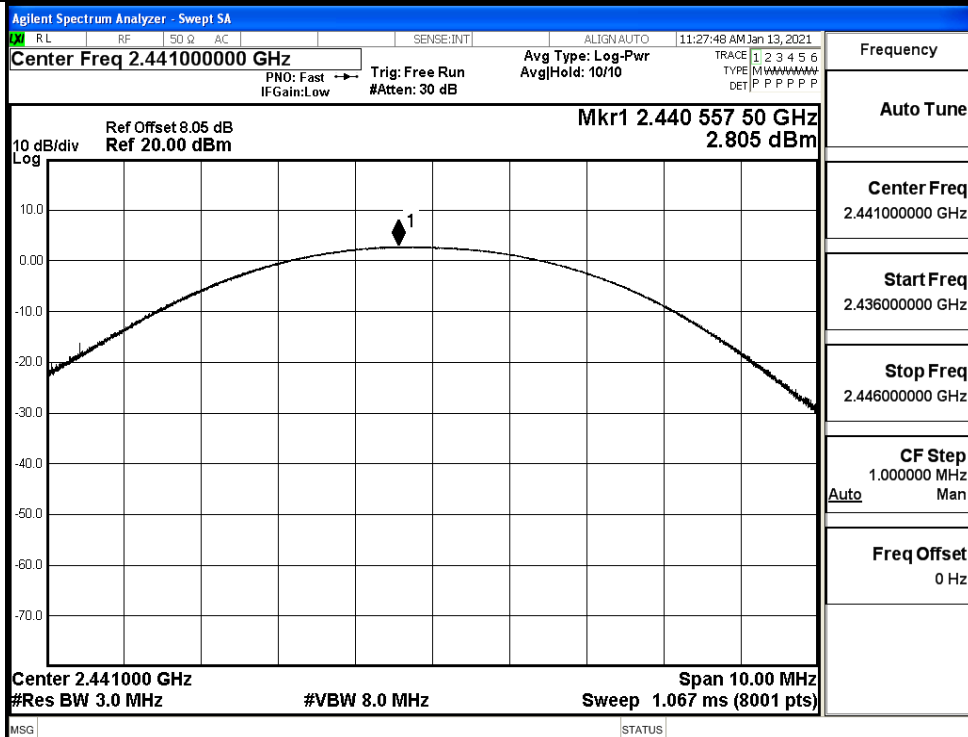
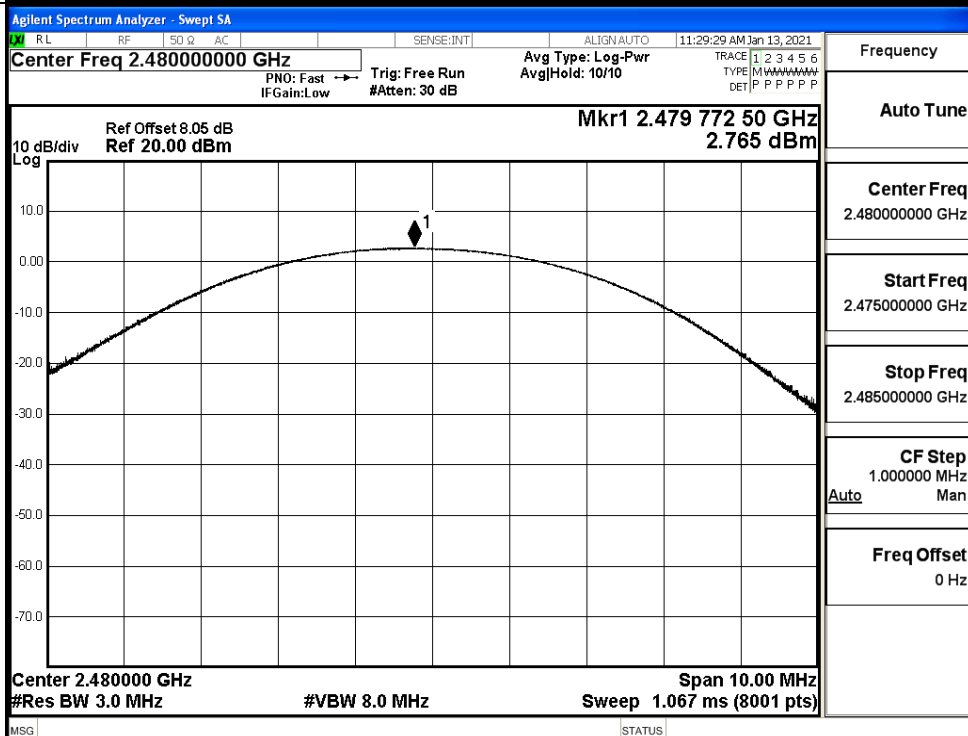


GFSK/MCH



GFSK/HCH

 π /4DQPSK/LCH

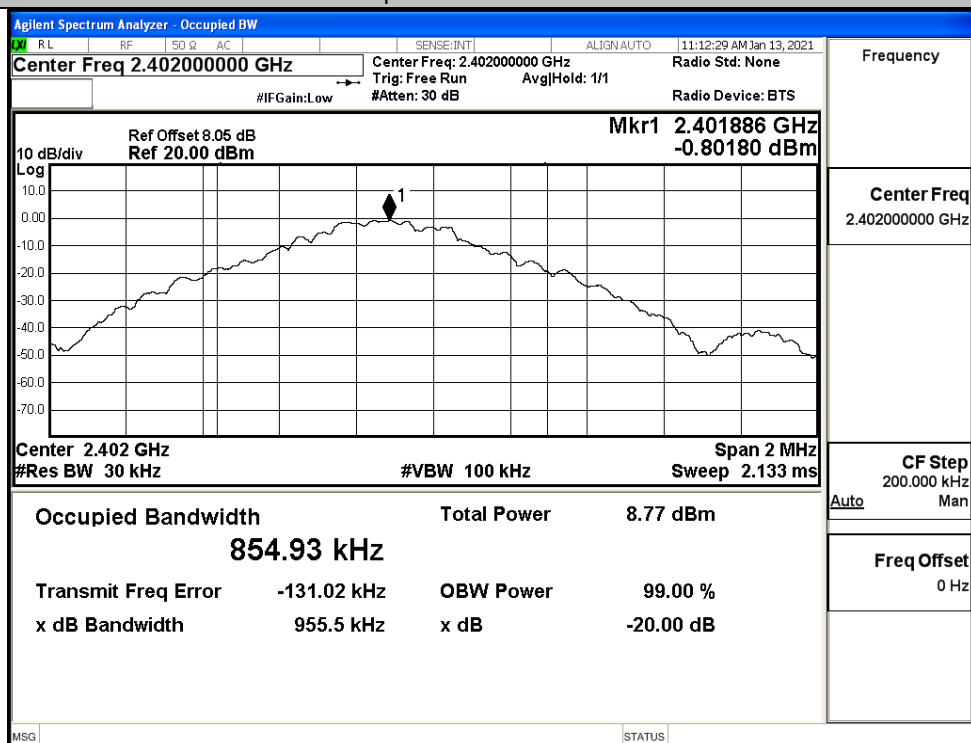
$\pi/4$ DQPSK/MCH $\pi/4$ DQPSK/HCH

A.2 20dB Bandwidth

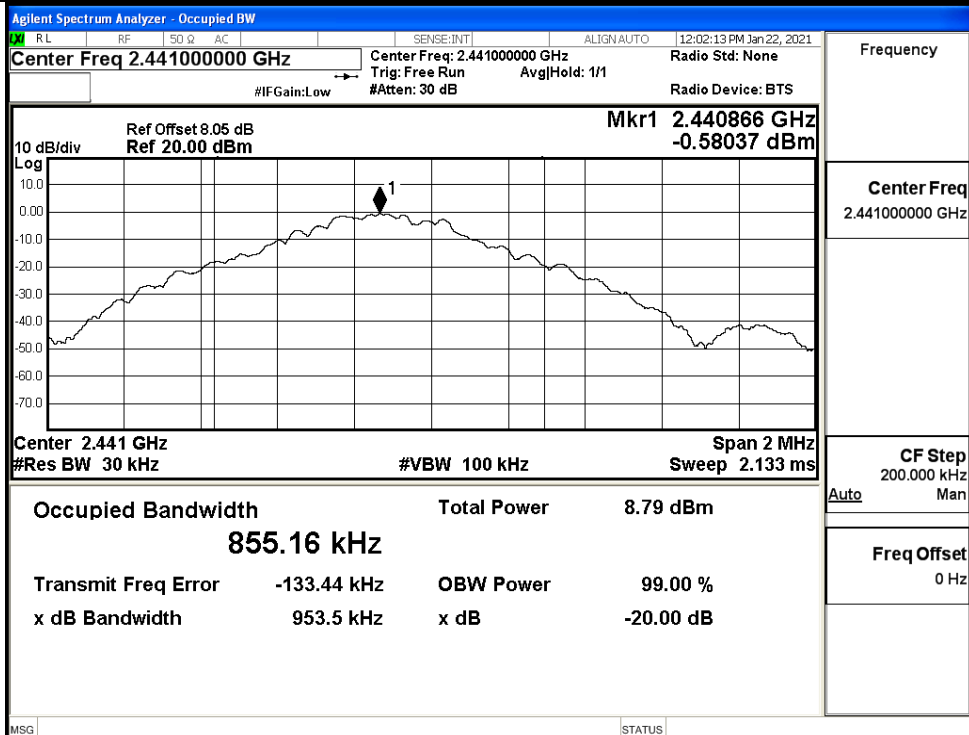
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9555	Not Specified	PASS
	MCH	0.9535	Not Specified	PASS
	HCH	0.9553	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.311	Not Specified	PASS
	MCH	1.311	Not Specified	PASS
	HCH	1.315	Not Specified	PASS

Test Graphs

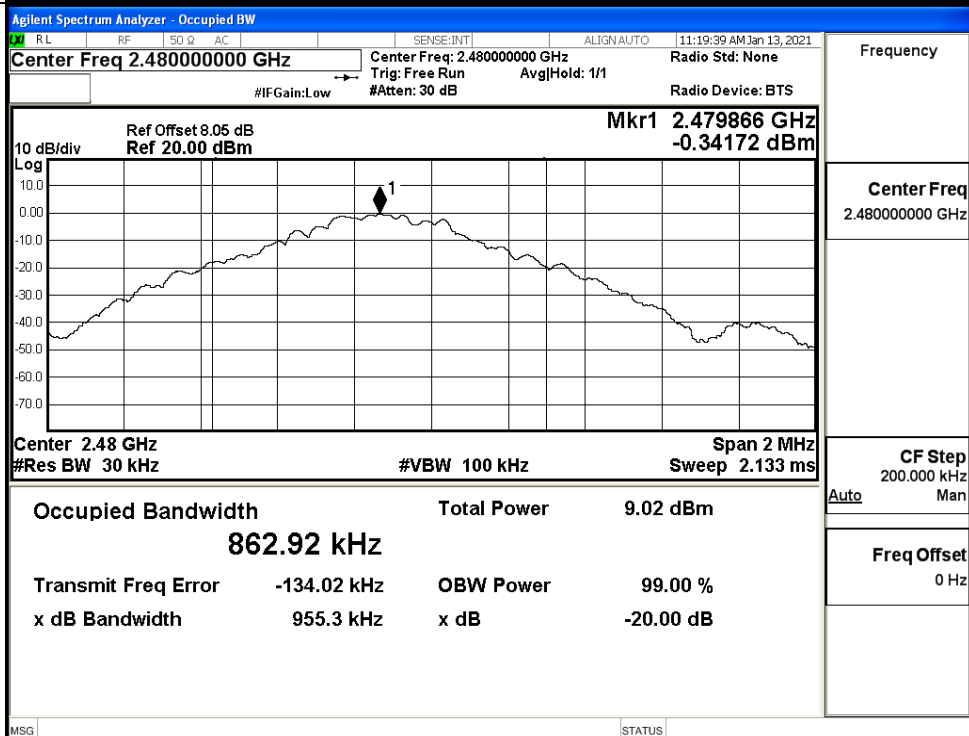
GFSK/LCH

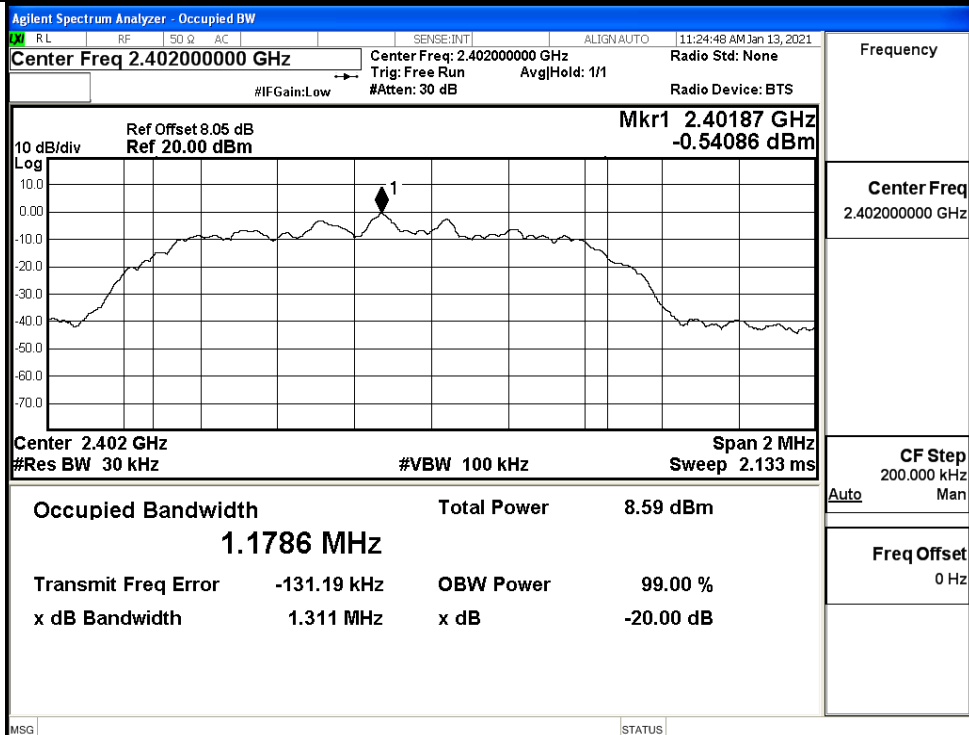
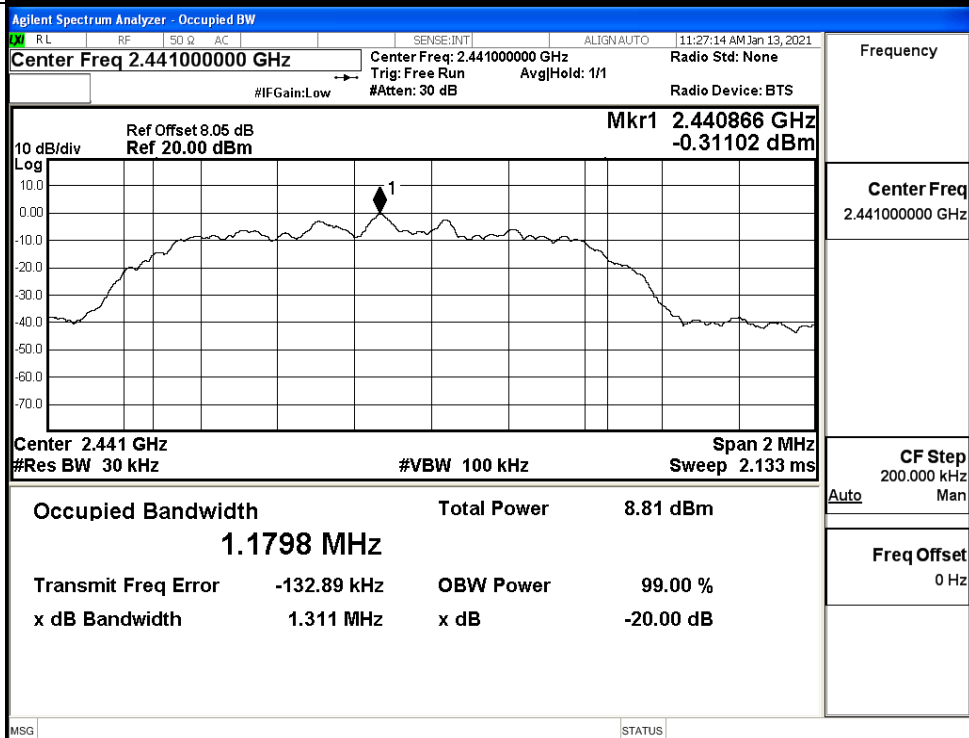


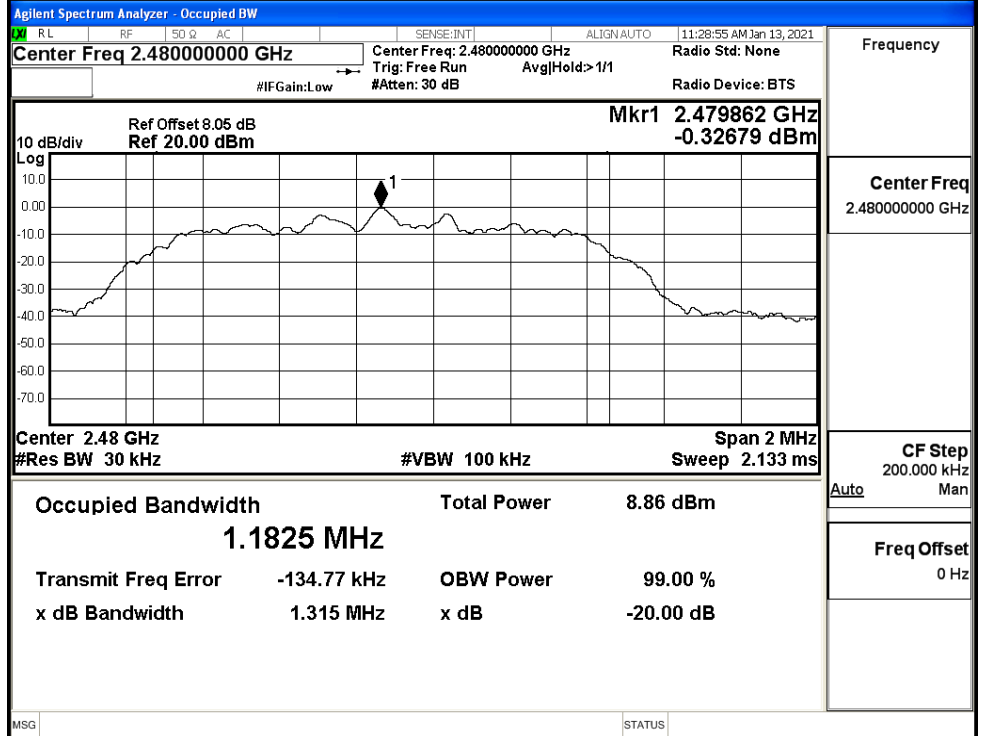
GFSK/MCH



GFSK/HCH



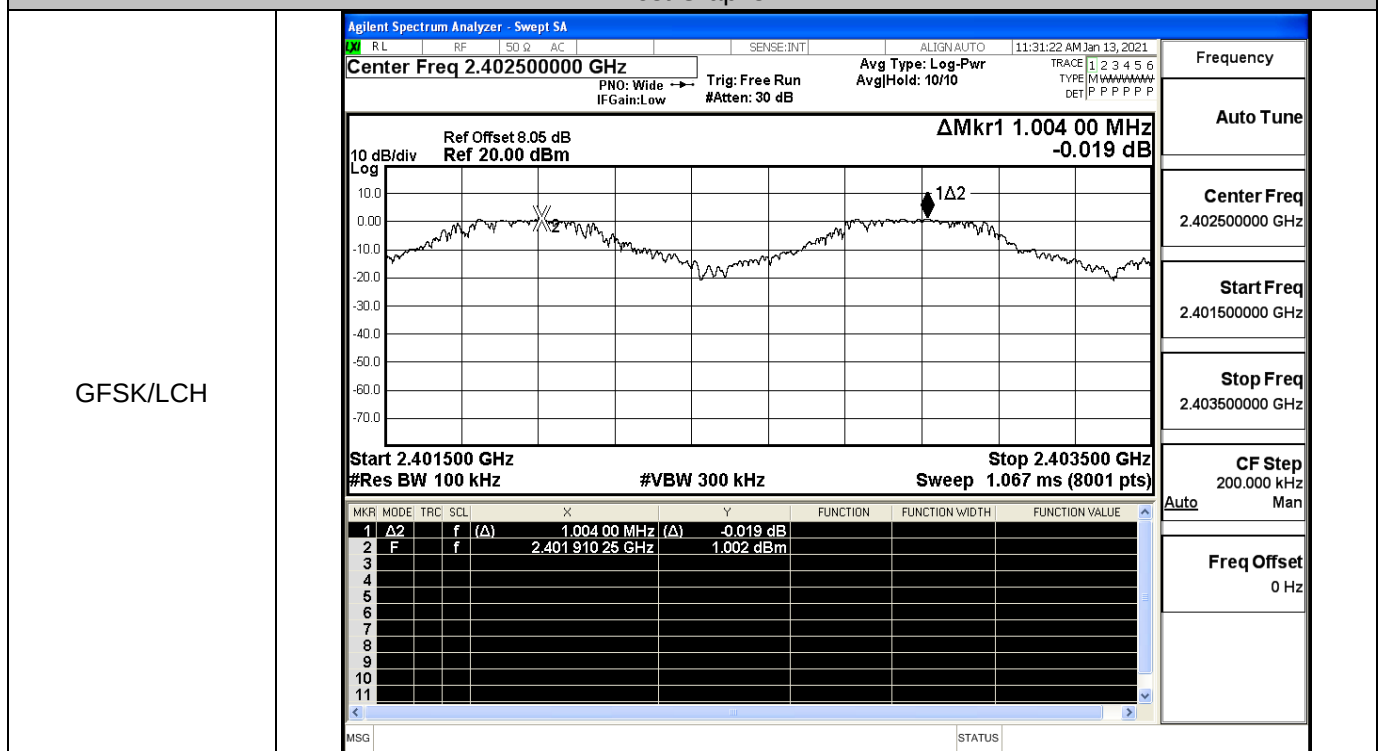
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

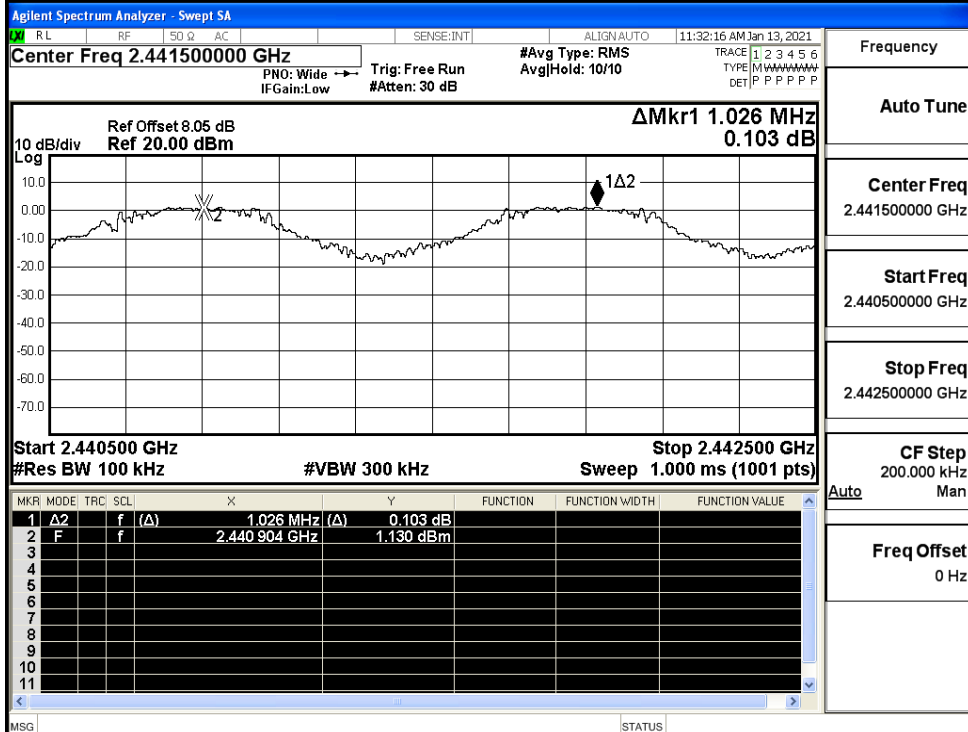
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.004	0.637	PASS
	MCH	1.026	0.637	PASS
	HCH	1.018	0.637	PASS
$\pi/4$ DQPSK	LCH	1.210	0.877	PASS
	MCH	1.008	0.877	PASS
	HCH	1.002	0.877	PASS

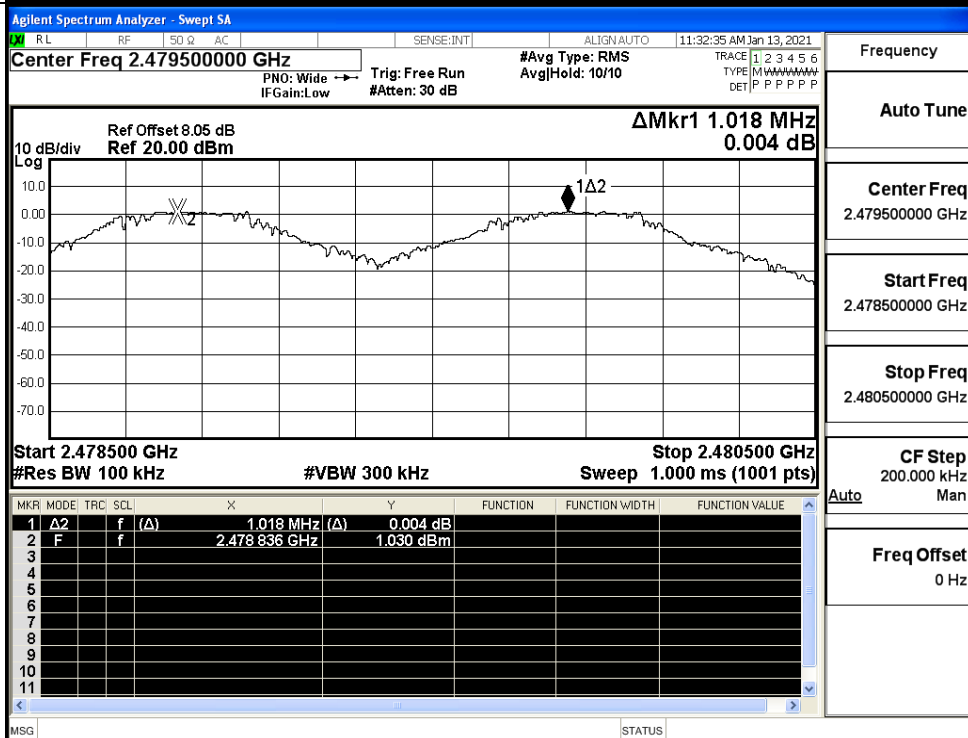
Test Graphs

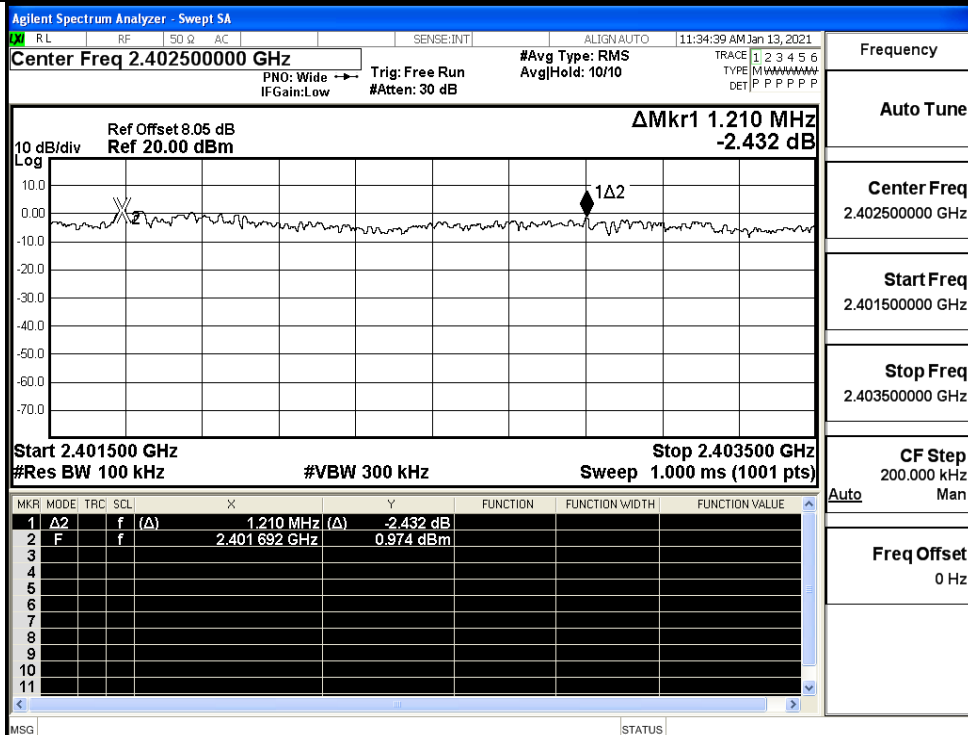
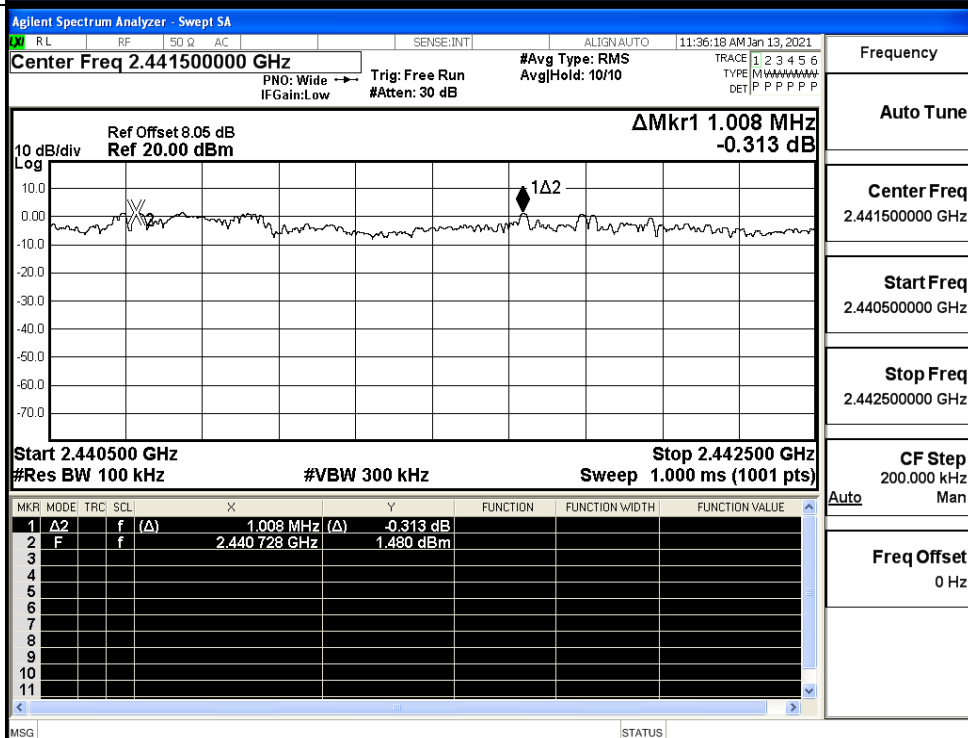


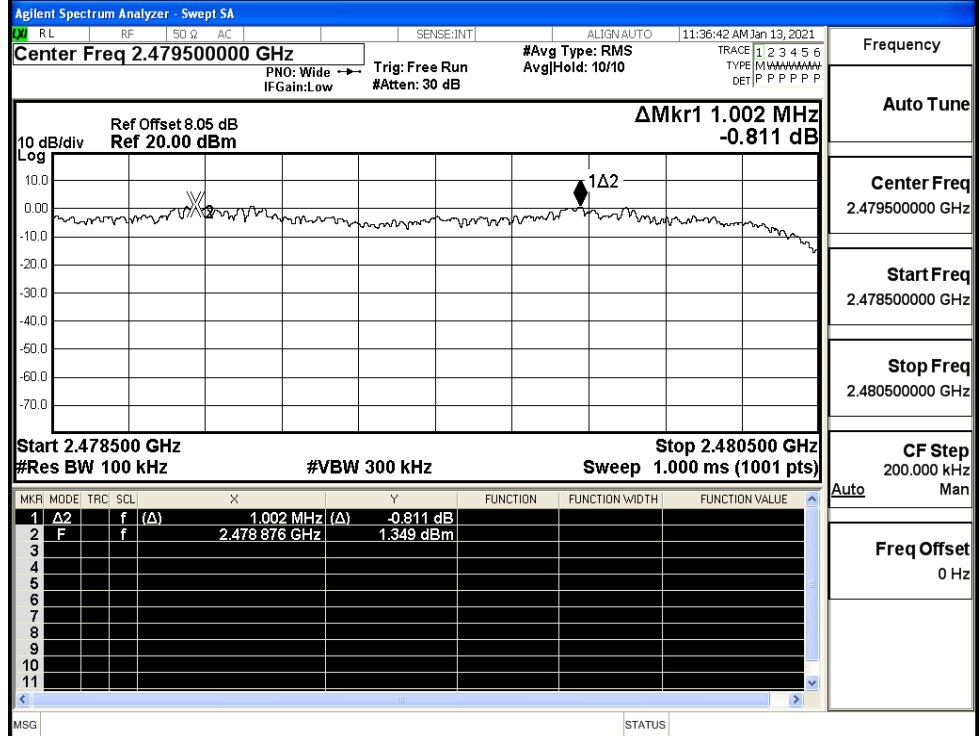
GFSK/MCH



GFSK/HCH



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

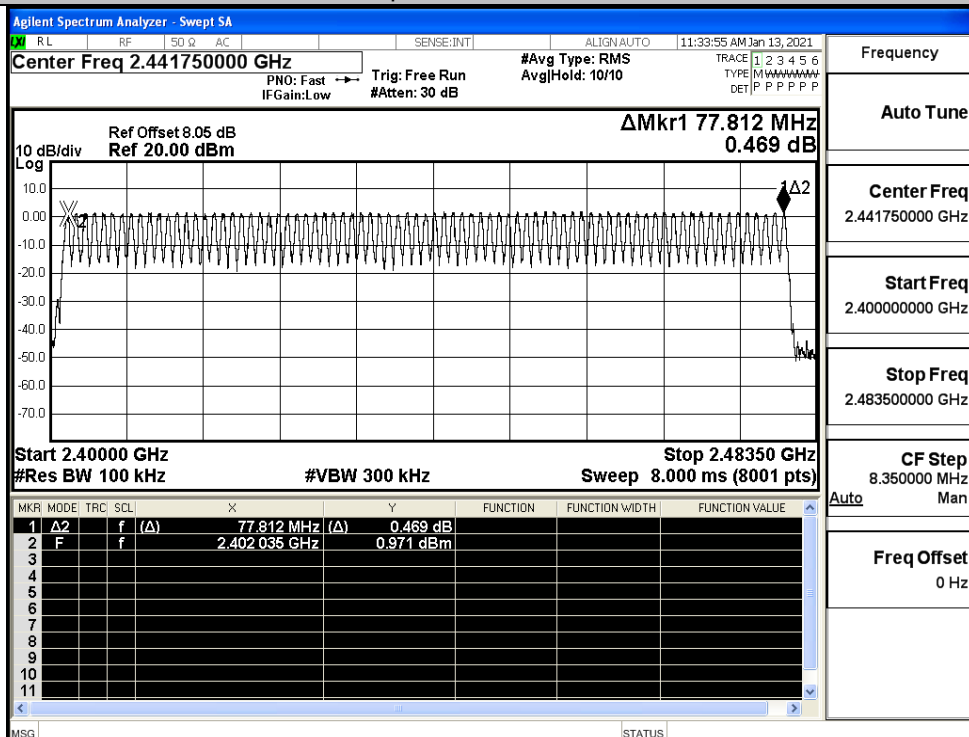
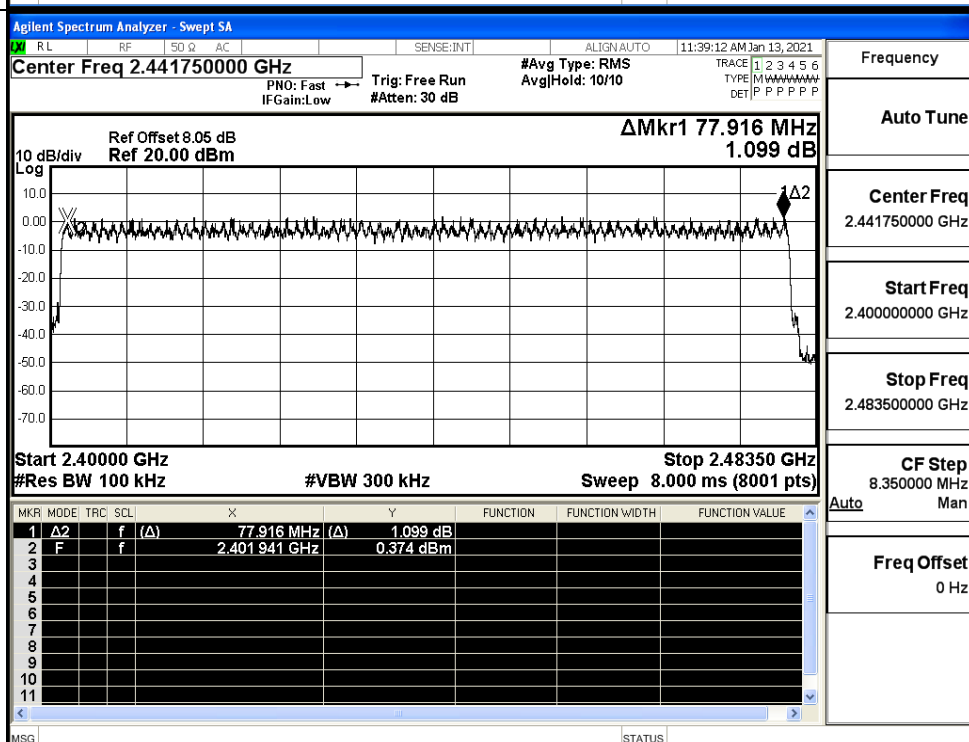
$\pi/4$ DQPSK/HCH

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

Test Graphs

GFSK/Hop

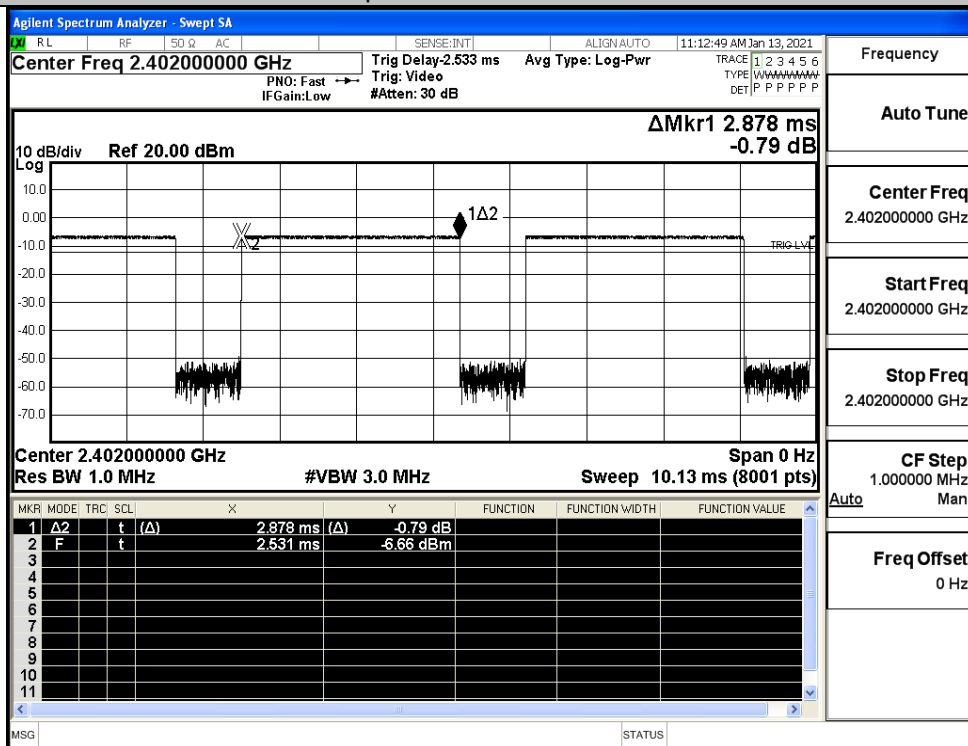
 $\pi/4$ DQPSK/Hop

A.5 Dwell Time

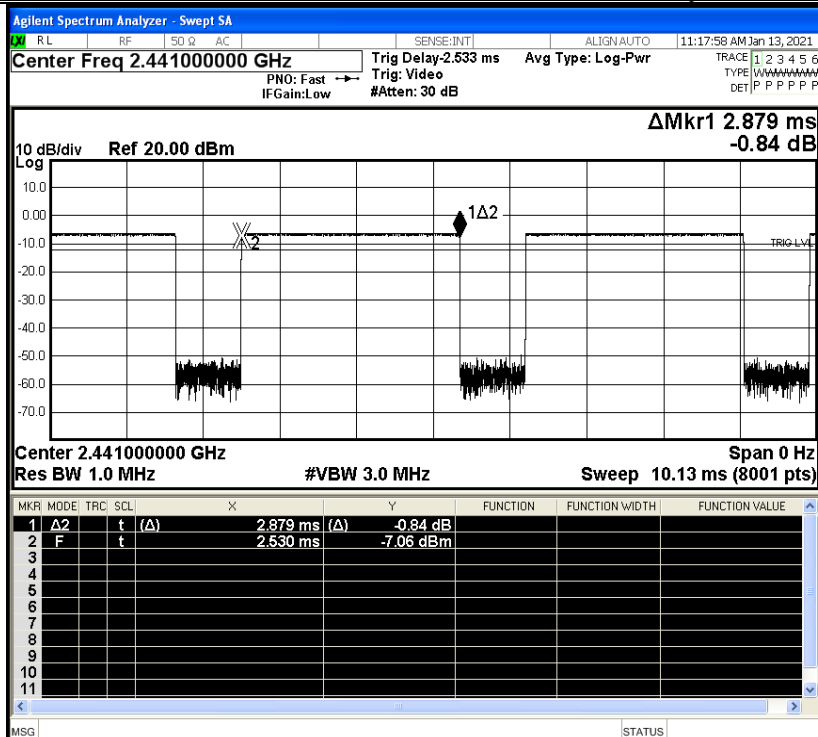
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.308	0.4	PASS
	2DH5	HCH	2.88	106.7	0.307	0.4	PASS

Test Graphs

GFSK_DH5/LCH



GFSK_DH5/MCH



Frequency

Auto Tune

Center Freq
2.441000000 GHz

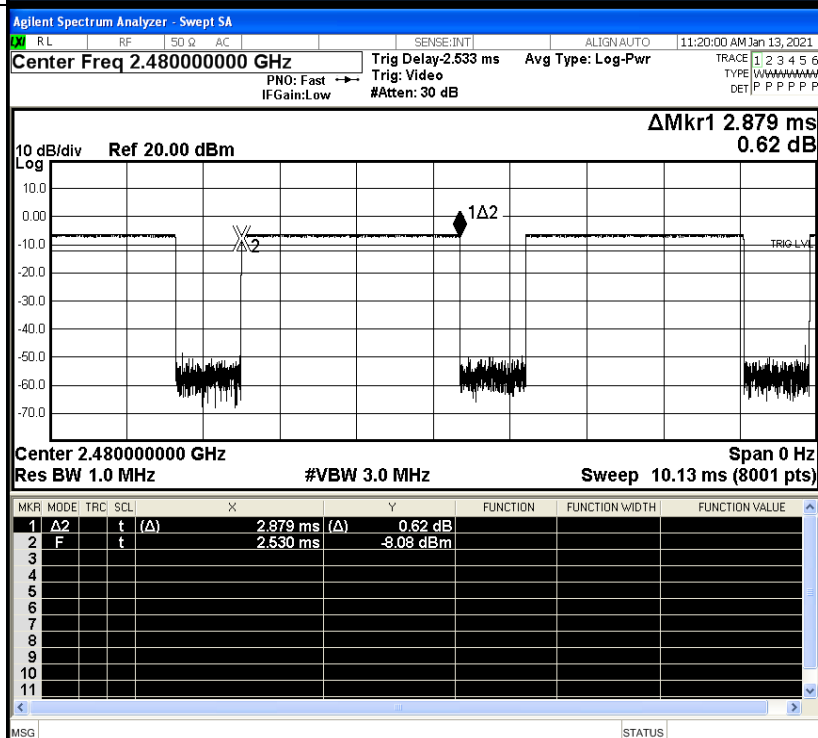
Start Freq
2.441000000 GHz

Stop Freq
2.441000000 GHz

CF Step
1.000000 MHz
Auto Man

Freq Offset
0 Hz

GFSK_DH5/HCH



Frequency

Auto Tune

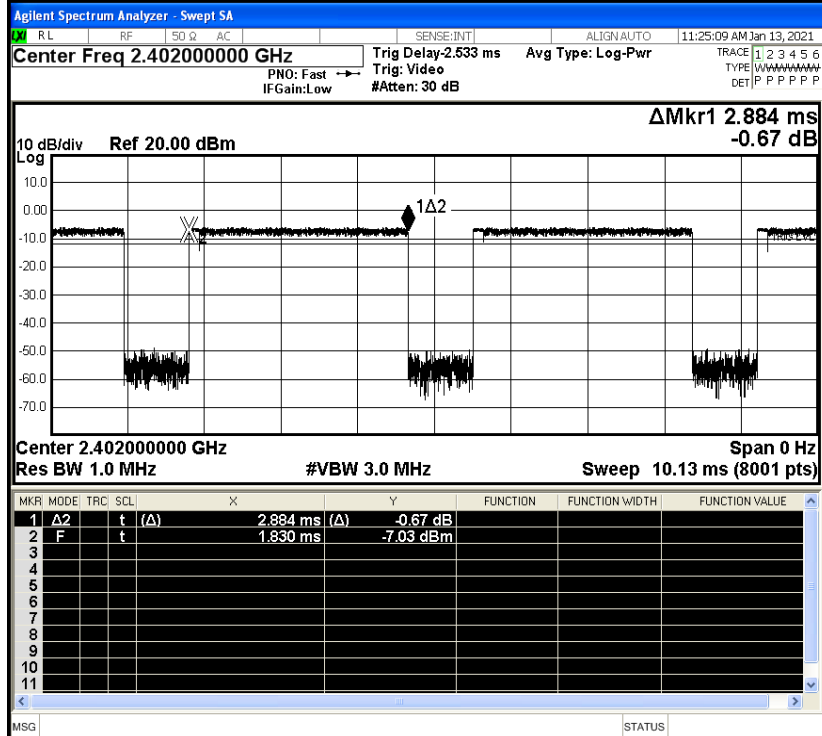
Center Freq
2.480000000 GHz

Start Freq
2.480000000 GHz

Stop Freq
2.480000000 GHz

CF Step
1.000000 MHz
Auto Man

Freq Offset
0 Hz

$\pi/4$ DQPSK
_2DH5/LCH

Frequency

Auto Tune

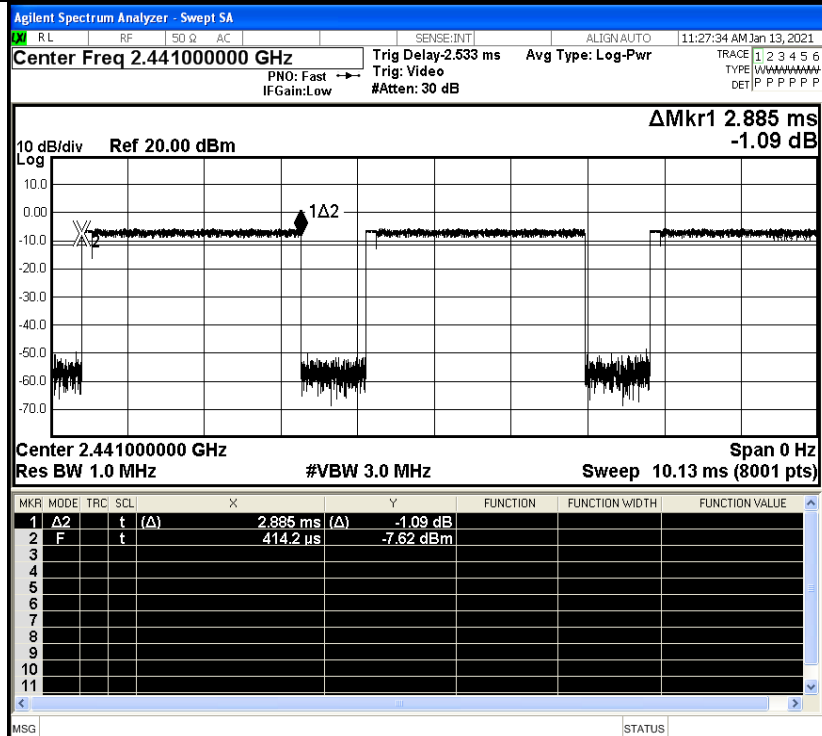
Center Freq
2.402000000 GHz

Start Freq
2.402000000 GHz

Stop Freq
2.402000000 GHz

CF Step
1.000000 MHz
Auto Man

Freq Offset
0 Hz

 $\pi/4$ DQPSK
_2DH5/MCH

Frequency

Auto Tune

Center Freq
2.441000000 GHz

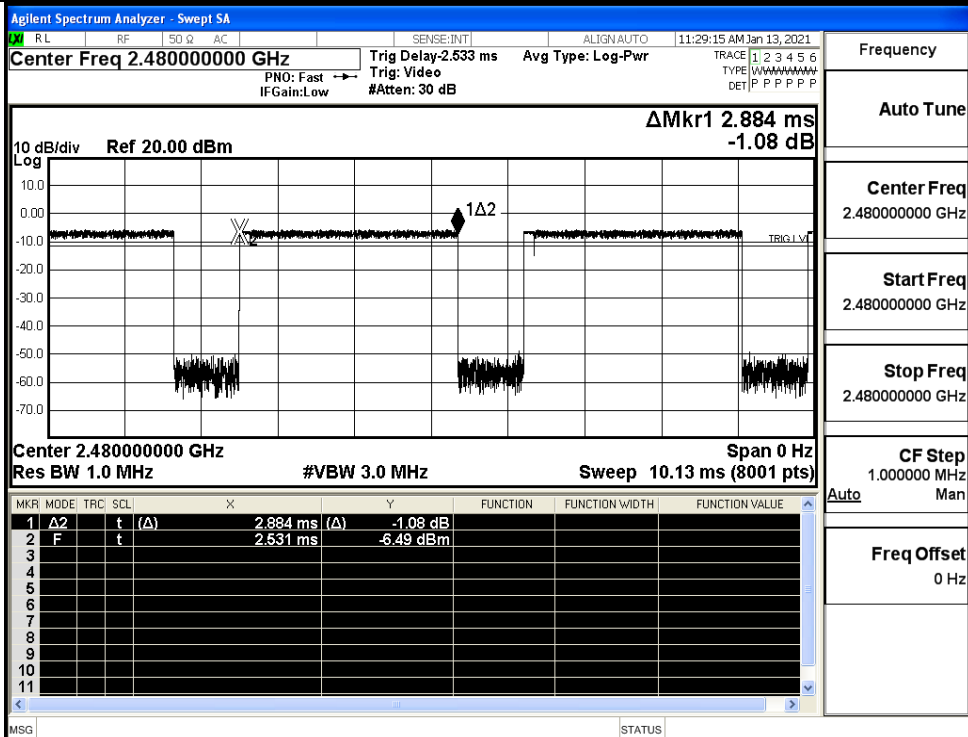
Start Freq
2.441000000 GHz

Stop Freq
2.441000000 GHz

CF Step
1.000000 MHz
Auto Man

Freq Offset
0 Hz

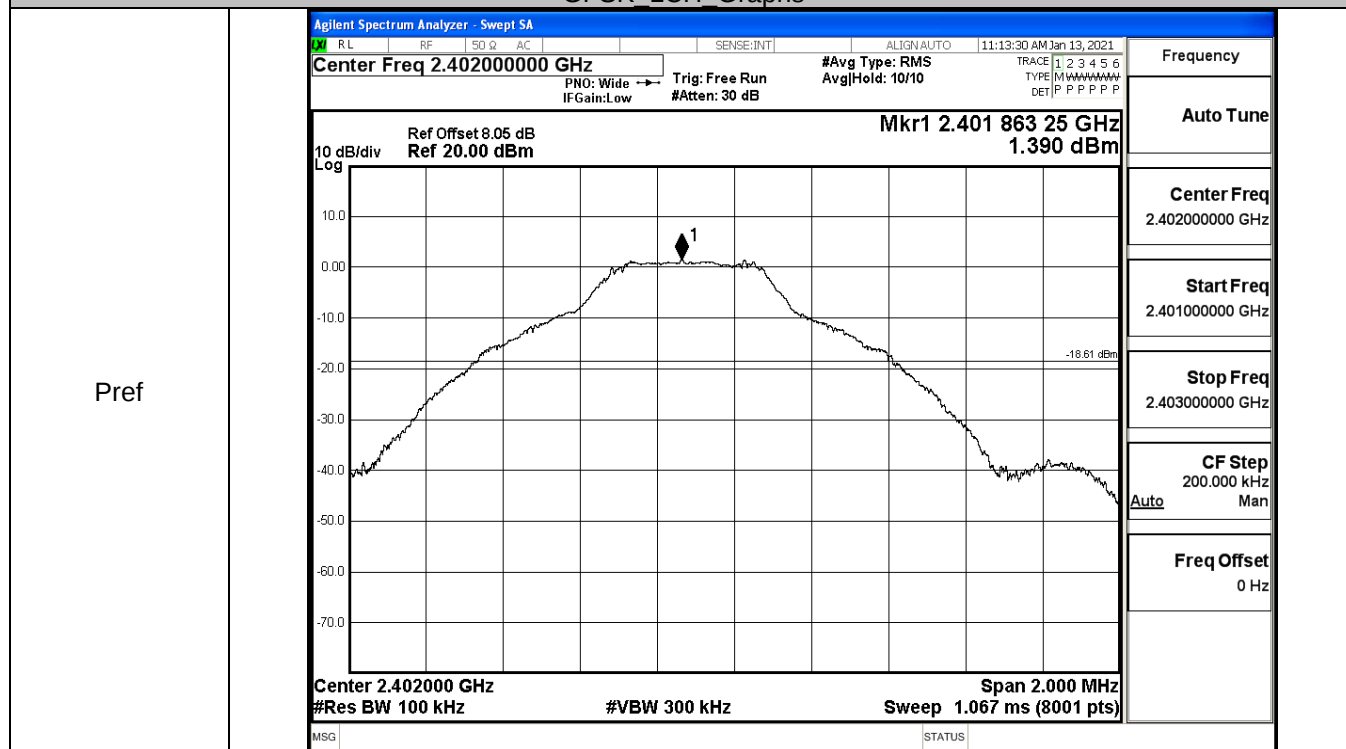
$\pi/4$ DQPSK
_2DH5/HCH



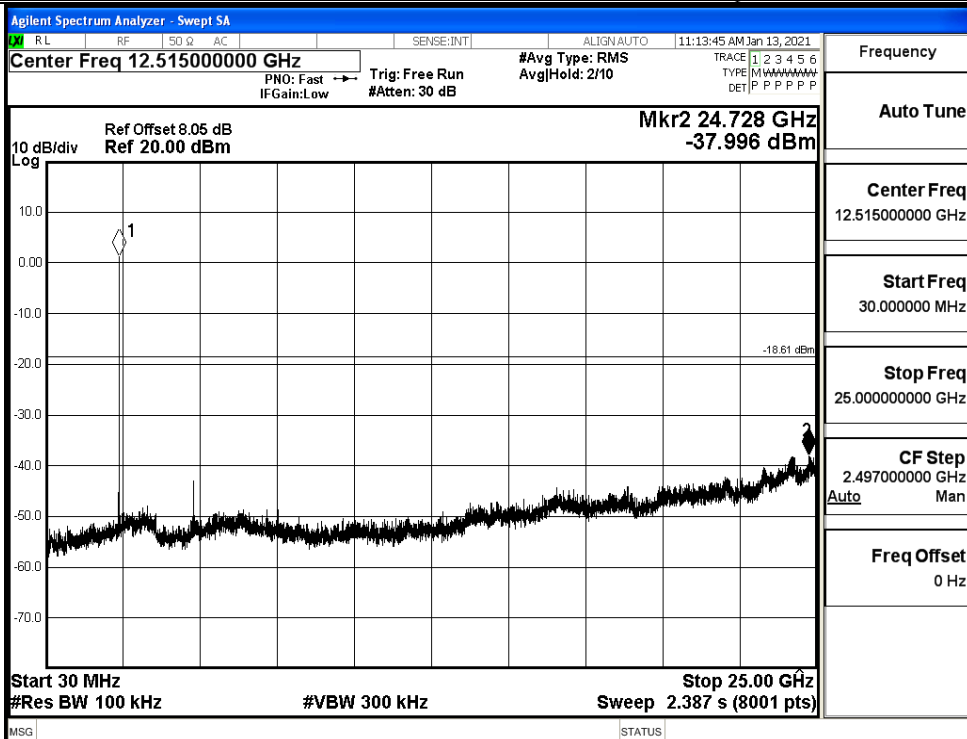
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.39	-37.996	-18.610	PASS
	MCH	1.618	-37.844	-18.382	PASS
	HCH	1.401	-37.567	-18.599	PASS
$\pi/4$ DQPSK	LCH	1.404	-36.444	-18.596	PASS
	MCH	1.791	-37.140	-18.209	PASS
	HCH	1.364	-37.671	-18.636	PASS

GFSK LCH Graphs

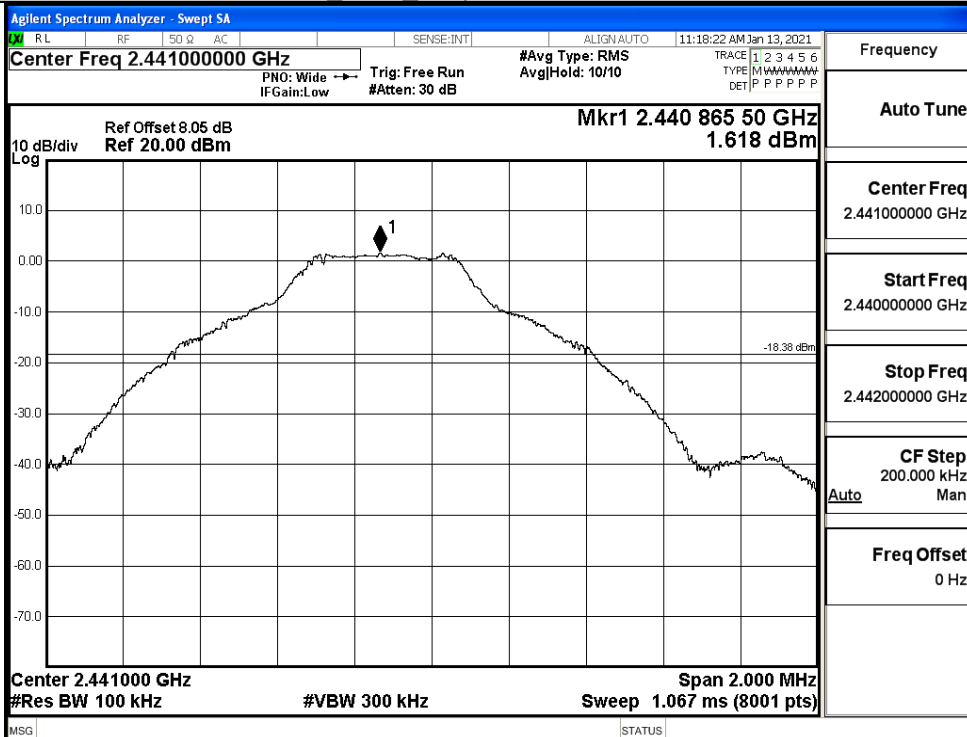


Puw

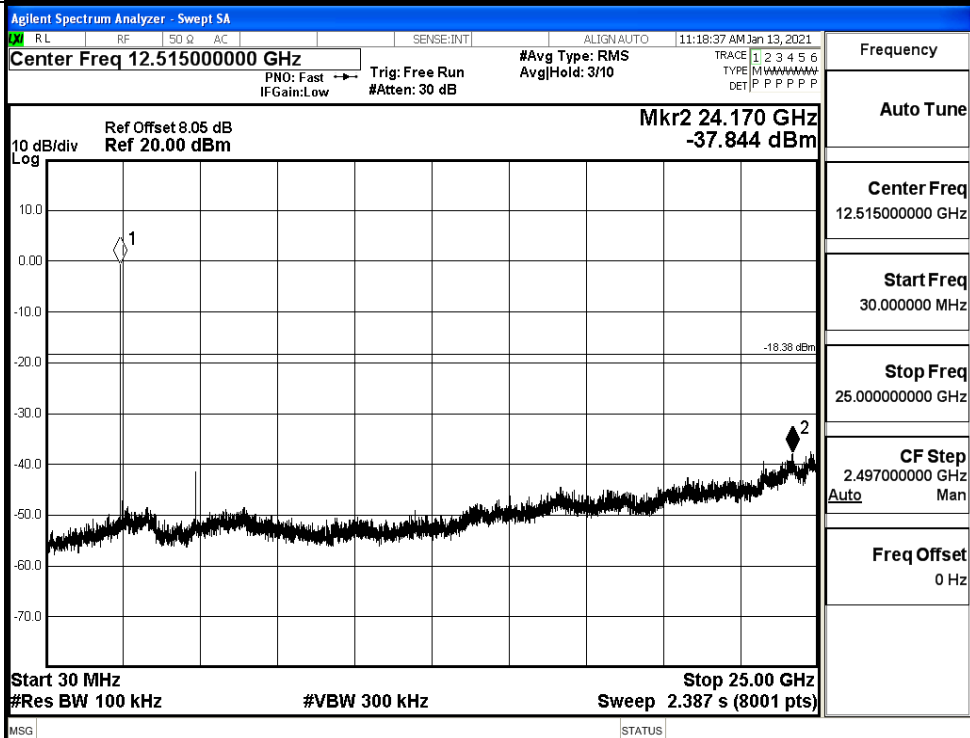


GFSK MCH_Graphs

Pref

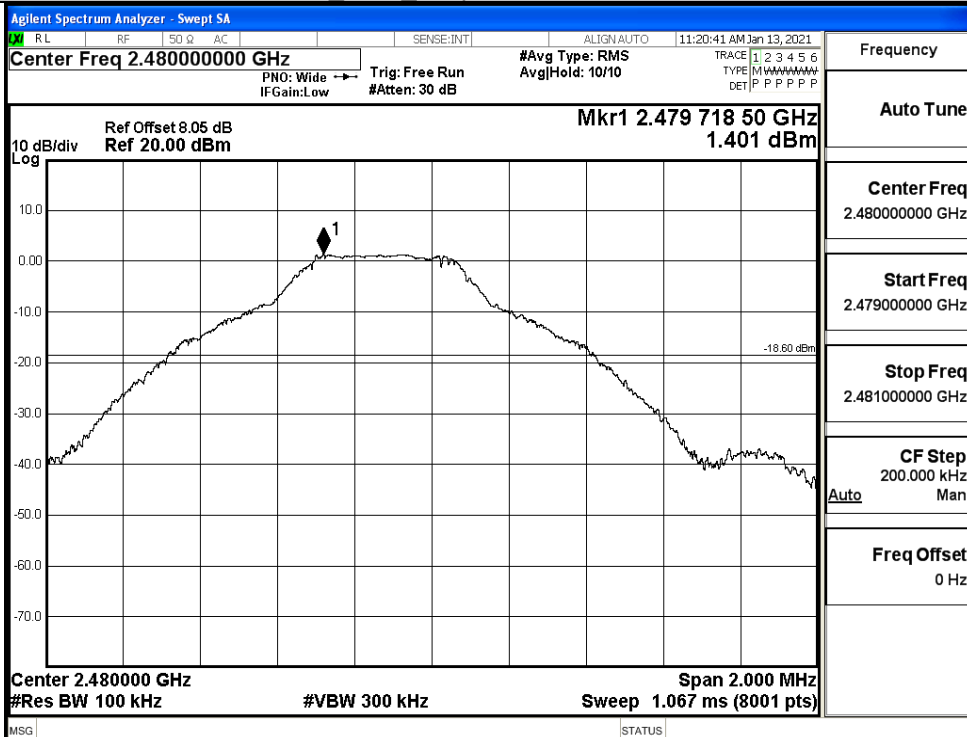


Puw

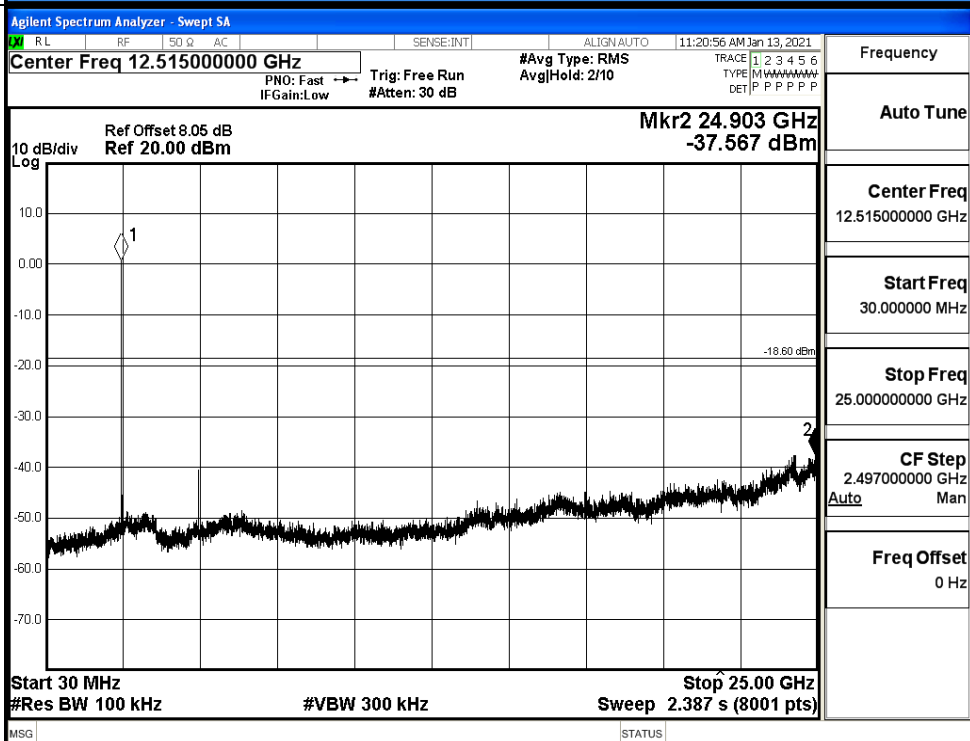


GFSK_HCH_Graphs

Pref

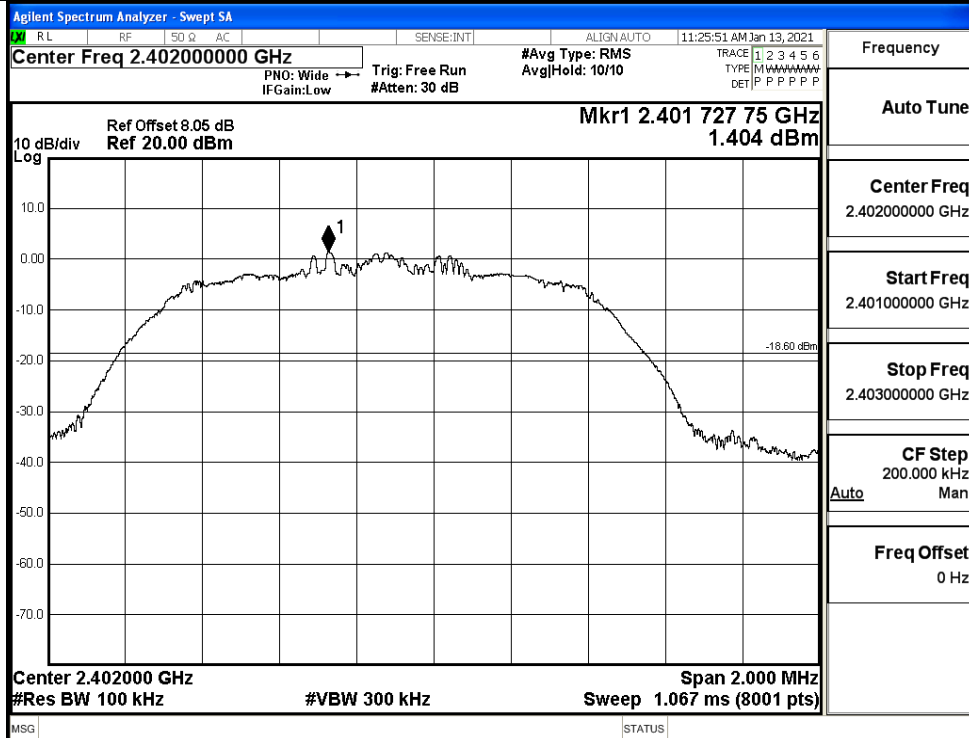


Puw

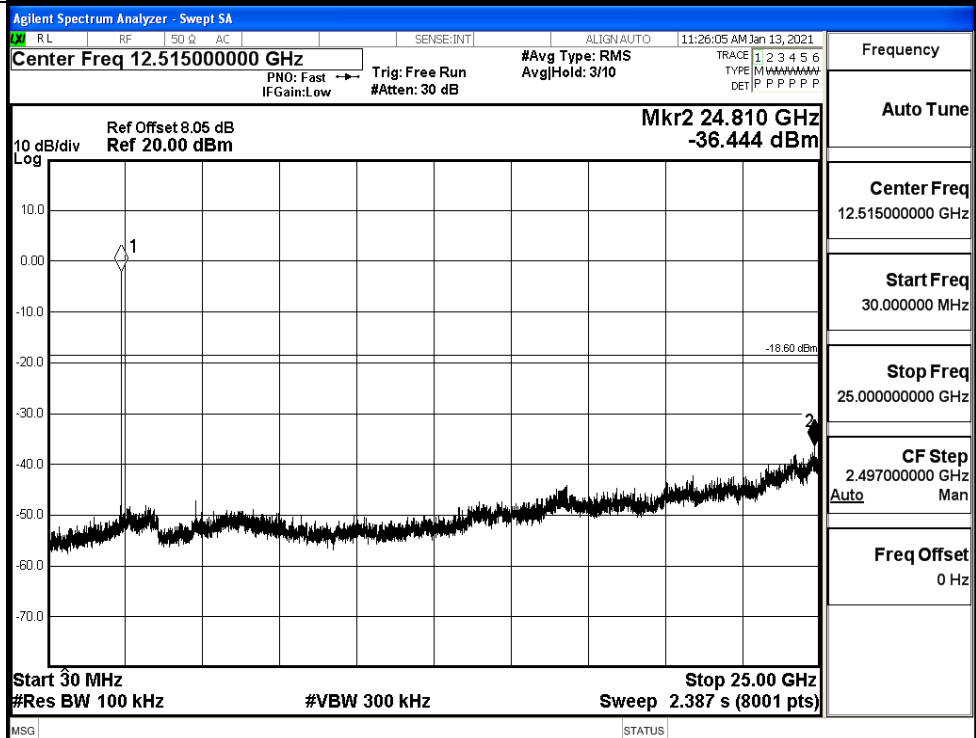


π /4DQPSK LCH_Graphs

Pref

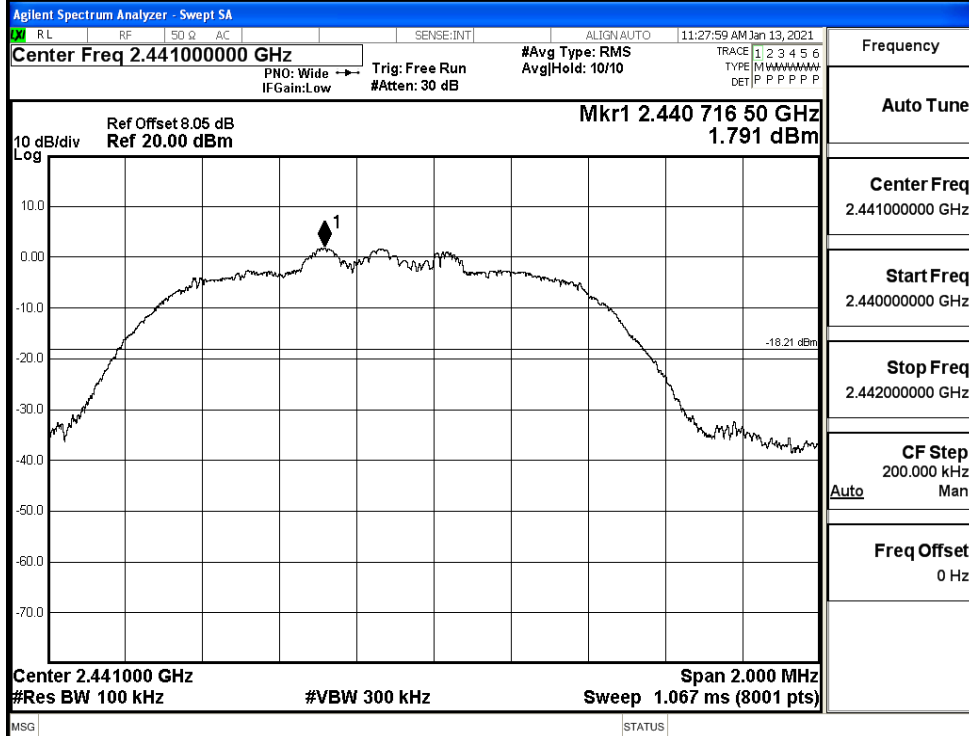


Puw

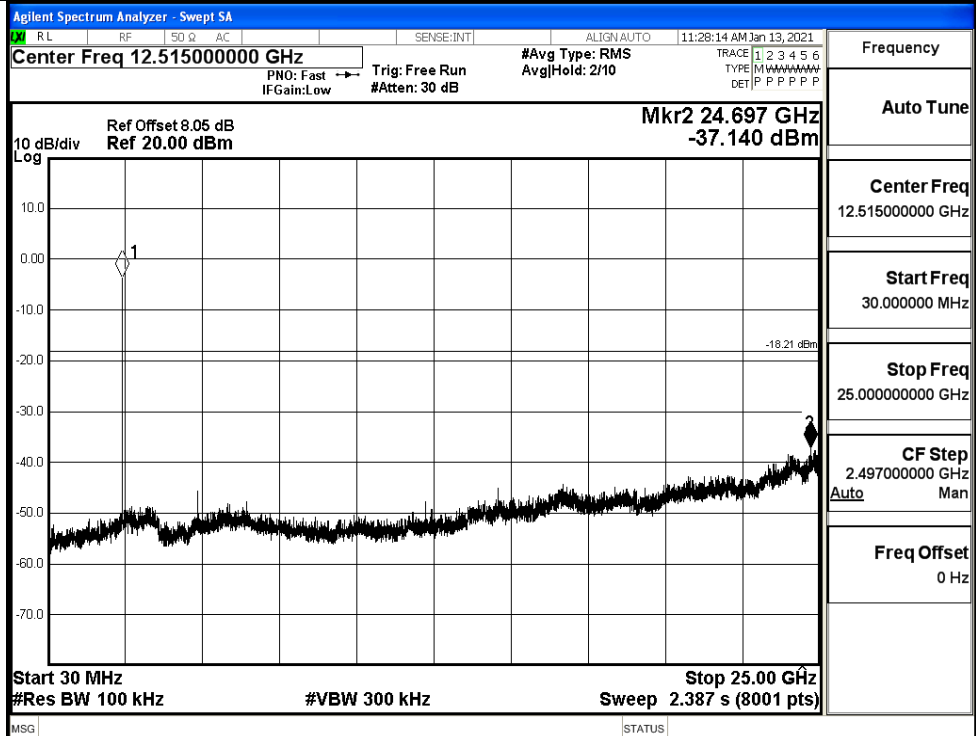


π /4DQPSK MCH Graphs

Pref

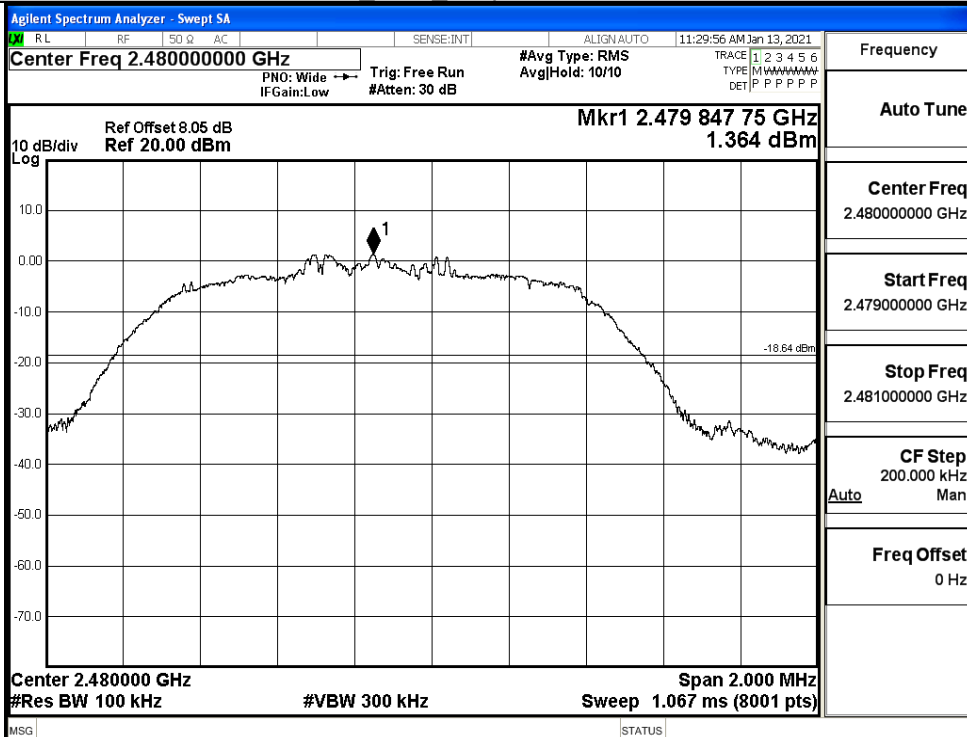


Puw

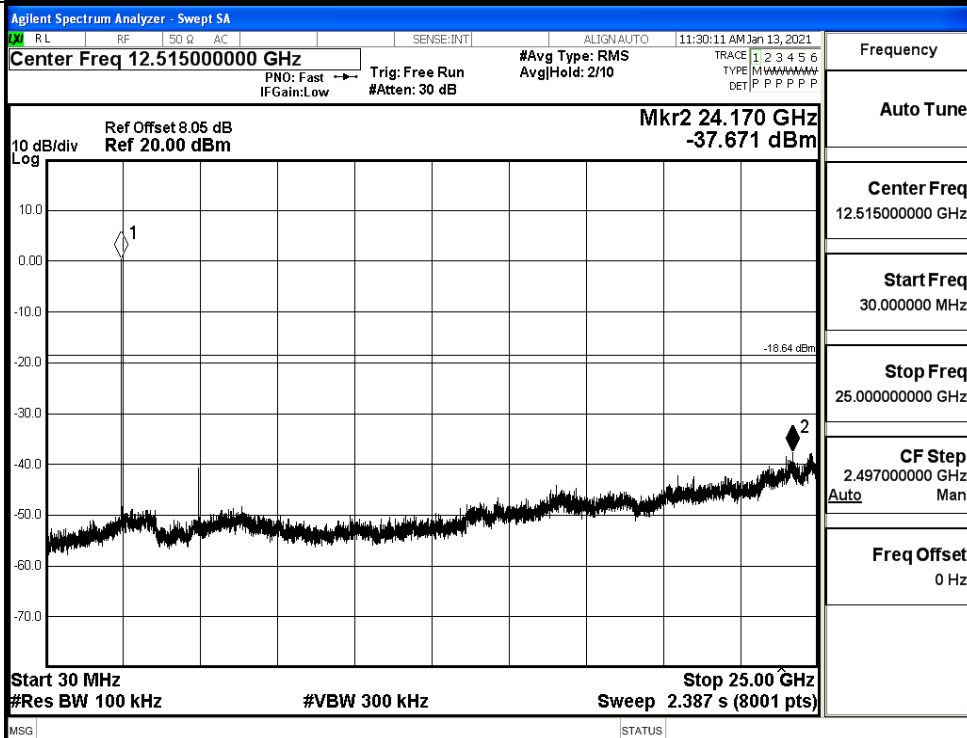


π /4DQPSK_HCH_Graphs

Pref



Puw

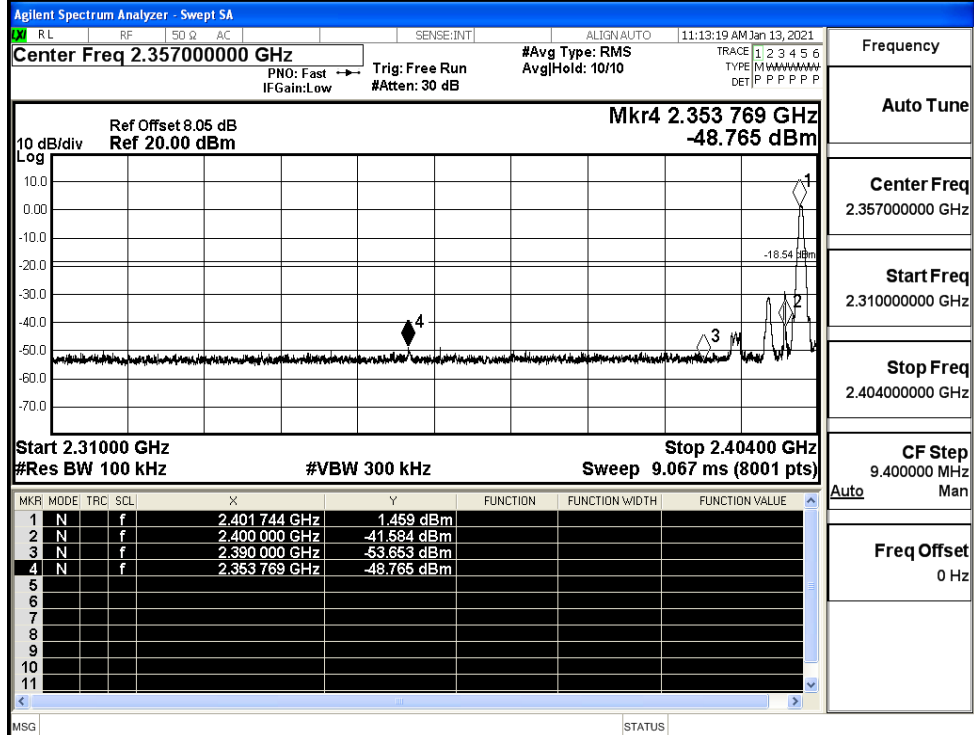


A.7 Band-edge for RF Conducted Emissions

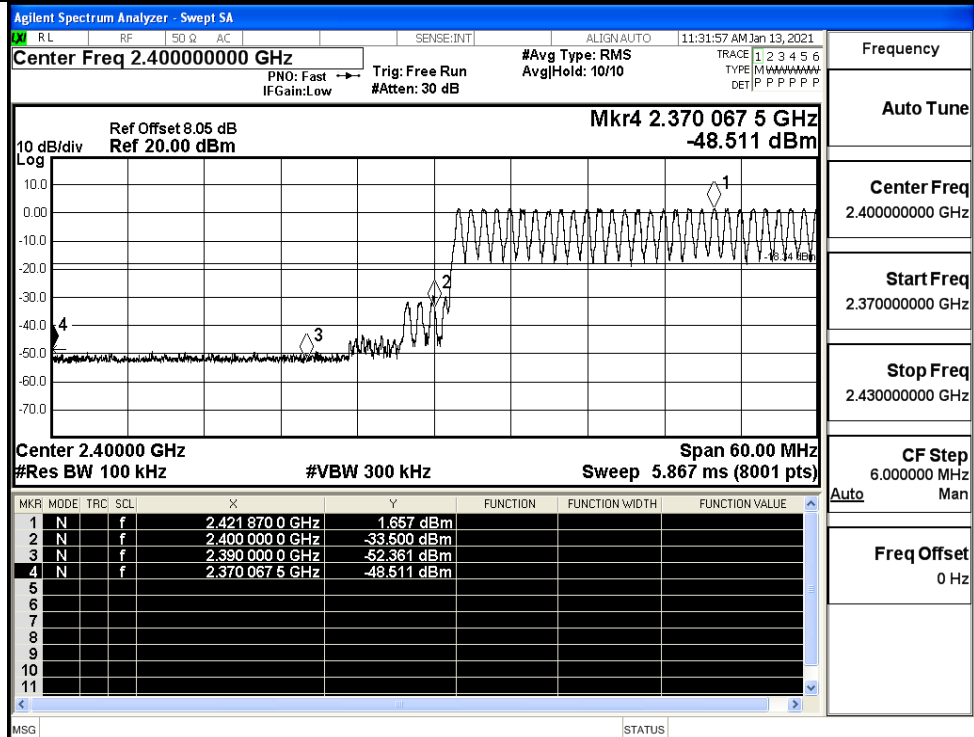
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	1.459	Off	-48.765	-18.54	PASS
			1.657	On	-48.511	-18.34	PASS
	HCH	2480	1.714	Off	-43.595	-18.29	PASS
			1.821	On	-44.908	-18.18	PASS
π /4DQPSK	LCH	2402	1.670	Off	-49.444	-18.33	PASS
			1.746	On	-48.561	-18.25	PASS
	HCH	2480	1.609	Off	-44.225	-18.39	PASS
			1.873	On	-42.705	-18.13	PASS

Test Graphs

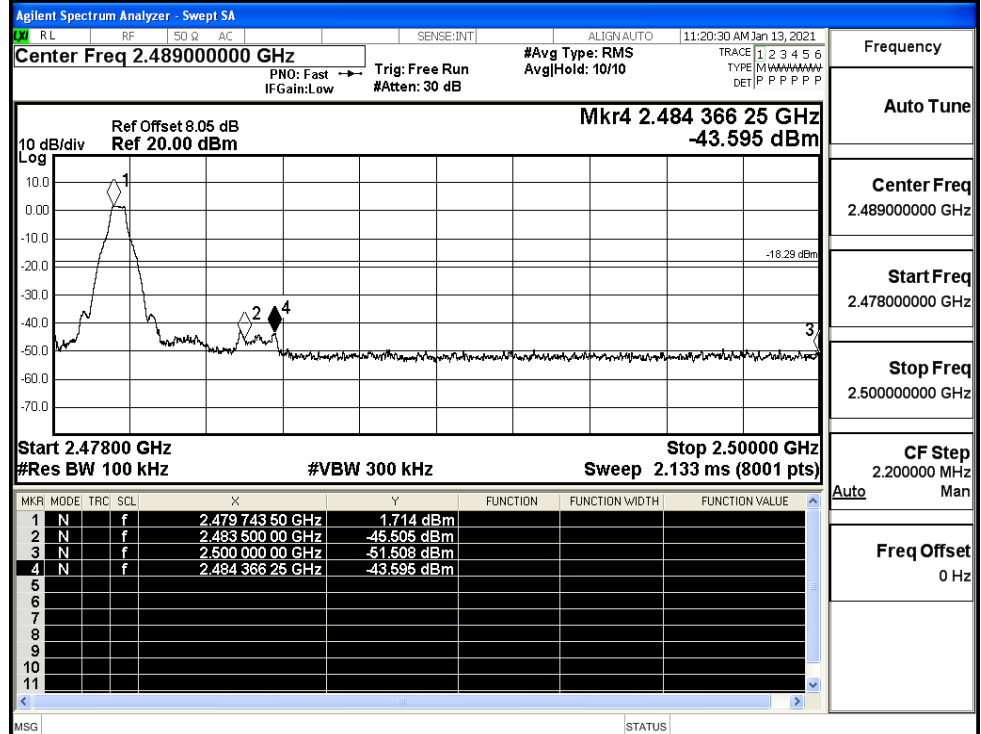
GFSK/LCH/No Hop



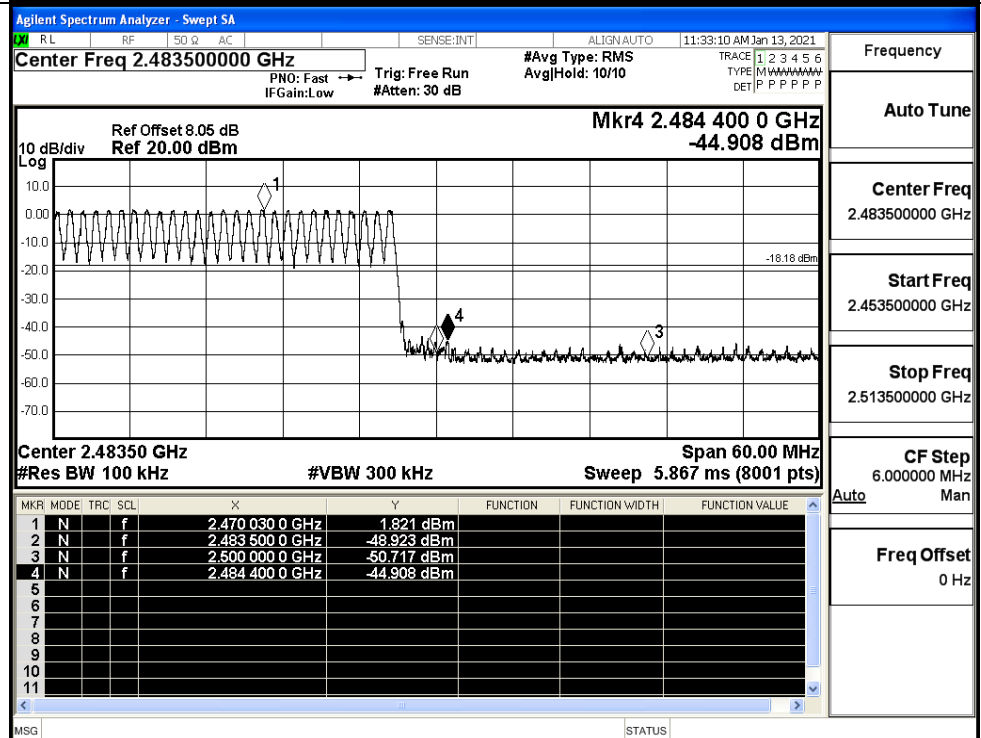
GFSK/LCH/Hop



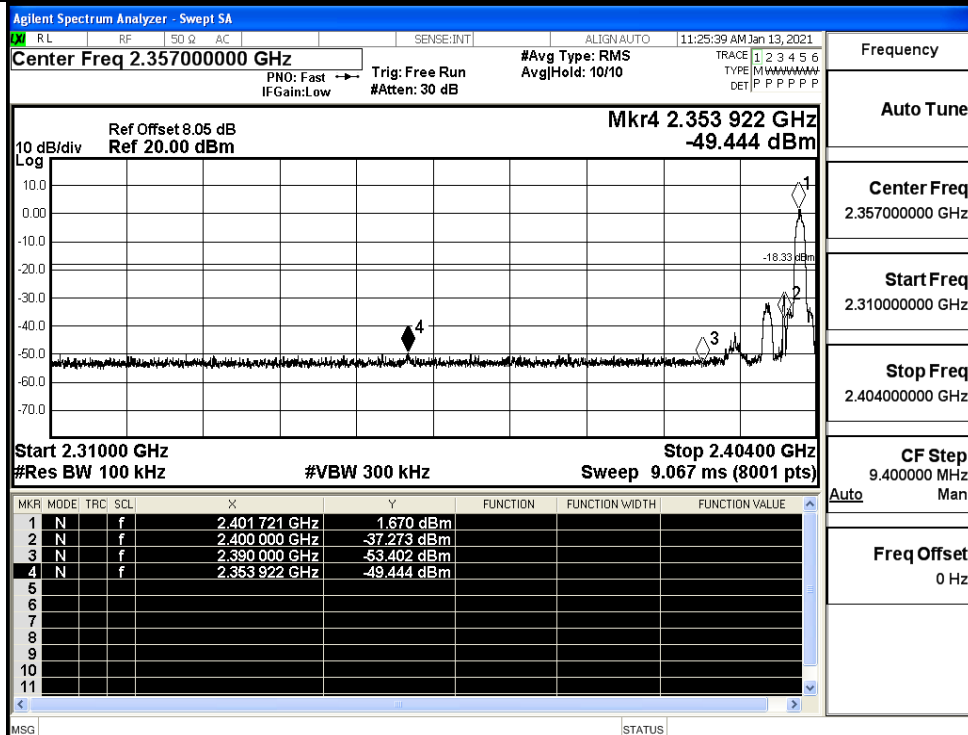
GFSK/HCH/No Hop



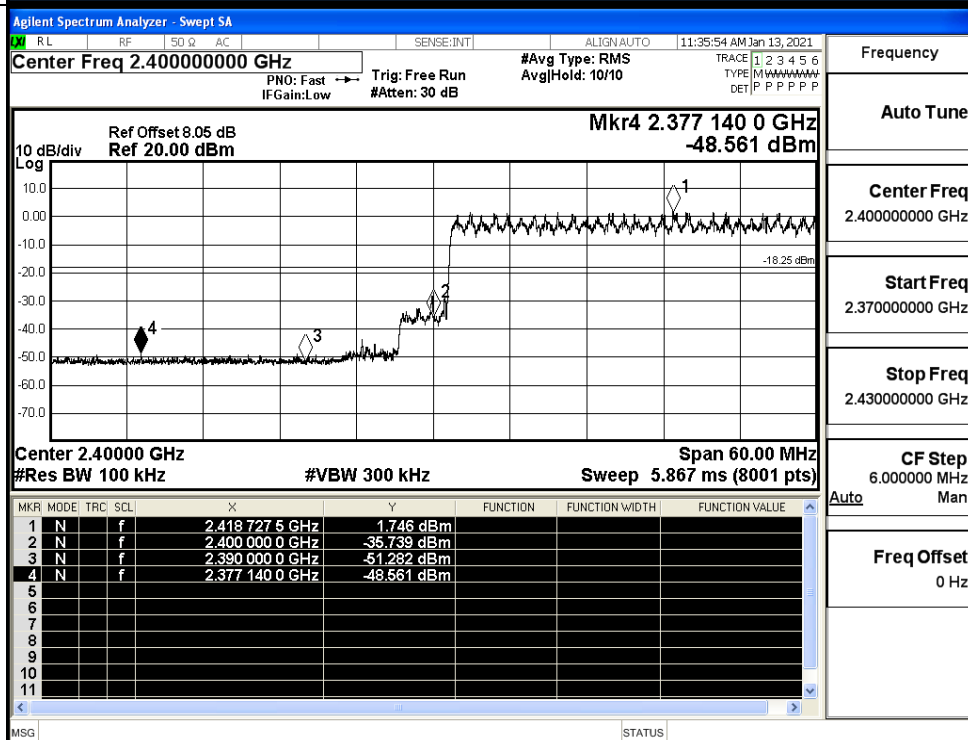
GFSK/HCH/Hop



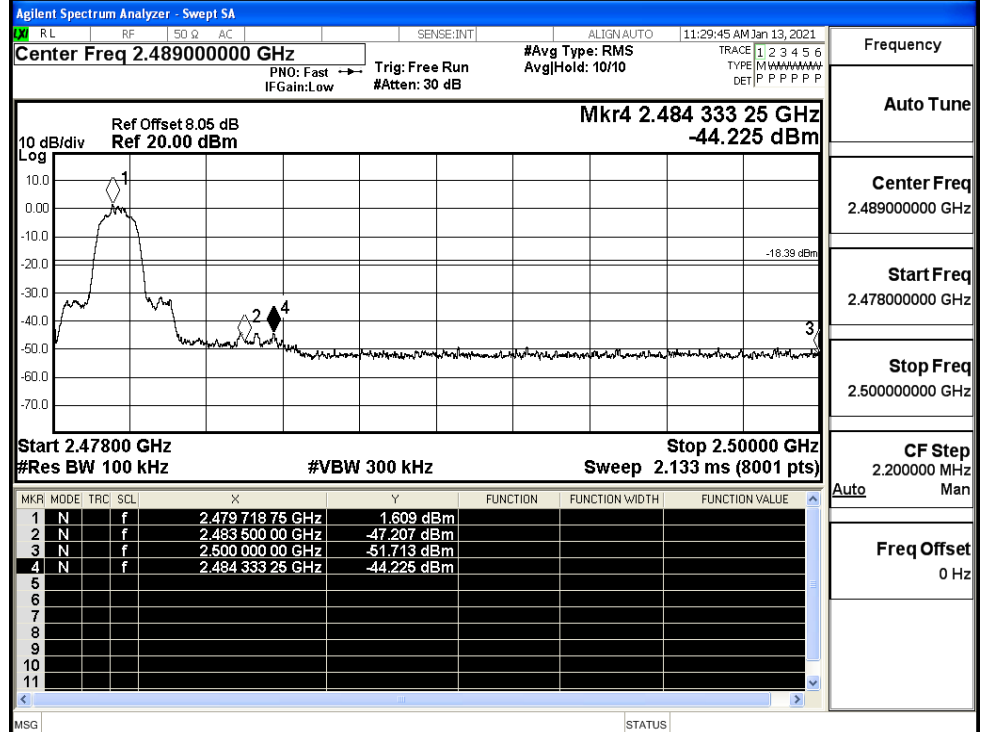
$\pi/4$ DQPSK/LCH/No
Hop



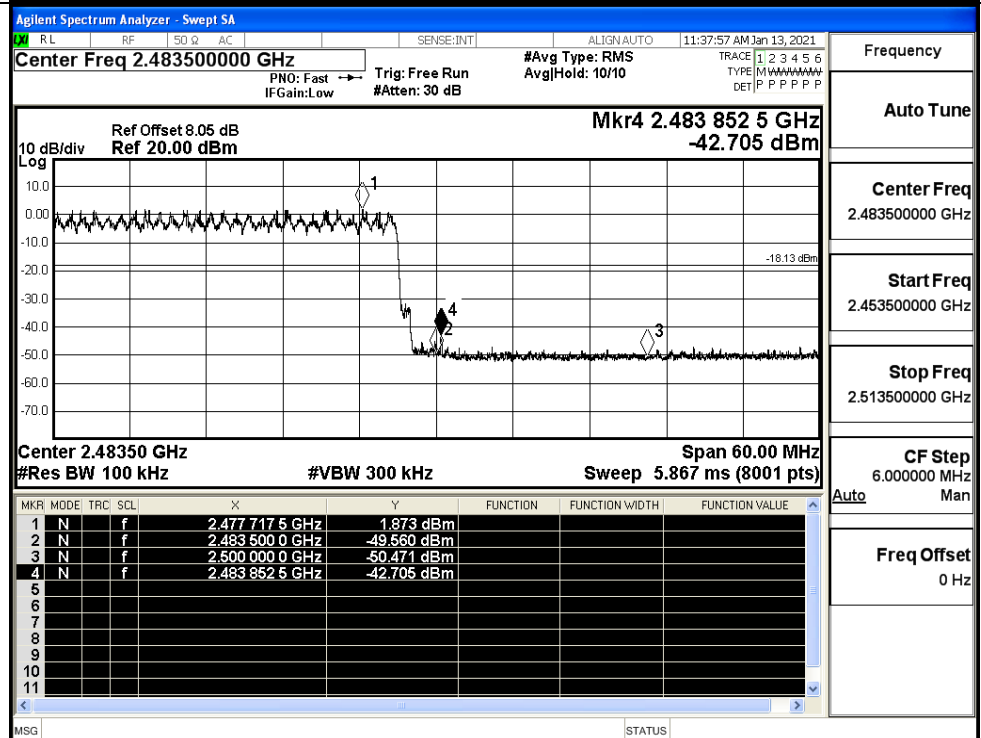
$\pi/4$ DQPSK/LCH/Hop



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



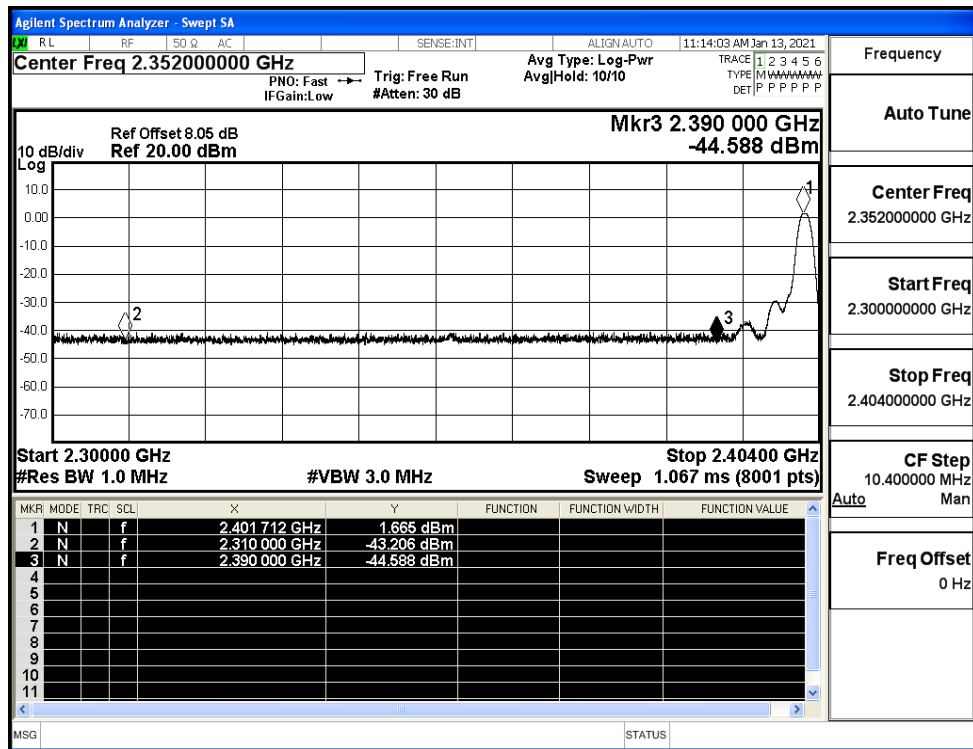
$\pi/4$ DQPSK/HCH/Hop



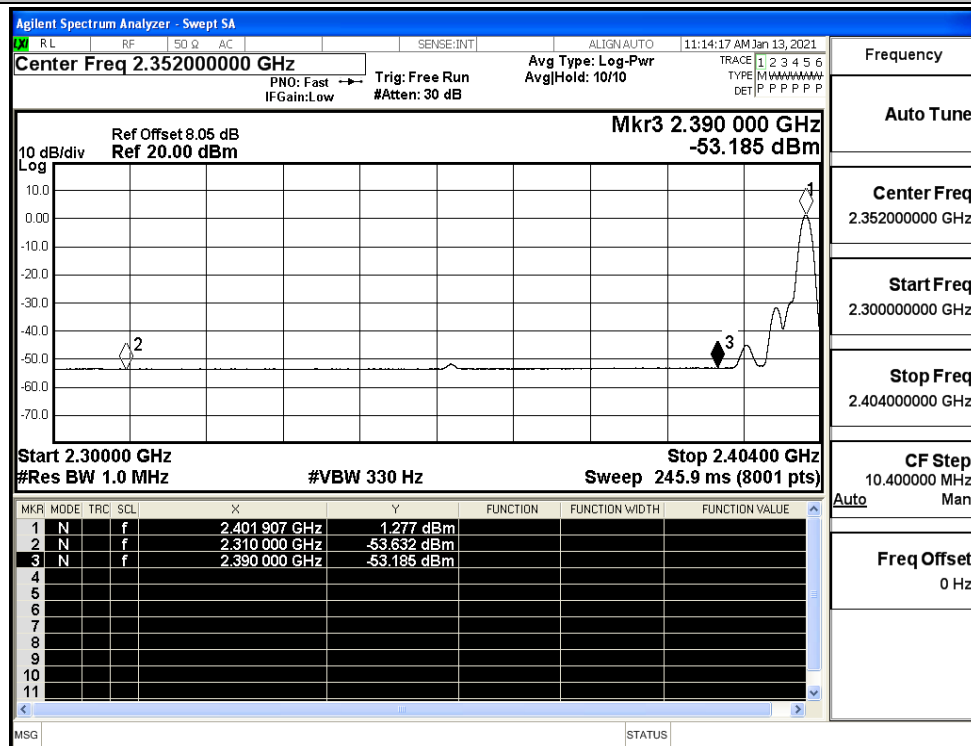
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.21	2.0	0	52.05	PEAK	74	PASS
	Off	2310.0	-53.63	2.0	0	41.63	AV	54	PASS
	Off	2390.0	-44.59	2.0	0	50.67	PEAK	74	PASS
	Off	2390.0	-53.19	2.0	0	42.07	AV	54	PASS
	Off	2483.5	-36.99	2.0	0	58.26	PEAK	74	PASS
	Off	2483.5	-45.94	2.0	0	49.31	AV	54	PASS
	Off	2500.0	-40.66	2.0	0	54.59	PEAK	74	PASS
	Off	2500.0	-52.56	2.0	0	42.69	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.61	2.0	0	51.65	PEAK	74	PASS
	Off	2310.0	-53.54	2.0	0	41.72	AV	54	PASS
	Off	2390.0	-43.81	2.0	0	51.45	PEAK	74	PASS
	Off	2390.0	-53.15	2.0	0	42.10	AV	54	PASS
	Off	2483.5	-37.94	2.0	0	57.32	PEAK	74	PASS
	Off	2483.5	-47.99	2.0	0	47.26	AV	54	PASS
	Off	2500.0	-43.40	2.0	0	51.86	PEAK	74	PASS
	Off	2500.0	-52.52	2.0	0	42.73	AV	54	PASS

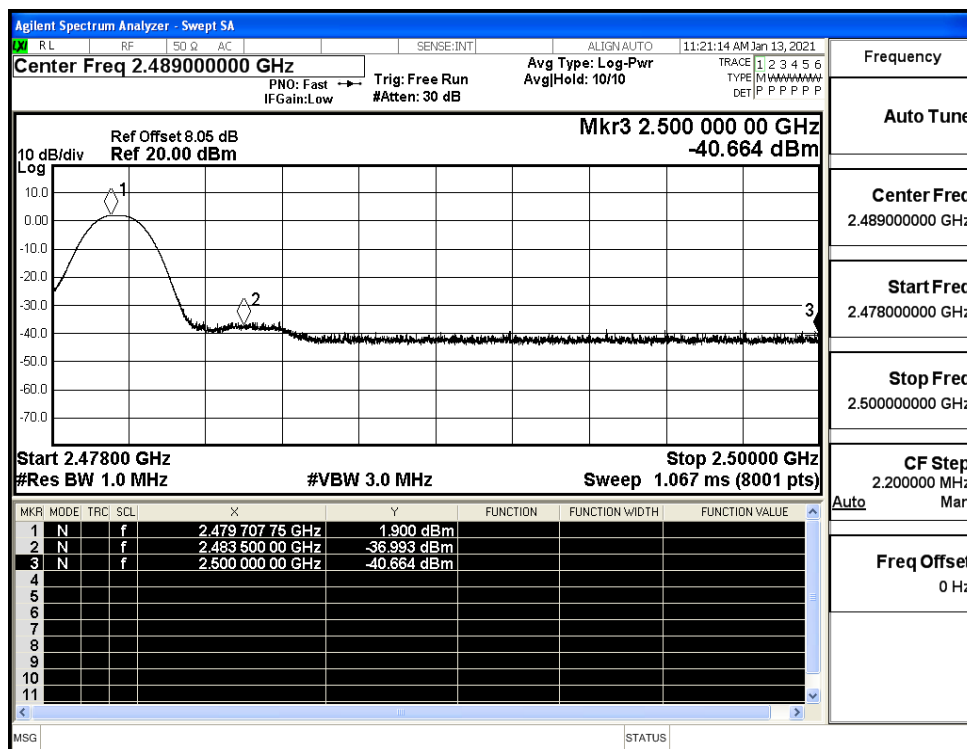
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



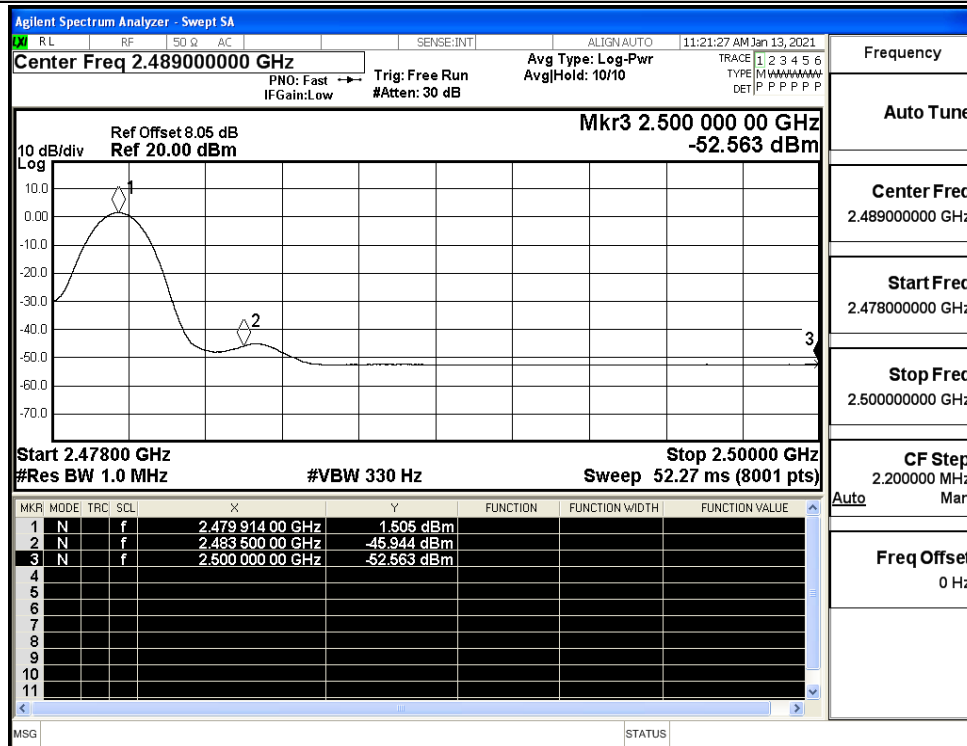
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



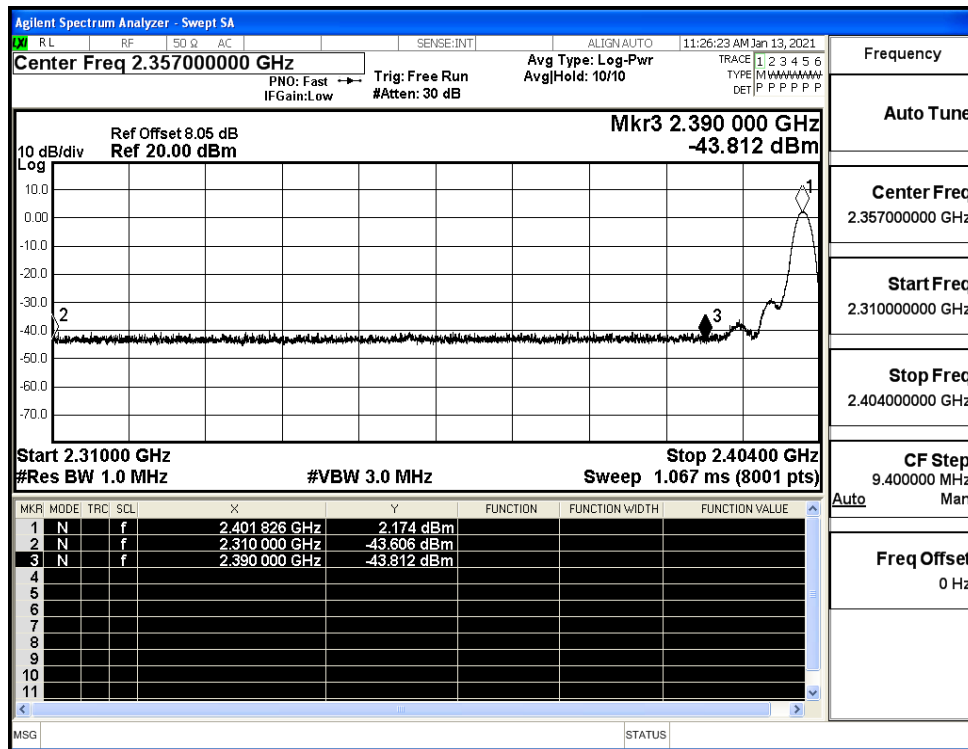
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



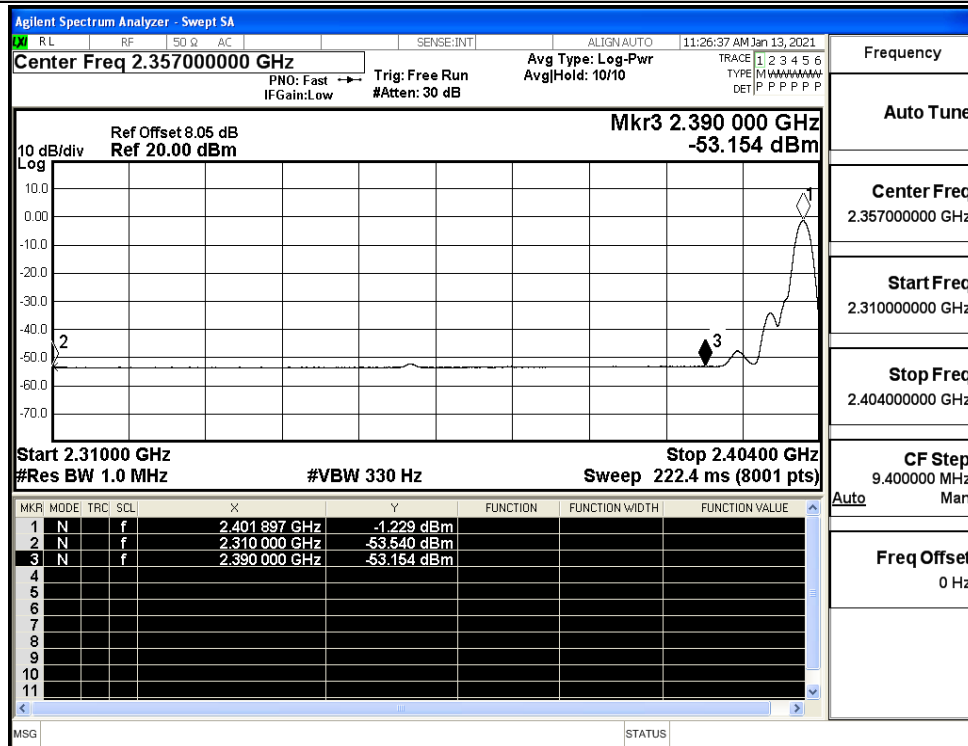
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



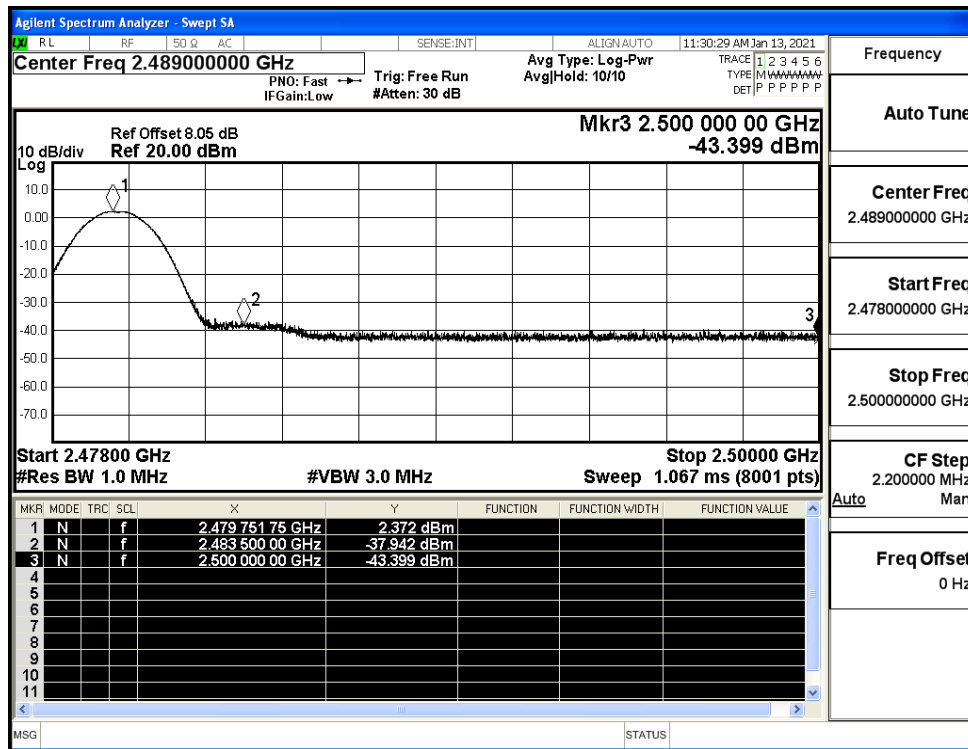
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



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



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



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

