

Appendix A

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

Product Name: Bedside Alarm Clock with Wireless Charging

Trade Mark: i-box

Test Model: WJ-018

Environmental Conditions

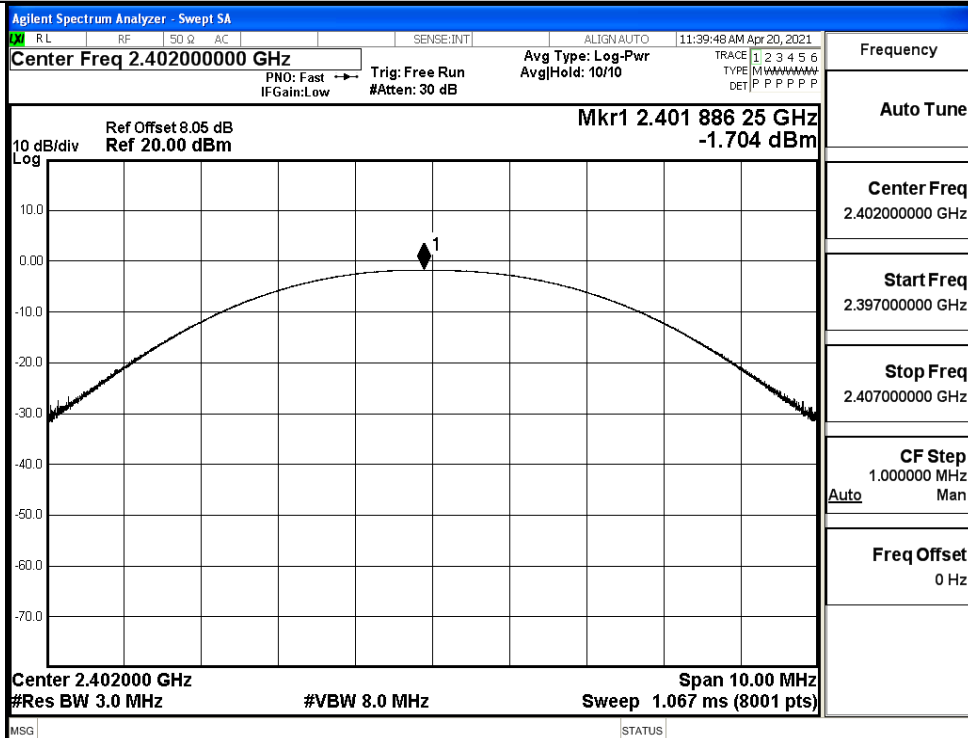
Temperature:	24.6 ° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Kay Hu
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

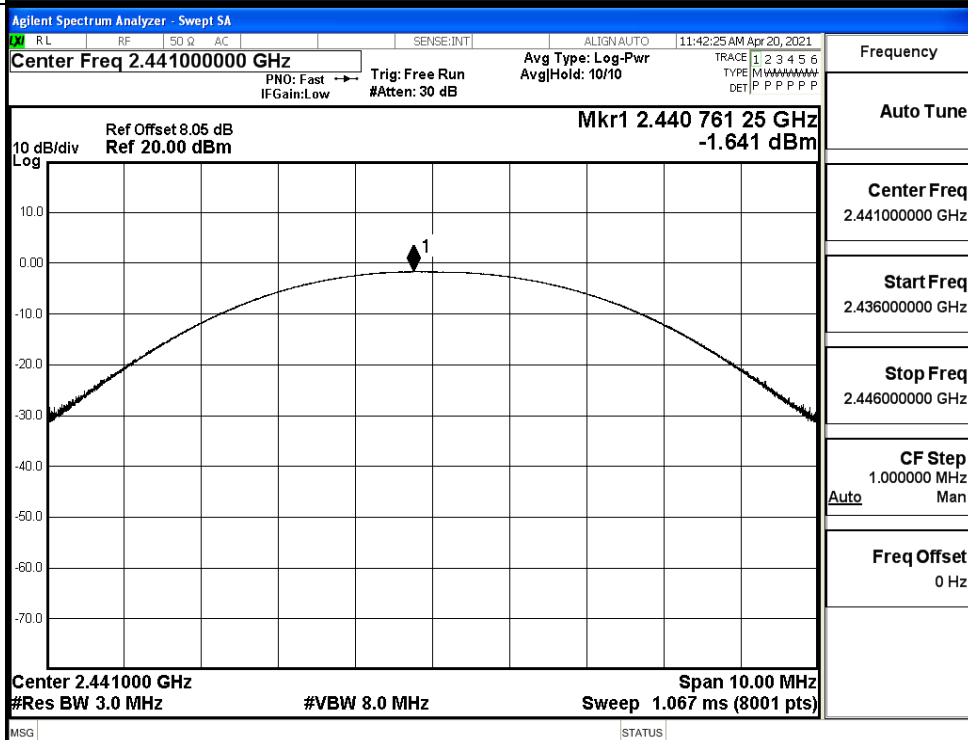
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-1.704	21	PASS
	MCH	-1.641	21	PASS
	HCH	-2.489	21	PASS
$\pi/4$ DQPSK	LCH	-0.817	21	PASS
	MCH	-0.705	21	PASS
	HCH	-1.589	21	PASS

Test Graphs

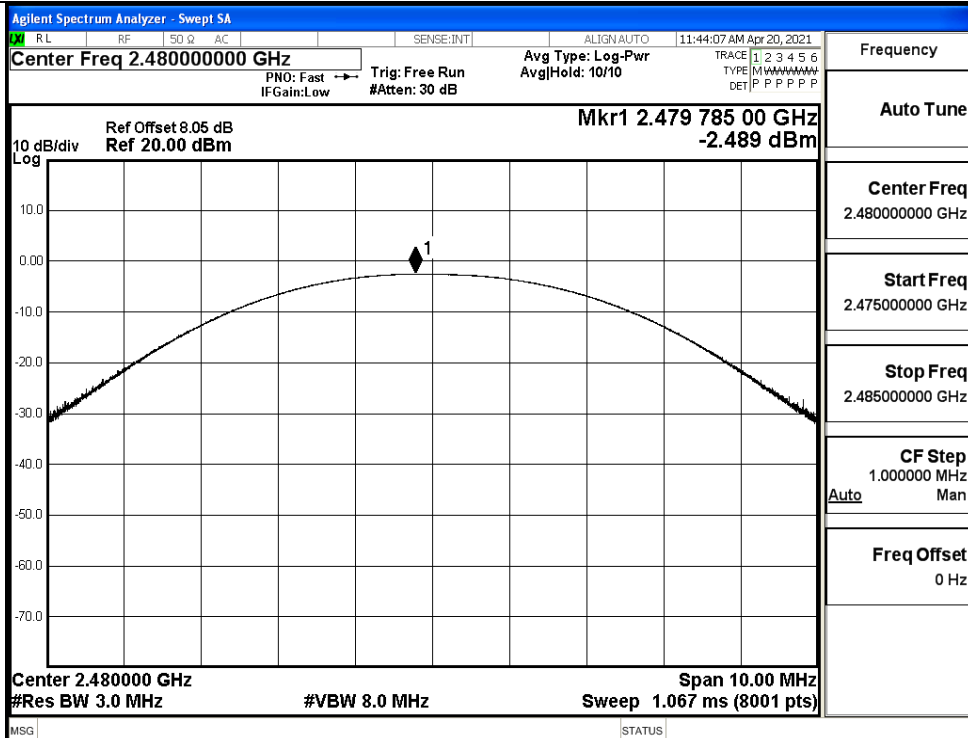
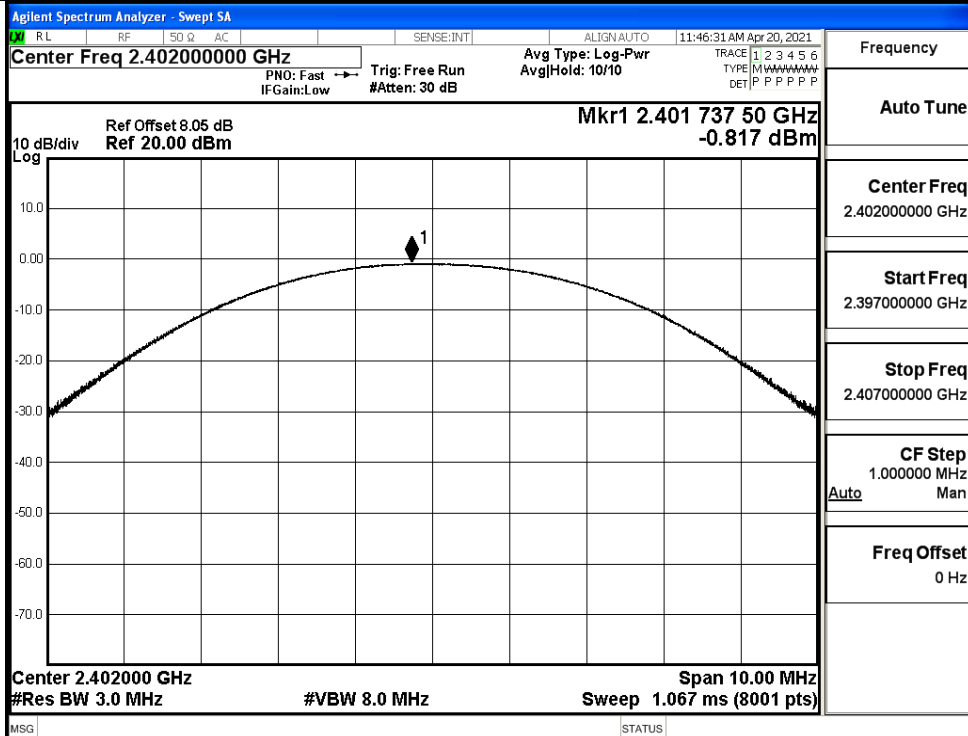
GFSK/LCH

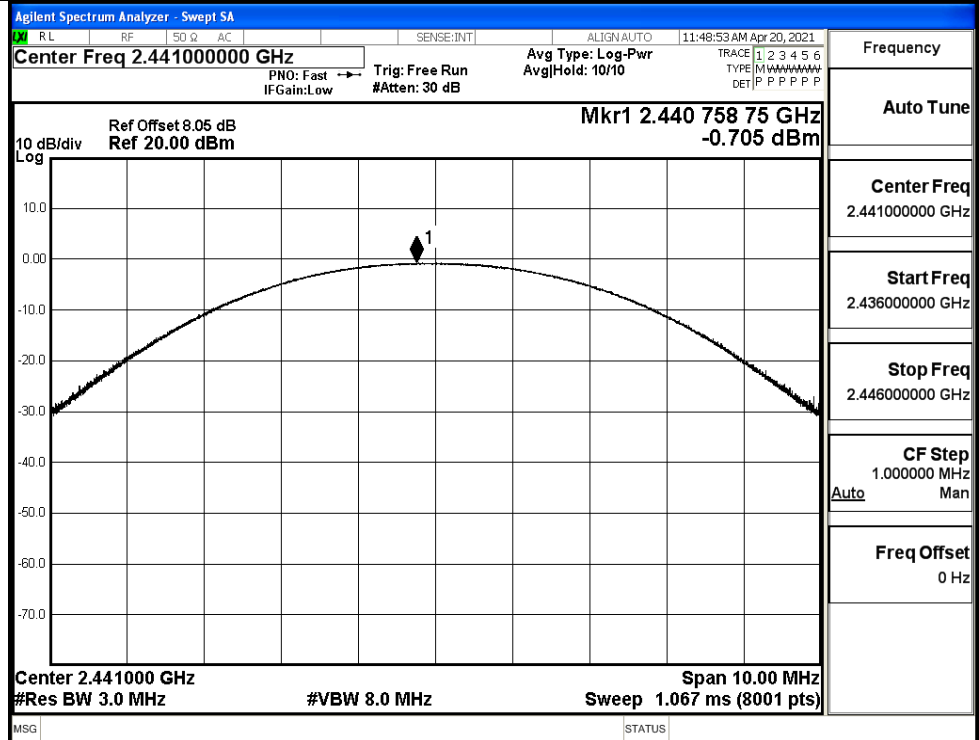
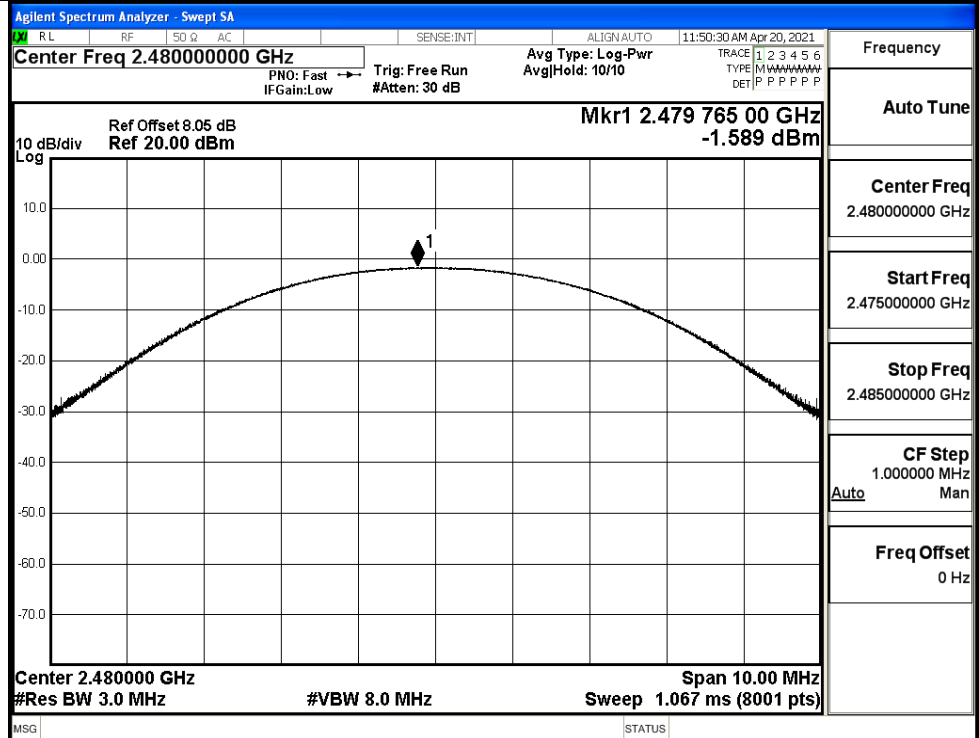


GFSK/MCH



GFSK/HCH

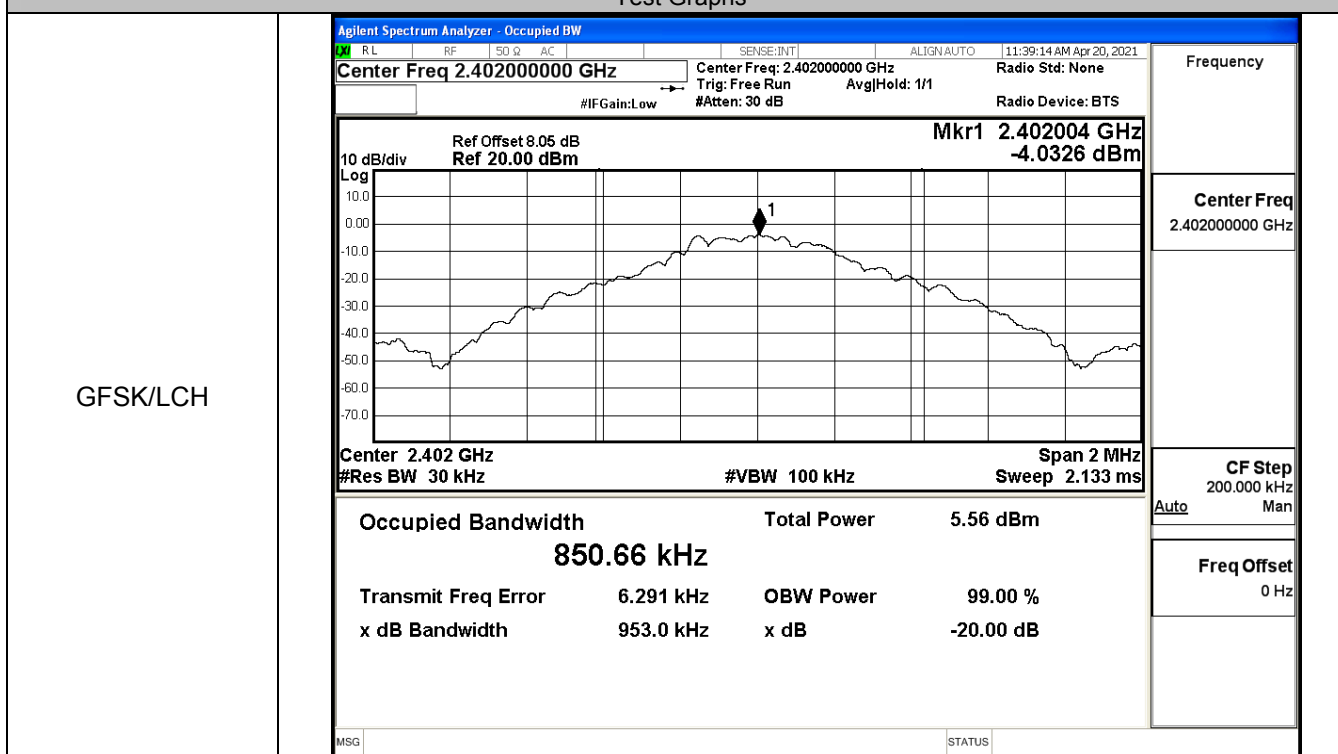
 $\pi/4$ DQPSK/LCH

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

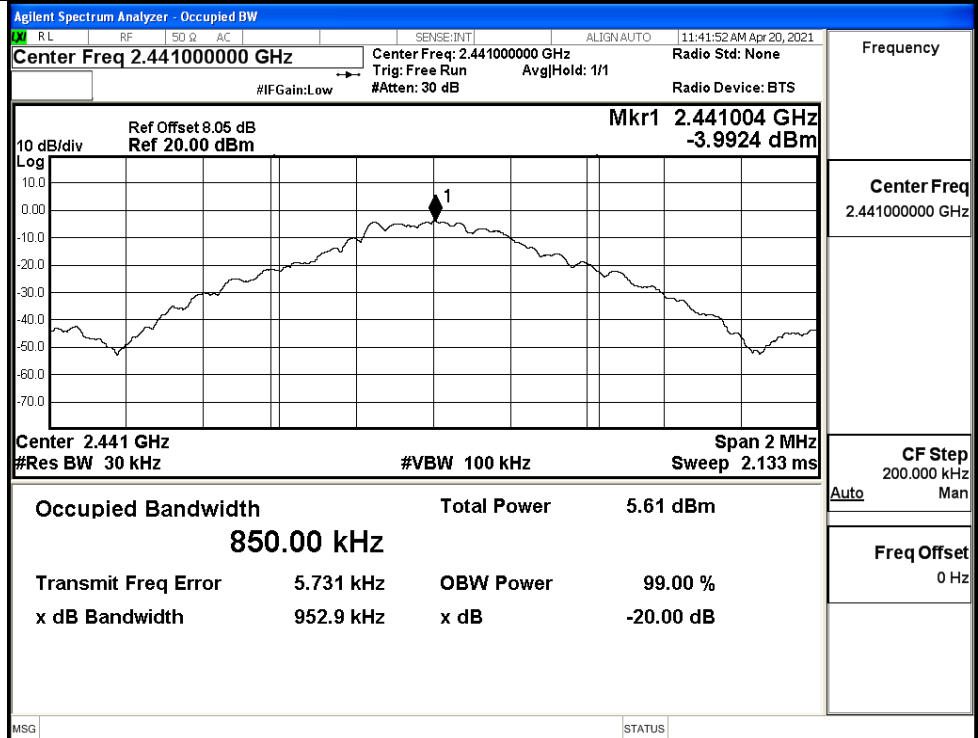
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9530	Not Specified	PASS
	MCH	0.9529	Not Specified	PASS
	HCH	0.9539	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.282	Not Specified	PASS
	MCH	1.282	Not Specified	PASS
	HCH	1.284	Not Specified	PASS

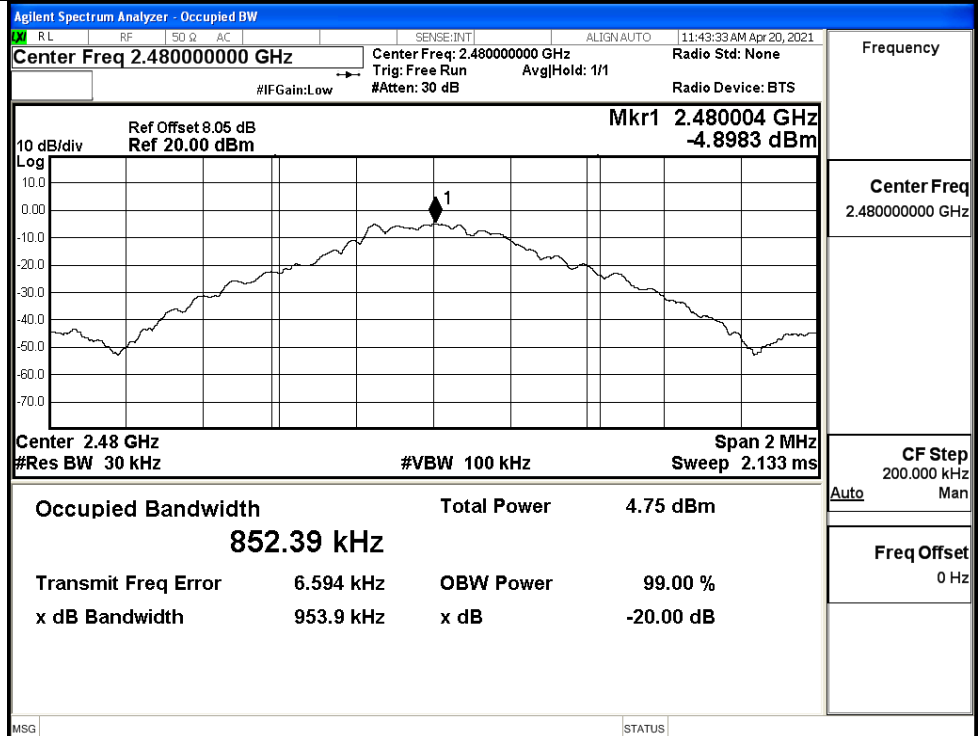
Test Graphs

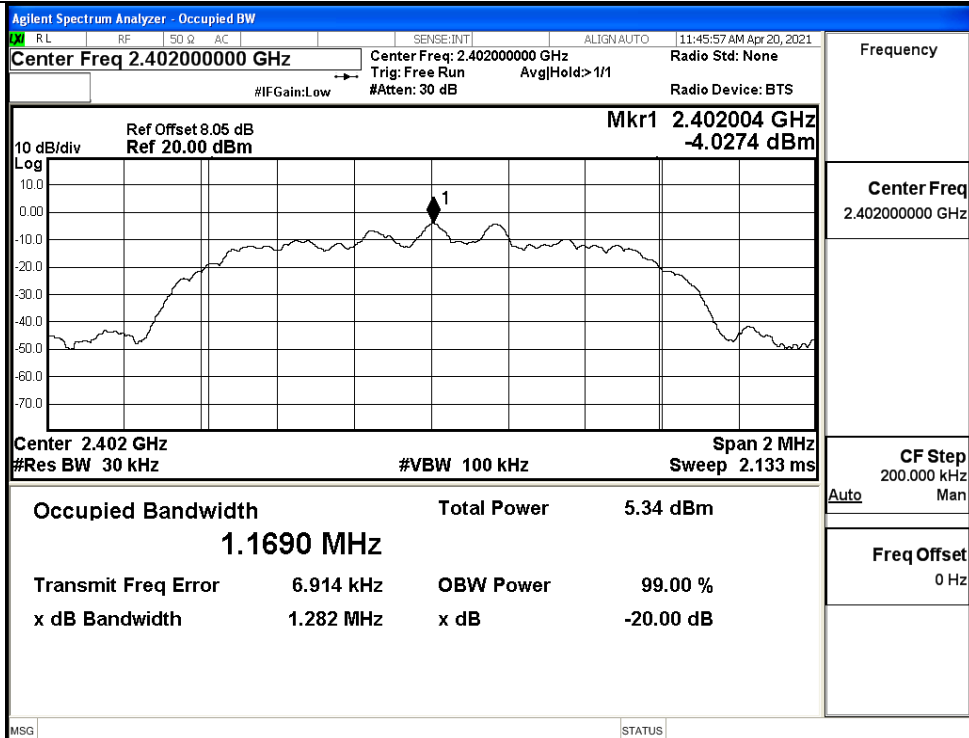
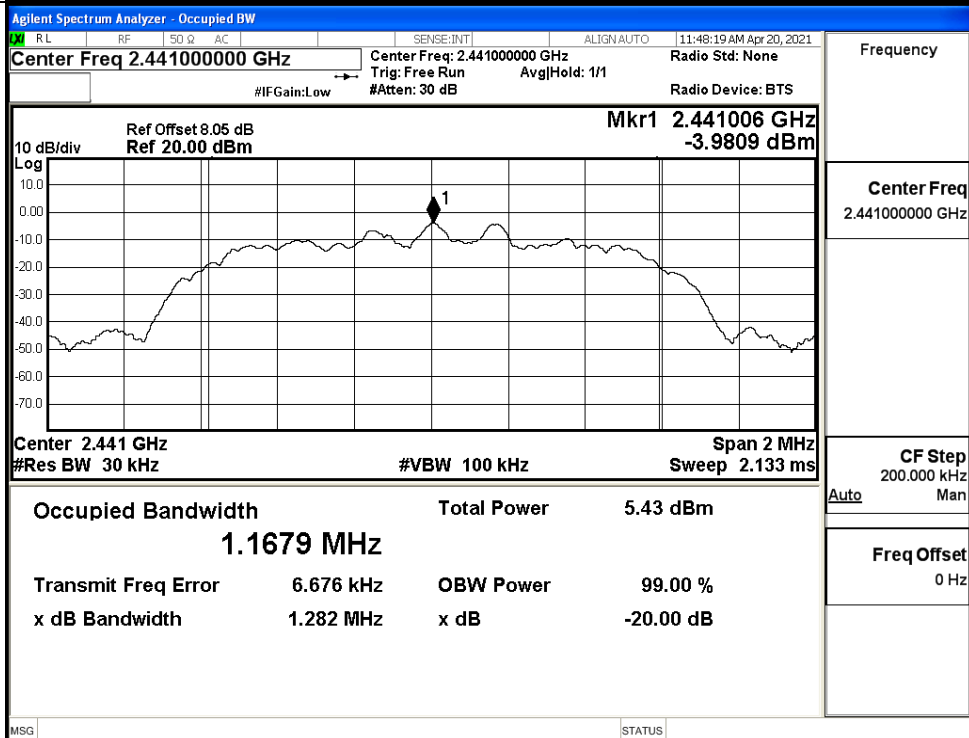


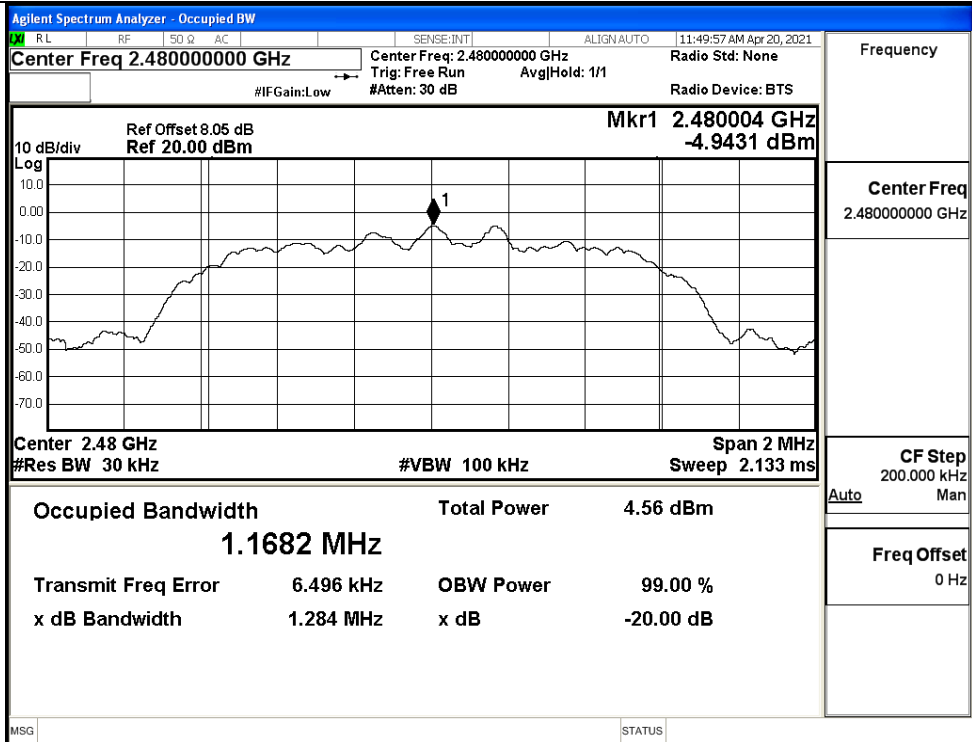
GFSK/MCH



GFSK/HCH



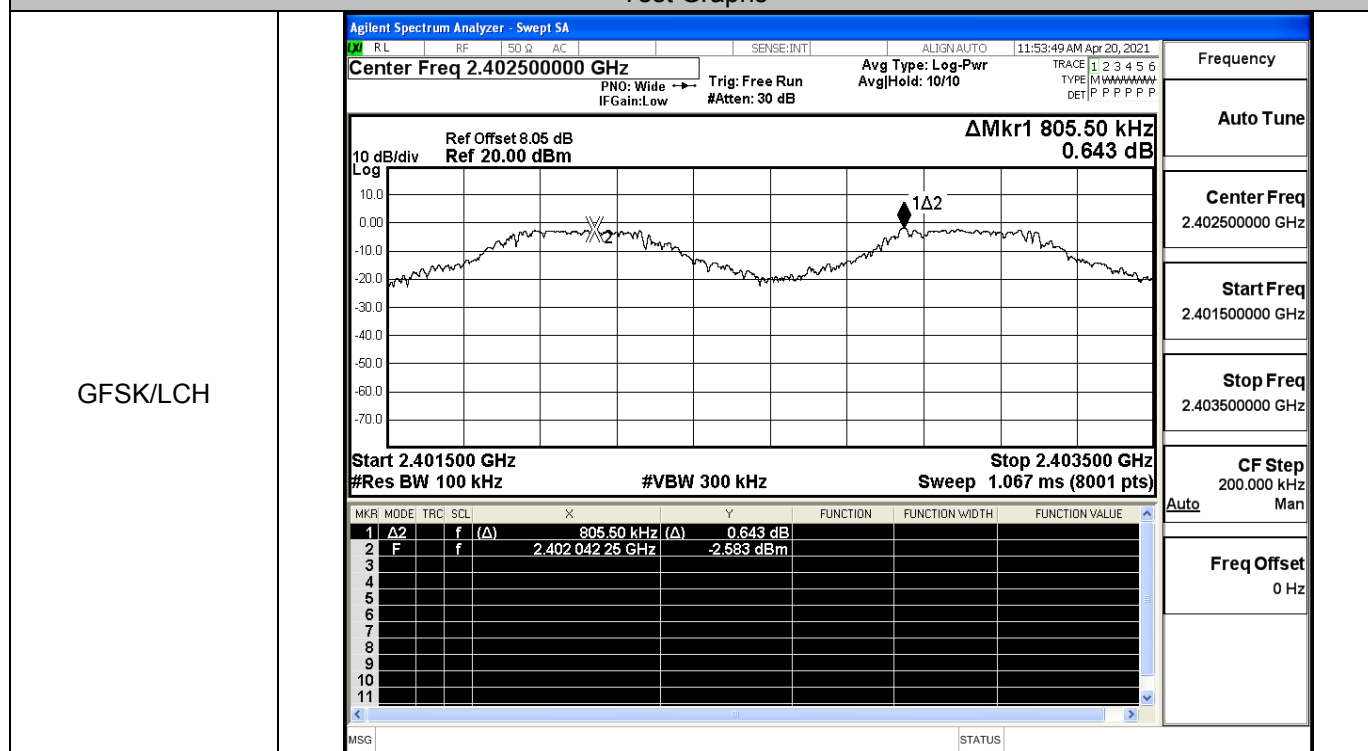
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

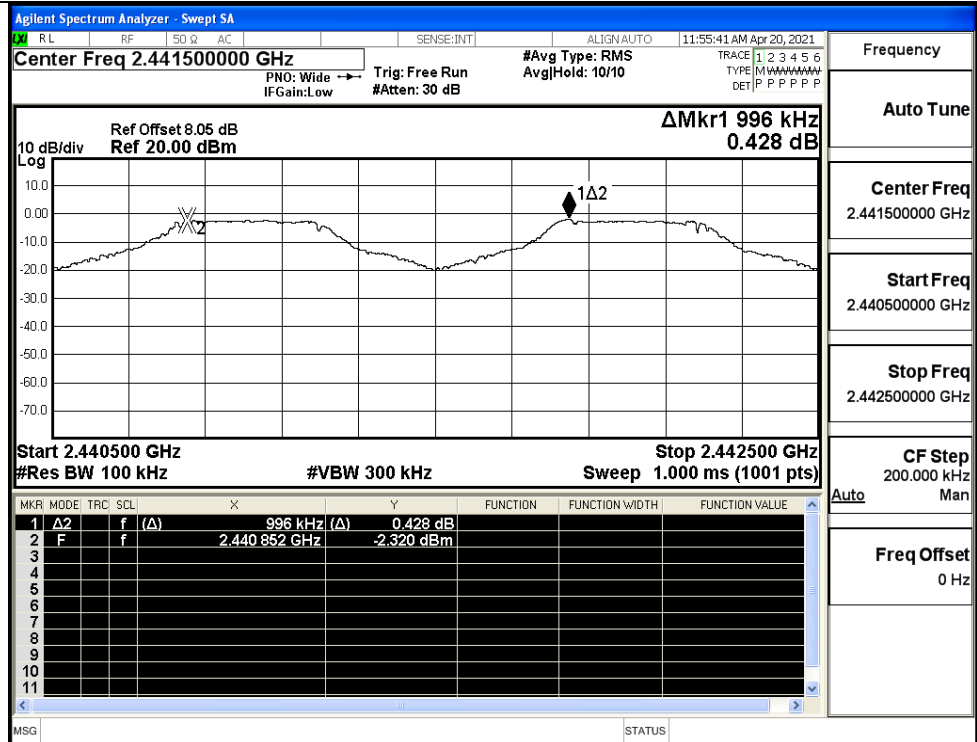
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.805	0.636	PASS
	MCH	0.996	0.636	PASS
	HCH	0.798	0.636	PASS
$\pi/4$ DQPSK	LCH	0.998	0.856	PASS
	MCH	1.004	0.856	PASS
	HCH	1.326	0.856	PASS

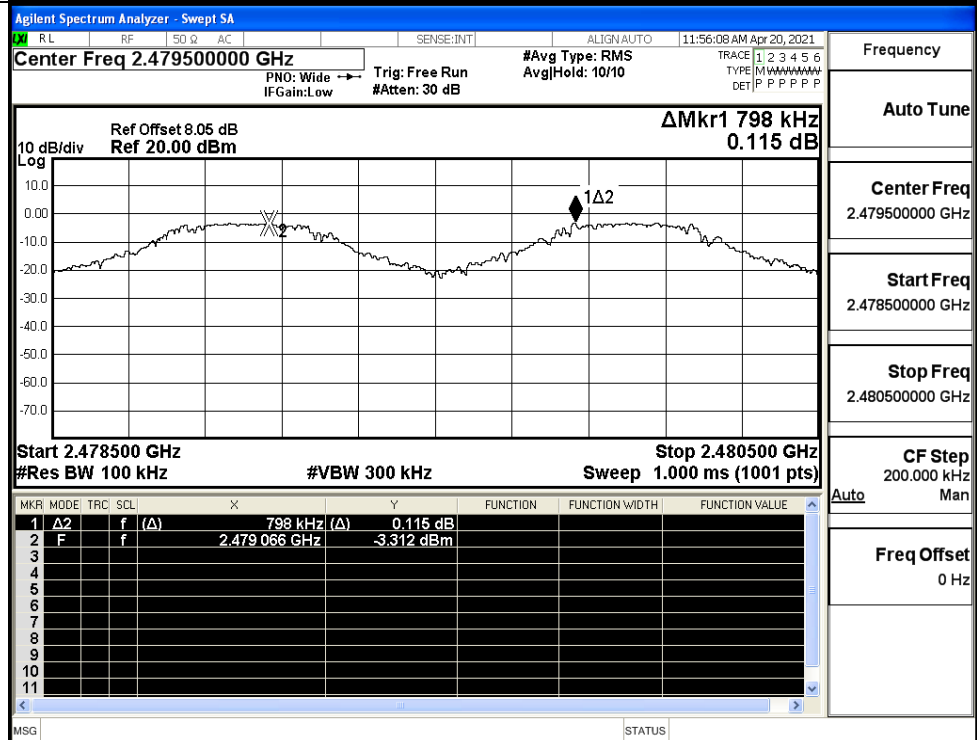
Test Graphs

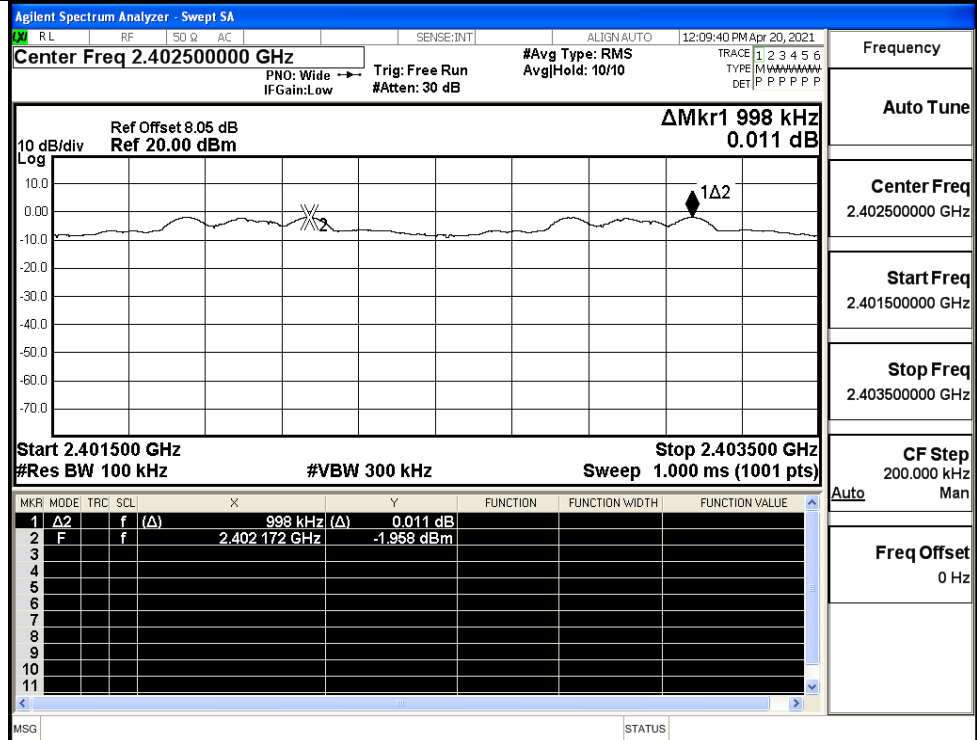
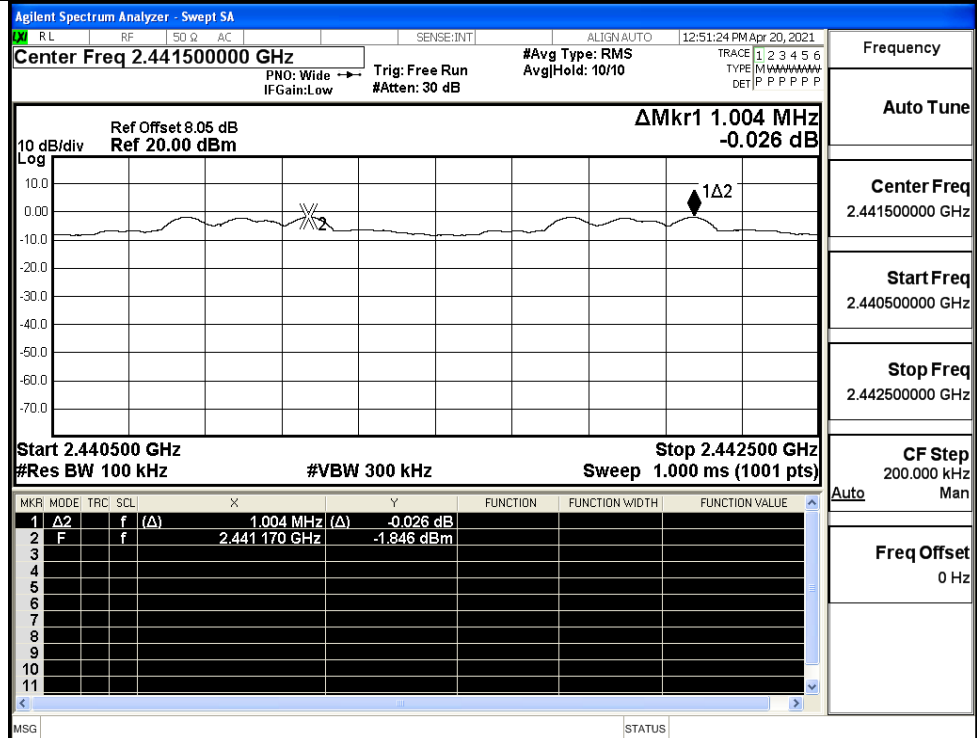


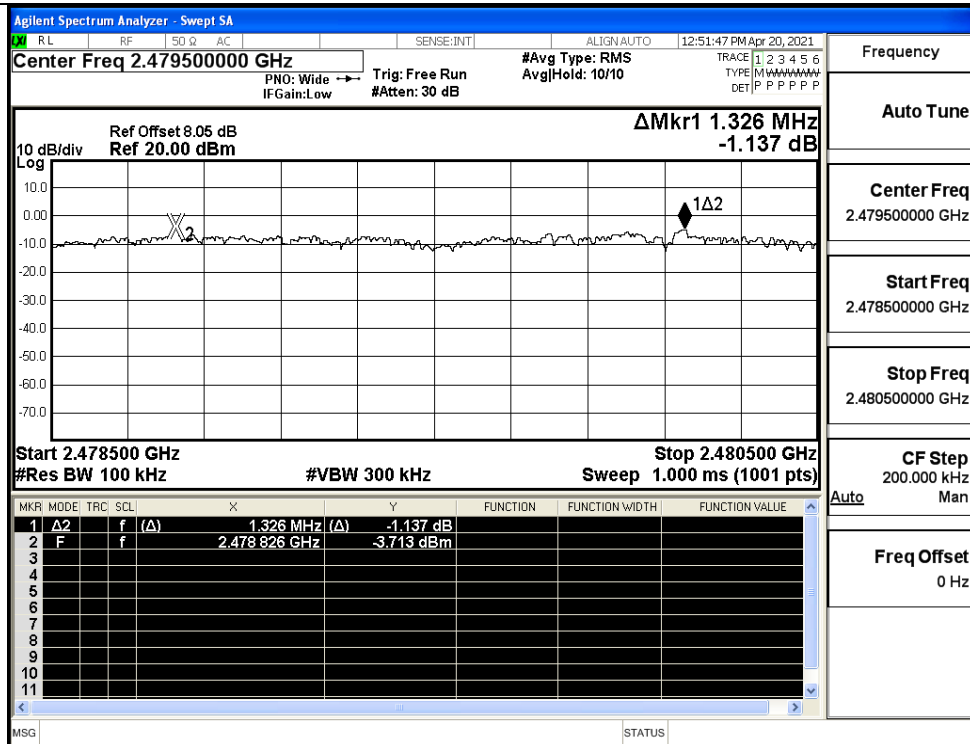
GFSK/MCH



GFSK/HCH



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

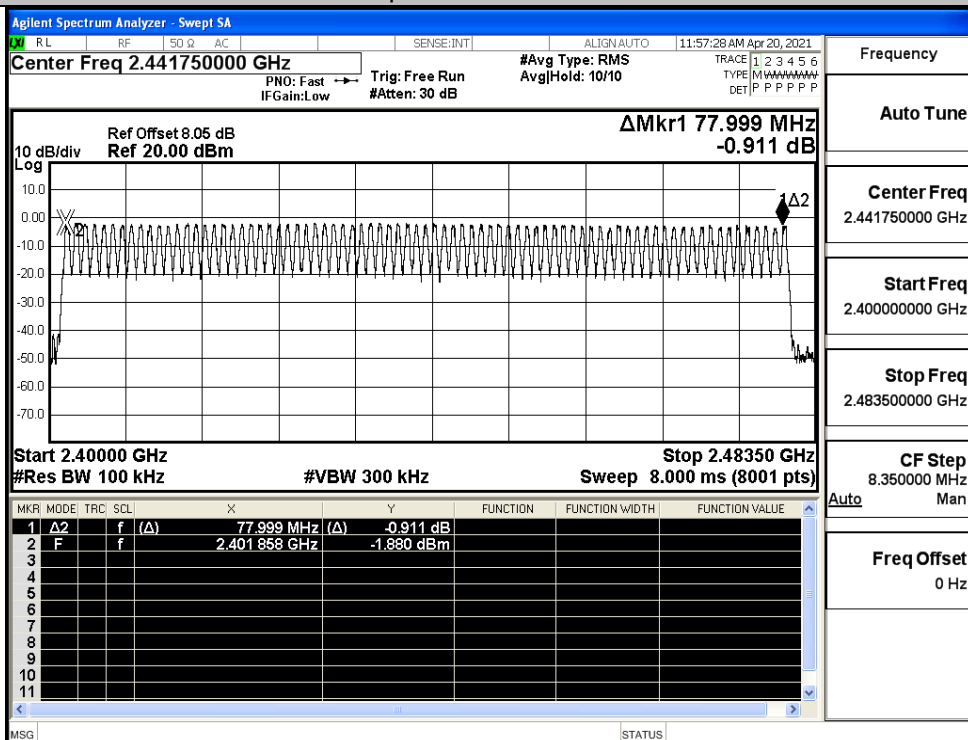
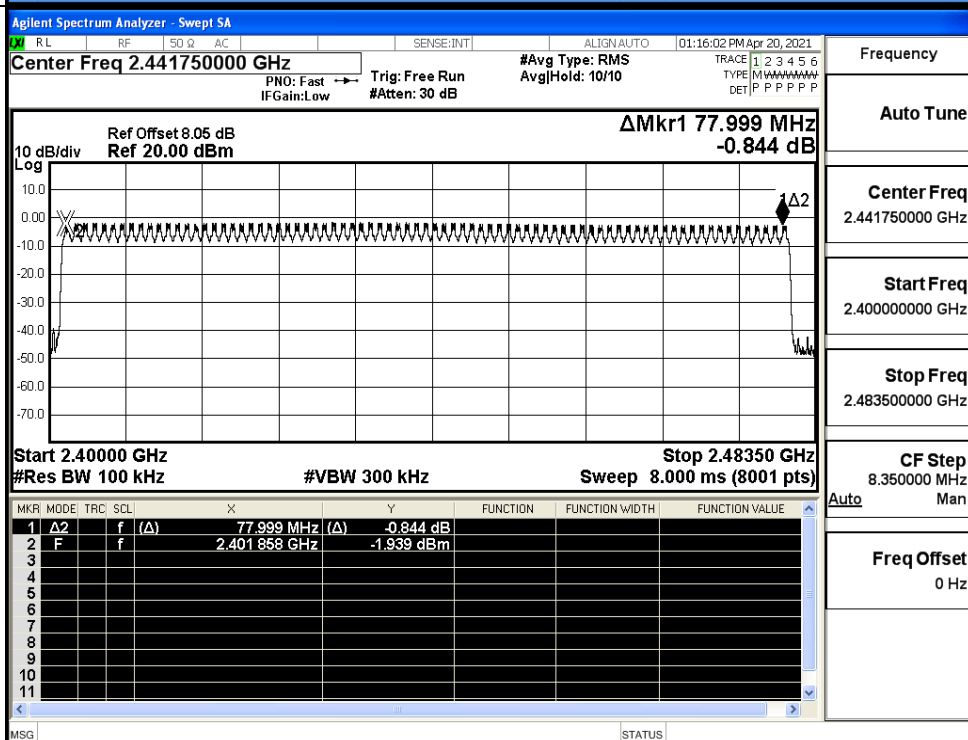
$\pi/4$ DQPSK/HCH

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

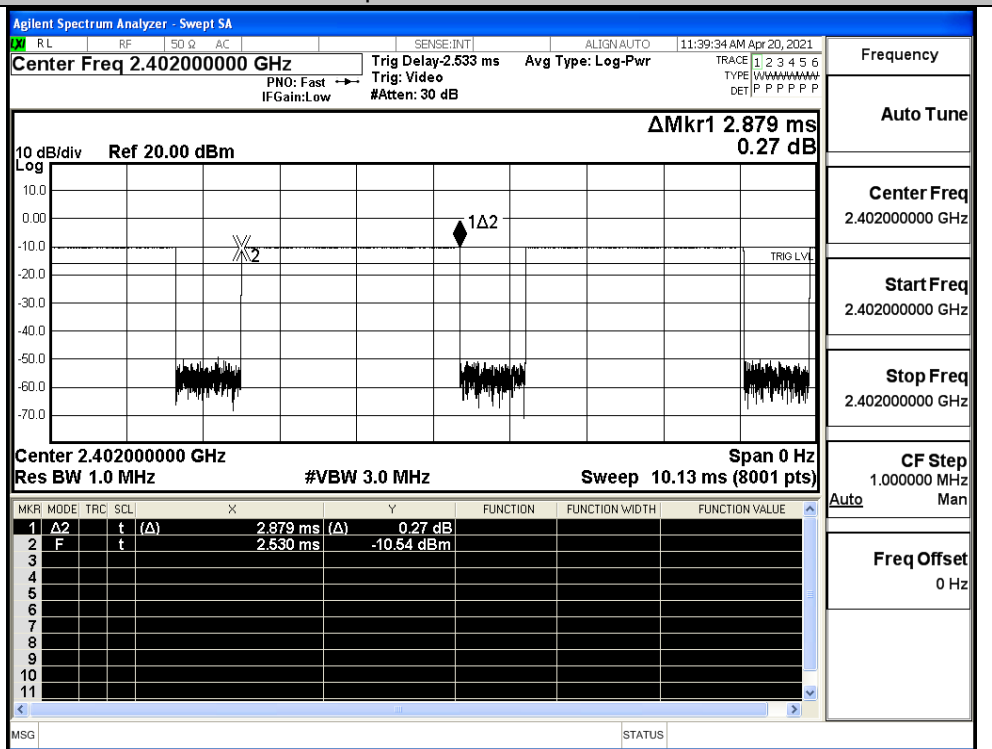
 $\pi/4$ DQPSK/Hop

A.5 Dwell Time

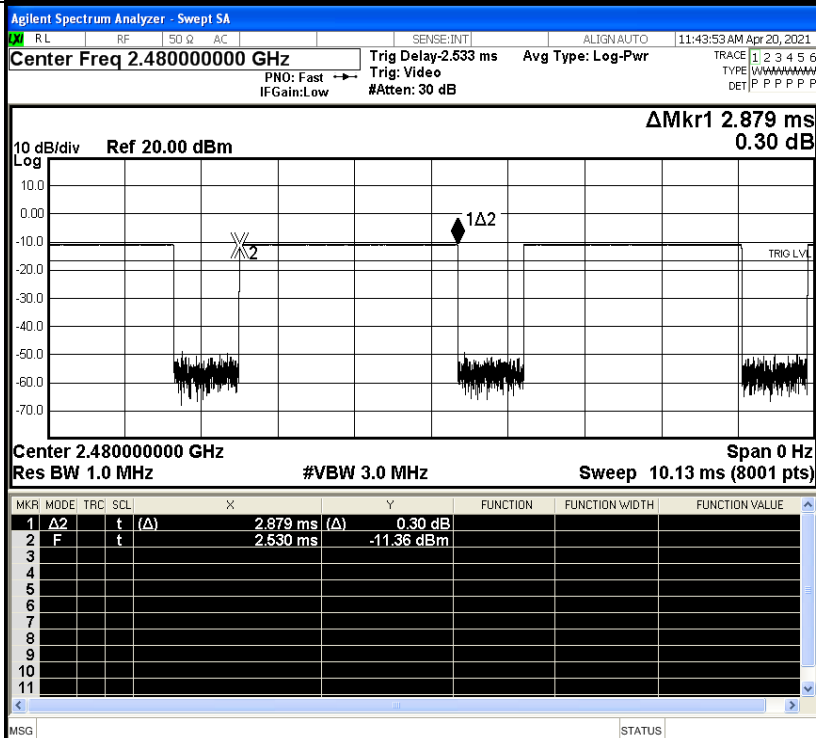
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.308	0.4	PASS
	2DH5	HCH	2.88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

Test Graphs

GFSK_DH5/LCH

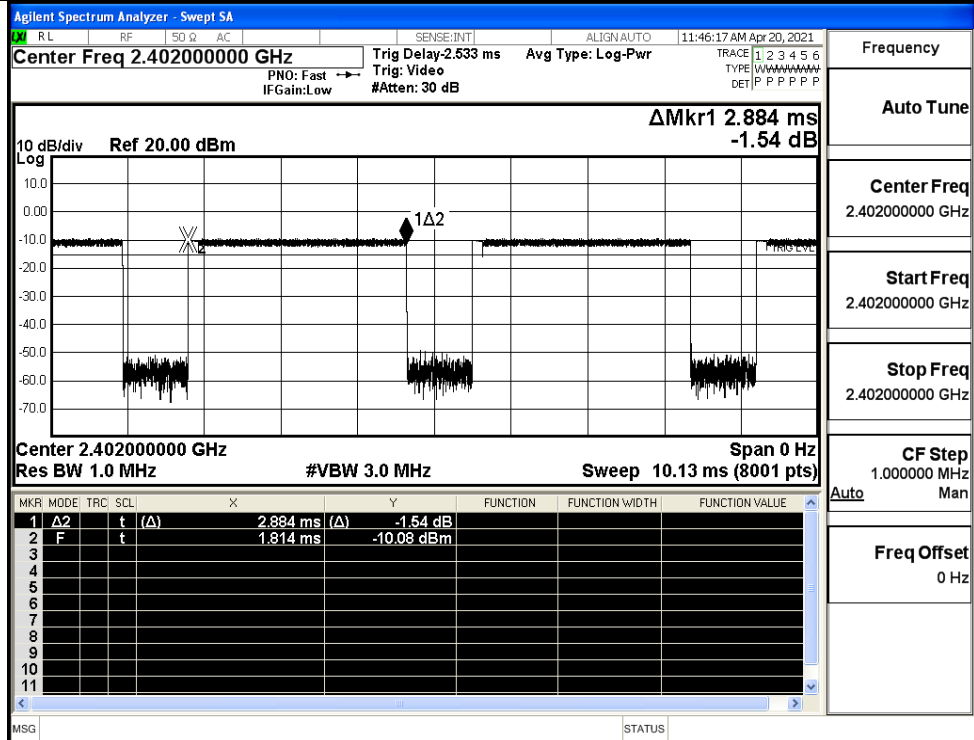


GFSK DH5/HCH

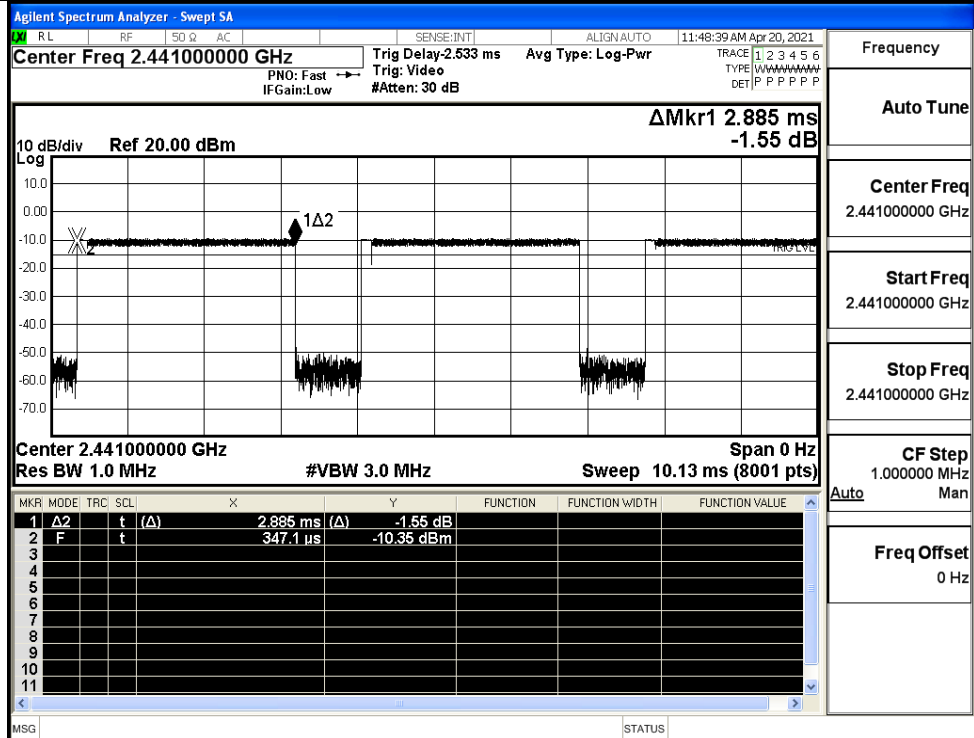


Frequency	
Auto Tune	
Center Freq	2.480000000 GHz
Start Freq	2.480000000 GHz
Stop Freq	2.480000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

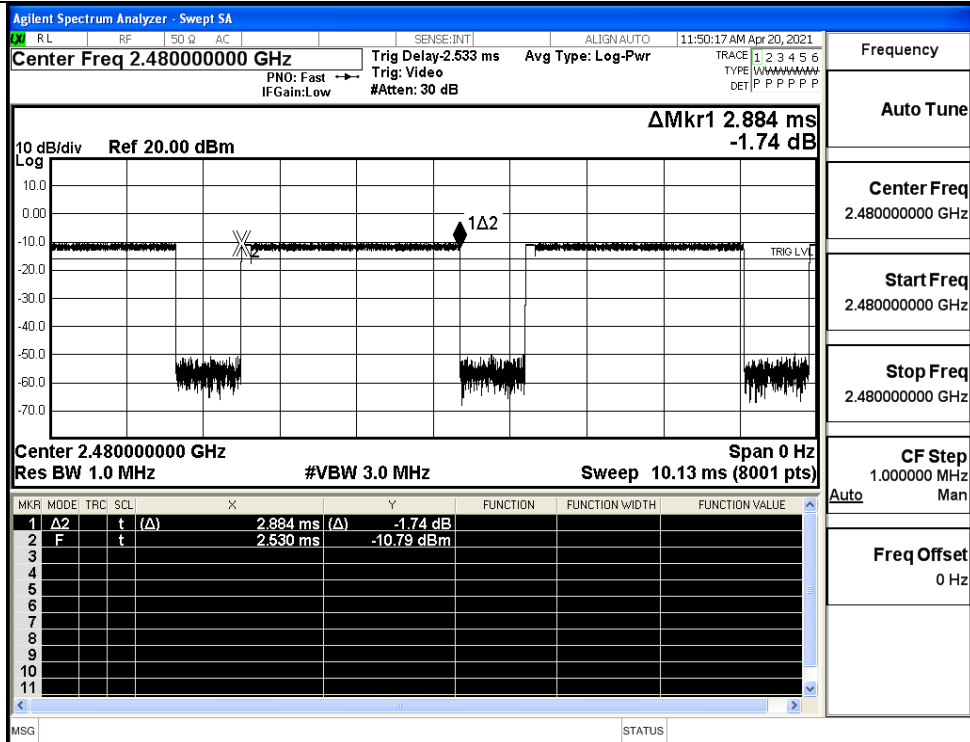
$\pi/4$ DQPSK
_2DH5/LCH



$\pi/4$ DQPSK
_2DH5/MCH



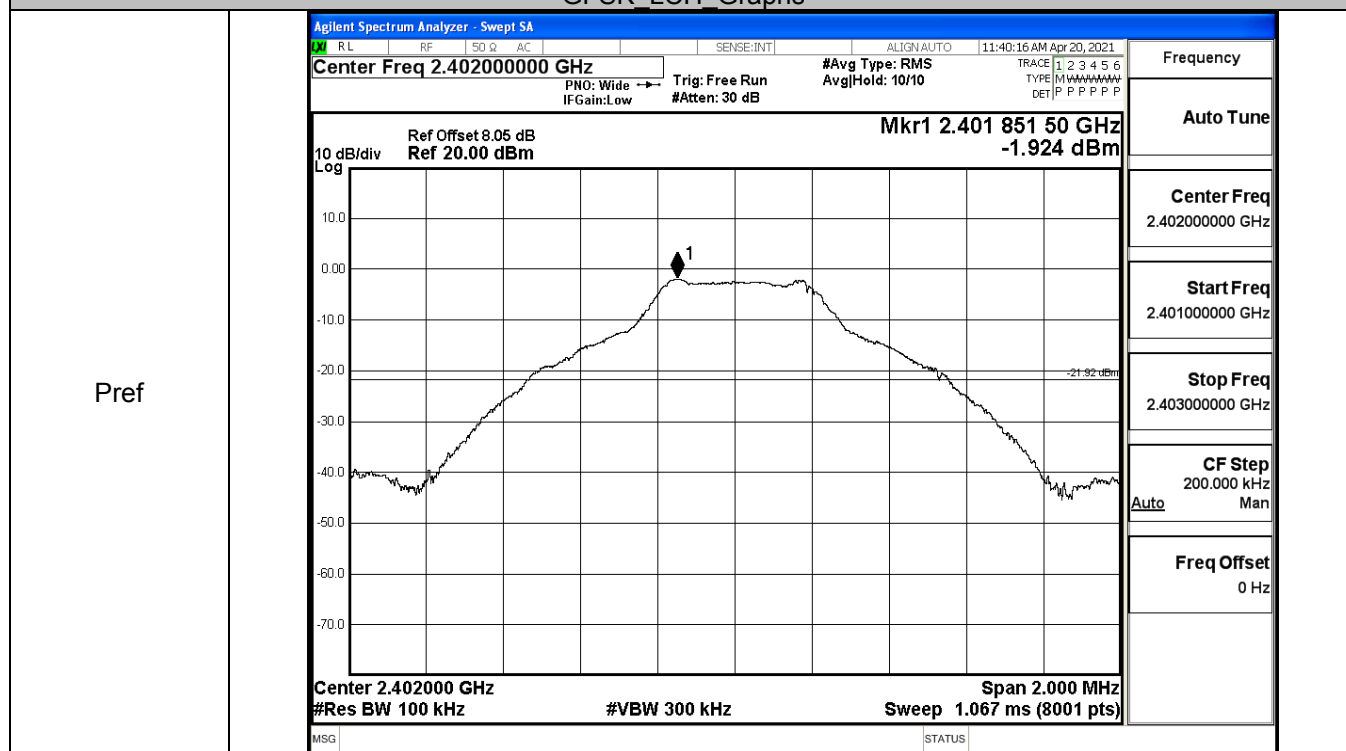
$\pi/4$ DQPSK
_2DH5/HCH



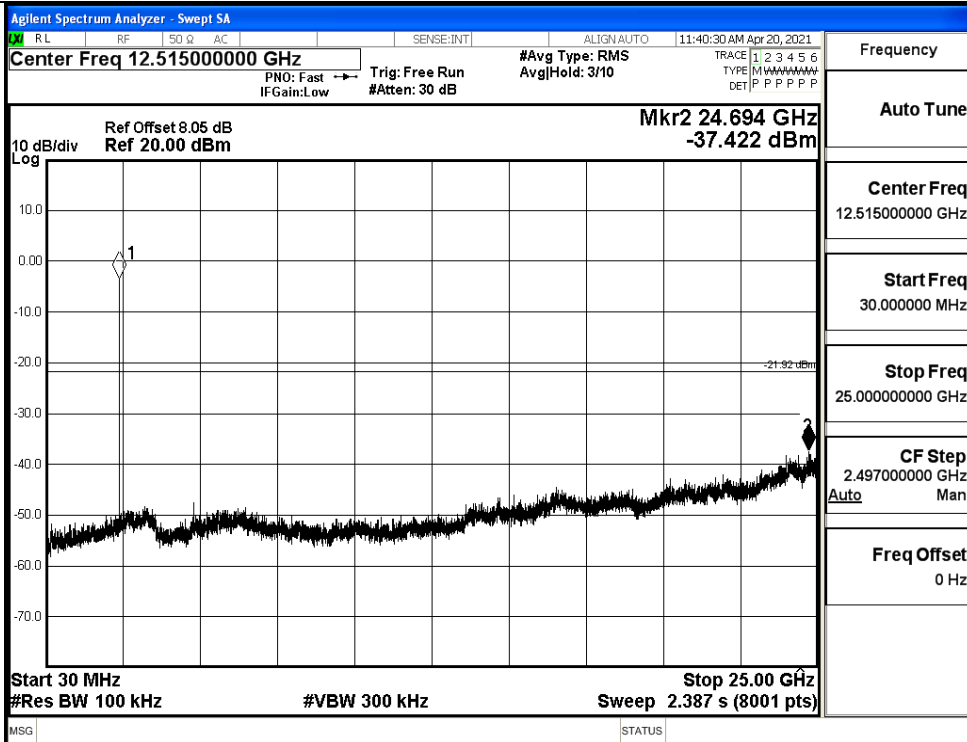
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-1.924	-37.422	-21.924	PASS
	MCH	-1.921	-37.284	-21.921	PASS
	HCH	-2.782	-37.468	-22.782	PASS
$\pi/4$ DQPSK	LCH	-1.973	-37.772	-21.973	PASS
	MCH	-1.904	-37.035	-21.904	PASS
	HCH	-2.833	-38.409	-22.833	PASS

GFSK LCH Graphs

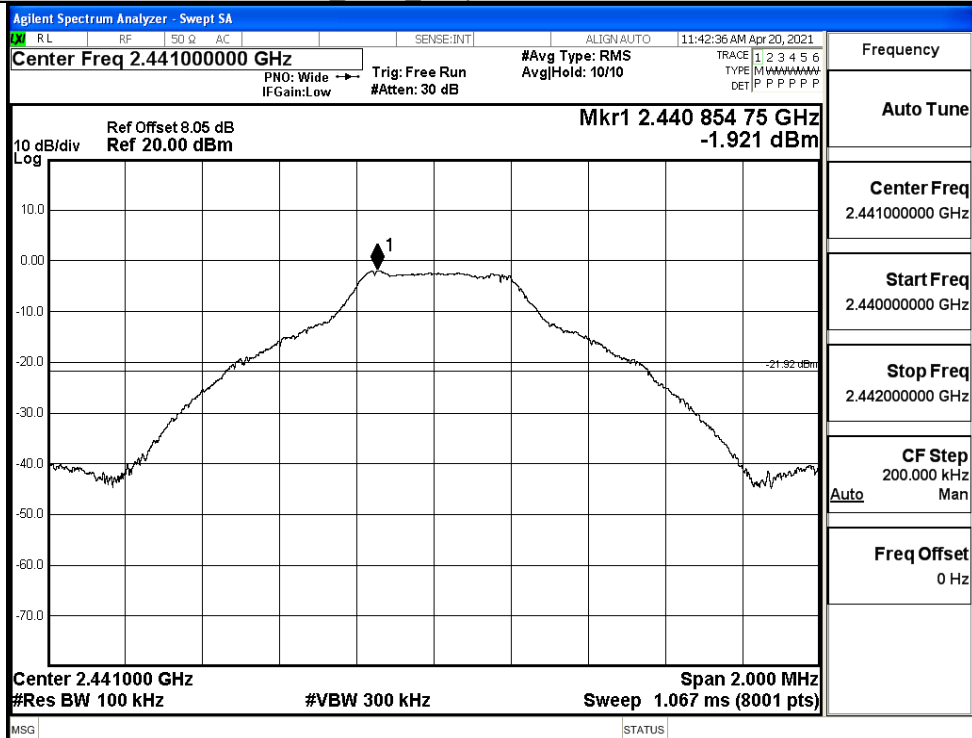


Puw

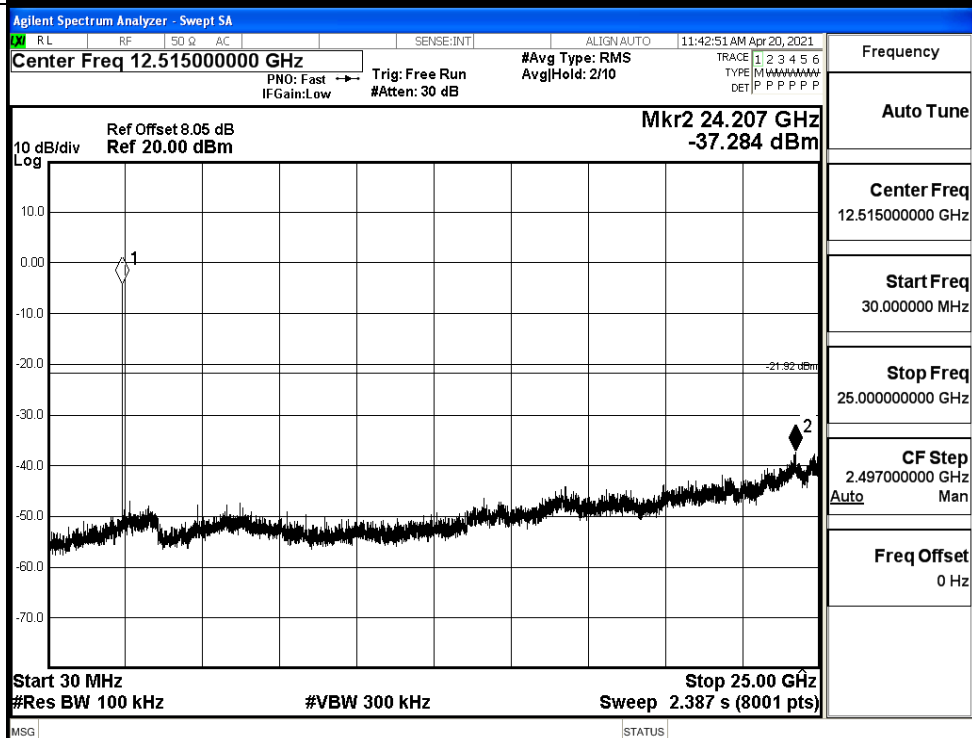


GFSK_MCH_Graphs

Pref

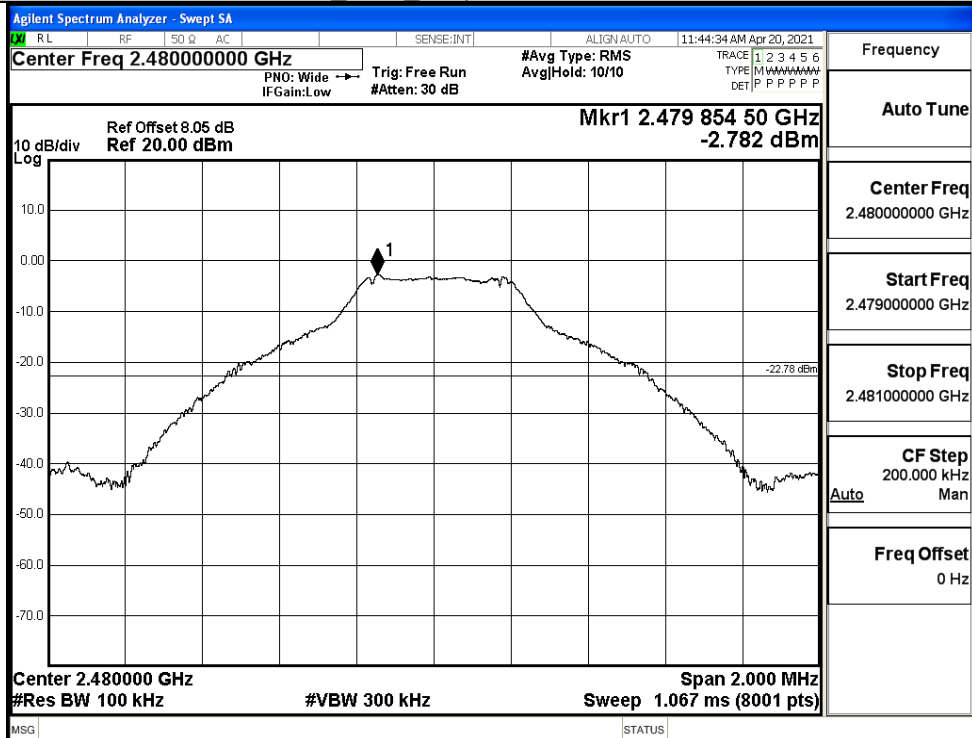


Puw

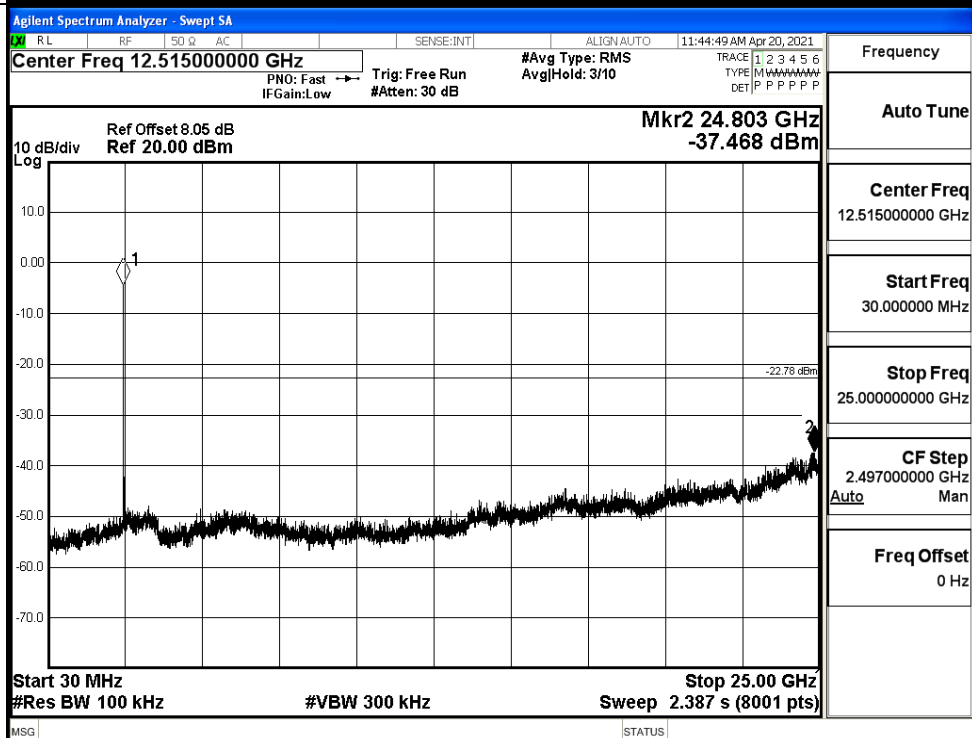


GFSK_HCH_Graphs

Pref

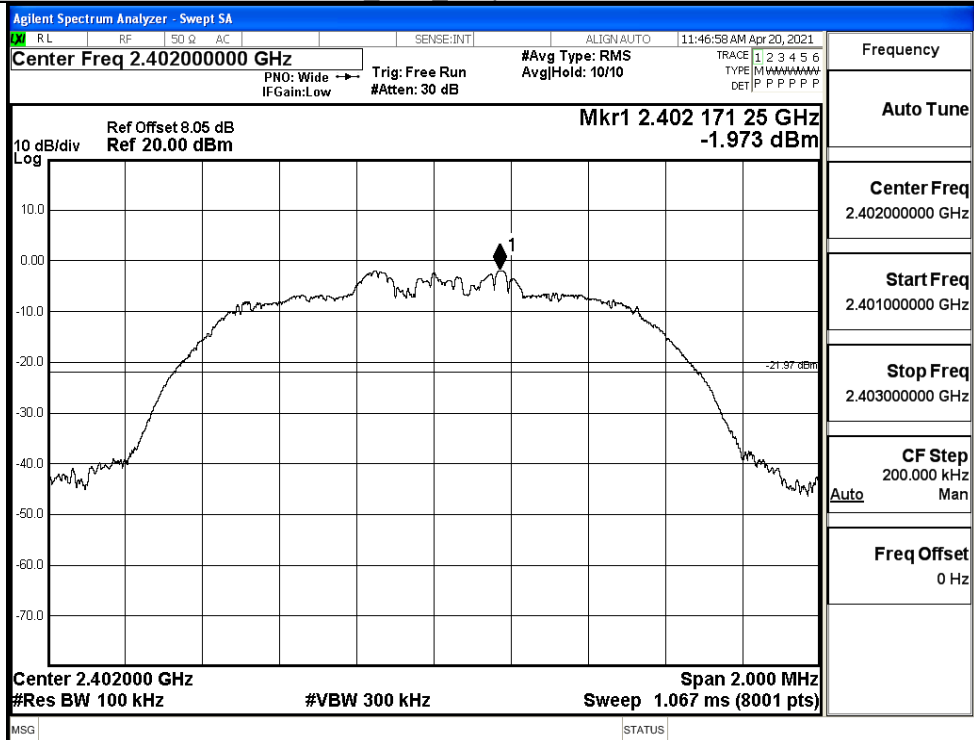


Puw

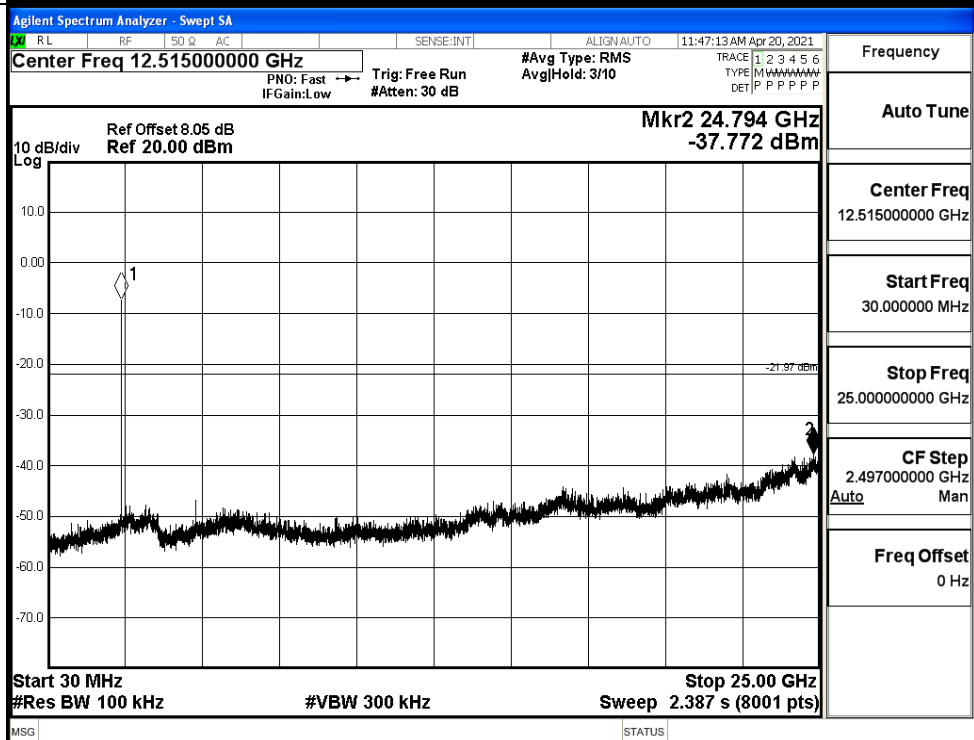


$\pi/4$ DQPSK_LCH_Graphs

Pref

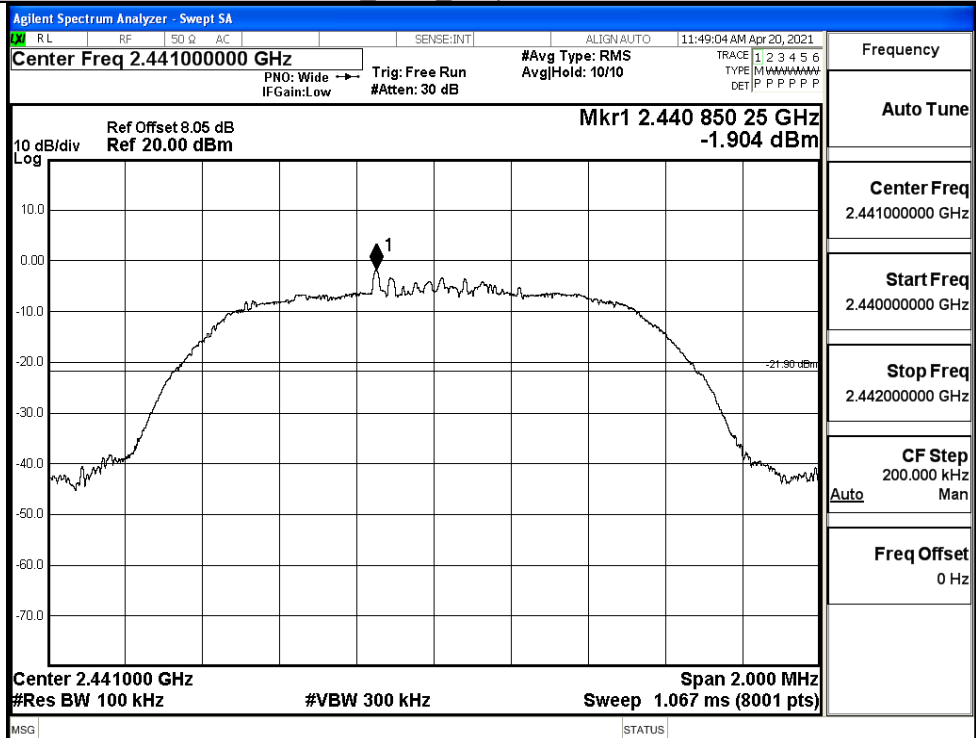


Puw

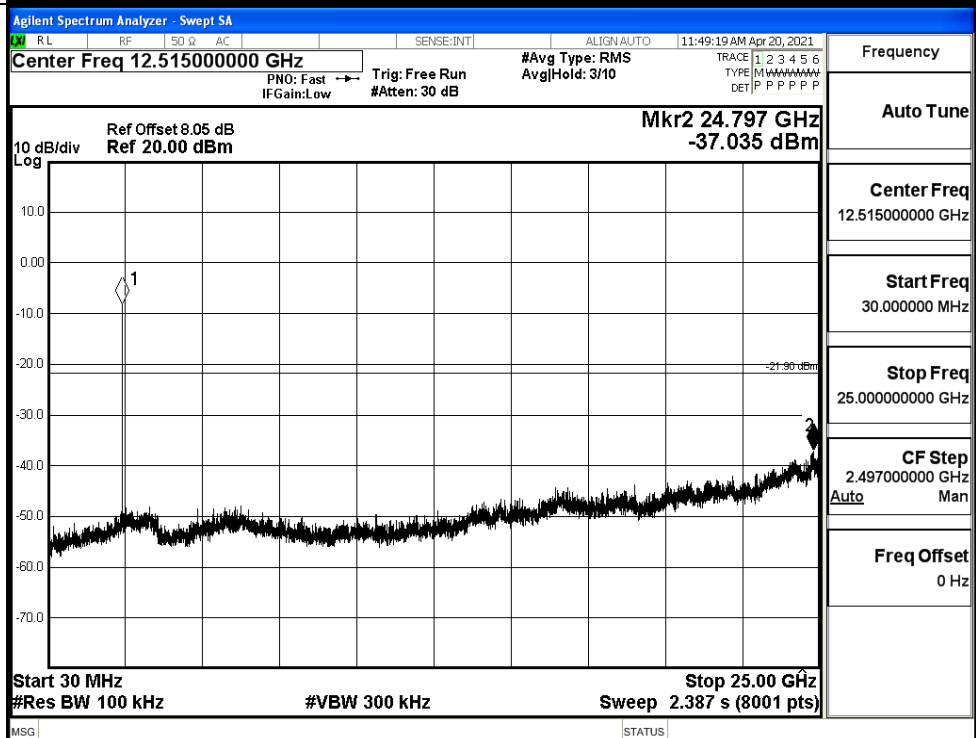


π /4DQPSK_MCH_Graphs

Pref

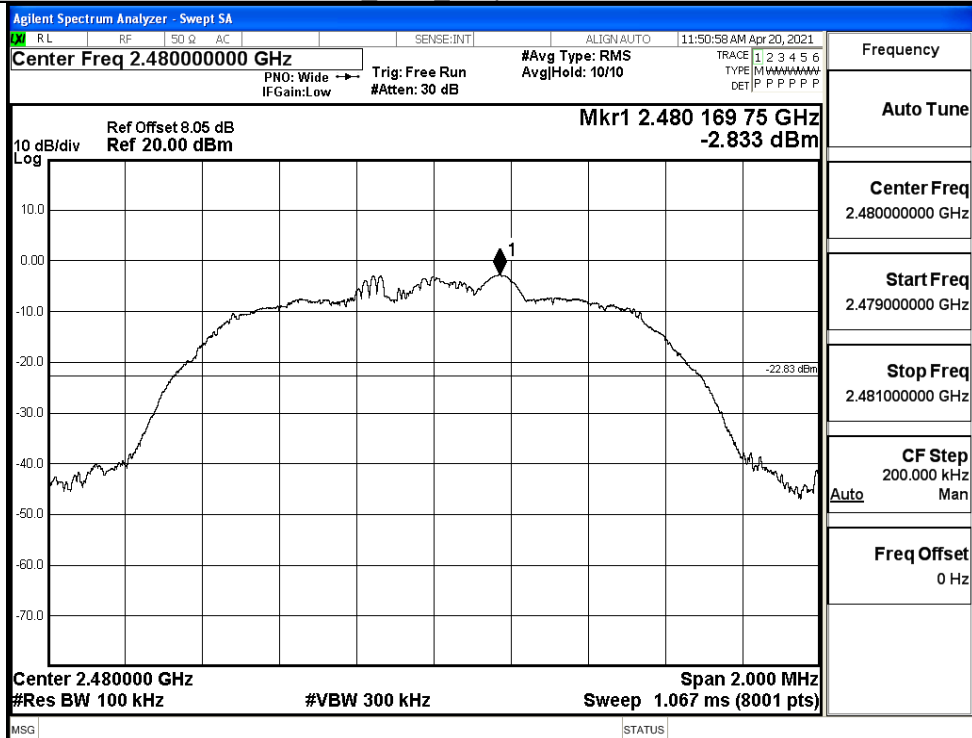


Puw

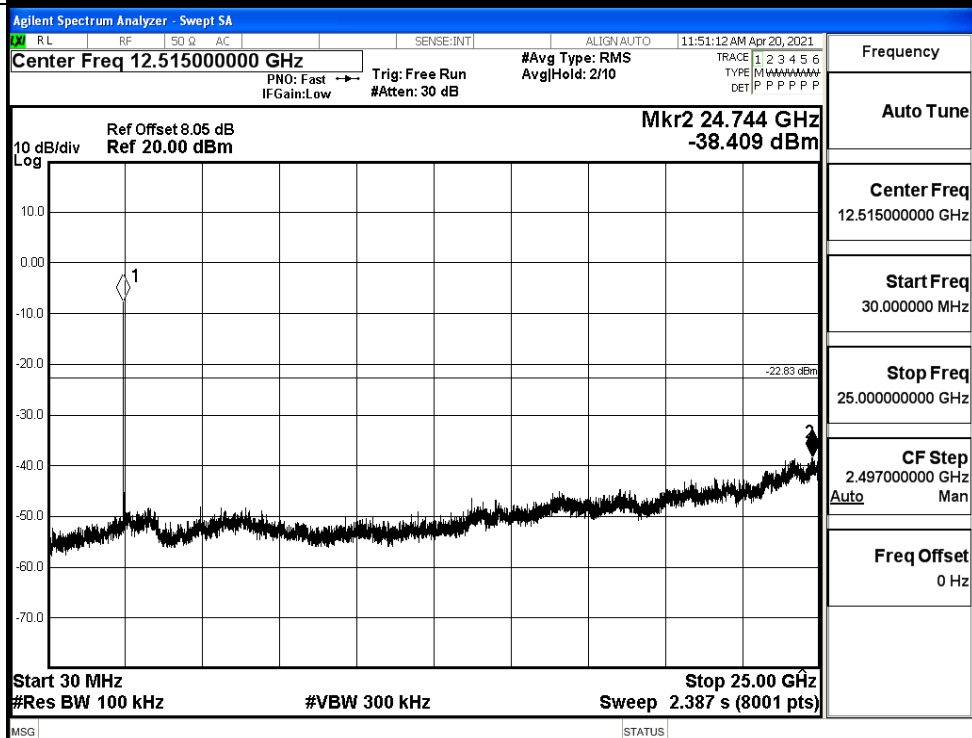


π /4DQPSK_HCH_Graphs

Pref



Puw

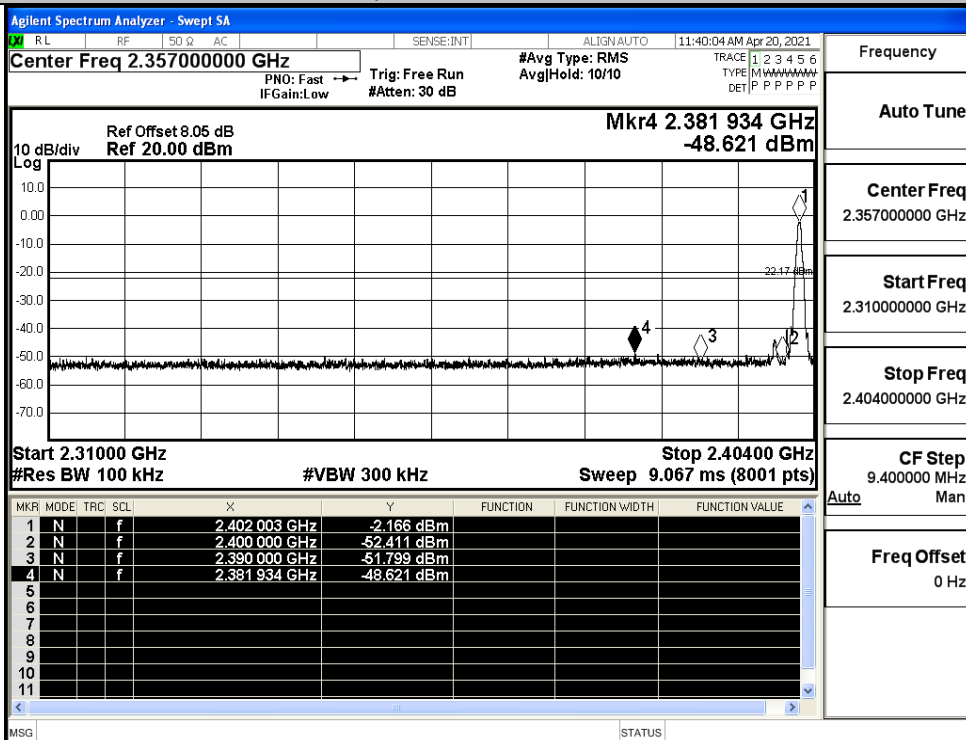


A.7 Band-edge for RF Conducted Emissions

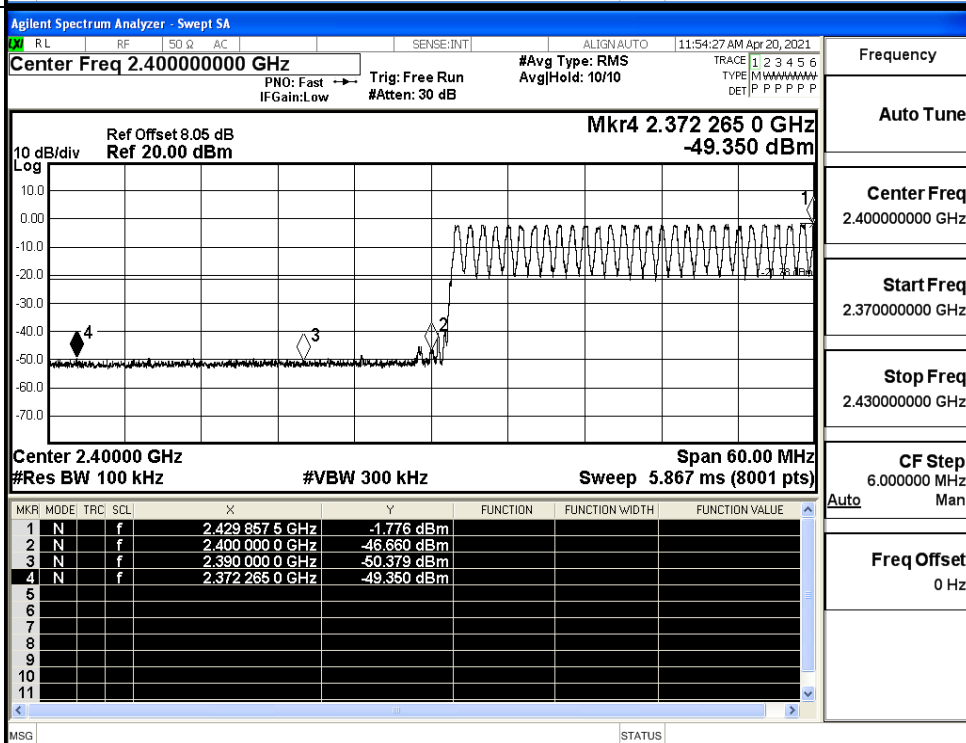
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-2.166	Off	-48.621	-22.17	PASS
			-1.776	On	-49.350	-21.78	PASS
	HCH	2480	-2.879	Off	-44.987	-22.88	PASS
			-2.521	On	-46.512	-22.52	PASS
$\pi/4$ DQPSK	LCH	2402	-4.665	Off	-49.330	-24.67	PASS
			-1.796	On	-47.906	-21.8	PASS
	HCH	2480	-2.845	Off	-43.817	-22.85	PASS
			-2.346	On	-48.202	-22.35	PASS

Test Graphs

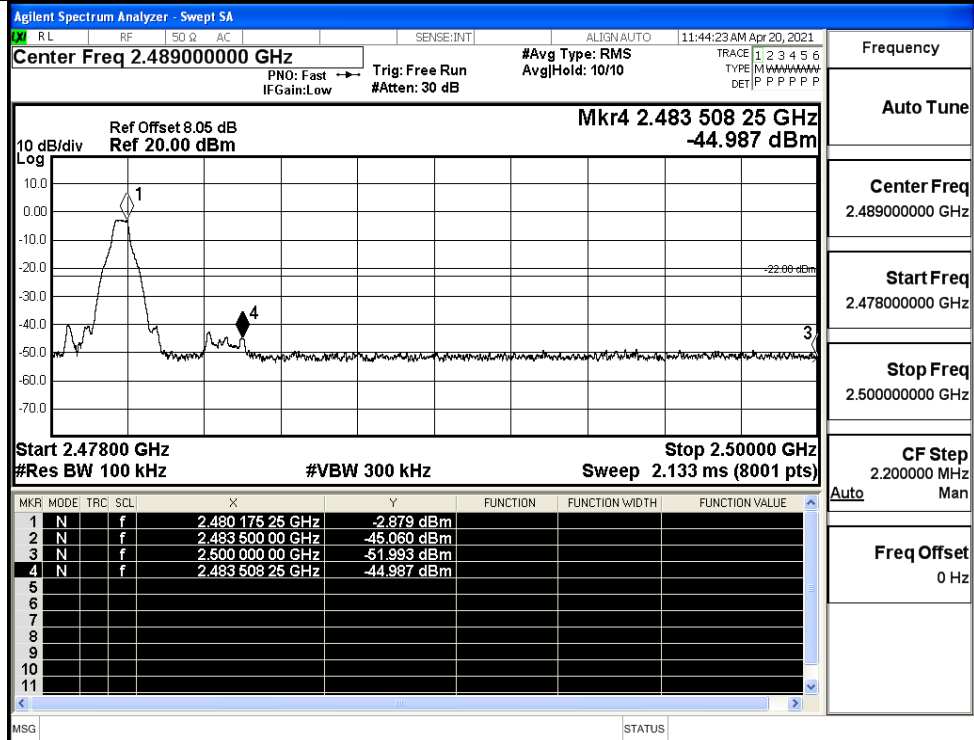
GFSK/LCH/No Hop



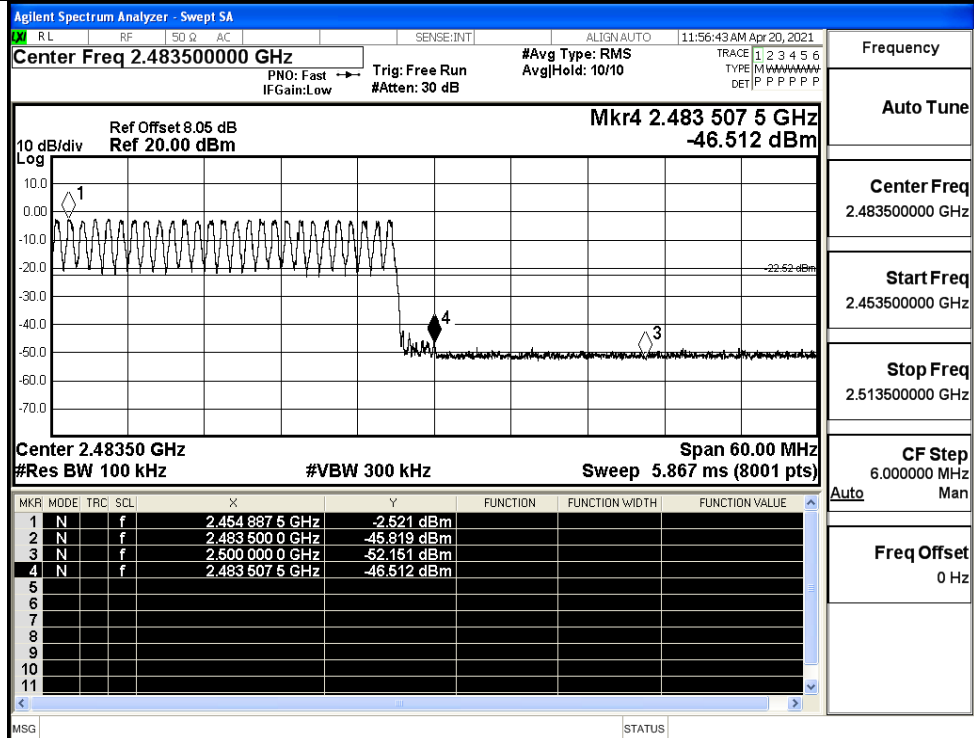
GFSK/LCH/Hop



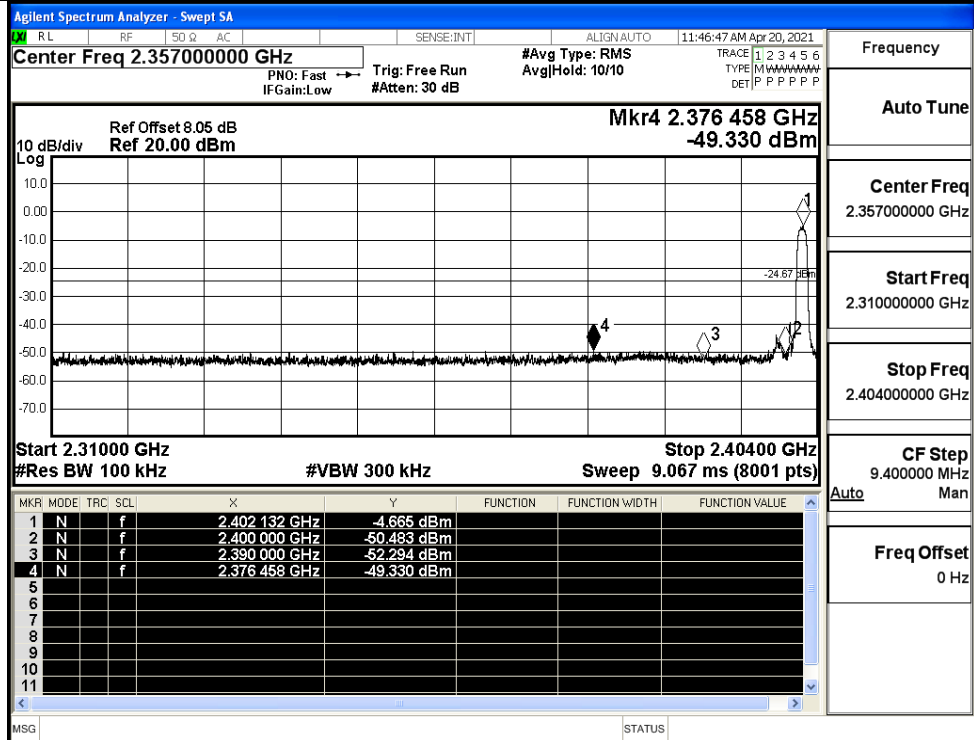
GFSK/HCH/No Hop



GFSK/HCH/Hop



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



Frequency

Auto Tune

Center Freq
2.357000000 GHz

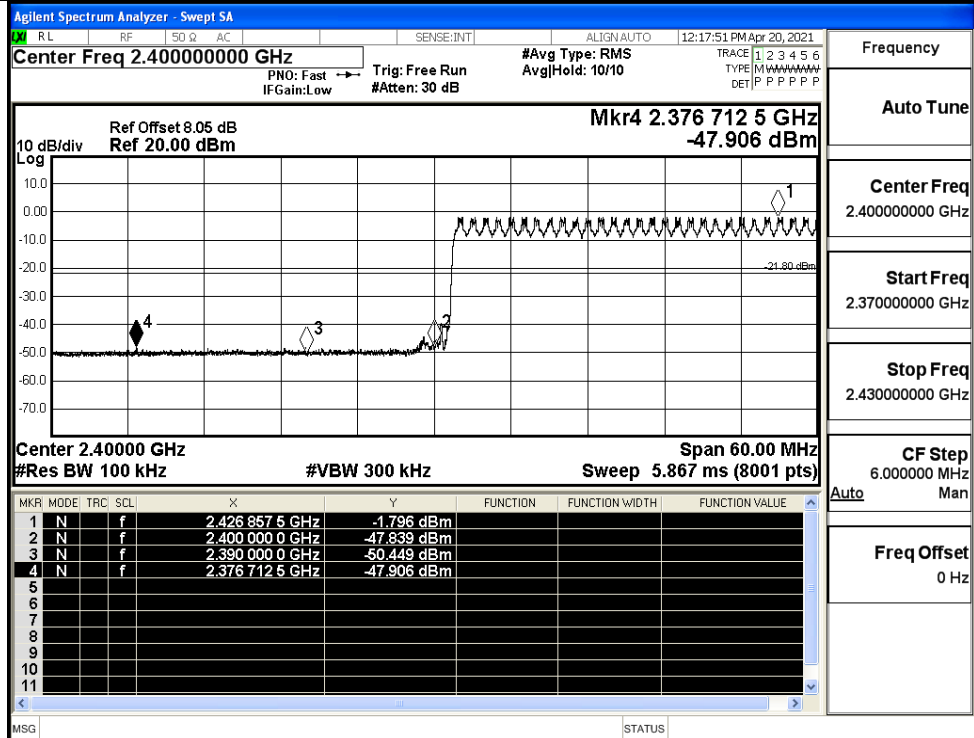
Start Freq
2.310000000 GHz

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

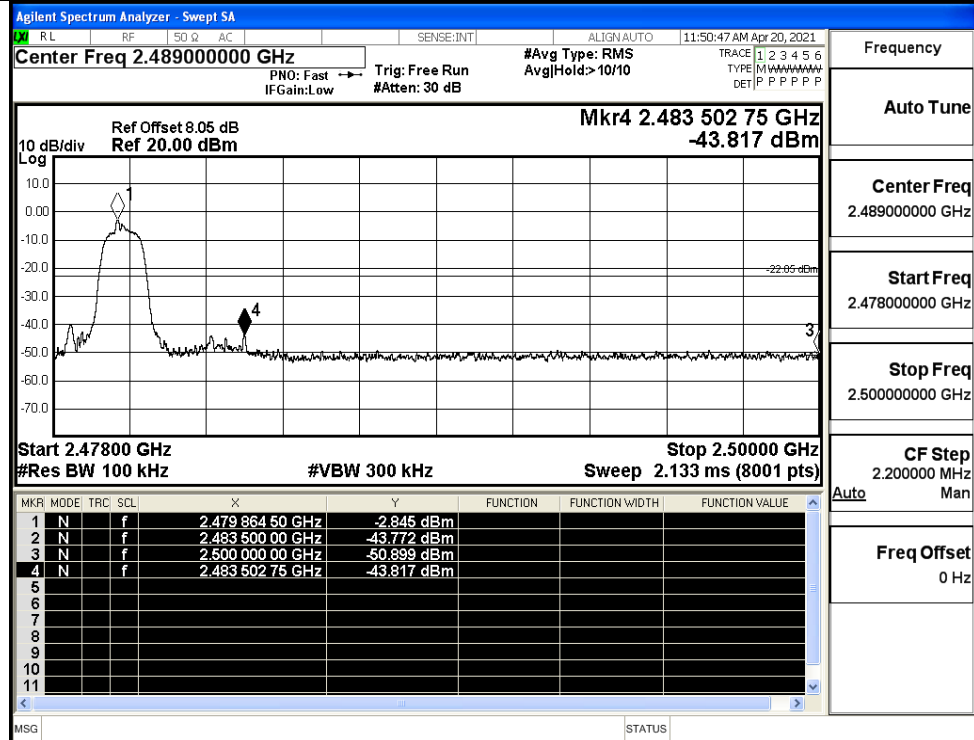
Start Freq
2.370000000 GHz

Stop Freq
2.430000000 GHz

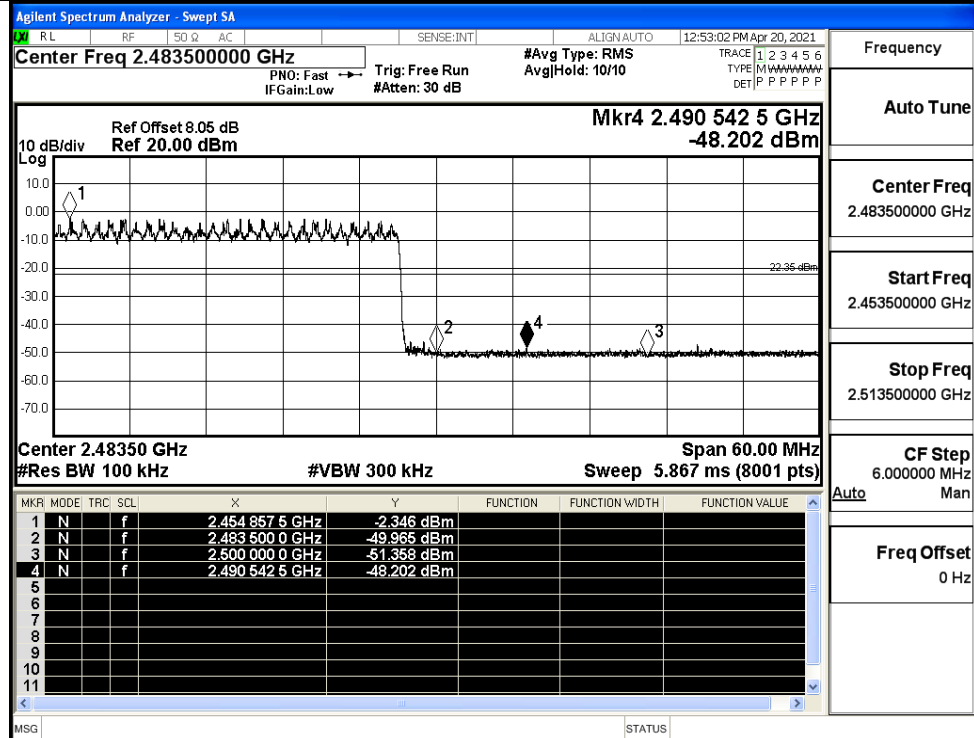
CF Step
6.000000 MHz
Auto Man

Freq Offset
0 Hz

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



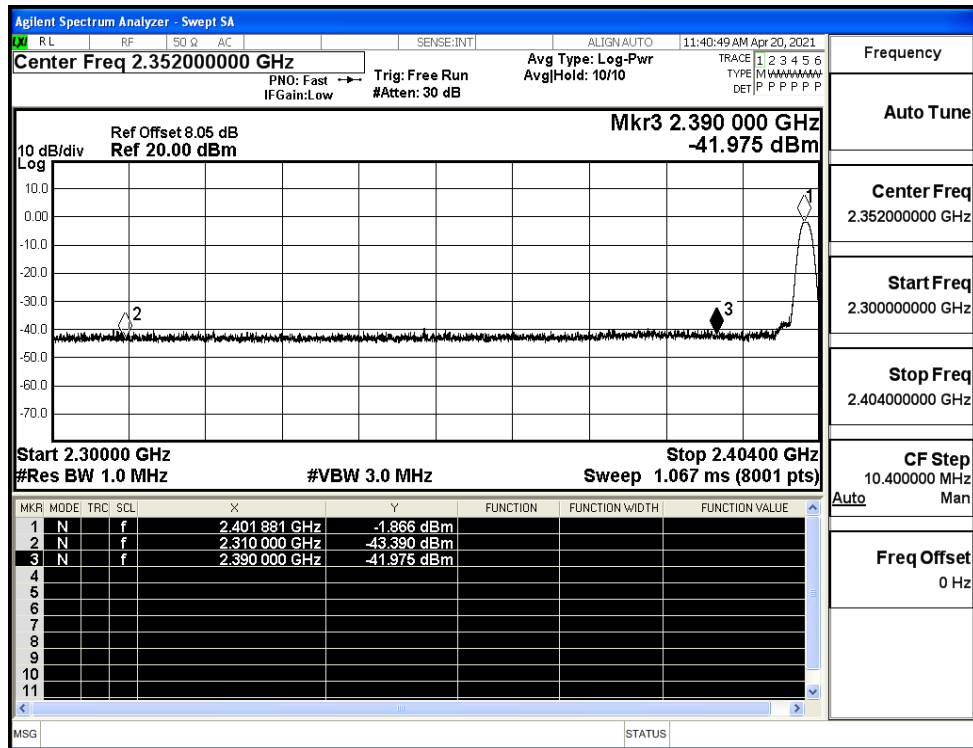
$\pi/4$ DQPSK/HCH/Hop



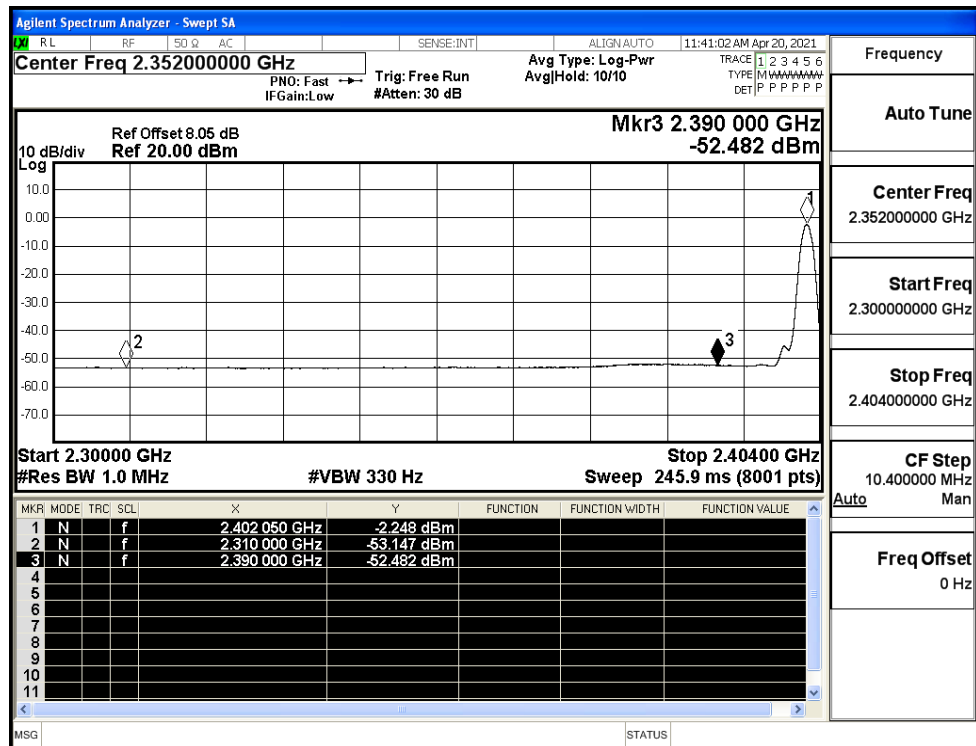
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.39	2.0	0	53.84	PEAK	74	PASS
	Off	2310.0	-53.15	2.0	0	44.08	AV	54	PASS
	Off	2390.0	-41.98	2.0	0	55.25	PEAK	74	PASS
	Off	2390.0	-52.48	2.0	0	44.75	AV	54	PASS
	Off	2483.5	-39.63	2.0	0	57.60	PEAK	74	PASS
	Off	2483.5	-47.42	2.0	0	49.81	AV	54	PASS
	Off	2500.0	-41.40	2.0	0	55.83	PEAK	74	PASS
	Off	2500.0	-51.57	2.0	0	45.66	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.74	2.0	0	53.49	PEAK	74	PASS
	Off	2310.0	-53.32	2.0	0	43.91	AV	54	PASS
	Off	2390.0	-42.99	2.0	0	54.24	PEAK	74	PASS
	Off	2390.0	-52.38	2.0	0	44.85	AV	54	PASS
	Off	2483.5	-39.43	2.0	0	57.80	PEAK	74	PASS
	Off	2483.5	-49.40	2.0	0	47.83	AV	54	PASS
	Off	2500.0	-41.12	2.0	0	56.11	PEAK	74	PASS
	Off	2500.0	-51.69	2.0	0	45.54	AV	54	PASS

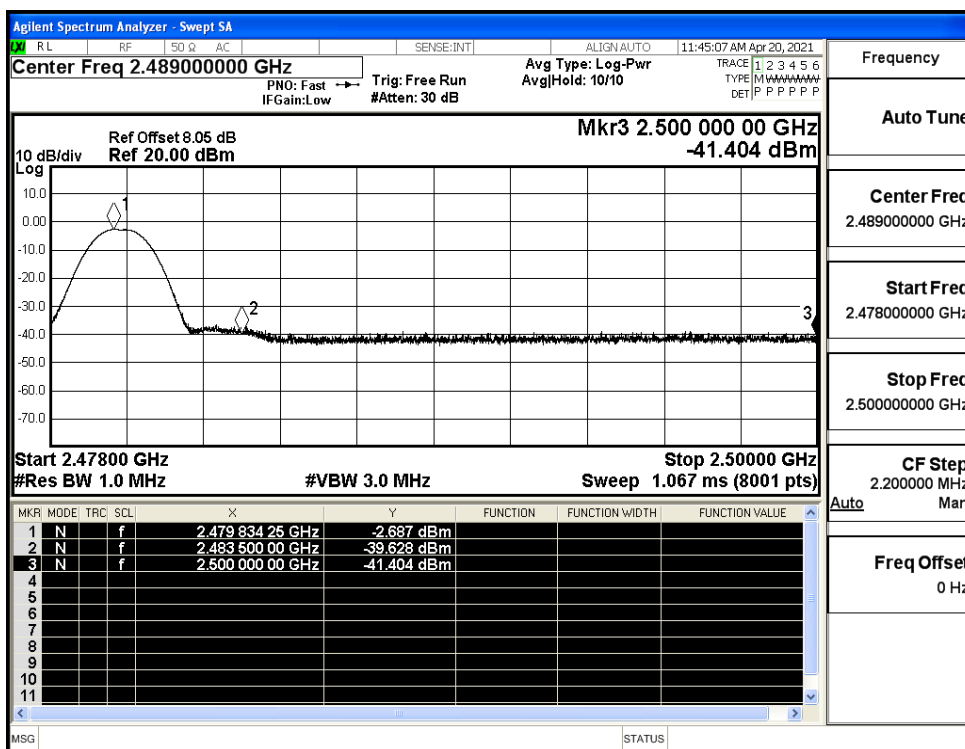
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



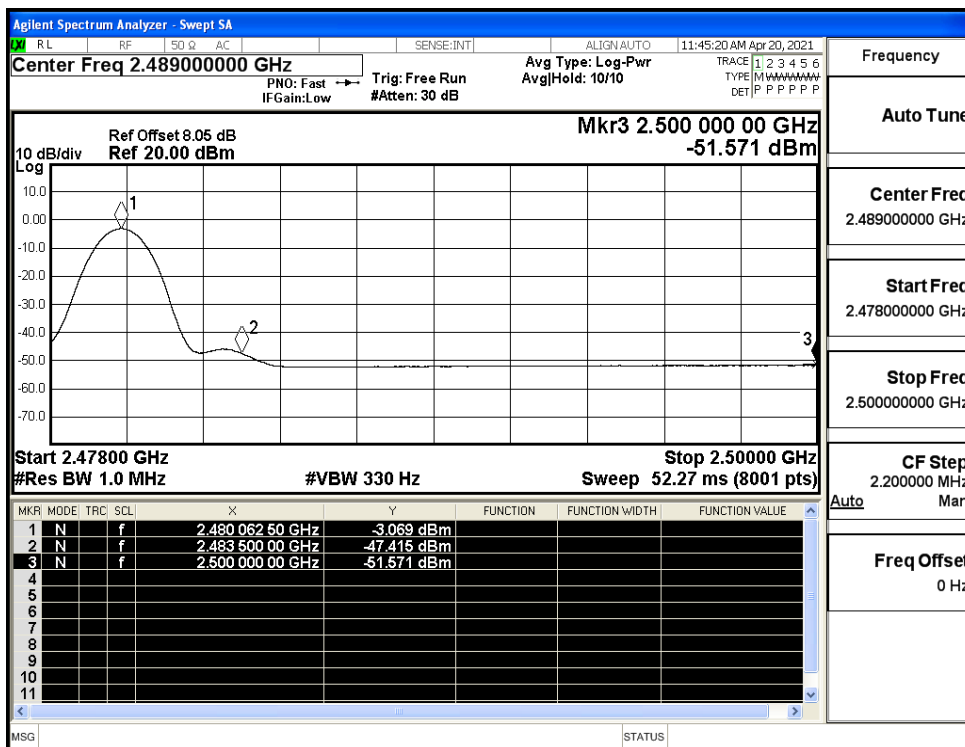
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

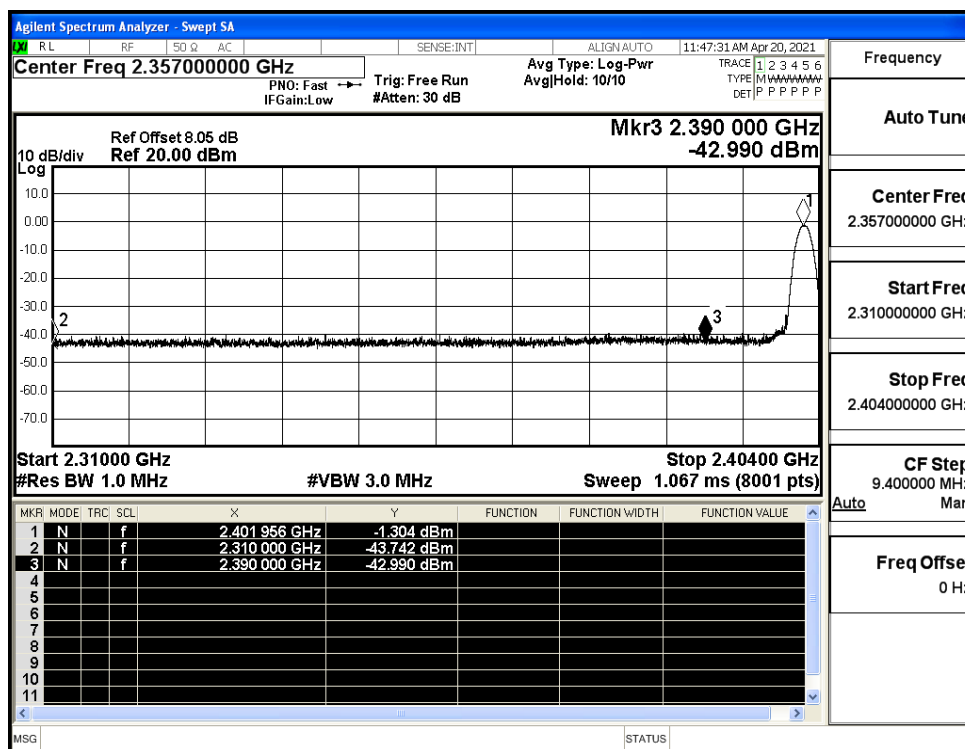
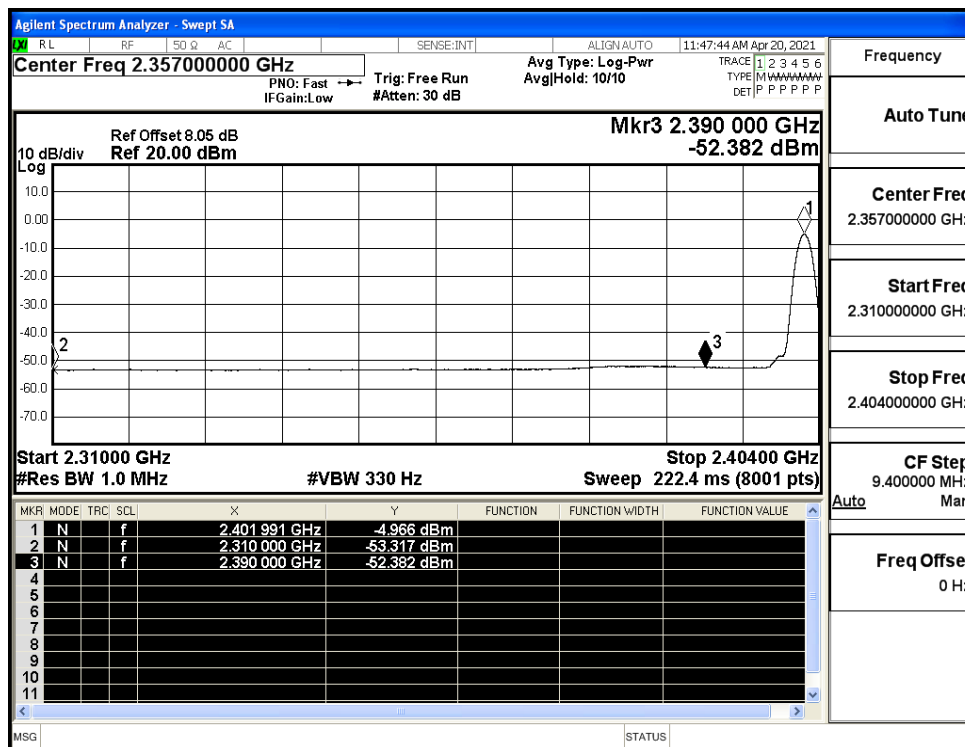


Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)

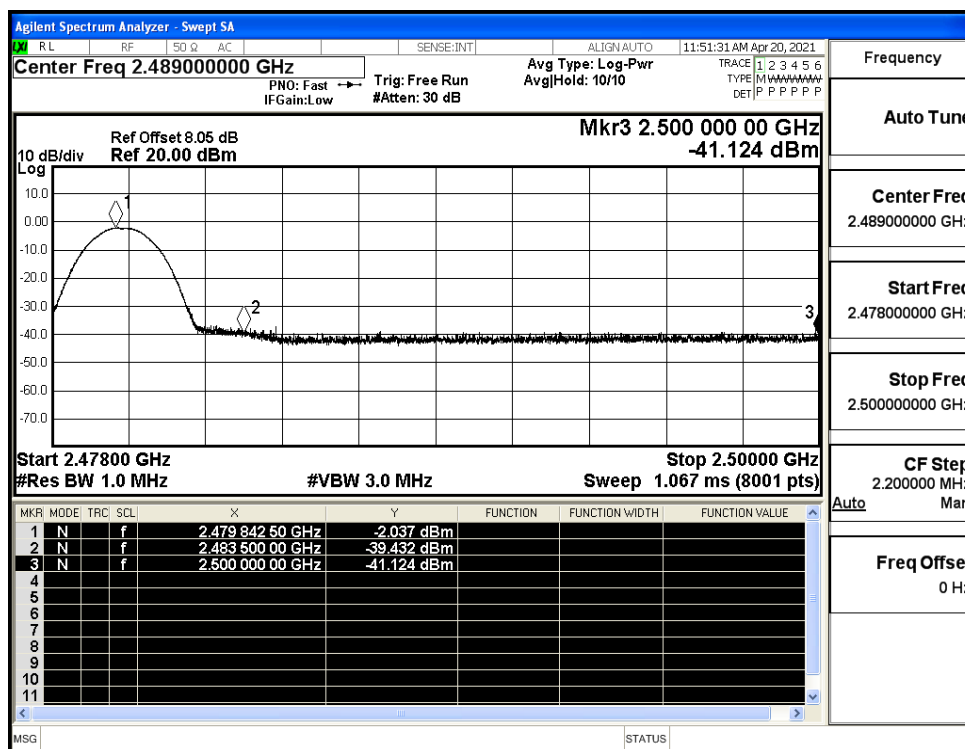


Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



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)

