

Appendix A

RF Test Data for BT V5.1(BDR/EDR) (Conducted Measurement)

Product Name: Wireless speaker and UV box

Trade Mark: N/A

Test Model: XO-9980

Environmental Conditions

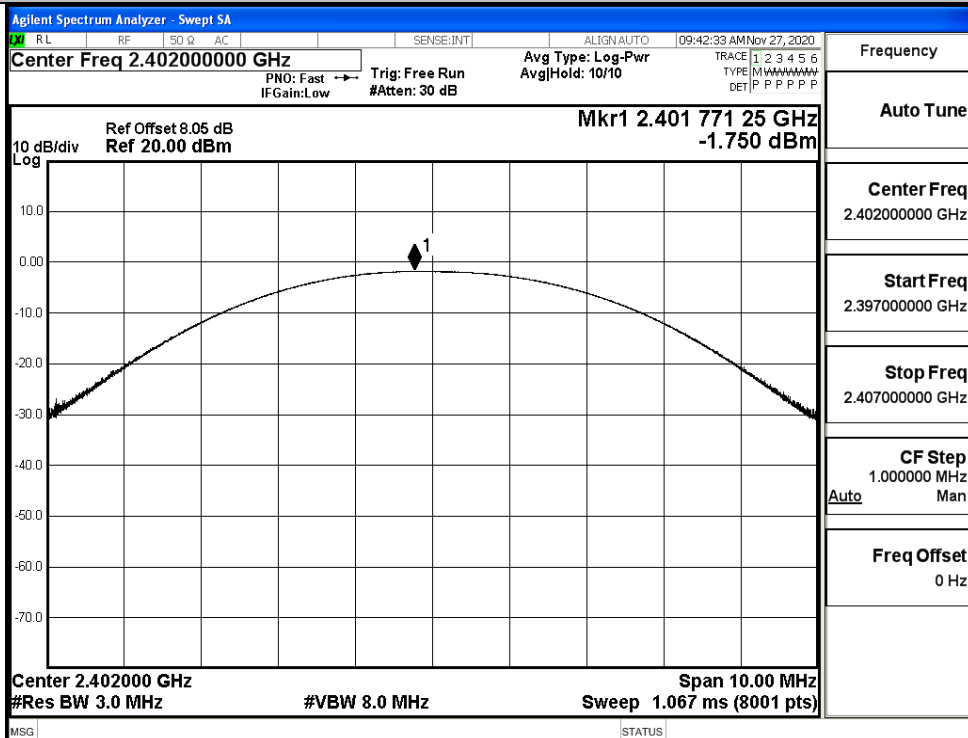
Temperature:	25.2 ° C
Relative Humidity:	53.6%
ATM Pressure:	100.0 kPa
Test Engineer:	Dancy Chen
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

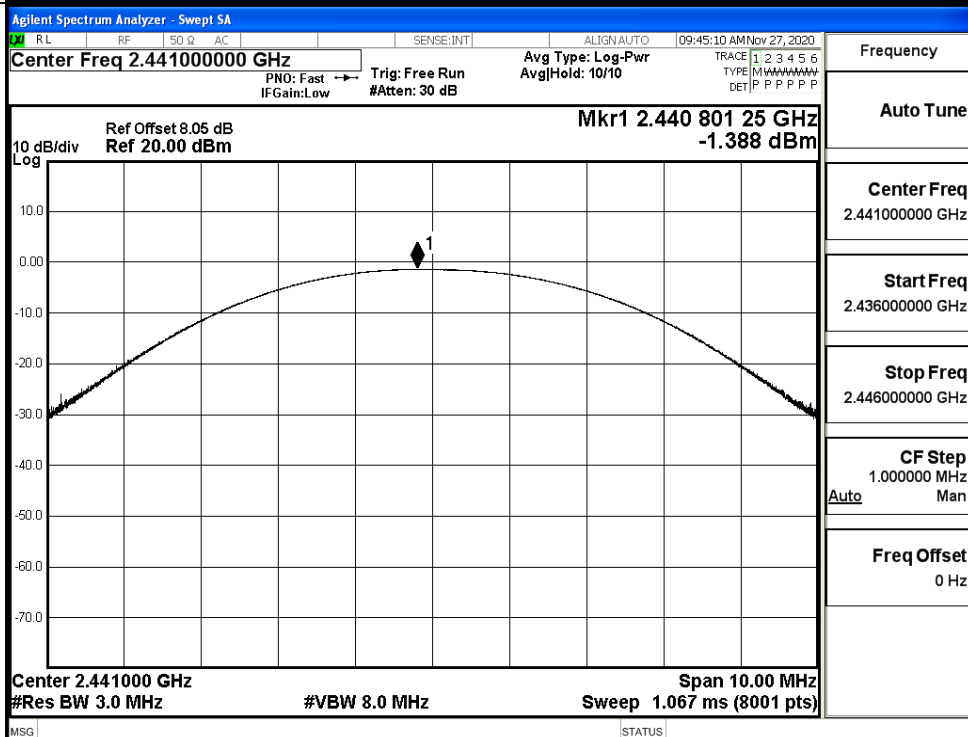
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-1.750	21	PASS
	MCH	-1.388	21	PASS
	HCH	-1.501	21	PASS
$\pi/4$ DQPSK	LCH	-0.963	21	PASS
	MCH	-0.609	21	PASS
	HCH	-0.598	21	PASS

Test Graphs

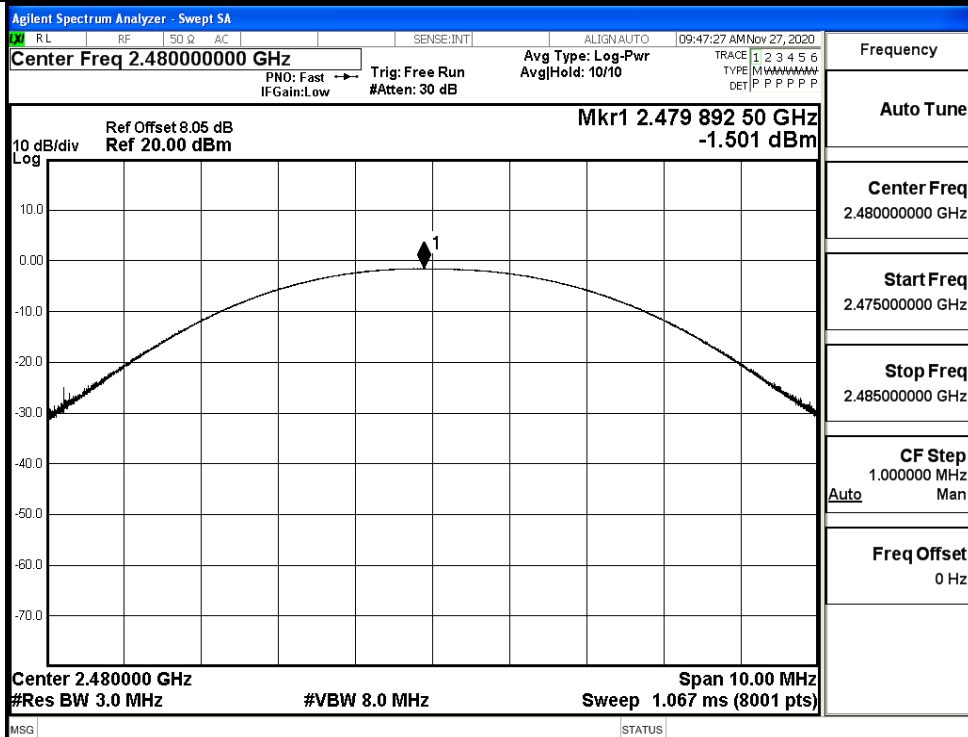
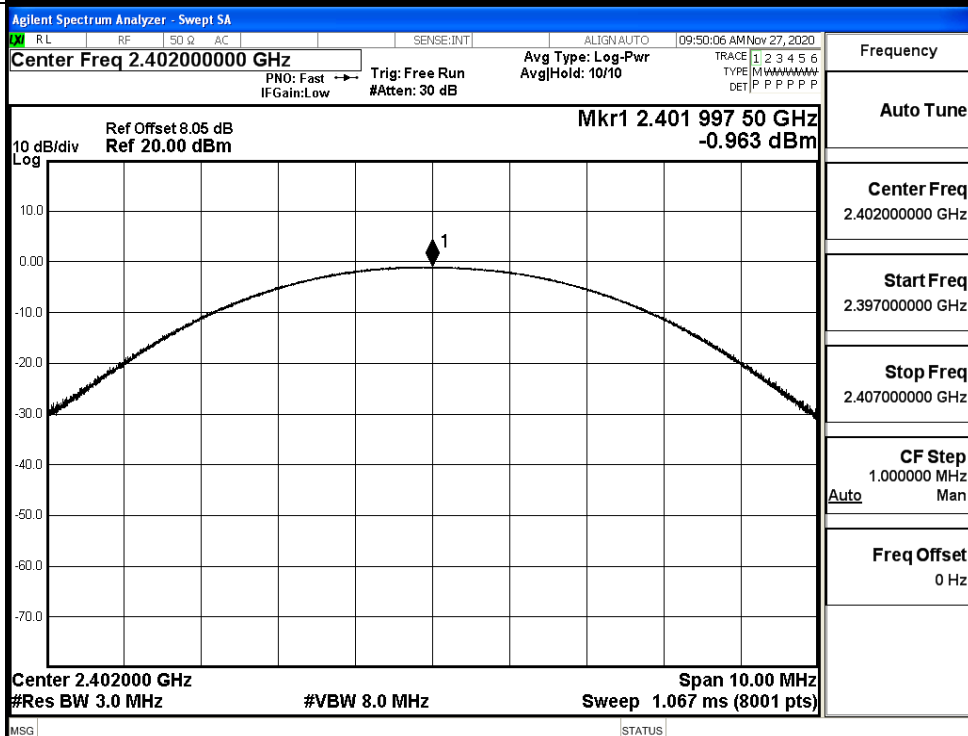
GFSK/LCH

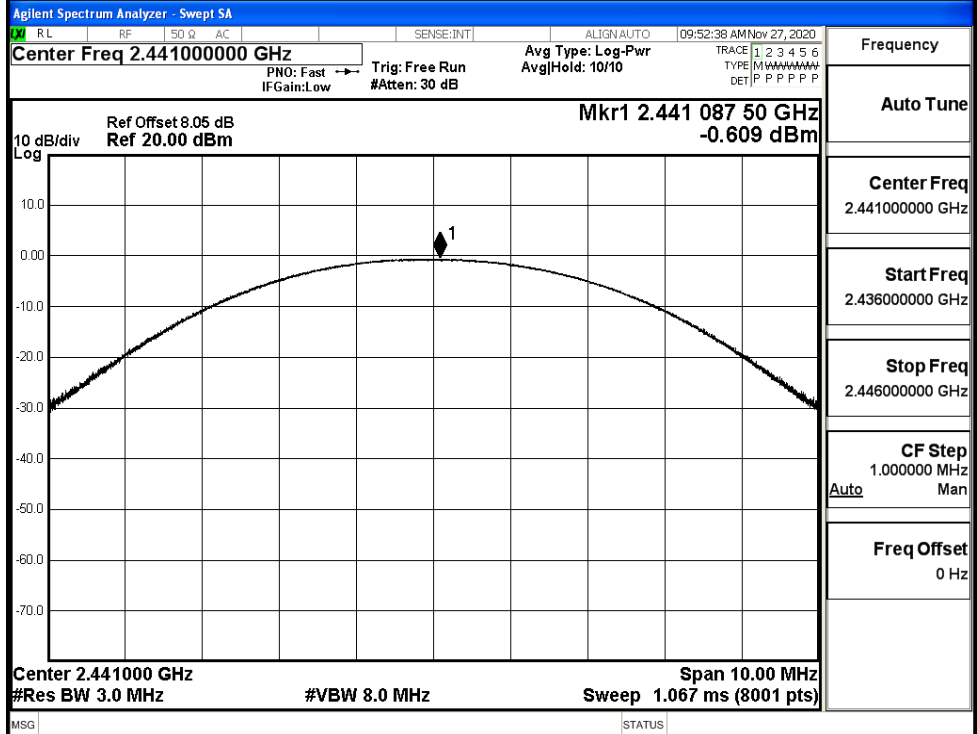
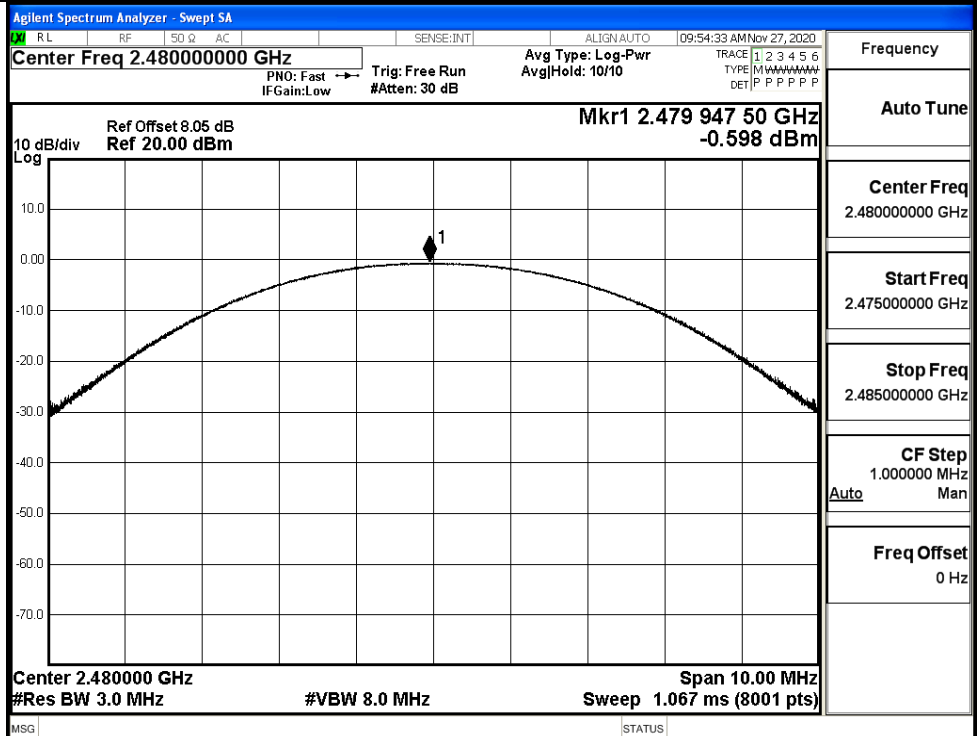


GFSK/MCH



GFSK/HCH

 π /4DQPSK/LCH

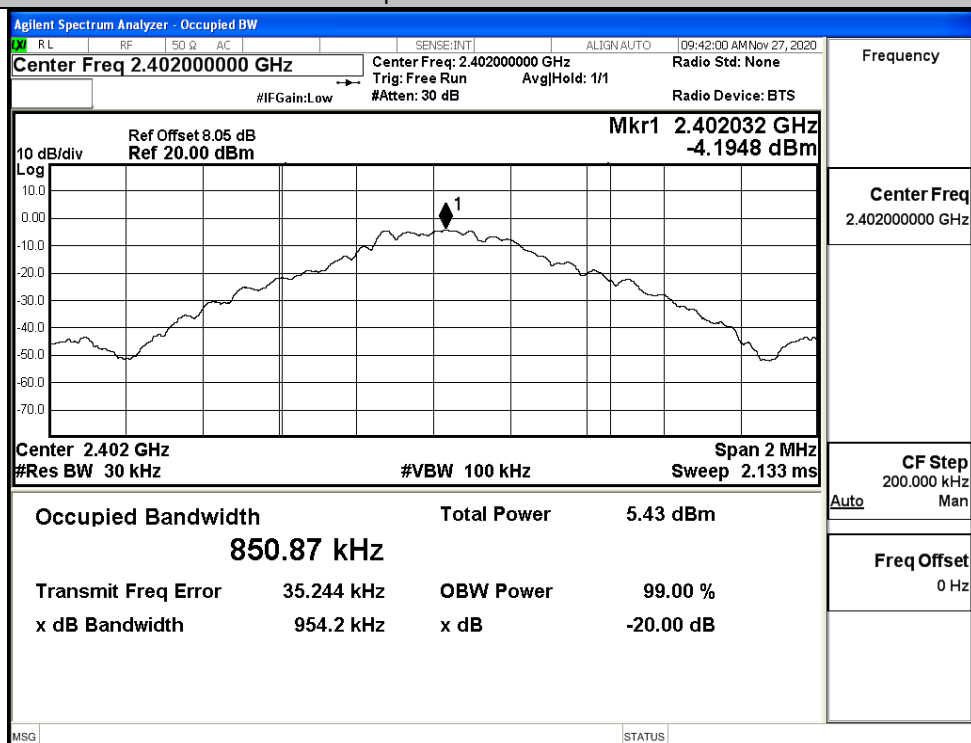
π /4DQPSK/MCH π /4DQPSK/HCH

A.2 20dB Bandwidth

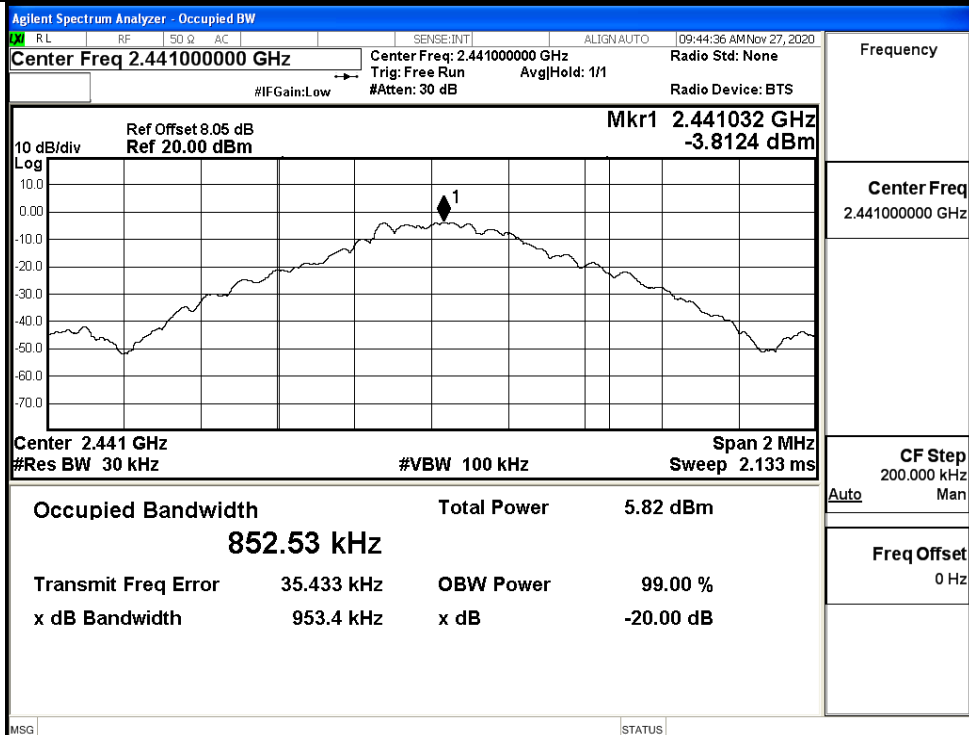
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9542	Not Specified	PASS
	MCH	0.9534	Not Specified	PASS
	HCH	0.9554	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.282	Not Specified	PASS
	MCH	1.283	Not Specified	PASS
	HCH	1.282	Not Specified	PASS

Test Graphs

GFSK/LCH



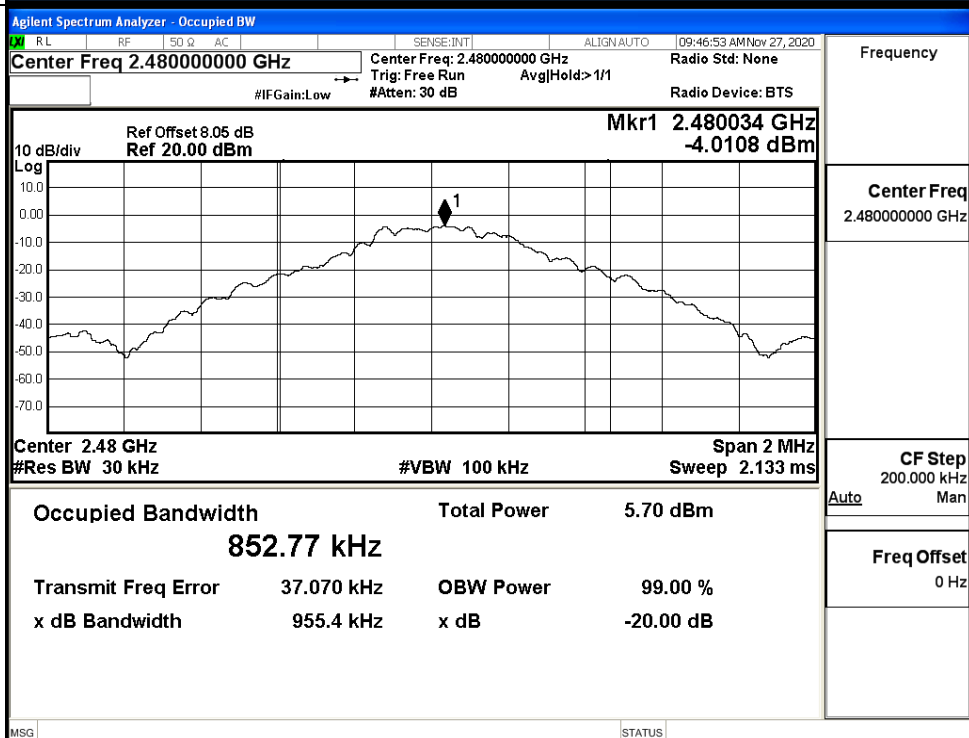
GFSK/MCH



Frequency

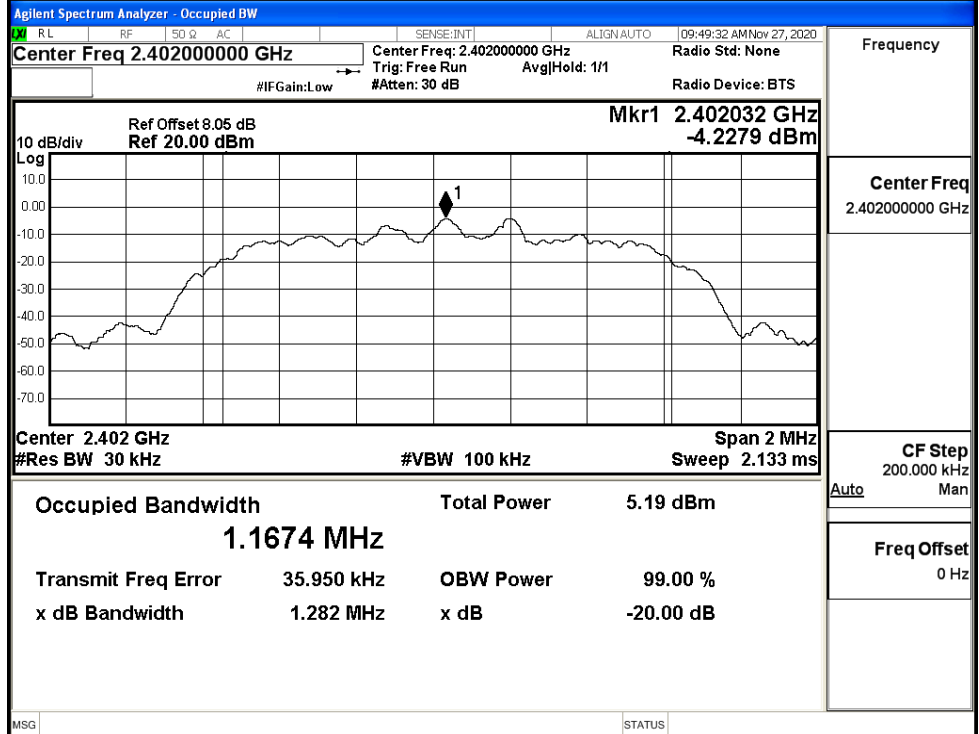
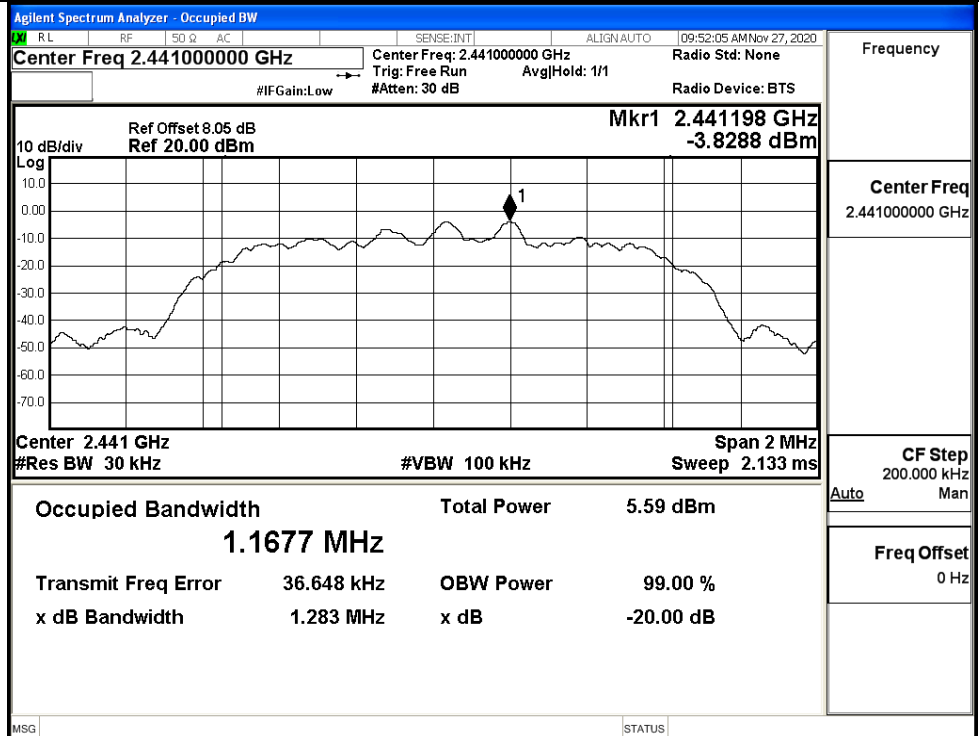
Center Freq
2.441000000 GHzCF Step
200.000 kHz
Auto ManFreq Offset
0 Hz

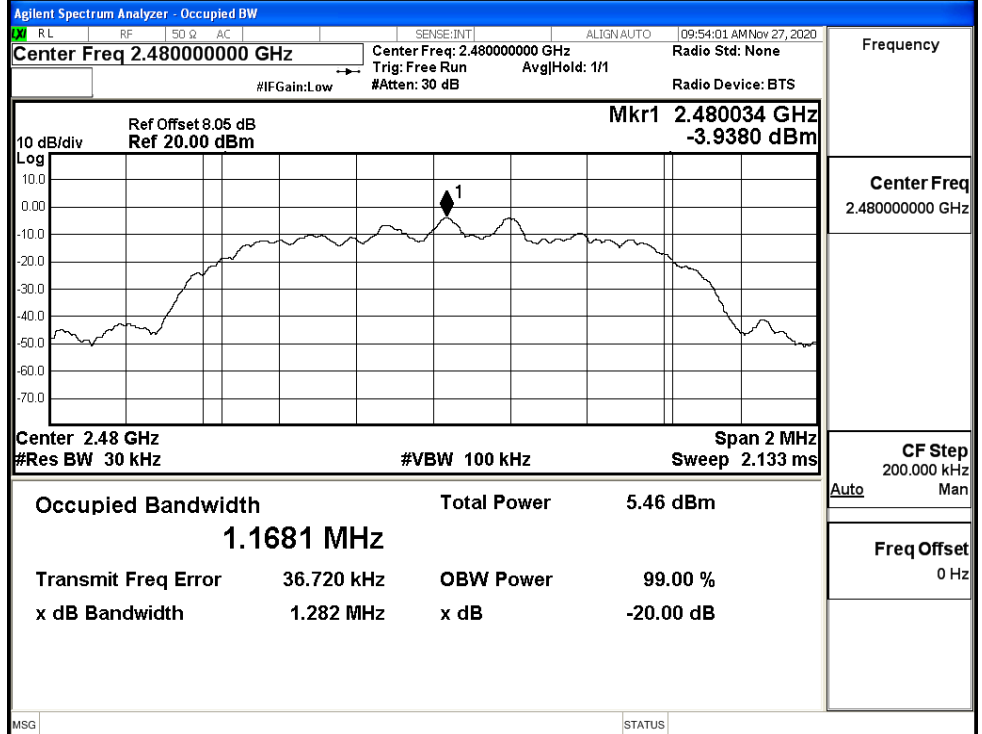
GFSK/HCH



Frequency

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200.000 kHz
Auto ManFreq Offset
0 Hz

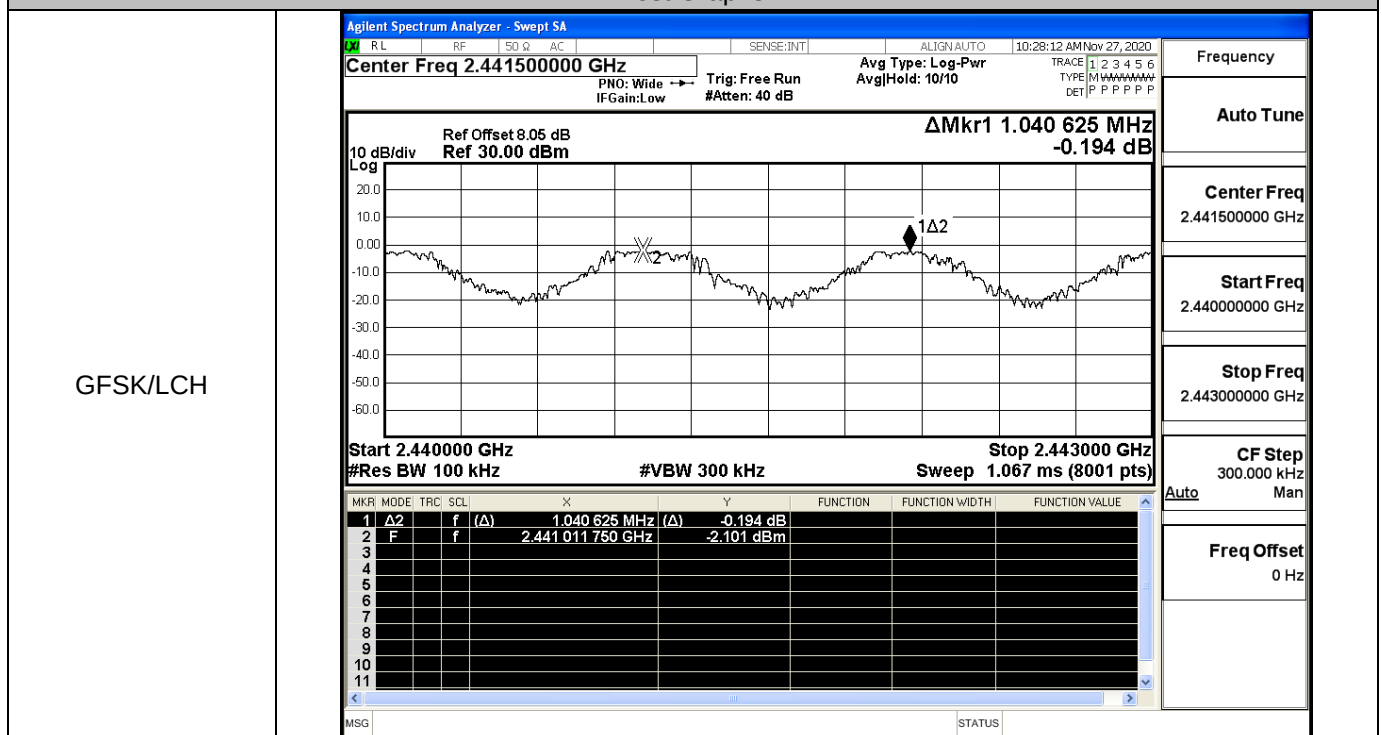
π /4DQPSK/LCH π /4DQPSK/MCH

$\pi/4$ DQPSK/HCH

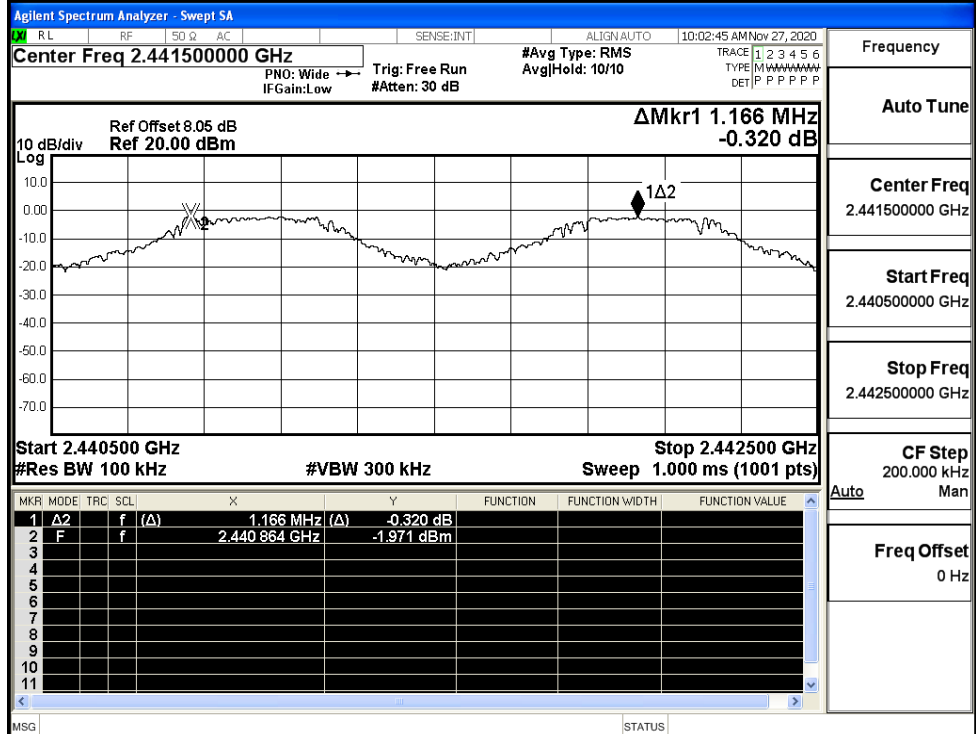
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.041	0.637	PASS
	MCH	1.166	0.637	PASS
	HCH	0.760	0.637	PASS
$\pi/4$ DQPSK	LCH	0.904	0.855	PASS
	MCH	0.938	0.855	PASS
	HCH	1.120	0.855	PASS

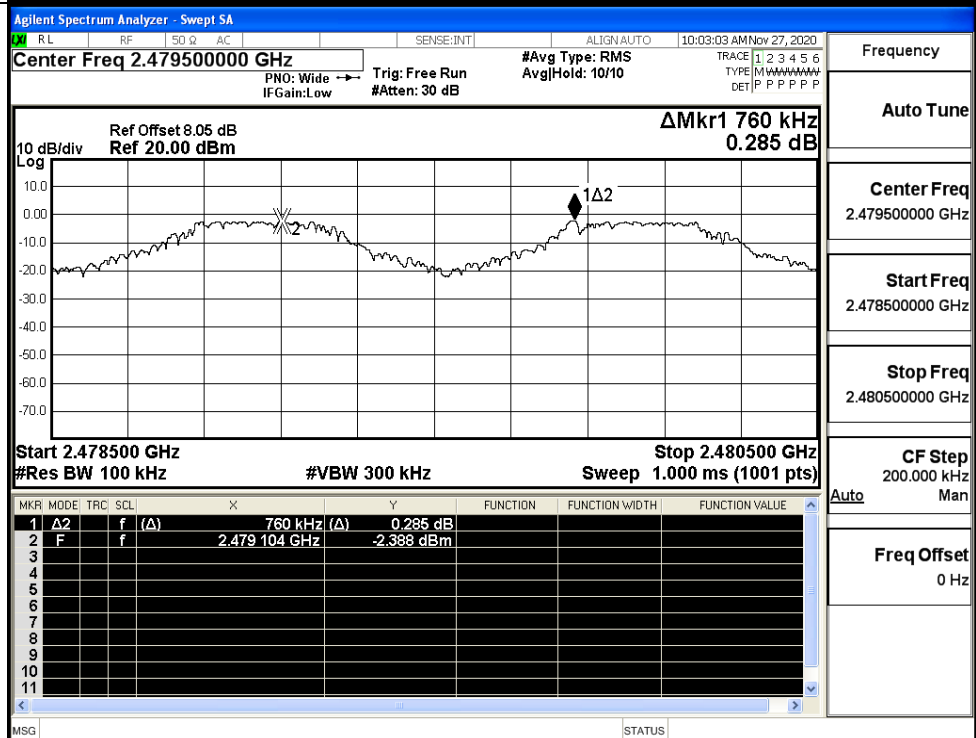
Test Graphs

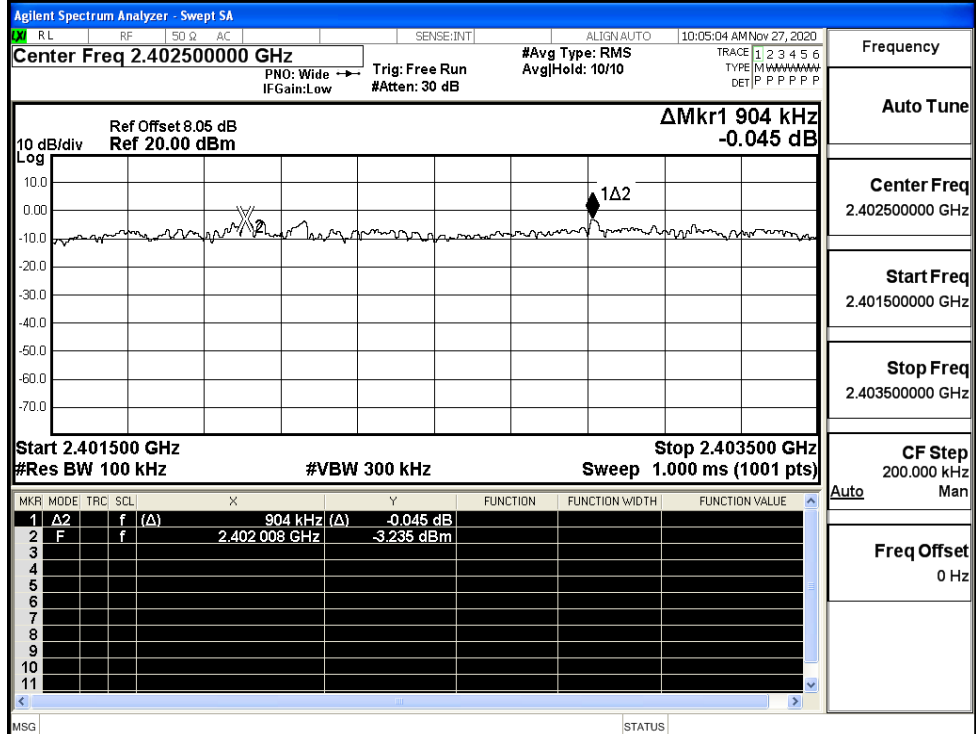
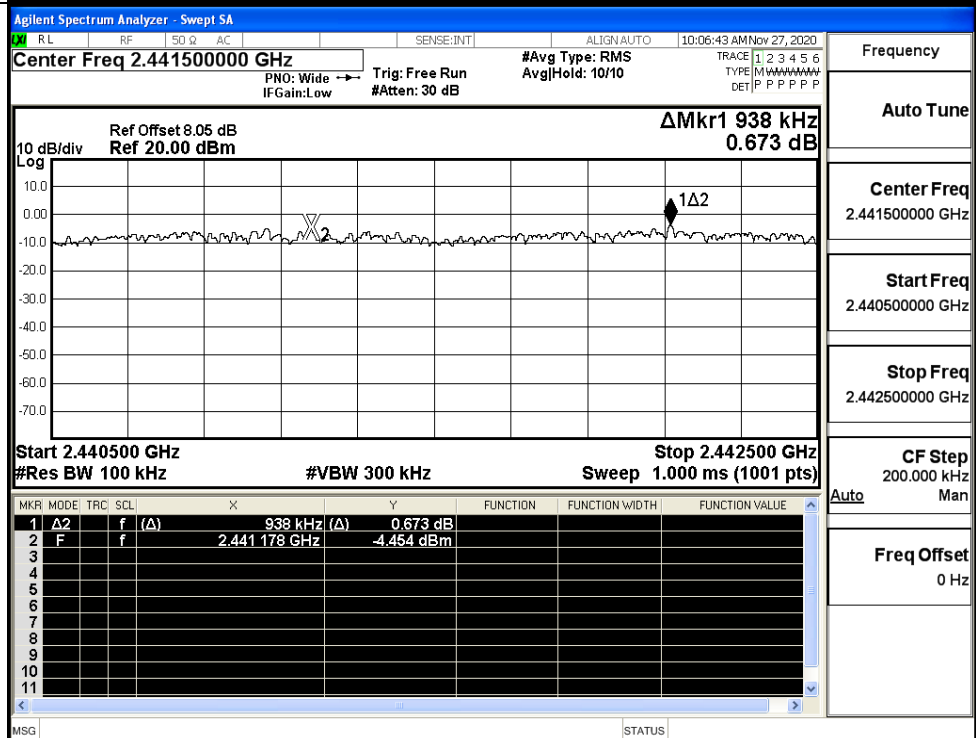


GFSK/MCH

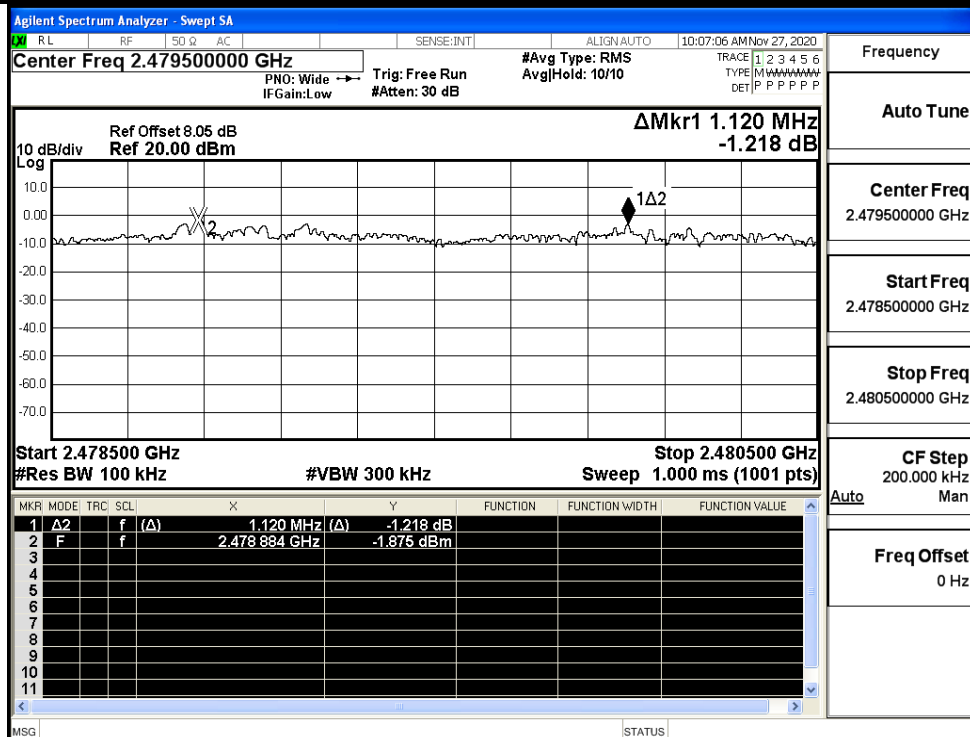


GFSK/HCH



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

π/4DQPSK/HCH

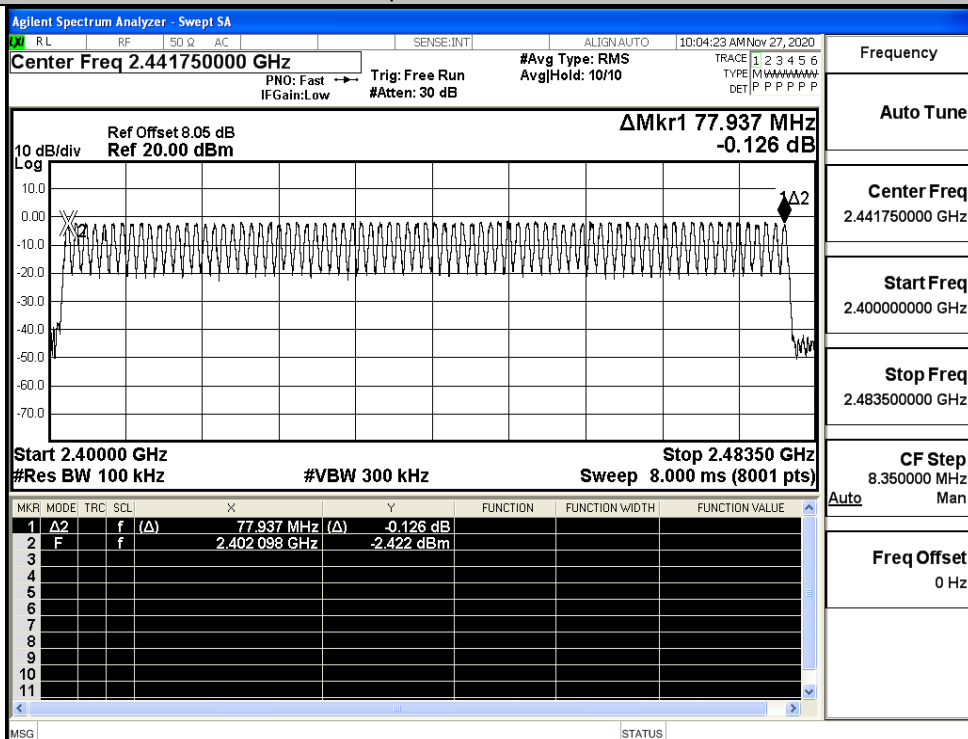
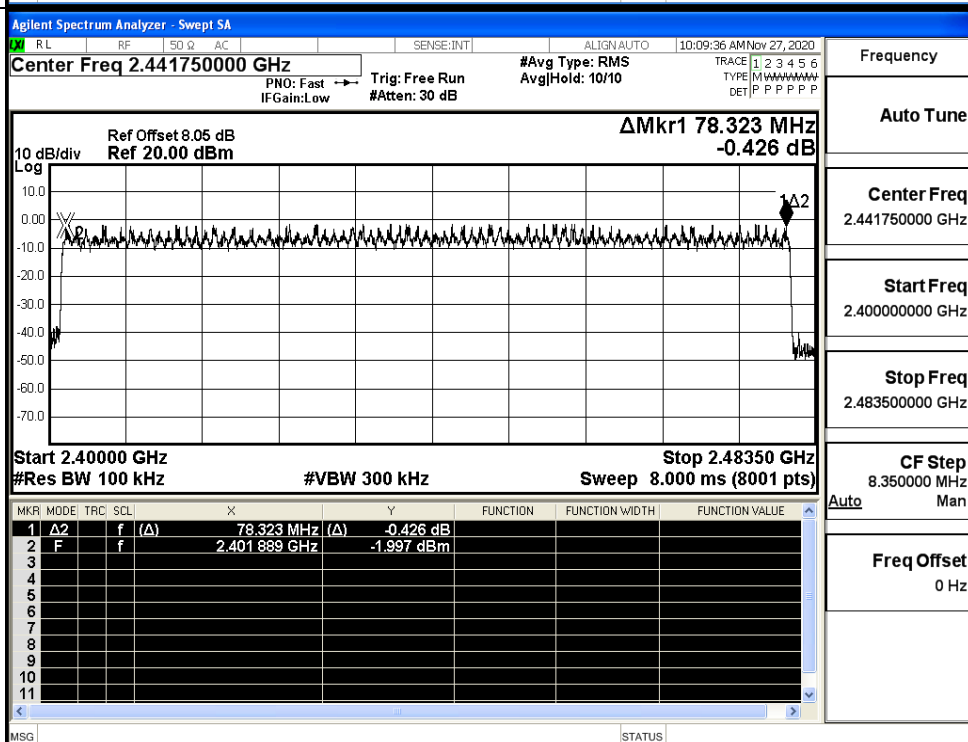


A.4 Hopping Channel Number

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

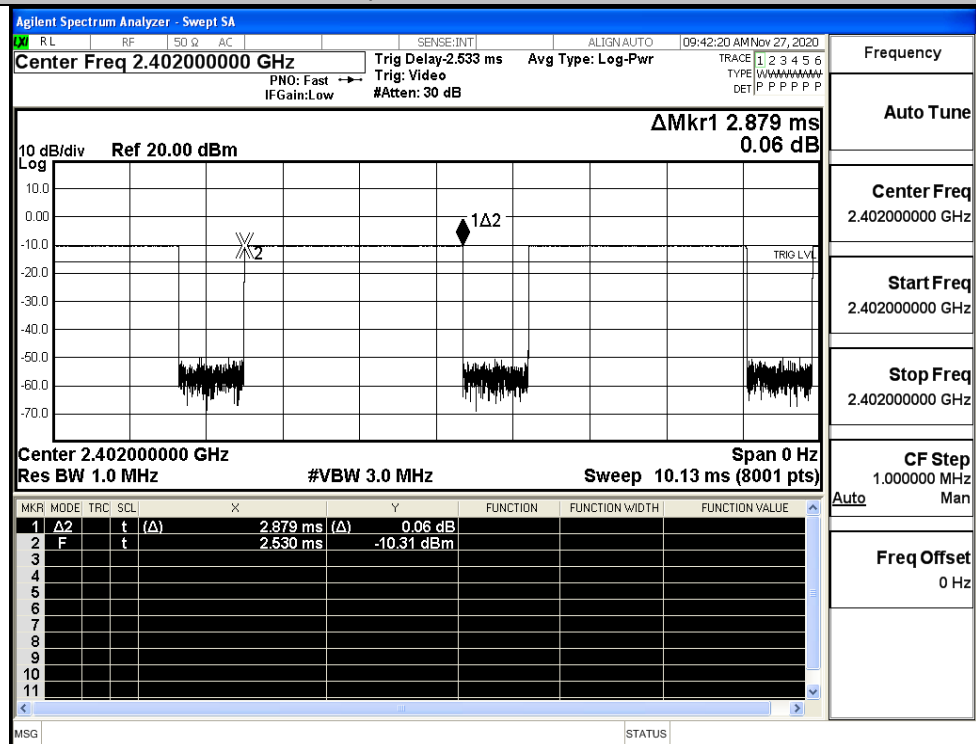
 $\pi/4$ DQPSK/Hop

A.5 Dwell Time

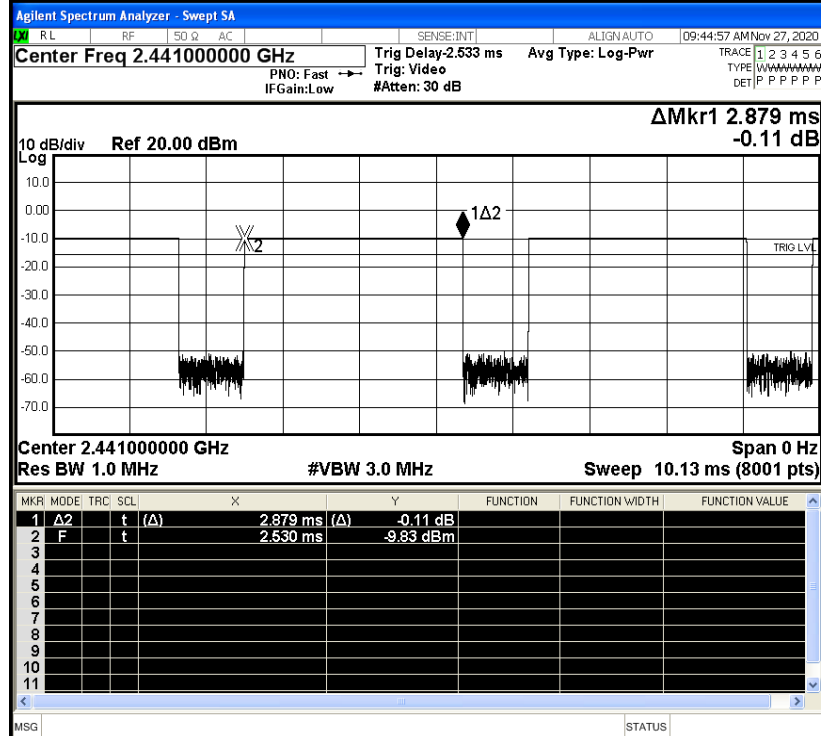
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.308	0.4	PASS
	2DH5	HCH	2.88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

Test Graphs

GFSK_DH5/LCH



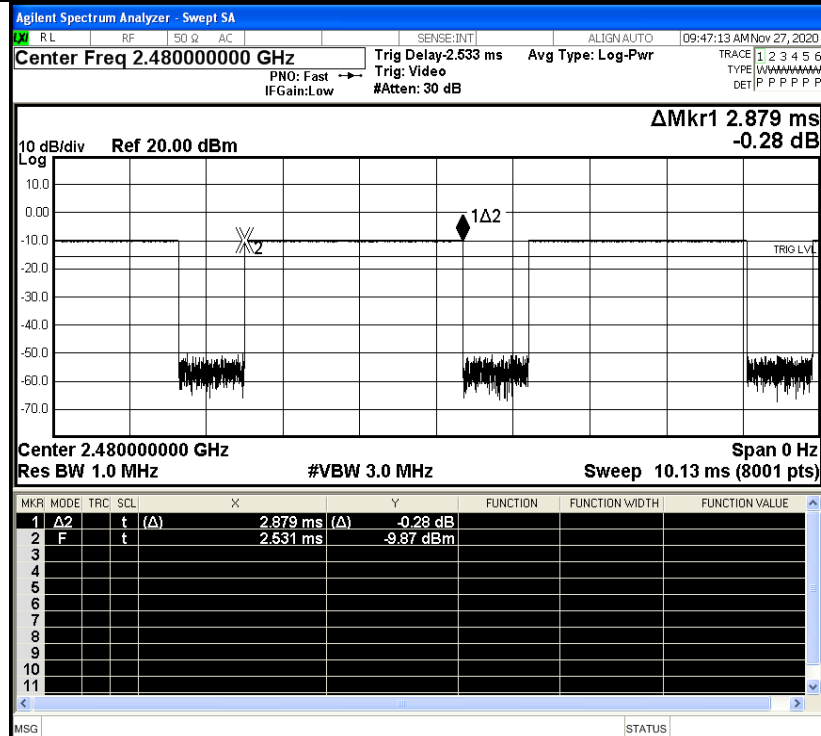
GFSK_DH5/MCH



Auto Tune

Center Freq
2.441000000 GHzStart Freq
2.441000000 GHzStop Freq
2.441000000 GHzCF Step
1.000000 MHz
Auto ManFreq Offset
0 Hz

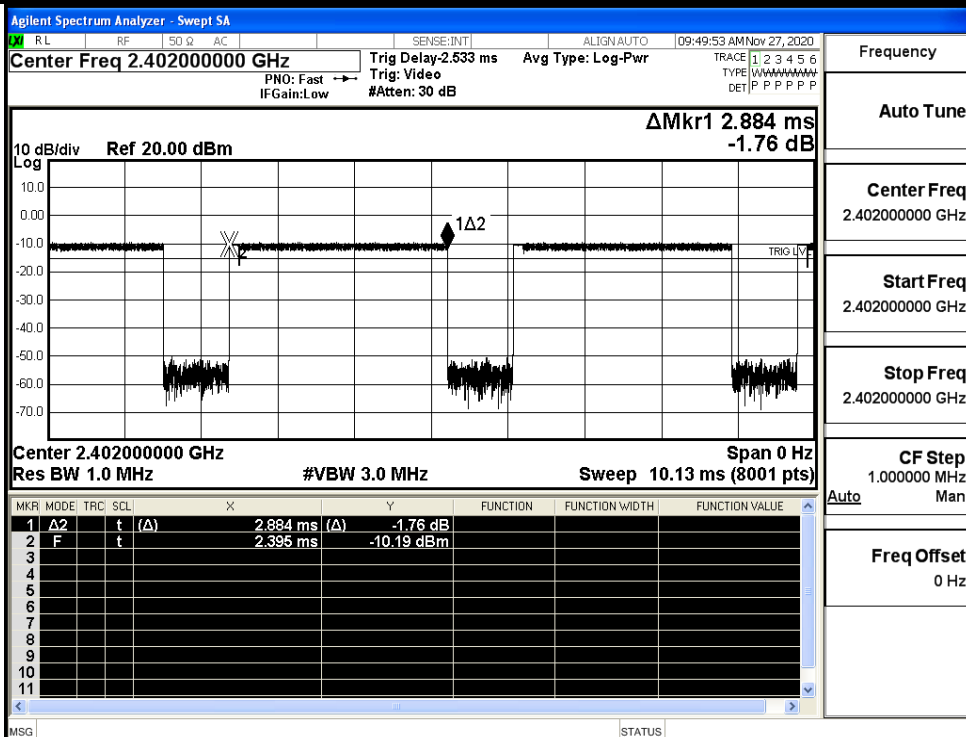
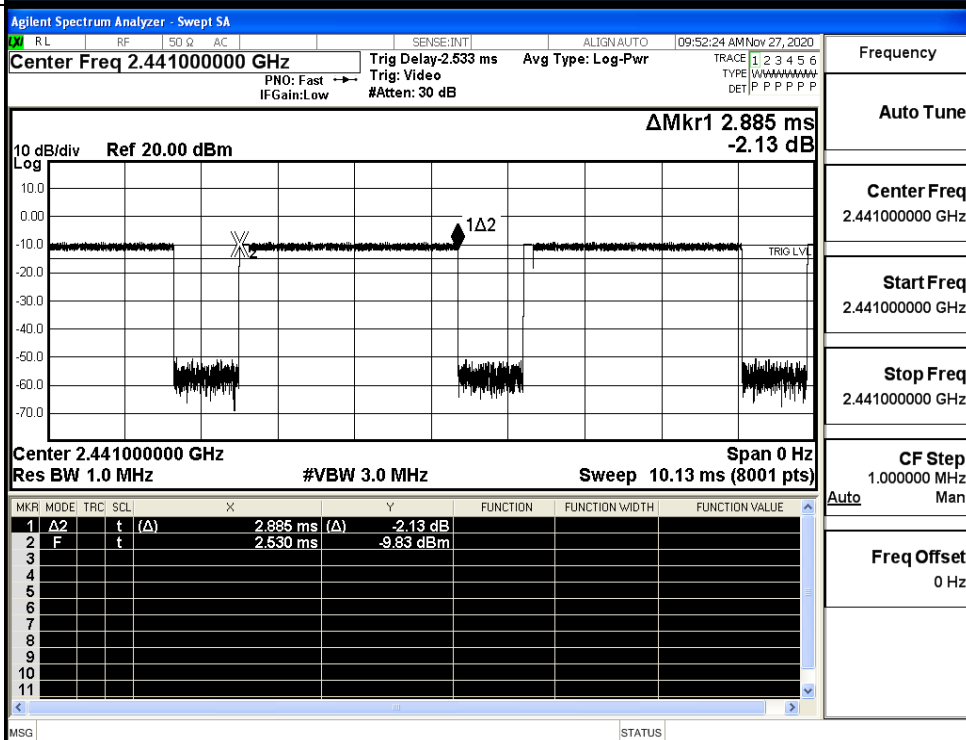
GFSK_DH5/HCH



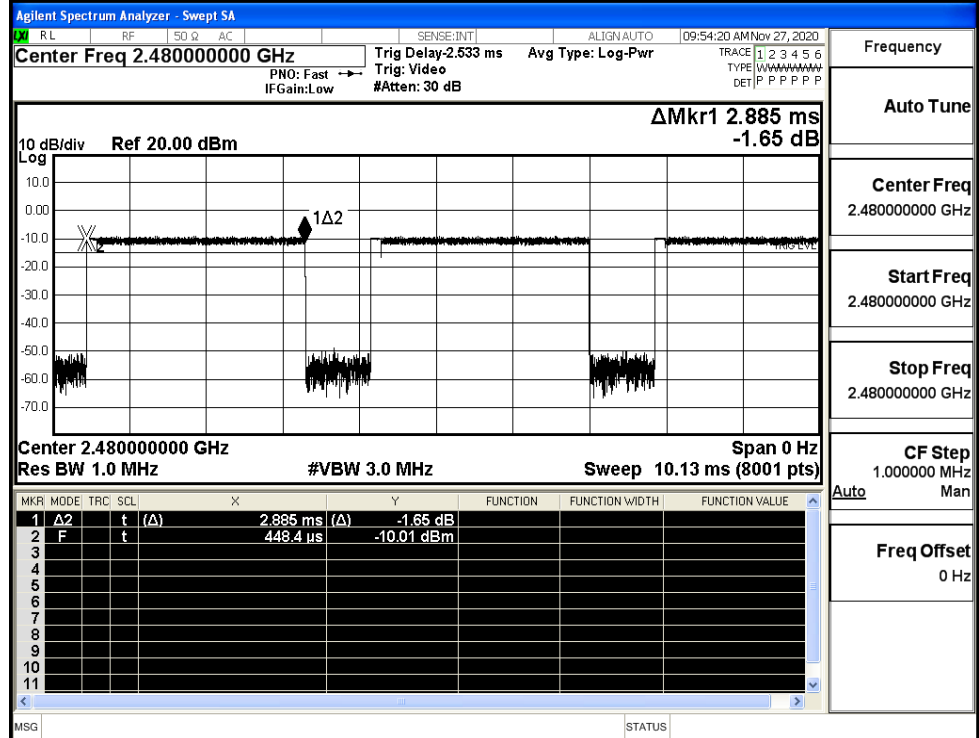
Frequency

Auto Tune

Center Freq
2.480000000 GHzStart Freq
2.480000000 GHzStop Freq
2.480000000 GHzCF Step
1.000000 MHz
Auto ManFreq Offset
0 Hz

π /4DQPSK
_2DH5/LCH π /4DQPSK
_2DH5/MCH

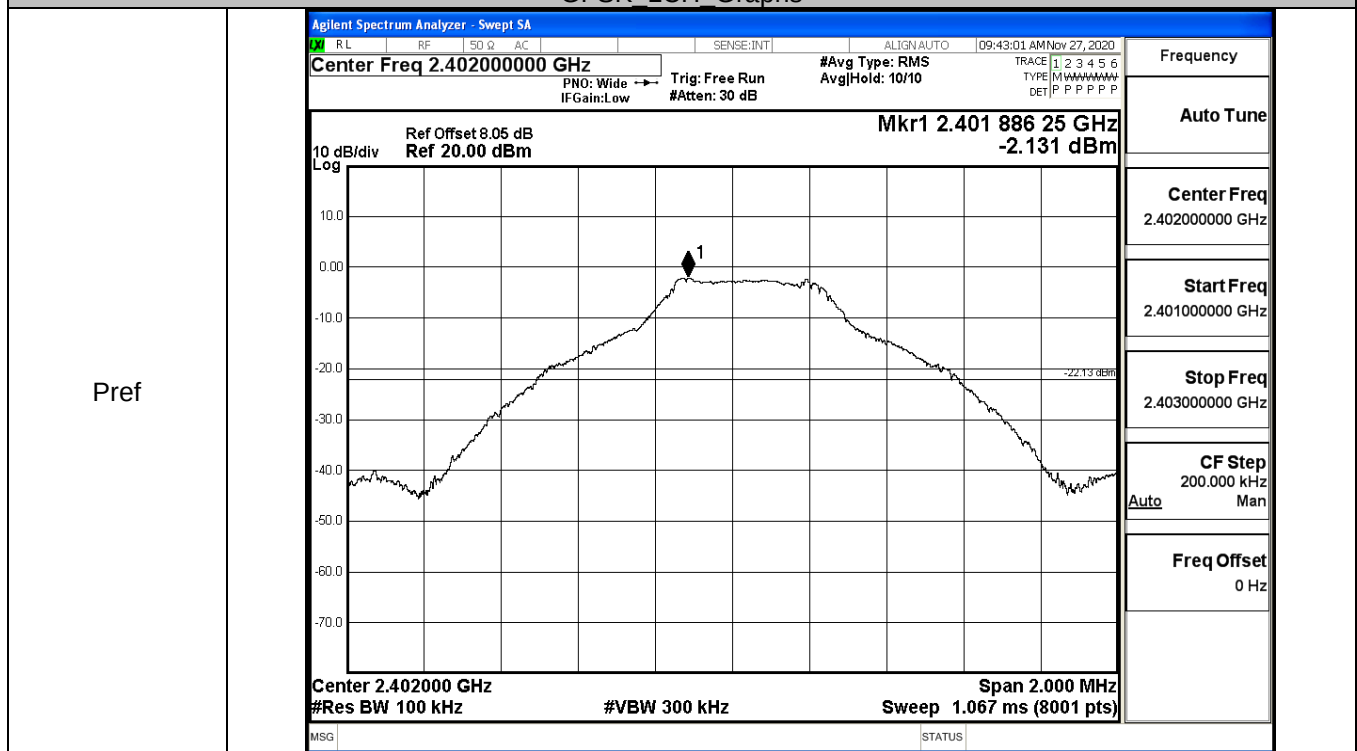
$\pi/4$ DQPSK
_2DH5/HCH



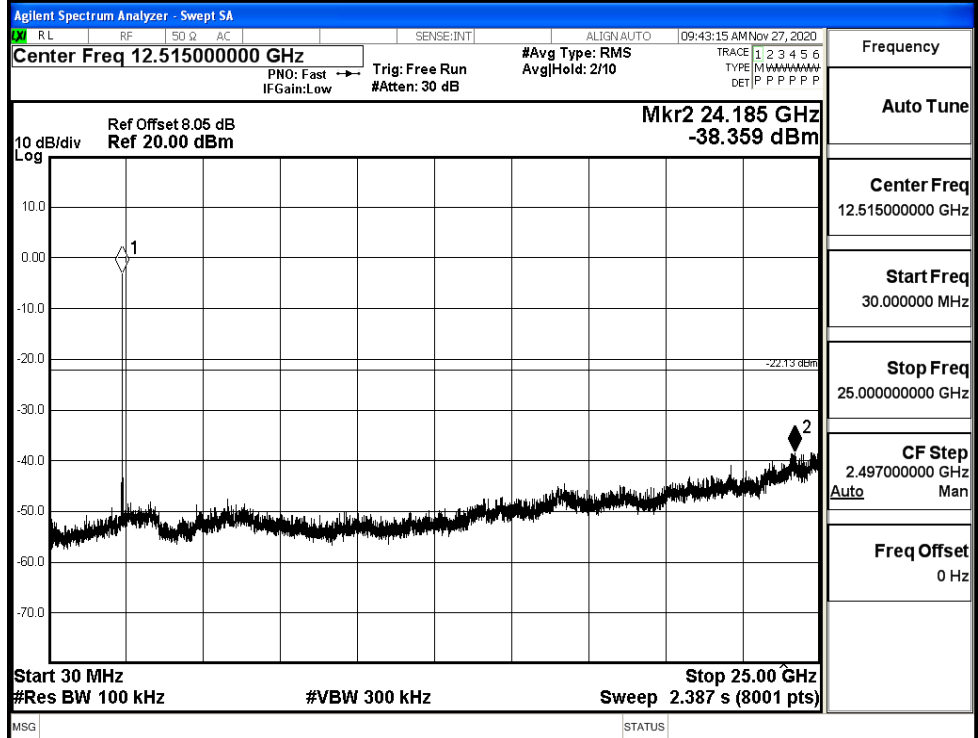
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-2.131	-38.359	-22.131	PASS
	MCH	-1.862	-37.345	-21.862	PASS
	HCH	-1.936	-37.472	-21.936	PASS
$\pi/4$ DQPSK	LCH	-2.213	-37.490	-22.213	PASS
	MCH	-1.8	-37.281	-21.800	PASS
	HCH	-1.819	-37.994	-21.819	PASS

GFSK LCH Graphs

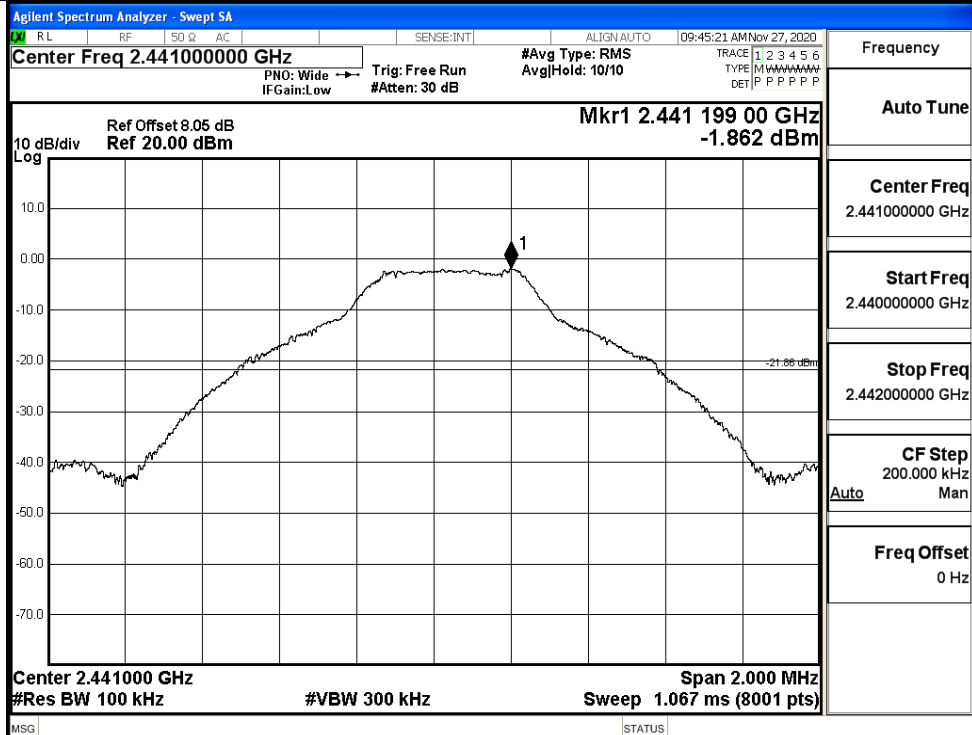


Puw

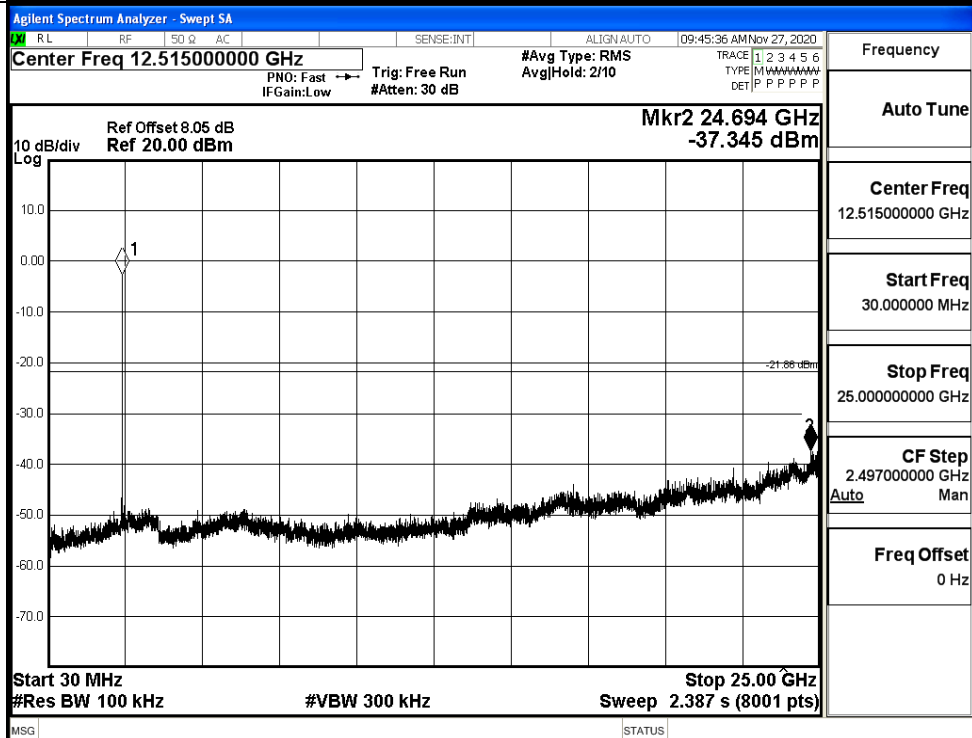


GFSK_MCH_Graphs

Pref

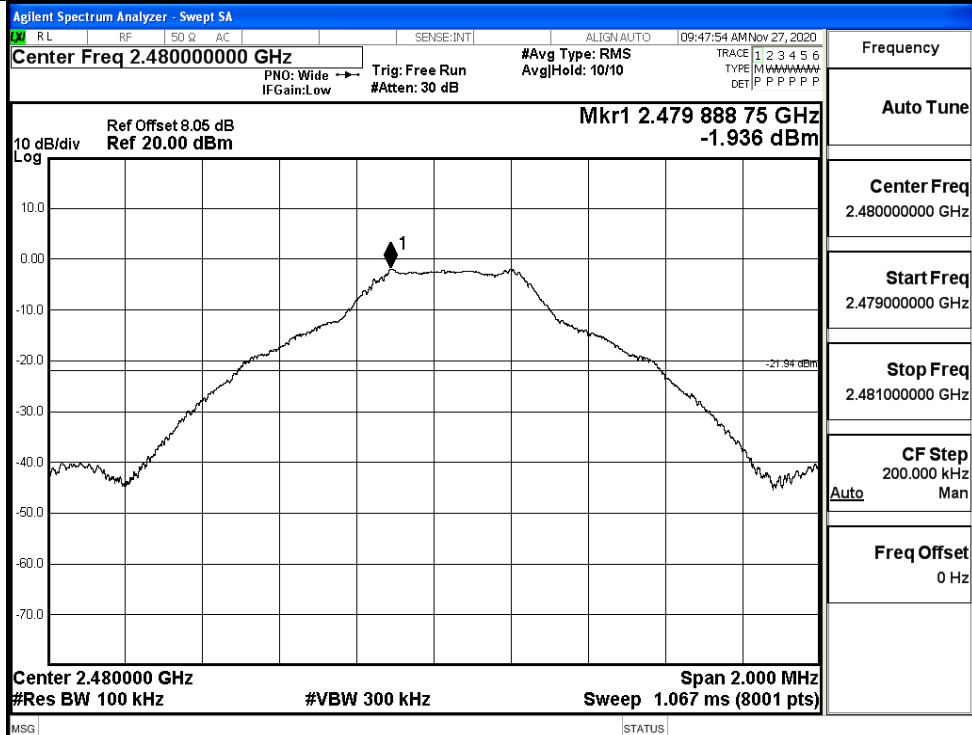


Puw

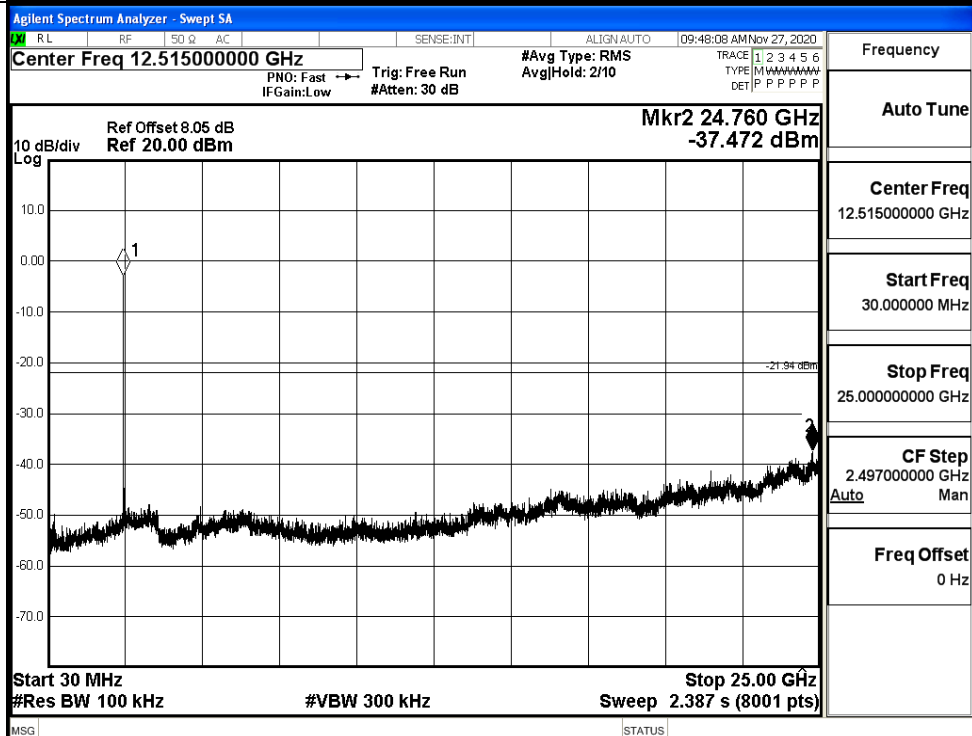


GFSK_HCH_Graphs

Pref

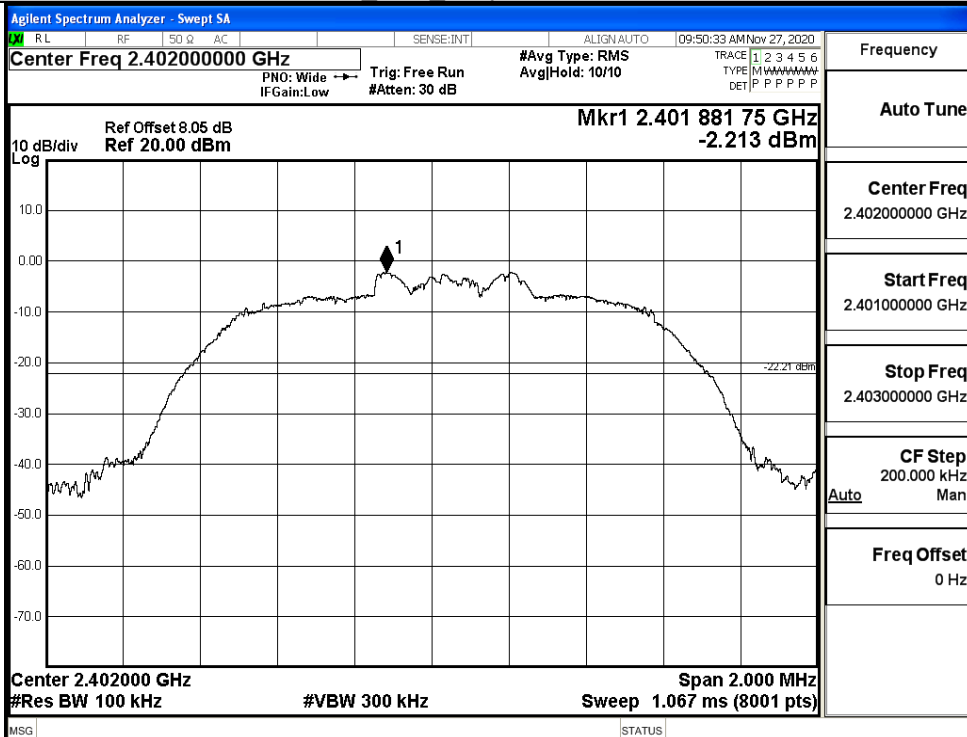


Puw

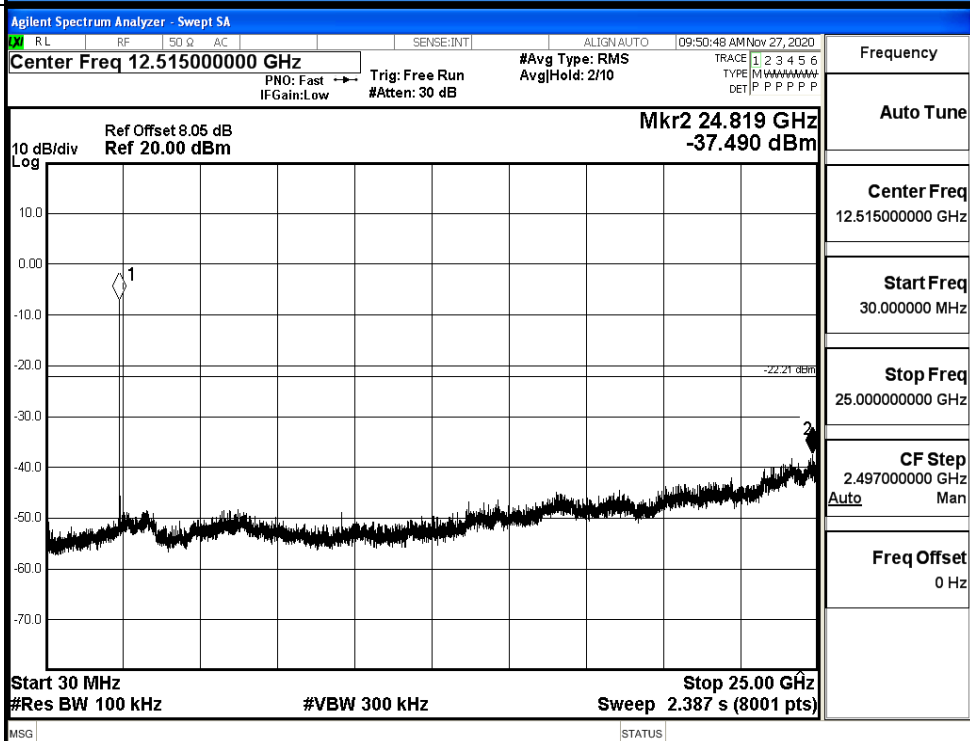


π /4DQPSK LCH_Graphs

Pref

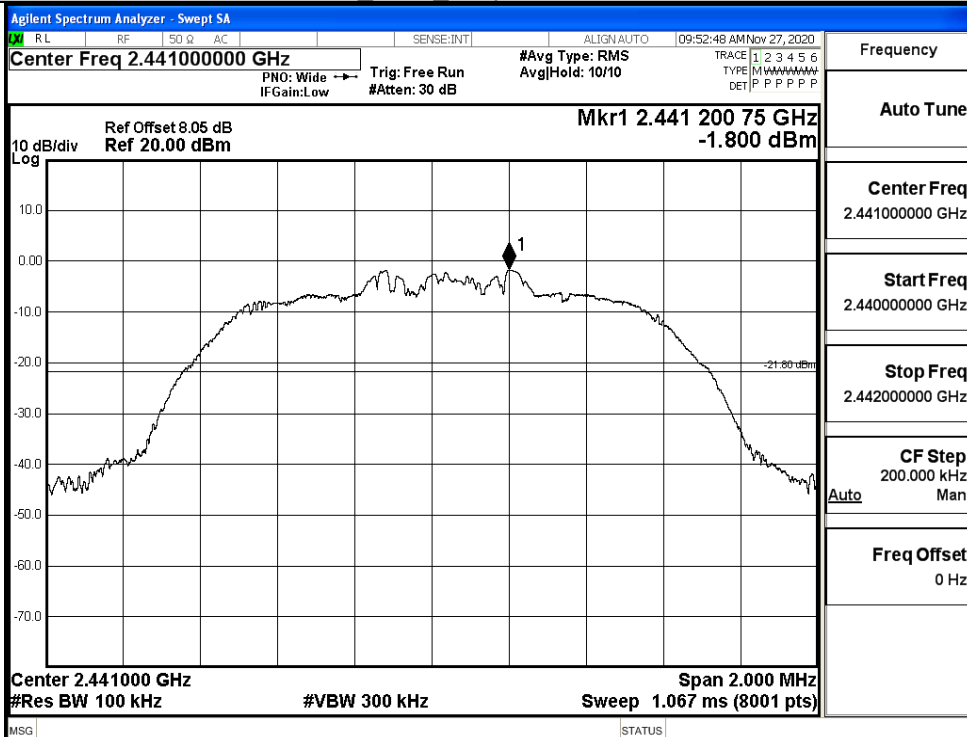


Puw

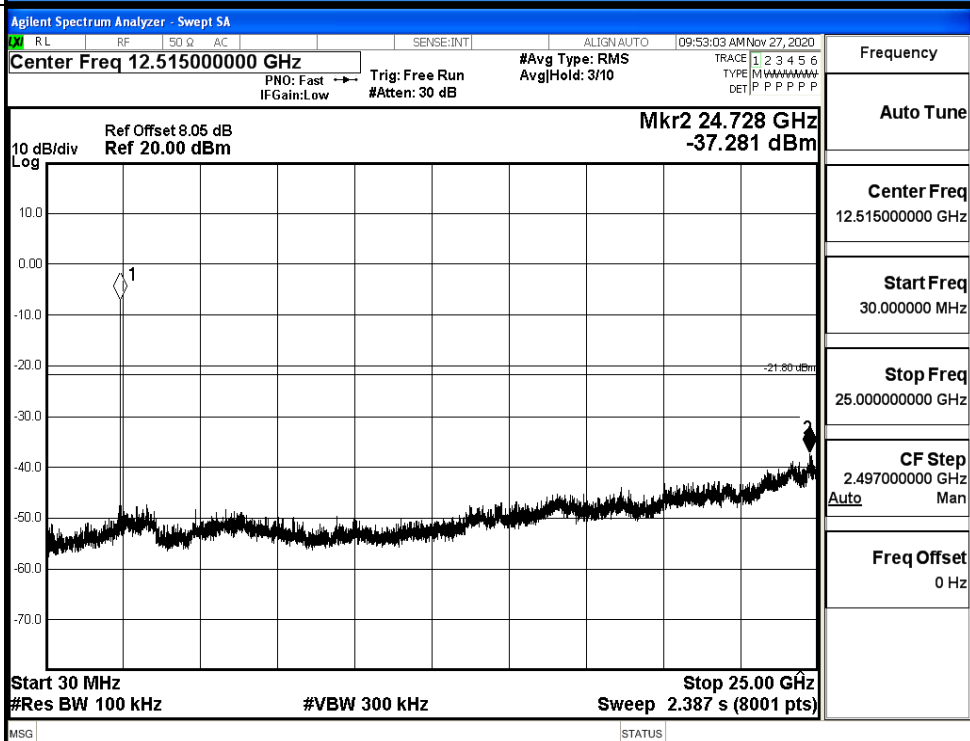


π /4DQPSK MCH Graphs

Pref

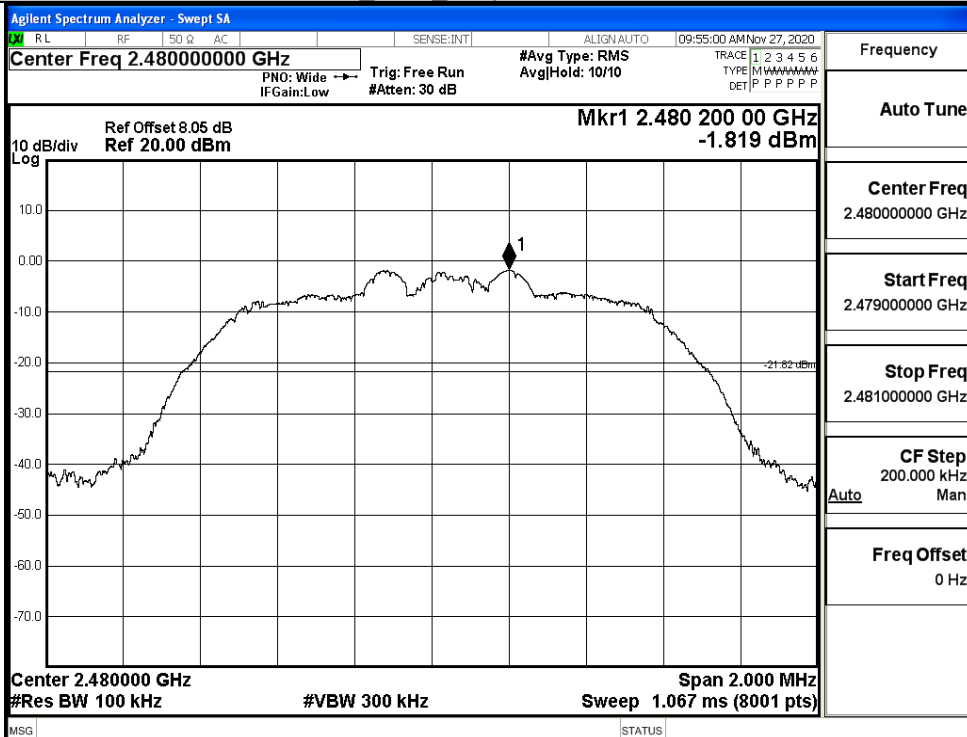


Puw

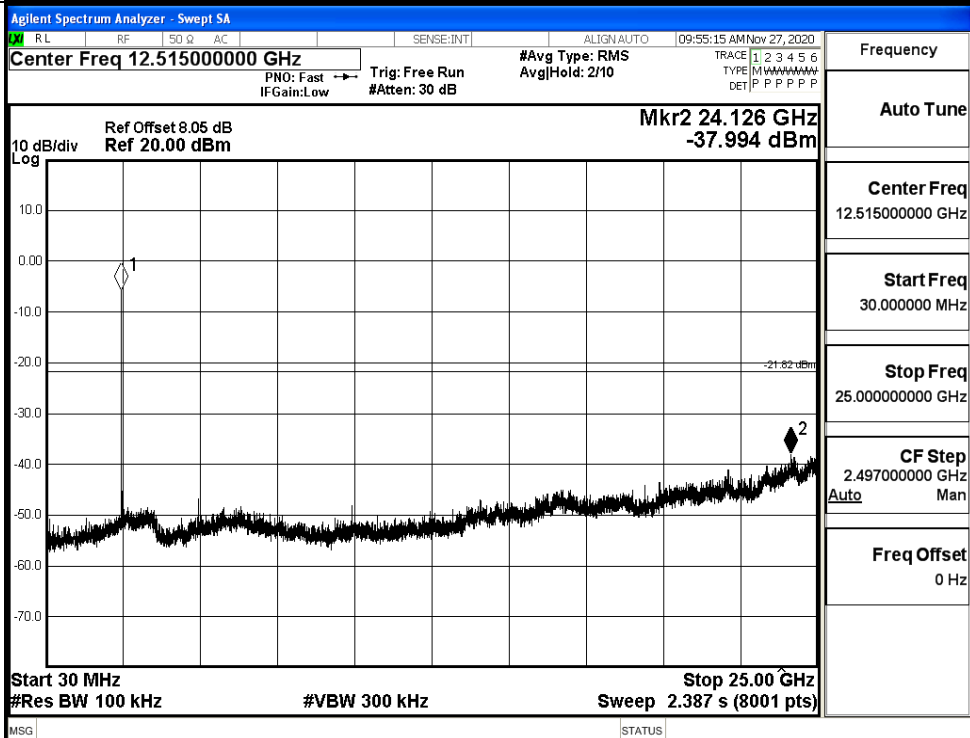


π /4DQPSK HCH Graphs

Pref



Puw

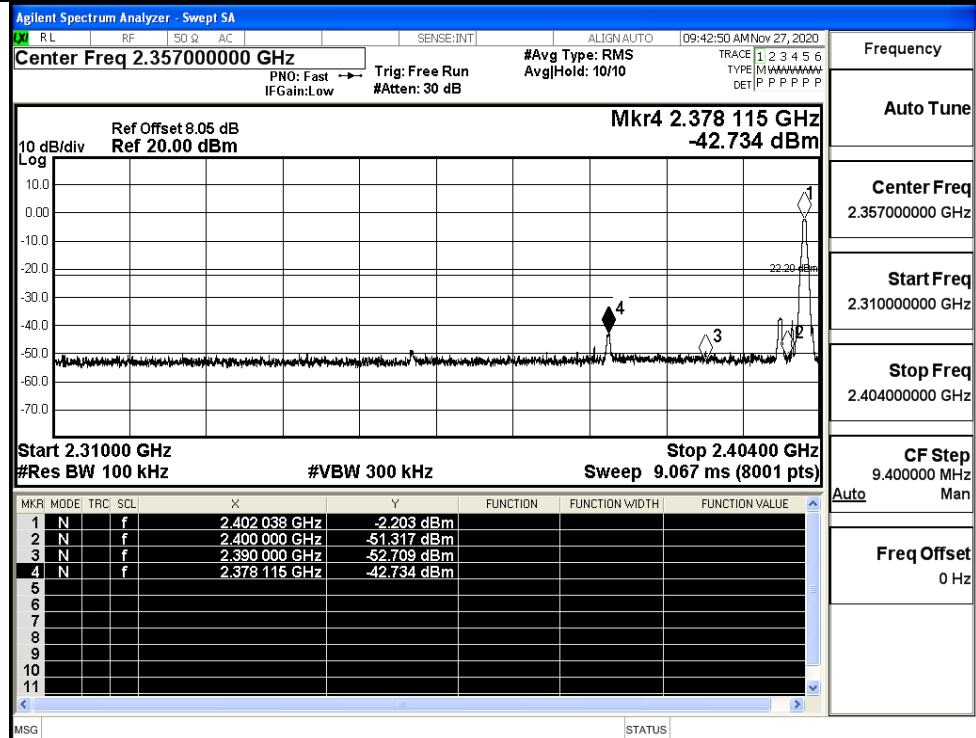


A.7 Band-edge for RF Conducted Emissions

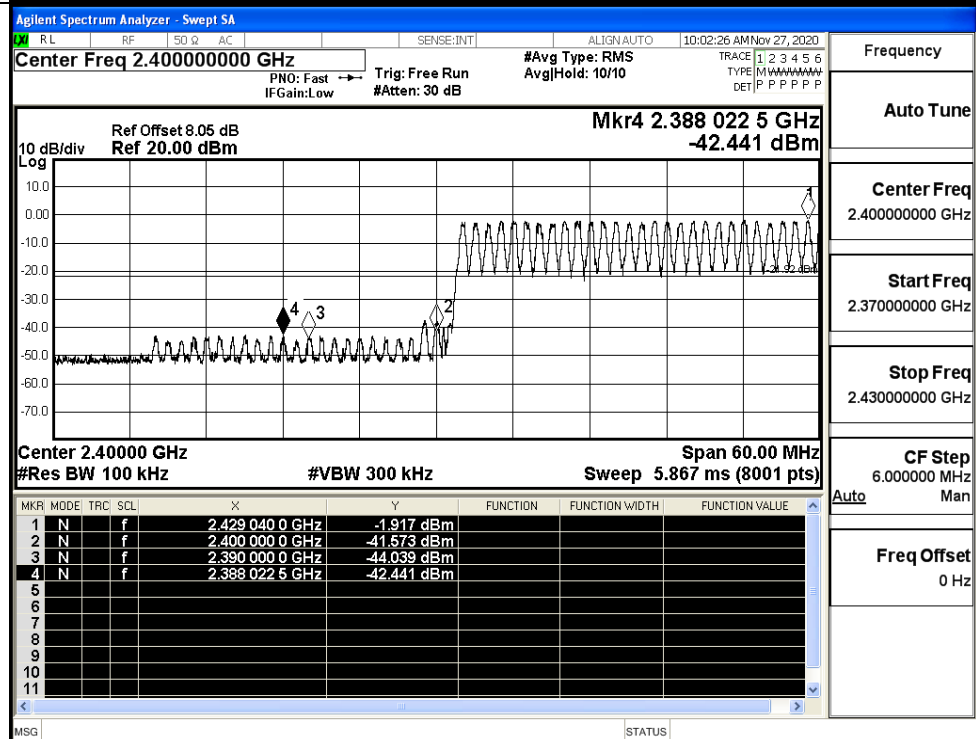
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-2.203	Off	-42.734	-22.2	PASS
			-1.917	On	-42.441	-21.92	PASS
	HCH	2480	-1.998	Off	-41.672	-22	PASS
			-1.835	On	-42.290	-21.84	PASS
π /4DQPSK	LCH	2402	-2.427	Off	-42.814	-22.43	PASS
			-1.729	On	-42.086	-21.73	PASS
	HCH	2480	-1.760	Off	-40.958	-21.76	PASS
			-1.646	On	-42.132	-21.65	PASS

Test Graphs

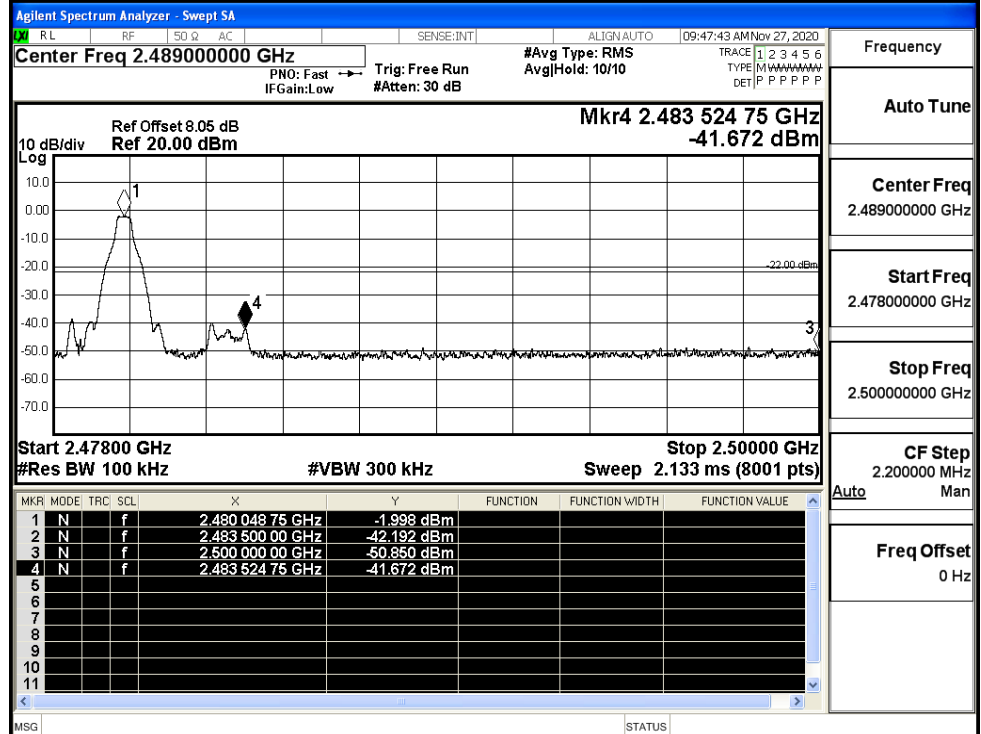
GFSK/LCH/No Hop



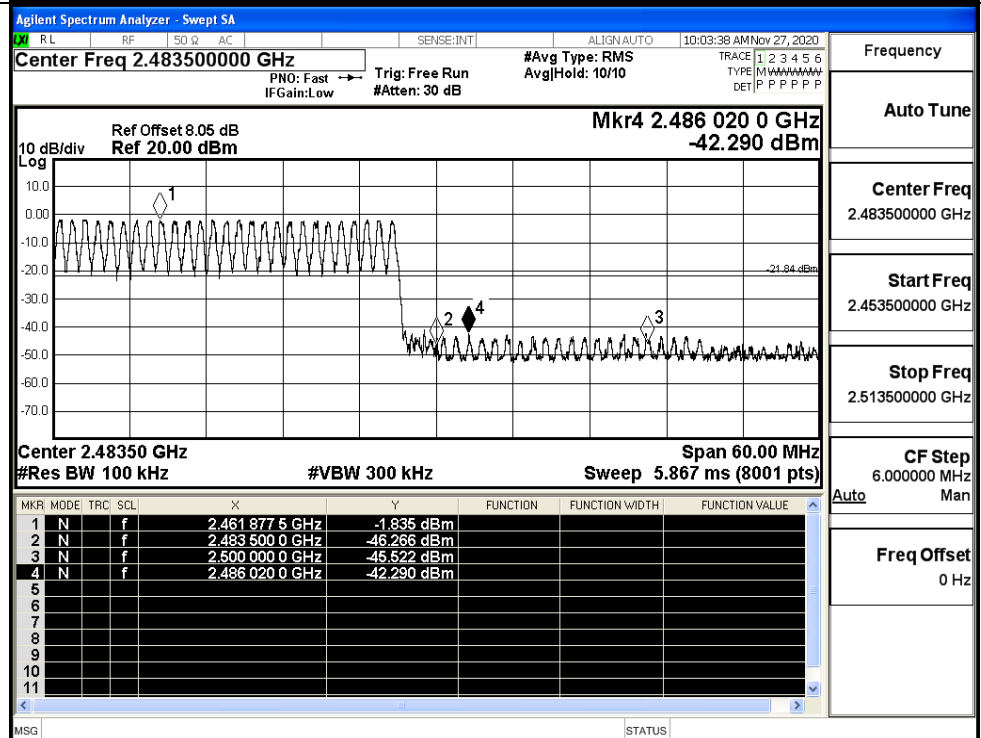
GFSK/LCH/Hop



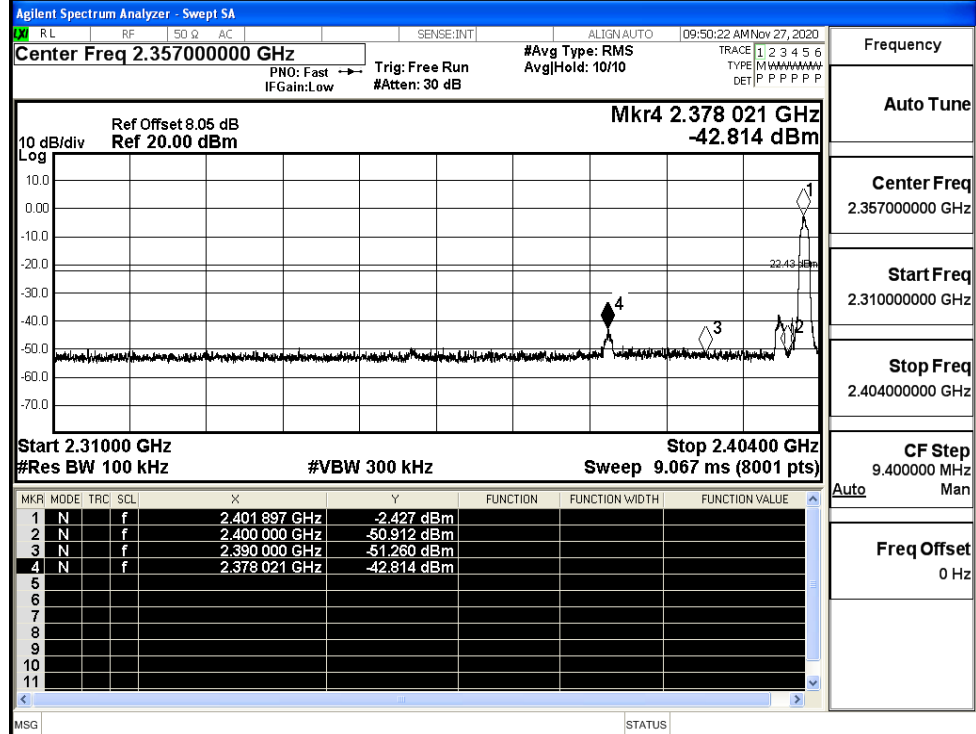
GFSK/HCH/No Hop



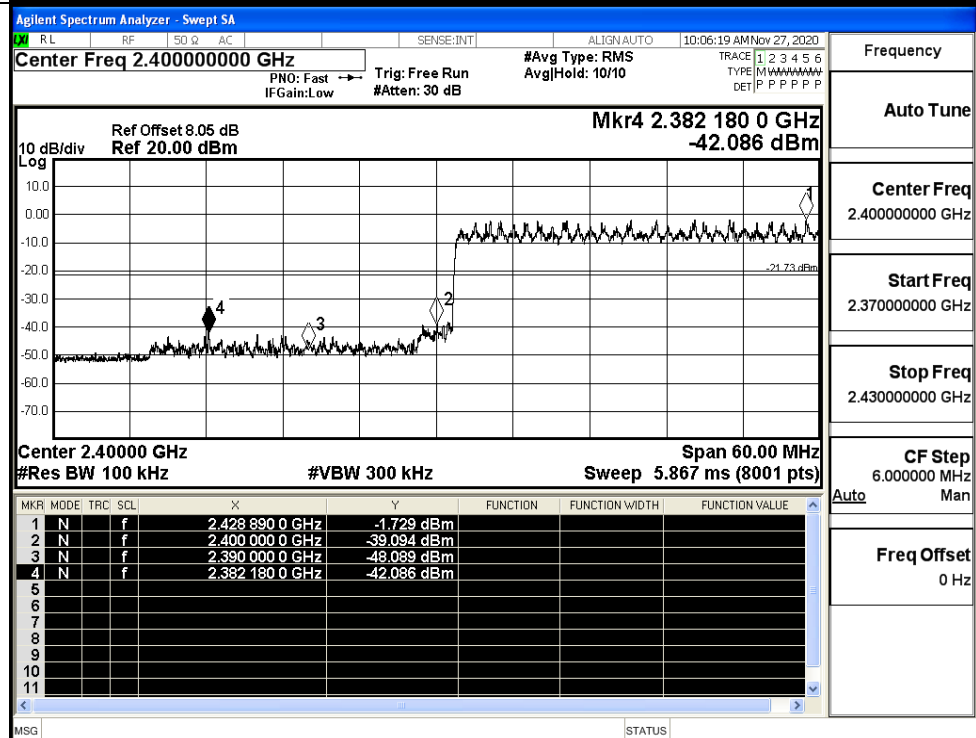
GFSK/HCH/Hop



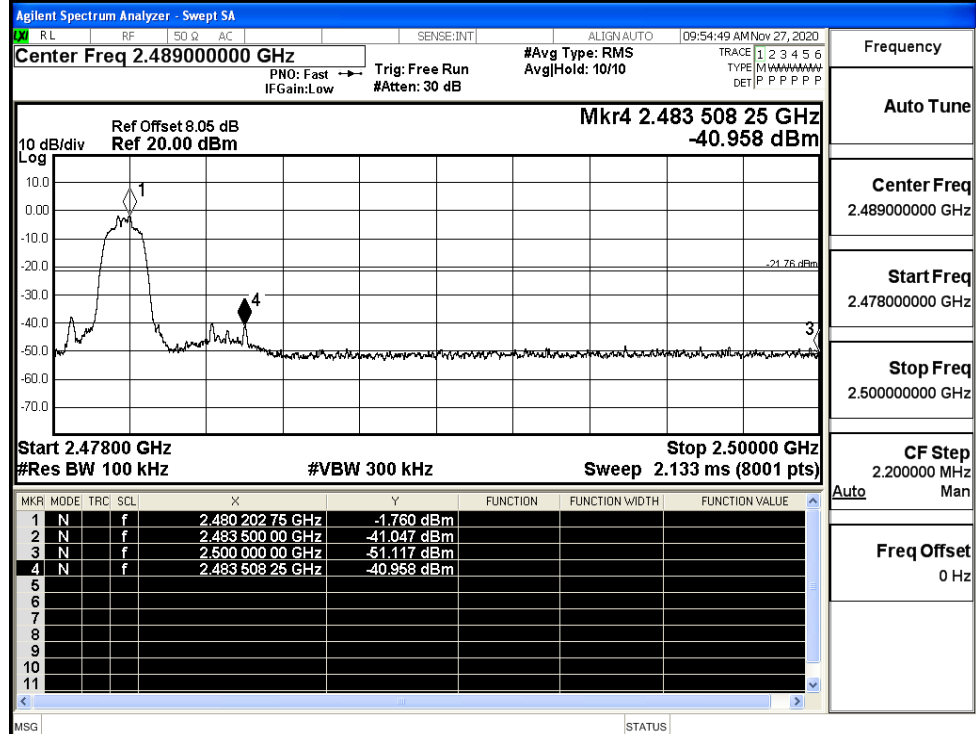
$\pi/4$ DQPSK/LCH/No
Hop



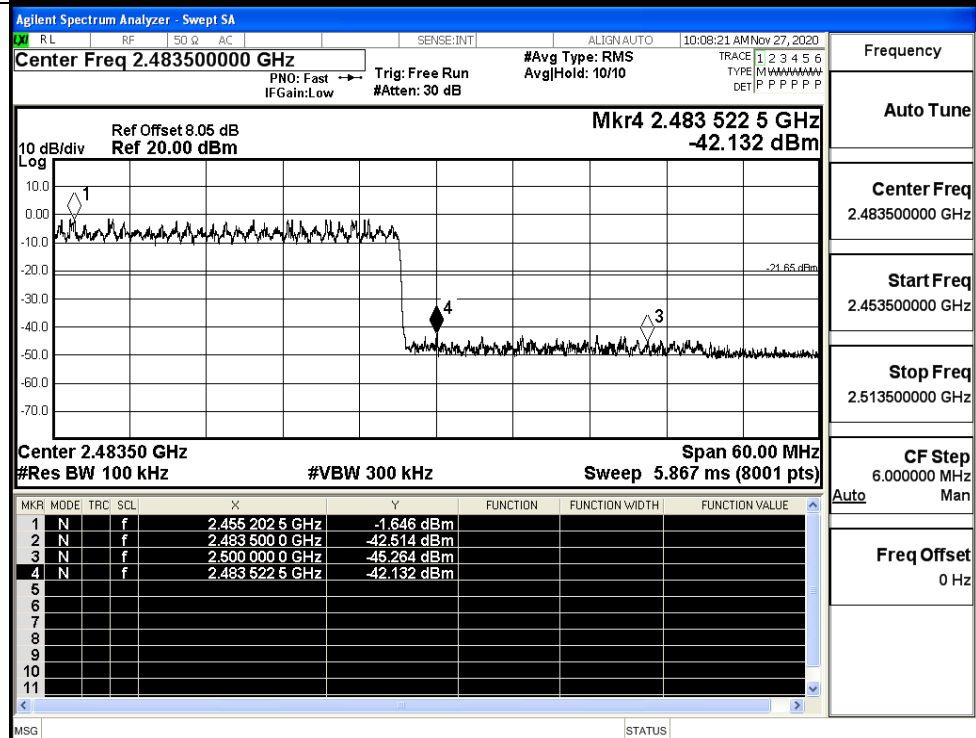
$\pi/4$ DQPSK/LCH/Hop



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



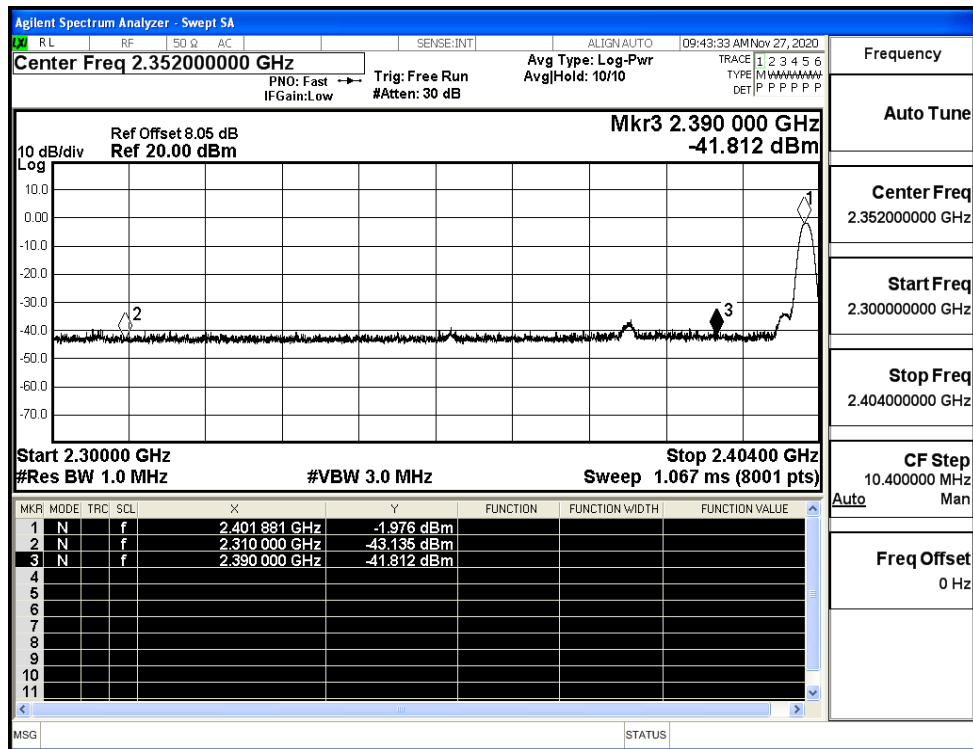
$\pi/4$ DQPSK/HCH/Hop



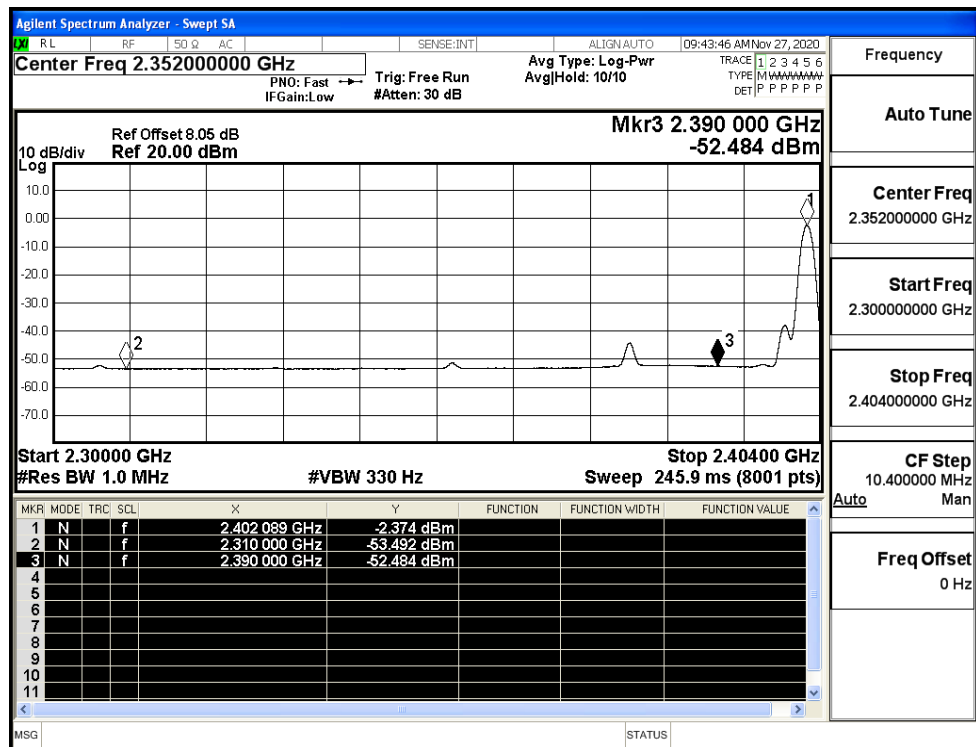
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.14	2.0	0	54.12	PEAK	74	PASS
	Off	2310.0	-53.49	2.0	0	43.77	AV	54	PASS
	Off	2390.0	-41.81	2.0	0	55.45	PEAK	74	PASS
	Off	2390.0	-52.48	2.0	0	44.77	AV	54	PASS
	Off	2483.5	-36.93	2.0	0	60.33	PEAK	74	PASS
	Off	2483.5	-44.75	2.0	0	52.51	AV	54	PASS
	Off	2500.0	-41.24	2.0	0	56.02	PEAK	74	PASS
	Off	2500.0	-51.61	2.0	0	45.65	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.06	2.0	0	54.20	PEAK	74	PASS
	Off	2310.0	-53.45	2.0	0	43.81	AV	54	PASS
	Off	2390.0	-42.17	2.0	0	55.09	PEAK	74	PASS
	Off	2390.0	-52.47	2.0	0	44.79	AV	54	PASS
	Off	2483.5	-37.62	2.0	0	59.64	PEAK	74	PASS
	Off	2483.5	-47.54	2.0	0	49.72	AV	54	PASS
	Off	2500.0	-39.44	2.0	0	57.82	PEAK	74	PASS
	Off	2500.0	-51.55	2.0	0	45.71	AV	54	PASS

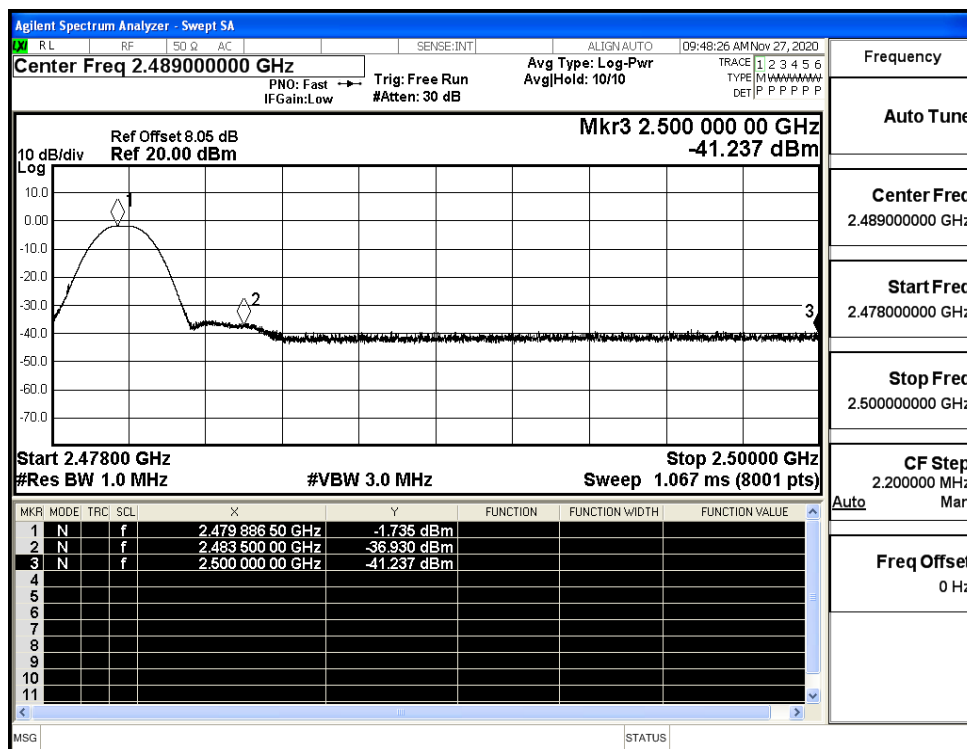
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



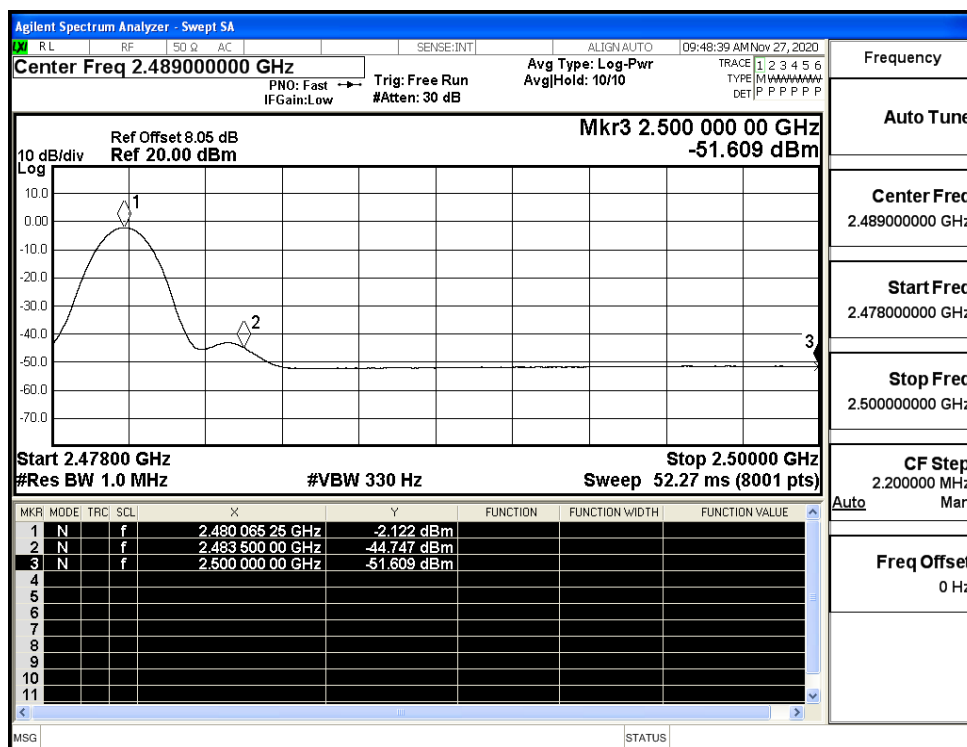
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



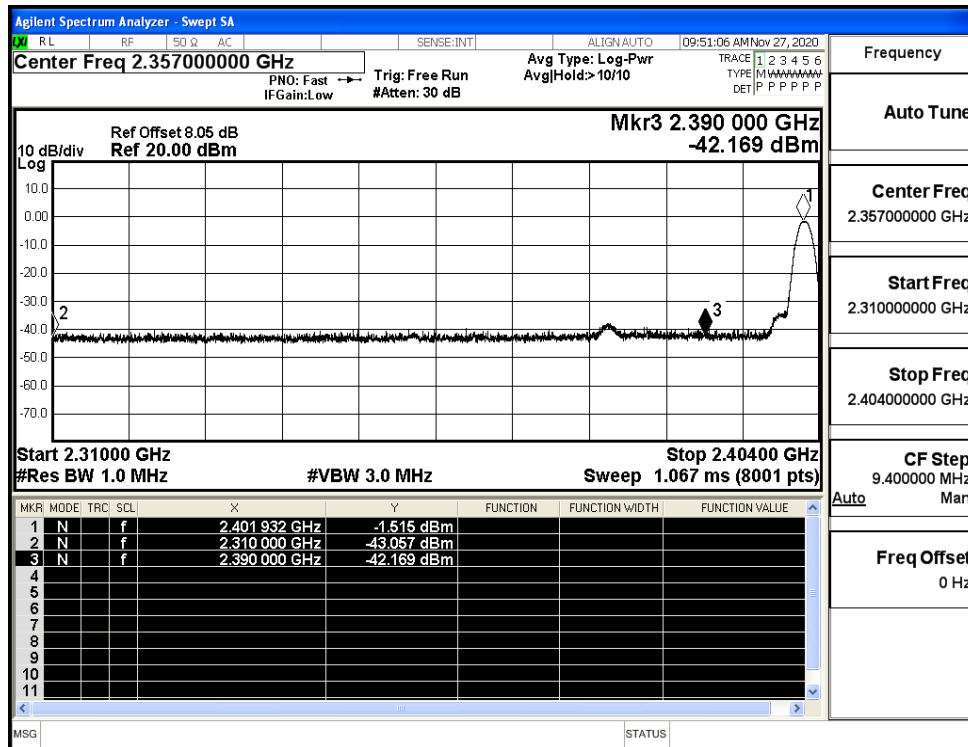
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



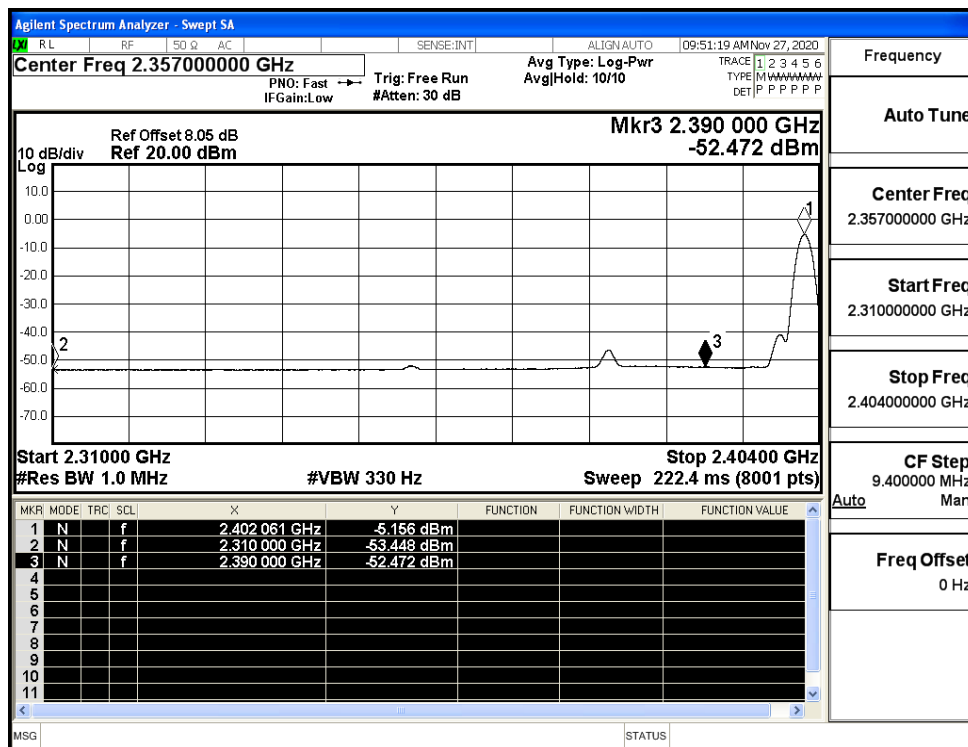
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



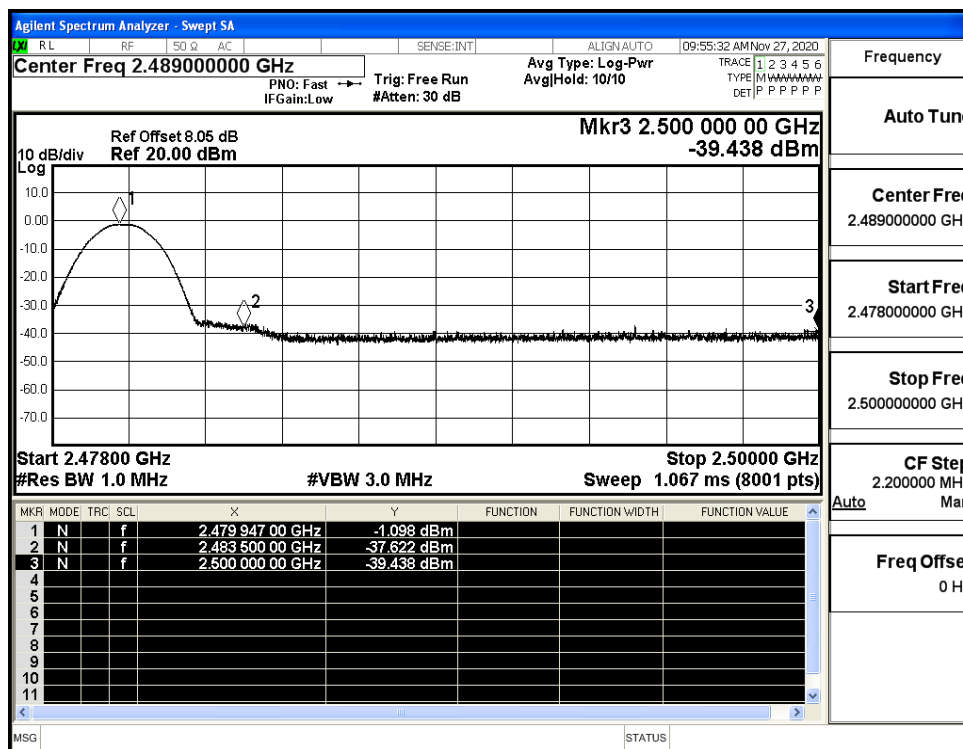
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



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)

