

Appendix A

RF Test Data for BT V4.2 (BDR/EDR) (Conducted Measurement)

Product Name: AUDIO BLUETOOTH MODULE

Trade Mark: N/A

Test Model: 710005958

Environmental Conditions

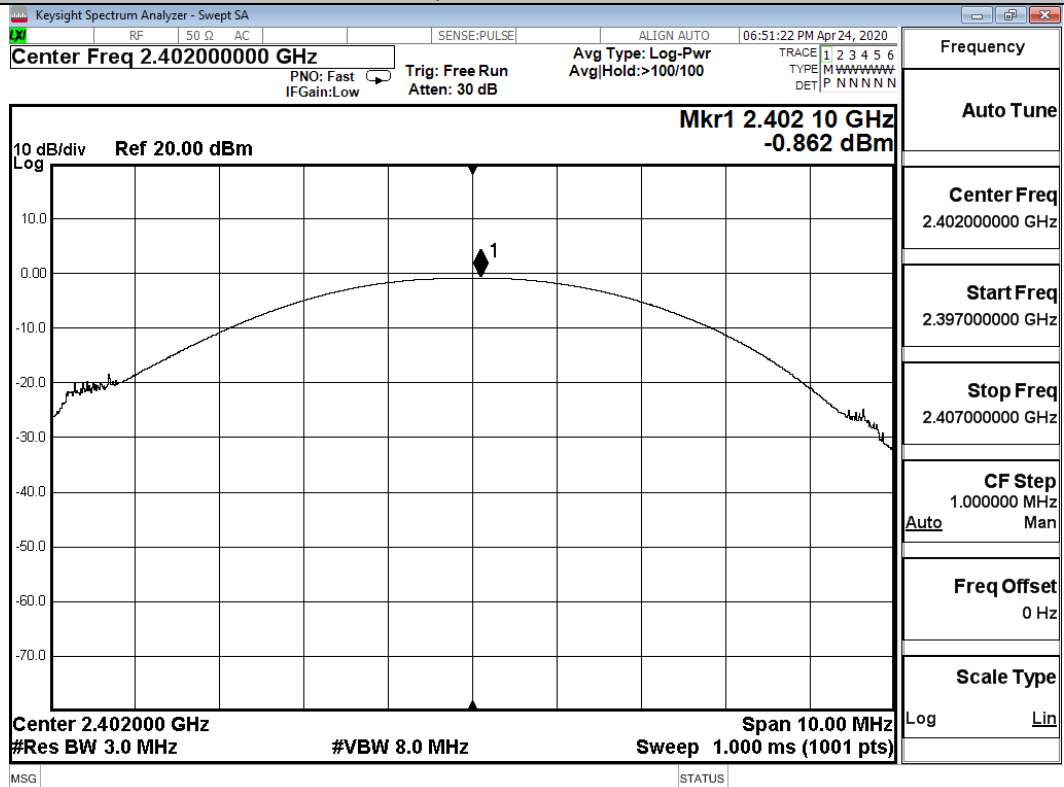
Temperature:	23.5° C
Relative Humidity:	54%
ATM Pressure:	100.0 kPa
Test Engineer:	Chuang Wang
Supervised by:	Jayden Zhuo

A.1 Maximum Conducted Peak Output Power

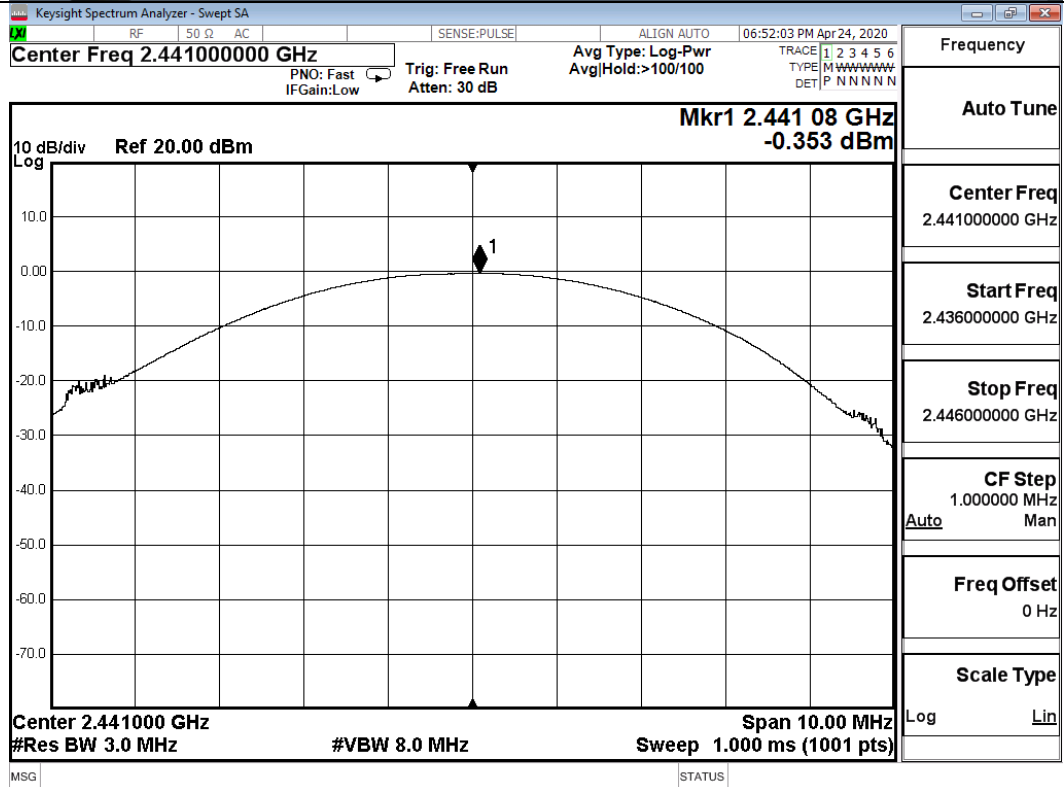
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.862	21	PASS
	MCH	-0.353	21	PASS
	HCH	-3.915	21	PASS
$\pi/4$ DQPSK	LCH	0.029	21	PASS
	MCH	0.699	21	PASS
	HCH	-2.735	21	PASS

Test Graphs

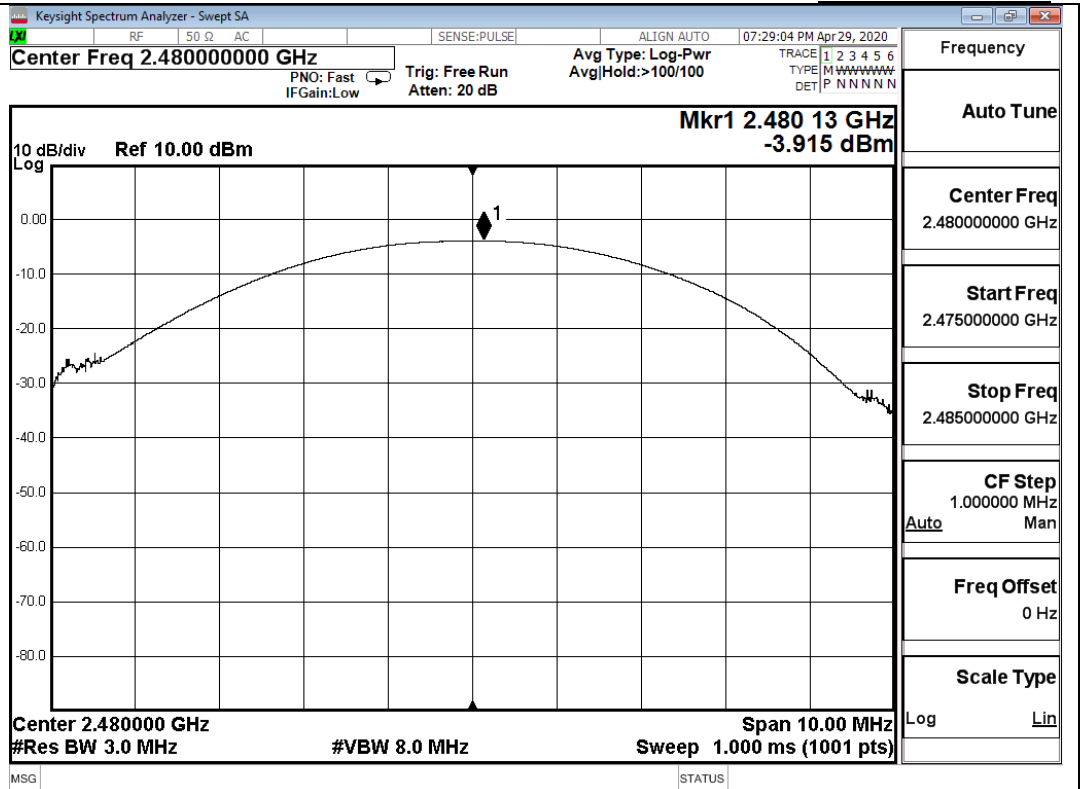
GFSK/LCH



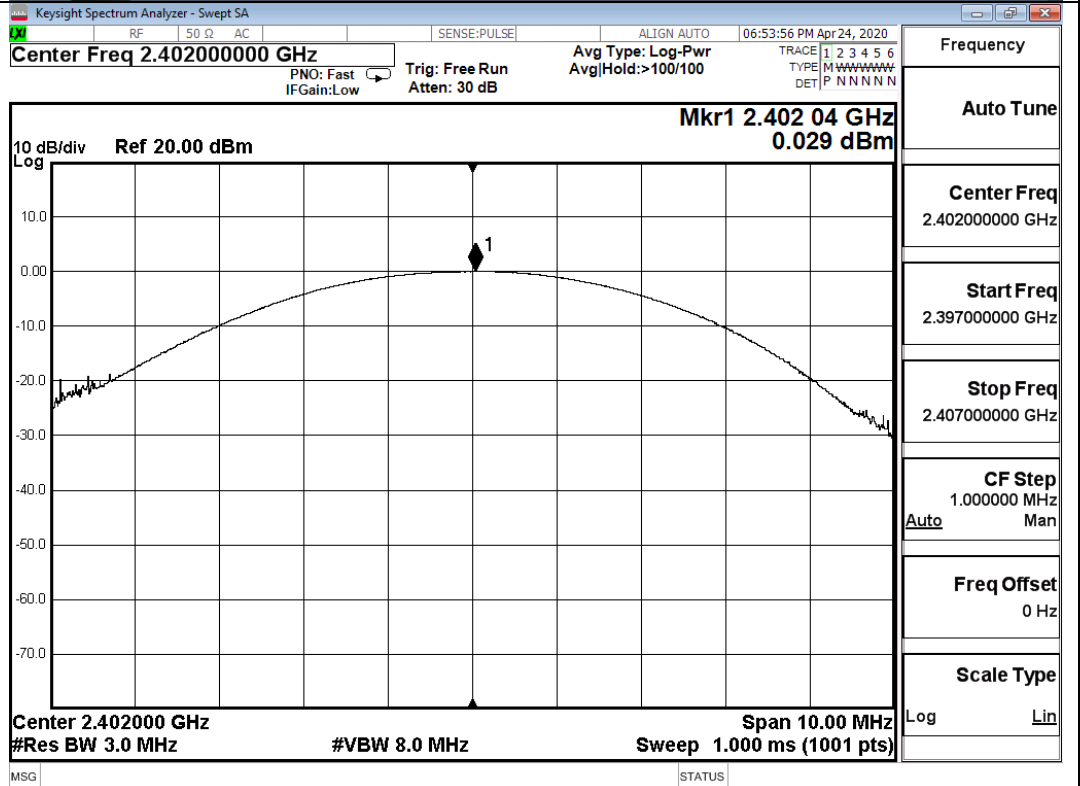
GFSK/MCH



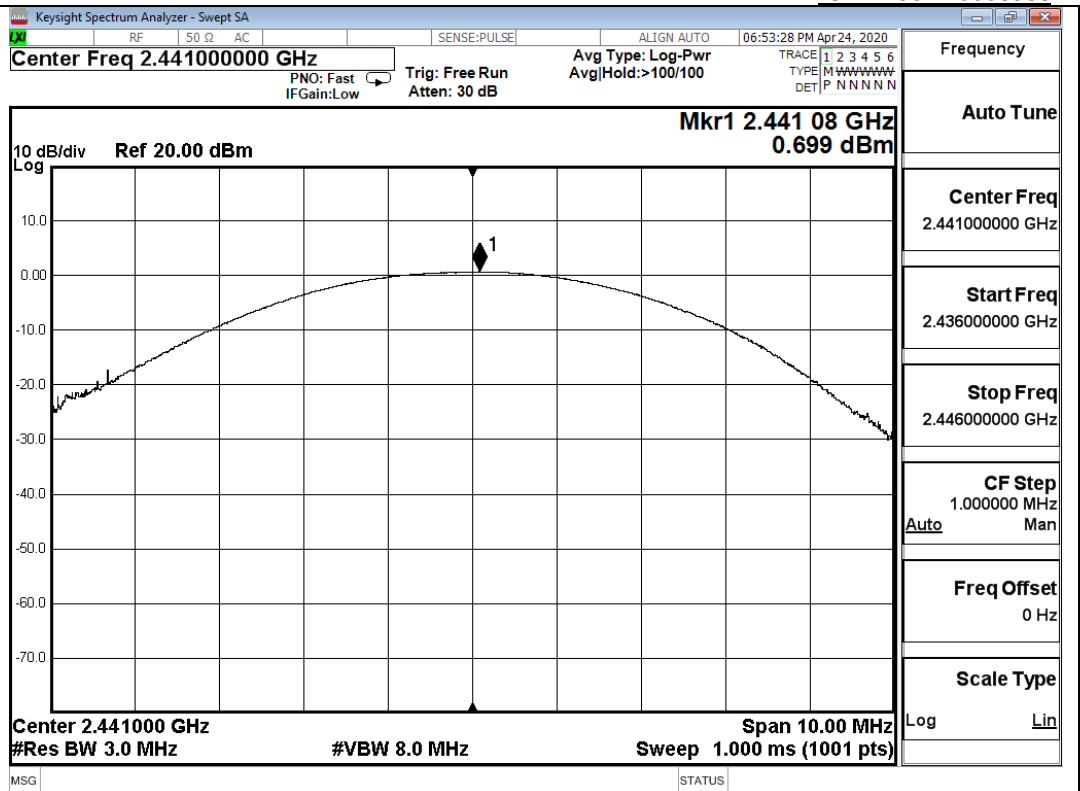
GFSK/HCH



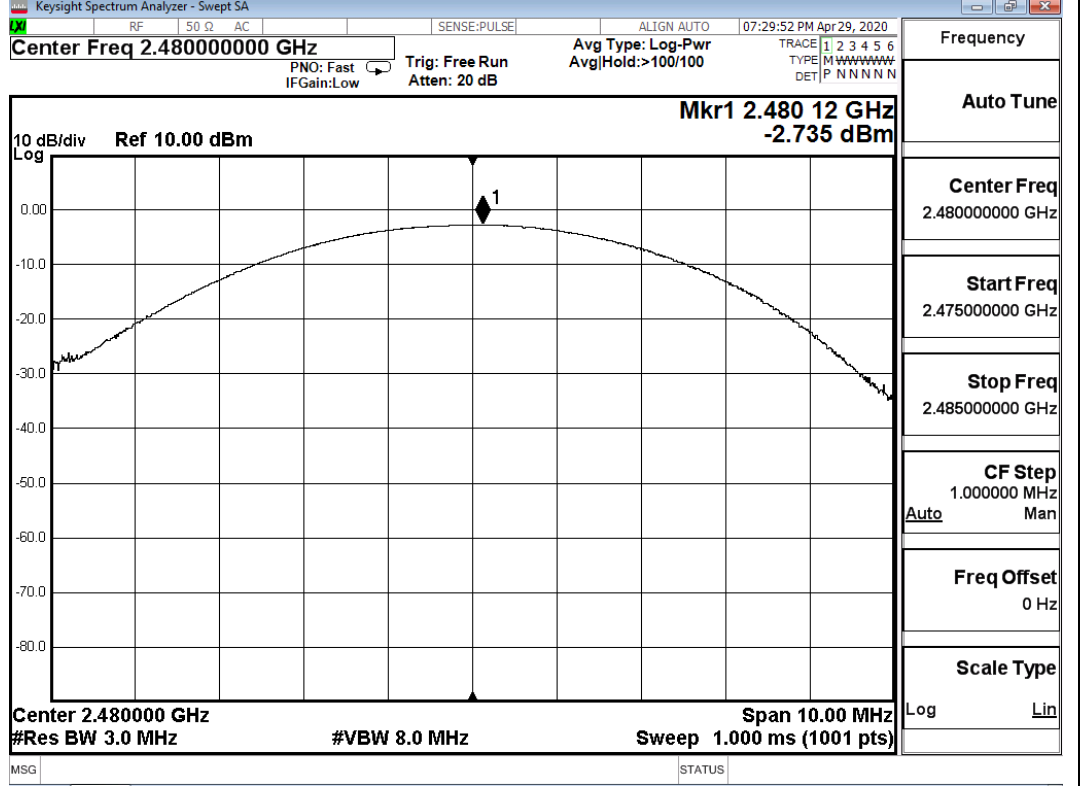
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH

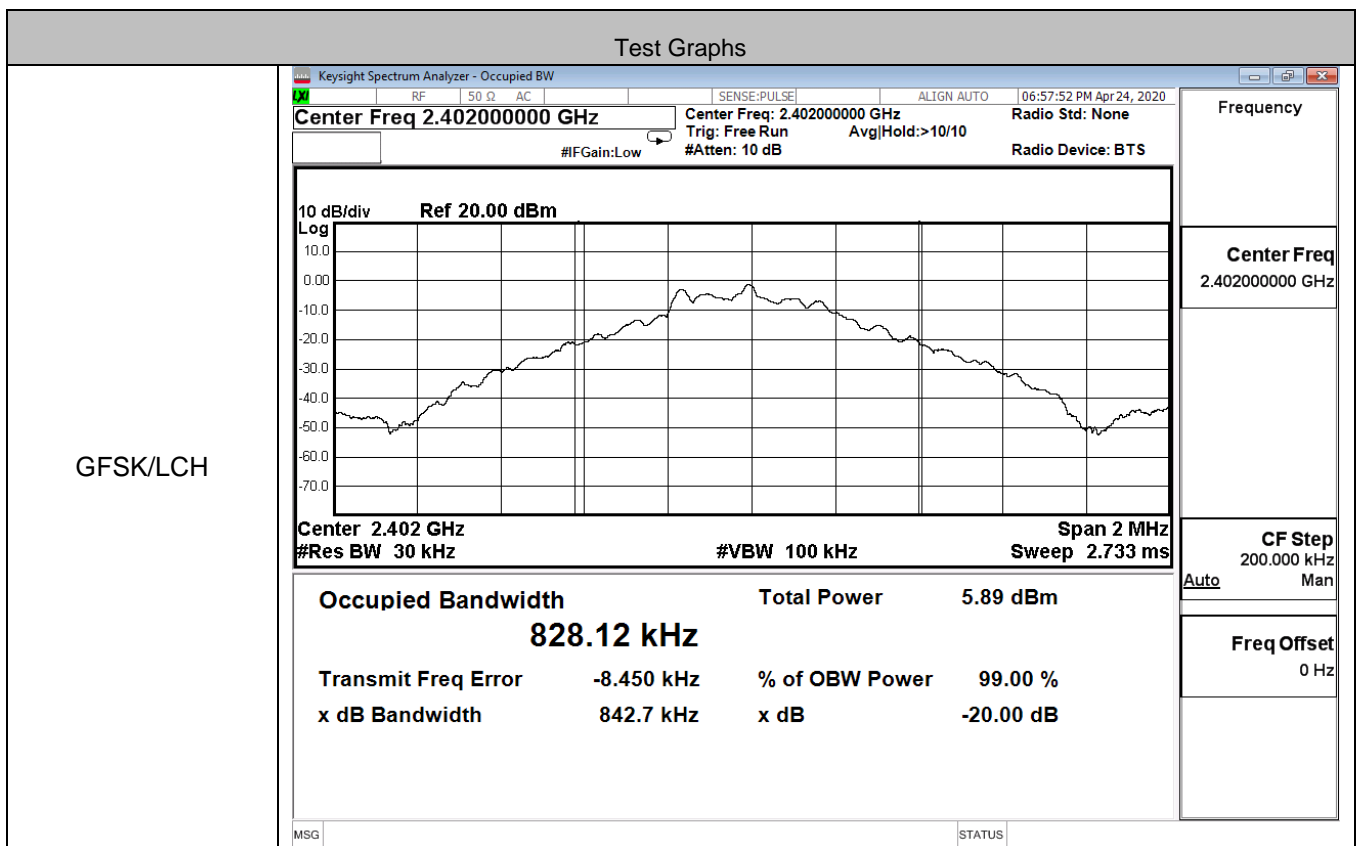


$\pi/4$ DQPSK/HCH

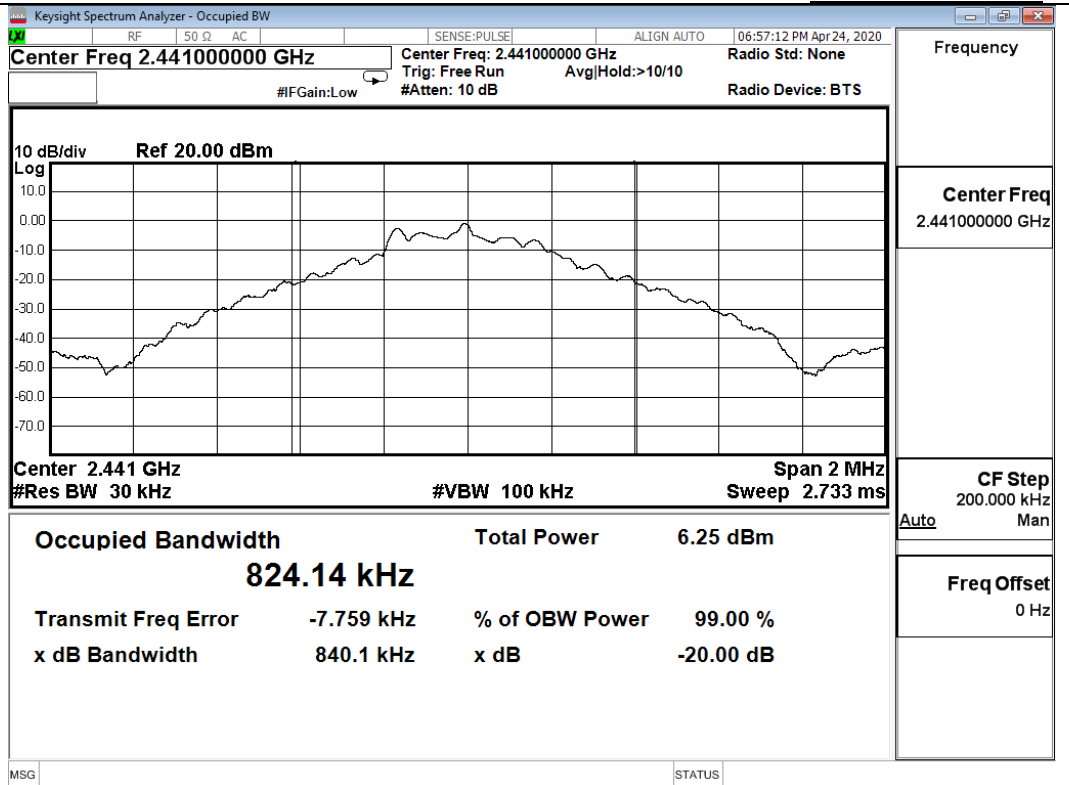


A.2 99% and 20dB Bandwidth

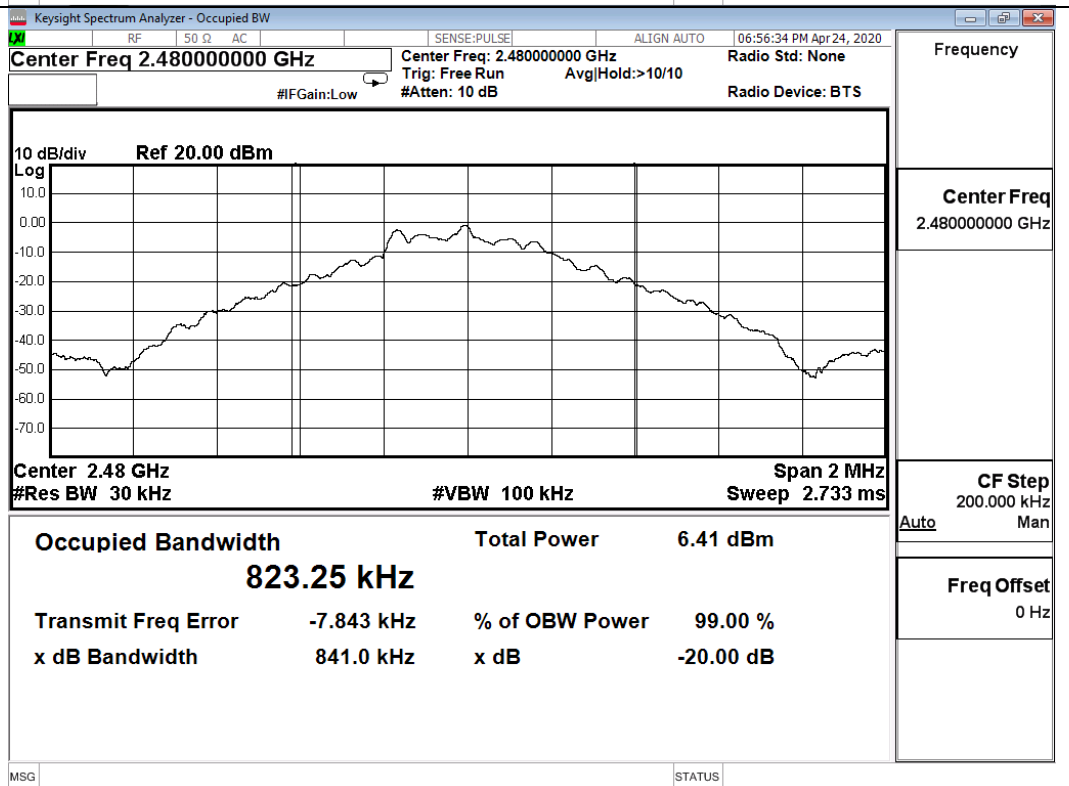
Mode	Channel.	99% Bandwidth [MHz]	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.82812	0.8427	Not Specified	PASS
	MCH	0.82414	0.8401	Not Specified	PASS
	HCH	0.82325	0.8410	Not Specified	PASS
π/4DQPSK	LCH	1.1618	1.212	Not Specified	PASS
	MCH	1.1611	1.211	Not Specified	PASS
	HCH	1.1602	1.215	Not Specified	PASS



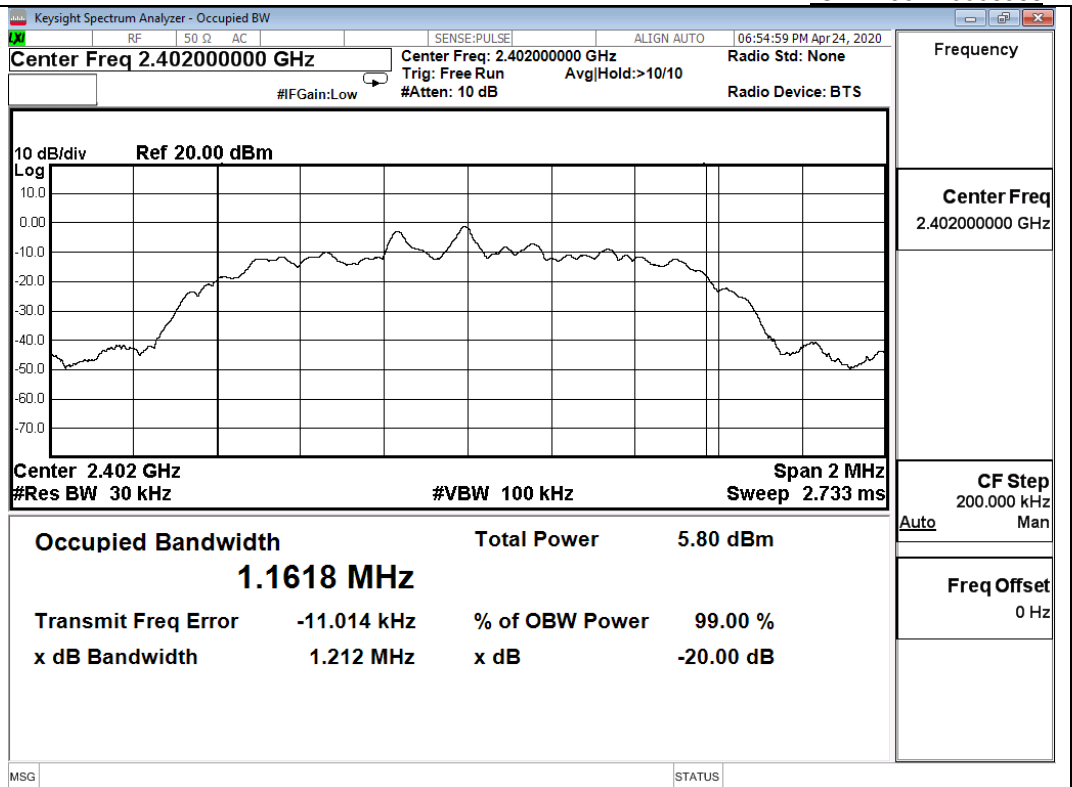
GFSK/MCH



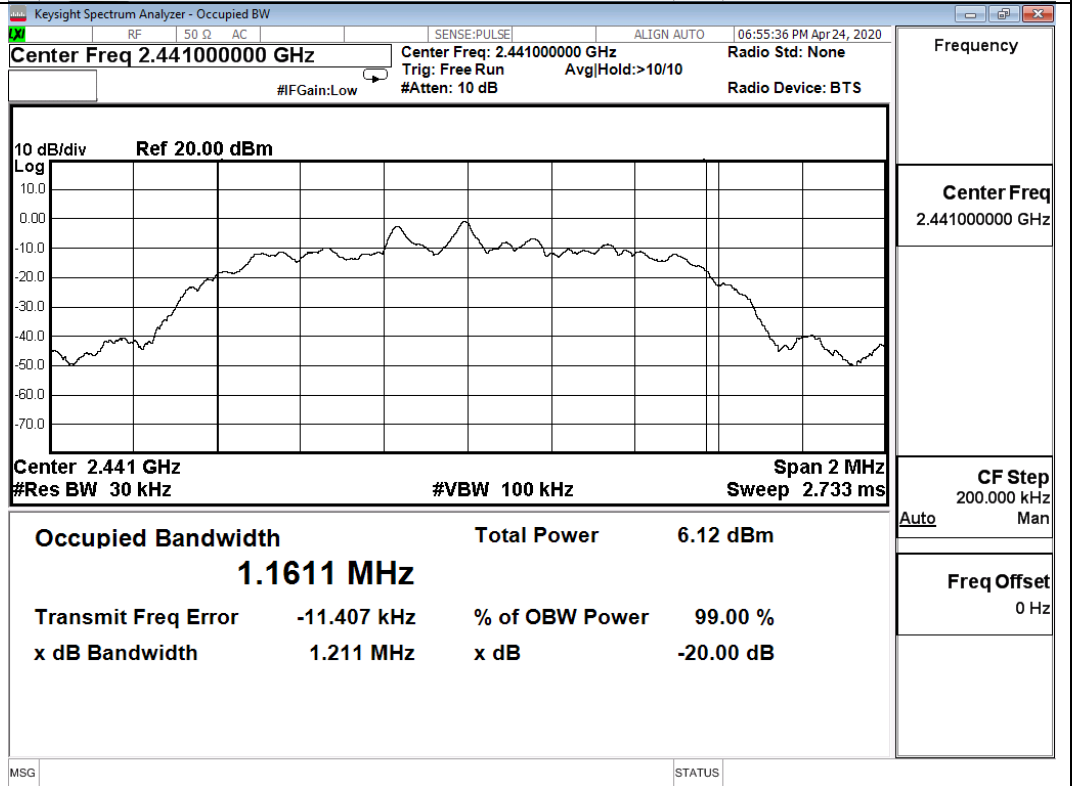
GFSK/HCH

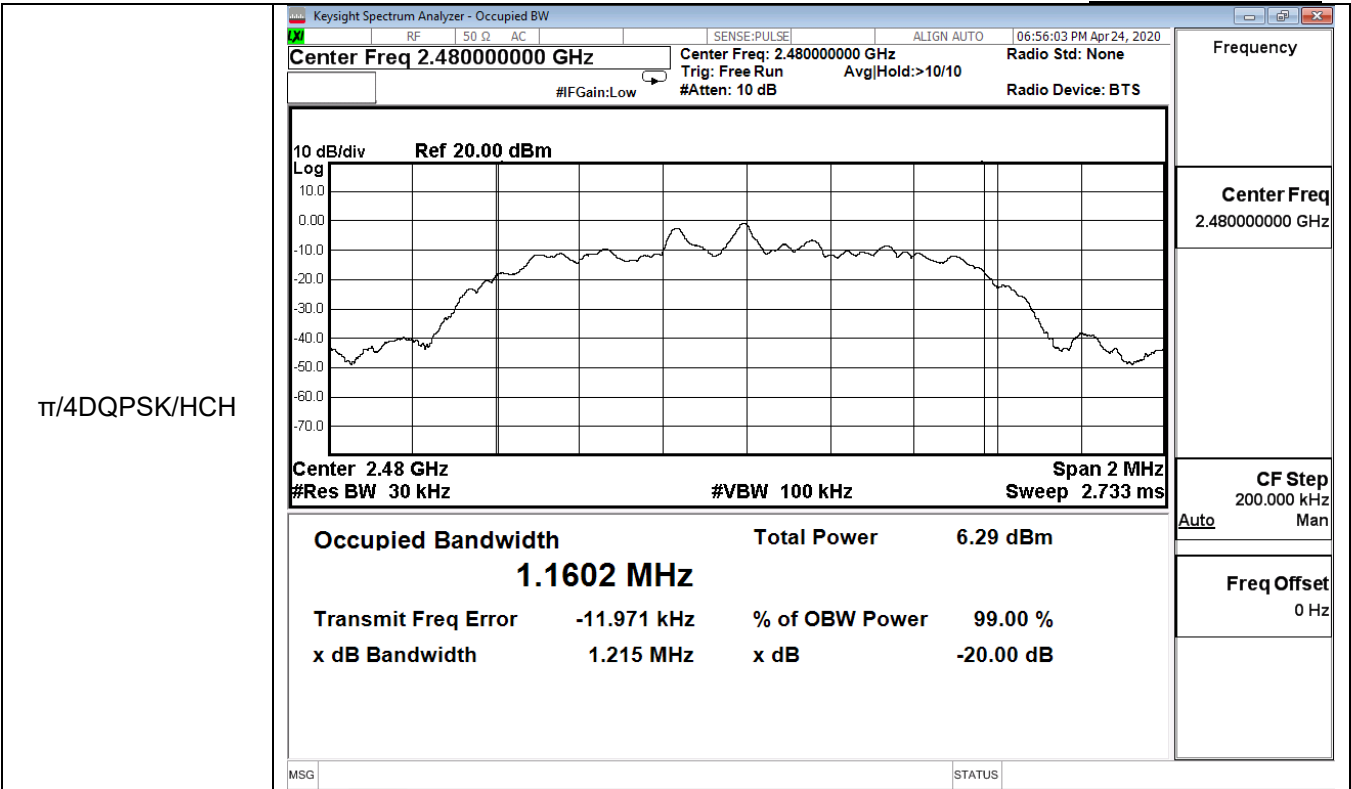


$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH





A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.000	0.562	PASS
	MCH	1.002	0.560	PASS
	HCH	1.000	0.561	PASS
π/4DQPSK	LCH	1.002	0.808	PASS
	MCH	1.000	0.807	PASS
	HCH	1.000	0.810	PASS

Test Graphs

GFSK/LCH

Peak Search

Next Peak

Next Pk Right

Next Pk Left

Marker Delta

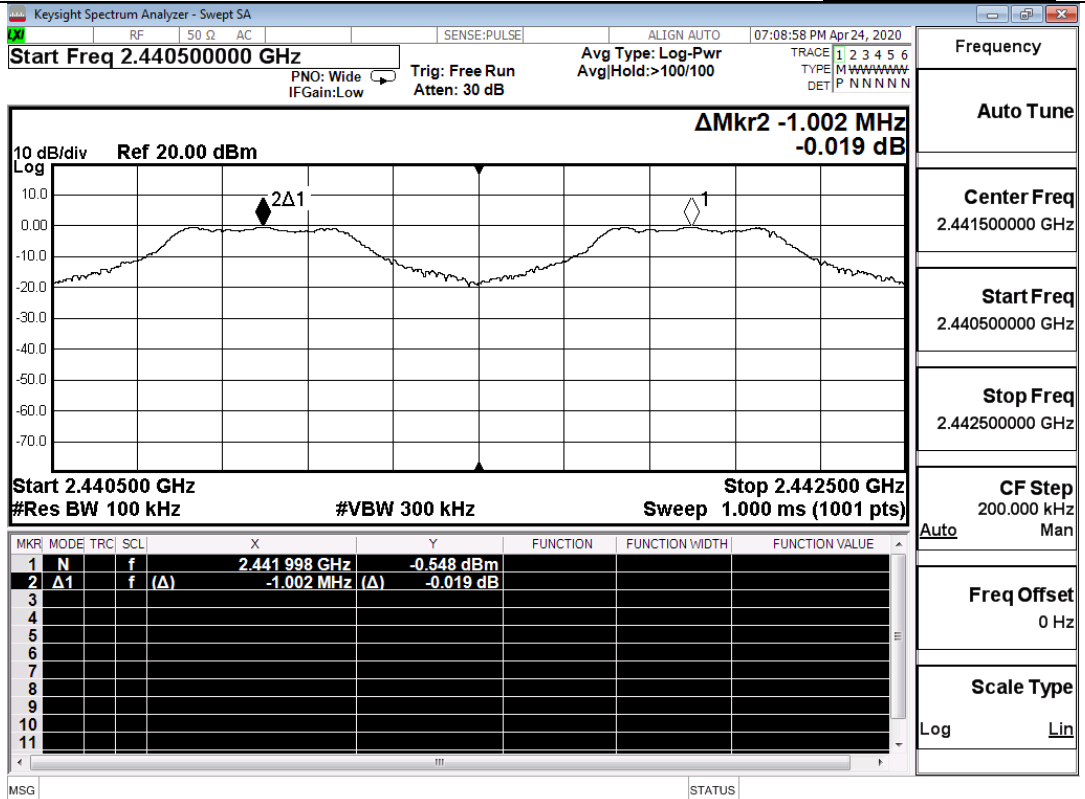
Mkr→CF

Mkr→Ref Lvl

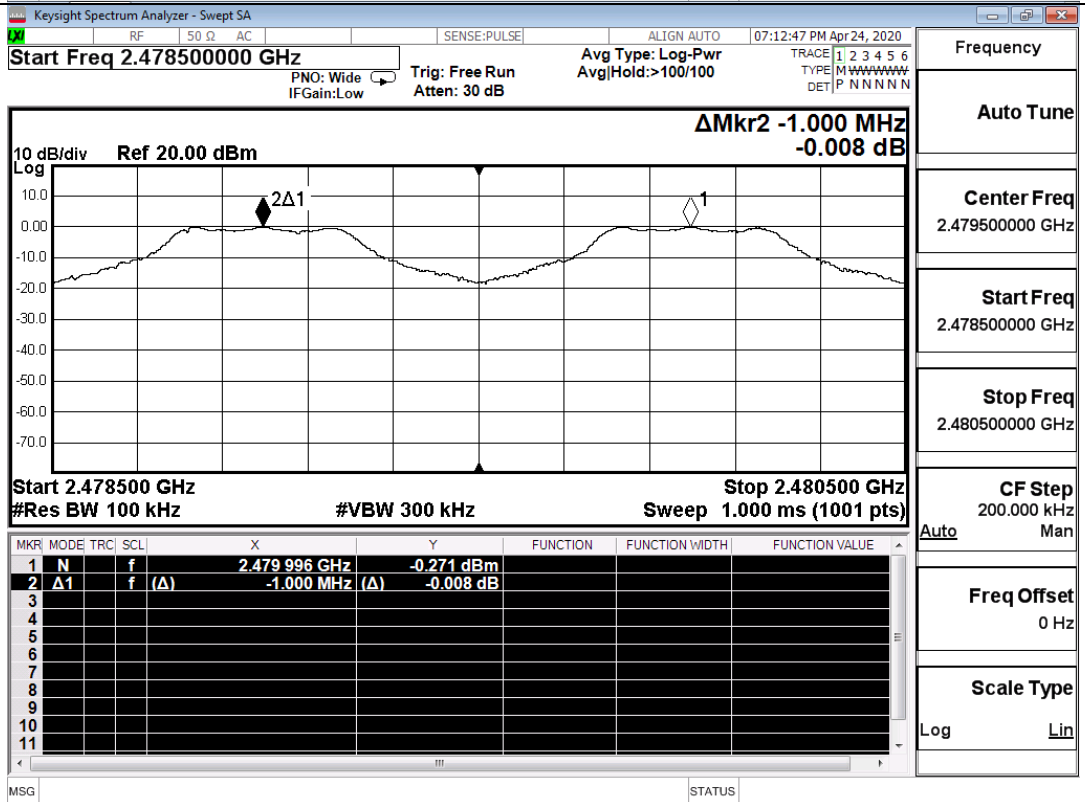
More
1 of 2

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.402 996 GHz	-0.861 dBm			
2	Δ1		f (Δ)	-1.000 MHz (Δ)	-0.035 dB			
3								
4								
5								
6								
7								
8								
9								
10								
11								

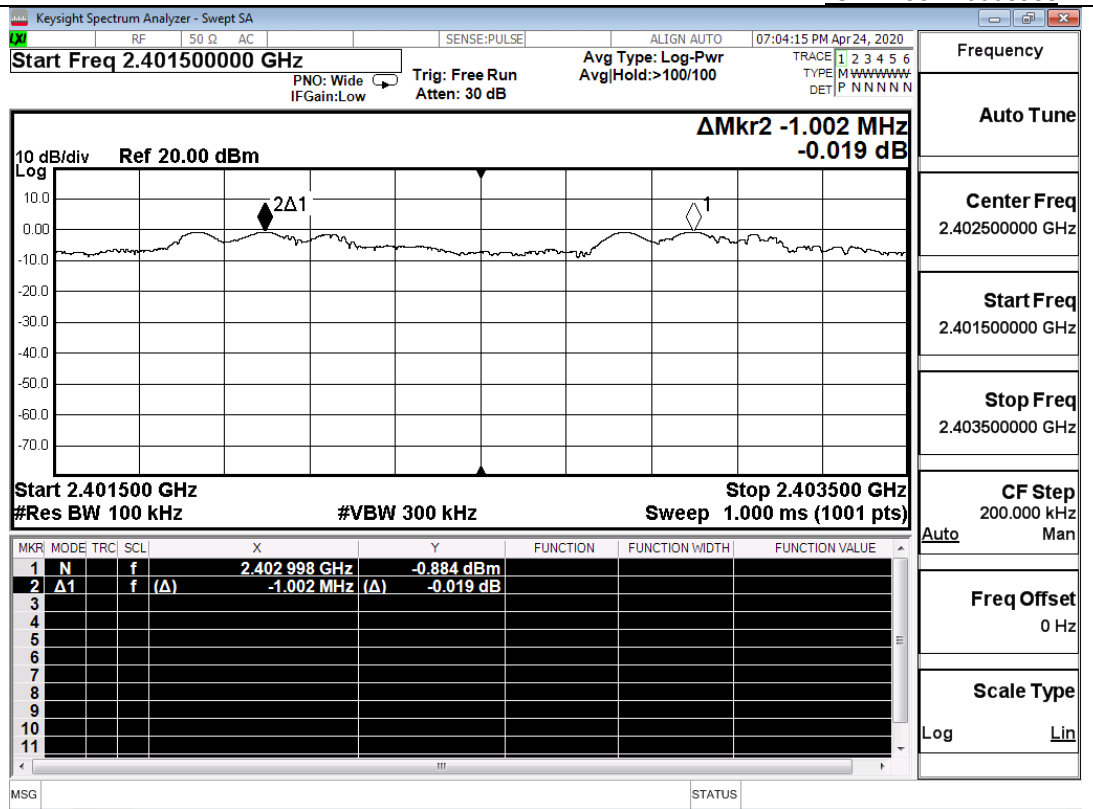
GFSK/MCH



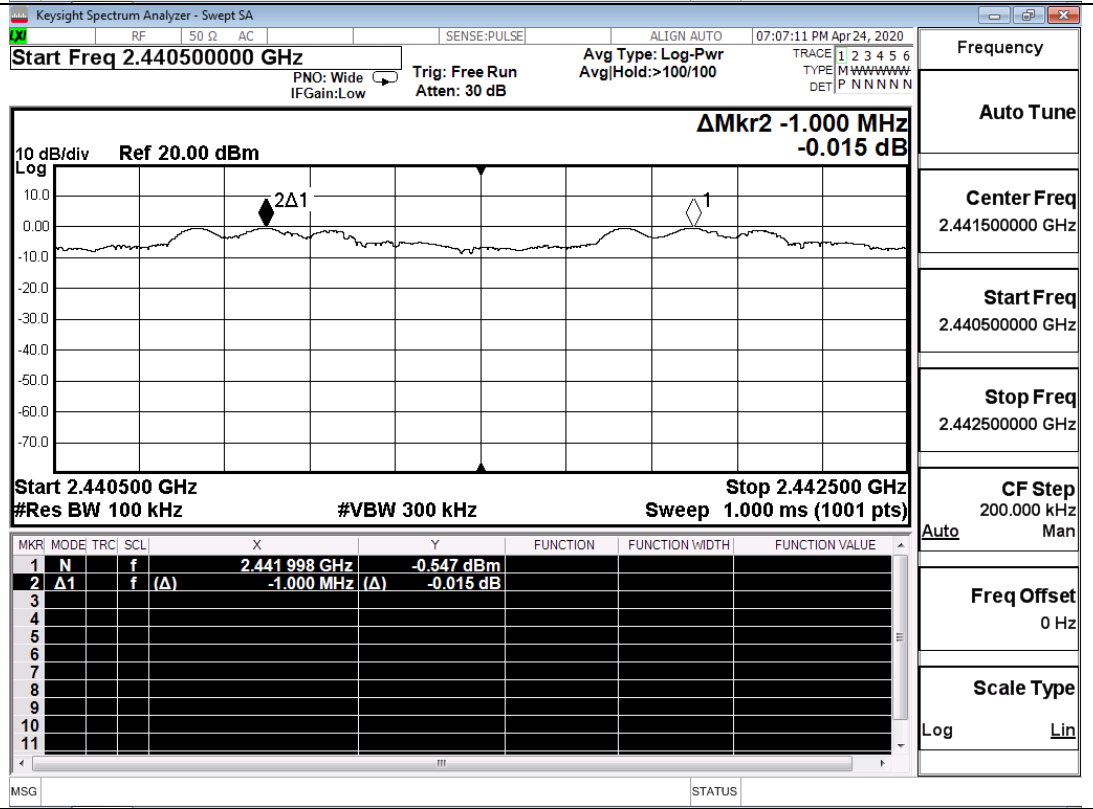
GFSK/HCH



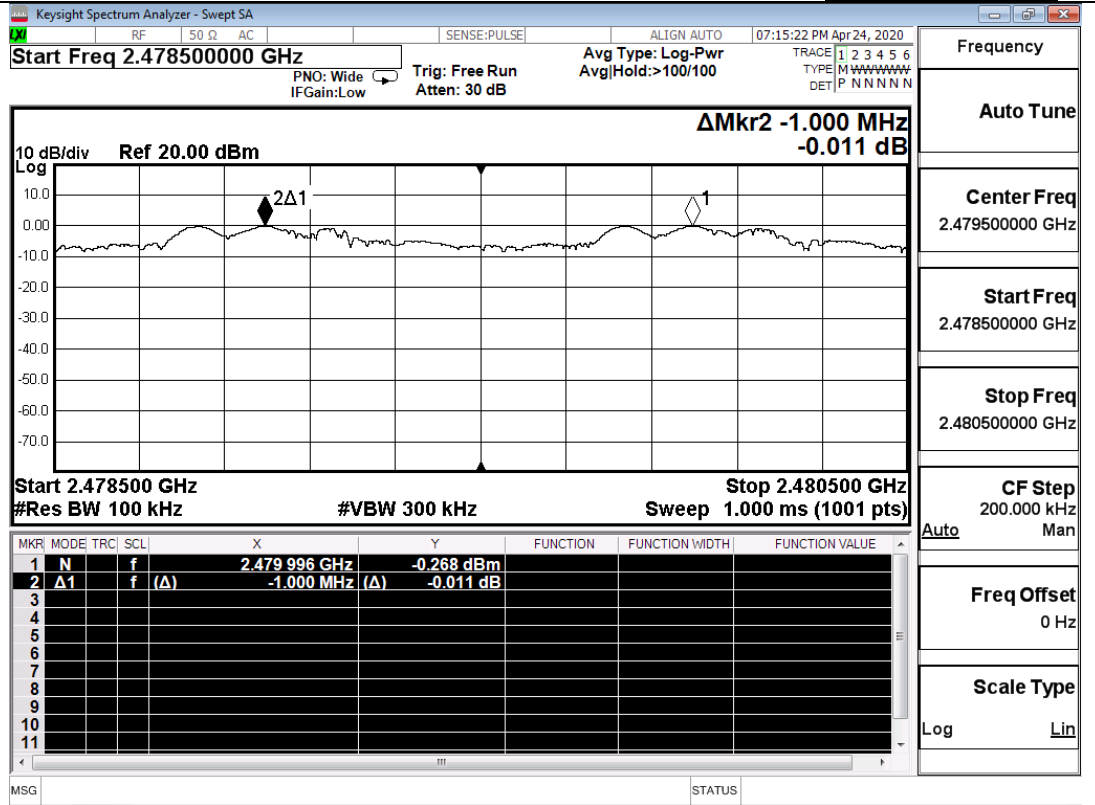
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



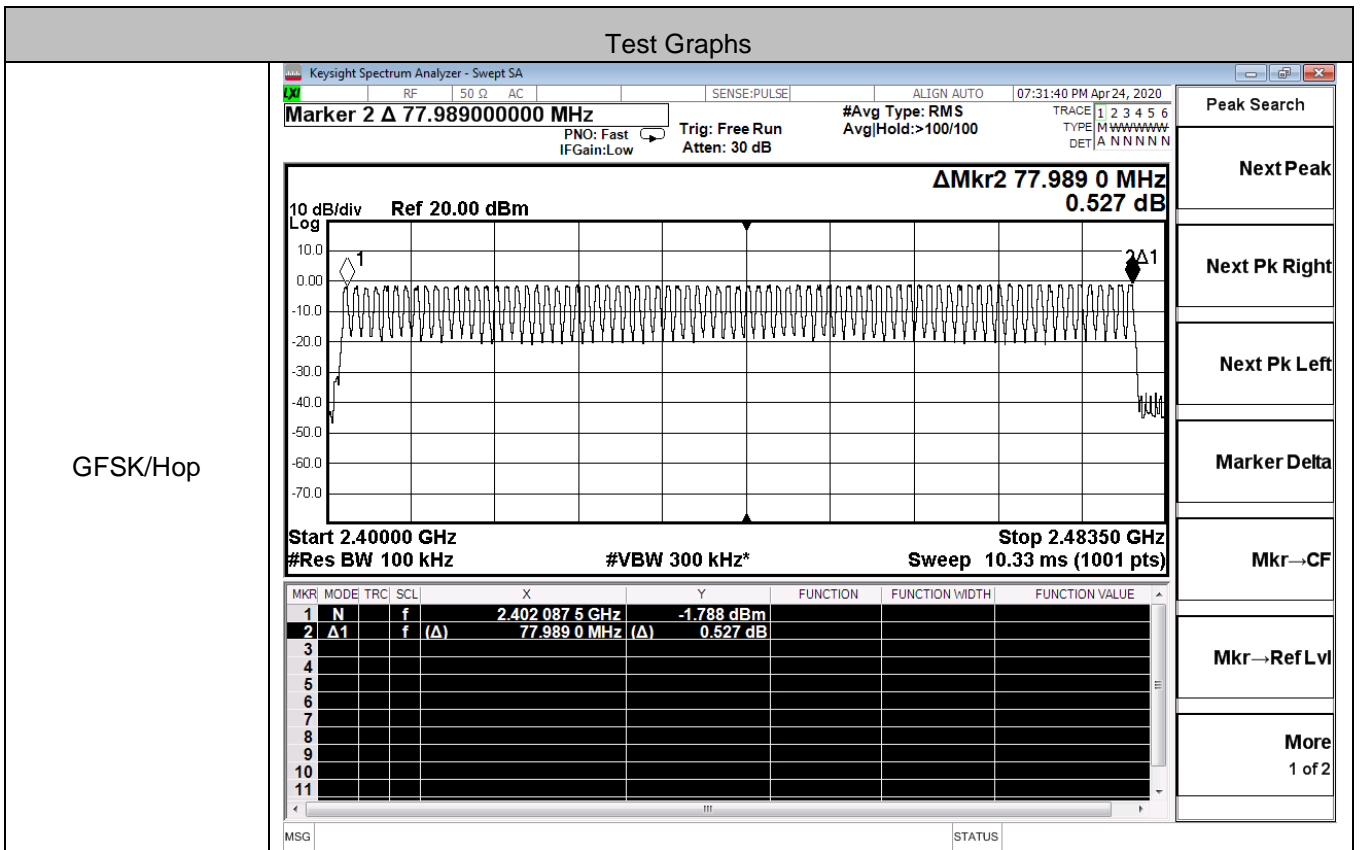
$\pi/4$ DQPSK/HCH

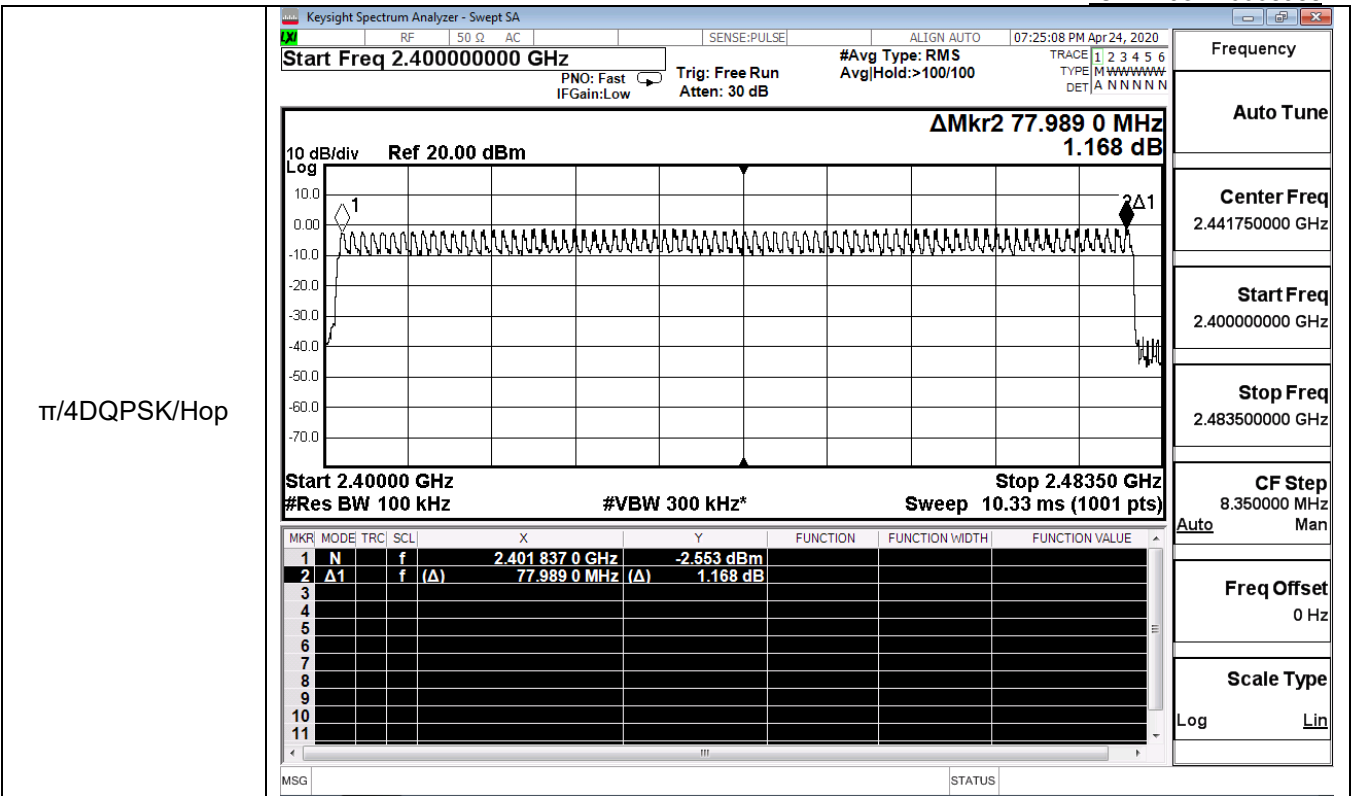


Frequency
Auto Tune
Center Freq 2.479500000 GHz
Start Freq 2.478500000 GHz
Stop Freq 2.480500000 GHz
CF Step 200.000 kHz
Auto Man
Freq Offset 0 Hz
Scale Type Log Lin

A.4 Hopping Channel Number

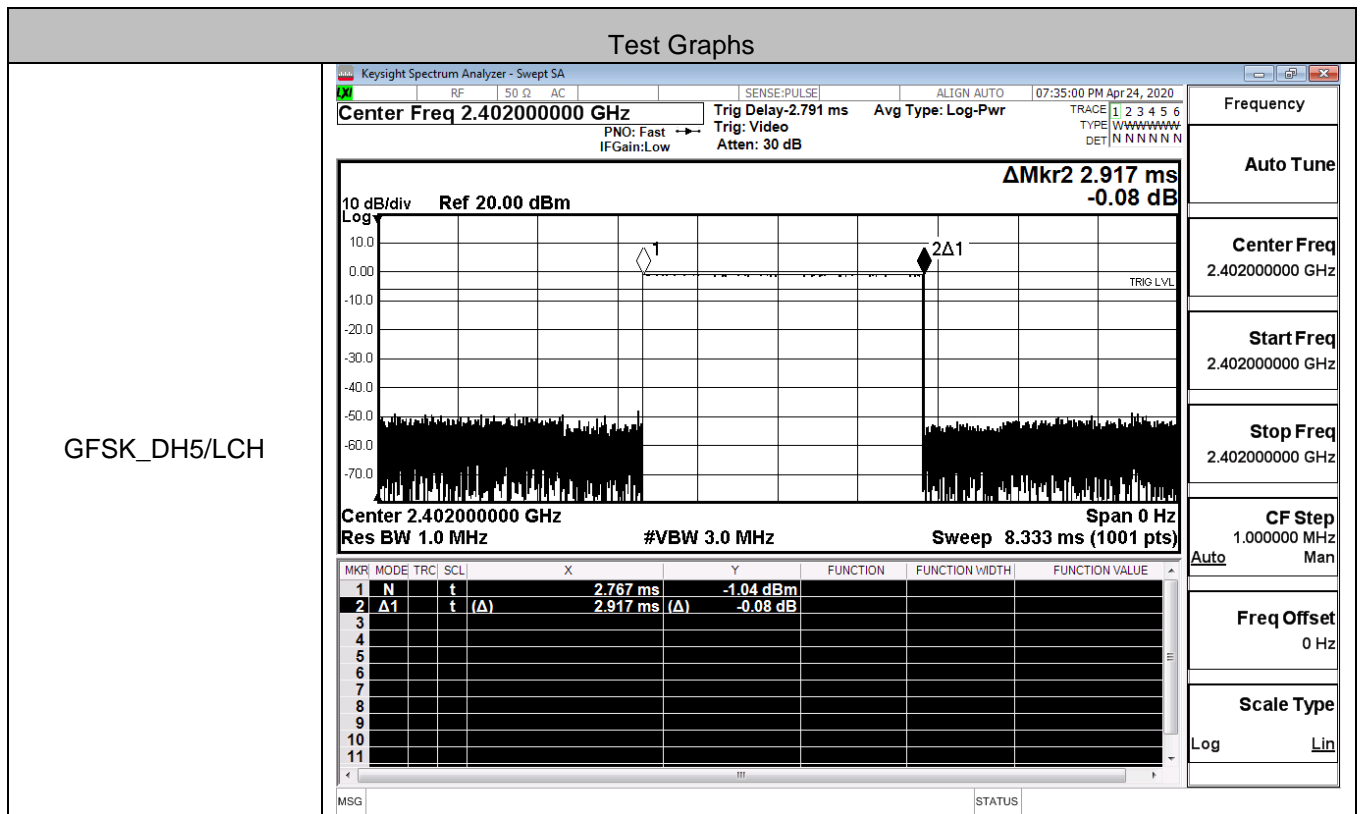
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS



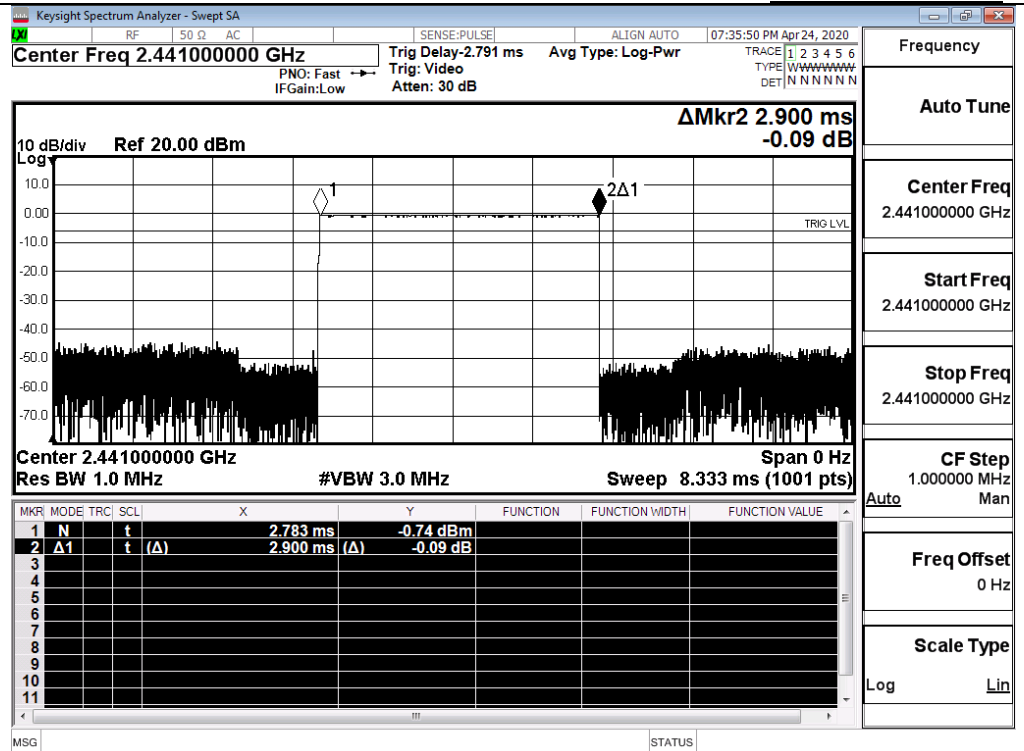


A.5 Dwell Time

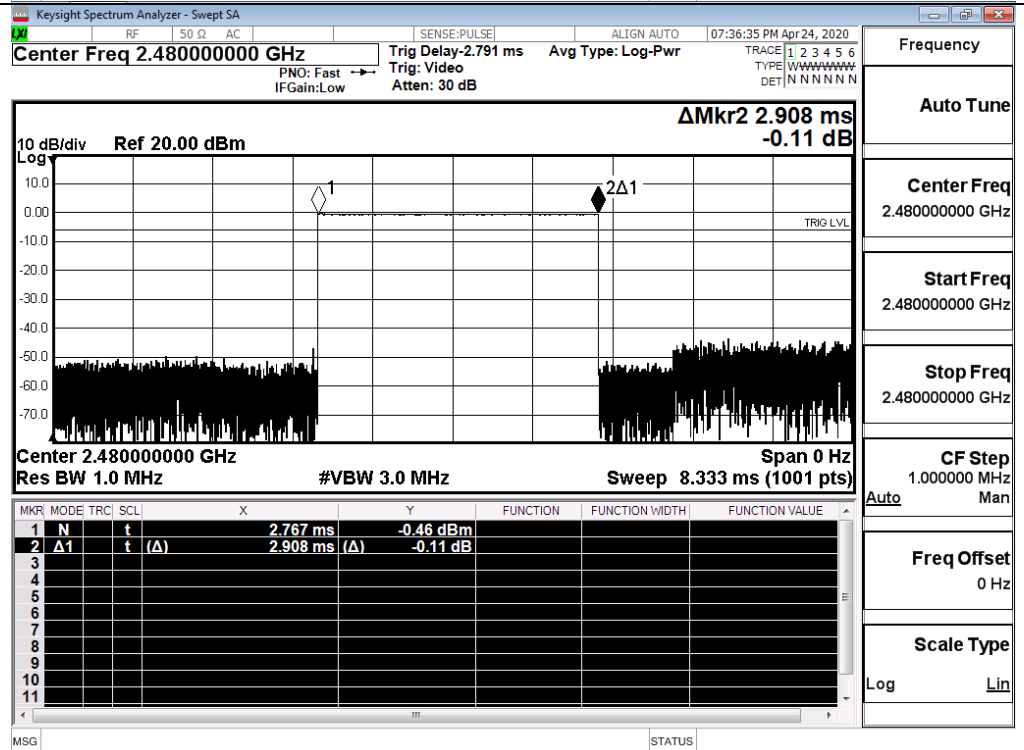
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.917	106.7	0.311	0.4	PASS
	DH5	MCH	2.900	106.7	0.309	0.4	PASS
	DH5	HCH	2.908	106.7	0.310	0.4	PASS
π/4DQPSK	2DH5	LCH	2.917	106.7	0.311	0.4	PASS
	2DH5	MCH	2.917	106.7	0.311	0.4	PASS
	2DH5	HCH	2.917	106.7	0.311	0.4	PASS



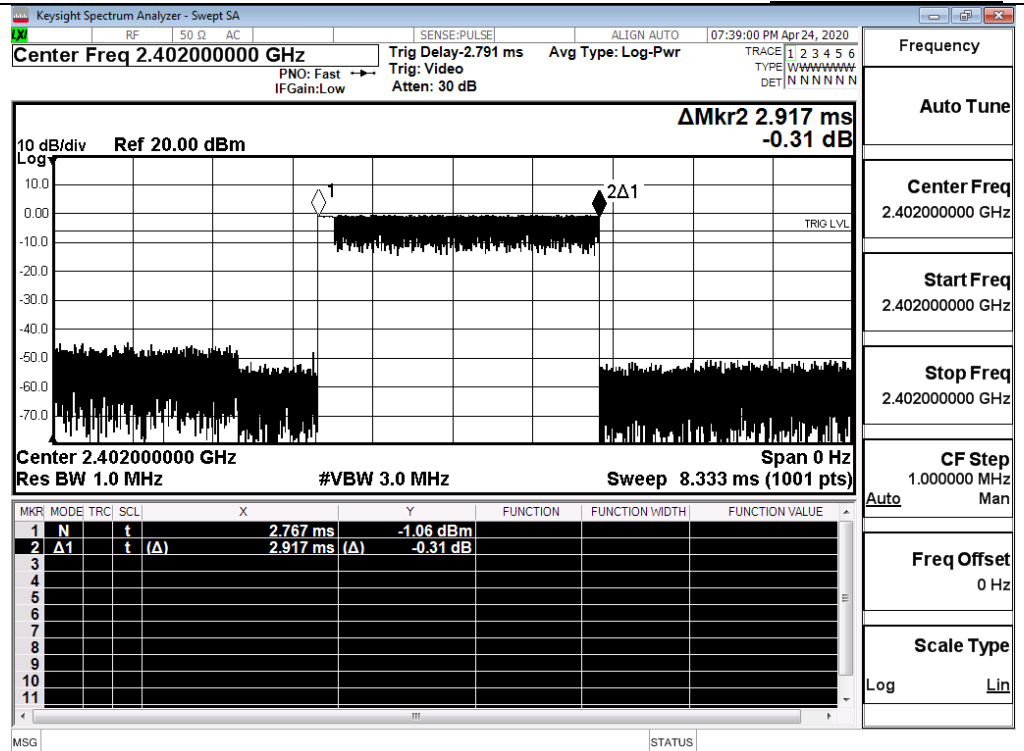
GFSK_DH5/MCH



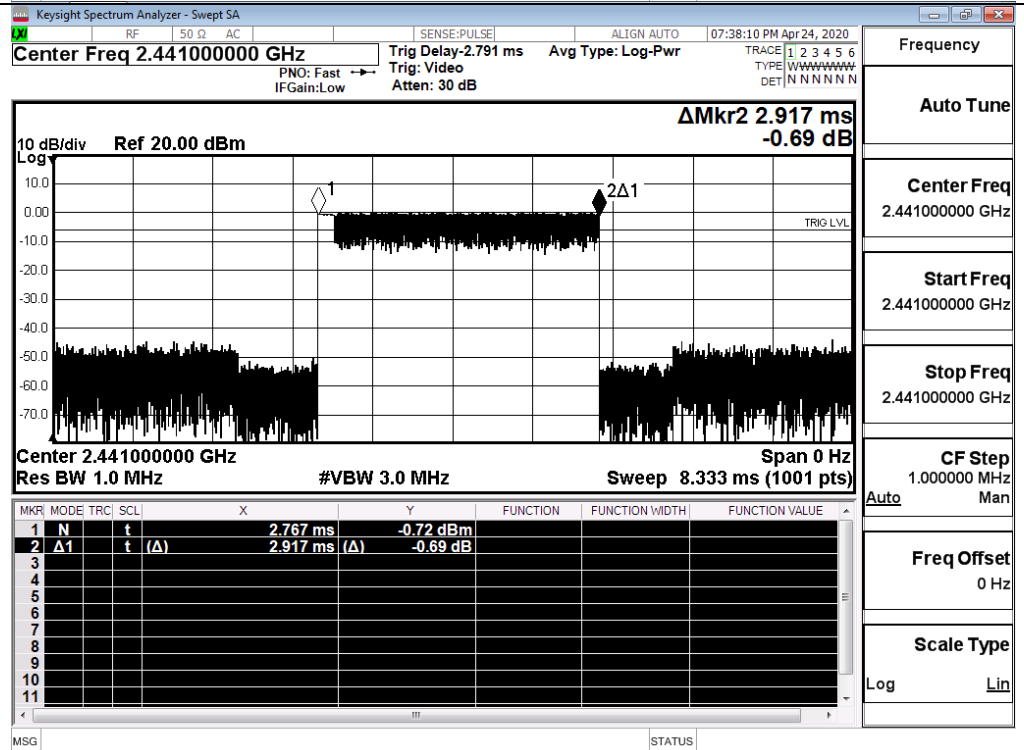
GFSK_DH5/HCH



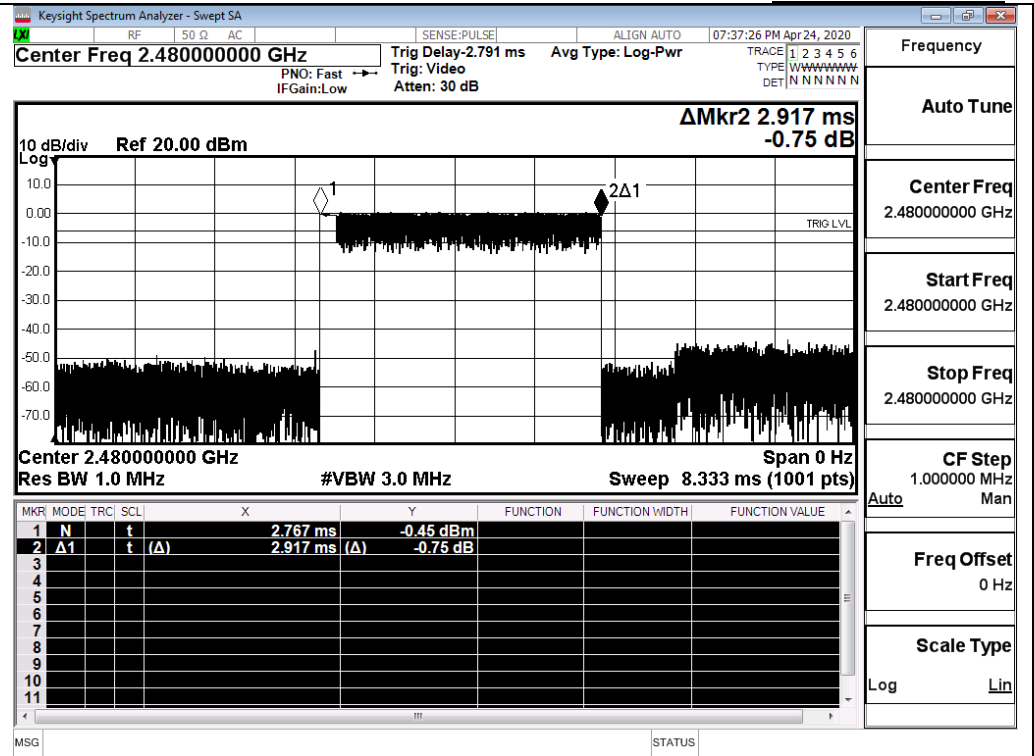
$\pi/4$ DQPSK
_2DH5/LCH



$\pi/4$ DQPSK
_2DH5/MCH



$\pi/4$ DQPSK
_2DH5/HCH



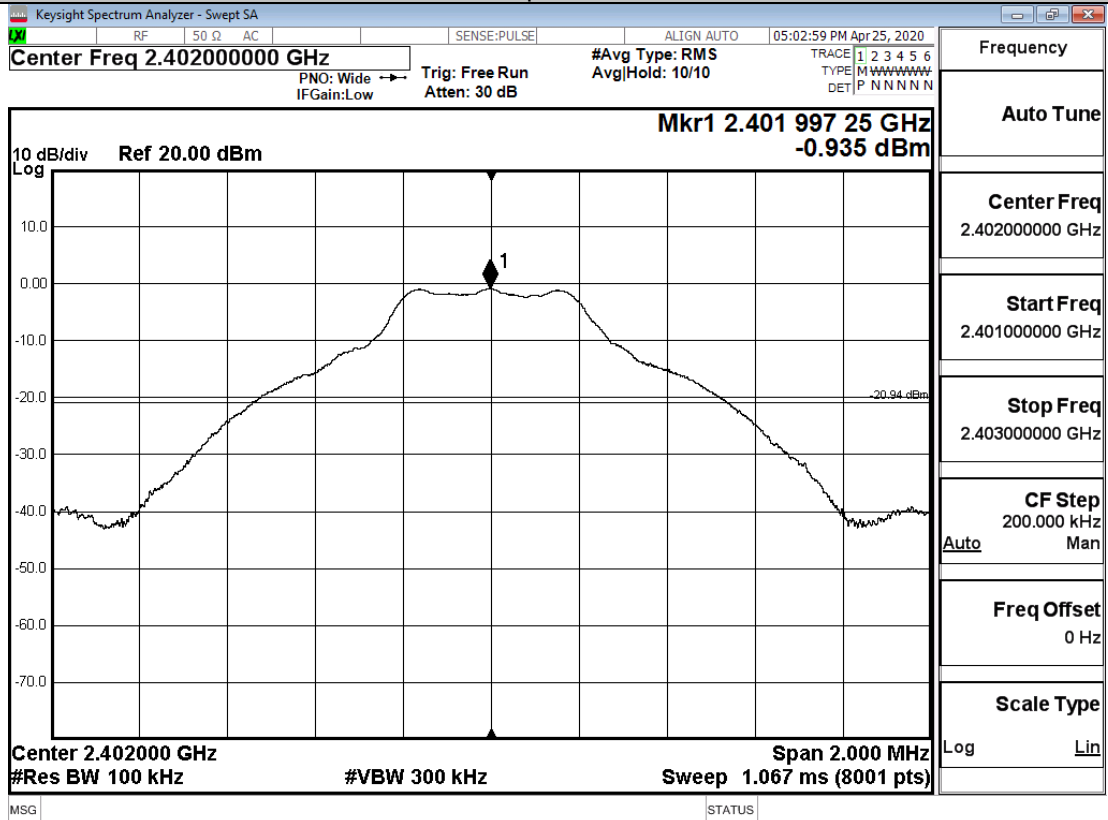
Frequency
Auto Tune
Center Freq 2.480000000 GHz
Start Freq 2.480000000 GHz
Stop Freq 2.480000000 GHz
CF Step 1.000000 MHz Auto Man
Freq Offset 0 Hz
Scale Type Log Lin

A.6 RF Conducted Spurious Emissions

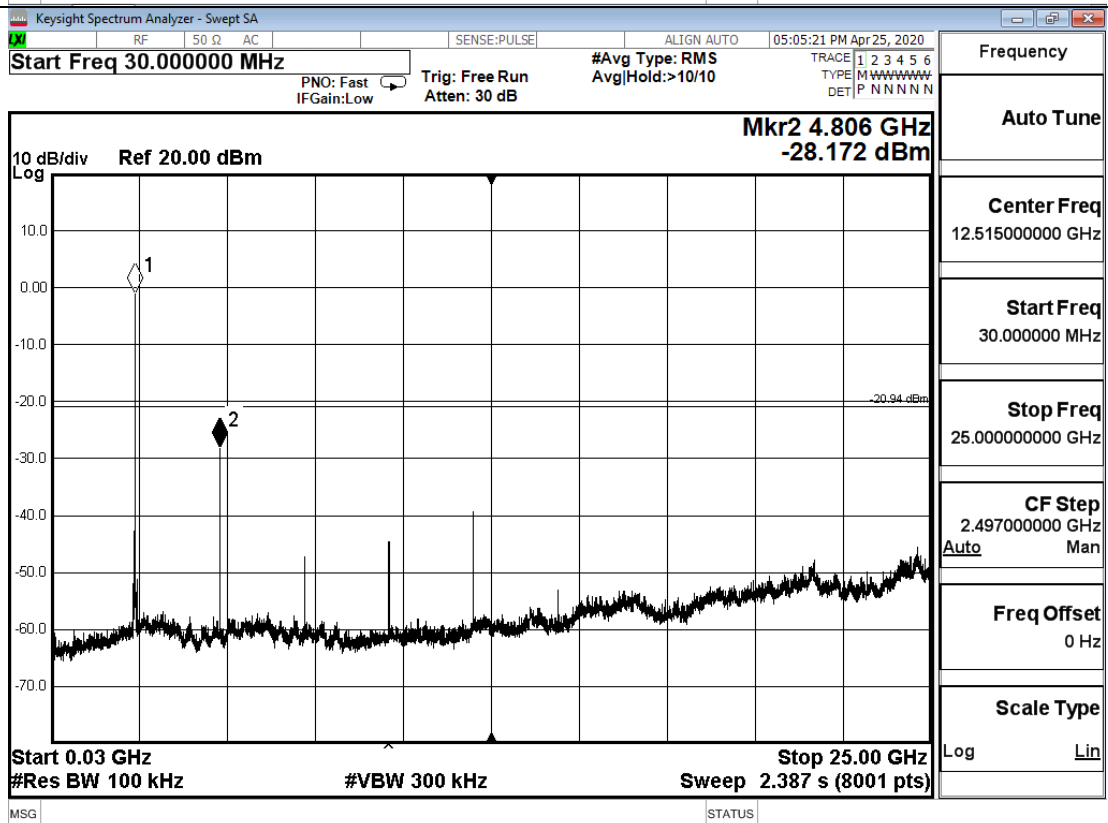
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.935	-28.172	-20.94	PASS
	MCH	-0.449	-29.090	-20.45	PASS
	HCH	-0.148	-34.993	-20.15	PASS
$\pi/4$ DQPSK	LCH	-0.995	-28.168	-21.00	PASS
	MCH	-0.406	-33.288	-20.41	PASS
	HCH	-0.152	-31.460	-20.15	PASS

GFSK_LCH_Graphs

Pref

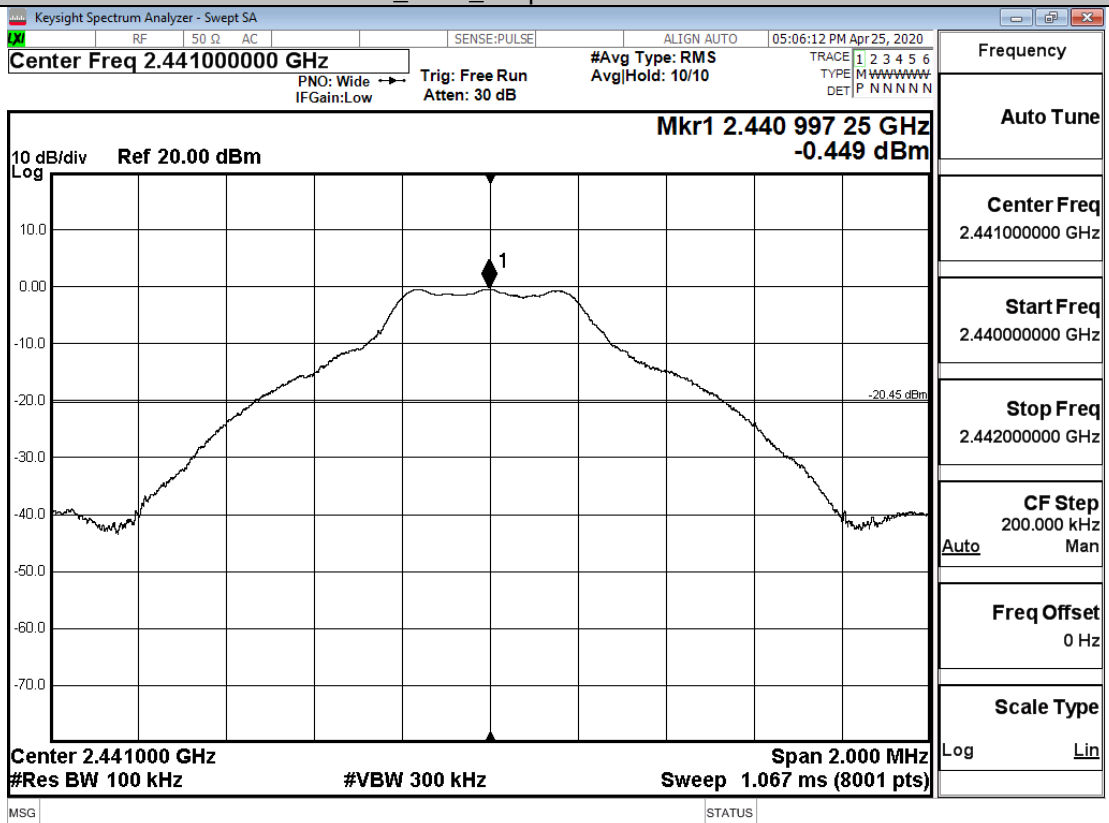


Puw

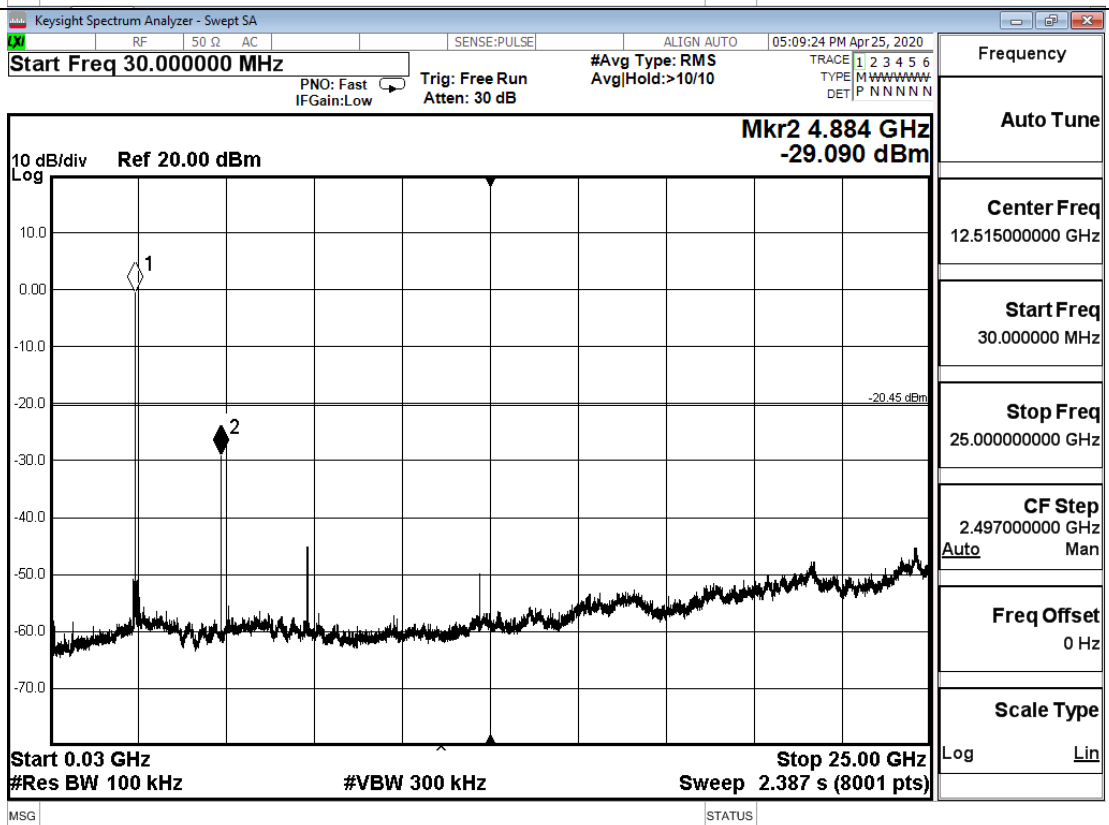


GFSK_MCH_Graphs

Pref

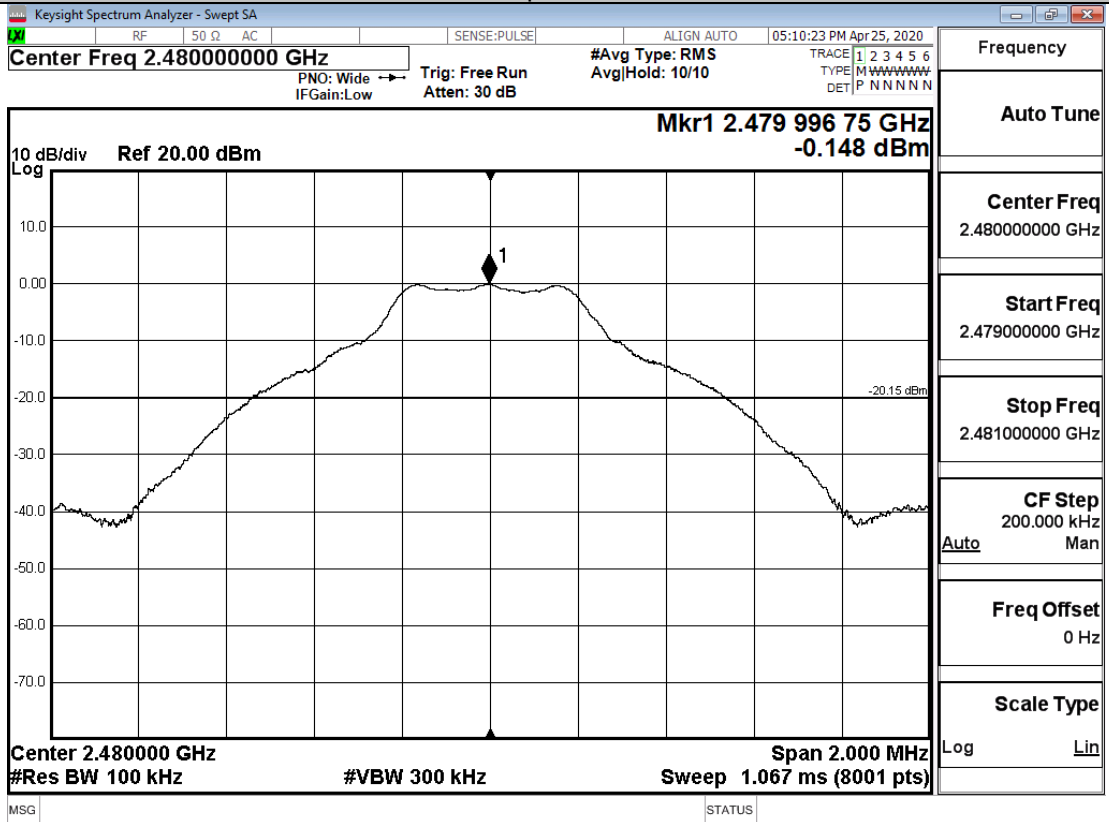


Puw

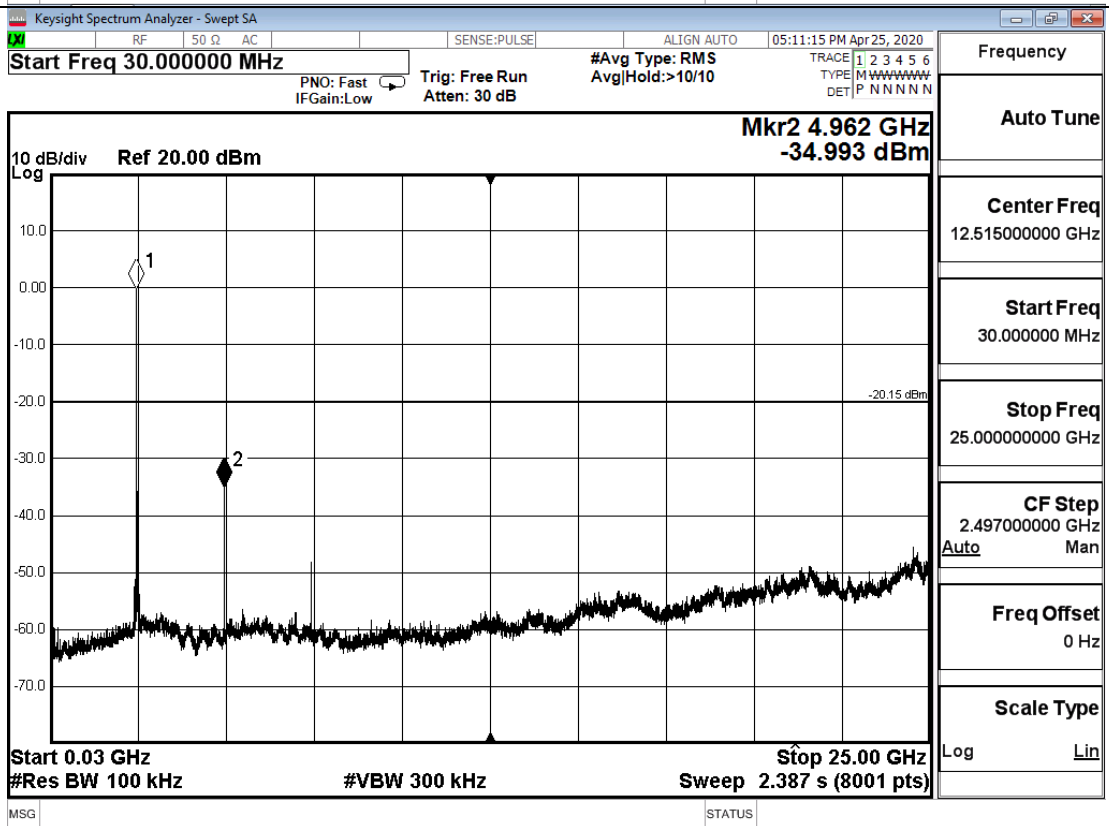


GFSK_HCH_Graphs

Pref

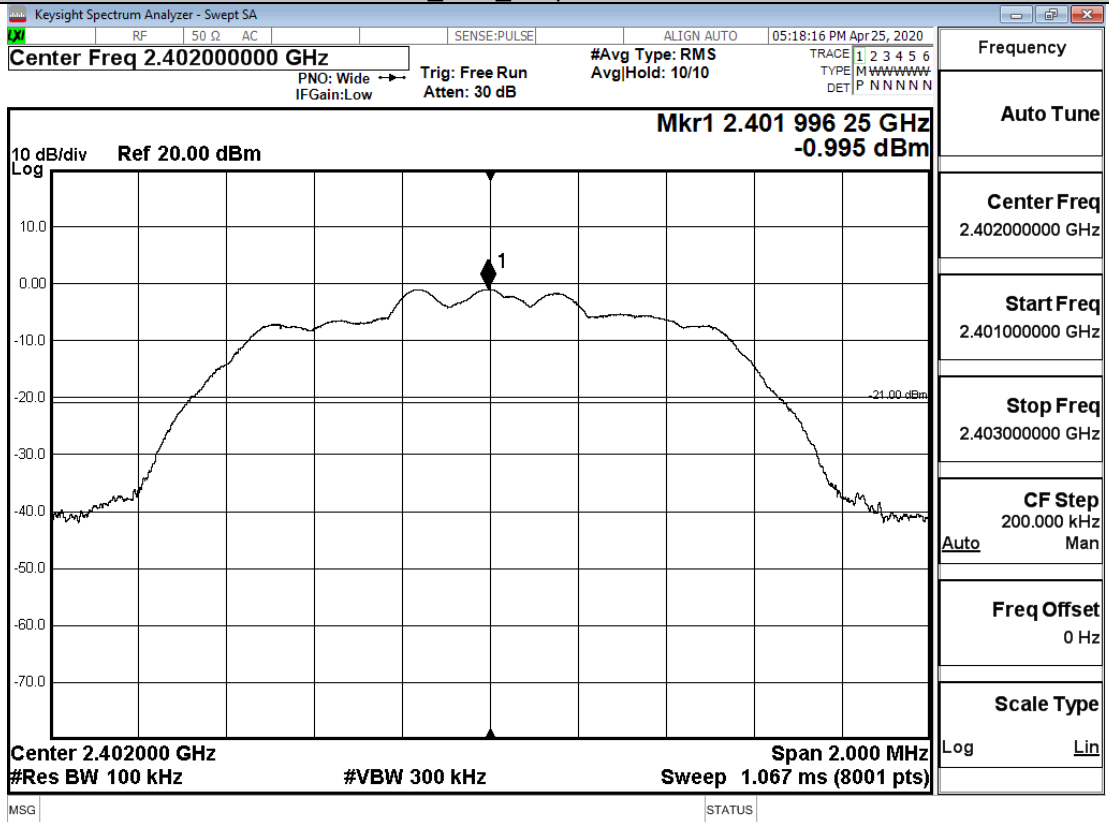


Puw

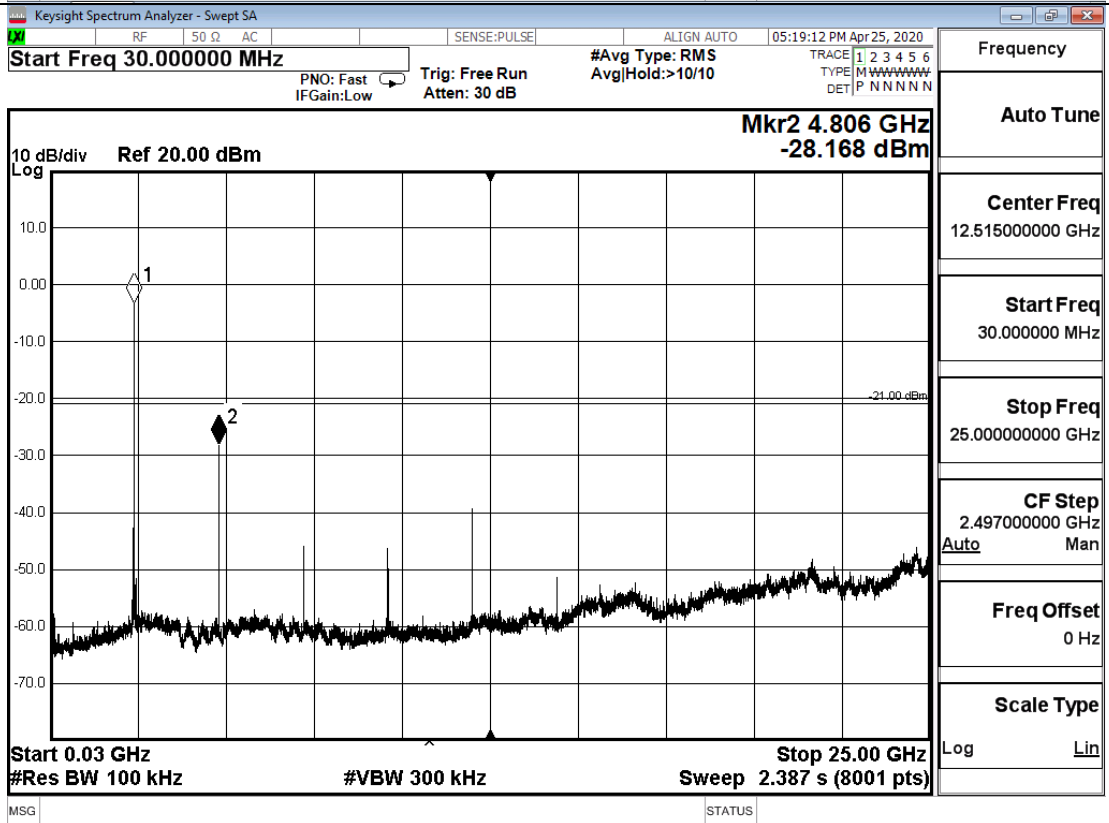


$\pi/4$ DQPSK LCH_Graphs

Pref

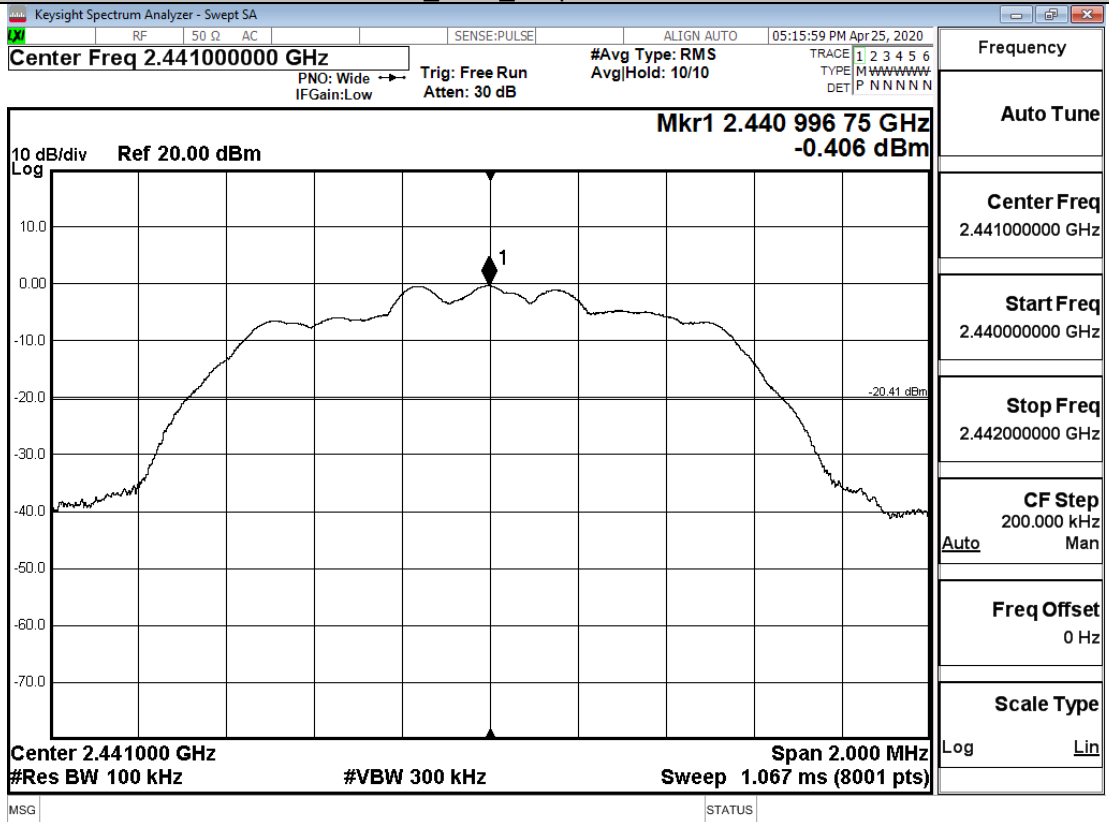


Puw

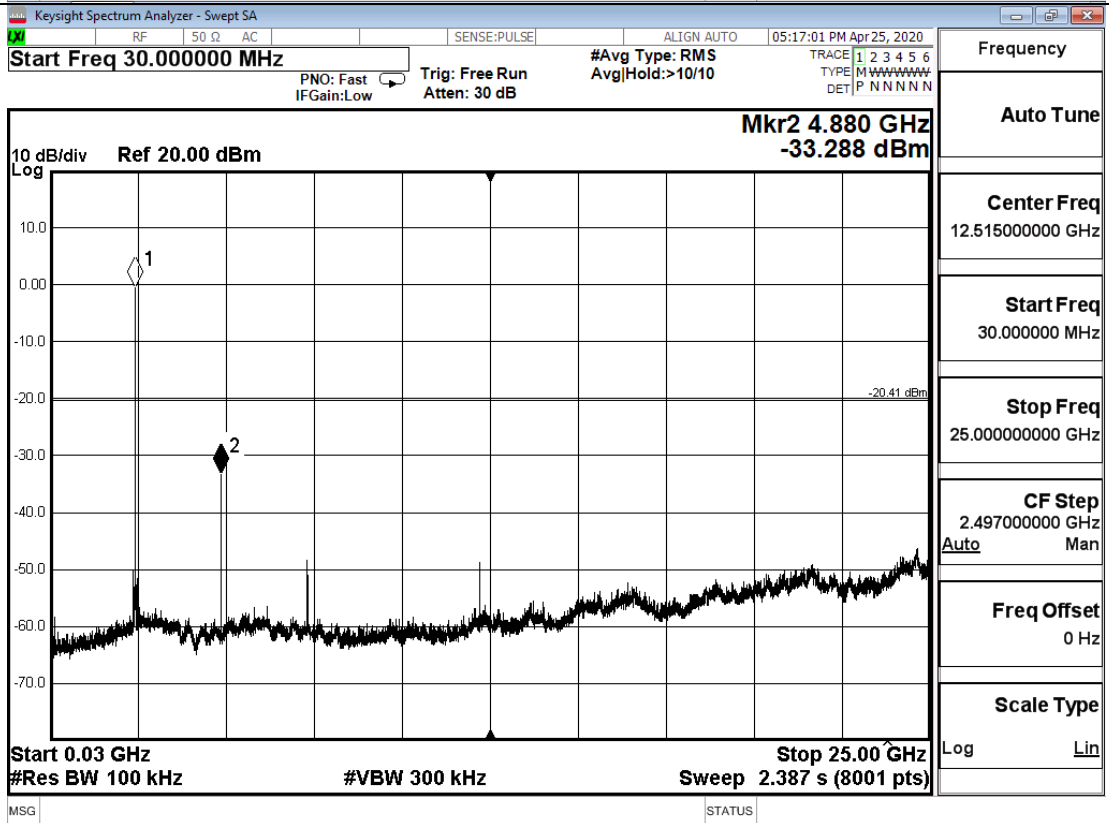


$\pi/4$ DQPSK_MCH_Graphs

Pref

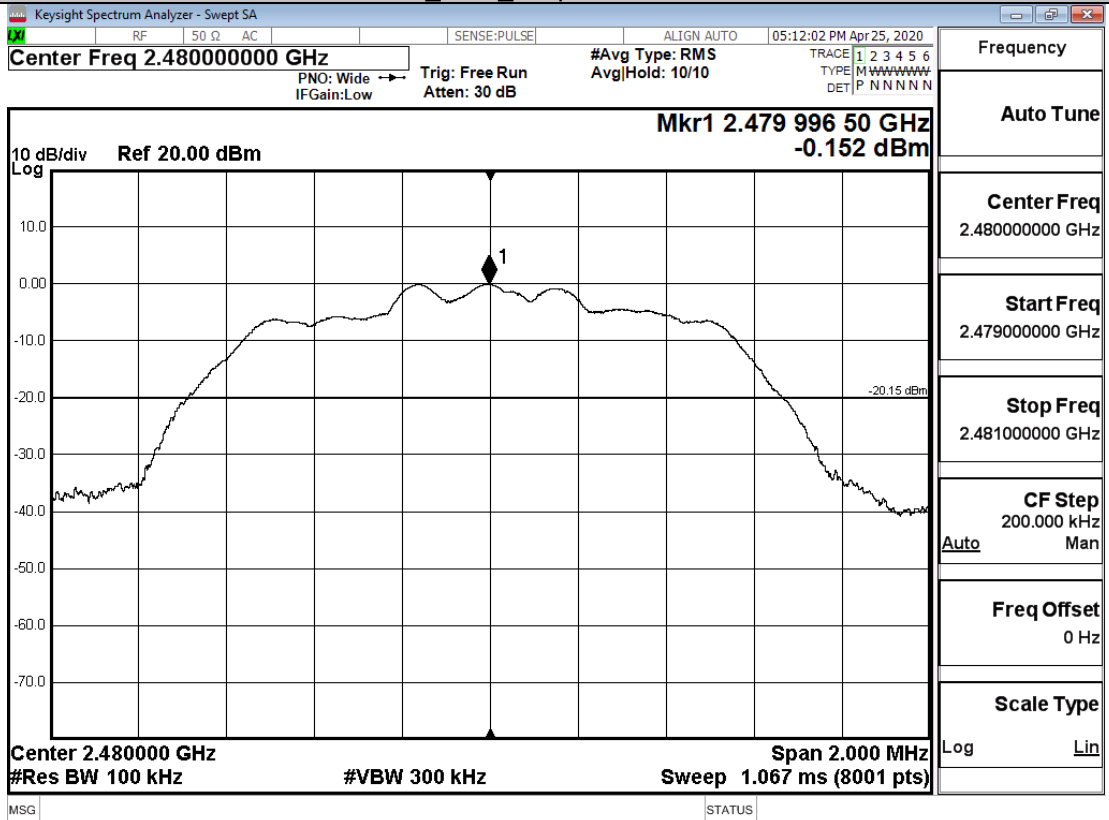


Puw

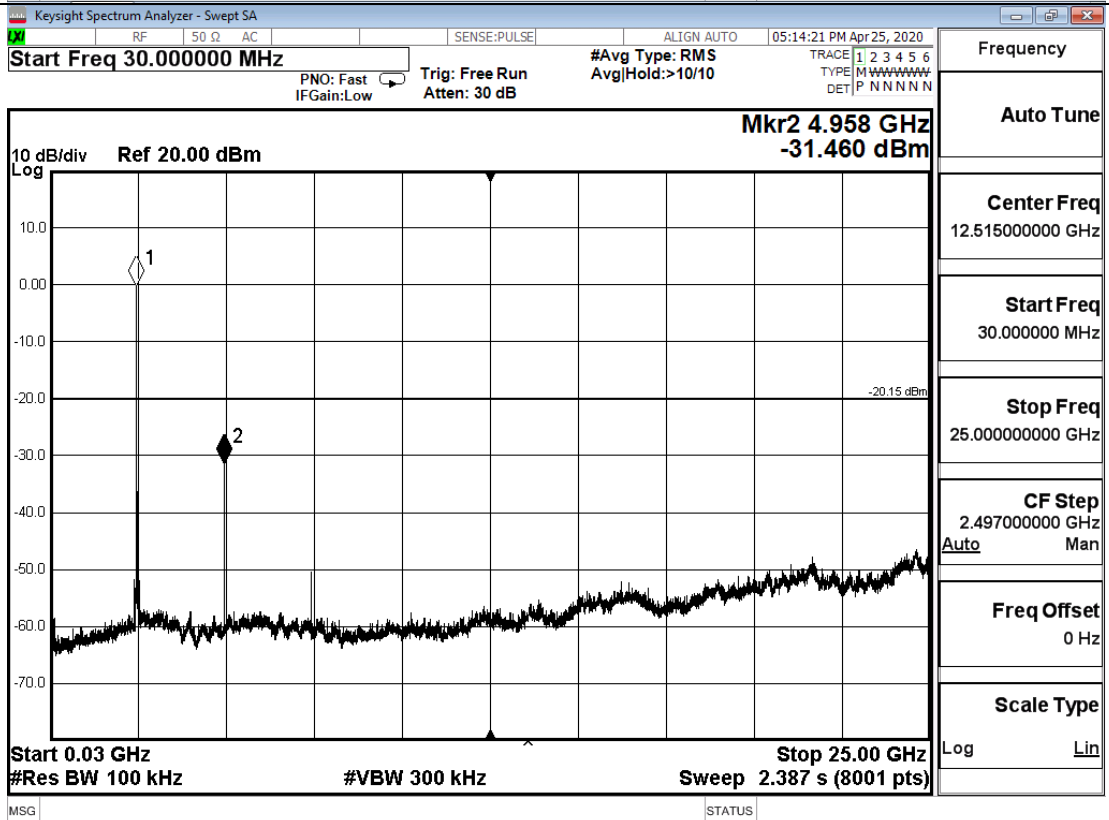


$\pi/4$ DQPSK_HCH_Graphs

Pref



Puw

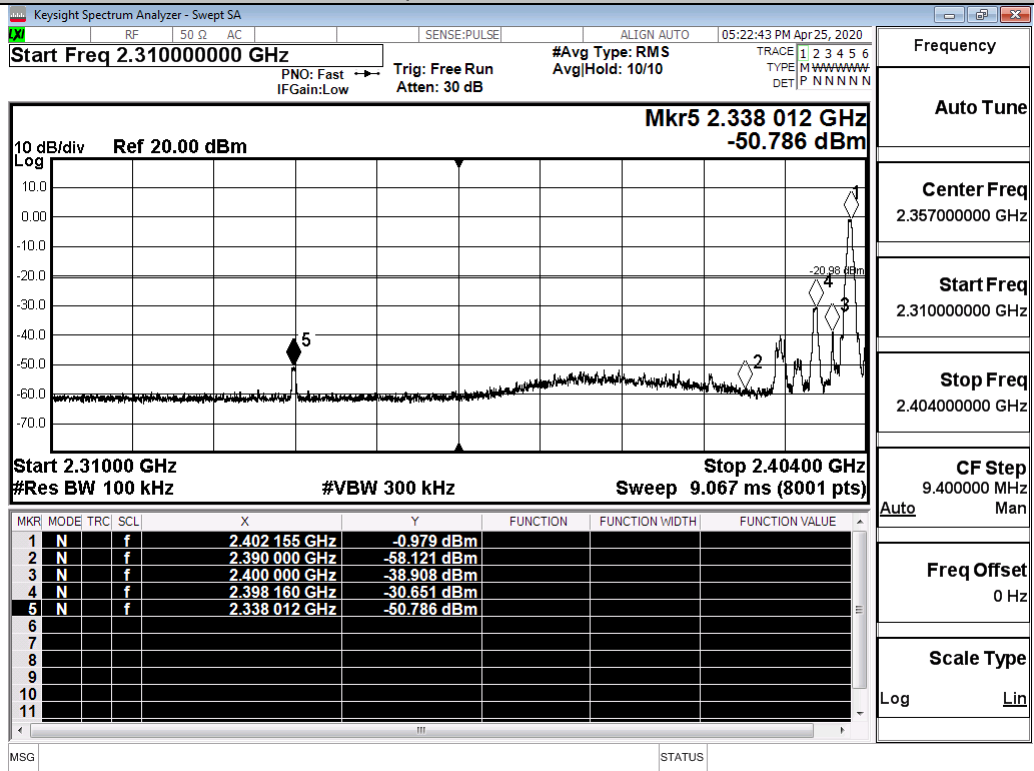


A.7 Band-edge for RF Conducted Emissions

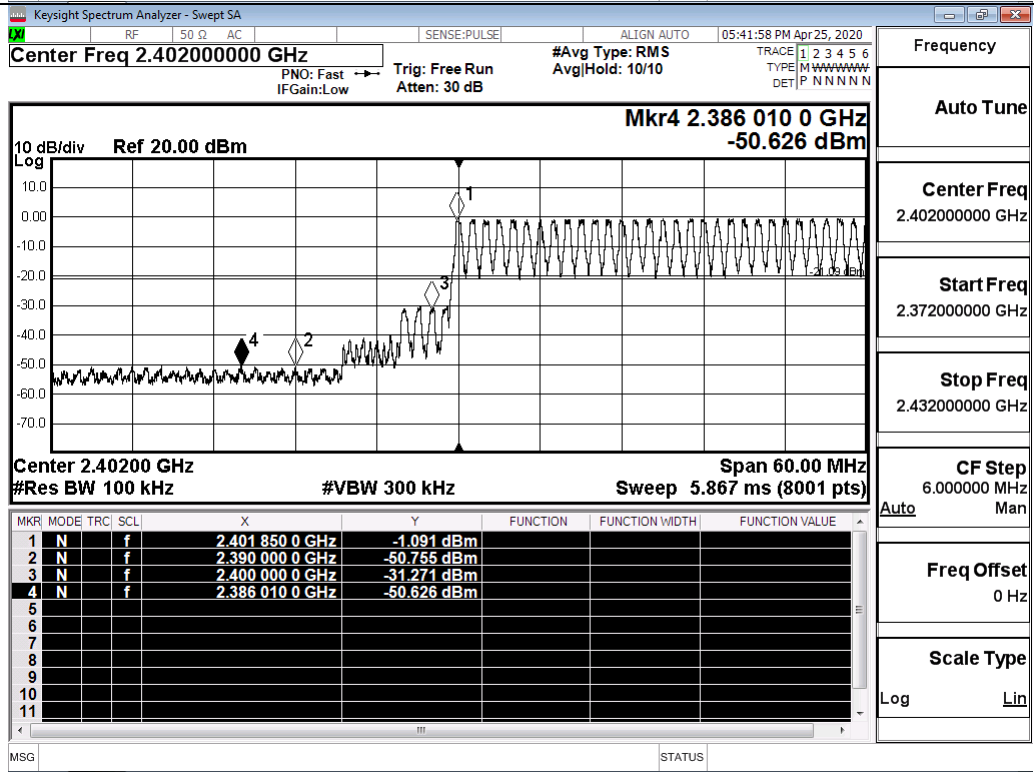
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-0.979	Off	-30.651	-20.98	PASS
			-1.091	On	-31.271	-21.09	PASS
	HCH	2480	-0.029	Off	-35.813	-20.03	PASS
			-0.225	On	-35.951	-20.23	PASS
π /4DQPSK	LCH	2402	-0.982	Off	-30.646	-20.98	PASS
			-1.019	On	-30.924	-21.02	PASS
	HCH	2480	-0.089	Off	-35.984	-20.09	PASS
			-0.131	On	-36.026	-20.13	PASS

Test Graphs

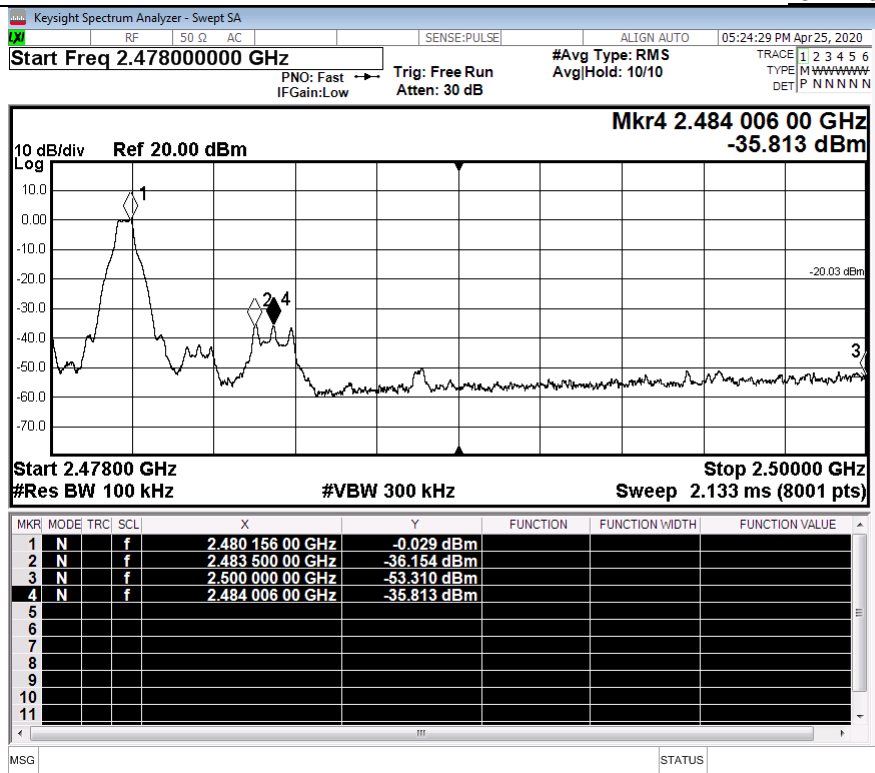
GFSK/LCH/No Hop



GFSK/LCH/Hop

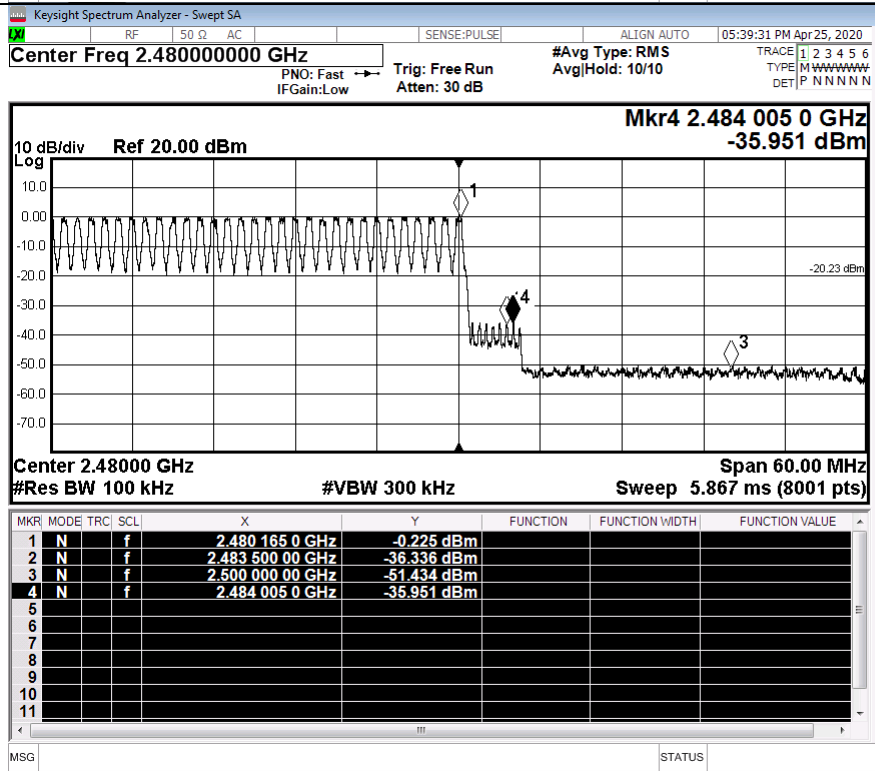


GFSK/HCH/No Hop



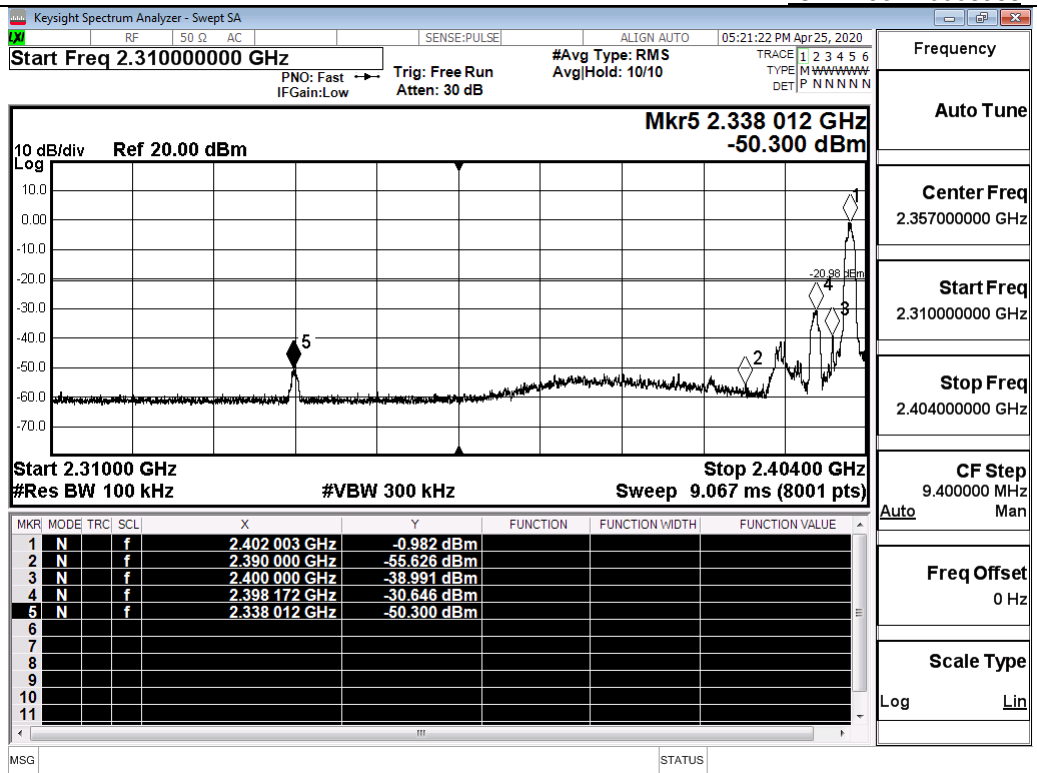
Frequency	
Auto Tune	
Center Freq	2.489000000 GHz
Start Freq	2.478000000 GHz
Stop Freq	2.500000000 GHz
CF Step	2.200000 MHz
Auto	Man
Freq Offset	0 Hz
Scale Type	Log Lin

GFSK/HCH/Hop

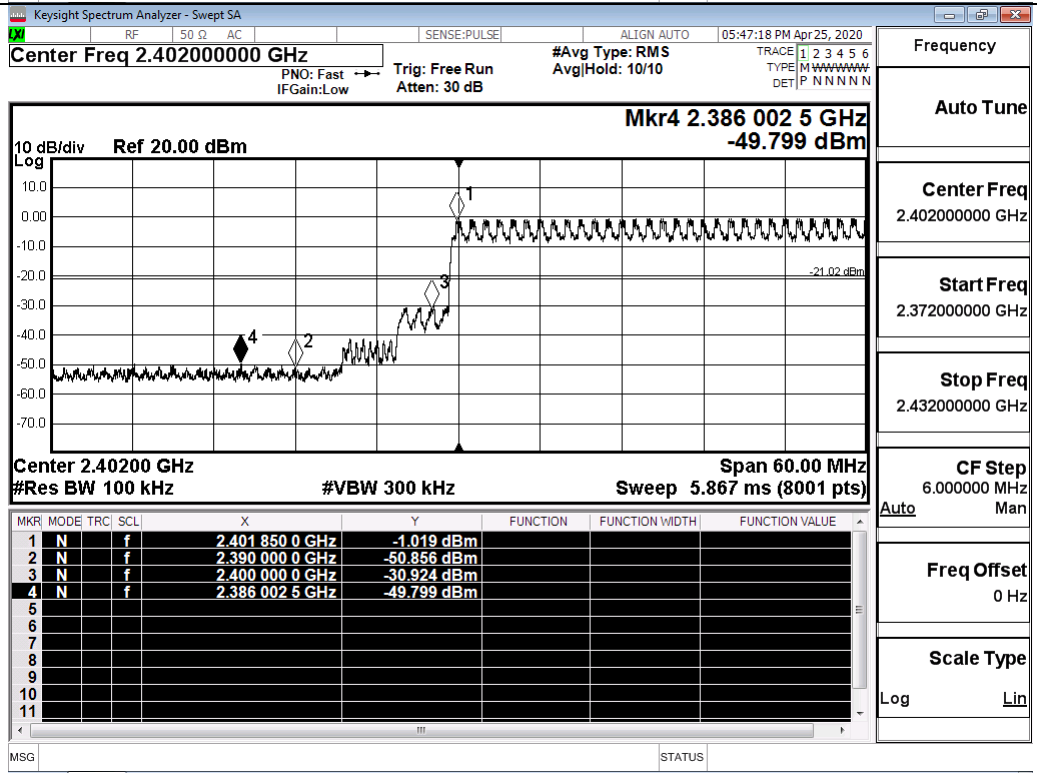


Frequency	
Auto Tune	
Center Freq	2.480000000 GHz
Start Freq	2.450000000 GHz
Stop Freq	2.510000000 GHz
CF Step	6.000000 MHz
Auto	Man
Freq Offset	0 Hz
Scale Type	Log Lin

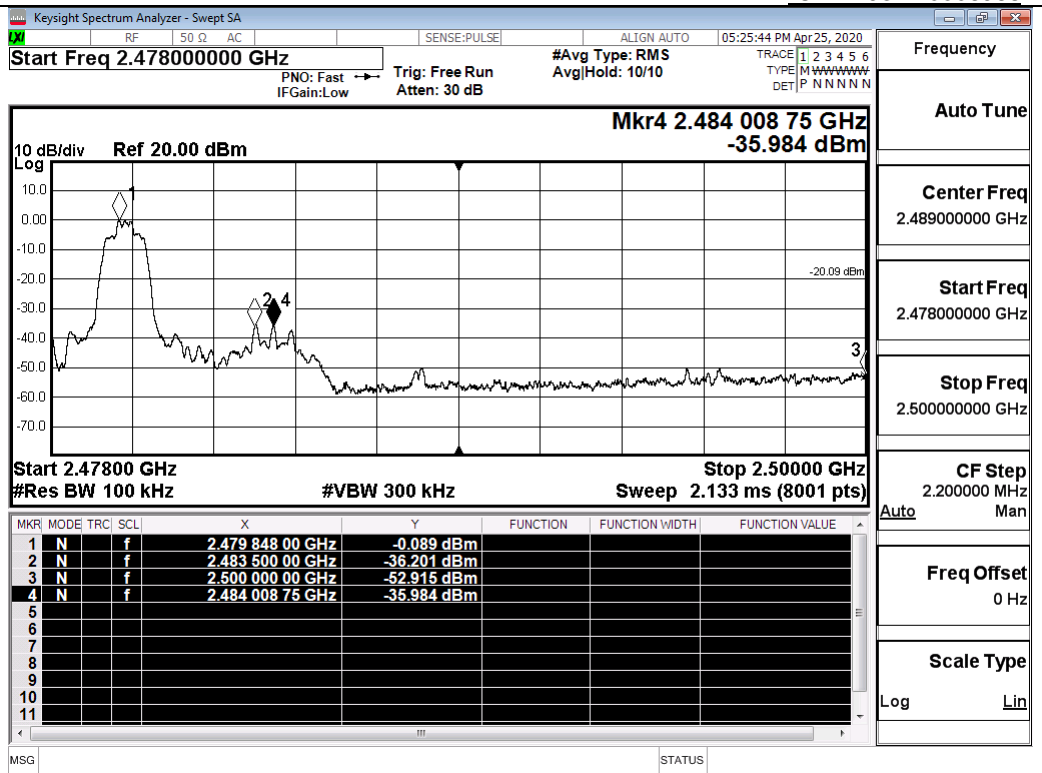
$\pi/4$ DQPSK/LCH/No
Hop



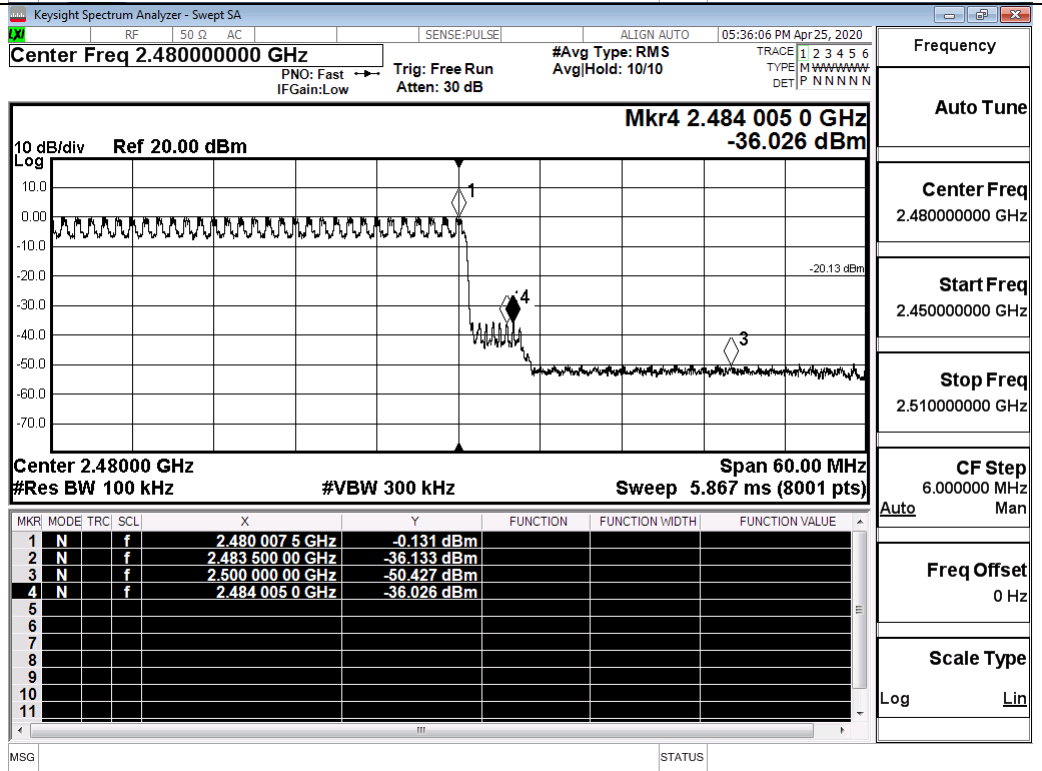
$\pi/4$ DQPSK/LCH/Hop



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



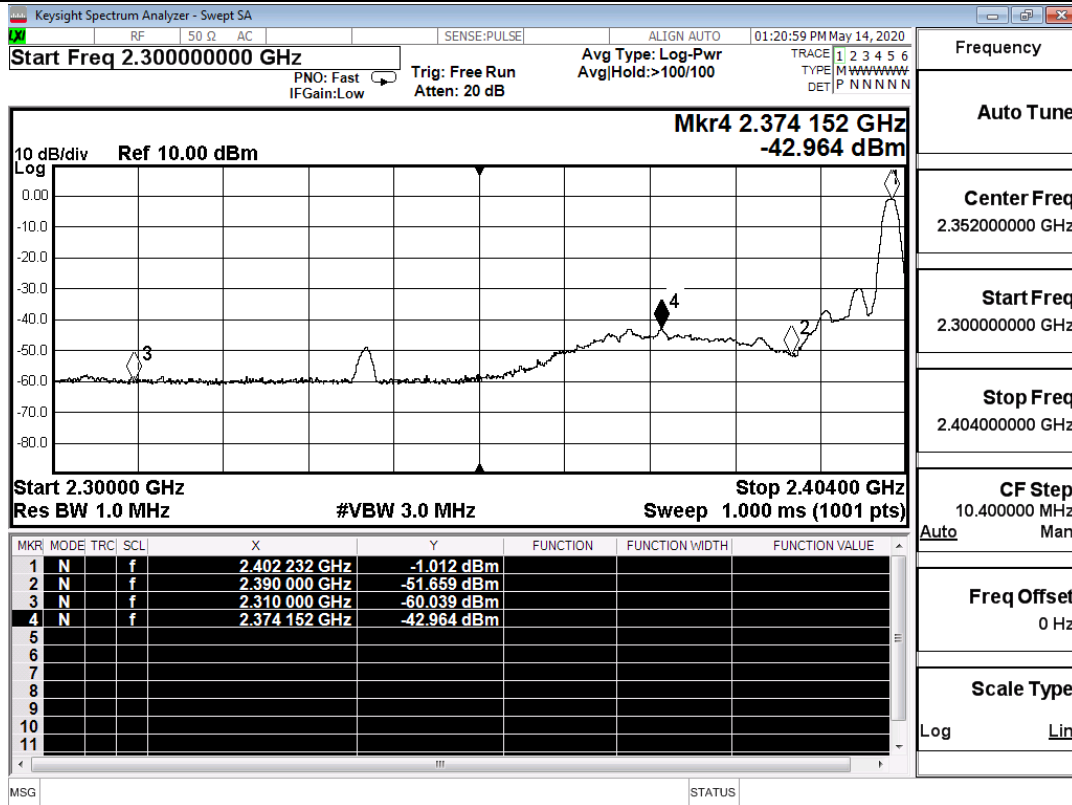
$\pi/4$ DQPSK/HCH/Hop



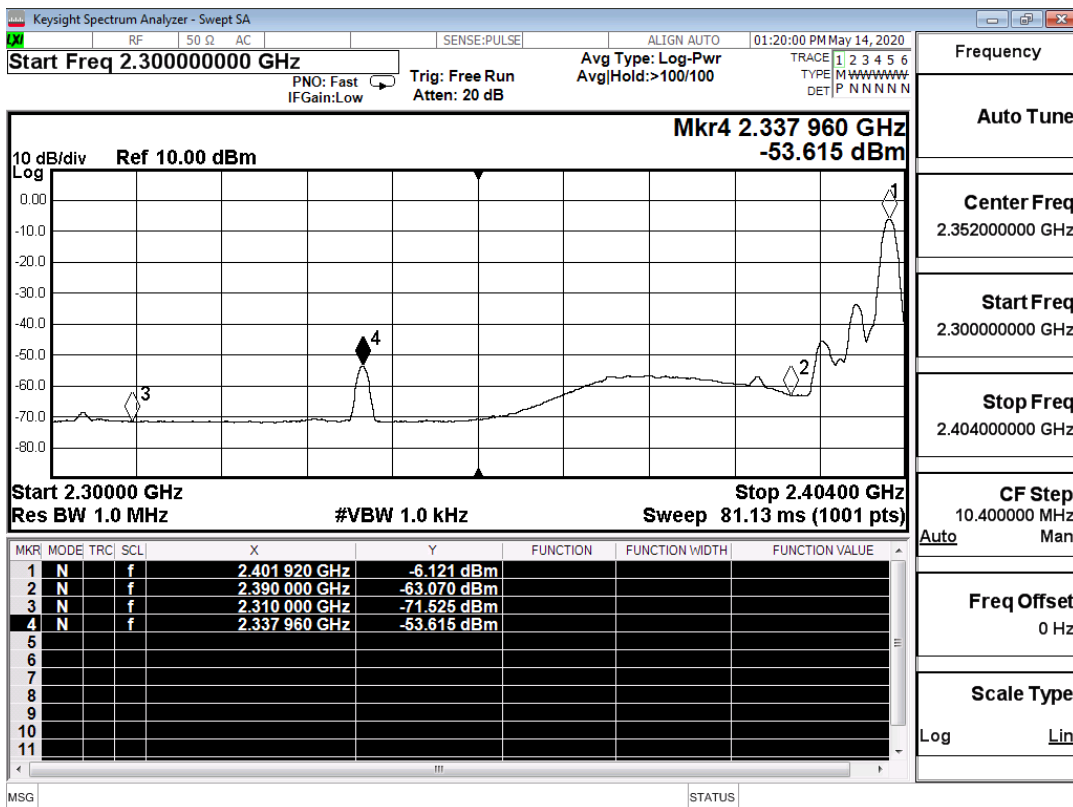
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-60.039	2.0	0	37.19	PEAK	74	PASS
	Off	2310.0	-71.525	2.0	0	25.71	AV	54	PASS
	Off	2374.2	-42.964	2.0	0	54.27	PEAK	74	PASS
	Off	2338.0	-53.615	2.0	0	43.62	AV	54	PASS
	Off	2390.0	-51.659	2.0	0	45.57	PEAK	74	PASS
	Off	2390.0	-63.070	2.0	0	34.16	AV	54	PASS
	Off	2483.5	-41.540	2.0	0	55.69	PEAK	74	PASS
	Off	2483.5	-49.203	2.0	0	48.03	AV	54	PASS
	Off	2483.9	-46.929	2.0	0	50.30	AV	54	PASS
	Off	2500.0	-47.573	2.0	0	49.66	PEAK	74	PASS
	Off	2500.0	-58.351	2.0	0	38.88	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-60.705	2.0	0	36.53	PEAK	74	PASS
	Off	2310.0	-71.401	2.0	0	25.83	AV	54	PASS
	Off	2368.4	-44.072	2.0	0	53.16	PEAK	74	PASS
	Off	2338.1	-55.209	2.0	0	42.02	AV	54	PASS
	Off	2390.0	-51.795	2.0	0	45.44	PEAK	74	PASS
	Off	2390.0	-62.234	2.0	0	35.00	AV	54	PASS
	Off	2483.5	-40.633	2.0	0	56.60	PEAK	74	PASS
	Off	2483.5	-52.345	2.0	0	44.89	AV	54	PASS
	Off	2484.1	-49.932	2.0	0	47.30	AV	54	PASS
	Off	2500.0	-47.648	2.0	0	49.58	PEAK	74	PASS
	Off	2500.0	-58.381	2.0	0	38.85	AV	54	PASS

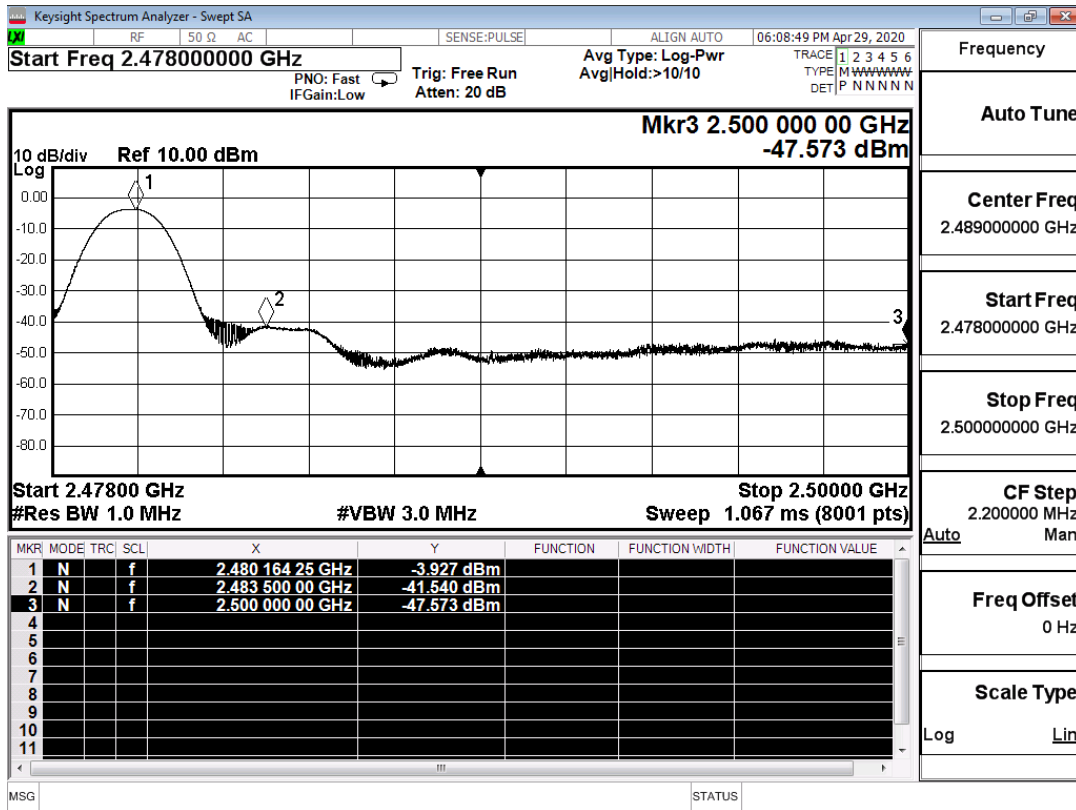
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



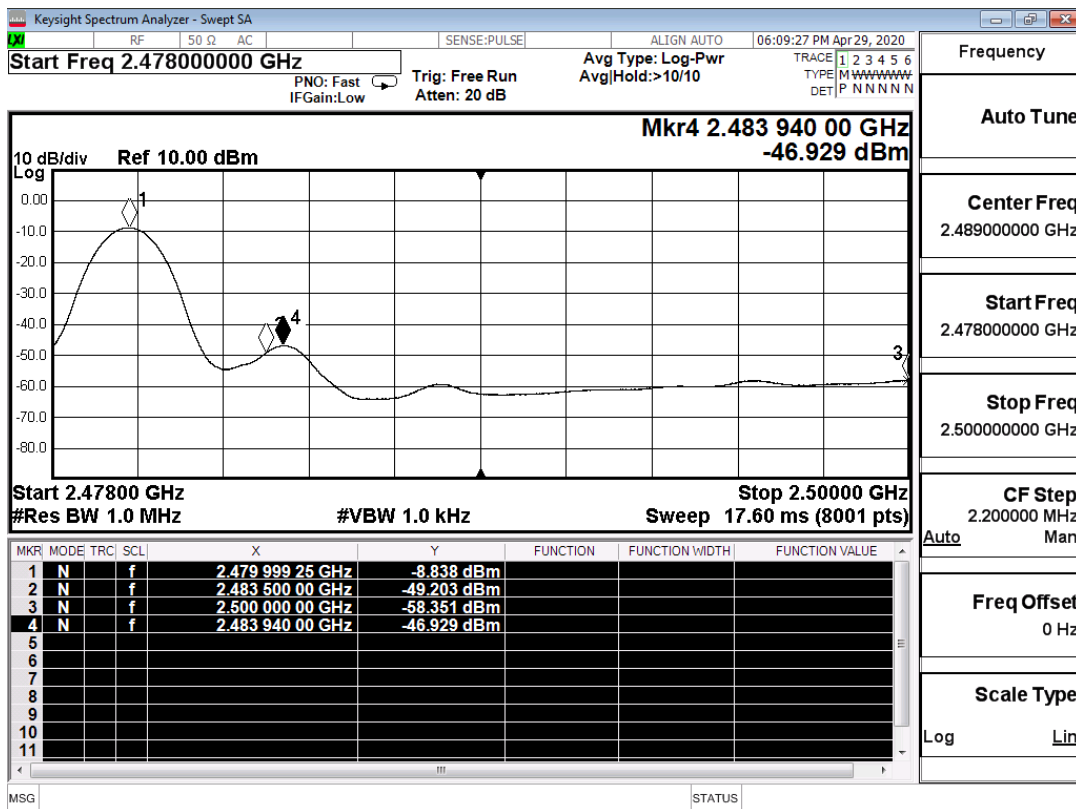
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



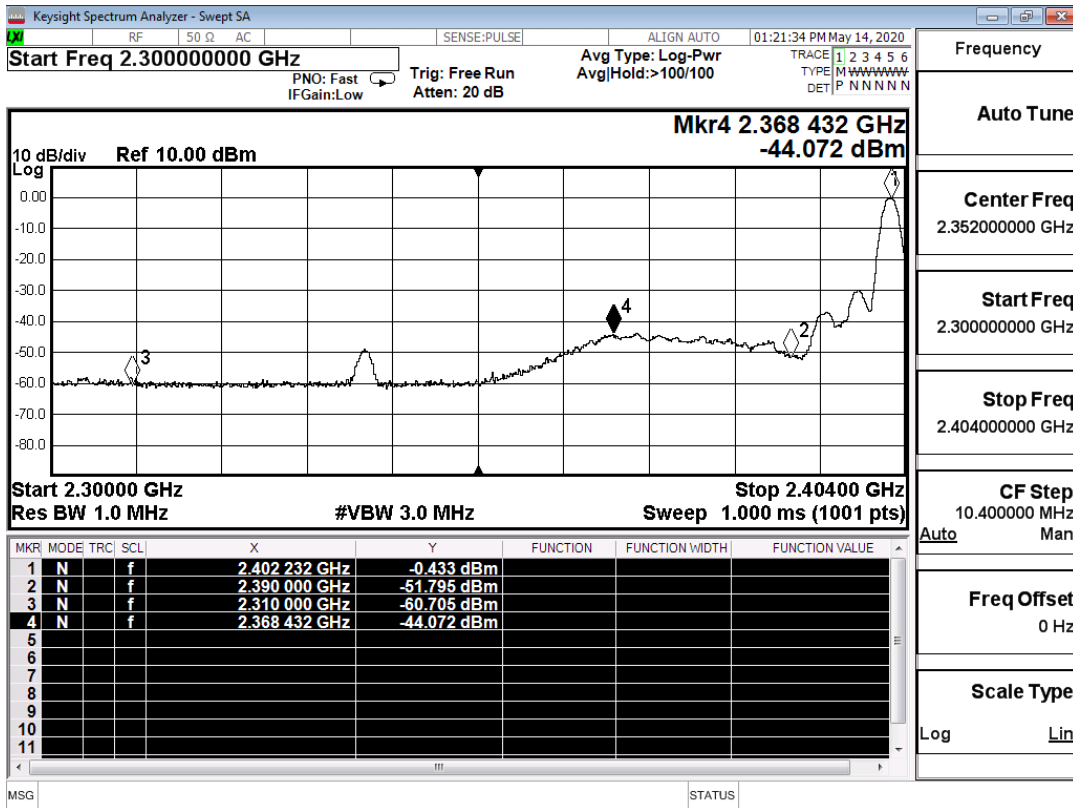
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



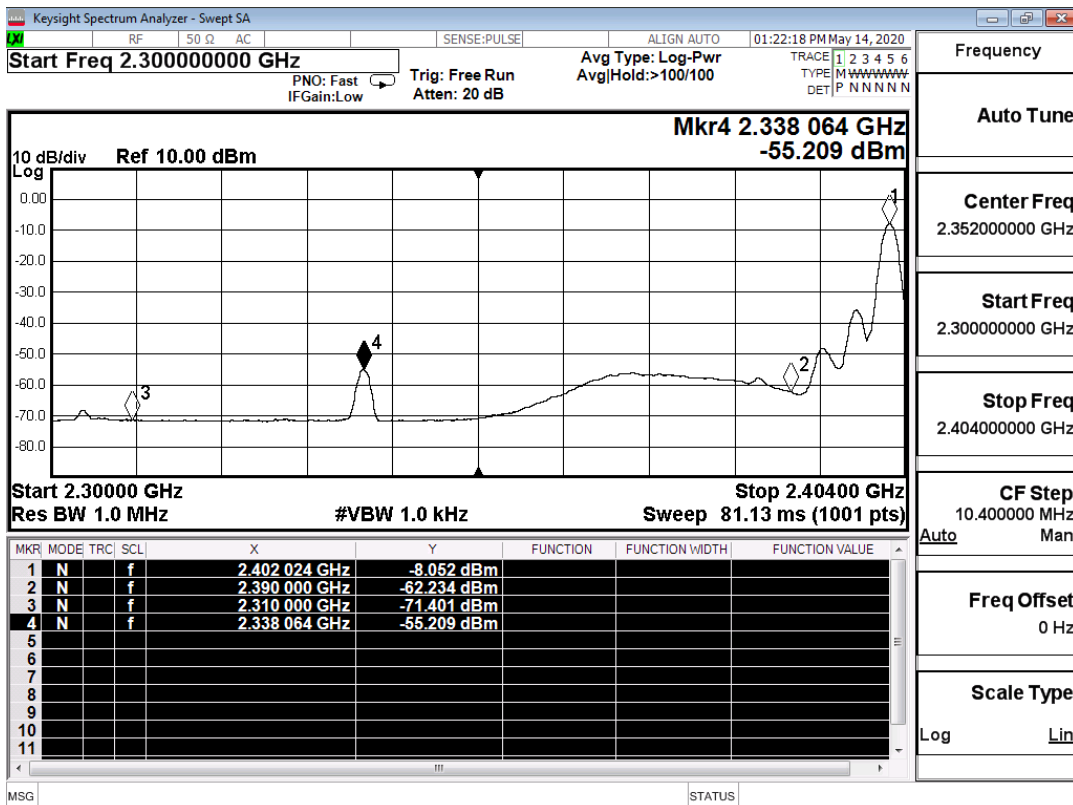
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



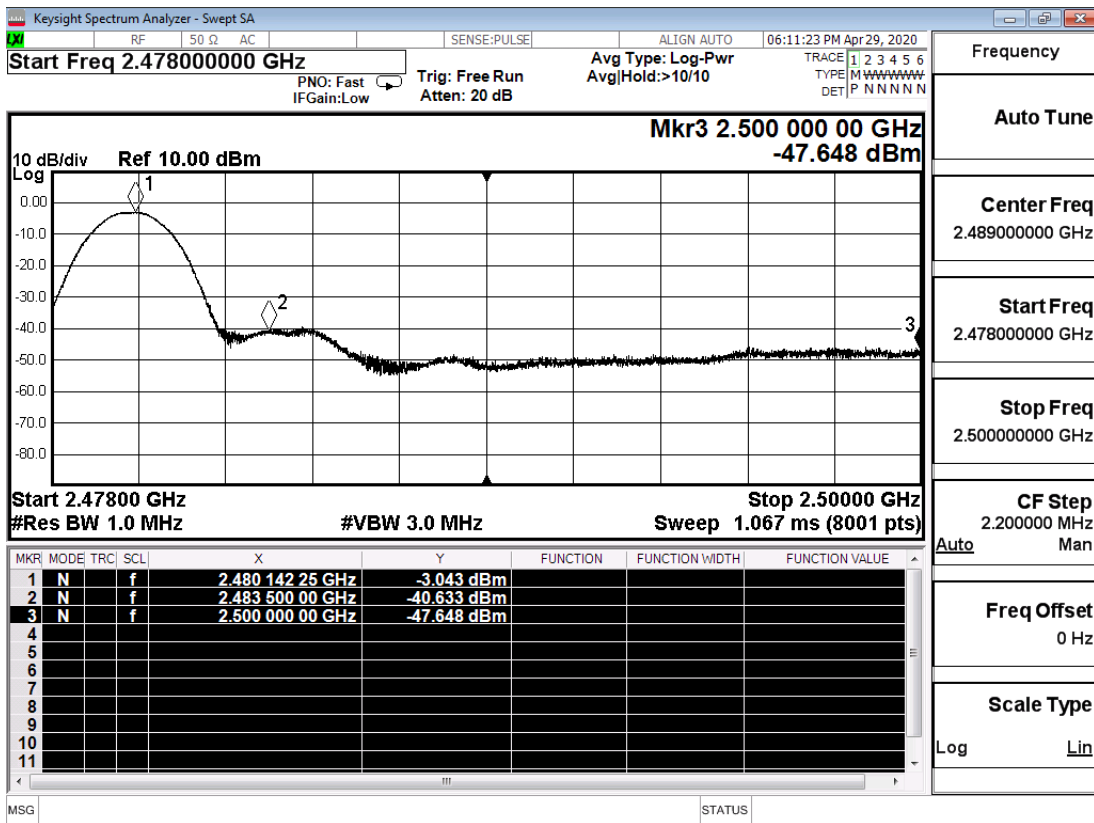
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



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



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



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

