

Appendix A

RF Test Data for BT V4.0(BDR/EDR) (Conducted Measurement)

Product Name: Projector

Trade Mark: N/A

Test Model: F-206

Environmental Conditions

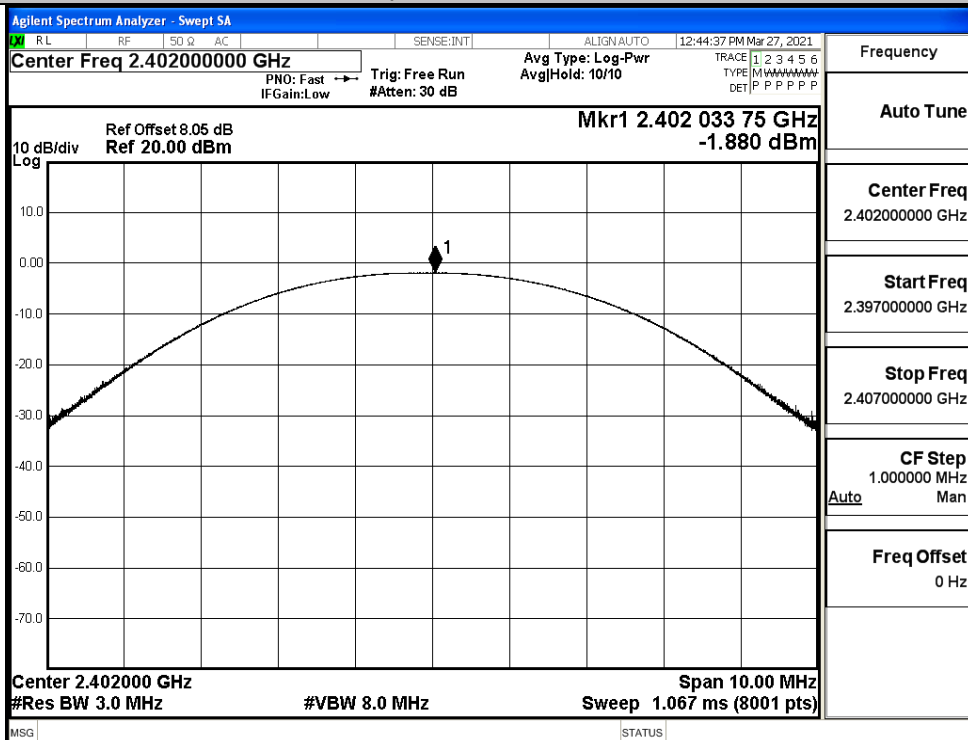
Temperature:	24.6° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Kay Hu
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

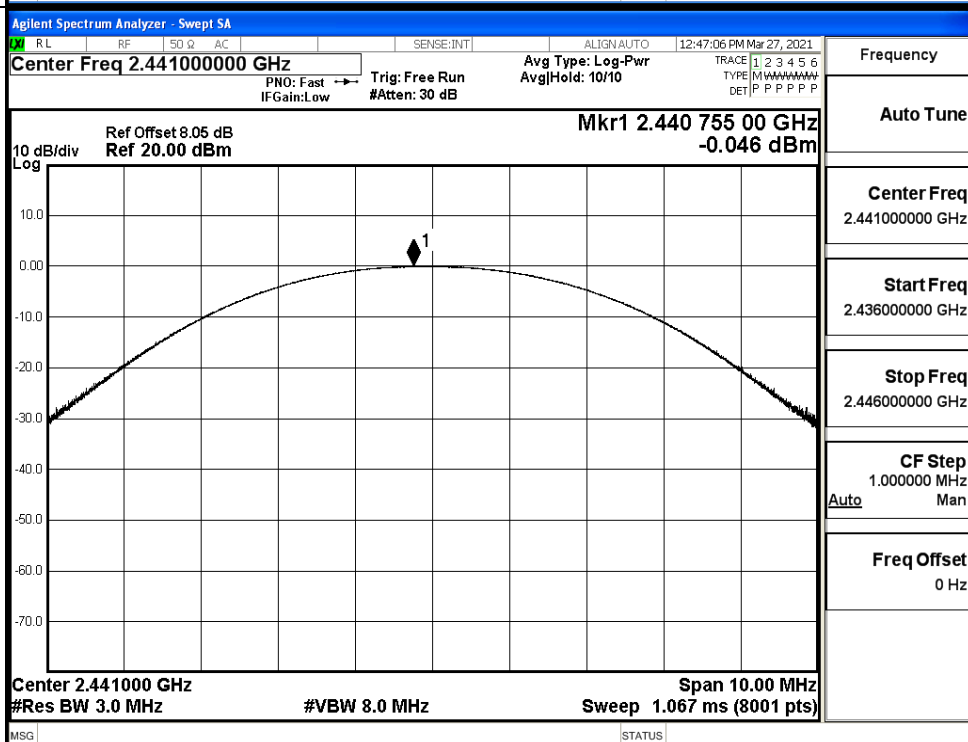
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-1.880	21	PASS
	MCH	-0.046	21	PASS
	HCH	-0.242	21	PASS
$\pi/4$ DQPSK	LCH	0.366	21	PASS
	MCH	2.142	21	PASS
	HCH	1.956	21	PASS
8DPSK	LCH	0.888	21	PASS
	MCH	-0.323	21	PASS
	HCH	-0.249	21	PASS

Test Graphs

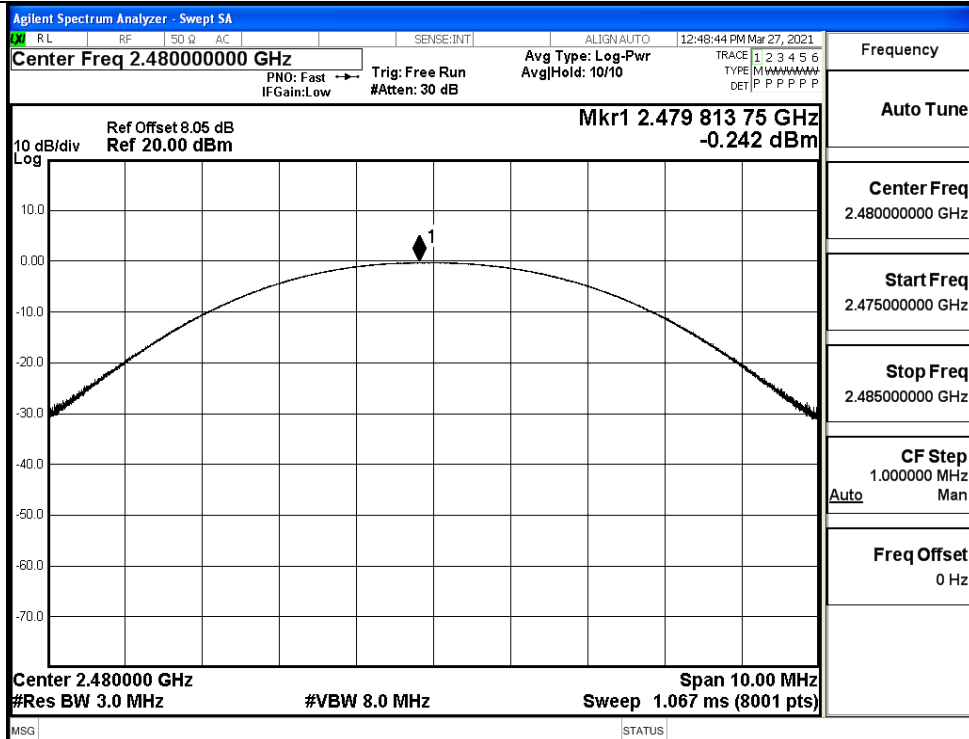
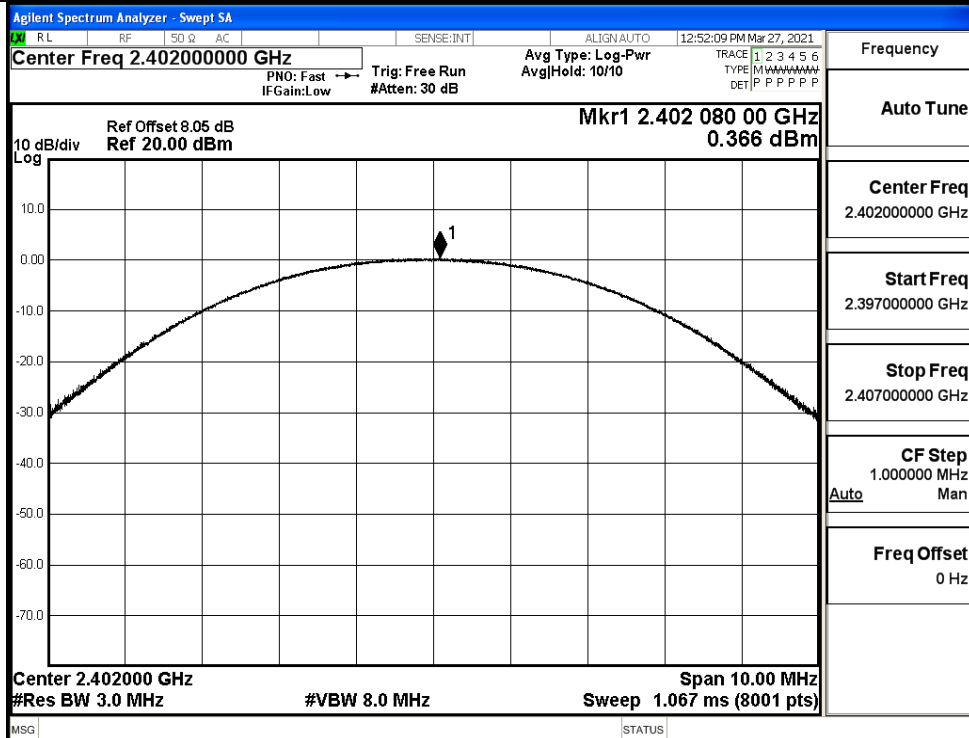
GFSK/LCH

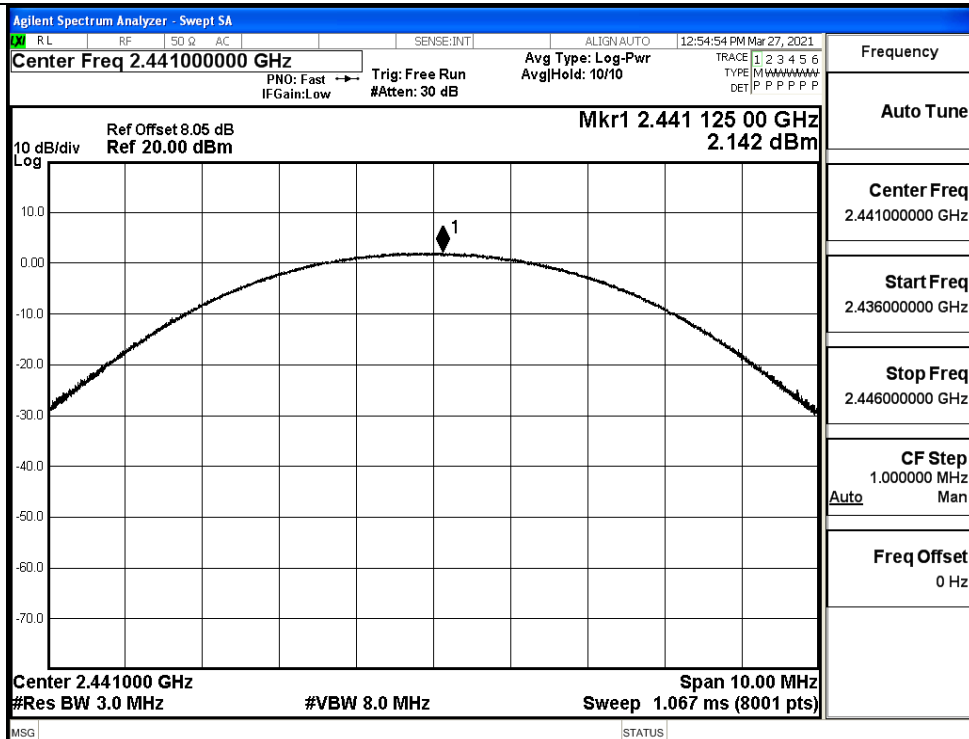
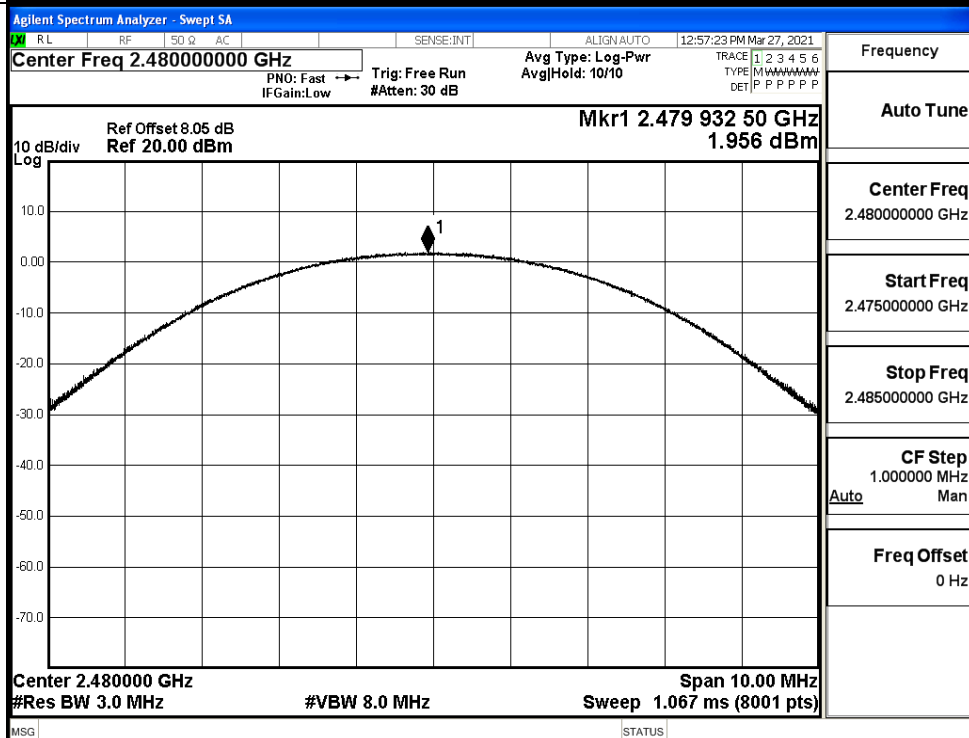


GFSK/MCH

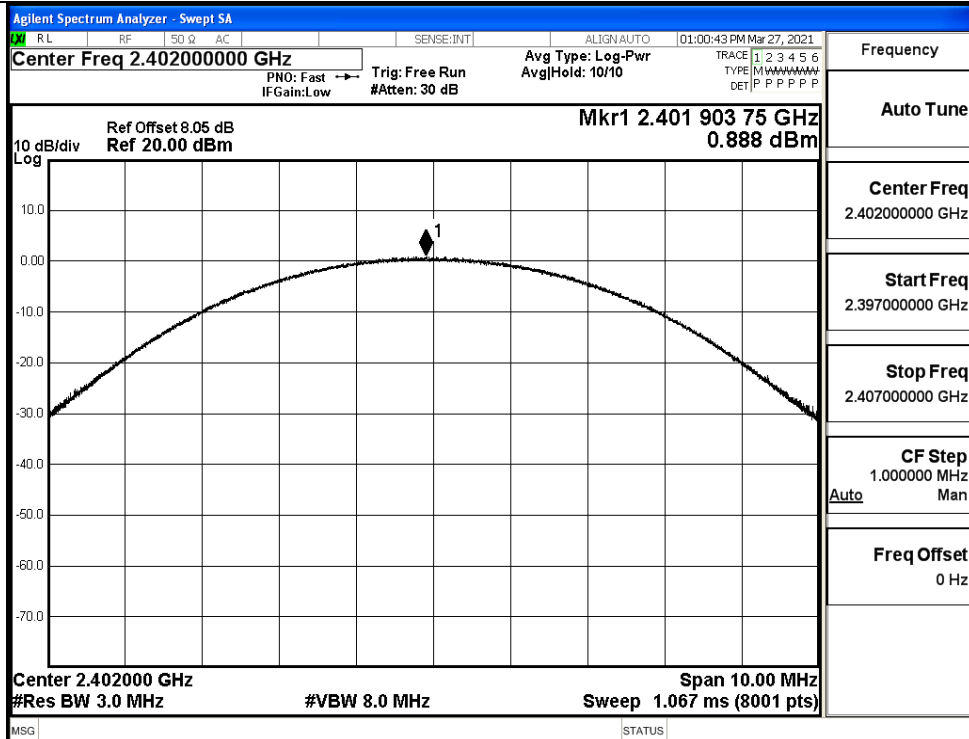


GFSK/HCH

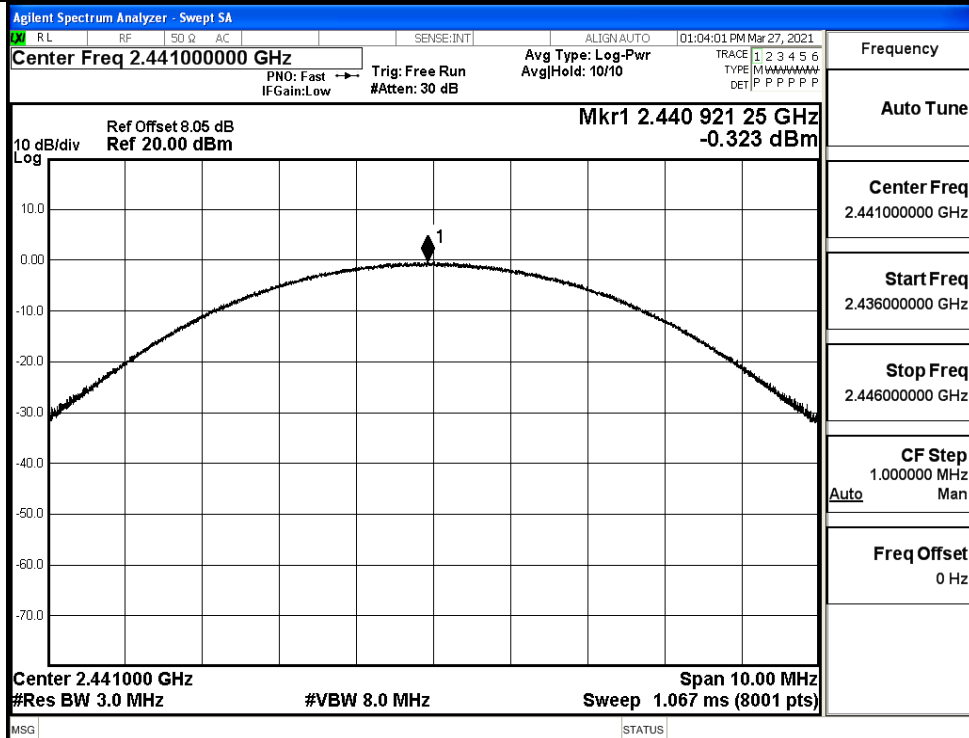
 $\pi/4$ DQPSK/LCH

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

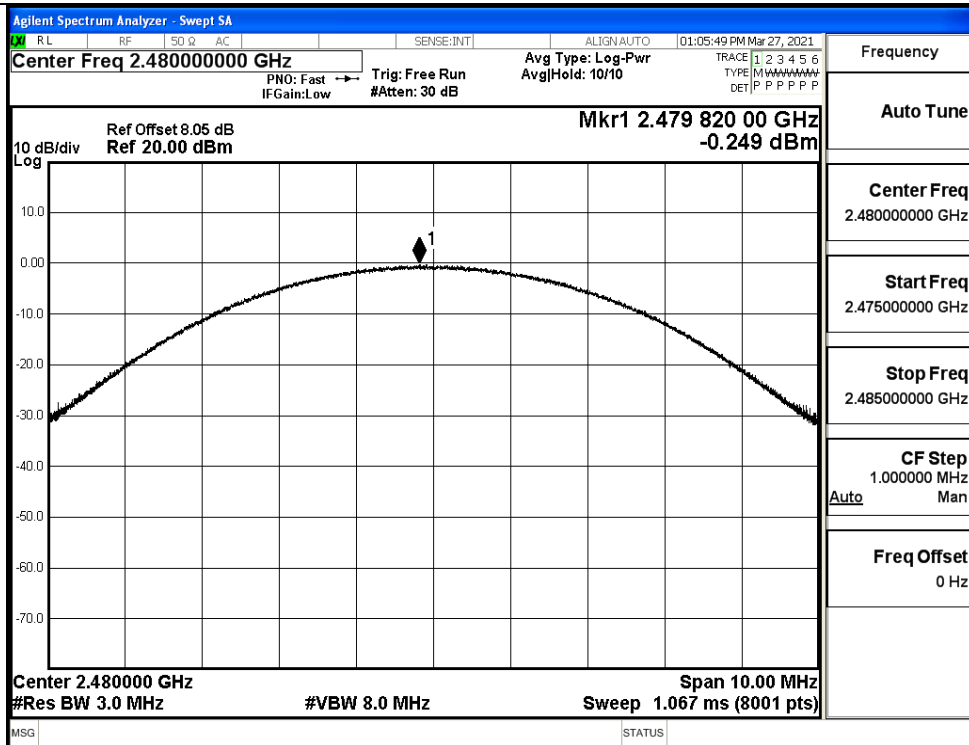
8DPSK/LCH



8DPSK/MCH



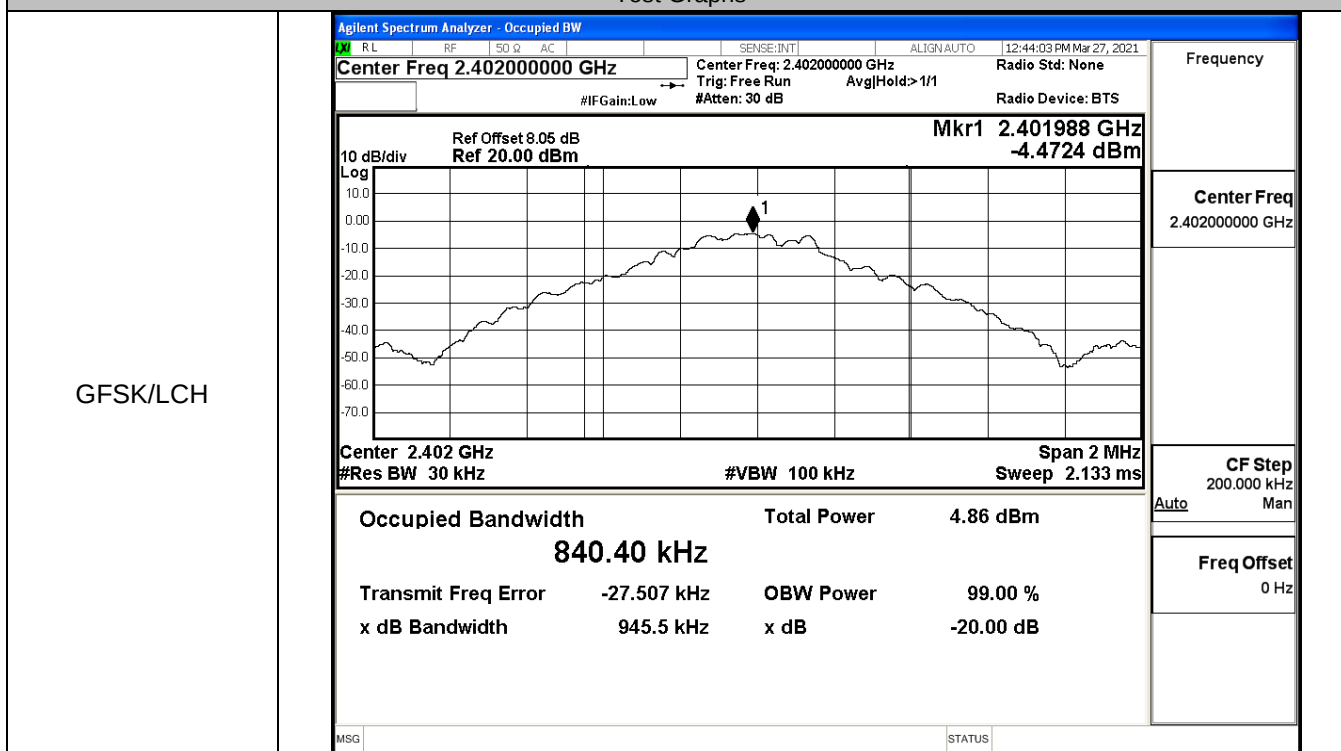
8DPSK/HCH



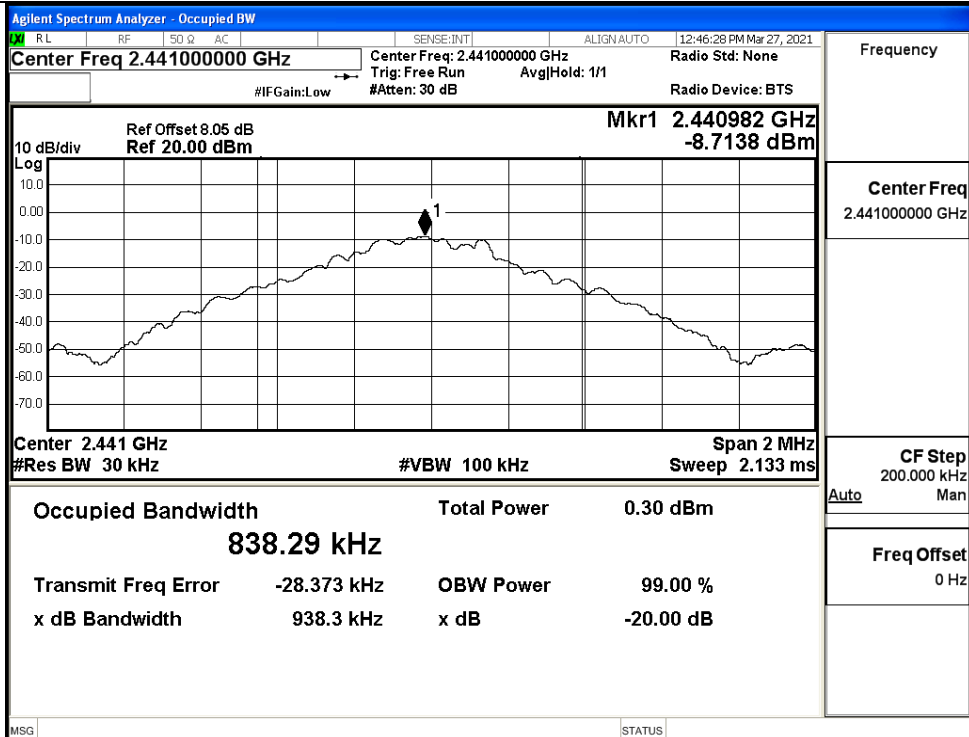
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9455	Not Specified	PASS
	MCH	0.9383	Not Specified	PASS
	HCH	0.9357	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.318	Not Specified	PASS
	MCH	1.313	Not Specified	PASS
	HCH	1.321	Not Specified	PASS
8DPSK	LCH	1.313	Not Specified	PASS
	MCH	1.308	Not Specified	PASS
	HCH	1.309	Not Specified	PASS

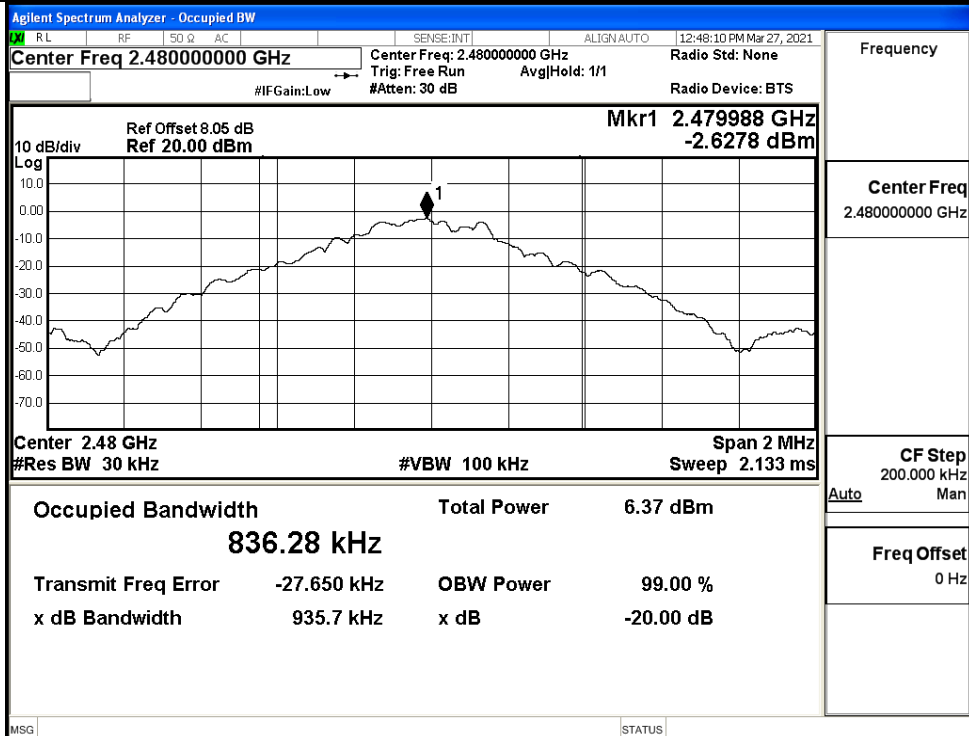
Test Graphs

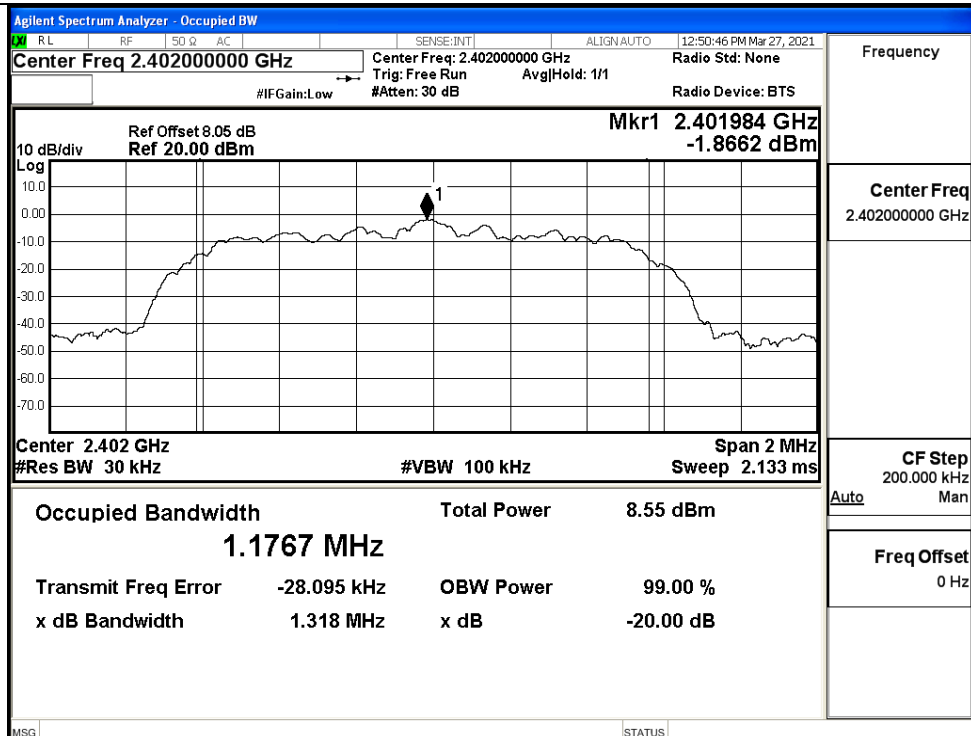
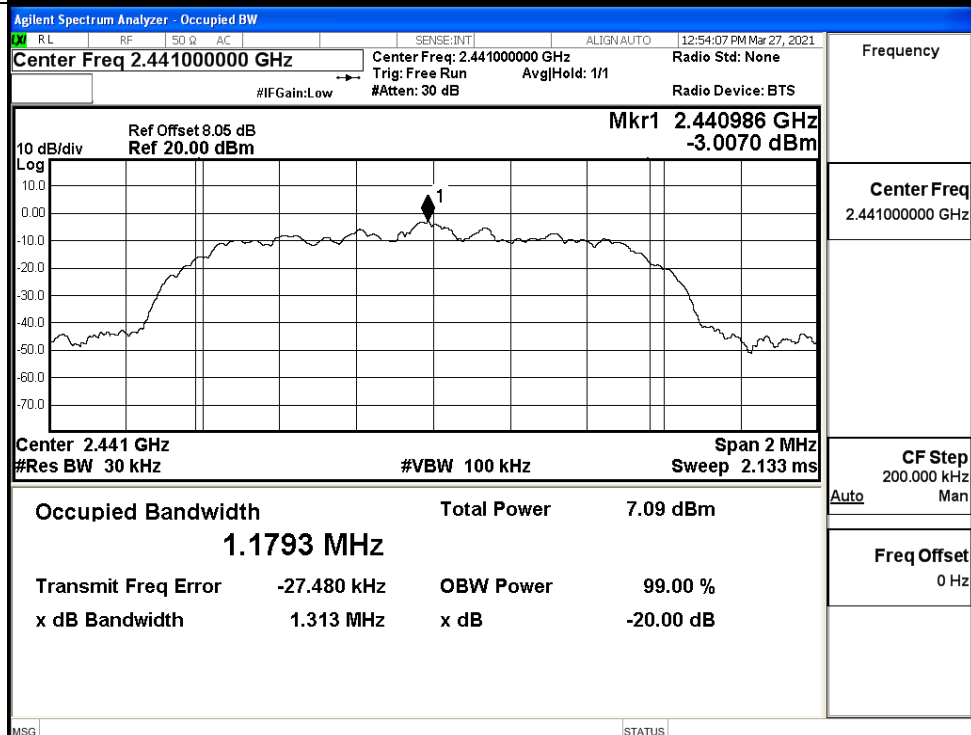


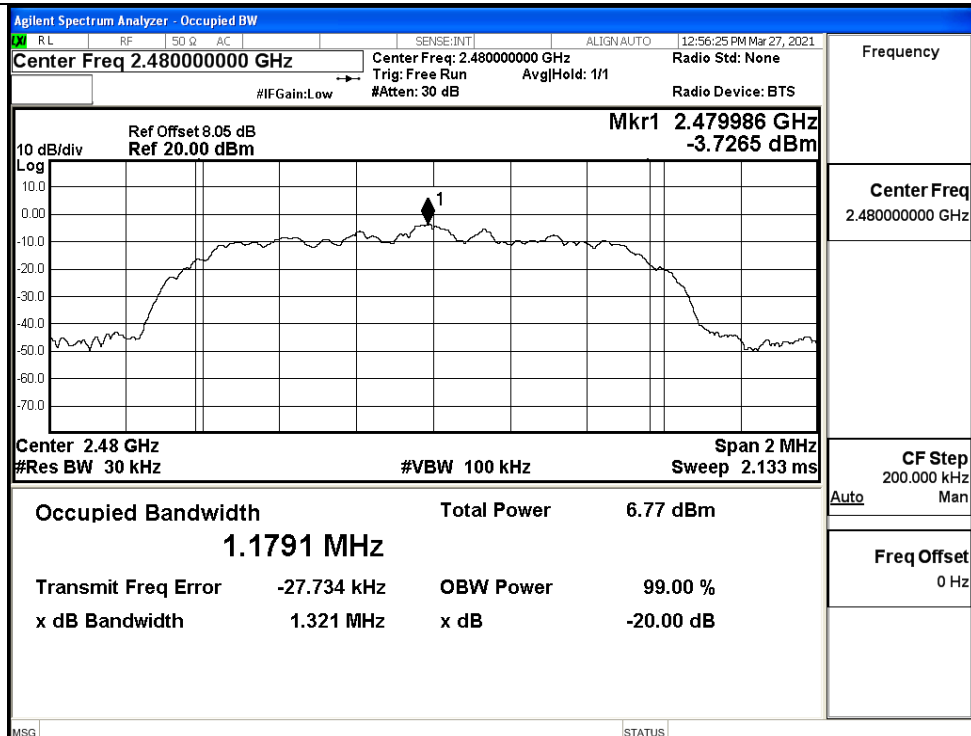
GFSK/MCH



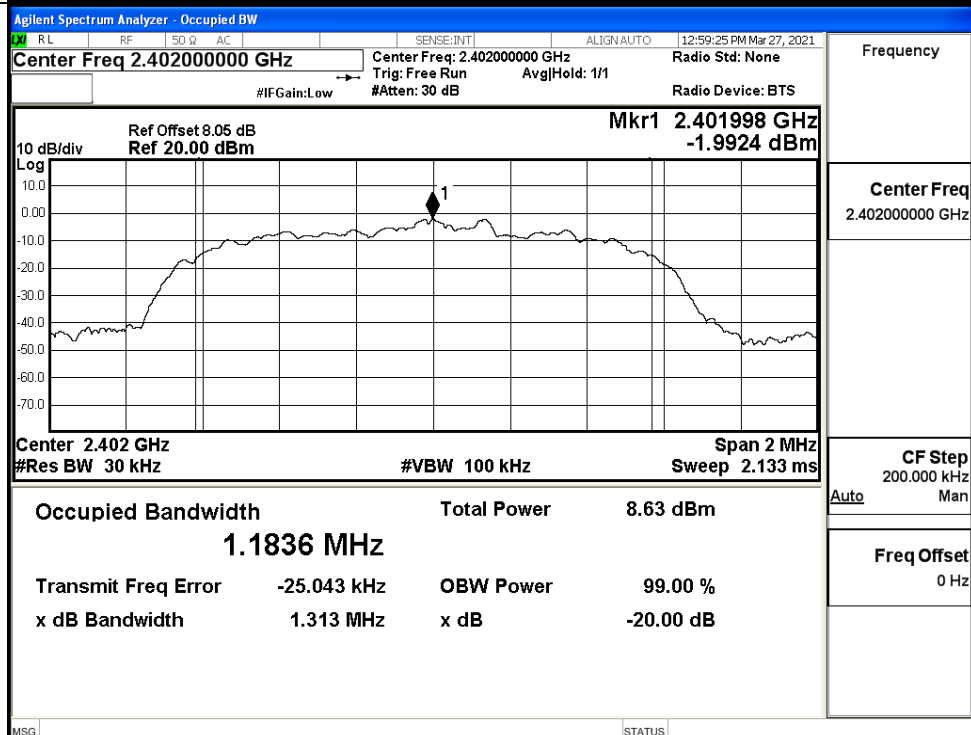
GFSK/HCH



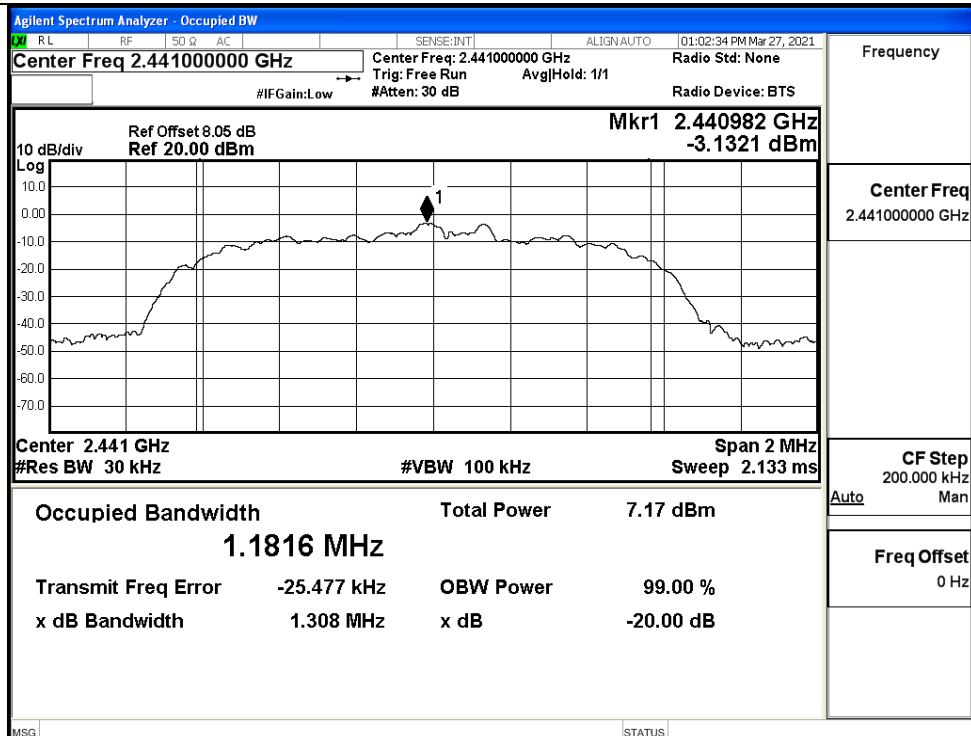
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

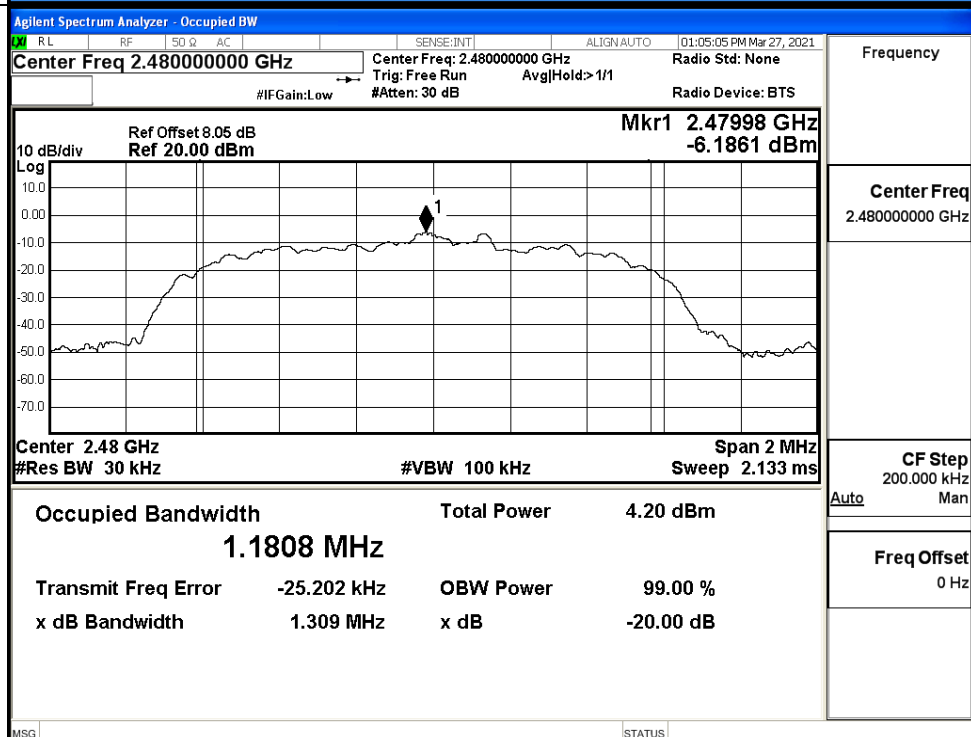
8DPSK/LCH



8DPSK/MCH



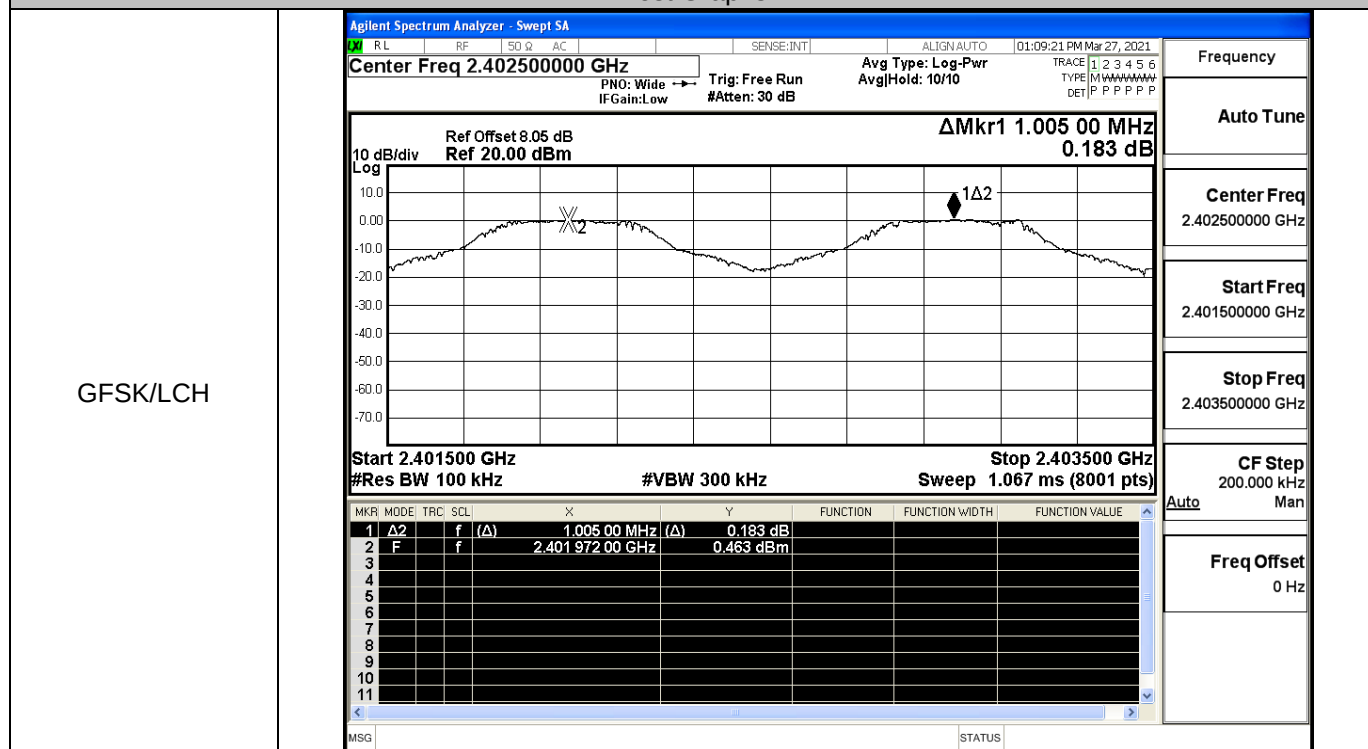
8DPSK/HCH



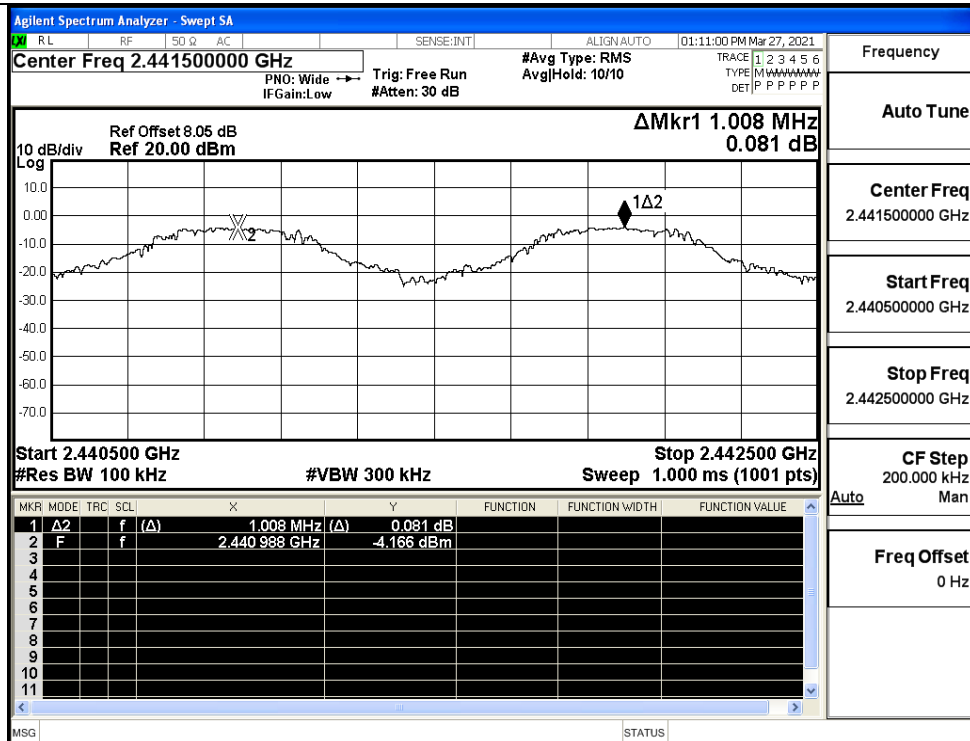
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.005	0.630	PASS
	MCH	1.008	0.630	PASS
	HCH	0.884	0.630	PASS
$\pi/4$ DQPSK	LCH	1.180	0.881	PASS
	MCH	0.976	0.881	PASS
	HCH	1.050	0.881	PASS
8DPSK	LCH	1.210	0.875	PASS
	MCH	1.146	0.875	PASS
	HCH	0.950	0.875	PASS

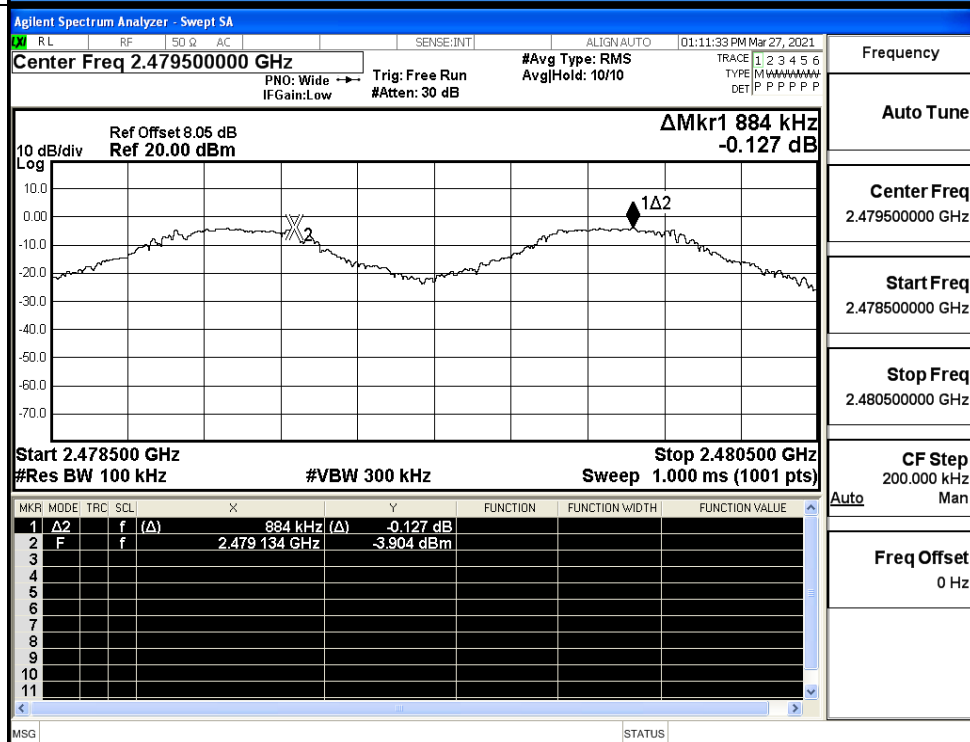
Test Graphs

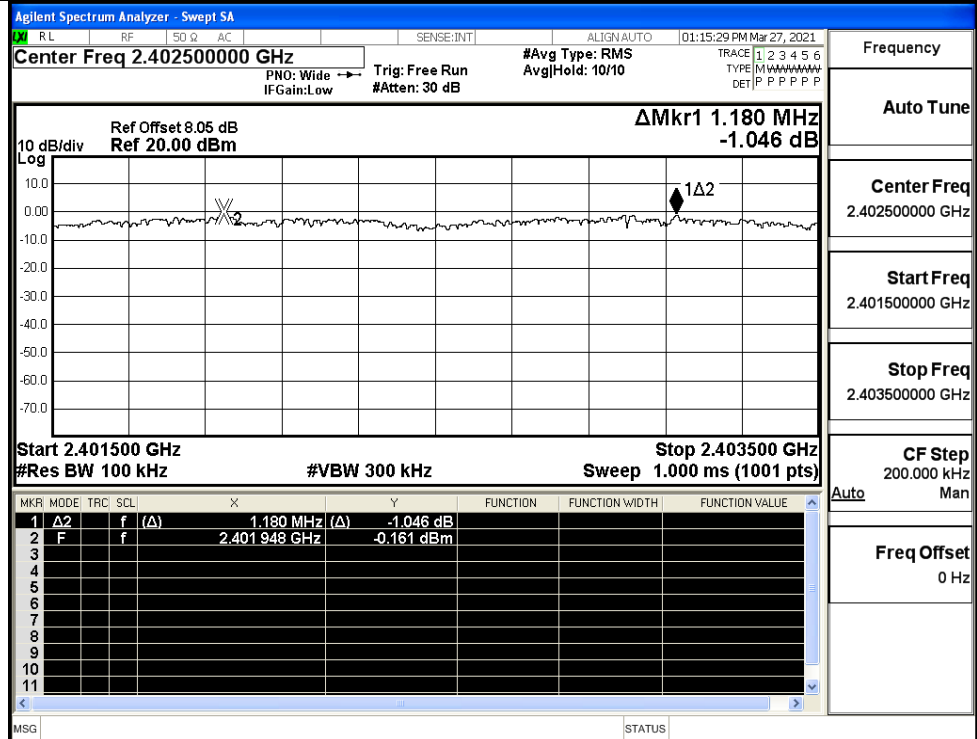
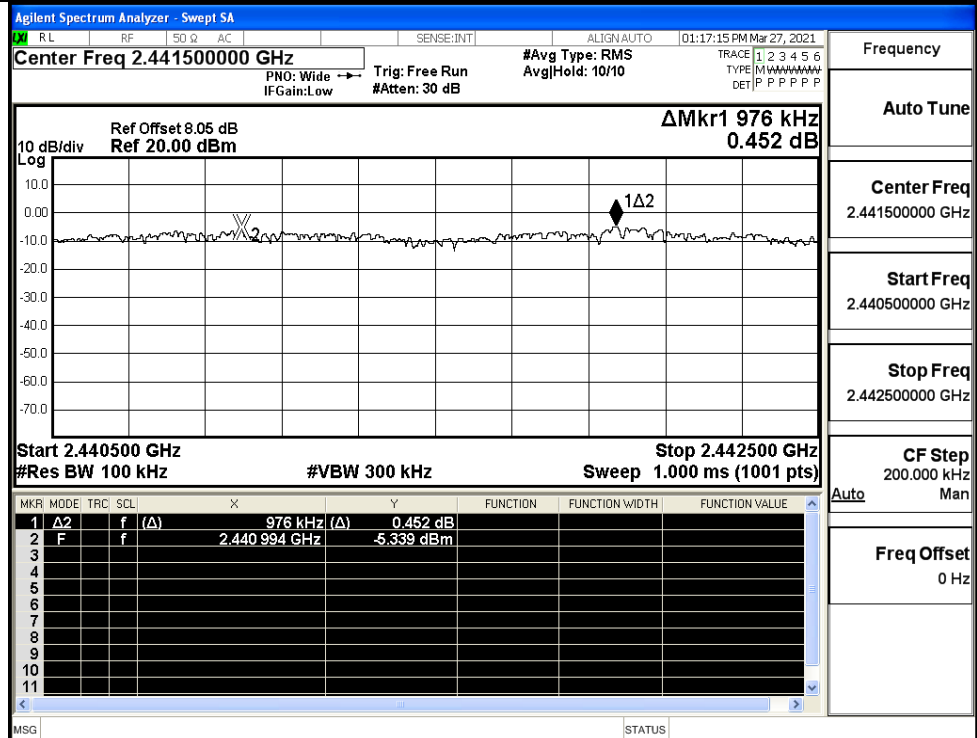


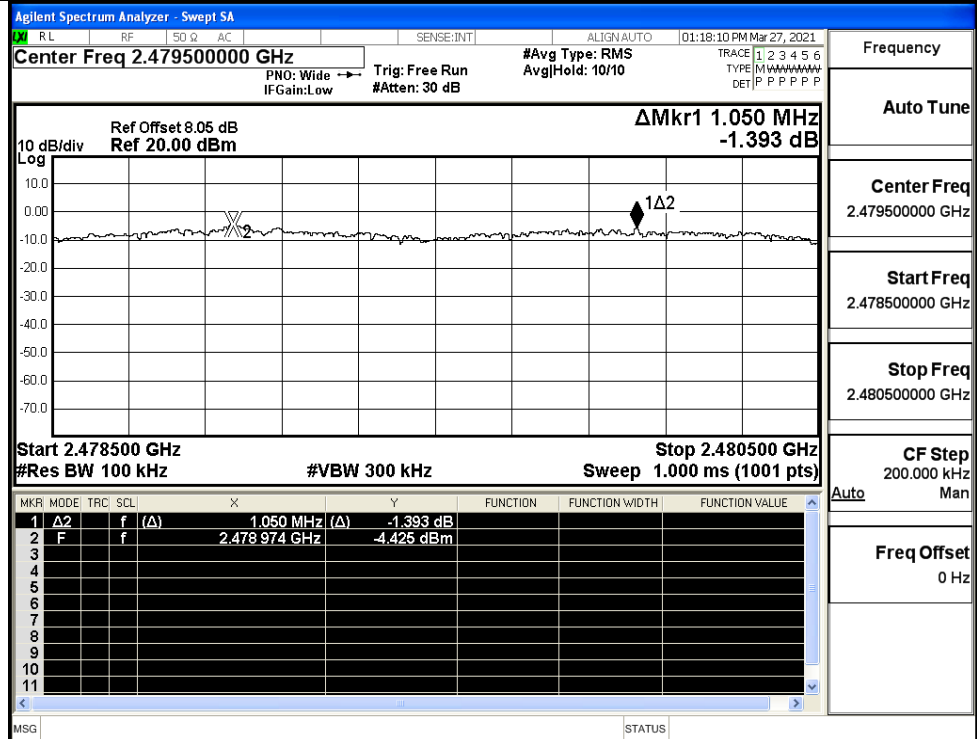
GFSK/MCH



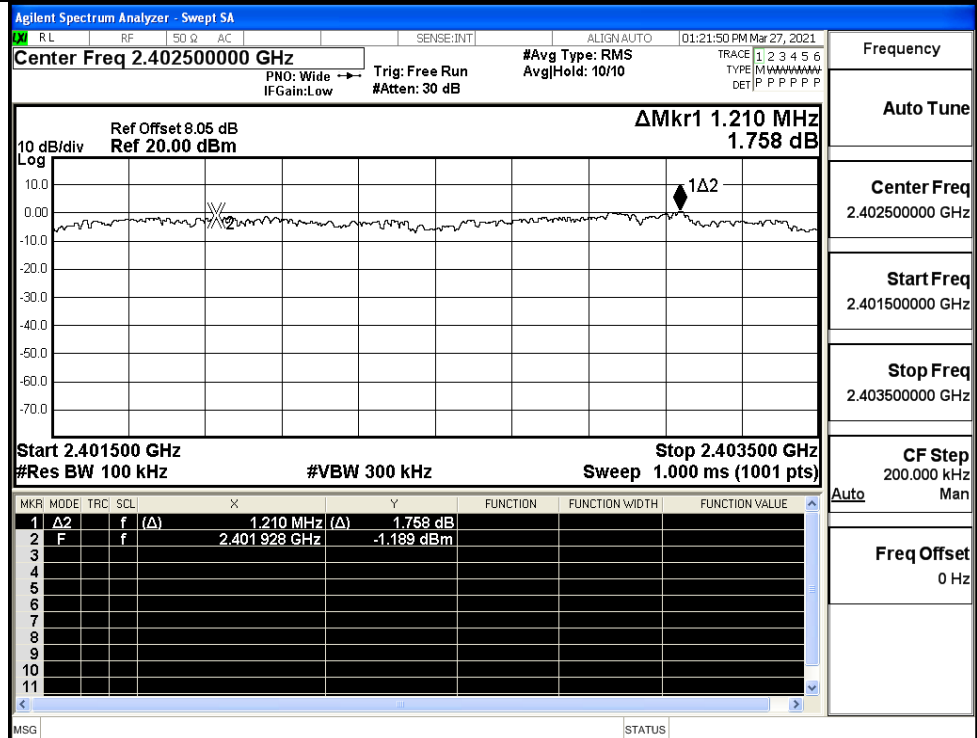
GFSK/HCH



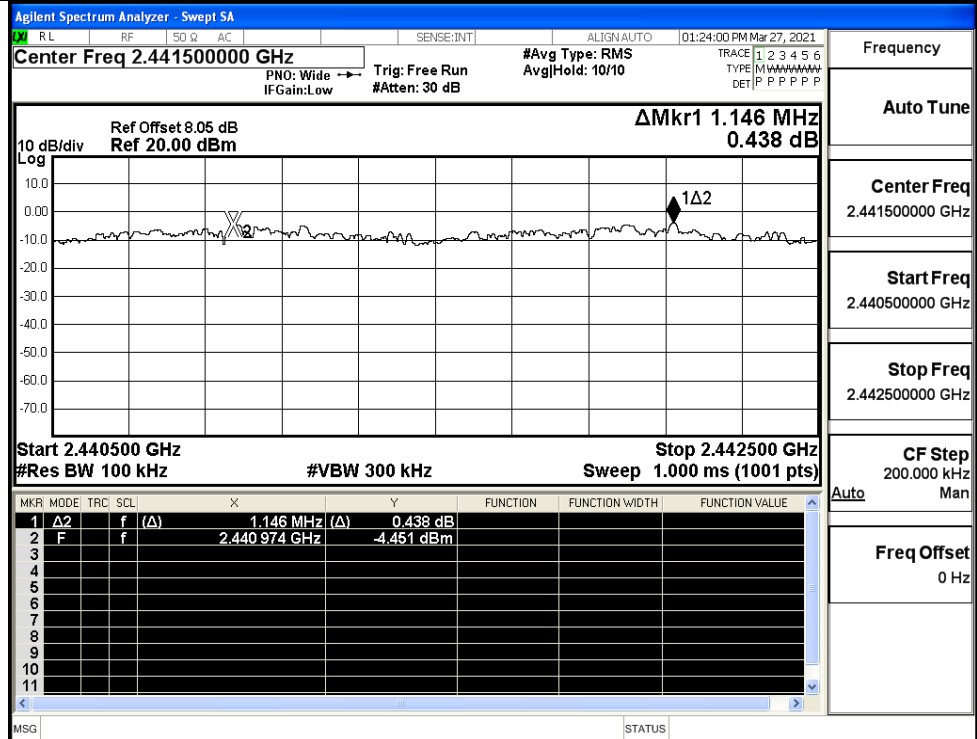
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

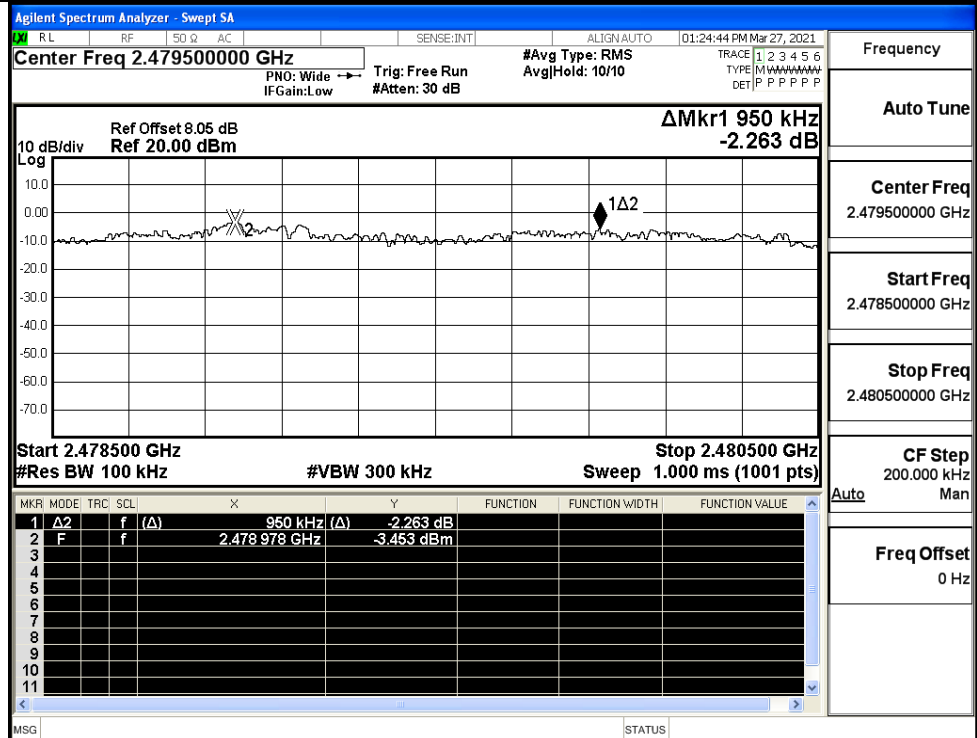
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

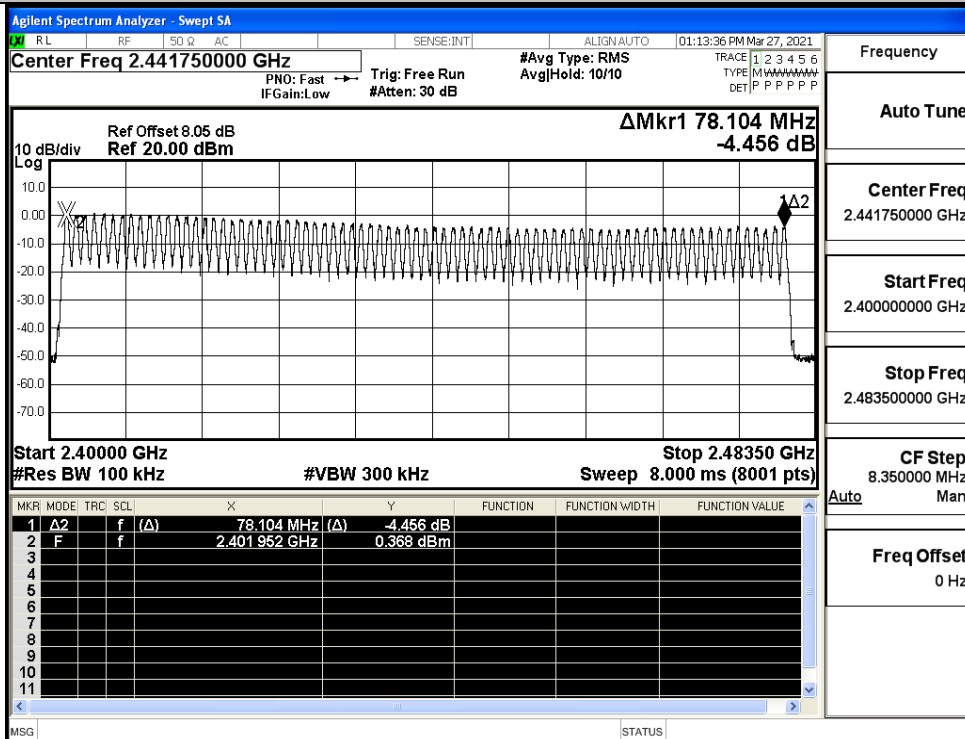
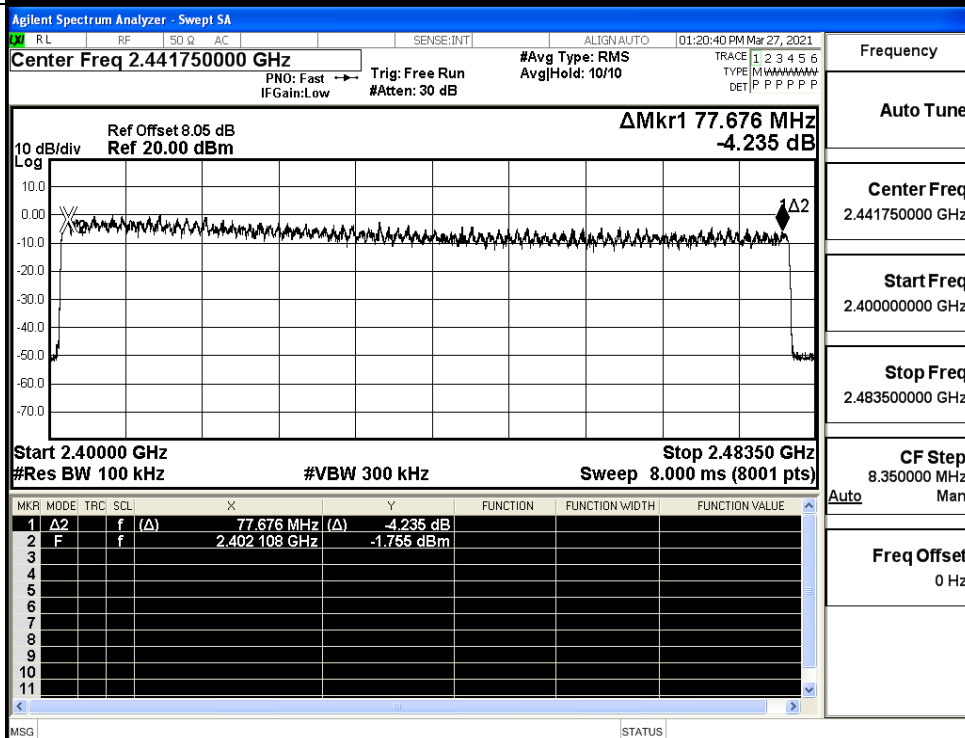


A.4 Hopping Channel Number

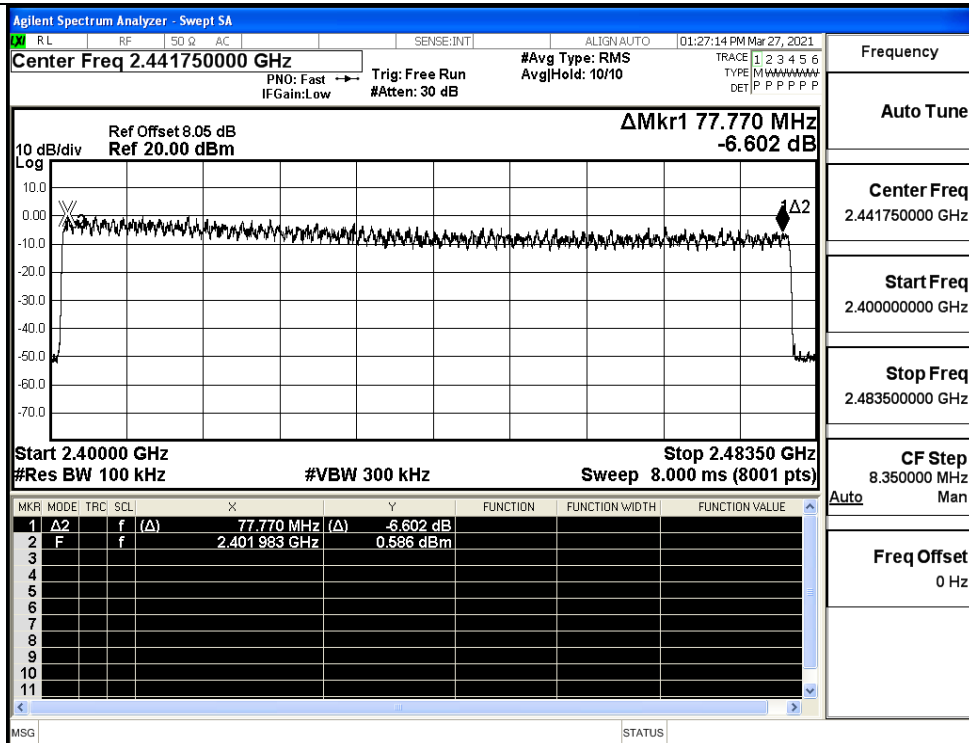
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	≥ 15	PASS
$\pi/4$ DQPSK	Hop	79	≥ 15	PASS
8DPSK	Hop	79	≥ 15	PASS

Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop

8DPSK/Hop

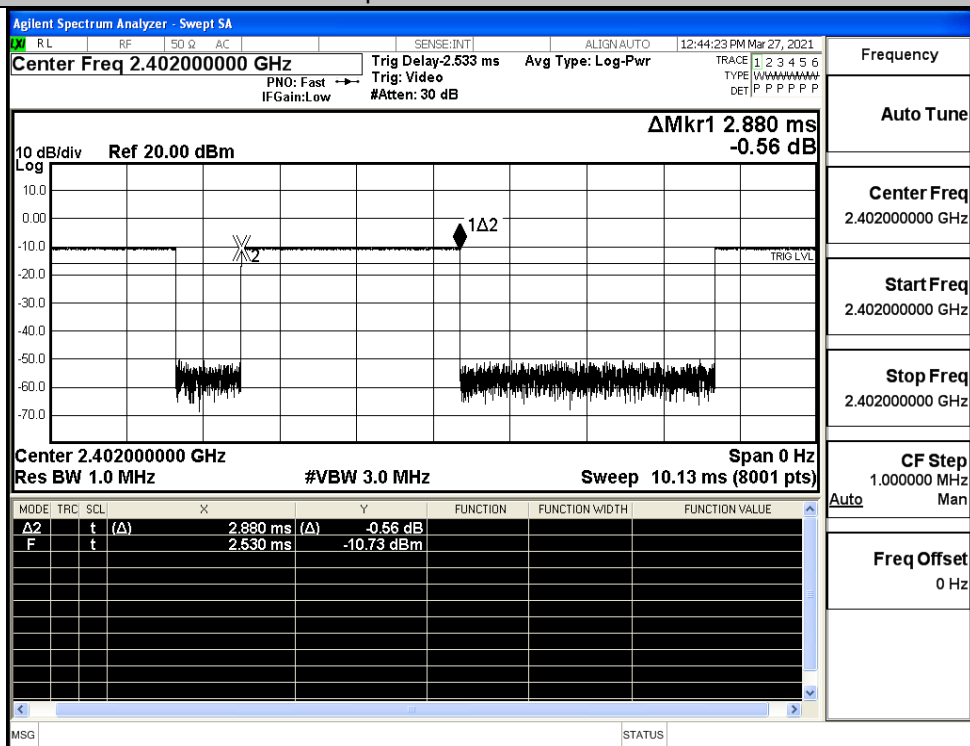


A.5 Dwell Time

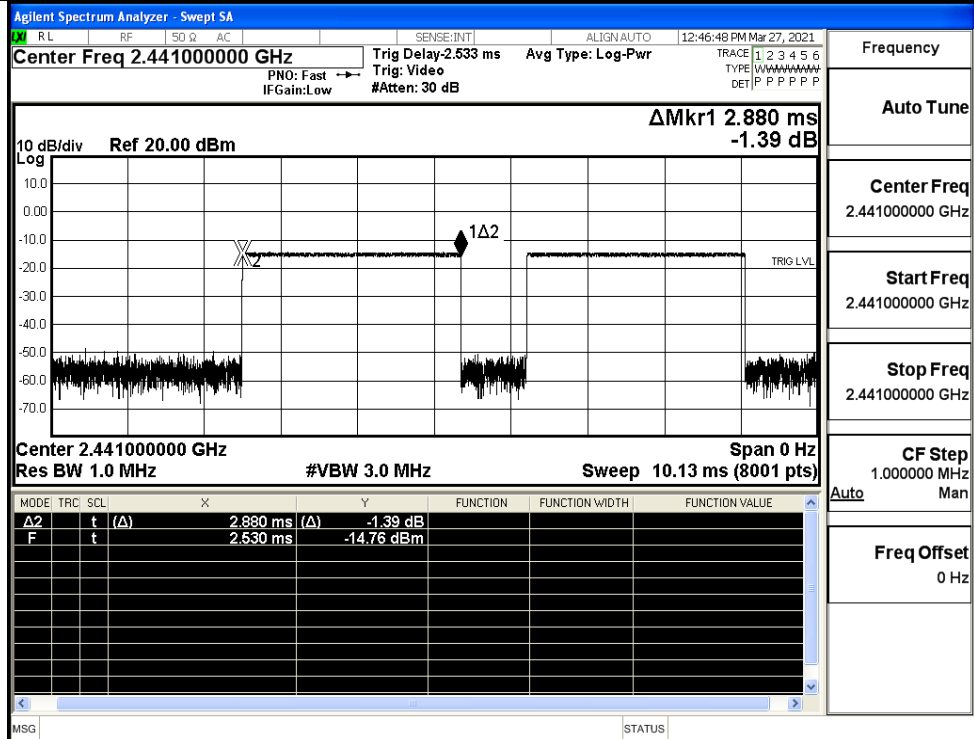
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.015	0.4	PASS
	2DH5	MCH	2.88	106.7	0.015	0.4	PASS
	2DH5	HCH	2.88	106.7	0.015	0.4	PASS
8DPSK	3DH5	LCH	2.88	106.7	0.015	0.4	PASS
	3DH5	MCH	2.88	106.7	0.015	0.4	PASS
	3DH5	HCH	2.88	106.7	0.015	0.4	PASS

Test Graphs

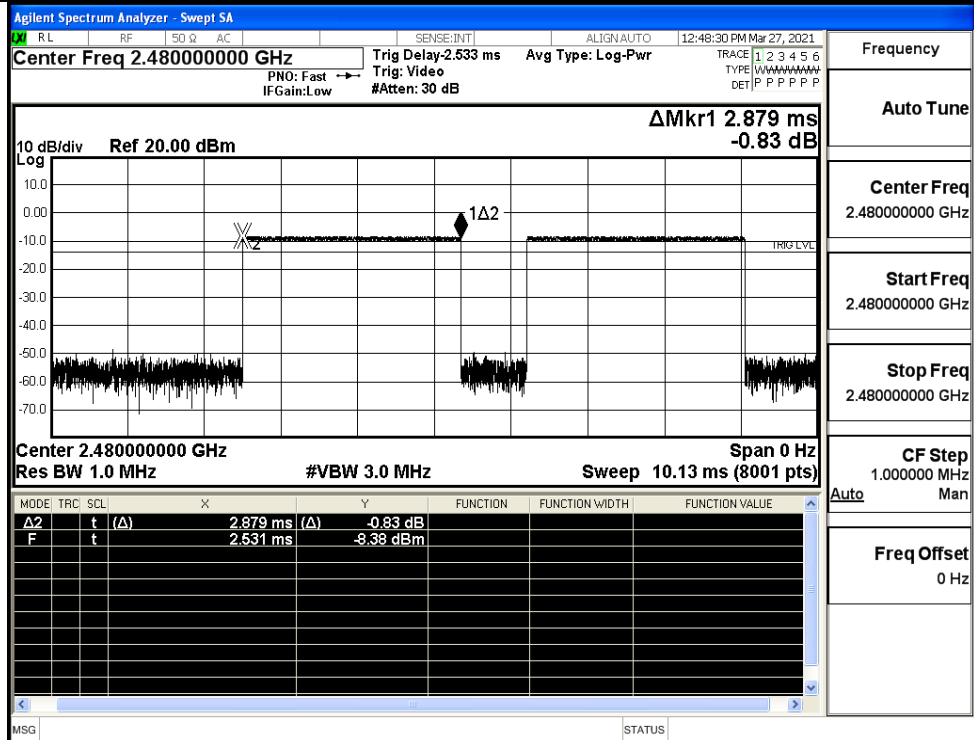
GFSK_DH5/LCH



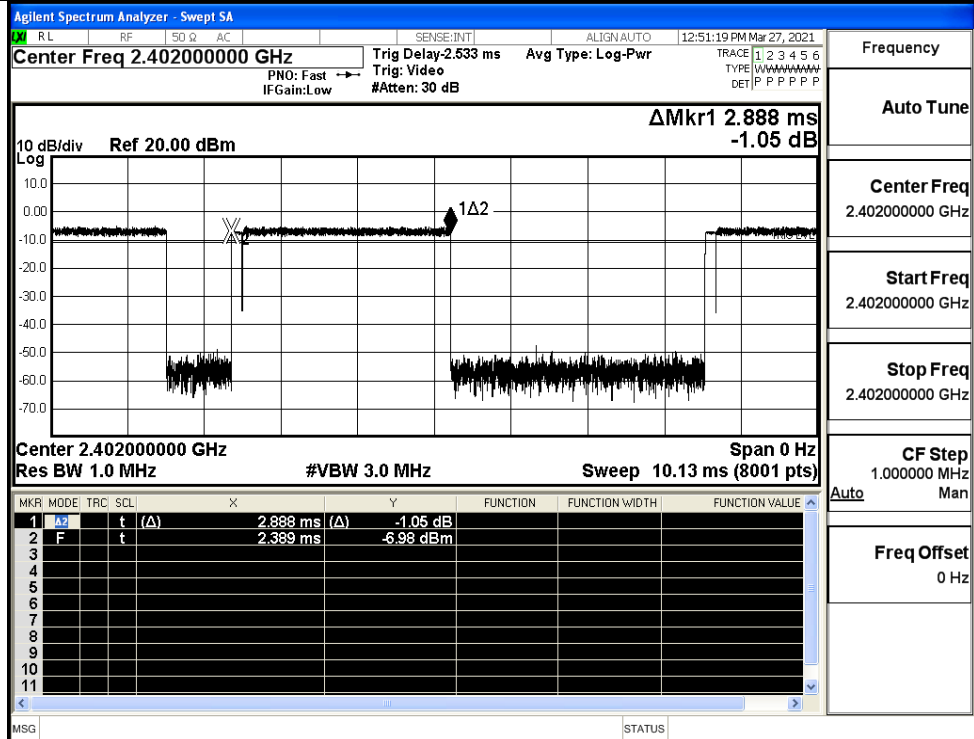
GFSK_DH5/MCH



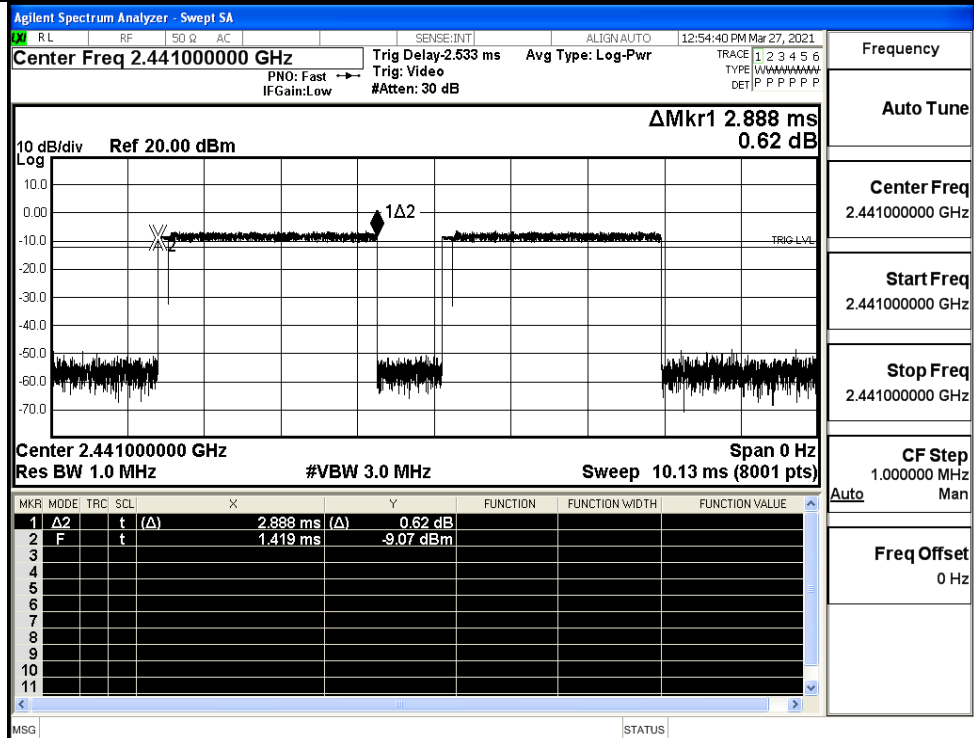
GFSK_DH5/HCH



$\pi/4$ DQPSK
_2DH5/LCH



$\pi/4$ DQPSK
_2DH5/MCH



[illegible]

Agilent Spectrum Analyzer - Swept SA

RL	RF	50 Ω	AC	SENSE:INT	ALIGN:AUTO	12:59:59 PM Mar 27, 2021
----	----	------	----	-----------	------------	--------------------------

Center Freq 2.402000000 GHz Trig Delay: 2.533 ms Avg Type: Log-Pwr
PNO: Fast → Trig: Video TYPE: WWWWWWWW
IF Gain: Low #Atten: 30 dB DET: P P P P P P

ΔMkr1 2.889 ms
0.42 dB

10 dB/div Ref 20.00 dBm

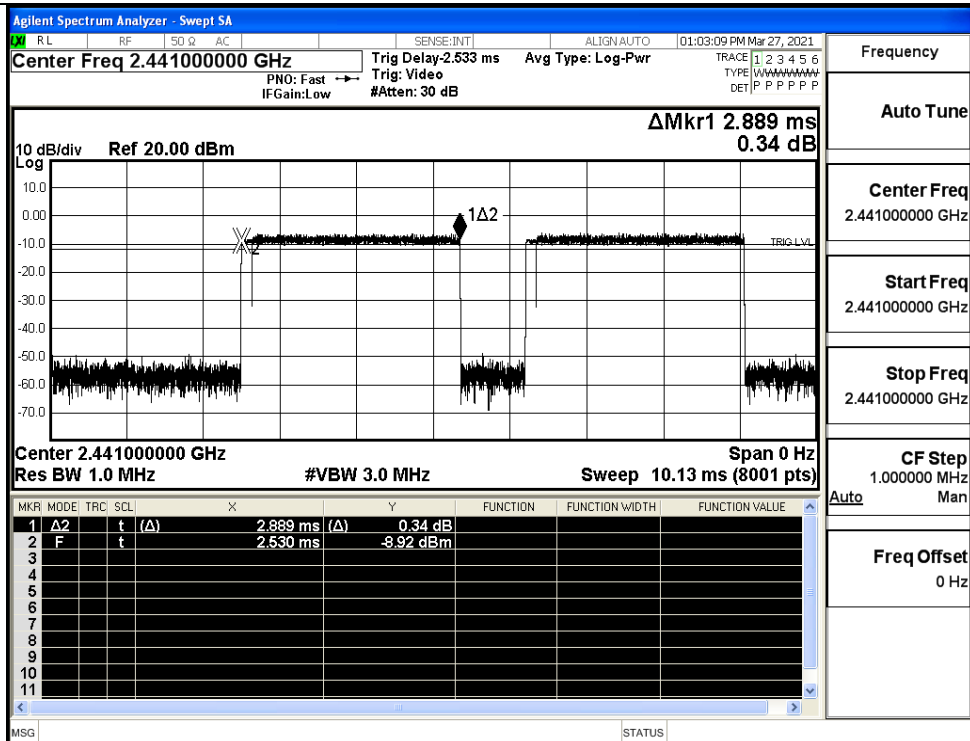
Log

Center 2.402000000 GHz Span 0 Hz
Res BW 1.0 MHz #VBW 3.0 MHz Sweep 10.13 ms (8001 pts)

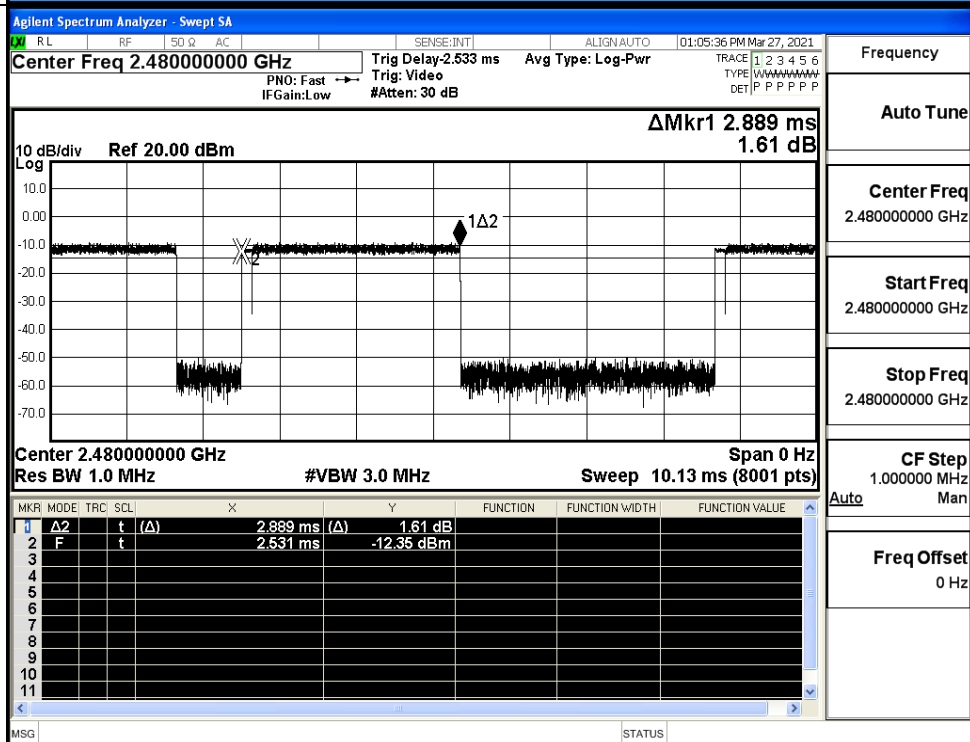
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	Δ2	t	(Δ)	2.889 ms	(Δ) 0.42 dB			
2	F	t		2.531 ms	-7.17 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								

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

8DPSK_3DH5/MCH



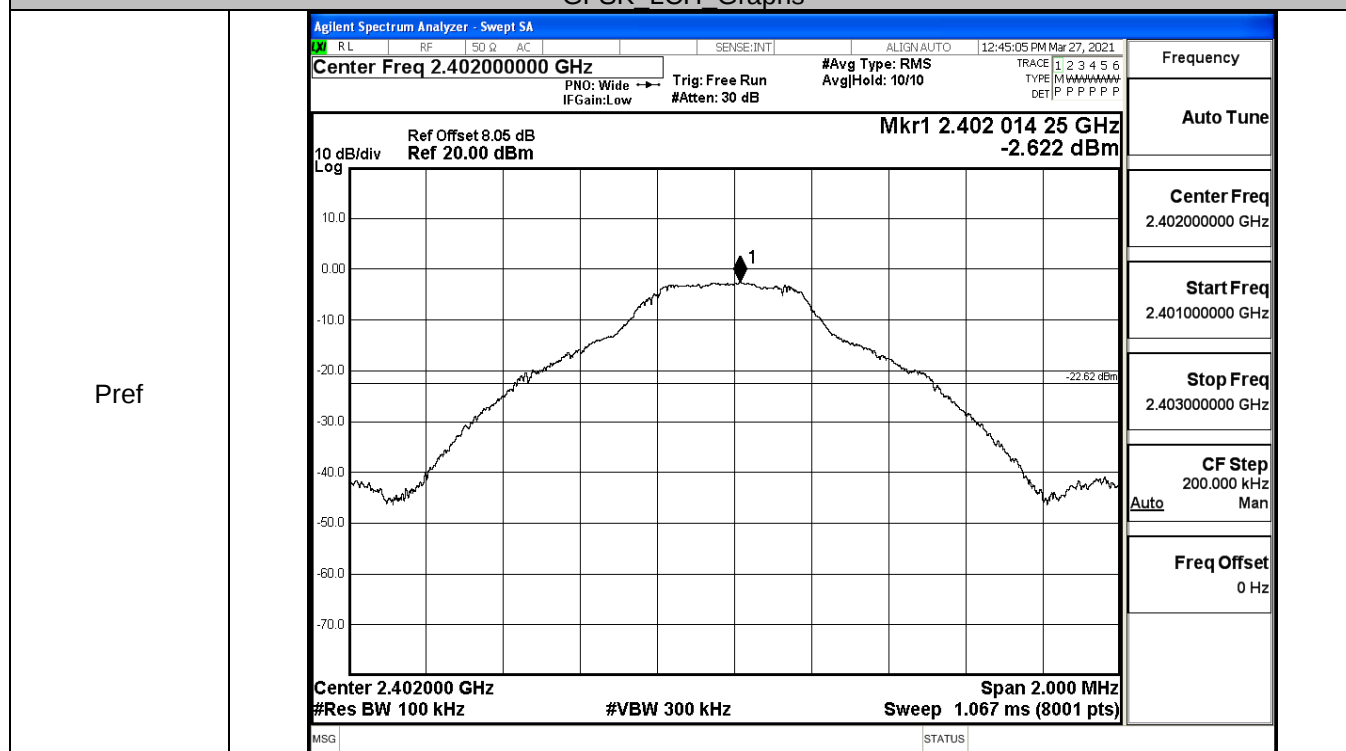
8DPSK_3DH5/HCH



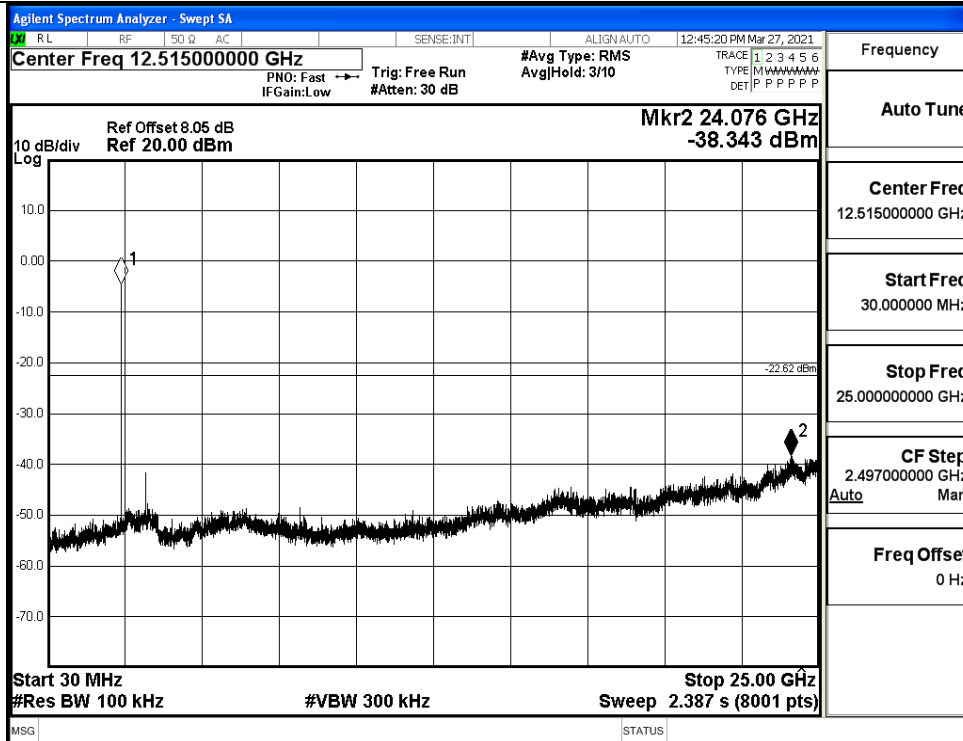
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-2.622	-38.343	-22.622	PASS
	MCH	-0.937	-37.407	-20.937	PASS
	HCH	-1.197	-38.079	-21.197	PASS
$\pi/4$ DQPSK	LCH	-2.346	-38.180	-22.346	PASS
	MCH	-0.42	-37.408	-20.420	PASS
	HCH	-1.533	-38.282	-21.533	PASS
8DPSK	LCH	-3.278	-37.272	-23.278	PASS
	MCH	-3.878	-36.506	-23.878	PASS
	HCH	-4.364	-36.736	-24.364	PASS

GFSK LCH Graphs

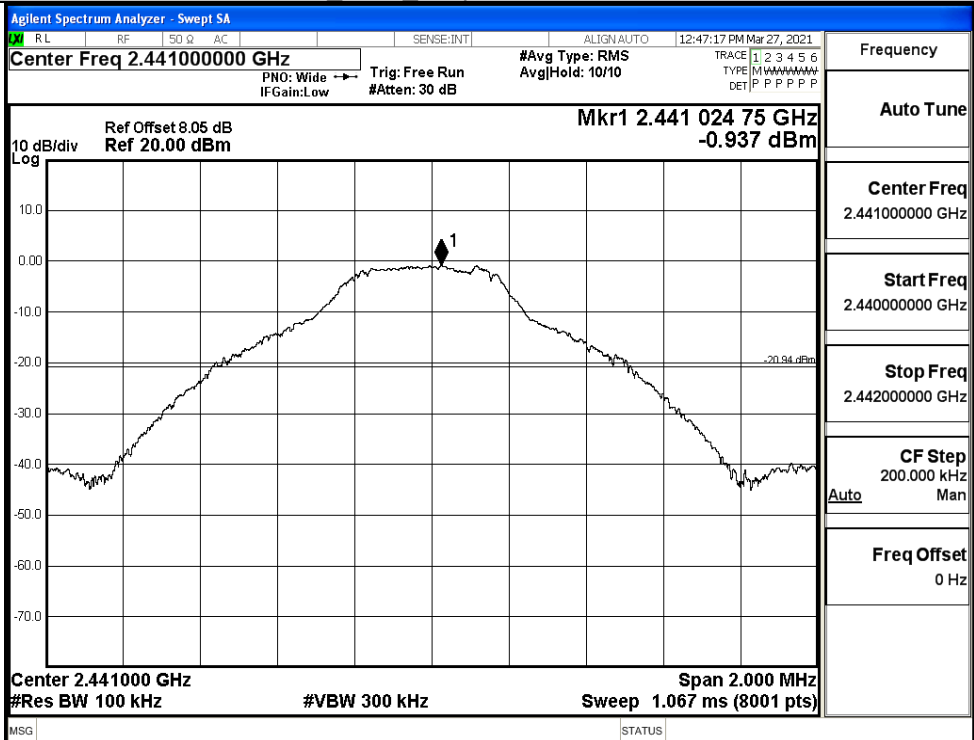


Puw



GFSK_MCH_Graphs

Pref

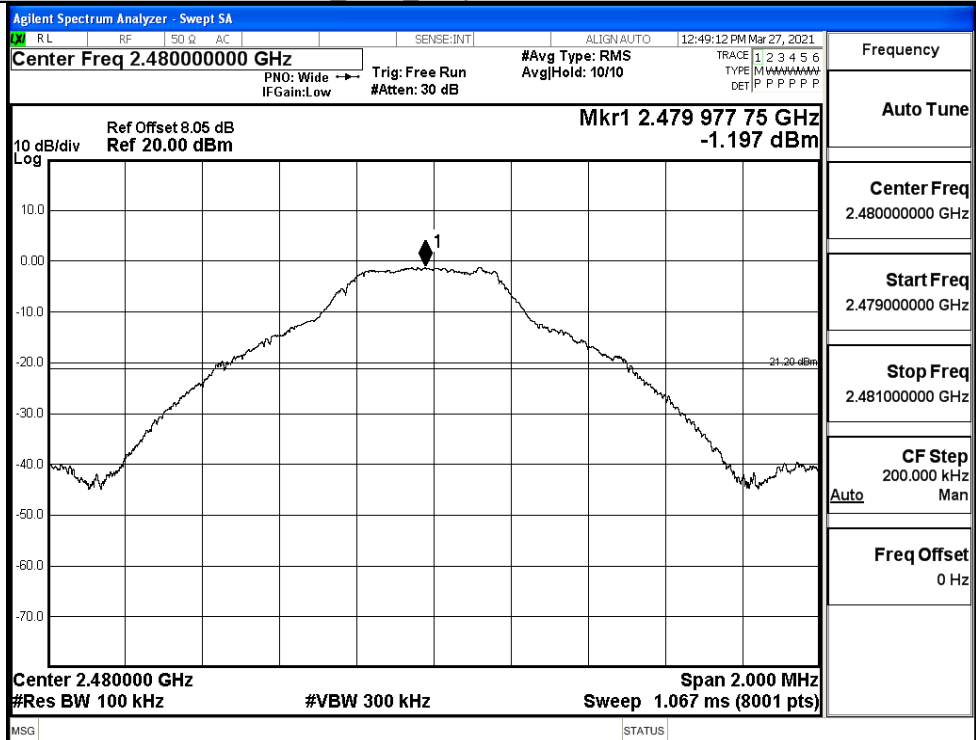


Puw

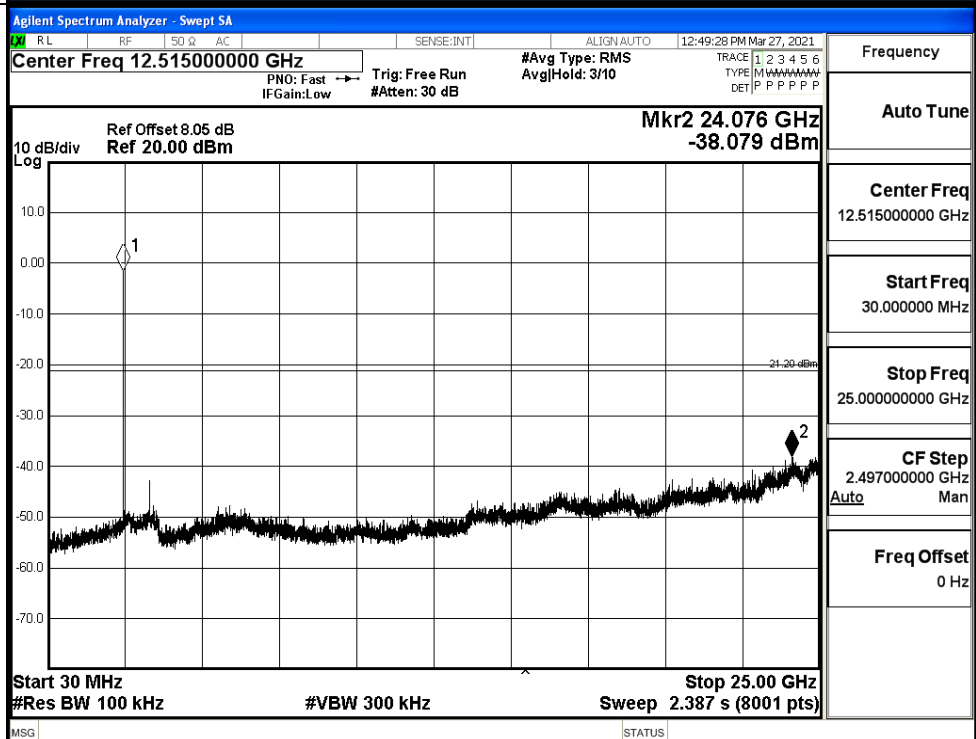


GFSK HCH Graphs

Pref

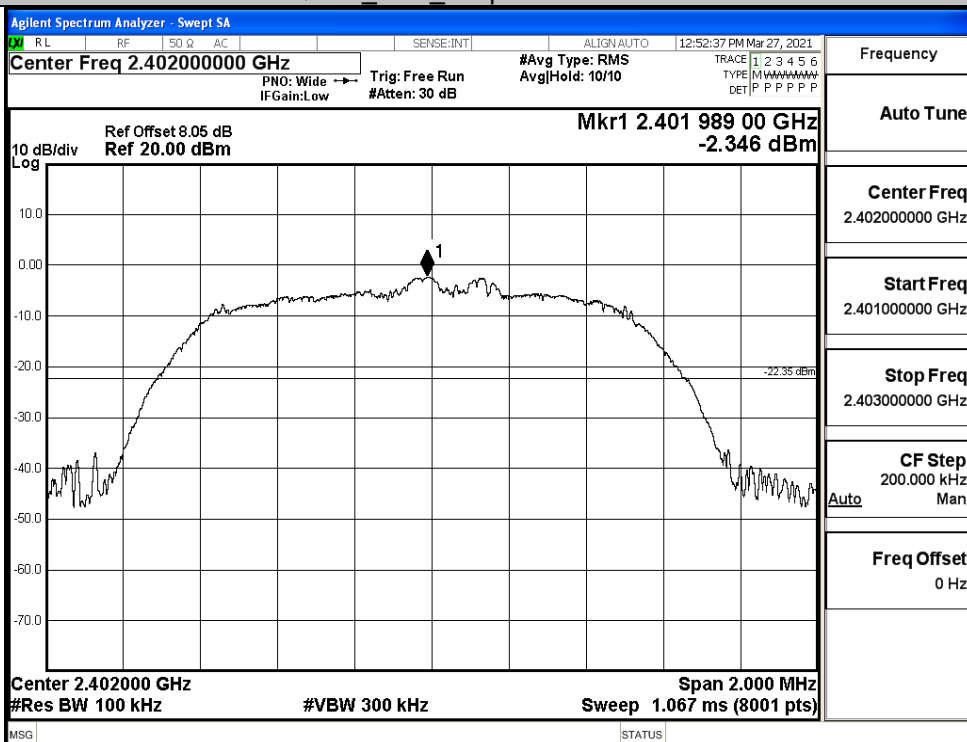


Puw

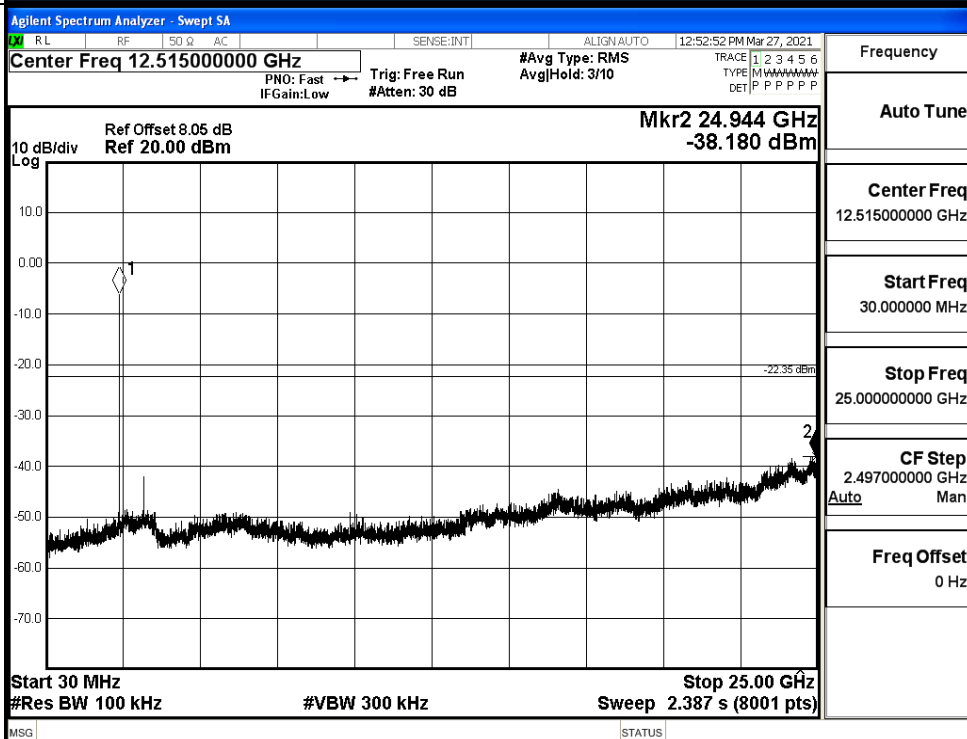


π /4DQPSK_LCH_Graphs

Pref

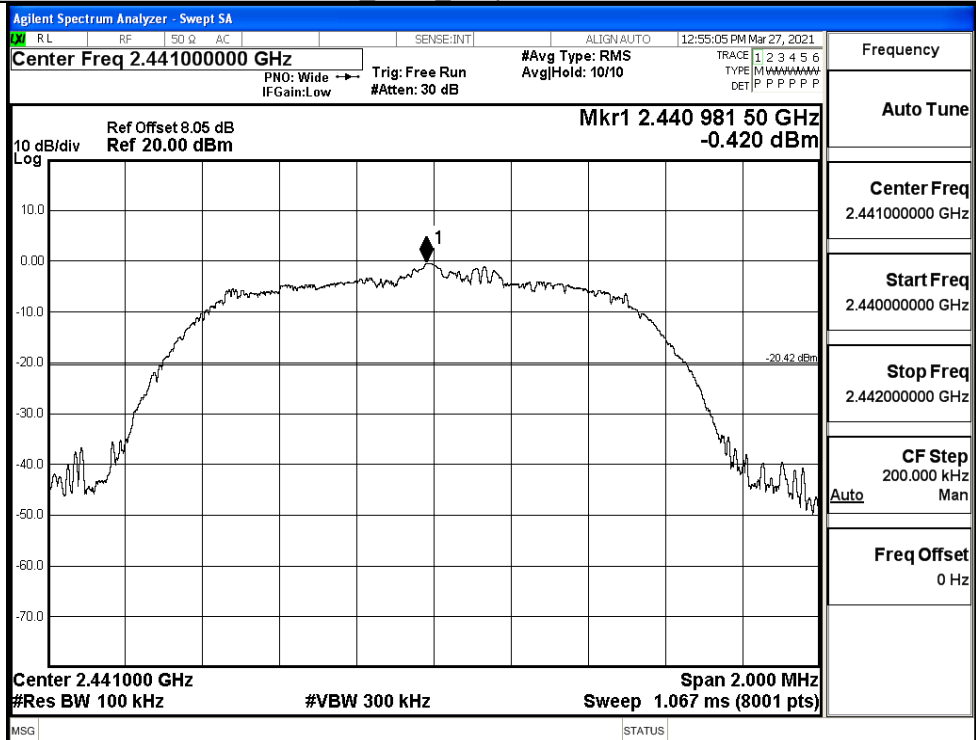


Puw

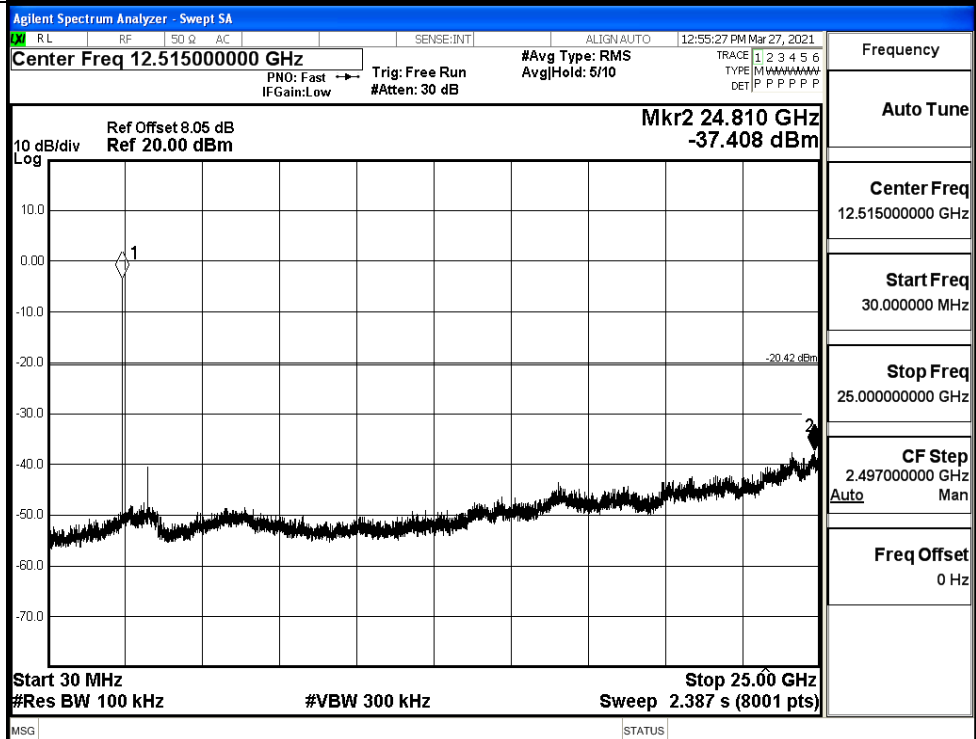


$\pi/4$ DQPSK_MCH_Graphs

Pref

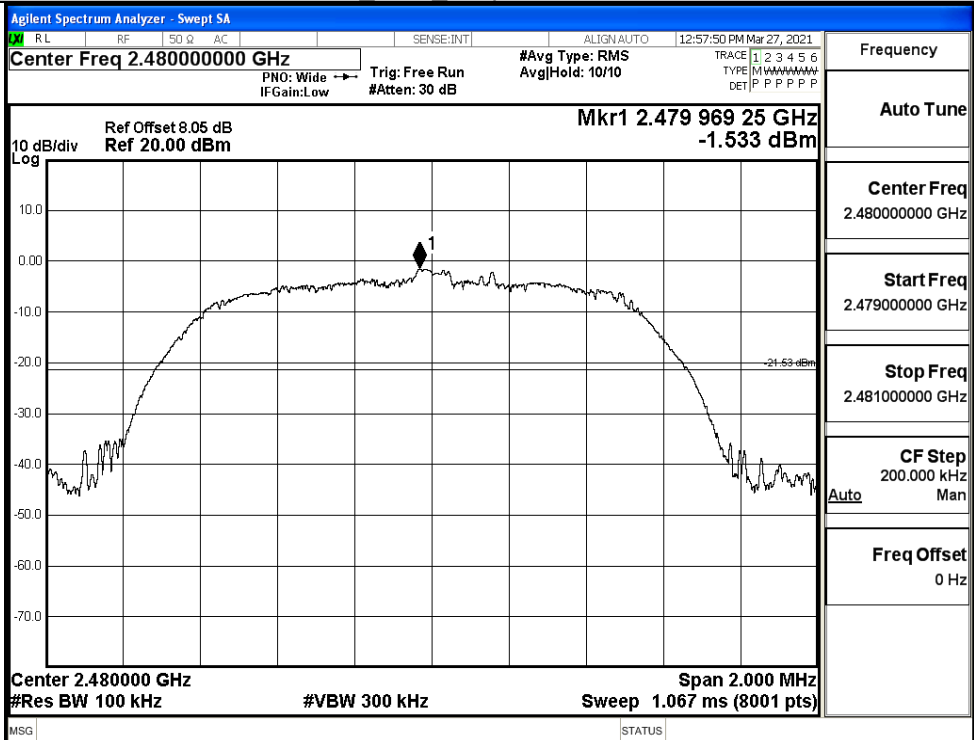


Puw

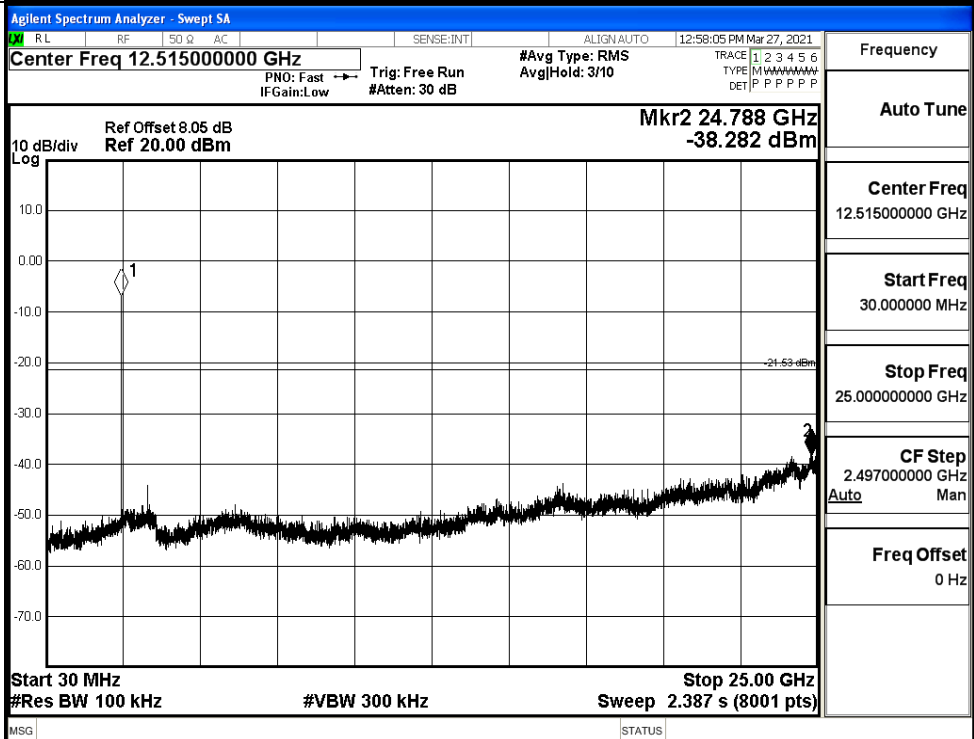


$\pi/4$ DQPSK_HCH_Graphs

Pref

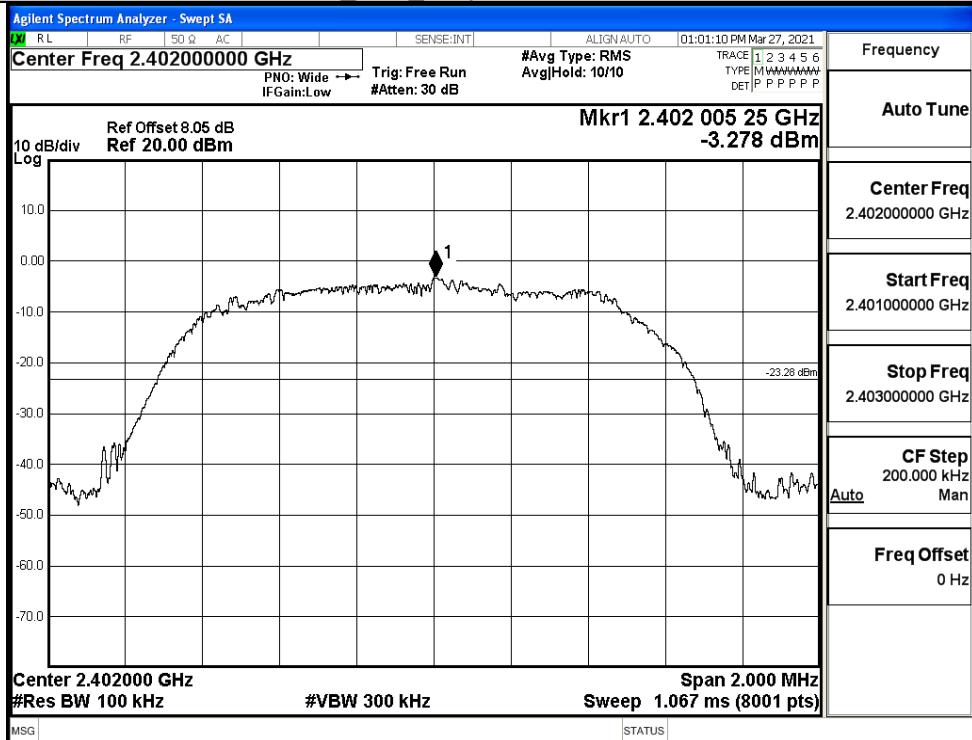


Puw

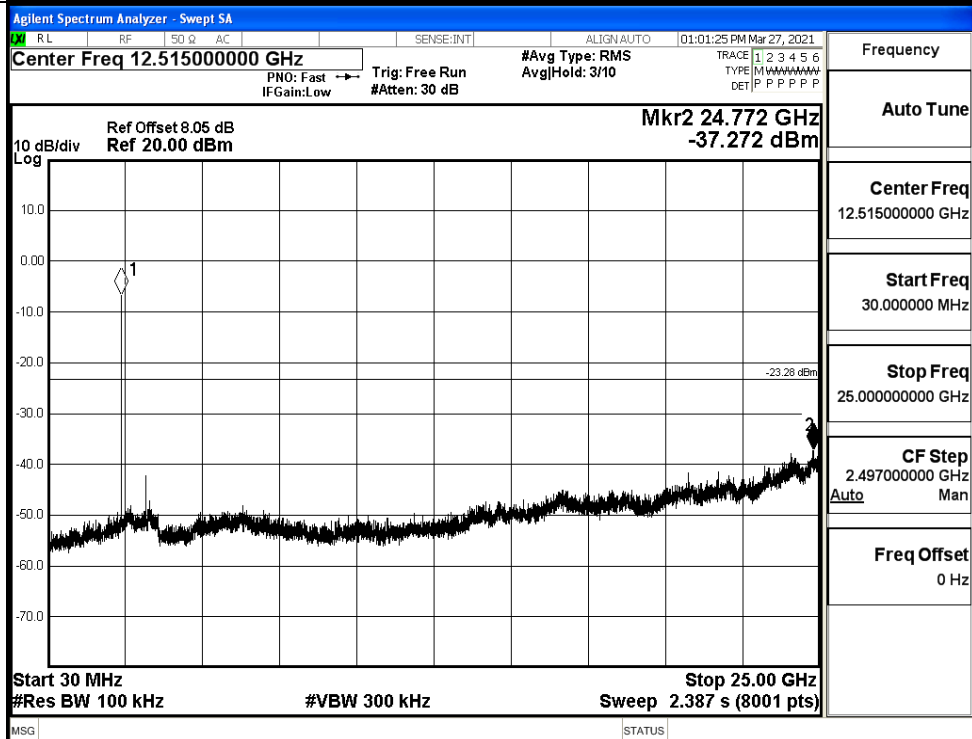


8DPSK_LCH_Graphs

Pref

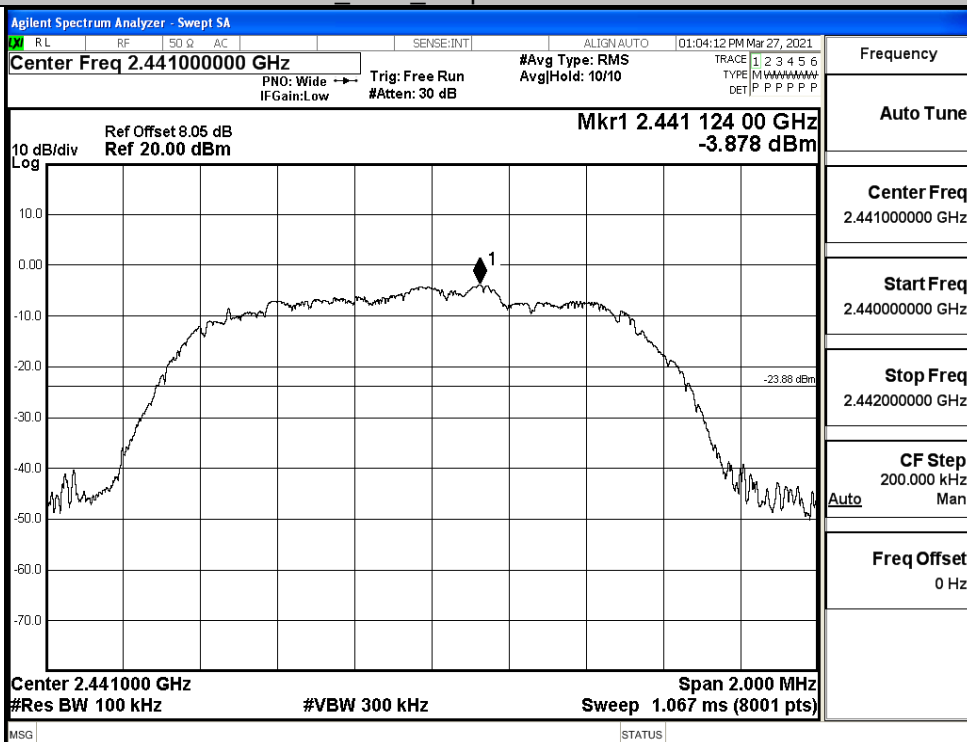


Puw

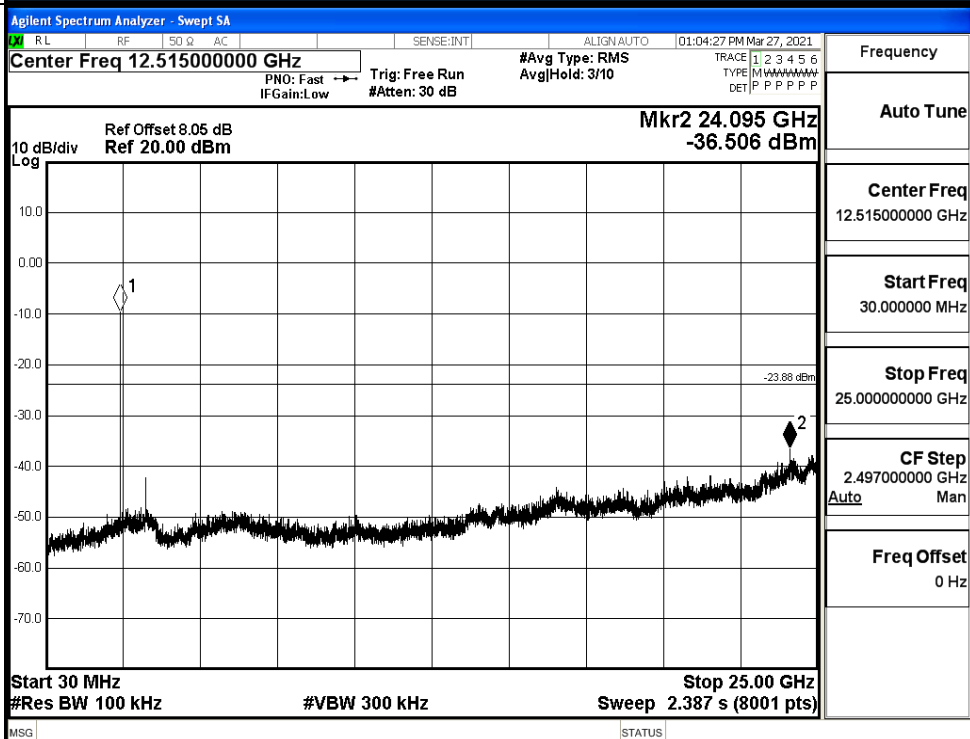


8DPSK_MCH_Graphs

Pref

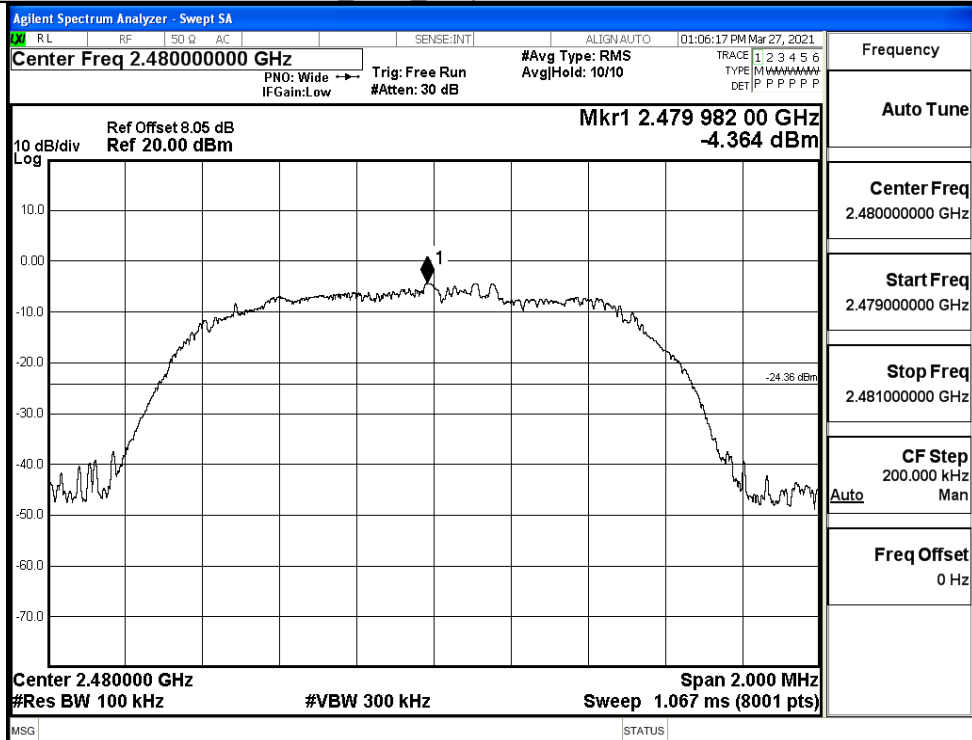


Puw

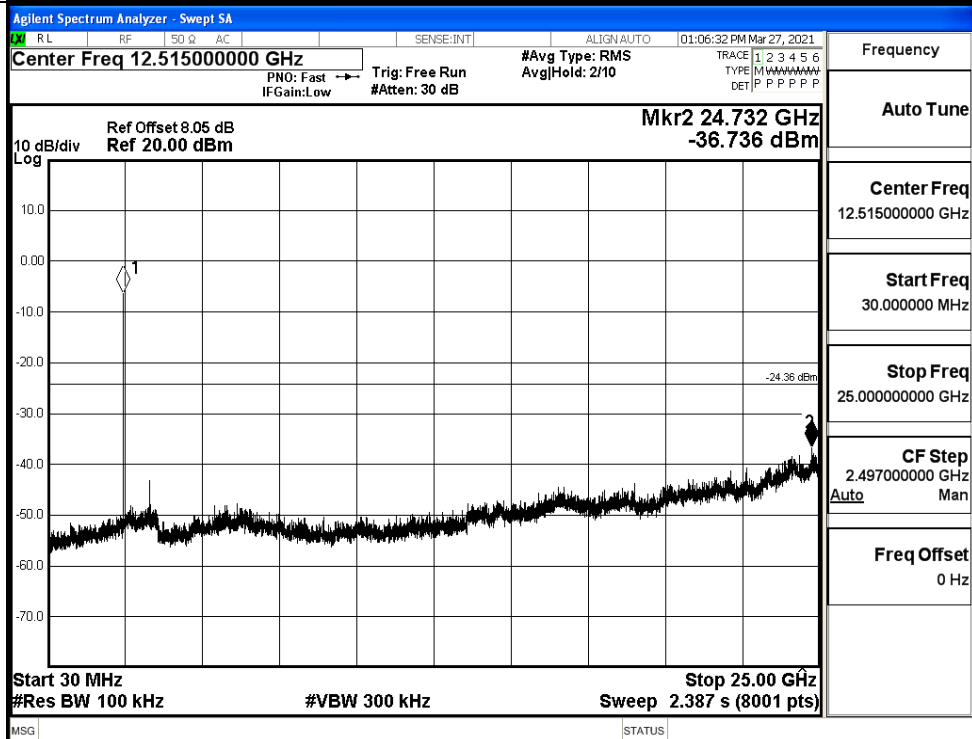


8DPSK_HCH_Graphs

Pref



Puw

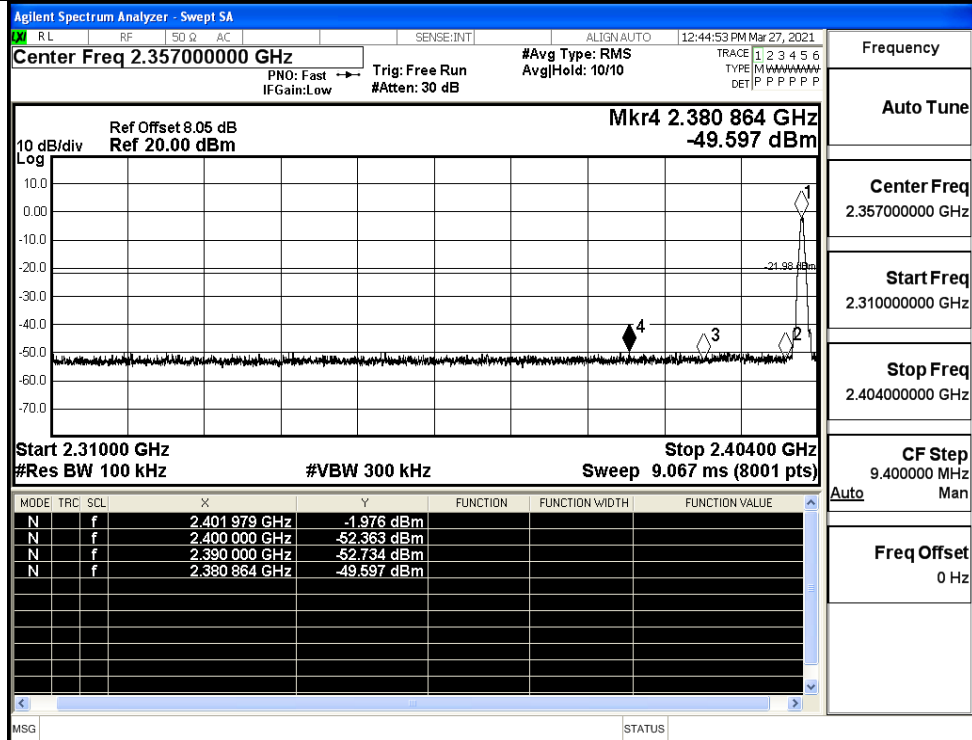


A.7 Band-edge for RF Conducted Emissions

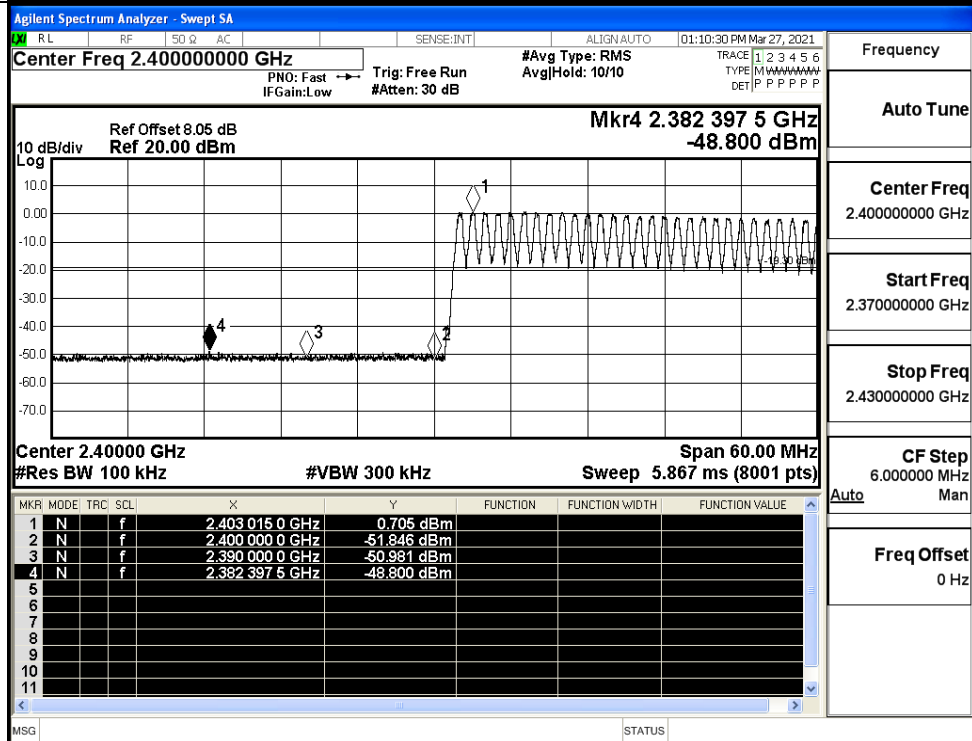
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-1.976	Off	-49.597	-21.98	PASS
			0.705	On	-48.800	-19.3	PASS
	HCH	2480	-0.667	Off	-46.612	-20.67	PASS
			-3.343	On	-48.398	-23.34	PASS
$\pi/4$ DQPSK	LCH	2402	-2.563	Off	-49.234	-22.56	PASS
			0.568	On	-48.917	-19.43	PASS
	HCH	2480	-0.874	Off	-46.954	-20.87	PASS
			-3.744	On	-47.449	-23.74	PASS
8DPSK	LCH	2402	-2.536	Off	-49.540	-22.54	PASS
			0.740	On	-48.133	-19.26	PASS
	HCH	2480	-3.800	Off	-47.894	-23.8	PASS
			-3.617	On	-48.981	-23.62	PASS

Test Graphs

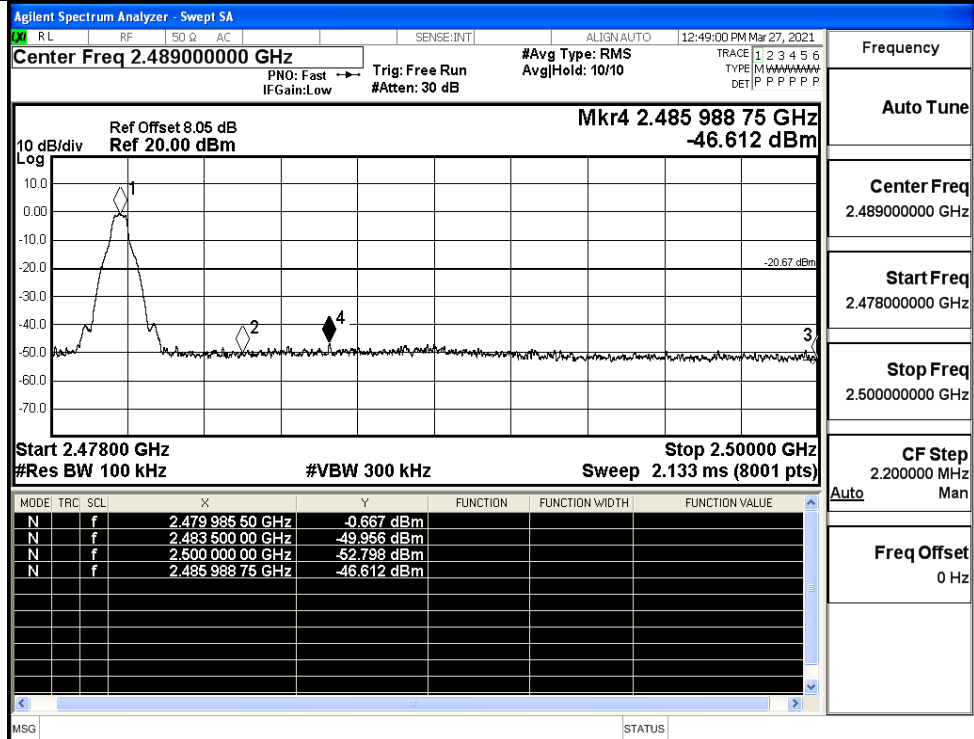
GFSK/LCH/No Hop



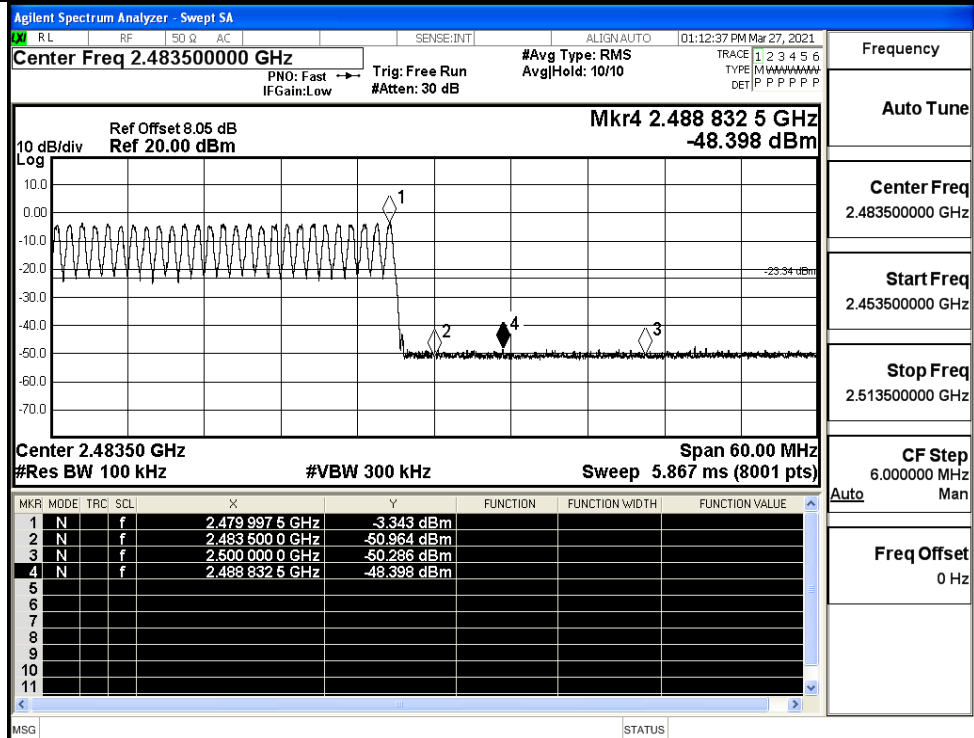
GFSK/LCH/Hop



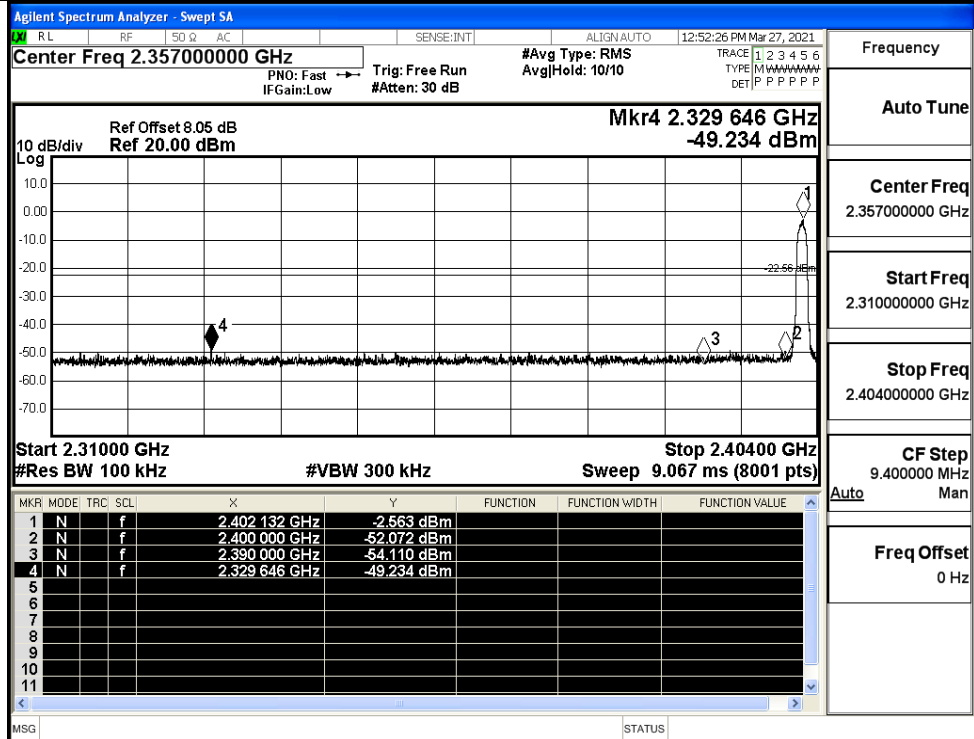
GFSK/HCH/No Hop



GFSK/HCH/Hop



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



Frequency

Auto Tune

Center Freq
2.357000000 GHz

Start Freq
2.310000000 GHz

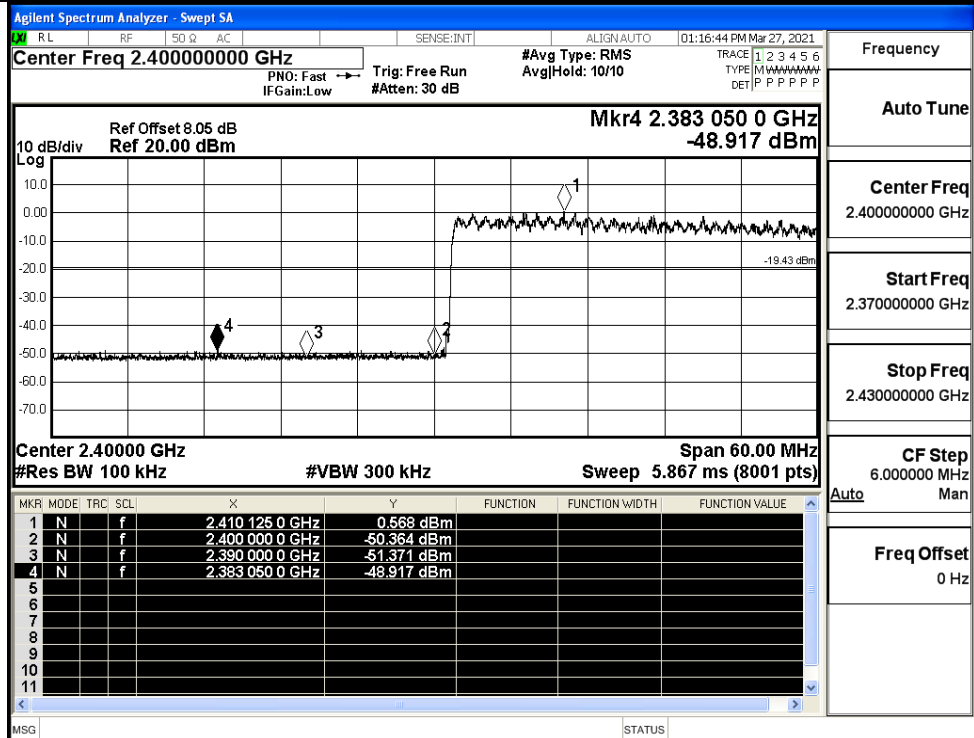
Stop Freq
2.404000000 GHz

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

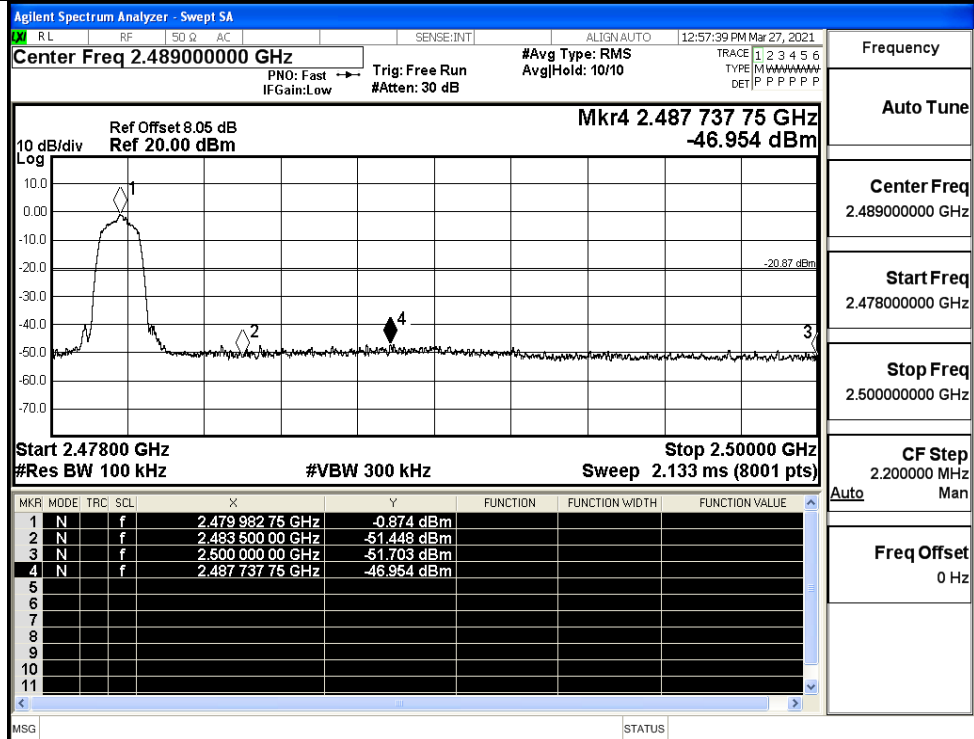
Stop Freq
2.430000000 GHz

CF Step
6.000000 MHz

Auto Man

Freq Offset
0 Hz

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



Frequency

Auto Tune

Center Freq
2.489000000 GHz

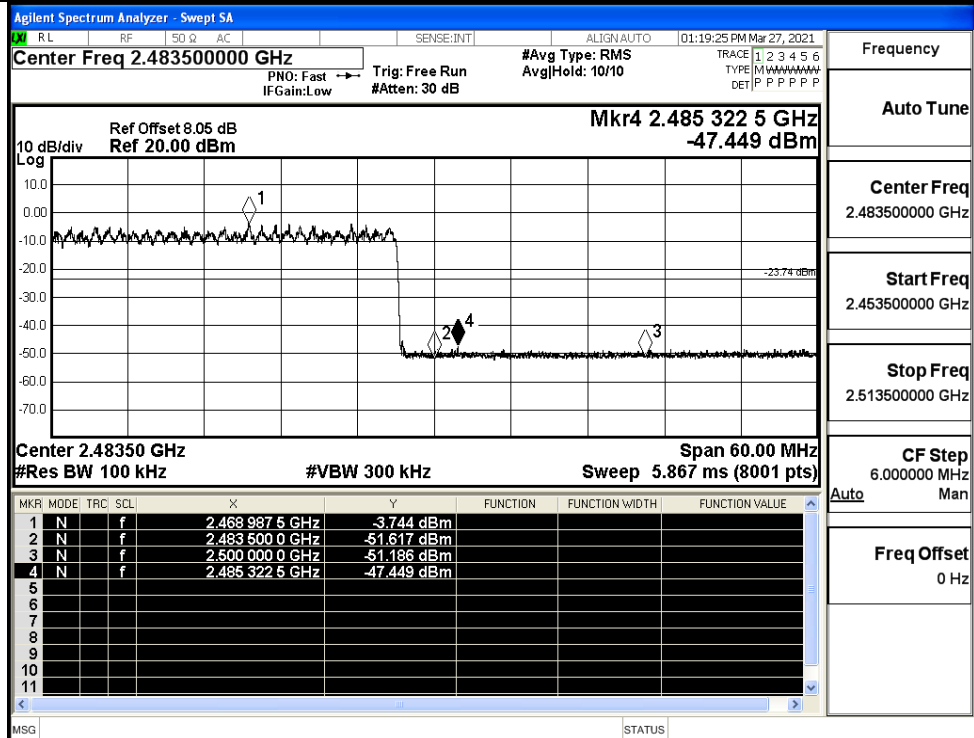
Start Freq
2.478000000 GHz

Stop Freq
2.500000000 GHz

CF Step
2.200000 MHz
Auto Man

Freq Offset
0 Hz

$\pi/4$ DQPSK/HCH/Hop



Frequency

Auto Tune

Center Freq
2.483500000 GHz

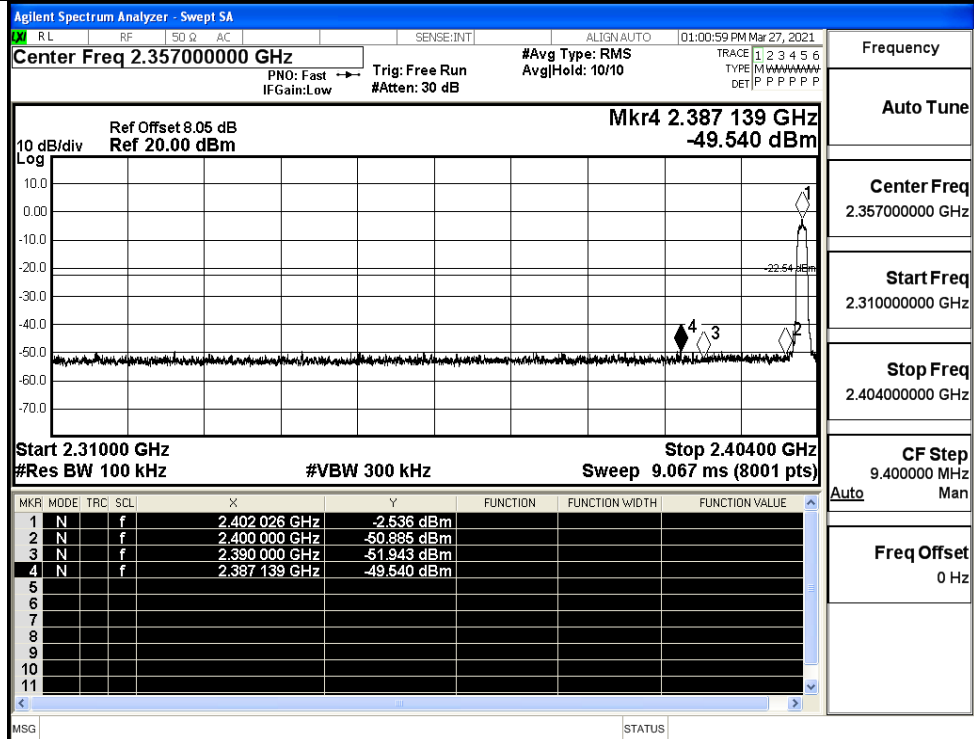
Start Freq
2.453500000 GHz

Stop Freq
2.513500000 GHz

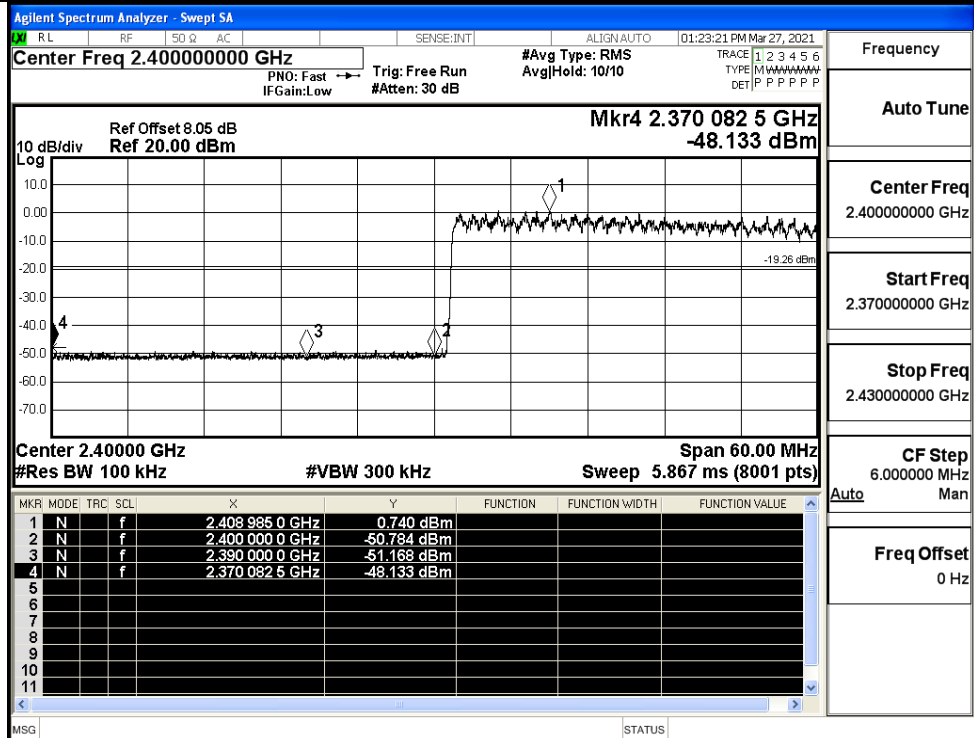
CF Step
6.000000 MHz
Auto Man

Freq Offset
0 Hz

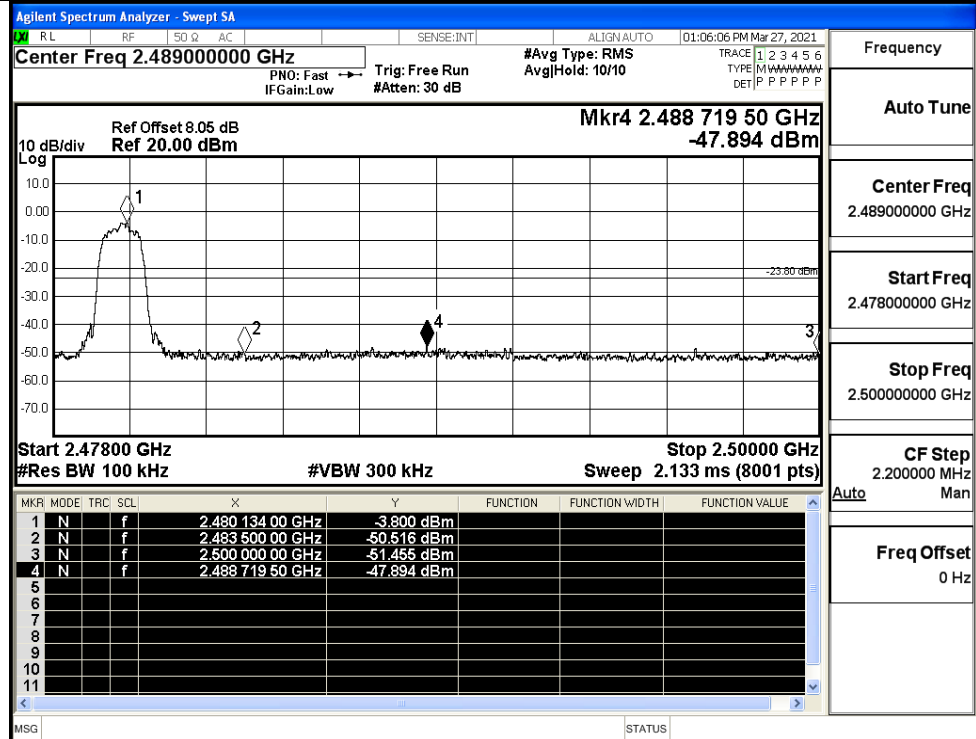
8DPSK/LCH/No Hop



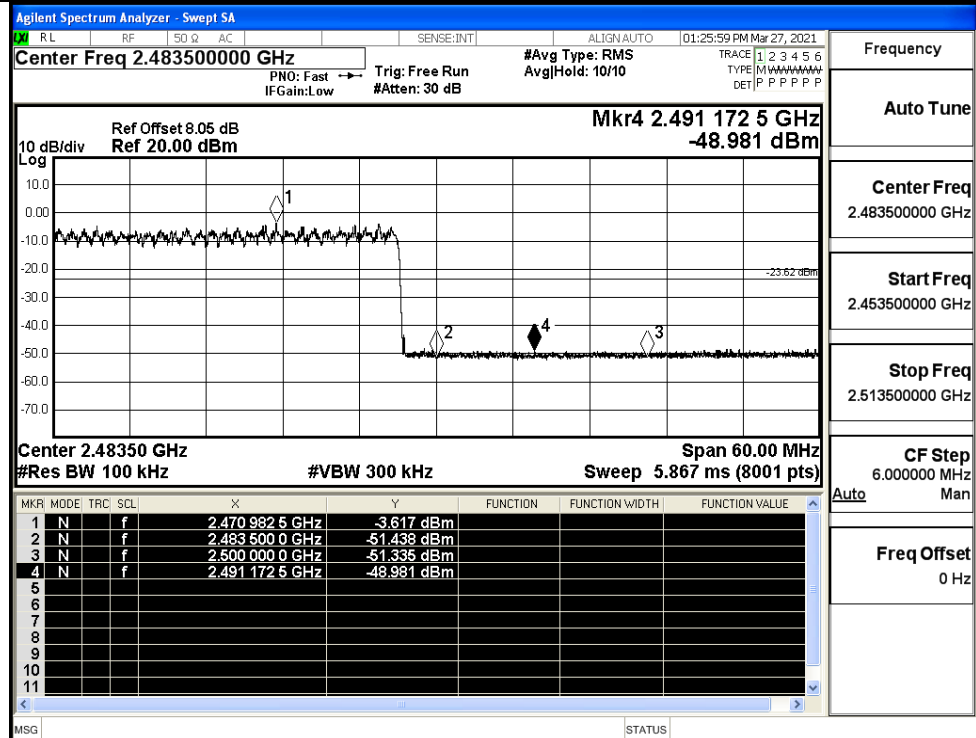
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



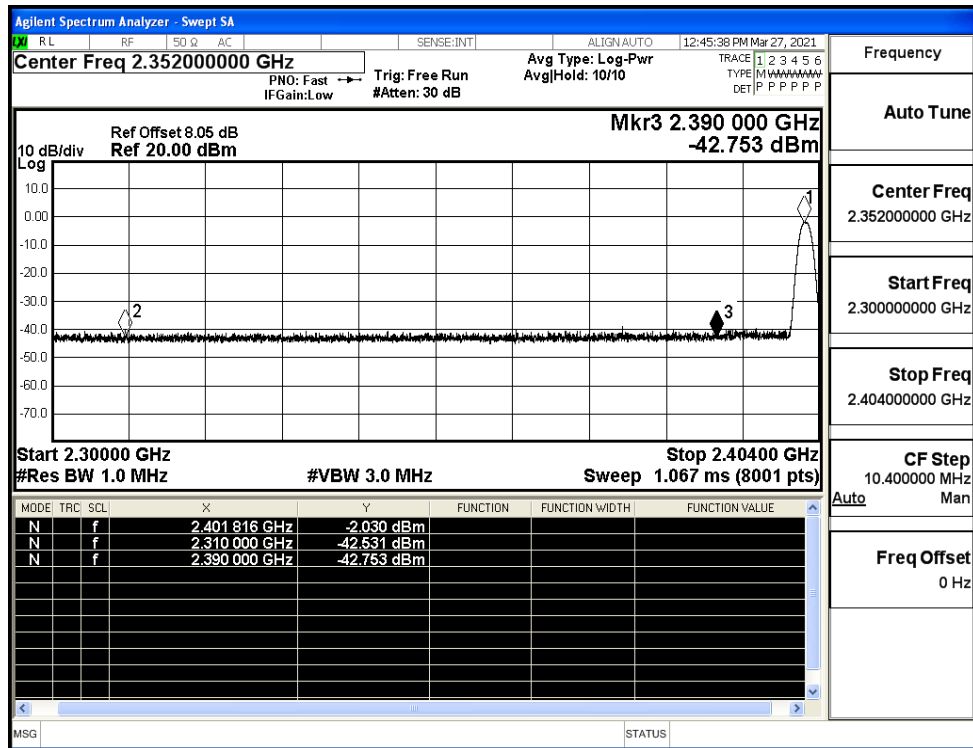
8DPSK/HCH/Hop



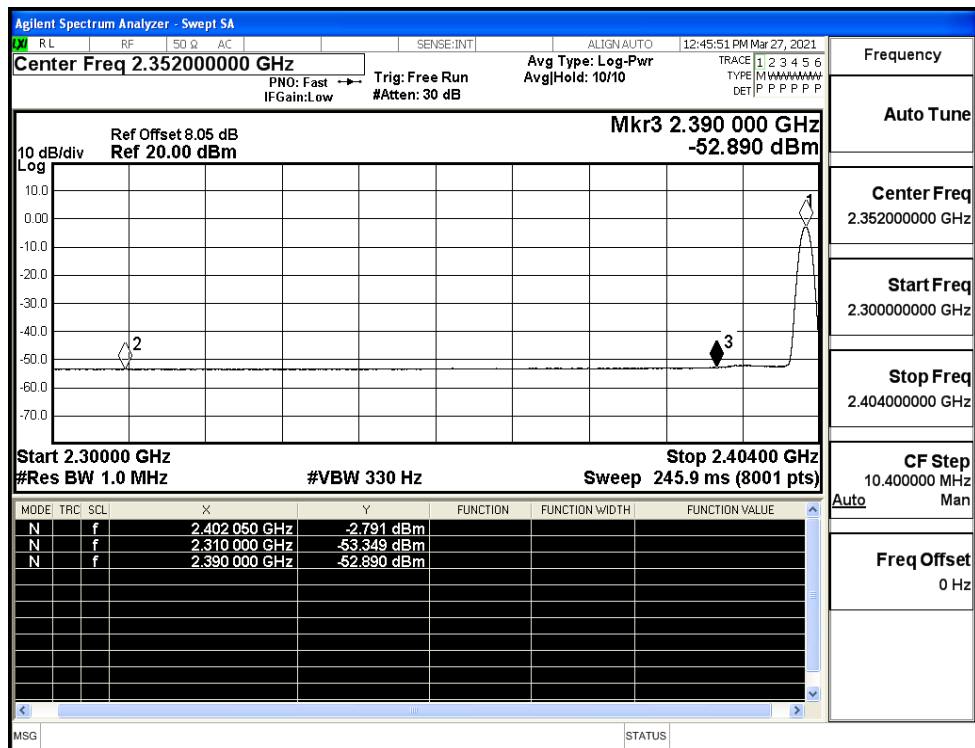
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-42.53	2.0	0	54.73	PEAK	74	PASS
	Off	2310.0	-53.35	2.0	0	43.91	AV	54	PASS
	Off	2390.0	-42.75	2.0	0	54.51	PEAK	74	PASS
	Off	2390.0	-52.89	2.0	0	44.37	AV	54	PASS
	Off	2483.5	-41.19	2.0	0	56.07	PEAK	74	PASS
	Off	2483.5	-50.82	2.0	0	46.44	AV	54	PASS
	Off	2500.0	-42.49	2.0	0	54.77	PEAK	74	PASS
	Off	2500.0	-52.22	2.0	0	45.04	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.15	2.0	0	54.11	PEAK	74	PASS
	Off	2310.0	-53.43	2.0	0	43.83	AV	54	PASS
	Off	2390.0	-41.87	2.0	0	55.39	PEAK	74	PASS
	Off	2390.0	-52.78	2.0	0	44.48	AV	54	PASS
	Off	2483.5	-41.21	2.0	0	56.05	PEAK	74	PASS
	Off	2483.5	-50.77	2.0	0	46.49	AV	54	PASS
	Off	2500.0	-40.77	2.0	0	56.49	PEAK	74	PASS
	Off	2500.0	-52.00	2.0	0	45.26	AV	54	PASS
8DPSK	Off	2310.0	-42.20	2.0	0	55.06	PEAK	74	PASS
	Off	2310.0	-53.17	2.0	0	44.09	AV	54	PASS
	Off	2390.0	-41.63	2.0	0	55.63	PEAK	74	PASS
	Off	2390.0	-52.81	2.0	0	44.45	AV	54	PASS
	Off	2483.5	-42.03	2.0	0	55.23	PEAK	74	PASS
	Off	2483.5	-51.57	2.0	0	45.69	AV	54	PASS
	Off	2500.0	-42.00	2.0	0	55.26	PEAK	74	PASS
	Off	2500.0	-52.31	2.0	0	44.95	AV	54	PASS

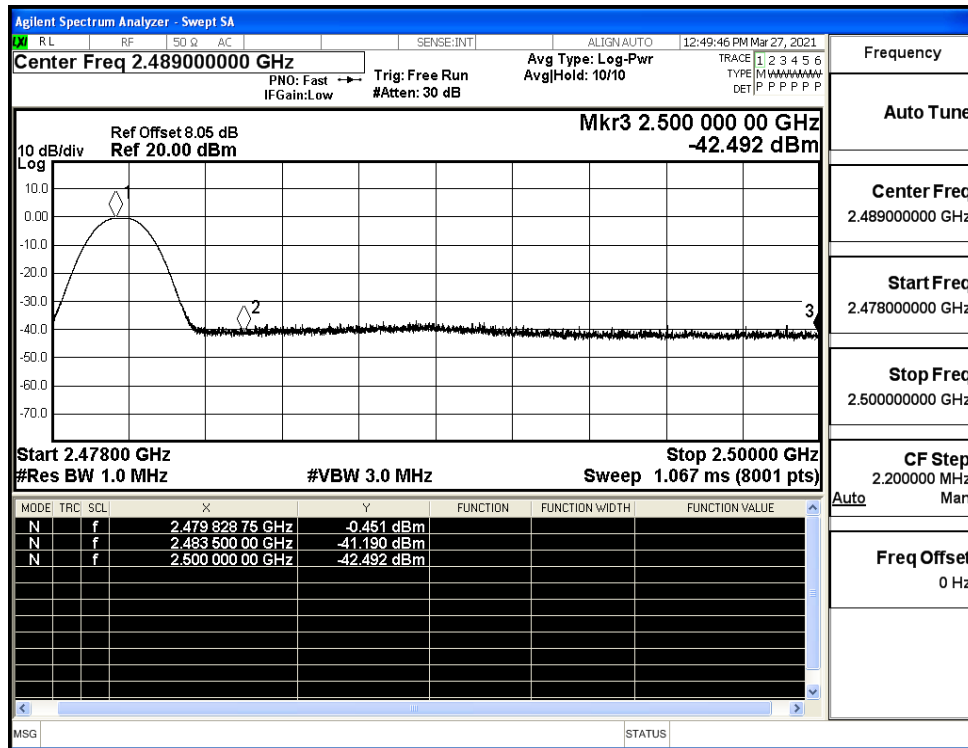
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



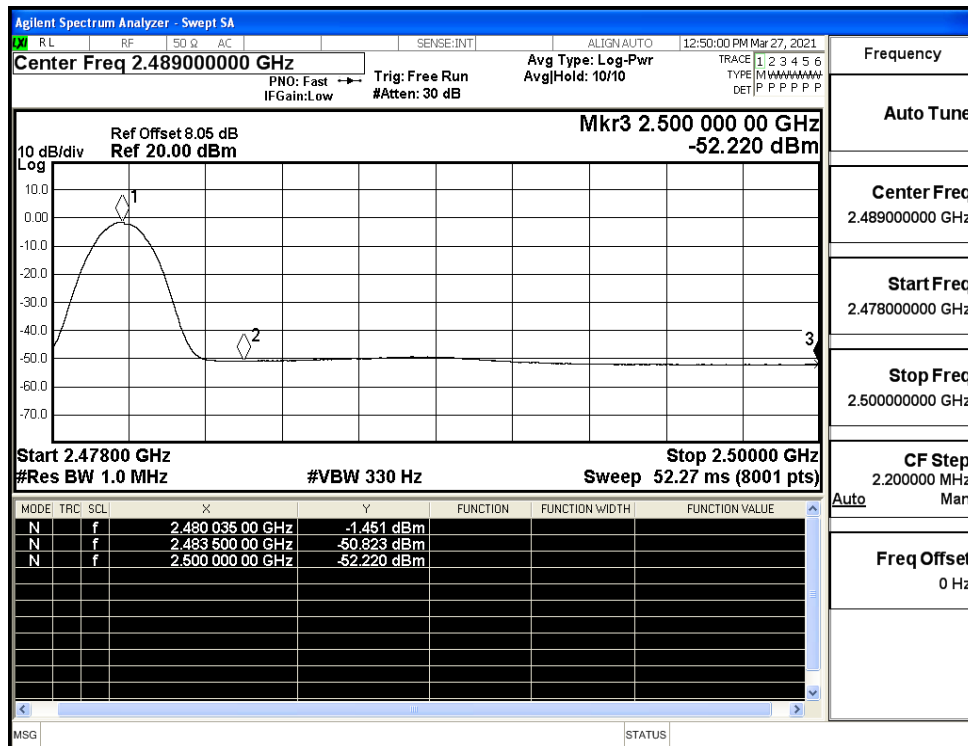
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

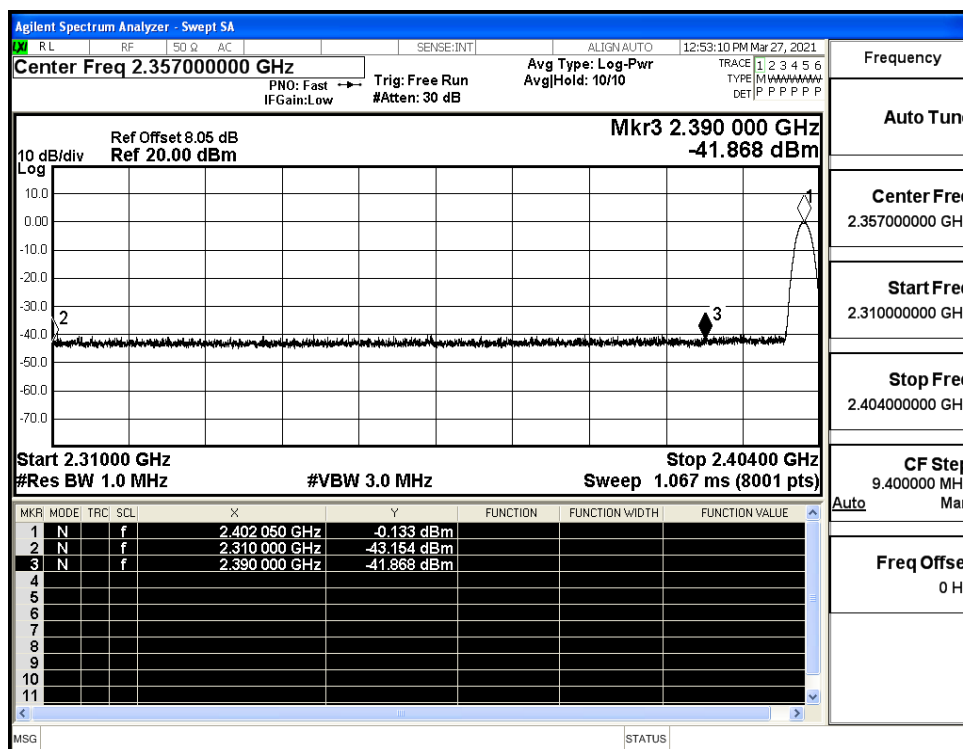
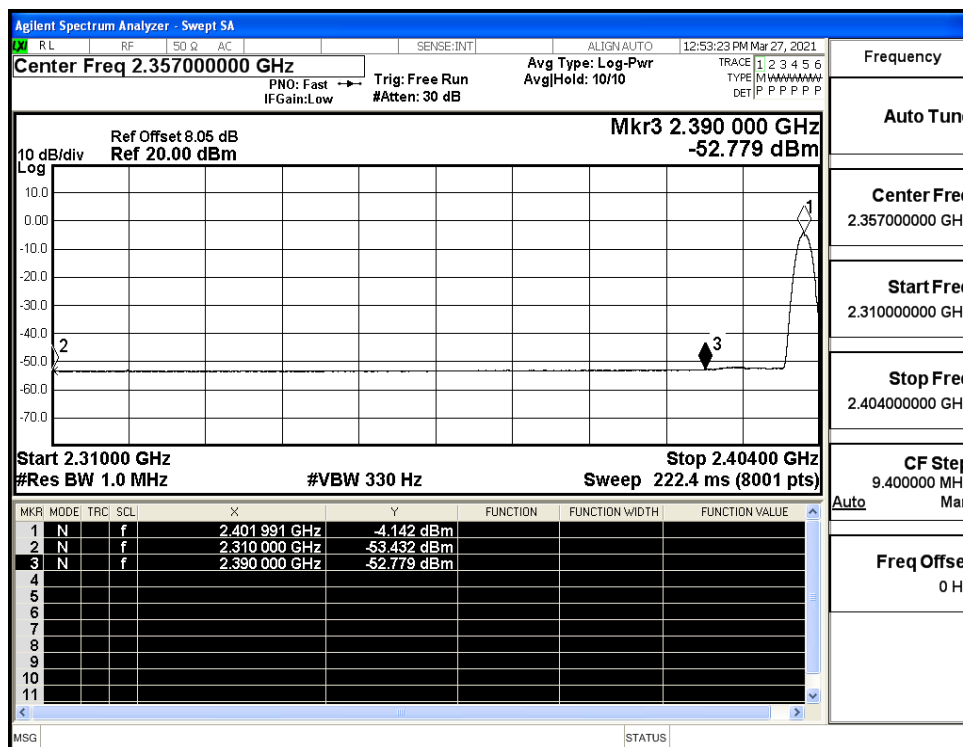


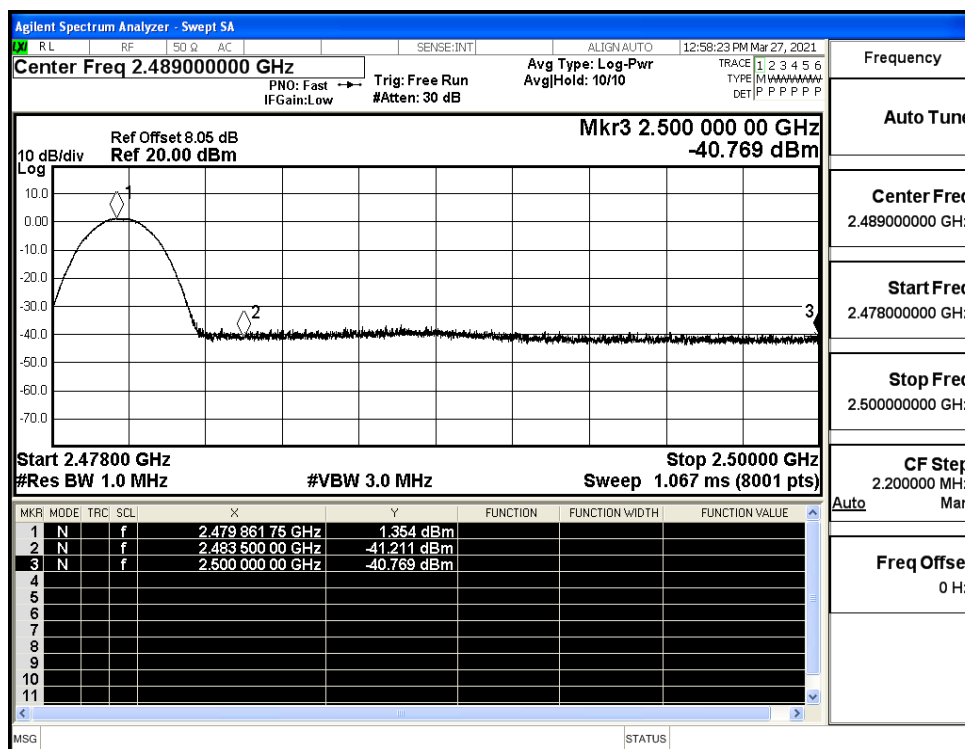
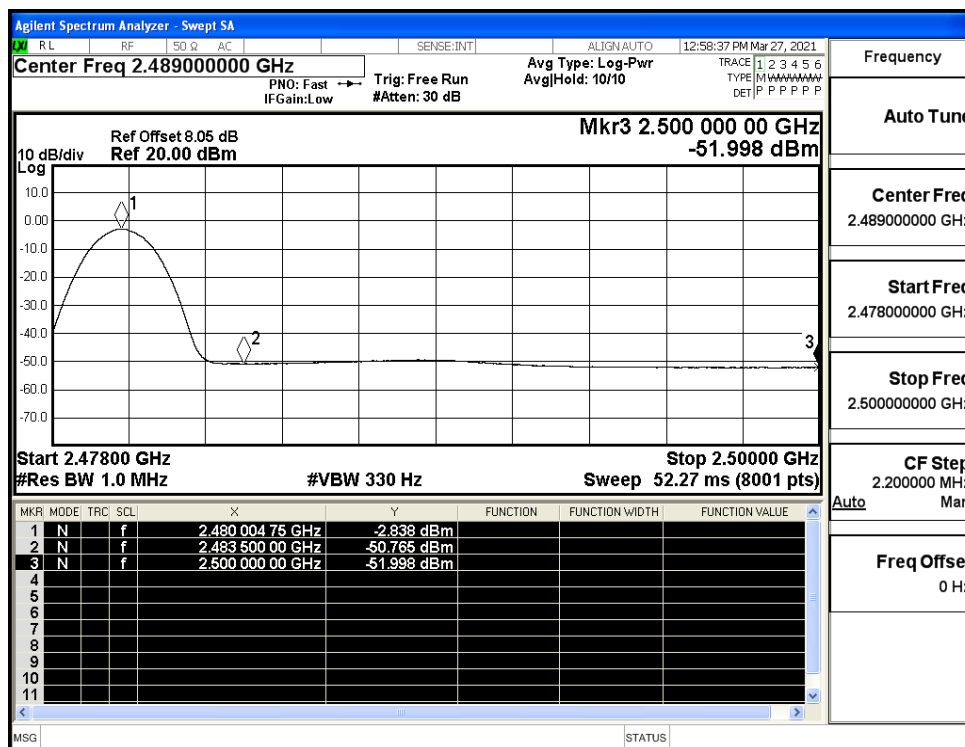
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



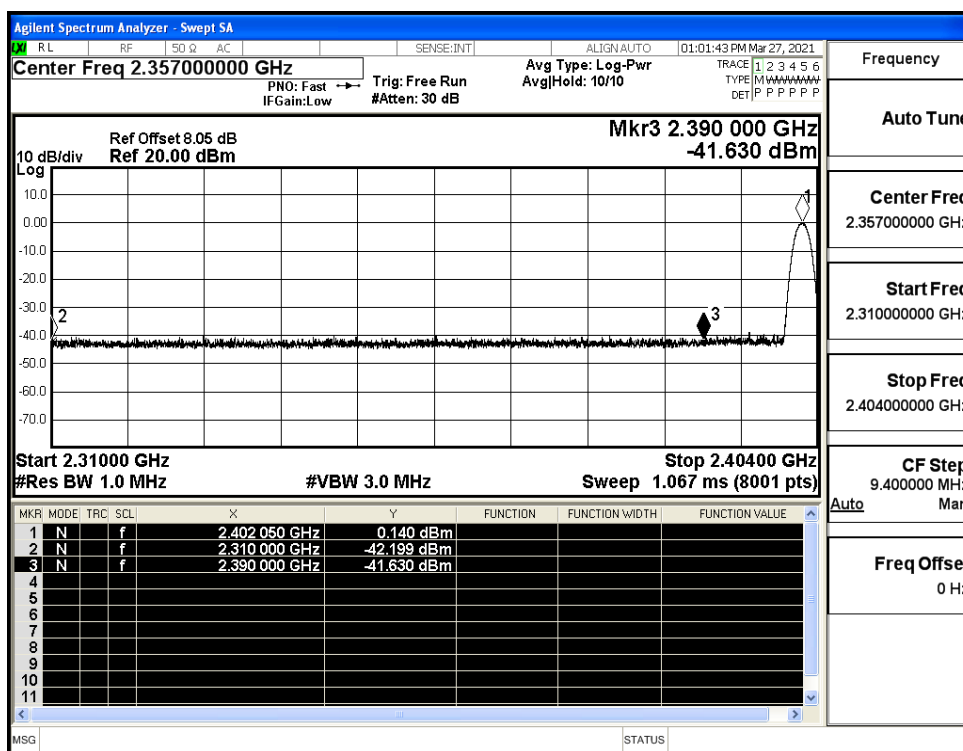
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



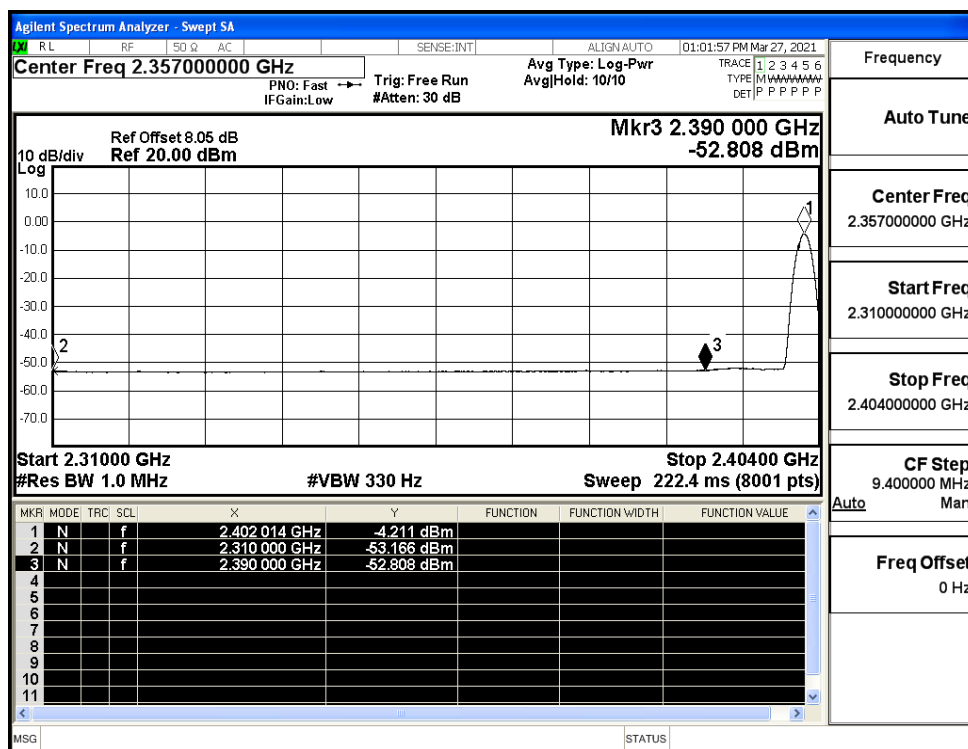
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

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

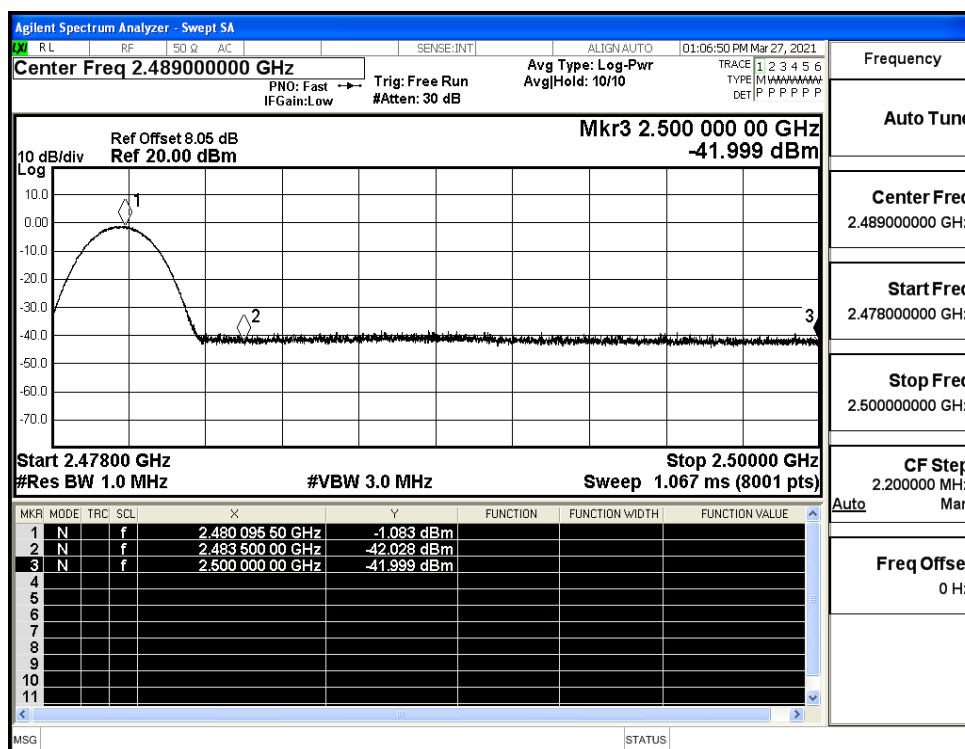
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



Restrict-band band-edge measurements_Hopping Off_8DPSK_Average (Low Channel)



Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (High Channel)



Restrict-band band-edge measurements_Hopping Off_8DPSK_Average (High Channel)

