

Appendix A

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

Product Name: MINI CD STEREO

Trade Mark:



, GPX

Test Model: OND19AAA12

Environmental Conditions

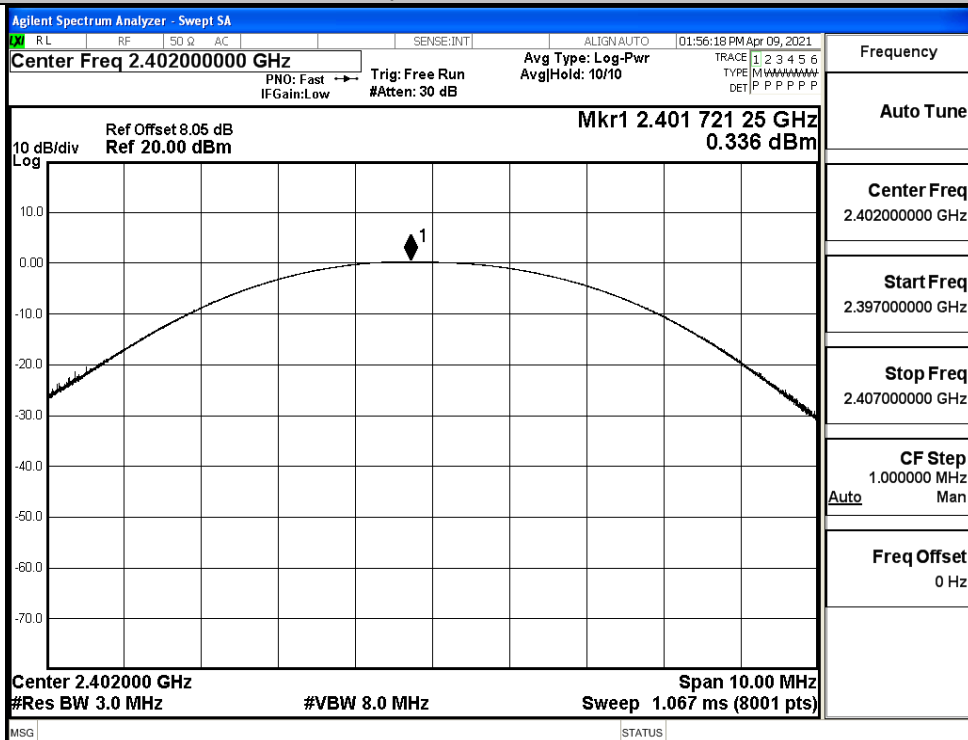
Temperature:	23.6 ° C
Relative Humidity:	54.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Li
Supervised by:	Li huan

A.1 Maximum Conducted Peak Output Power

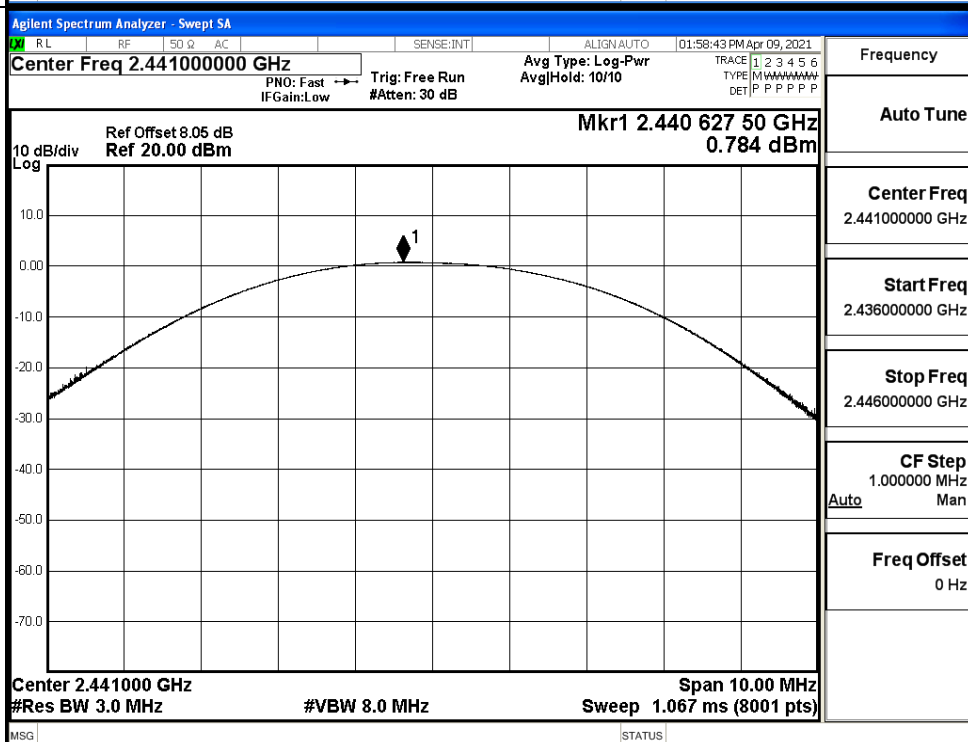
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.336	30	PASS
	MCH	0.784	30	PASS
	HCH	0.534	30	PASS
$\pi/4$ DQPSK	LCH	0.955	21	PASS
	MCH	1.413	21	PASS
	HCH	1.121	21	PASS
8DPSK	LCH	0.997	21	PASS
	MCH	1.432	21	PASS
	HCH	1.166	21	PASS

Test Graphs

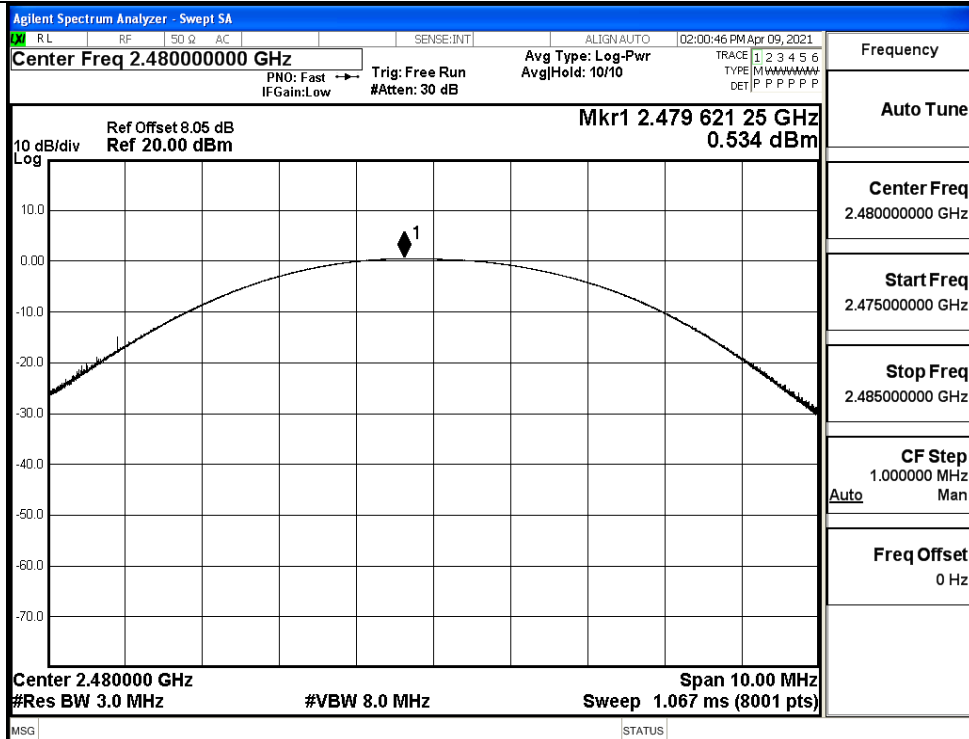
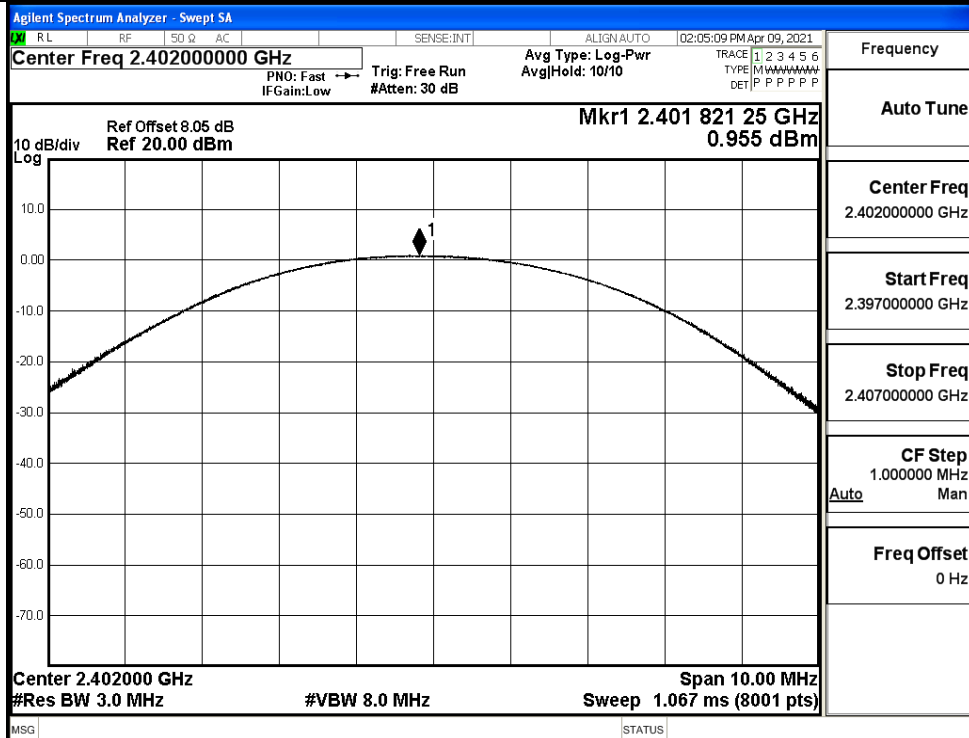
GFSK/LCH

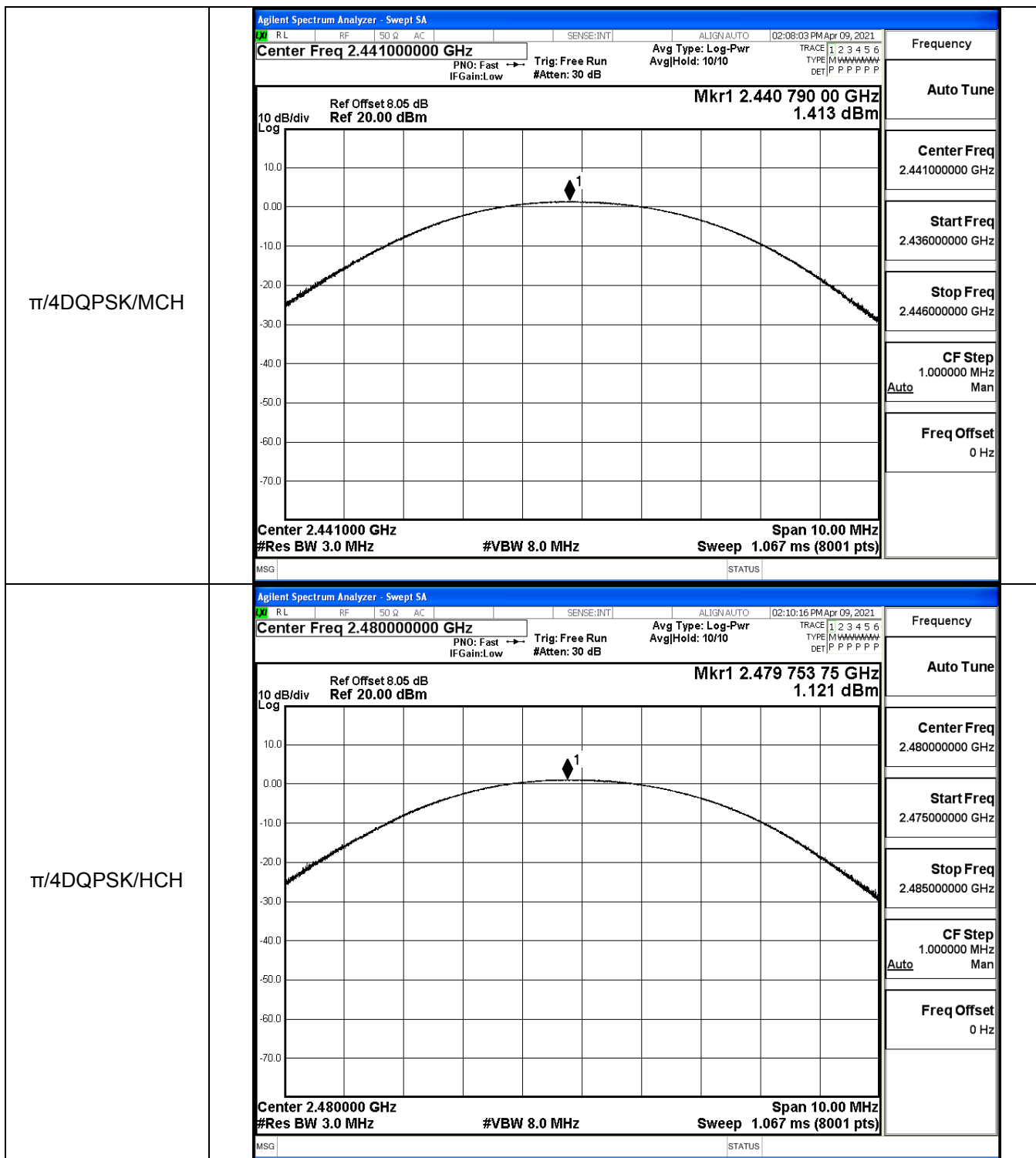


GFSK/MCH

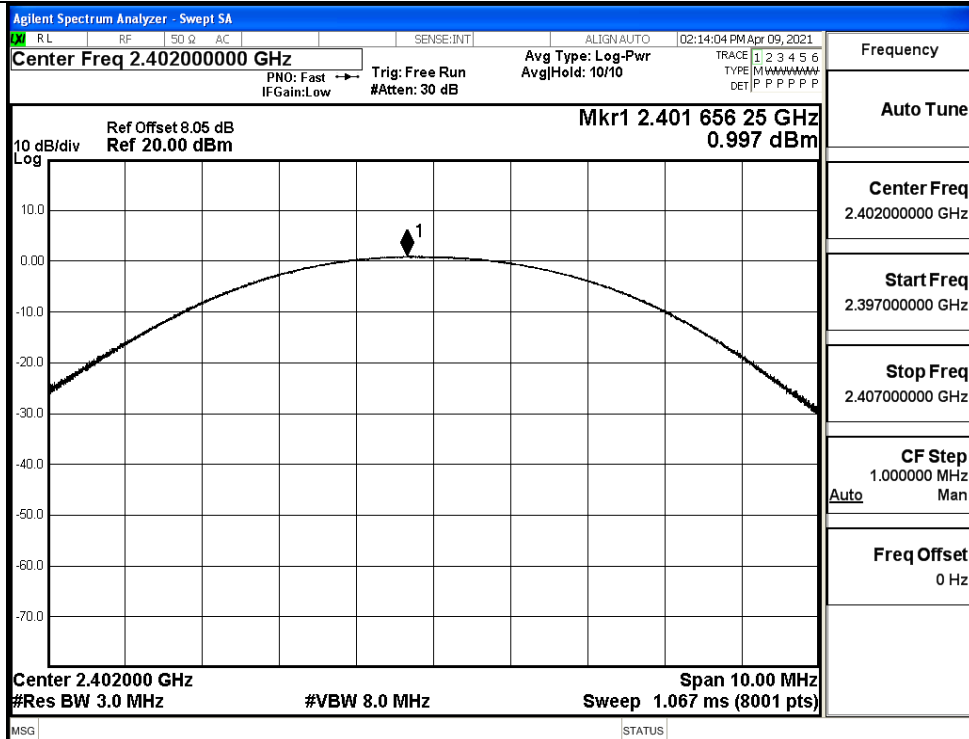


GFSK/HCH

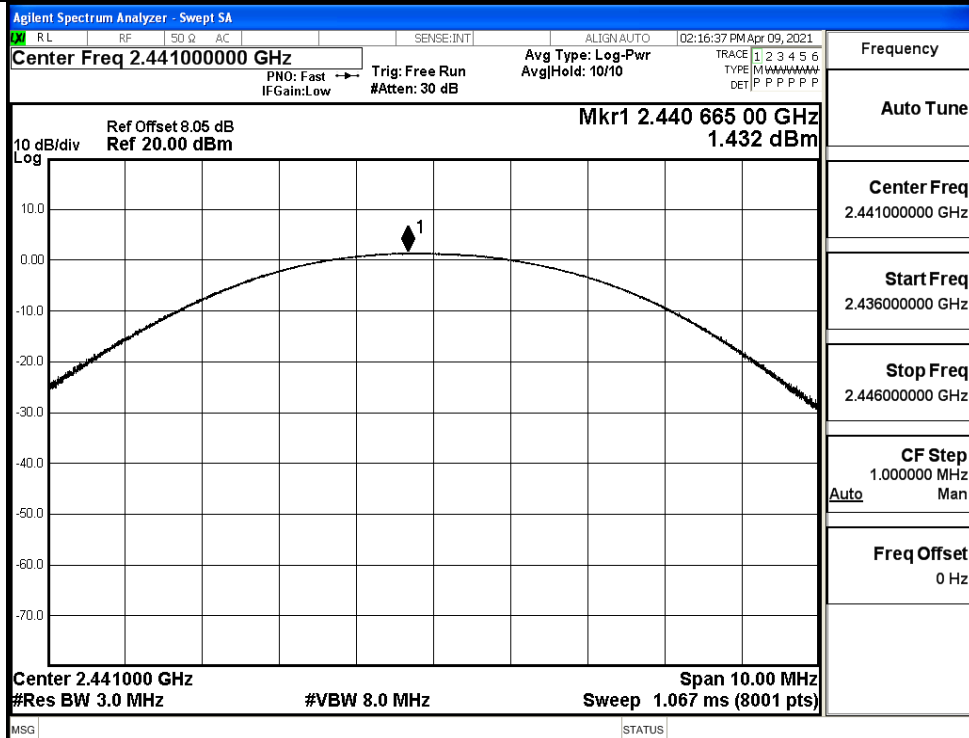
 $\pi/4$ DQPSK/LCH



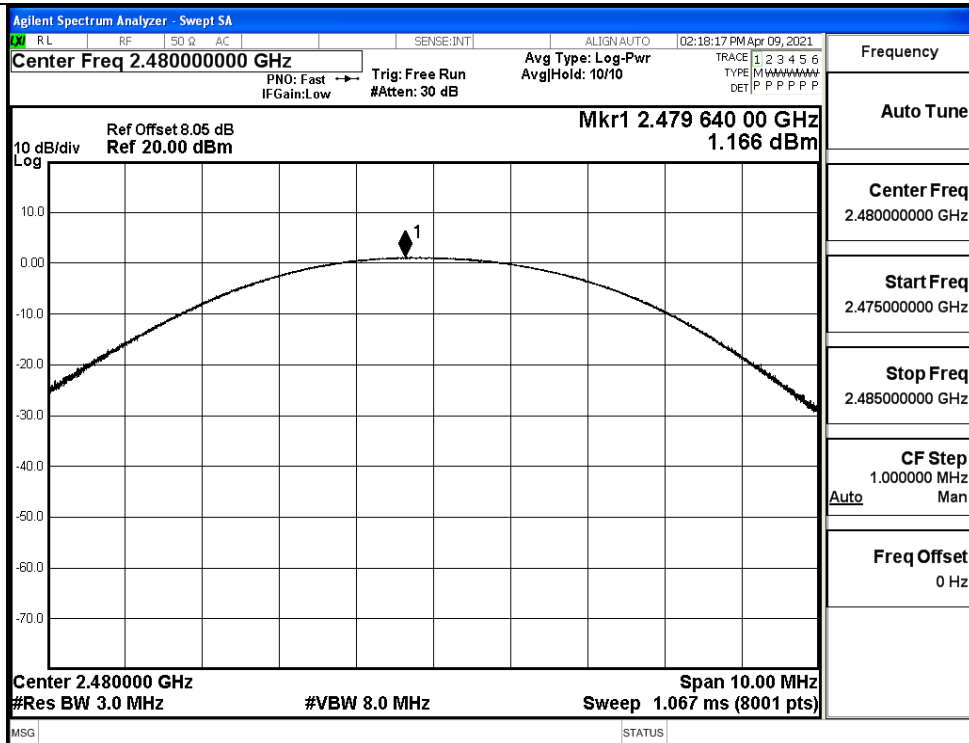
8DPSK/LCH



8DPSK/MCH



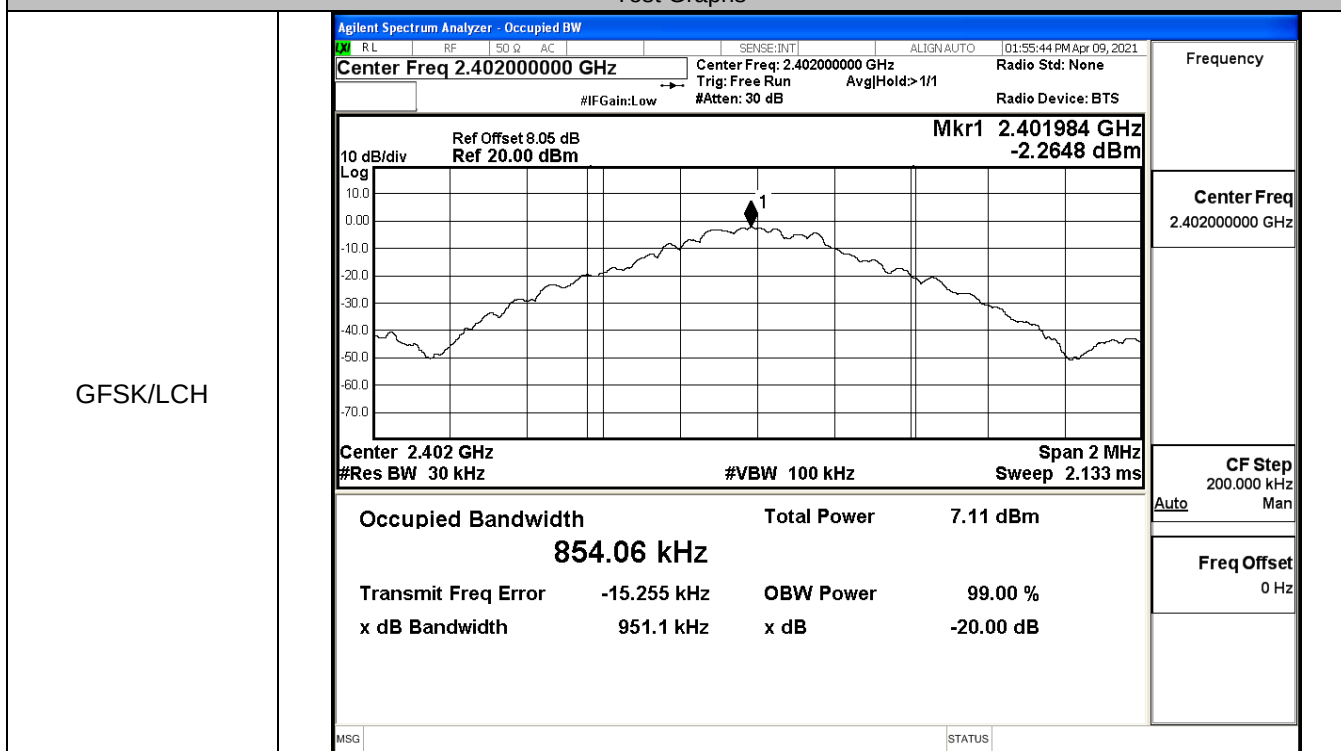
8DPSK/HCH



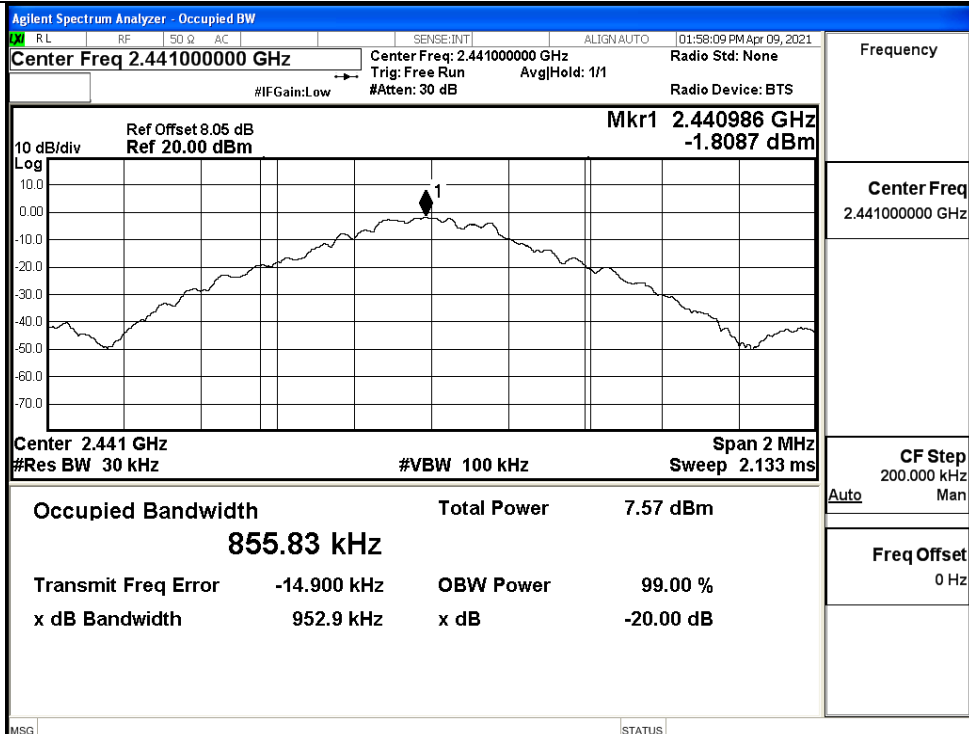
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9511	Not Specified	PASS
	MCH	0.9529	Not Specified	PASS
	HCH	0.9528	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.311	Not Specified	PASS
	MCH	1.312	Not Specified	PASS
	HCH	1.313	Not Specified	PASS
8DPSK	LCH	1.311	Not Specified	PASS
	MCH	1.312	Not Specified	PASS
	HCH	1.313	Not Specified	PASS

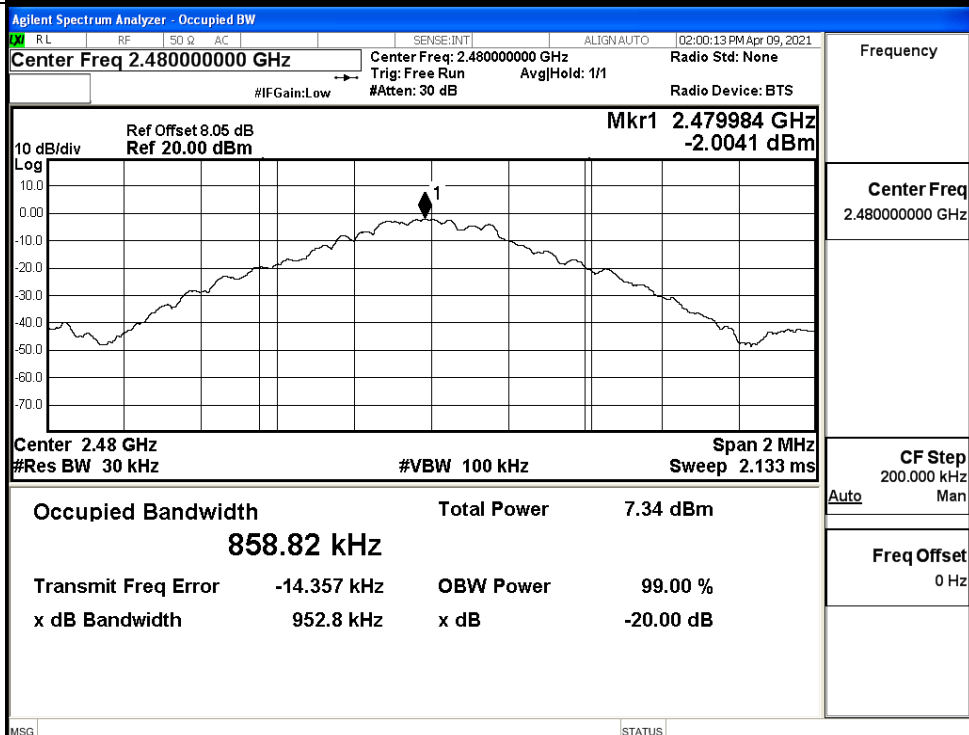
Test Graphs

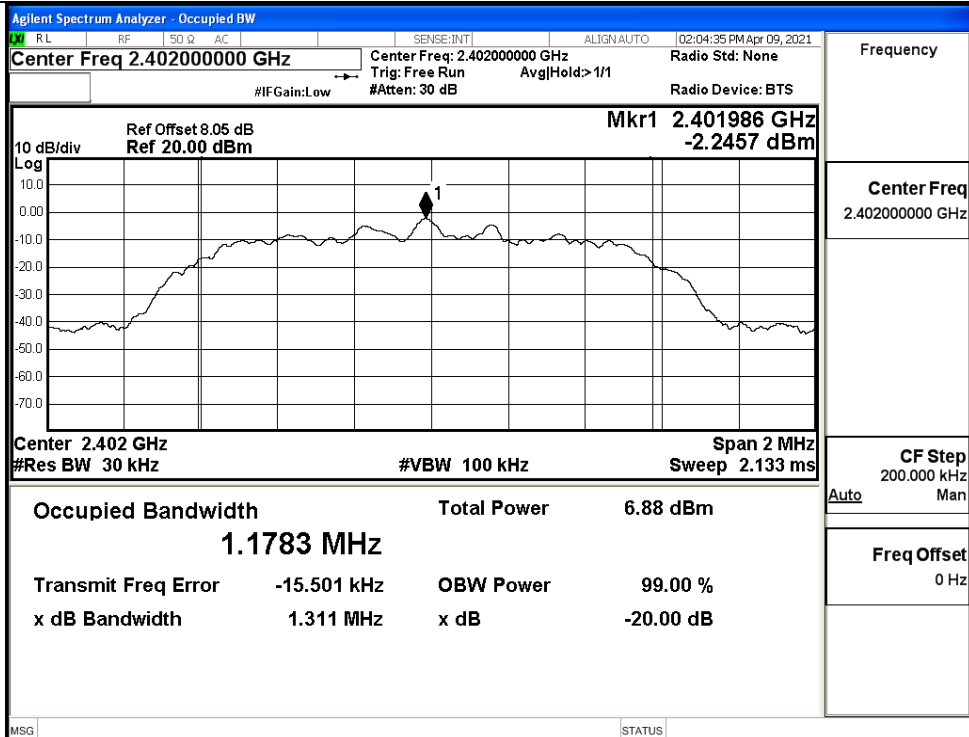
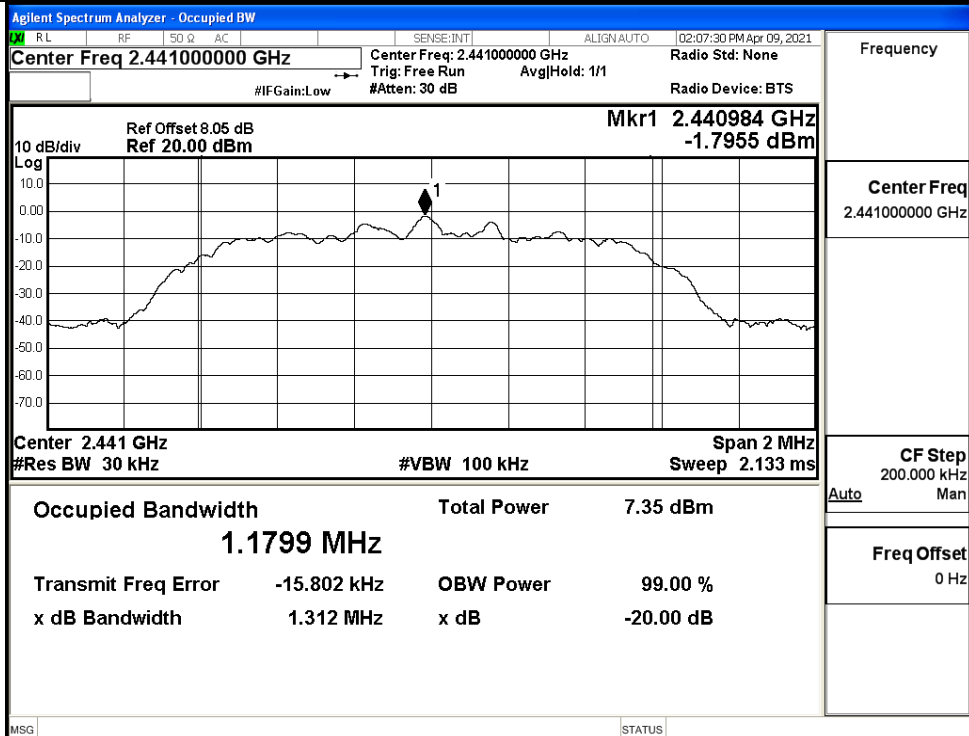


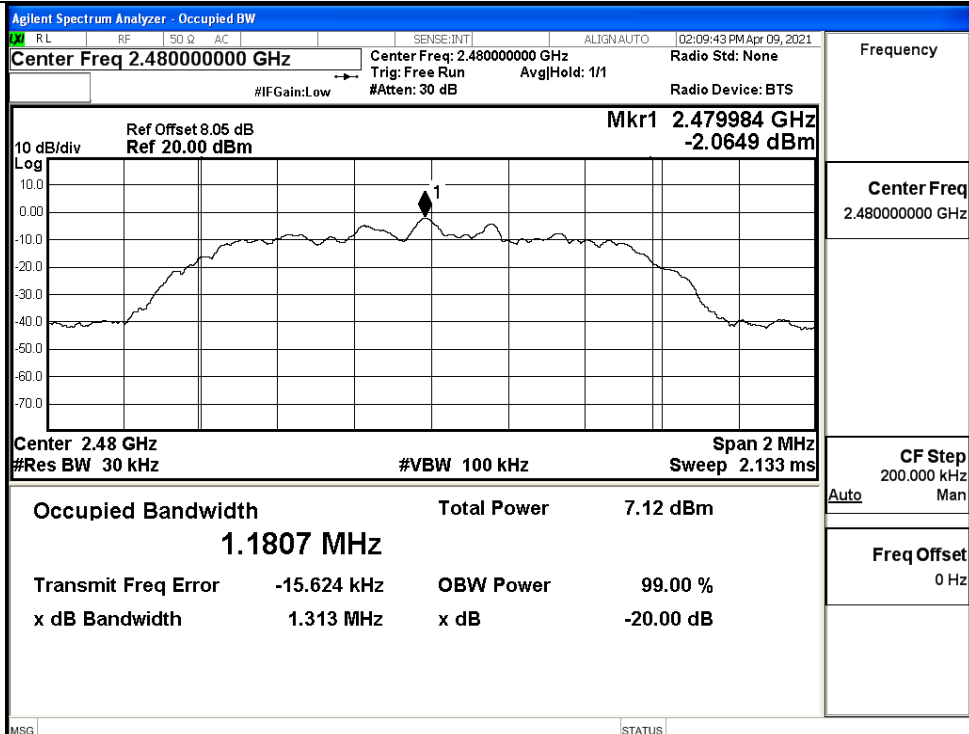
GFSK/MCH



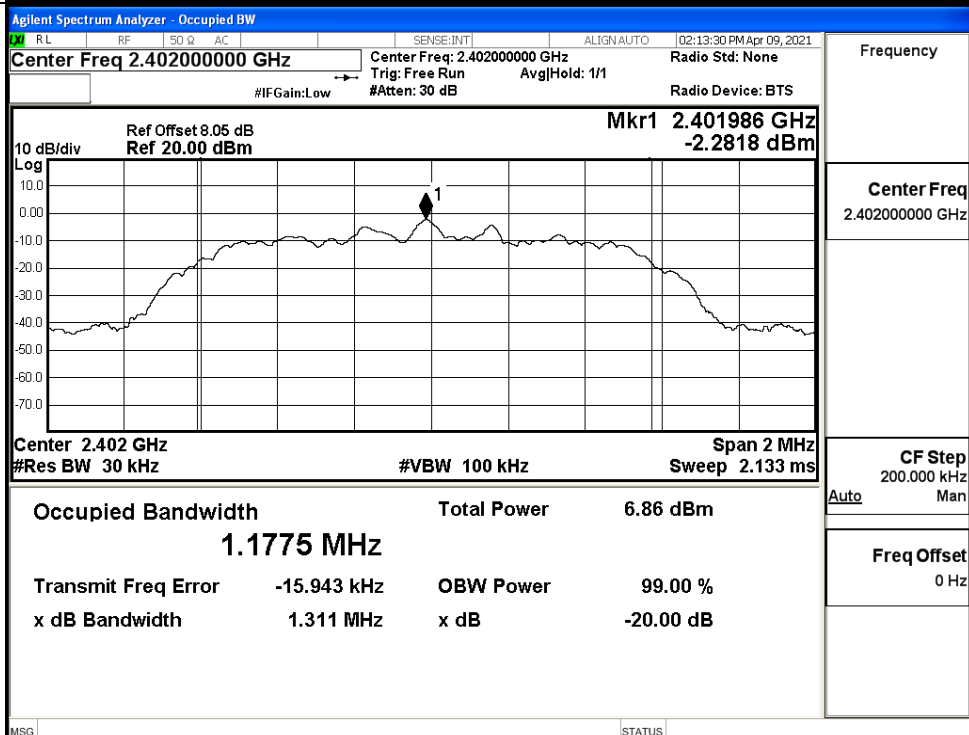
GFSK/HCH



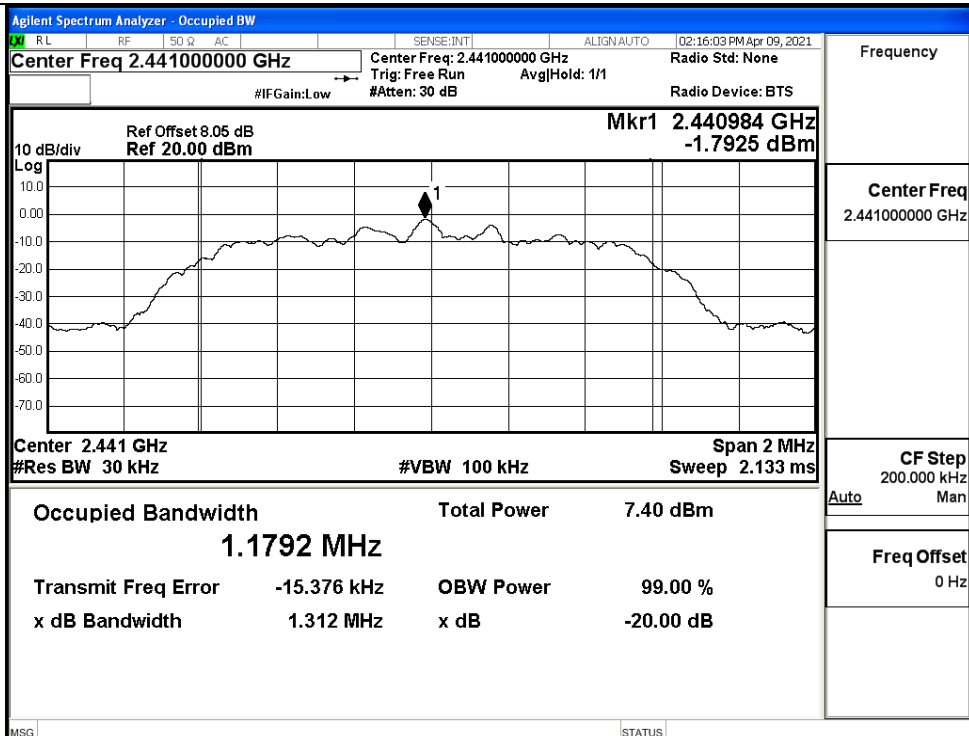
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

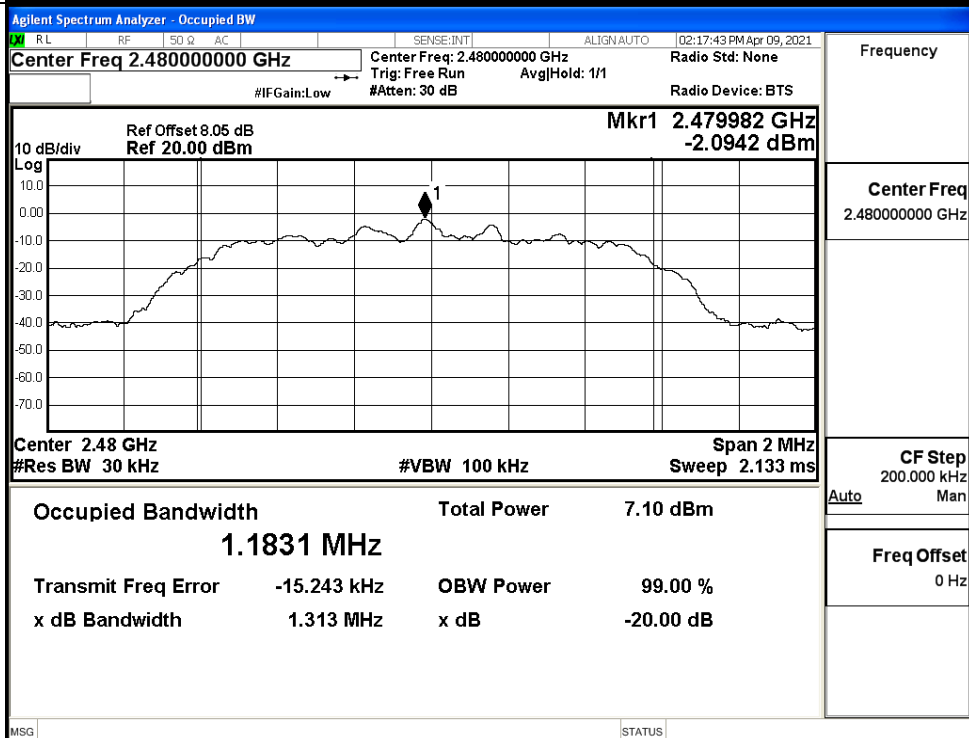
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

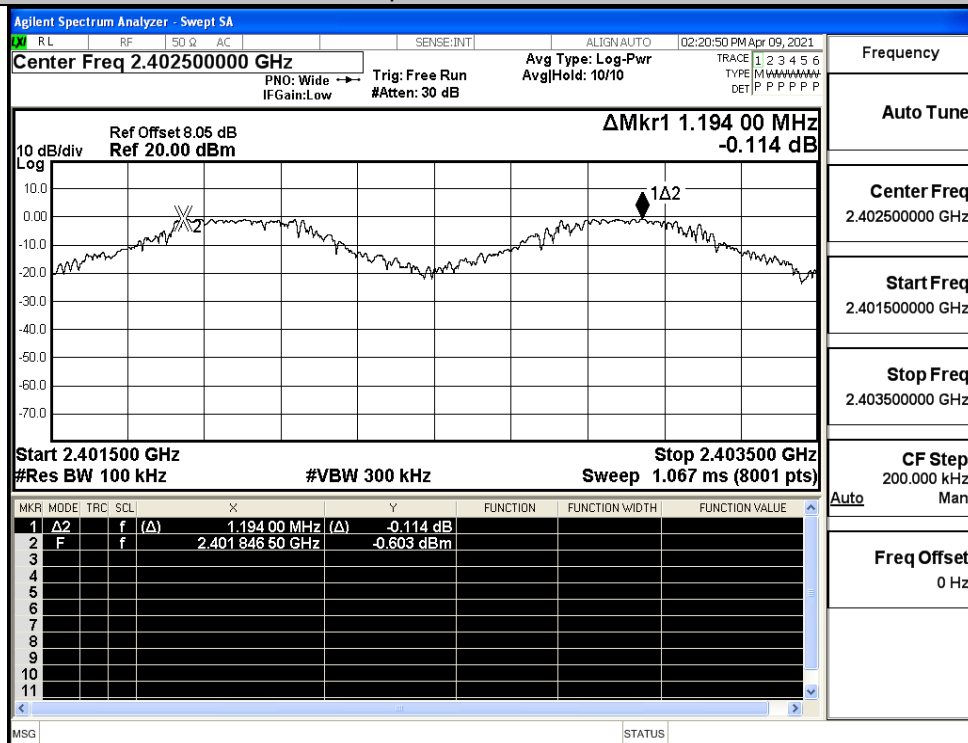


A.3 Carrier Frequency Separation

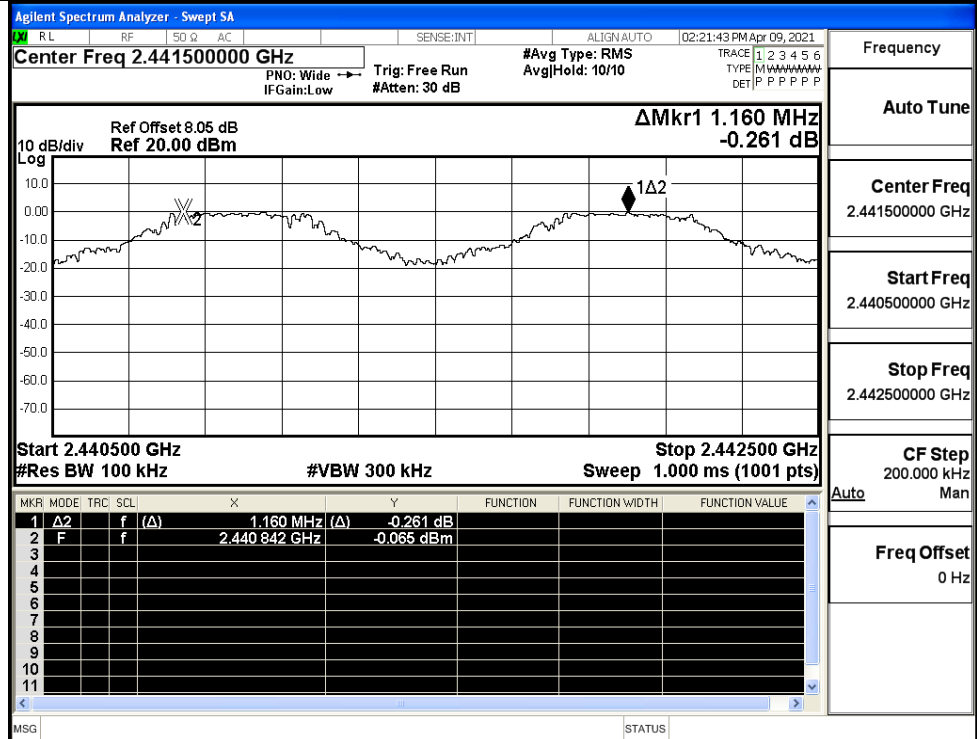
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.194	0.635	PASS
	MCH	1.160	0.635	PASS
	HCH	0.998	0.635	PASS
$\pi/4$ DQPSK	LCH	1.204	0.875	PASS
	MCH	1.012	0.875	PASS
	HCH	1.186	0.875	PASS
8DPSK	LCH	1.210	0.875	PASS
	MCH	1.138	0.875	PASS
	HCH	1.014	0.875	PASS

Test Graphs

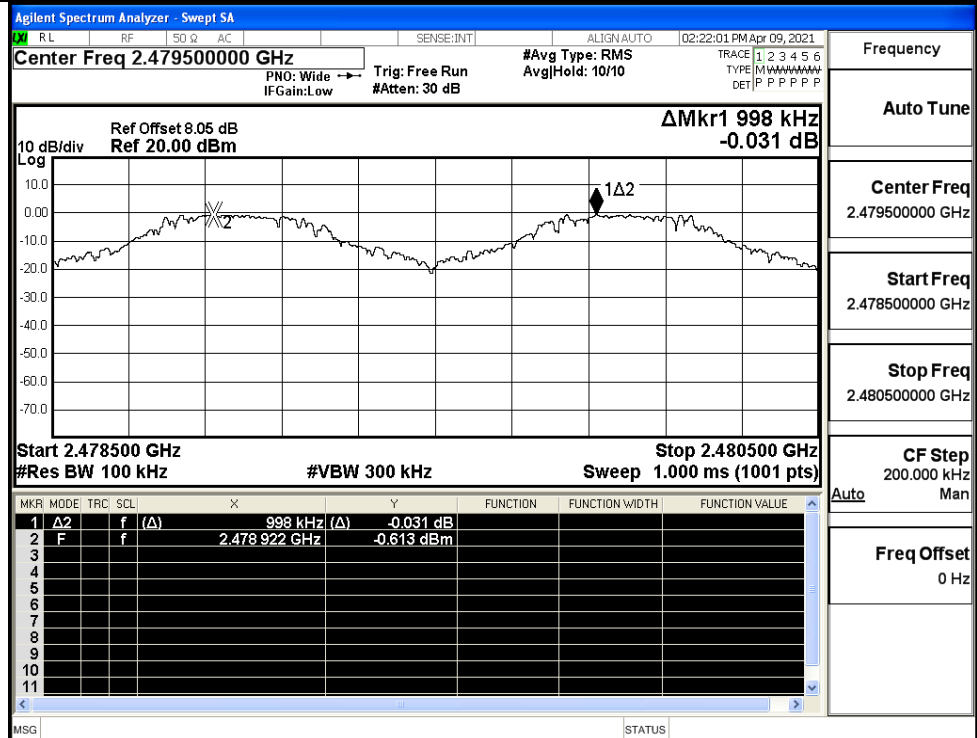
GFSK/LCH

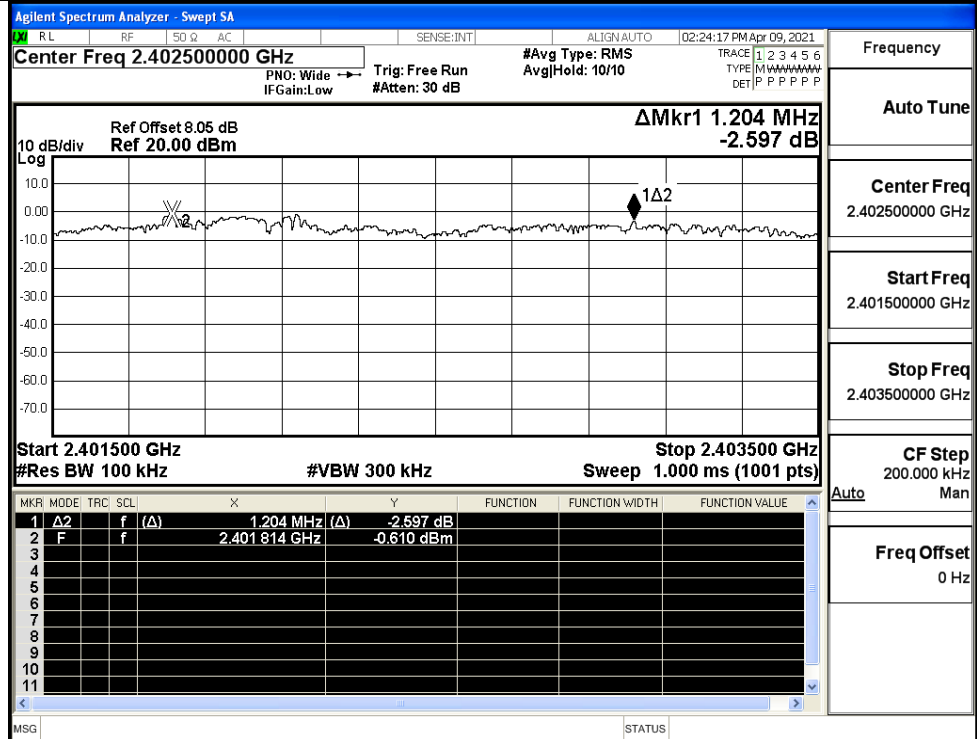
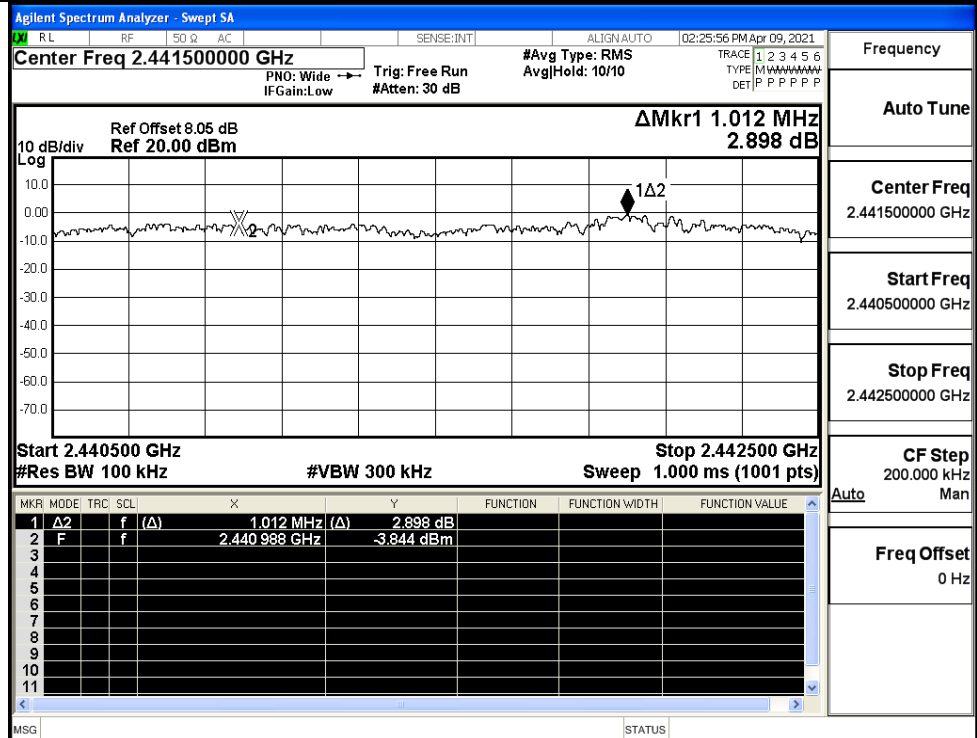


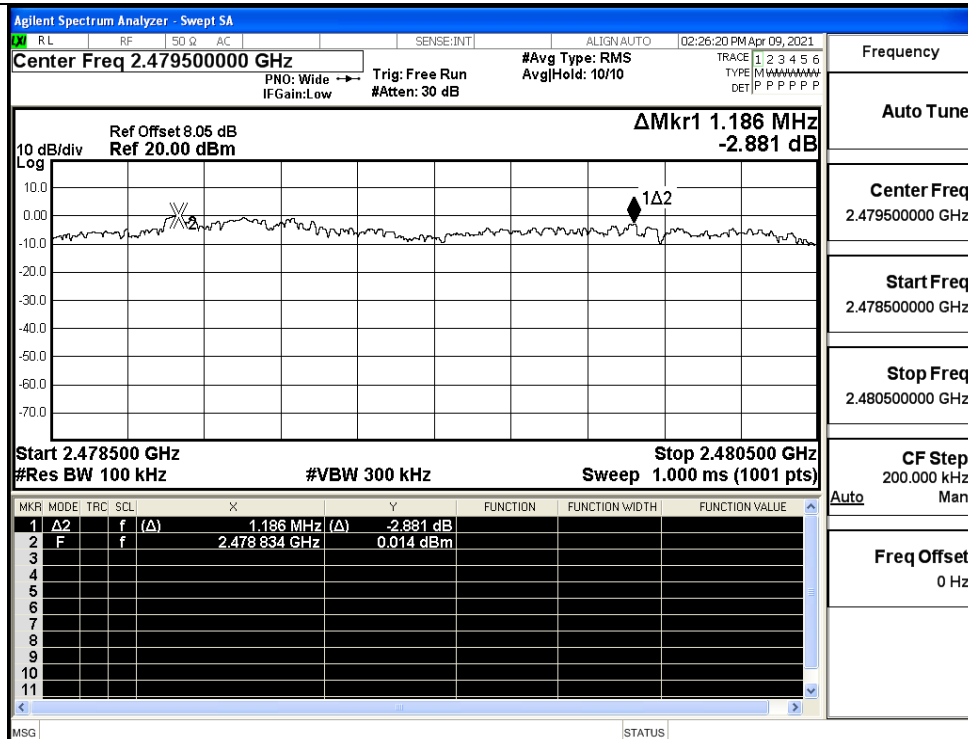
GFSK/MCH



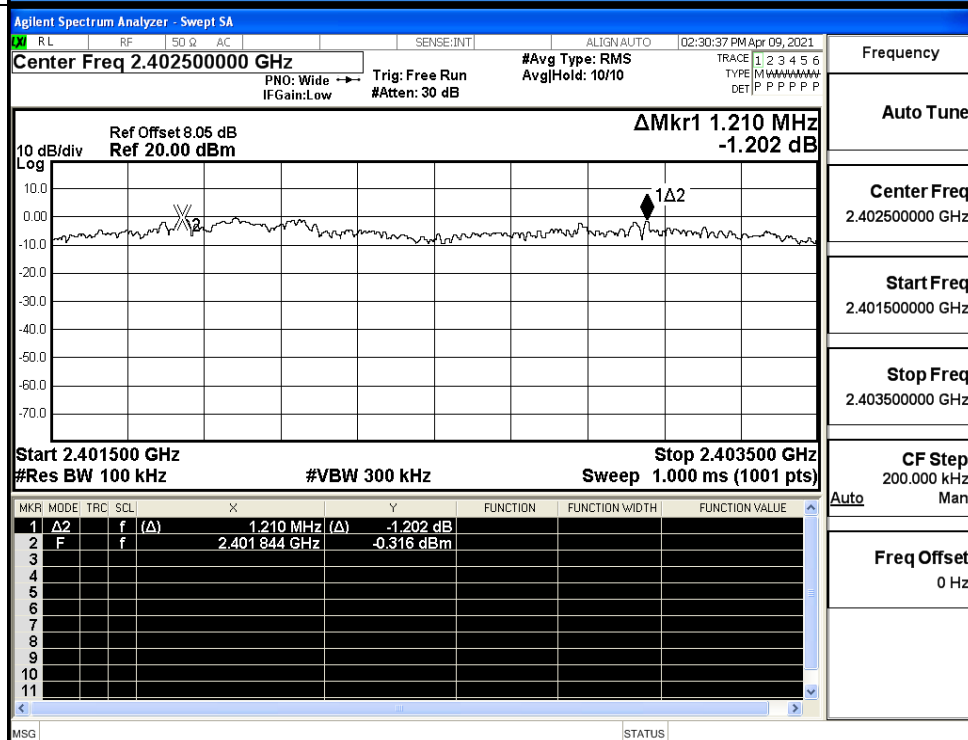
GFSK/HCH



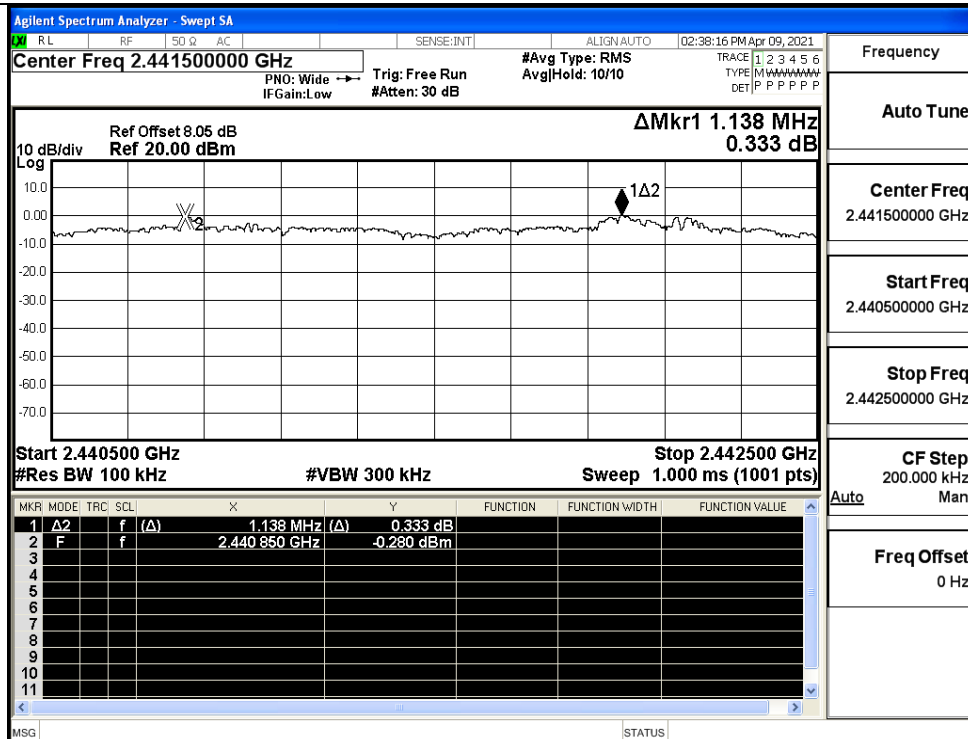
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

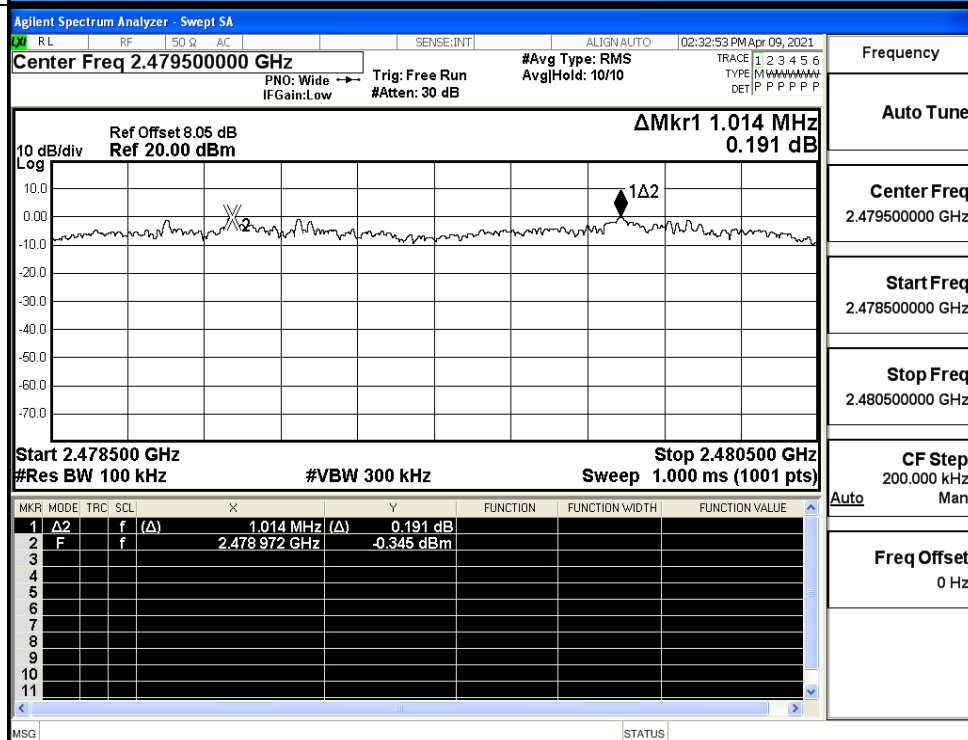
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

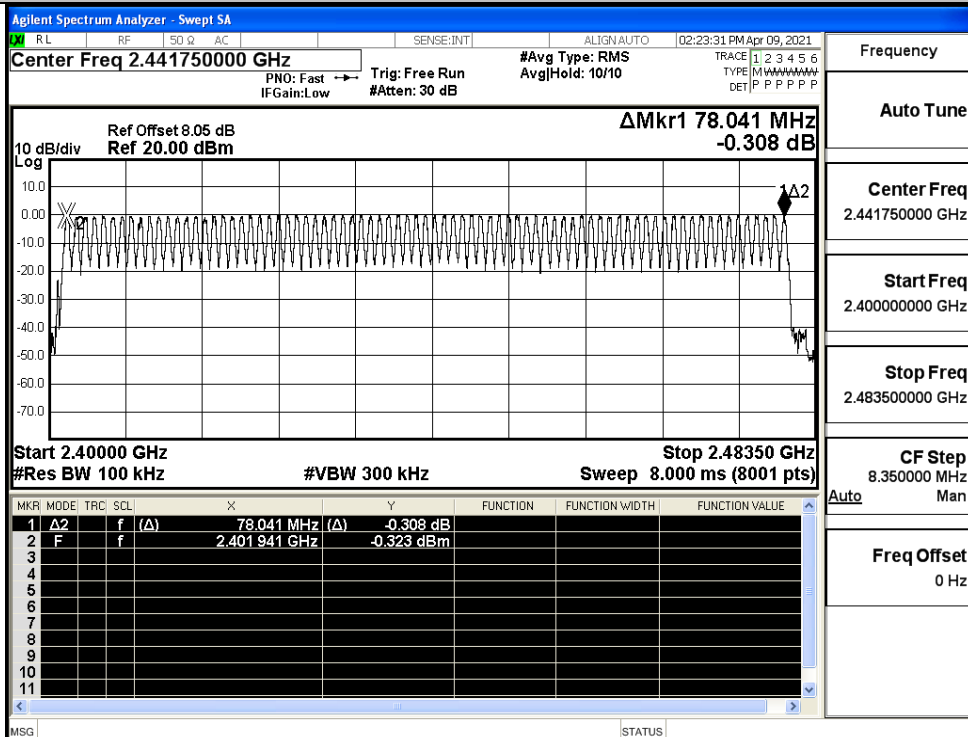
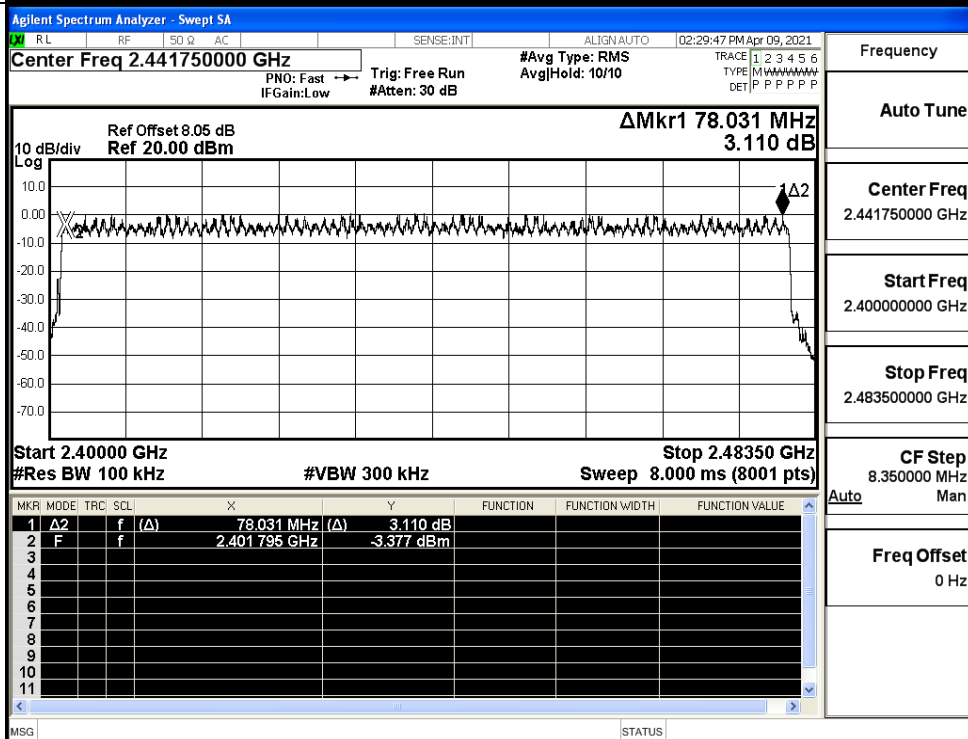


A.4 Hopping Channel Number

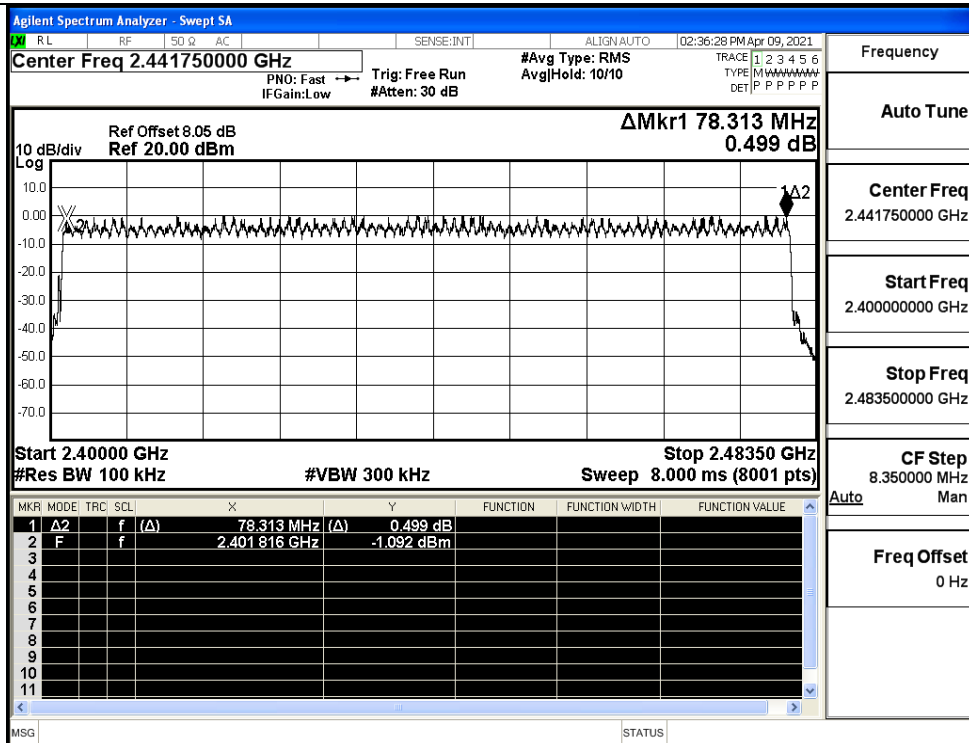
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop

8DPSK/Hop

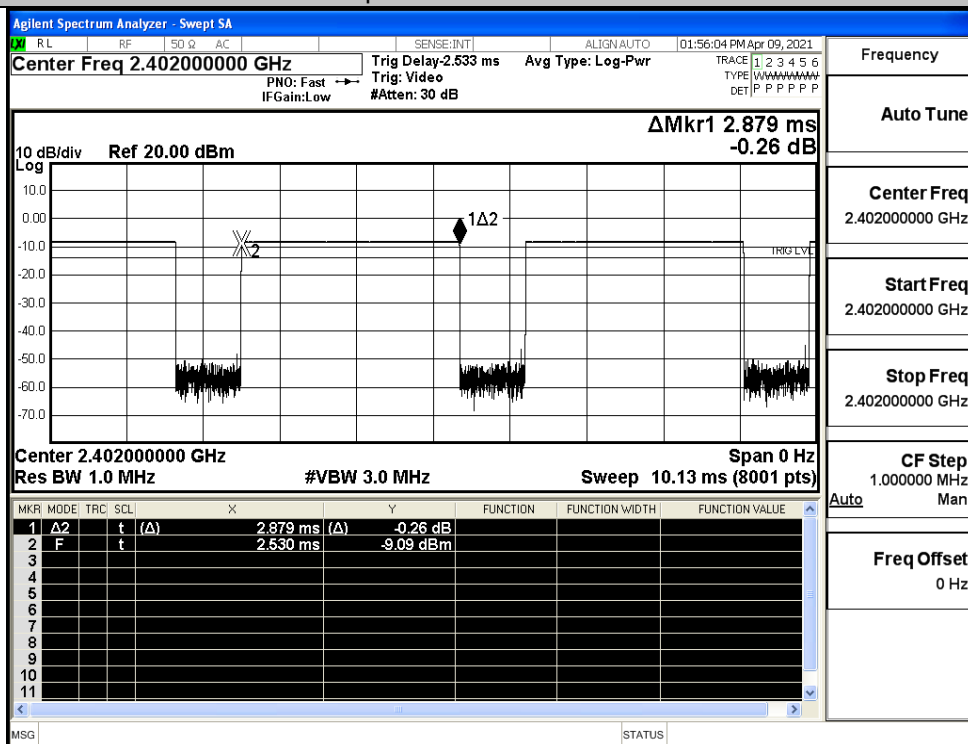


A.5 Dwell Time

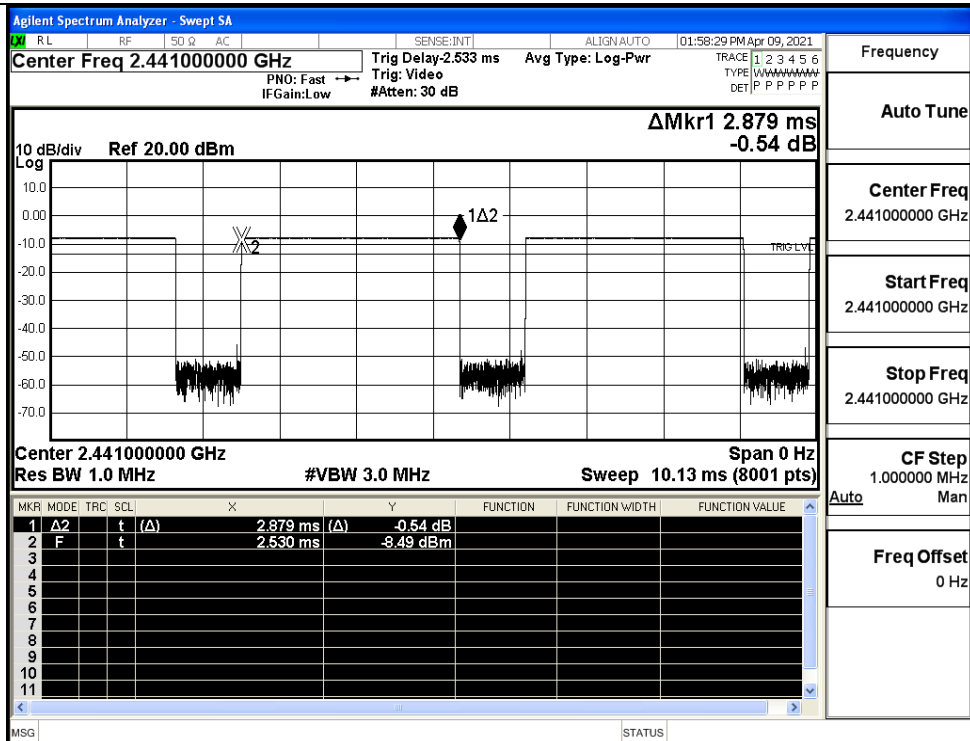
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88	106.7	0.307	0.4	PASS
8DPSK	3DH5	LCH	2.88	106.7	0.307	0.4	PASS
	3DH5	MCH	2.88	106.7	0.308	0.4	PASS
	3DH5	HCH	2.88	106.7	0.308	0.4	PASS

Test Graphs

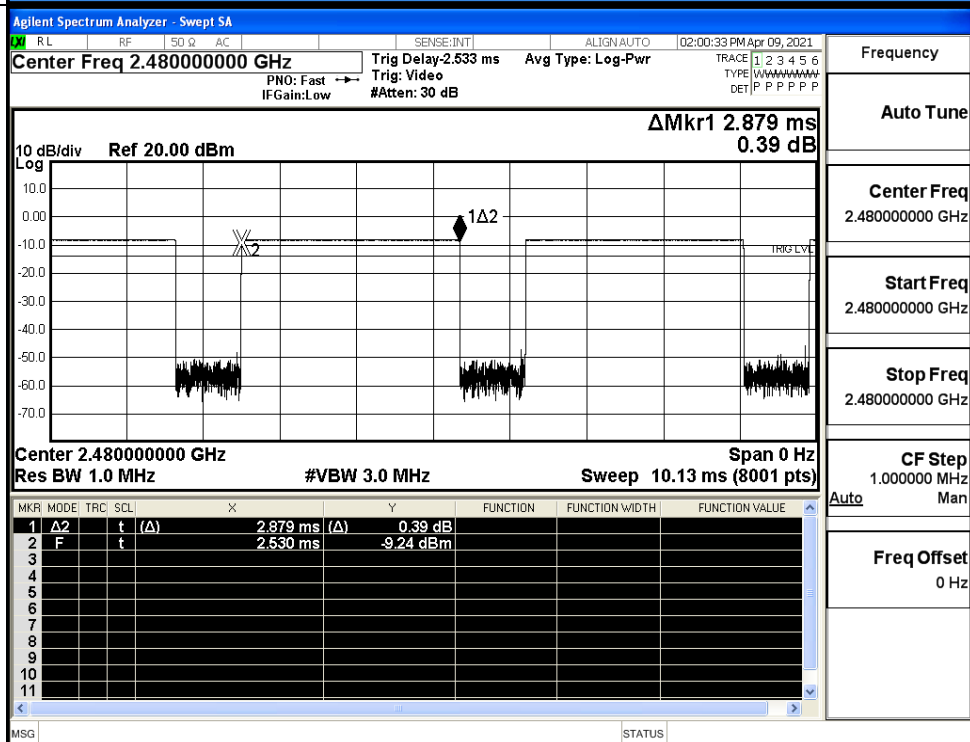
GFSK_DH5/LCH



GFSK_DH5/MCH



GFSK_DH5/HCH



[illegible]

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

Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN:AUTO 02:07:49 PM Apr 09, 2021

Center Freq 2.44100000 GHz Trig Delay: 2.533 ms Avg Type: Log-Pwr
 PNO: Fast IF Gain: Low Trig: Video #Atten: 30 dB TRACE 1 2 3 4 5 6 TYPE P P P P P P DET P P P P P P

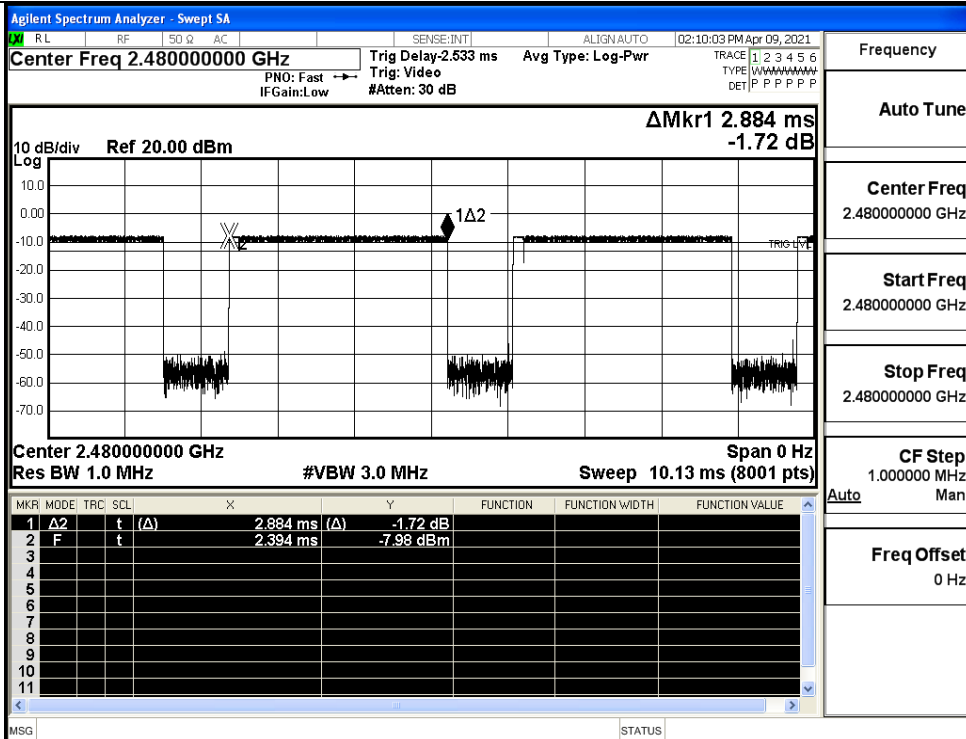
The plot shows a spectrum from approximately 2.435 GHz to 2.447 GHz. The y-axis is power in dBm, ranging from -70.0 to 10.0. A significant signal is visible around 2.441 GHz. A peak marker labeled $\Delta Mkr1$ is placed on the signal trace at a time delay of 2.884 ms and a power level of -0.49 dB.

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	Δ	t	(Δ)	2.884 ms	-0.49 dB			
2	F	t		2.393 ms	-8.53 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								

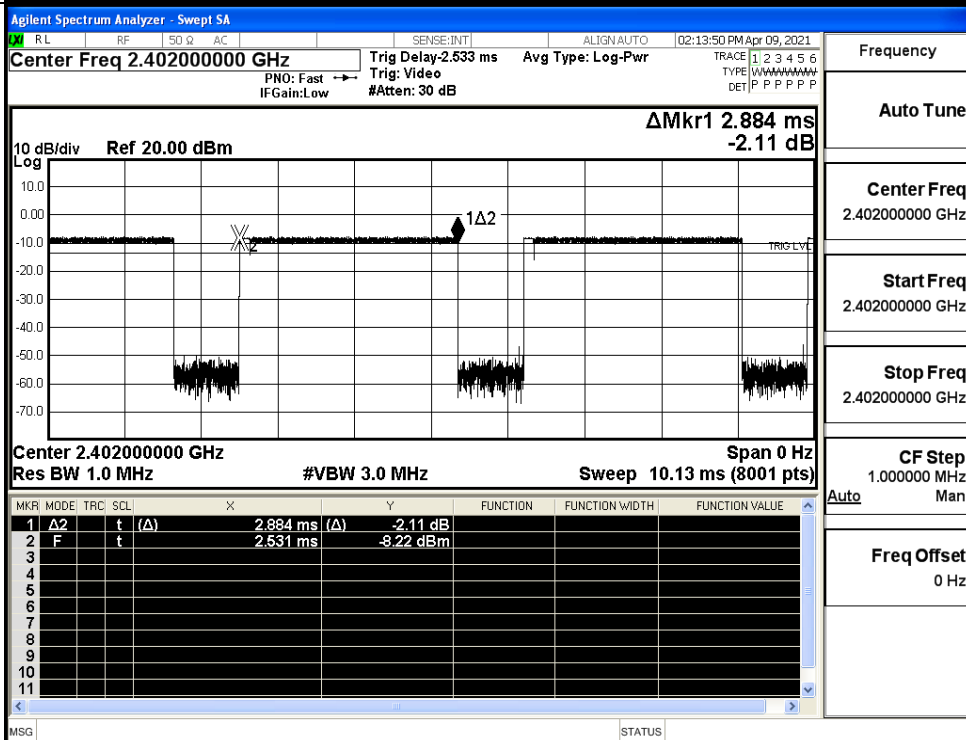
Center 2.44100000 GHz Span 0 Hz
 Res BW 1.0 MHz #VBW 3.0 MHz Sweep 10.13 ms (8001 pts)

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

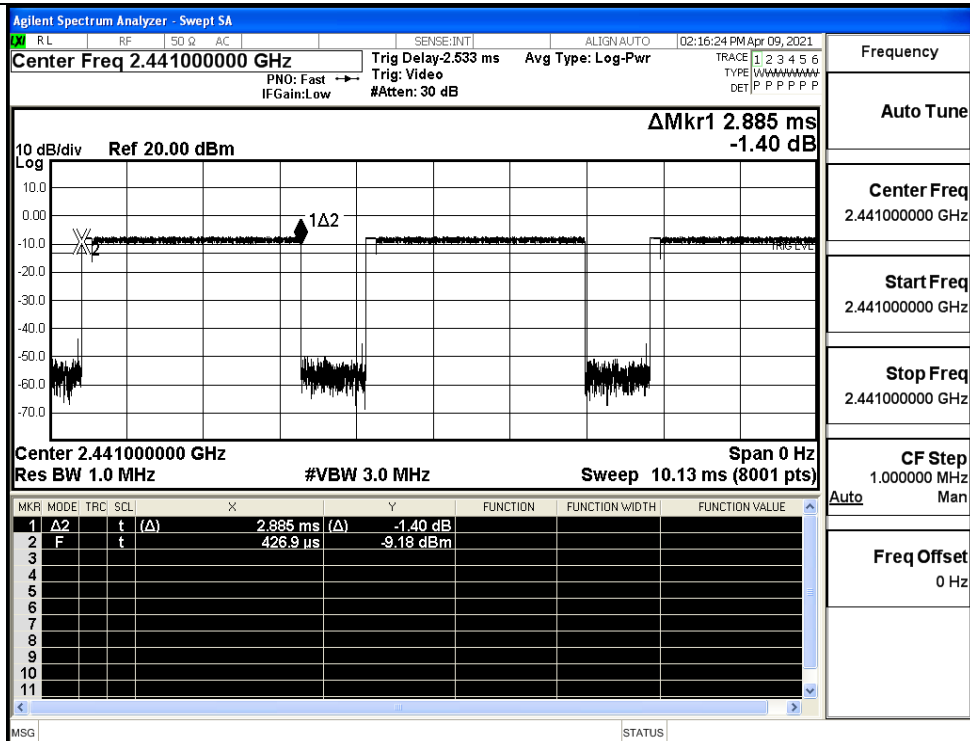
$\pi/4$ DQPSK
_2DH5/HCH



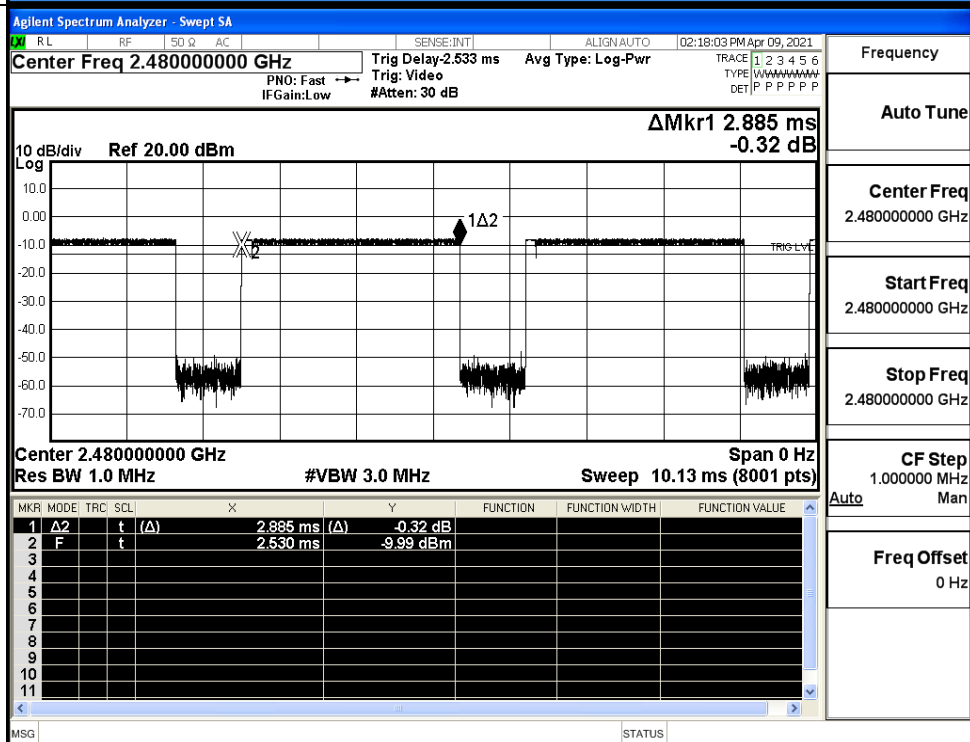
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



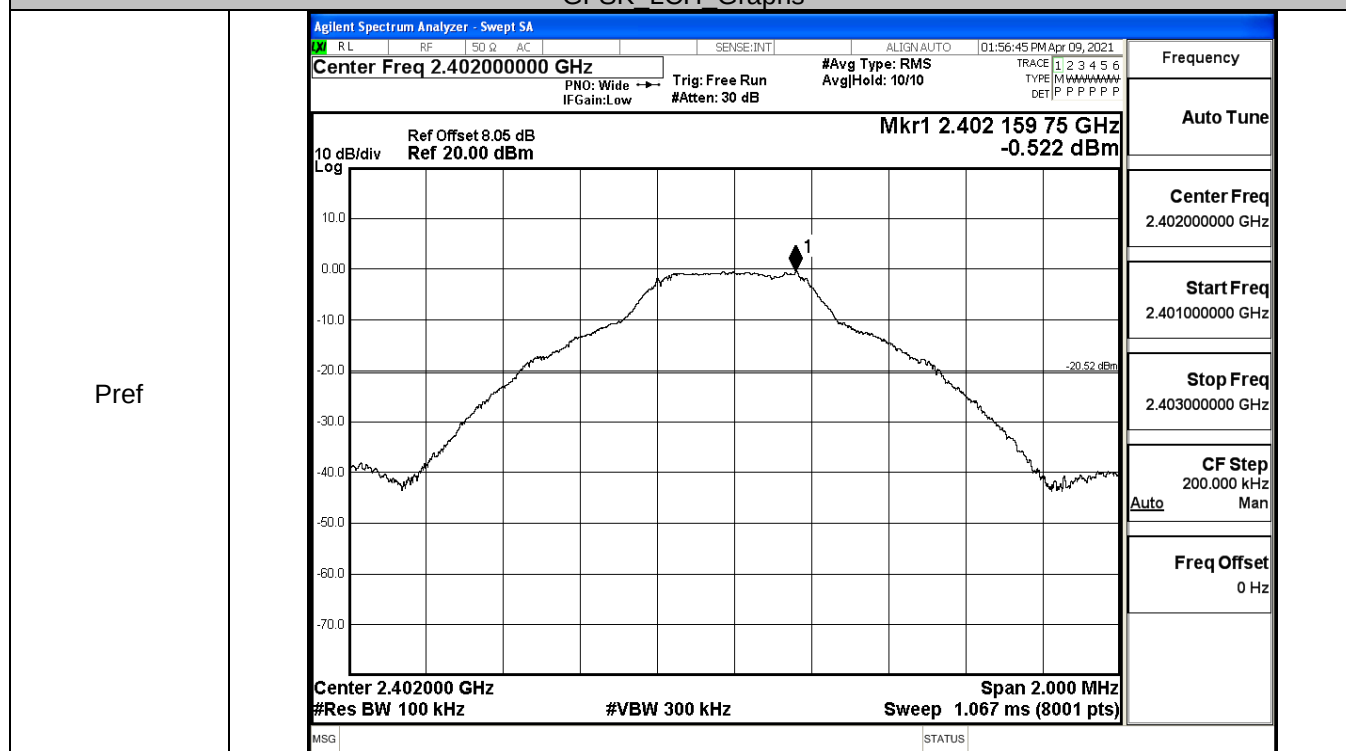
8DPSK_3DH5/HCH



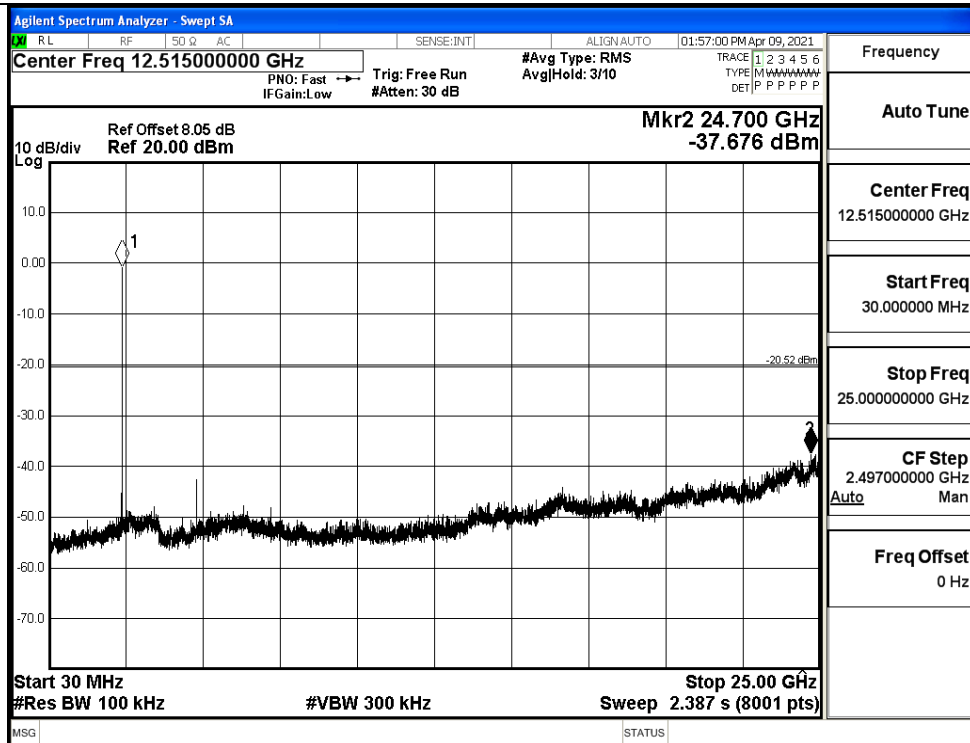
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.522	-37.676	-20.522	PASS
	MCH	0.126	-37.594	-19.874	PASS
	HCH	-0.149	-37.502	-20.149	PASS
$\pi/4$ DQPSK	LCH	-0.296	-37.394	-20.296	PASS
	MCH	0.076	-38.479	-19.924	PASS
	HCH	-0.177	-36.906	-20.177	PASS
8DPSK	LCH	-0.375	-37.456	-20.375	PASS
	MCH	0.157	-38.575	-19.843	PASS
	HCH	-0.117	-38.185	-20.117	PASS

GFSK LCH Graphs

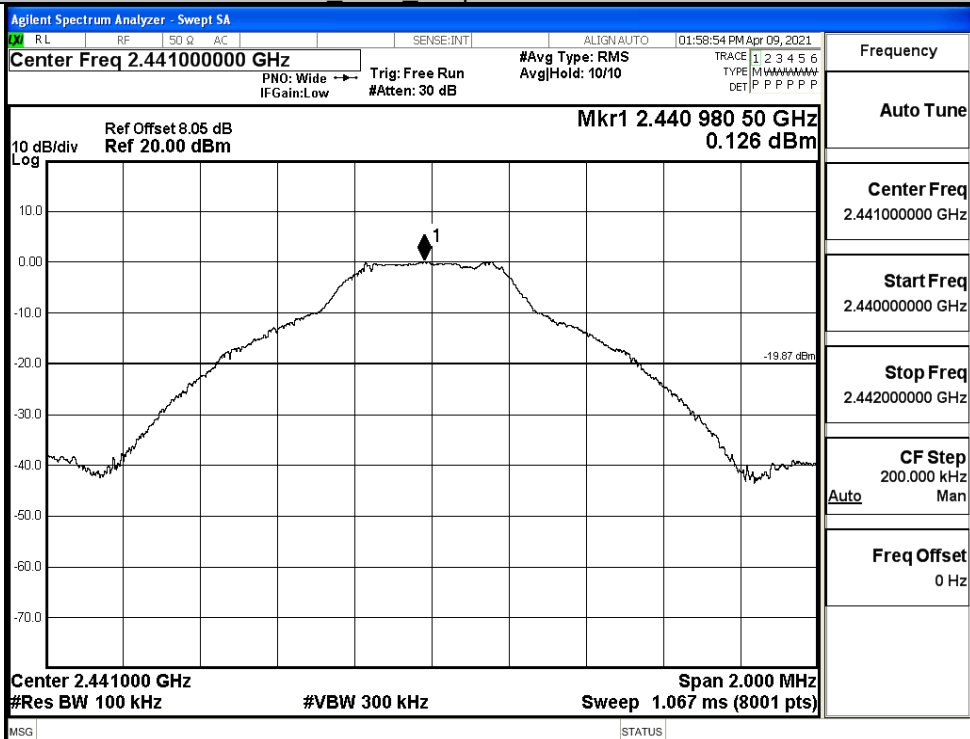


Puw

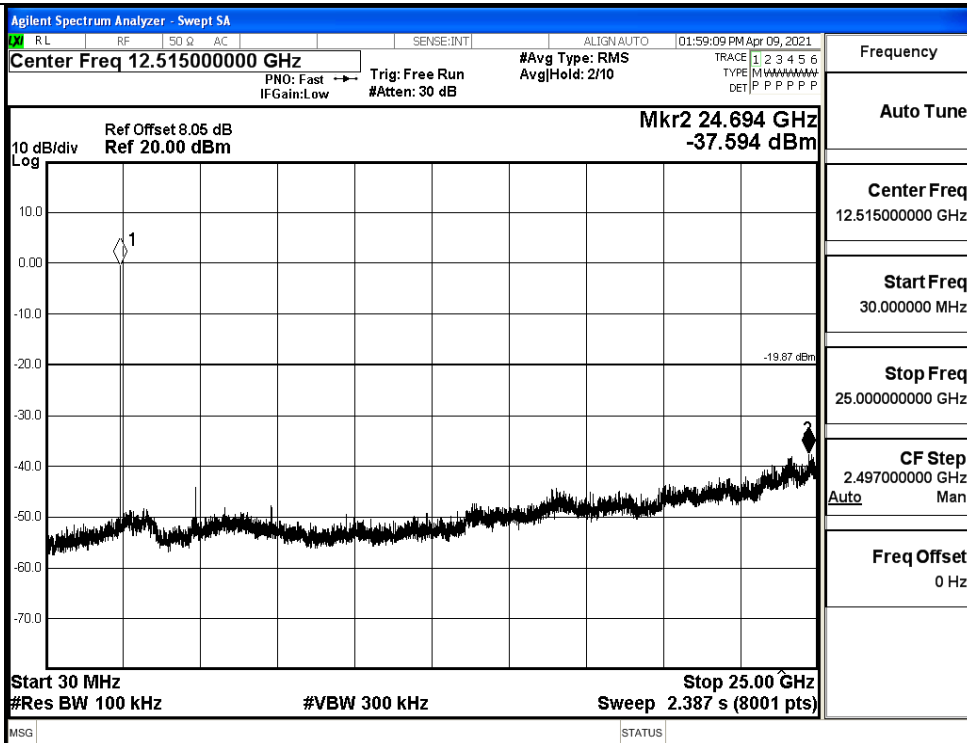


GFSK MCH Graphs

Pref

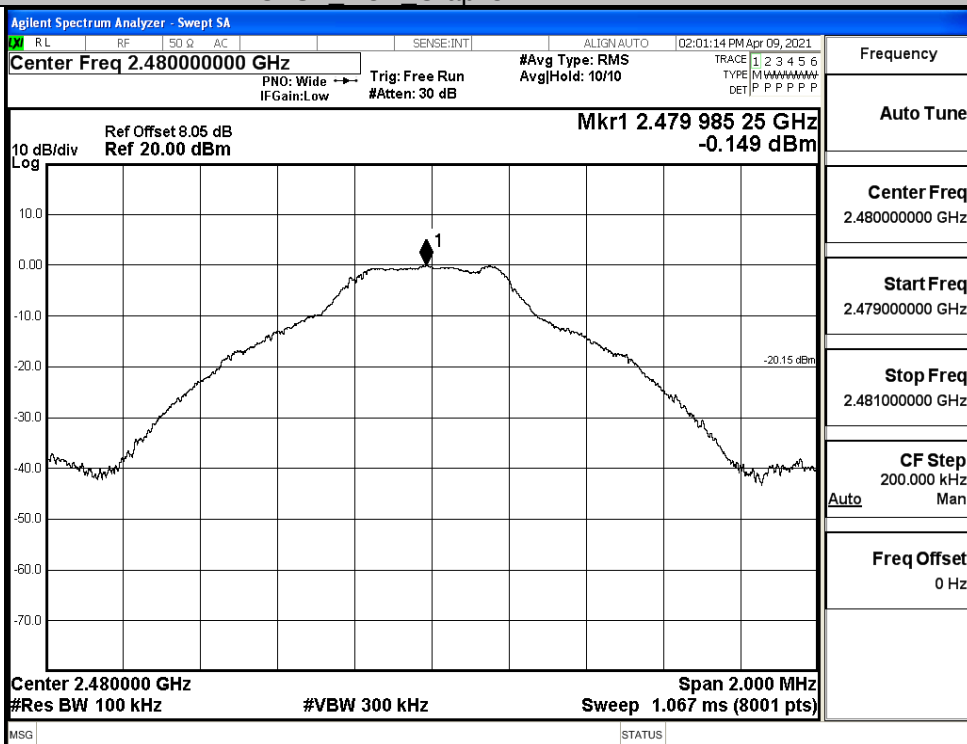


Puw

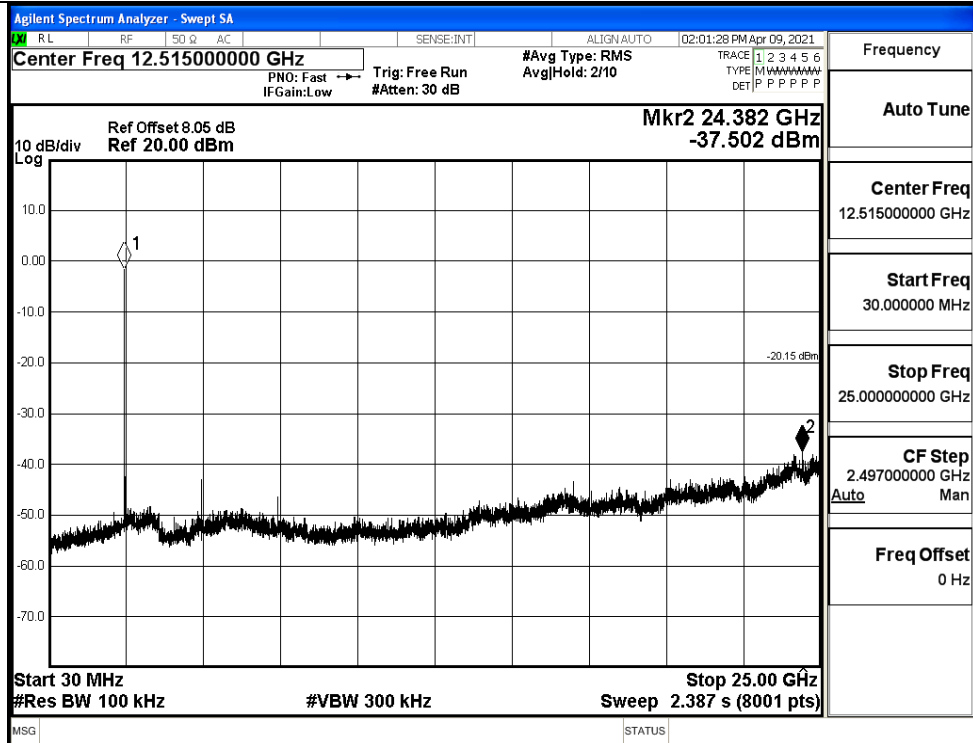


GFSK HCH Graphs

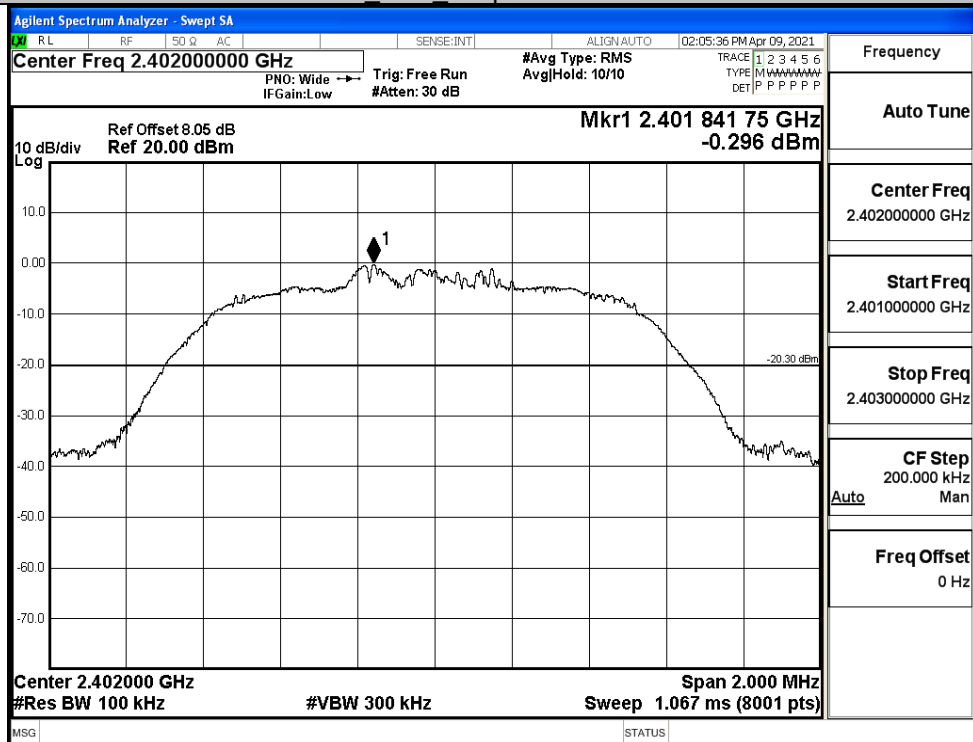
Pref



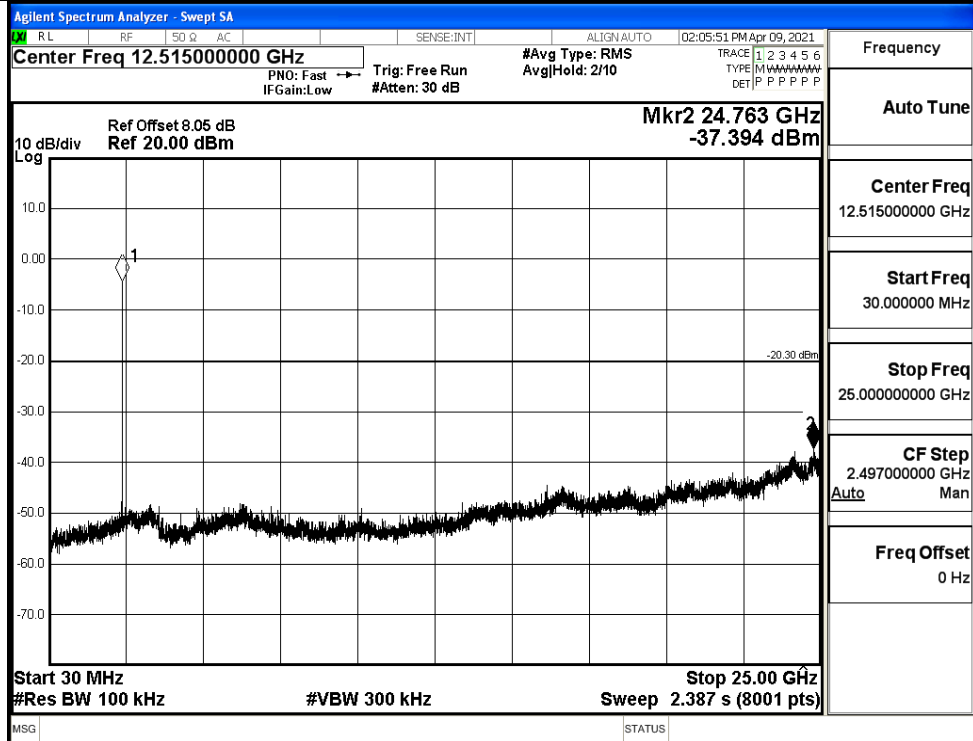
Puw

 $\pi/4$ DQPSK LCH Graphs

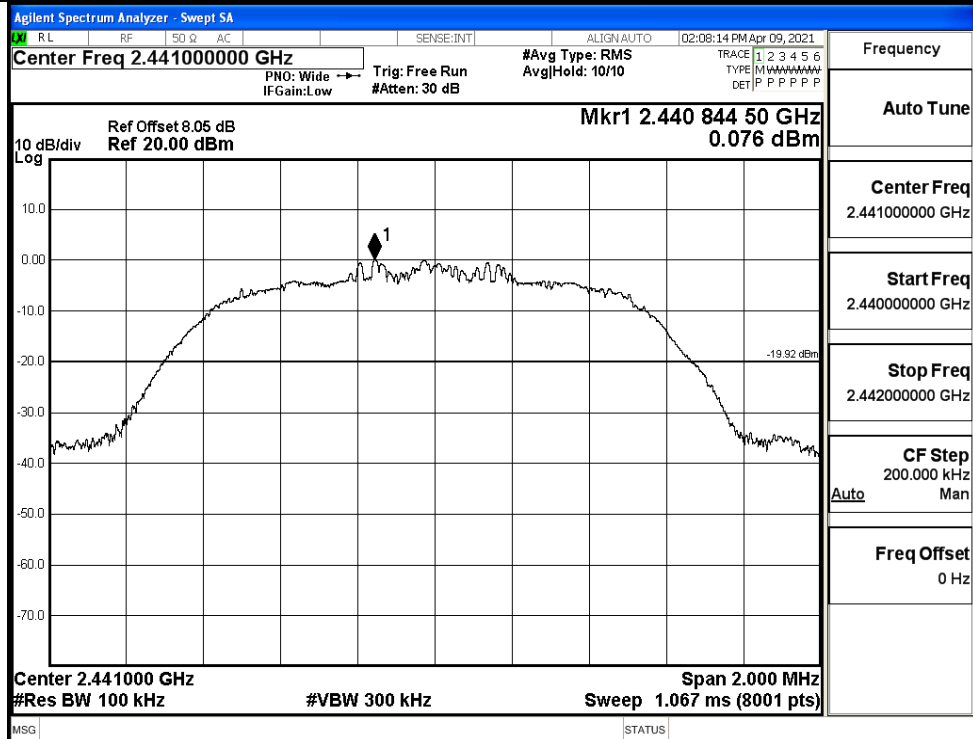
Pref



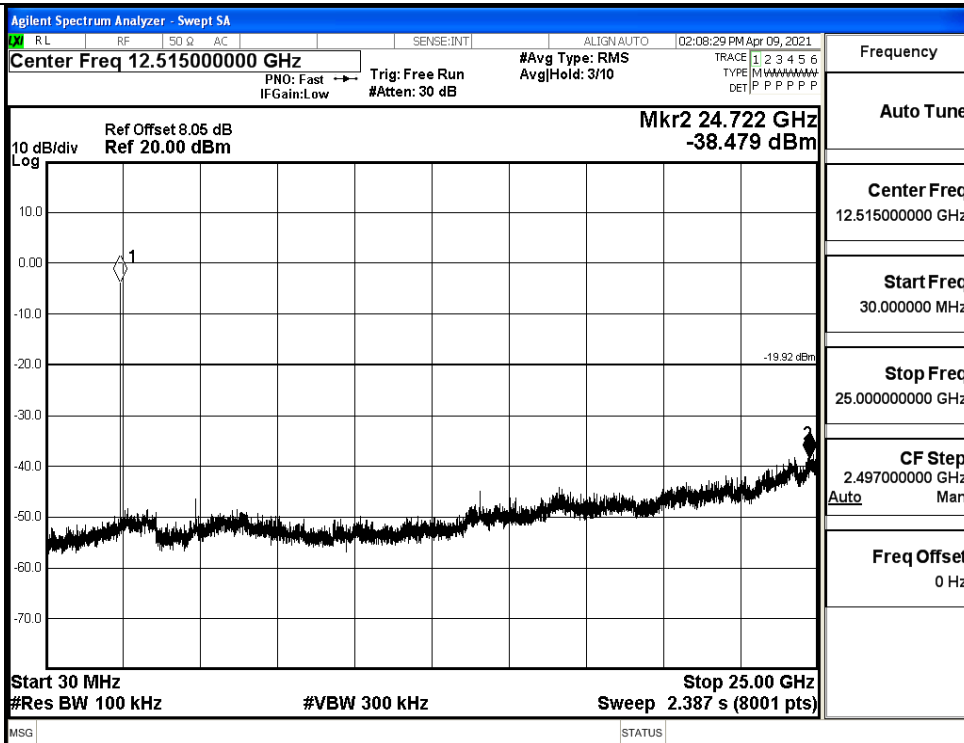
Puw



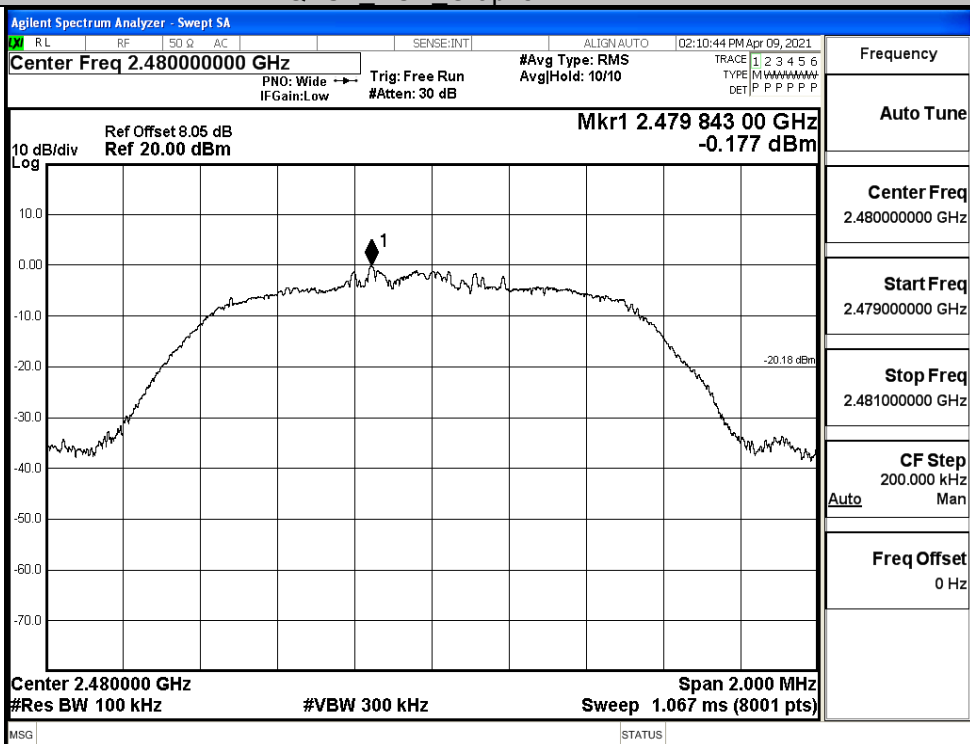
Pref

 $\pi/4$ DQPSK MCH Graphs

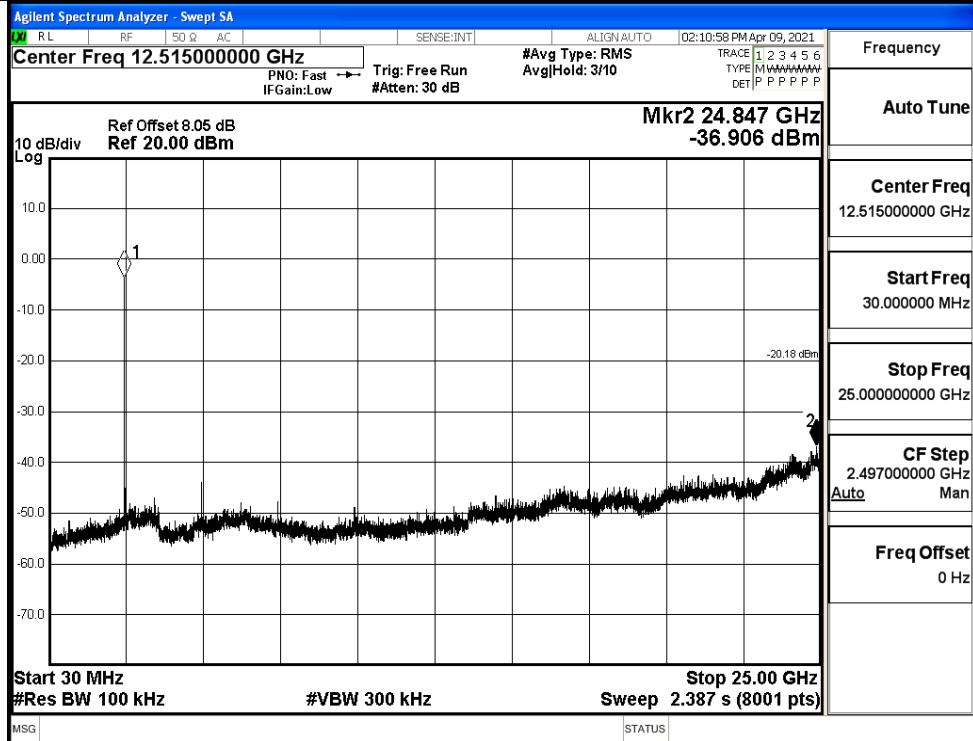
Puw

 $\pi/4$ DQPSK HCH Graphs

Pref

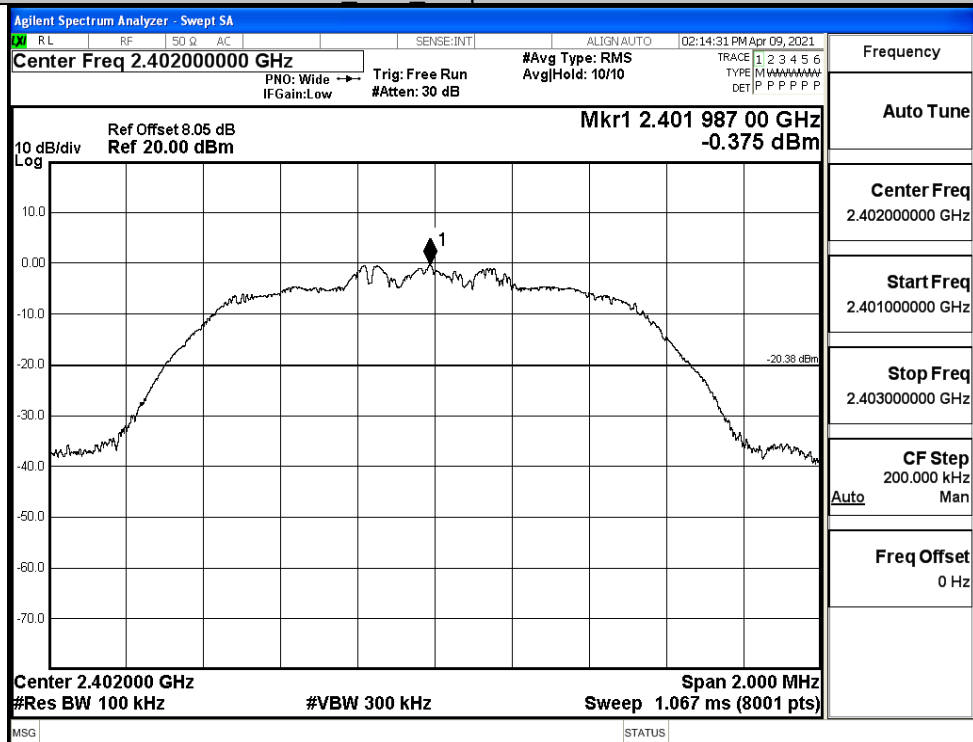


Puw

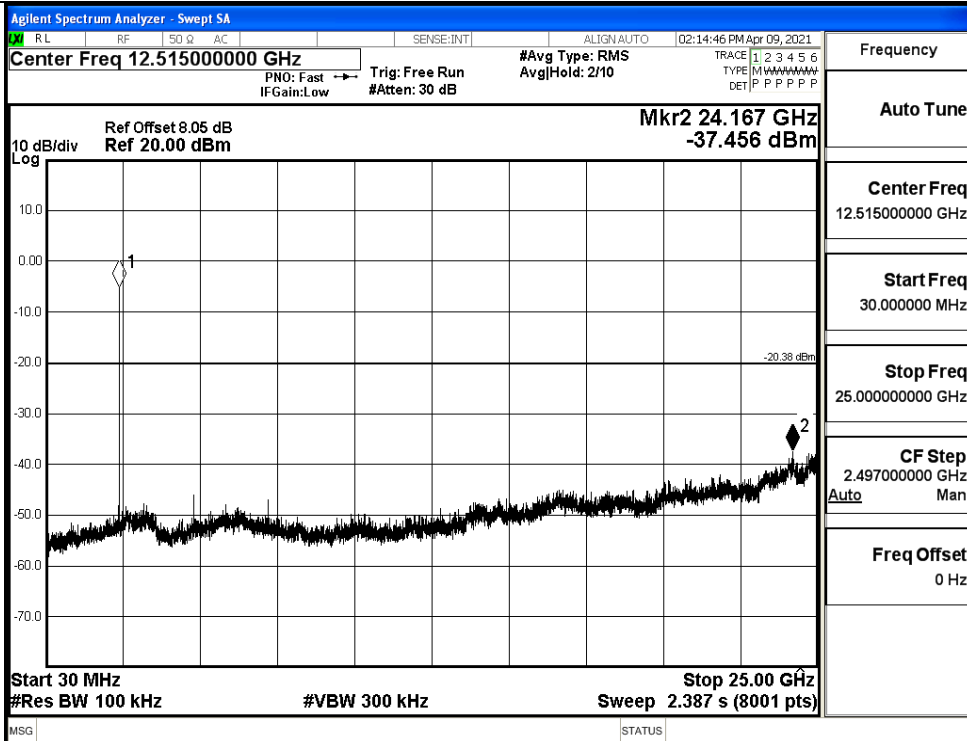


8DPSK LCH Graphs

Pref

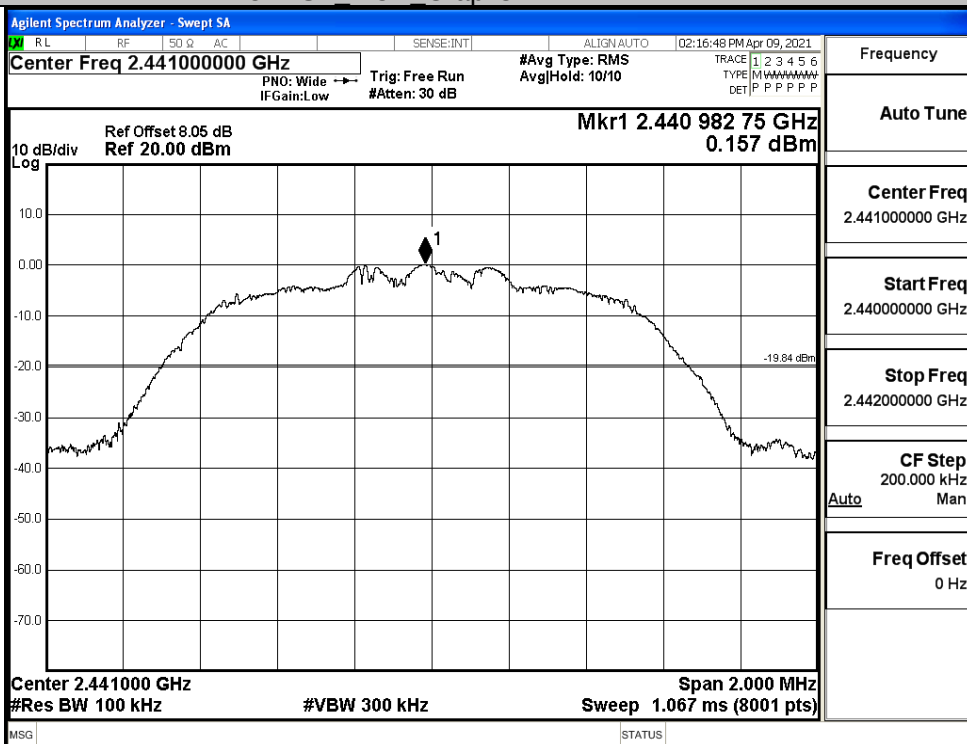


Puw

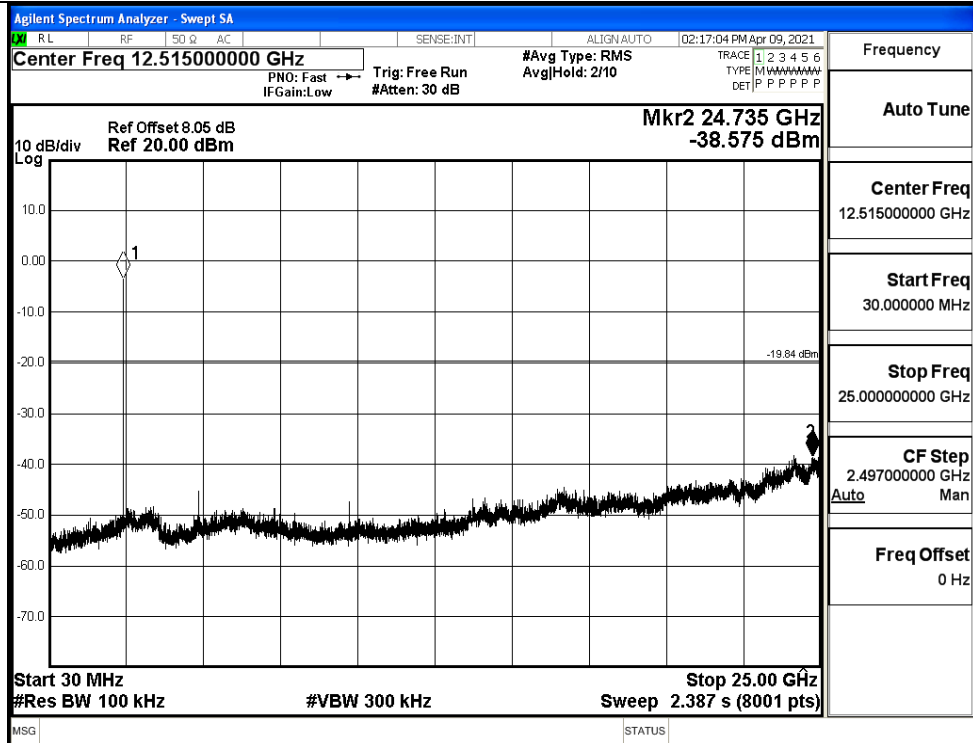


8DPSK MCH Graphs

Pref

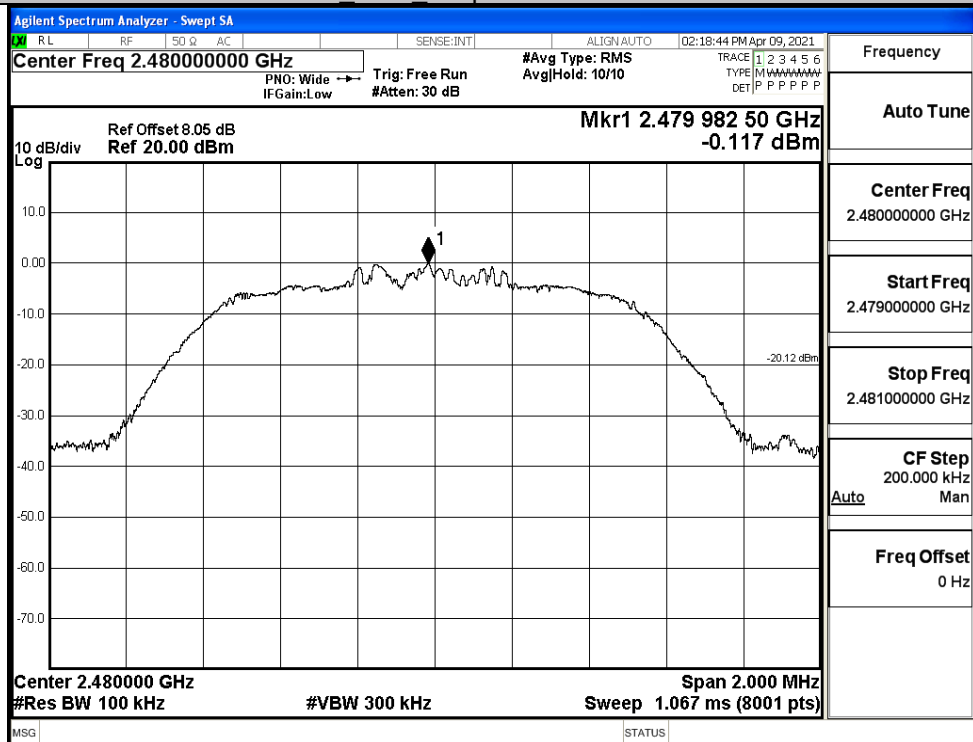


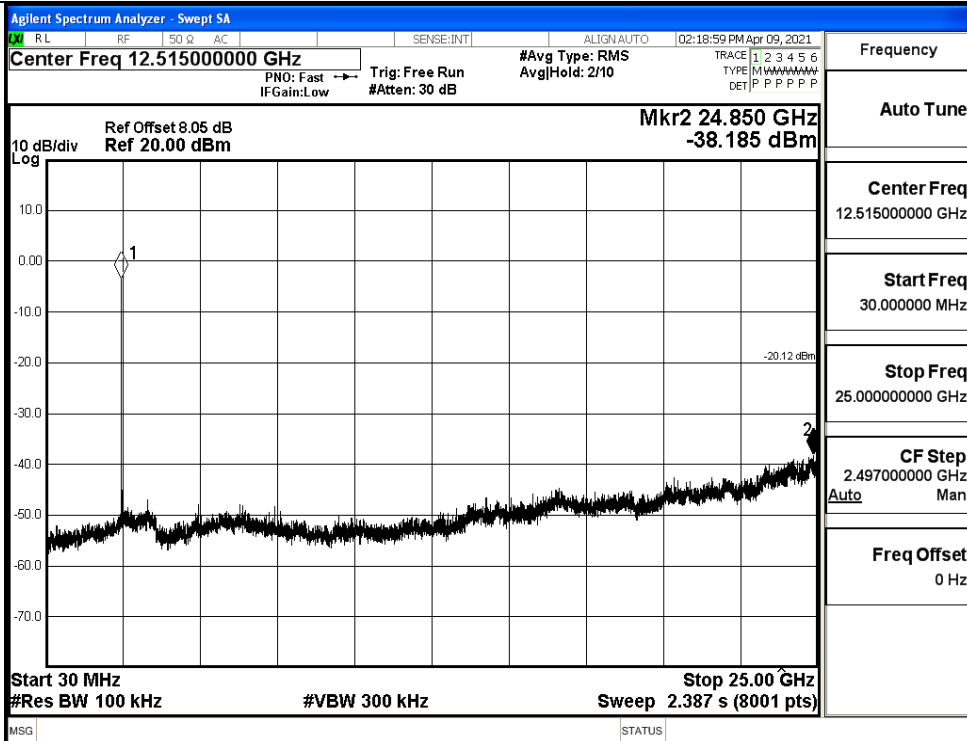
Puw



8DPSK HCH Graphs

Pref



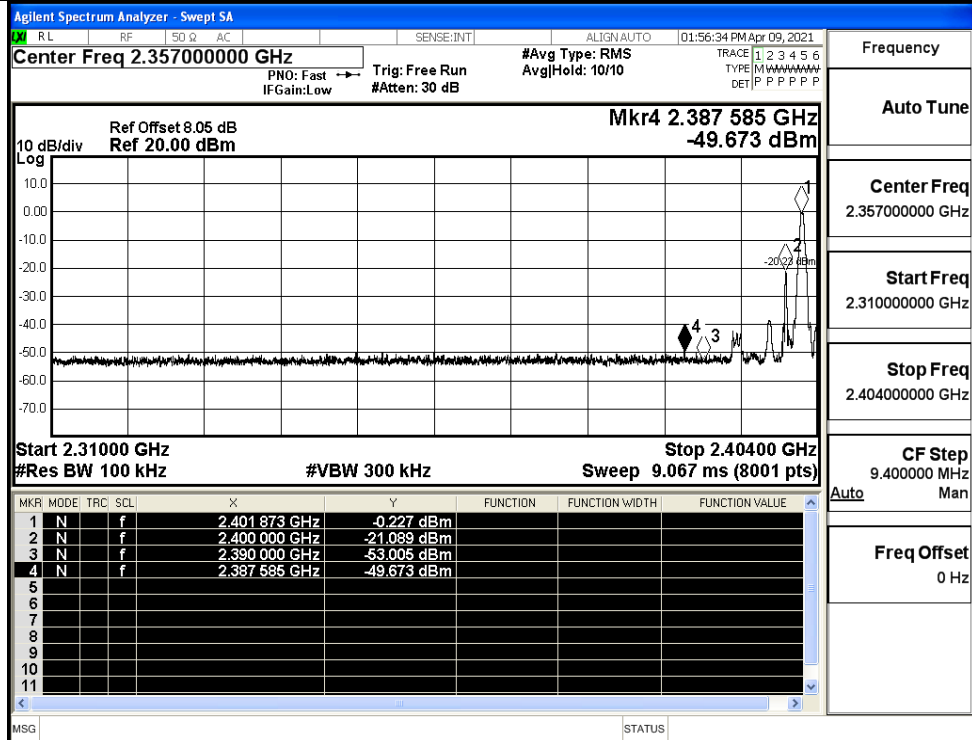
P_uw

A.7 Band-edge for RF Conducted Emissions

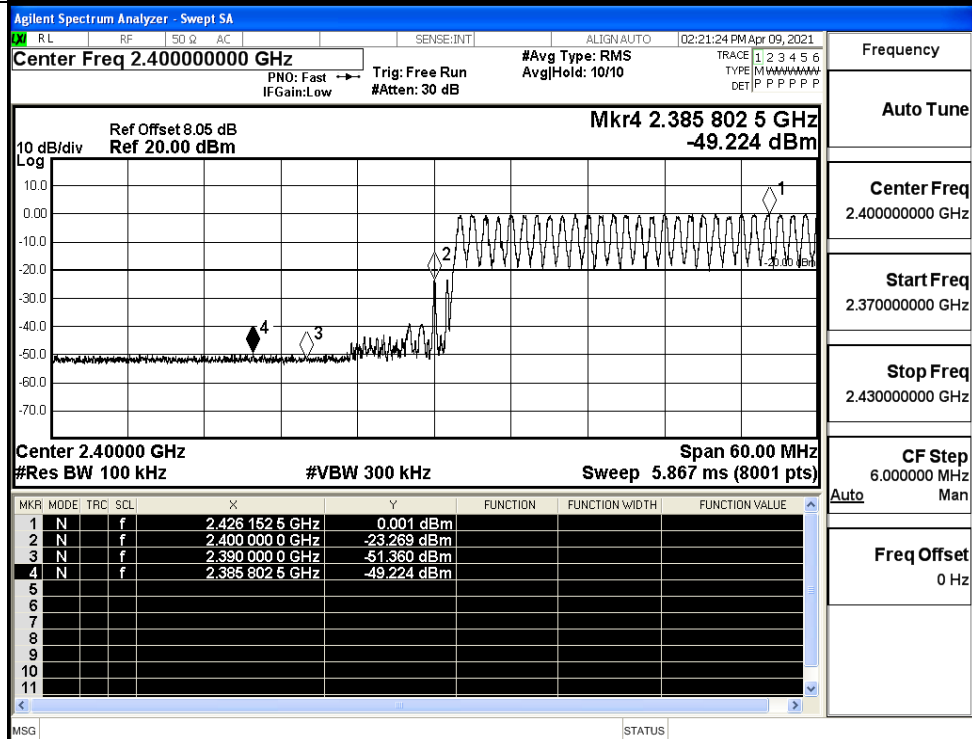
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-0.227	Off	-49.673	-20.23	PASS
			0.001	On	-49.224	-20	PASS
	HCH	2480	-0.044	Off	-47.764	-20.04	PASS
			-0.030	On	-48.867	-20.03	PASS
$\pi/4$ DQPSK	LCH	2402	-1.198	Off	-49.639	-21.2	PASS
			-0.234	On	-48.892	-20.23	PASS
	HCH	2480	-0.112	Off	-48.326	-20.11	PASS
			-0.143	On	-48.640	-20.14	PASS
8DPSK	LCH	2402	-0.362	Off	-49.157	-20.36	PASS
			-0.036	On	-49.230	-20.04	PASS
	HCH	2480	-0.074	Off	-49.173	-20.07	PASS
			0.067	On	-48.736	-19.93	PASS

Test Graphs

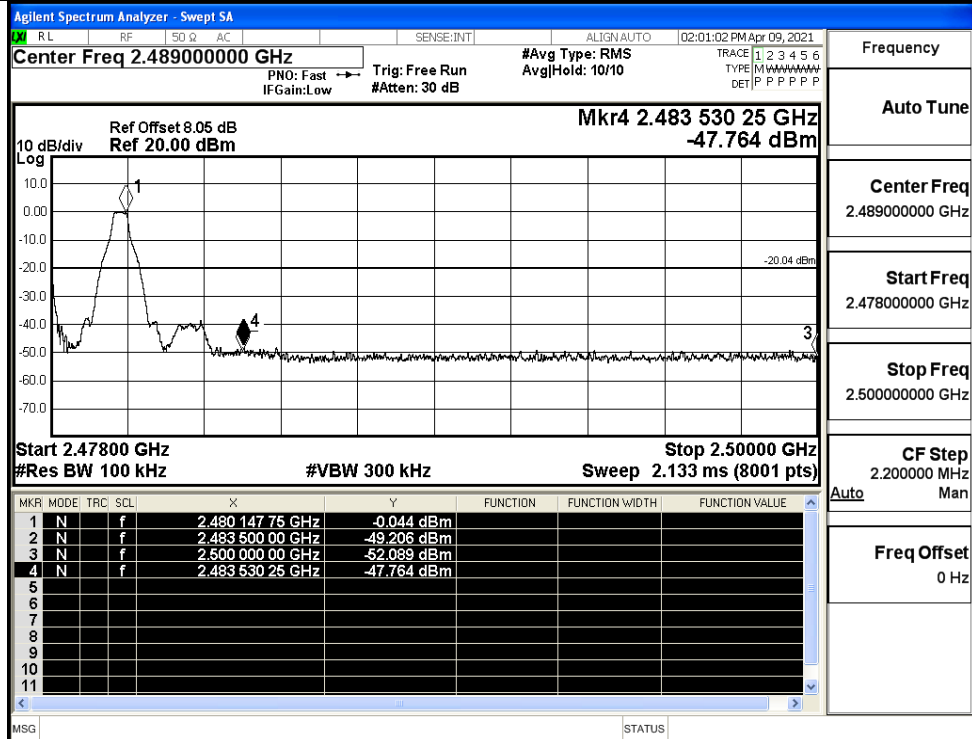
GFSK/LCH/No Hop



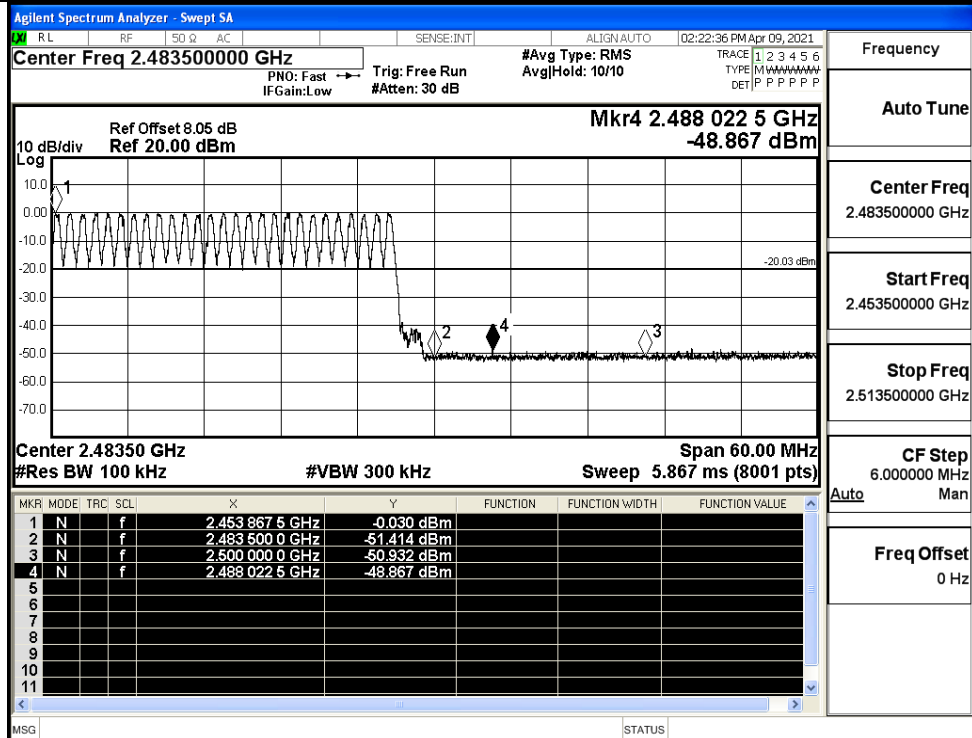
GFSK/LCH/Hop



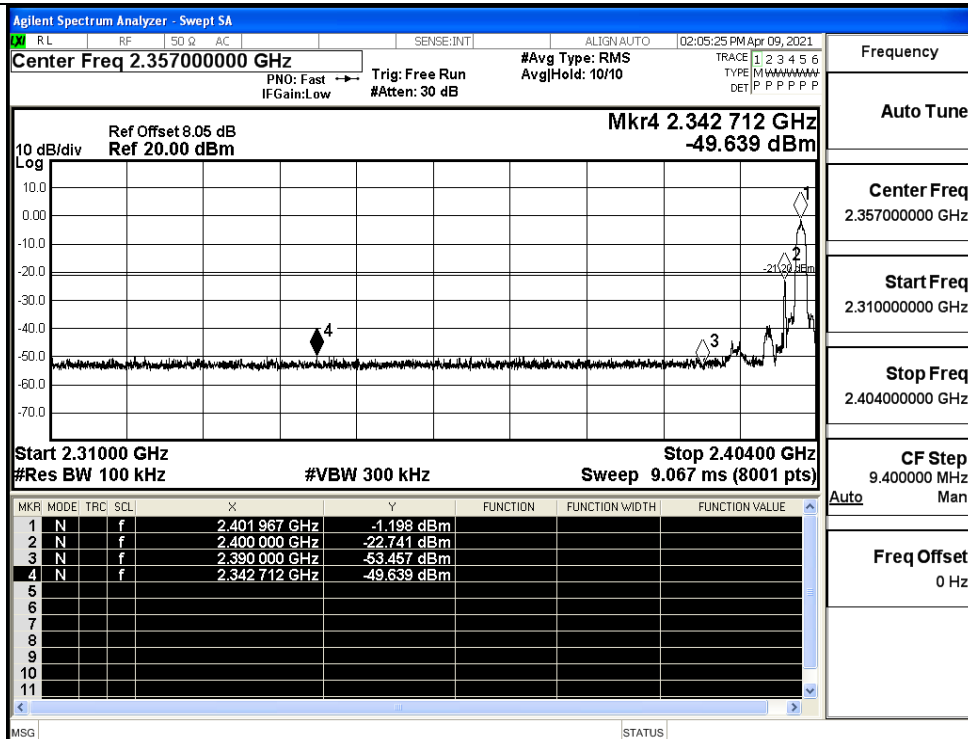
GFSK/HCH/No Hop



GFSK/HCH/Hop



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



Frequency

Auto Tune

Center Freq
2.357000000 GHz

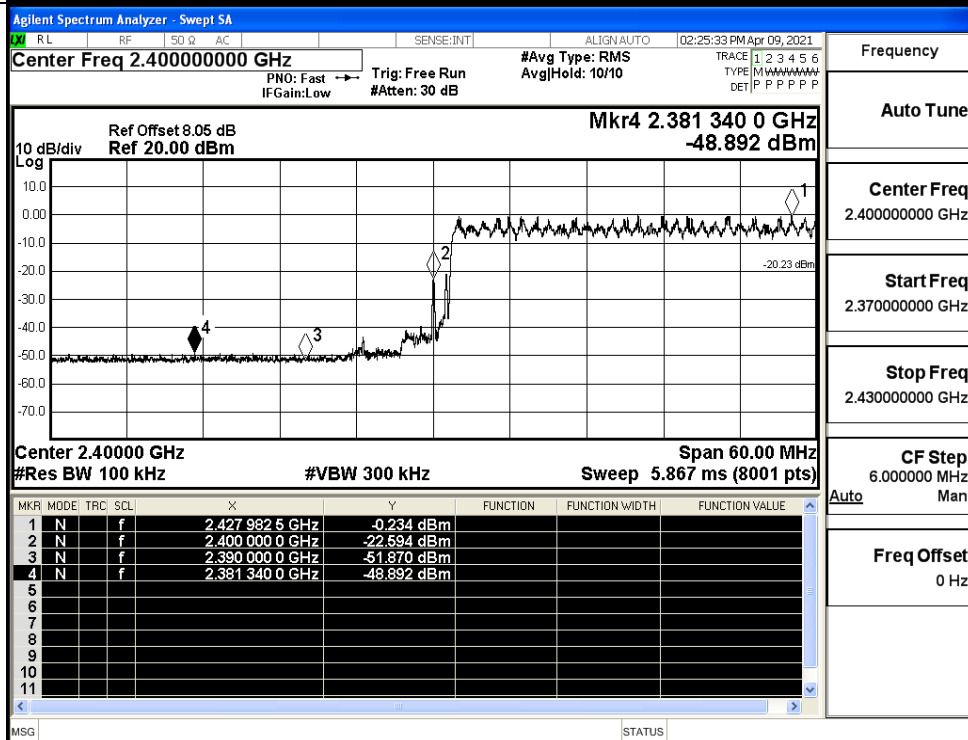
Start Freq
2.310000000 GHz

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

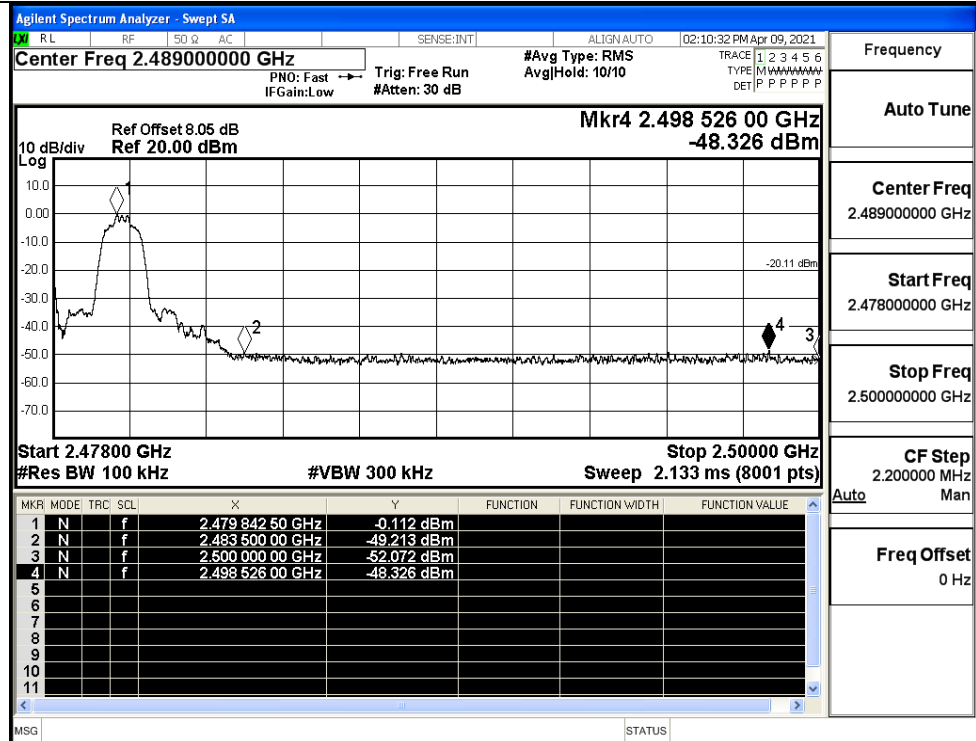
Start Freq
2.370000000 GHz

Stop Freq
2.430000000 GHz

CF Step
6.000000 MHz
Auto Man

Freq Offset
0 Hz

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

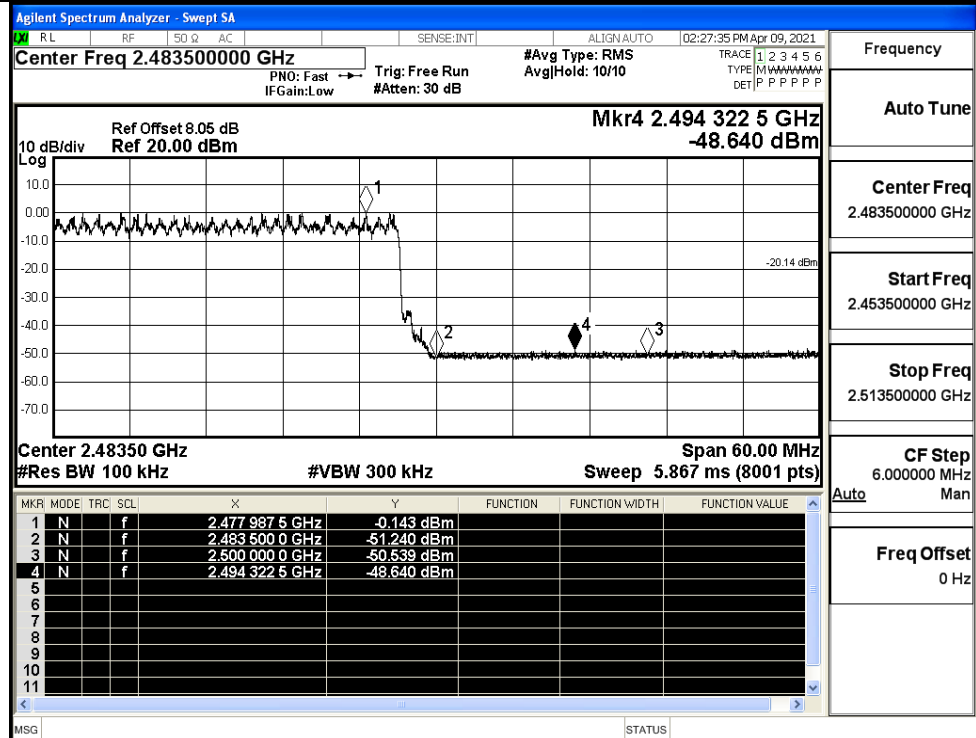


Frequency

Auto Tune

Center Freq
2.489000000 GHzStart Freq
2.478000000 GHzStop Freq
2.500000000 GHzCF Step
2.200000 MHz
Auto ManFreq Offset
0 Hz

$\pi/4$ DQPSK/HCH/Hop

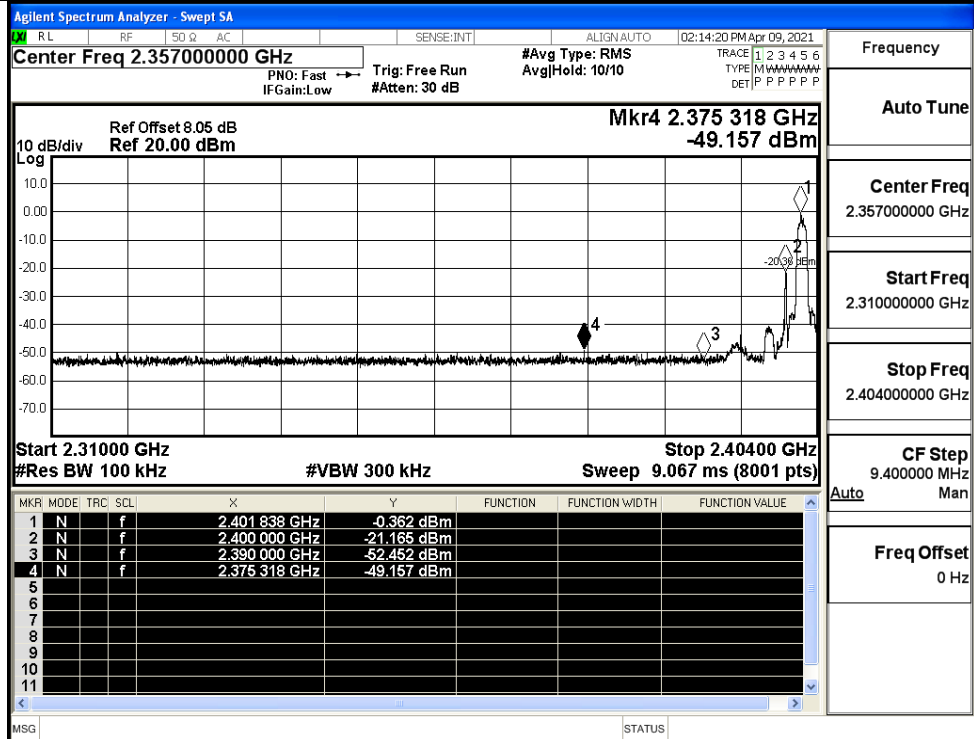


Frequency

Auto Tune

Center Freq
2.483500000 GHzStart Freq
2.453500000 GHzStop Freq
2.513500000 GHzCF Step
6.000000 MHz
Auto ManFreq Offset
0 Hz

8DPSK/LCH/No Hop



Frequency

Auto Tune

Center Freq
2.357000000 GHz

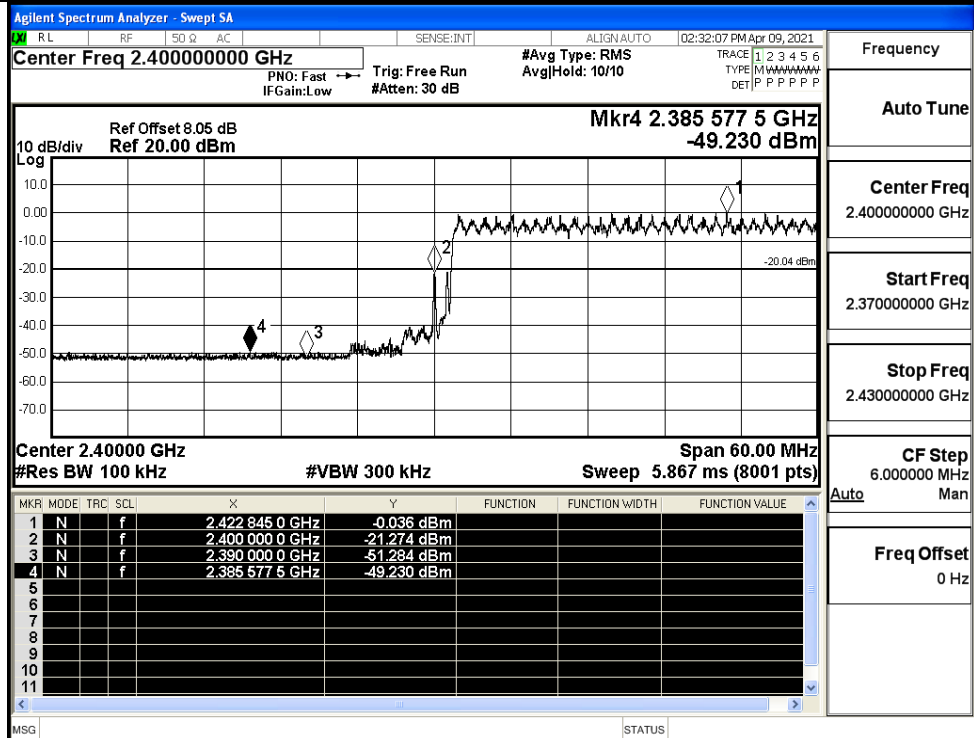
Start Freq
2.310000000 GHz

Stop Freq
2.404000000 GHz

CF Step
9.400000 MHz
Auto Man

Freq Offset
0 Hz

8DPSK/LCH/Hop



Frequency

Auto Tune

Center Freq
2.400000000 GHz

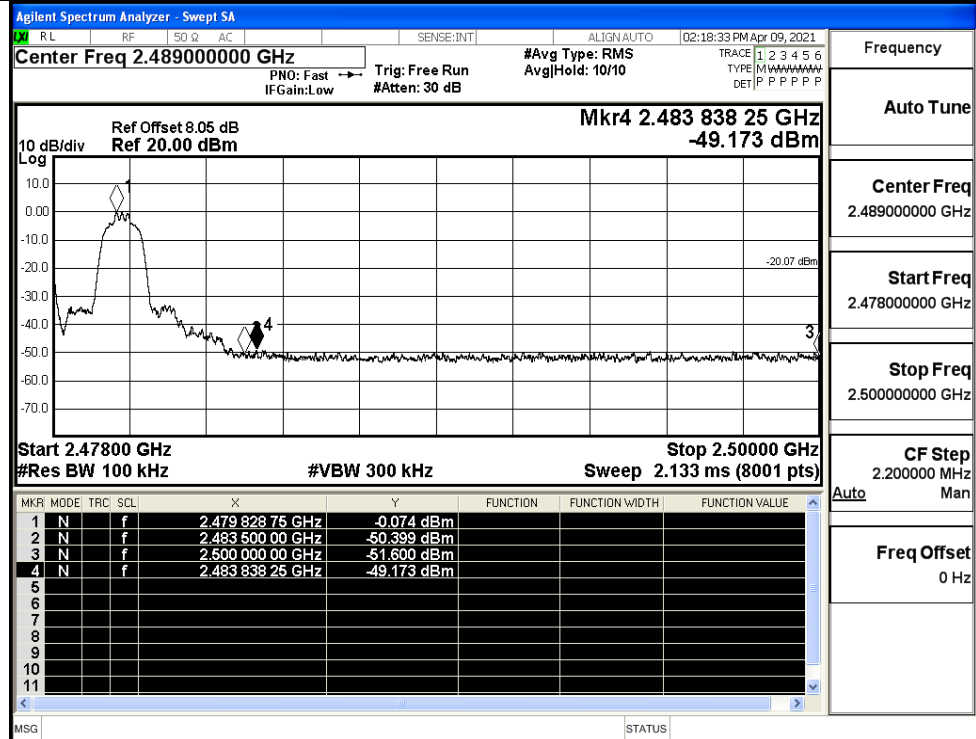
Start Freq
2.370000000 GHz

Stop Freq
2.430000000 GHz

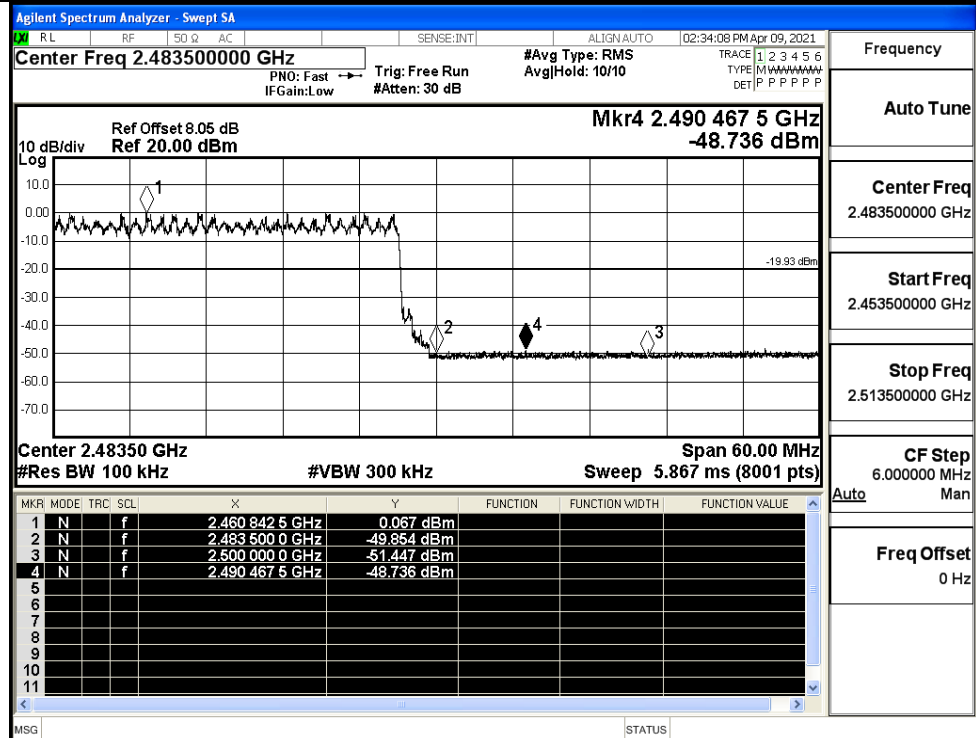
CF Step
6.000000 MHz
Auto Man

Freq Offset
0 Hz

8DPSK/HCH/No Hop



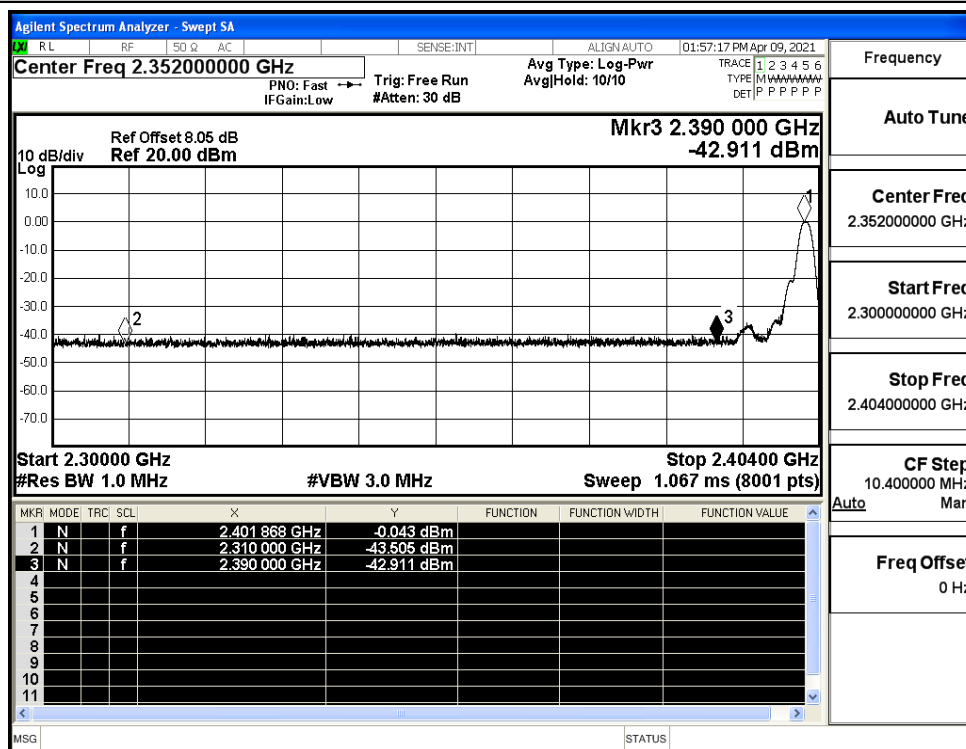
8DPSK/HCH/Hop



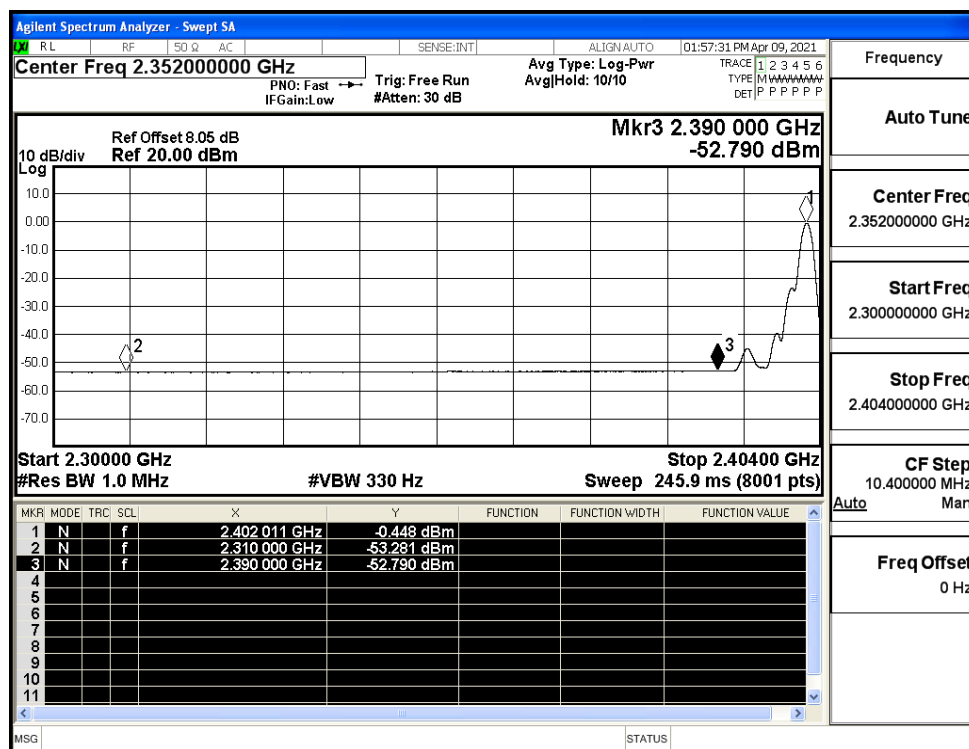
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.51	2.0	0	53.75	PEAK	74	PASS
	Off	2310.0	-53.28	2.0	0	43.98	AV	54	PASS
	Off	2390.0	-42.91	2.0	0	54.35	PEAK	74	PASS
	Off	2390.0	-52.79	2.0	0	44.47	AV	54	PASS
	Off	2483.5	-40.84	2.0	0	56.42	PEAK	74	PASS
	Off	2483.5	-50.08	2.0	0	47.18	AV	54	PASS
	Off	2500.0	-42.35	2.0	0	54.91	PEAK	74	PASS
	Off	2500.0	-52.41	2.0	0	44.85	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.70	2.0	0	54.56	PEAK	74	PASS
	Off	2310.0	-53.31	2.0	0	43.95	AV	54	PASS
	Off	2390.0	-42.13	2.0	0	55.13	PEAK	74	PASS
	Off	2390.0	-52.91	2.0	0	44.35	AV	54	PASS
	Off	2483.5	-40.36	2.0	0	56.9	PEAK	74	PASS
	Off	2483.5	-50.35	2.0	0	46.91	AV	54	PASS
	Off	2500.0	-42.36	2.0	0	54.9	PEAK	74	PASS
	Off	2500.0	-52.34	2.0	0	44.92	AV	54	PASS
8DPSK	Off	2310.0	-42.83	2.0	0	54.43	PEAK	74	PASS
	Off	2310.0	-53.42	2.0	0	43.84	AV	54	PASS
	Off	2390.0	-40.73	2.0	0	56.53	PEAK	74	PASS
	Off	2390.0	-52.98	2.0	0	44.28	AV	54	PASS
	Off	2483.5	-41.20	2.0	0	56.06	PEAK	74	PASS
	Off	2483.5	-50.19	2.0	0	47.07	AV	54	PASS
	Off	2500.0	-41.96	2.0	0	55.3	PEAK	74	PASS
	Off	2500.0	-52.36	2.0	0	44.9	AV	54	PASS

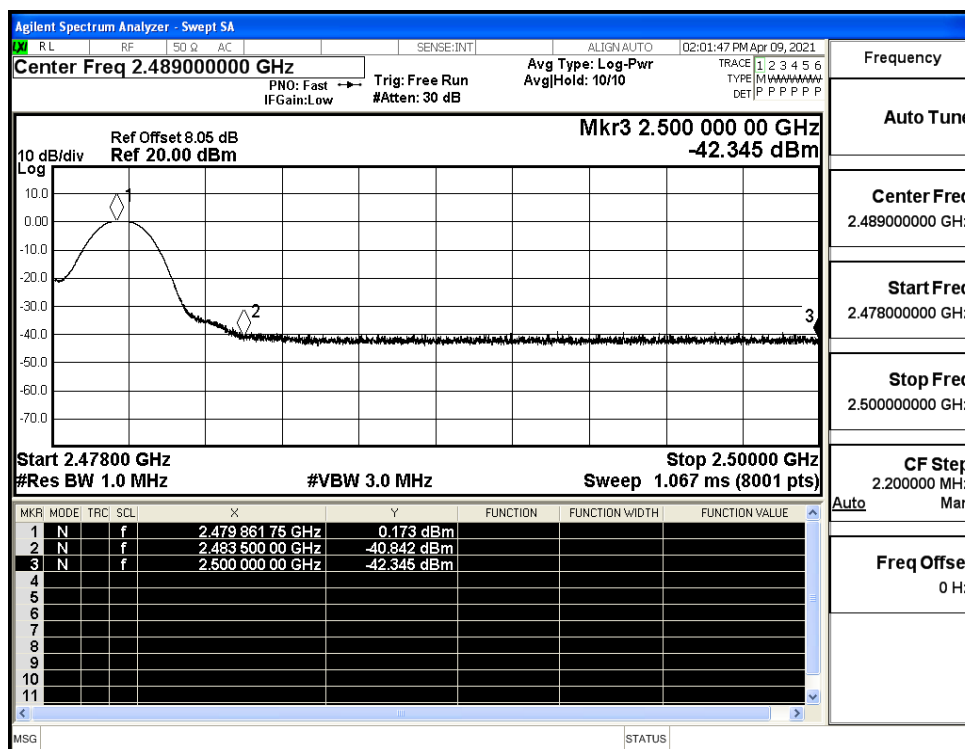
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



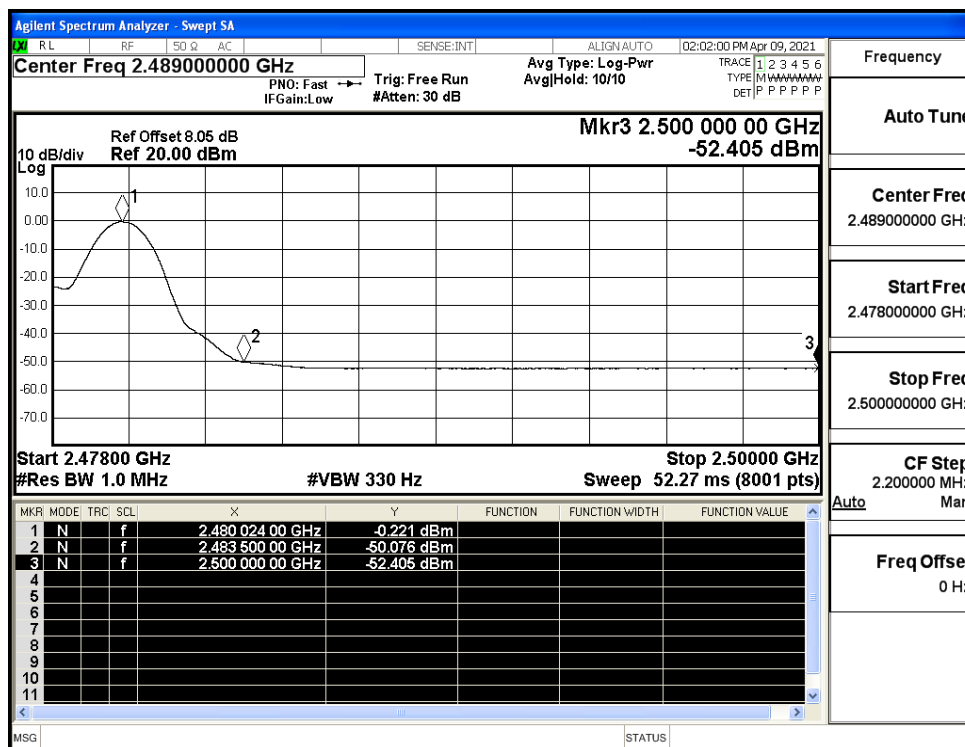
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

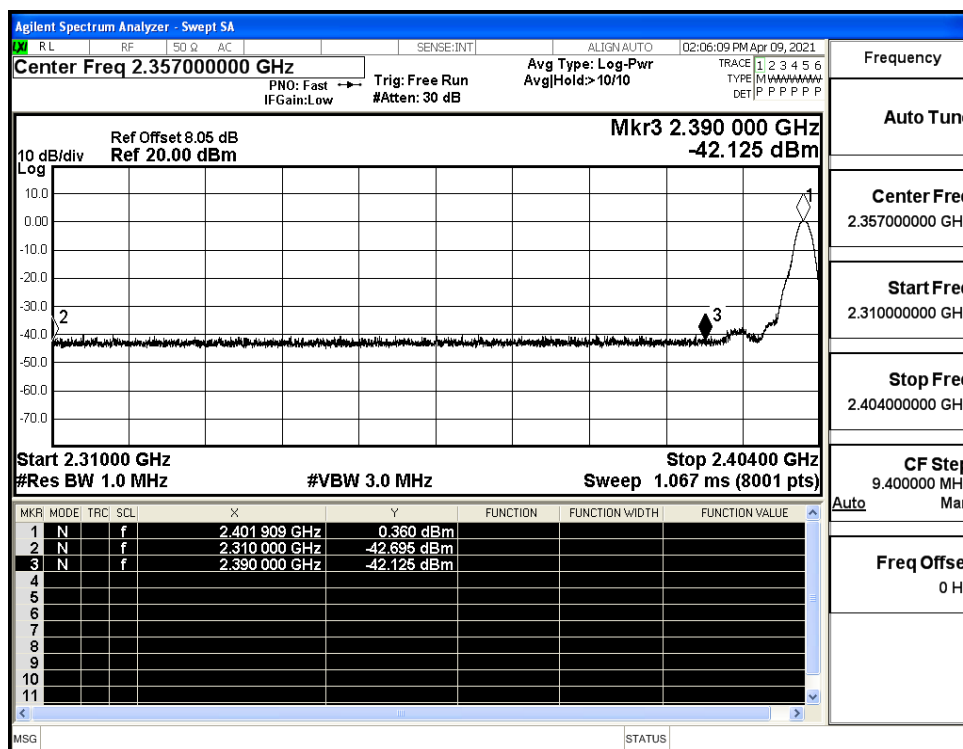
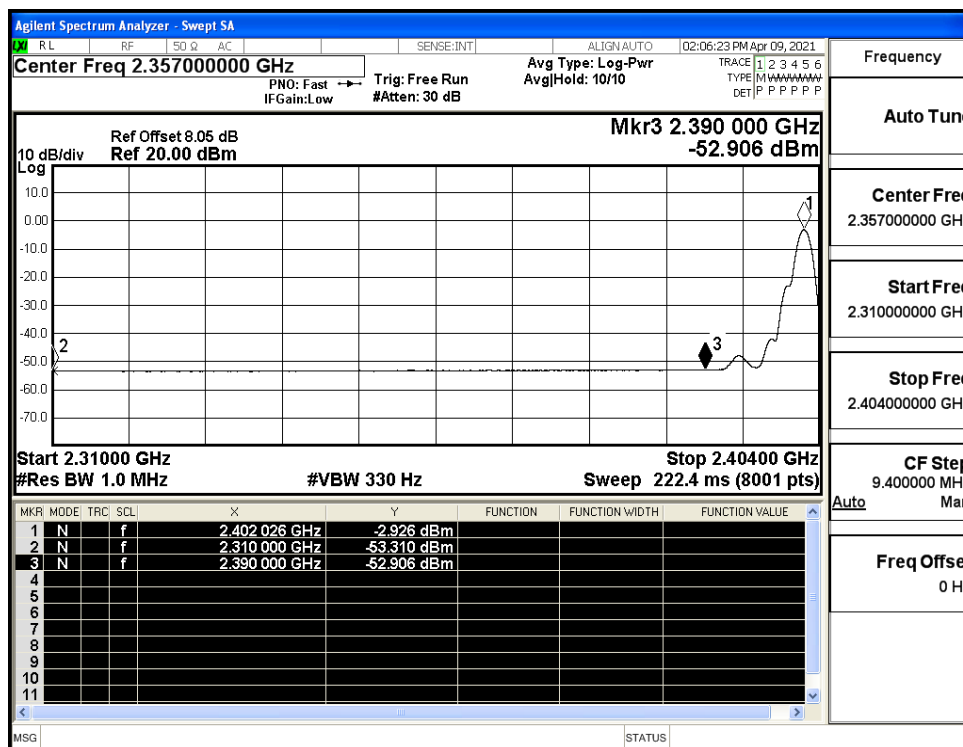


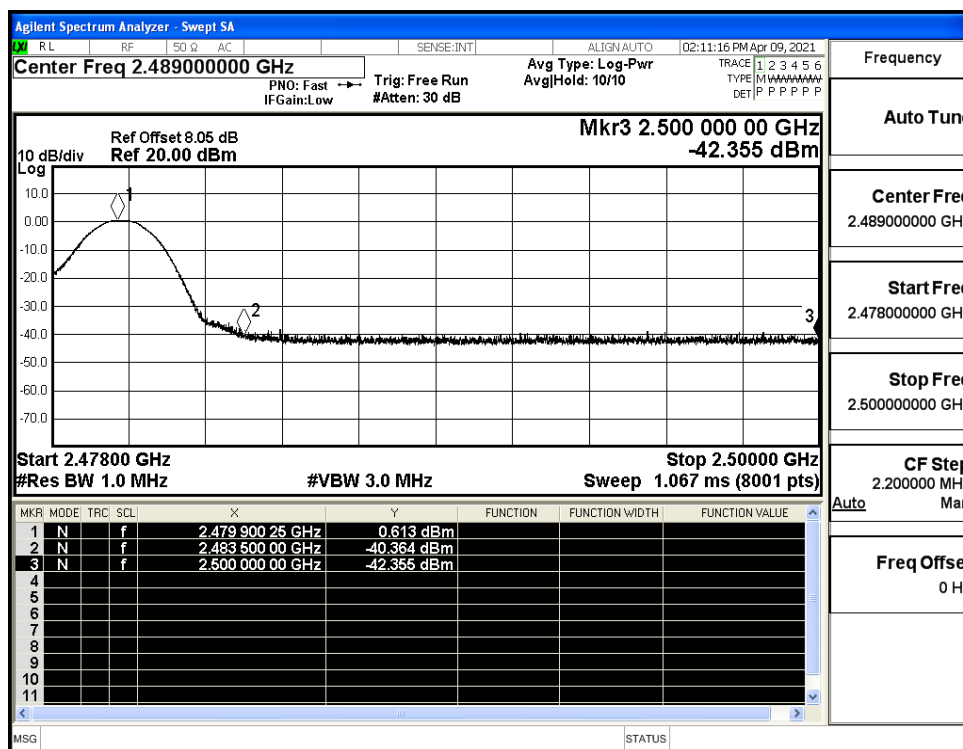
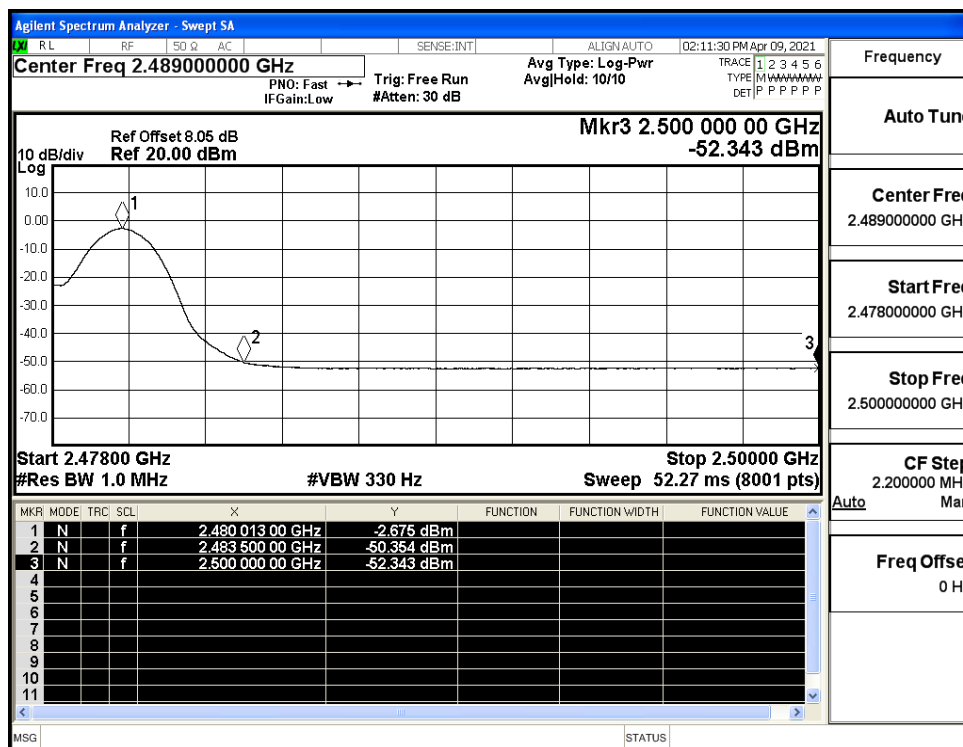
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



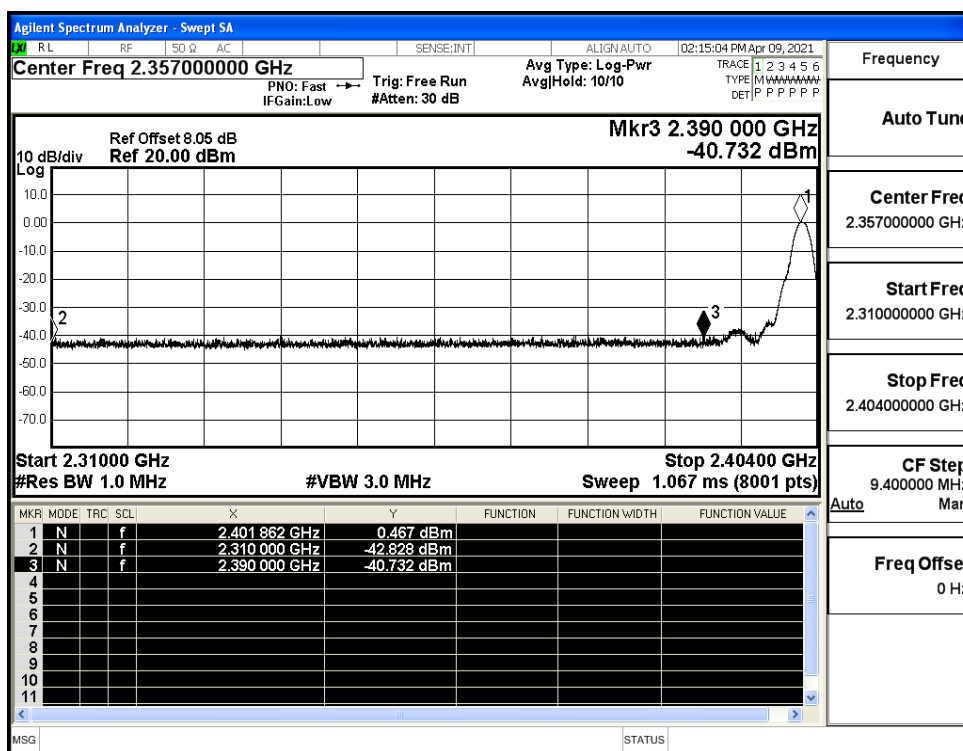
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



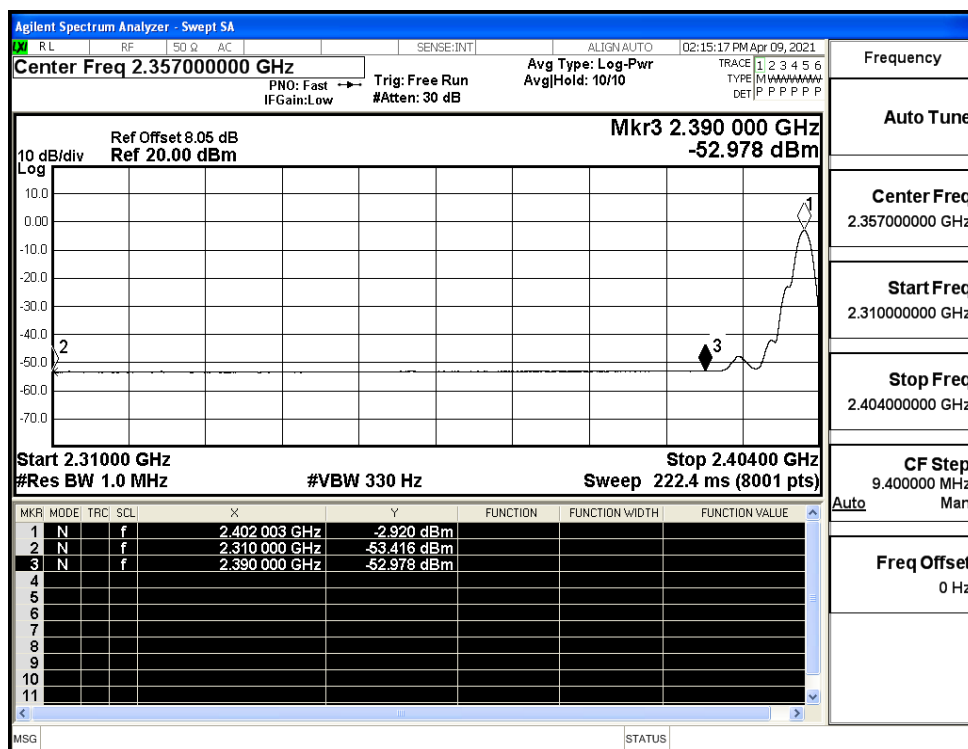
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

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)

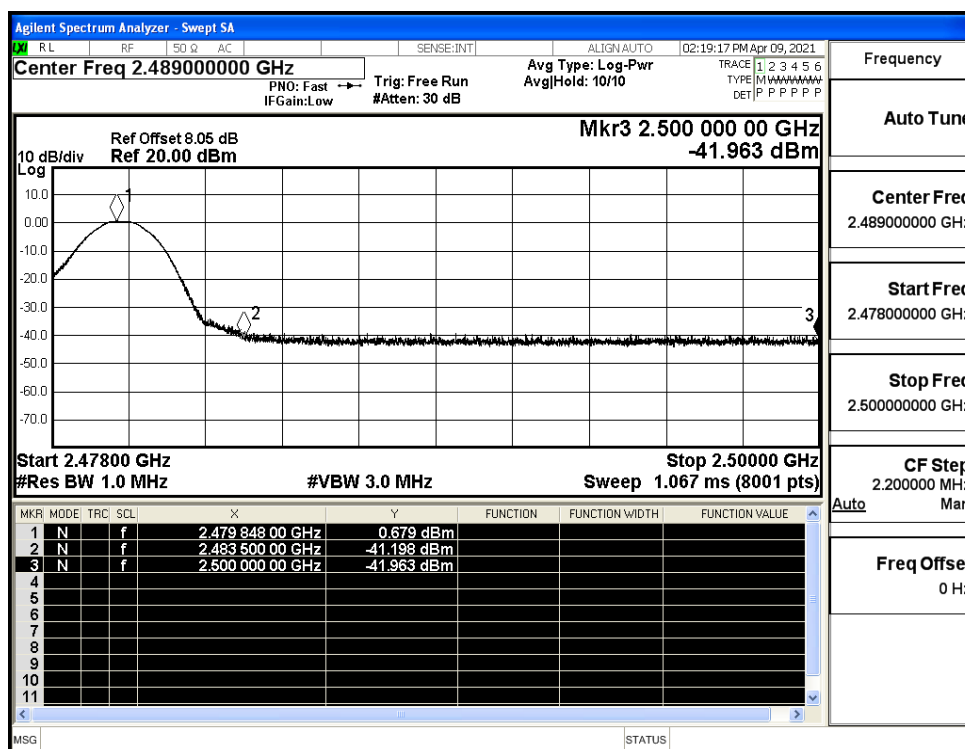
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

