

Appendix A
RF Test Data for BT V5.0(BDR/EDR) (Conducted Measurement)
Product Name: Wireless Headphone
Trade Mark: Puro
Test Model: *Puopro*

Environmental Conditions

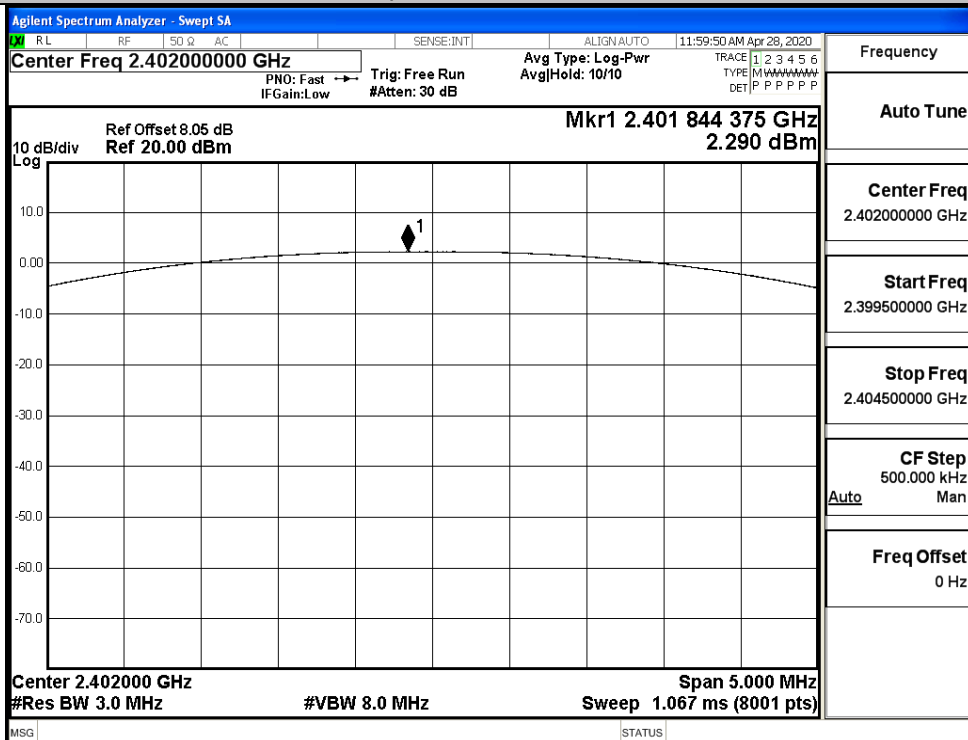
Temperature:	23.9 ° C
Relative Humidity:	52.9%
ATM Pressure:	100.0 kPa
Test Engineer:	Qu Xin
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

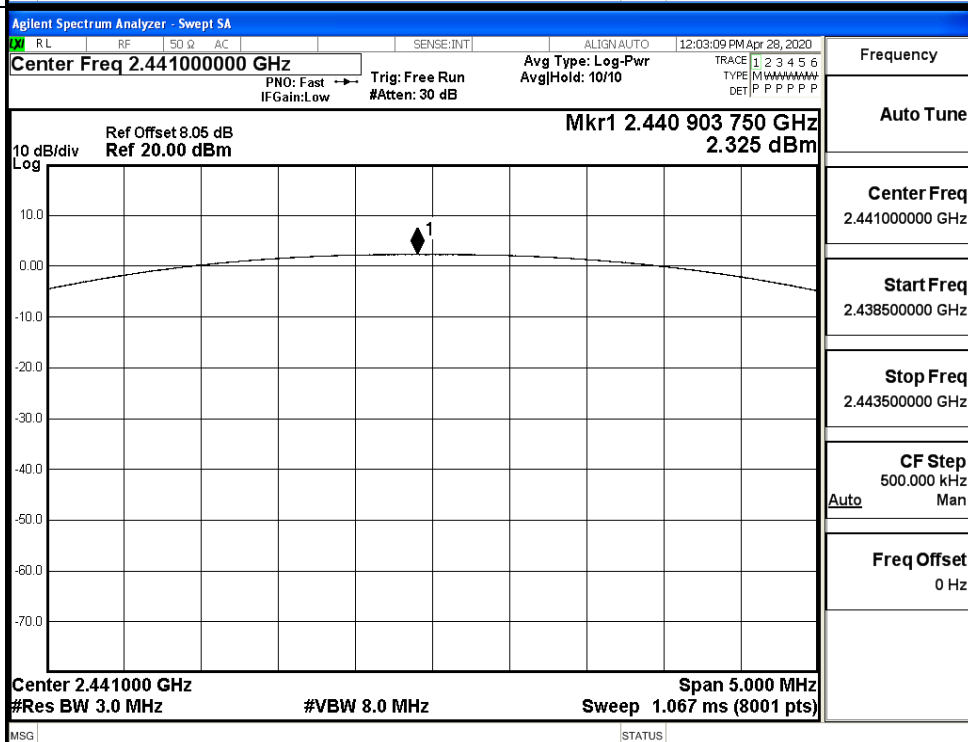
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2.290	21	PASS
	MCH	2.325	21	PASS
	HCH	2.305	21	PASS
$\pi/4$ DQPSK	LCH	2.259	21	PASS
	MCH	2.292	21	PASS
	HCH	2.210	21	PASS
8DPSK	LCH	2.207	21	PASS
	MCH	2.268	21	PASS
	HCH	2.195	21	PASS

Test Graphs

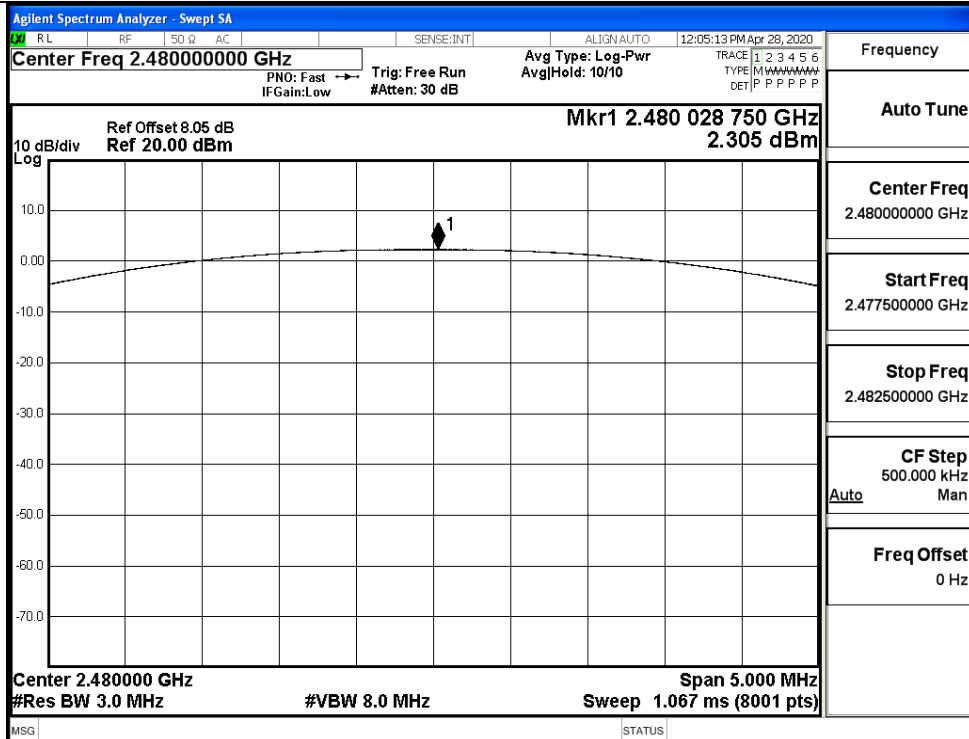
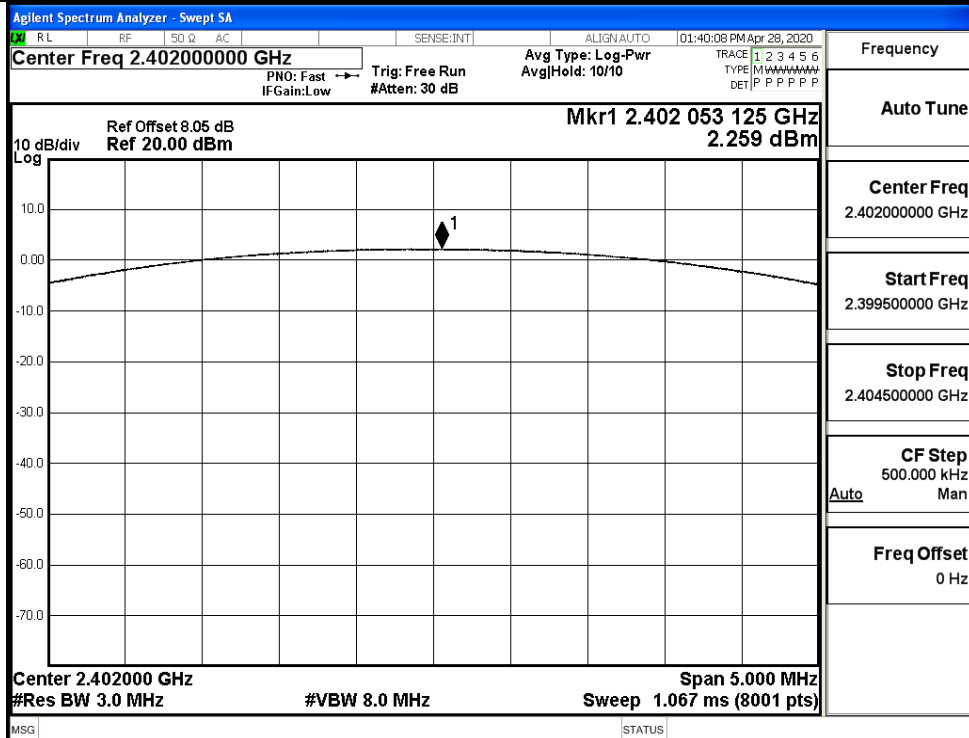
GFSK/LCH

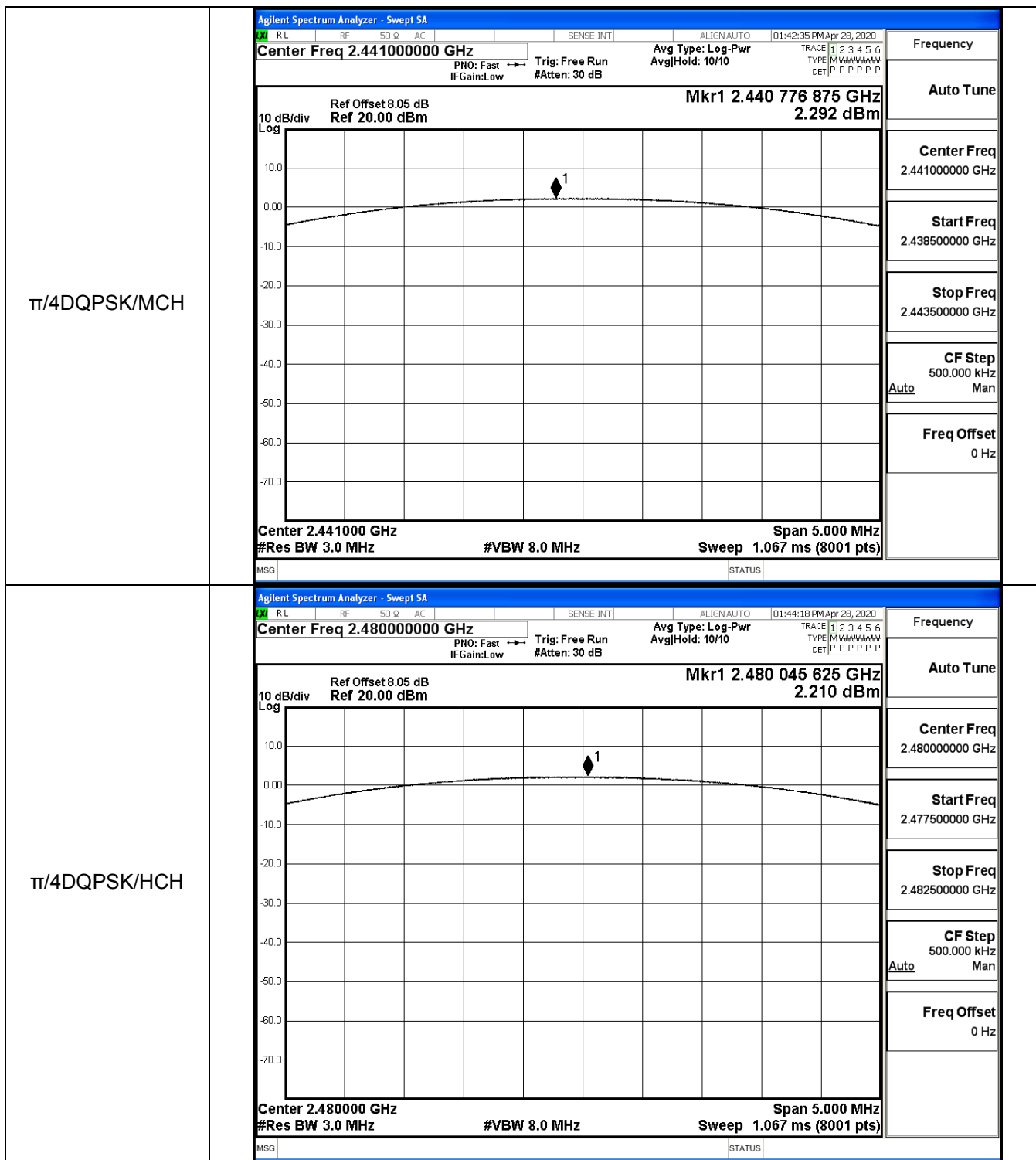


GFSK/MCH

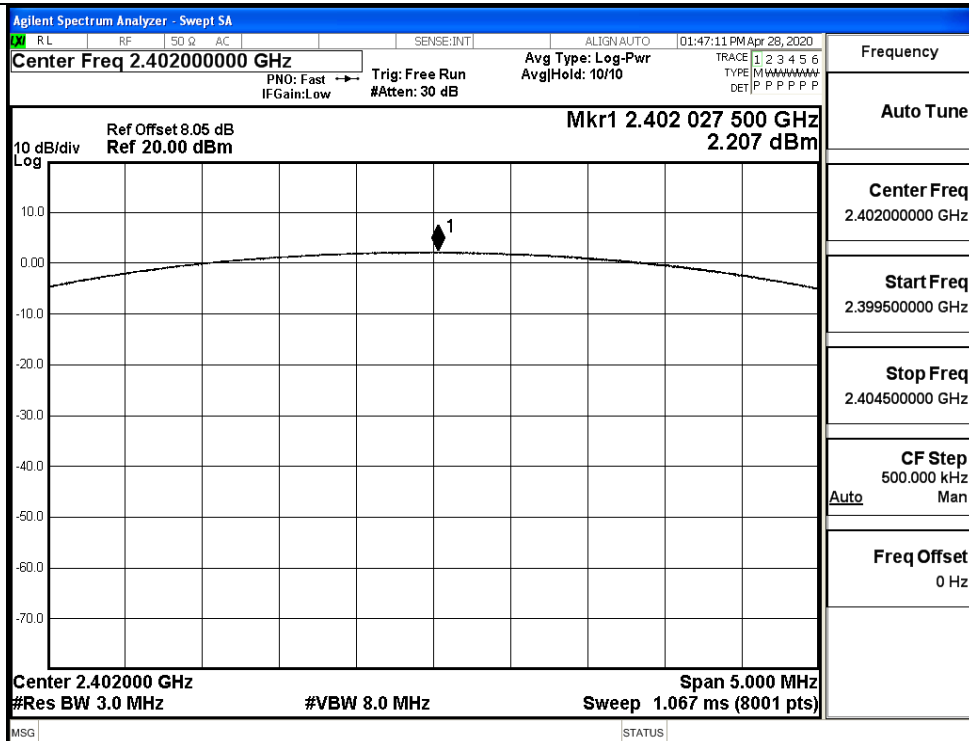


GFSK/HCH

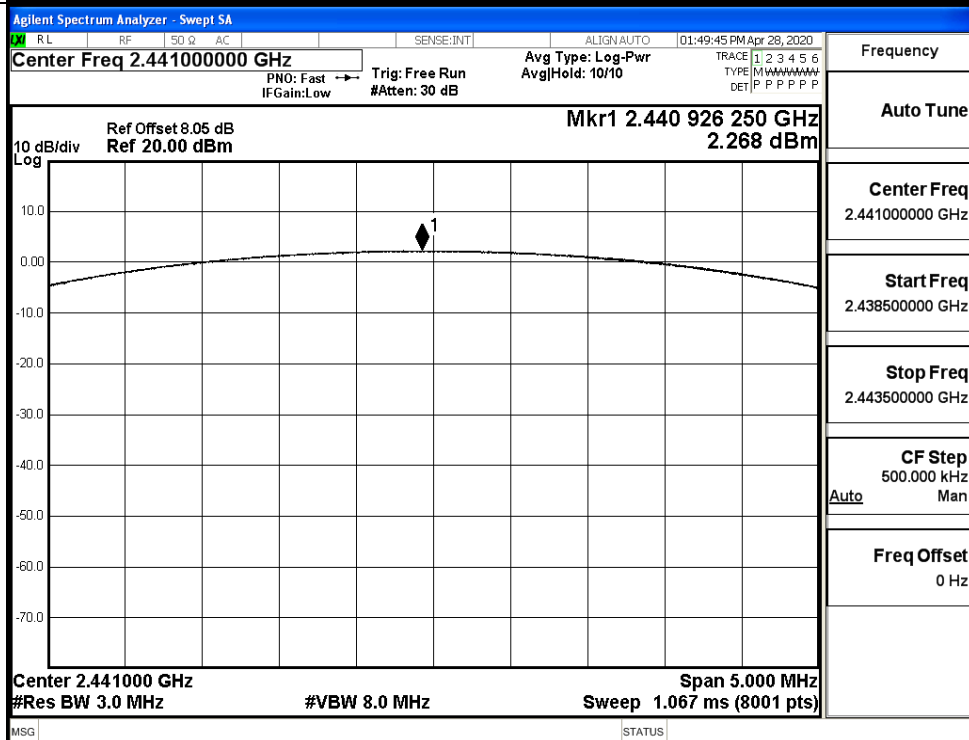
 $\pi/4$ DQPSK/LCH



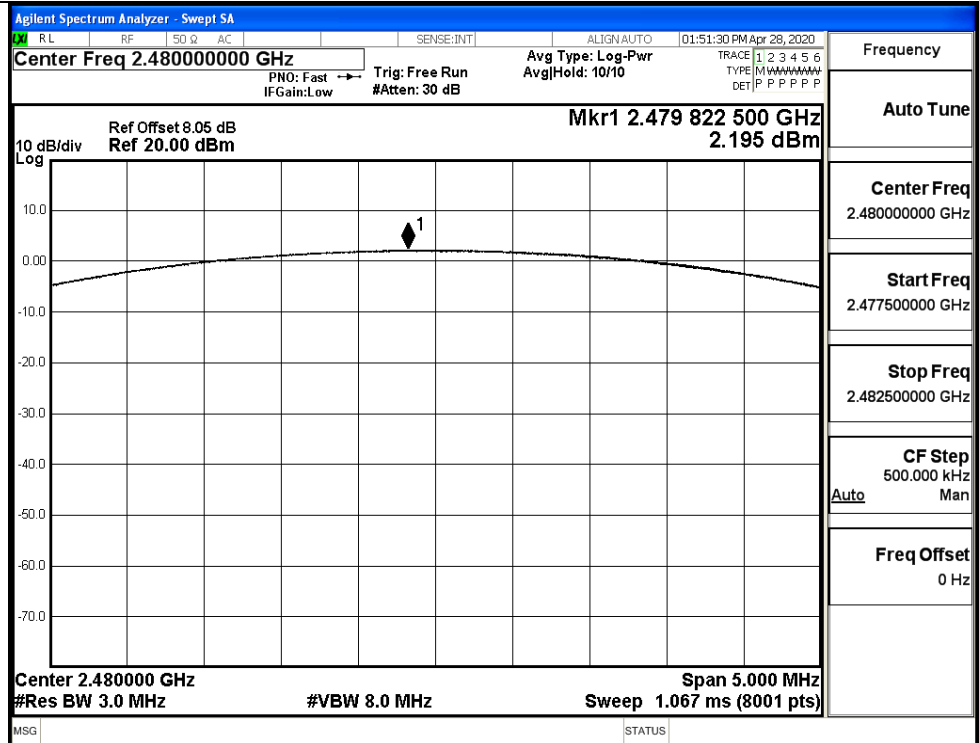
8DPSK/LCH



8DPSK/MCH



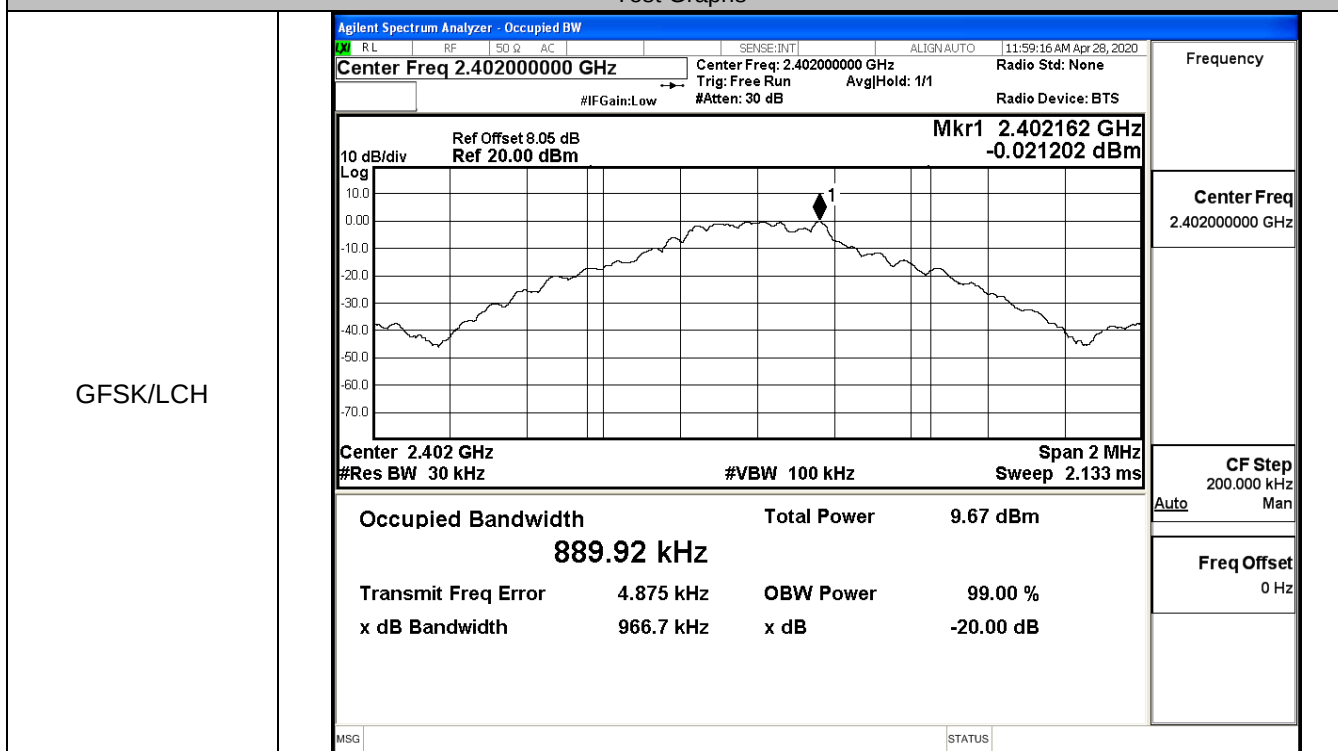
8DPSK/HCH



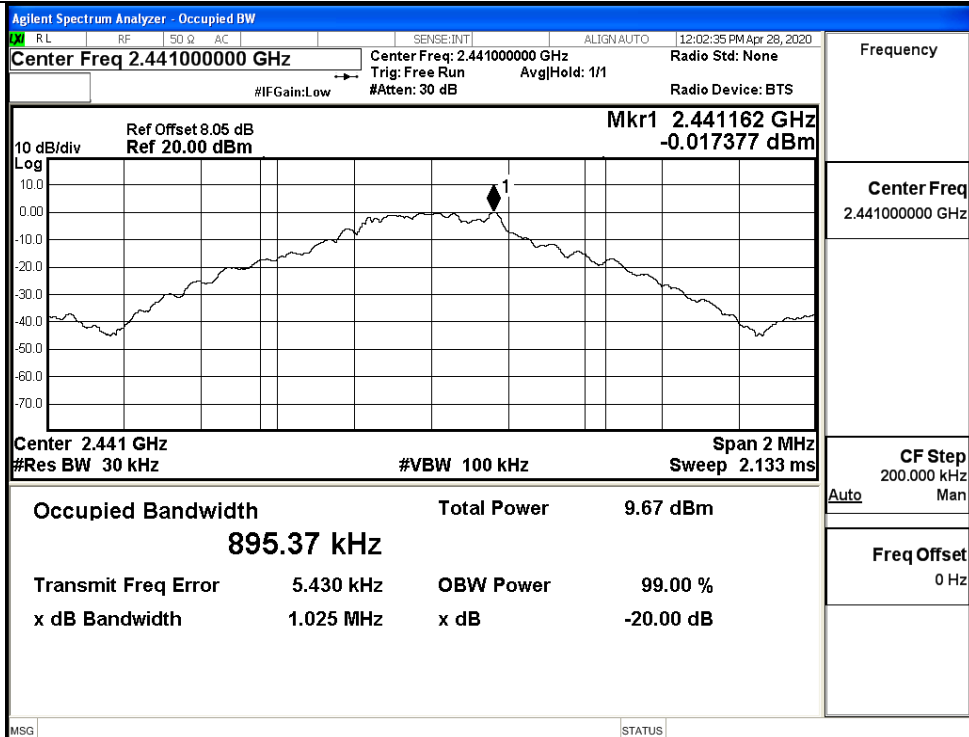
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9667	Not Specified	PASS
	MCH	1.025	Not Specified	PASS
	HCH	1.029	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.320	Not Specified	PASS
	MCH	1.317	Not Specified	PASS
	HCH	1.291	Not Specified	PASS
8DPSK	LCH	1.296	Not Specified	PASS
	MCH	1.296	Not Specified	PASS
	HCH	1.296	Not Specified	PASS

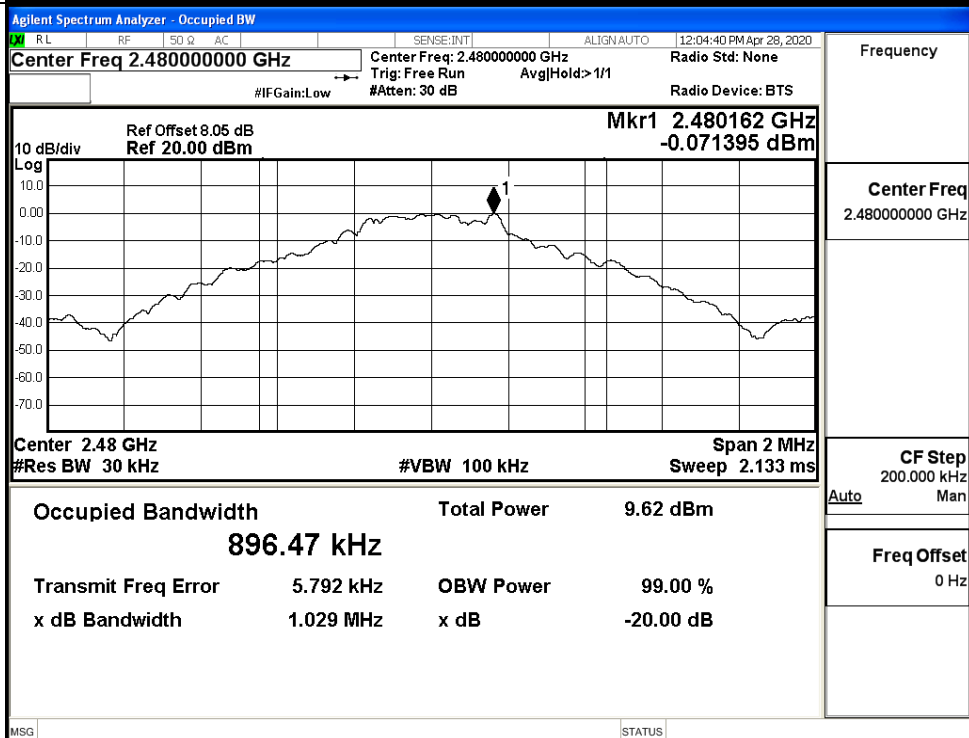
Test Graphs

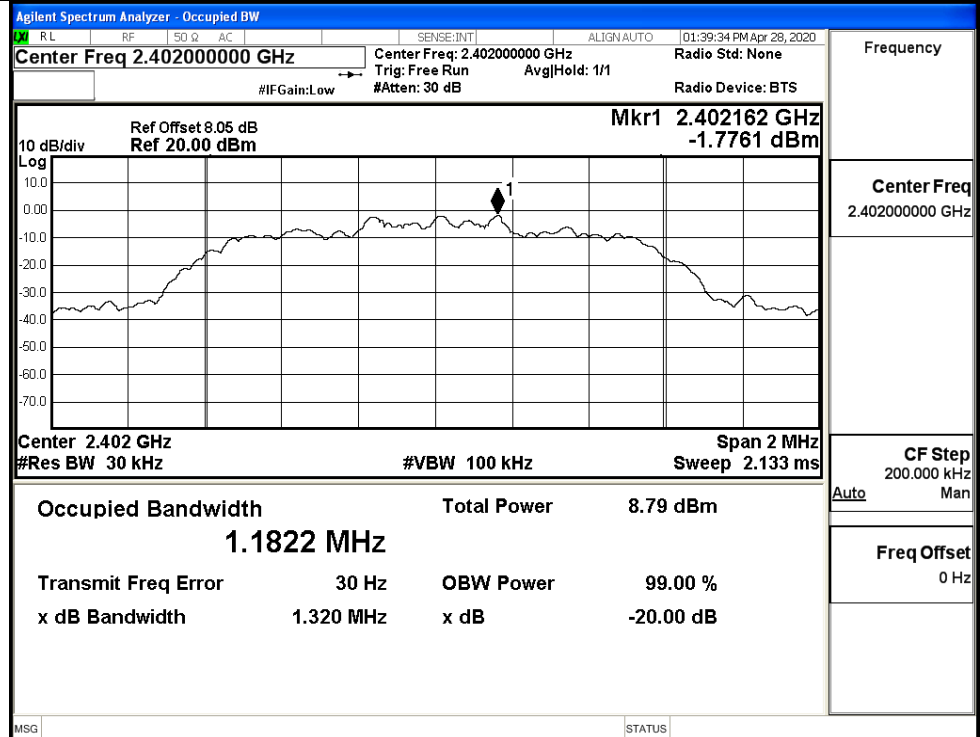
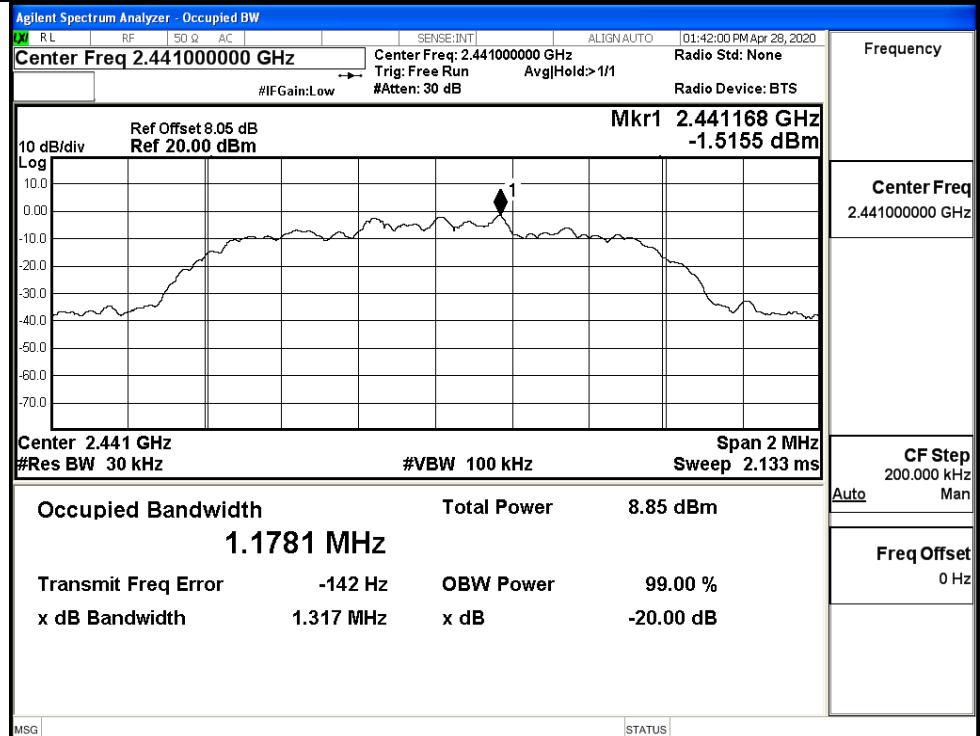


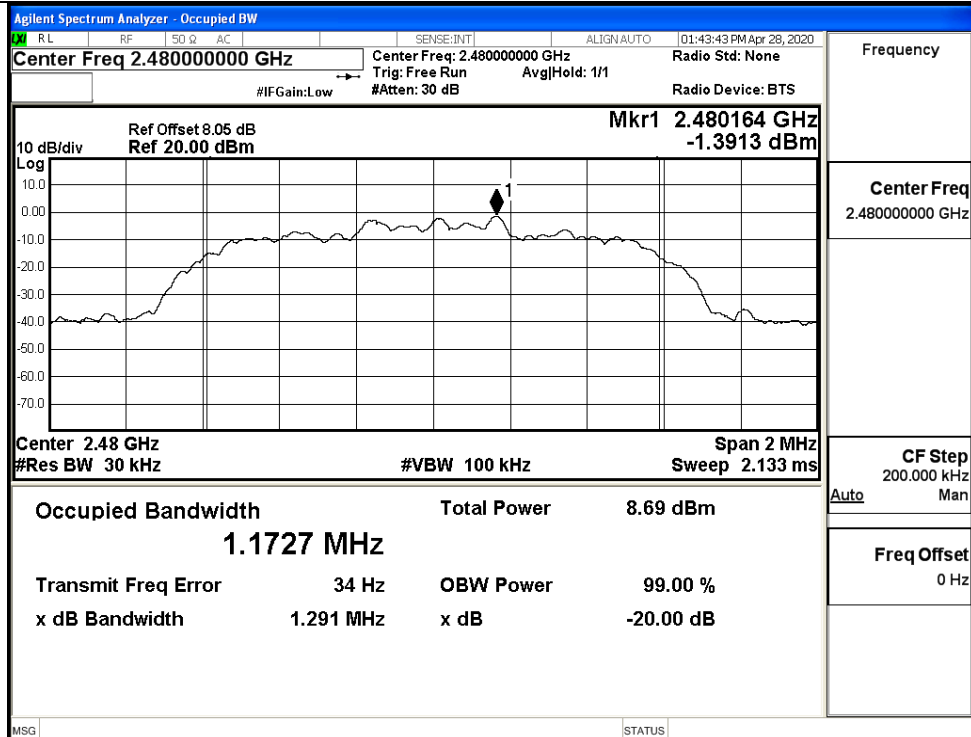
GFSK/MCH



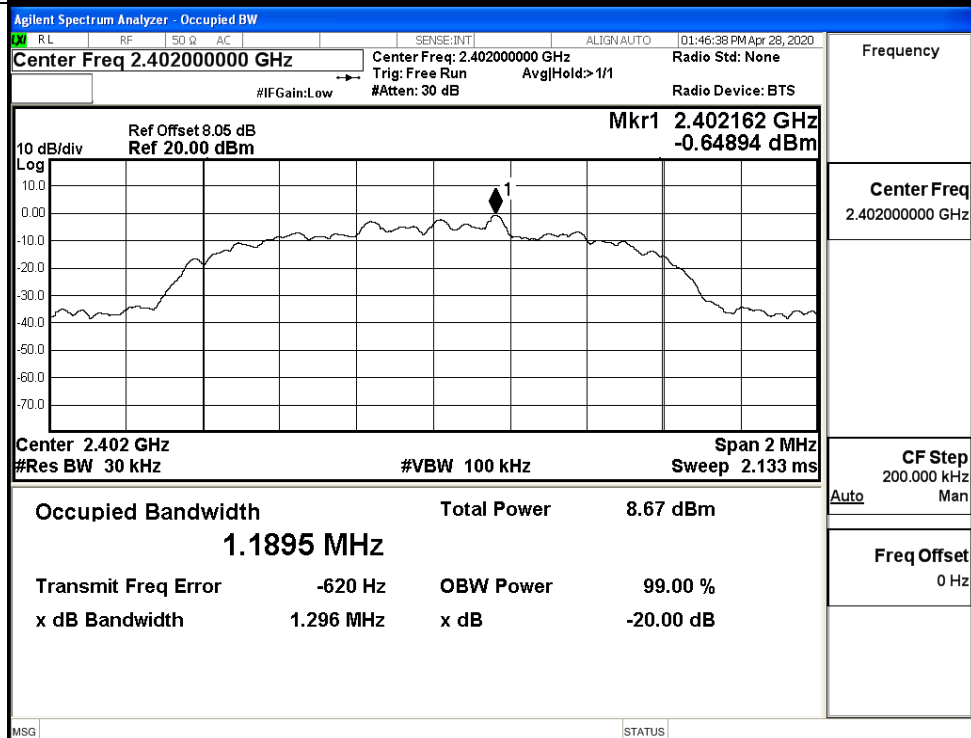
GFSK/HCH



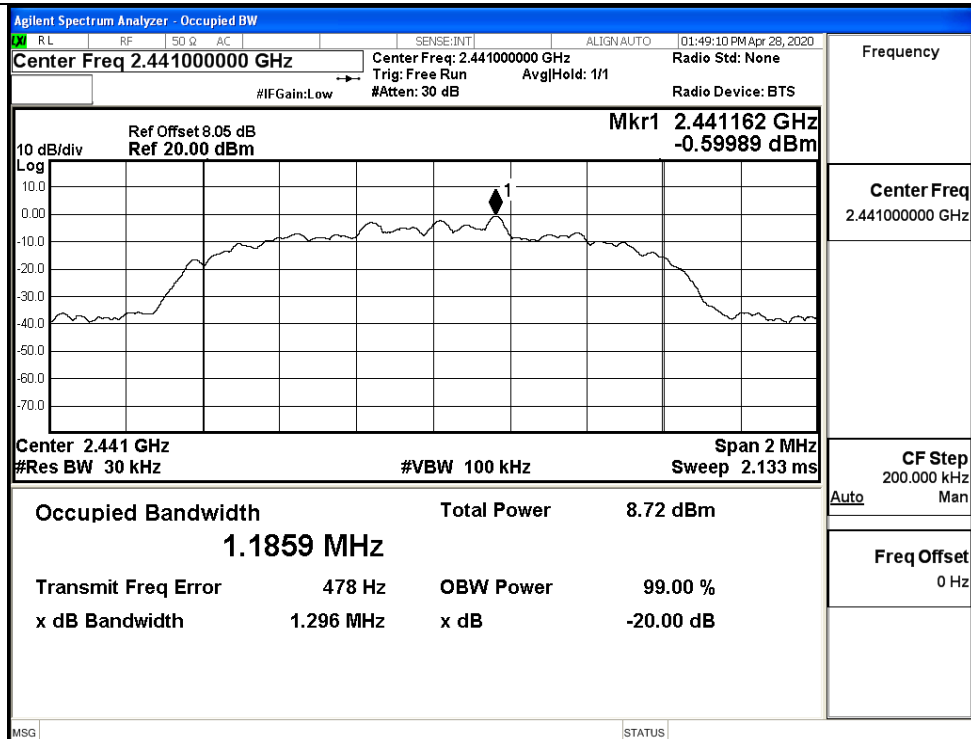
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

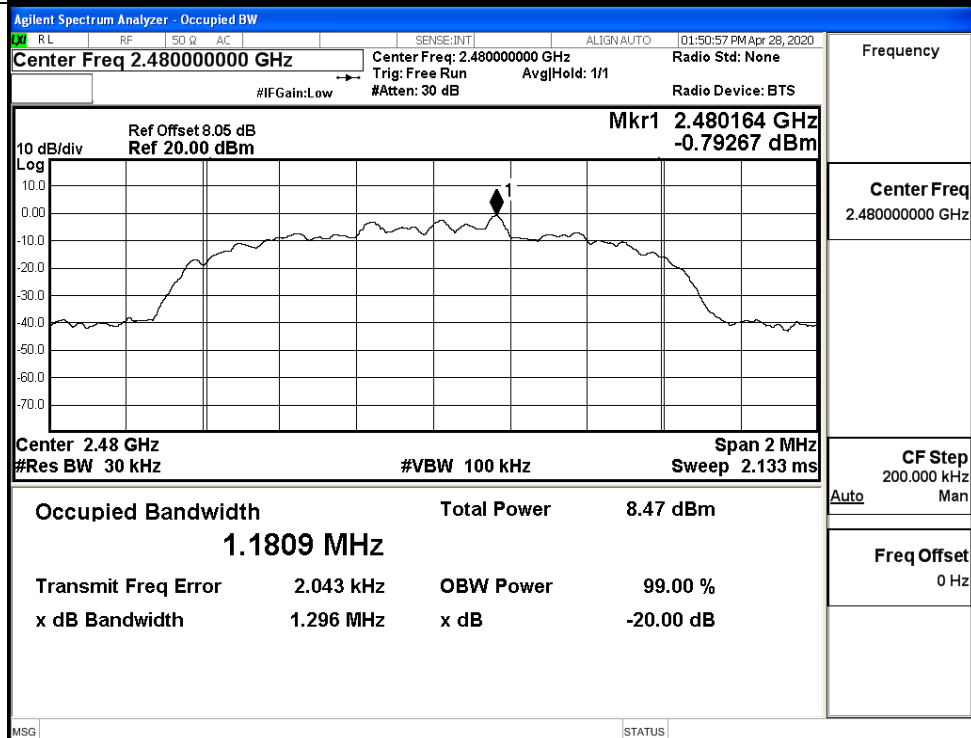
8DPSK/LCH



8DPSK/MCH



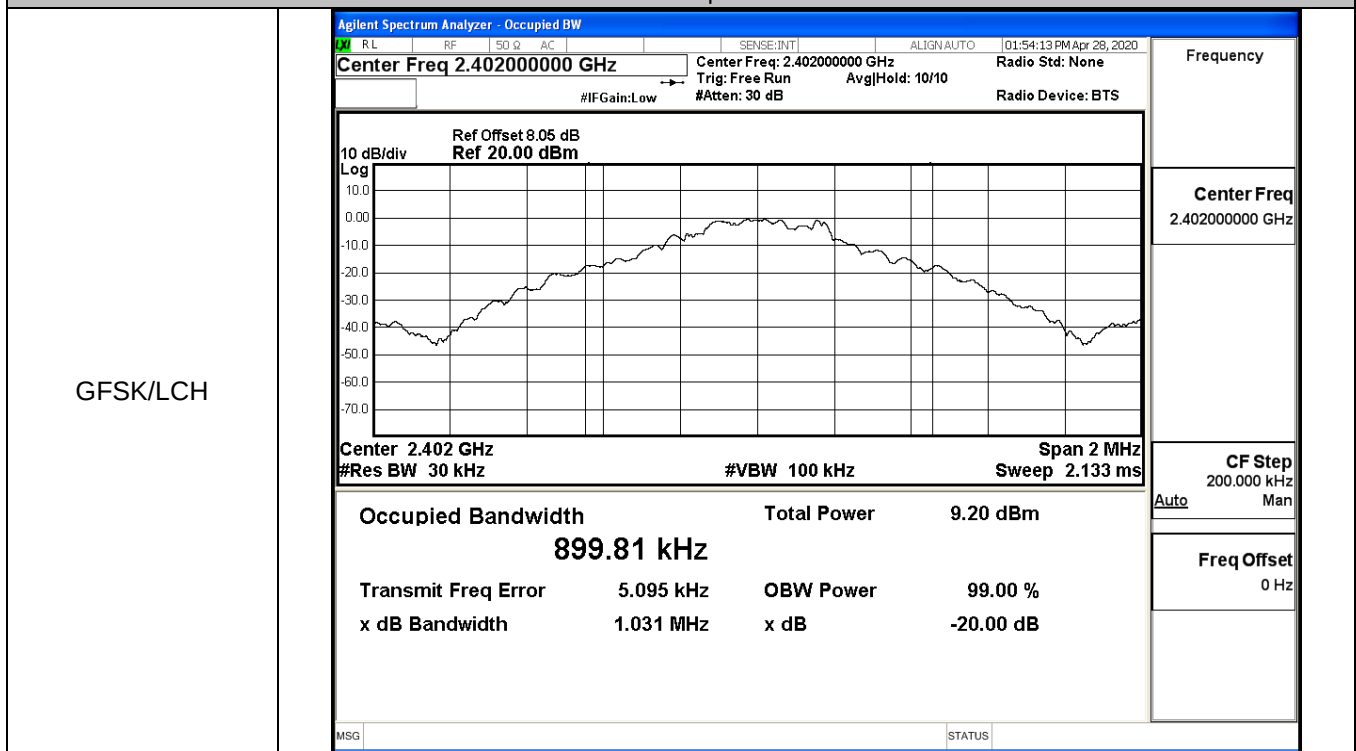
8DPSK/HCH



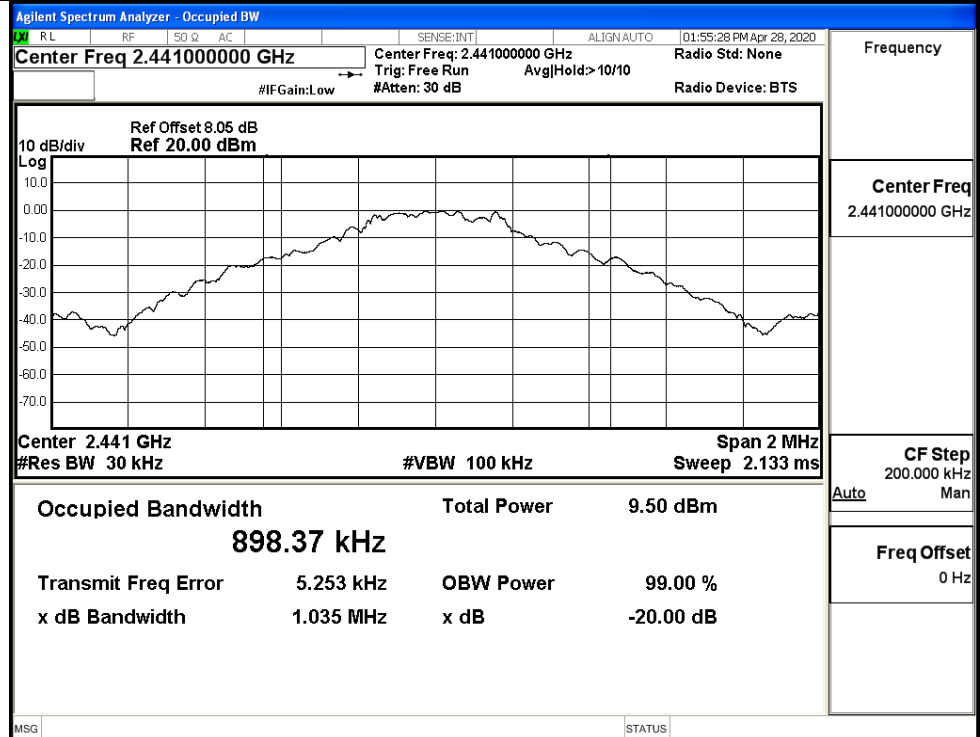
A.3 Occupied Bandwidth

Mode	Channel.	Occupied Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.89981	Not Specified	PASS
	MCH	0.89837	Not Specified	PASS
	HCH	0.89704	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.1812	Not Specified	PASS
	MCH	1.1795	Not Specified	PASS
	HCH	1.1784	Not Specified	PASS
8DPSK	LCH	1.1917	Not Specified	PASS
	MCH	1.1910	Not Specified	PASS
	HCH	1.1833	Not Specified	PASS

Test Graphs



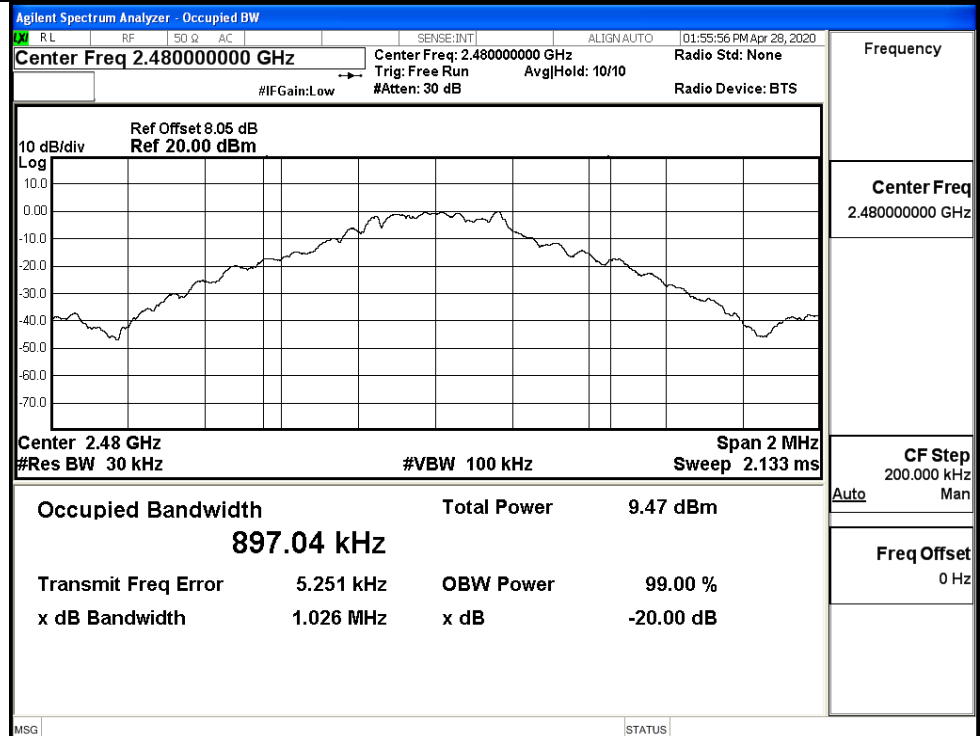
GFSK/MCH



Frequency

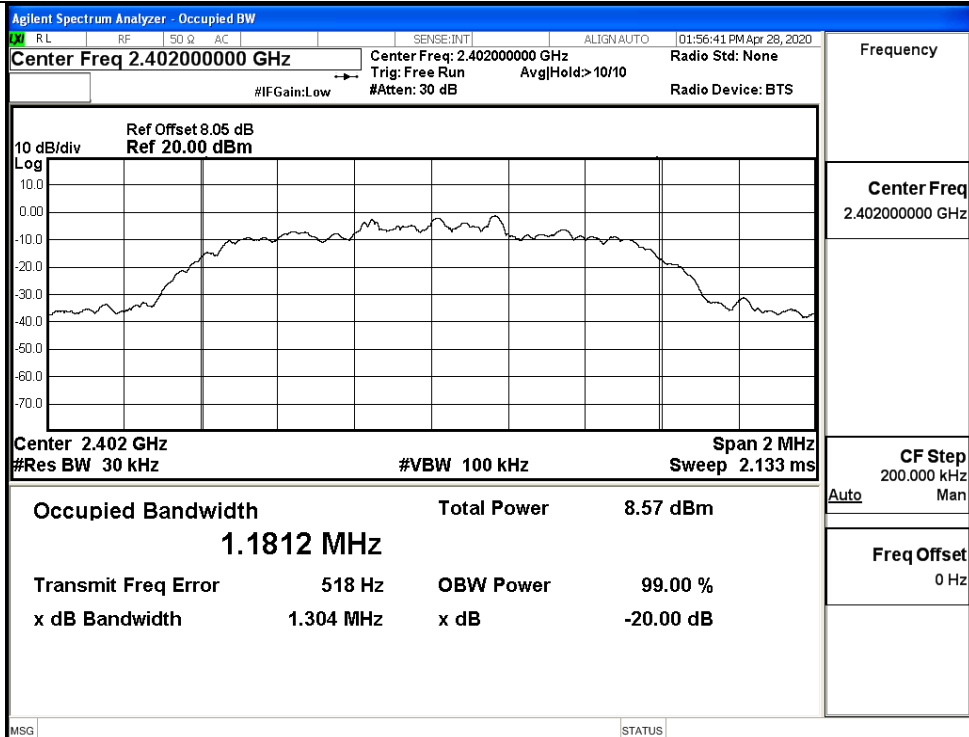
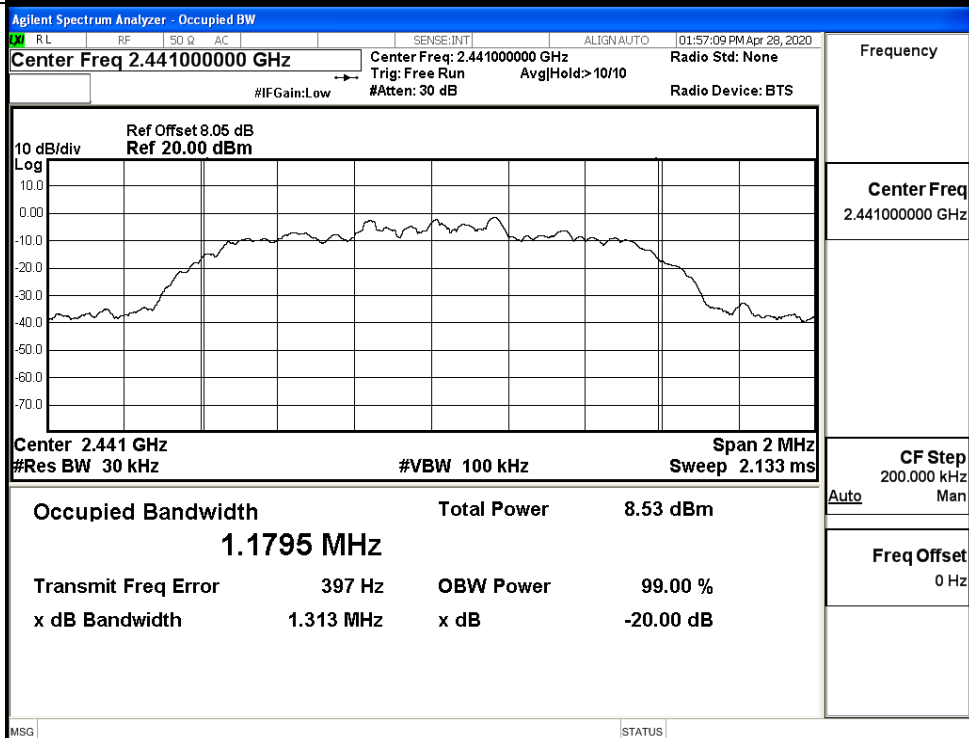
Center Freq
2.441000000 GHzCF Step
200.000 kHz
Auto ManFreq Offset
0 Hz

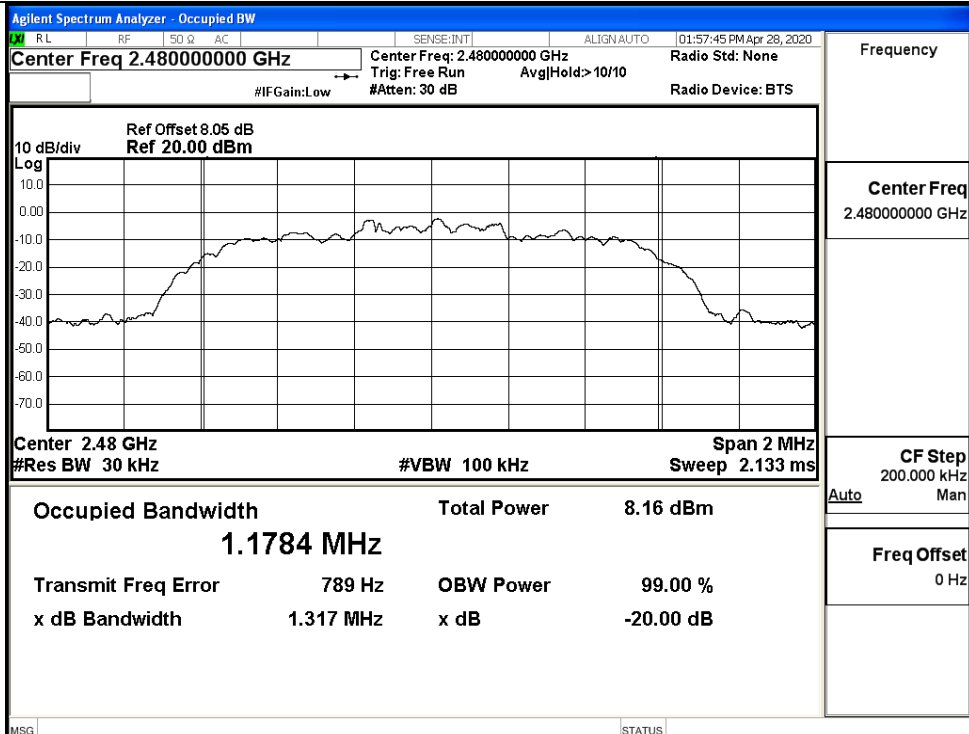
GFSK/HCH



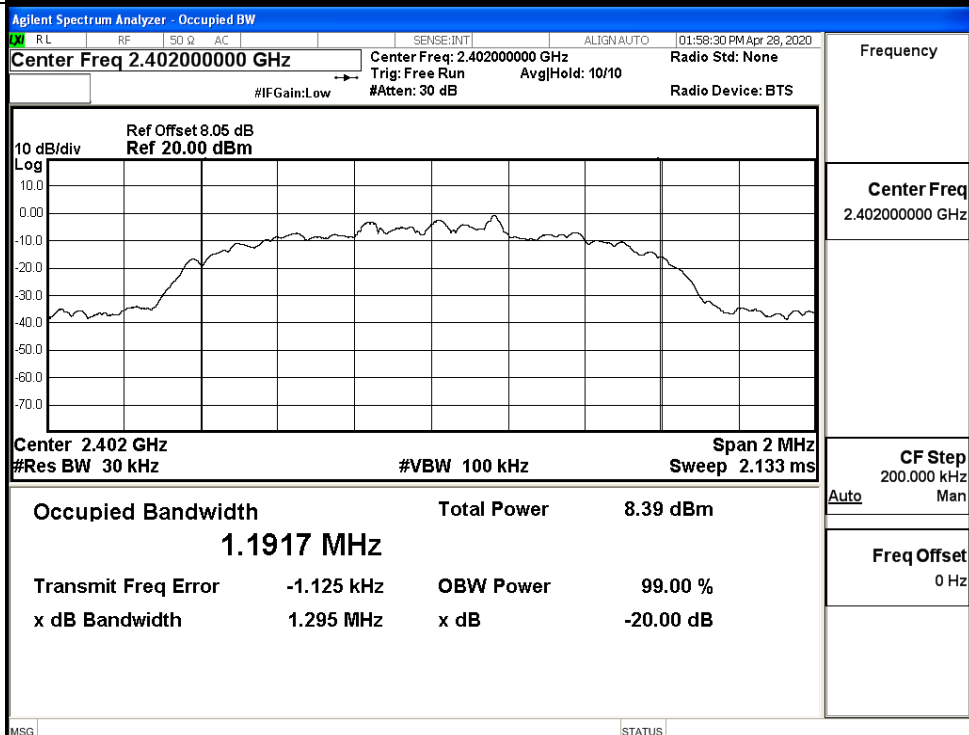
Frequency

Center Freq
2.480000000 GHzCF Step
200.000 kHz
Auto ManFreq Offset
0 Hz

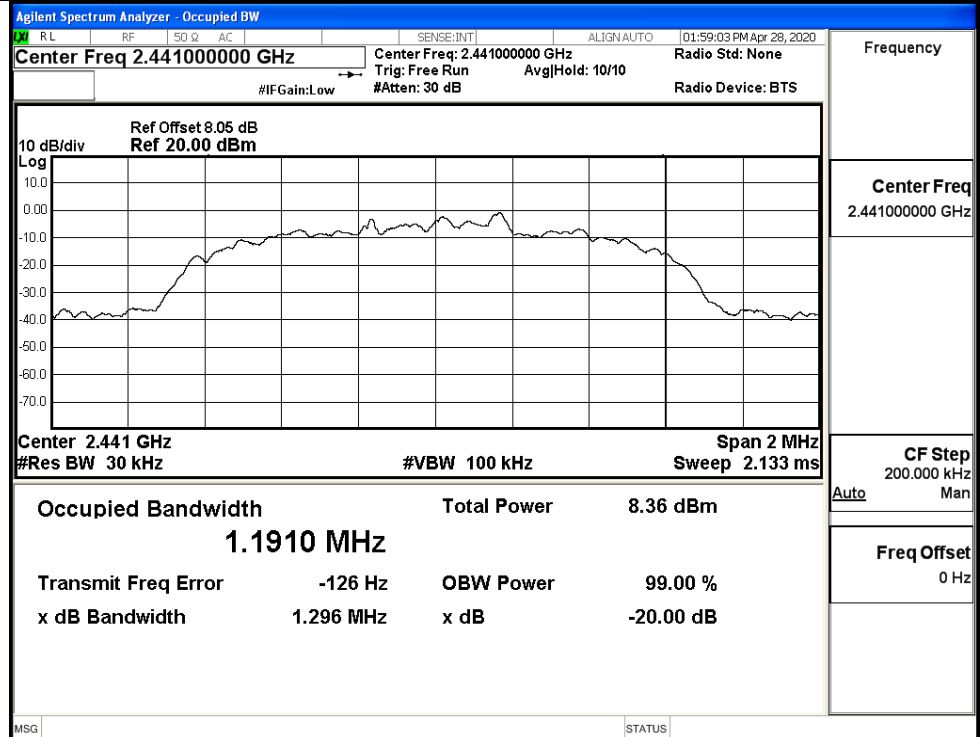
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

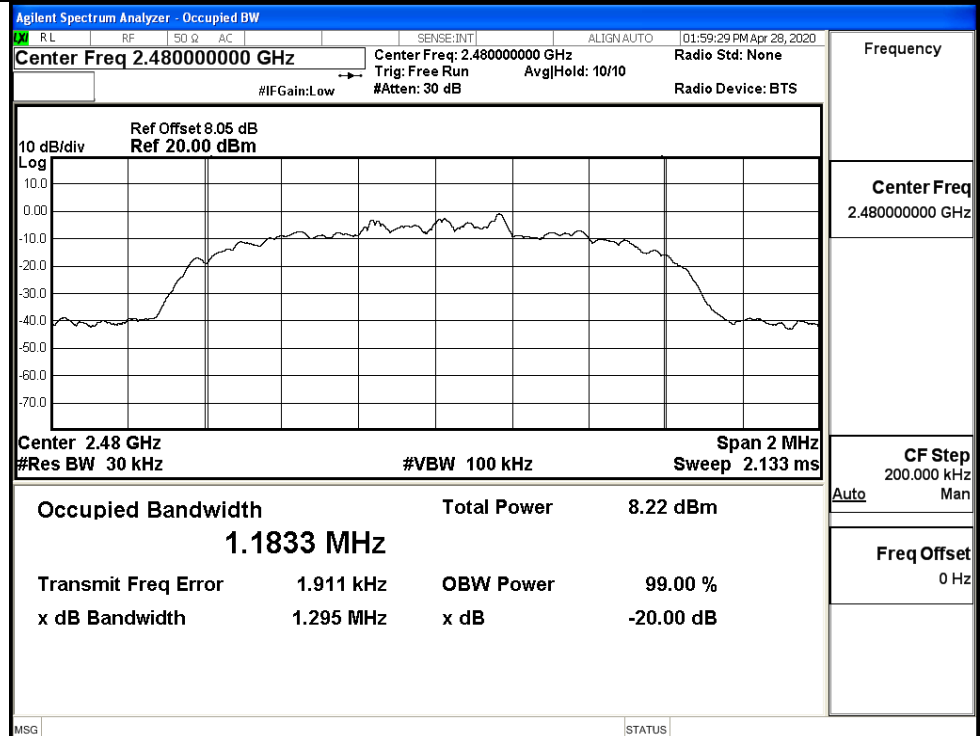
8DPSK/LCH



8DPSK/MCH



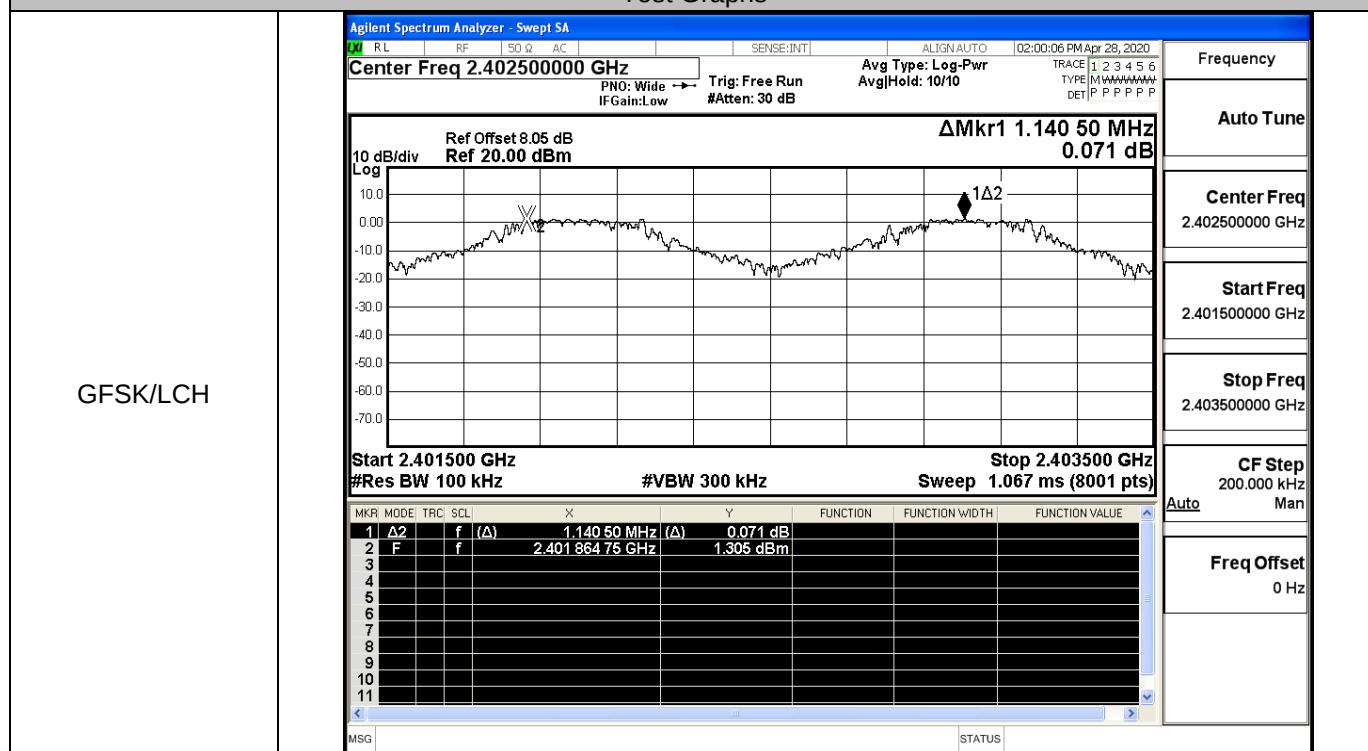
8DPSK/HCH



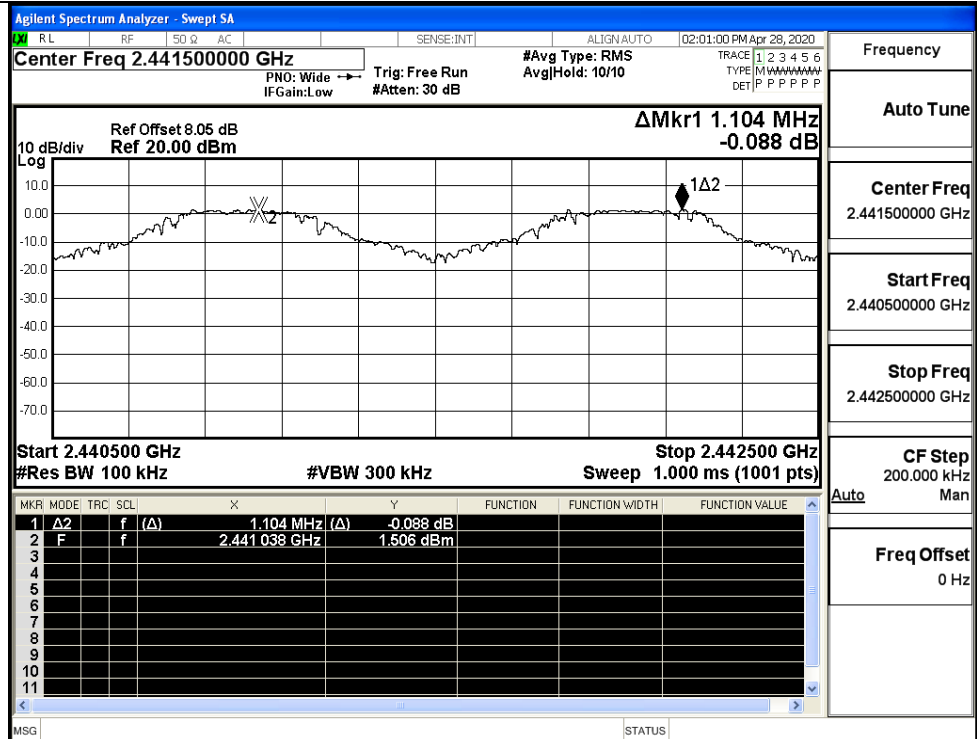
A.4 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.140	0.686	PASS
	MCH	1.104	0.686	PASS
	HCH	0.872	0.686	PASS
$\pi/4$ DQPSK	LCH	1.024	0.880	PASS
	MCH	1.196	0.880	PASS
	HCH	1.198	0.880	PASS
8DPSK	LCH	1.328	0.864	PASS
	MCH	1.254	0.864	PASS
	HCH	1.016	0.864	PASS

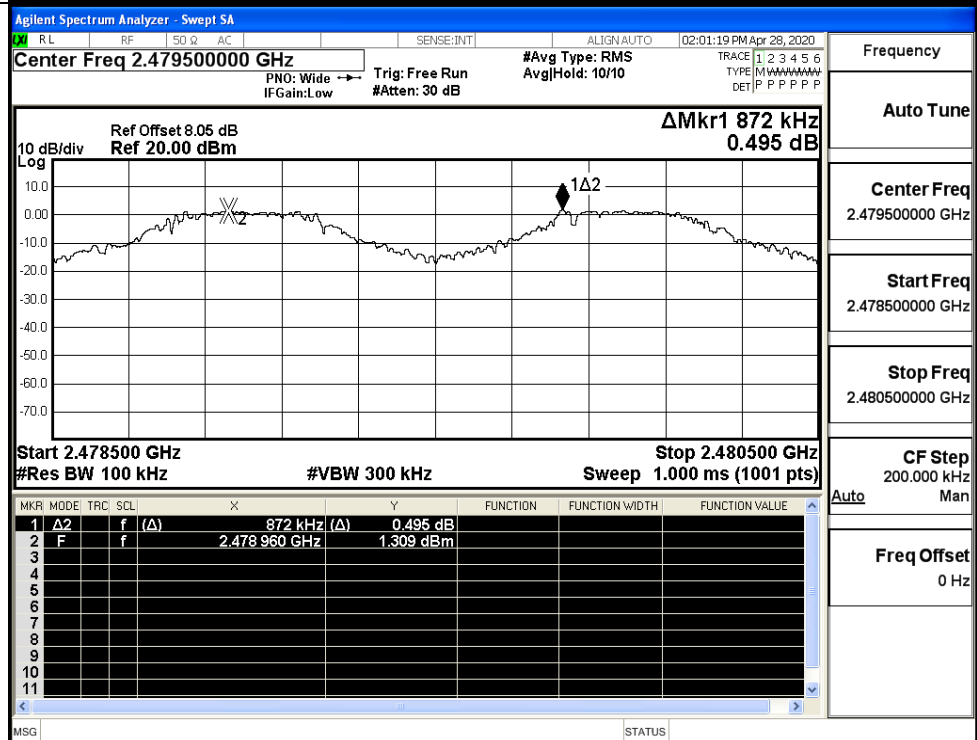
Test Graphs

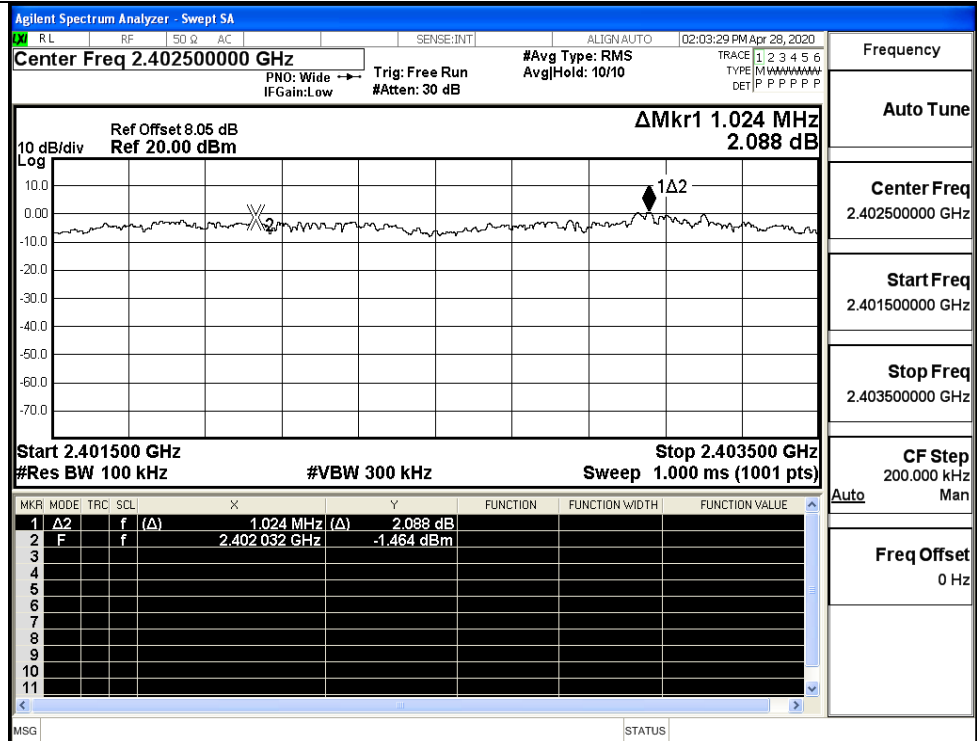
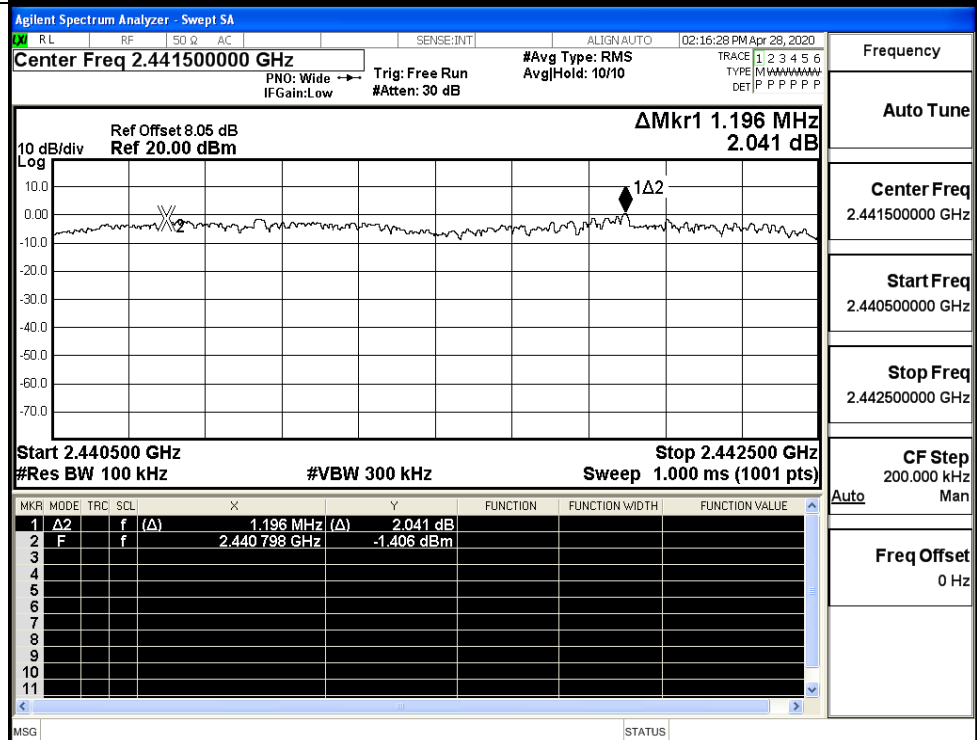


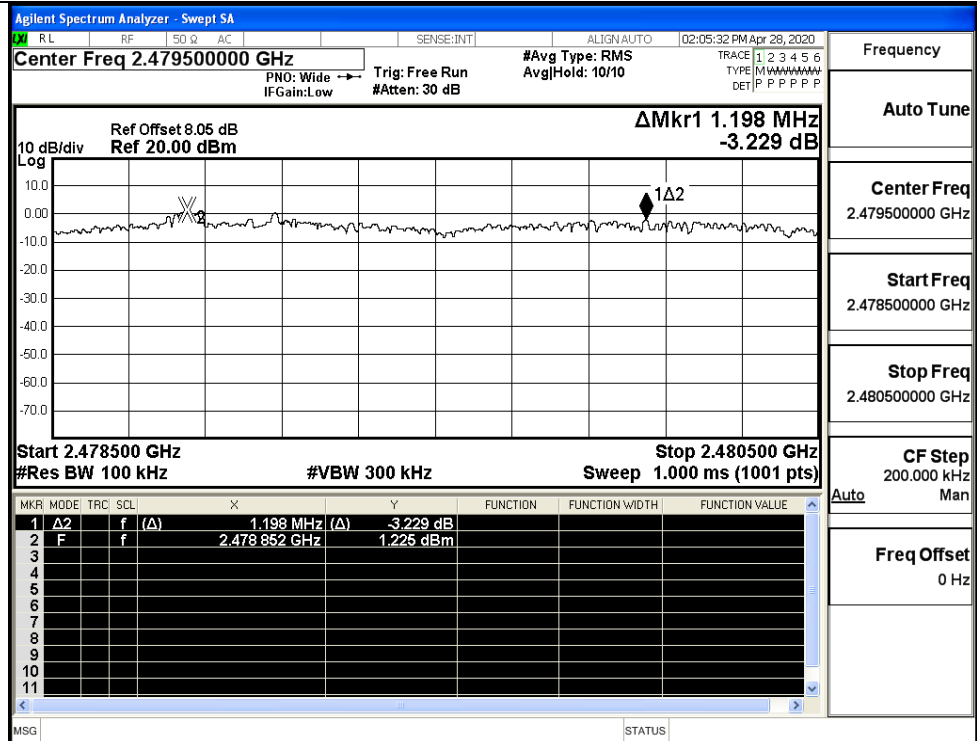
GFSK/MCH



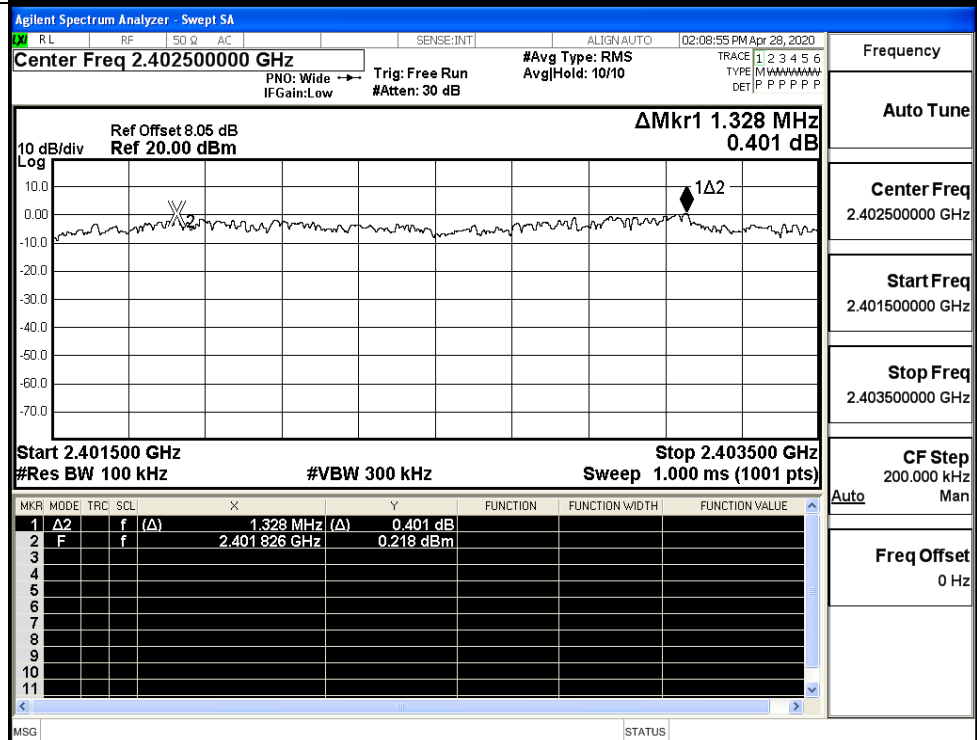
GFSK/HCH



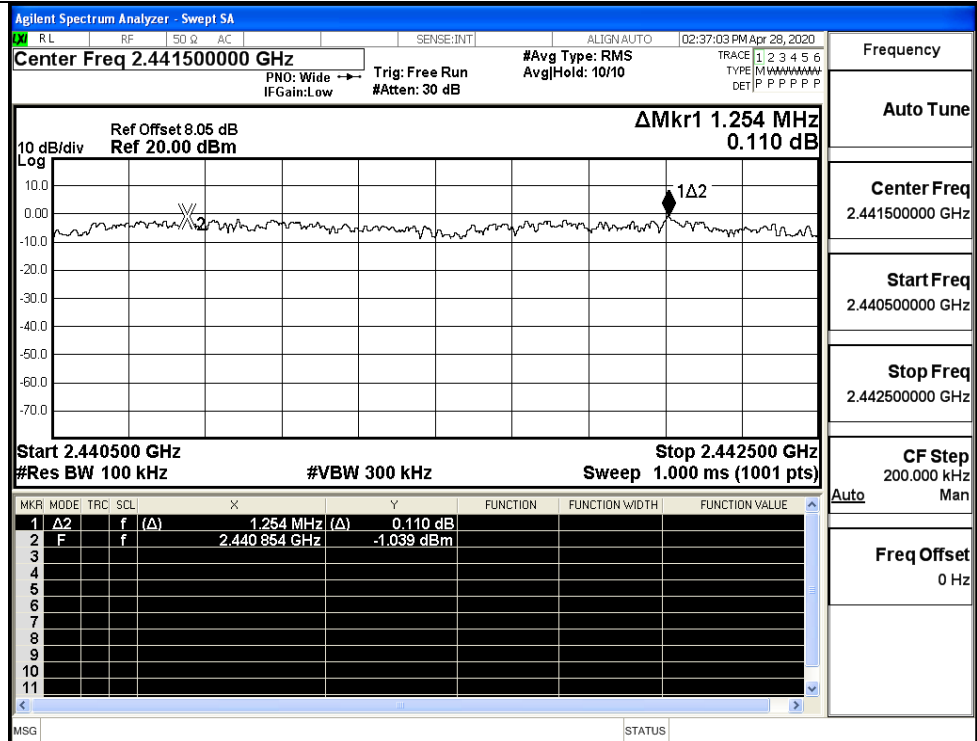
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

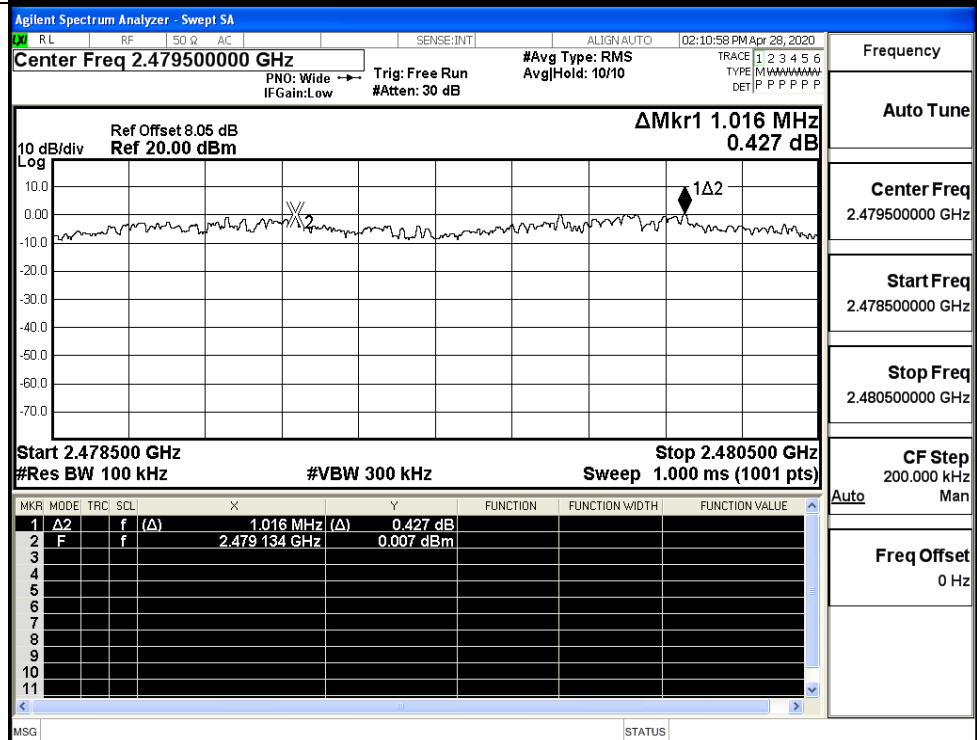
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

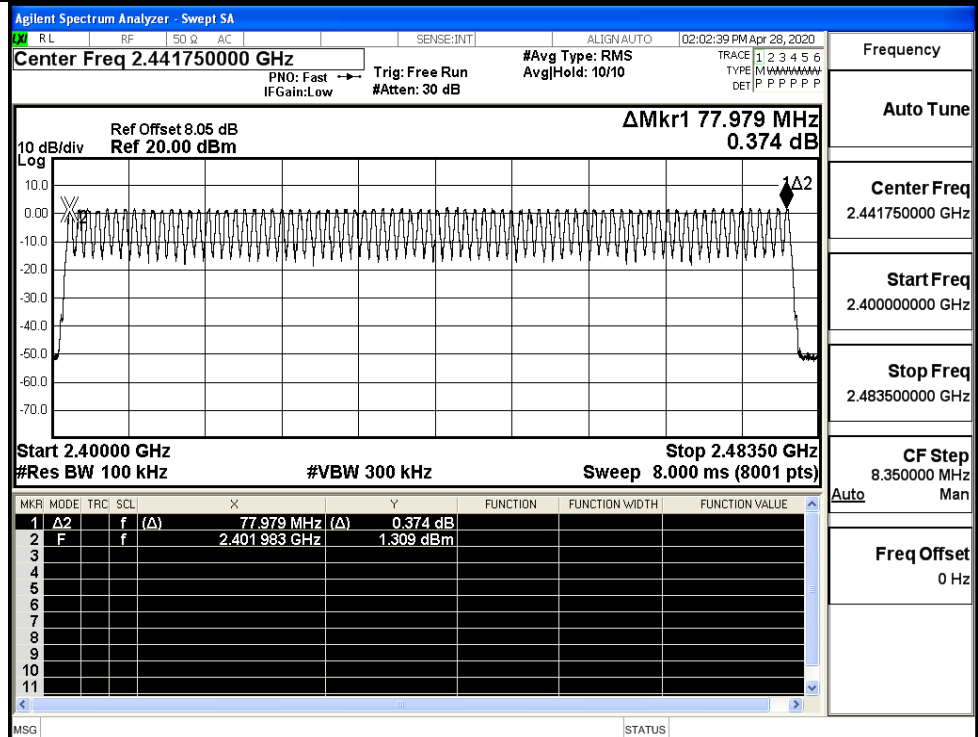
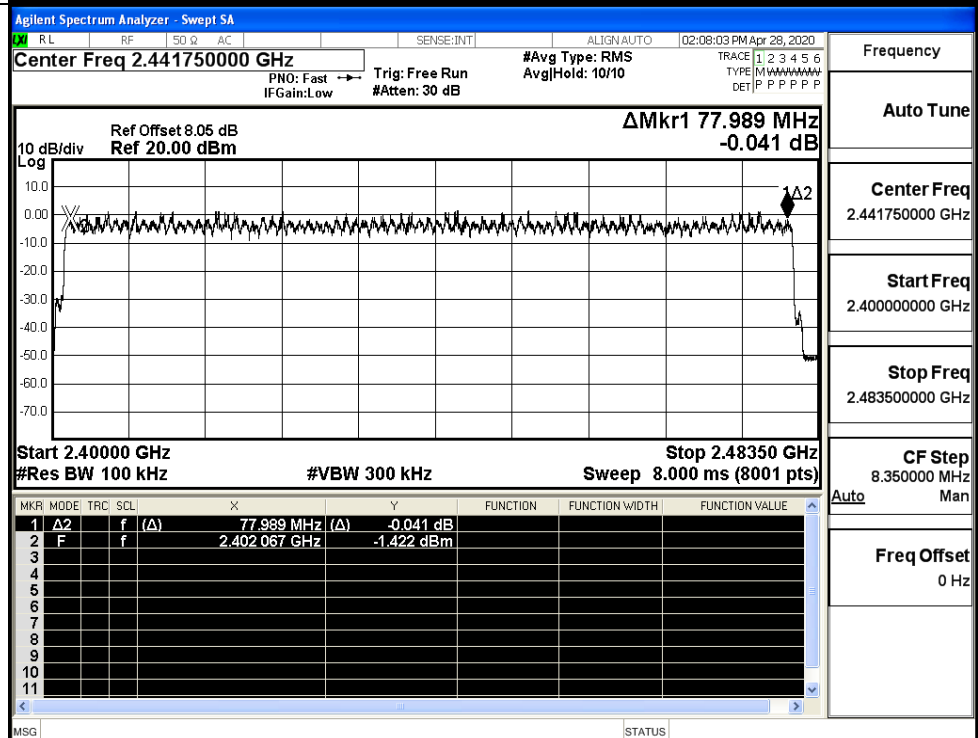


A.5 Hopping Channel Number

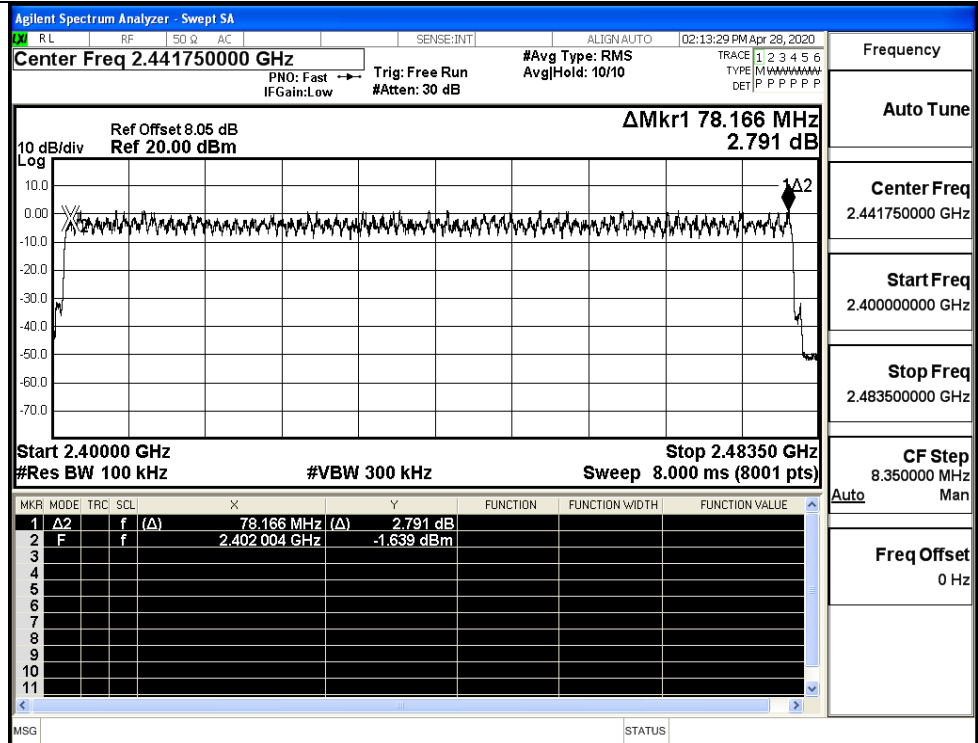
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop

8DPSK/Hop

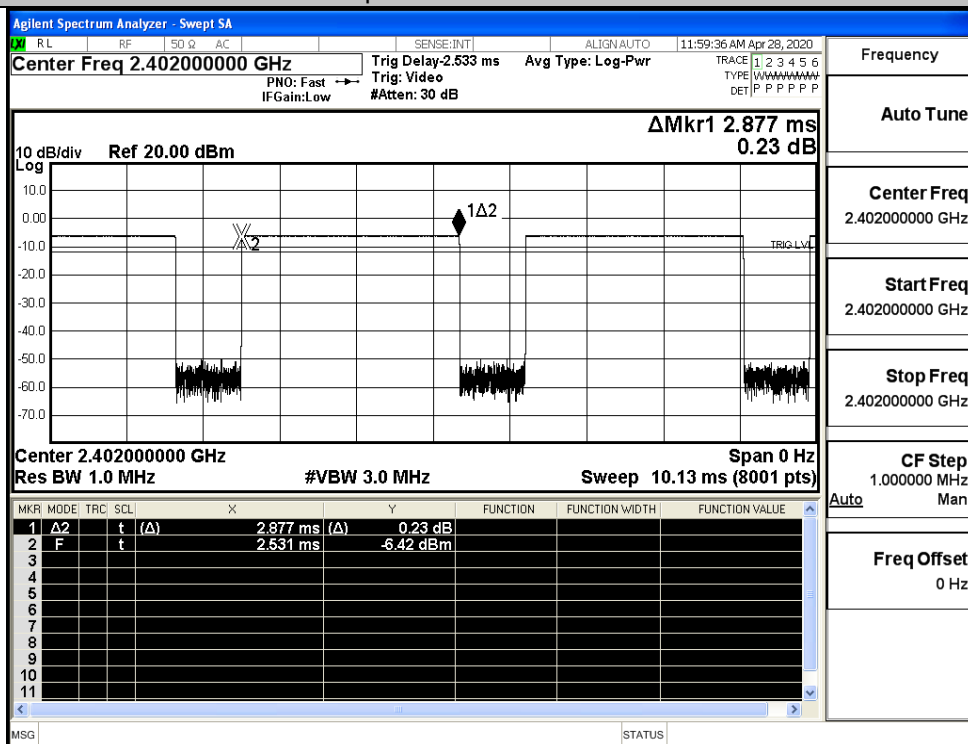


A.6 Dwell Time

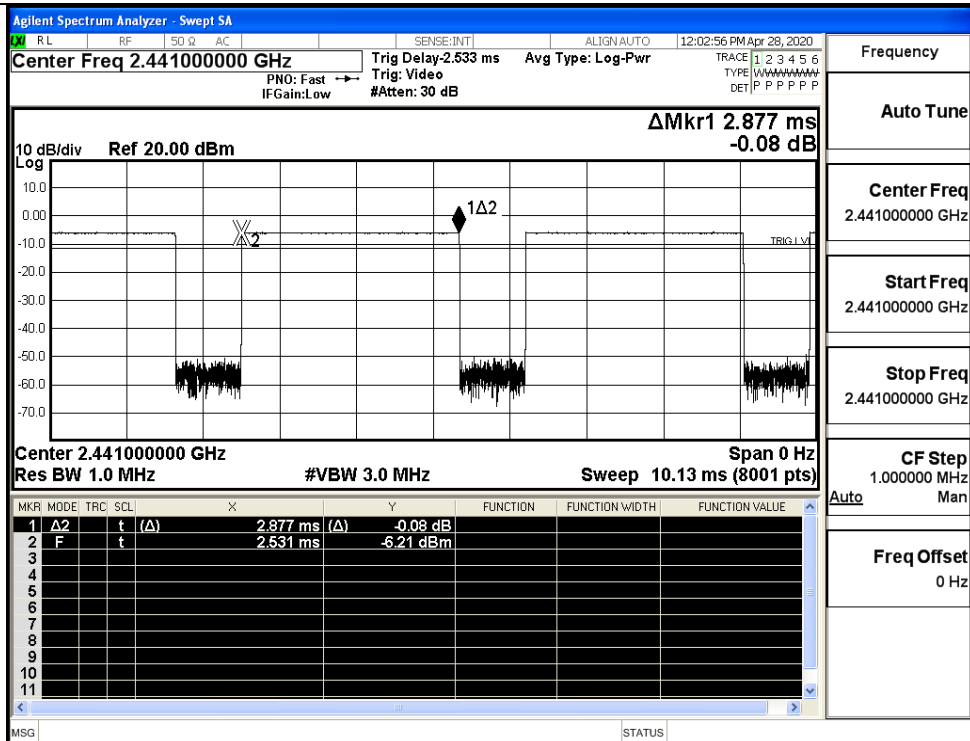
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88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

Test Graphs

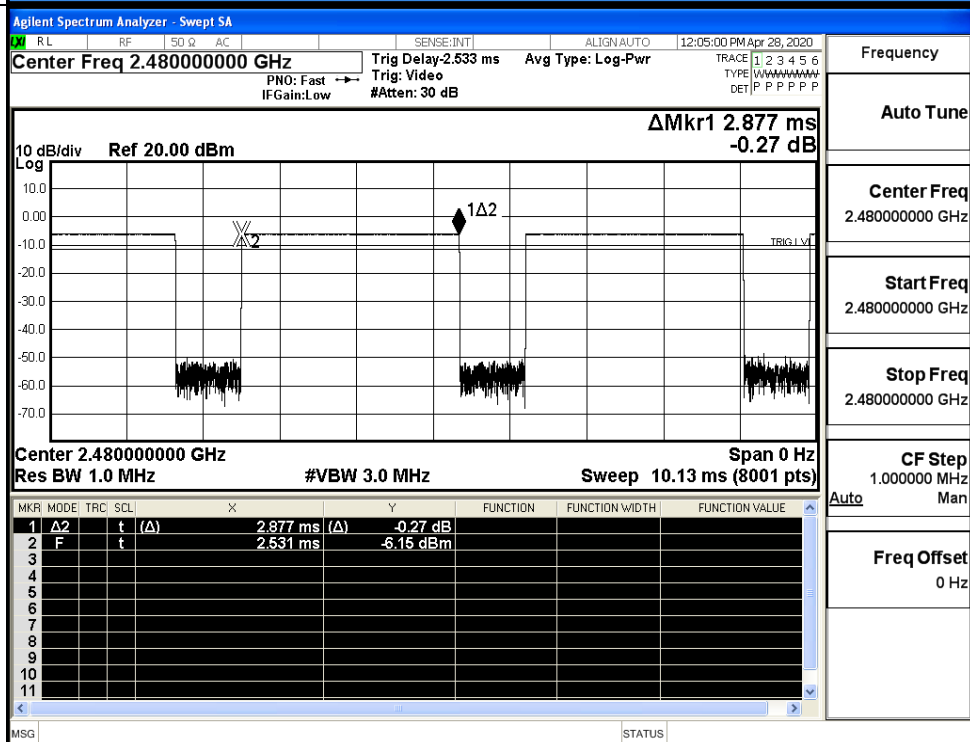
GFSK_DH5/LCH



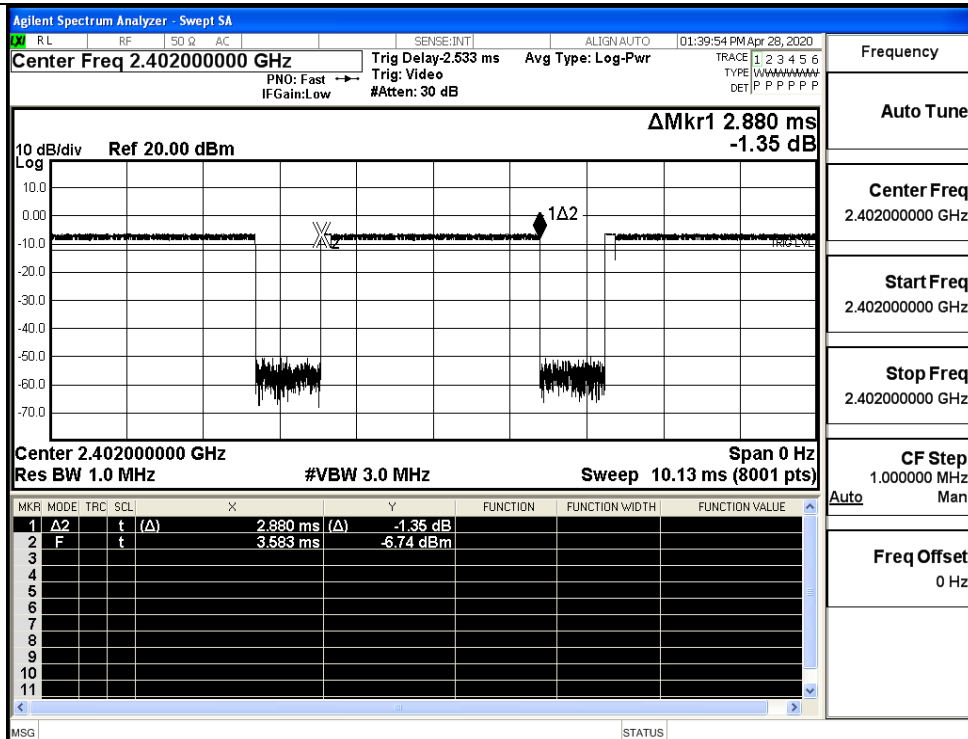
GFSK_DH5/MCH



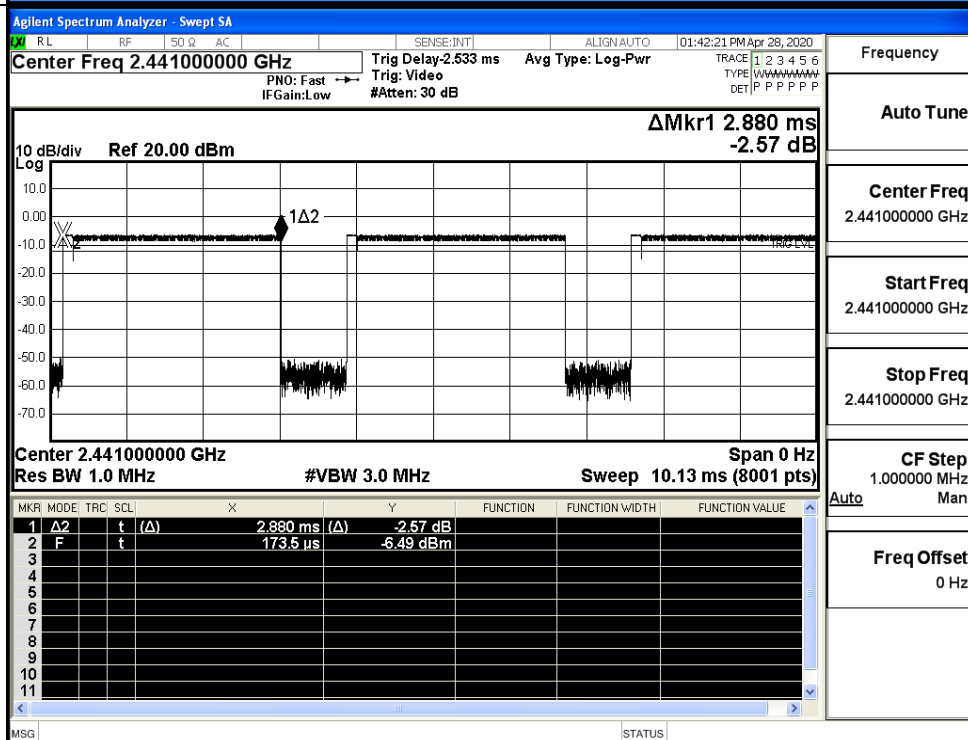
GFSK_DH5/HCH



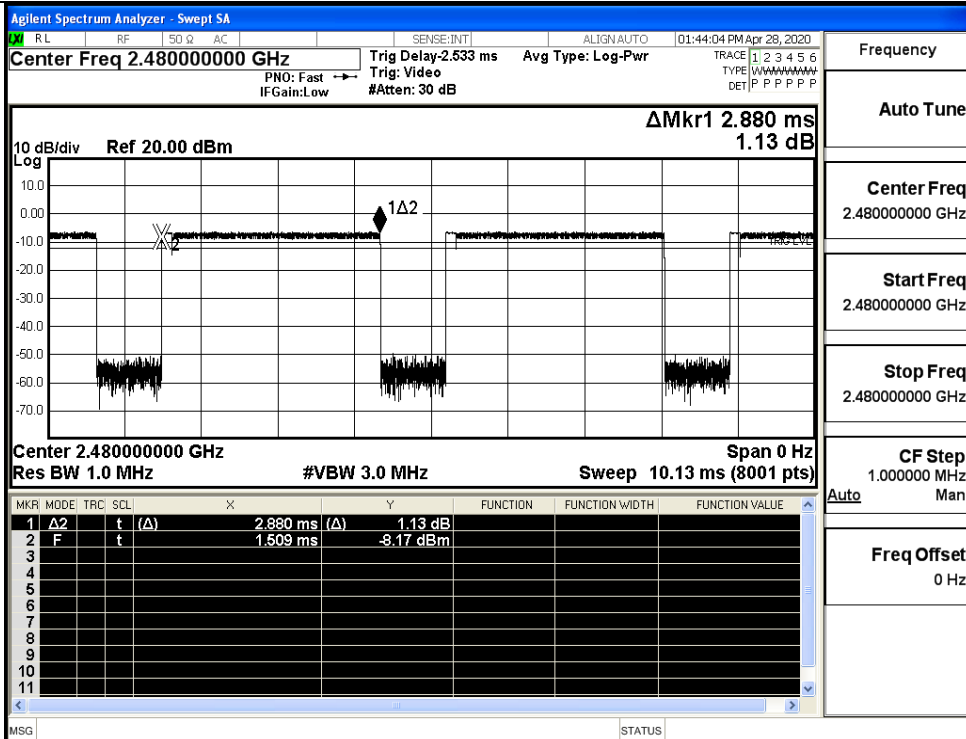
$\pi/4$ DQPSK
_2DH5/LCH



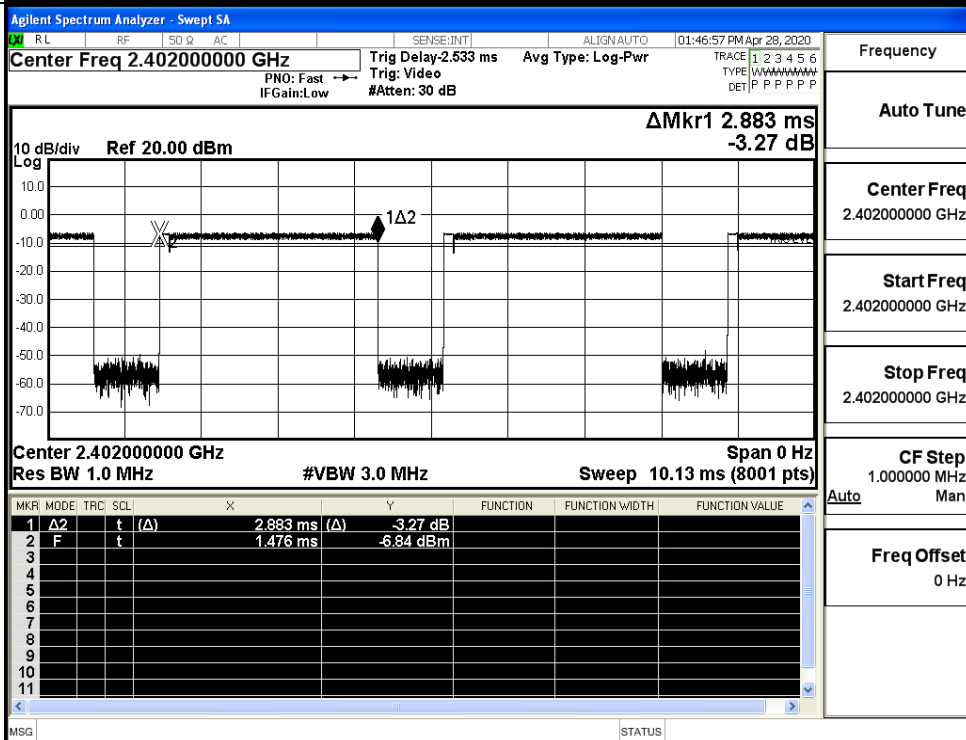
$\pi/4$ DQPSK
_2DH5/MCH



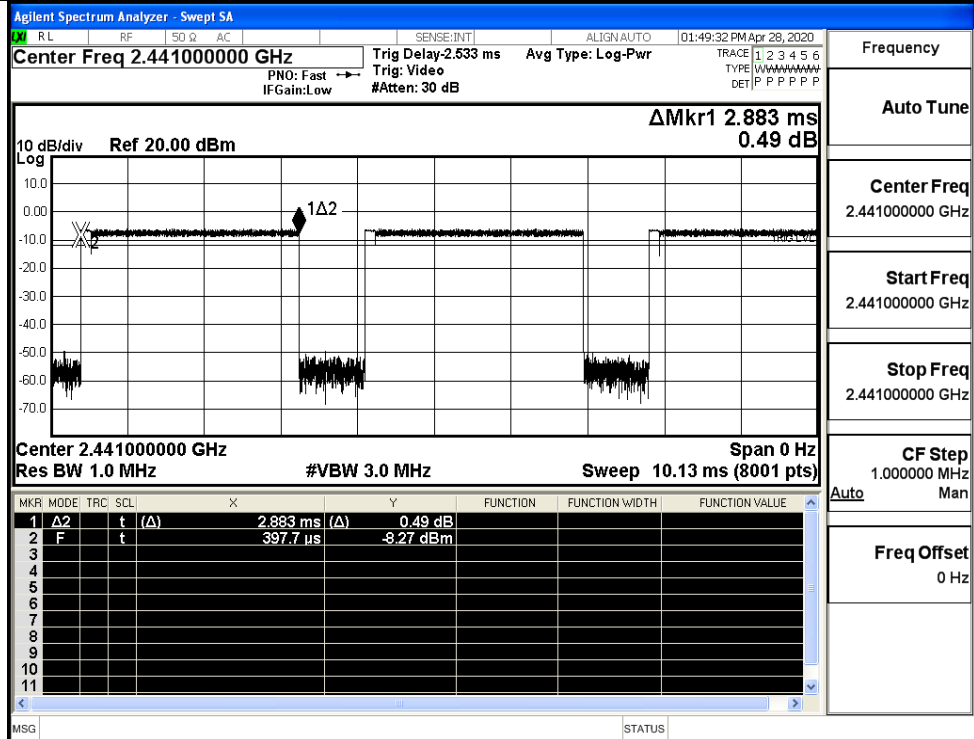
$\pi/4$ DQPSK
_2DH5/HCH



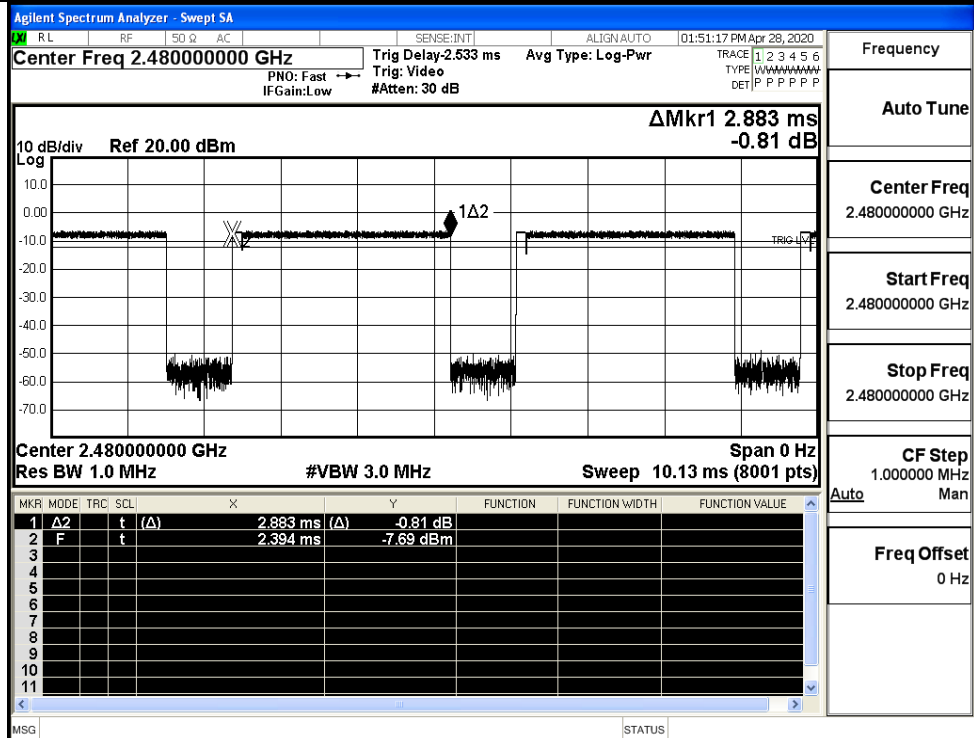
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



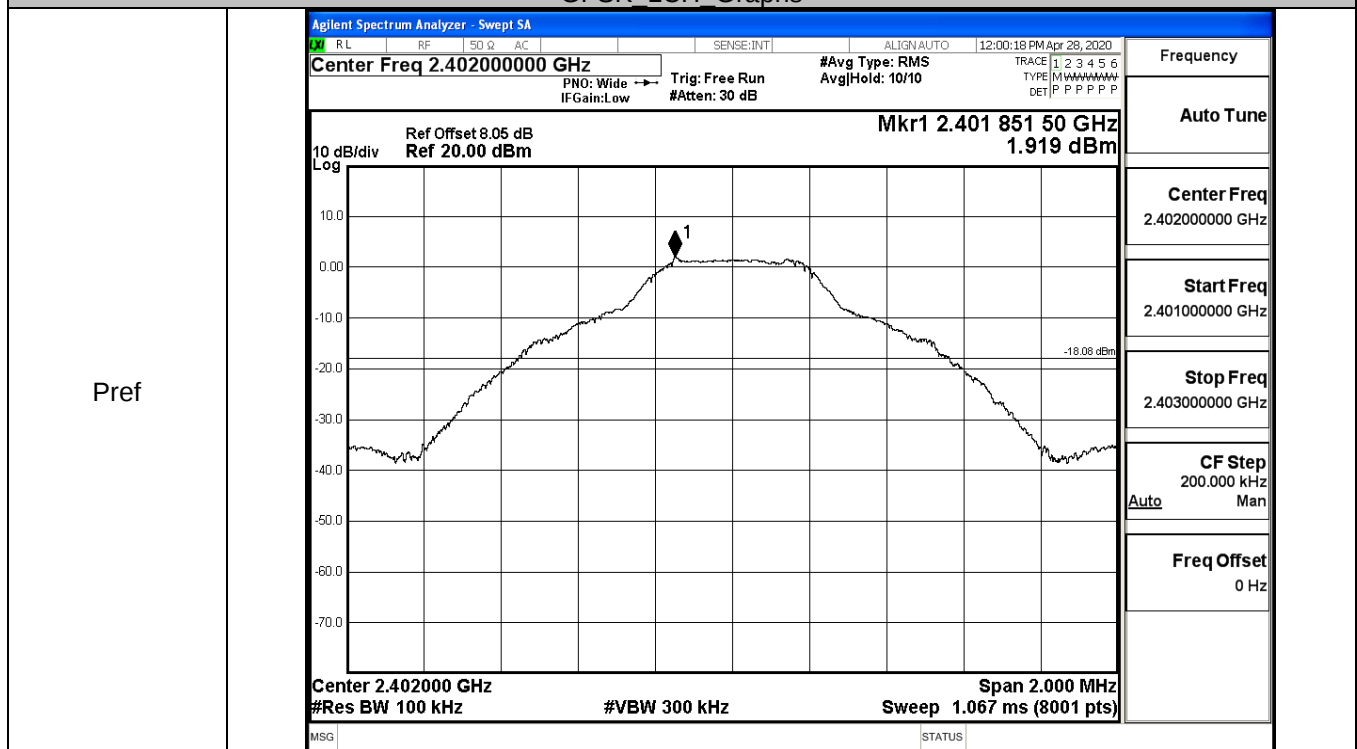
8DPSK_3DH5/HCH



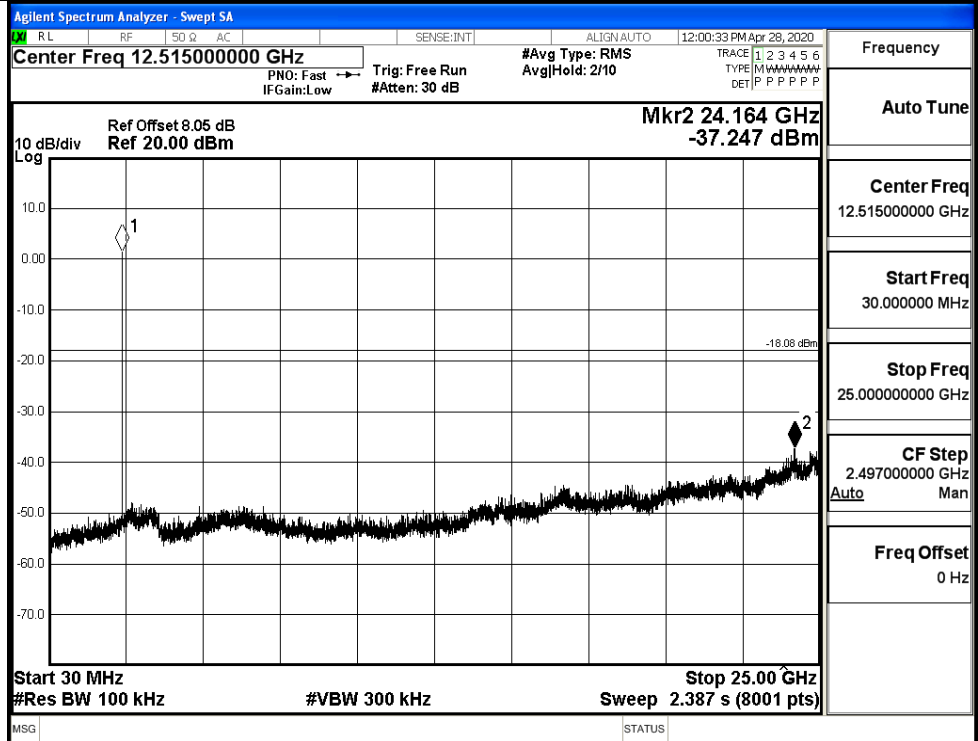
A.7 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.919	-37.247	-18.081	PASS
	MCH	2.008	-38.047	-17.992	PASS
	HCH	1.811	-38.325	-18.189	PASS
$\pi/4$ DQPSK	LCH	1.575	-37.779	-18.425	PASS
	MCH	1.62	-38.067	-18.380	PASS
	HCH	1.402	-37.739	-18.598	PASS
8DPSK	LCH	1.414	-36.926	-18.586	PASS
	MCH	1.319	-37.166	-18.681	PASS
	HCH	1.277	-37.365	-18.723	PASS

GFSK LCH Graphs

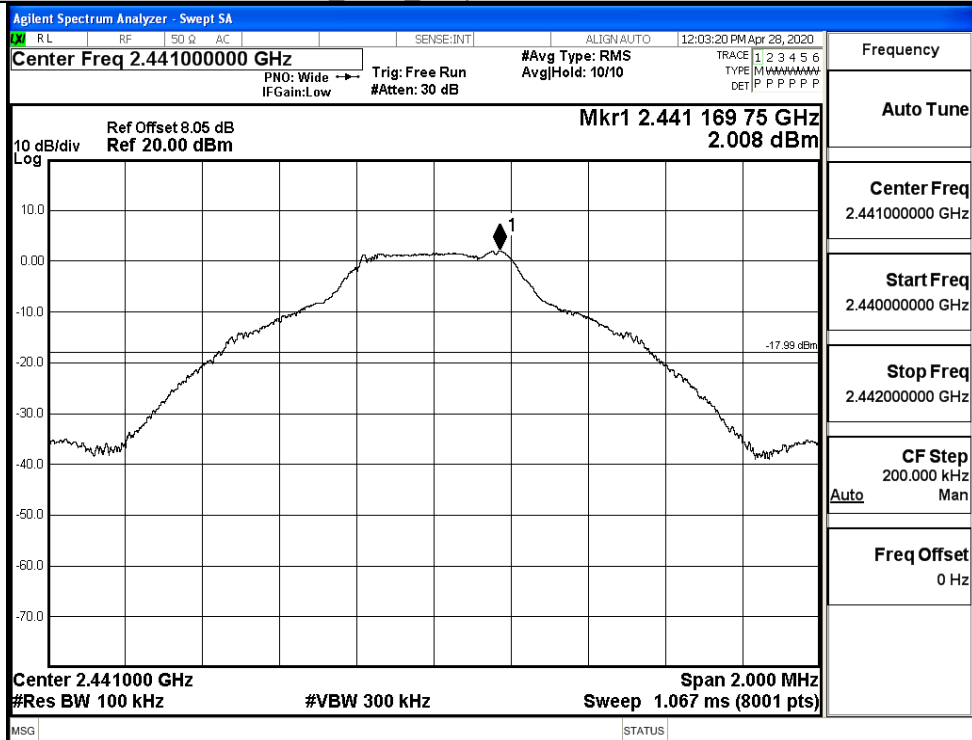


Puw

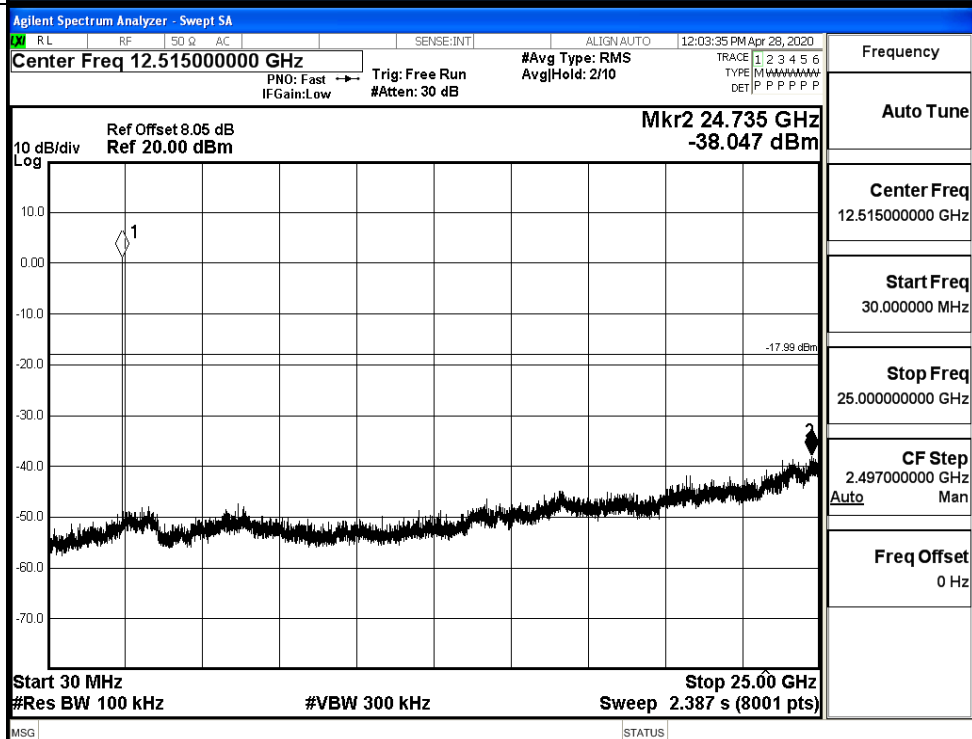


GFSK_MCH_Graphs

Pref

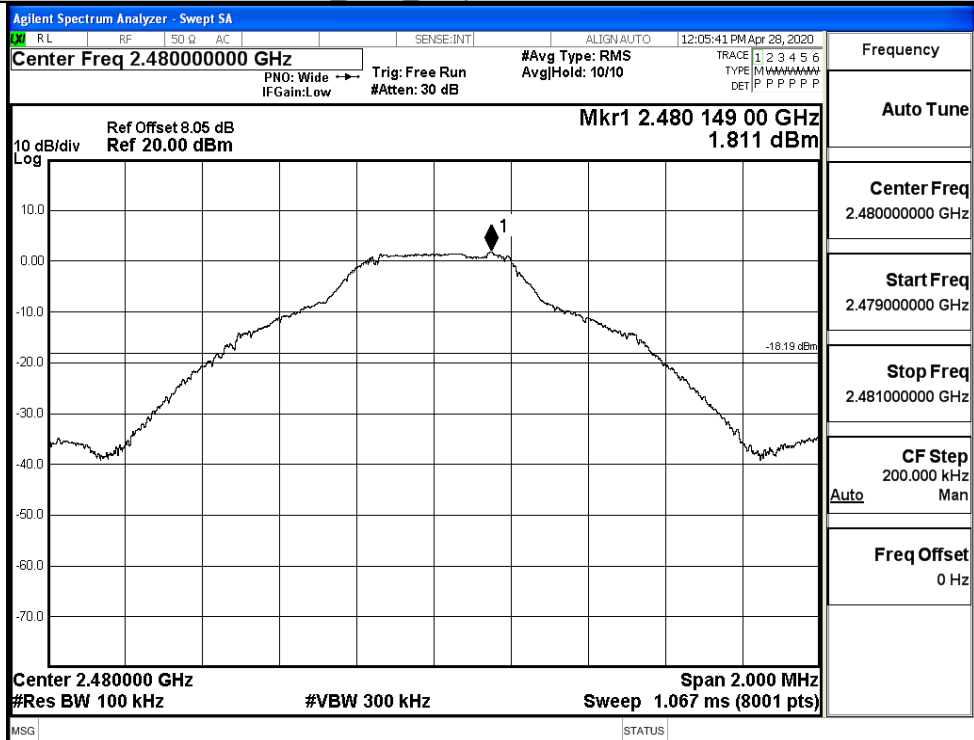


Puw

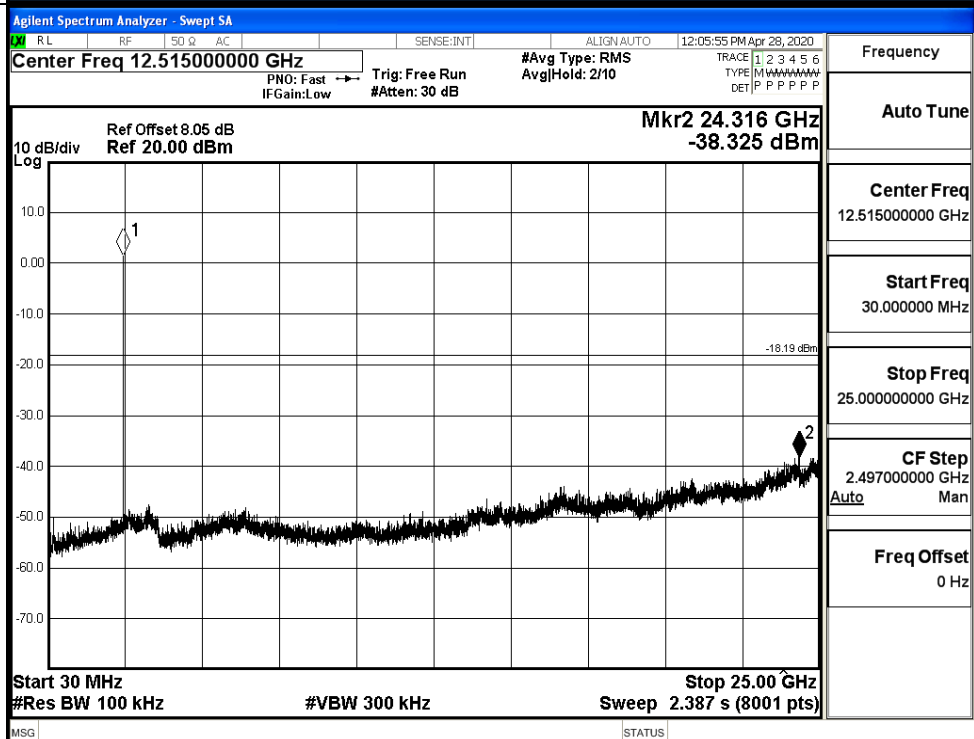


GFSK HCH_Graphs

Pref

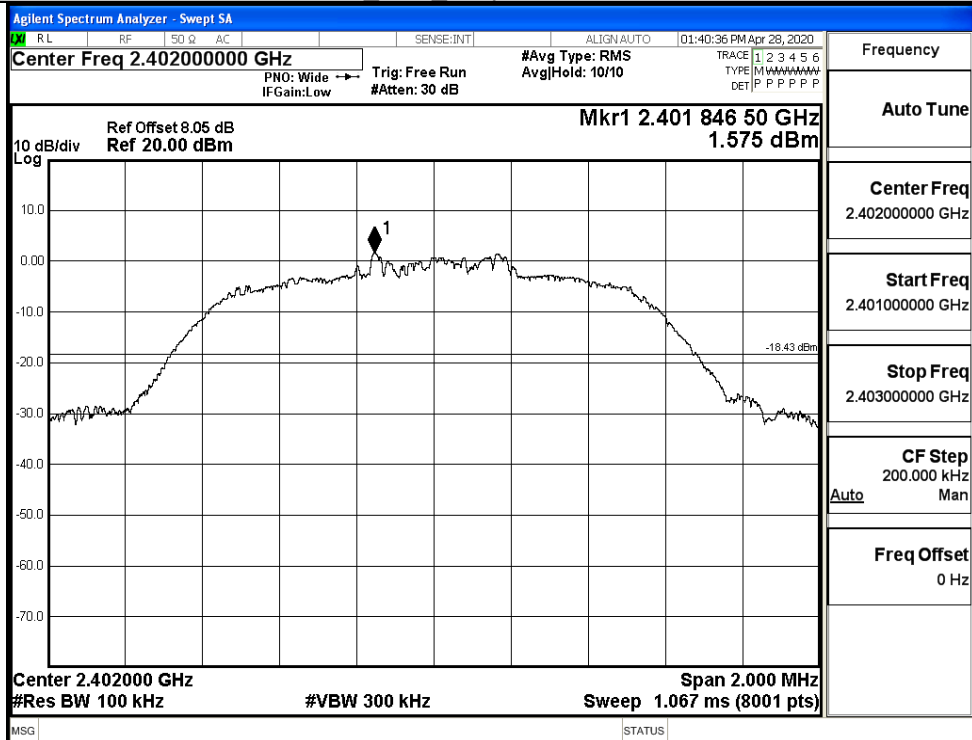


Puw

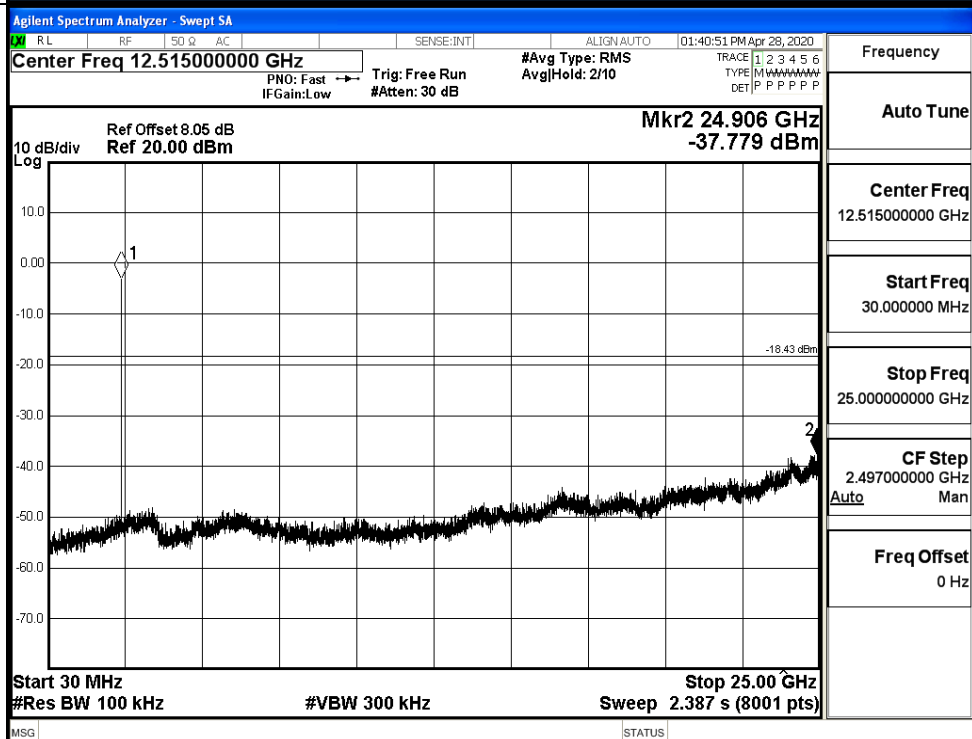


$\pi/4$ DQPSK_LCH_Graphs

Pref

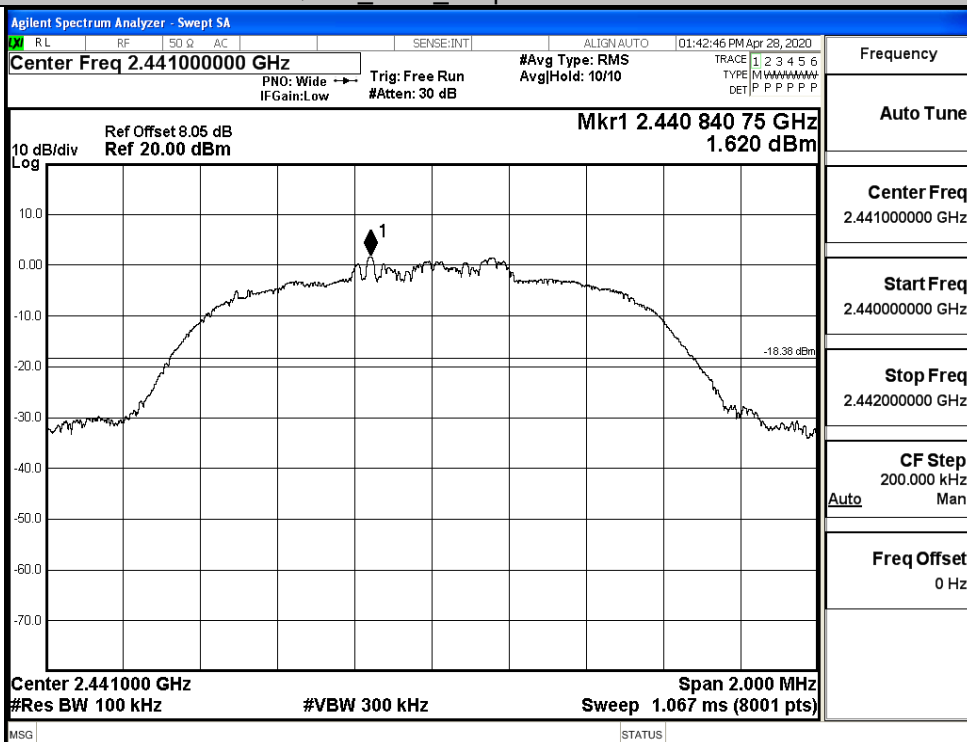


Puw

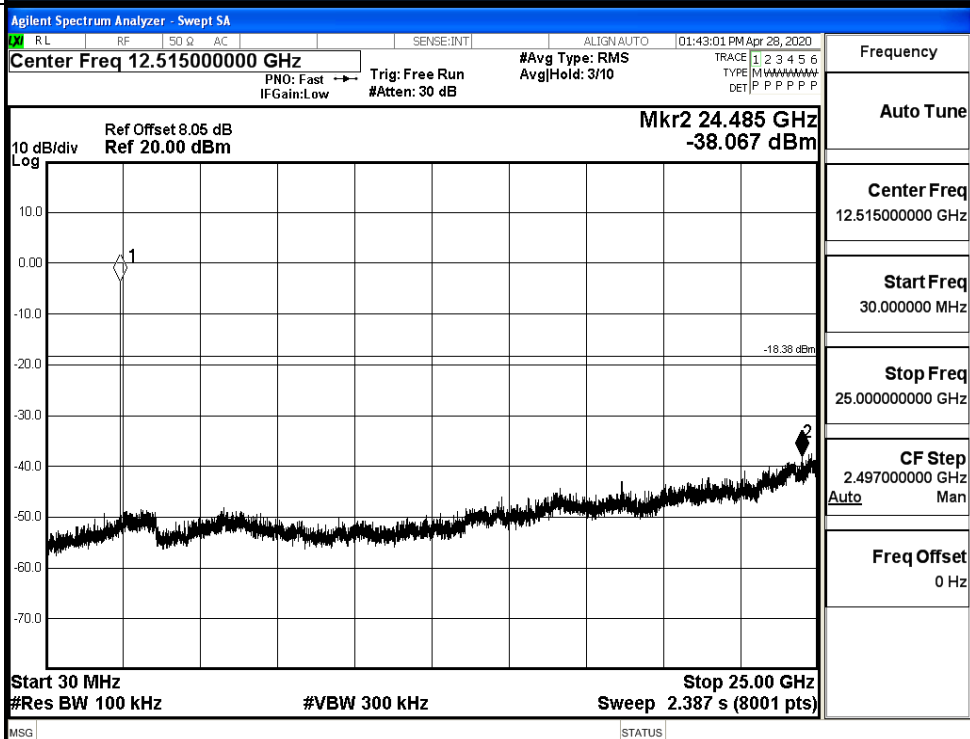


π /4DQPSK_MCH_Graphs

Pref

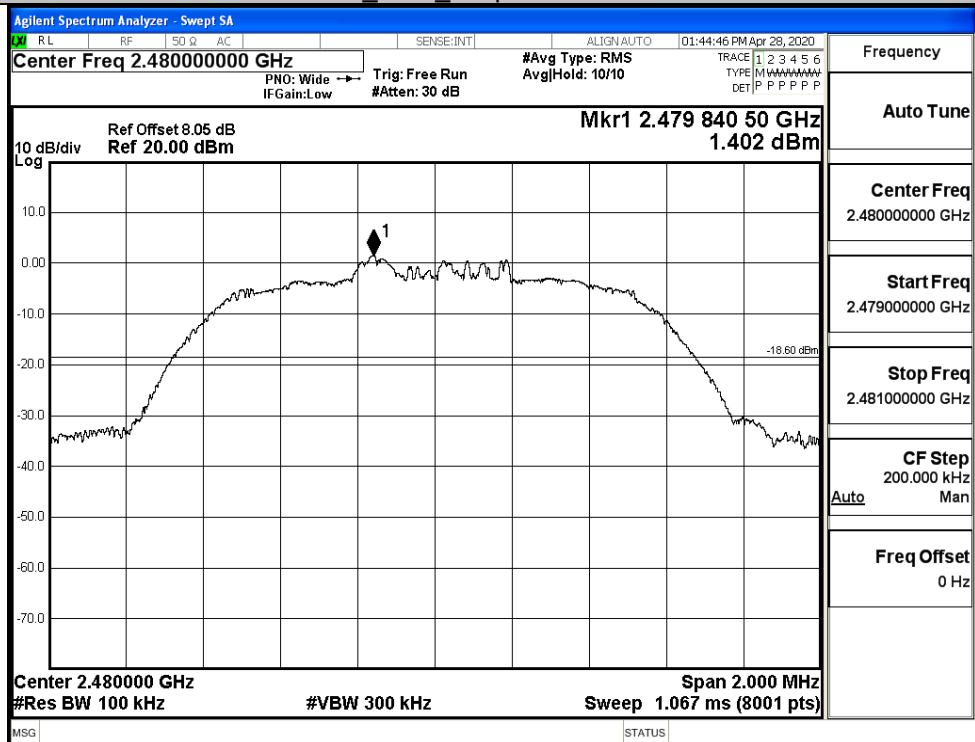


Puw

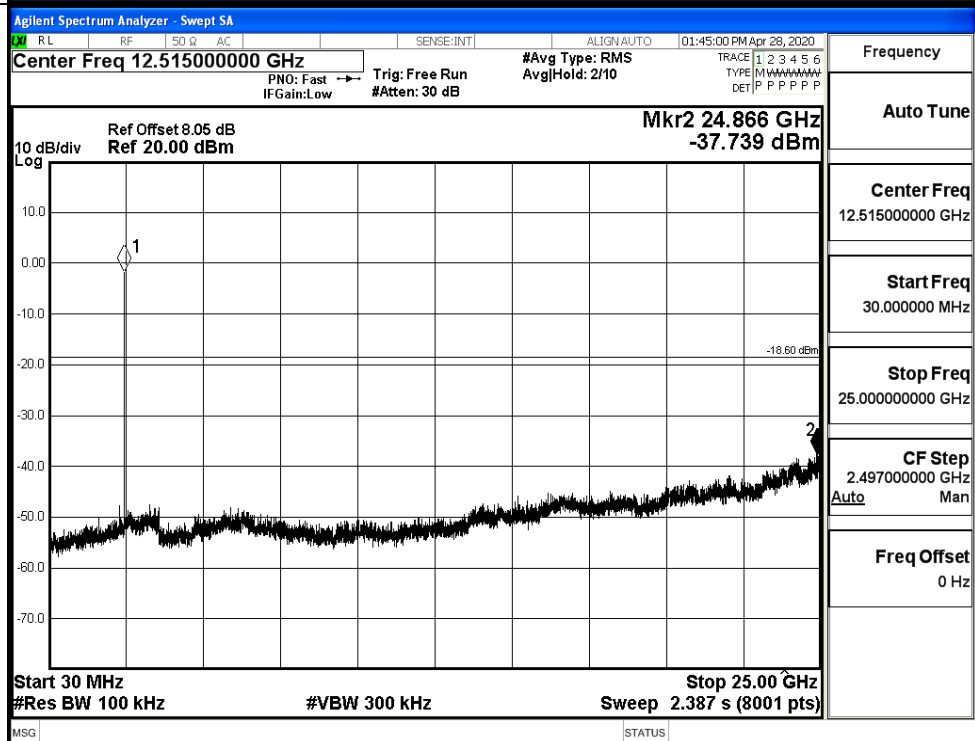


$\pi/4$ DQPSK_HCH_Graphs

Pref

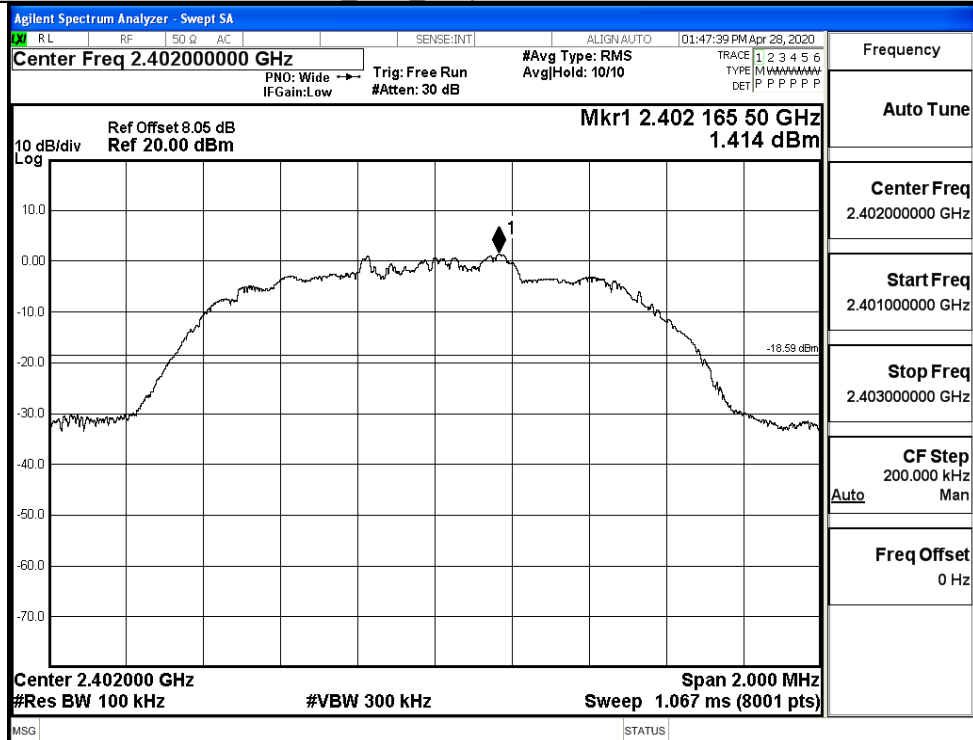


Puw

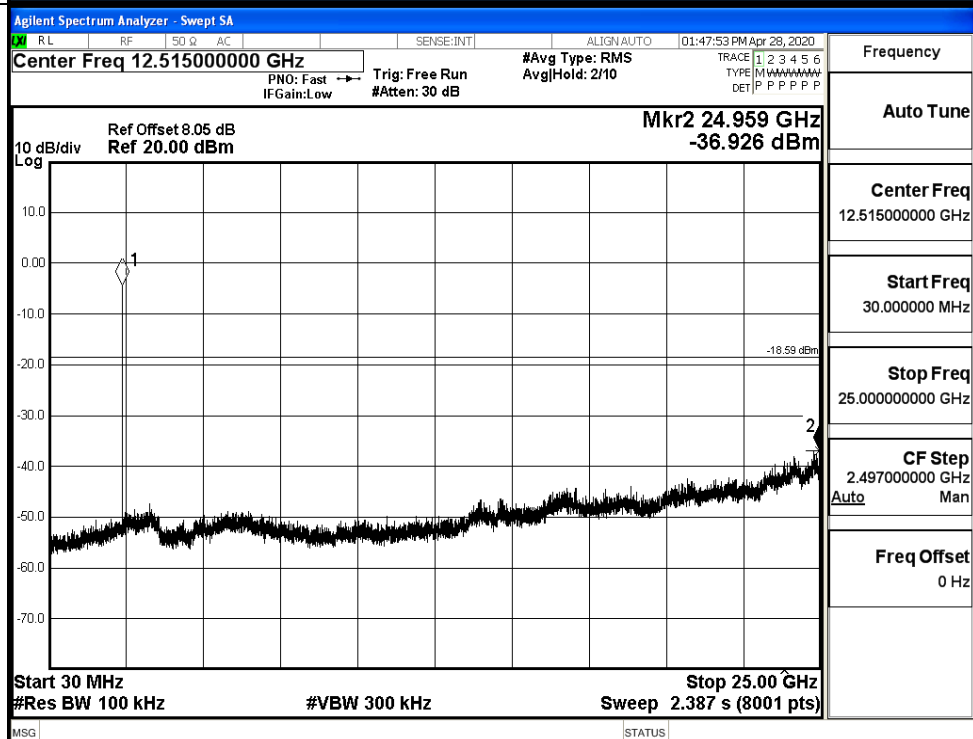


8DPSK_LCH_Graphs

Pref

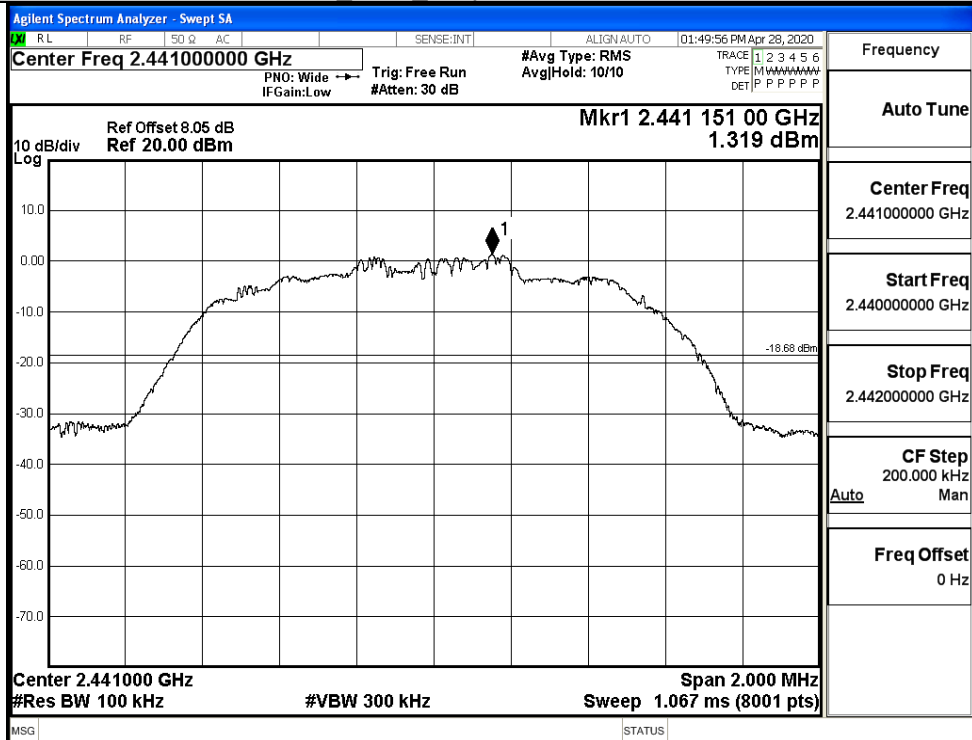


Puw

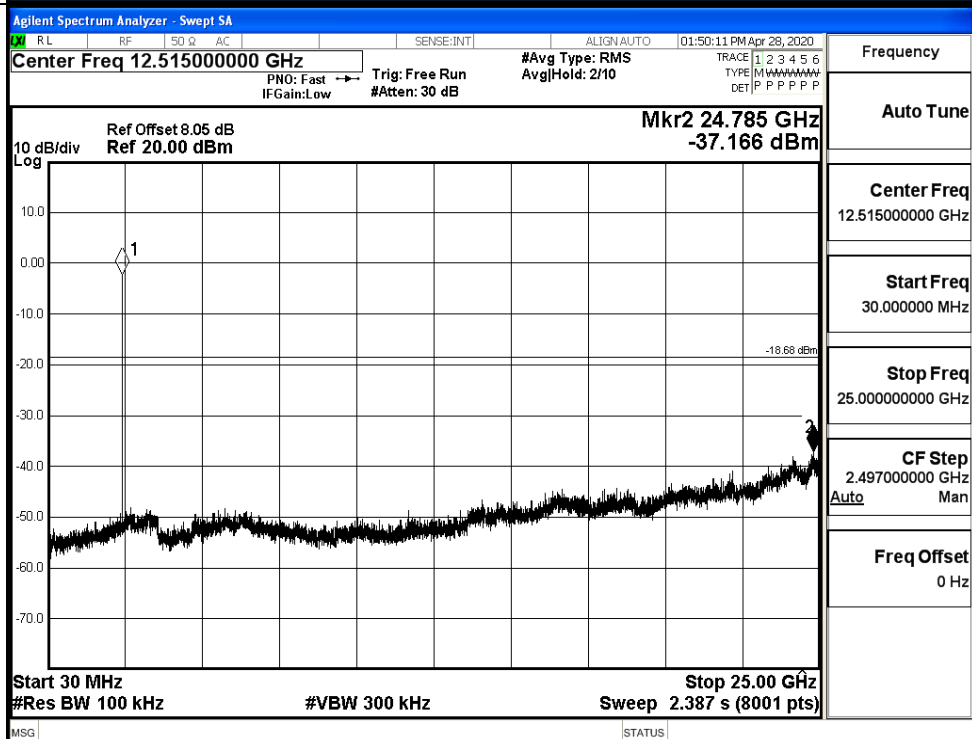


8DPSK_MCH_Graphs

Pref

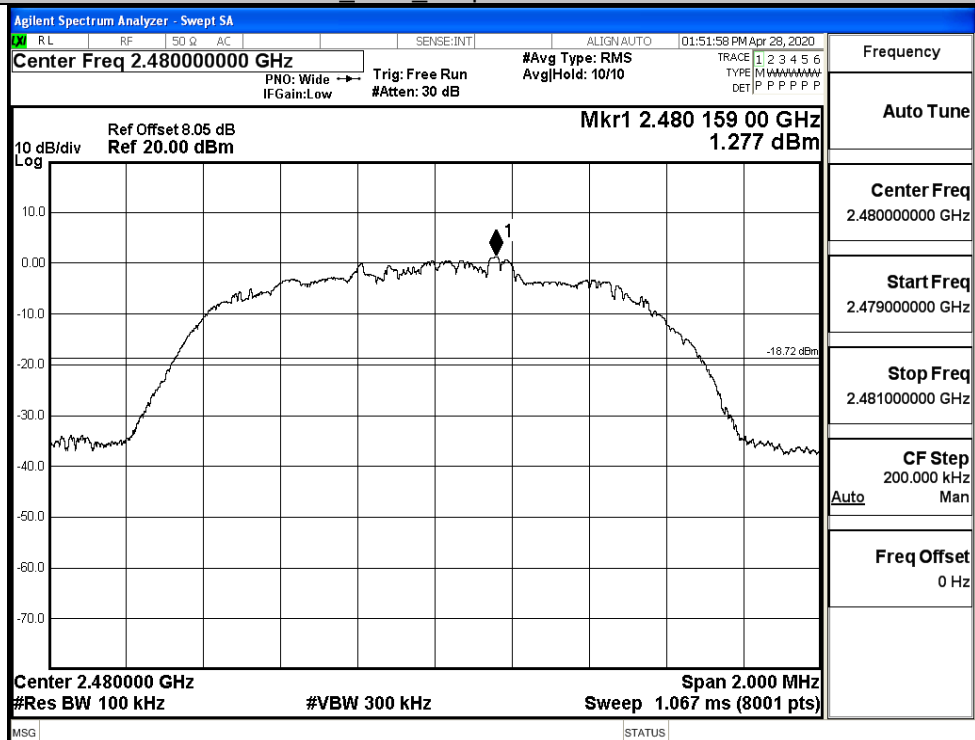


Puw

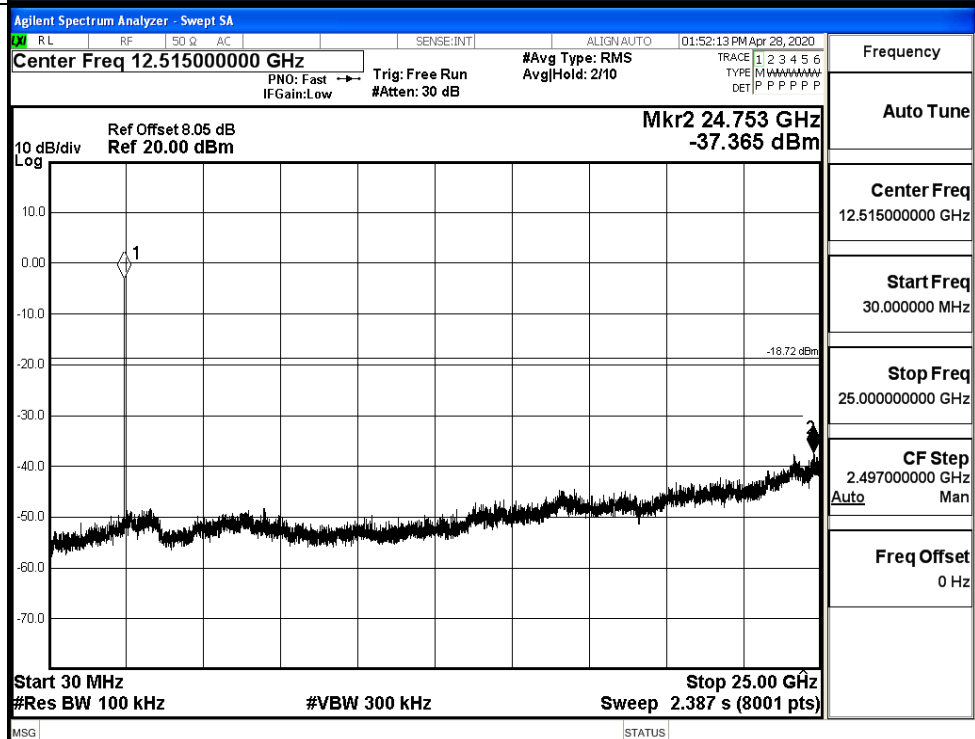


8DPSK_HCH_Graphs

Pref



Puw

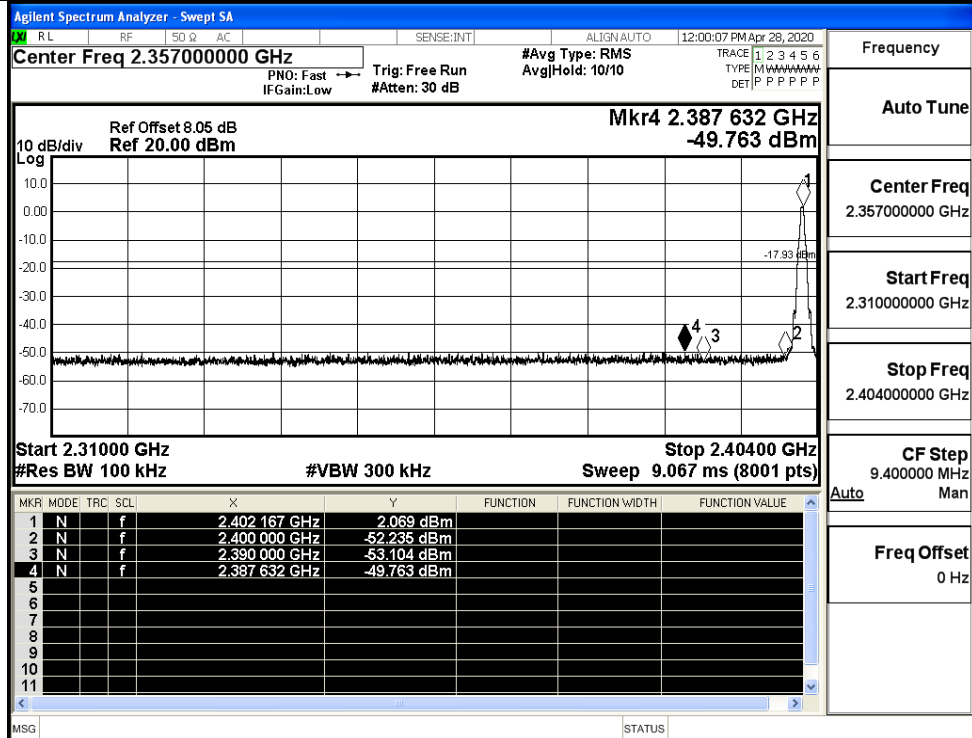


A.8 Band-edge for RF Conducted Emissions

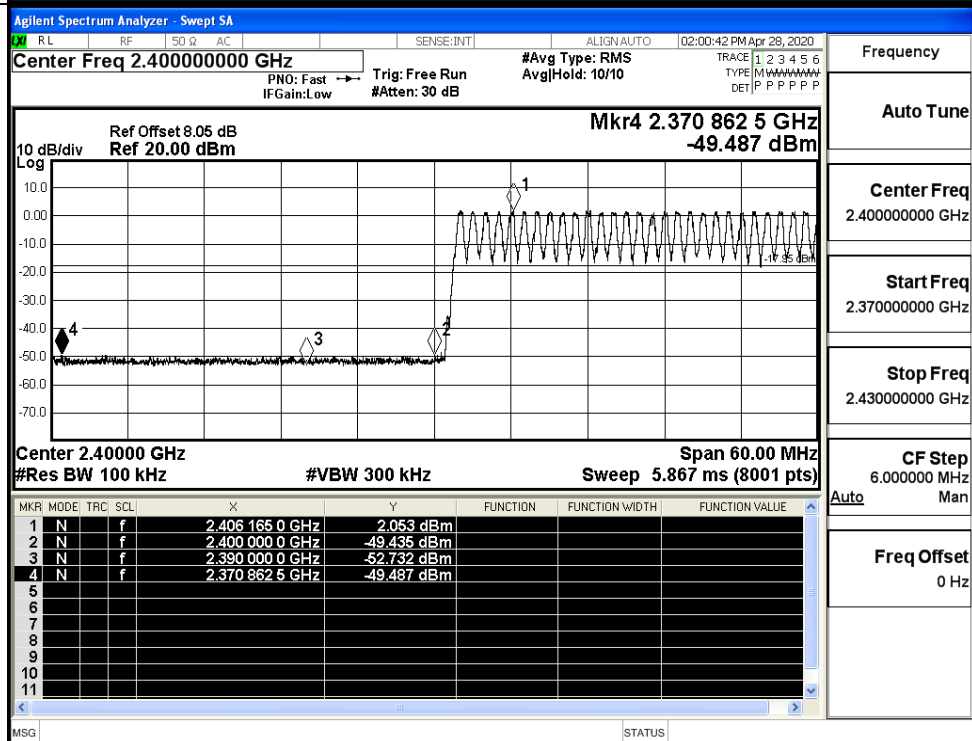
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	2.069	Off	-49.763	-17.93	PASS
			2.053	On	-49.487	-17.95	PASS
	HCH	2480	2.078	Off	-49.515	-17.92	PASS
			1.843	On	-49.095	-18.16	PASS
$\pi/4$ DQPSK	LCH	2402	1.631	Off	-49.129	-18.37	PASS
			1.317	On	-49.258	-18.68	PASS
	HCH	2480	1.349	Off	-49.181	-18.65	PASS
			1.238	On	-47.921	-18.76	PASS
8DPSK	LCH	2402	1.379	Off	-49.423	-18.62	PASS
			1.030	On	-48.638	-18.97	PASS
	HCH	2480	1.373	Off	-48.518	-18.63	PASS
			1.145	On	-48.340	-18.86	PASS

Test Graphs

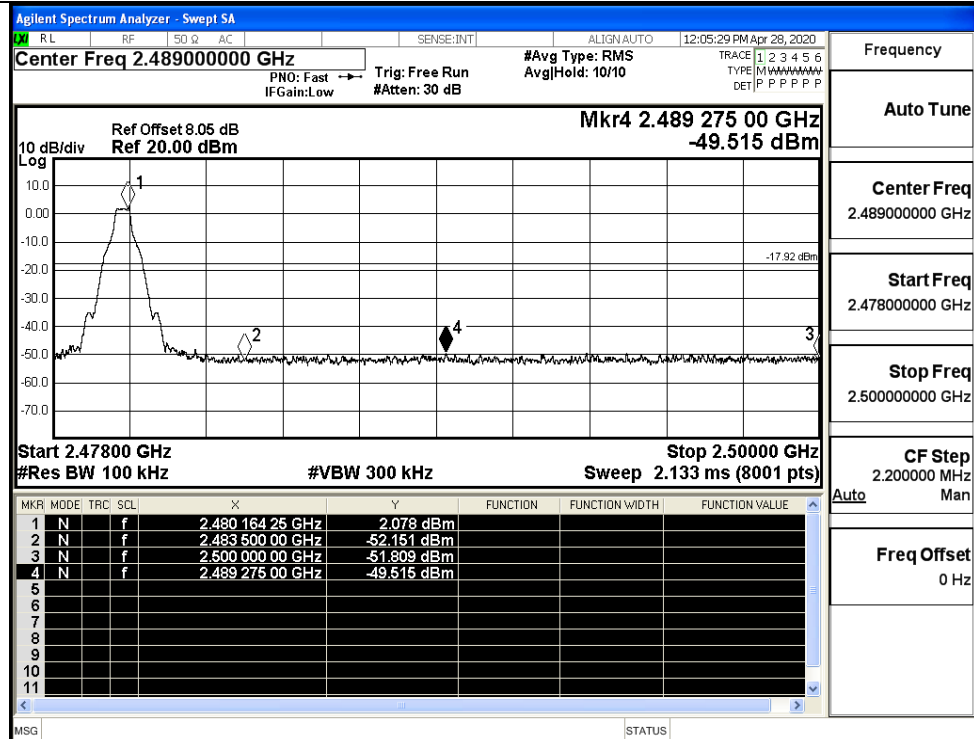
GFSK/LCH/No Hop



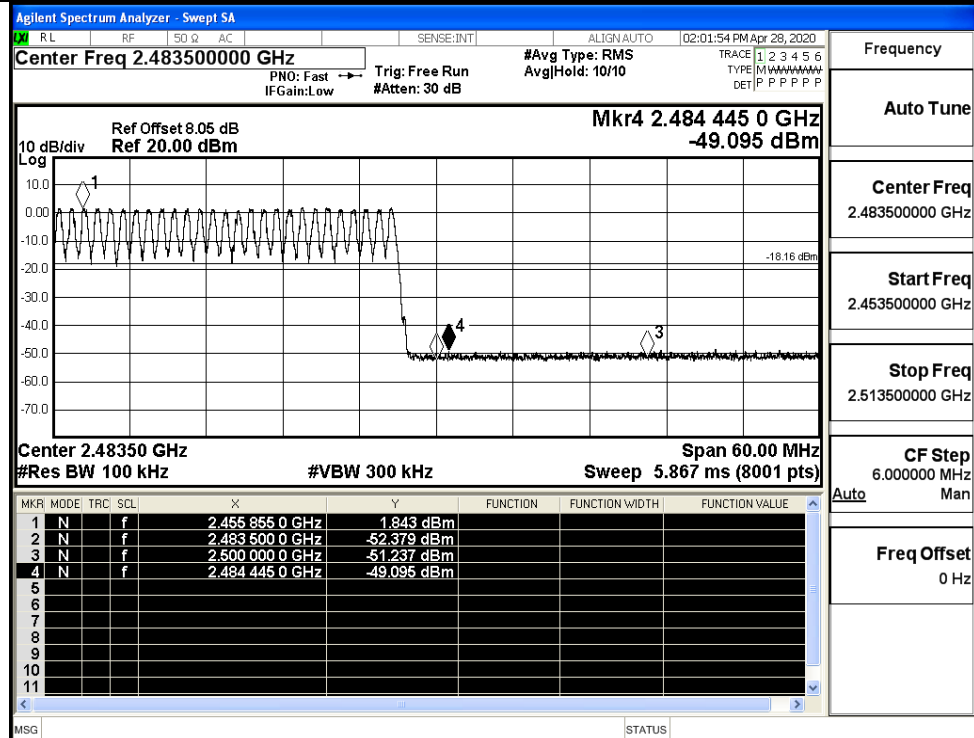
GFSK/LCH/Hop



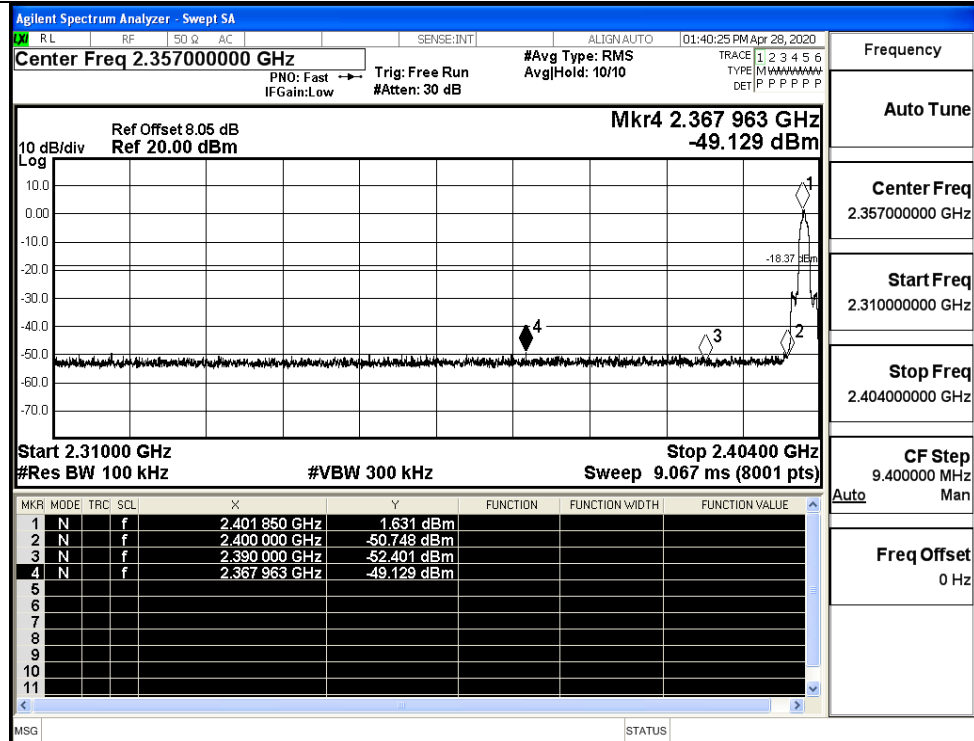
GFSK/HCH/No Hop



GFSK/HCH/Hop



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



Frequency

Auto Tune

Center Freq
2.357000000 GHz

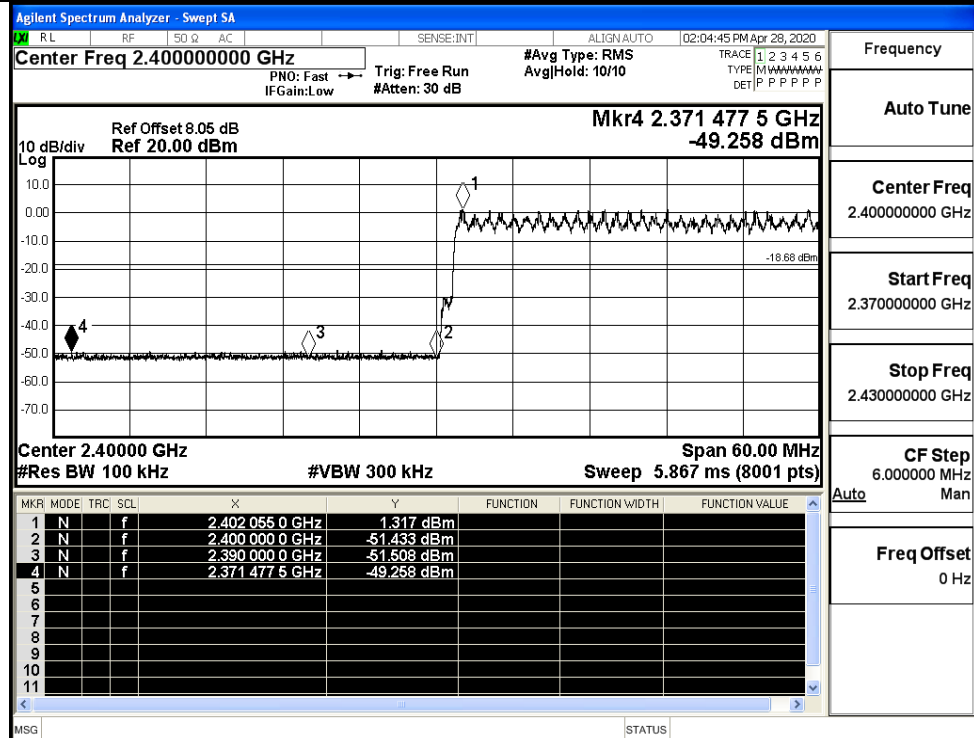
Start Freq
2.310000000 GHz

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

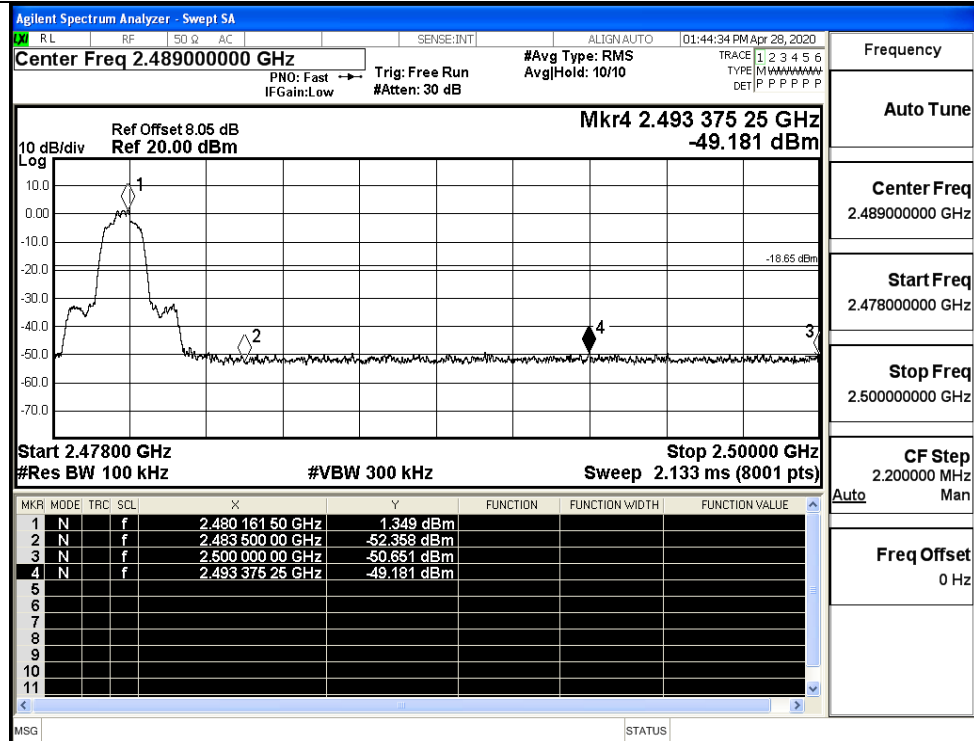
Start Freq
2.370000000 GHz

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

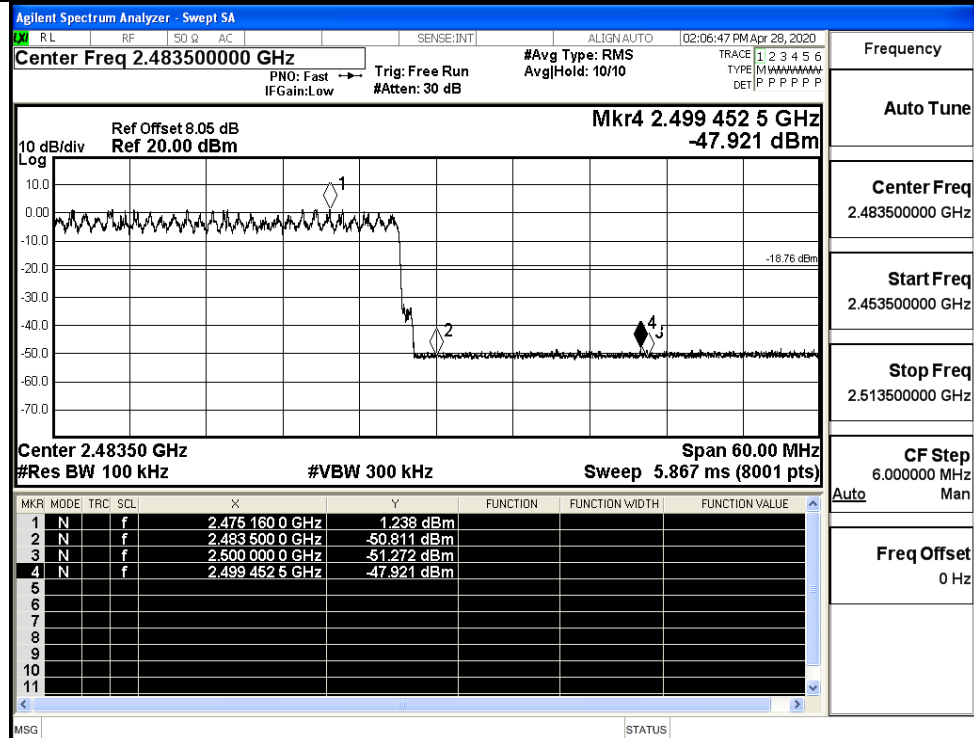
Start Freq
2.478000000 GHz

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

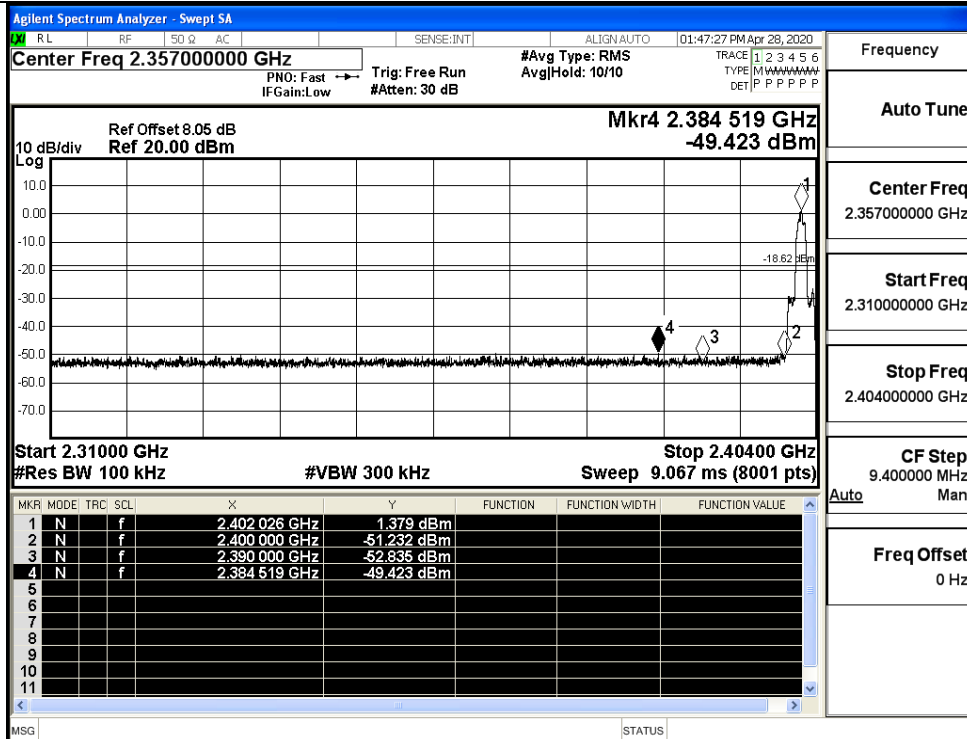
Start Freq
2.453500000 GHz

Stop Freq
2.513500000 GHz

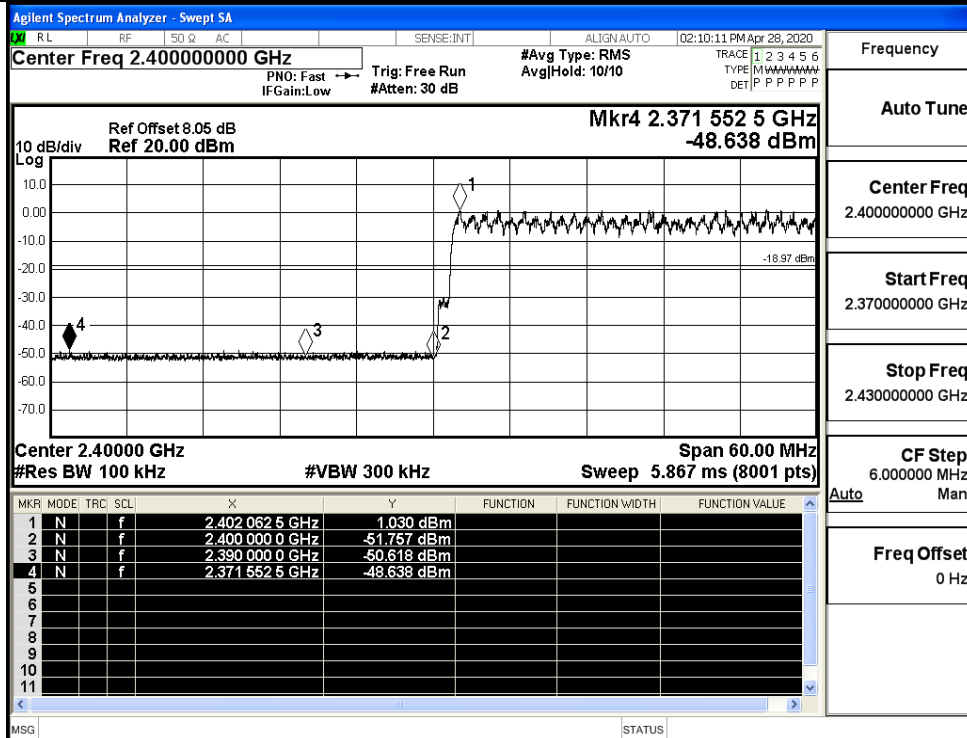
CF Step
6.000000 MHz
Auto Man

Freq Offset
0 Hz

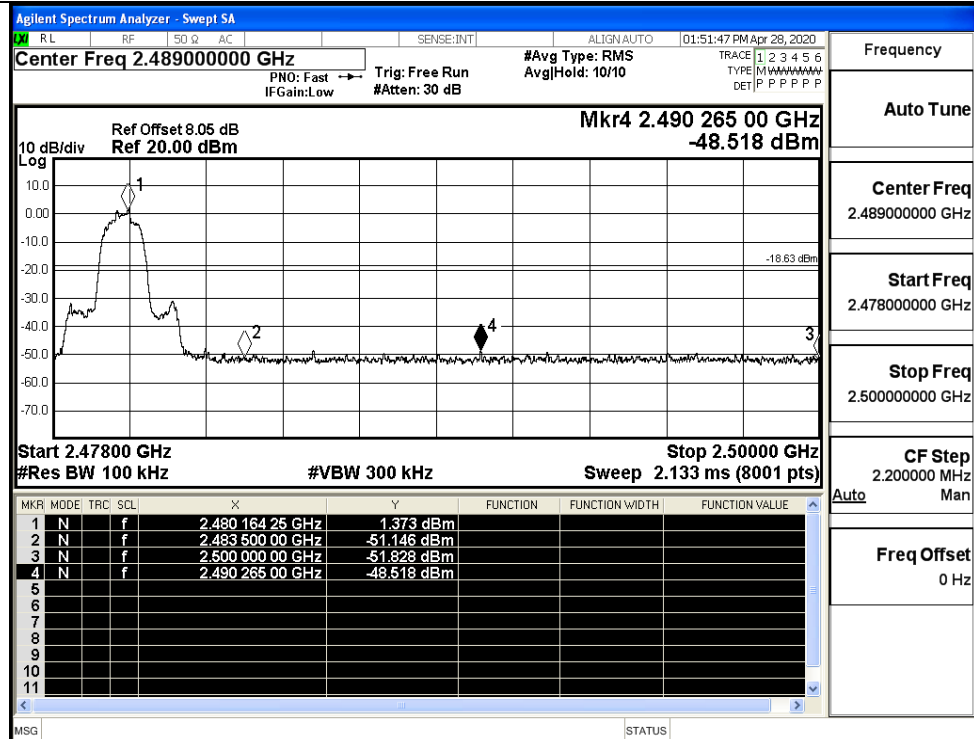
8DPSK/LCH/No Hop



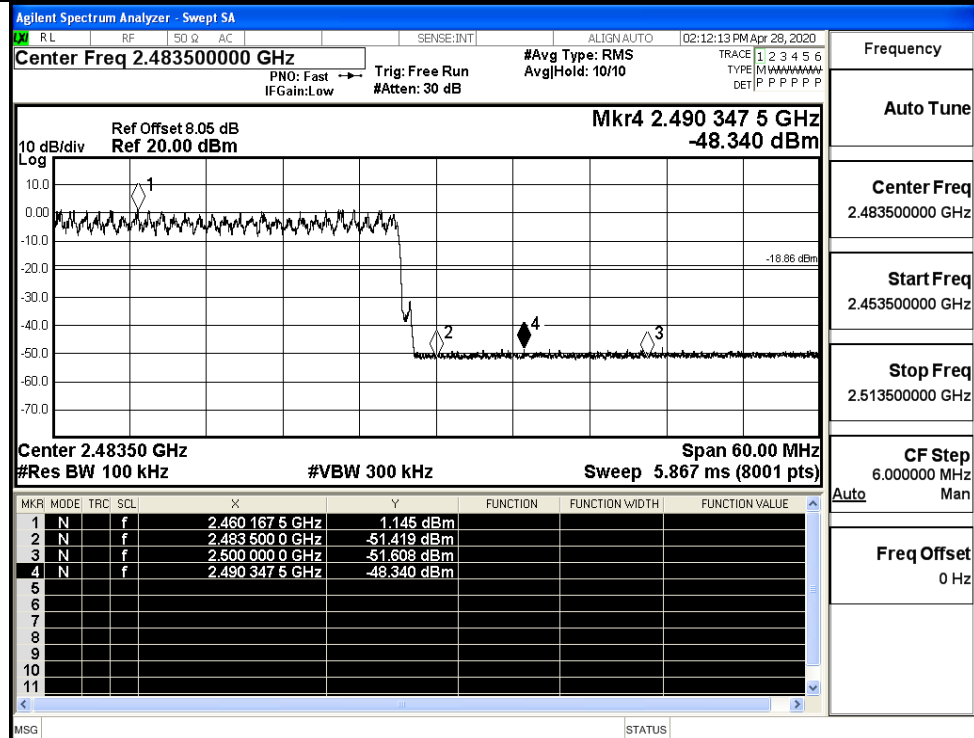
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



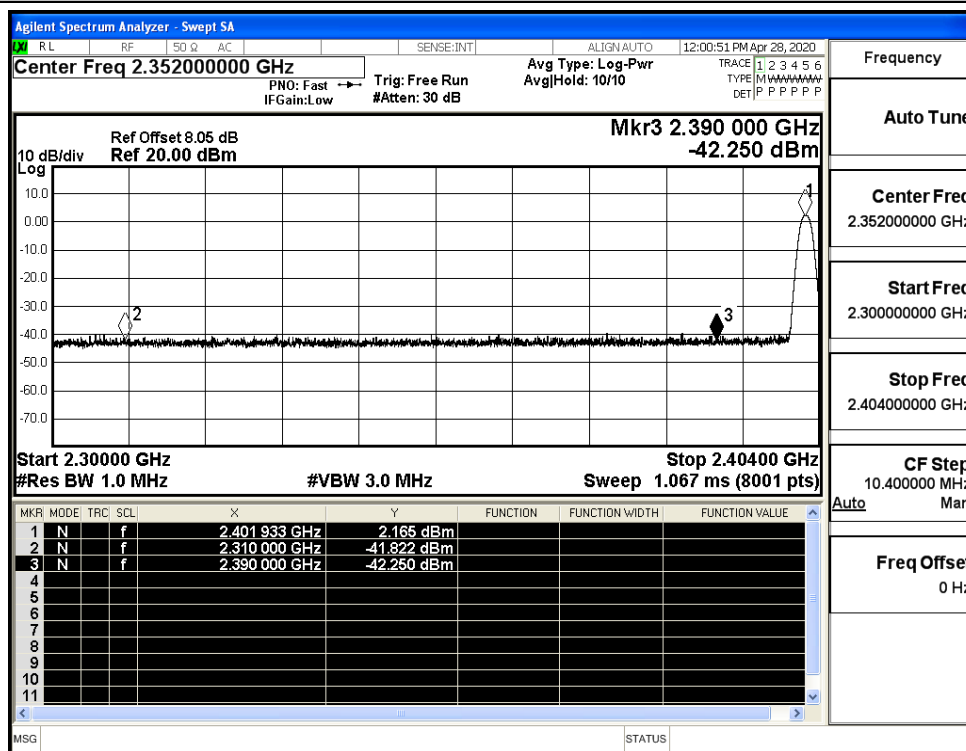
8DPSK/HCH/Hop



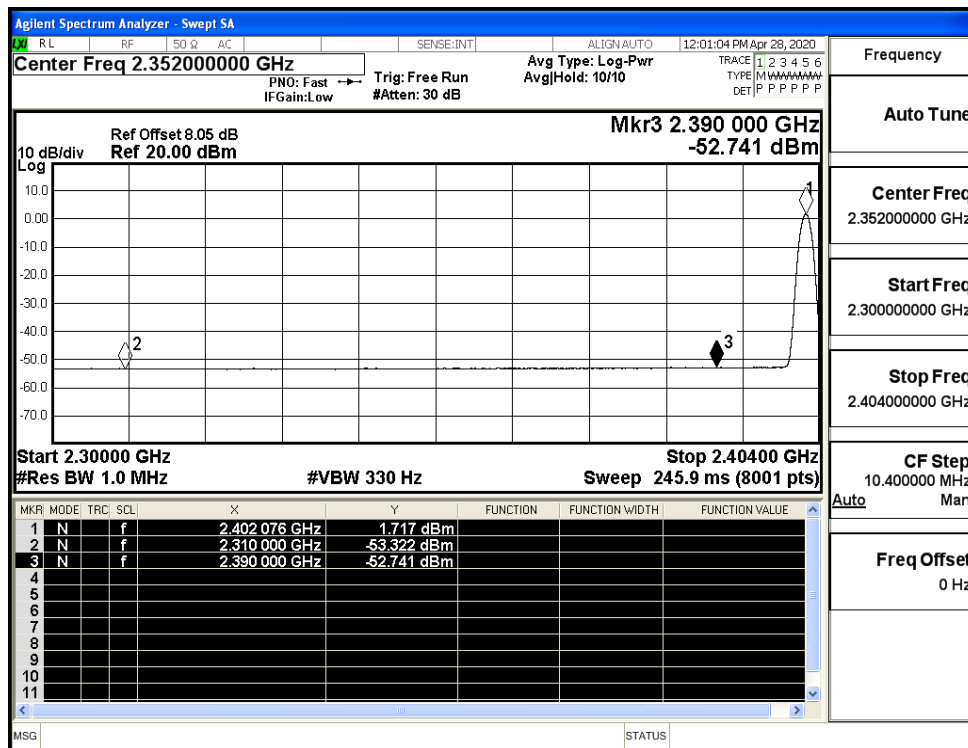
A.9 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-41.82	2.0	0	53.44	PEAK	74	PASS
	Off	2310.0	-53.32	2.0	0	41.94	AV	54	PASS
	Off	2390.0	-42.25	2.0	0	53.01	PEAK	74	PASS
	Off	2390.0	-52.74	2.0	0	42.52	AV	54	PASS
	Off	2483.5	-42.07	2.0	0	53.19	PEAK	74	PASS
	Off	2483.5	-52.38	2.0	0	42.88	AV	54	PASS
	Off	2500.0	-41.78	2.0	0	53.48	PEAK	74	PASS
	Off	2500.0	-52.29	2.0	0	42.97	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.55	2.0	0	52.71	PEAK	74	PASS
	Off	2310.0	-53.22	2.0	0	42.04	AV	54	PASS
	Off	2390.0	-43.73	2.0	0	51.53	PEAK	74	PASS
	Off	2390.0	-52.93	2.0	0	42.33	AV	54	PASS
	Off	2483.5	-41.31	2.0	0	53.95	PEAK	74	PASS
	Off	2483.5	-52.26	2.0	0	43.00	AV	54	PASS
	Off	2500.0	-42.41	2.0	0	52.85	PEAK	74	PASS
	Off	2500.0	-52.39	2.0	0	42.87	AV	54	PASS
8DPSK	Off	2310.0	-42.29	2.0	0	52.97	PEAK	74	PASS
	Off	2310.0	-53.31	2.0	0	41.95	AV	54	PASS
	Off	2390.0	-42.37	2.0	0	52.89	PEAK	74	PASS
	Off	2390.0	-52.78	2.0	0	42.48	AV	54	PASS
	Off	2483.5	-42.41	2.0	0	52.85	PEAK	74	PASS
	Off	2483.5	-52.46	2.0	0	42.79	AV	54	PASS
	Off	2500.0	-43.06	2.0	0	52.20	PEAK	74	PASS
	Off	2500.0	-52.23	2.0	0	43.03	AV	54	PASS

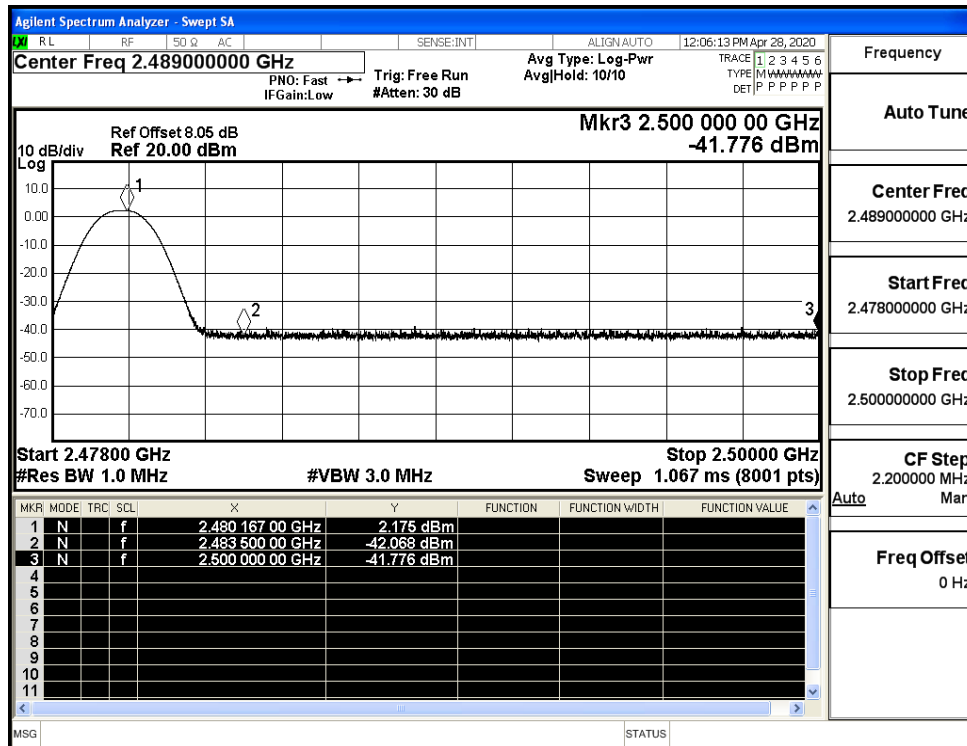
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



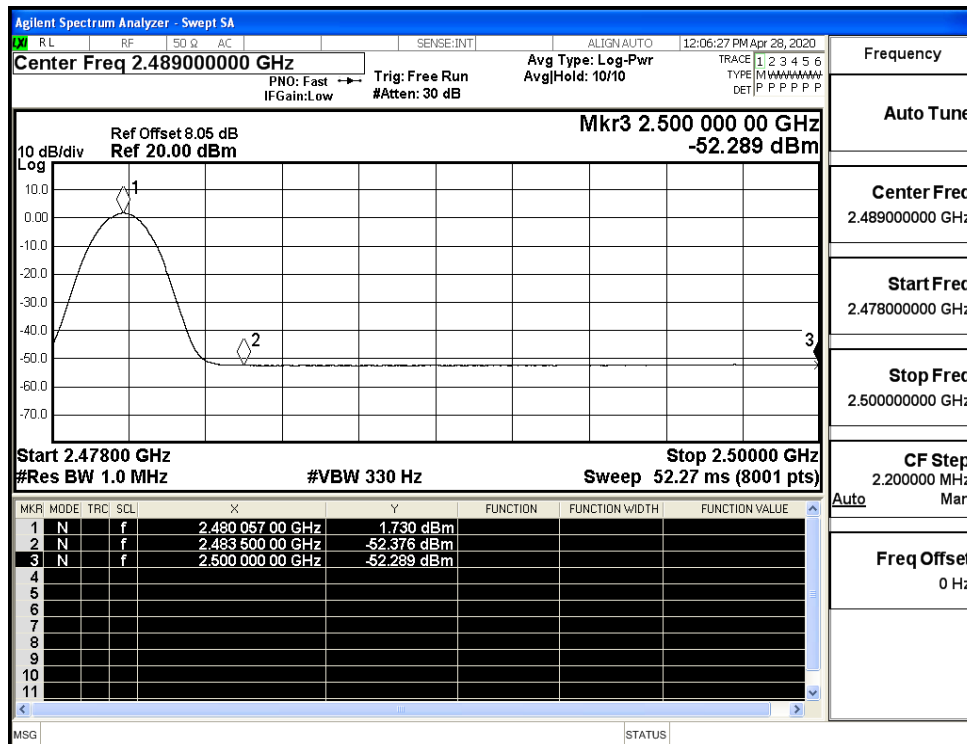
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

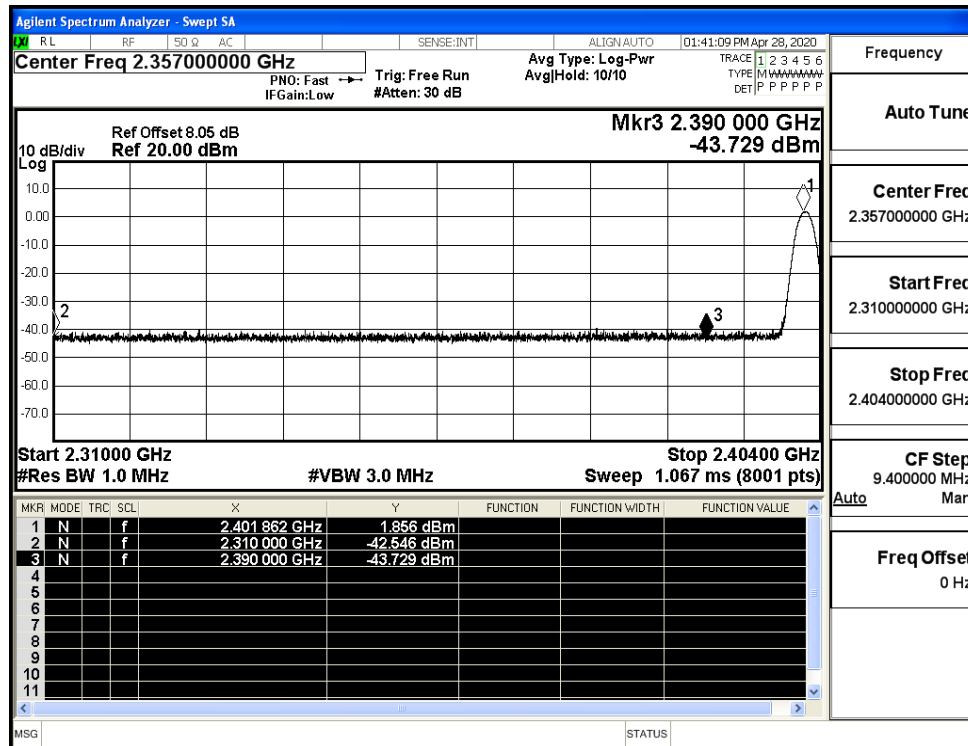
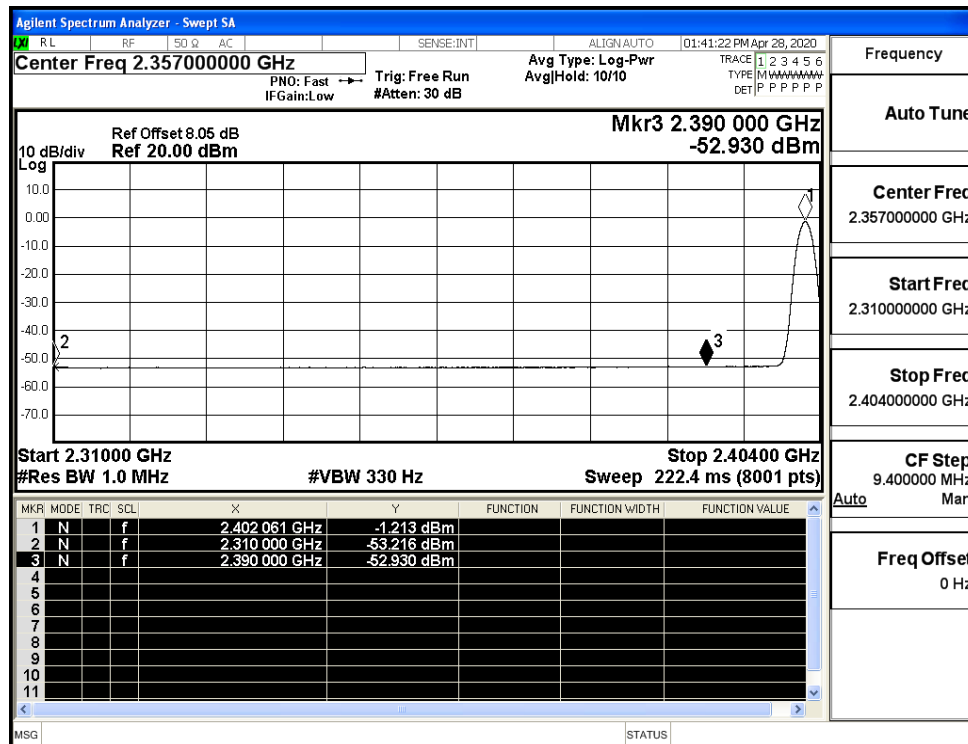


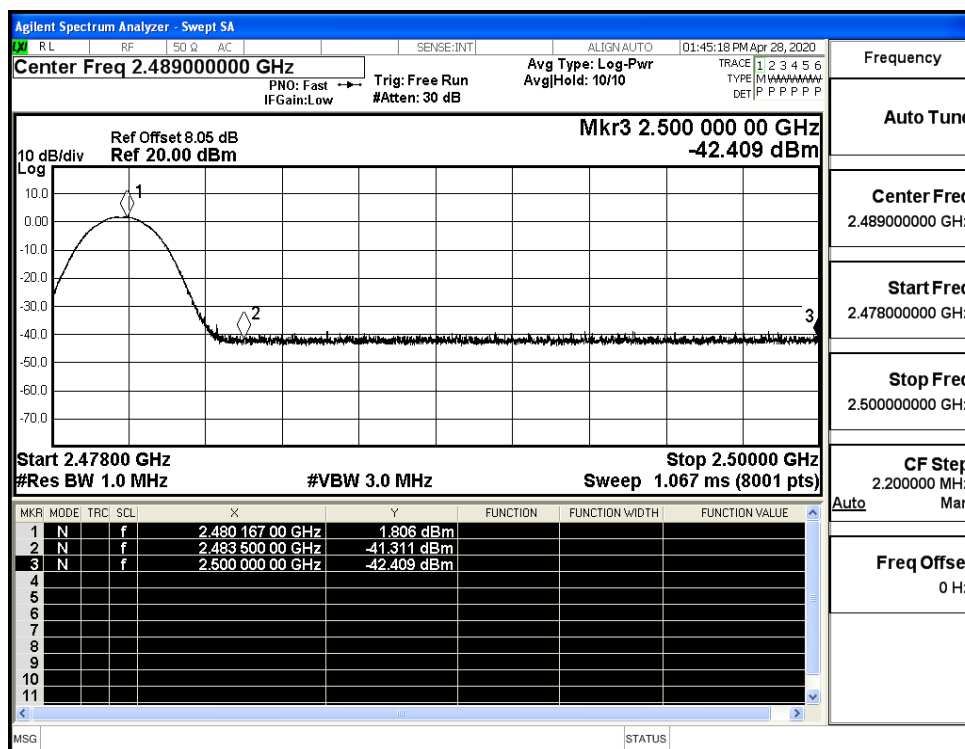
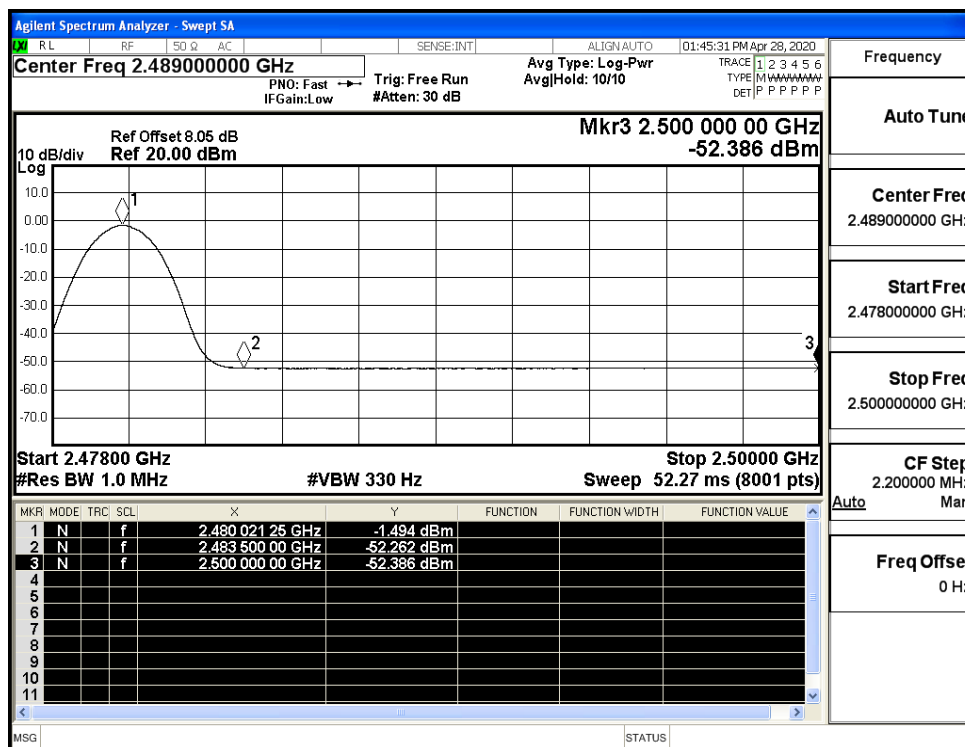
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



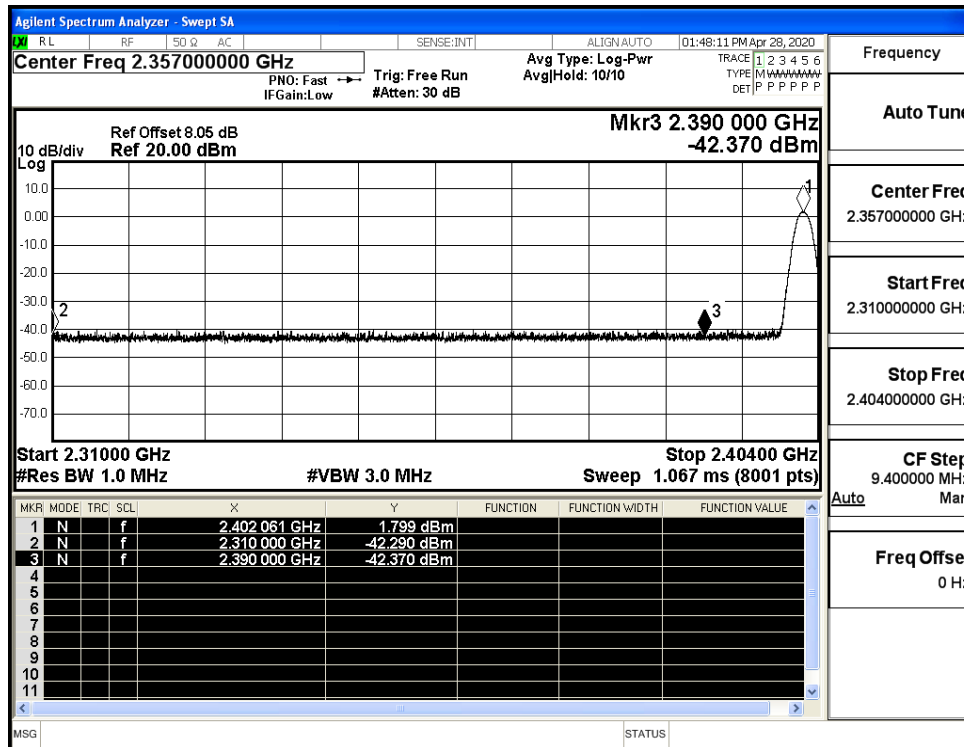
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



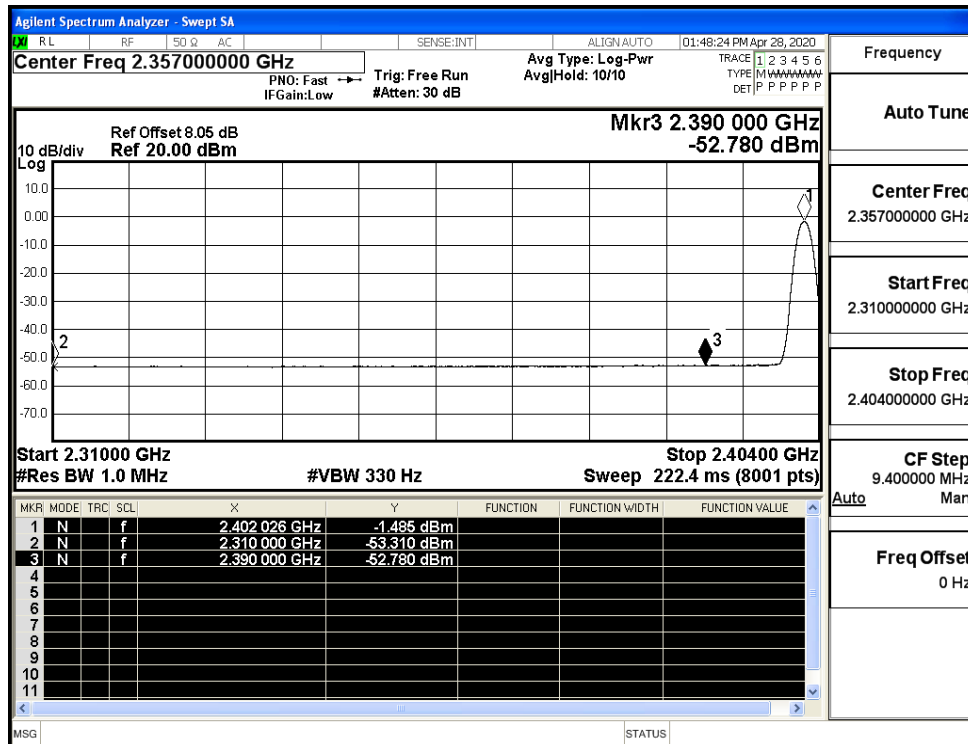
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

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)

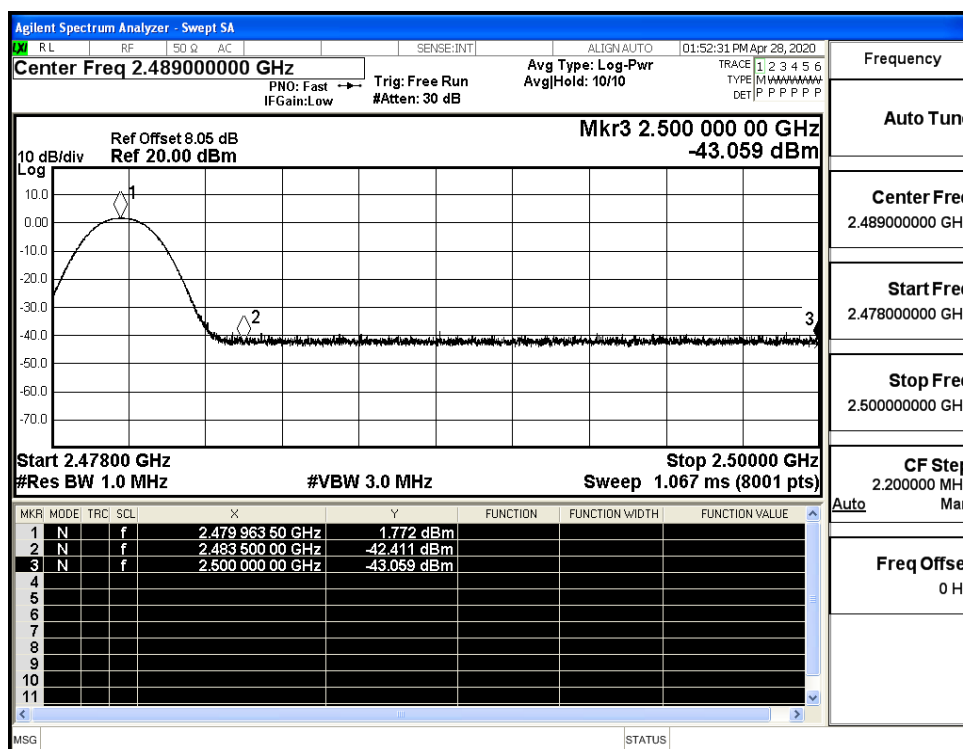
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

