

Appendix A

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

Product Name: Bluetooth Audio Adapter

Trade Mark: UGREEN

Test Model: 40762

Environmental Conditions

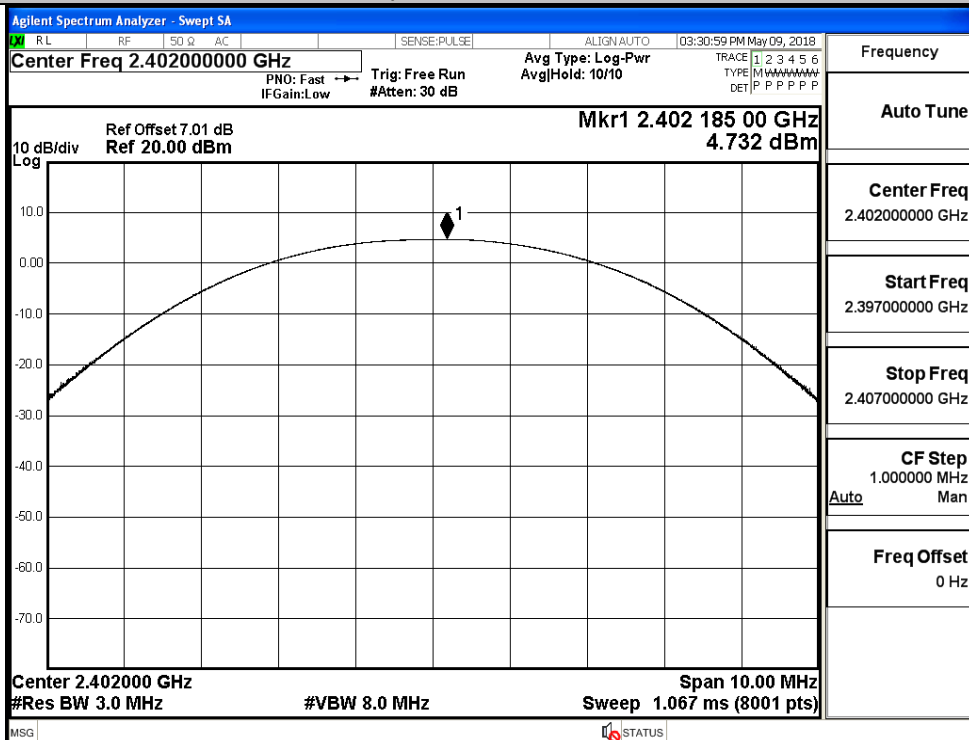
Temperature:	23.5 ° C
Relative Humidity:	53.1%
ATM Pressure:	100.0 kPa
Test Engineer:	WANGCHUANG
Supervised by:	Jayden.Zhuo

A.1 Maximum Conducted Peak Output Power

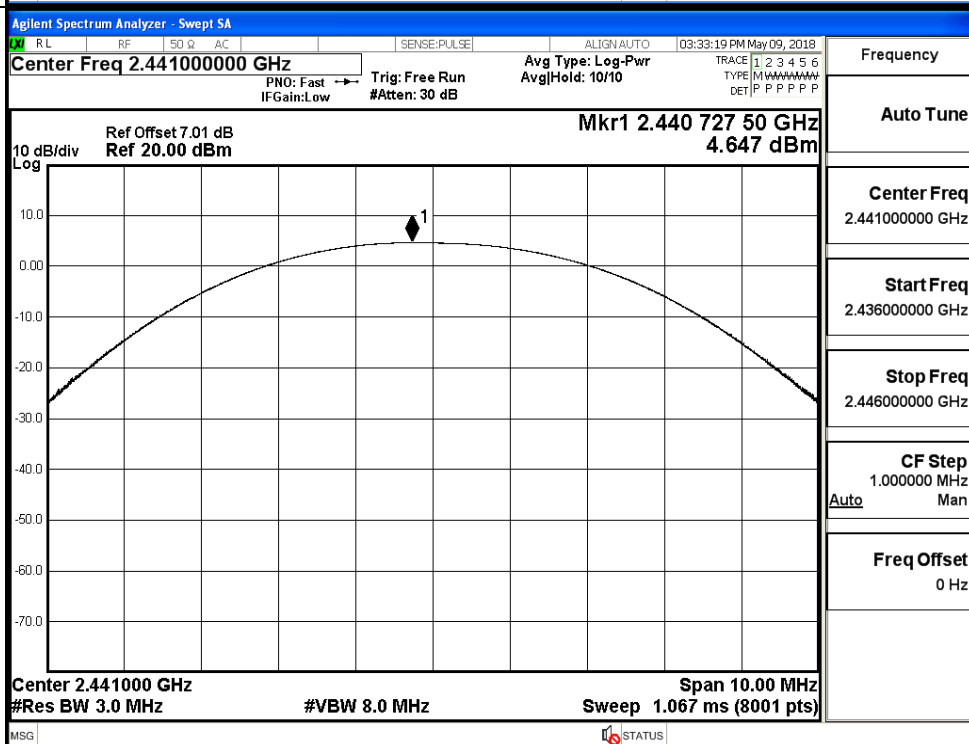
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	4.732	21	PASS
	MCH	4.647	21	PASS
	HCH	4.460	21	PASS
$\pi/4$ DQPSK	LCH	3.367	21	PASS
	MCH	3.345	21	PASS
	HCH	3.168	21	PASS
8DPSK	LCH	3.648	21	PASS
	MCH	3.662	21	PASS
	HCH	3.452	21	PASS

Test Graphs

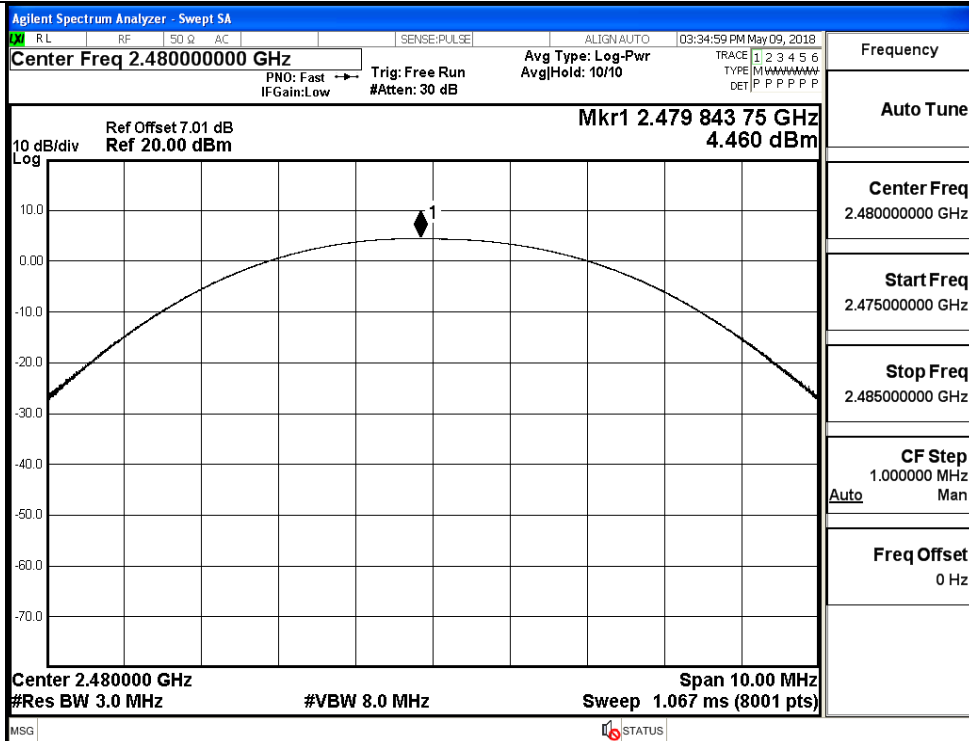
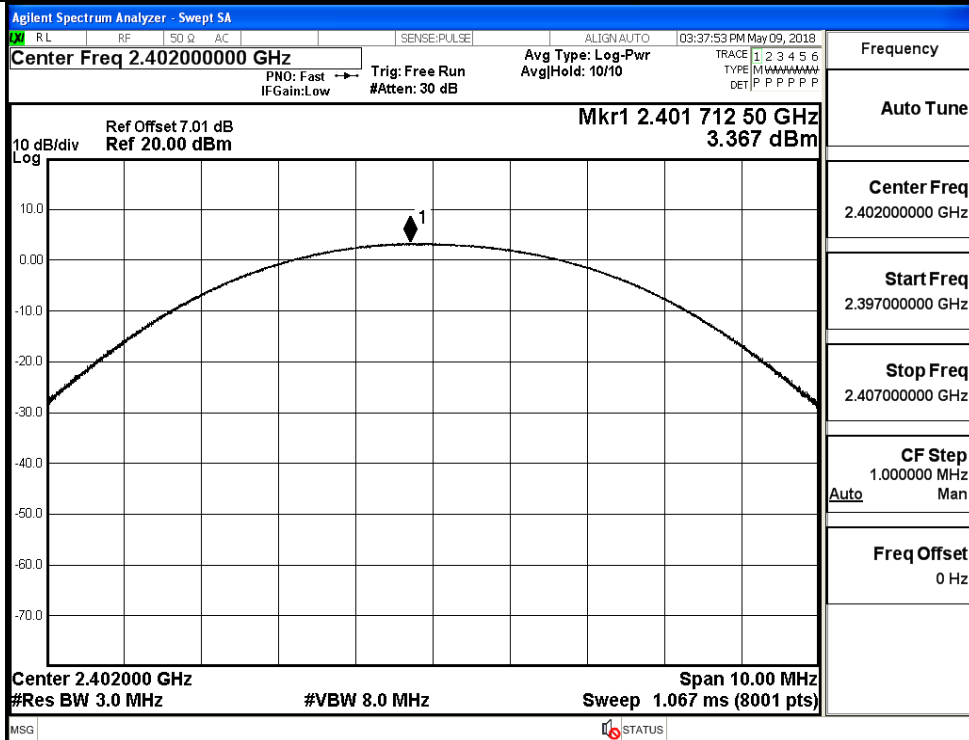
GFSK/LCH

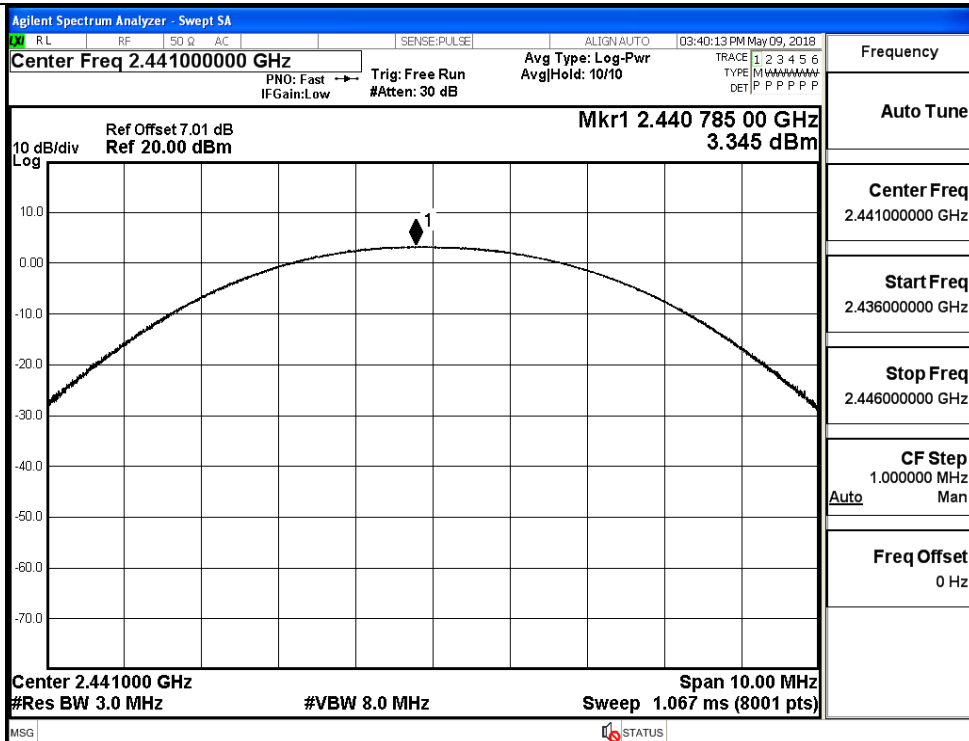
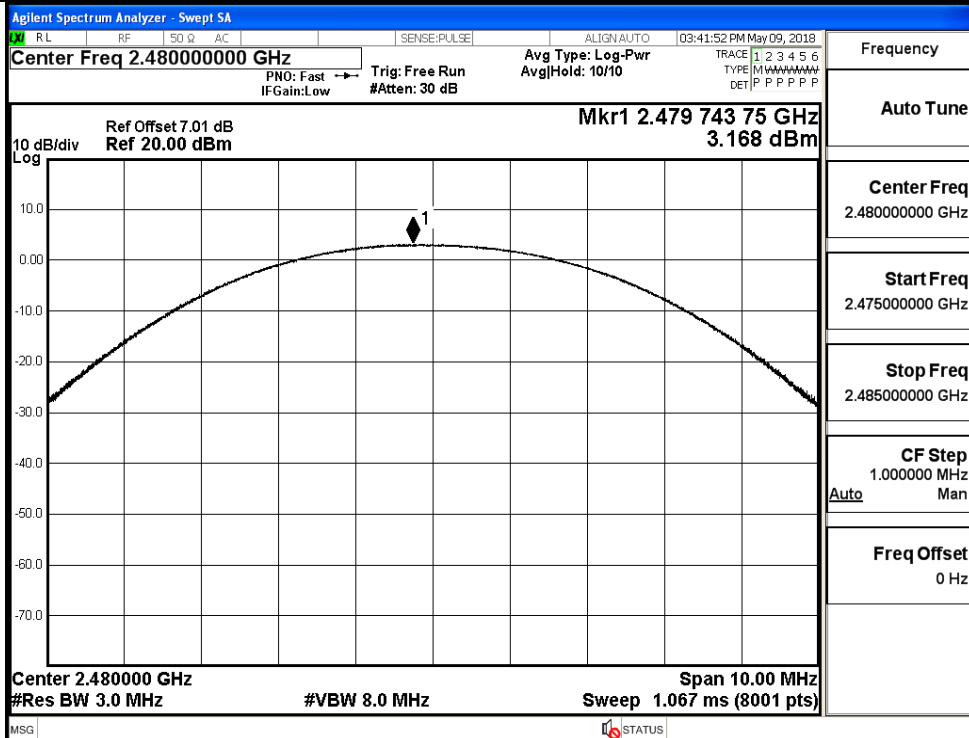


GFSK/MCH

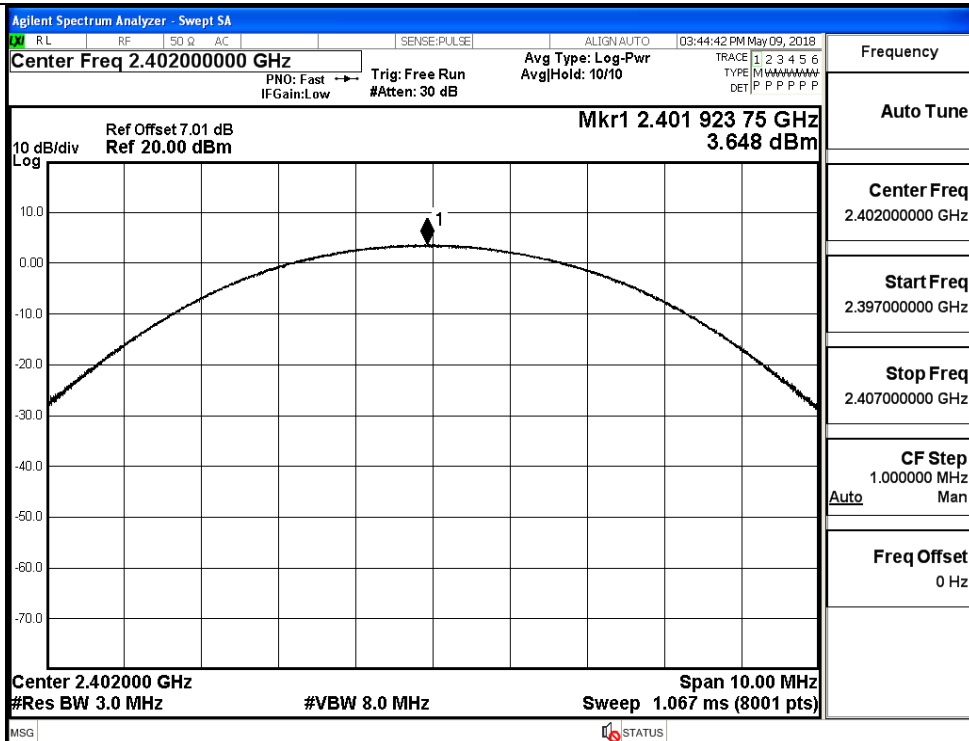


GFSK/HCH

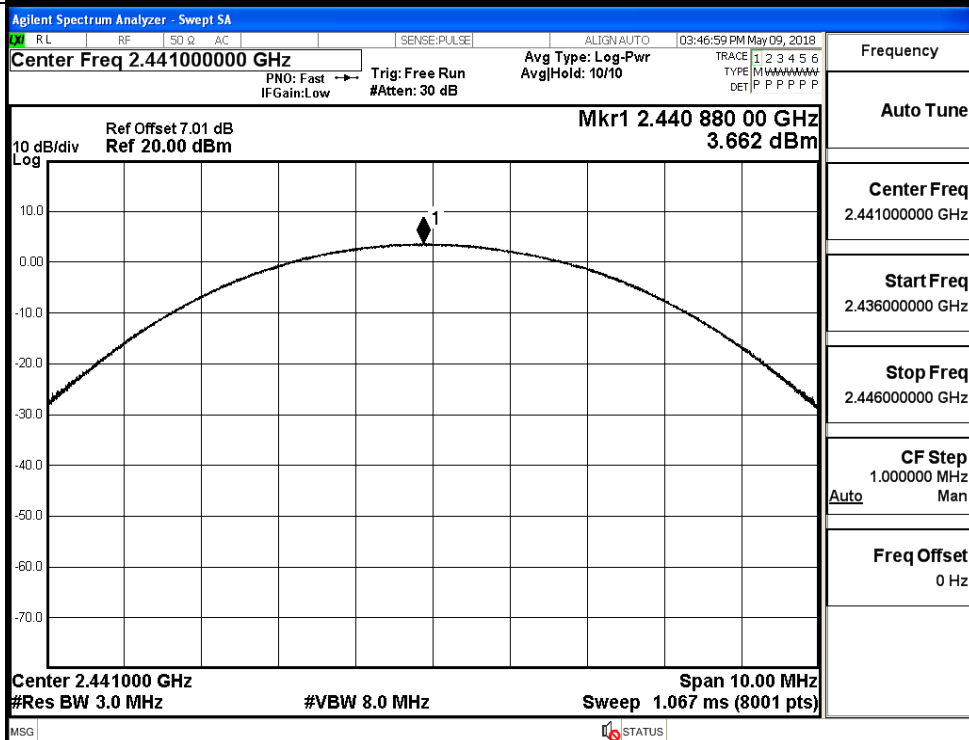
 π /4DQPSK/LCH

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

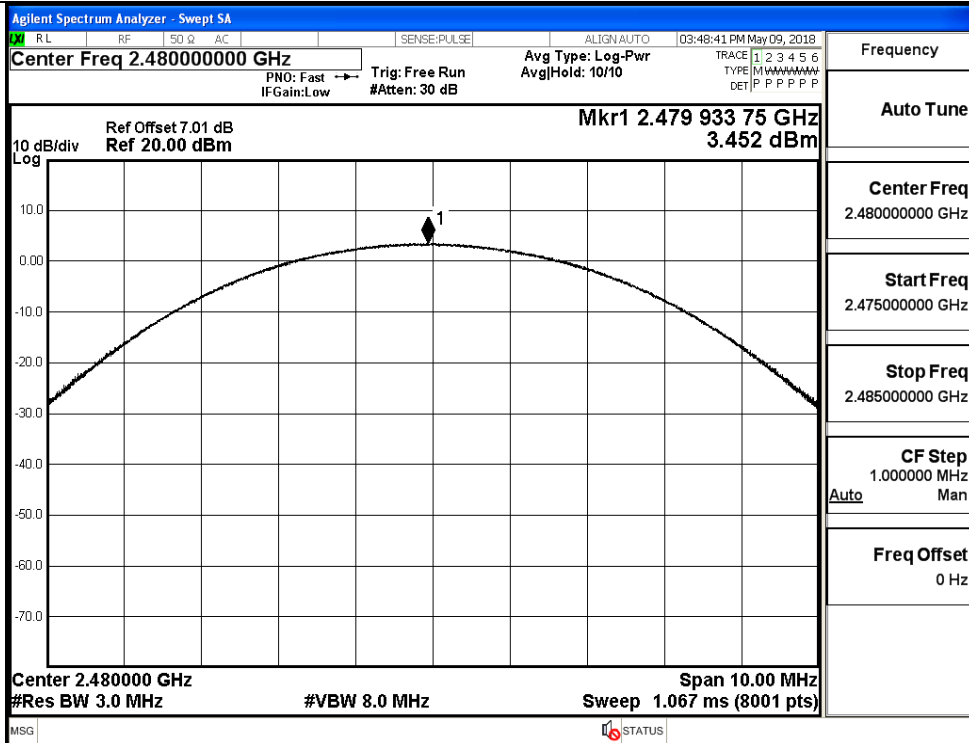
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

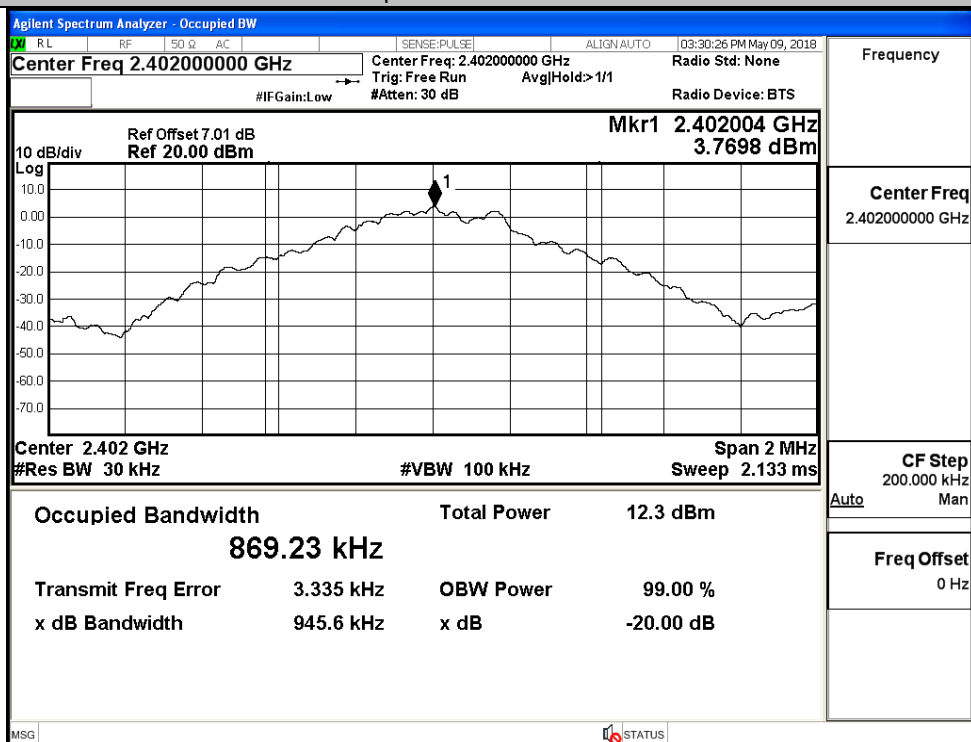


A.2 20dB Bandwidth

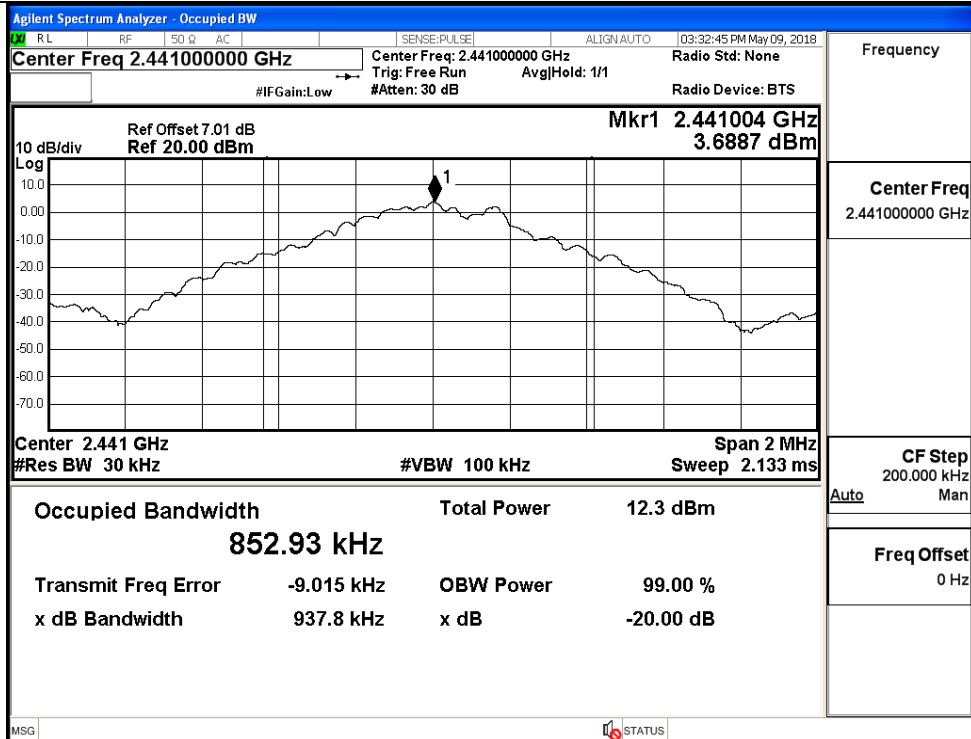
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9456	Not Specified	PASS
	MCH	0.9378	Not Specified	PASS
	HCH	0.9441	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.232	Not Specified	PASS
	MCH	1.231	Not Specified	PASS
	HCH	1.253	Not Specified	PASS
8DPSK	LCH	1.264	Not Specified	PASS
	MCH	1.262	Not Specified	PASS
	HCH	1.265	Not Specified	PASS

Test Graphs

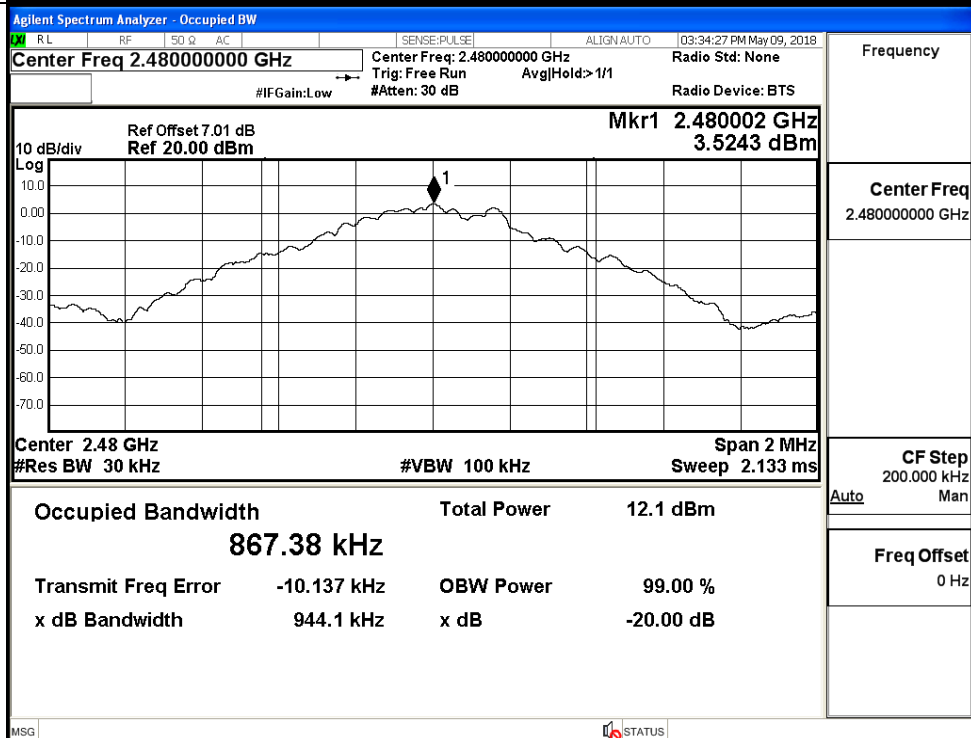
GFSK/LCH

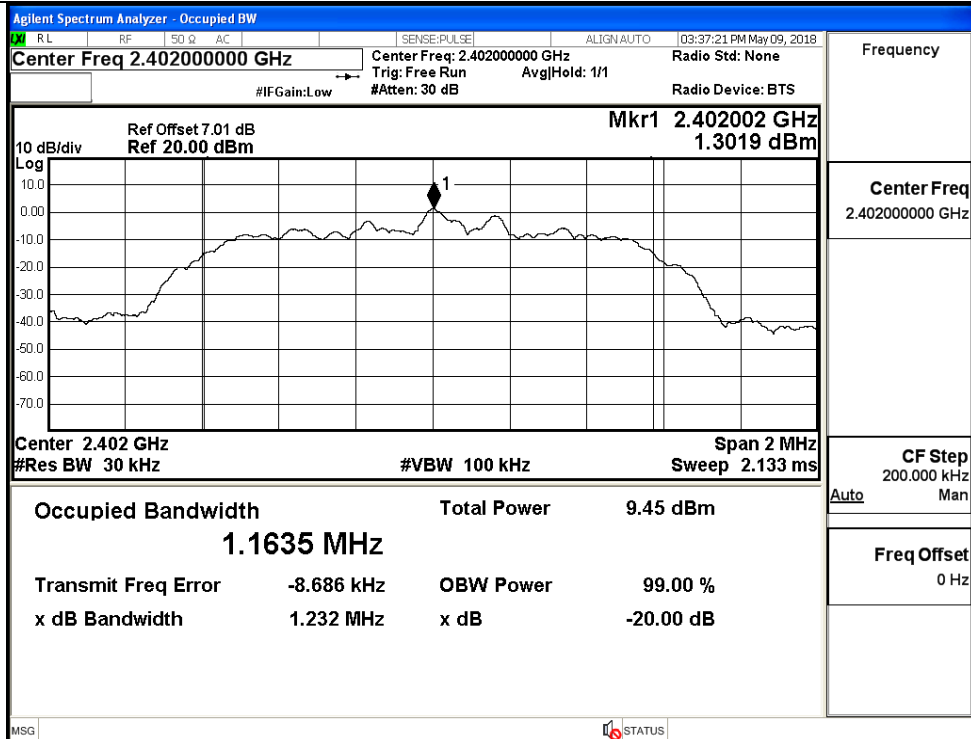
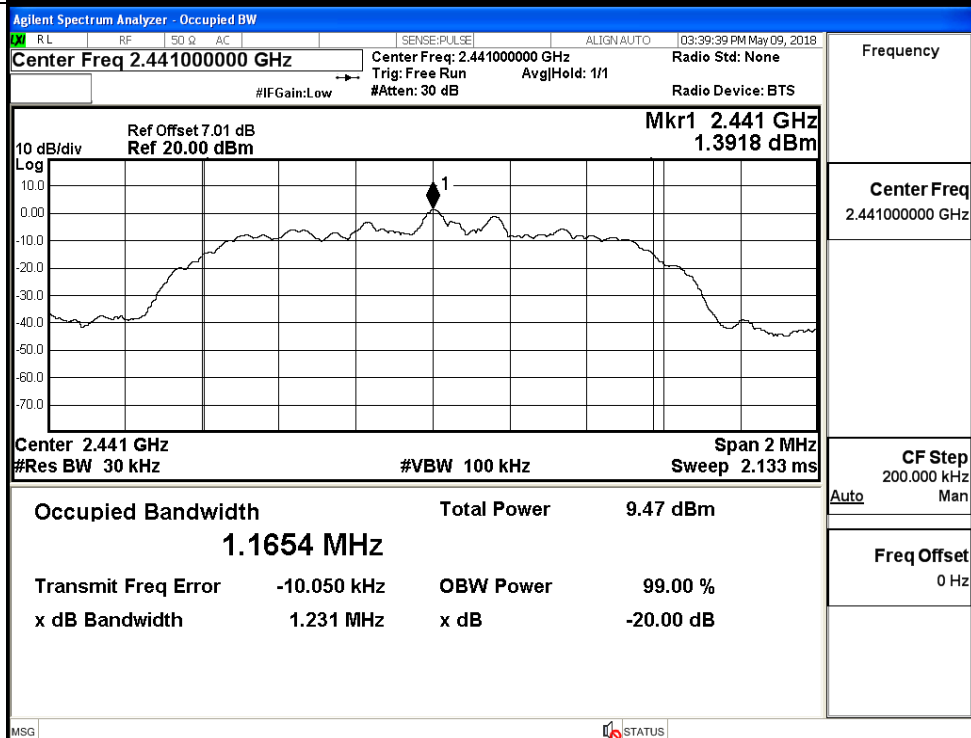


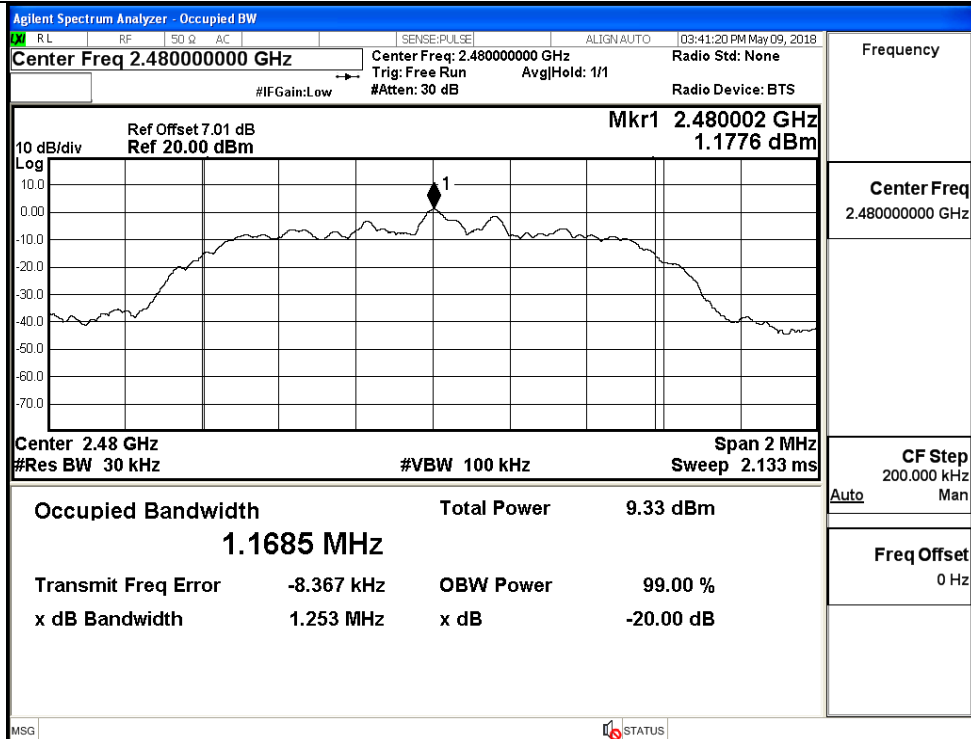
GFSK/MCH



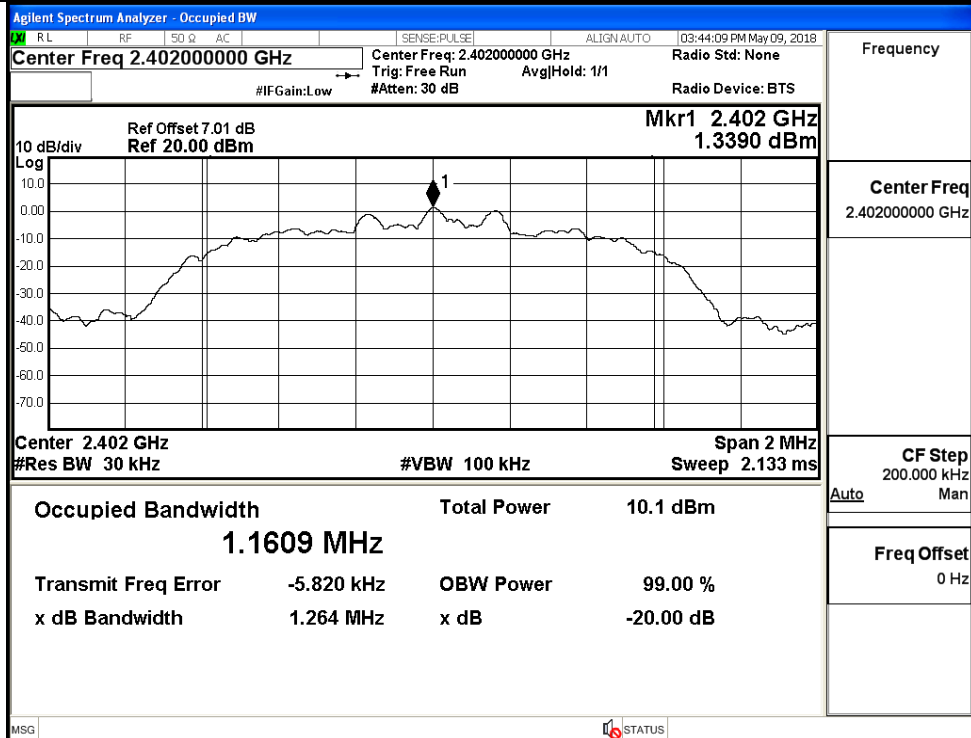
GFSK/HCH



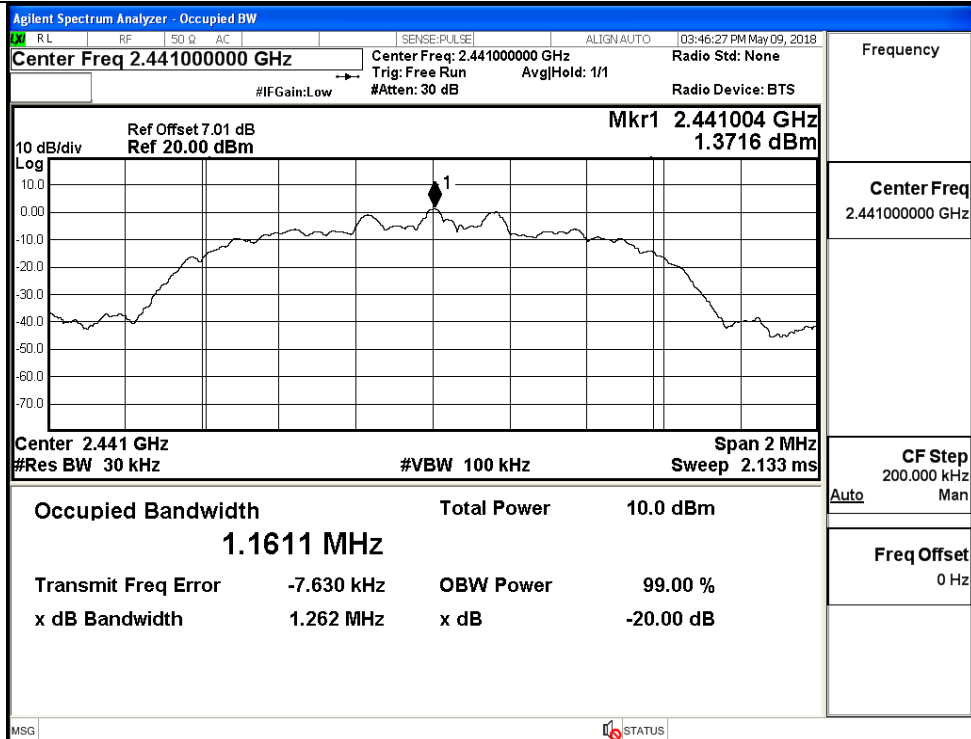
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

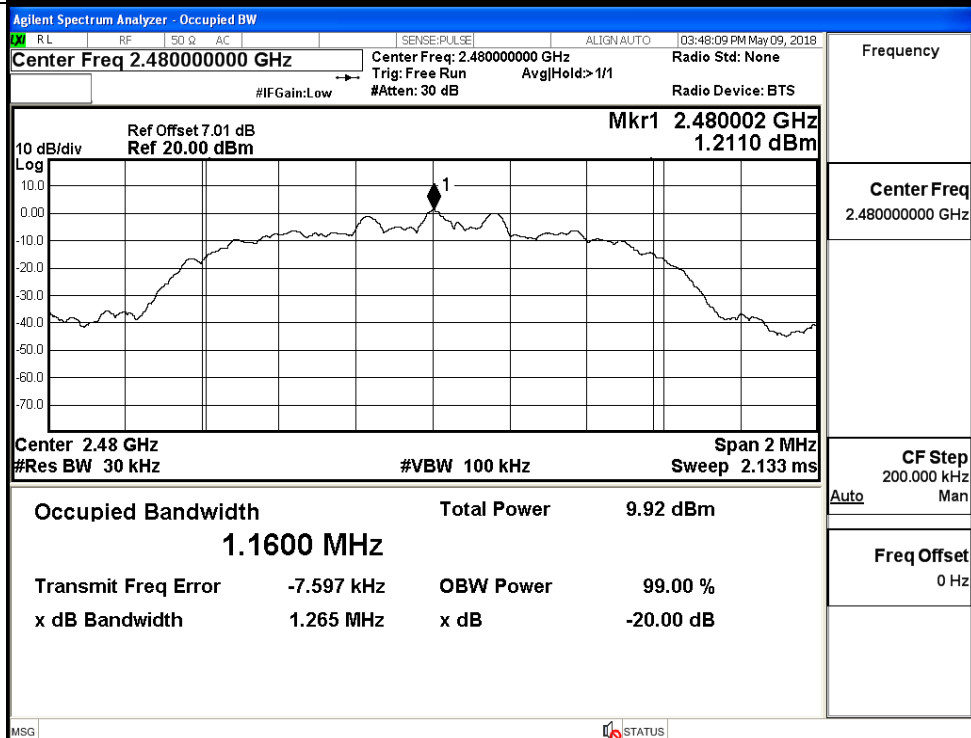
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

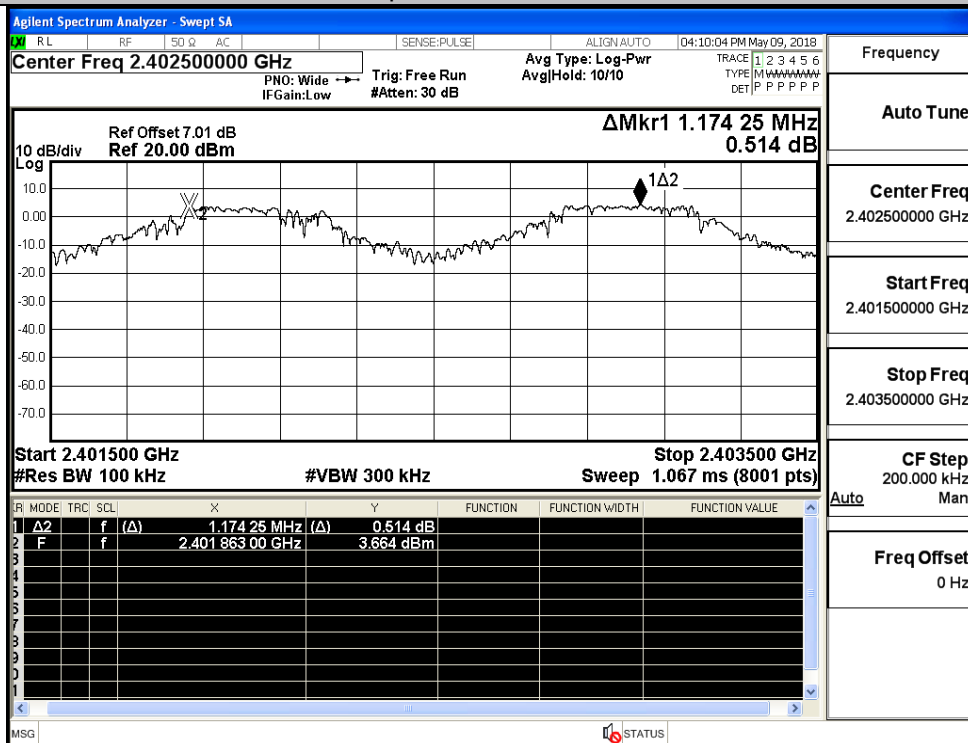


A.3 Carrier Frequency Separation

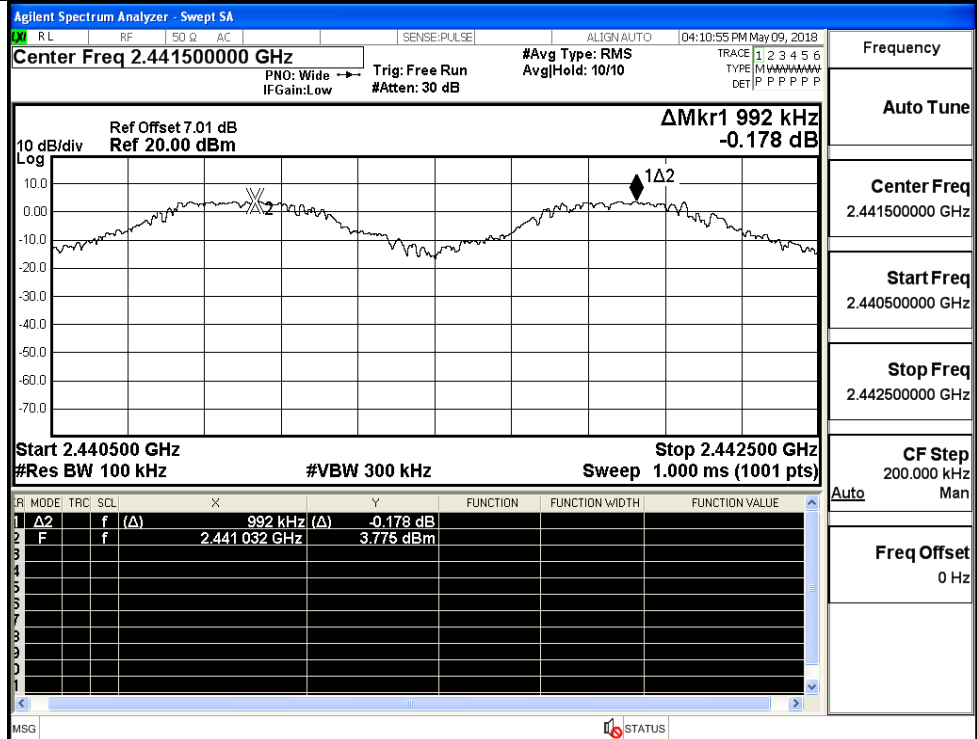
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz] 2/3*20dB Bandwidth	Verdict
GFSK	LCH	1.174	0.630	PASS
	MCH	0.992	0.630	PASS
	HCH	0.942	0.630	PASS
$\pi/4$ DQPSK	LCH	0.992	0.835	PASS
	MCH	1.158	0.835	PASS
	HCH	1.132	0.835	PASS
8DPSK	LCH	0.926	0.843	PASS
	MCH	0.990	0.843	PASS
	HCH	1.180	0.843	PASS

Test Graphs

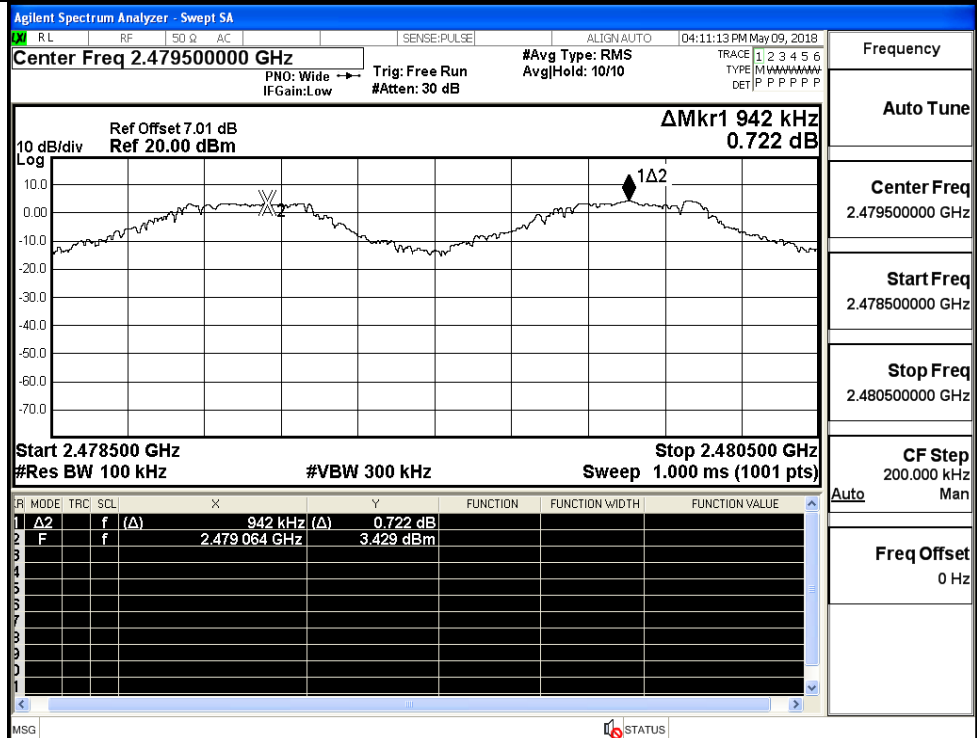
GFSK/LCH

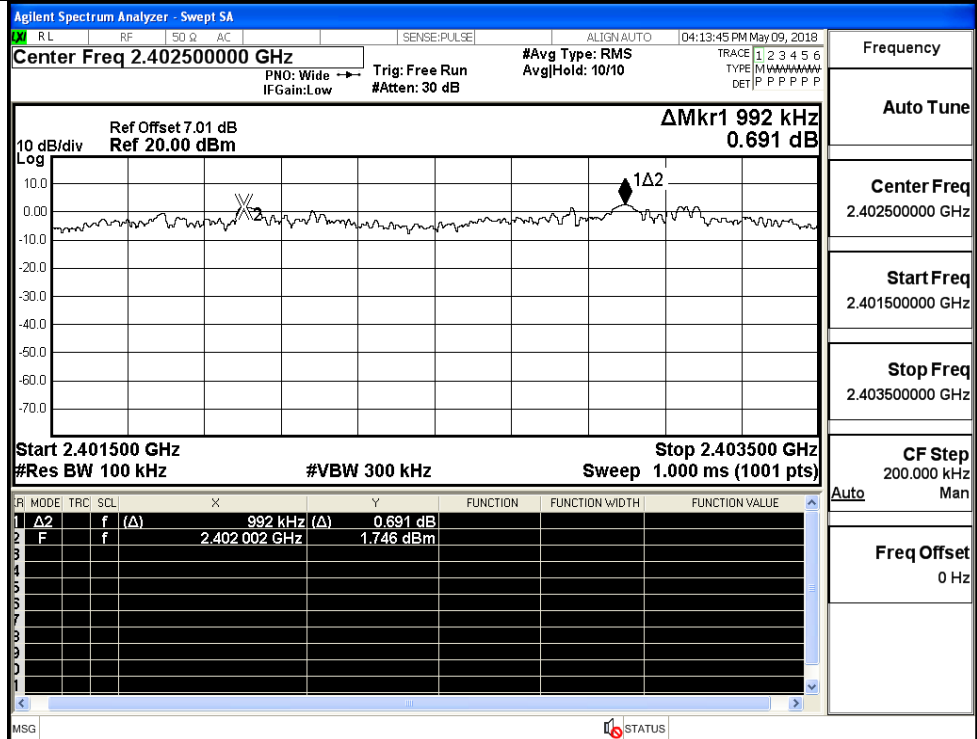
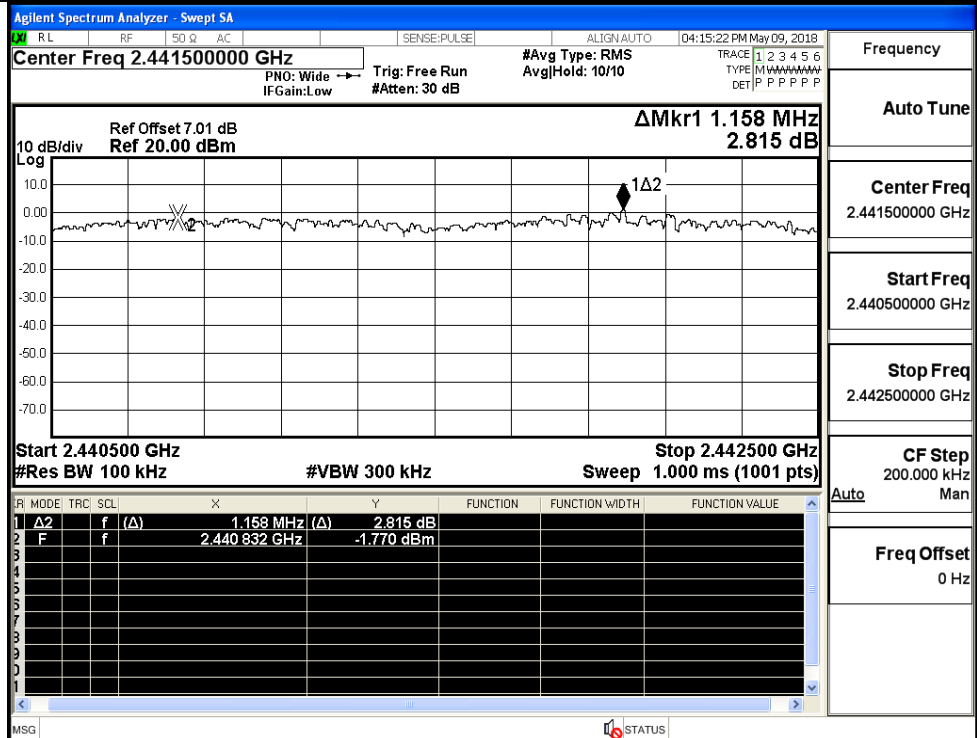


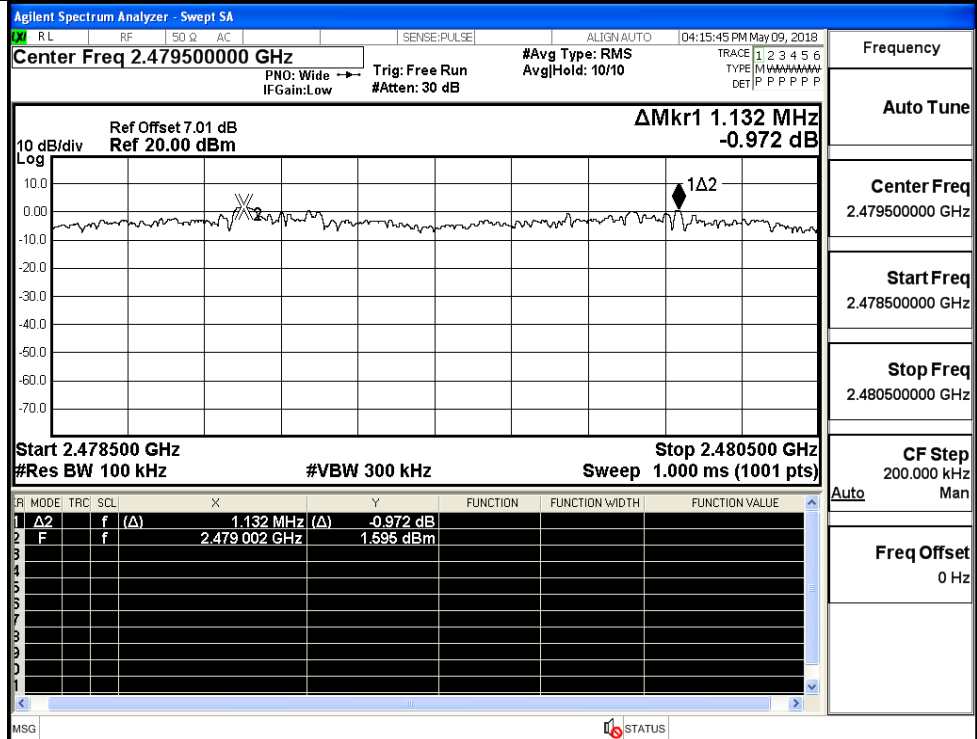
GFSK/MCH



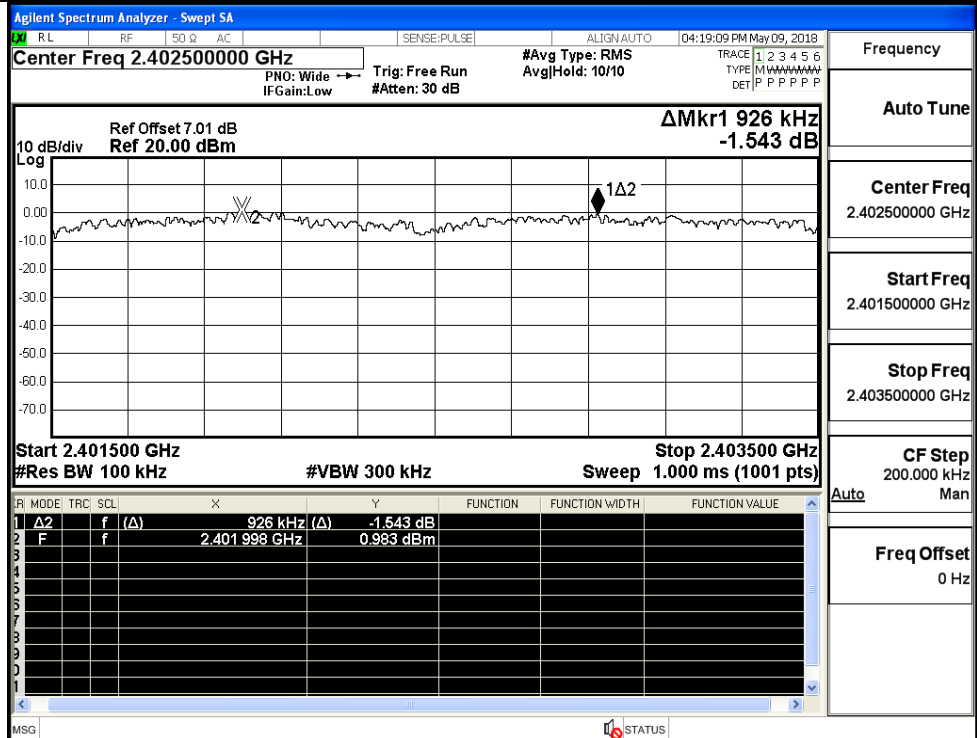
GFSK/HCH



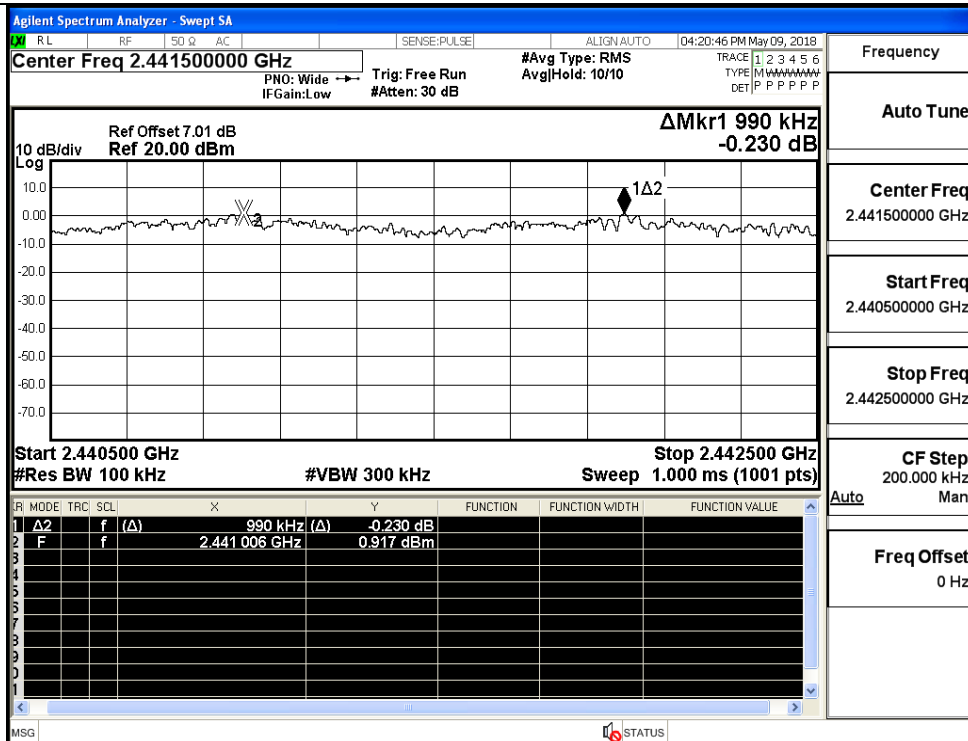
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

π /4DQPSK/HCH

8DPSK/LCH



8DPSK/MCH



Frequency

Auto Tune

Center Freq
2.441500000 GHz

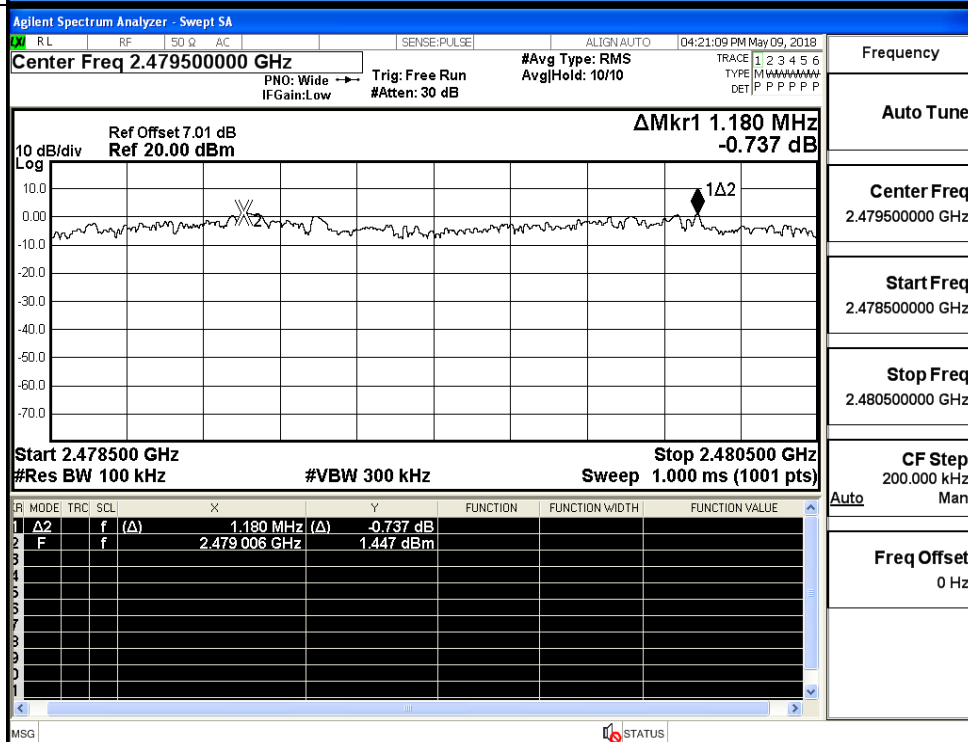
Start Freq
2.440500000 GHz

Stop Freq
2.442500000 GHz

CF Step
200.000 kHz
Man

Freq Offset
0 Hz

8DPSK/HCH



Frequency

Auto Tune

Center Freq
2.479500000 GHz

Start Freq
2.478500000 GHz

Stop Freq
2.480500000 GHz

CF Step
200.000 kHz
Man

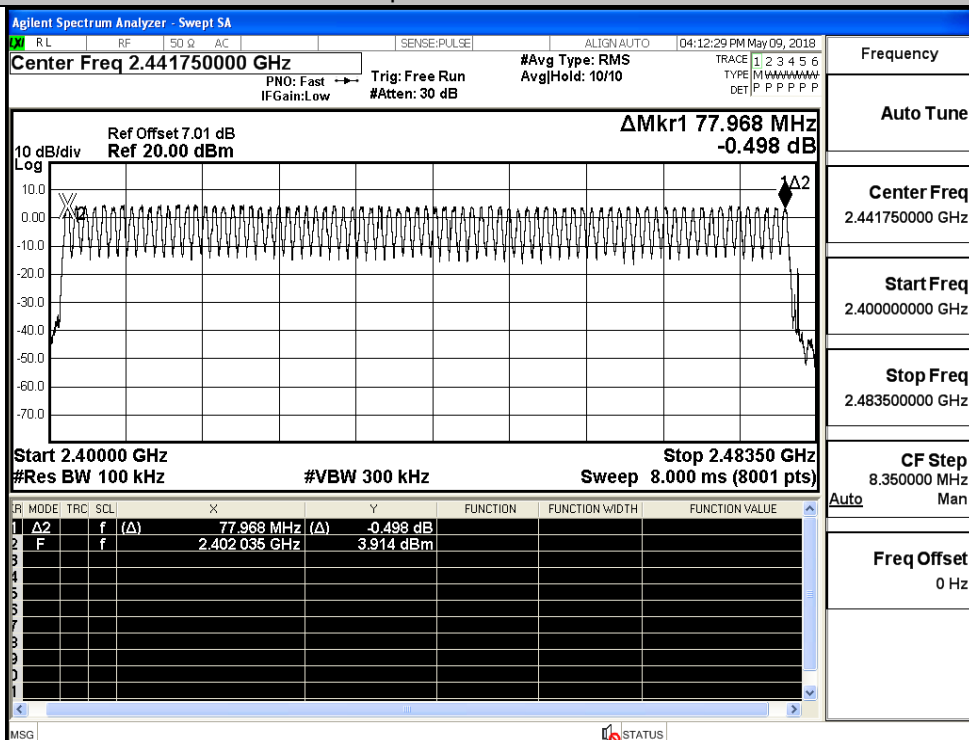
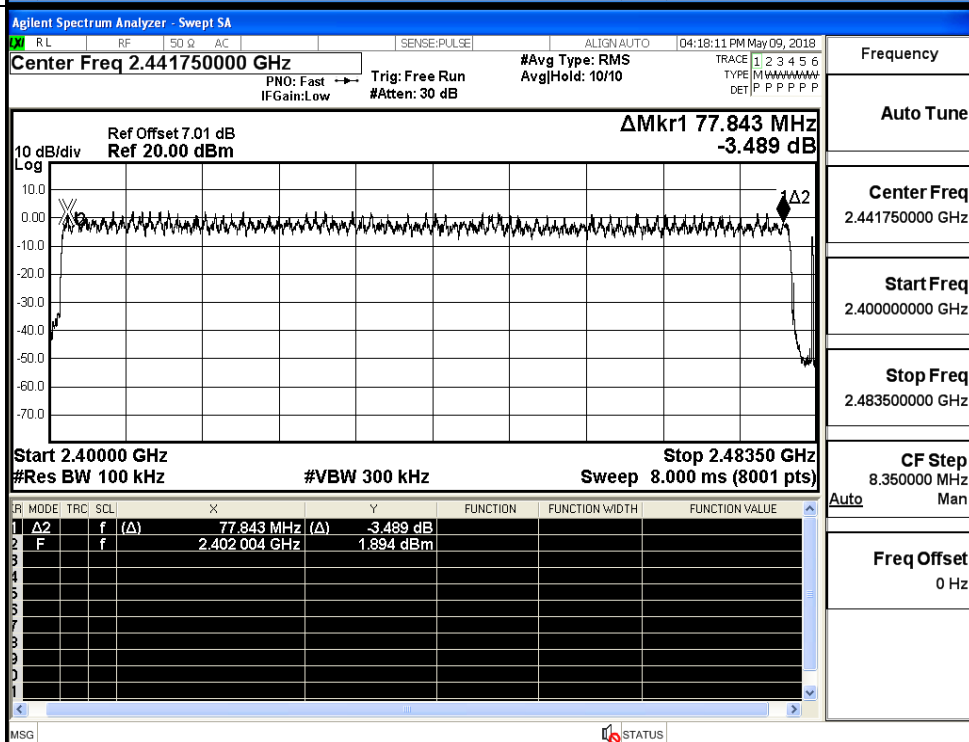
Freq Offset
0 Hz

A.4 Hopping Channel Number

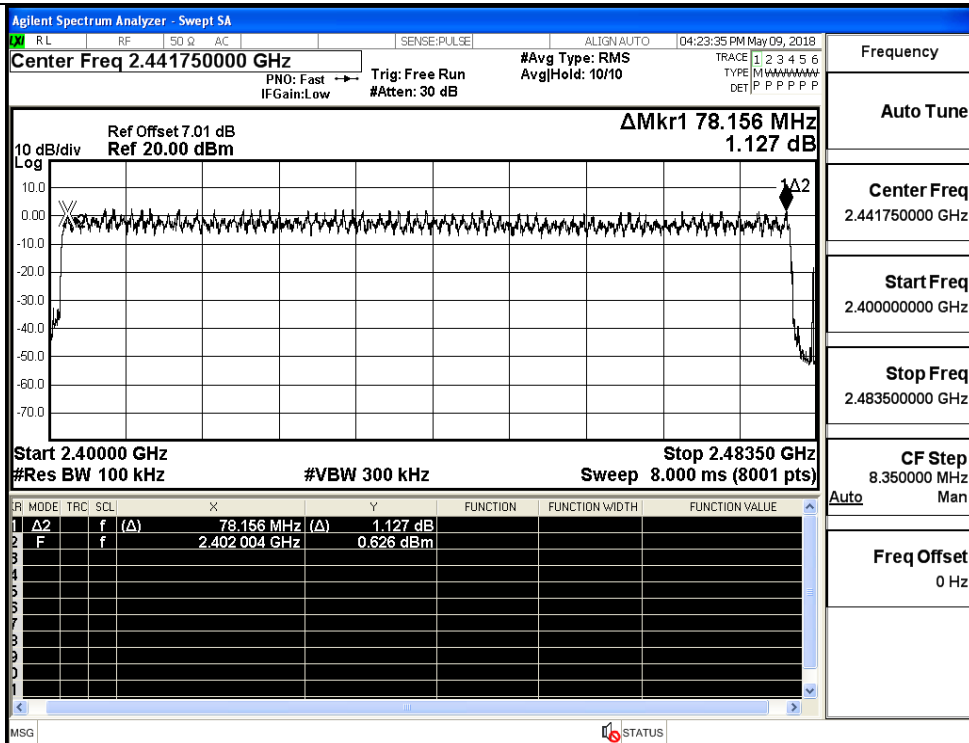
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop

8DPSK/Hop

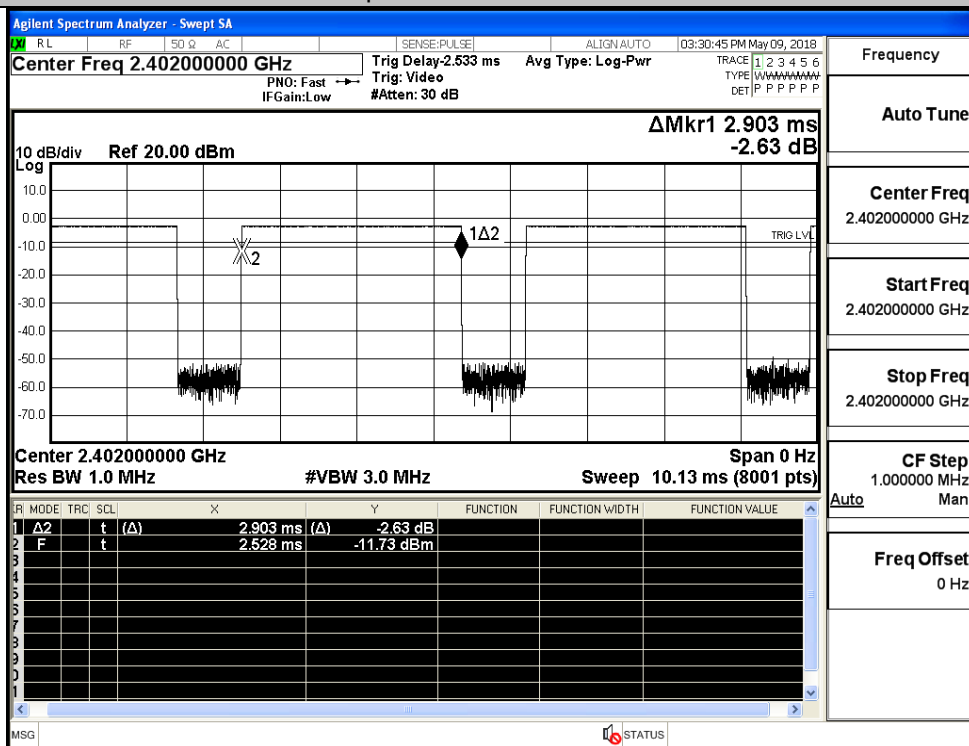


A.5 Dwell Time

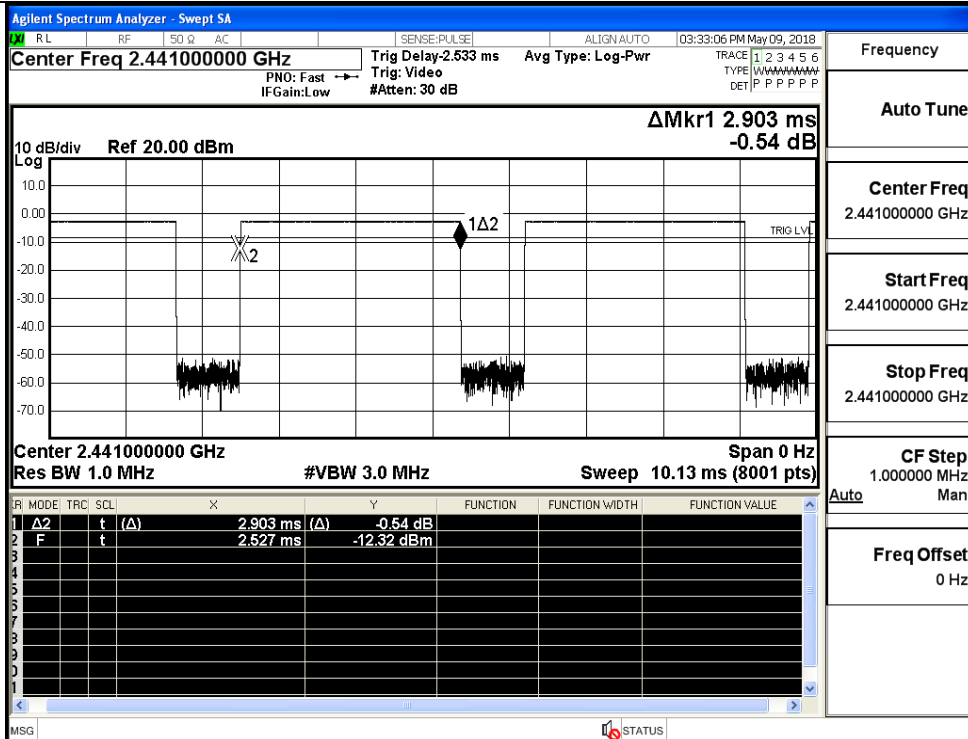
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.9	106.7	0.309	0.4	PASS
	DH5	MCH	2.9	106.7	0.309	0.4	PASS
	DH5	HCH	2.9	106.7	0.309	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.9	106.7	0.31	0.4	PASS
	2DH5	MCH	2.9	106.7	0.31	0.4	PASS
	2DH5	HCH	2.9	106.7	0.31	0.4	PASS
8DPSK	3DH5	LCH	2.9	106.7	0.31	0.4	PASS
	3DH5	MCH	2.9	106.7	0.31	0.4	PASS
	3DH5	HCH	2.9	106.7	0.31	0.4	PASS

Test Graphs

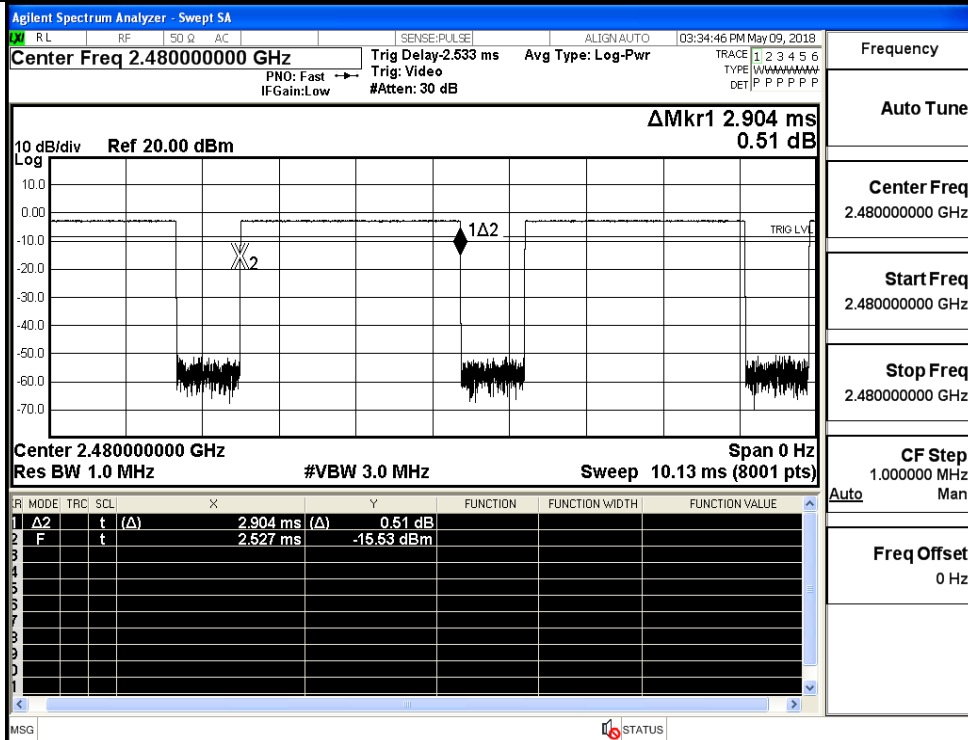
GFSK_DH5/LCH



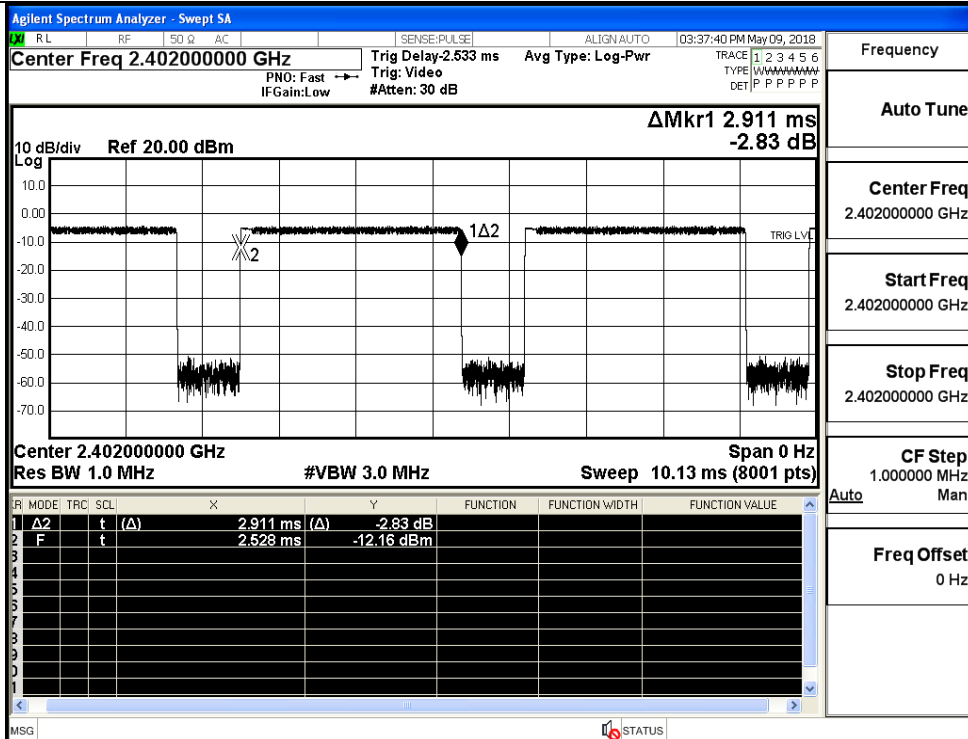
GFSK_DH5/MCH



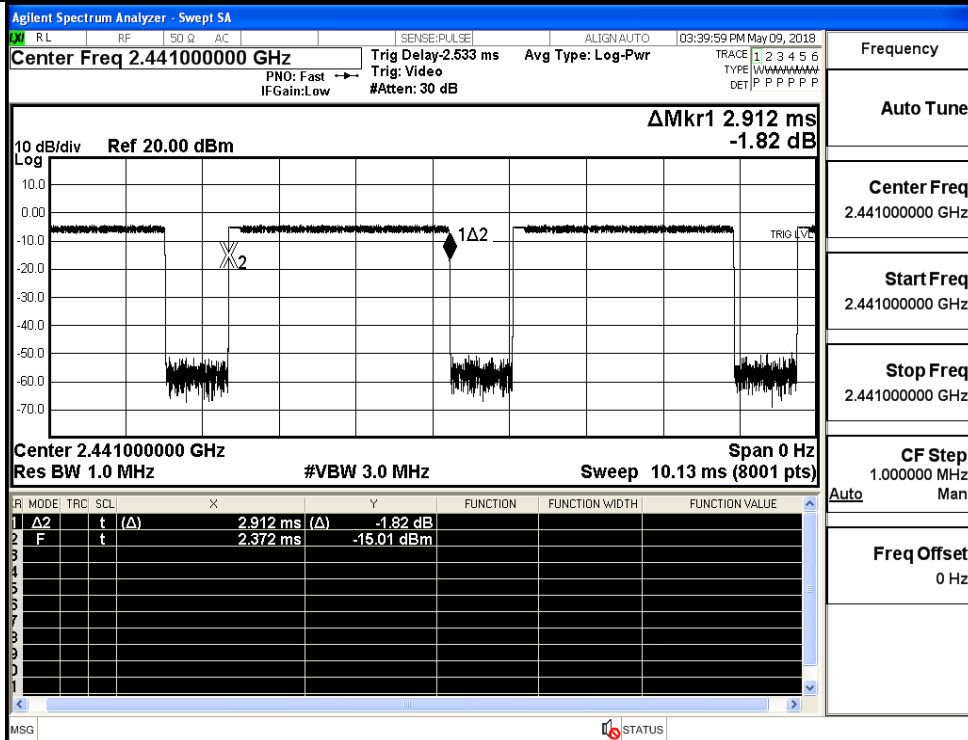
GFSK_DH5/HCH



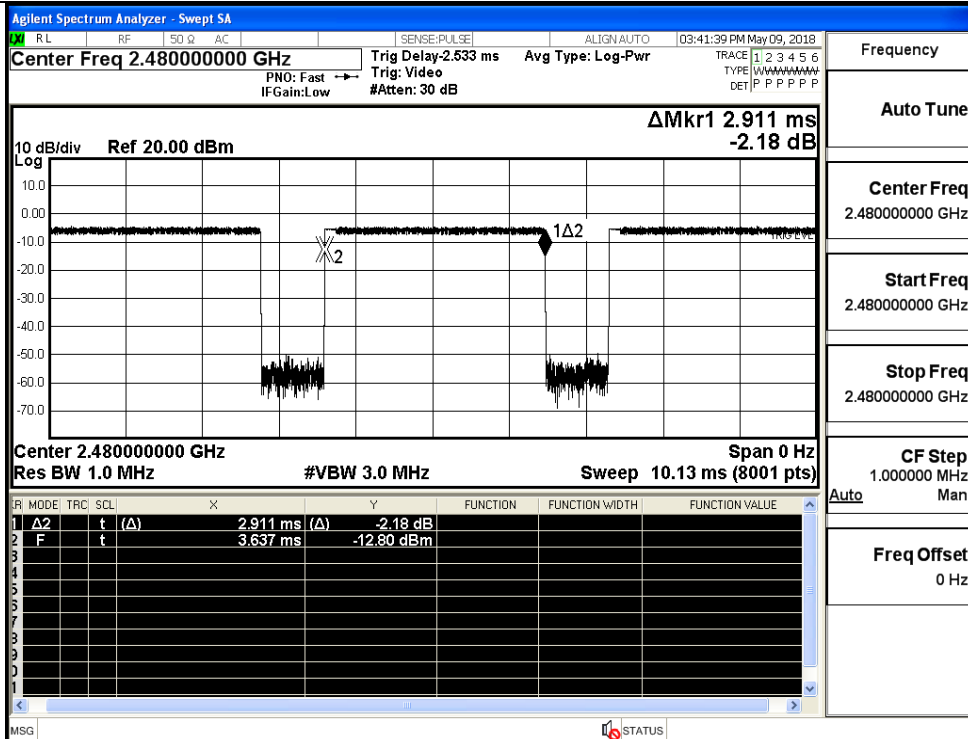
$\pi/4$ DQPSK
_2DH5/LCH



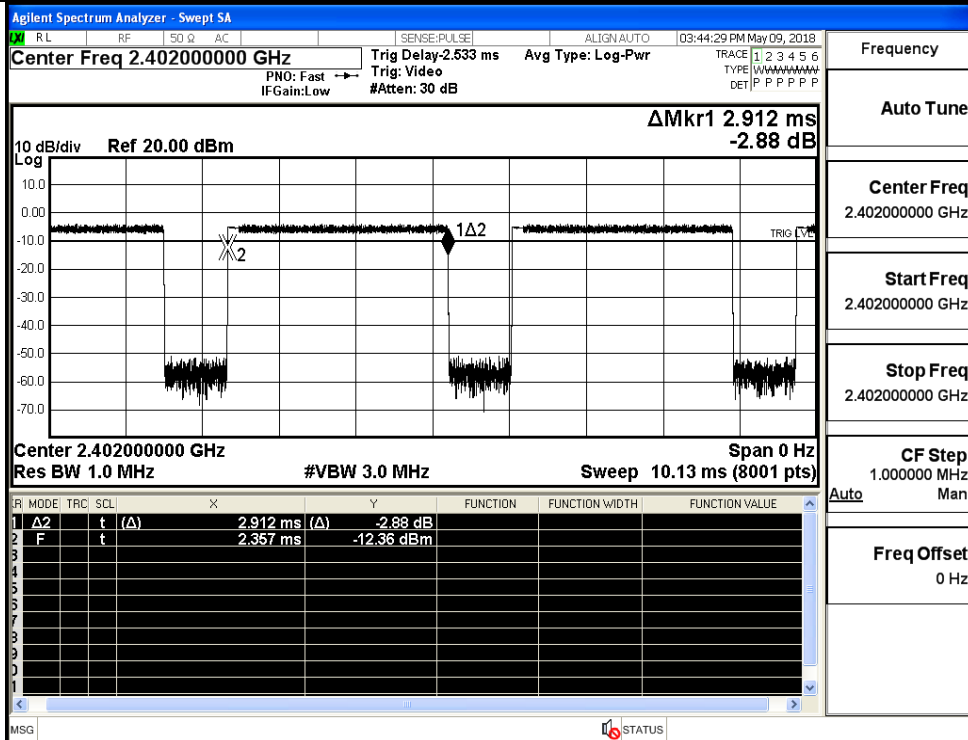
$\pi/4$ DQPSK
_2DH5/MCH



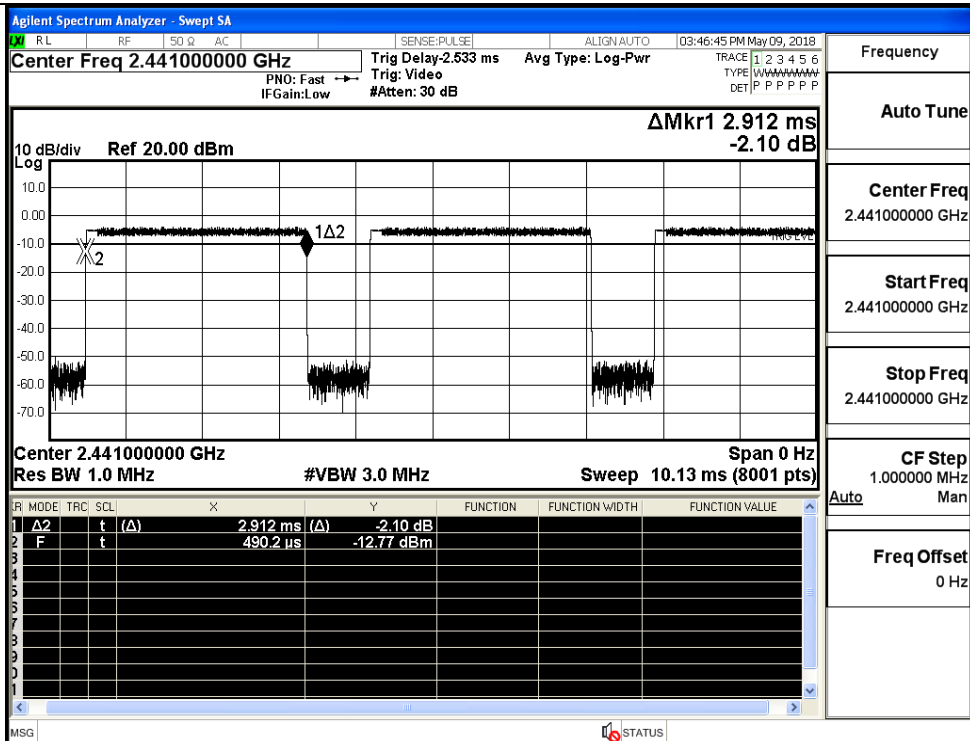
$\pi/4$ DQPSK
_2DH5/HCH



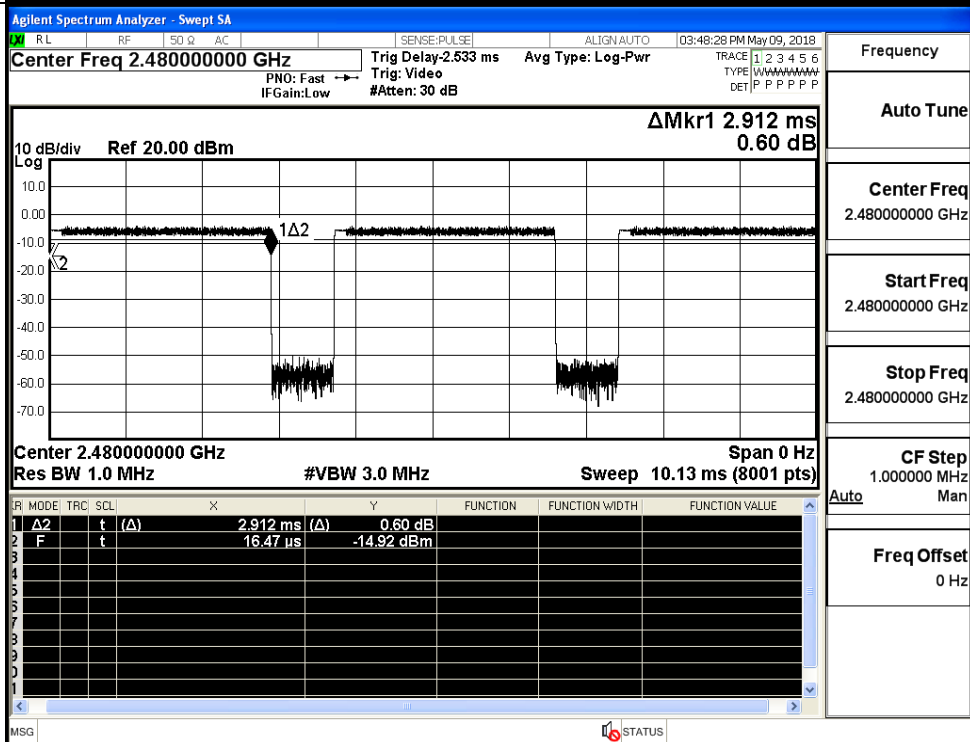
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



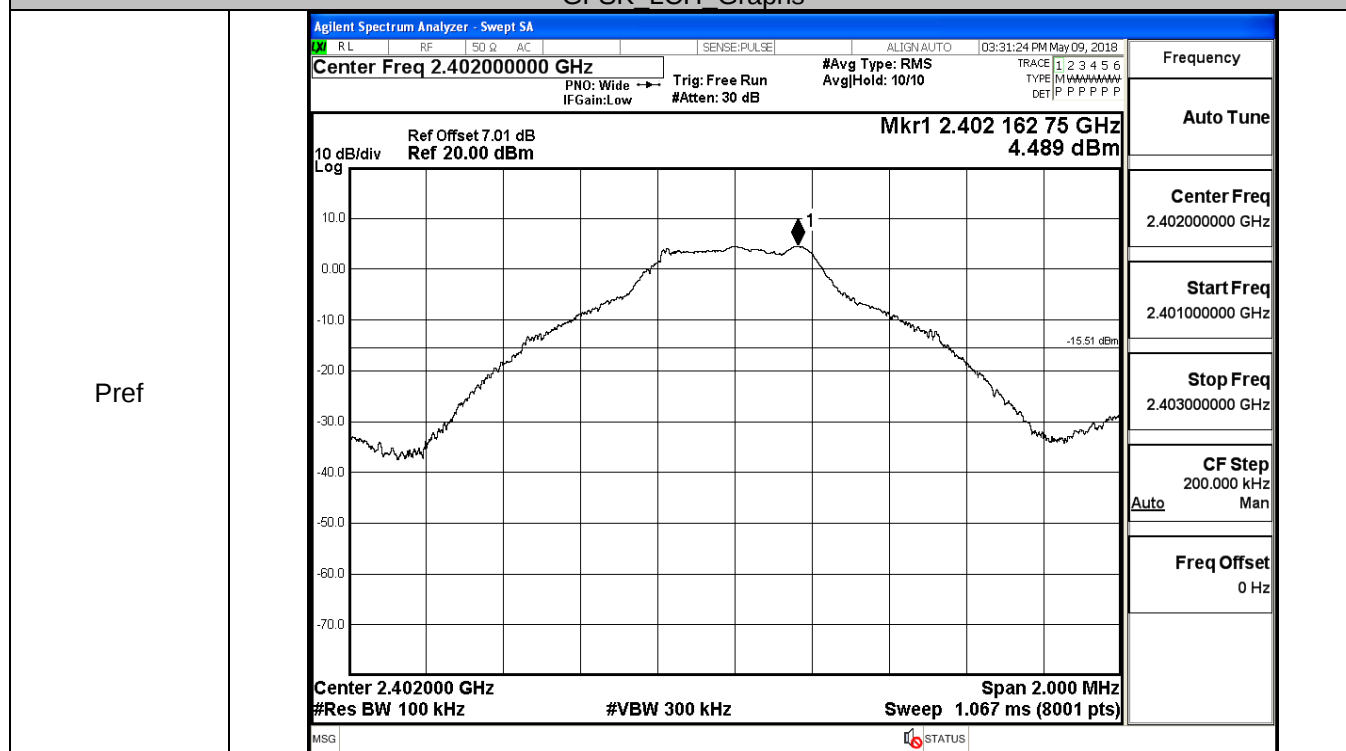
8DPSK_3DH5/HCH

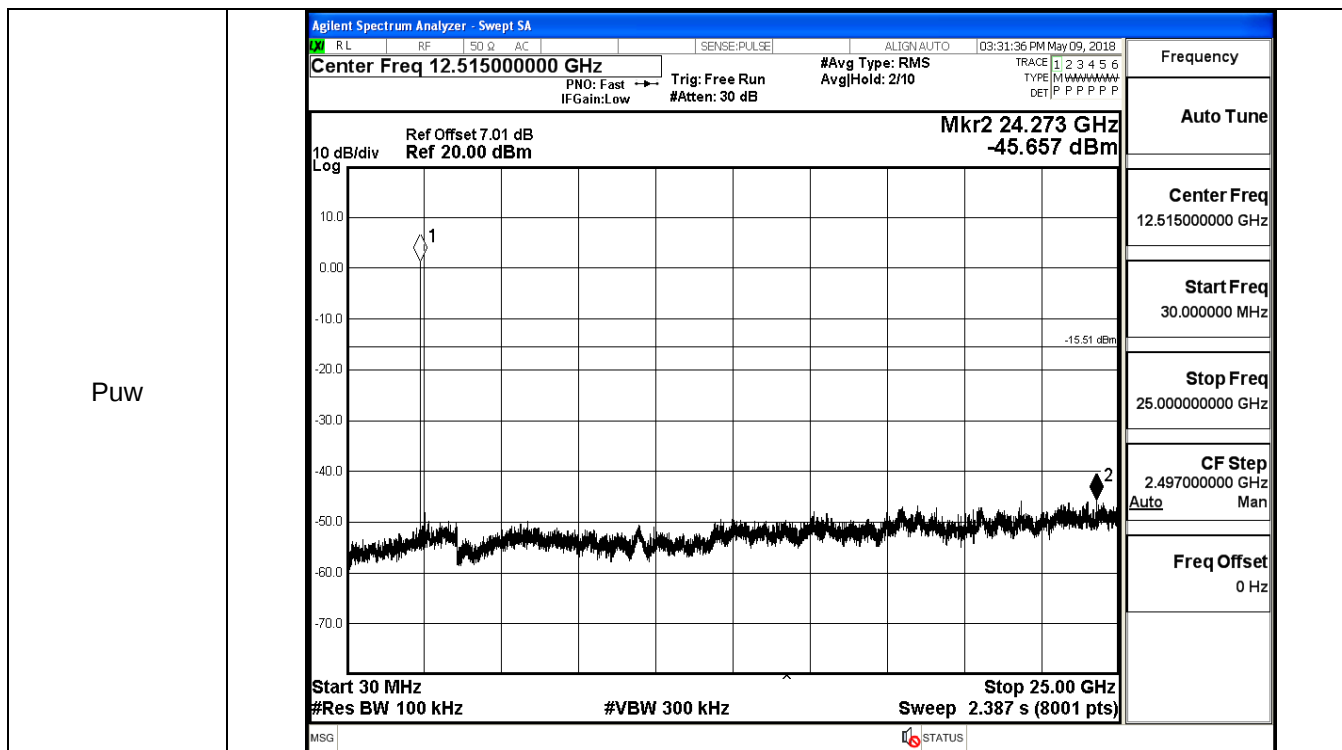


A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	4.489	-45.657	-15.511	PASS
	MCH	4.399	-45.539	-15.601	PASS
	HCH	4.199	-45.475	-15.801	PASS
$\pi/4$ DQPSK	LCH	1.793	-45.475	-18.207	PASS
	MCH	1.922	-45.494	-18.078	PASS
	HCH	1.633	-44.994	-18.367	PASS
8DPSK	LCH	1.82	-44.921	-18.180	PASS
	MCH	1.992	-45.465	-18.008	PASS
	HCH	1.72	-45.530	-18.280	PASS

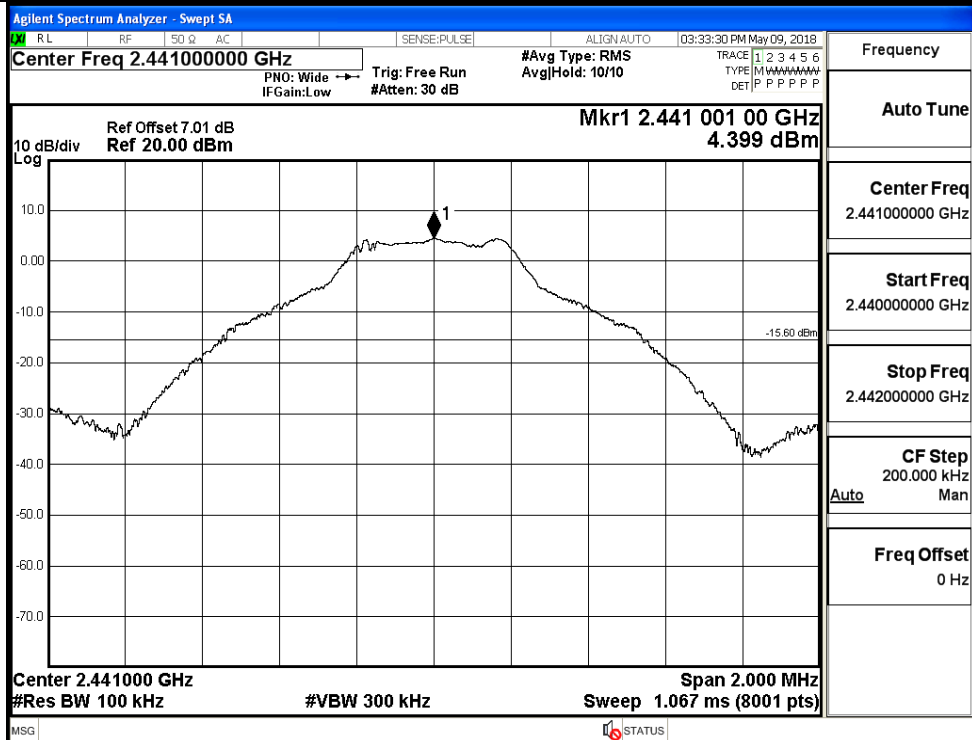
GFSK LCH Graphs



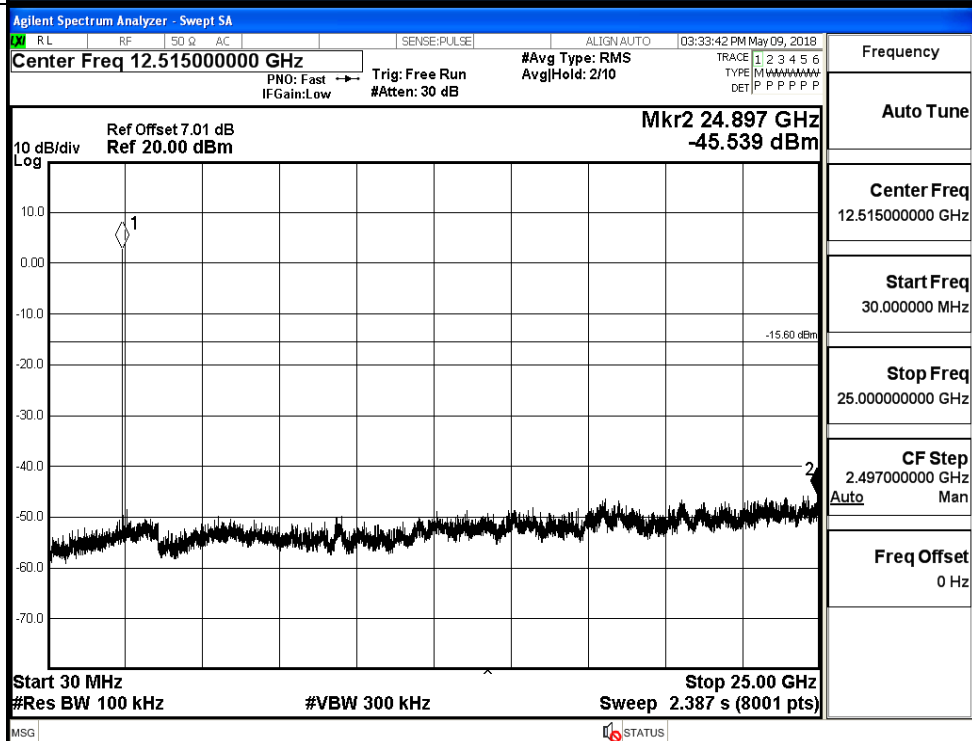


GFSK MCH Graphs

Pref

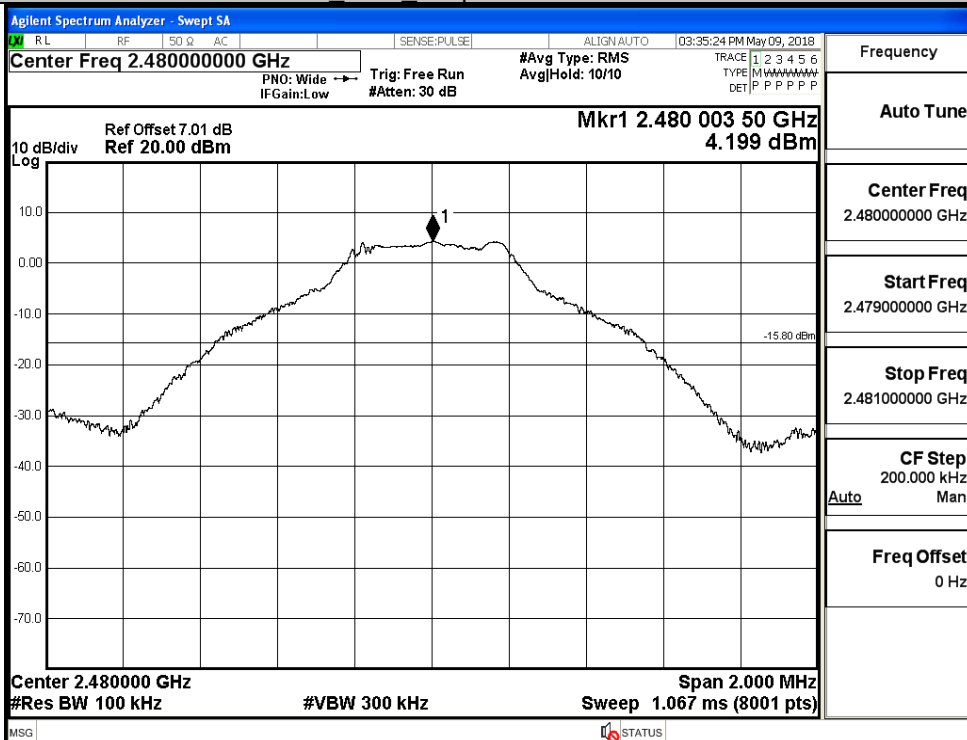


Puw

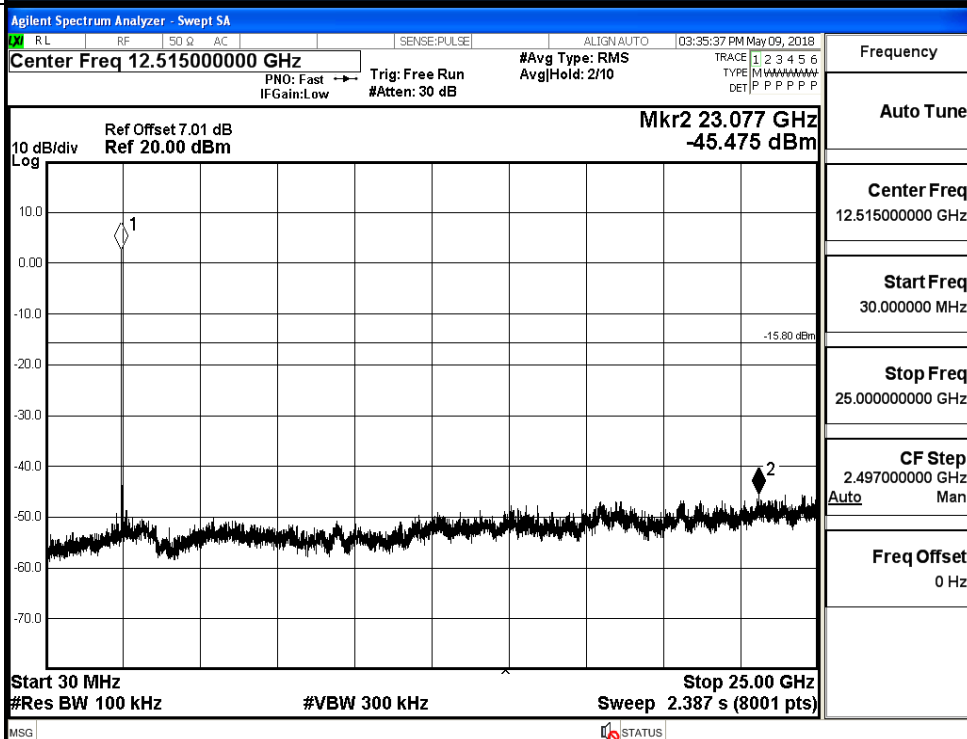


GFSK HCH Graphs

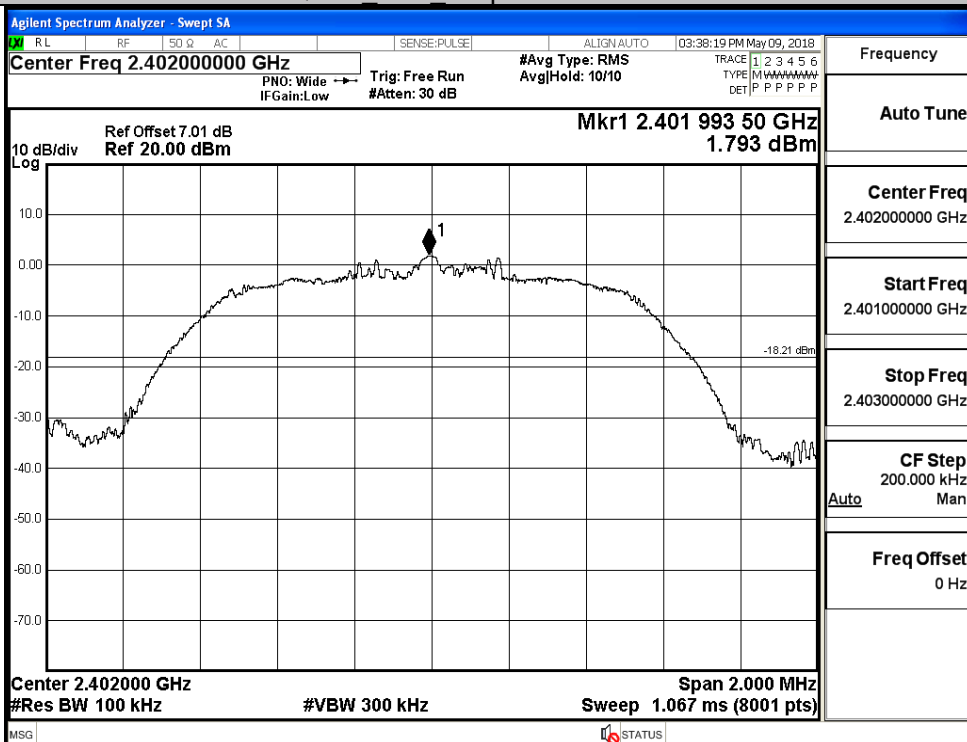
Pref



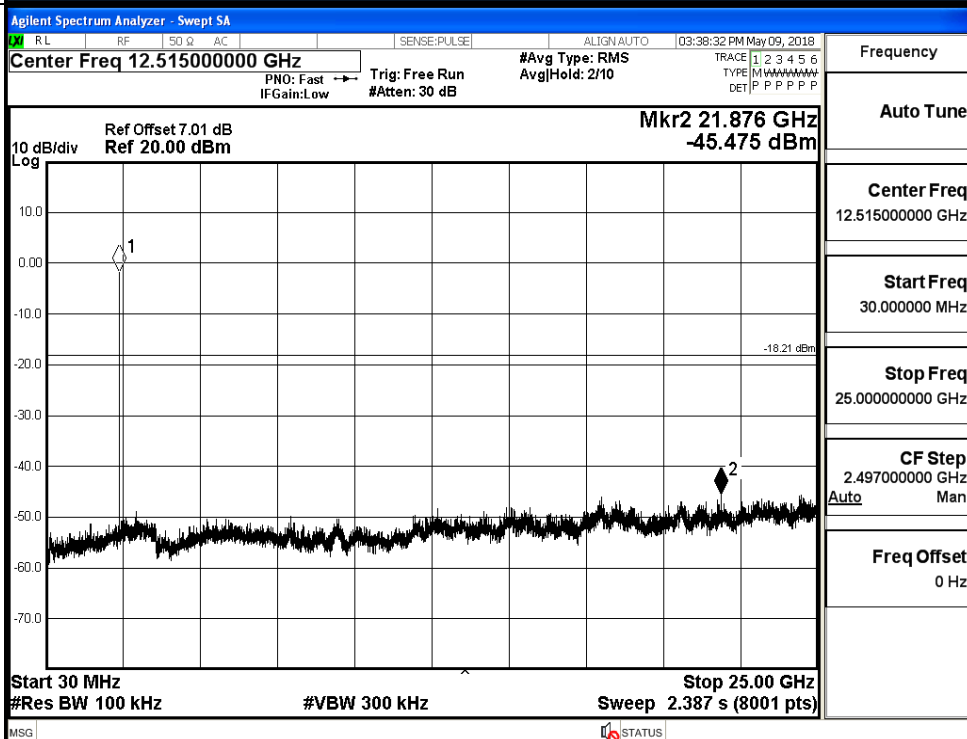
Puw



Pref

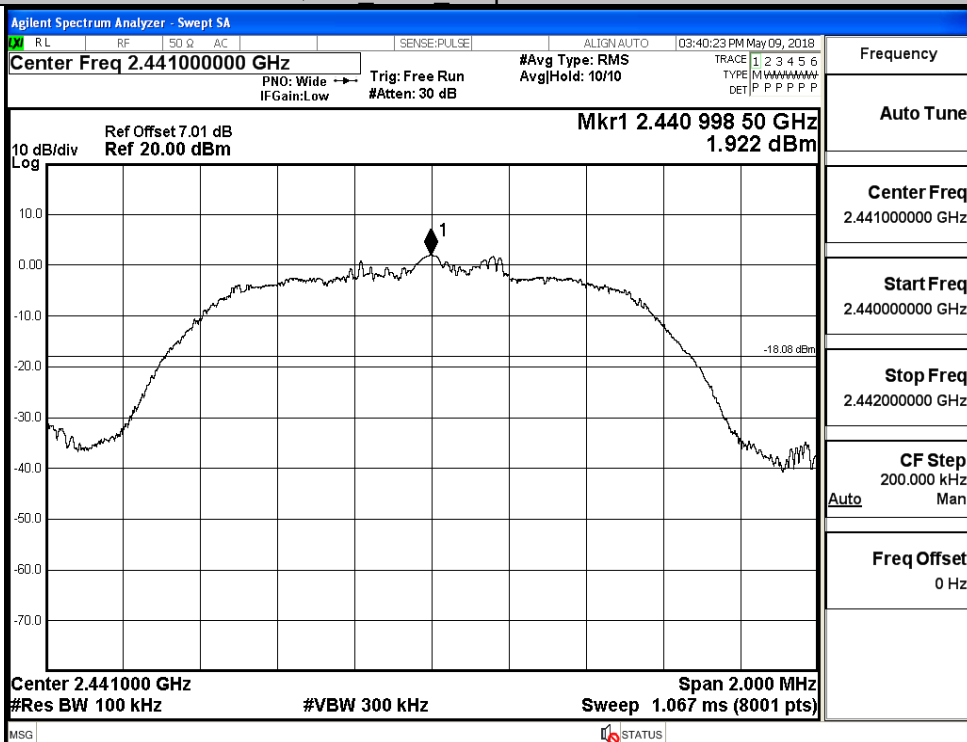


Puw

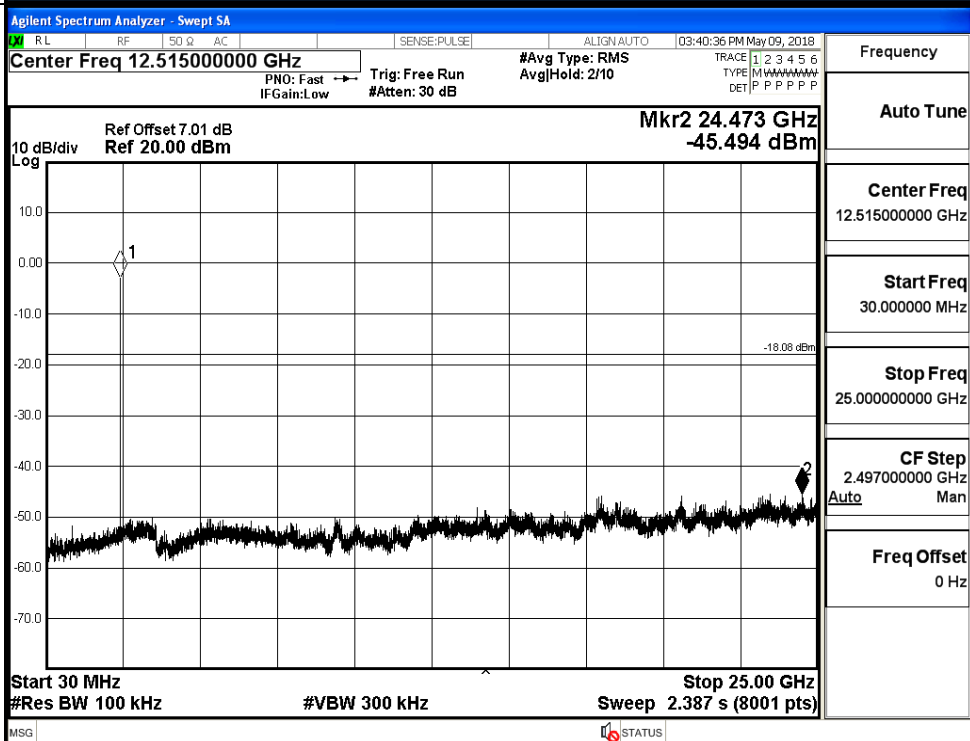


π /4DQPSK MCH Graphs

Pref

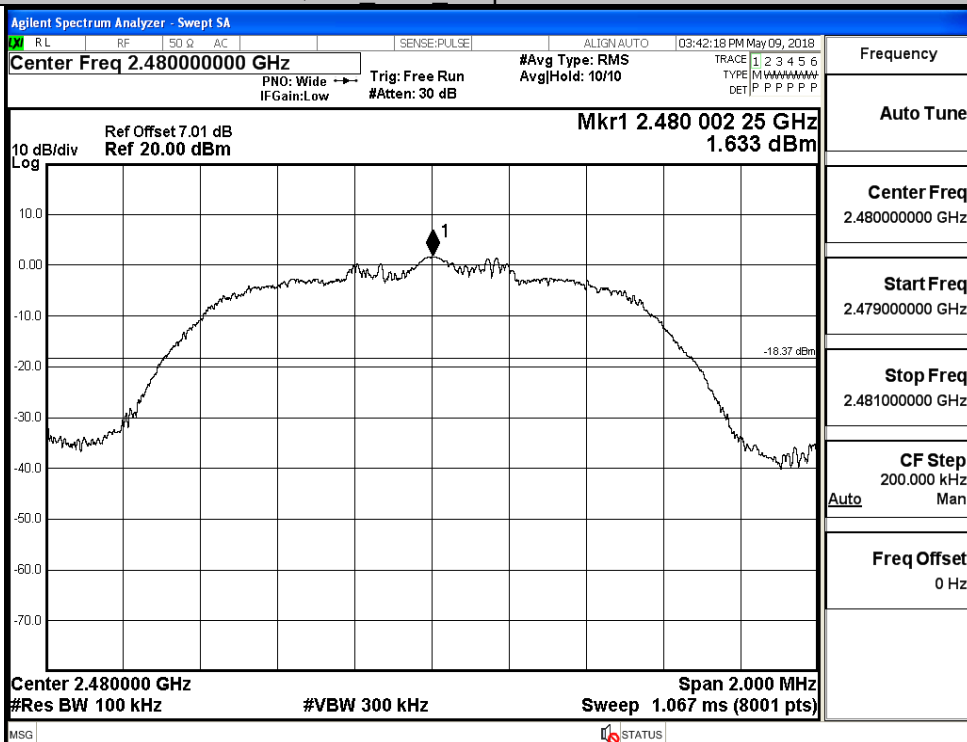


Puw

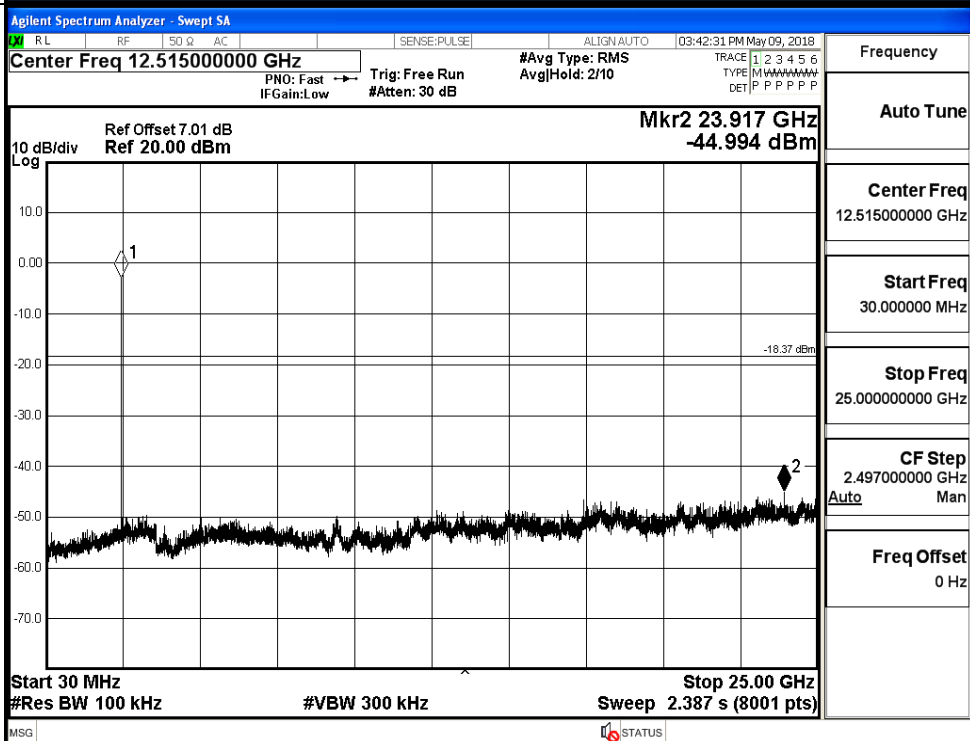


$\pi/4$ DQPSK HCH Graphs

Pref

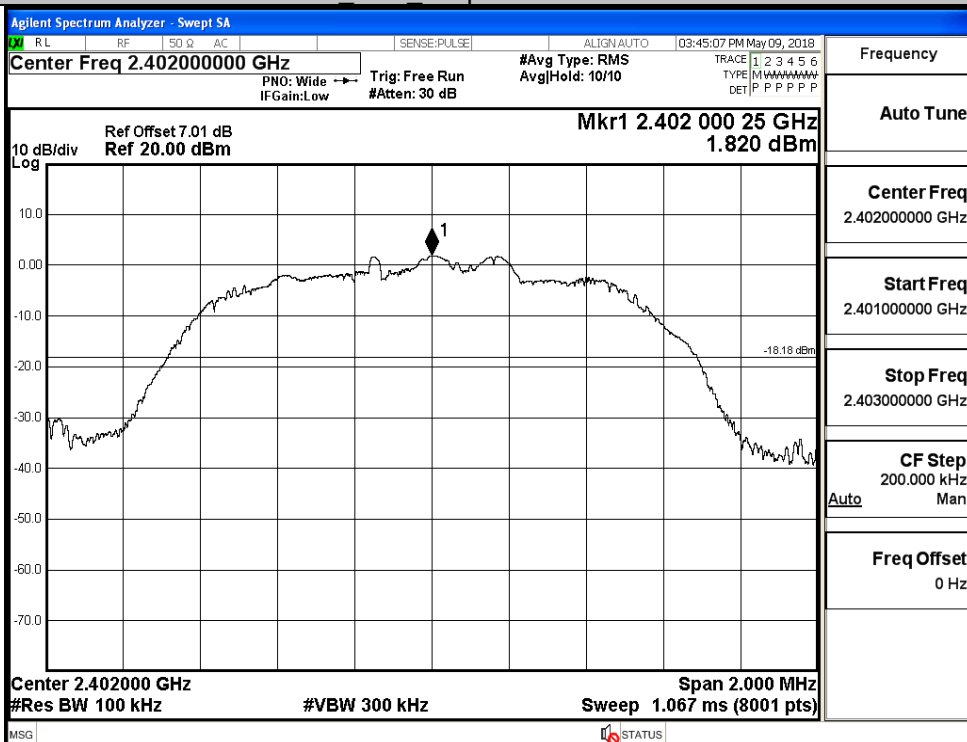


Puw

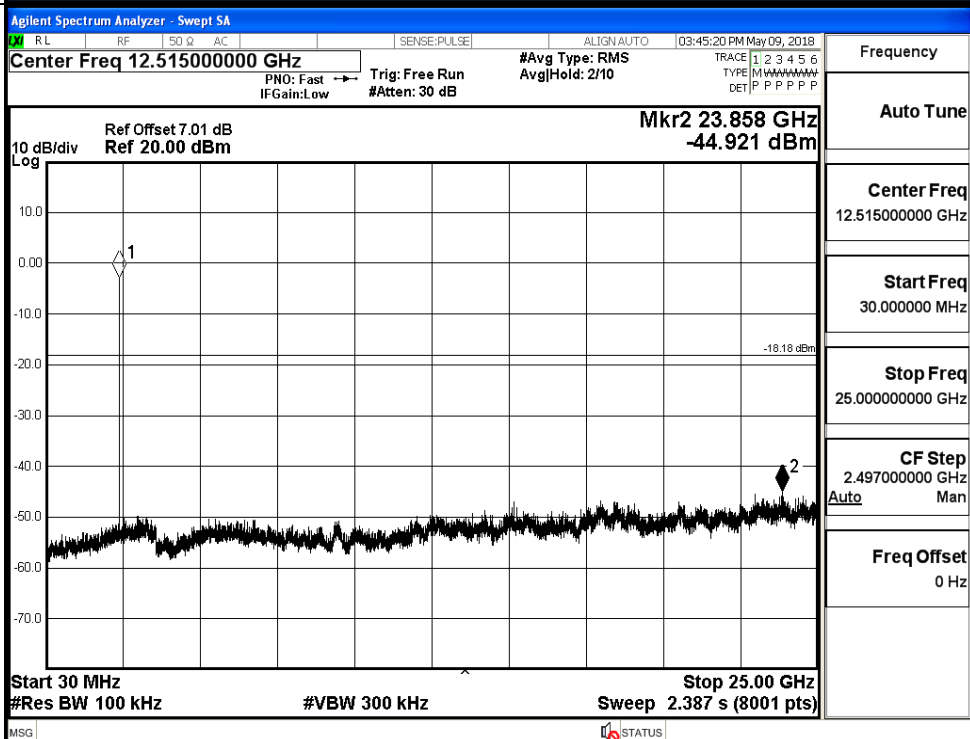


8DPSK LCH Graphs

Pref

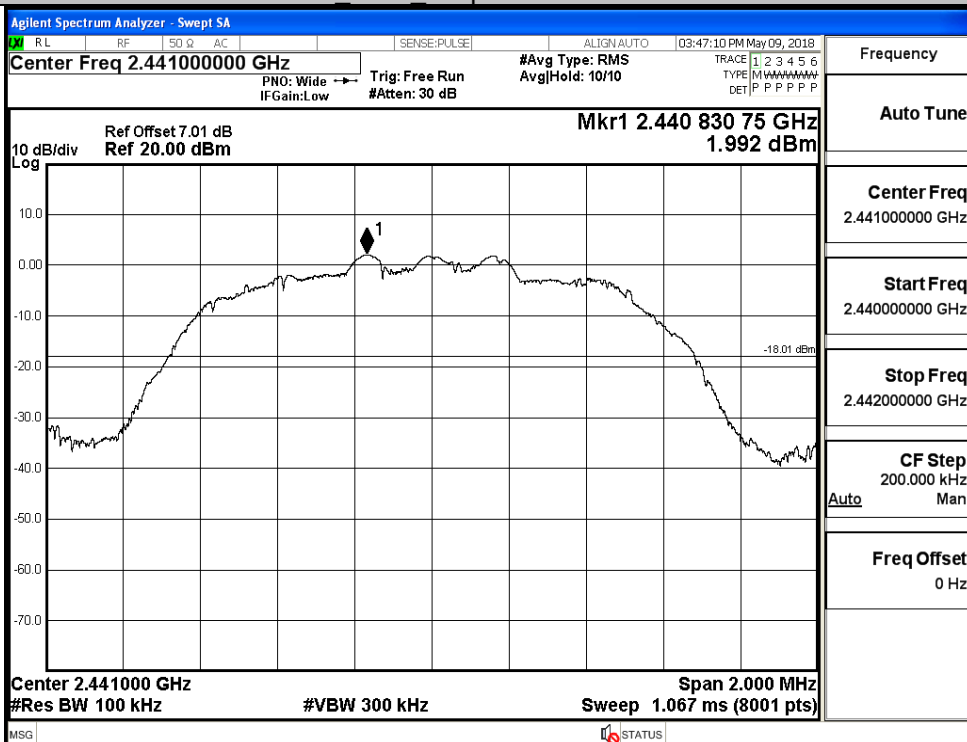


Puw

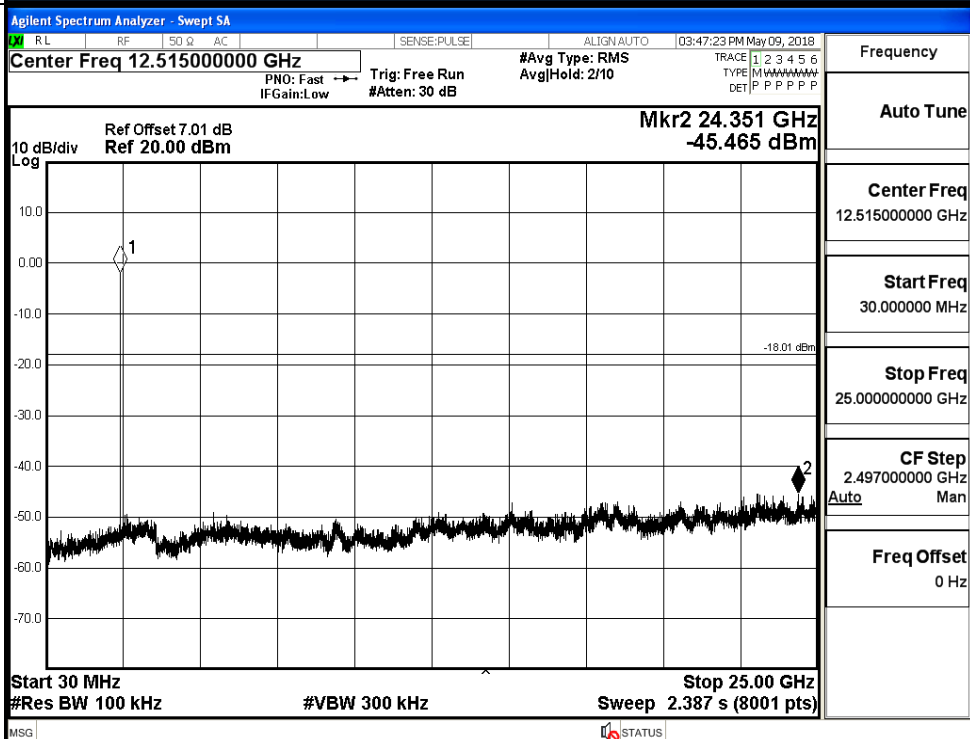


8DPSK MCH Graphs

Pref

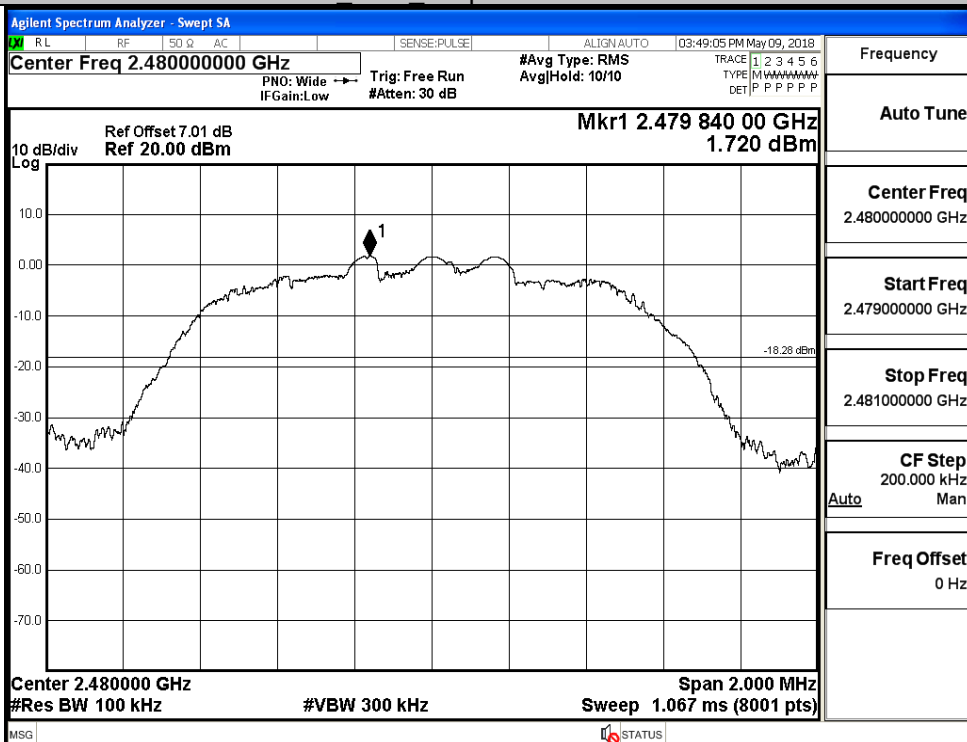


Puw

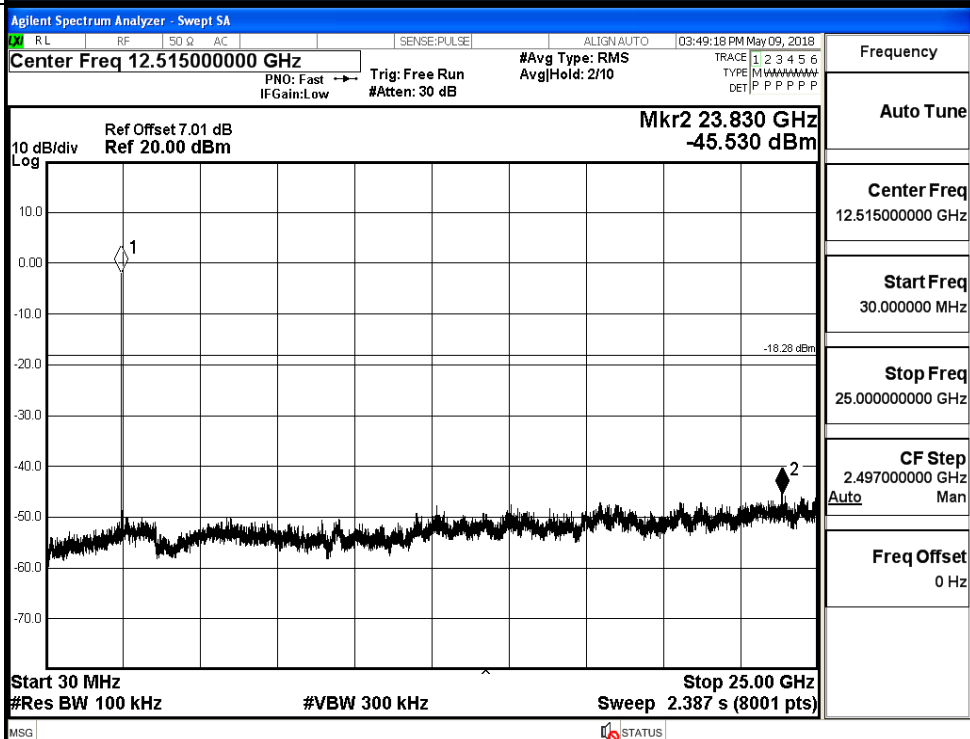


8DPSK_HCH Graphs

Pref



Puw

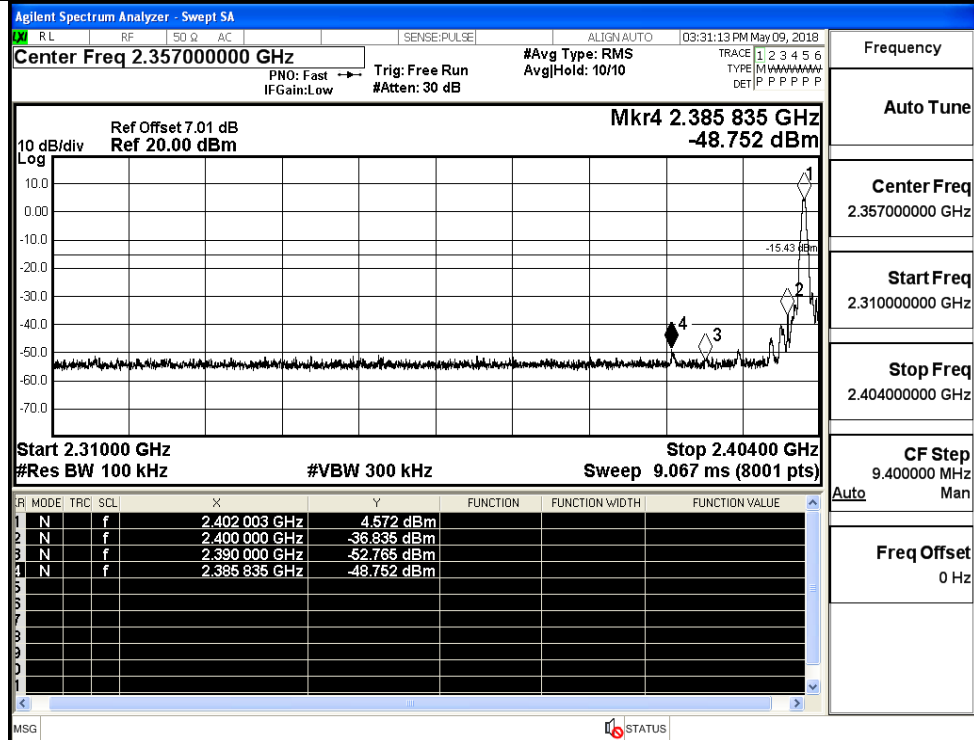


A.7 Band-edge for RF Conducted Emissions

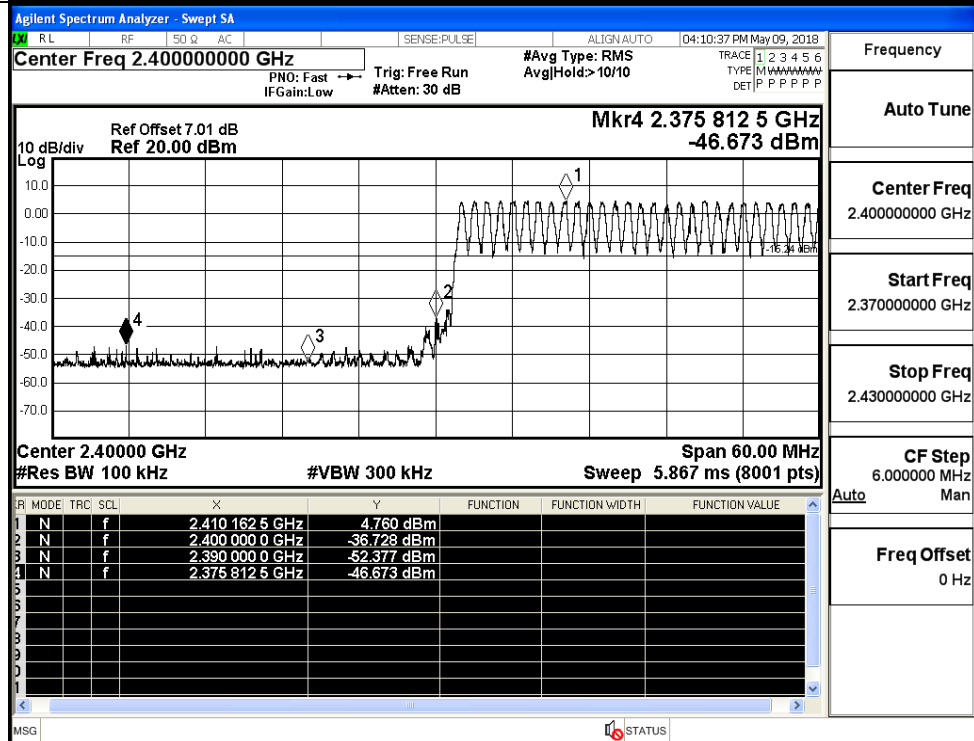
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	4.572	Off	-48.752	-15.43	PASS
			4.760	On	-46.673	-15.24	PASS
	HCH	2480	4.293	Off	-44.481	-15.71	PASS
			1.530	On	-49.554	-18.47	PASS
$\pi/4$ DQPSK	LCH	2402	-0.799	Off	-50.385	-20.8	PASS
			2.486	On	-46.989	-17.51	PASS
	HCH	2480	1.662	Off	-47.300	-18.34	PASS
			0.761	On	-48.344	-18.48	PASS
8DPSK	LCH	2402	1.975	Off	-50.254	-18.03	PASS
			2.555	On	-45.794	-17.45	PASS
	HCH	2480	1.758	Off	-47.296	-18.24	PASS
			0.847	On	-48.050	-18.45	PASS

Test Graphs

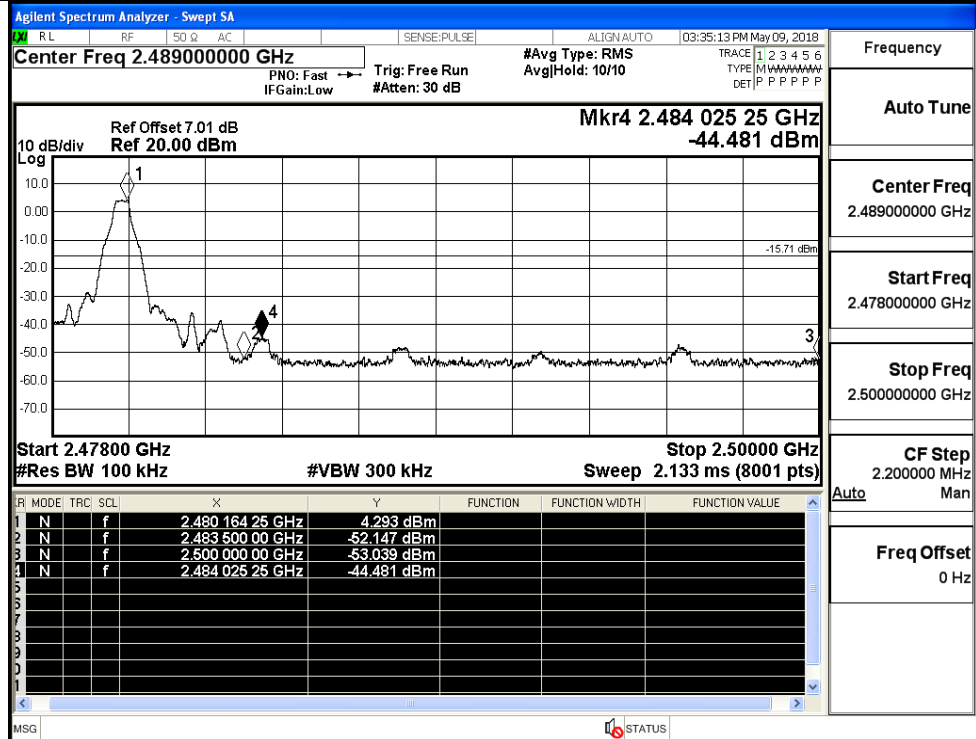
GFSK/LCH/No Hop



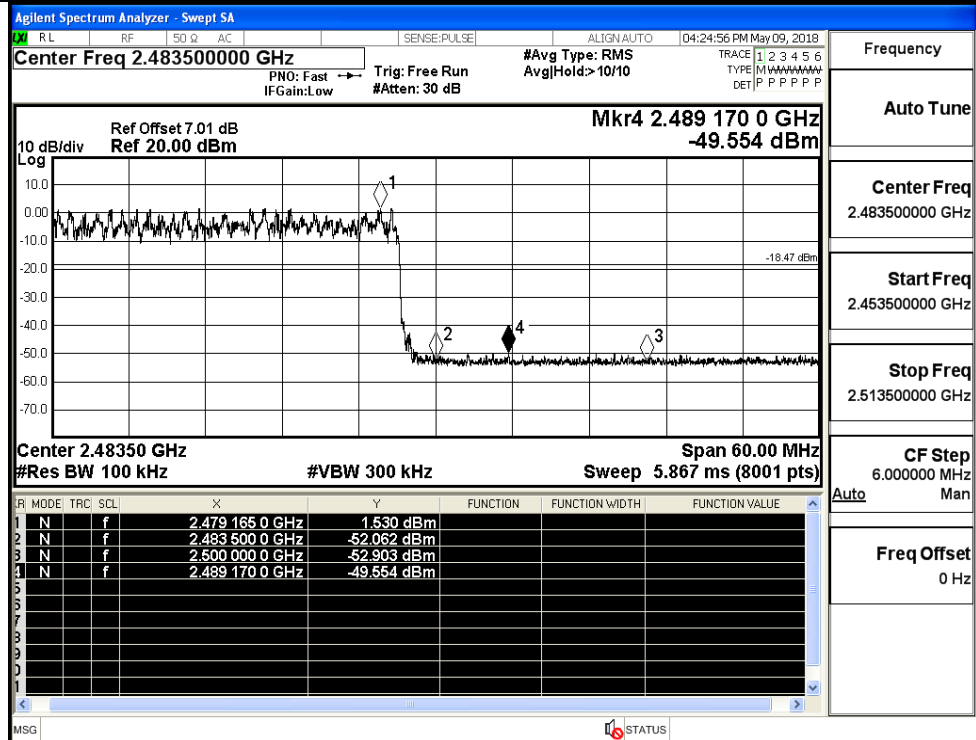
GFSK/LCH/Hop



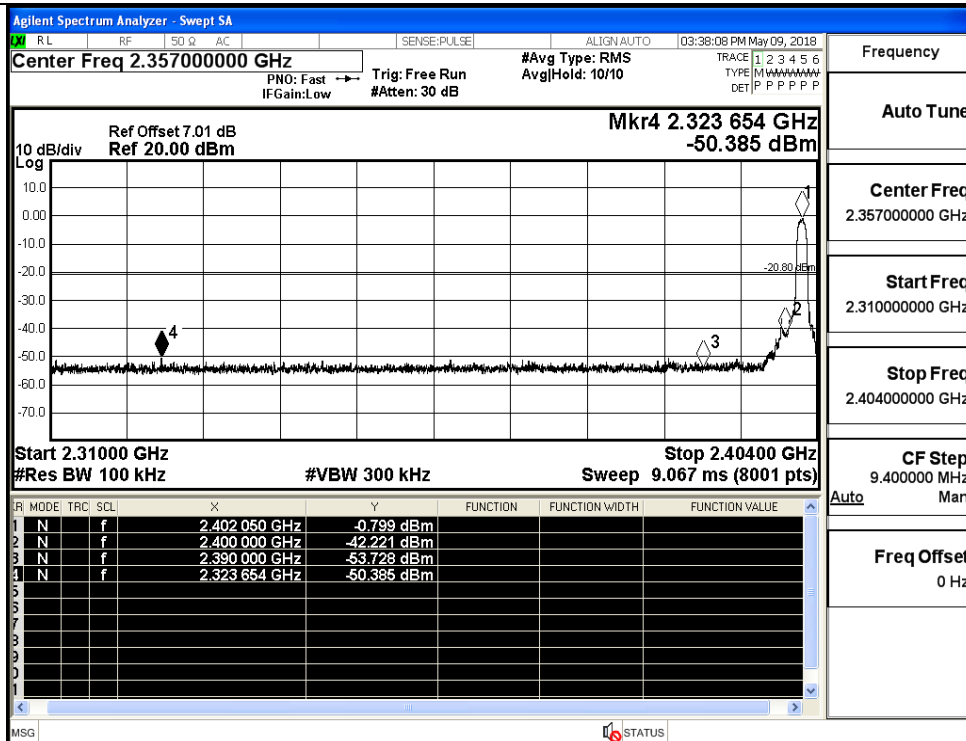
GFSK/HCH/No Hop



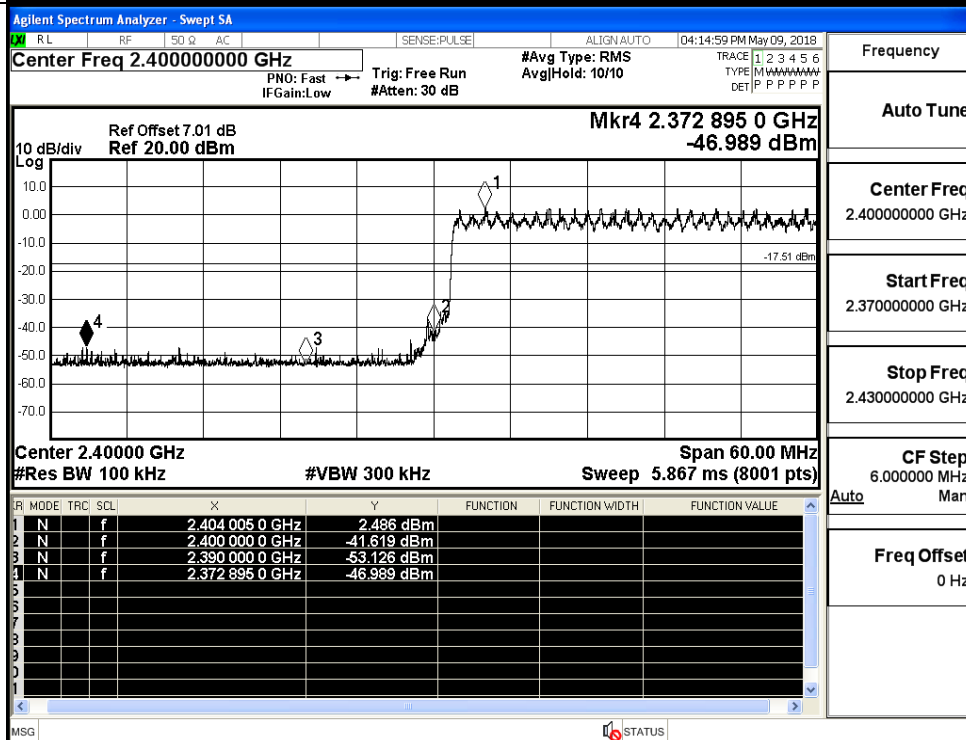
GFSK/HCH/Hop



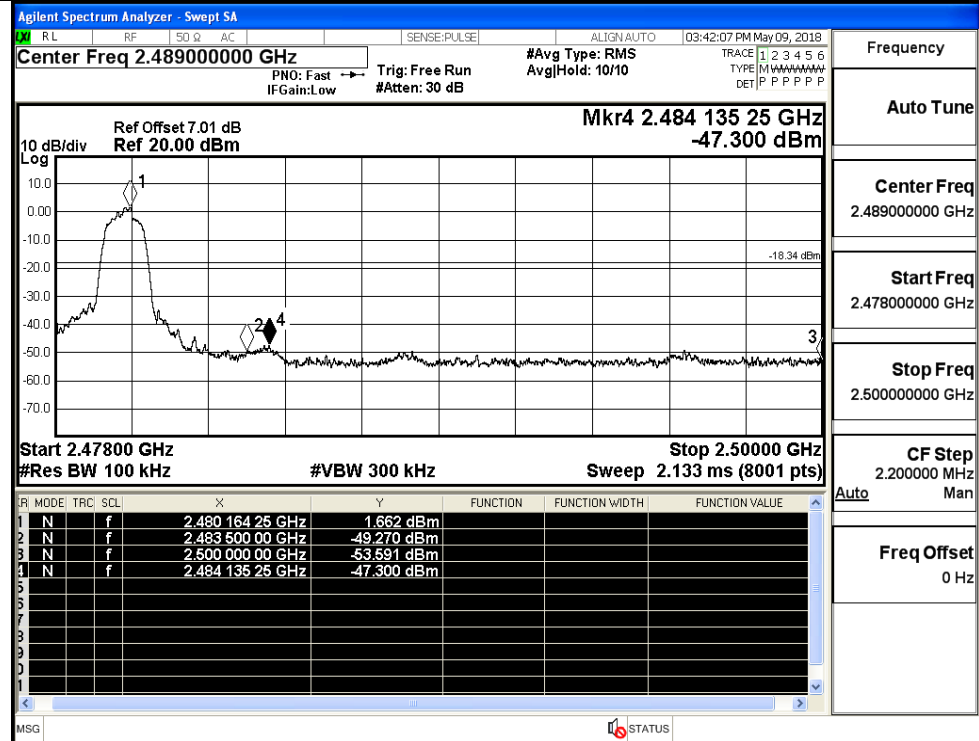
$\pi/4$ DQPSK/LCH/No
Hop



$\pi/4$ DQPSK/LCH/Hop



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

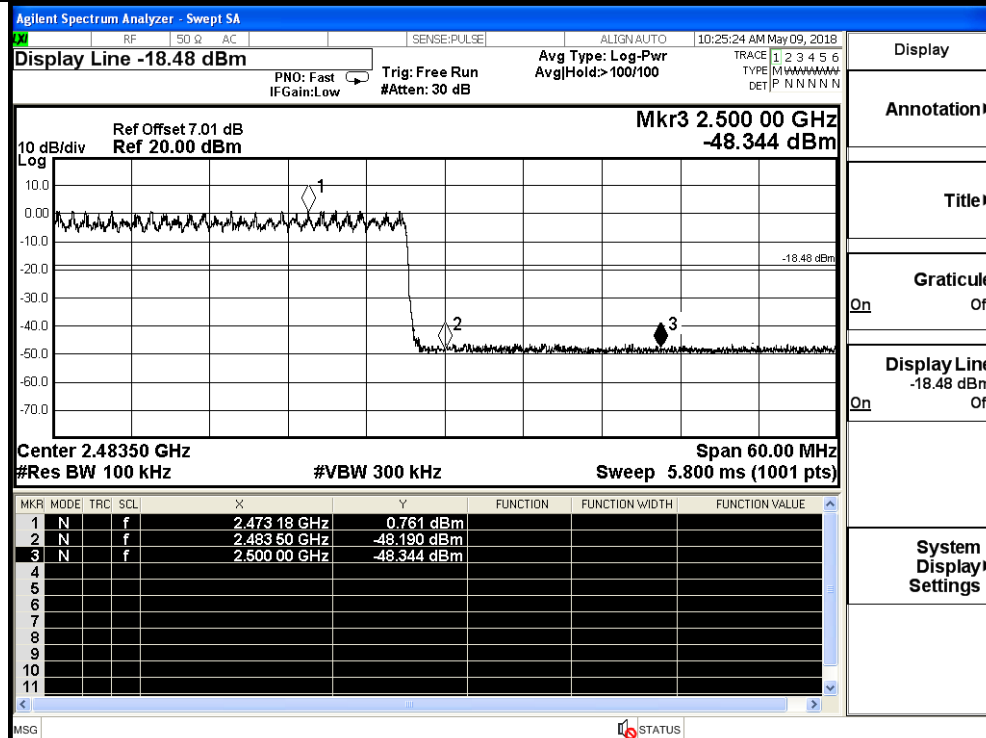


Frequency

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



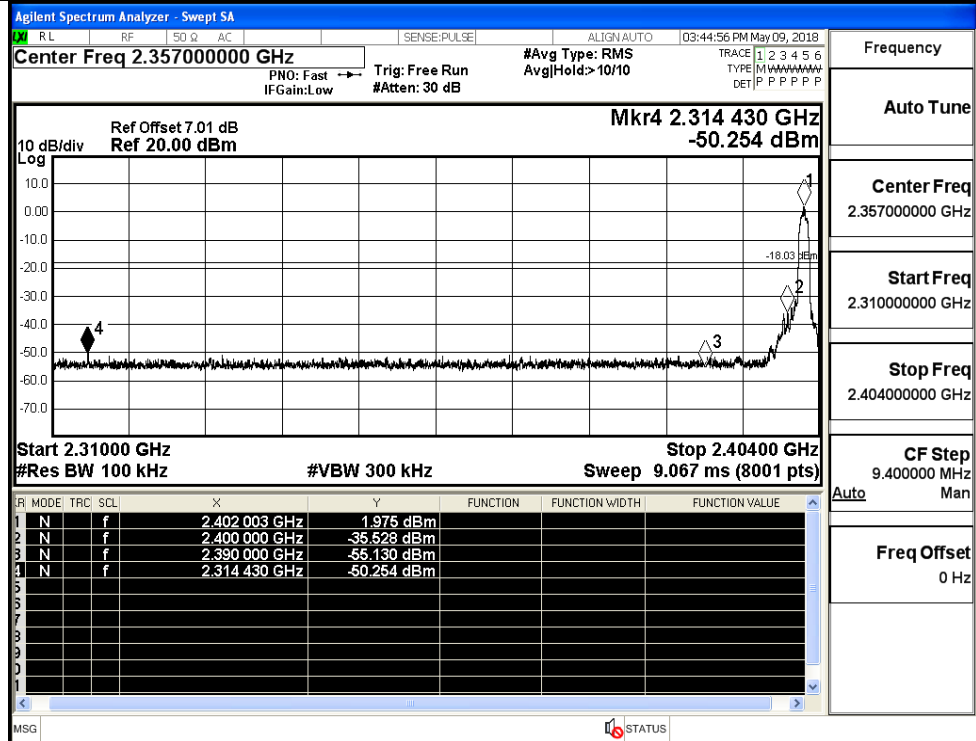
Display

Annotation▶

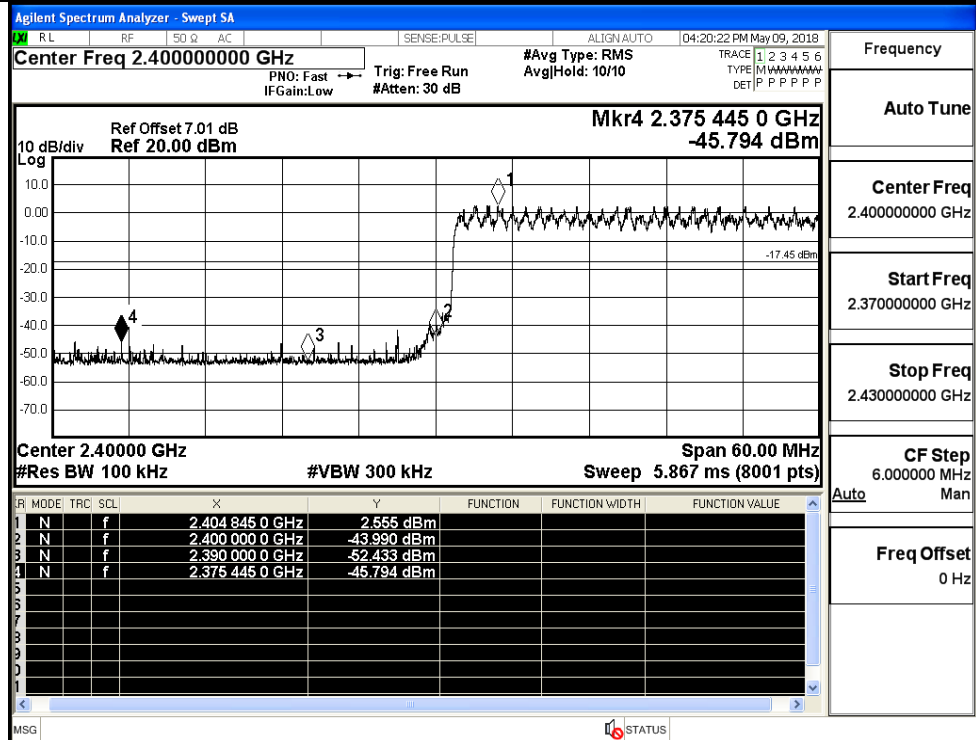
Title▶

Graticule
On OffDisplay Line
-18.48 dBm
On OffSystem
Display▶
Settings

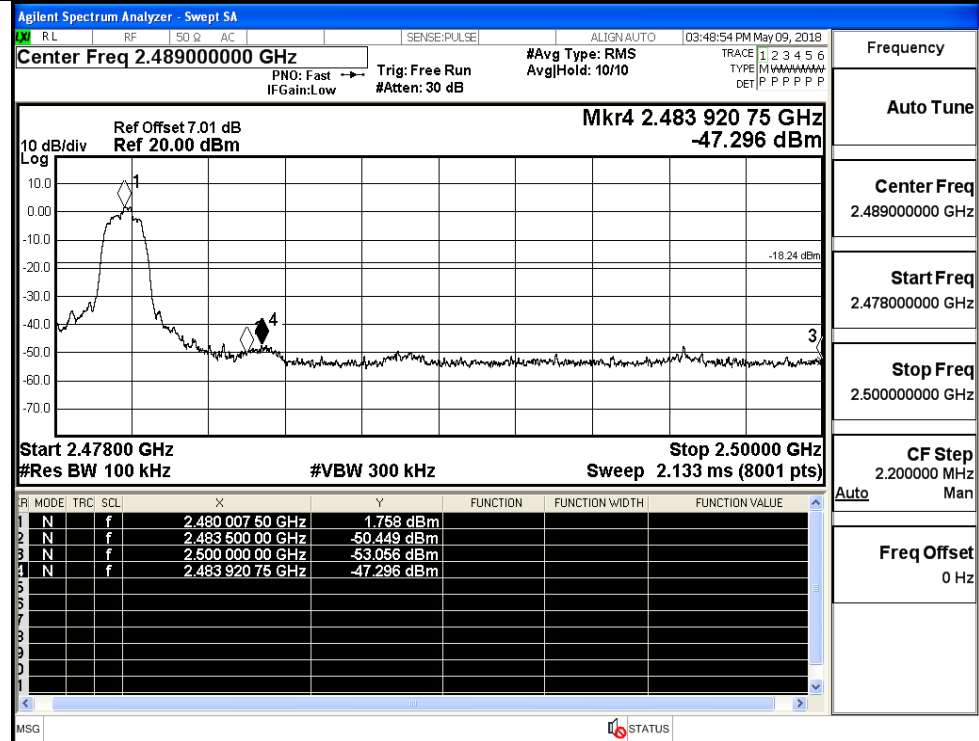
8DPSK/LCH/No Hop



8DPSK/LCH/Hop



8DPSK/HCH/No Hop

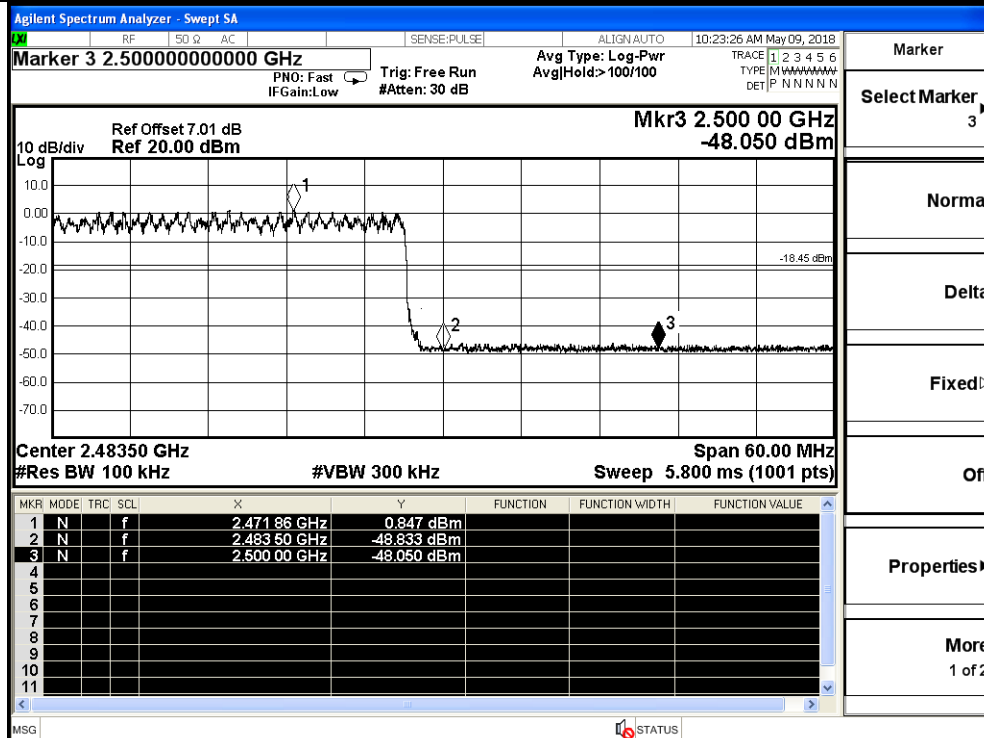


Frequency

Auto Tune

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

8DPSK/HCH/Hop



Marker

Select Marker
3

Normal

Delta

Fixed

Off

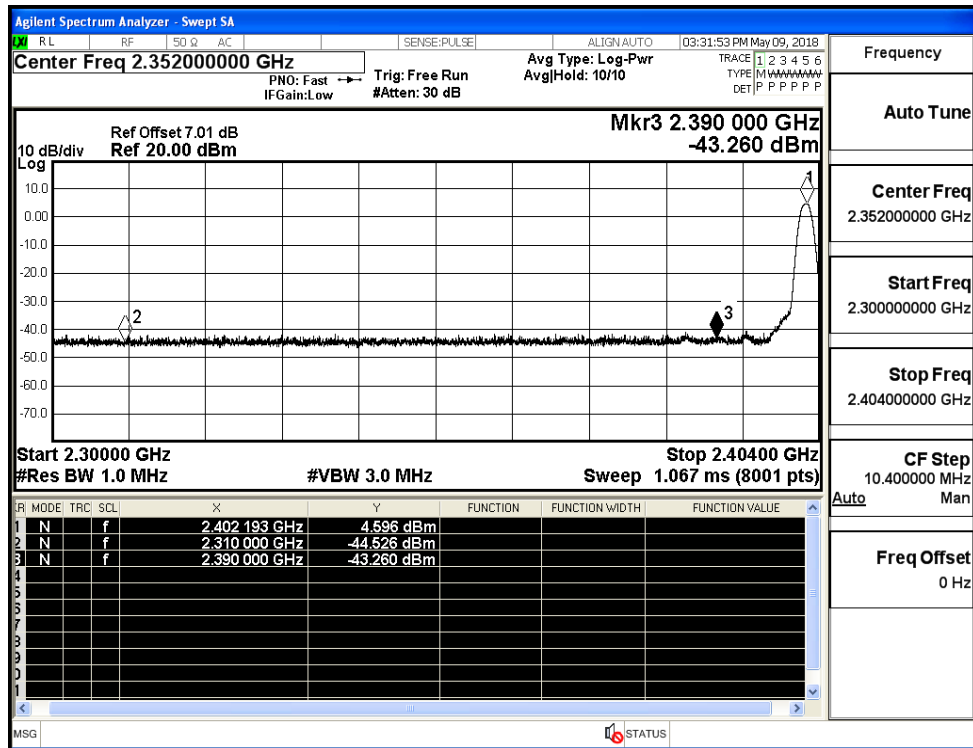
Properties

More
1 of 2

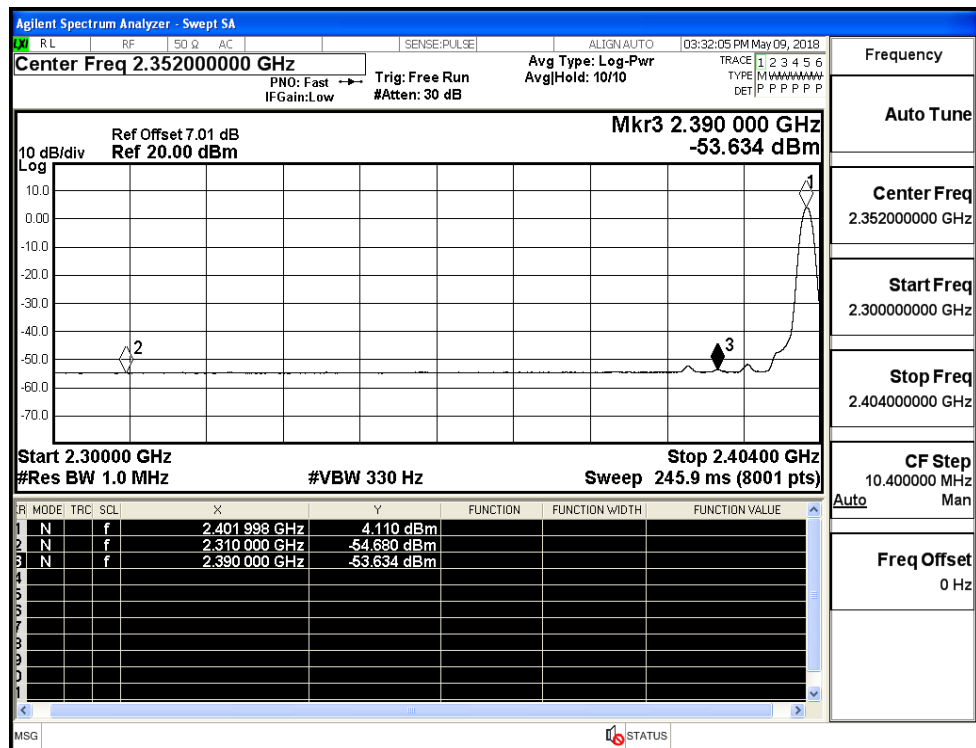
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-44.53	2.0	0	50.73	PEAK	74	PASS
	Off	2310.0	-54.68	2.0	0	40.58	AV	54	PASS
	Off	2390.0	-43.26	2.0	0	52.00	PEAK	74	PASS
	Off	2390.0	-53.63	2.0	0	41.62	AV	54	PASS
	Off	2483.5	-38.04	2.0	0	57.22	PEAK	74	PASS
	Off	2483.5	-46.57	2.0	0	48.69	AV	54	PASS
	Off	2500.0	-44.76	2.0	0	50.50	PEAK	74	PASS
	Off	2500.0	-53.91	2.0	0	41.35	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.92	2.0	0	52.34	PEAK	74	PASS
	Off	2310.0	-54.61	2.0	0	40.64	AV	54	PASS
	Off	2390.0	-44.72	2.0	0	50.54	PEAK	74	PASS
	Off	2390.0	-54.35	2.0	0	40.91	AV	54	PASS
	Off	2483.5	-40.67	2.0	0	54.59	PEAK	74	PASS
	Off	2483.5	-50.23	2.0	0	45.03	AV	54	PASS
	Off	2500.0	-44.61	2.0	0	50.65	PEAK	74	PASS
	Off	2500.0	-54.03	2.0	0	41.23	AV	54	PASS
8DPSK	Off	2310.0	-43.35	2.0	0	51.91	PEAK	74	PASS
	Off	2310.0	-54.79	2.0	0	40.47	AV	54	PASS
	Off	2390.0	-44.05	2.0	0	51.21	PEAK	74	PASS
	Off	2390.0	-54.32	2.0	0	40.94	AV	54	PASS
	Off	2483.5	-39.78	2.0	0	55.48	PEAK	74	PASS
	Off	2483.5	-50.22	2.0	0	45.04	AV	54	PASS
	Off	2500.0	-43.97	2.0	0	51.29	PEAK	74	PASS
	Off	2500.0	-54.02	2.0	0	41.24	AV	54	PASS

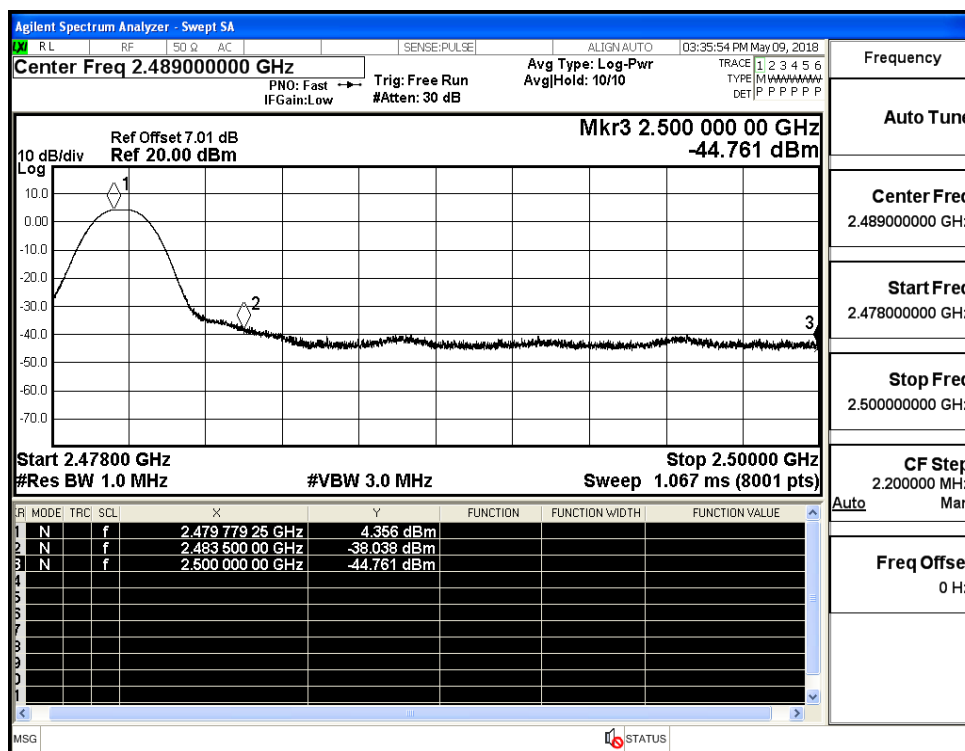
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



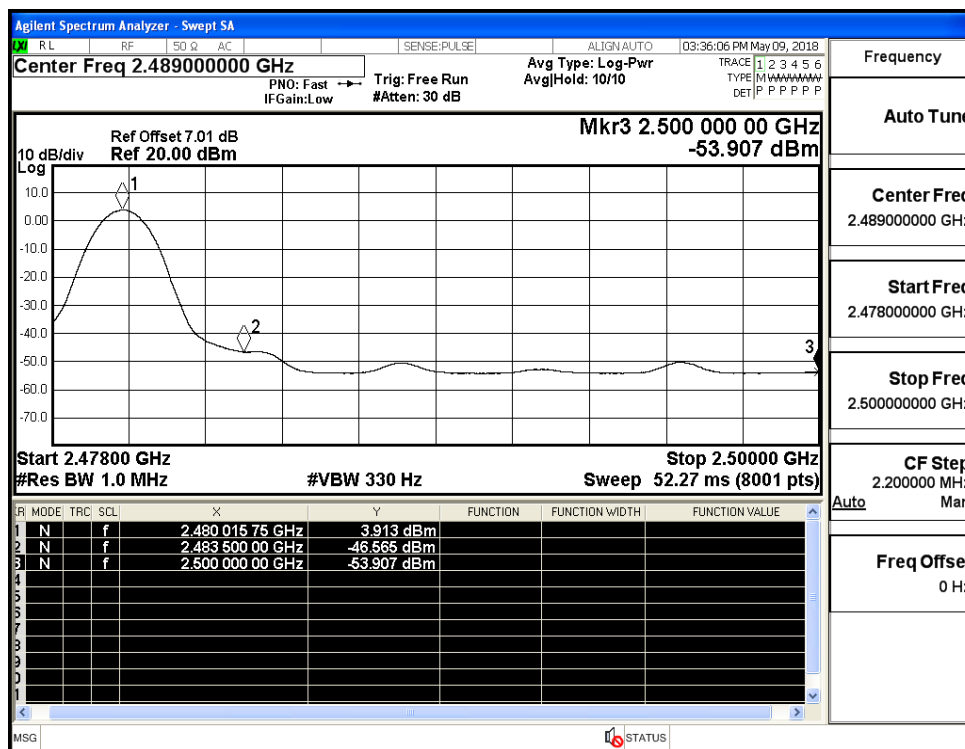
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

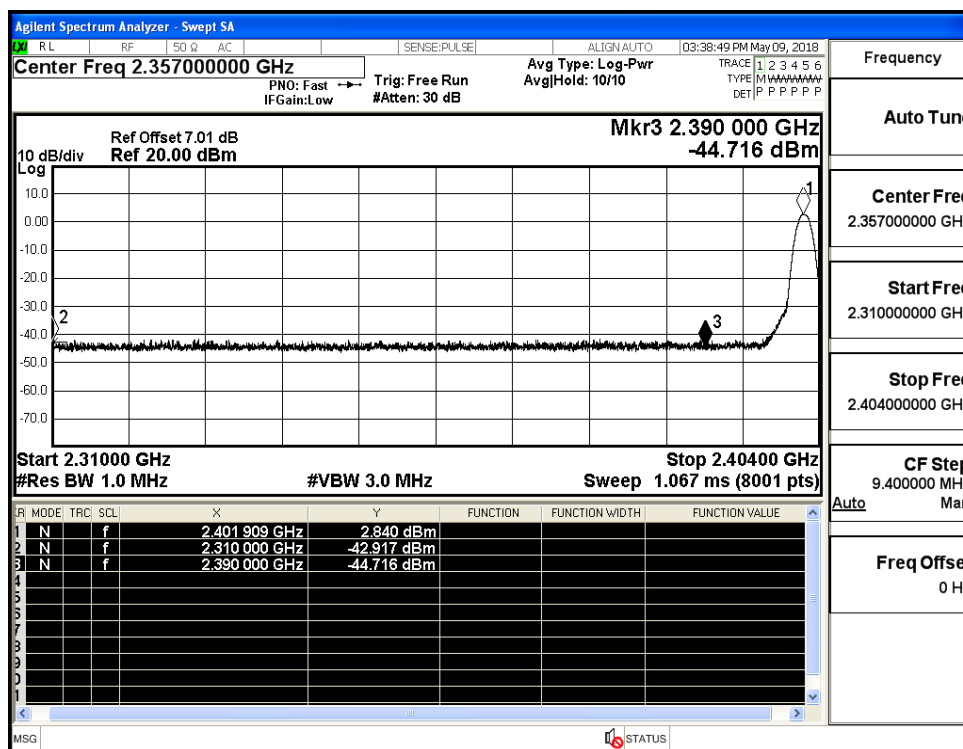
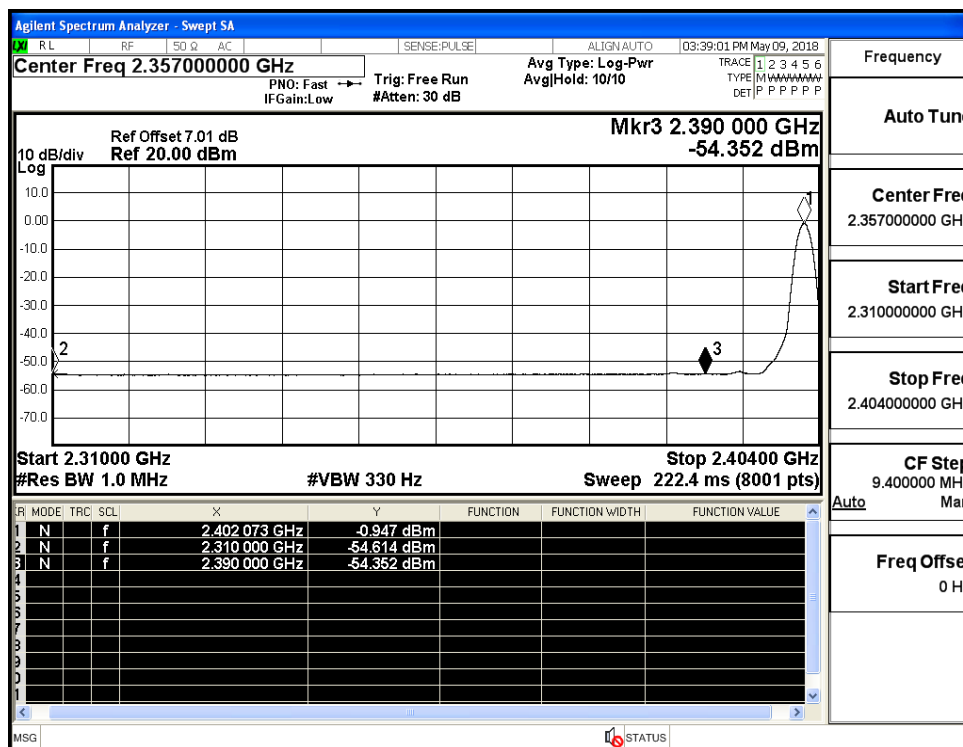


Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)

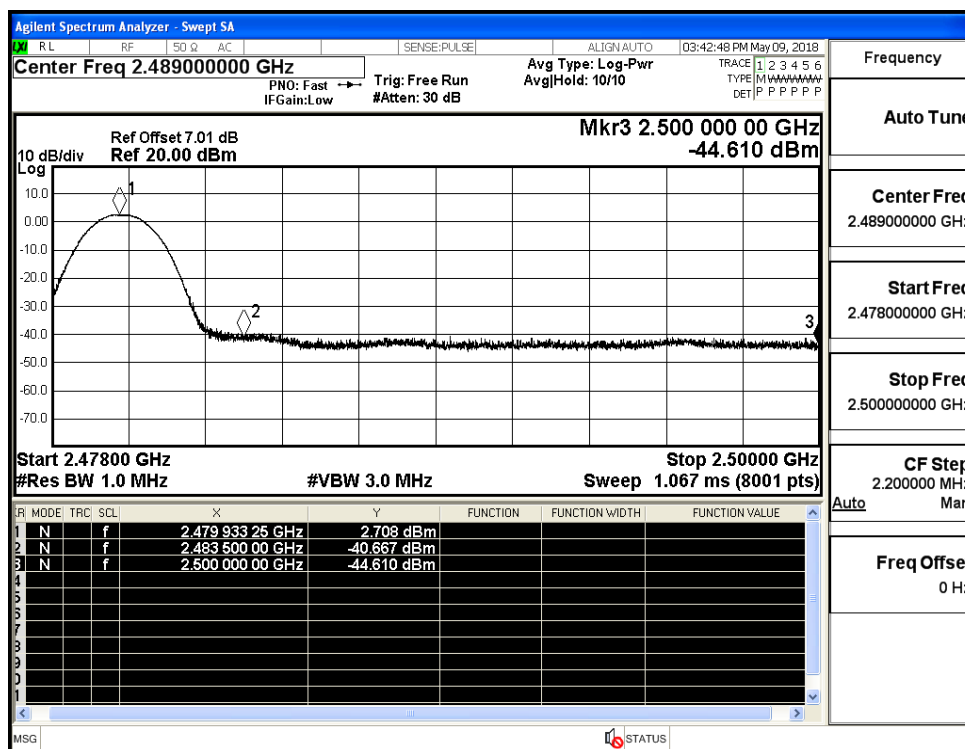


Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)

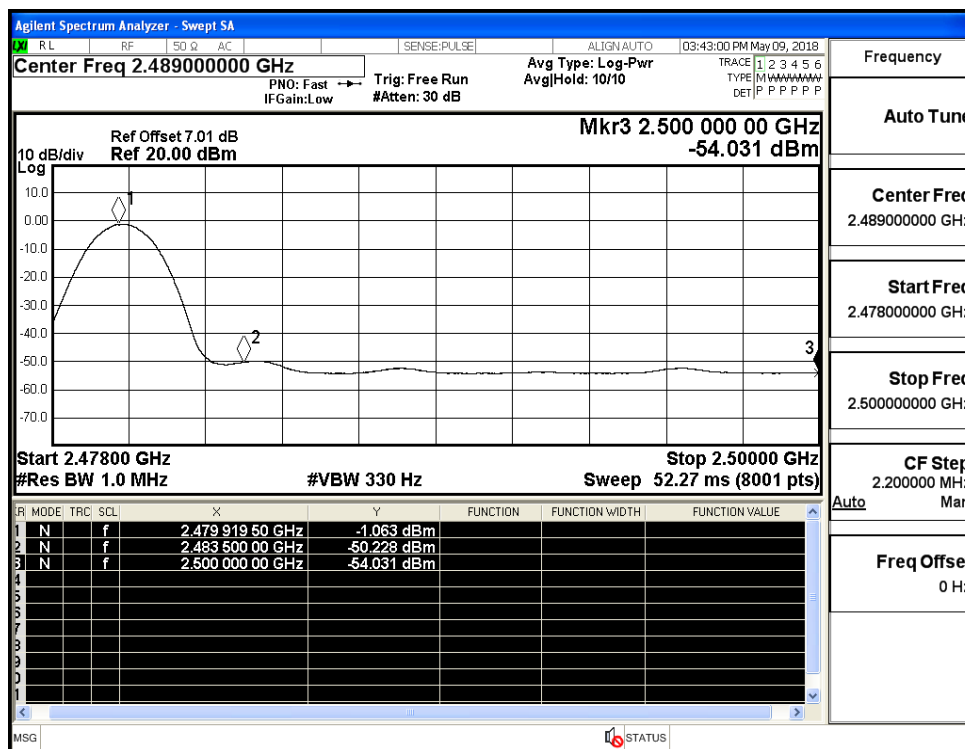


Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

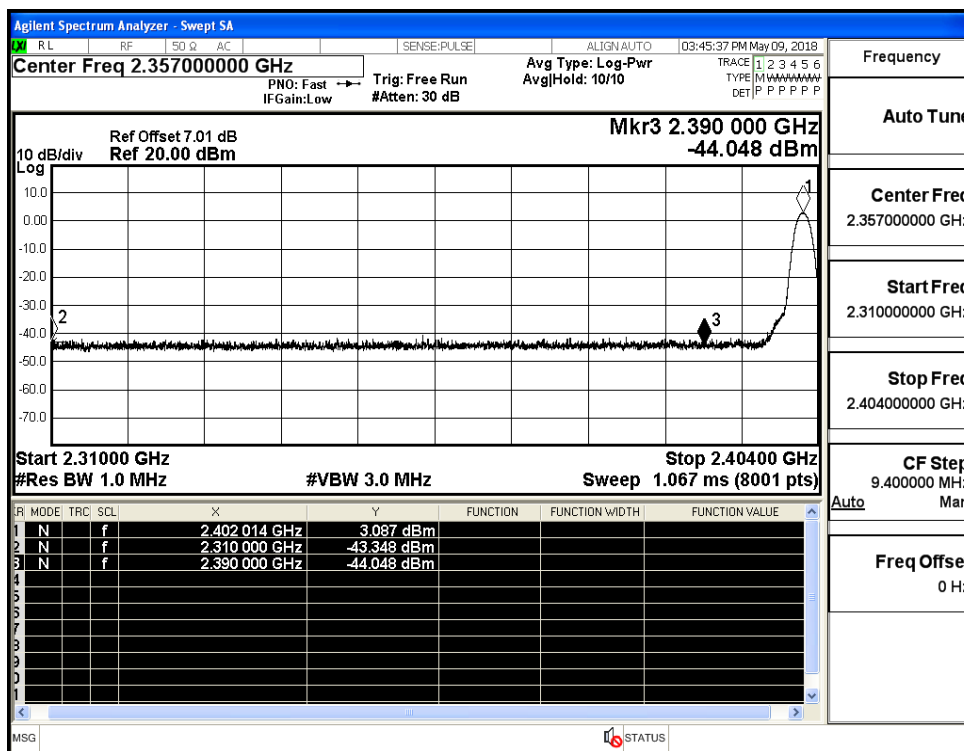
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



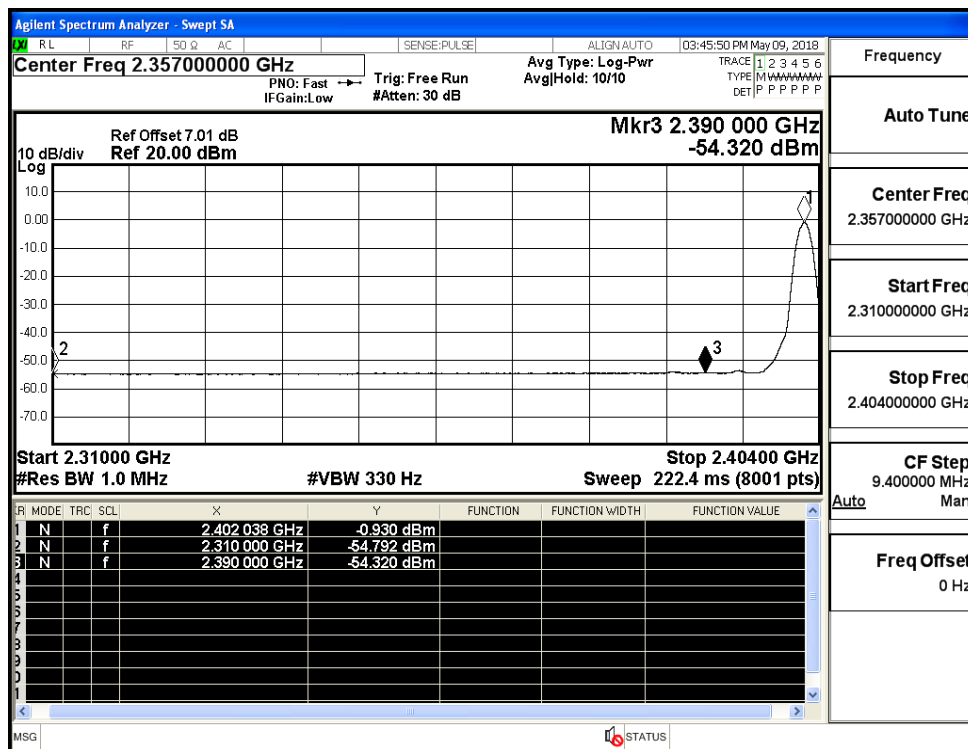
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



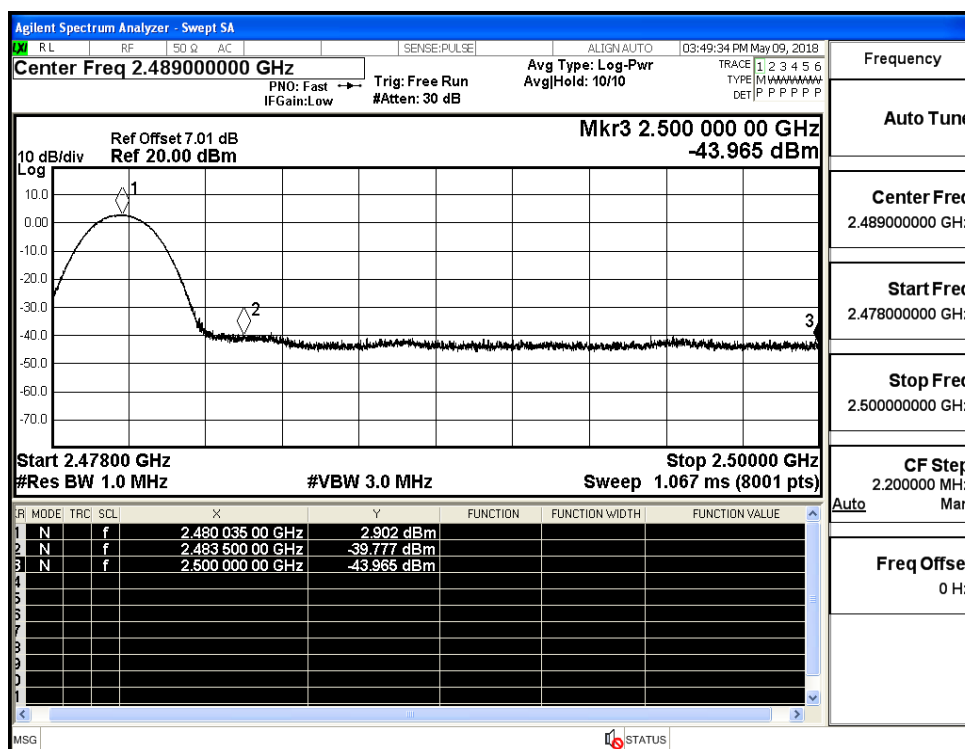
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

