

Appendix A

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

Product Name: Urbanista Milan

Trade Mark: Urbanista

Test Model: Urbanista Milan

Environmental Conditions

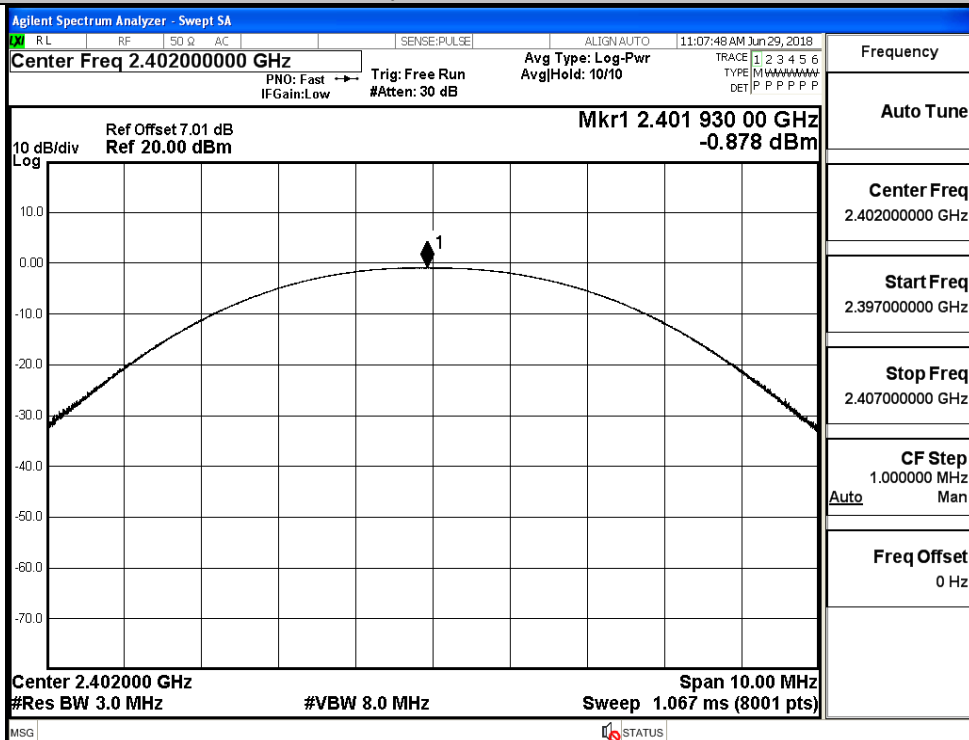
Temperature:	23.6 ° C
Relative Humidity:	53.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Mina.Xu
Supervised by:	Jayden.Zhuo

A.1 Maximum Conducted Peak Output Power

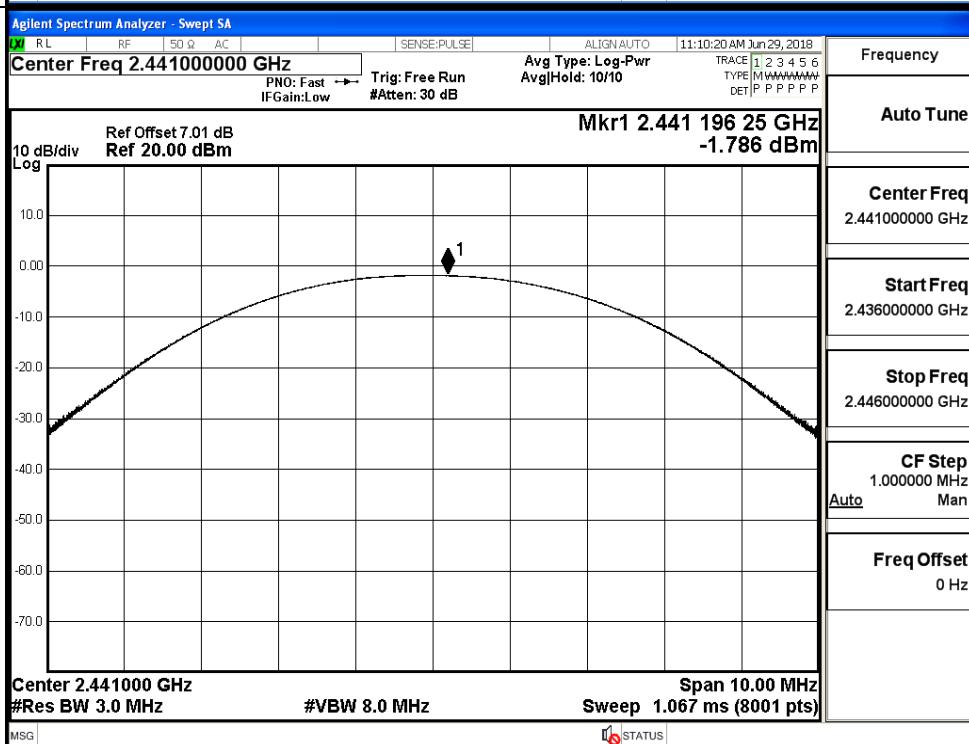
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.878	21	PASS
	MCH	-1.786	21	PASS
	HCH	-3.223	21	PASS
$\pi/4$ DQPSK	LCH	-0.873	21	PASS
	MCH	-1.826	21	PASS
	HCH	-3.206	21	PASS
8DPSK	LCH	-0.902	21	PASS
	MCH	-1.780	21	PASS
	HCH	-3.261	21	PASS

Test Graphs

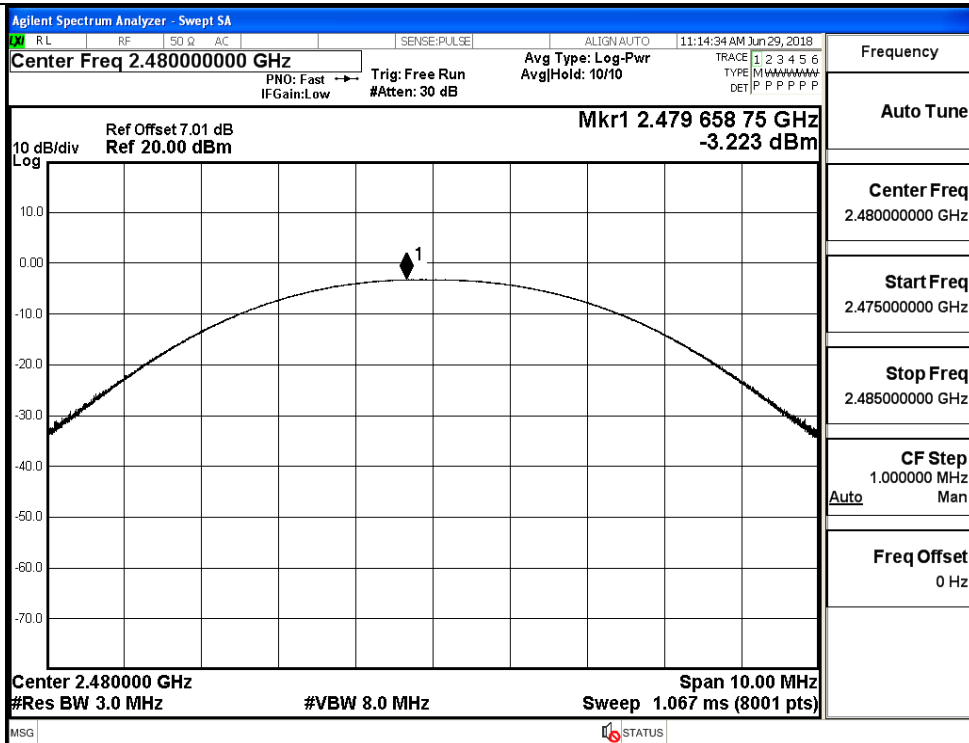
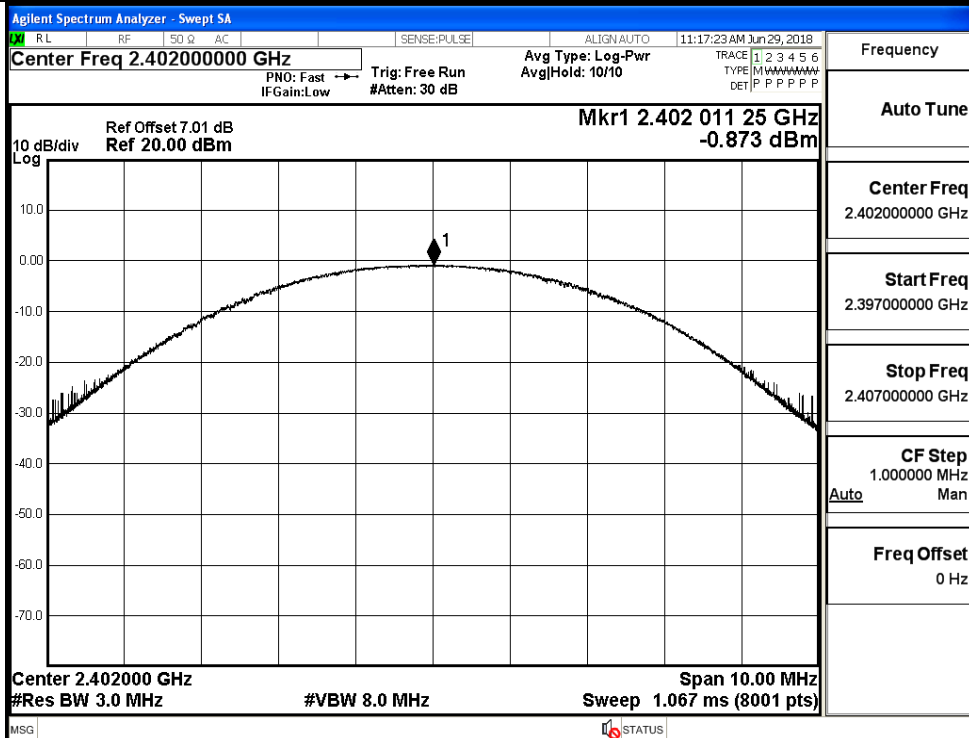
GFSK/LCH

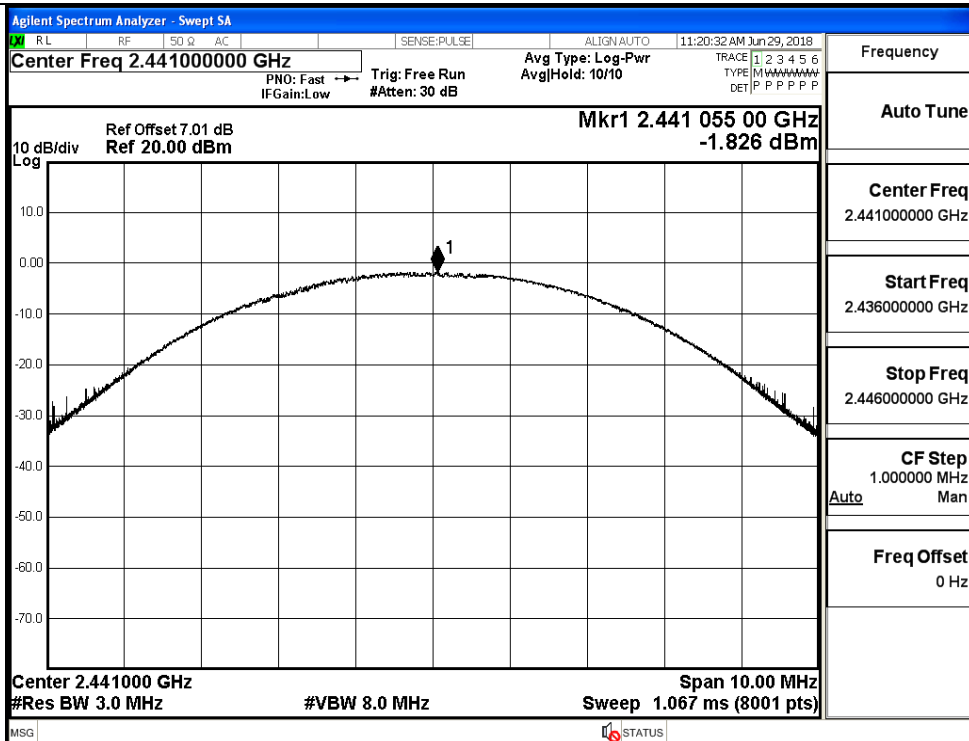
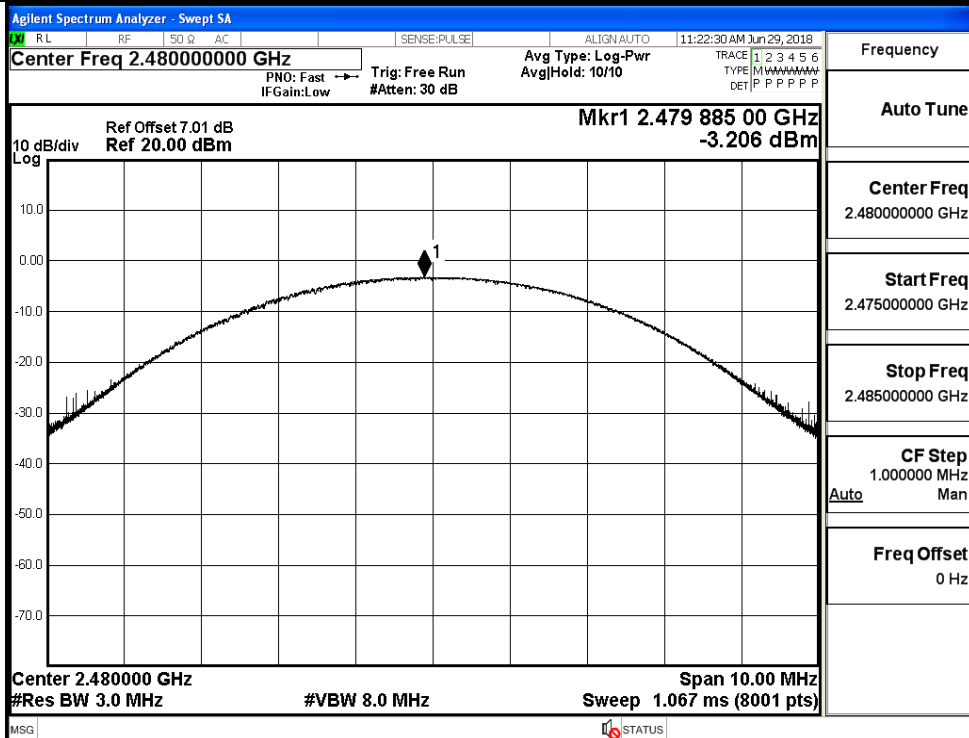


GFSK/MCH

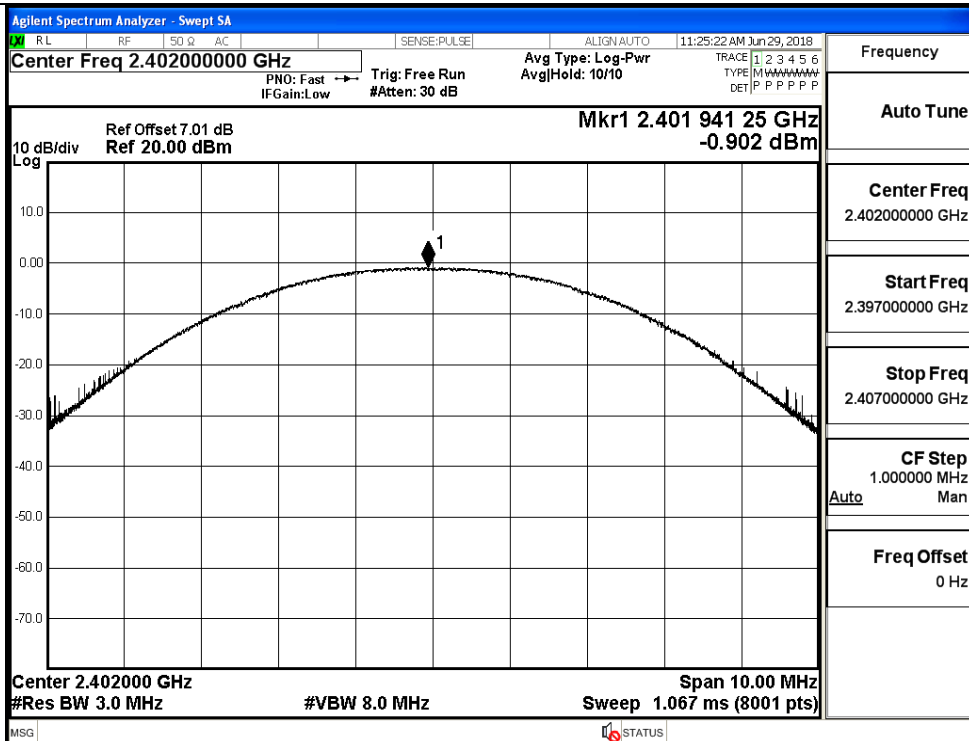


GFSK/HCH

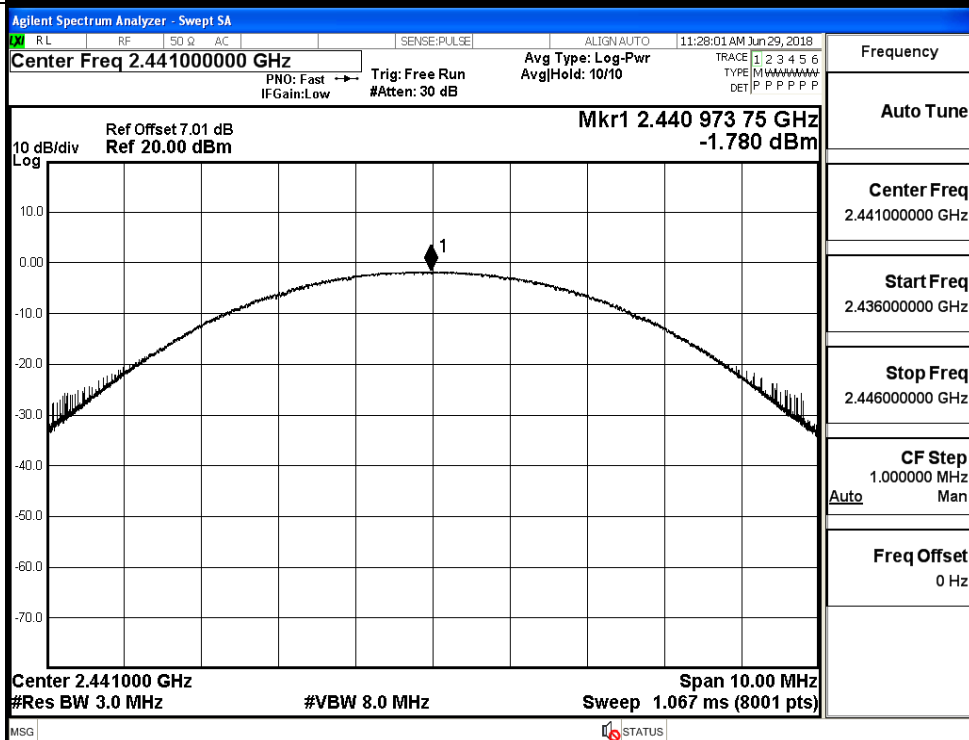
 π /4DQPSK/LCH

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

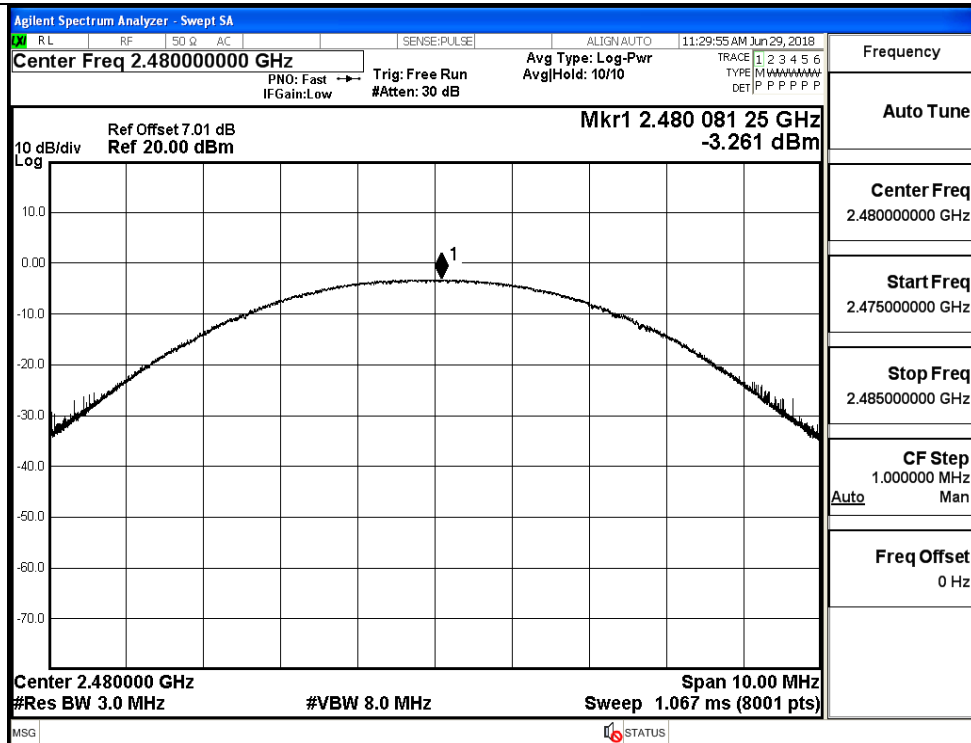
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

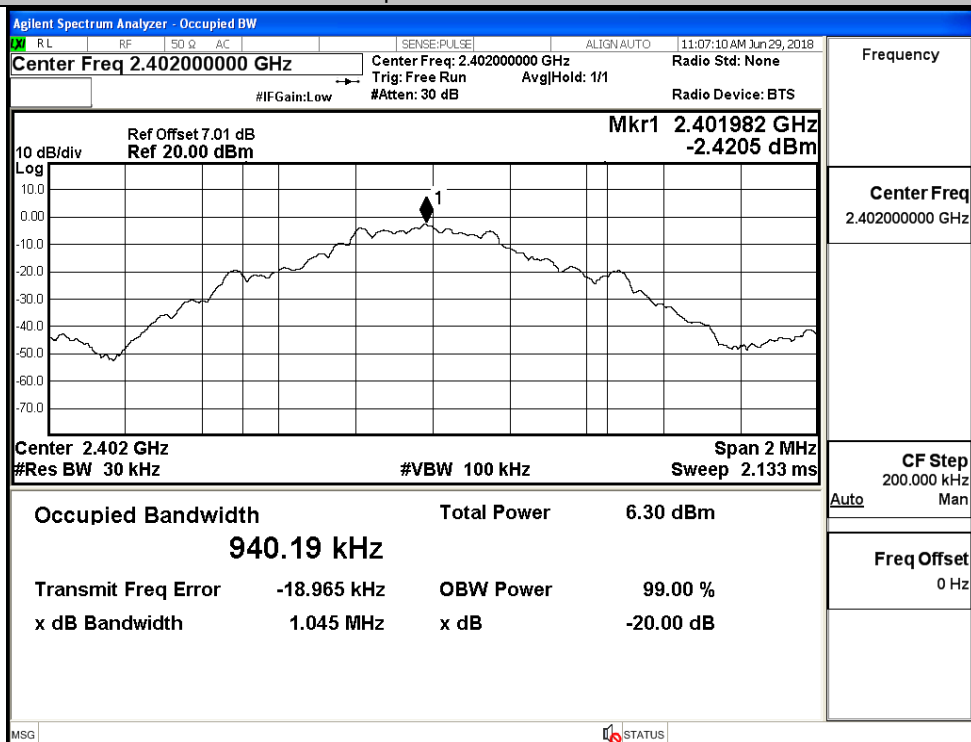


A.2 20dB Bandwidth

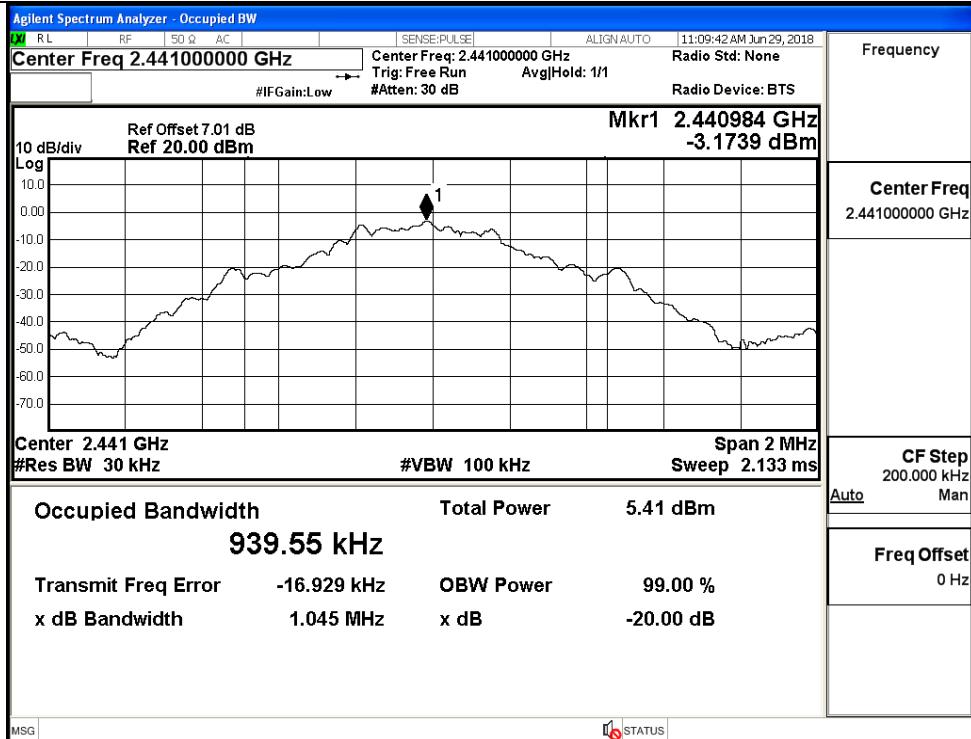
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.045	Not Specified	PASS
	MCH	1.045	Not Specified	PASS
	HCH	1.044	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.189	Not Specified	PASS
	MCH	1.188	Not Specified	PASS
	HCH	1.189	Not Specified	PASS
8DPSK	LCH	1.234	Not Specified	PASS
	MCH	1.241	Not Specified	PASS
	HCH	1.198	Not Specified	PASS

Test Graphs

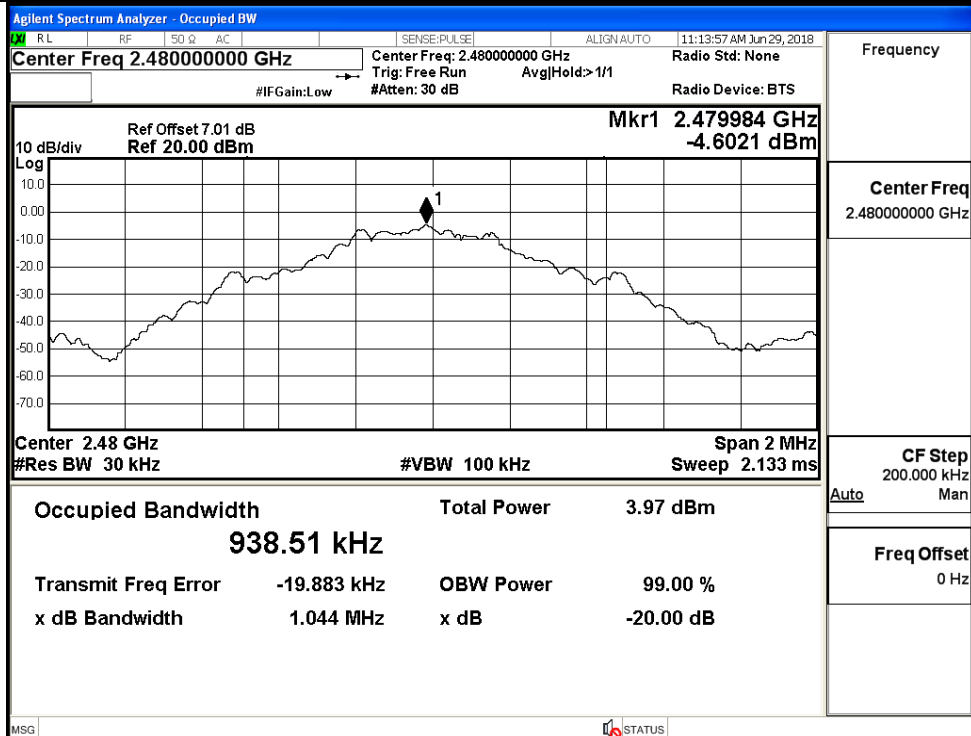
GFSK/LCH

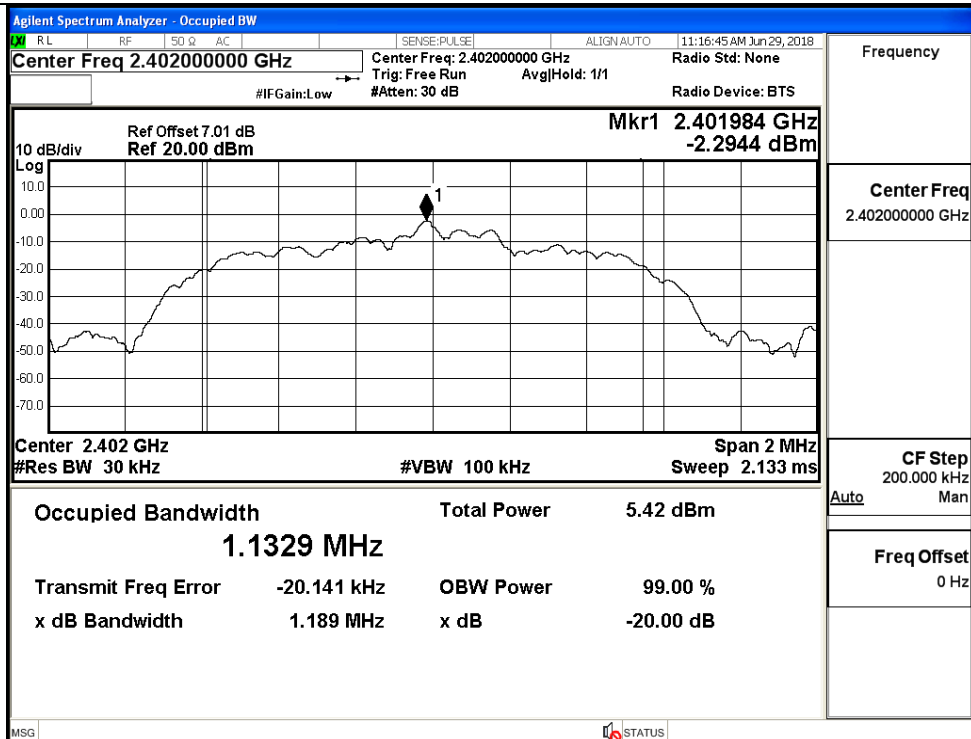
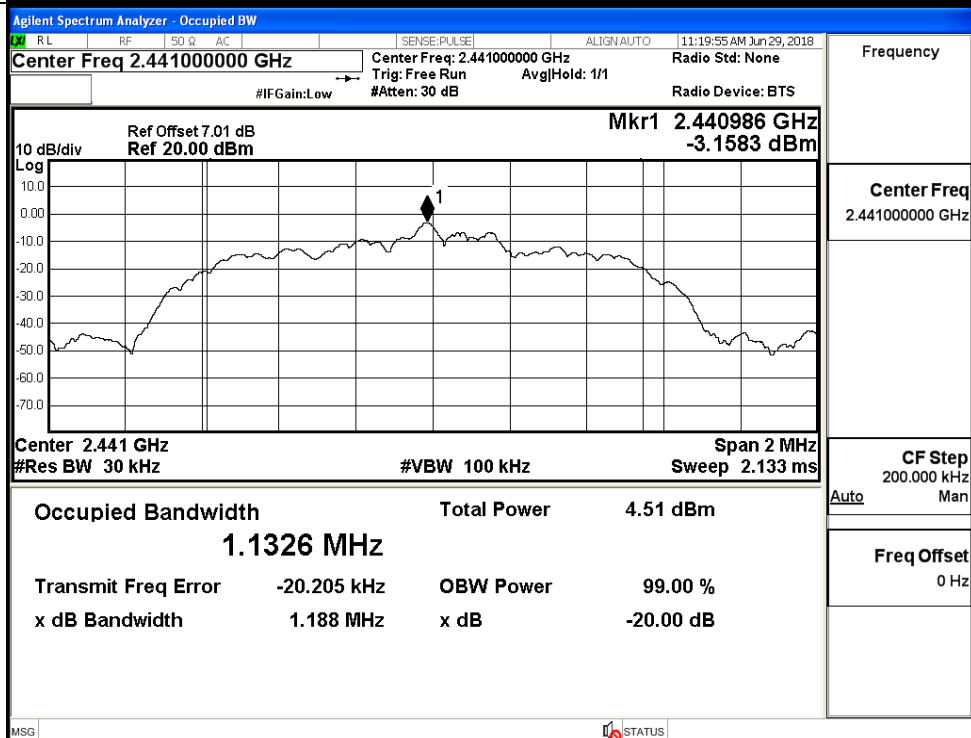


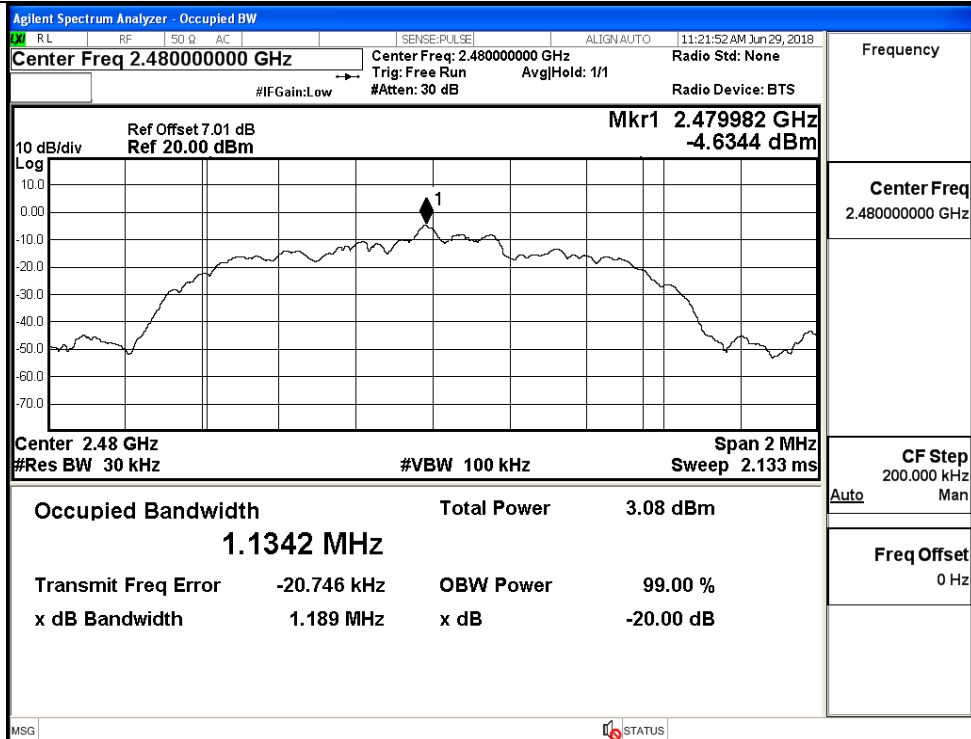
GFSK/MCH



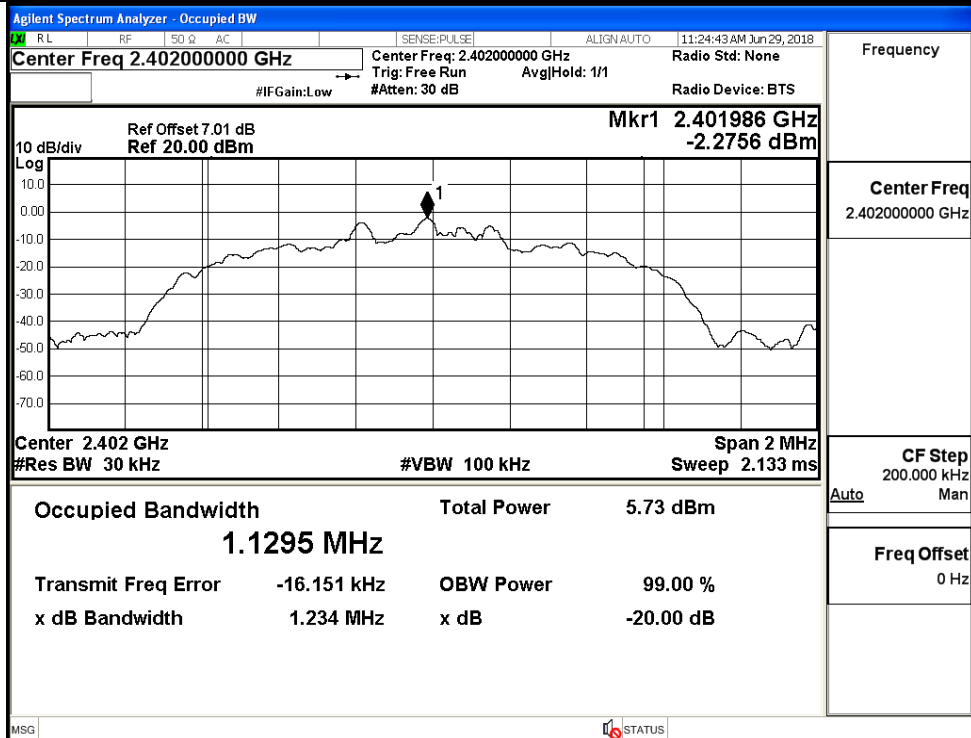
GFSK/HCH



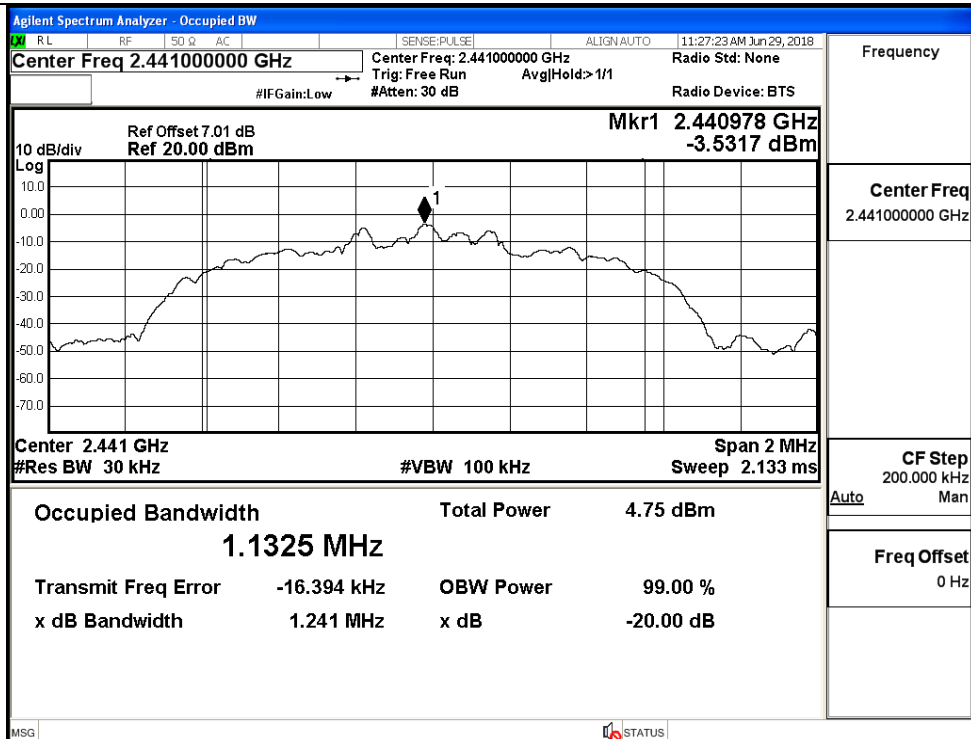
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

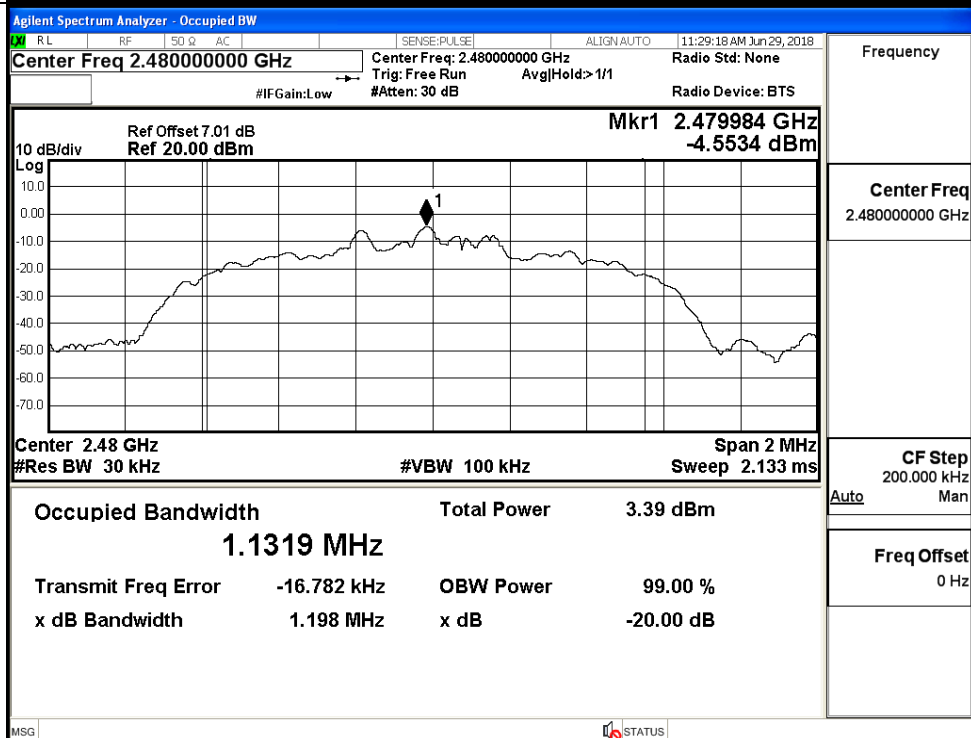
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

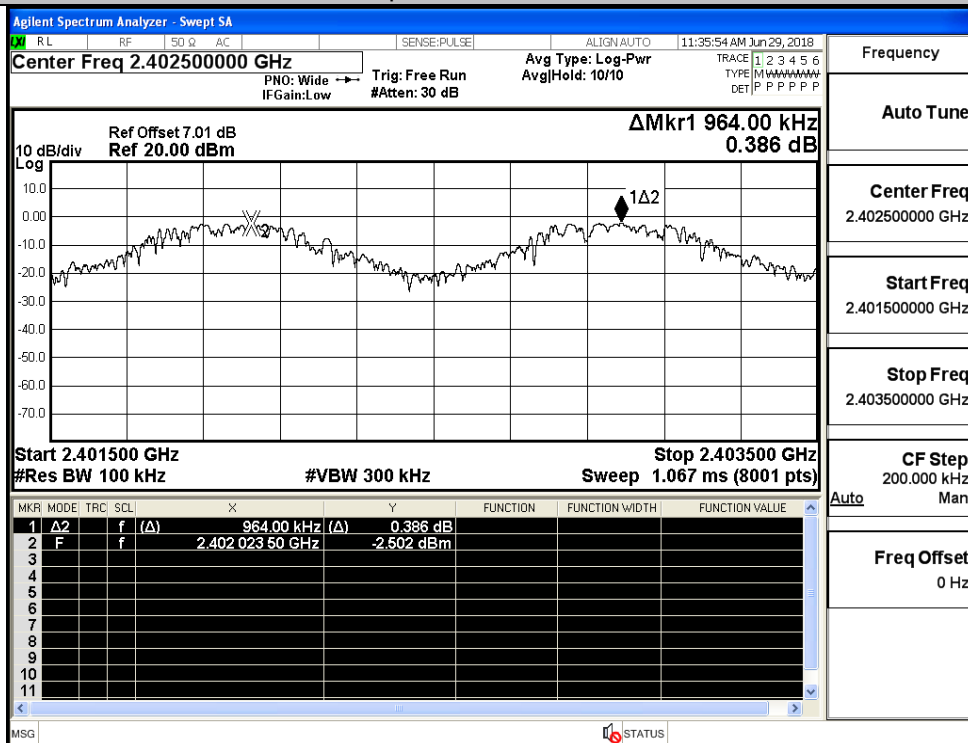


A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.964	0.697	PASS
	MCH	0.906	0.697	PASS
	HCH	1.108	0.697	PASS
$\pi/4$ DQPSK	LCH	0.838	0.793	PASS
	MCH	1.078	0.793	PASS
	HCH	0.834	0.793	PASS
8DPSK	LCH	1.034	0.827	PASS
	MCH	1.182	0.827	PASS
	HCH	0.834	0.827	PASS

Test Graphs

GFSK/LCH

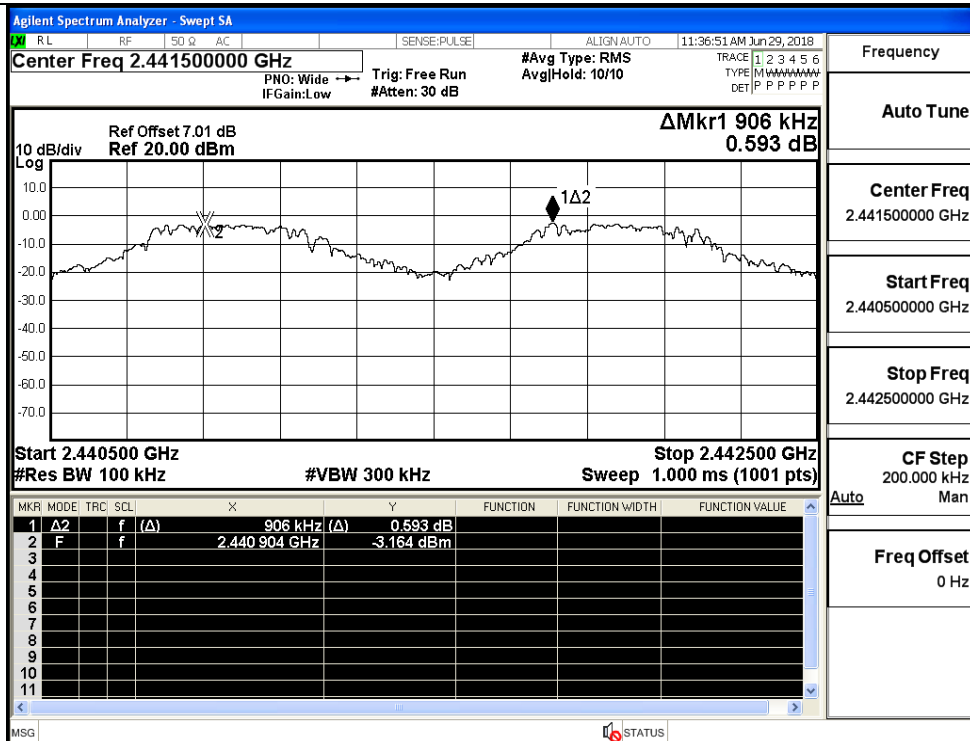


Frequency

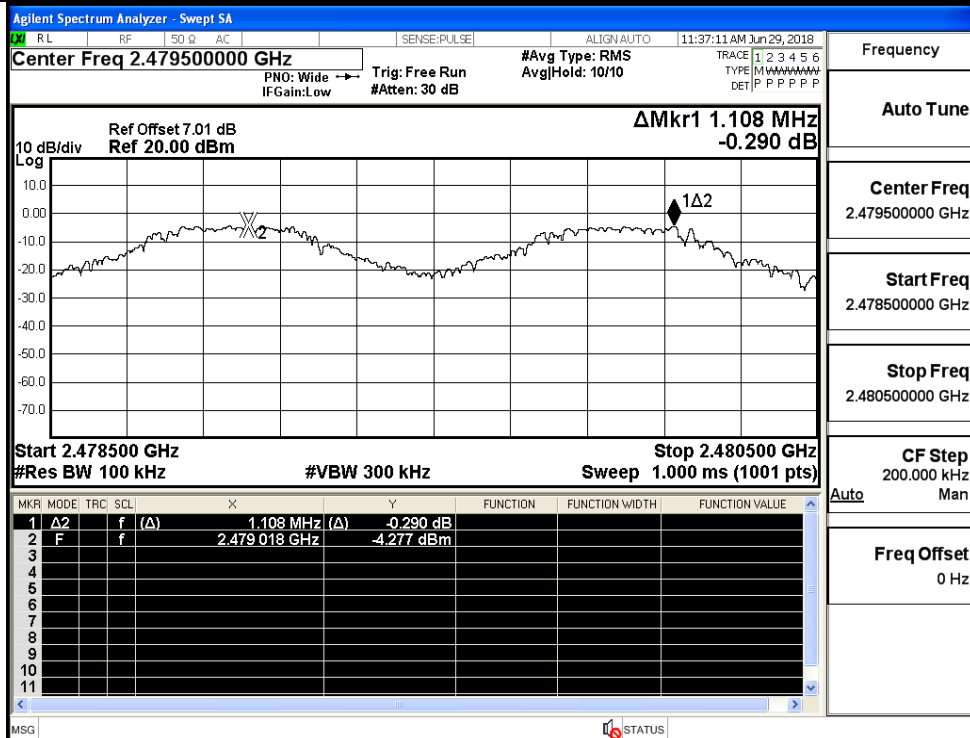
Auto Tune

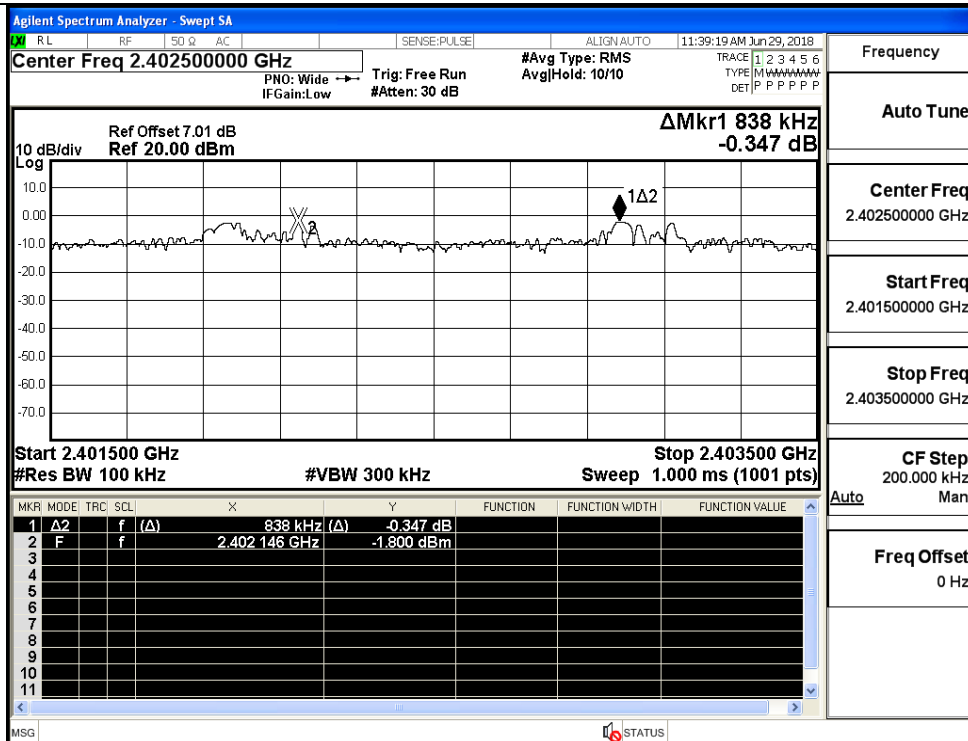
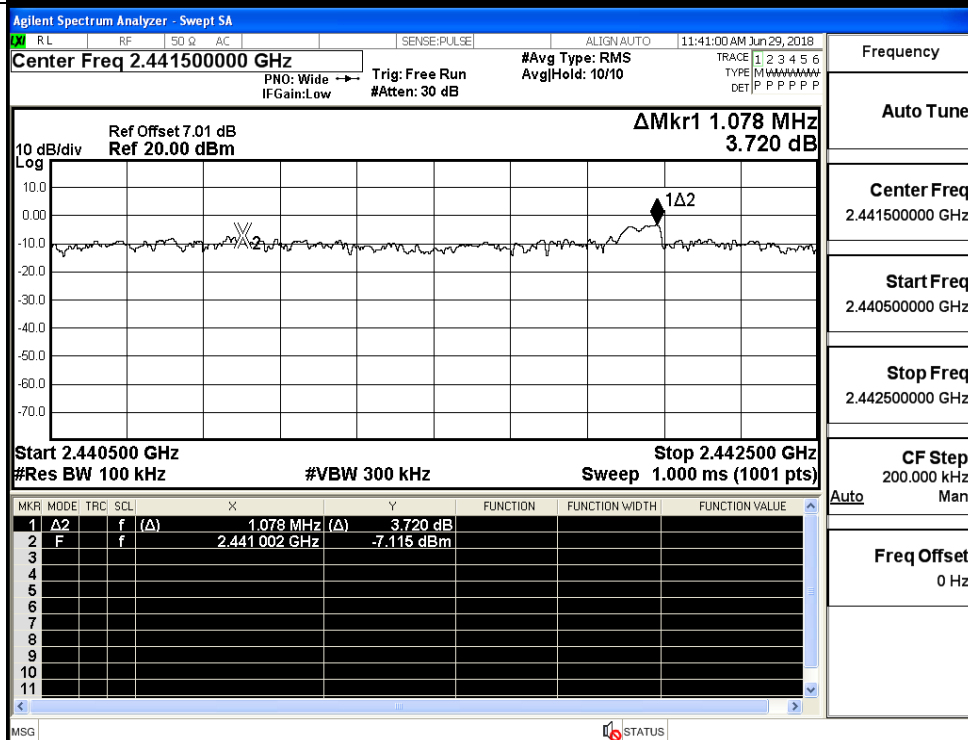
Center Freq
2.402500000 GHzStart Freq
2.401500000 GHzStop Freq
2.403500000 GHzCF Step
200.000 kHz
ManFreq Offset
0 Hz

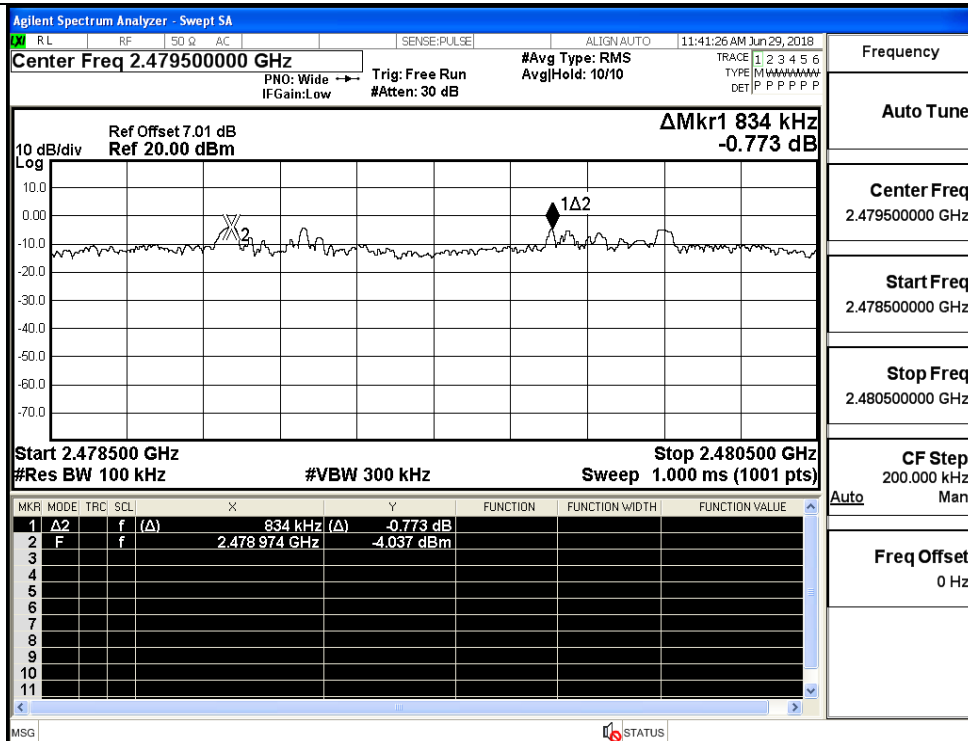
GFSK/MCH



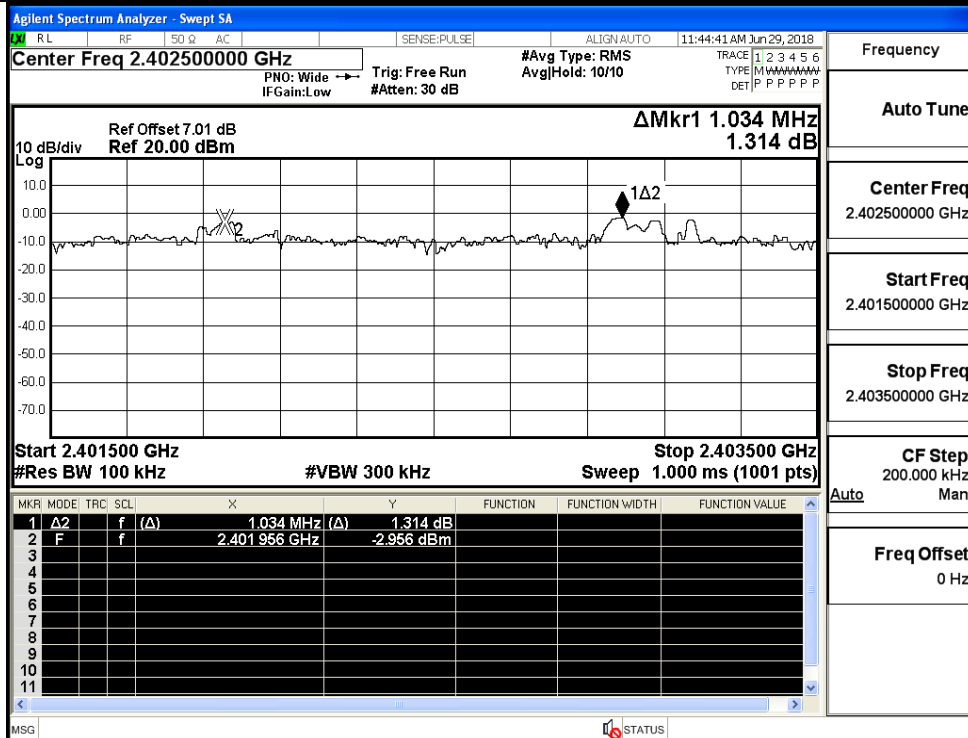
GFSK/HCH



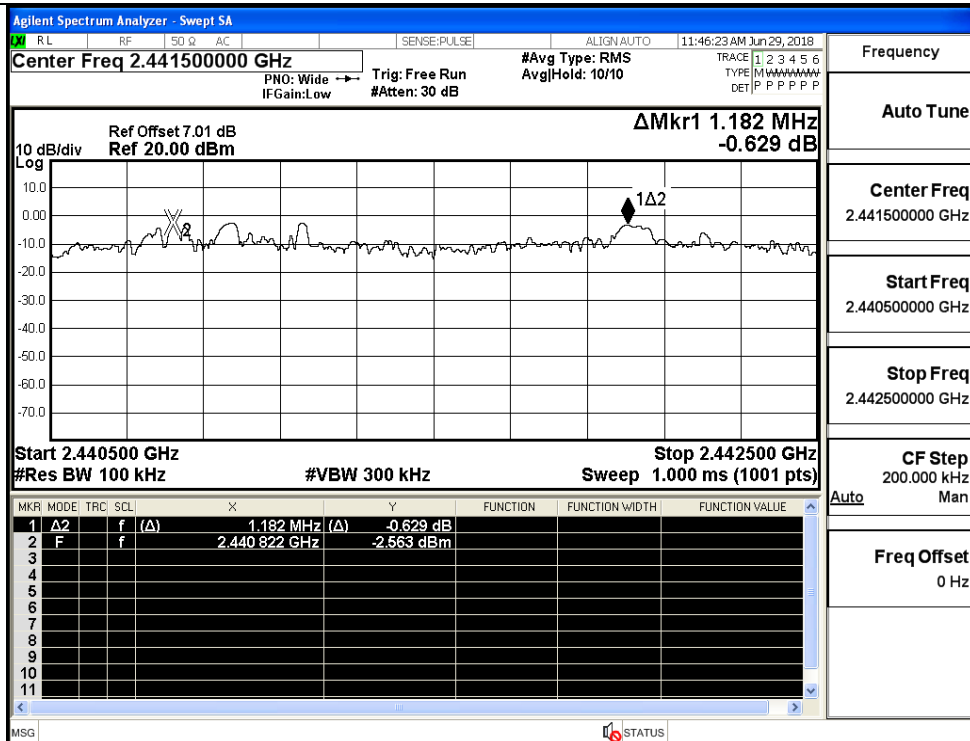
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

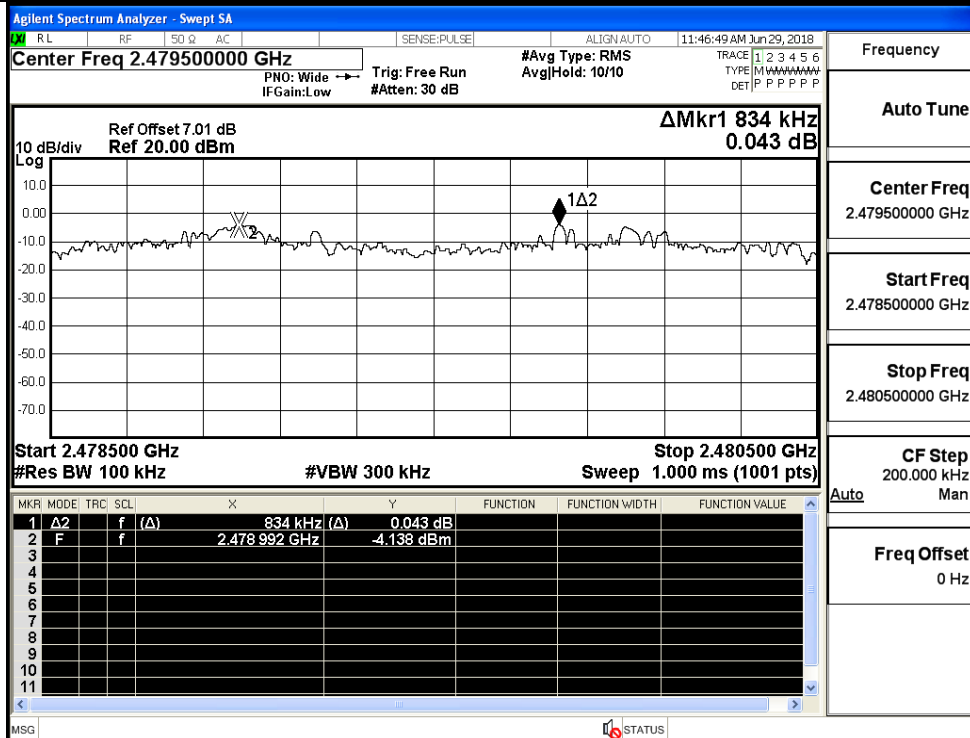
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

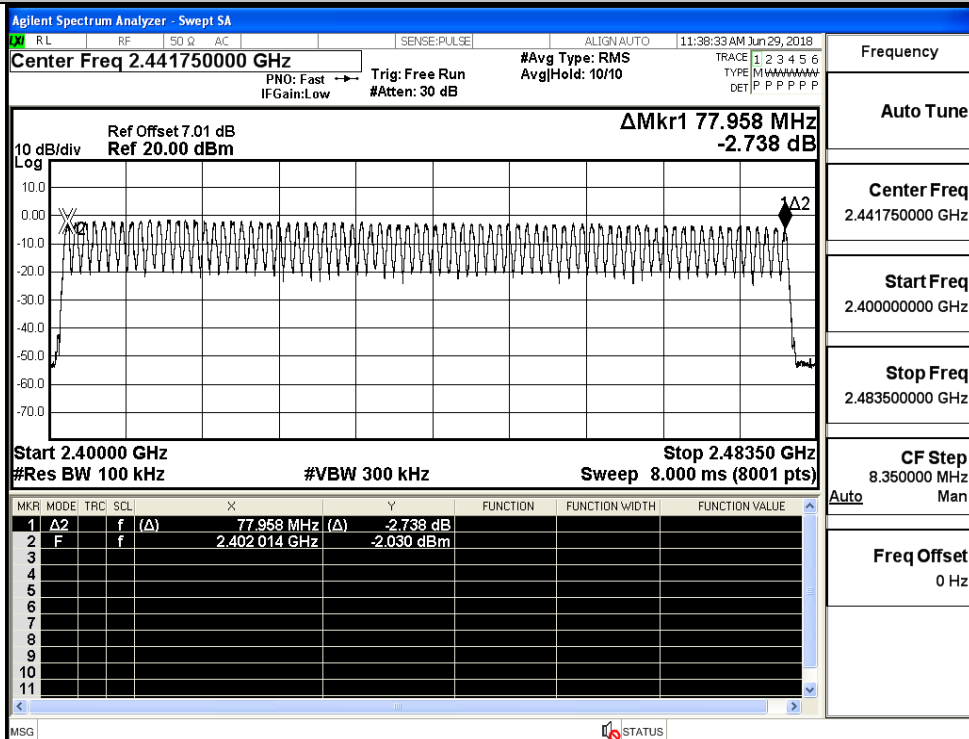
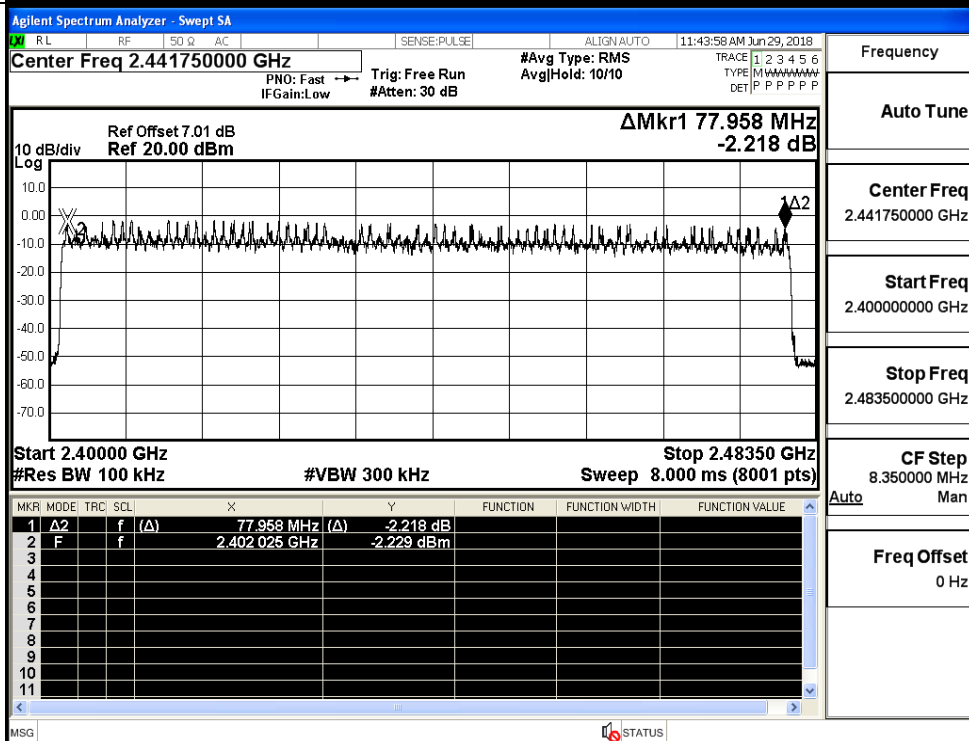


A.4 Hopping Channel Number

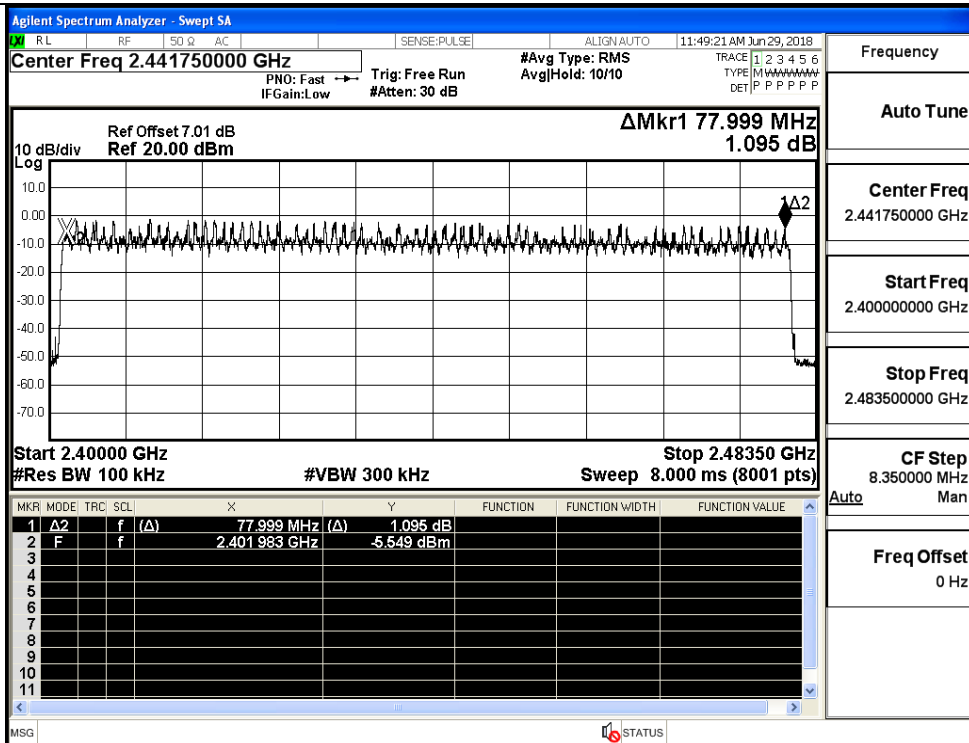
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	≥ 15	PASS
$\pi/4$ DQPSK	Hop	79	≥ 15	PASS
8DPSK	Hop	79	≥ 15	PASS

Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop

8DPSK/Hop

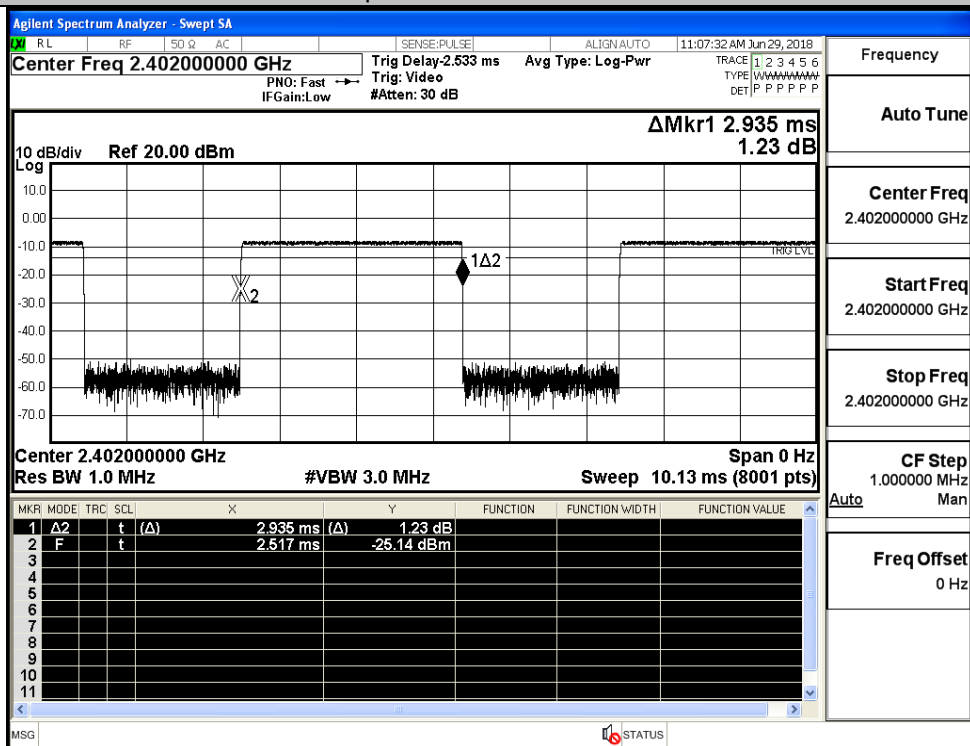


A.5 Dwell Time

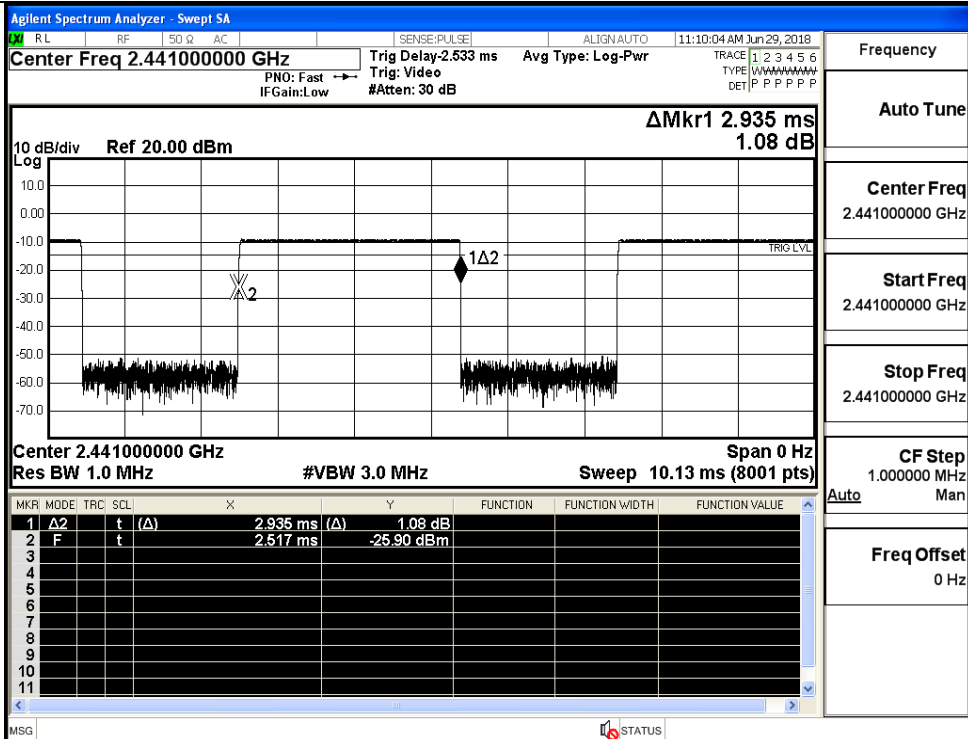
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.93	106.7	0.313	0.4	PASS
	DH5	MCH	2.93	106.7	0.313	0.4	PASS
	DH5	HCH	2.93	106.7	0.313	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.93	106.7	0.314	0.4	PASS
	2DH5	MCH	2.93	106.7	0.314	0.4	PASS
	2DH5	HCH	2.93	106.7	0.314	0.4	PASS
8DPSK	3DH5	LCH	2.93	106.7	0.314	0.4	PASS
	3DH5	MCH	2.93	106.7	0.314	0.4	PASS
	3DH5	HCH	2.93	106.7	0.314	0.4	PASS

Test Graphs

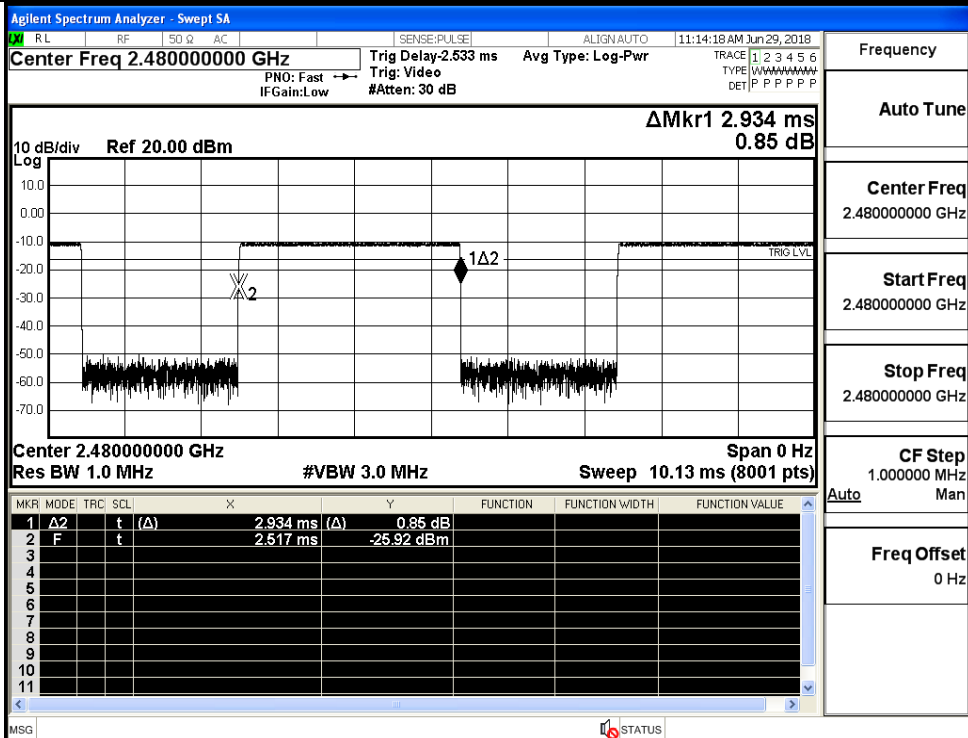
GFSK_DH5/LCH



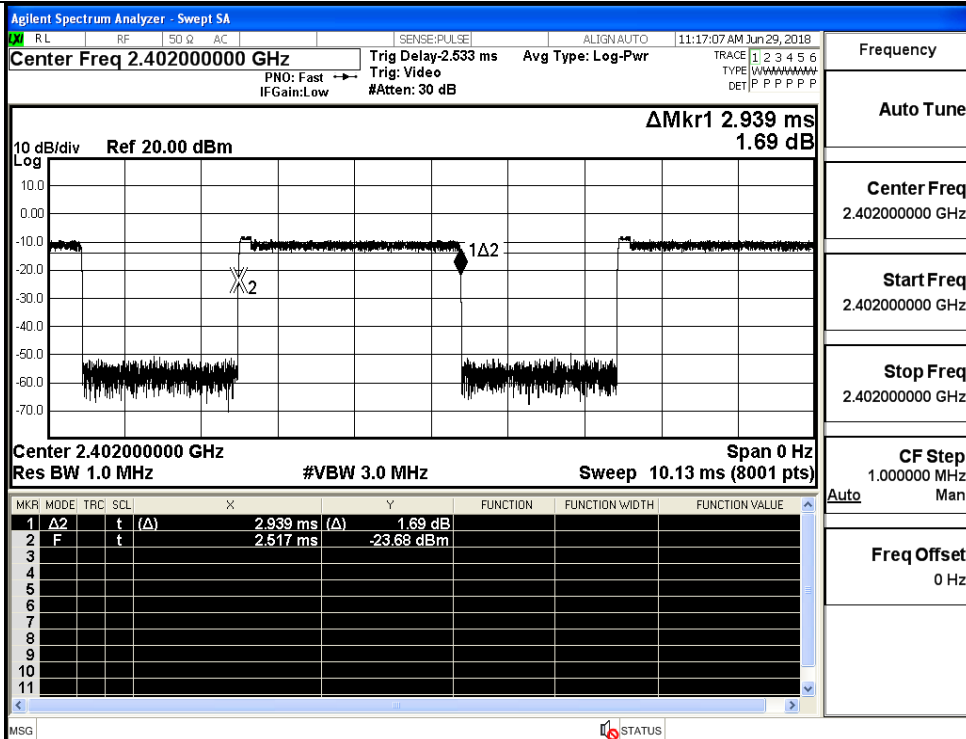
GFSK_DH5/MCH



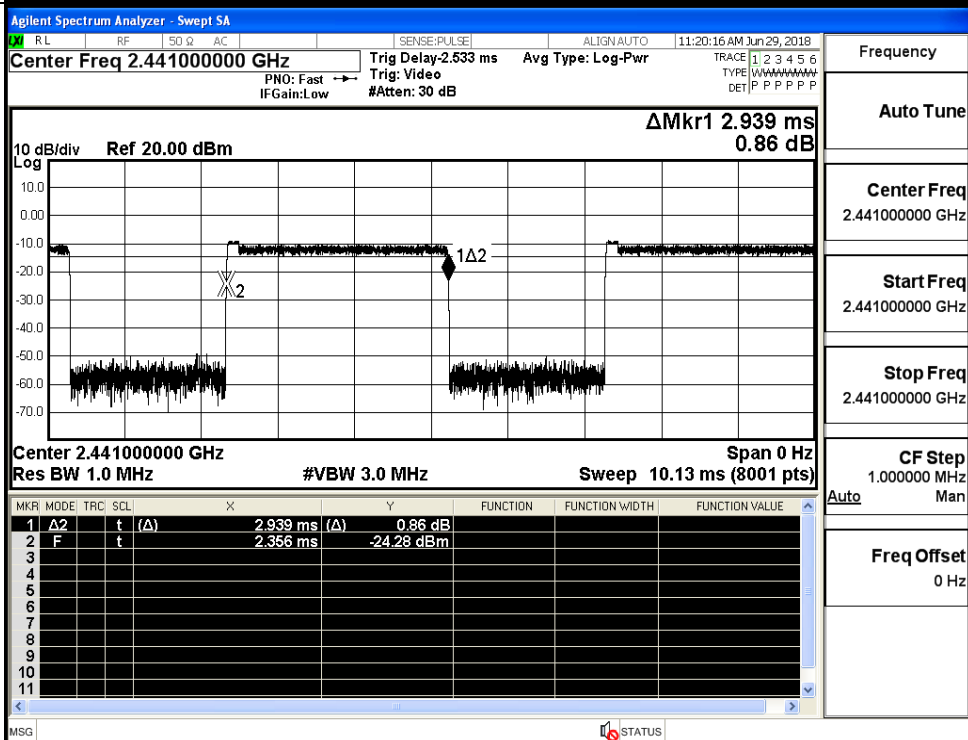
GFSK_DH5/HCH



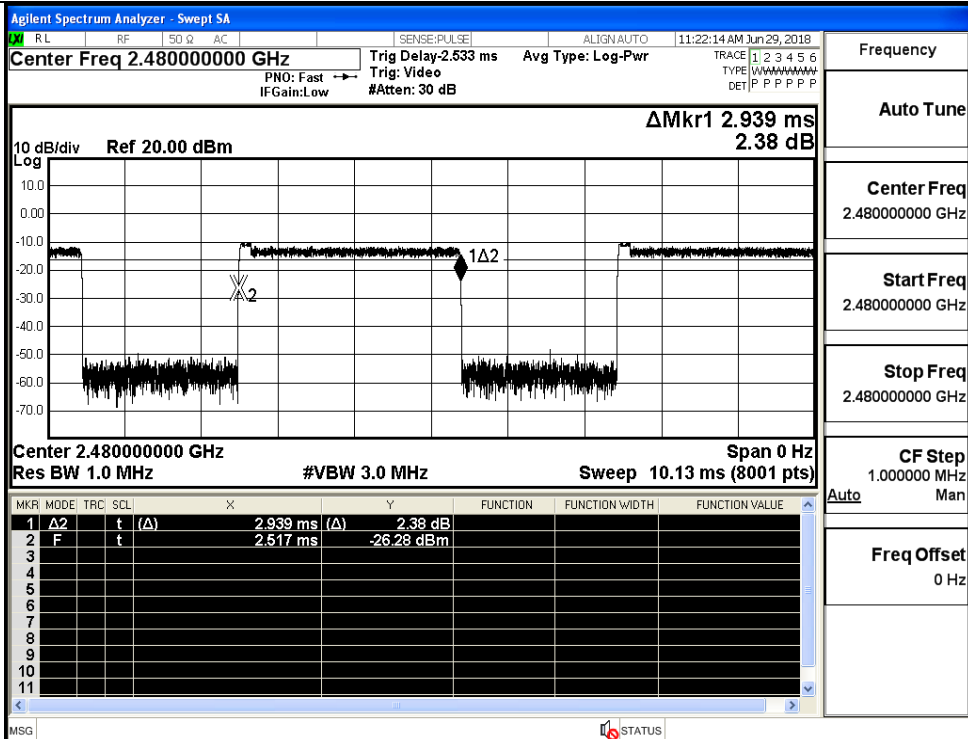
$\pi/4$ DQPSK
_2DH5/LCH



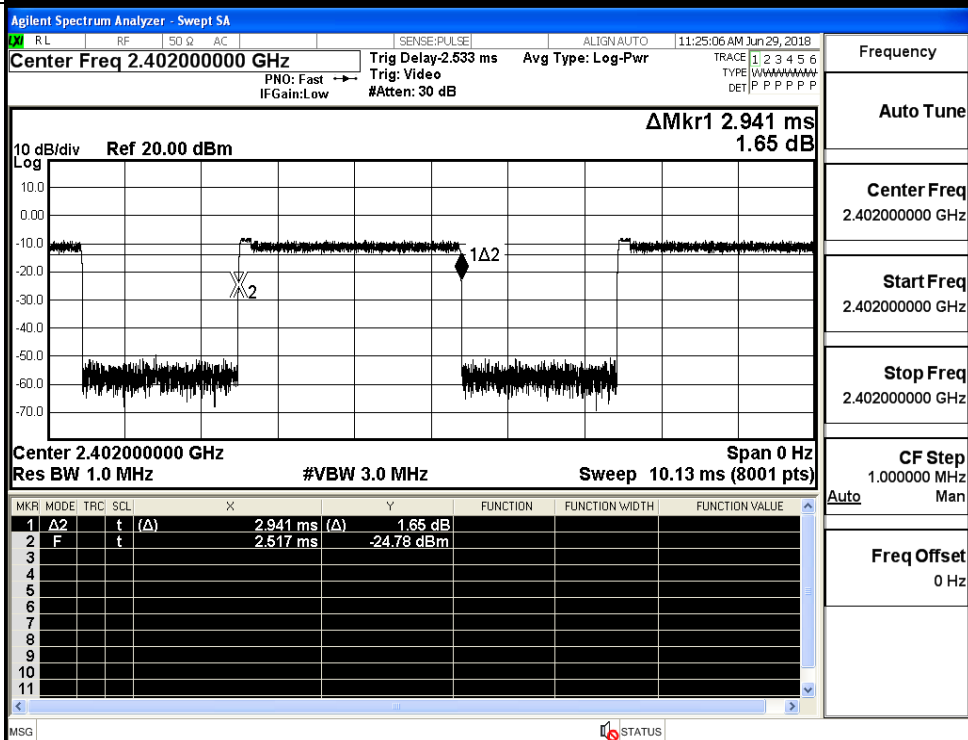
$\pi/4$ DQPSK
_2DH5/MCH



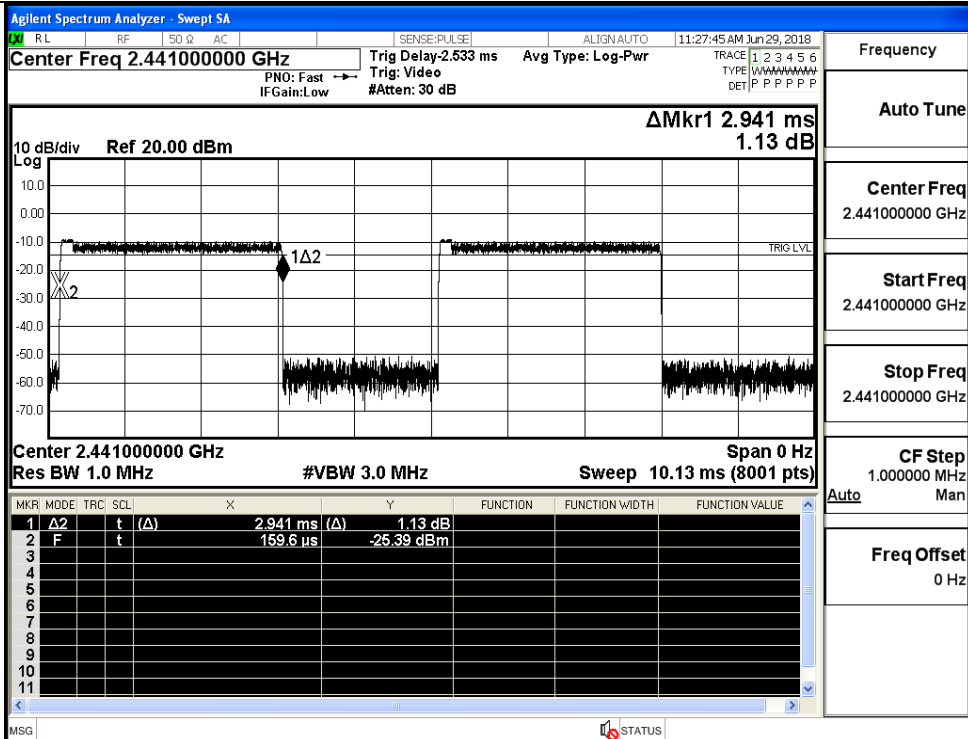
$\pi/4$ DQPSK
_2DH5/HCH



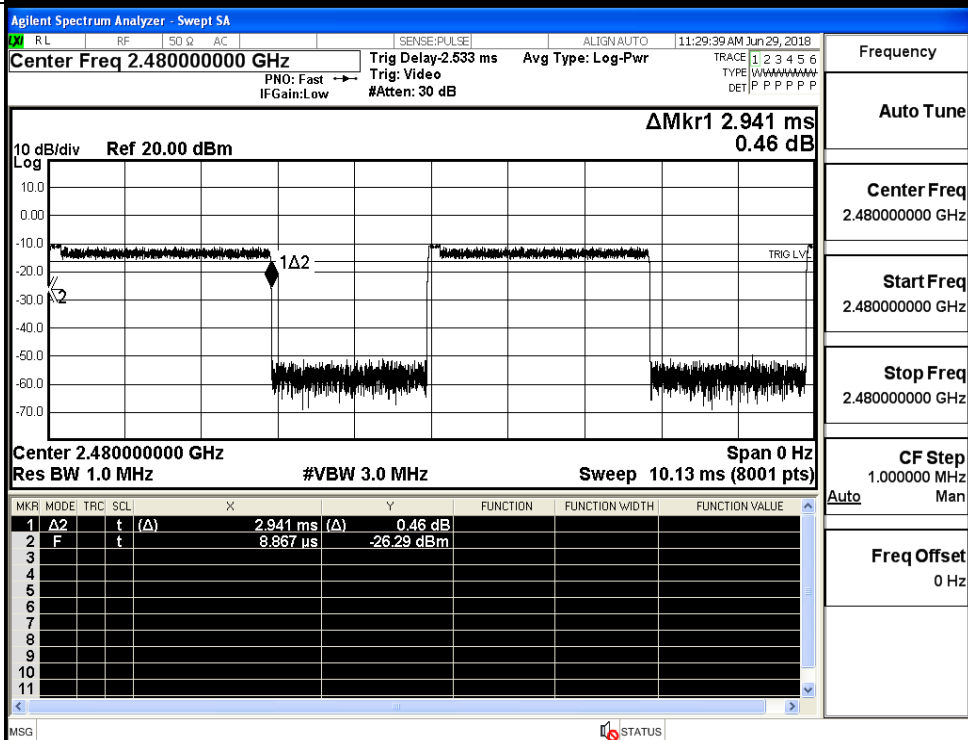
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



8DPSK_3DH5/HCH

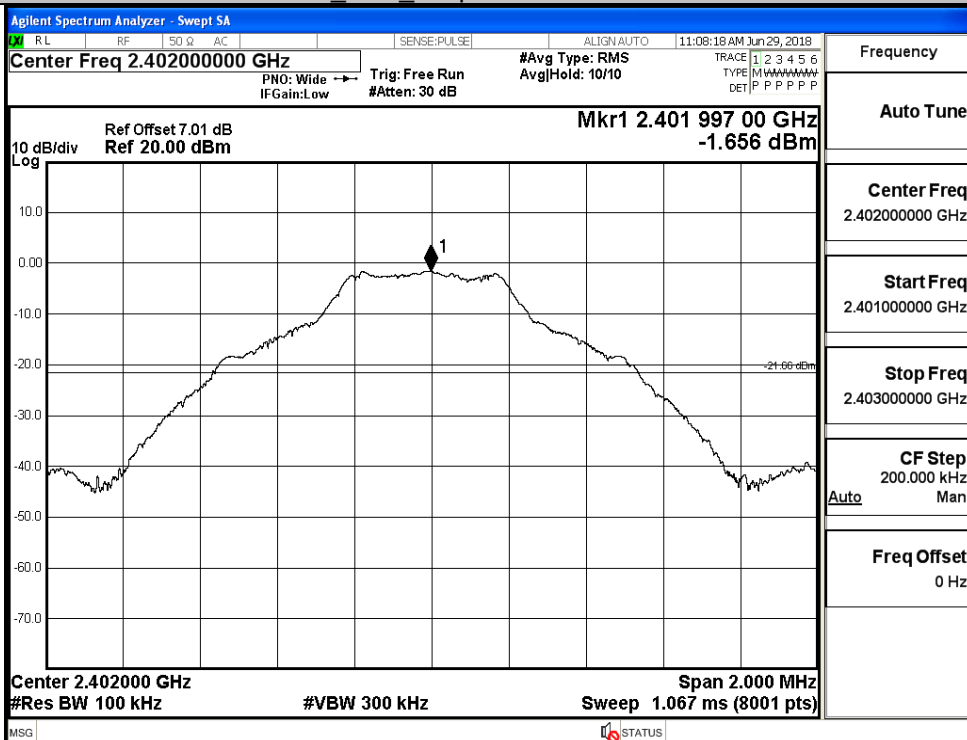


A.6 RF Conducted Spurious Emissions

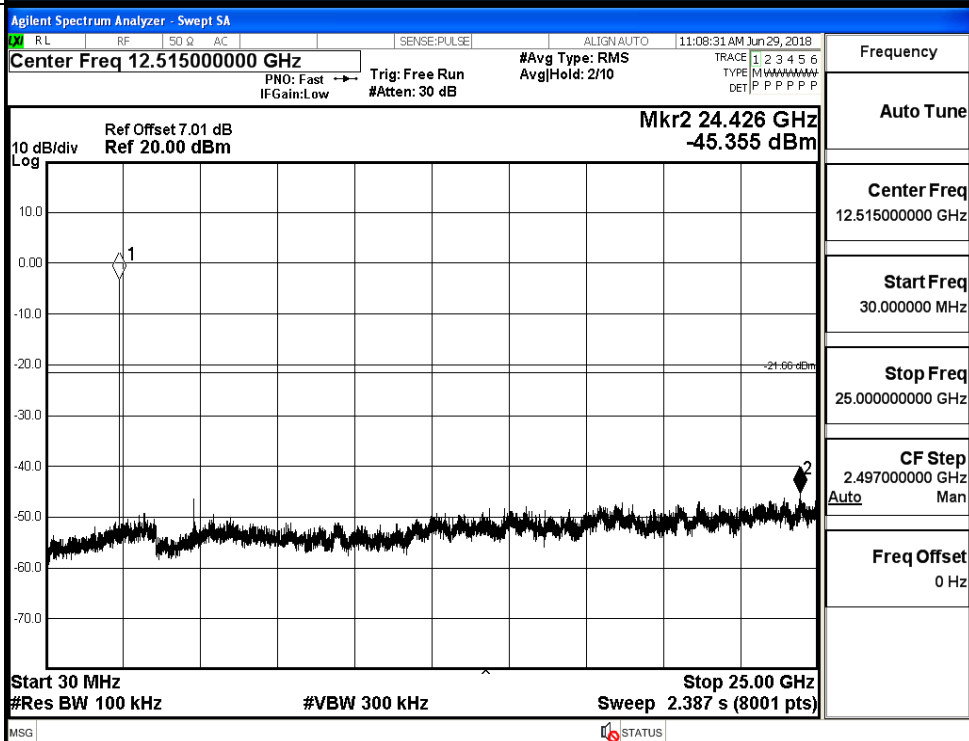
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-1.656	-45.355	-21.656	PASS
	MCH	-2.496	-43.598	-22.496	PASS
	HCH	-3.956	-44.680	-23.956	PASS
$\pi/4$ DQPSK	LCH	-1.678	-45.782	-21.678	PASS
	MCH	-2.586	-40.857	-22.586	PASS
	HCH	-4.496	-45.972	-24.496	PASS
8DPSK	LCH	-2.139	-42.687	-22.139	PASS
	MCH	-3.071	-45.506	-23.071	PASS
	HCH	-3.949	-44.634	-23.949	PASS

GFSK LCH Graphs

Pref

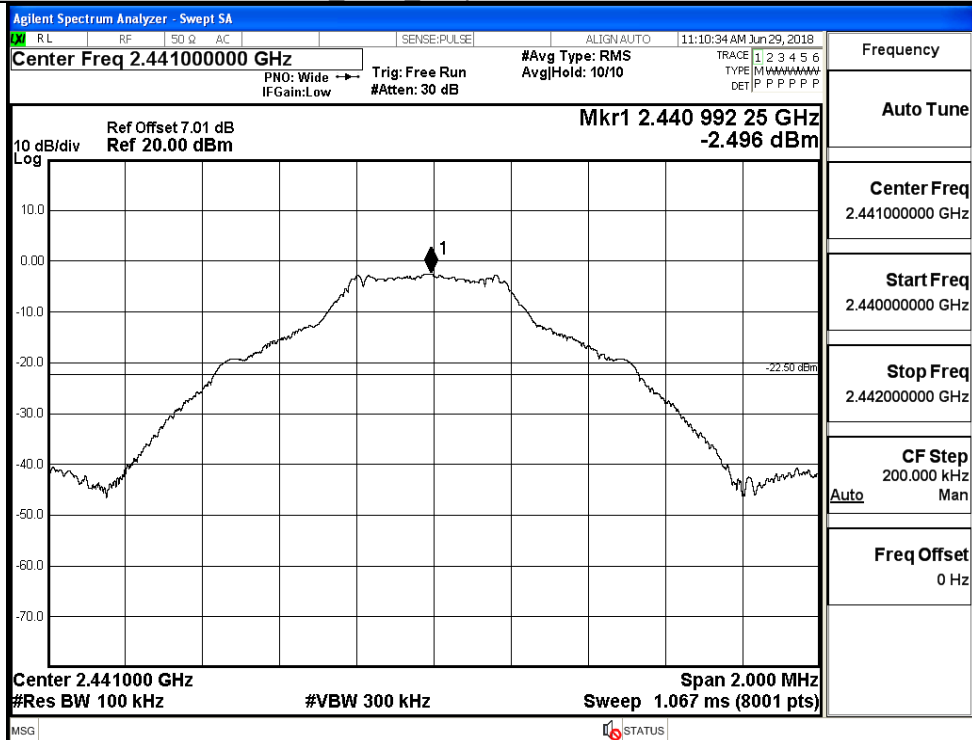


Puw

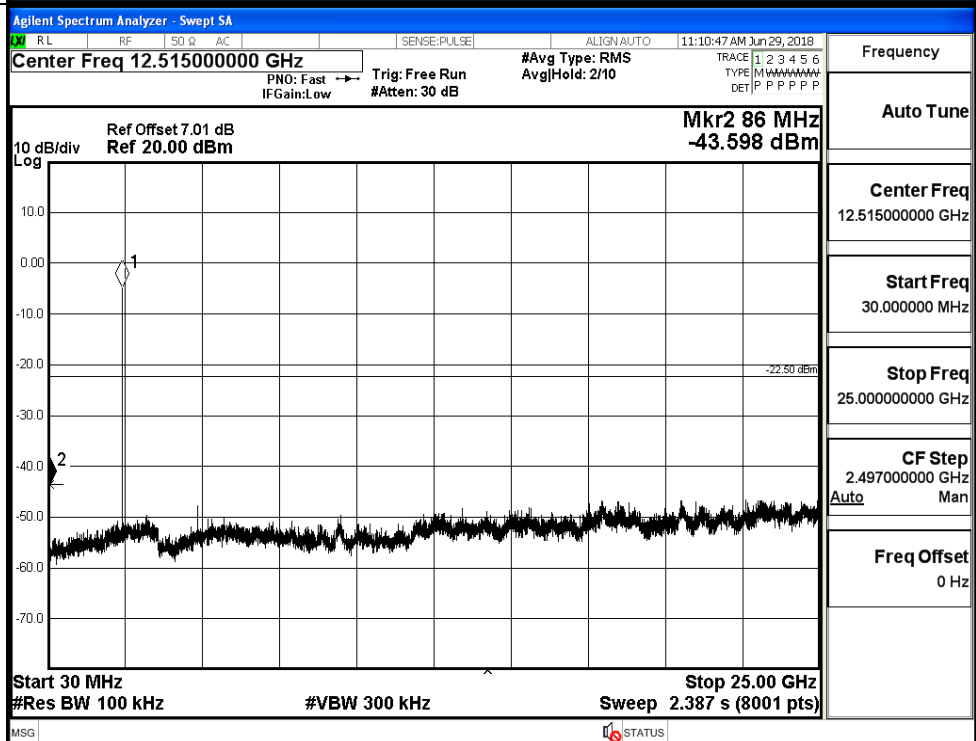


GFSK_MCH_Graphs

Pref

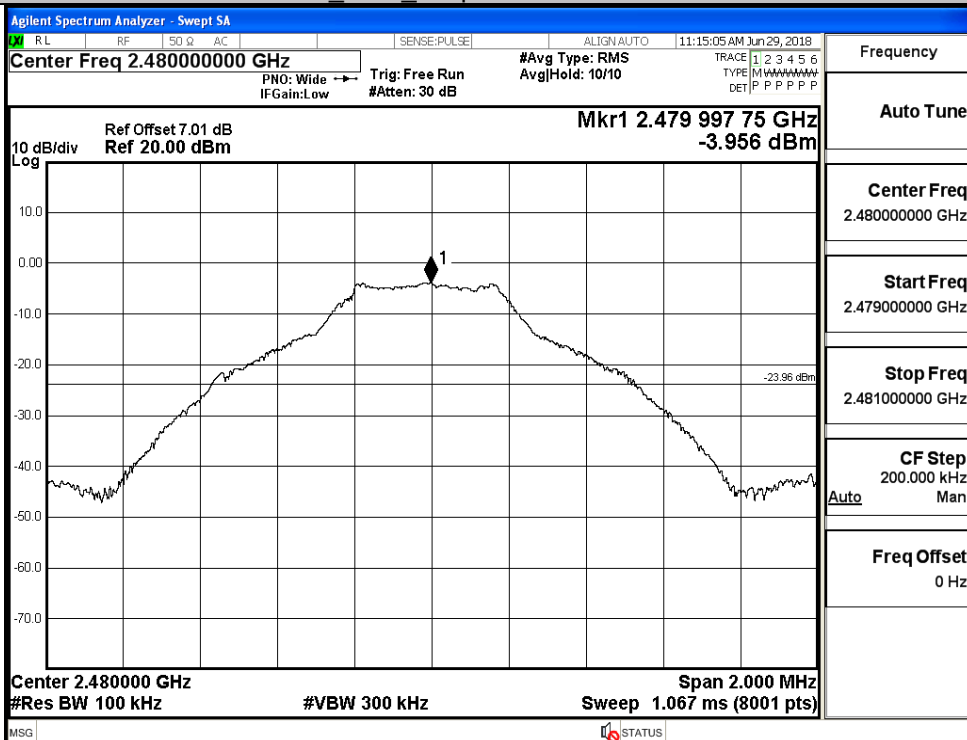


Puw

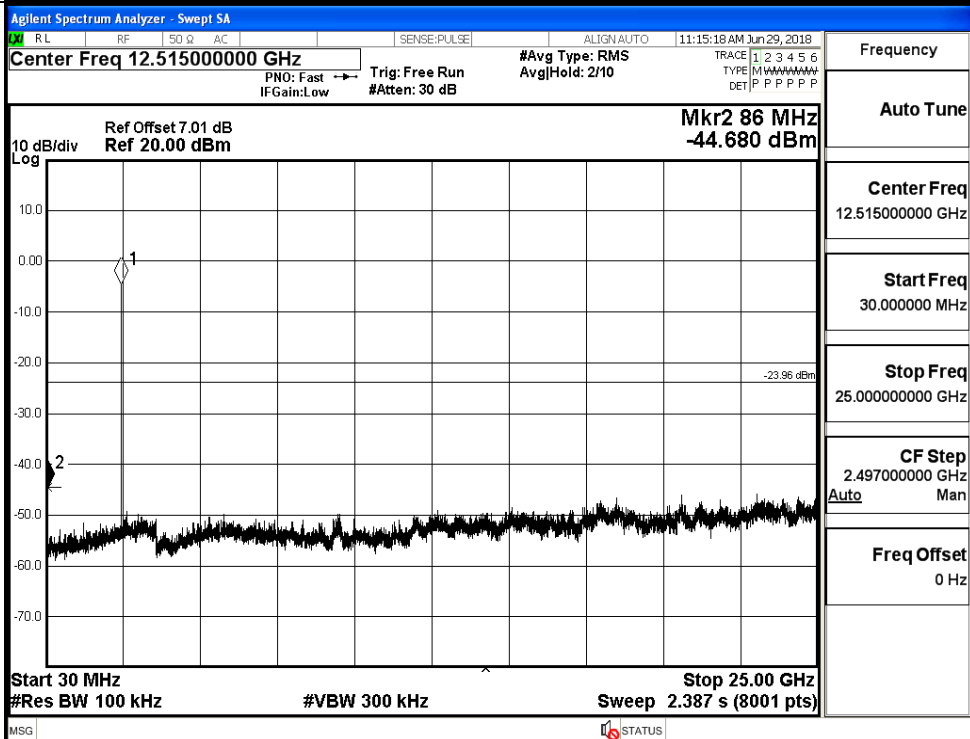


GFSK_HCH_Graphs

Pref

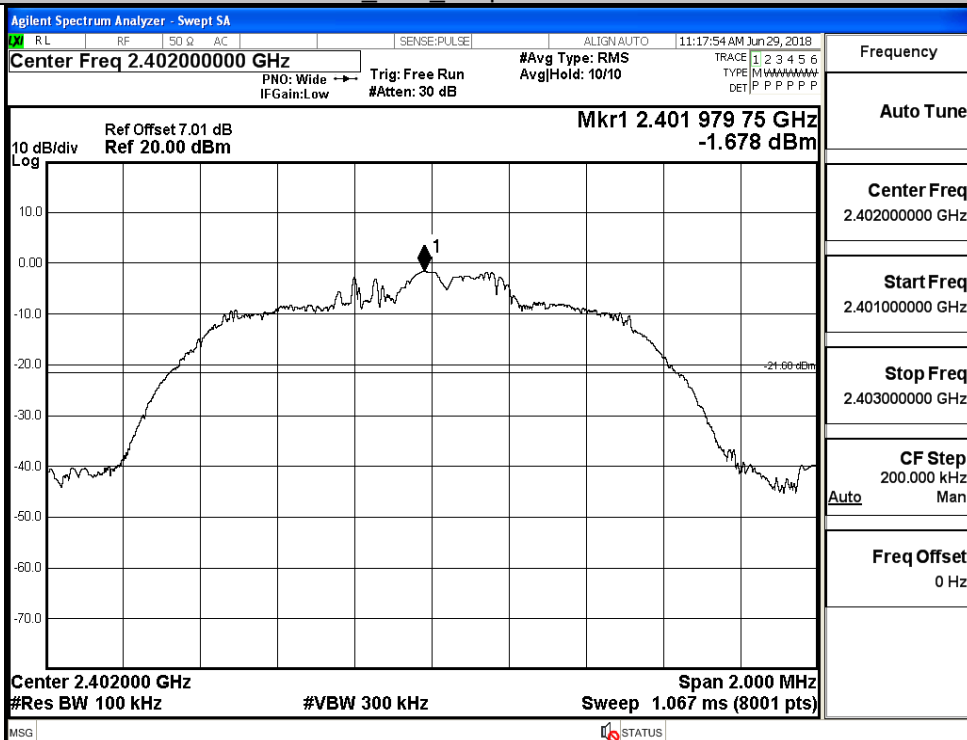


Puw

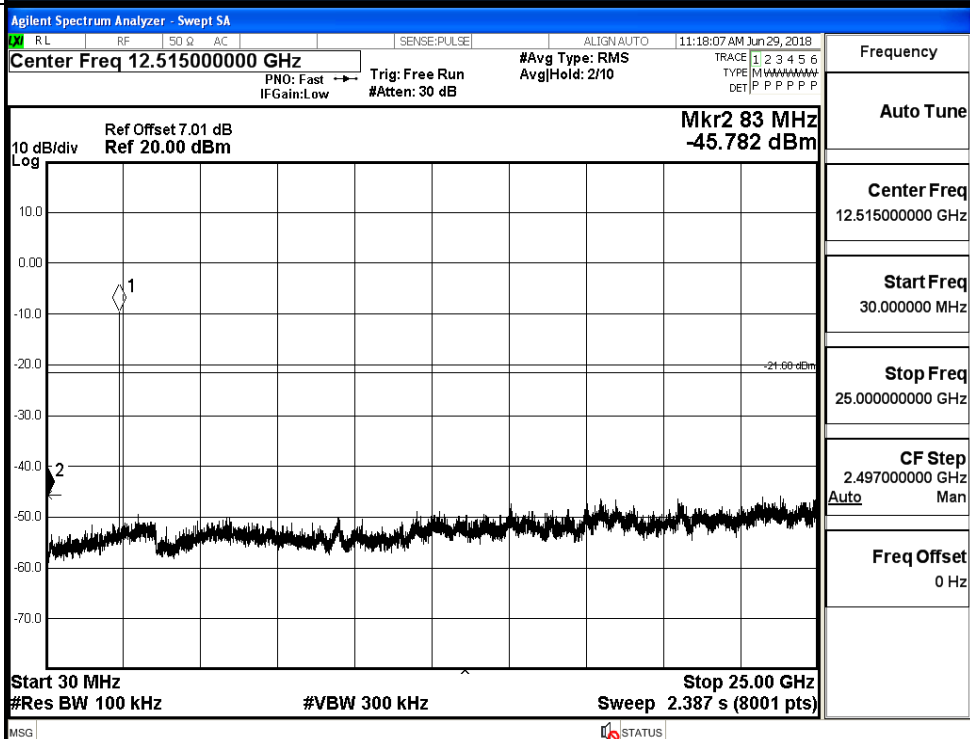


$\pi/4$ DQPSK LCH_Graphs

Pref

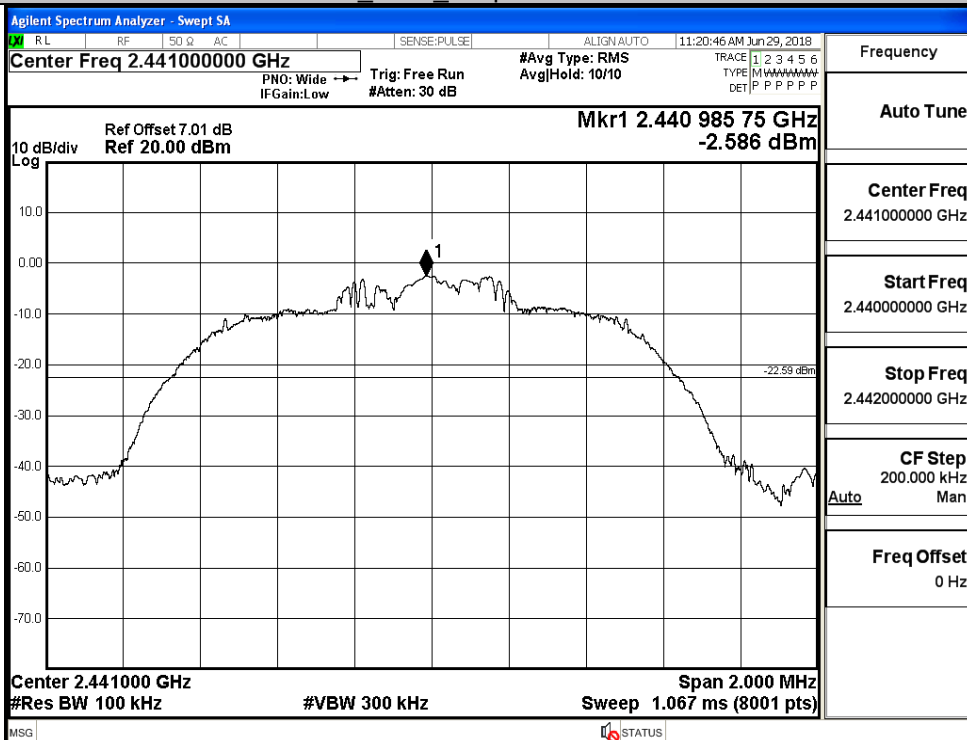


Puw

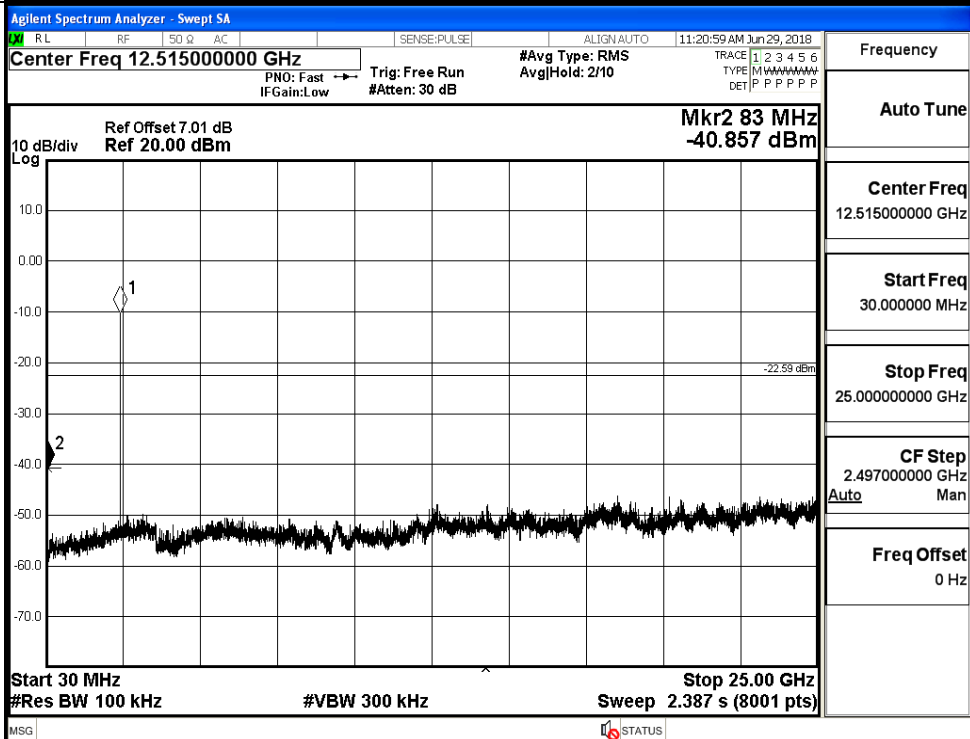


$\pi/4$ DQPSK_MCH_Graphs

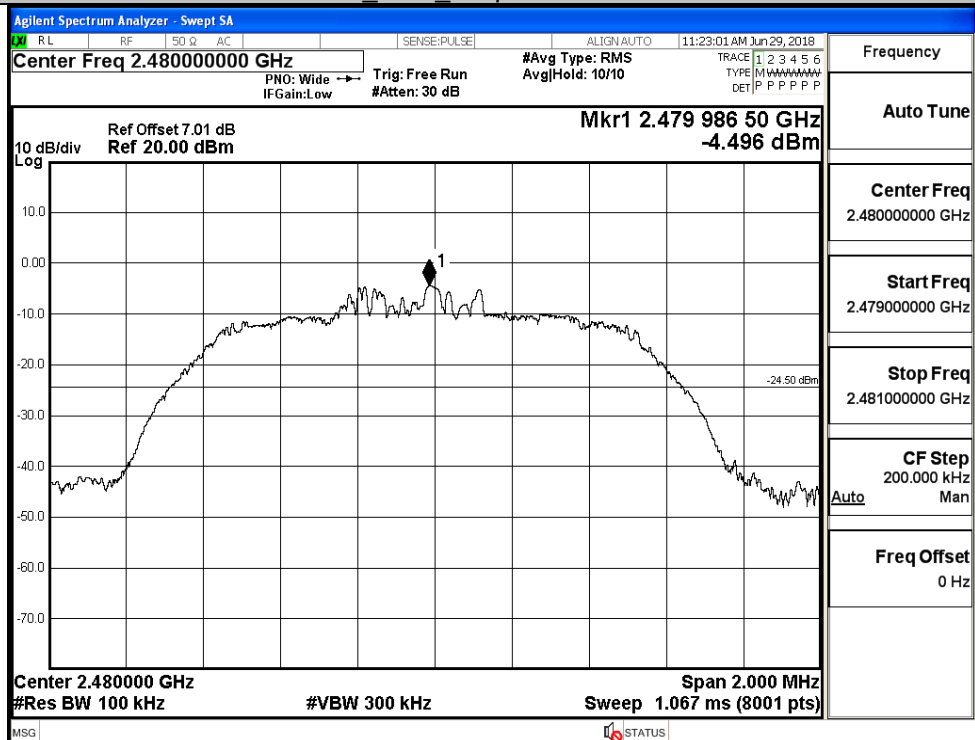
Pref



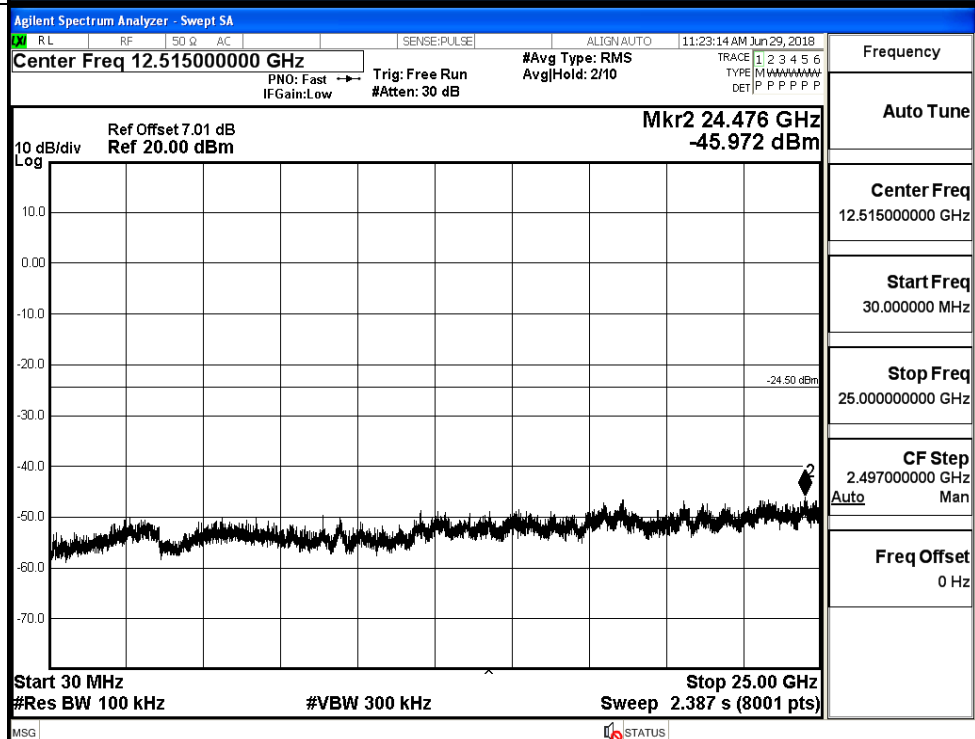
Puw



Pref

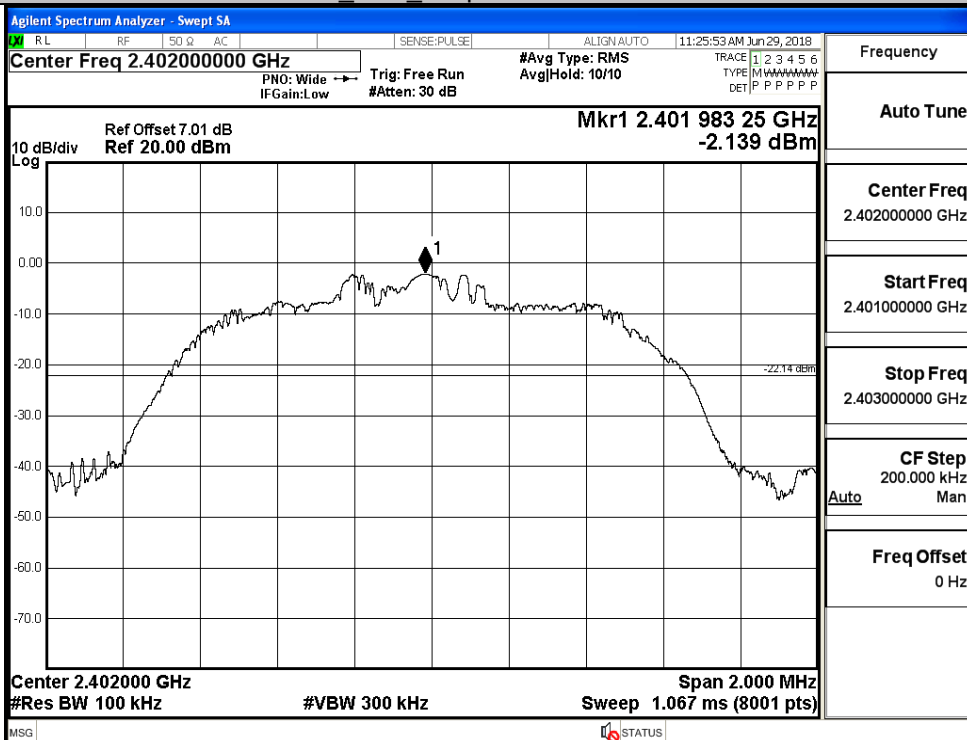


Puw

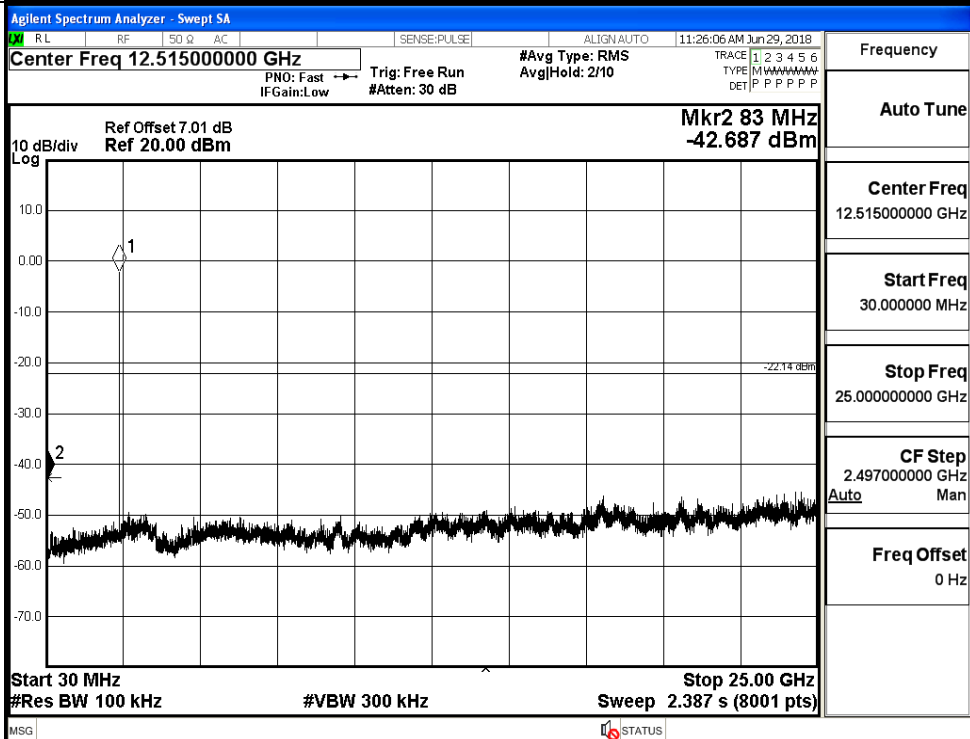


8DPSK_LCH_Graphs

Pref

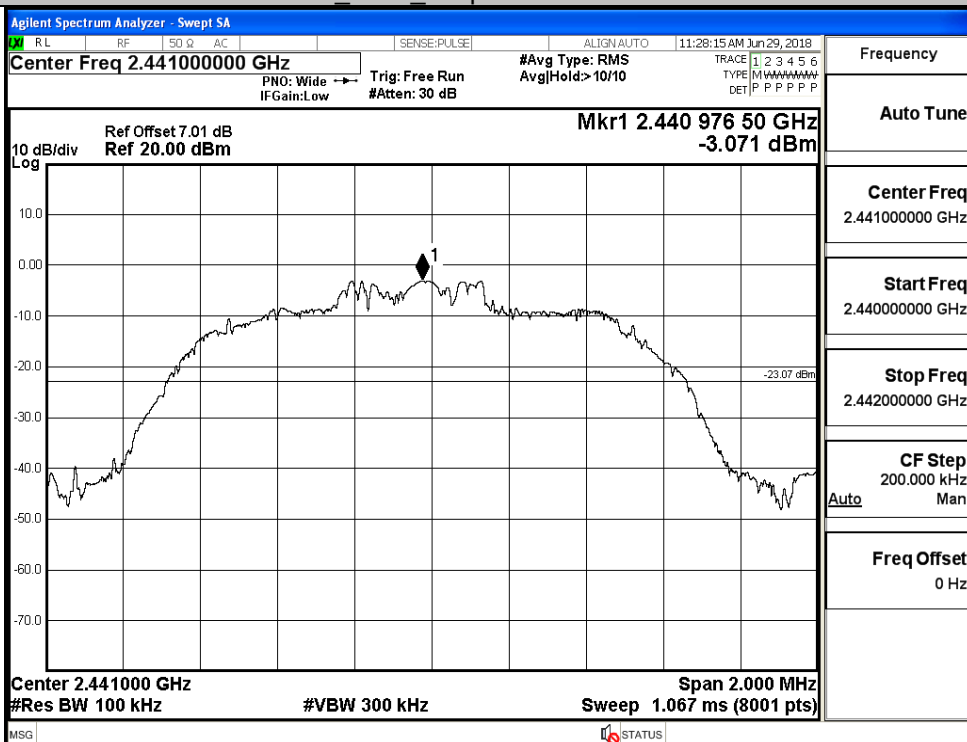


Puw

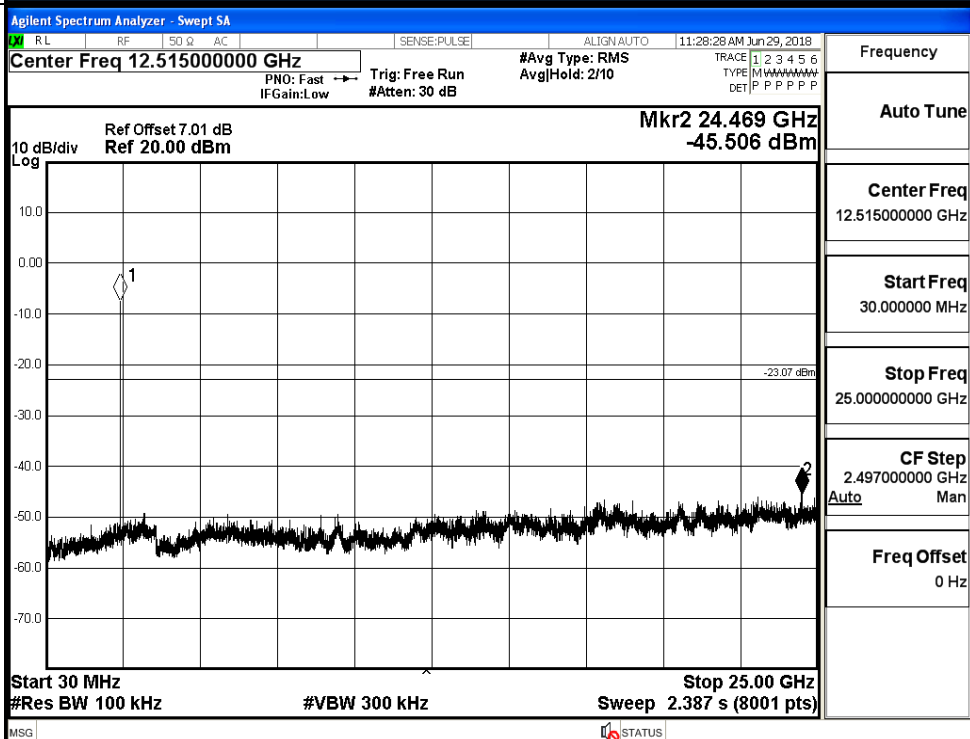


8DPSK_MCH_Graphs

Pref

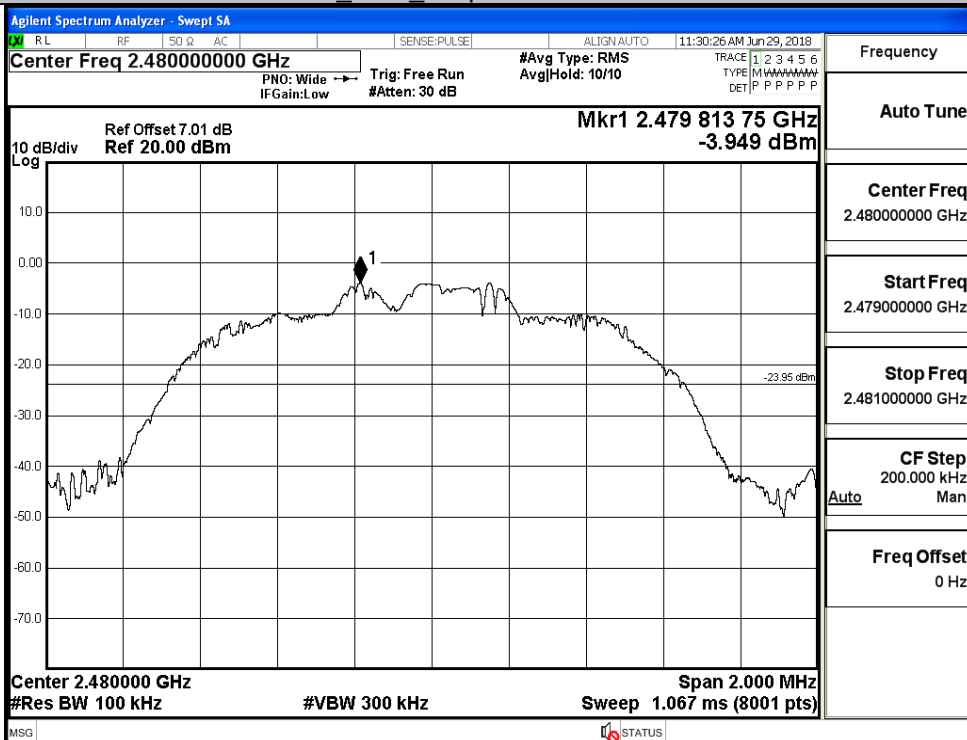


Puw

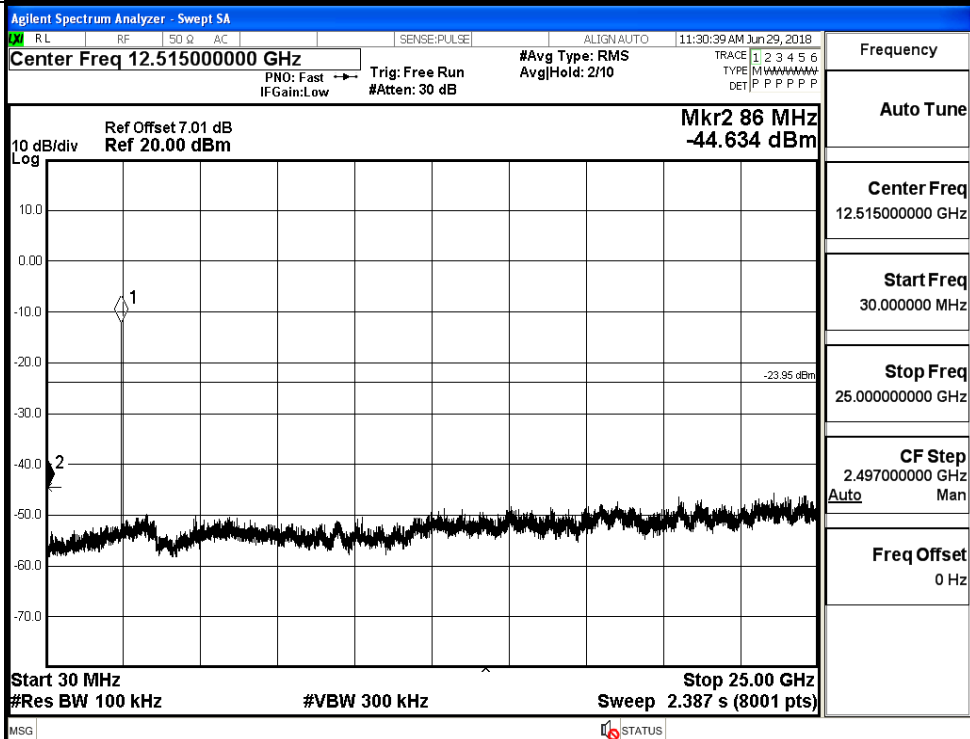


8DPSK_HCH_Graphs

Pref



Puw

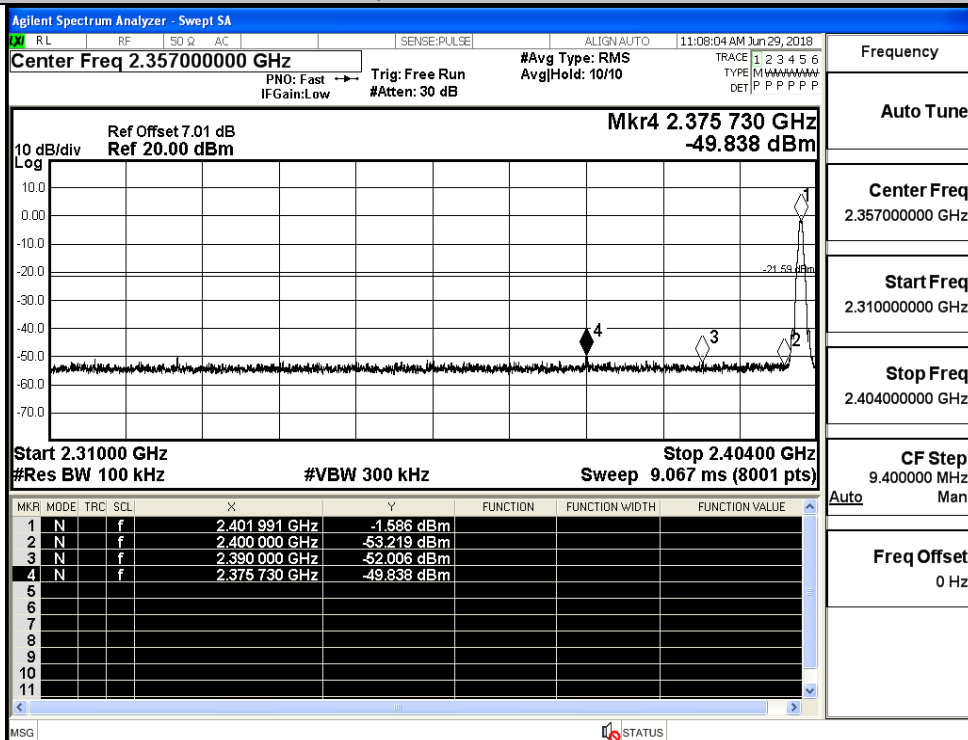


A.7 Band-edge for RF Conducted Emissions

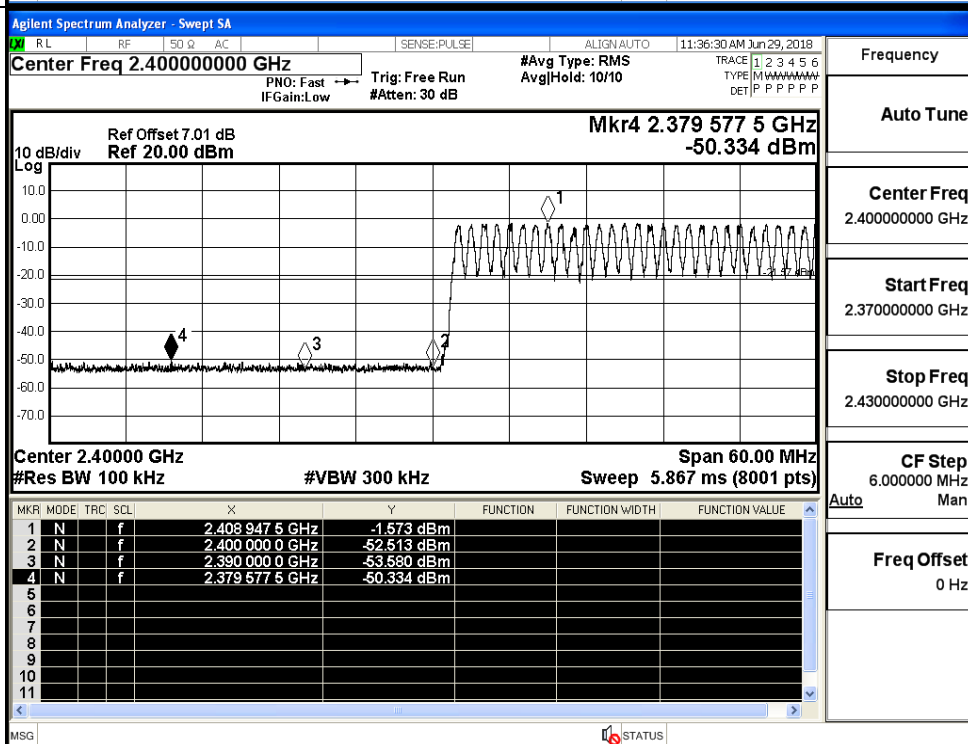
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-1.586	Off	-49.838	-21.59	PASS
			-1.573	On	-50.334	-21.57	PASS
	HCH	2480	-3.806	Off	-51.090	-23.81	PASS
			-2.730	On	-50.268	-22.73	PASS
$\pi/4$ DQPSK	LCH	2402	-1.669	Off	-50.449	-21.67	PASS
			-1.534	On	-49.283	-21.53	PASS
	HCH	2480	-3.938	Off	-51.007	-23.94	PASS
			-2.523	On	-50.055	-22.52	PASS
8DPSK	LCH	2402	-1.359	Off	-50.016	-21.36	PASS
			-1.699	On	-49.798	-21.7	PASS
	HCH	2480	-3.929	Off	-50.907	-23.93	PASS
			-2.719	On	-50.072	-22.72	PASS

Test Graphs

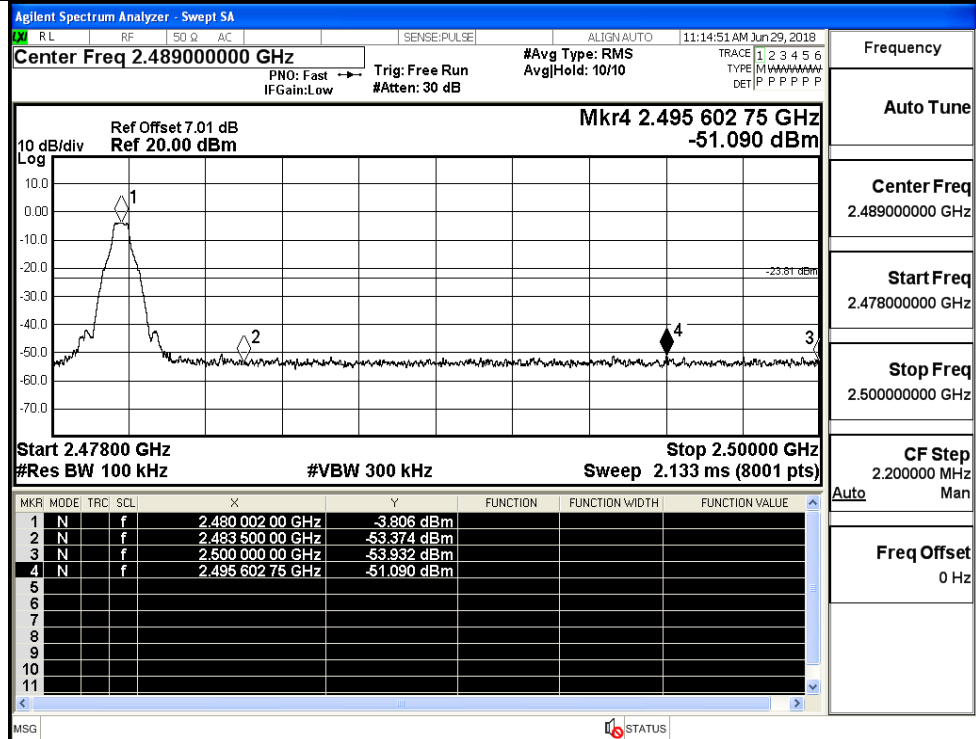
GFSK/LCH/No Hop



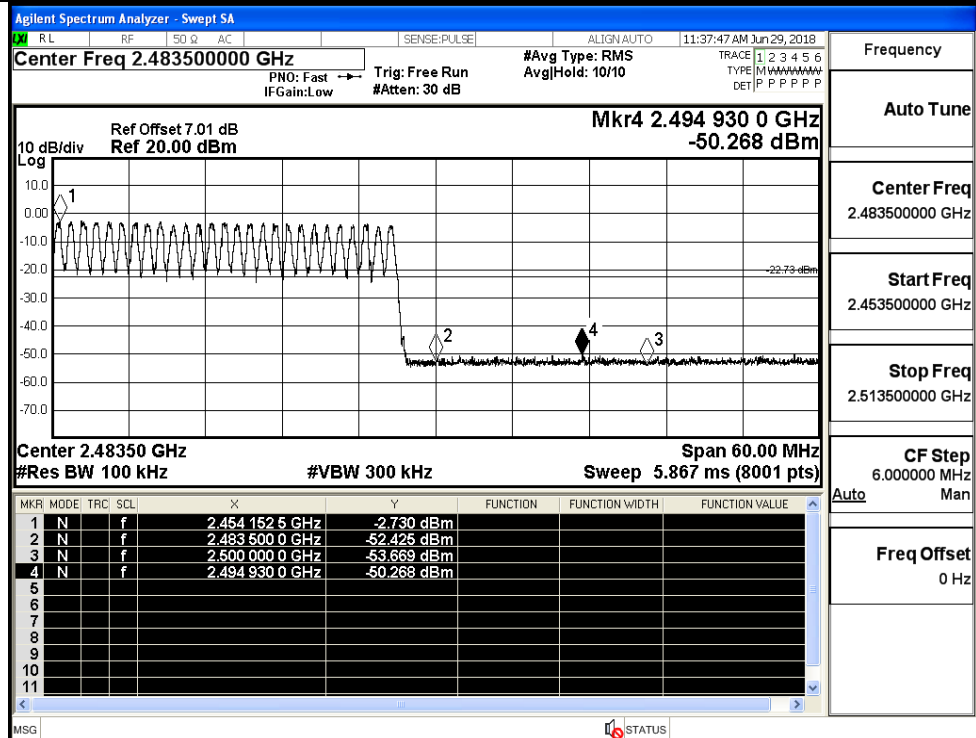
GFSK/LCH/Hop



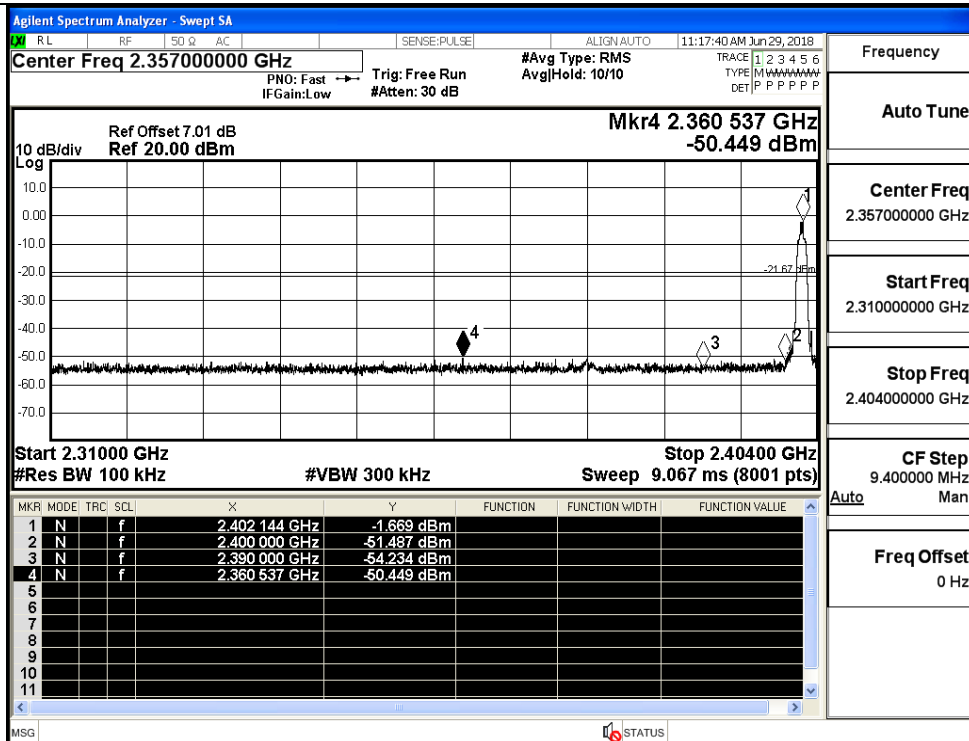
GFSK/HCH/No Hop



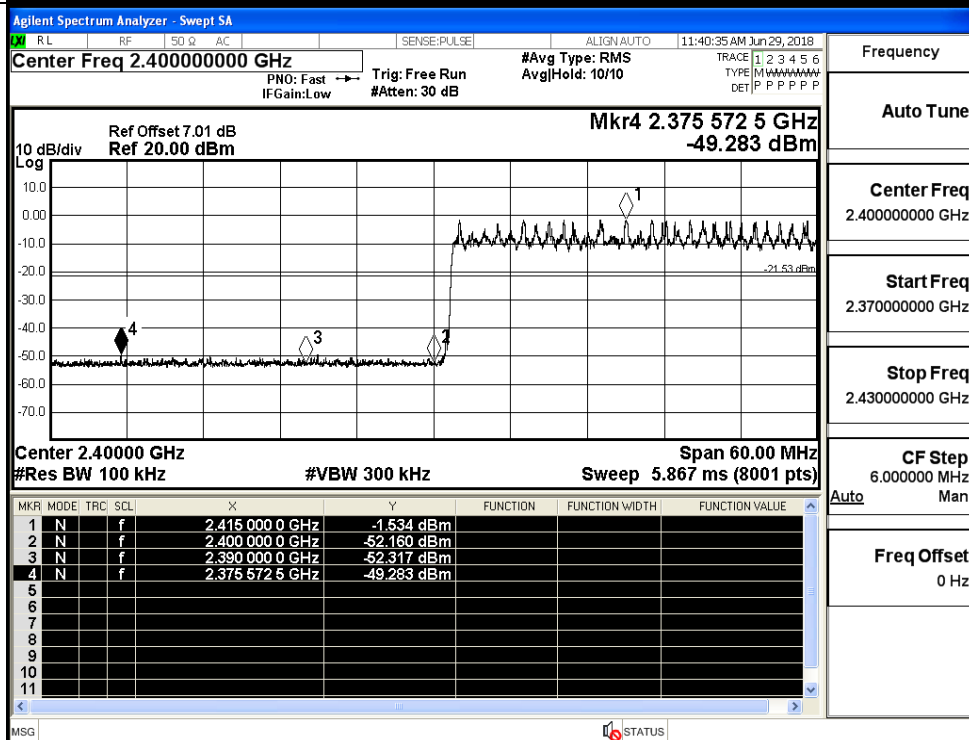
GFSK/HCH/Hop



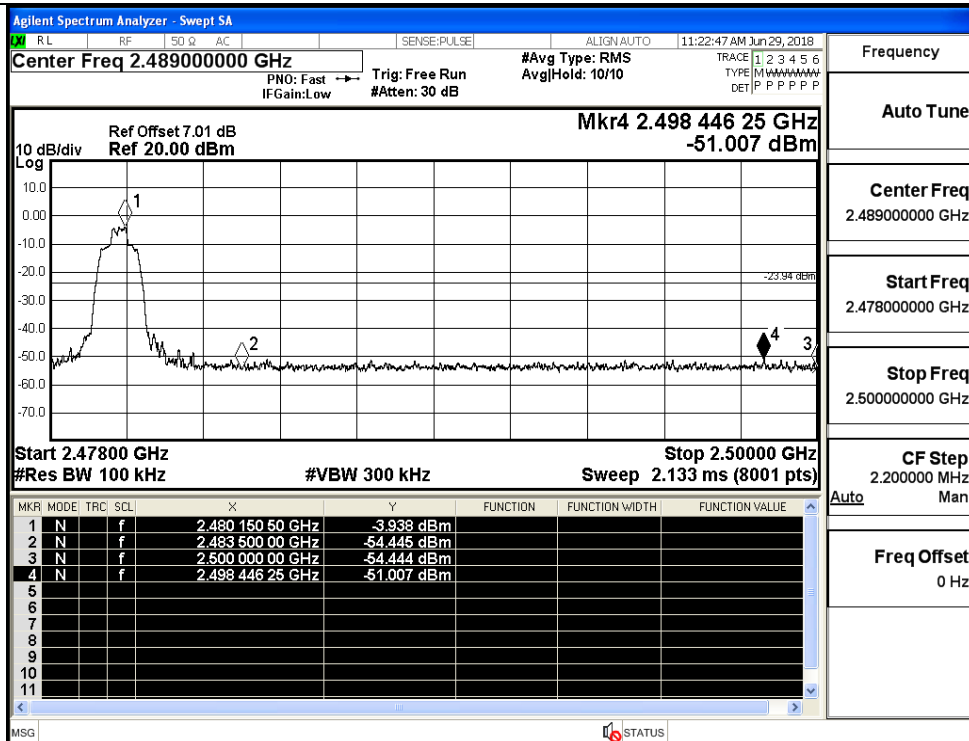
$\pi/4$ DQPSK/LCH/No
Hop



$\pi/4$ DQPSK/LCH/Hop



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

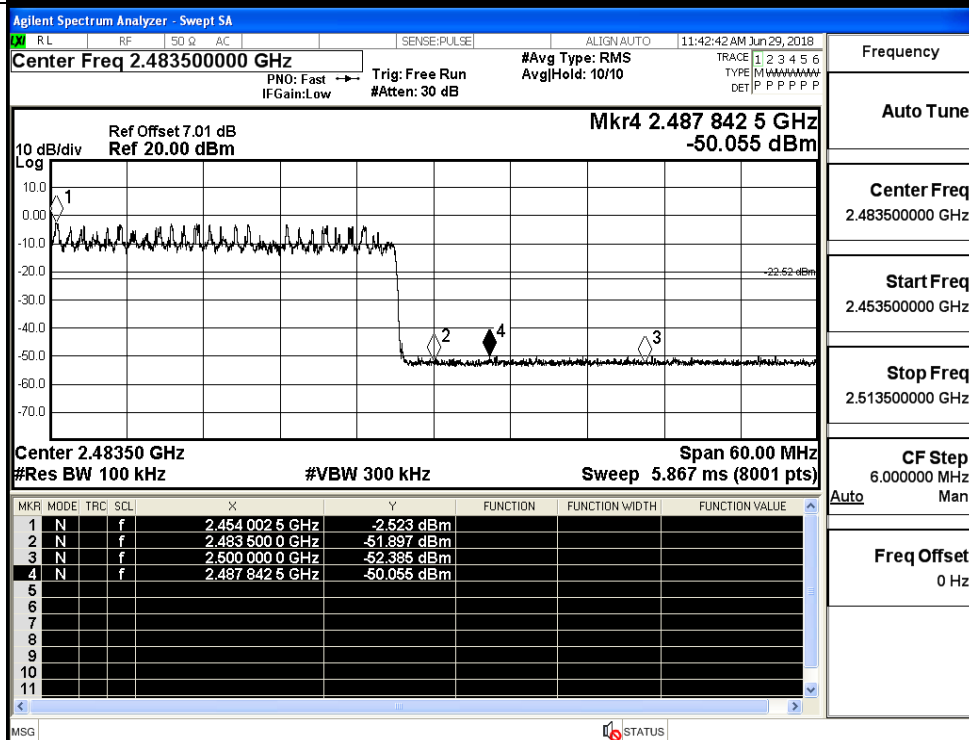


Frequency

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

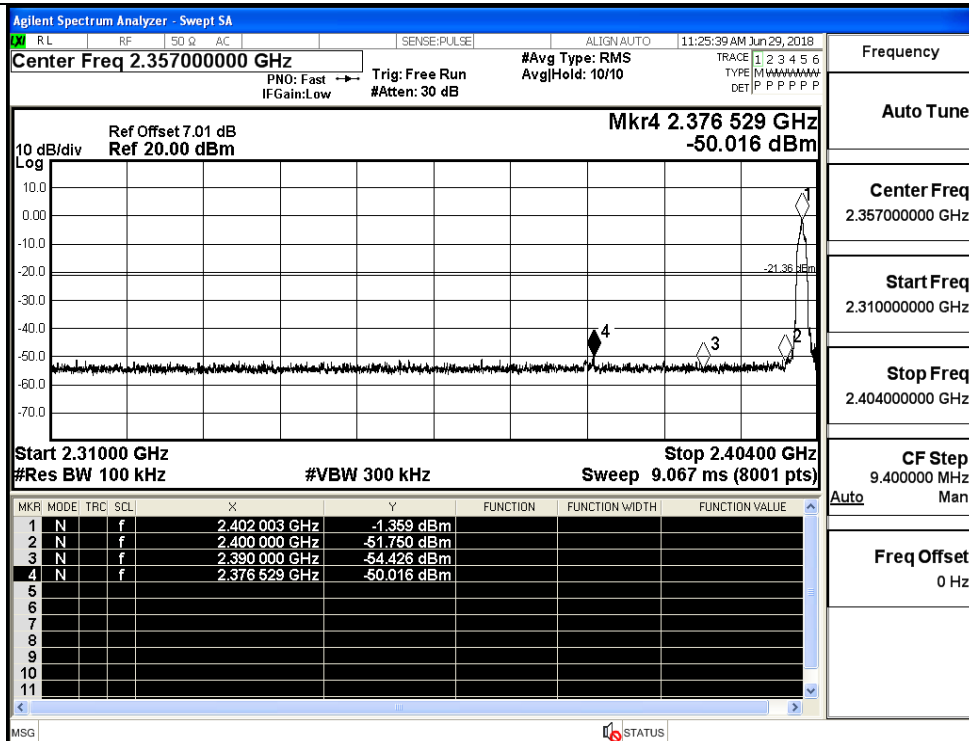


Frequency

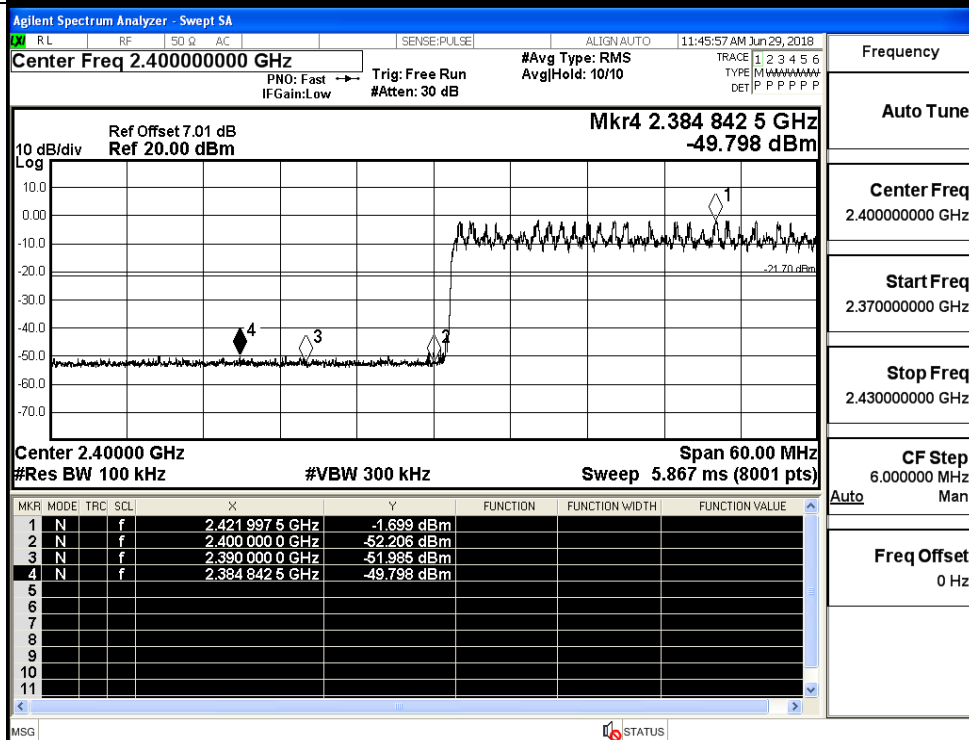
Auto Tune

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

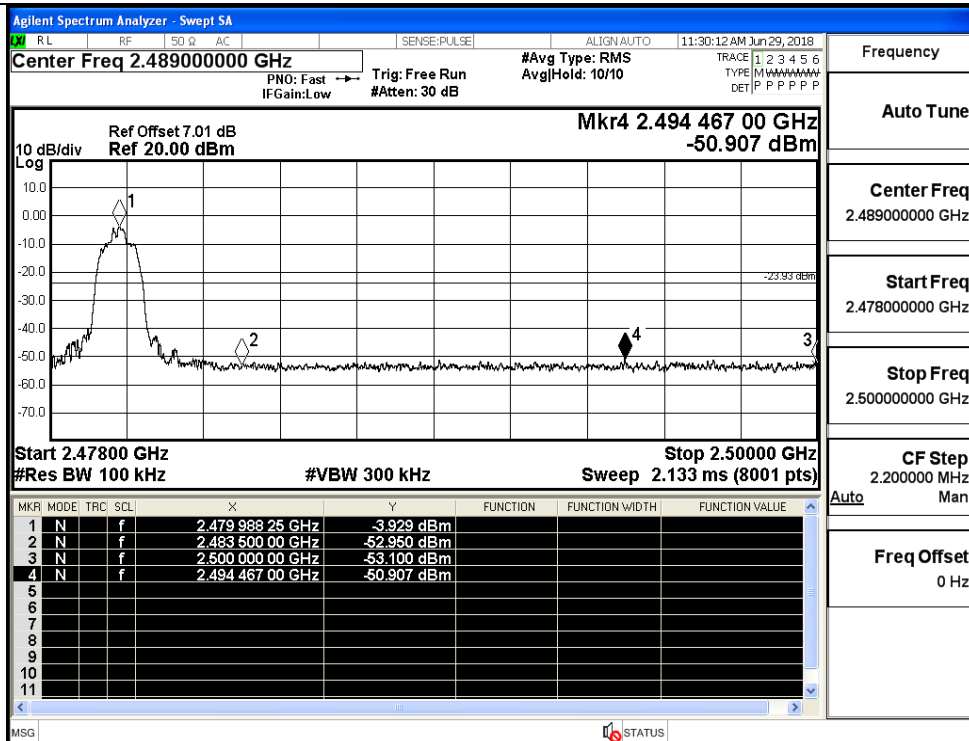
8DPSK/LCH/No Hop



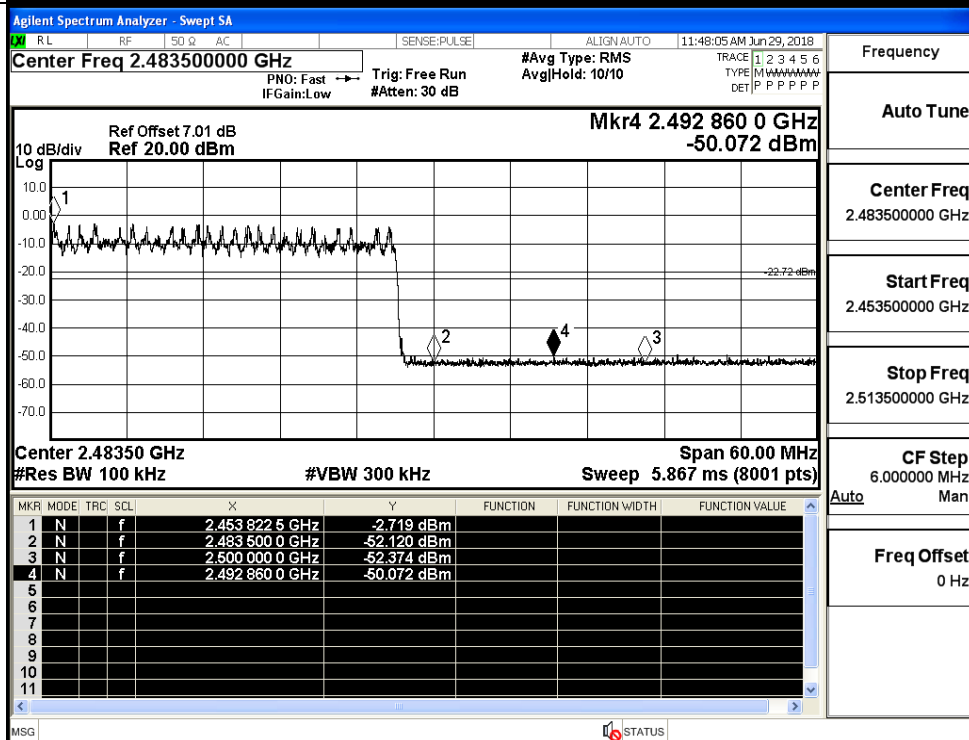
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



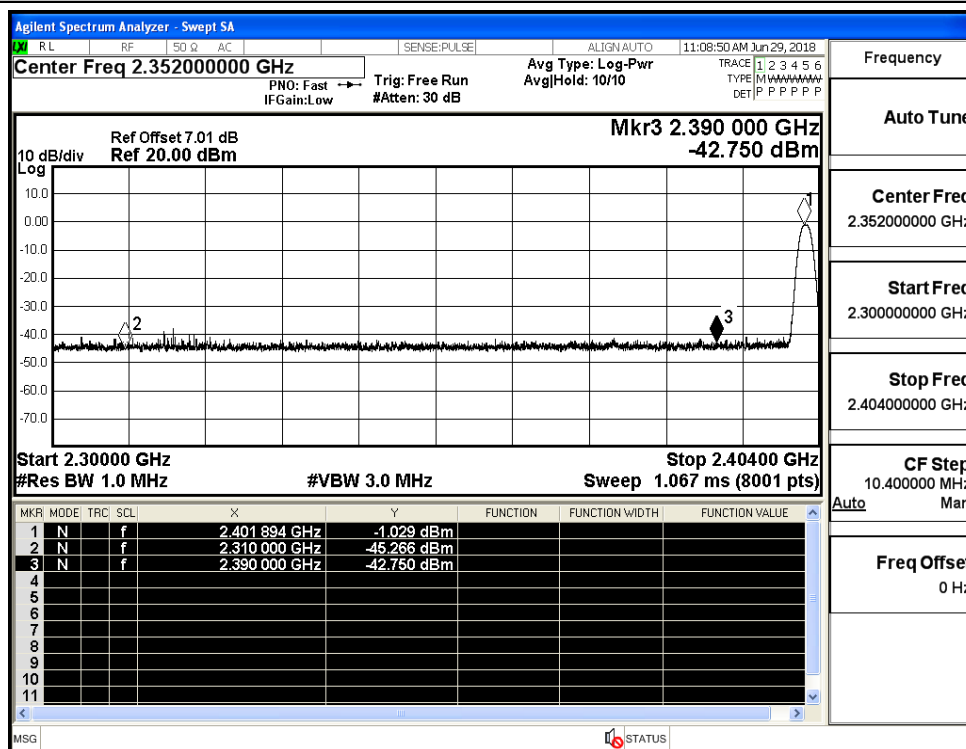
8DPSK/HCH/Hop



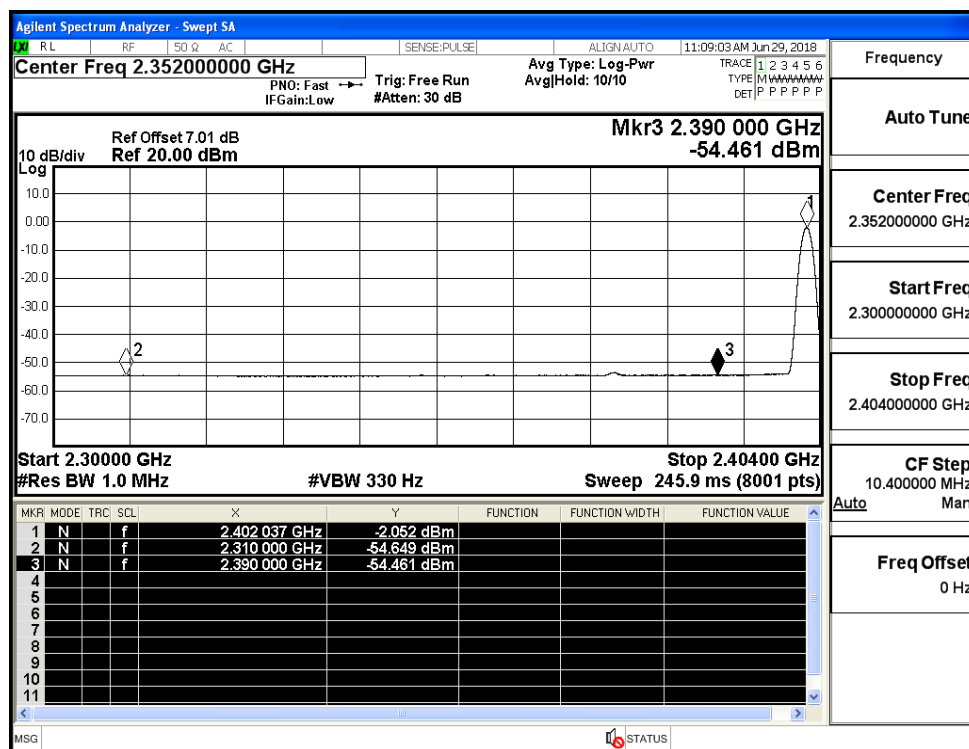
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-45.27	2.0	0	51.99	PEAK	74	PASS
	Off	2310.0	-54.65	2.0	0	42.61	AV	54	PASS
	Off	2390.0	-42.75	2.0	0	54.51	PEAK	74	PASS
	Off	2390.0	-54.46	2.0	0	42.80	AV	54	PASS
	Off	2483.5	-41.72	2.0	0	55.54	PEAK	74	PASS
	Off	2483.5	-53.95	2.0	0	43.31	AV	54	PASS
	Off	2500.0	-44.28	2.0	0	52.98	PEAK	74	PASS
	Off	2500.0	-54.09	2.0	0	43.17	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-44.24	2.0	0	53.02	PEAK	74	PASS
	Off	2310.0	-54.69	2.0	0	42.57	AV	54	PASS
	Off	2390.0	-43.41	2.0	0	53.85	PEAK	74	PASS
	Off	2390.0	-54.46	2.0	0	42.79	AV	54	PASS
	Off	2483.5	-43.32	2.0	0	53.94	PEAK	74	PASS
	Off	2483.5	-53.96	2.0	0	43.30	AV	54	PASS
	Off	2500.0	-44.04	2.0	0	53.21	PEAK	74	PASS
	Off	2500.0	-54.14	2.0	0	43.12	AV	54	PASS
8DPSK	Off	2310.0	-44.01	2.0	0	53.25	PEAK	74	PASS
	Off	2310.0	-54.75	2.0	0	42.51	AV	54	PASS
	Off	2390.0	-43.31	2.0	0	53.95	PEAK	74	PASS
	Off	2390.0	-54.57	2.0	0	42.69	AV	54	PASS
	Off	2483.5	-44.94	2.0	0	52.32	PEAK	74	PASS
	Off	2483.5	-53.95	2.0	0	43.31	AV	54	PASS
	Off	2500.0	-43.73	2.0	0	53.53	PEAK	74	PASS
	Off	2500.0	-54.15	2.0	0	43.10	AV	54	PASS

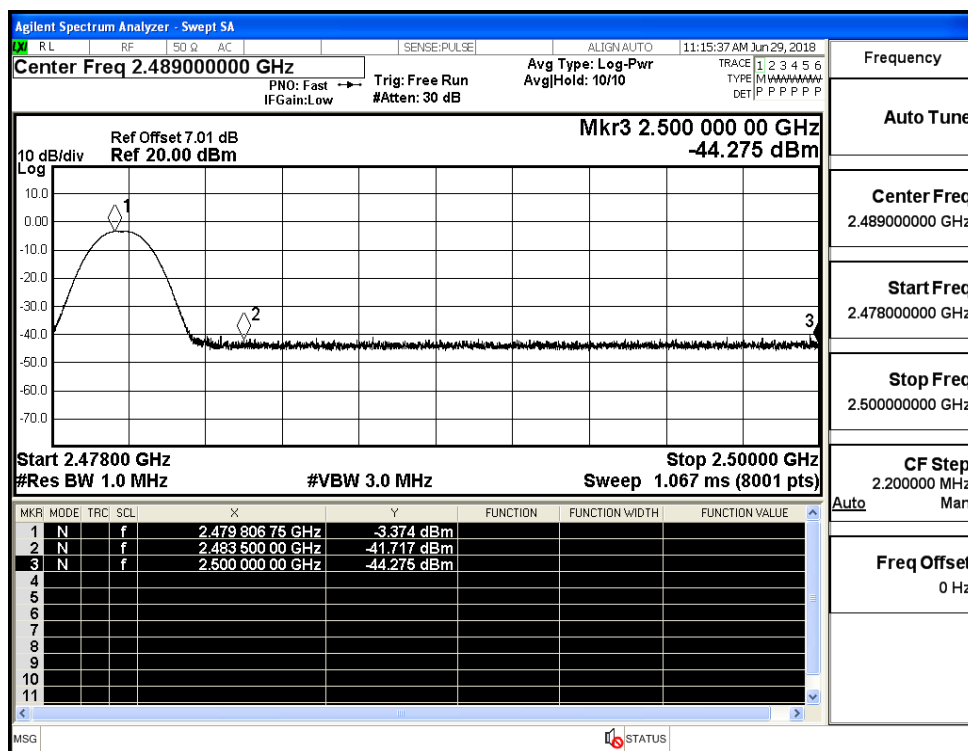
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



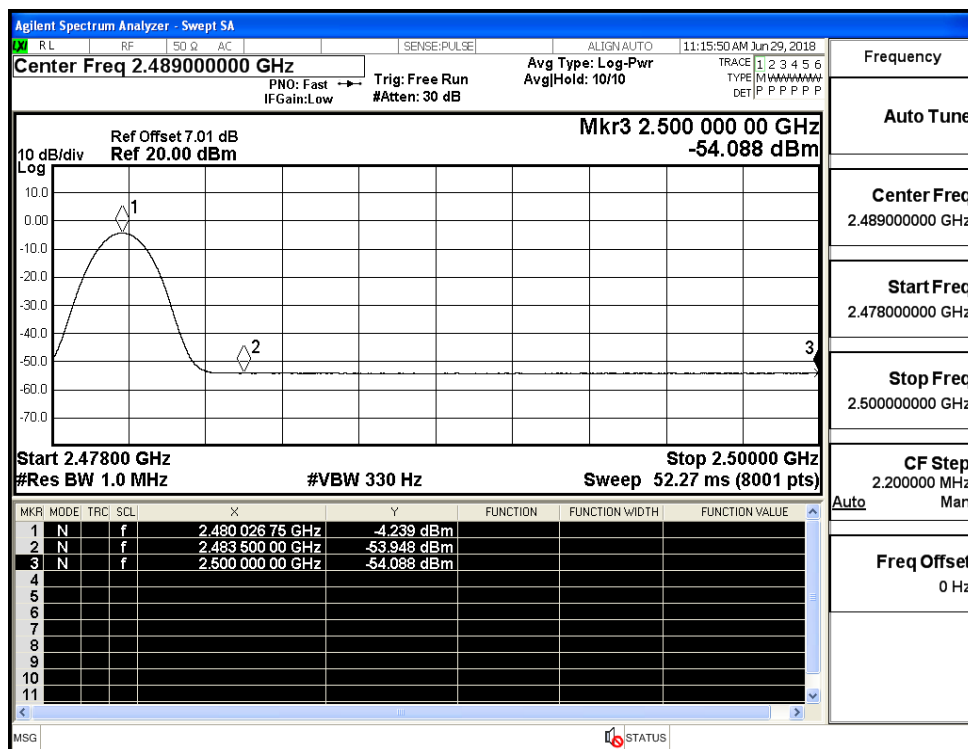
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

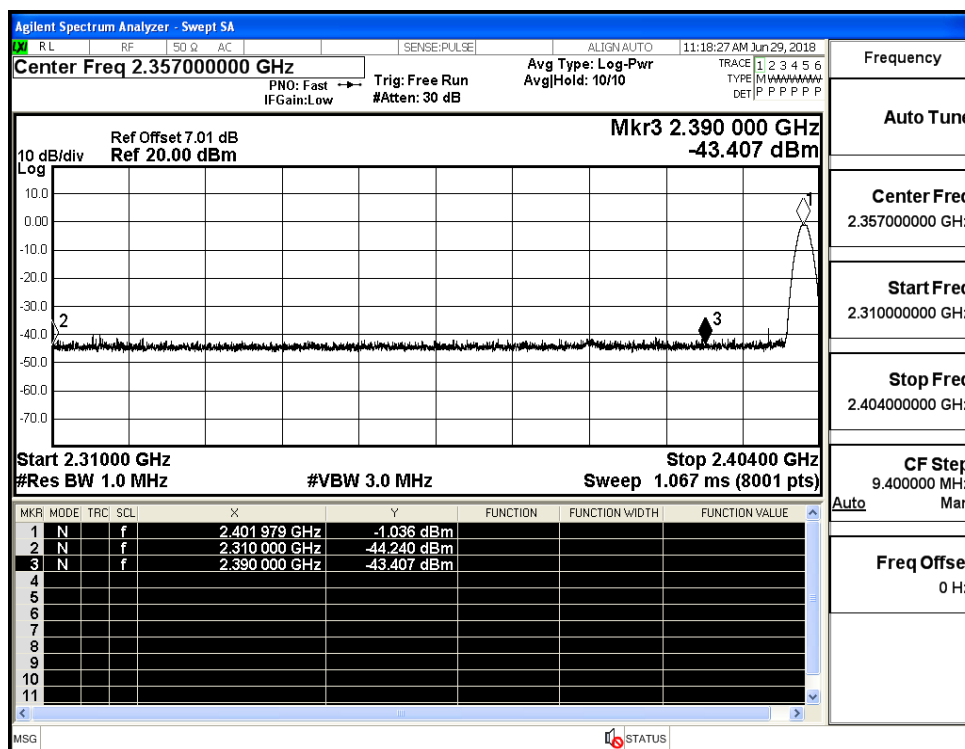
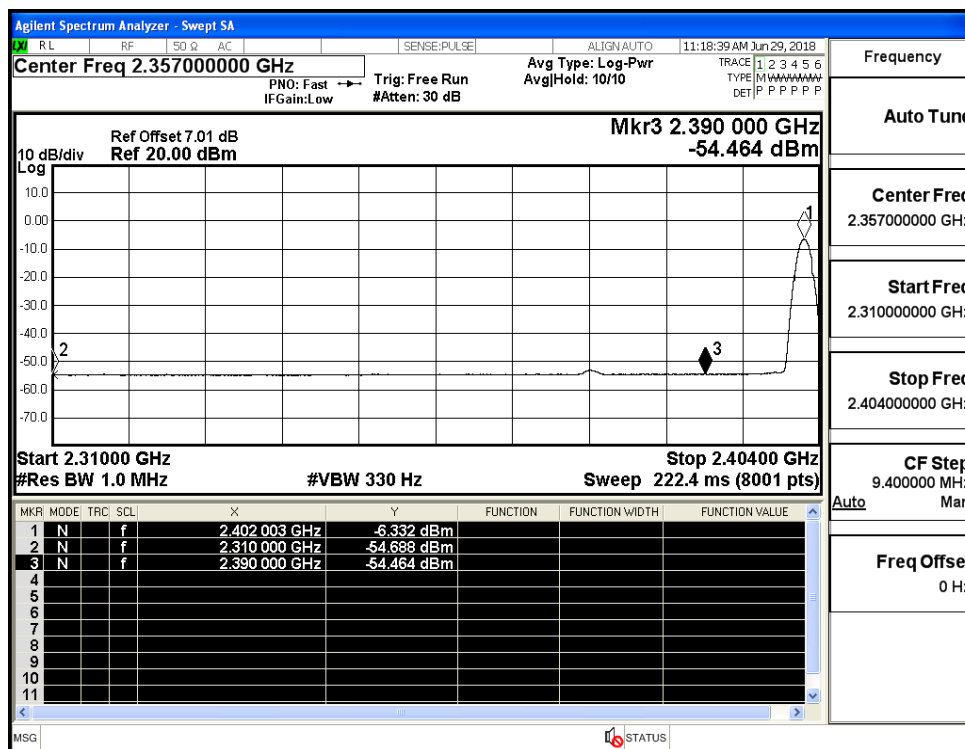


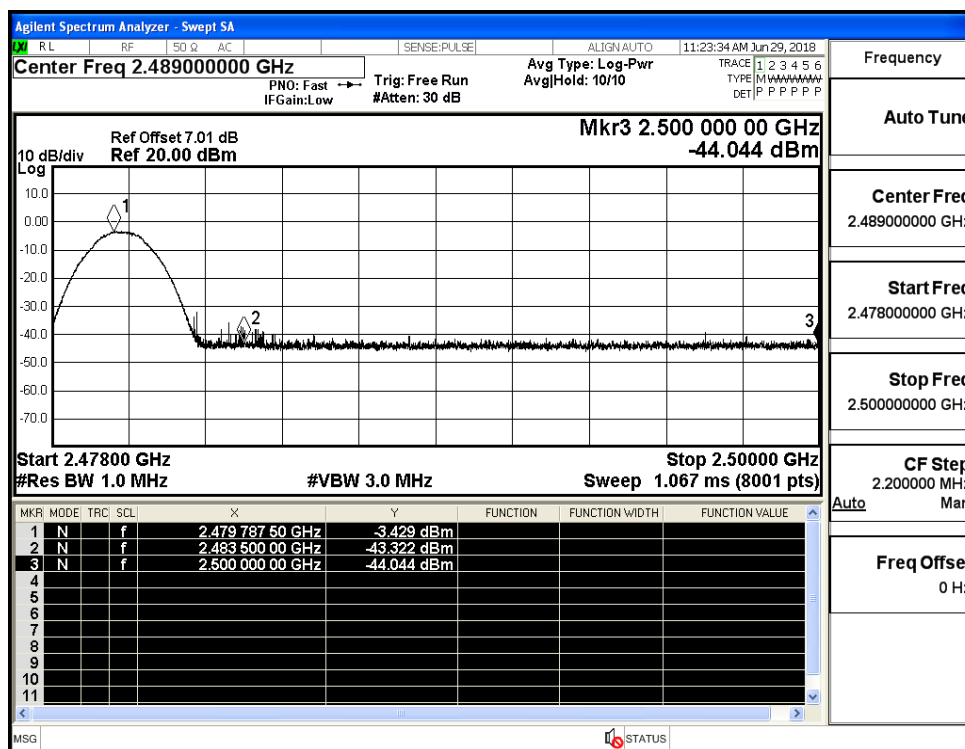
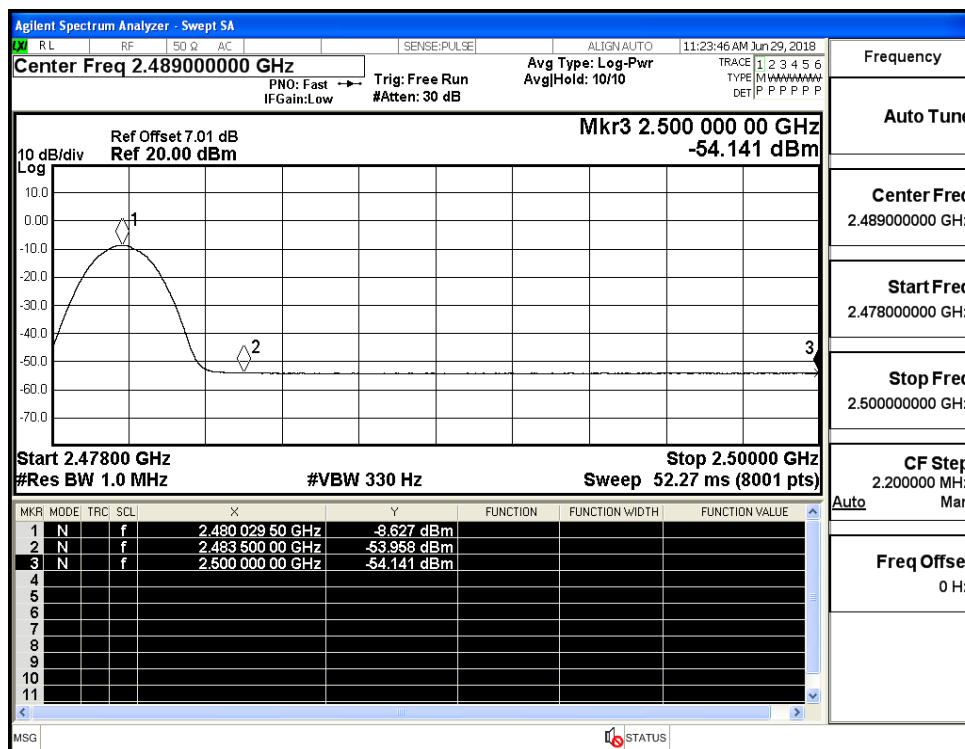
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



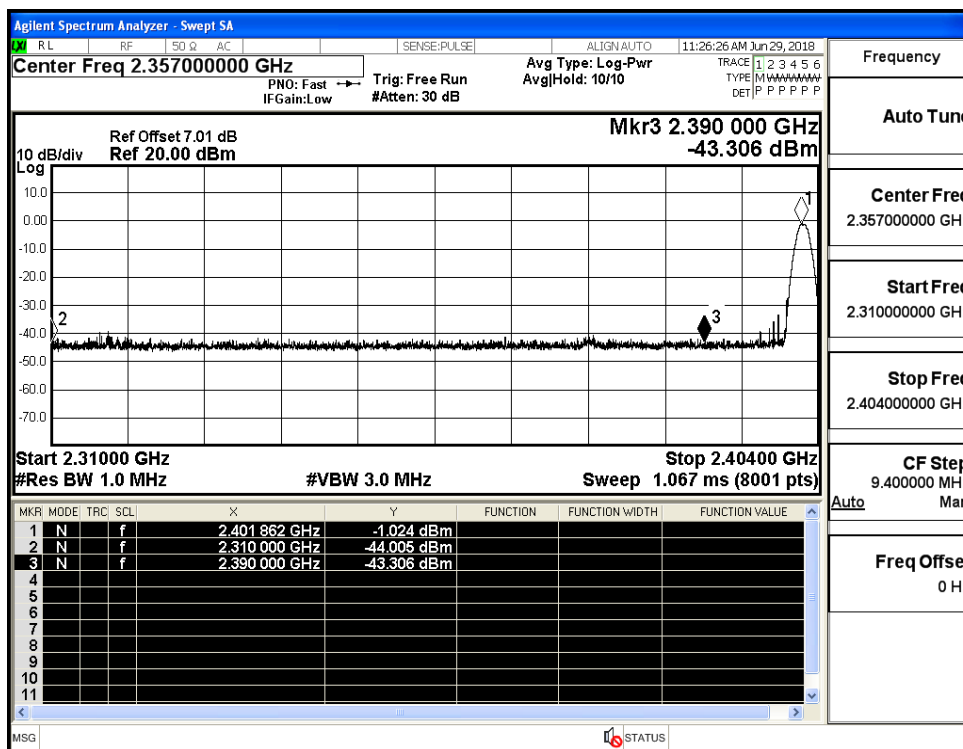
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



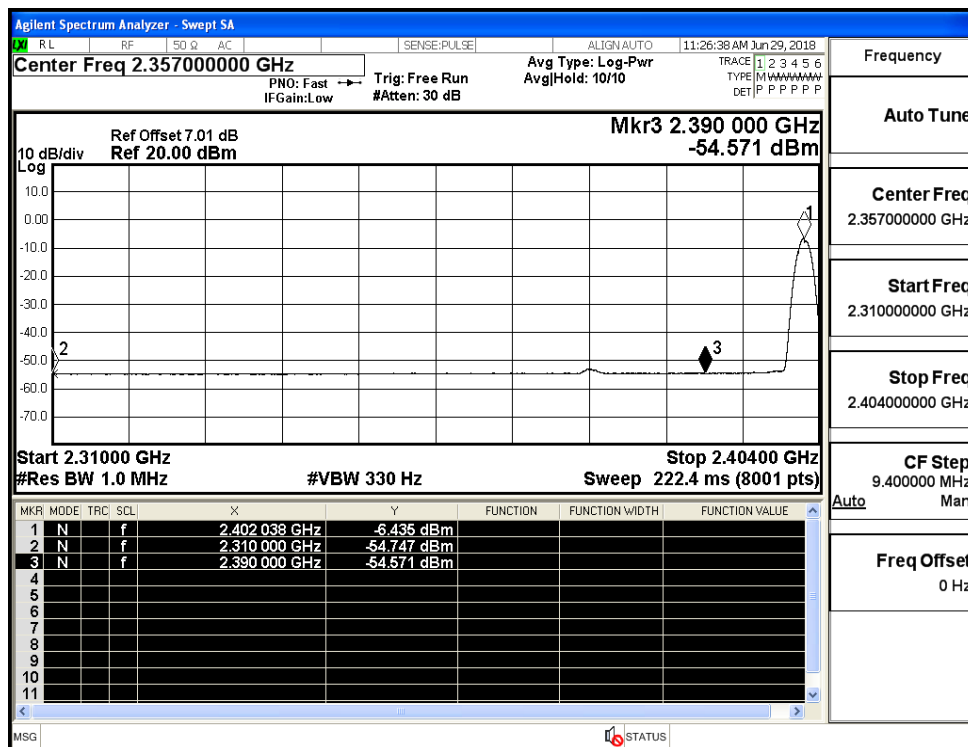
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

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)

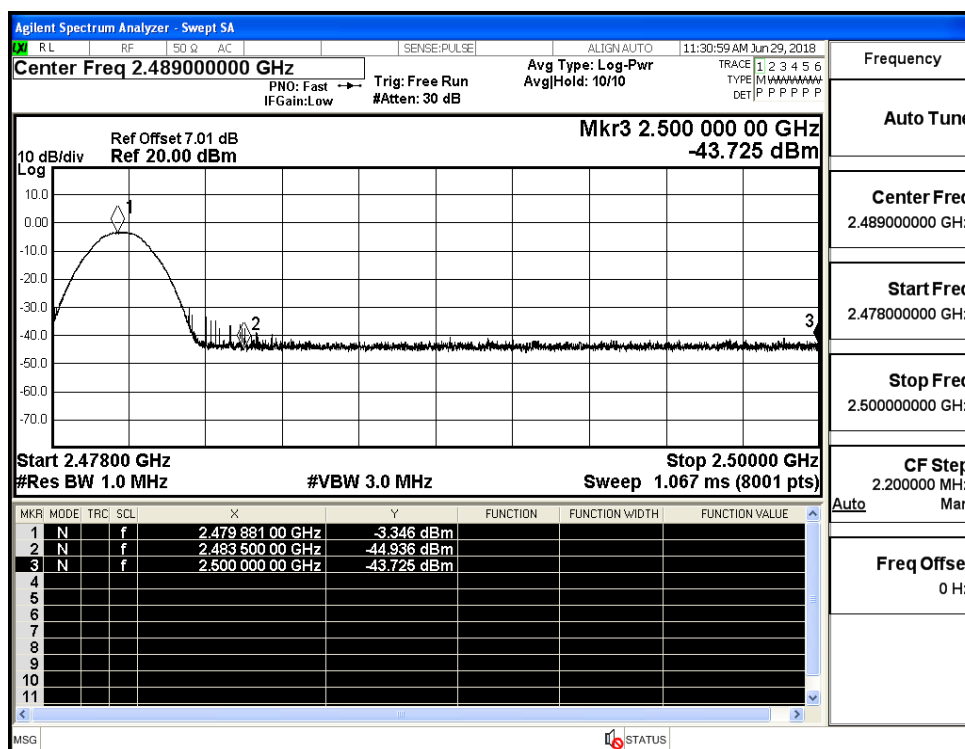
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

