

Appendix A

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

Product Name: Bluetooth eye mask

Trade Mark: N/A

Test Model: TYEM-001

Environmental Conditions

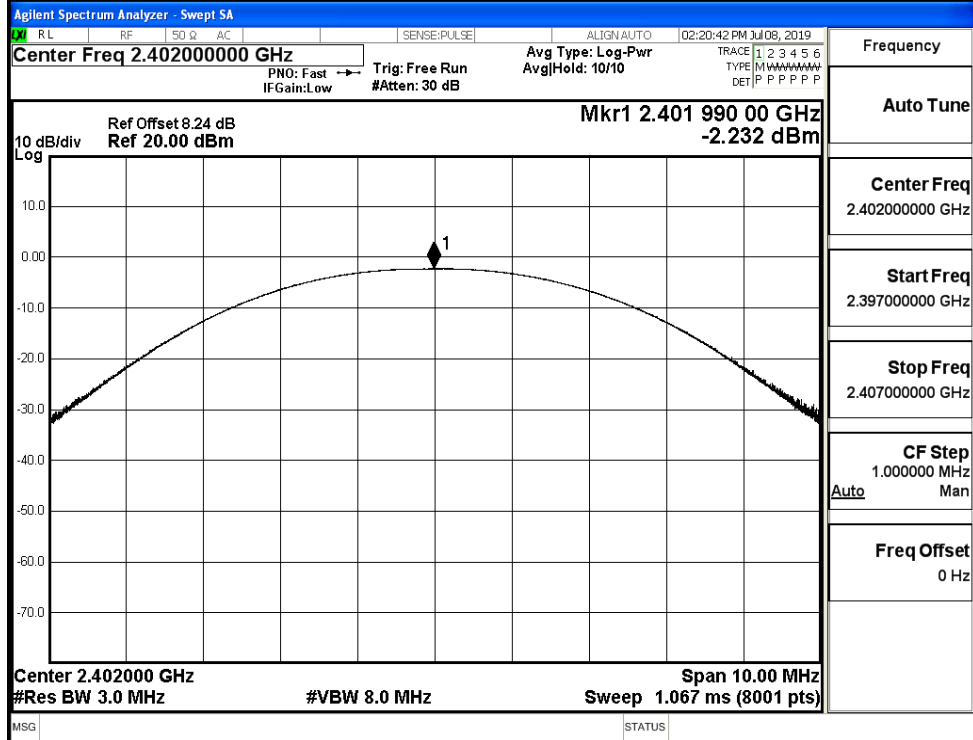
Temperature:	24.1 °C
Relative Humidity:	53.6%
ATM Pressure:	100.0 kPa
Test Engineer:	JERRY.ZENG
Supervised by:	Wang.Chuang

A.1 Maxmum Conducted Peak Output Power

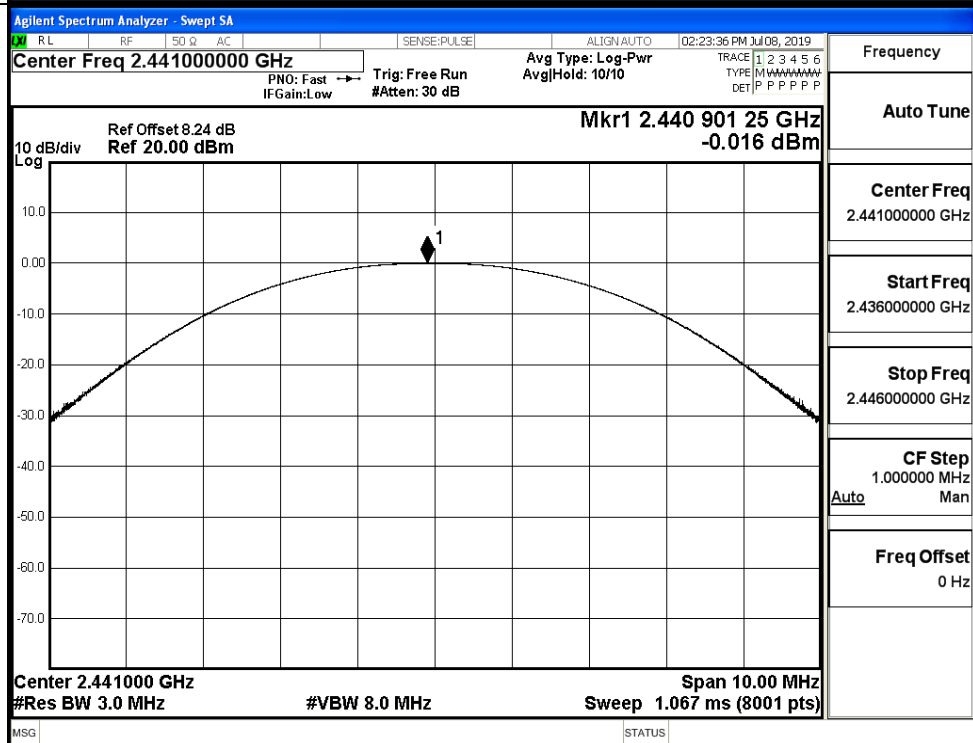
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-2.232	30	PASS
	MCH	-0.016	30	PASS
	HCH	-0.230	30	PASS
$\pi/4$ DQPSK	LCH	-2.661	21	PASS
	MCH	-0.586	21	PASS
	HCH	-0.696	21	PASS
8DPSK	LCH	-2.600	21	PASS
	MCH	-0.292	21	PASS
	HCH	-0.525	21	PASS

Test Graphs

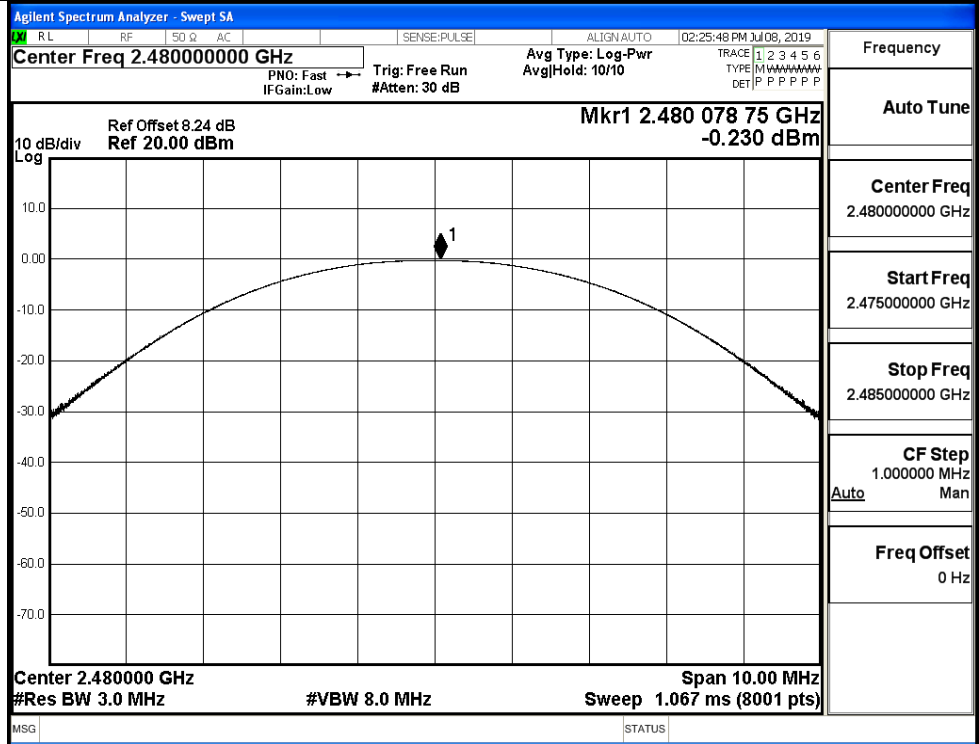
GFSK/LCH



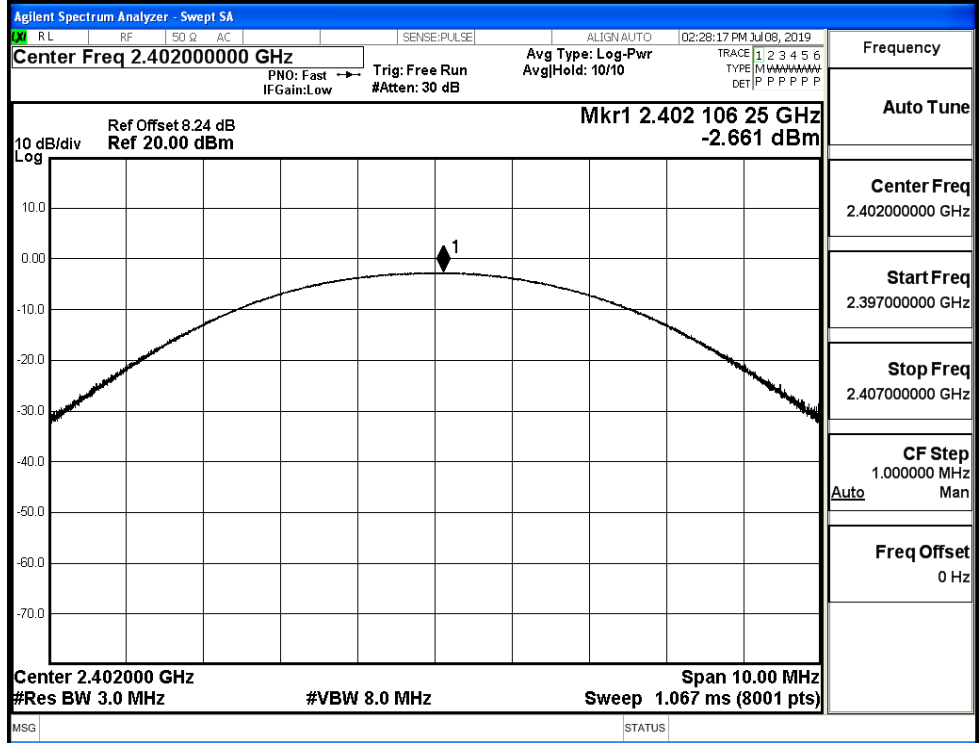
GFSK/MCH



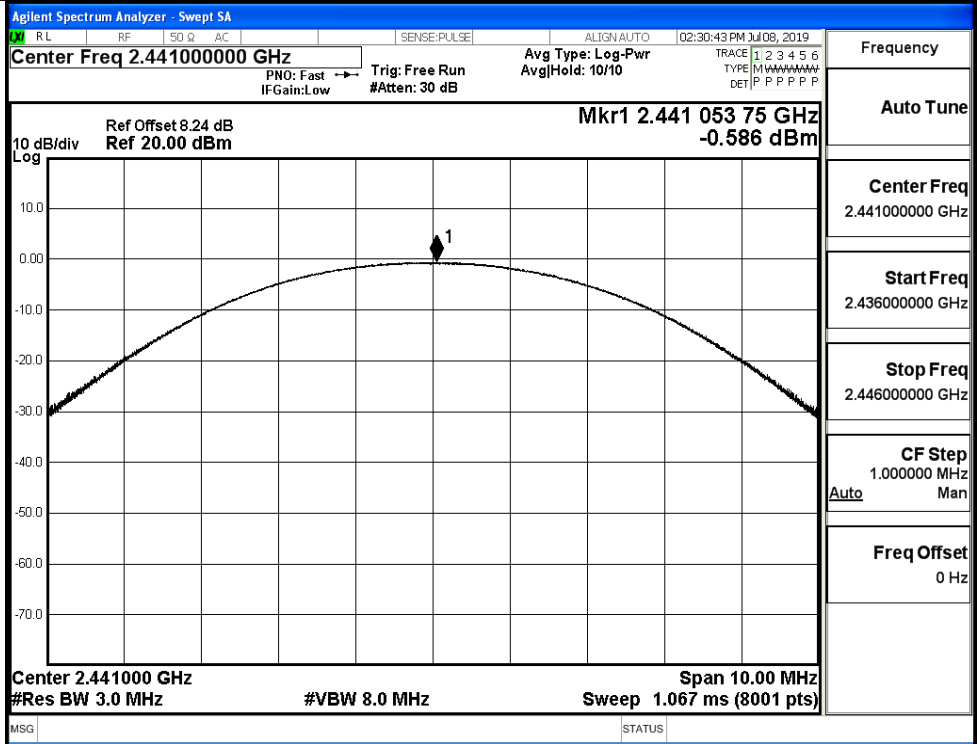
GFSK/HCH



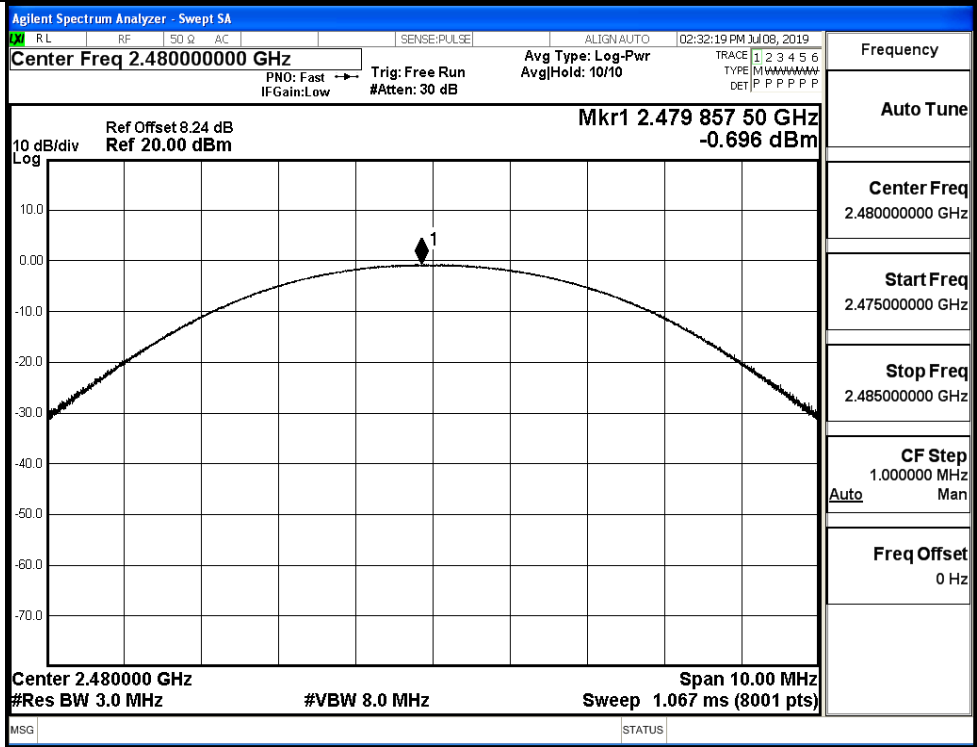
$\pi/4$ DQPSK/LCH



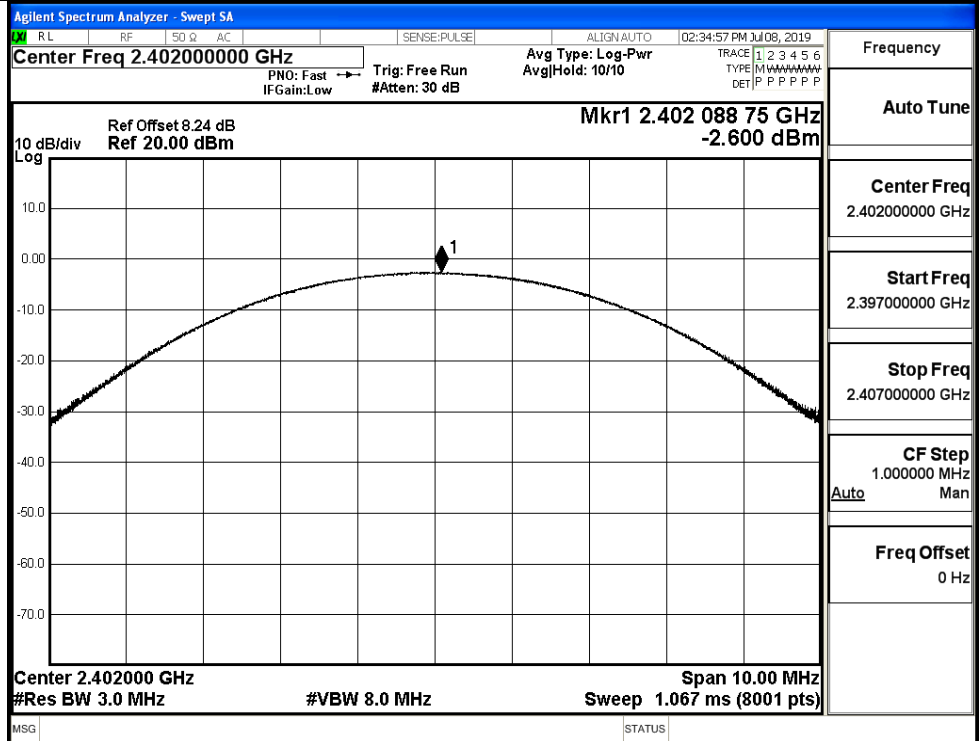
π /4DQPSK/MCH



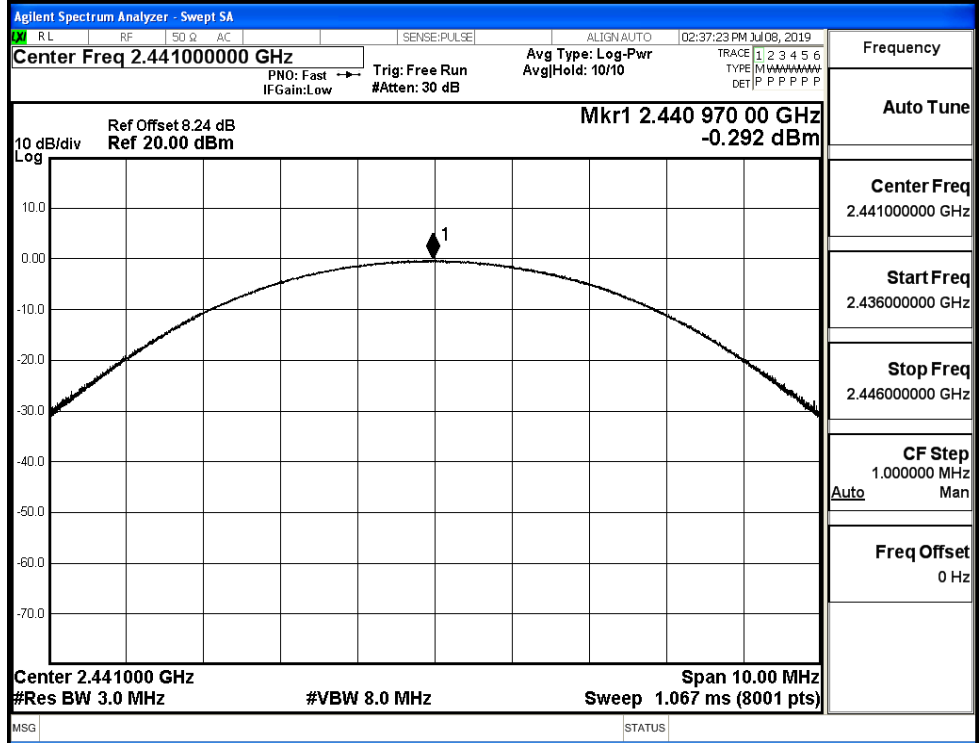
π /4DQPSK/HCH



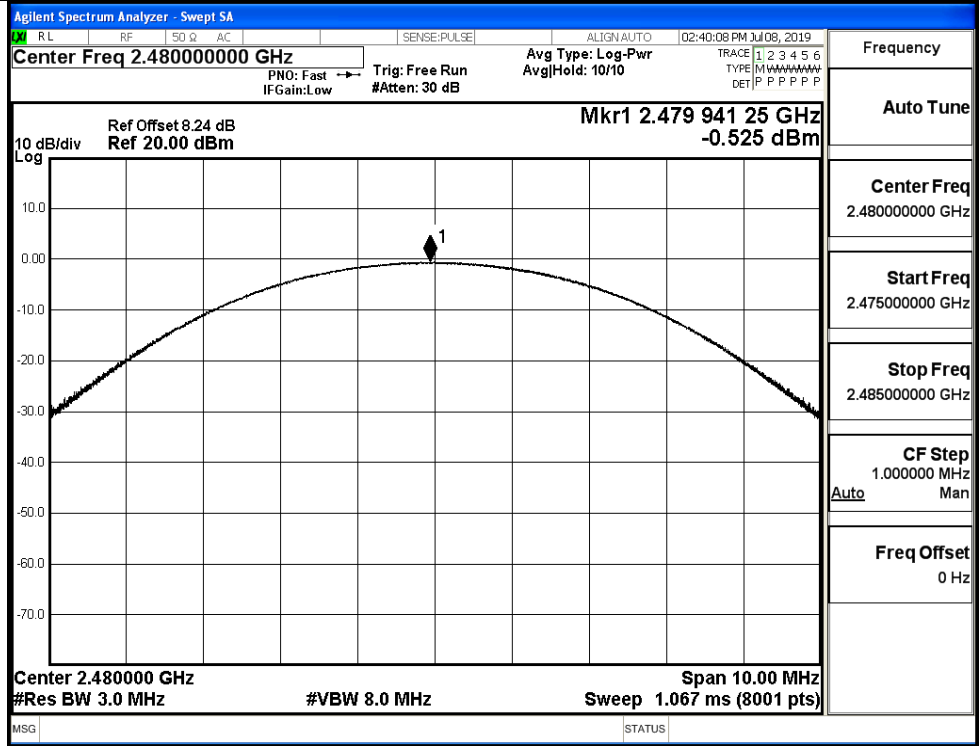
8DPSK/LCH



8DPSK/MCH

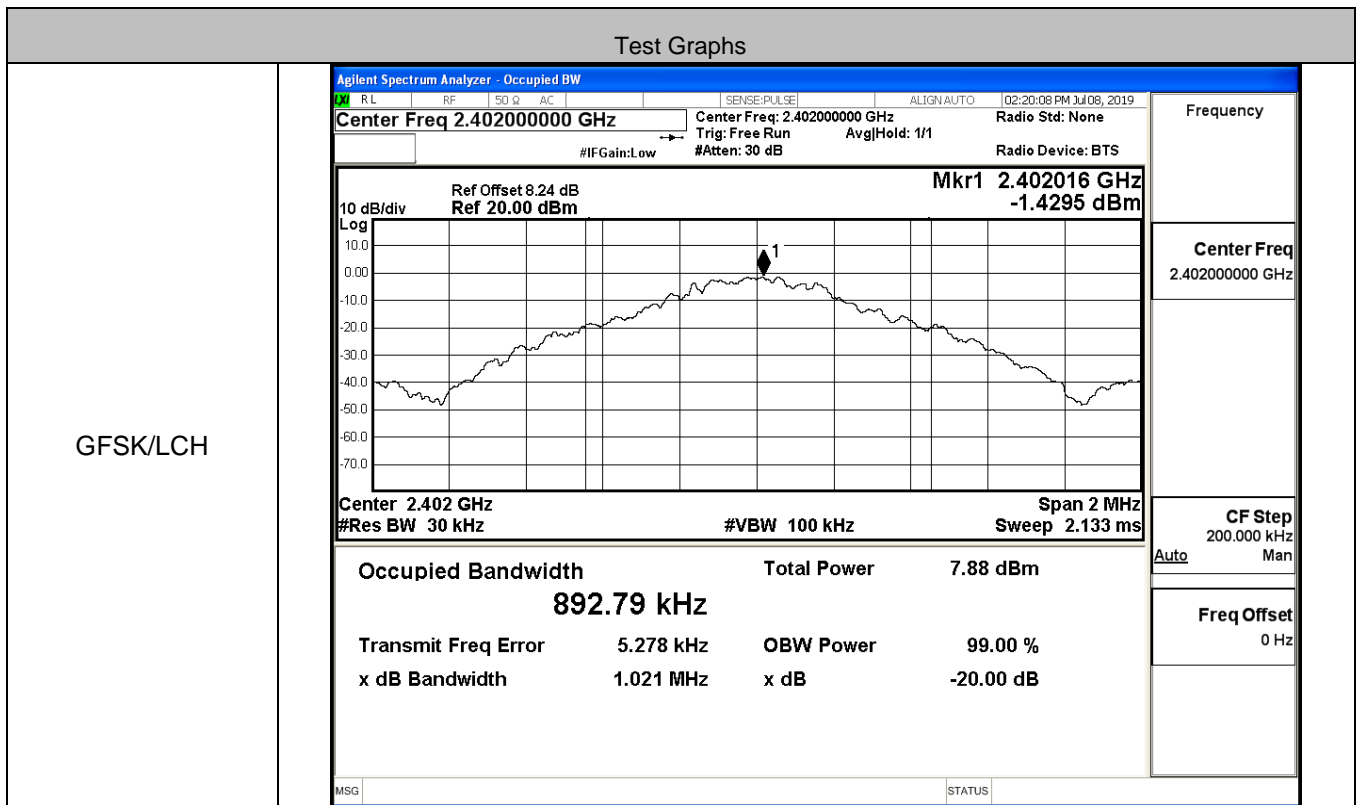


8DPSK/HCH

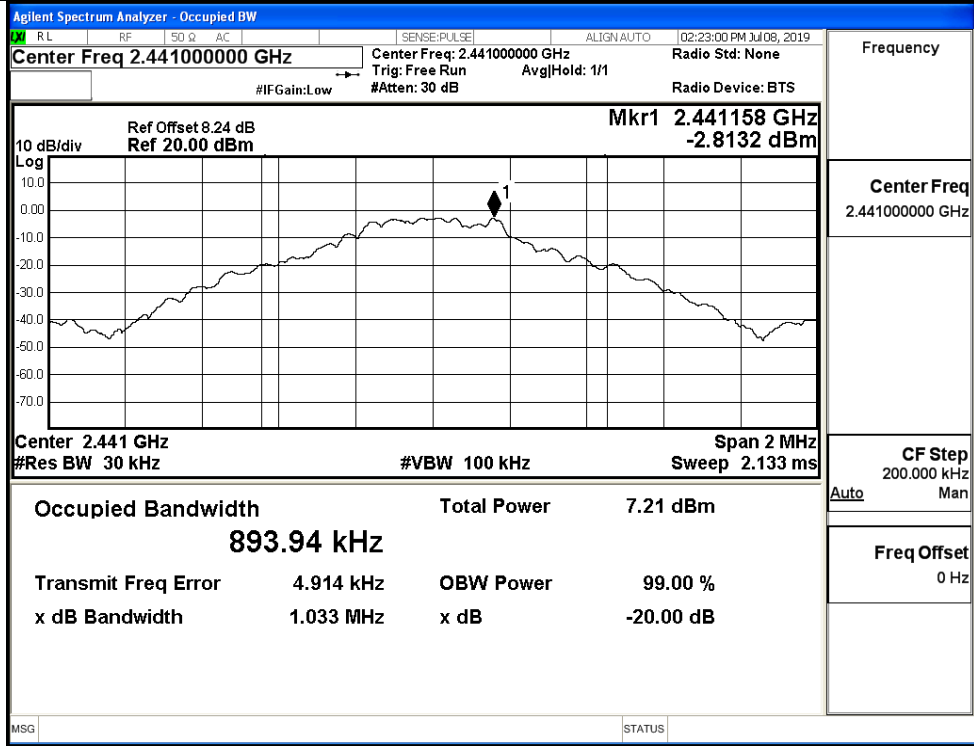


A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.021	Not Specified	PASS
	MCH	1.033	Not Specified	PASS
	HCH	1.033	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.292	Not Specified	PASS
	MCH	1.309	Not Specified	PASS
	HCH	1.291	Not Specified	PASS
8DPSK	LCH	1.297	Not Specified	PASS
	MCH	1.296	Not Specified	PASS
	HCH	1.300	Not Specified	PASS

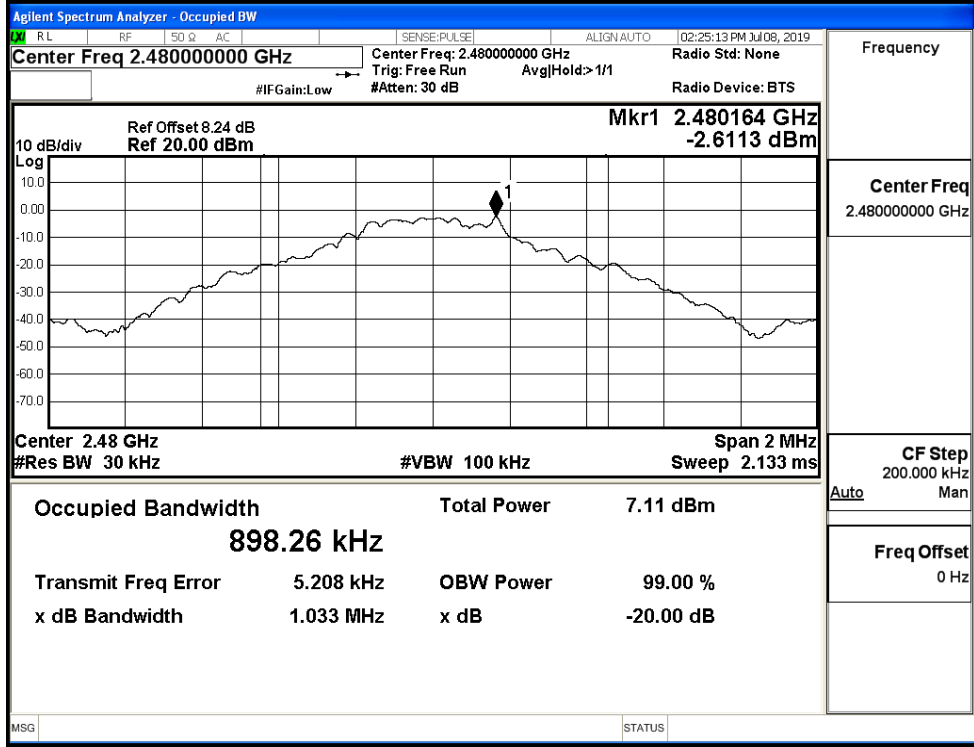


GFSK/MCH



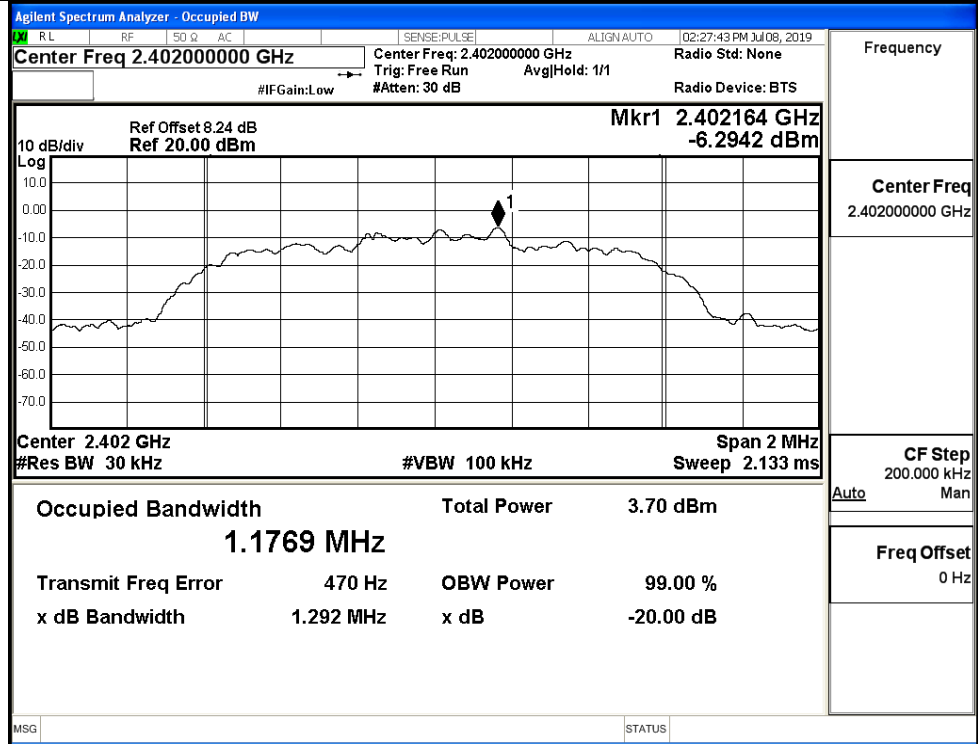
Frequency	2.441000000 GHz
Center Freq	2.441000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

GFSK/HCH

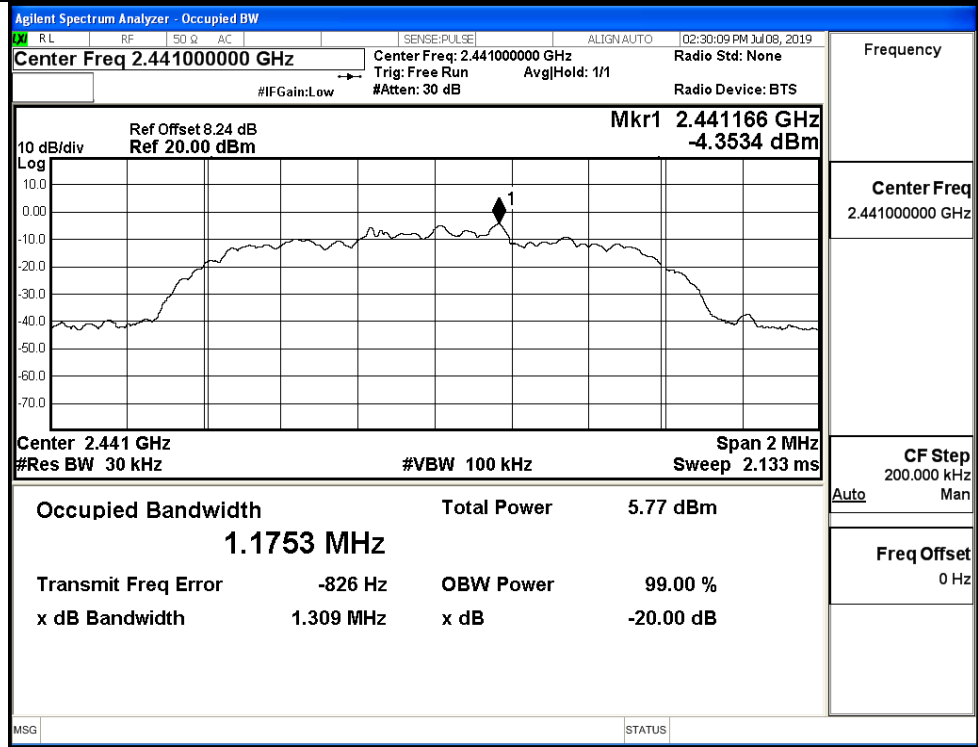


Frequency	2.480000000 GHz
Center Freq	2.480000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

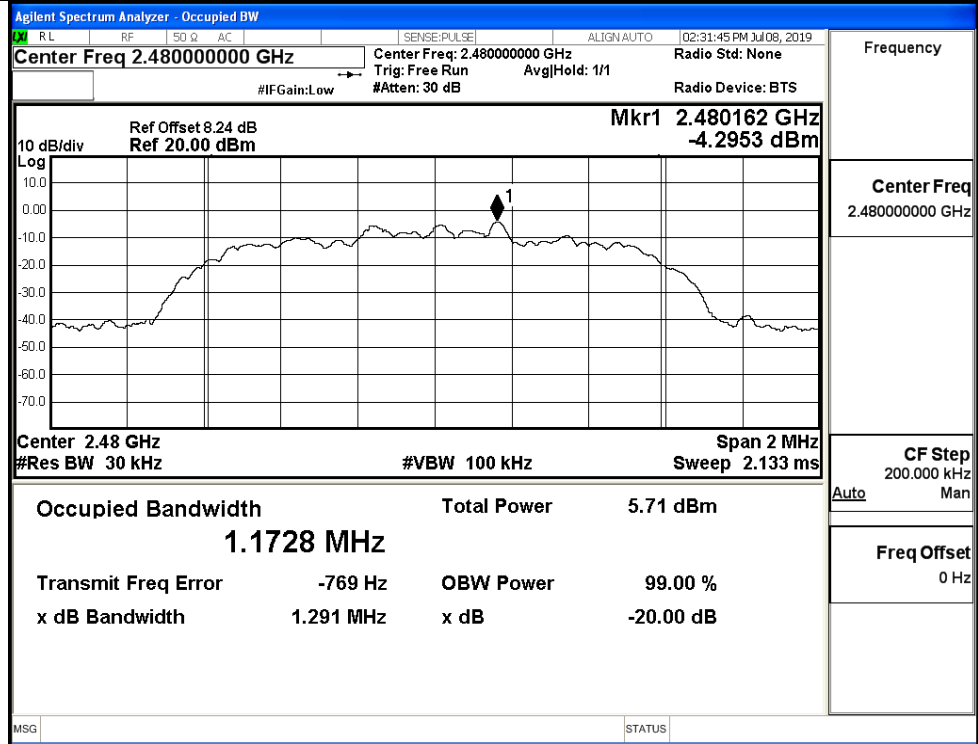
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH

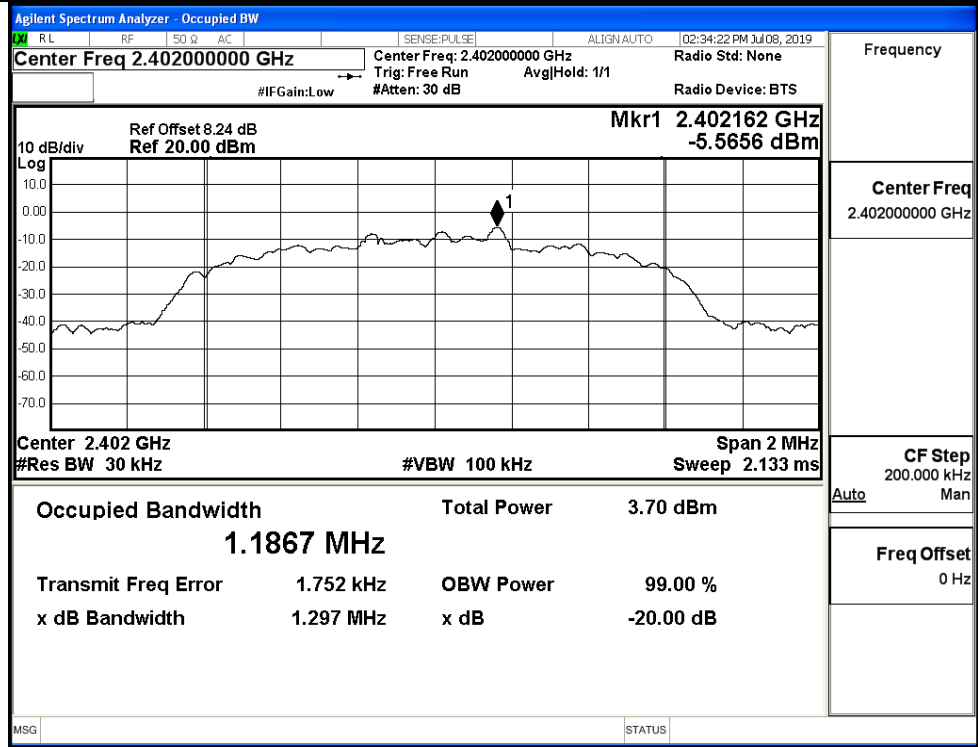


$\pi/4$ DQPSK/HCH



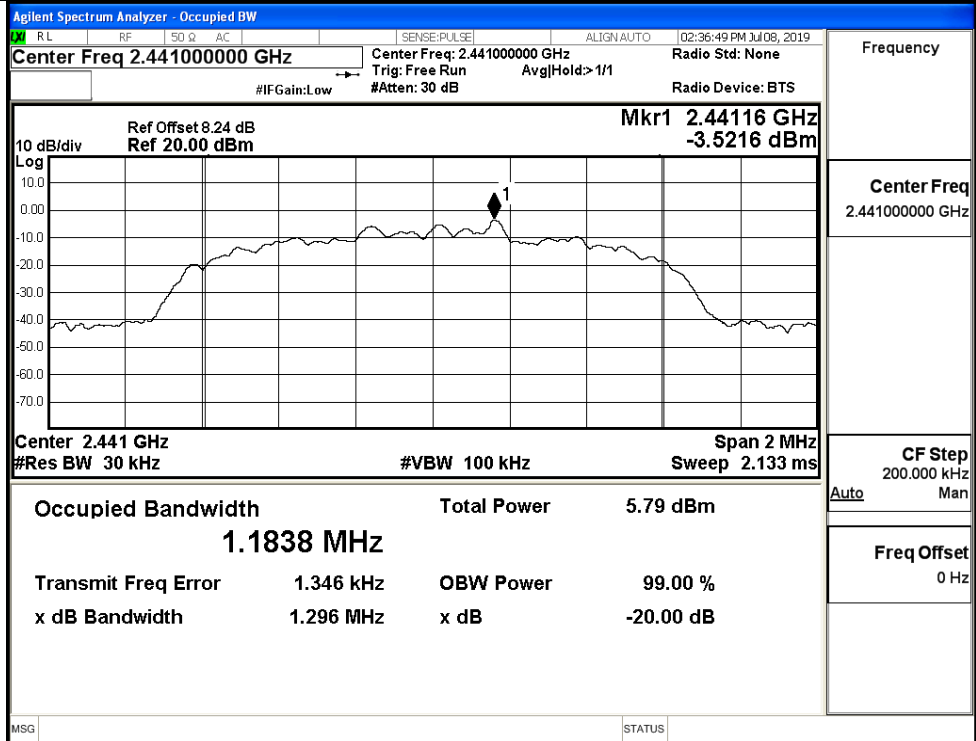
Frequency	2.48000000 GHz
Center Freq	2.48000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

8DPSK/LCH

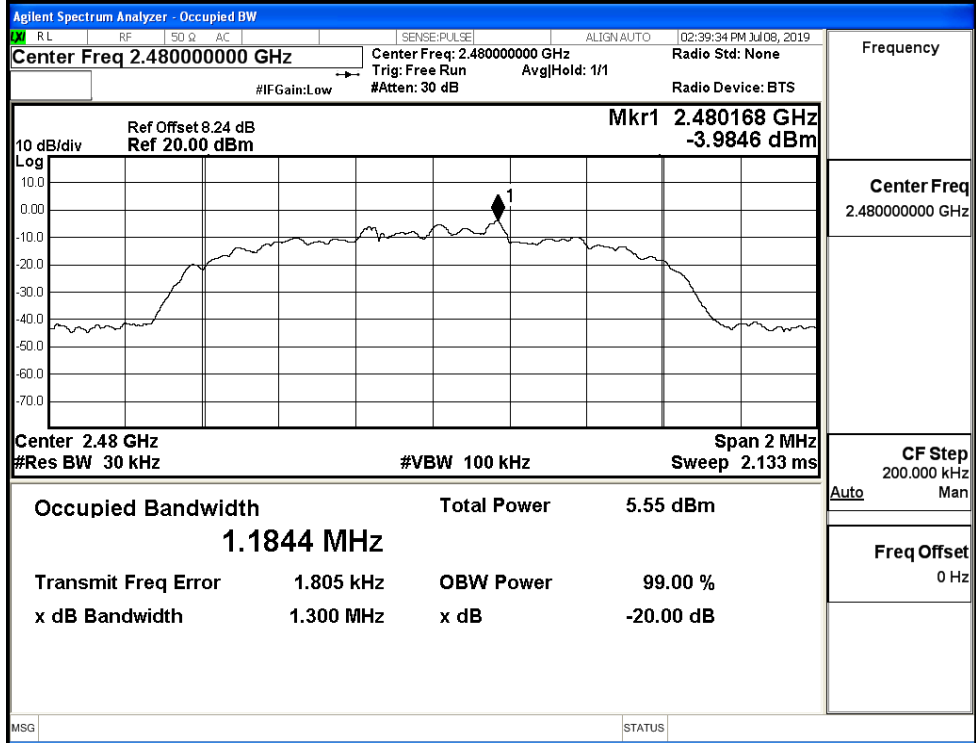


Frequency	2.40200000 GHz
Center Freq	2.40200000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

8DPSK/MCH

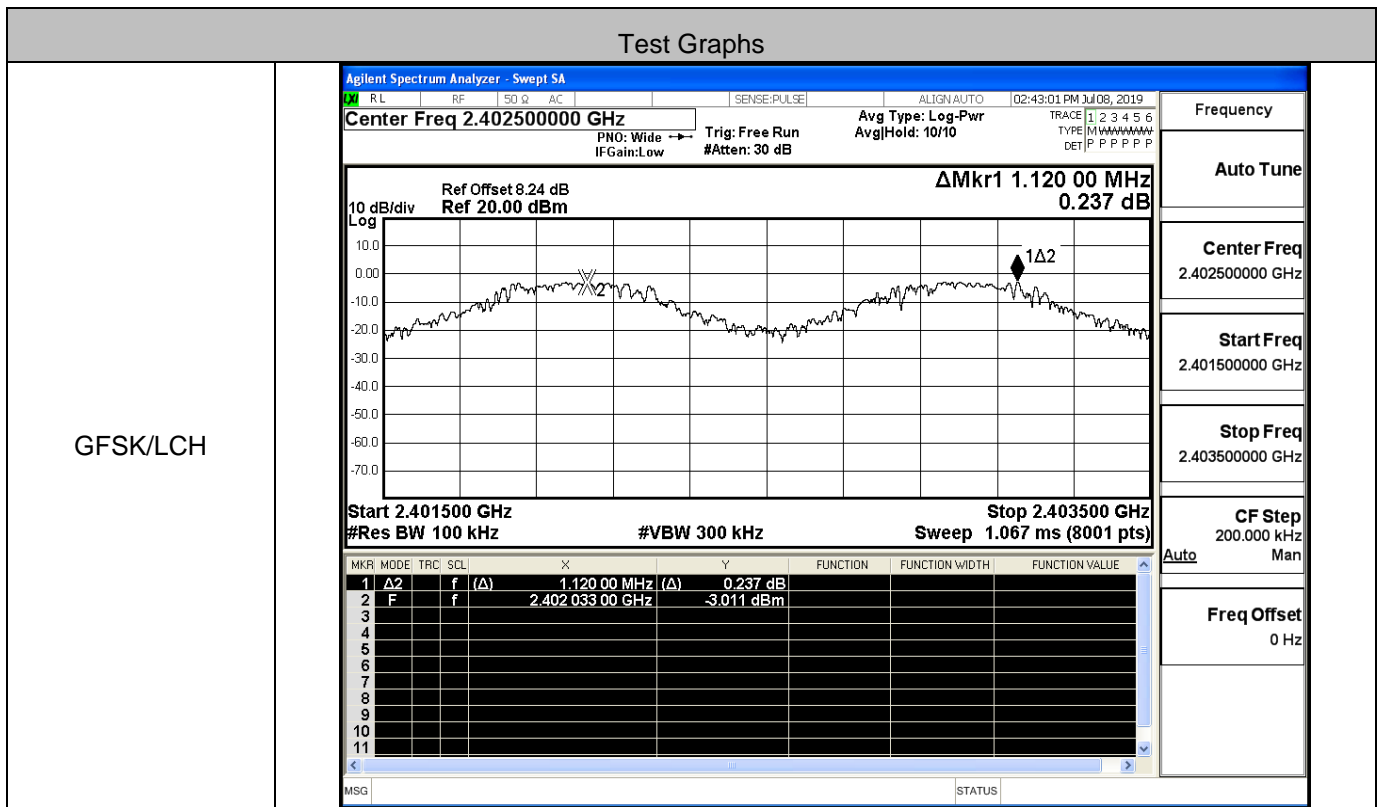


8DPSK/HCH

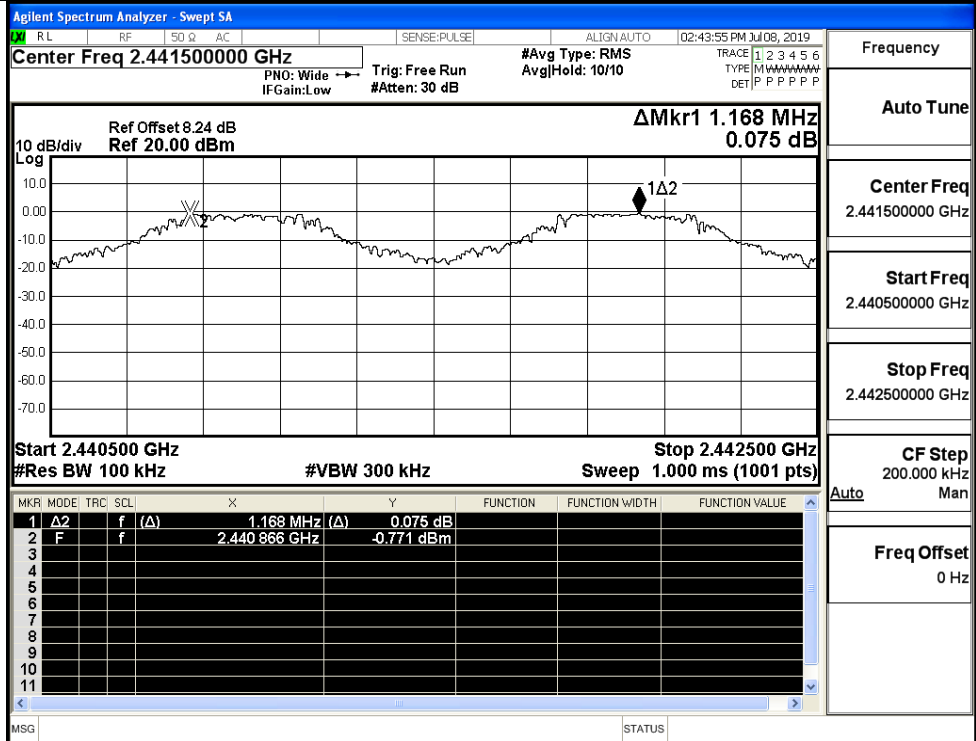


A.3 Carrier Frequency Separation

Mode	Channel	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.120	0.689	PASS
	MCH	1.168	0.689	PASS
	HCH	1.038	0.689	PASS
π/4DQPSK	LCH	1.182	0.873	PASS
	MCH	1.044	0.873	PASS
	HCH	0.884	0.873	PASS
8DPSK	LCH	1.160	0.867	PASS
	MCH	0.900	0.867	PASS
	HCH	0.980	0.867	PASS



GFSK/MCH



Frequency

Auto Tune

Center Freq
2.441500000 GHz

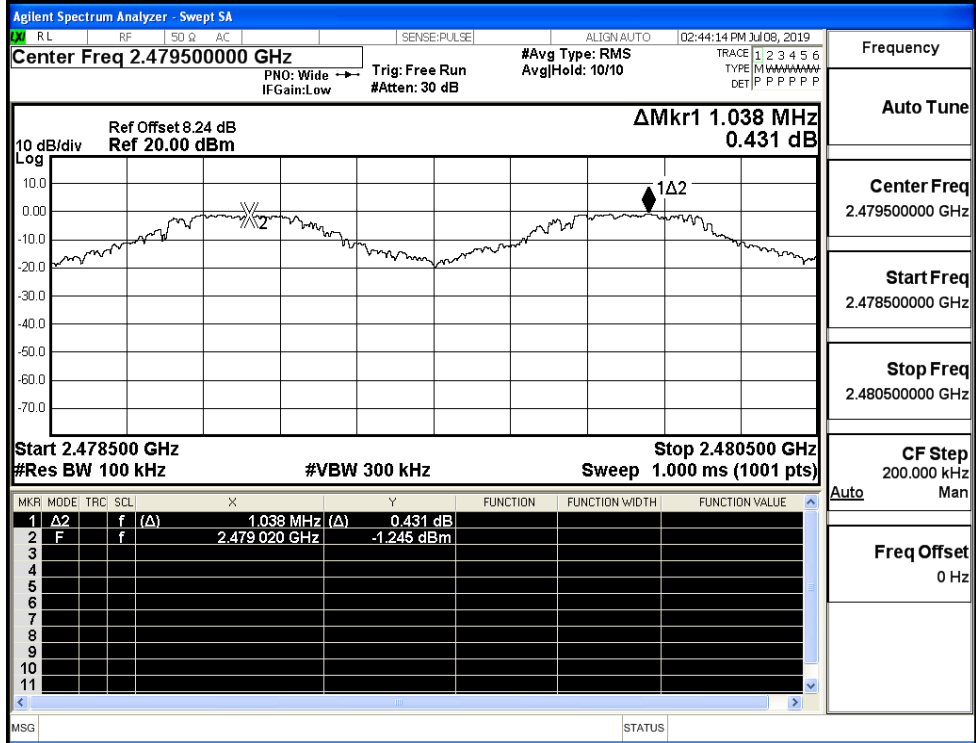
Start Freq
2.440500000 GHz

Stop Freq
2.442500000 GHz

CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz

GFSK/HCH



Frequency

Auto Tune

Center Freq
2.479500000 GHz

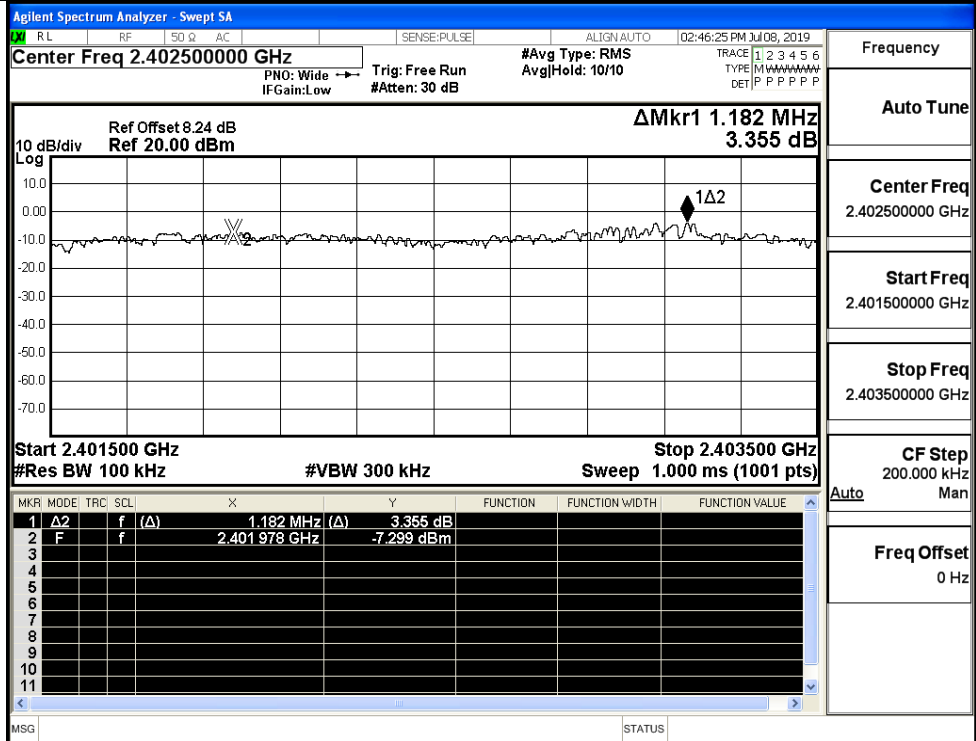
Start Freq
2.478500000 GHz

Stop Freq
2.480500000 GHz

CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz

$\pi/4$ DQPSK/LCH



Frequency

Auto Tune

Center Freq
2.40250000 GHz

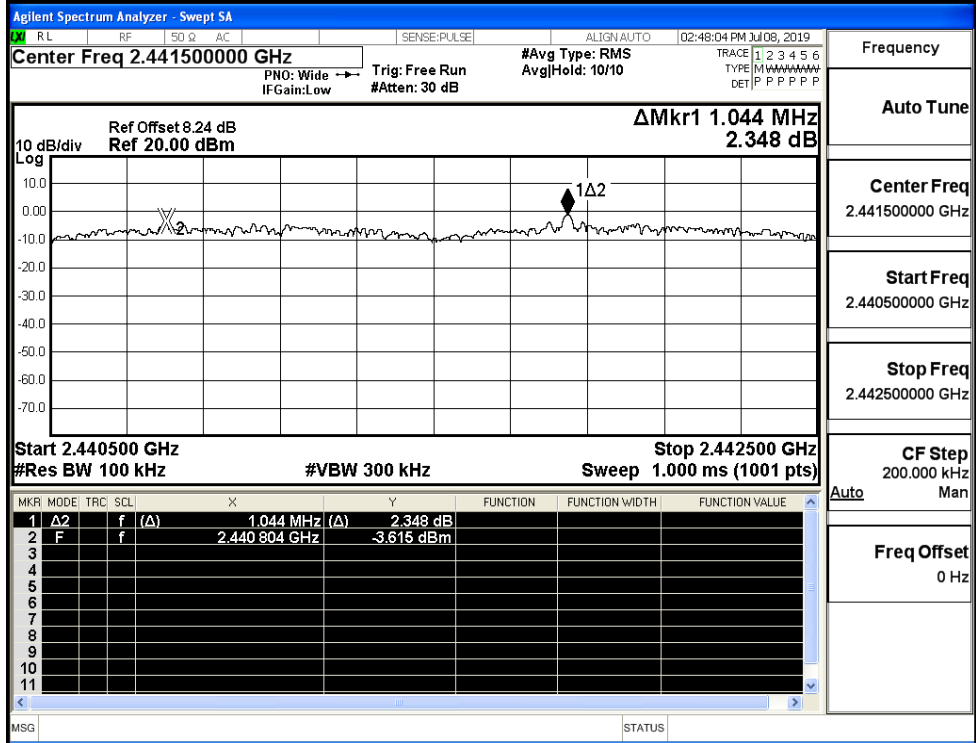
Start Freq
2.40150000 GHz

Stop Freq
2.40350000 GHz

CF Step
200.000 kHz

Freq Offset
0 Hz

$\pi/4$ DQPSK/MCH



Frequency

Auto Tune

Center Freq
2.44150000 GHz

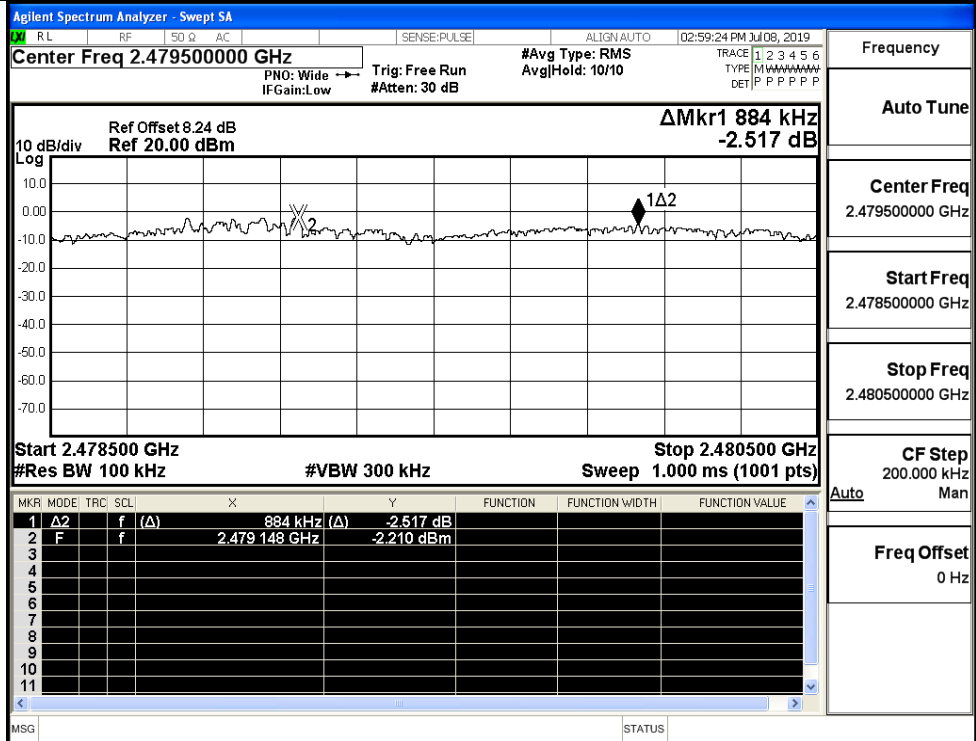
Start Freq
2.44050000 GHz

Stop Freq
2.44250000 GHz

CF Step
200.000 kHz

Freq Offset
0 Hz

π/4DQPSK/HCH



Frequency

Auto Tune

Center Freq
2.479500000 GHz

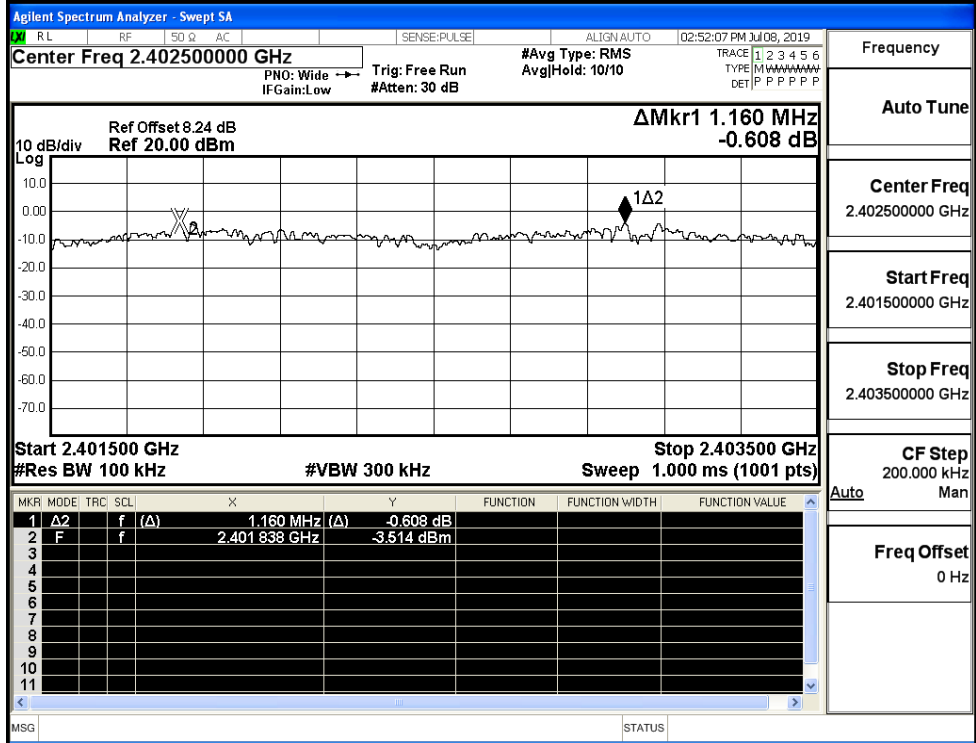
Start Freq
2.478500000 GHz

Stop Freq
2.480500000 GHz

CF Step
200.000 kHz
Man

Freq Offset
0 Hz

8DPSK/LCH



Frequency

Auto Tune

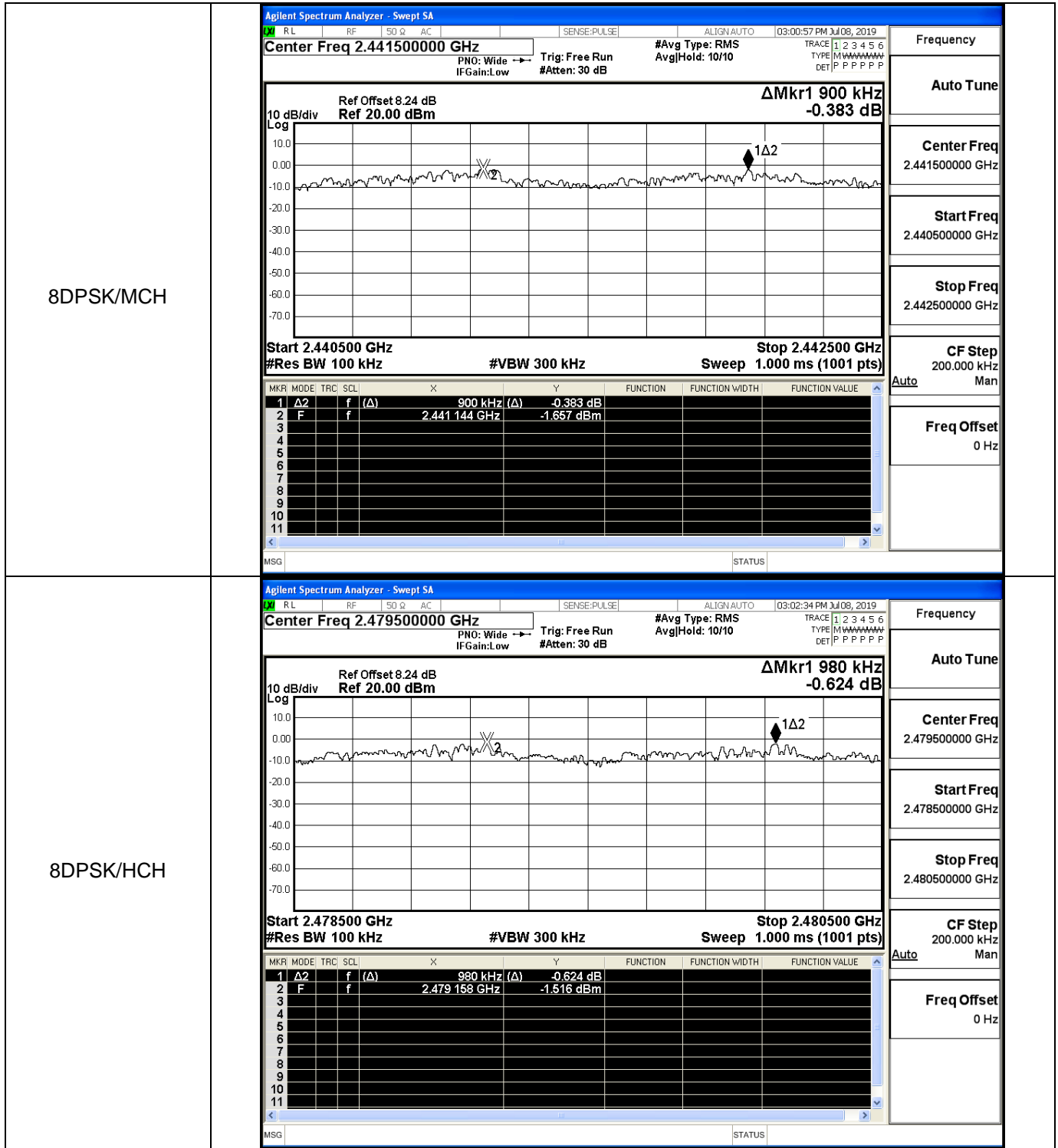
Center Freq
2.402500000 GHz

Start Freq
2.401500000 GHz

Stop Freq
2.403500000 GHz

CF Step
200.000 kHz
Man

Freq Offset
0 Hz

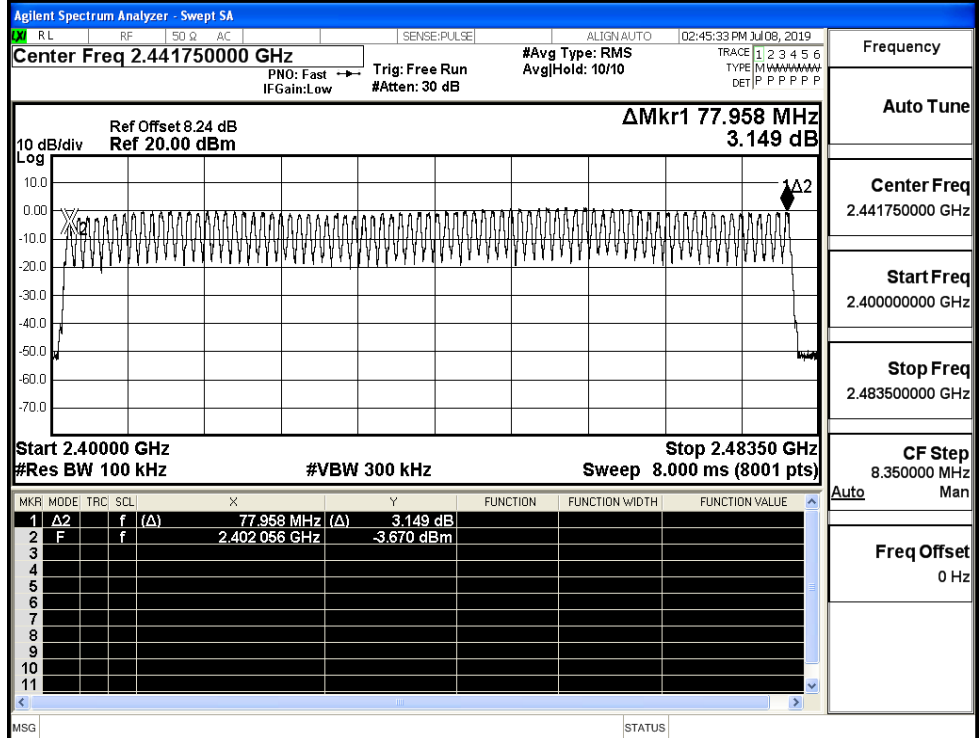


A.4 Hopping Channel Number

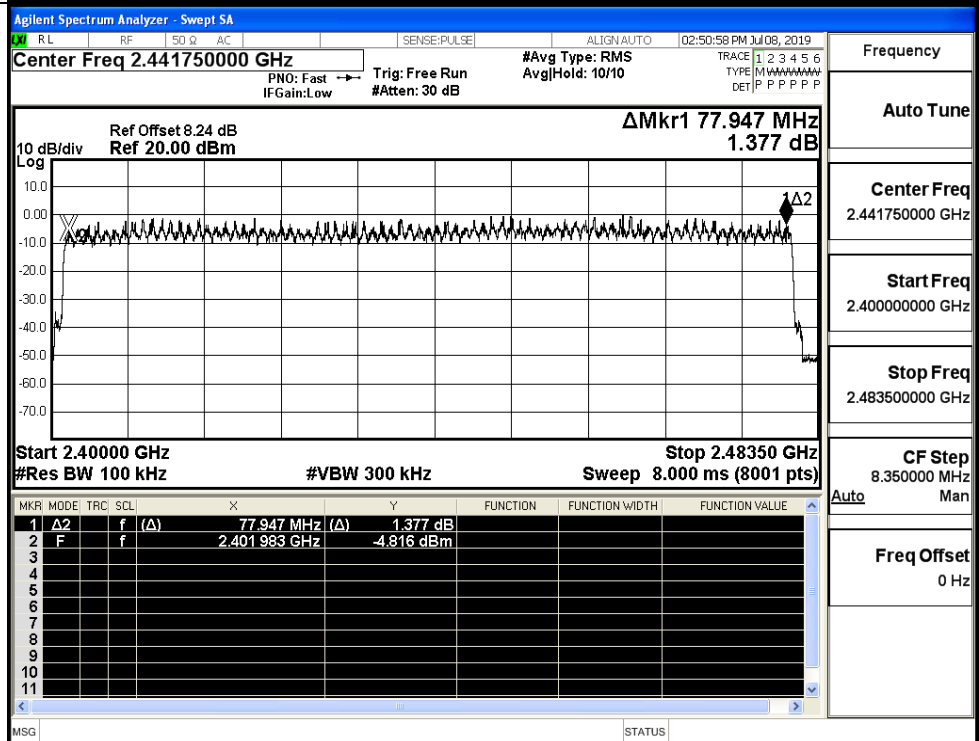
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
π/4DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

Test Graphs

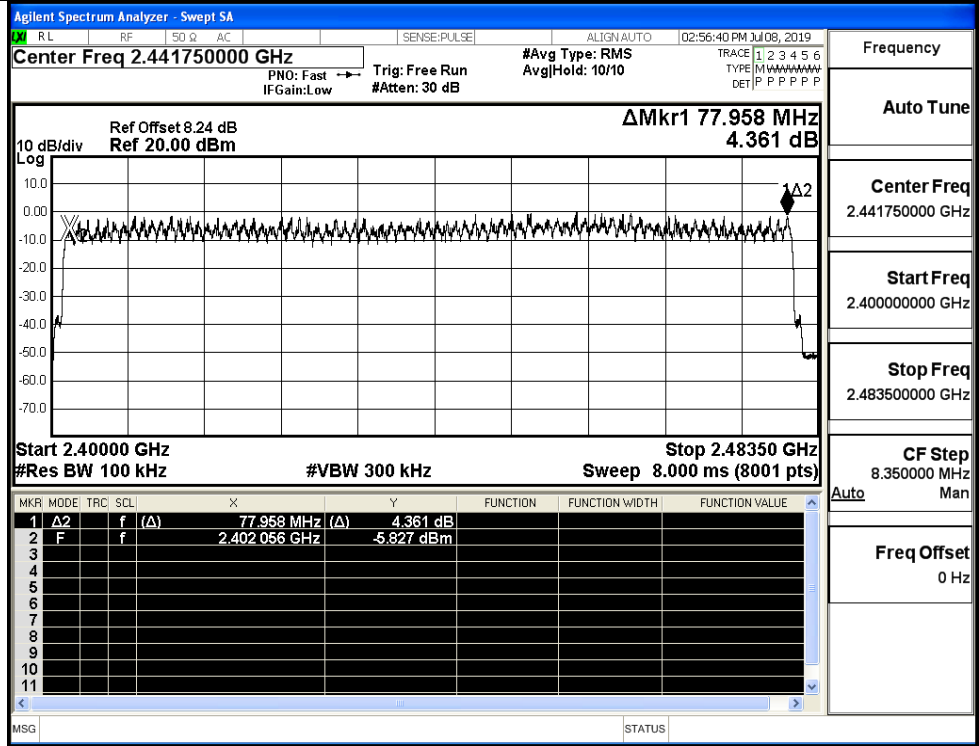
GFSK/Hop



$\pi/4$ DQPSK/Hop

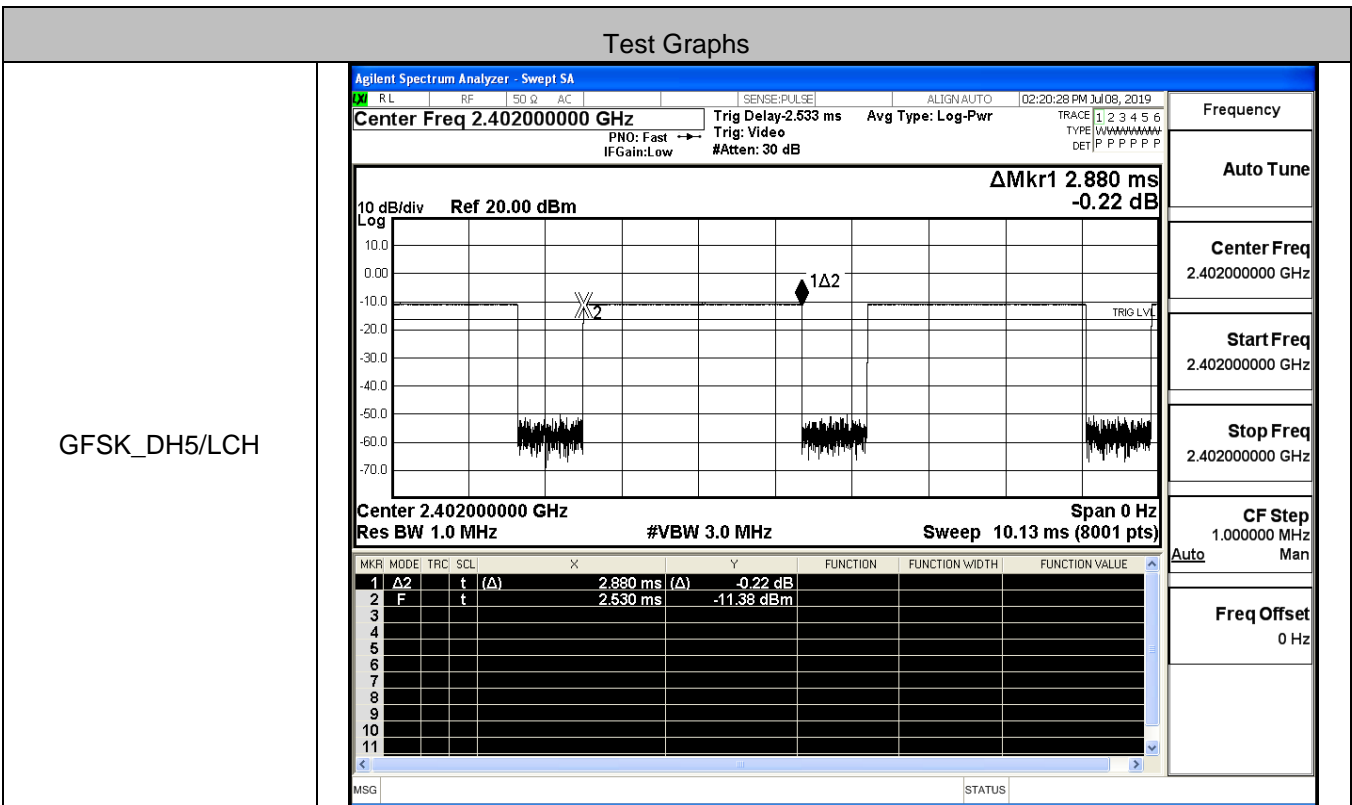


8DPSK/Hop

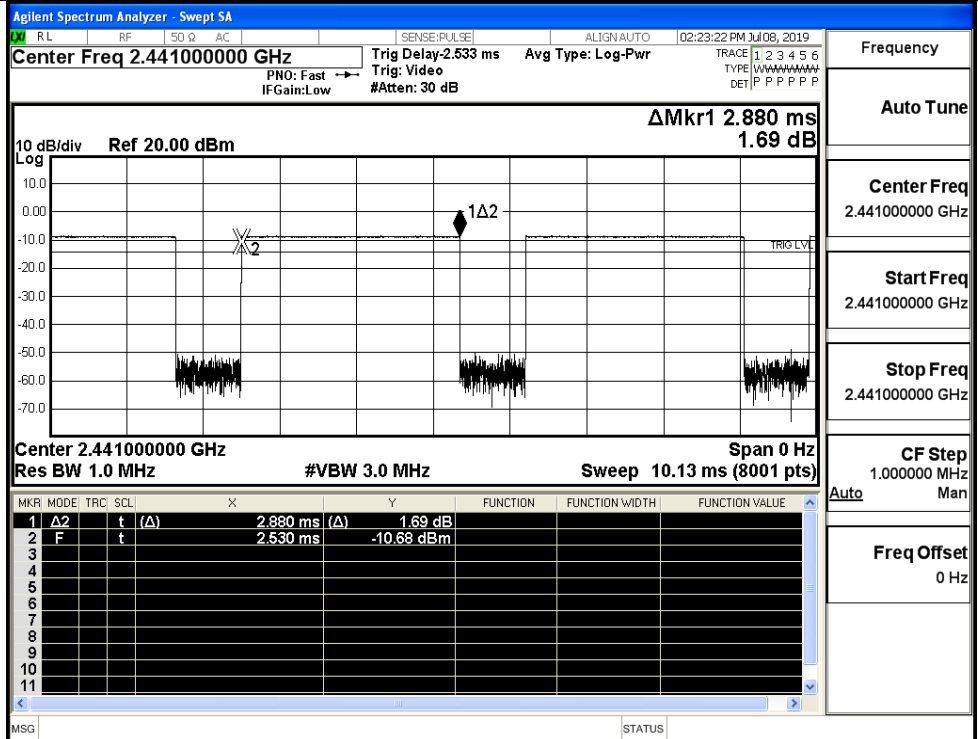


A.5 Dwell Time

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
π/4DQPSK	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	0.308	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



GFSK_DH5/MCH



Frequency

Auto Tune

Center Freq 2.441000000 GHz

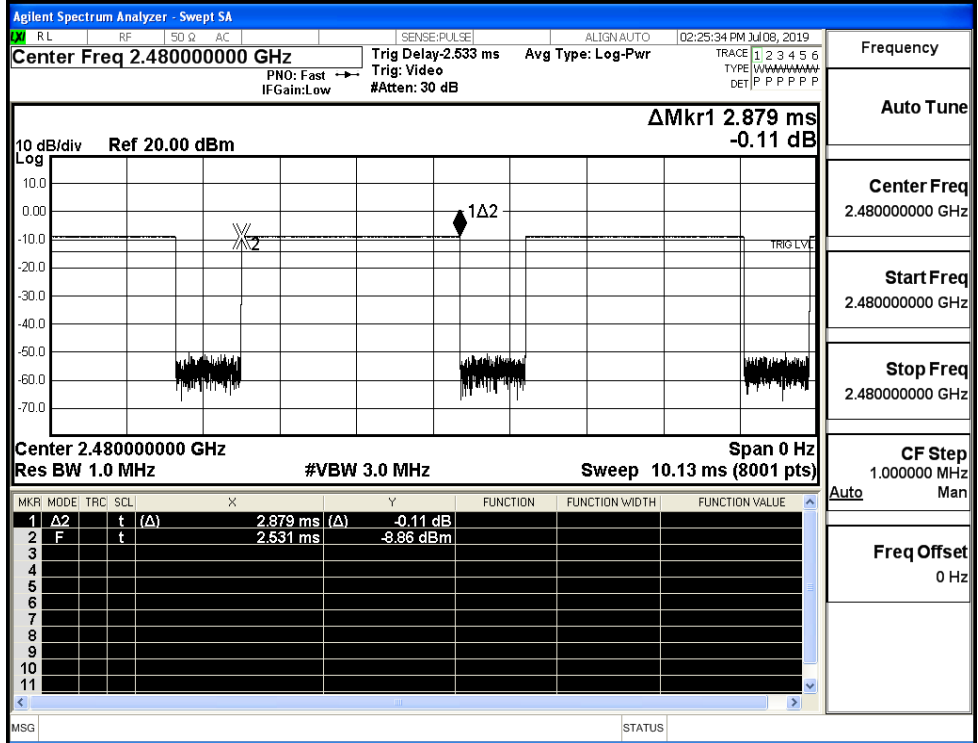
Start Freq 2.441000000 GHz

Stop Freq 2.441000000 GHz

CF Step 1.000000 MHz

Freq Offset 0 Hz

GFSK_DH5/HCH



Frequency

Auto Tune

Center Freq 2.480000000 GHz

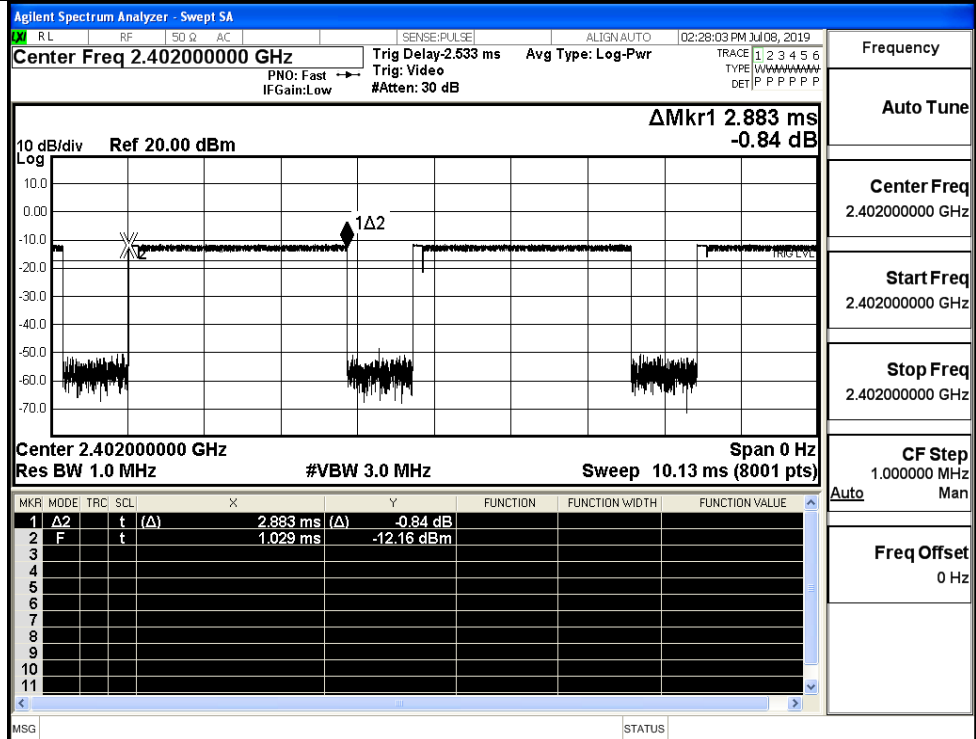
Start Freq 2.480000000 GHz

Stop Freq 2.480000000 GHz

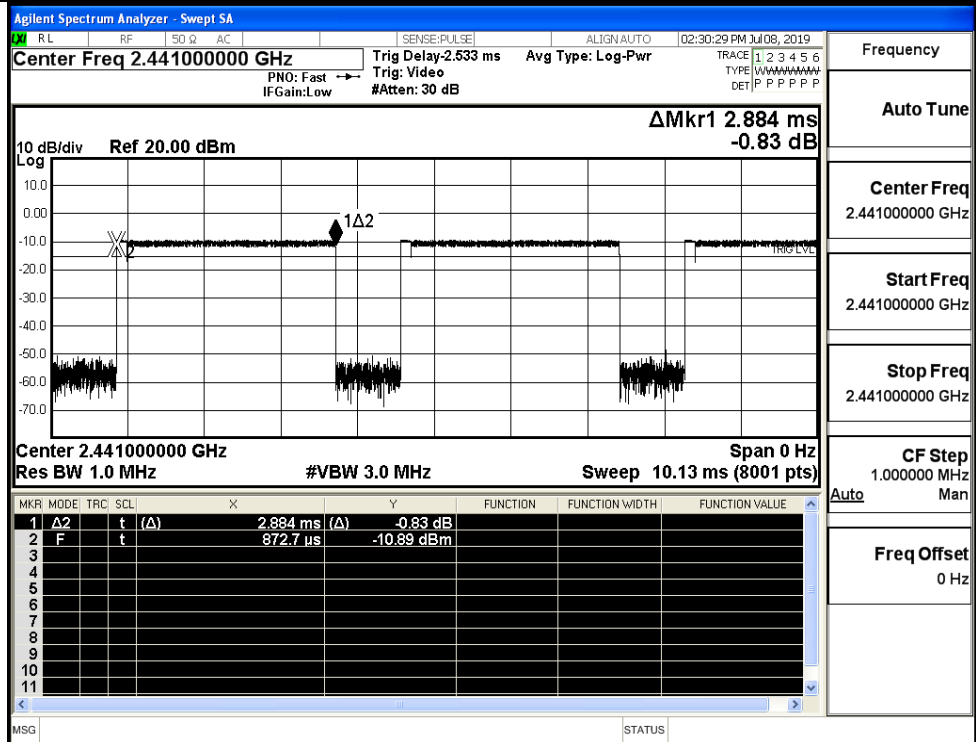
CF Step 1.000000 MHz

Freq Offset 0 Hz

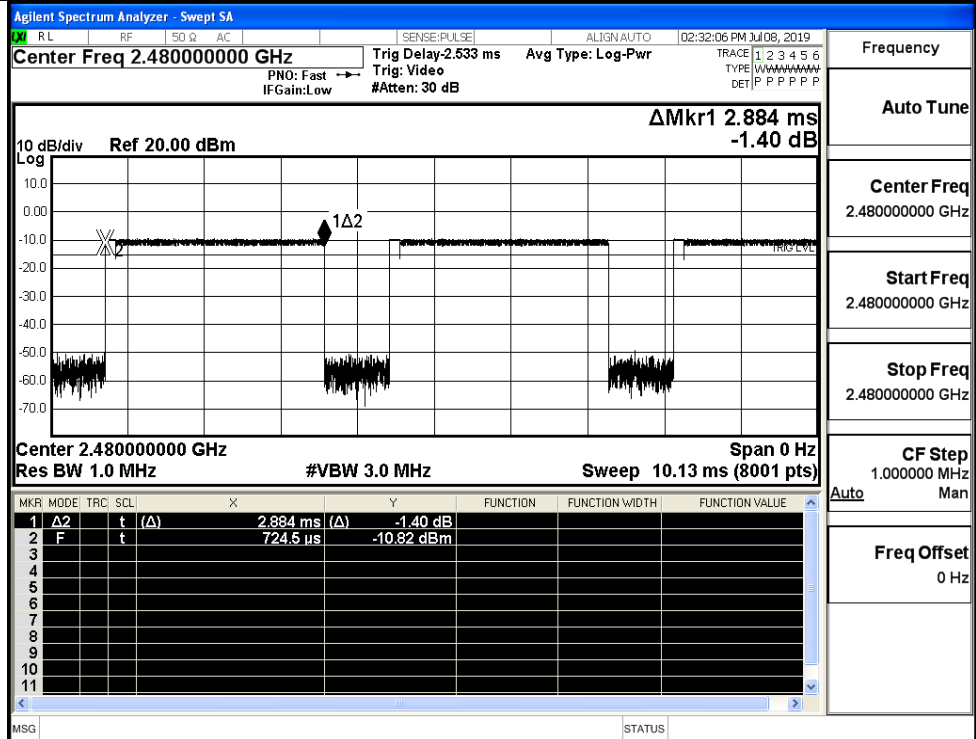
$\pi/4$ DQPSK
_2DH5/LCH



$\pi/4$ DQPSK
_2DH5/MCH

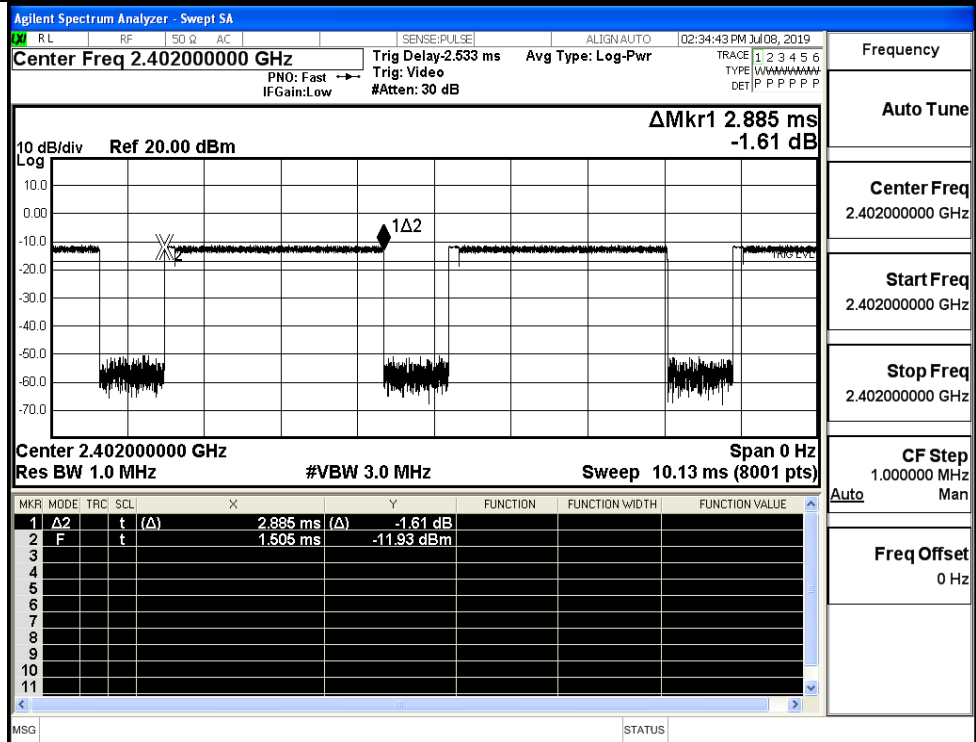


$\pi/4$ DQPSK
_2DH5/HCH



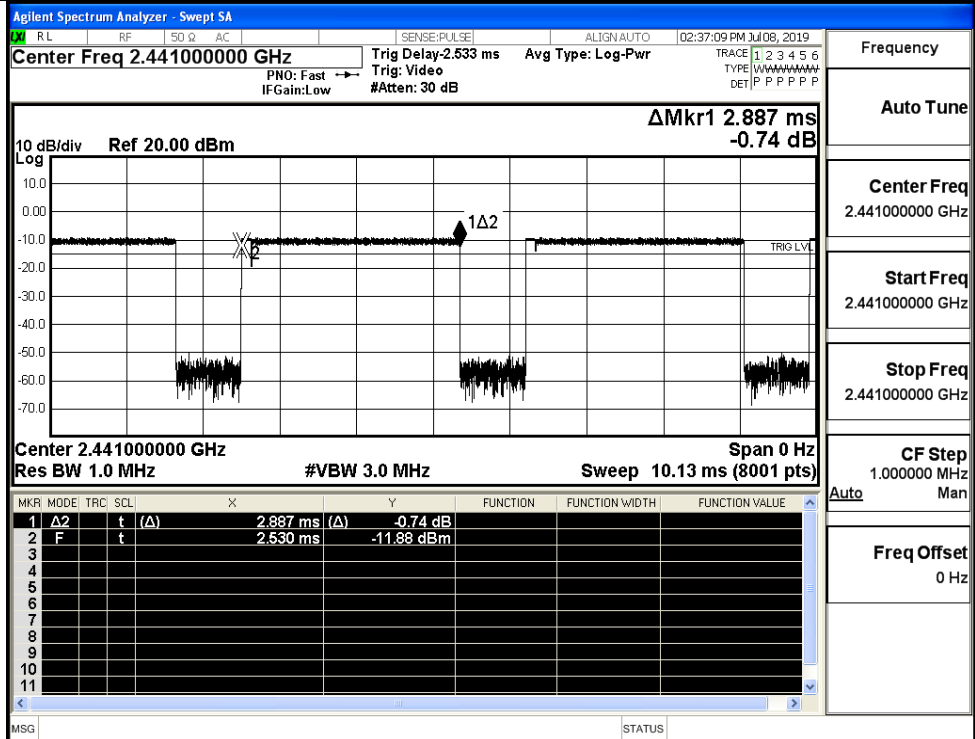
Frequency	
Auto Tune	
Center Freq	2.480000000 GHz
Start Freq	2.480000000 GHz
Stop Freq	2.480000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

8DPSK_3DH5/LCH

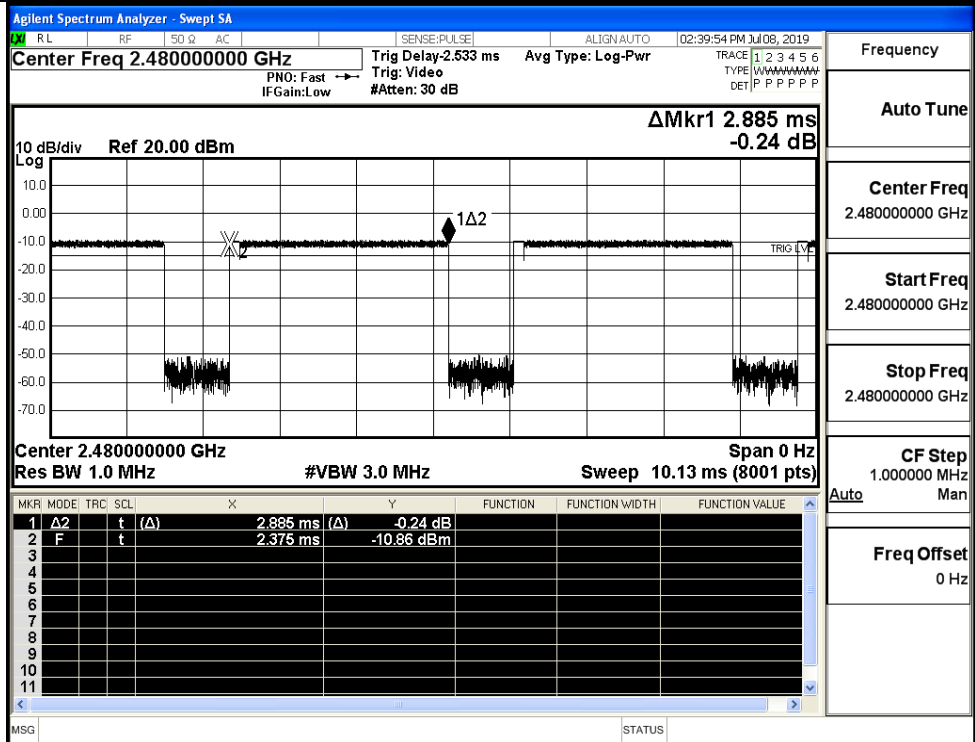


Frequency	
Auto Tune	
Center Freq	2.402000000 GHz
Start Freq	2.402000000 GHz
Stop Freq	2.402000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

8DPSK_3DH5/MCH



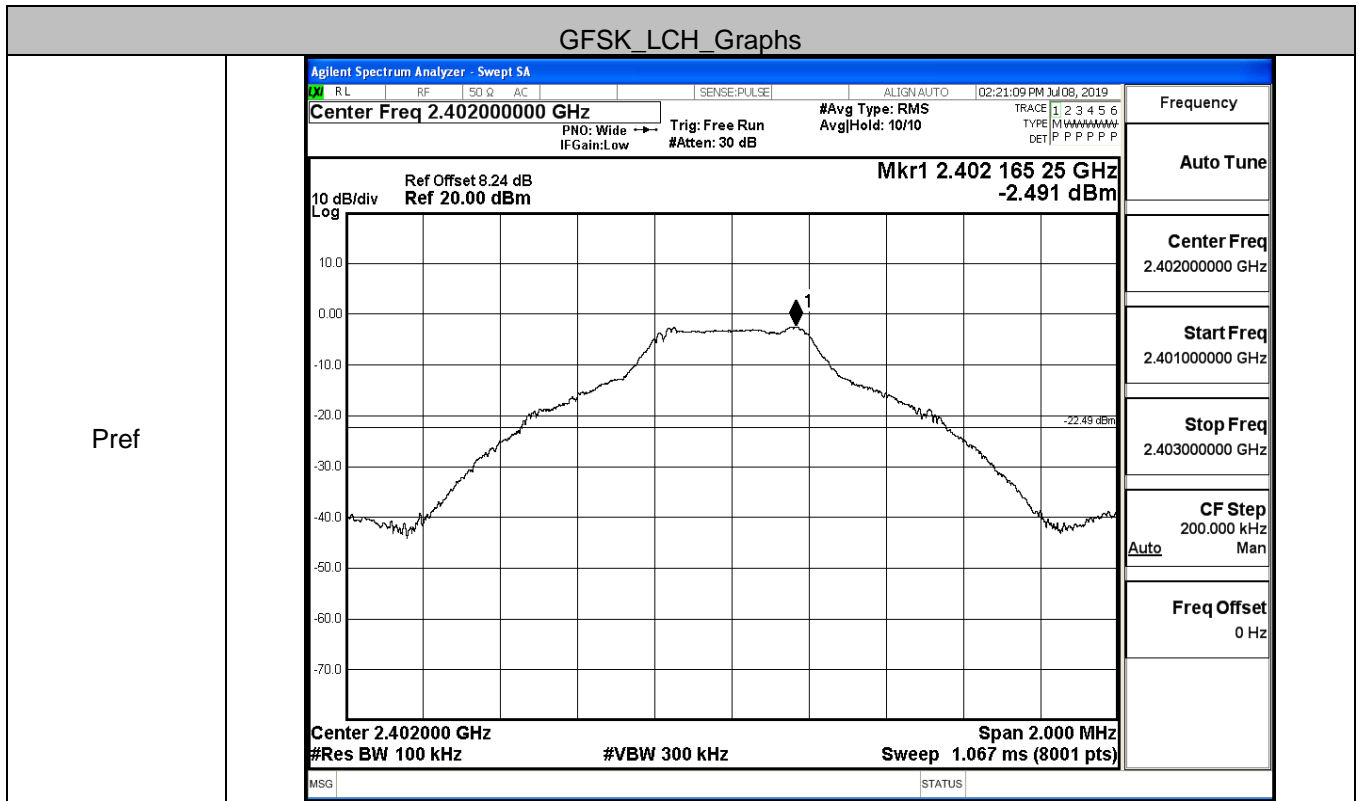
8DPSK_3DH5/HCH

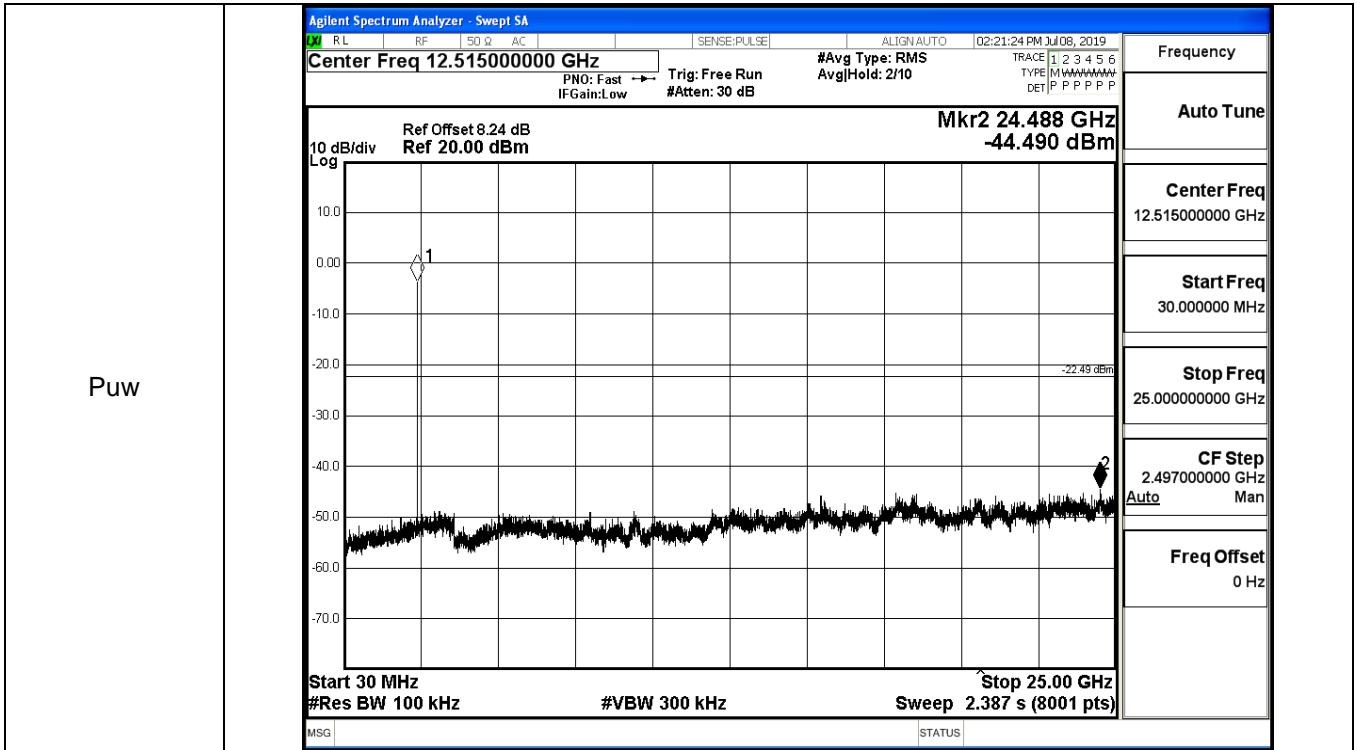


A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-2.491	-44.490	-22.491	PASS
	MCH	-0.249	-44.952	-20.249	PASS
	HCH	-0.503	-44.392	-20.503	PASS
π /4DQPSK	LCH	-3.537	-44.380	-23.537	PASS
	MCH	-1.457	-44.535	-21.457	PASS
	HCH	-1.753	-44.324	-21.753	PASS
8DPSK	LCH	-3.416	-44.501	-23.416	PASS
	MCH	-1.393	-44.982	-21.393	PASS
	HCH	-1.462	-44.077	-21.462	PASS

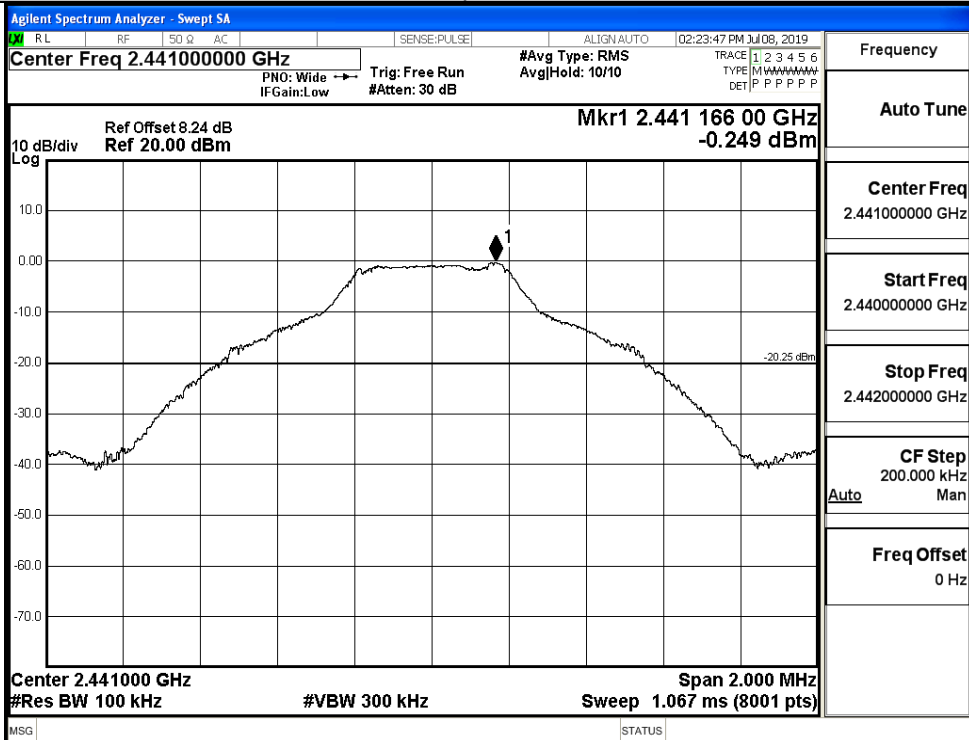
GFSK_LCH_Graphs



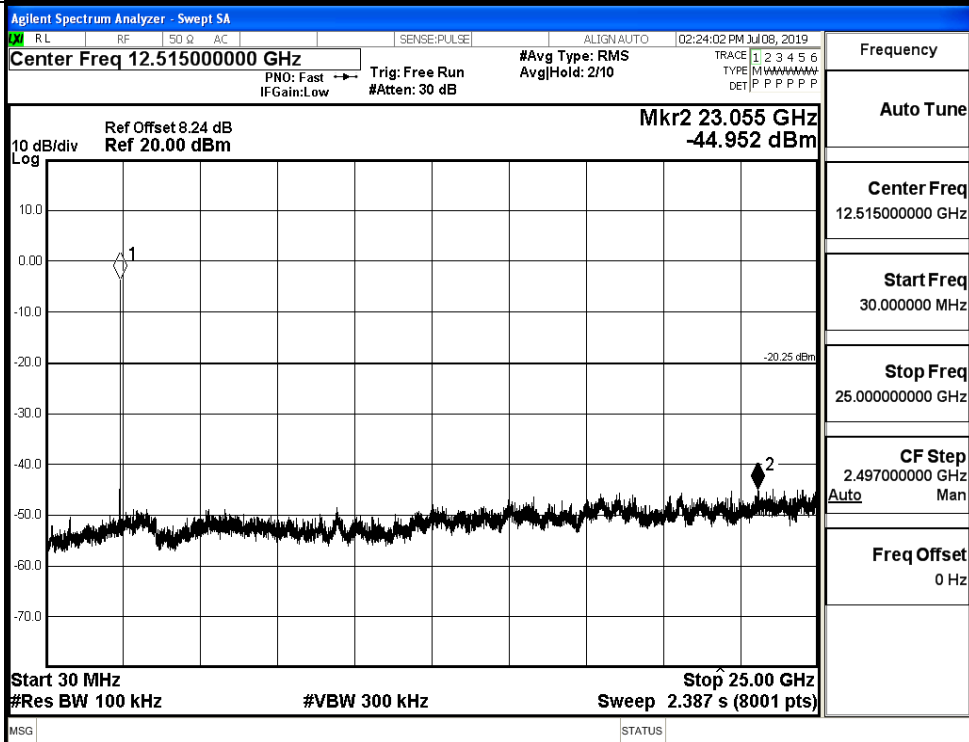


GFSK_MCH_Graphs

Pref

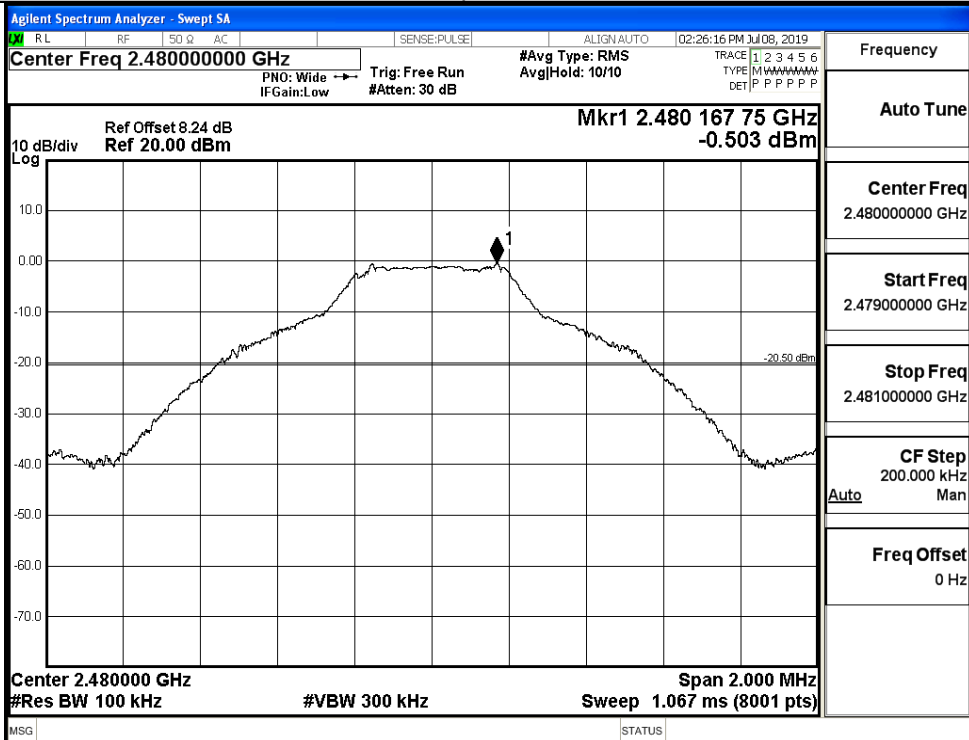


Puw

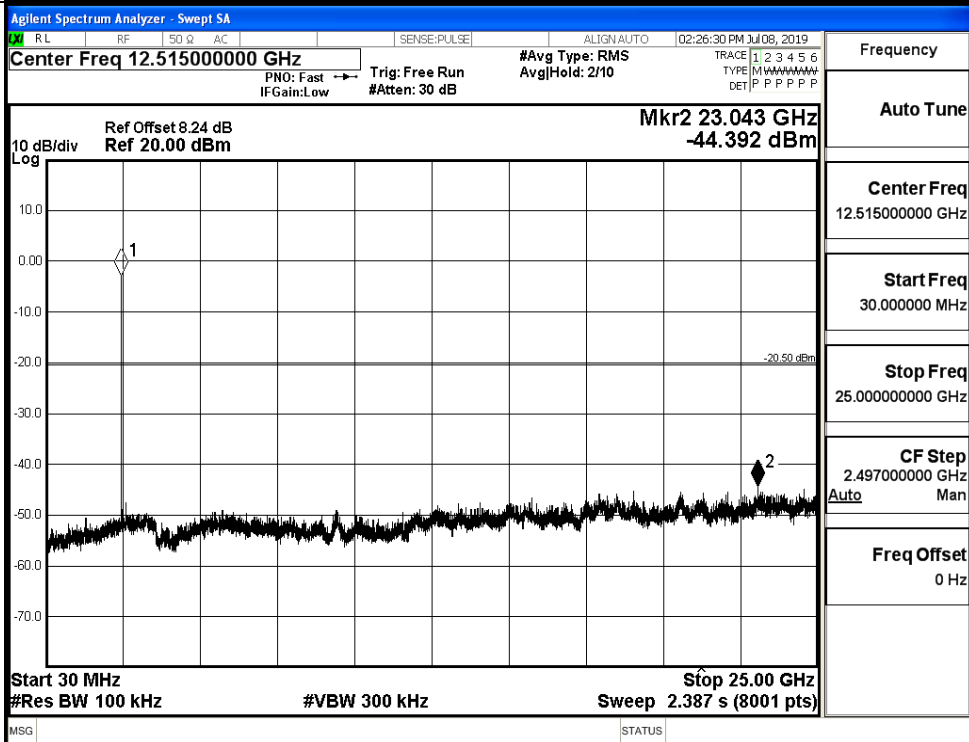


GFSK_HCH_Graphs

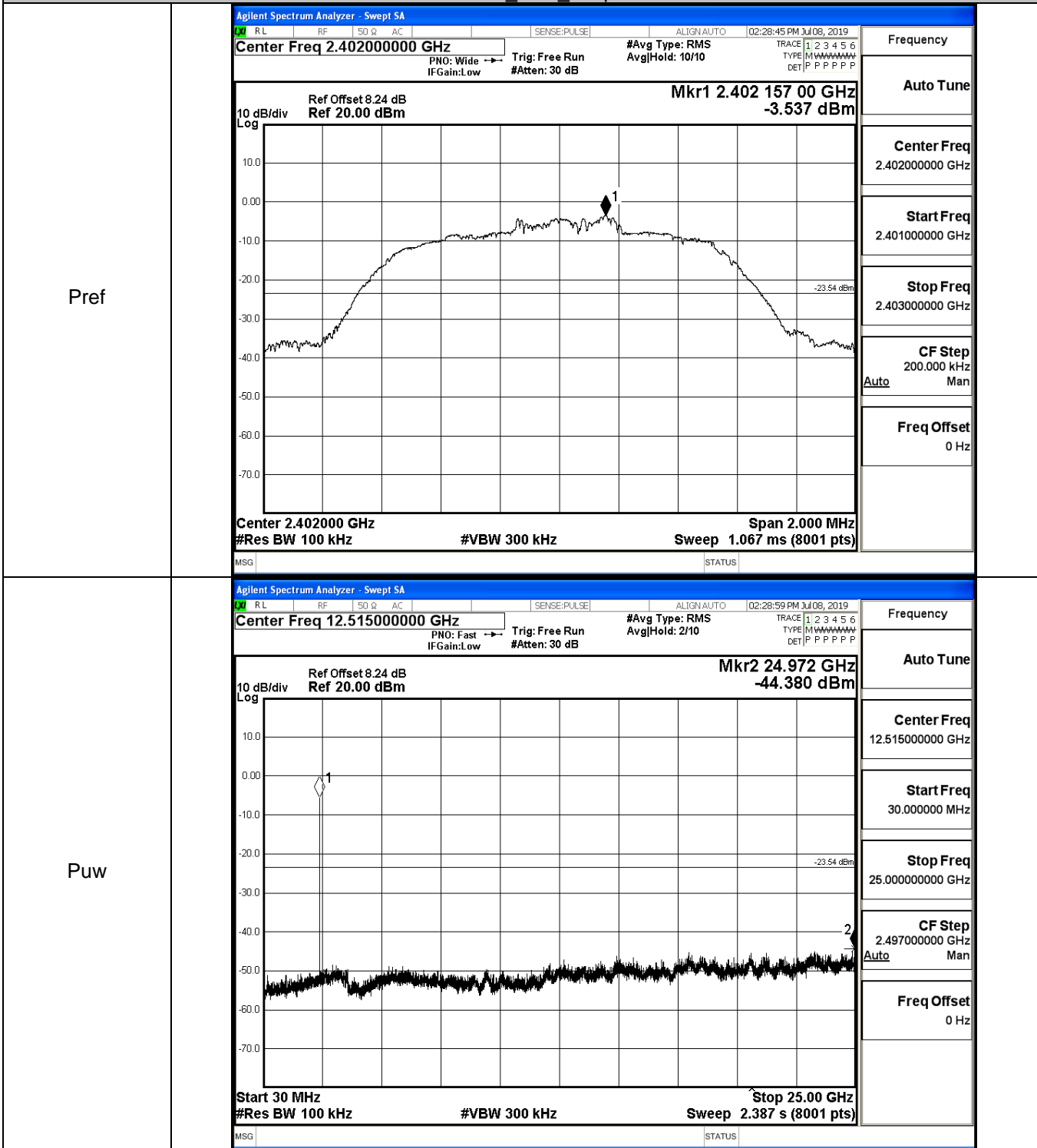
Pref



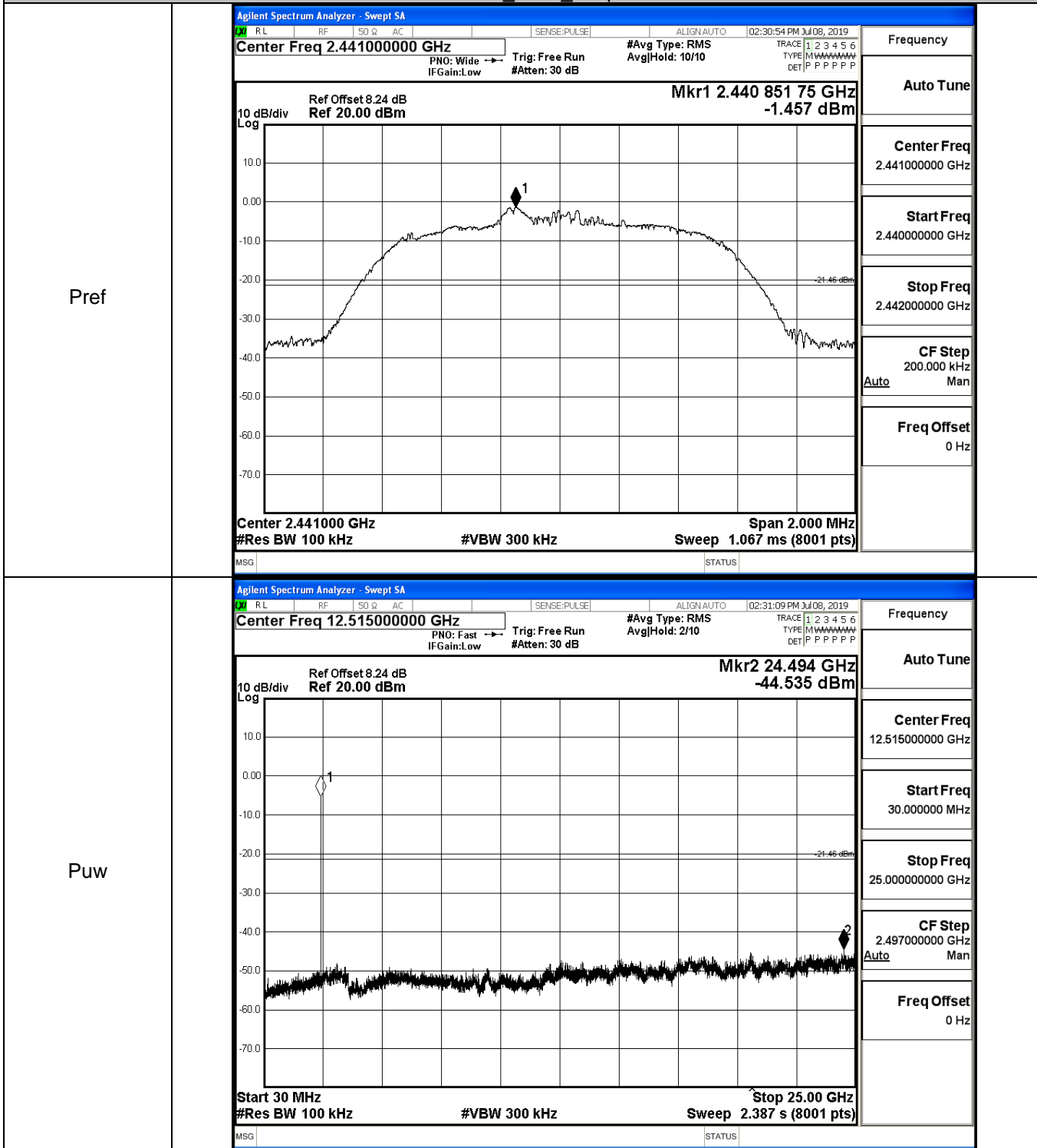
Puw



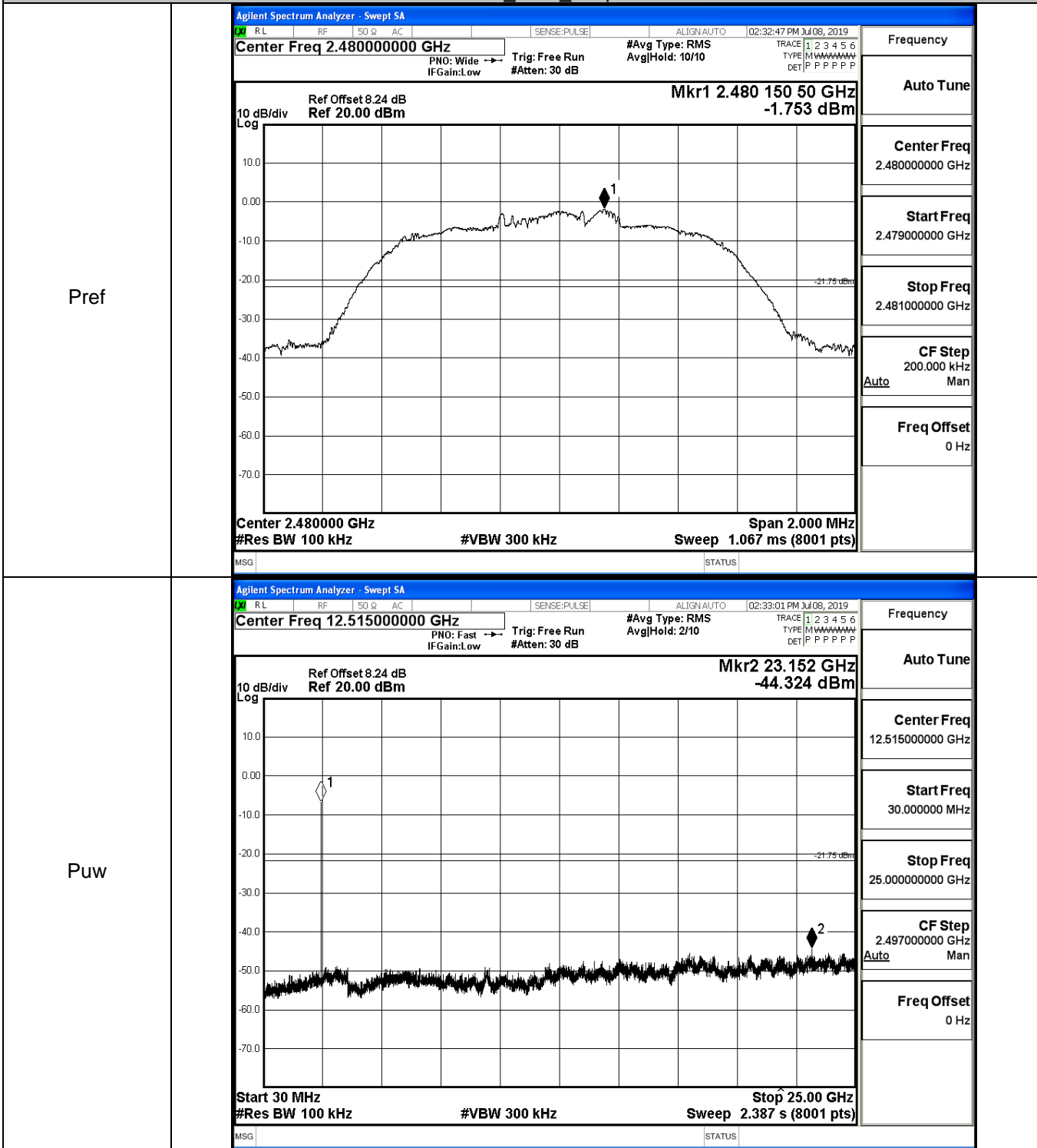
$\pi/4$ DQPSK_LCH_Graphs



$\pi/4$ DQPSK_MCH_Graphs

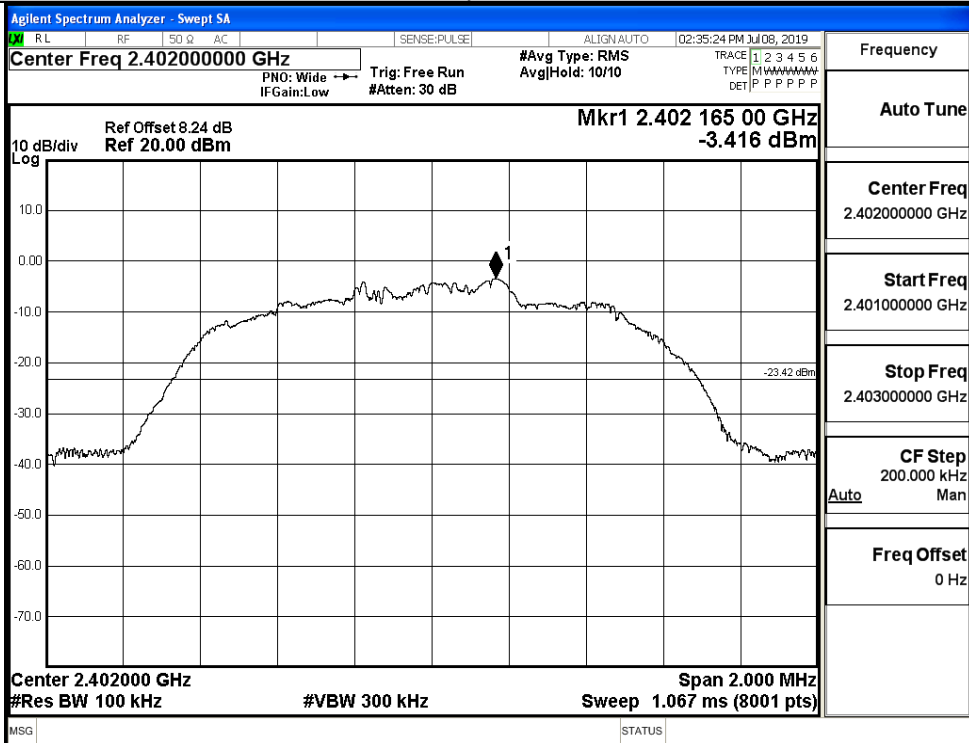


$\pi/4$ DQPSK_HCH_Graphs

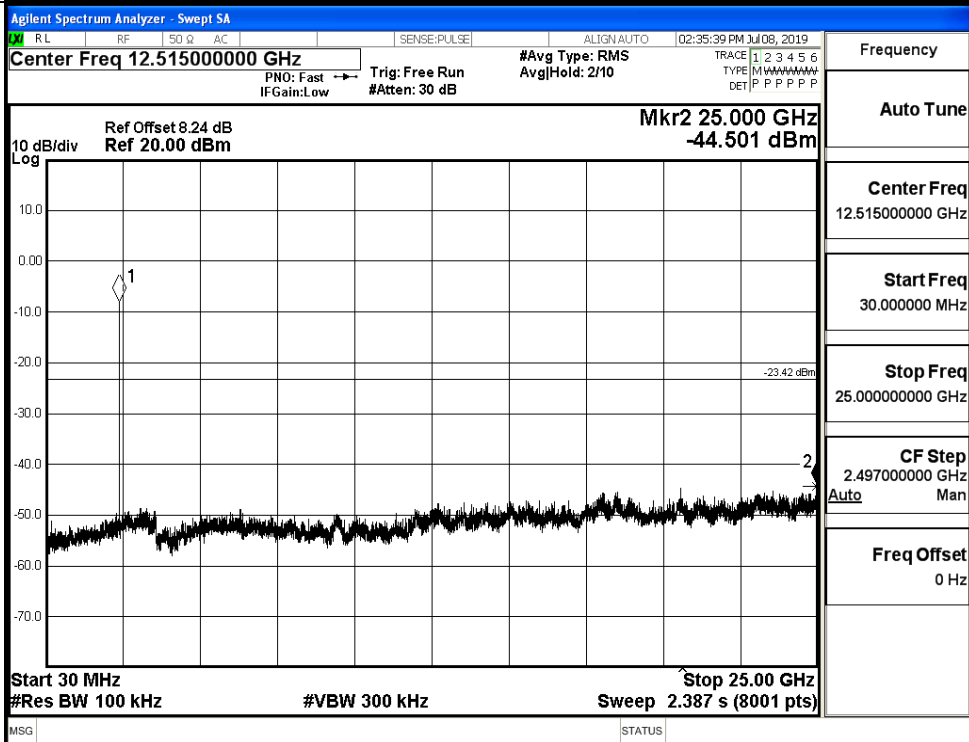


8DPSK_LCH_Graphs

Pref

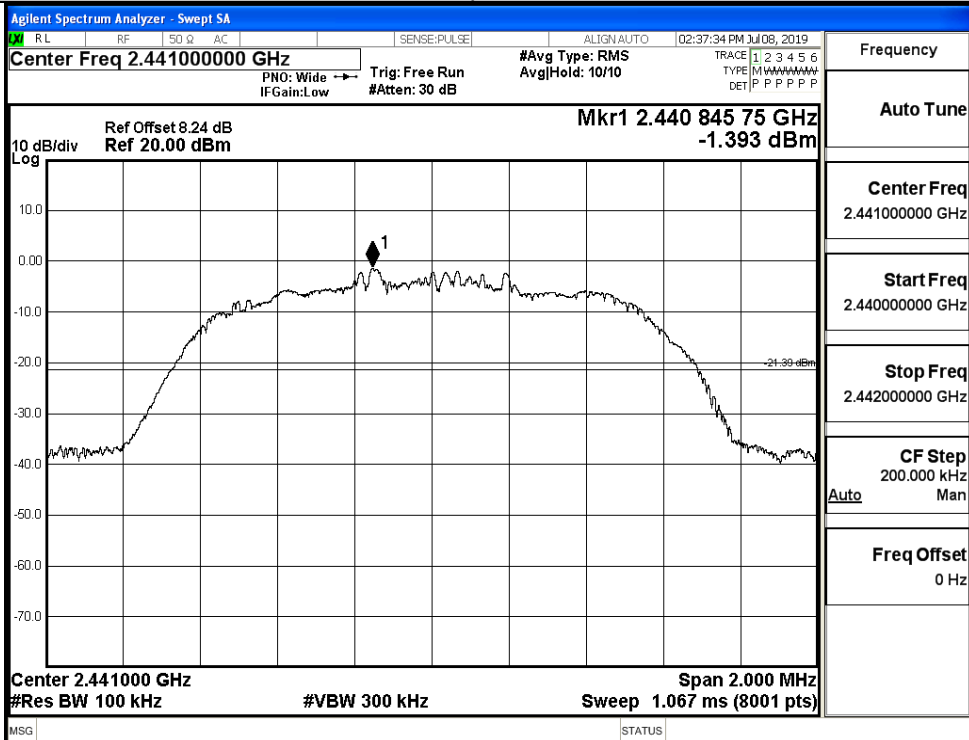


Puw

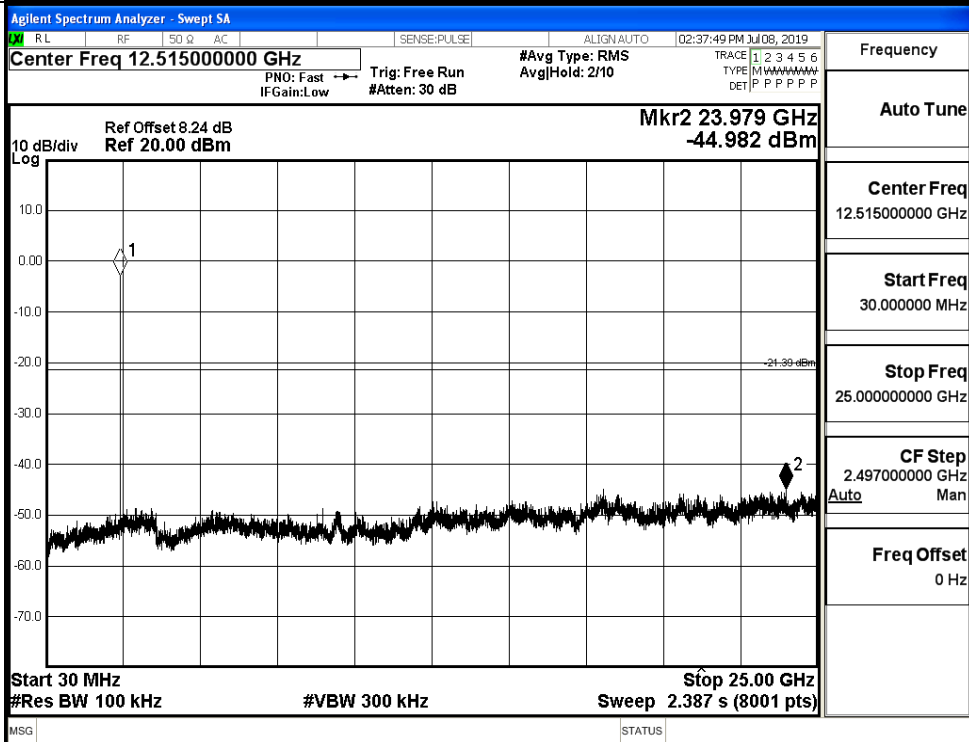


8DPSK_MCH_Graphs

Pref

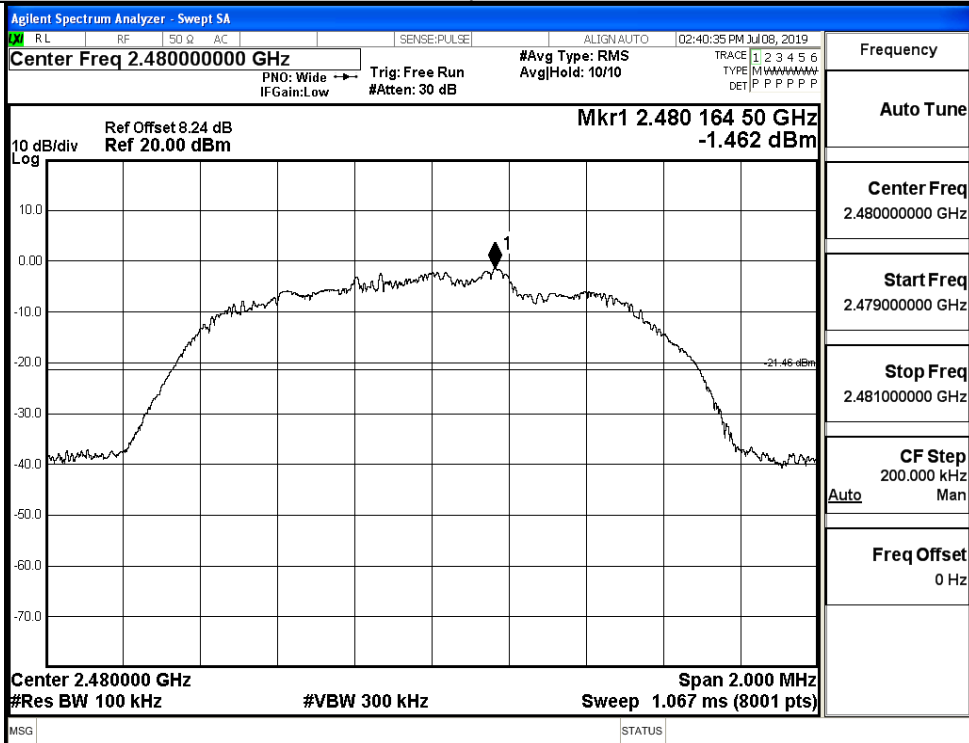


Puw

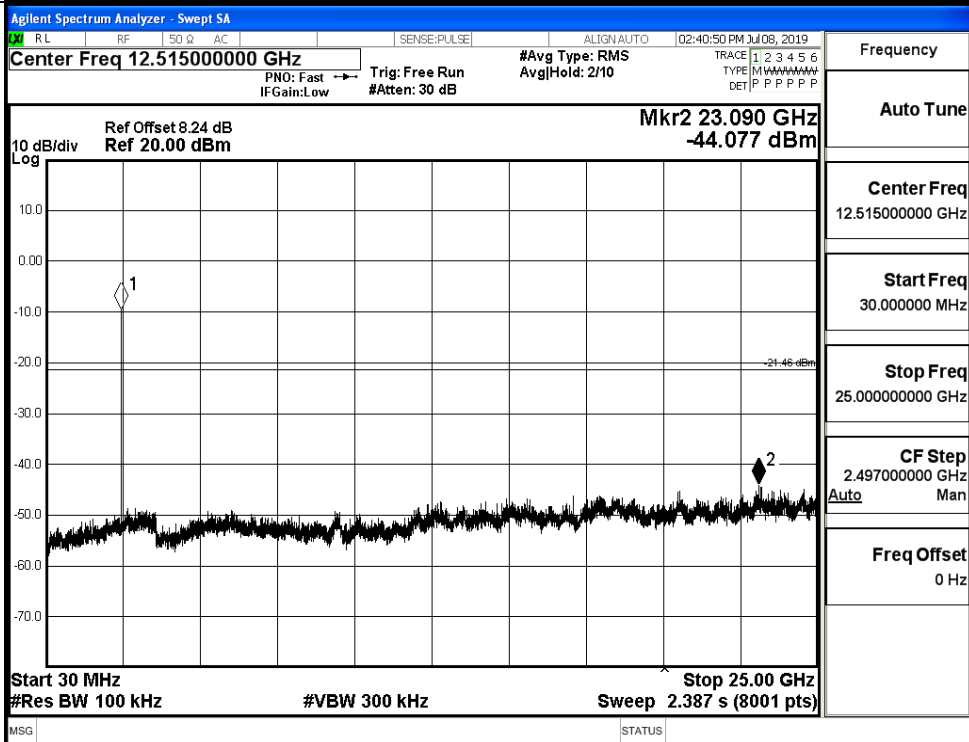


8DPSK_HCH_Graphs

Pref



Puw

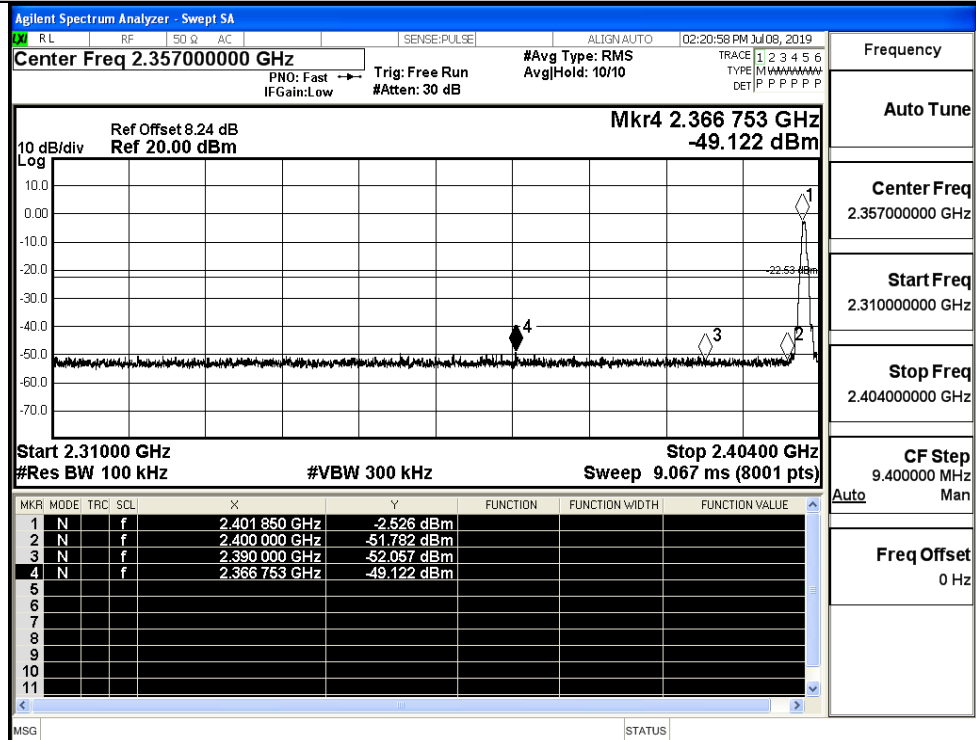


A.7 Band-edge for RF Conducted Emissions

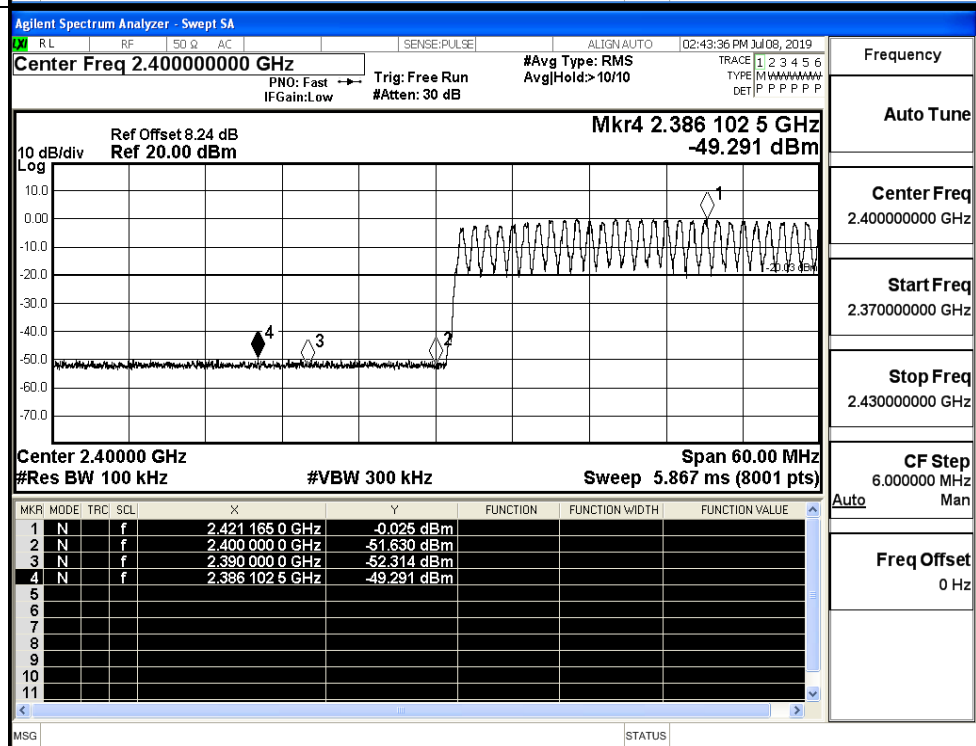
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-2.526	Off	-49.122	-22.53	PASS
			-0.025	On	-49.291	-20.03	PASS
	HCH	2480	-0.618	Off	-48.653	-20.62	PASS
			0.949	On	-49.256	-19.05	PASS
π/4DQPSK	LCH	2402	-3.897	Off	-49.970	-23.9	PASS
			-1.237	On	-49.293	-21.24	PASS
	HCH	2480	-1.604	Off	-49.375	-21.6	PASS
			-0.102	On	-48.687	-20.1	PASS
8DPSK	LCH	2402	-5.402	Off	-49.480	-25.4	PASS
			-1.021	On	-48.963	-21.02	PASS
	HCH	2480	-1.811	Off	-49.552	-21.81	PASS
			-0.153	On	-48.903	-20.15	PASS

Test Graphs

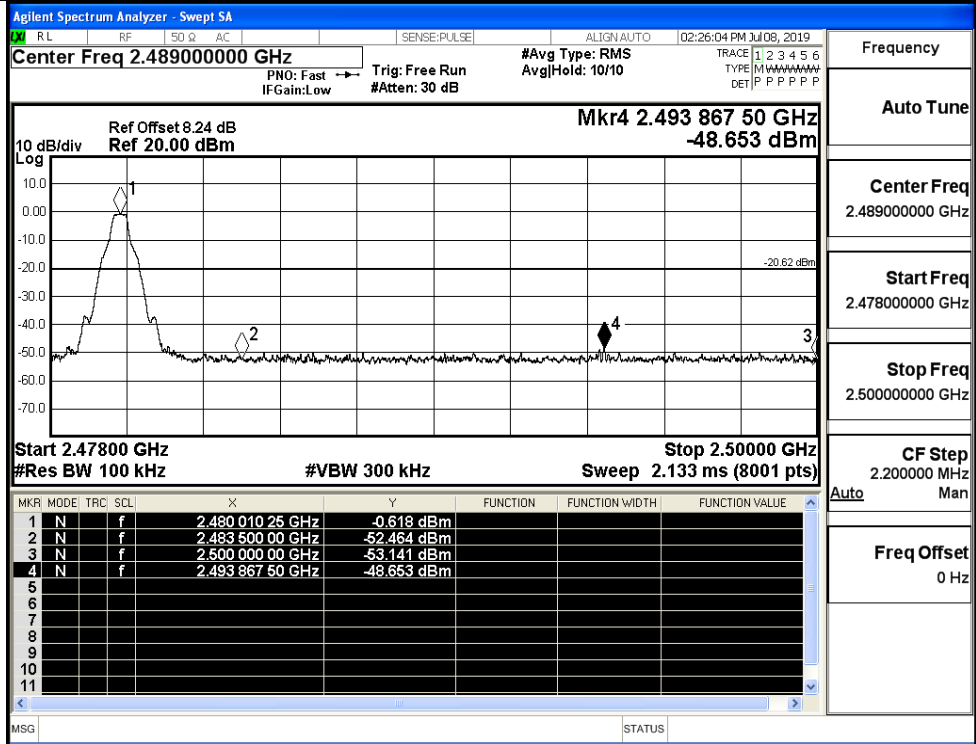
GFSK/LCH/No Hop



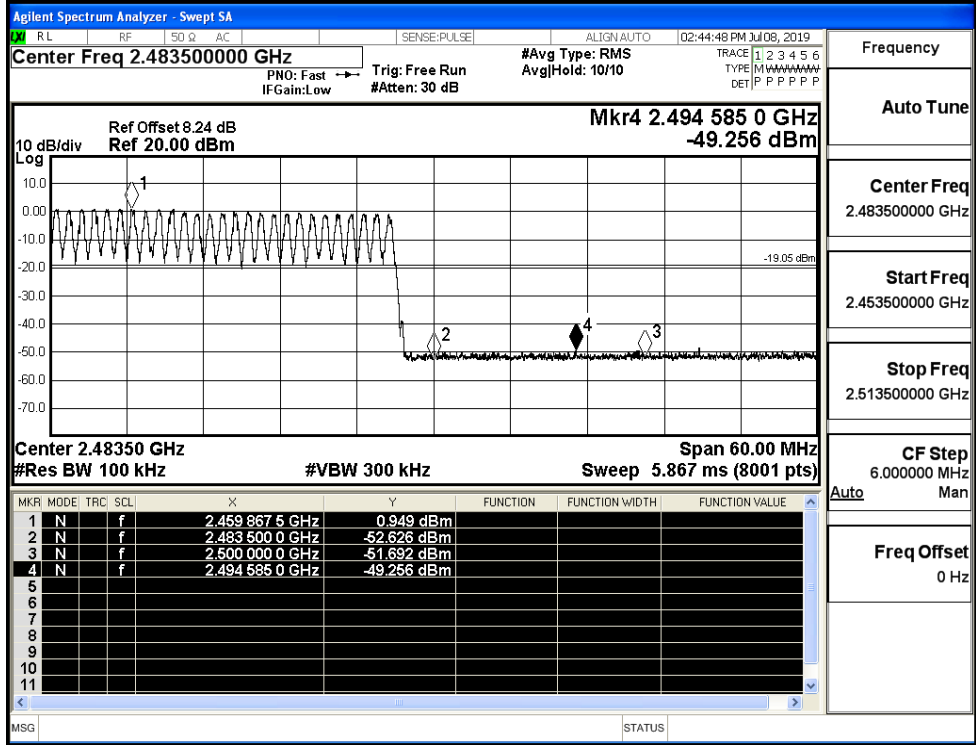
GFSK/LCH/Hop



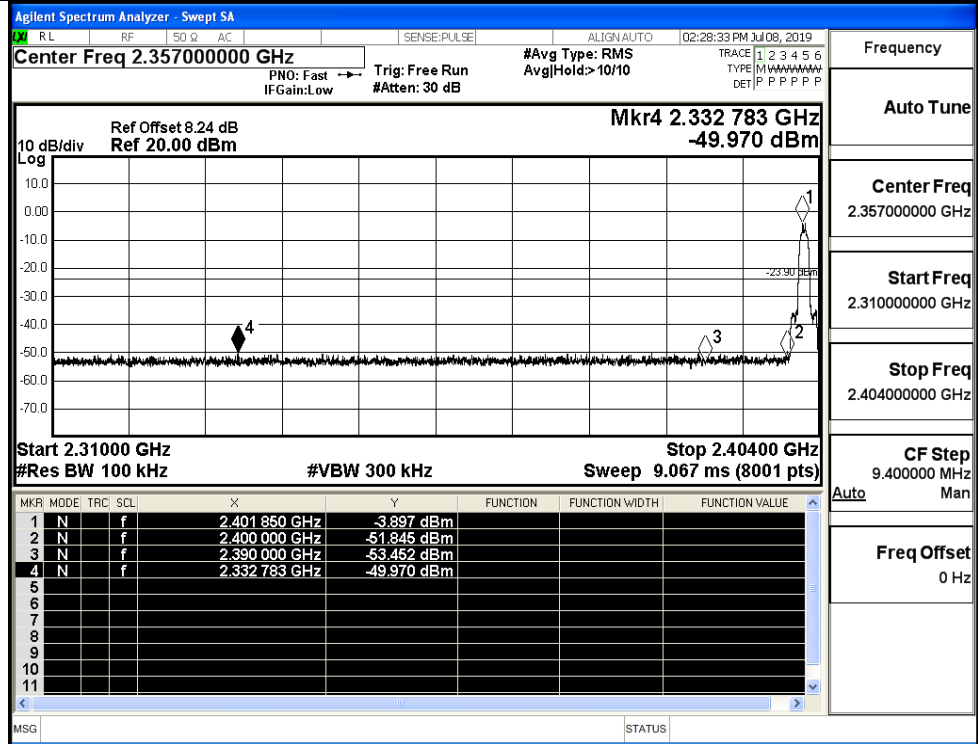
GFSK/HCH/No Hop



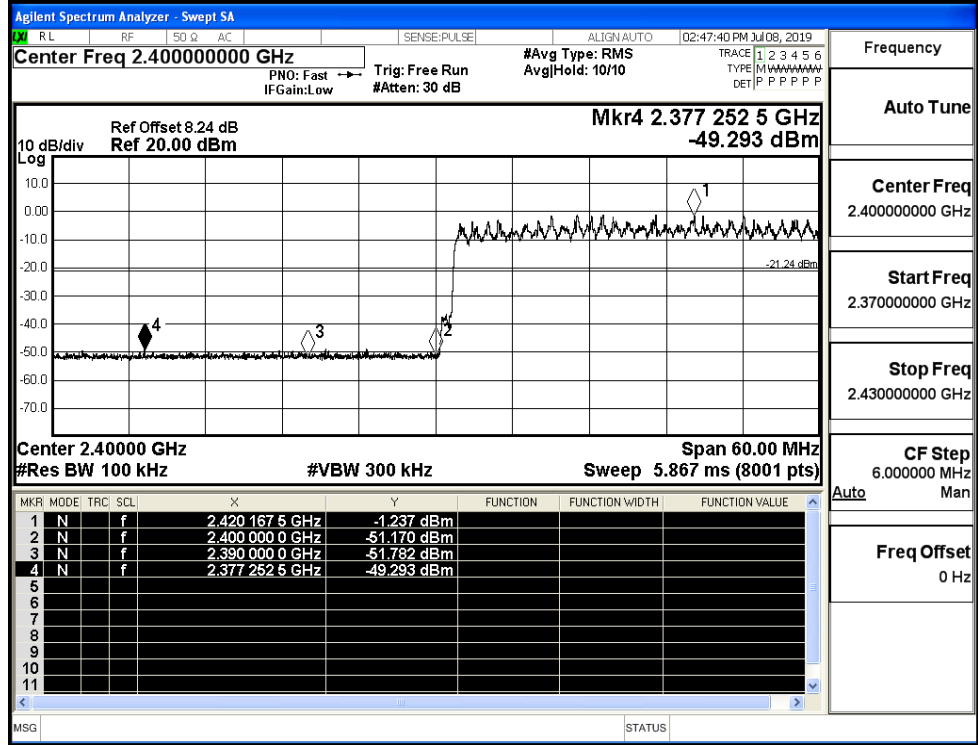
GFSK/HCH/Hop



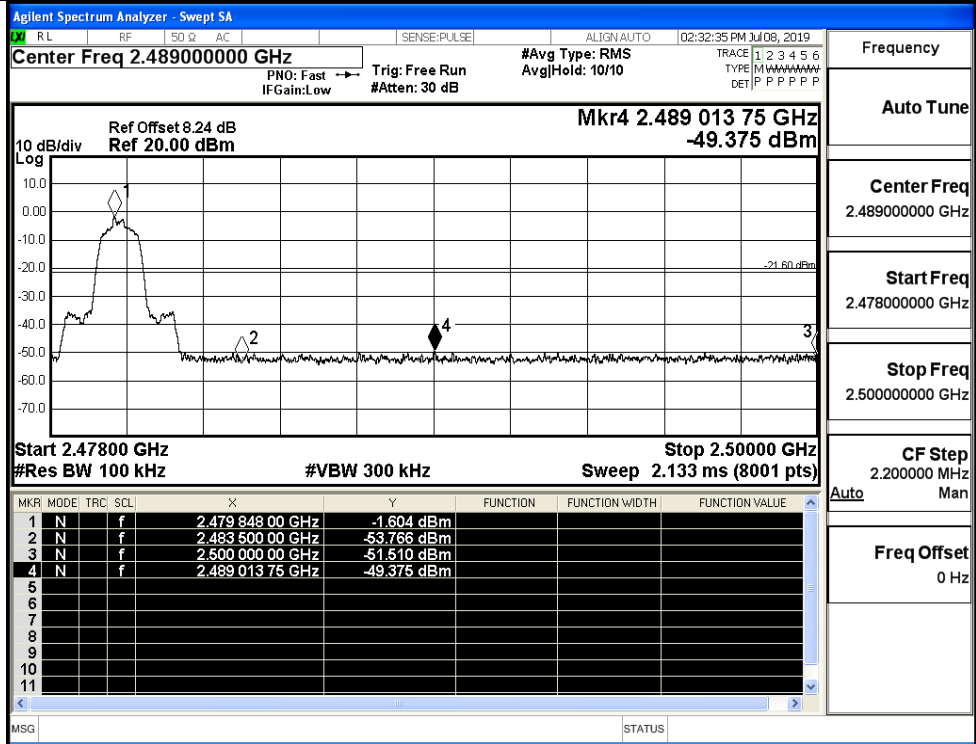
$\pi/4$ DQPSK/LCH/No Hop



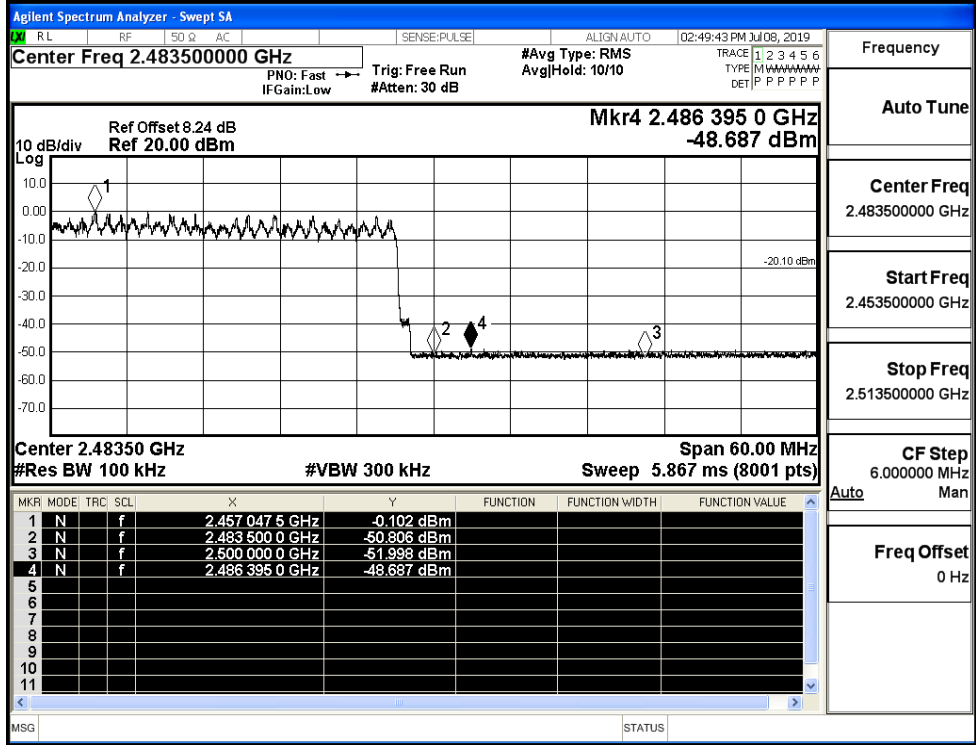
$\pi/4$ DQPSK/LCH/Hop



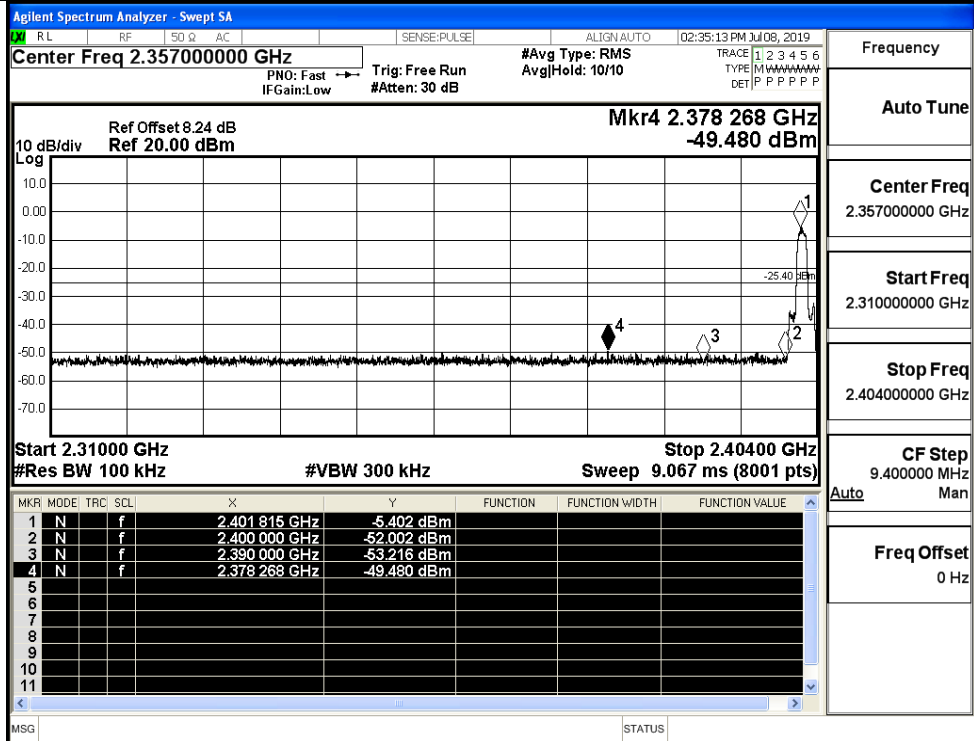
$\pi/4$ DQPSK/HCH/No
Hop



$\pi/4$ DQPSK/HCH/Hop

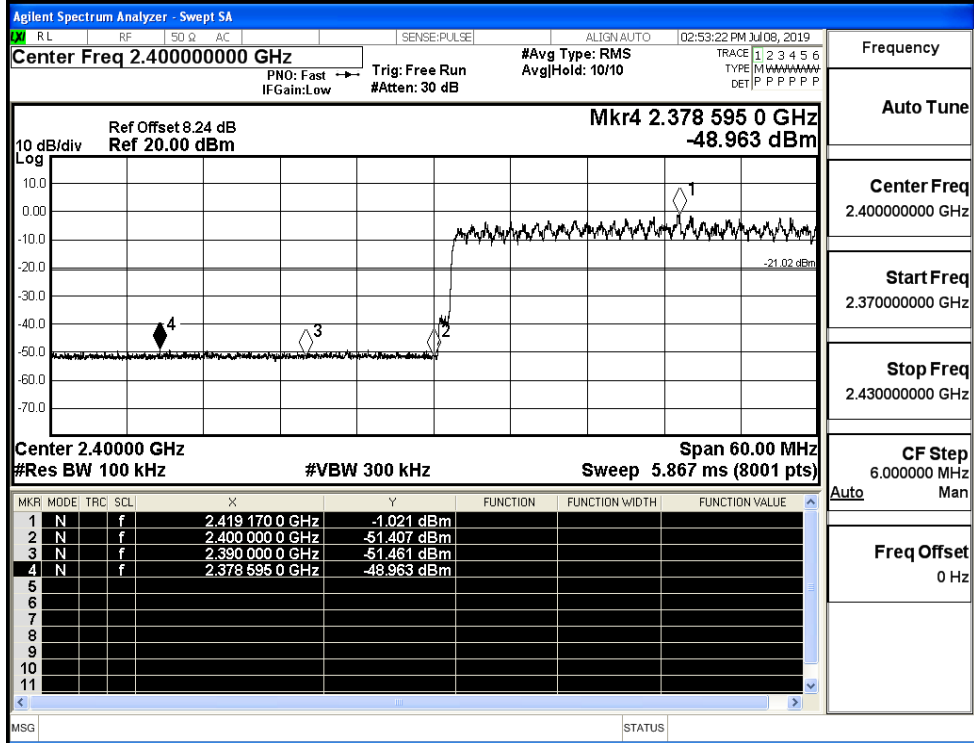


8DPSK/LCH/No Hop



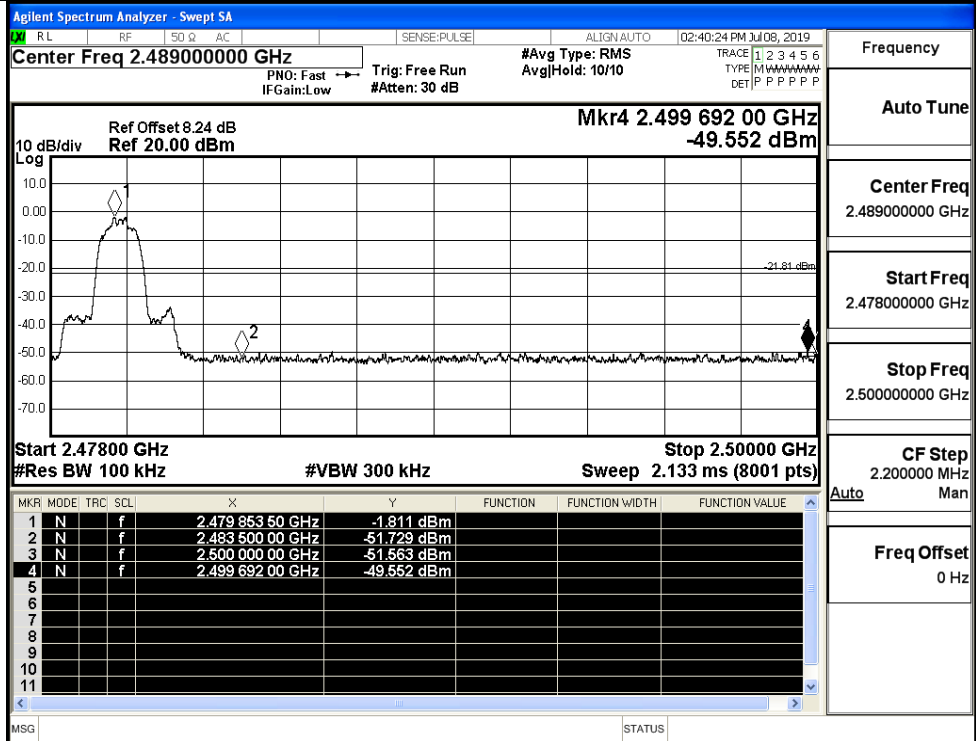
Frequency	
Auto Tune	
Center Freq	2.357000000 GHz
Start Freq	2.310000000 GHz
Stop Freq	2.404000000 GHz
CF Step	9.400000 MHz
Freq Offset	0 Hz

8DPSK/LCH/Hop



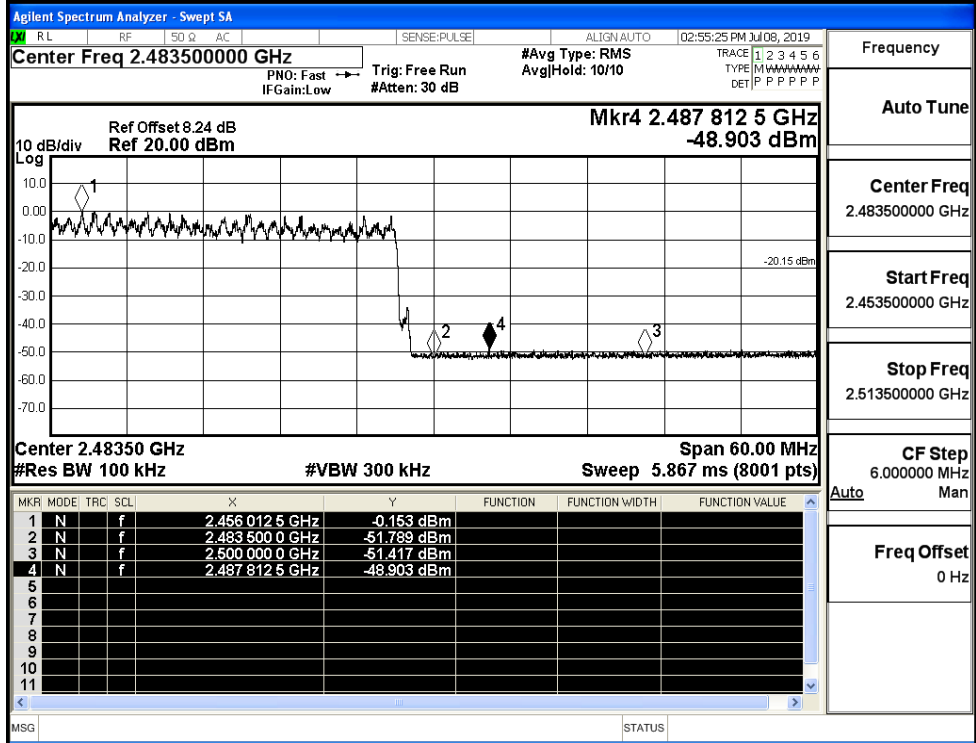
Frequency	
Auto Tune	
Center Freq	2.400000000 GHz
Start Freq	2.370000000 GHz
Stop Freq	2.430000000 GHz
CF Step	6.000000 MHz
Freq Offset	0 Hz

8DPSK/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

8DPSK/HCH/Hop

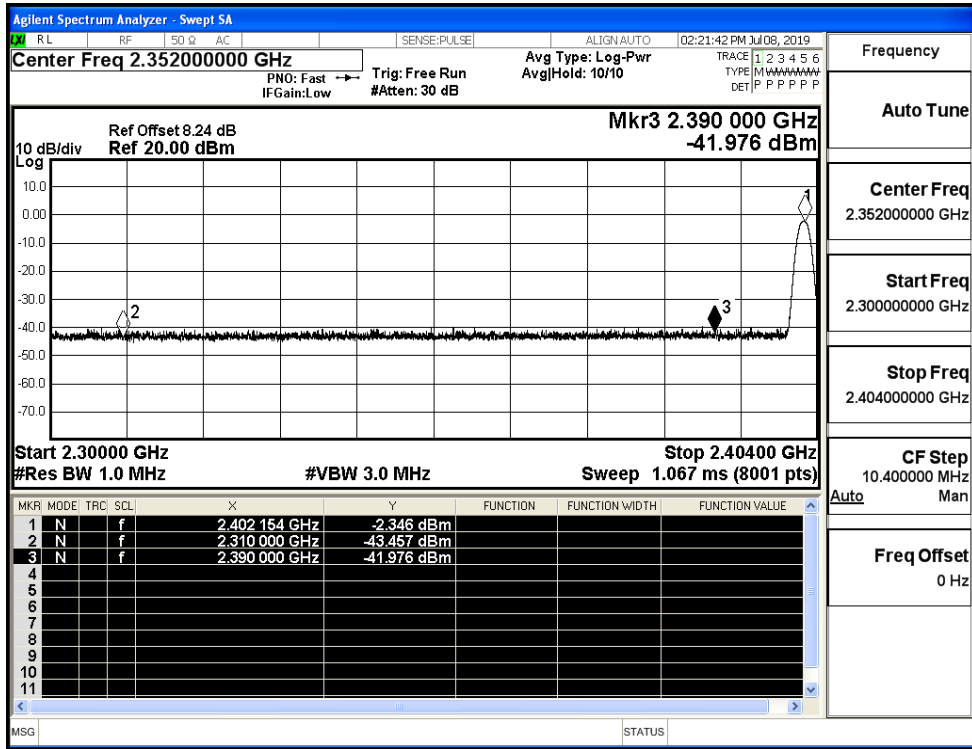


Frequency
Auto Tune
Center Freq
2.483500000 GHz
Start Freq
2.453500000 GHz
Stop Freq
2.513500000 GHz
CF Step
6.000000 MHz
Auto Man
Freq Offset
0 Hz

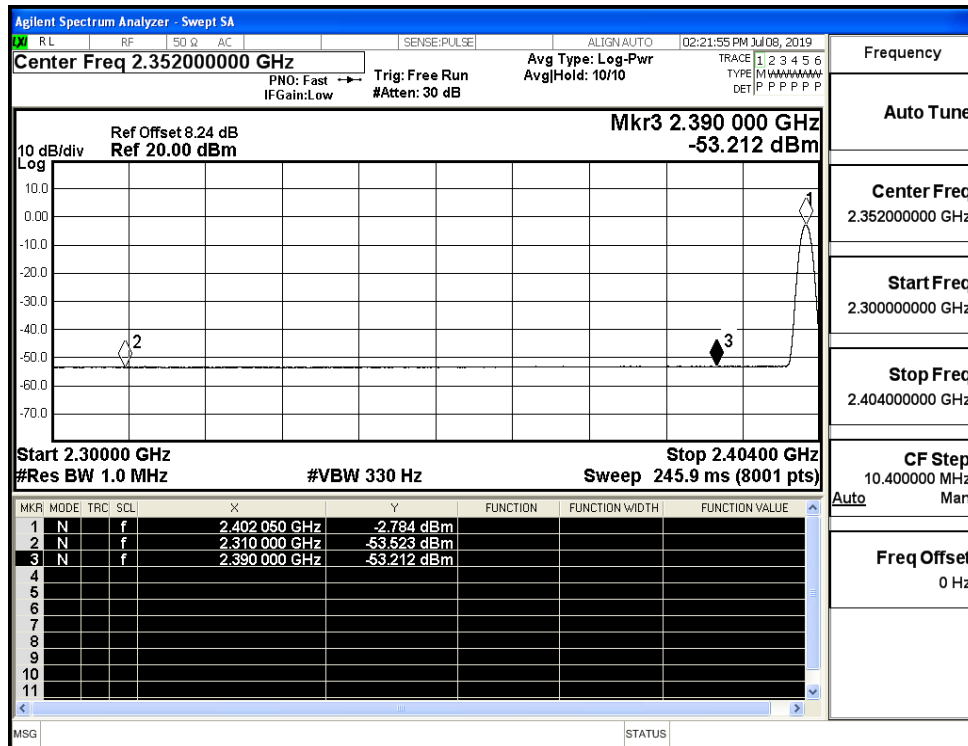
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.46	2.0	0	53.80	PEAK	74	PASS
	Off	2310.0	-53.52	2.0	0	43.73	AV	54	PASS
	Off	2390.0	-41.98	2.0	0	55.28	PEAK	74	PASS
	Off	2390.0	-53.21	2.0	0	44.05	AV	54	PASS
	Off	2483.5	-42.20	2.0	0	55.05	PEAK	74	PASS
	Off	2483.5	-52.85	2.0	0	44.41	AV	54	PASS
	Off	2500.0	-41.70	2.0	0	55.56	PEAK	74	PASS
	Off	2500.0	-52.77	2.0	0	44.49	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.57	2.0	0	53.69	PEAK	74	PASS
	Off	2310.0	-53.45	2.0	0	43.81	AV	54	PASS
	Off	2390.0	-43.30	2.0	0	53.95	PEAK	74	PASS
	Off	2390.0	-53.20	2.0	0	44.06	AV	54	PASS
	Off	2483.5	-43.89	2.0	0	53.36	PEAK	74	PASS
	Off	2483.5	-52.90	2.0	0	44.36	AV	54	PASS
	Off	2500.0	-42.91	2.0	0	54.34	PEAK	74	PASS
	Off	2500.0	-52.76	2.0	0	44.50	AV	54	PASS
8DPSK	Off	2310.0	-43.36	2.0	0	53.90	PEAK	74	PASS
	Off	2310.0	-53.42	2.0	0	43.84	AV	54	PASS
	Off	2390.0	-42.17	2.0	0	55.09	PEAK	74	PASS
	Off	2390.0	-53.03	2.0	0	44.23	AV	54	PASS
	Off	2483.5	-41.61	2.0	0	55.65	PEAK	74	PASS
	Off	2483.5	-52.85	2.0	0	44.41	AV	54	PASS
	Off	2500.0	-42.72	2.0	0	54.54	PEAK	74	PASS
	Off	2500.0	-52.81	2.0	0	44.45	AV	54	PASS

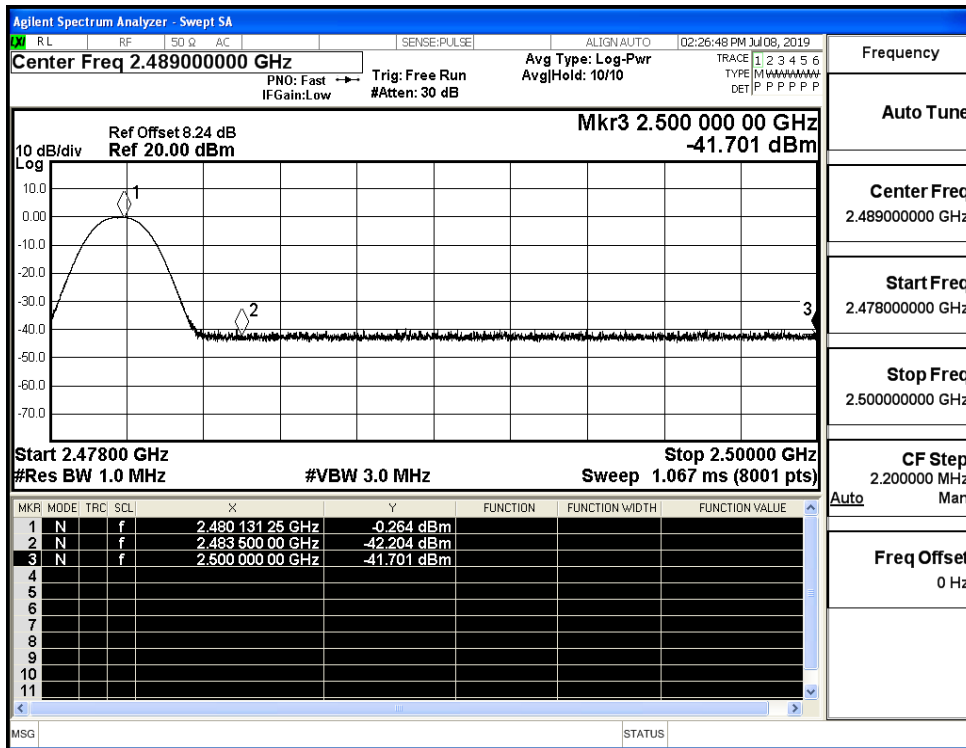
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



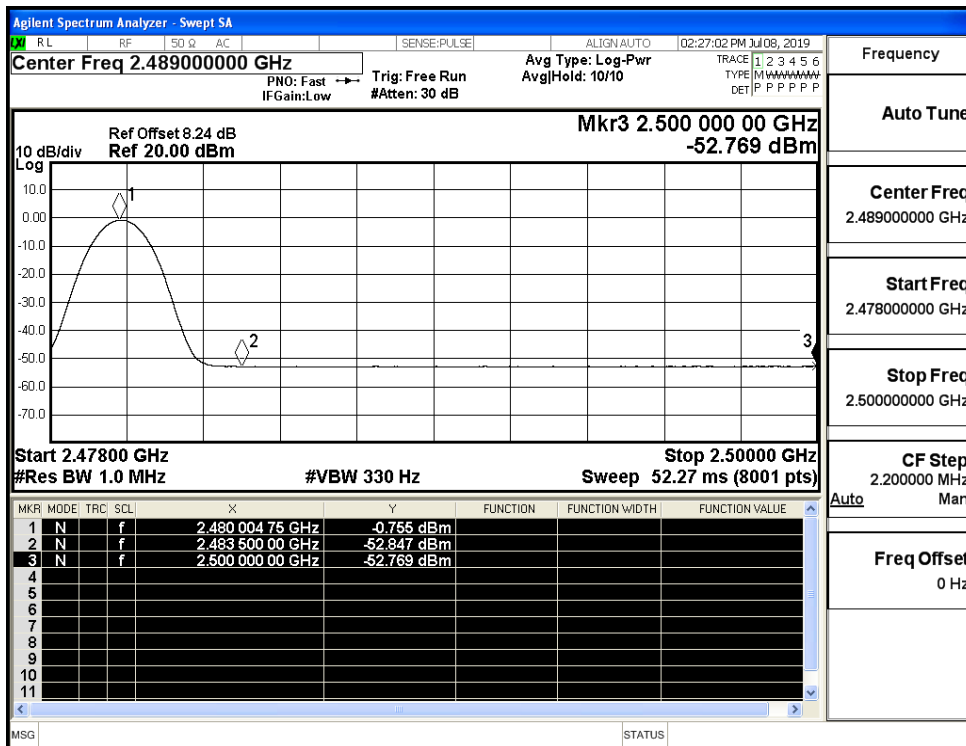
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



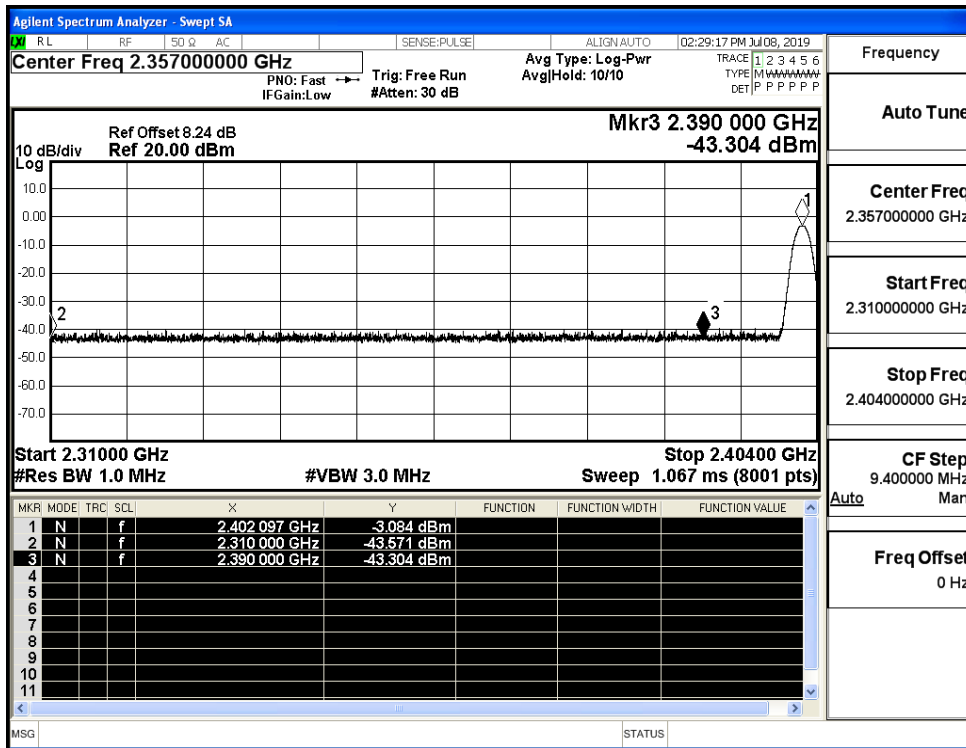
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



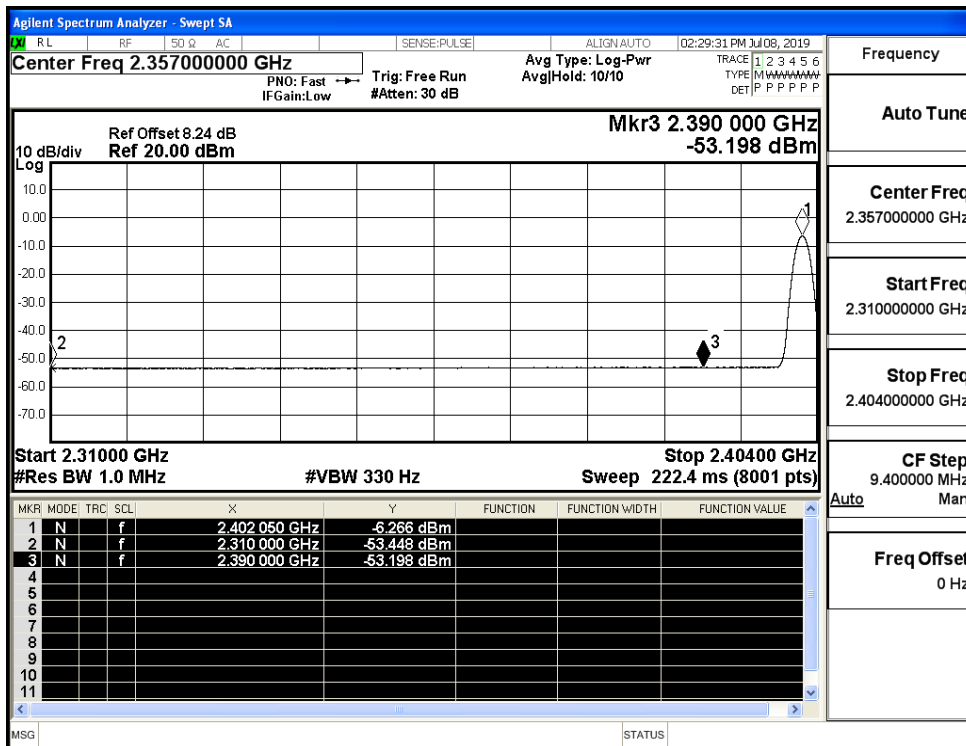
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



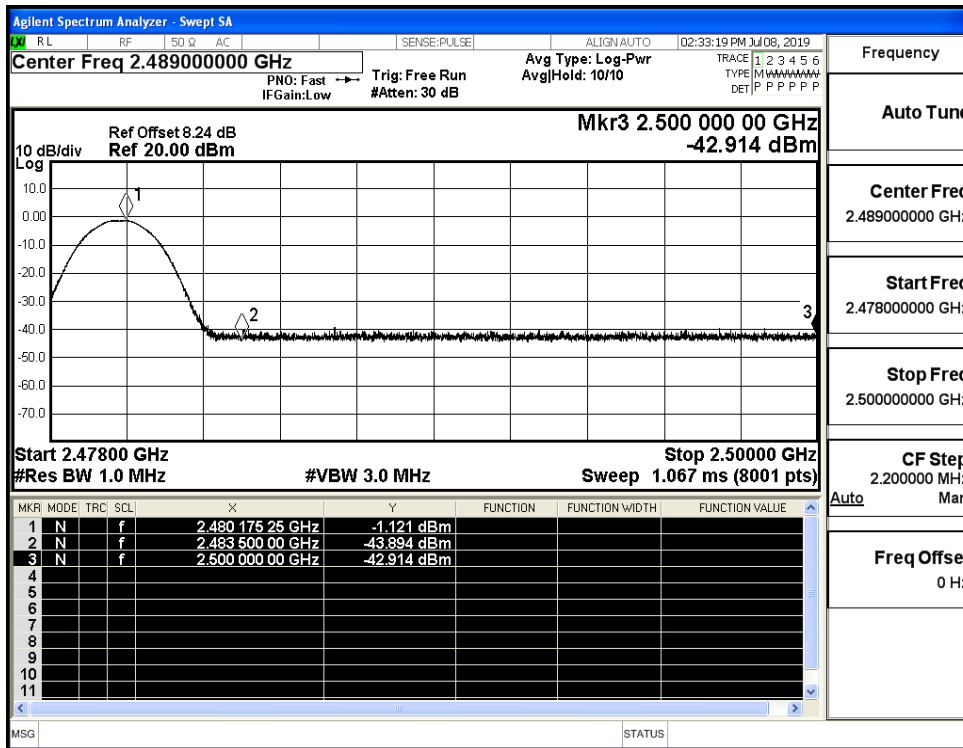
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)



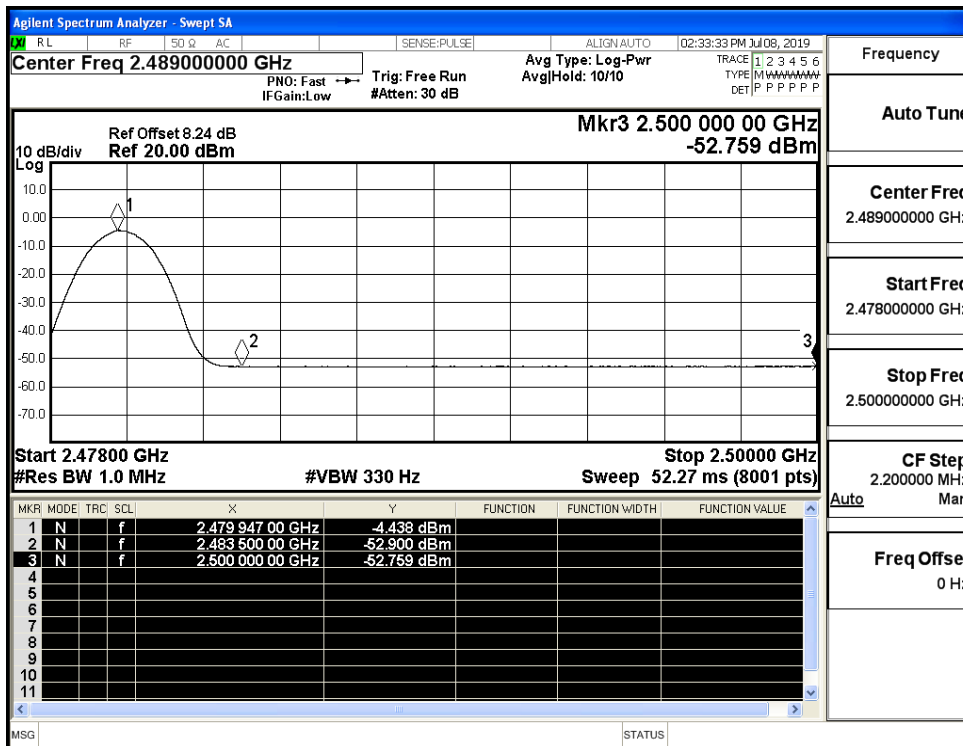
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)



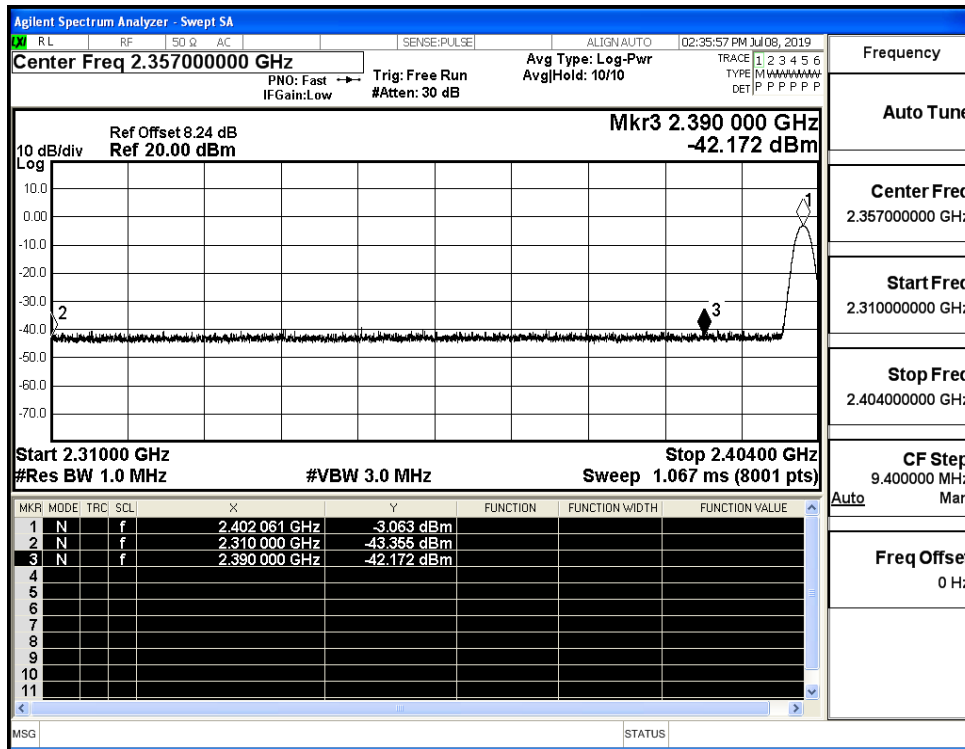
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



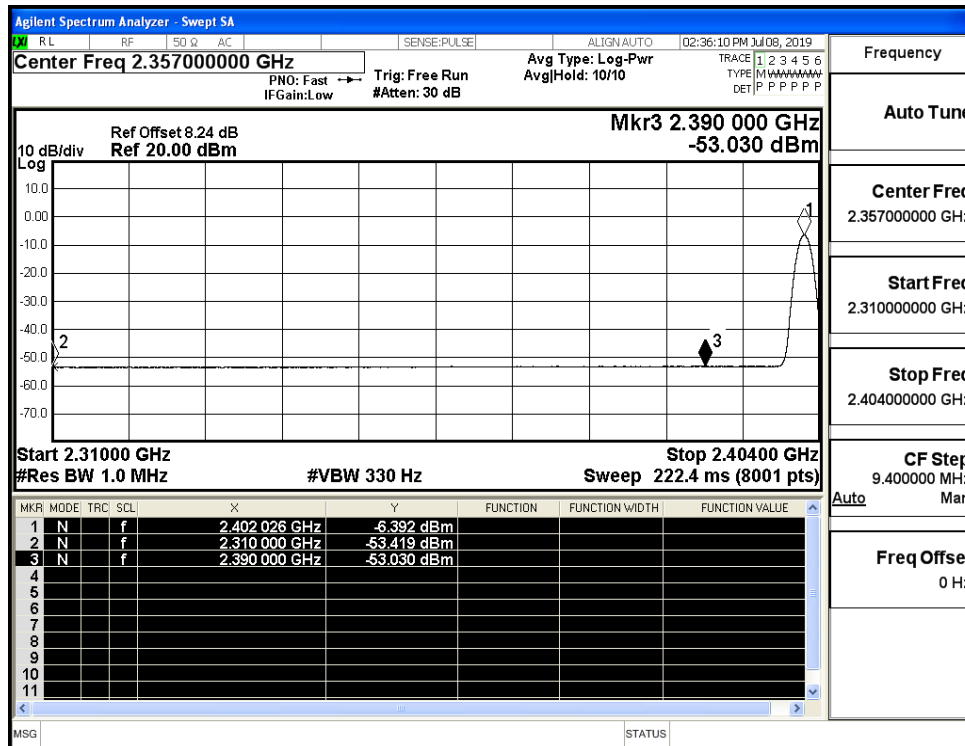
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



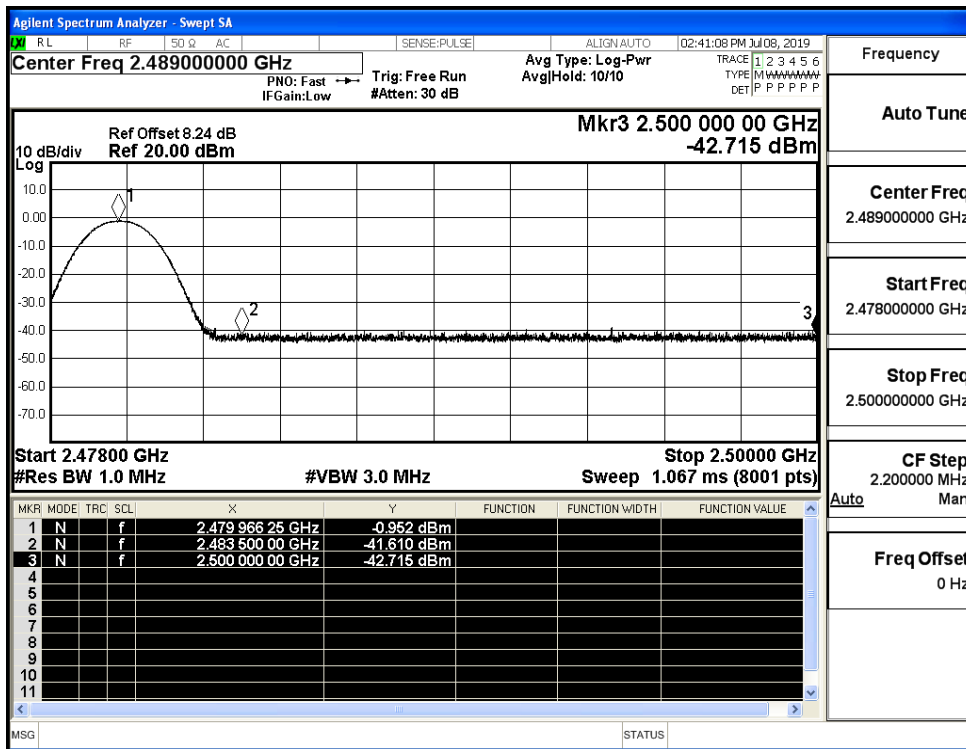
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

