

Appendix A

RF Test Data for BT V4.0(BDR/EDR) (Conducted Measurement)

Product Name: 3G smartphone

Trade Mark: GOL

Test Model: F3

Environmental Conditions

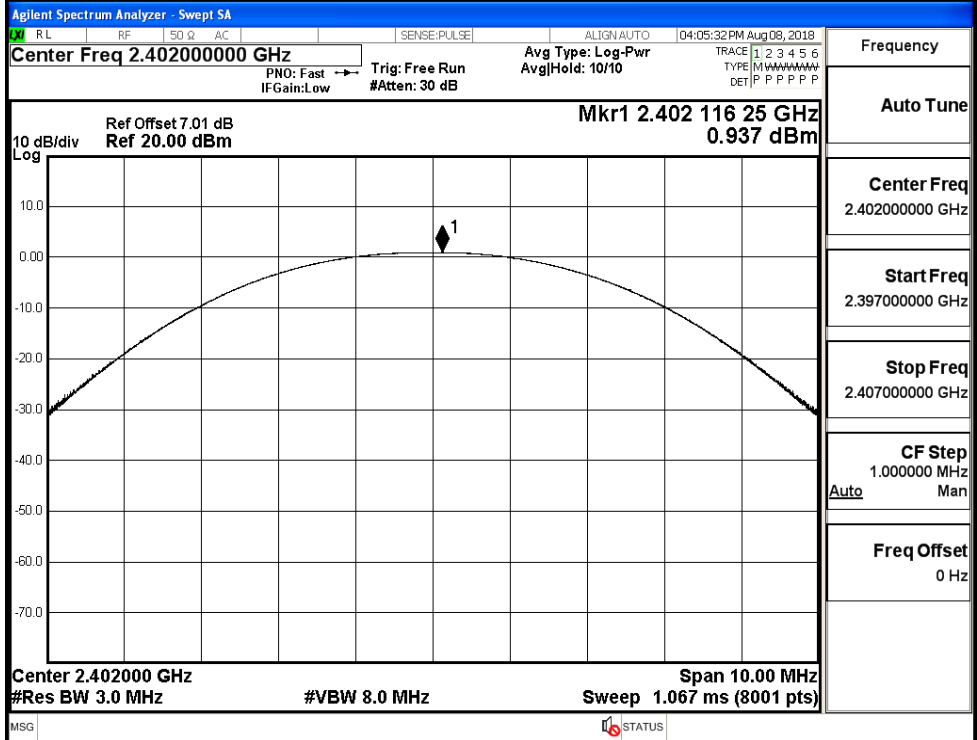
Temperature:	24.2 ° C
Relative Humidity:	52.6%
ATM Pressure:	100.0 kPa
Test Engineer:	Tom Liu
Supervised by:	Jayden Zhuo

A.1 Maxmum Conducted Peak Output Power

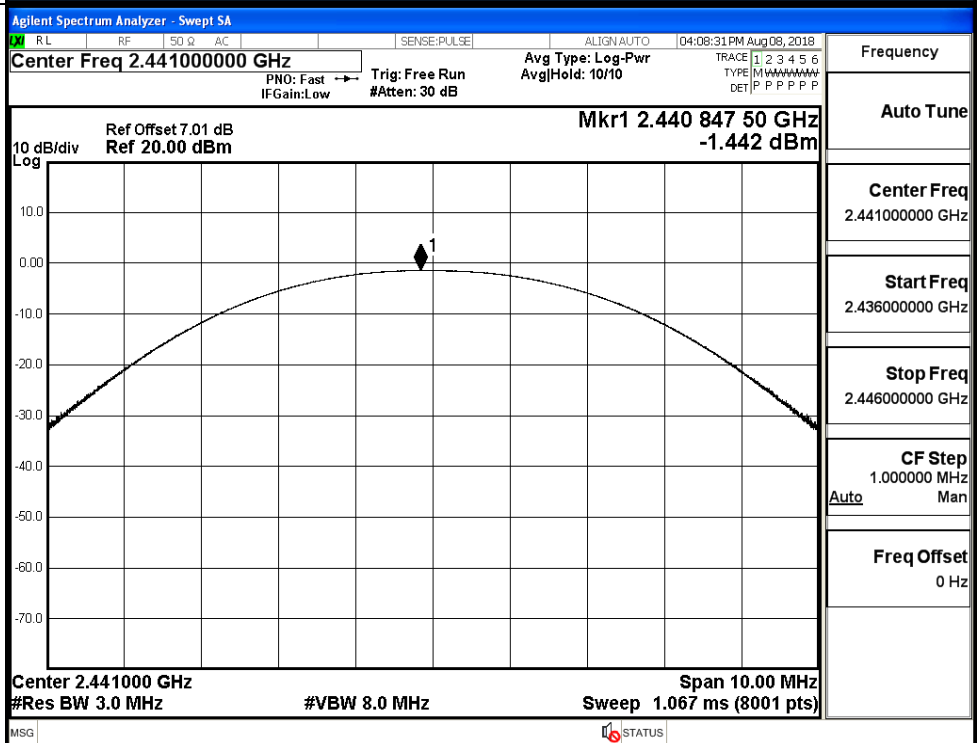
Mode	Channel.	Maximum Peak Output Power [dBm]	Maximum Average Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.937	0.824	21	PASS
	MCH	-1.442	-1.590	21	PASS
	HCH	-0.923	-1.082	21	PASS
$\pi/4$ DQPSK	LCH	0.313	0.197	21	PASS
	MCH	-1.954	-2.067	21	PASS
	HCH	-1.546	-1.661	21	PASS
8DPSK	LCH	0.404	0.294	21	PASS
	MCH	-1.778	-1.902	21	PASS
	HCH	-1.453	-1.632	21	PASS

Test Graphs

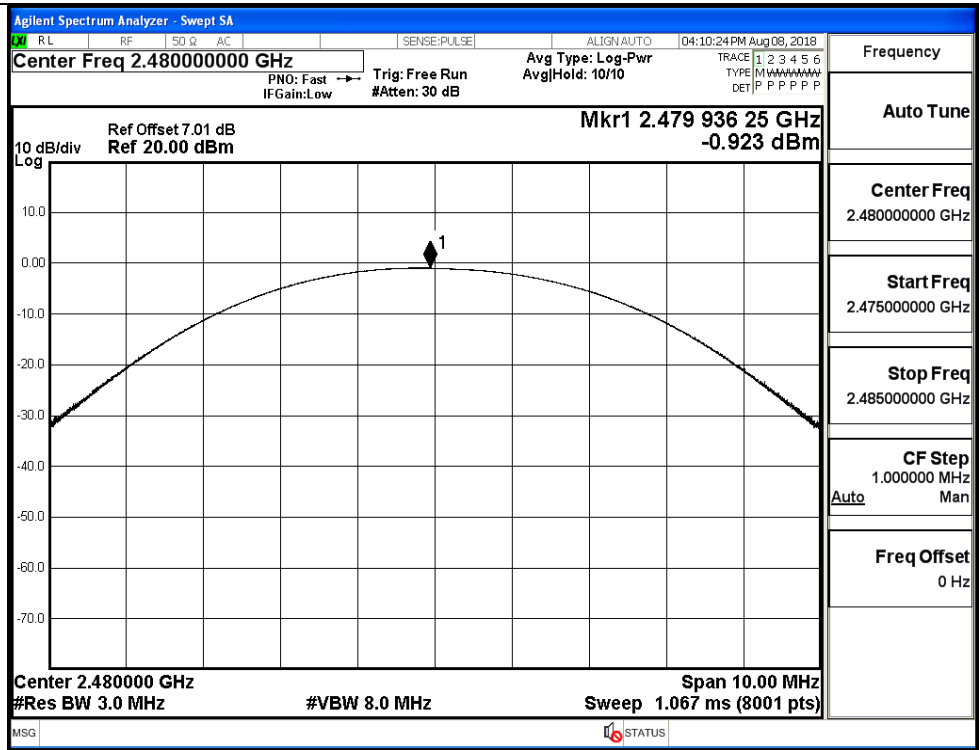
GFSK/LCH



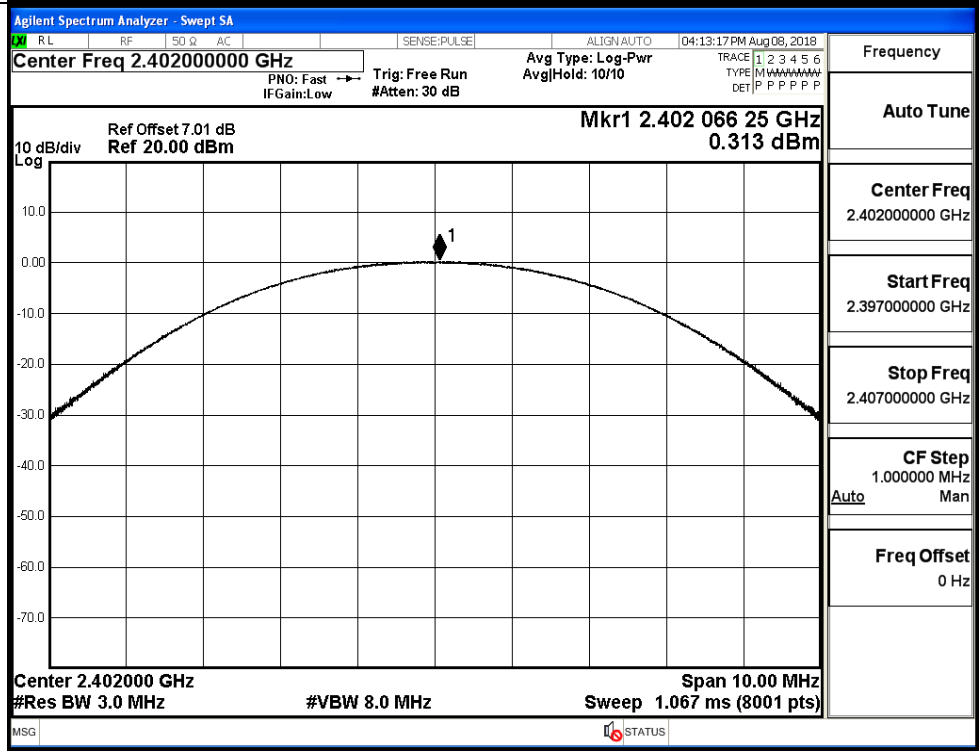
GFSK/MCH



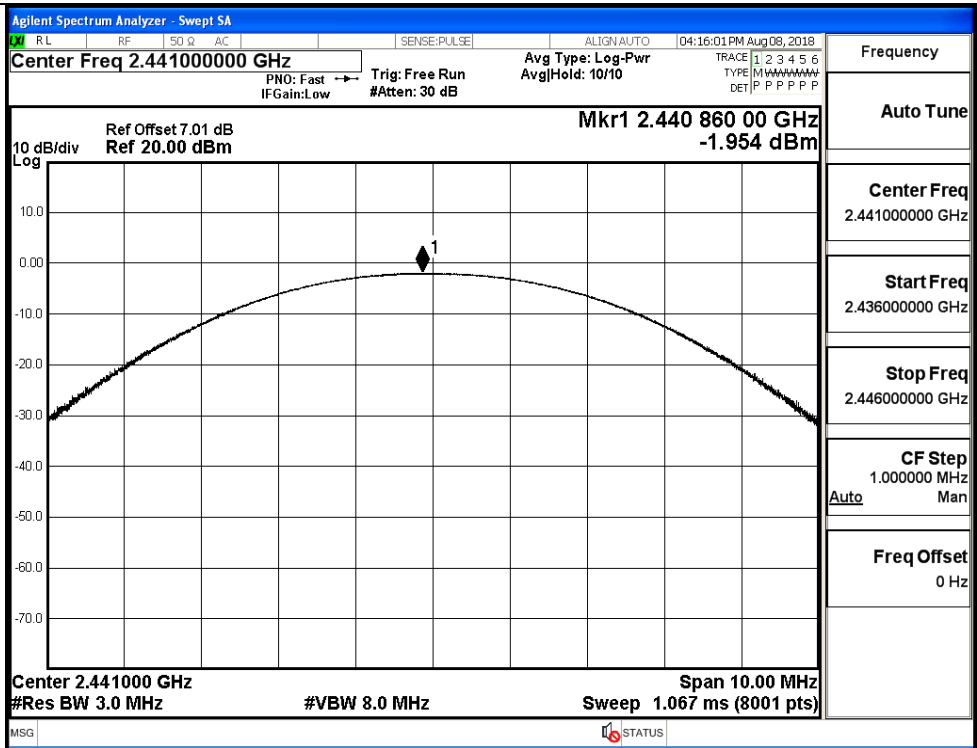
GFSK/HCH



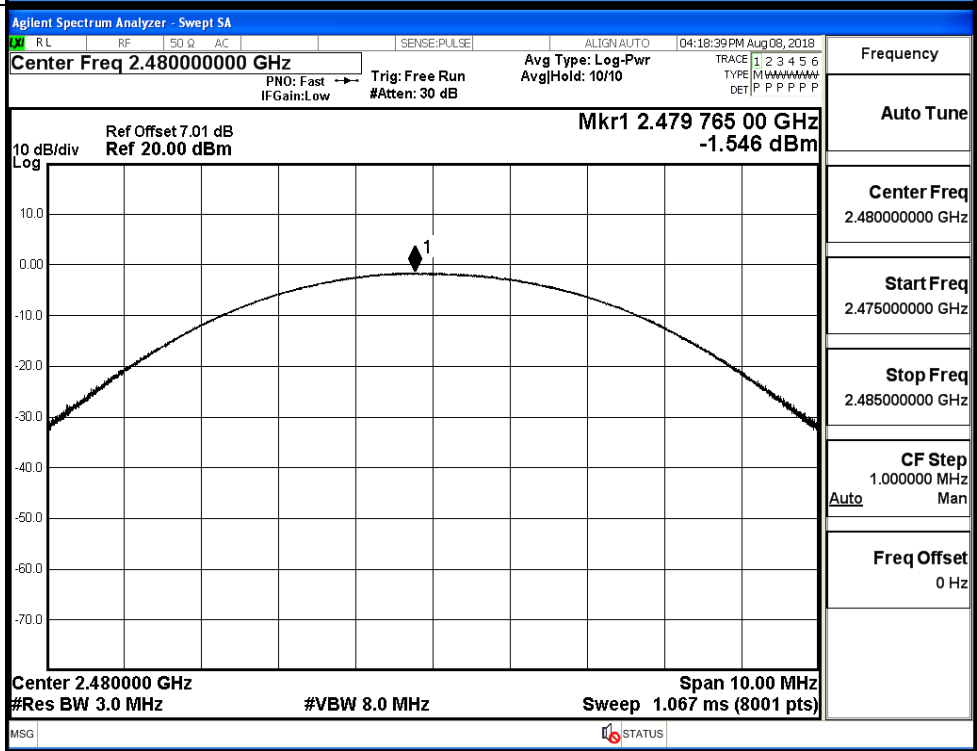
$\pi/4$ DQPSK/LCH



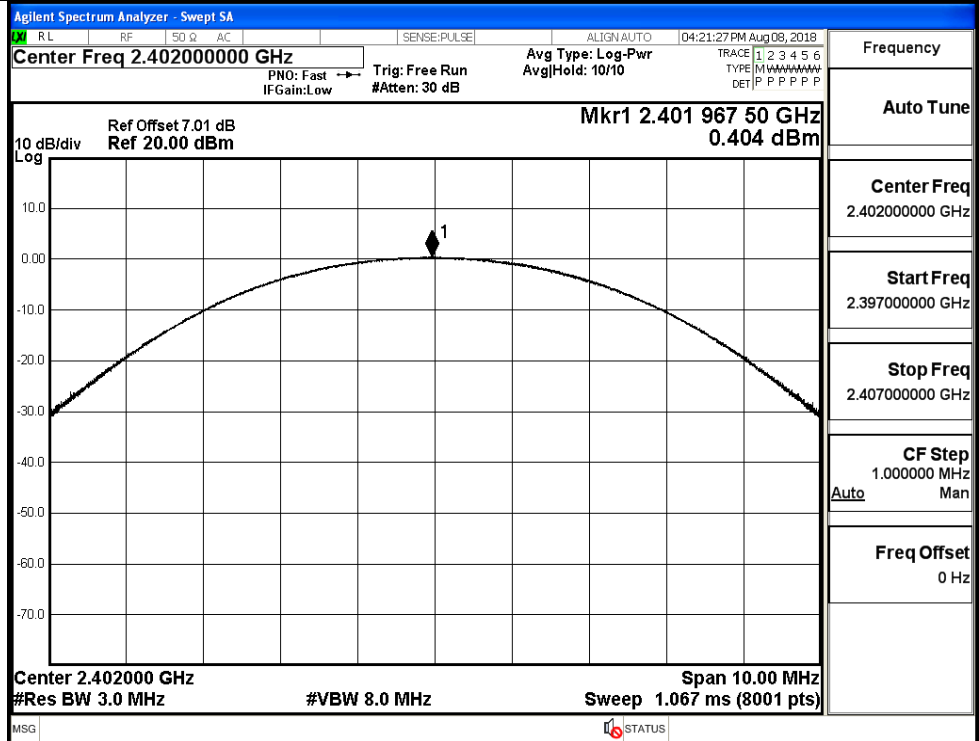
π /4DQPSK/MCH



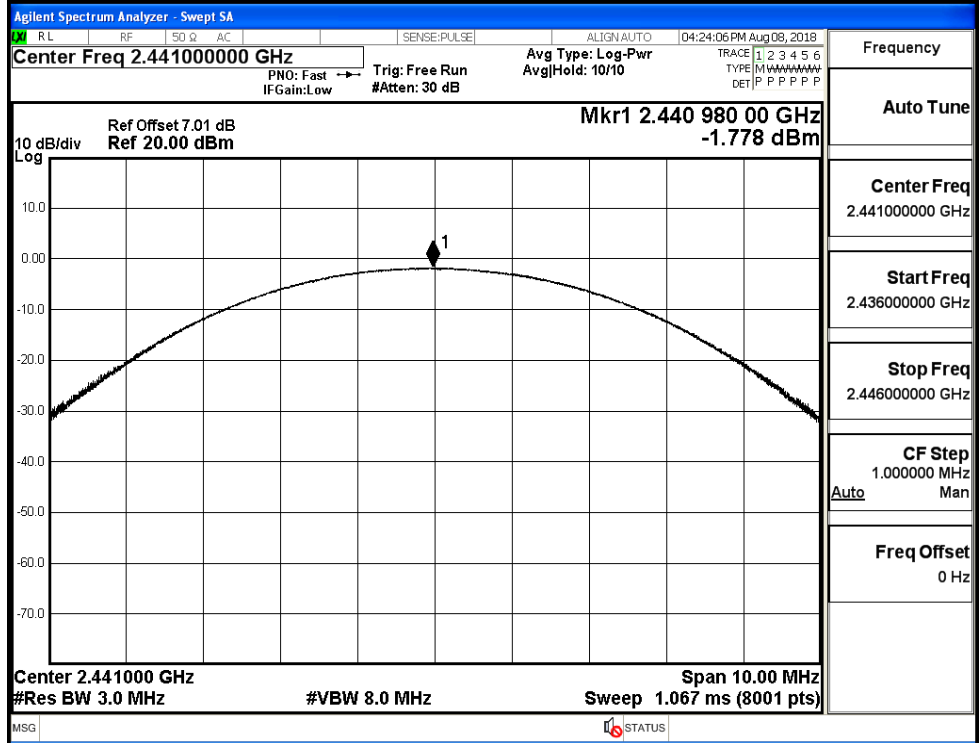
π /4DQPSK/HCH



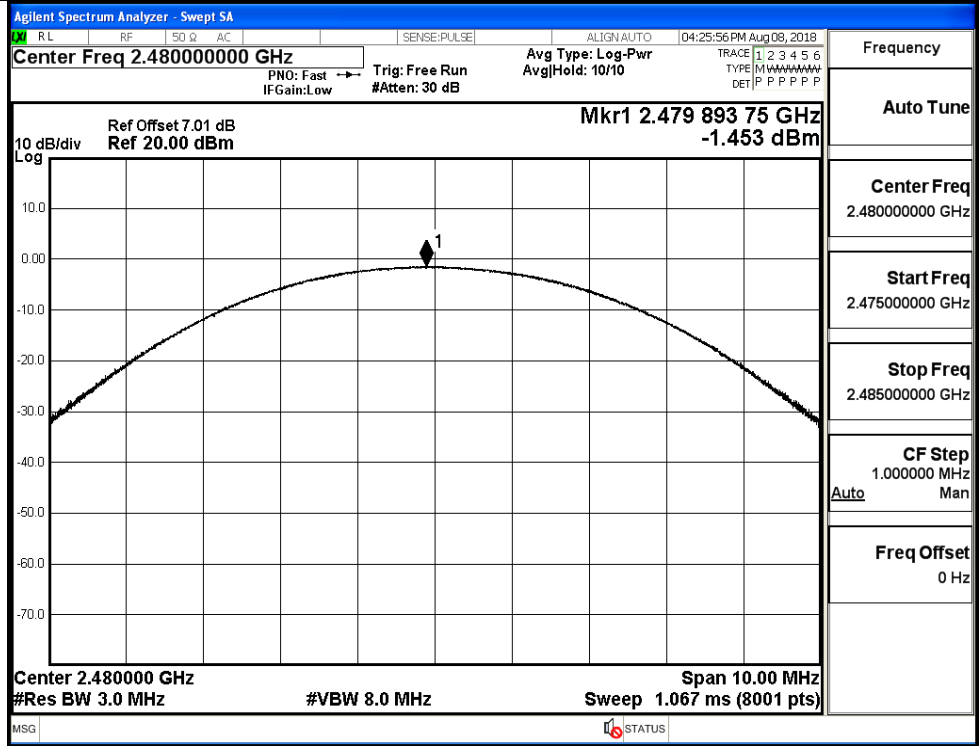
8DPSK/LCH



8DPSK/MCH

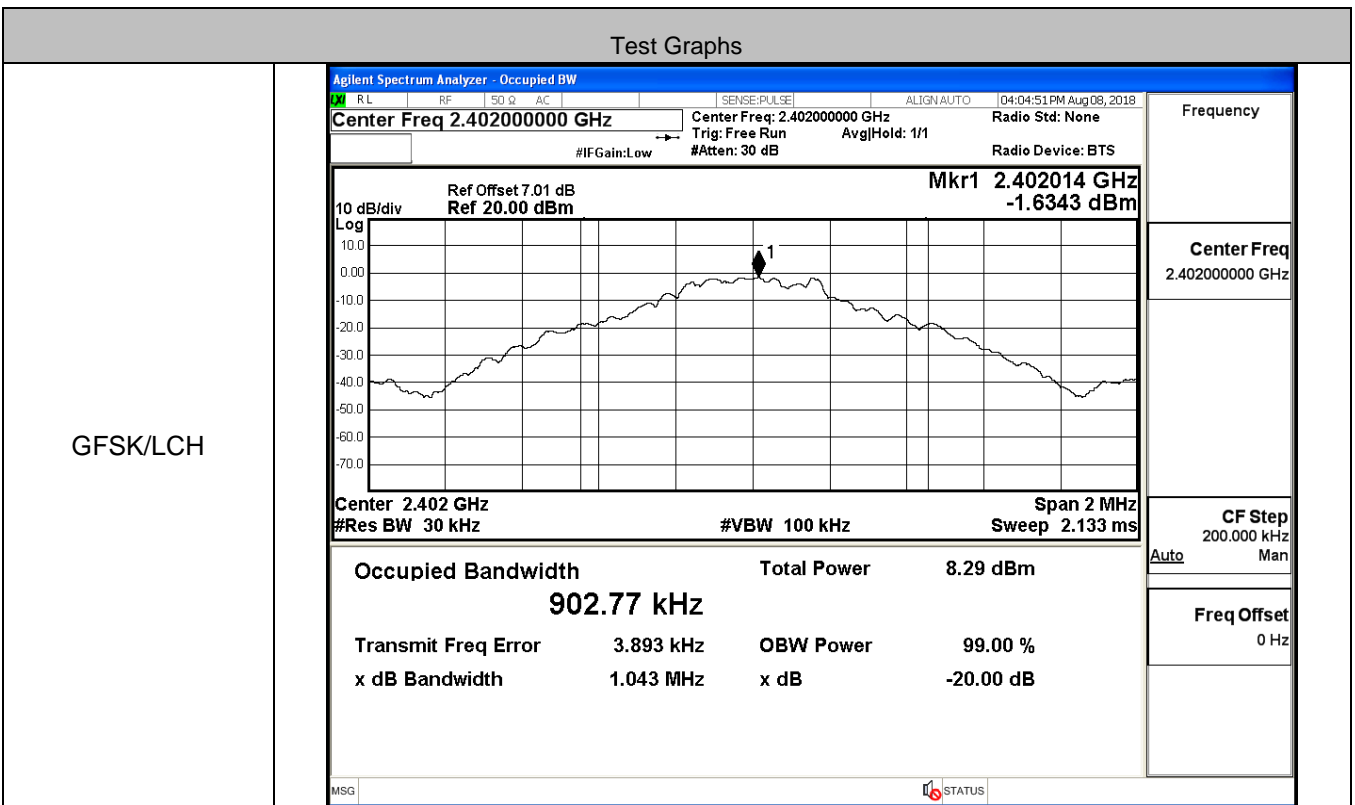


8DPSK/HCH

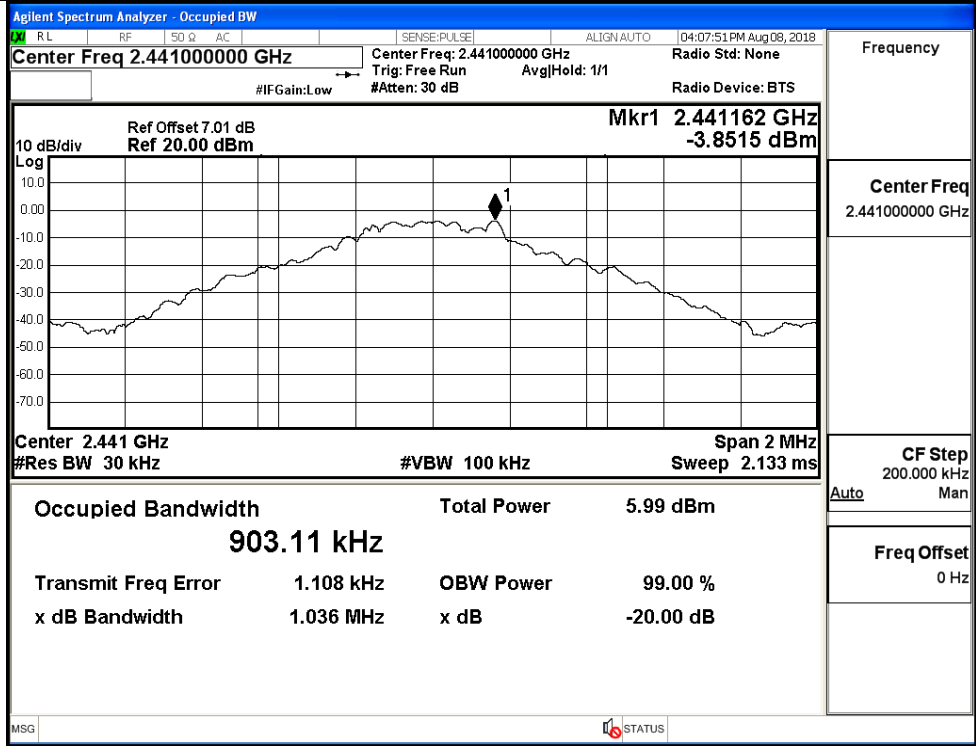


A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.043	Not Specified	PASS
	MCH	1.036	Not Specified	PASS
	HCH	1.040	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.292	Not Specified	PASS
	MCH	1.319	Not Specified	PASS
	HCH	1.315	Not Specified	PASS
8DPSK	LCH	1.293	Not Specified	PASS
	MCH	1.306	Not Specified	PASS
	HCH	1.294	Not Specified	PASS

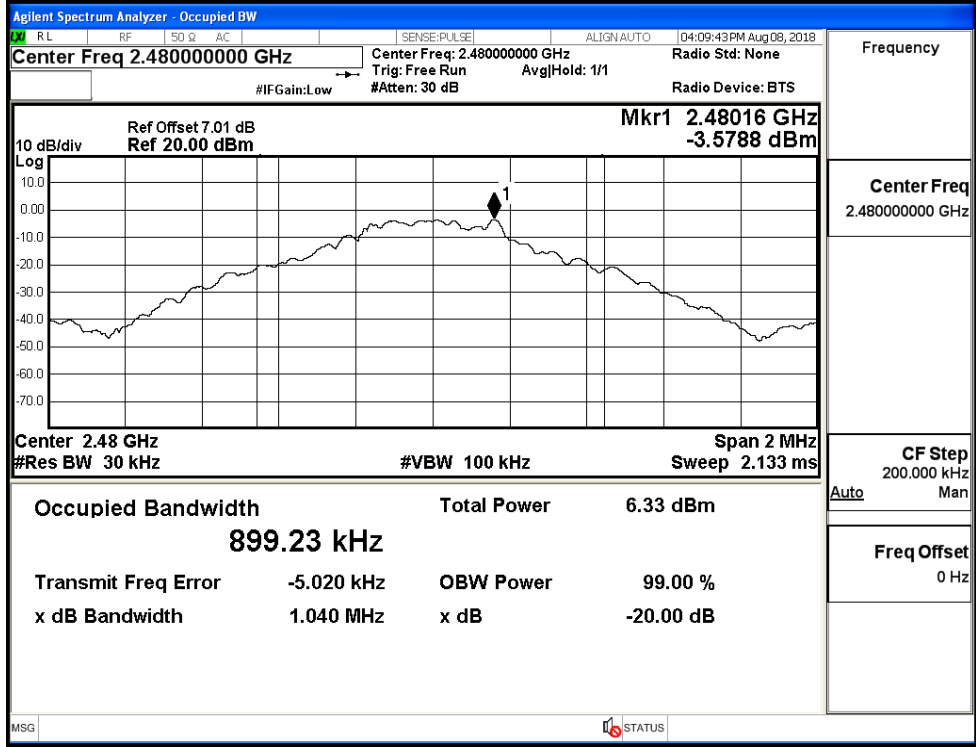


GFSK/MCH



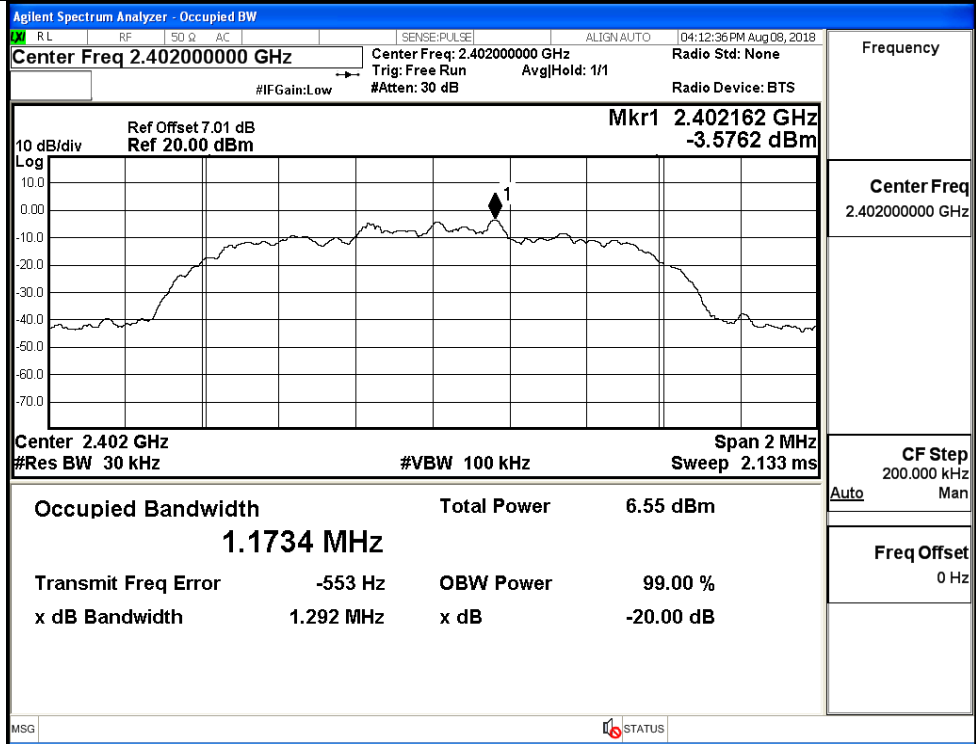
Frequency	2.44100000 GHz
Center Freq	2.44100000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

GFSK/HCH

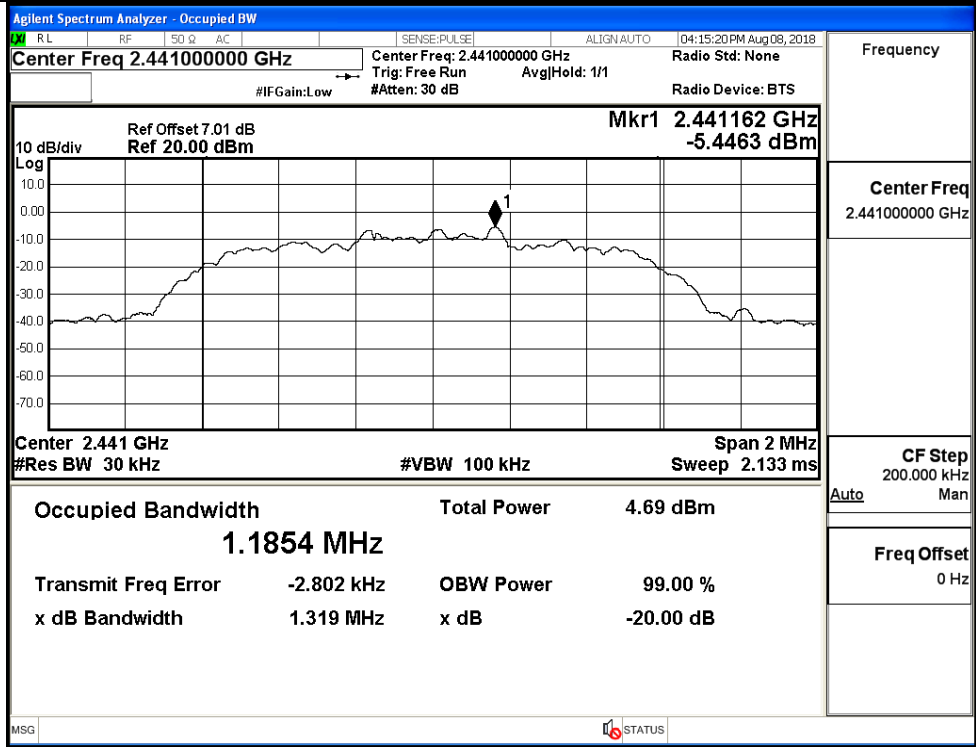


Frequency	2.48000000 GHz
Center Freq	2.48000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

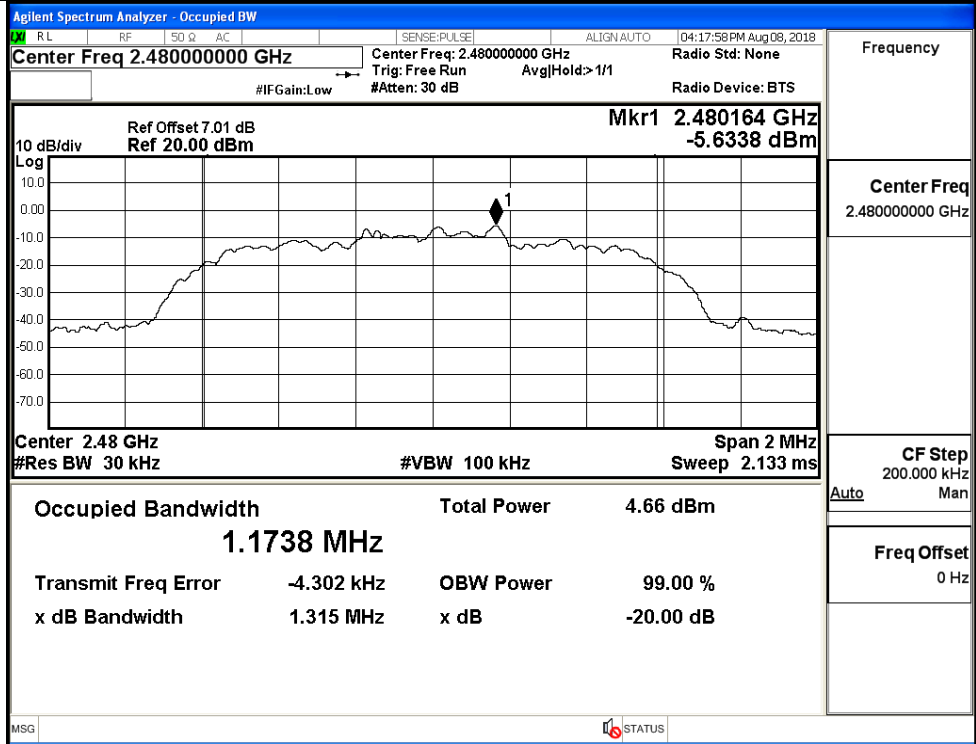
$\pi/4$ DQPSK/LCH



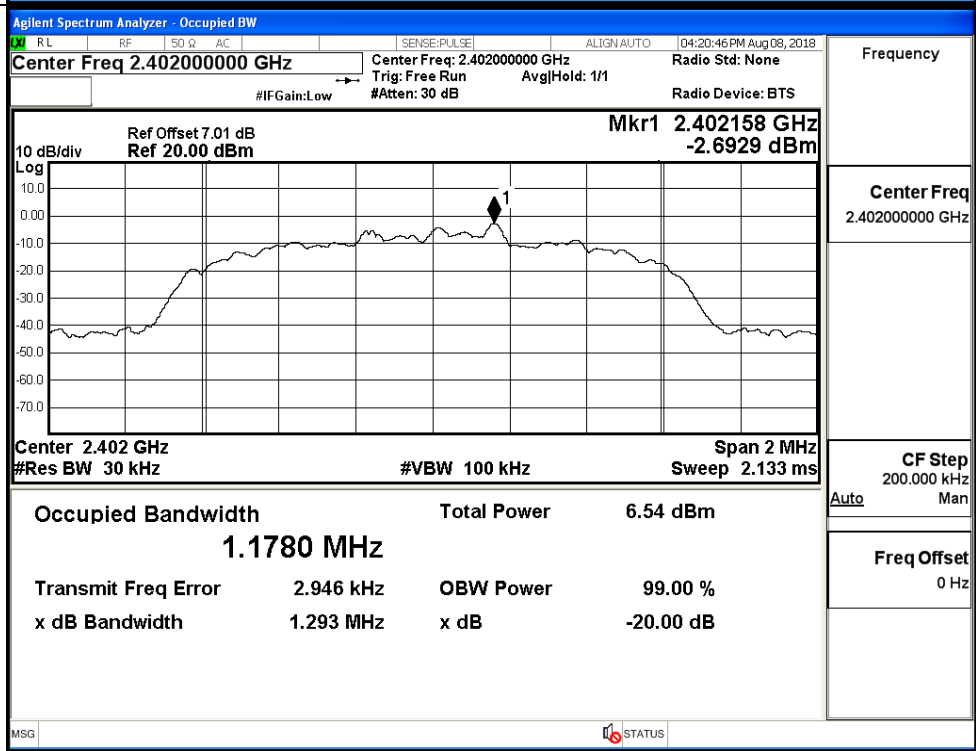
$\pi/4$ DQPSK/MCH



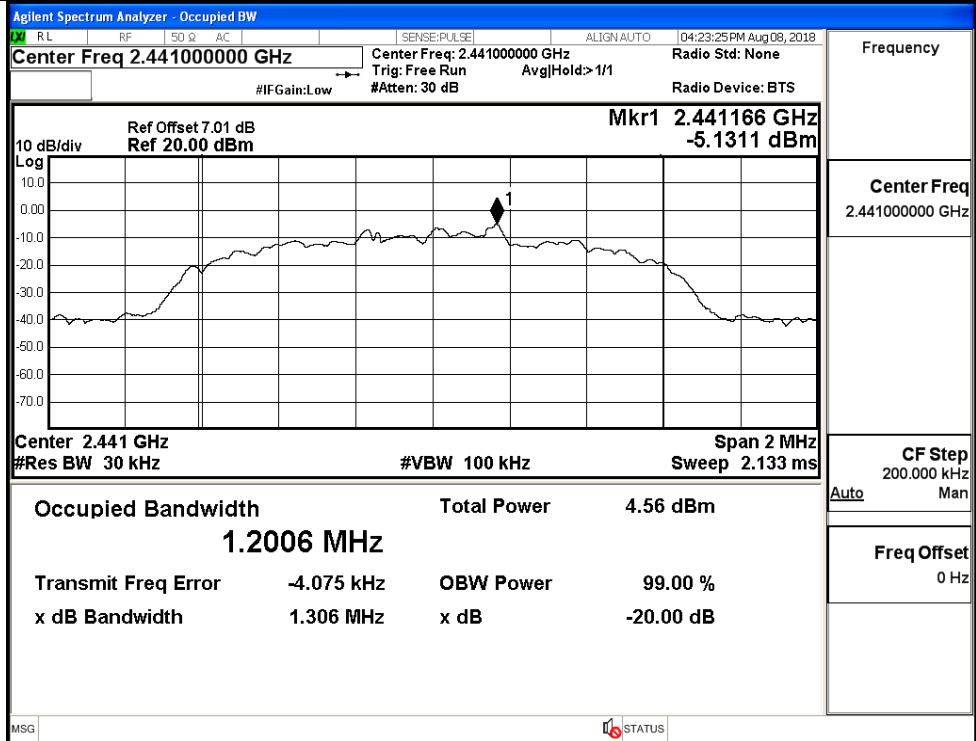
$\pi/4$ DQPSK/HCH



8DPSK/LCH

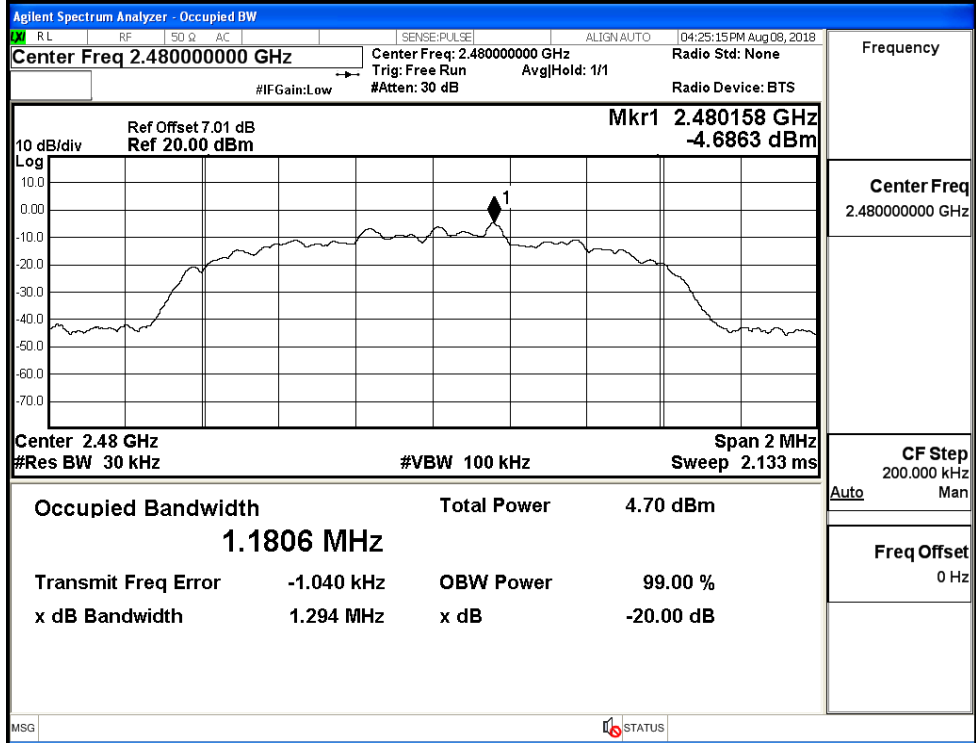


8DPSK/MCH



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

8DPSK/HCH



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

A.3 Carrier Frequency Separation

Mode	Channel	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.023	0.695	PASS
	MCH	1.184	0.695	PASS
	HCH	1.024	0.695	PASS
π/4DQPSK	LCH	0.988	0.879	PASS
	MCH	0.986	0.879	PASS
	HCH	1.220	0.879	PASS
8DPSK	LCH	0.952	0.871	PASS
	MCH	1.052	0.871	PASS
	HCH	1.000	0.871	PASS

Test Graphs

GFSK/LCH

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.402500000 GHz

Ref Offset 7.01 dB
Ref 20.00 dBm

ΔMkr1 1.023 25 MHz
0.465 dB

Start 2.401500 GHz
#Res BW 100 kHz

Stop 2.403500 GHz
#VBW 300 kHz
Sweep 1.067 ms (8001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	Δ2	f	(Δ)	1.023 25 MHz (Δ)	0.465 dB			
2	F	f		2.401 979 25 GHz	-0.147 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								

Frequency

Auto Tune

Center Freq
2.402500000 GHz

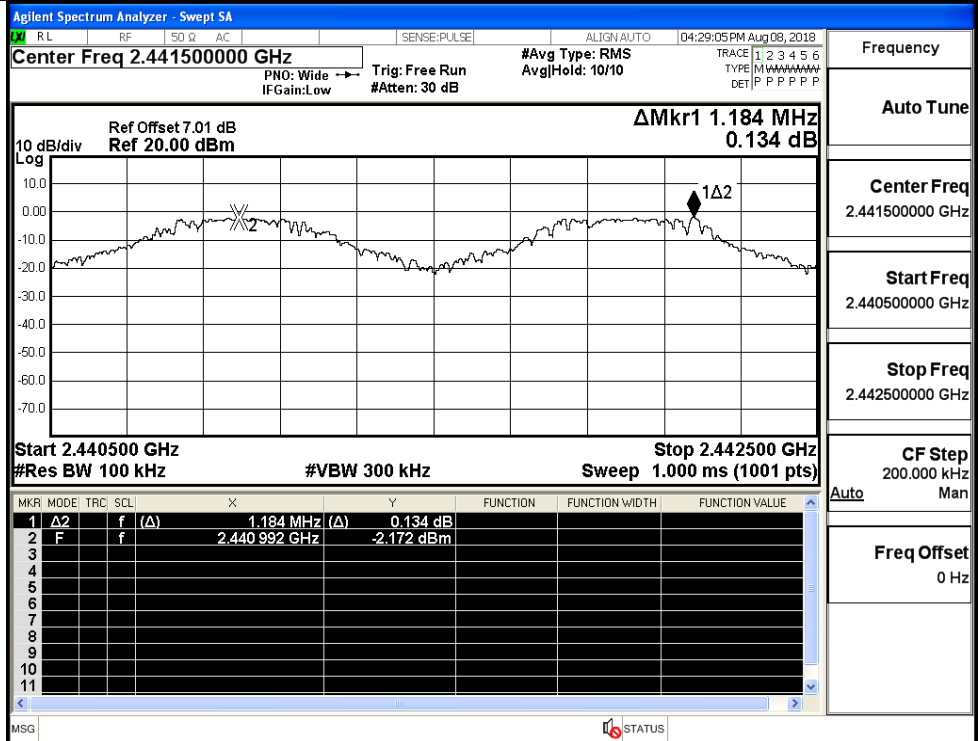
Start Freq
2.401500000 GHz

Stop Freq
2.403500000 GHz

CF Step
200.000 kHz
Auto Man

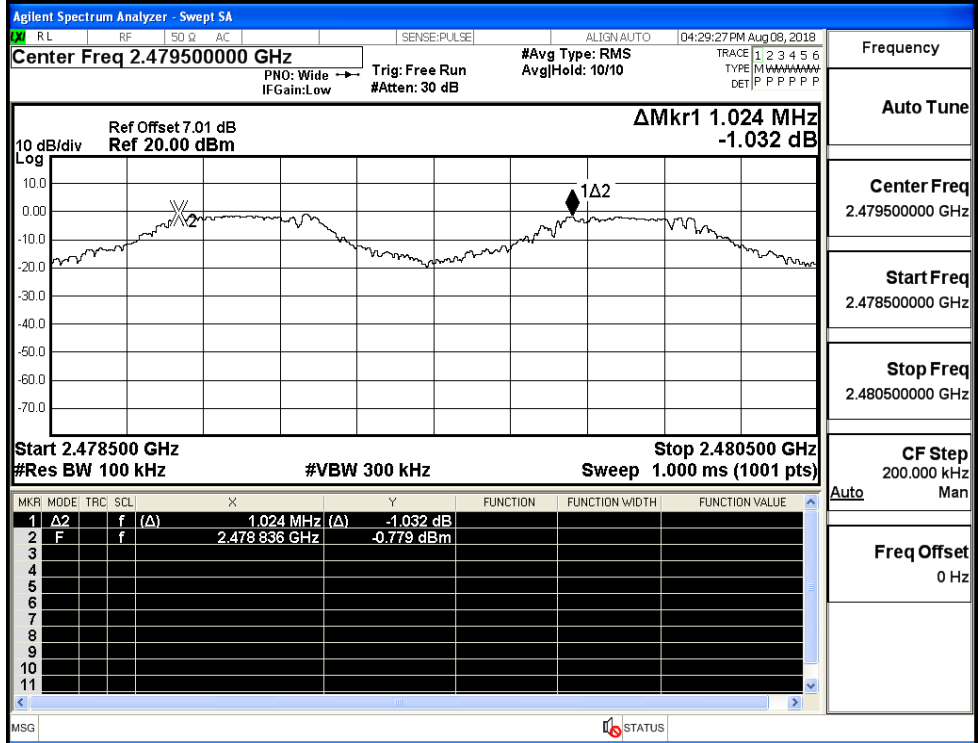
Freq Offset
0 Hz

GFSK/MCH



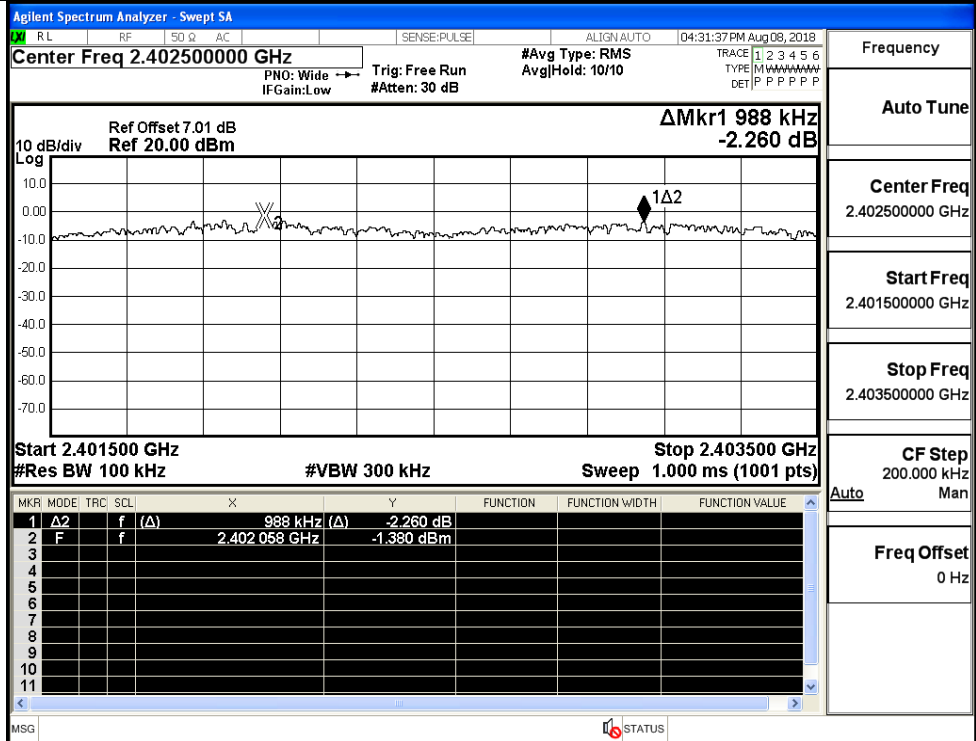
Frequency
Auto Tune
Center Freq
2.441500000 GHz
Start Freq
2.440500000 GHz
Stop Freq
2.442500000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz

GFSK/HCH



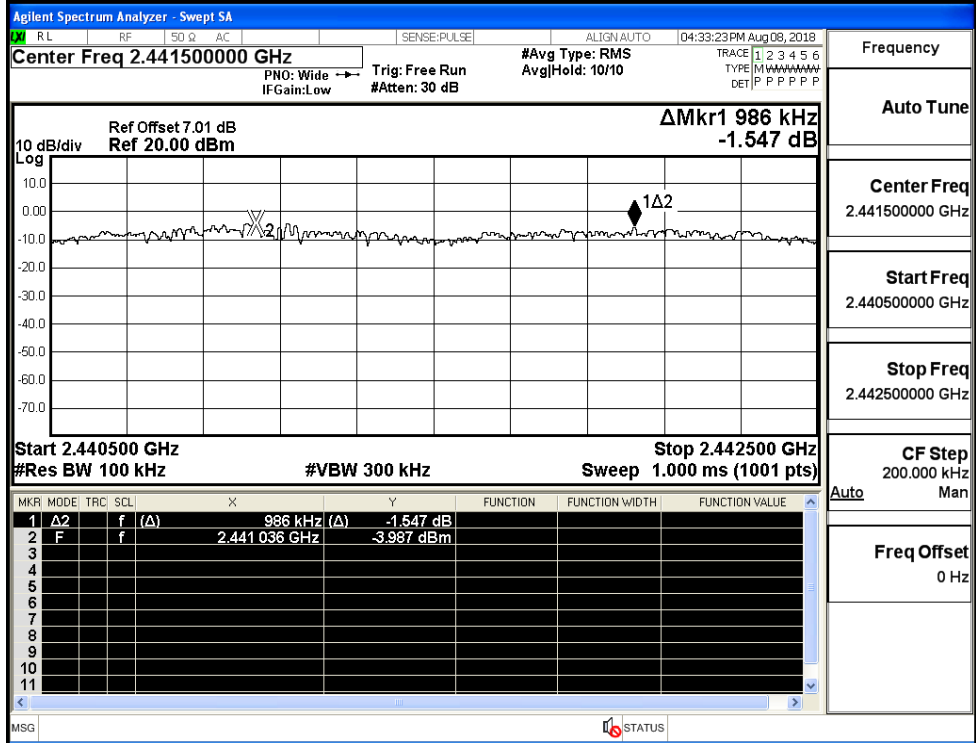
Frequency
Auto Tune
Center Freq
2.479500000 GHz
Start Freq
2.478500000 GHz
Stop Freq
2.480500000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz

$\pi/4$ DQPSK/LCH



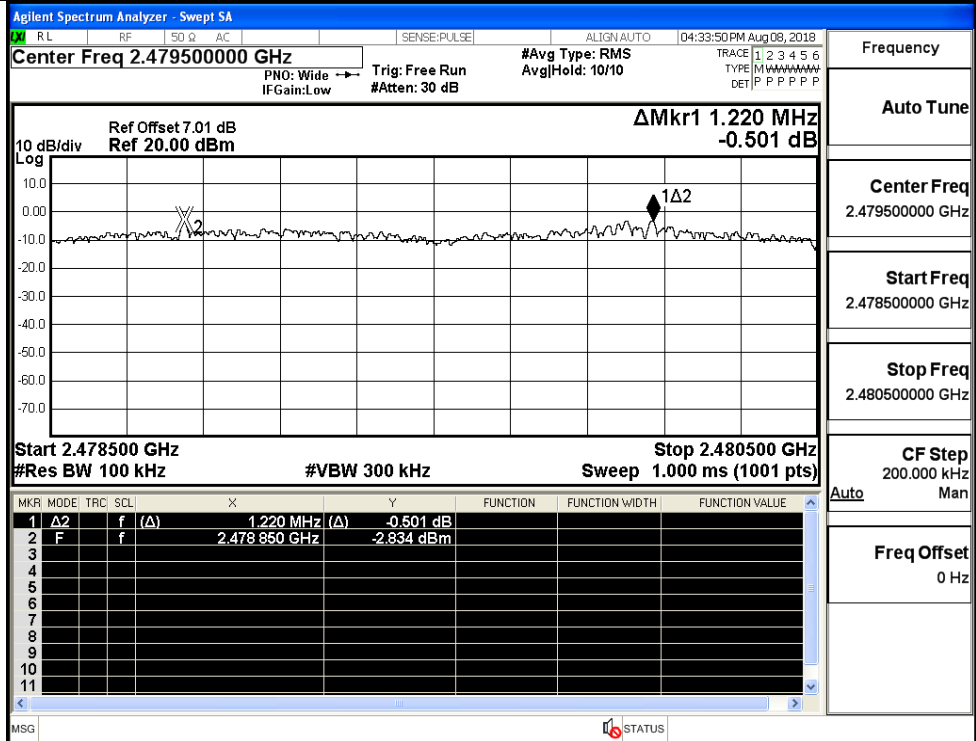
Frequency
Auto Tune
Center Freq 2.40250000 GHz
Start Freq 2.40150000 GHz
Stop Freq 2.40350000 GHz
CF Step 200.000 kHz Auto
Freq Offset 0 Hz

$\pi/4$ DQPSK/MCH



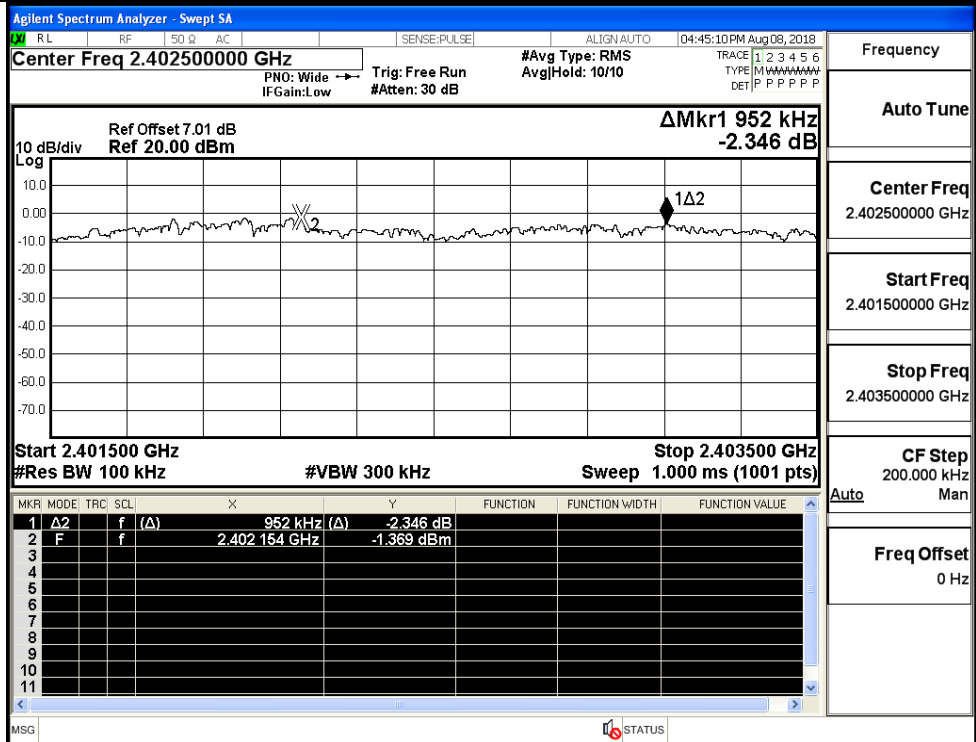
Frequency
Auto Tune
Center Freq 2.44150000 GHz
Start Freq 2.44050000 GHz
Stop Freq 2.44250000 GHz
CF Step 200.000 kHz Auto
Freq Offset 0 Hz

π/4DQPSK/HCH

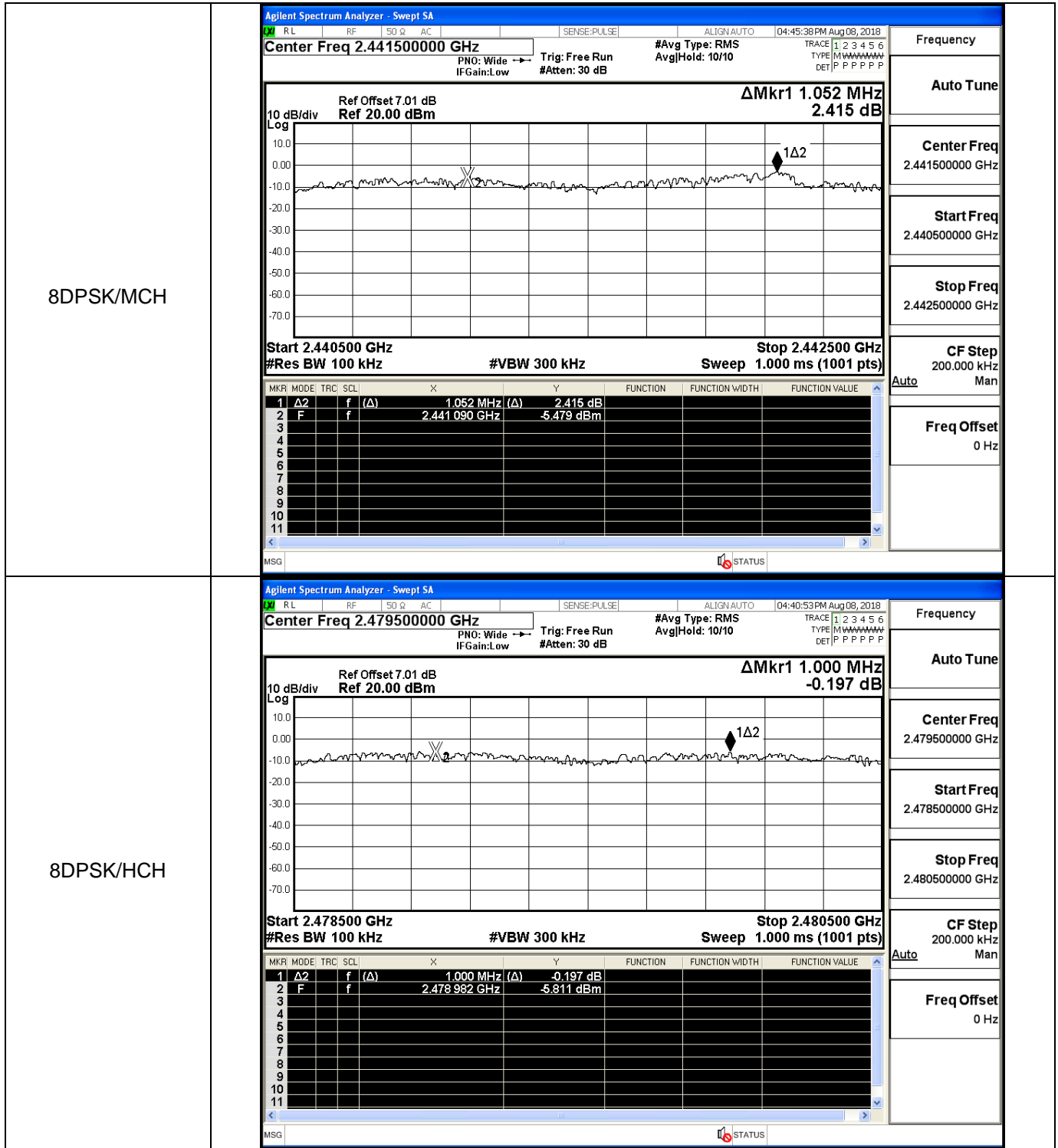


Frequency
Auto Tune
Center Freq
2.479500000 GHz
Start Freq
2.478500000 GHz
Stop Freq
2.480500000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz

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
Auto
Man
Freq Offset
0 Hz

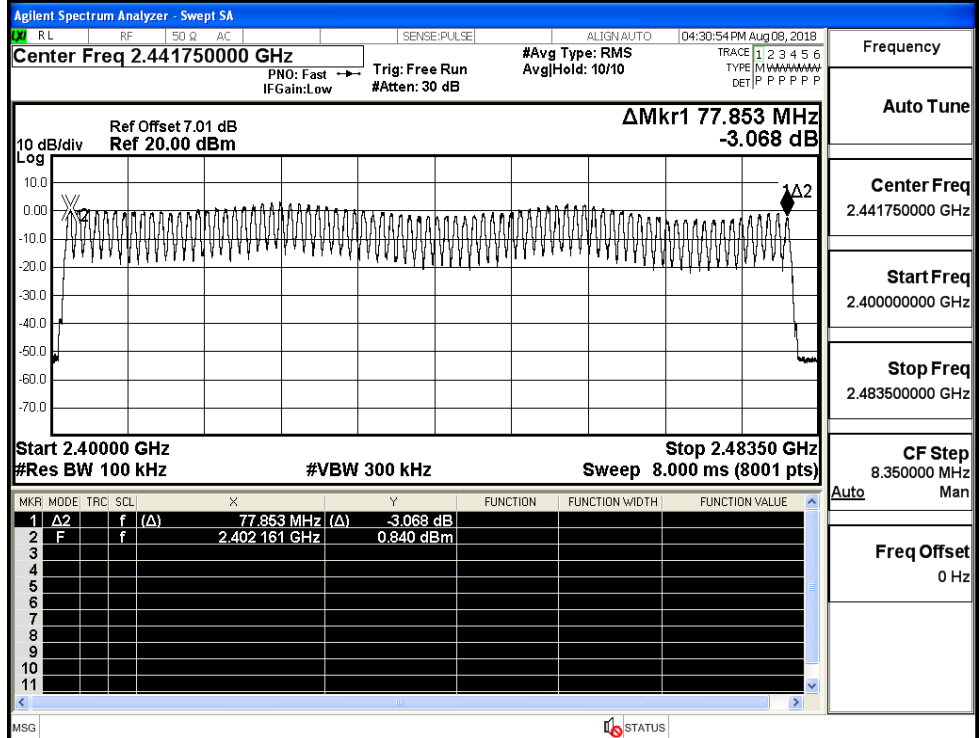


A.4 Hopping Channel Number

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

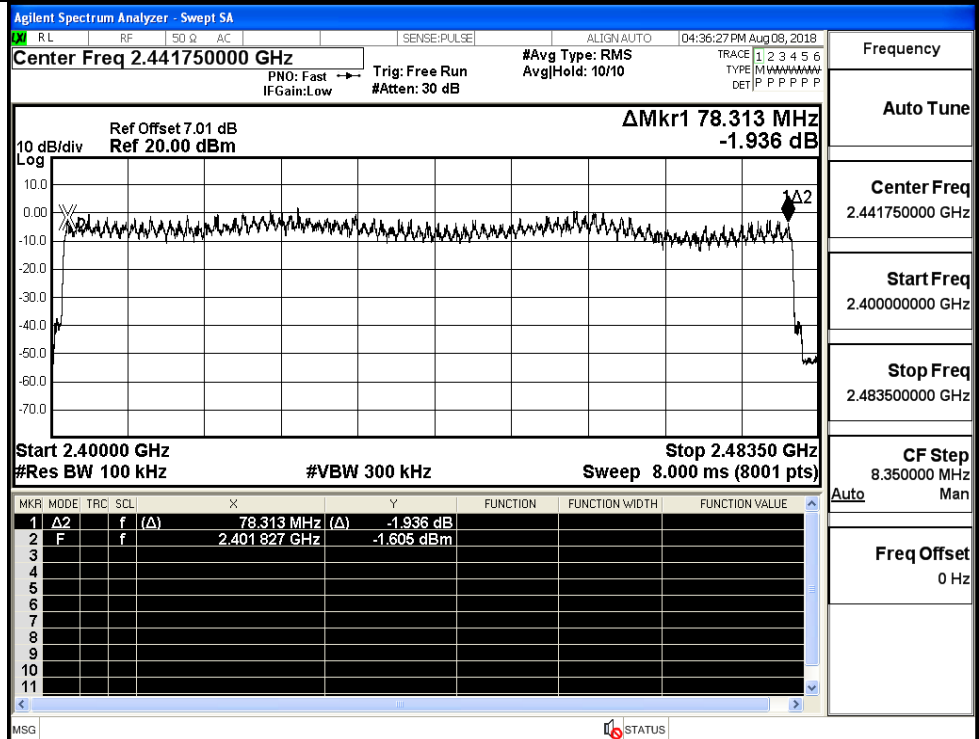
Test Graphs

GFSK/Hop



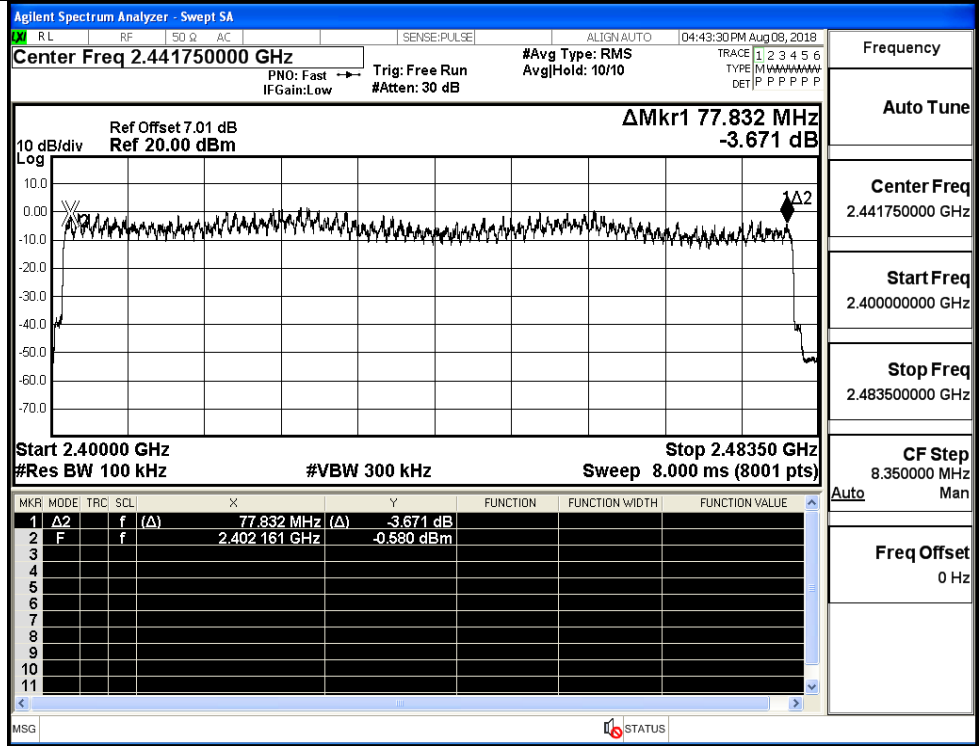
Frequency	
Auto Tune	
Center Freq	2.441750000 GHz
Start Freq	2.400000000 GHz
Stop Freq	2.483500000 GHz
CF Step	8.350000 MHz
Auto	Man
Freq Offset	0 Hz

$\pi/4$ DQPSK/Hop



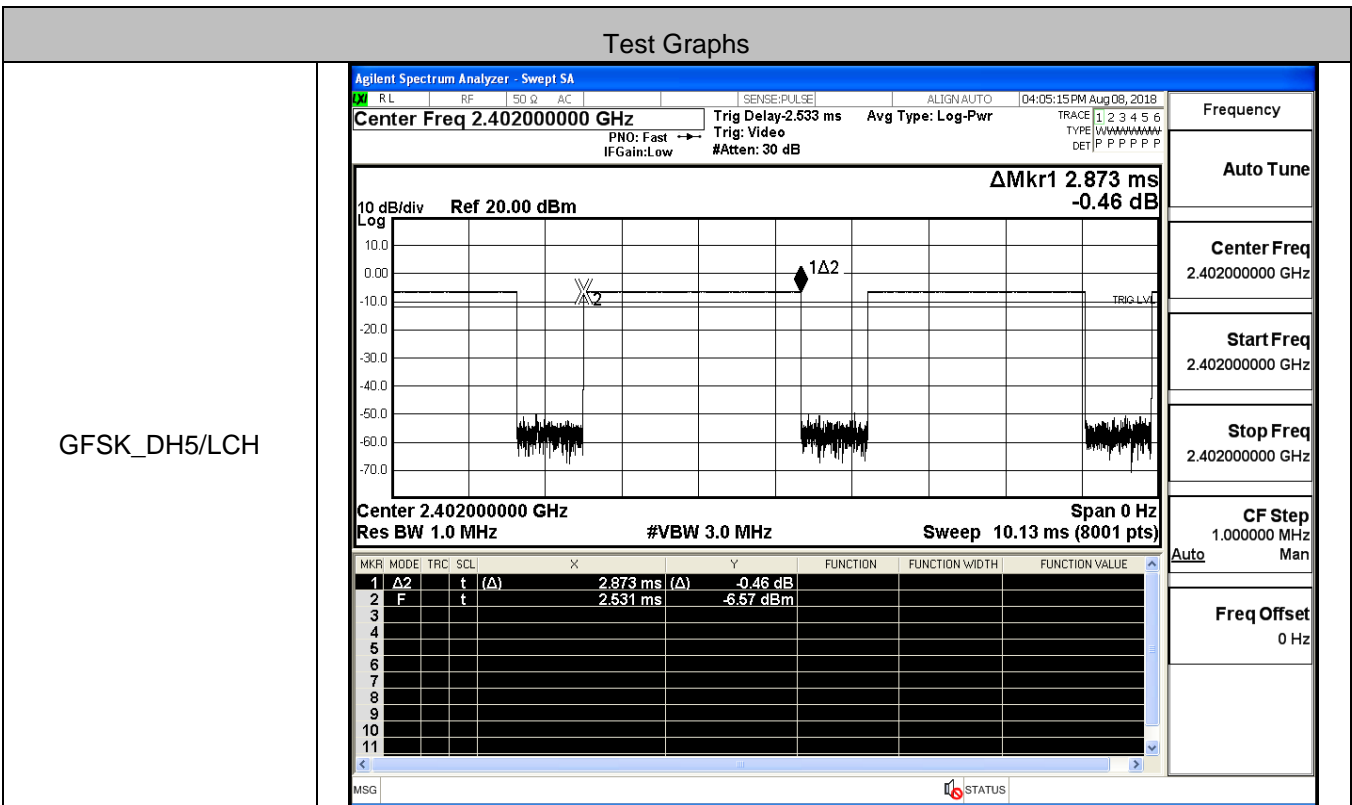
Frequency	
Auto Tune	
Center Freq	2.441750000 GHz
Start Freq	2.400000000 GHz
Stop Freq	2.483500000 GHz
CF Step	8.350000 MHz
Auto	Man
Freq Offset	0 Hz

8DPSK/Hop

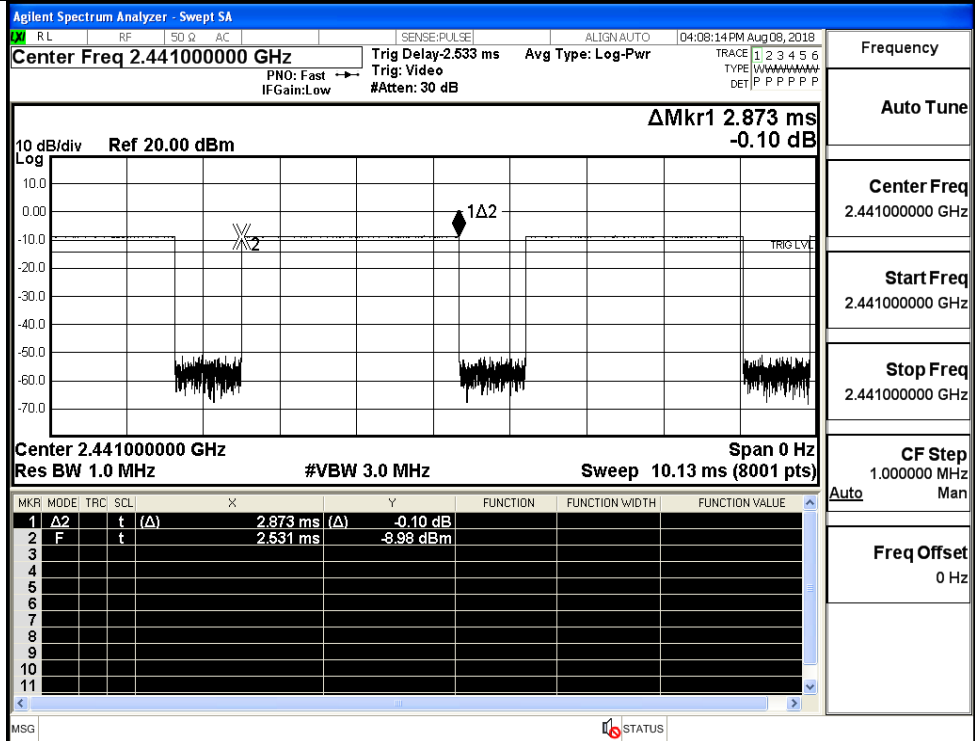


A.5 Dwell Time

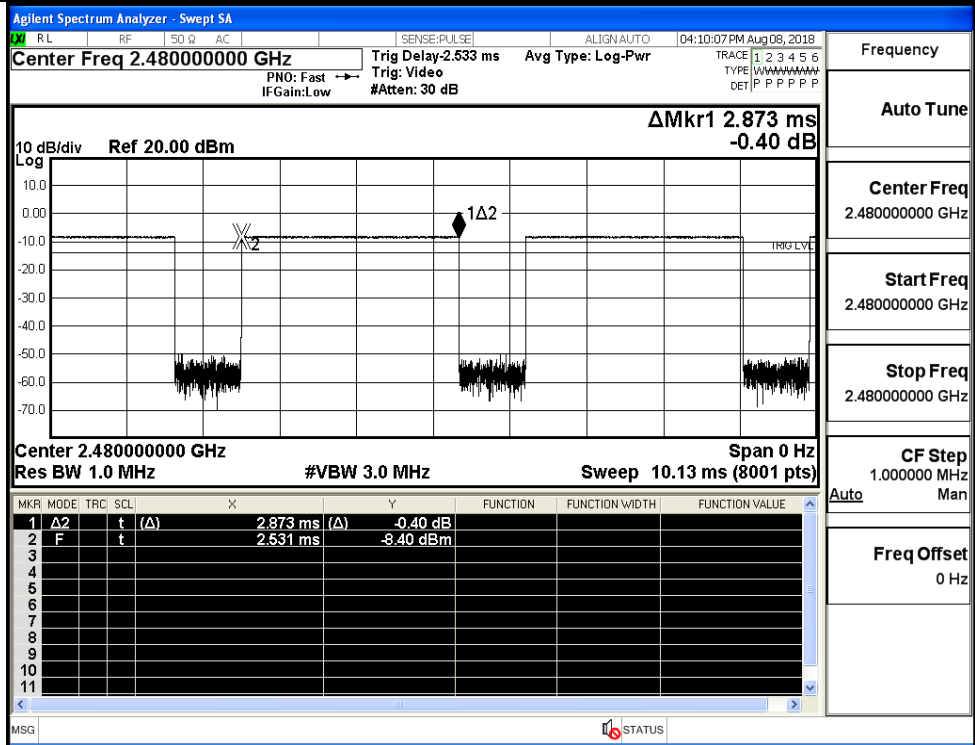
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.87	106.7	0.306	0.4	PASS
	DH5	MCH	2.87	106.7	0.306	0.4	PASS
	DH5	HCH	2.87	106.7	0.306	0.4	PASS
π/4DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88	106.7	0.307	0.4	PASS
8DPSK	3DH5	LCH	2.88	106.7	0.307	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



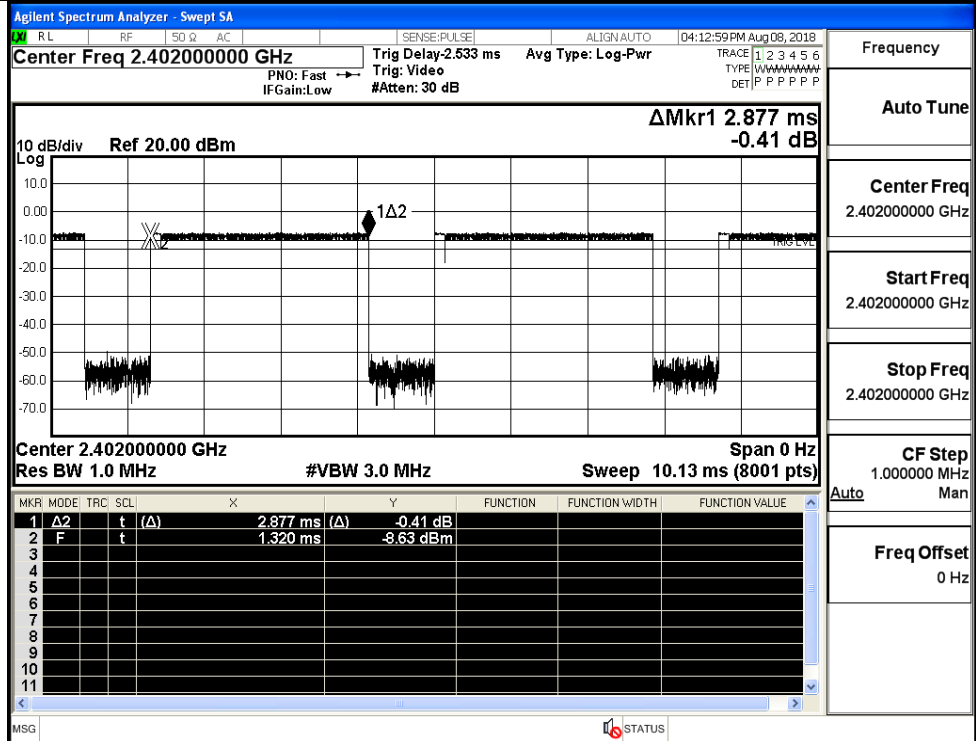
GFSK_DH5/MCH



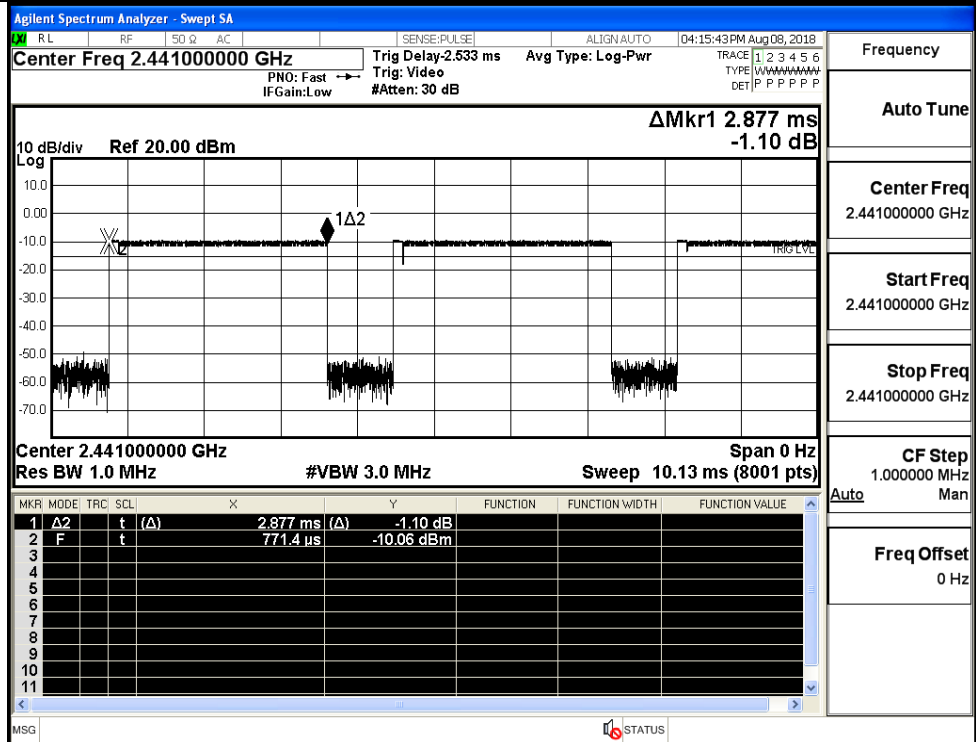
GFSK_DH5/HCH



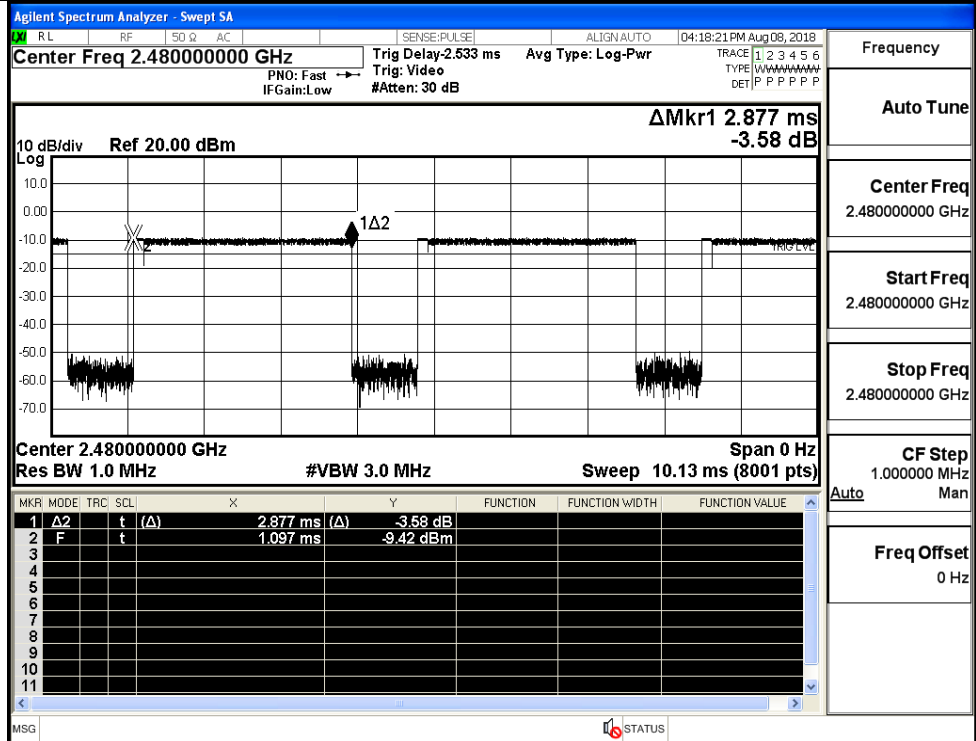
$\pi/4$ DQPSK
_2DH5/LCH



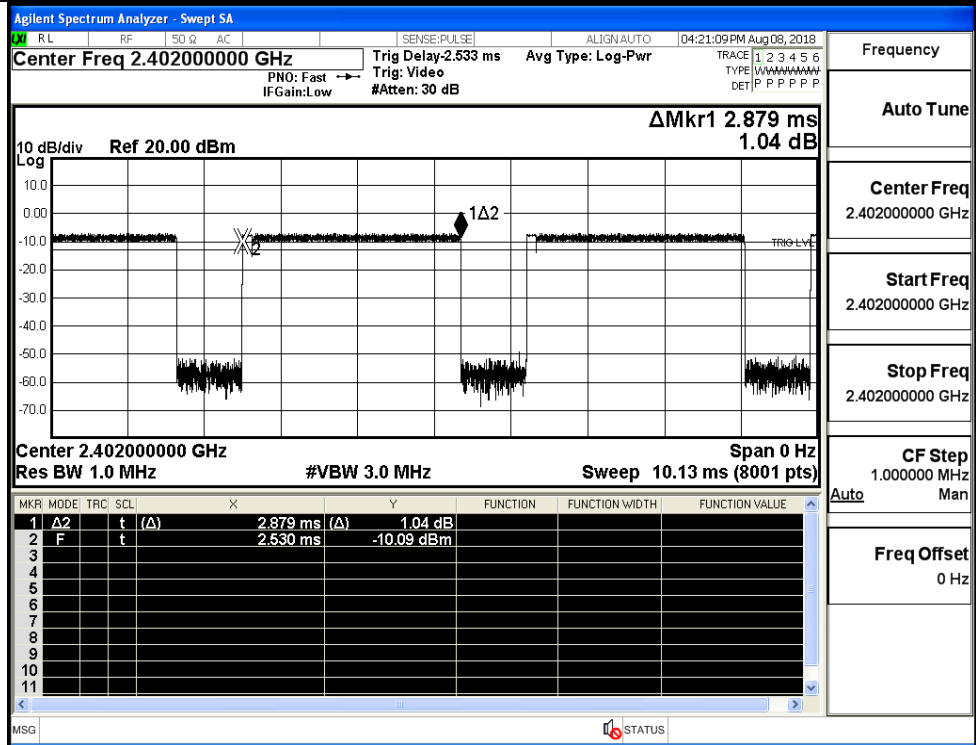
$\pi/4$ DQPSK
_2DH5/MCH



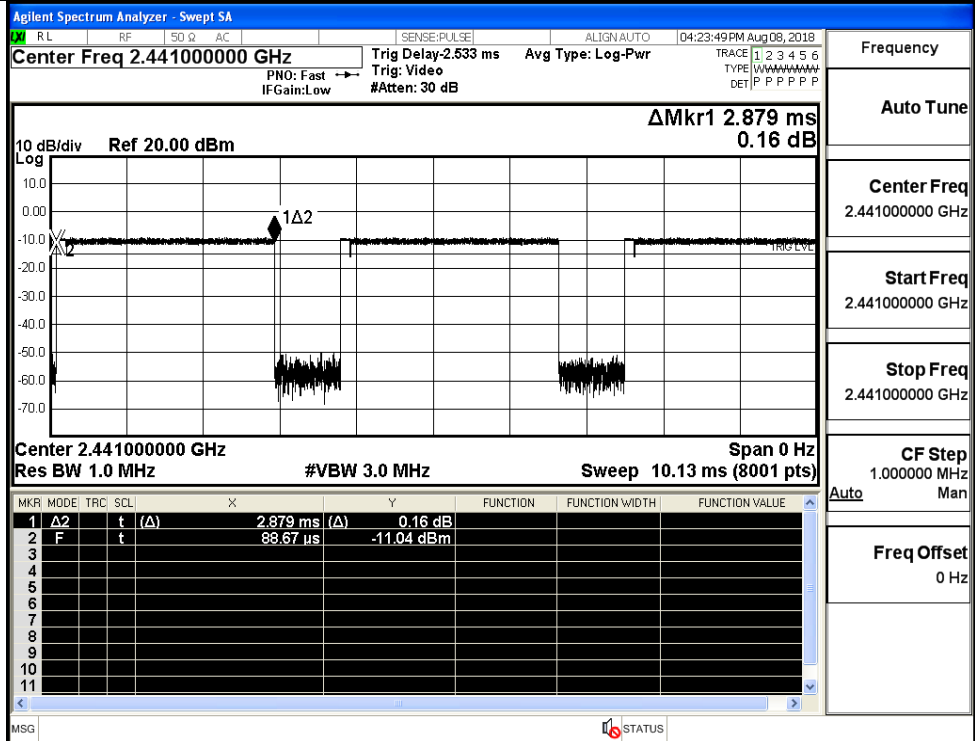
$\pi/4$ DQPSK
_2DH5/HCH



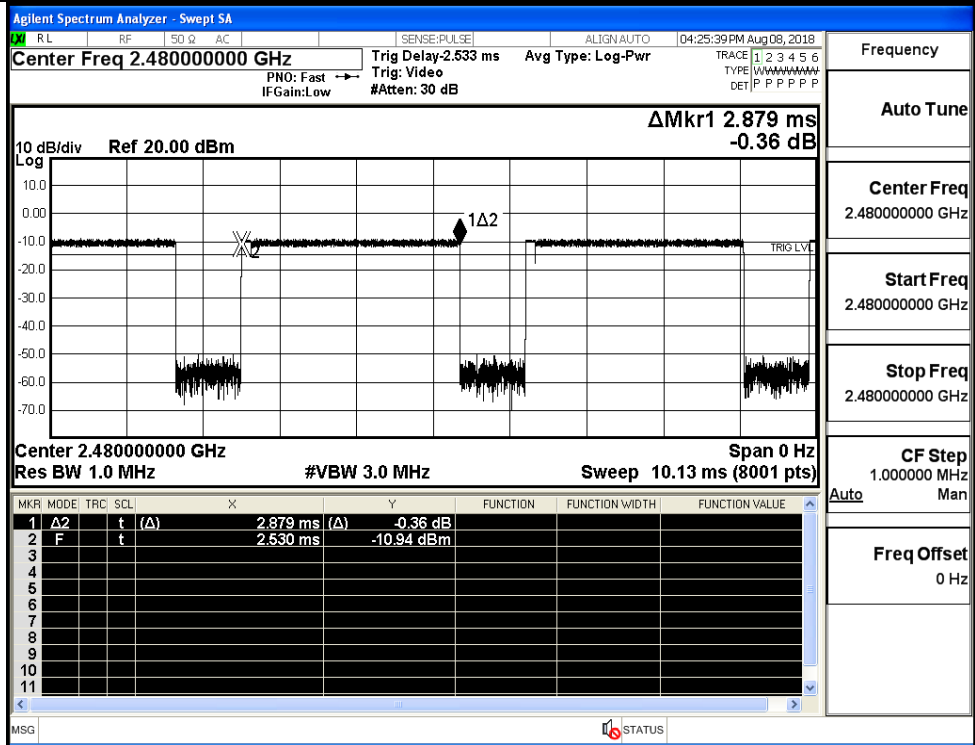
8DPSK_3DH5/LCH



8DPSK_3DH5/MCH



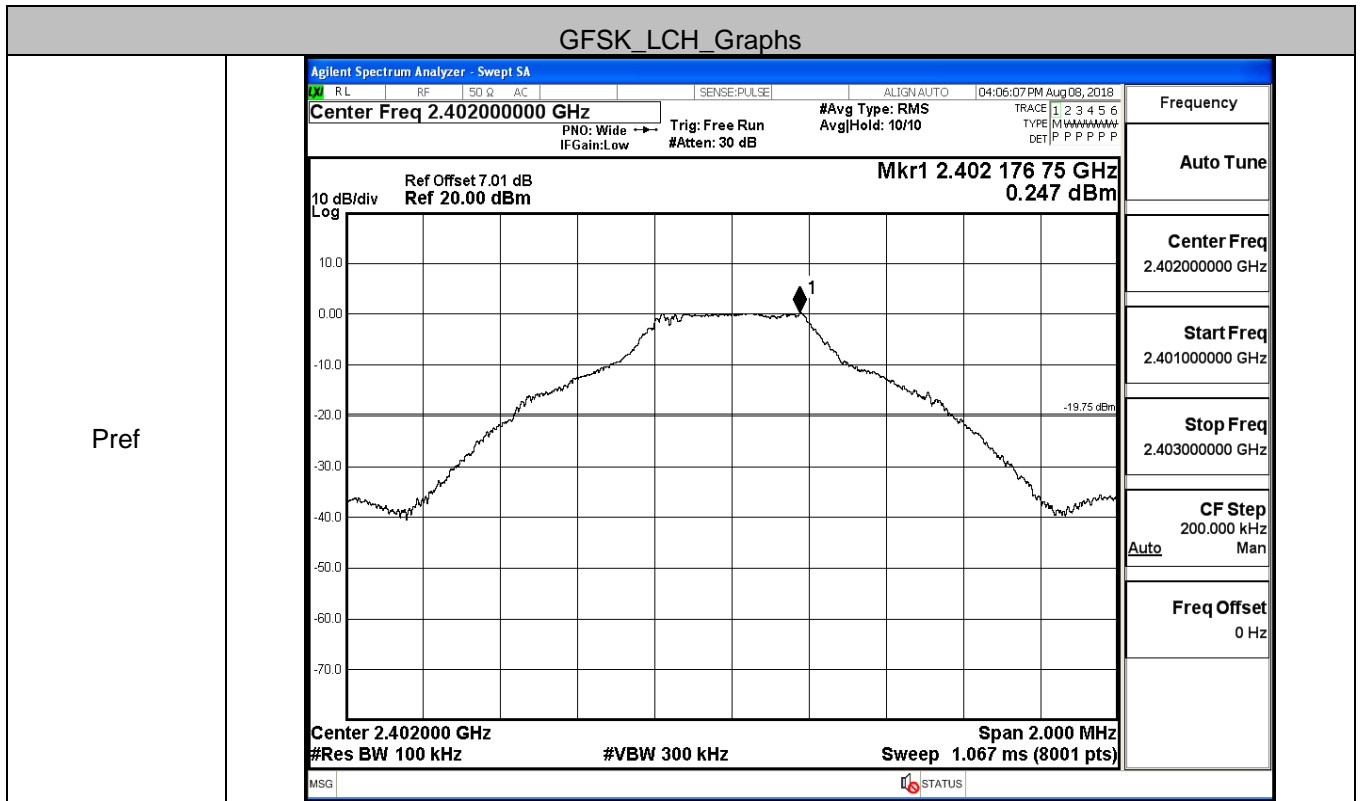
8DPSK_3DH5/HCH



A.6 RF Conducted Spurious Emissions

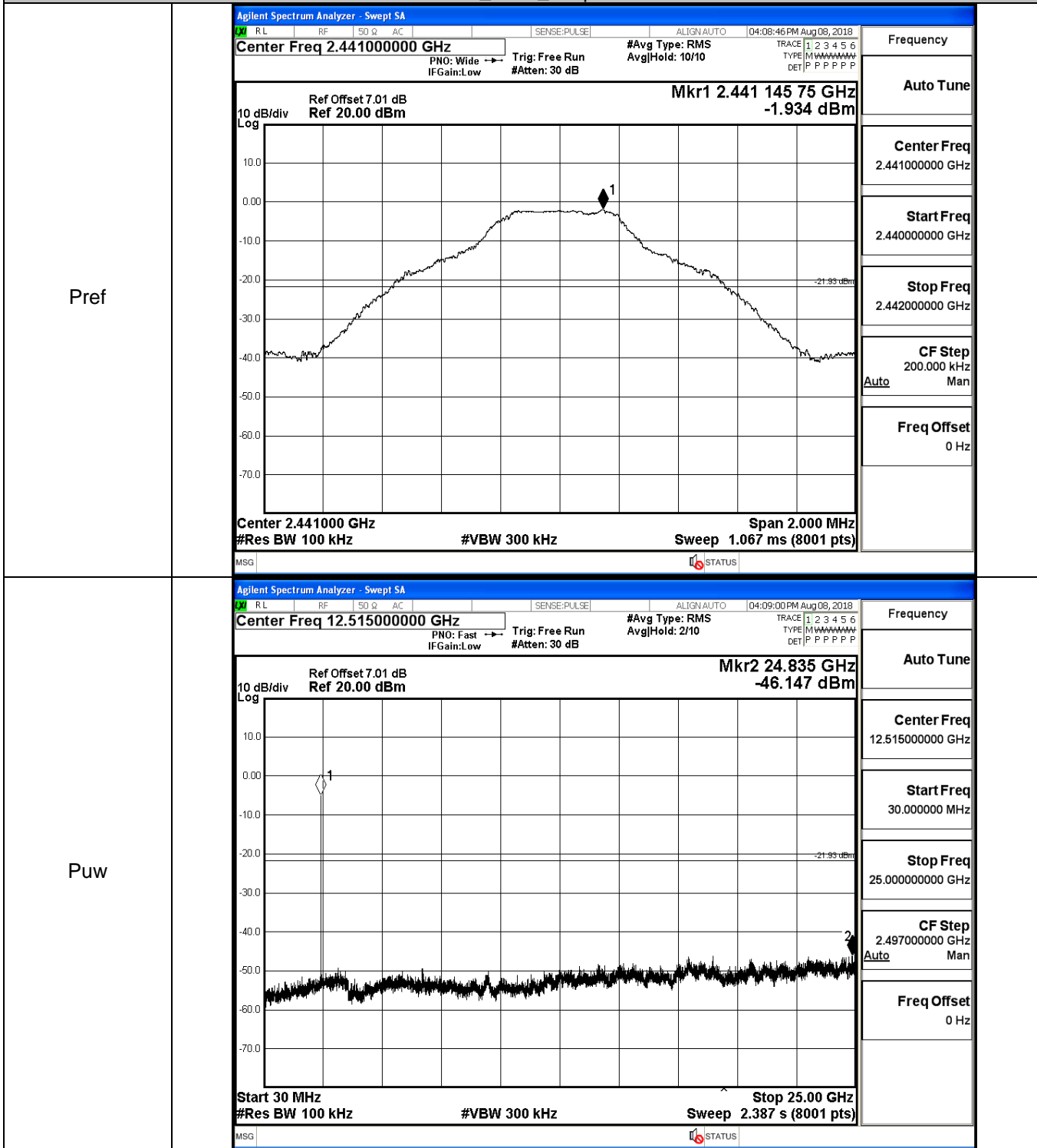
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.247	-45.270	-19.753	PASS
	MCH	-1.934	-46.147	-21.934	PASS
	HCH	-1.286	-45.258	-21.286	PASS
$\pi/4$ DQPSK	LCH	-0.735	-45.432	-20.735	PASS
	MCH	-2.777	-45.500	-22.777	PASS
	HCH	-2.508	-44.884	-22.508	PASS
8DPSK	LCH	-0.557	-45.301	-20.557	PASS
	MCH	-2.676	-45.064	-22.676	PASS
	HCH	-2.556	-46.043	-22.556	PASS

GFSK_LCH_Graphs

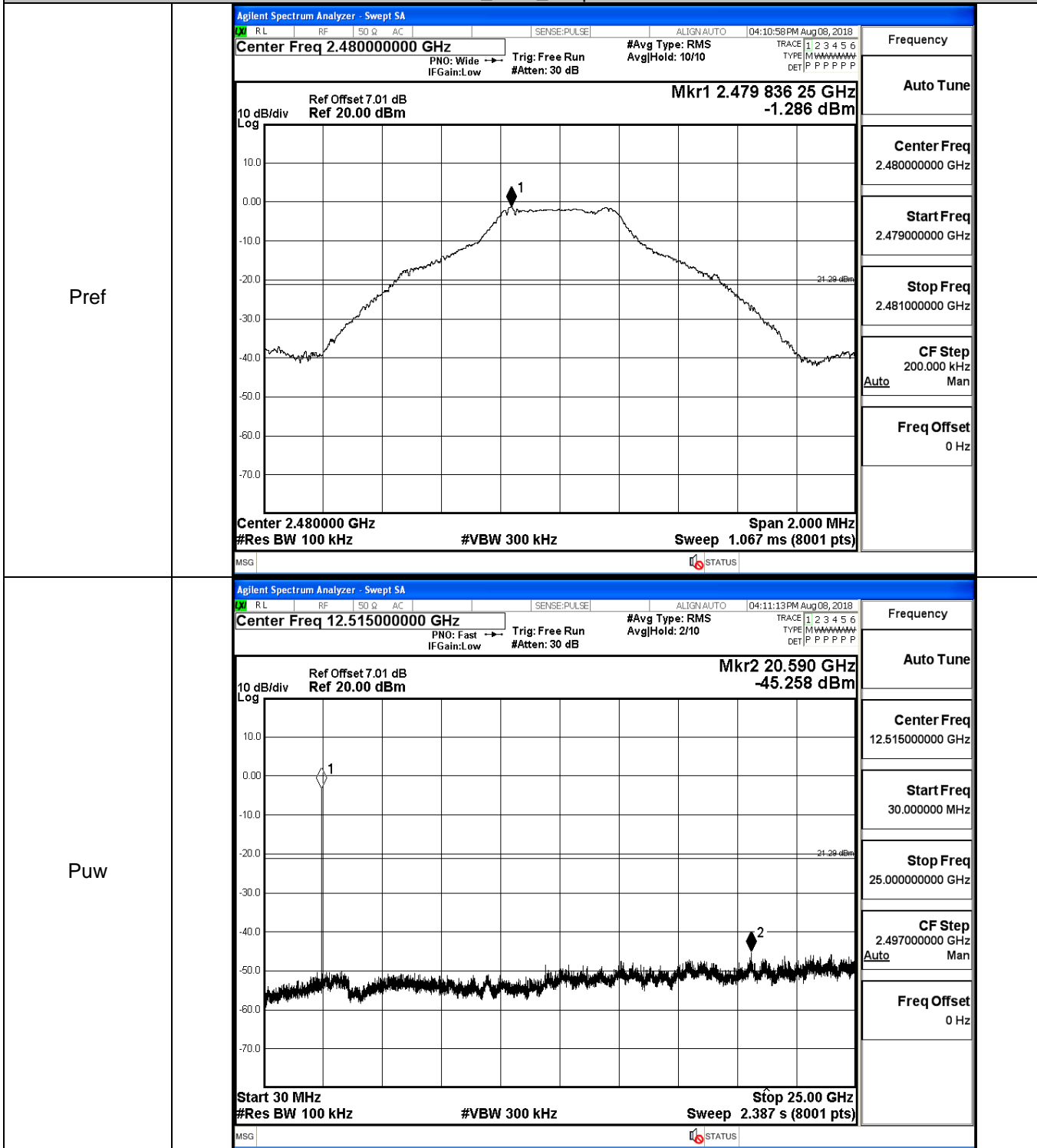


Pref

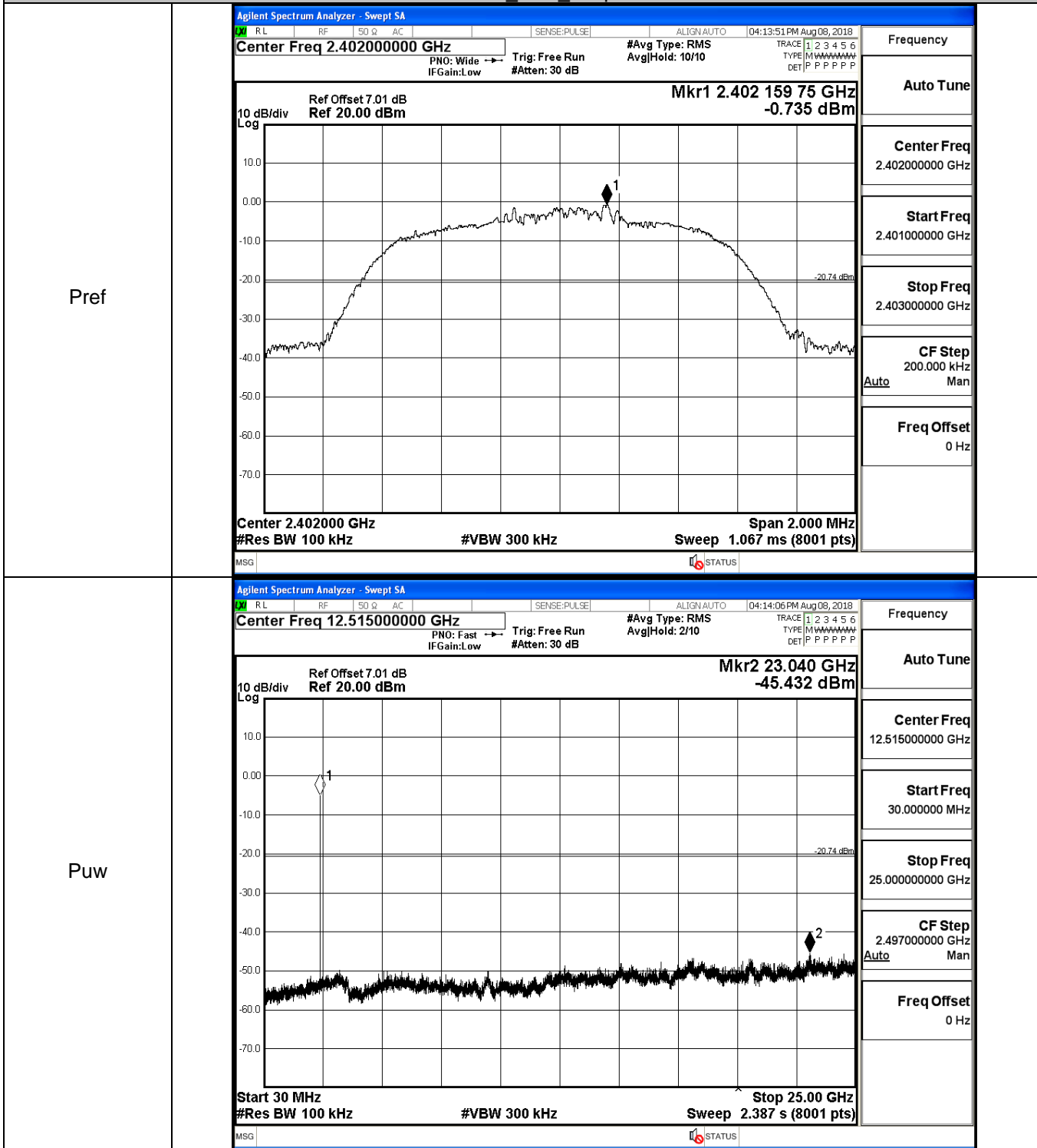
GFSK_MCH_Graphs



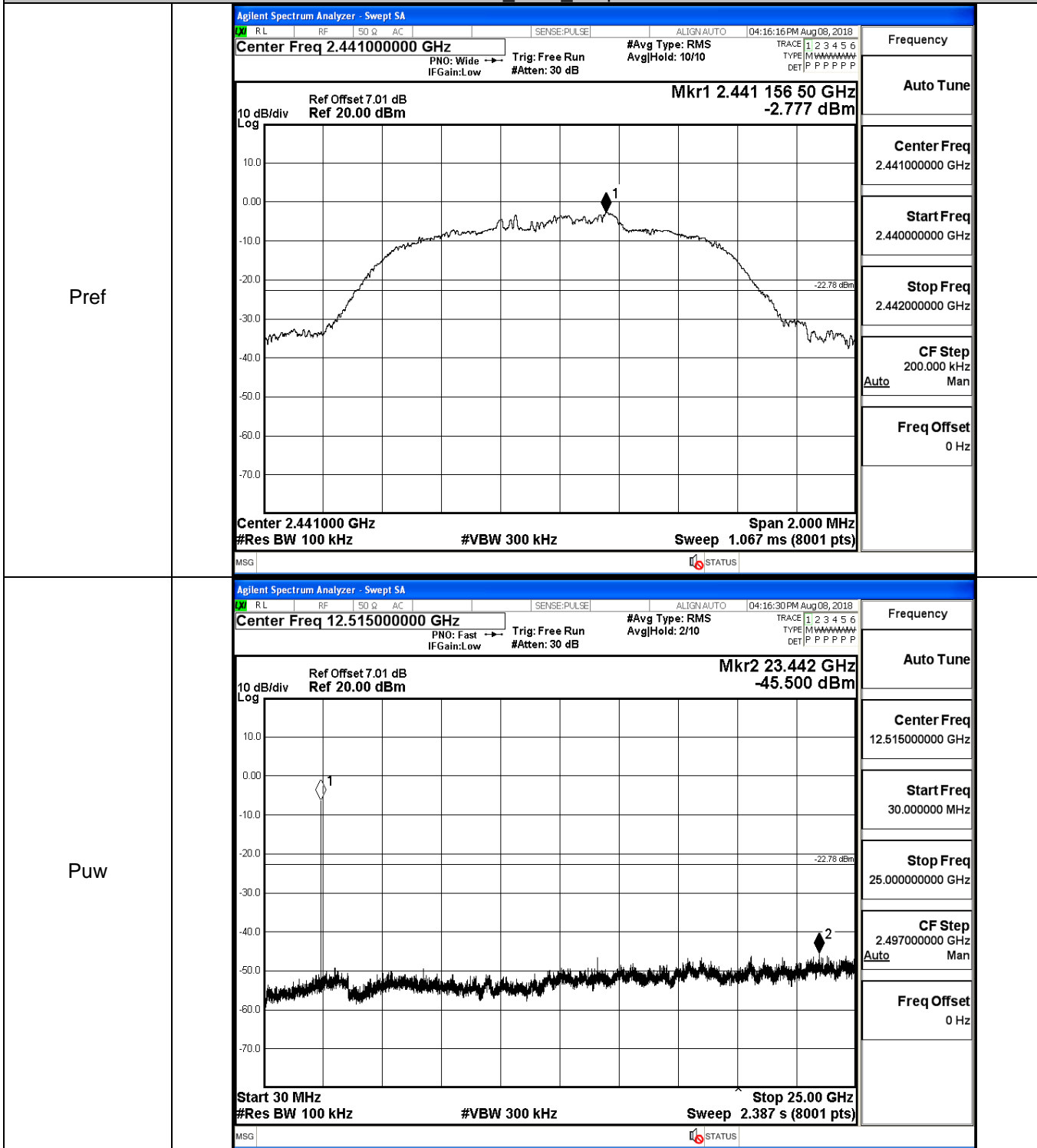
GFSK_HCH_Graphs



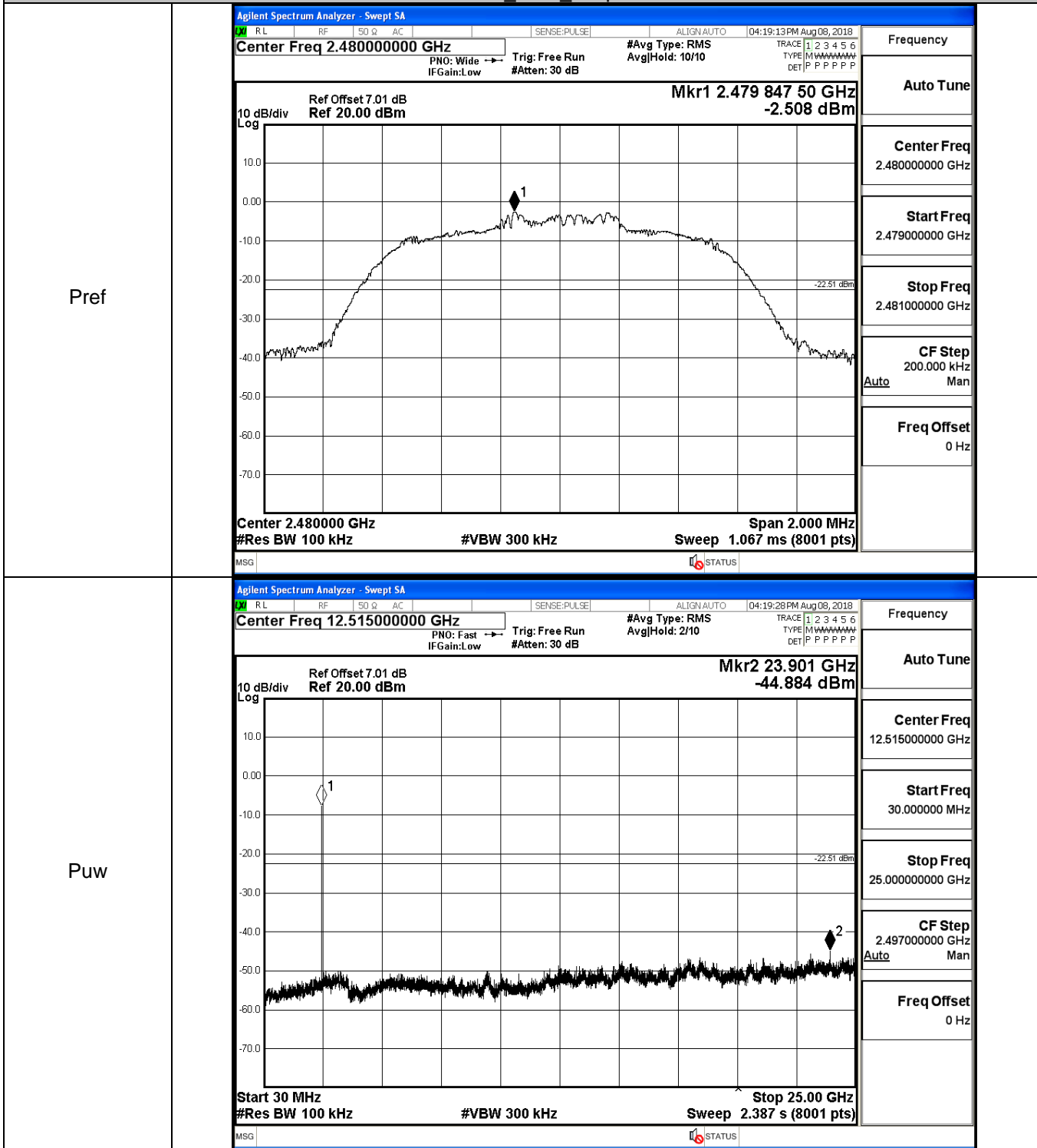
$\pi/4$ DQPSK_LCH_Graphs



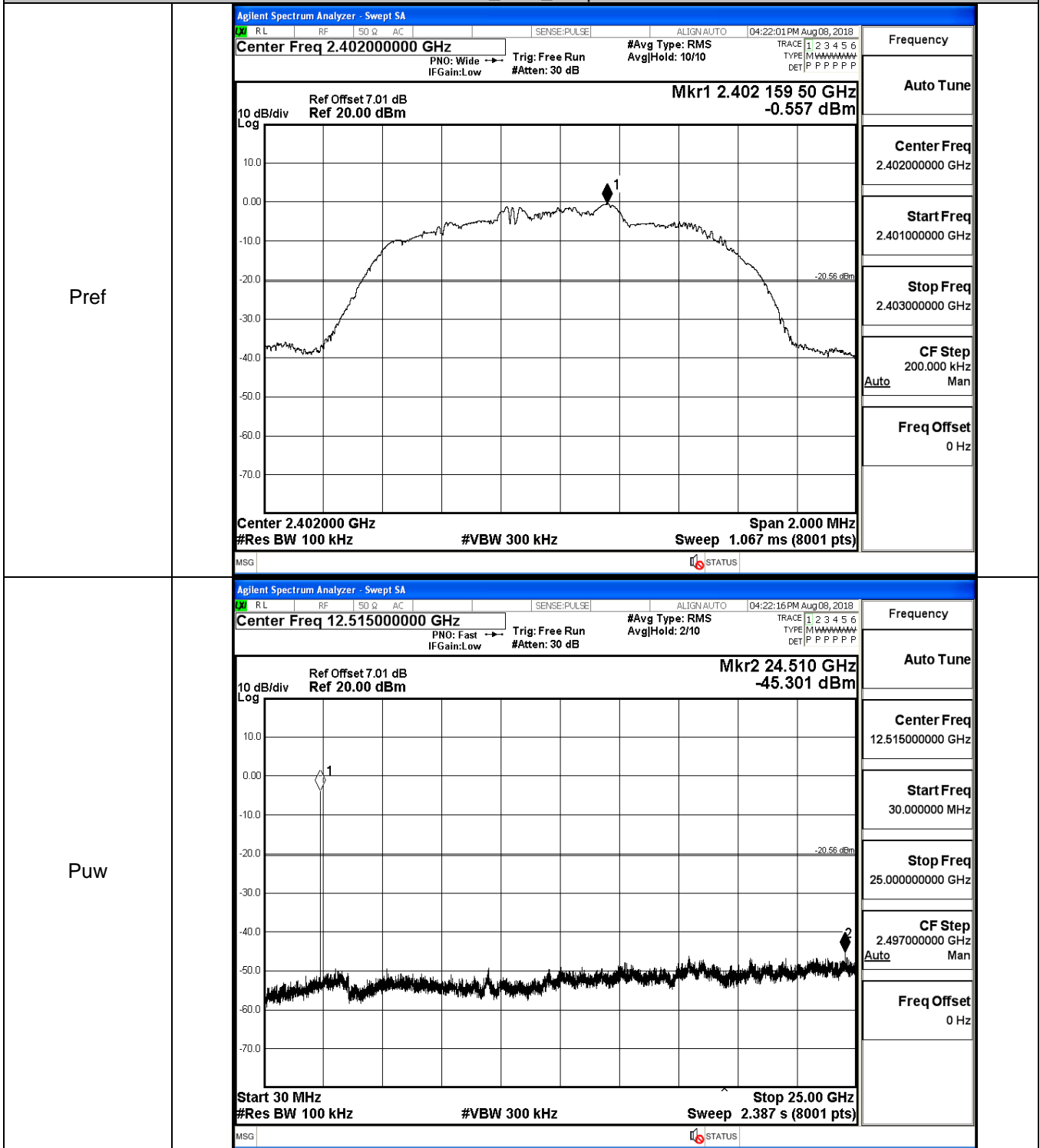
$\pi/4$ DQPSK_MCH_Graphs



$\pi/4$ DQPSK_HCH_Graphs

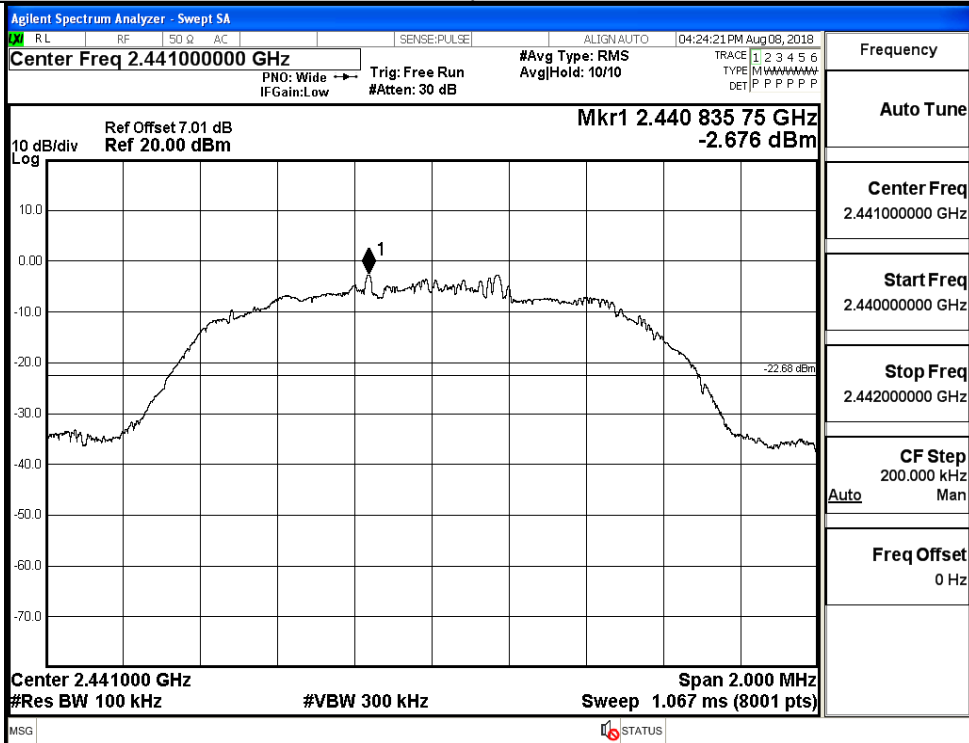


8DPSK_LCH_Graphs

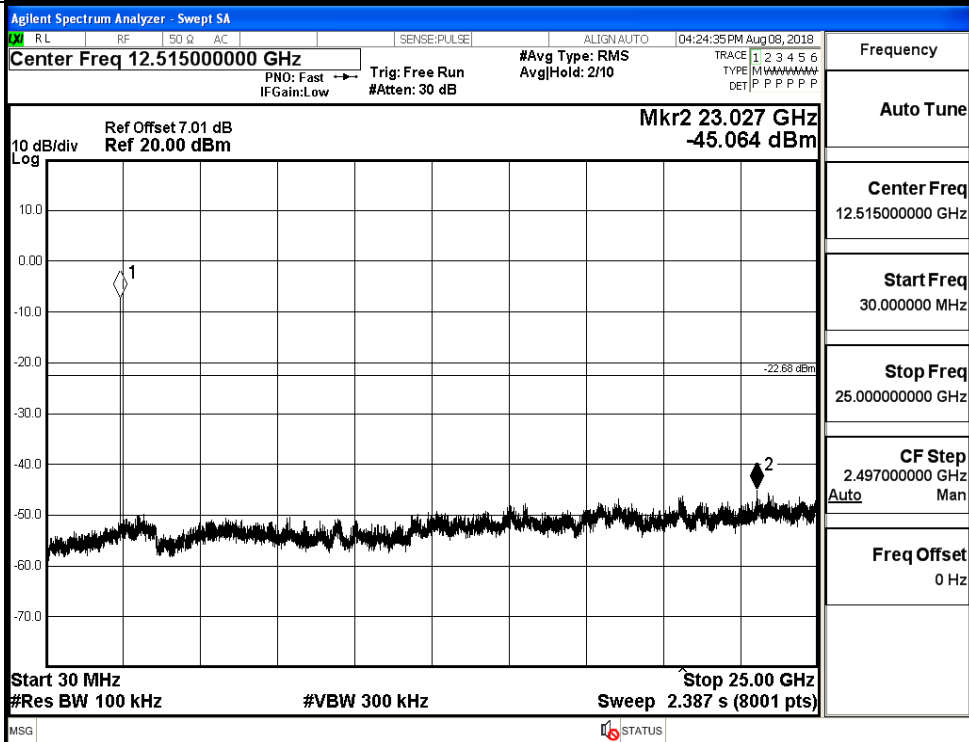


8DPSK_MCH_Graphs

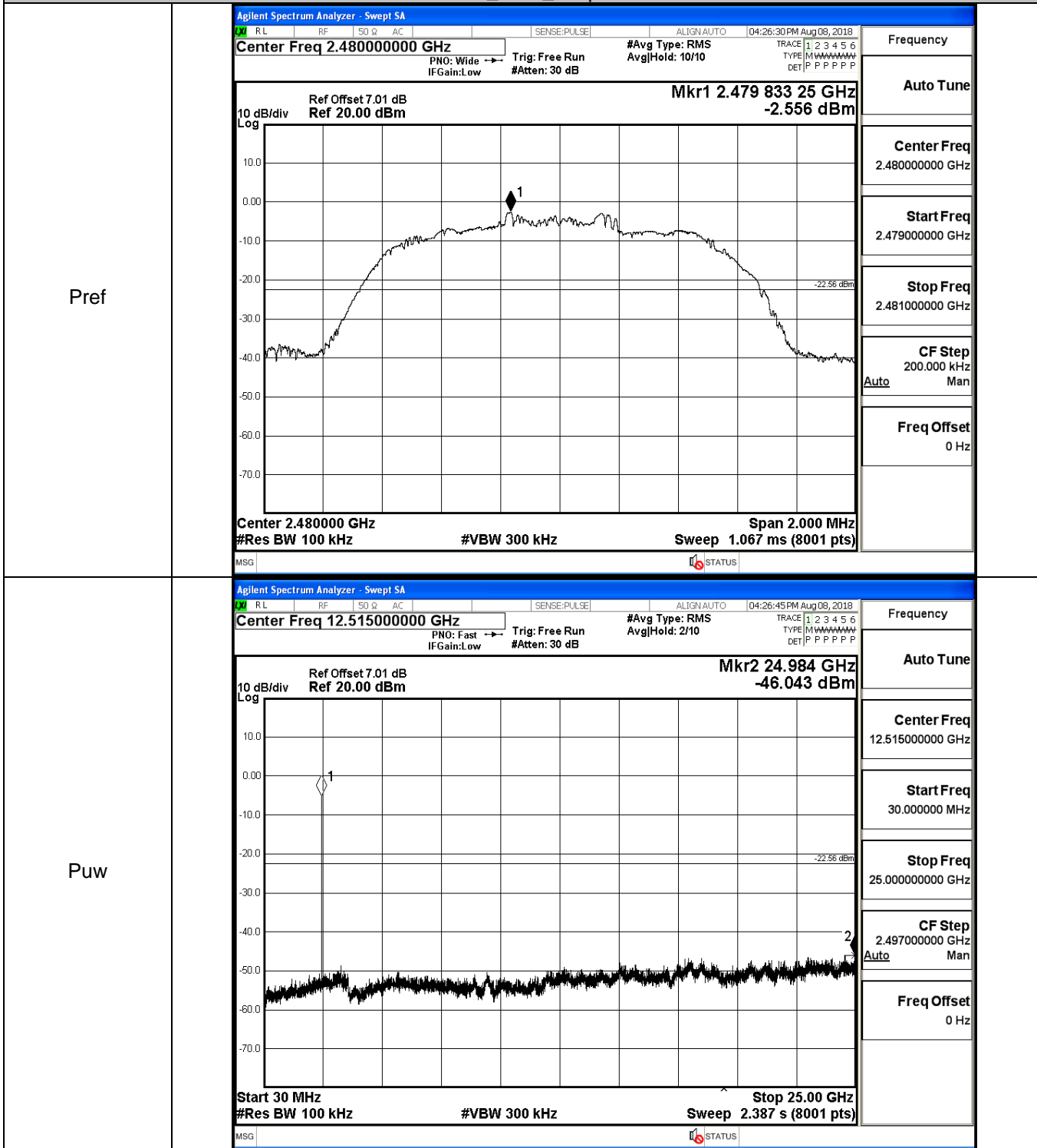
Pref



Puw



8DPSK_HCH_Graphs

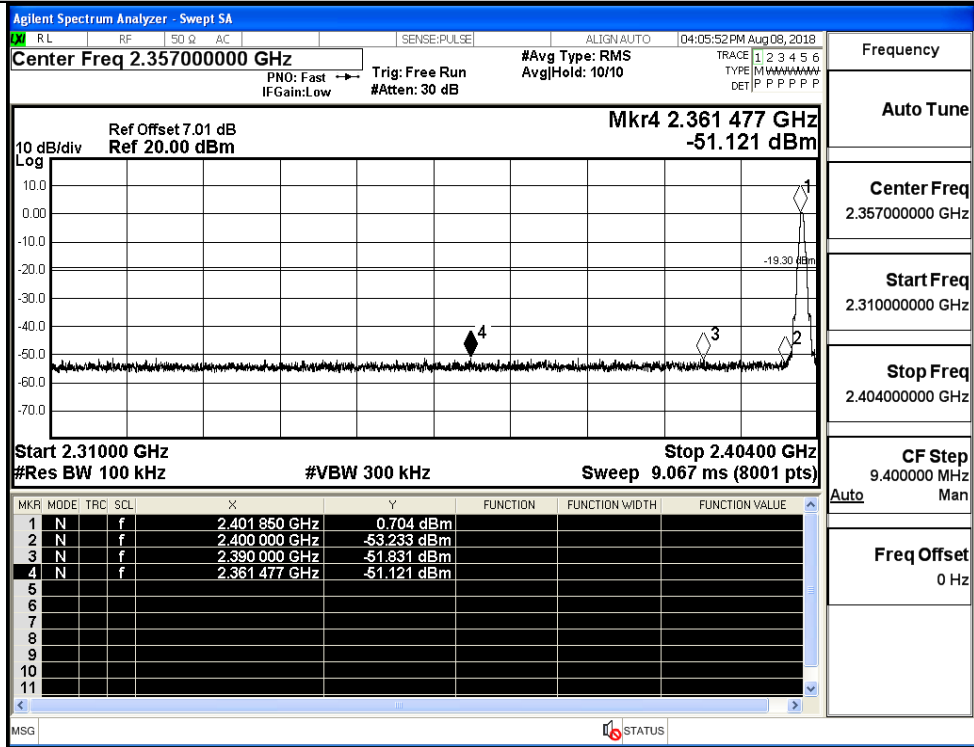


A.7 Band-edge for RF Conducted Emissions

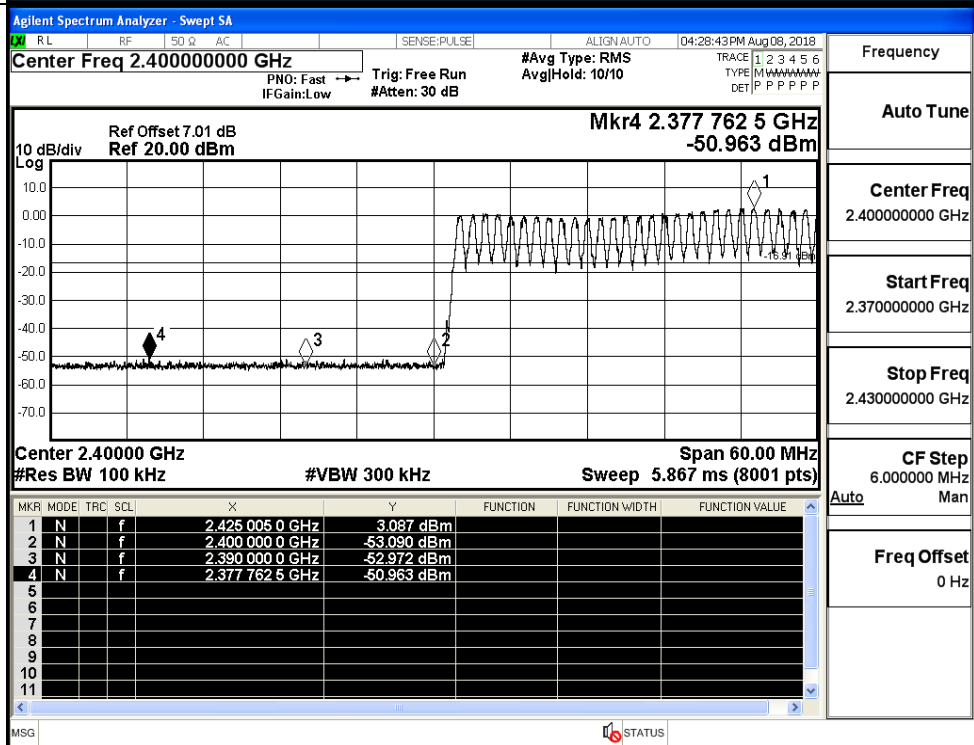
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	0.704	Off	-51.121	-19.3	PASS
			3.087	On	-50.963	-16.91	PASS
	HCH	2480	-1.197	Off	-50.098	-21.2	PASS
			1.890	On	-50.109	-18.11	PASS
$\pi/4$ DQPSK	LCH	2402	-2.759	Off	-50.439	-22.76	PASS
			1.728	On	-50.094	-18.27	PASS
	HCH	2480	-2.564	Off	-51.103	-22.56	PASS
			0.861	On	-49.790	-19.14	PASS
8DPSK	LCH	2402	-0.948	Off	-51.116	-20.95	PASS
			1.363	On	-50.899	-18.64	PASS
	HCH	2480	-2.570	Off	-50.903	-22.57	PASS
			-0.684	On	-49.807	-20.68	PASS

Test Graphs

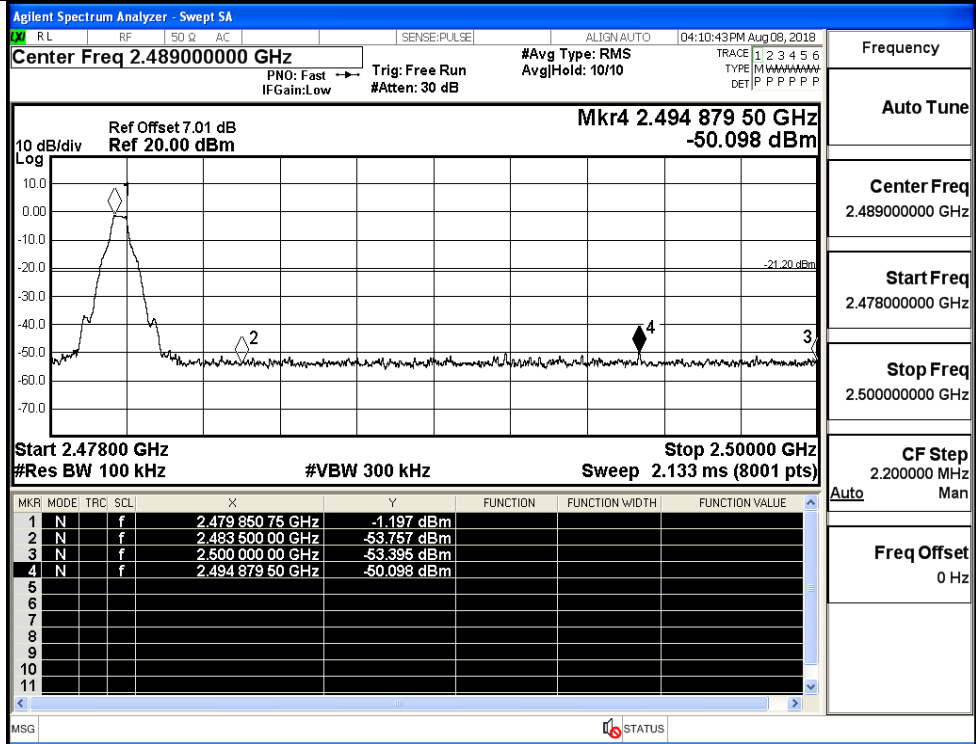
GFSK/LCH/No Hop



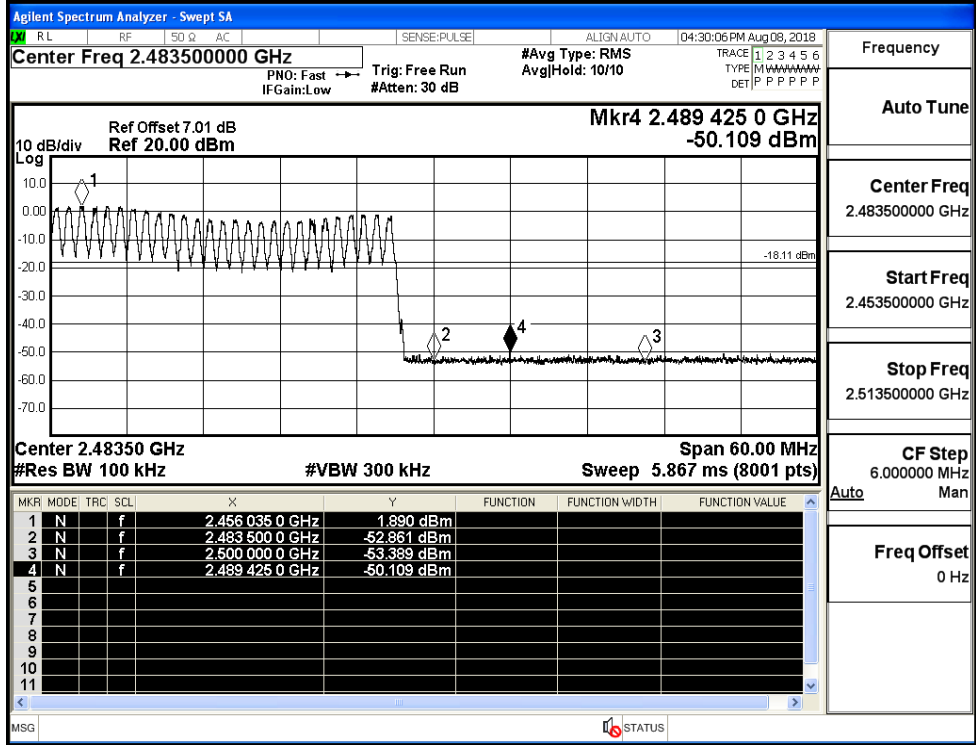
GFSK/LCH/Hop



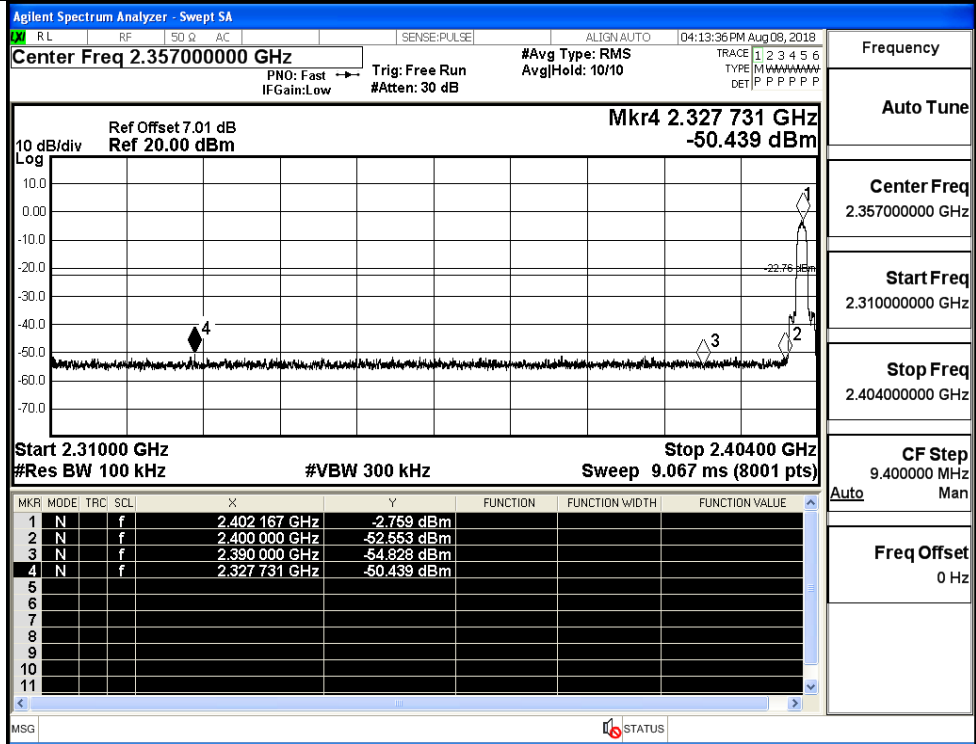
GFSK/HCH/No Hop



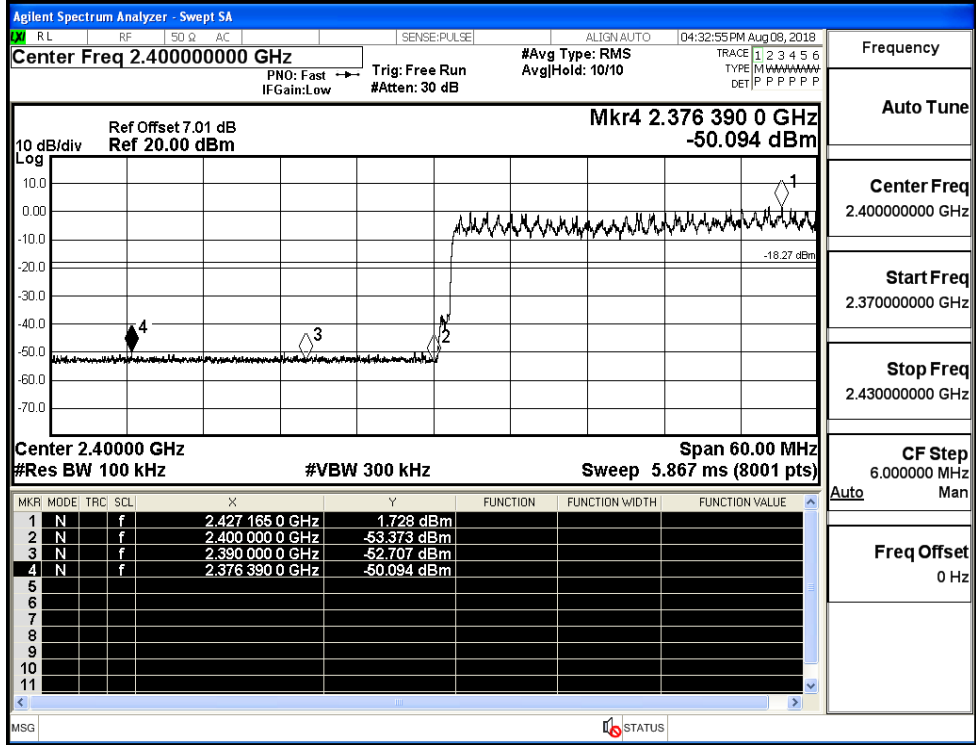
GFSK/HCH/Hop



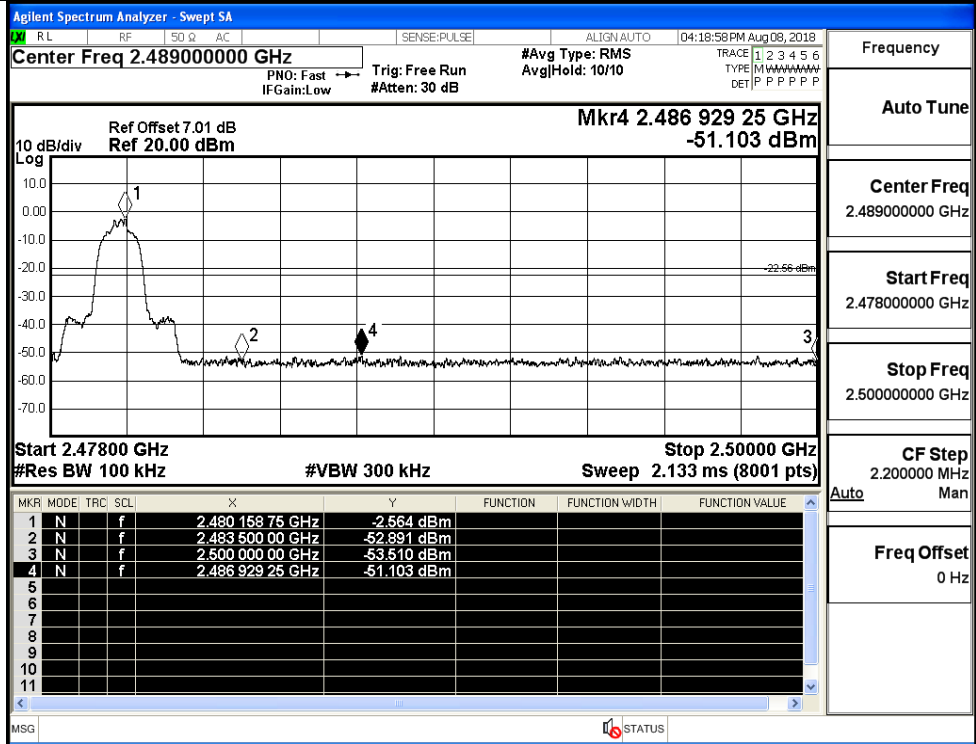
$\pi/4$ DQPSK/LCH/No
Hop



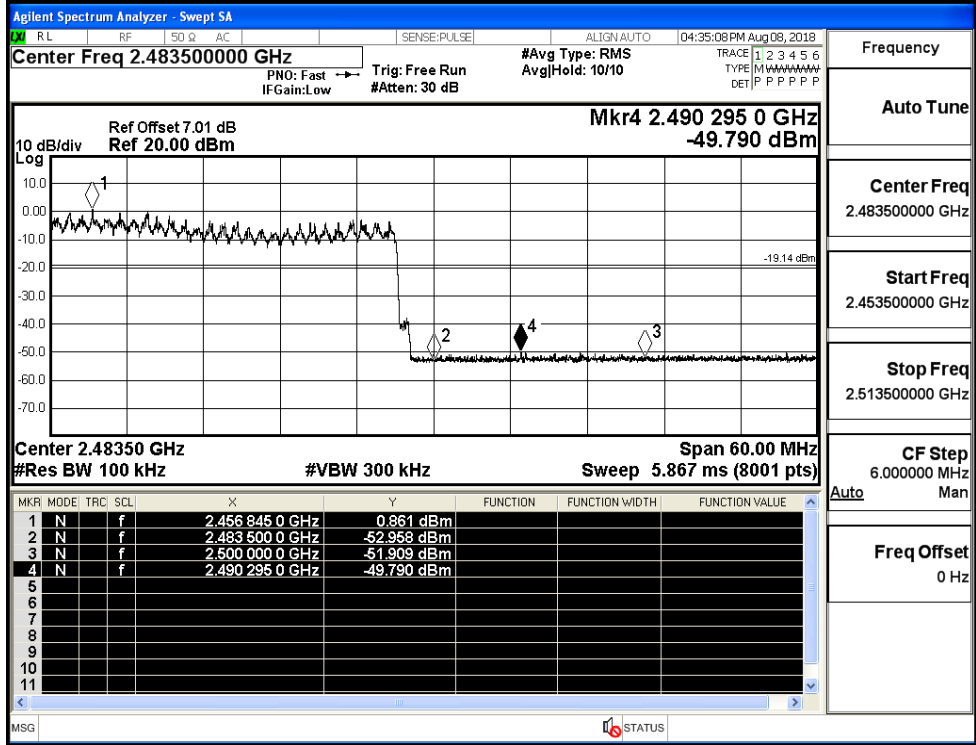
$\pi/4$ DQPSK/LCH/Hop



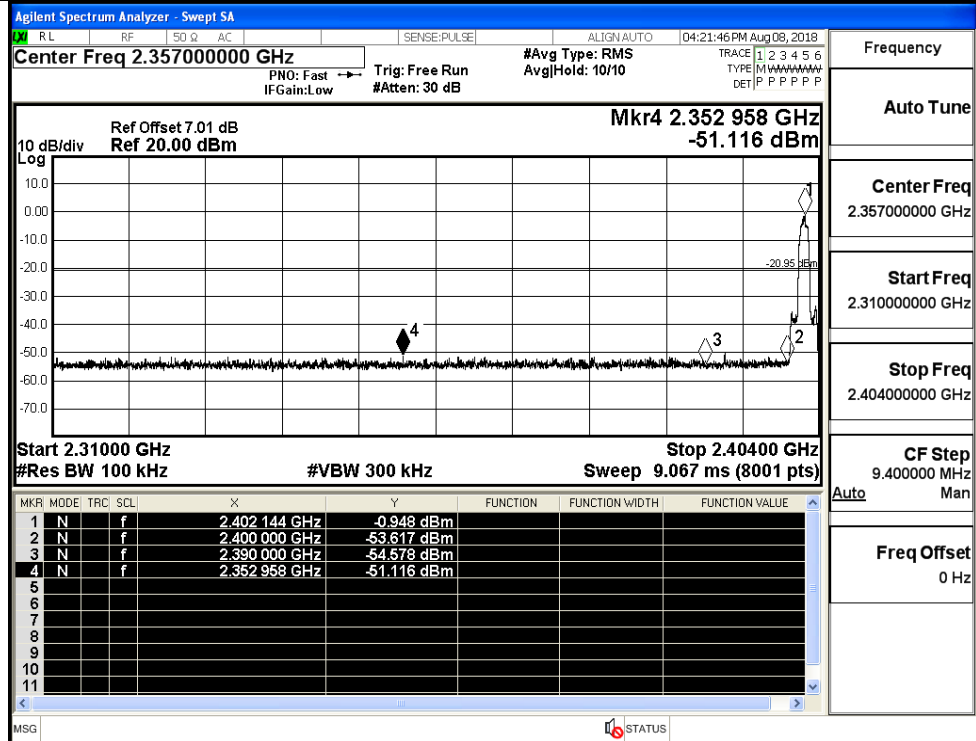
π /4DQPSK/HCH/No
Hop



π /4DQPSK/HCH/Hop

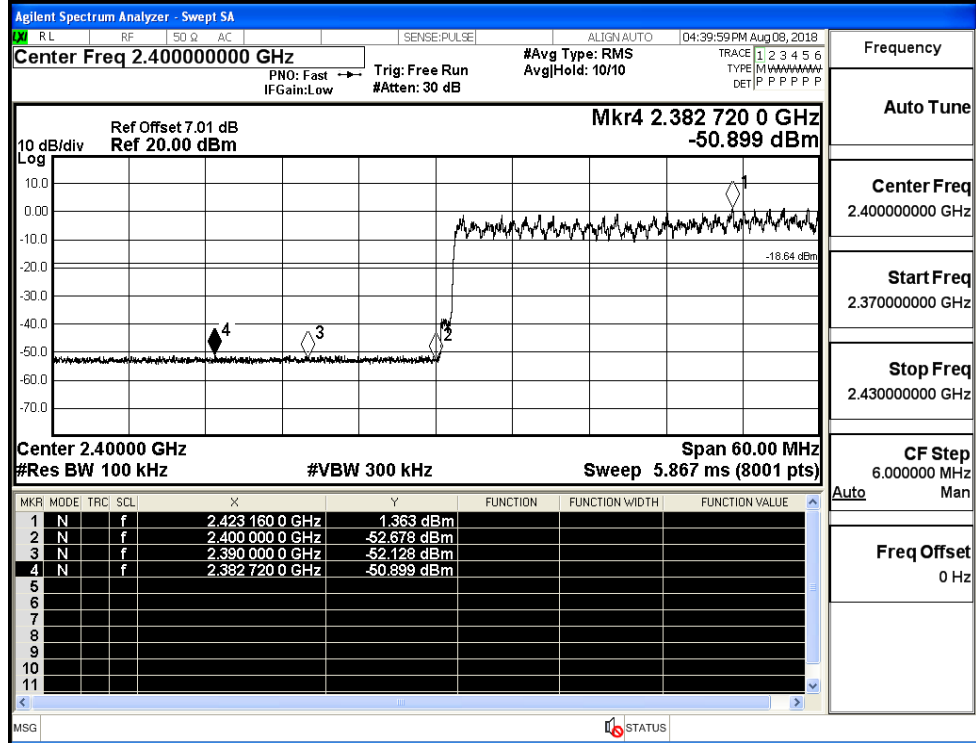


8DPSK/LCH/No Hop



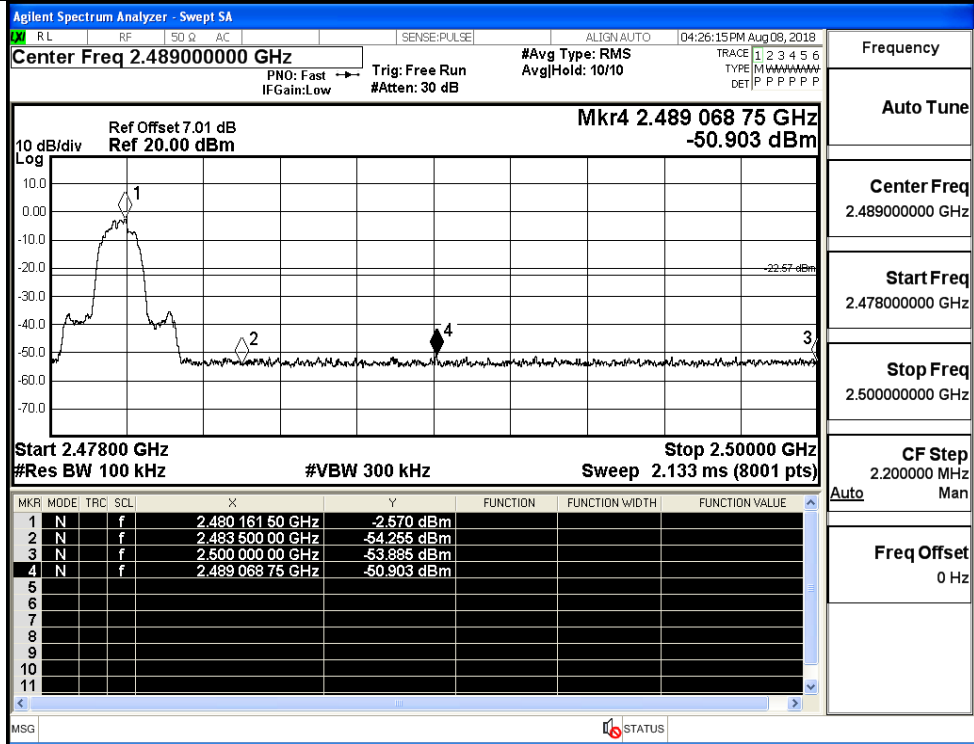
Frequency
Auto Tune
Center Freq
2.357000000 GHz
Start Freq
2.310000000 GHz
Stop Freq
2.404000000 GHz
CF Step
9.400000 MHz
Auto Man
Freq Offset
0 Hz

8DPSK/LCH/Hop



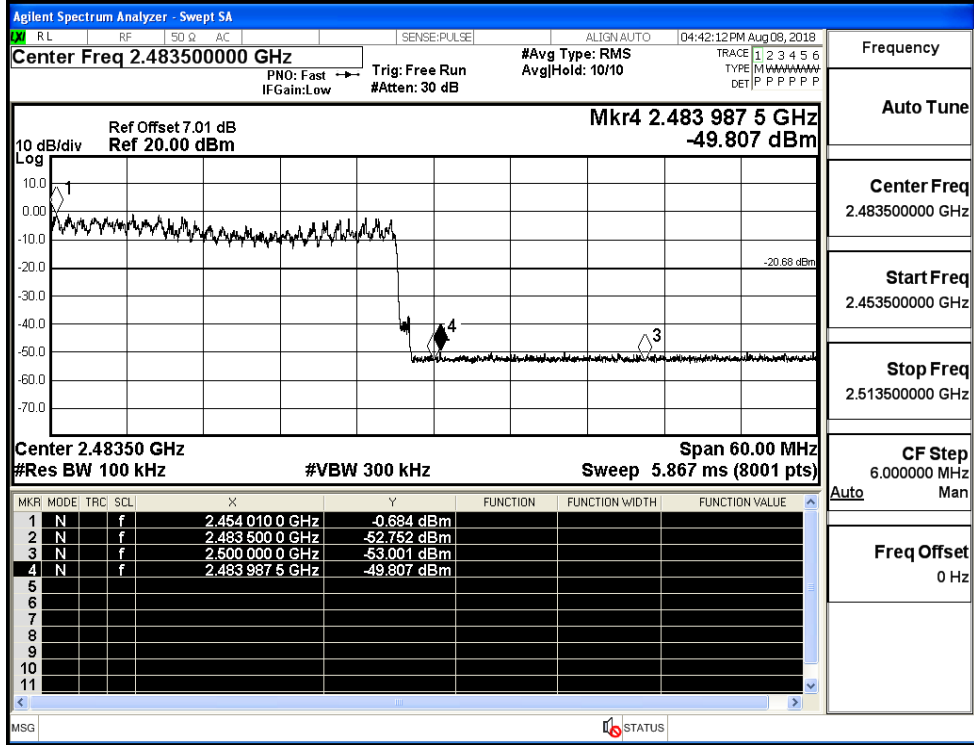
Frequency
Auto Tune
Center Freq
2.400000000 GHz
Start Freq
2.370000000 GHz
Stop Freq
2.430000000 GHz
CF Step
6.000000 MHz
Auto Man
Freq Offset
0 Hz

8DPSK/HCH/No Hop



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

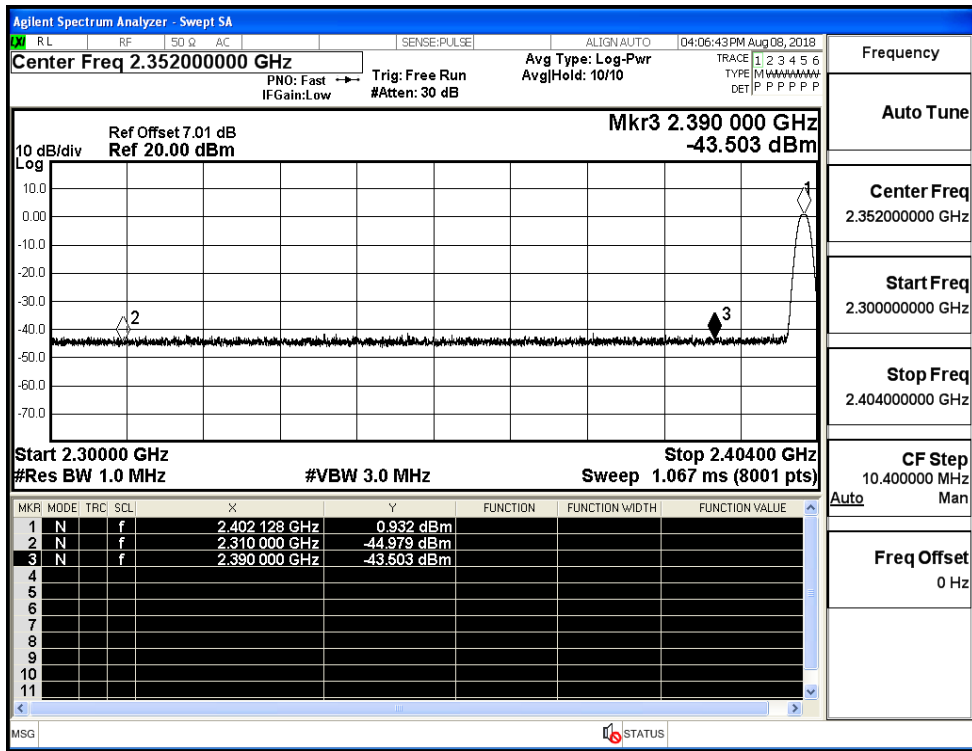


Frequency	
Auto Tune	
Center Freq	2.483500000 GHz
Start Freq	2.453500000 GHz
Stop Freq	2.513500000 GHz
CF Step	6.000000 MHz
Auto	Man
Freq Offset	0 Hz

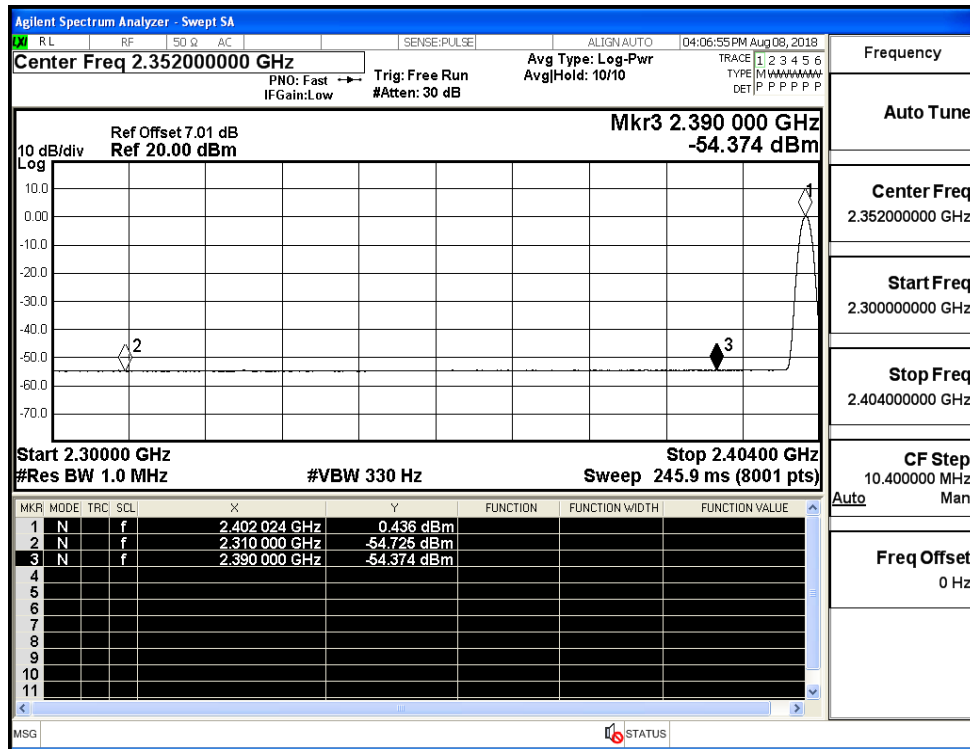
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-44.98	2.0	0	52.28	PEAK	74	PASS
	Off	2310.0	-54.73	2.0	0	42.53	AV	54	PASS
	Off	2390.0	-43.50	2.0	0	53.75	PEAK	74	PASS
	Off	2390.0	-54.37	2.0	0	42.88	AV	54	PASS
	Off	2483.5	-43.08	2.0	0	54.17	PEAK	74	PASS
	Off	2483.5	-54.23	2.0	0	43.03	AV	54	PASS
	Off	2500.0	-43.90	2.0	0	53.36	PEAK	74	PASS
	Off	2500.0	-54.12	2.0	0	43.13	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.27	2.0	0	54.99	PEAK	74	PASS
	Off	2310.0	-54.70	2.0	0	42.56	AV	54	PASS
	Off	2390.0	-44.97	2.0	0	52.29	PEAK	74	PASS
	Off	2390.0	-54.52	2.0	0	42.74	AV	54	PASS
	Off	2483.5	-43.96	2.0	0	53.30	PEAK	74	PASS
	Off	2483.5	-54.11	2.0	0	43.14	AV	54	PASS
	Off	2500.0	-44.54	2.0	0	52.72	PEAK	74	PASS
	Off	2500.0	-54.08	2.0	0	43.18	AV	54	PASS
8DPSK	Off	2310.0	-43.24	2.0	0	54.02	PEAK	74	PASS
	Off	2310.0	-54.71	2.0	0	42.54	AV	54	PASS
	Off	2390.0	-44.38	2.0	0	52.88	PEAK	74	PASS
	Off	2390.0	-54.43	2.0	0	42.83	AV	54	PASS
	Off	2483.5	-43.80	2.0	0	53.46	PEAK	74	PASS
	Off	2483.5	-54.21	2.0	0	43.05	AV	54	PASS
	Off	2500.0	-43.15	2.0	0	54.10	PEAK	74	PASS
	Off	2500.0	-54.03	2.0	0	43.22	AV	54	PASS

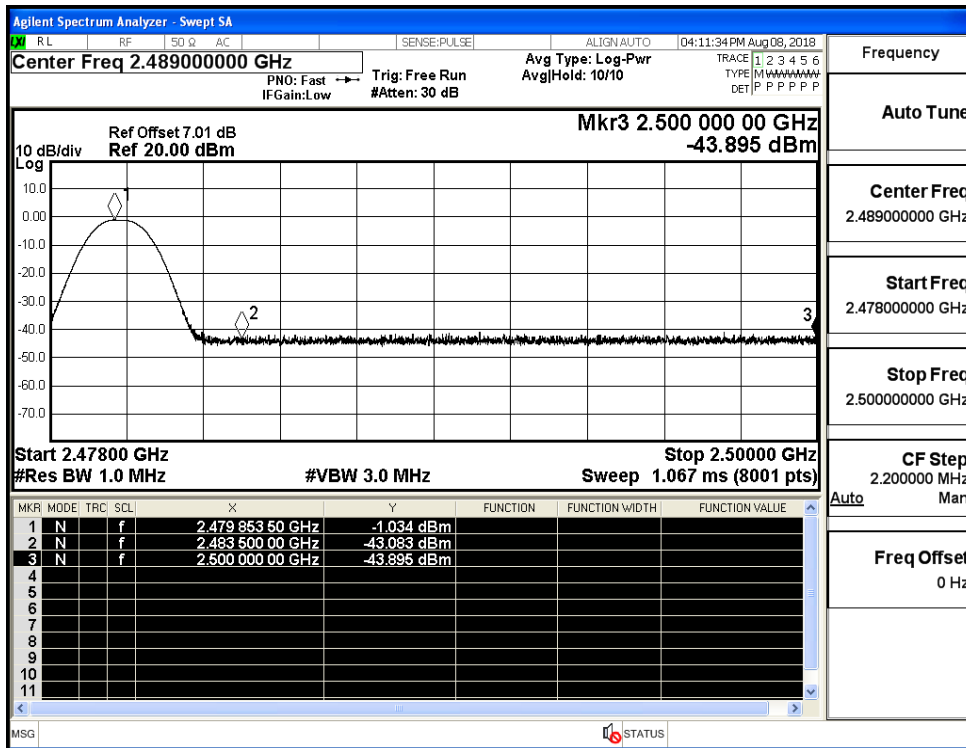
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



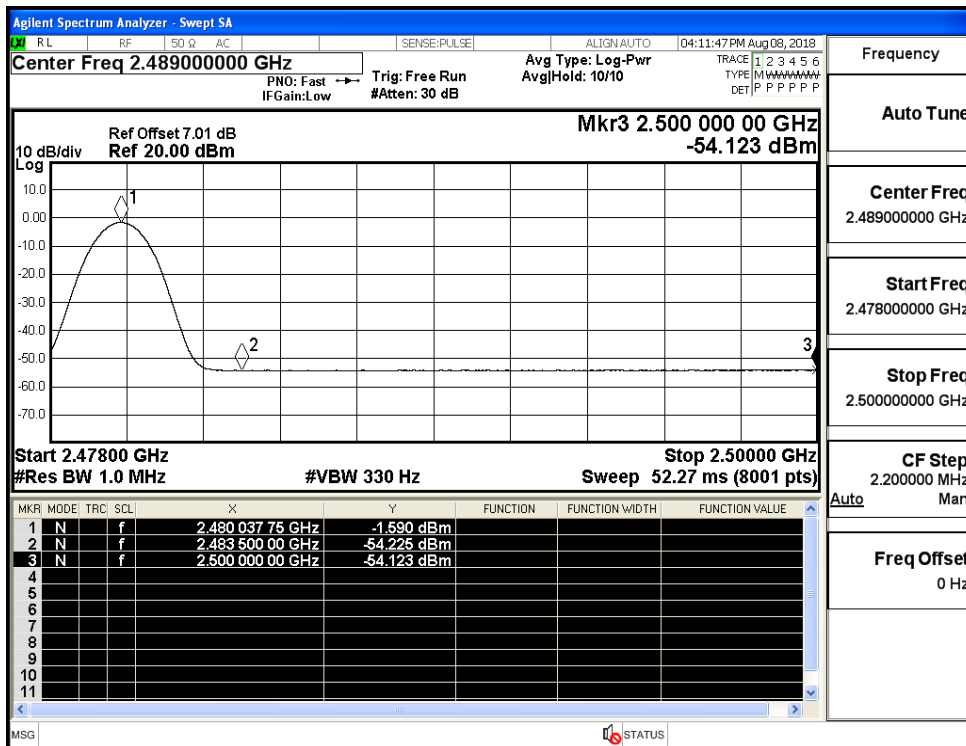
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



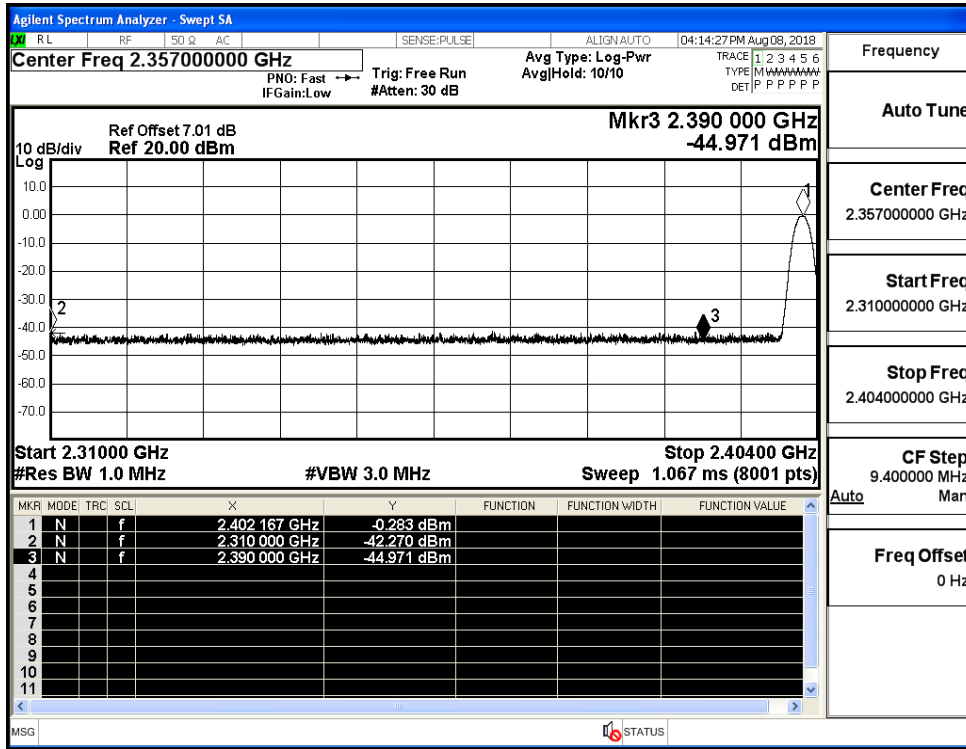
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



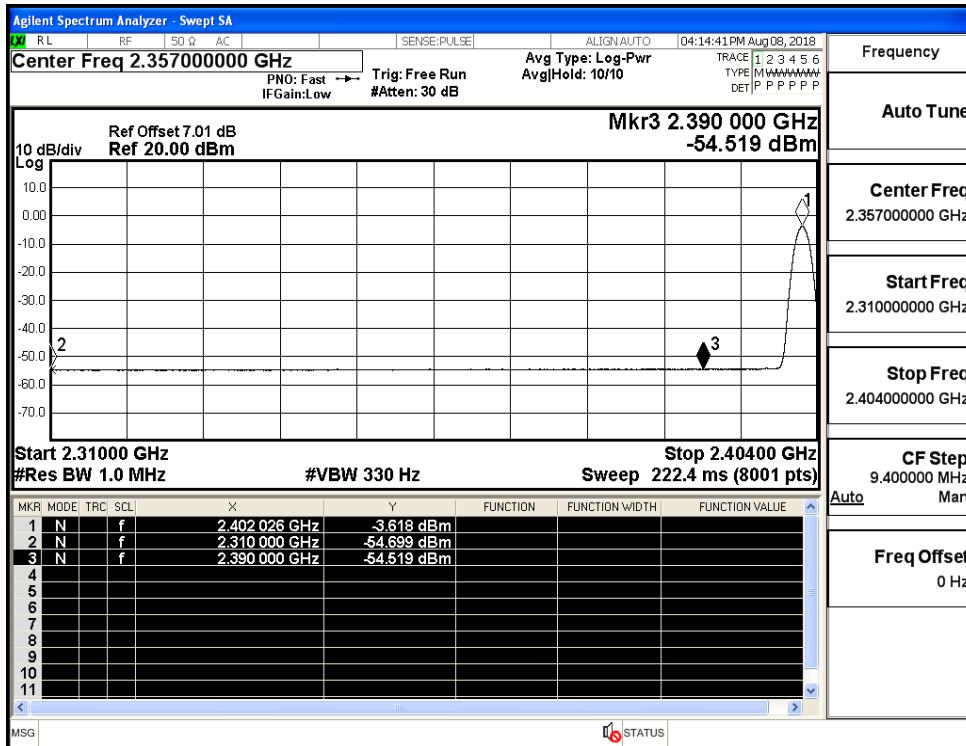
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



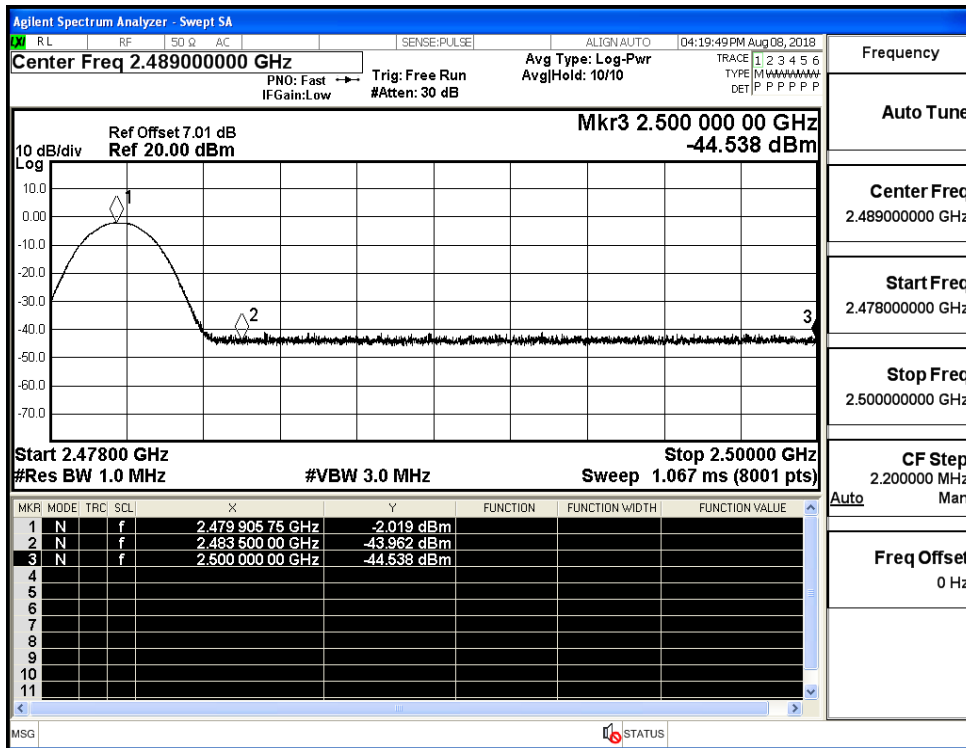
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)



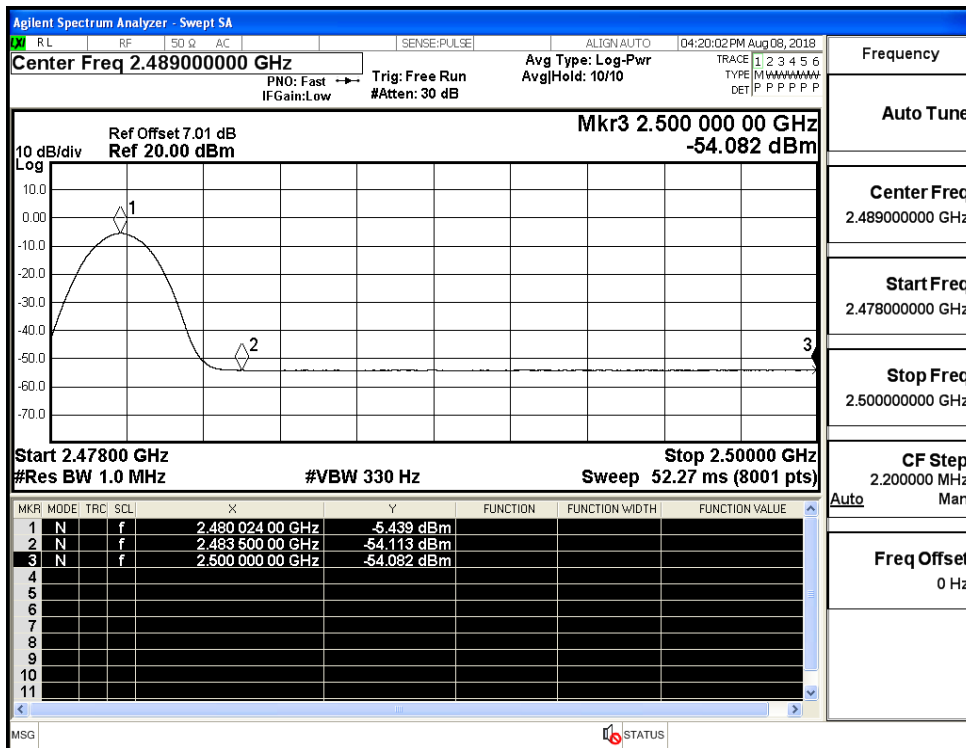
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)



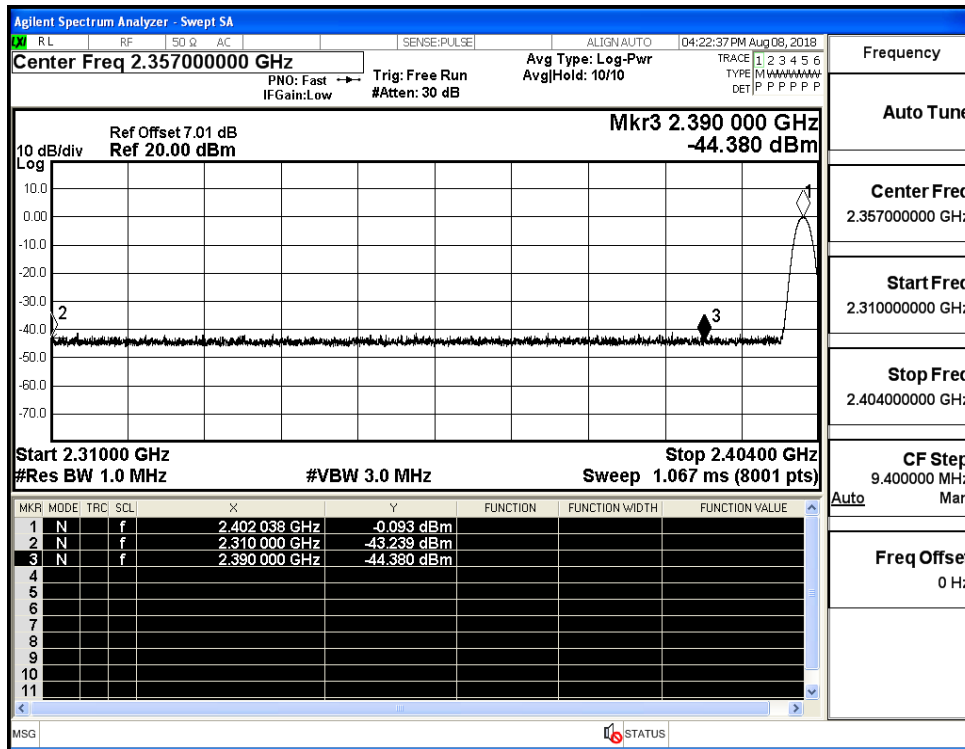
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



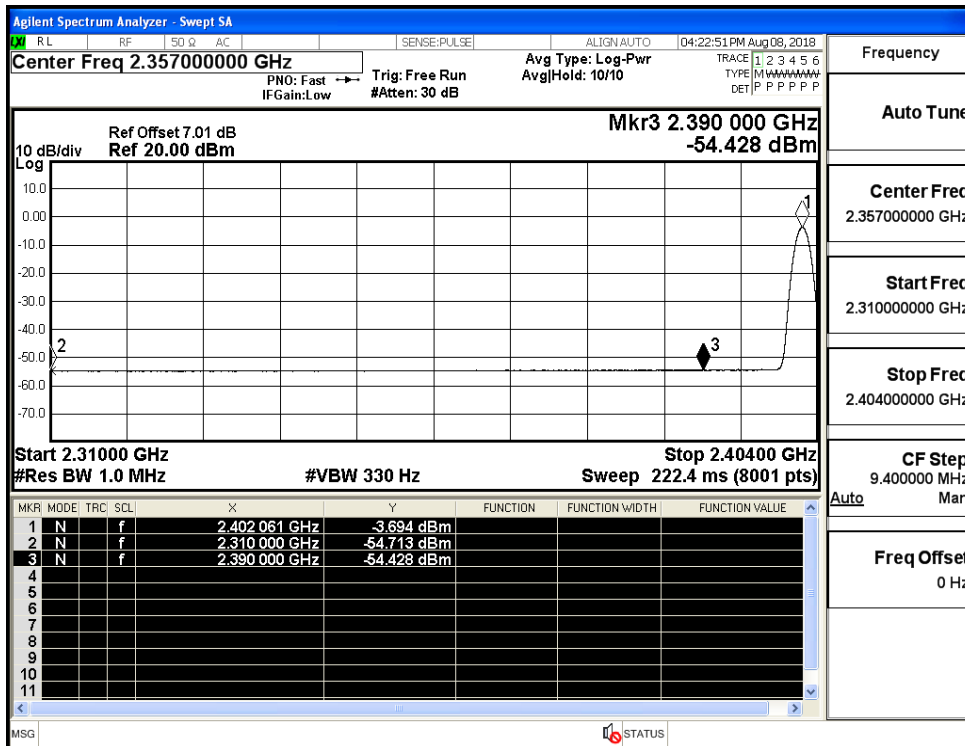
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



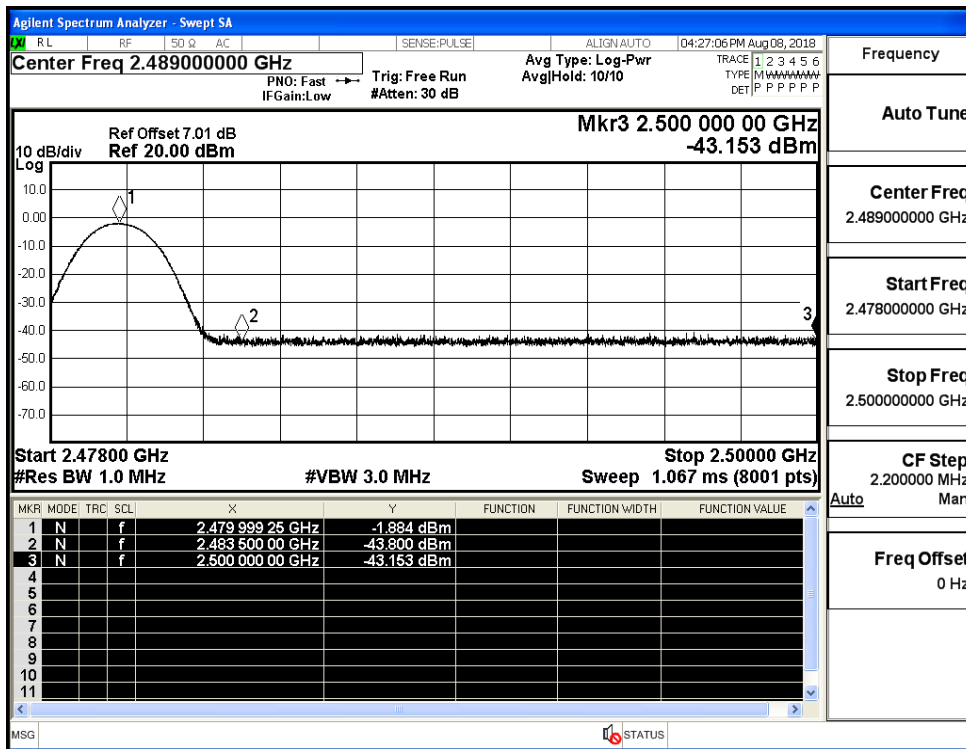
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

