

Appendix A

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

Product Name: Digital Audio Player

Trade Mark: N/A

Test Model: PAW Gold Touch

Environmental Conditions

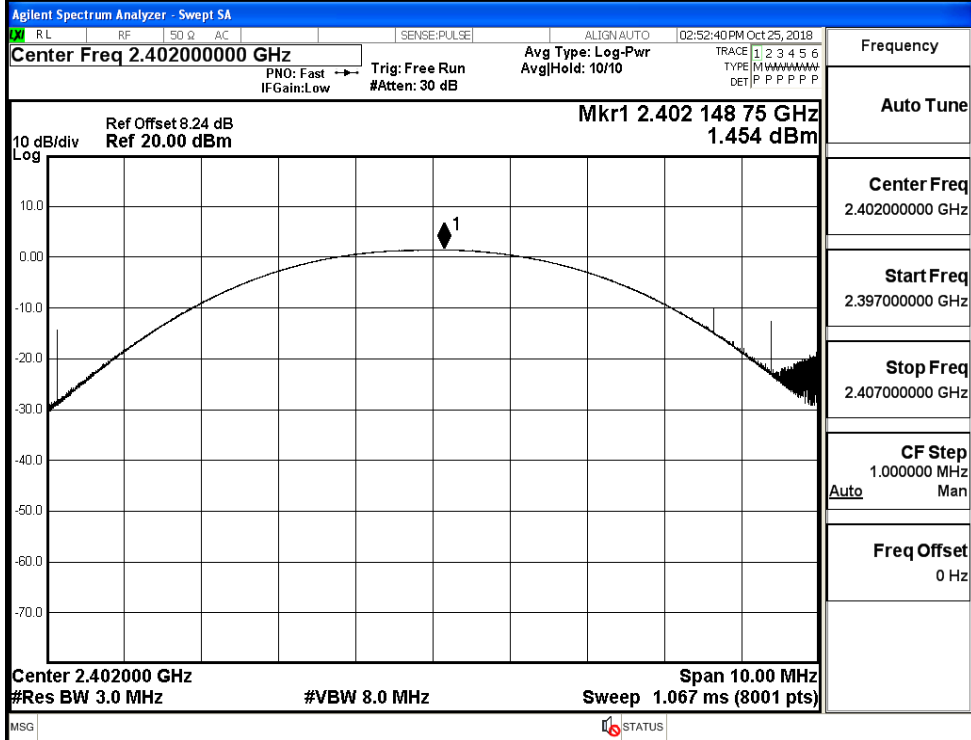
Temperature:	24.1 °C
Relative Humidity:	53.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Diamond.Lu
Supervised by:	Jayden.Zhuo

A.1 Maxmum Conducted Peak Output Power

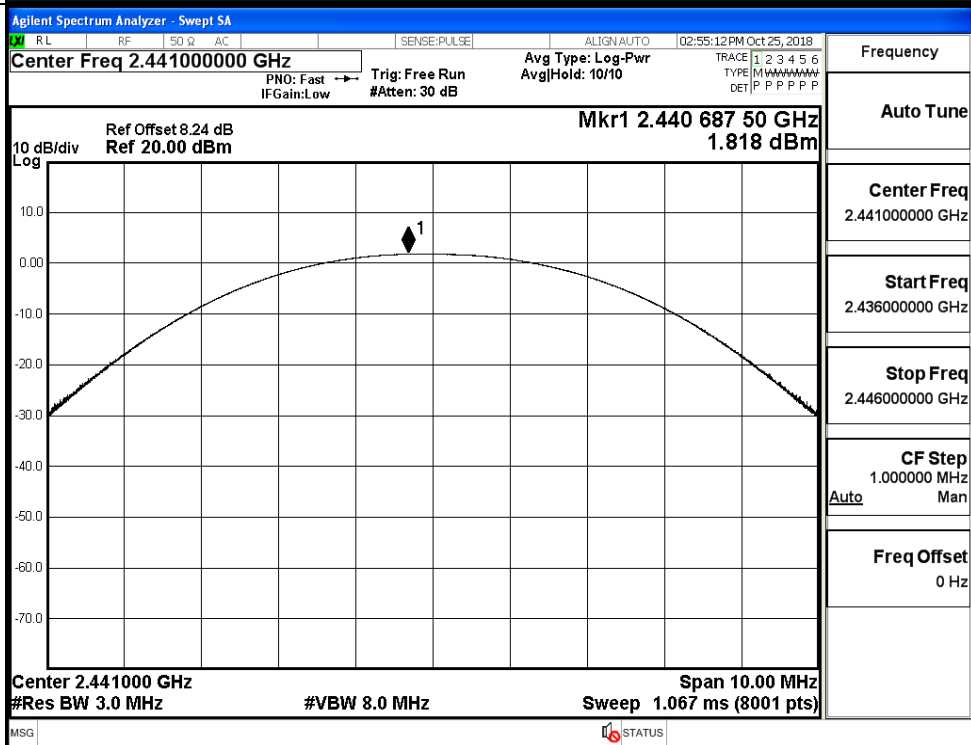
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.454	30	PASS
	MCH	1.818	30	PASS
	HCH	0.942	30	PASS
$\pi/4$ DQPSK	LCH	0.643	21	PASS
	MCH	-0.194	21	PASS
	HCH	0.575	21	PASS
8DPSK	LCH	0.847	21	PASS
	MCH	1.237	21	PASS
	HCH	0.424	21	PASS

Test Graphs

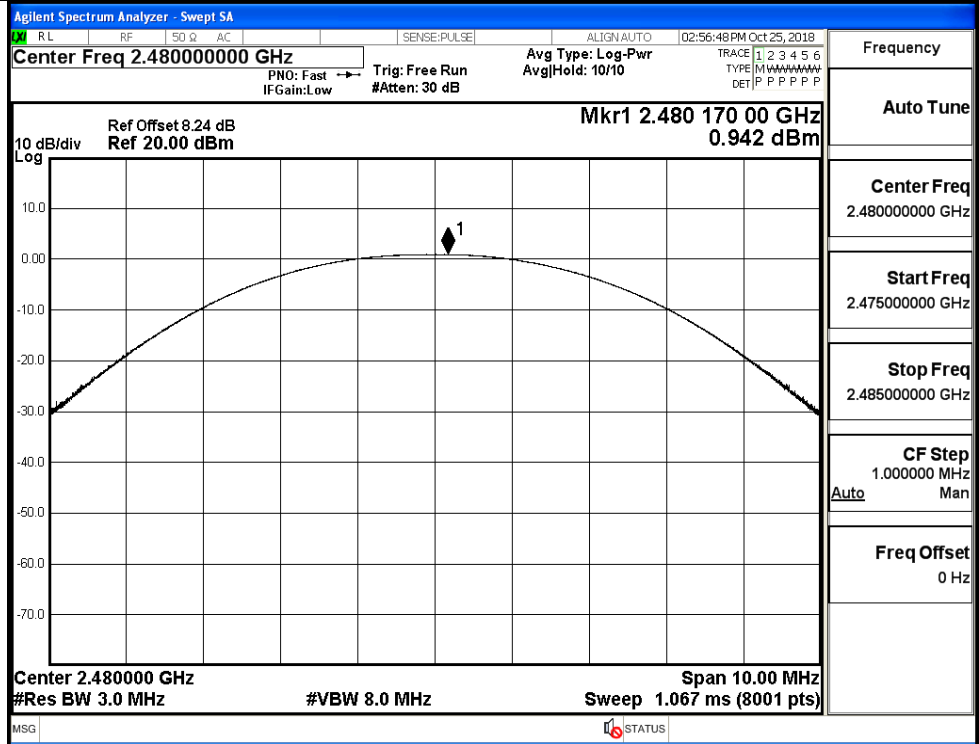
GFSK/LCH



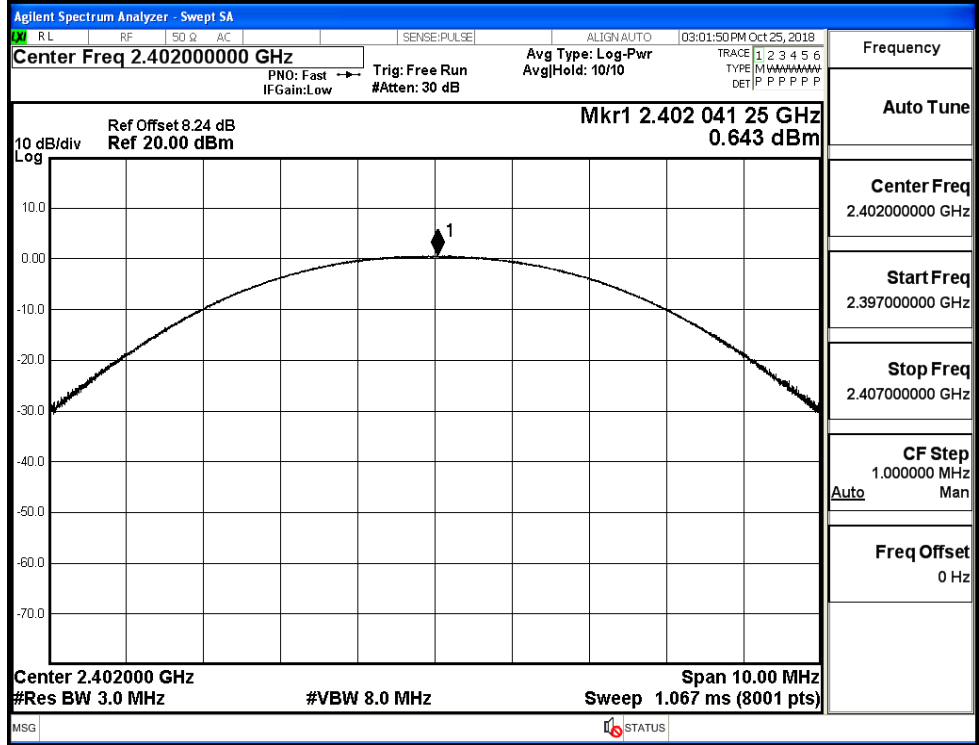
GFSK/MCH



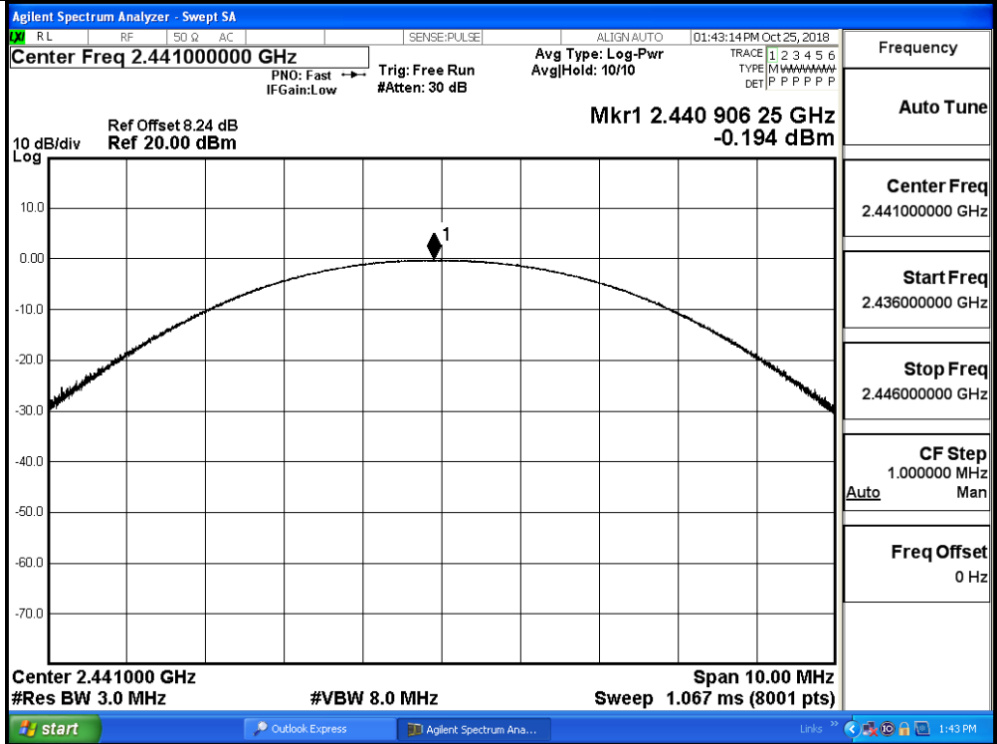
GFSK/HCH



$\pi/4$ DQPSK/LCH

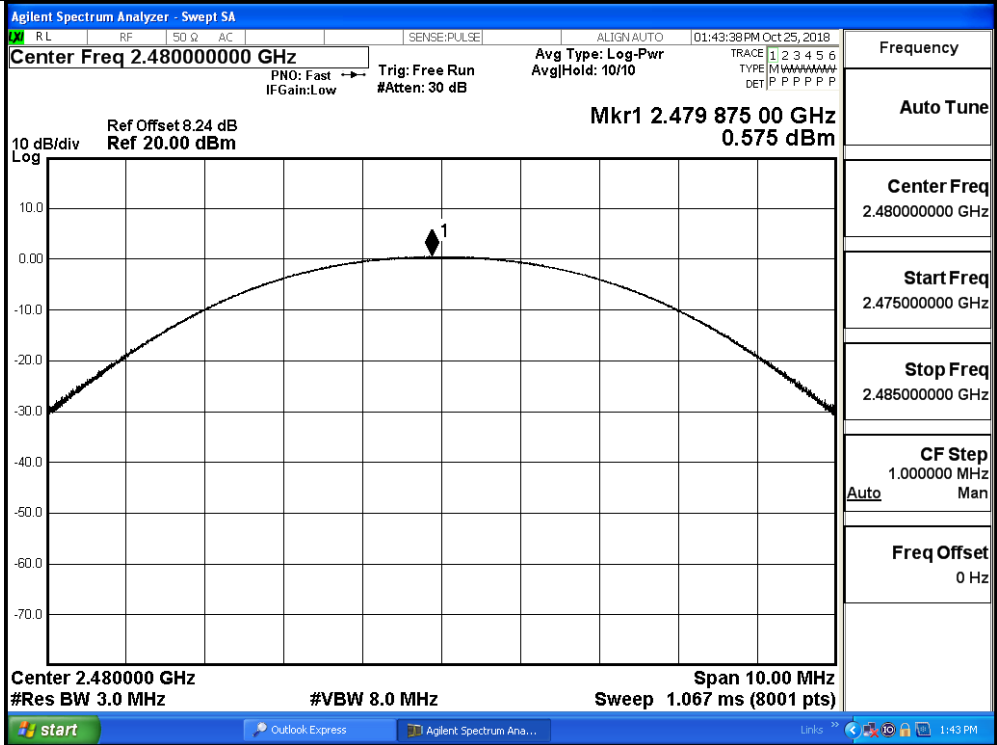


$\pi/4$ DQPSK/MCH



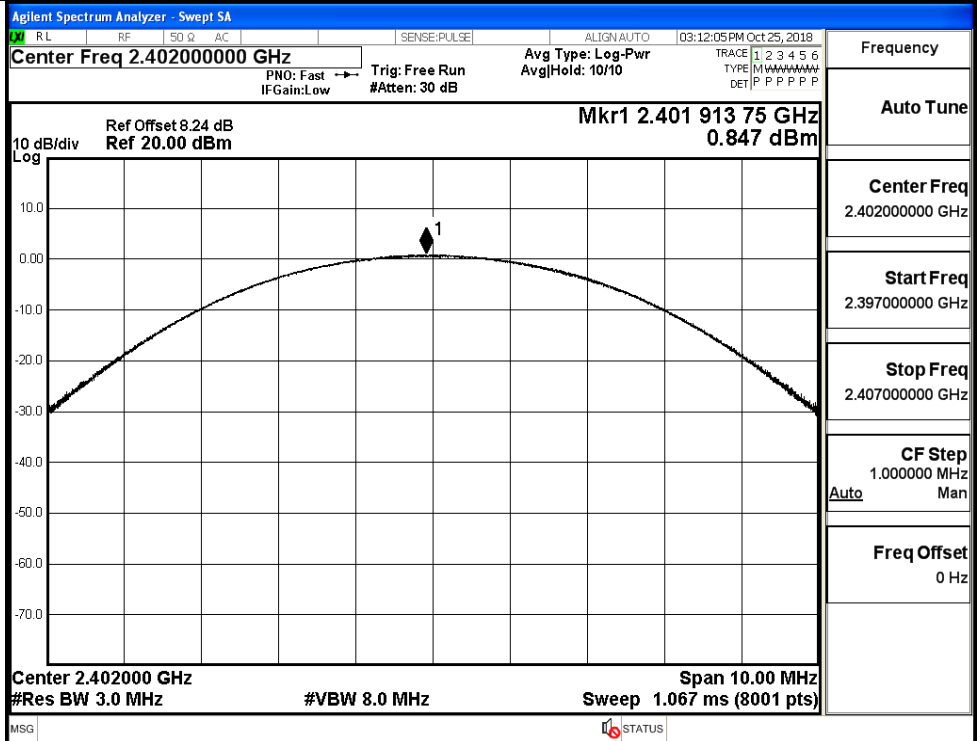
Frequency	2.441000000 GHz
Auto Tune	
Center Freq	2.441000000 GHz
Start Freq	2.436000000 GHz
Stop Freq	2.446000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

$\pi/4$ DQPSK/HCH

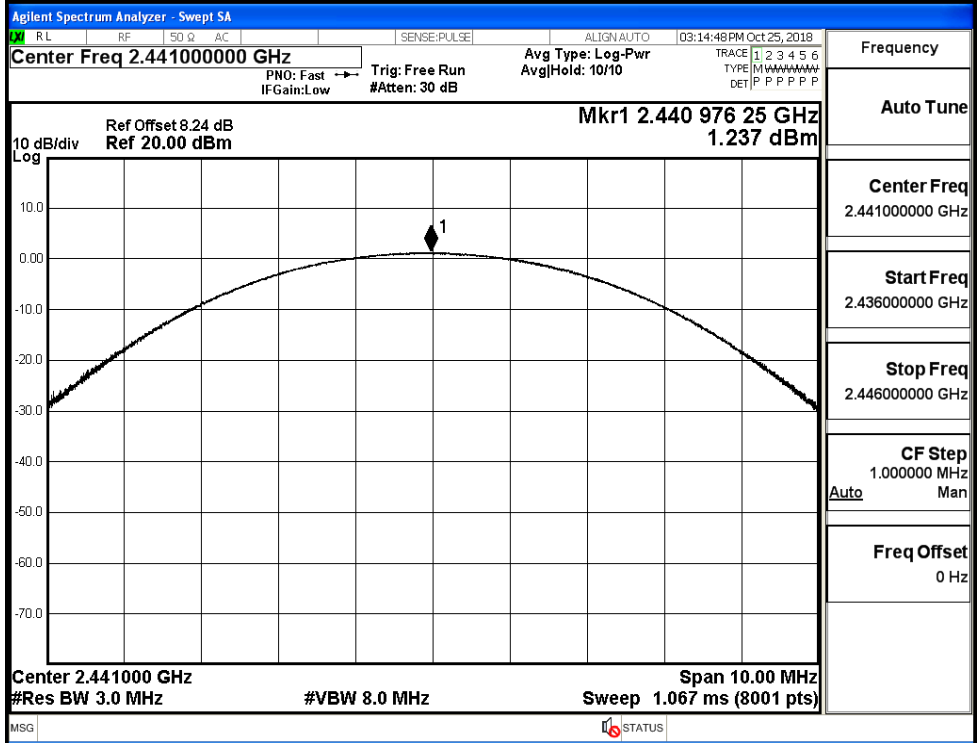


Frequency	2.480000000 GHz
Auto Tune	
Center Freq	2.480000000 GHz
Start Freq	2.475000000 GHz
Stop Freq	2.485000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

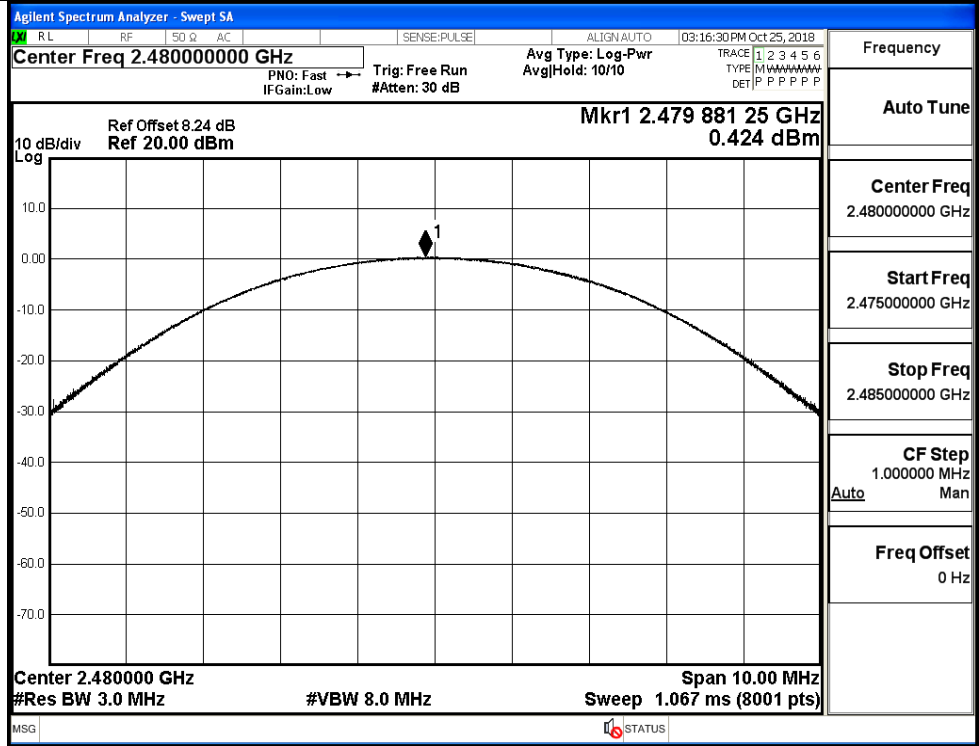
8DPSK/LCH



8DPSK/MCH

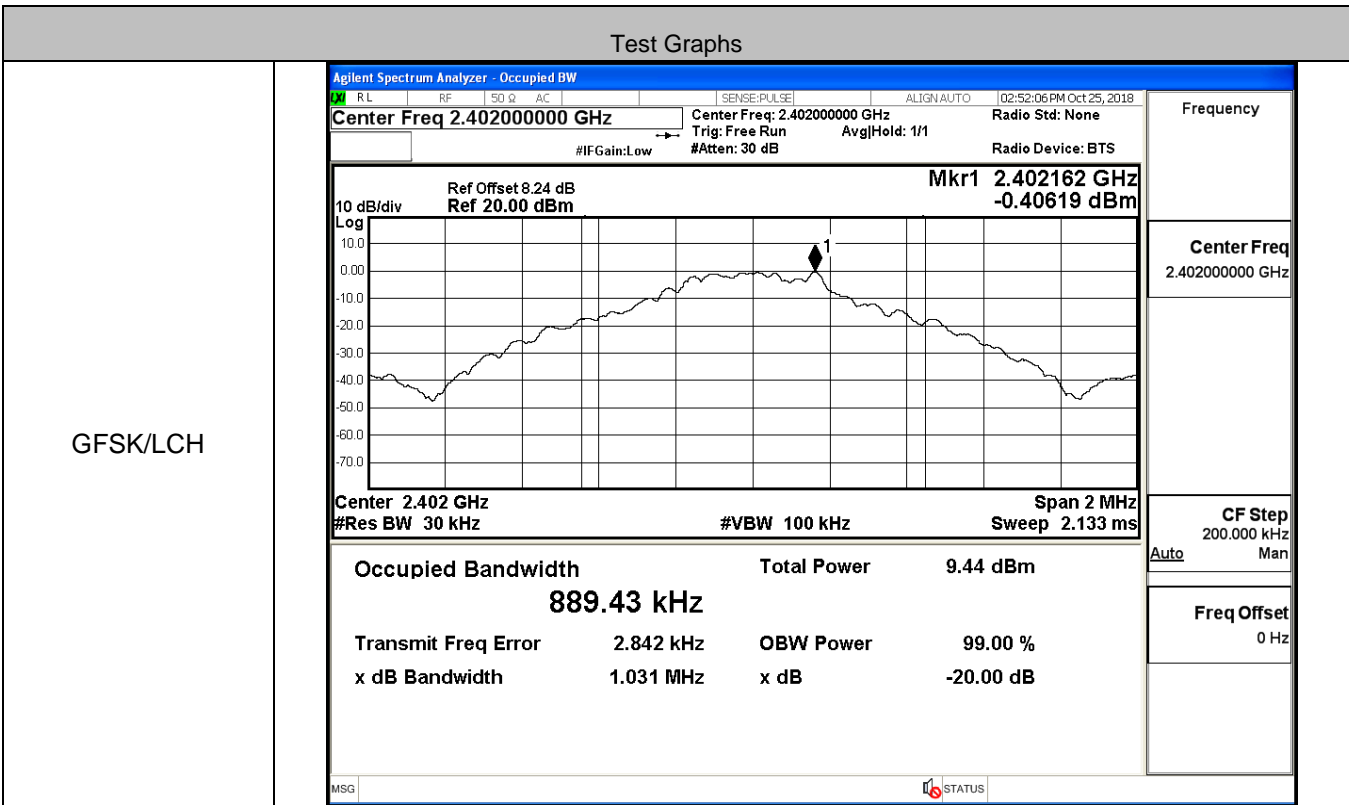


8DPSK/HCH

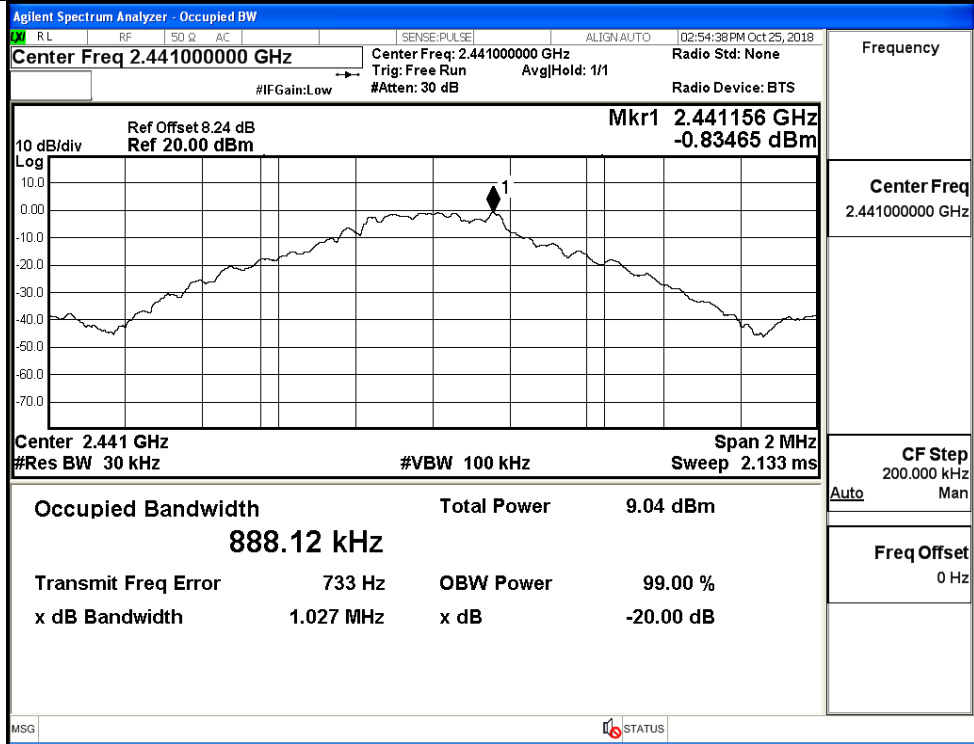


A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.031	Not Specified	PASS
	MCH	1.027	Not Specified	PASS
	HCH	0.9747	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.289	Not Specified	PASS
	MCH	1.313	Not Specified	PASS
	HCH	1.289	Not Specified	PASS
8DPSK	LCH	1.294	Not Specified	PASS
	MCH	1.298	Not Specified	PASS
	HCH	1.295	Not Specified	PASS

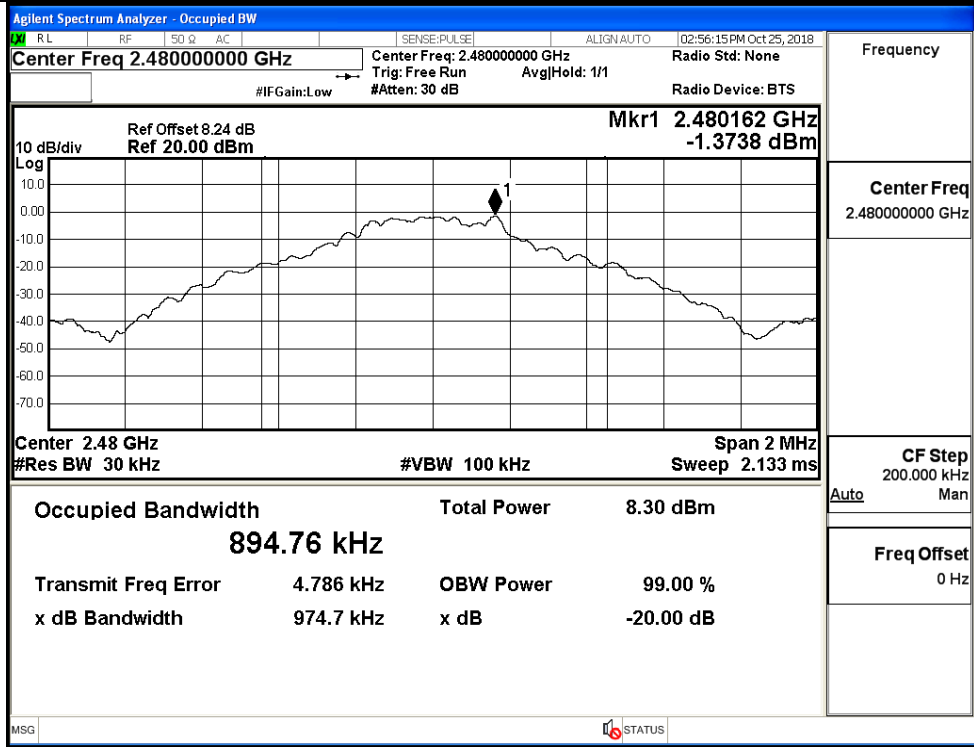


GFSK/MCH



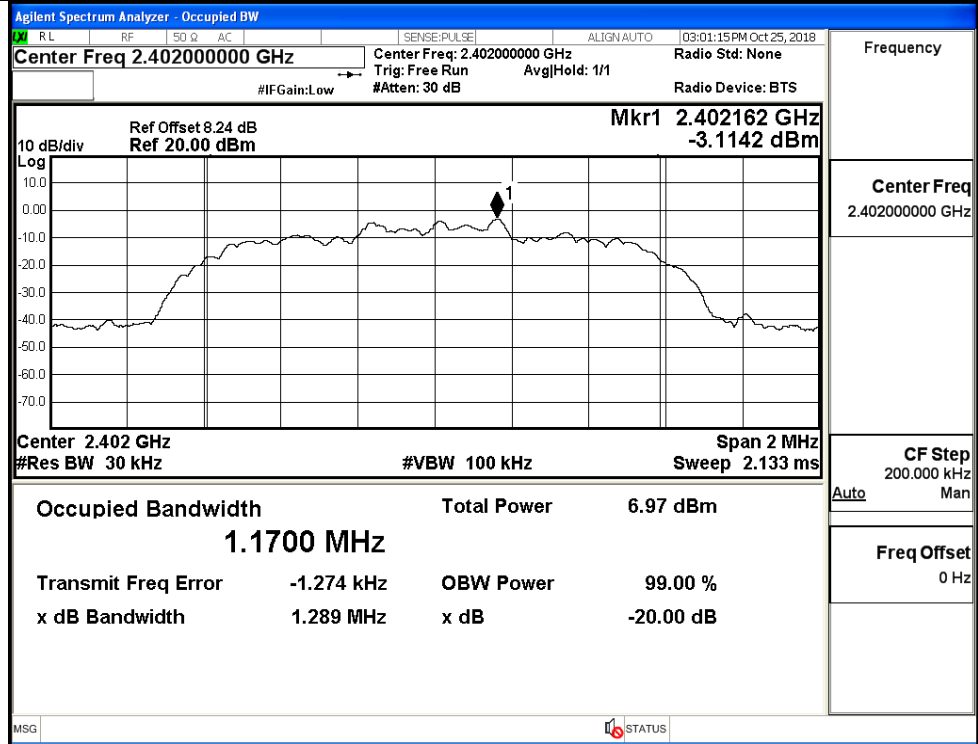
Frequency	2.44100000 GHz
Center Freq	2.44100000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

GFSK/HCH



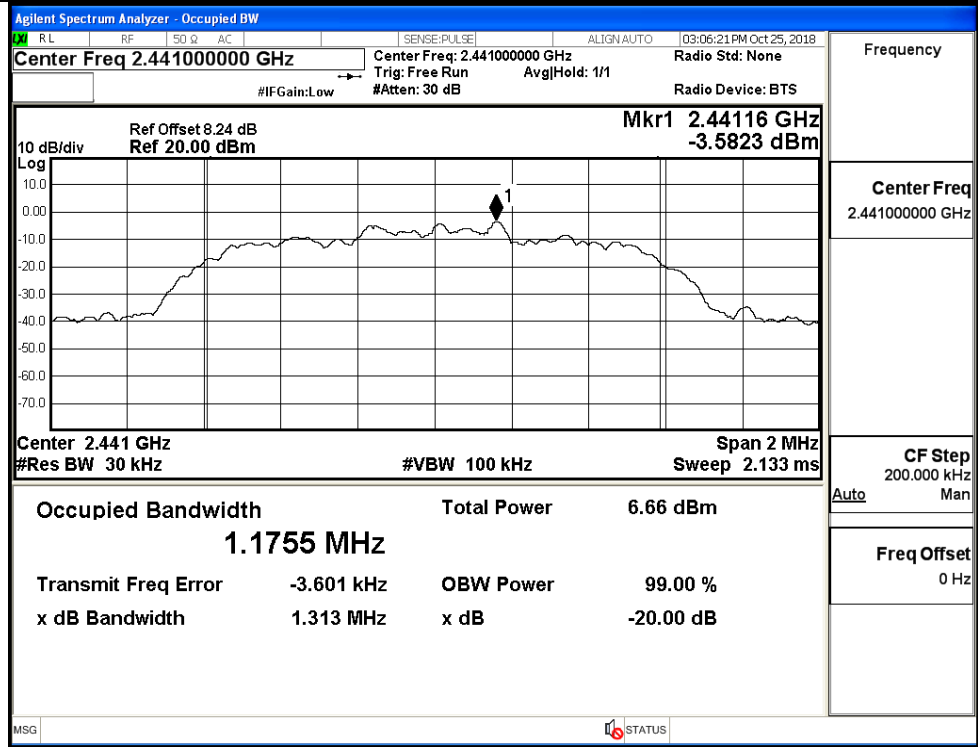
Frequency	2.48000000 GHz
Center Freq	2.48000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

$\pi/4$ DQPSK/LCH



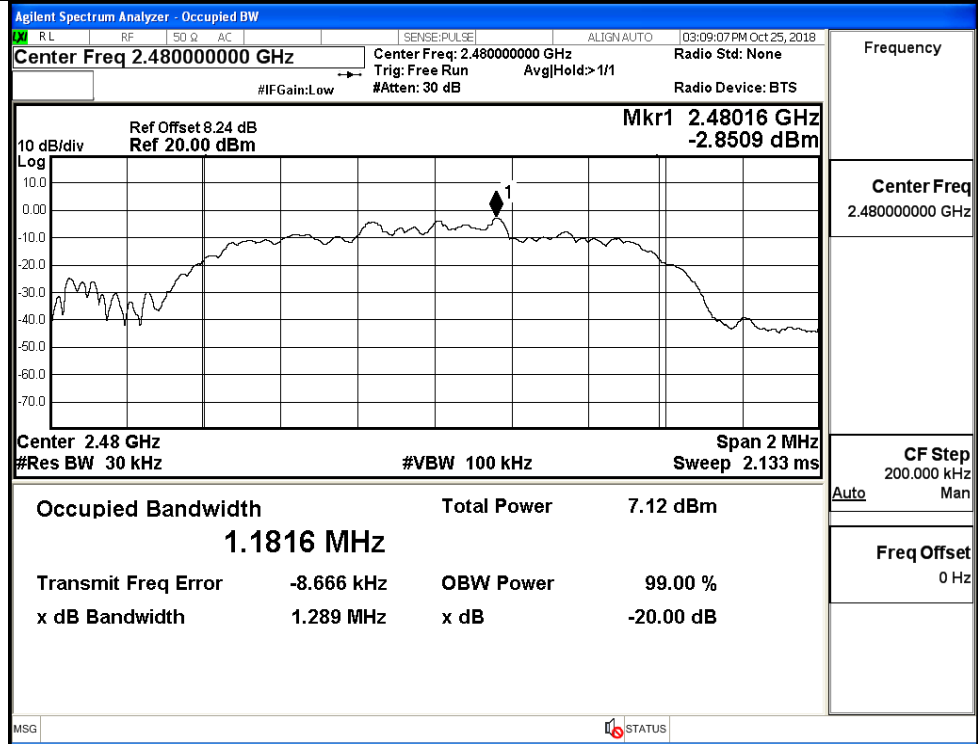
Frequency	2.40200000 GHz
Center Freq	2.40200000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

$\pi/4$ DQPSK/MCH

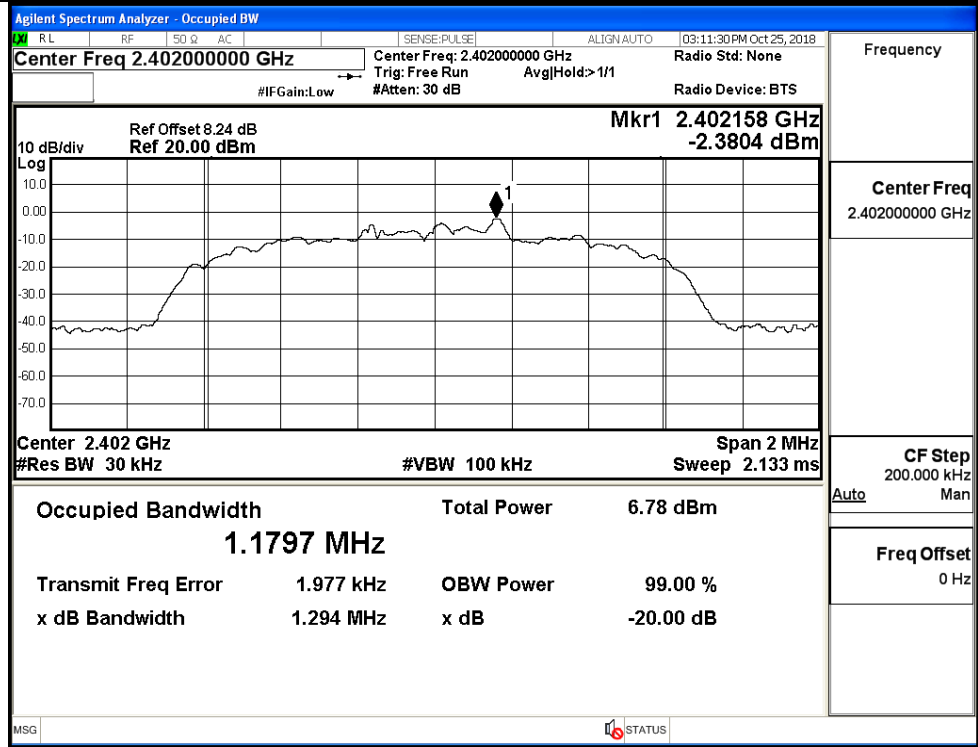


Frequency	2.44100000 GHz
Center Freq	2.44100000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

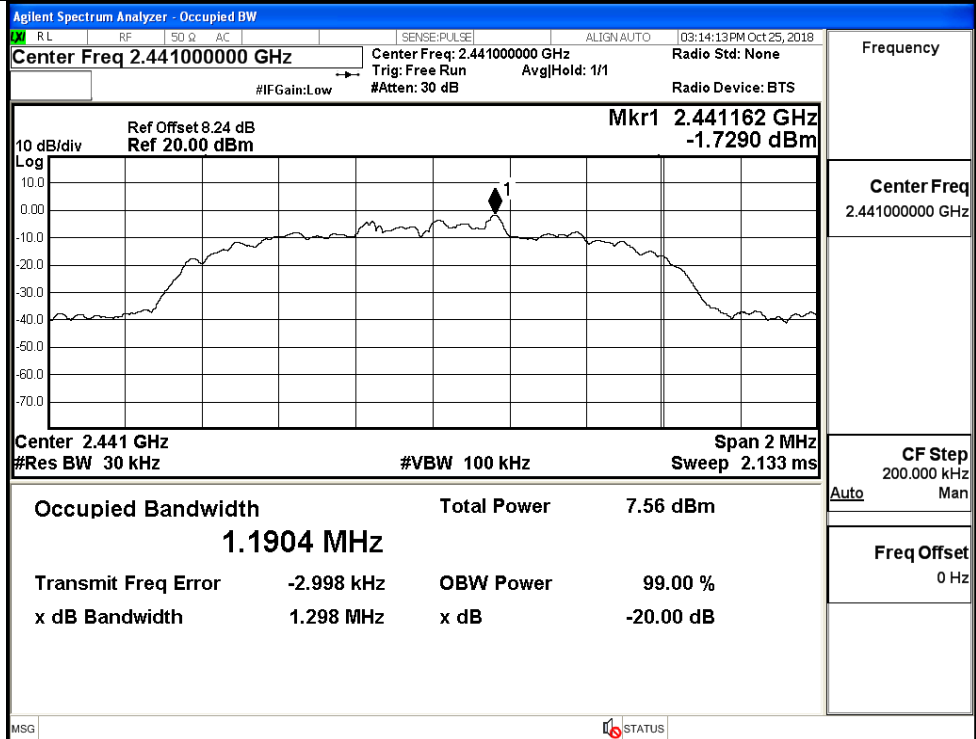
$\pi/4$ DQPSK/HCH



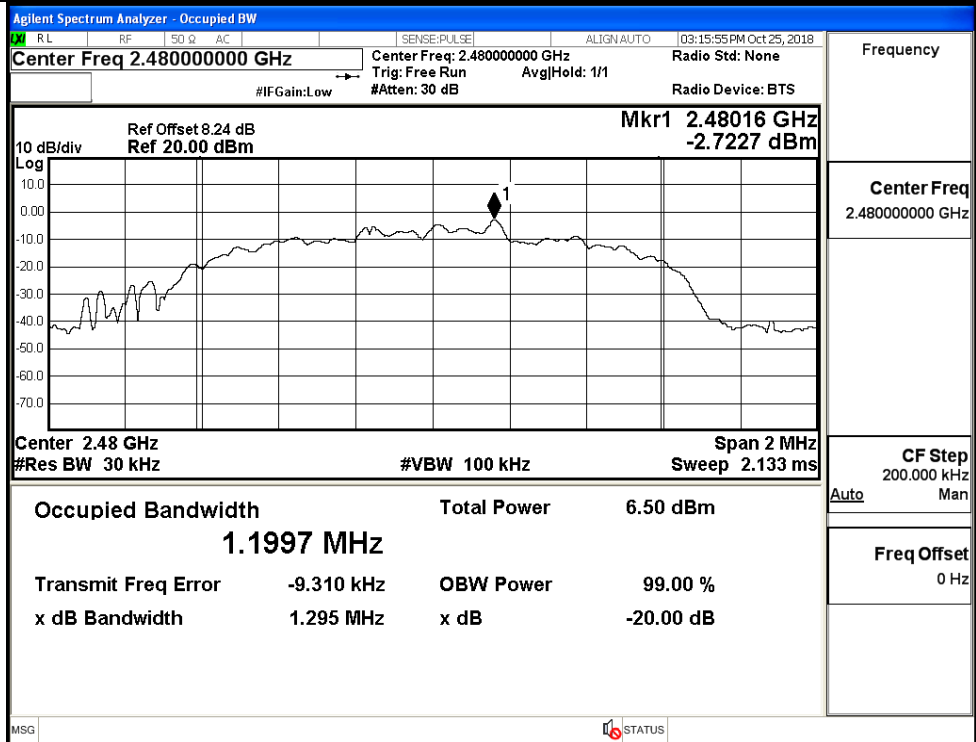
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH



A.3 Carrier Frequency Separation

Mode	Channel	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.984	0.687	PASS
	MCH	1.316	0.687	PASS
	HCH	0.960	0.687	PASS
π/4DQPSK	LCH	1.022	0.875	PASS
	MCH	1.058	0.875	PASS
	HCH	1.352	0.875	PASS
8DPSK	LCH	0.940	0.865	PASS
	MCH	1.310	0.865	PASS
	HCH	1.012	0.865	PASS

Test Graphs

GFSK/LCH

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	Δ2	f	(Δ)	983.50 kHz (Δ)	0.202 dB			
2	F	f		2.402 039 50 GHz	0.569 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								

Frequency

Auto Tune

Center Freq
2.402500000 GHz

Start Freq
2.401500000 GHz

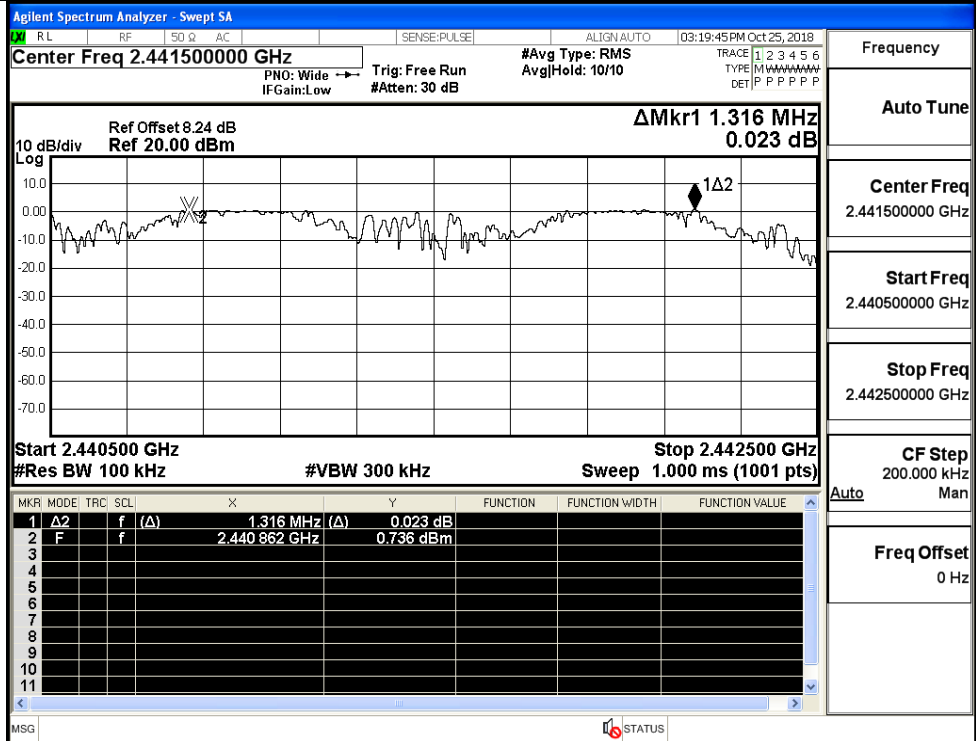
Stop Freq
2.403500000 GHz

CF Step
200.000 kHz

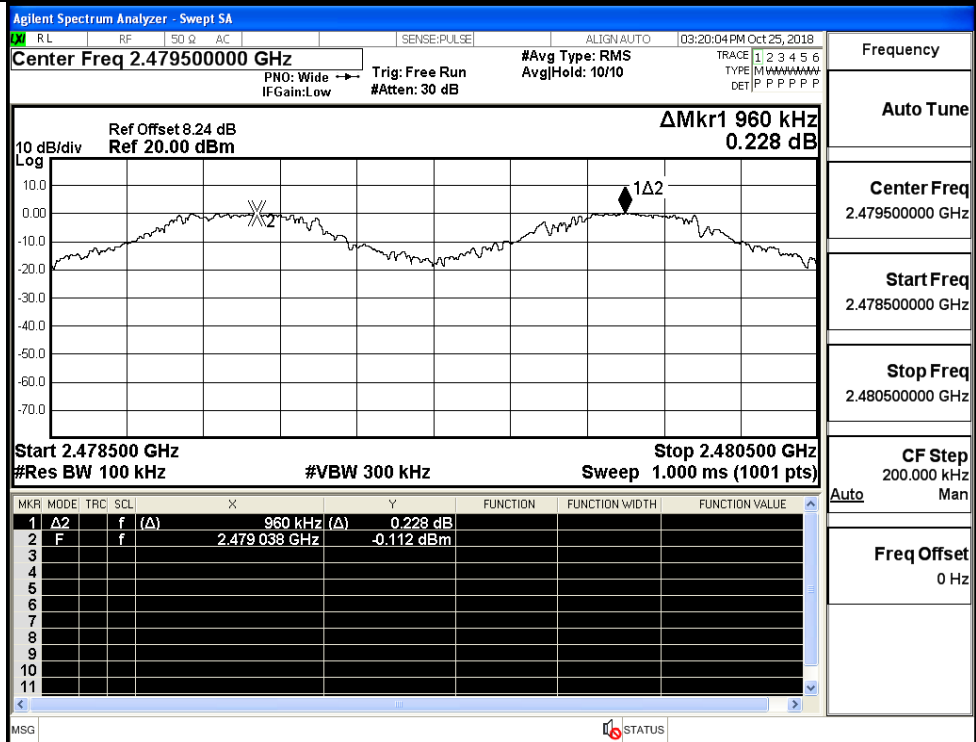
Auto Man

Freq Offset
0 Hz

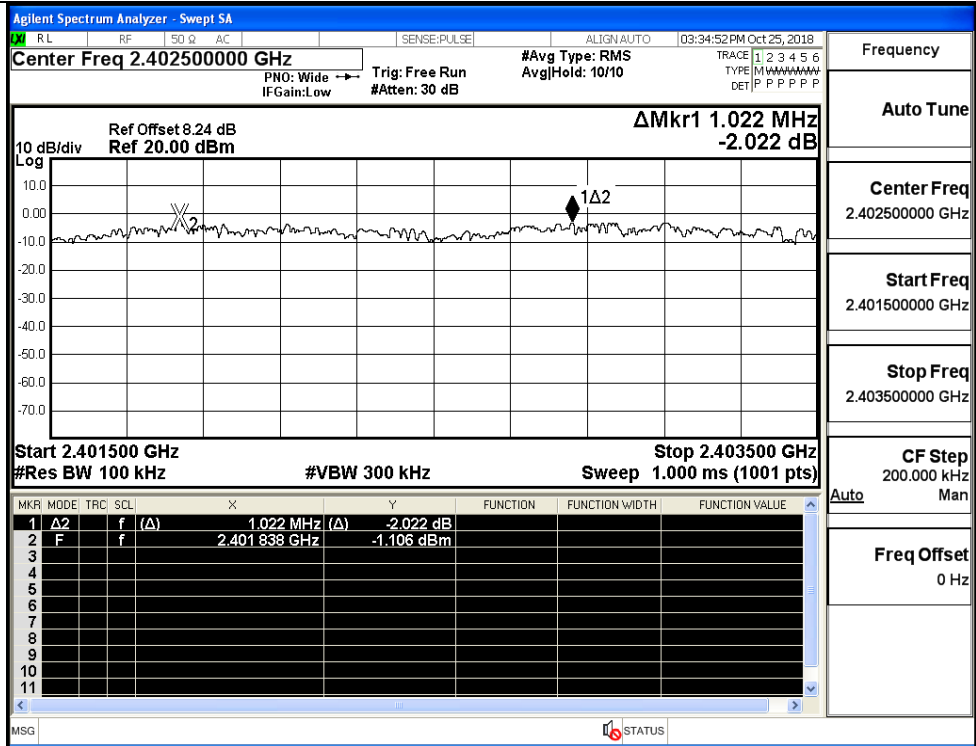
GFSK/MCH



GFSK/HCH

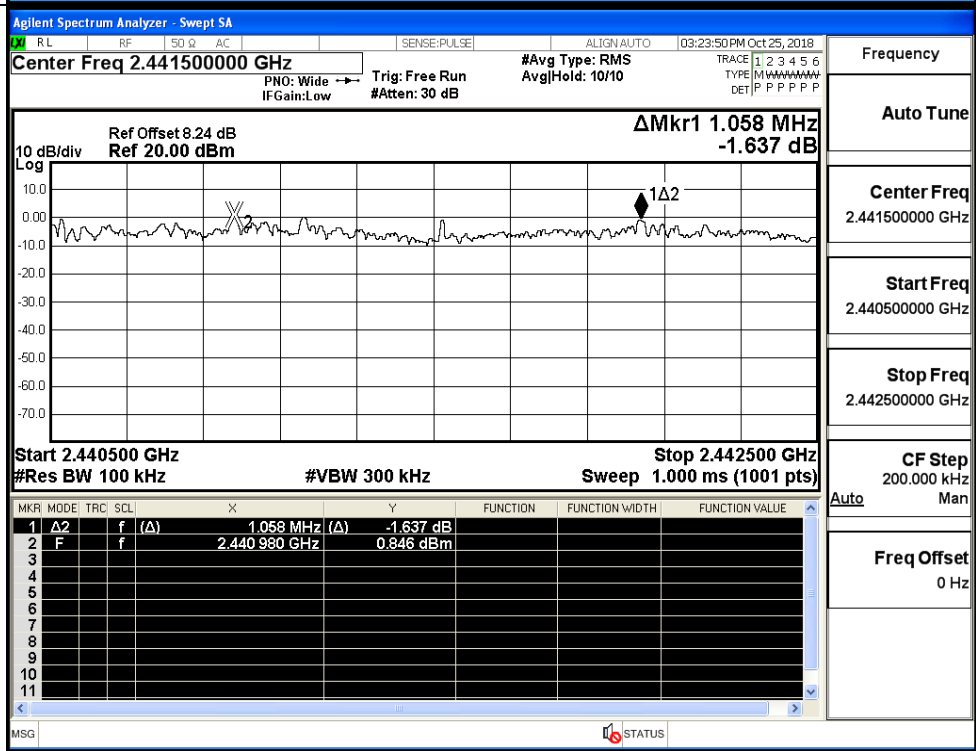


$\pi/4$ DQPSK/LCH



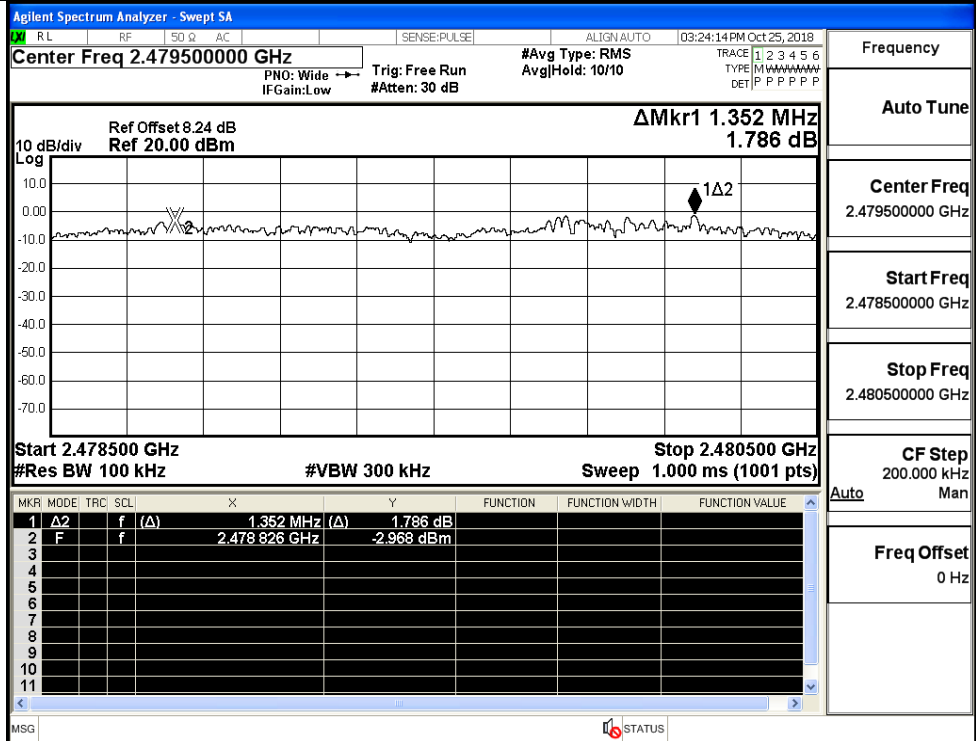
Frequency
Auto Tune
Center Freq 2.402500000 GHz
Start Freq 2.401500000 GHz
Stop Freq 2.403500000 GHz
CF Step 200.000 kHz Auto
Freq Offset 0 Hz

$\pi/4$ DQPSK/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
Freq Offset 0 Hz

π/4DQPSK/HCH



Frequency

Auto Tune

Center Freq
2.479500000 GHz

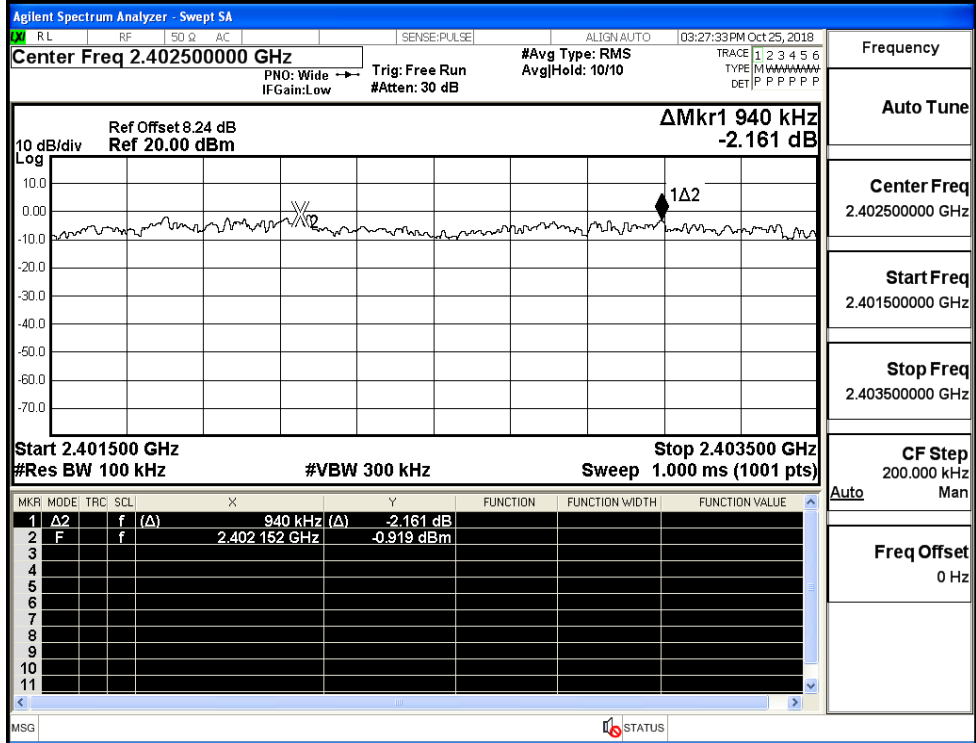
Start Freq
2.478500000 GHz

Stop Freq
2.480500000 GHz

CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz

8DPSK/LCH



Frequency

Auto Tune

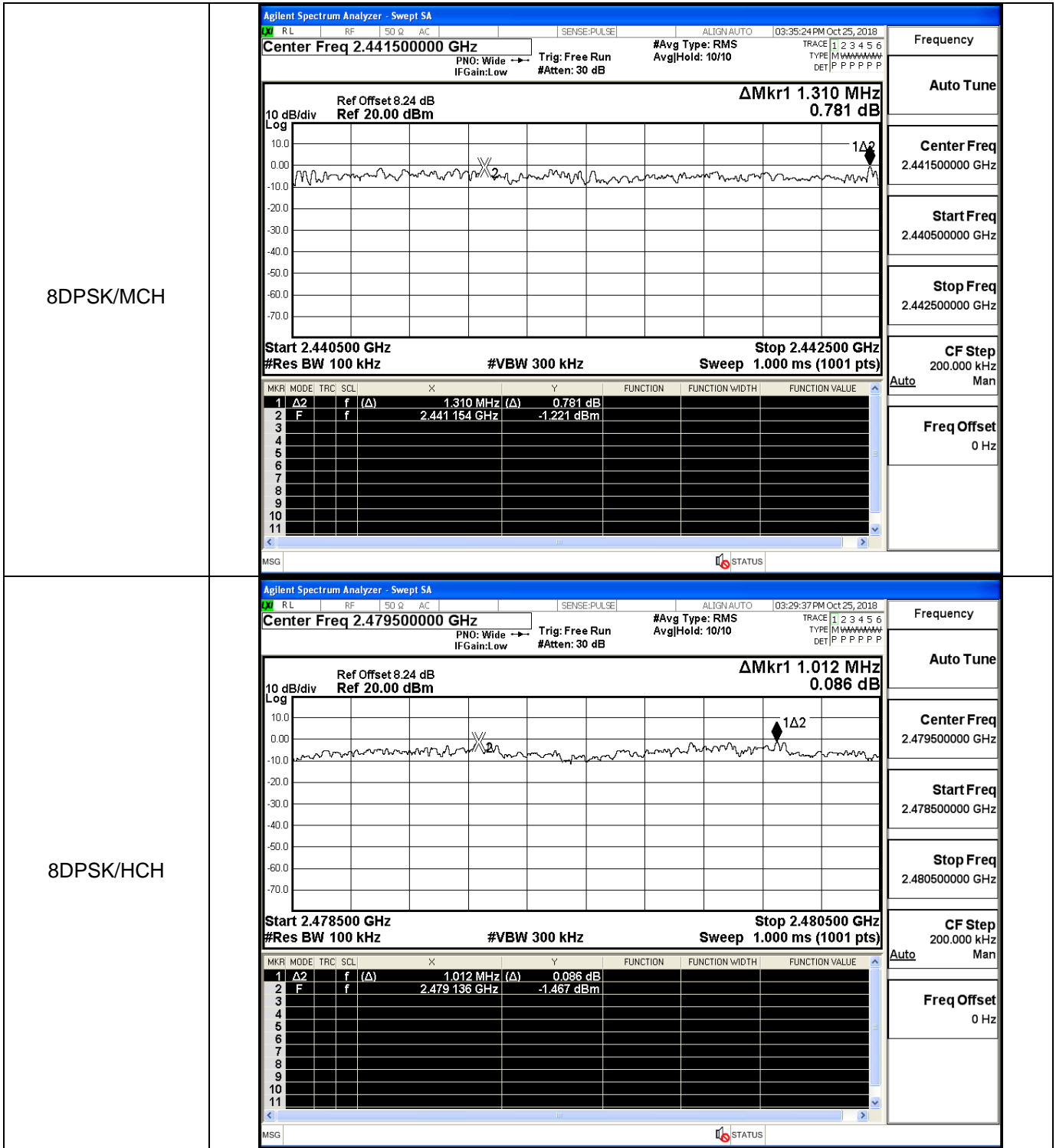
Center Freq
2.402500000 GHz

Start Freq
2.401500000 GHz

Stop Freq
2.403500000 GHz

CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz

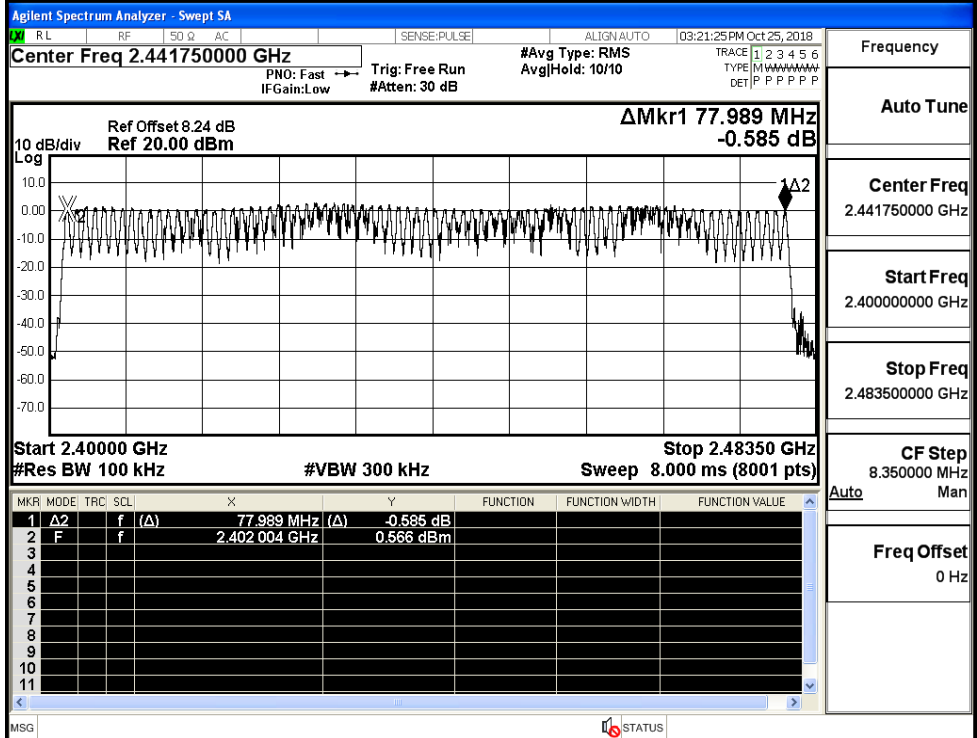


A.4 Hopping Channel Number

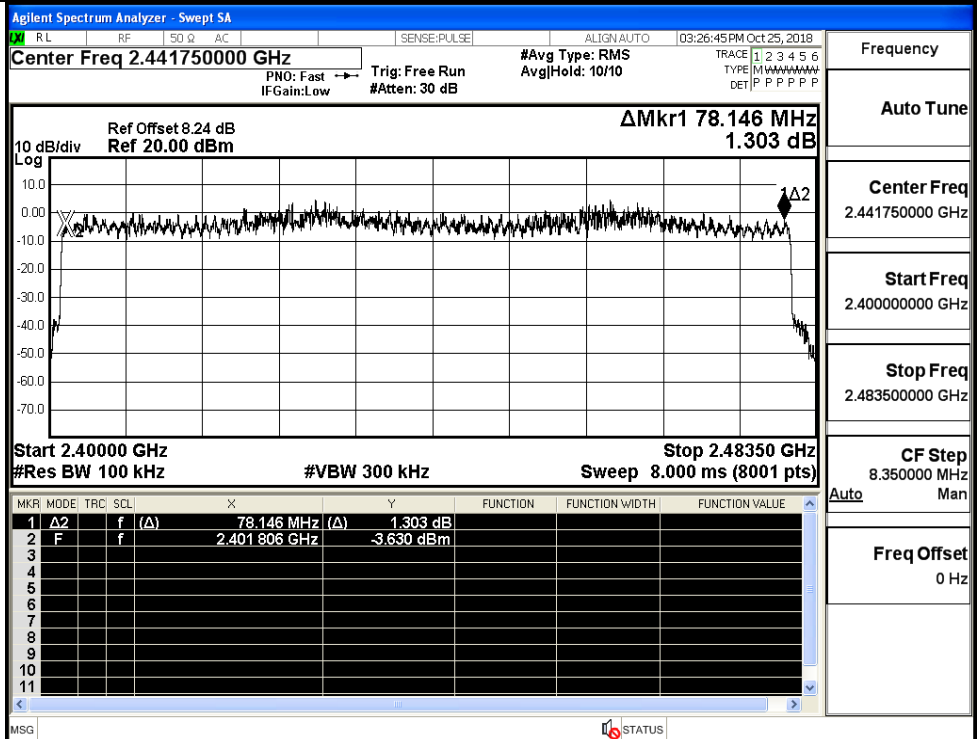
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
π/4DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

Test Graphs

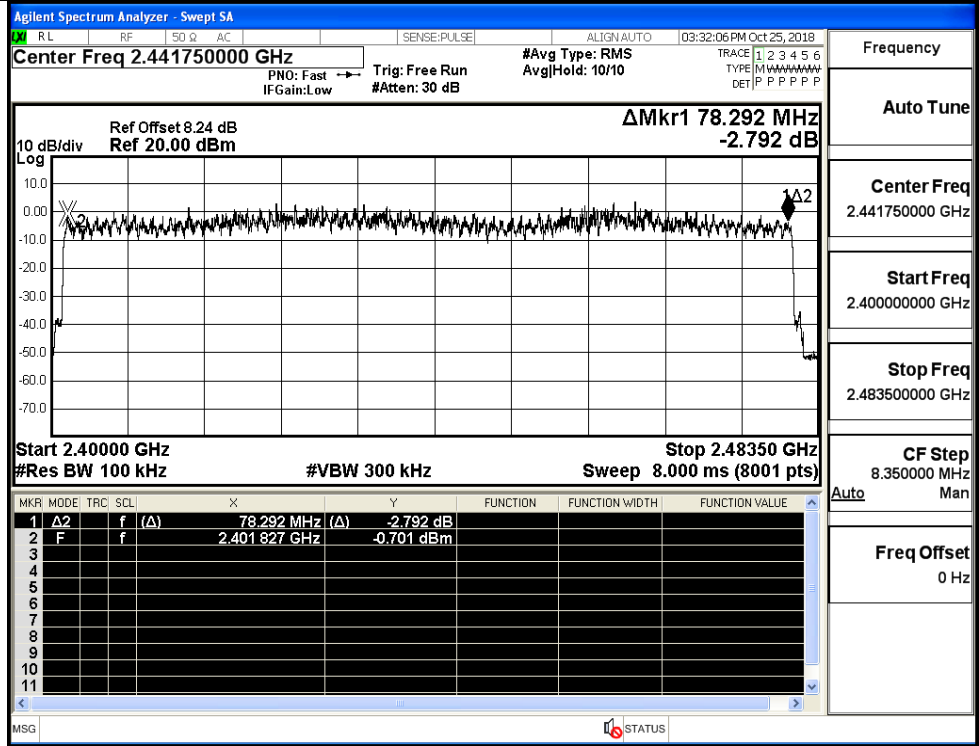
GFSK/Hop



π/4DQPSK/Hop

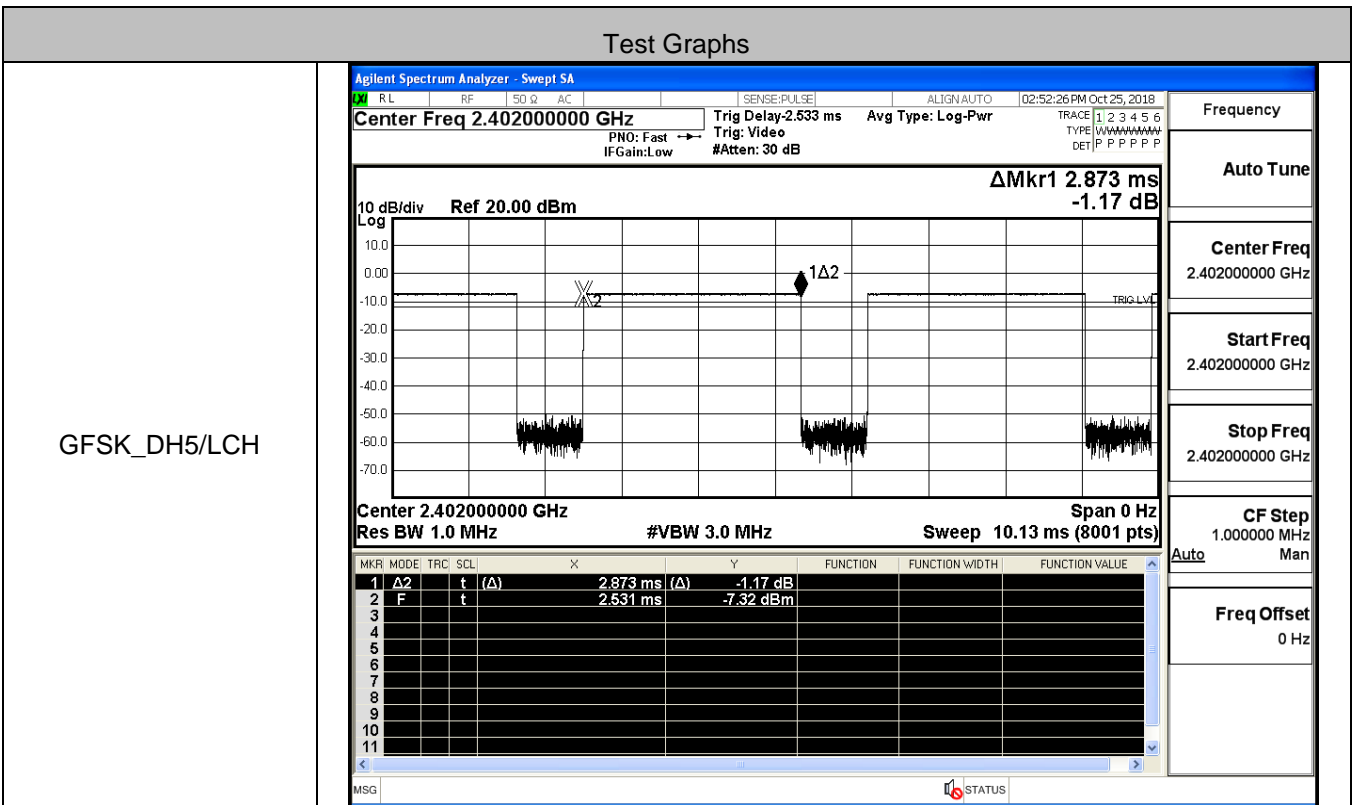


8DPSK/Hop

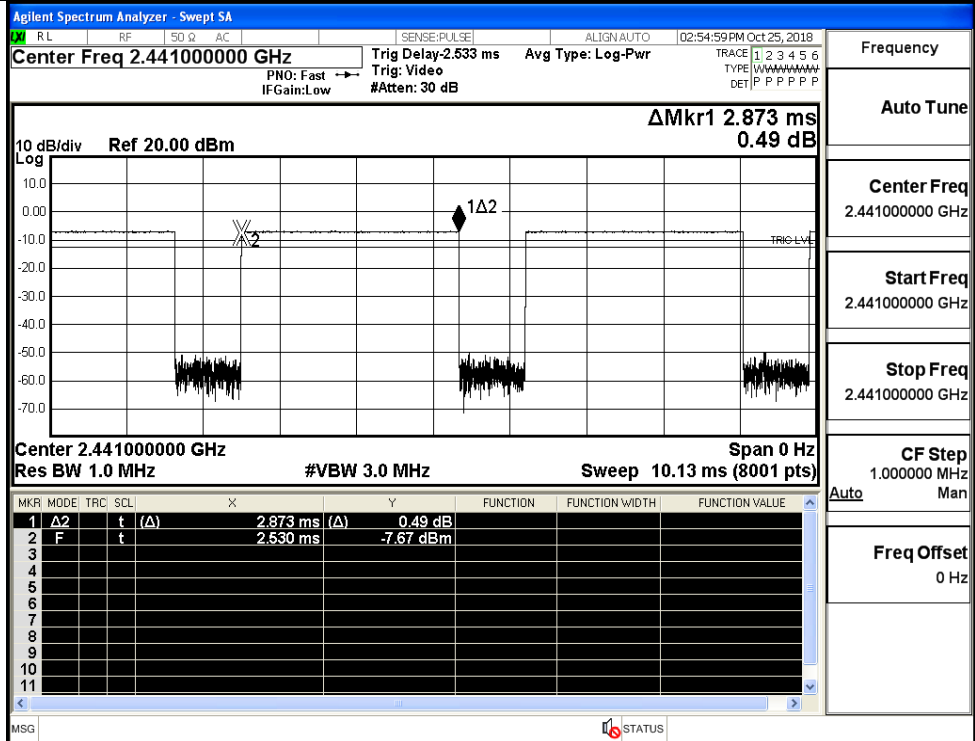


A.5 Dwell Time

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

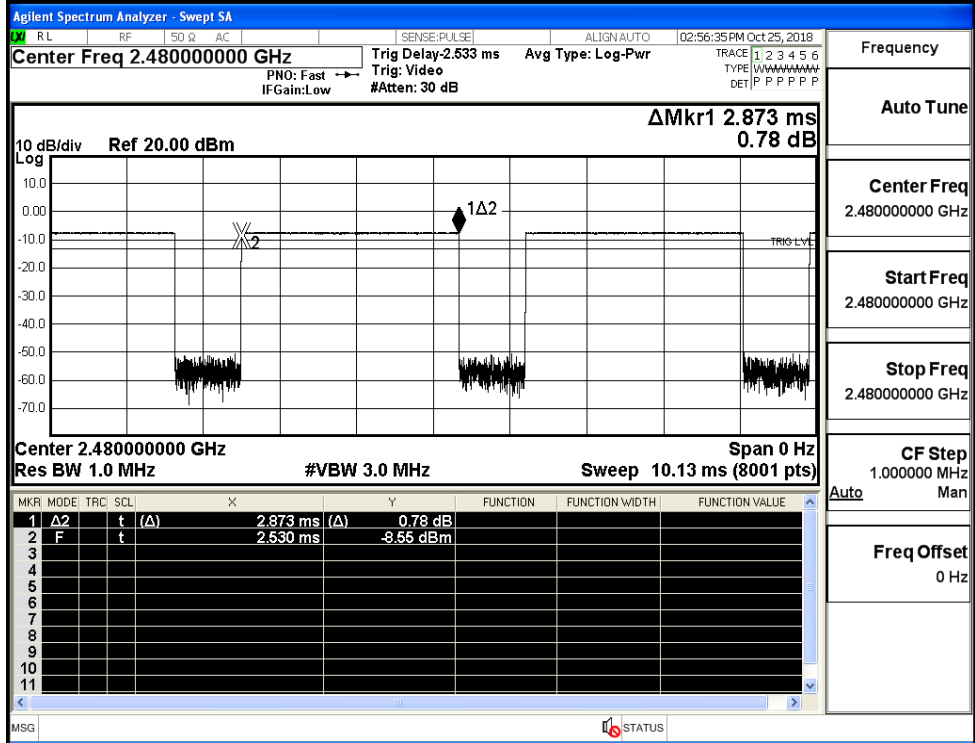


GFSK_DH5/MCH



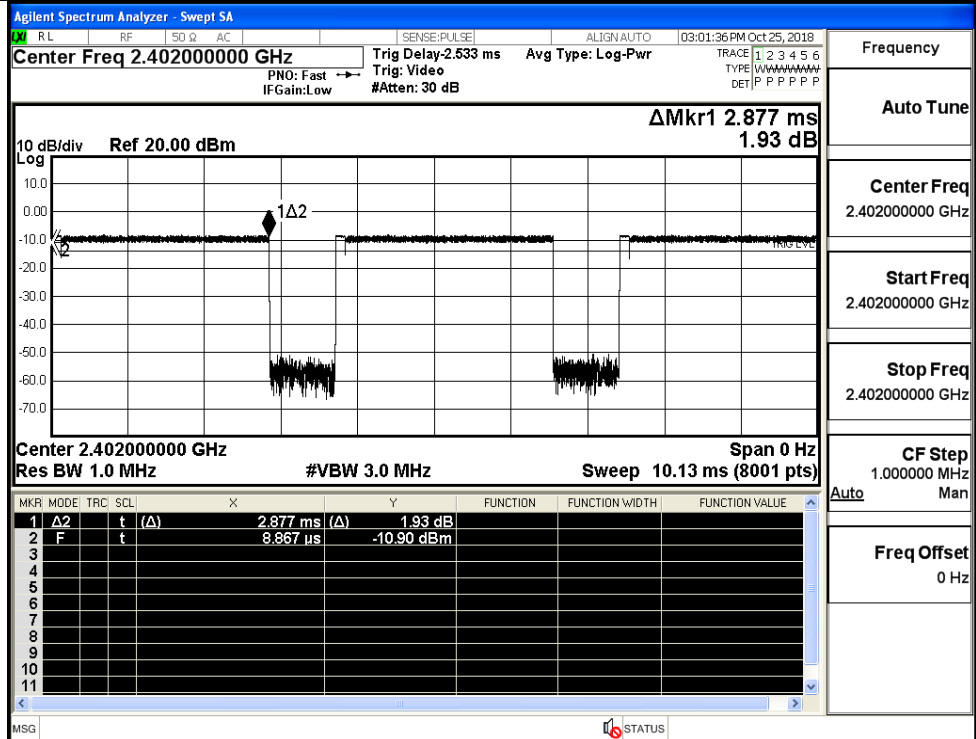
Frequency	
Auto Tune	
Center Freq	2.441000000 GHz
Start Freq	2.441000000 GHz
Stop Freq	2.441000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

GFSK_DH5/HCH

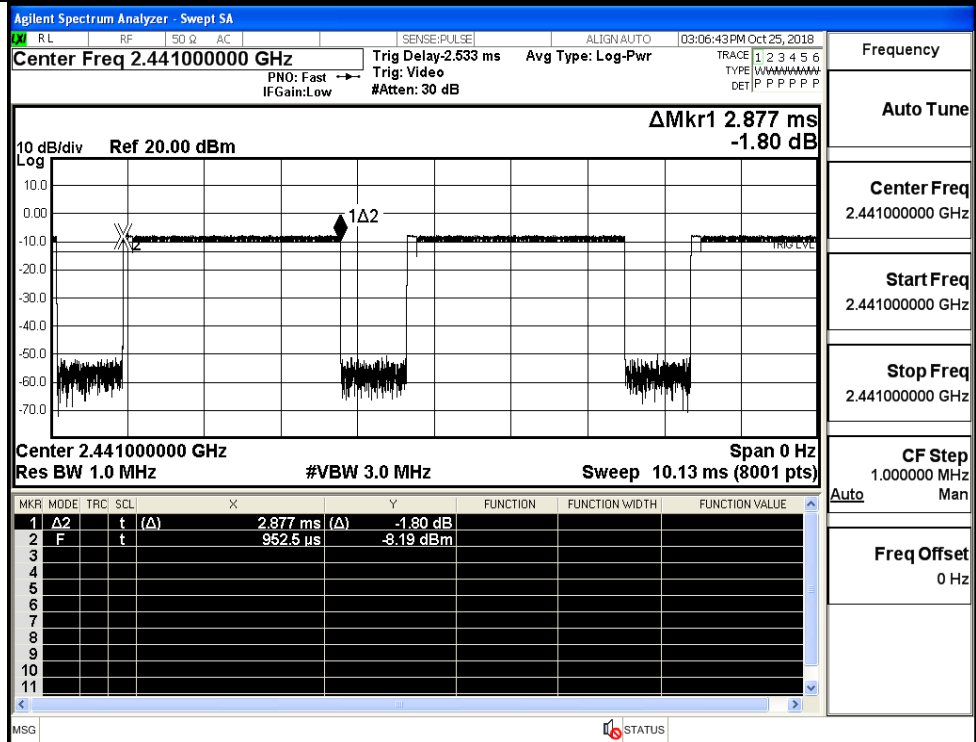


Frequency	
Auto Tune	
Center Freq	2.480000000 GHz
Start Freq	2.480000000 GHz
Stop Freq	2.480000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

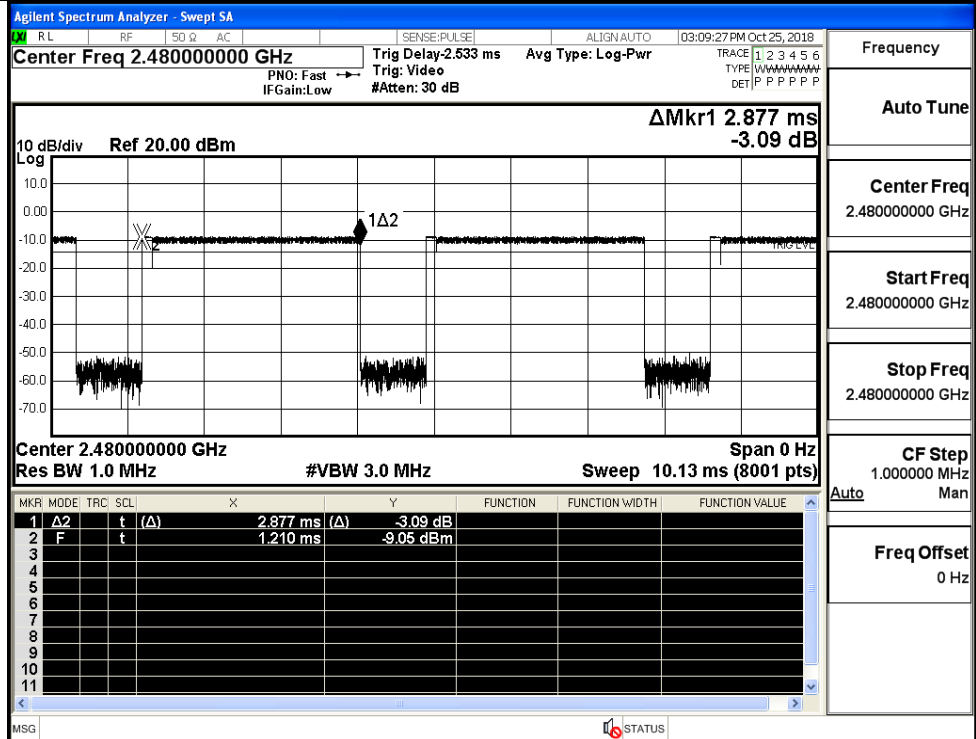
$\pi/4$ DQPSK
_2DH5/LCH



$\pi/4$ DQPSK
_2DH5/MCH

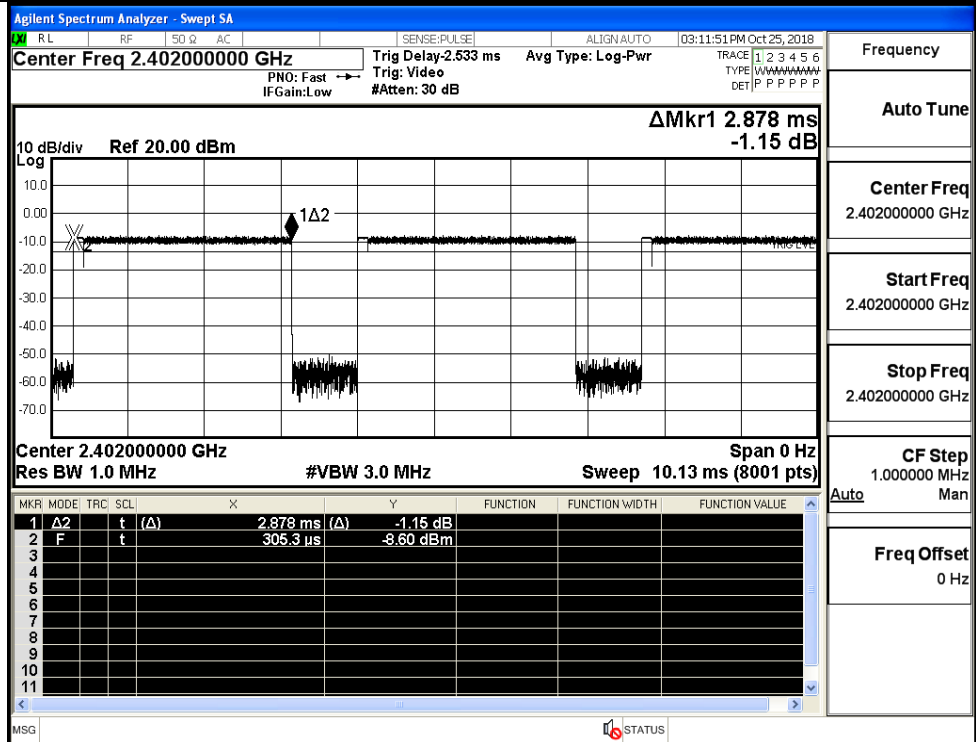


$\pi/4$ DQPSK
_2DH5/HCH



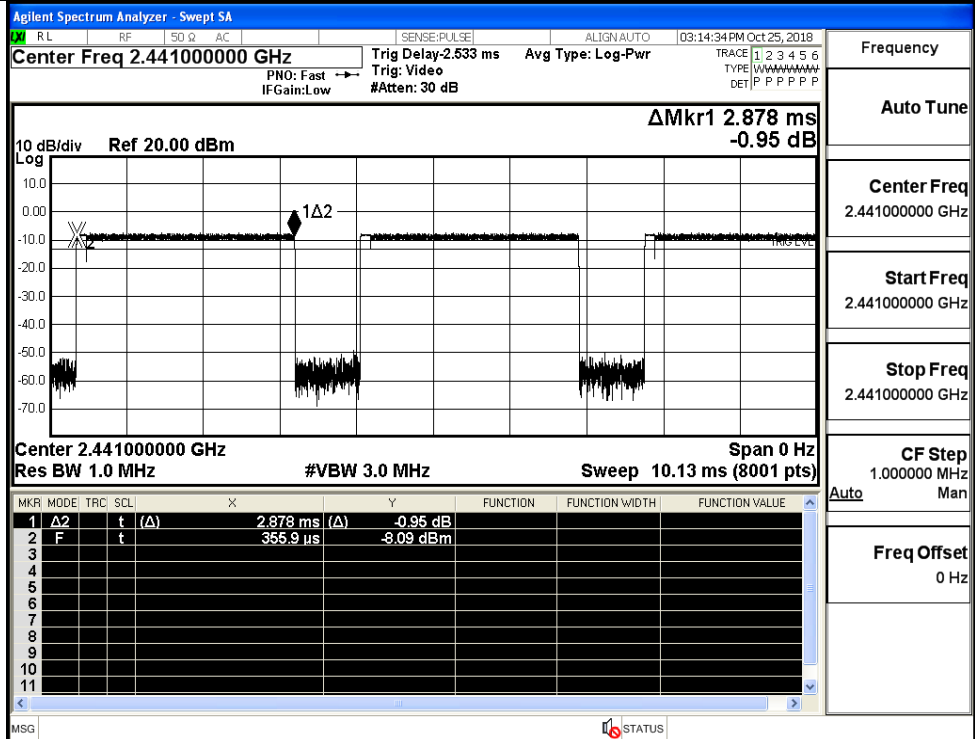
Frequency	
Auto Tune	
Center Freq	2.480000000 GHz
Start Freq	2.480000000 GHz
Stop Freq	2.480000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

8DPSK_3DH5/LCH

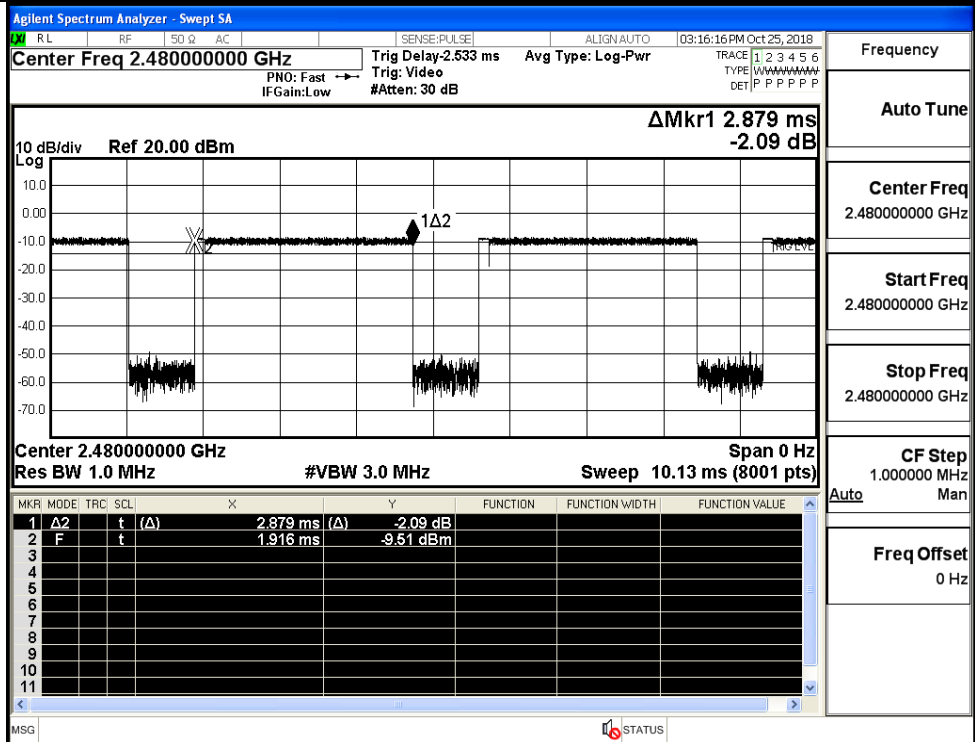


Frequency	
Auto Tune	
Center Freq	2.402000000 GHz
Start Freq	2.402000000 GHz
Stop Freq	2.402000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

8DPSK_3DH5/MCH



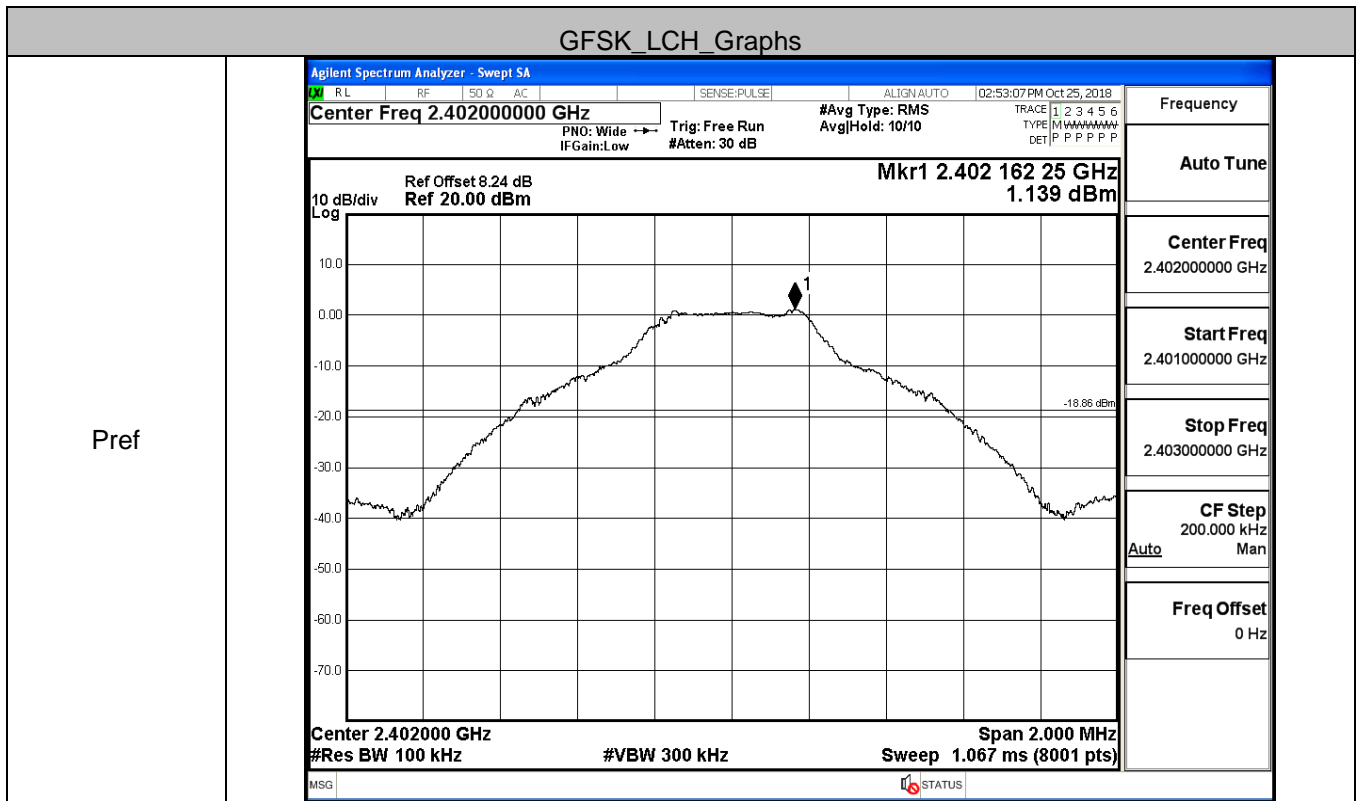
8DPSK_3DH5/HCH



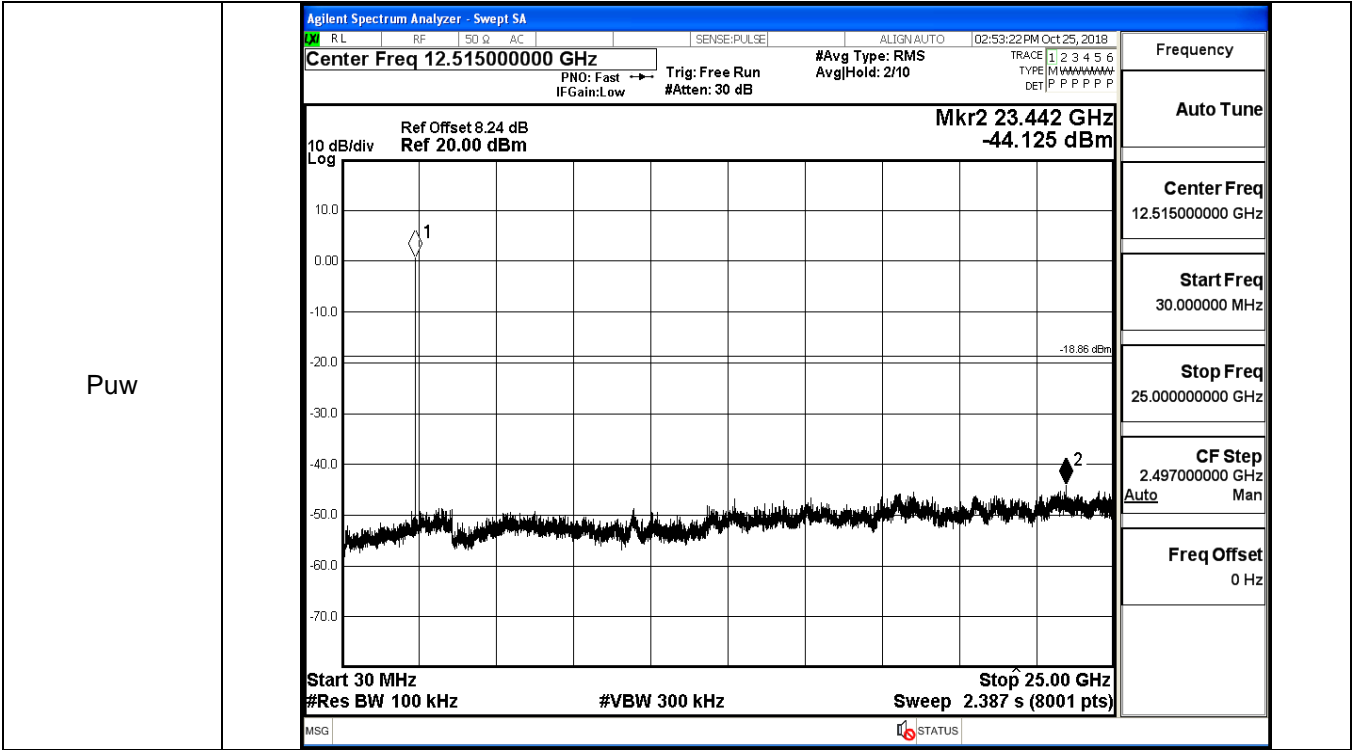
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.139	-44.125	-18.861	PASS
	MCH	-50.473	-44.284	-70.473	PASS
	HCH	0.713	-44.756	-19.287	PASS
π /4DQPSK	LCH	-0.338	-43.576	-20.338	PASS
	MCH	-0.141	-44.838	-20.141	PASS
	HCH	-0.131	-44.391	-20.131	PASS
8DPSK	LCH	-0.359	-44.568	-20.359	PASS
	MCH	0.09	-43.907	-19.910	PASS
	HCH	-0.866	-43.466	-20.866	PASS

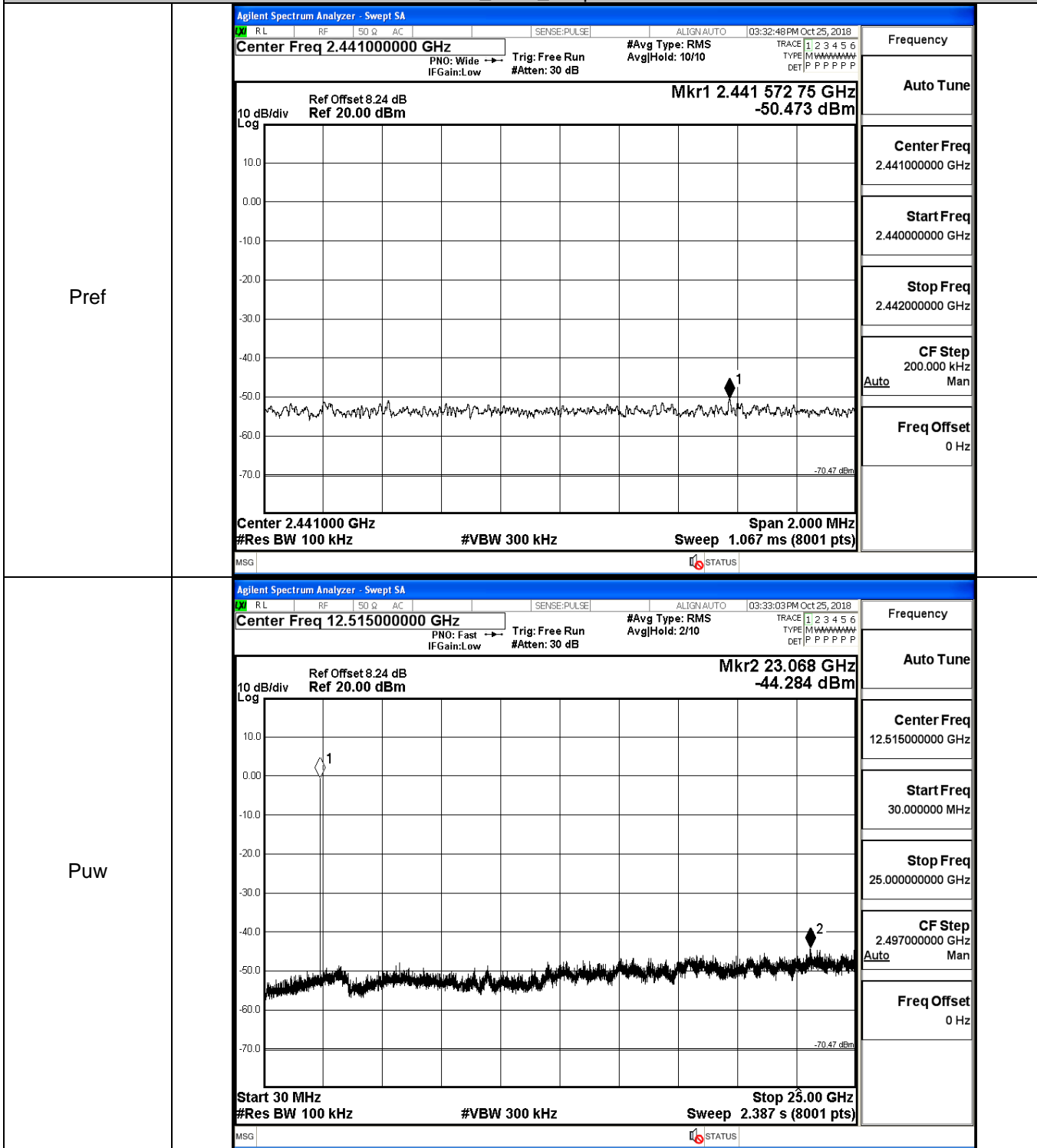
GFSK_LCH_Graphs



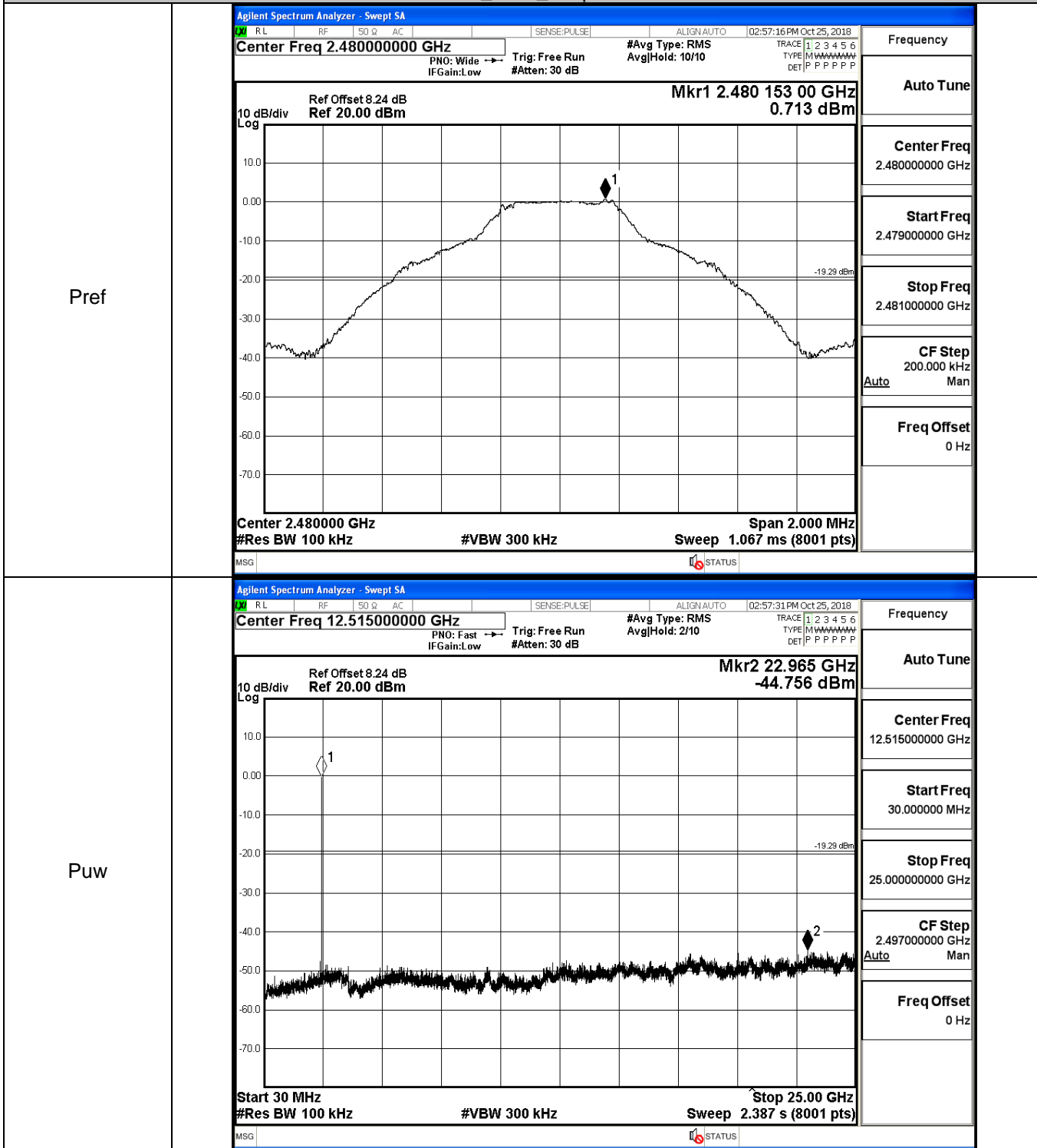
Pref



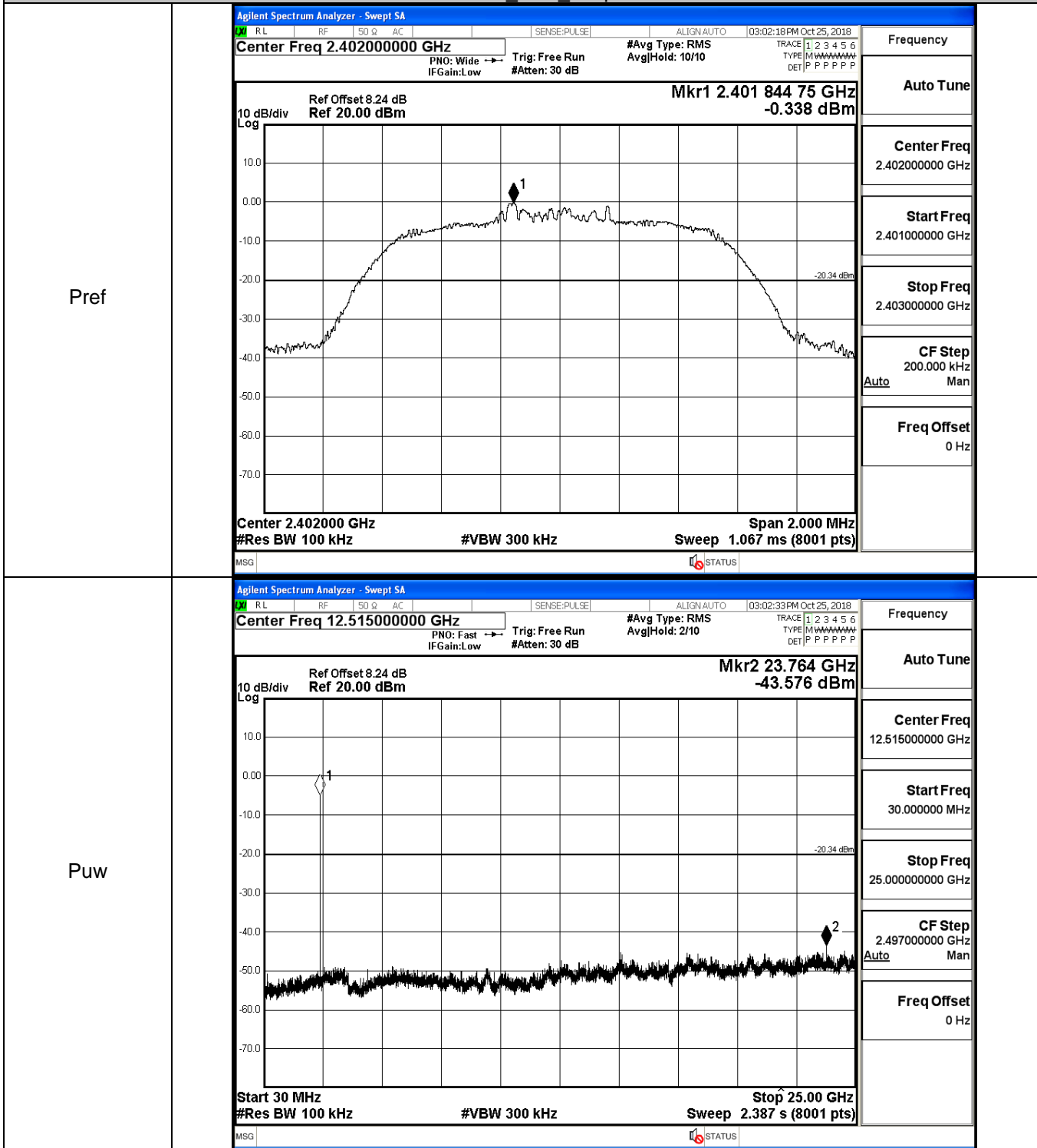
GFSK_MCH_Graphs



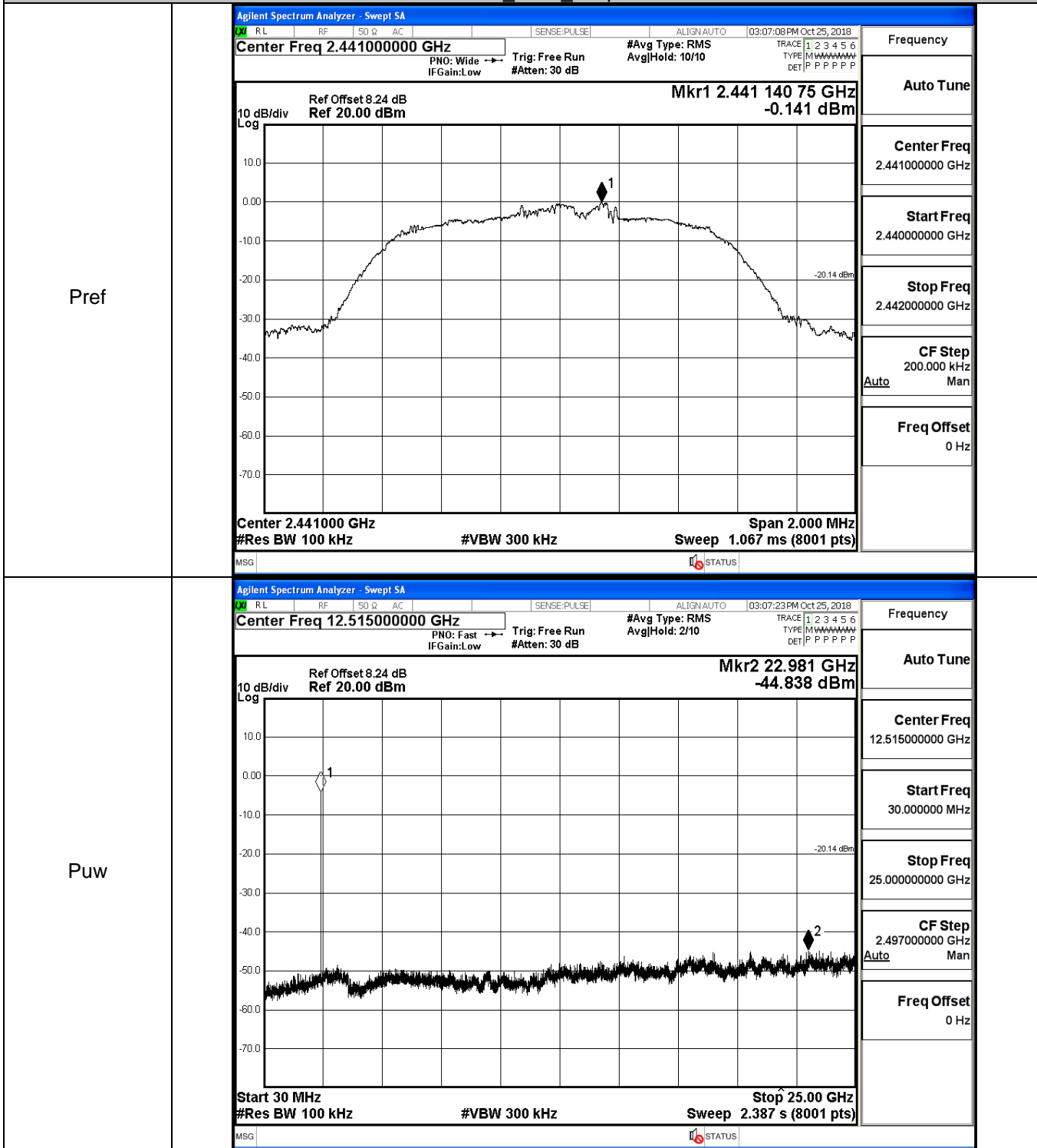
GFSK_HCH_Graphs



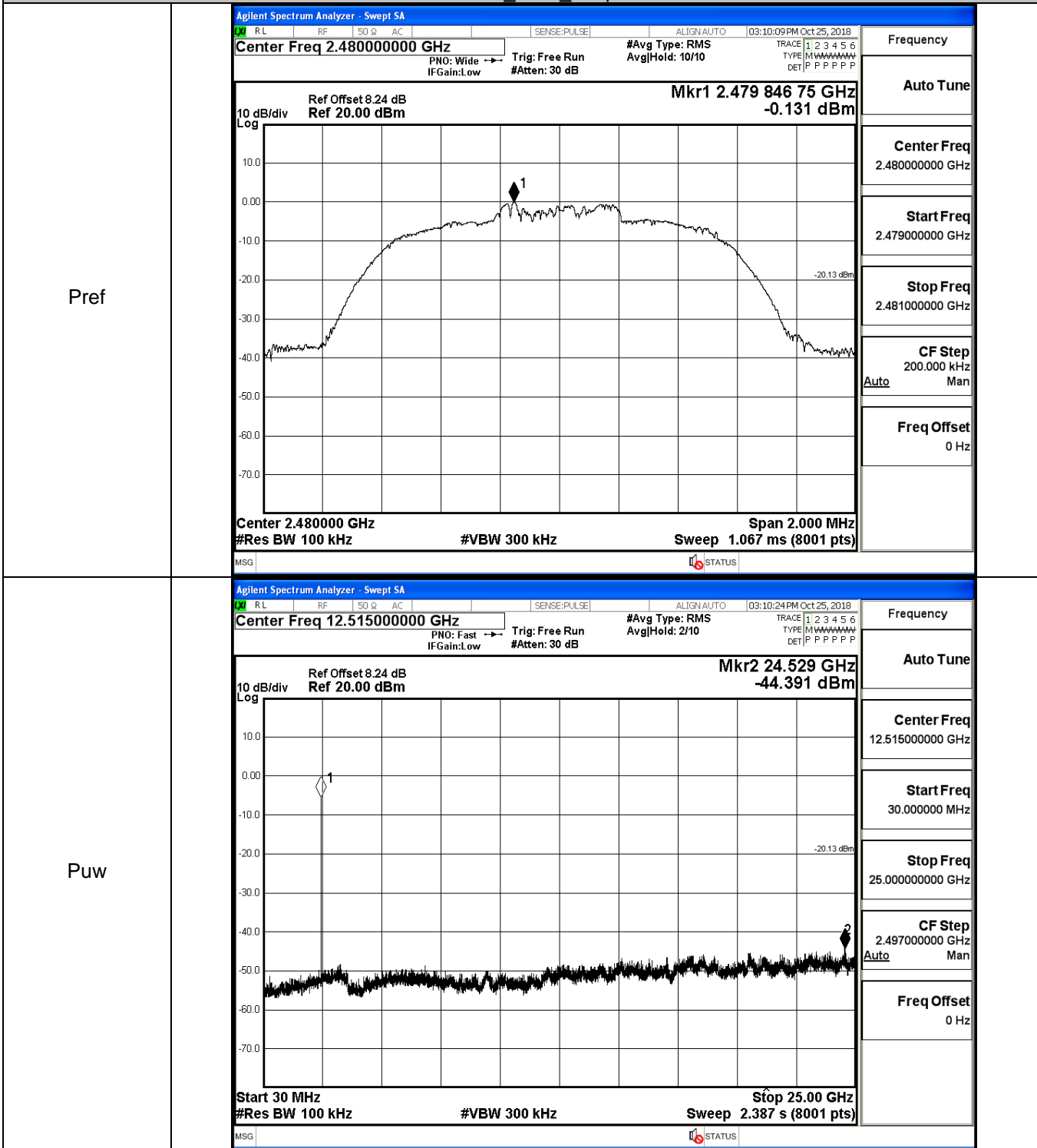
$\pi/4$ DQPSK_LCH_Graphs



$\pi/4$ DQPSK_MCH_Graphs

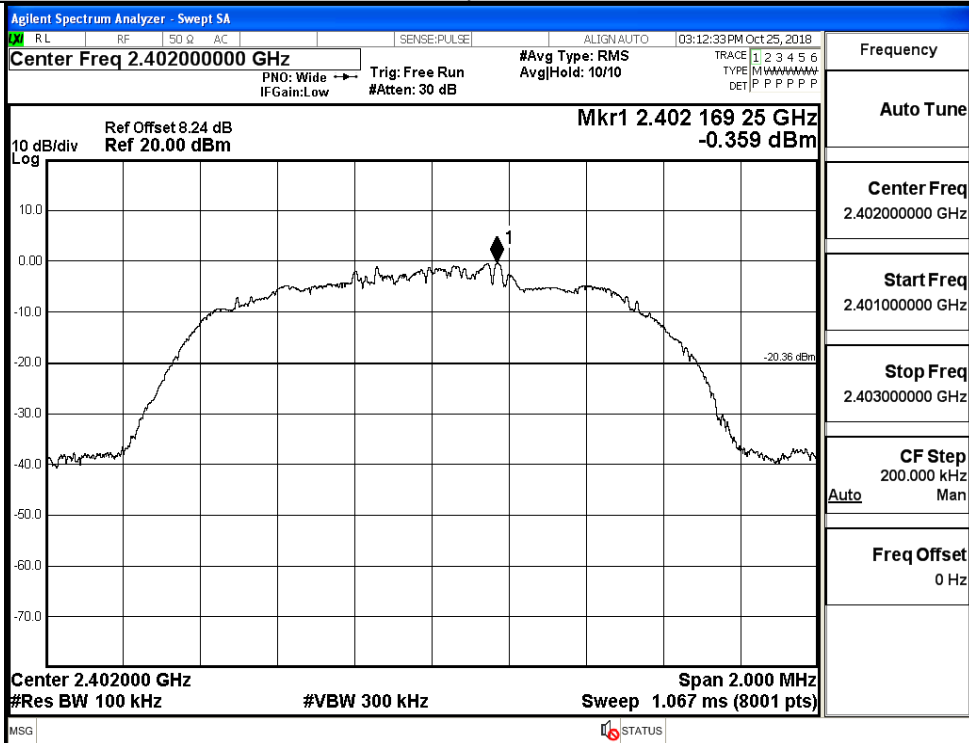


$\pi/4$ DQPSK_HCH_Graphs

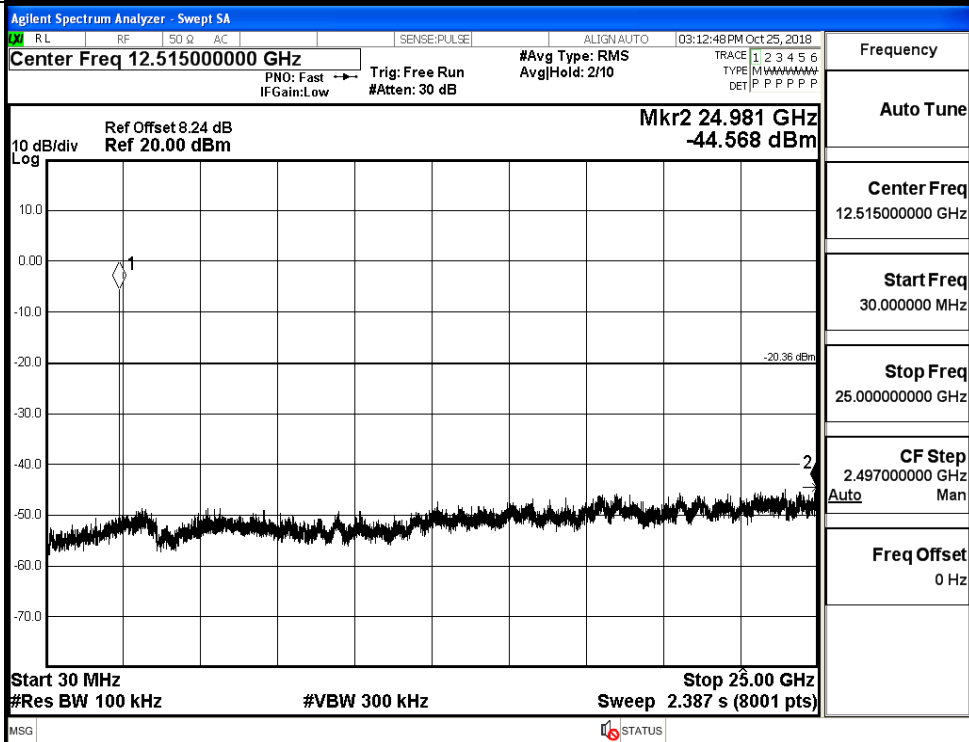


8DPSK_LCH_Graphs

Pref

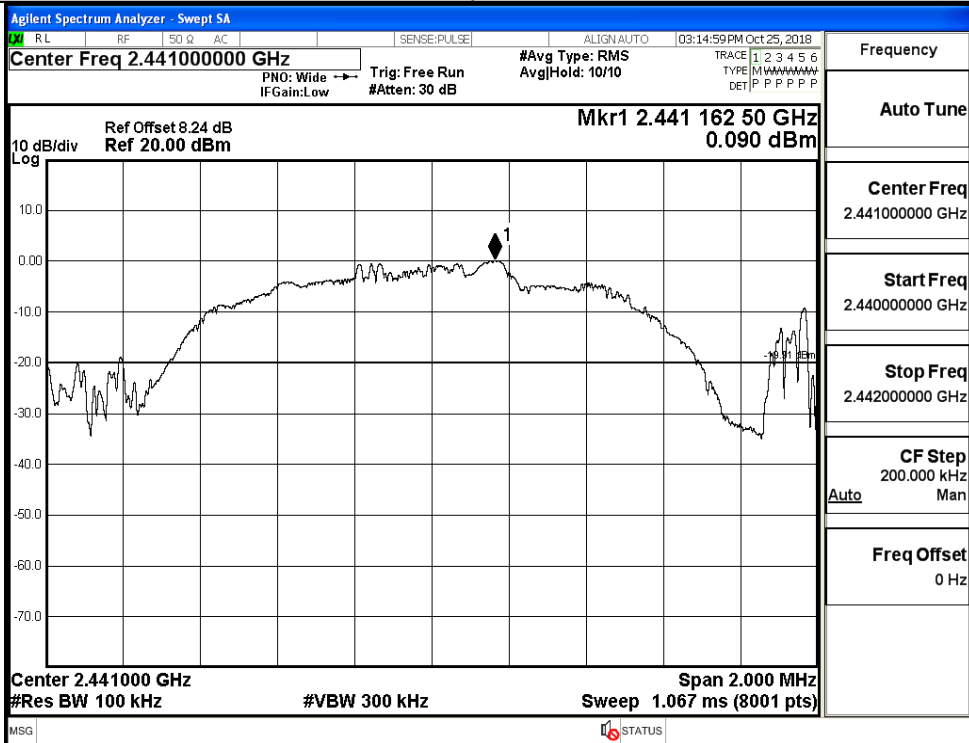


Puw

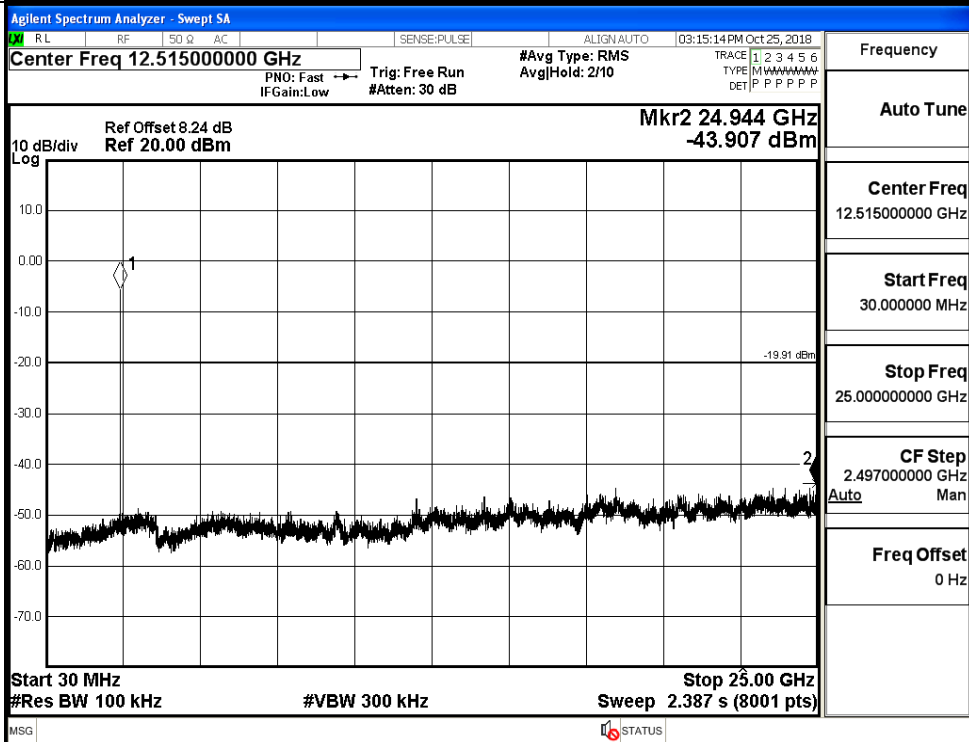


8DPSK_MCH_Graphs

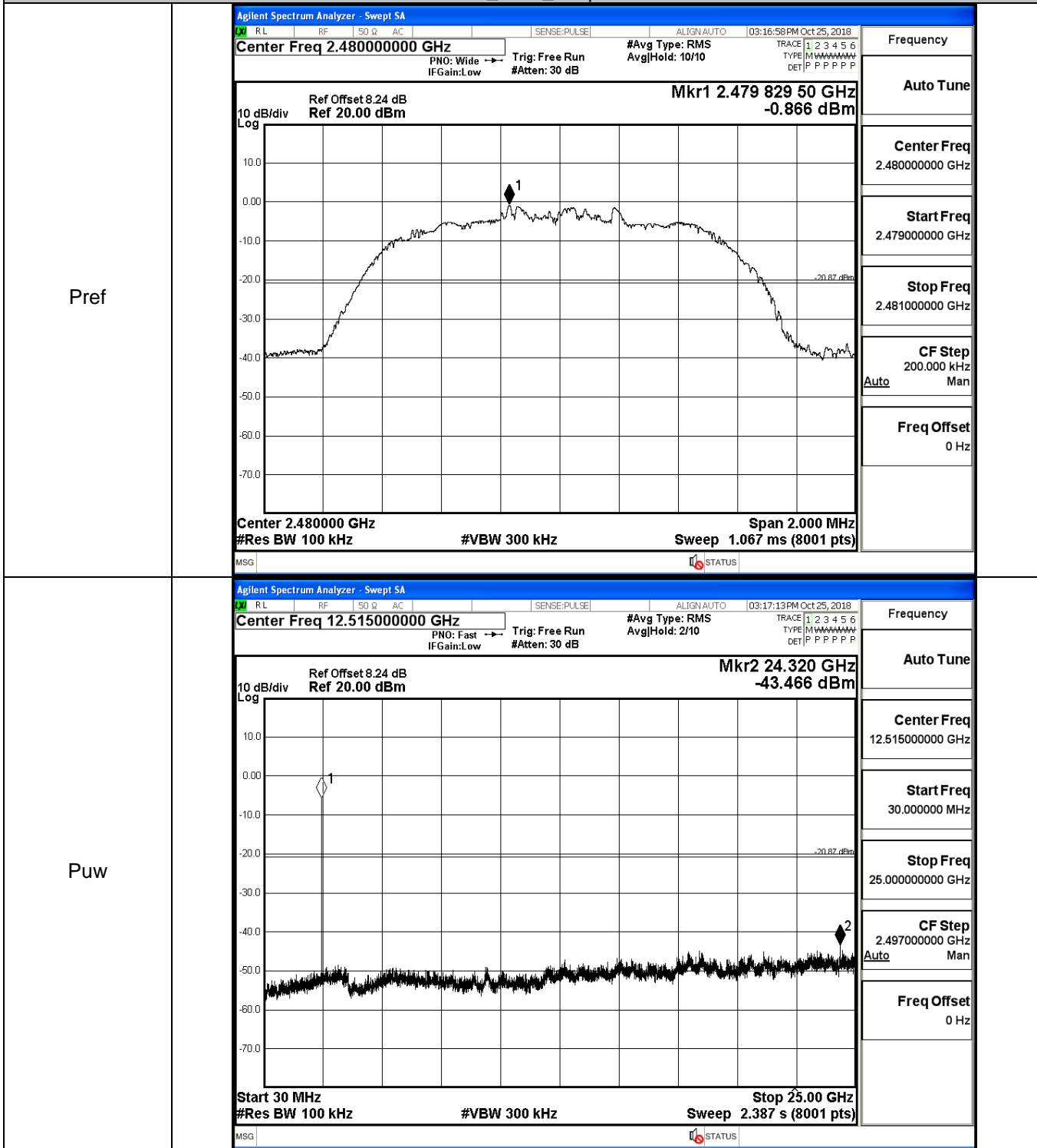
Pref



Puw



8DPSK_HCH_Graphs

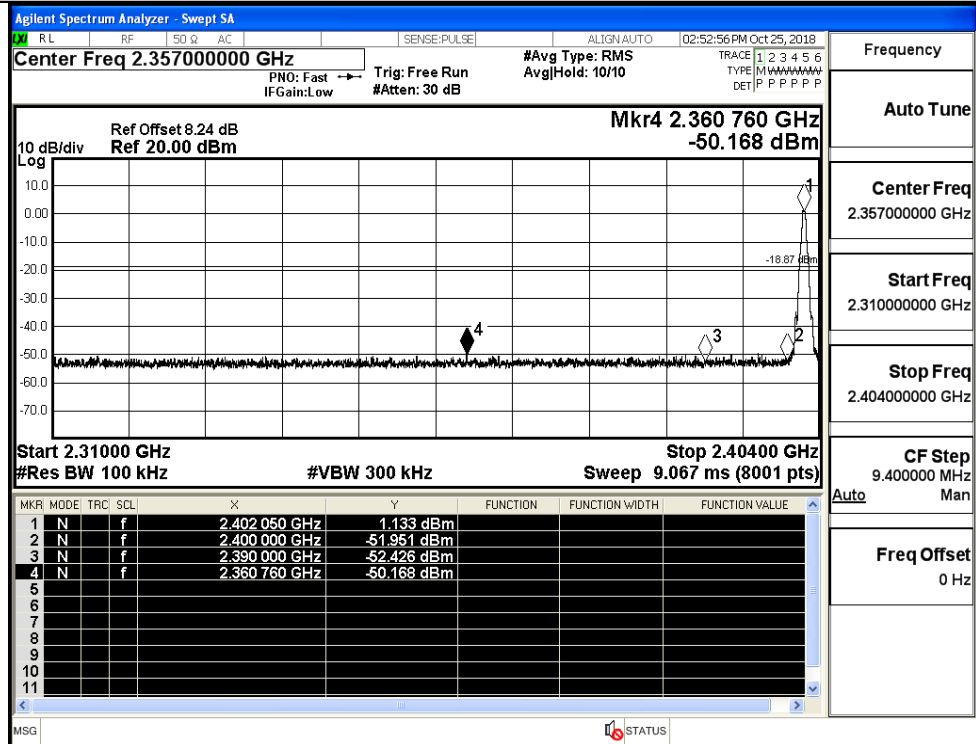


A.7 Band-edge for RF Conducted Emissions

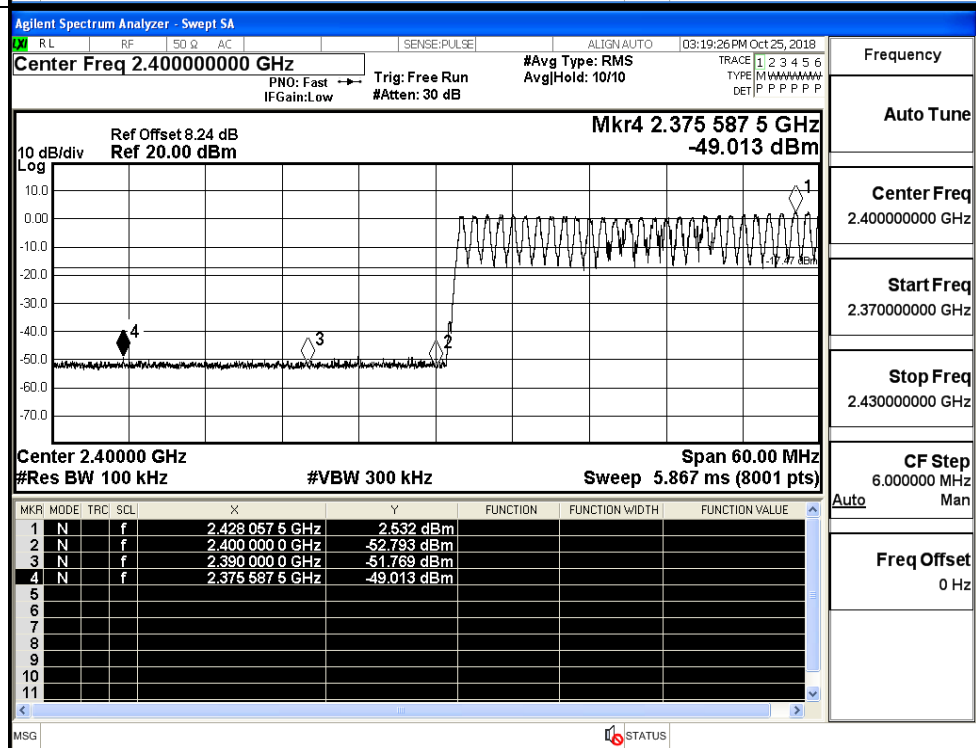
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	1.133	Off	-50.168	-18.87	PASS
			2.532	On	-49.013	-17.47	PASS
	HCH	2480	0.714	Off	-45.012	-19.29	PASS
			1.884	On	-49.132	-18.12	PASS
$\pi/4$ DQPSK	LCH	2402	-1.548	Off	-49.274	-21.55	PASS
			4.136	On	-49.605	-15.86	PASS
	HCH	2480	-0.942	Off	-50.034	-20.94	PASS
			2.879	On	-45.604	-17.12	PASS
8DPSK	LCH	2402	-0.205	Off	-50.047	-20.21	PASS
			4.928	On	-48.843	-15.07	PASS
	HCH	2480	-1.064	Off	-47.977	-21.06	PASS
			5.150	On	-46.869	-14.85	PASS

Test Graphs

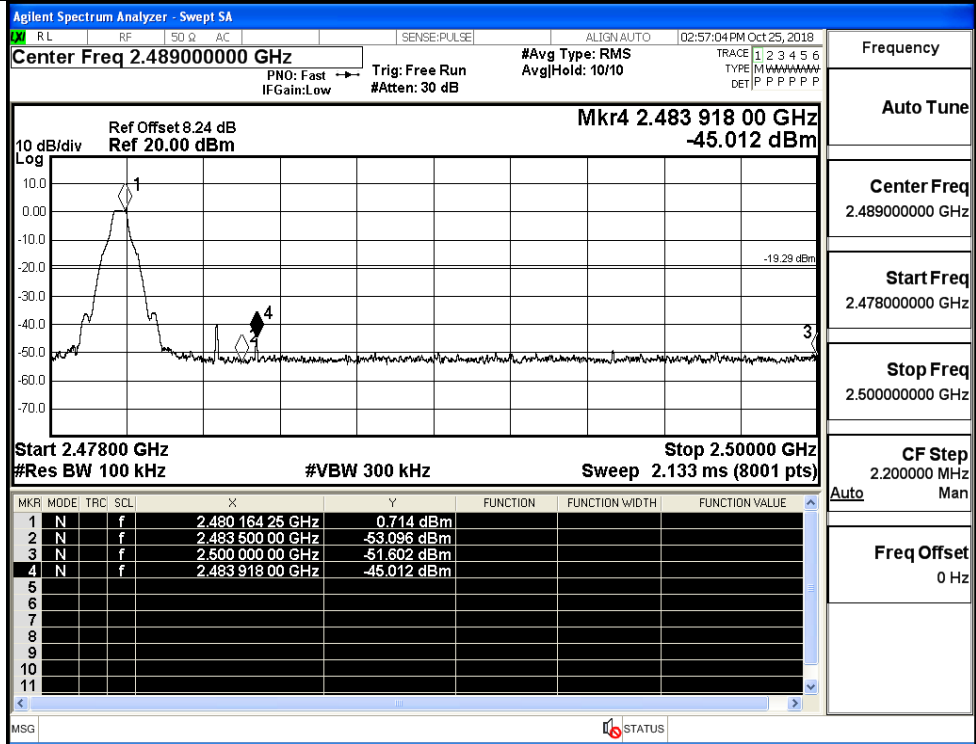
GFSK/LCH/No Hop



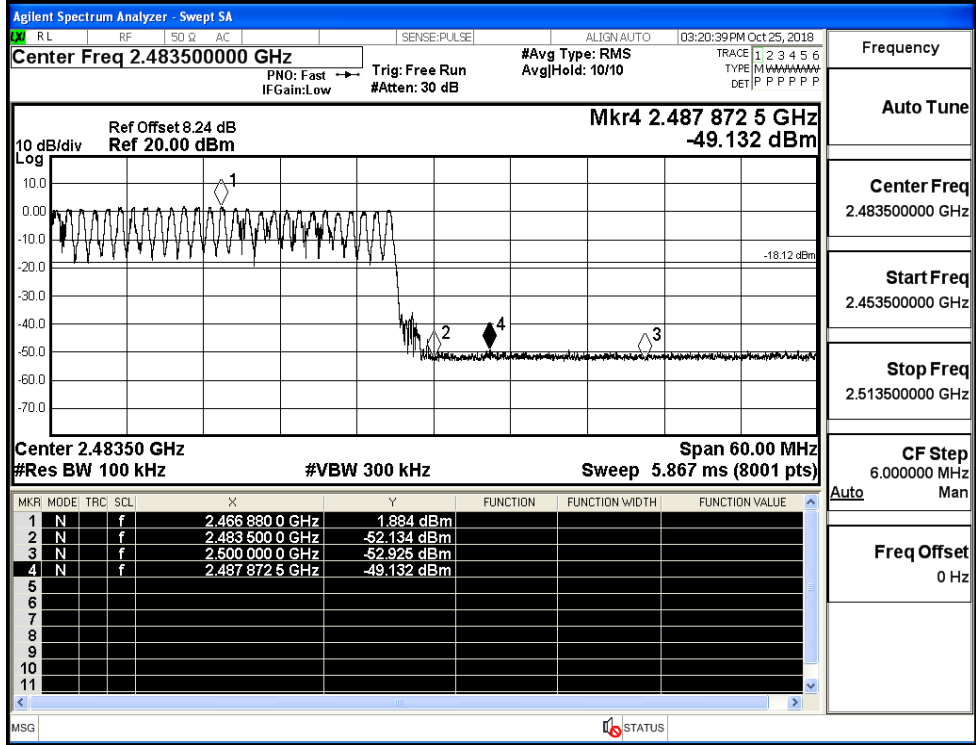
GFSK/LCH/Hop



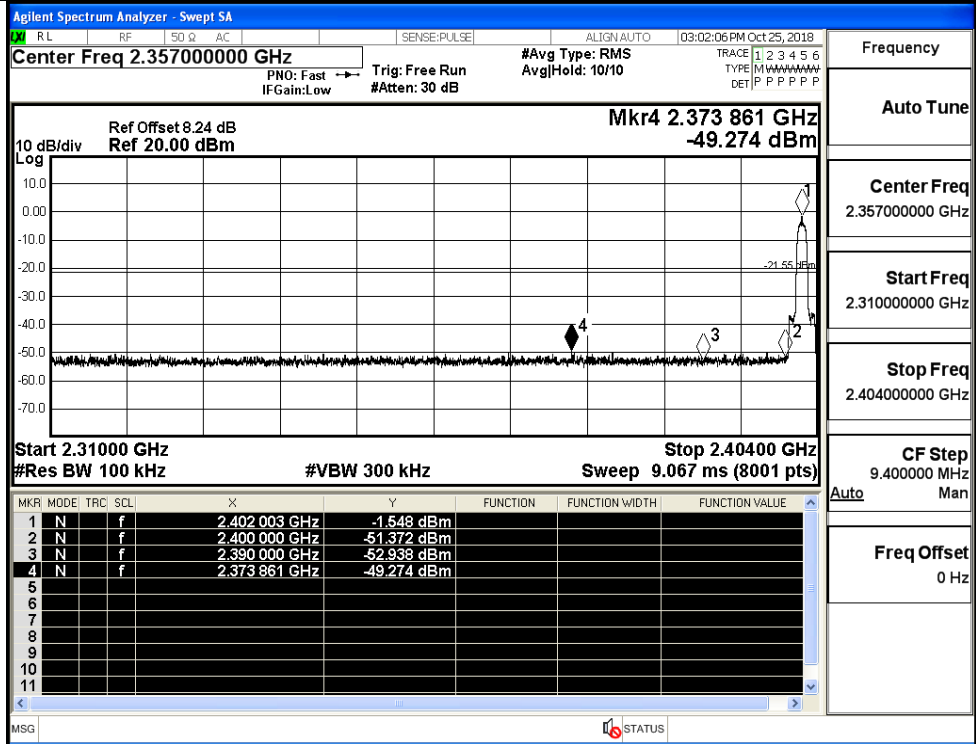
GFSK/HCH/No Hop



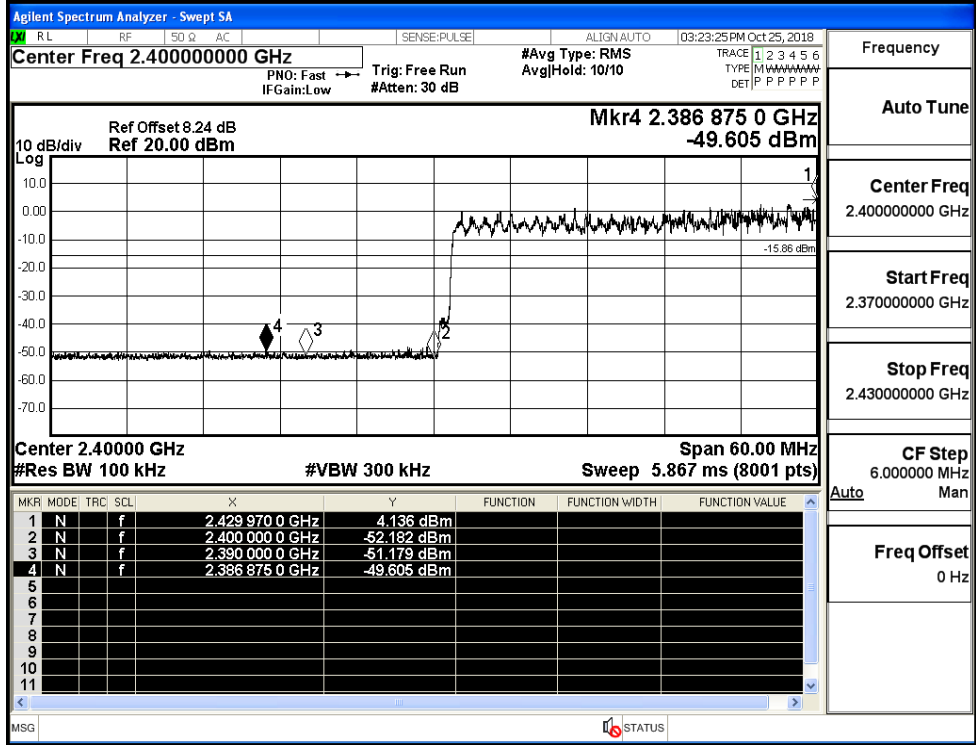
GFSK/HCH/Hop



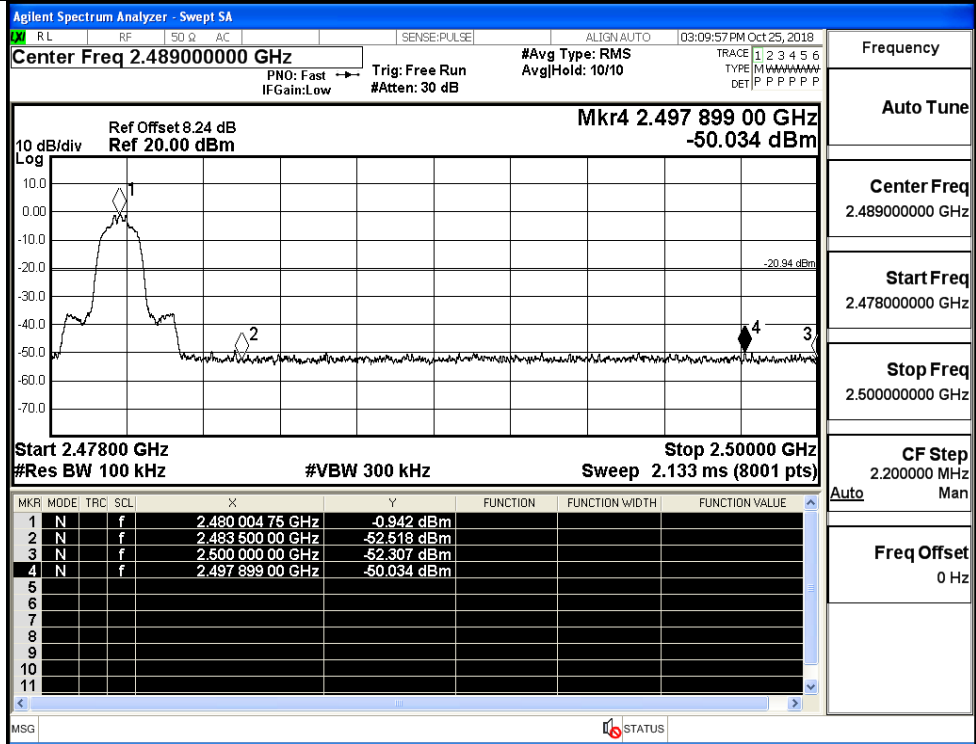
$\pi/4$ DQPSK/LCH/No Hop



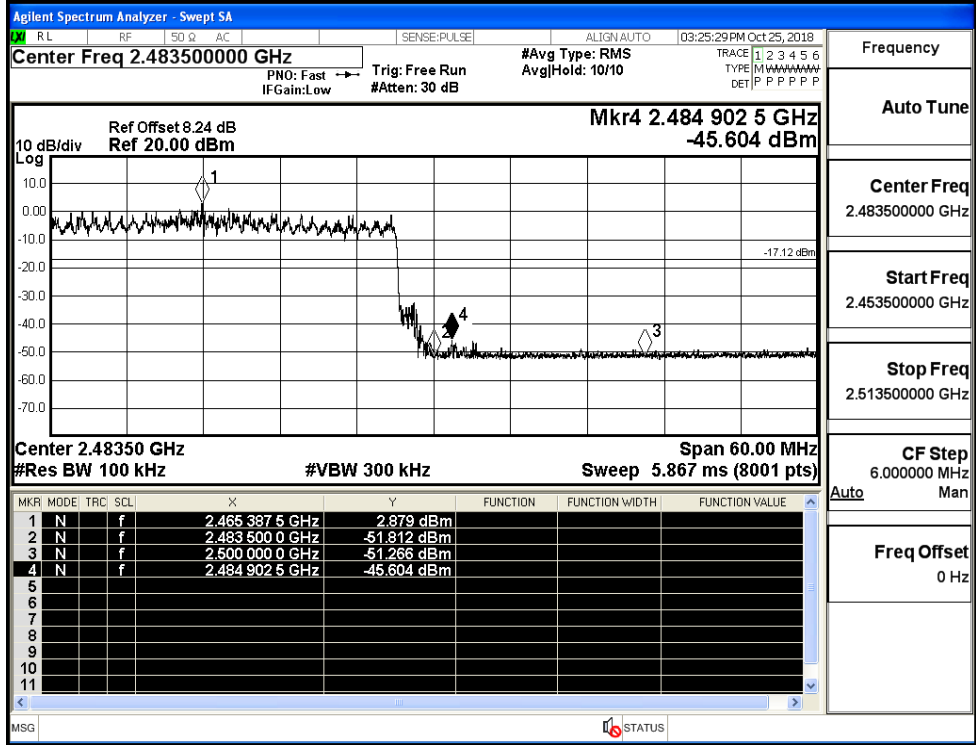
$\pi/4$ DQPSK/LCH/Hop



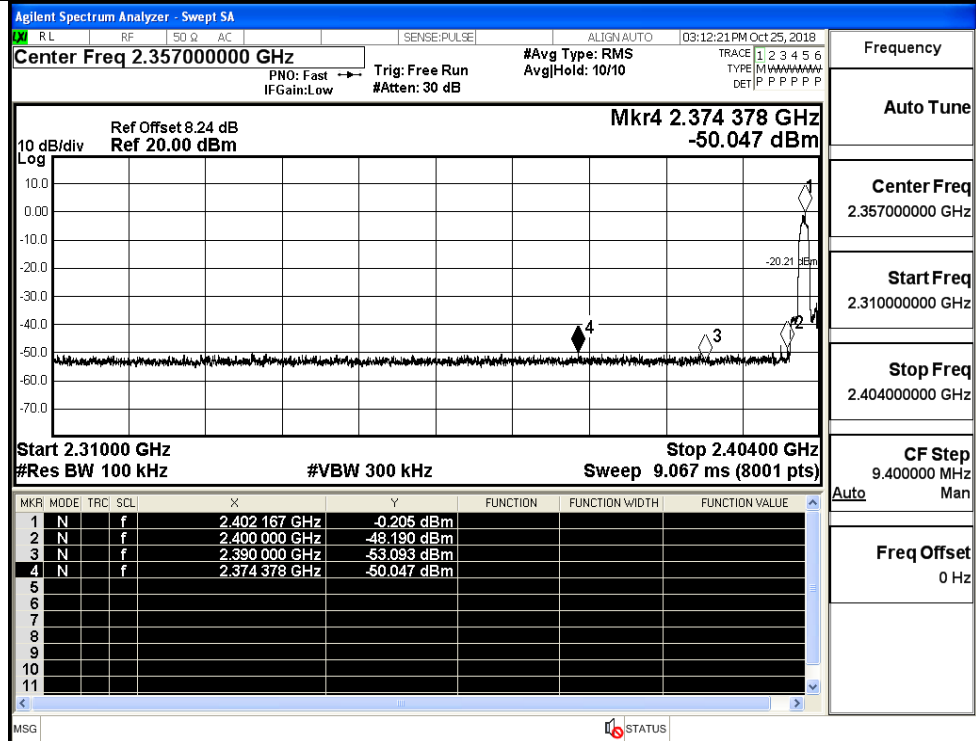
$\pi/4$ DQPSK/HCH/No Hop



$\pi/4$ DQPSK/HCH/Hop

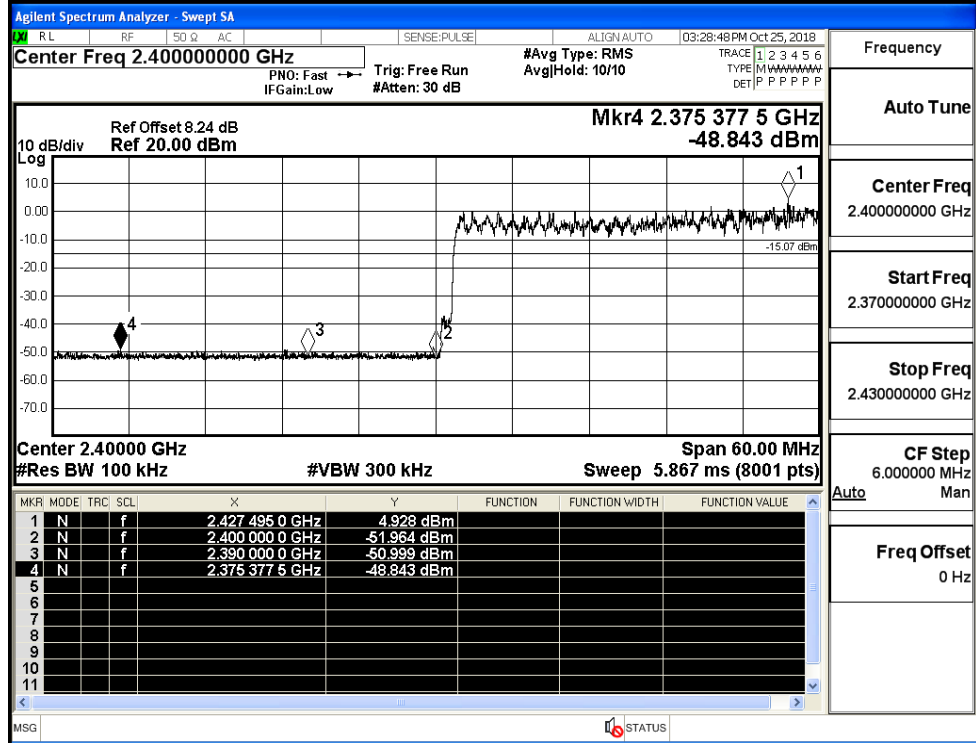


8DPSK/LCH/No Hop



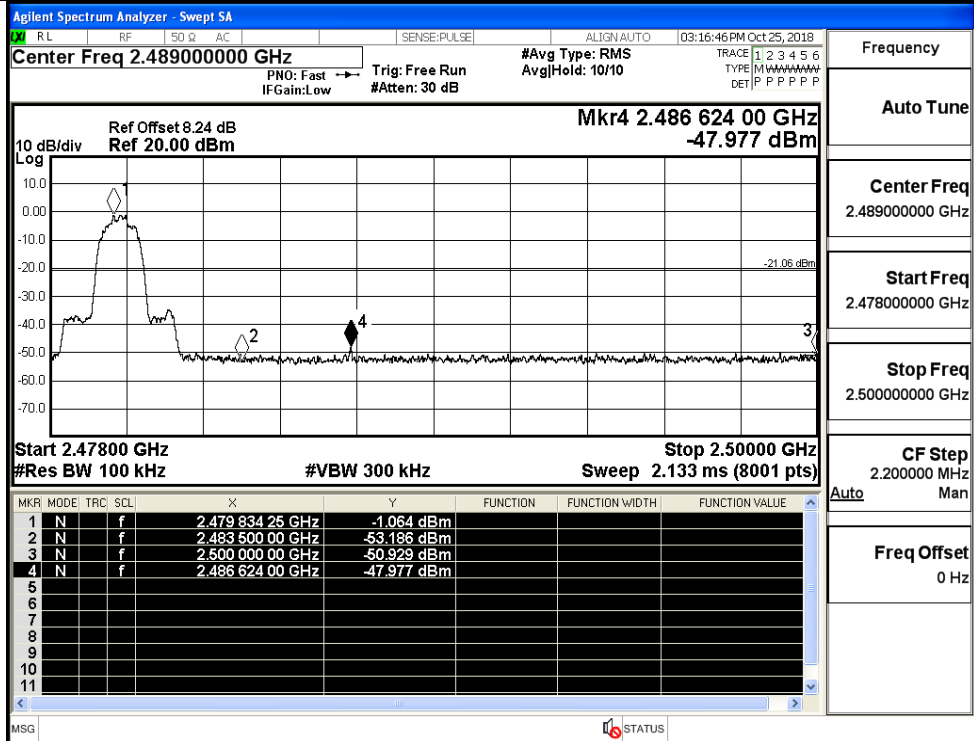
Frequency
Auto Tune
Center Freq
2.357000000 GHz
Start Freq
2.310000000 GHz
Stop Freq
2.404000000 GHz
CF Step
9.400000 MHz
Auto Man
Freq Offset
0 Hz

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

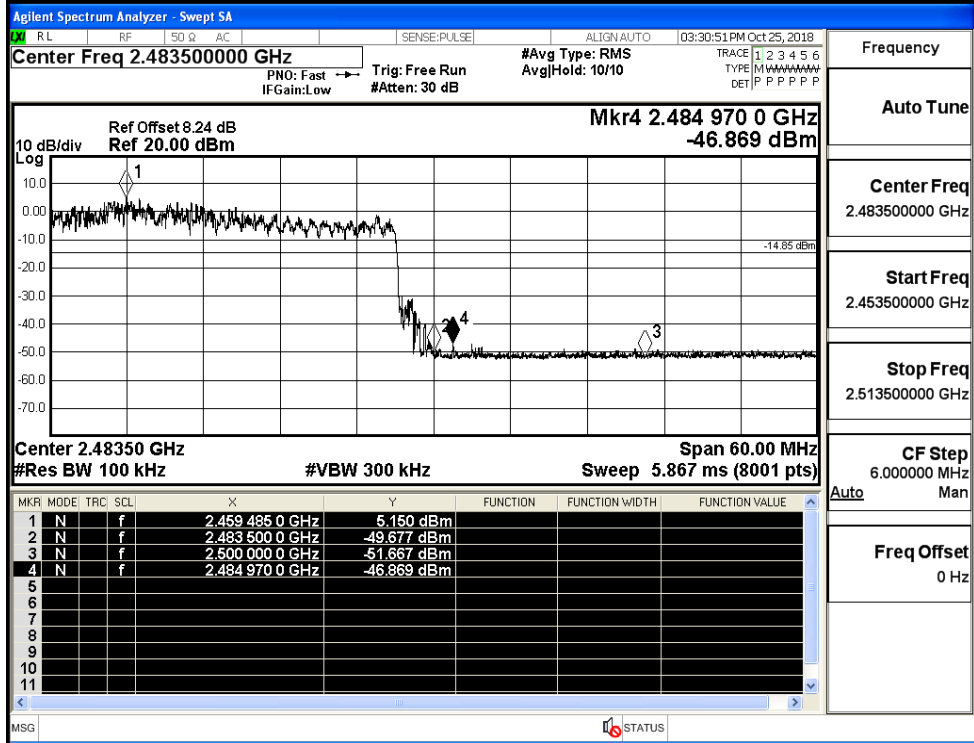
Start Freq
2.478000000 GHz

Stop Freq
2.500000000 GHz

CF Step
2.200000 MHz

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

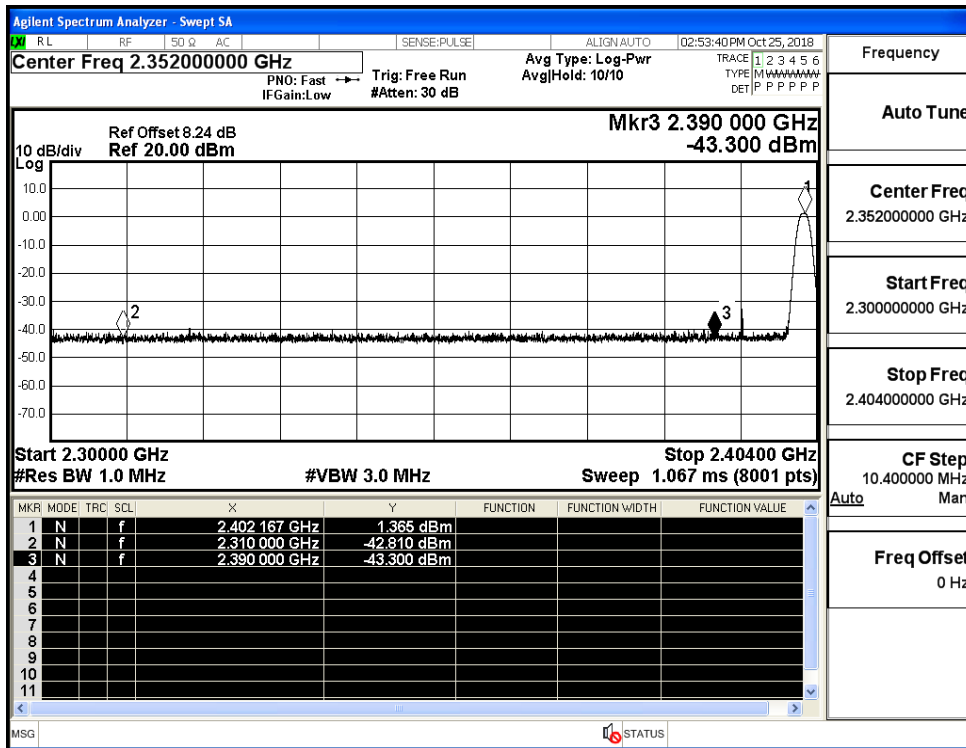
CF Step
6.000000 MHz

Freq Offset
0 Hz

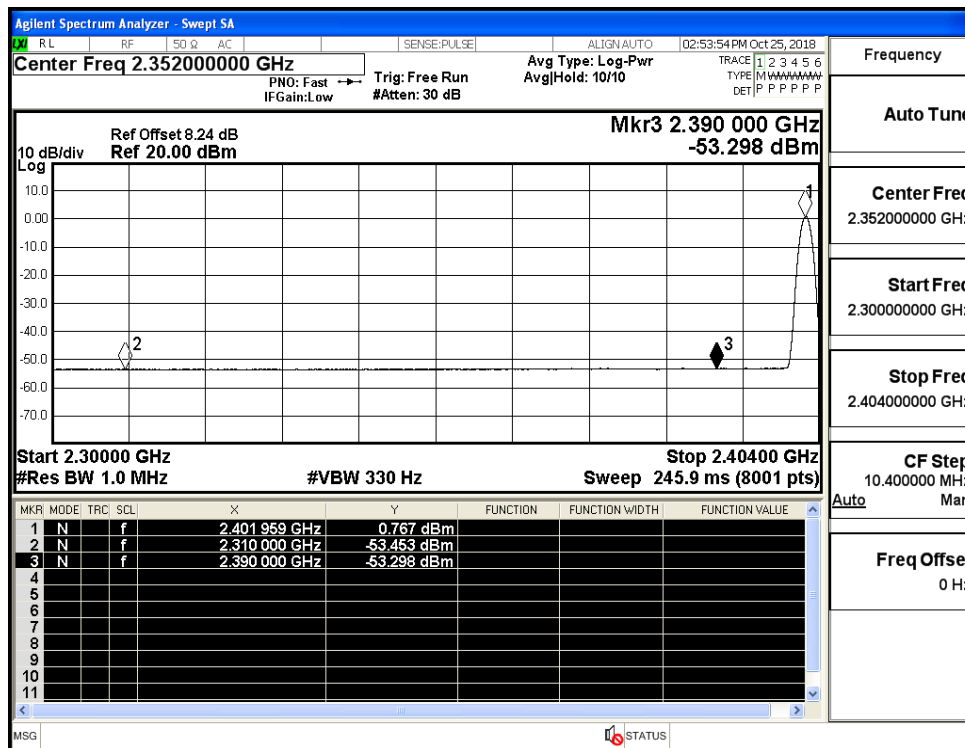
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-42.81	2.0	0	52.45	PEAK	74	PASS
	Off	2310.0	-53.45	2.0	0	41.80	AV	54	PASS
	Off	2390.0	-43.30	2.0	0	51.96	PEAK	74	PASS
	Off	2390.0	-53.30	2.0	0	41.96	AV	54	PASS
	Off	2483.5	-43.47	2.0	0	51.78	PEAK	74	PASS
	Off	2483.5	-52.96	2.0	0	42.29	AV	54	PASS
	Off	2500.0	-43.02	2.0	0	52.24	PEAK	74	PASS
	Off	2500.0	-52.78	2.0	0	42.47	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.84	2.0	0	52.42	PEAK	74	PASS
	Off	2310.0	-53.45	2.0	0	41.81	AV	54	PASS
	Off	2390.0	-41.84	2.0	0	53.42	PEAK	74	PASS
	Off	2390.0	-53.23	2.0	0	42.02	AV	54	PASS
	Off	2483.5	-41.32	2.0	0	53.94	PEAK	74	PASS
	Off	2483.5	-52.87	2.0	0	42.39	AV	54	PASS
	Off	2500.0	-43.41	2.0	0	51.85	PEAK	74	PASS
	Off	2500.0	-52.87	2.0	0	42.39	AV	54	PASS
8DPSK	Off	2310.0	-41.88	2.0	0	53.38	PEAK	74	PASS
	Off	2310.0	-53.47	2.0	0	41.79	AV	54	PASS
	Off	2390.0	-42.84	2.0	0	52.41	PEAK	74	PASS
	Off	2390.0	-53.26	2.0	0	41.99	AV	54	PASS
	Off	2483.5	-41.88	2.0	0	53.38	PEAK	74	PASS
	Off	2483.5	-52.92	2.0	0	42.33	AV	54	PASS
	Off	2500.0	-42.91	2.0	0	52.35	PEAK	74	PASS
	Off	2500.0	-52.87	2.0	0	42.39	AV	54	PASS

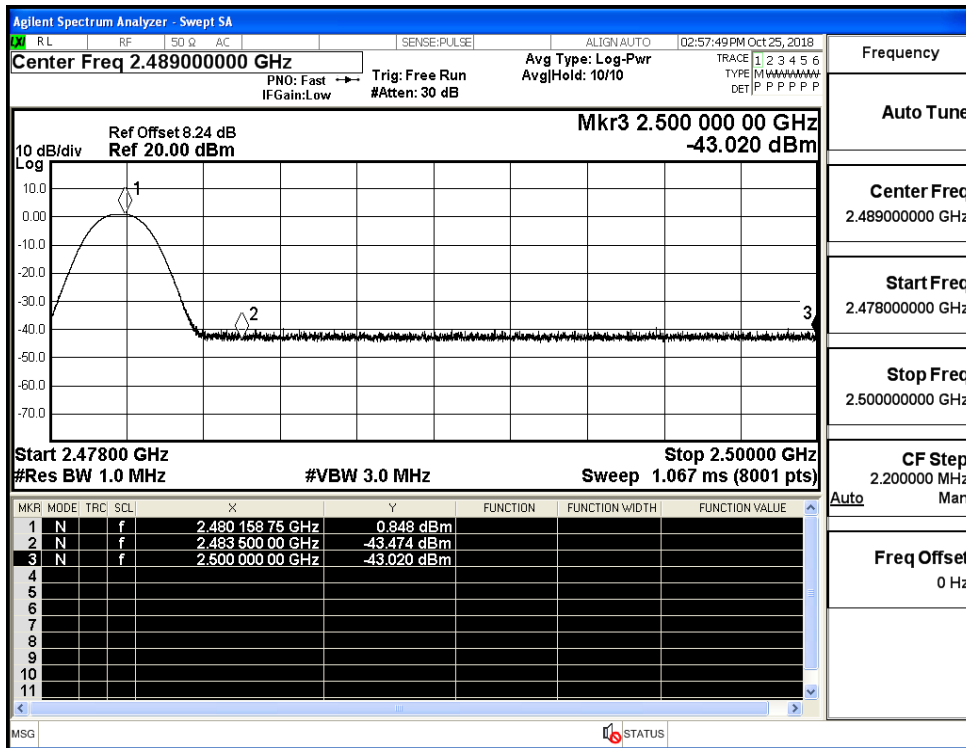
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



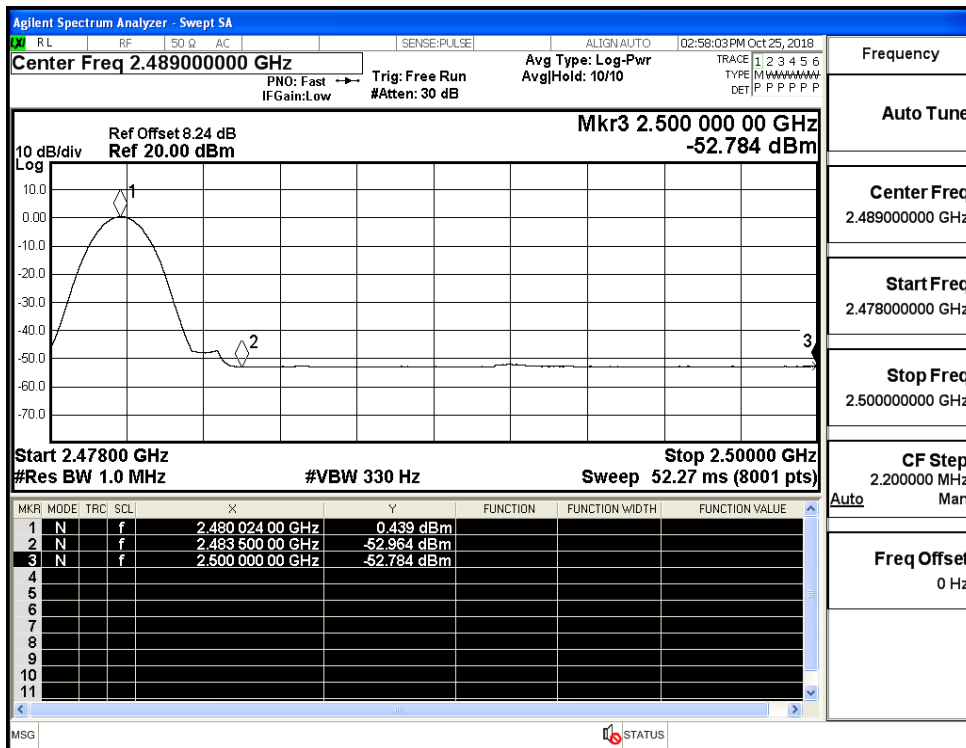
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



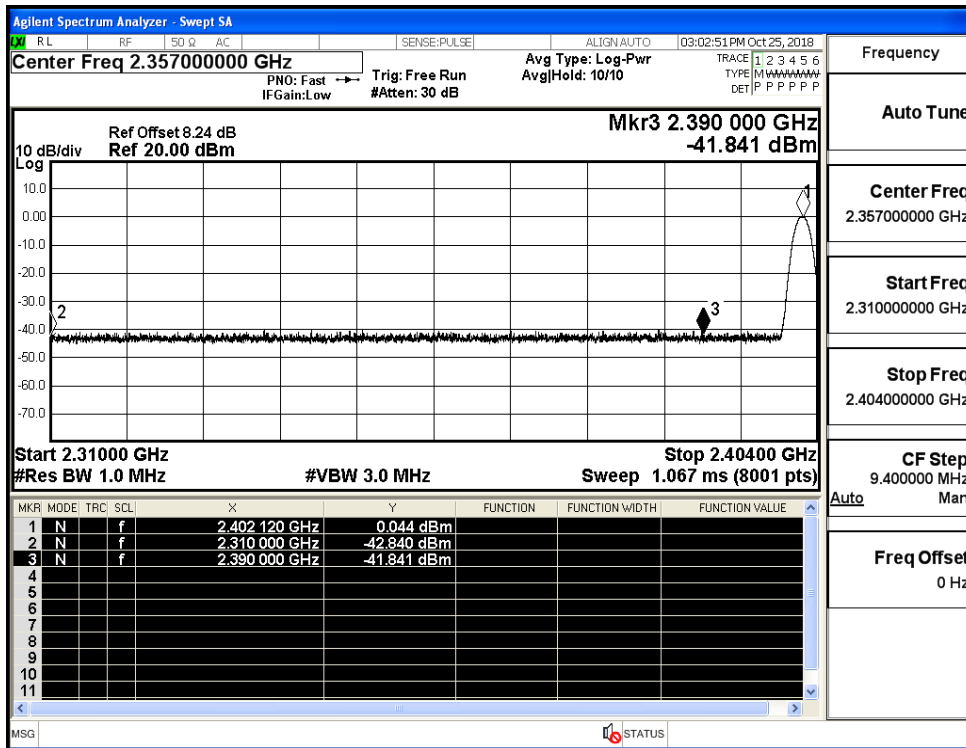
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



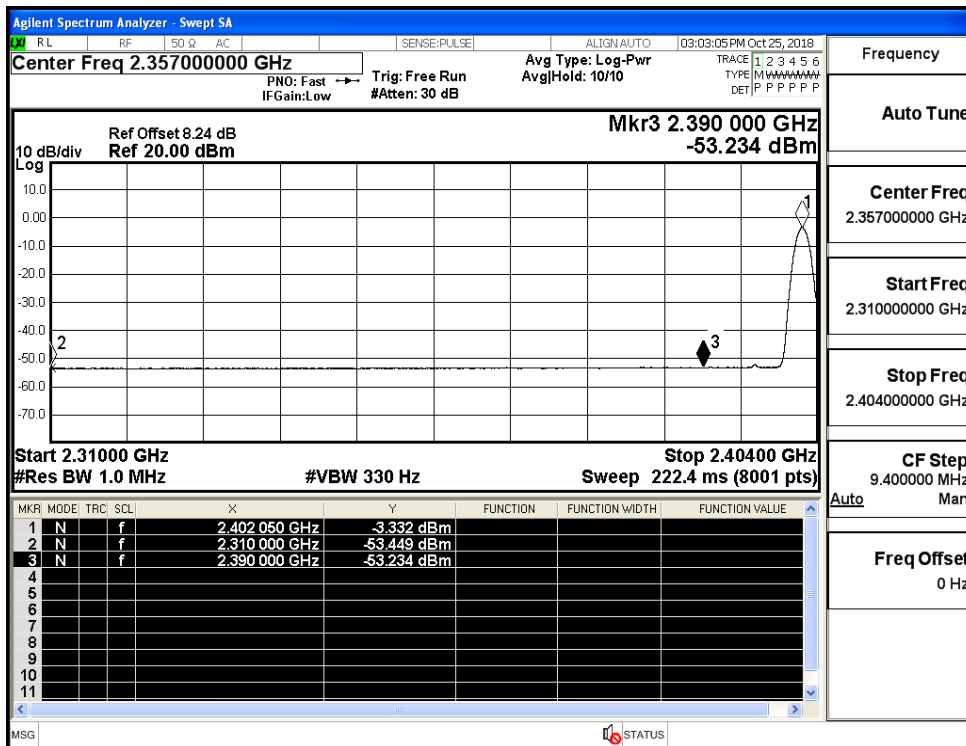
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



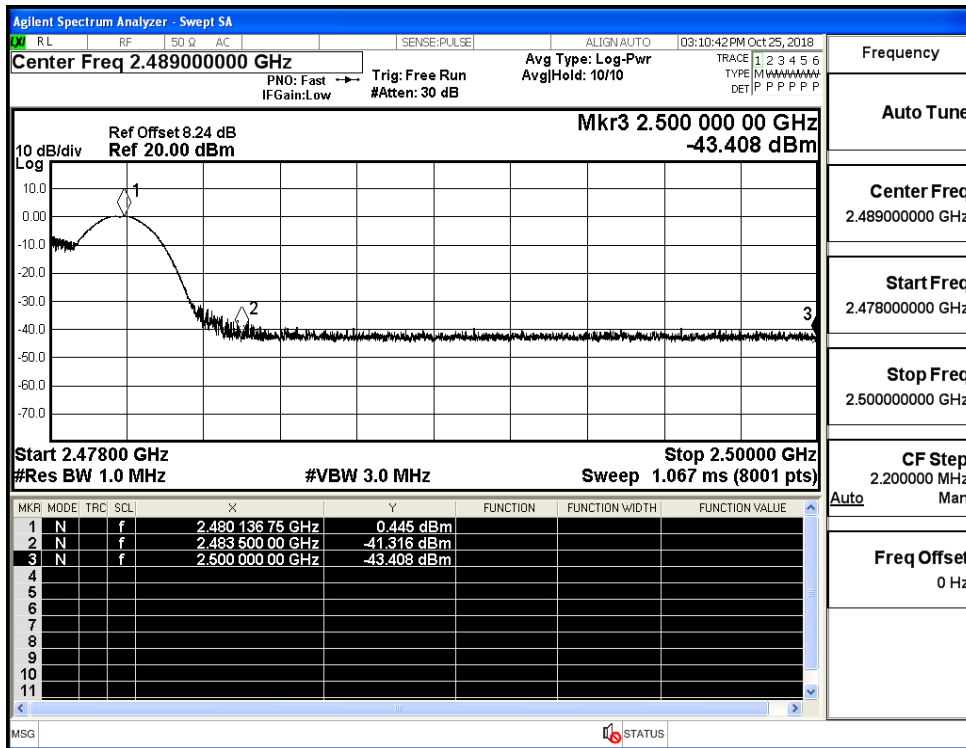
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)



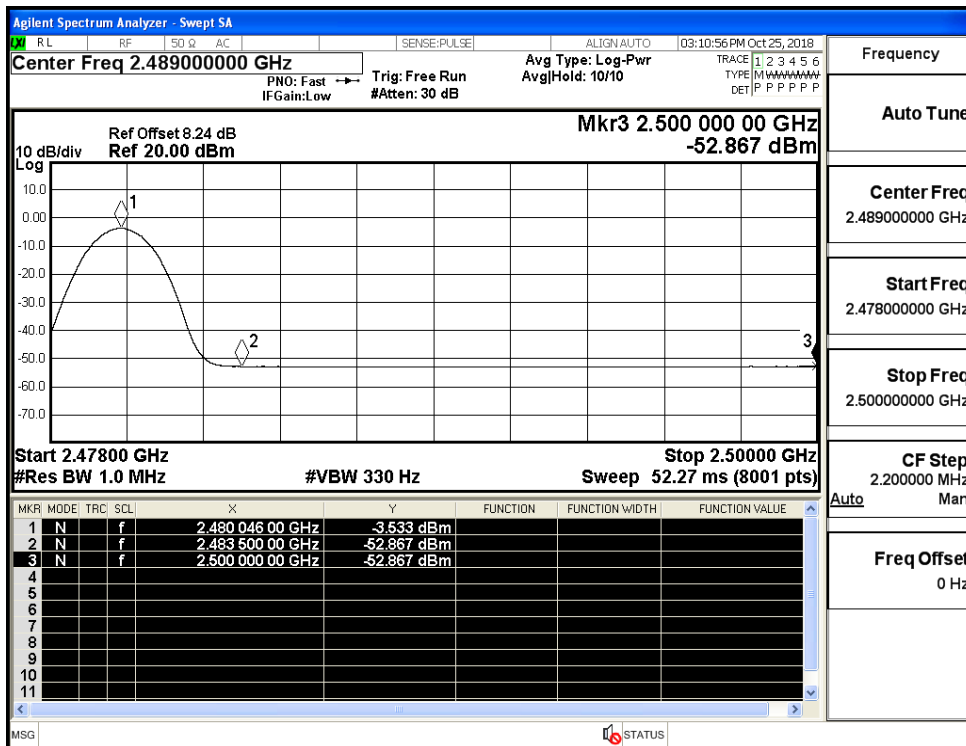
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)



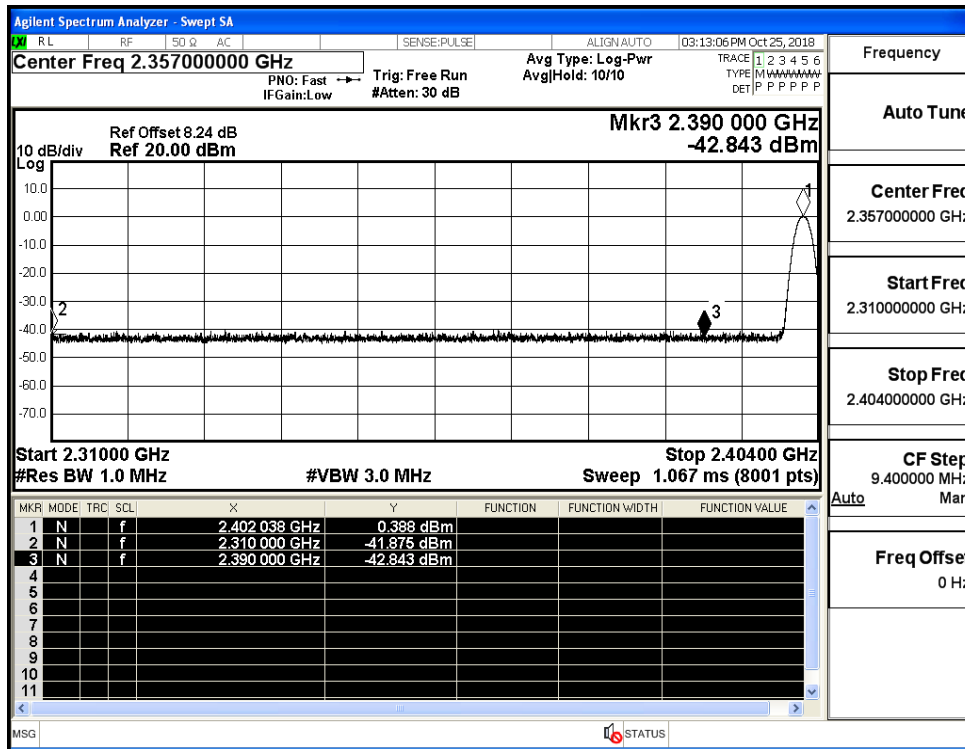
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



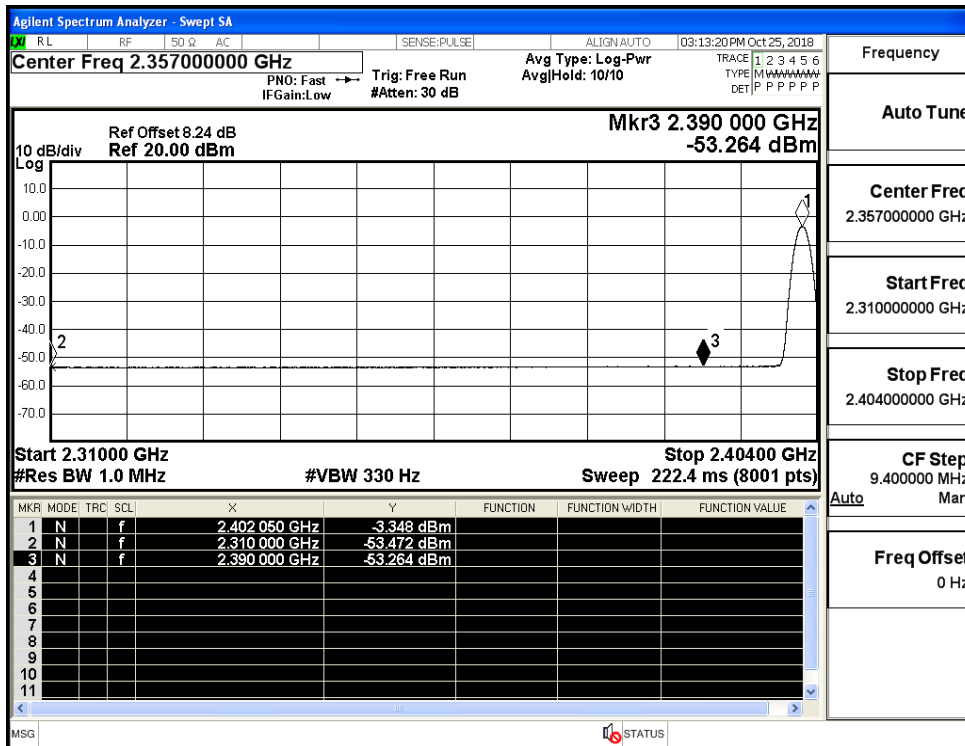
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



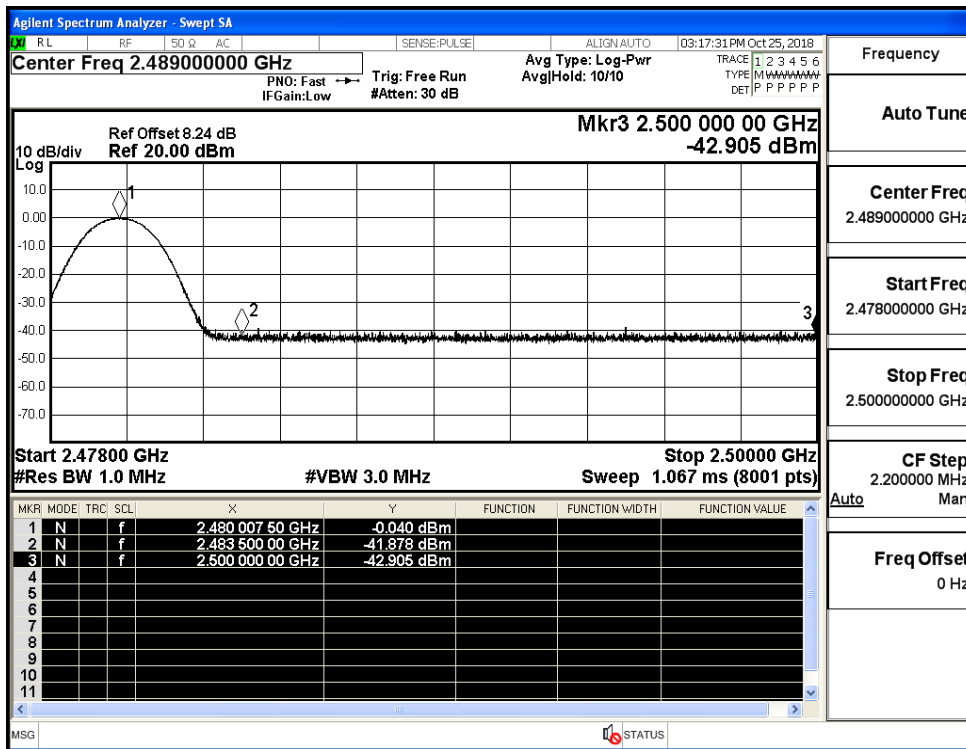
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

