

Appendix A

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

Product Name: DUOSmart Turntable Audio Station

Trade Mark: HYM originals

Test Model: H1-onc01

Environmental Conditions

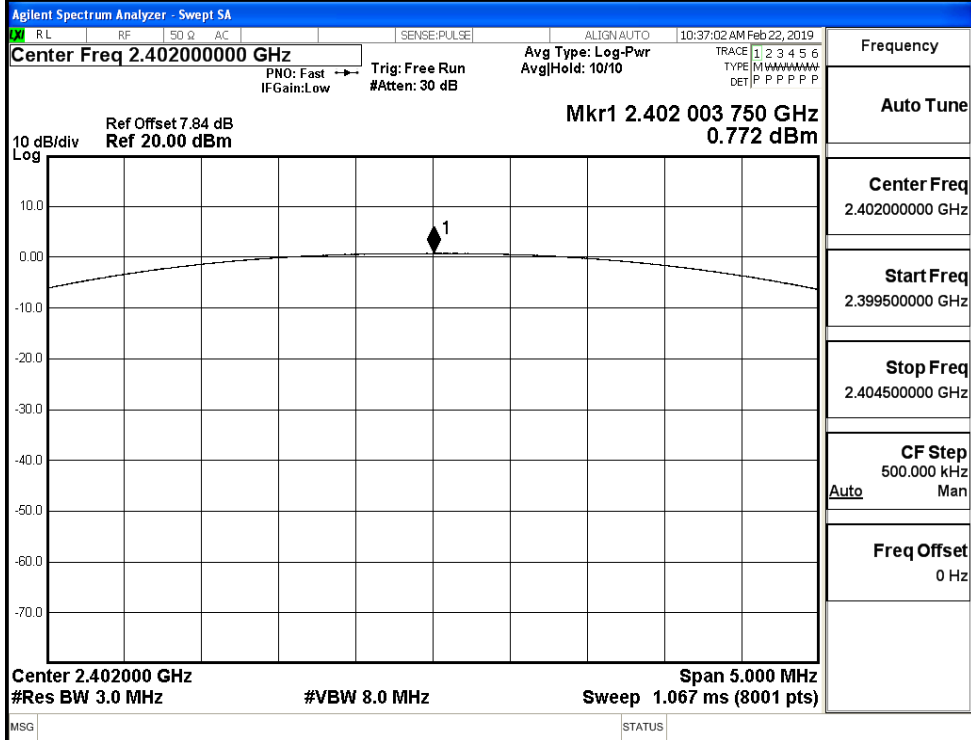
Temperature:	23.4 ° C
Relative Humidity:	52.9%
ATM Pressure:	100.0 kPa
Test Engineer:	Mina.Xu
Supervised by:	Jayden.Zhuo

A.1 Maximum Conducted Peak Output Power

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.772	21	PASS
	MCH	2.156	21	PASS
	HCH	3.314	21	PASS
$\pi/4$ DQPSK	LCH	3.041	21	PASS
	MCH	3.602	21	PASS
	HCH	2.767	21	PASS
8DPSK	LCH	3.171	21	PASS
	MCH	3.534	21	PASS
	HCH	2.909	21	PASS

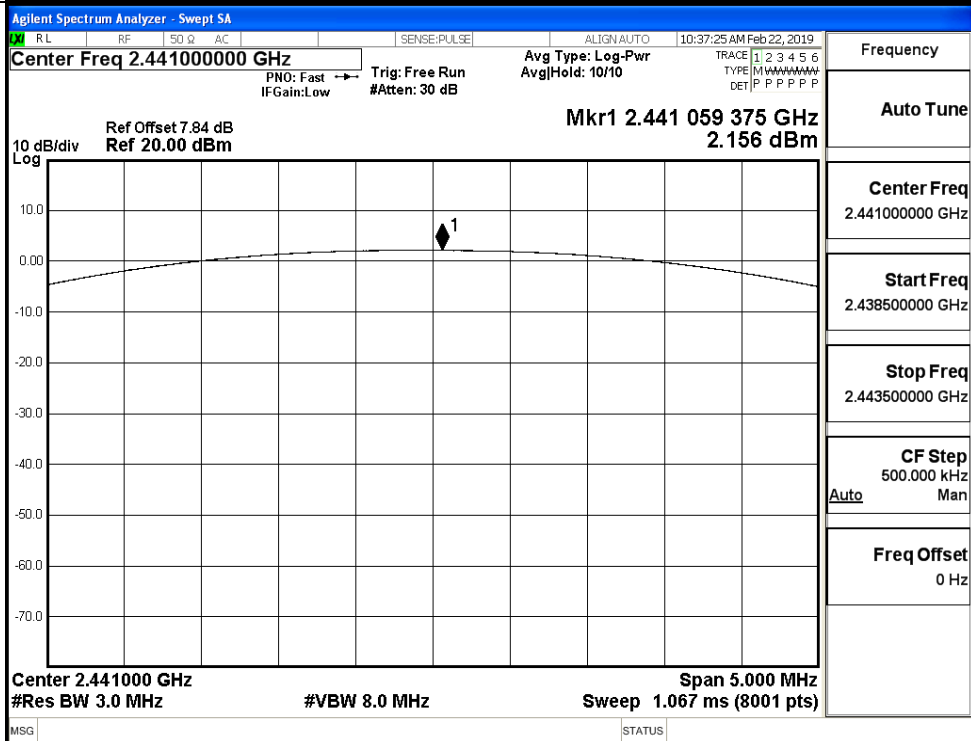
Test Graphs

GFSK/LCH



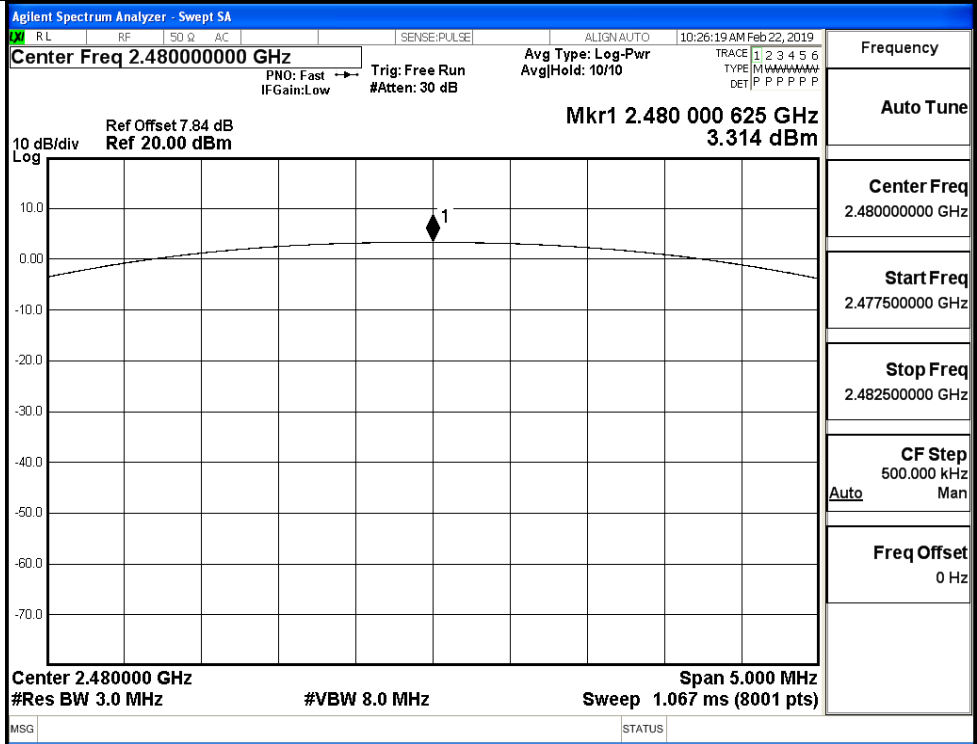
Frequency
Auto Tune
Center Freq 2.402000000 GHz
Start Freq 2.399500000 GHz
Stop Freq 2.404500000 GHz
CF Step 500.000 kHz Auto Man
Freq Offset 0 Hz

GFSK/MCH

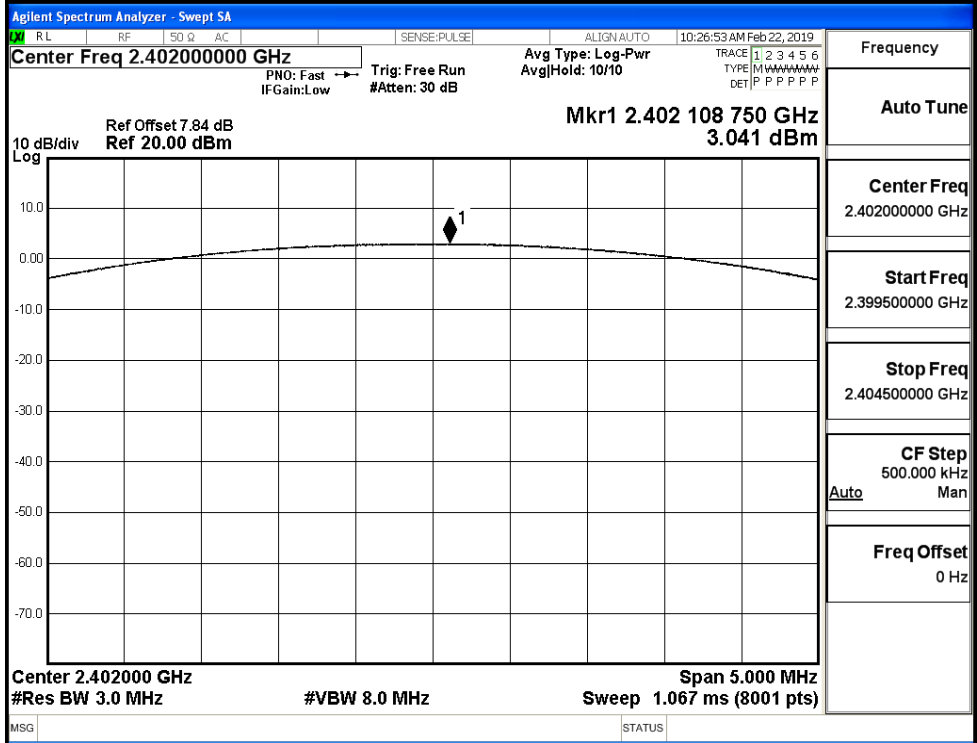


Frequency
Auto Tune
Center Freq 2.441000000 GHz
Start Freq 2.438500000 GHz
Stop Freq 2.443500000 GHz
CF Step 500.000 kHz Auto Man
Freq Offset 0 Hz

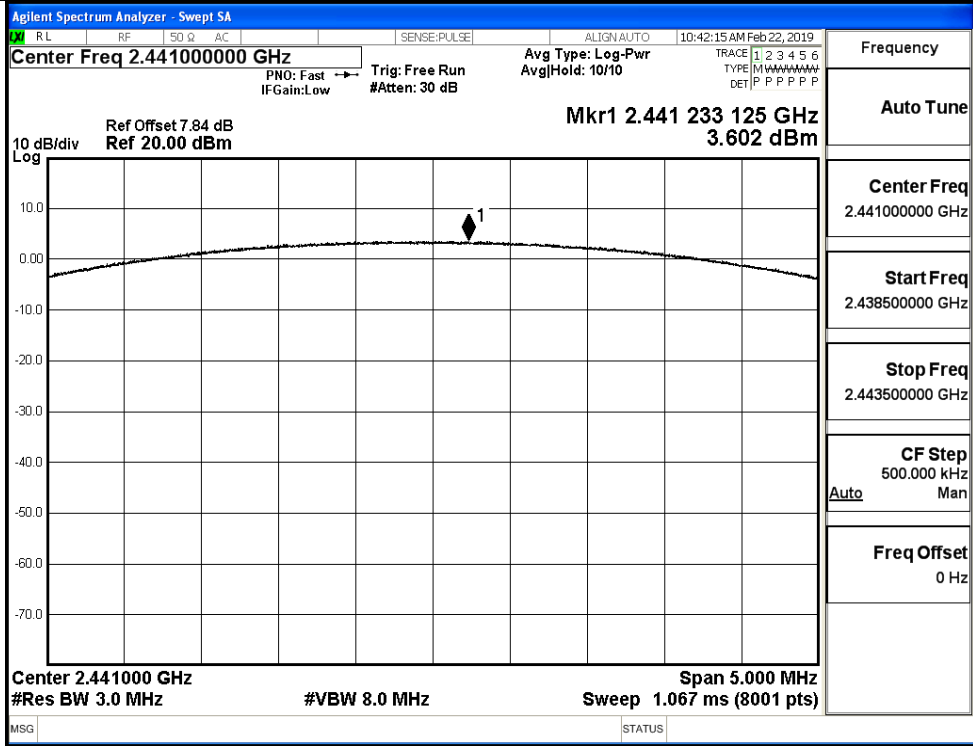
GFSK/HCH



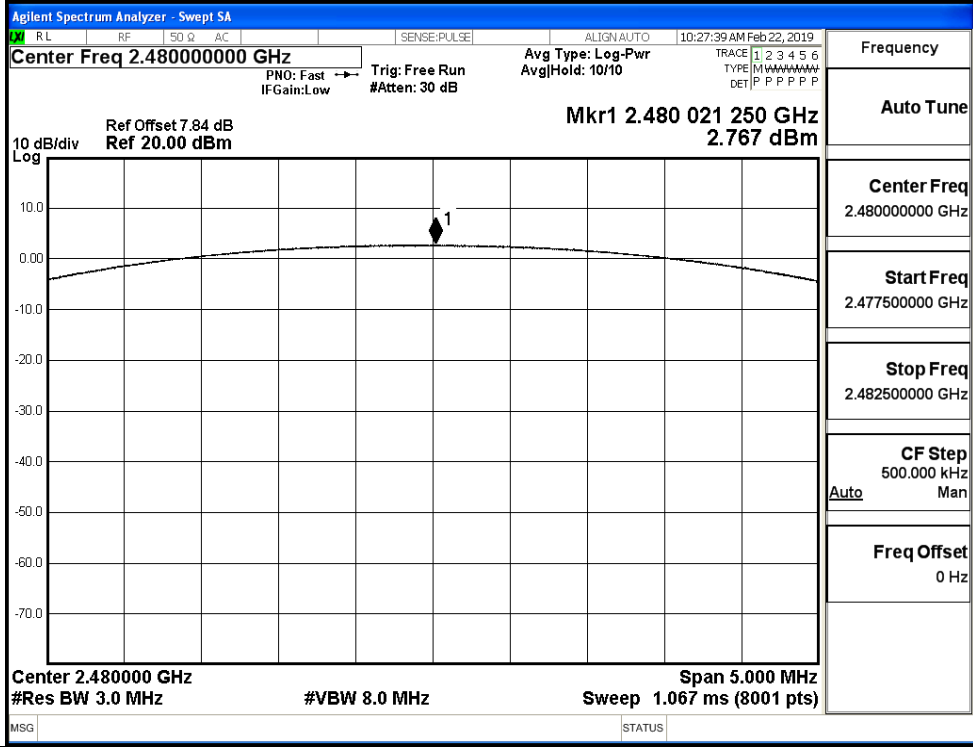
π /4DQPSK/LCH



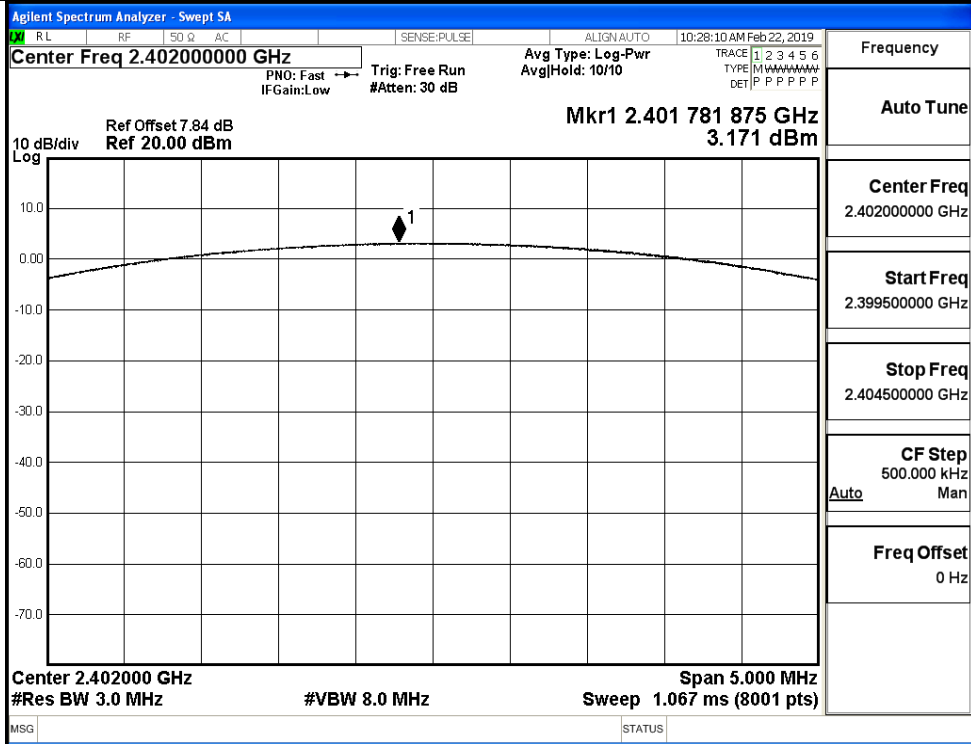
π /4DQPSK/MCH



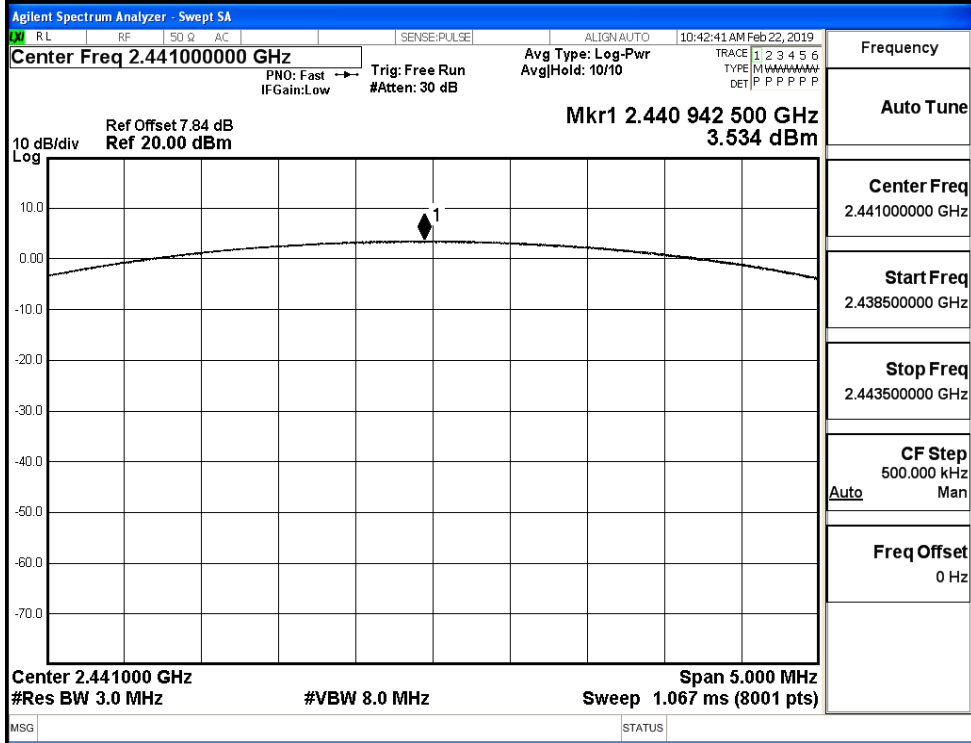
π /4DQPSK/HCH



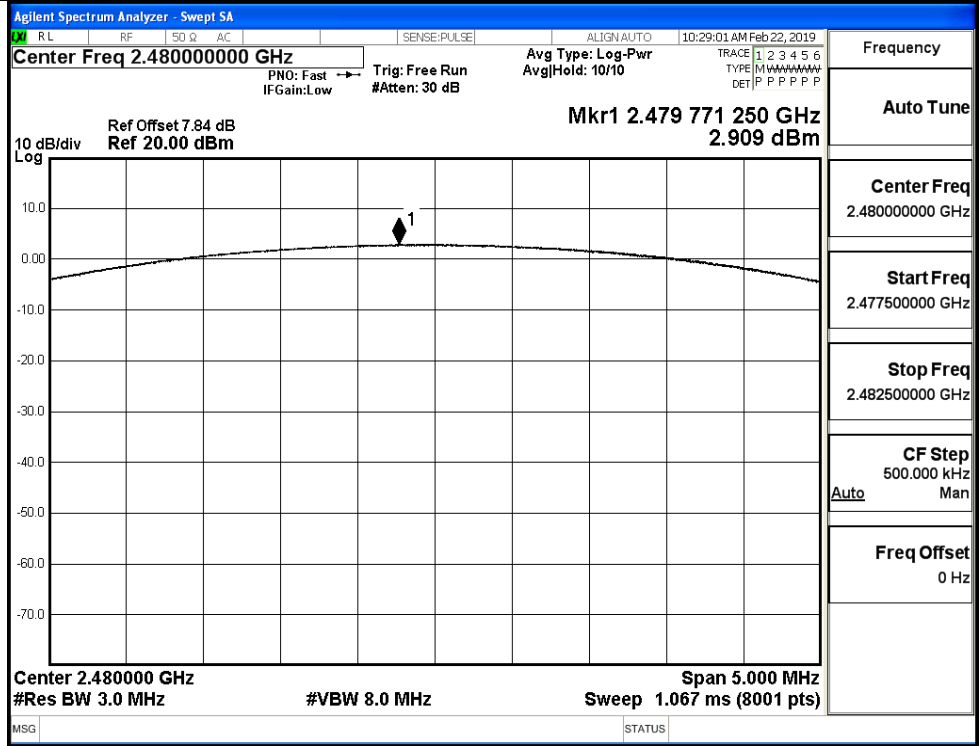
8DPSK/LCH



8DPSK/MCH

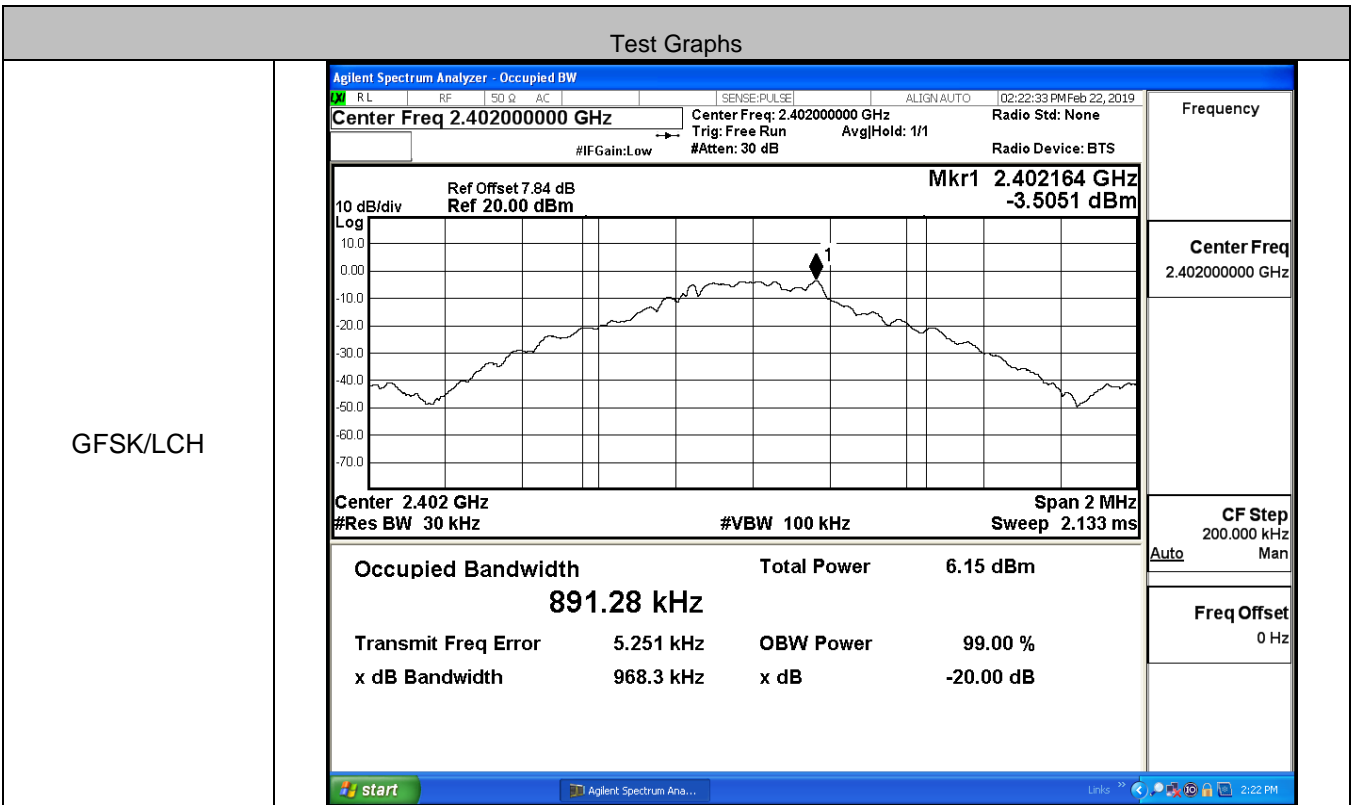


8DPSK/HCH

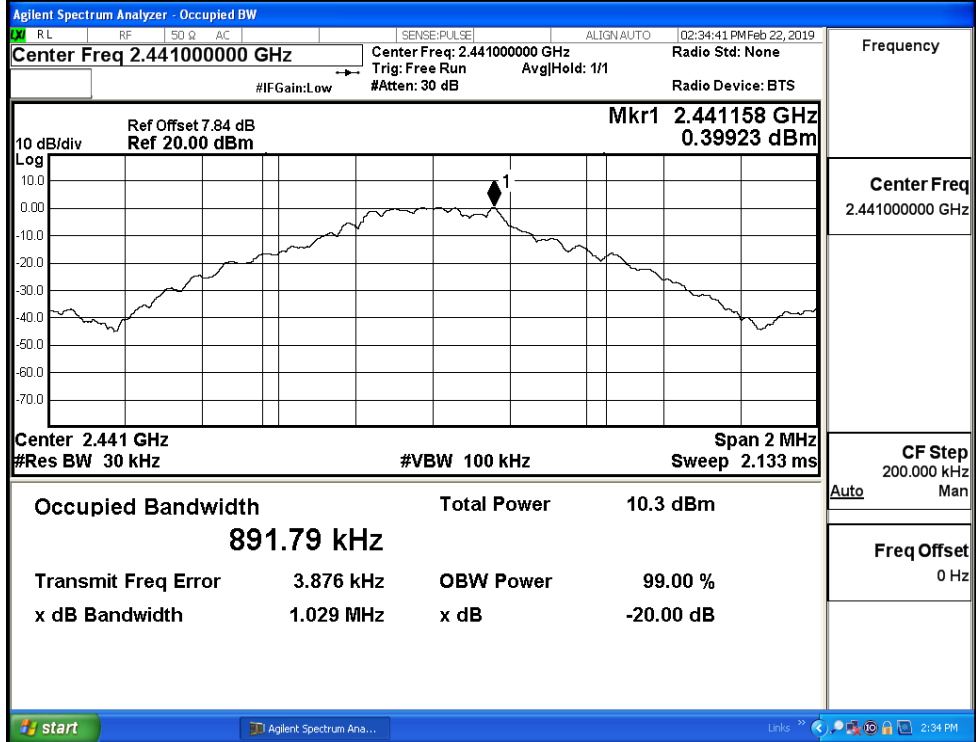


A.2 99% and 20dB Bandwidth

Mode	Channel.	99% Bandwidth [MHz]	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.89128	0.9683	Not Specified	PASS
	MCH	0.89179	1.029	Not Specified	PASS
	HCH	0.89851	1.037	Not Specified	PASS
π/4DQPSK	LCH	1.1788	1.292	Not Specified	PASS
	MCH	1.1759	1.314	Not Specified	PASS
	HCH	1.1750	1.310	Not Specified	PASS
8DPSK	LCH	1.1889	1.296	Not Specified	PASS
	MCH	1.1891	1.300	Not Specified	PASS
	HCH	1.1887	1.298	Not Specified	PASS



GFSK/MCH



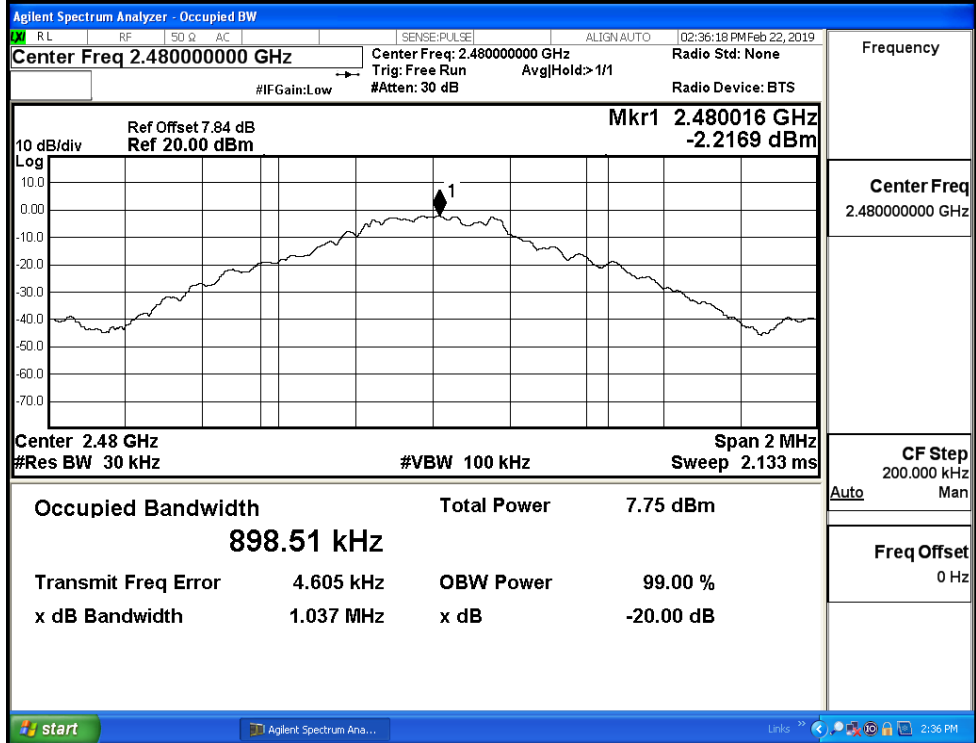
Frequency

Center Freq
2.441000000 GHz

CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz

GFSK/HCH



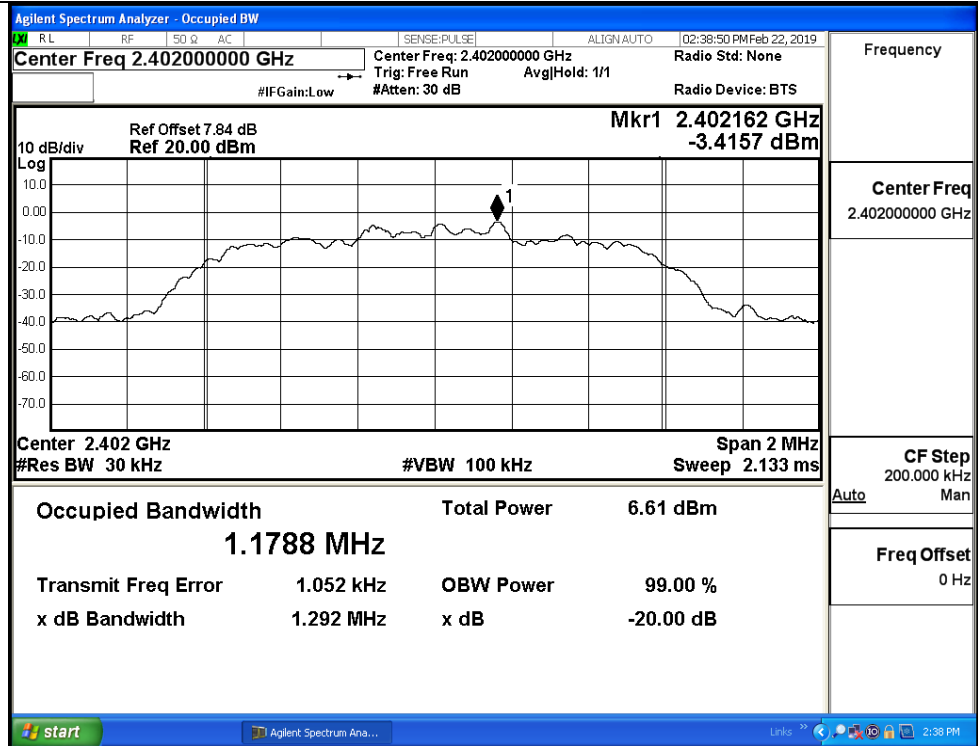
Frequency

Center Freq
2.480000000 GHz

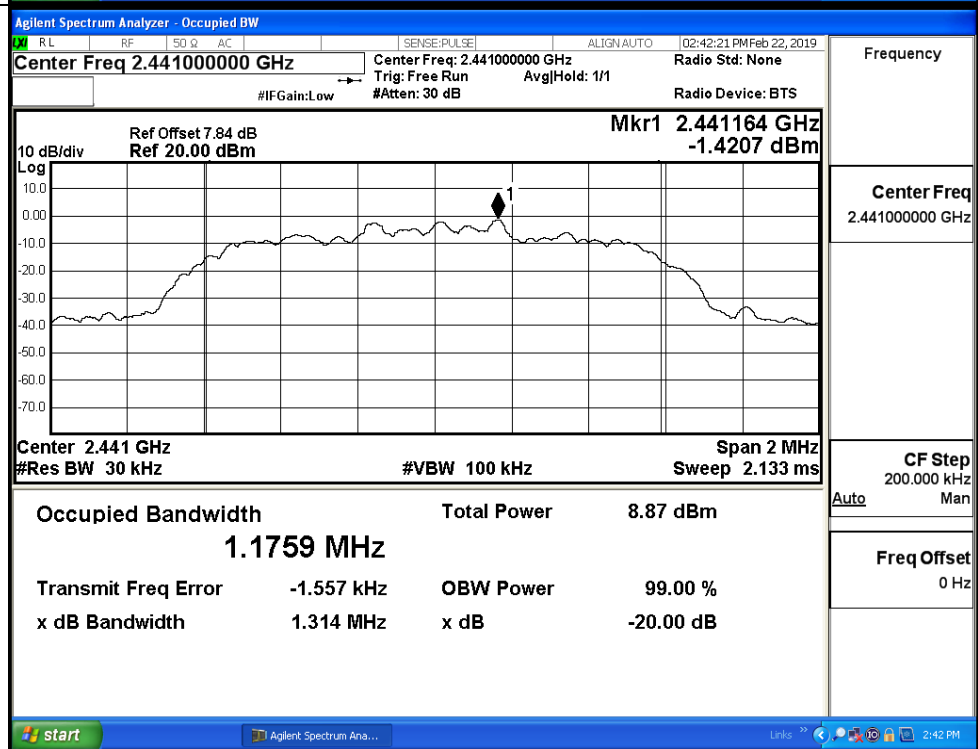
CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz

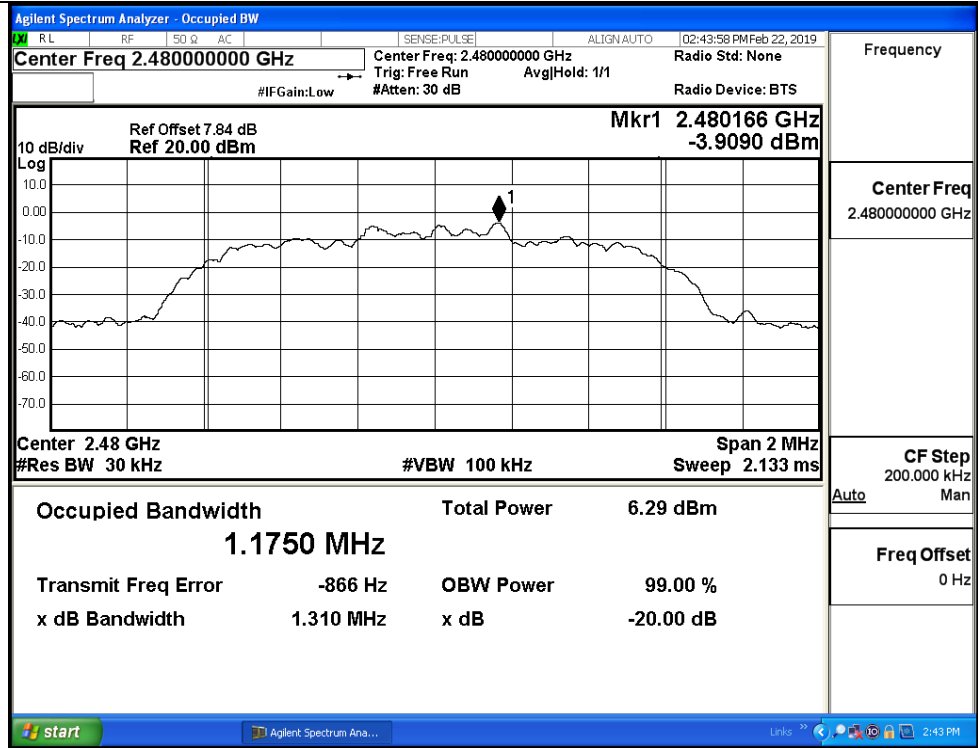
$\pi/4$ DQPSK/LCH



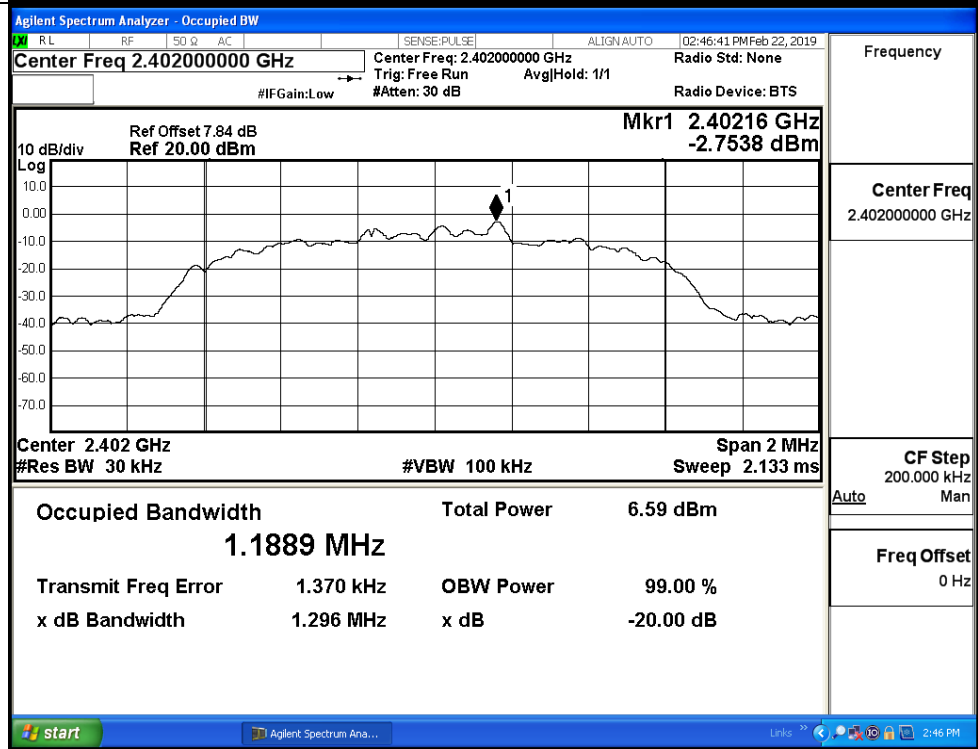
$\pi/4$ DQPSK/MCH



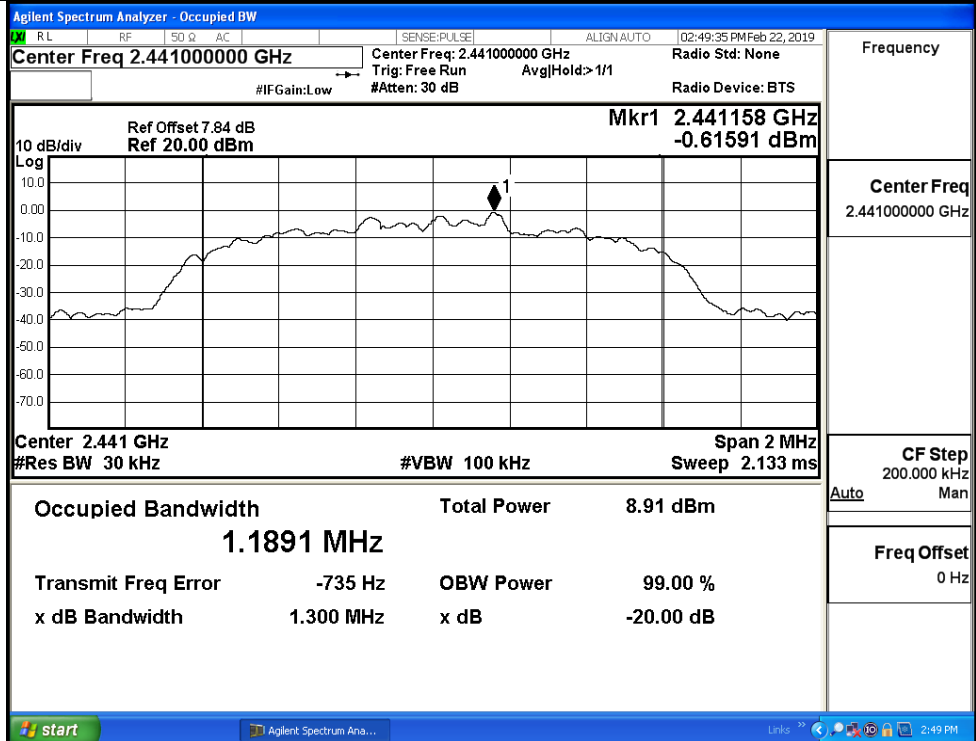
$\pi/4$ DQPSK/HCH



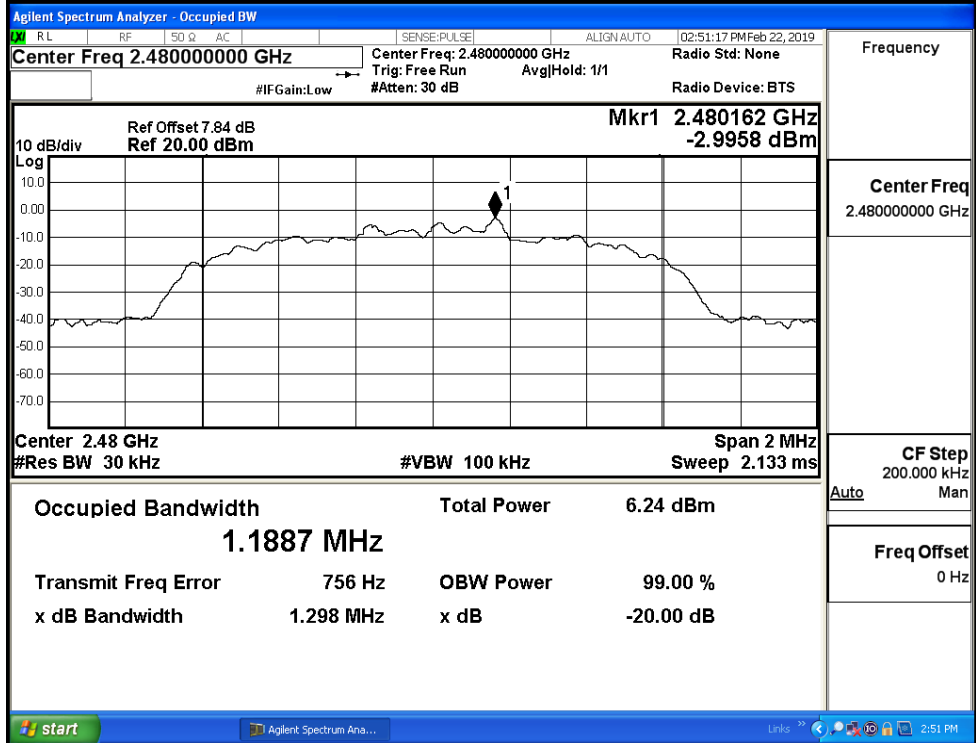
8DPSK/LCH



8DPSK/MCH

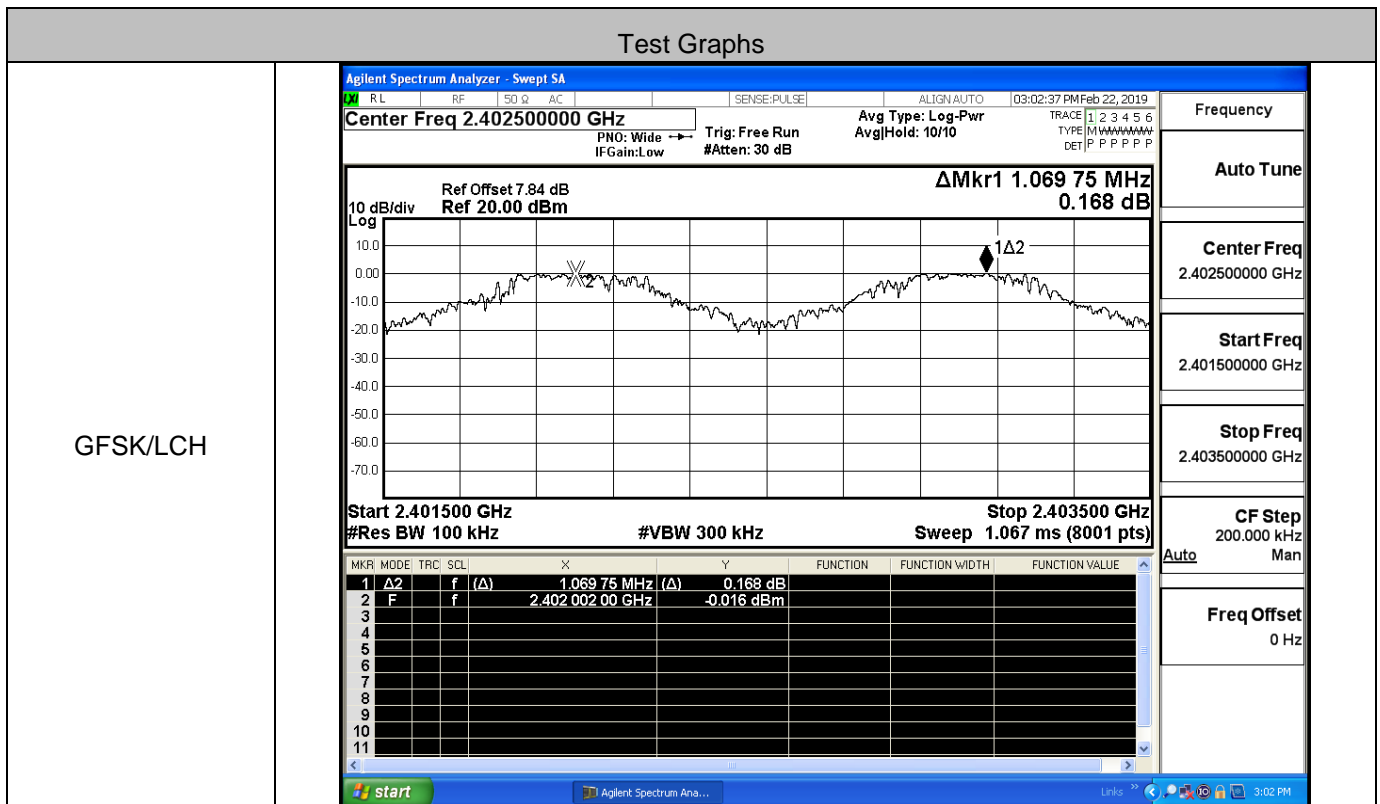


8DPSK/HCH

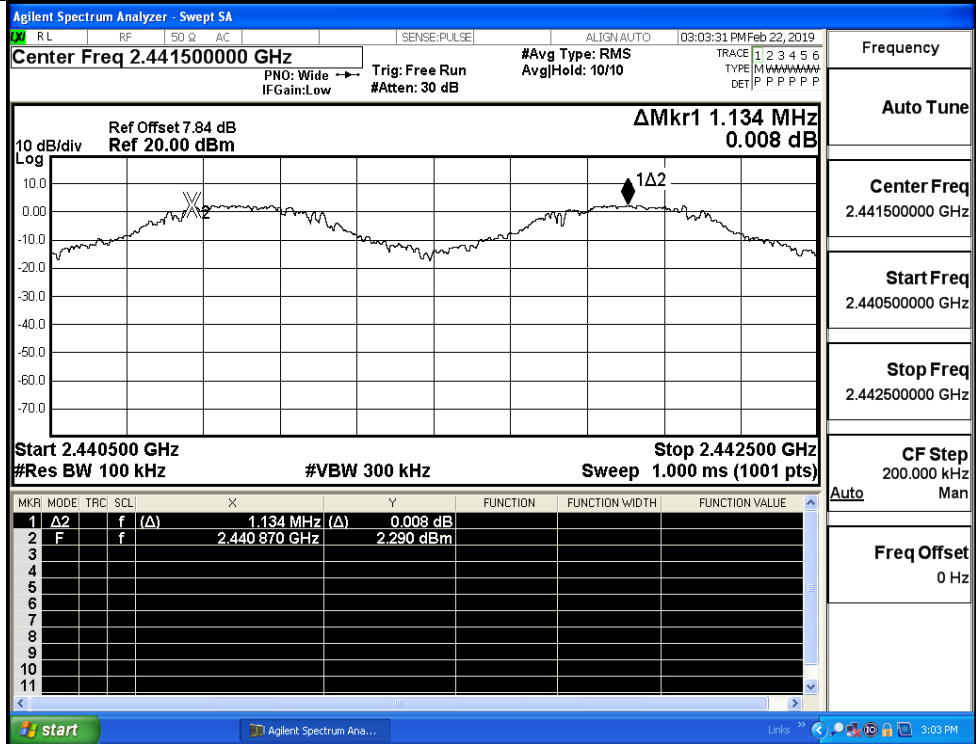


A.3 Carrier Frequency Separation

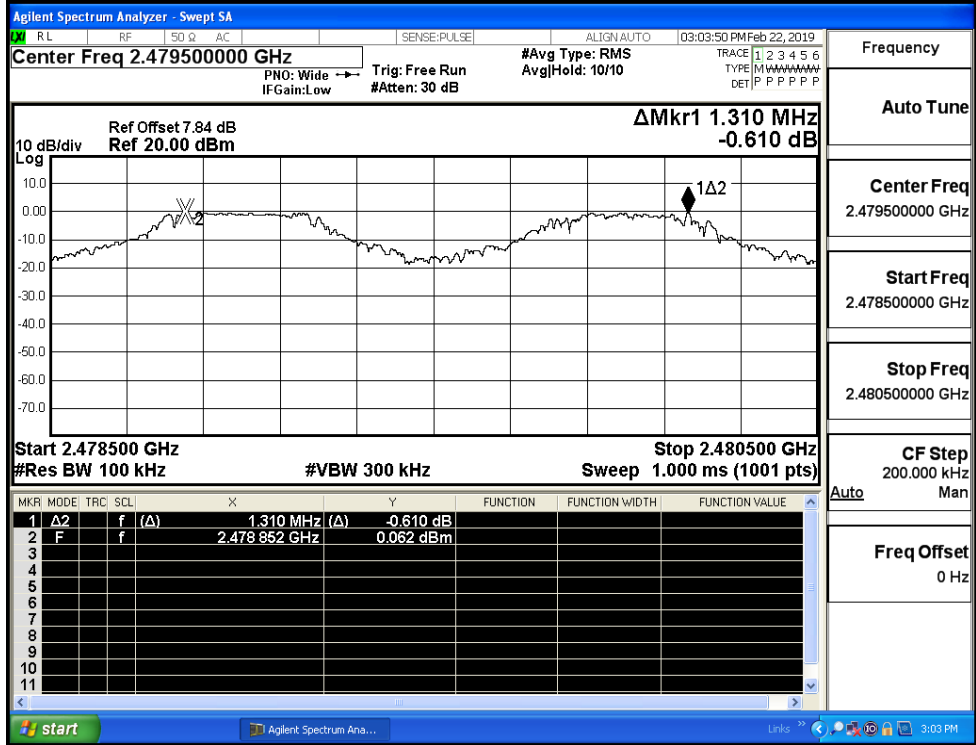
Mode	Channel	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.070	0.691	PASS
	MCH	1.134	0.691	PASS
	HCH	1.310	0.691	PASS
π/4DQPSK	LCH	1.334	0.876	PASS
	MCH	0.950	0.876	PASS
	HCH	0.956	0.876	PASS
8DPSK	LCH	1.122	0.867	PASS
	MCH	1.304	0.867	PASS
	HCH	0.944	0.867	PASS



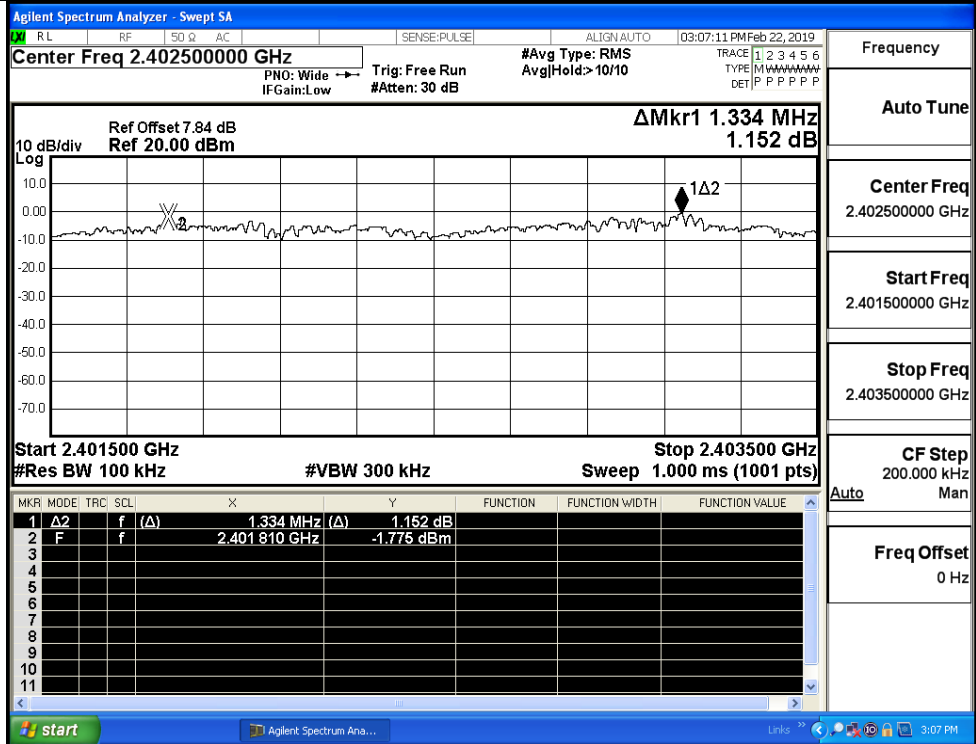
GFSK/MCH



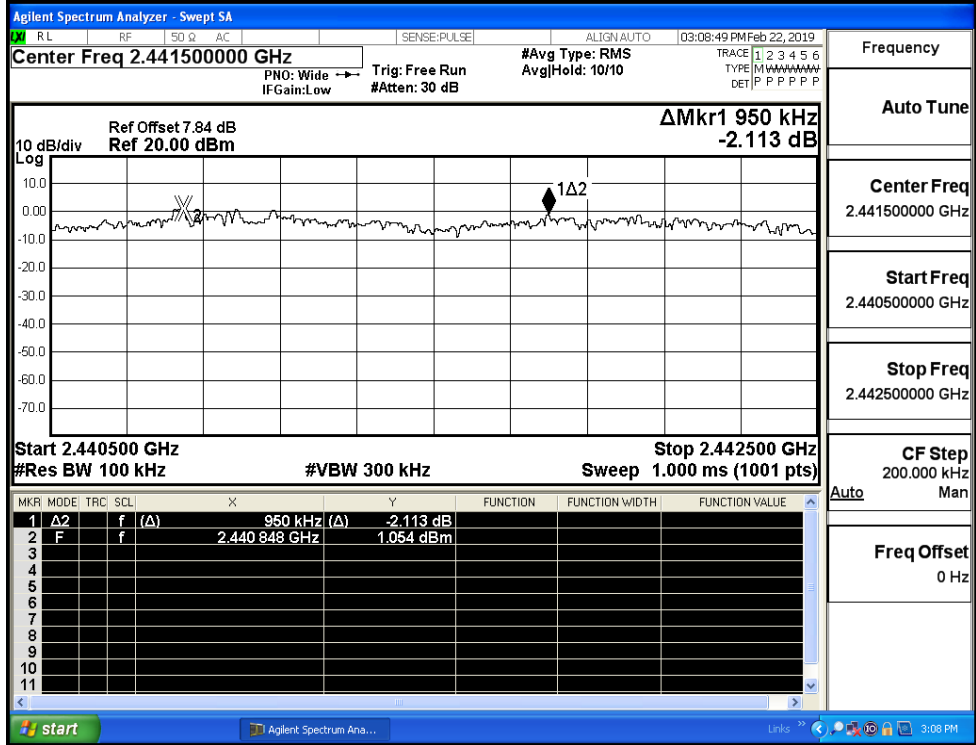
GFSK/HCH



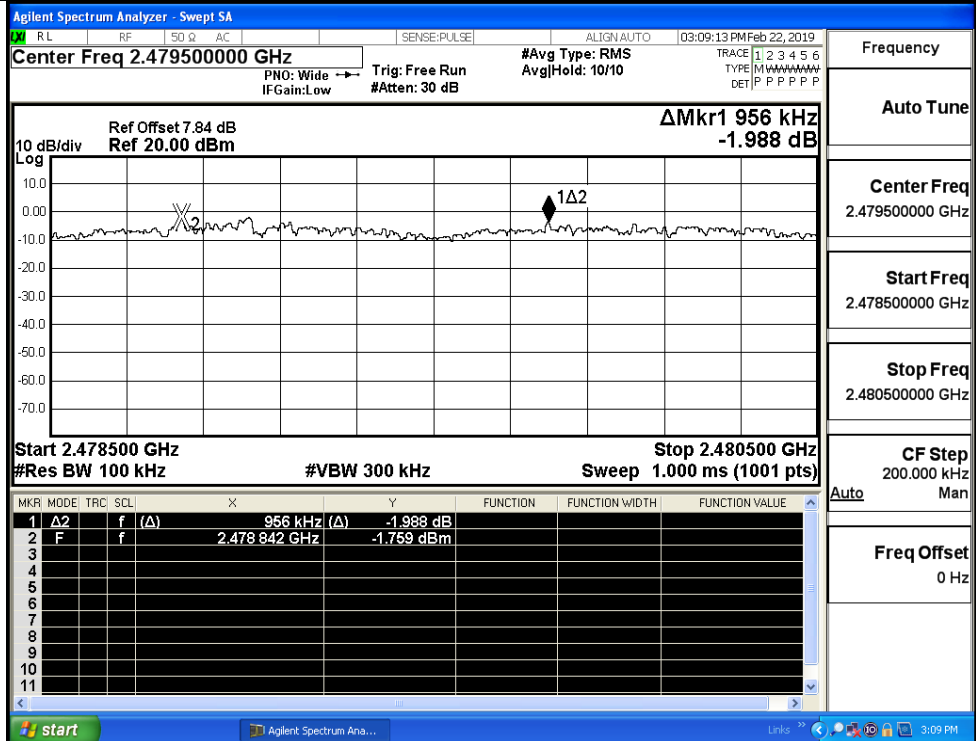
$\pi/4$ DQPSK/LCH



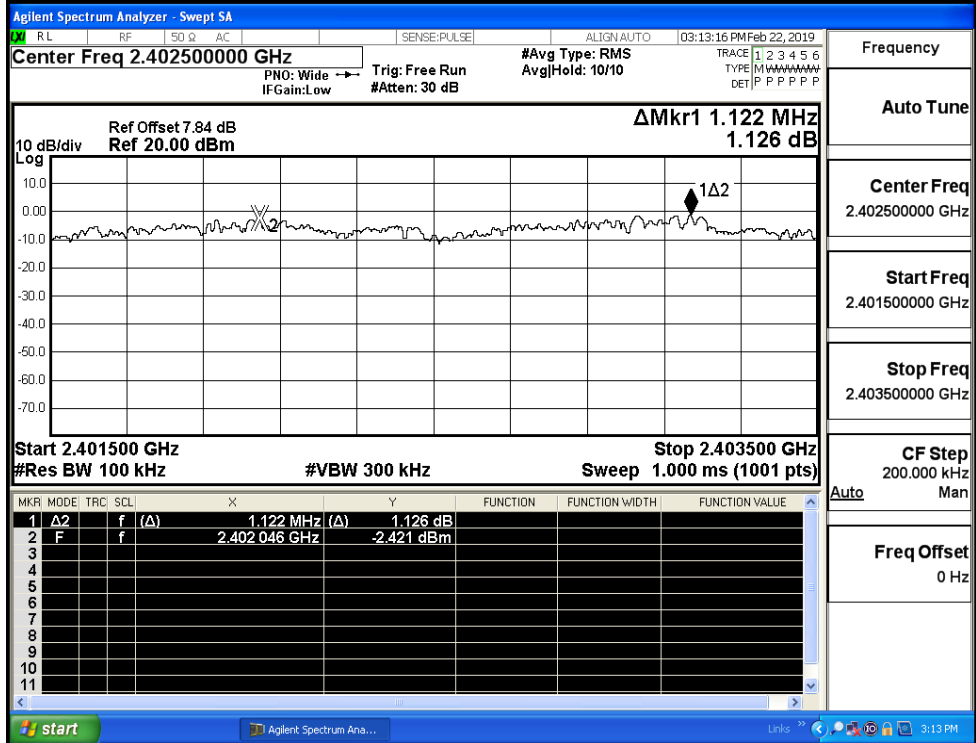
$\pi/4$ DQPSK/MCH



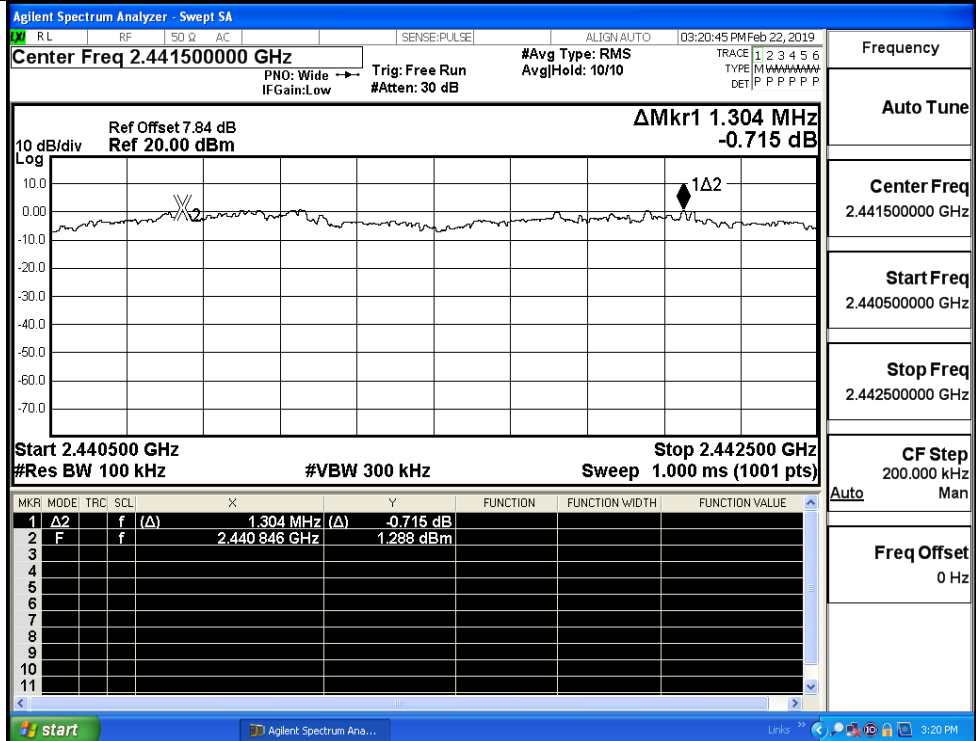
π/4DQPSK/HCH



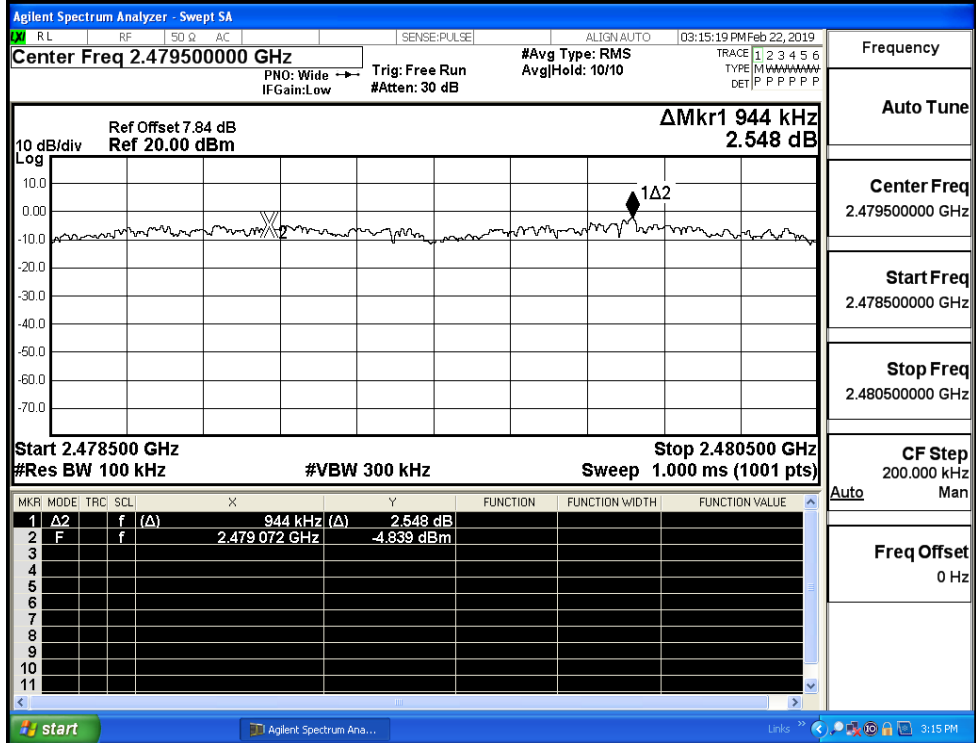
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

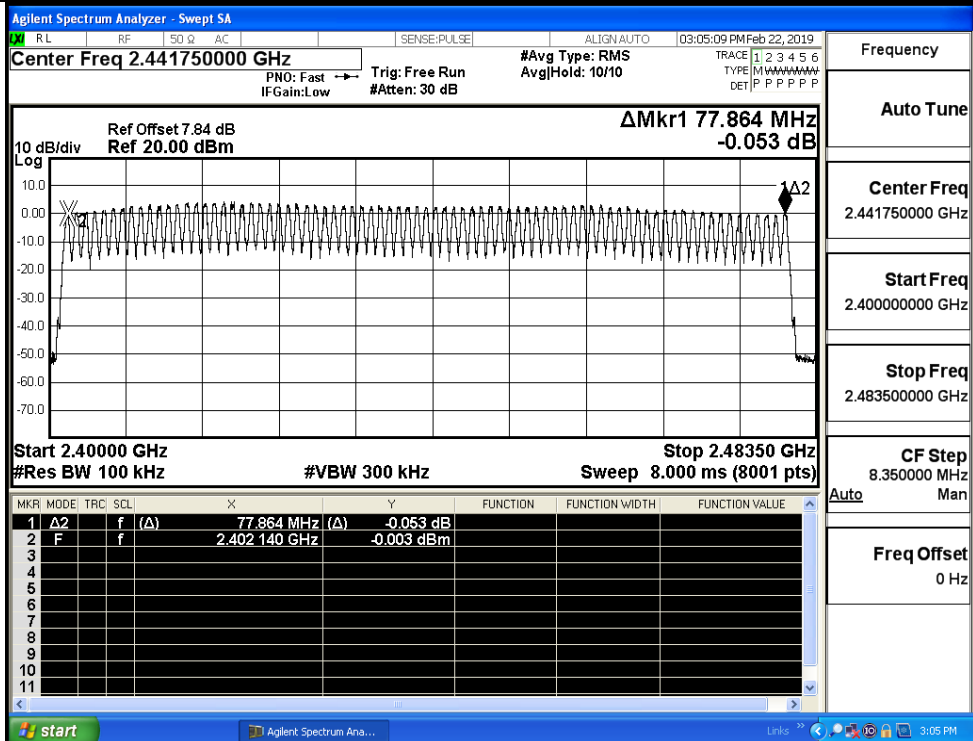


A.4 Hopping Channel Number

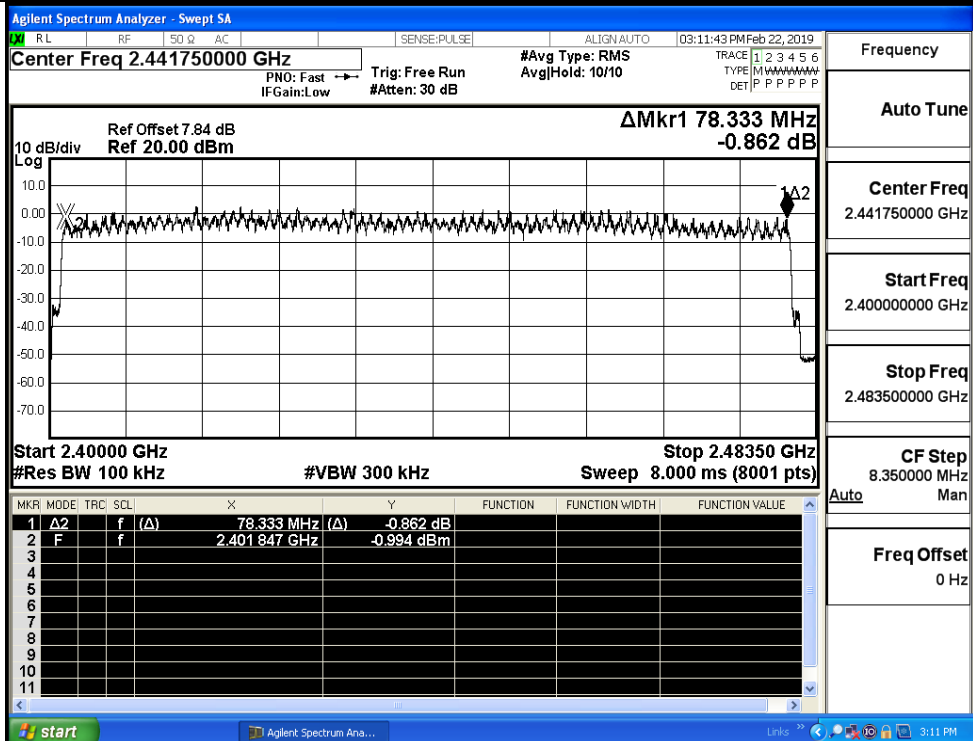
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

Test Graphs

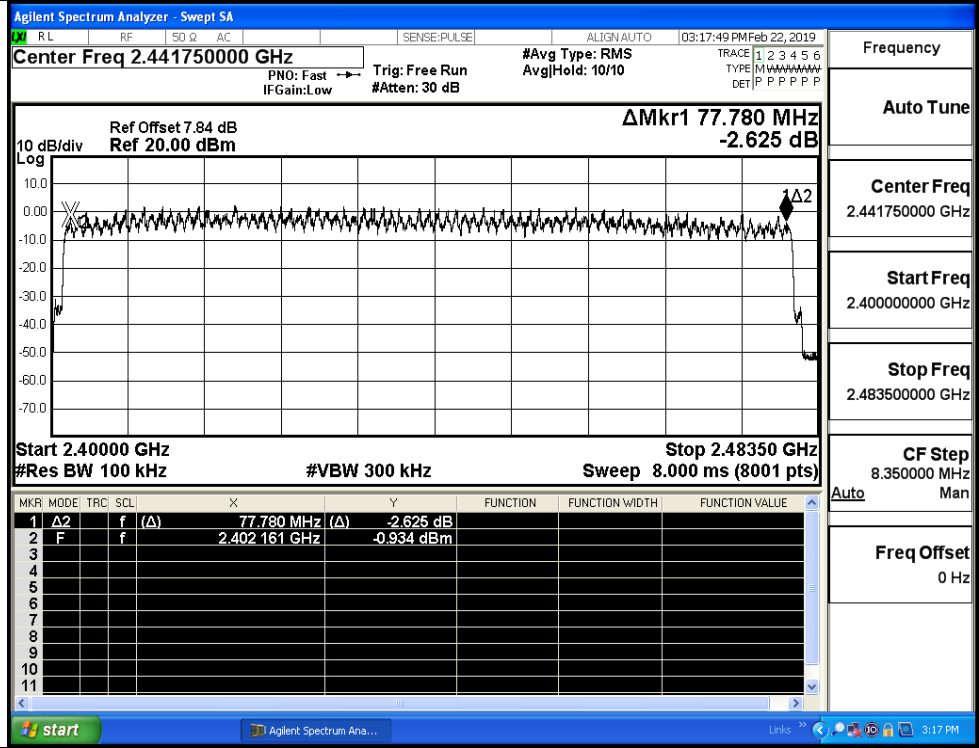
GFSK/Hop



$\pi/4$ DQPSK/Hop

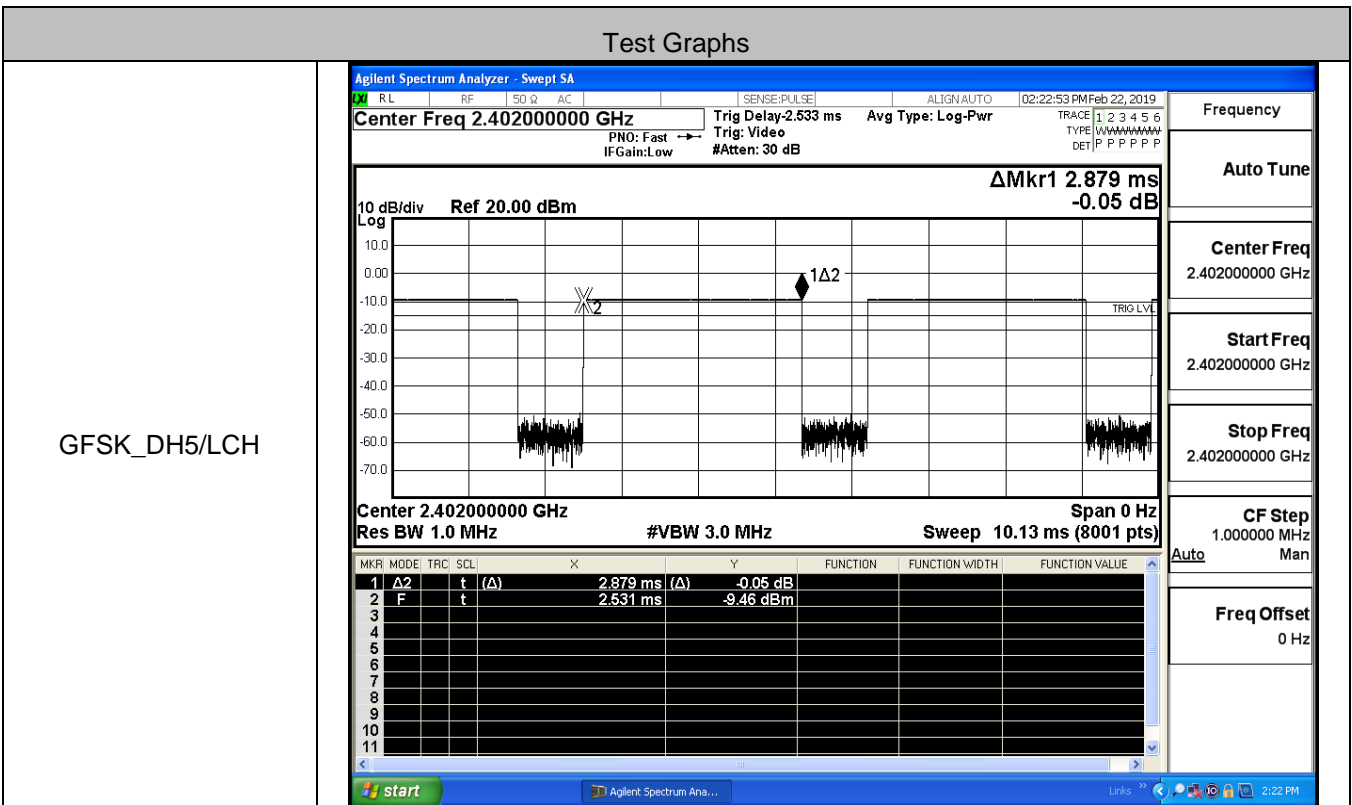


8DPSK/Hop

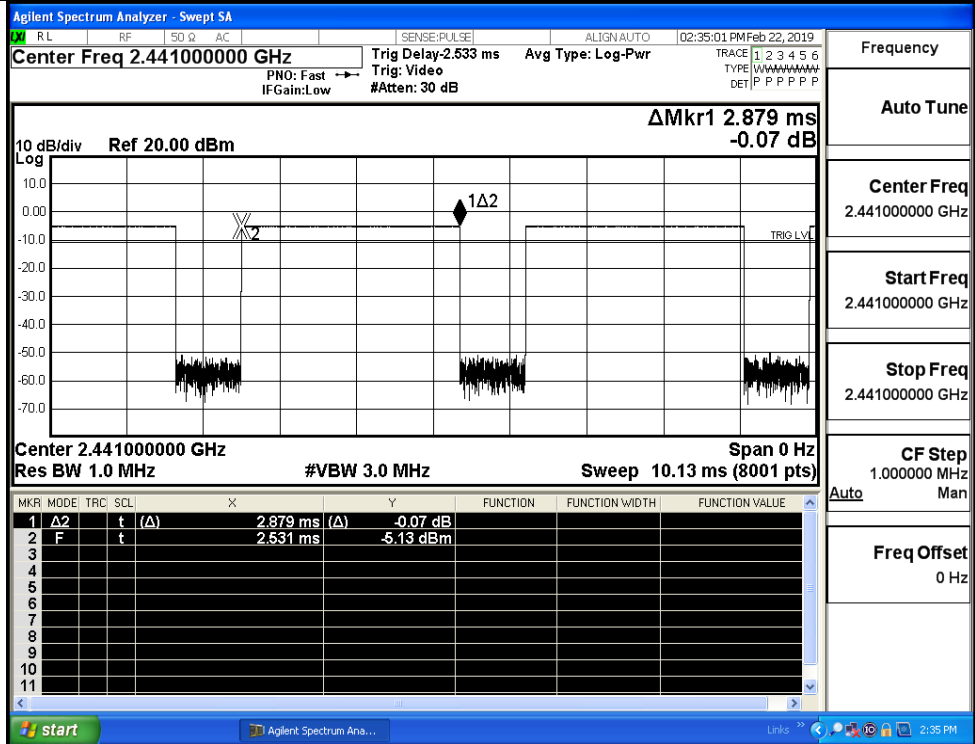


A.5 Dwell Time

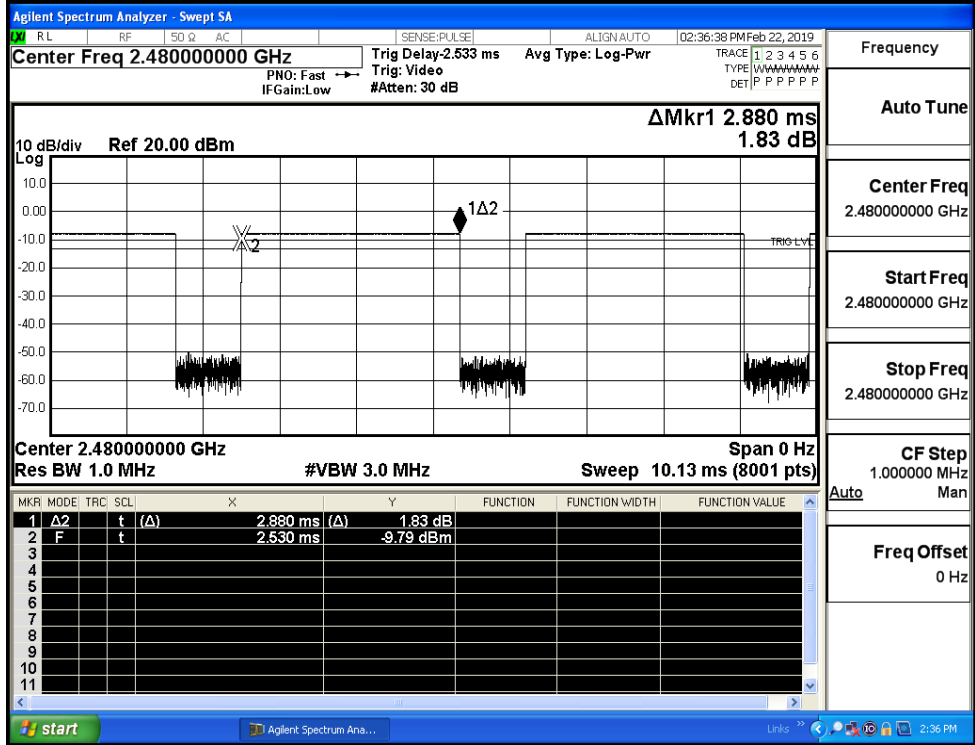
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
π/4DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88	106.7	0.307	0.4	PASS
8DPSK	3DH5	LCH	2.89	106.7	0.308	0.4	PASS
	3DH5	MCH	2.89	106.7	0.308	0.4	PASS
	3DH5	HCH	2.89	106.7	0.308	0.4	PASS



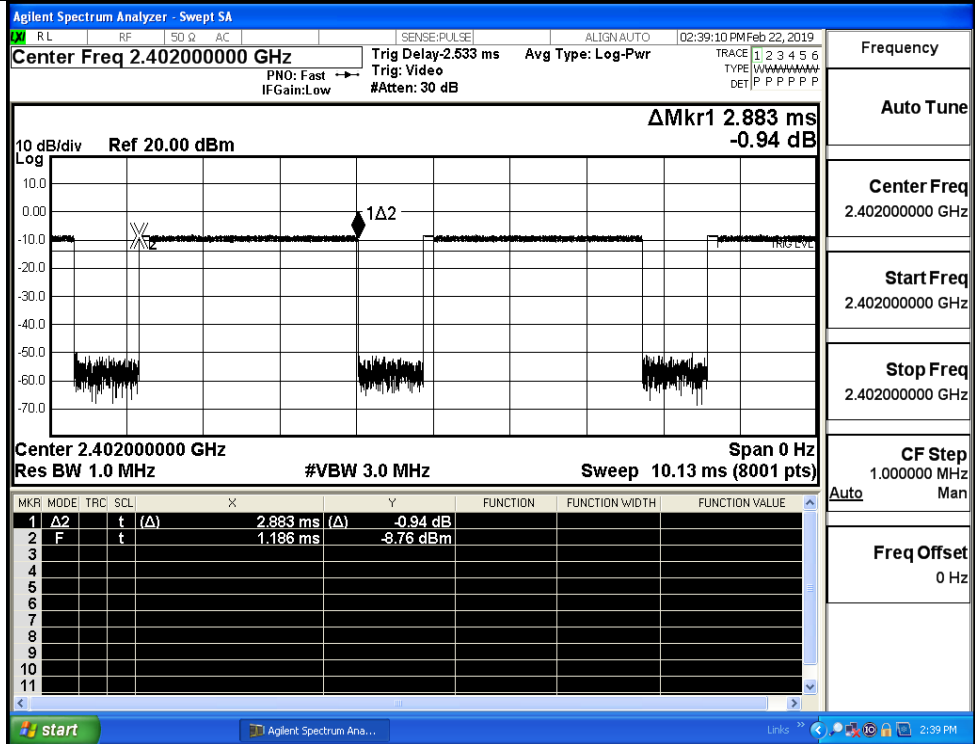
GFSK_DH5/MCH



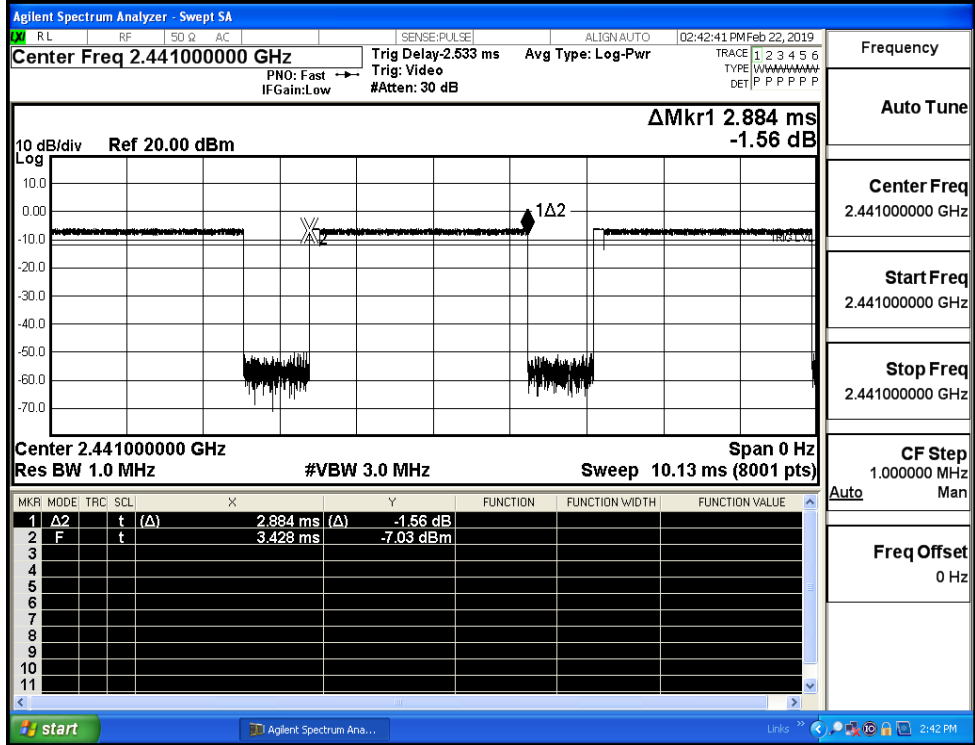
GFSK_DH5/HCH



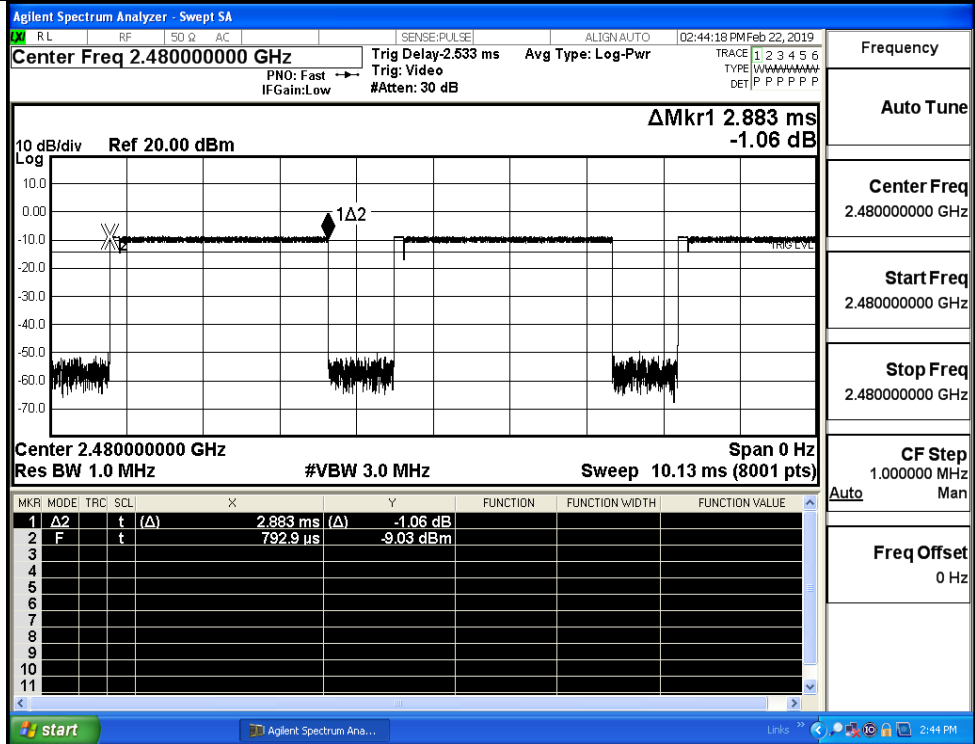
$\pi/4$ DQPSK
_2DH5/LCH



$\pi/4$ DQPSK
_2DH5/MCH



π /4DQPSK
_2DH5/HCH



Frequency

Auto Tune

Center Freq
2.480000000 GHz

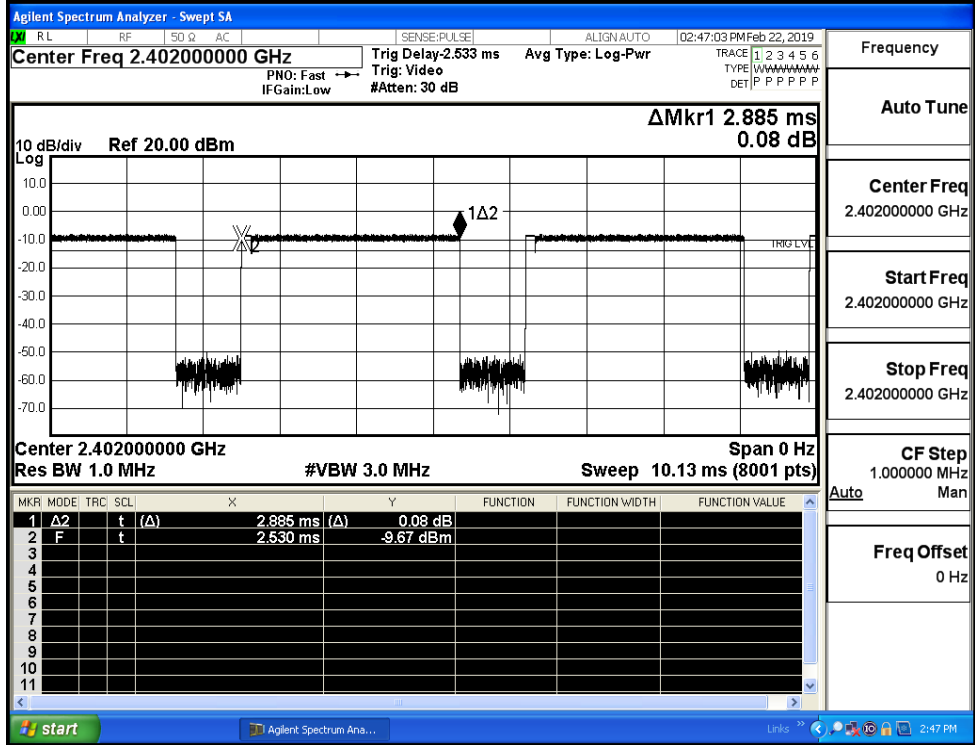
Start Freq
2.480000000 GHz

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

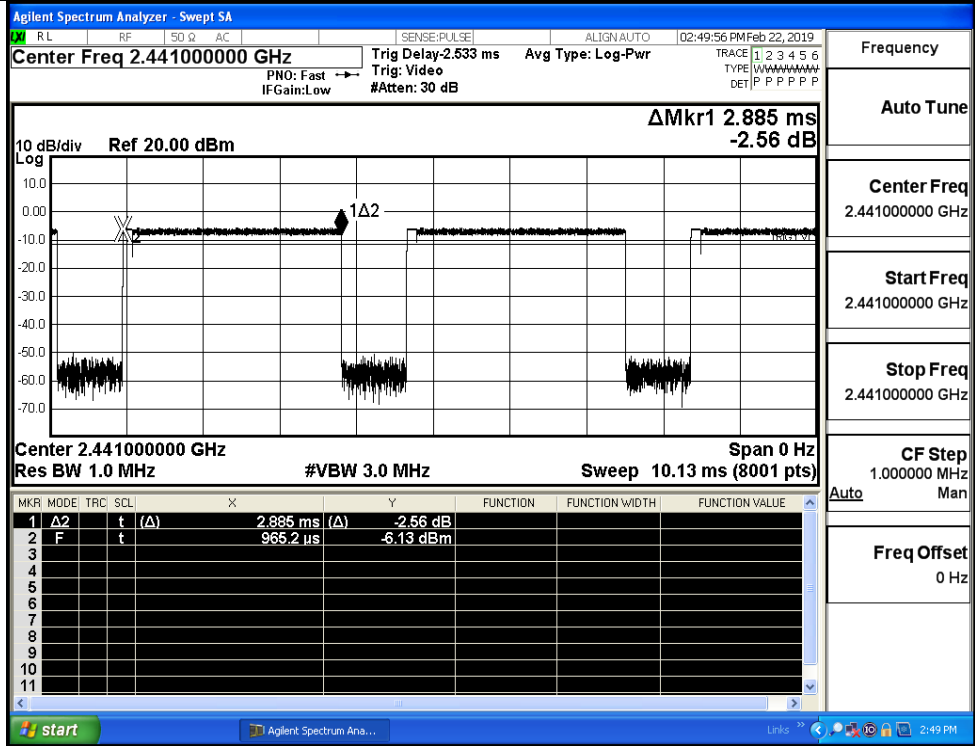
Start Freq
2.402000000 GHz

Stop Freq
2.402000000 GHz

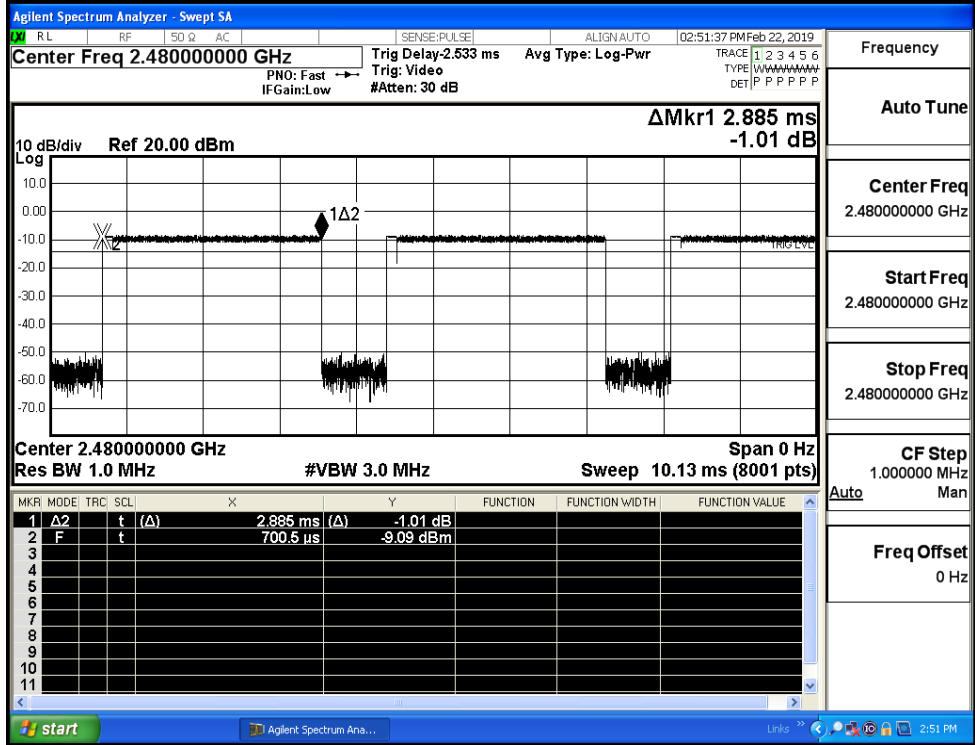
CF Step
1.000000 MHz
Auto Man

Freq Offset
0 Hz

8DPSK_3DH5/MCH



8DPSK_3DH5/HCH

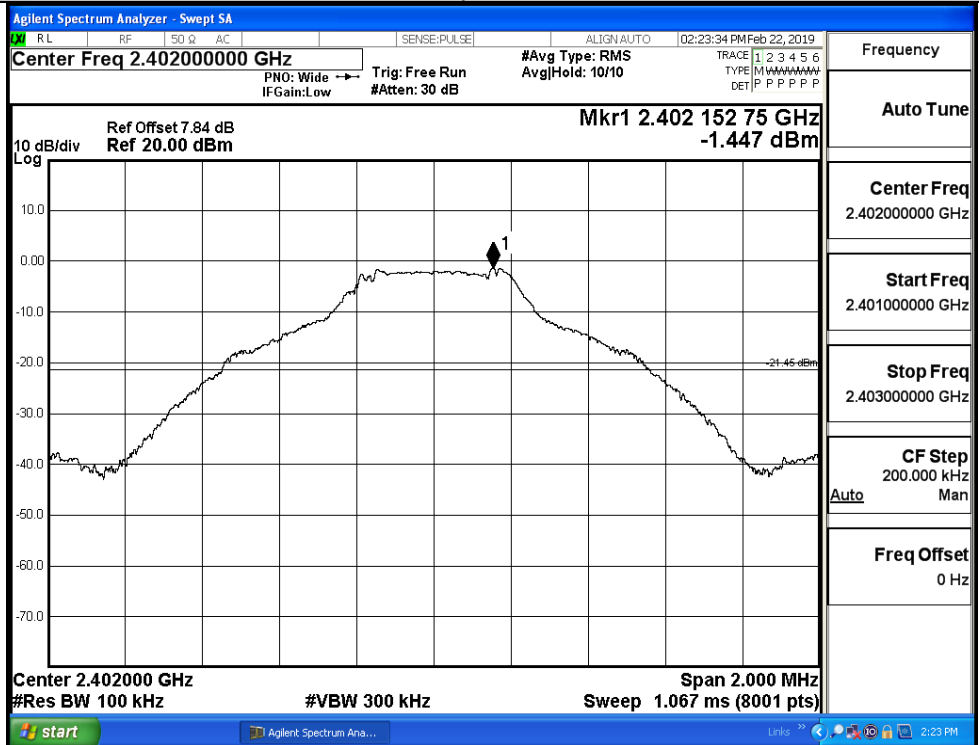


A.6 RF Conducted Spurious Emissions

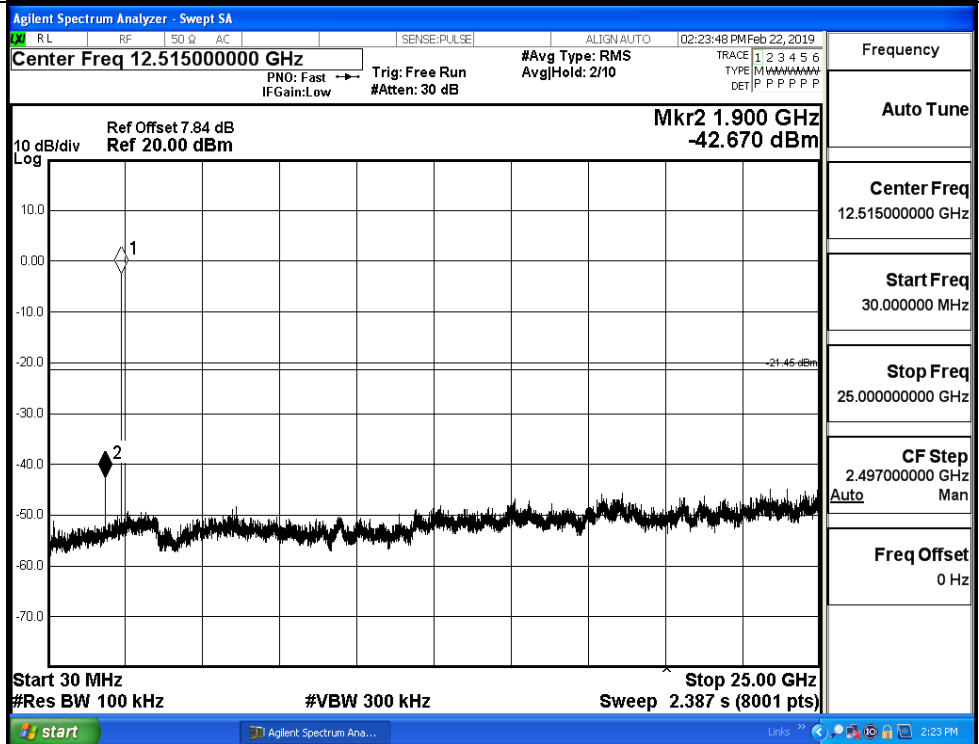
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-1.447	-42.670	-21.447	PASS
	MCH	2.653	-44.663	-17.347	PASS
	HCH	0.143	-45.666	-19.857	PASS
$\pi/4$ DQPSK	LCH	-0.709	-44.585	-20.709	PASS
	MCH	1.469	-45.472	-18.531	PASS
	HCH	-1.758	-45.490	-21.758	PASS
8DPSK	LCH	-0.638	-44.708	-20.638	PASS
	MCH	1.702	-45.165	-18.298	PASS
	HCH	-1.046	-44.017	-21.046	PASS

GFSK_LCH_Graphs

Pref

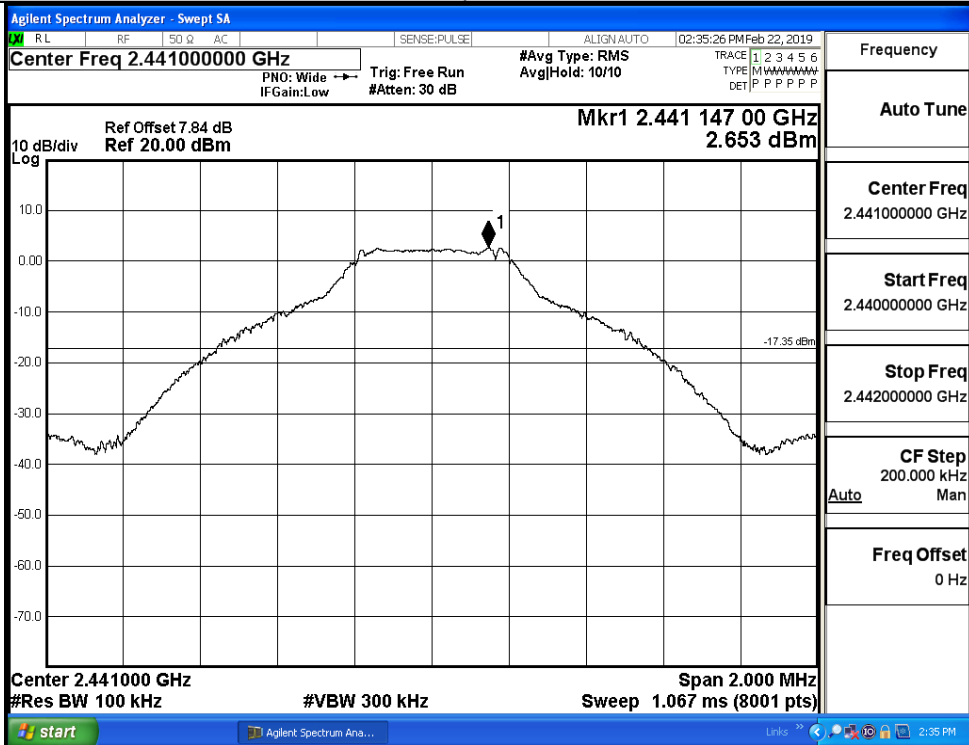


Puw

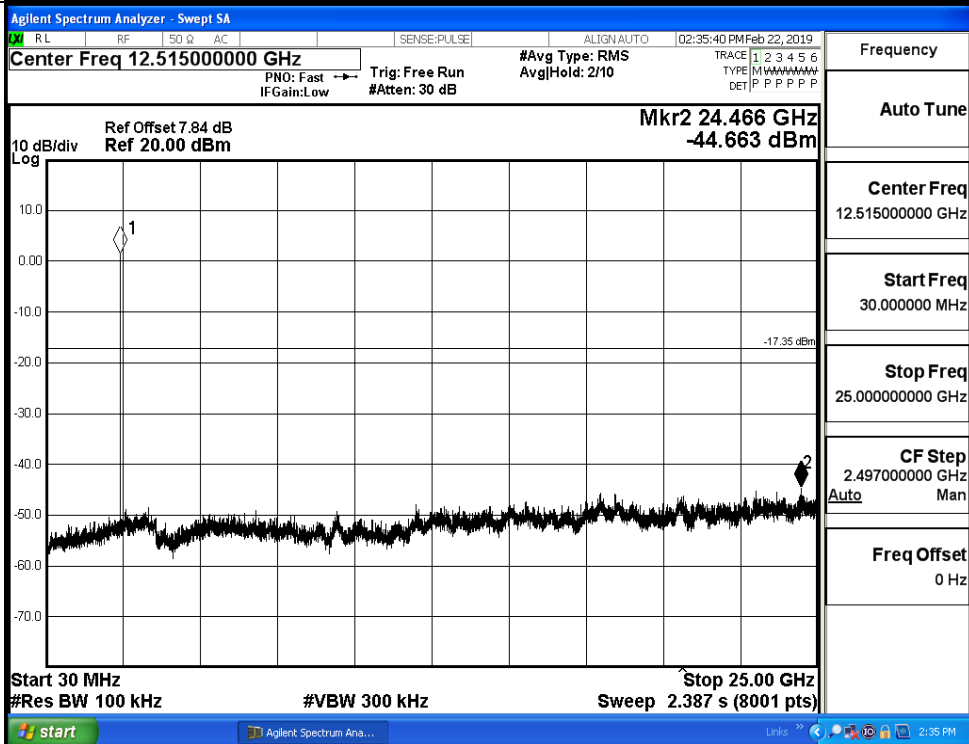


GFSK_MCH_Graphs

Pref

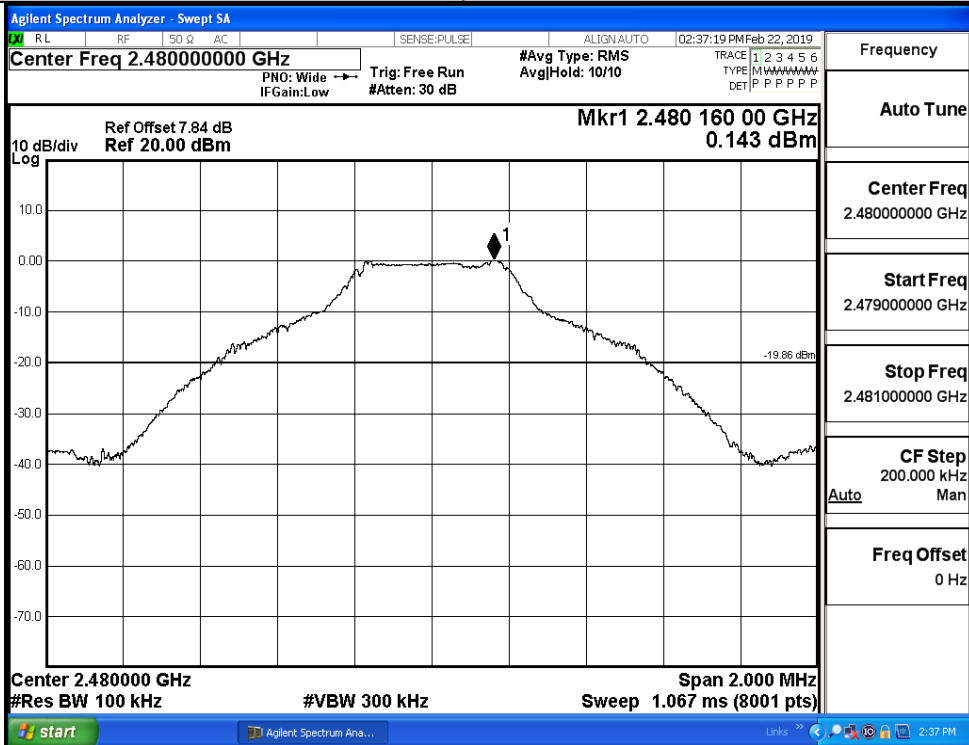


Puw

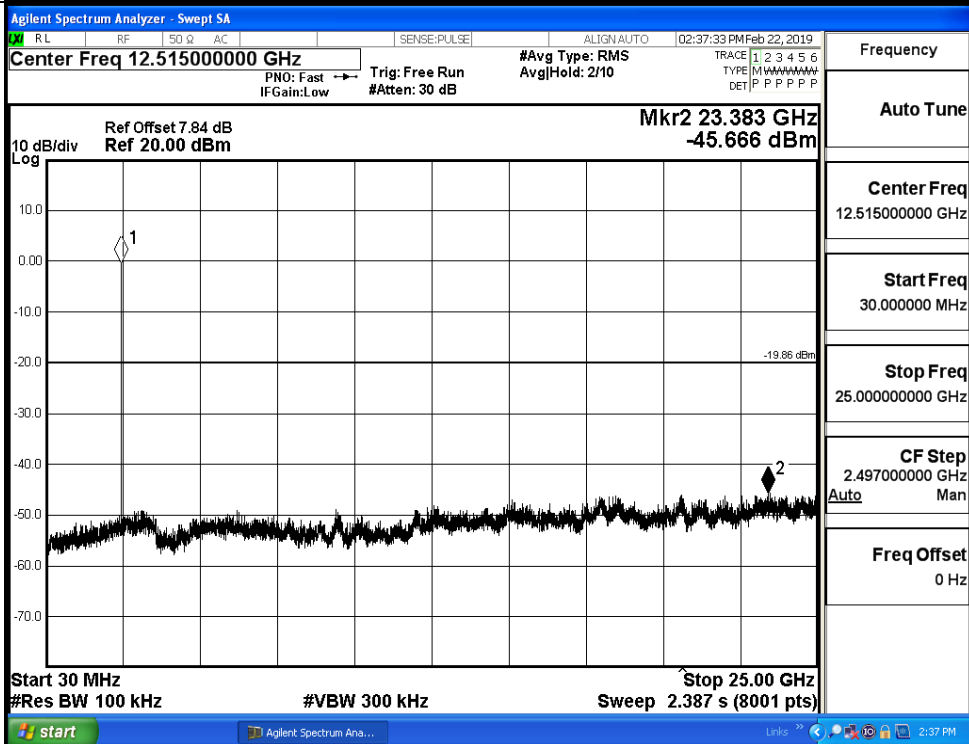


GFSK_HCH_Graphs

Pref

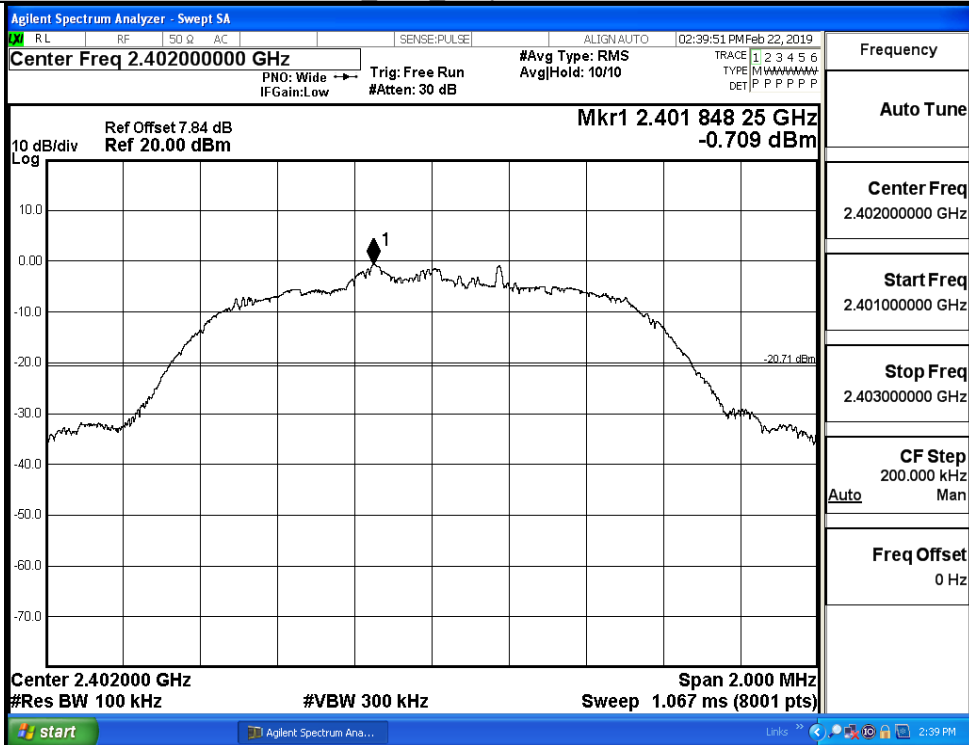


Puw

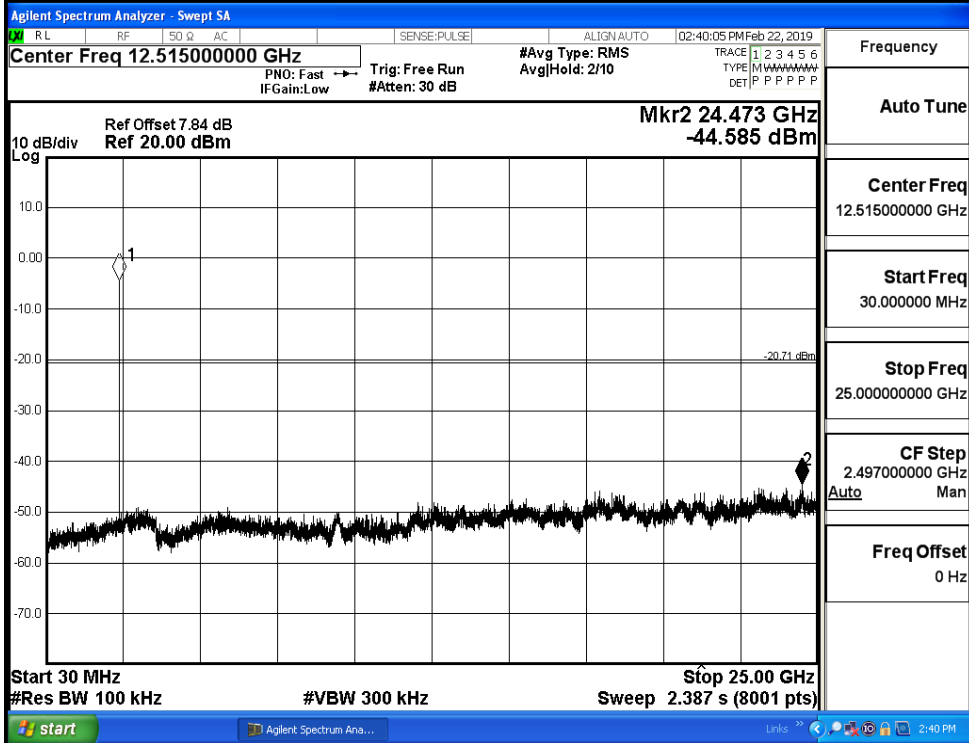


$\pi/4$ DQPSK_LCH_Graphs

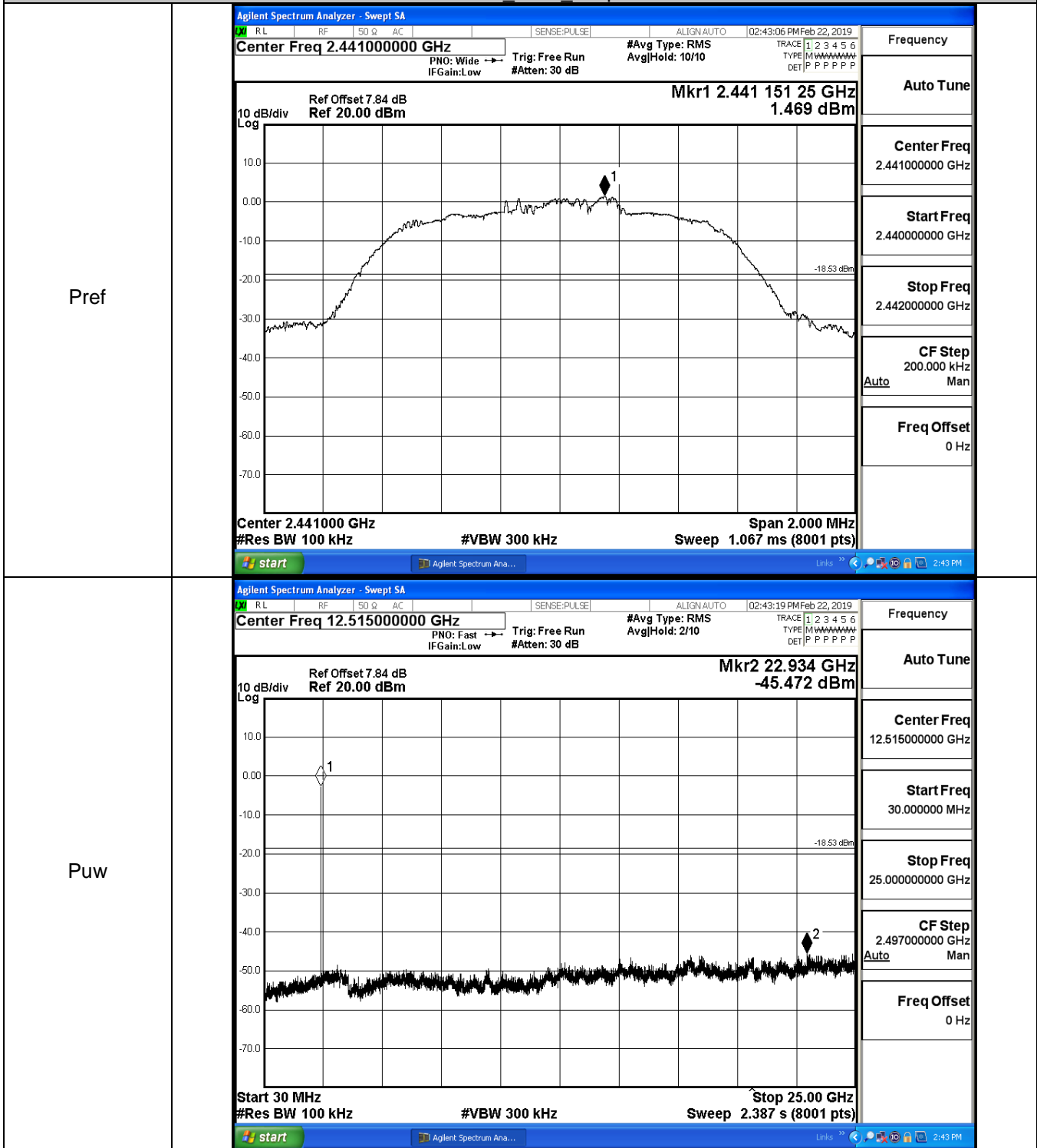
Pref



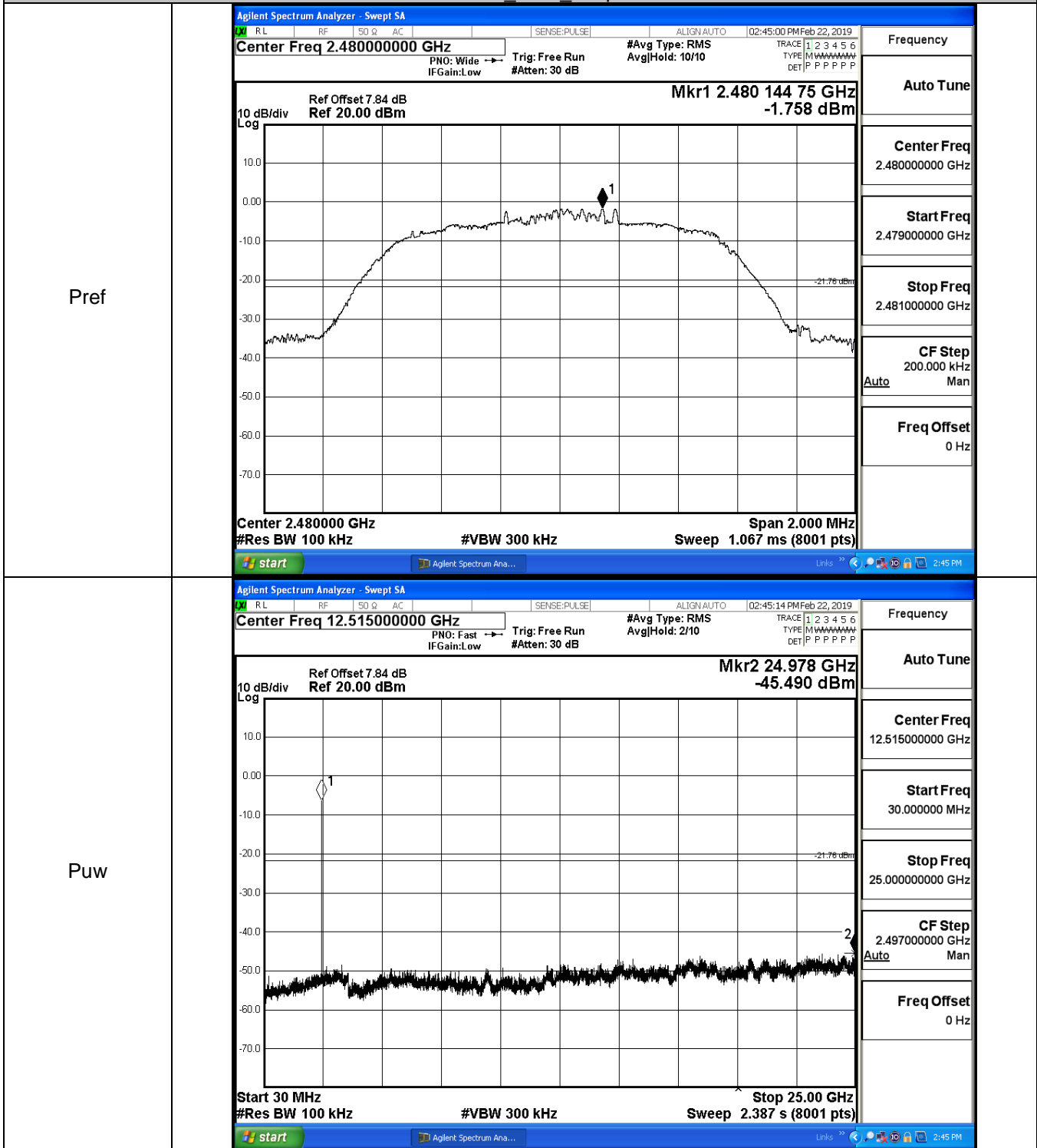
Puw



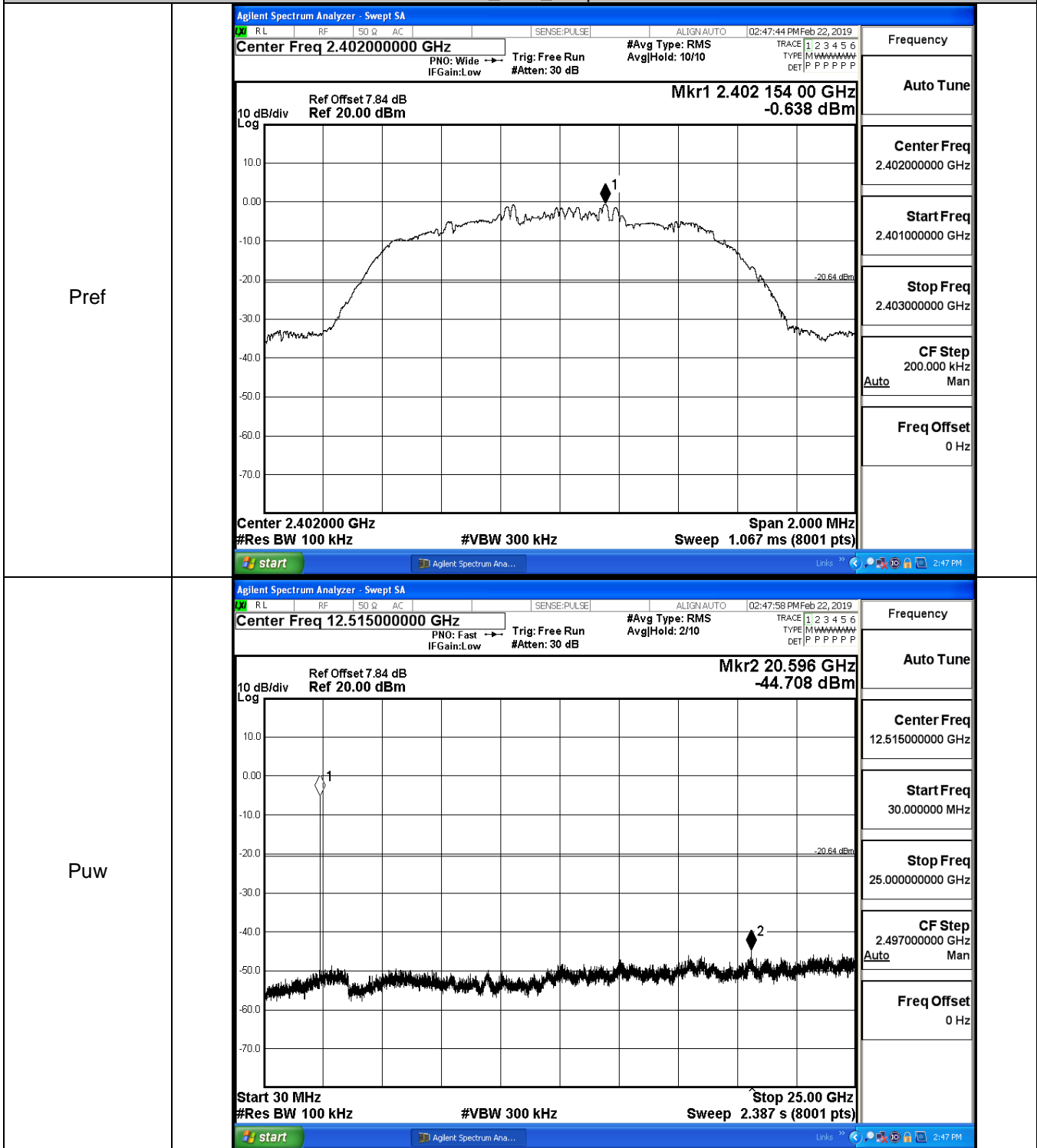
$\pi/4$ DQPSK_MCH_Graphs



$\pi/4$ DQPSK_HCH_Graphs

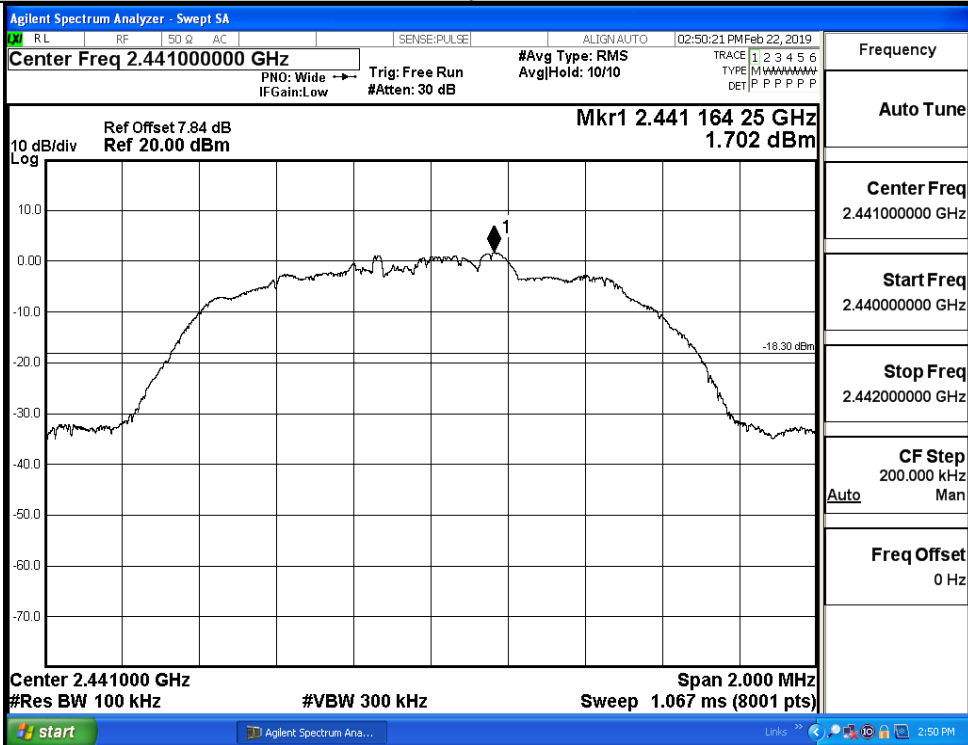


8DPSK_LCH_Graphs

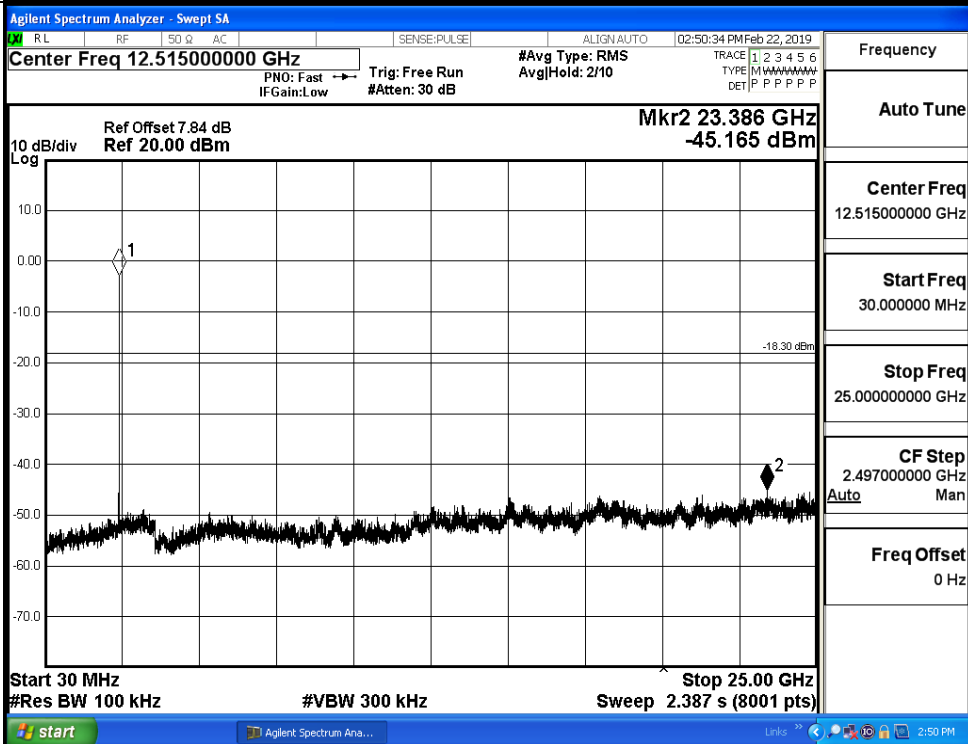


8DPSK_MCH_Graphs

Pref

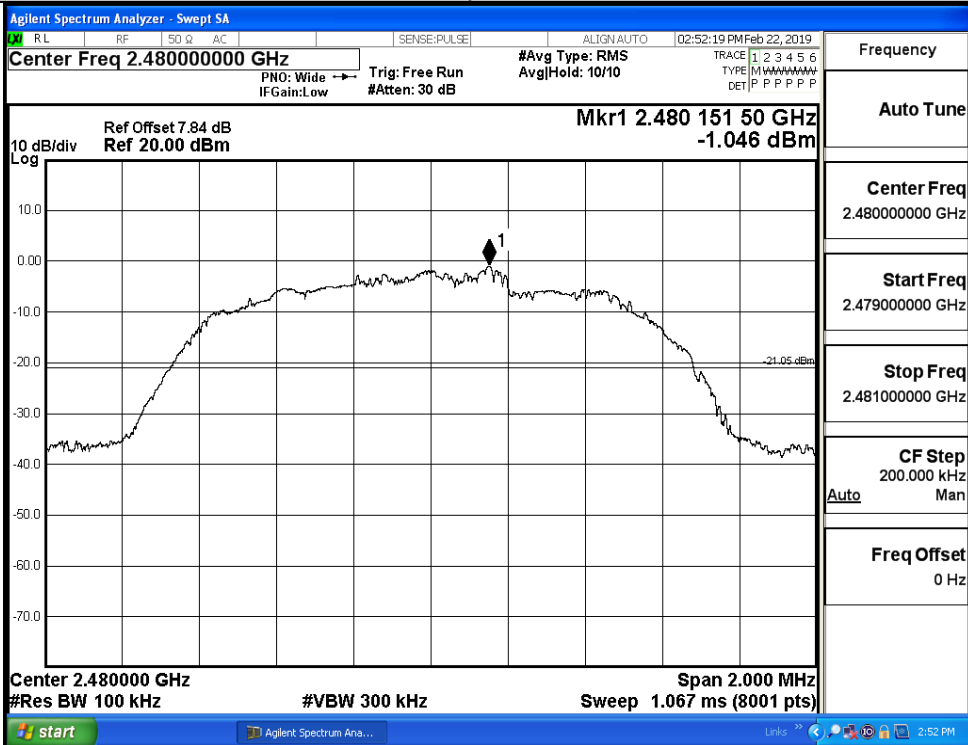


Puw



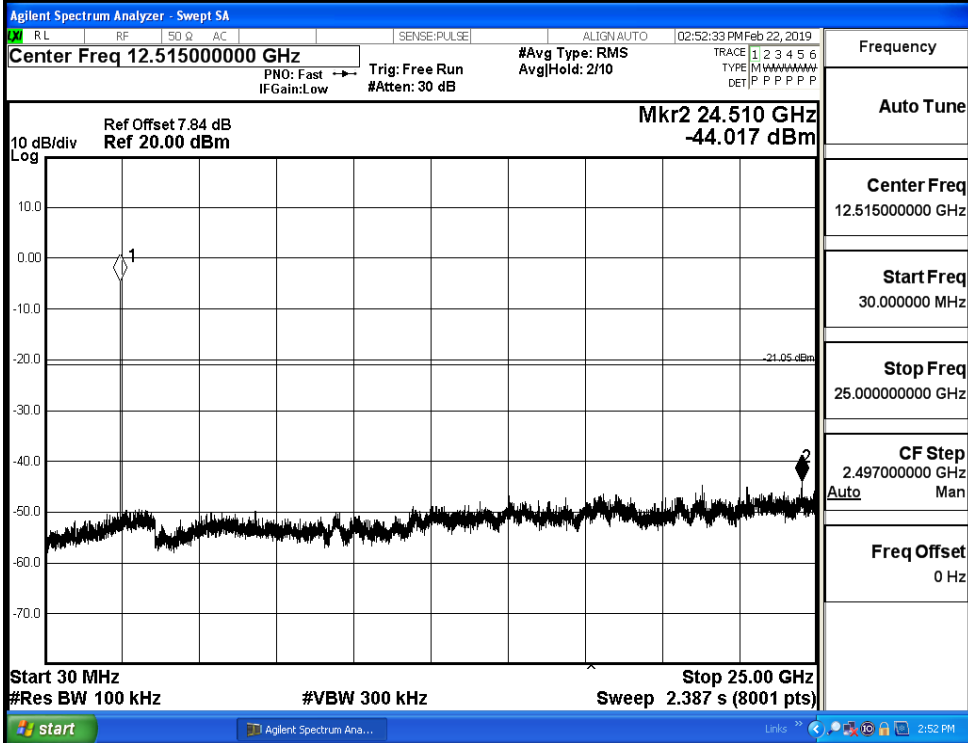
8DPSK_HCH_Graphs

Pref



Frequency	
Auto Tune	
Center Freq	2.480000000 GHz
Start Freq	2.479000000 GHz
Stop Freq	2.481000000 GHz
CF Step	200.000 kHz Auto Man
Freq Offset	0 Hz

Puw



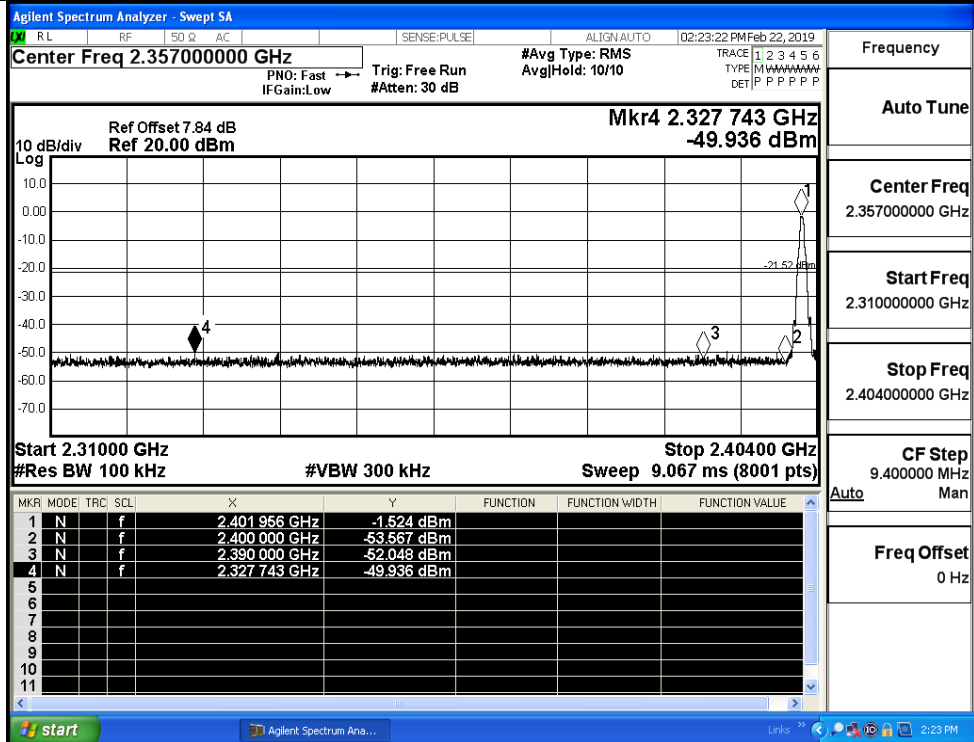
Frequency	
Auto Tune	
Center Freq	12.515000000 GHz
Start Freq	30.000000 MHz
Stop Freq	25.000000000 GHz
CF Step	2.497000000 GHz Auto Man
Freq Offset	0 Hz

A.7 Band-edge for RF Conducted Emissions

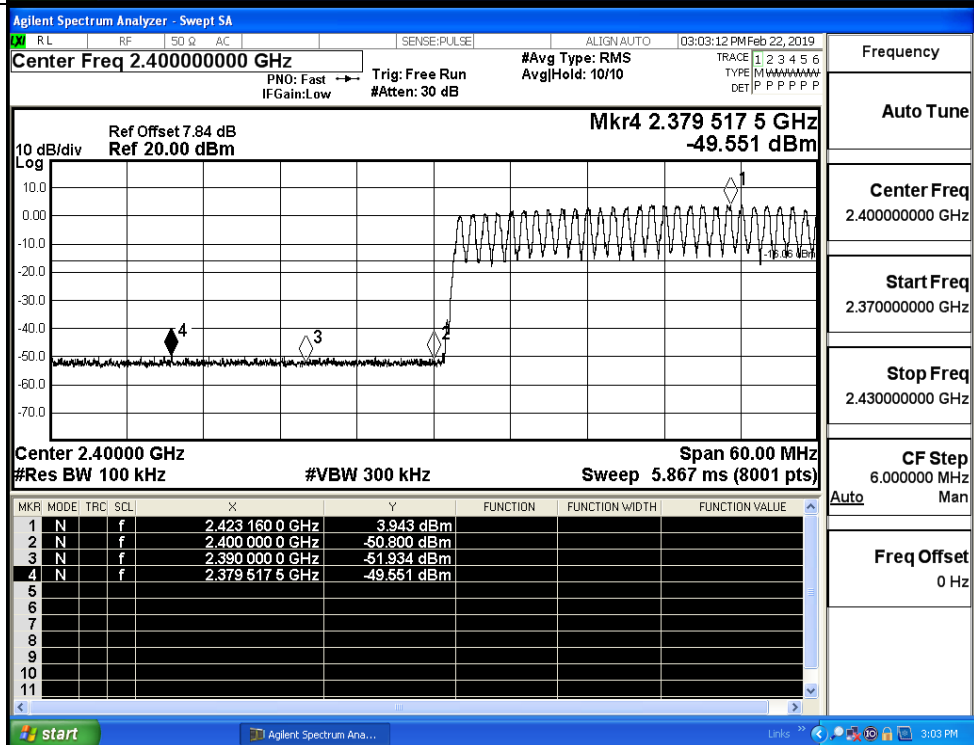
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-1.524	Off	-49.936	-21.52	PASS
			3.943	On	-49.551	-16.06	PASS
	HCH	2480	0.014	Off	-49.907	-19.99	PASS
			3.028	On	-50.074	-16.97	PASS
$\pi/4$ DQPSK	LCH	2402	-2.771	Off	-49.344	-22.77	PASS
			2.410	On	-49.567	-17.59	PASS
	HCH	2480	-0.921	Off	-48.721	-20.92	PASS
			1.719	On	-48.872	-18.28	PASS
8DPSK	LCH	2402	-0.539	Off	-49.325	-20.54	PASS
			2.651	On	-49.617	-17.35	PASS
	HCH	2480	-0.912	Off	-49.831	-20.91	PASS
			1.469	On	-48.562	-18.53	PASS

Test Graphs

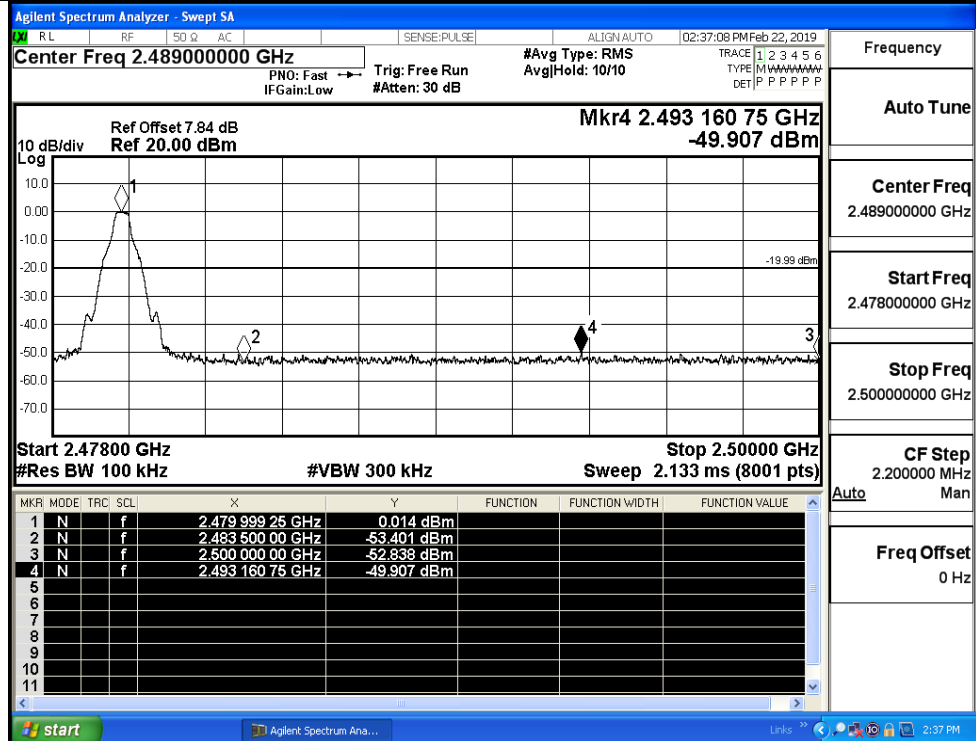
GFSK/LCH/No Hop



GFSK/LCH/Hop



GFSK/HCH/No Hop



Frequency

Auto Tune

Center Freq
2.489000000 GHz

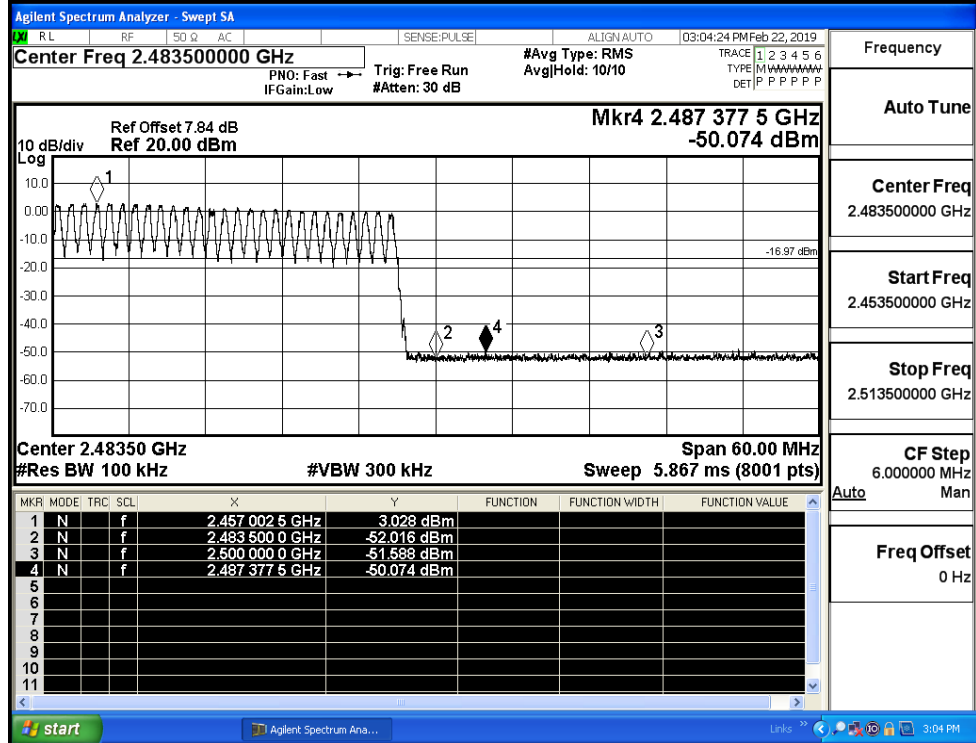
Start Freq
2.478000000 GHz

Stop Freq
2.500000000 GHz

CF Step
2.200000 MHz

Freq Offset
0 Hz

GFSK/HCH/Hop



Frequency

Auto Tune

Center Freq
2.483500000 GHz

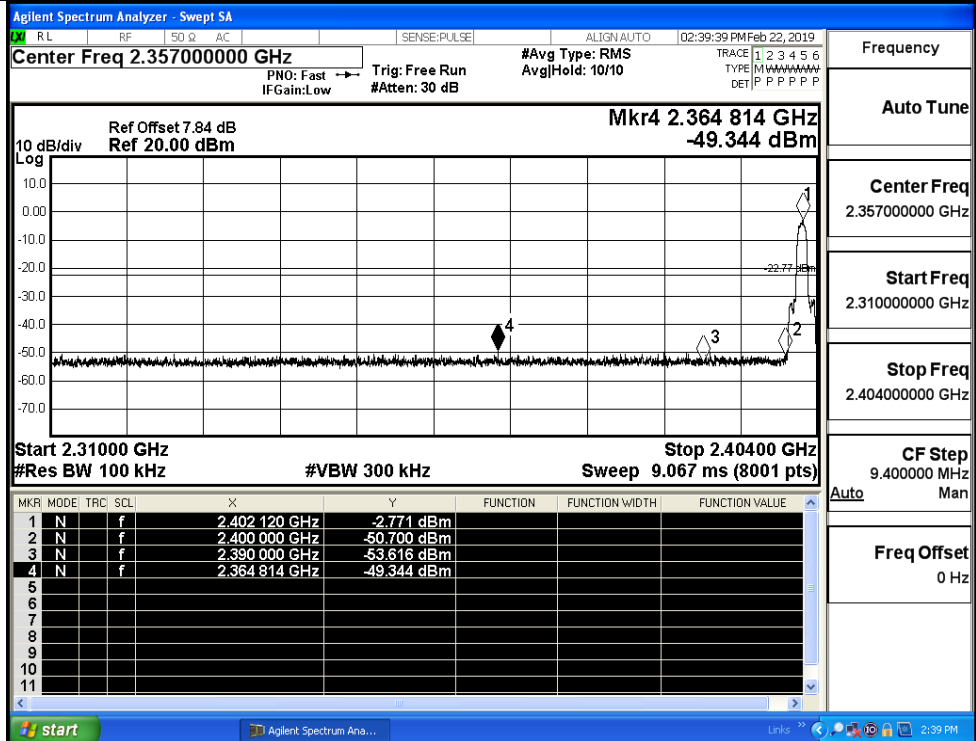
Start Freq
2.453500000 GHz

Stop Freq
2.513500000 GHz

CF Step
6.000000 MHz

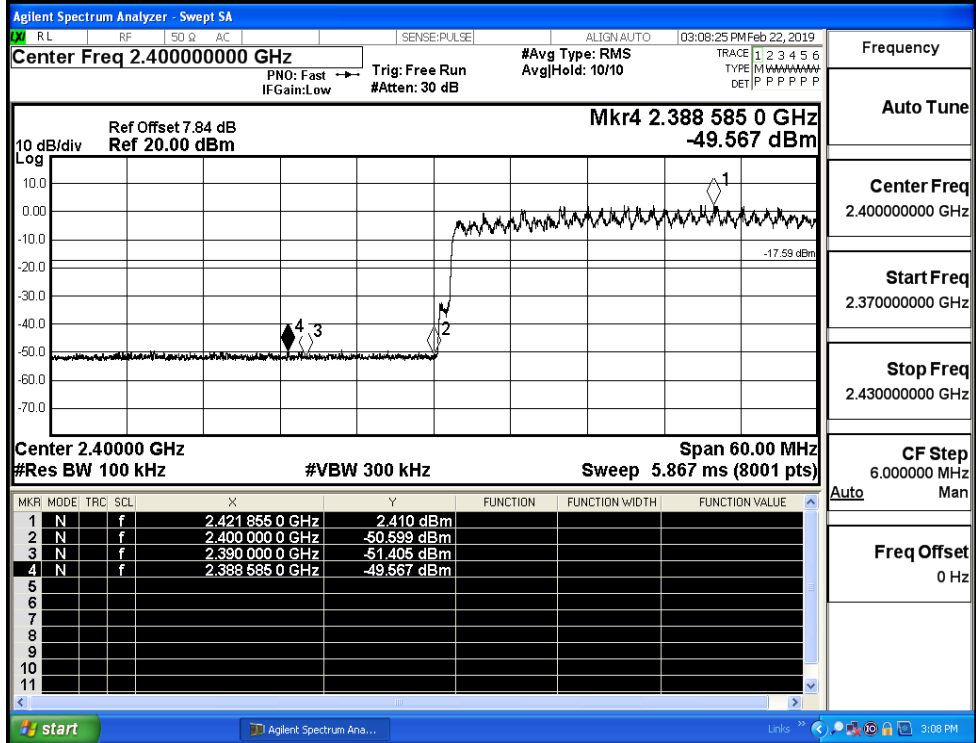
Freq Offset
0 Hz

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



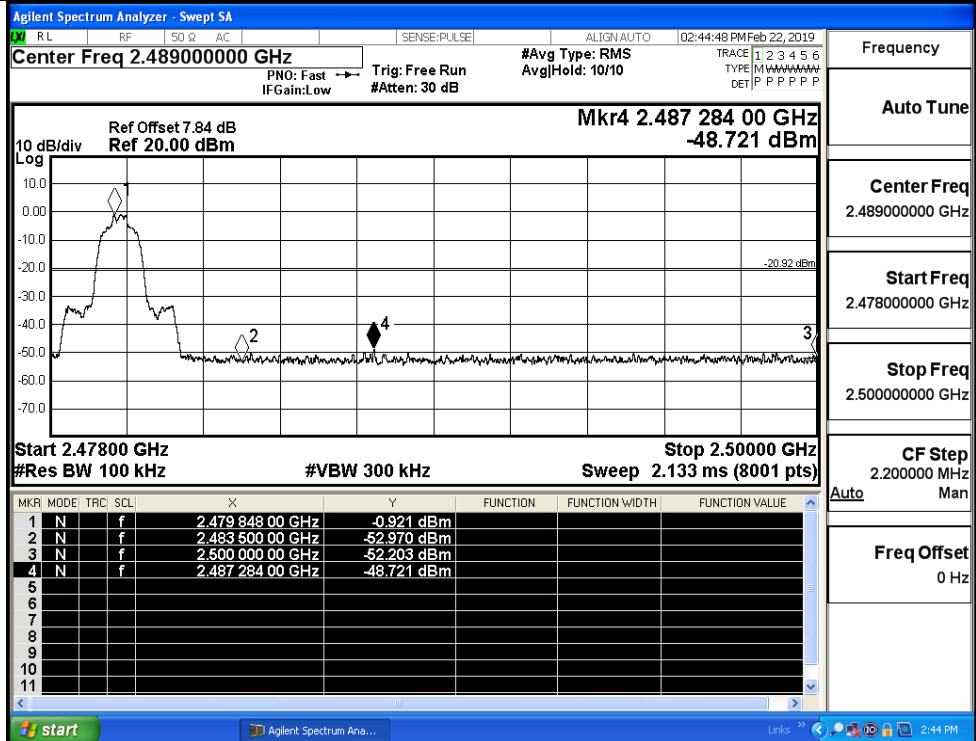
Frequency
Auto Tune
Center Freq
2.357000000 GHz
Start Freq
2.310000000 GHz
Stop Freq
2.404000000 GHz
CF Step
9.400000 MHz
Auto Man
Freq Offset
0 Hz

$\pi/4$ DQPSK/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

π /4DQPSK/HCH/No
Hop



Frequency

Auto Tune

Center Freq
2.489000000 GHz

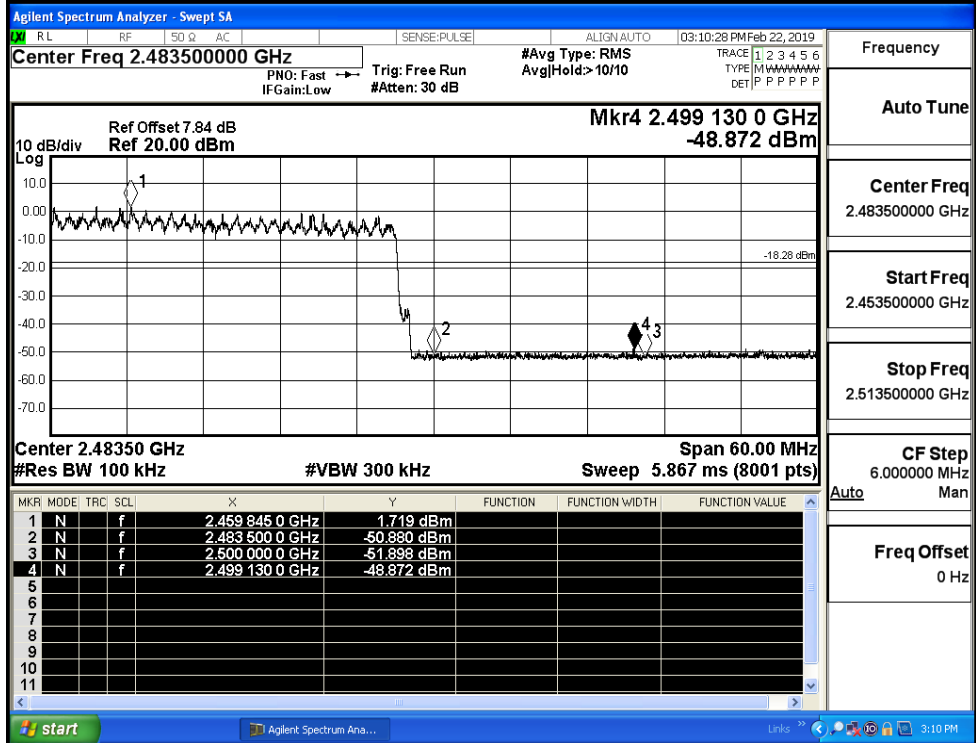
Start Freq
2.478000000 GHz

Stop Freq
2.500000000 GHz

CF Step
2.200000 MHz

Freq Offset
0 Hz

π /4DQPSK/HCH/Hop



Frequency

Auto Tune

Center Freq
2.483500000 GHz

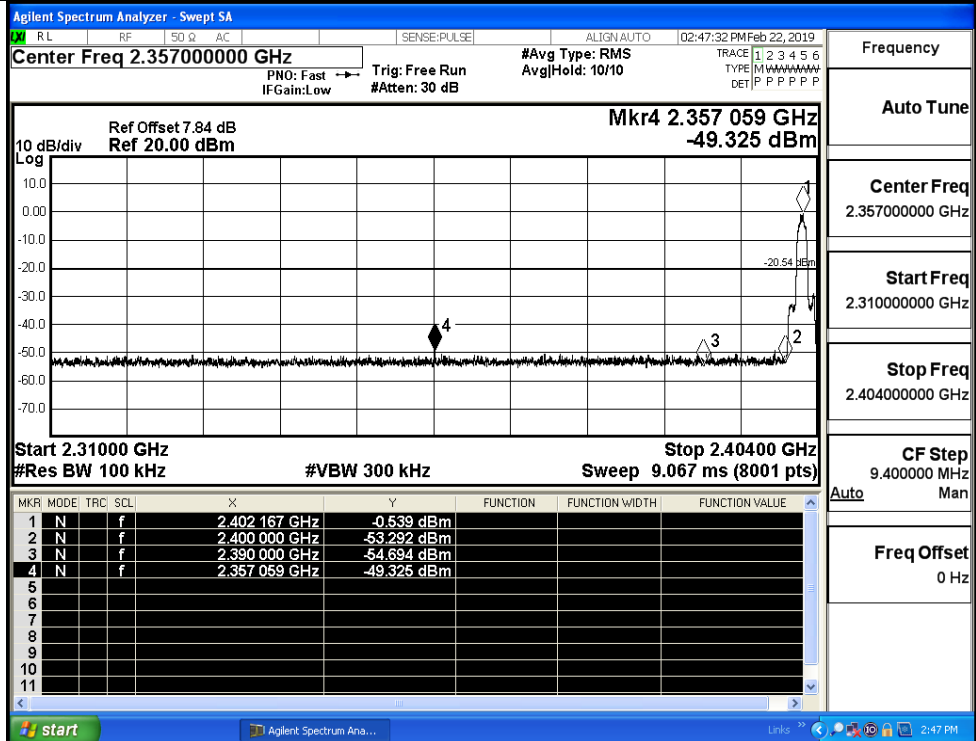
Start Freq
2.453500000 GHz

Stop Freq
2.513500000 GHz

CF Step
6.000000 MHz

Freq Offset
0 Hz

8DPSK/LCH/No Hop



Frequency

Auto Tune

Center Freq
2.357000000 GHz

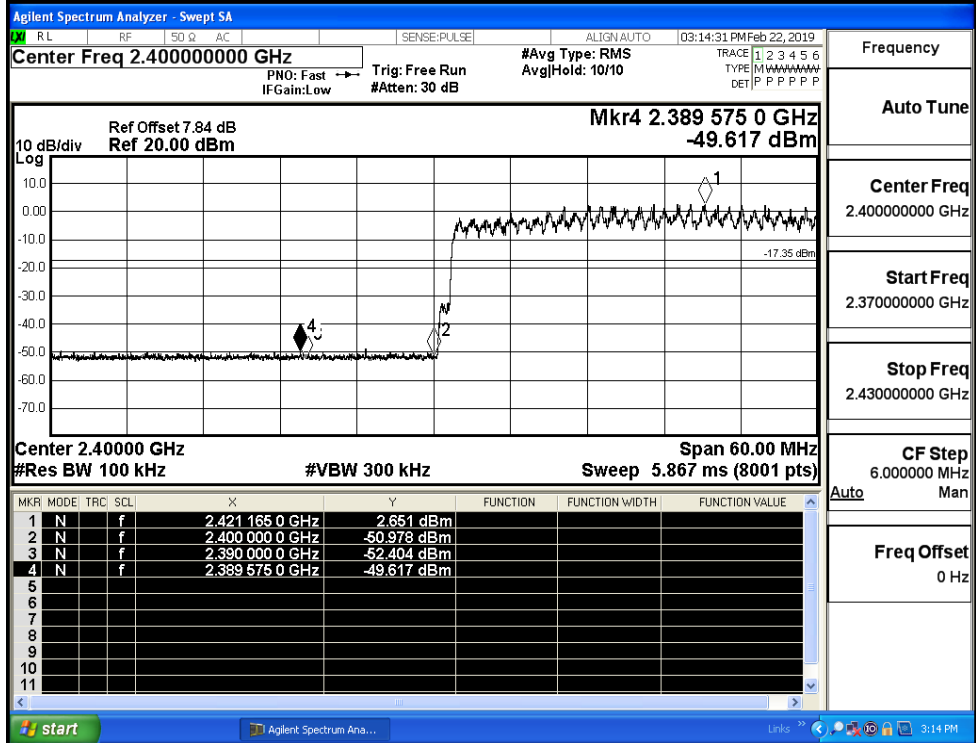
Start Freq
2.310000000 GHz

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

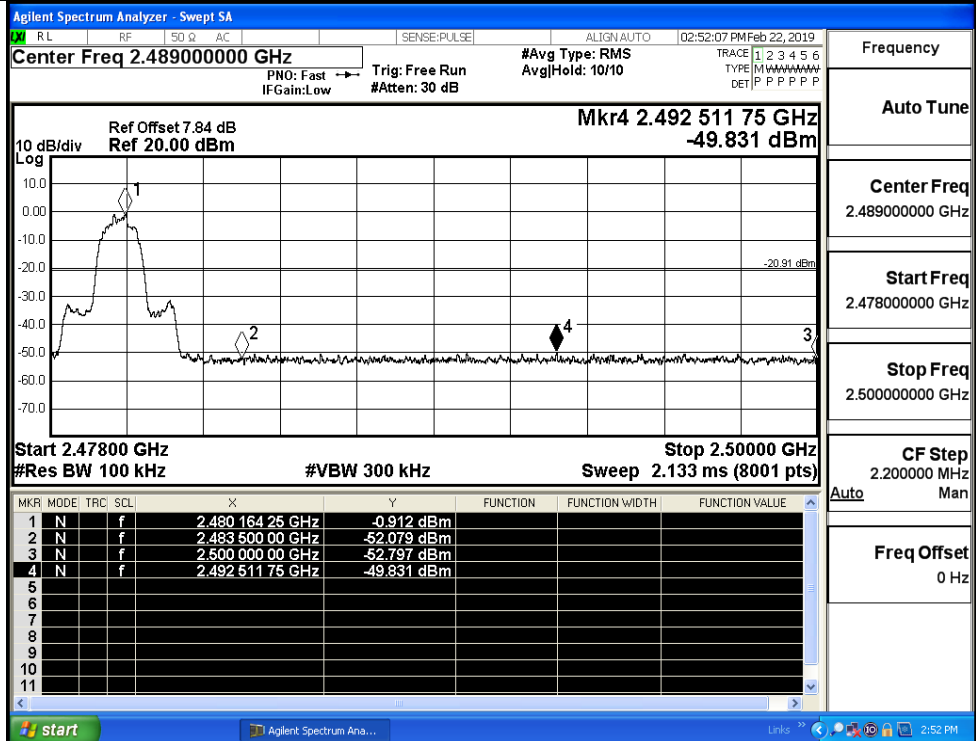
Start Freq
2.370000000 GHz

Stop Freq
2.430000000 GHz

CF Step
6.000000 MHz

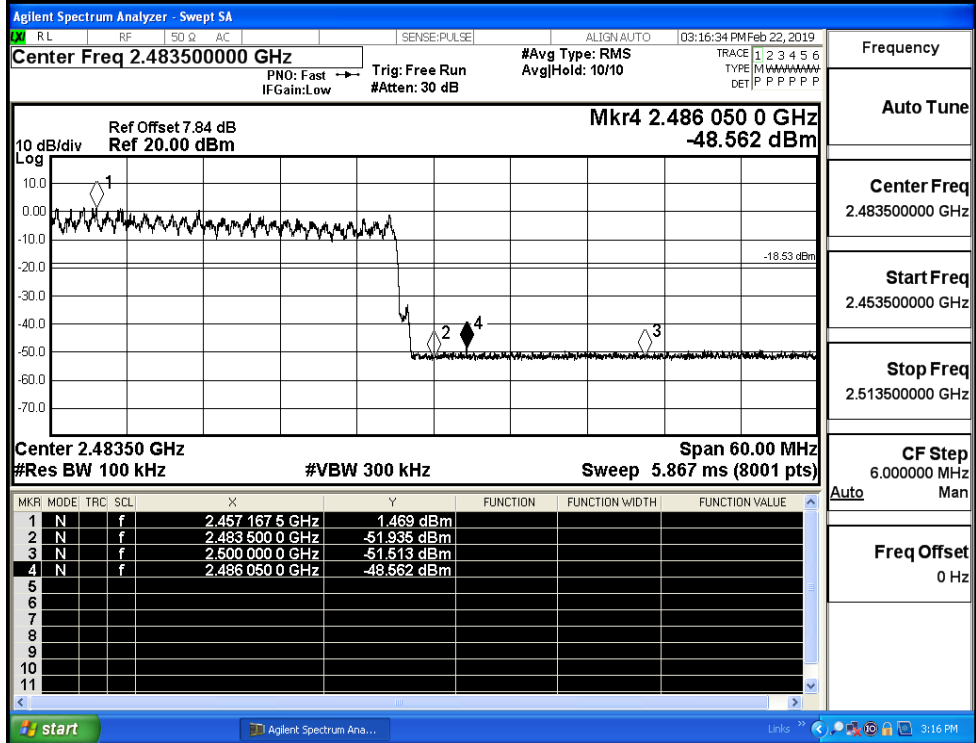
Freq Offset
0 Hz

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

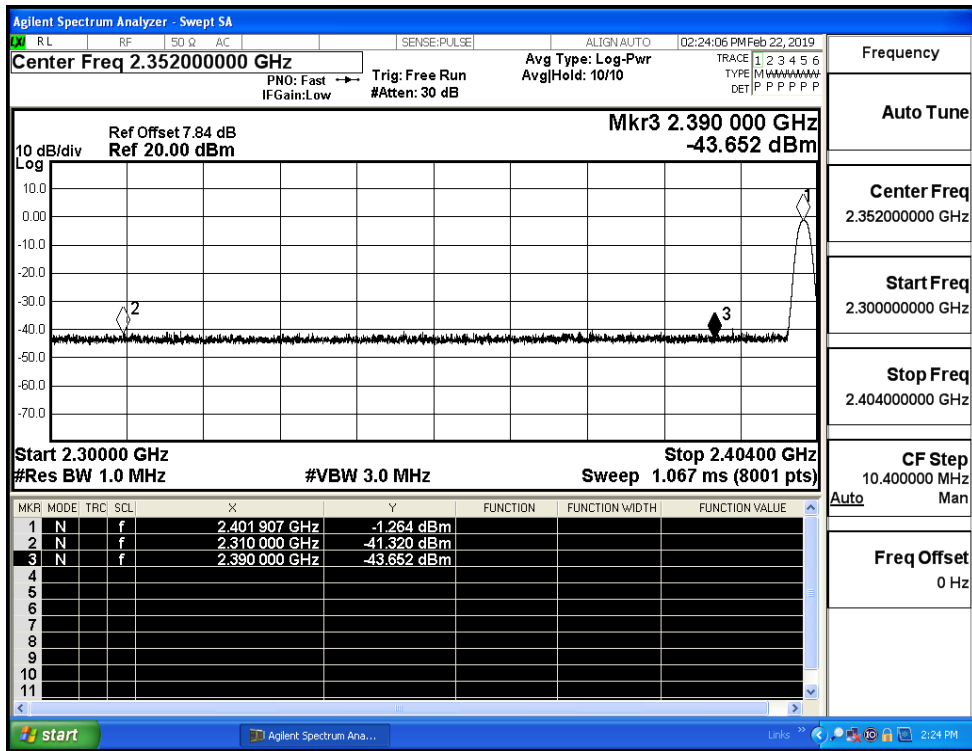


Frequency
Auto Tune
Center Freq
2.483500000 GHz
Start Freq
2.453500000 GHz
Stop Freq
2.513500000 GHz
CF Step
6.000000 MHz
Auto Man
Freq Offset
0 Hz

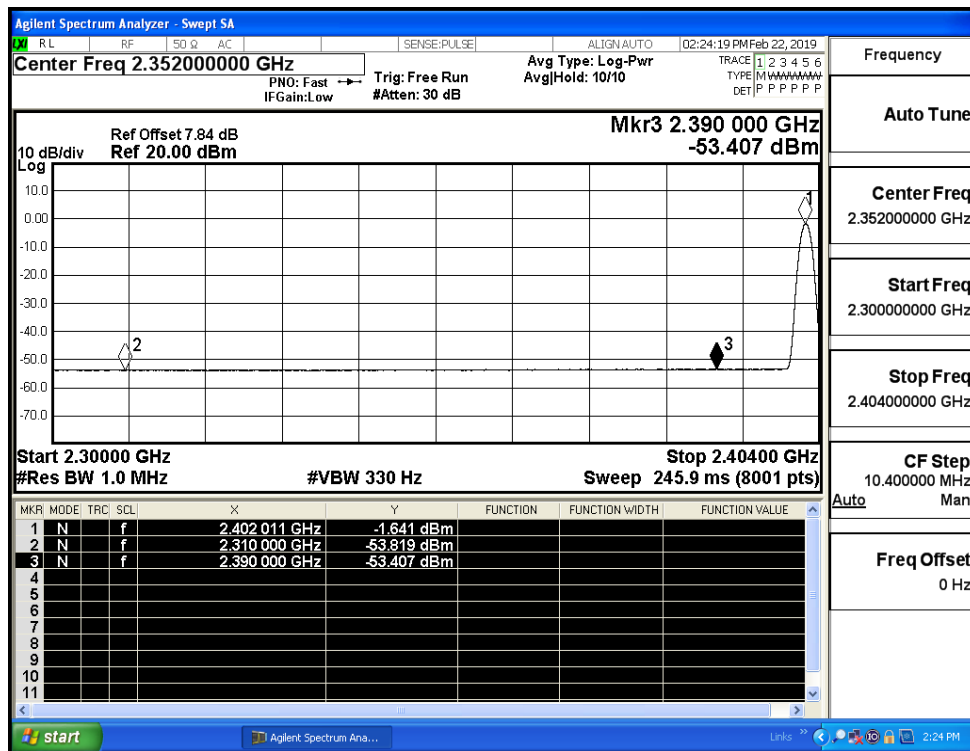
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-41.32	2.0	0	55.94	PEAK	74	PASS
	Off	2310.0	-53.82	2.0	0	43.44	AV	54	PASS
	Off	2390.0	-43.65	2.0	0	53.61	PEAK	74	PASS
	Off	2390.0	-53.41	2.0	0	43.85	AV	54	PASS
	Off	2483.5	-43.14	2.0	0	54.12	PEAK	74	PASS
	Off	2483.5	-53.14	2.0	0	44.12	AV	54	PASS
	Off	2500.0	-43.12	2.0	0	54.14	PEAK	74	PASS
	Off	2500.0	-53.14	2.0	0	44.12	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.46	2.0	0	54.80	PEAK	74	PASS
	Off	2310.0	-53.76	2.0	0	43.50	AV	54	PASS
	Off	2390.0	-42.95	2.0	0	54.31	PEAK	74	PASS
	Off	2390.0	-53.51	2.0	0	43.75	AV	54	PASS
	Off	2483.5	-43.01	2.0	0	54.24	PEAK	74	PASS
	Off	2483.5	-53.06	2.0	0	44.19	AV	54	PASS
	Off	2500.0	-42.97	2.0	0	54.28	PEAK	74	PASS
	Off	2500.0	-52.96	2.0	0	44.30	AV	54	PASS
8DPSK	Off	2310.0	-43.84	2.0	0	53.42	PEAK	74	PASS
	Off	2310.0	-53.75	2.0	0	43.51	AV	54	PASS
	Off	2390.0	-44.03	2.0	0	53.23	PEAK	74	PASS
	Off	2390.0	-53.51	2.0	0	43.75	AV	54	PASS
	Off	2483.5	-41.94	2.0	0	55.32	PEAK	74	PASS
	Off	2483.5	-53.14	2.0	0	44.12	AV	54	PASS
	Off	2500.0	-42.53	2.0	0	54.73	PEAK	74	PASS
	Off	2500.0	-53.14	2.0	0	44.12	AV	54	PASS

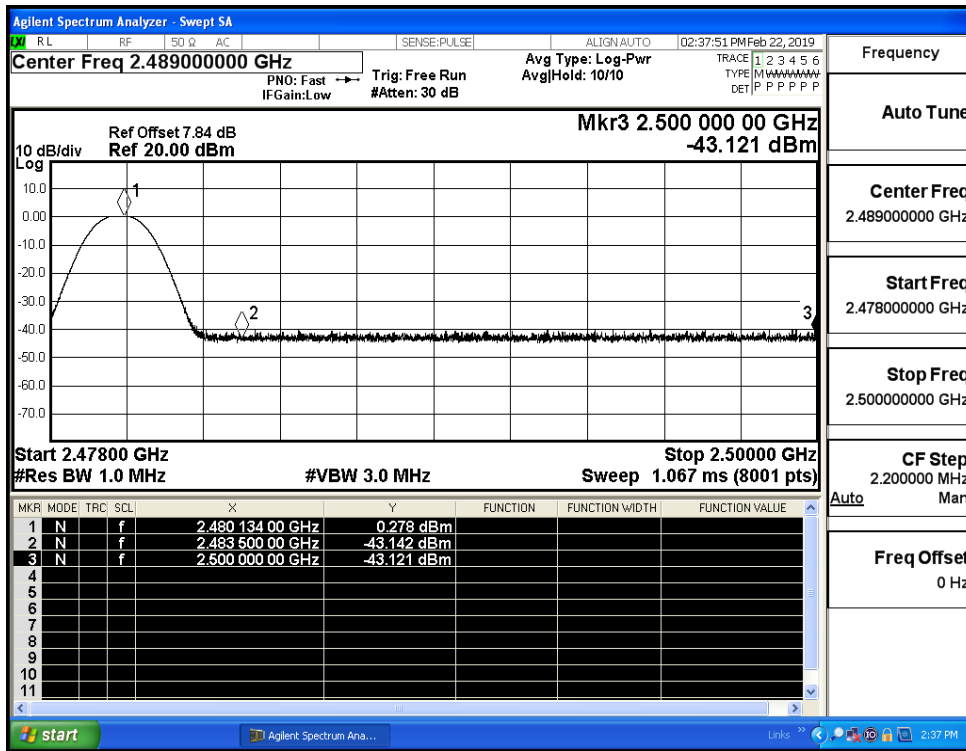
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



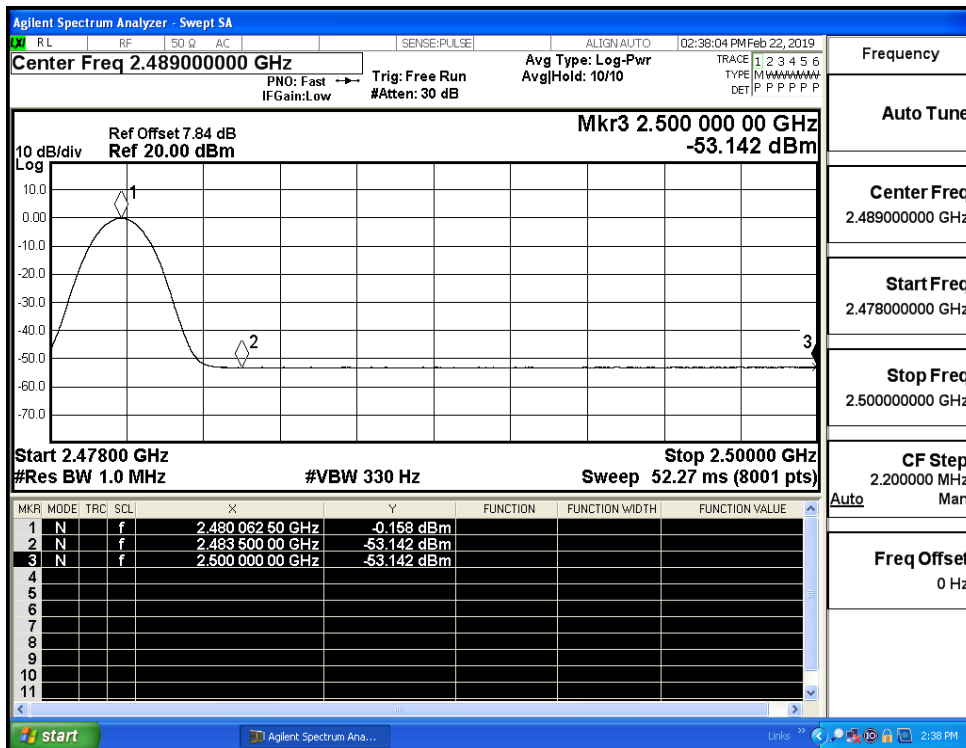
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



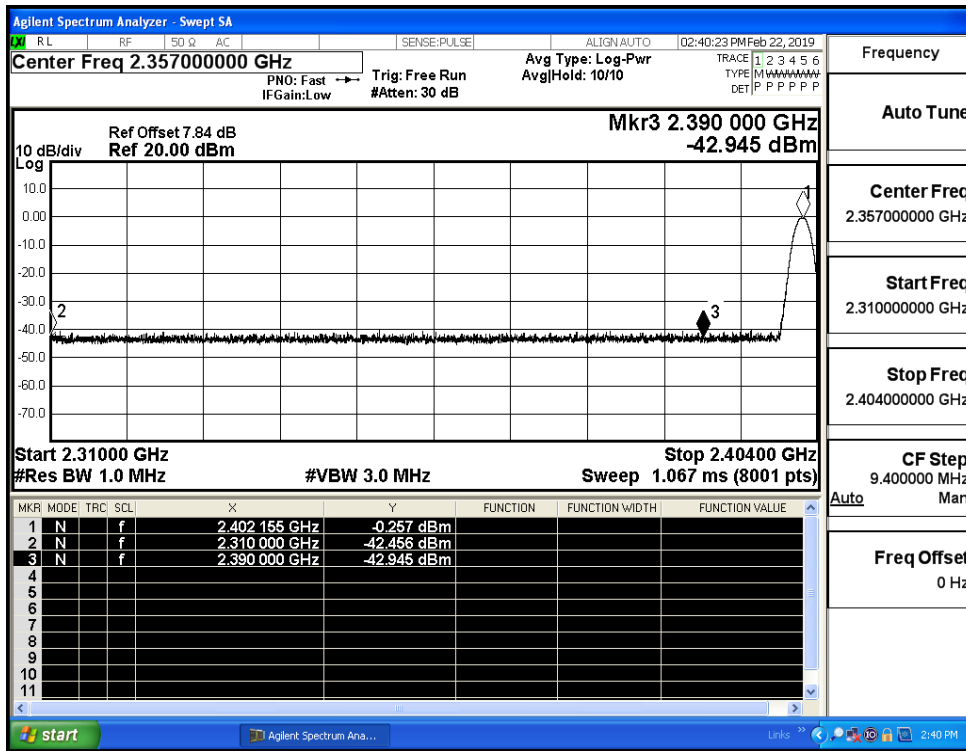
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



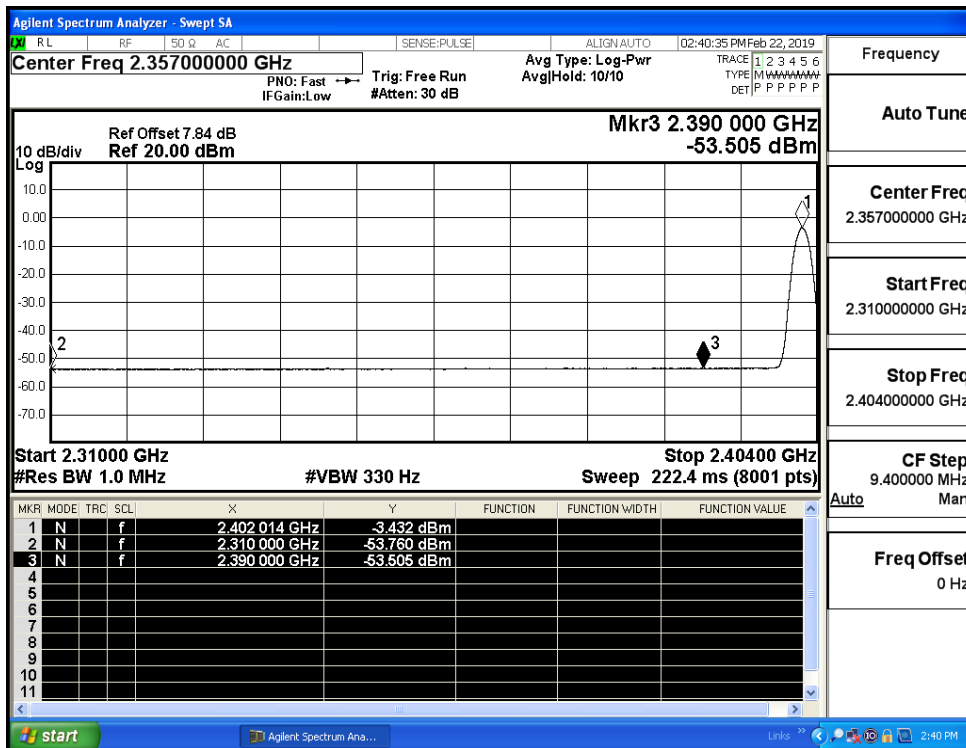
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



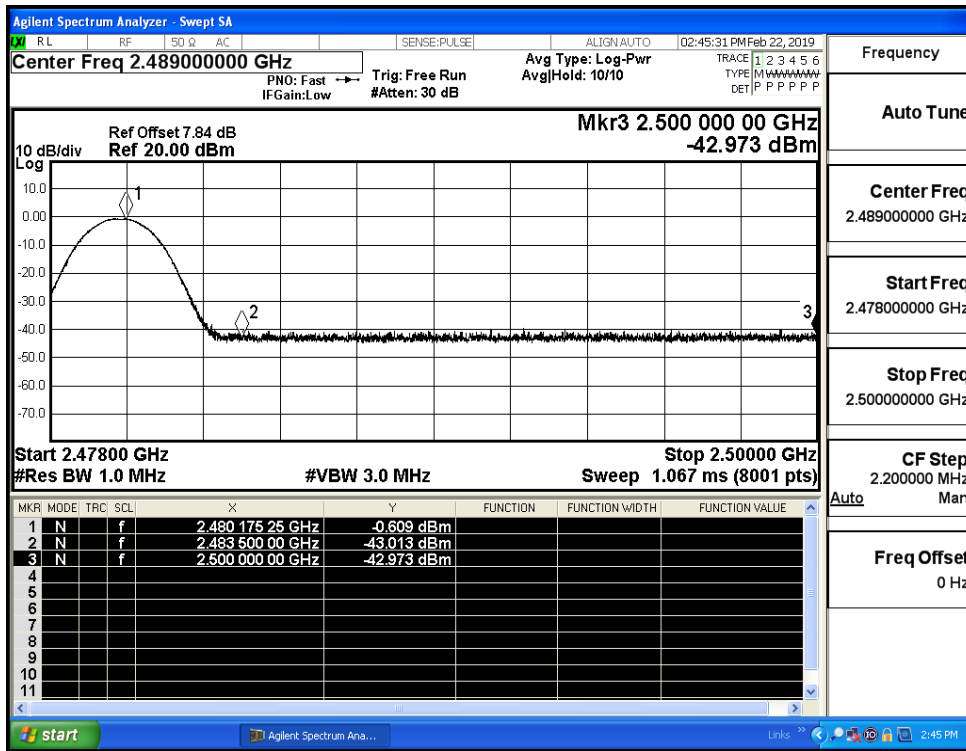
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)



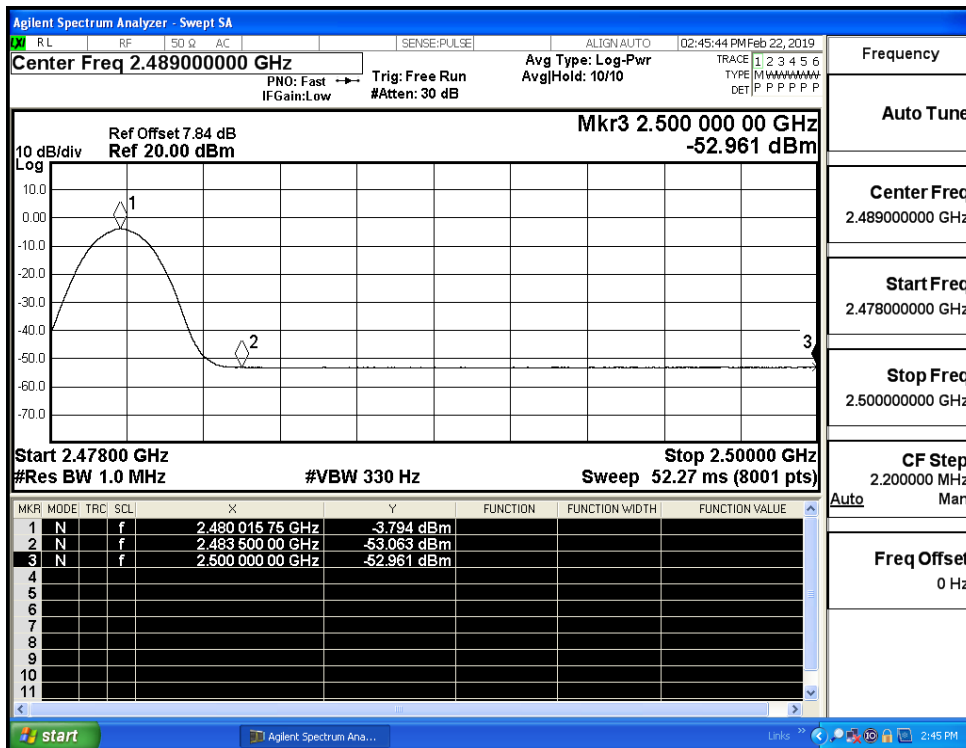
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)



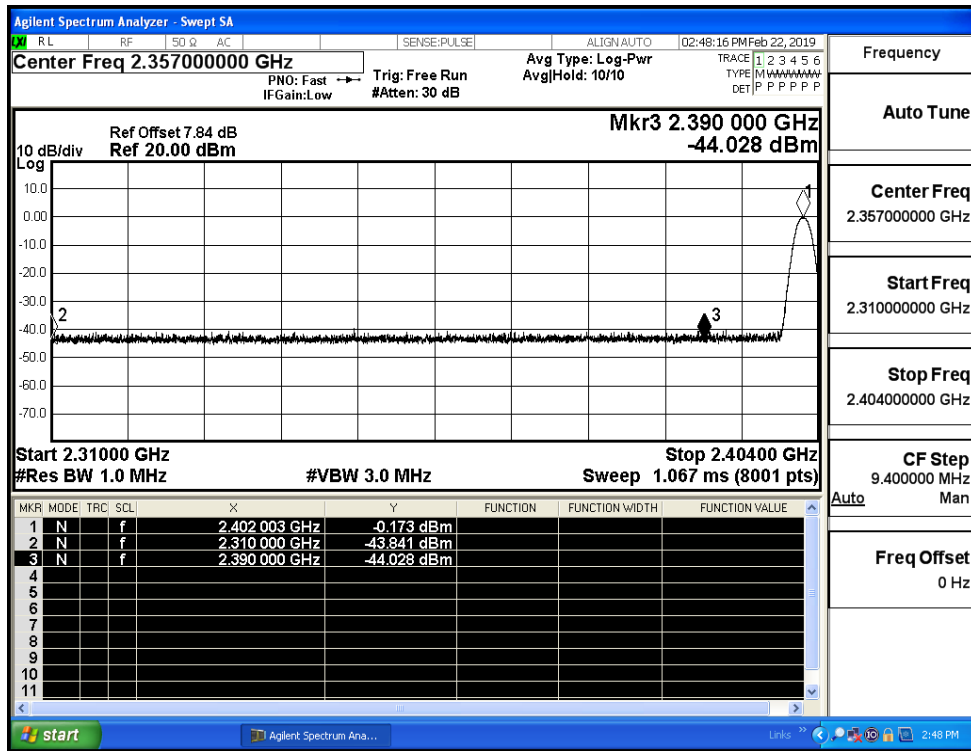
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (High Channel)



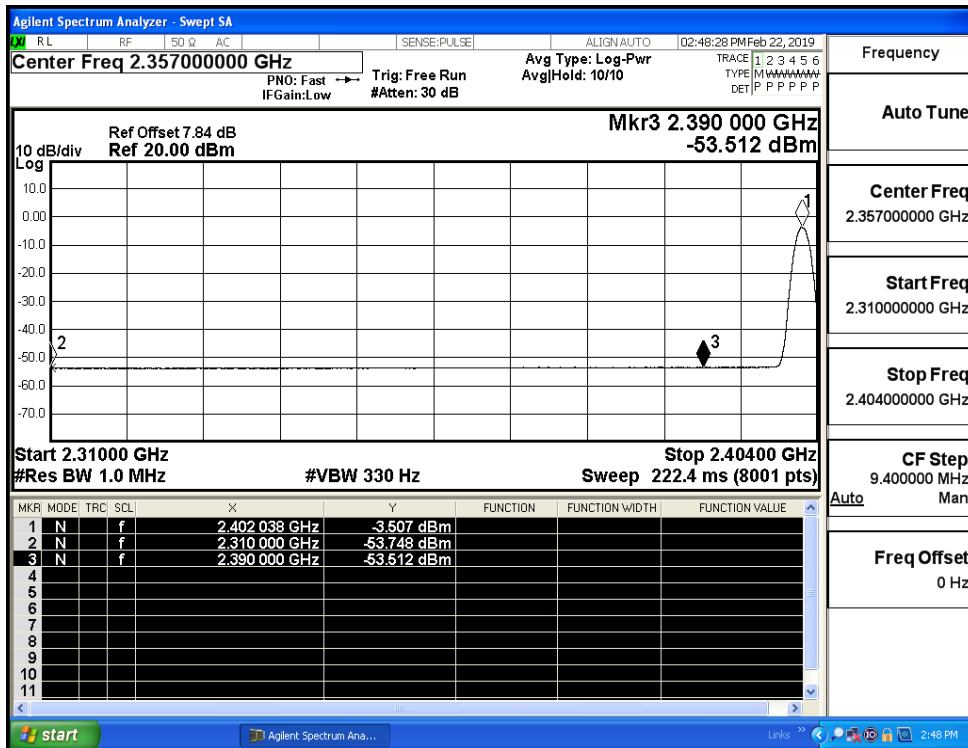
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (High Channel)



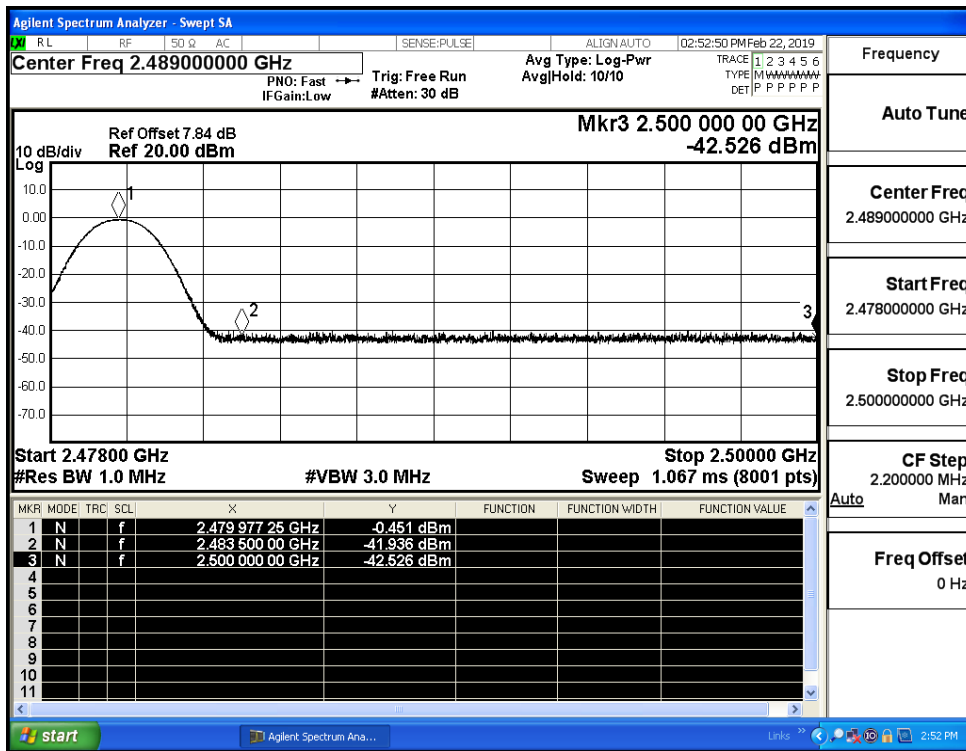
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

