

Appendix A

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

Product Name: Wireless headphone

Trade Mark: Origaudio

Test Model: Wrapsody

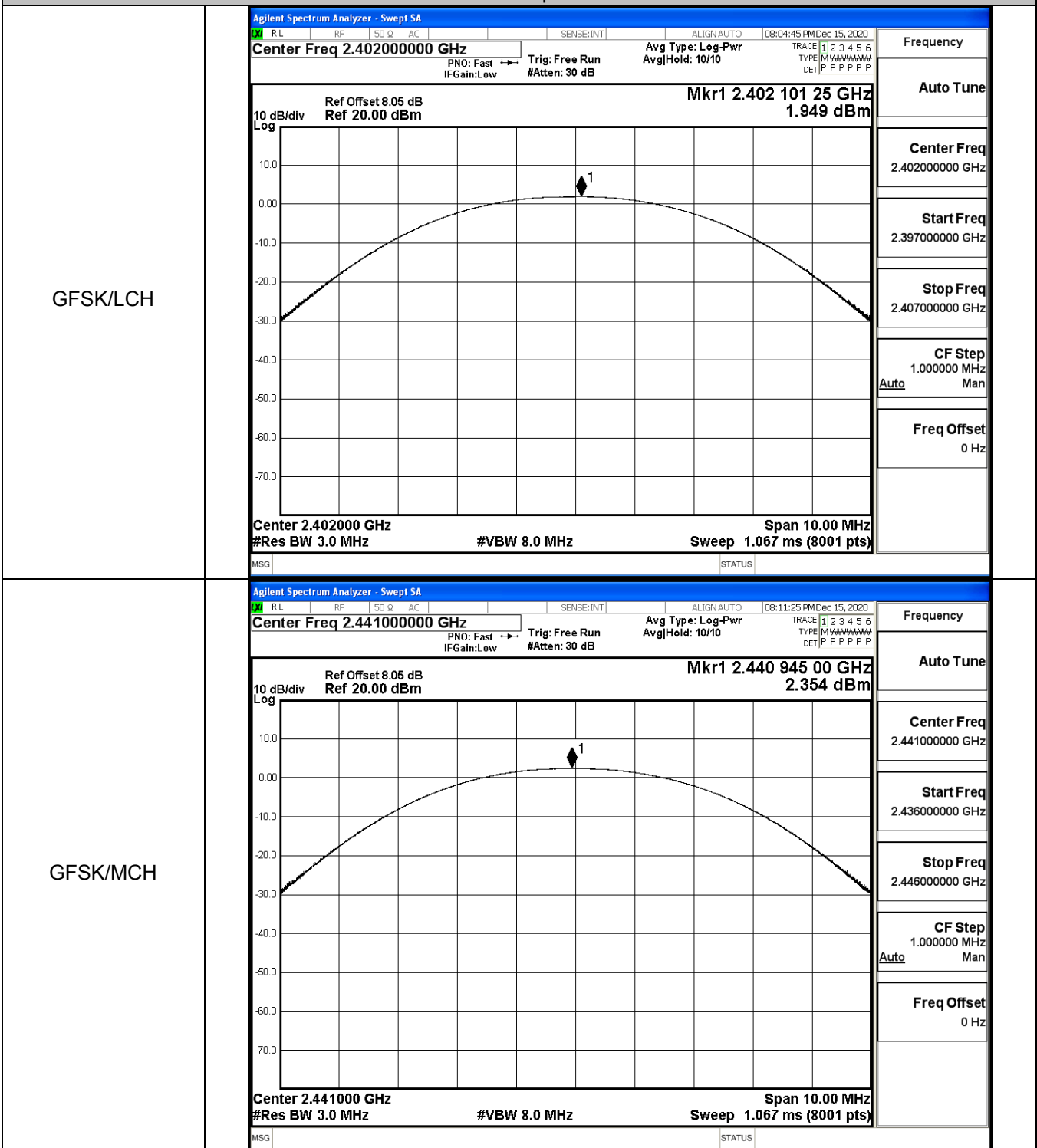
Environmental Conditions

Temperature:	24.6° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Li
Supervised by:	Li Huan

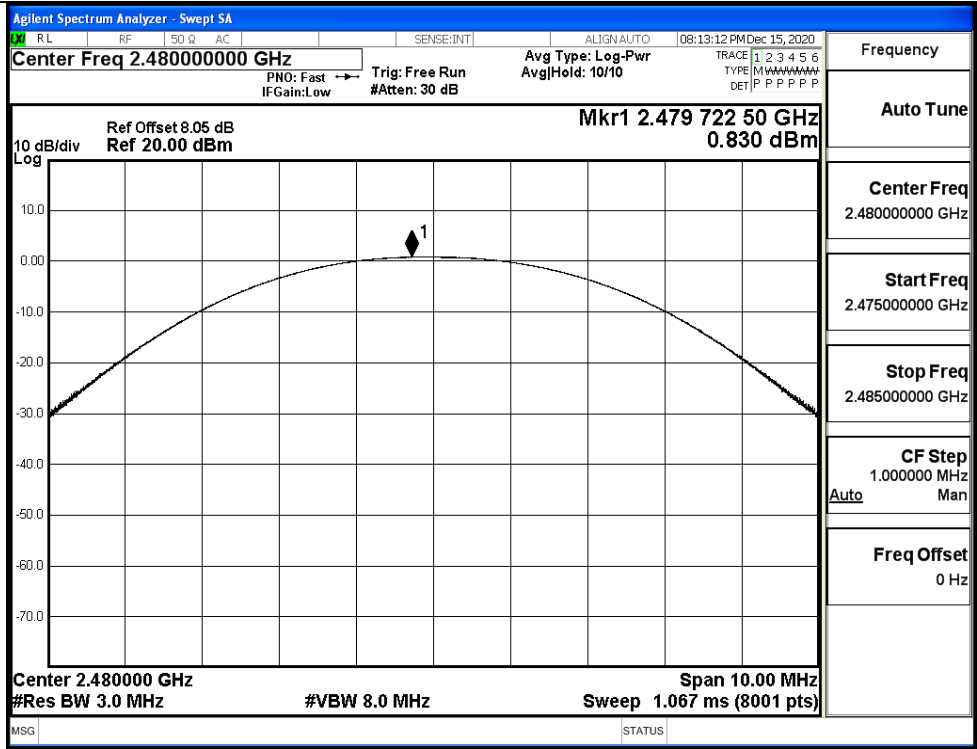
A.1 Maxmum Conducted Peak Output Power

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.949	21	PASS
	MCH	2.354	21	PASS
	HCH	0.830	21	PASS
$\pi/4$ DQPSK	LCH	0.073	21	PASS
	MCH	1.533	21	PASS
	HCH	0.123	21	PASS
8DPSK	LCH	0.259	21	PASS
	MCH	1.766	21	PASS
	HCH	0.330	21	PASS

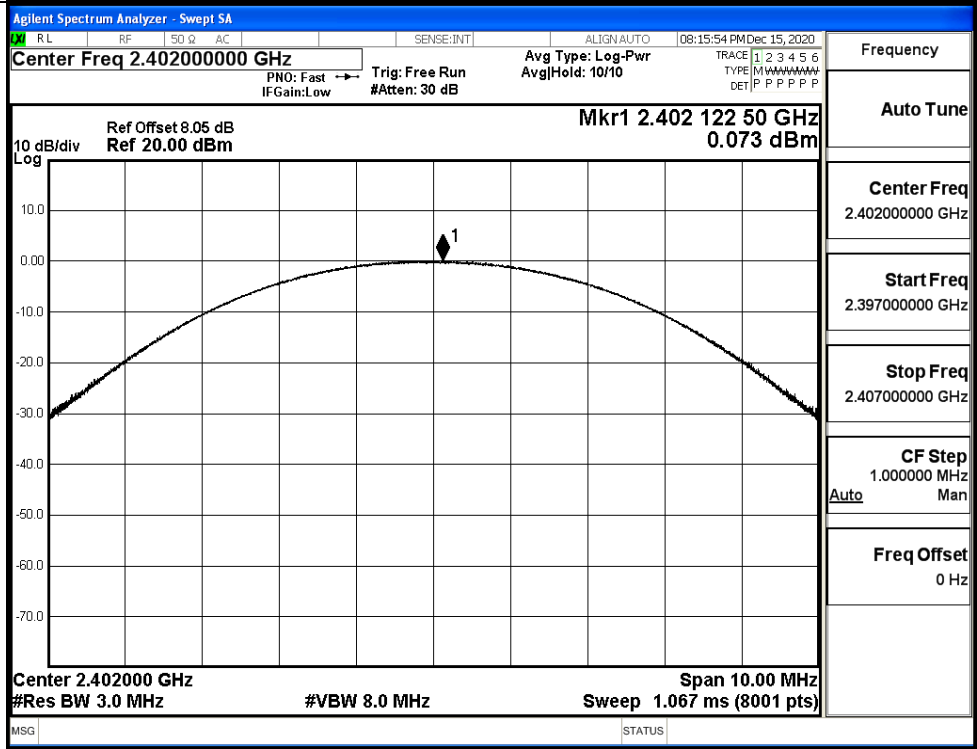
Test Graphs

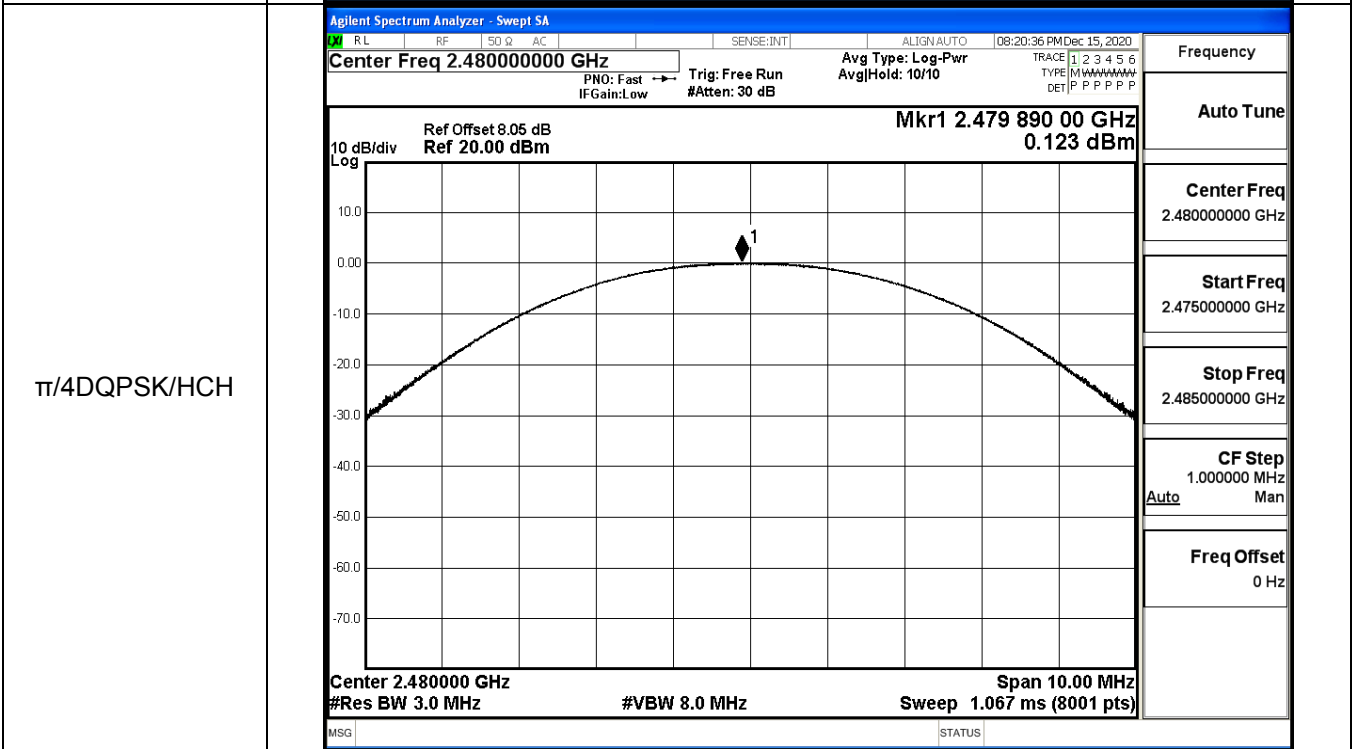
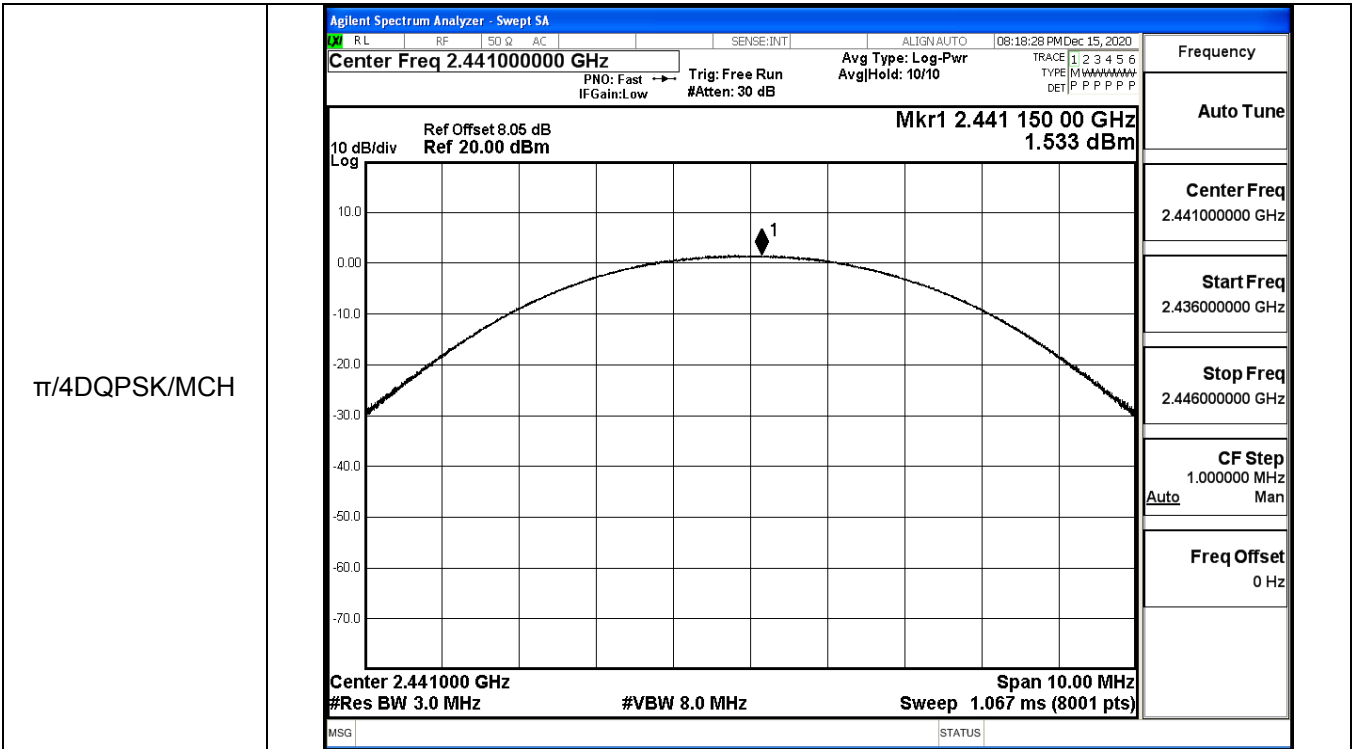


GFSK/HCH

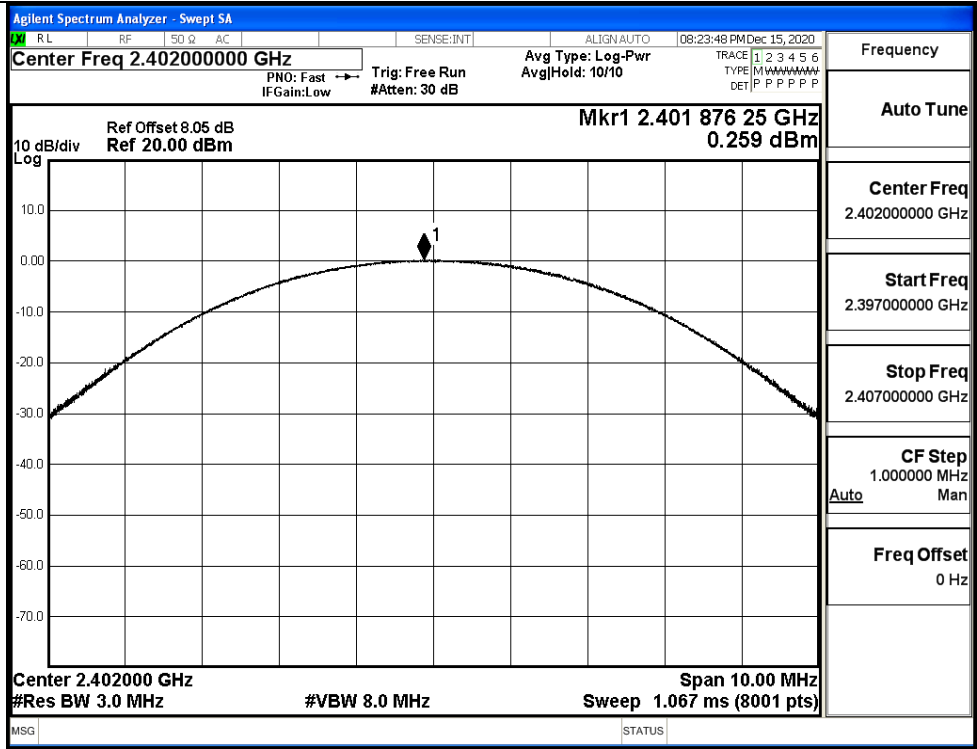


π /4DQPSK/LCH

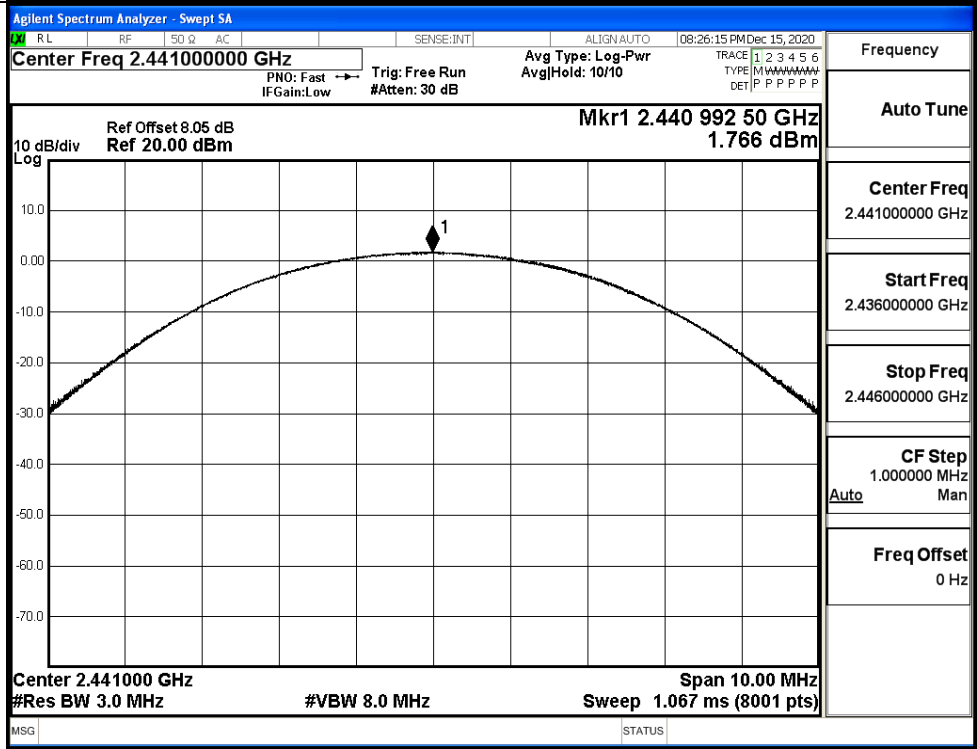




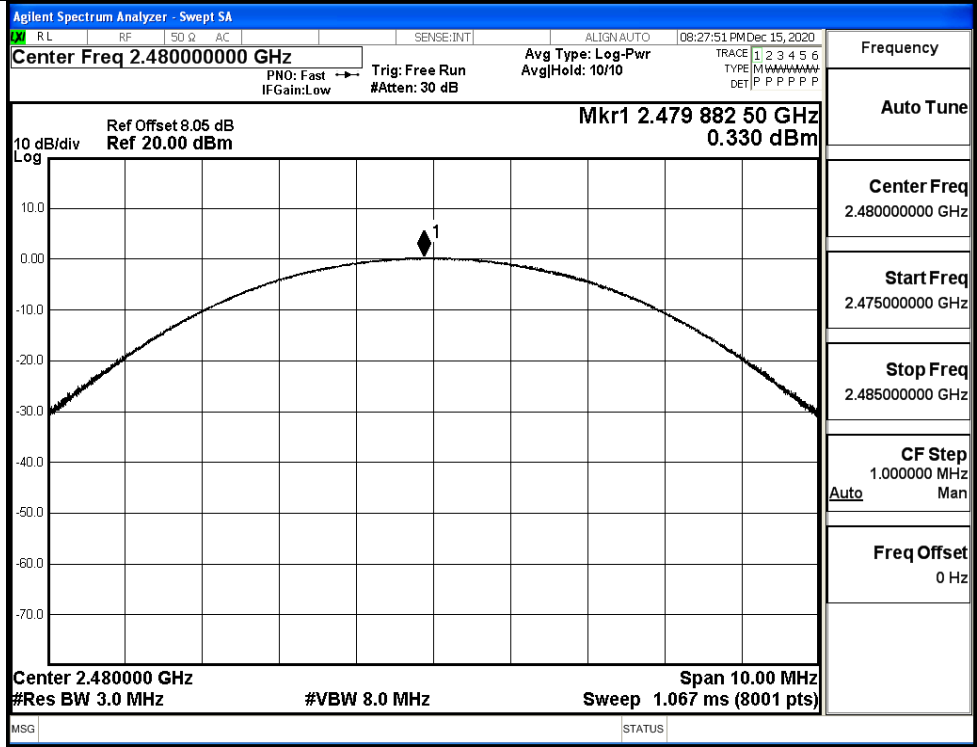
8DPSK/LCH



8DPSK/MCH

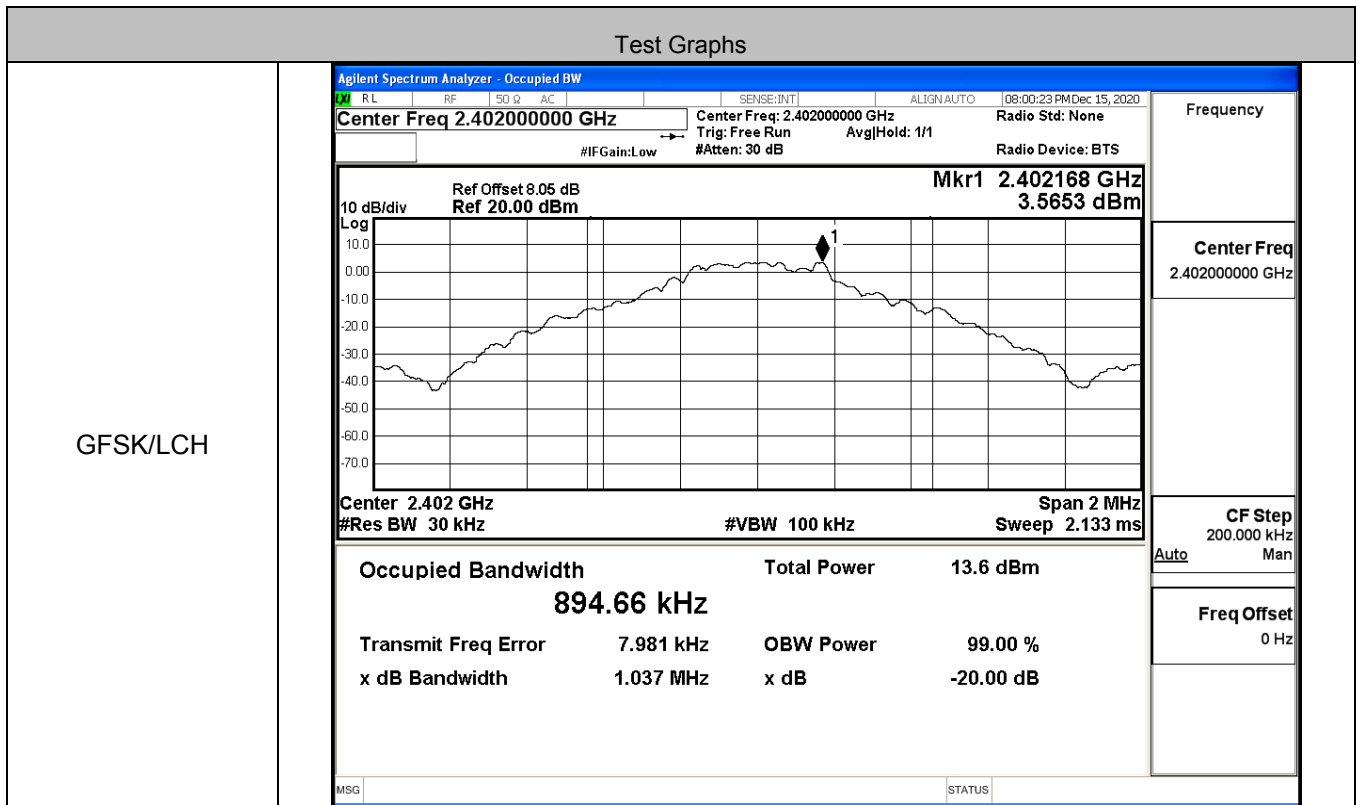


8DPSK/HCH

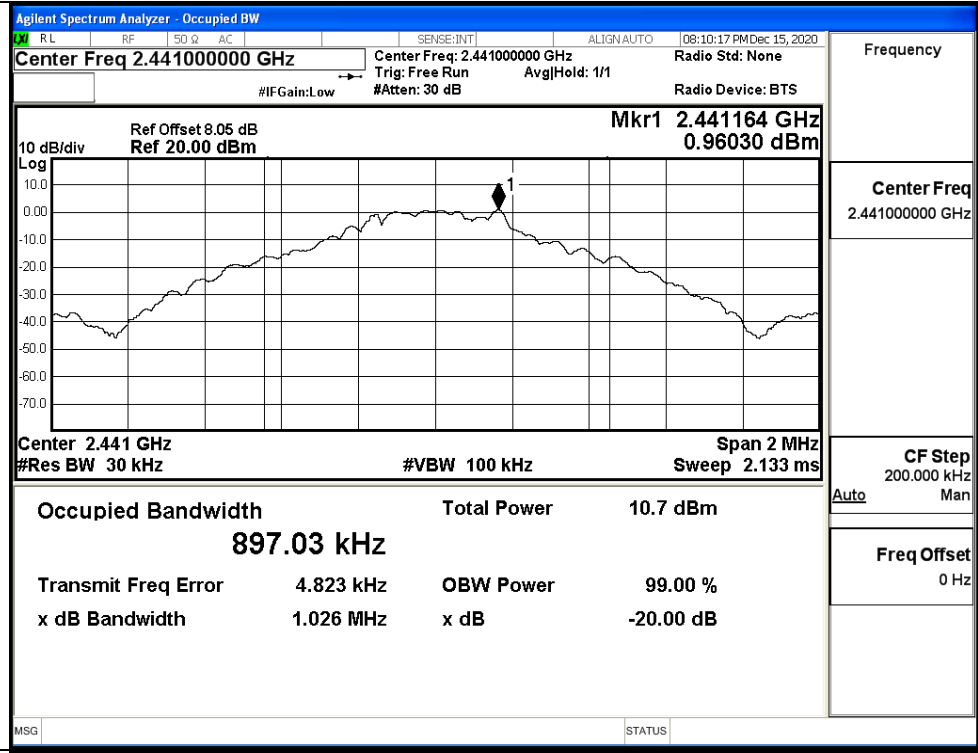


A.2 20dB Bandwidth

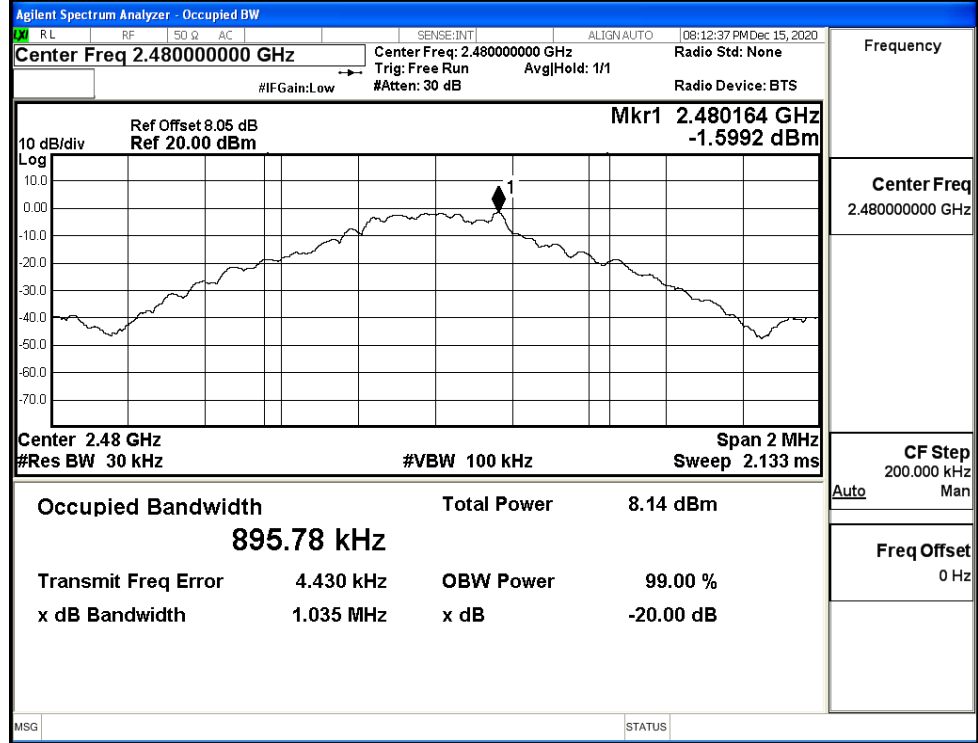
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.037	Not Specified	PASS
	MCH	1.026	Not Specified	PASS
	HCH	1.035	Not Specified	PASS
π/4DQPSK	LCH	1.287	Not Specified	PASS
	MCH	1.289	Not Specified	PASS
	HCH	1.288	Not Specified	PASS
8DPSK	LCH	1.292	Not Specified	PASS
	MCH	1.291	Not Specified	PASS
	HCH	1.293	Not Specified	PASS

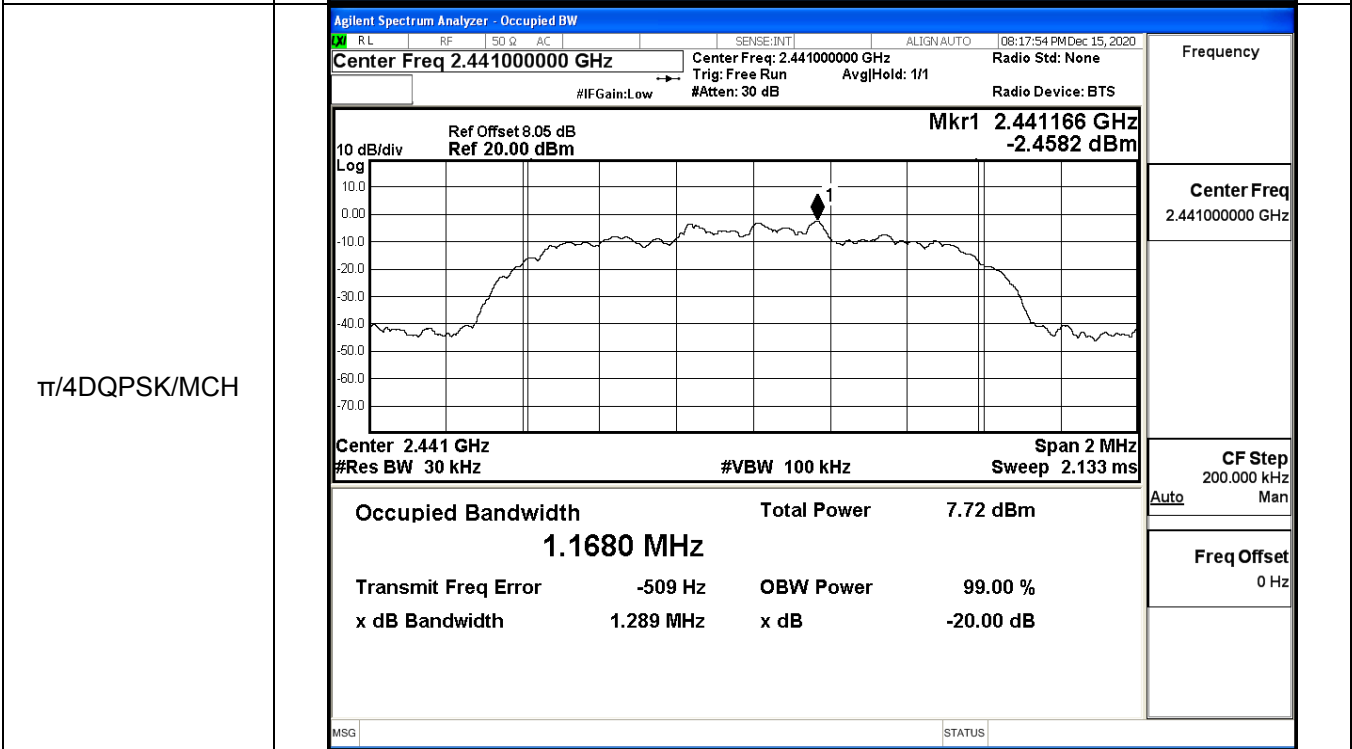
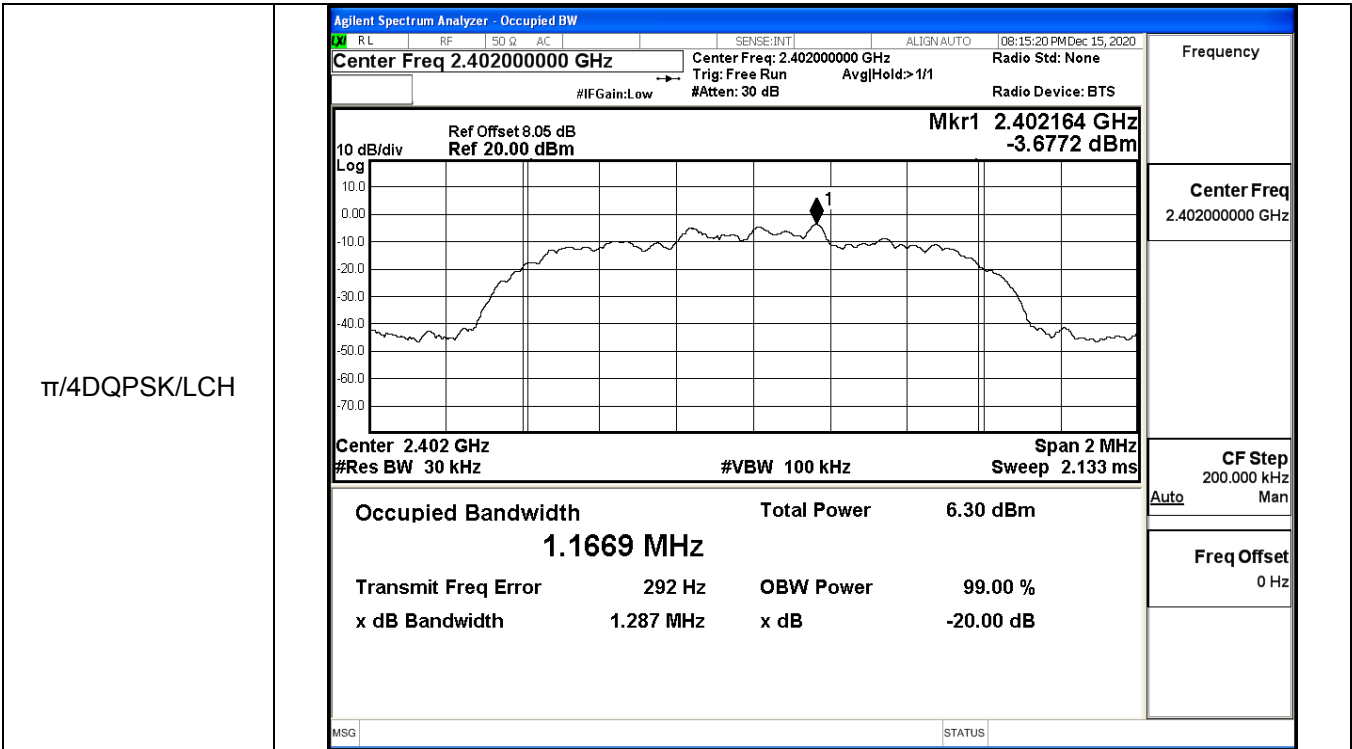


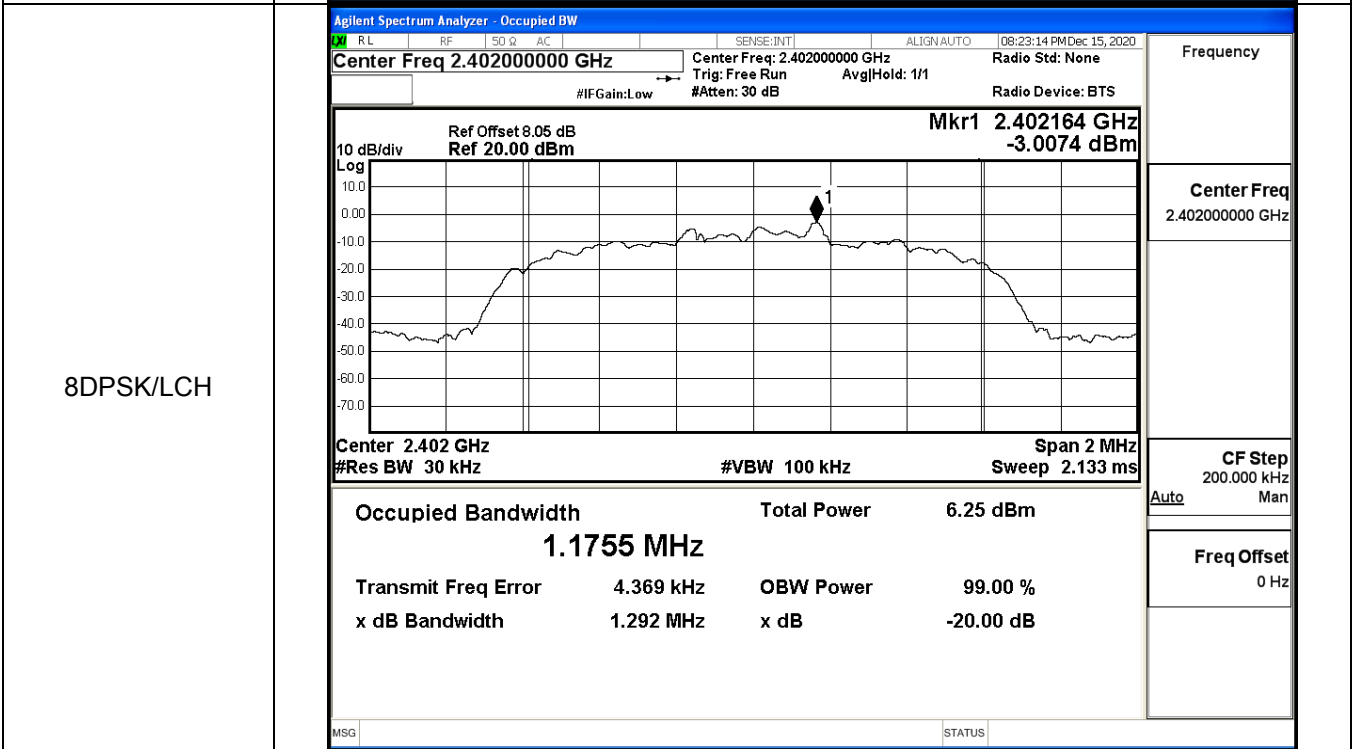
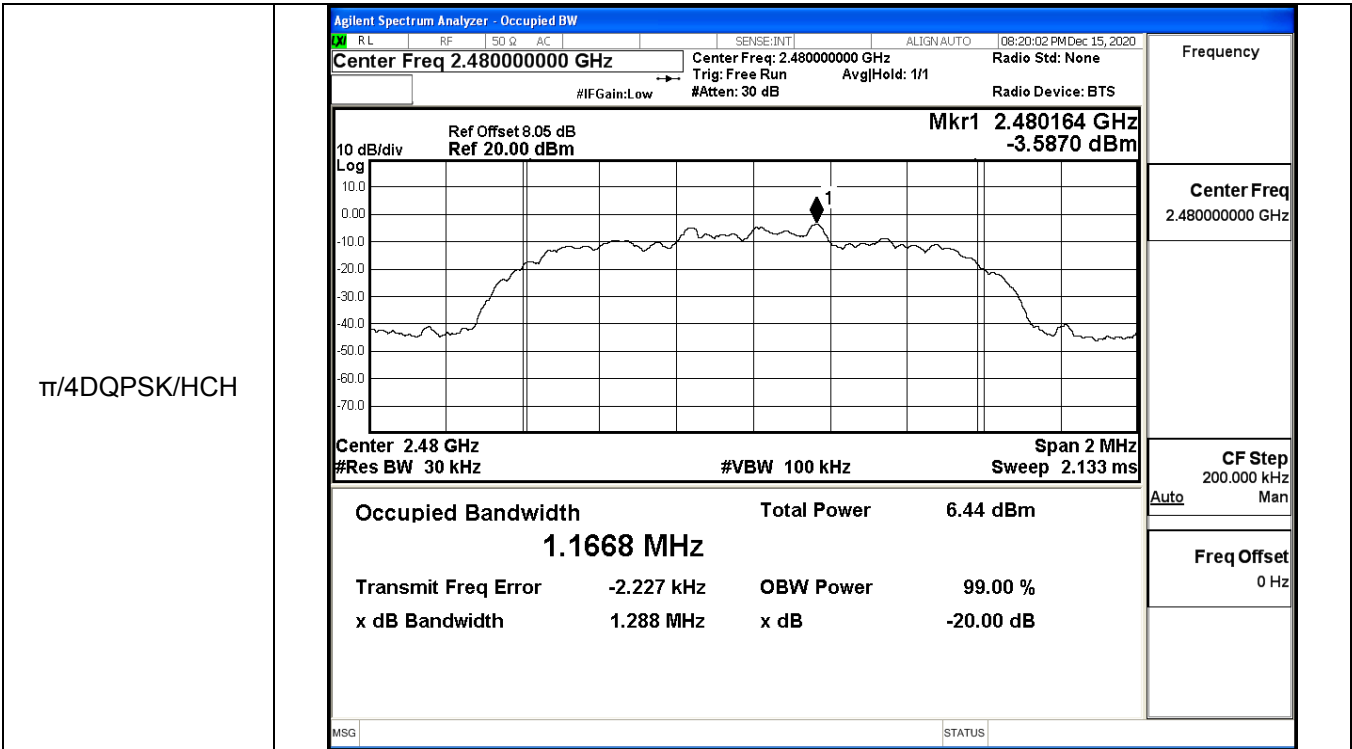
GFSK/MCH



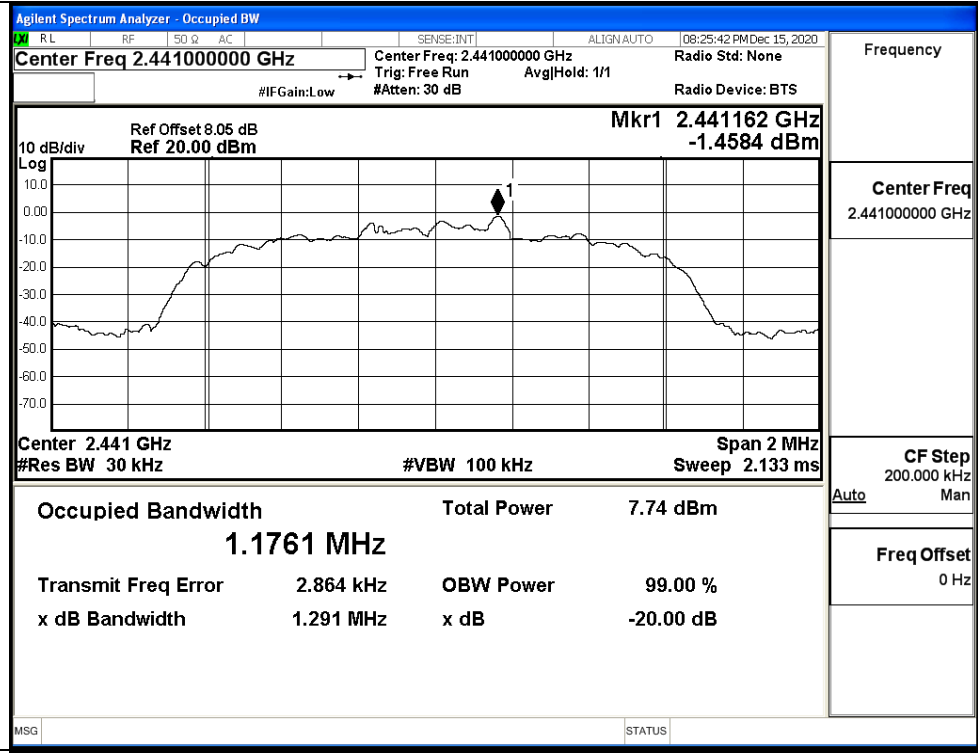
GFSK/HCH



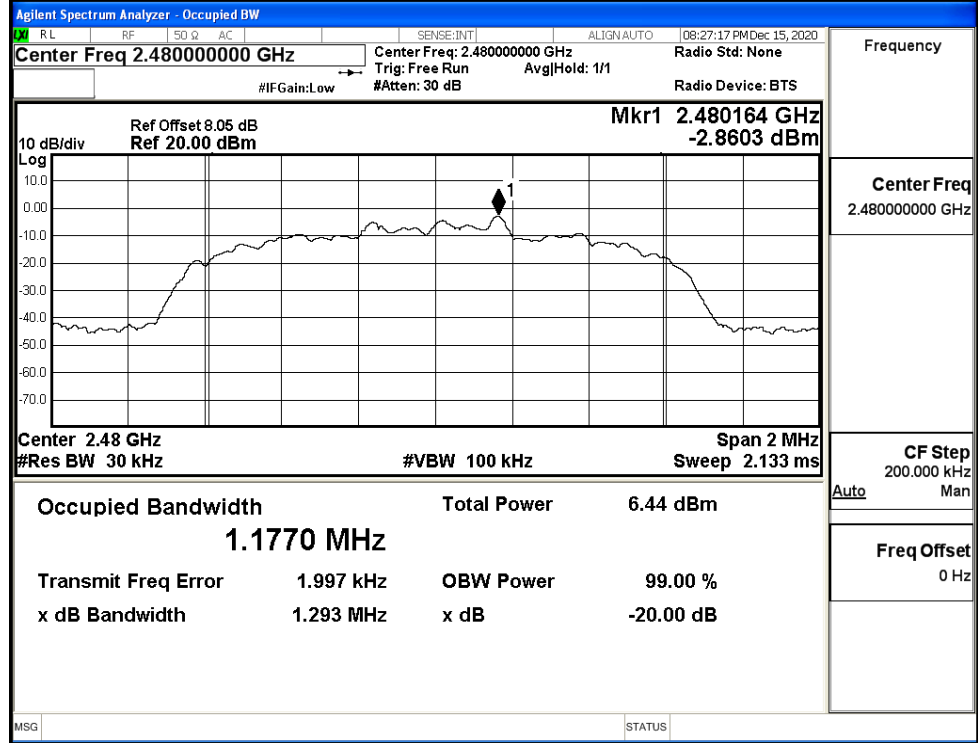




8DPSK/MCH

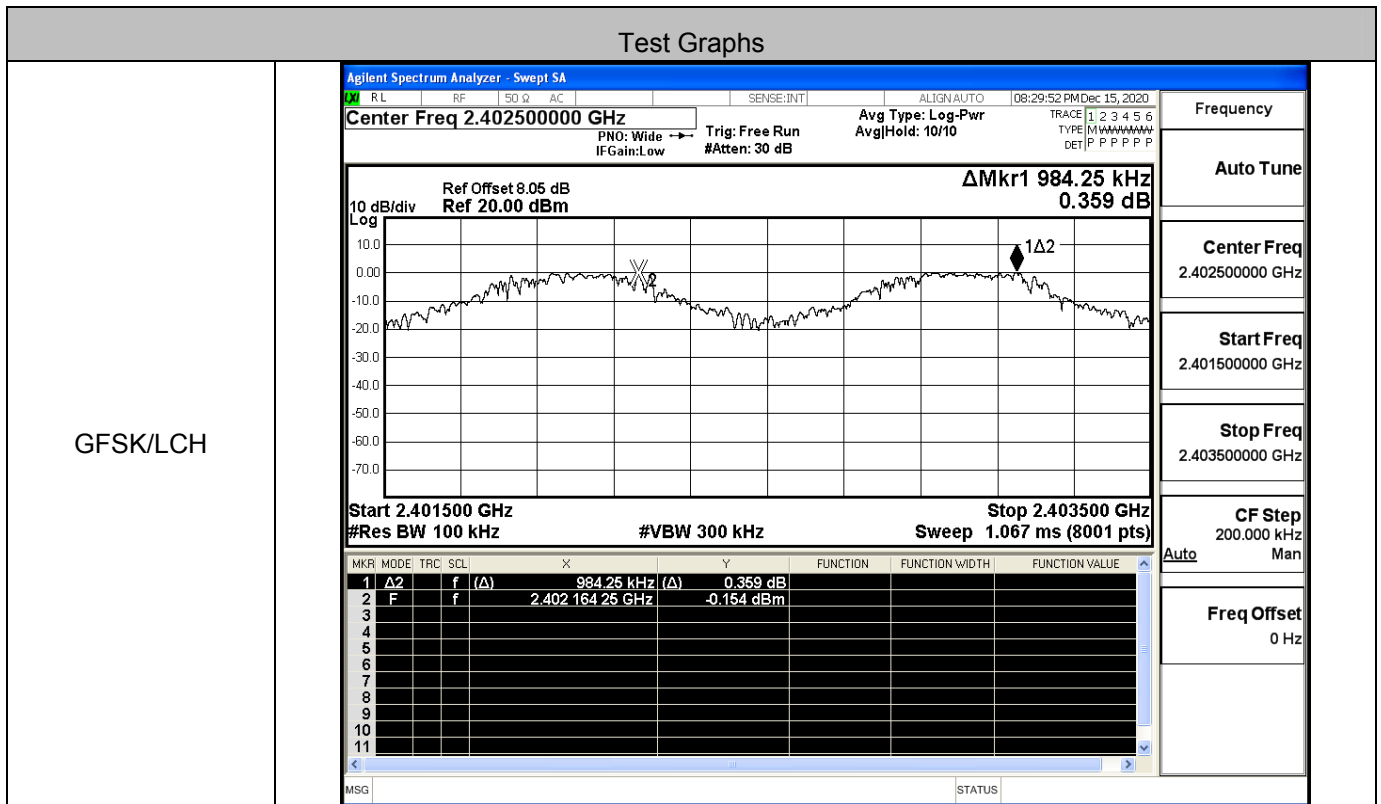


8DPSK/HCH

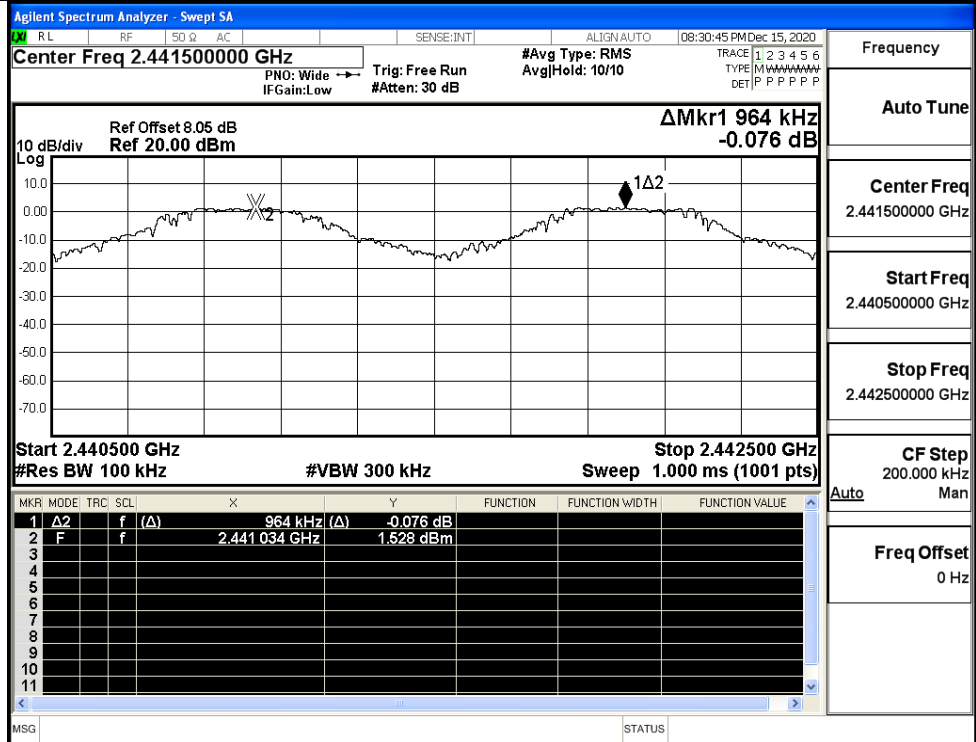


A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.984	0.691	PASS
	MCH	0.964	0.691	PASS
	HCH	0.832	0.691	PASS
π/4DQPSK	LCH	1.148	0.859	PASS
	MCH	1.050	0.859	PASS
	HCH	1.106	0.859	PASS
8DPSK	LCH	1.214	0.862	PASS
	MCH	1.064	0.862	PASS
	HCH	0.896	0.862	PASS

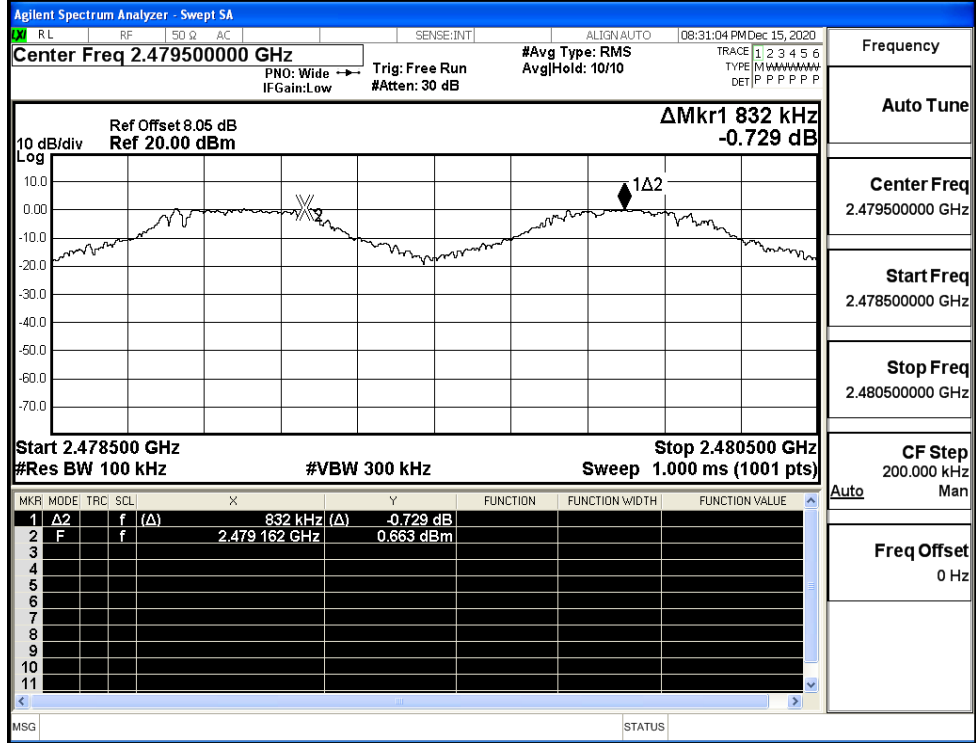


GFSK/MCH



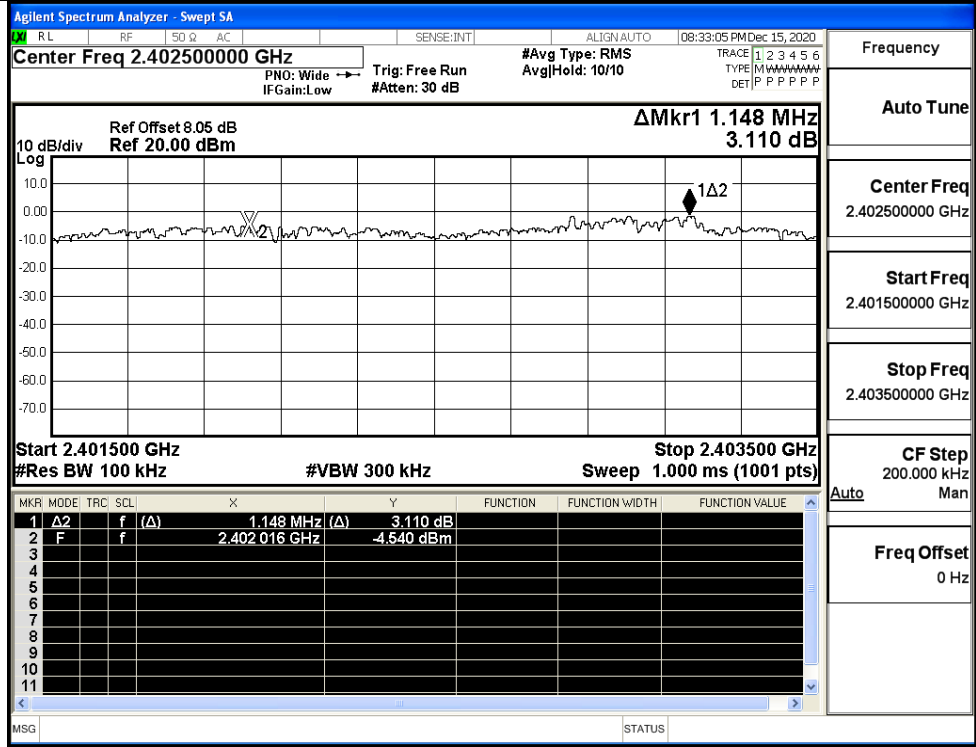
Frequency
Auto Tune
Center Freq
2.441500000 GHz
Start Freq
2.440500000 GHz
Stop Freq
2.442500000 GHz
CF Step
200.000 kHz
Auto Man
Freq Offset
0 Hz

GFSK/HCH

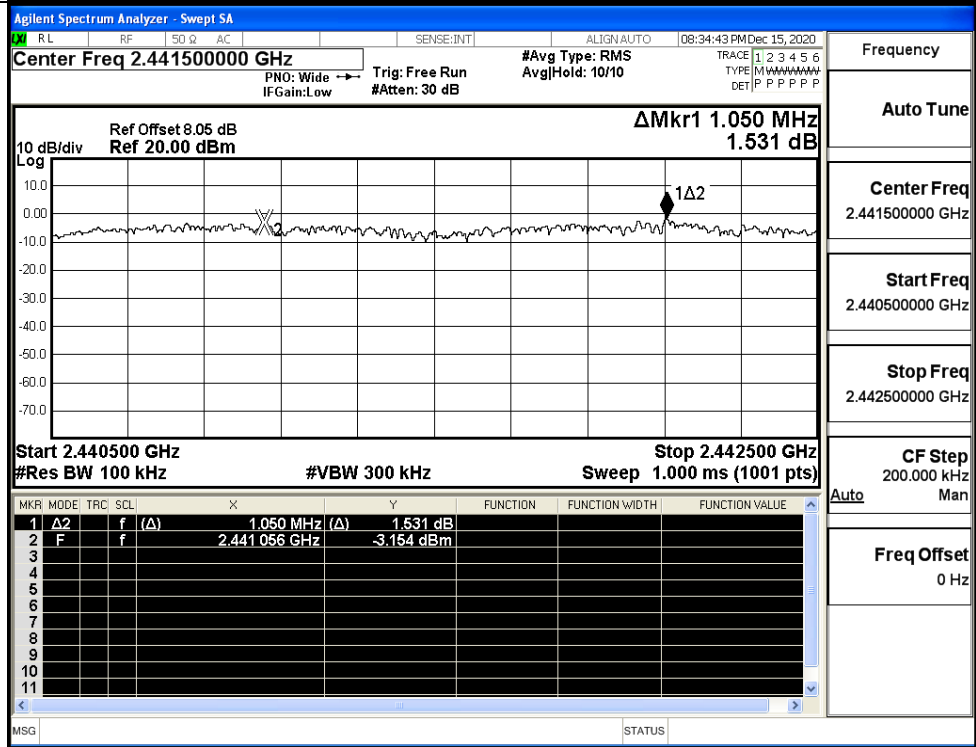


Frequency
Auto Tune
Center Freq
2.479500000 GHz
Start Freq
2.478500000 GHz
Stop Freq
2.480500000 GHz
CF Step
200.000 kHz
Auto Man
Freq Offset
0 Hz

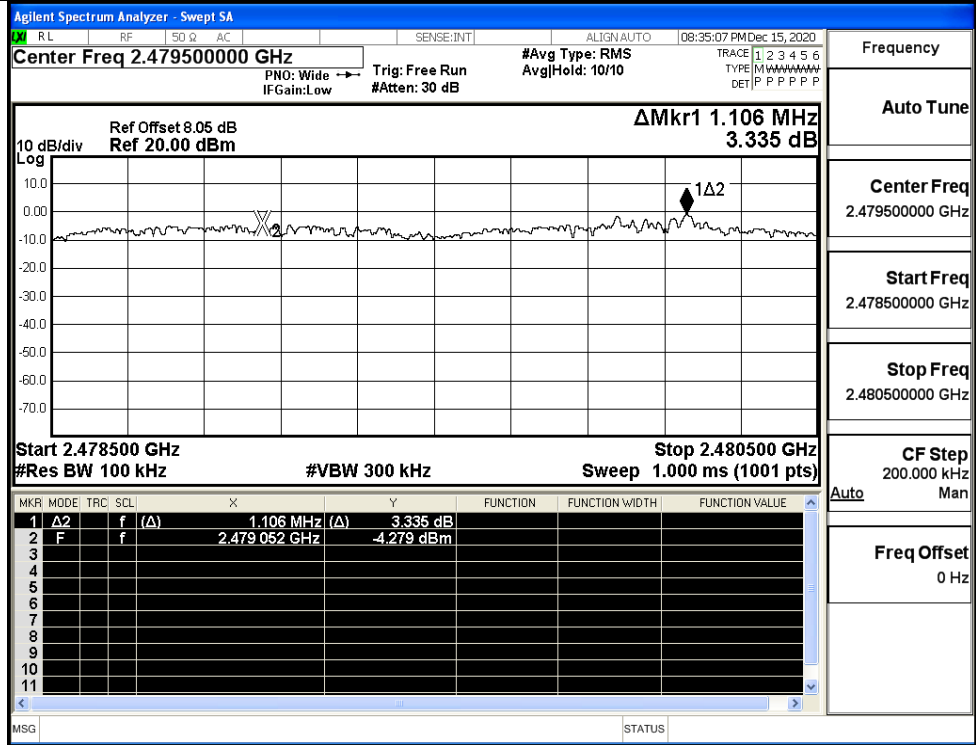
π/4DQPSK/LCH



π/4DQPSK/MCH

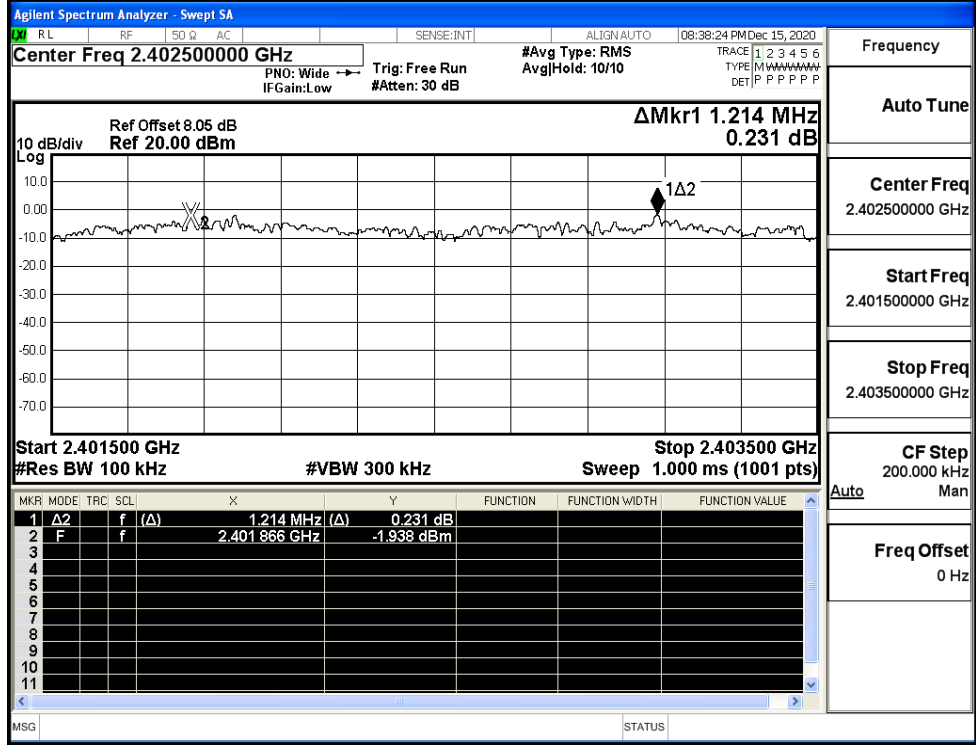


π/4DQPSK/HCH

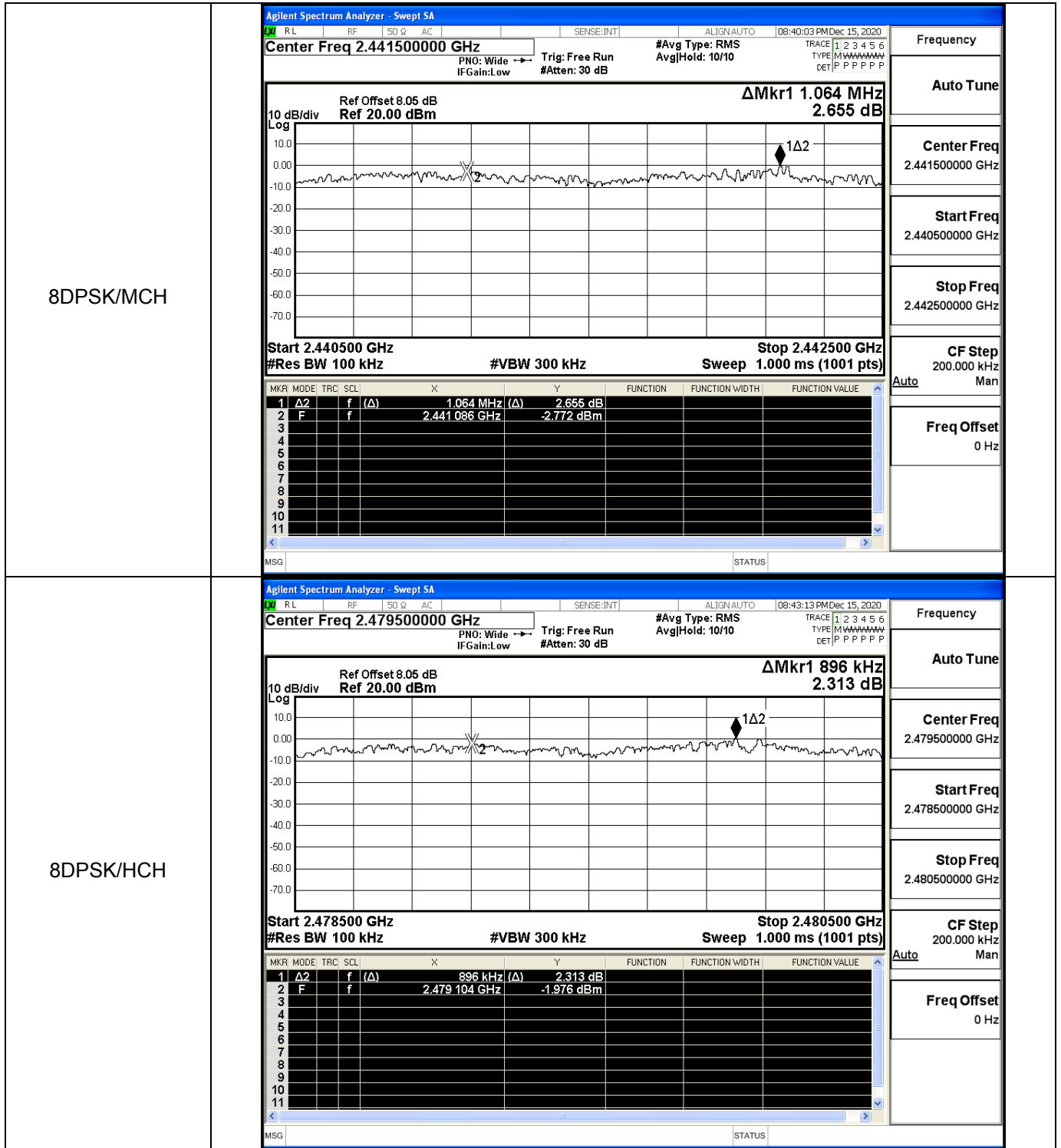


Frequency
Auto Tune
Center Freq
2.479500000 GHz
Start Freq
2.478500000 GHz
Stop Freq
2.480500000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz

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

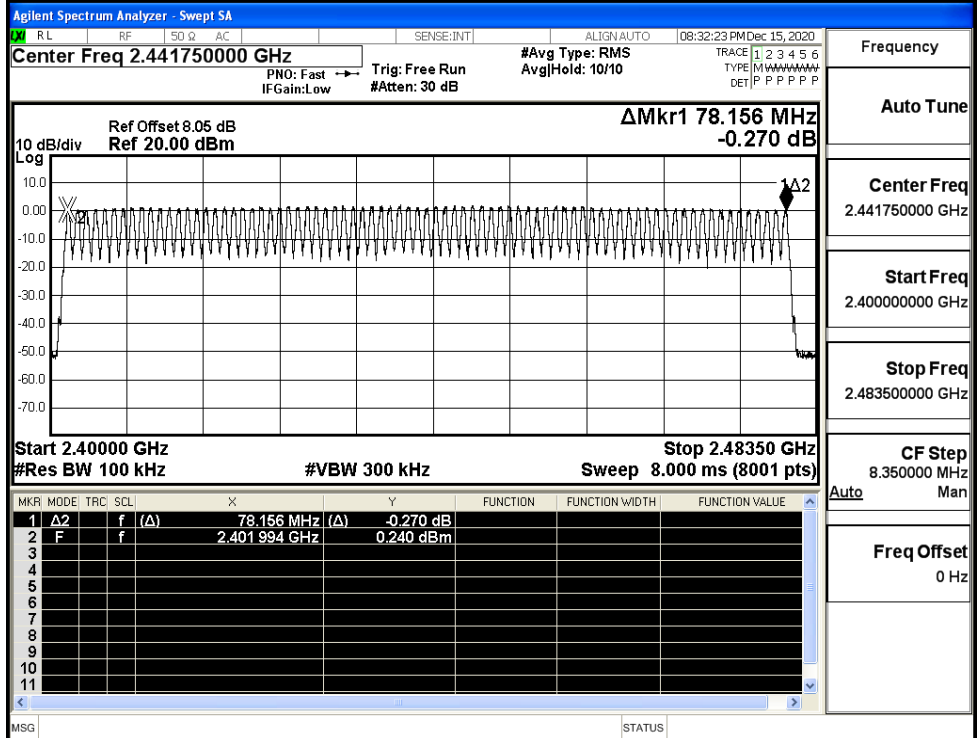


A.4 Hopping Channel Number

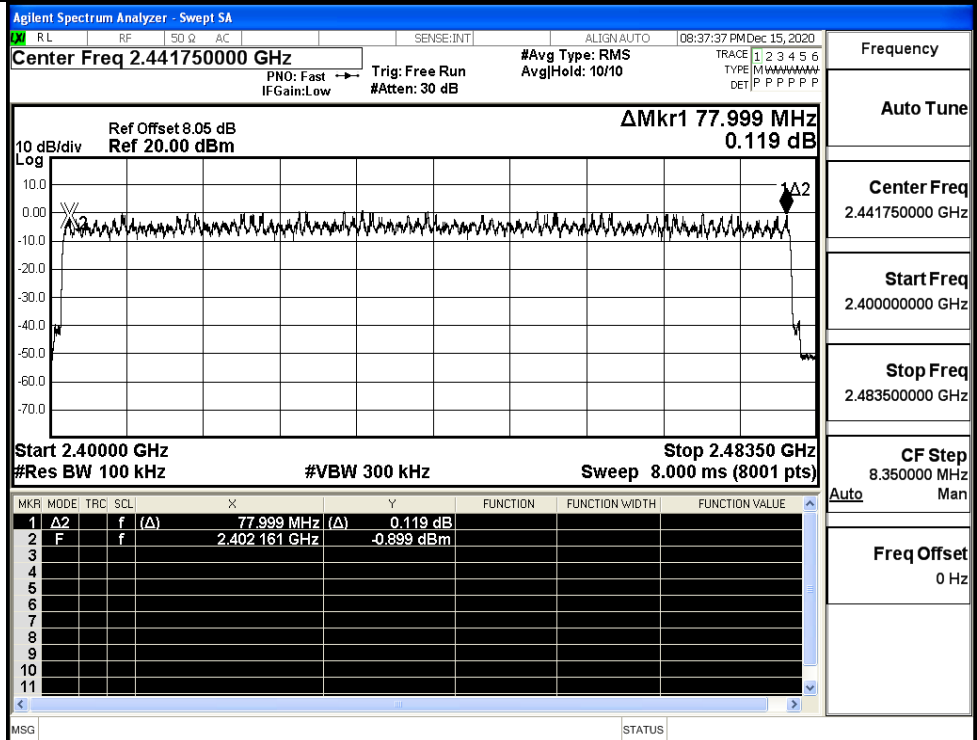
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

Test Graphs

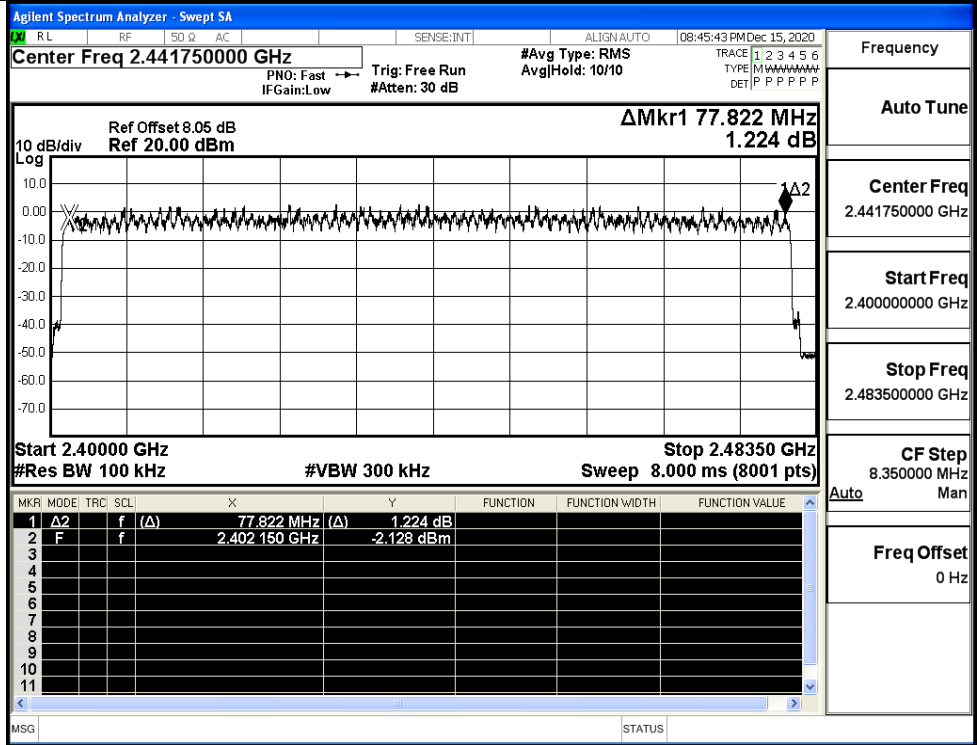
GFSK/Hop



$\pi/4$ DQPSK/Hop

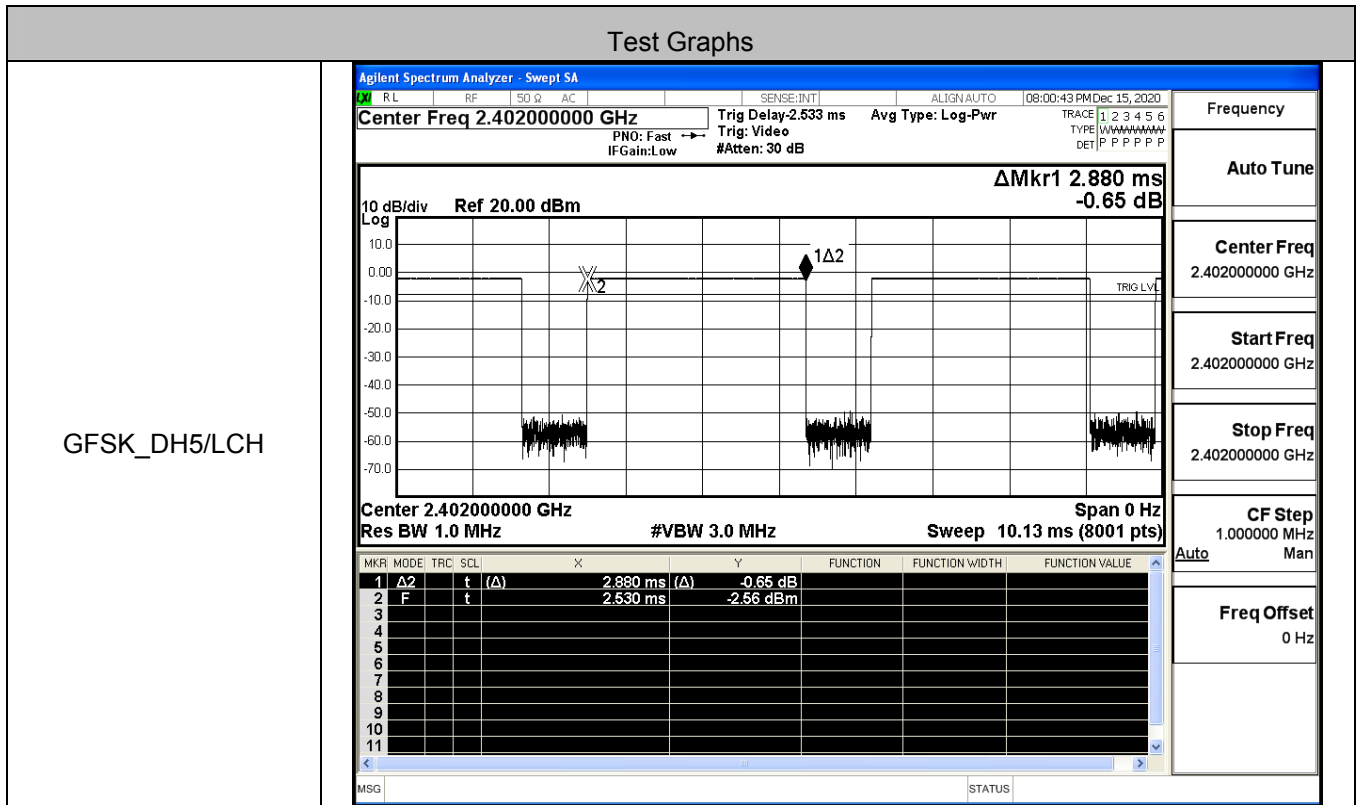


8DPSK/Hop

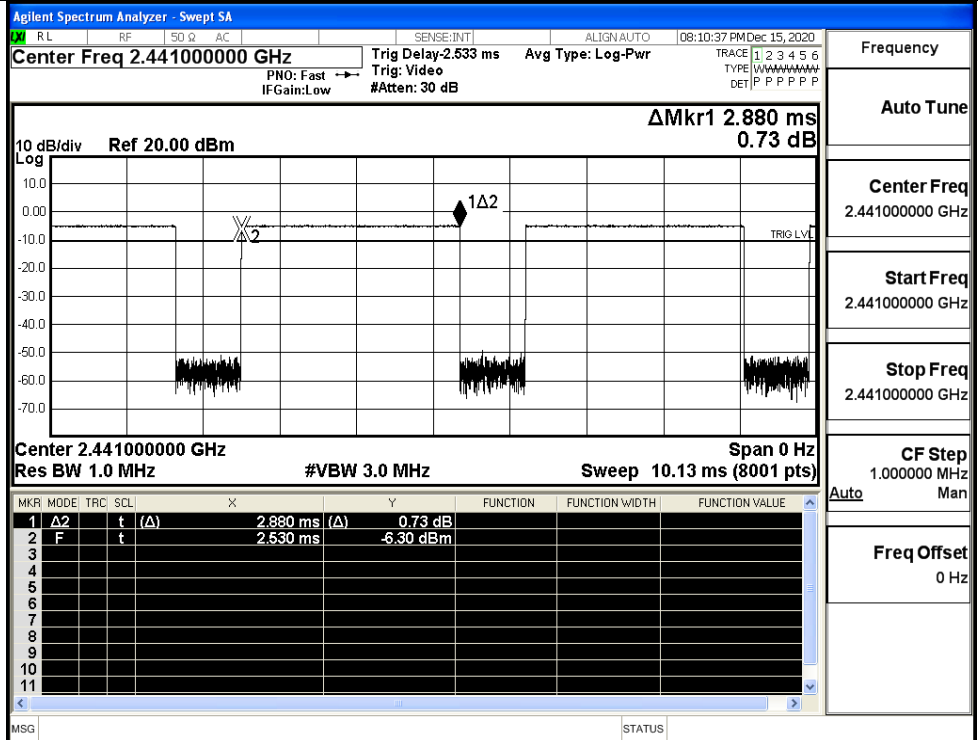


A.5 Dwell Time

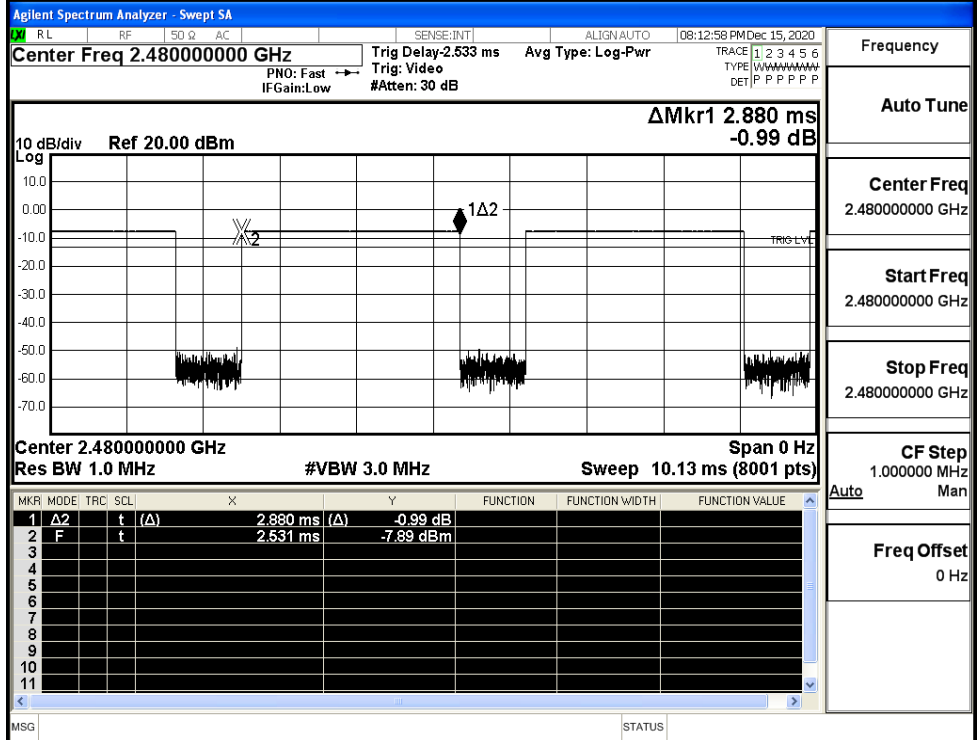
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
π/4DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88	106.7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



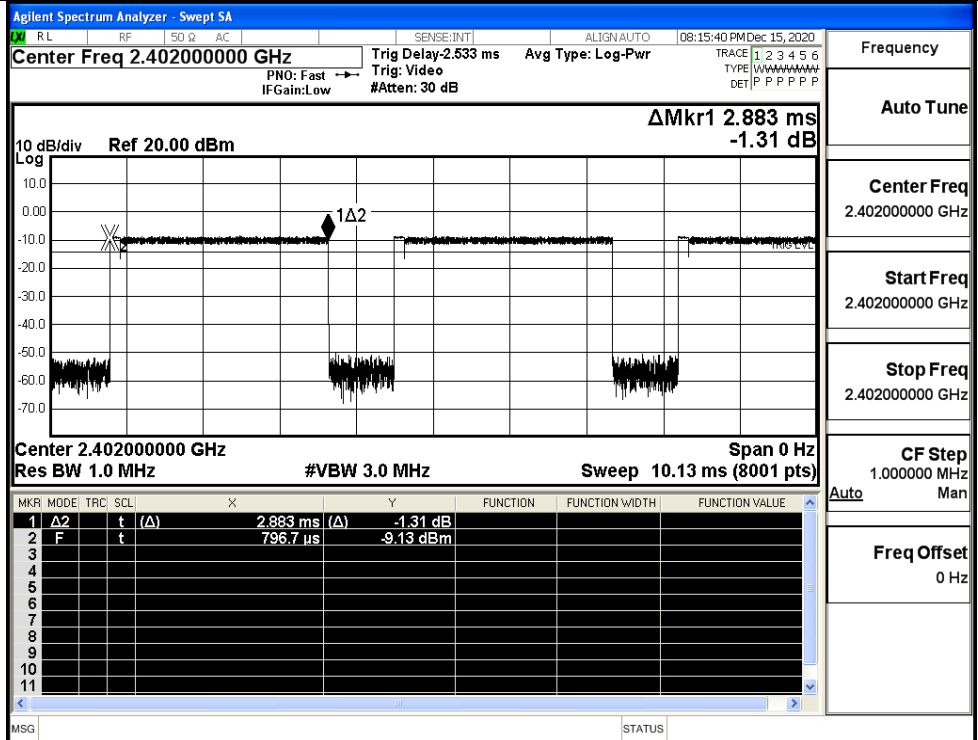
GFSK_DH5/MCH



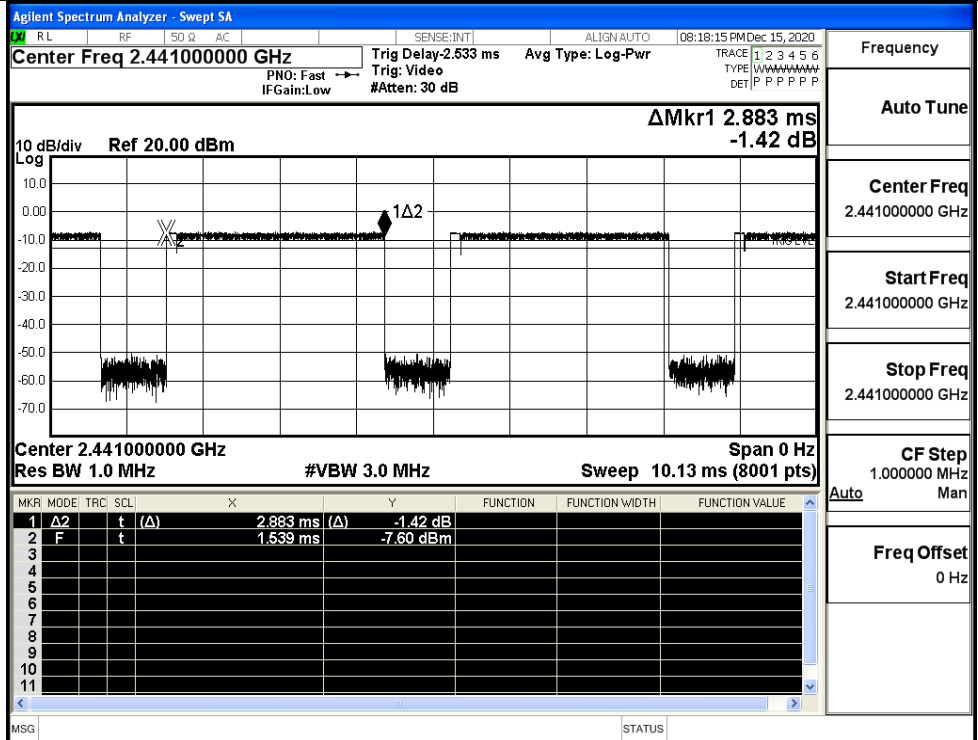
GFSK_DH5/HCH



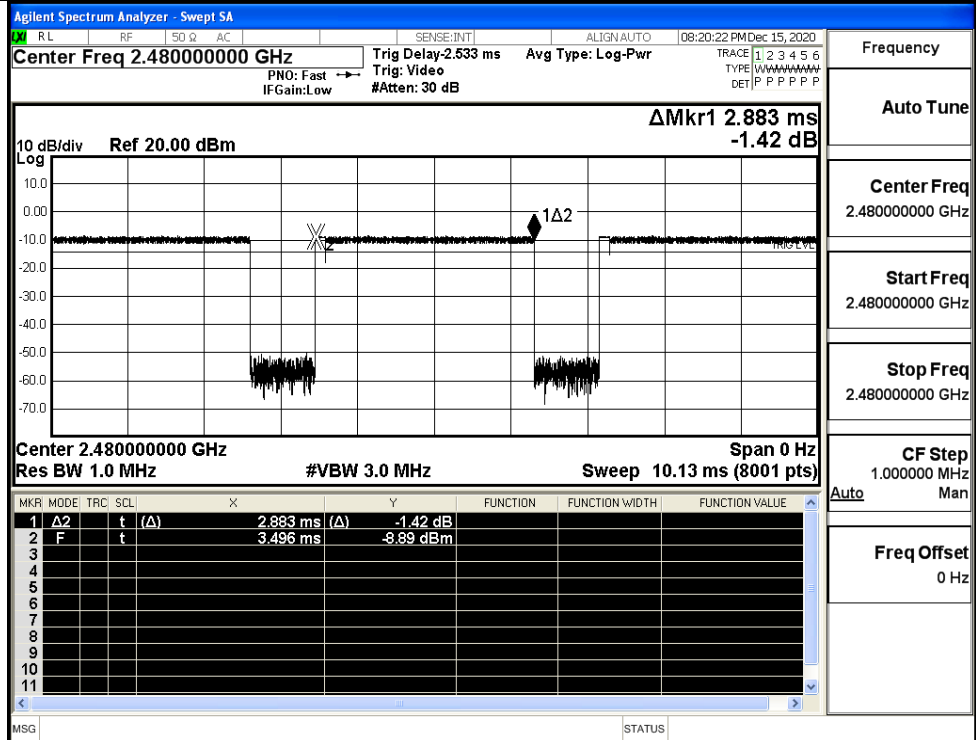
$\pi/4$ DQPSK
_2DH5/LCH



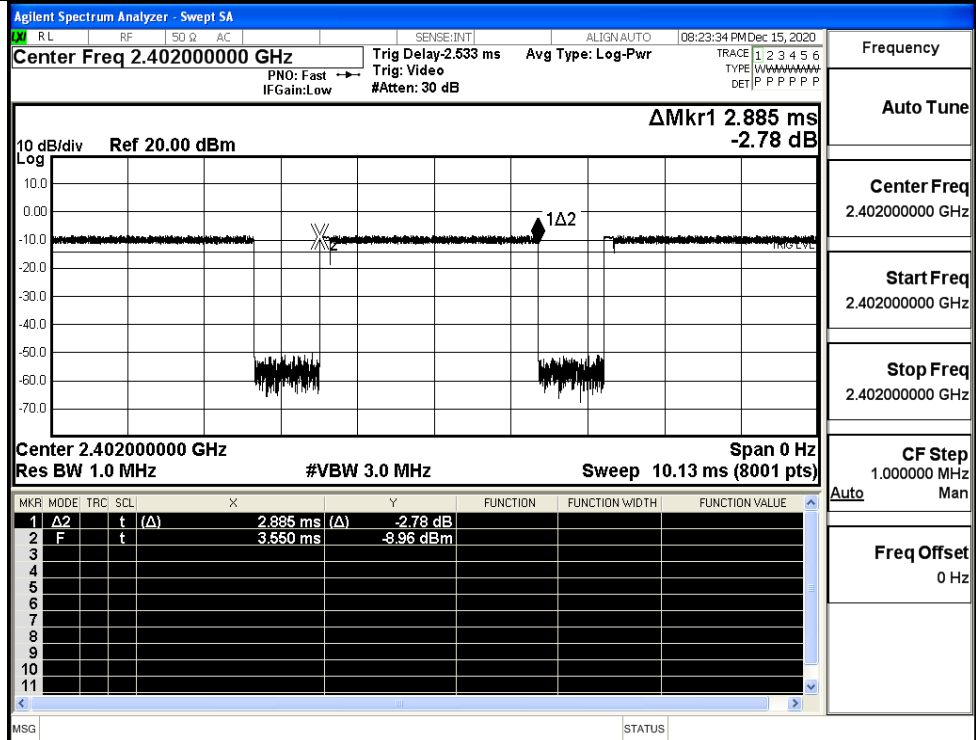
$\pi/4$ DQPSK
_2DH5/MCH



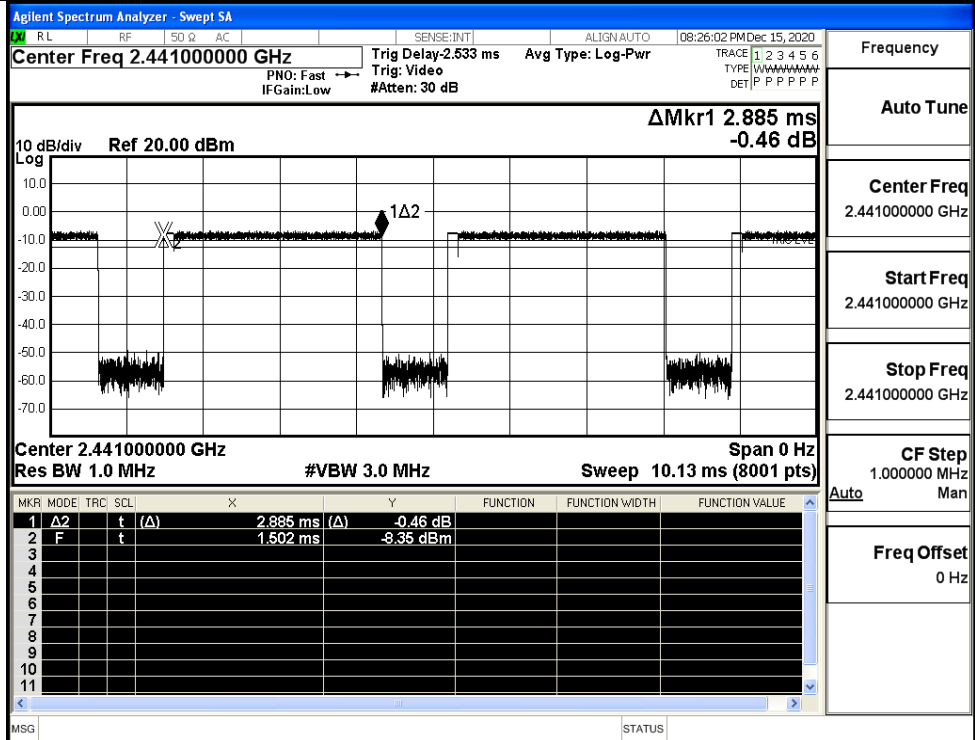
π /4DQPSK
_2DH5/HCH



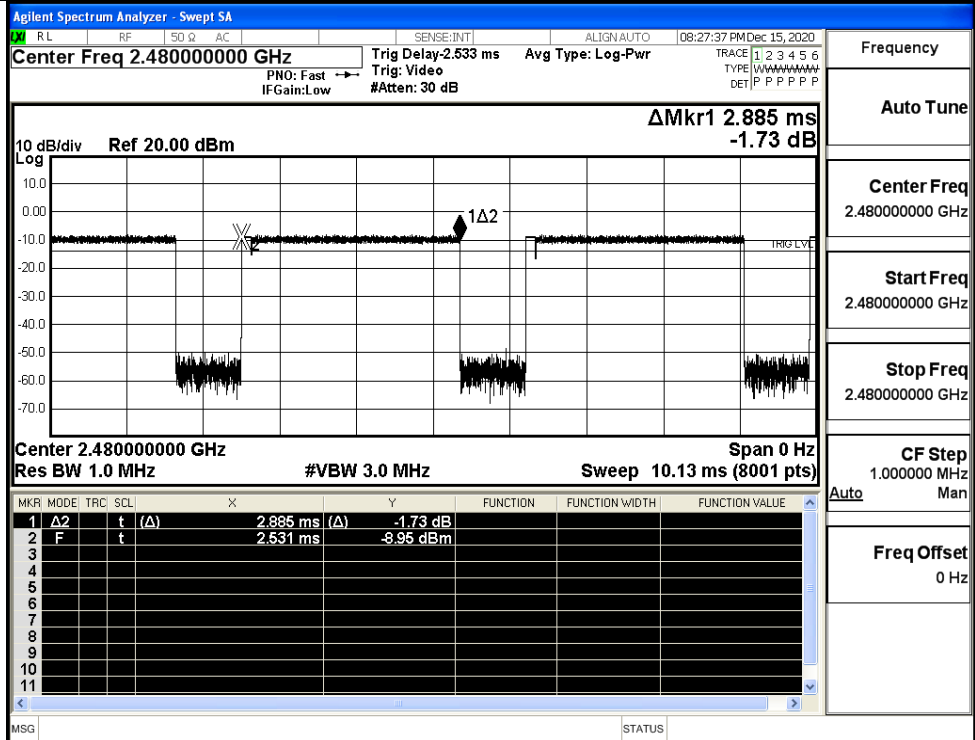
8DPSK_3DH5/LCH



8DPSK_3DH5/MCH

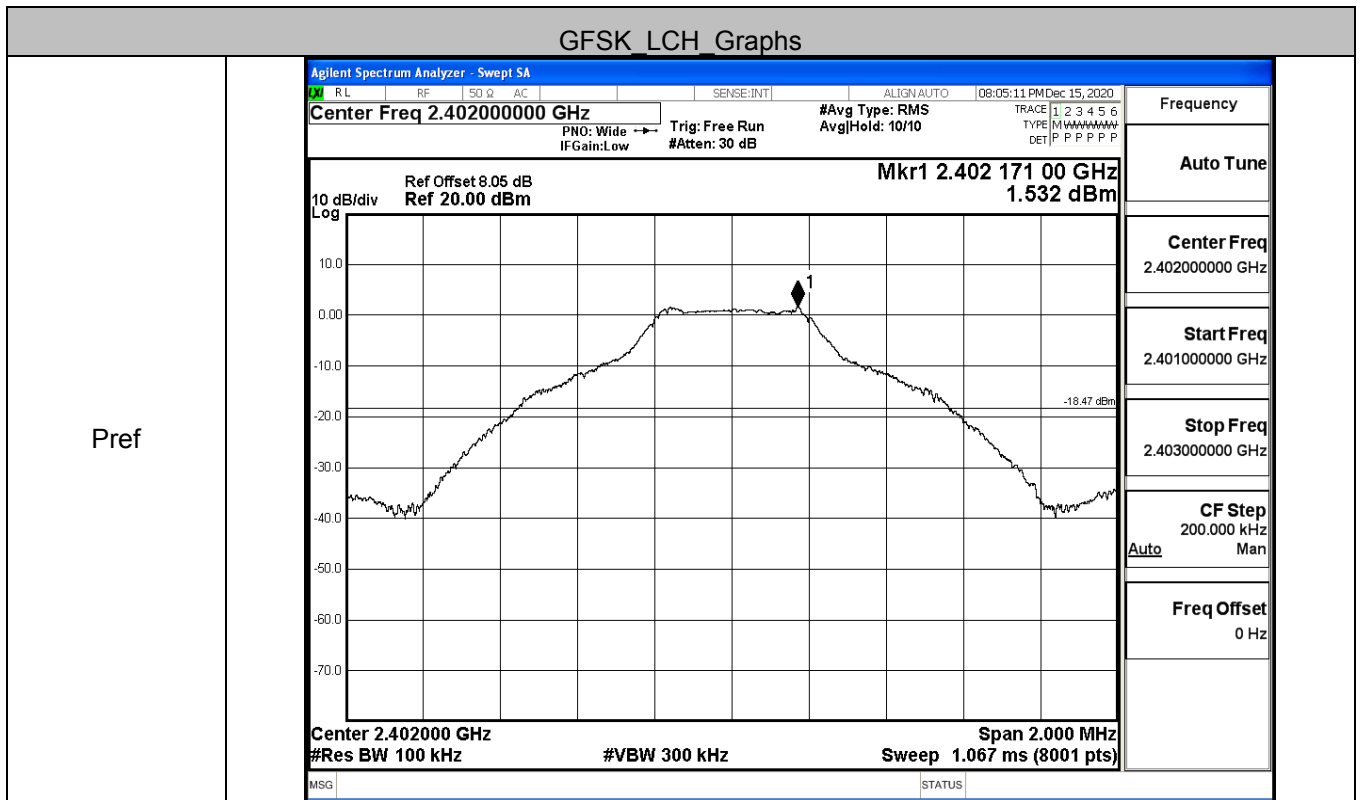


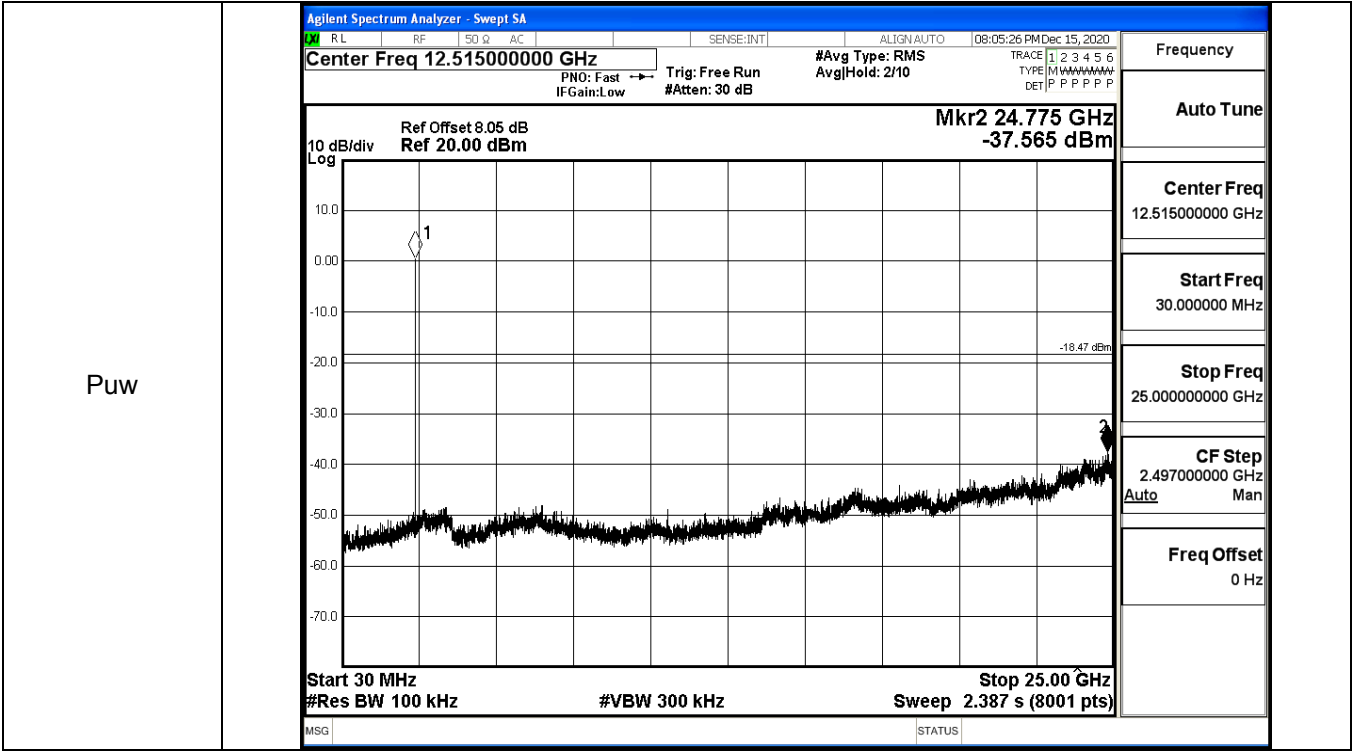
8DPSK_3DH5/HCH



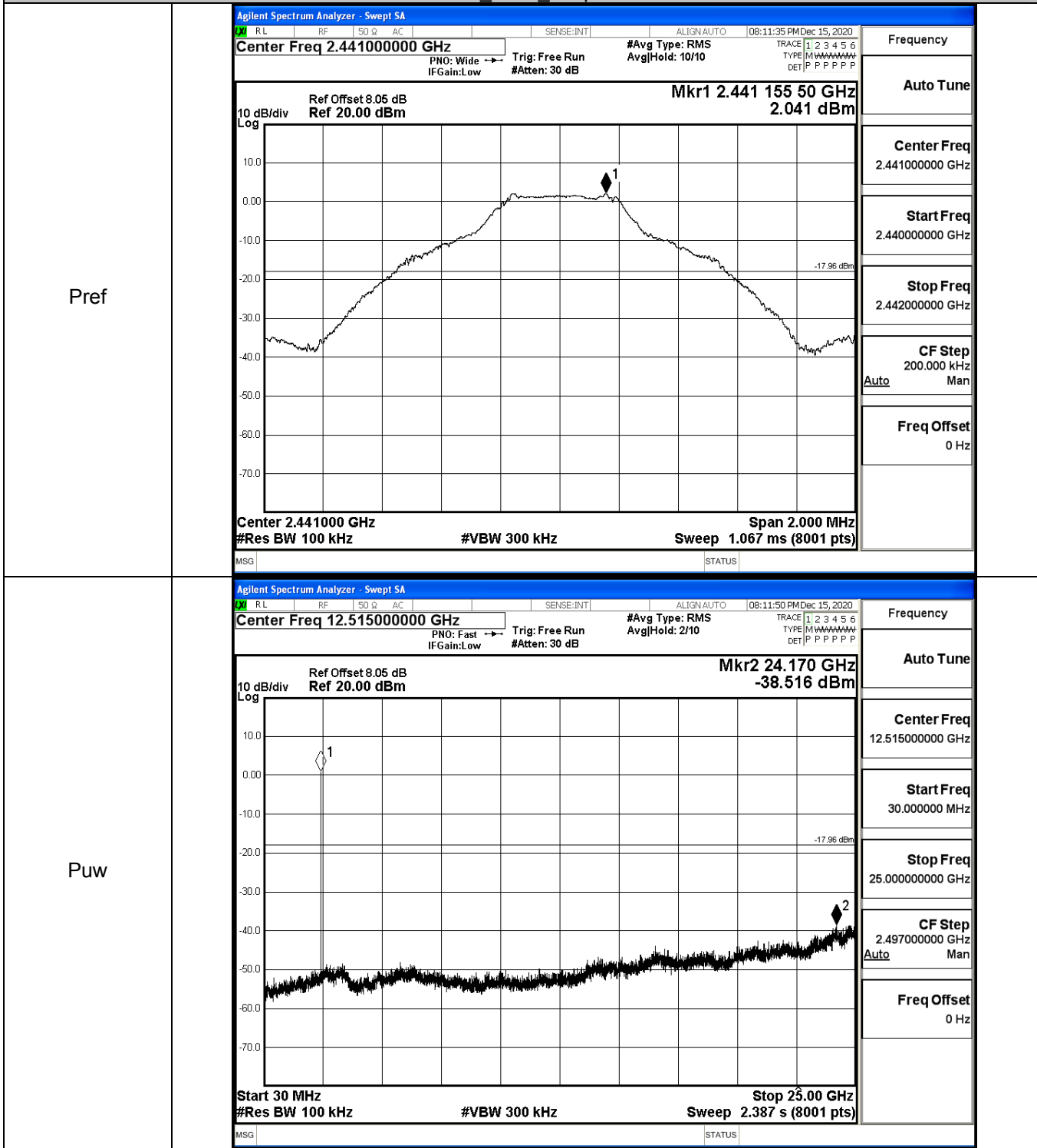
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.532	-37.565	-18.468	PASS
	MCH	2.041	-38.516	-17.959	PASS
	HCH	0.533	-37.932	-19.467	PASS
$\pi/4$ DQPSK	LCH	-0.976	-37.283	-20.976	PASS
	MCH	0.413	-36.680	-19.587	PASS
	HCH	-0.845	-38.115	-20.845	PASS
8DPSK	LCH	-0.856	-38.027	-20.856	PASS
	MCH	0.398	-37.383	-19.602	PASS
	HCH	-0.914	-38.610	-20.914	PASS

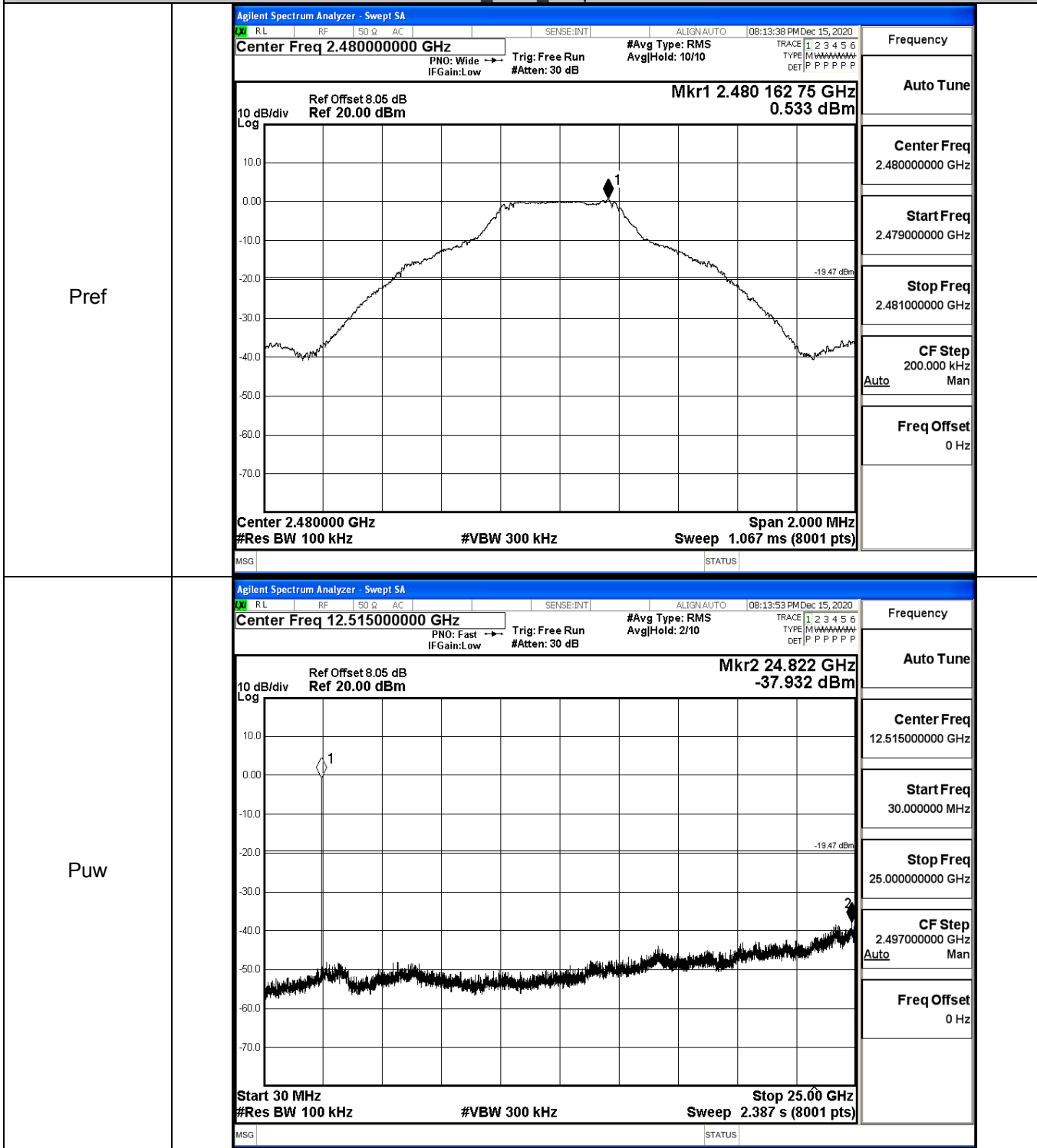




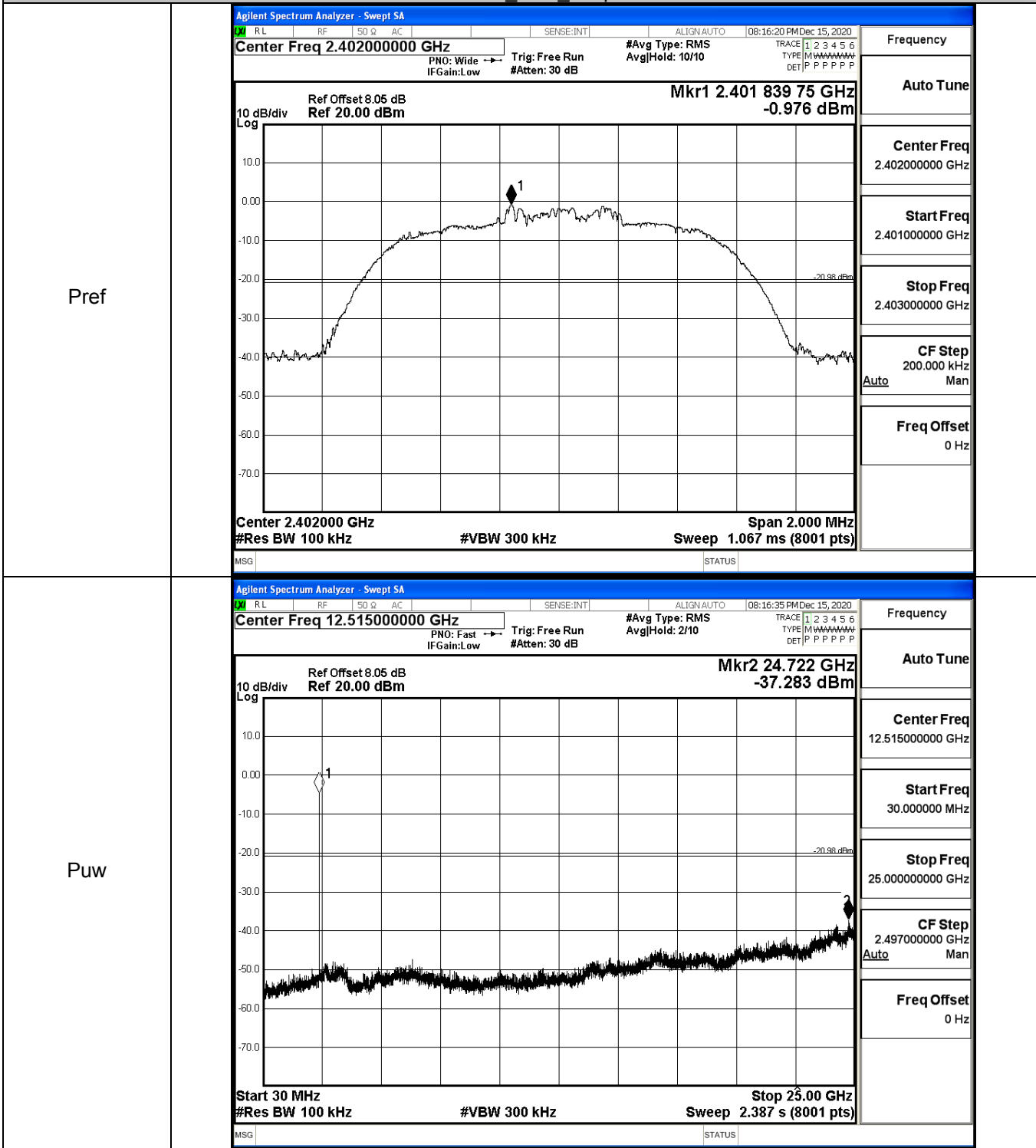
GFSK_MCH_Graphs



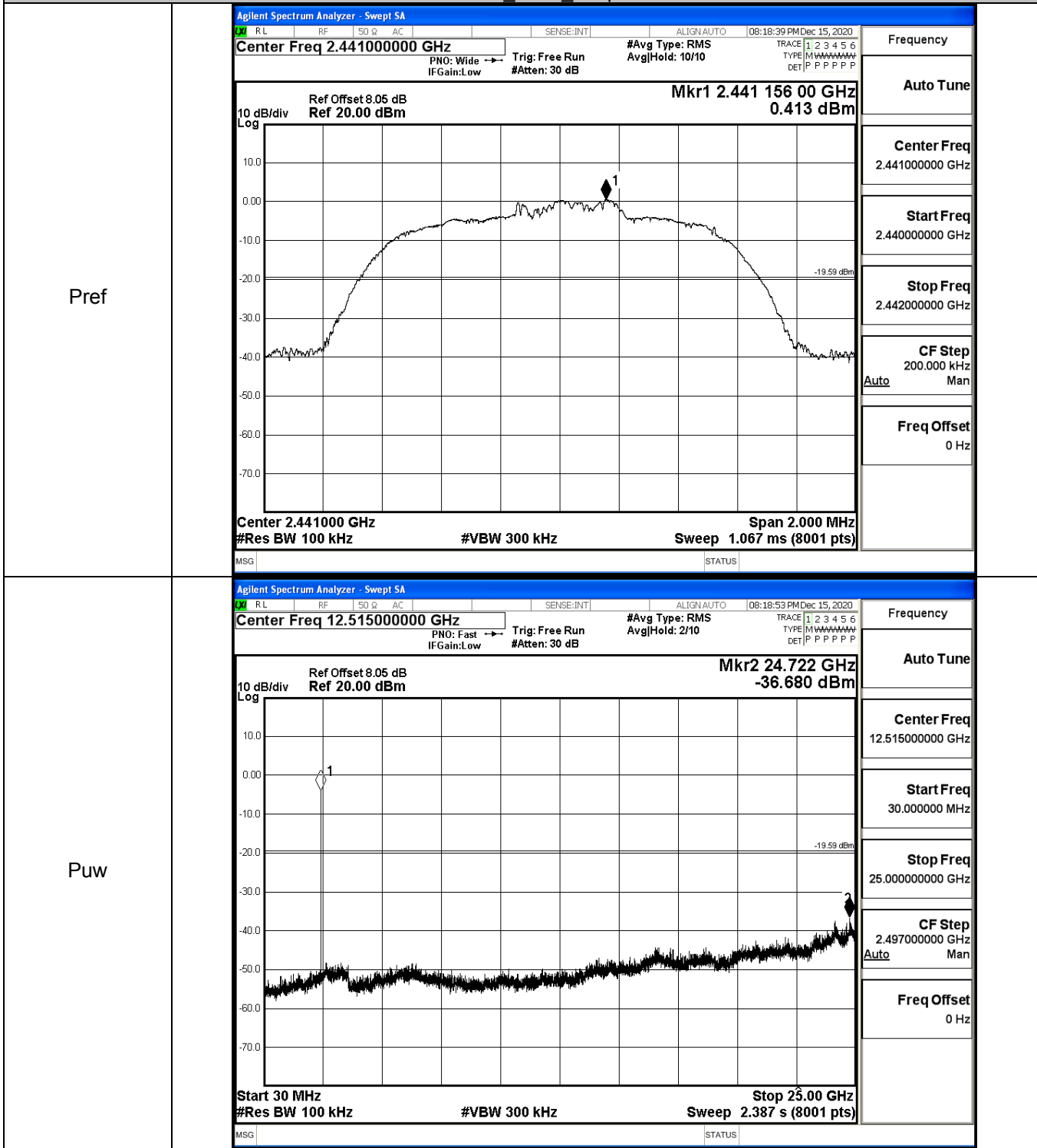
GFSK_HCH_Graphs



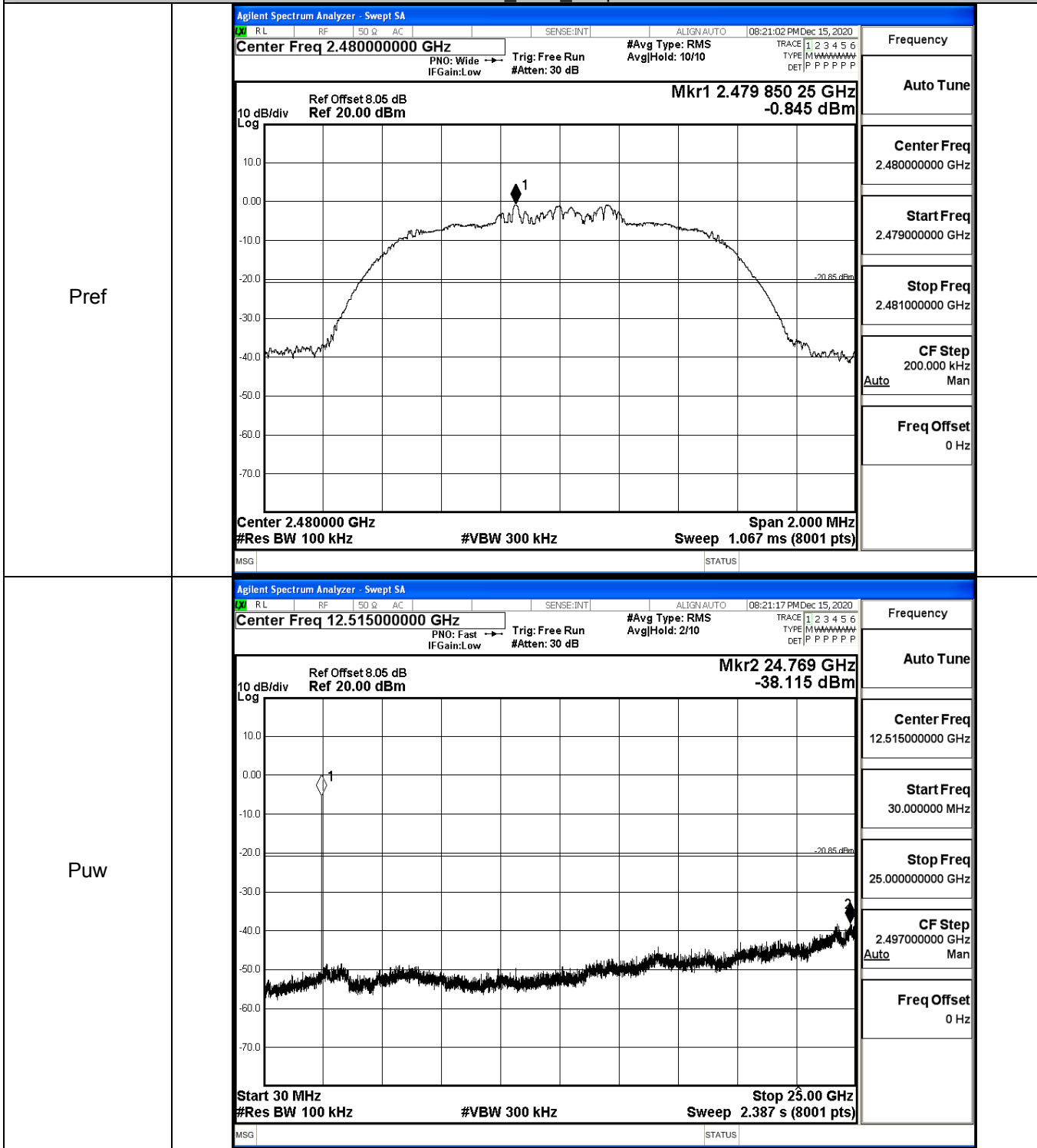
$\pi/4$ DQPSK_LCH_Graphs



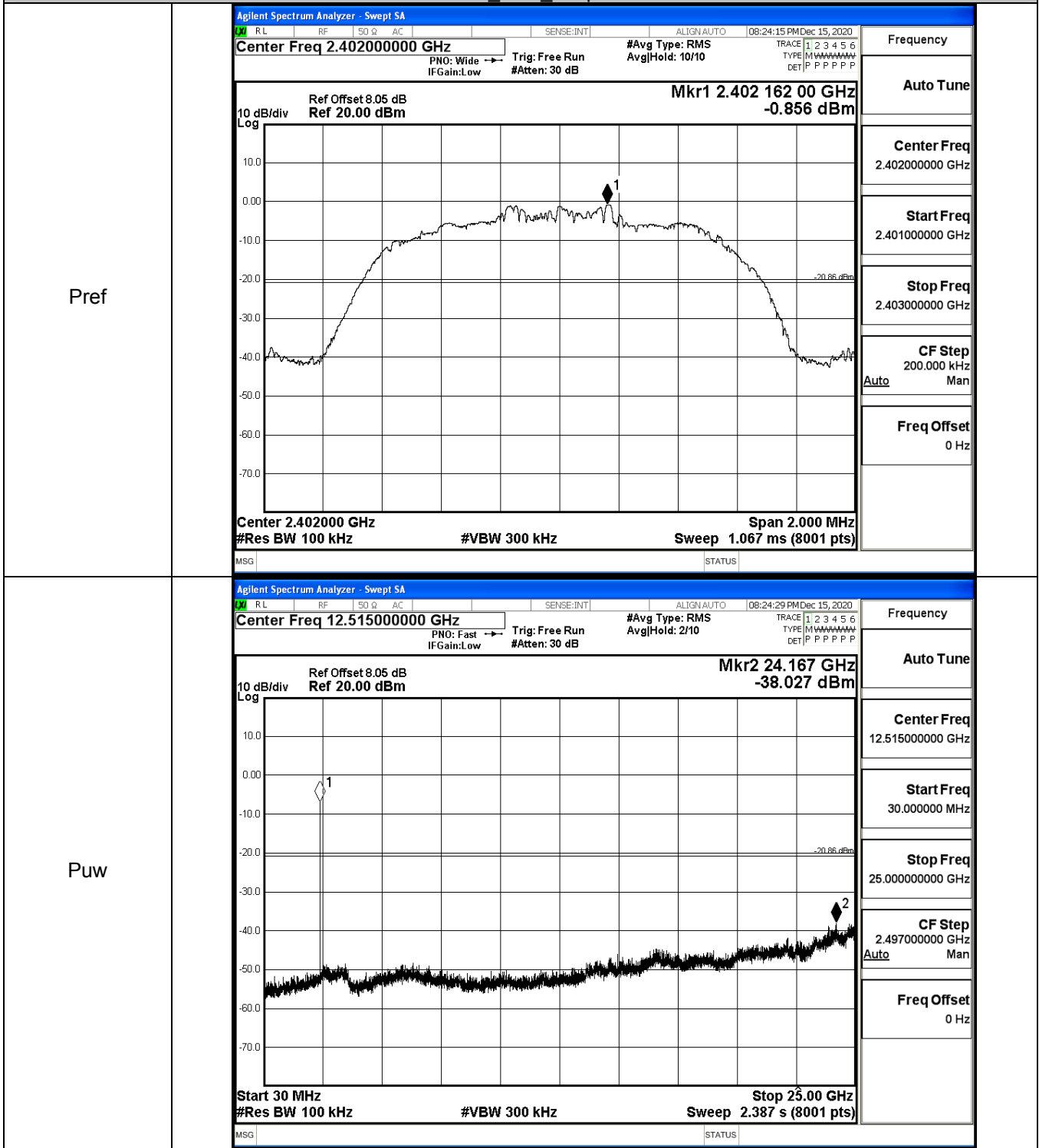
$\pi/4$ DQPSK_MCH_Graphs



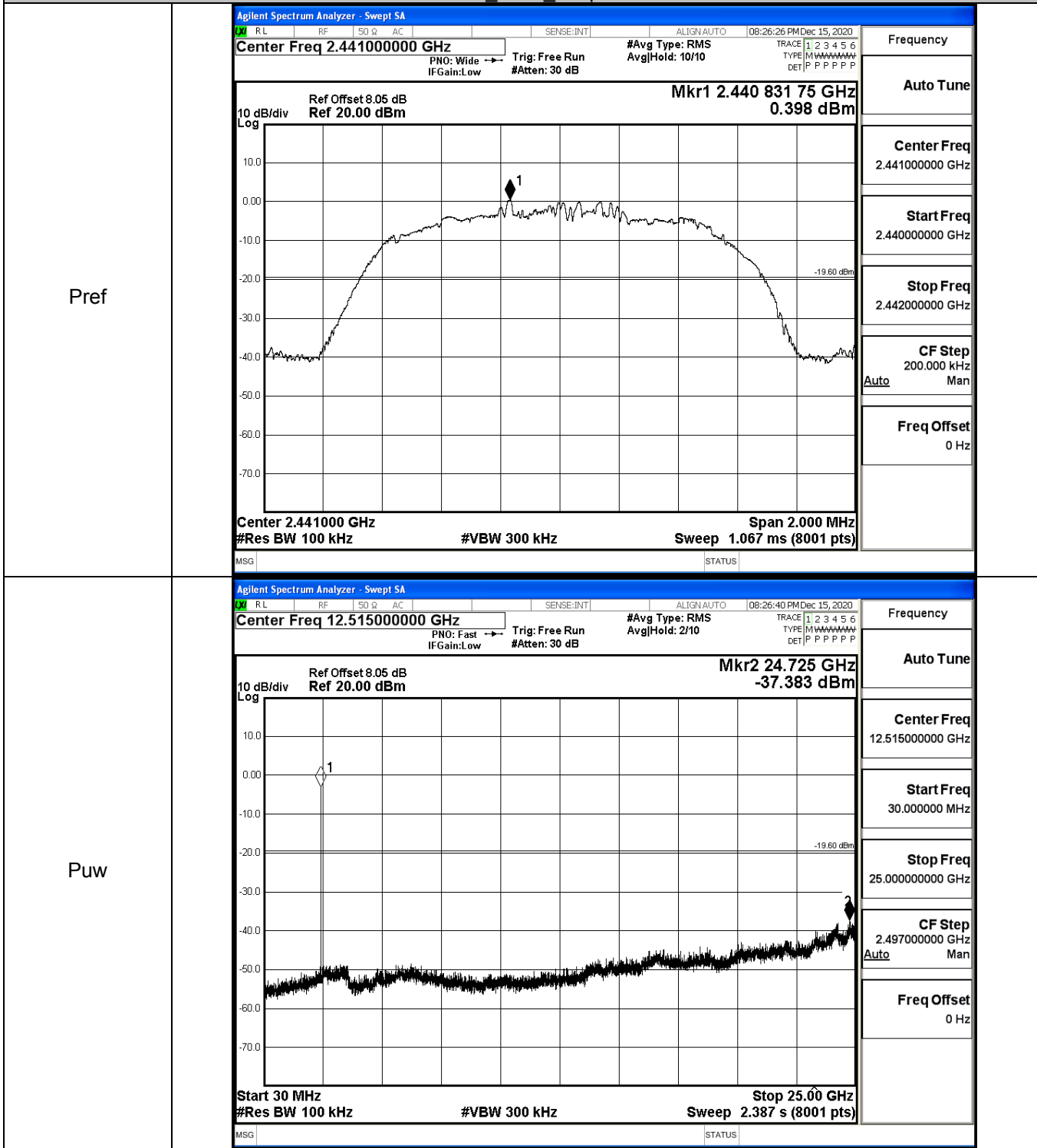
$\pi/4$ DQPSK_HCH_Graphs



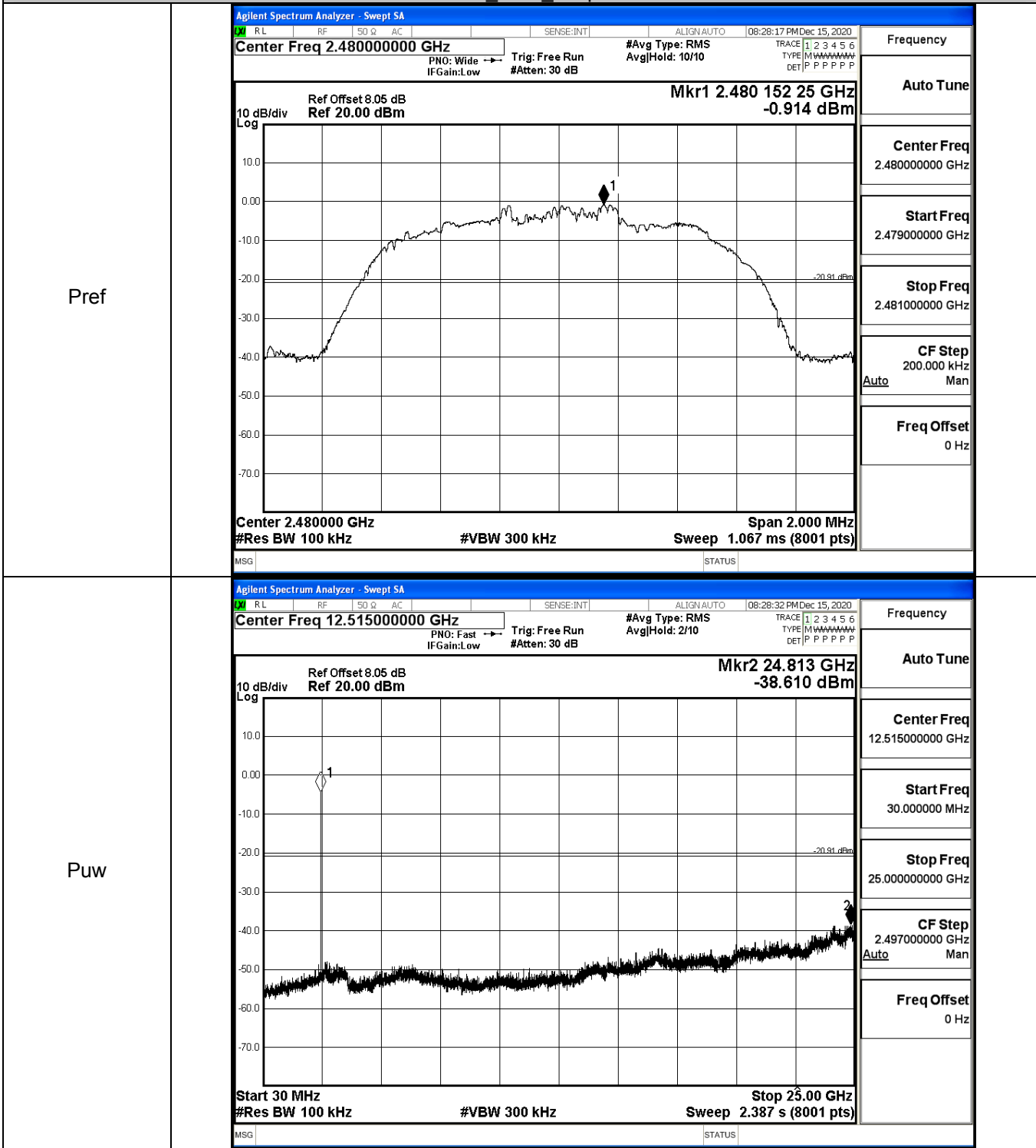
8DPSK_LCH_Graphs



8DPSK_MCH_Graphs



8DPSK_HCH_Graphs

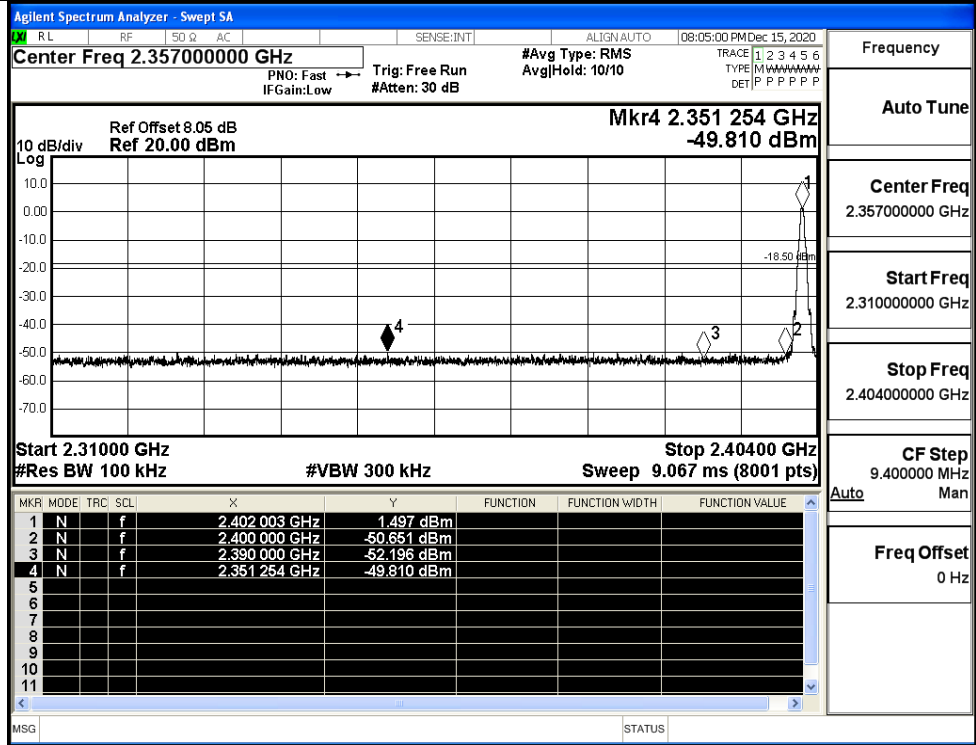


A.7 Band-edge for RF Conducted Emissions

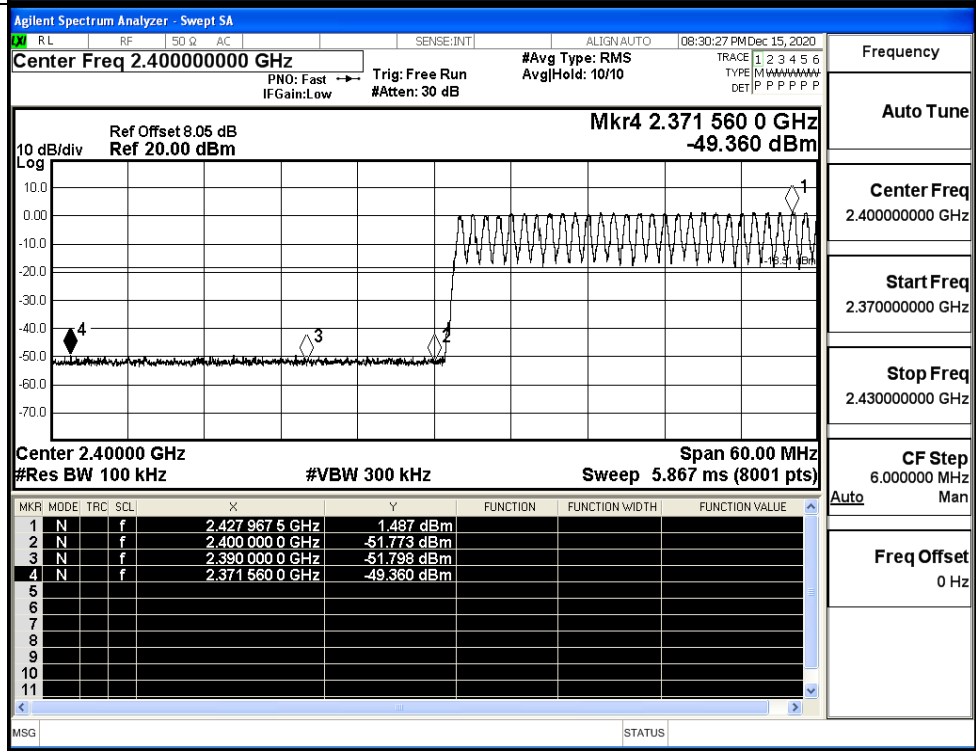
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	1.497	Off	-49.810	-18.5	PASS
			1.487	On	-49.360	-18.51	PASS
	HCH	2480	0.612	Off	-48.935	-19.39	PASS
			1.644	On	-48.826	-18.36	PASS
$\pi/4$ DQPSK	LCH	2402	-1.020	Off	-49.355	-21.02	PASS
			0.473	On	-49.104	-19.53	PASS
	HCH	2480	-0.808	Off	-48.944	-20.81	PASS
			0.116	On	-48.190	-19.88	PASS
8DPSK	LCH	2402	-1.592	Off	-49.831	-21.59	PASS
			0.263	On	-49.138	-19.74	PASS
	HCH	2480	-0.742	Off	-49.151	-20.74	PASS
			2.466	On	-48.542	-17.53	PASS

Test Graphs

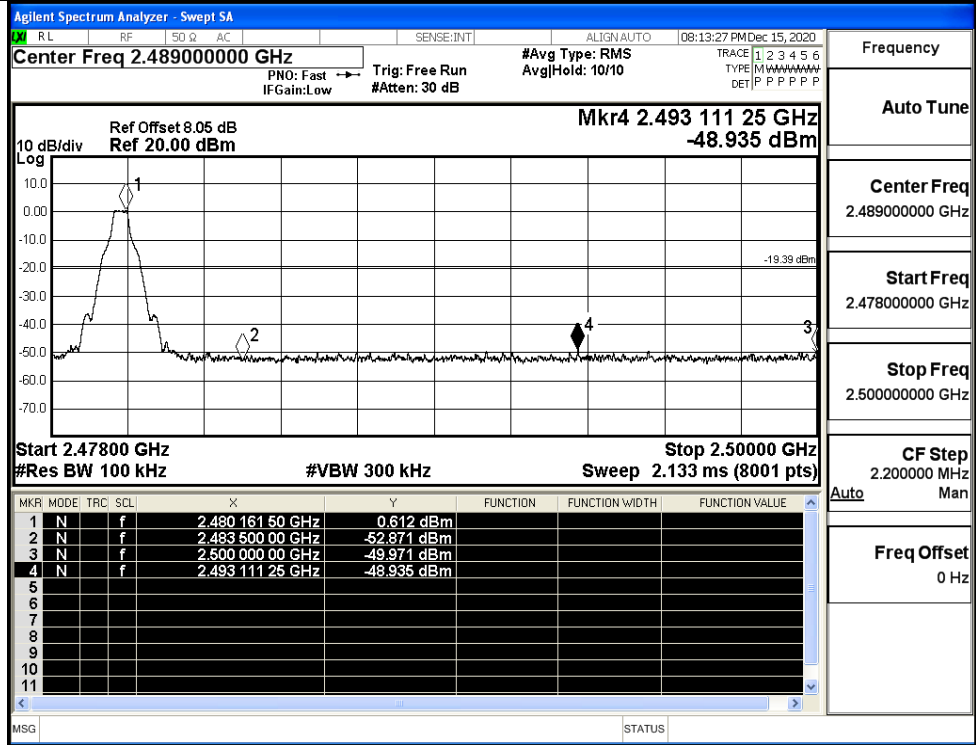
GFSK/LCH/No Hop



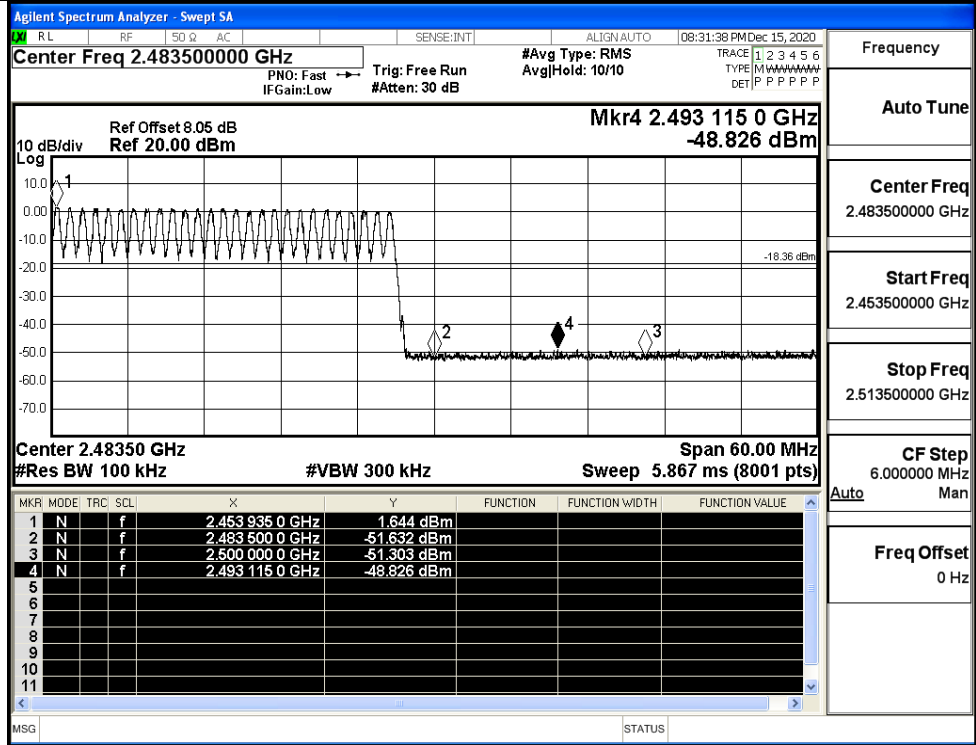
GFSK/LCH/Hop



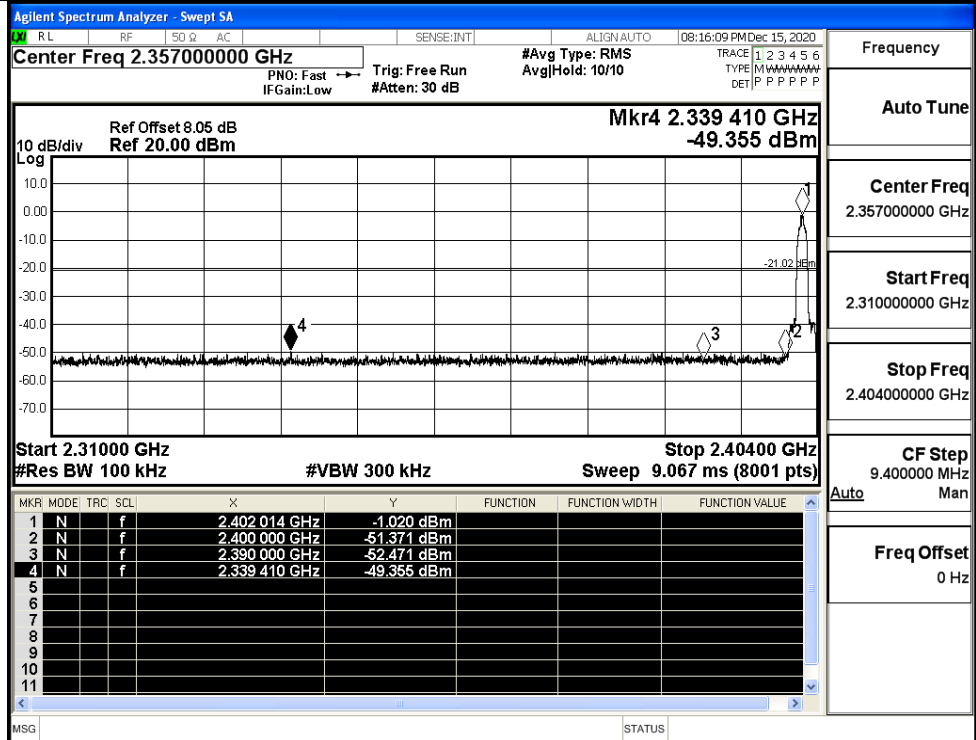
GFSK/HCH/No Hop



GFSK/HCH/Hop

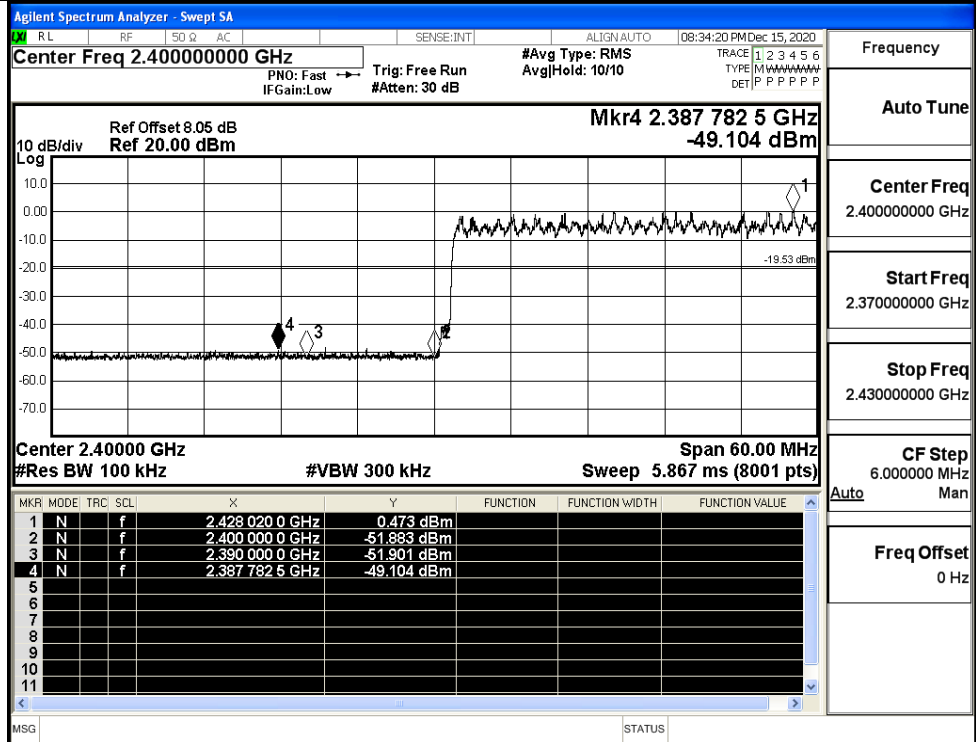


$\pi/4$ DQPSK/LCH/No
Hop



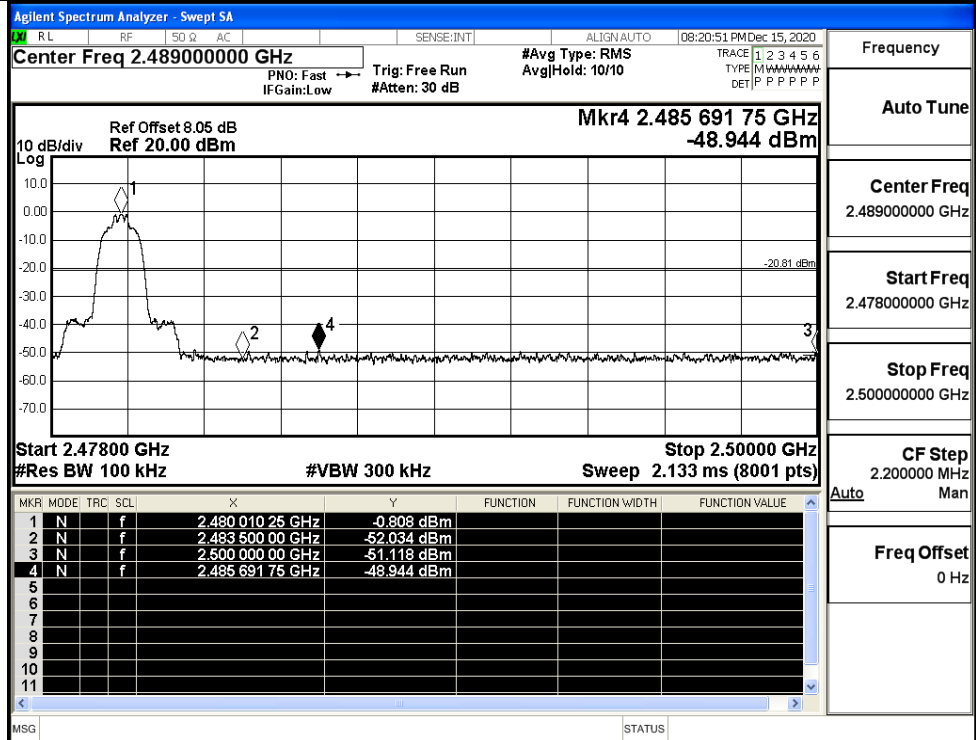
Frequency	2.357000000 GHz
Auto Tune	
Center Freq	2.357000000 GHz
Start Freq	2.310000000 GHz
Stop Freq	2.404000000 GHz
CF Step	9.400000 MHz
Freq Offset	0 Hz

$\pi/4$ DQPSK/LCH/Hop



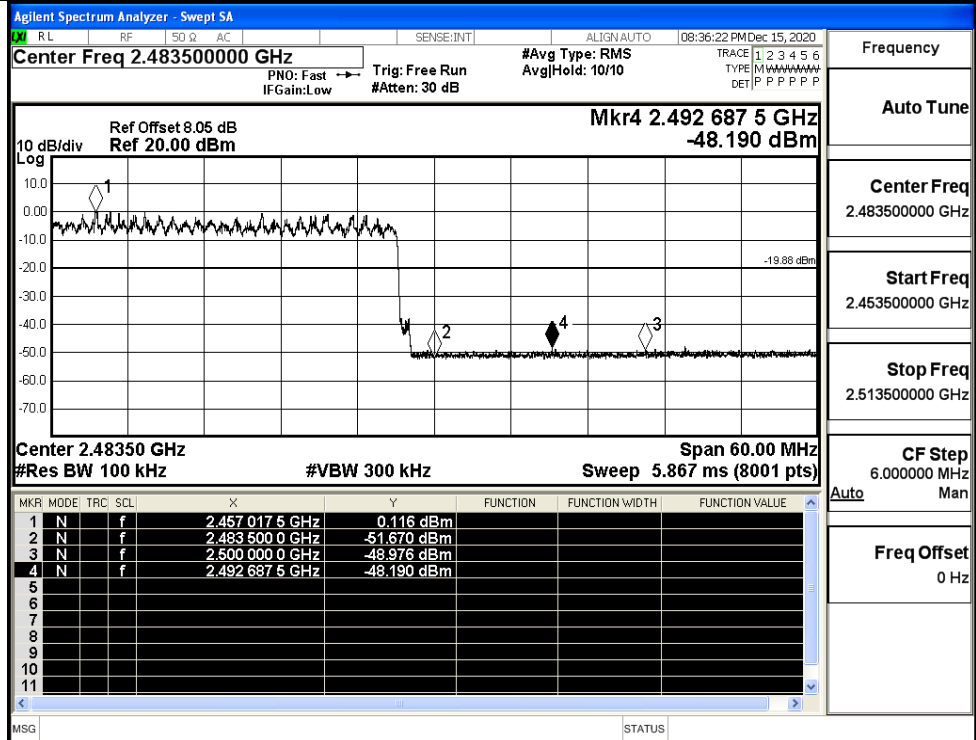
Frequency	2.400000000 GHz
Auto Tune	
Center Freq	2.400000000 GHz
Start Freq	2.370000000 GHz
Stop Freq	2.430000000 GHz
CF Step	6.000000 MHz
Freq Offset	0 Hz

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



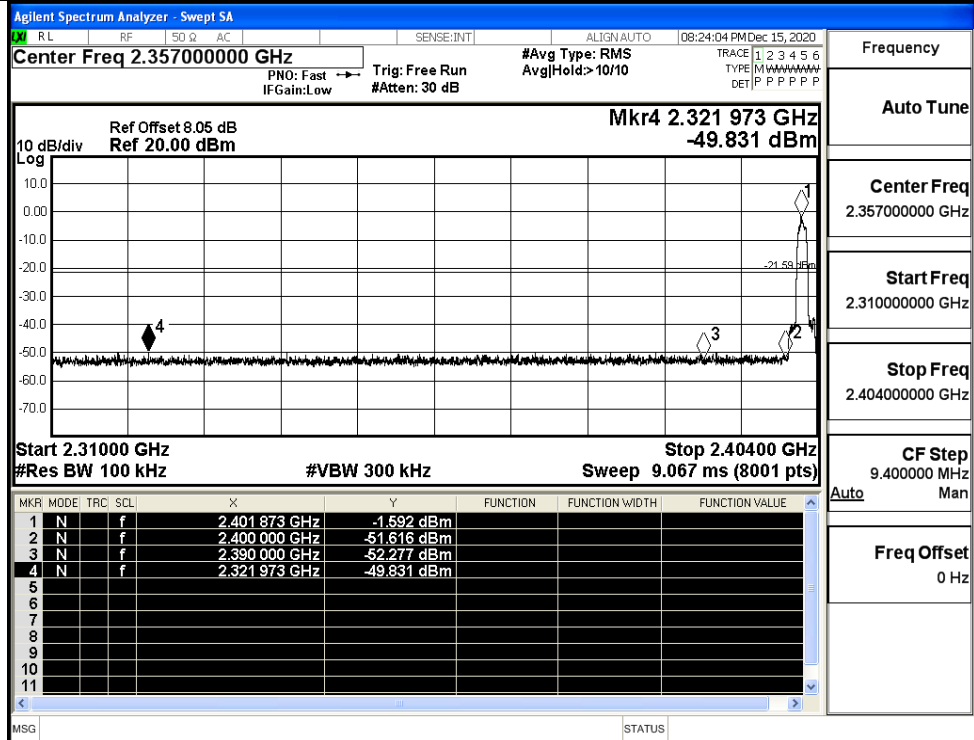
Frequency	2.489000000 GHz
Auto Tune	
Center Freq	2.489000000 GHz
Start Freq	2.478000000 GHz
Stop Freq	2.500000000 GHz
CF Step	2.200000 MHz
Freq Offset	0 Hz

$\pi/4$ DQPSK/HCH/Hop



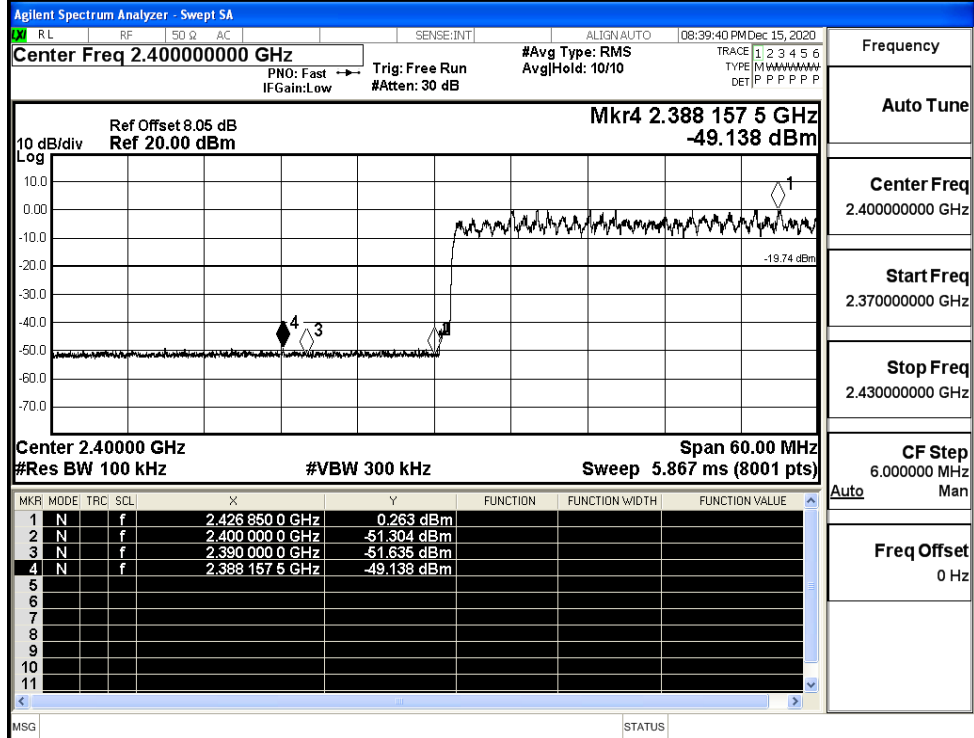
Frequency	2.483500000 GHz
Auto Tune	
Center Freq	2.483500000 GHz
Start Freq	2.453500000 GHz
Stop Freq	2.513500000 GHz
CF Step	6.000000 MHz
Freq Offset	0 Hz

8DPSK/LCH/No Hop



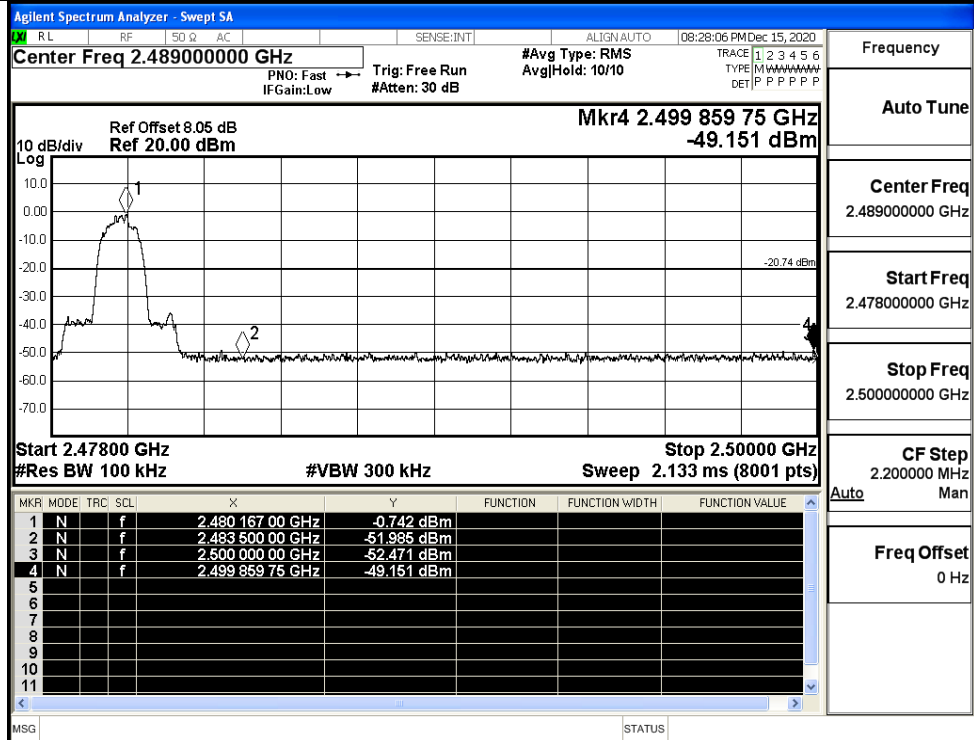
Frequency
Auto Tune
Center Freq
2.357000000 GHz
Start Freq
2.310000000 GHz
Stop Freq
2.404000000 GHz
CF Step
9.400000 MHz
Auto Man
Freq Offset
0 Hz

8DPSK/LCH/Hop



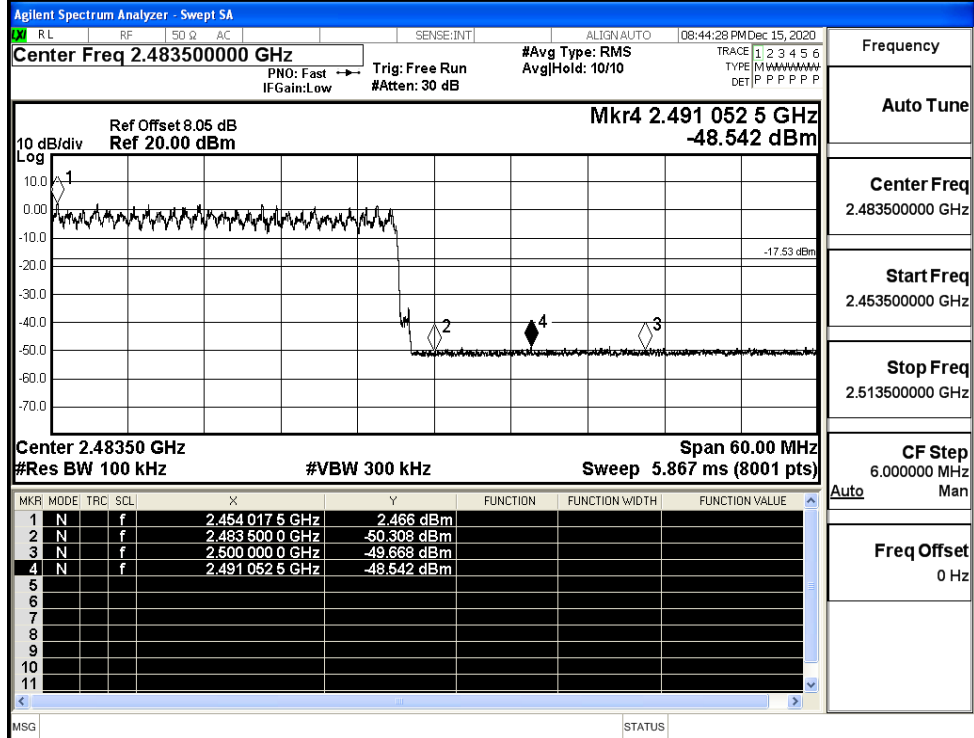
Frequency
Auto Tune
Center Freq
2.400000000 GHz
Start Freq
2.370000000 GHz
Stop Freq
2.430000000 GHz
CF Step
6.000000 MHz
Auto Man
Freq Offset
0 Hz

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

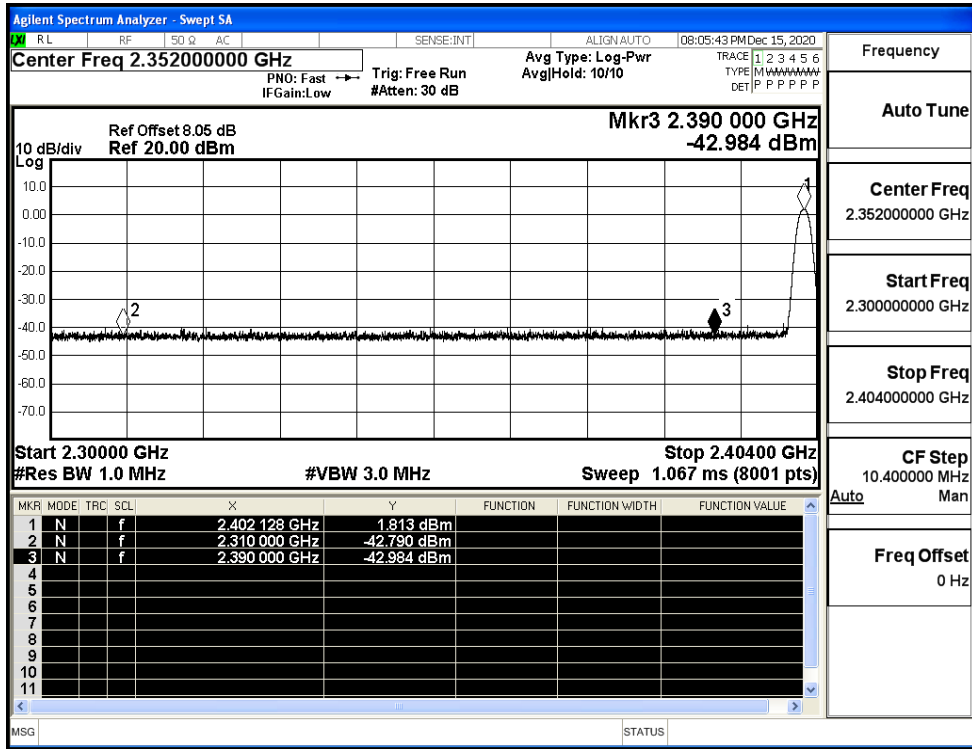


Frequency
Auto Tune
Center Freq
2.483500000 GHz
Start Freq
2.453500000 GHz
Stop Freq
2.513500000 GHz
CF Step
6.000000 MHz
Freq Offset
0 Hz

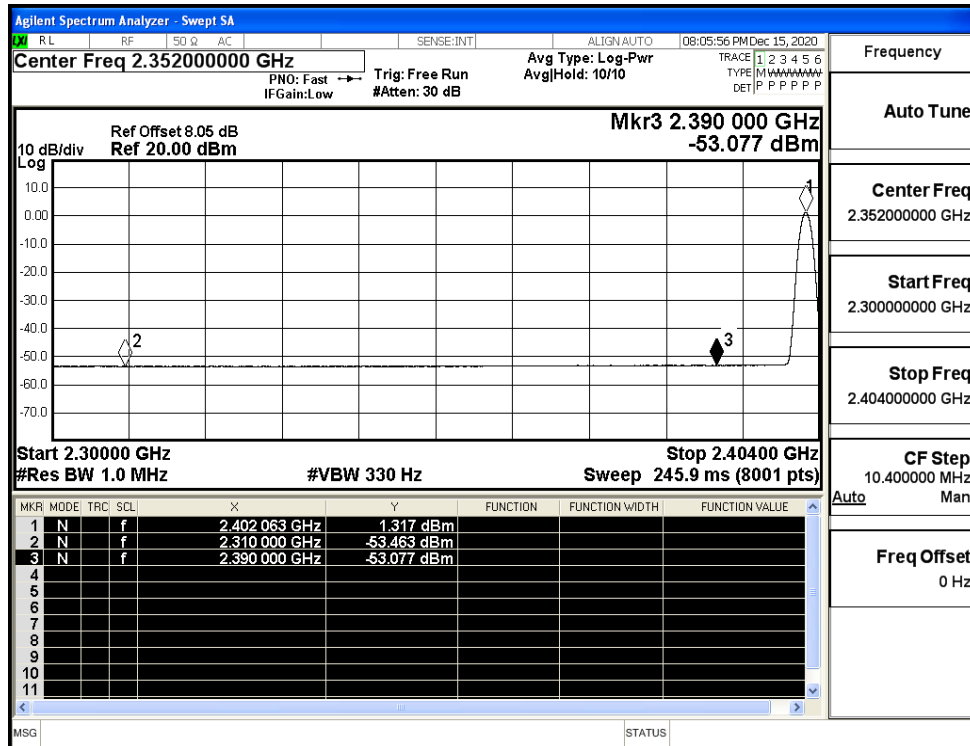
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-42.79	2.0	0	52.47	PEAK	74	PASS
	Off	2310.0	-53.46	2.0	0	41.79	AV	54	PASS
	Off	2390.0	-42.98	2.0	0	52.27	PEAK	74	PASS
	Off	2390.0	-53.08	2.0	0	42.18	AV	54	PASS
	Off	2483.5	-41.85	2.0	0	53.41	PEAK	74	PASS
	Off	2483.5	-52.57	2.0	0	42.69	AV	54	PASS
	Off	2500.0	-42.45	2.0	0	52.81	PEAK	74	PASS
	Off	2500.0	-52.47	2.0	0	42.79	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.53	2.0	0	52.73	PEAK	74	PASS
	Off	2310.0	-53.42	2.0	0	41.84	AV	54	PASS
	Off	2390.0	-42.71	2.0	0	52.55	PEAK	74	PASS
	Off	2390.0	-53.19	2.0	0	42.07	AV	54	PASS
	Off	2483.5	-43.16	2.0	0	52.10	PEAK	74	PASS
	Off	2483.5	-52.54	2.0	0	42.71	AV	54	PASS
	Off	2500.0	-41.85	2.0	0	53.41	PEAK	74	PASS
	Off	2500.0	-52.39	2.0	0	42.87	AV	54	PASS
8DPSK	Off	2310.0	-43.17	2.0	0	52.09	PEAK	74	PASS
	Off	2310.0	-53.38	2.0	0	41.88	AV	54	PASS
	Off	2390.0	-42.97	2.0	0	52.29	PEAK	74	PASS
	Off	2390.0	-53.11	2.0	0	42.15	AV	54	PASS
	Off	2483.5	-42.62	2.0	0	52.64	PEAK	74	PASS
	Off	2483.5	-52.59	2.0	0	42.67	AV	54	PASS
	Off	2500.0	-42.48	2.0	0	52.78	PEAK	74	PASS
	Off	2500.0	-52.49	2.0	0	42.77	AV	54	PASS

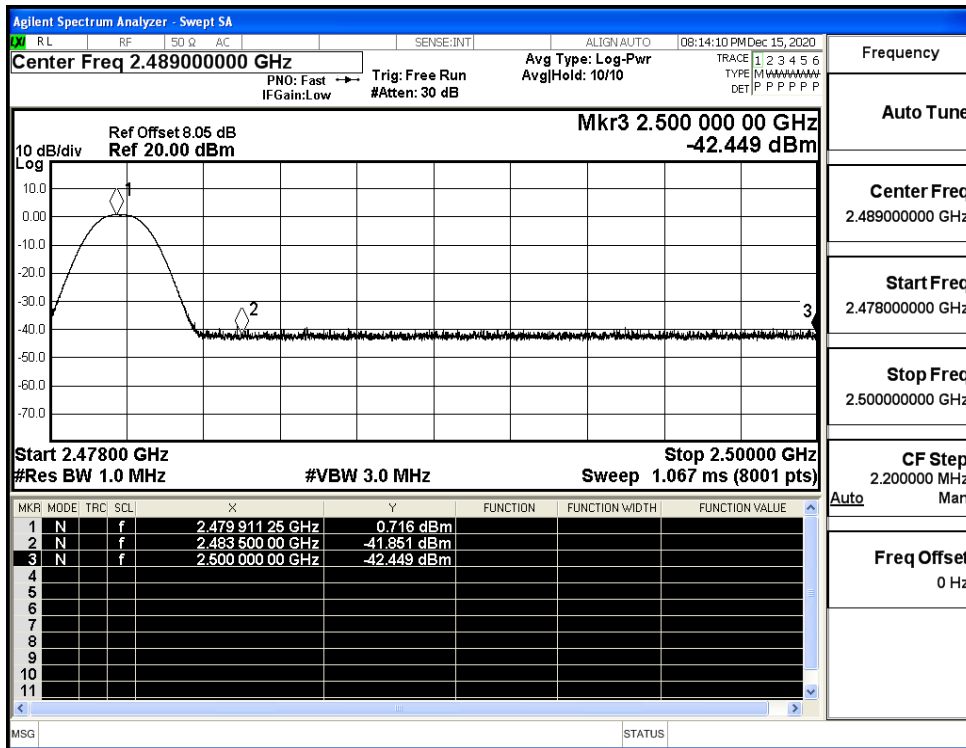
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



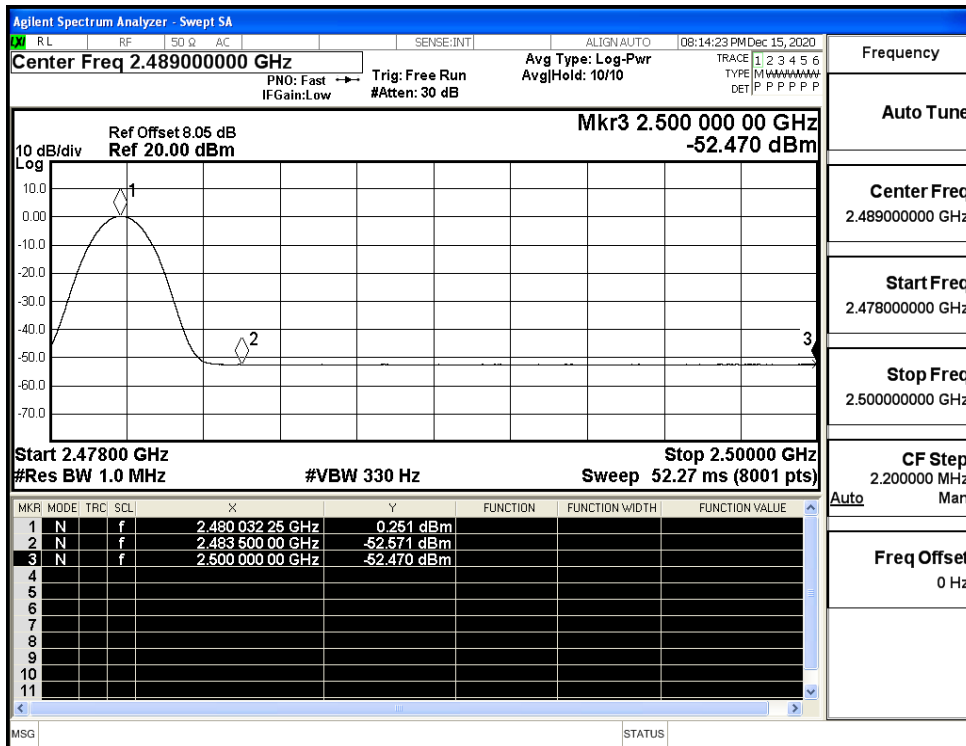
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



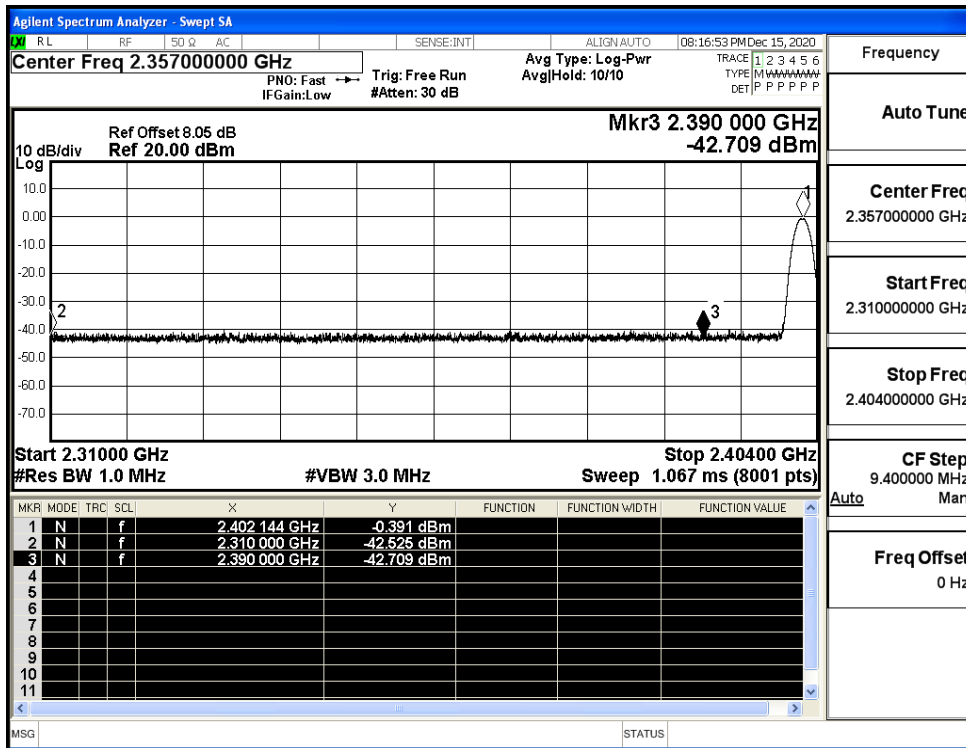
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



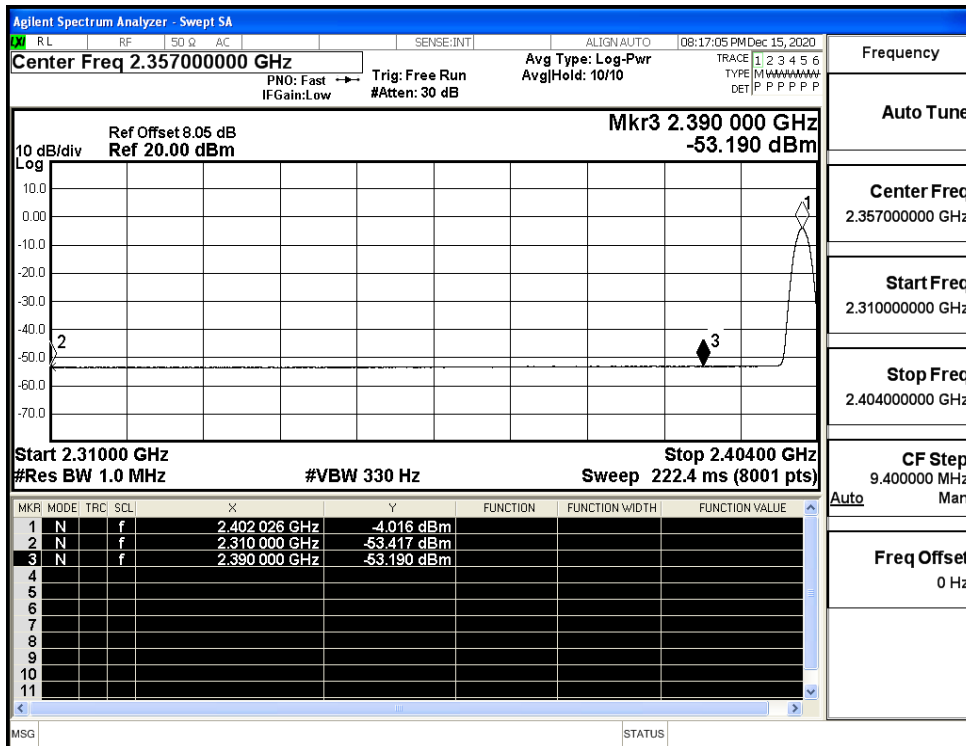
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



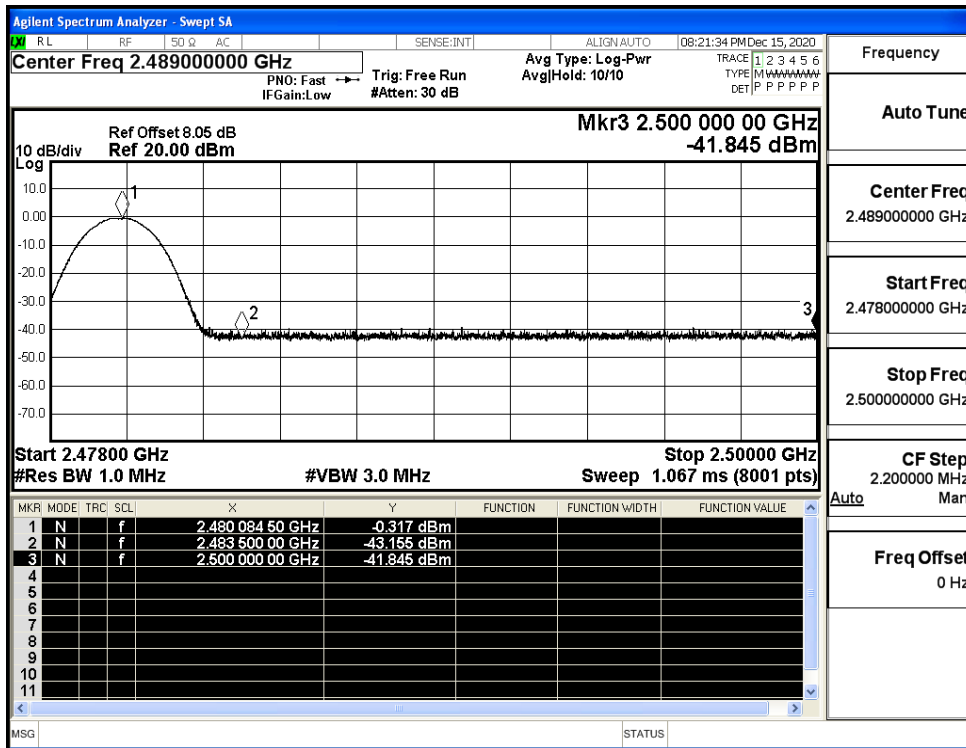
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)



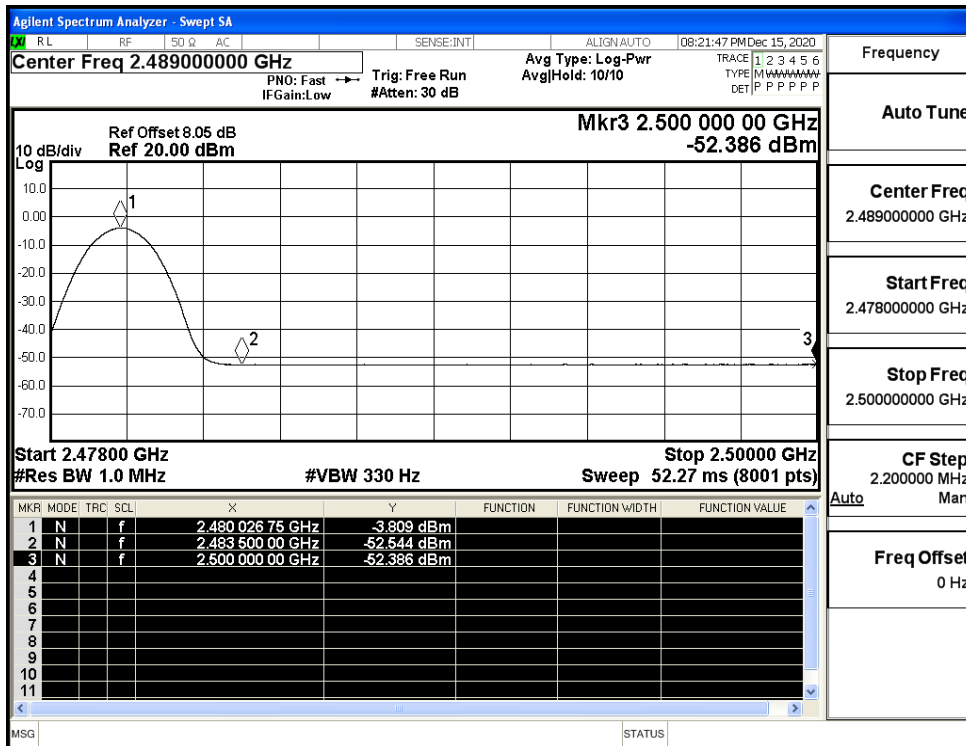
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)



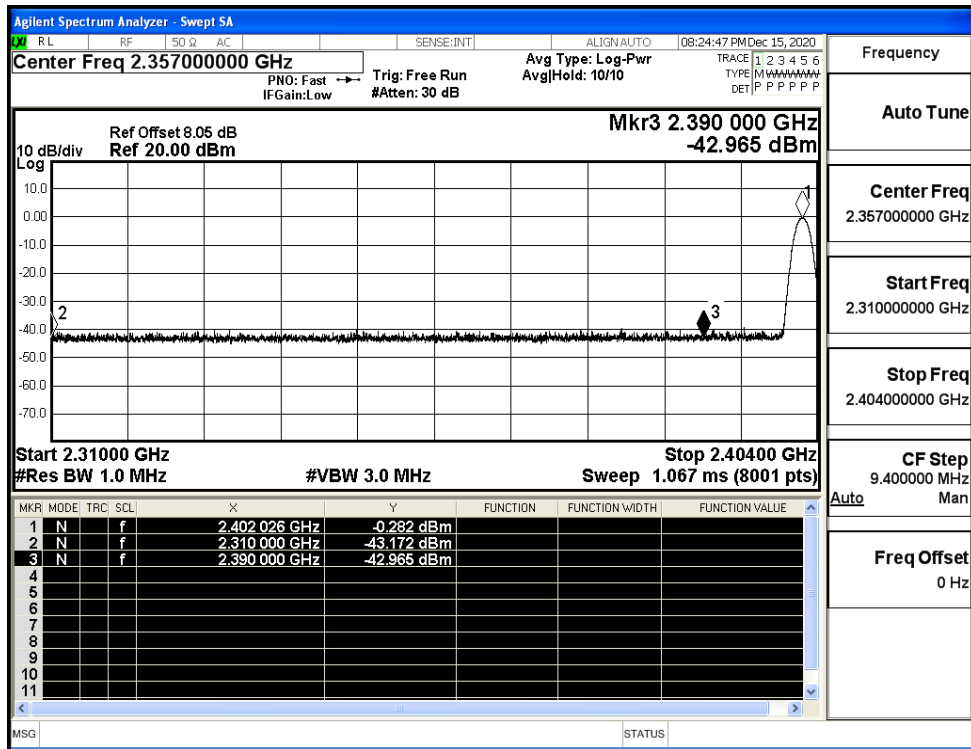
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



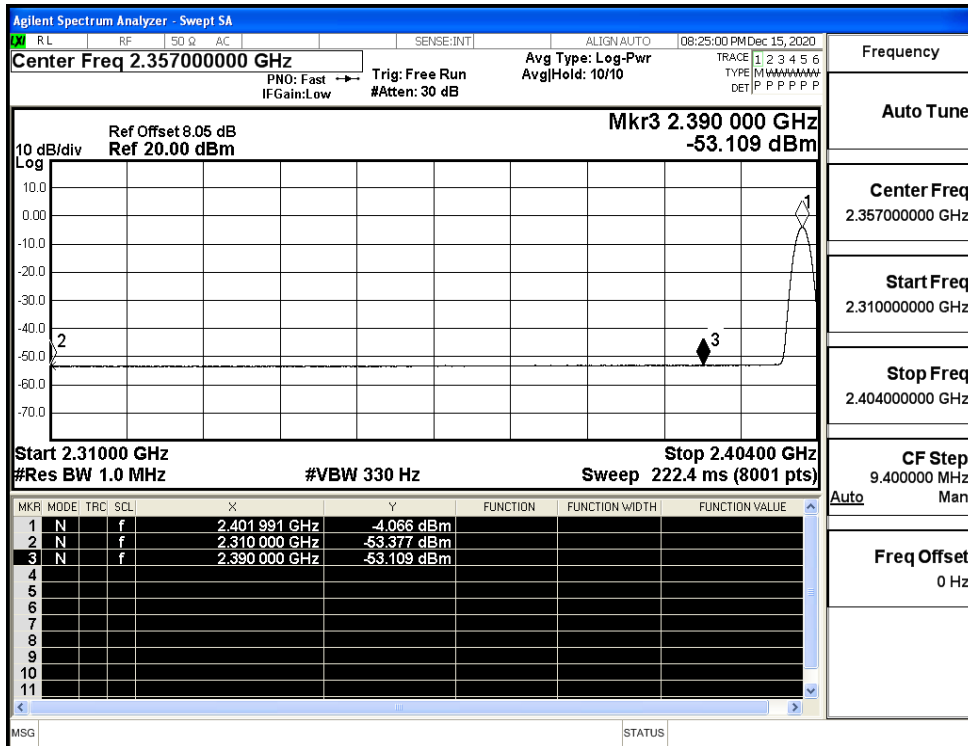
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



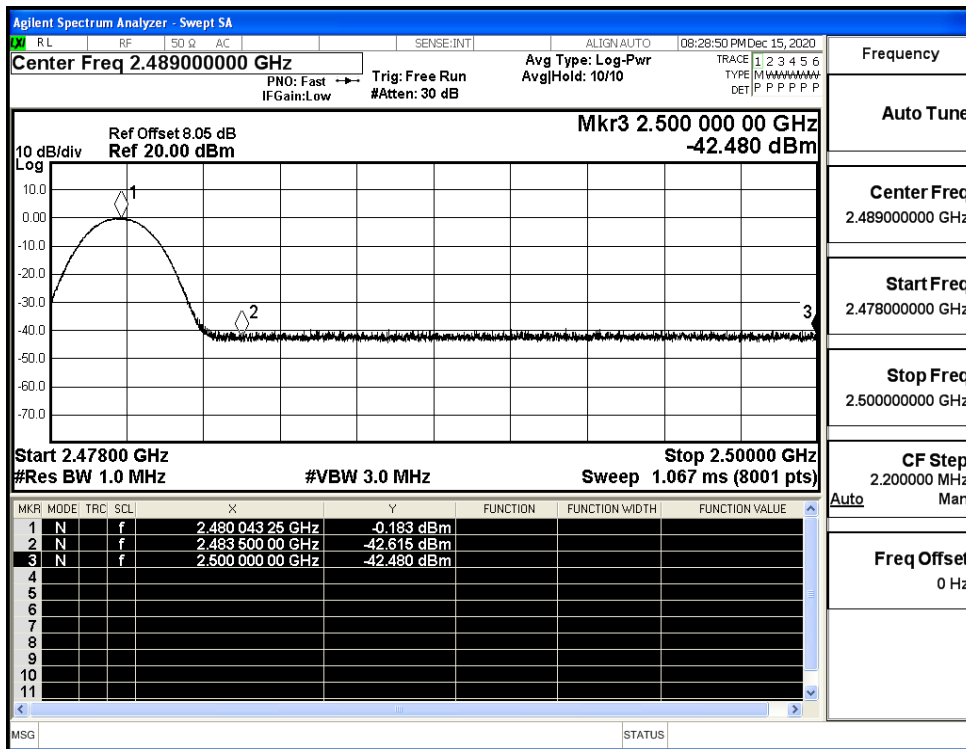
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

