

Appendix A

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

Product Name: LTE GSM/WCDMA Smartphone

Trade Mark: DOOGEE

Test Model: S70 Lite

Environmental Conditions

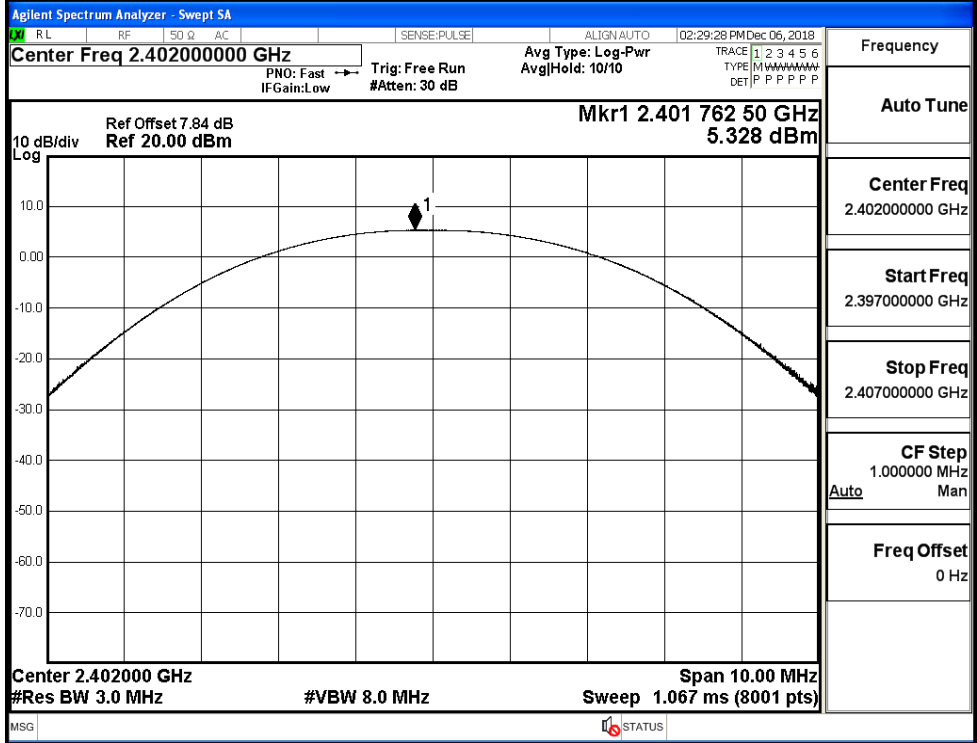
Temperature:	22.8 ° C
Relative Humidity:	53.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Mina.Xu
Supervised by:	Jayden.Zhuo

A.1 Maxmum Conducted Peak Output Power

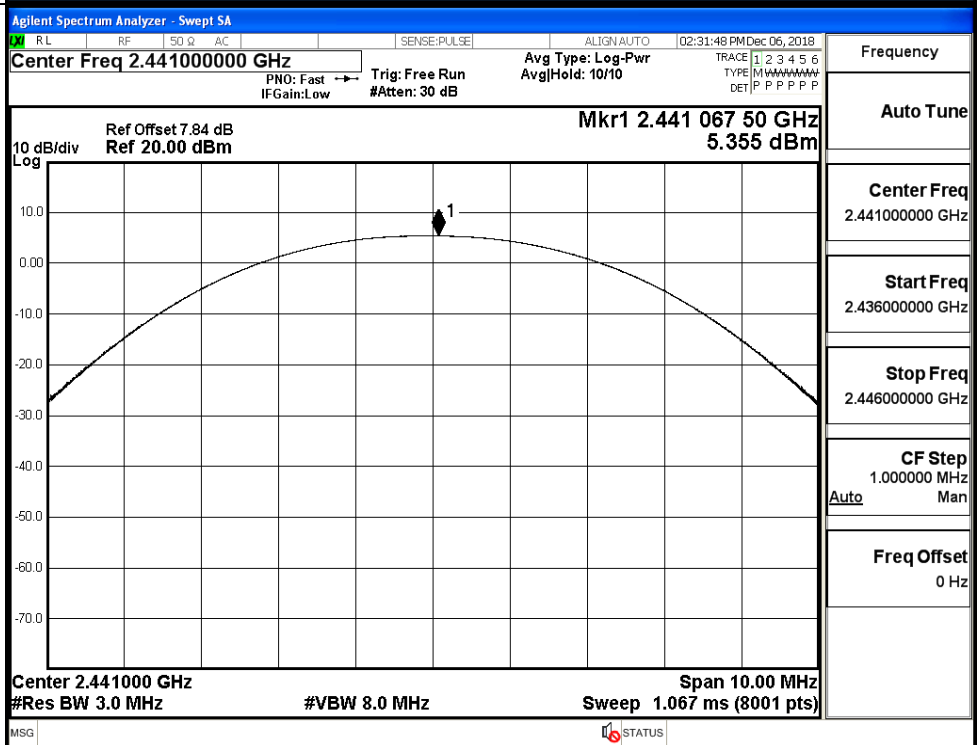
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	5.328	30	PASS
	MCH	5.355	30	PASS
	HCH	5.339	30	PASS
$\pi/4$ DQPSK	LCH	4.421	21	PASS
	MCH	4.452	21	PASS
	HCH	4.617	21	PASS
8DPSK	LCH	4.510	21	PASS
	MCH	4.561	21	PASS
	HCH	4.715	21	PASS

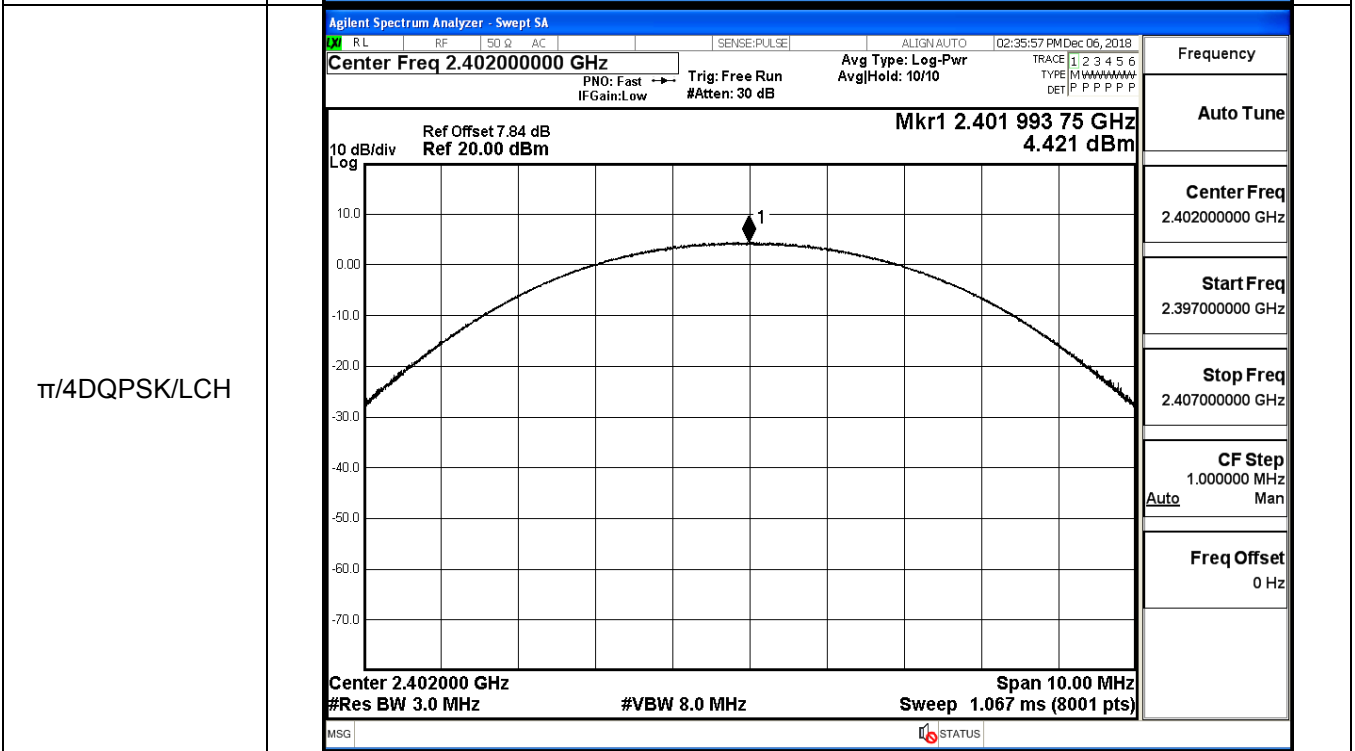
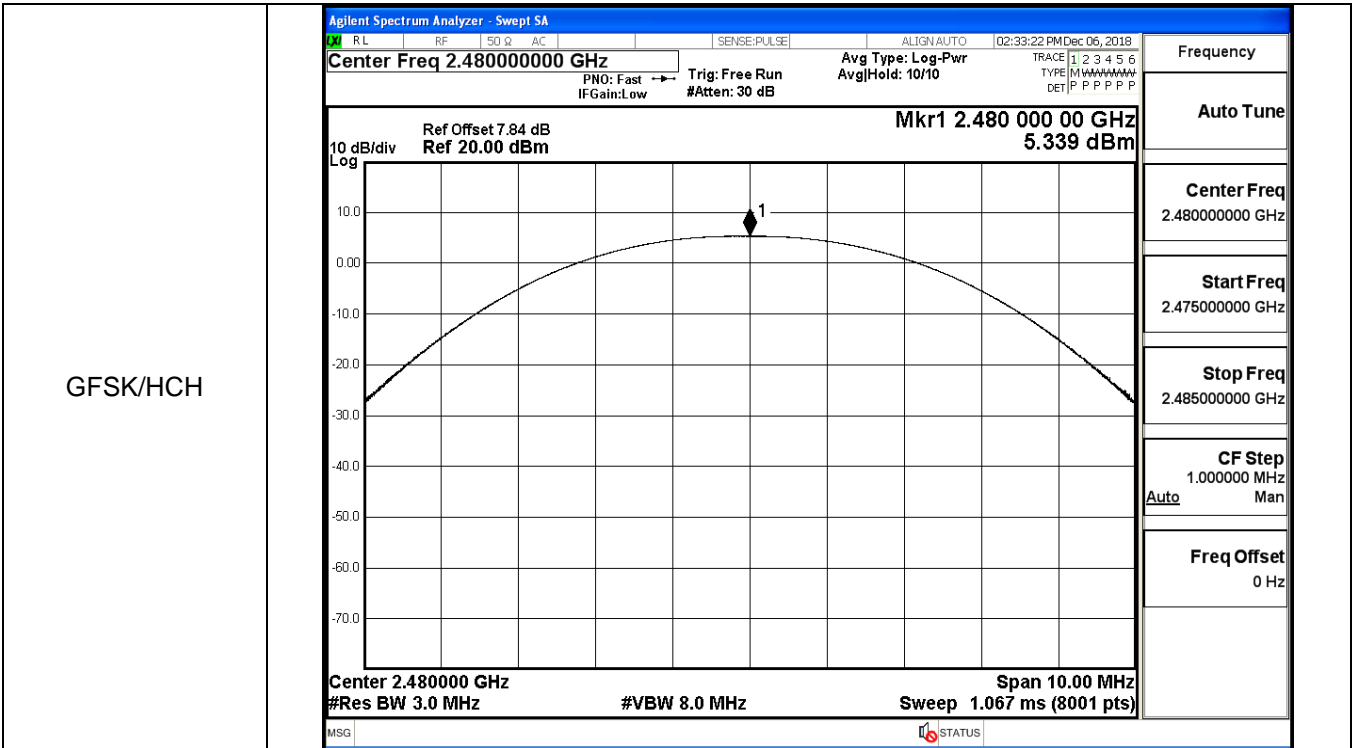
Test Graphs

GFSK/LCH

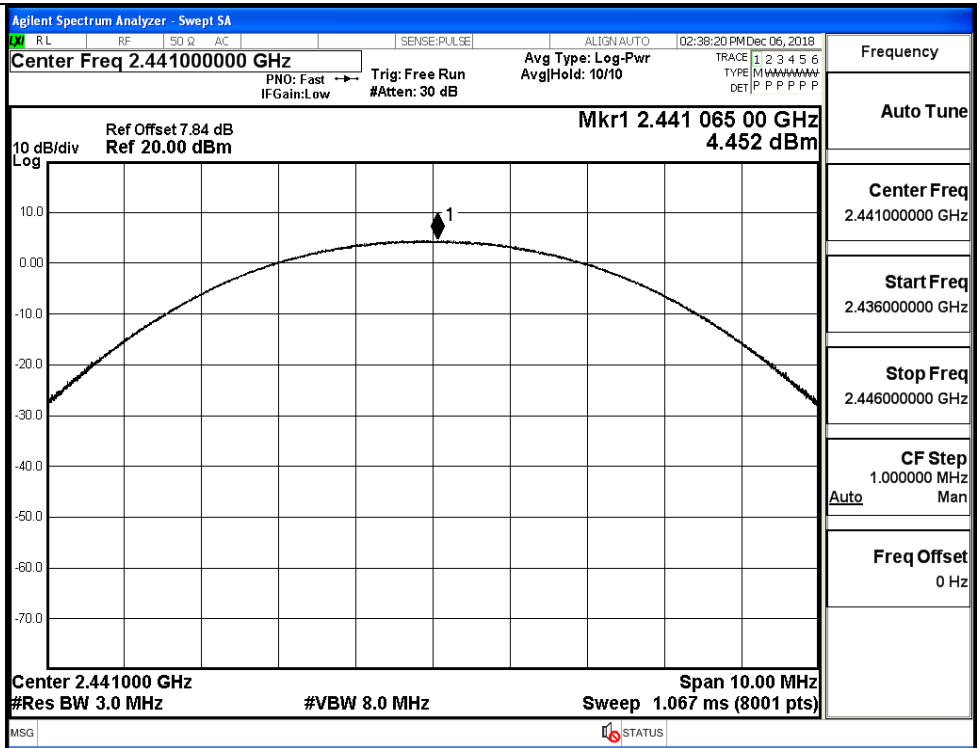


GFSK/MCH

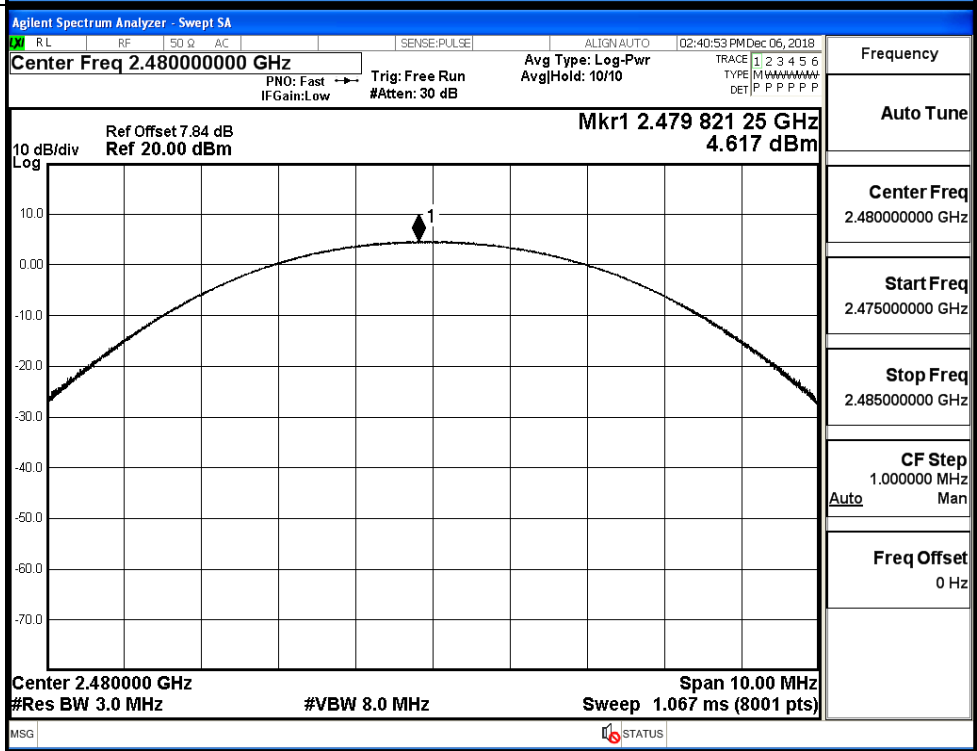




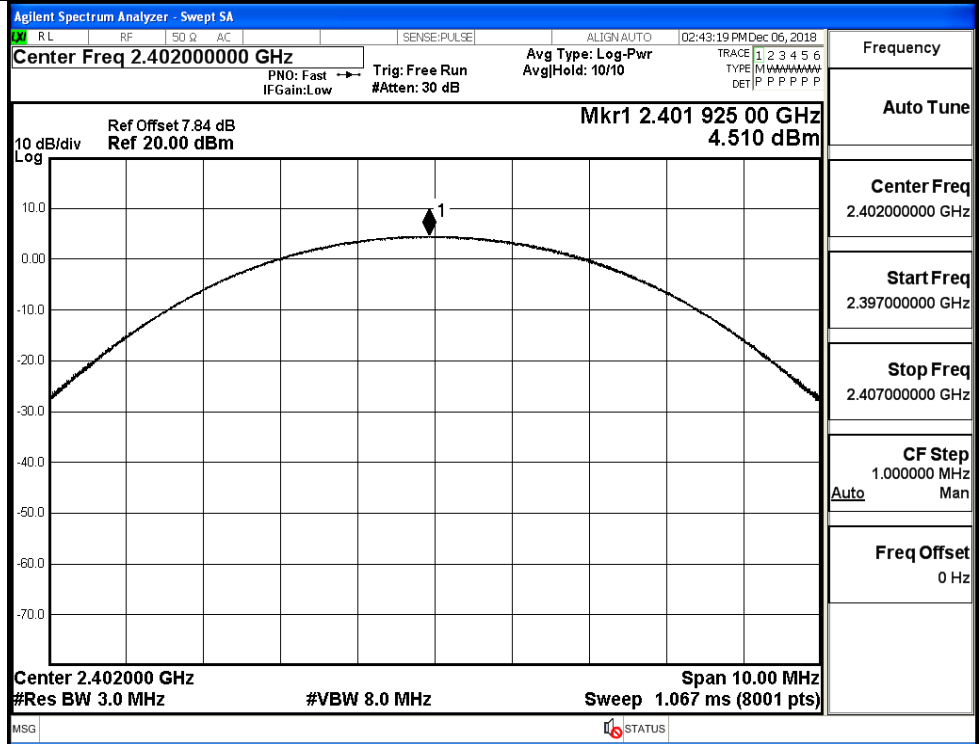
π /4DQPSK/MCH



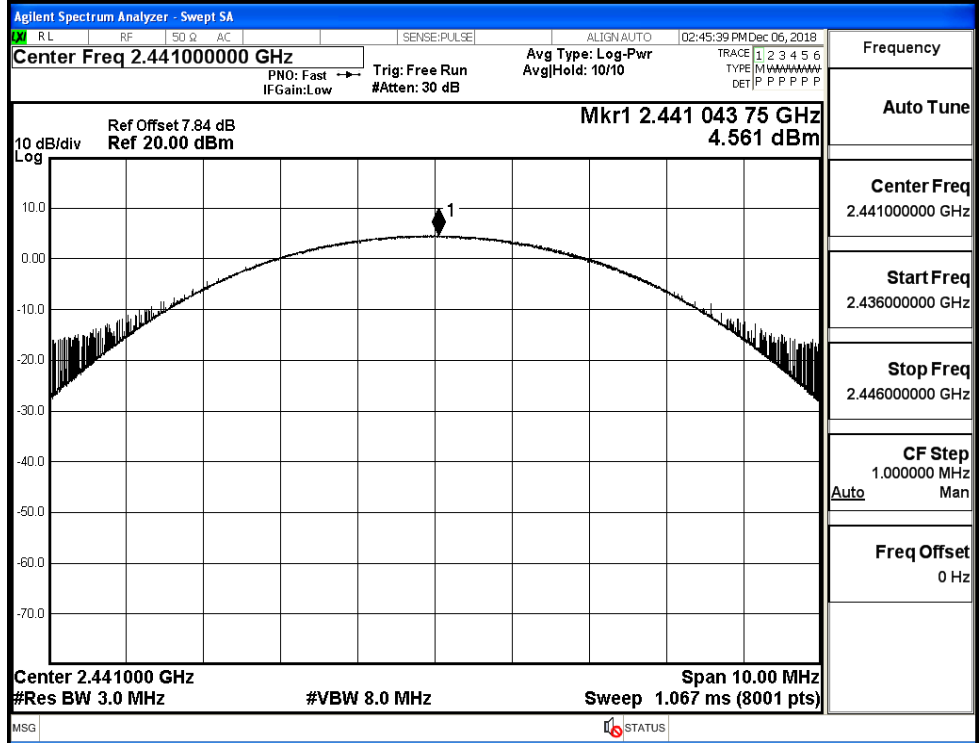
π /4DQPSK/HCH



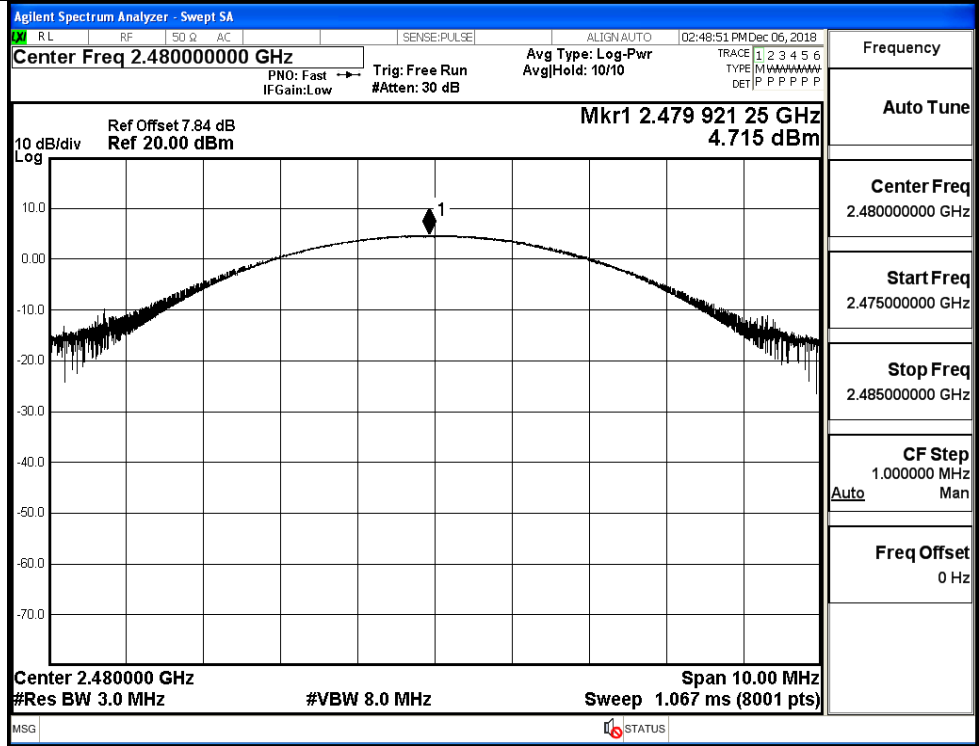
8DPSK/LCH



8DPSK/MCH

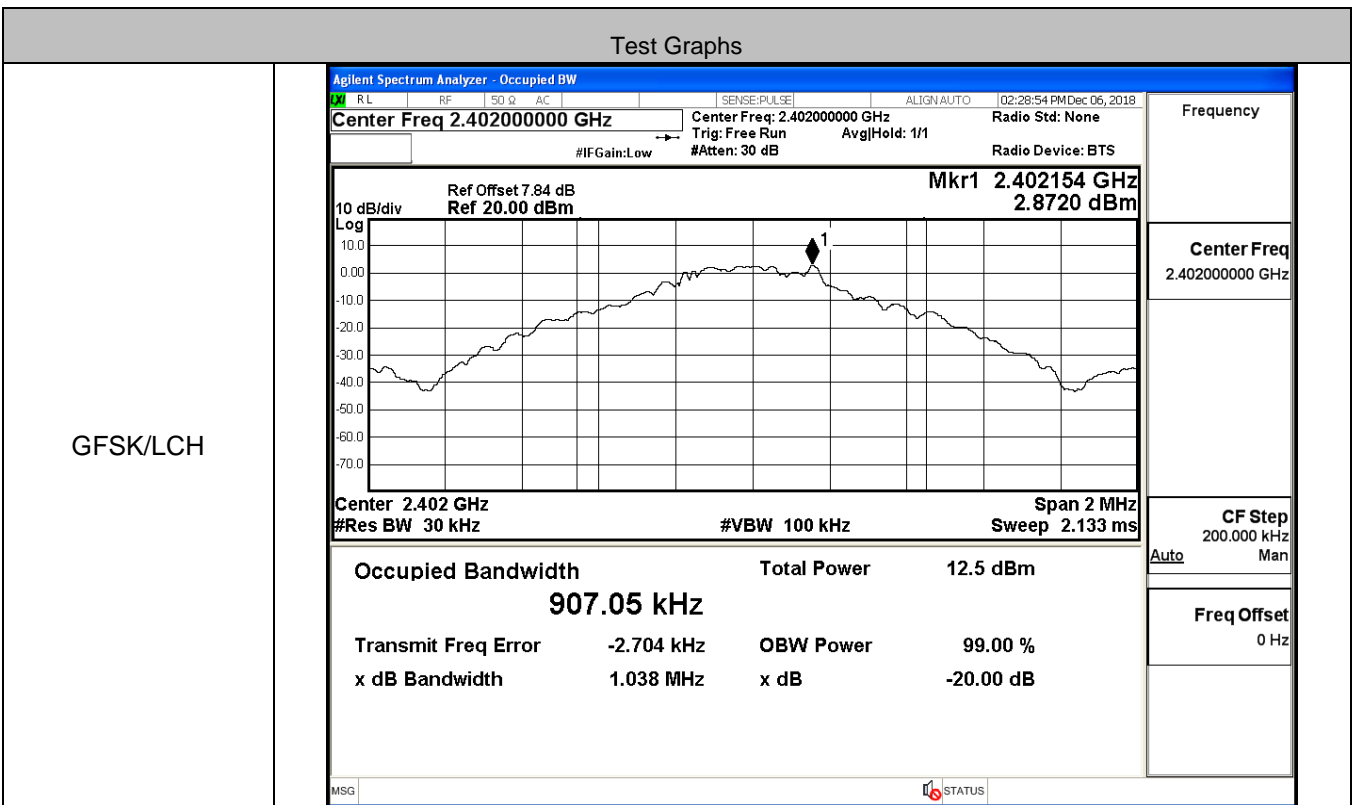


8DPSK/HCH

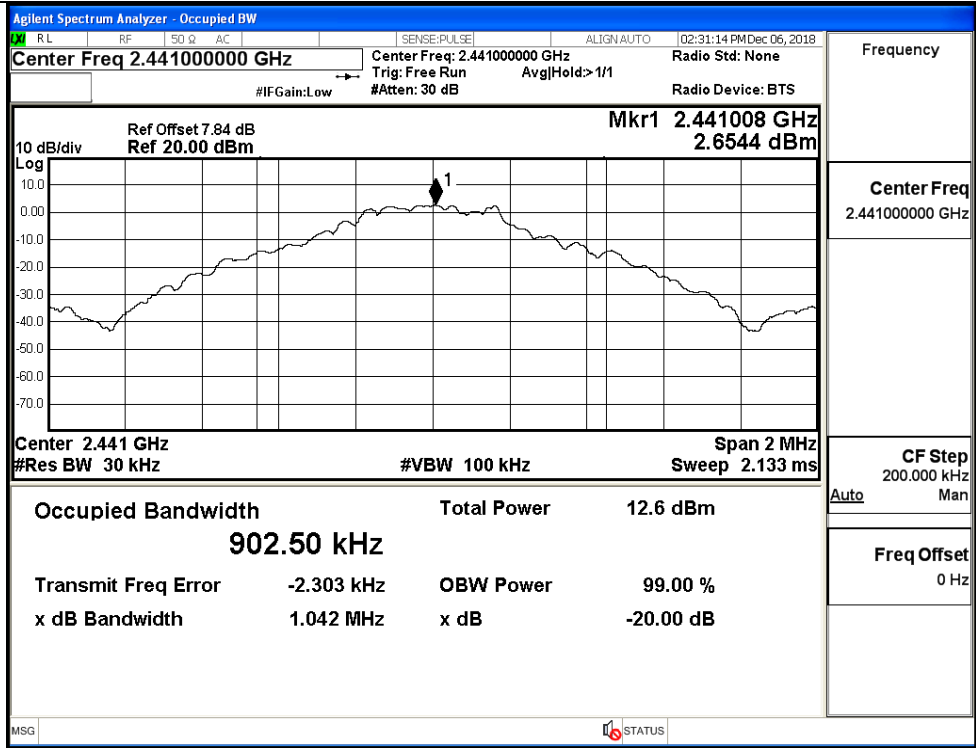


A.2 20dB Bandwidth

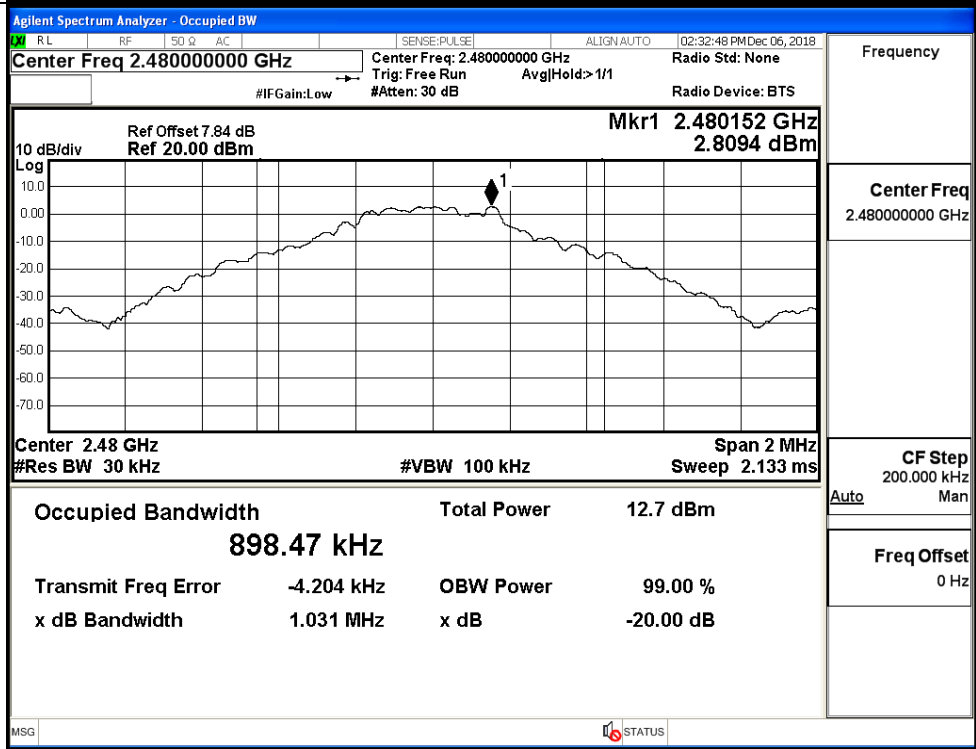
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.038	Not Specified	PASS
	MCH	1.042	Not Specified	PASS
	HCH	1.031	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.287	Not Specified	PASS
	MCH	1.289	Not Specified	PASS
	HCH	1.290	Not Specified	PASS
8DPSK	LCH	1.294	Not Specified	PASS
	MCH	1.295	Not Specified	PASS
	HCH	1.298	Not Specified	PASS



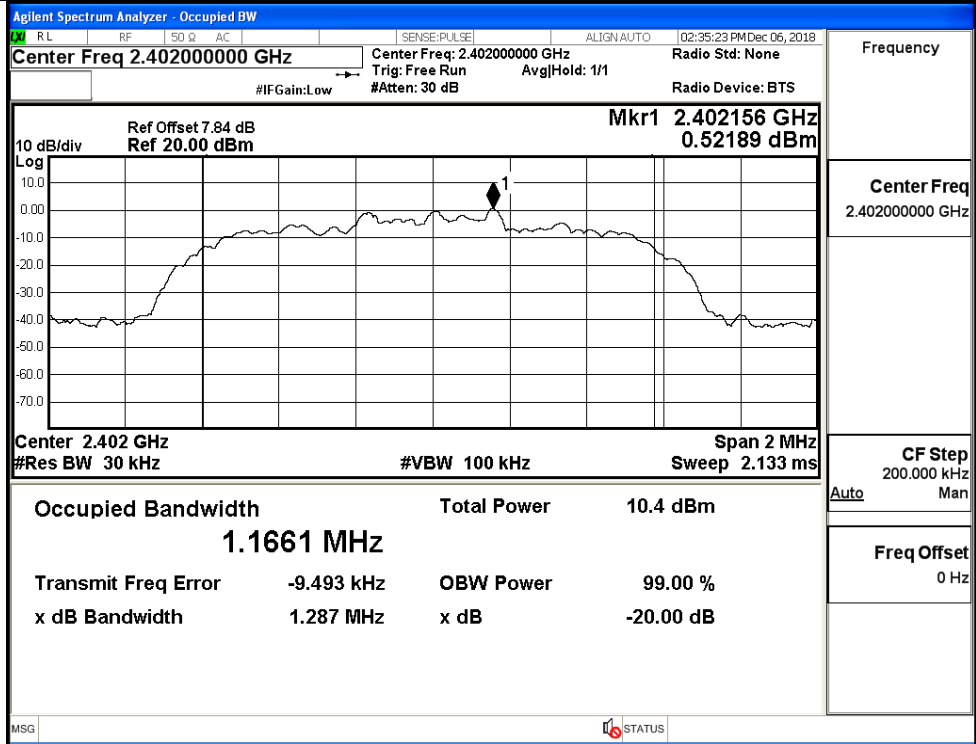
GFSK/MCH



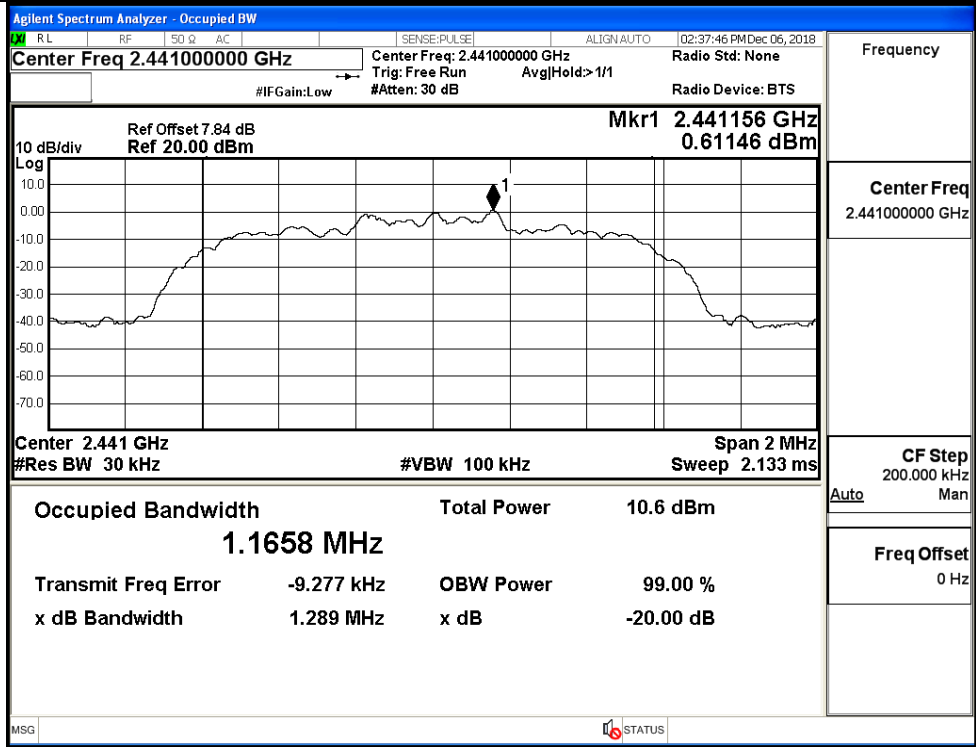
GFSK/HCH



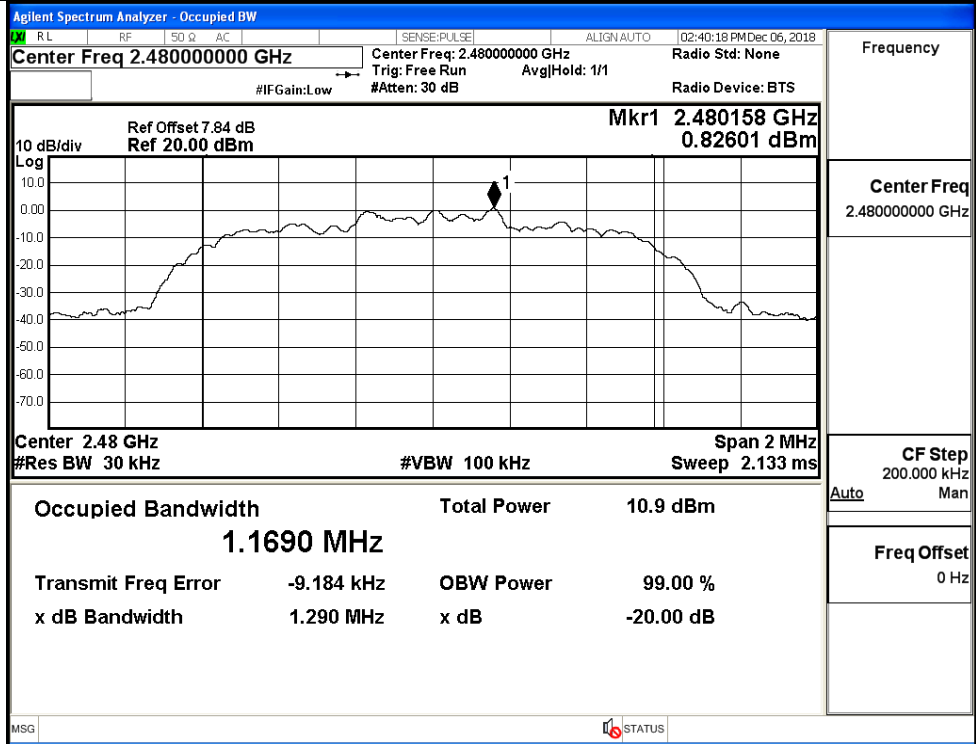
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH

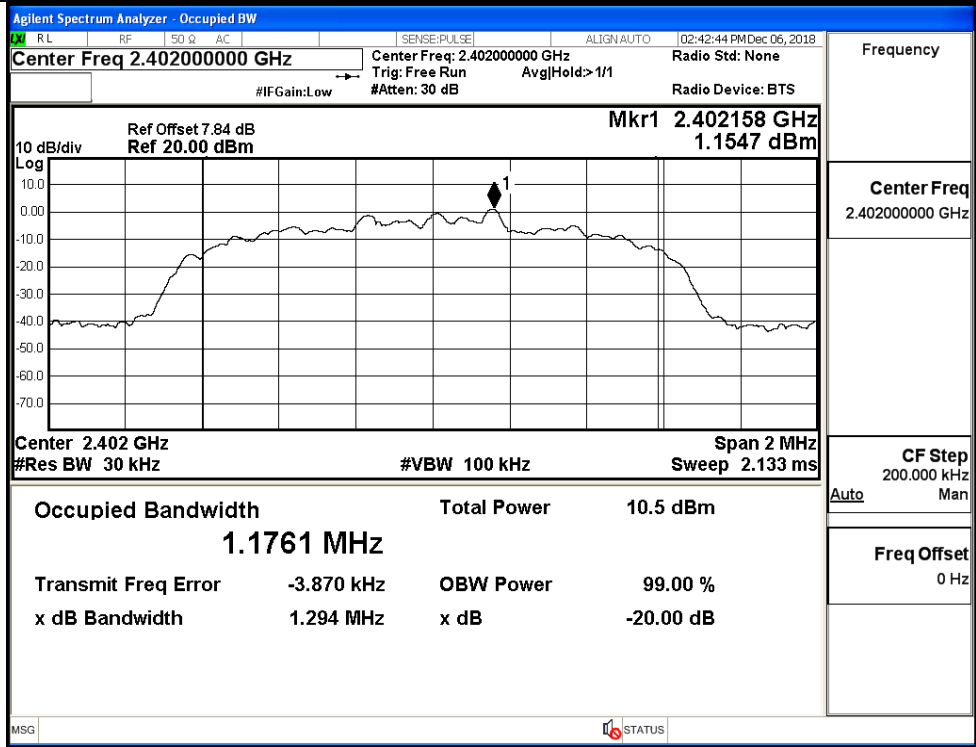


$\pi/4$ DQPSK/HCH



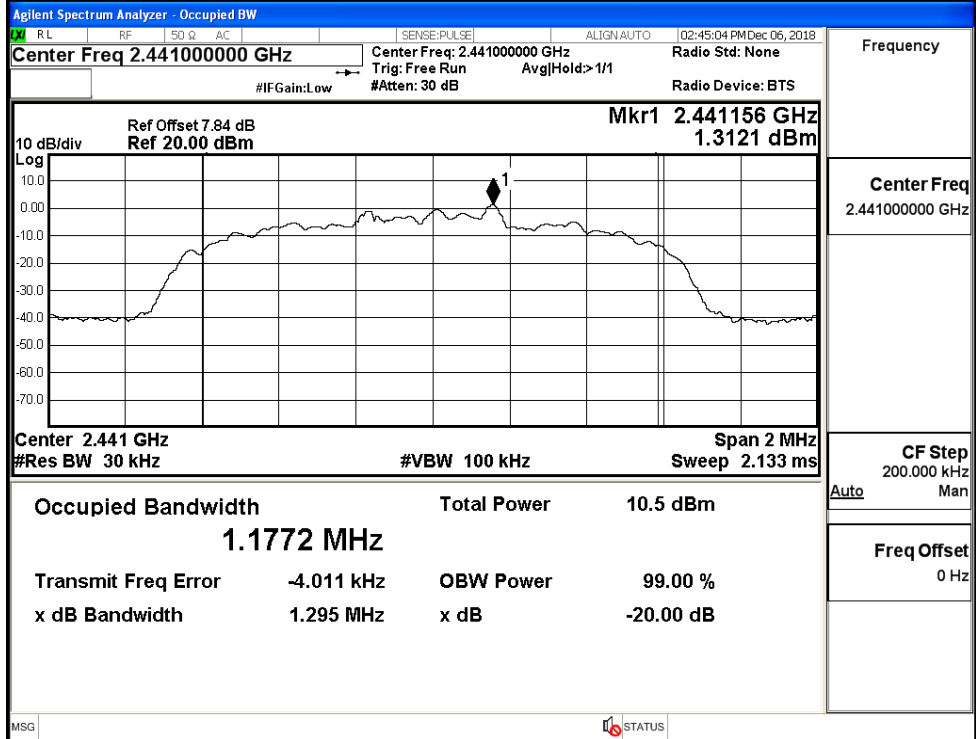
Frequency	2.48000000 GHz
Center Freq	2.48000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

8DPSK/LCH

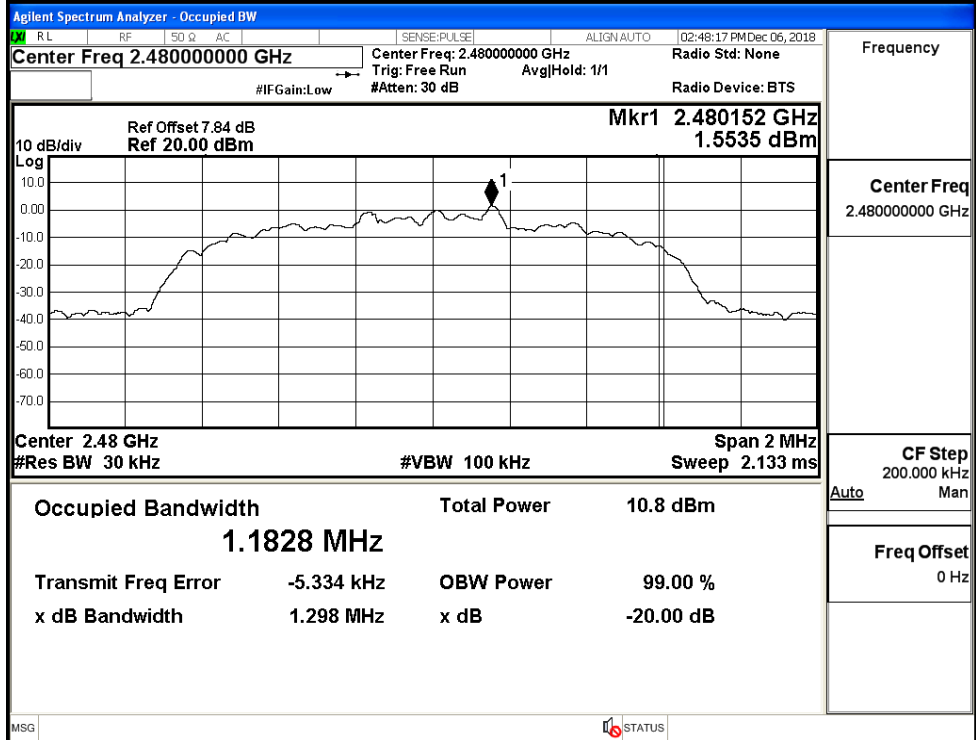


Frequency	2.40200000 GHz
Center Freq	2.40200000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

8DPSK/MCH

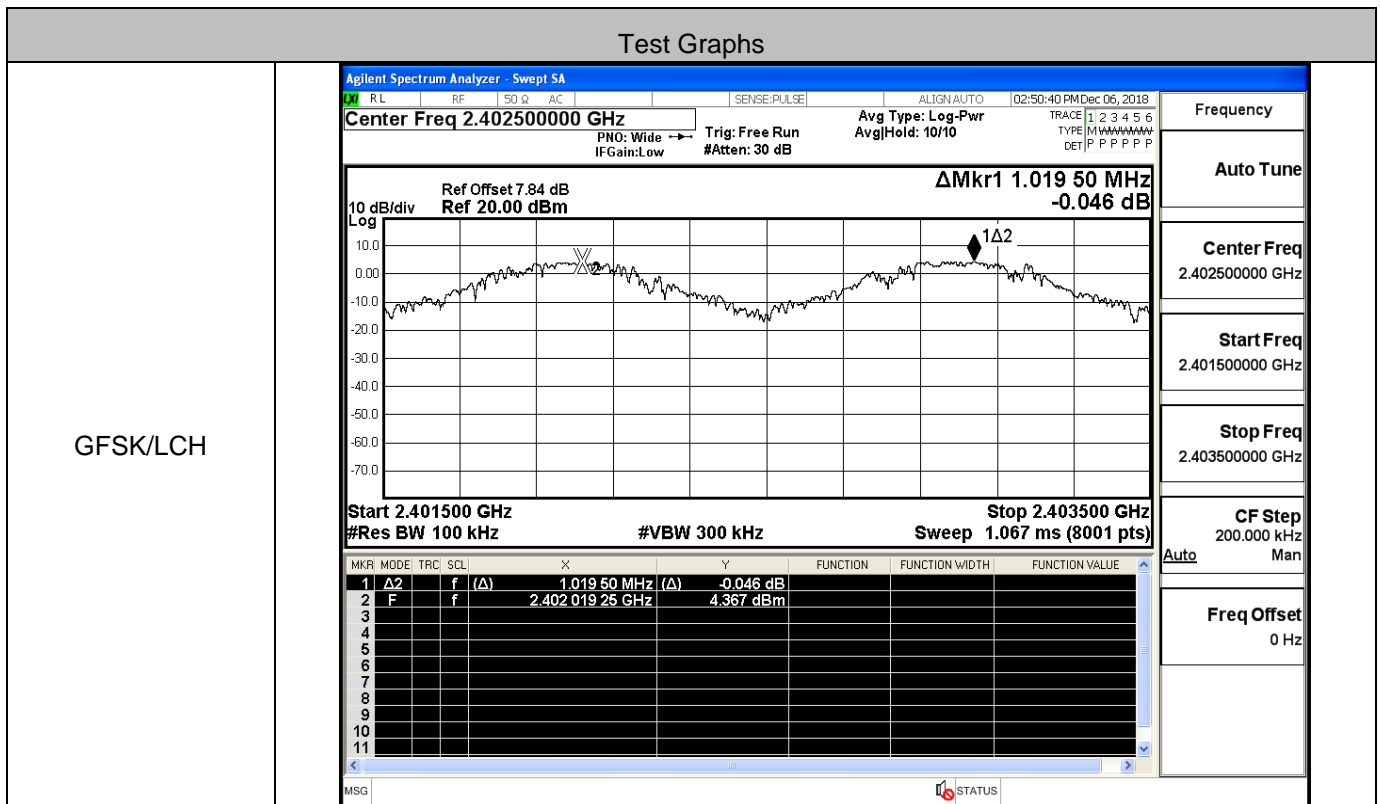


8DPSK/HCH

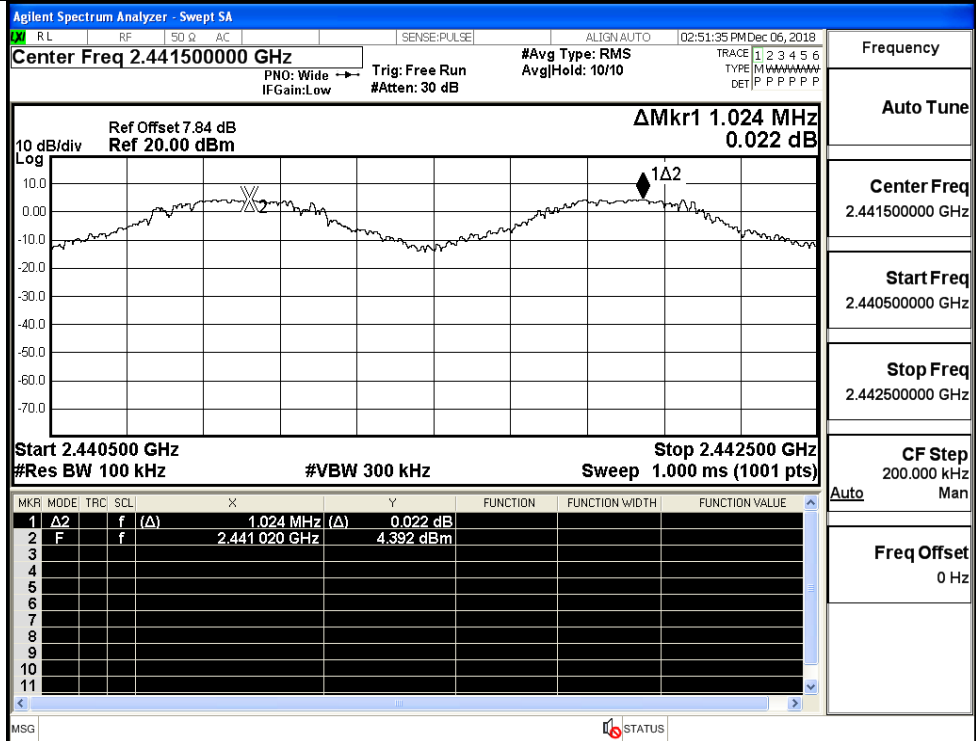


A.3 Carrier Frequency Separation

Mode	Channel	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.020	0.695	PASS
	MCH	1.024	0.695	PASS
	HCH	0.912	0.695	PASS
π/4DQPSK	LCH	0.996	0.860	PASS
	MCH	1.202	0.860	PASS
	HCH	1.036	0.860	PASS
8DPSK	LCH	1.208	0.865	PASS
	MCH	1.028	0.865	PASS
	HCH	1.322	0.865	PASS



GFSK/MCH



Frequency

Auto Tune

Center Freq
2.44150000 GHz

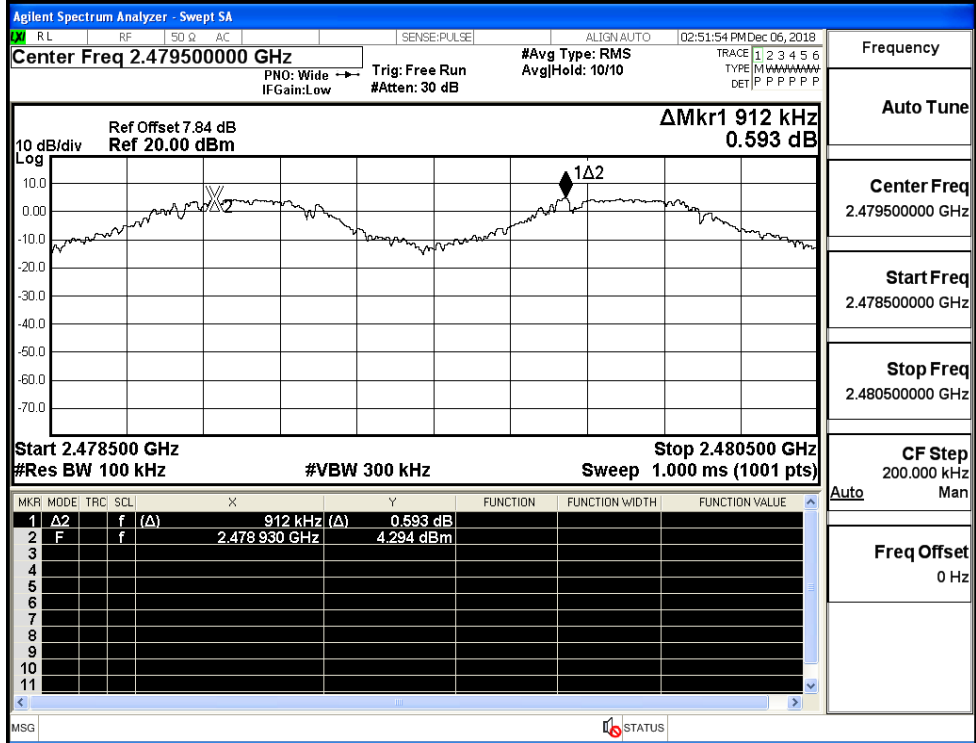
Start Freq
2.44050000 GHz

Stop Freq
2.44250000 GHz

CF Step
200.000 kHz

Freq Offset
0 Hz

GFSK/HCH



Frequency

Auto Tune

Center Freq
2.47950000 GHz

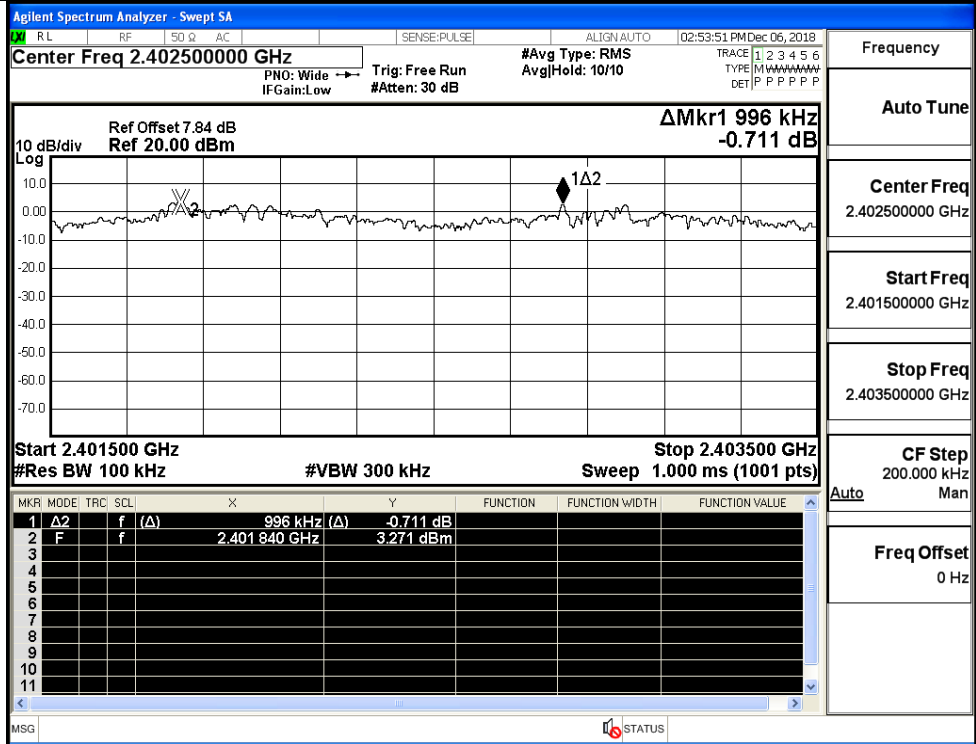
Start Freq
2.47850000 GHz

Stop Freq
2.48050000 GHz

CF Step
200.000 kHz

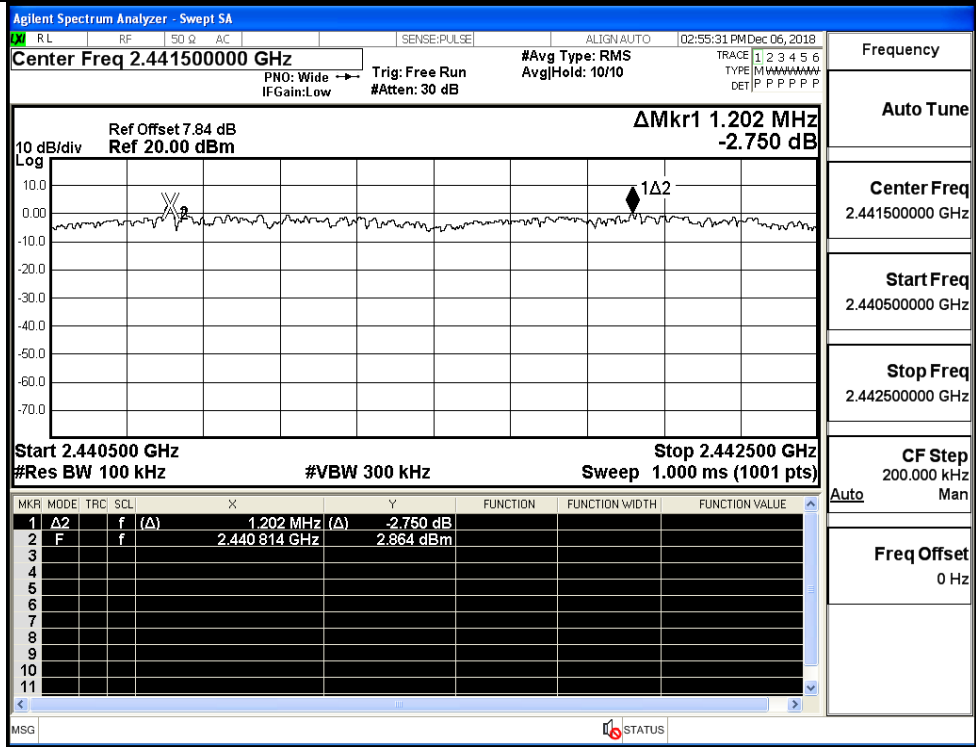
Freq Offset
0 Hz

$\pi/4$ DQPSK/LCH



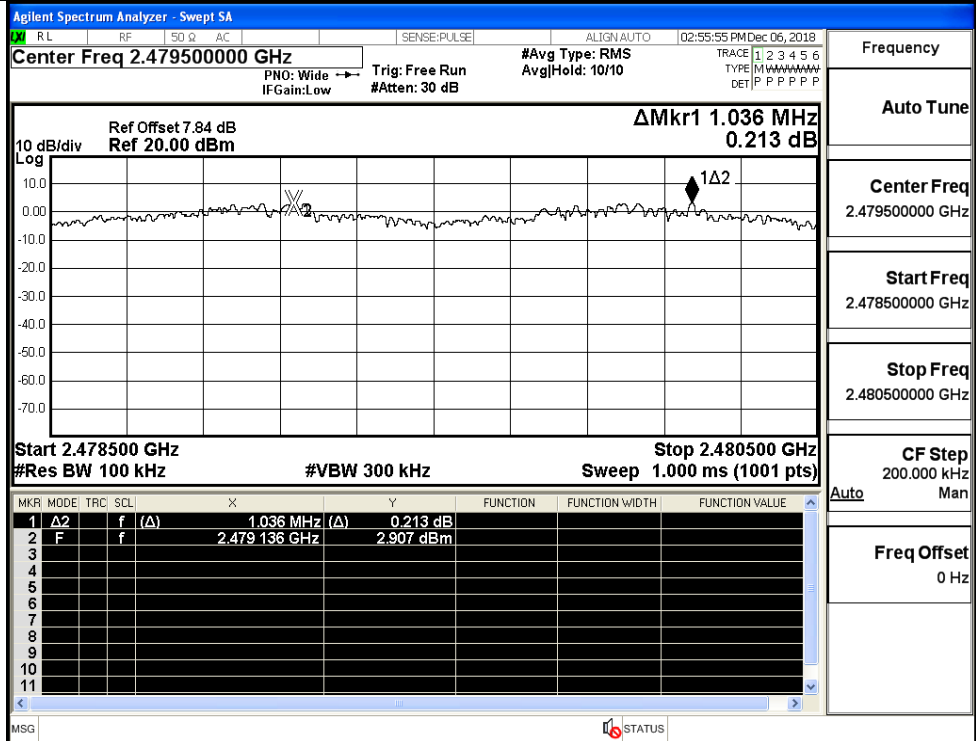
Frequency	2.402500000 GHz
Auto Tune	
Center Freq	2.402500000 GHz
Start Freq	2.401500000 GHz
Stop Freq	2.403500000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

$\pi/4$ DQPSK/MCH



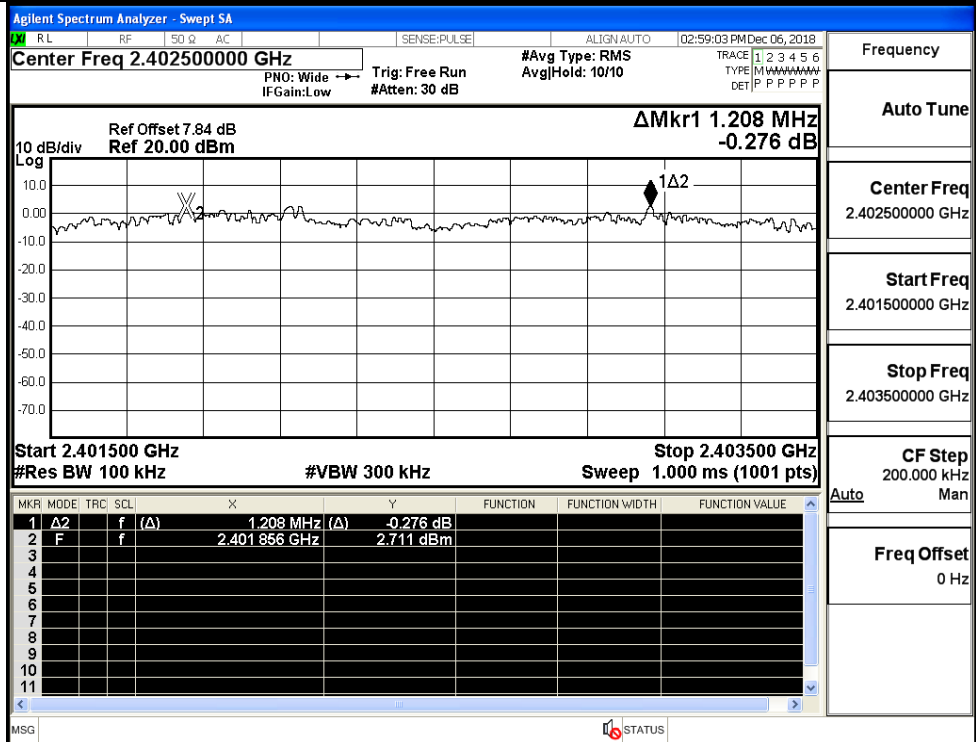
Frequency	2.441500000 GHz
Auto Tune	
Center Freq	2.441500000 GHz
Start Freq	2.440500000 GHz
Stop Freq	2.442500000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

π/4DQPSK/HCH

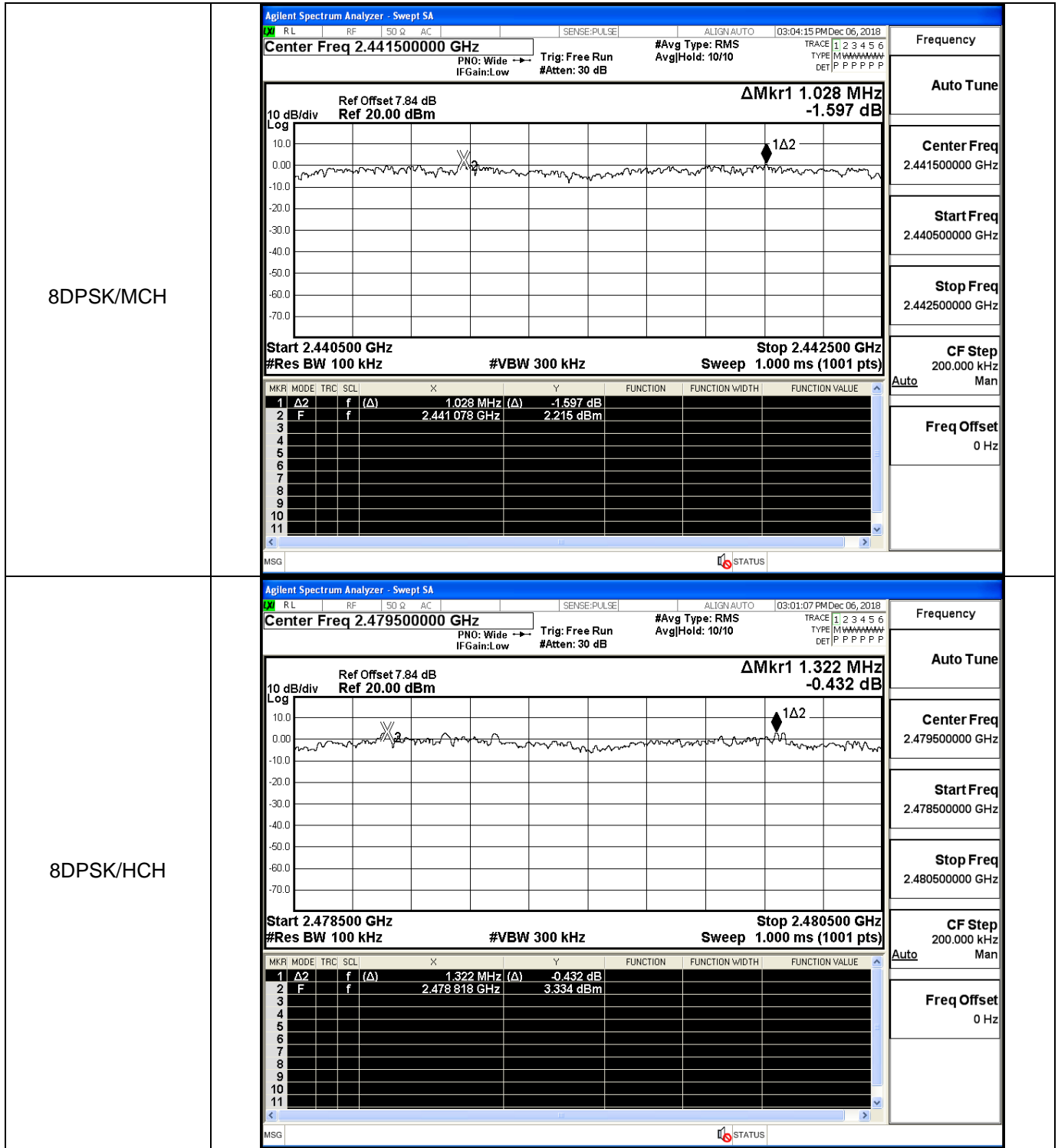


Frequency
Auto Tune
Center Freq
2.479500000 GHz
Start Freq
2.478500000 GHz
Stop Freq
2.480500000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz

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

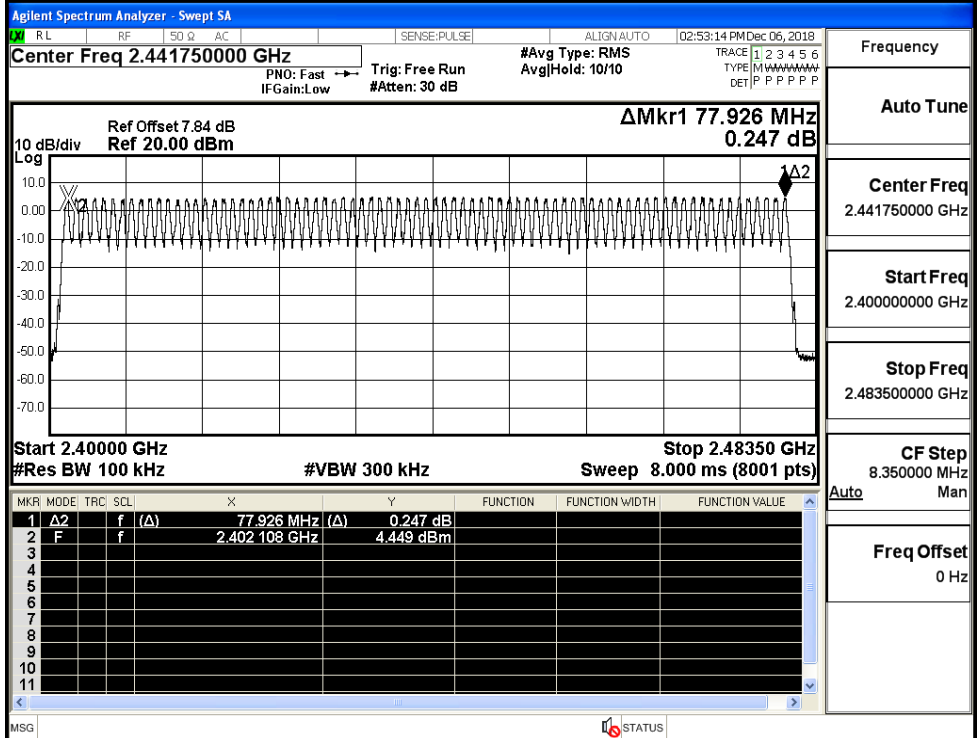


A.4 Hopping Channel Number

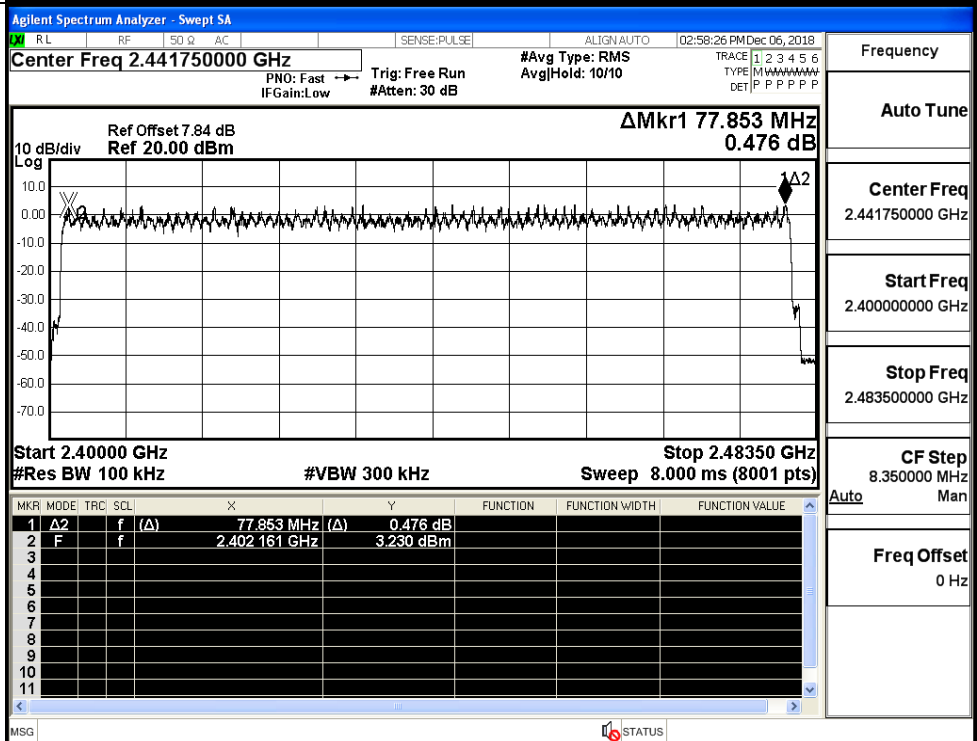
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

Test Graphs

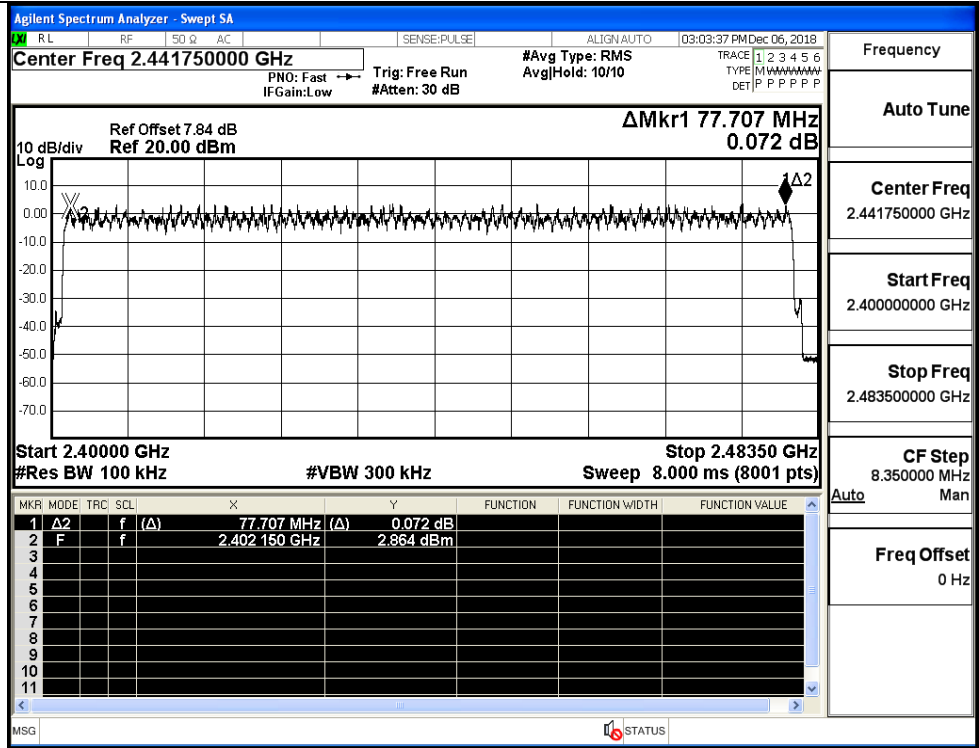
GFSK/Hop



π/4DQPSK/Hop

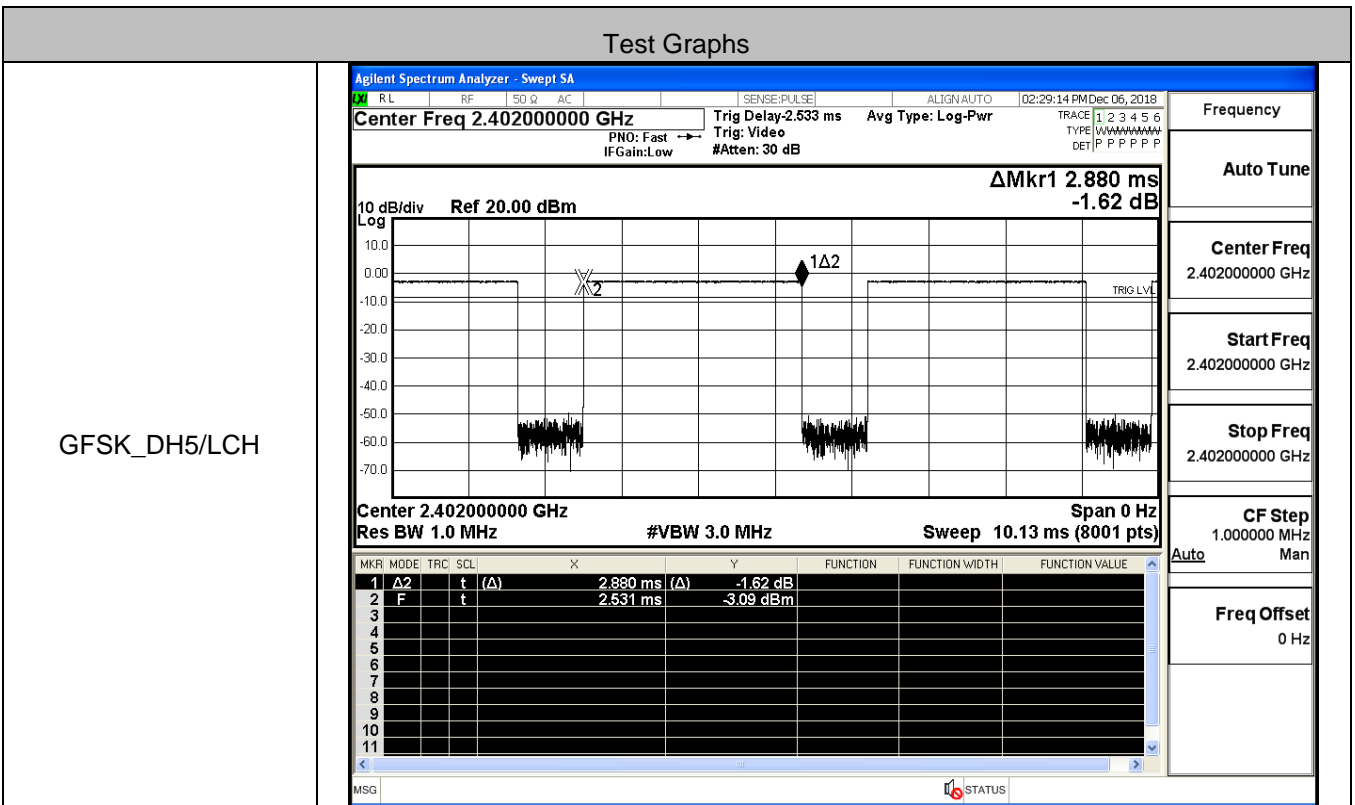


8DPSK/Hop

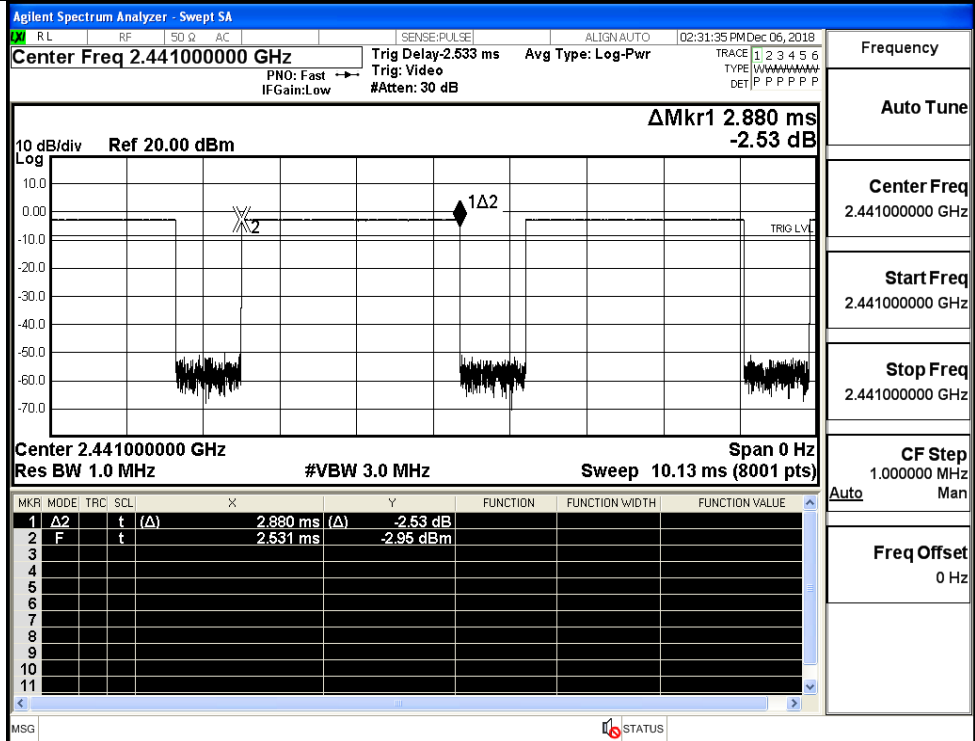


A.5 Dwell Time

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	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	0.246	0.4	PASS
	2DH5	MCH	2.88	106.7	0.246	0.4	PASS
	2DH5	HCH	2.88	106.7	0.246	0.4	PASS
8DPSK	3DH5	LCH	2.88	106.7	0.308	0.4	PASS
	3DH5	MCH	2.88	106.7	0.308	0.4	PASS
	3DH5	HCH	2.88	106.7	0.308	0.4	PASS



GFSK_DH5/MCH



Frequency

Auto Tune

Center Freq 2.441000000 GHz

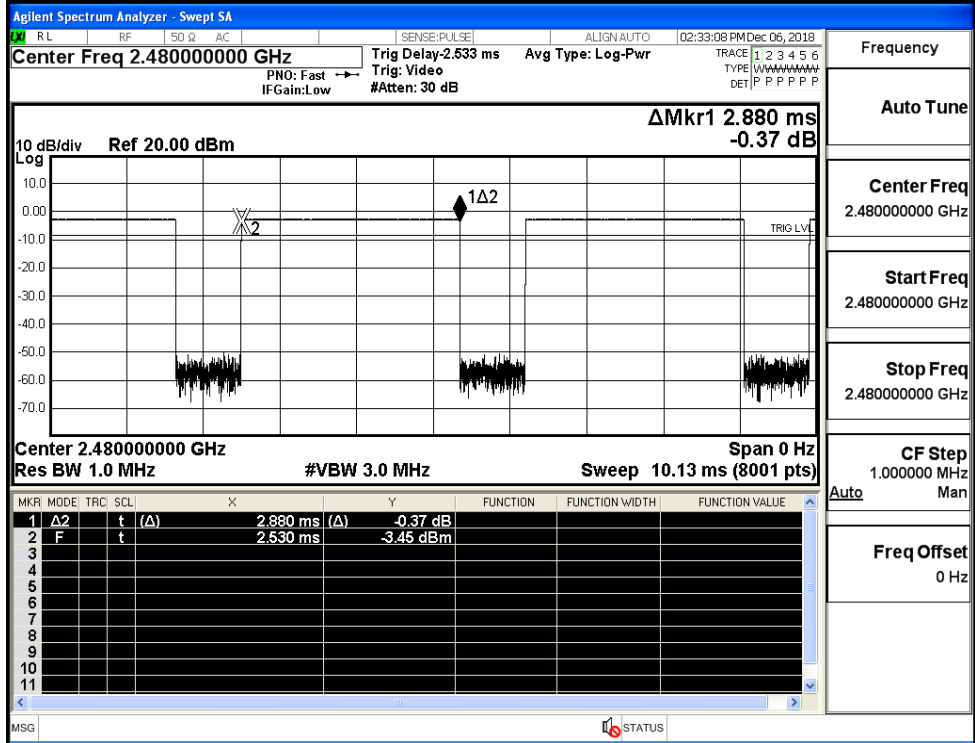
Start Freq 2.441000000 GHz

Stop Freq 2.441000000 GHz

CF Step 1.000000 MHz

Freq Offset 0 Hz

GFSK_DH5/HCH



Frequency

Auto Tune

Center Freq 2.480000000 GHz

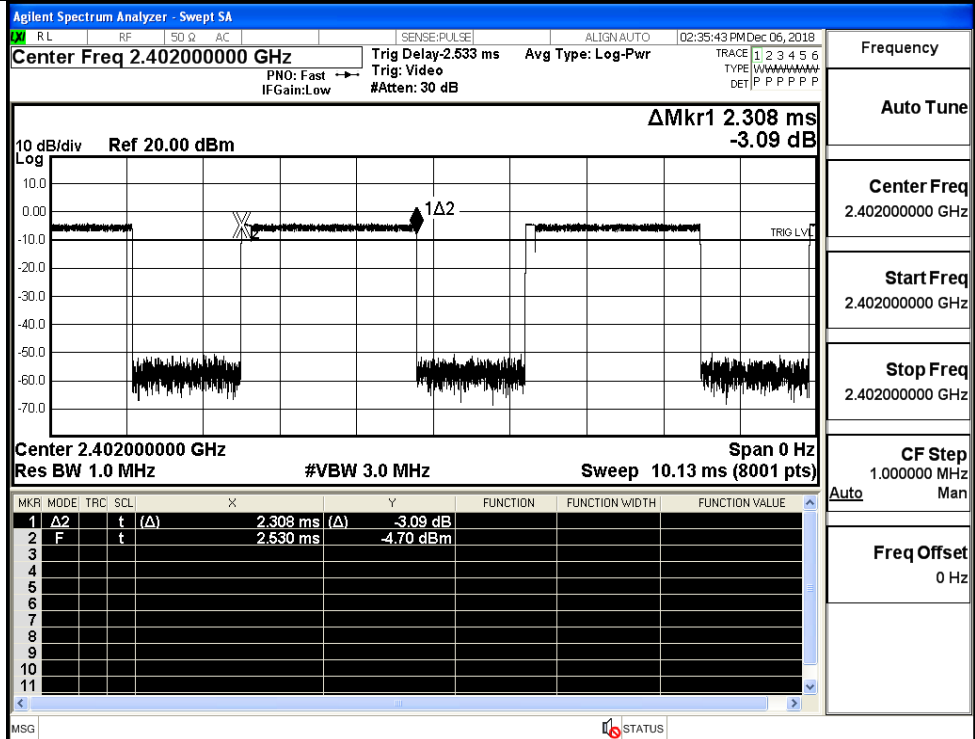
Start Freq 2.480000000 GHz

Stop Freq 2.480000000 GHz

CF Step 1.000000 MHz

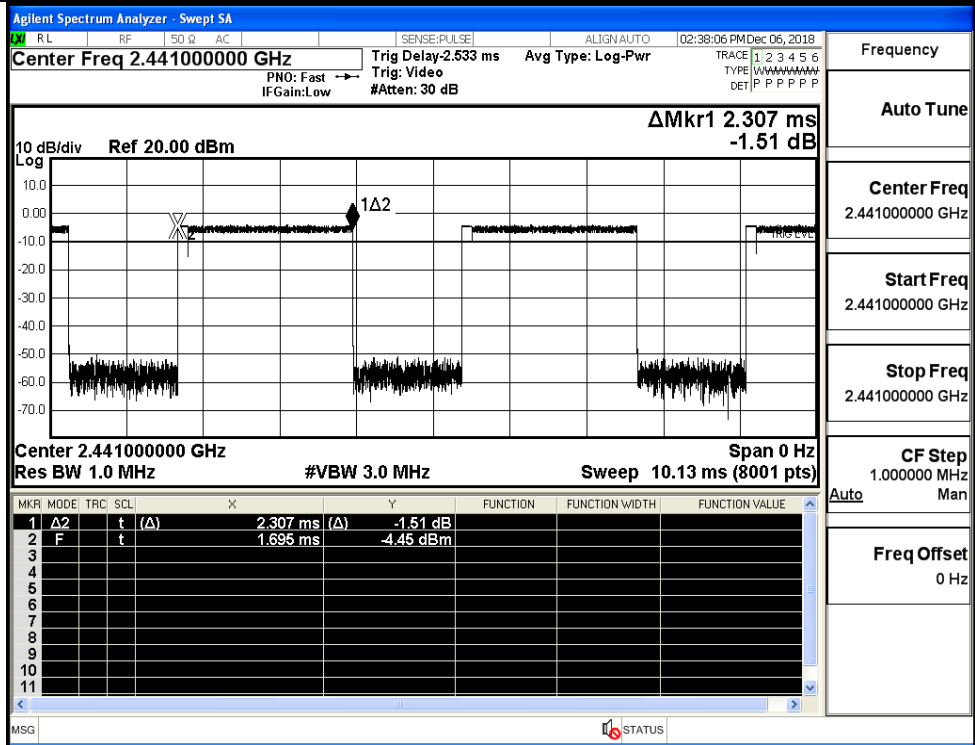
Freq Offset 0 Hz

$\pi/4$ DQPSK
_2DH5/LCH



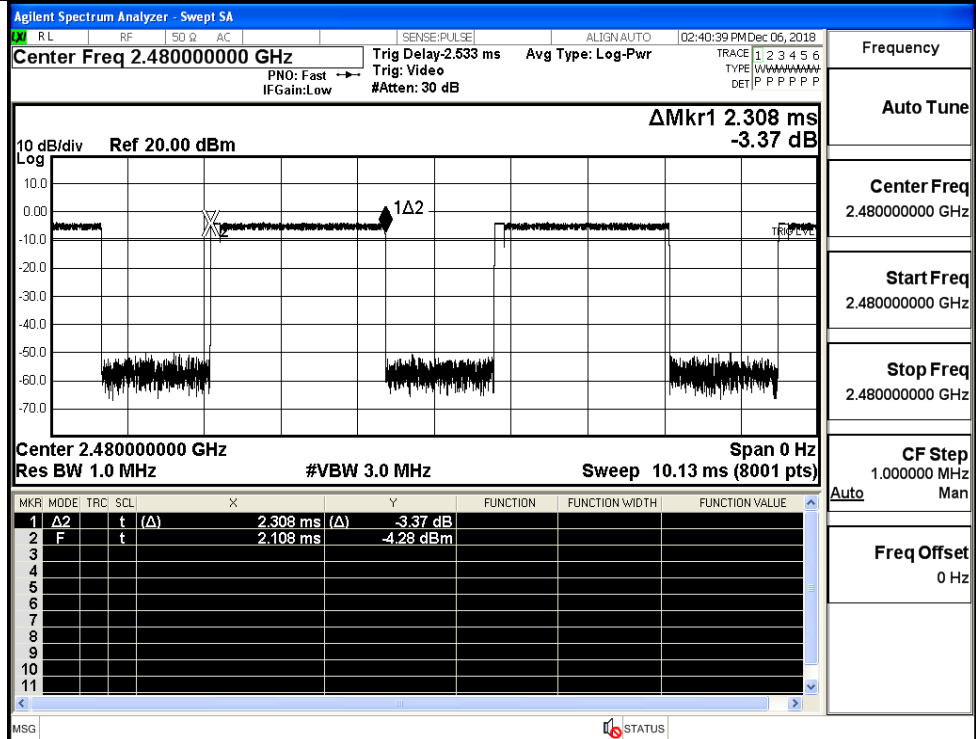
Frequency	2.402000000 GHz
Auto Tune	
Center Freq	2.402000000 GHz
Start Freq	2.402000000 GHz
Stop Freq	2.402000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

$\pi/4$ DQPSK
_2DH5/MCH

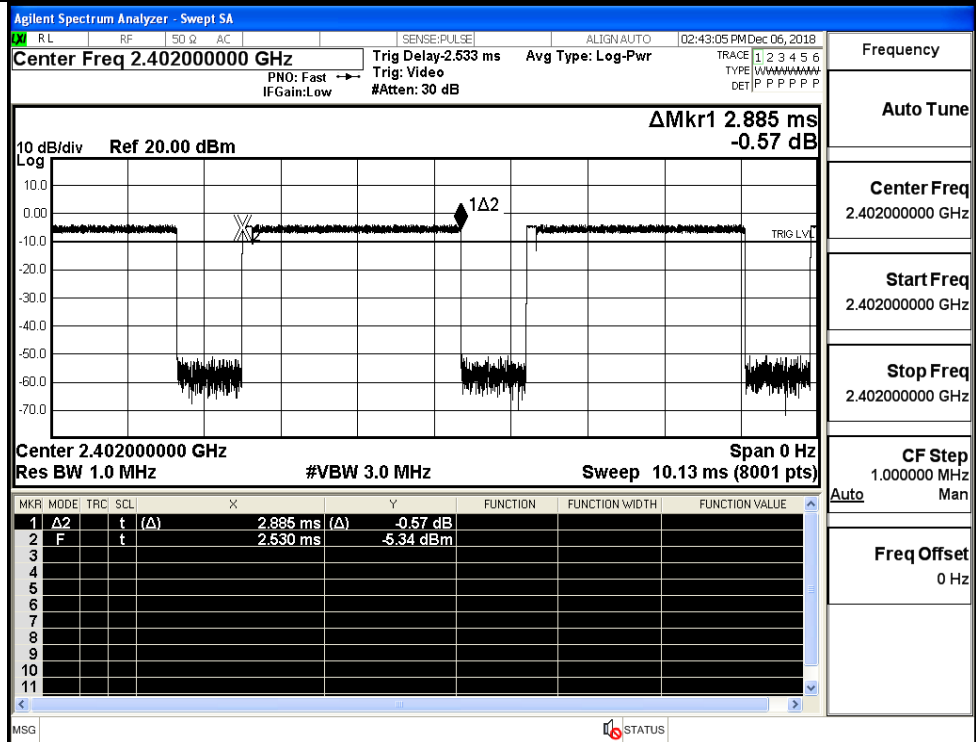


Frequency	2.441000000 GHz
Auto Tune	
Center Freq	2.441000000 GHz
Start Freq	2.441000000 GHz
Stop Freq	2.441000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

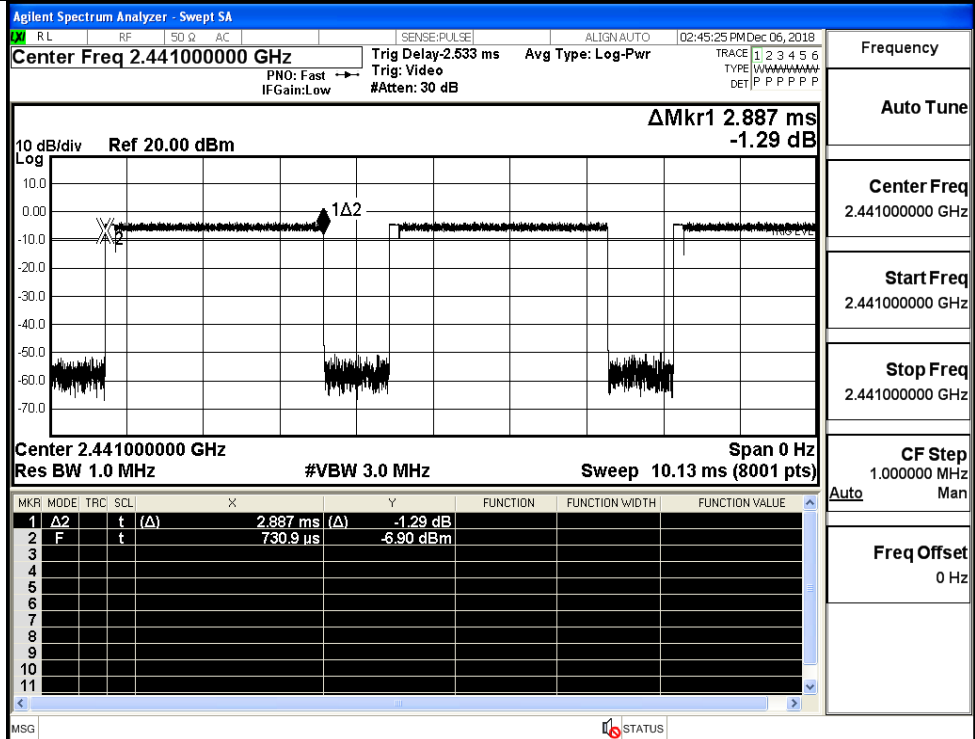
$\pi/4$ DQPSK
_2DH5/HCH



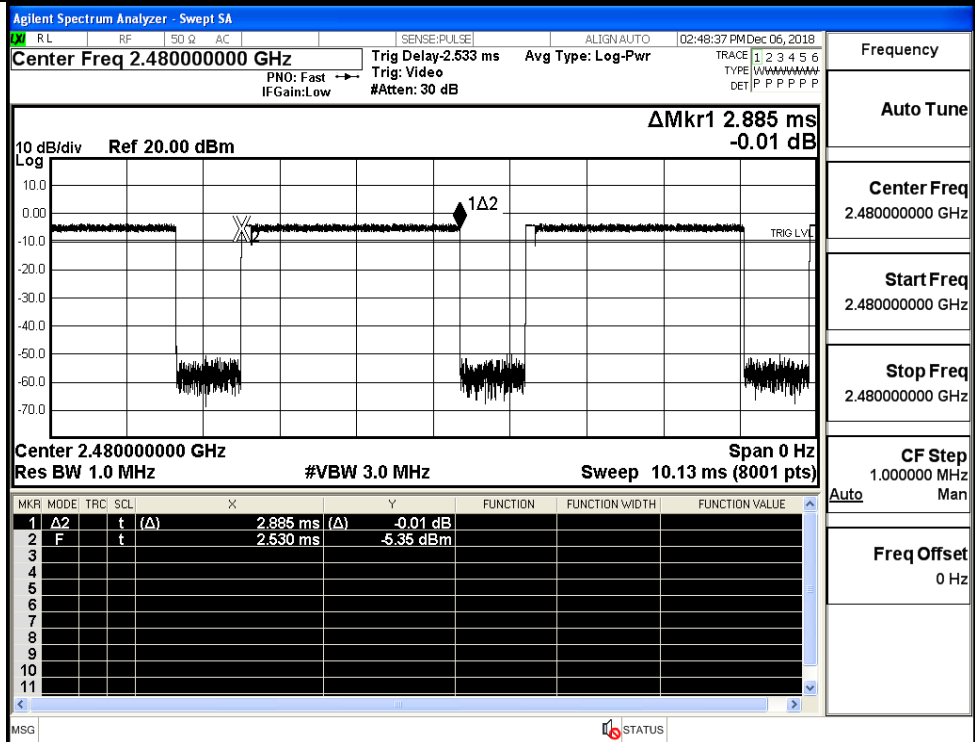
8DPSK_3DH5/LCH



8DPSK_3DH5/MCH



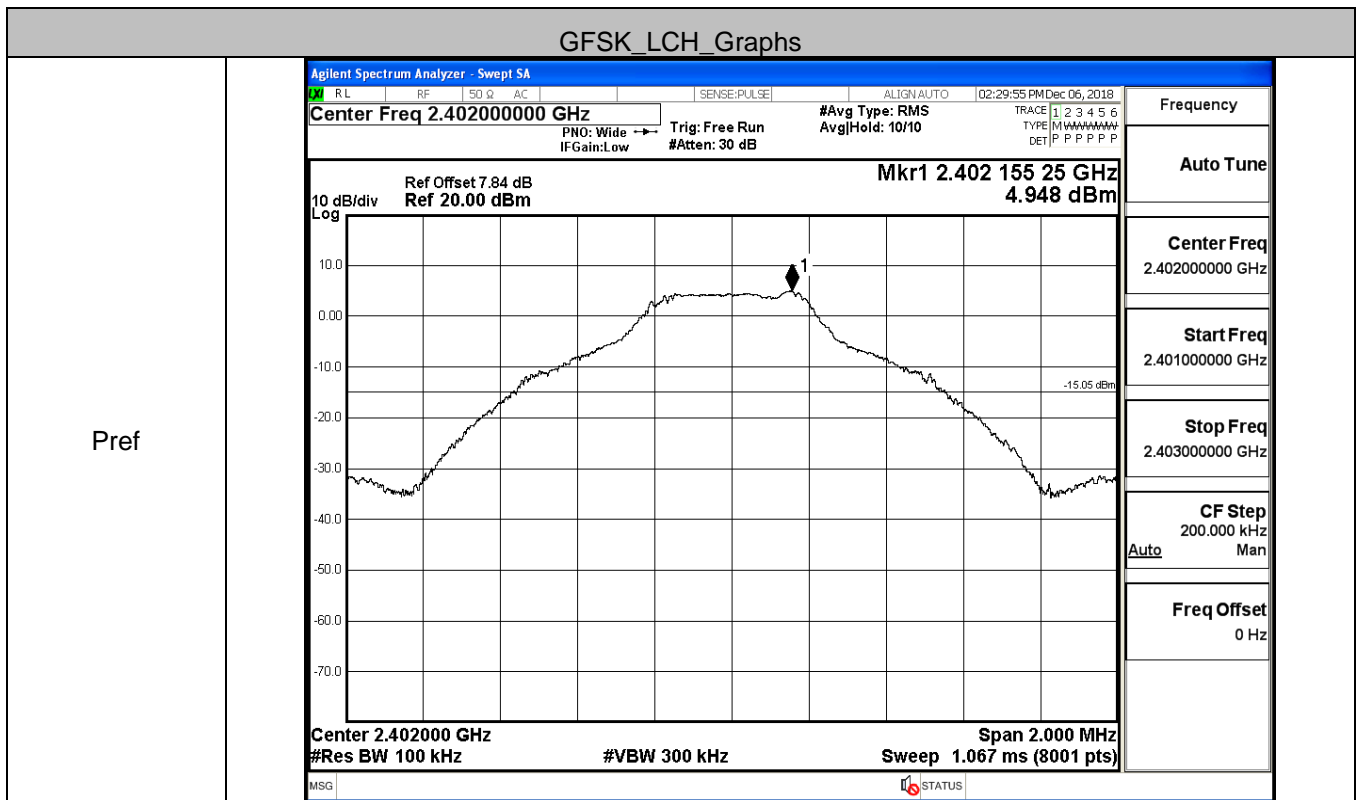
8DPSK_3DH5/HCH



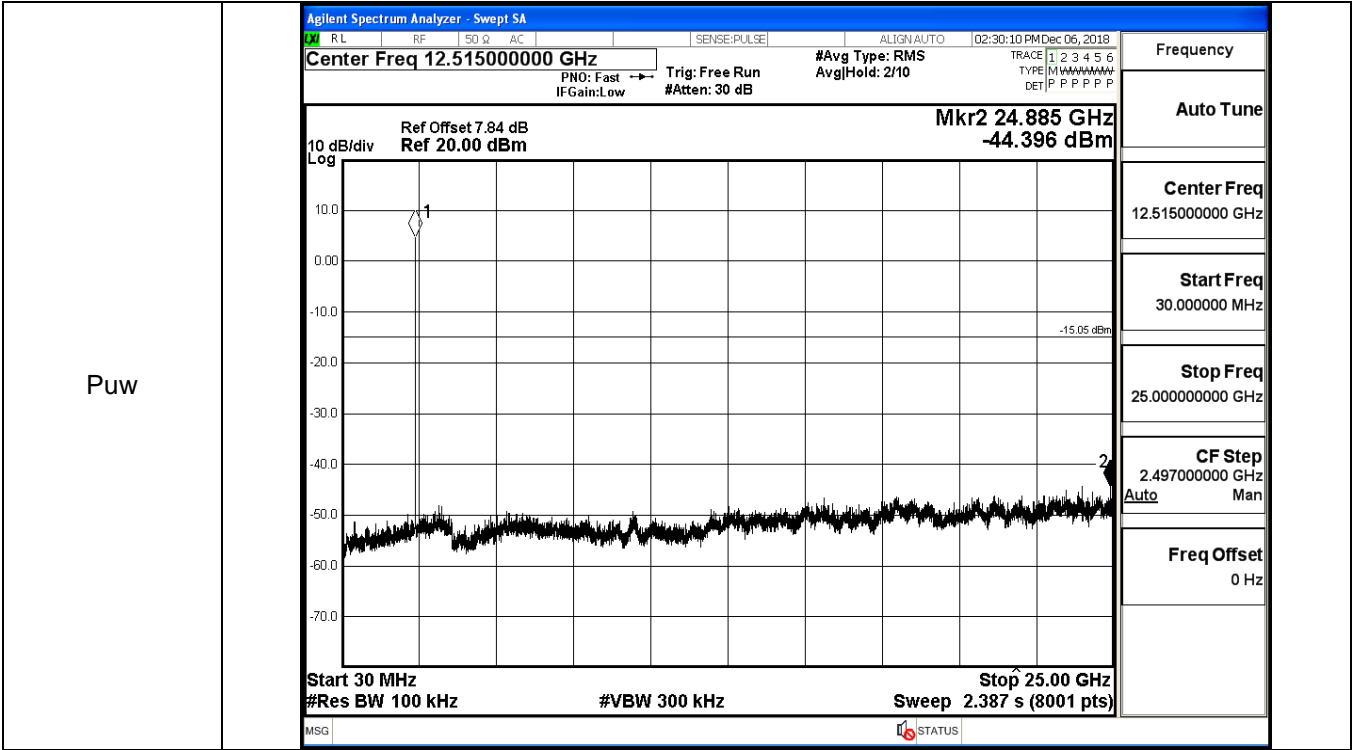
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	4.948	-44.396	-15.052	PASS
	MCH	5.012	-44.644	-14.988	PASS
	HCH	4.976	-44.900	-15.024	PASS
π /4DQPSK	LCH	3.109	-44.700	-16.891	PASS
	MCH	3.345	-45.428	-16.655	PASS
	HCH	3.716	-44.582	-16.284	PASS
8DPSK	LCH	3.305	-44.978	-16.695	PASS
	MCH	3.371	-44.798	-16.629	PASS
	HCH	3.693	-44.806	-16.307	PASS

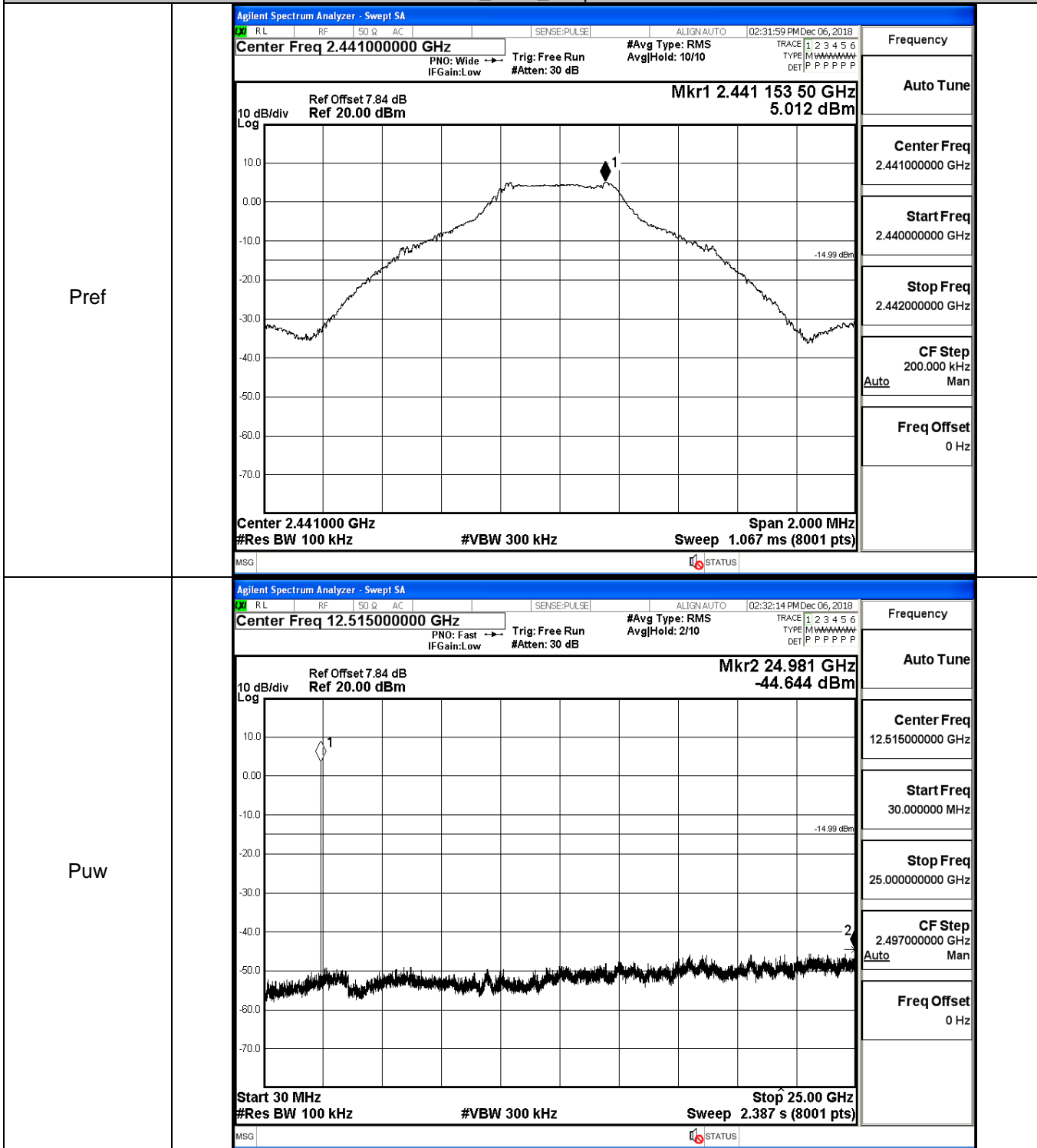
GFSK_LCH_Graphs



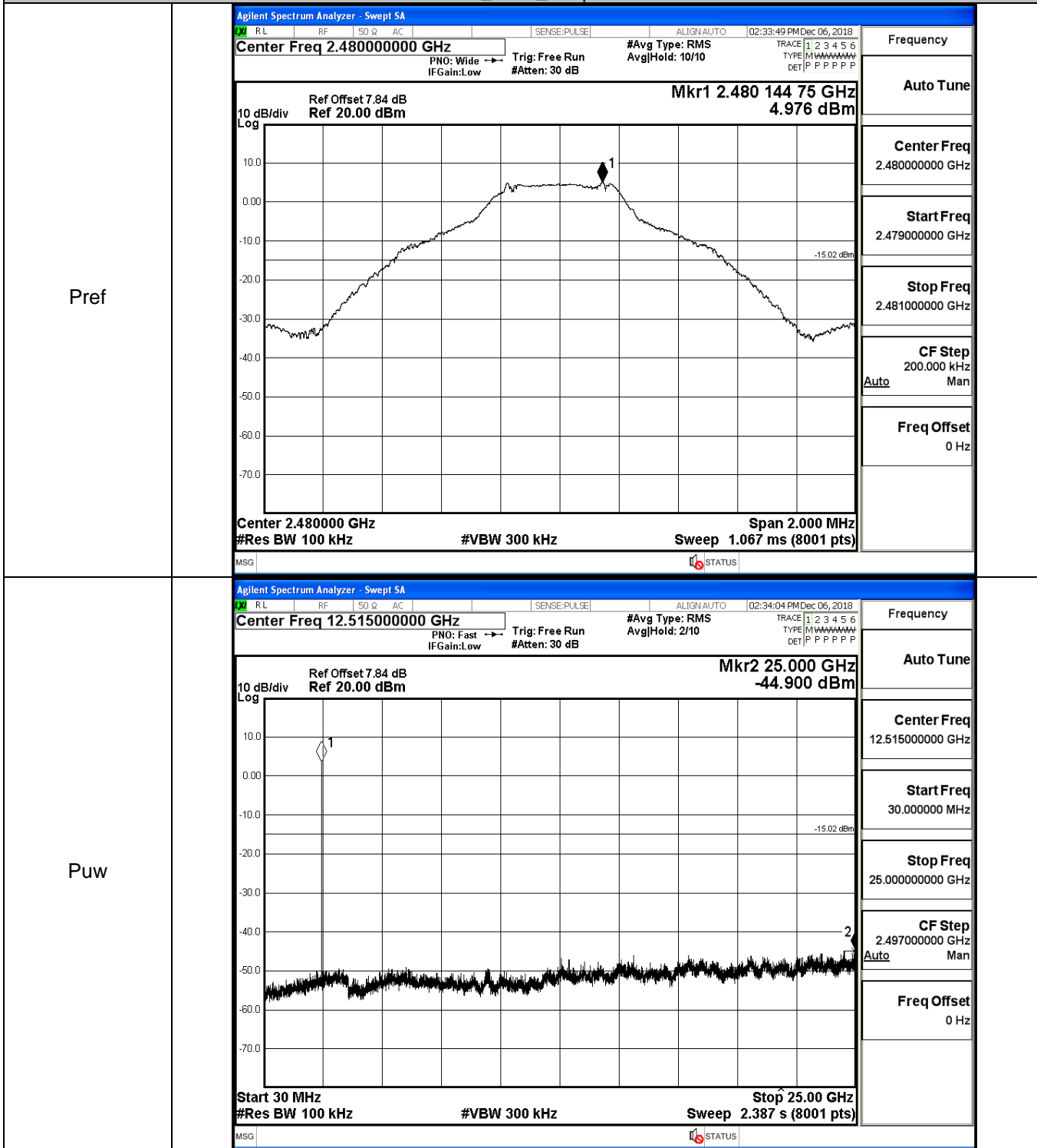
Pref



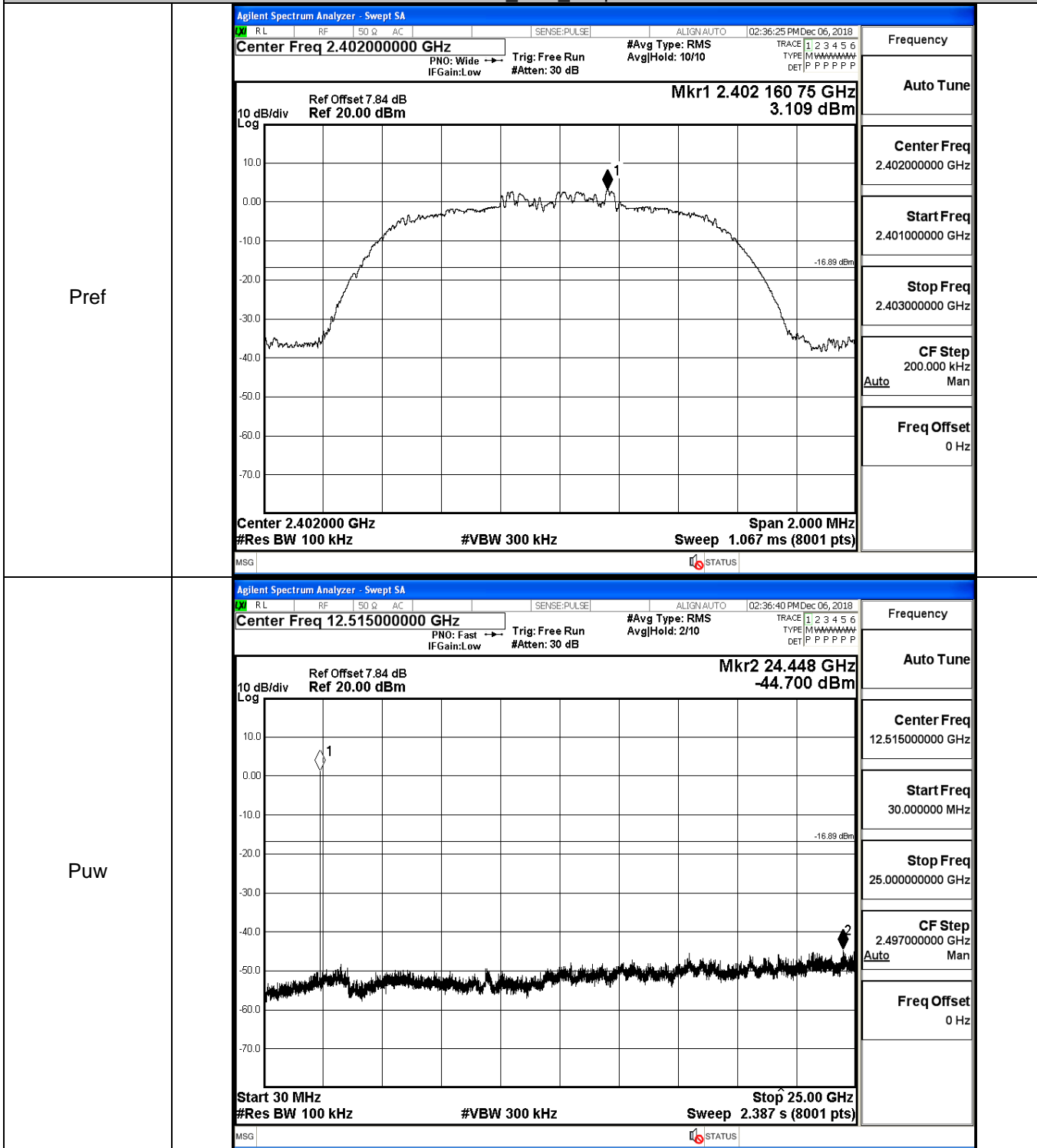
GFSK_MCH_Graphs



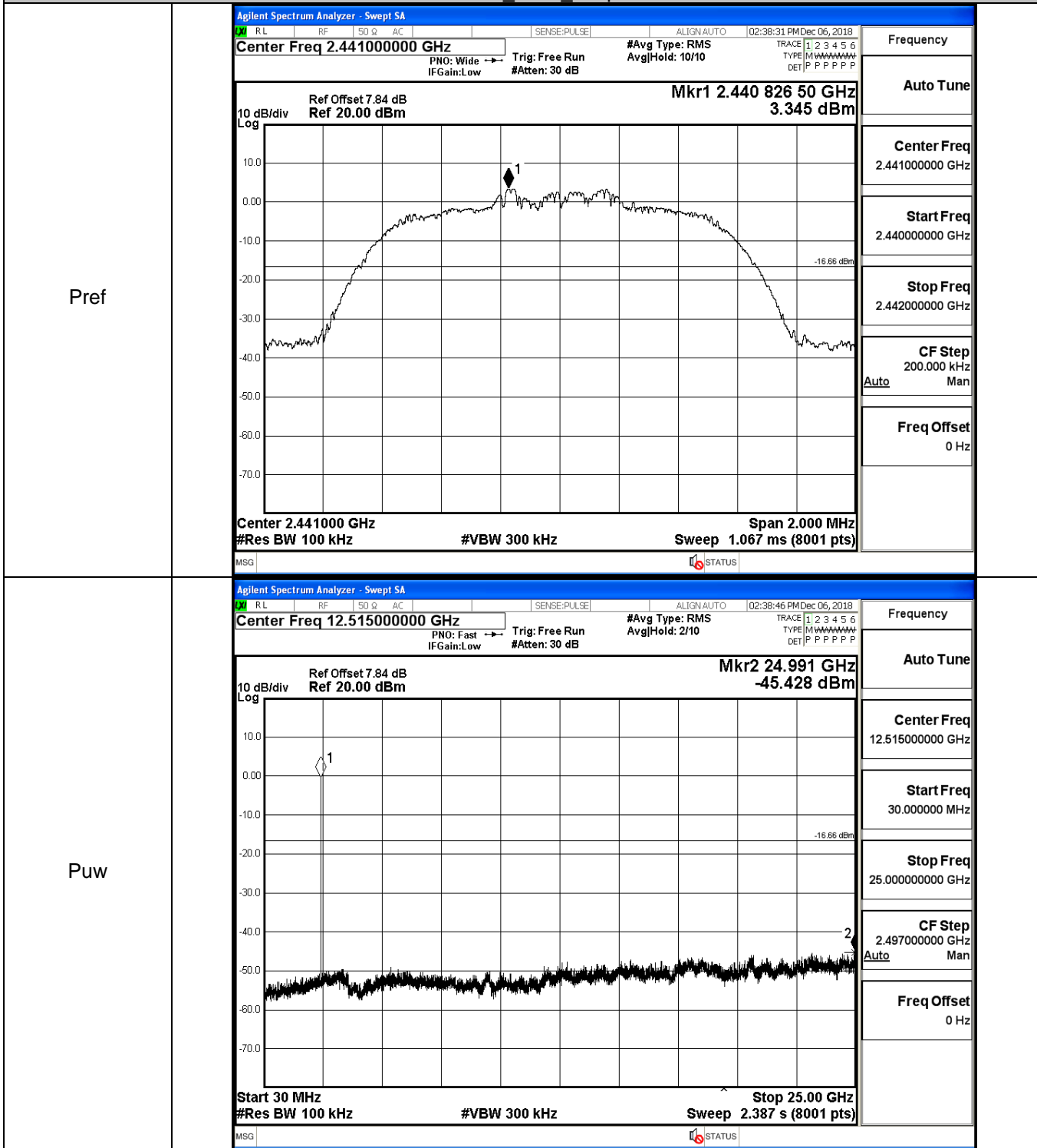
GFSK_HCH_Graphs



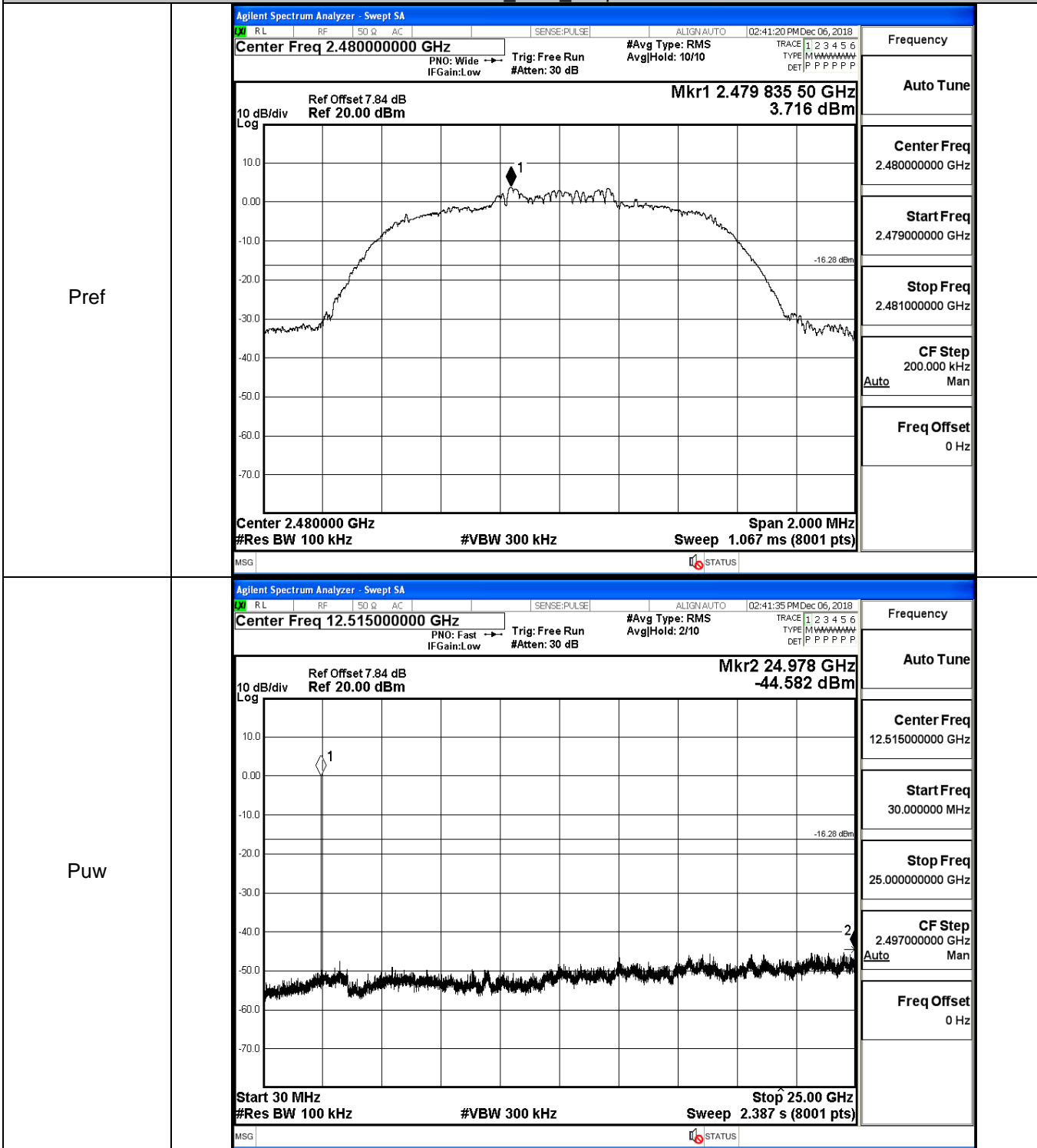
$\pi/4$ DQPSK_LCH_Graphs



$\pi/4$ DQPSK_MCH_Graphs

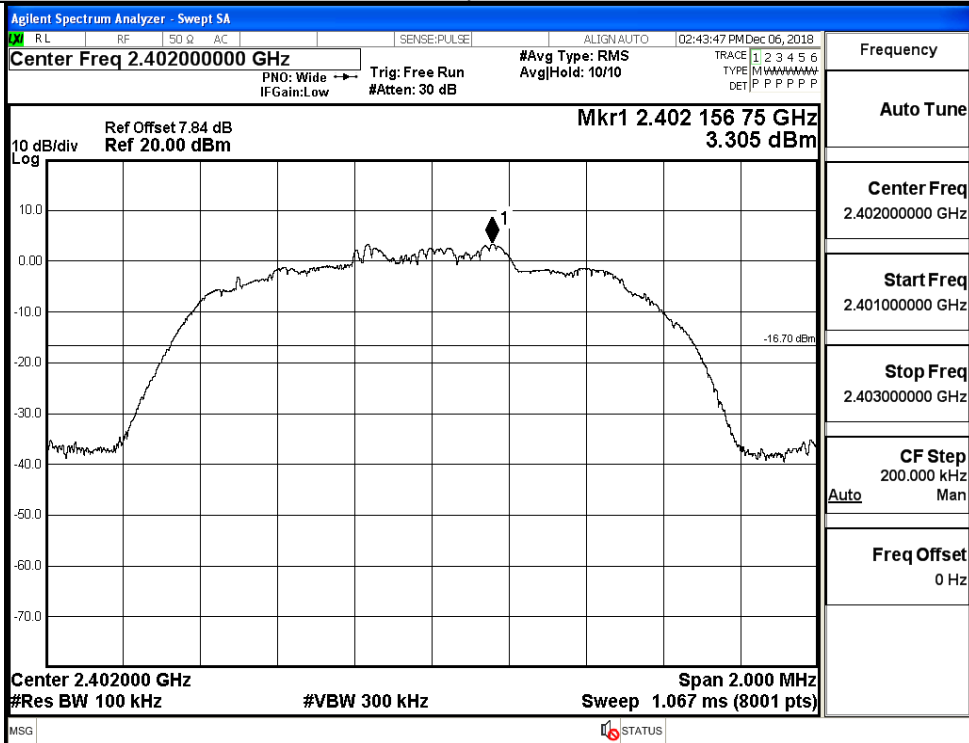


$\pi/4$ DQPSK_HCH_Graphs

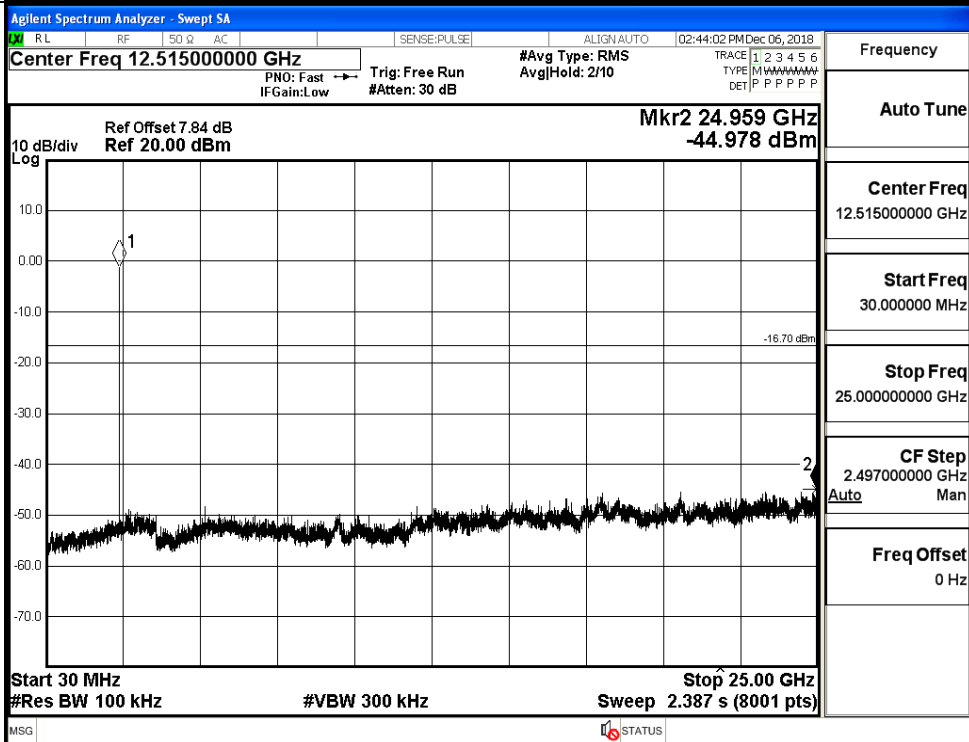


8DPSK_LCH_Graphs

Pref

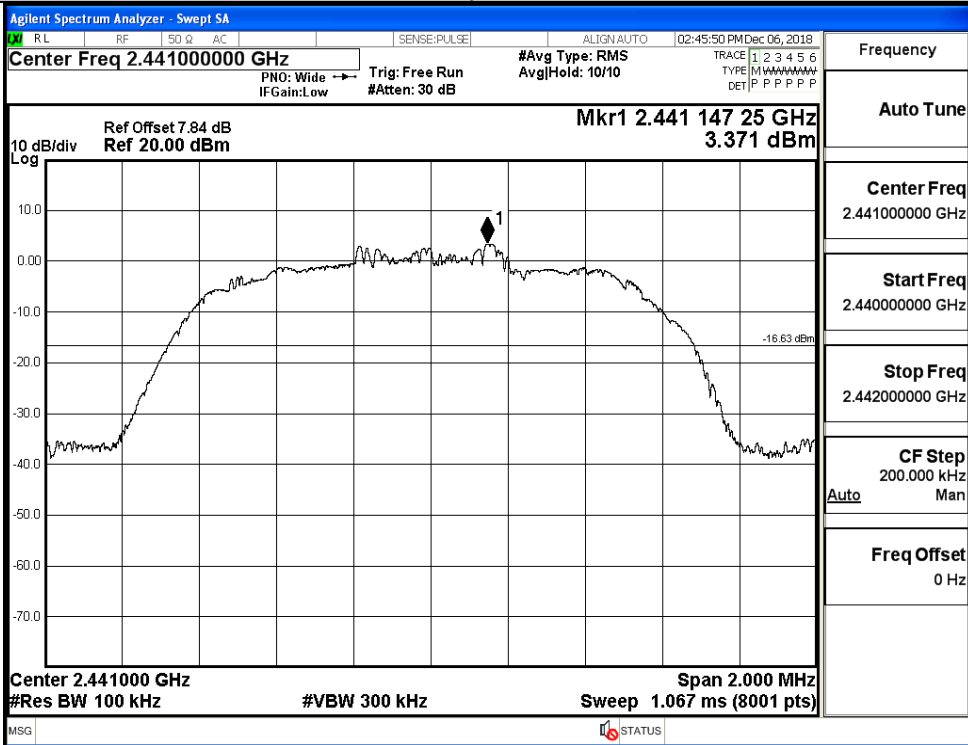


Puw

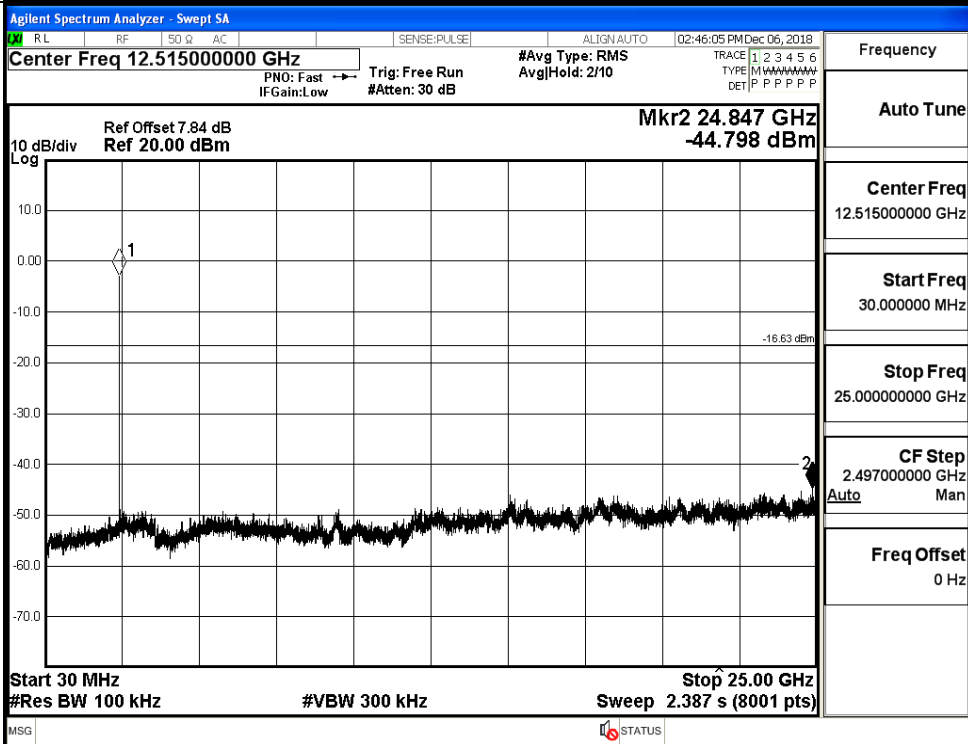


8DPSK_MCH_Graphs

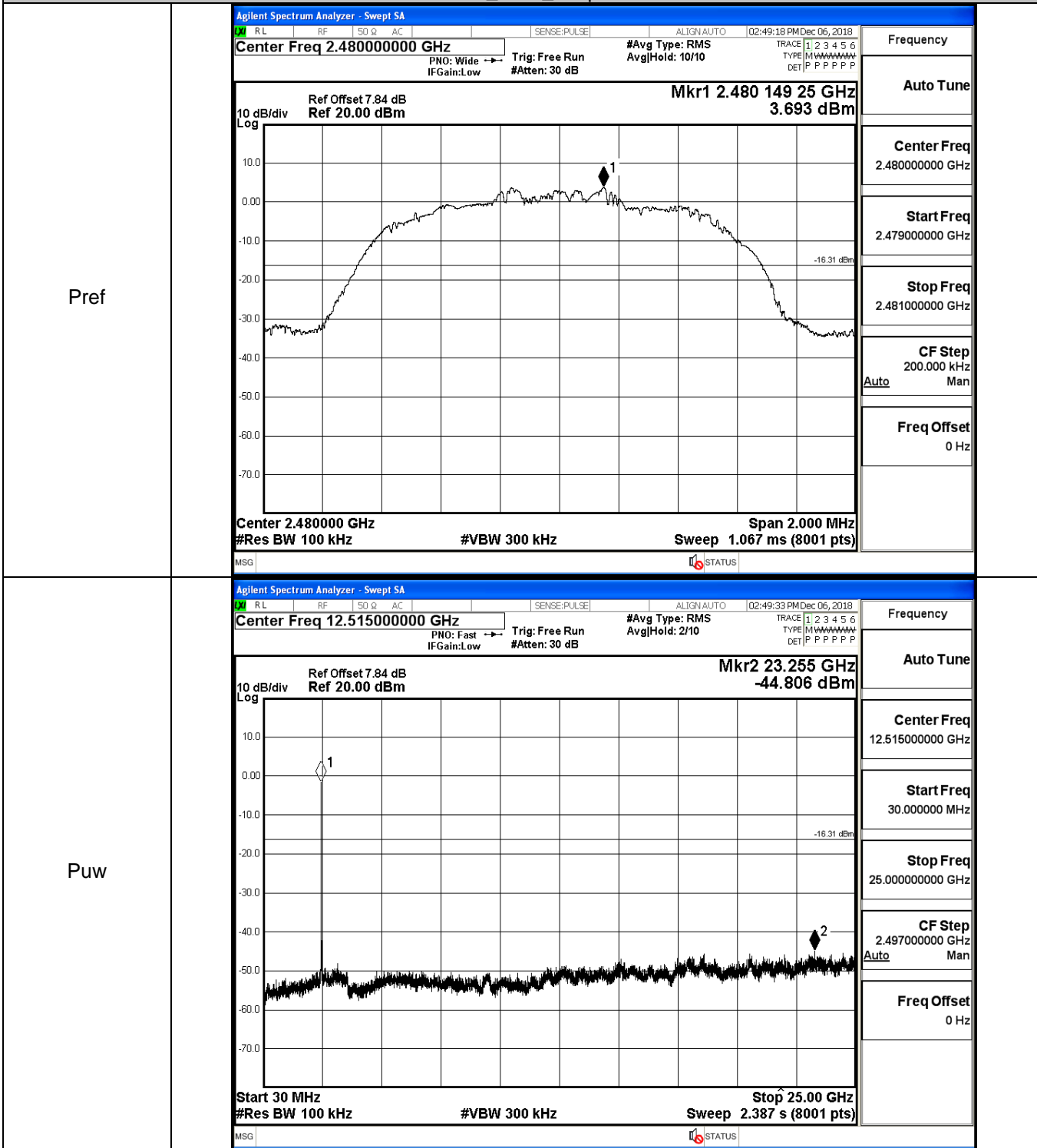
Pref



Puw



8DPSK_HCH_Graphs

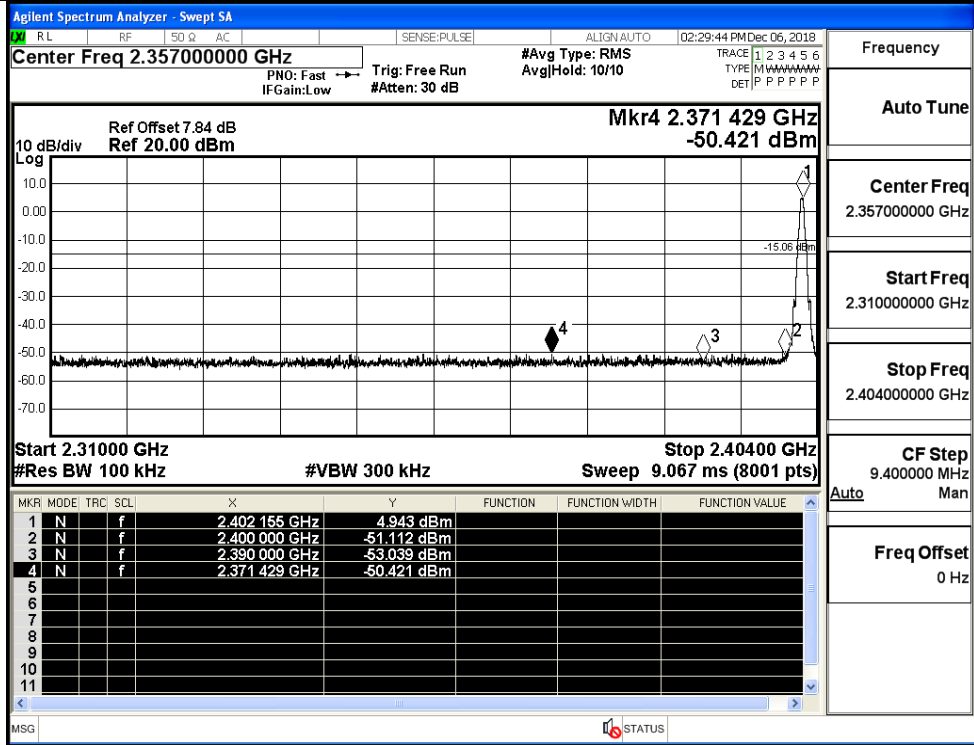


A.7 Band-edge for RF Conducted Emissions

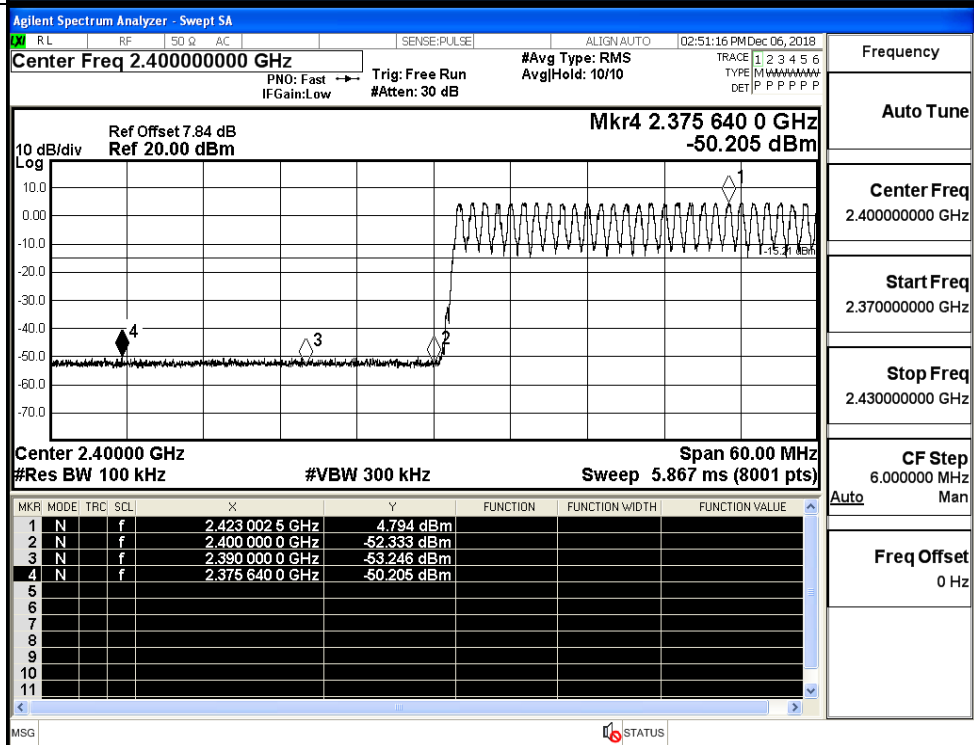
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	4.943	Off	-50.421	-15.06	PASS
			4.794	On	-50.205	-15.21	PASS
	HCH	2480	5.005	Off	-50.096	-15	PASS
			5.042	On	-49.589	-14.96	PASS
$\pi/4$ DQPSK	LCH	2402	2.610	Off	-50.283	-17.39	PASS
			3.275	On	-49.351	-16.73	PASS
	HCH	2480	3.560	Off	-50.390	-16.44	PASS
			3.731	On	-49.451	-16.27	PASS
8DPSK	LCH	2402	3.321	Off	-50.048	-16.68	PASS
			3.299	On	-49.764	-16.7	PASS
	HCH	2480	3.684	Off	-39.744	-16.32	PASS
			3.600	On	-49.596	-16.4	PASS

Test Graphs

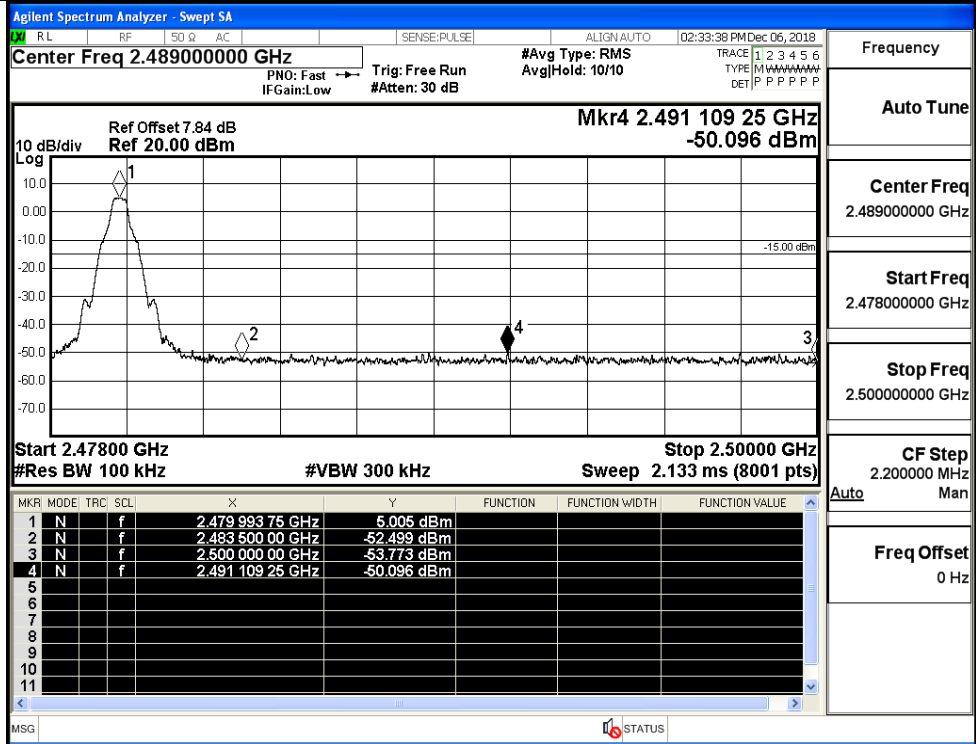
GFSK/LCH/No Hop



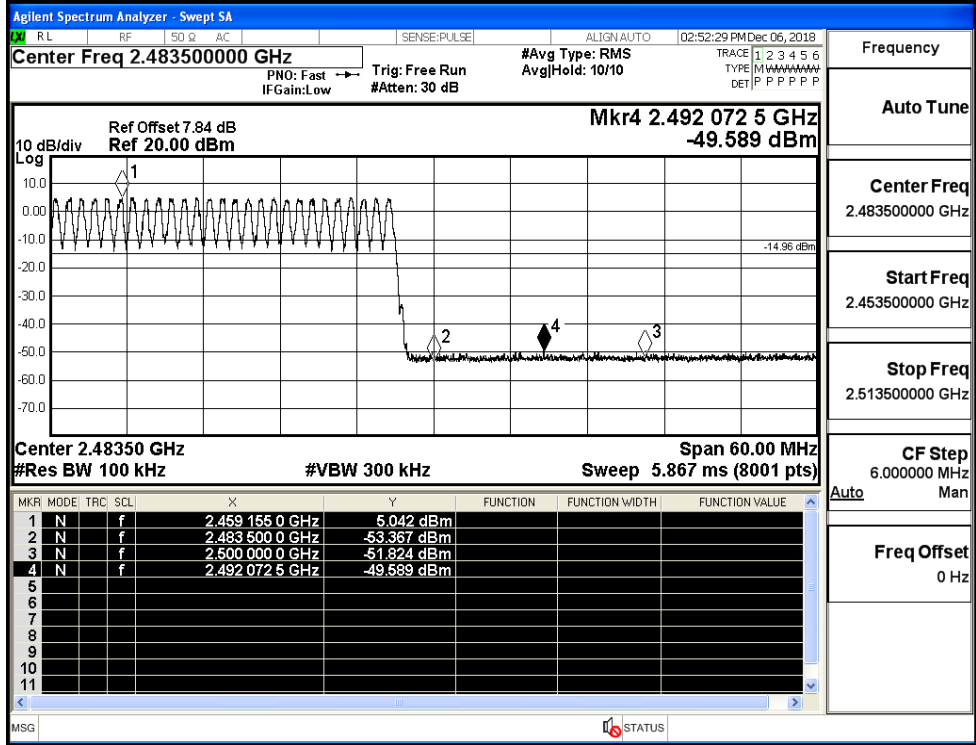
GFSK/LCH/Hop



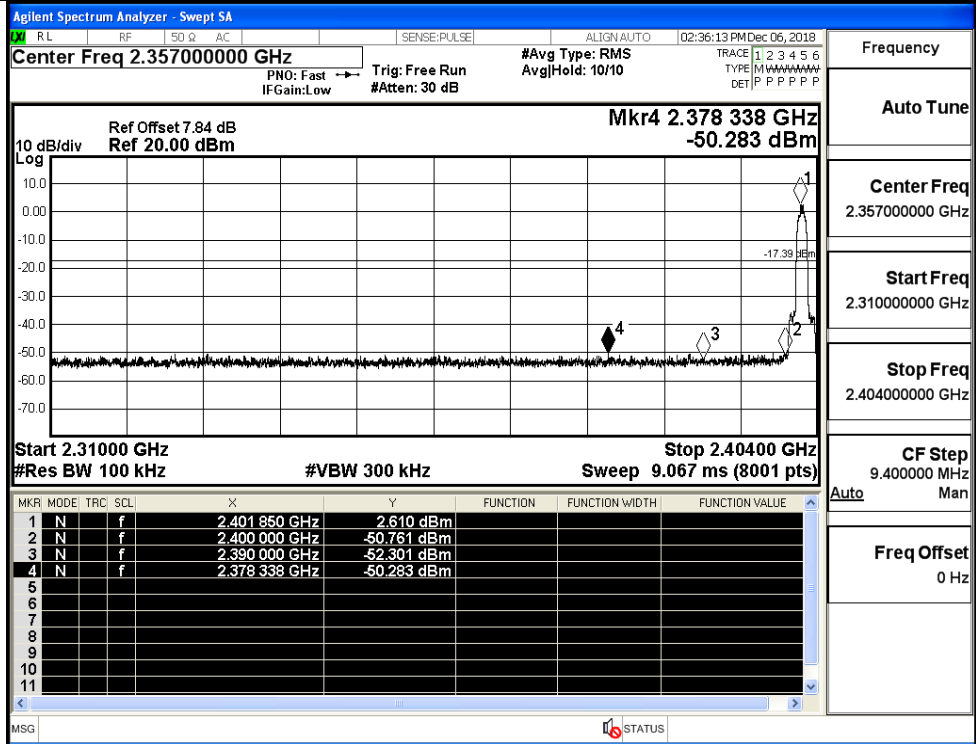
GFSK/HCH/No Hop



GFSK/HCH/Hop

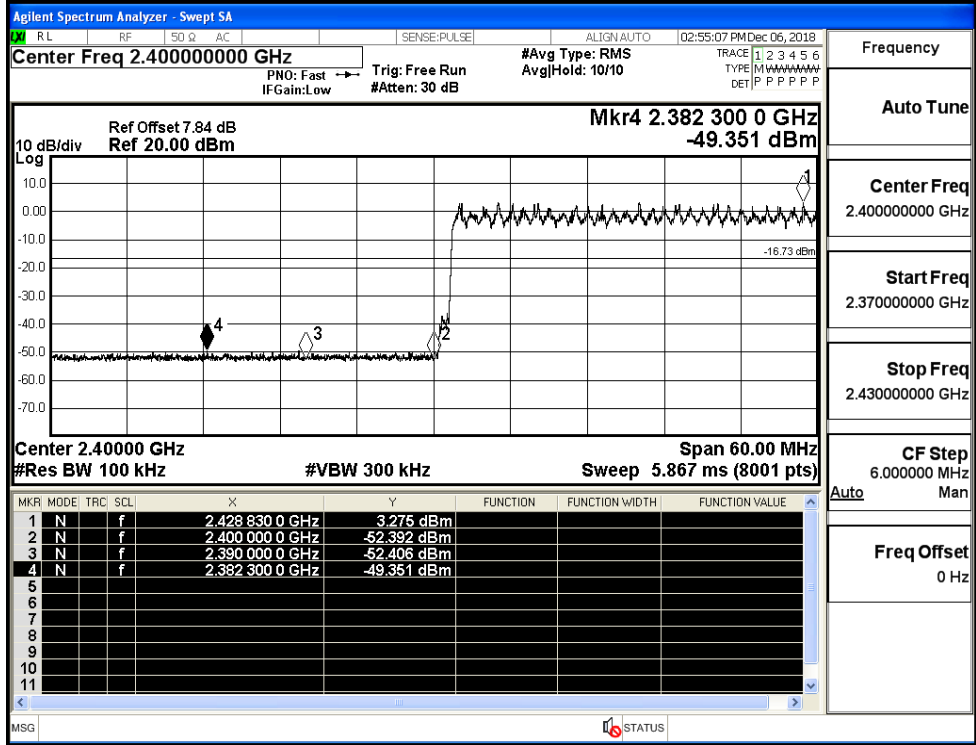


$\pi/4$ DQPSK/LCH/No
Hop



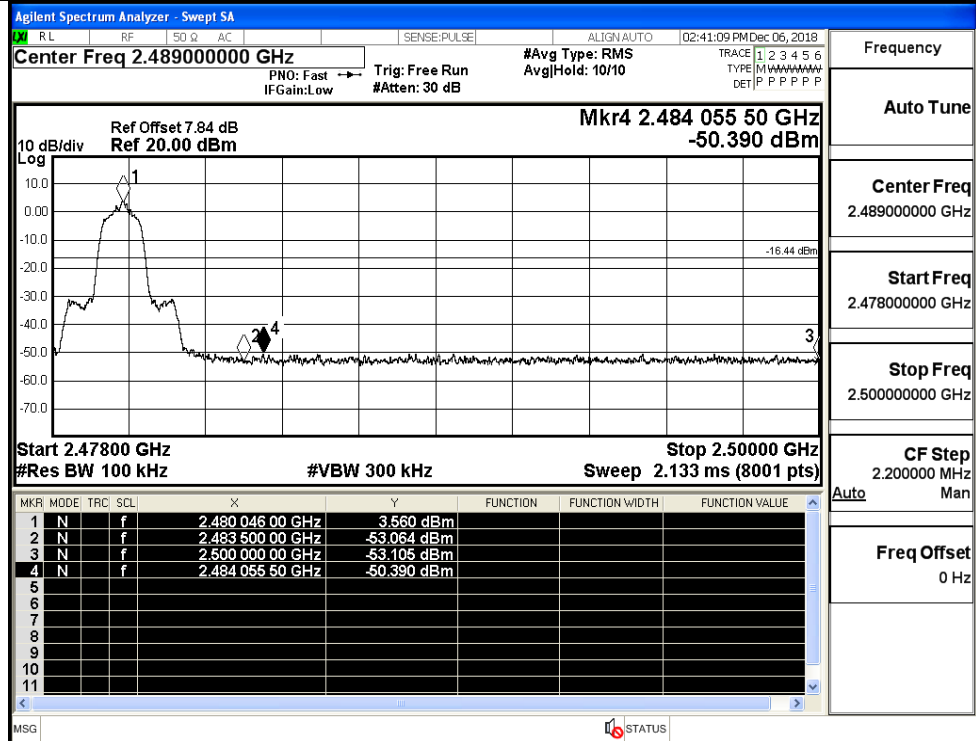
Frequency	
Auto Tune	
Center Freq	2.357000000 GHz
Start Freq	2.310000000 GHz
Stop Freq	2.404000000 GHz
CF Step	9.400000 MHz
Freq Offset	0 Hz

$\pi/4$ DQPSK/LCH/Hop

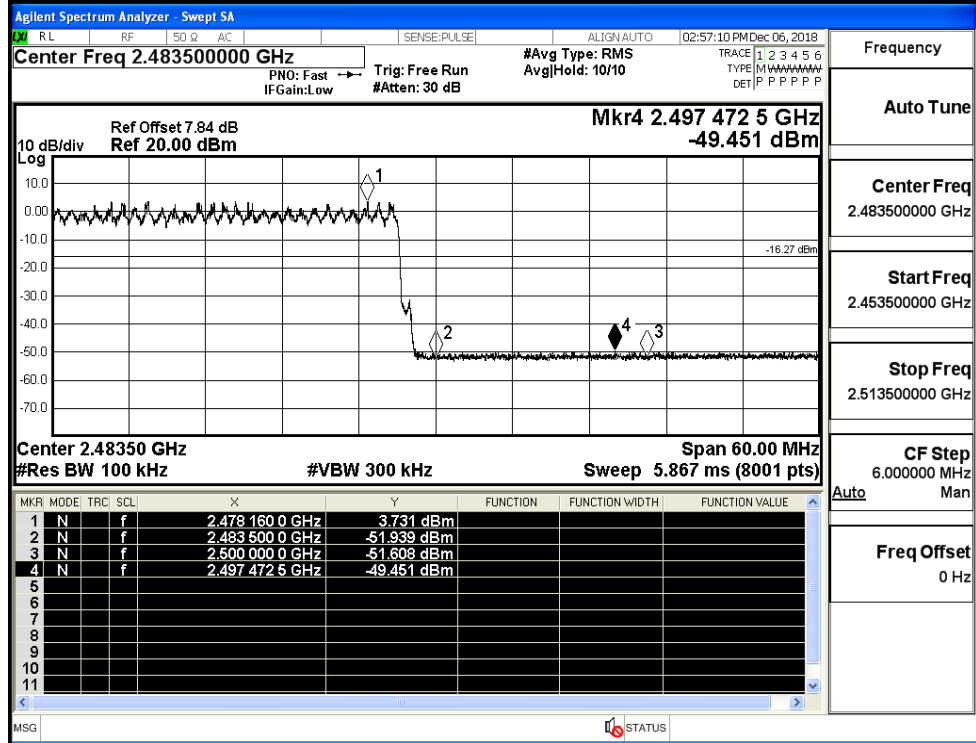


Frequency	
Auto Tune	
Center Freq	2.400000000 GHz
Start Freq	2.370000000 GHz
Stop Freq	2.430000000 GHz
CF Step	6.000000 MHz
Freq Offset	0 Hz

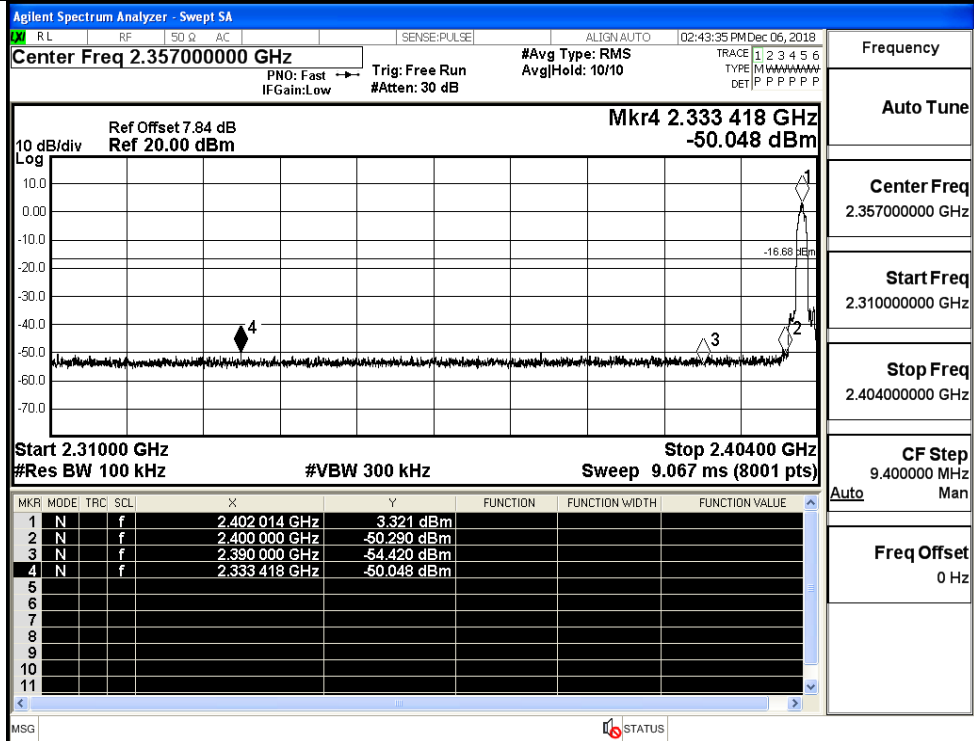
$\pi/4$ DQPSK/HCH/No
Hop



$\pi/4$ DQPSK/HCH/Hop

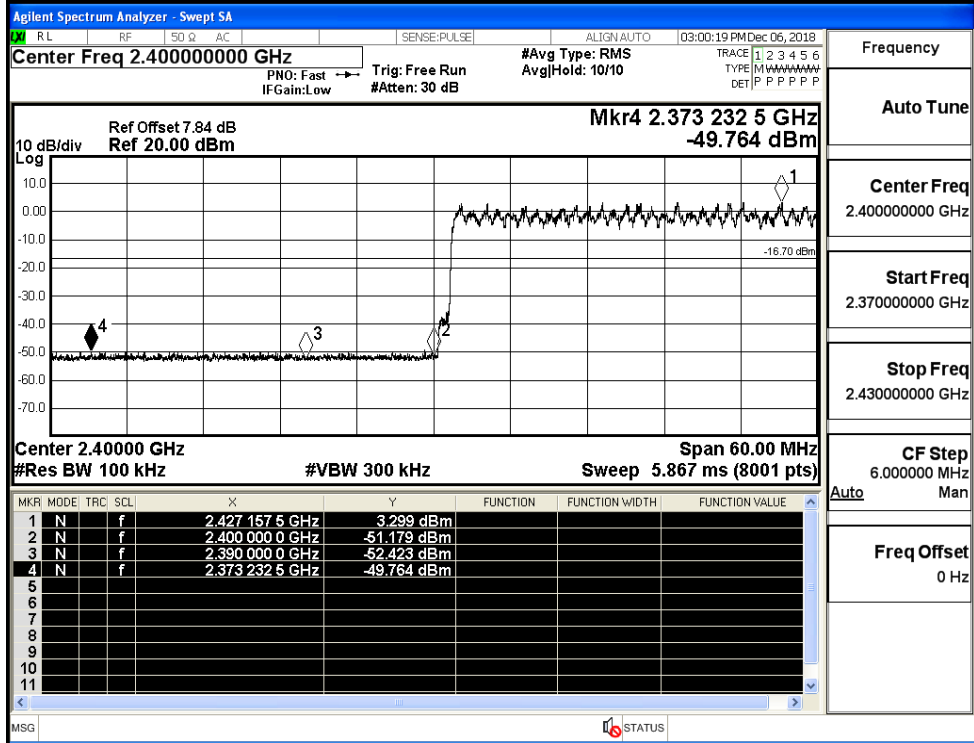


8DPSK/LCH/No Hop



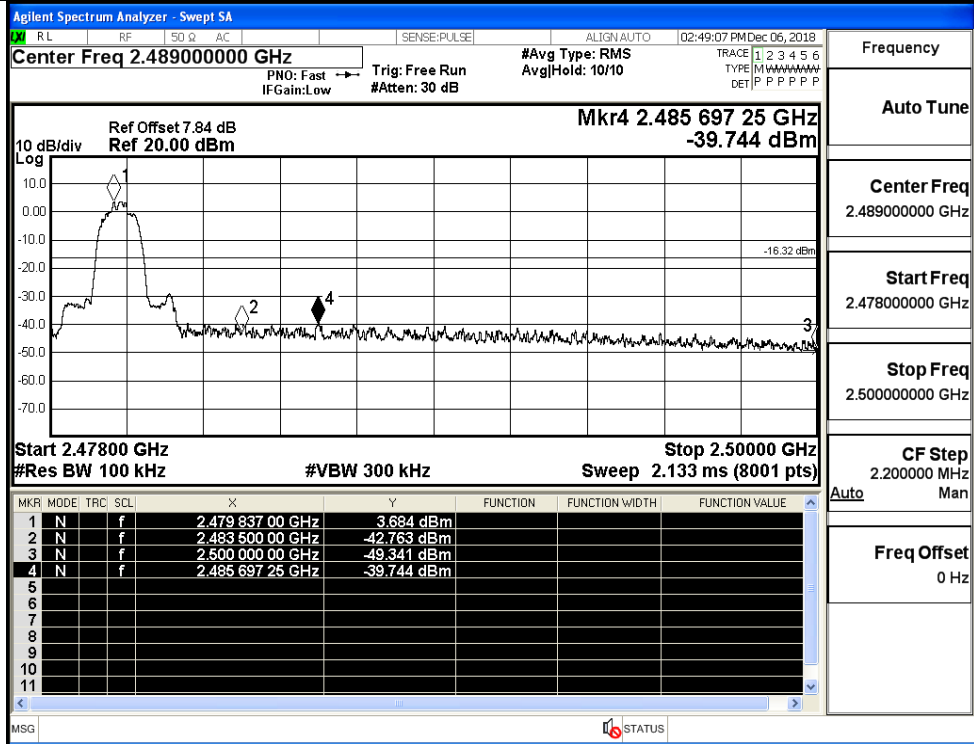
Frequency	
Auto Tune	
Center Freq	2.357000000 GHz
Start Freq	2.310000000 GHz
Stop Freq	2.404000000 GHz
CF Step	9.400000 MHz
Auto	Man
Freq Offset	0 Hz

8DPSK/LCH/Hop



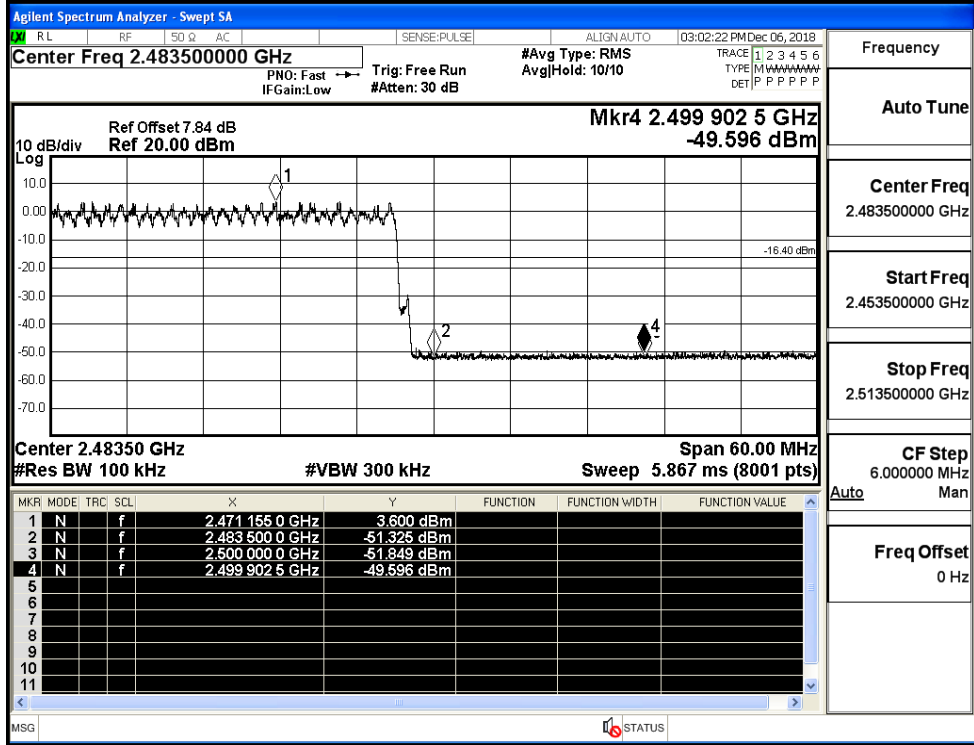
Frequency	
Auto Tune	
Center Freq	2.400000000 GHz
Start Freq	2.370000000 GHz
Stop Freq	2.430000000 GHz
CF Step	6.000000 MHz
Auto	Man
Freq Offset	0 Hz

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

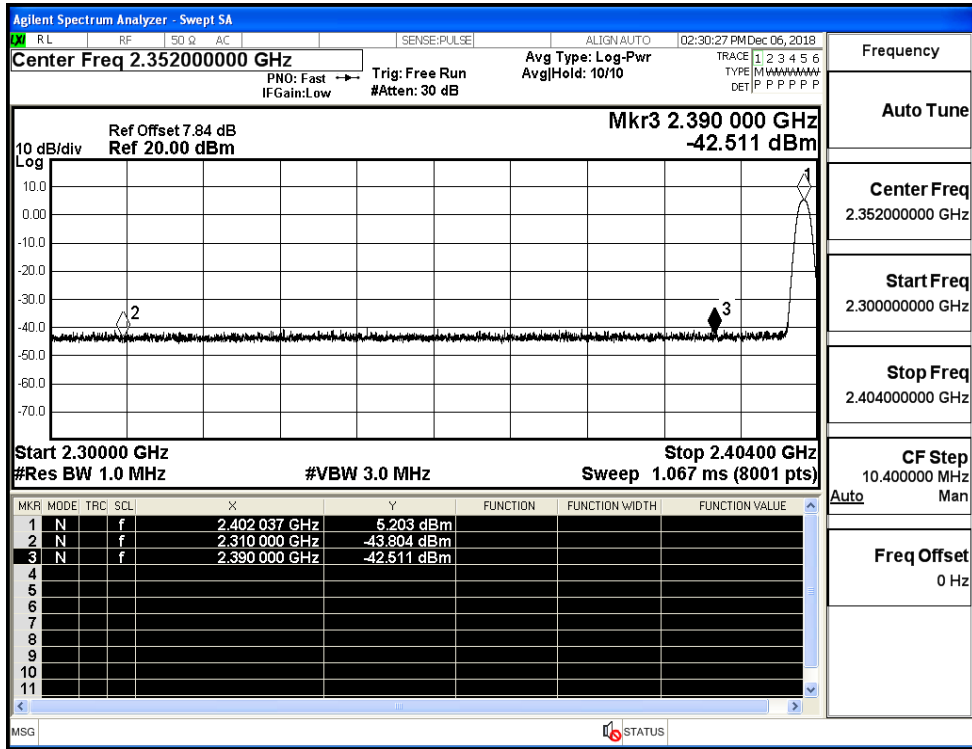


Frequency
Auto Tune
Center Freq 2.483500000 GHz
Start Freq 2.453500000 GHz
Stop Freq 2.513500000 GHz
CF Step 6.000000 MHz
Freq Offset 0 Hz

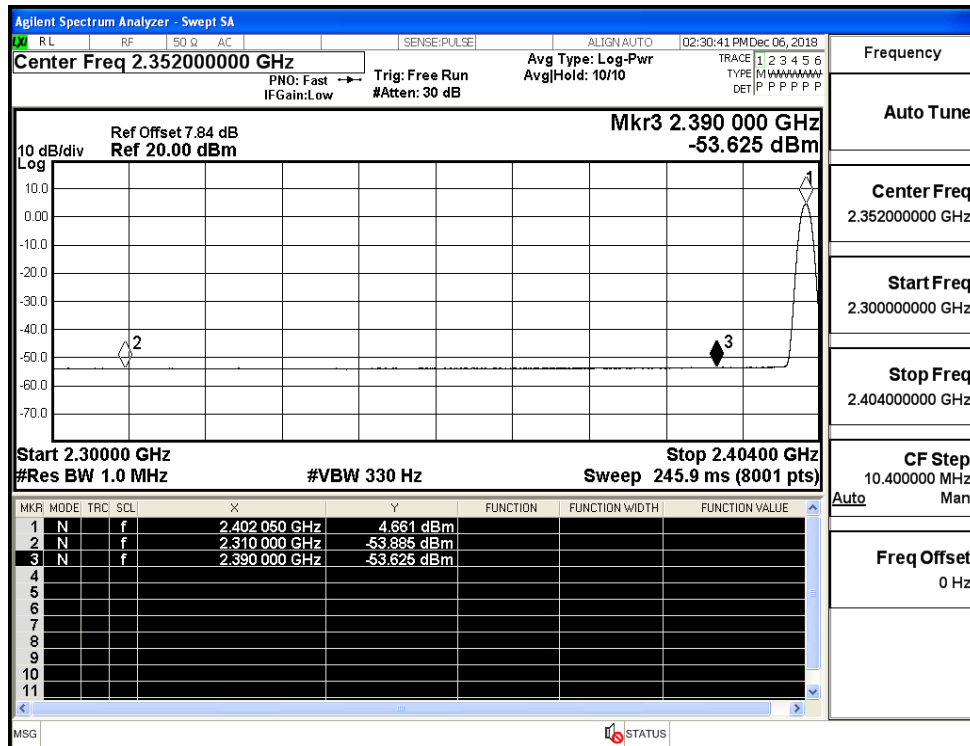
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.80	2.0	0	53.45	PEAK	74	PASS
	Off	2310.0	-53.89	2.0	0	43.37	AV	54	PASS
	Off	2390.0	-42.51	2.0	0	54.75	PEAK	74	PASS
	Off	2390.0	-53.63	2.0	0	43.63	AV	54	PASS
	Off	2483.5	-42.01	2.0	0	55.25	PEAK	74	PASS
	Off	2483.5	-53.05	2.0	0	44.21	AV	54	PASS
	Off	2500.0	-44.49	2.0	0	52.77	PEAK	74	PASS
	Off	2500.0	-53.25	2.0	0	44.01	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.06	2.0	0	55.20	PEAK	74	PASS
	Off	2310.0	-53.85	2.0	0	43.41	AV	54	PASS
	Off	2390.0	-42.58	2.0	0	54.68	PEAK	74	PASS
	Off	2390.0	-53.65	2.0	0	43.60	AV	54	PASS
	Off	2483.5	-43.16	2.0	0	54.09	PEAK	74	PASS
	Off	2483.5	-53.10	2.0	0	44.16	AV	54	PASS
	Off	2500.0	-42.67	2.0	0	54.59	PEAK	74	PASS
	Off	2500.0	-53.32	2.0	0	43.93	AV	54	PASS
8DPSK	Off	2310.0	-44.62	2.0	0	52.64	PEAK	74	PASS
	Off	2310.0	-53.95	2.0	0	43.31	AV	54	PASS
	Off	2390.0	-42.90	2.0	0	54.36	PEAK	74	PASS
	Off	2390.0	-53.48	2.0	0	43.78	AV	54	PASS
	Off	2483.5	-26.75	2.0	0	70.51	PEAK	74	PASS
	Off	2483.5	-52.02	2.0	0	45.24	AV	54	PASS
	Off	2500.0	-32.27	2.0	0	64.99	PEAK	74	PASS
	Off	2500.0	-52.75	2.0	0	44.51	AV	54	PASS

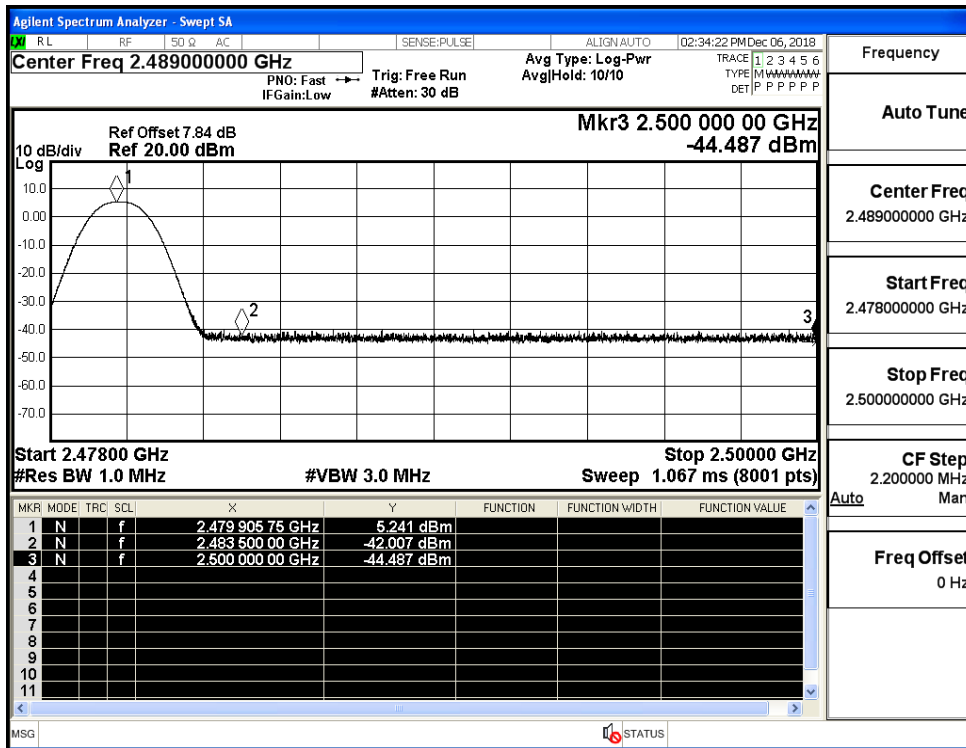
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



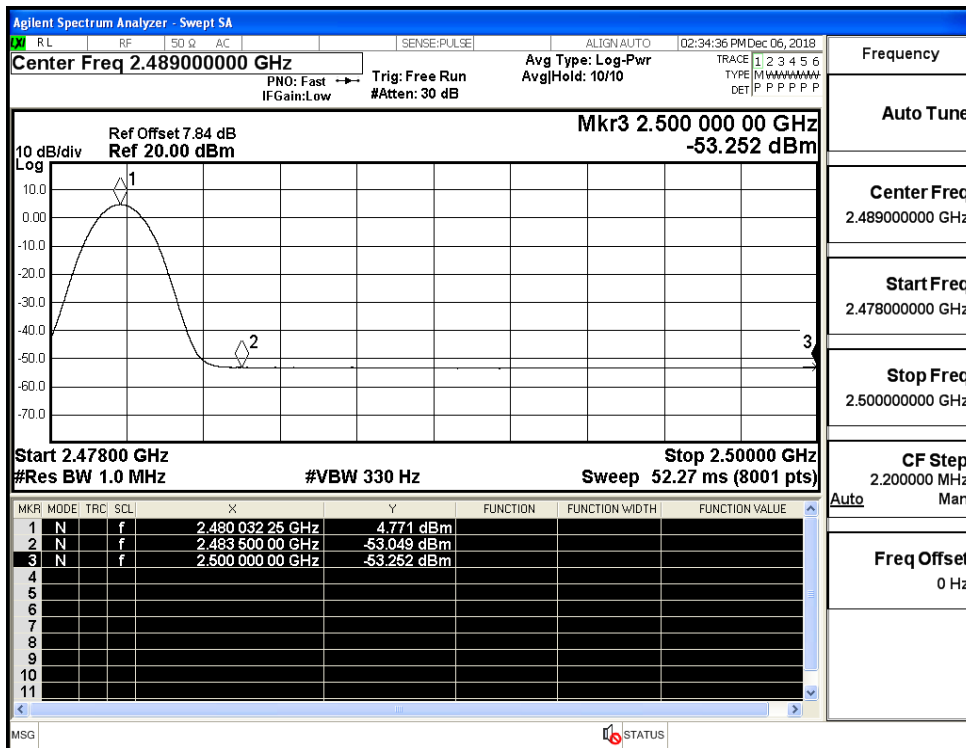
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



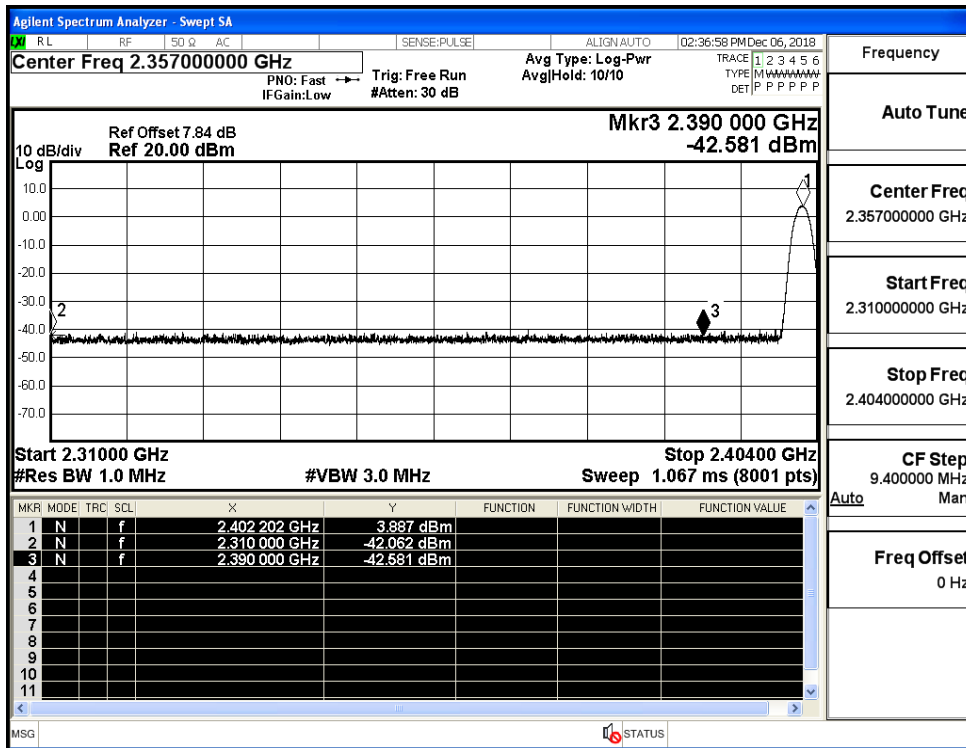
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



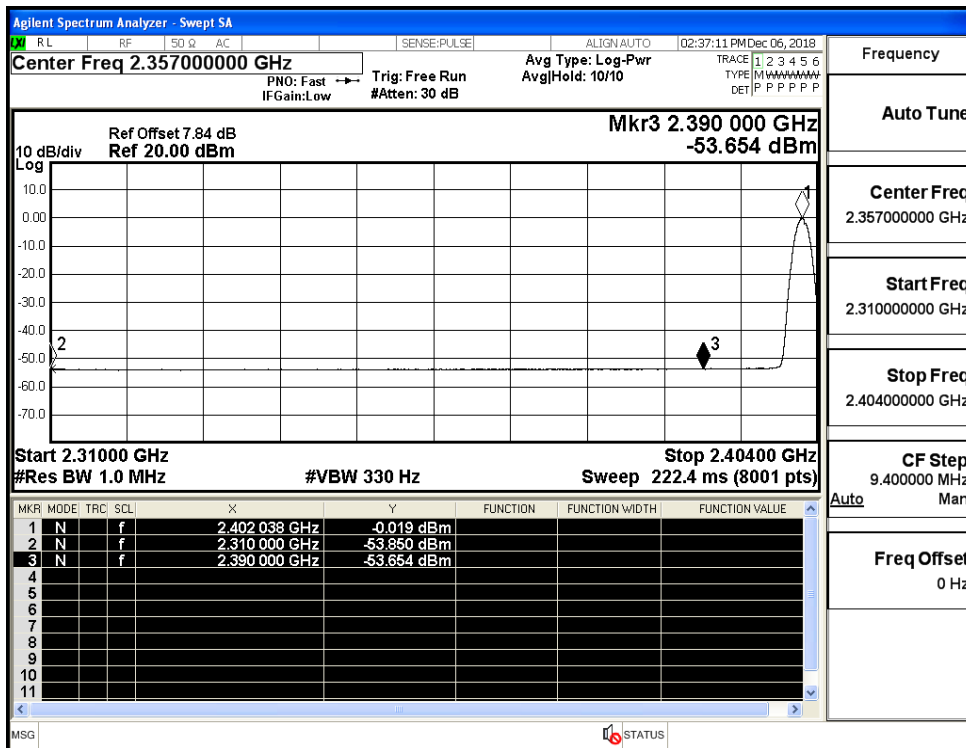
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



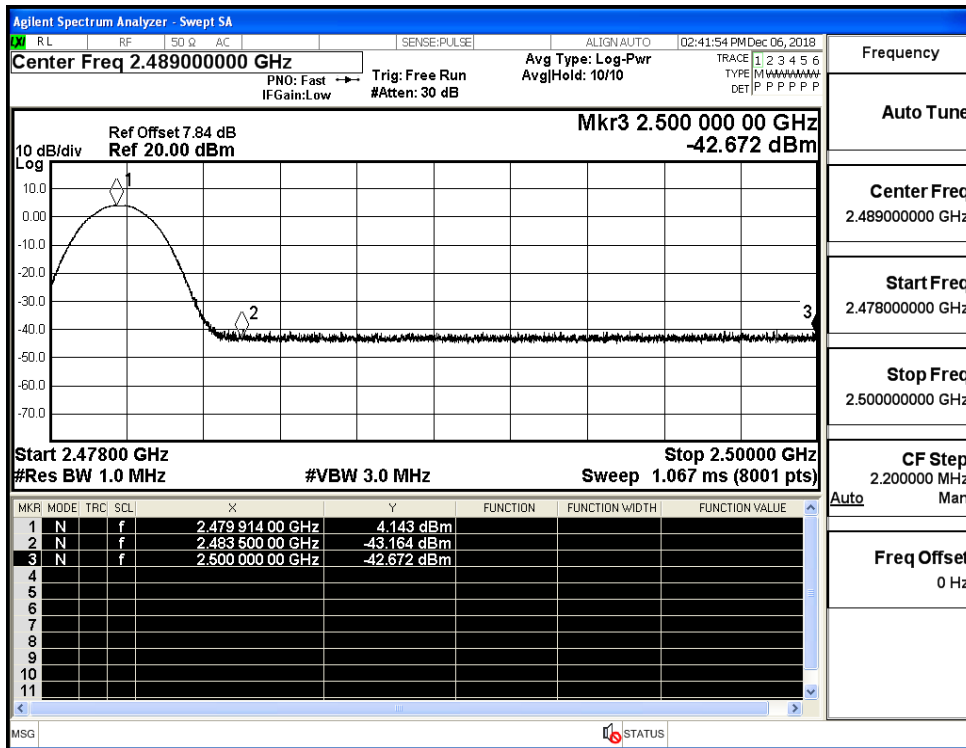
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)



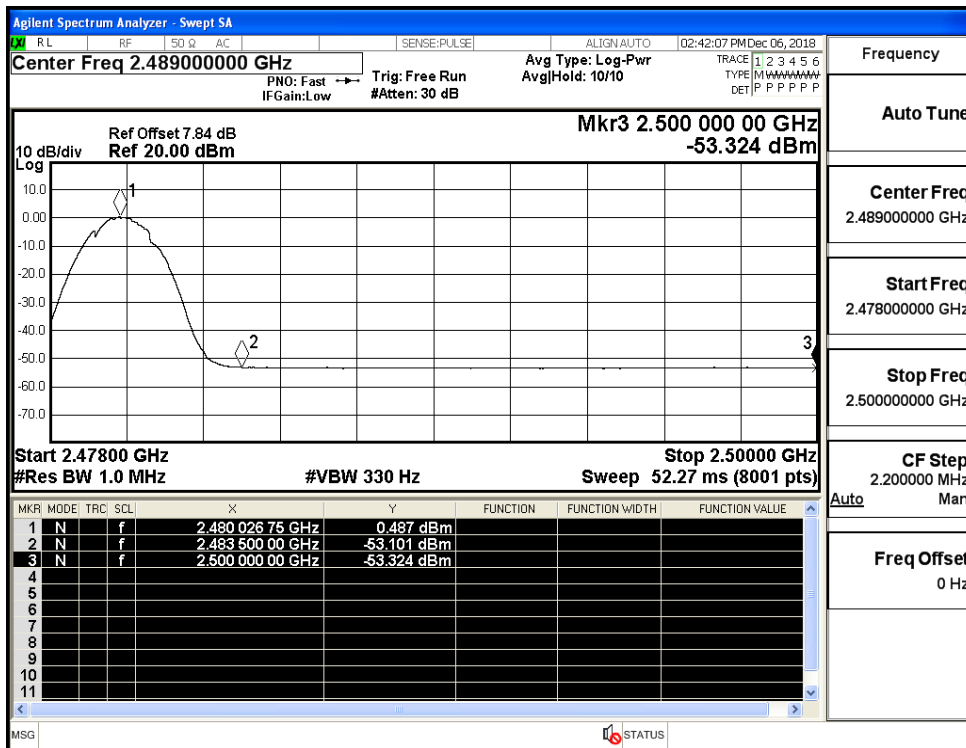
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)



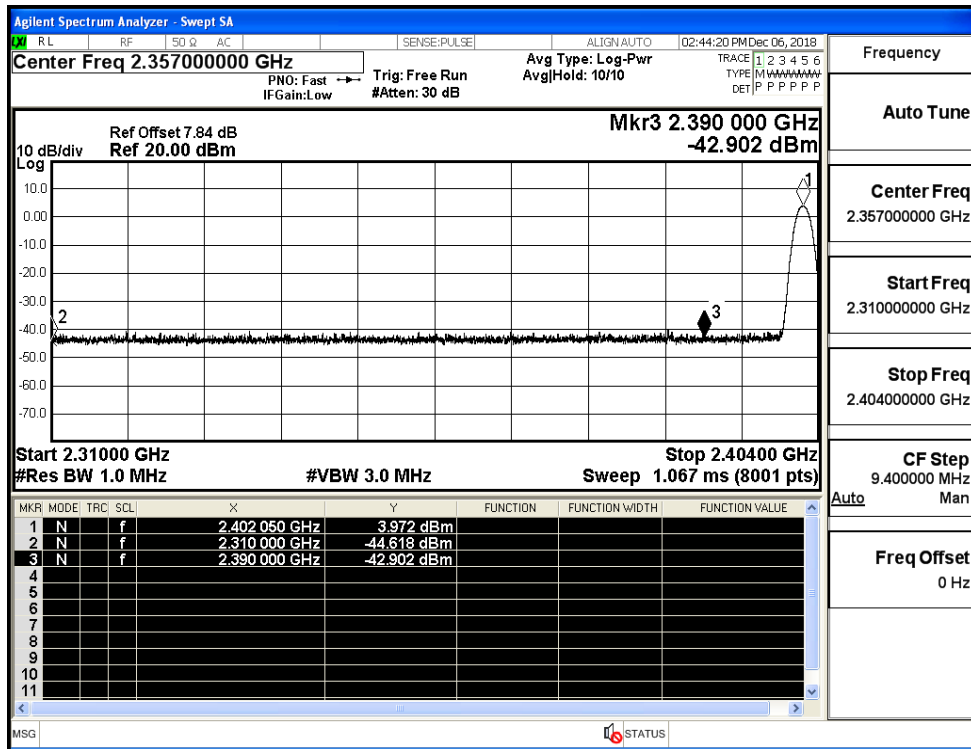
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



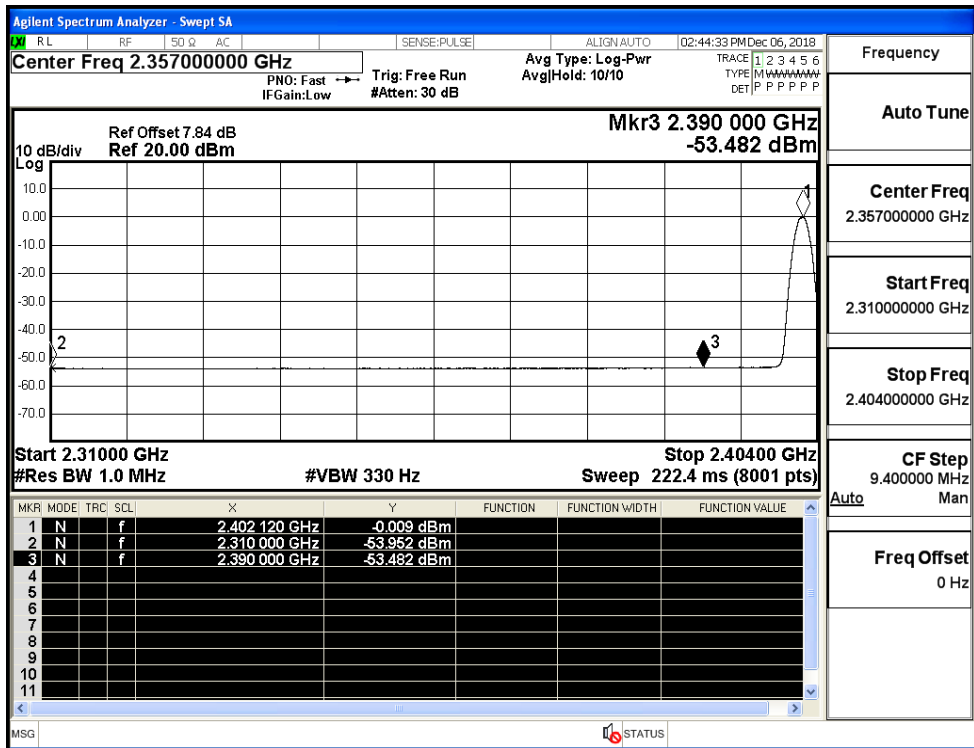
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



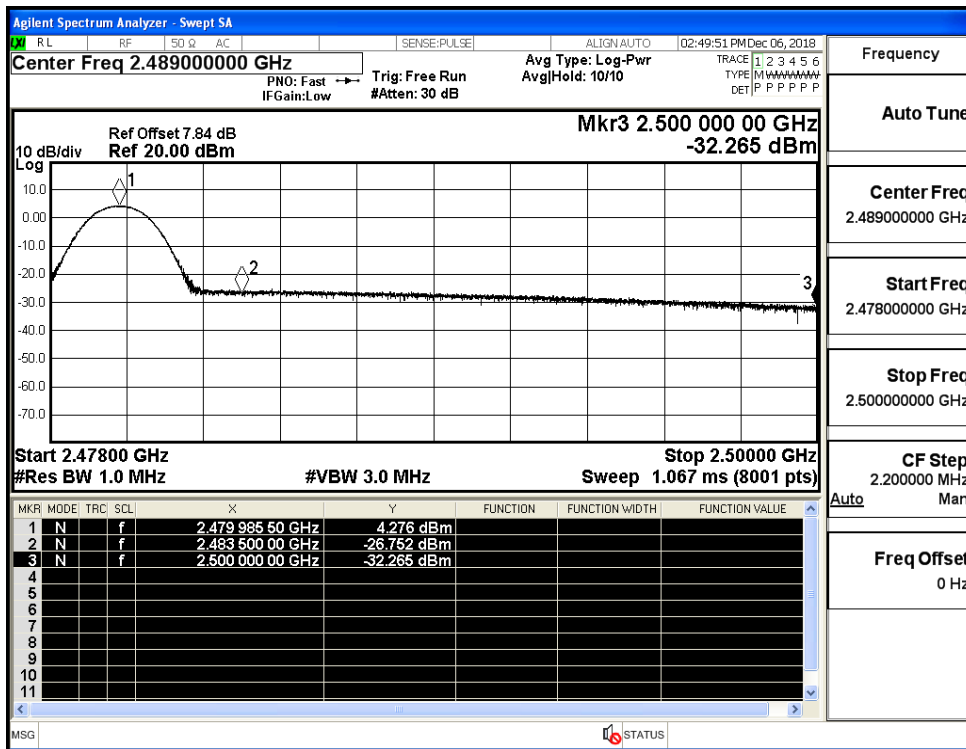
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

