

Appendix A

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

Product Name: Bluetooth earphone

Trade Mark: IVANTE

Test Model: S2

Environmental Conditions

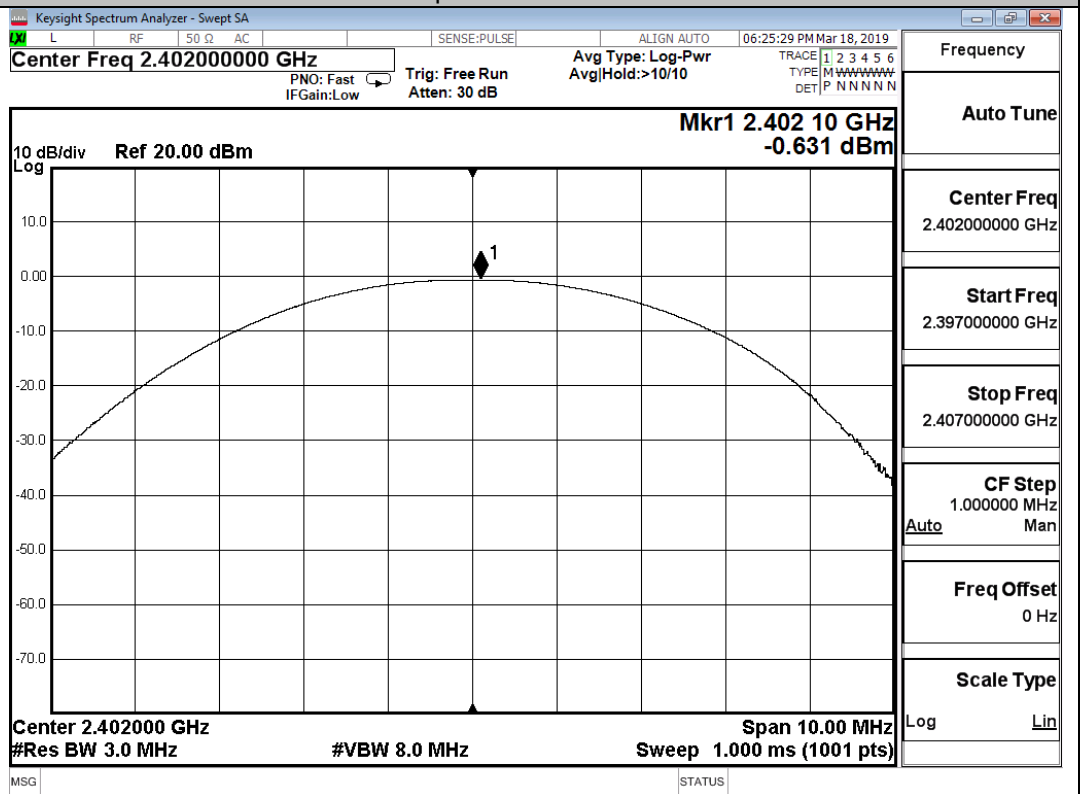
Temperature:	23.4 ° C
Relative Humidity:	65%
ATM Pressure:	100.0 kPa
Test Engineer:	AKING JIN
Supervised by:	JAYDEN ZHUO

A.1 Maximum Conducted Peak Output Power

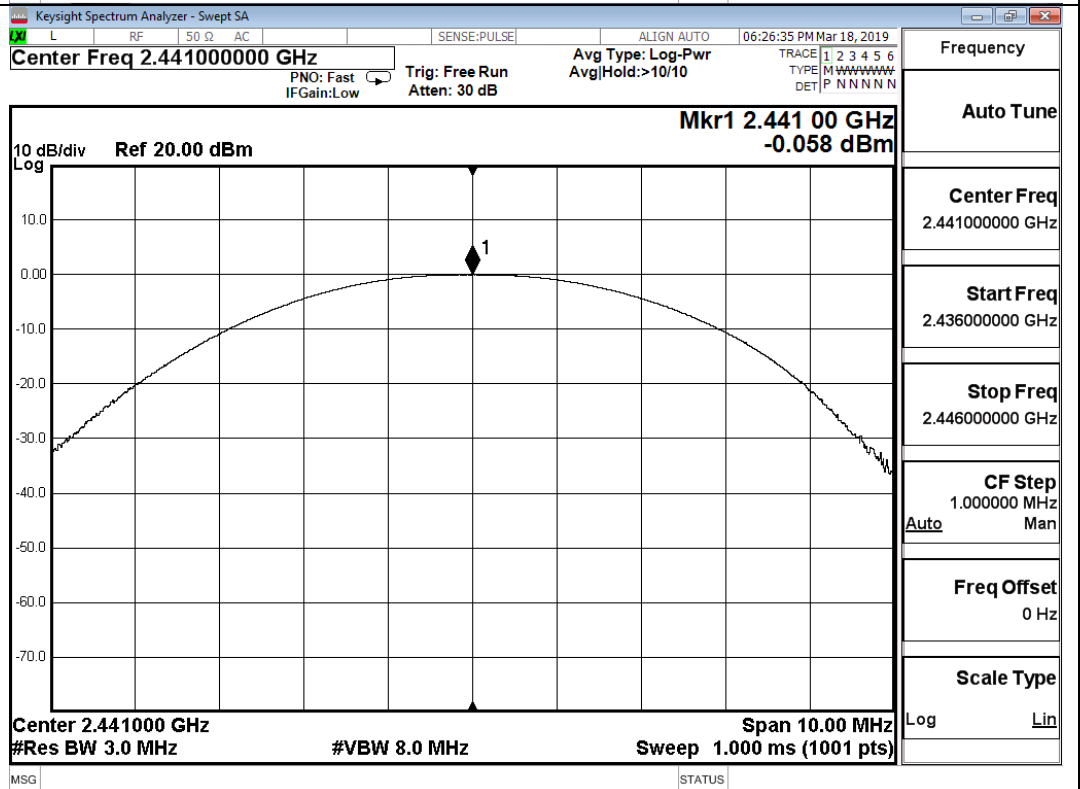
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.631	21	PASS
	MCH	-0.058	21	PASS
	HCH	-0.208	21	PASS
$\pi/4$ DQPSK	LCH	1.927	21	PASS
	MCH	2.435	21	PASS
	HCH	1.997	21	PASS
8DPSK	LCH	2.324	21	PASS
	MCH	2.864	21	PASS
	HCH	2.291	21	PASS

Test Graphs

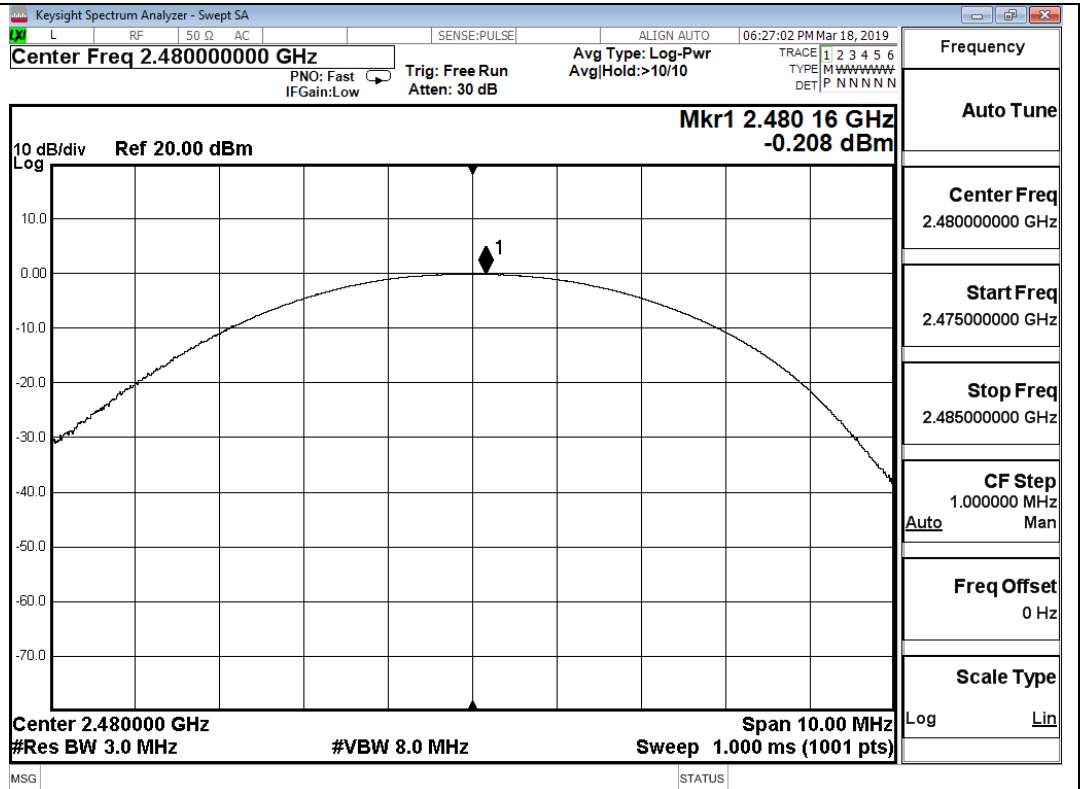
GFSK/LCH



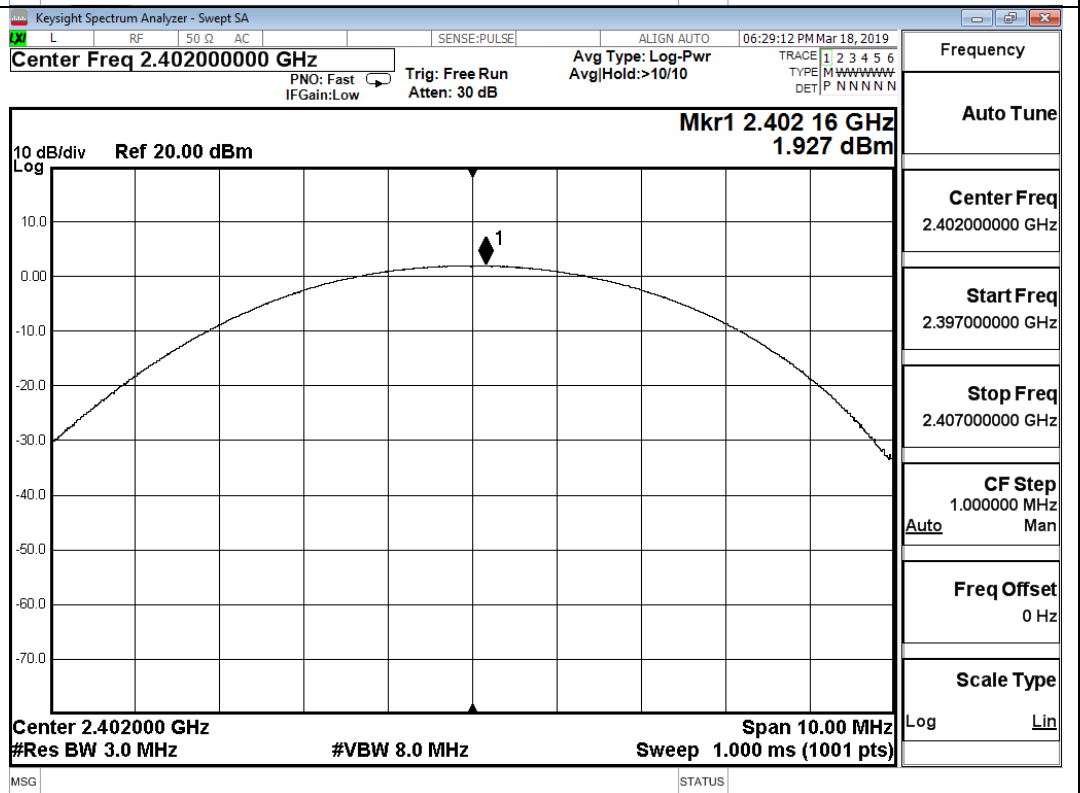
GFSK/MCH



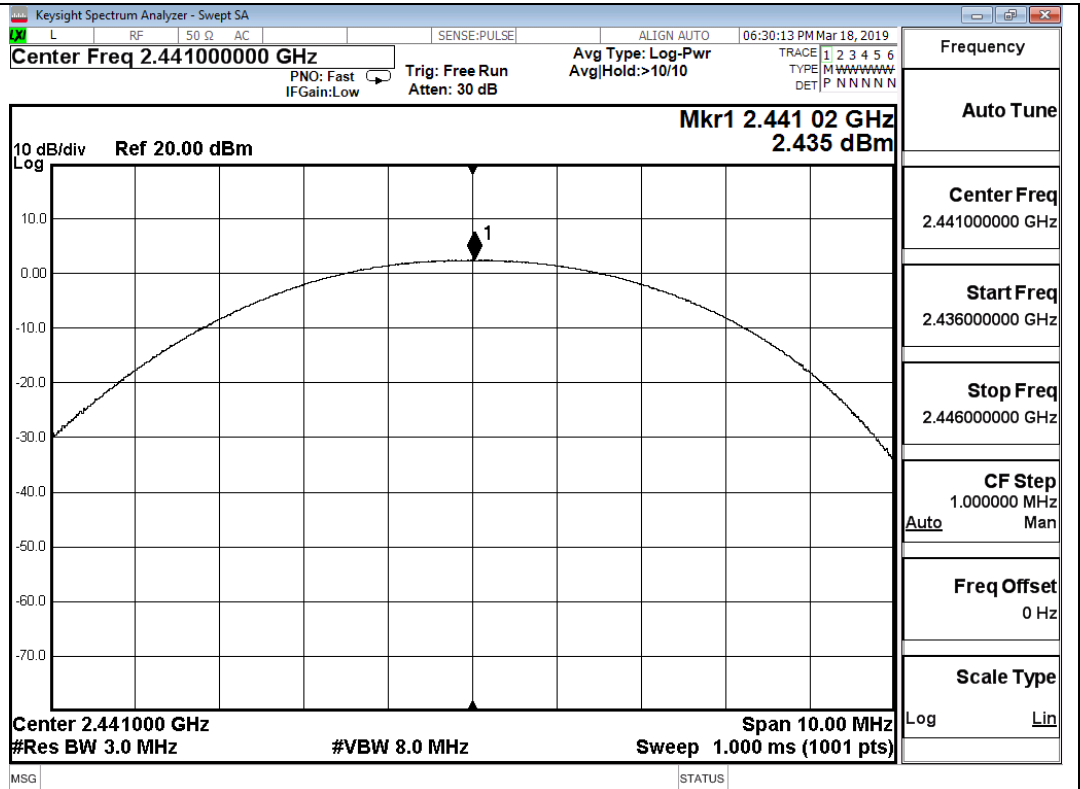
GFSK/HCH



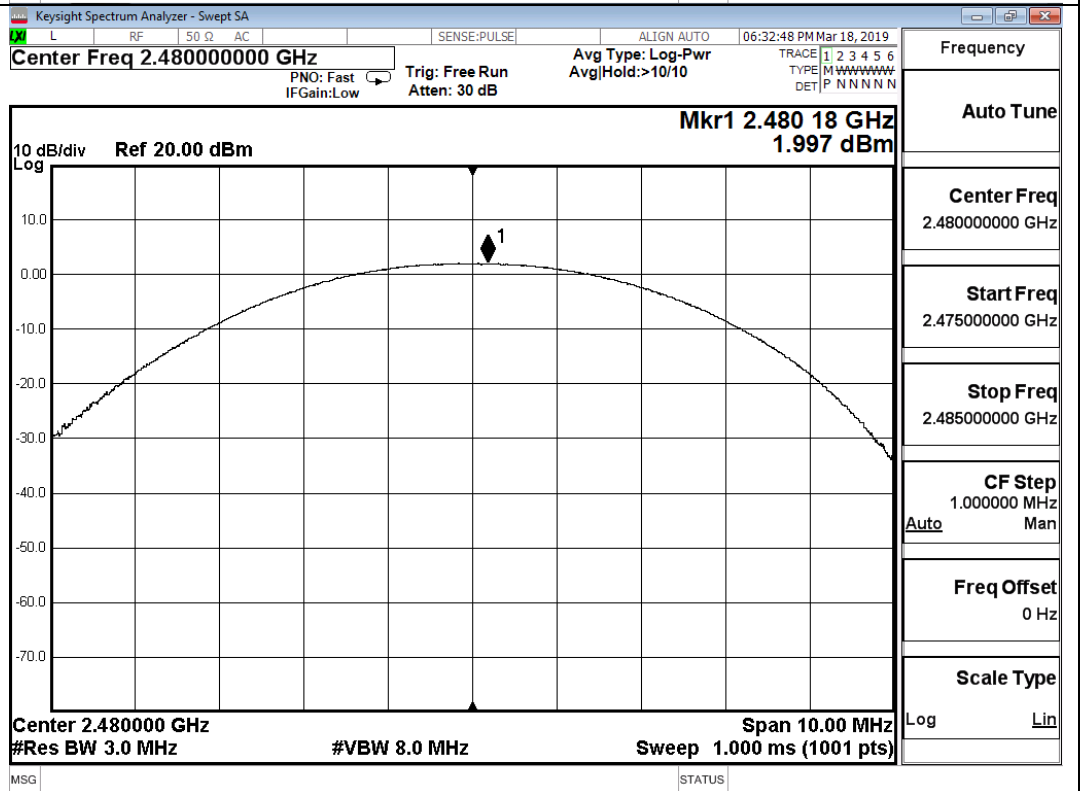
$\pi/4$ DQPSK/LCH



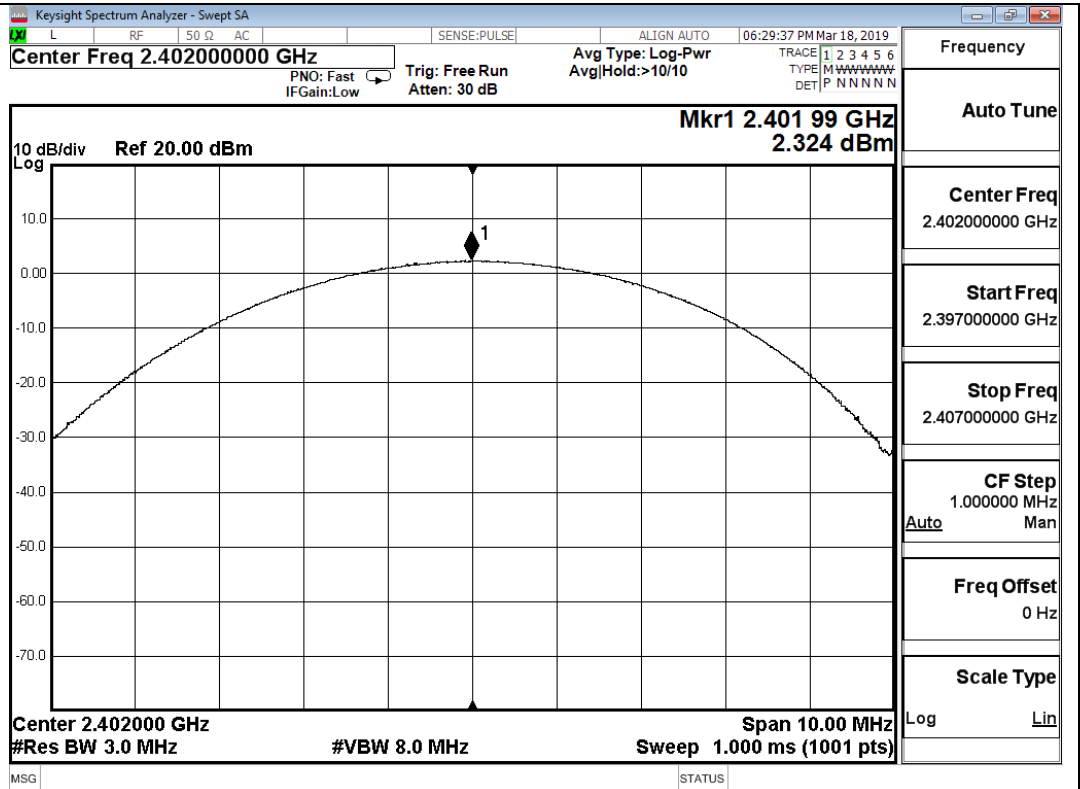
$\pi/4$ DQPSK/MCH



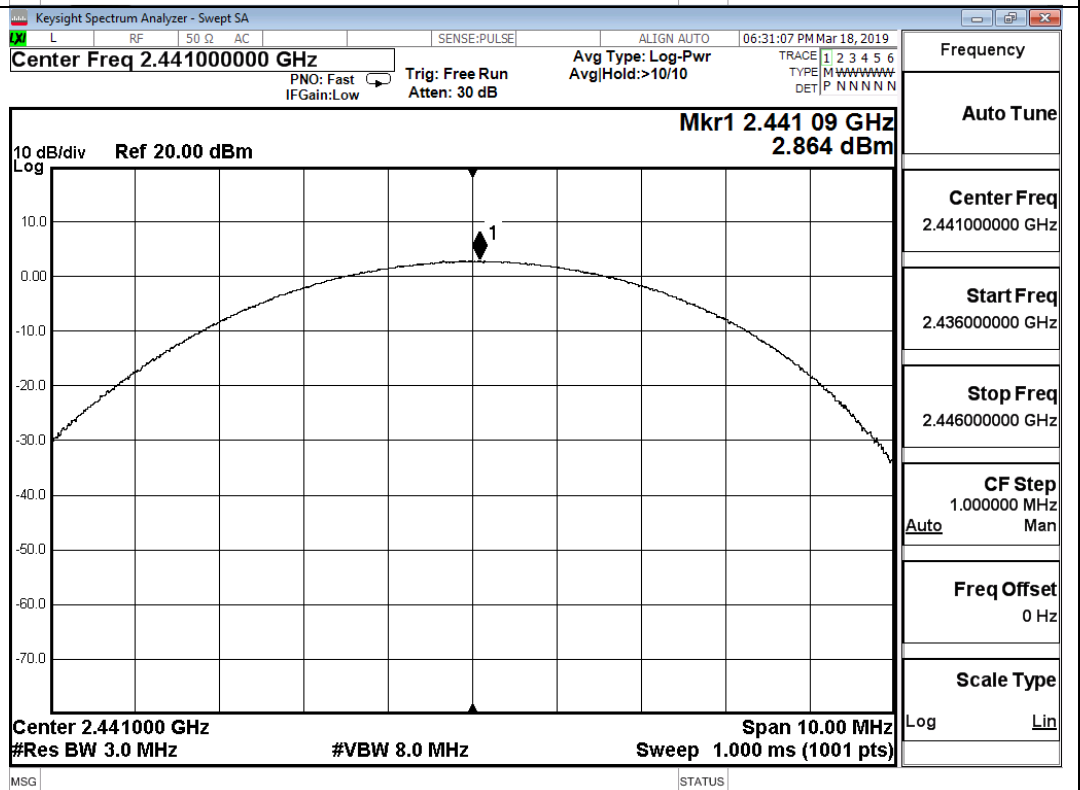
$\pi/4$ DQPSK/HCH

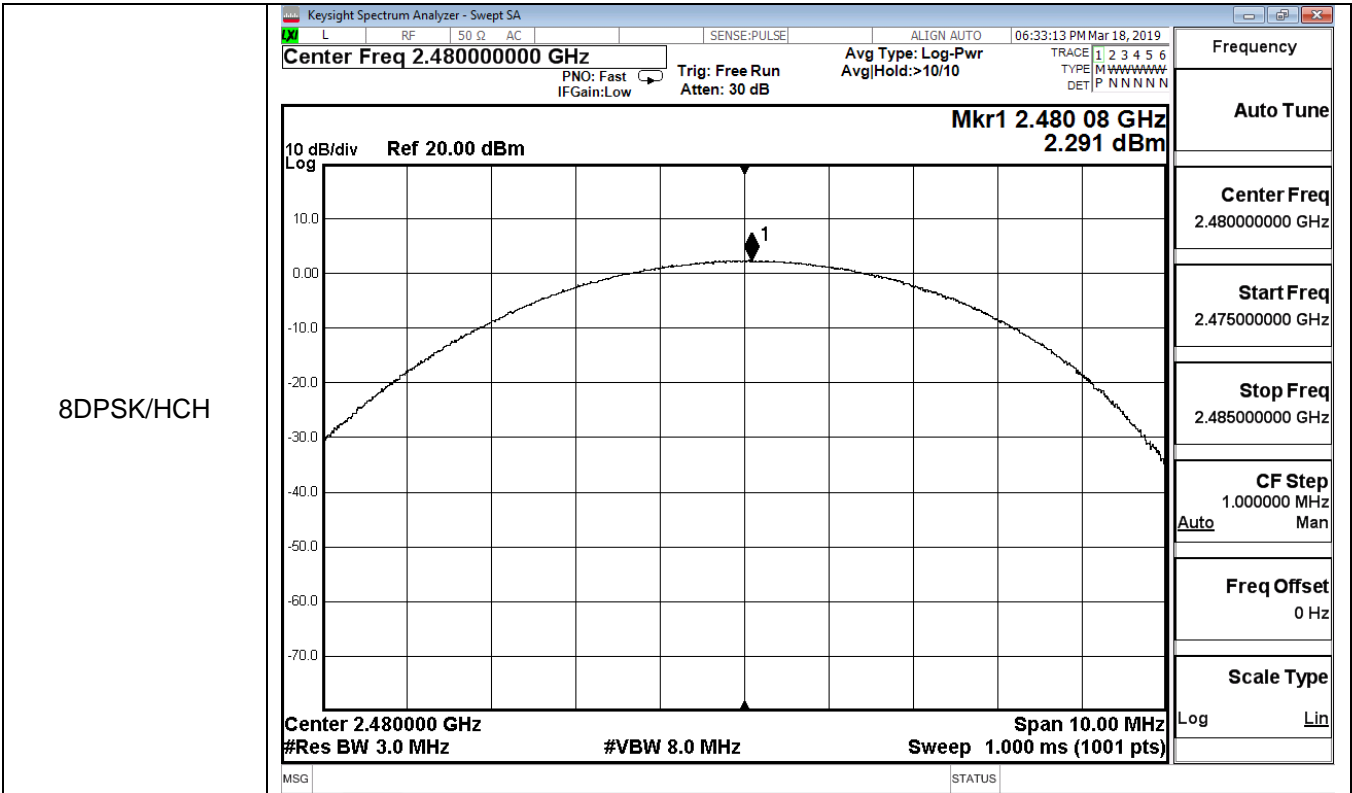


8DPSK/LCH



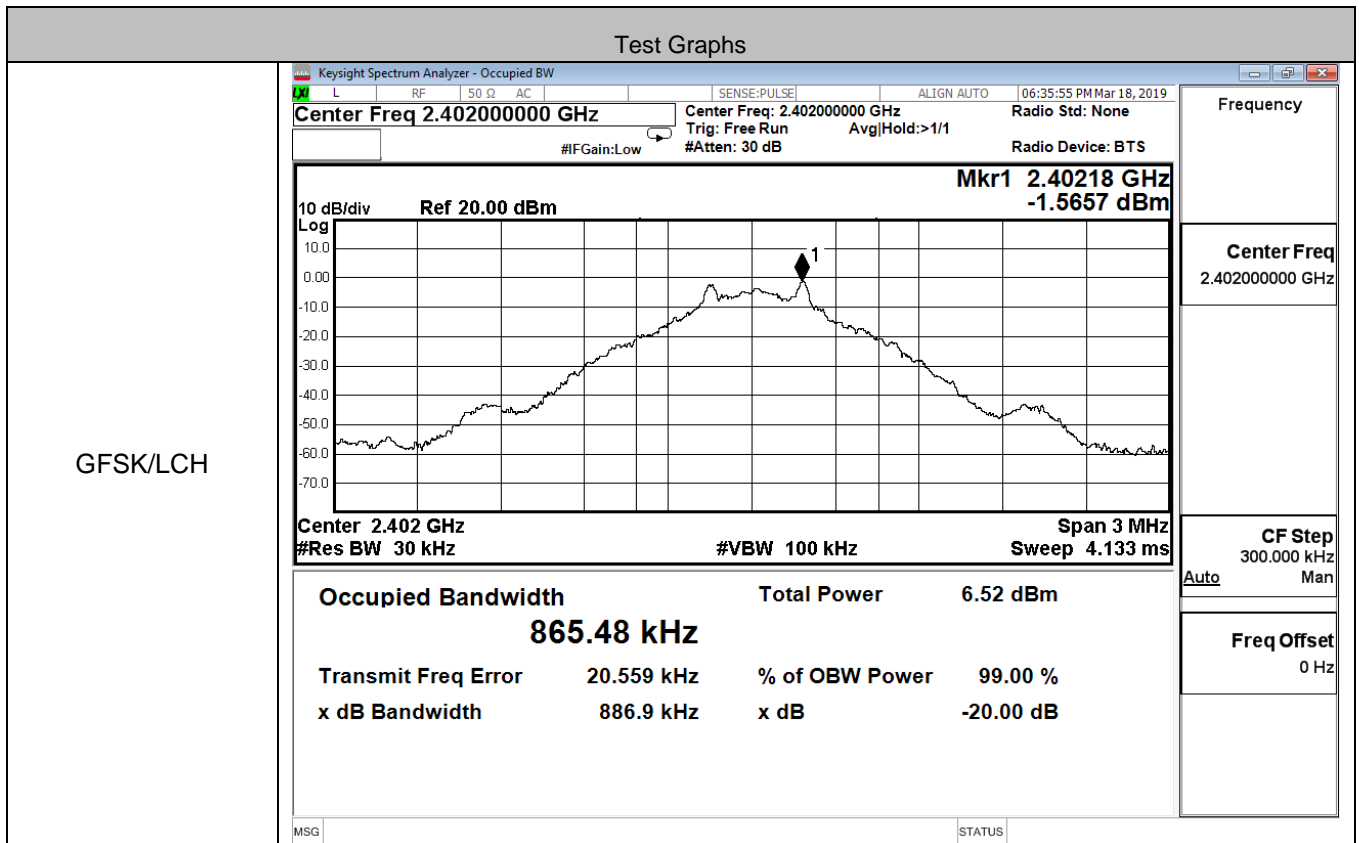
8DPSK/MCH



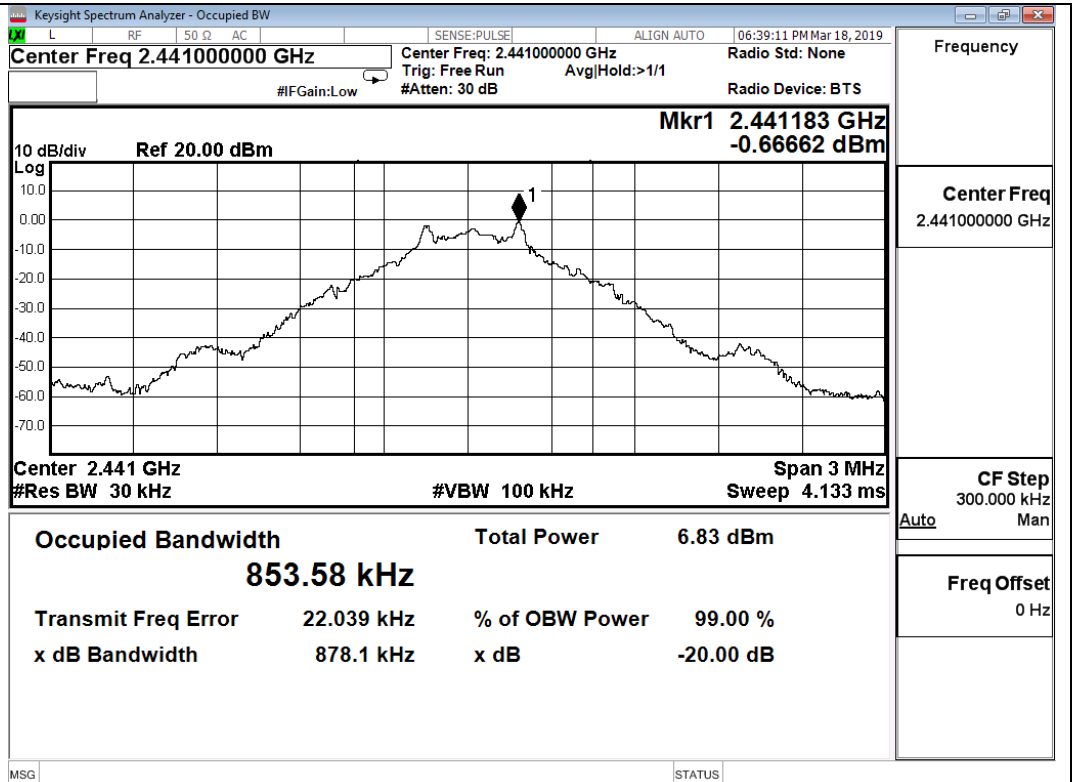


A.2 99% and 20dB Bandwidth

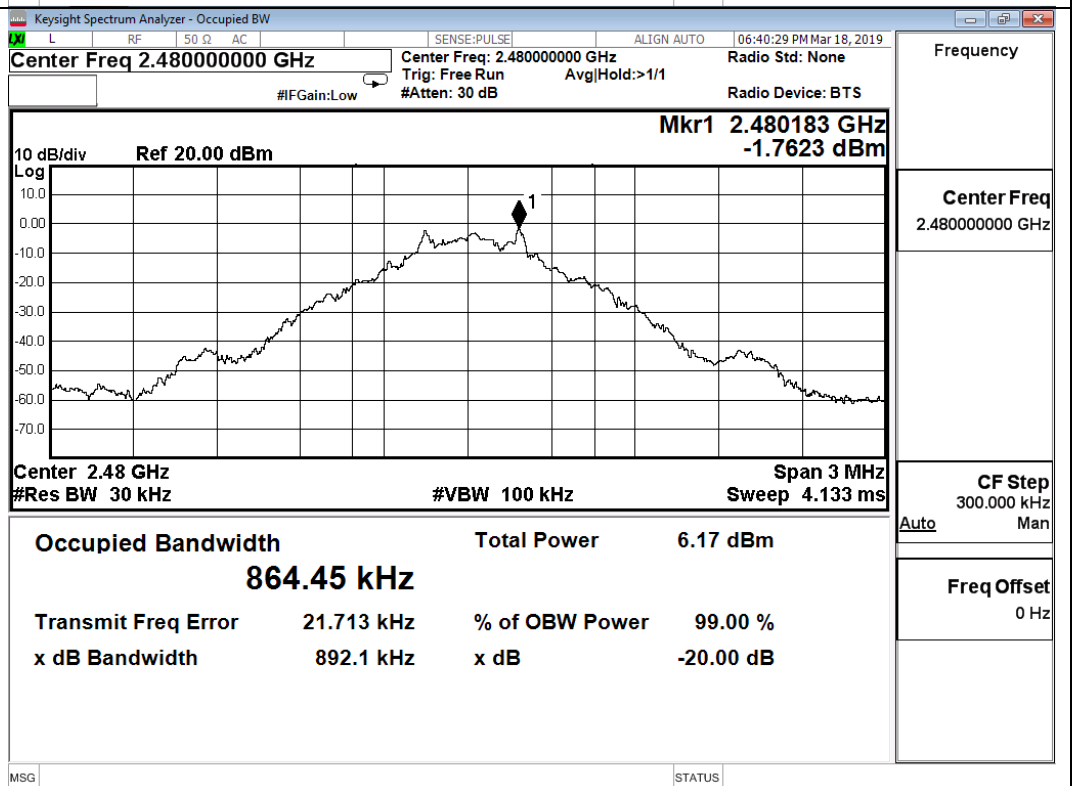
Mode	Channel.	99% Bandwidth [MHz]	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.86548	0.8869	Not Specified	PASS
	MCH	0.85358	0.8781	Not Specified	PASS
	HCH	0.86445	0.8921	Not Specified	PASS
π/4DQPSK	LCH	1.1375	1.217	Not Specified	PASS
	MCH	1.1411	1.211	Not Specified	PASS
	HCH	1.1424	1.223	Not Specified	PASS
8DPSK	LCH	1.1570	1.262	Not Specified	PASS
	MCH	1.1423	1.265	Not Specified	PASS
	HCH	1.1485	1.262	Not Specified	PASS



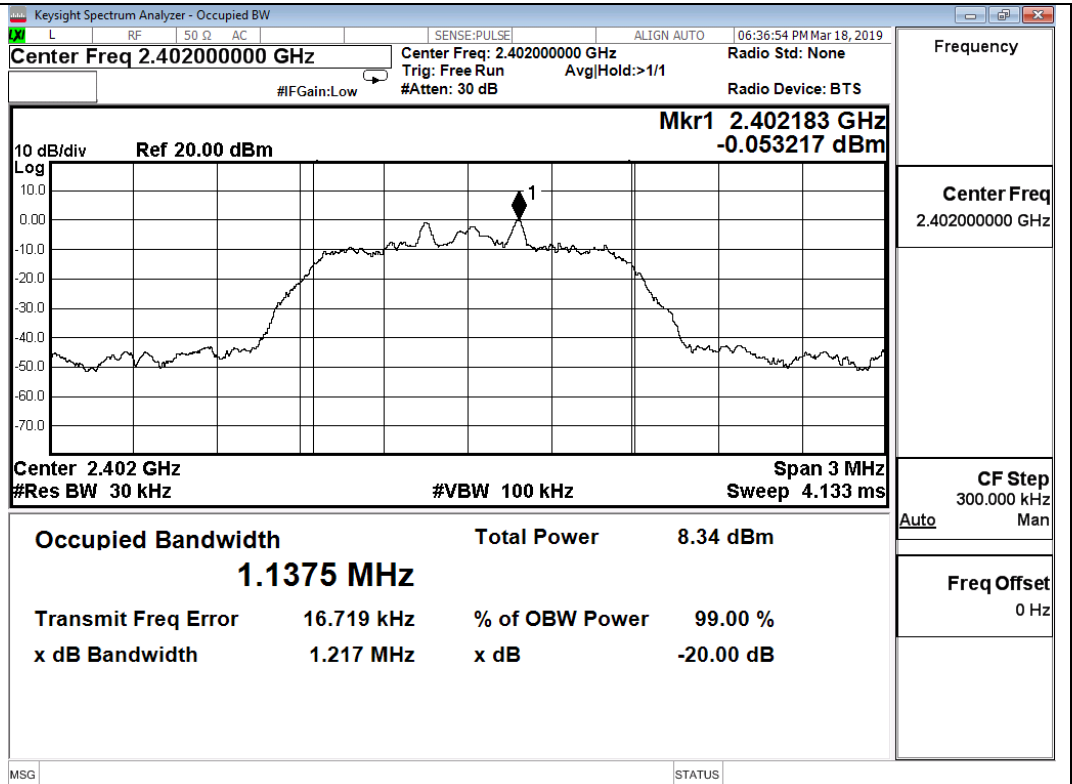
GFSK/MCH



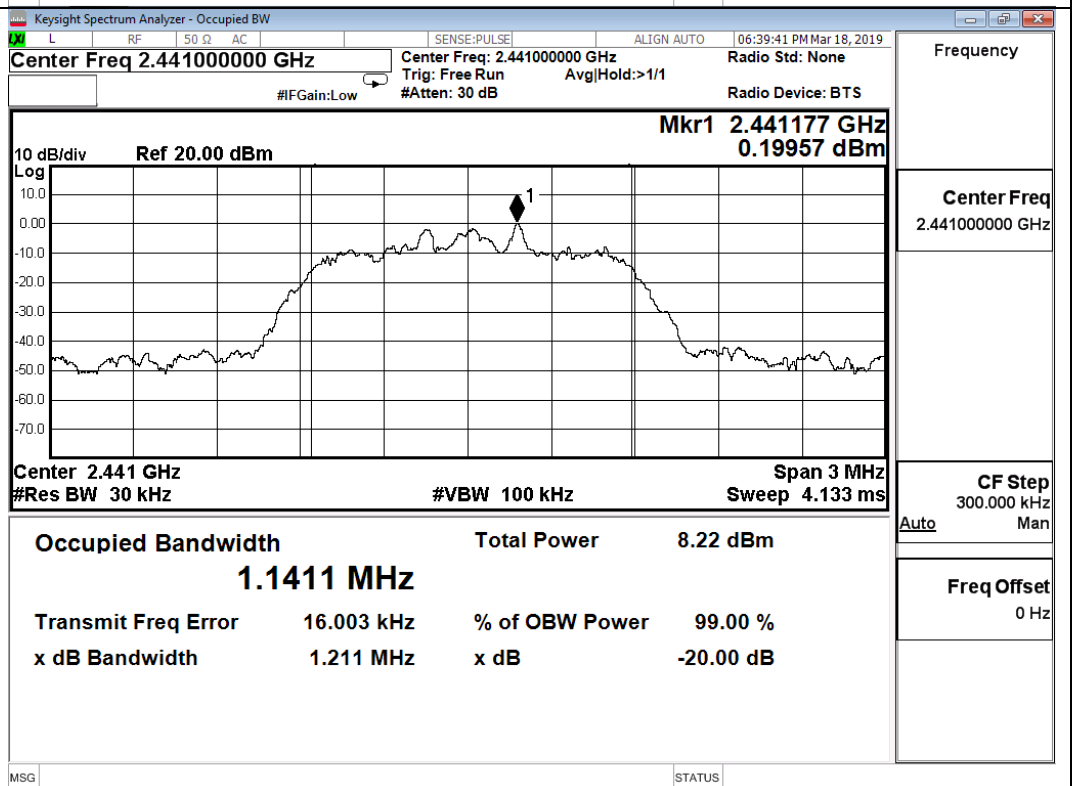
GFSK/HCH



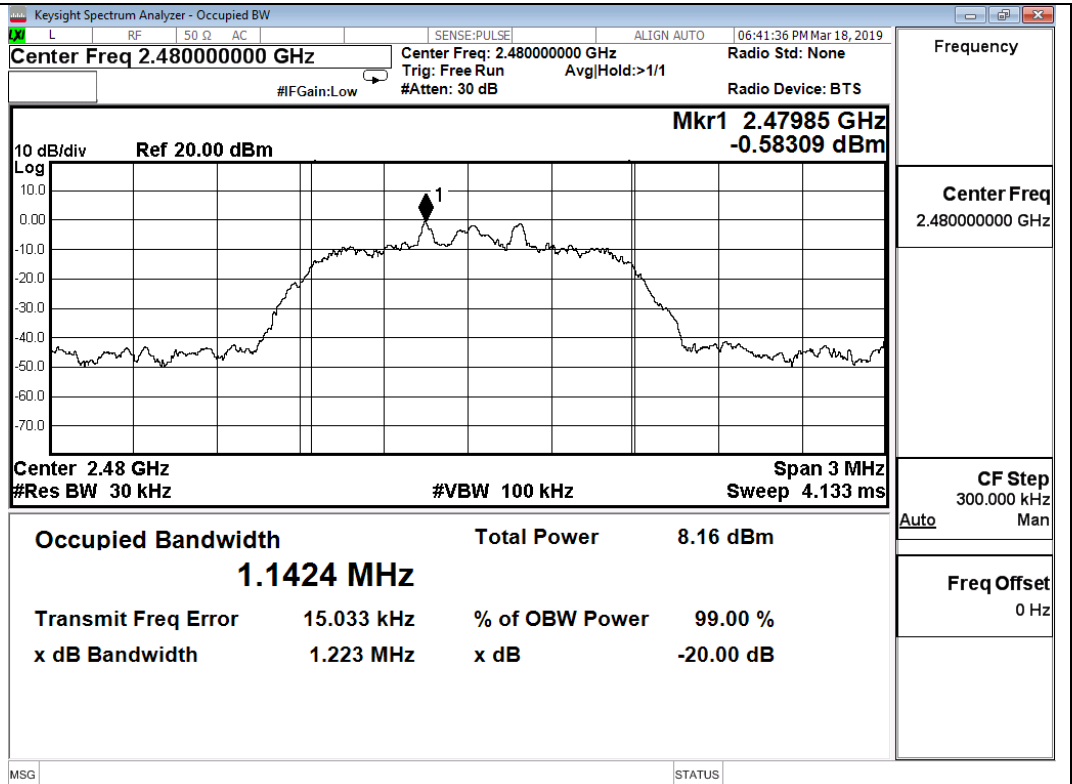
$\pi/4$ DQPSK/LCH



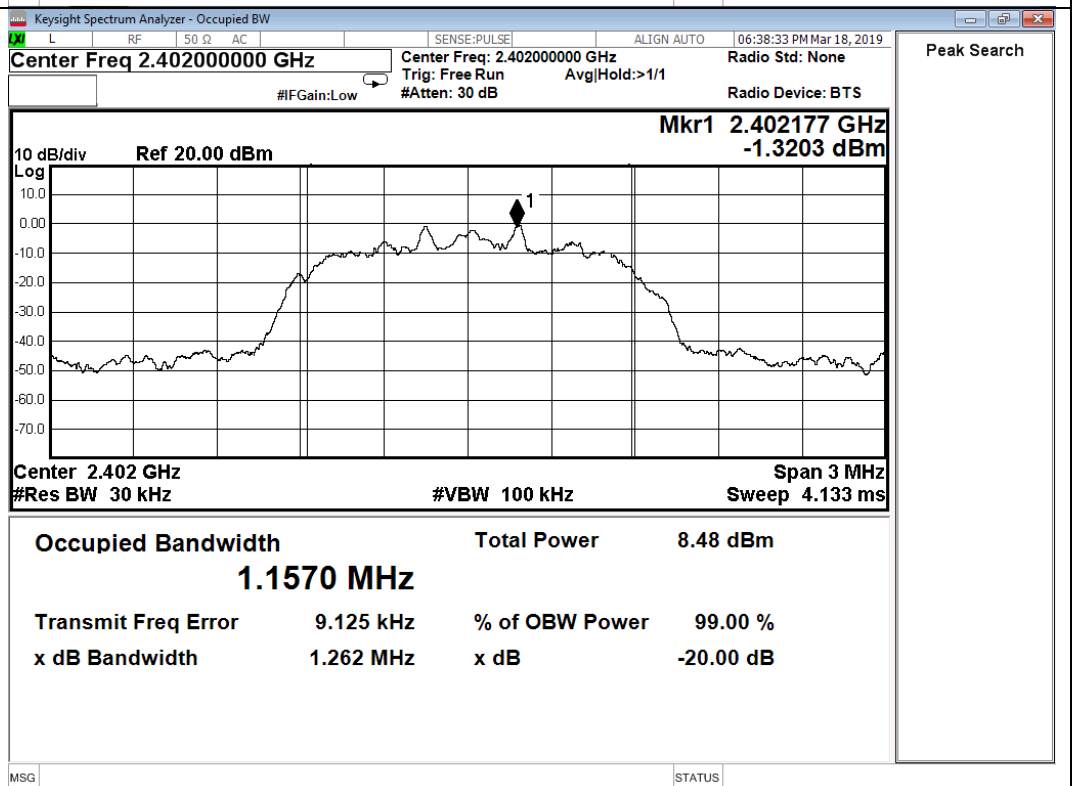
$\pi/4$ DQPSK/MCH



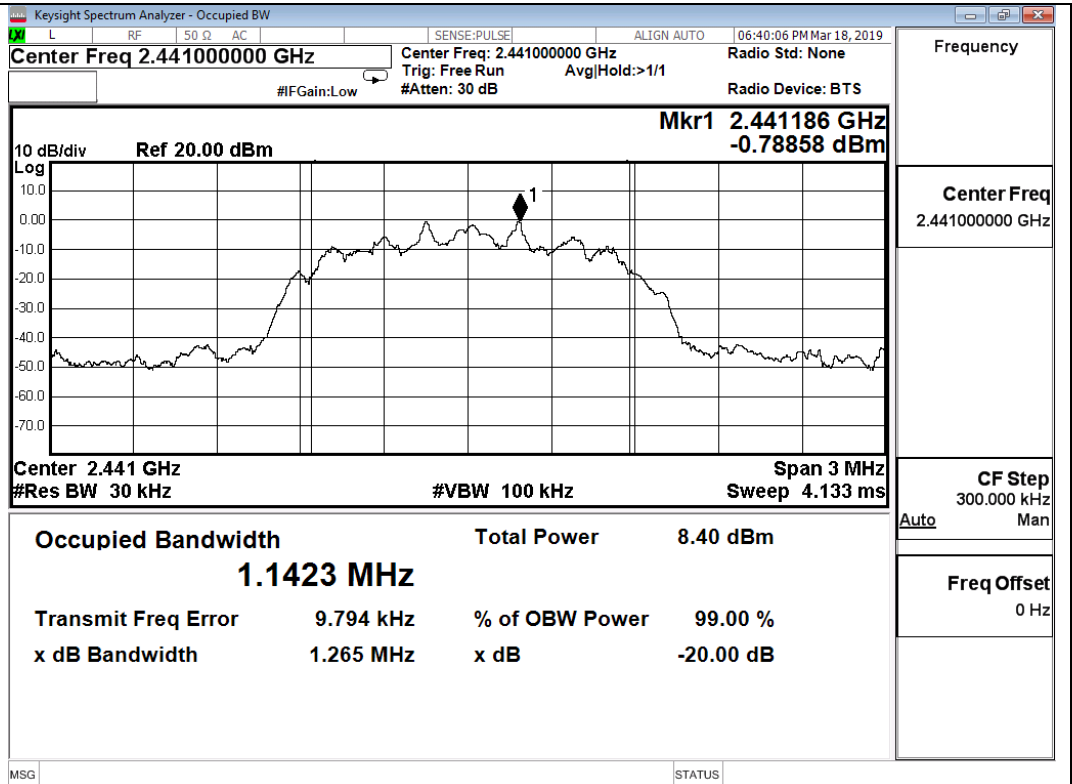
$\pi/4$ DQPSK/HCH



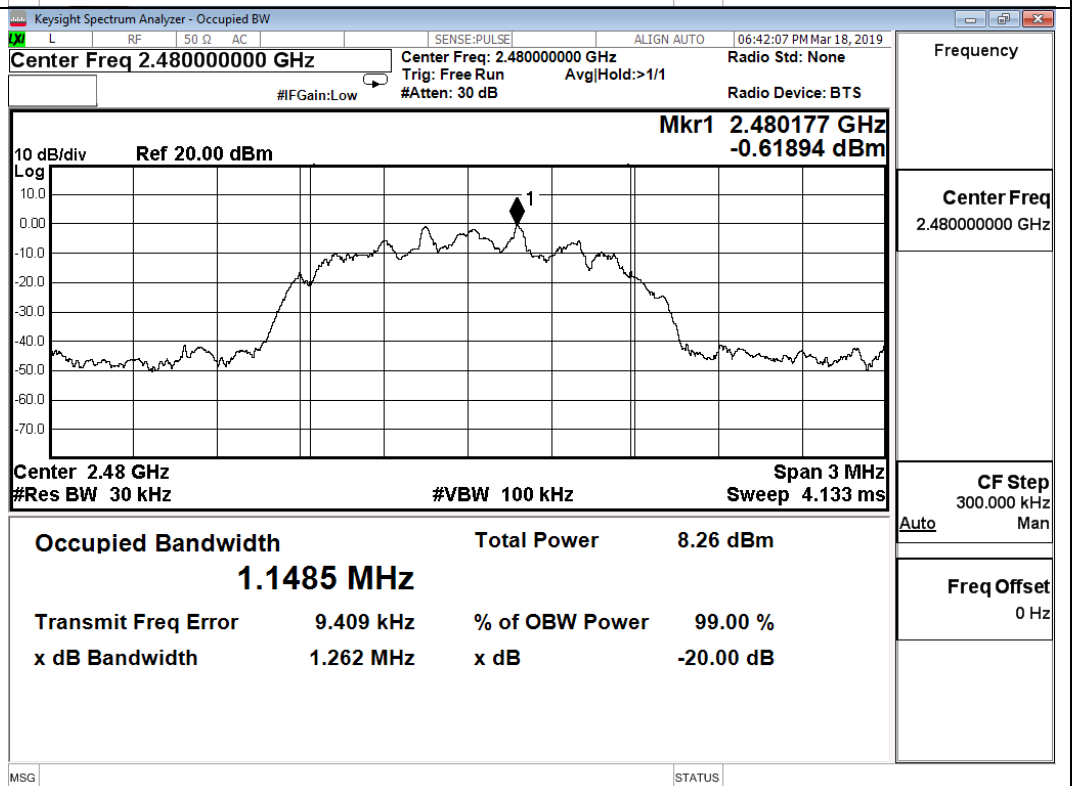
8DPSK/LCH



8DPSK/MCH

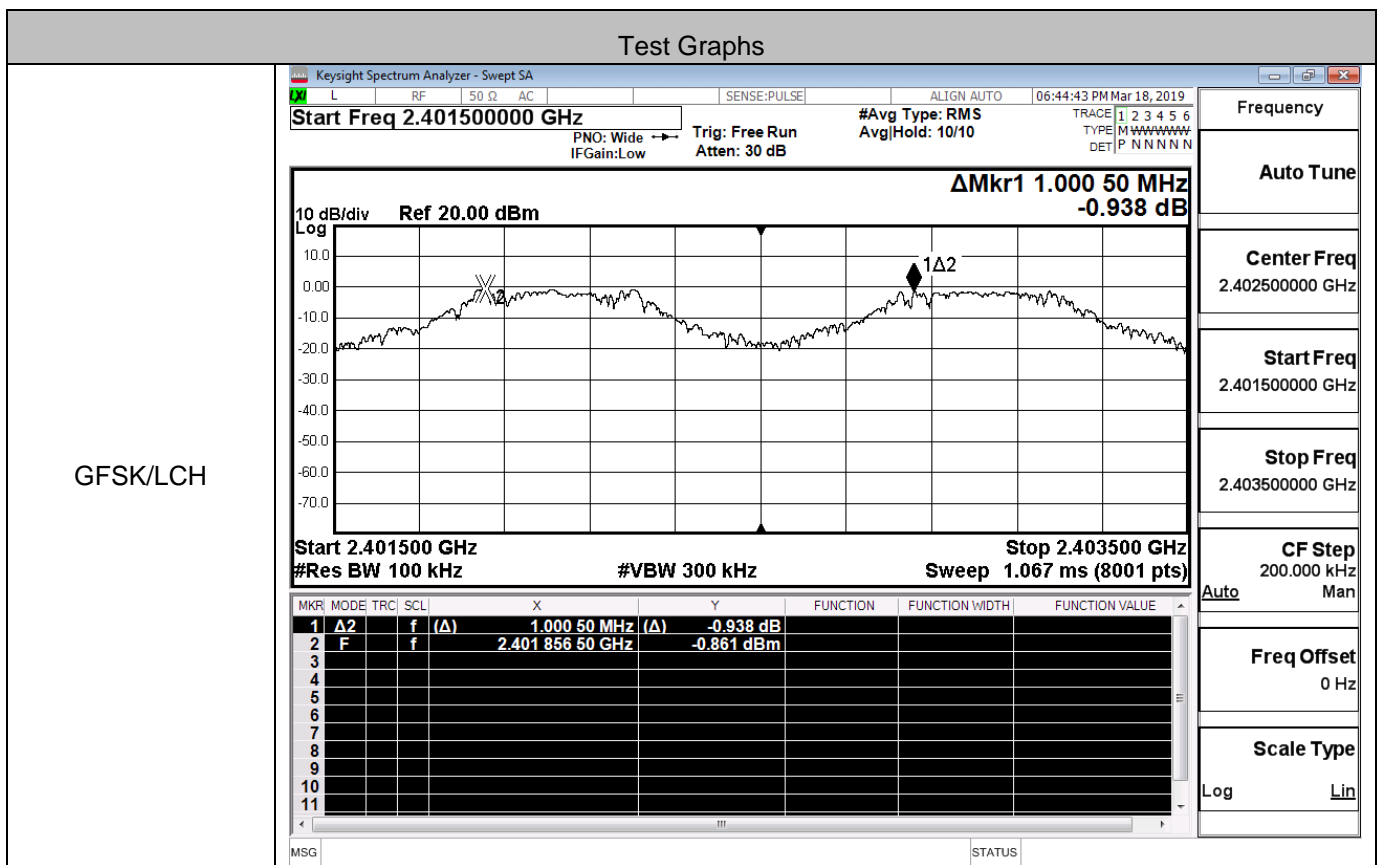


8DPSK/HCH

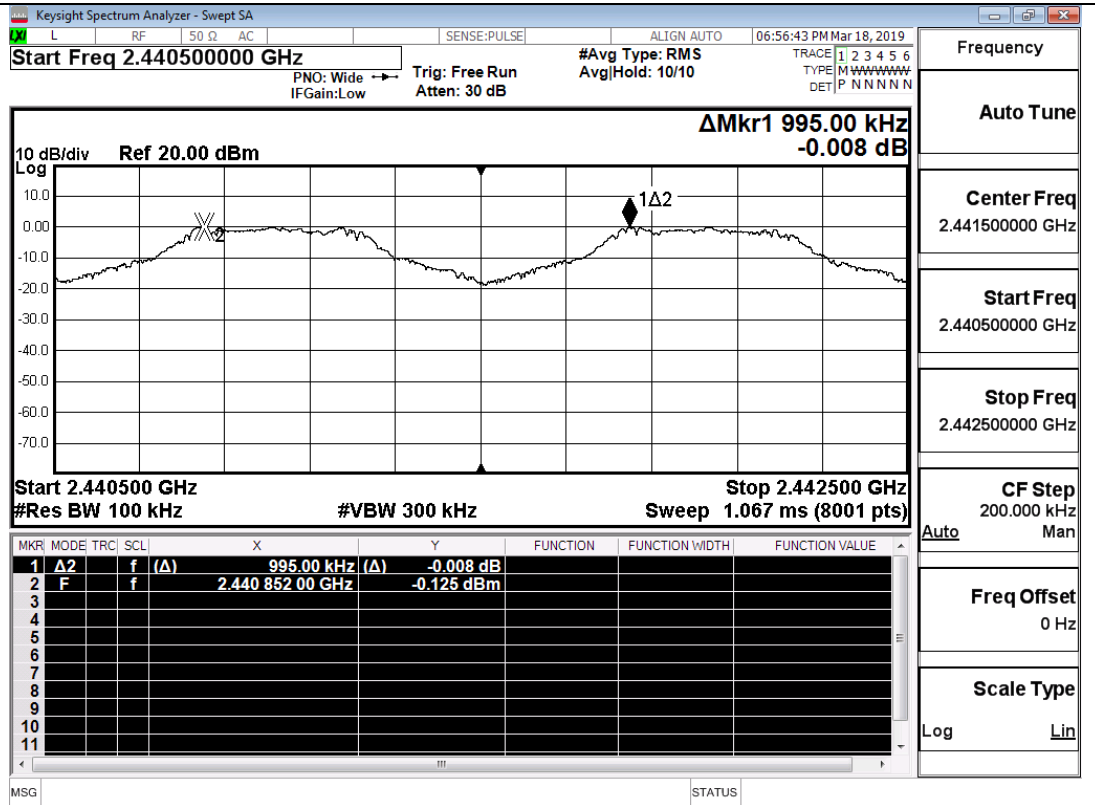


A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz] 2/3*20dB Bandwidth	Verdict
GFSK	LCH	1.001	0.591	PASS
	MCH	0.995	0.585	PASS
	HCH	0.999	0.595	PASS
π/4DQPSK	LCH	1.010	0.811	PASS
	MCH	1.026	0.807	PASS
	HCH	1.006	0.815	PASS
8DPSK	LCH	1.024	0.841	PASS
	MCH	1.009	0.843	PASS
	HCH	1.029	0.841	PASS

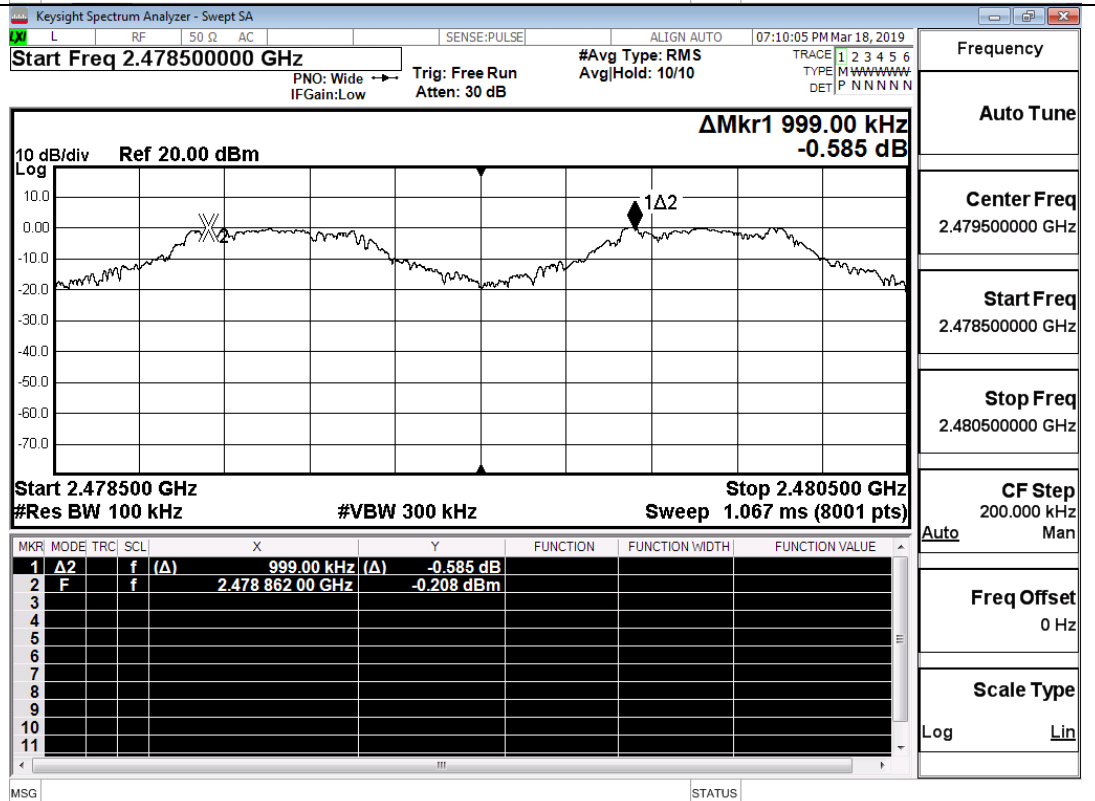


GFSK/MCH



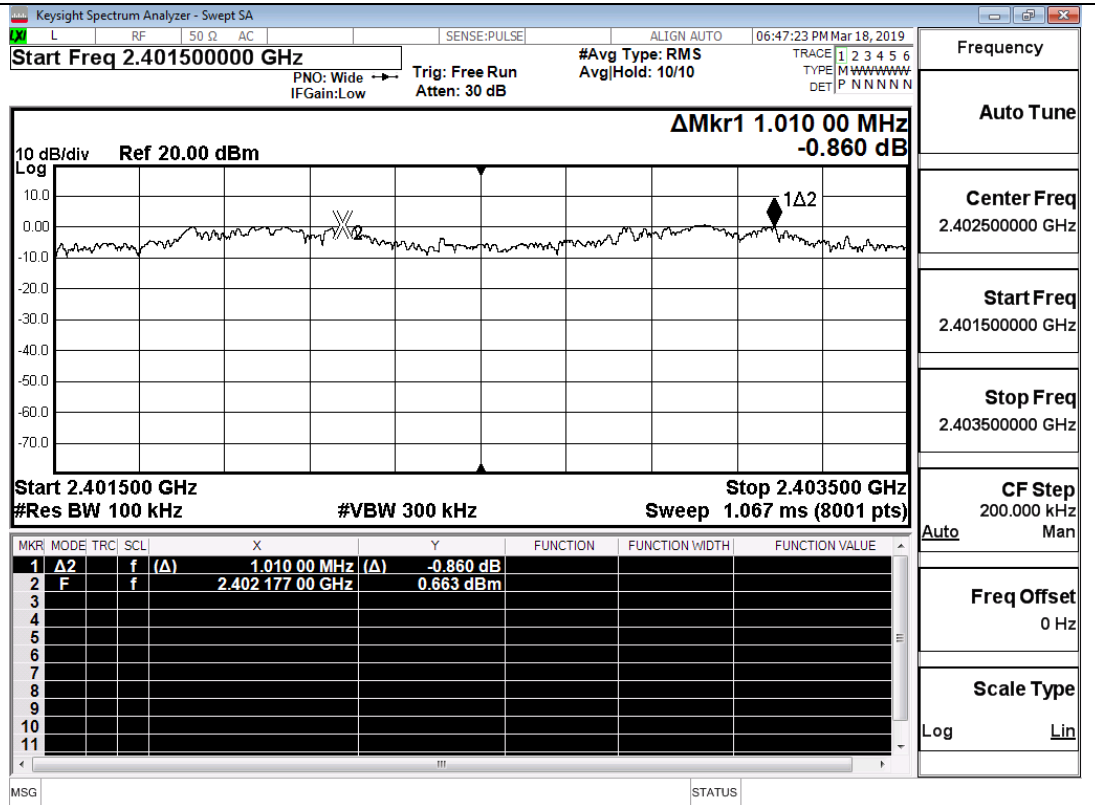
Frequency	Auto Tune
Center Freq	2.441500000 GHz
Start Freq	2.440500000 GHz
Stop Freq	2.442500000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz
Scale Type	Log Lin

GFSK/HCH

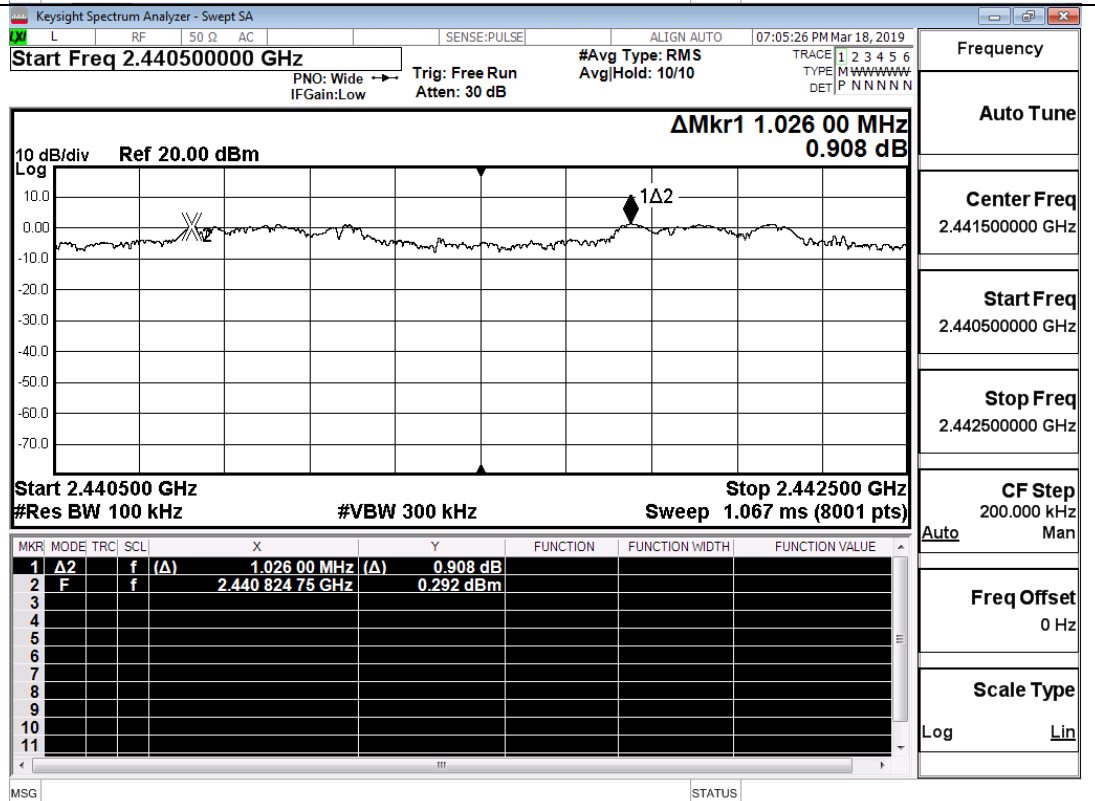


Frequency	Auto Tune
Center Freq	2.479500000 GHz
Start Freq	2.478500000 GHz
Stop Freq	2.480500000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz
Scale Type	Log Lin

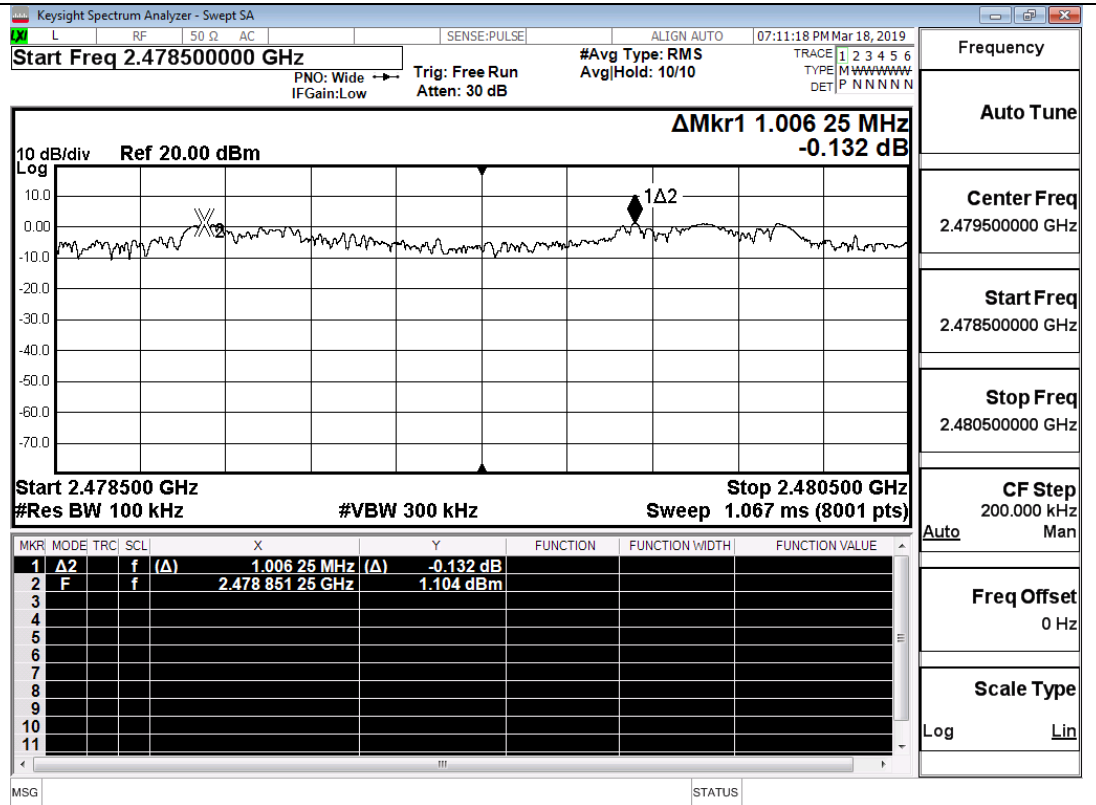
$\pi/4$ DQPSK/LCH



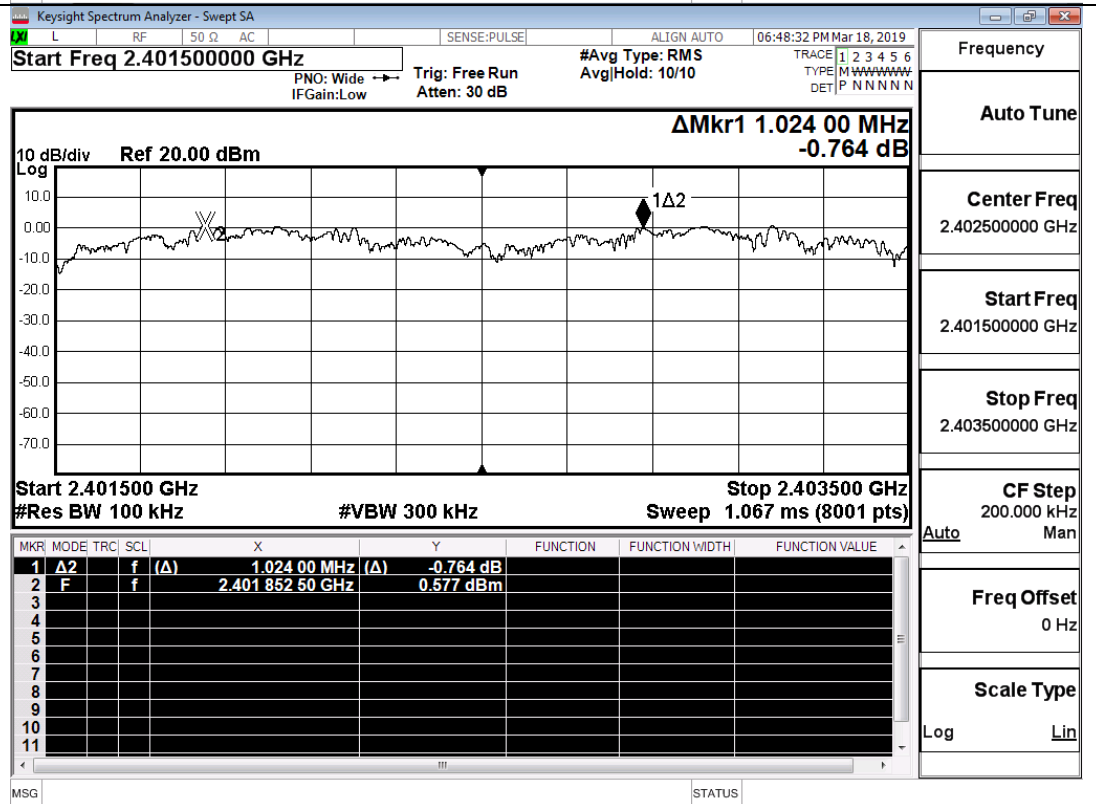
$\pi/4$ DQPSK/MCH



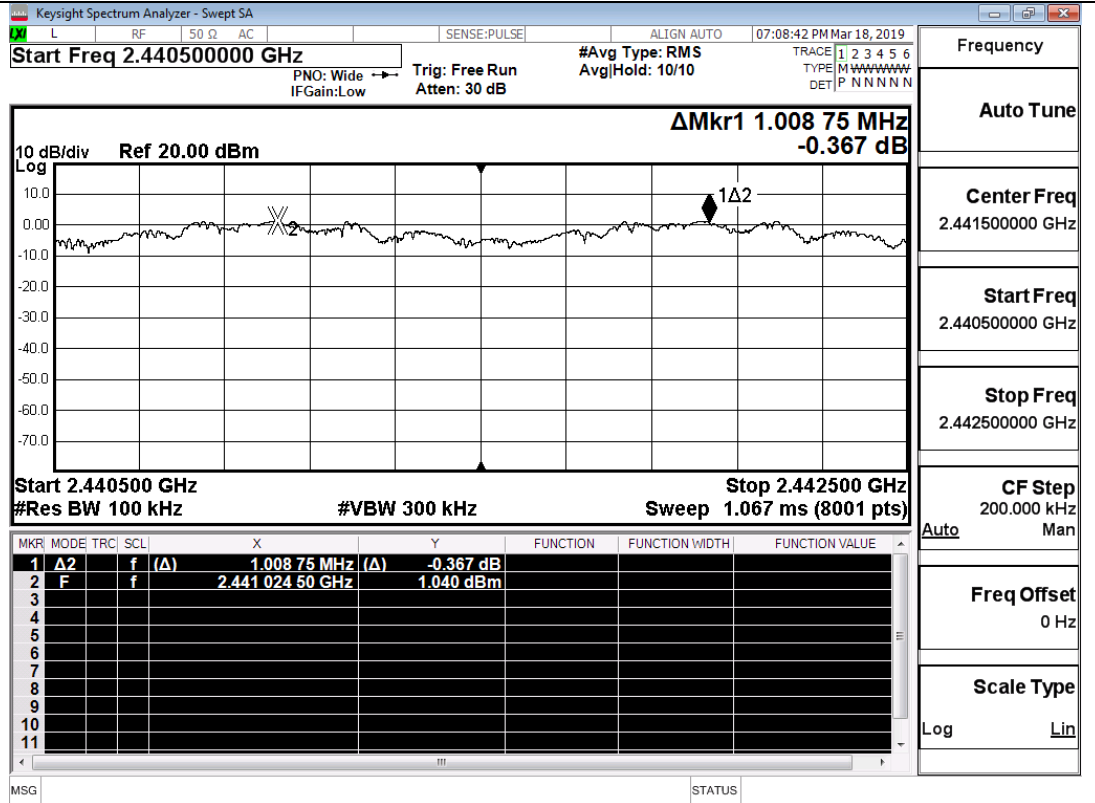
$\pi/4$ DQPSK/HCH



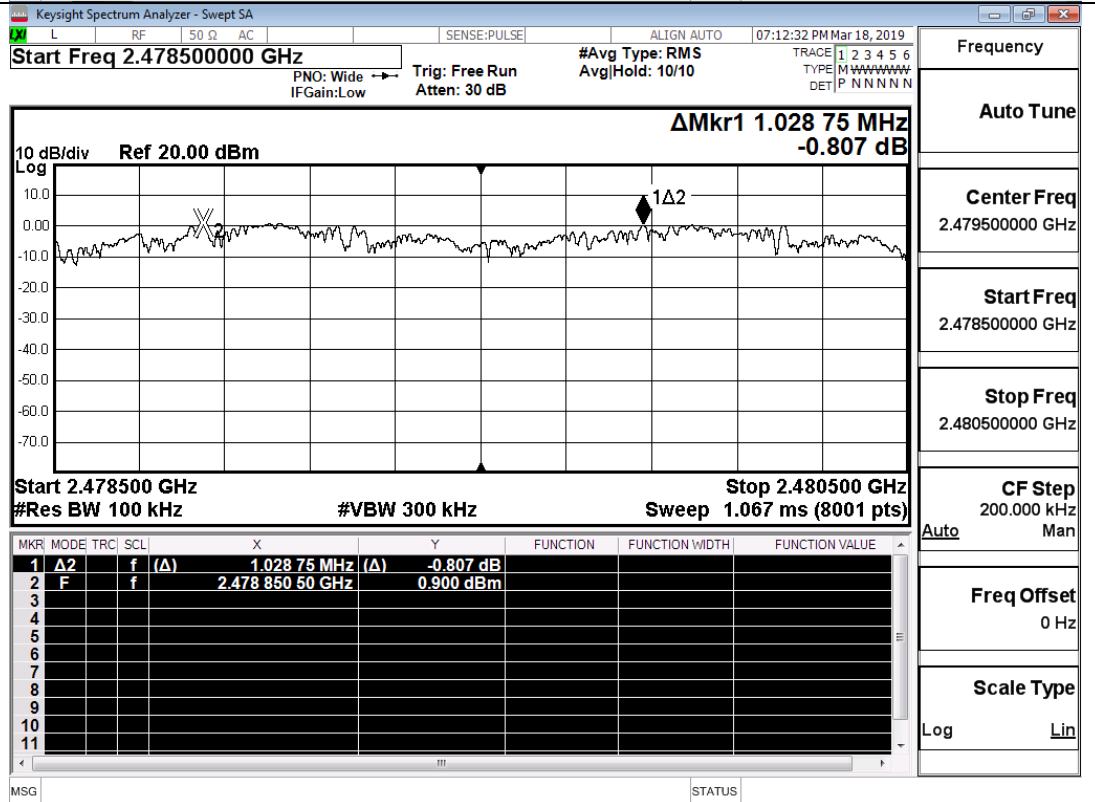
8DPSK/LCH



8DPSK/MCH

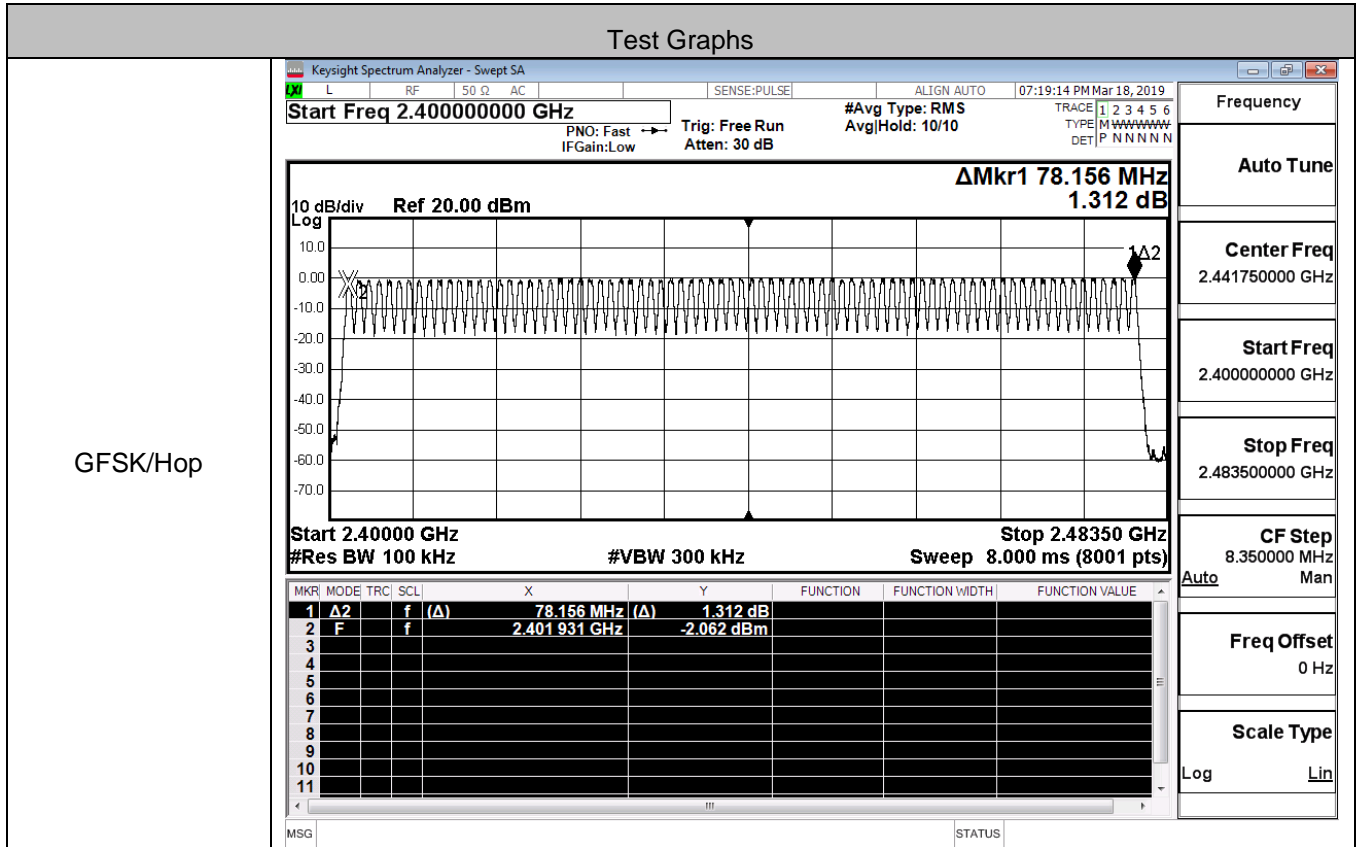


8DPSK/HCH

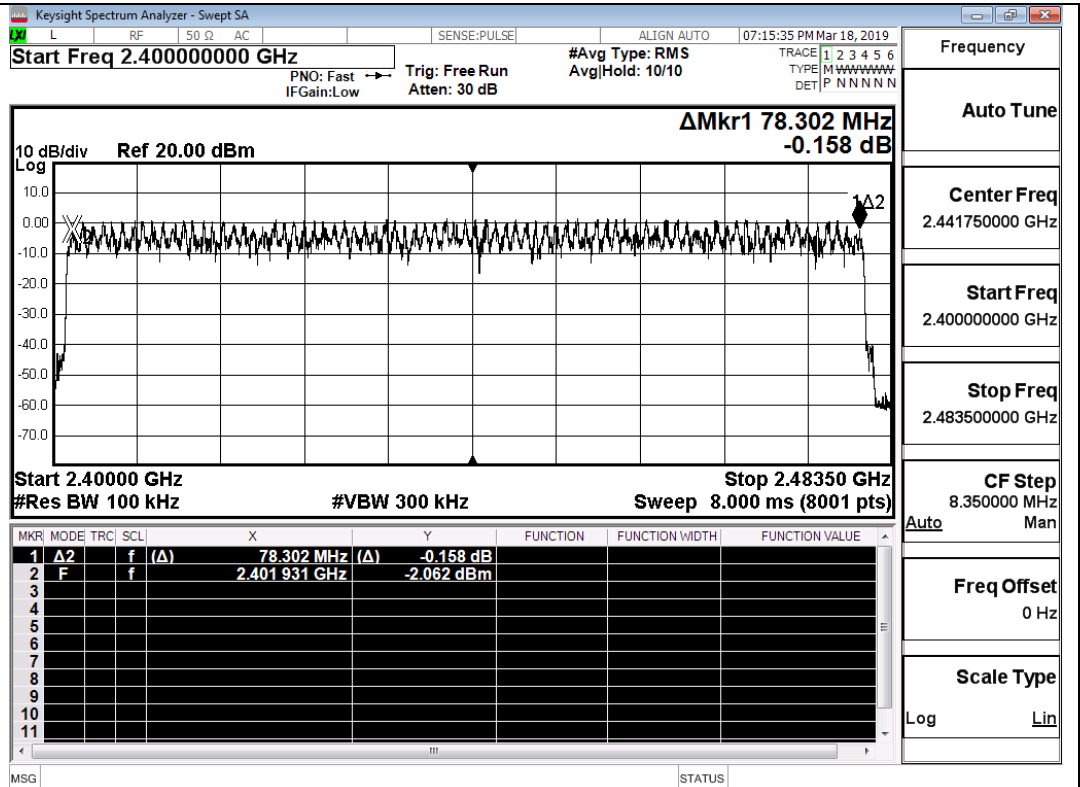


A.4 Hopping Channel Number

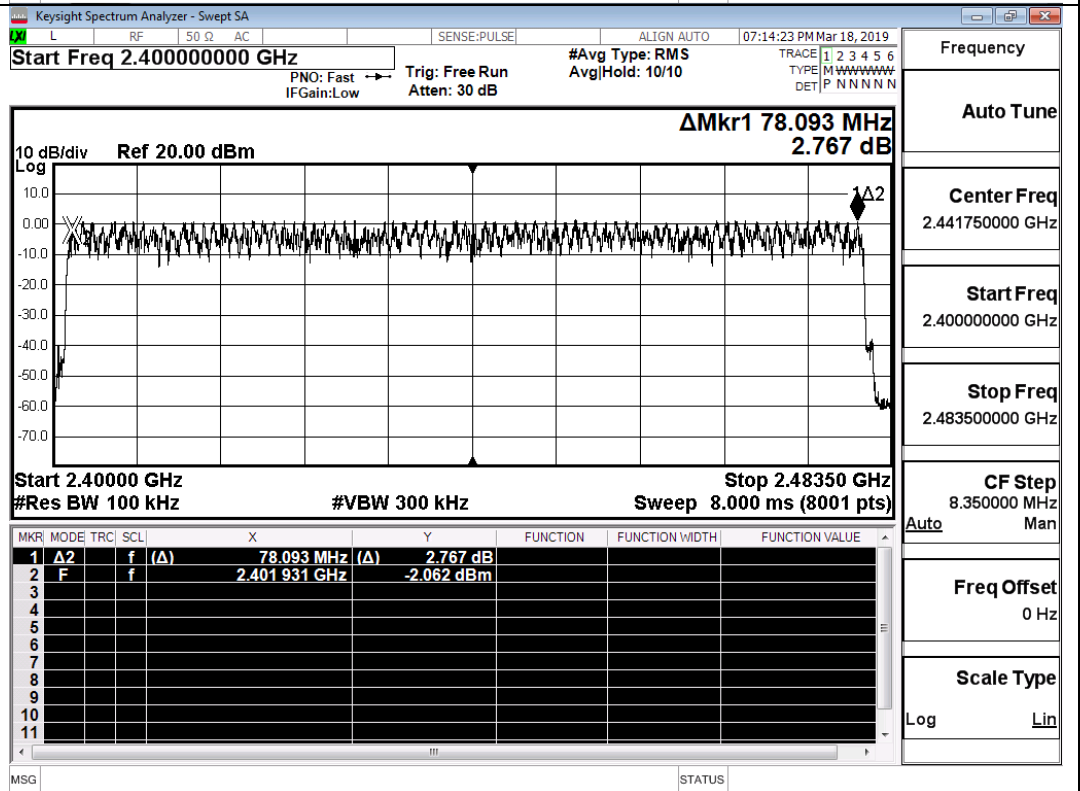
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS



$\pi/4$ DQPSK/Hop

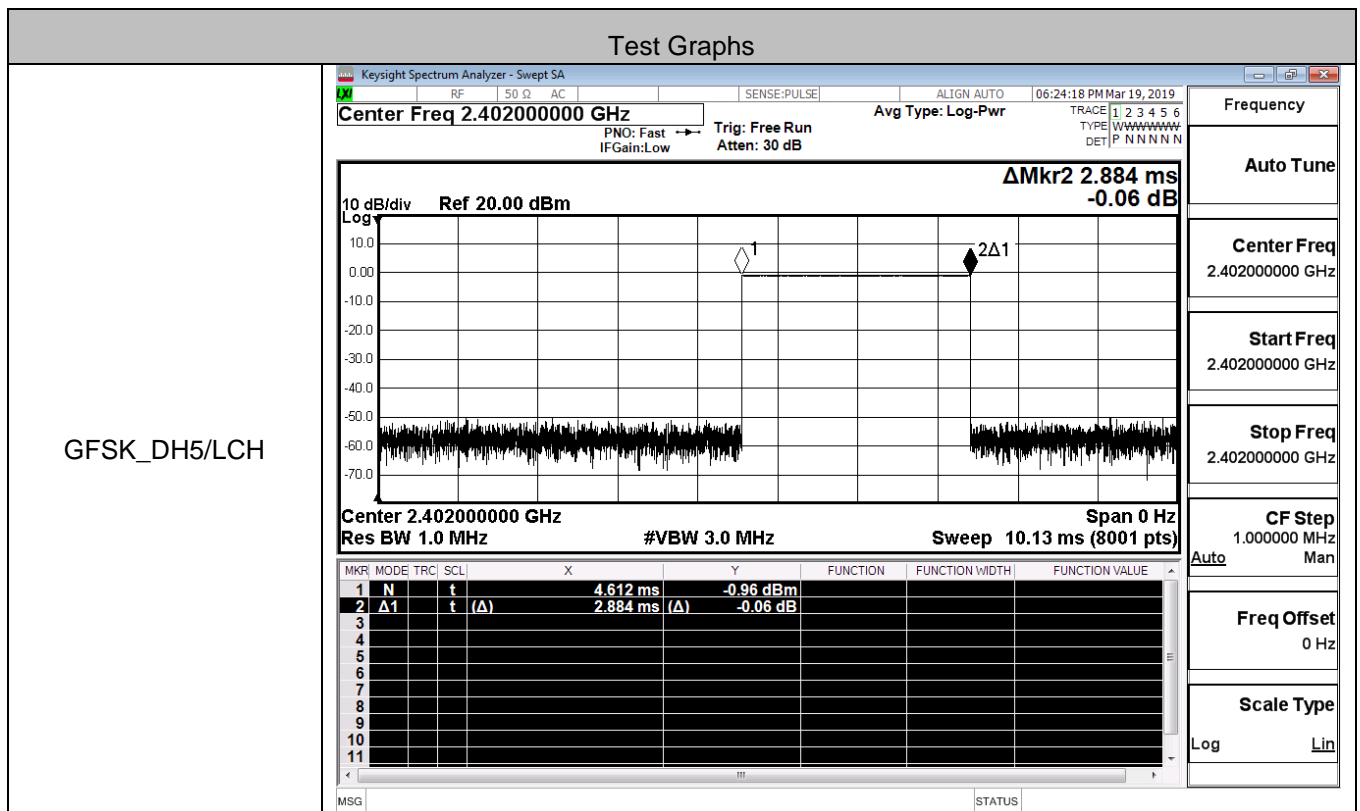


8DPSK/Hop

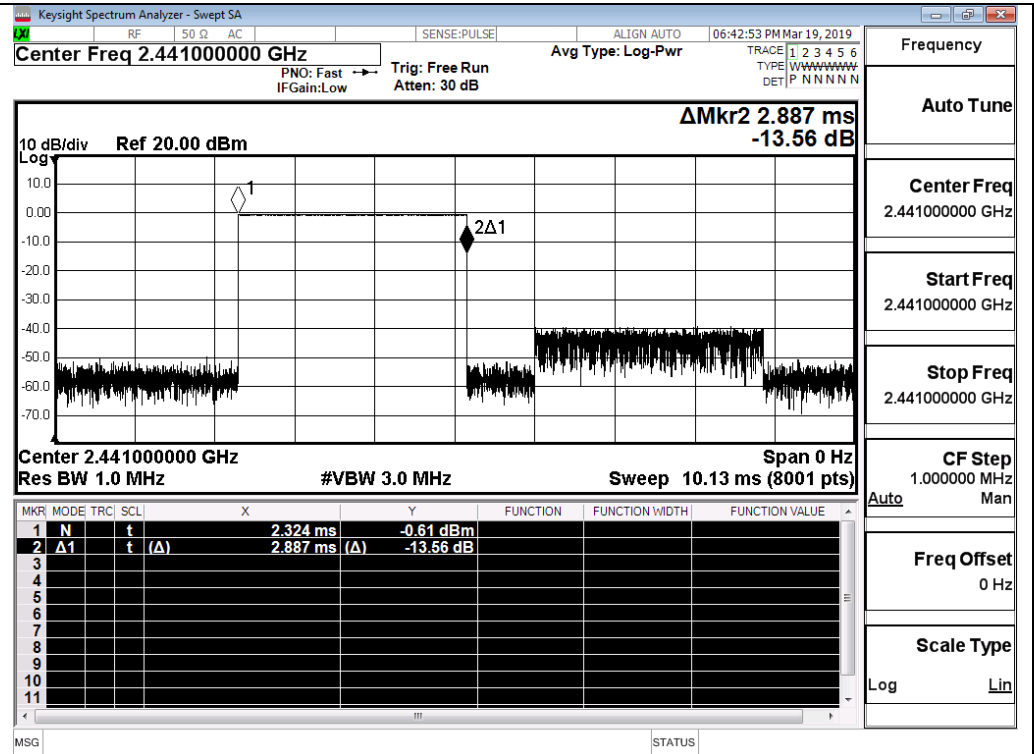


A.5 Dwell Time

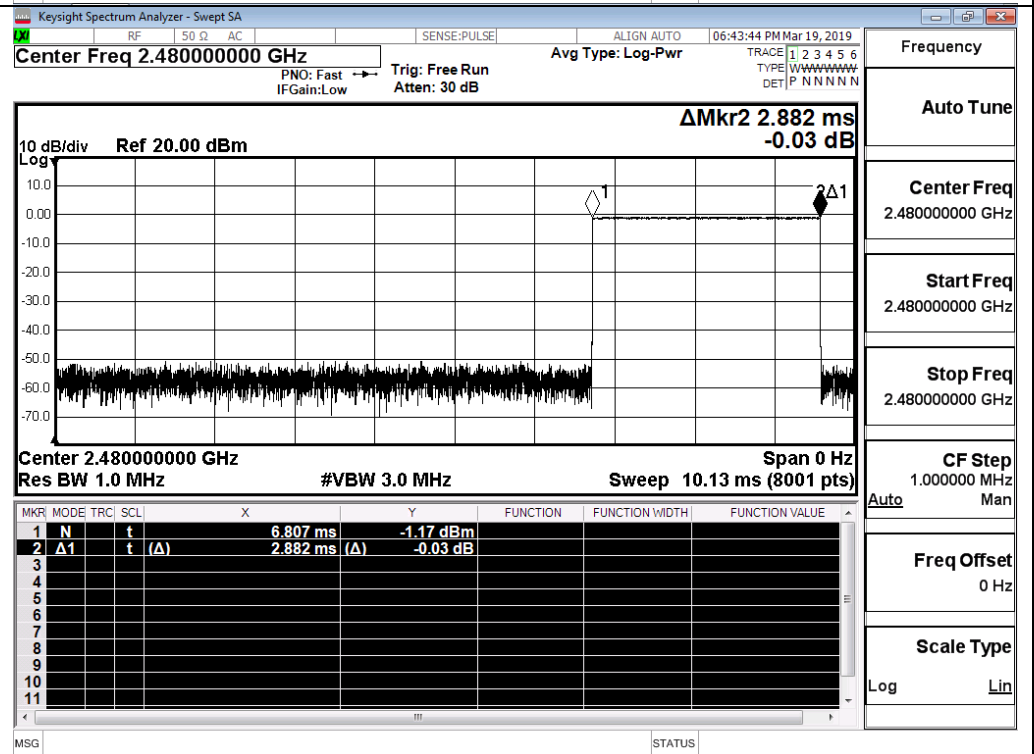
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.89	106.7	0.308	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
π/4DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.89	106.7	0.308	0.4	PASS
	2DH5	HCH	2.89	106.7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



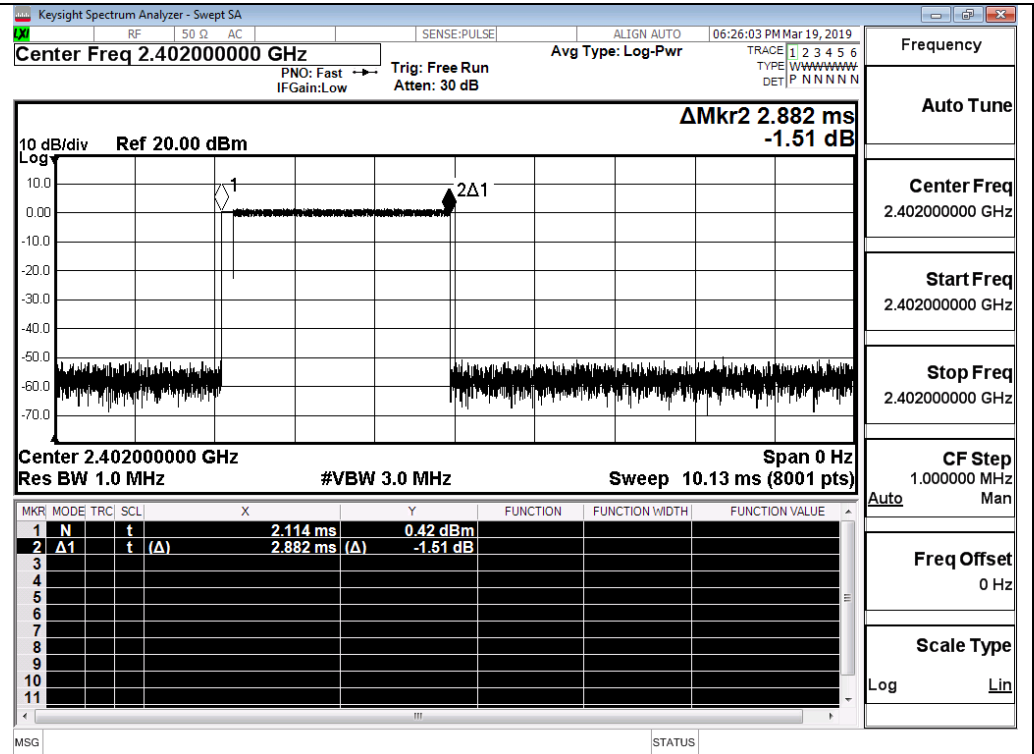
GFSK_DH5/MCH



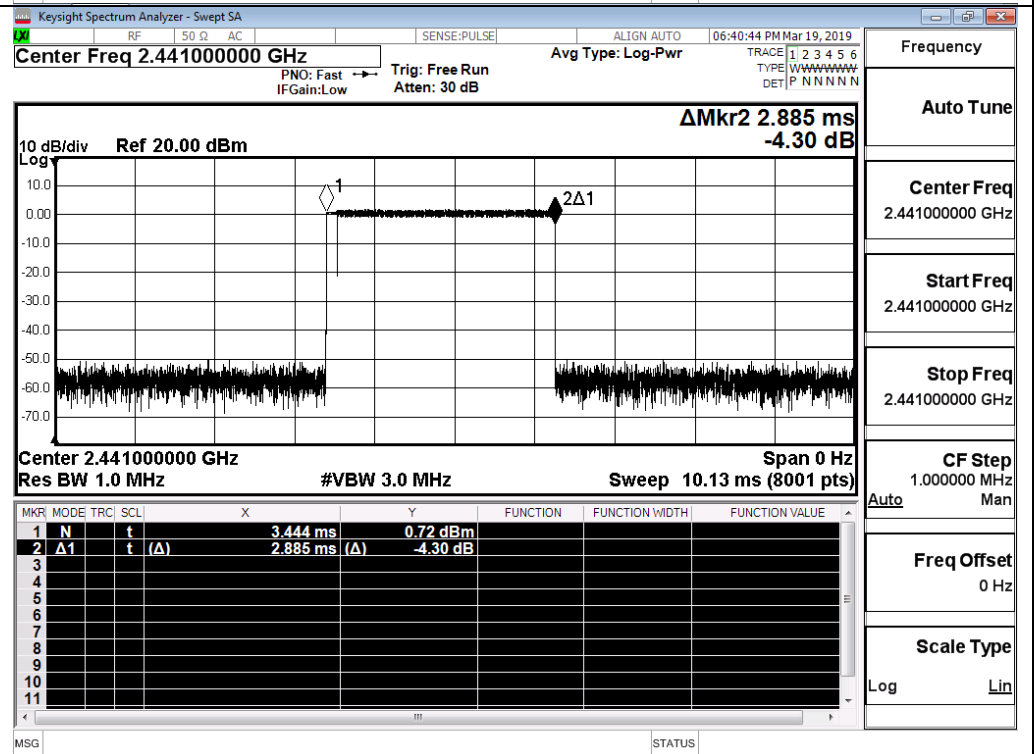
GFSK_DH5/HCH



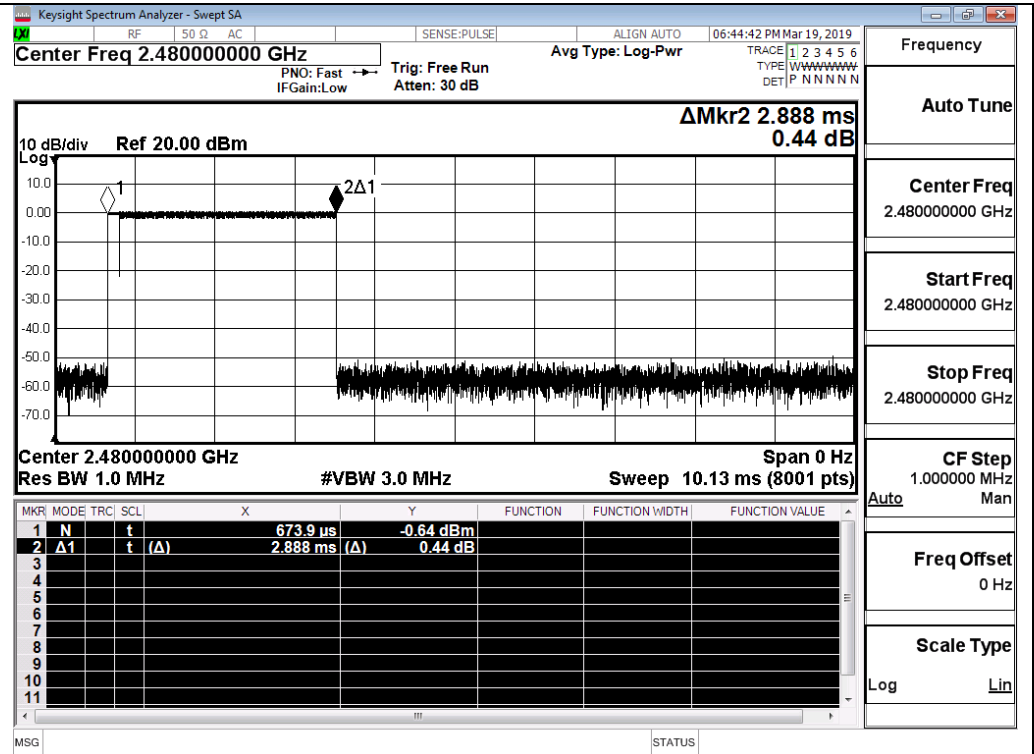
$\pi/4$ DQPSK
_2DH5/LCH



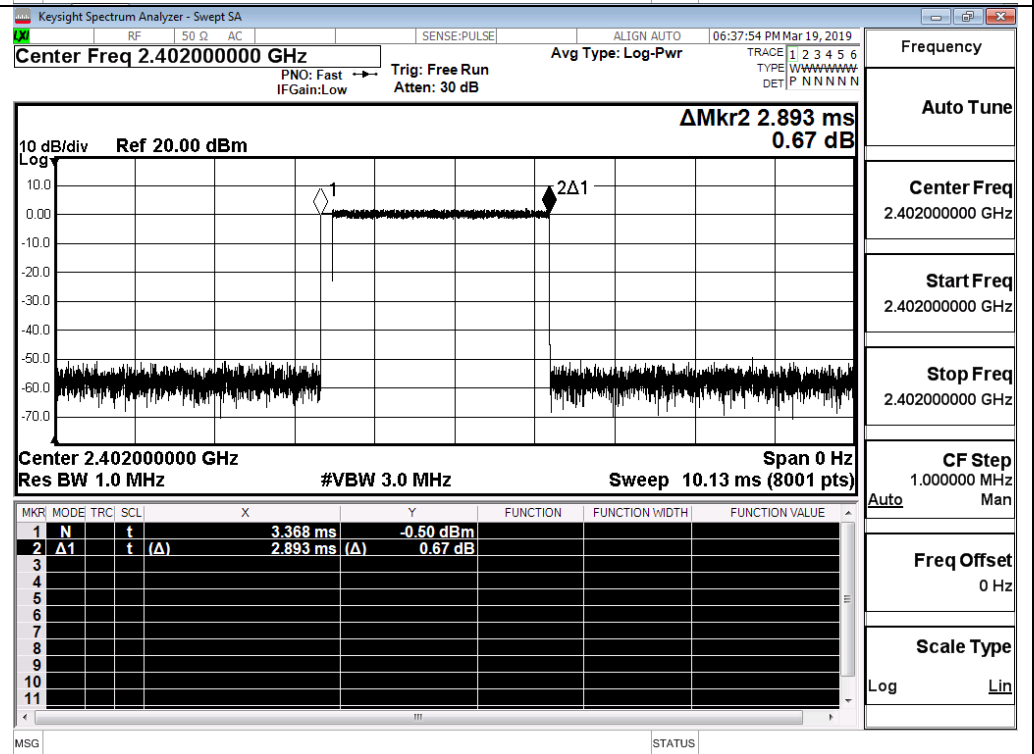
$\pi/4$ DQPSK
_2DH5/MCH



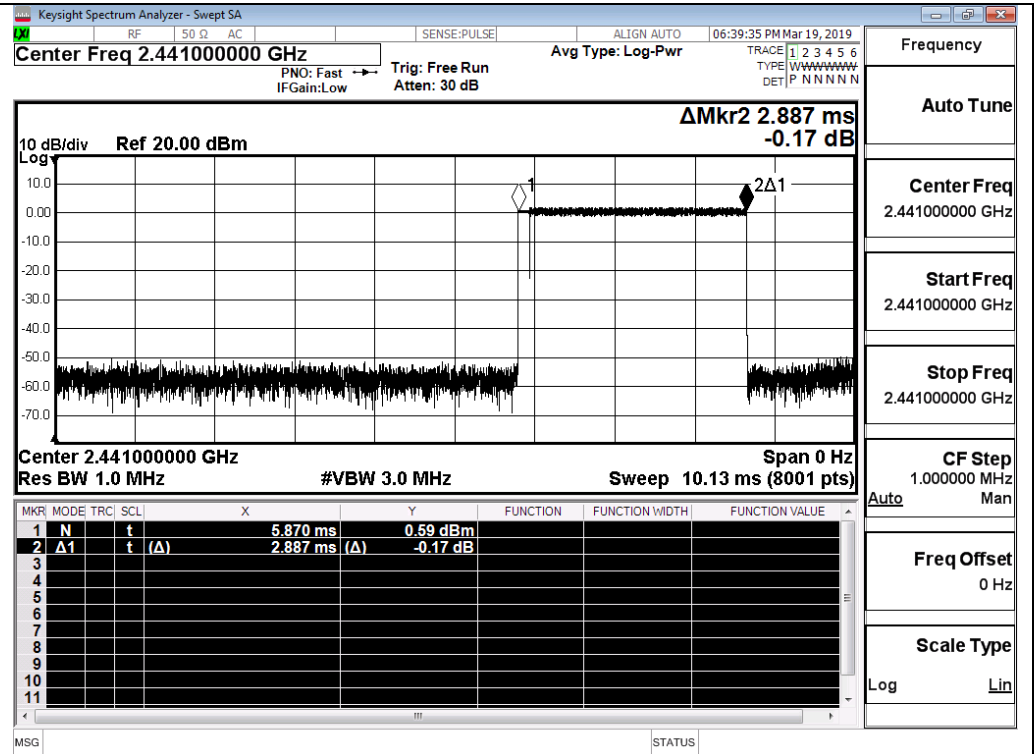
$\pi/4$ DQPSK
_2DH5/HCH



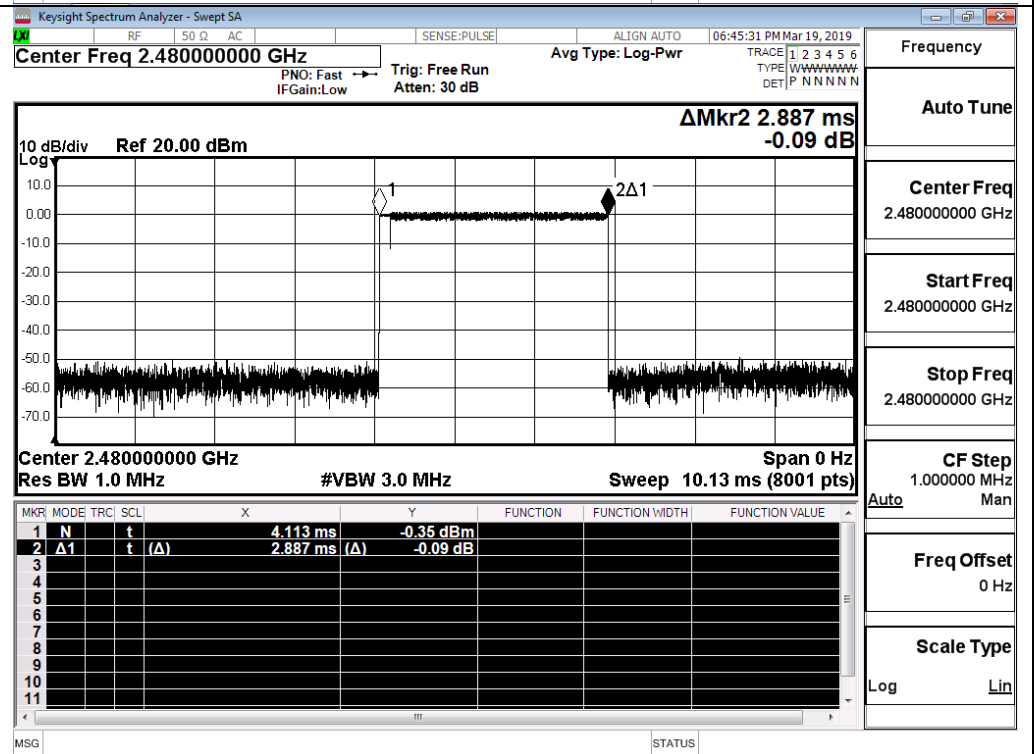
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



8DPSK_3DH5/HCH

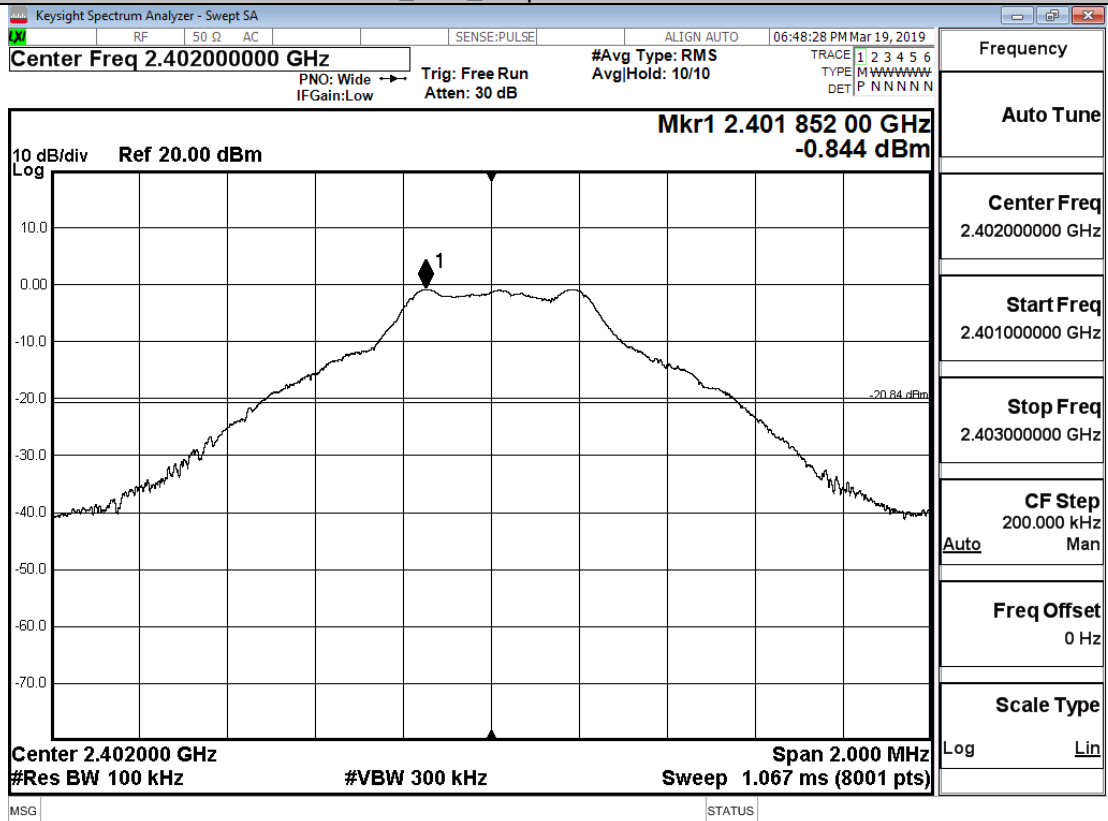


A.6 RF Conducted Spurious Emissions

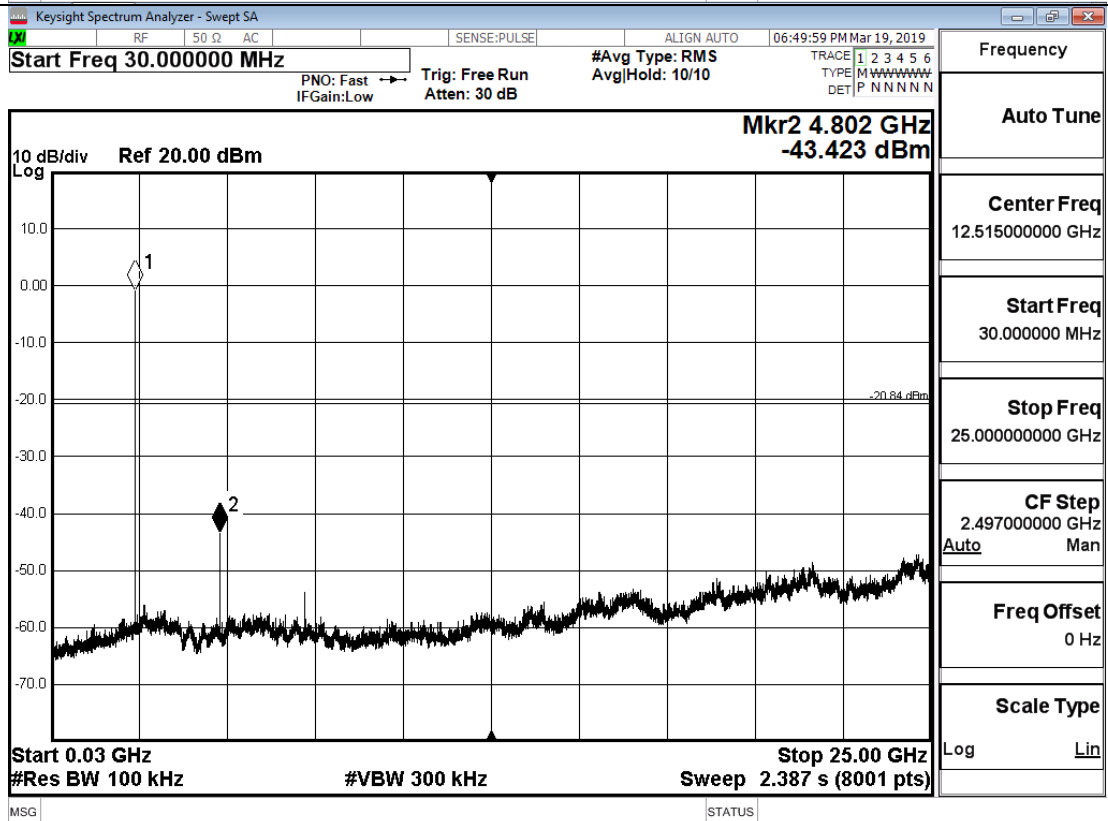
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.844	-43.423	-20.84	PASS
	MCH	-0.388	-43.399	-20.39	PASS
	HCH	-0.953	-41.678	-20.95	PASS
$\pi/4$ DQPSK	LCH	0.529	-39.234	-19.47	PASS
	MCH	1.213	-36.157	-18.79	PASS
	HCH	0.077	-42.211	-19.92	PASS
8DPSK	LCH	0.485	-43.953	-19.52	PASS
	MCH	1.014	-39.880	-18.99	PASS
	HCH	0.542	-40.162	-19.46	PASS

GFSK_LCH_Graphs

Pref

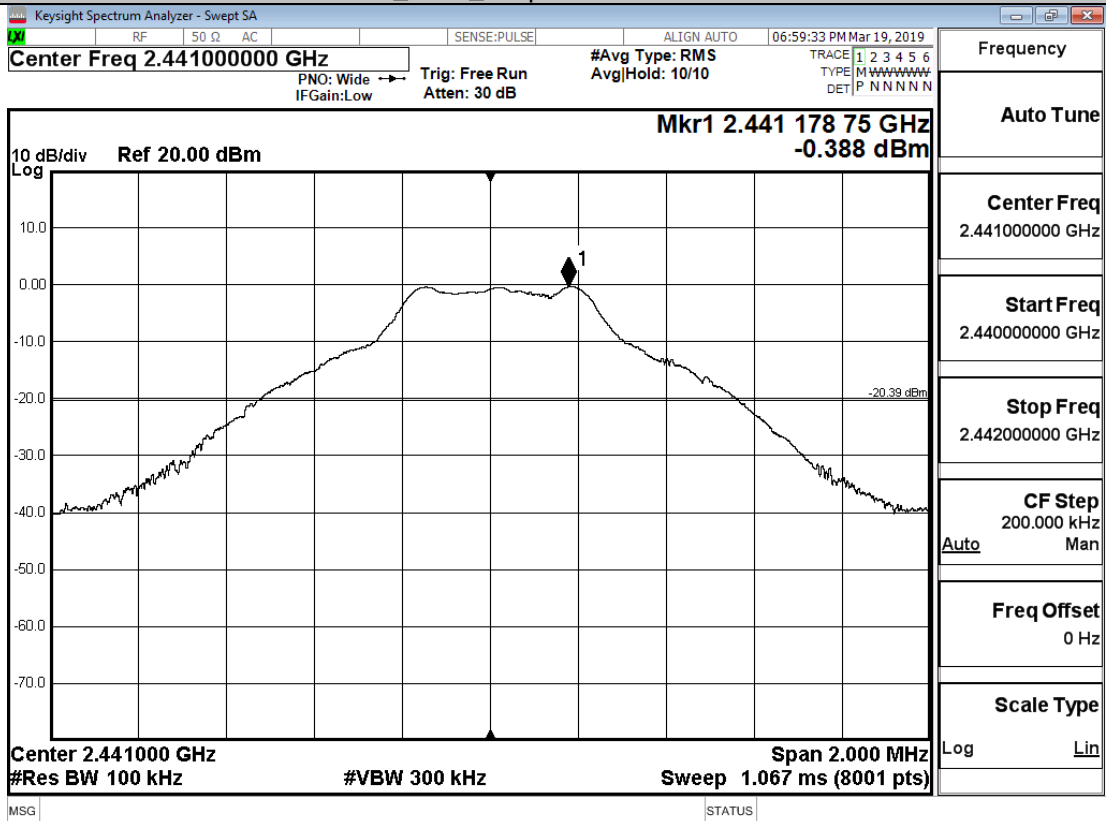


Puw

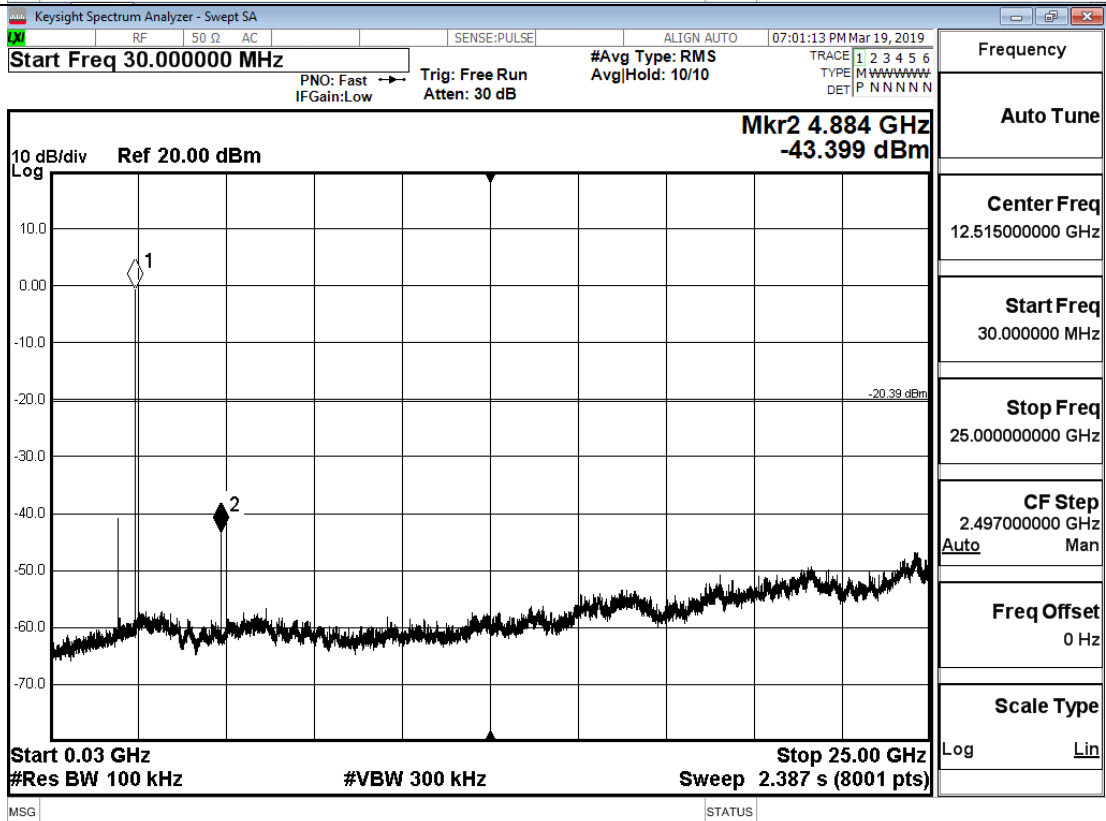


GFSK_MCH_Graphs

Pref

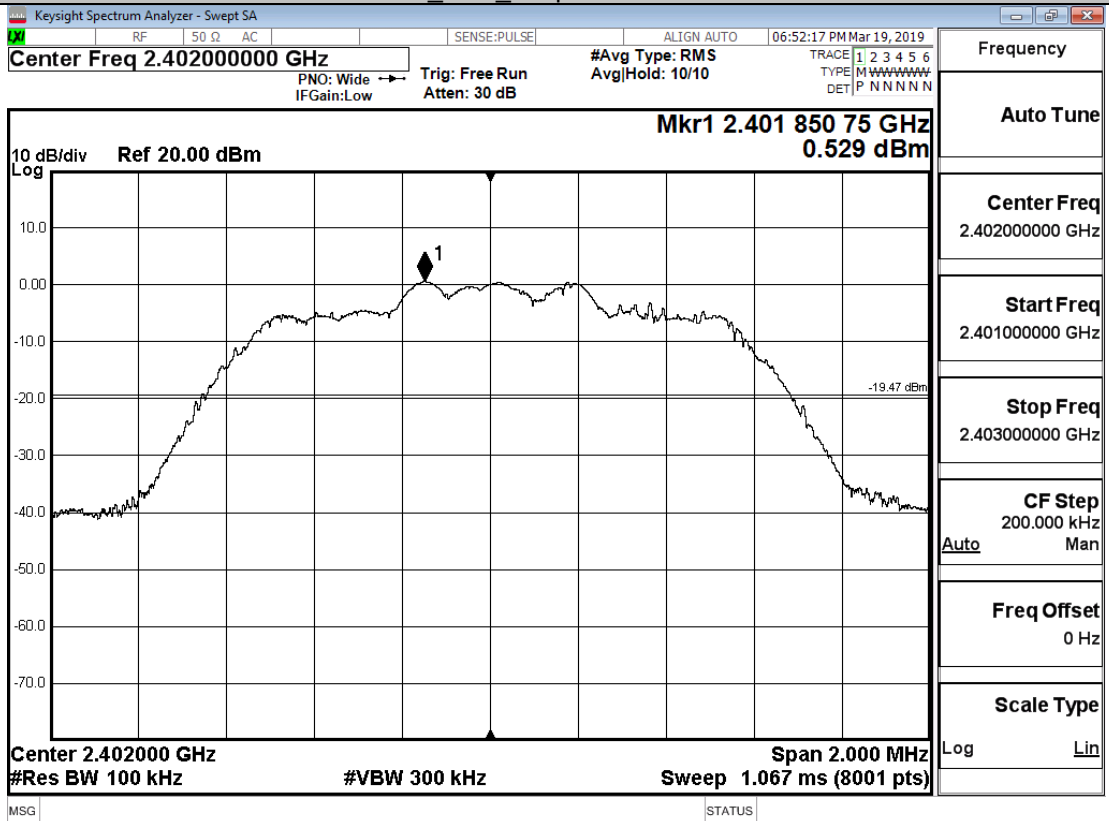


Puw

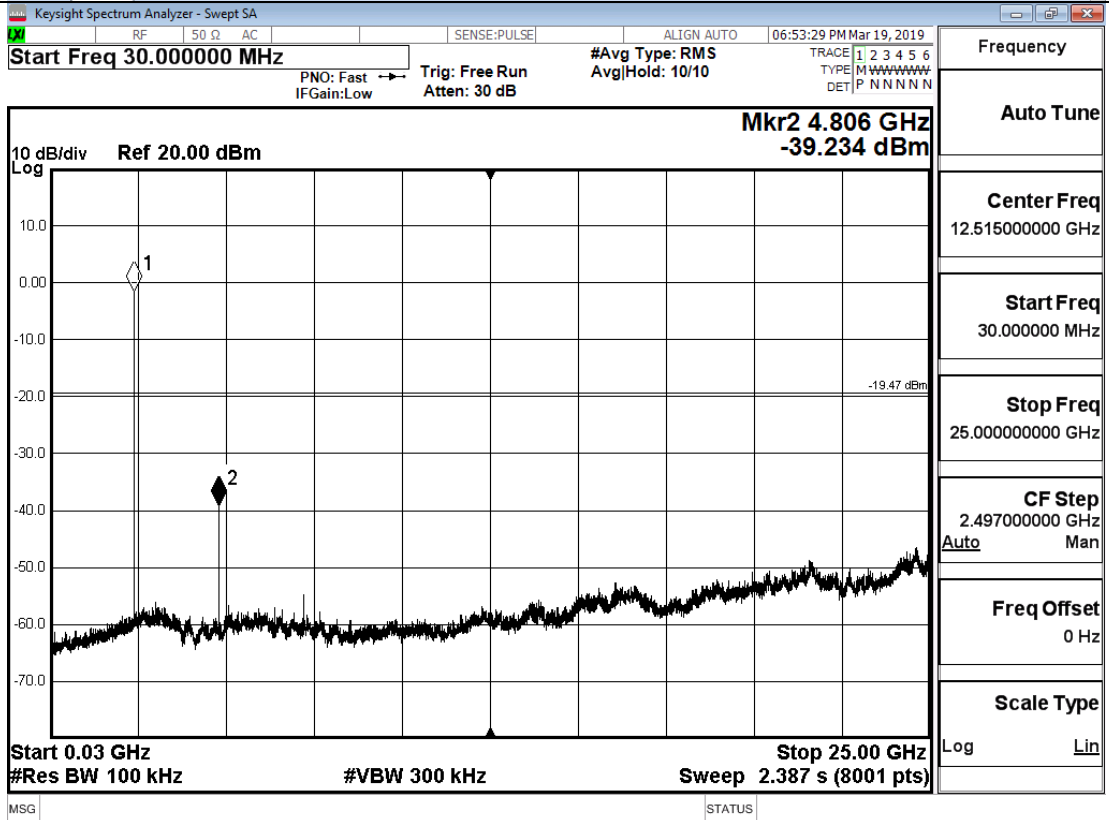


$\pi/4$ DQPSK_LCH_Graphs

Pref

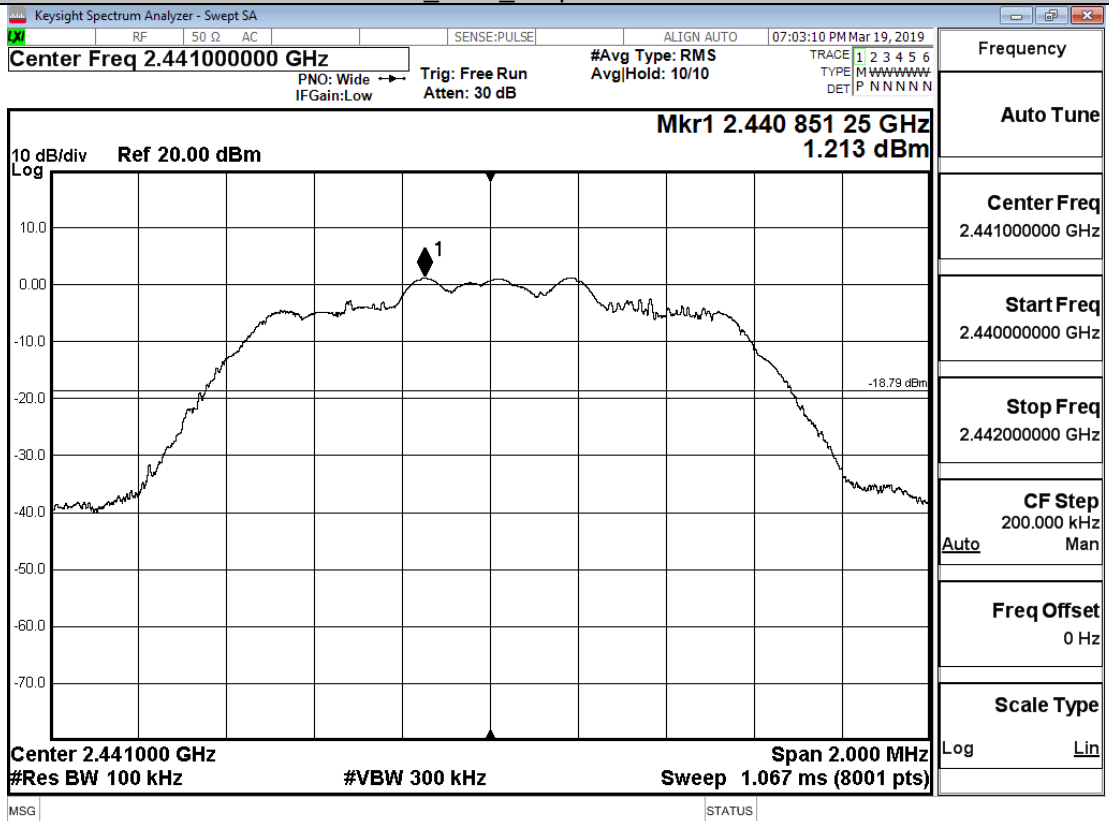


Puw

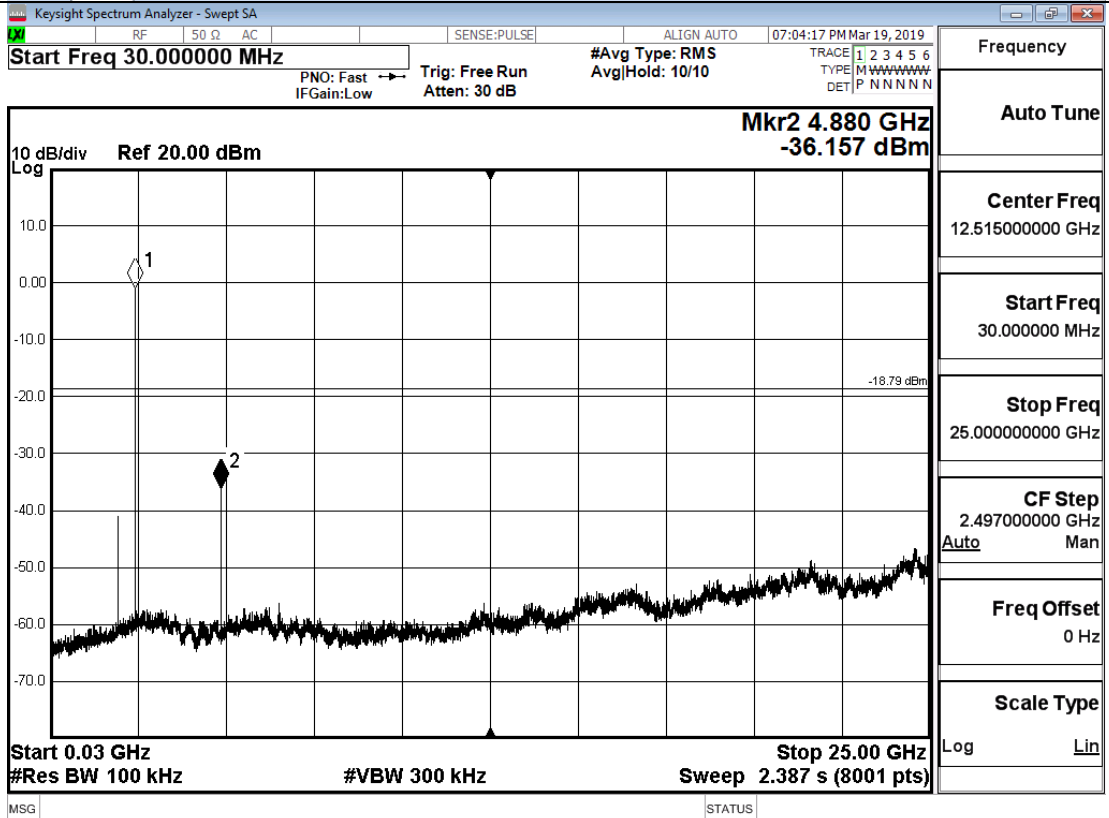


$\pi/4$ DQPSK_MCH_Graphs

Pref

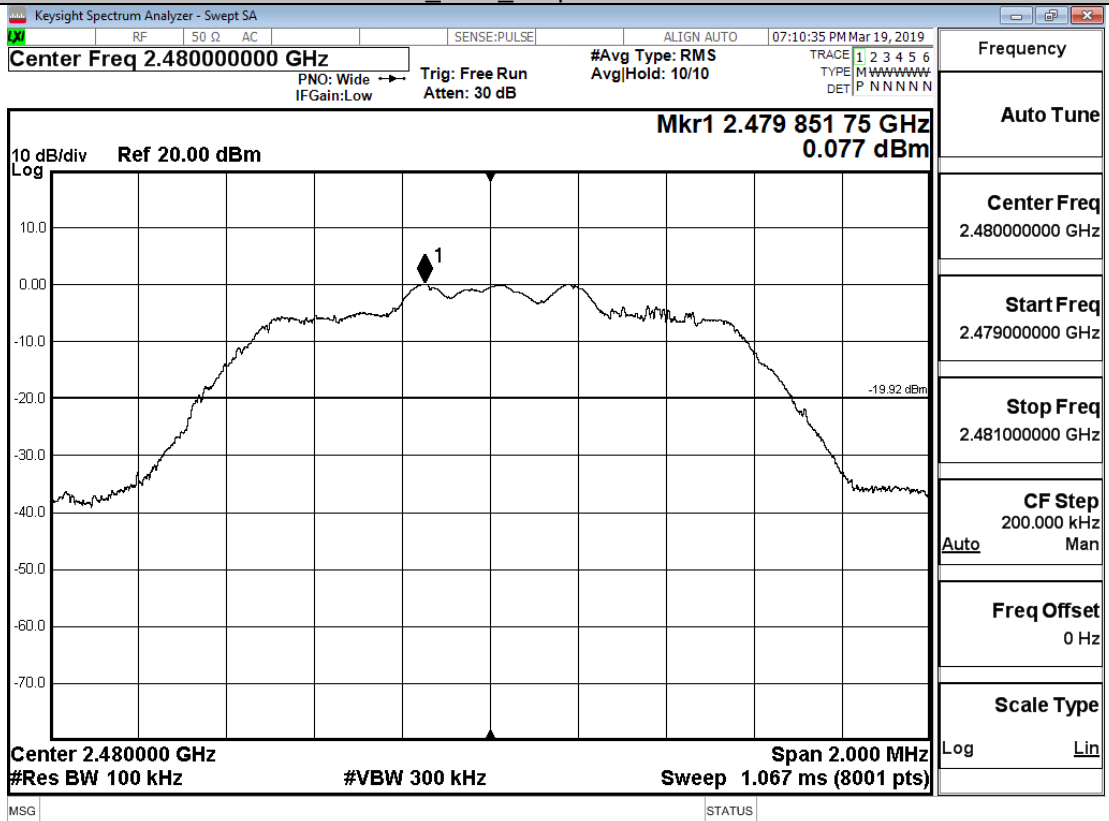


Puw

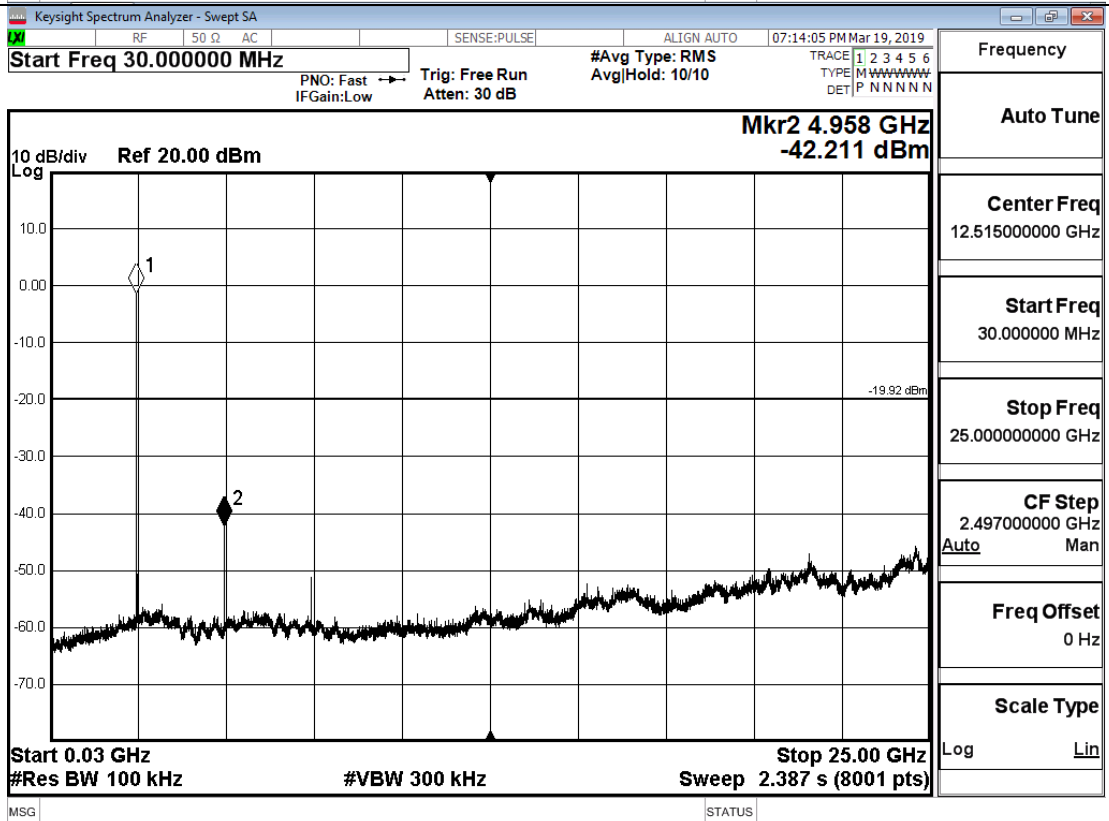


$\pi/4$ DQPSK_HCH_Graphs

Pref

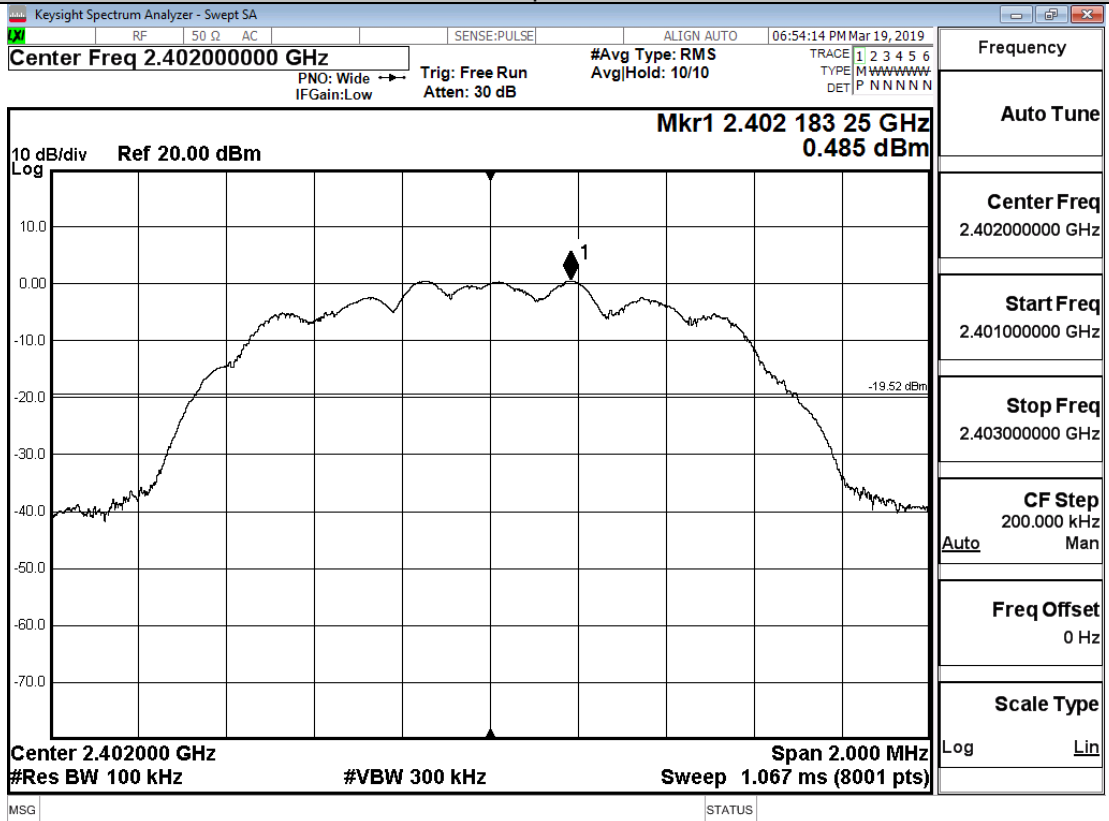


Puw

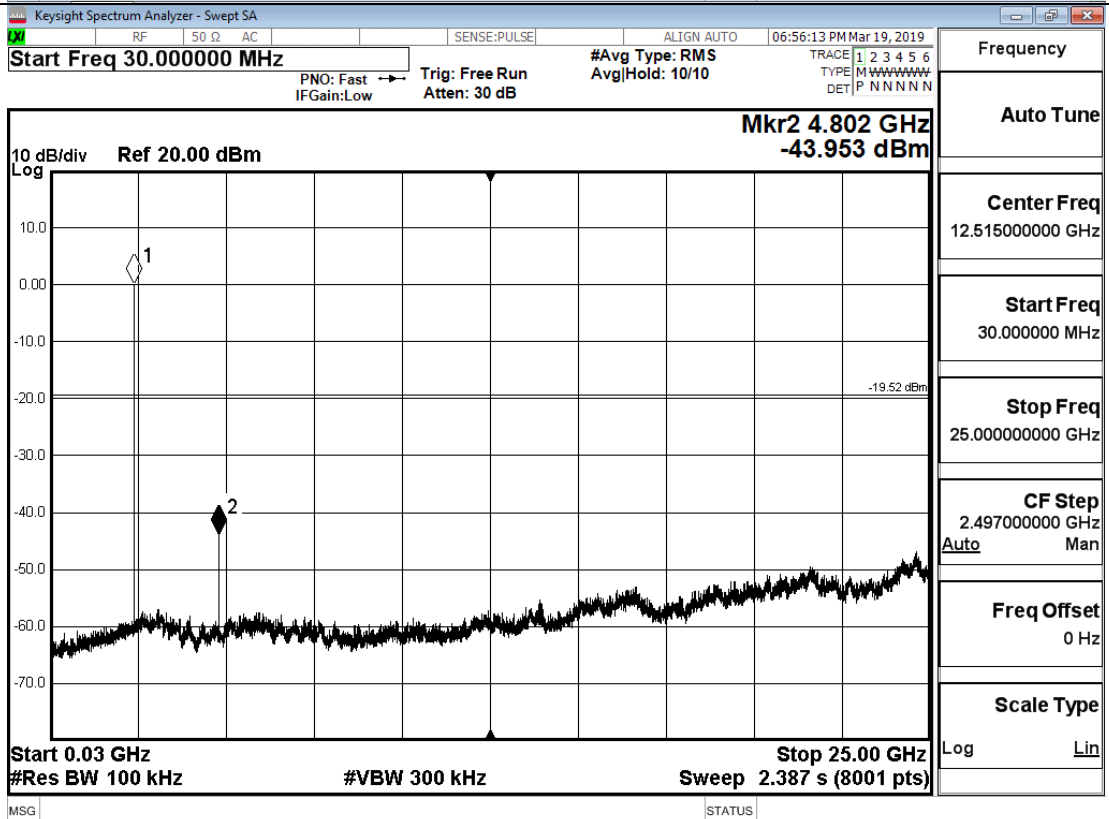


8DPSK_LCH_Graphs

Pref

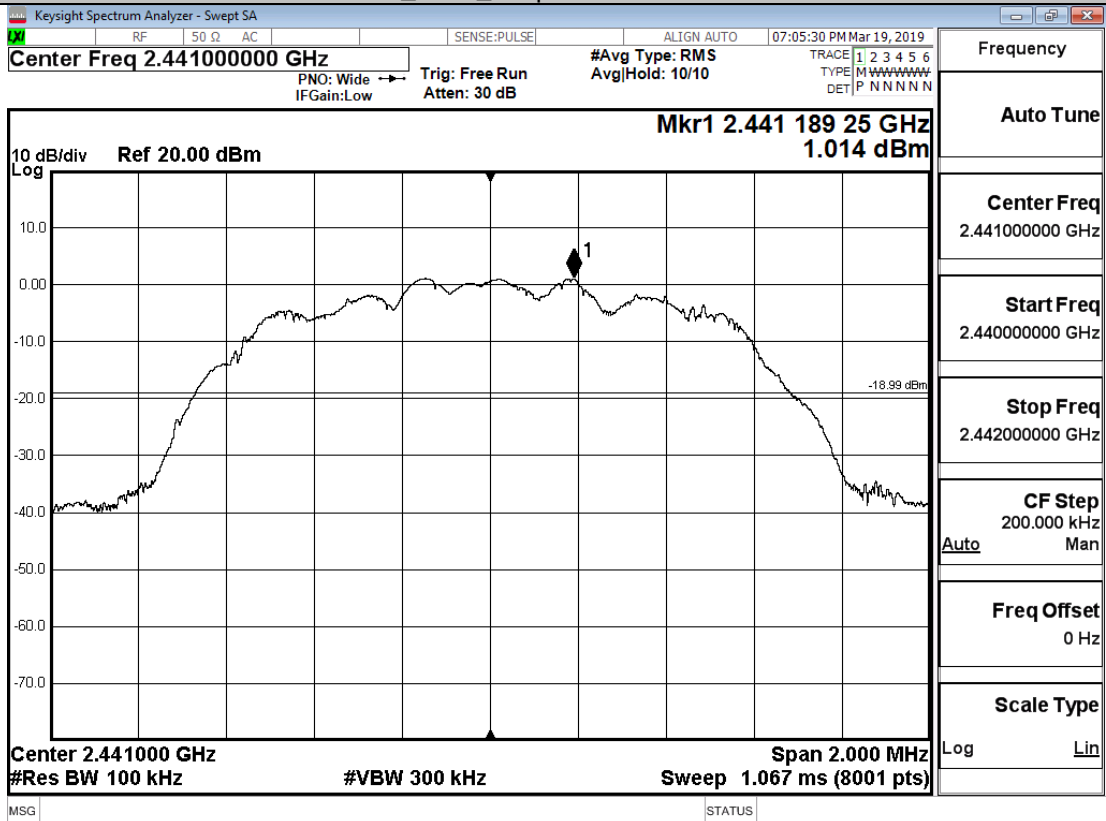


Puw

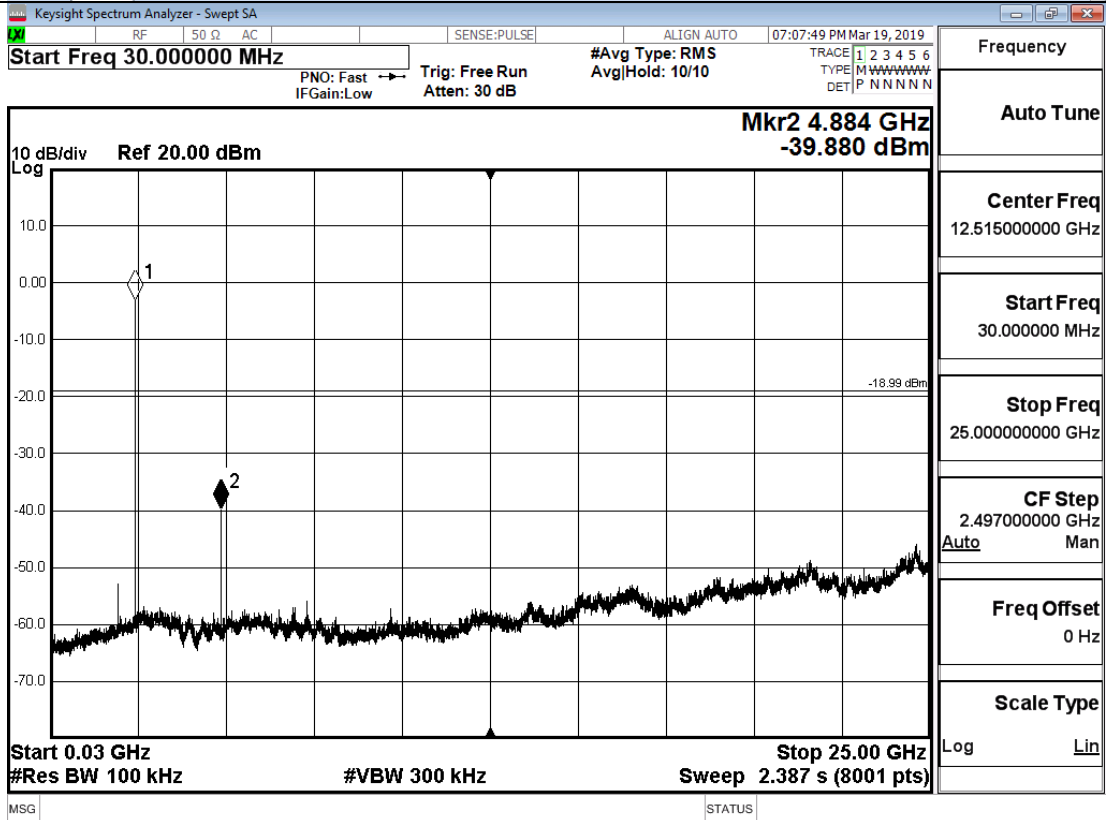


8DPSK_MCH_Graphs

Pref

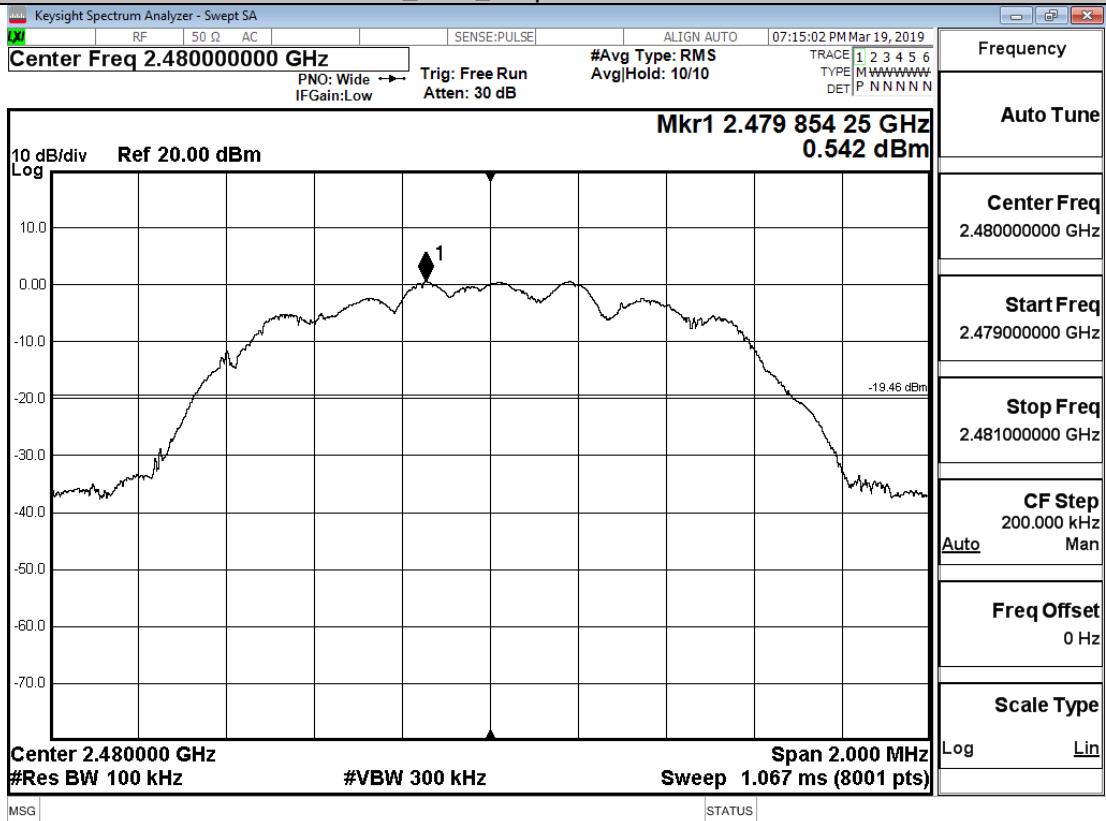


Puw

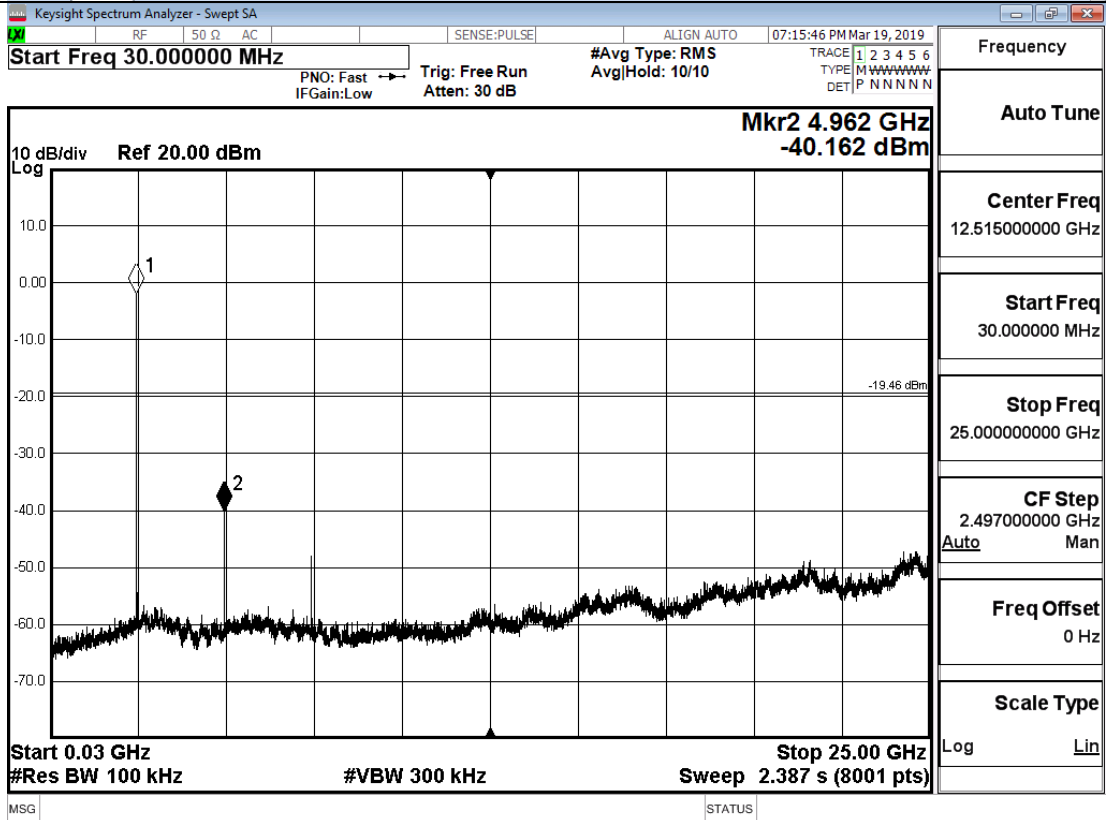


8DPSK_HCH_Graphs

Pref



Puw

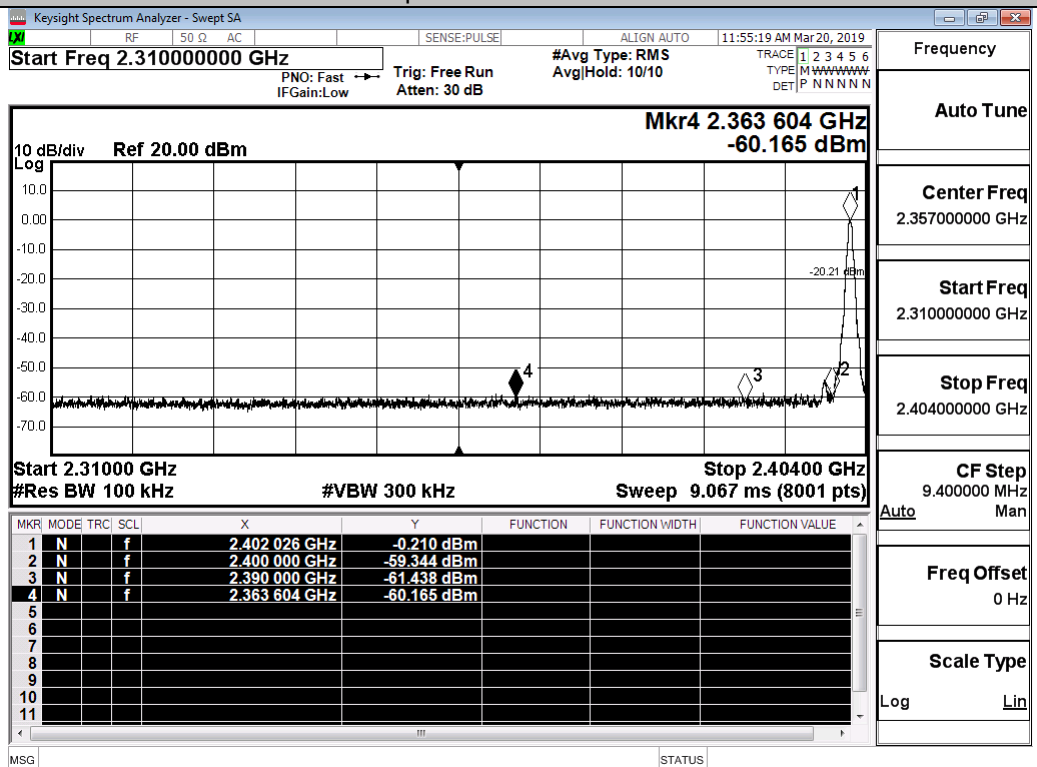


A.7 Band-edge for RF Conducted Emissions

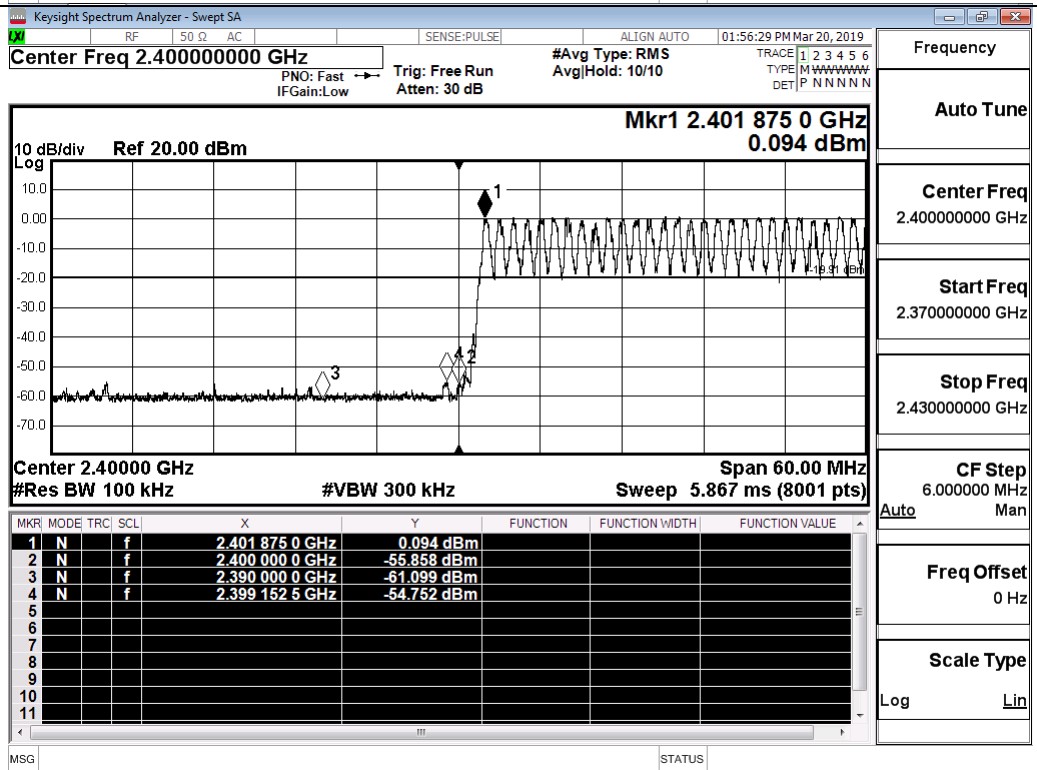
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-0.210	Off	-59.344	-20.21	PASS
			0.094	On	-54.752	-19.91	PASS
	HCH	2480	1.767	Off	-54.383	-18.23	PASS
			1.750	On	-56.664	-18.25	PASS
$\pi/4$ DQPSK	LCH	2402	1.129	Off	-55.048	-18.87	PASS
			1.232	On	-54.269	-18.77	PASS
	HCH	2480	2.890	Off	-53.534	-17.11	PASS
			2.587	On	-57.846	-17.41	PASS
8DPSK	LCH	2402	1.133	Off	-56.772	-18.87	PASS
			1.017	On	-52.223	-18.98	PASS
	HCH	2480	2.825	Off	-52.569	-17.18	PASS
			2.455	On	-57.616	-17.55	PASS

Test Graphs

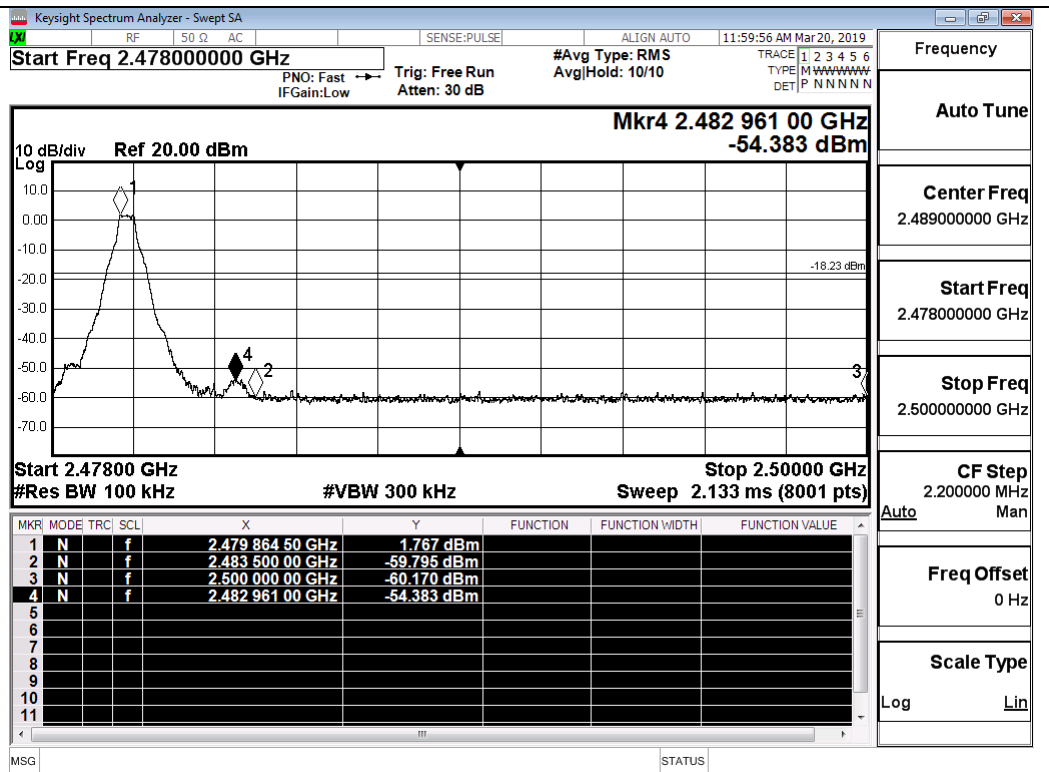
GFSK/LCH/No Hop



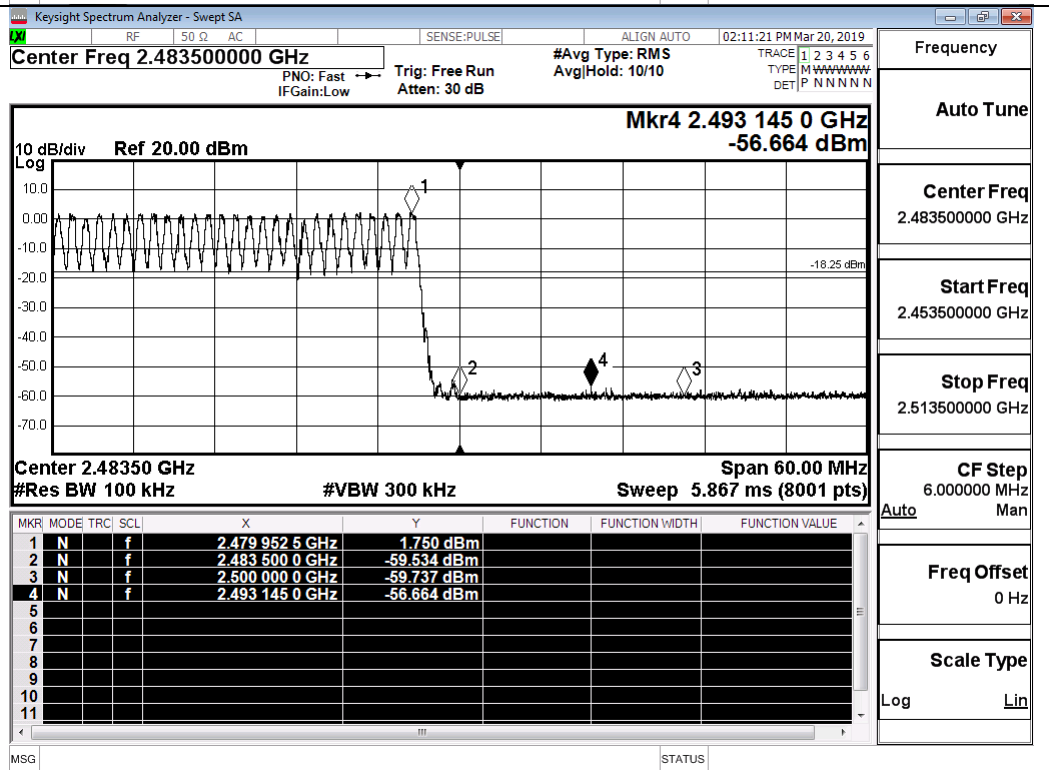
GFSK/LCH/Hop



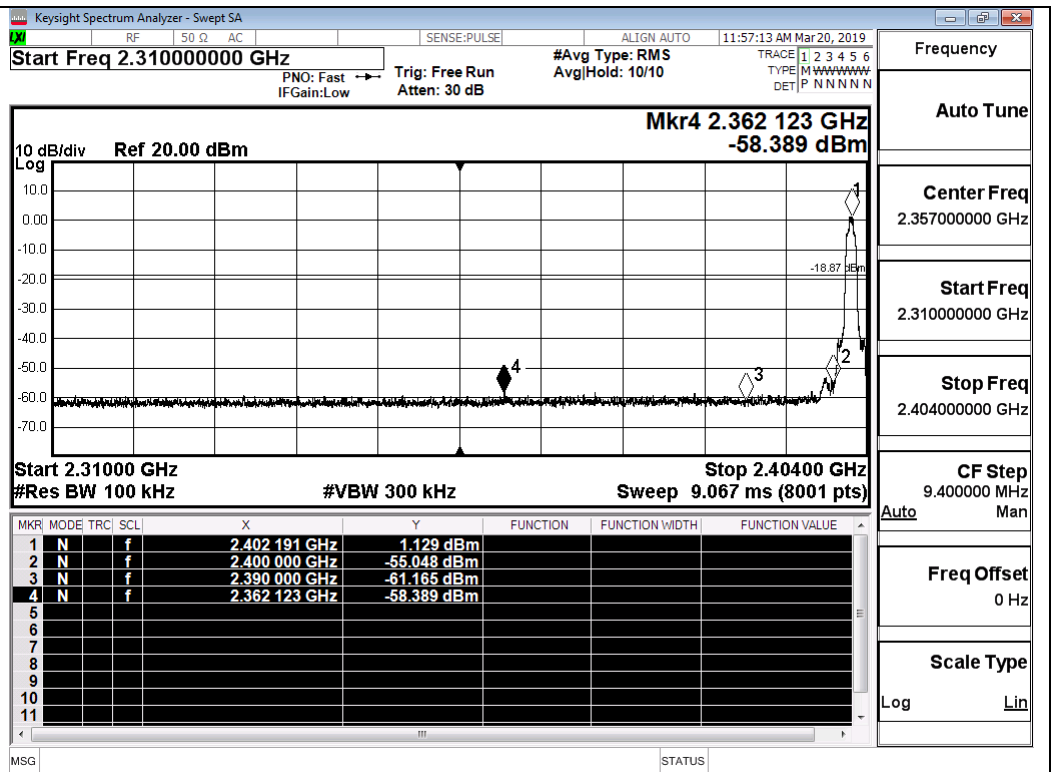
GFSK/HCH/No Hop



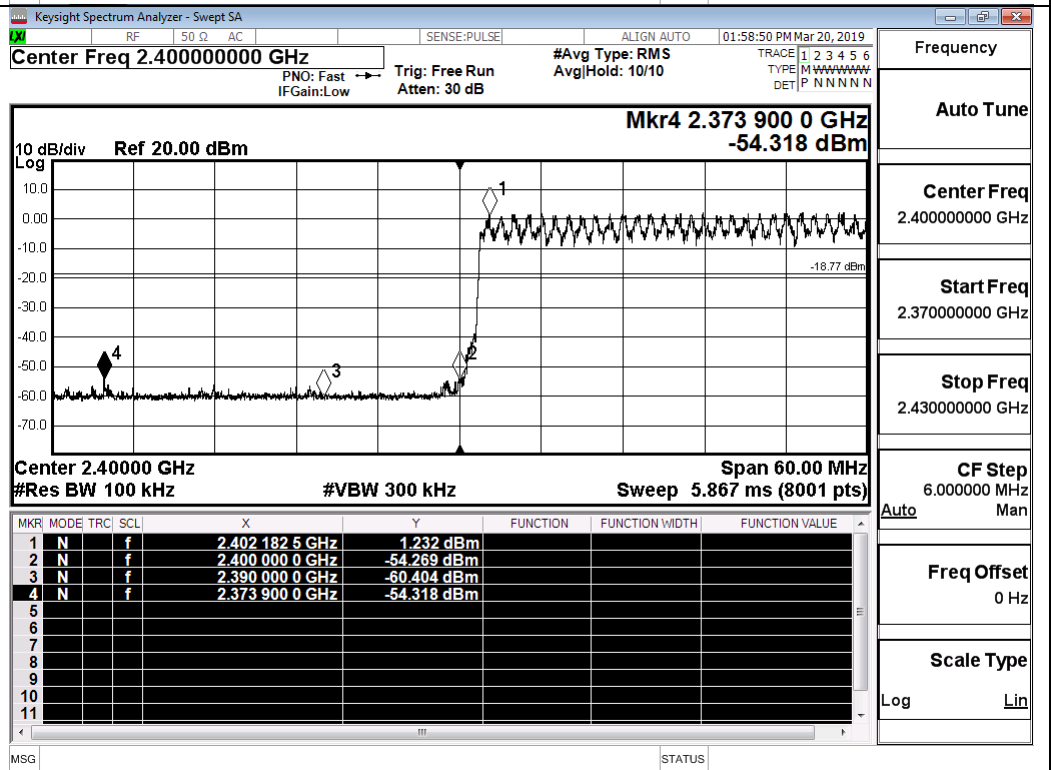
GFSK/HCH/Hop



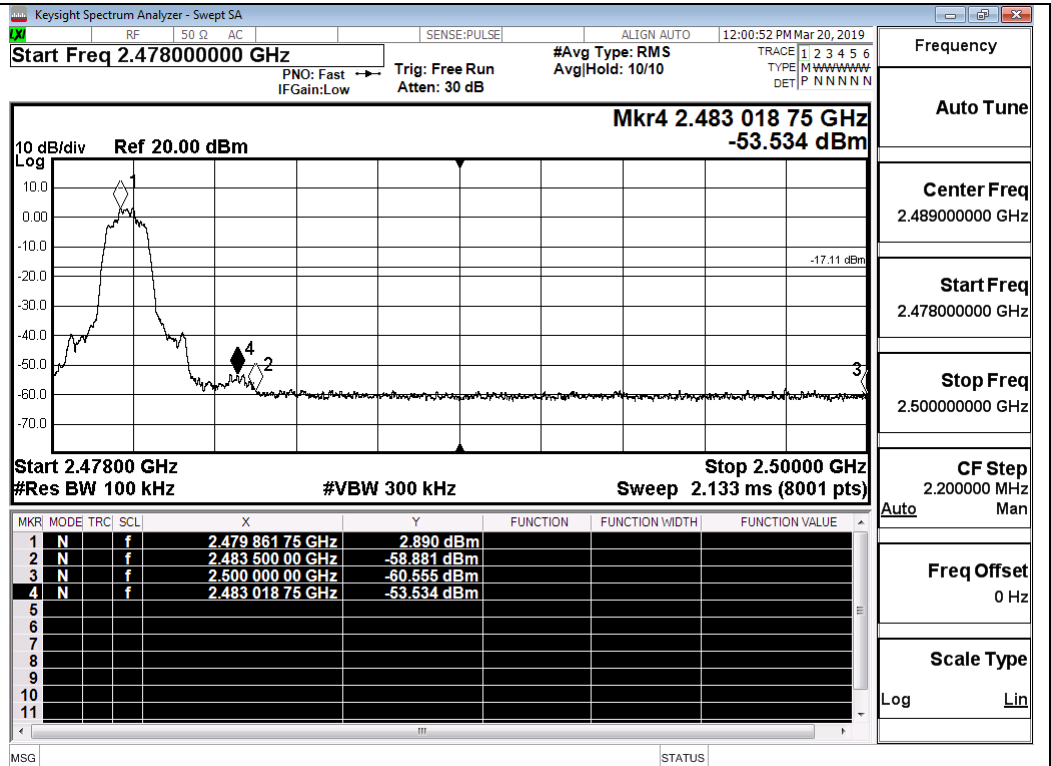
$\pi/4$ DQPSK/LCH/No Hop



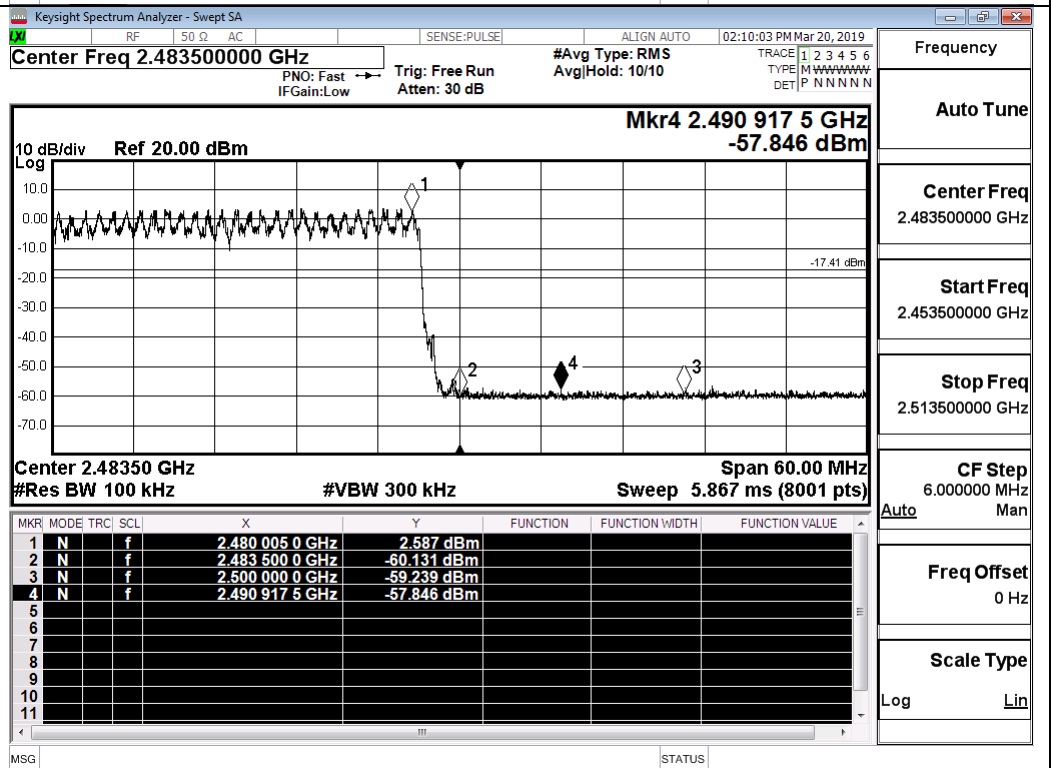
$\pi/4$ DQPSK/LCH/Hop



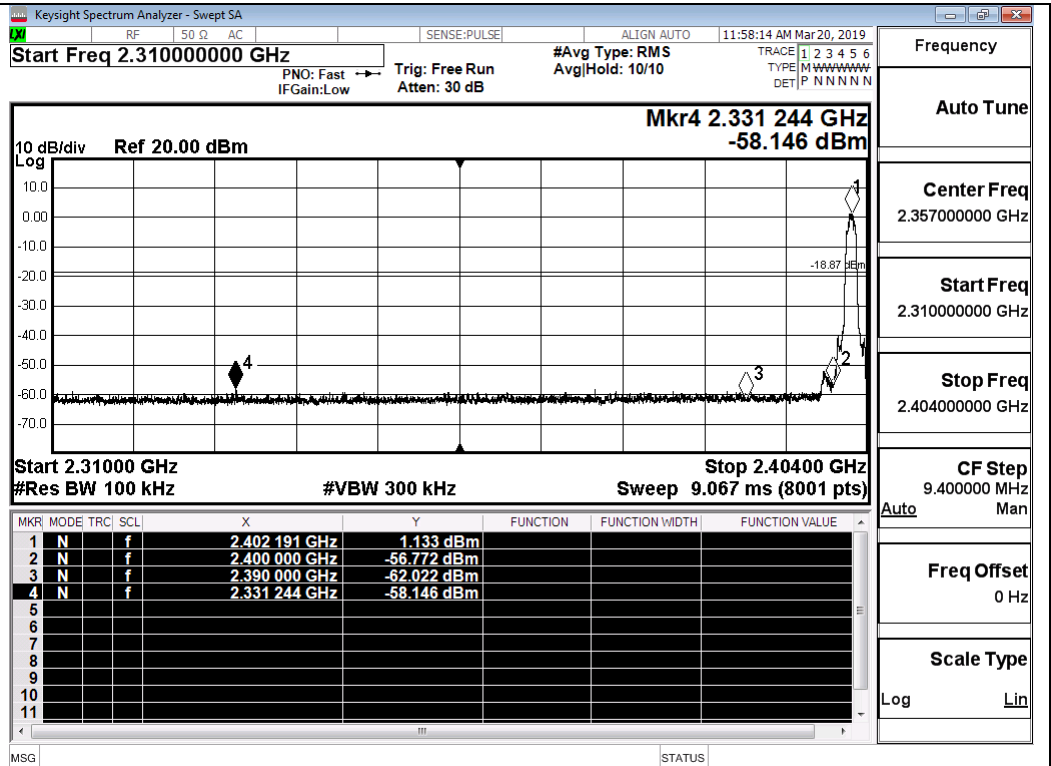
π /4DQPSK/HCH/No Hop



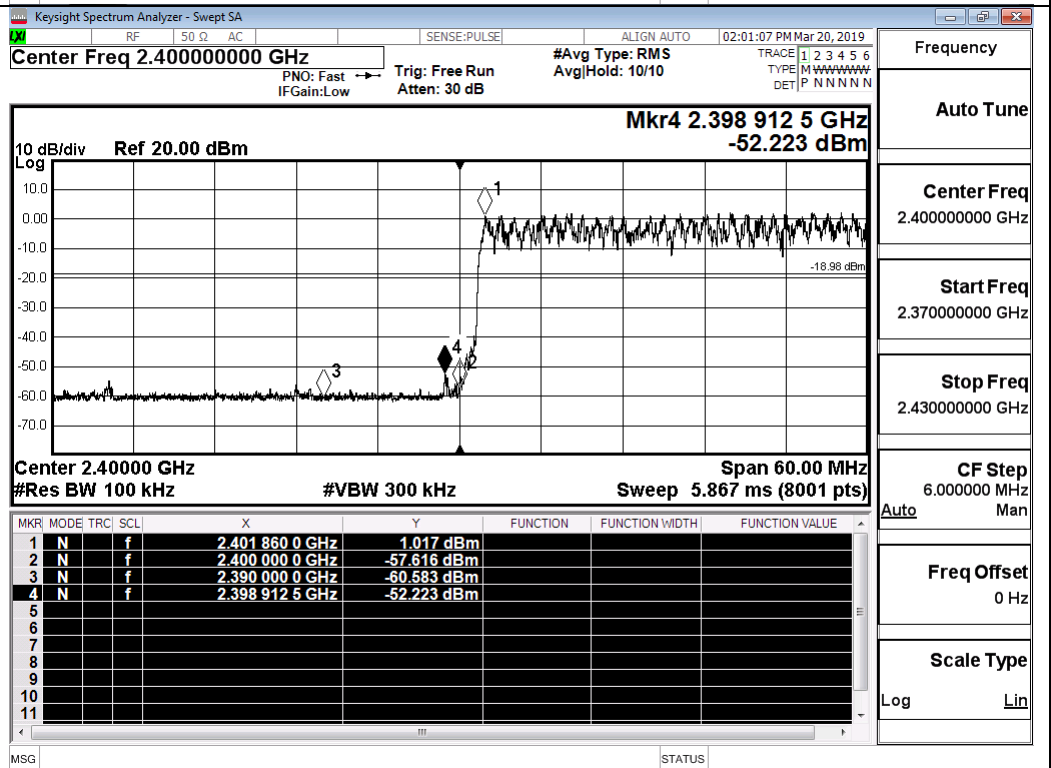
π /4DQPSK/HCH/Hop



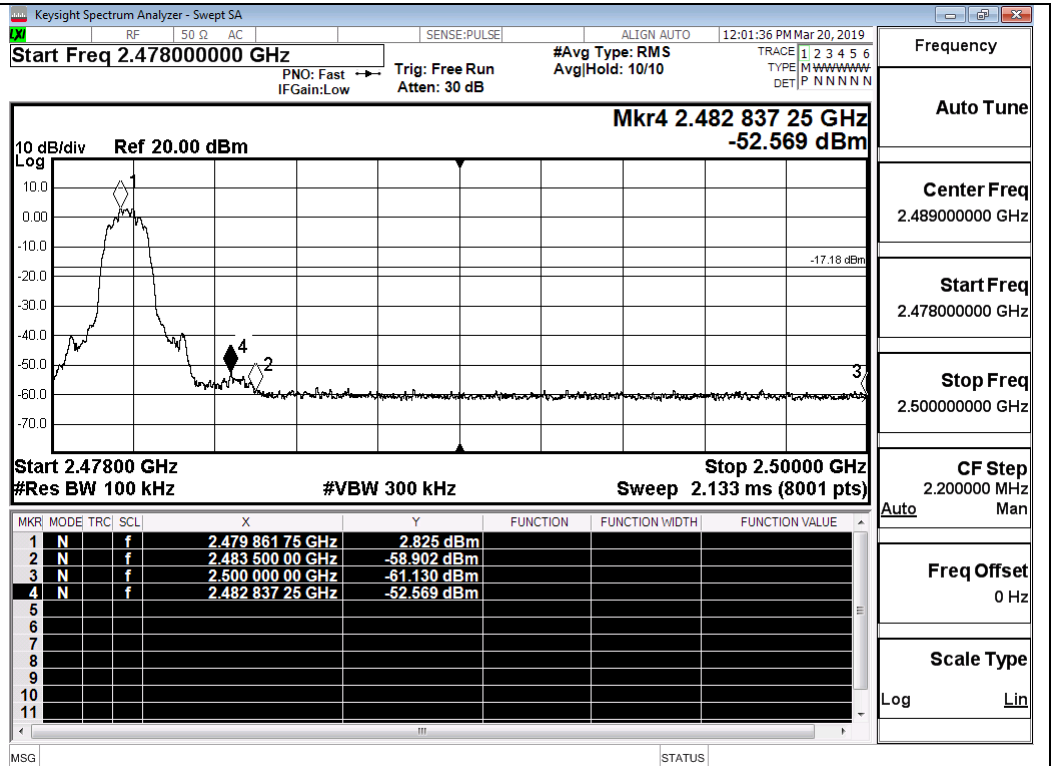
8DPSK/LCH/No Hop



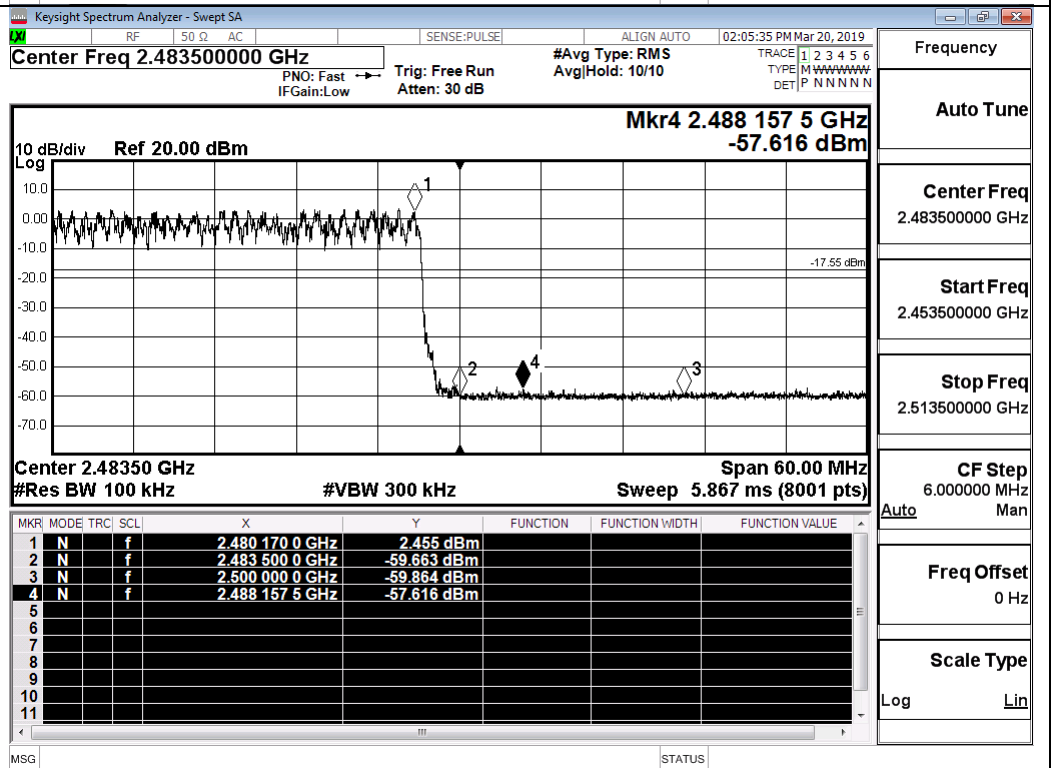
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



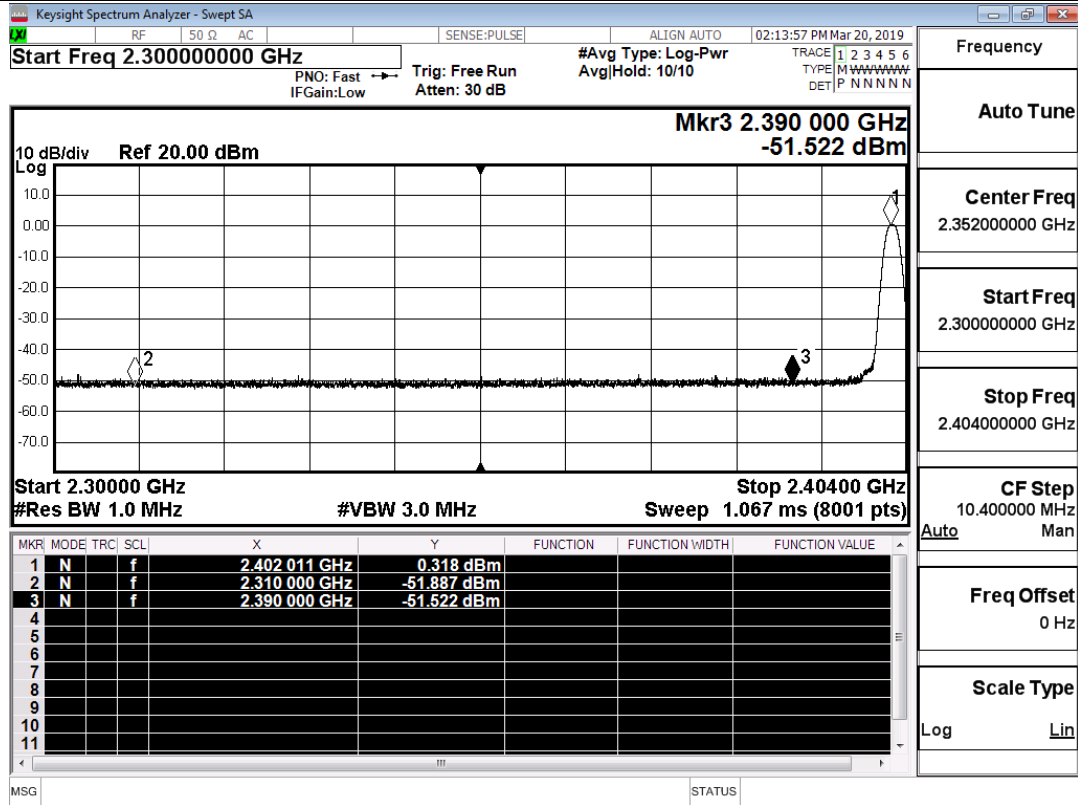
8DPSK/HCH/Hop



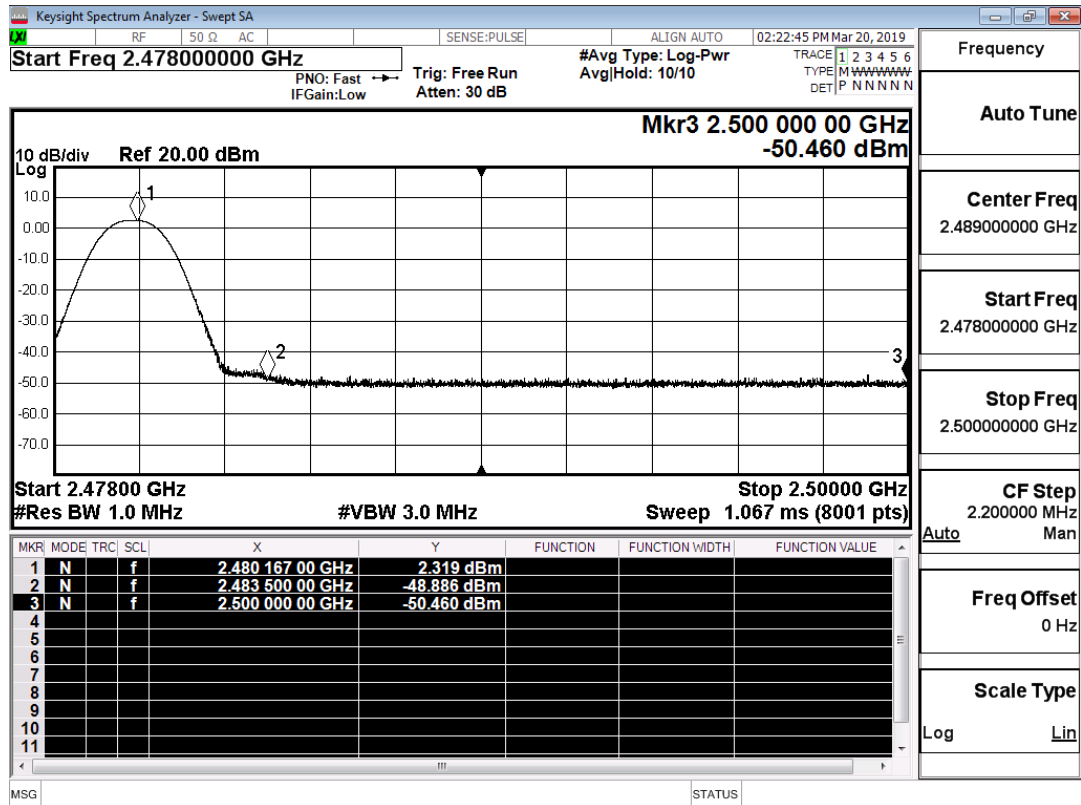
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-51.887	2.000	0	45.343	PEAK	54	PASS
	Off	2390.0	-51.522	2.000	0	45.708	PEAK	54	PASS
	Off	2483.5	-48.886	2.000	0	48.344	PEAK	54	PASS
	Off	2500.0	-50.460	2.000	0	46.770	PEAK	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-52.006	2.000	0	45.224	PEAK	54	PASS
	Off	2390.0	-50.890	2.000	0	46.340	PEAK	54	PASS
	Off	2483.5	-47.466	2.000	0	49.764	PEAK	54	PASS
	Off	2500.0	-51.751	2.000	0	45.479	PEAK	54	PASS
8DPSK	Off	2310.0	-52.659	2.000	0	44.571	PEAK	54	PASS
	Off	2390.0	-51.689	2.000	0	45.541	PEAK	54	PASS
	Off	2483.5	-47.944	2.000	0	49.286	PEAK	54	PASS
	Off	2500.0	-51.206	2.000	0	46.024	PEAK	54	PASS

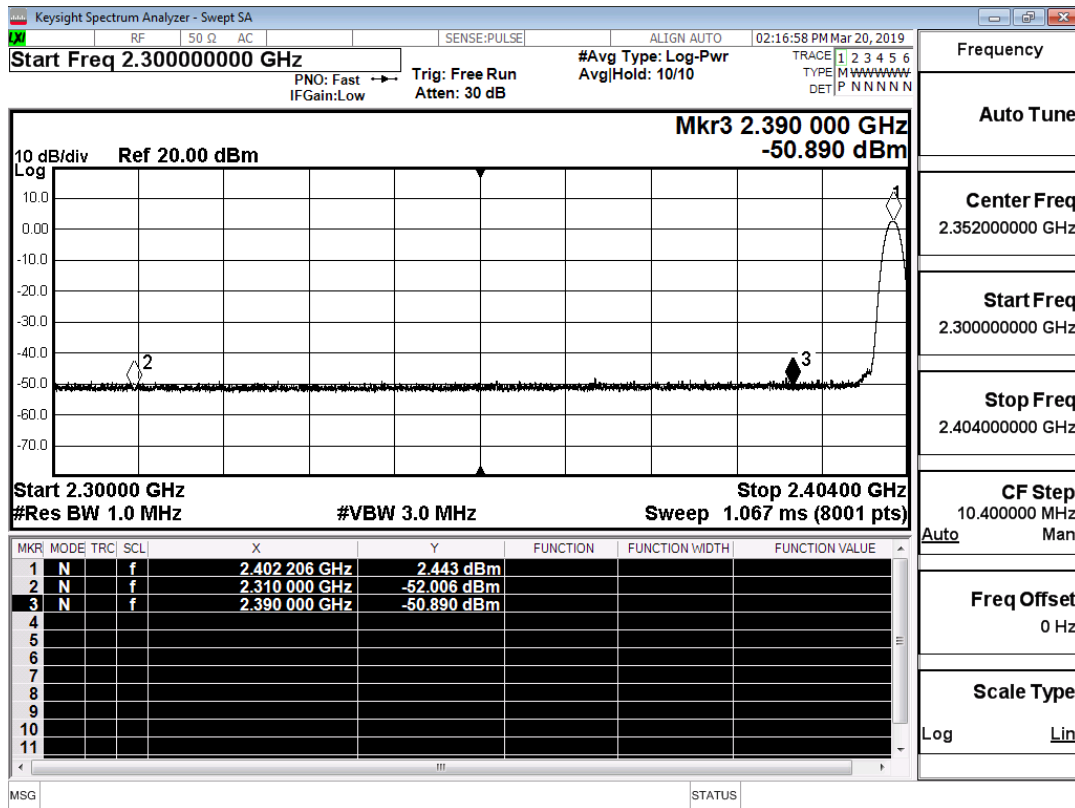
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



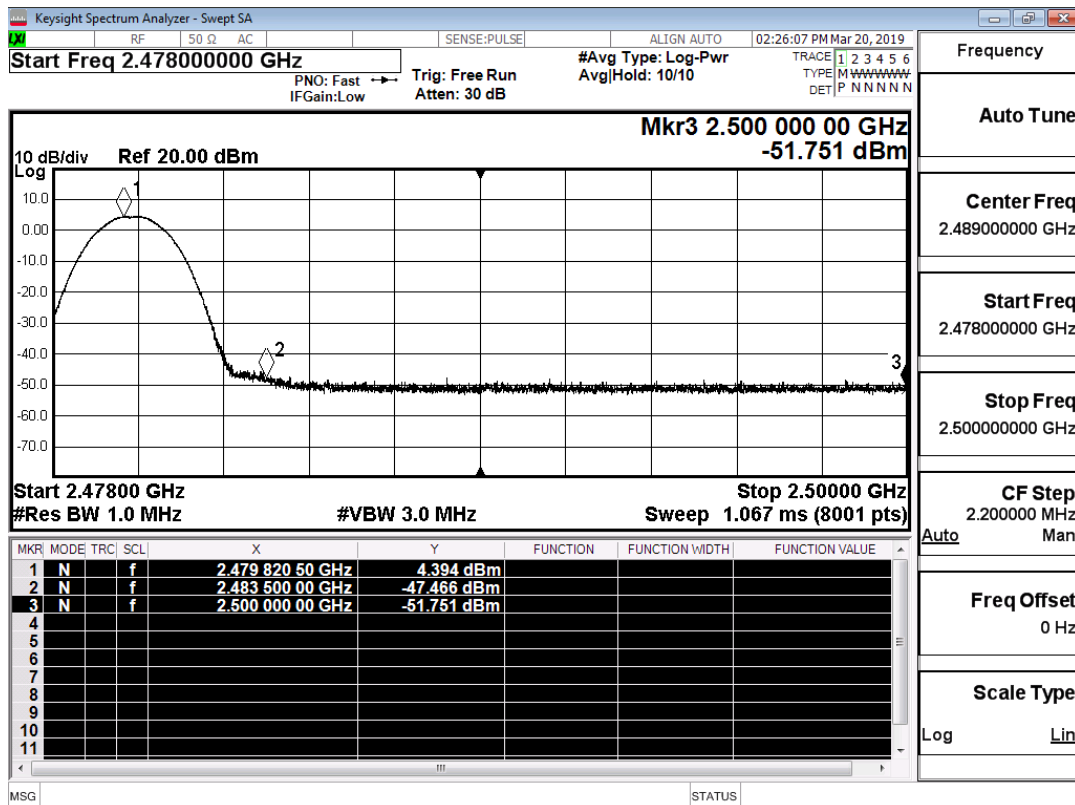
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



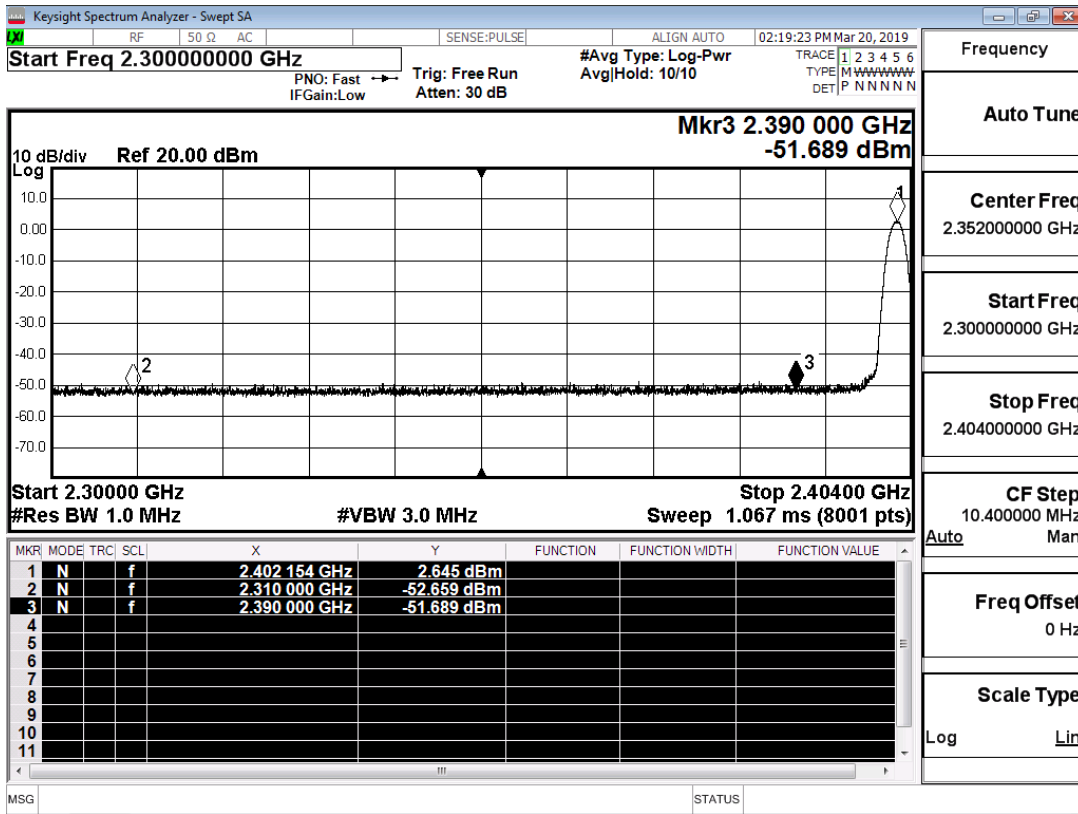
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



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



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



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

