

Appendix A

RF Test Data for BT V4.2 (BDR/EDR) (Conducted Measurement)

Product Name: Bluetooth Speaker

Trade Mark: ROKFORM

Test Model: 336501

Environmental Conditions

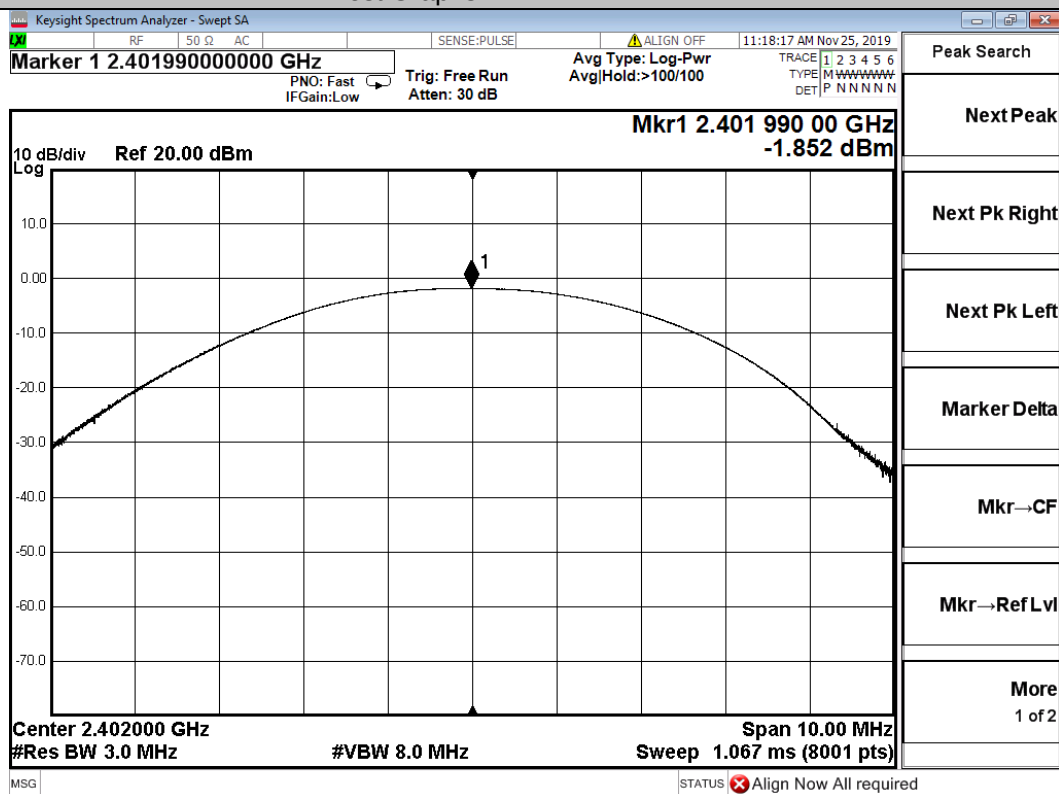
Temperature:	23.3 ° C
Relative Humidity:	55%
ATM Pressure:	100.0 kPa
Test Engineer:	CHUANG WANG
Supervised by:	JAYDEN ZHUO

A.1 Maximum Conducted Peak Output Power

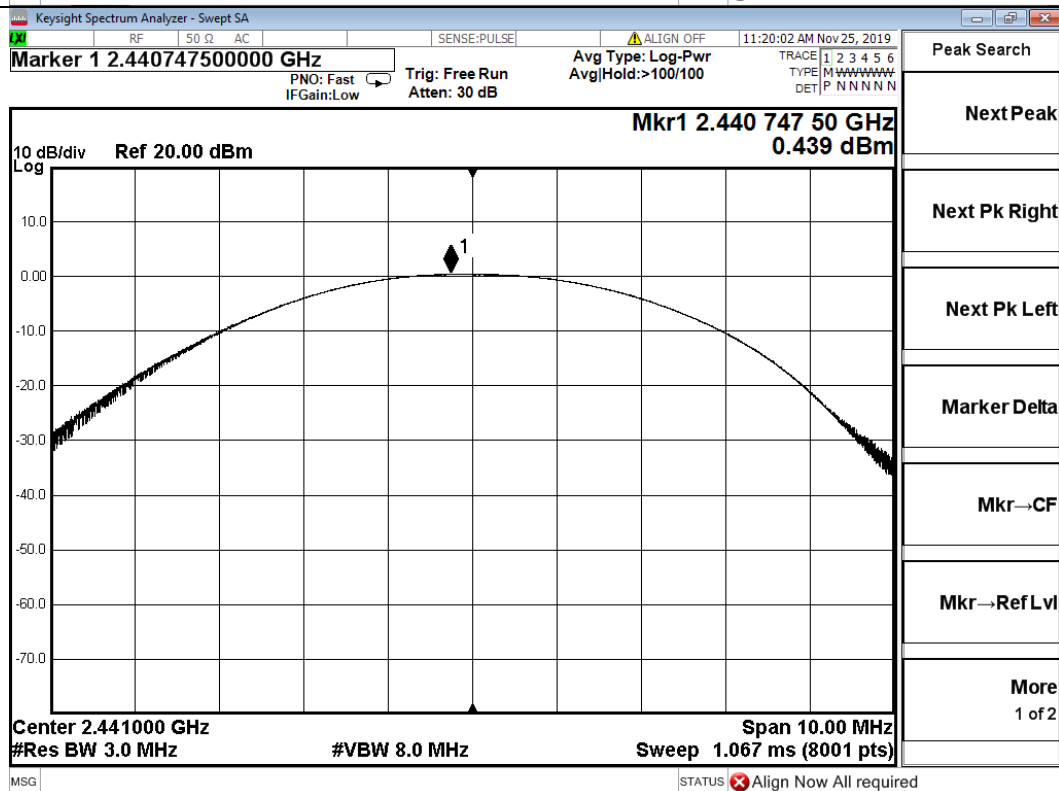
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-1.852	21	PASS
	MCH	0.439	21	PASS
	HCH	1.698	21	PASS
$\pi/4$ DQPSK	LCH	1.383	21	PASS
	MCH	3.475	21	PASS
	HCH	4.574	21	PASS
8-DPSK	LCH	1.656	21	PASS
	MCH	3.691	21	PASS
	HCH	4.754	21	PASS

Test Graphs

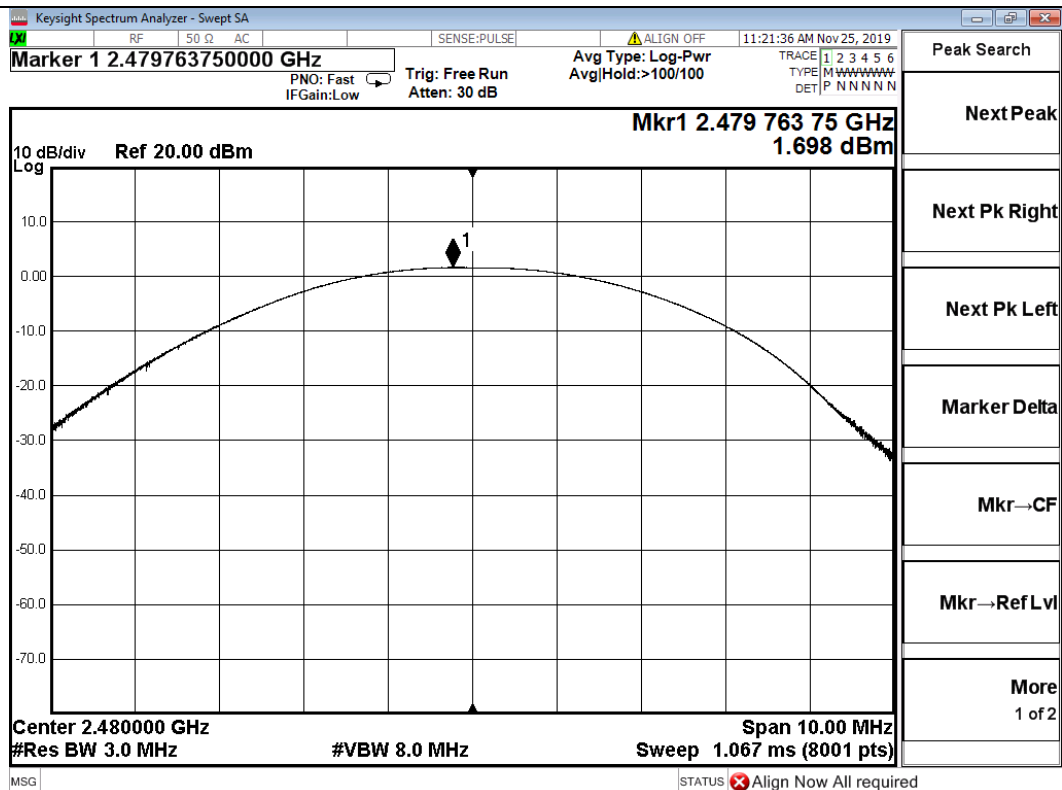
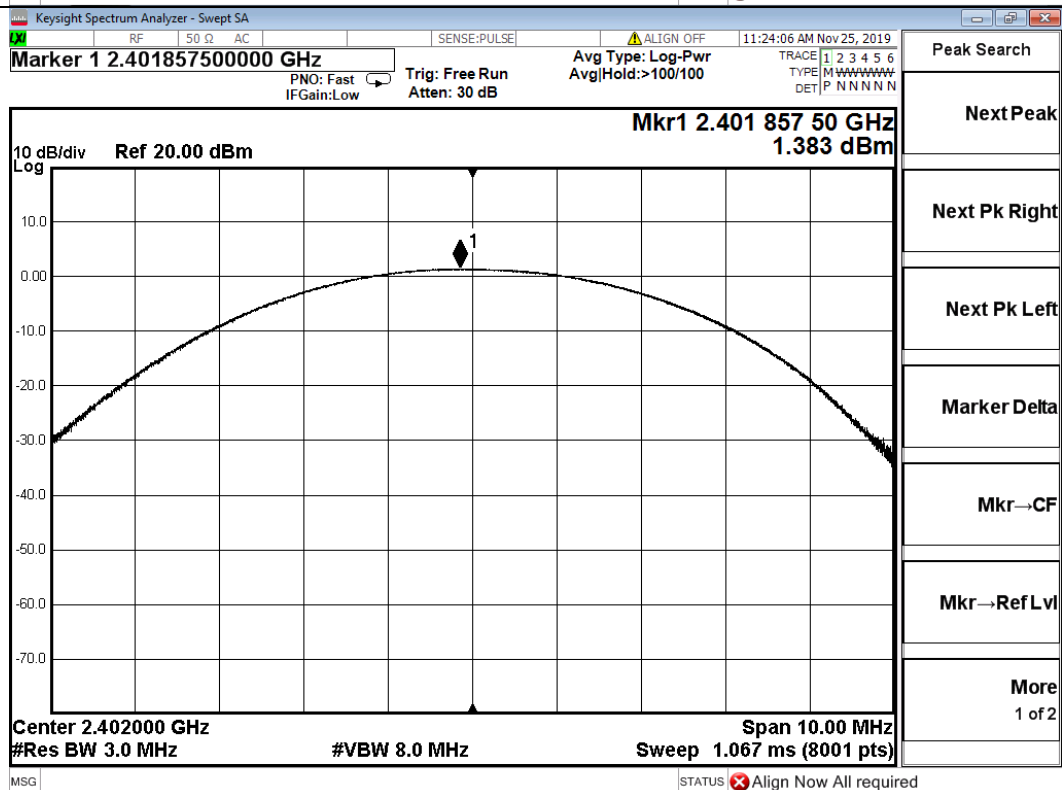
GFSK/LCH

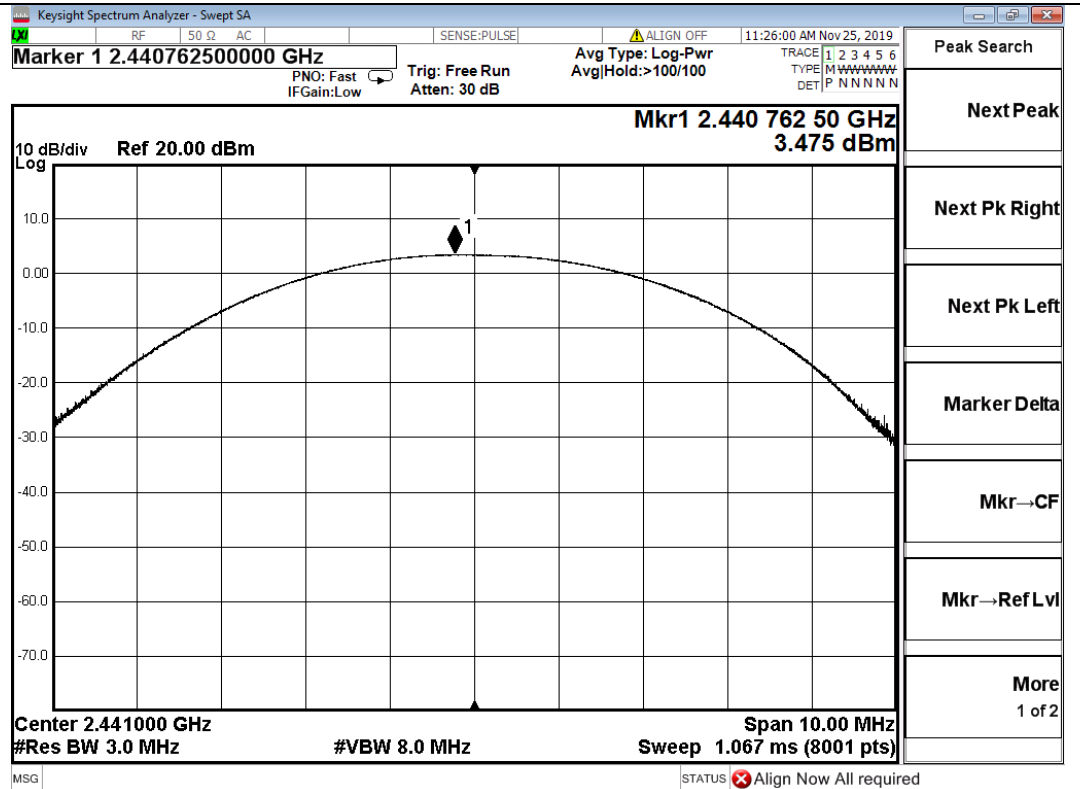
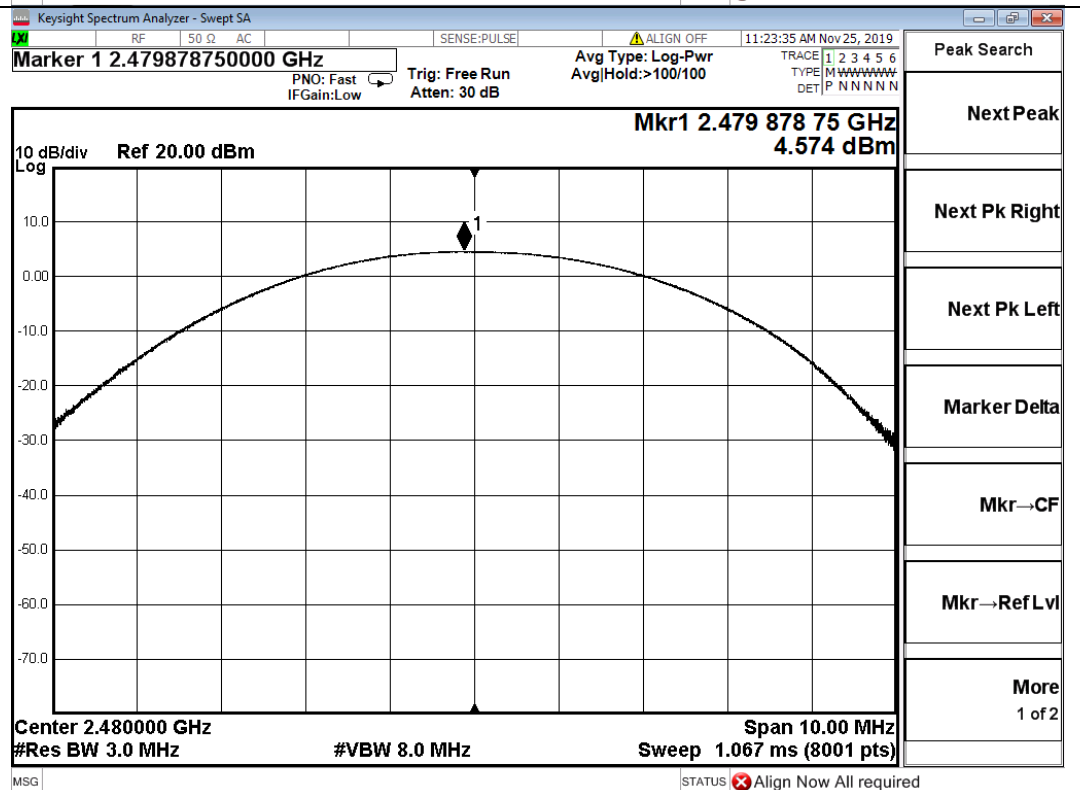


GFSK/MCH

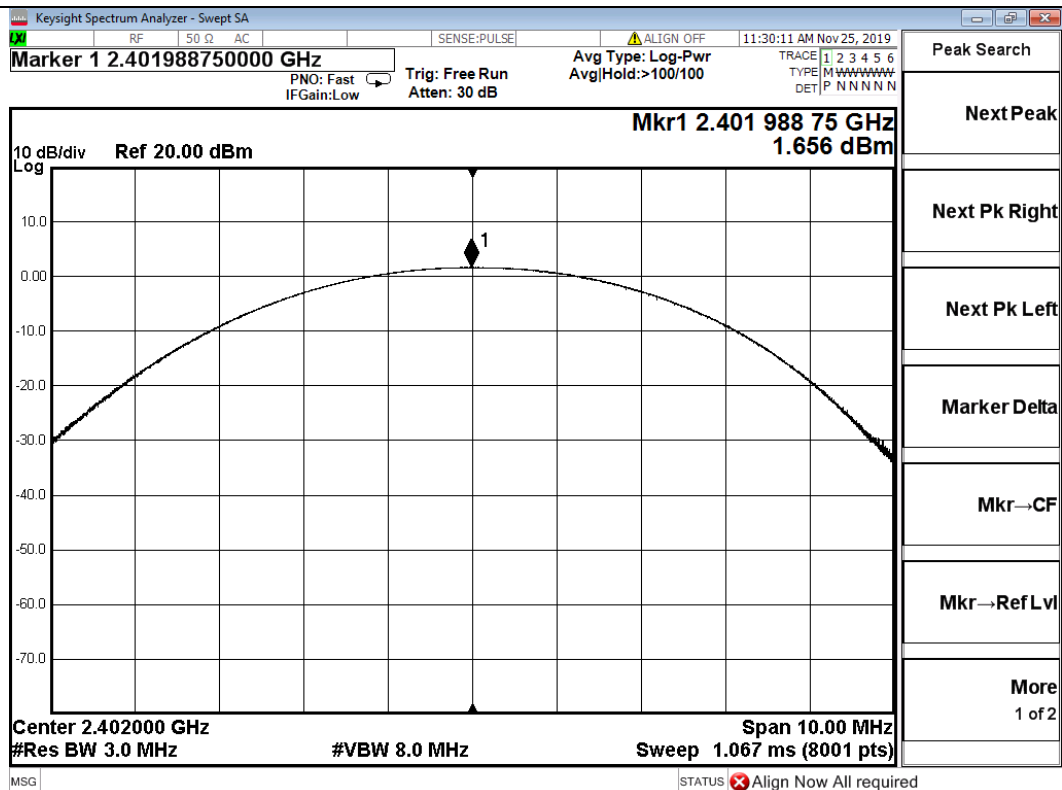


GFSK/HCH

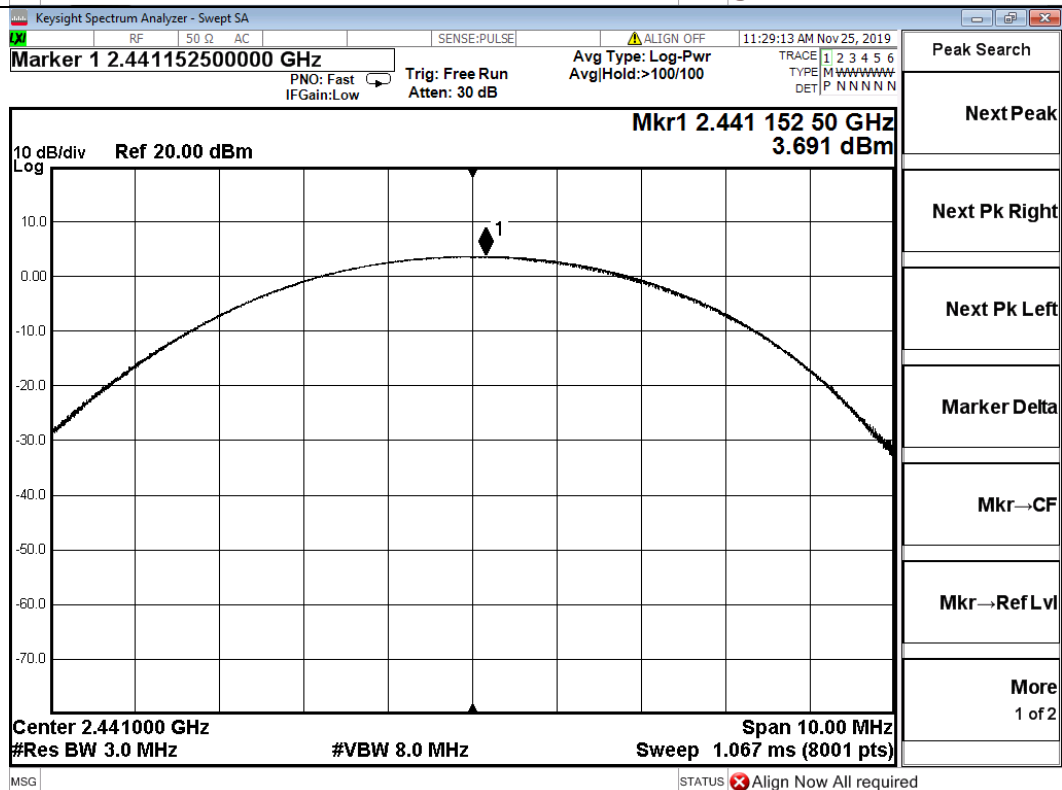
 π /4DQPSK/LCH

$\pi/4$ DQPSK/MCH $\pi/4$ DQPSK/HCH

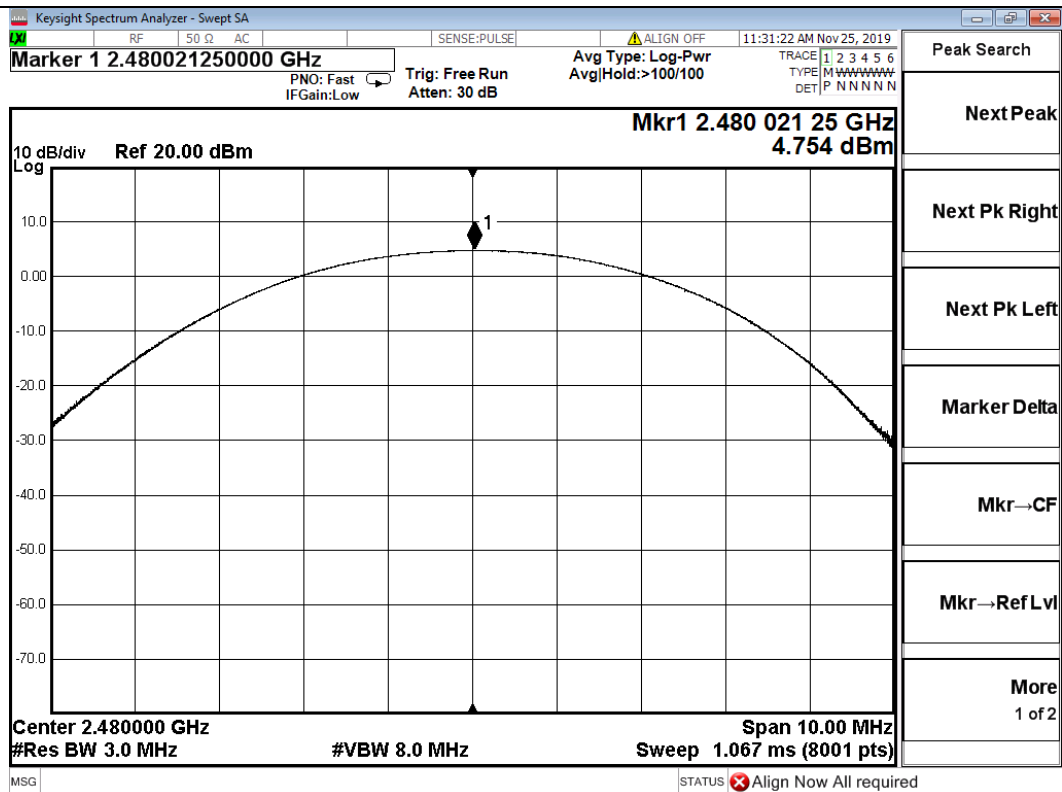
8-DPSK/LCH



8-DPSK/MCH

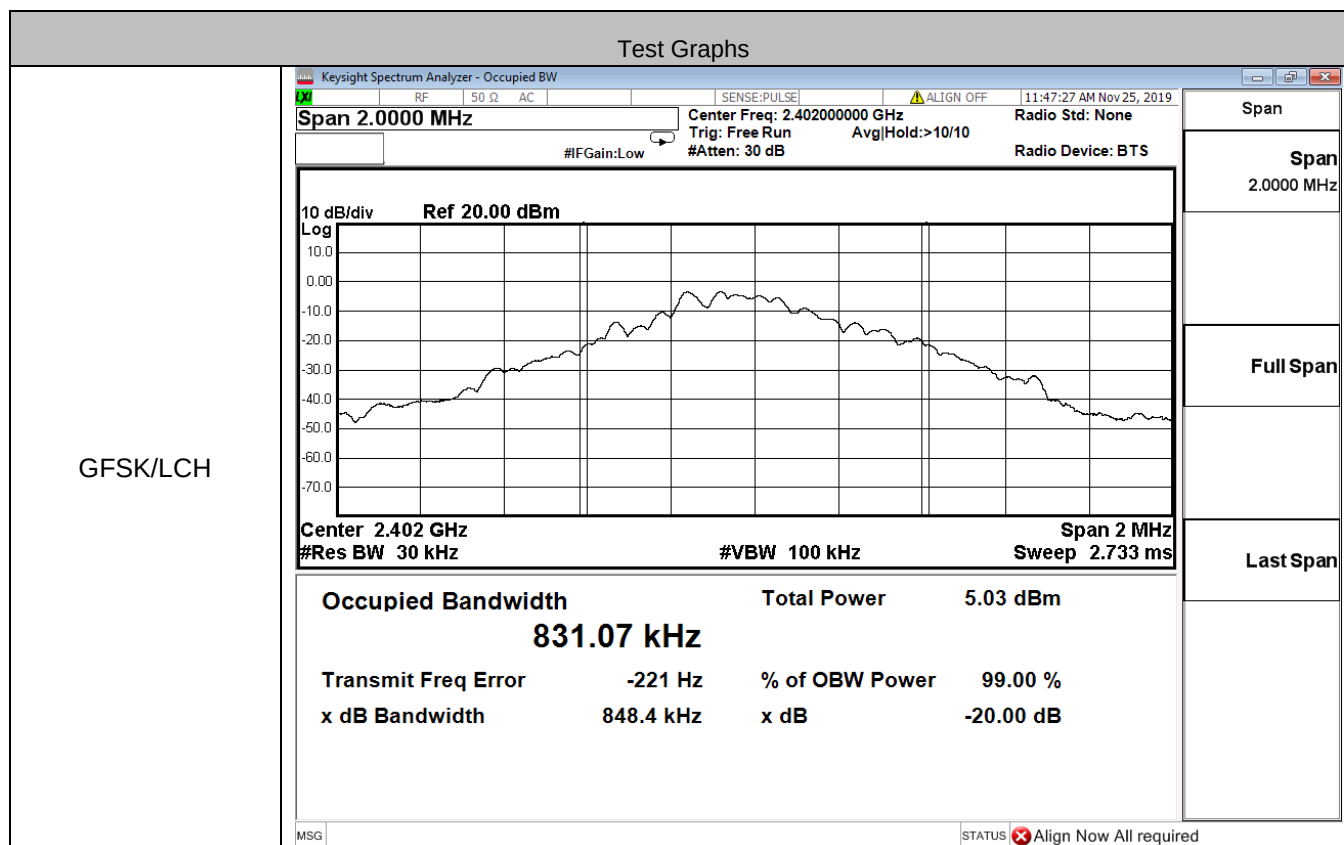


8-DPSK/HCH

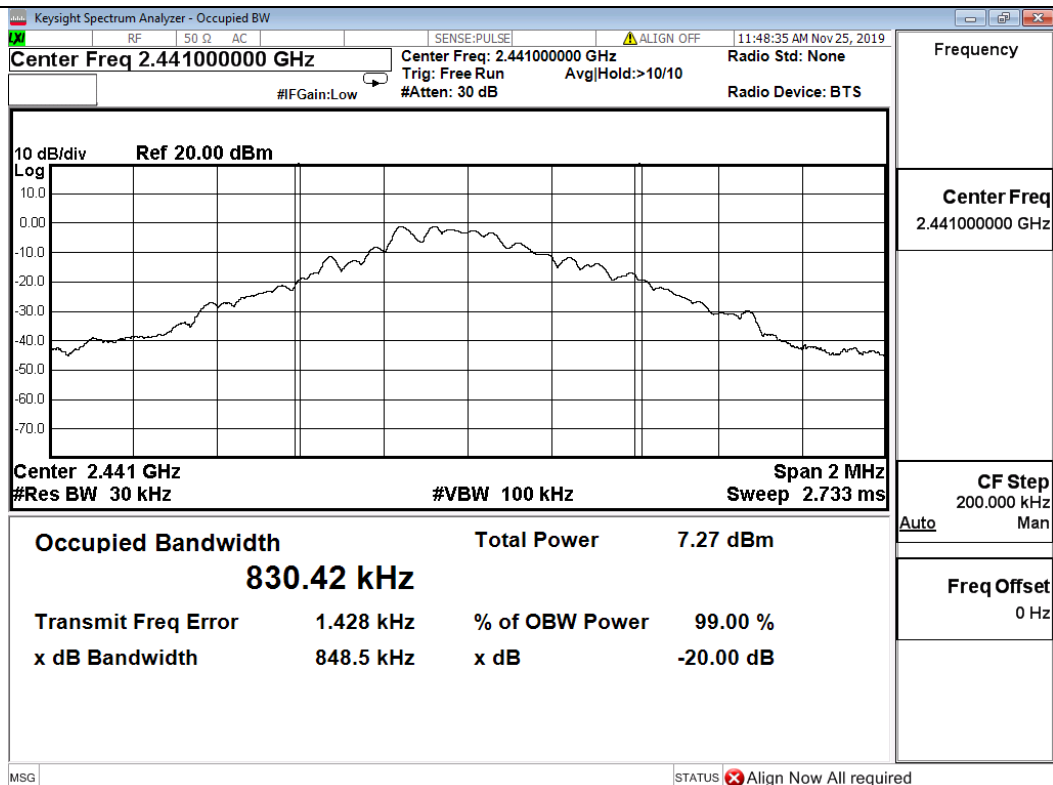


A.2 99% and 20dB Bandwidth

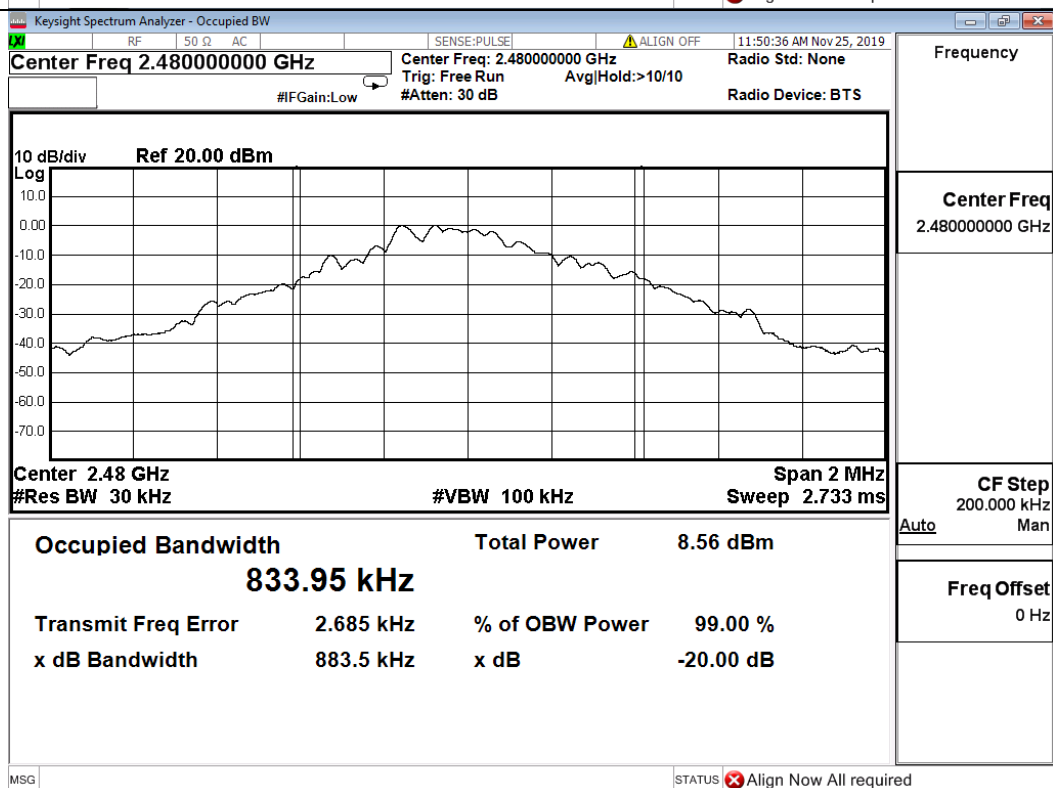
Mode	Channel.	99% Bandwidth [MHz]	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.8311	0.8484	Not Specified	PASS
	MCH	0.8304	0.8485	Not Specified	PASS
	HCH	0.8340	0.8835	Not Specified	PASS
π /4DQPSK	LCH	1.169	1.281	Not Specified	PASS
	MCH	1.169	1.280	Not Specified	PASS
	HCH	1.170	1.280	Not Specified	PASS
8-DPSK	LCH	1.172	1.267	Not Specified	PASS
	MCH	1.174	1.265	Not Specified	PASS
	HCH	1.171	1.253	Not Specified	PASS

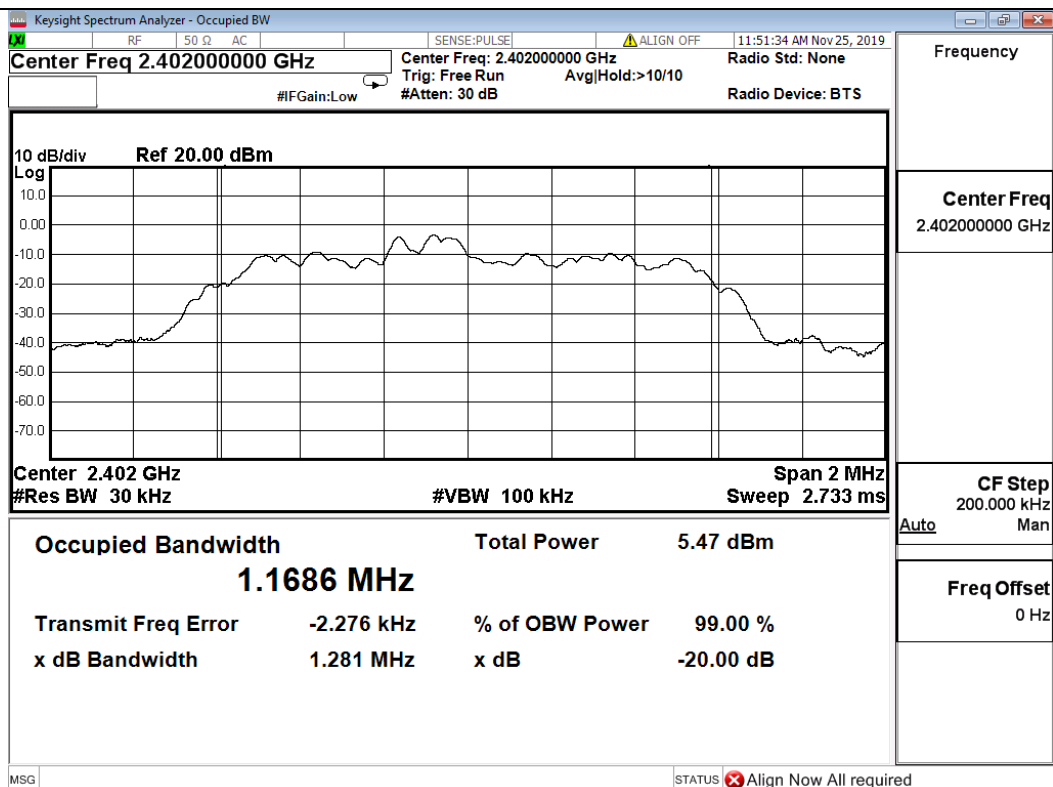
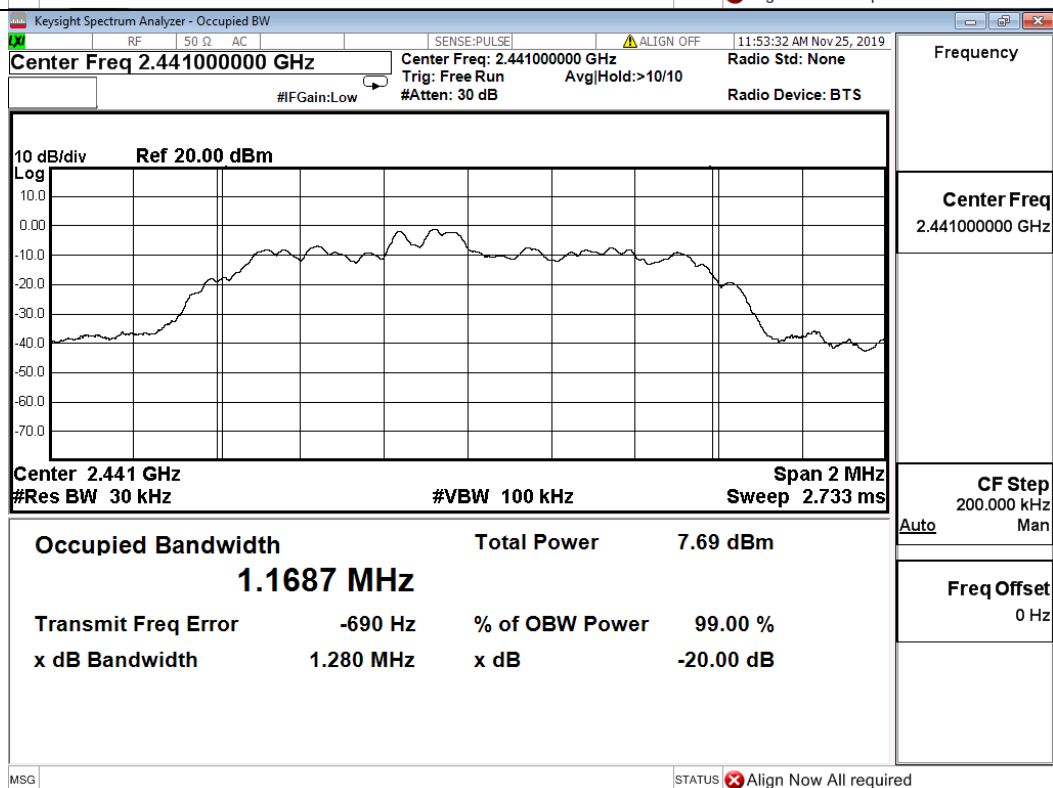


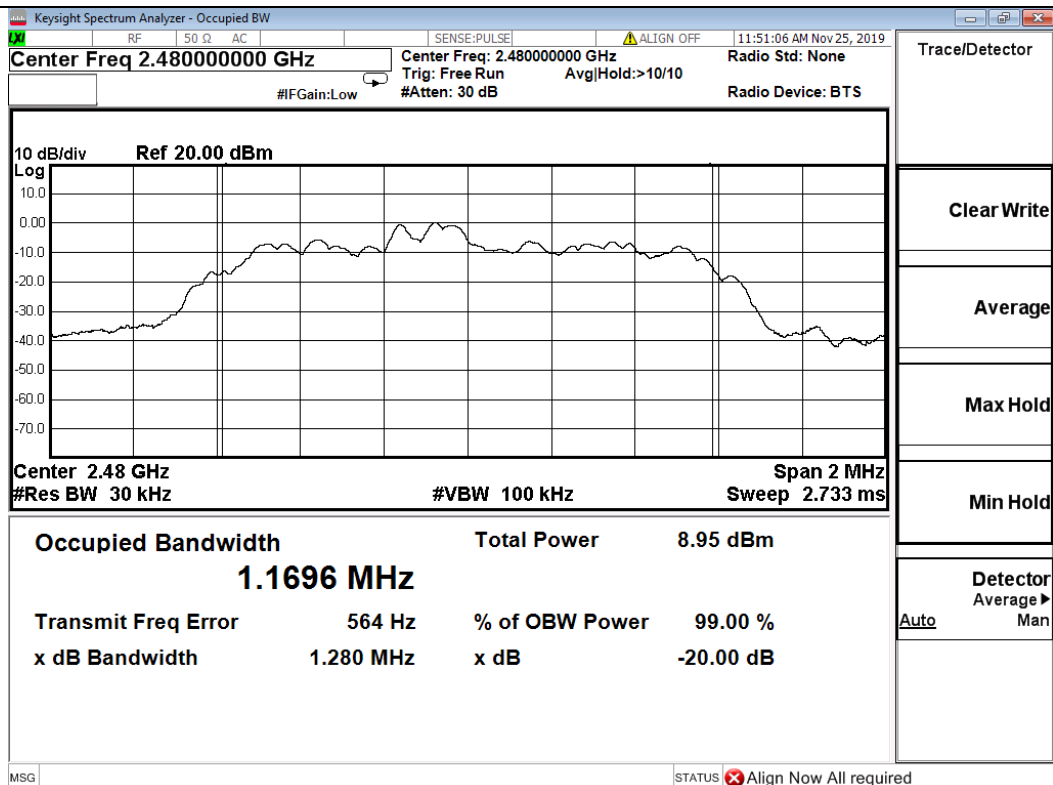
GFSK/MCH



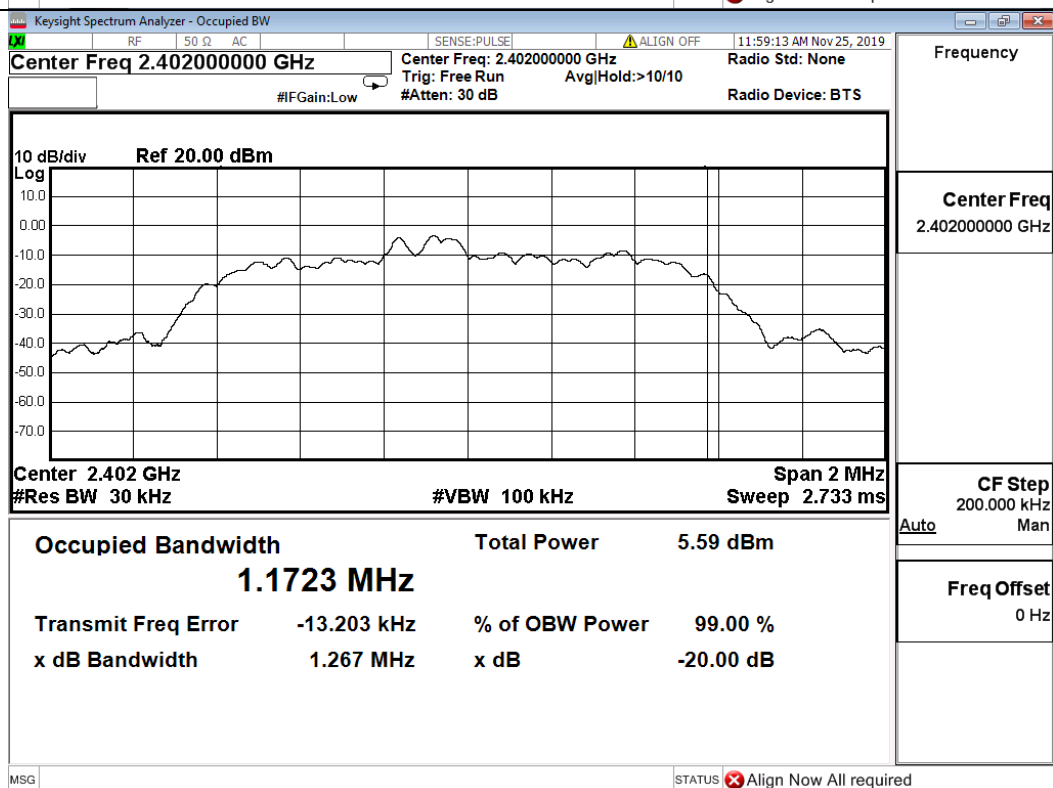
GFSK/HCH



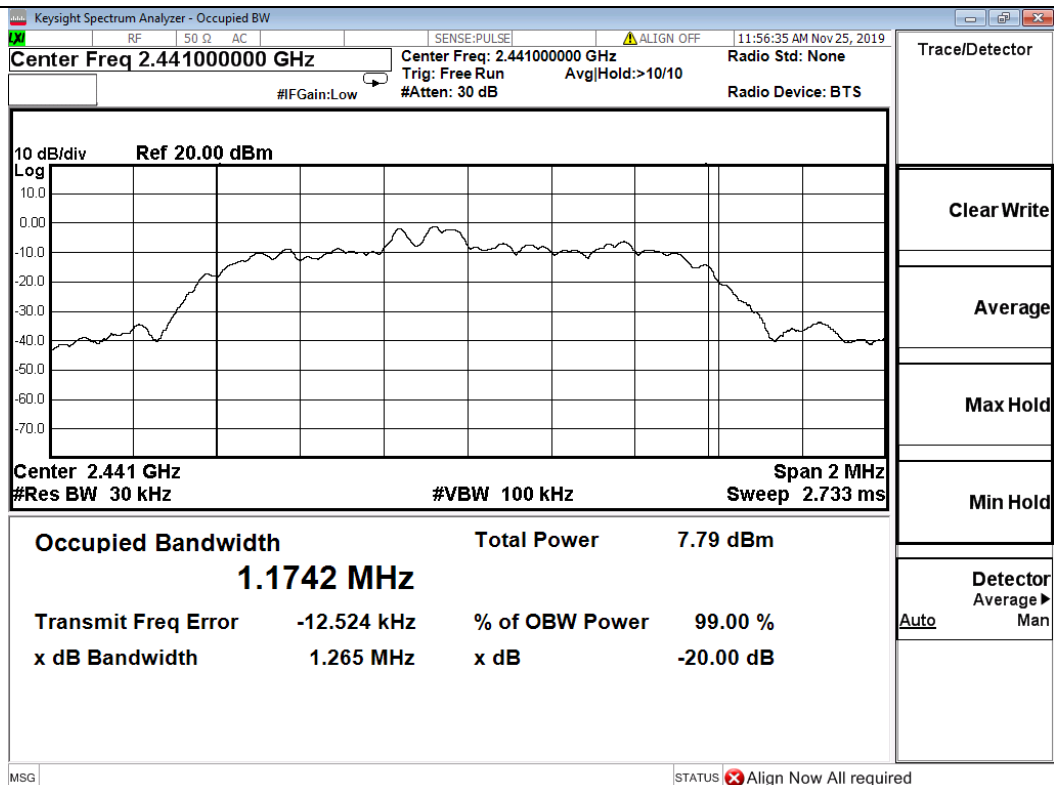
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

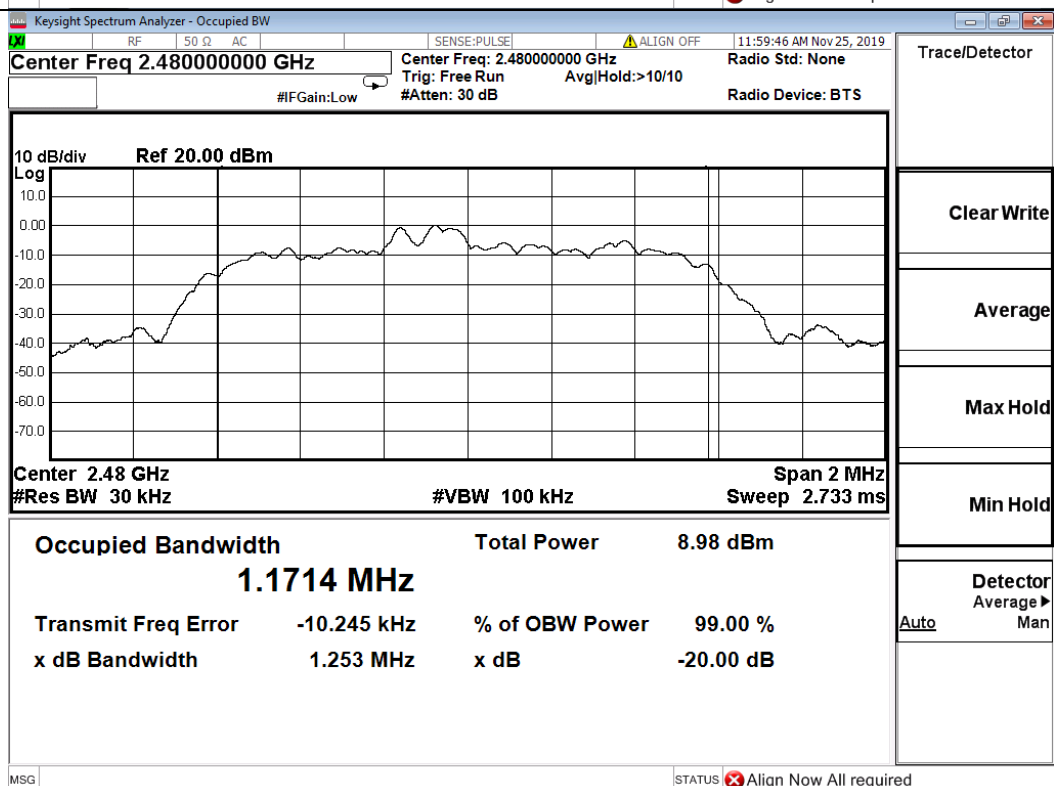
8-DPSK/LCH



8-DPSK/MCH

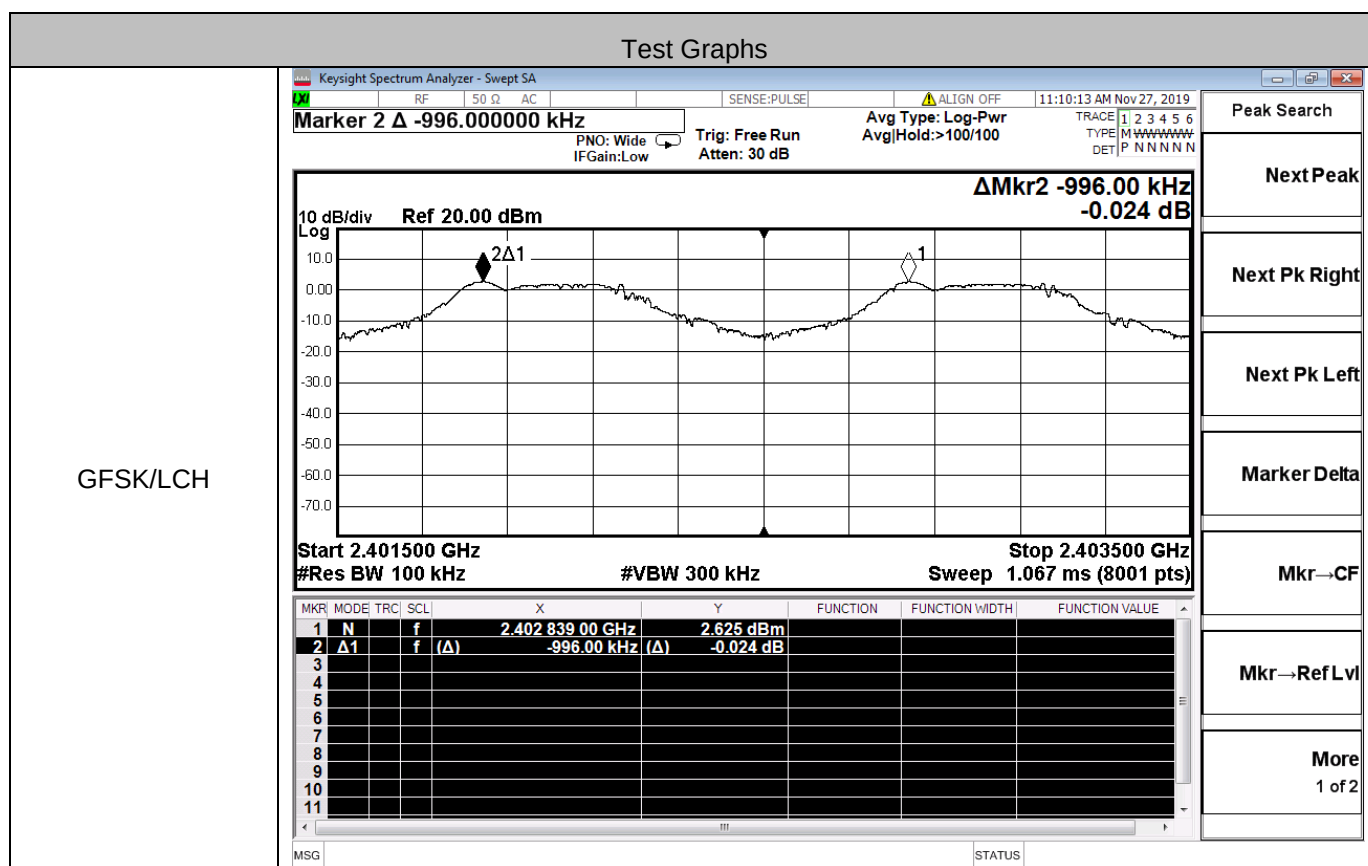


8-DPSK/HCH

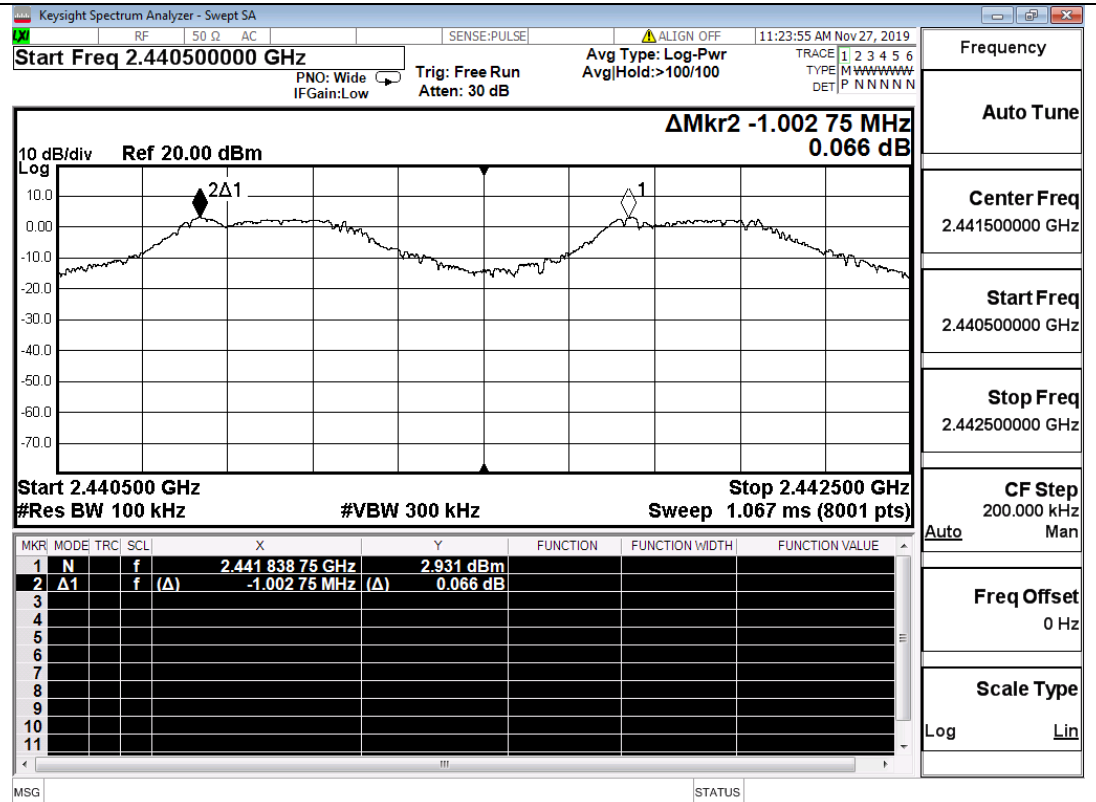


A.3 Carrier Frequency Separation

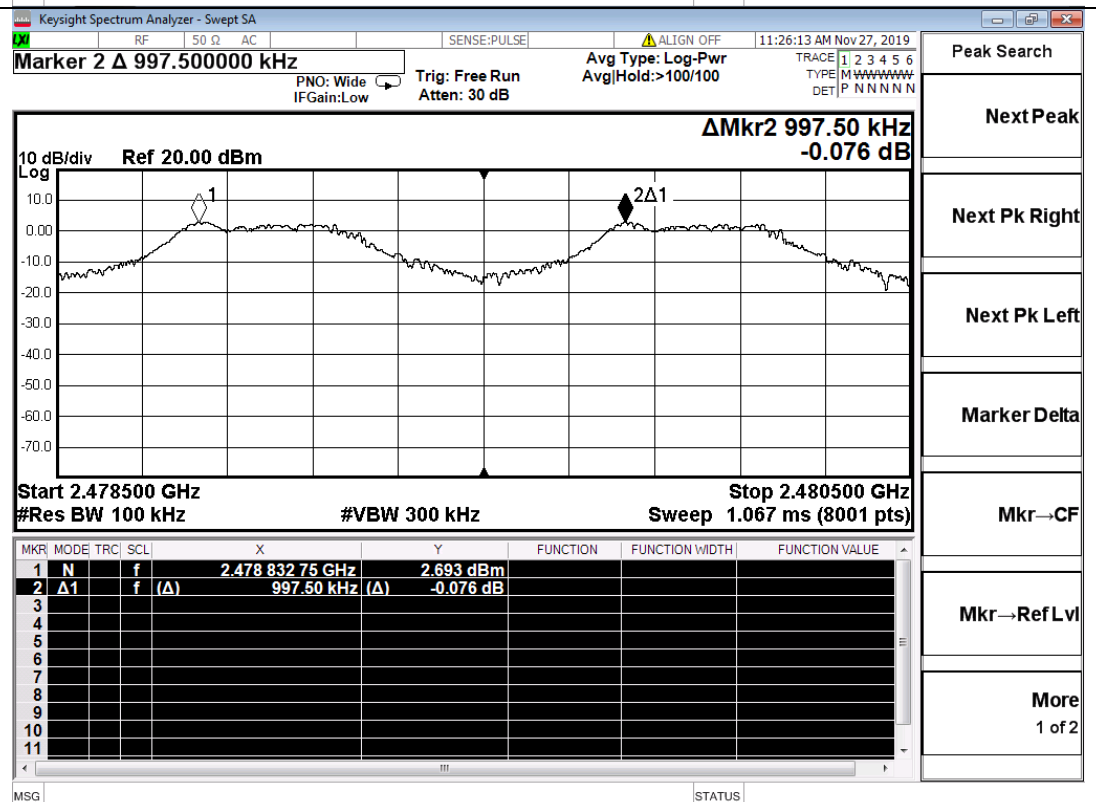
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz] 2/3*20dB Bandwidth	Verdict
GFSK	LCH	0.996	0.566	PASS
	MCH	1.003	0.566	PASS
	HCH	0.998	0.589	PASS
π /4DQPSK	LCH	1.013	0.854	PASS
	MCH	0.999	0.853	PASS
	HCH	0.998	0.853	PASS
8-DPSK	LCH	0.998	0.845	PASS
	MCH	0.999	0.843	PASS
	HCH	0.998	0.835	PASS

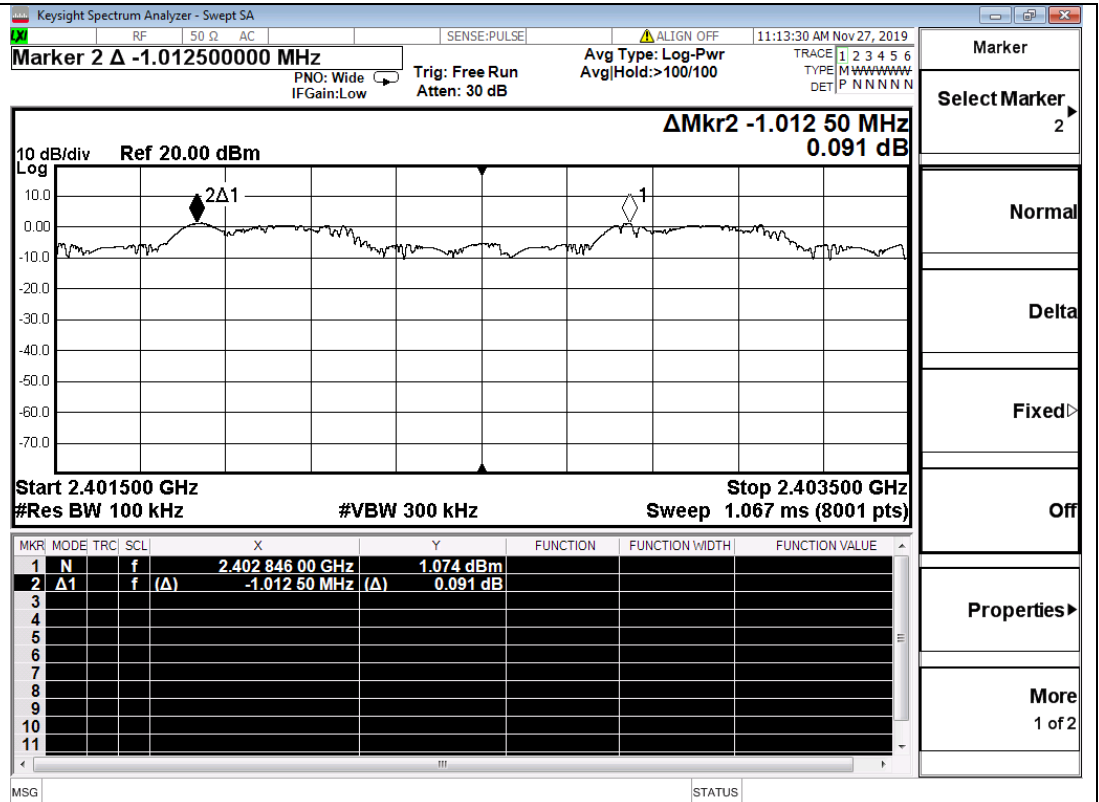
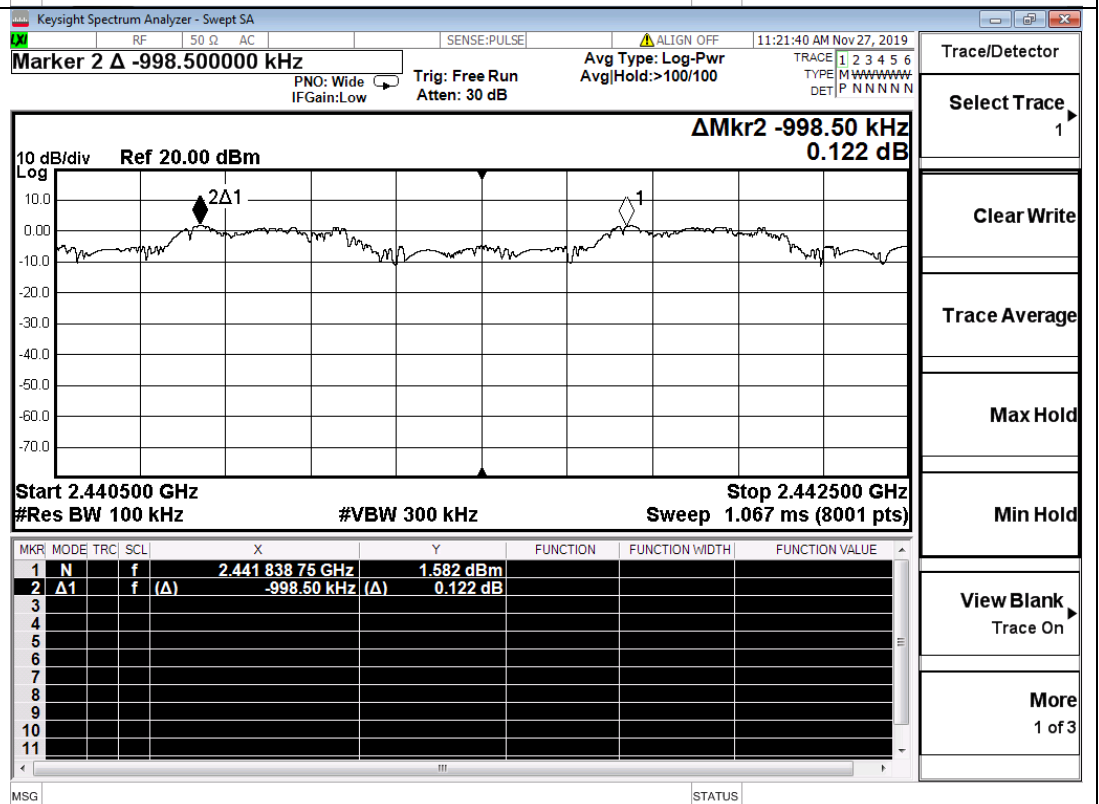


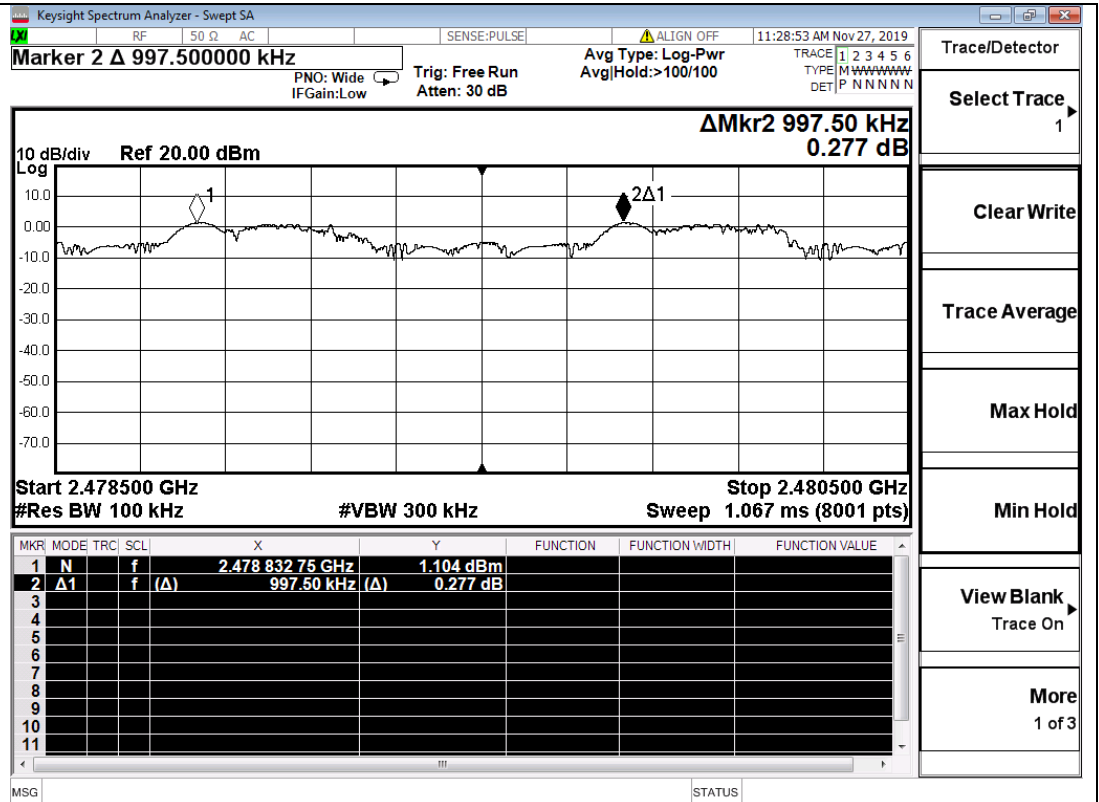
GFSK/MCH



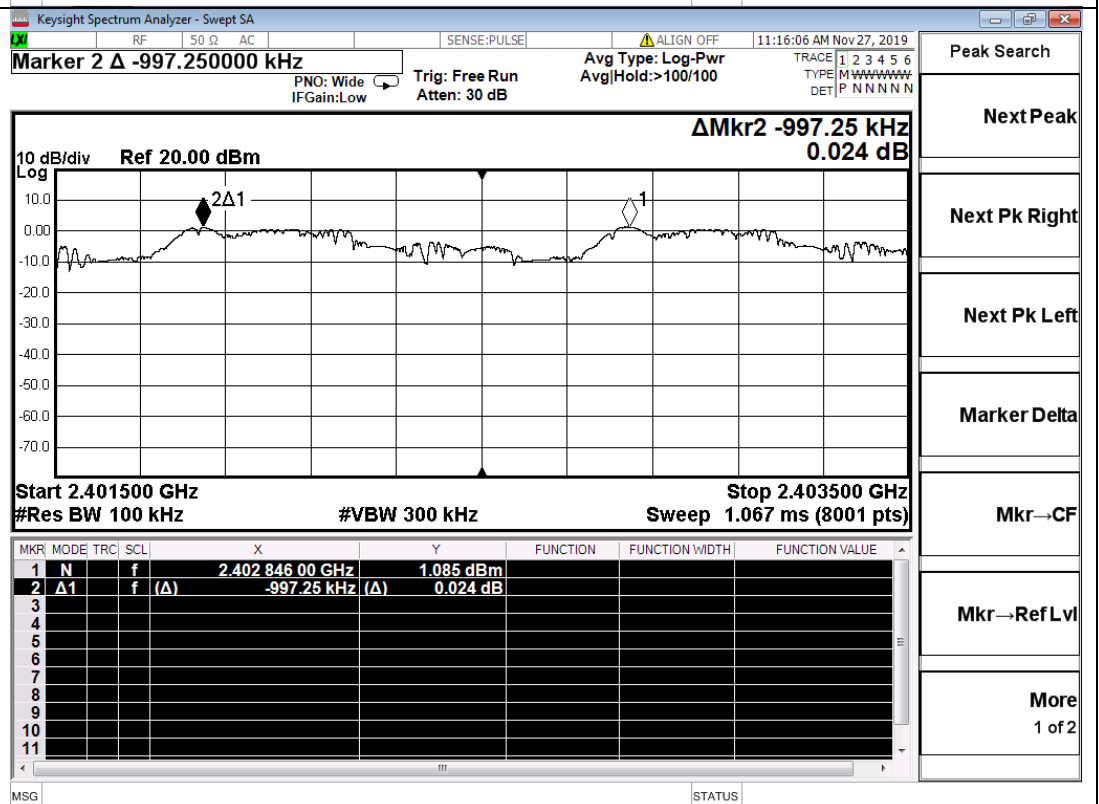
GFSK/HCH



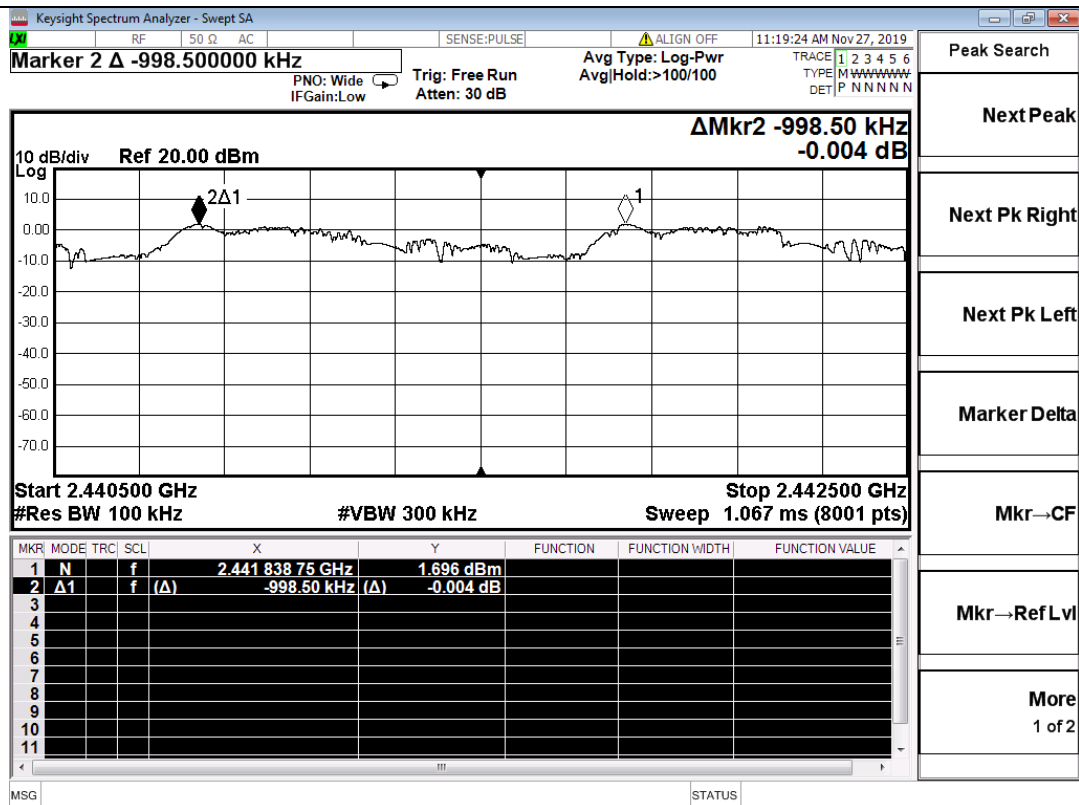
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

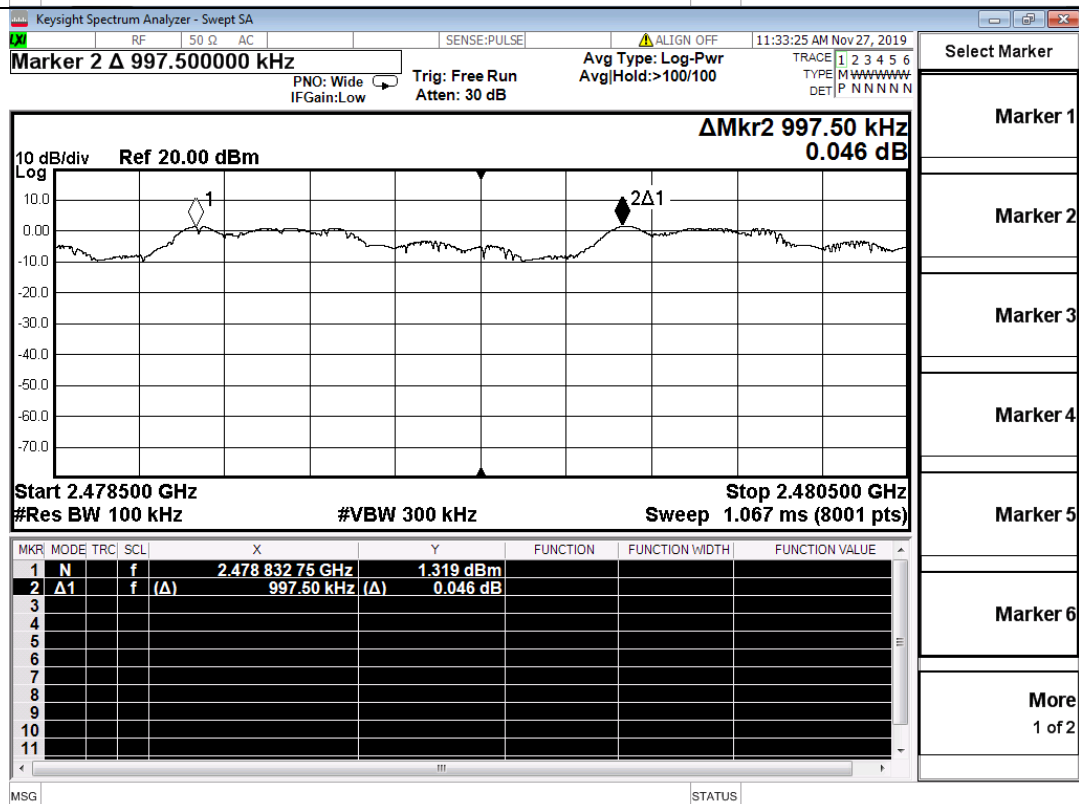
8-DPSK/LCH



8-DPSK/MCH

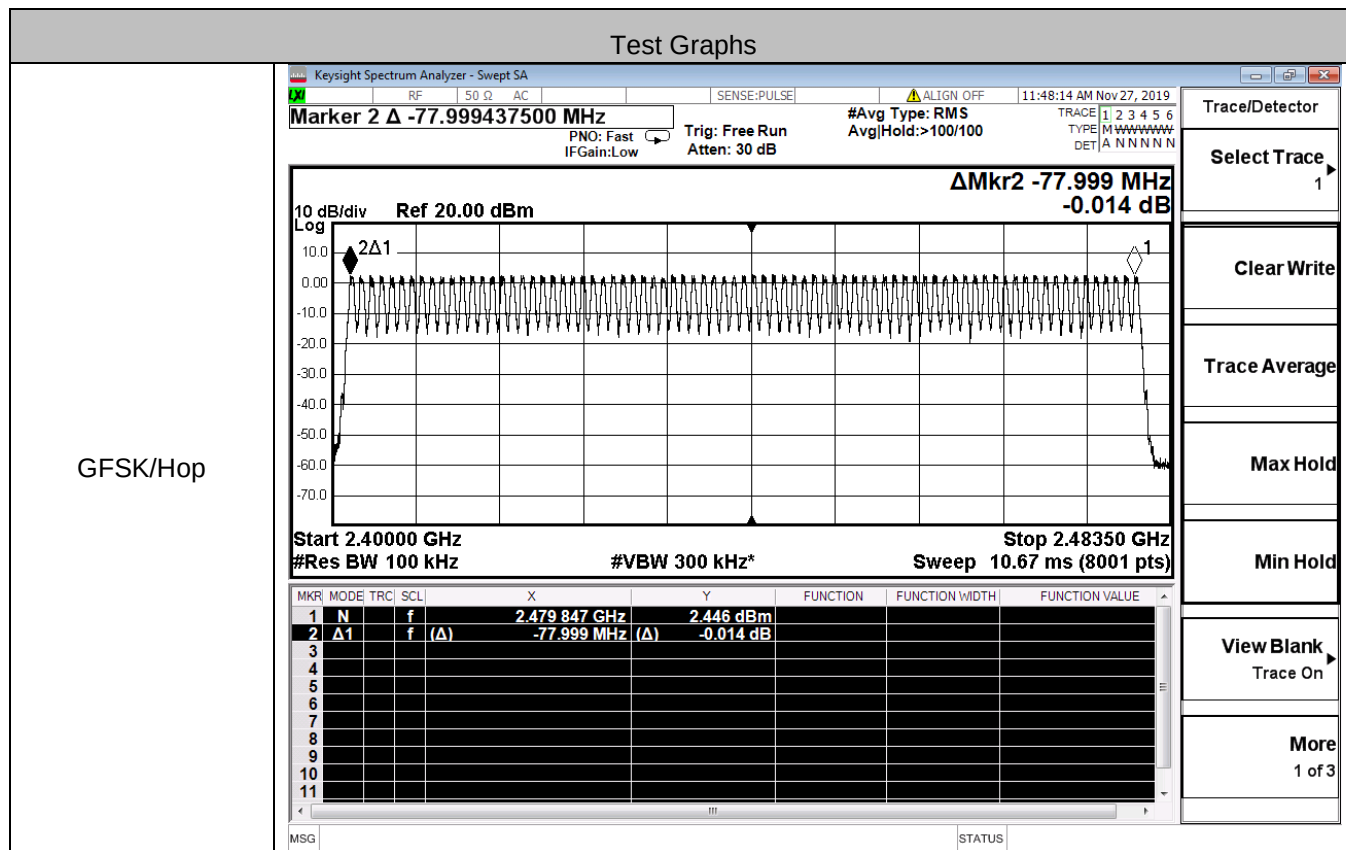


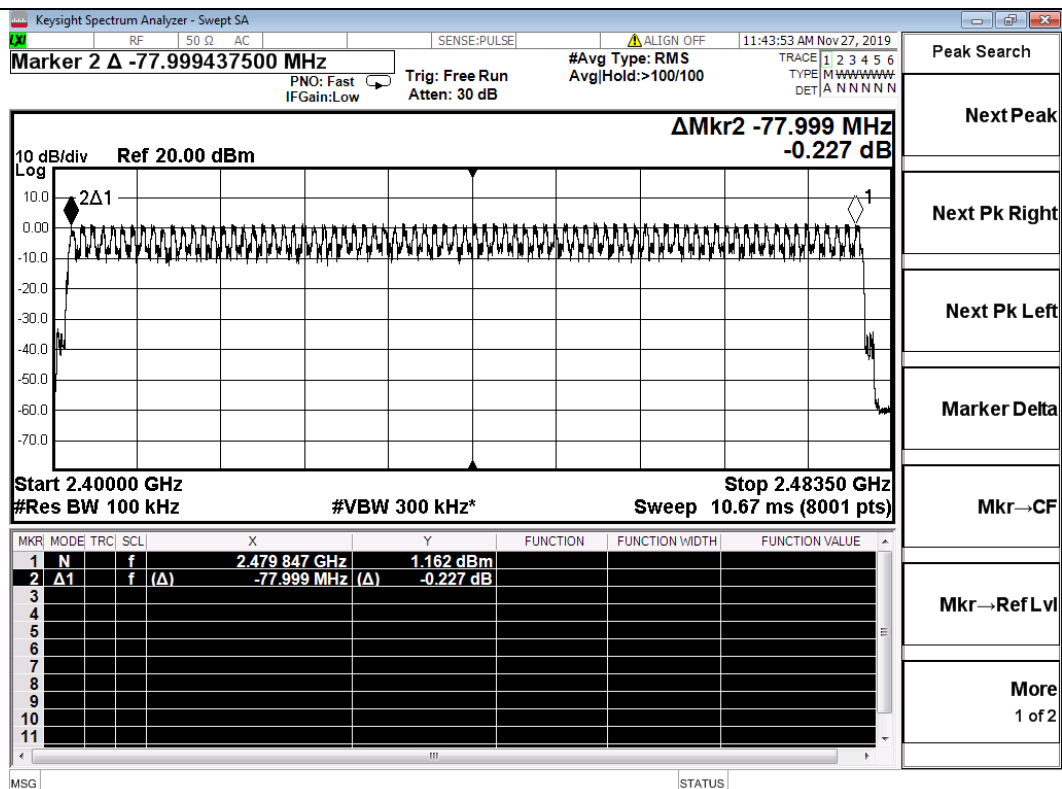
8-DPSK/HCH



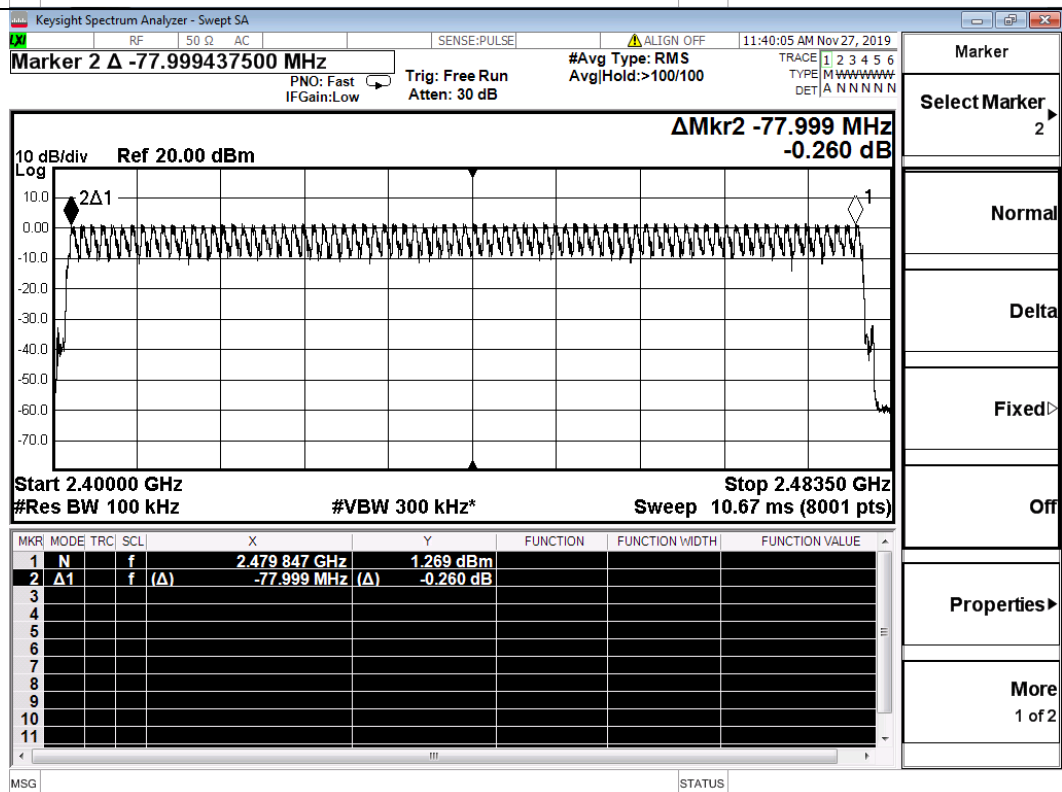
A.4 Hopping Channel Number

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



$\pi/4$ DQPSK/Hop

8-DPSK/Hop

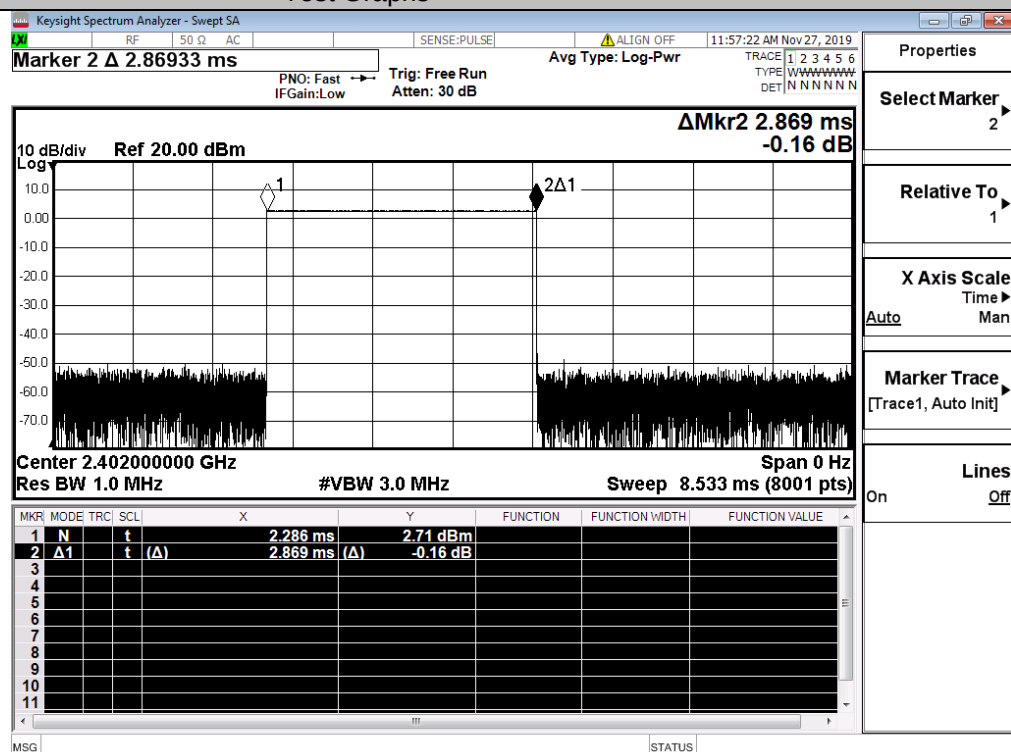


A.5 Dwell Time

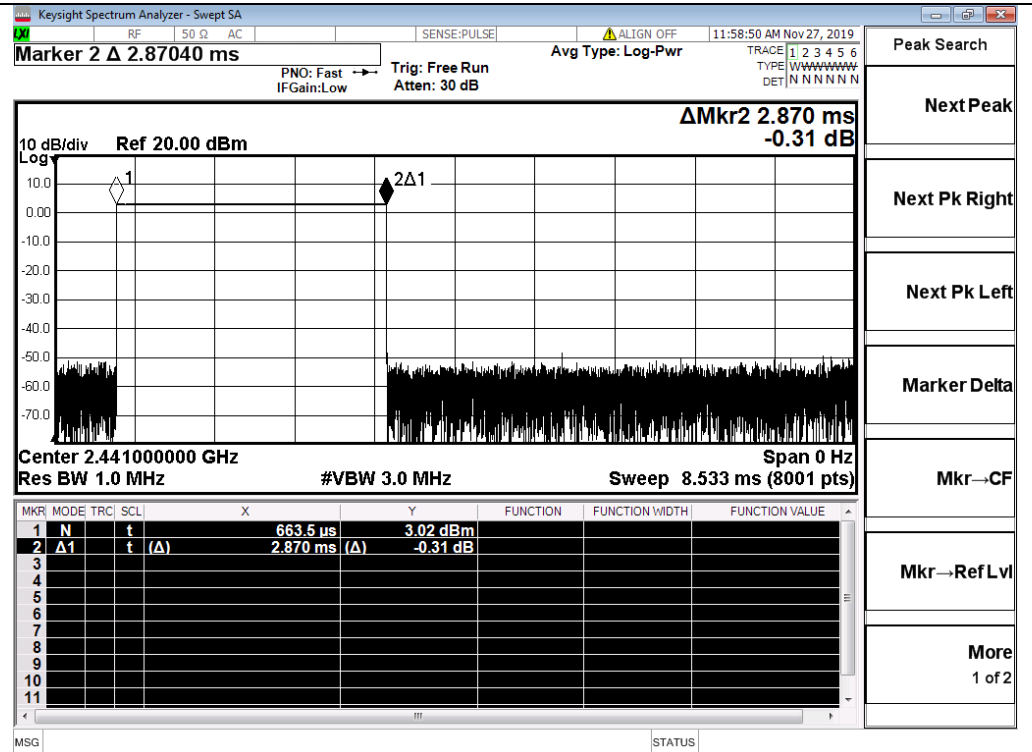
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.87	106.7	0.306	0.4	PASS
	DH5	MCH	2.87	106.7	0.306	0.4	PASS
	DH5	HCH	2.87	106.7	0.306	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.86	106.7	0.305	0.4	PASS
	2DH5	MCH	2.86	106.7	0.305	0.4	PASS
	2DH5	HCH	2.86	106.7	0.305	0.4	PASS
8-DPSK	3DH5	LCH	2.85	106.7	0.304	0.4	PASS
	3DH5	MCH	2.86	106.7	0.305	0.4	PASS
	3DH5	HCH	2.86	106.7	0.305	0.4	PASS

Test Graphs

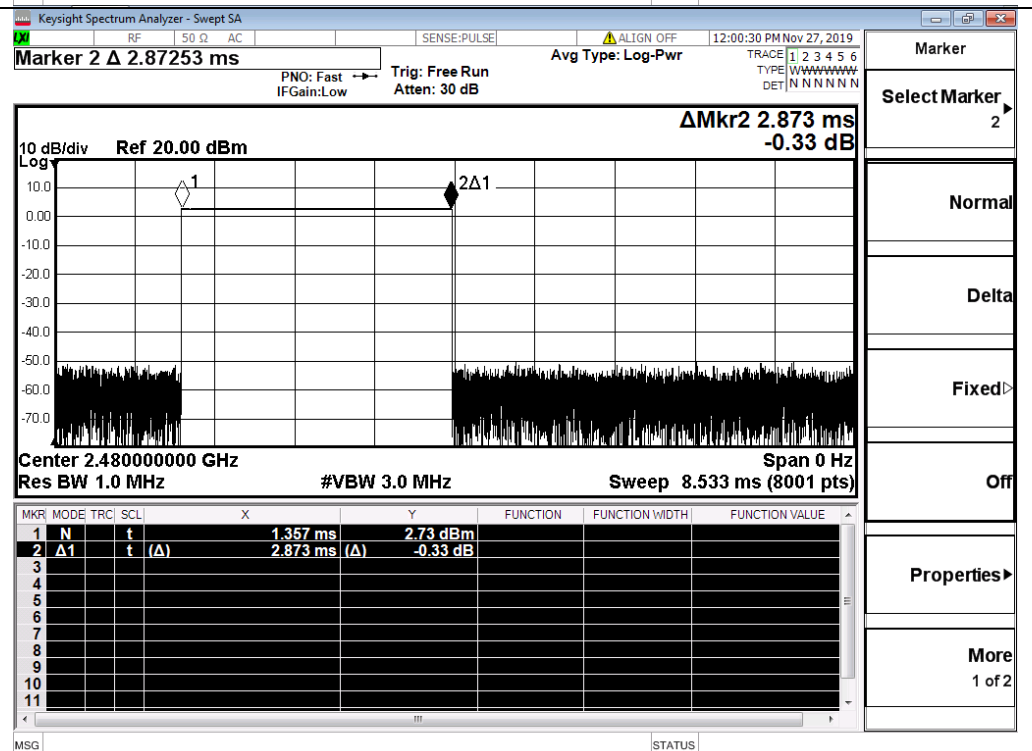
GFSK_DH5/LCH



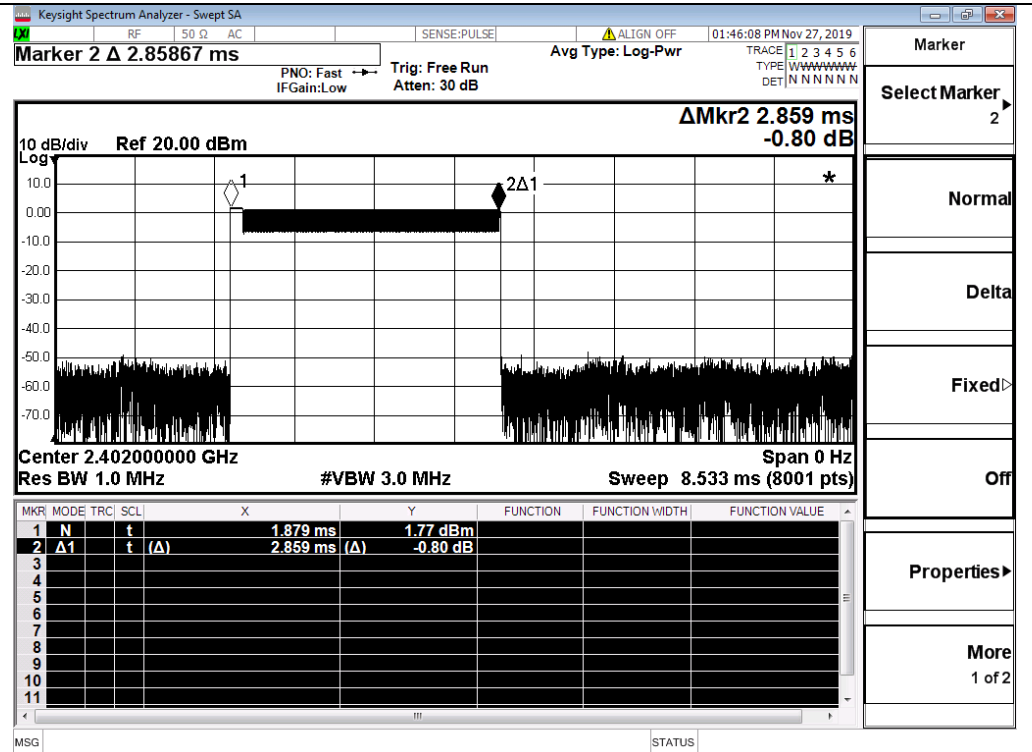
GFSK_DH5/MCH



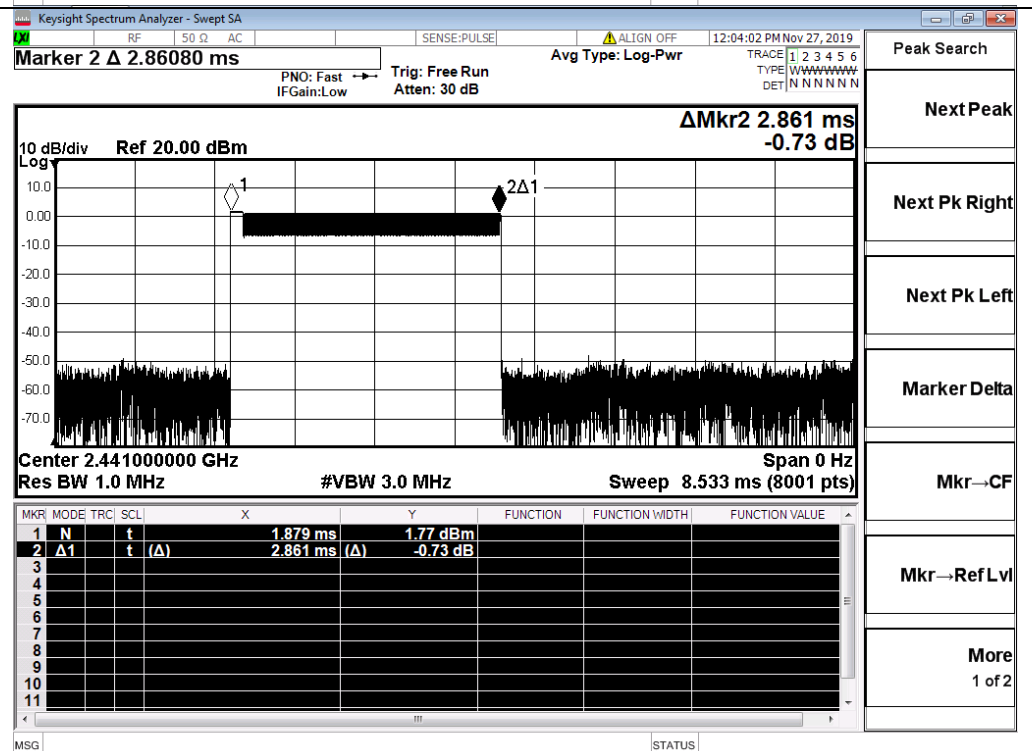
GFSK_DH5/HCH



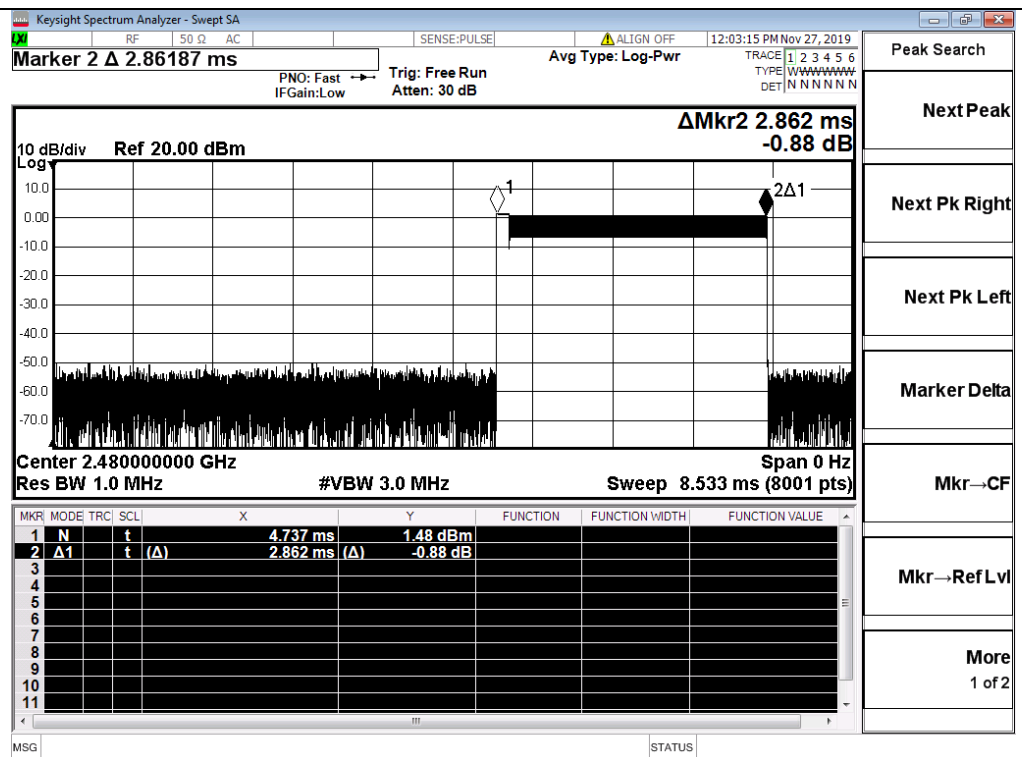
$\pi/4$ DQPSK
_2DH5/LCH



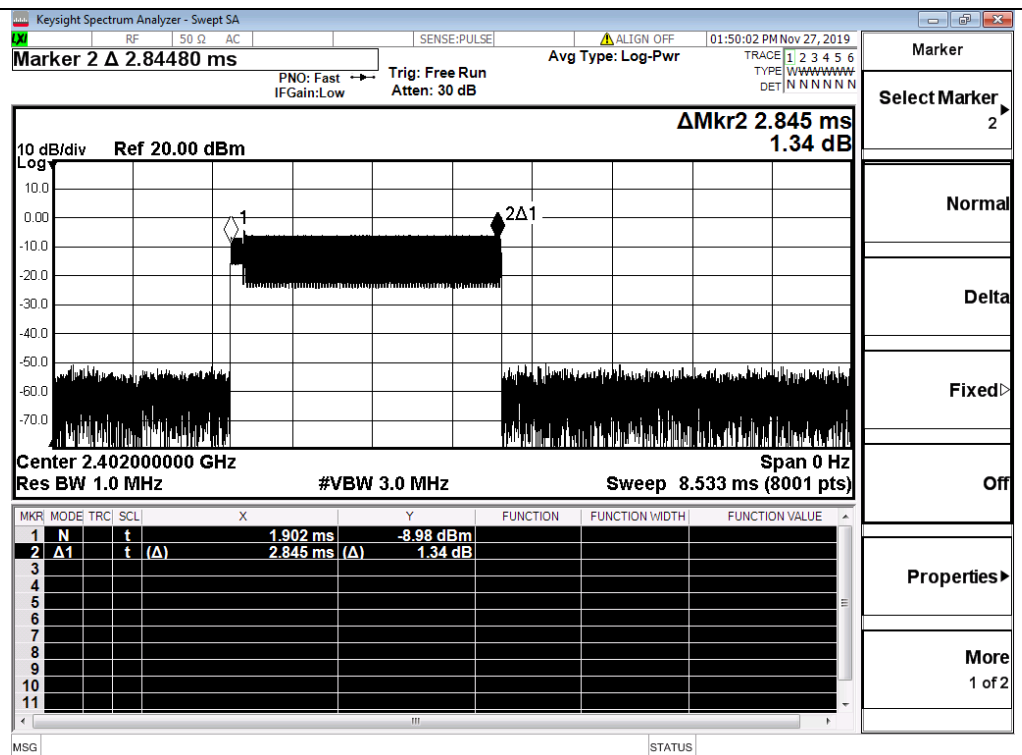
$\pi/4$ DQPSK
_2DH5/MCH



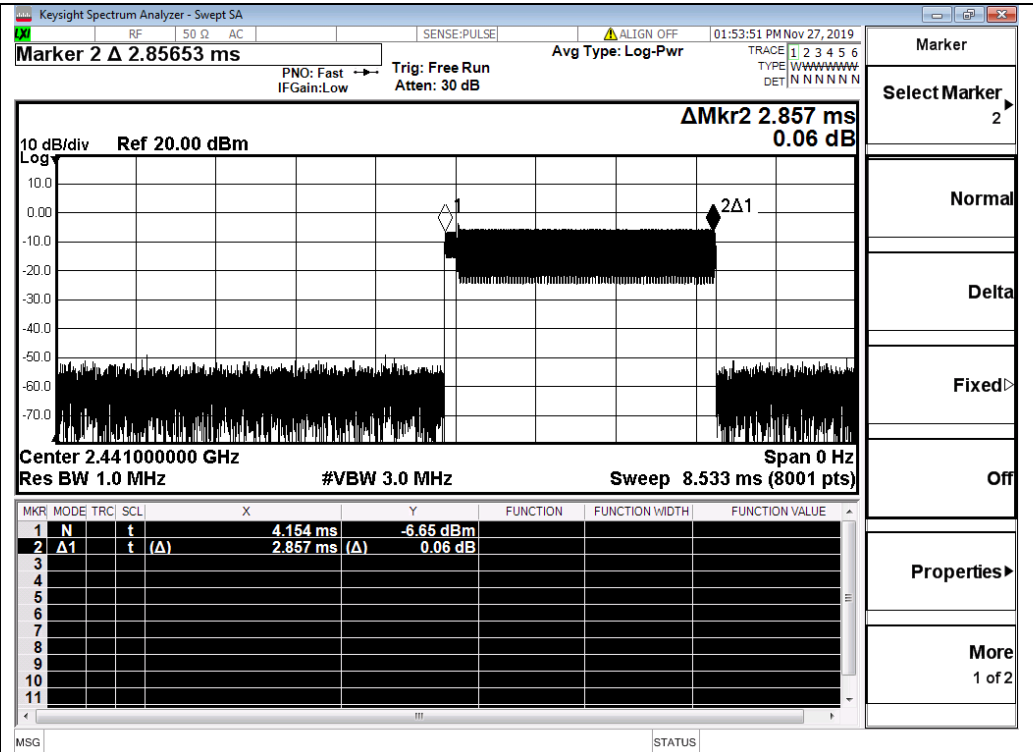
$\pi/4$ DQPSK
_2DH5/HCH



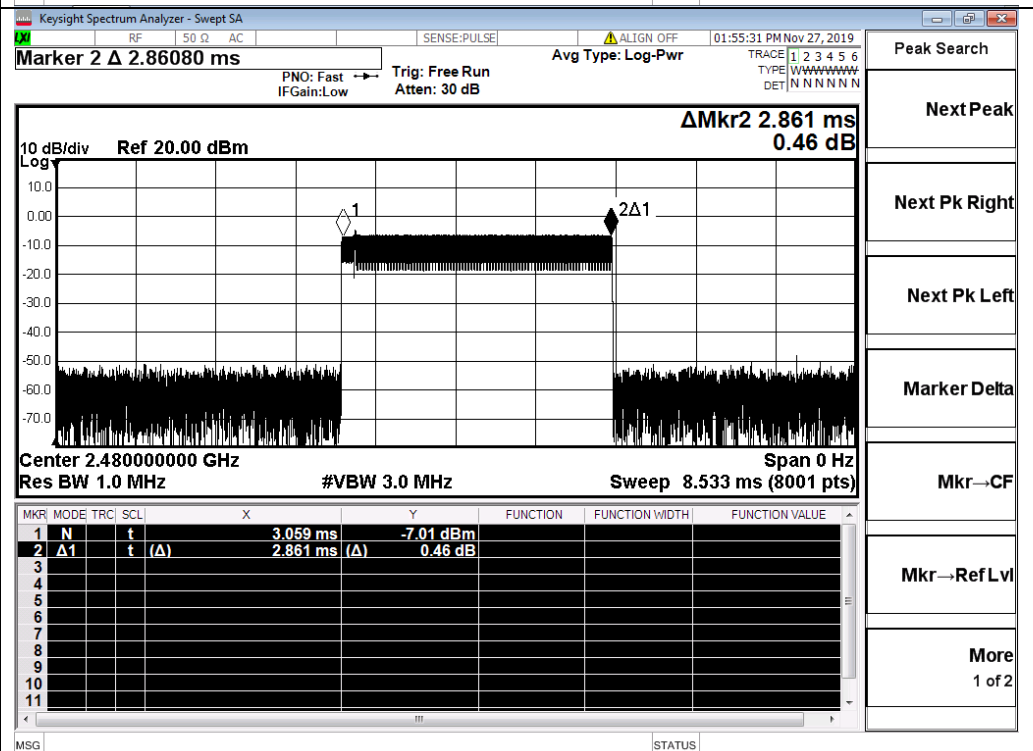
8-DPSK_3DH5/LCH



8-DPSK_3DH5/MCH



8-DPSK_3DH5/HCH

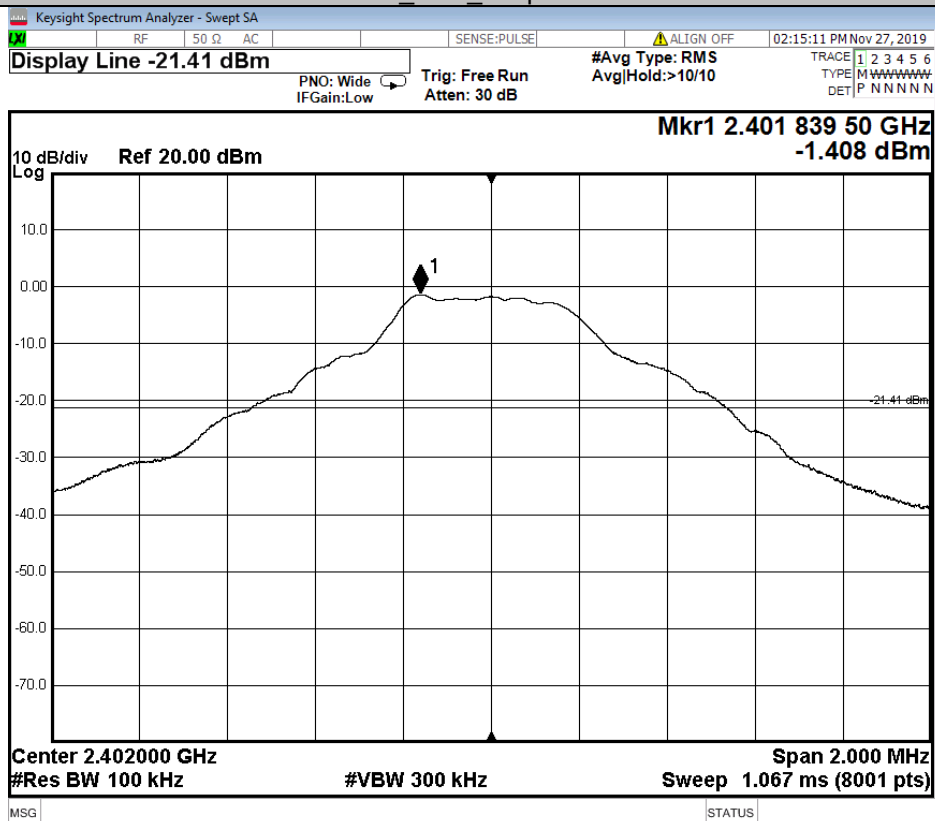


A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-1.408	-48.007	-21.41	PASS
	MCH	0.562	-47.348	-19.44	PASS
	HCH	1.666	-40.615	-18.33	PASS
$\pi/4$ DQPSK	LCH	-1.419	-49.556	-21.42	PASS
	MCH	0.540	-48.199	-19.46	PASS
	HCH	1.668	-41.967	-18.33	PASS
8-DPSK	LCH	-1.427	-48.869	-21.43	PASS
	MCH	0.549	-46.646	-19.45	PASS
	HCH	1.793	-42.407	-18.21	PASS

GFSK_LCH_Graphs

Pref



Display

Annotation▶

Title▶

Graticule

On

Off

DisplayLine

On

-21.41 dBm

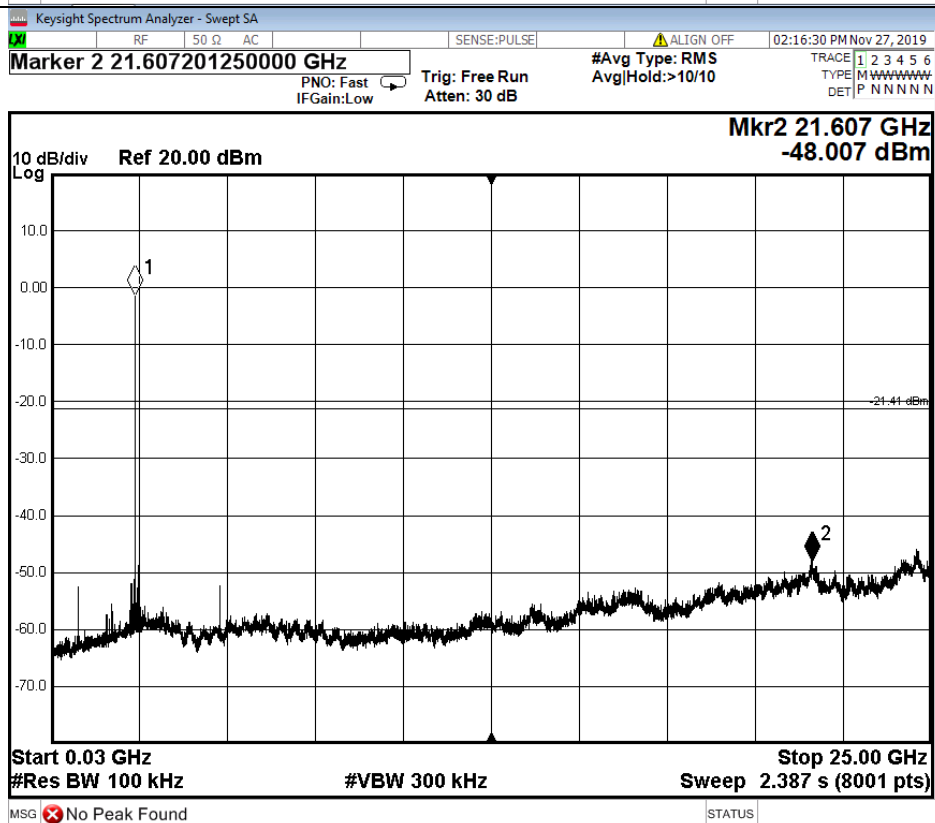
Off

System

Display▶

Settings

Puw



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Marker Delta

Mkr→CF

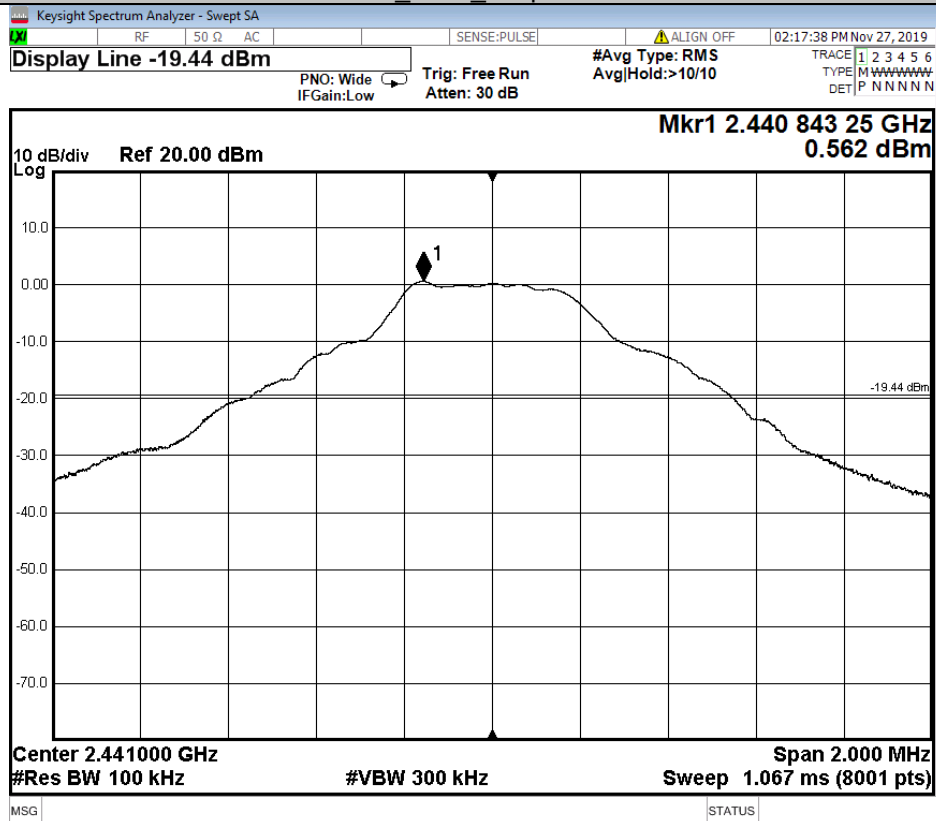
Mkr→Ref Lvl

More

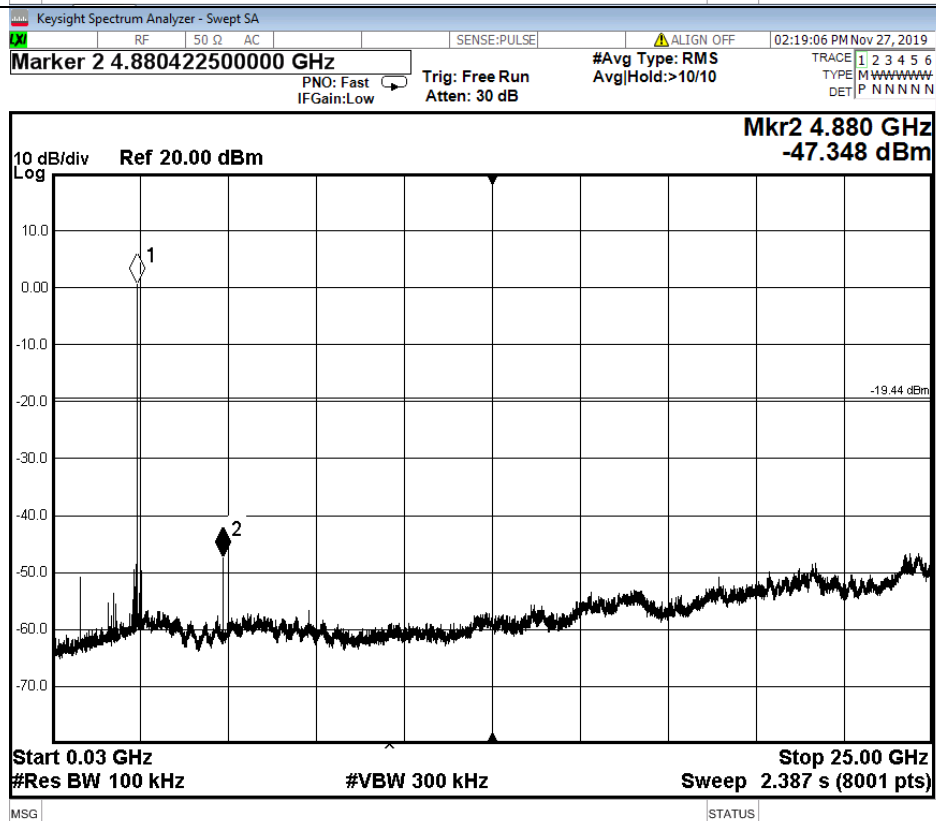
1 of 2

GFSK_MCH_Graphs

Pref

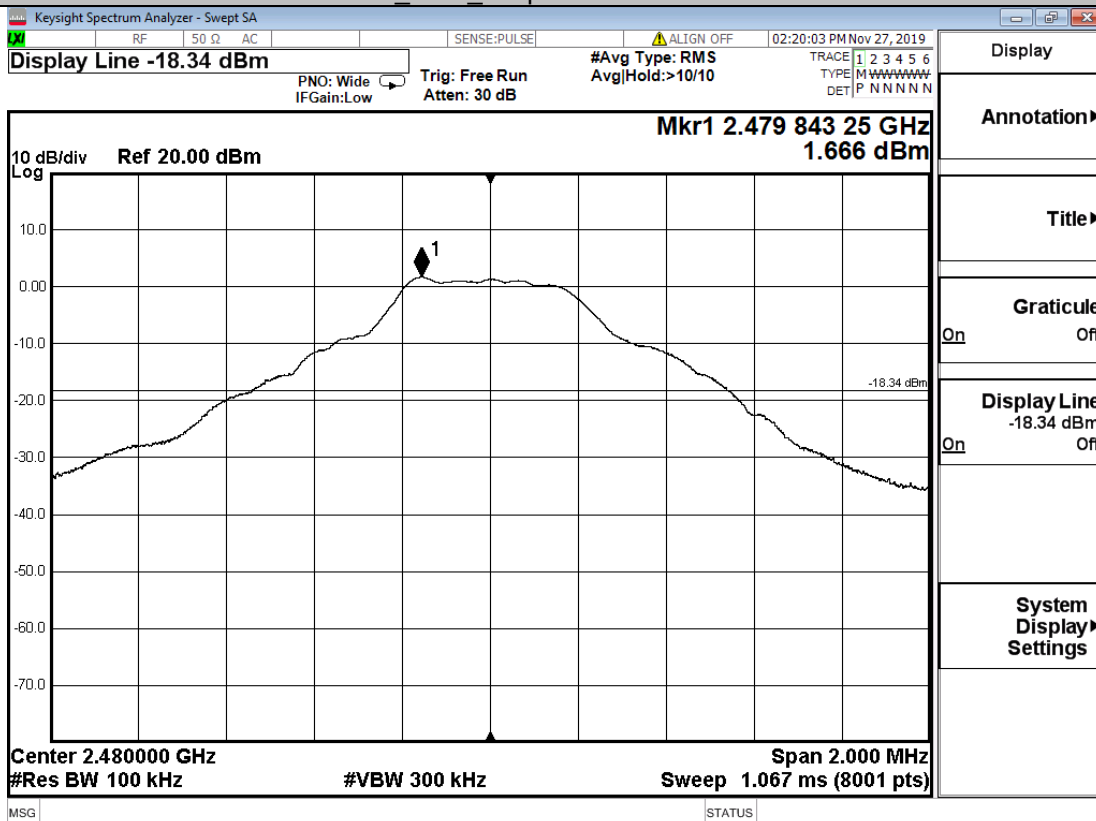


Puw

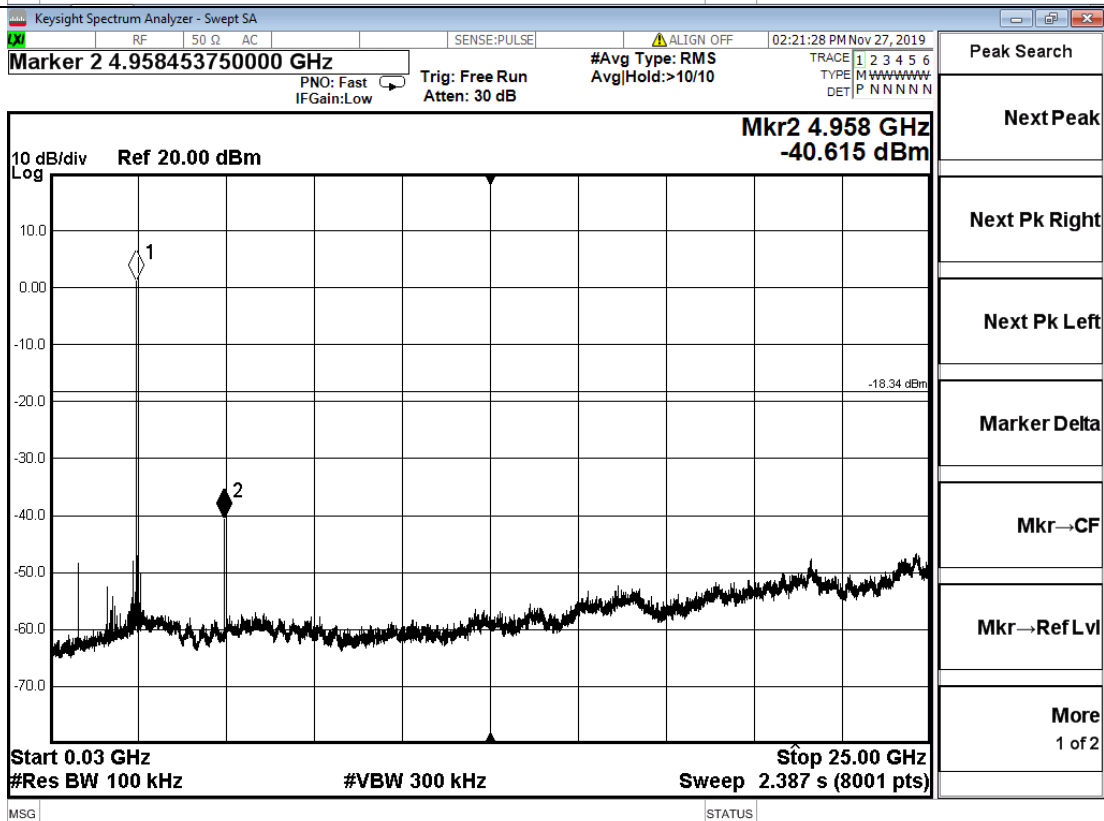


GFSK_HCH_Graphs

Pref

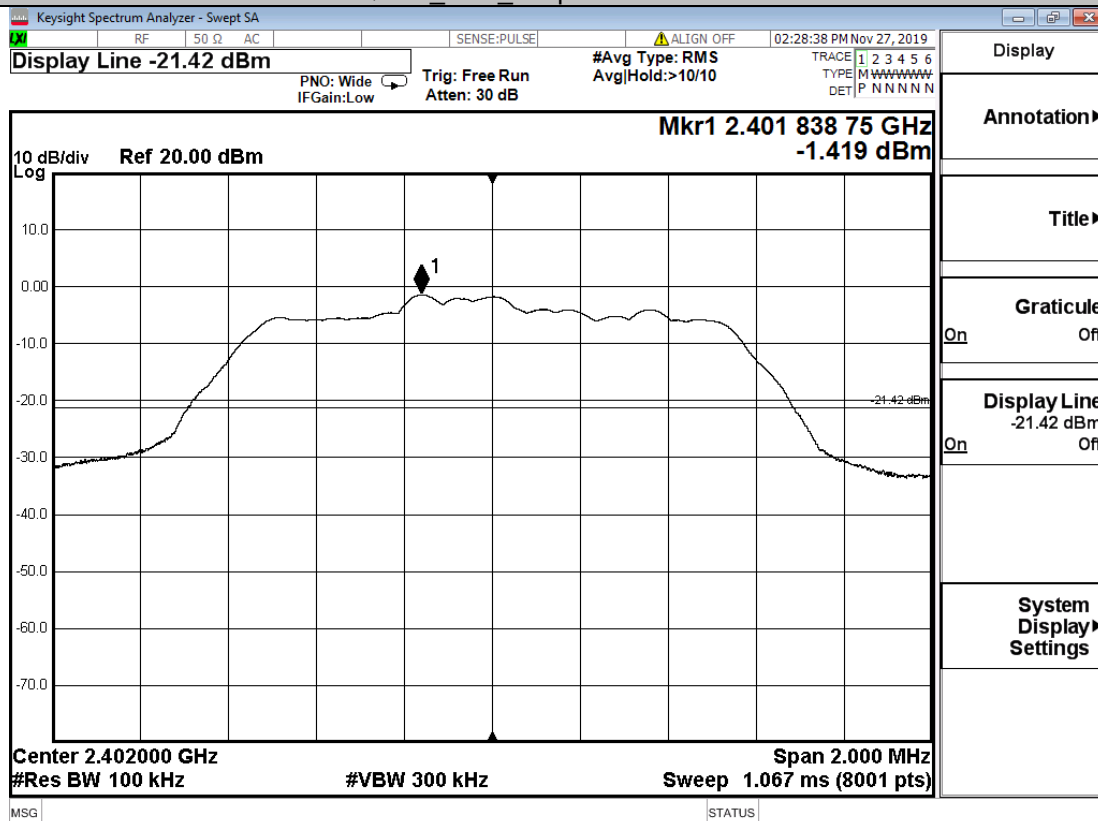


Puw

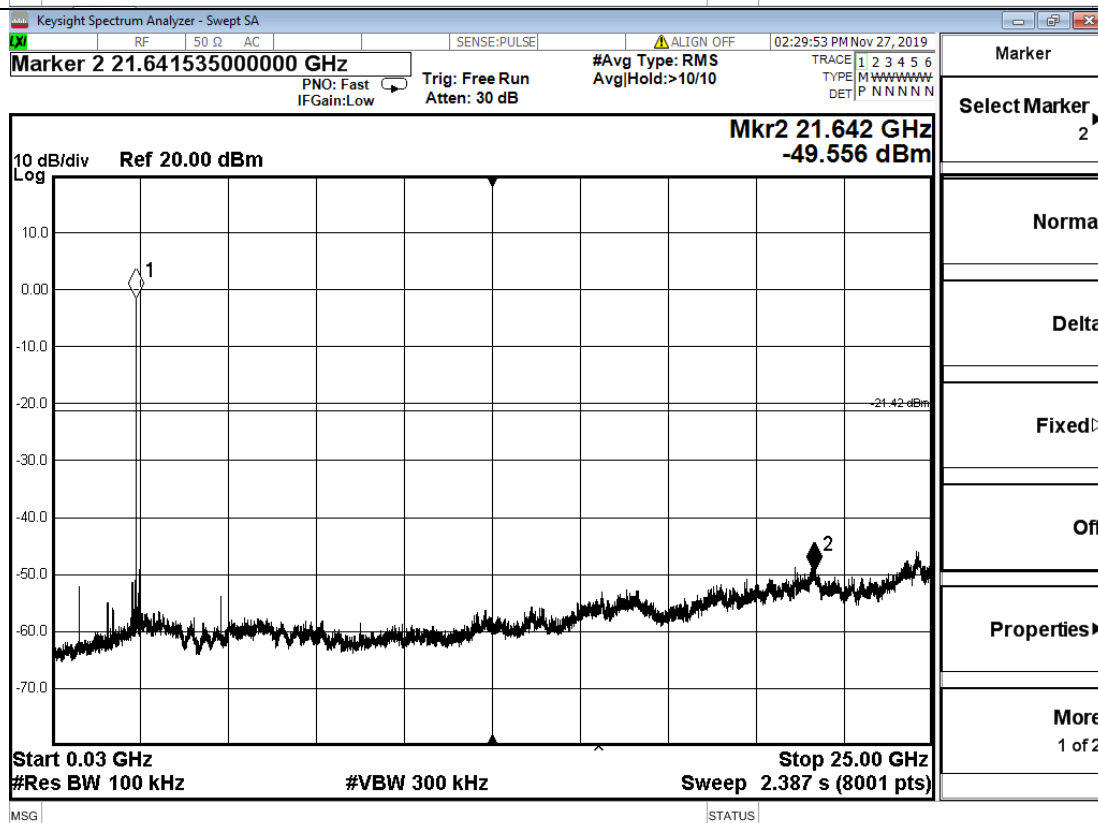


$\pi/4$ DQPSK_LCH_Graphs

Pref

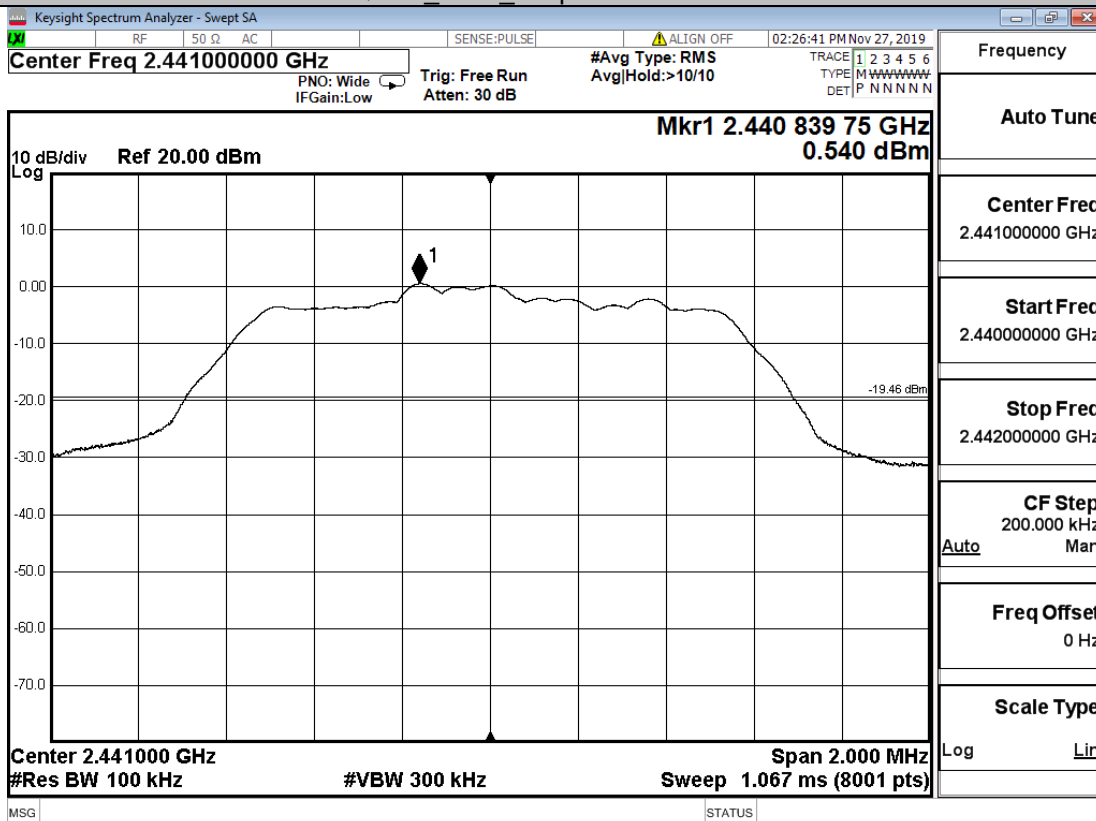


Puw

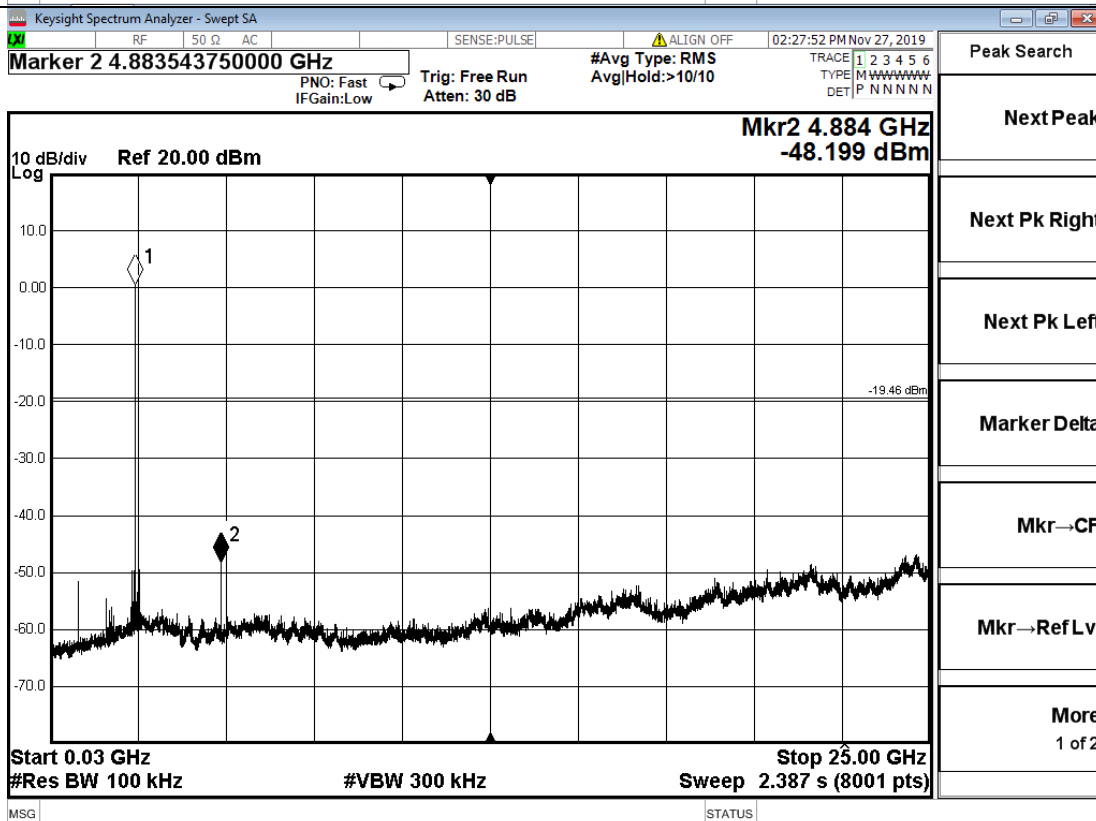


π /4DQPSK_MCH_Graphs

Pref

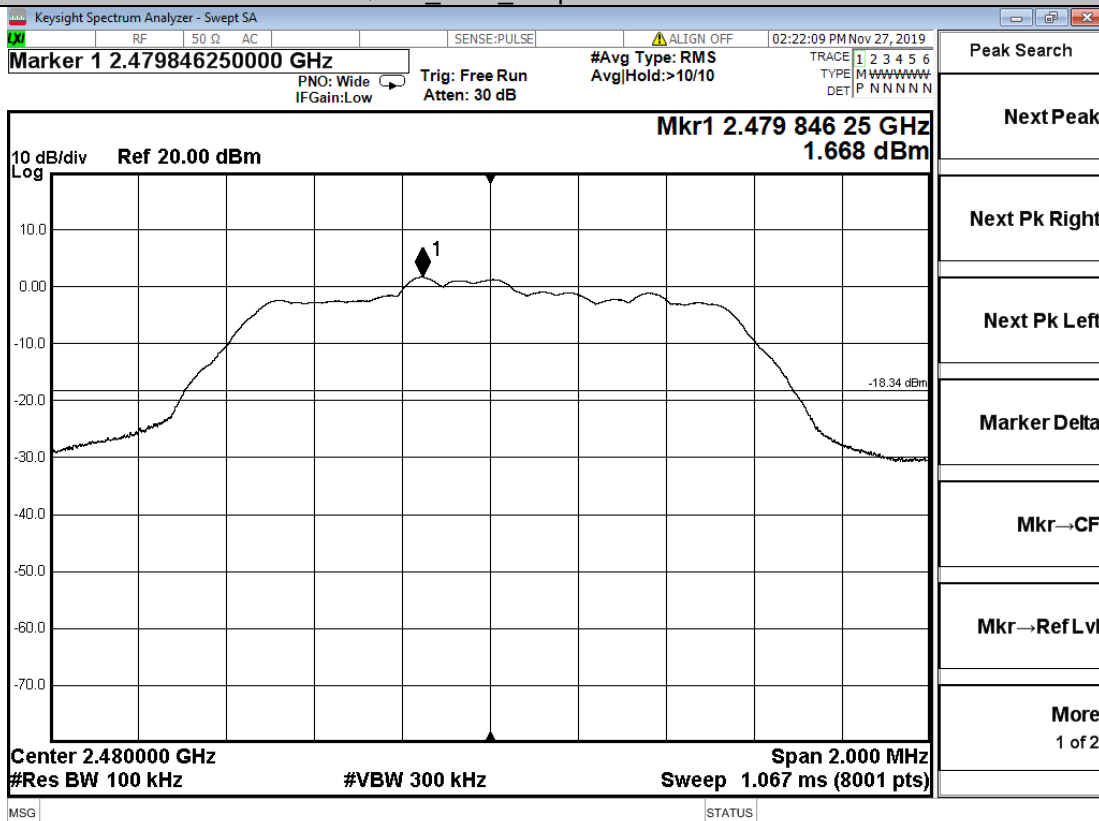


Puw

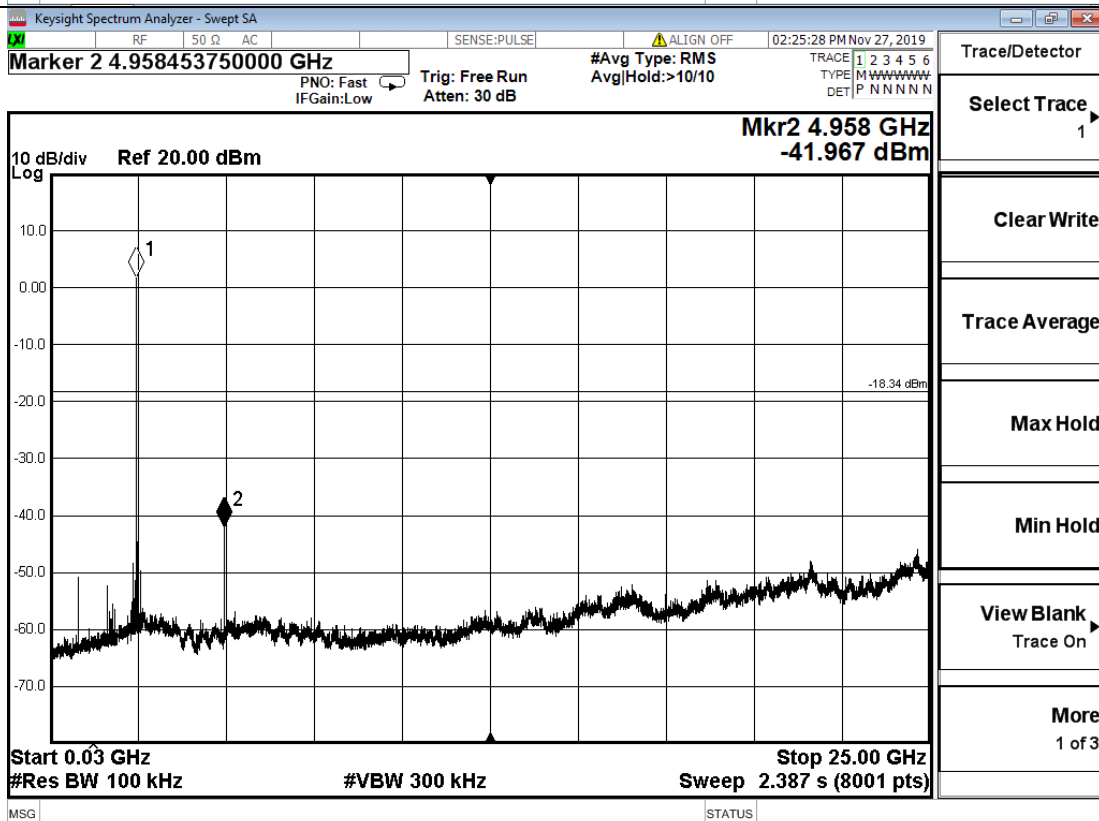


$\pi/4$ DQPSK_HCH_Graphs

Pref

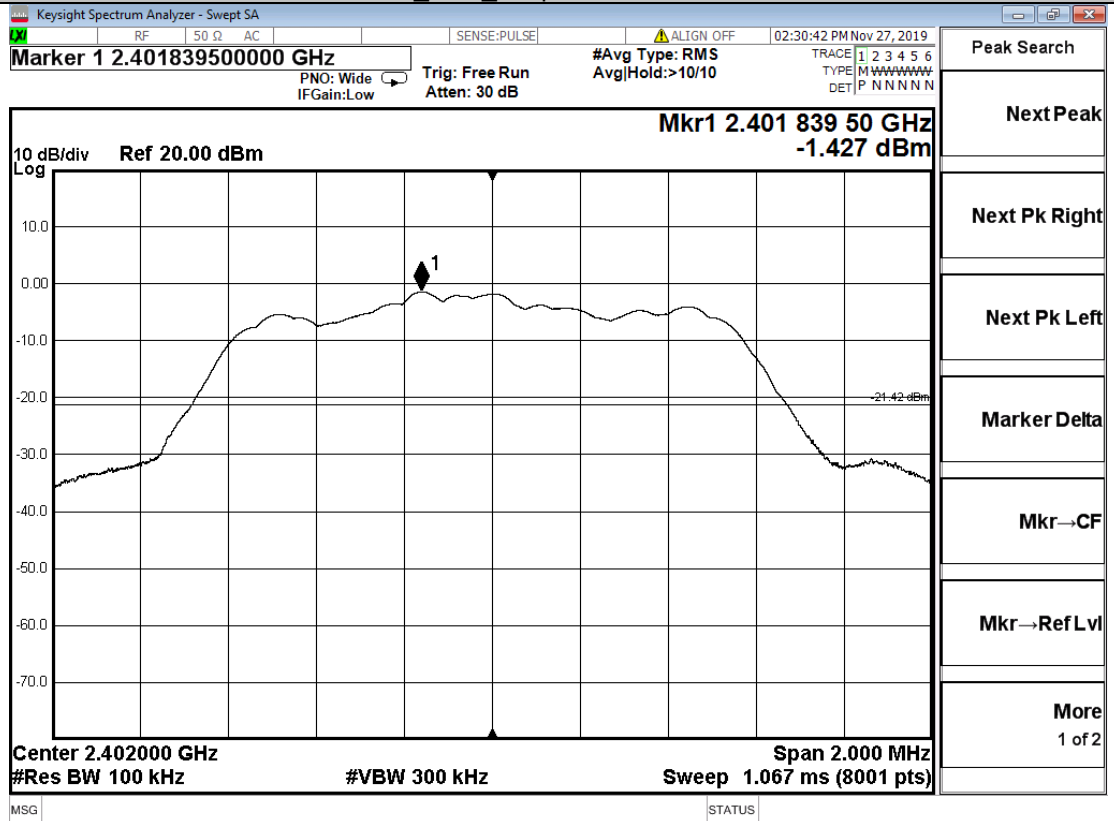


Puw

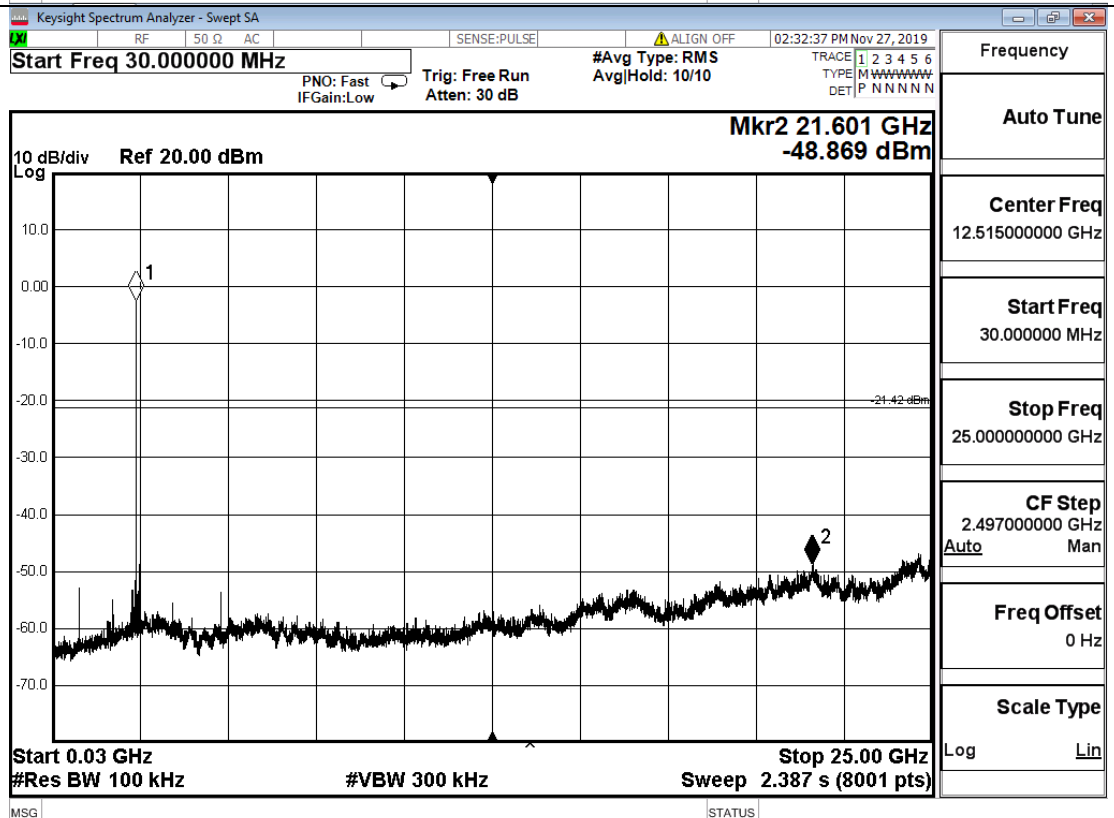


8-DPSK_LCH_Graphs

Pref

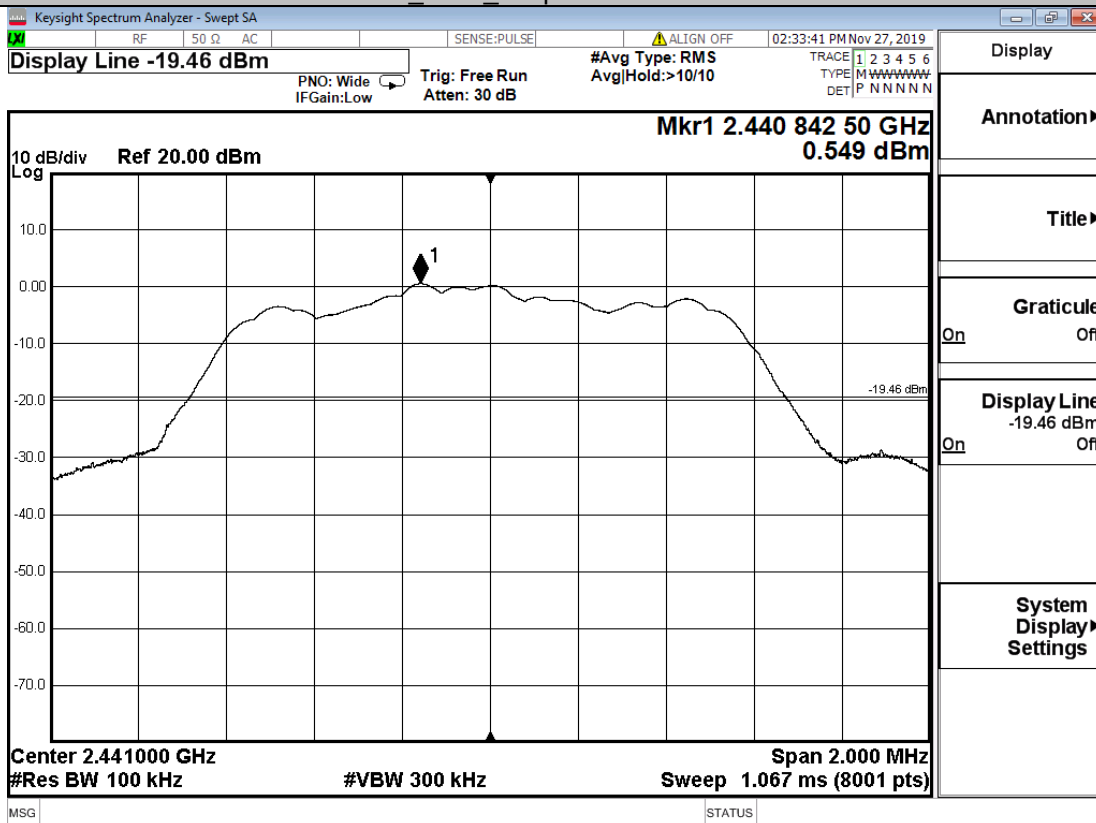


Puw

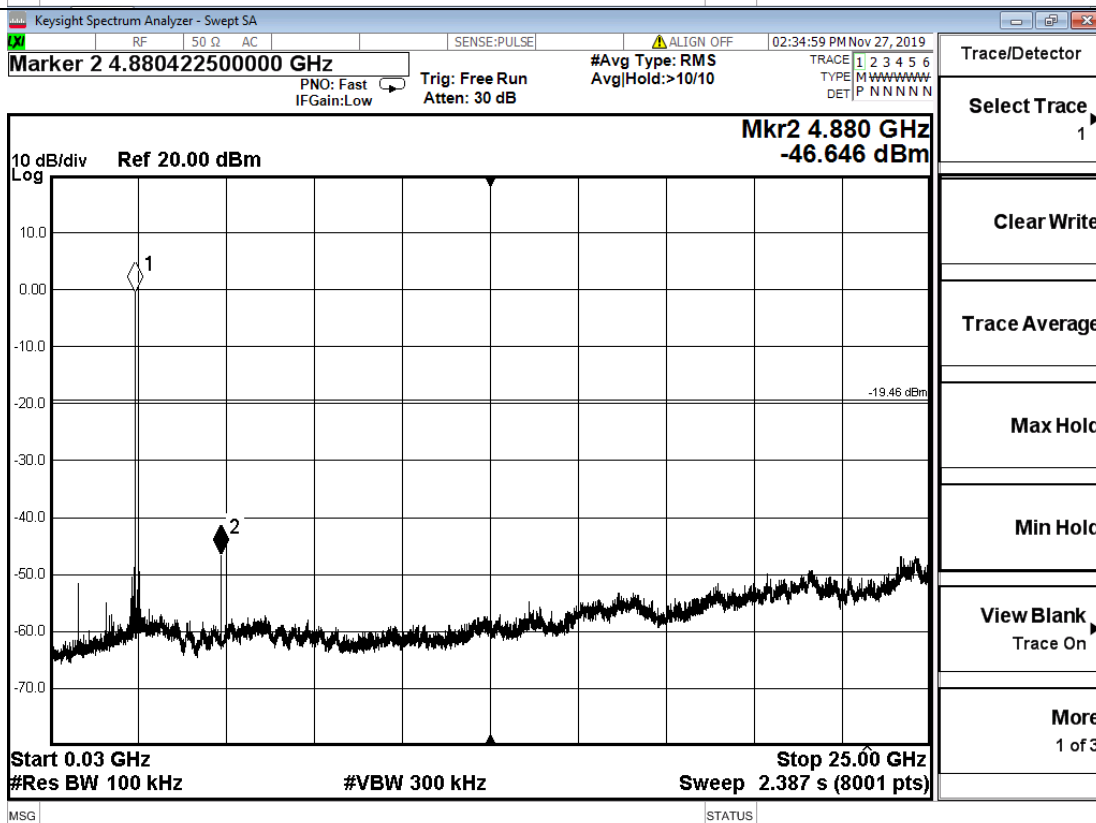


8-DPSK_MCH_Graphs

Pref

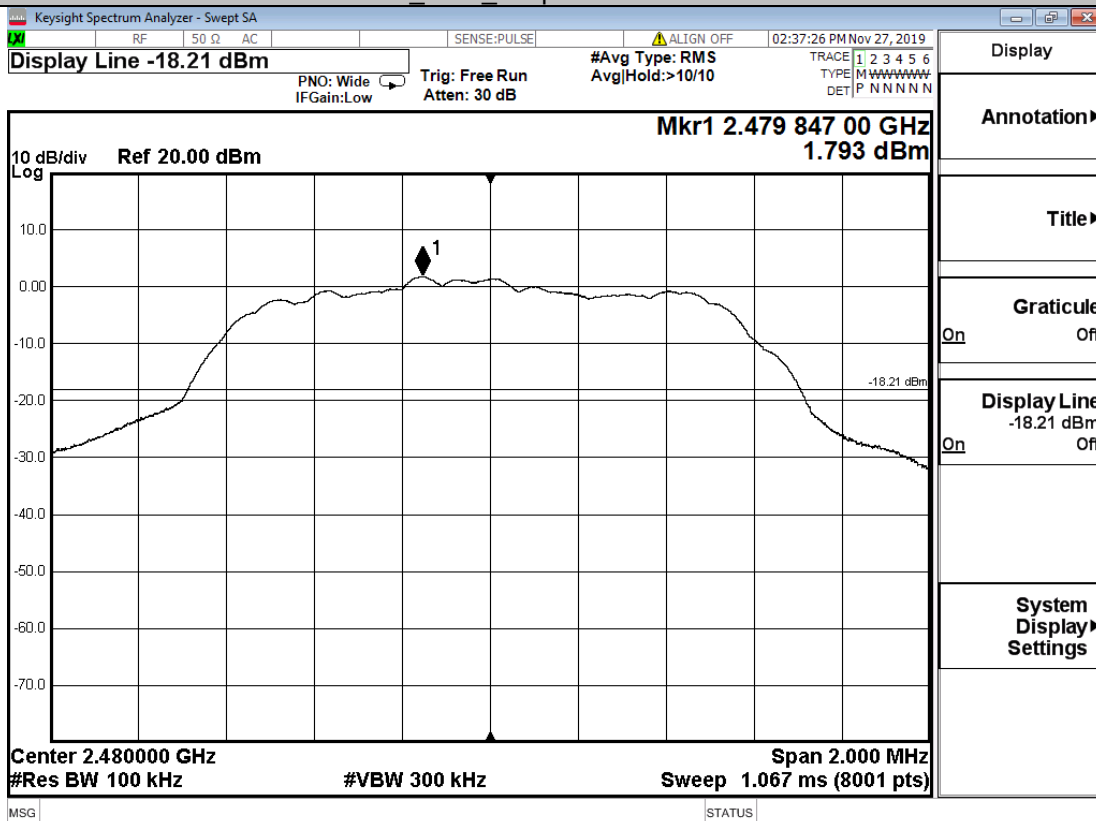


Puw

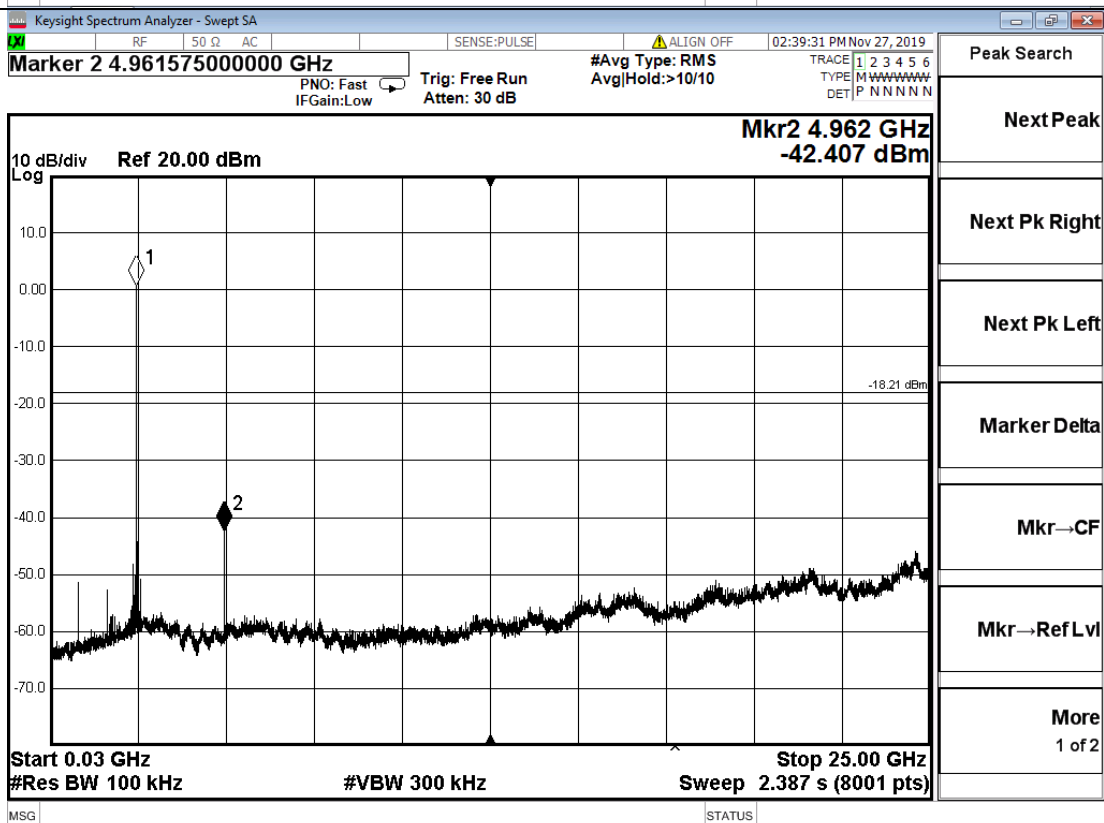


8-DPSK_HCH_Graphs

Pref



Puw

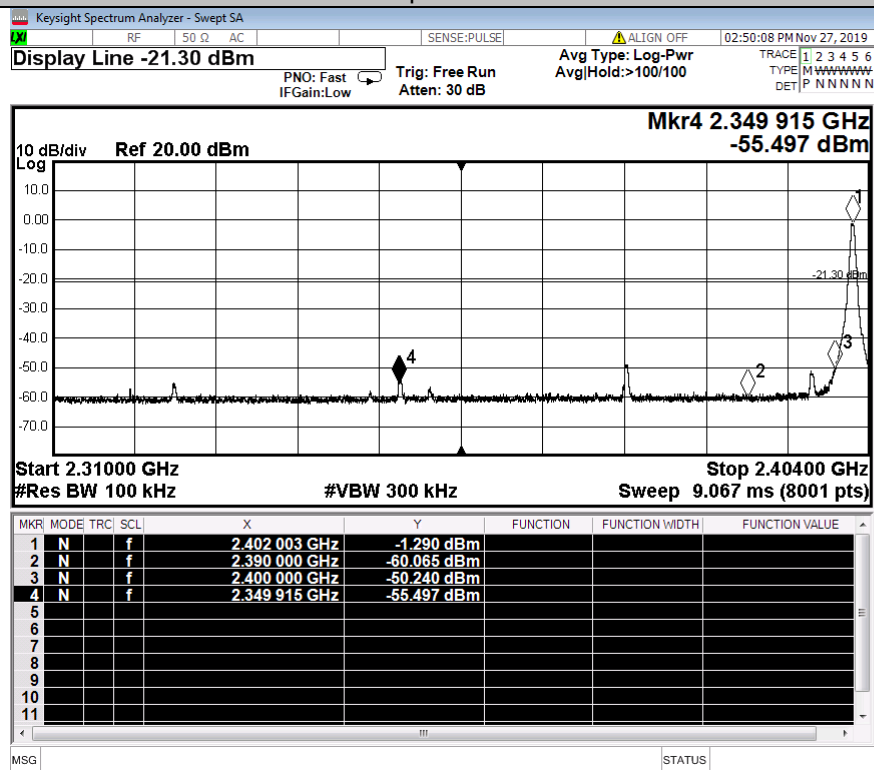


A.7 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-1.290	Off	-50.240	-21.29	PASS
			2.676	On	-58.480	-17.32	PASS
	HCH	2480	1.778	Off	-50.708	-18.22	PASS
			2.207	On	-58.043	-17.79	PASS
$\pi/4$ DQPSK	LCH	2402	-1.233	Off	-48.495	-21.23	PASS
			1.088	On	-55.823	-18.91	PASS
	HCH	2480	1.837	Off	-50.172	-18.16	PASS
			0.463	On	-58.386	-19.54	PASS
$\pi/4$ DQPSK	LCH	2402	-1.223	Off	-49.366	-21.22	PASS
			0.840	On	-59.341	-19.16	PASS
	HCH	2480	1.818	Off	-49.808	-18.18	PASS
			0.858	On	-59.468	-19.14	PASS

Test Graphs

GFSK/LCH/No Hop



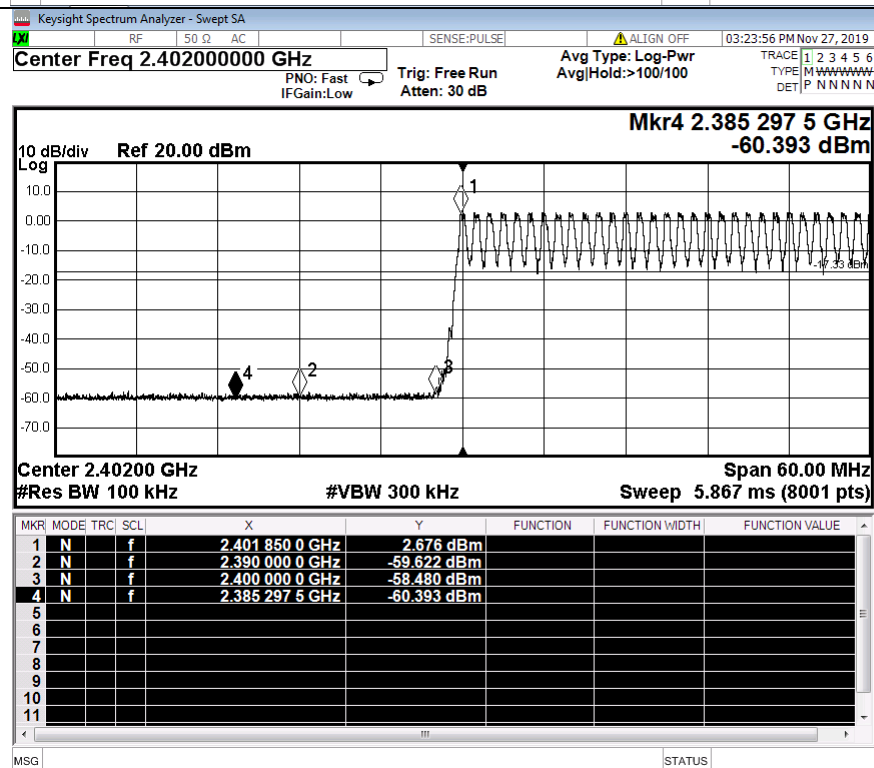
Display

Annotation►

Title►

Graticule
On OffDisplay Line
-21.30 dBm OffSystem
Display►
Settings

GFSK/LCH/Hop

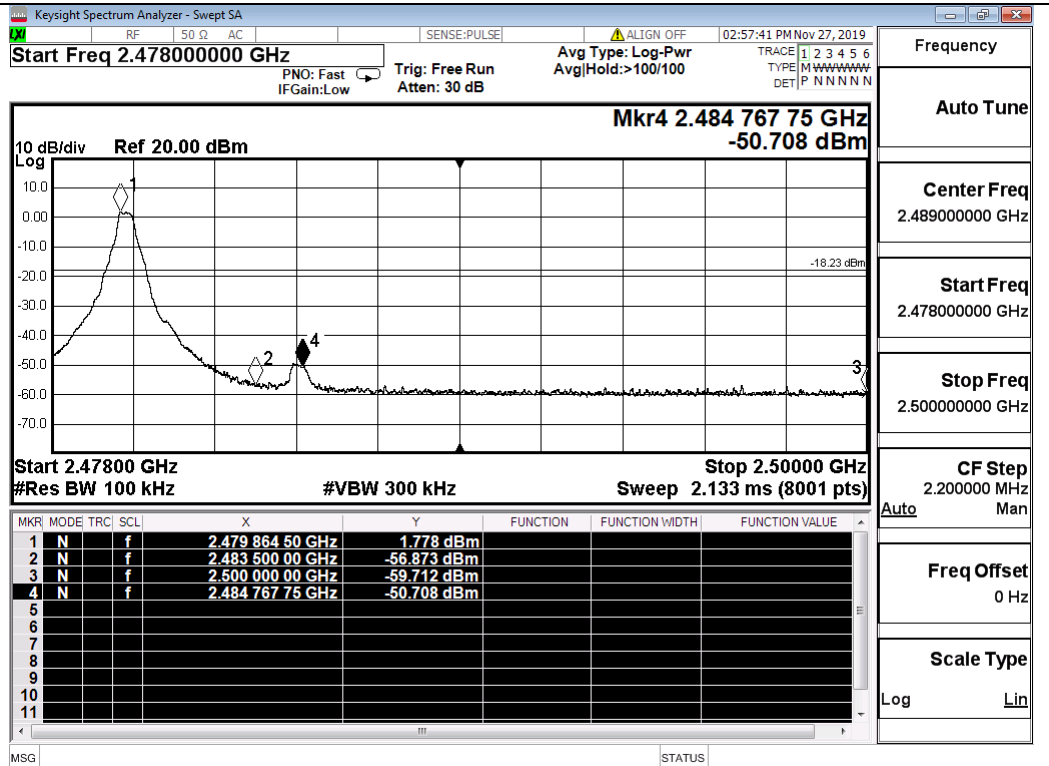


Frequency

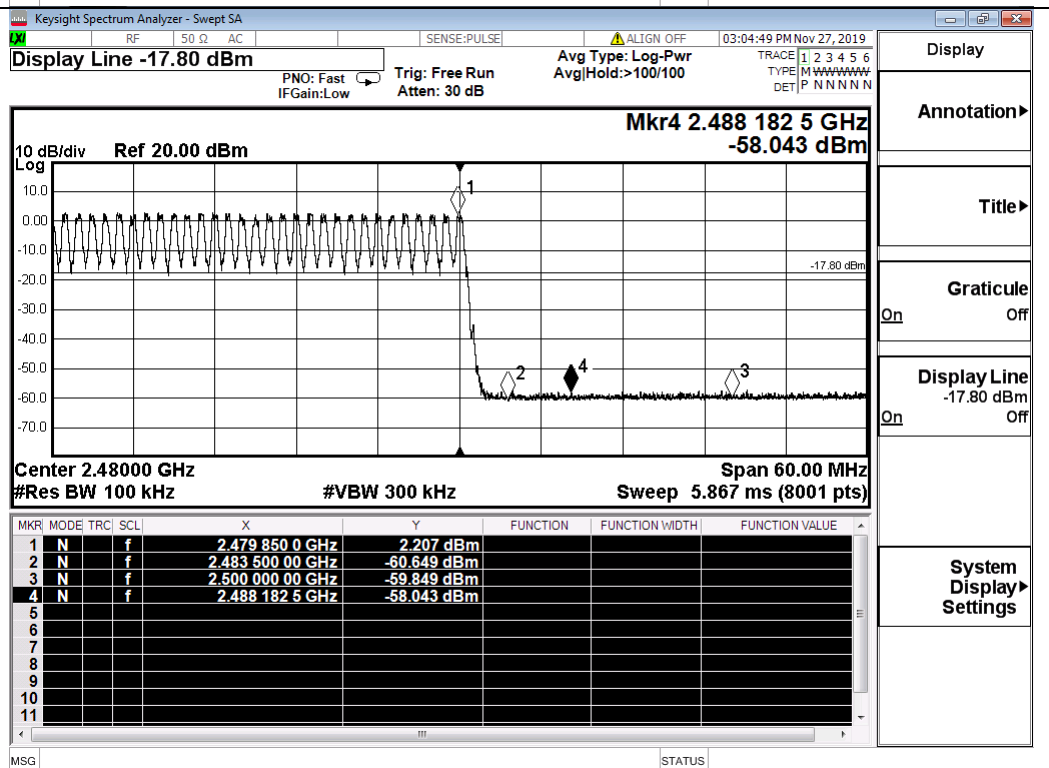
Auto Tune

Center Freq
2.402000000 GHzStart Freq
2.372000000 GHzStop Freq
2.432000000 GHzCF Step
6.000000 MHz
Auto ManFreq Offset
0 HzScale Type
Log Lin

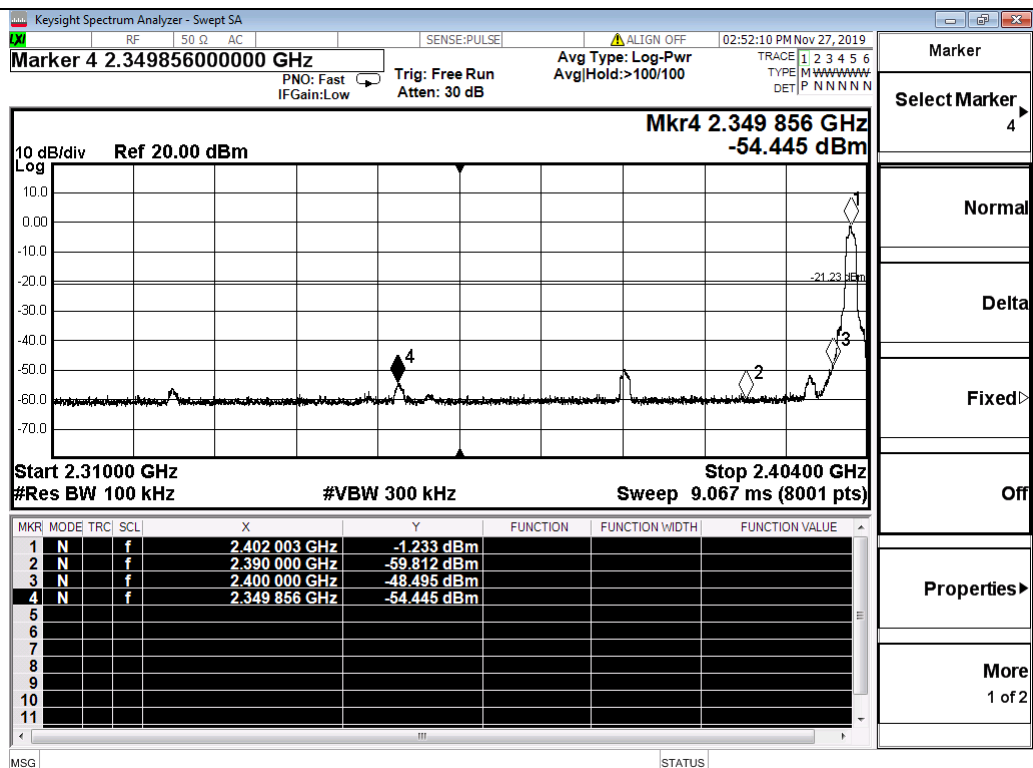
GFSK/HCH/No Hop



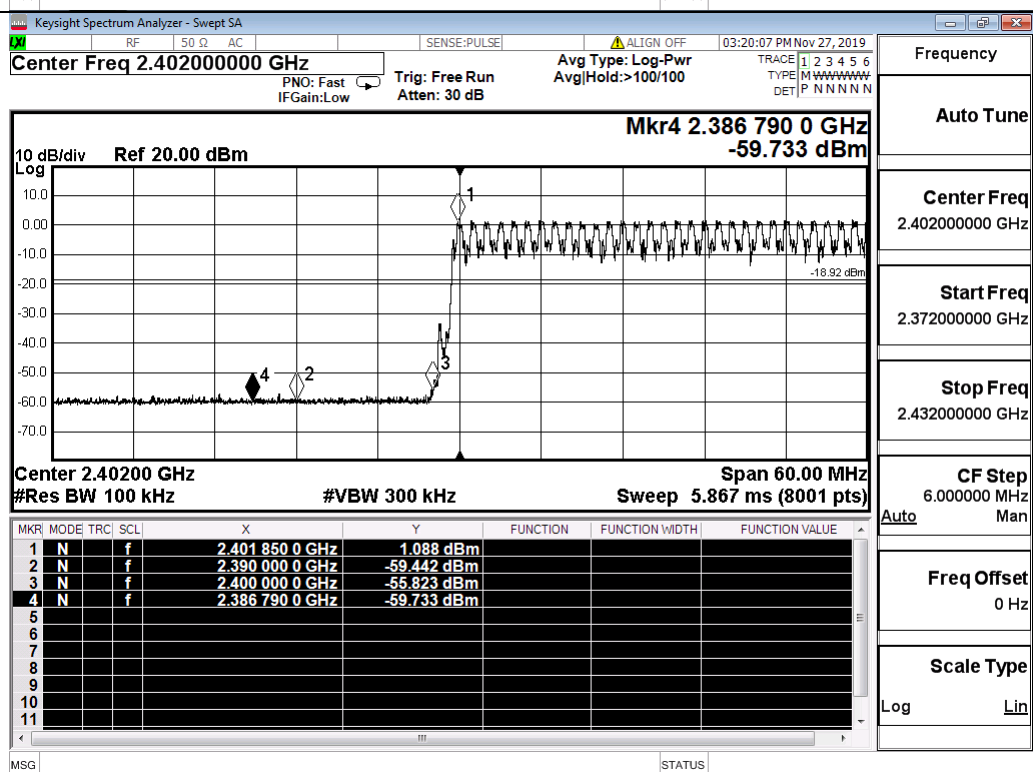
GFSK/HCH/Hop



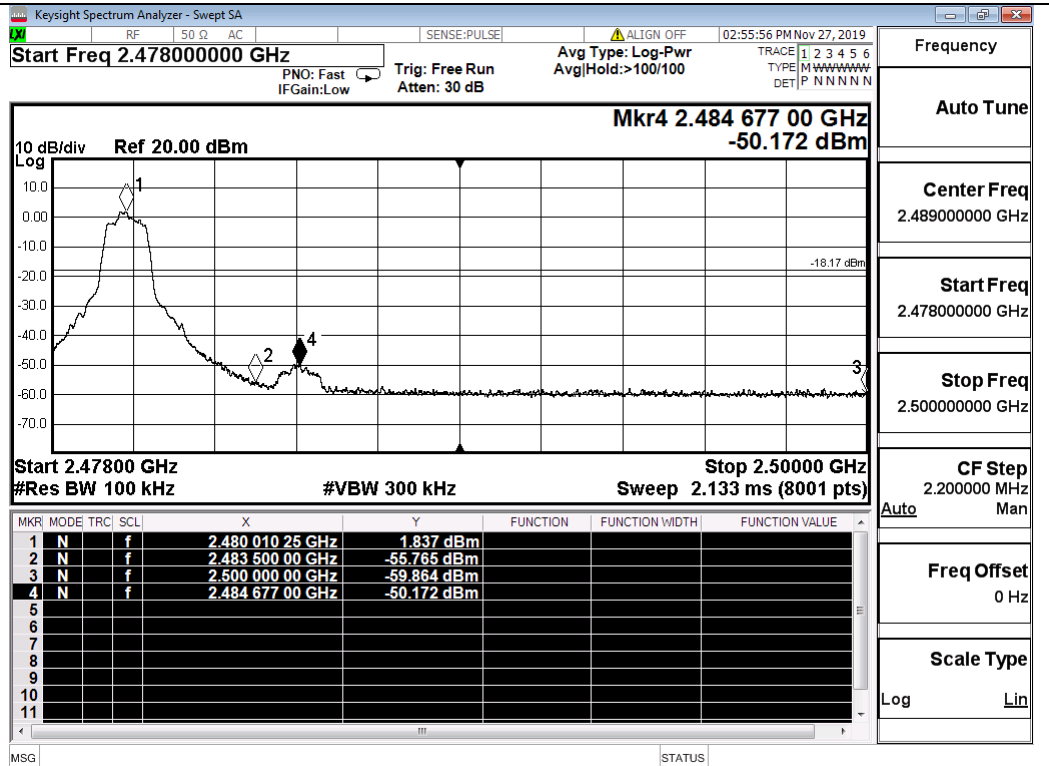
$\pi/4$ DQPSK/LCH/No
Hop



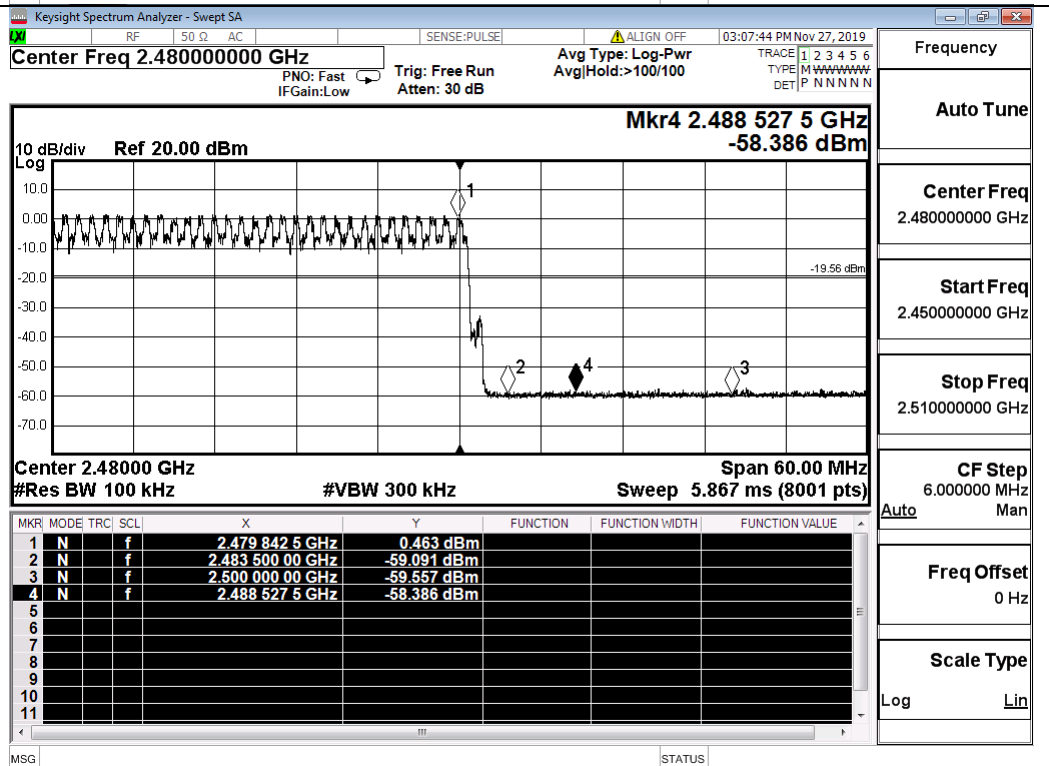
$\pi/4$ DQPSK/LCH/Hop



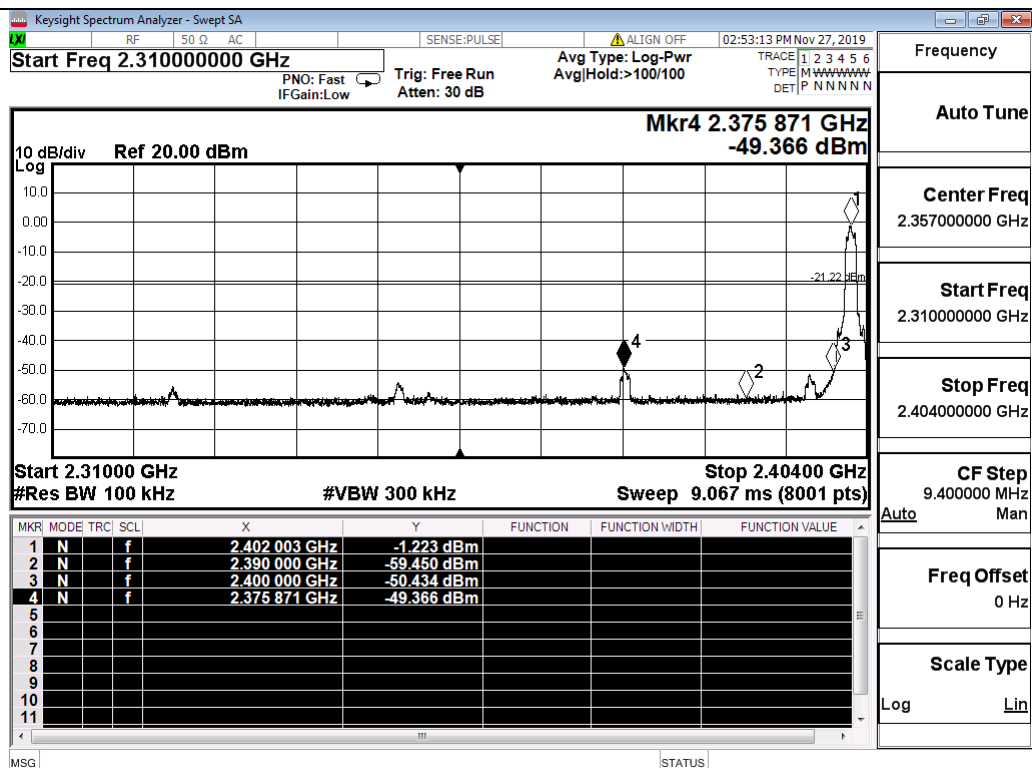
$\pi/4$ DQPSK/HCH/No
Hop



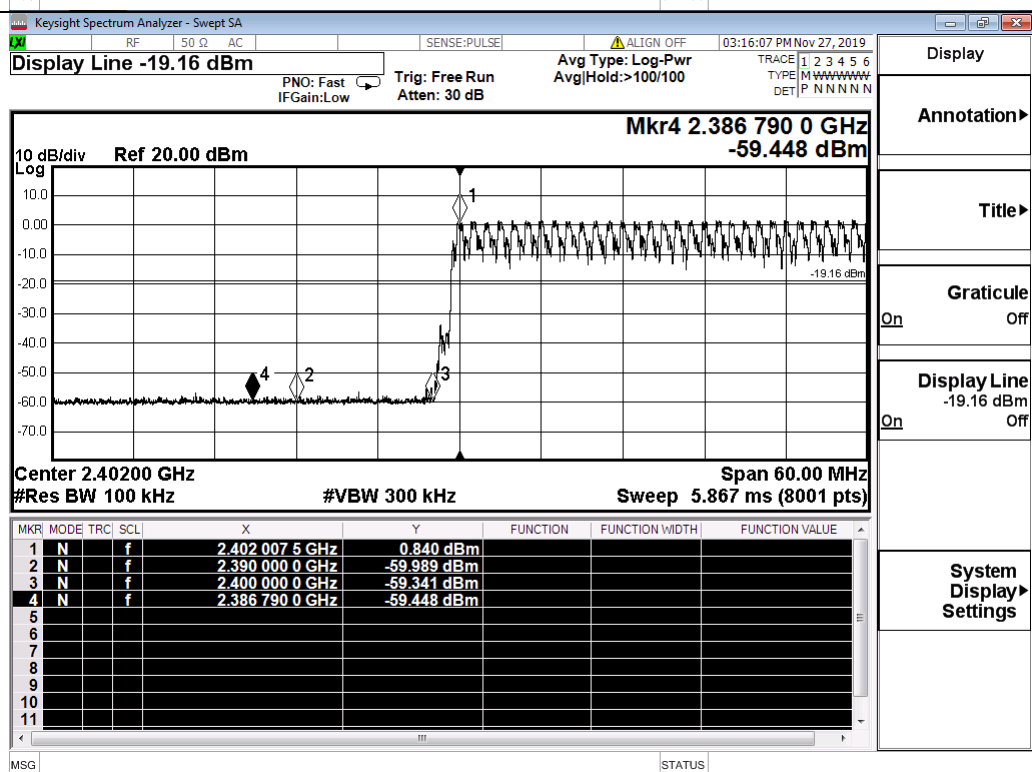
$\pi/4$ DQPSK/HCH/Hop



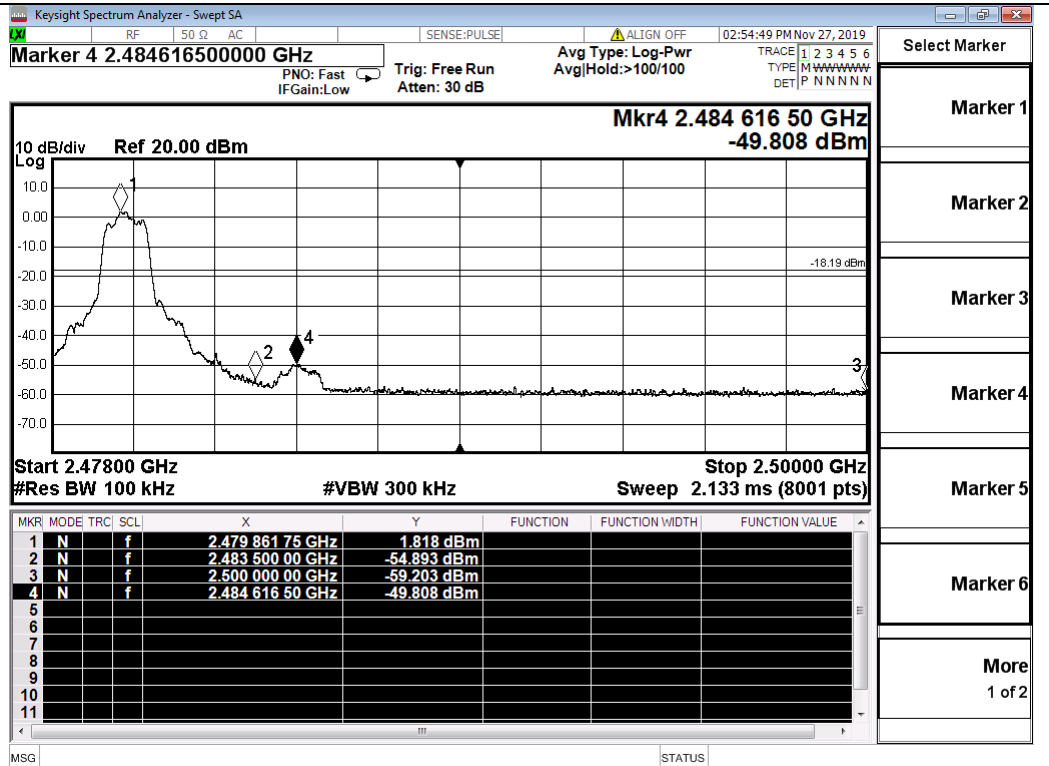
8-DPSK/LCH/No Hop



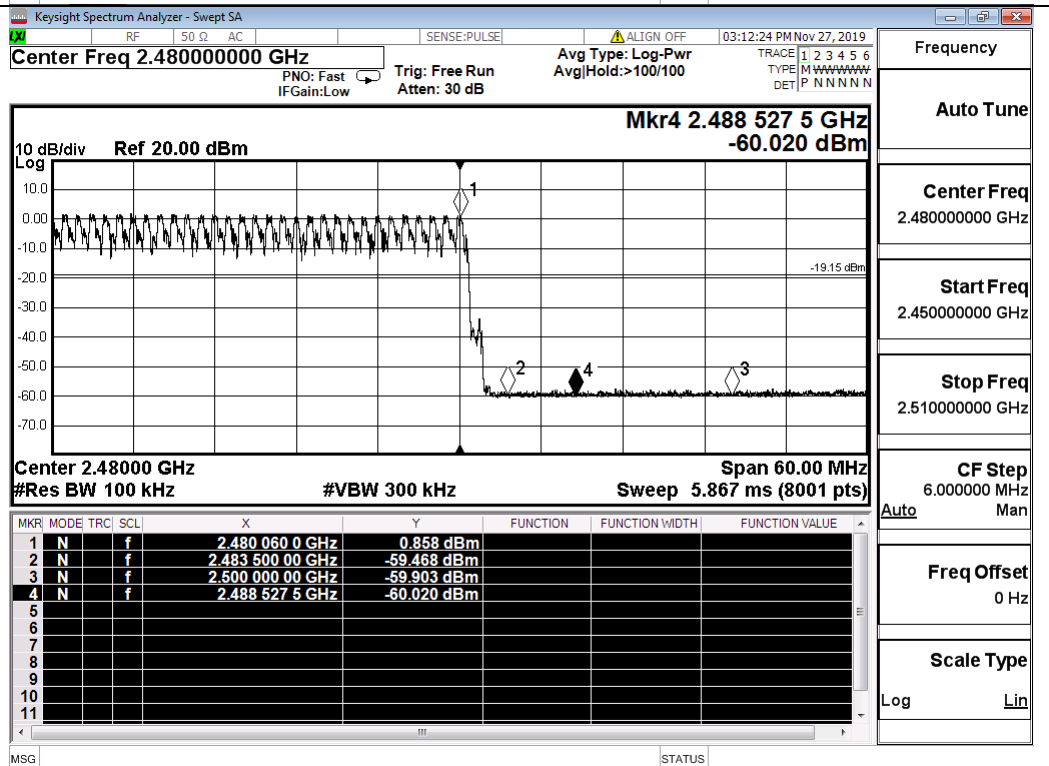
8-DPSK/LCH/Hop



8-DPSK/HCH/No
Hop



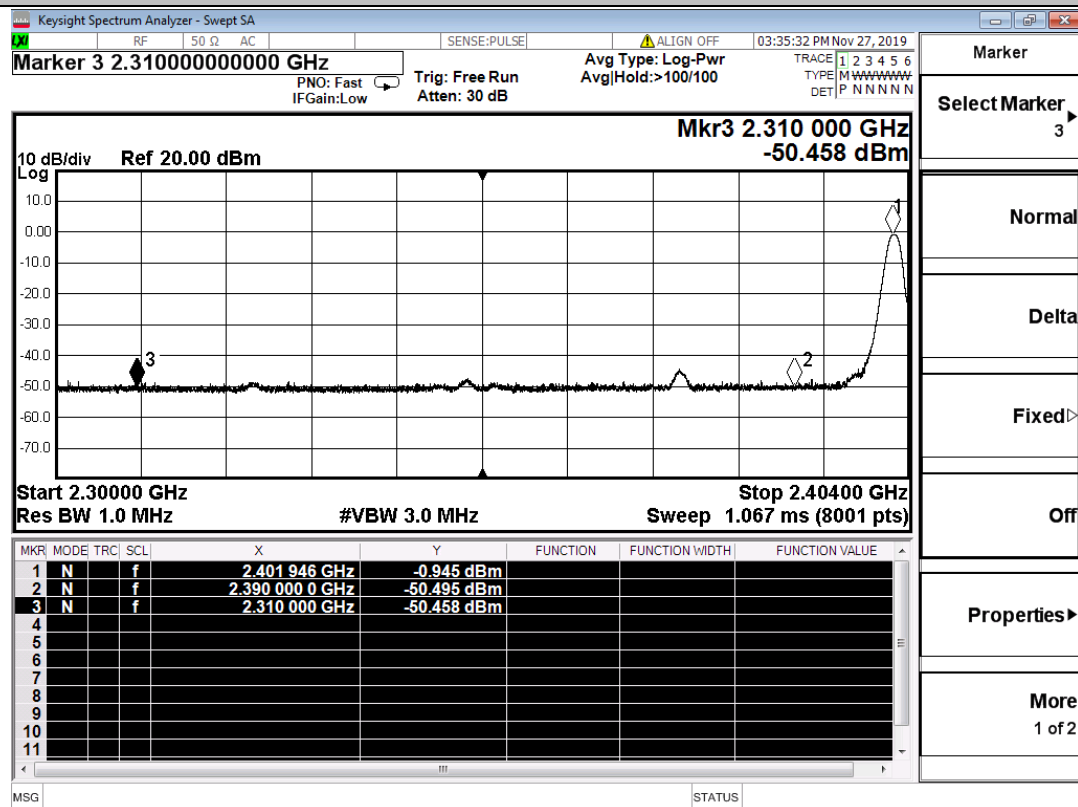
8-DPSK/HCH/Hop



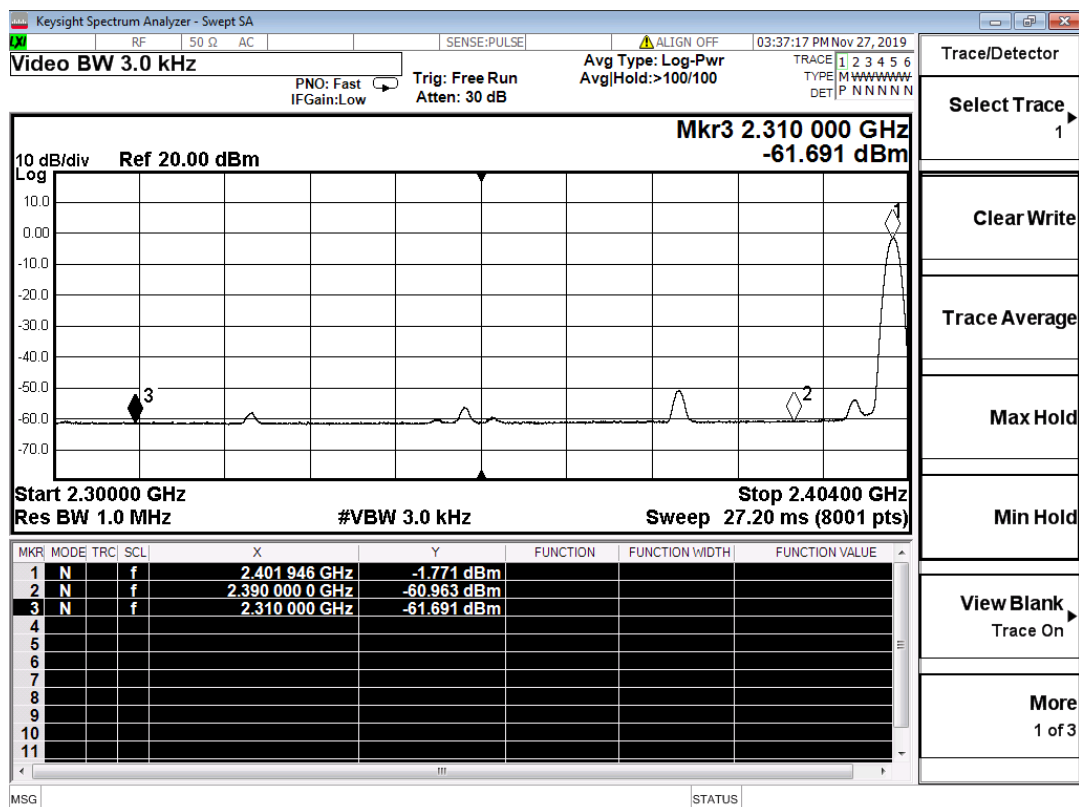
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-50.458	2.000	0	46.77	PEAK	74	PASS
	Off	2310.0	-61.691	2.000	0	35.54	AV	54	PASS
	Off	2390.0	-50.495	2.000	0	46.74	PEAK	74	PASS
	Off	2390.0	-61.963	2.000	0	35.27	AV	54	PASS
	Off	2483.5	-42.945	2.000	0	54.29	PEAK	74	PASS
	Off	2483.5	-55.083	2.000	0	42.15	AV	54	PASS
	Off	2500.0	-49.854	2.000	0	47.38	PEAK	74	PASS
	Off	2500.0	-60.412	2.000	0	36.82	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-51.003	2.000	0	46.23	PEAK	74	PASS
	Off	2310.0	-61.145	2.000	0	36.09	AV	54	PASS
	Off	2390.0	-51.388	2.000	0	45.84	PEAK	74	PASS
	Off	2390.0	-60.842	2.000	0	36.39	AV	54	PASS
	Off	2483.5	-40.091	2.000	0	57.14	PEAK	74	PASS
	Off	2483.5	-55.083	2.000	0	42.15	AV	54	PASS
	Off	2500.0	-50.933	2.000	0	46.30	PEAK	74	PASS
	Off	2500.0	-60.412	2.000	0	36.82	AV	54	PASS
8-DPSK	Off	2310.0	-52.177	2.000	0	45.05	PEAK	74	PASS
	Off	2310.0	-61.634	2.000	0	35.60	AV	54	PASS
	Off	2390.0	-52.437	2.000	0	44.79	PEAK	74	PASS
	Off	2390.0	-61.193	2.000	0	36.04	AV	54	PASS
	Off	2483.5	-40.242	2.000	0	56.99	PEAK	74	PASS
	Off	2483.5	-55.912	2.000	0	41.32	AV	54	PASS
	Off	2500.0	-50.102	2.000	0	47.13	PEAK	74	PASS
	Off	2500.0	-60.419	2.000	0	36.81	AV	54	PASS

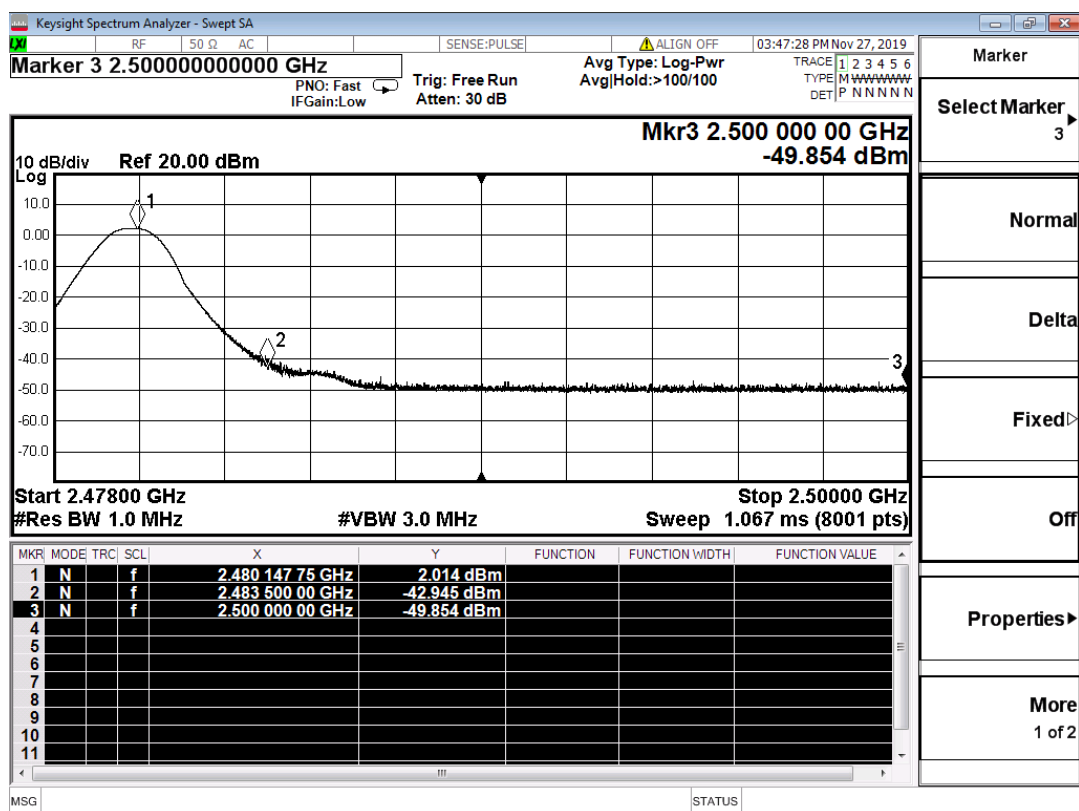
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



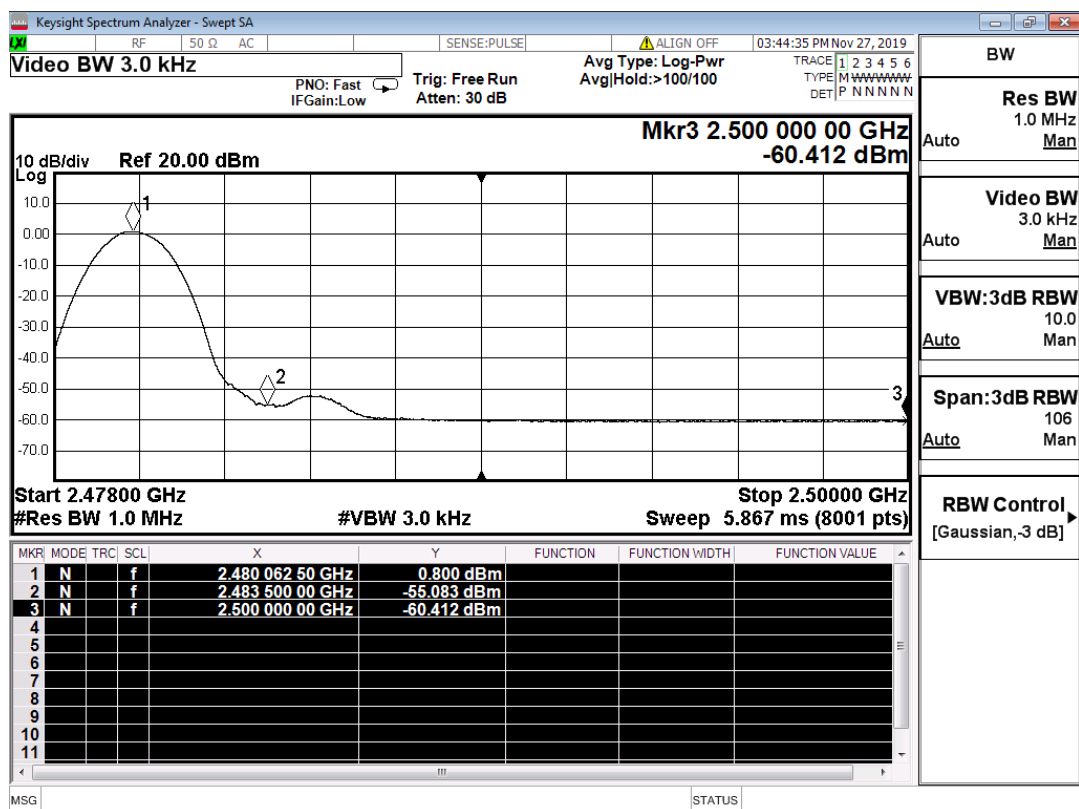
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

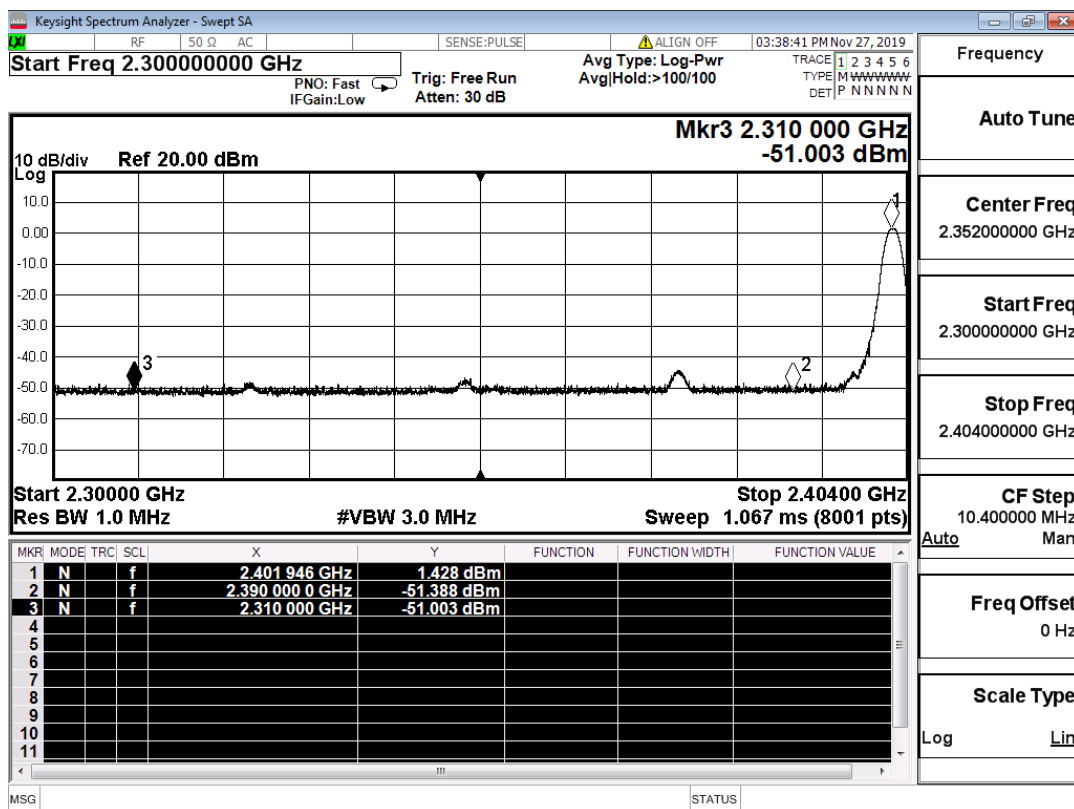
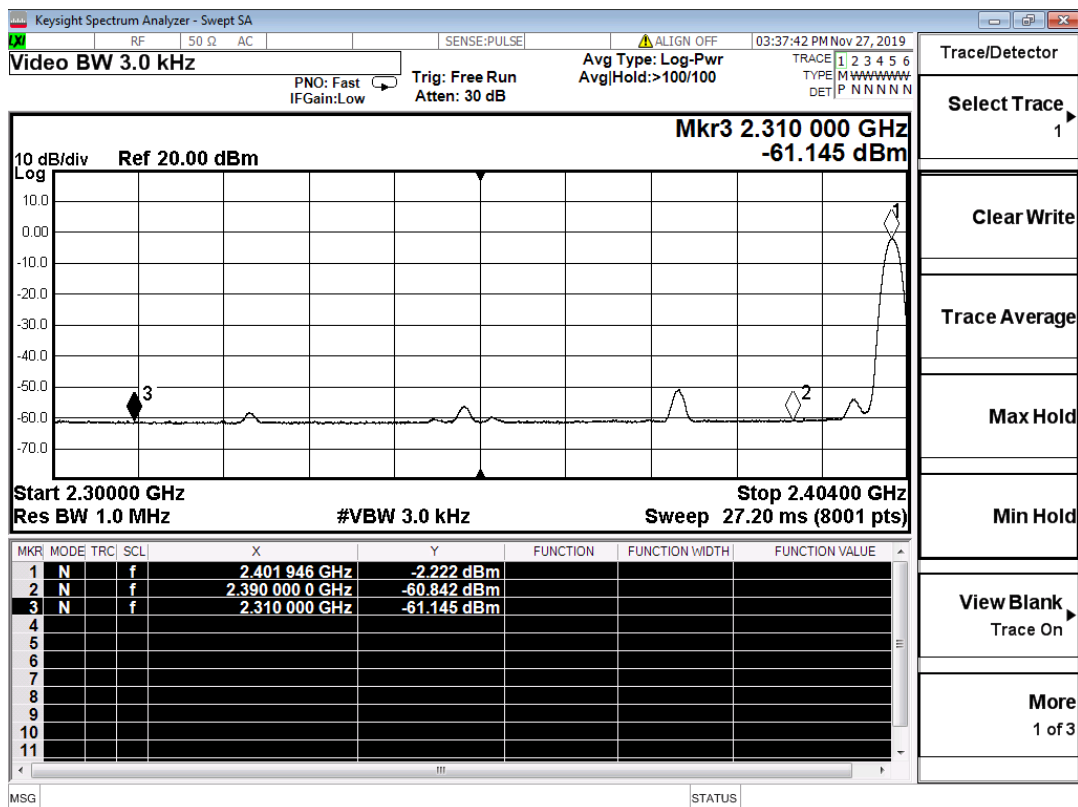


Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)

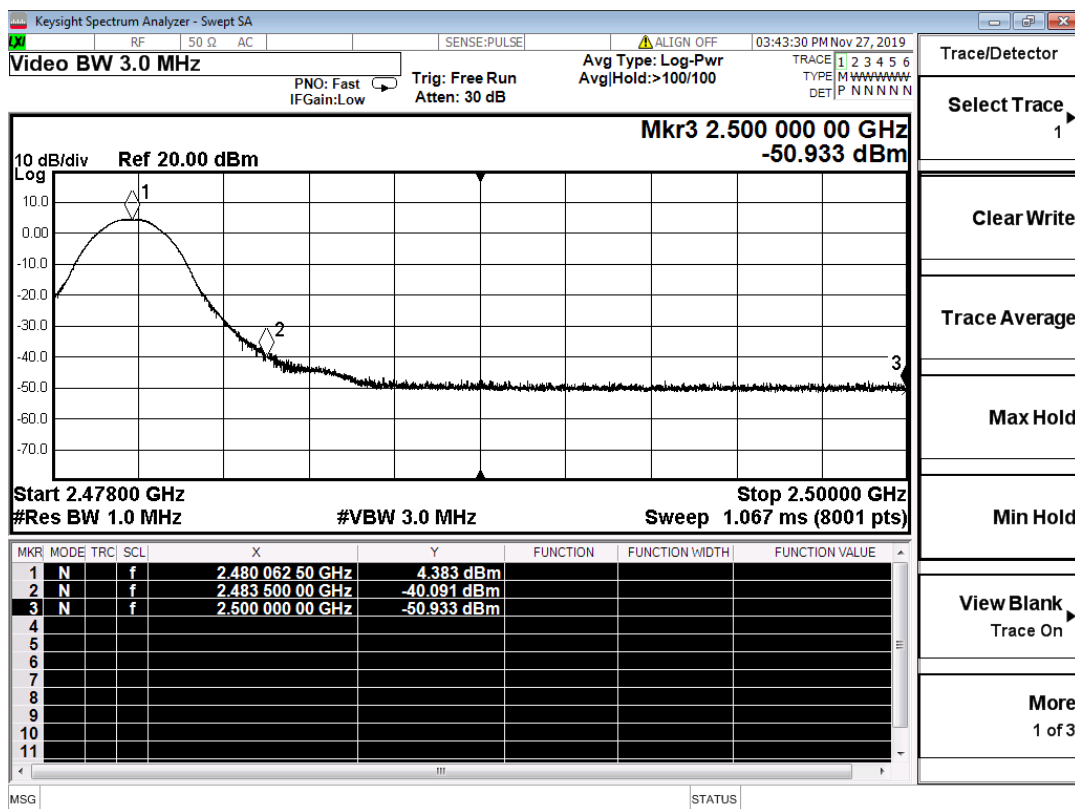


Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)

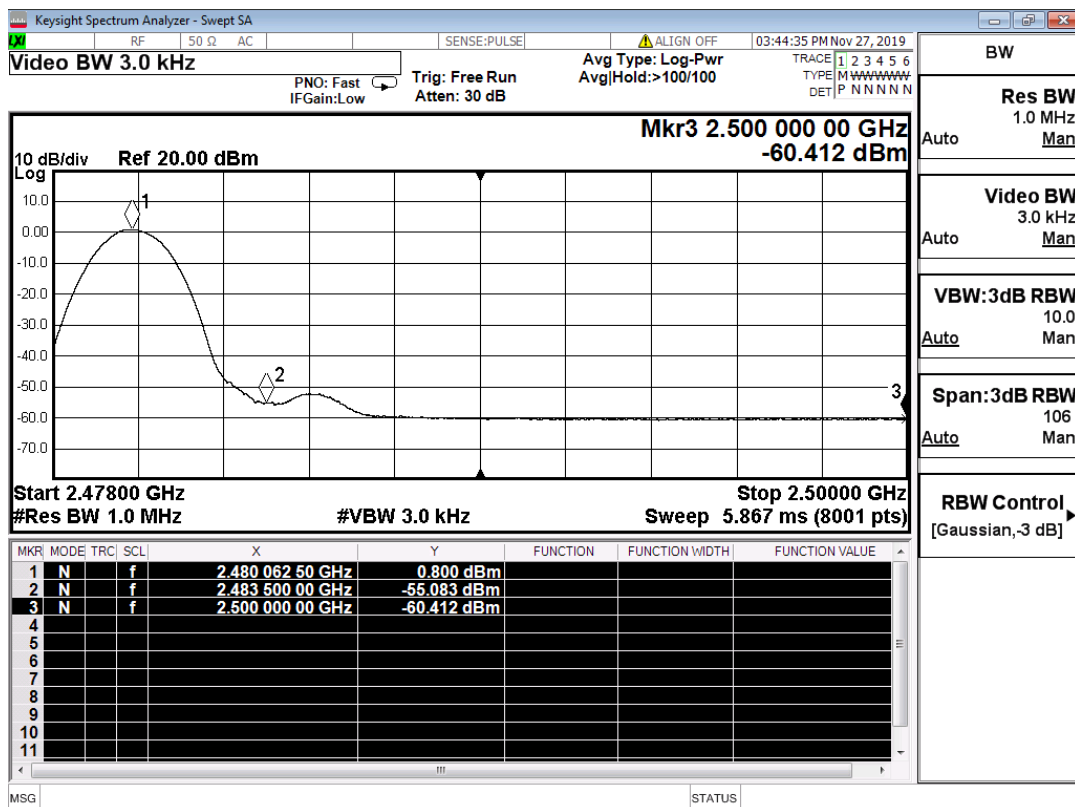


Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

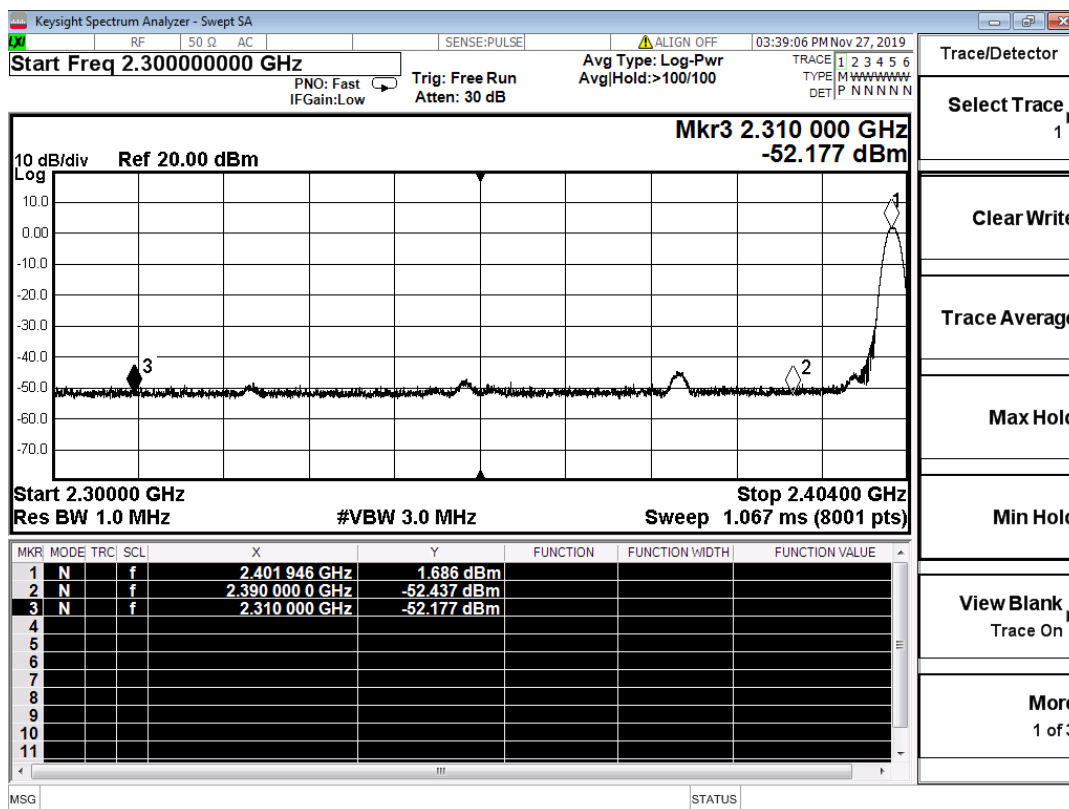
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



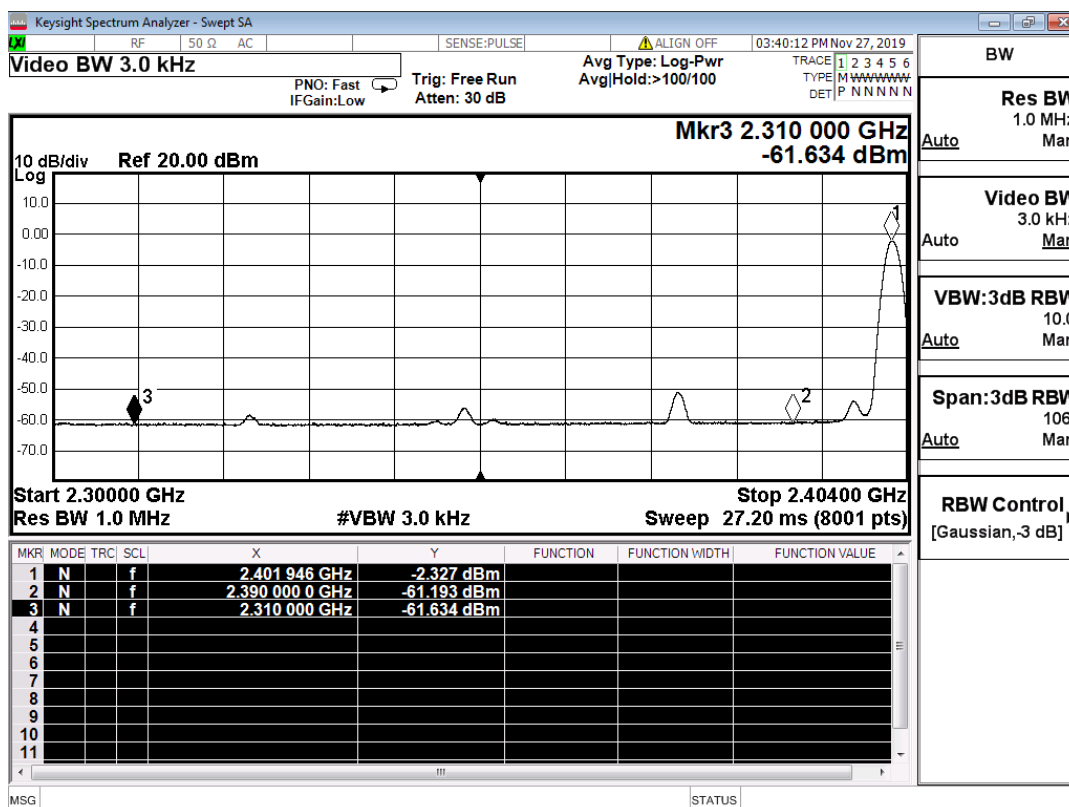
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



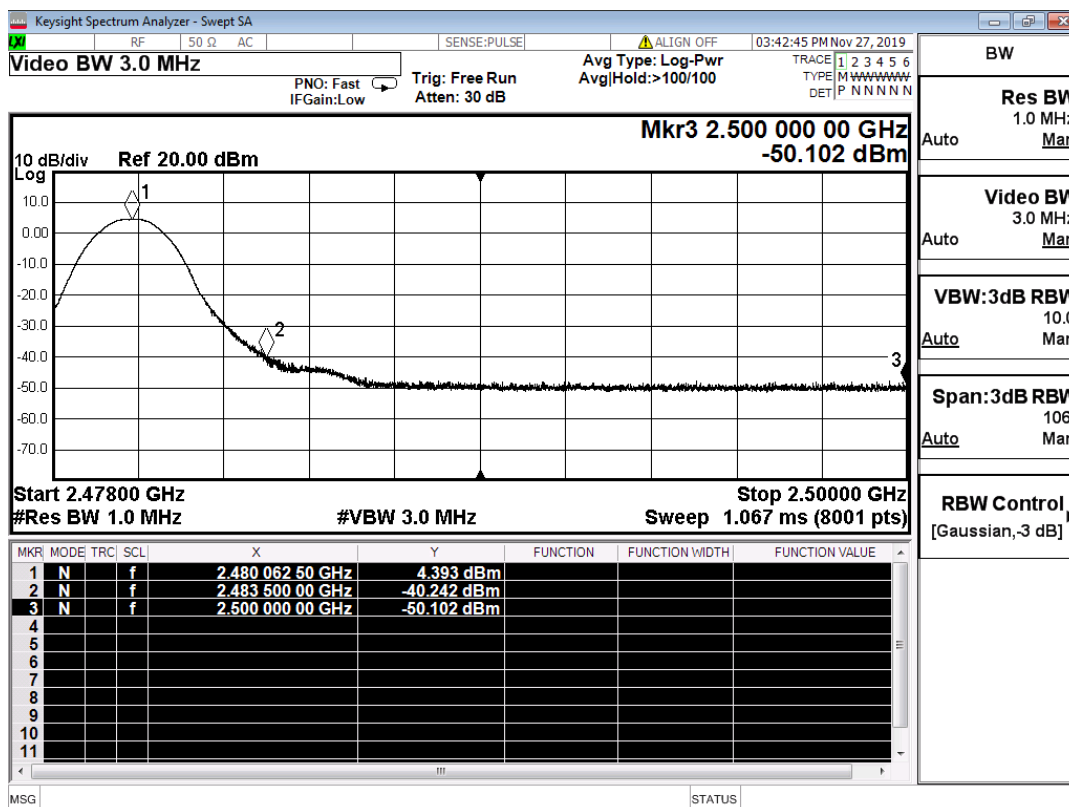
Restrict-band band-edge measurements_Hopping Off_8-DPSK_PEAK (Low Channel)



Restrict-band band-edge measurements_Hopping Off_8-DPSK_Average (Low Channel)



Restrict-band band-edge measurements_Hopping Off_8-DPSK_PEAK (High Channel)



Restrict-band band-edge measurements_Hopping Off_8-DPSK_Average (High Channel)

