

Appendix A

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

Product Name: TRULY WIRE-FREE EARBUDS

Trade Mark: ILIVE

Test Model: IAEBT209

Environmental Conditions

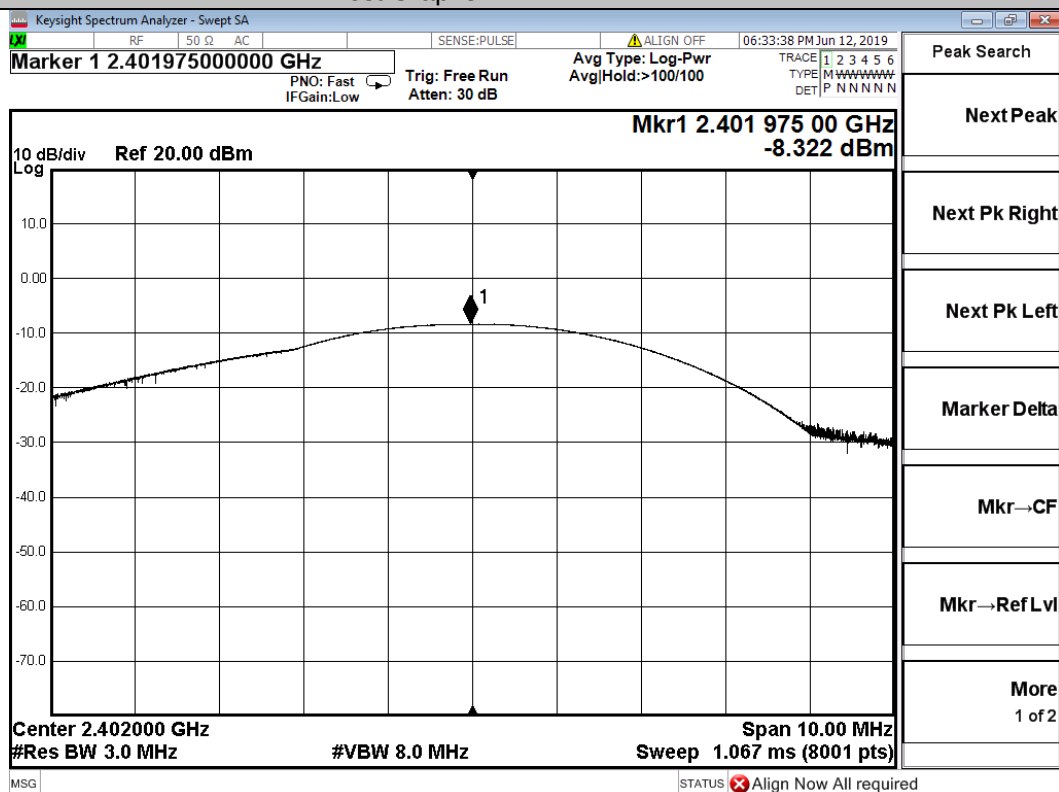
Temperature:	23.7 ° C
Relative Humidity:	61%
ATM Pressure:	100.0 kPa
Test Engineer:	CHUANG WANG
Supervised by:	JAYDEN ZHUO

A.1 Maximum Conducted Peak Output Power

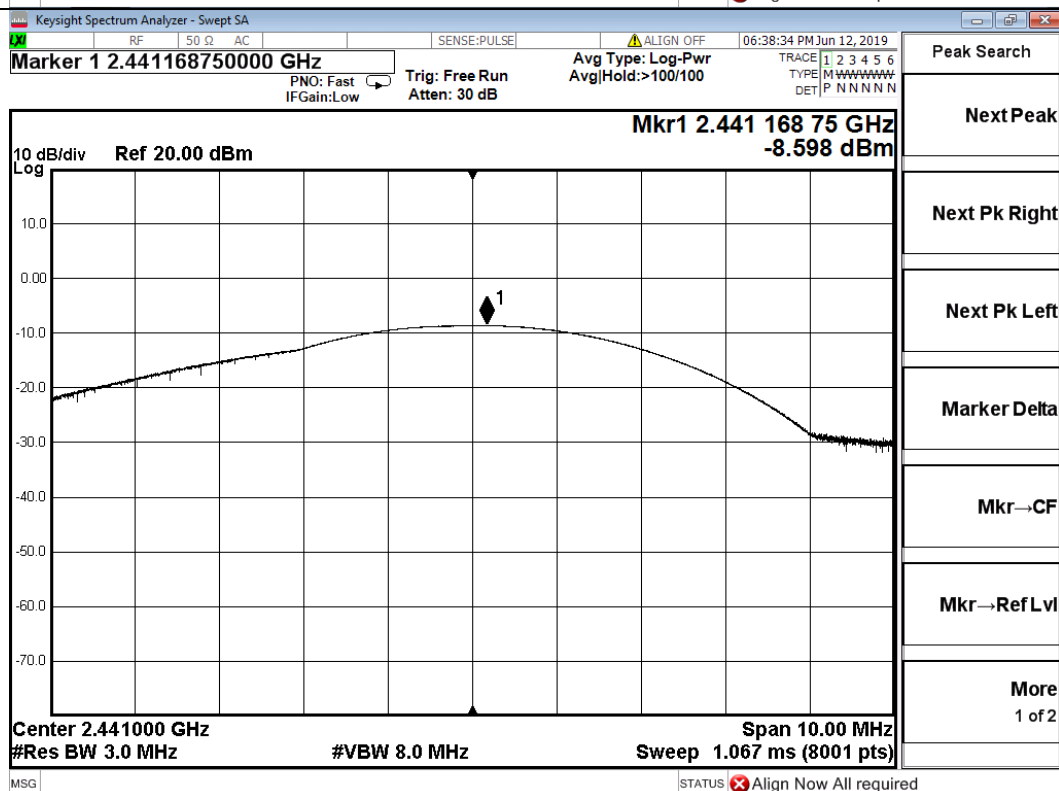
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-8.322	21	PASS
	MCH	-8.598	21	PASS
	HCH	-8.896	21	PASS
$\pi/4$ DQPSK	LCH	-7.455	21	PASS
	MCH	-7.687	21	PASS
	HCH	-8.007	21	PASS

Test Graphs

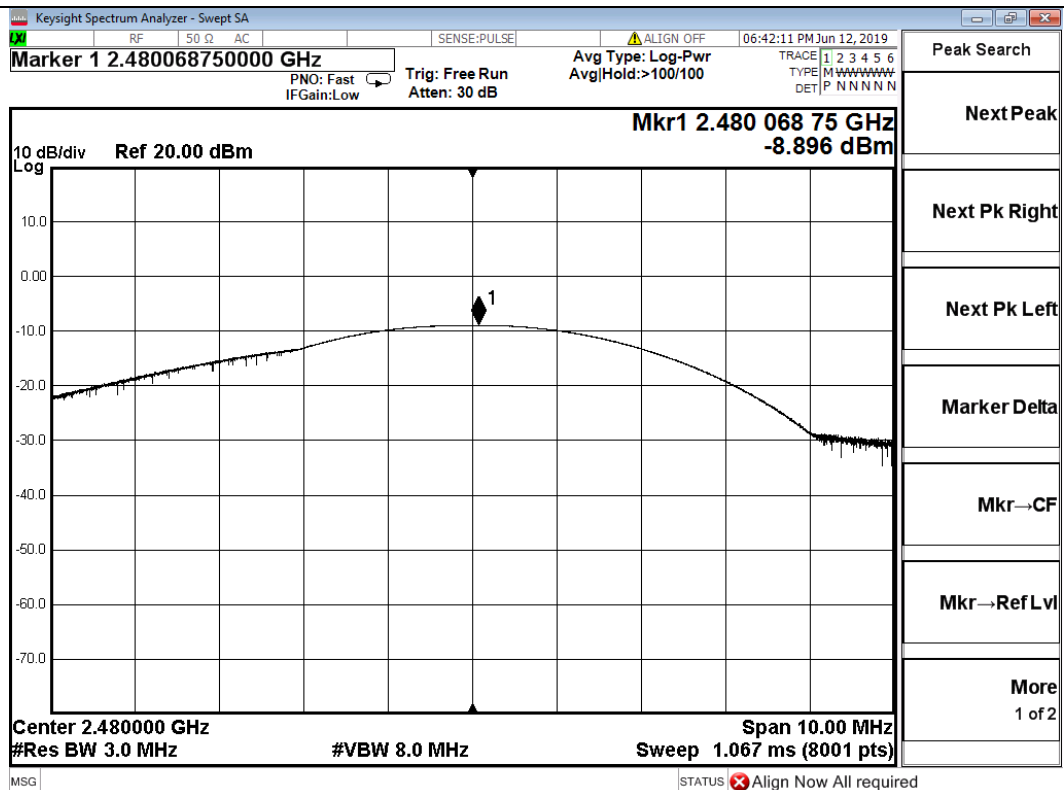
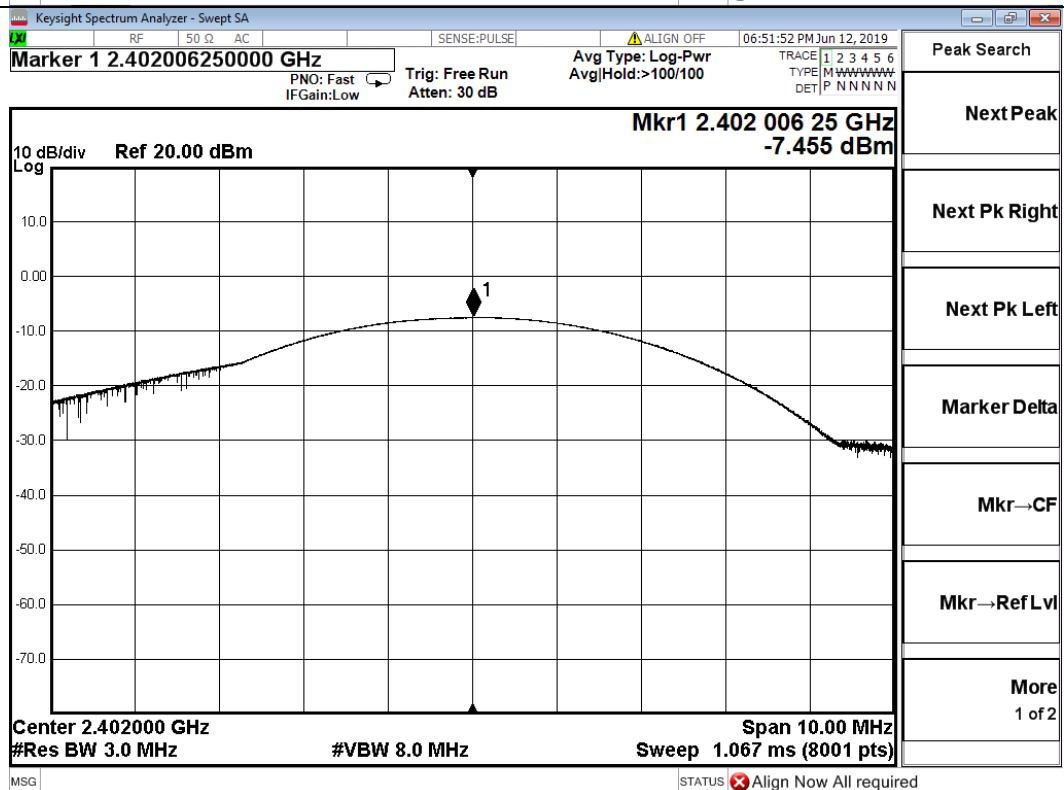
GFSK/LCH

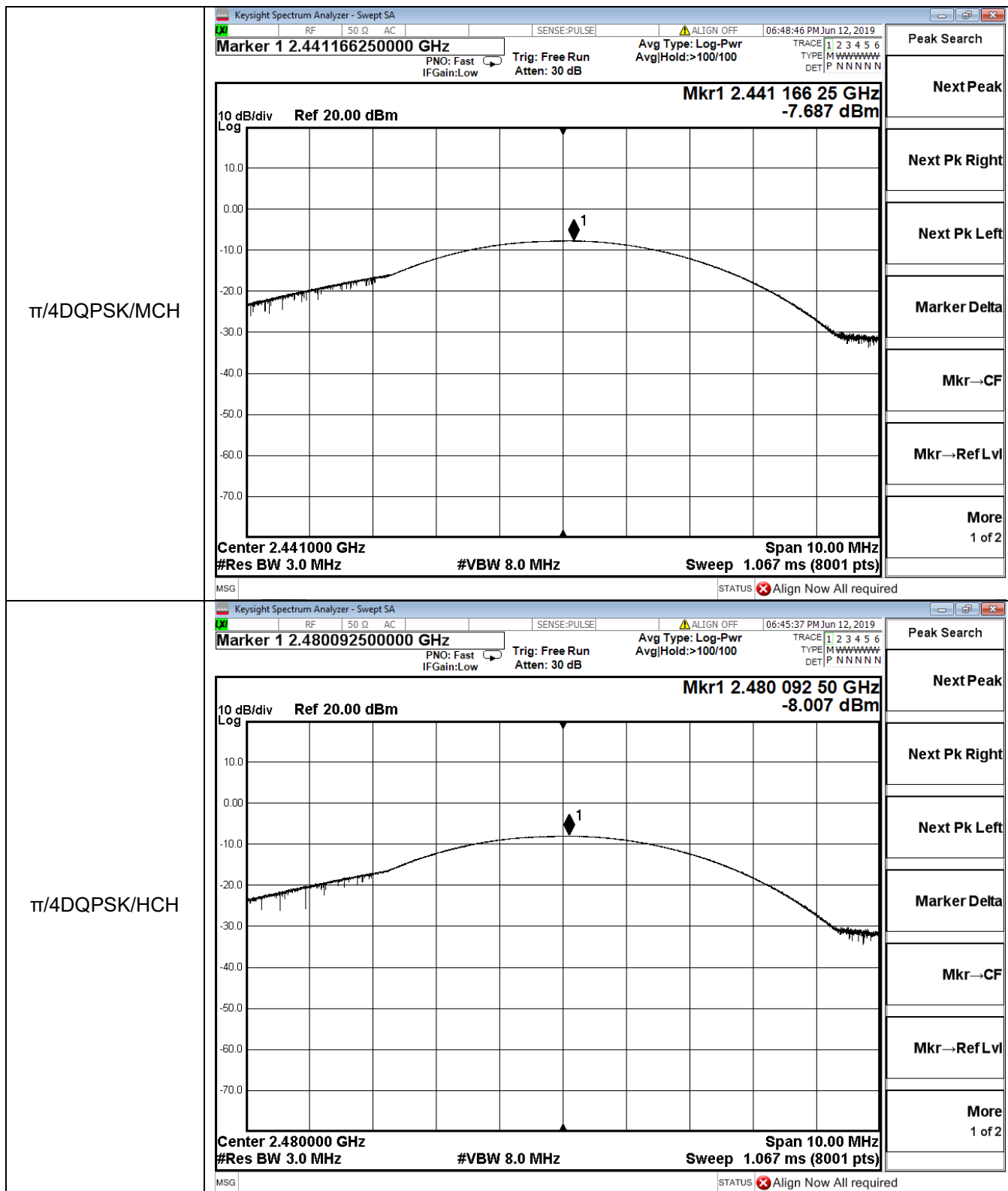


GFSK/MCH



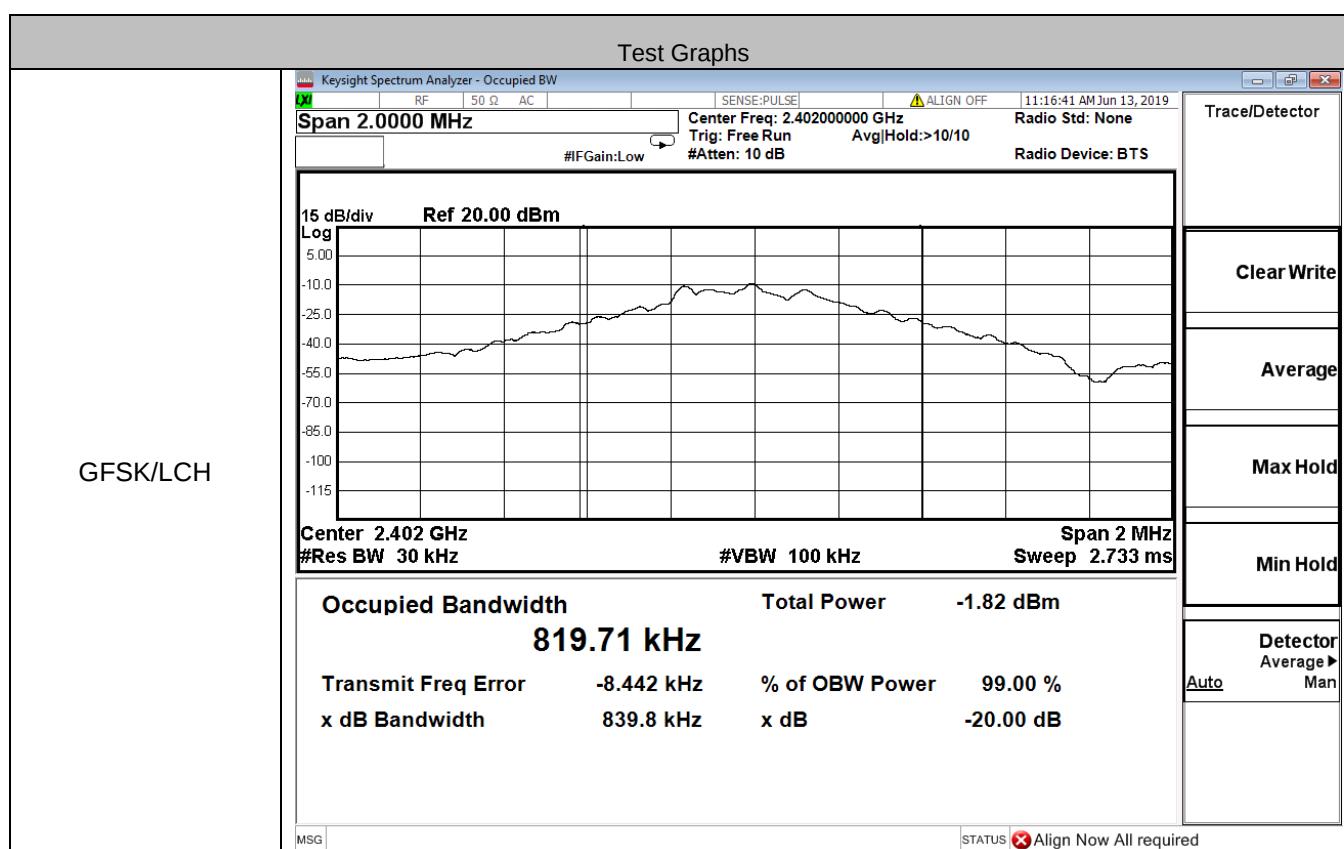
GFSK/HCH

 π /4DQPSK/LCH

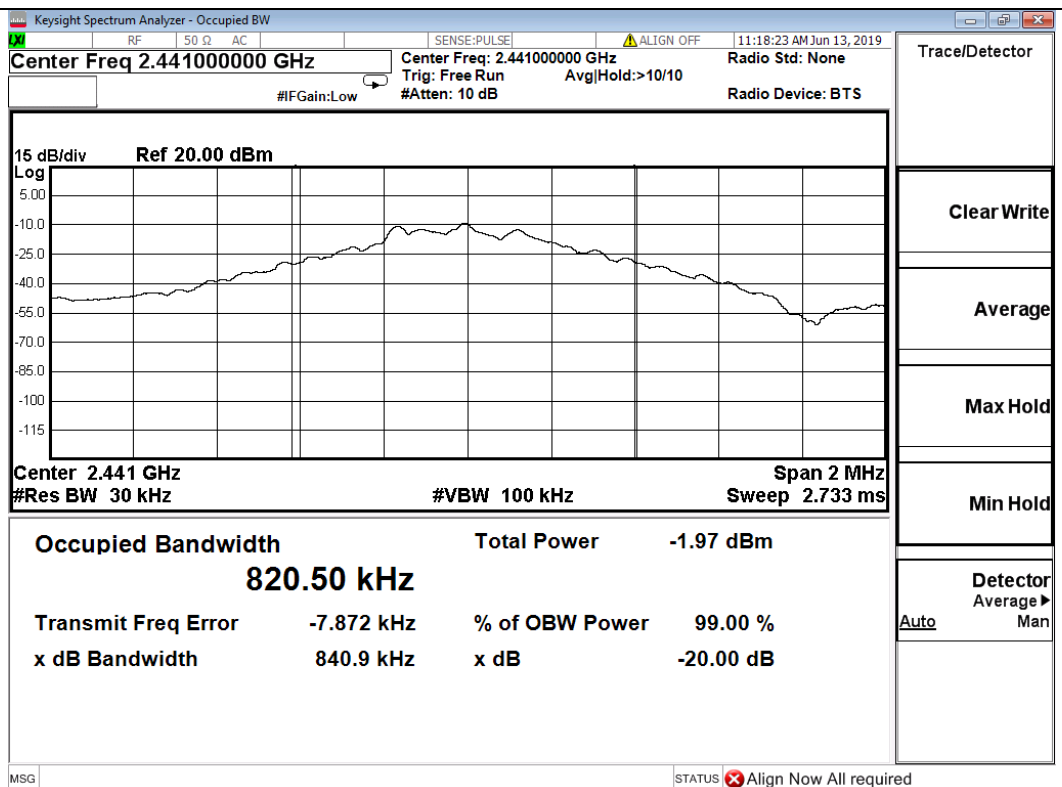


A.2 99% and 20dB Bandwidth

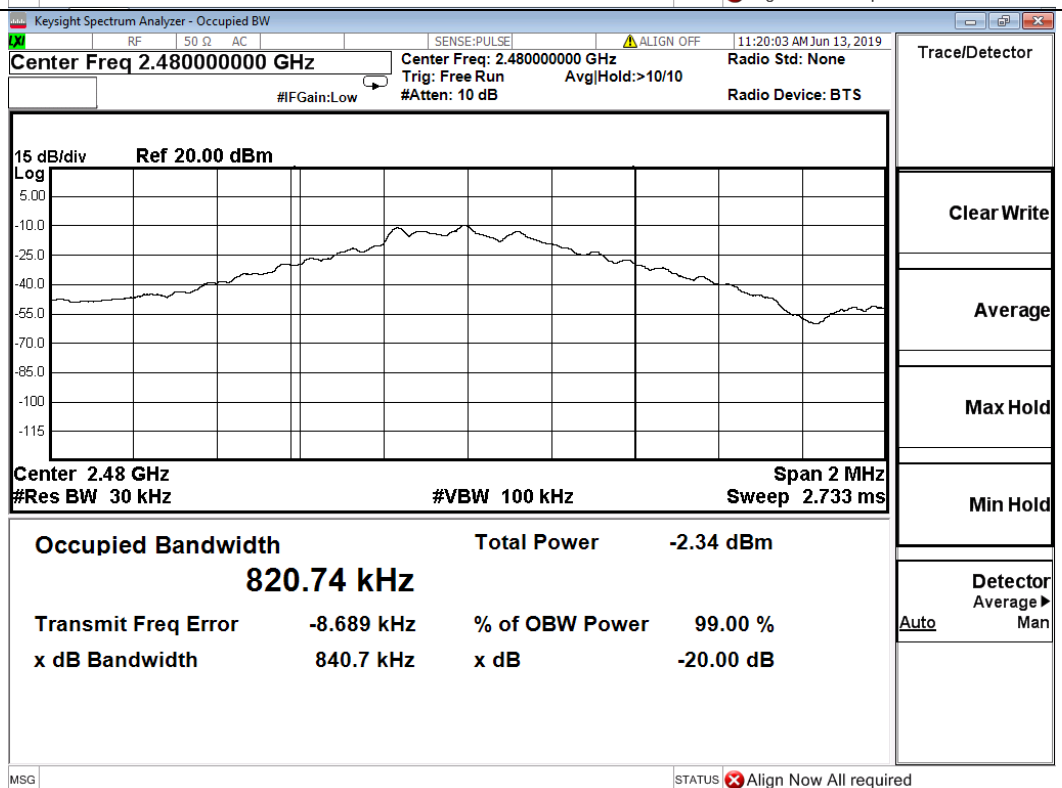
Mode	Channel.	99% Bandwidth [MHz]	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.81971	0.8398	Not Specified	PASS
	MCH	0.82050	0.8409	Not Specified	PASS
	HCH	0.82074	0.8407	Not Specified	PASS
π /4DQPSK	LCH	1.1611	1.223	Not Specified	PASS
	MCH	1.1618	1.208	Not Specified	PASS
	HCH	1.1613	1.209	Not Specified	PASS

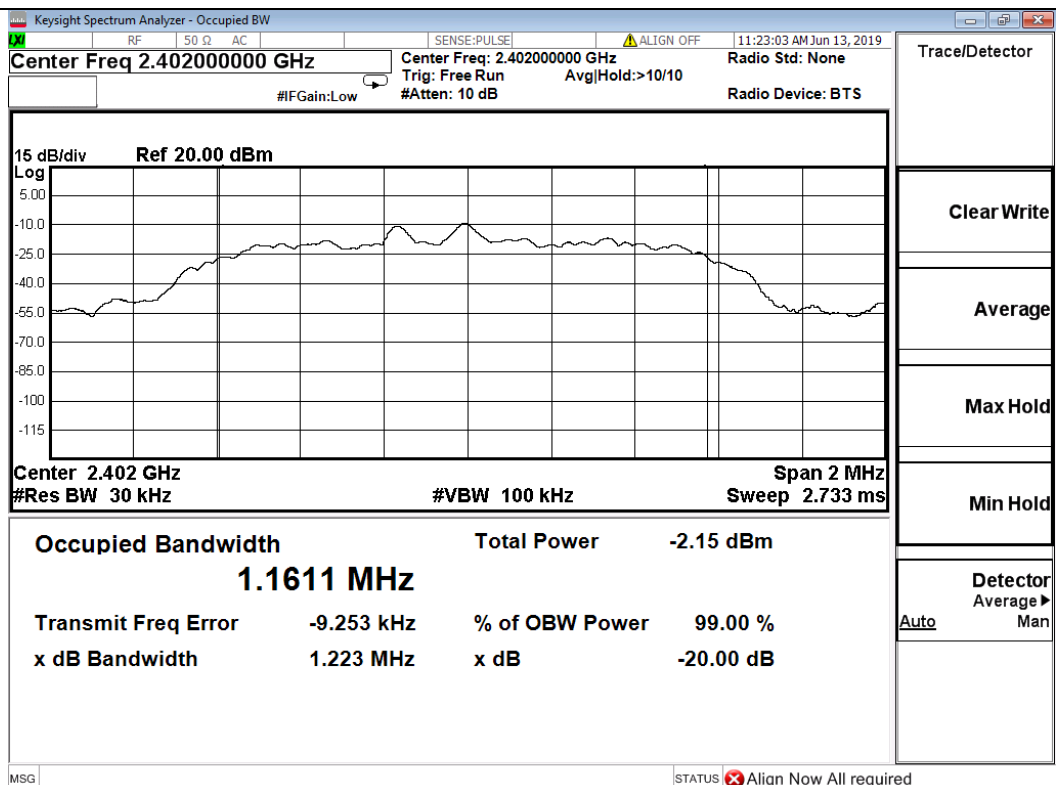
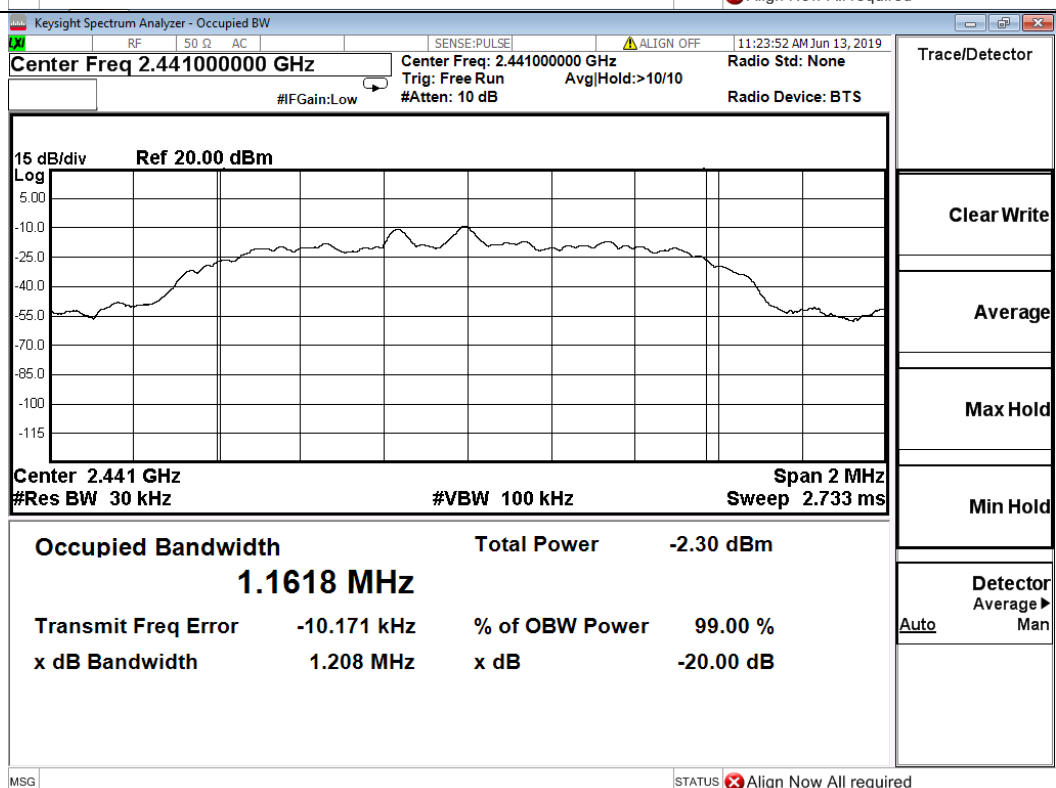


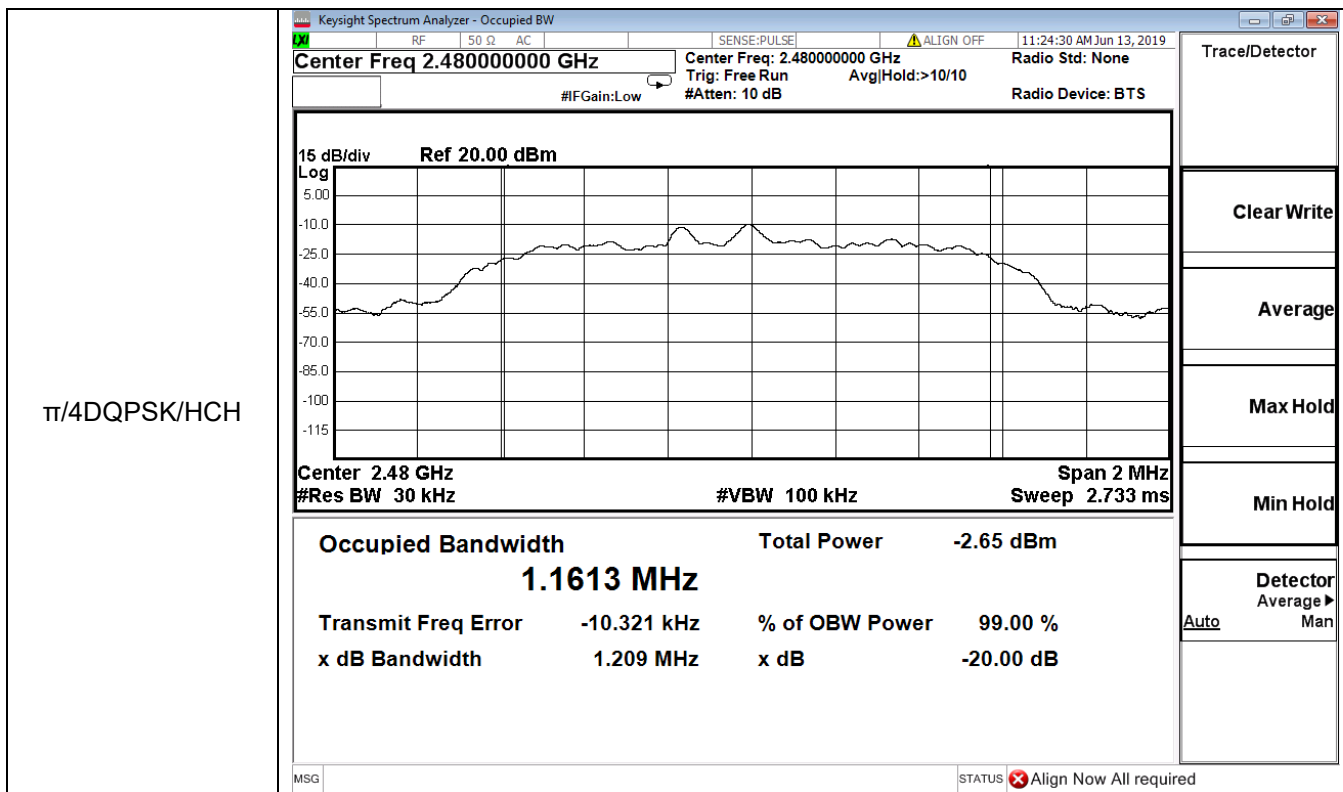
GFSK/MCH



GFSK/HCH



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

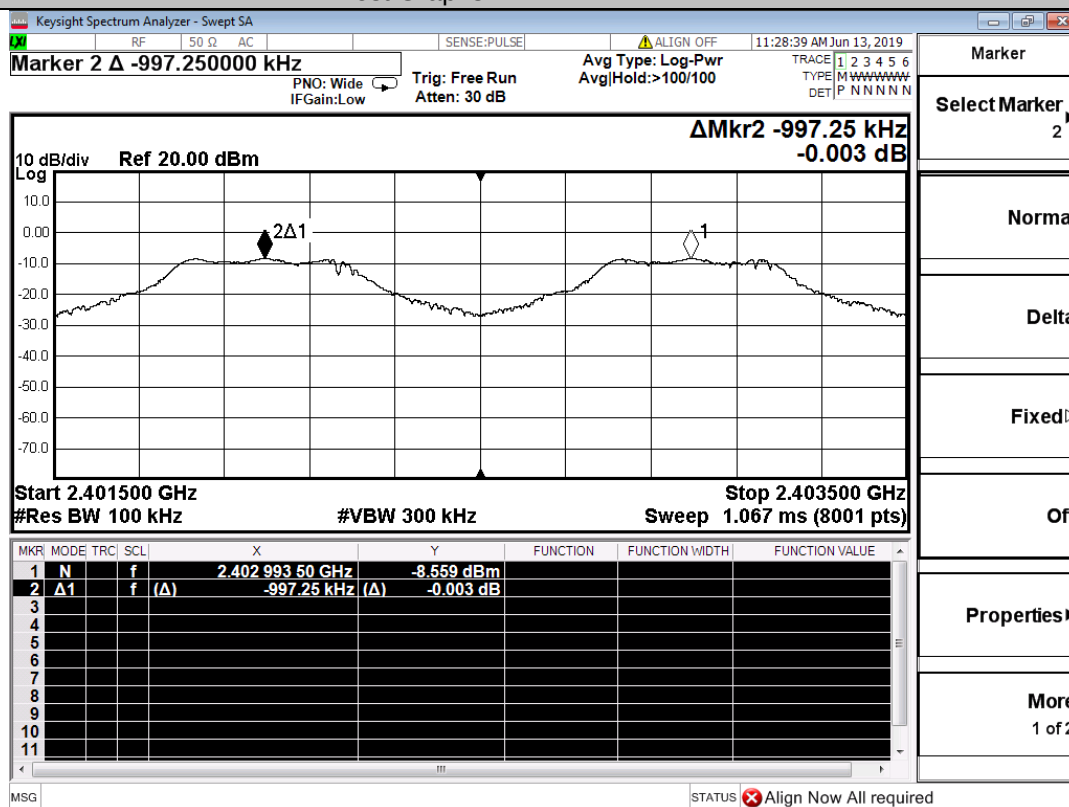


A.3 Carrier Frequency Separation

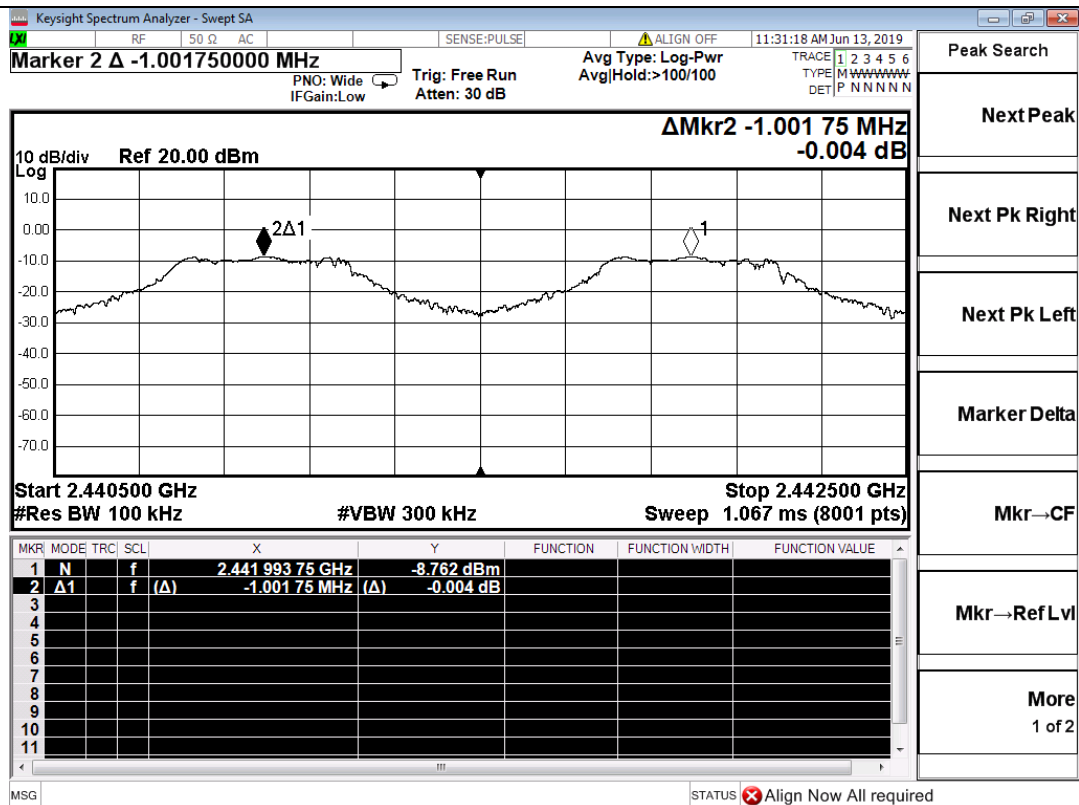
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz] 2/3*20dB Bandwidth	Verdict
GFSK	LCH	0.997	0.560	PASS
	MCH	1.002	0.561	PASS
	HCH	0.990	0.560	PASS
$\pi/4$ DQPSK	LCH	0.999	0.815	PASS
	MCH	1.000	0.805	PASS
	HCH	1.001	0.806	PASS

Test Graphs

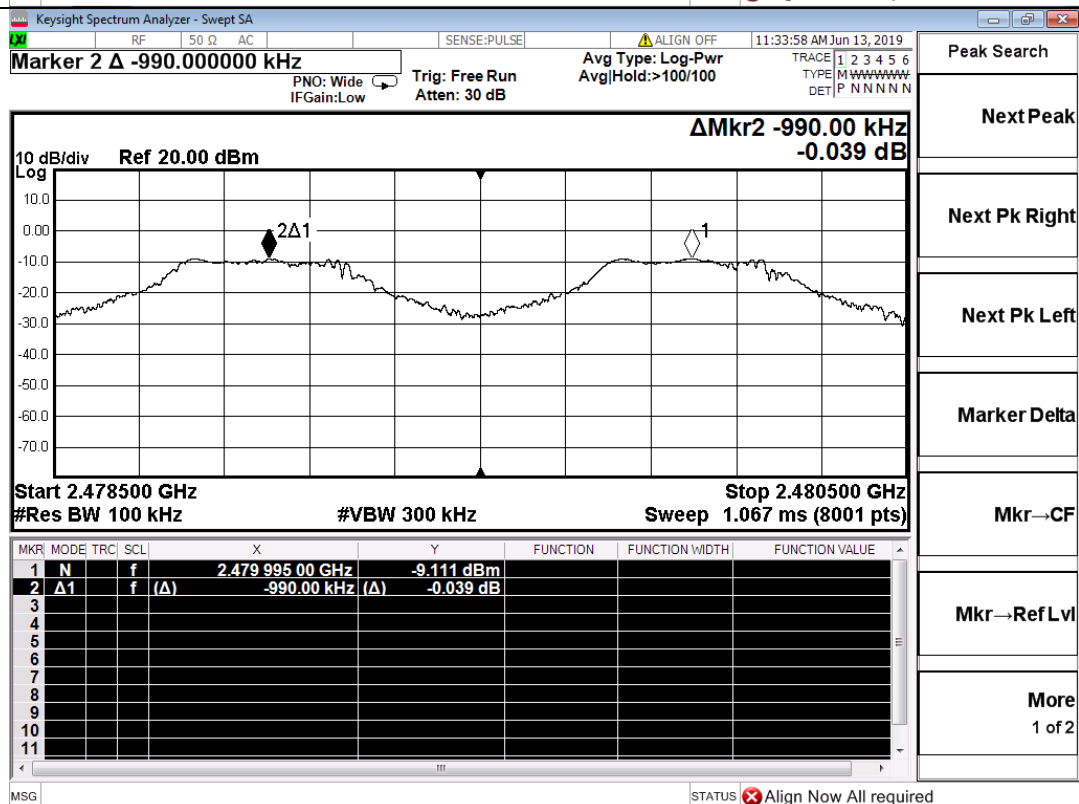
GFSK/LCH

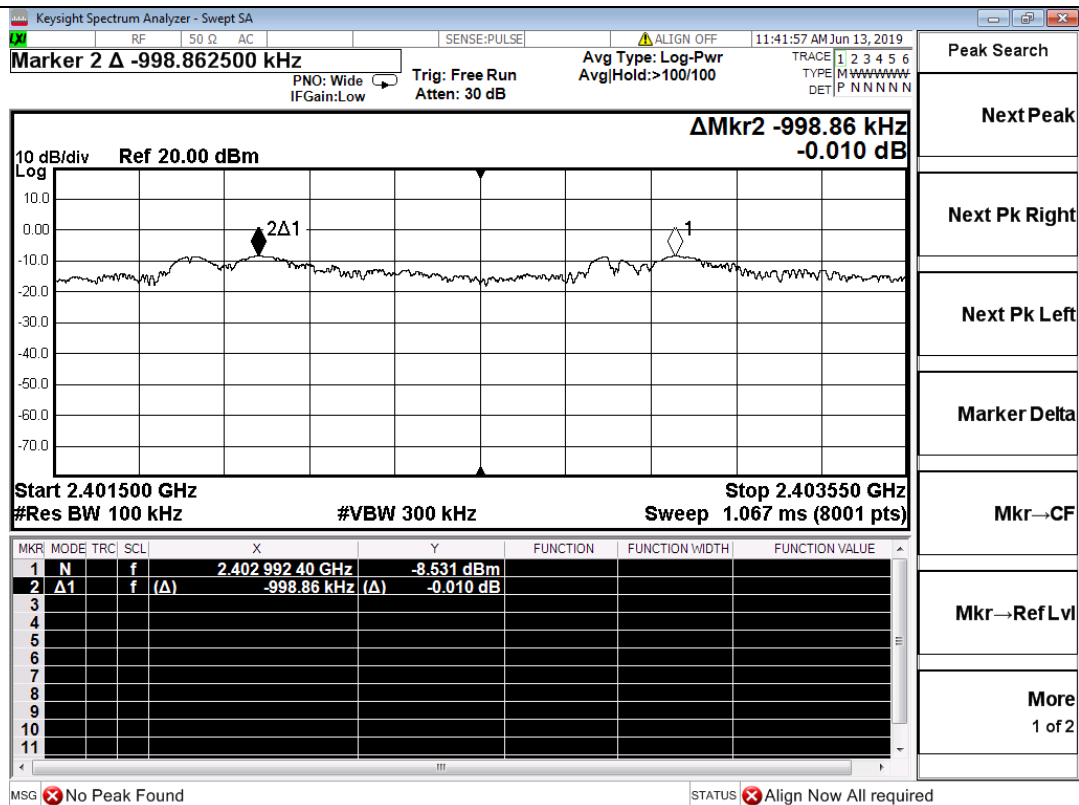
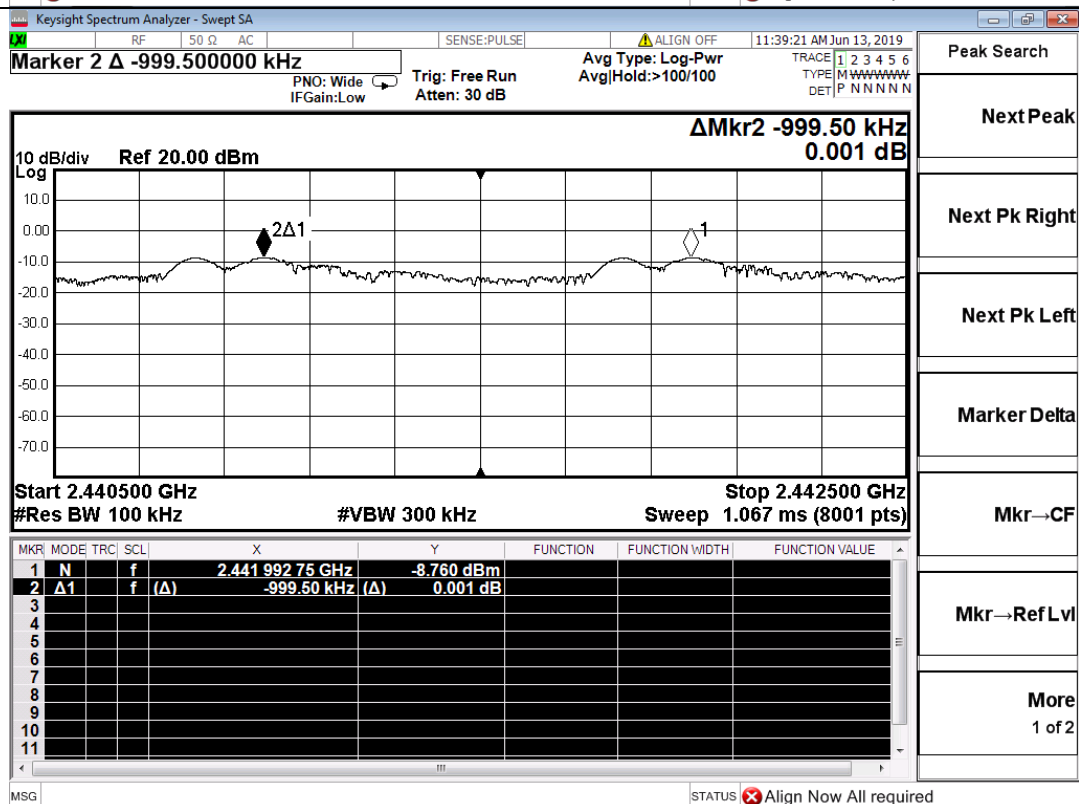


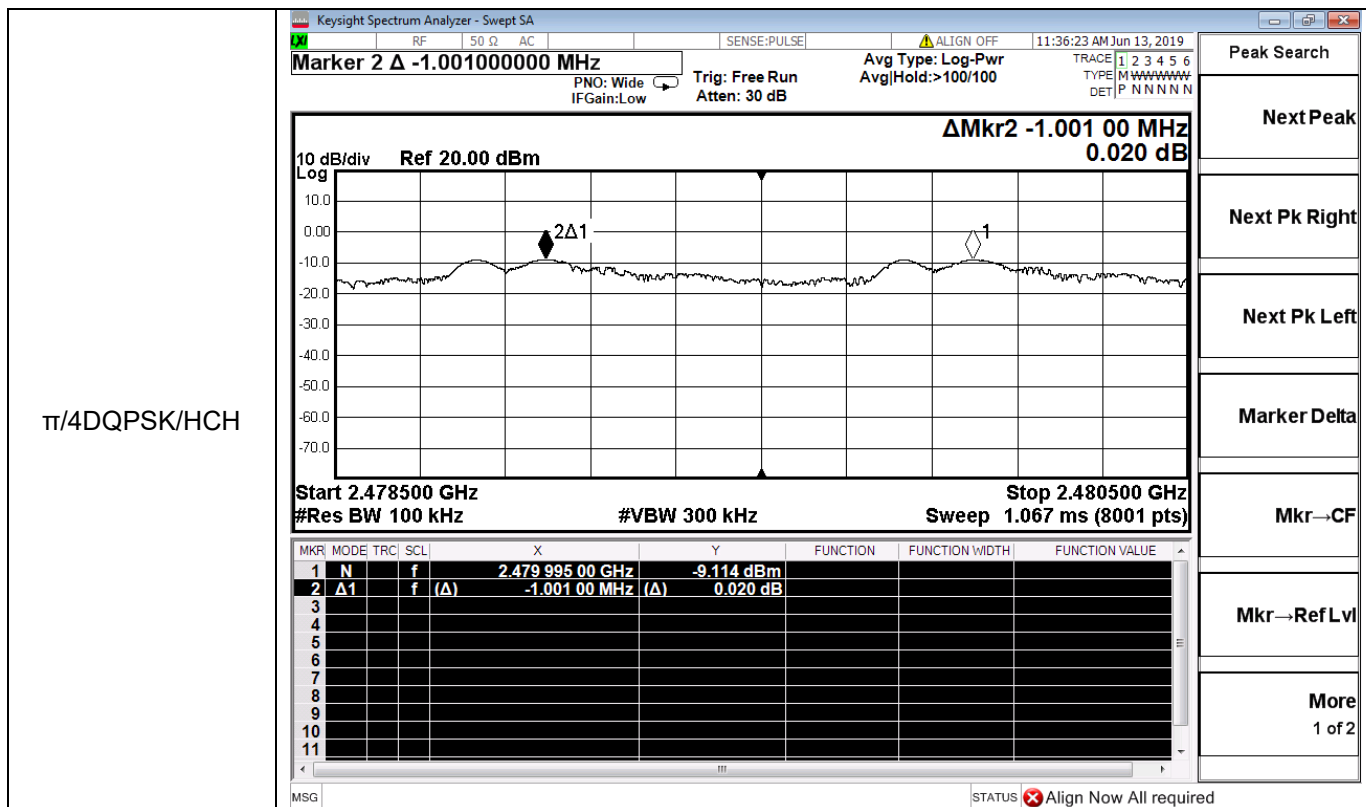
GFSK/MCH



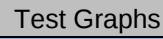
GFSK/HCH

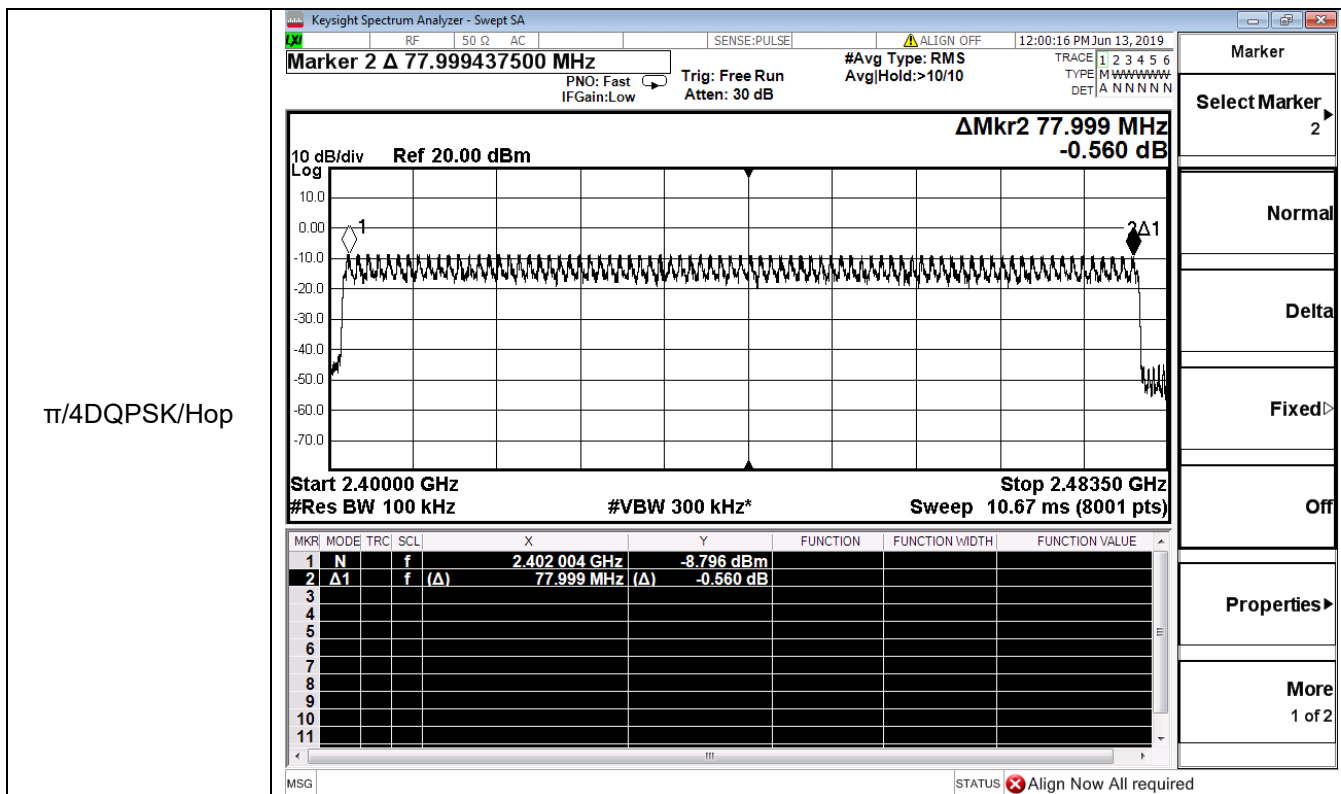


$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH



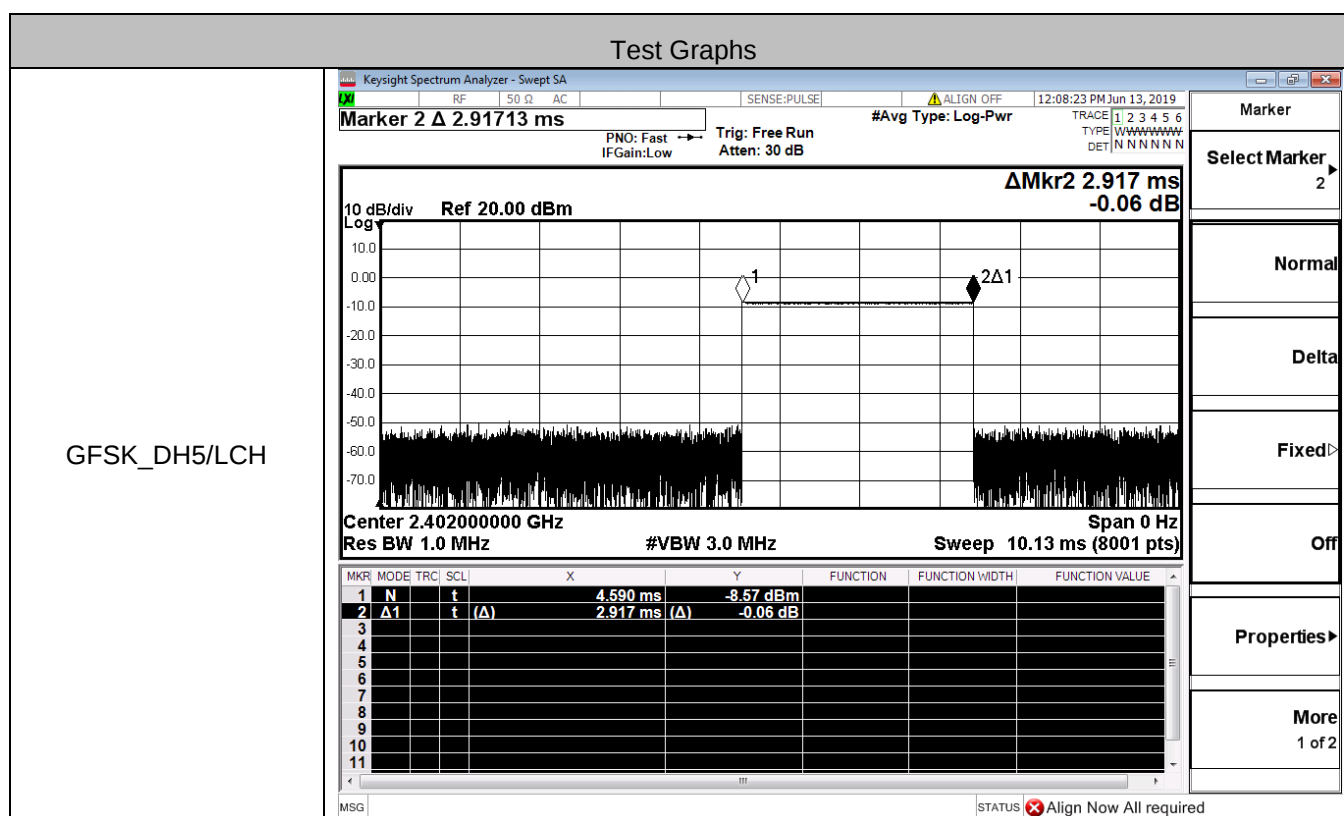
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS



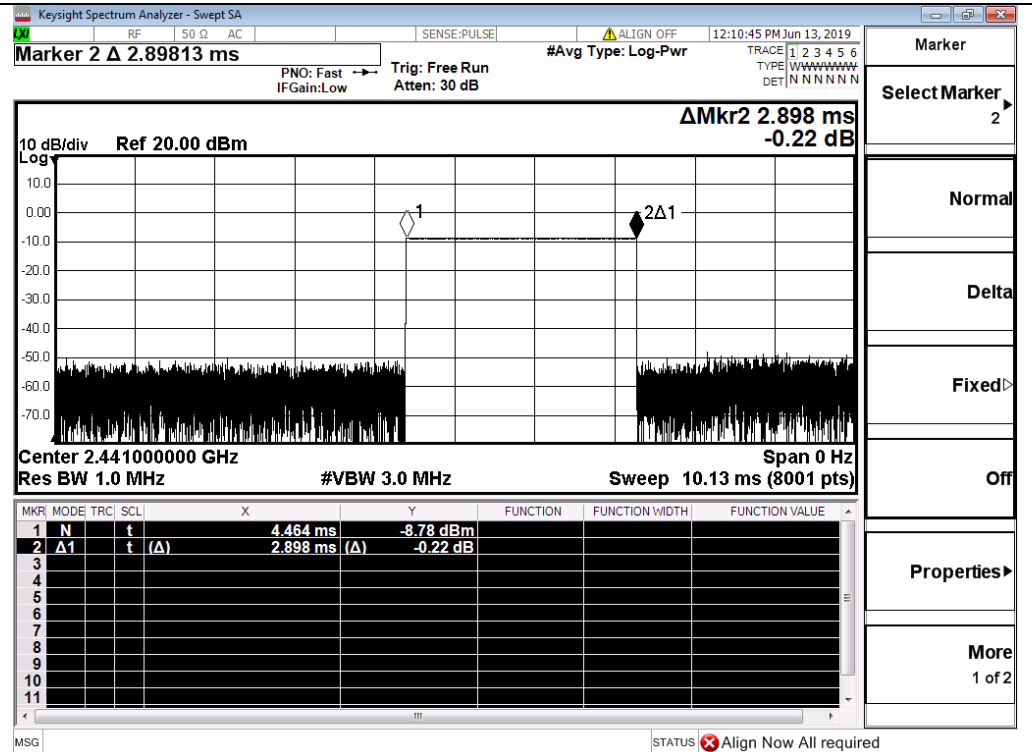


A.5 Dwell Time

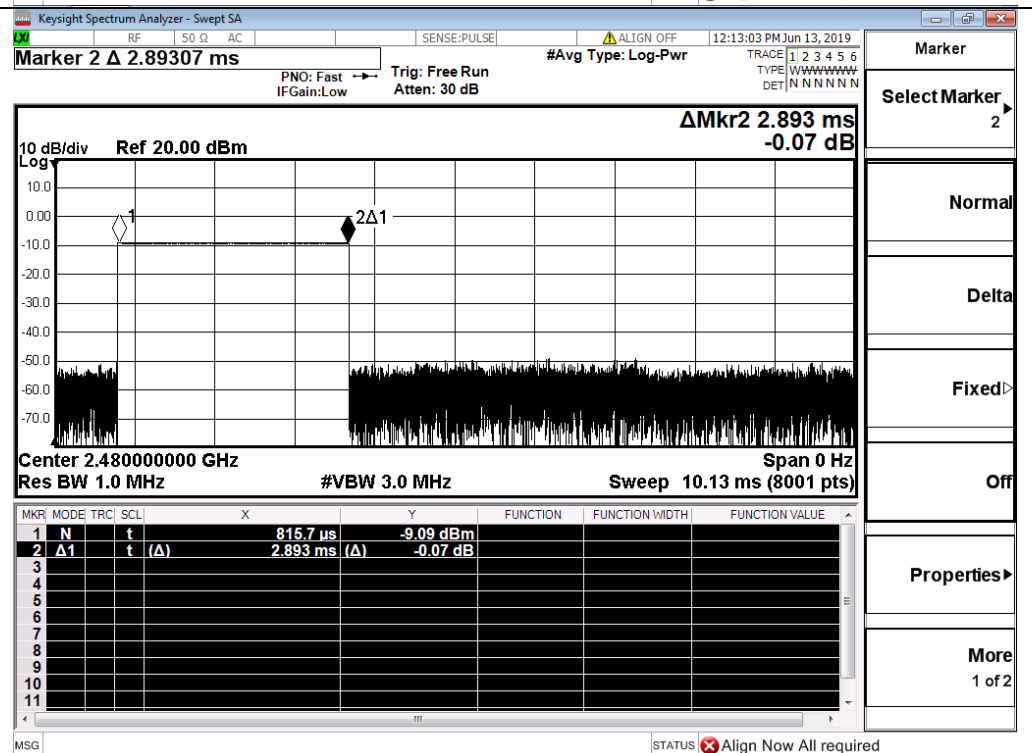
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.92	106.7	0.312	0.4	PASS
	DH5	MCH	2.90	106.7	0.309	0.4	PASS
	DH5	HCH	2.89	106.7	0.308	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.89	106.7	0.308	0.4	PASS
	2DH5	MCH	2.91	106.7	0.310	0.4	PASS
	2DH5	HCH	2.89	106.7	0.308	0.4	PASS



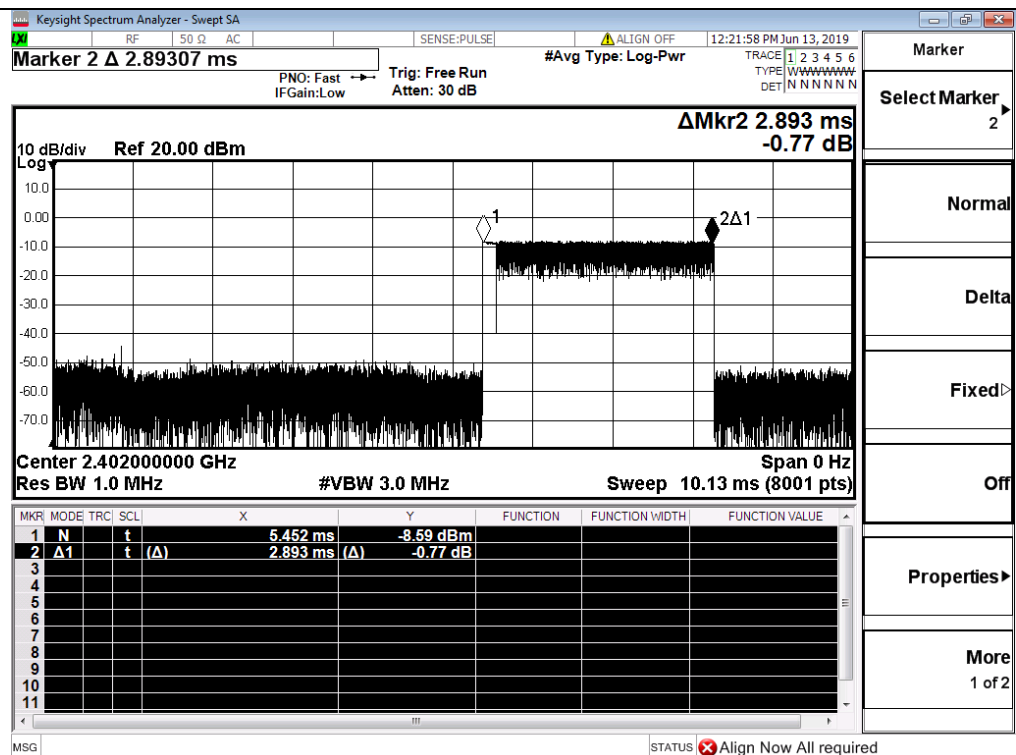
GFSK_DH5/MCH



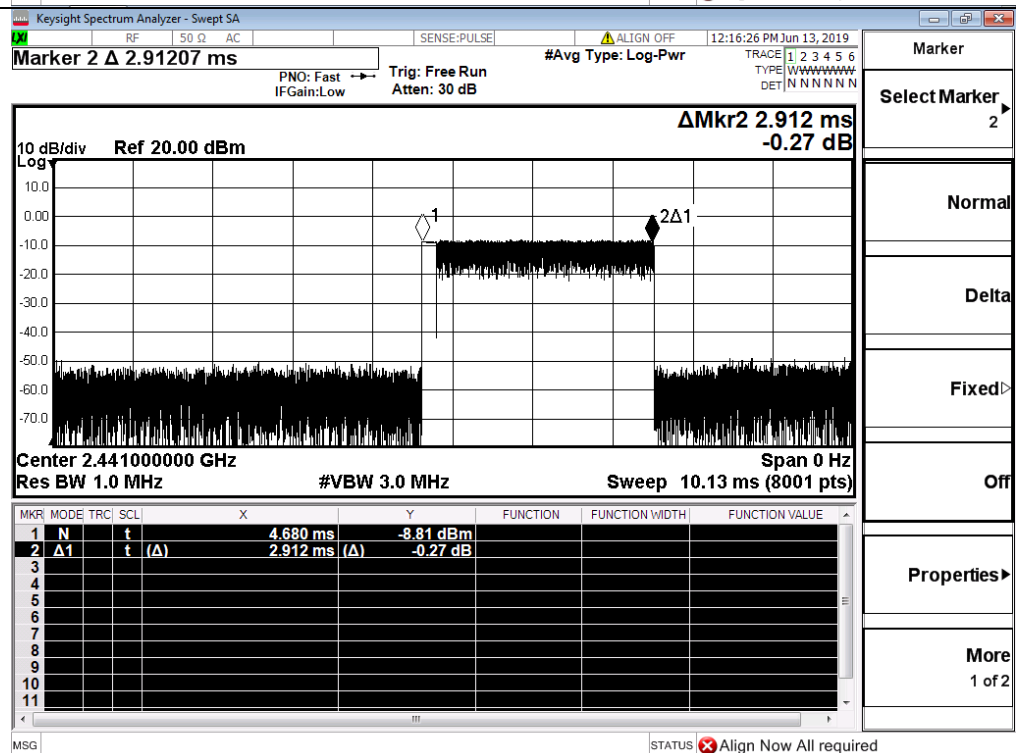
GFSK_DH5/HCH



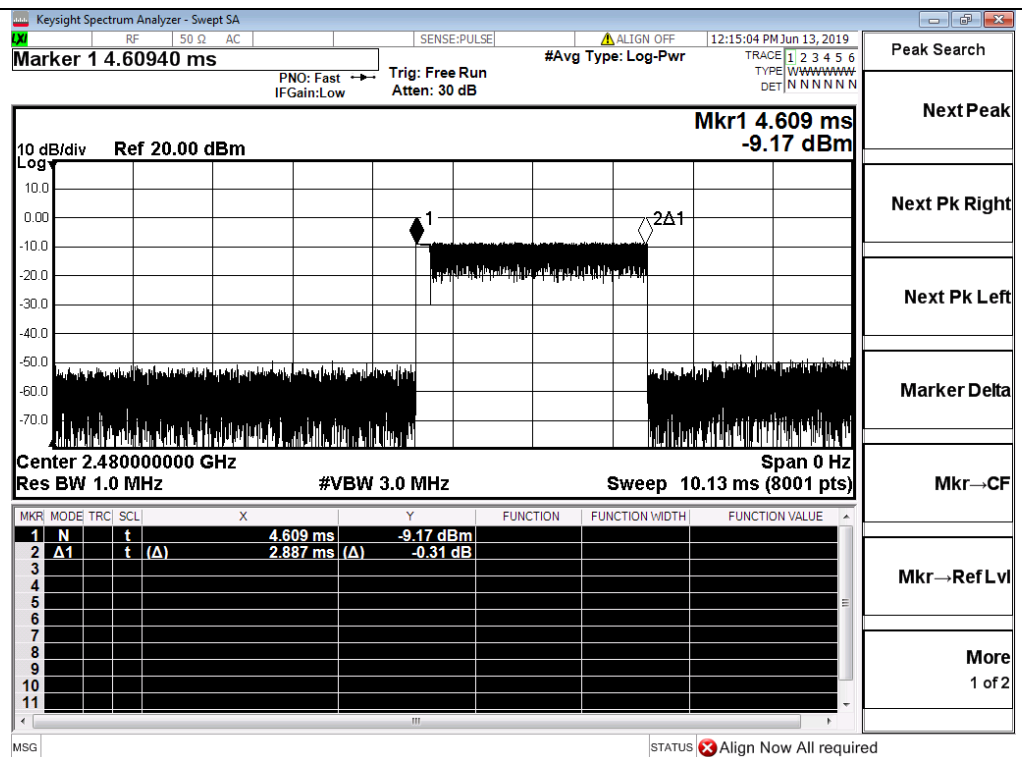
$\pi/4$ DQPSK
_2DH5/LCH



$\pi/4$ DQPSK
_2DH5/MCH



$\pi/4$ DQPSK
_2DH5/HCH

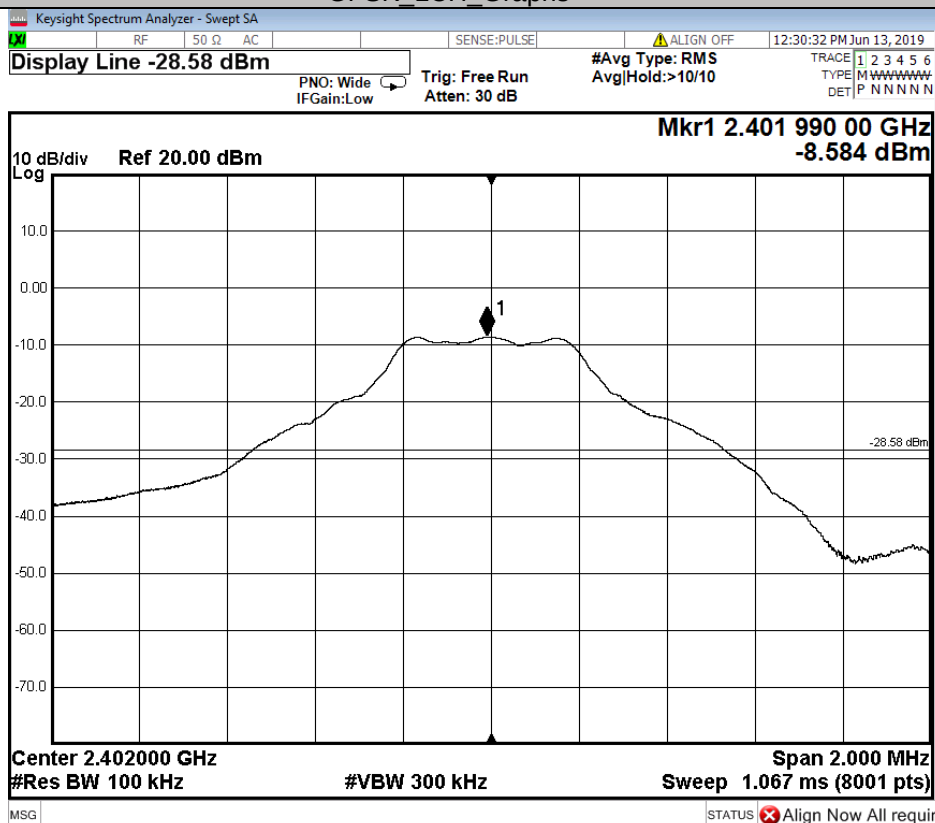


A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-8.548	-48.876	-28.55	PASS
	MCH	-8.816	-45.735	-28.82	PASS
	HCH	-8.974	-46.881	-28.97	PASS
$\pi/4$ DQPSK	LCH	-8.478	-46.065	-28.48	PASS
	MCH	-8.663	-45.887	-28.66	PASS
	HCH	-8.946	-46.818	-28.95	PASS

GFSK_LCH_Graphs

Pref



Display

Annotation

Title

Graticule

On

Off

Display Line

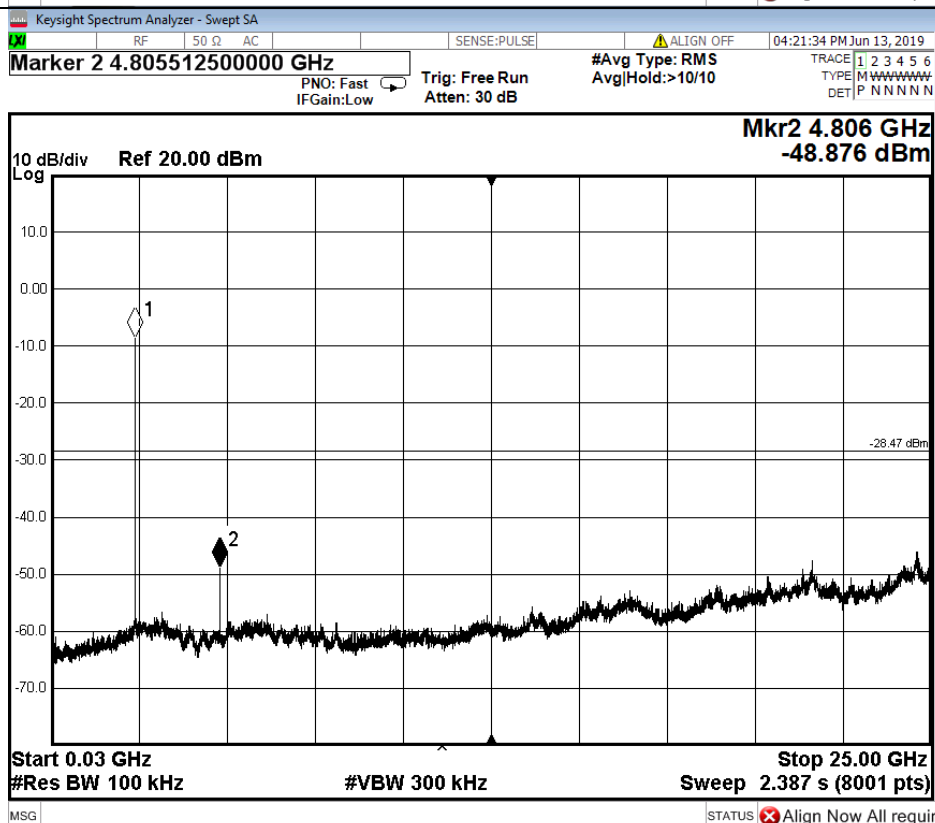
On

-28.58 dBm

Off

System
Display
Settings

Puw



Trace/Detector

Select Trace

1

Clear Write

Trace Average

Max Hold

Min Hold

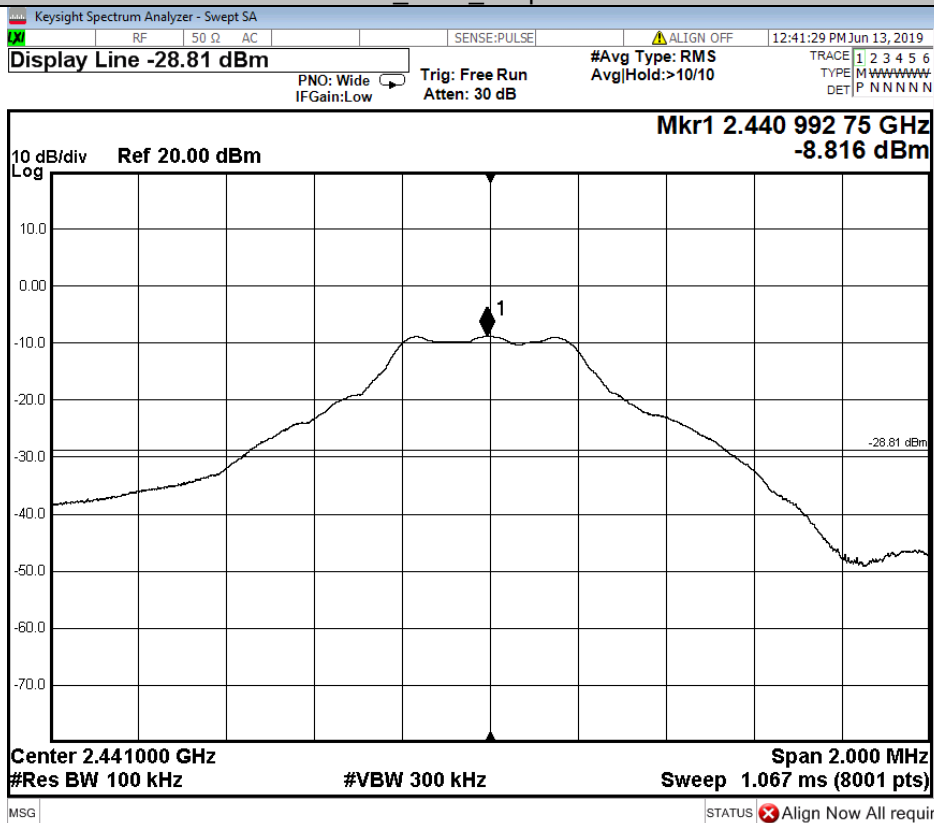
View Blank
Trace On

More

1 of 3

GFSK_MCH_Graphs

Pref



Display

Annotation▶

Title▶

Graticule

On

Off

Display Line

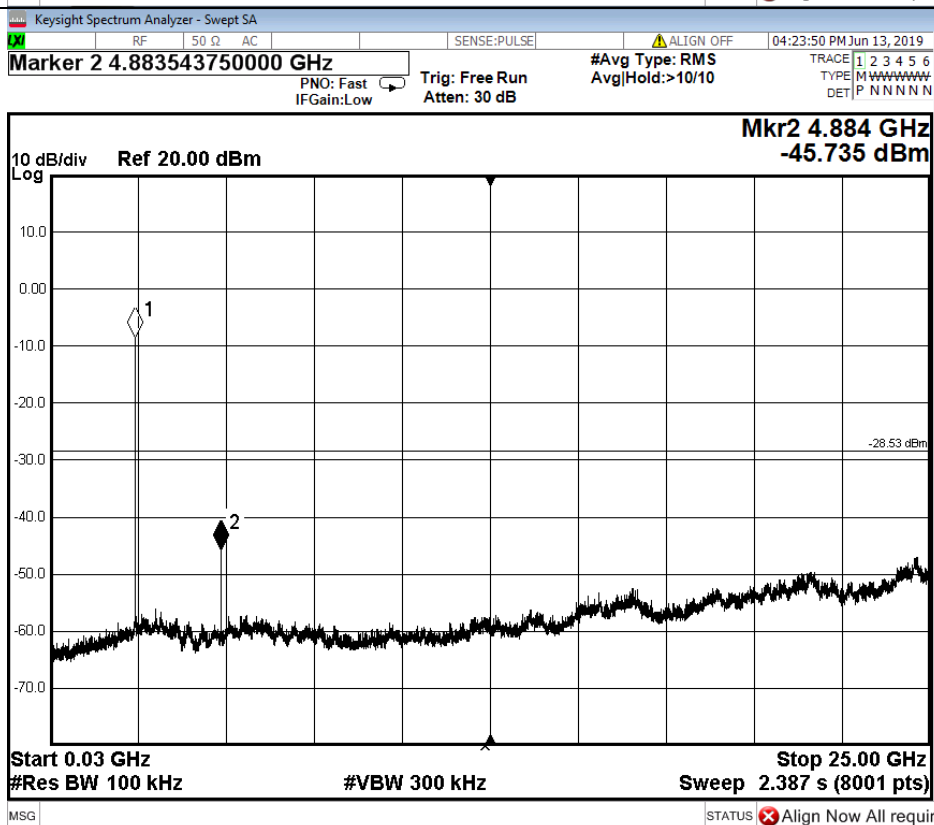
On

-28.81 dBm

Off

System
Display▶
Settings

Puw



Marker

Select Marker
2▶

Normal

Delta

Fixed▶

Off

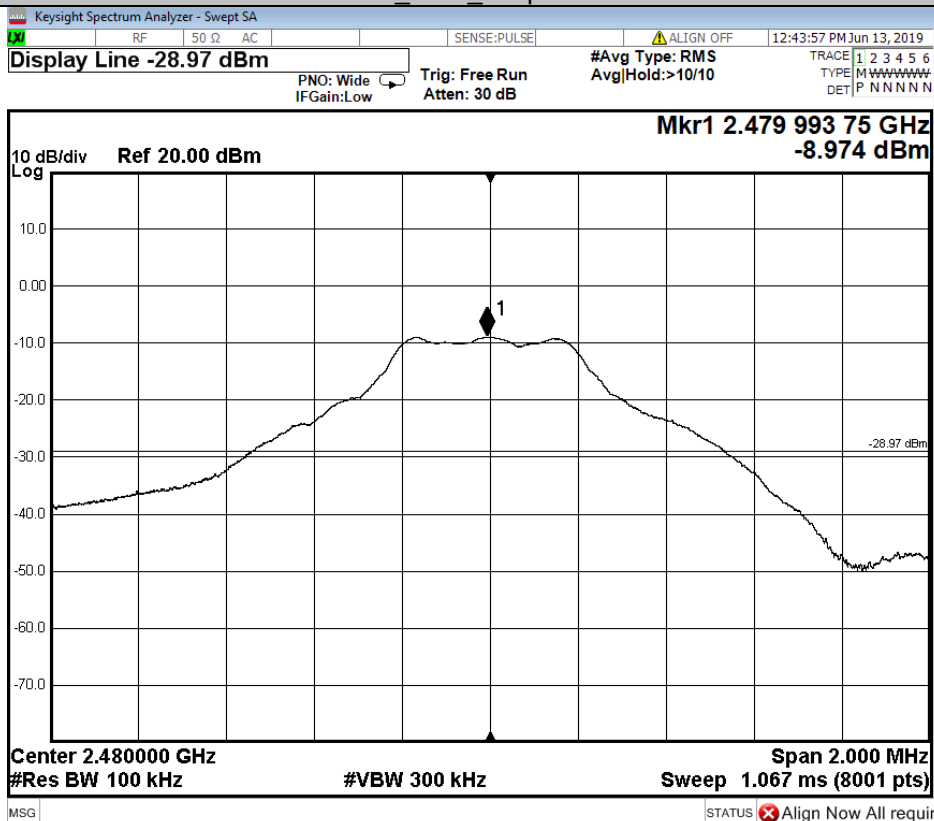
Properties▶

More

1 of 2

GFSK_HCH_Graphs

Pref



Display

Annotation►

Title►

Graticule

On

Off

Display Line

On

-28.97 dBm

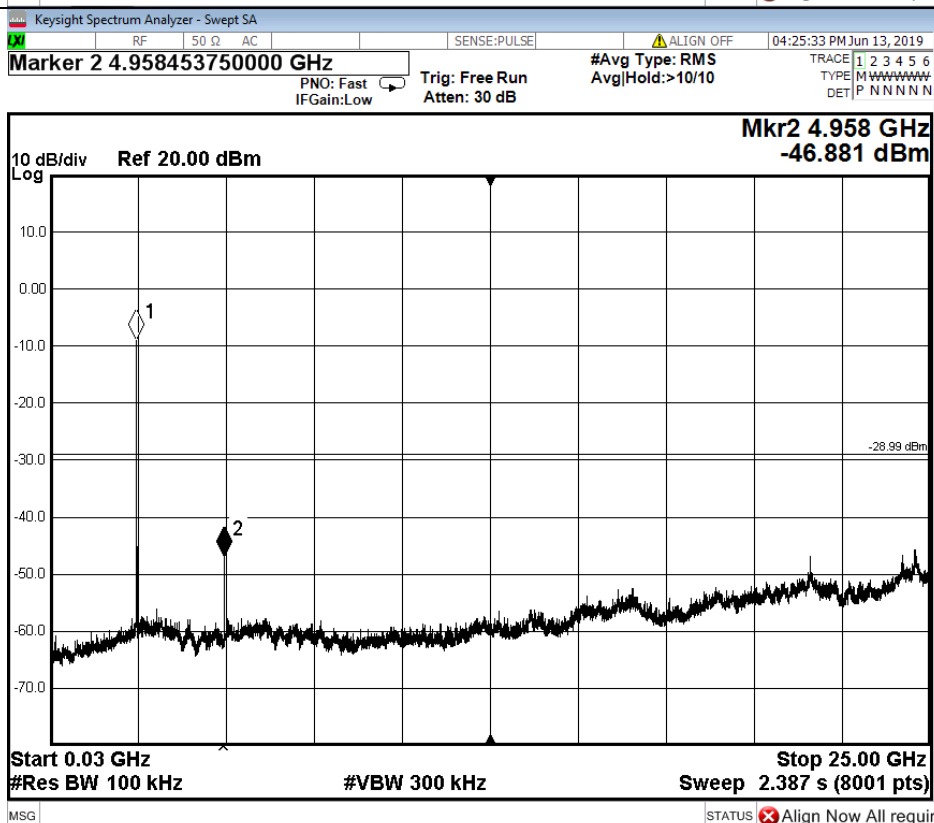
Off

System

Display►

Settings

Puw



Peak Search

Next Peak

Next Pk Right

Next Pk Left

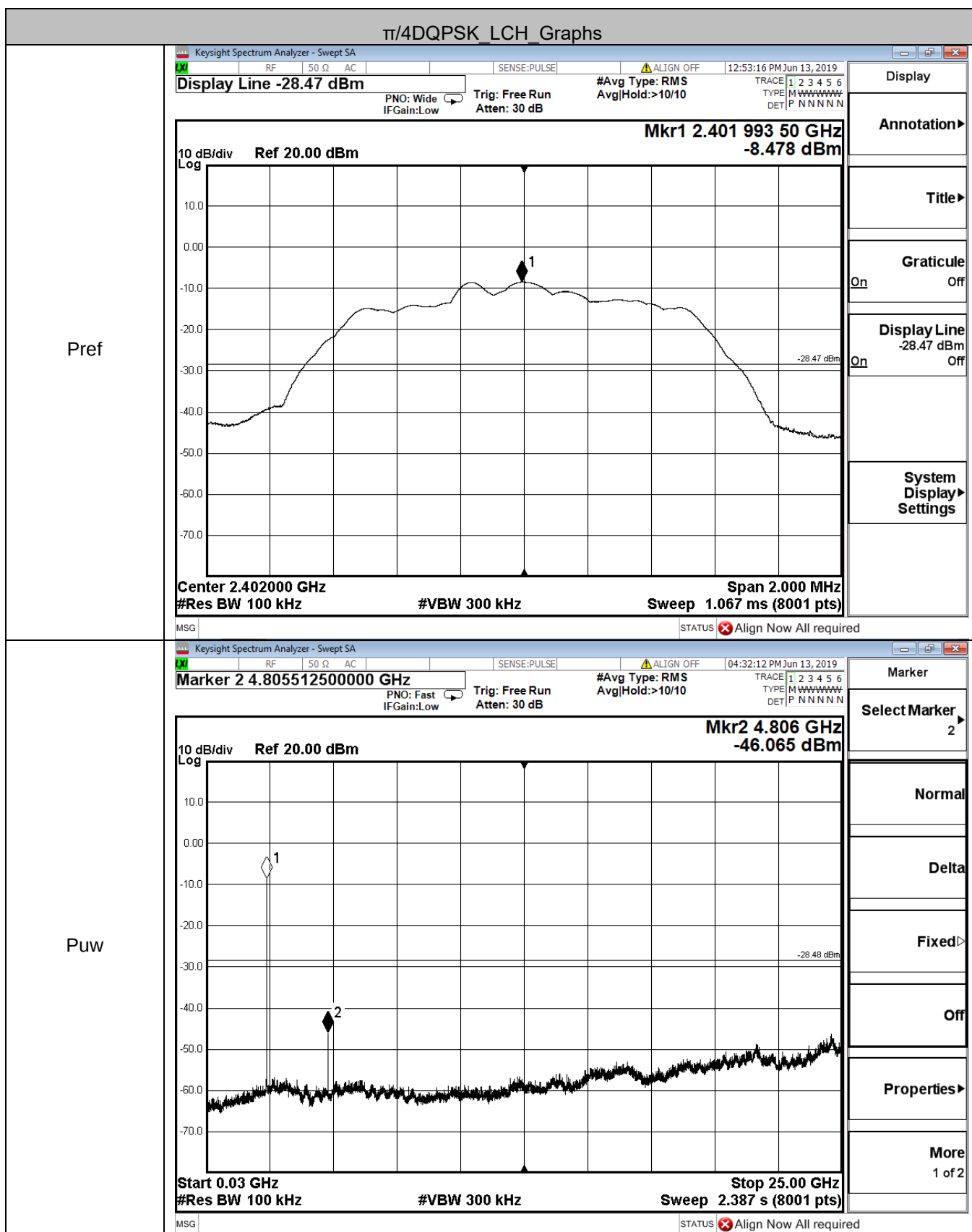
Marker Delta

Mkr→CF

Mkr→Ref Lvl

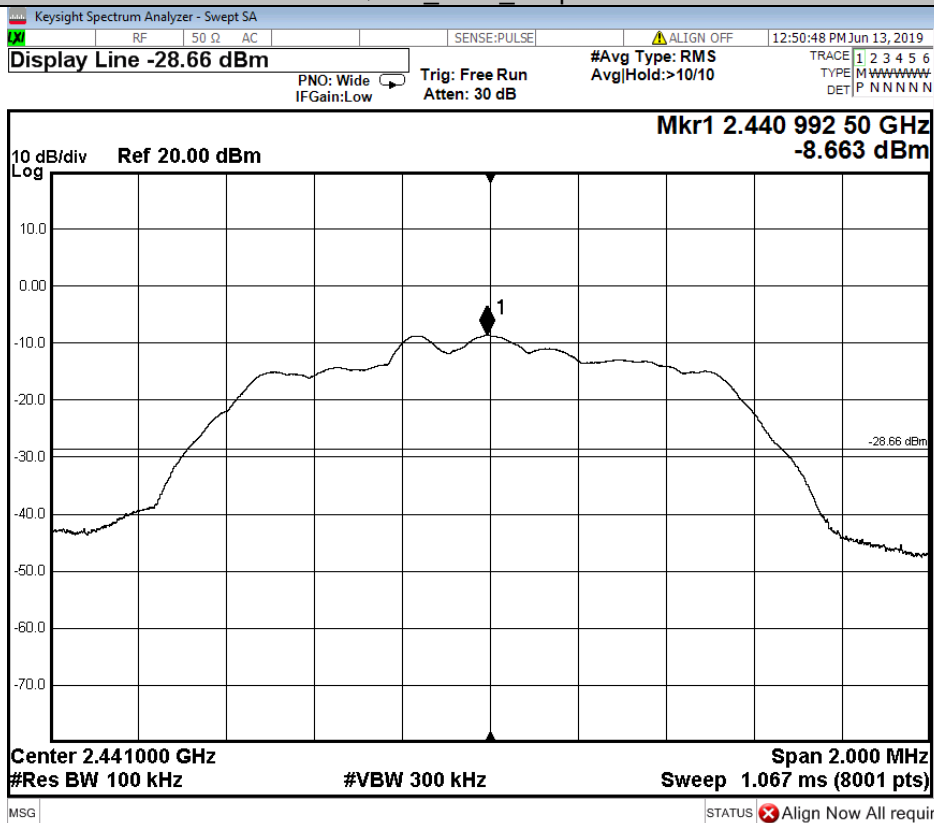
More

1 of 2

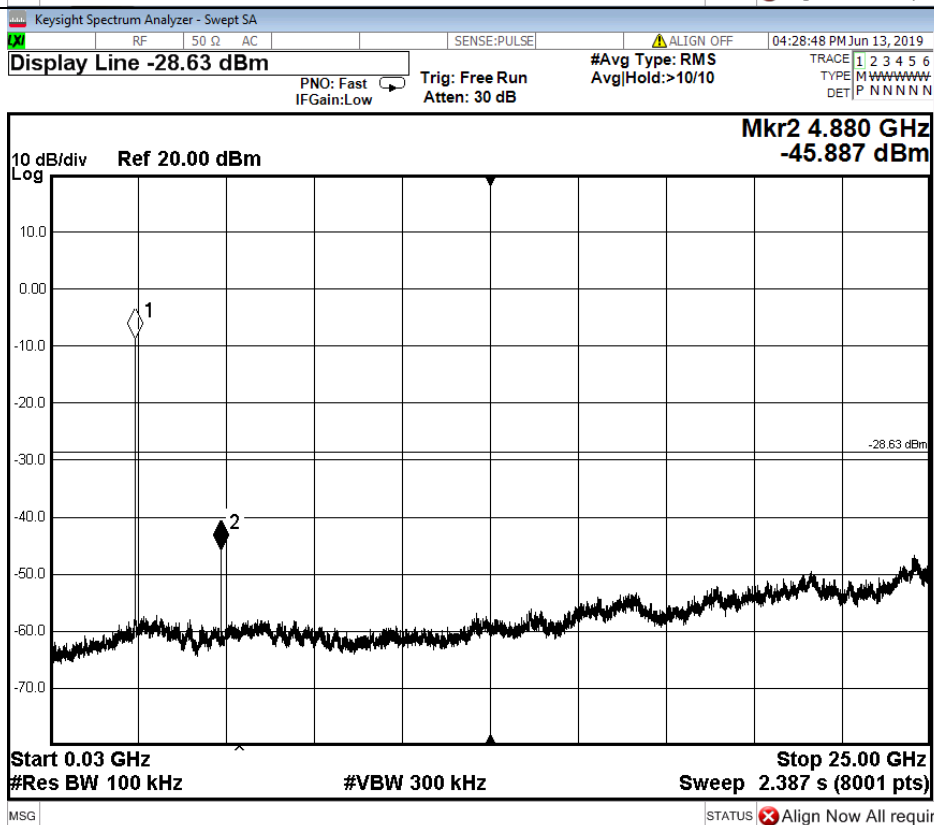


π /4DQPSK_MCH_Graphs

Pref

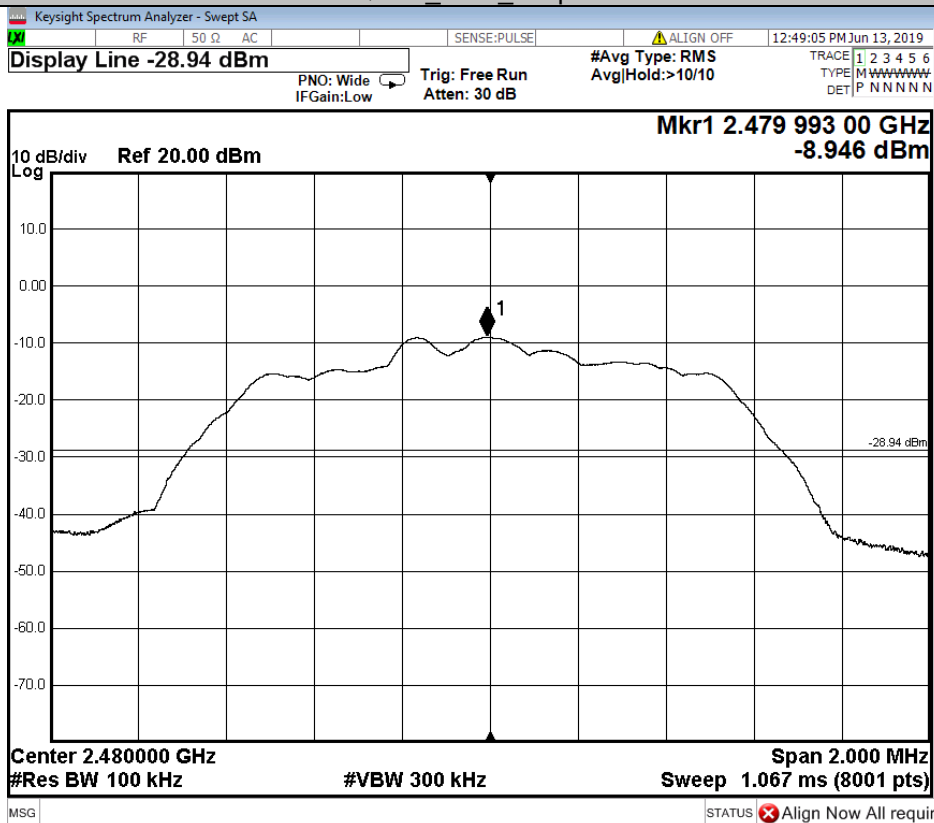


Puw



$\pi/4$ DQPSK_HCH_Graphs

Pref



Display

Annotation►

Title►

Graticule

On

Off

Display Line

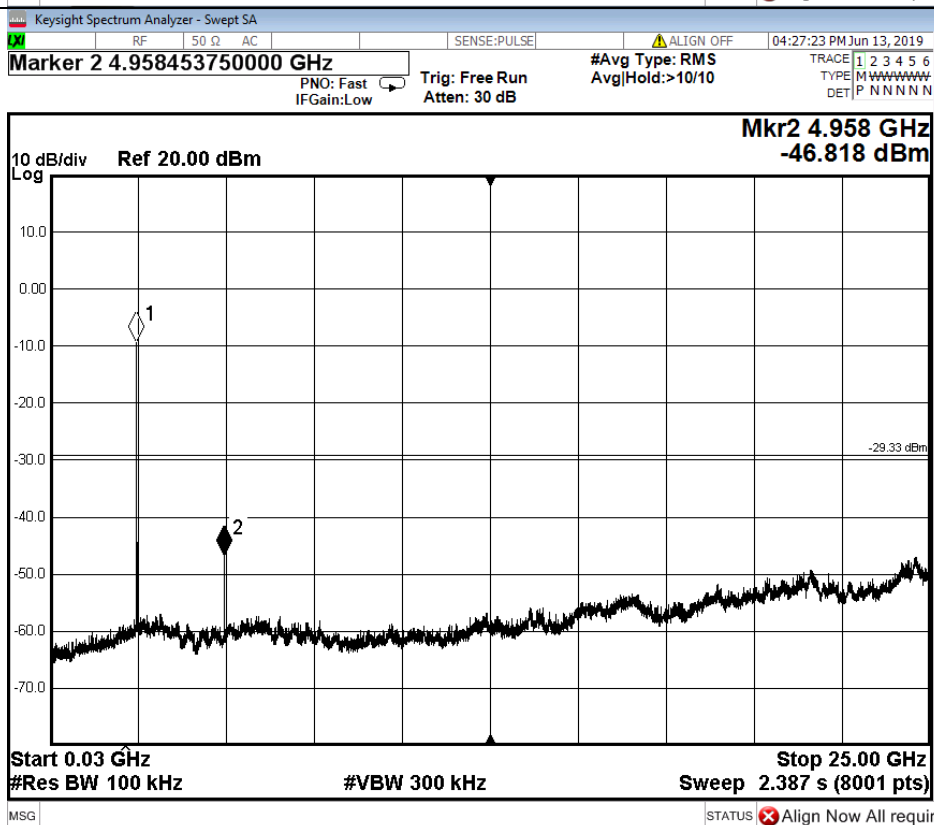
On

-28.94 dBm

Off

System
Display►
Settings

Puw



Marker

Select Marker
2

Normal

Delta

Fixed►

Off

Properties►

More

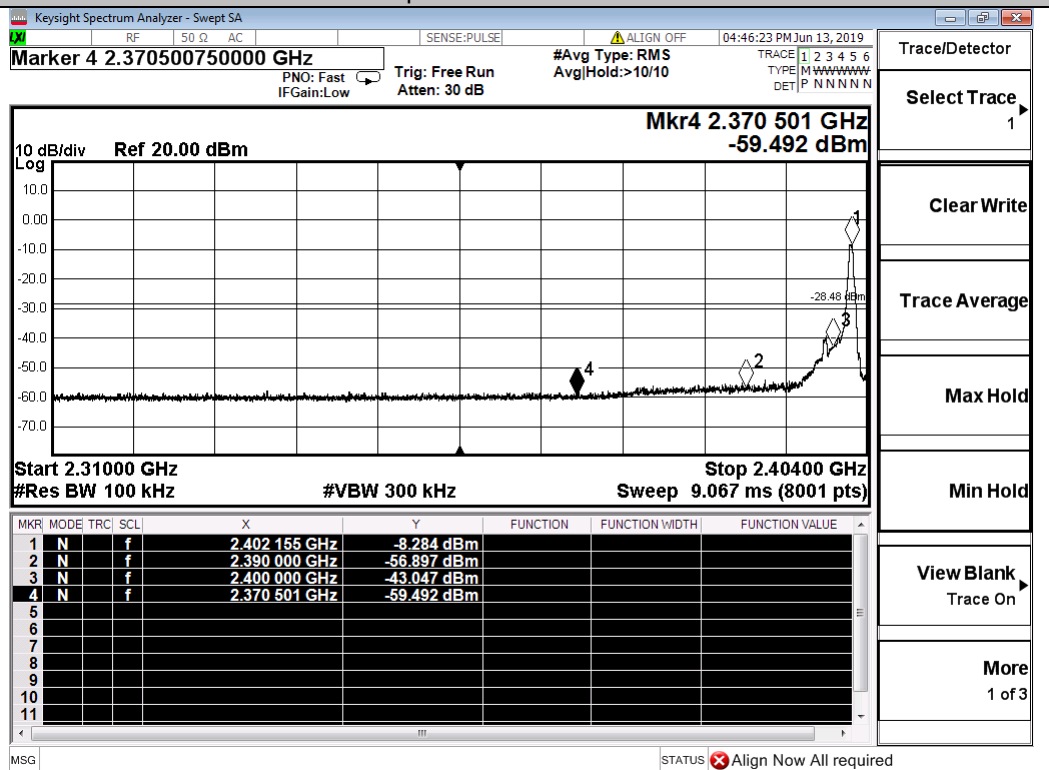
1 of 2

A.7 Band-edge for RF Conducted Emissions

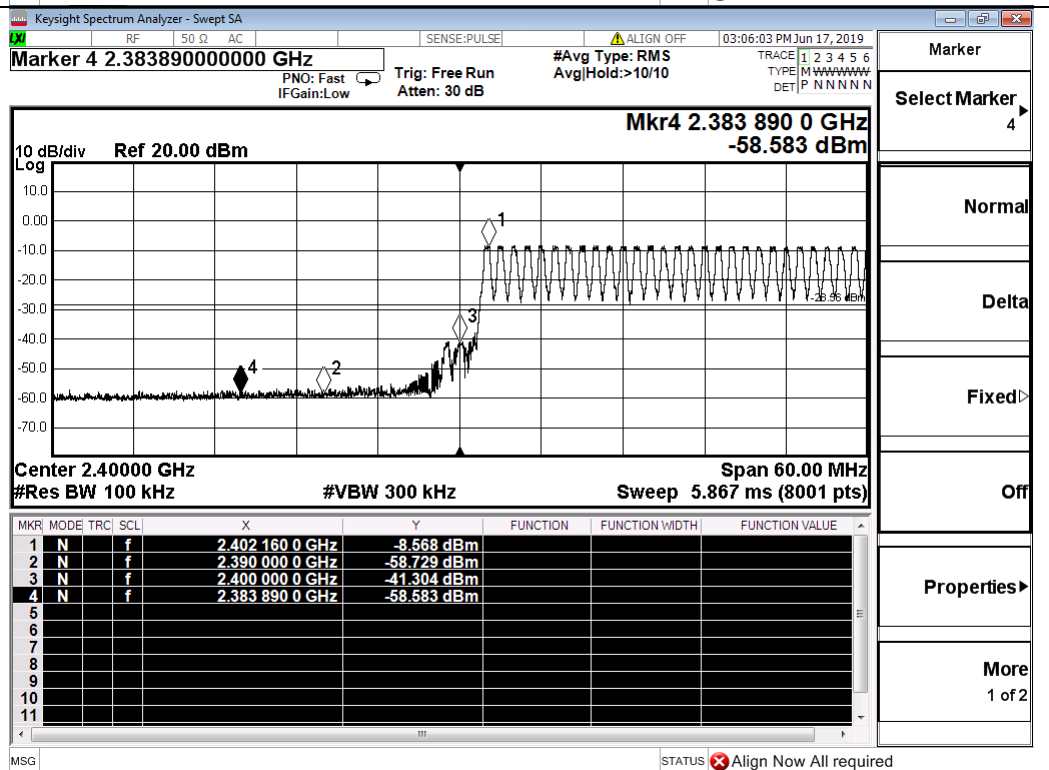
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-8.548	Off	-43.047	-28.55	PASS
			-8.816	On	-41.304	-28.82	PASS
	HCH	2480	-8.974	Off	-46.213	-28.97	PASS
			-8.478	On	-47.382	-28.48	PASS
π /4DQPSK	LCH	2402	-8.663	Off	-42.777	-28.66	PASS
			-8.946	On	-41.222	-28.95	PASS
	HCH	2480	-8.548	Off	-48.097	-28.55	PASS
			-8.816	On	-52.023	-28.82	PASS

Test Graphs

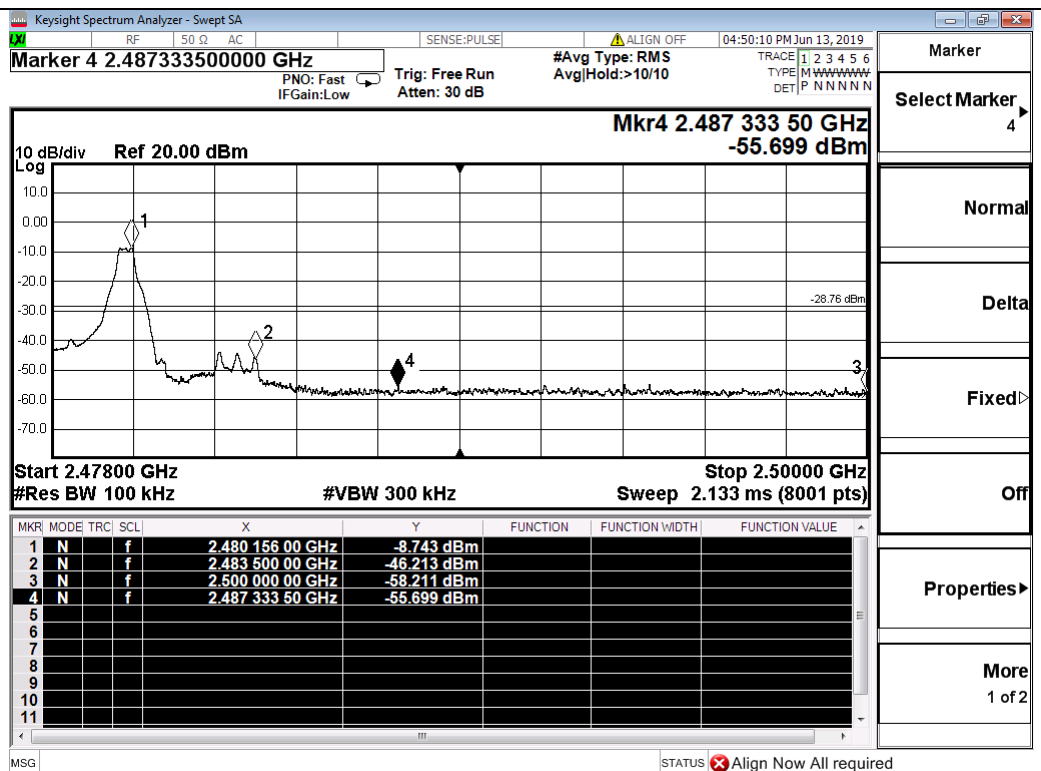
GFSK/LCH/No Hop



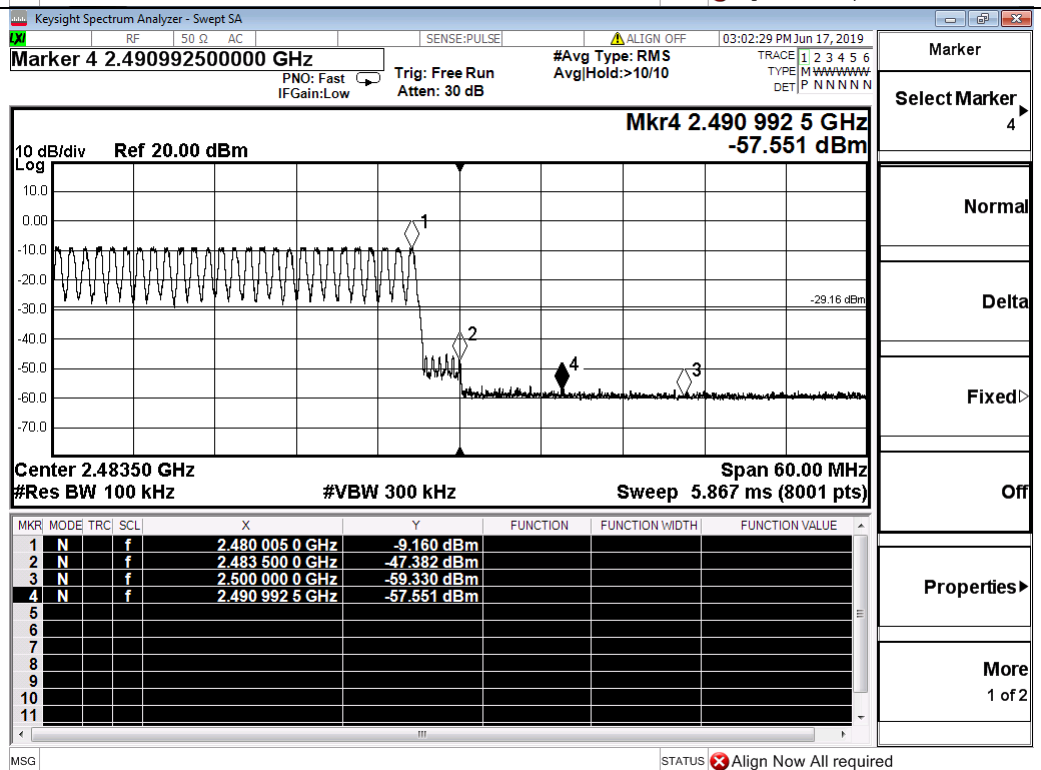
GFSK/LCH/Hop



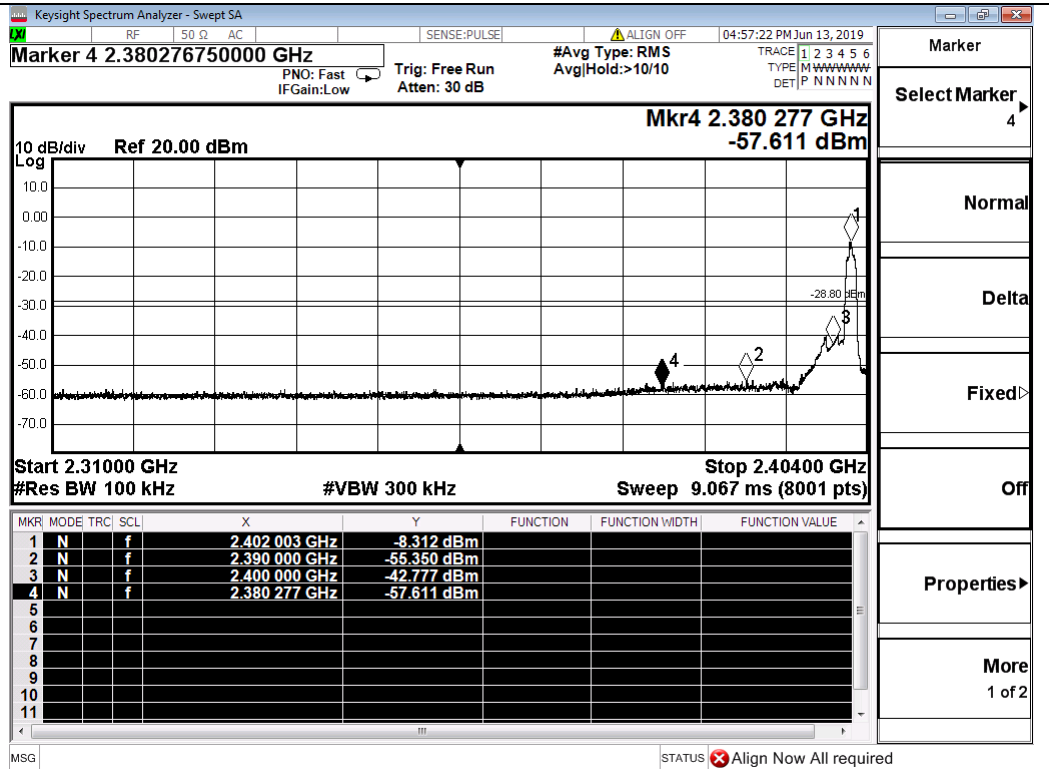
GFSK/HCH/No Hop



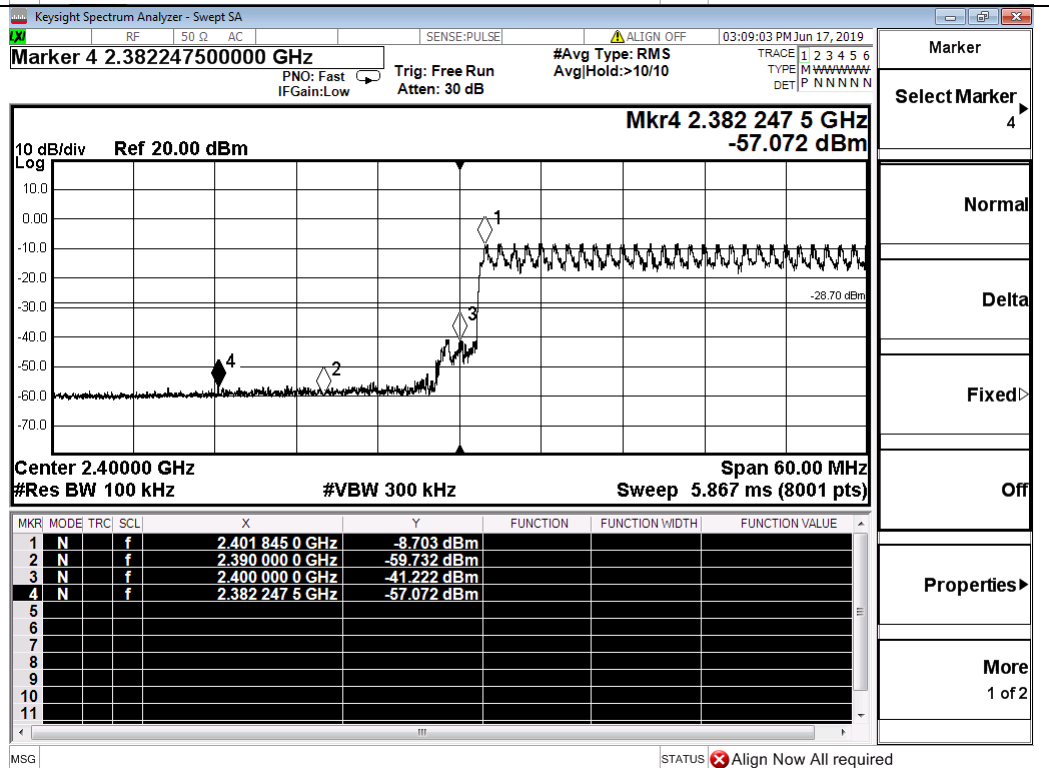
GFSK/HCH/Hop



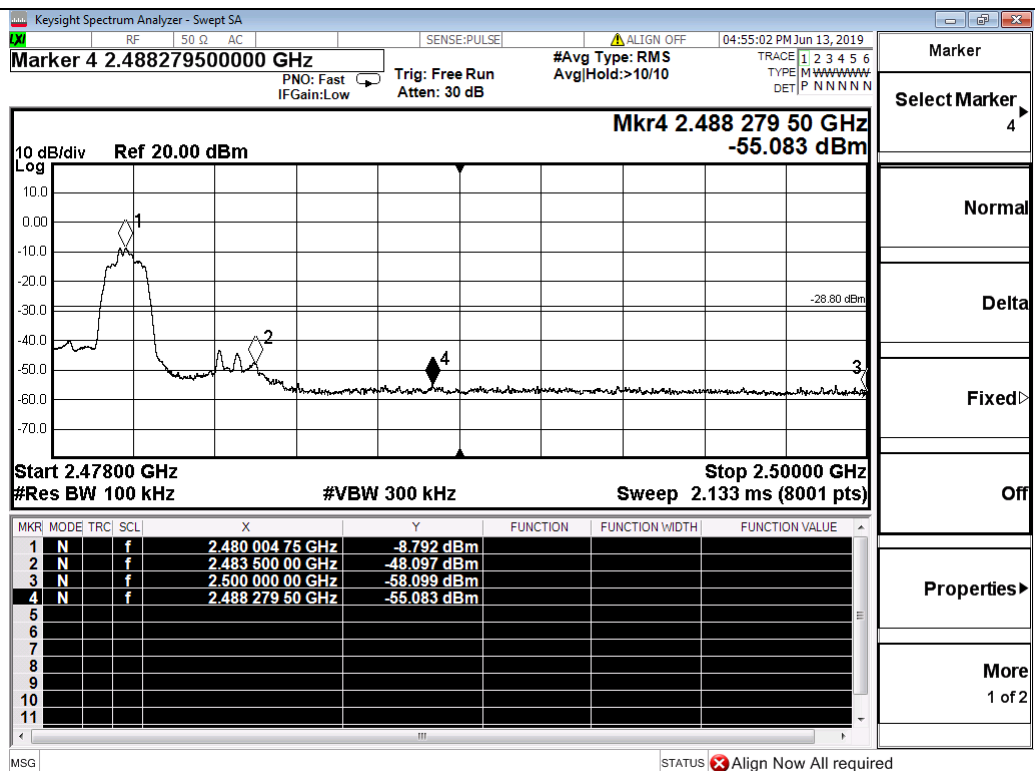
$\pi/4$ DQPSK/LCH/No
Hop



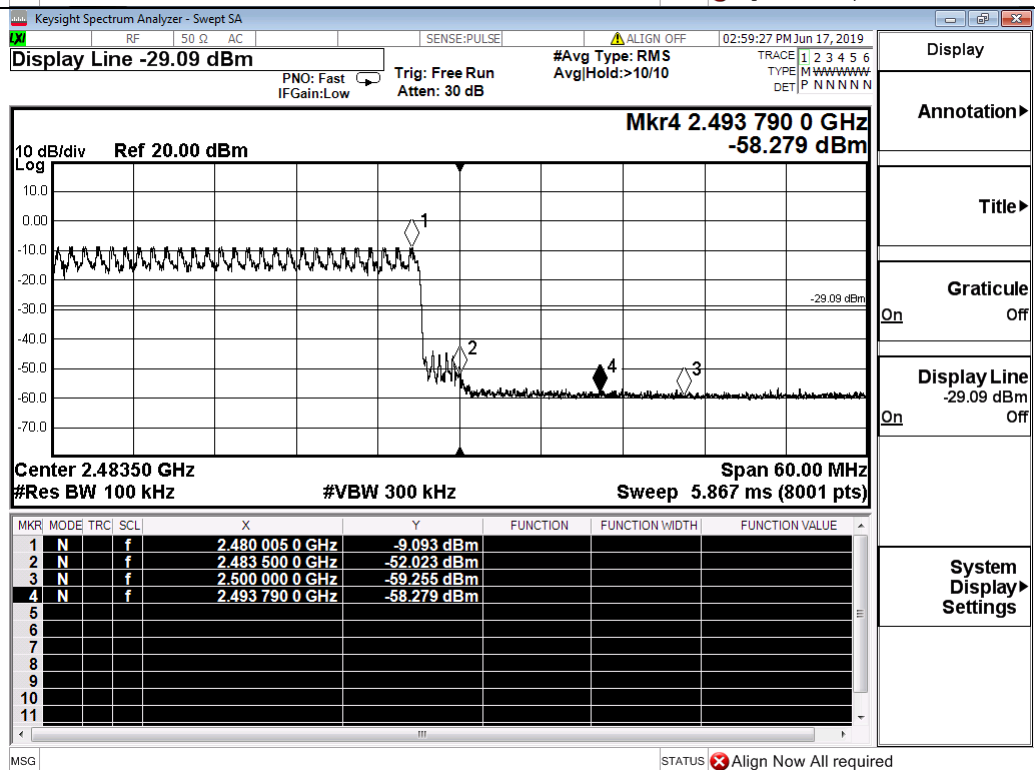
$\pi/4$ DQPSK/LCH/Hop



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



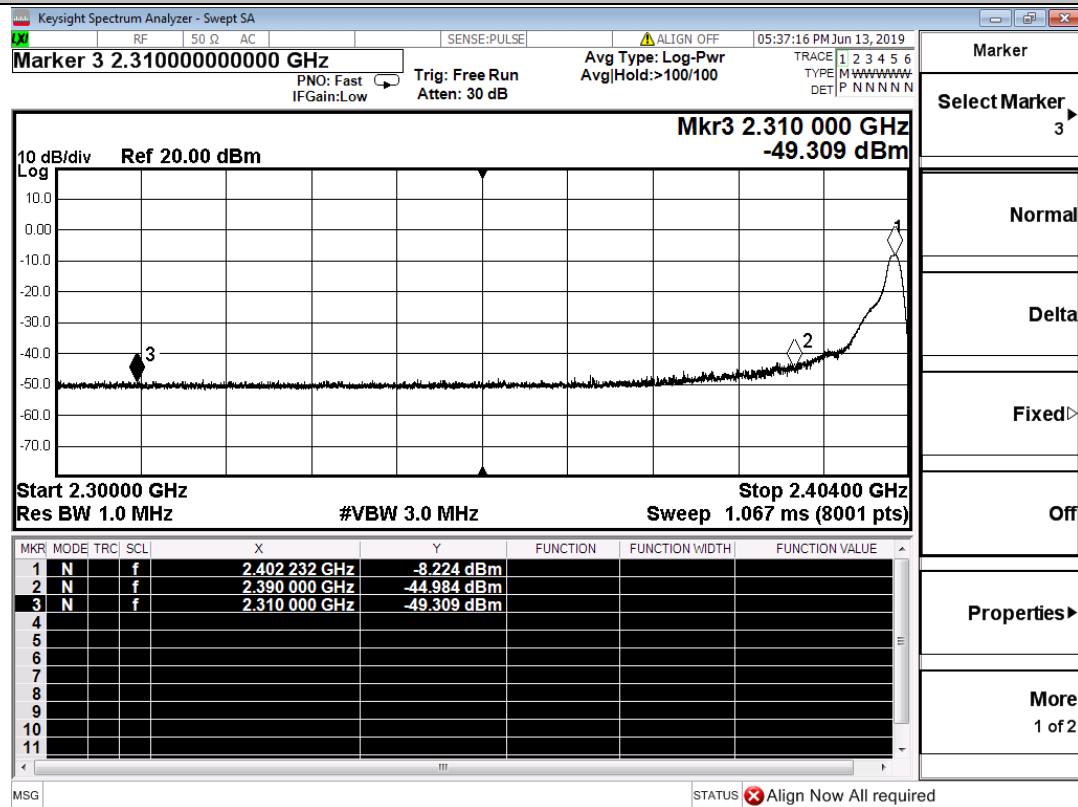
$\pi/4$ DQPSK/HCH/Hop



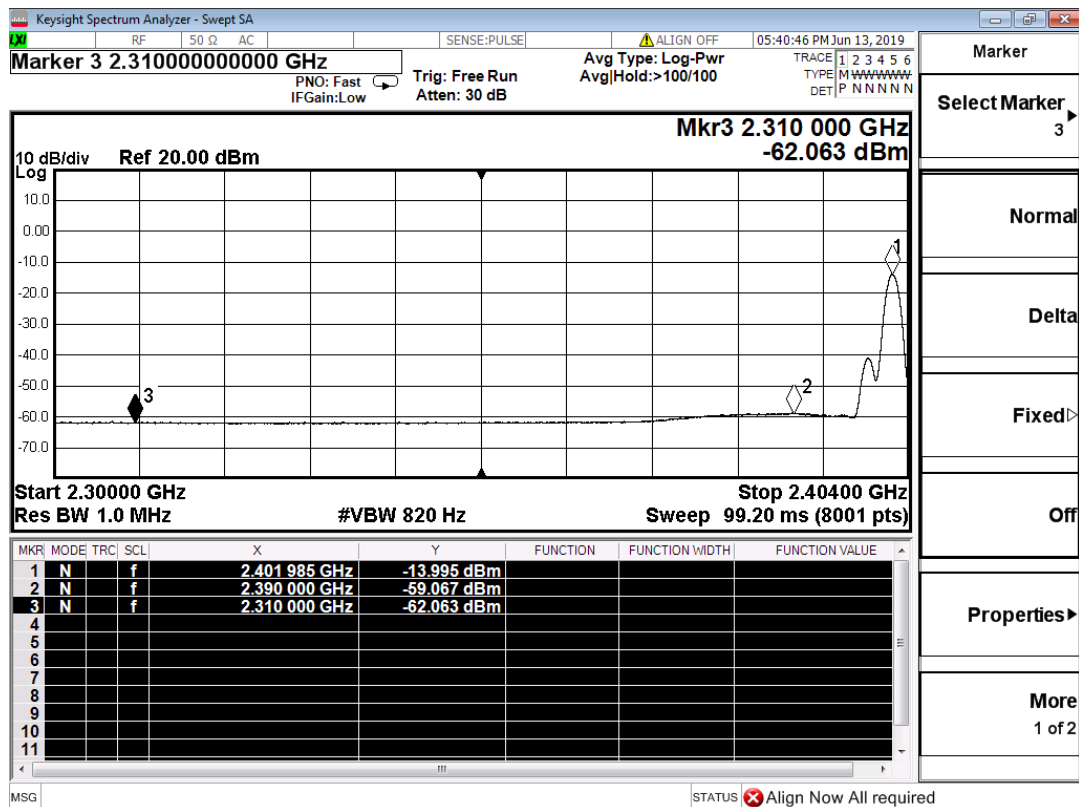
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-49.309	2.000	0	47.92	PEAK	74	PASS
	Off	2310.0	-62.063	2.000	0	35.17	AV	54	PASS
	Off	2390.0	-44.984	2.000	0	52.25	PEAK	74	PASS
	Off	2390.0	-59.067	2.000	0	38.16	AV	54	PASS
	Off	2483.5	-36.198	2.000	0	61.03	PEAK	74	PASS
	Off	2483.5	-51.736	2.000	0	45.49	AV	54	PASS
	Off	2500.0	-48.955	2.000	0	48.28	PEAK	74	PASS
	Off	2500.0	-59.804	2.000	0	37.43	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-50.529	2.000	0	46.70	PEAK	74	PASS
	Off	2310.0	-61.930	2.000	0	35.30	AV	54	PASS
	Off	2390.0	-46.998	2.000	0	50.23	PEAK	74	PASS
	Off	2390.0	-58.769	2.000	0	38.46	AV	54	PASS
	Off	2483.5	-36.751	2.000	0	60.48	PEAK	74	PASS
	Off	2483.5	-52.919	2.000	0	44.31	AV	54	PASS
	Off	2500.0	-48.325	2.000	0	48.91	PEAK	74	PASS
	Off	2500.0	-59.790	2.000	0	37.44	AV	54	PASS

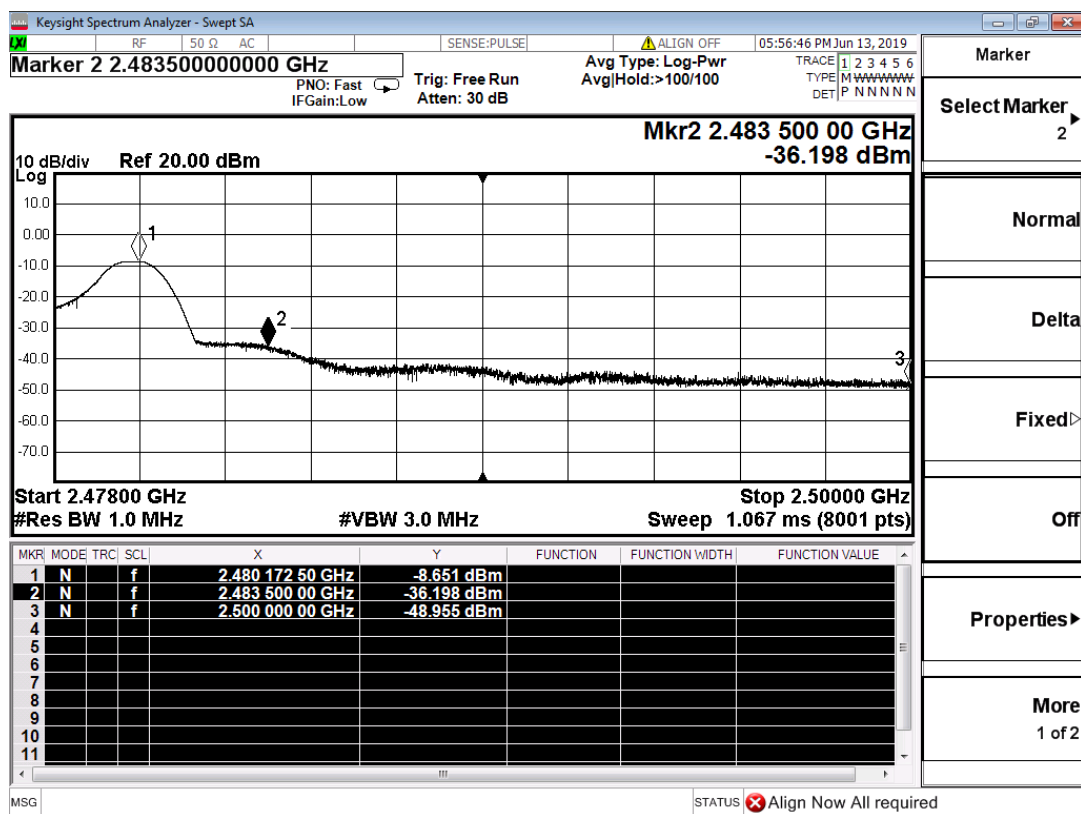
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



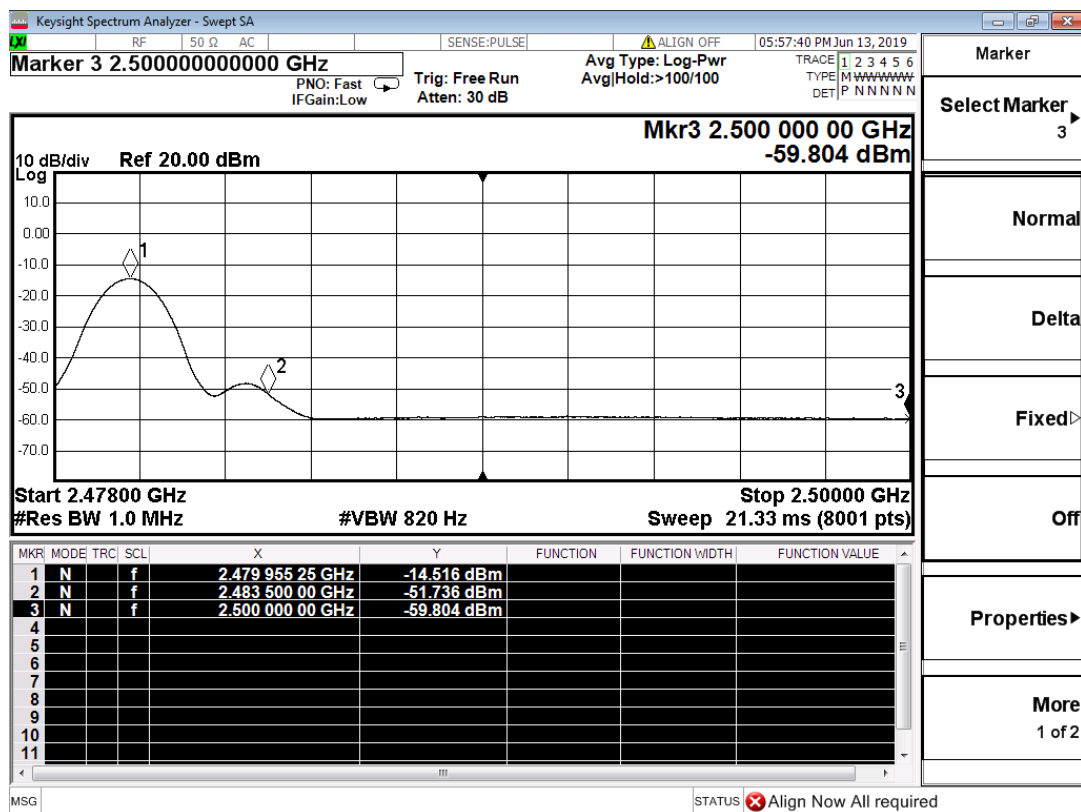
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

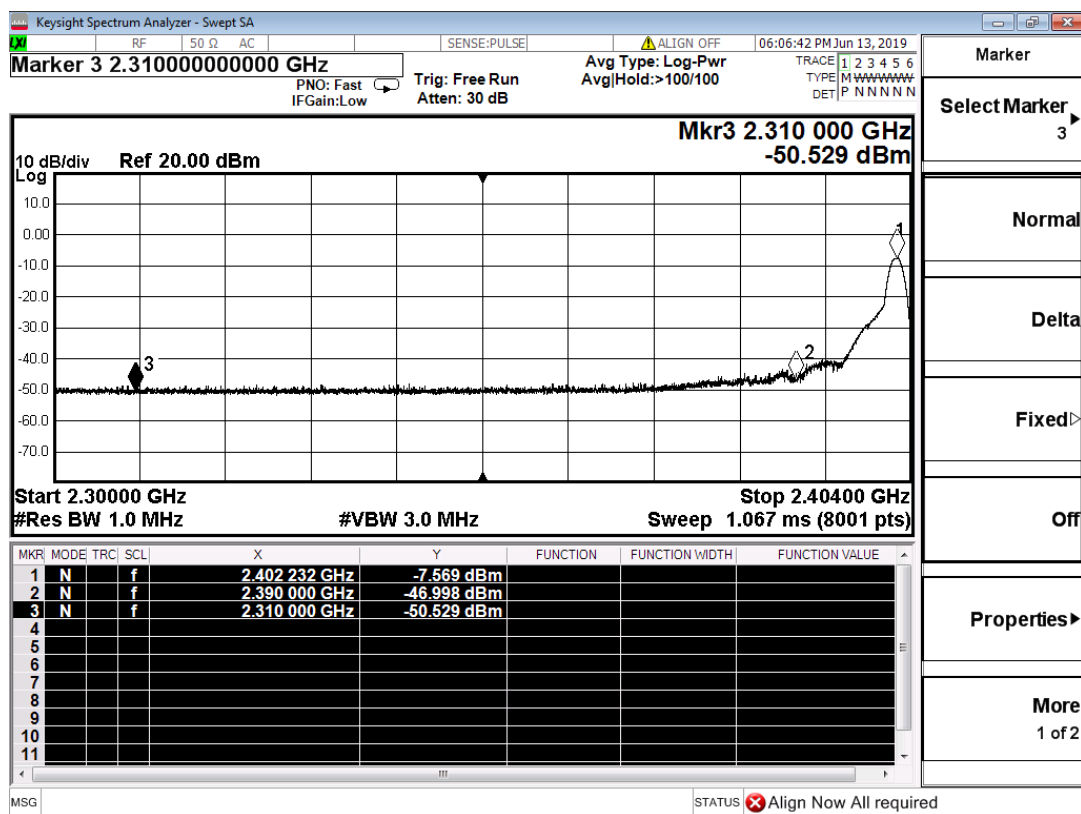
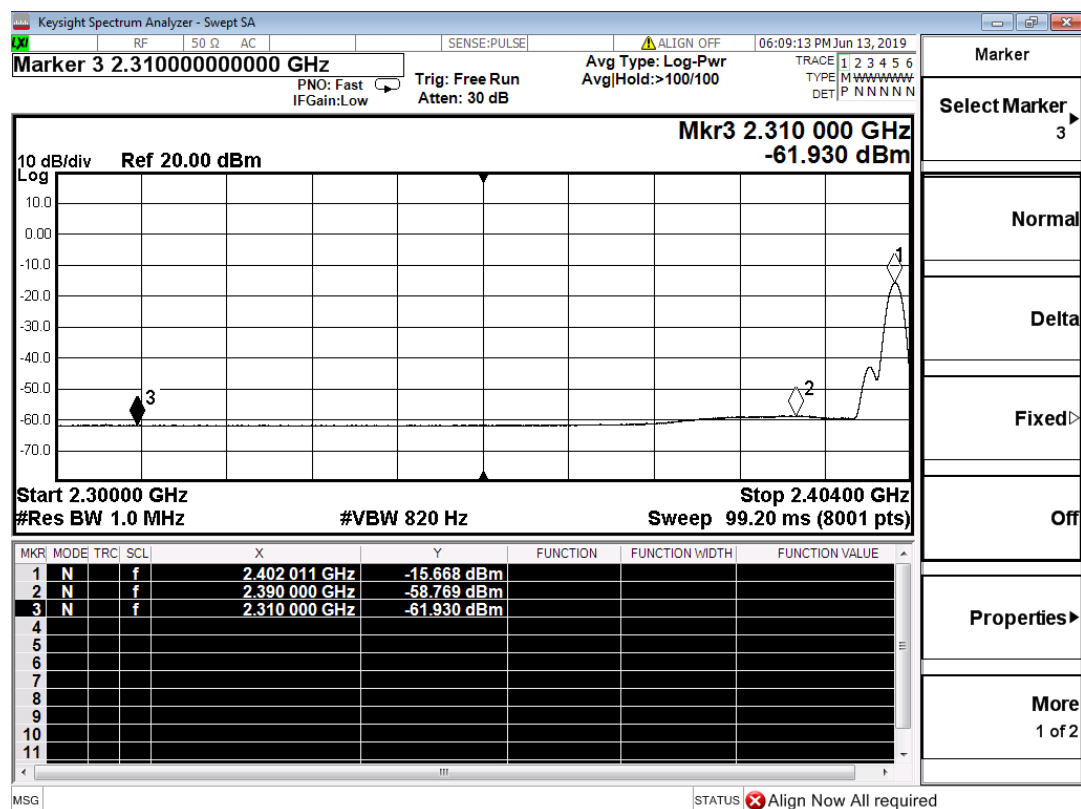


Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)

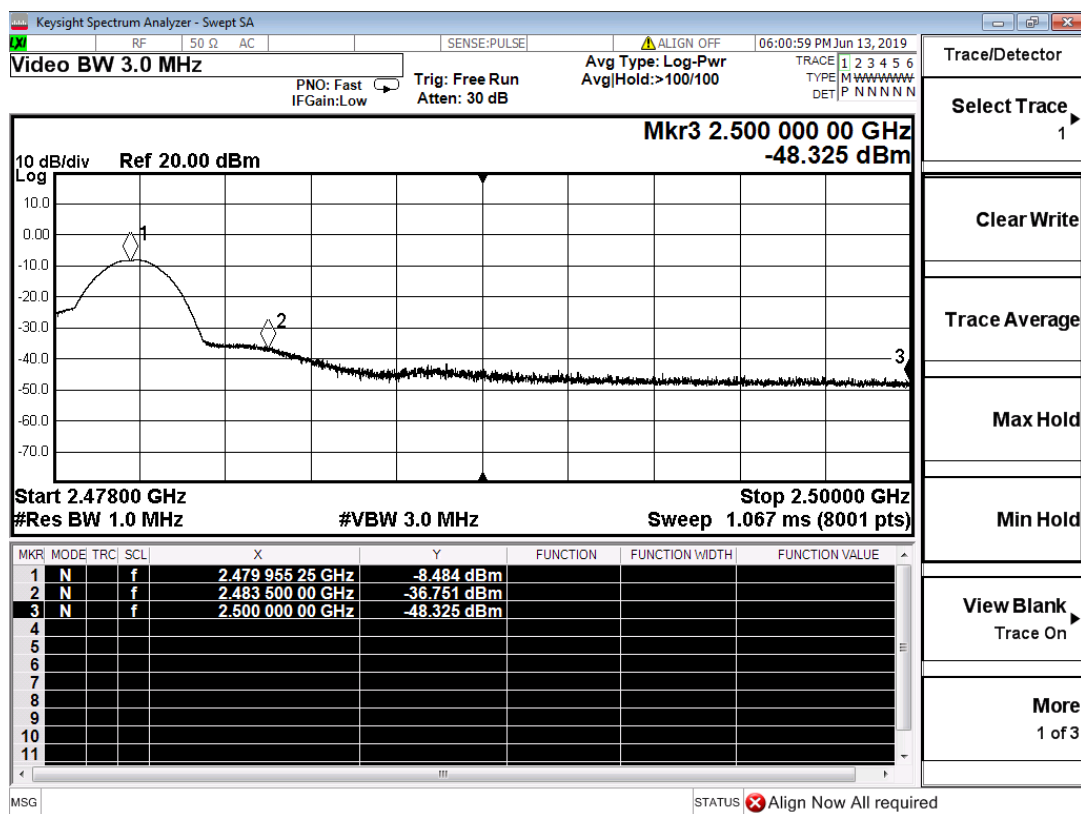


Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



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)

