

Appendix A

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

Product Name: BLUETOOTH HEADPHONE

Trade Mark: N/A

Test Model: TQ1007

Environmental Conditions

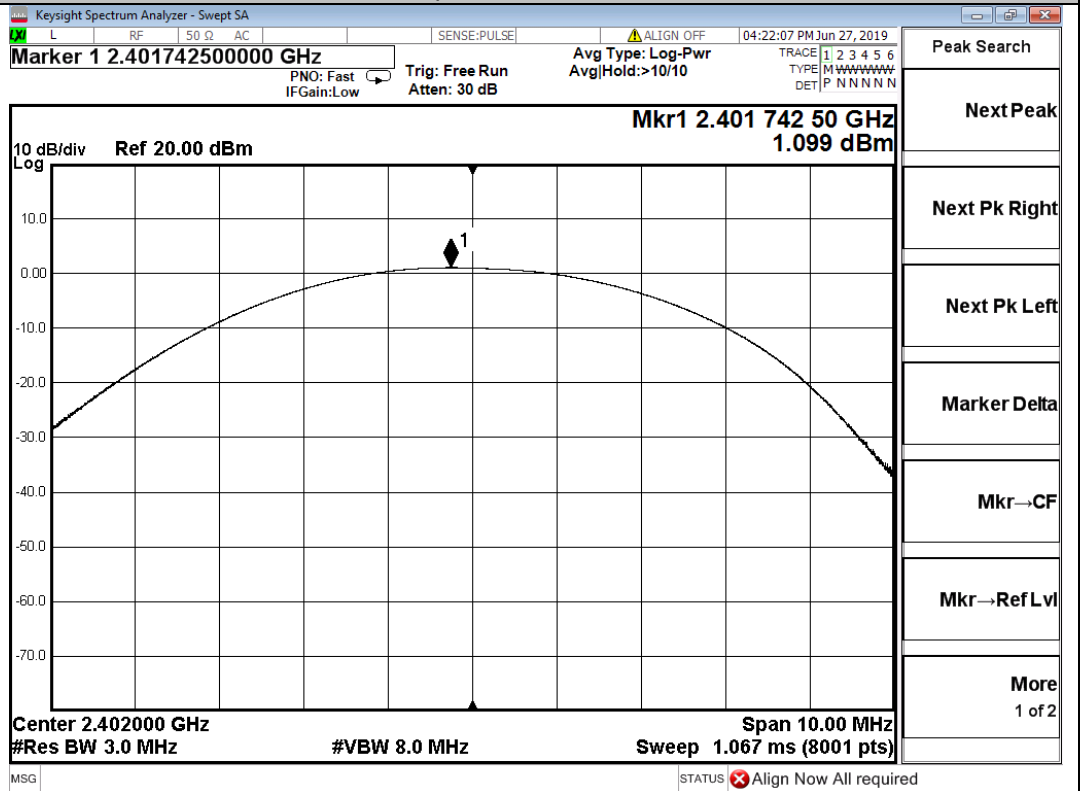
Temperature:	23.4 ° C
Relative Humidity:	58%
ATM Pressure:	100.0 kPa
Test Engineer:	CHUANG WANG
Supervised by:	JAYDEN ZHUO

A.1 Maximum Conducted Peak Output Power

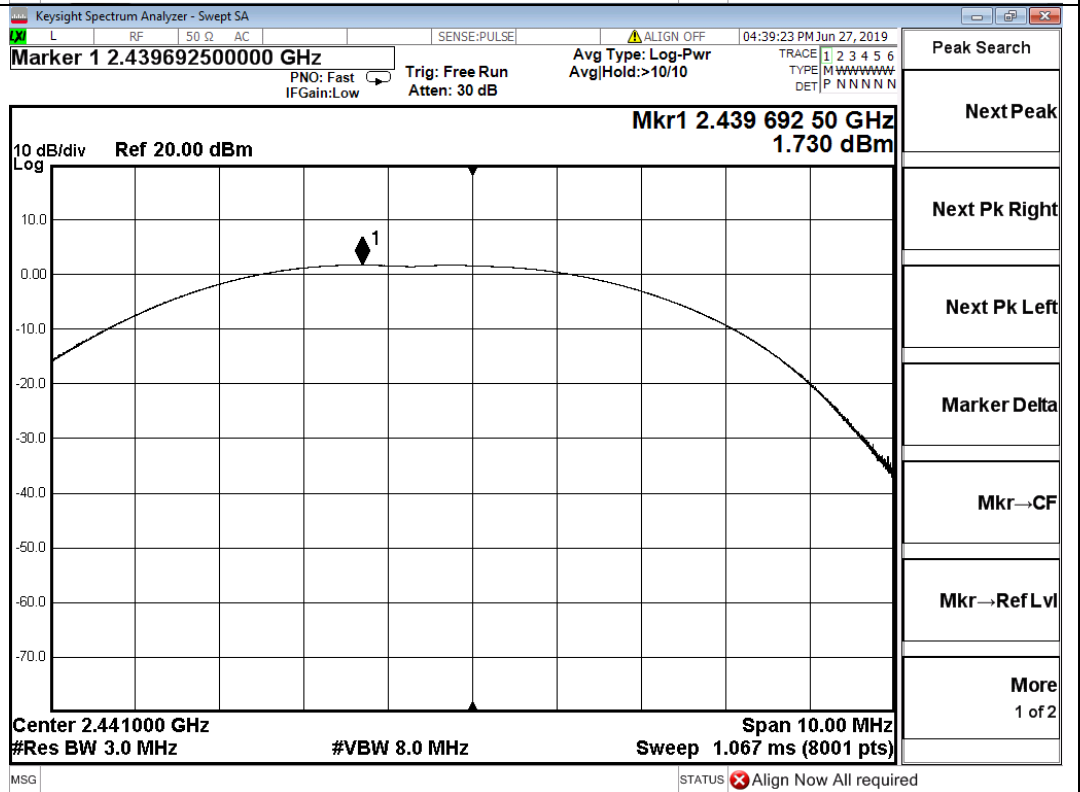
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.099	21	PASS
	MCH	1.730	21	PASS
	HCH	1.769	21	PASS
π/4DQPSK	LCH	1.822	21	PASS
	MCH	2.301	21	PASS
	HCH	2.408	21	PASS

Test Graphs

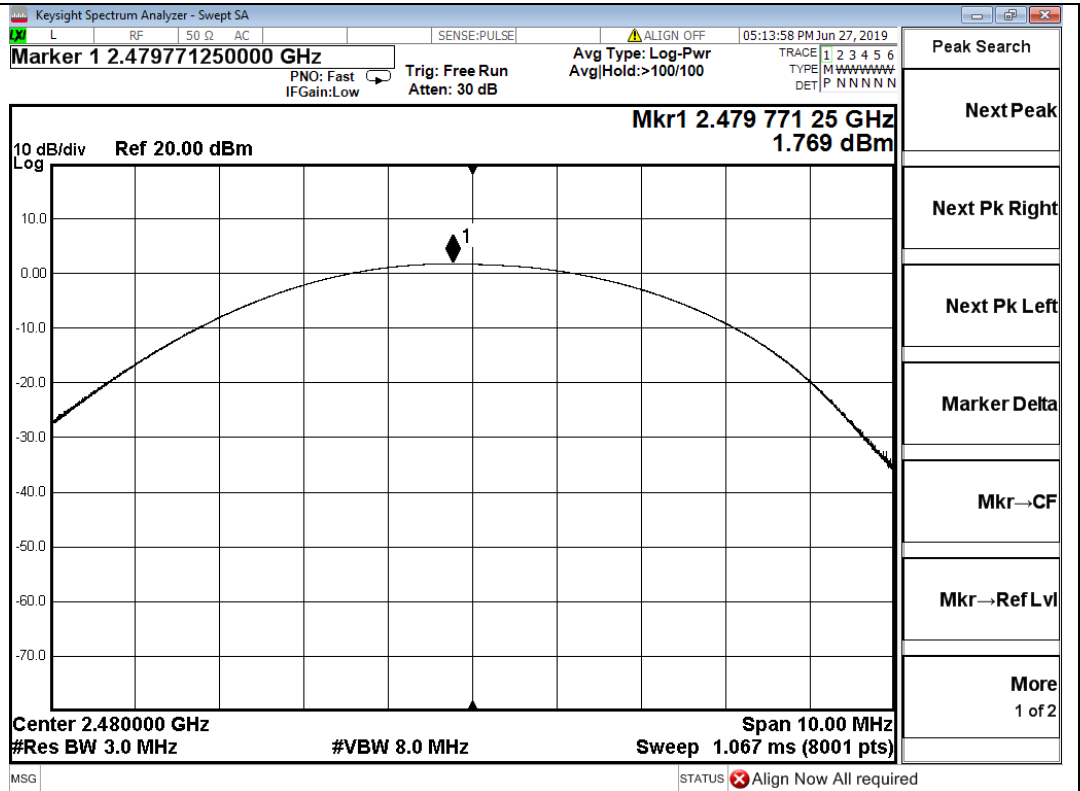
GFSK/LCH



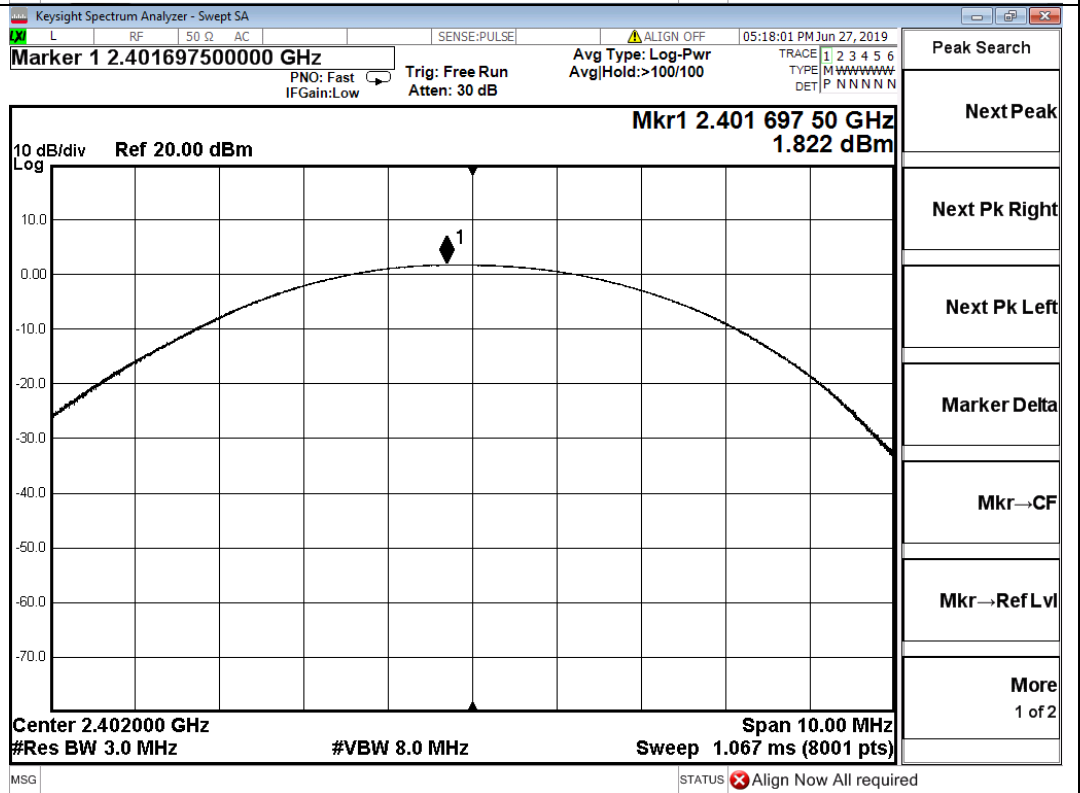
GFSK/MCH



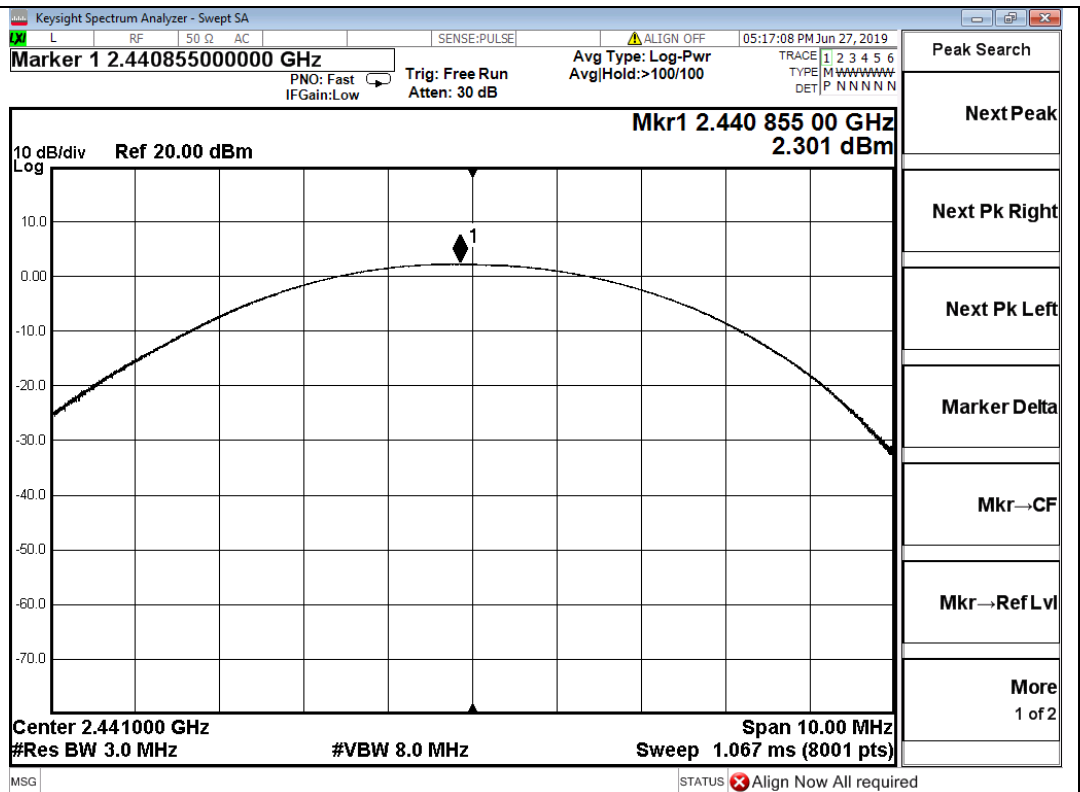
GFSK/HCH



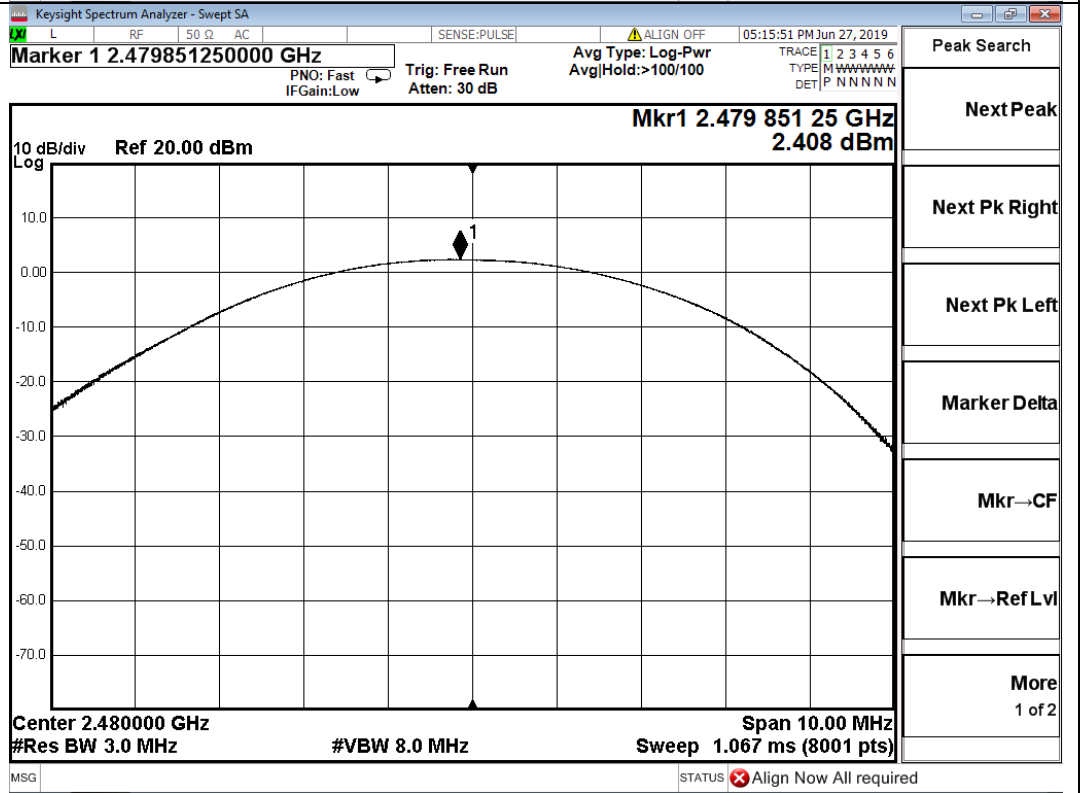
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH

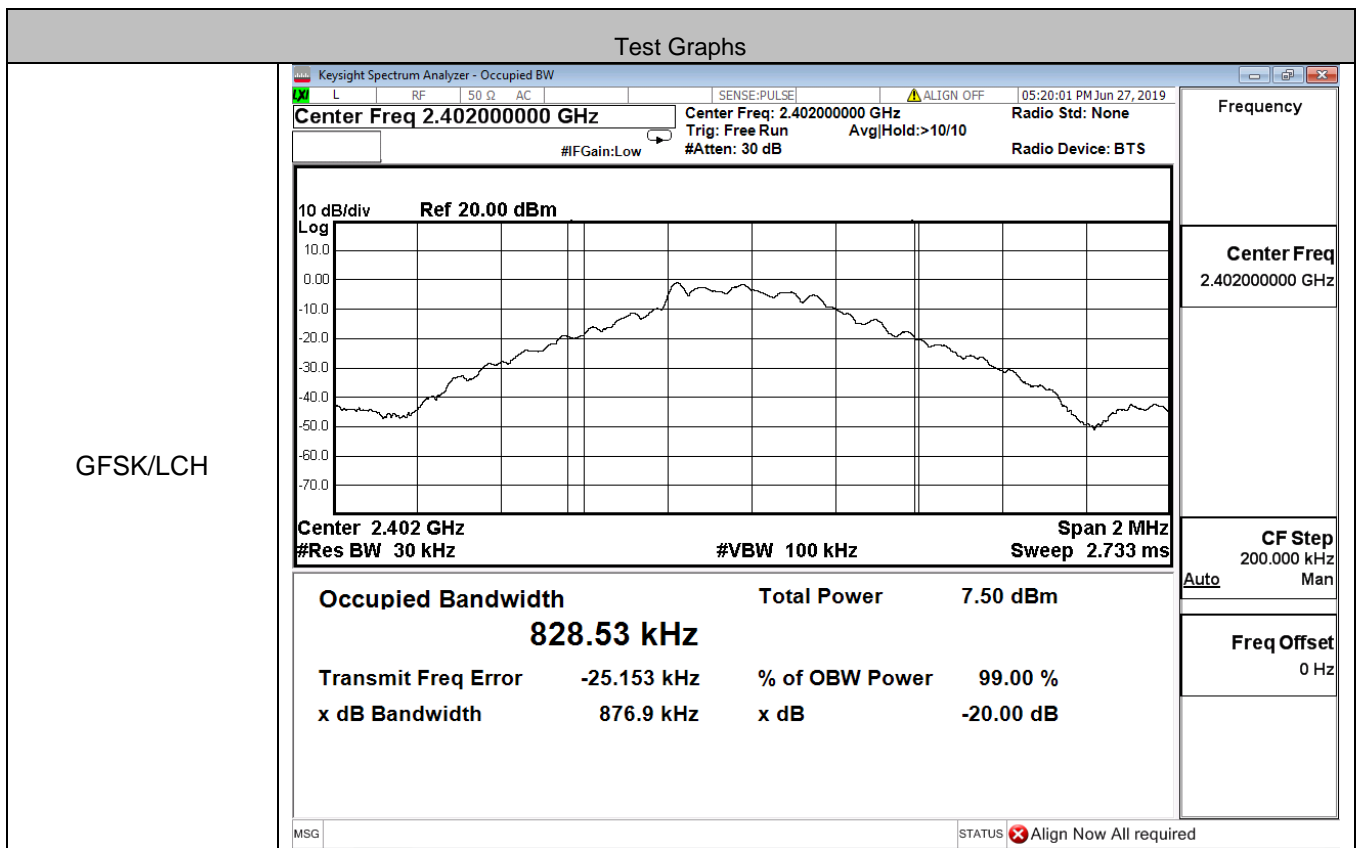


$\pi/4$ DQPSK/HCH

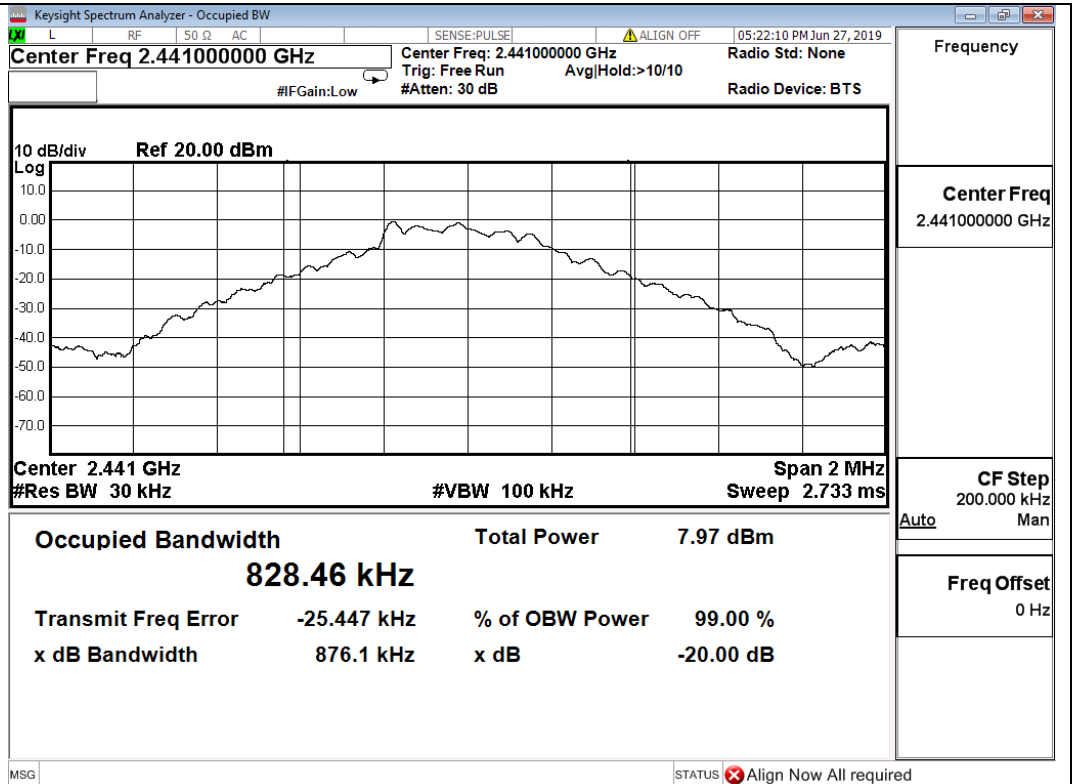


A.2 99% and 20dB Bandwidth

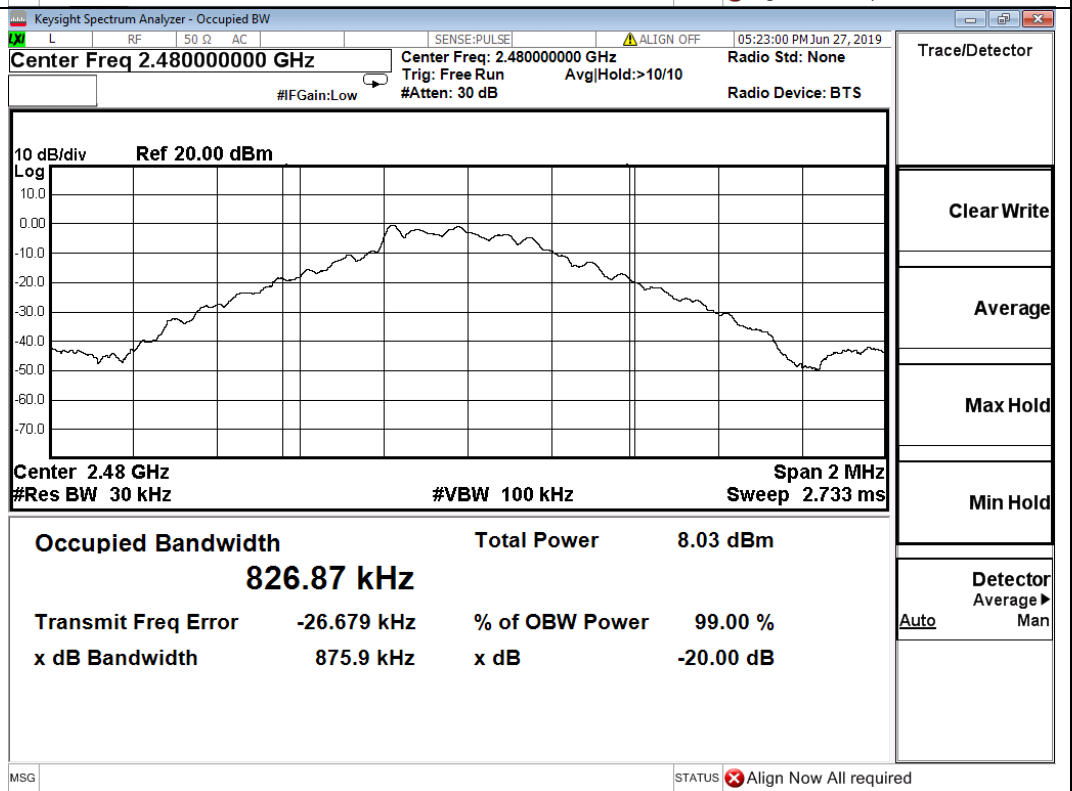
Mode	Channel.	99% Bandwidth [MHz]	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.82853	0.8769	Not Specified	PASS
	MCH	0.82846	0.8761	Not Specified	PASS
	HCH	0.82687	0.8759	Not Specified	PASS
π/4DQPSK	LCH	1.1694	1.1256	Not Specified	PASS
	MCH	1.1695	1.1257	Not Specified	PASS
	HCH	1.1703	1.1256	Not Specified	PASS



GFSK/MCH



GFSK/HCH



$\pi/4$ DQPSK/LCH

Center Freq 2.40200000 GHz
 #Res BW 30 kHz
 #VBW 100 kHz
 Span 2 MHz
 Sweep 2.733 ms

Occupied Bandwidth **Total Power** **7.43 dBm**
1.1694 MHz

Transmit Freq Error -27.422 kHz % of OBW Power 99.00 %
 x dB Bandwidth 1.256 MHz x dB -20.00 dB

Trace/Detector

Clear Write

Average

Max Hold

Min Hold

Detector Average
 Auto Man

$\pi/4$ DQPSK/MCH

Center Freq 2.44100000 GHz
 #Res BW 30 kHz
 #VBW 100 kHz
 Span 2 MHz
 Sweep 2.733 ms

Occupied Bandwidth **Total Power** **7.91 dBm**
1.1695 MHz

Transmit Freq Error -27.664 kHz % of OBW Power 99.00 %
 x dB Bandwidth 1.257 MHz x dB -20.00 dB

Trace/Detector

Clear Write

Average

Max Hold

Min Hold

Detector Average
 Auto Man

$\pi/4$ DQPSK/HCH

Center Freq 2.48000000 GHz

Center Freq: 2.48000000 GHz

Trig: Free Run

#IFGain: Low

#Atten: 30 dB

Radio Std: None

Avg|Hold: >10/10

Radio Device: BTS

10 dB/div Ref 20.00 dBm

Center 2.48 GHz

#Res BW 30 kHz

#VBW 100 kHz

Span 2 MHz

Sweep 2.733 ms

Occupied Bandwidth	Total Power		8.00 dBm
1.1703 MHz			
Transmit Freq Error	-28.127 kHz	% of OBW Power	99.00 %
x dB Bandwidth	1.256 MHz	x dB	-20.00 dB

MSG

STATUS ✖ Align Now All required

Trace/Detector

Clear Write

Average

Max Hold

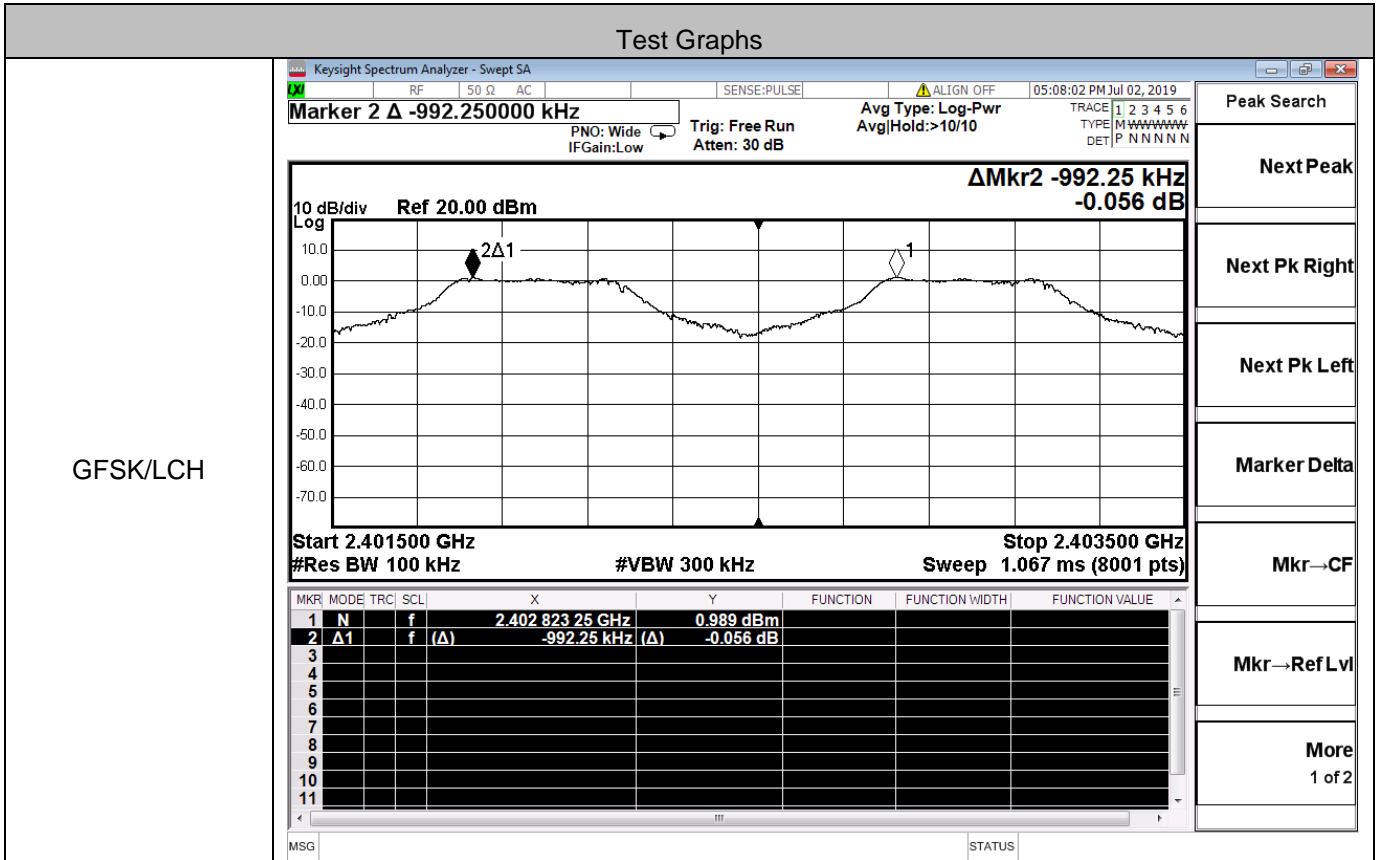
Min Hold

Detector
Average ▶

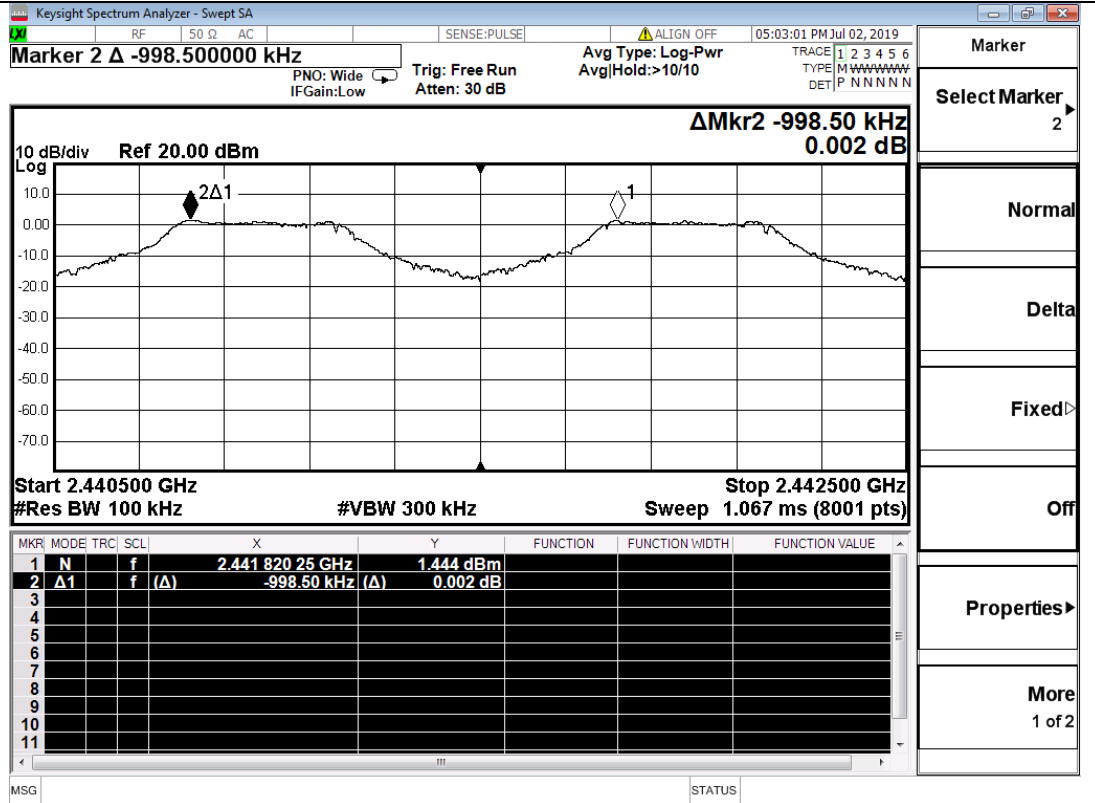
Auto Man

A.3 Carrier Frequency Separation

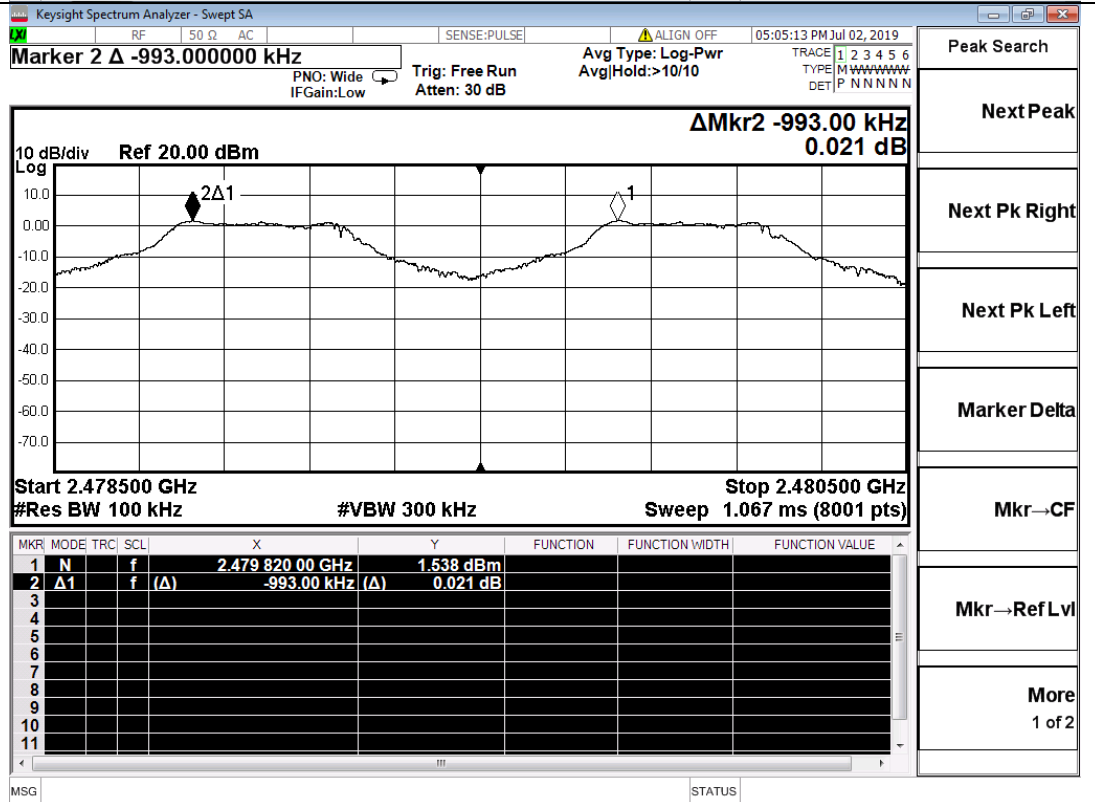
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz] 2/3*20dB Bandwidth	Verdict
GFSK	LCH	0.992	0.585	PASS
	MCH	0.999	0.584	PASS
	HCH	0.993	0.584	PASS
π/4DQPSK	LCH	1.002	0.750	PASS
	MCH	0.998	0.750	PASS
	HCH	1.004	0.750	PASS



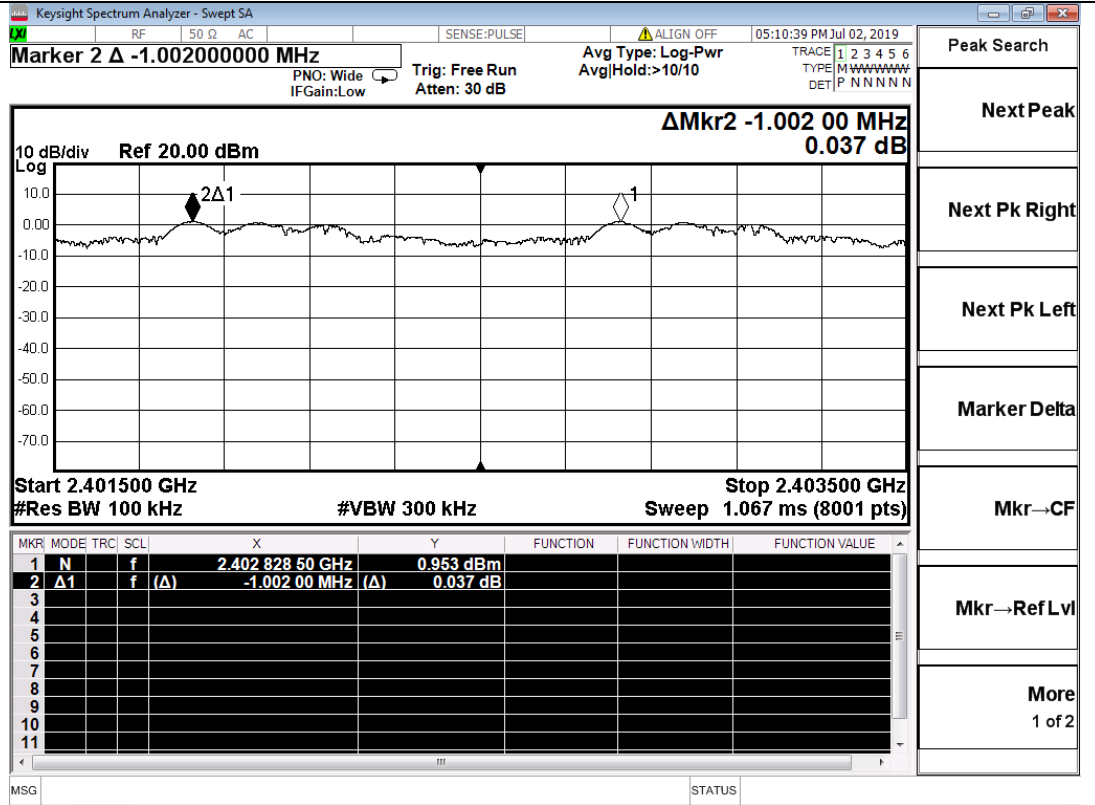
GFSK/MCH



GFSK/HCH

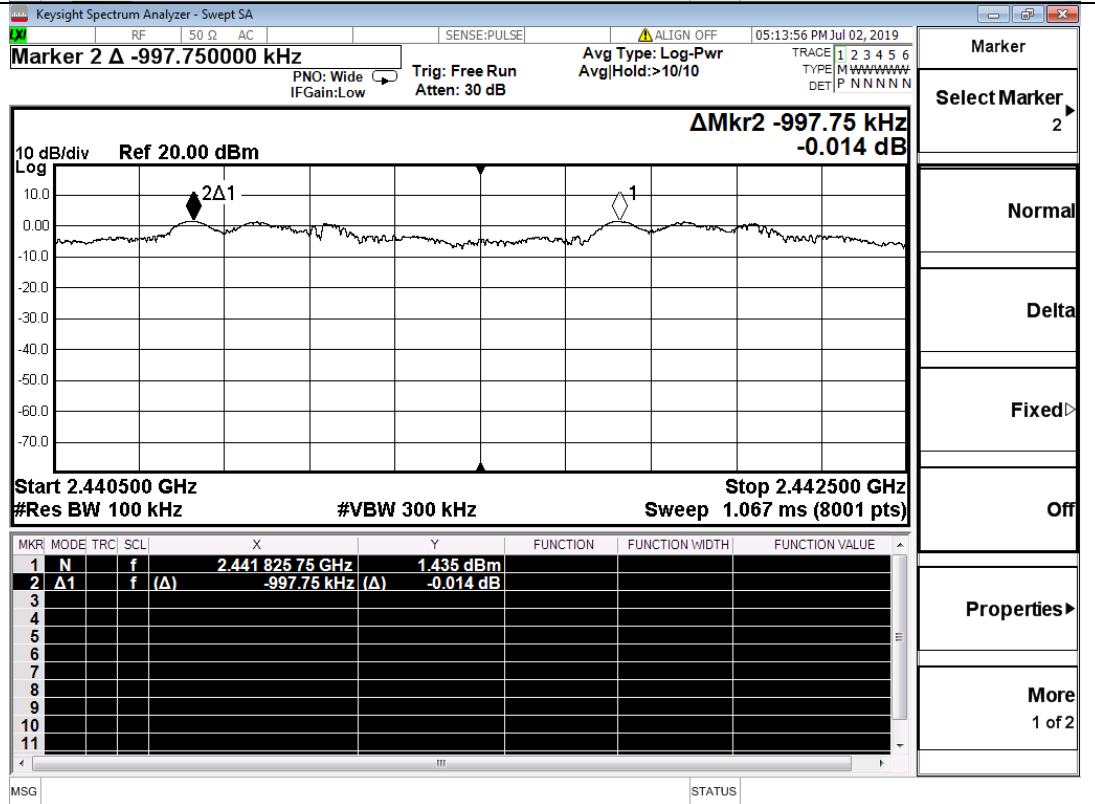


$\pi/4$ DQPSK/LCH



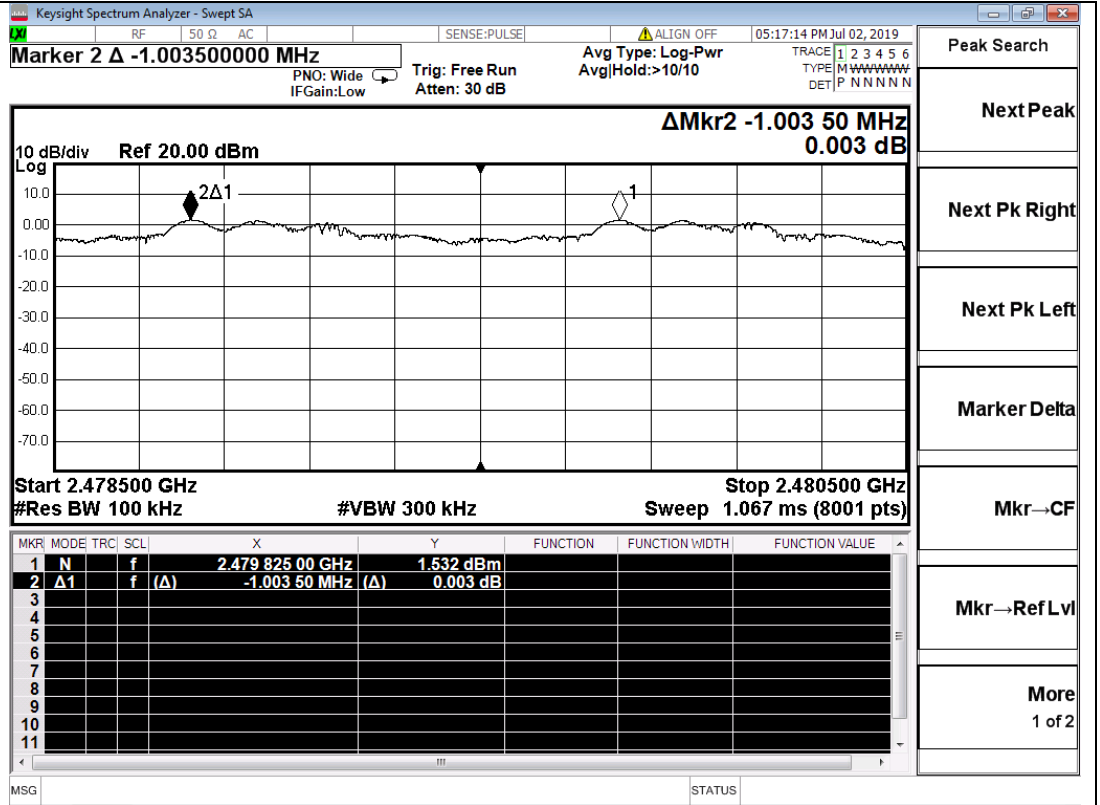
- Peak Search
- Next Peak
- Next Pk Right
- Next Pk Left
- Marker Delta
- Mkr→CF
- Mkr→Ref Lvl
- More 1 of 2

$\pi/4$ DQPSK/MCH



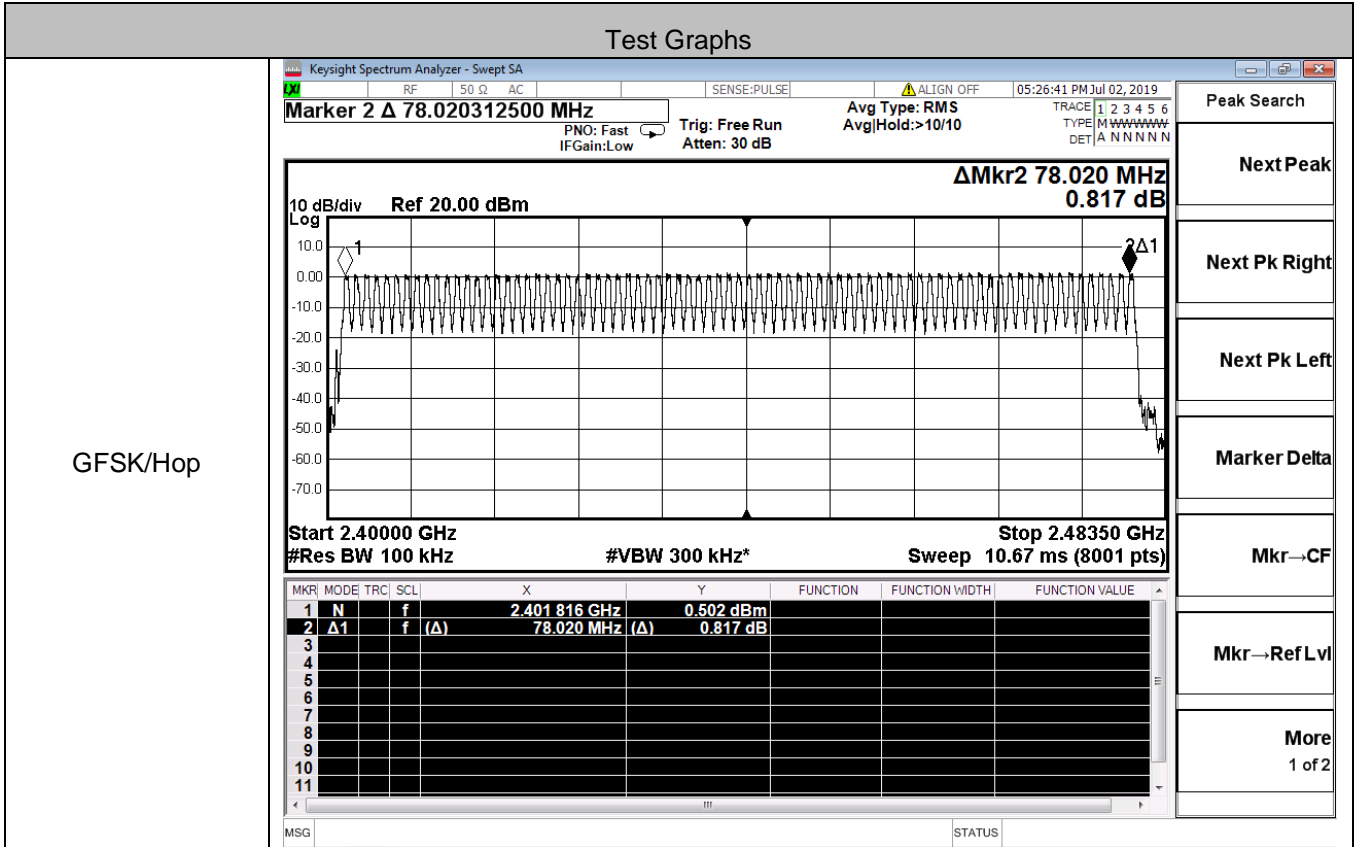
- Marker
- Select Marker 2
- Normal
- Delta
- Fixed
- Off
- Properties
- More 1 of 2

$\pi/4$ DQPSK/HCH

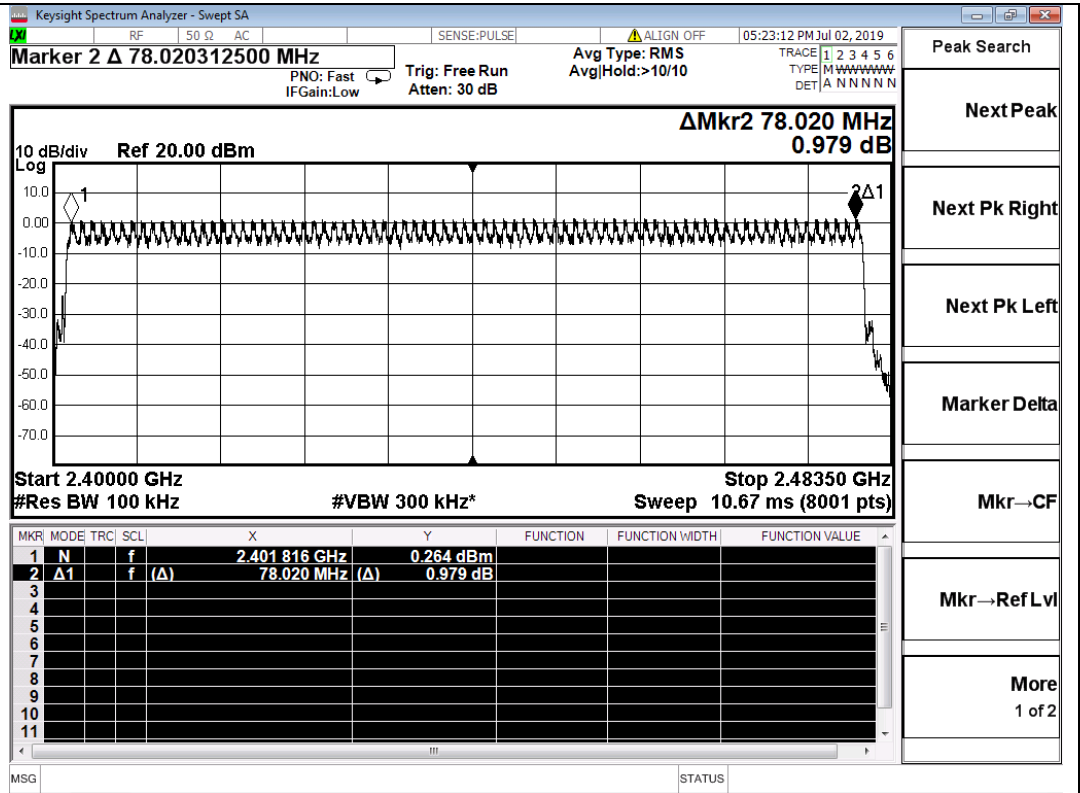


A.4 Hopping Channel Number

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

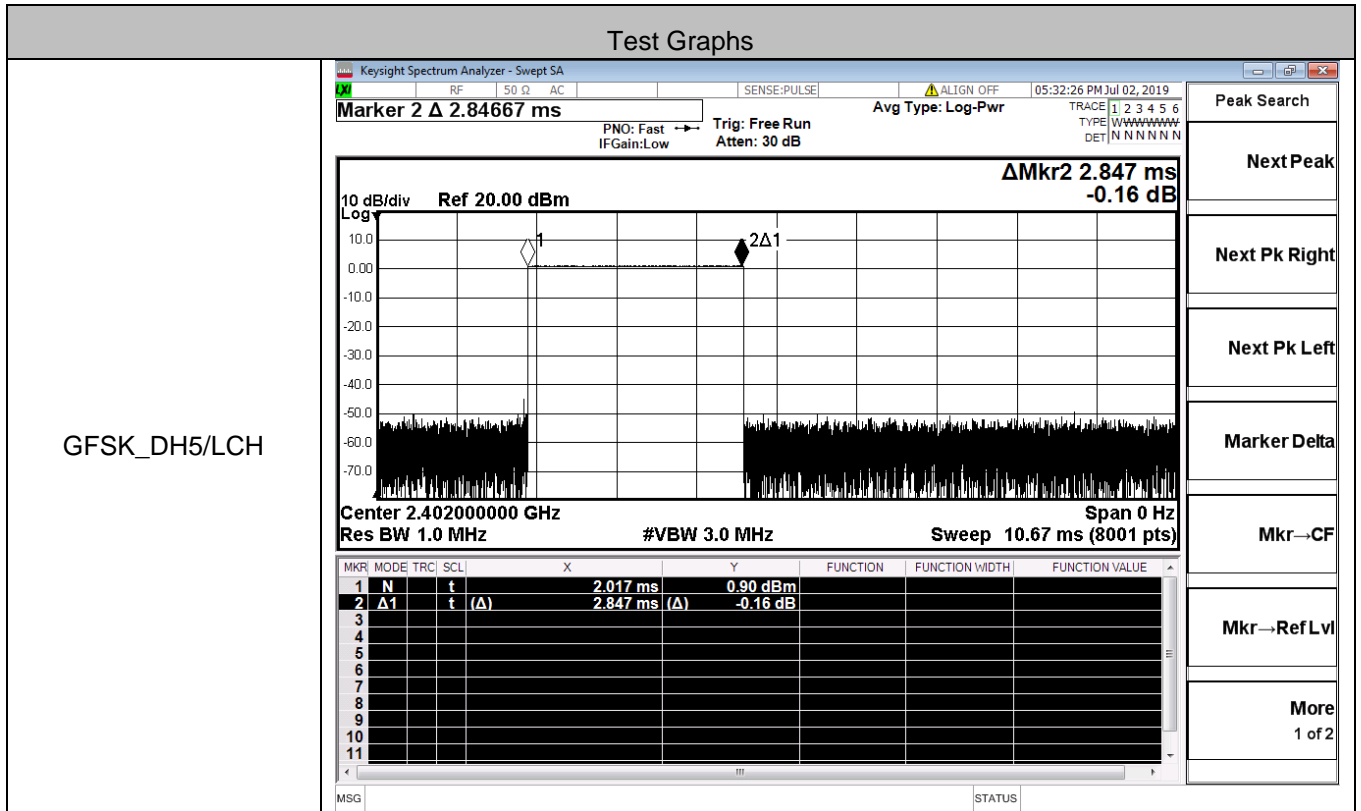


$\pi/4$ DQPSK/Hop

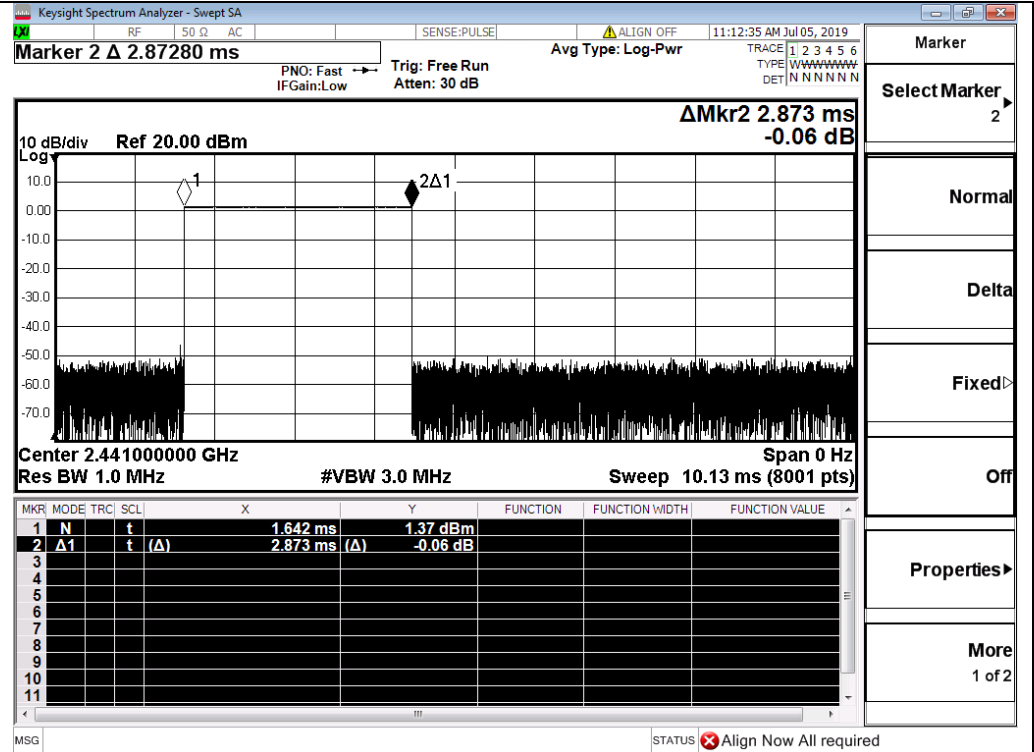


A.5 Dwell Time

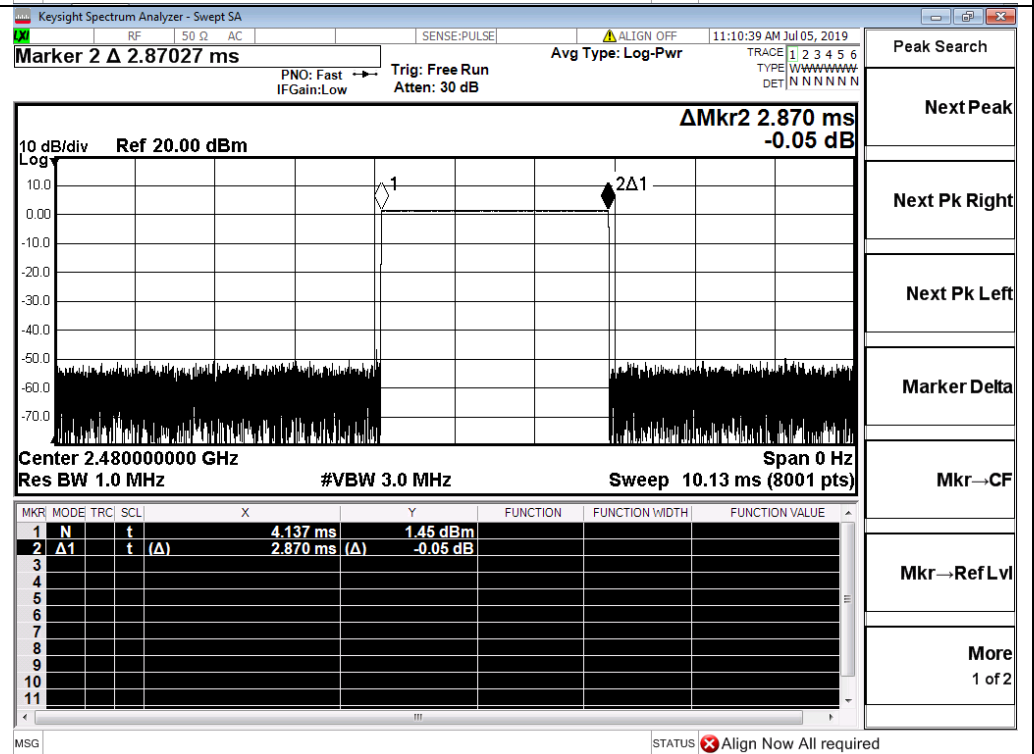
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.85	106.7	0.304	0.4	PASS
	DH5	MCH	2.87	106.7	0.306	0.4	PASS
	DH5	HCH	2.87	106.7	0.306	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.86	106.7	0.305	0.4	PASS
	2DH5	MCH	2.85	106.7	0.304	0.4	PASS
	2DH5	HCH	2.87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



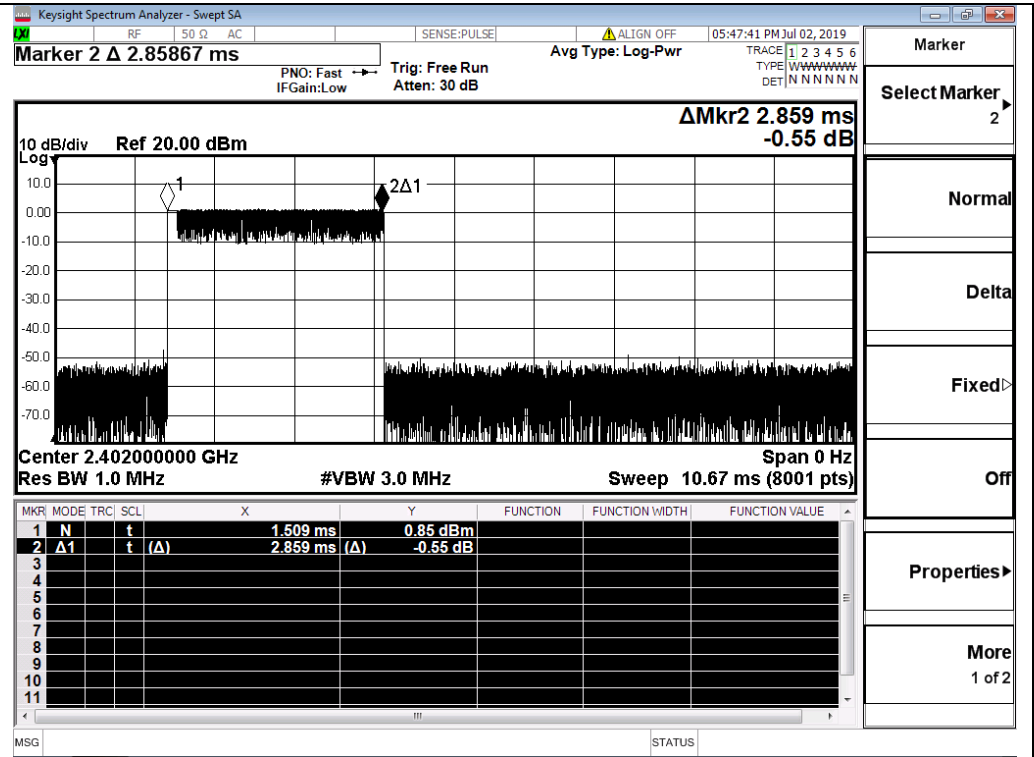
GFSK_DH5/MCH



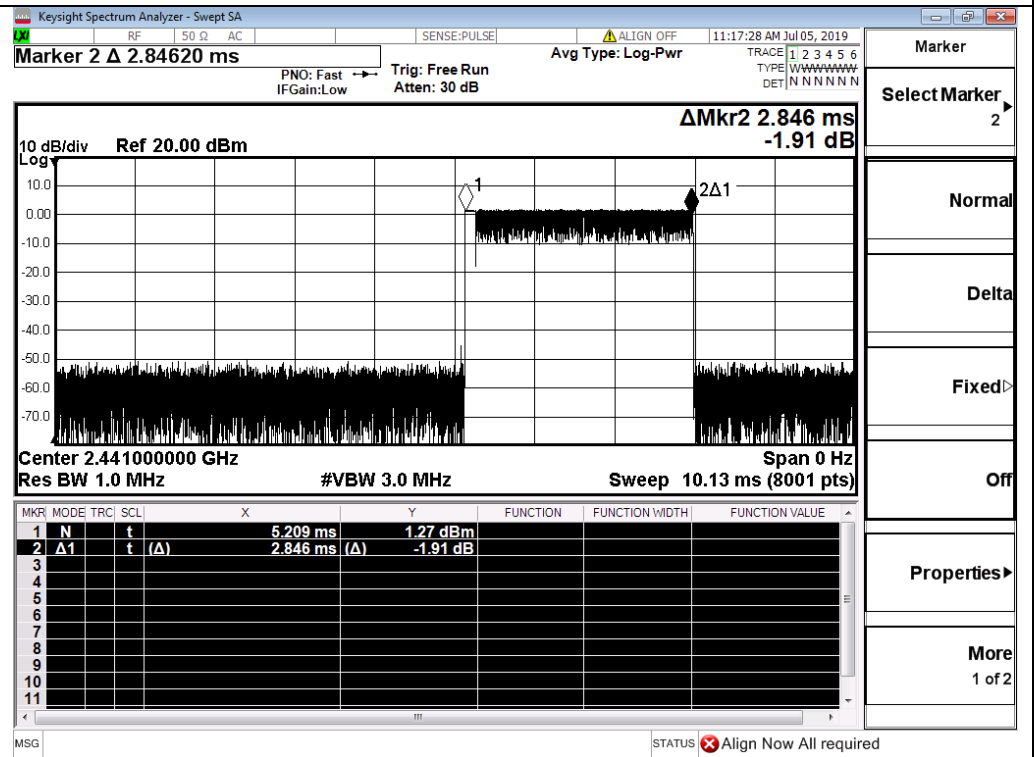
GFSK_DH5/HCH



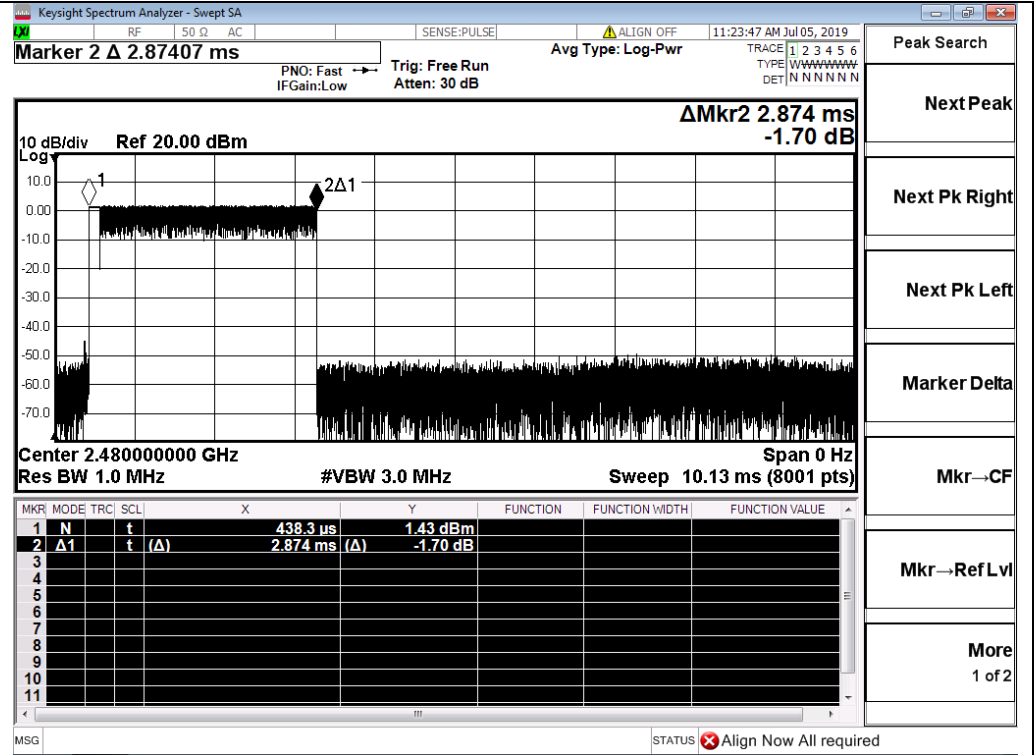
$\pi/4$ DQPSK
_2DH5/LCH



$\pi/4$ DQPSK
_2DH5/MCH



$\pi/4$ DQPSK
_2DH5/HCH

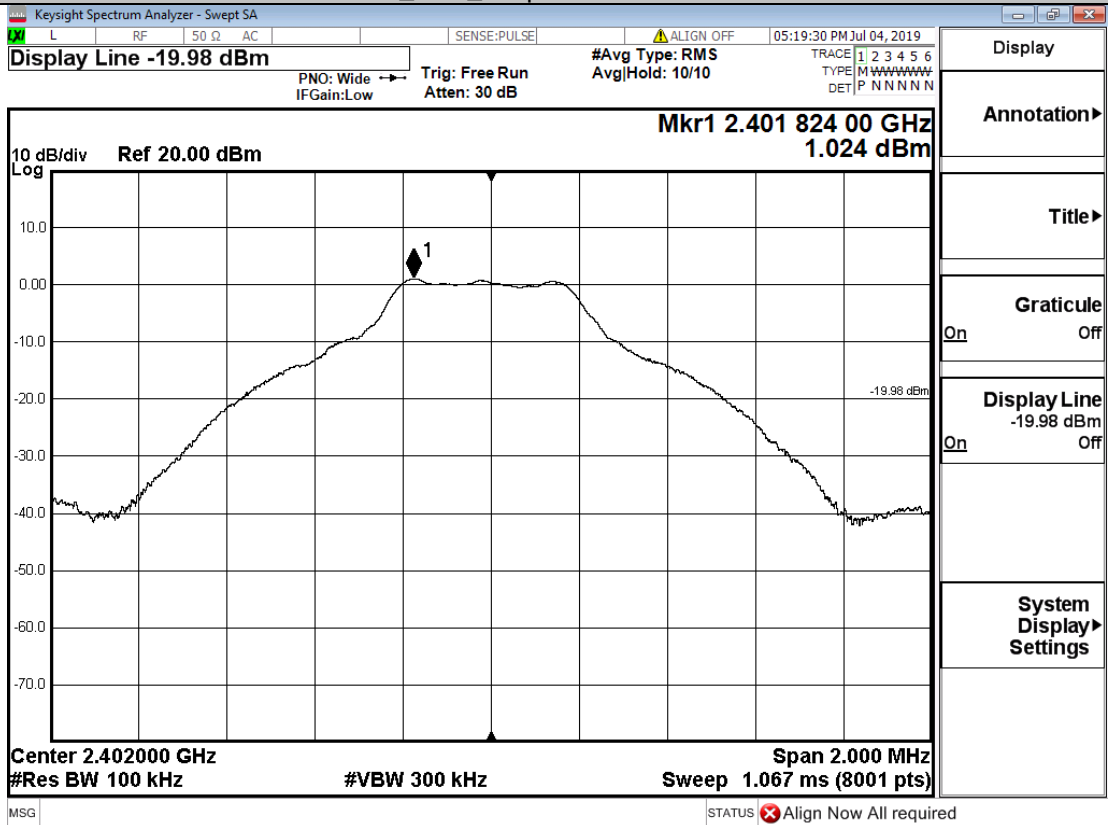


A.6 RF Conducted Spurious Emissions

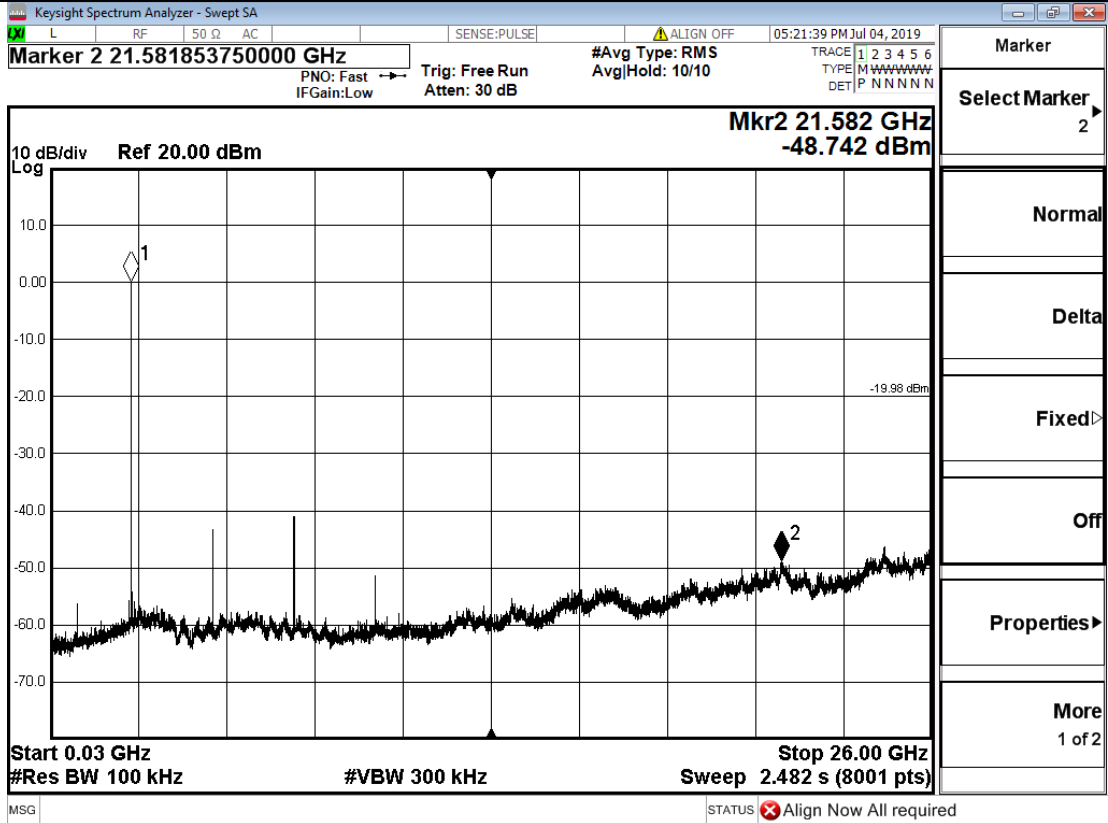
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.024	-48.742	-18.98	PASS
	MCH	1.471	-49.436	-18.53	PASS
	HCH	1.545	-49.046	-18.46	PASS
$\pi/4$ DQPSK	LCH	0.998	-49.458	-19.00	PASS
	MCH	1.455	-47.853	-18.55	PASS
	HCH	1.530	-48.514	-18.47	PASS

GFSK_LCH_Graphs

Pref

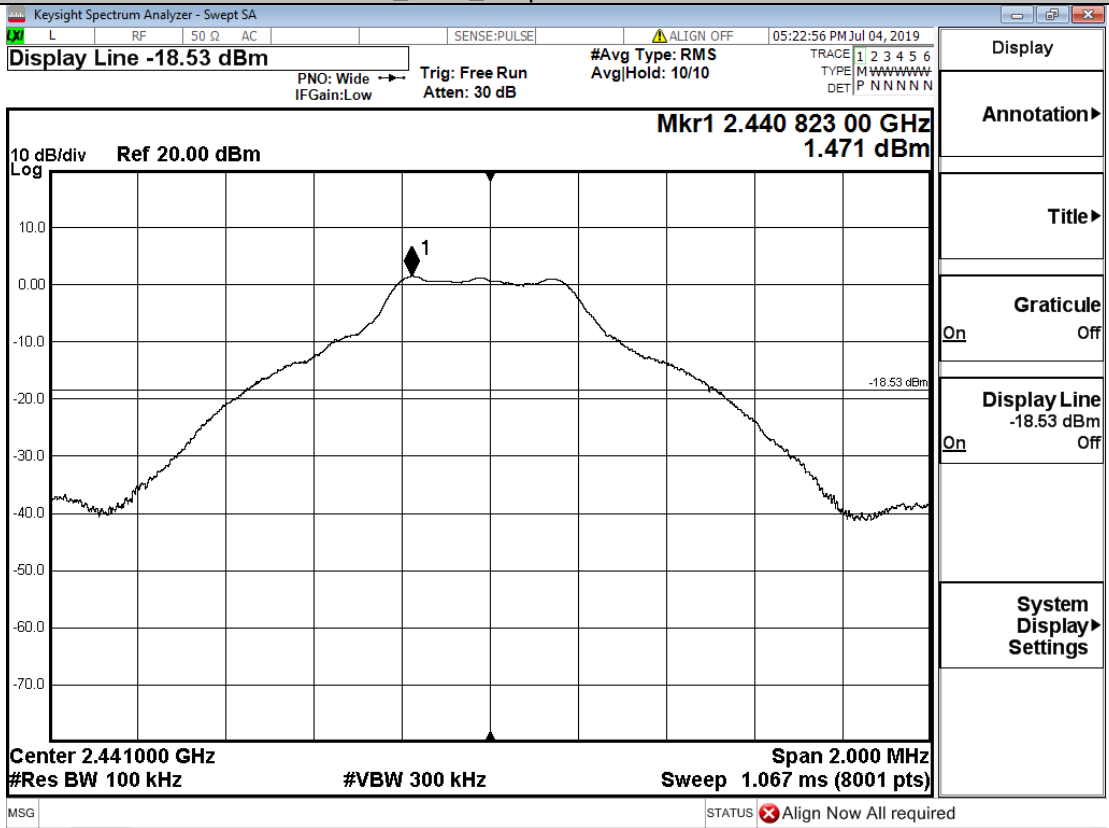


Puw

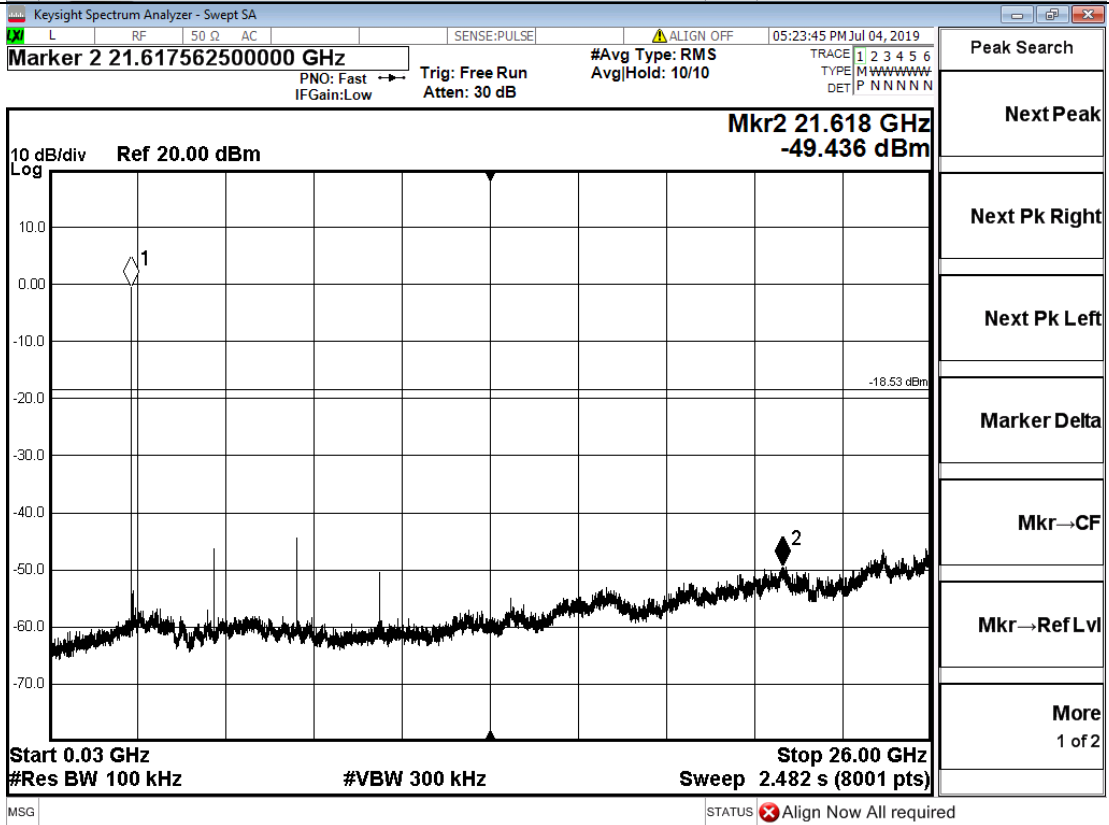


GFSK_MCH_Graphs

Pref

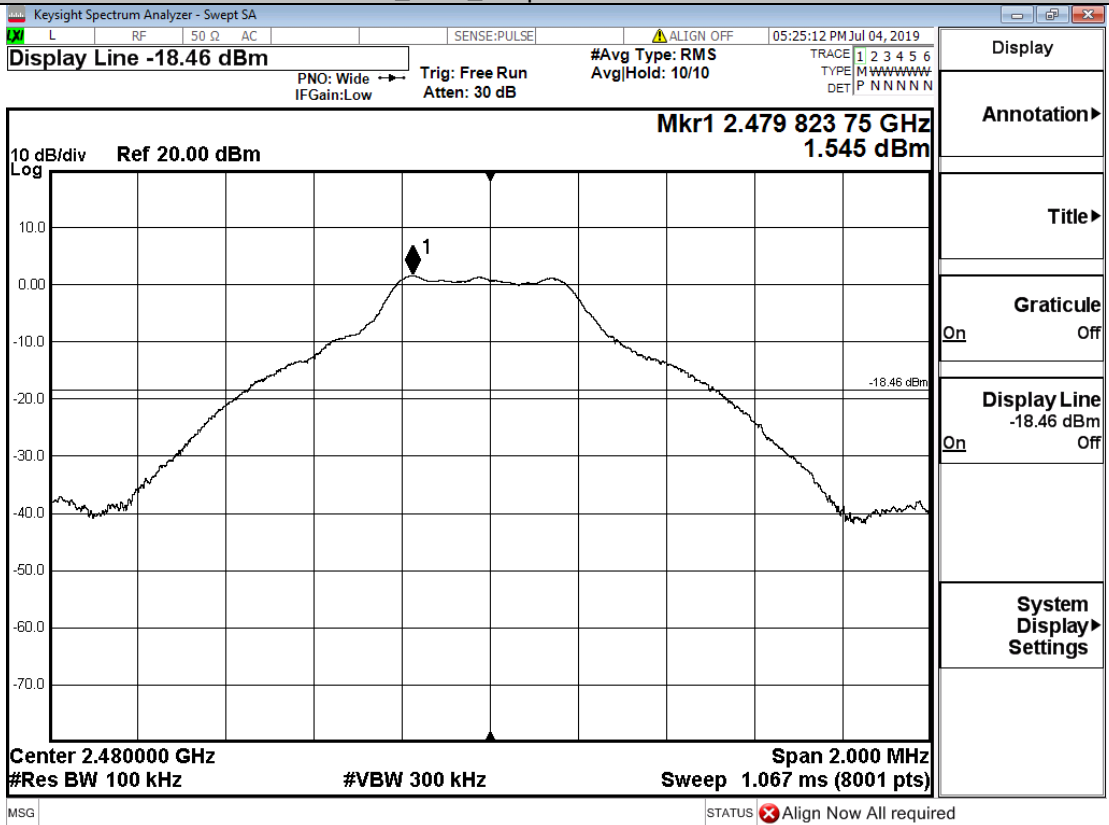


Puw

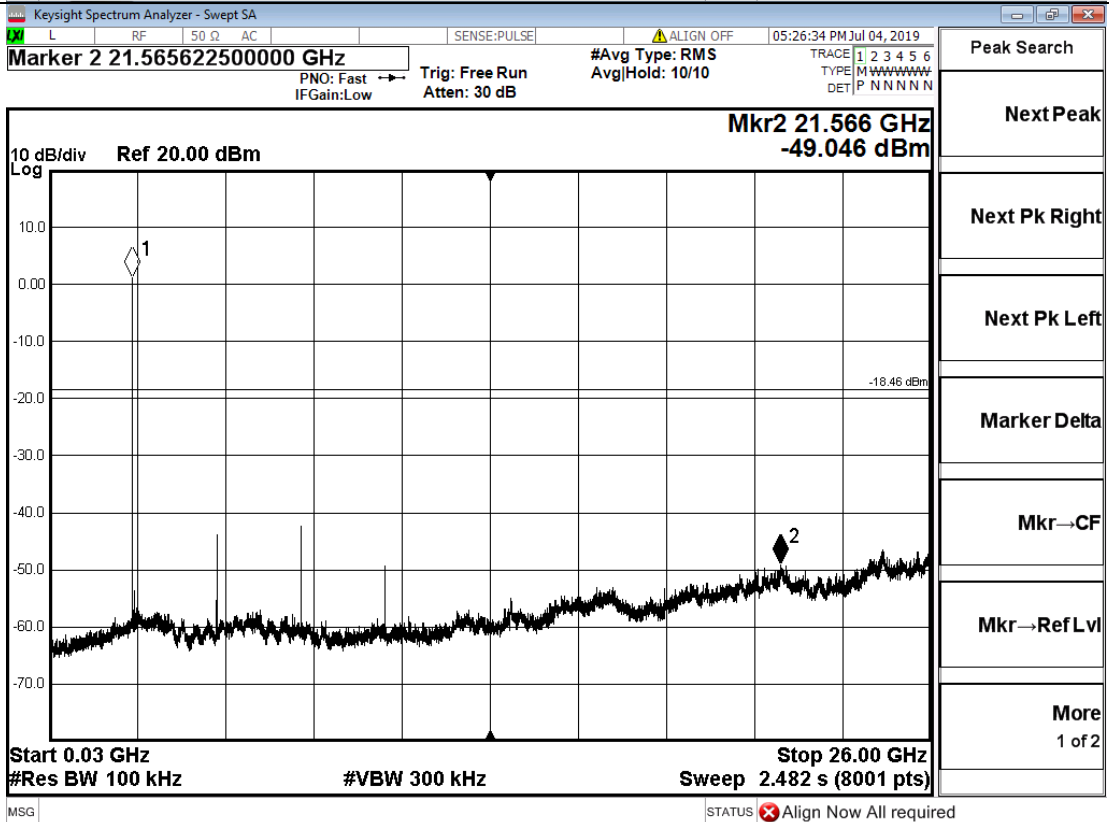


GFSK_HCH_Graphs

Pref

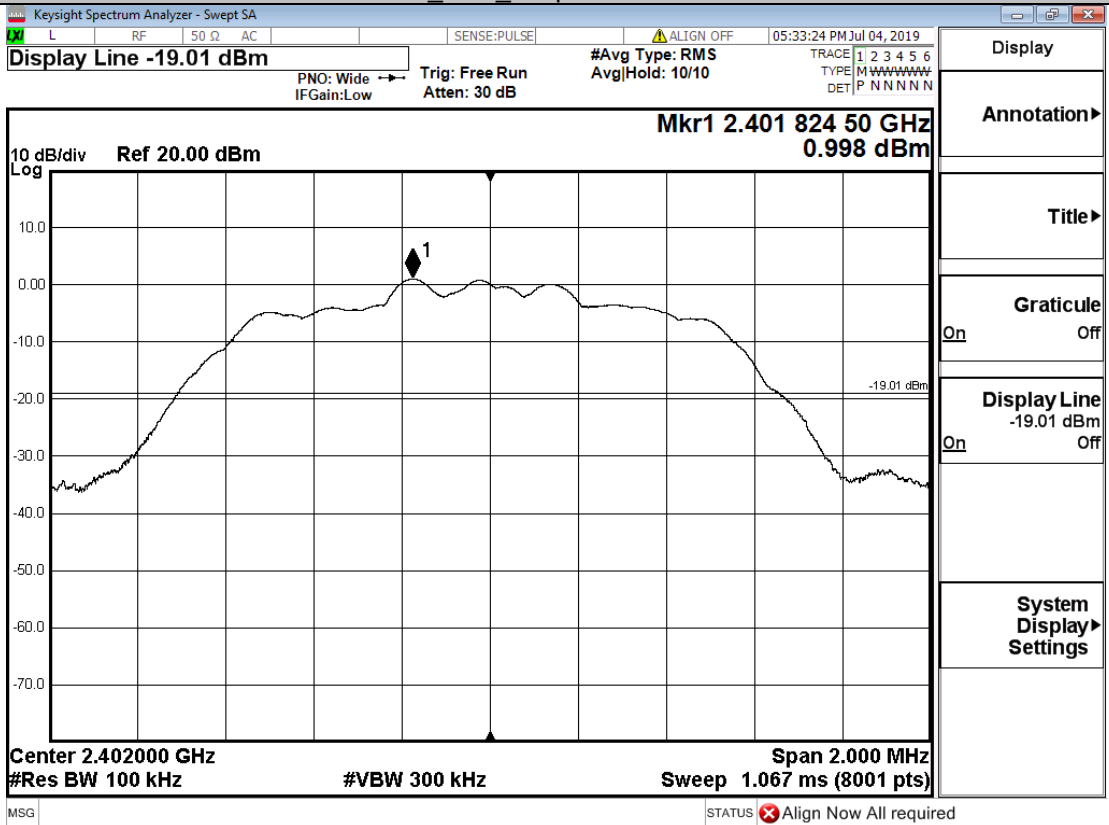


Puw

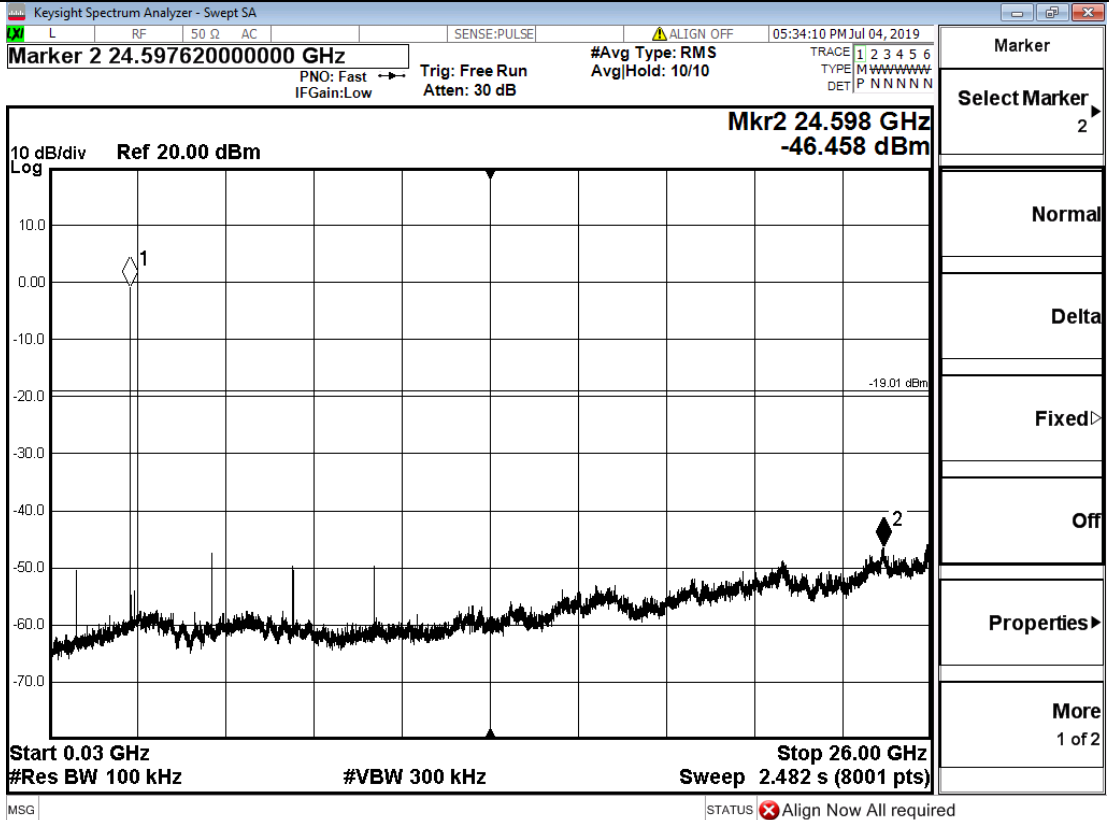


$\pi/4$ DQPSK_LCH_Graphs

Pref

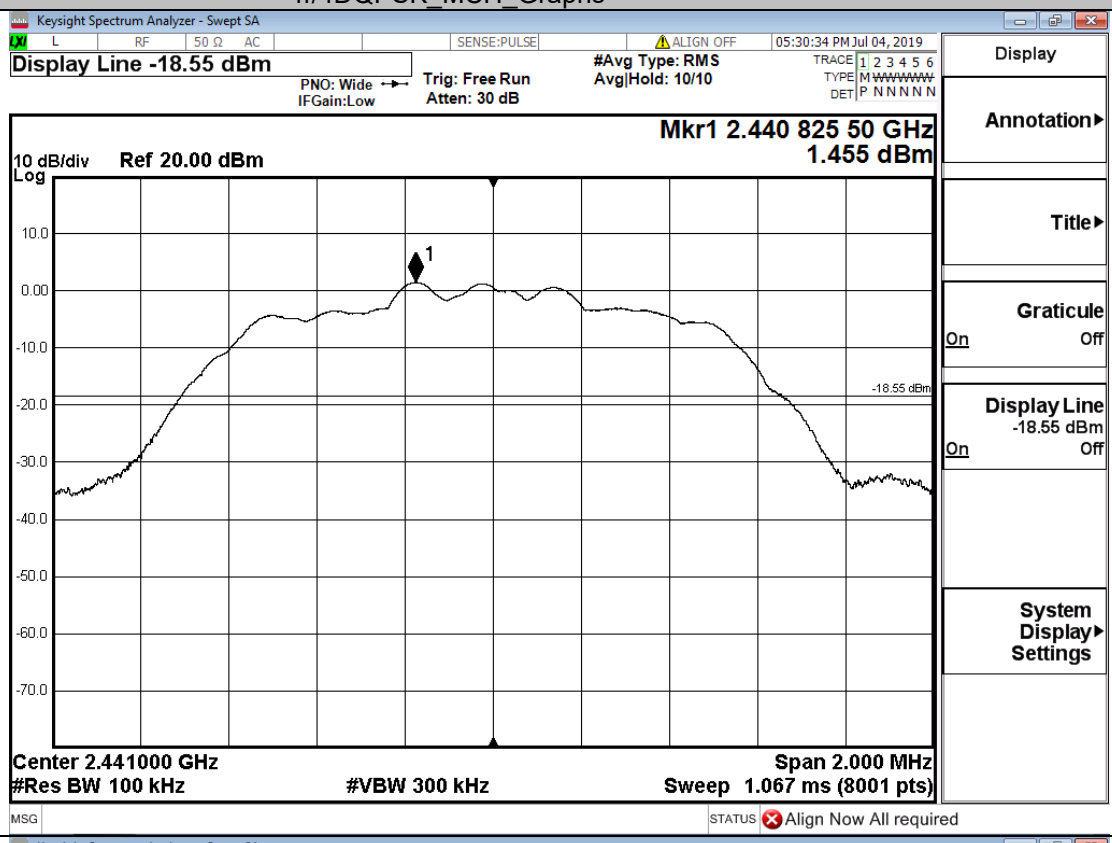


Puw

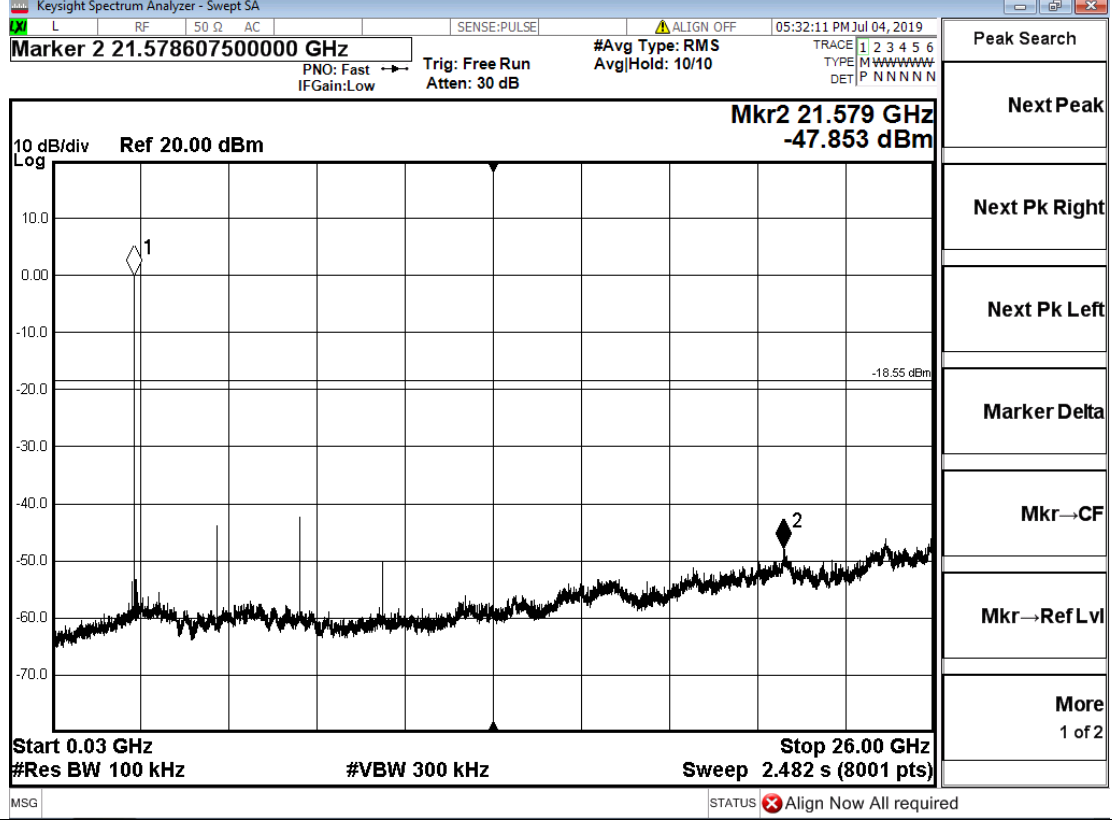


$\pi/4$ DQPSK_MCH_Graphs

Pref

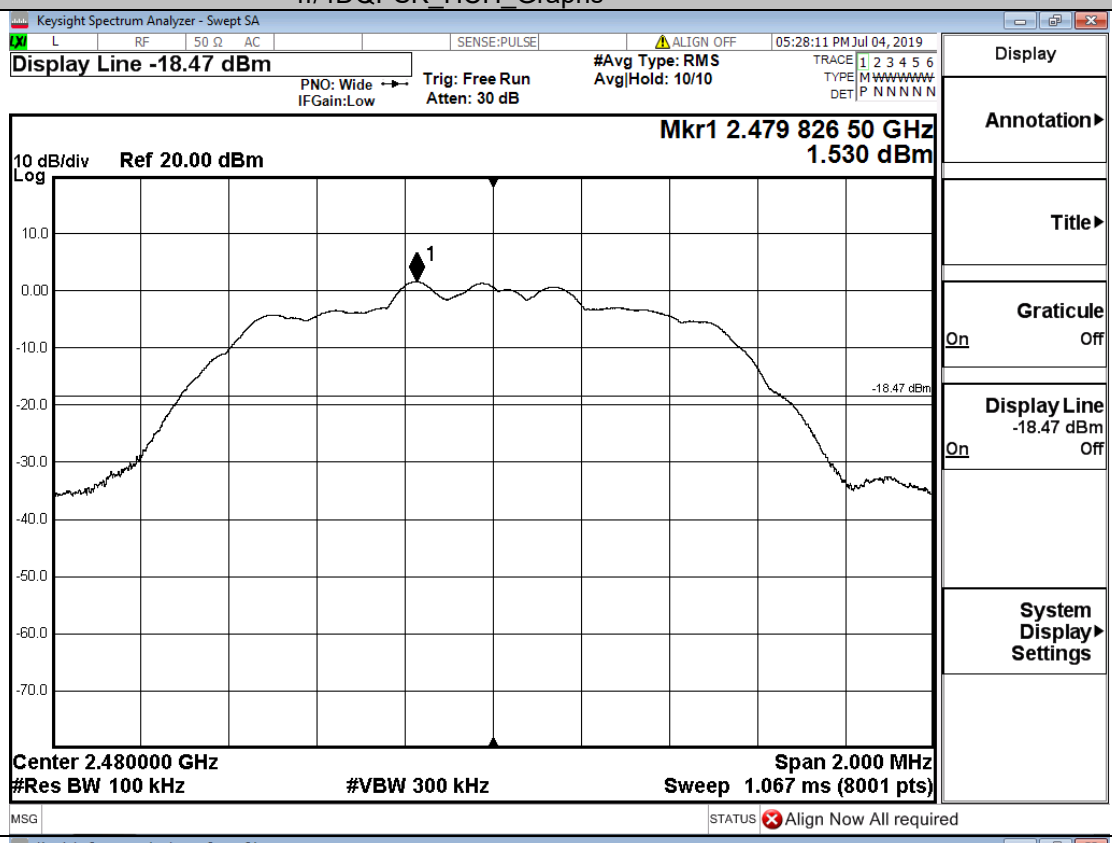


Puw

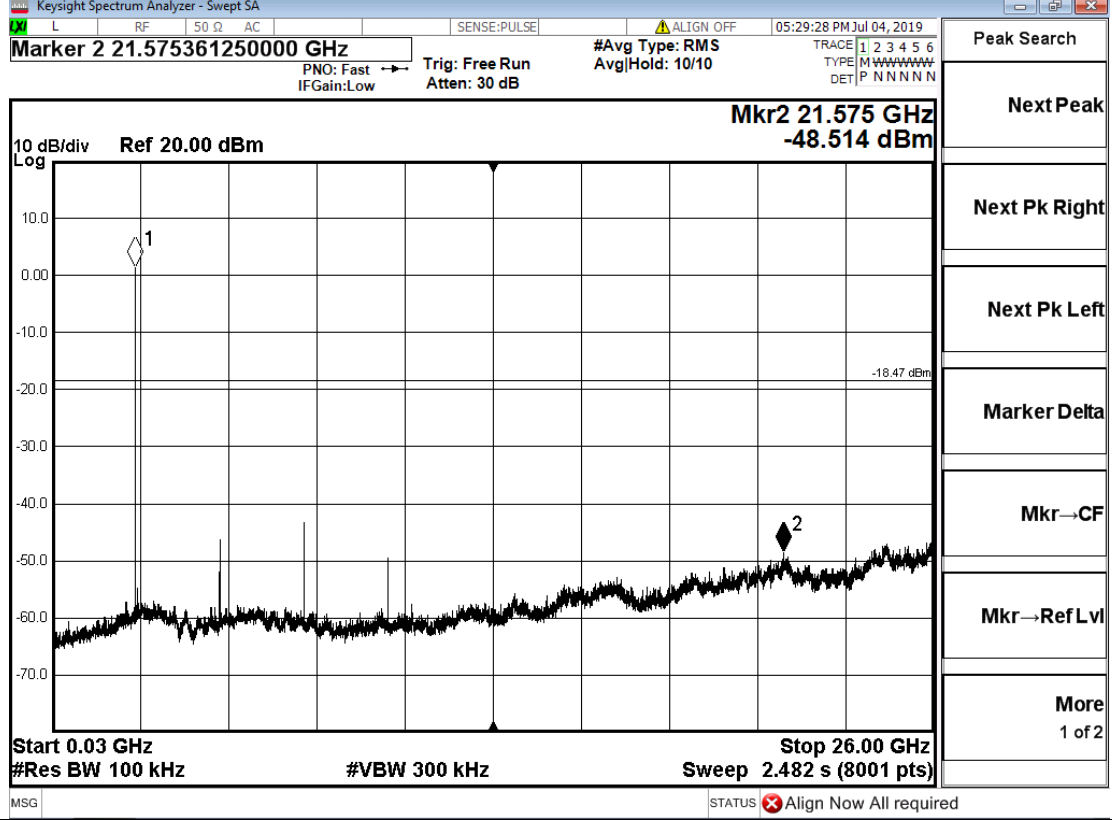


$\pi/4$ DQPSK_HCH_Graphs

Pref



Puw

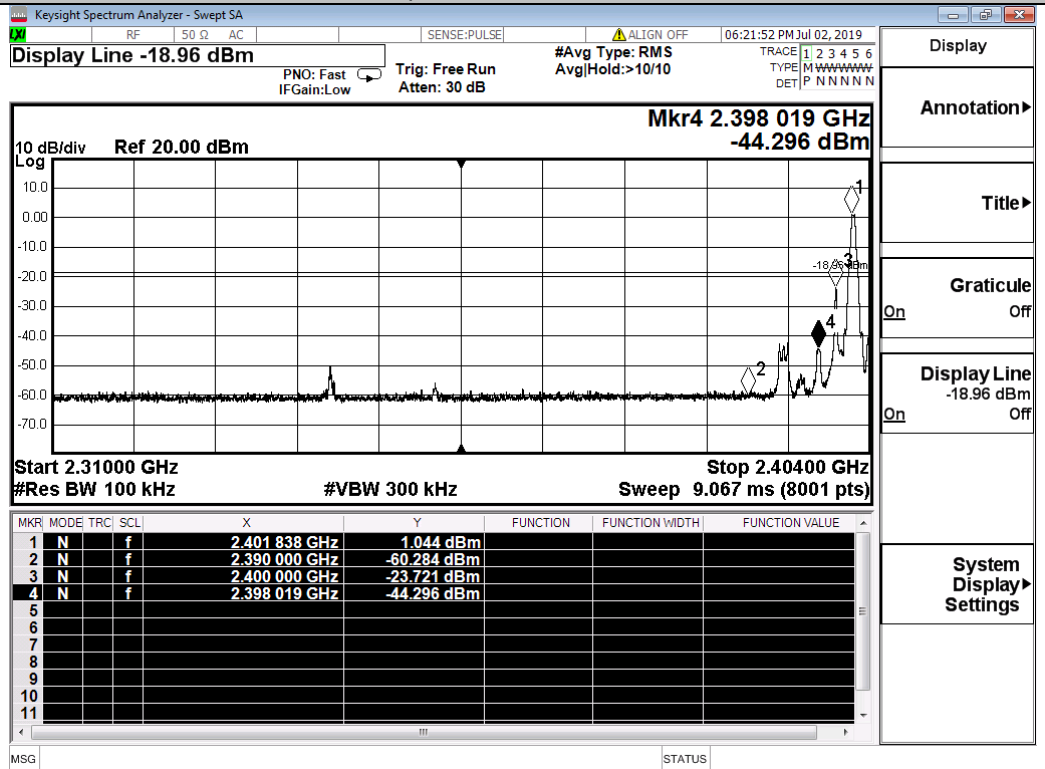


A.7 Band-edge for RF Conducted Emissions

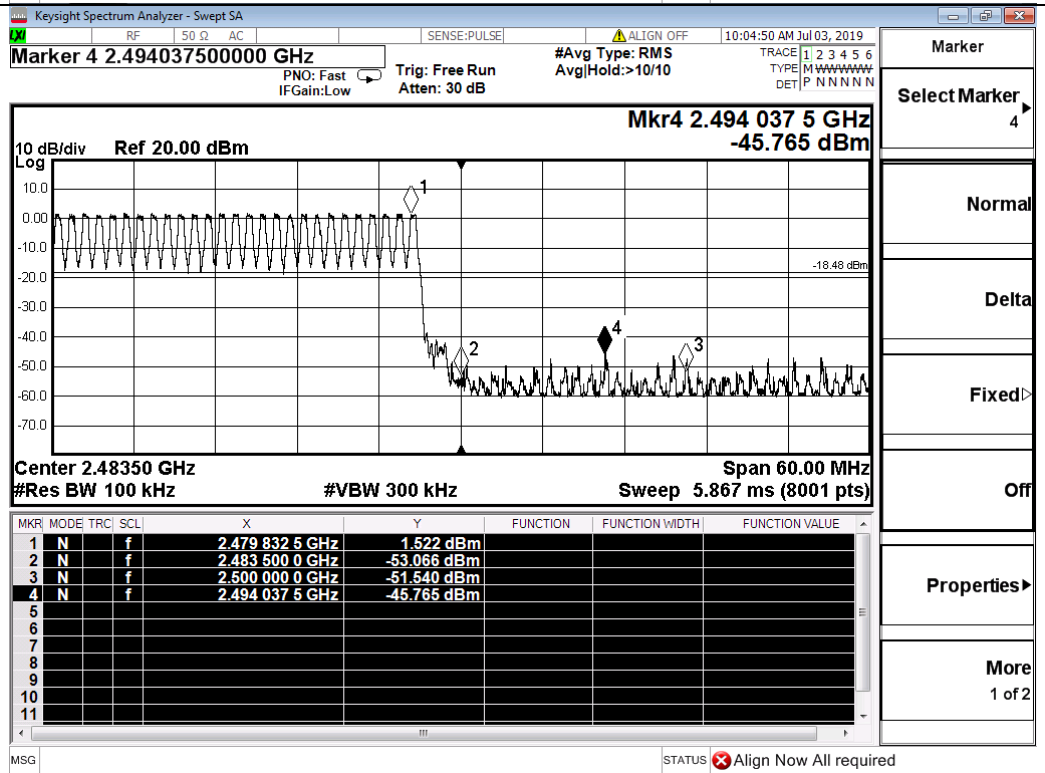
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	1.044	Off	-23.721	-18.96	PASS
			1.552	On	-45.766	-18.45	PASS
	HCH	2480	1.606	Off	-51.902	-18.39	PASS
			1.006	On	-23.836	-18.99	PASS
$\pi/4$ DQPSK	LCH	2402	1.034	Off	-23.740	-18.97	PASS
			0.769	On	-23.690	-19.23	PASS
	HCH	2480	1.592	Off	-52.226	-18.41	PASS
			1.389	On	-48.092	-18.61	PASS

Test Graphs

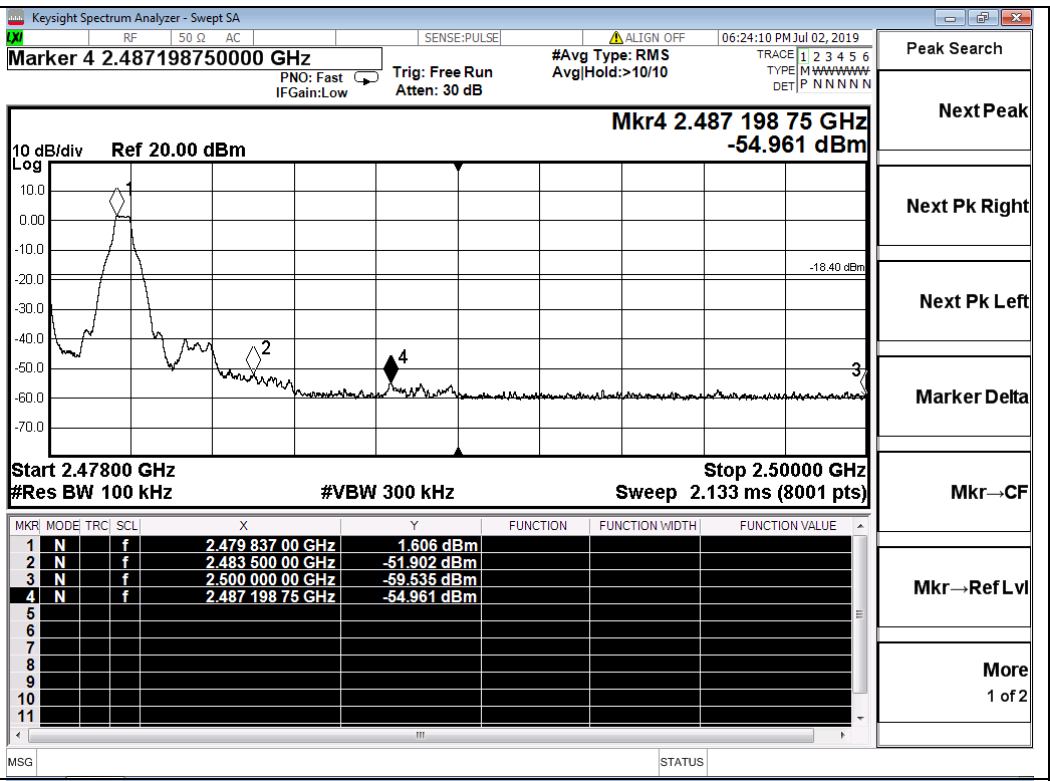
GFSK/LCH/No Hop



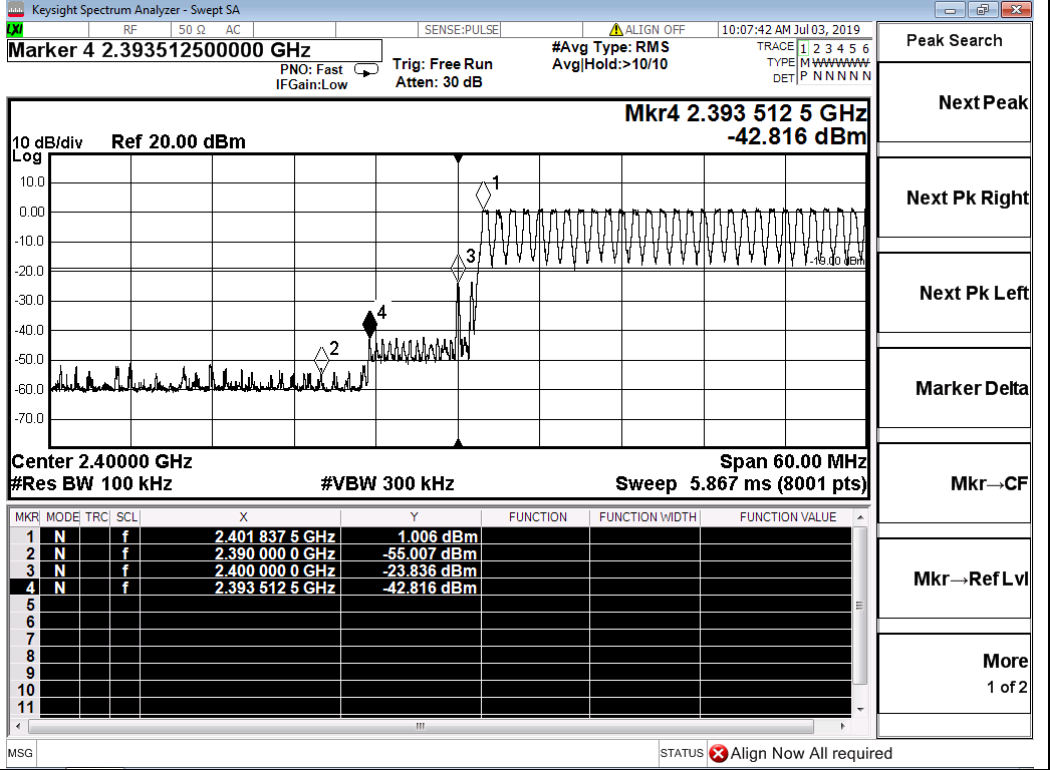
GFSK/LCH/Hop



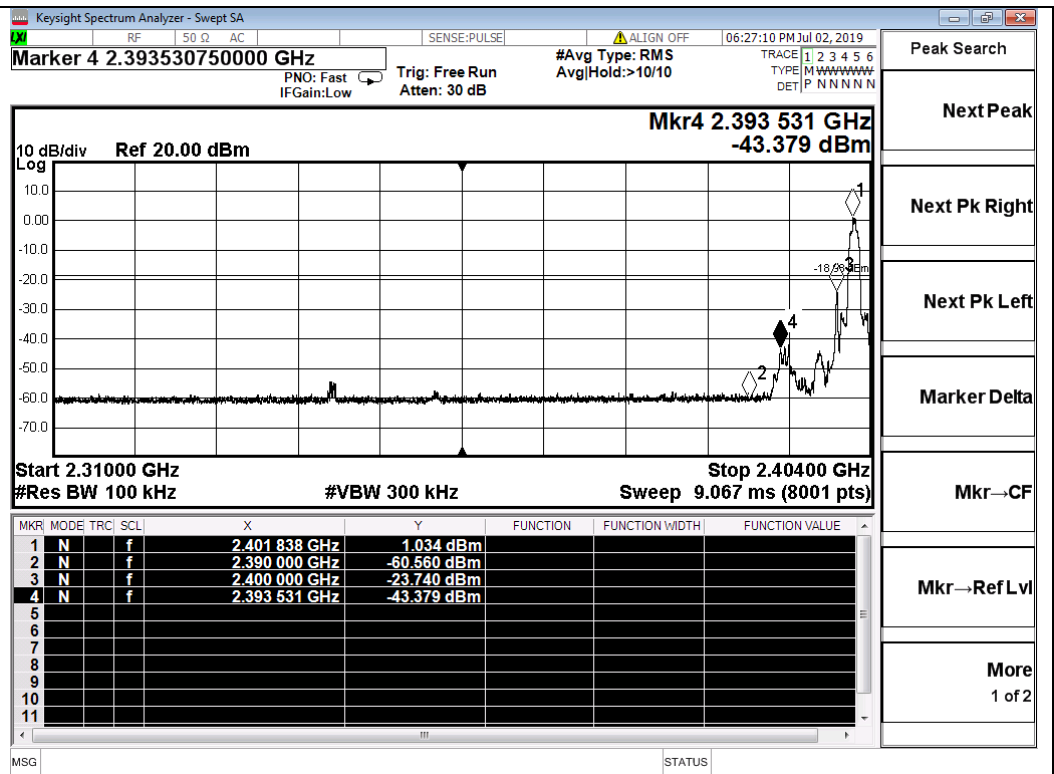
GFSK/HCH/No Hop



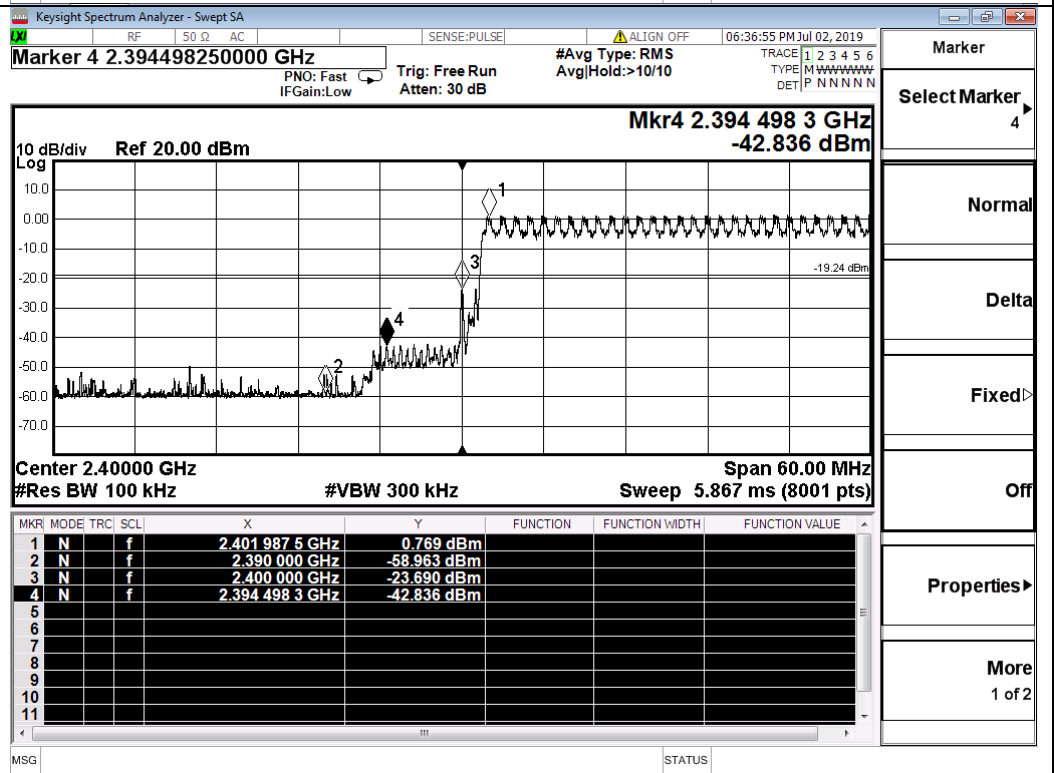
GFSK/HCH/Hop



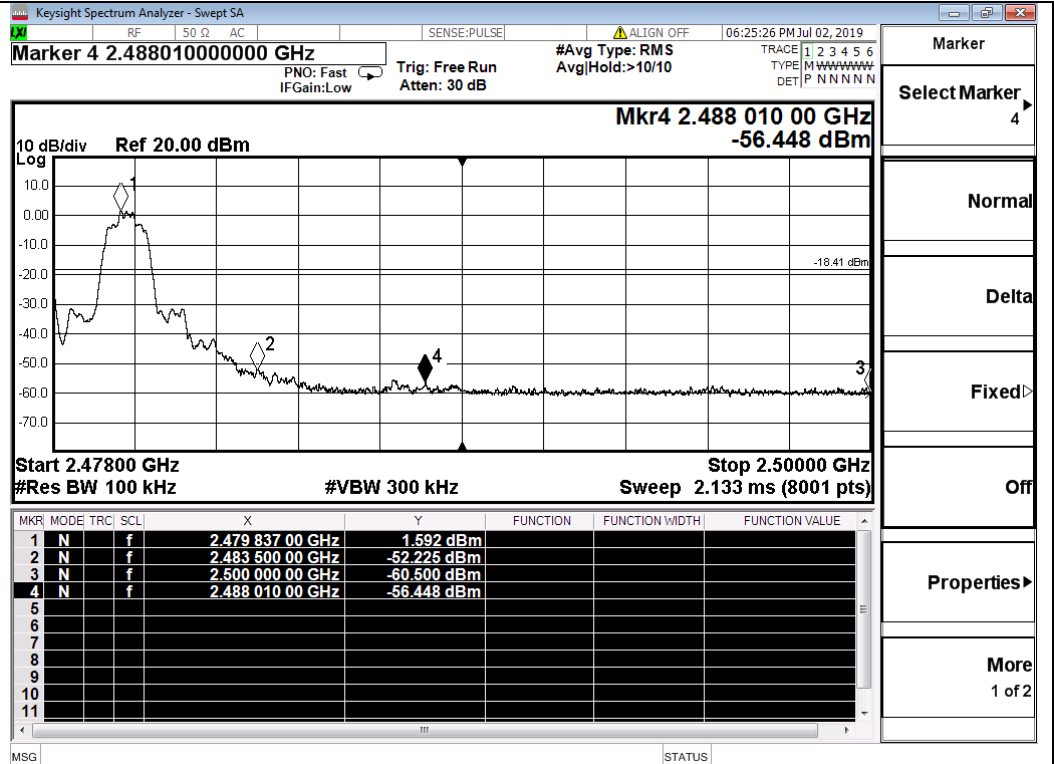
$\pi/4$ DQPSK/LCH/No Hop



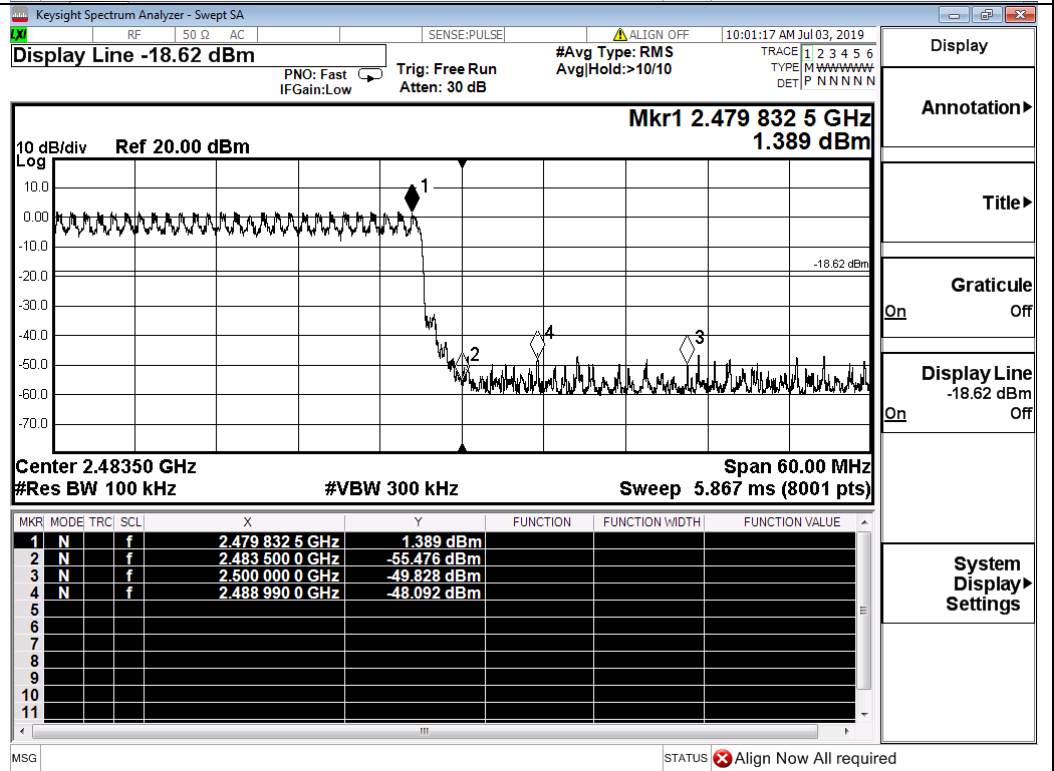
$\pi/4$ DQPSK/LCH/Hop



π /4DQPSK/HCH/No Hop



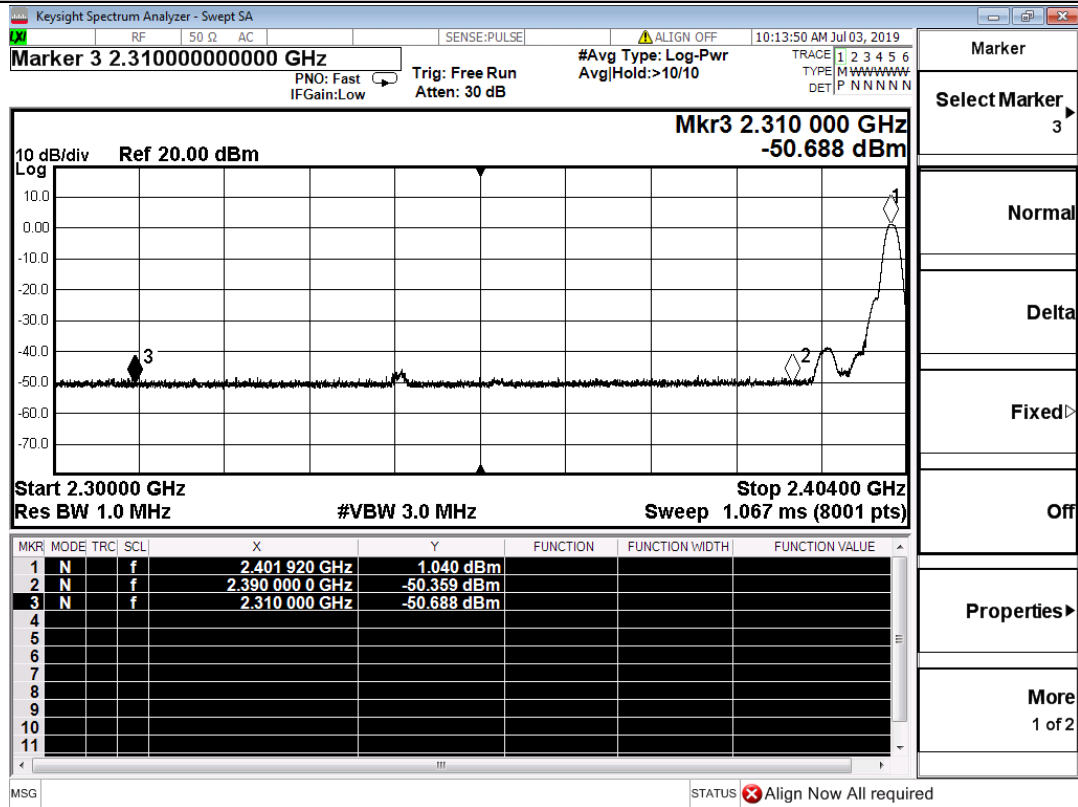
π /4DQPSK/HCH/Hop



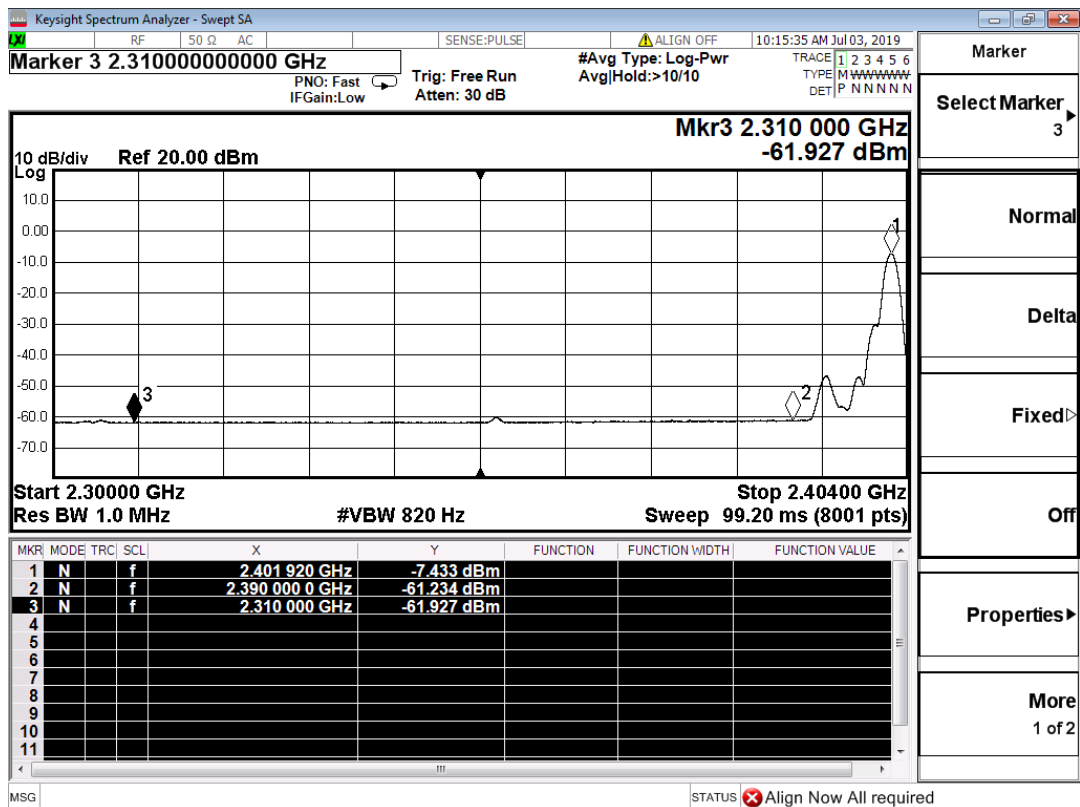
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-50.688	2.000	0	46.54	PEAK	74	PASS
	Off	2310.0	-61.927	2.000	0	35.30	AV	54	PASS
	Off	2390.0	-50.359	2.000	0	46.87	PEAK	74	PASS
	Off	2390.0	-61.234	2.000	0	36.00	AV	54	PASS
	Off	2483.5	-44.396	2.000	0	52.83	PEAK	74	PASS
	Off	2483.5	-55.188	2.000	0	42.04	AV	54	PASS
	Off	2500.0	-49.999	2.000	0	47.23	PEAK	74	PASS
	Off	2500.0	-61.084	2.000	0	36.15	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-50.397	2.000	0	46.83	PEAK	74	PASS
	Off	2310.0	-62.025	2.000	0	35.21	AV	54	PASS
	Off	2390.0	-50.711	2.000	0	46.52	PEAK	74	PASS
	Off	2390.0	-61.300	2.000	0	35.93	AV	54	PASS
	Off	2483.5	-43.375	2.000	0	53.86	PEAK	74	PASS
	Off	2483.5	-54.916	2.000	0	42.31	AV	54	PASS
	Off	2500.0	-50.013	2.000	0	47.22	PEAK	74	PASS
	Off	2500.0	-60.979	2.000	0	36.25	AV	54	PASS

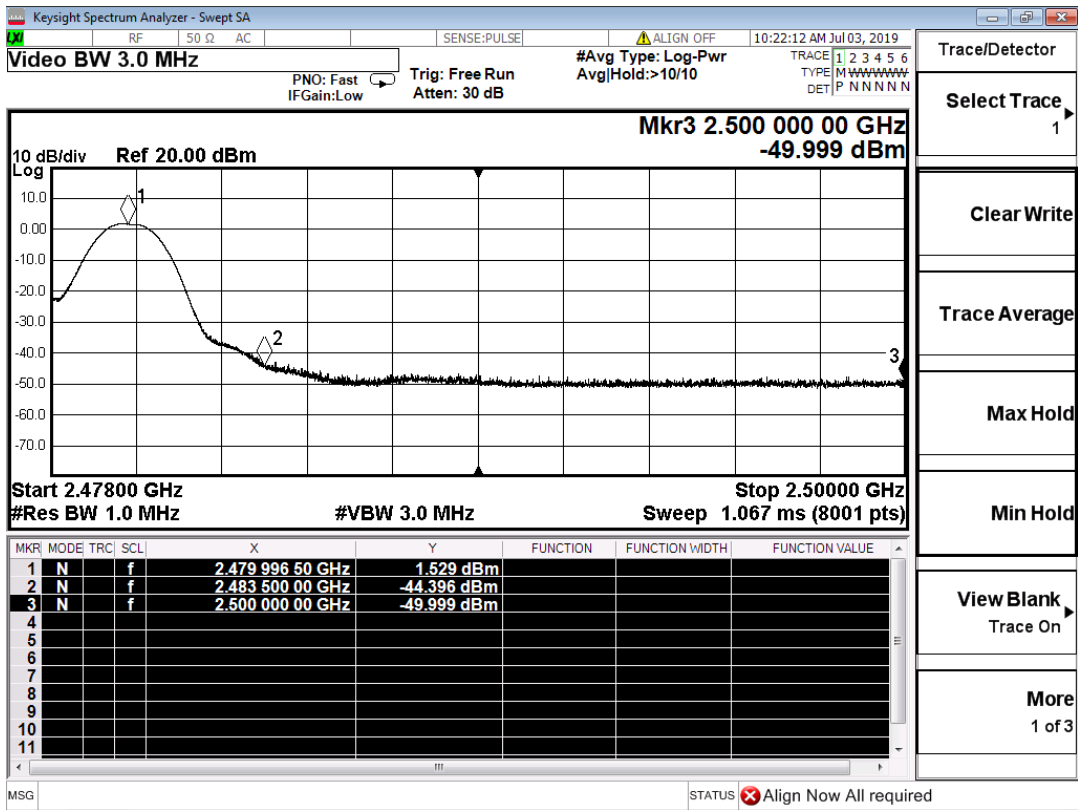
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



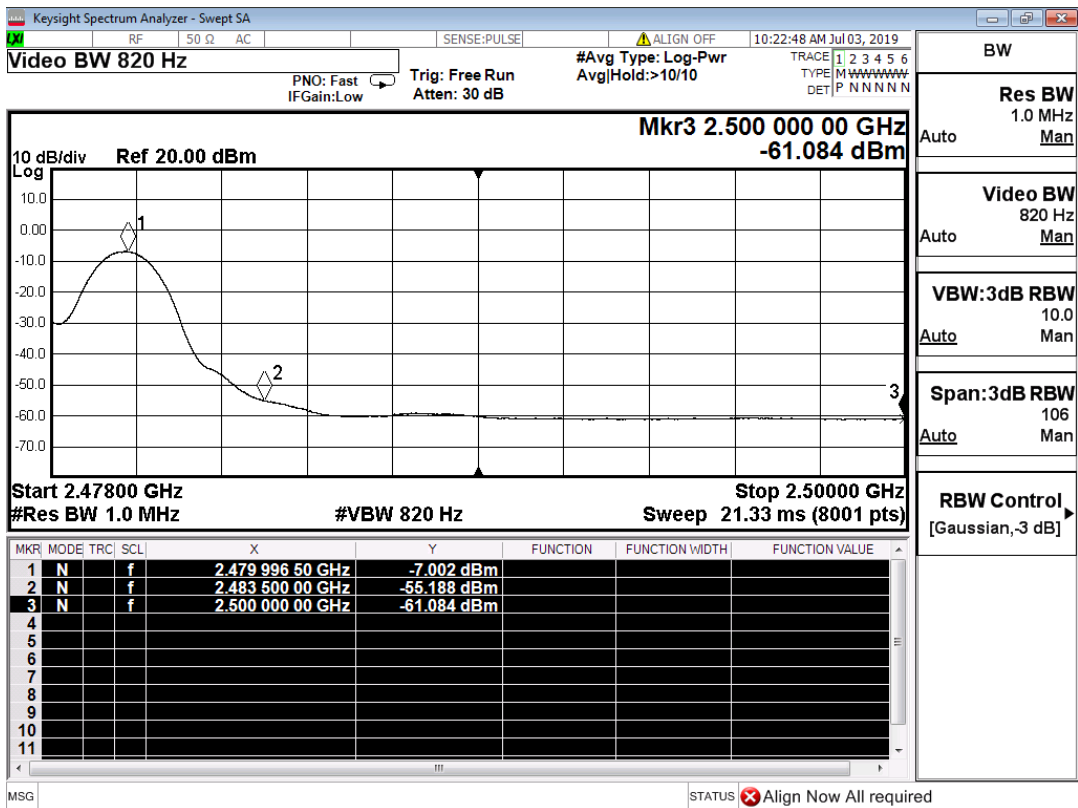
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



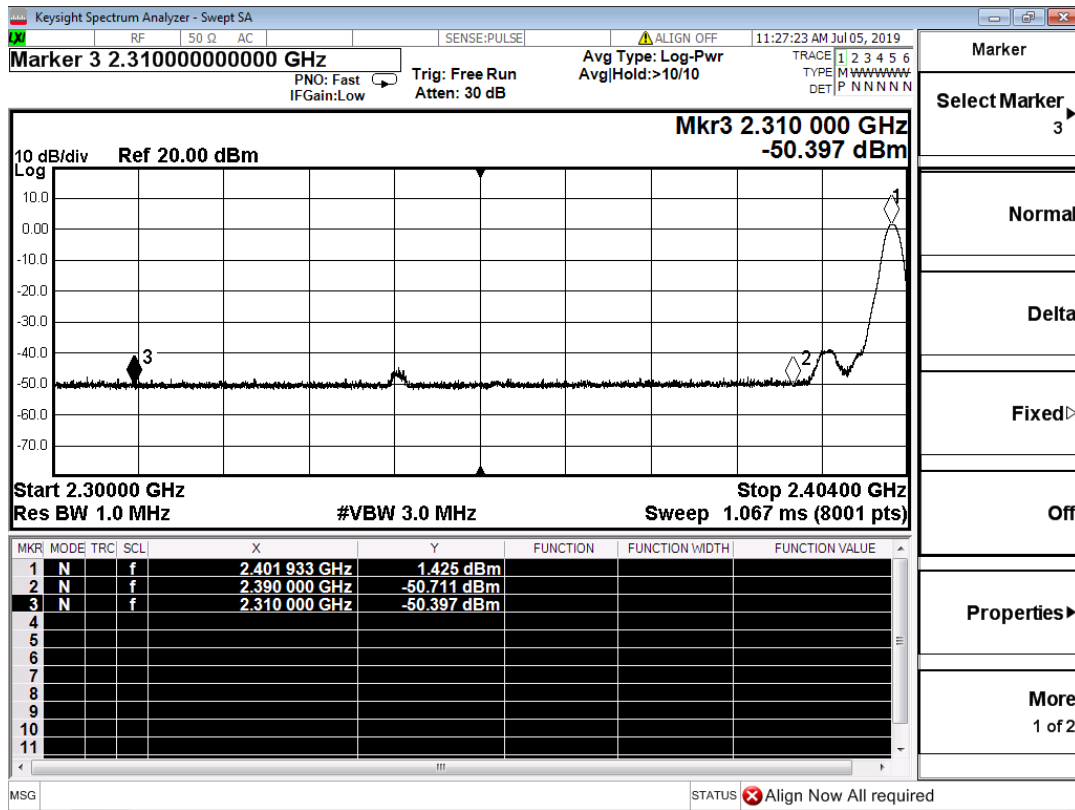
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



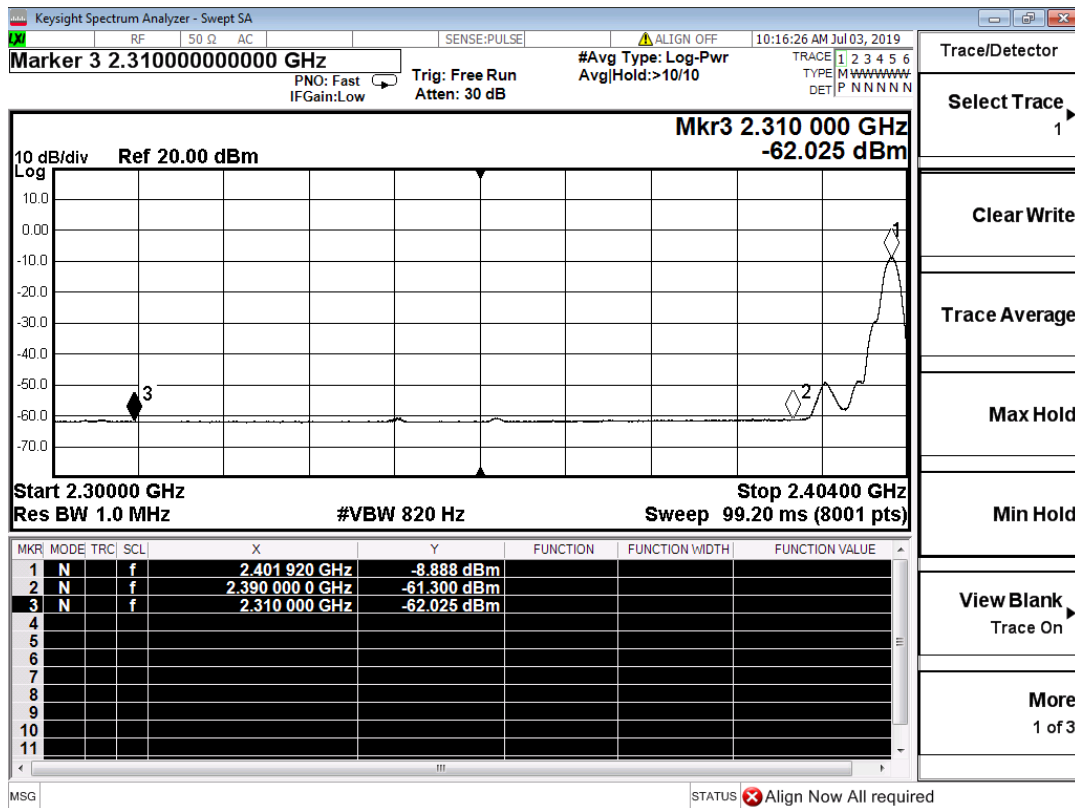
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



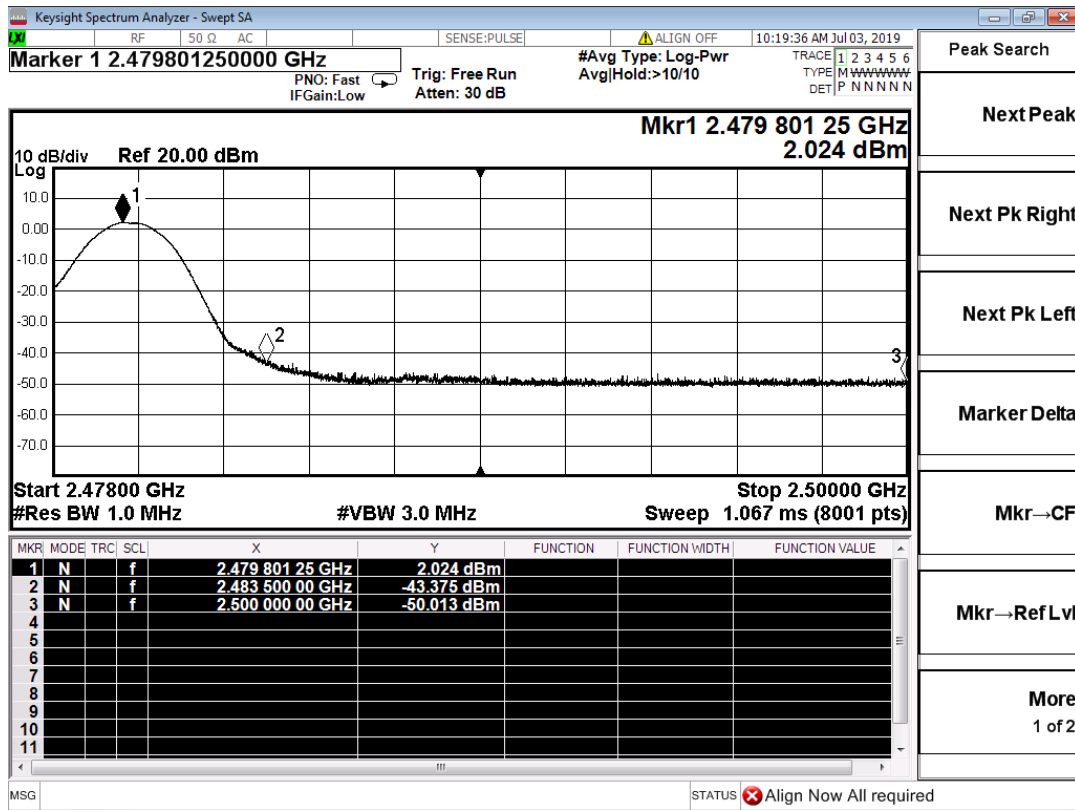
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



Restrict-band band-edge measurements_Hopping Off_π/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)

