



Appendix A

RF Test Data for BT V5.2(BDR/EDR) (Conducted Measurement)

Product Name: TWS Bluetooth Headset

Trade Mark: AIHOOR

Test Model: AIHOOR A1

Environmental Conditions

Temperature:	21.6° C
Relative Humidity:	52.7%
ATM Pressure:	100.0 kPa
Test Engineer:	Carl Fu
Supervised by:	Li Huan

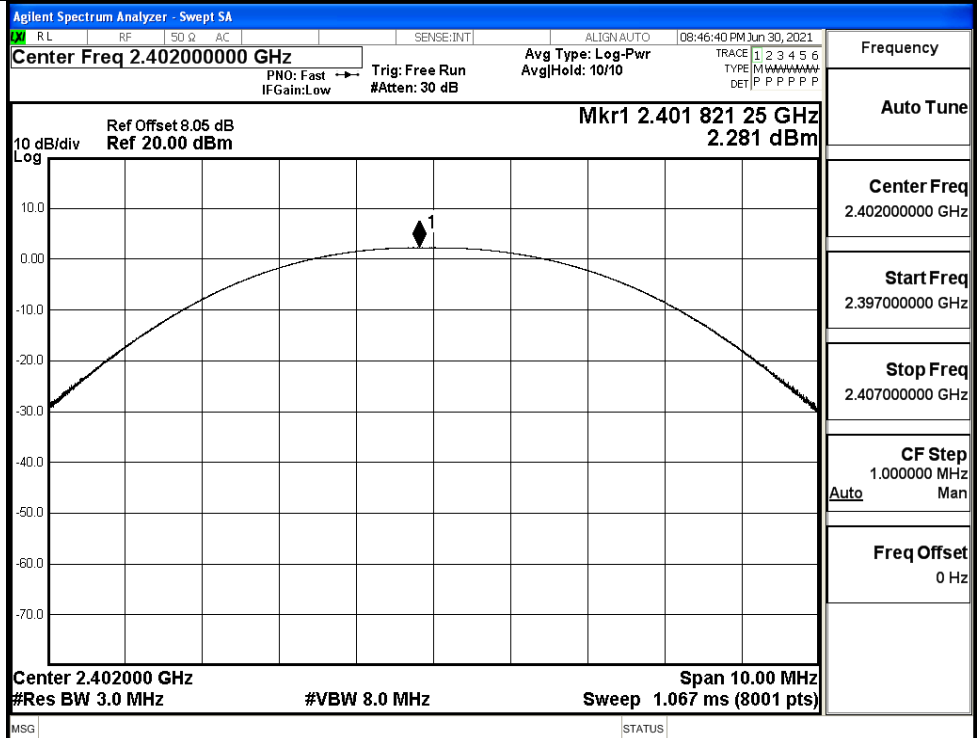
A.1 Maximum Conducted Peak Output Power

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2.281	21	PASS
	MCH	0.961	21	PASS
	HCH	0.668	21	PASS
$\pi/4$ DQPSK	LCH	-0.232	21	PASS
	MCH	-1.567	21	PASS
	HCH	-2.240	21	PASS
8DPSK	LCH	0.150	21	PASS
	MCH	-1.130	21	PASS
	HCH	-1.865	21	PASS

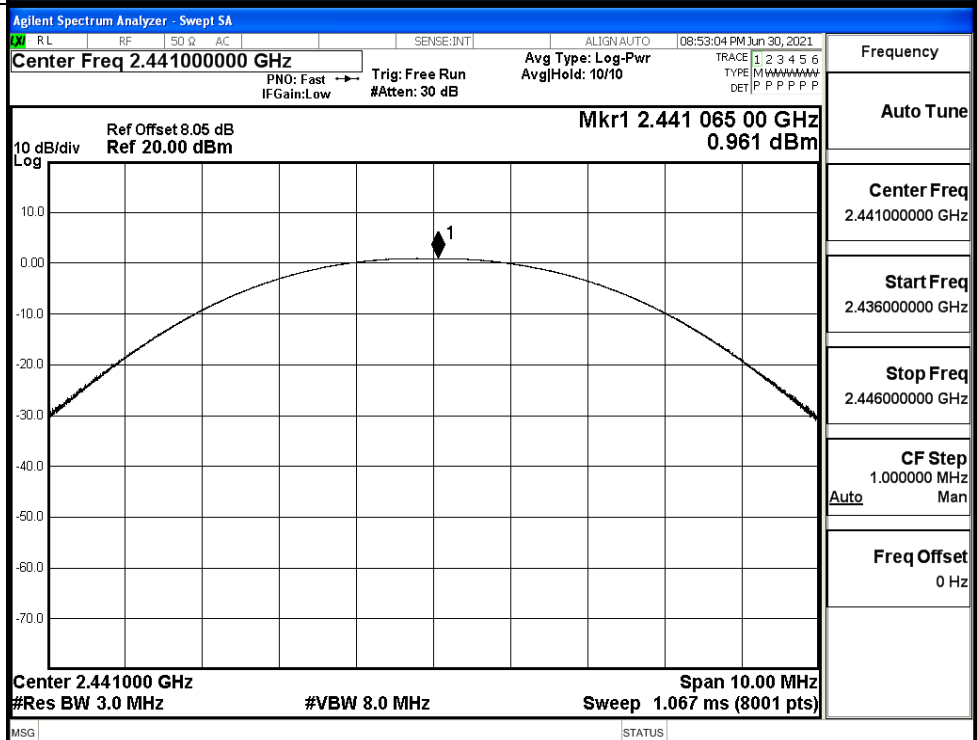


Test Graphs

GFSK/LCH

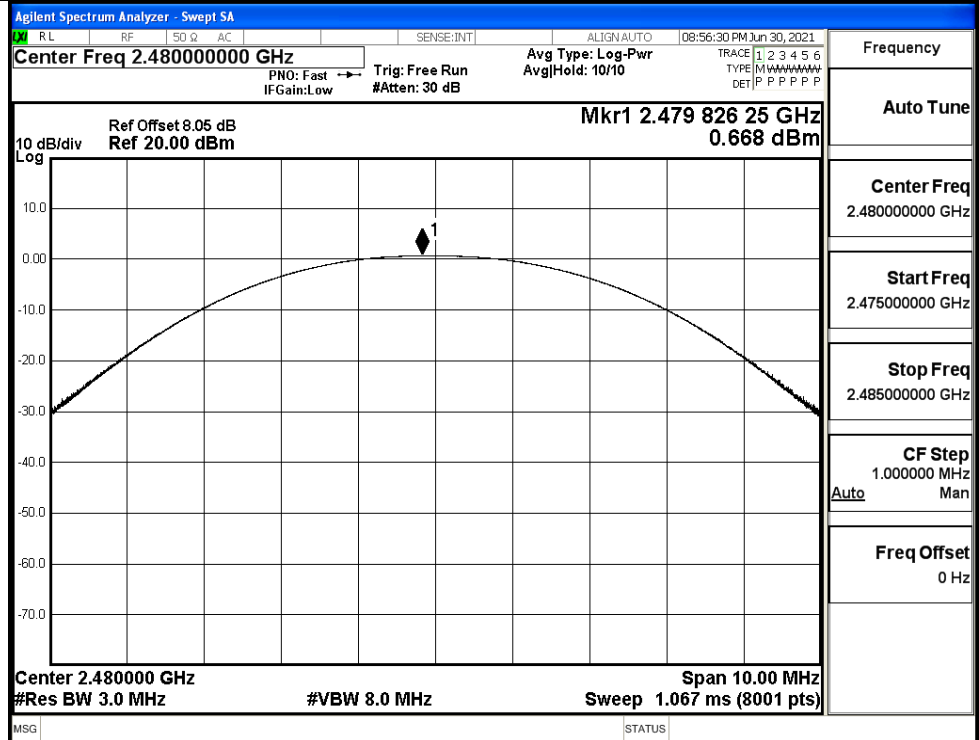
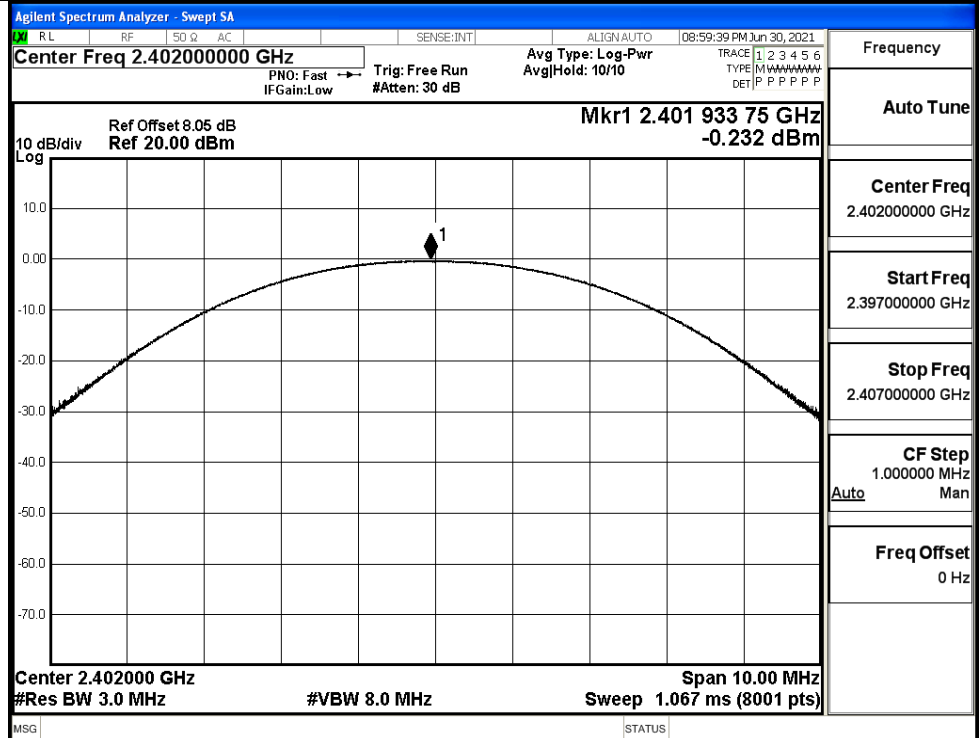


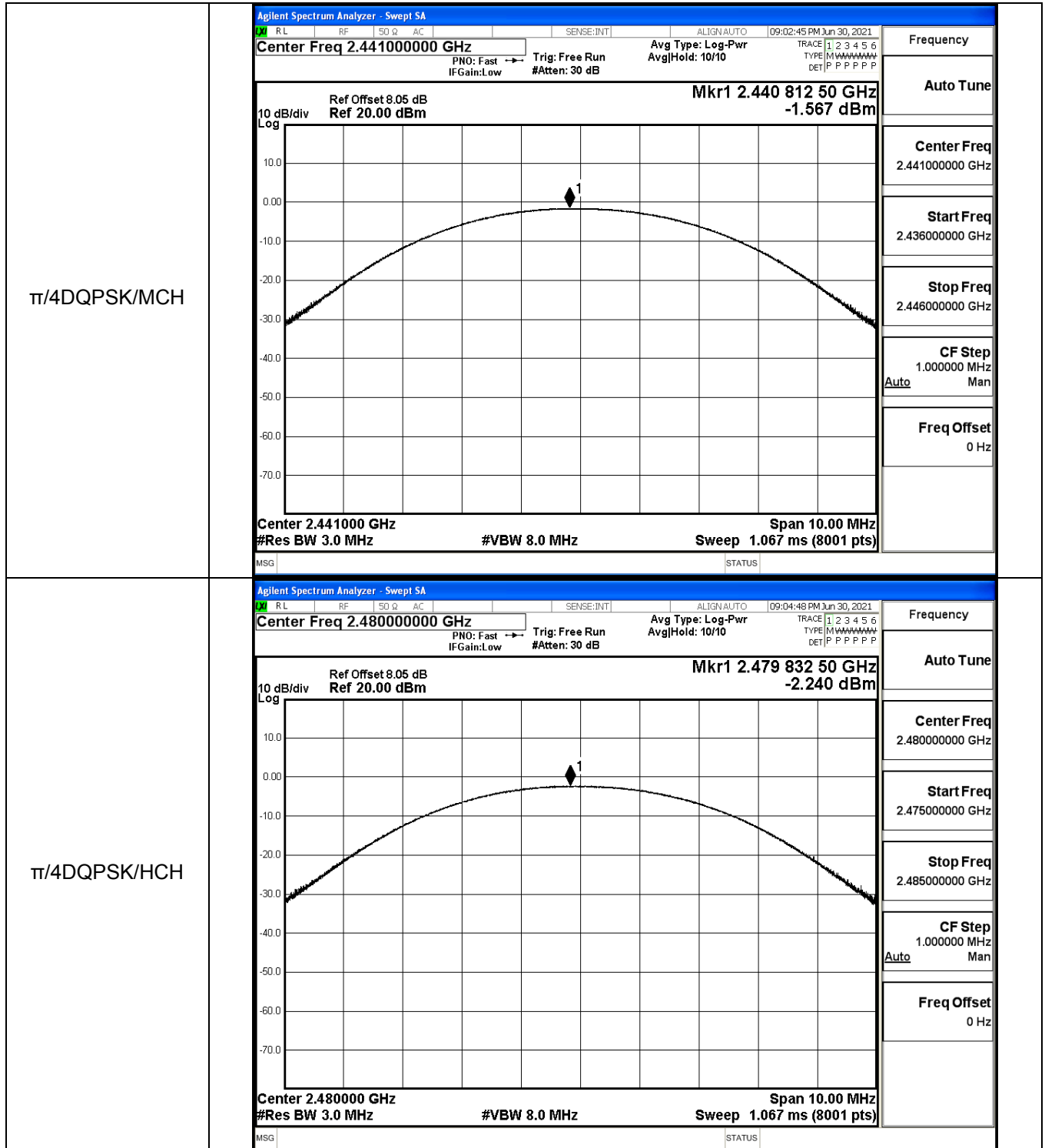
GFSK/MCH





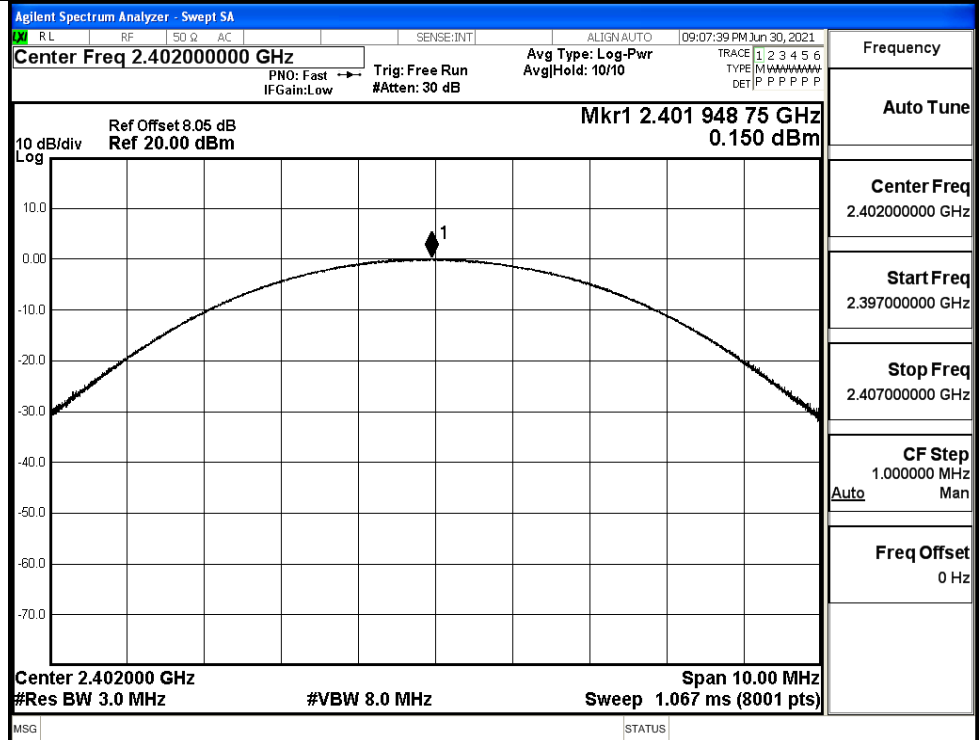
GFSK/HCH

 π /4DQPSK/LCH

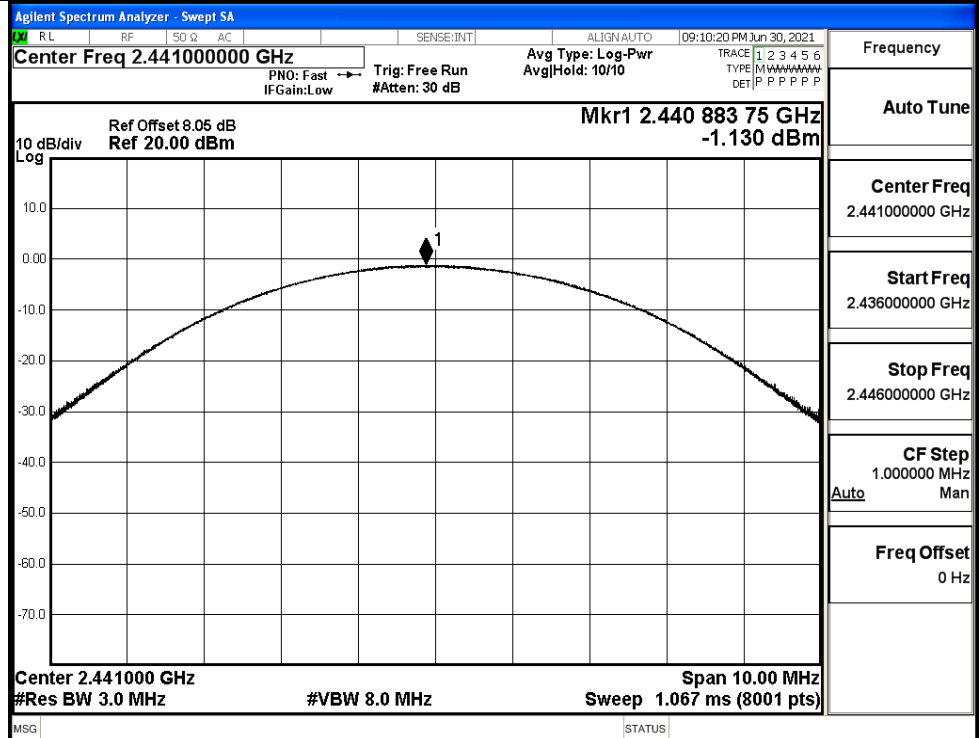




8DPSK/LCH

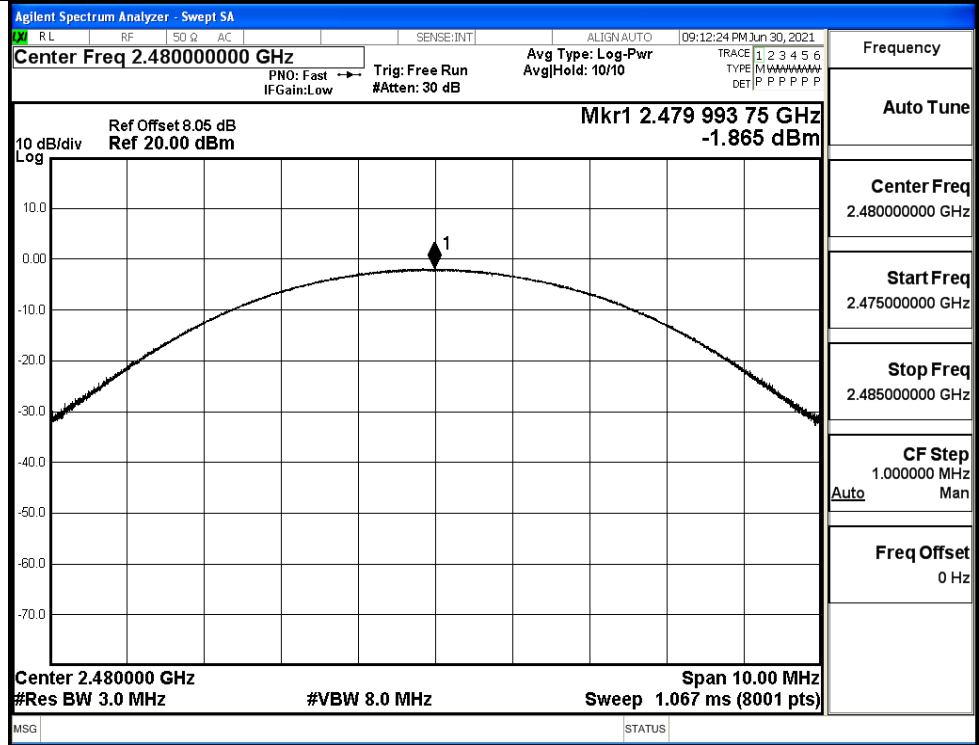


8DPSK/MCH





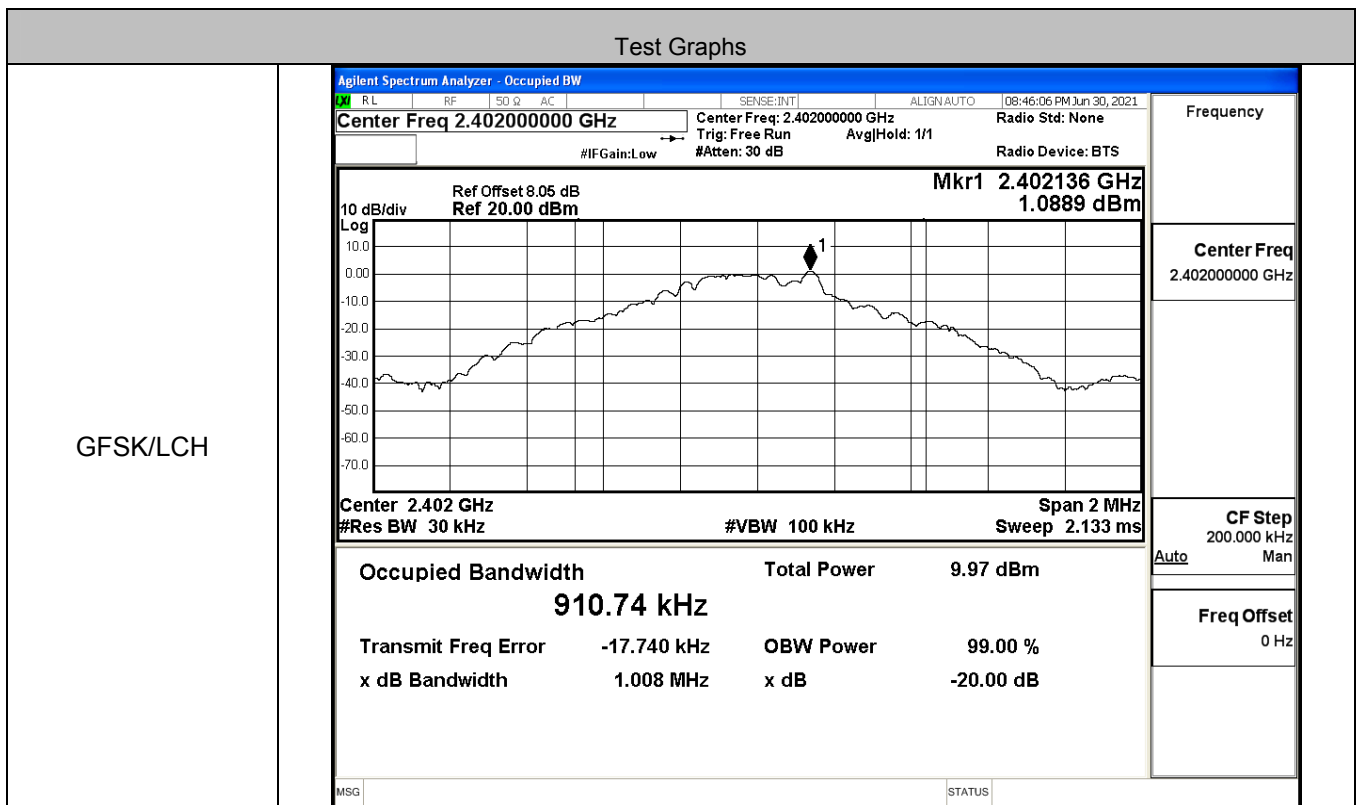
8DPSK/HCH





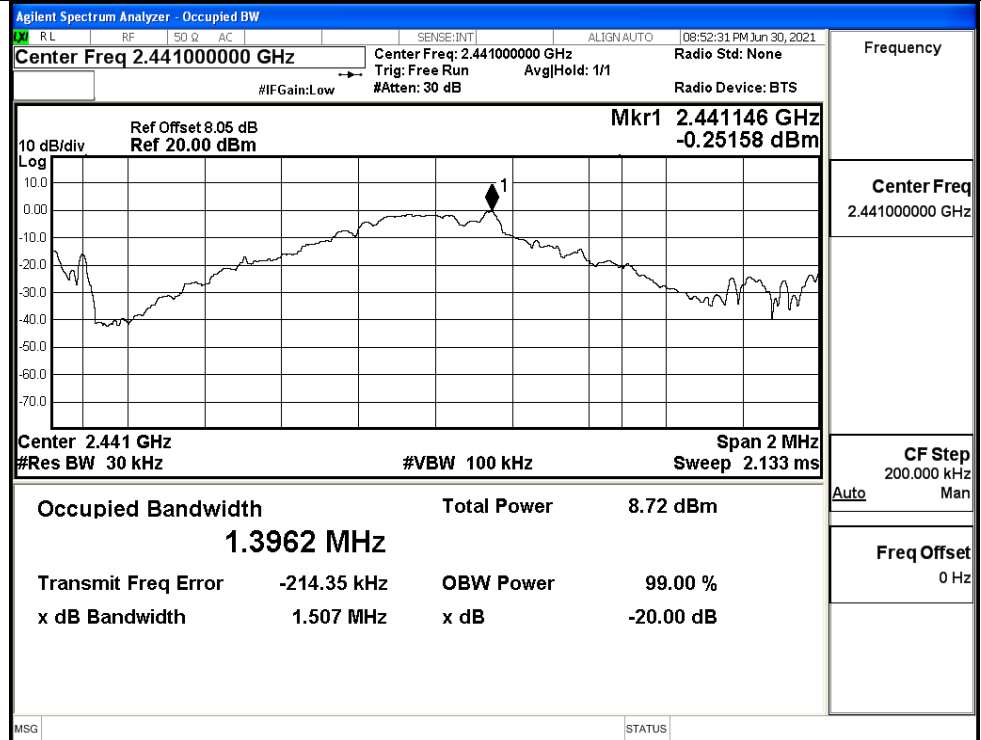
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.008	Not Specified	PASS
	MCH	1.507	Not Specified	PASS
	HCH	1.009	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.358	Not Specified	PASS
	MCH	1.358	Not Specified	PASS
	HCH	1.360	Not Specified	PASS
8DPSK	LCH	1.319	Not Specified	PASS
	MCH	1.318	Not Specified	PASS
	HCH	1.318	Not Specified	PASS

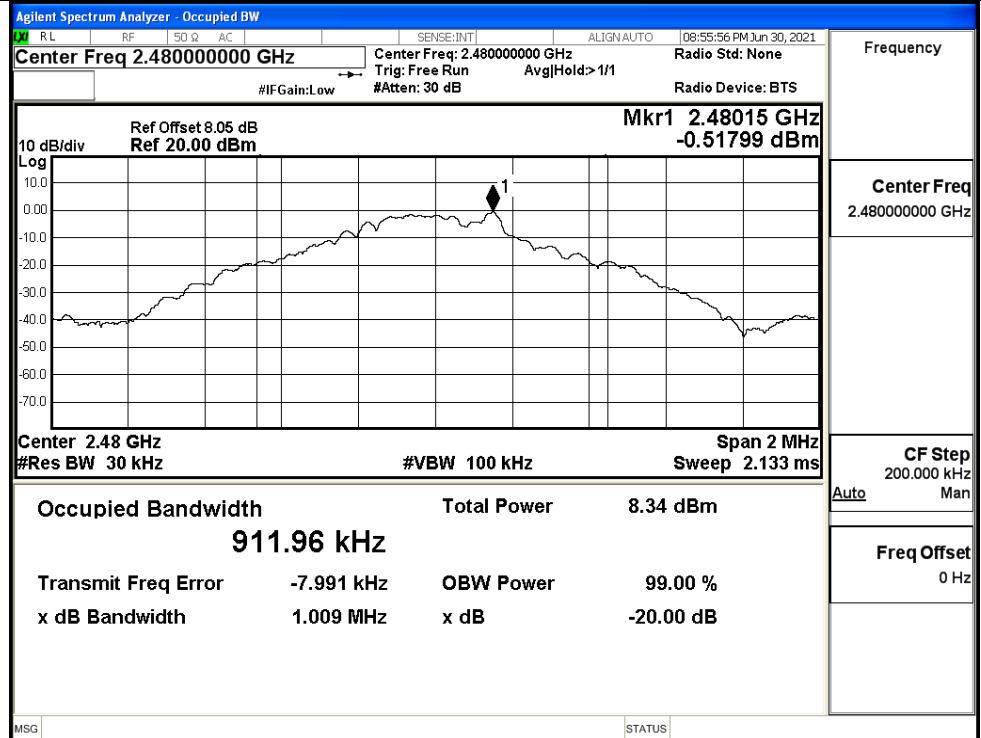


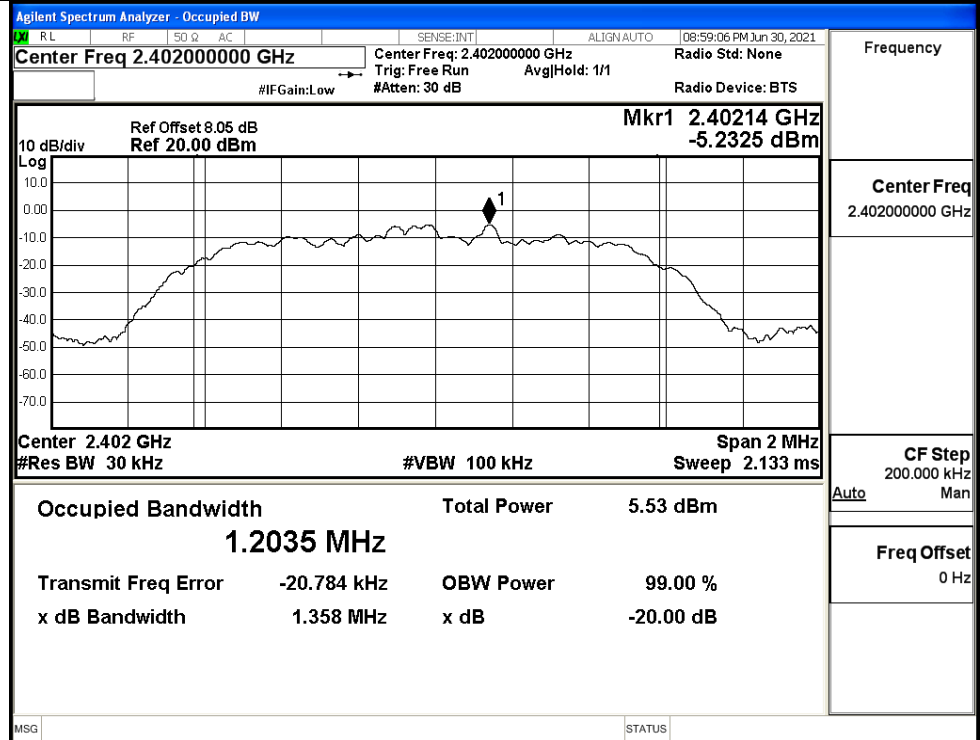
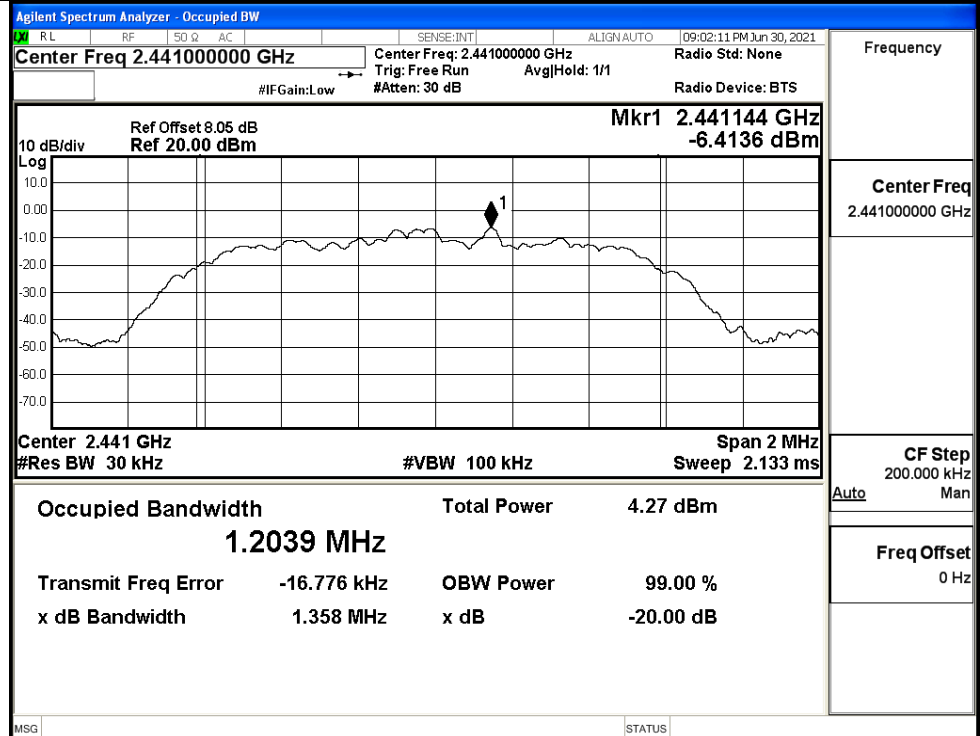


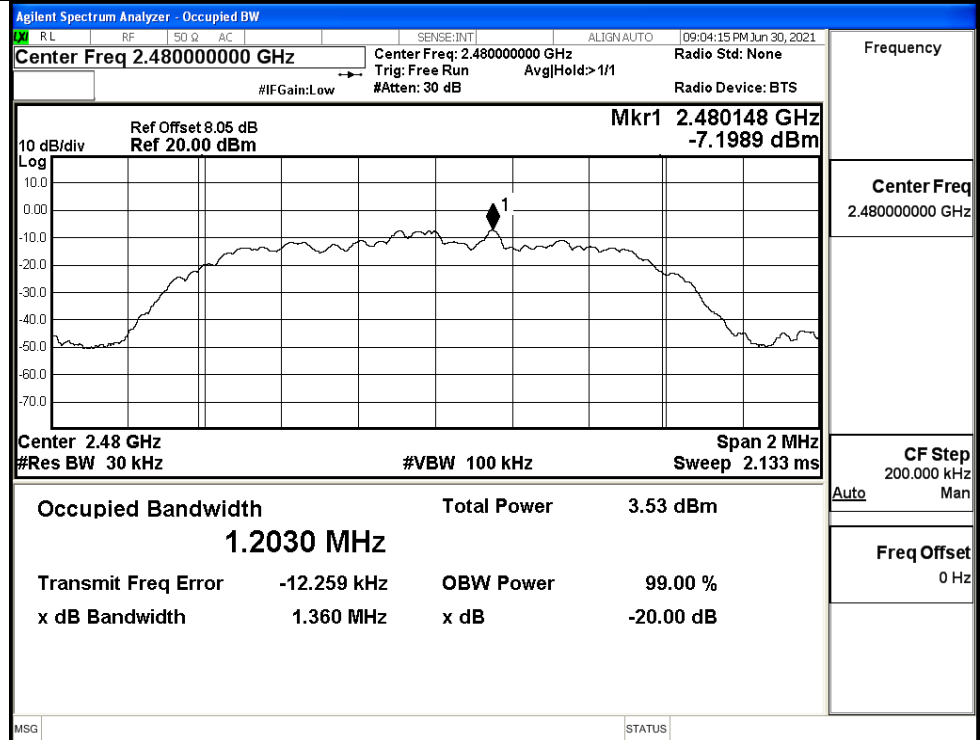
GFSK/MCH



GFSK/HCH



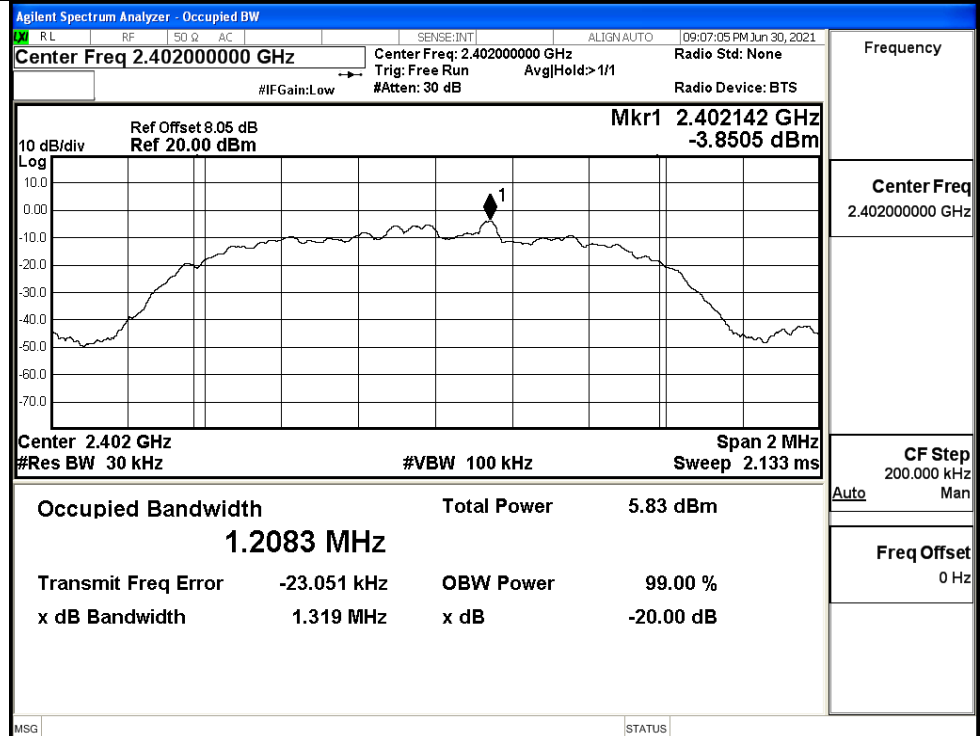
 $\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

 $\pi/4$ DQPSK/HCH

Frequency

Center Freq
2.48000000 GHzCF Step
200.000 kHz
Auto ManFreq Offset
0 Hz

8DPSK/LCH

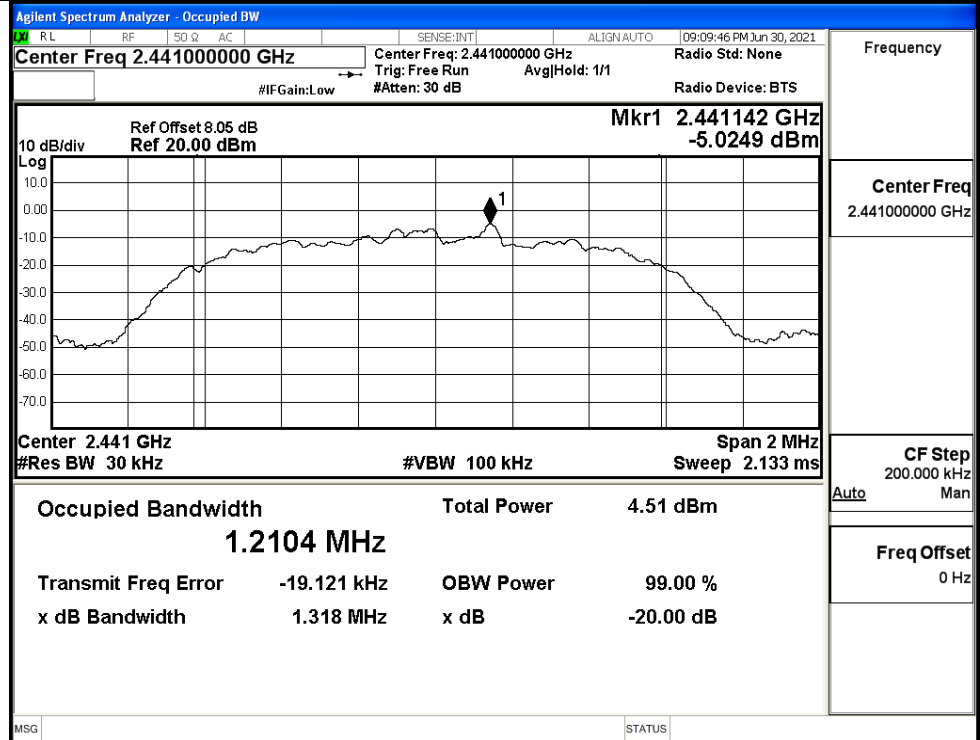


Frequency

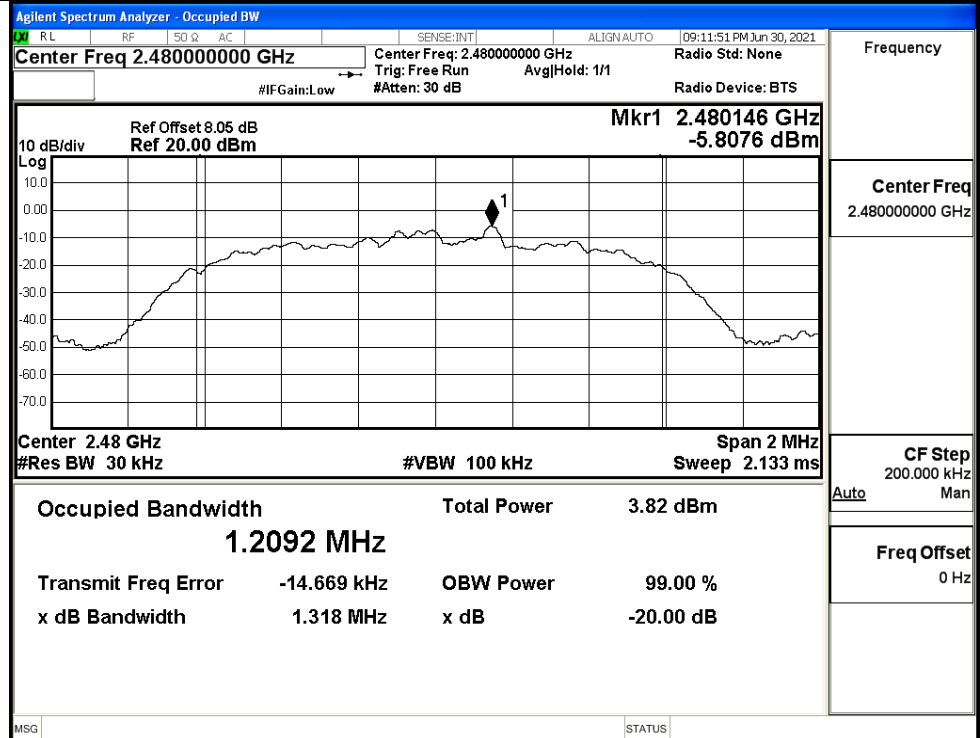
Center Freq
2.40200000 GHzCF Step
200.000 kHz
Auto ManFreq Offset
0 Hz



8DPSK/MCH



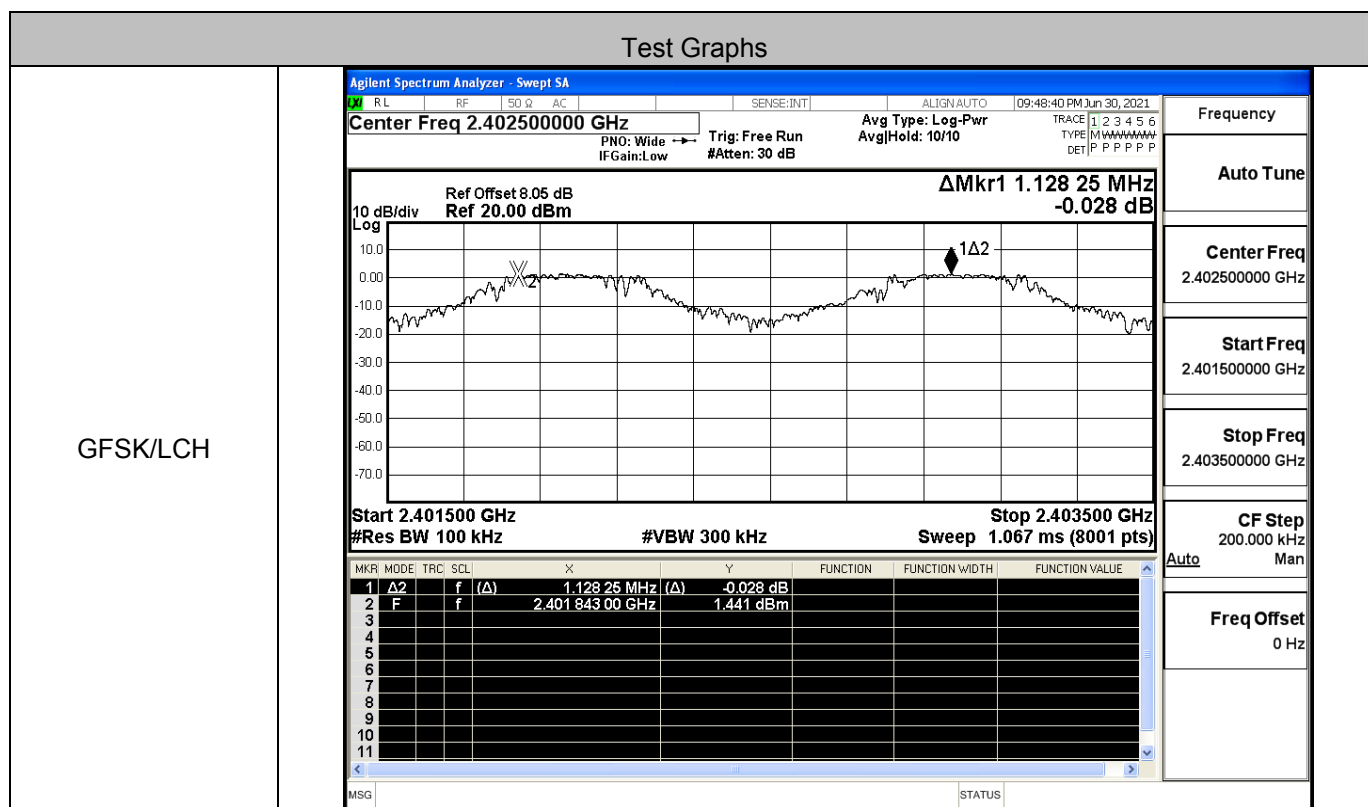
8DPSK/HCH





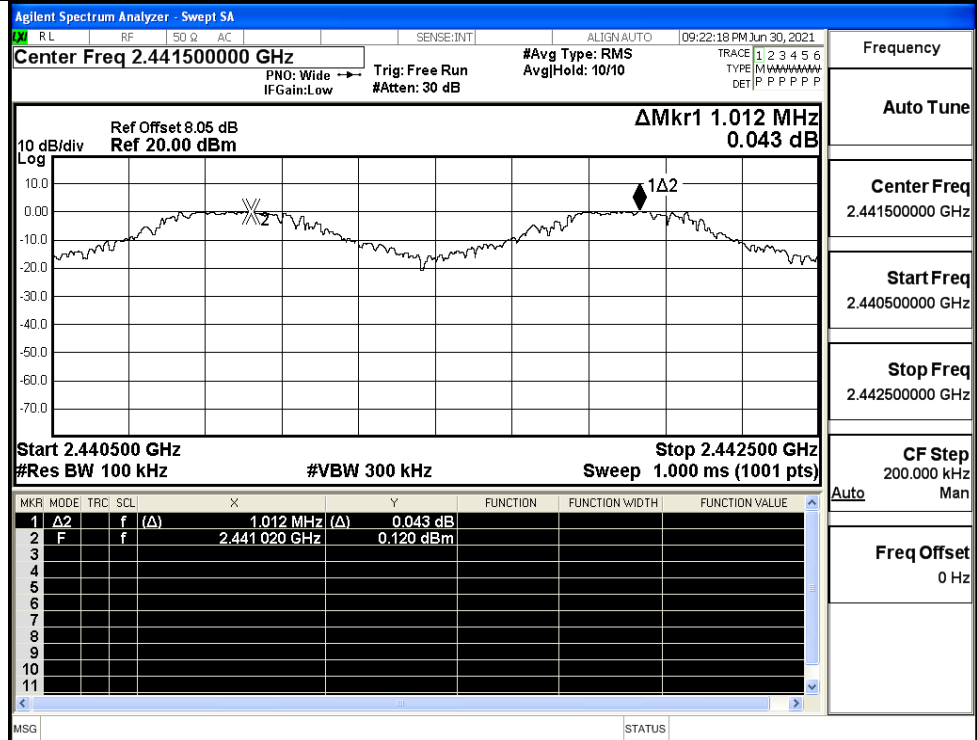
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.128	1.005	PASS
	MCH	1.012	1.005	PASS
	HCH	1.210	1.005	PASS
$\pi/4$ DQPSK	LCH	1.086	0.907	PASS
	MCH	1.160	0.907	PASS
	HCH	0.936	0.907	PASS
8DPSK	LCH	1.228	0.879	PASS
	MCH	1.276	0.879	PASS
	HCH	0.910	0.879	PASS

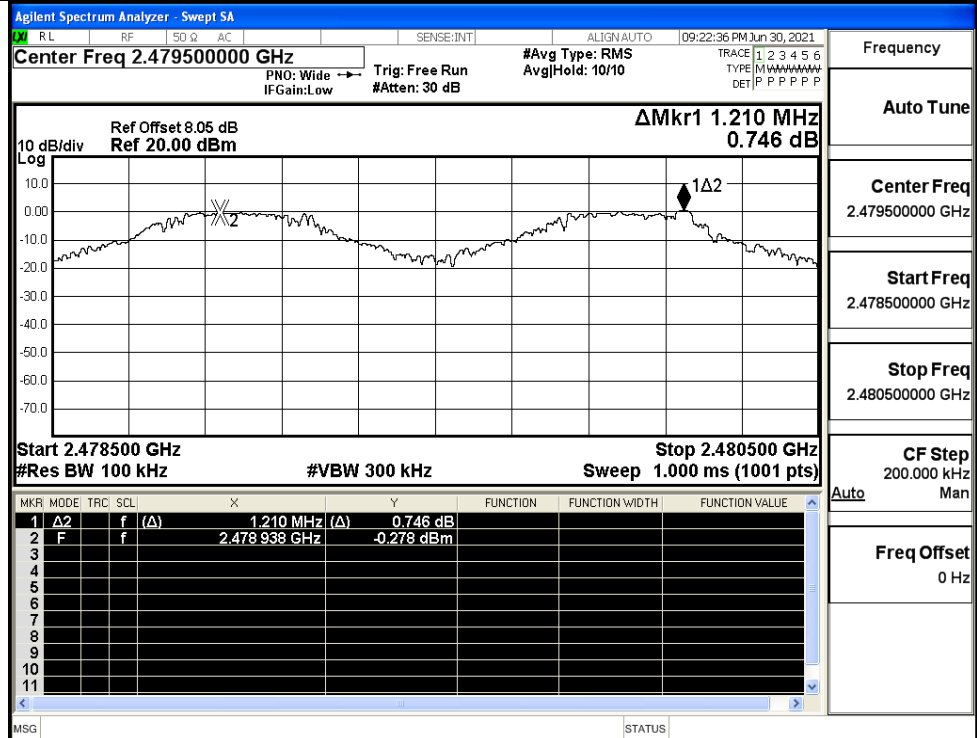


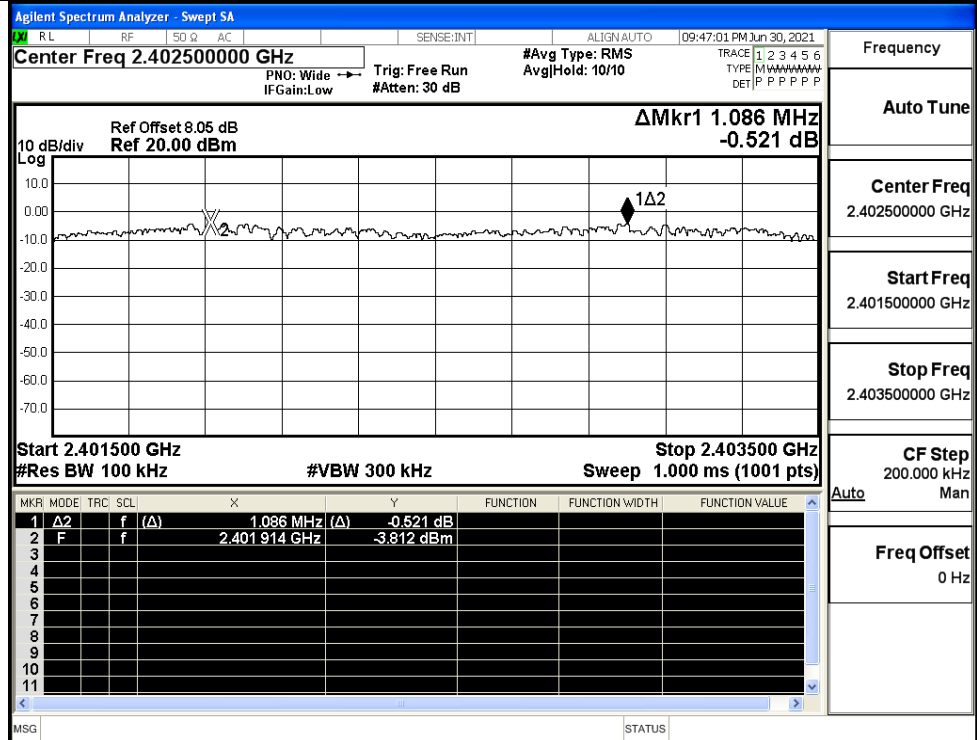
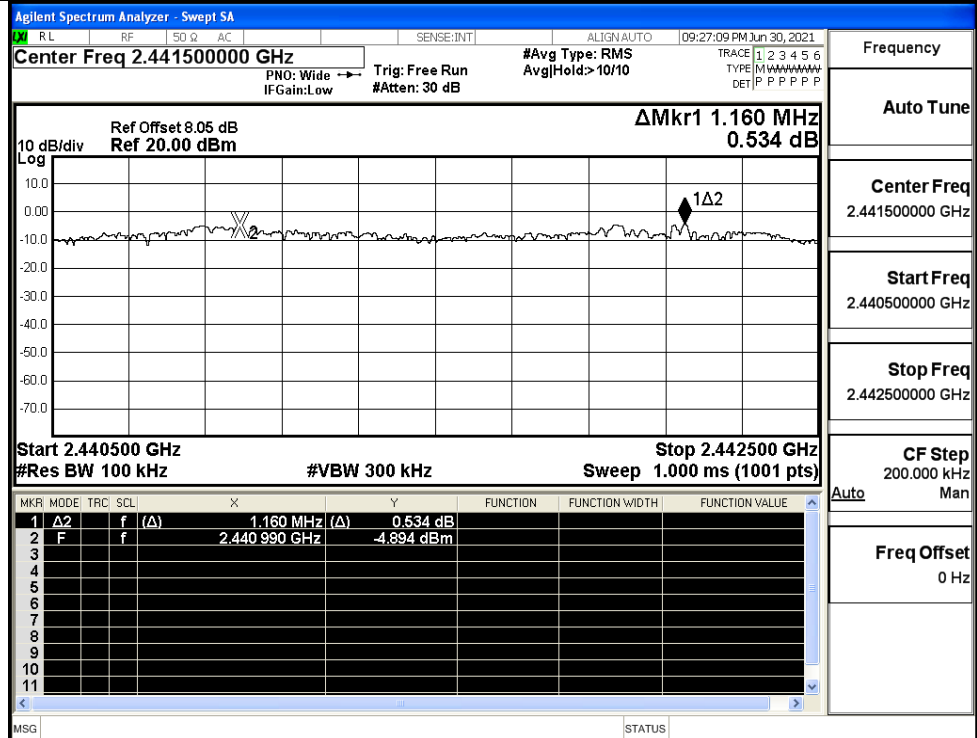


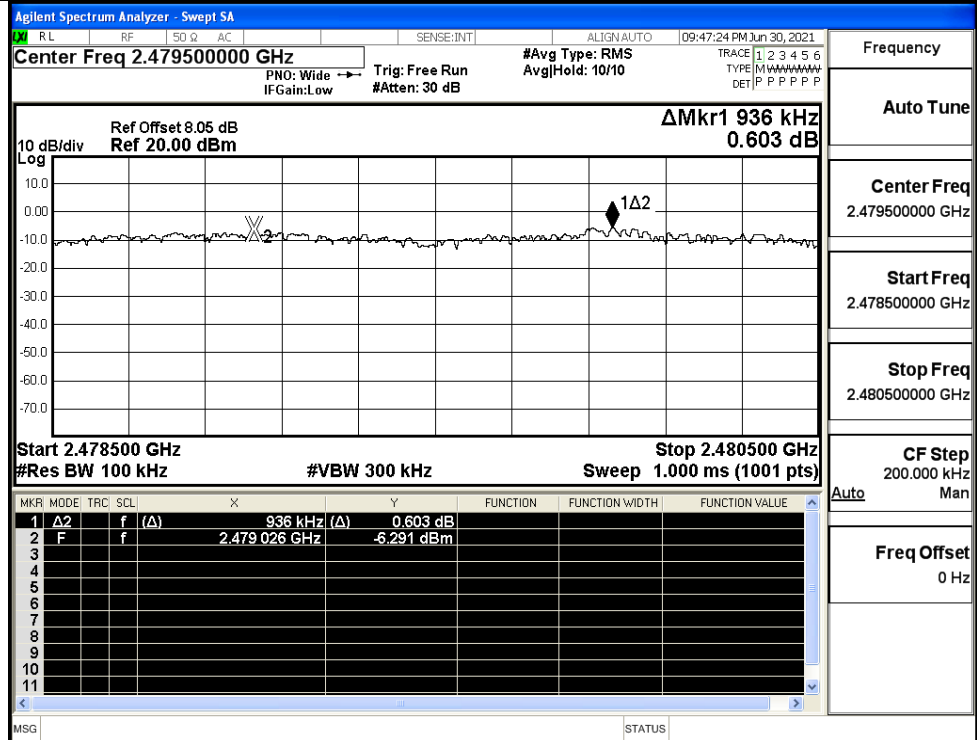
GFSK/MCH



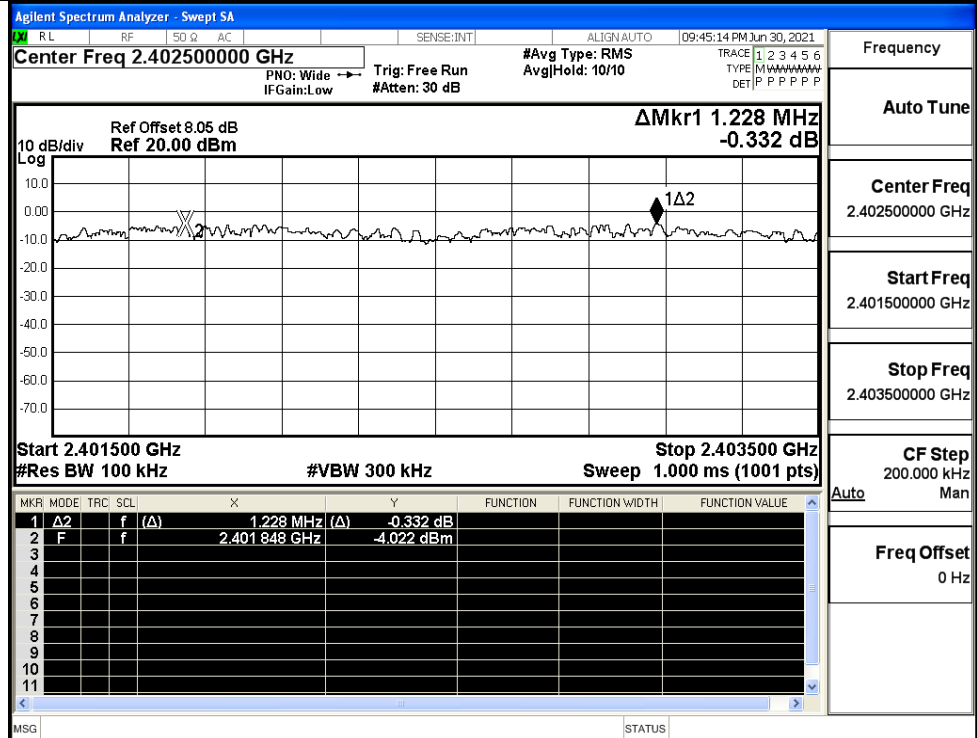
GFSK/HCH

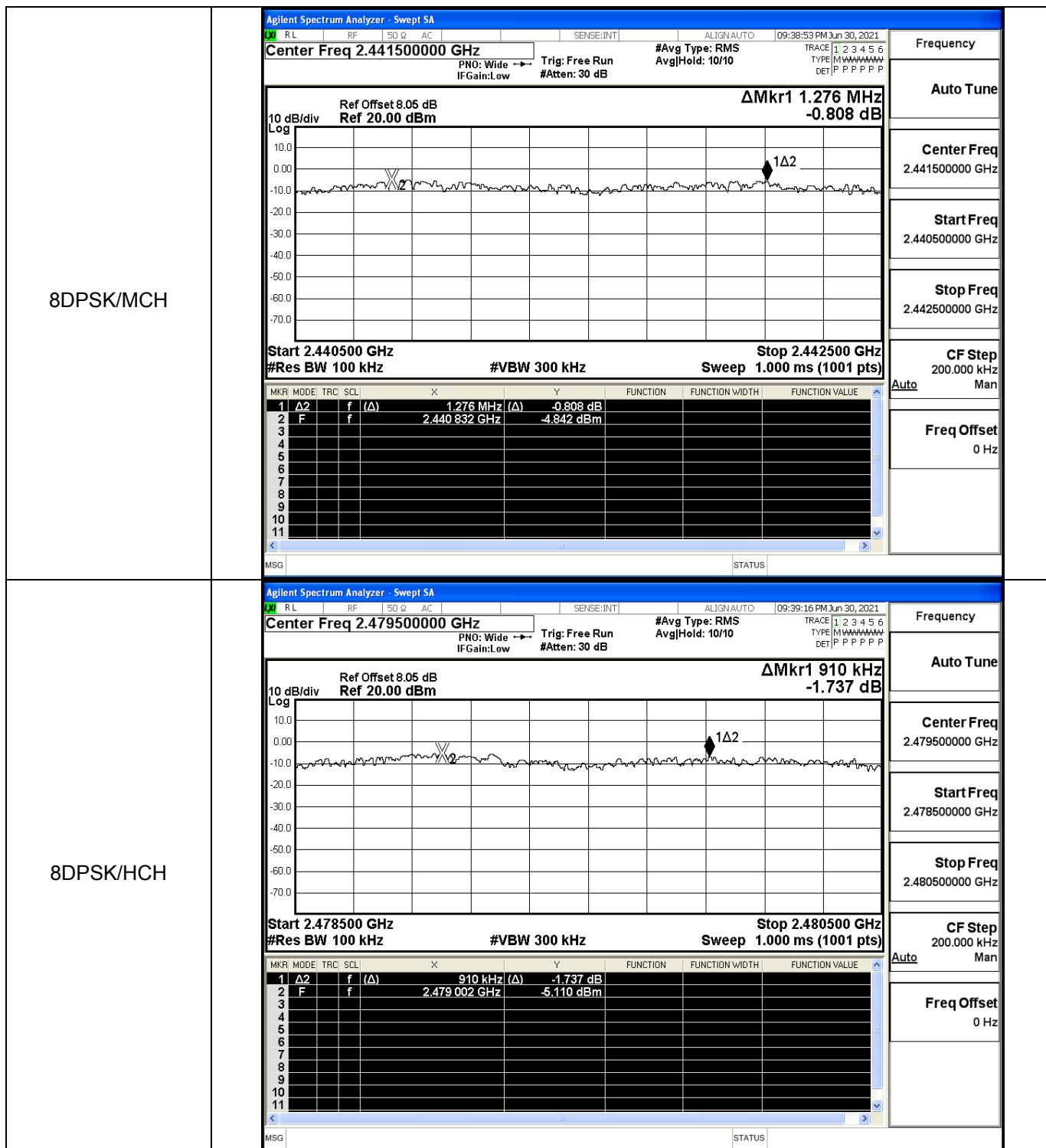


 $\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

 π /4DQPSK/HCH

8DPSK/LCH





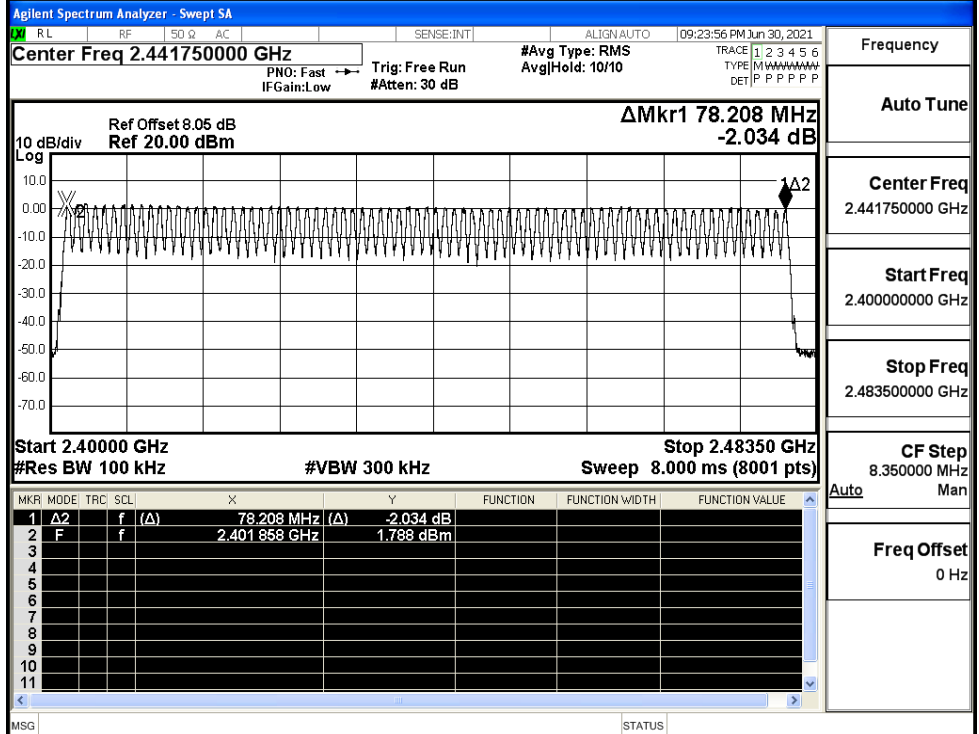
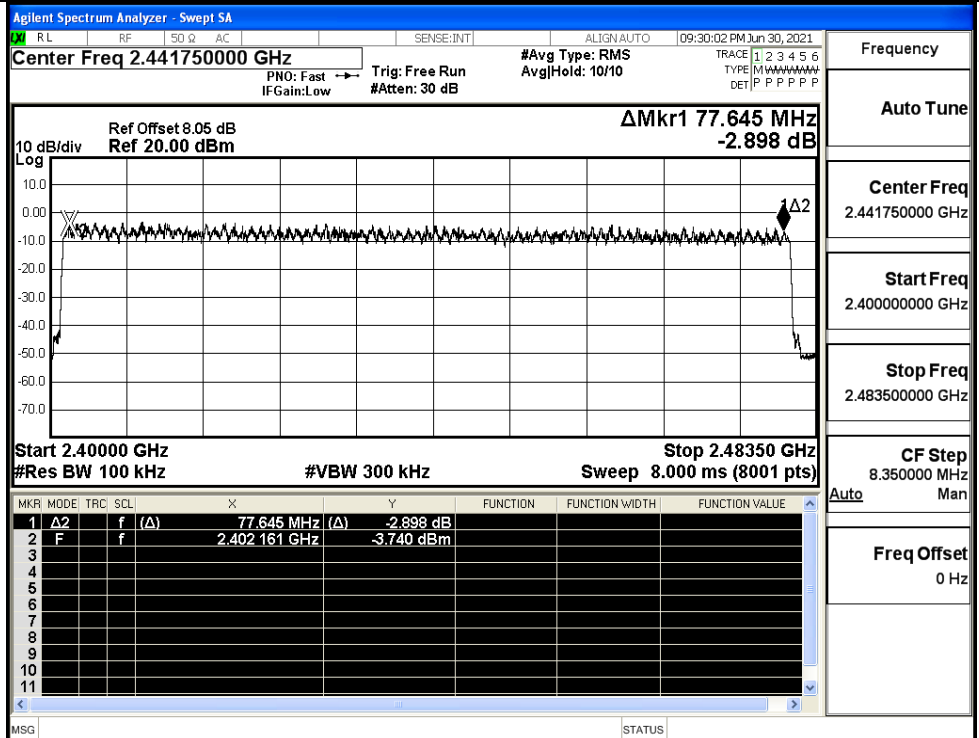
A.4 Hopping Channel Number

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



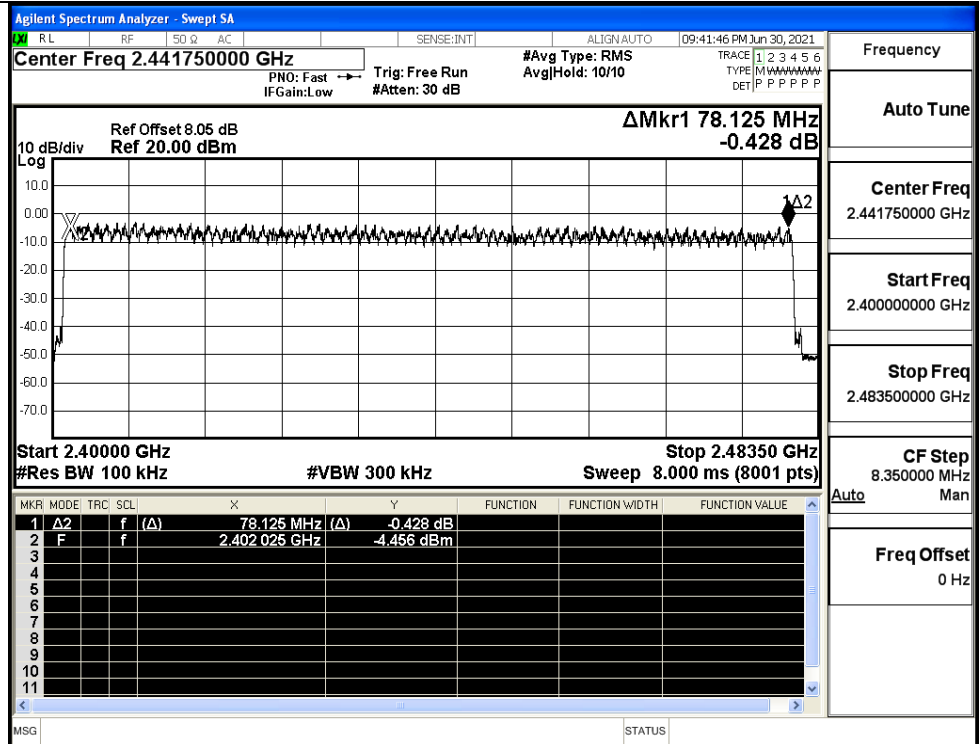
Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop



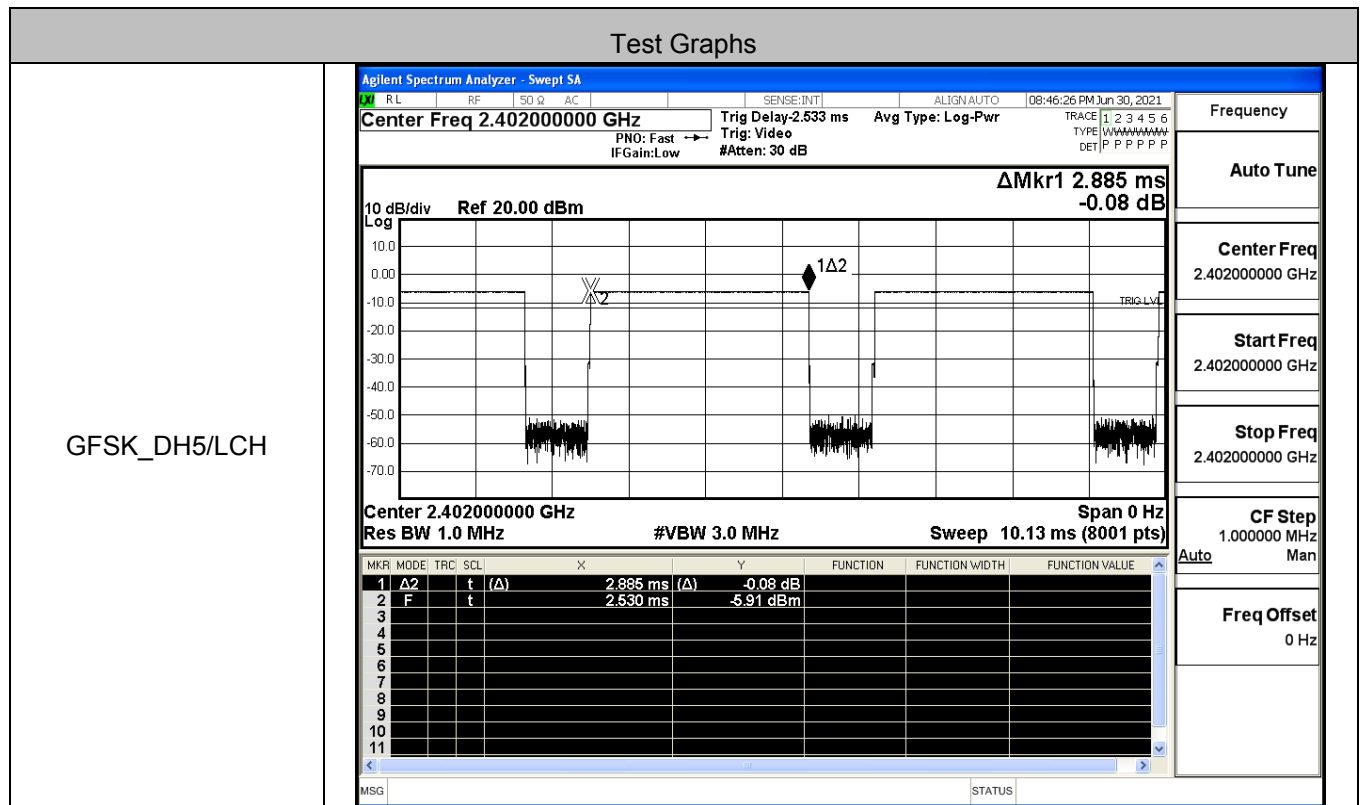
8DPSK/Hop





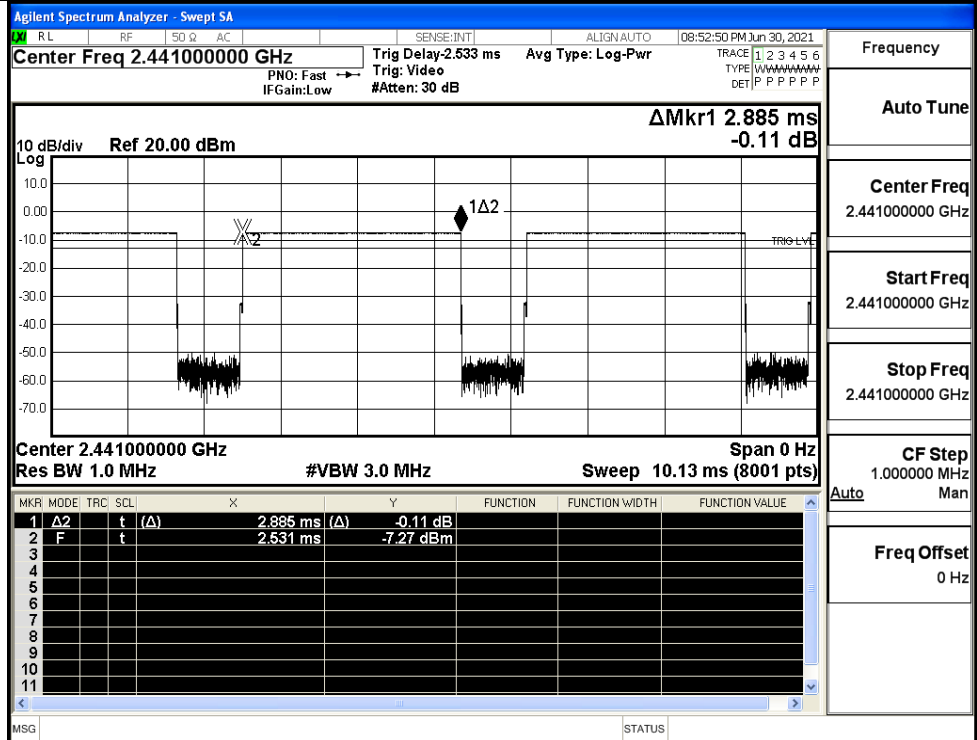
A.5 Dwell Time

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

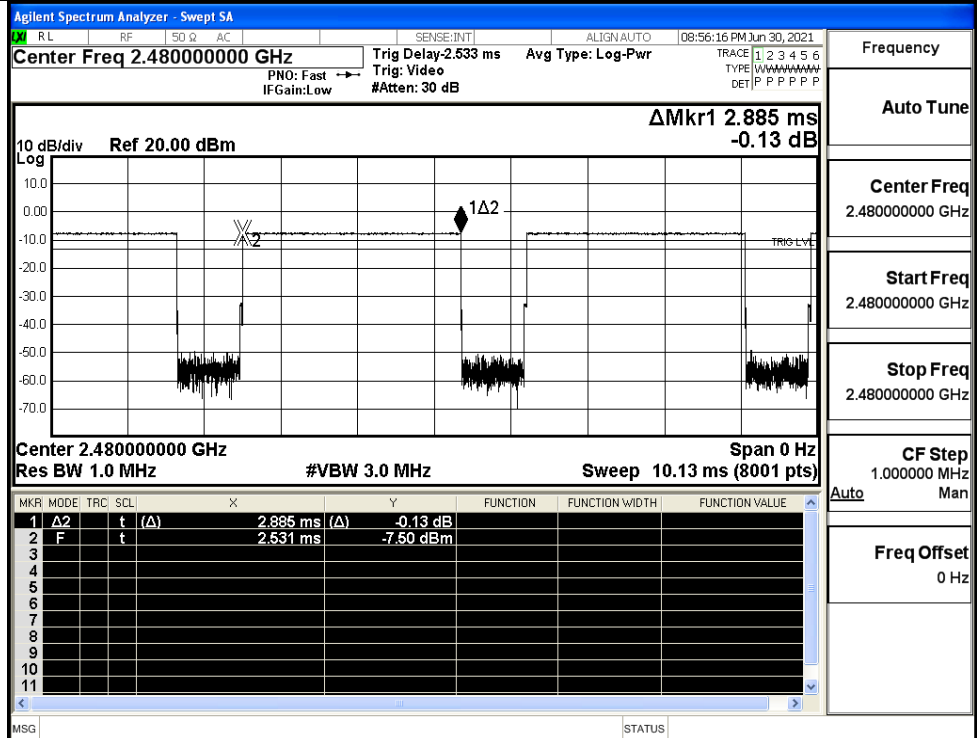




GFSK_DH5/MCH

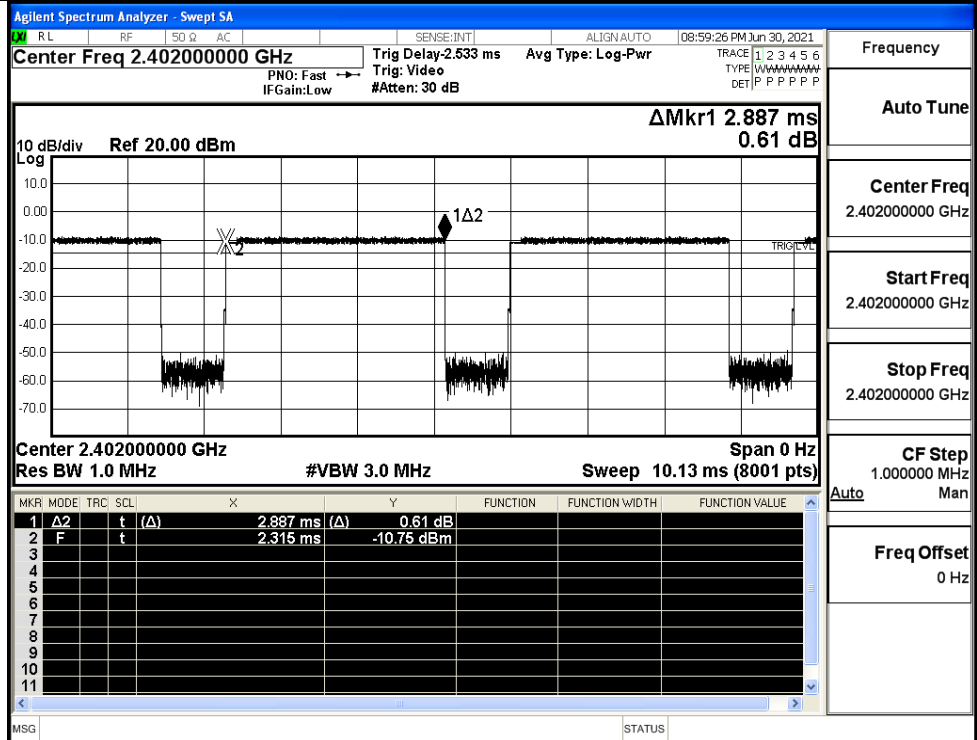


GFSK_DH5/HCH

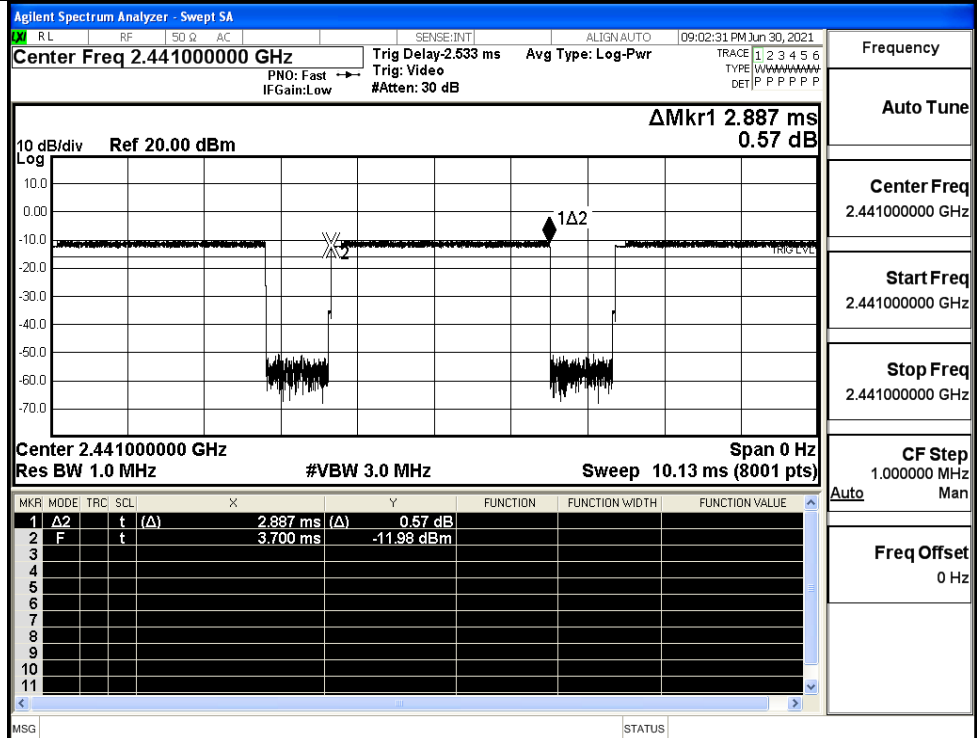




$\pi/4$ DQPSK
_2DH5/LCH

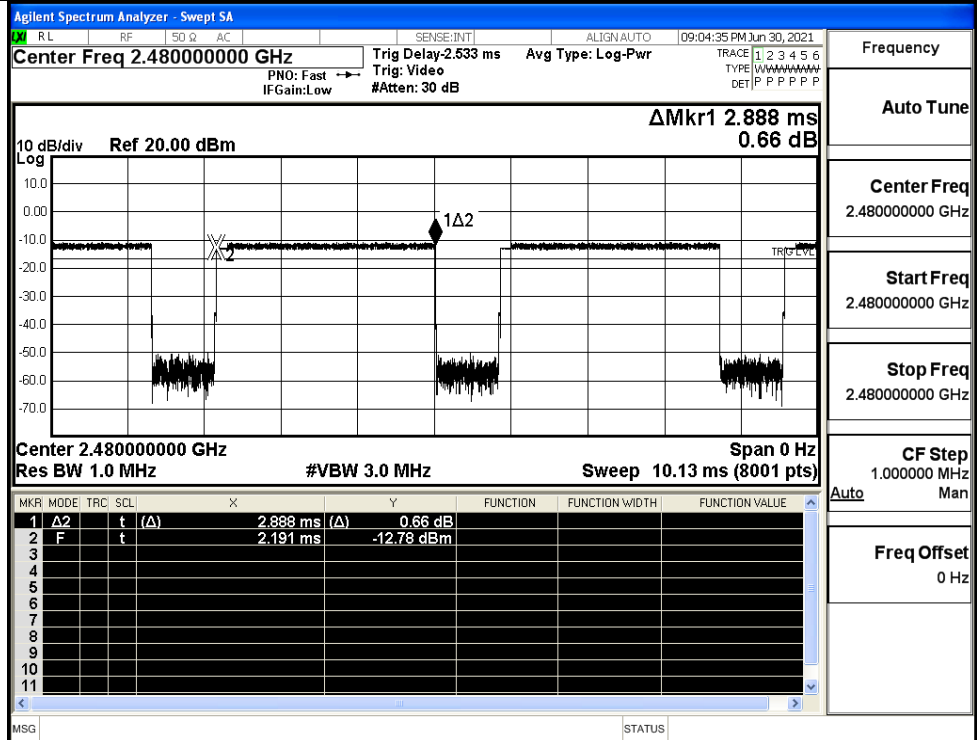


$\pi/4$ DQPSK
_2DH5/MCH

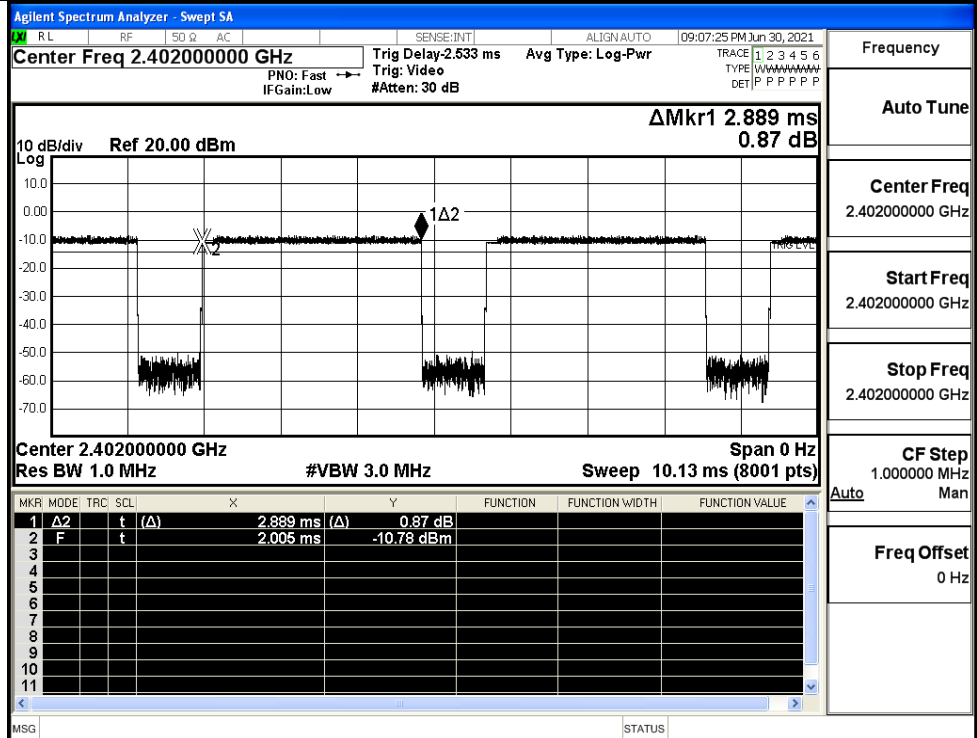




$\pi/4$ DQPSK
_2DH5/HCH

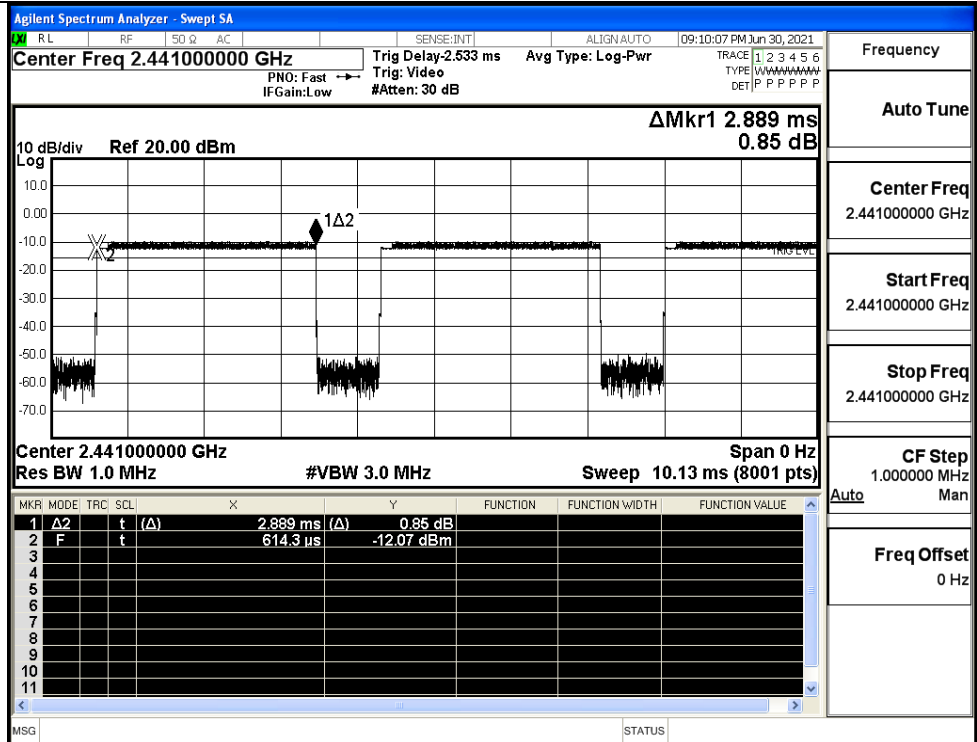


8DPSK _3DH5/LCH

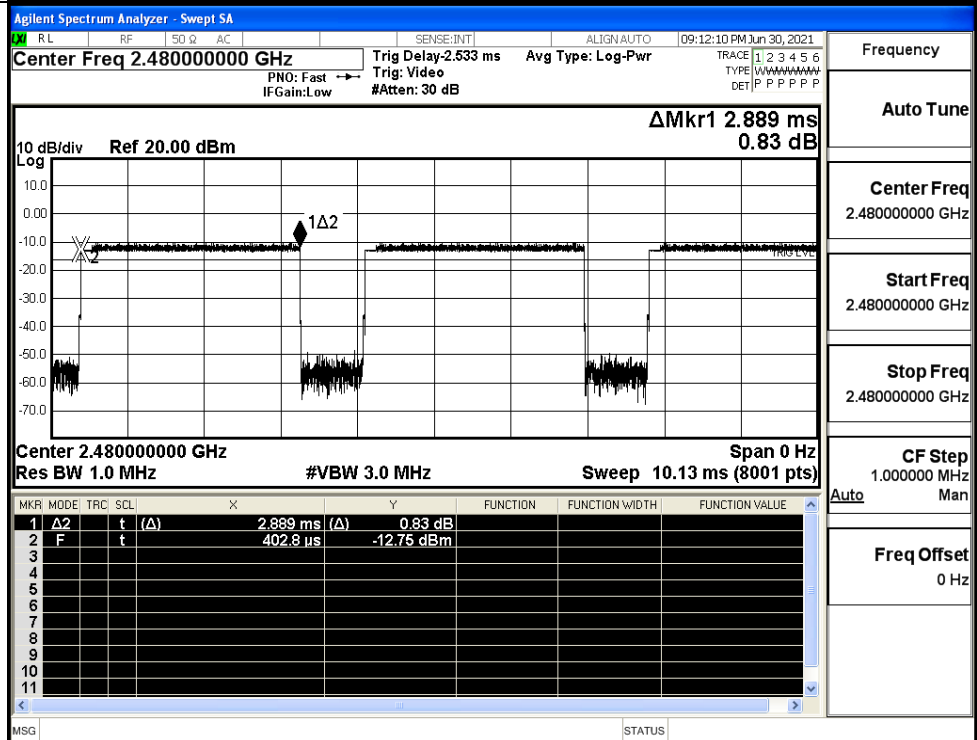




8DPSK_3DH5/MCH



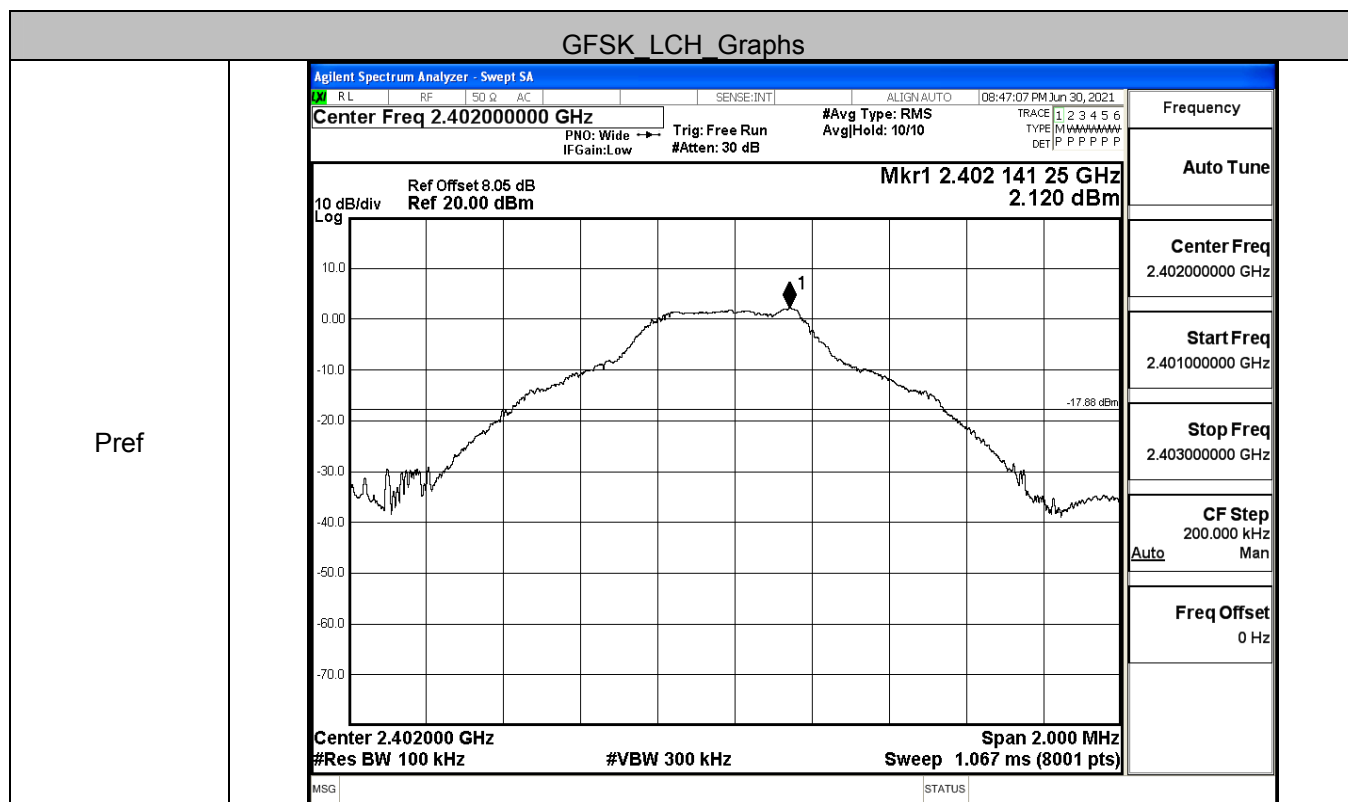
8DPSK_3DH5/HCH

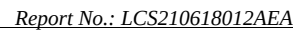




A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2.12	-37.651	-17.880	PASS
	MCH	0.72	-37.744	-19.280	PASS
	HCH	0.52	-37.972	-19.480	PASS
$\pi/4$ DQPSK	LCH	-2.95	-38.531	-22.950	PASS
	MCH	-4.251	-37.055	-24.251	PASS
	HCH	-4.923	-38.140	-24.923	PASS
8DPSK	LCH	-3.465	-37.972	-23.465	PASS
	MCH	-4.495	-36.083	-24.495	PASS
	HCH	-4.76	-38.478	-24.760	PASS





Agilent Spectrum Analyzer - Sweep SA

RL RF 50 Ω AC SENSE:INT ALIGN:AUTO 08:47:22 PM Jun 30, 2021

Center Freq 12.51500000 GHz #Avg Type: RMS #Avg Hold: 2/10
 PNO: Fast Trig: Free Run IF Gain: Low #Atten: 30 dB

TRACE 1 2 3 4 5 6
 TYPE M W W W W W W W
 DET P P P P P P P P

Frequency

Auto Tune

Center Freq
 12.51500000 GHz

Start Freq
 30.000000 MHz

Stop Freq
 25.000000000 GHz

CF Step
 2.497000000 GHz
Auto Man

Freq Offset
 0 Hz

Ref Offset 8.05 dB
 Ref 20.00 dBm

Mkr2 24.747 GHz
-37.651 dBm

10 dB/div
 Log

1

-17.88 dBm

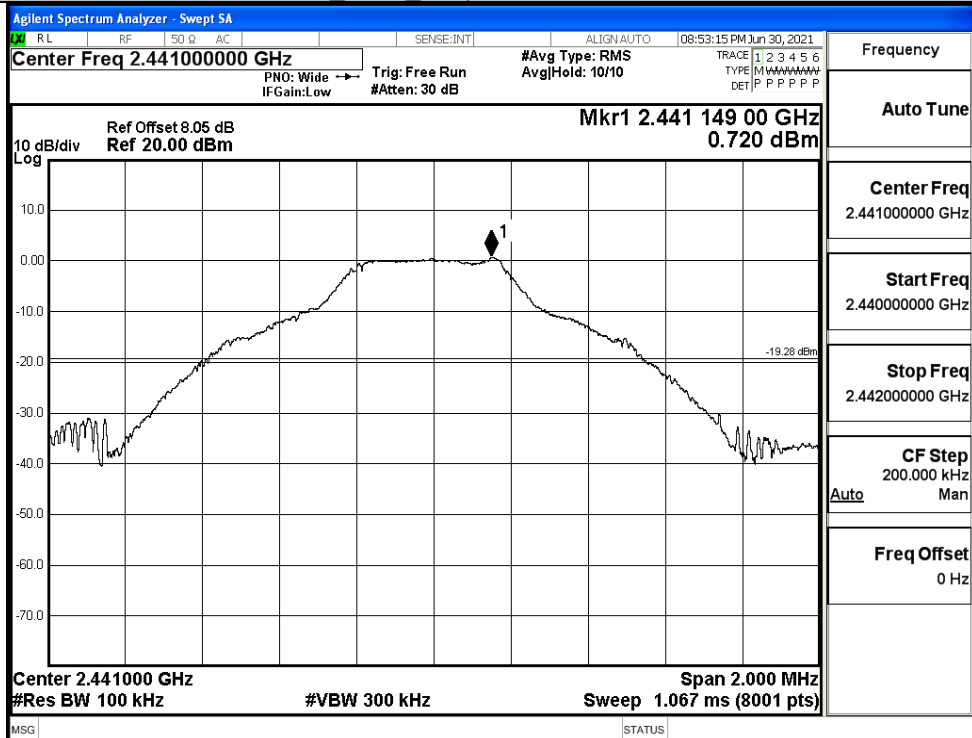
Start 30 MHz **Stop 25.00 GHz**
#Res BW 100 kHz **#VBW 300 kHz** **Sweep 2.387 s (8001 pts)**

MSG STATUS

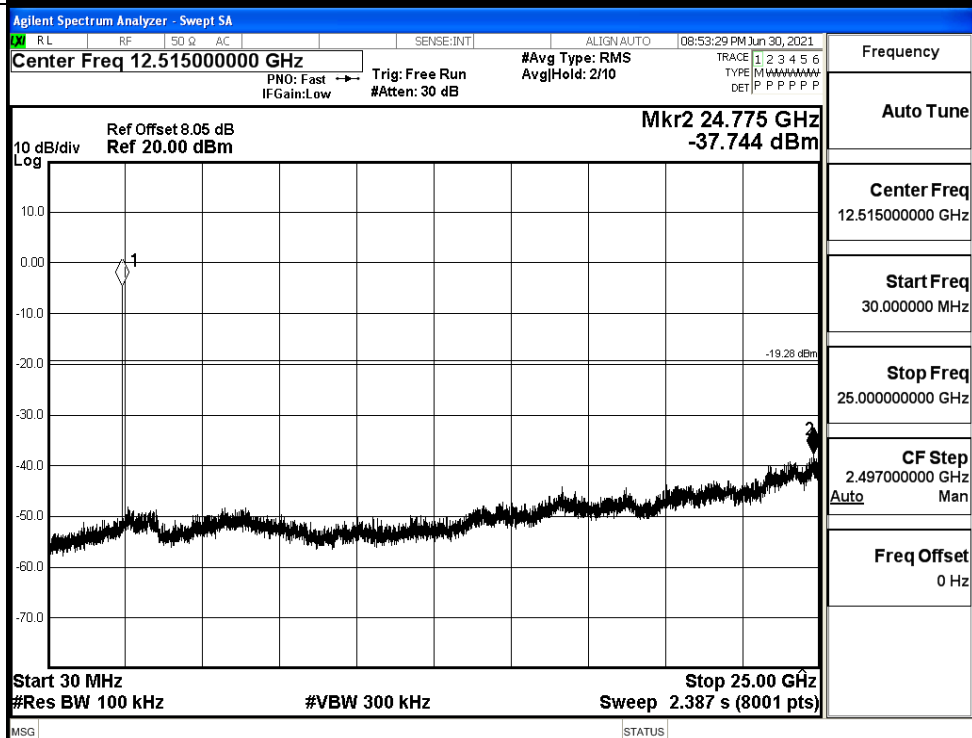


GFSK_MCH_Graphs

Pref



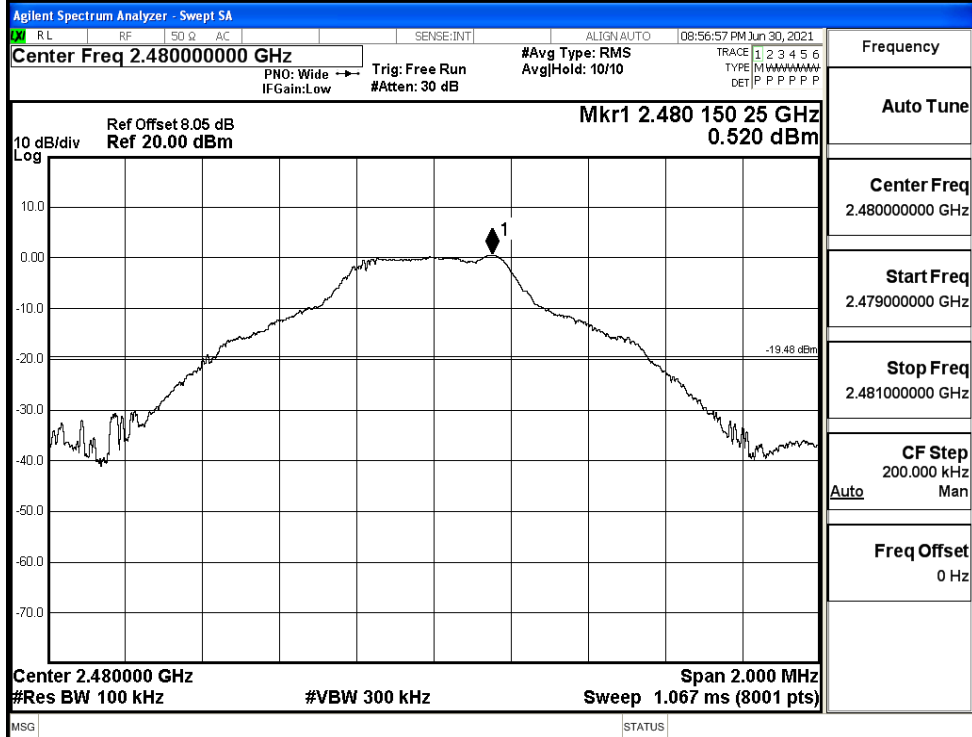
Puw



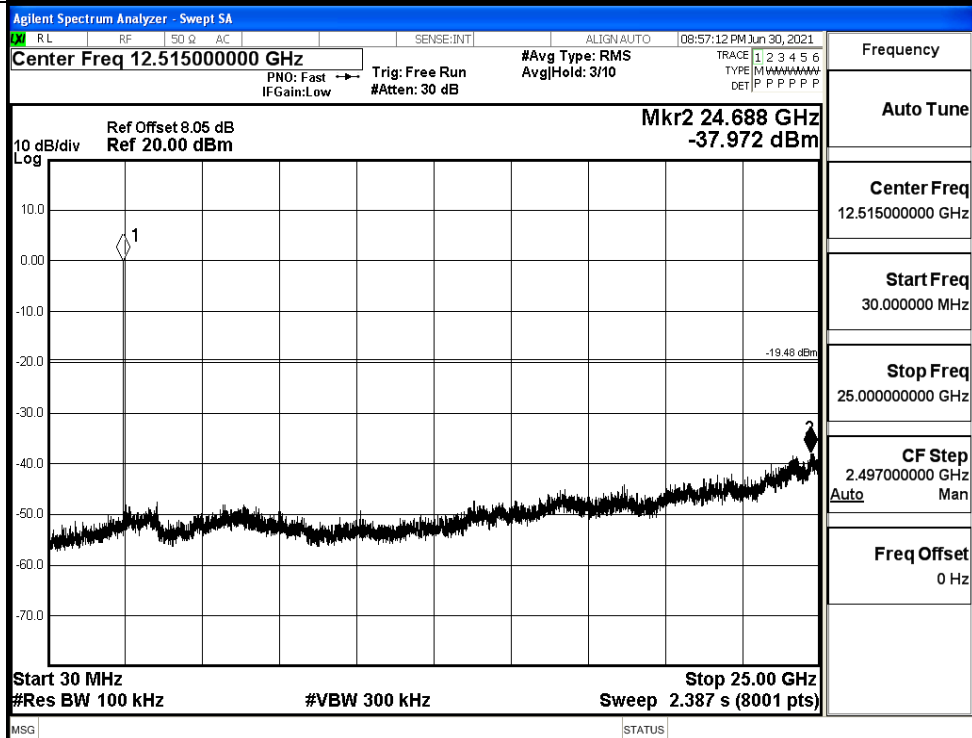


GFSK_HCH_Graphs

Pref

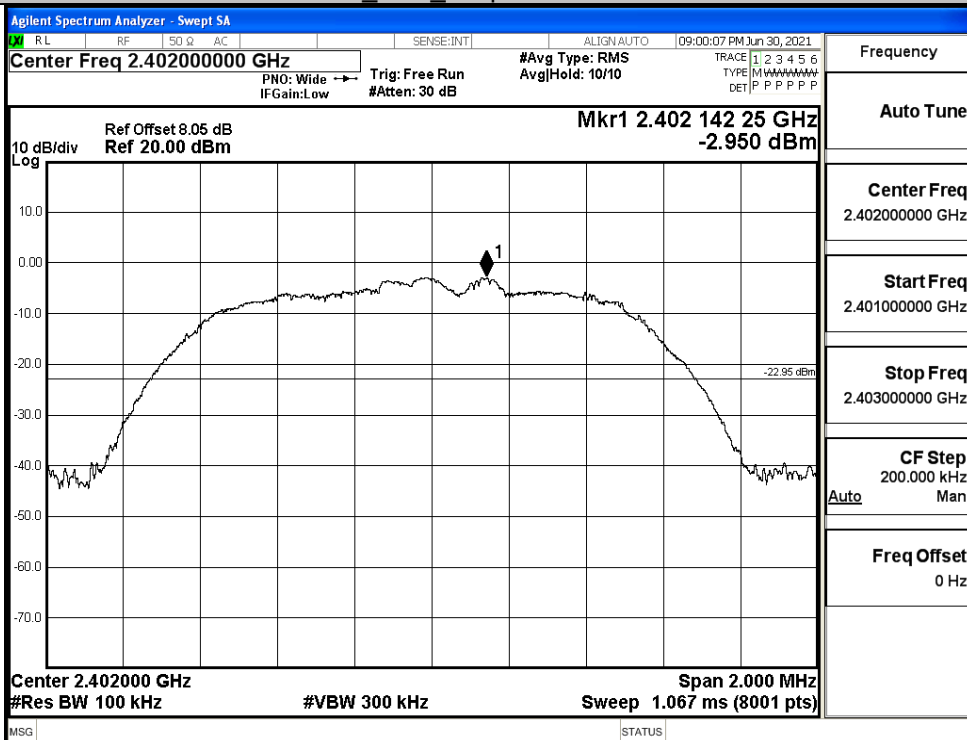


Puw

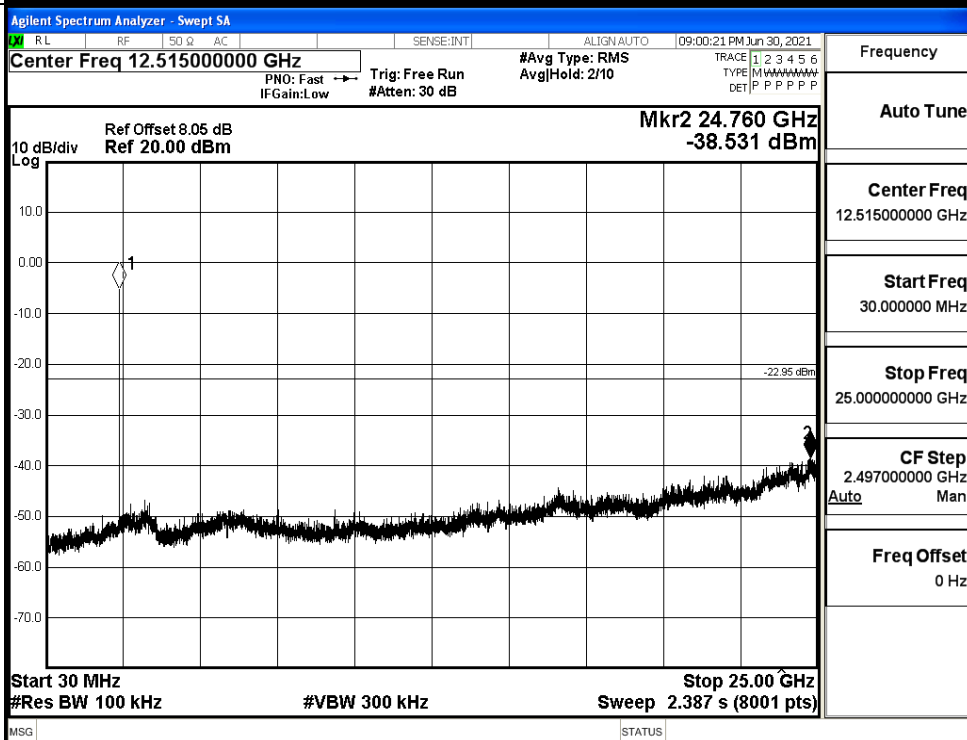


 $\pi/4$ DQPSK_LCH_Graphs

Pref

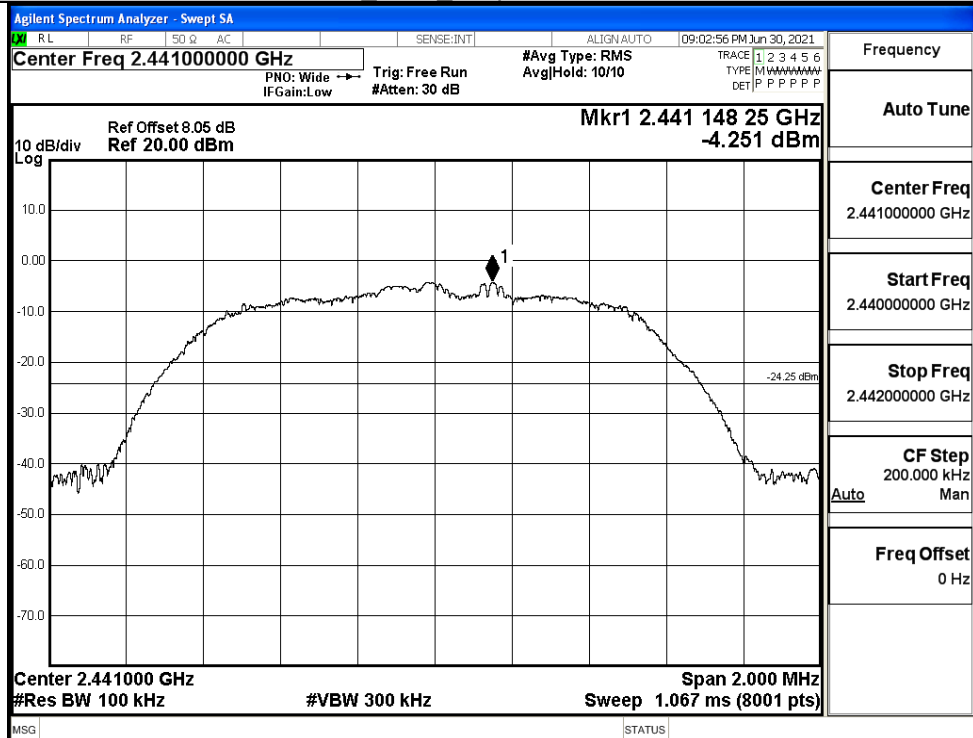


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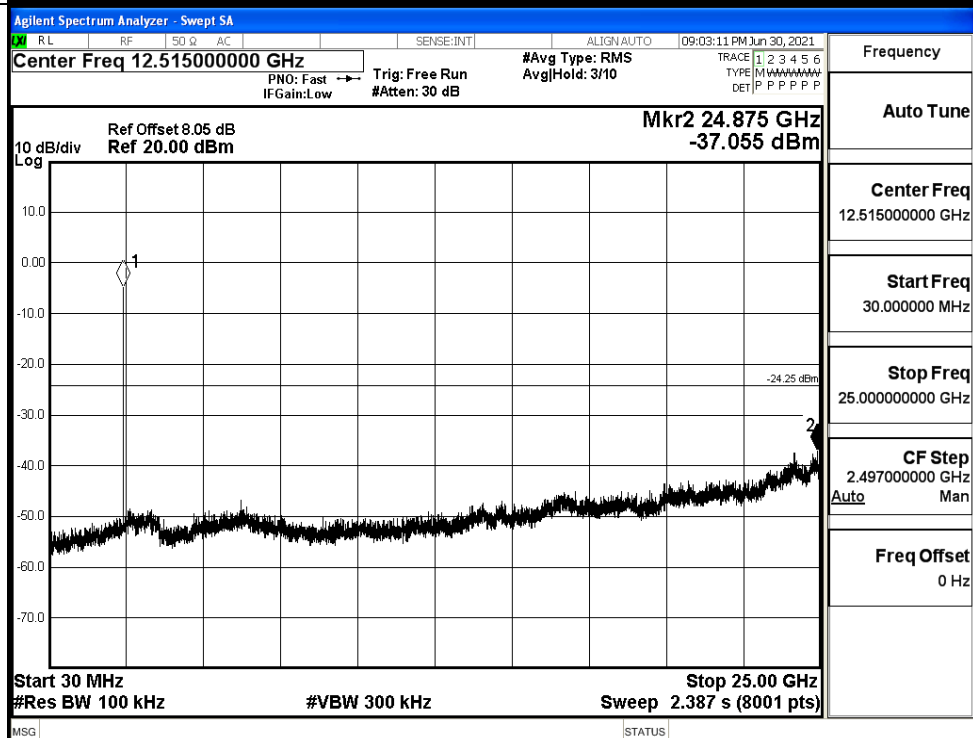


 $\pi/4$ DQPSK_MCH_Graphs

Pref

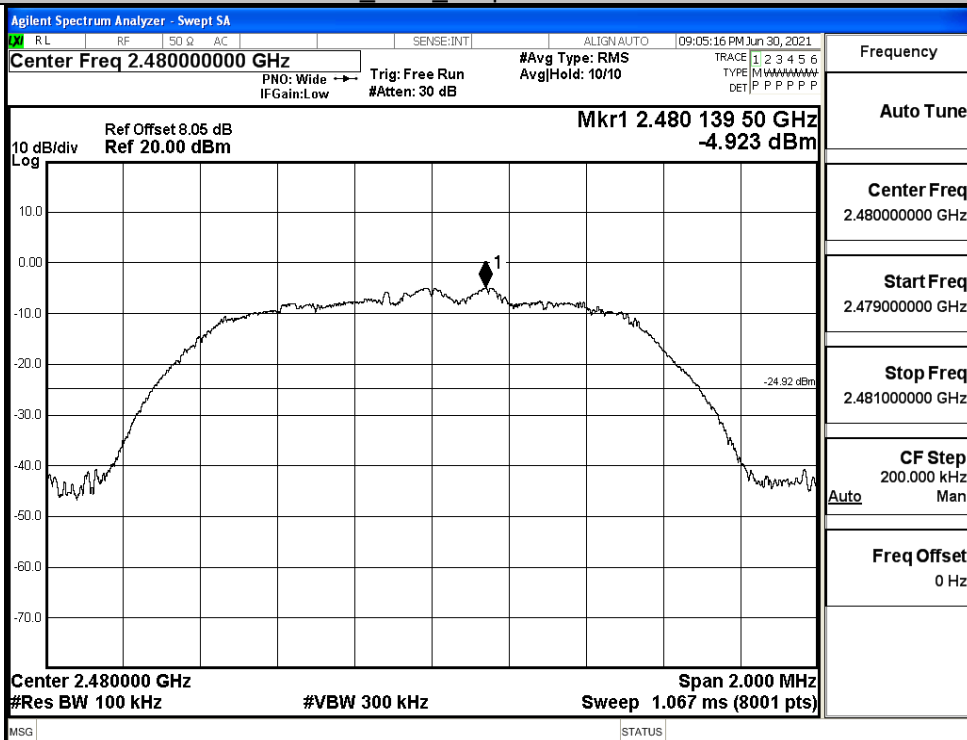


Puw

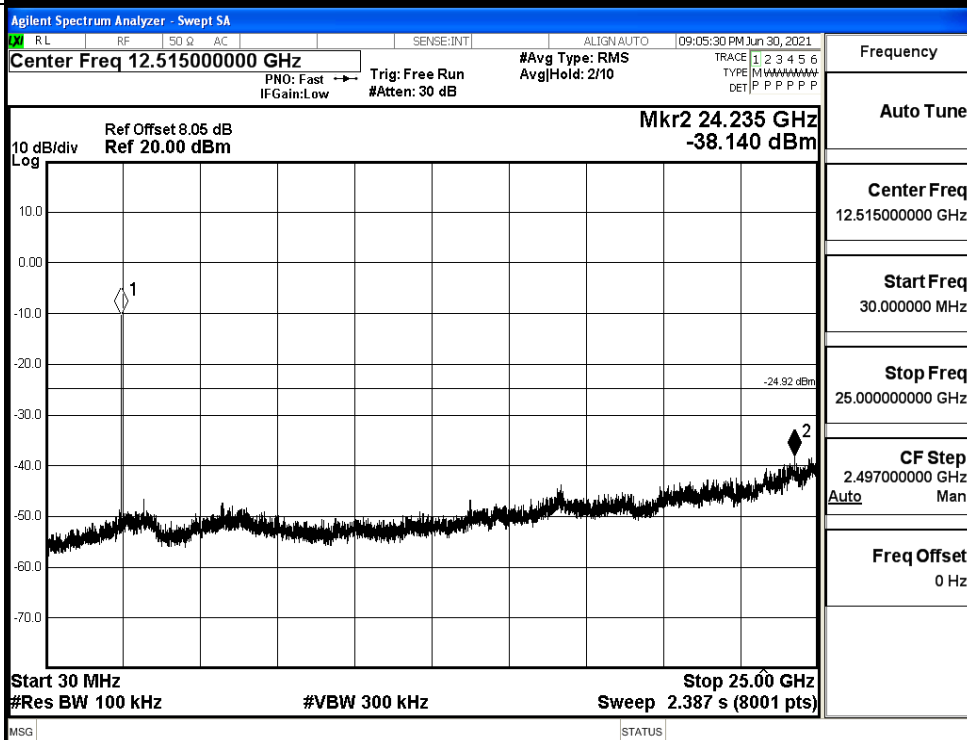


 $\pi/4$ DQPSK_HCH_Graphs

Pref



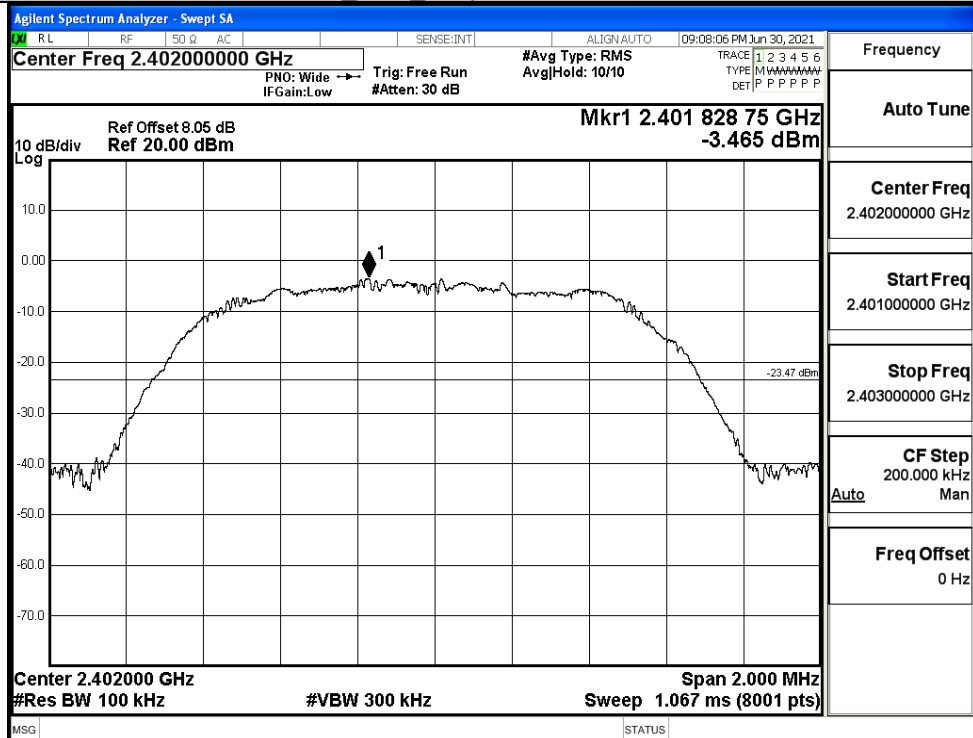
Puw



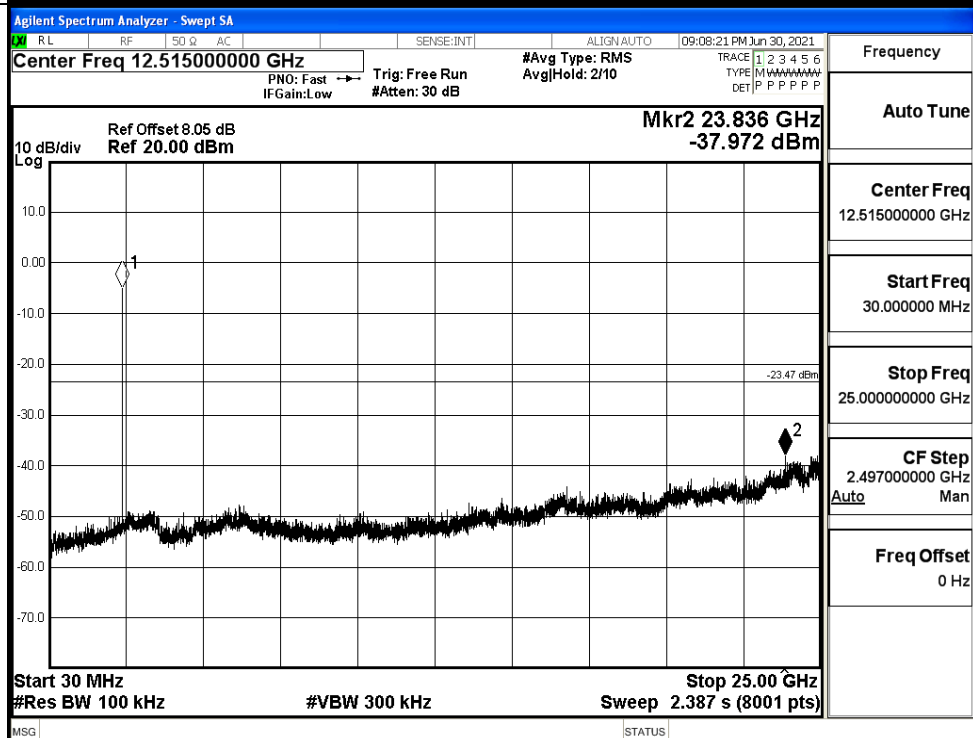


8DPSK_LCH_Graphs

Pref



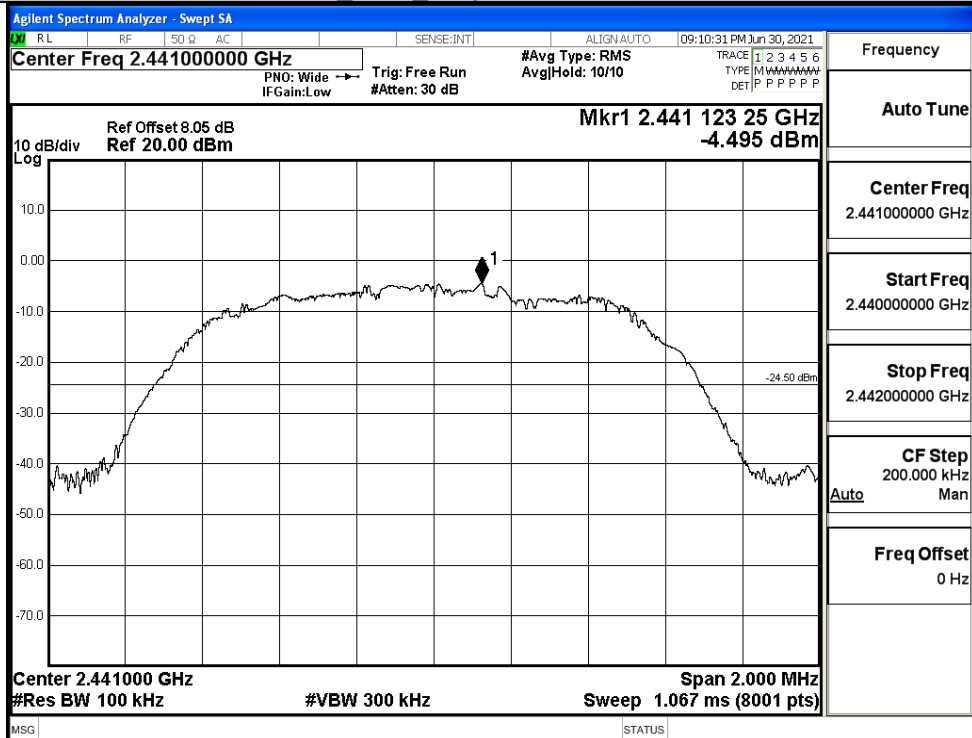
Puw



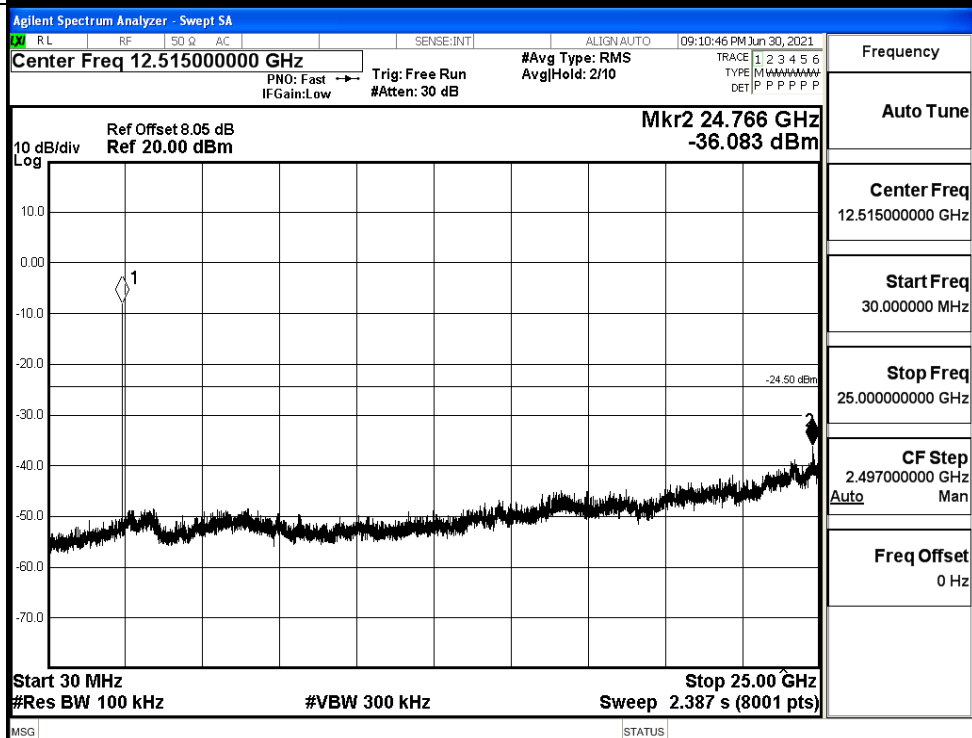


8DPSK_MCH_Graphs

Pref



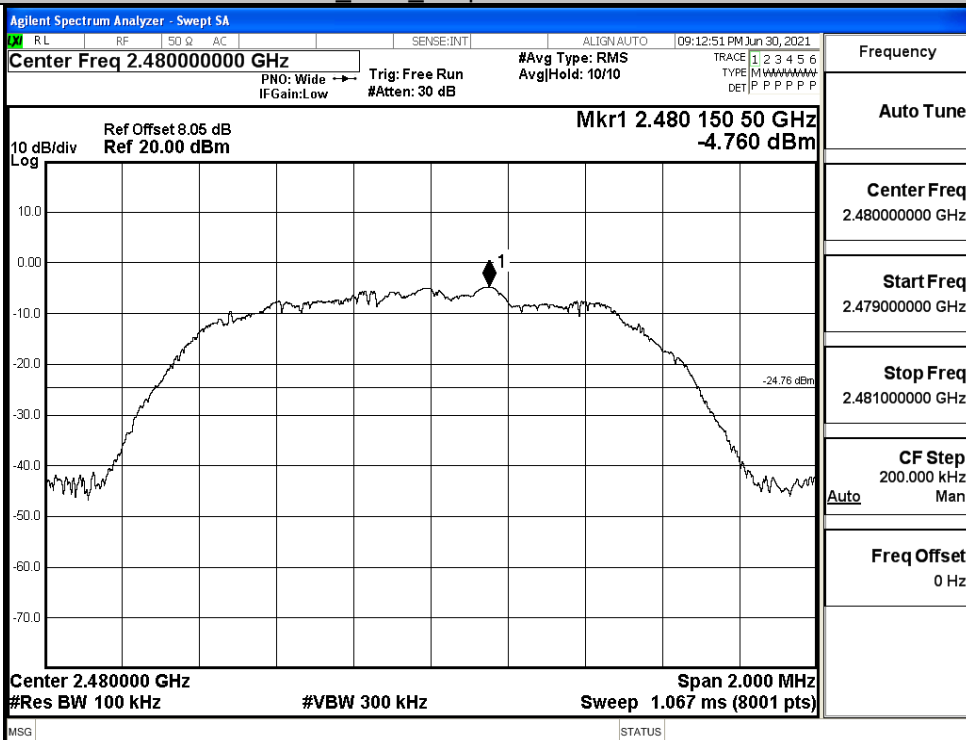
Puw



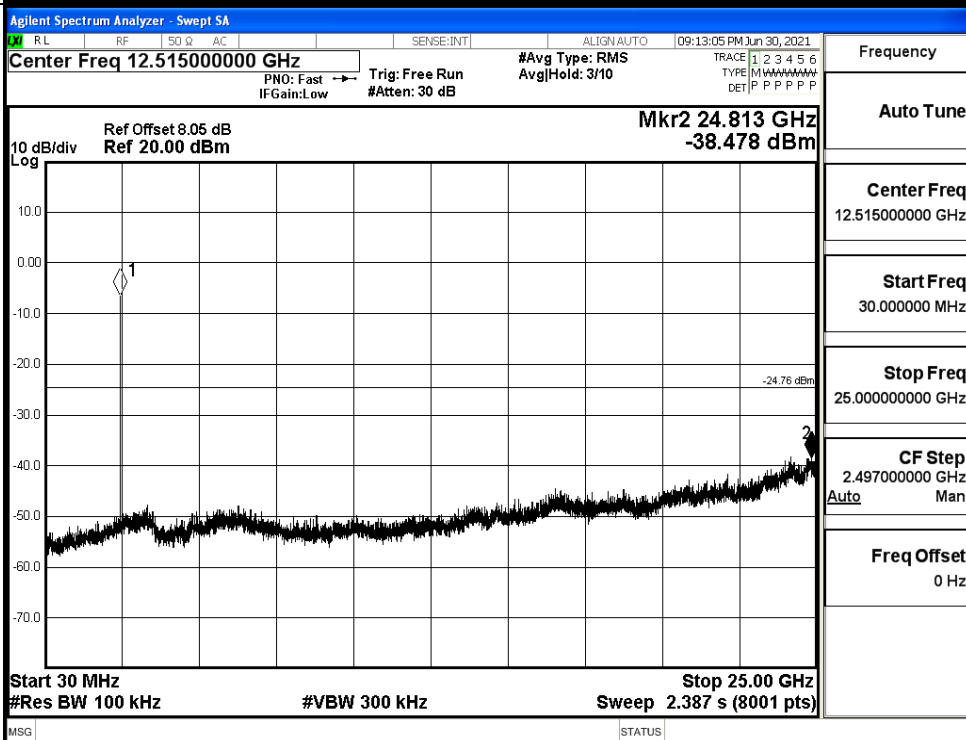


8DPSK_HCH_Graphs

Pref



Puw





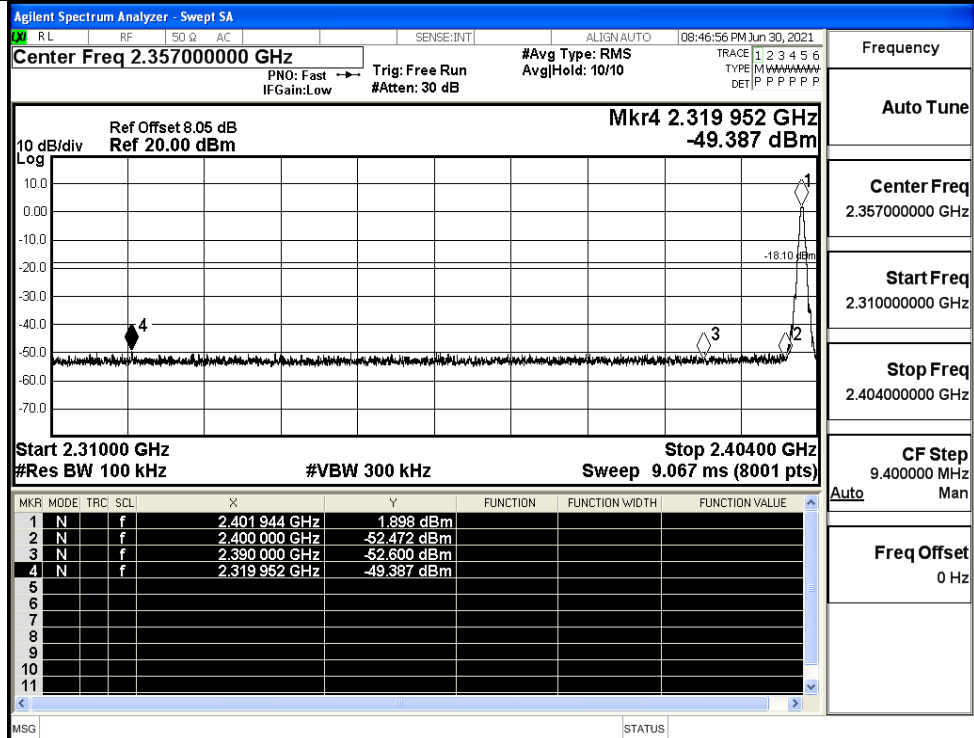
A.7 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	1.898	Off	-49.387	-18.1	PASS
			1.886	On	-49.449	-18.11	PASS
	HCH	2480	0.548	Off	-48.642	-19.45	PASS
			0.792	On	-48.815	-19.21	PASS
$\pi/4$ DQPSK	LCH	2402	-3.182	Off	-49.668	-23.18	PASS
			-3.203	On	-47.773	-23.2	PASS
	HCH	2480	-5.439	Off	-47.878	-25.44	PASS
			-4.632	On	-48.743	-24.63	PASS
8DPSK	LCH	2402	-3.065	Off	-49.076	-23.07	PASS
			-3.060	On	-43.968	-23.06	PASS
	HCH	2480	-4.612	Off	-48.799	-24.61	PASS
			-4.379	On	-48.846	-24.38	PASS

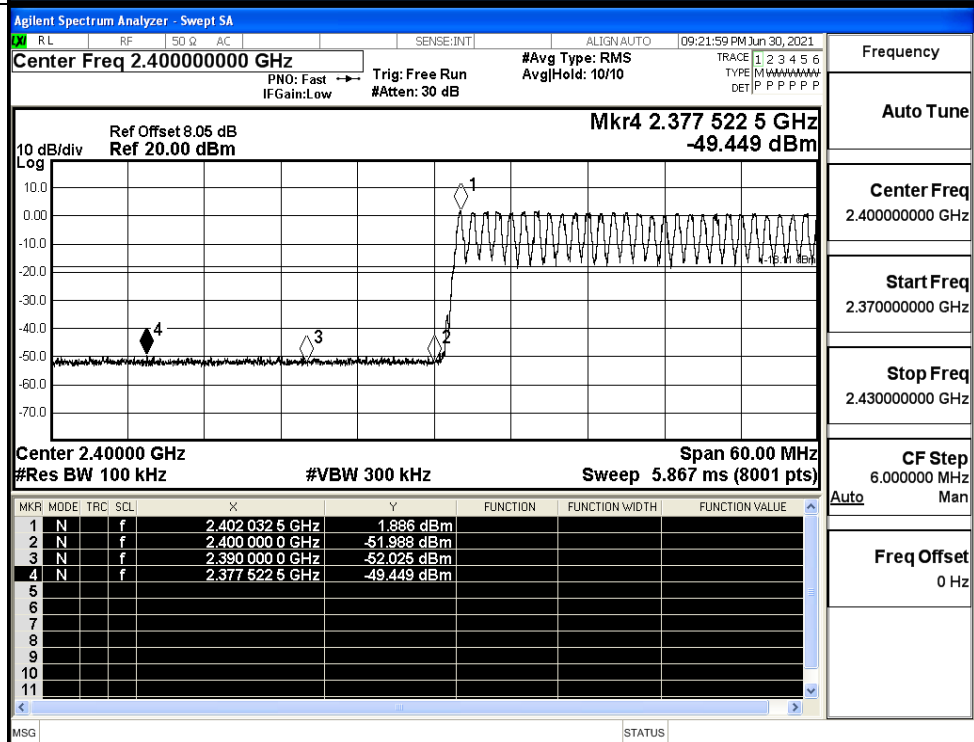


Test Graphs

GFSK/LCH/No Hop

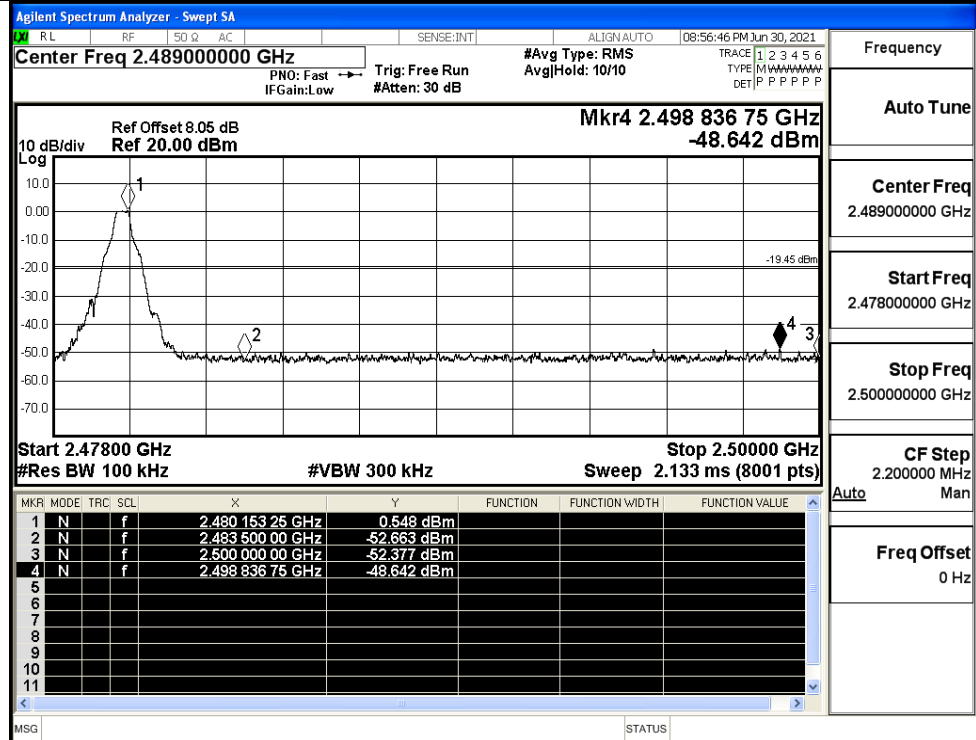


GFSK/LCH/Hop

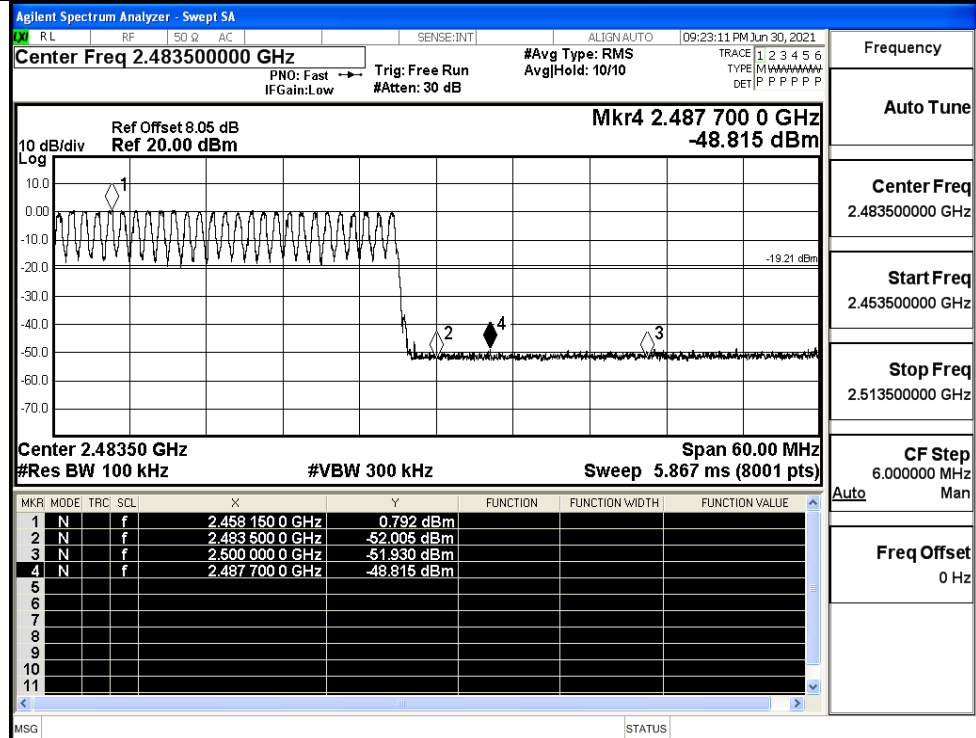




GFSK/HCH/No Hop

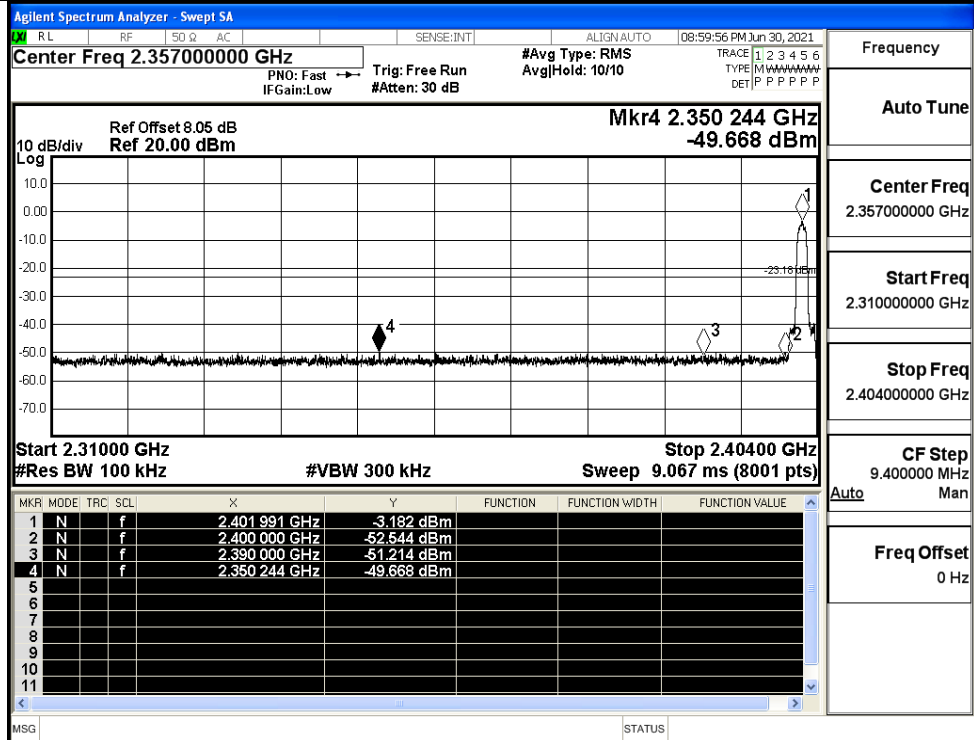


GFSK/HCH/Hop





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



Frequency

Auto Tune

Center Freq
2.357000000 GHz

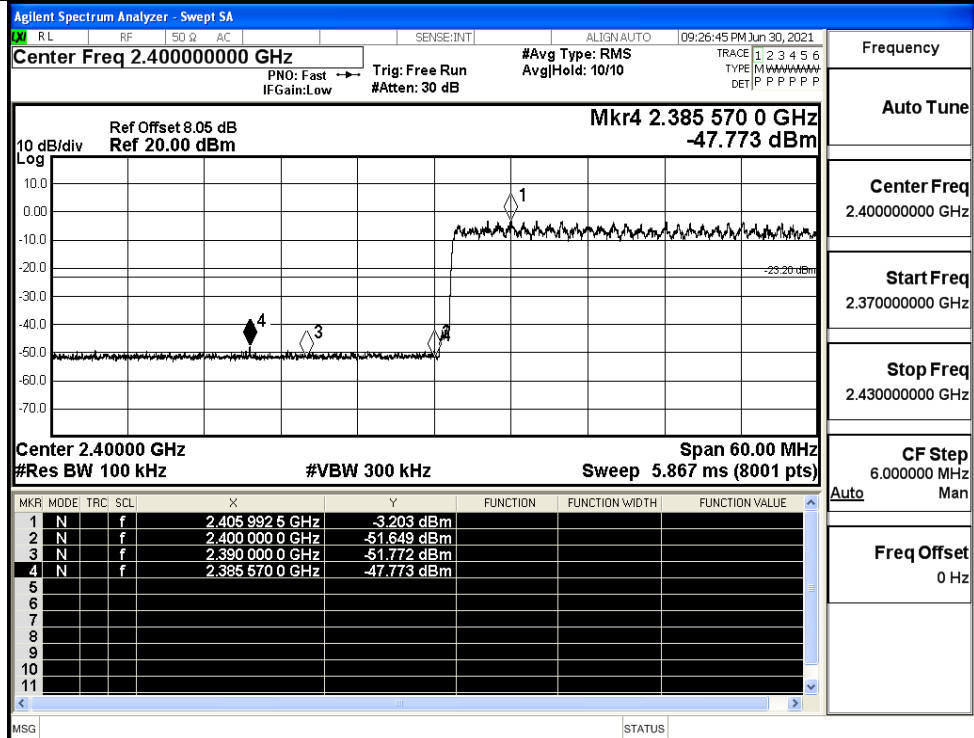
Start Freq
2.310000000 GHz

Stop Freq
2.404000000 GHz

CF Step
9.400000 MHz
Auto Man

Freq Offset
0 Hz

$\pi/4$ DQPSK/LCH/Hop



Frequency

Auto Tune

Center Freq
2.400000000 GHz

Start Freq
2.370000000 GHz

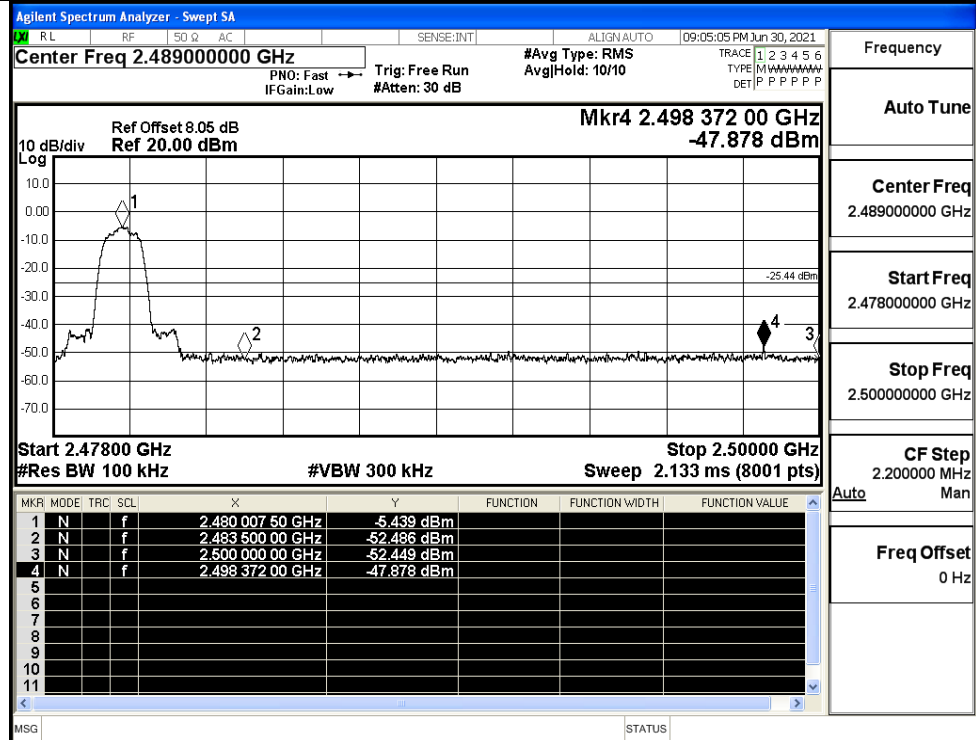
Stop Freq
2.430000000 GHz

CF Step
6.000000 MHz
Auto Man

Freq Offset
0 Hz



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

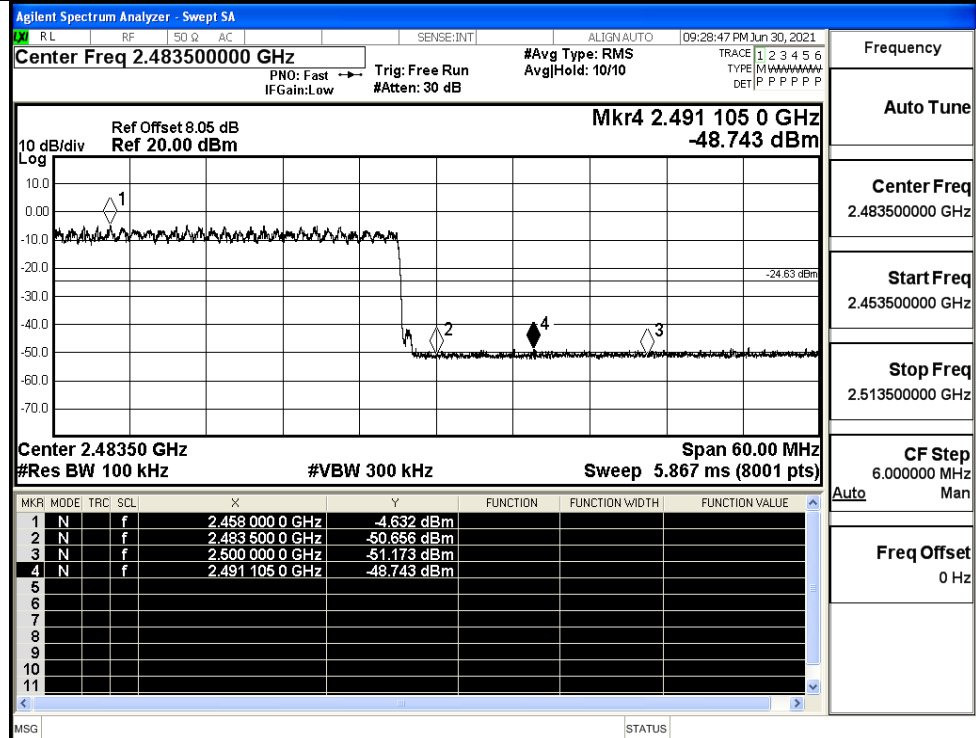


Frequency

Auto Tune

Center Freq
2.489000000 GHzStart Freq
2.478000000 GHzStop Freq
2.500000000 GHzCF Step
2.200000 MHz
Auto ManFreq Offset
0 Hz

$\pi/4$ DQPSK/HCH/Hop



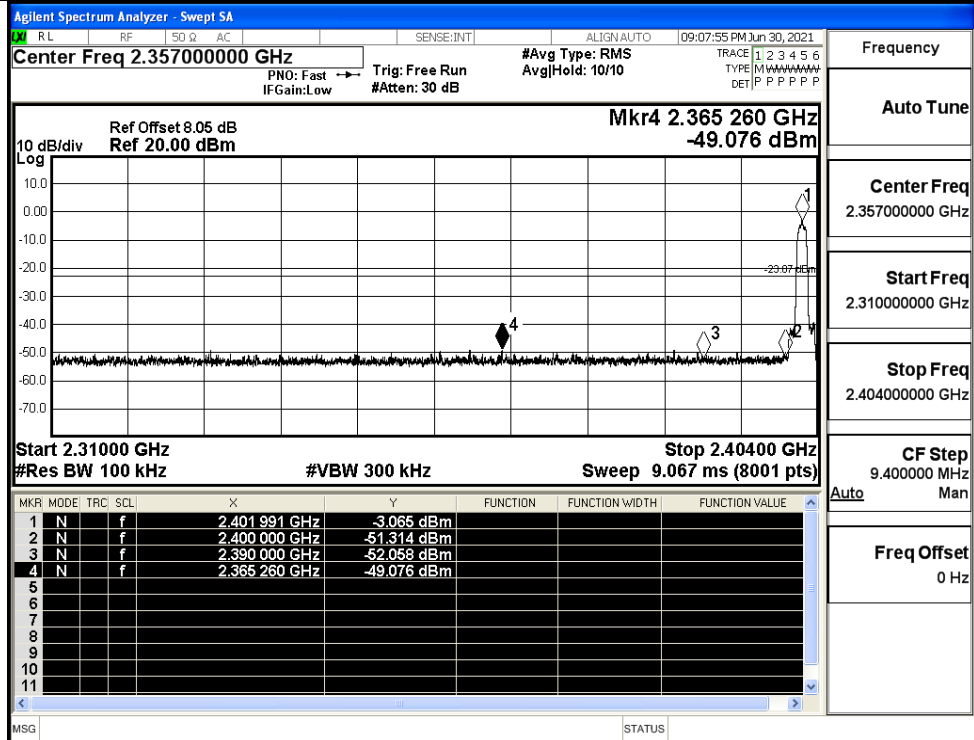
Frequency

Auto Tune

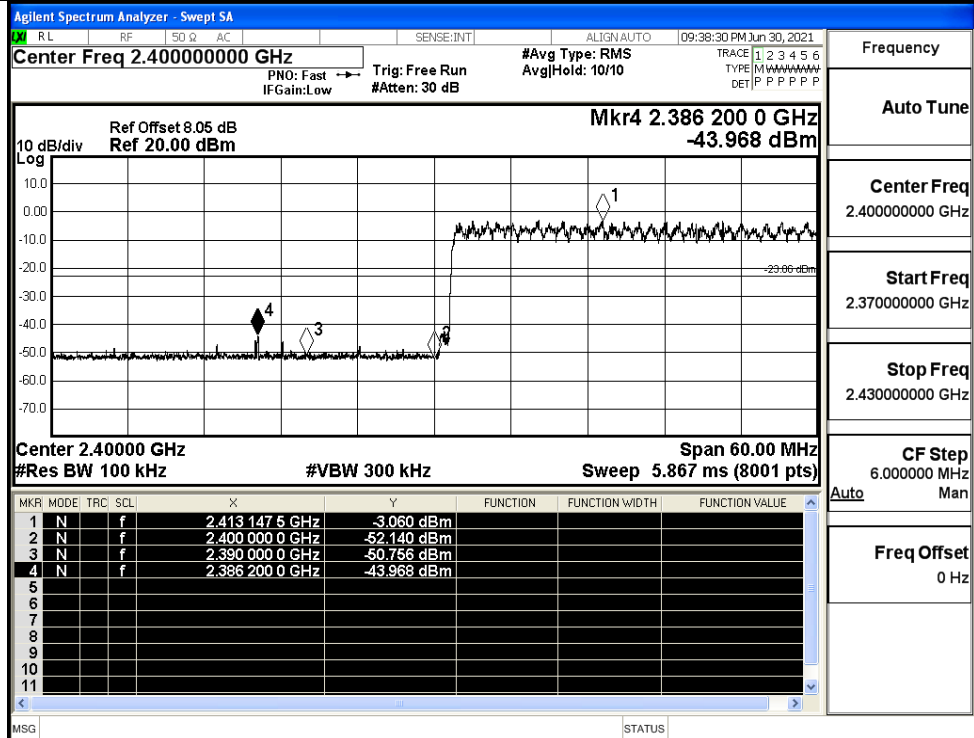
Center Freq
2.483500000 GHzStart Freq
2.453500000 GHzStop Freq
2.513500000 GHzCF Step
6.000000 MHz
Auto ManFreq Offset
0 Hz



8DPSK/LCH/No Hop

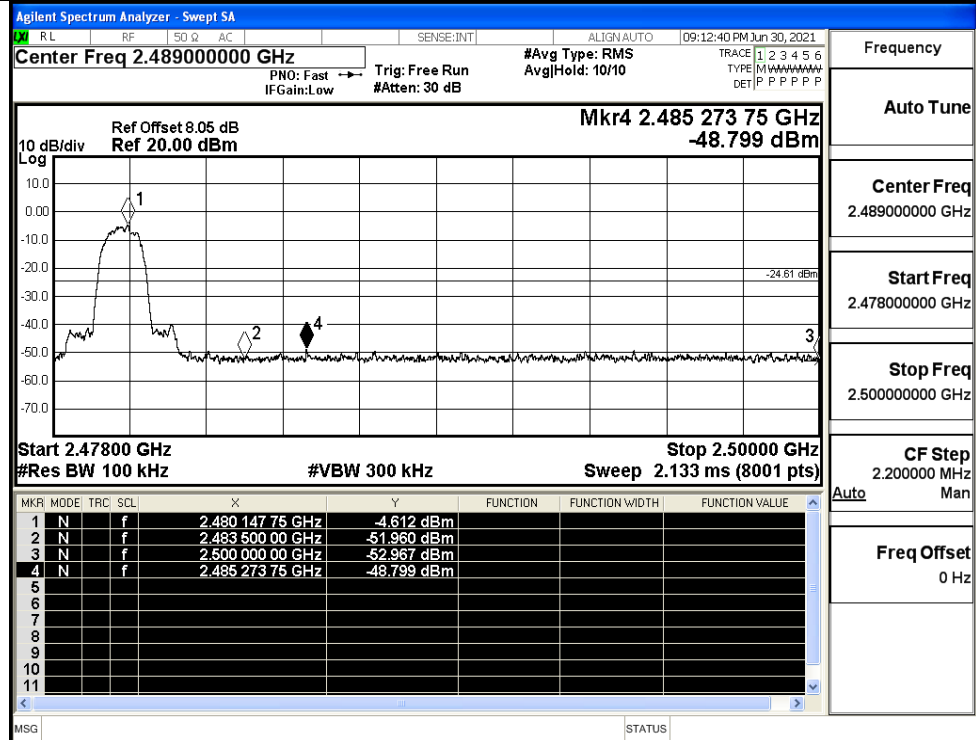


8DPSK/LCH/Hop

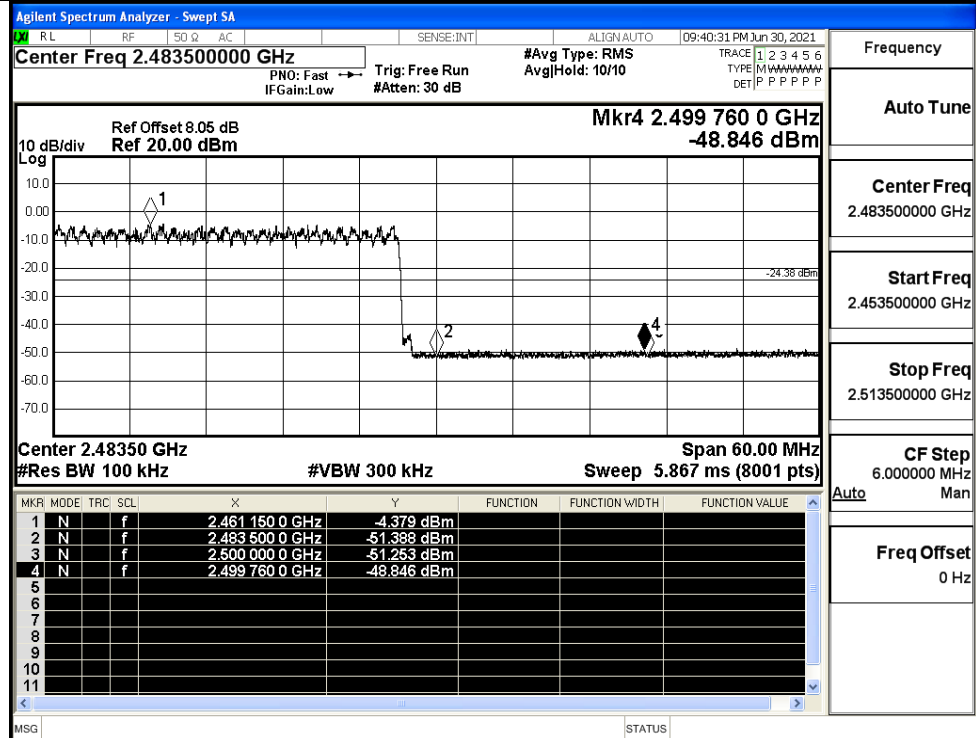




8DPSK/HCH/No Hop



8DPSK/HCH/Hop



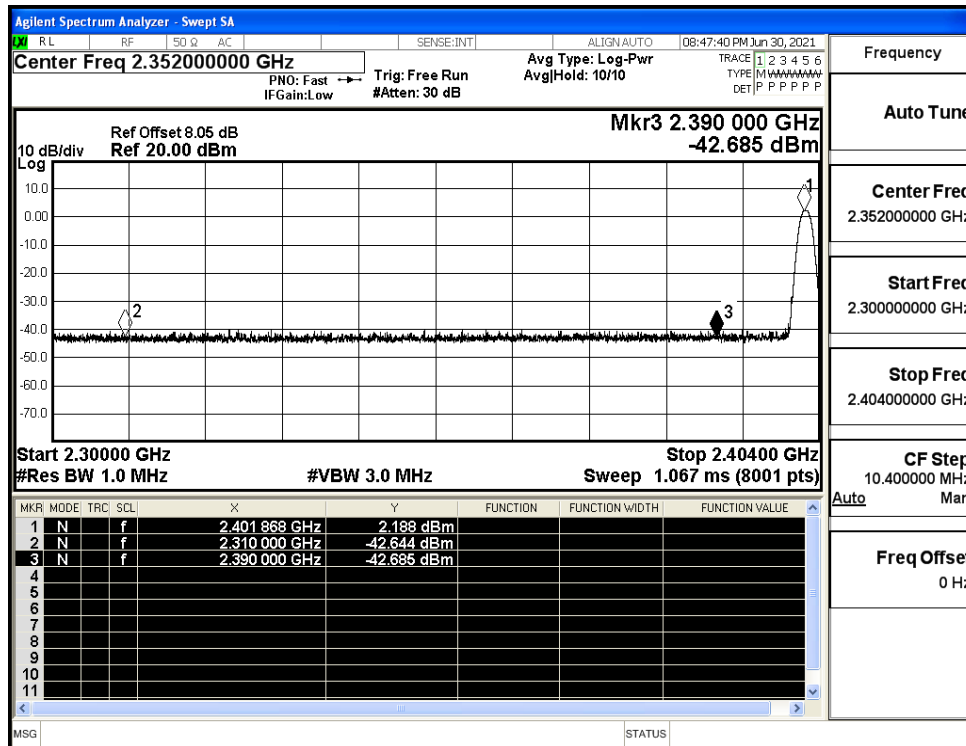


A.8 Restrict-band band-edge measurements

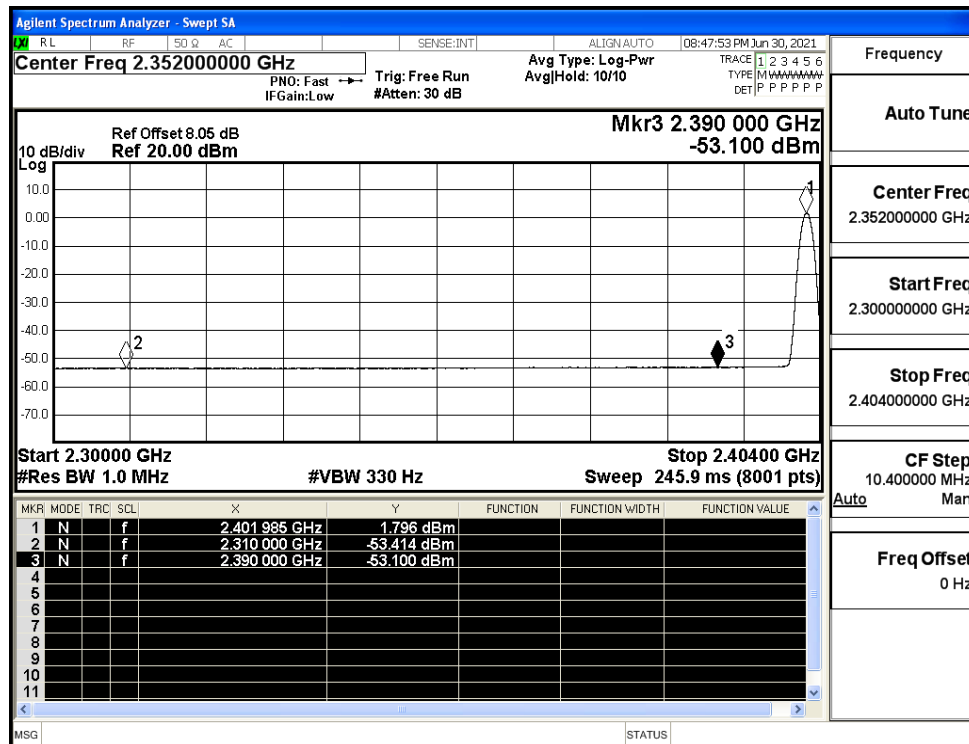
Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-42.64	2.57	0	55.16	PEAK	74	PASS
	Off	2310.0	-53.41	2.57	0	44.39	AV	54	PASS
	Off	2390.0	-42.69	2.57	0	55.11	PEAK	74	PASS
	Off	2390.0	-53.10	2.57	0	44.70	AV	54	PASS
	Off	2483.5	-41.65	2.57	0	56.15	PEAK	74	PASS
	Off	2483.5	-52.54	2.57	0	45.26	AV	54	PASS
	Off	2500.0	-41.41	2.57	0	56.39	PEAK	74	PASS
	Off	2500.0	-52.47	2.57	0	45.33	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-40.51	2.57	0	57.29	PEAK	74	PASS
	Off	2310.0	-53.52	2.57	0	44.28	AV	54	PASS
	Off	2390.0	-42.95	2.57	0	54.85	PEAK	74	PASS
	Off	2390.0	-53.12	2.57	0	44.68	AV	54	PASS
	Off	2483.5	-42.65	2.57	0	55.15	PEAK	74	PASS
	Off	2483.5	-52.53	2.57	0	45.27	AV	54	PASS
	Off	2500.0	-41.63	2.57	0	56.17	PEAK	74	PASS
	Off	2500.0	-52.42	2.57	0	45.38	AV	54	PASS
8DPSK	Off	2310.0	-44.08	2.57	0	53.72	PEAK	74	PASS
	Off	2310.0	-53.48	2.57	0	44.32	AV	54	PASS
	Off	2390.0	-43.37	2.57	0	54.43	PEAK	74	PASS
	Off	2390.0	-53.04	2.57	0	44.76	AV	54	PASS
	Off	2483.5	-43.22	2.57	0	54.58	PEAK	74	PASS
	Off	2483.5	-52.60	2.57	0	45.20	AV	54	PASS
	Off	2500.0	-40.84	2.57	0	56.96	PEAK	74	PASS
	Off	2500.0	-52.43	2.57	0	45.37	AV	54	PASS



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

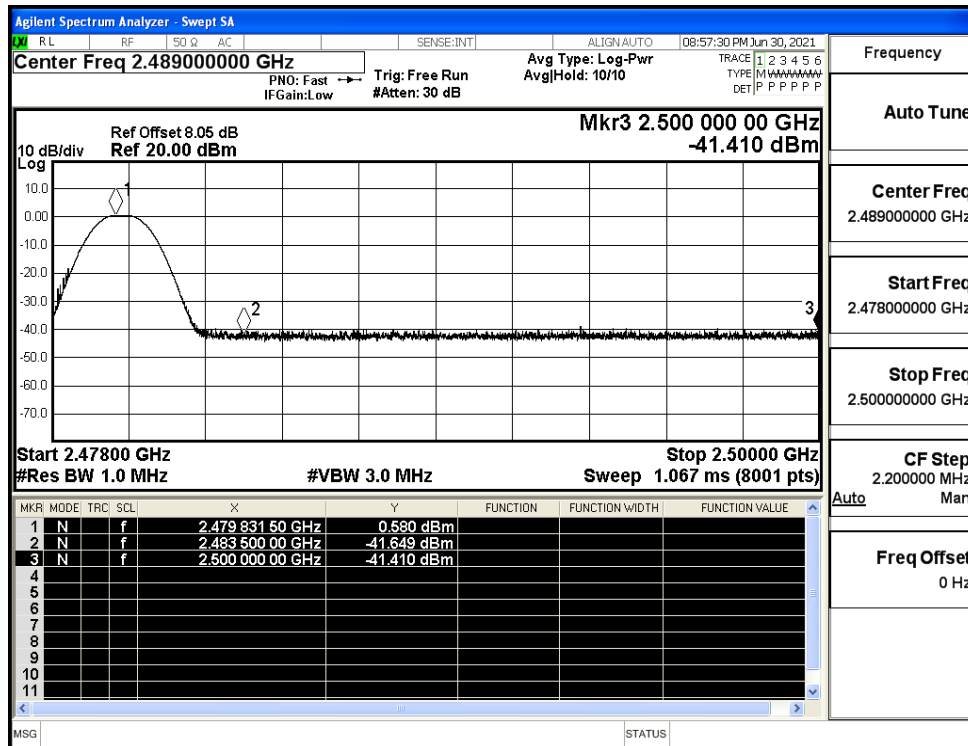


Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

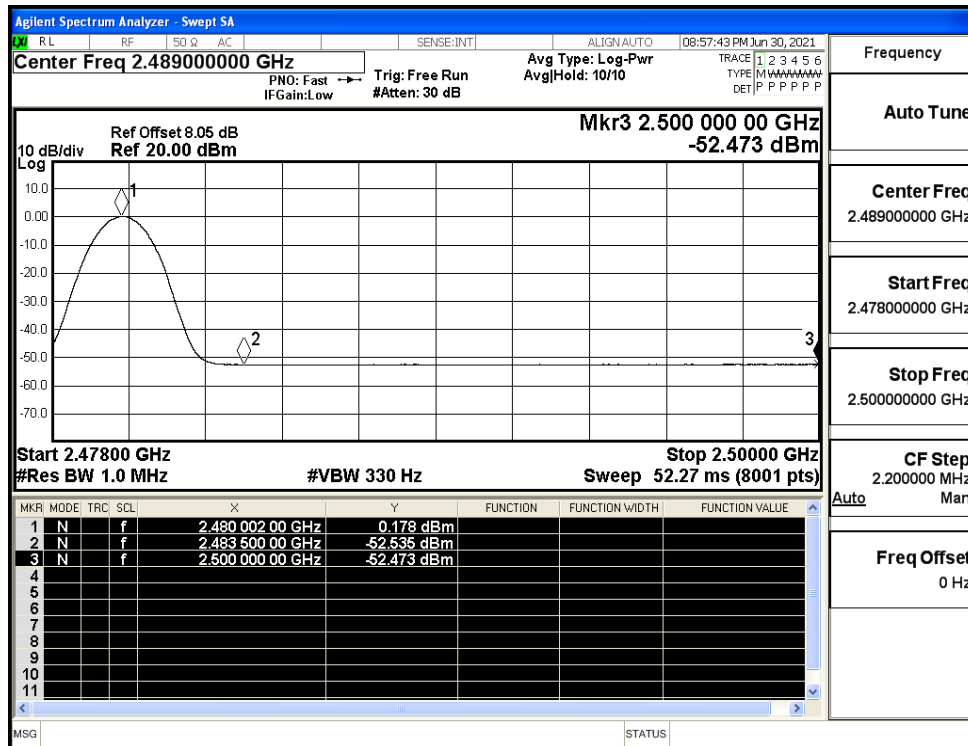


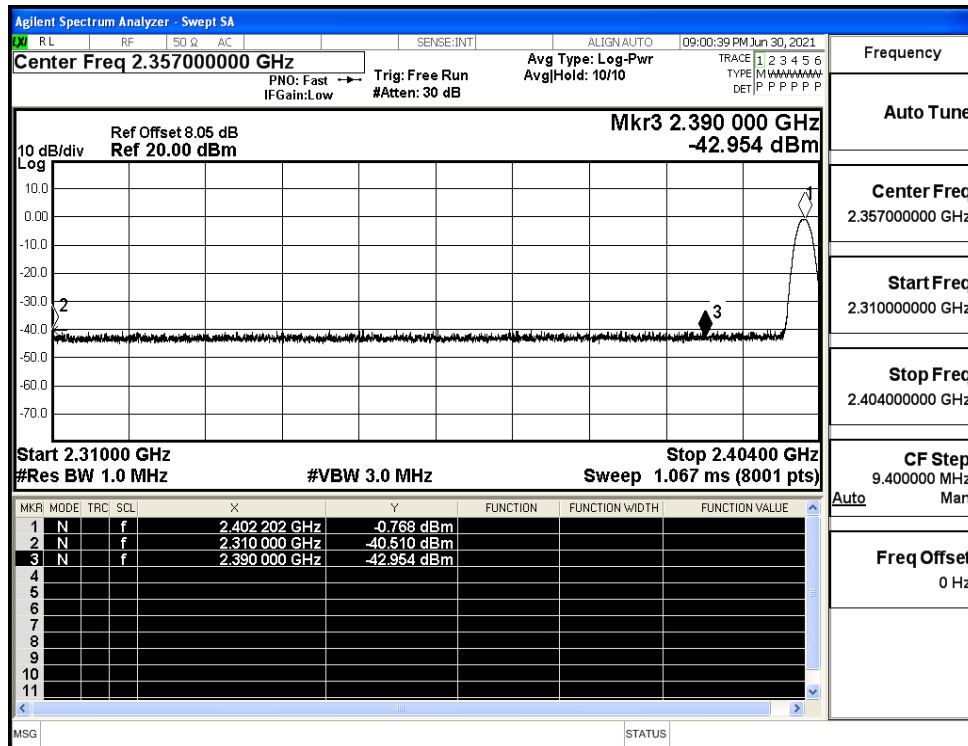
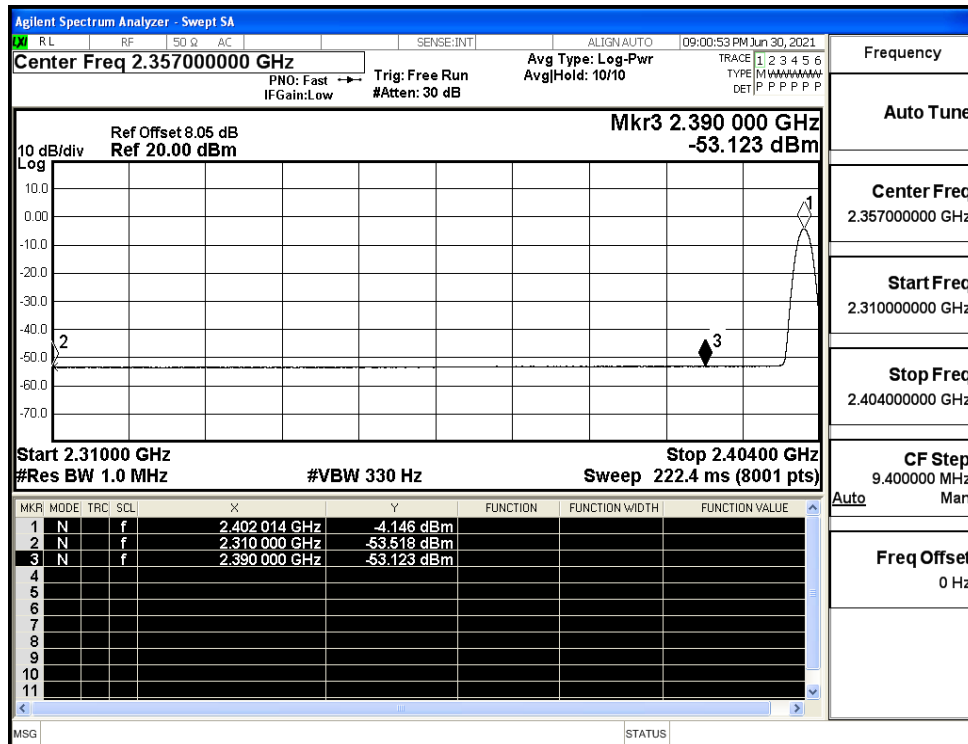


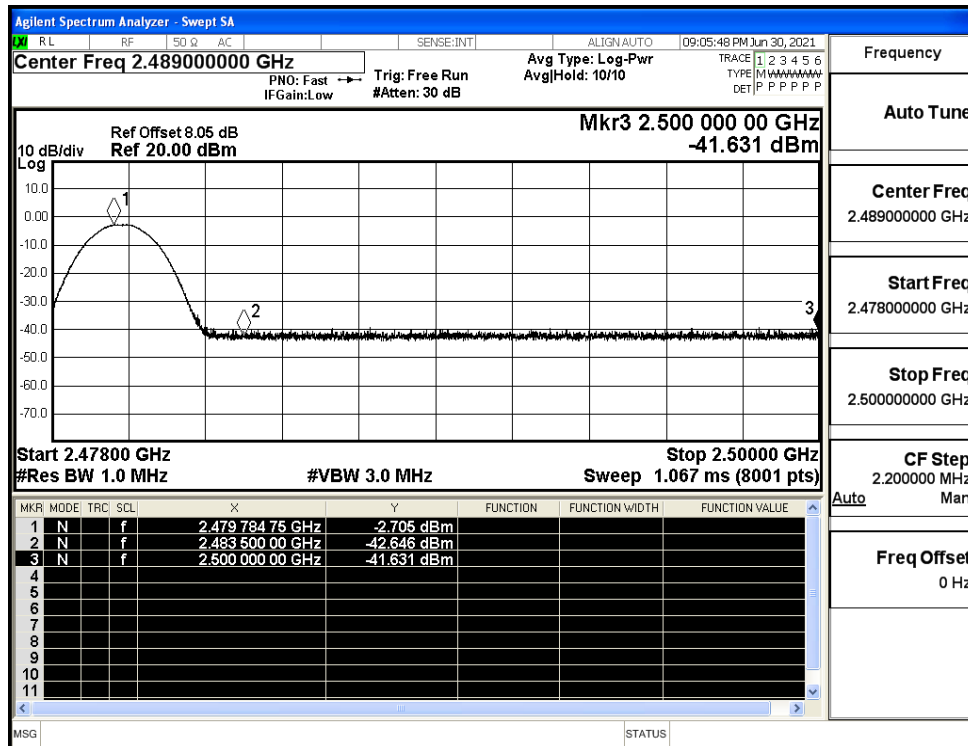
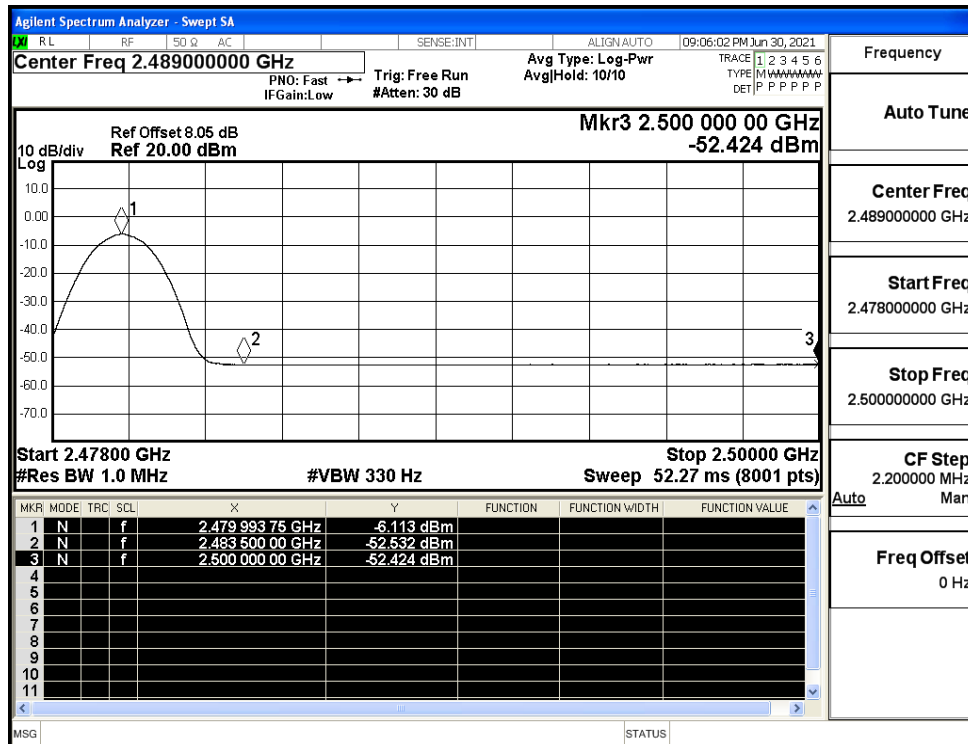
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



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

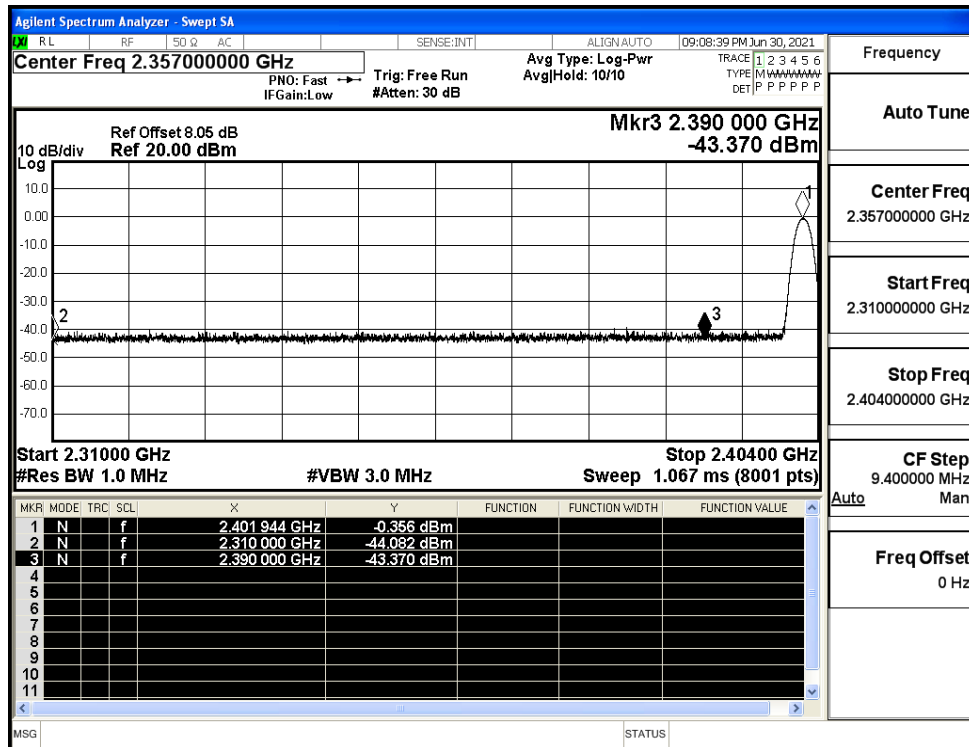


Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

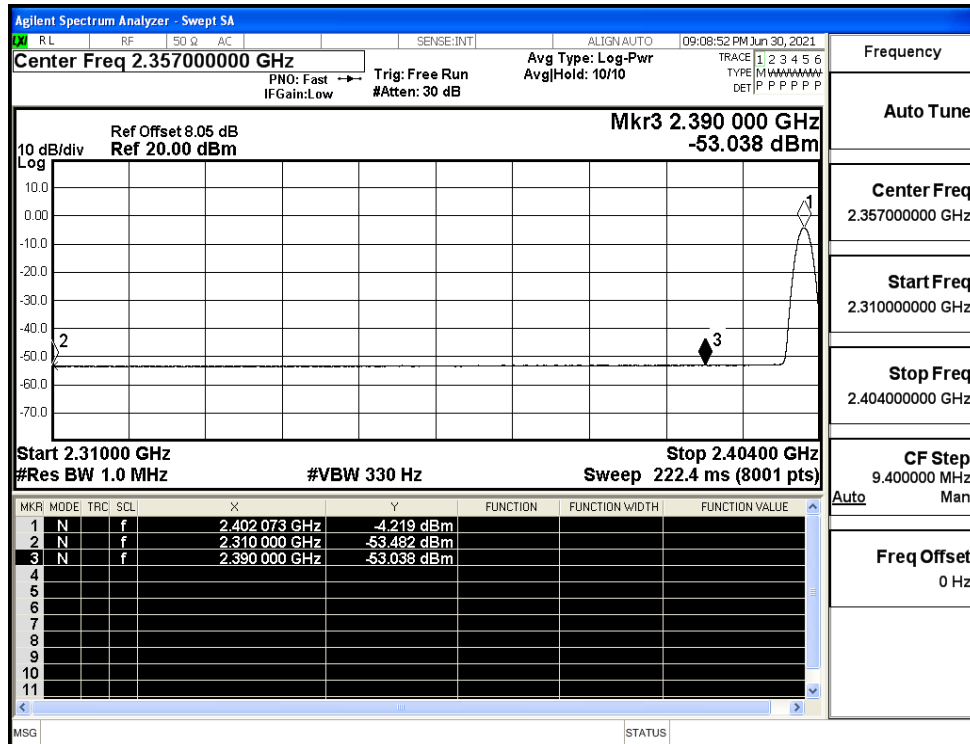
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (High Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (High Channel)



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

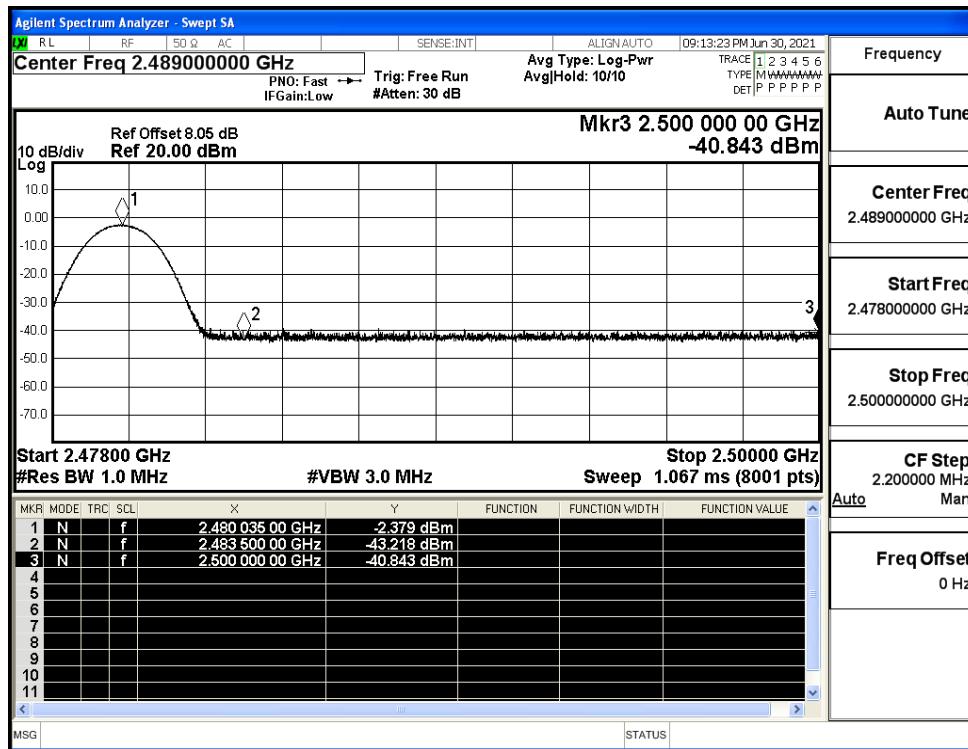


Restrict-band band-edge measurements_Hopping Off_8DPSK_Average (Low Channel)





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



Restrict-band band-edge measurements_Hopping Off_8DPSK_Average (High Channel)

