

Appendix A

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

**Product Name: BRAZEN EMPEROR X AND EMPEROR XX 2.1 DAB
SURROUND SOUND GAMING CHAIRS**

Trade Mark: BRAZEN

Test Model: BX-312

Environmental Conditions

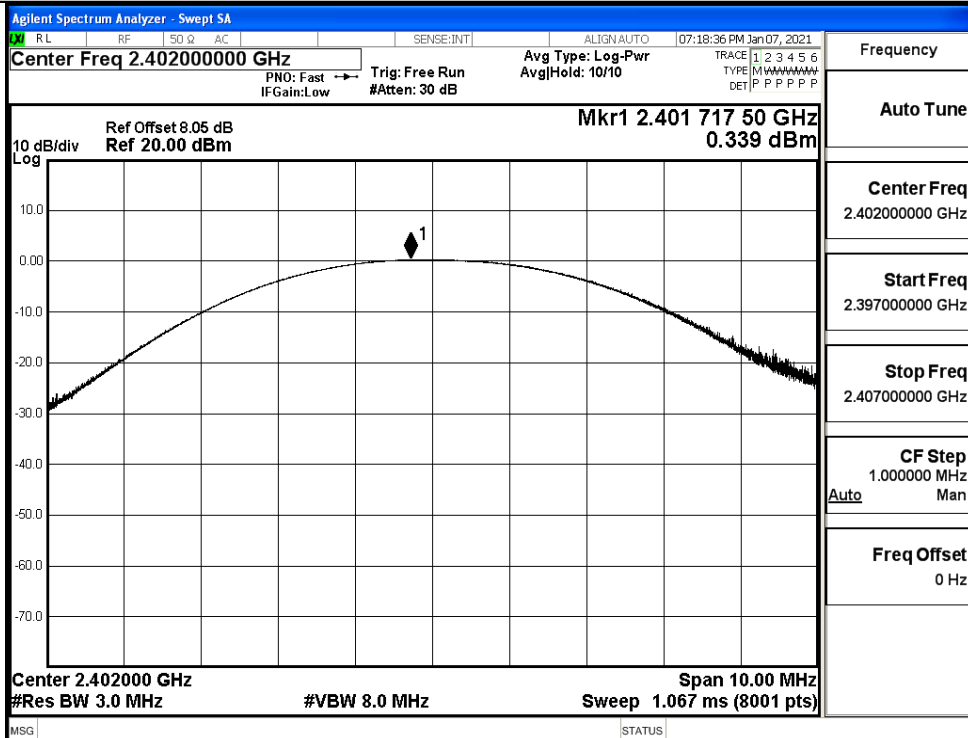
Temperature:	24.6 ° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Ben Jin
Supervised by:	Li Huan

A.1 Maxmum Conducted Peak Output Power

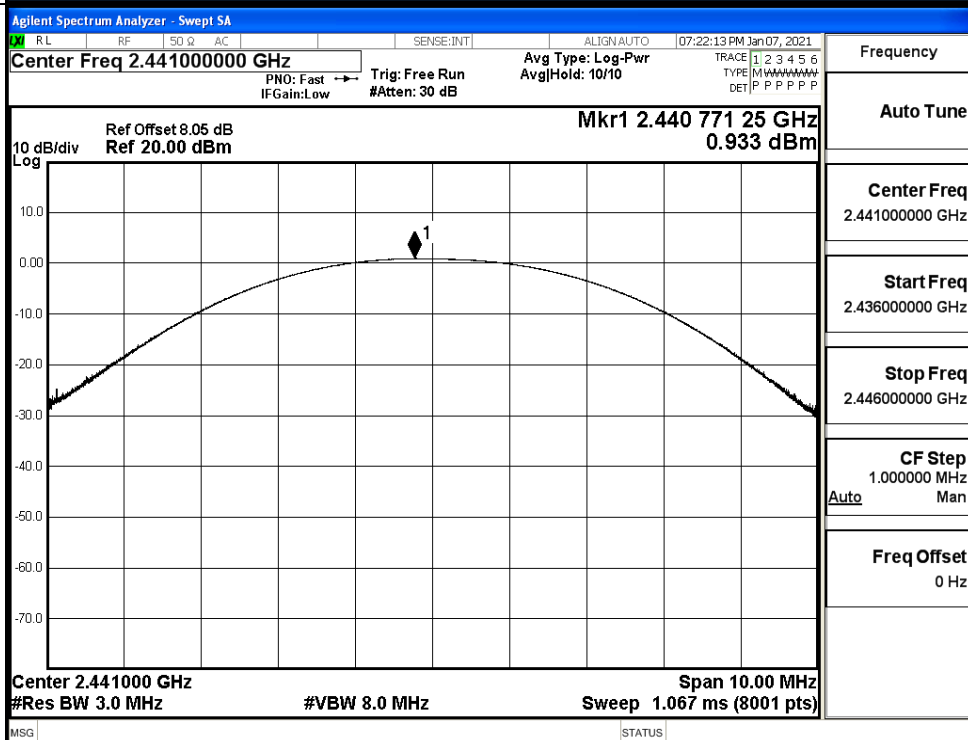
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.339	30	PASS
	MCH	0.933	30	PASS
	HCH	1.209	30	PASS
$\pi/4$ DQPSK	LCH	1.069	21	PASS
	MCH	1.723	21	PASS
	HCH	1.943	21	PASS

Test Graphs

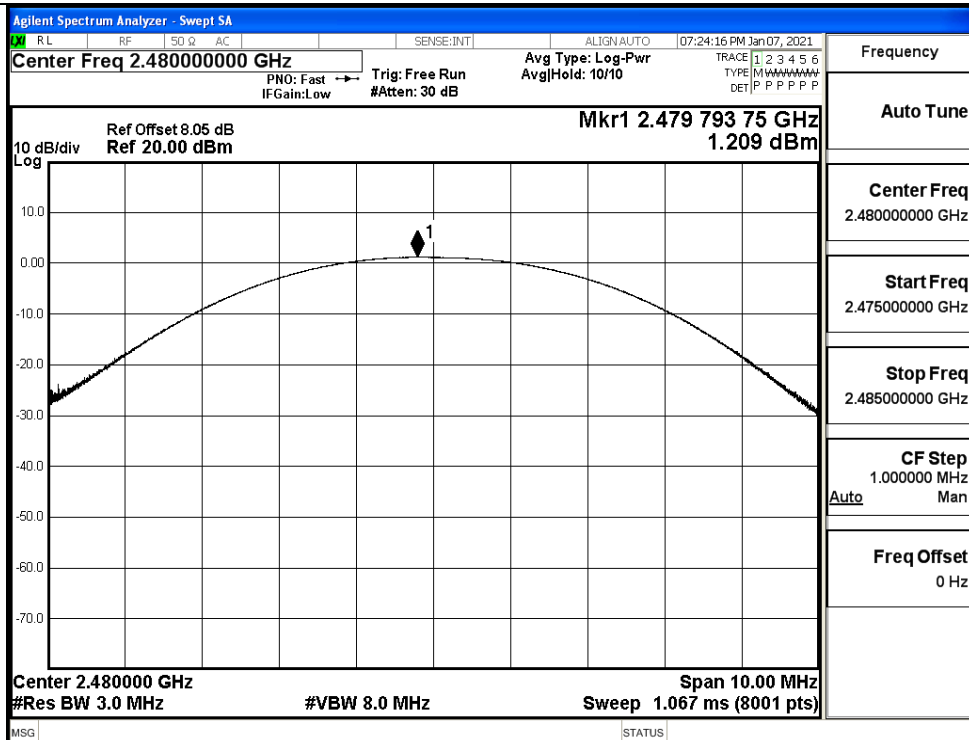
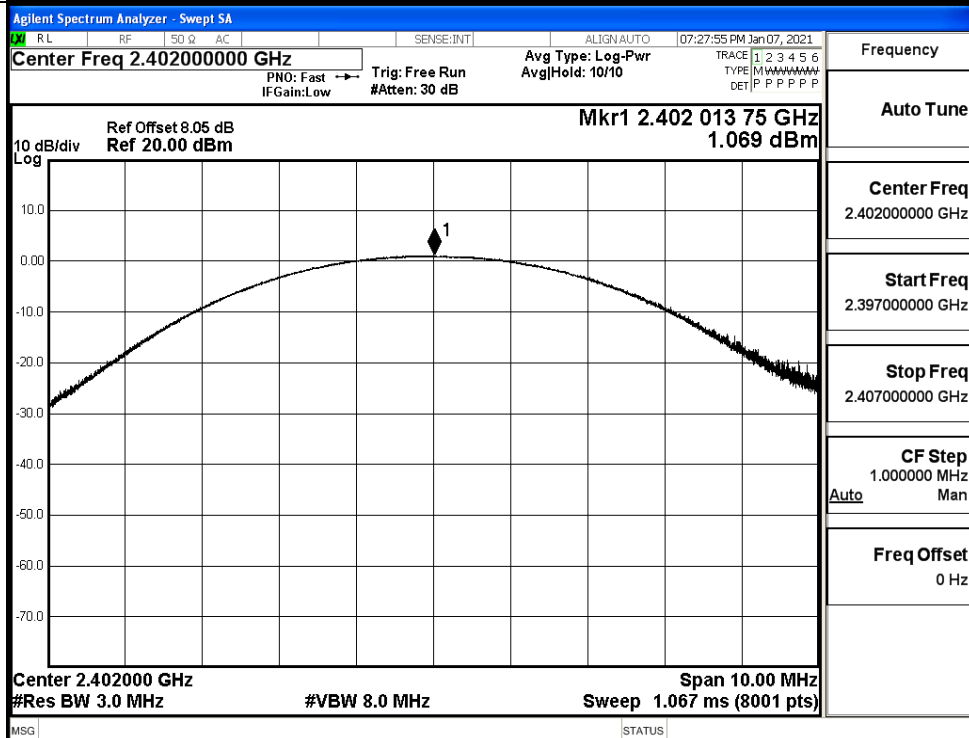
GFSK/LCH

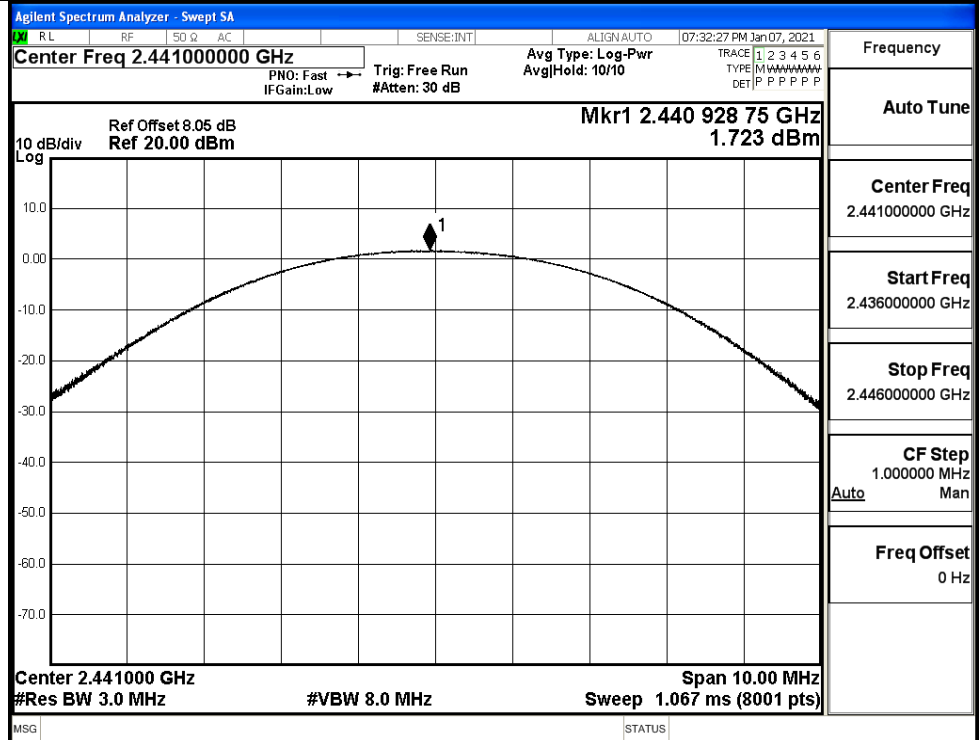
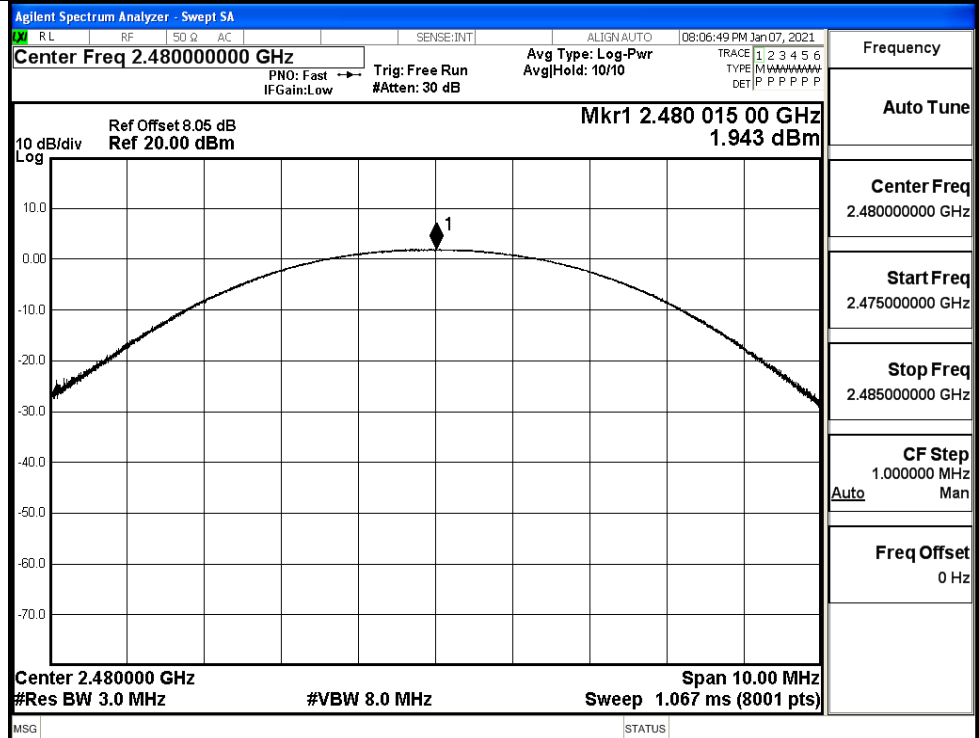


GFSK/MCH



GFSK/HCH

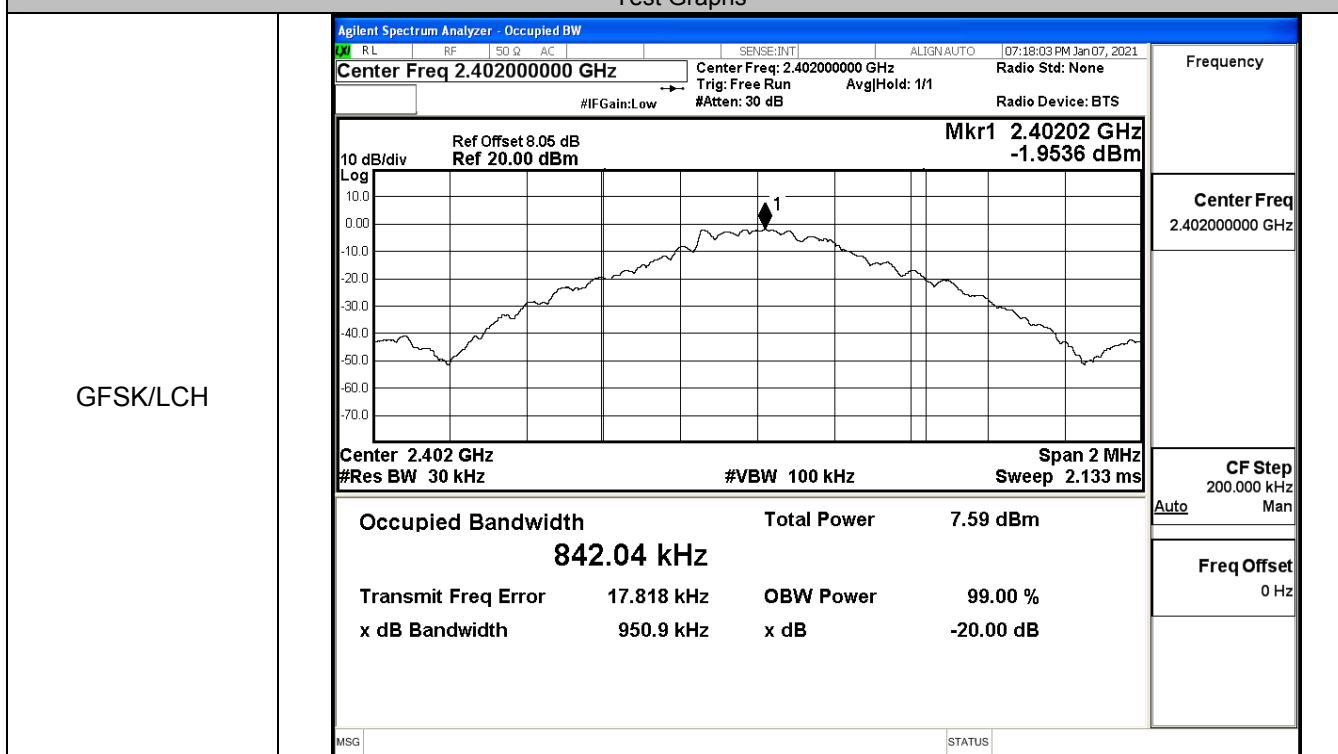
 π /4DQPSK/LCH

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

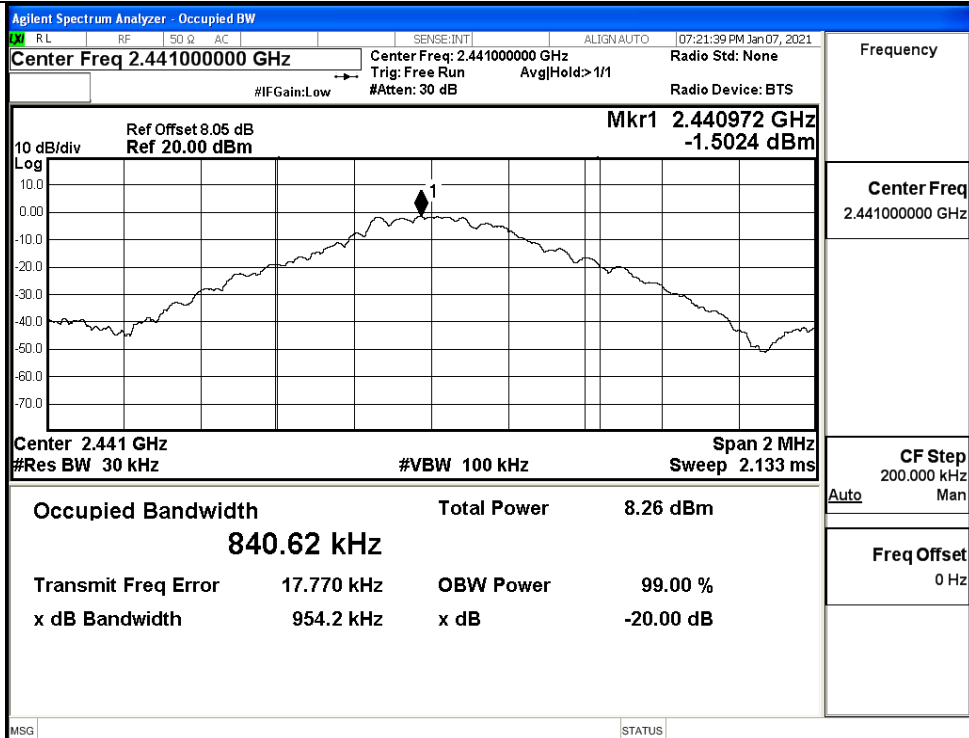
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9509	Not Specified	PASS
	MCH	0.9542	Not Specified	PASS
	HCH	0.9517	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.313	Not Specified	PASS
	MCH	1.312	Not Specified	PASS
	HCH	1.314	Not Specified	PASS

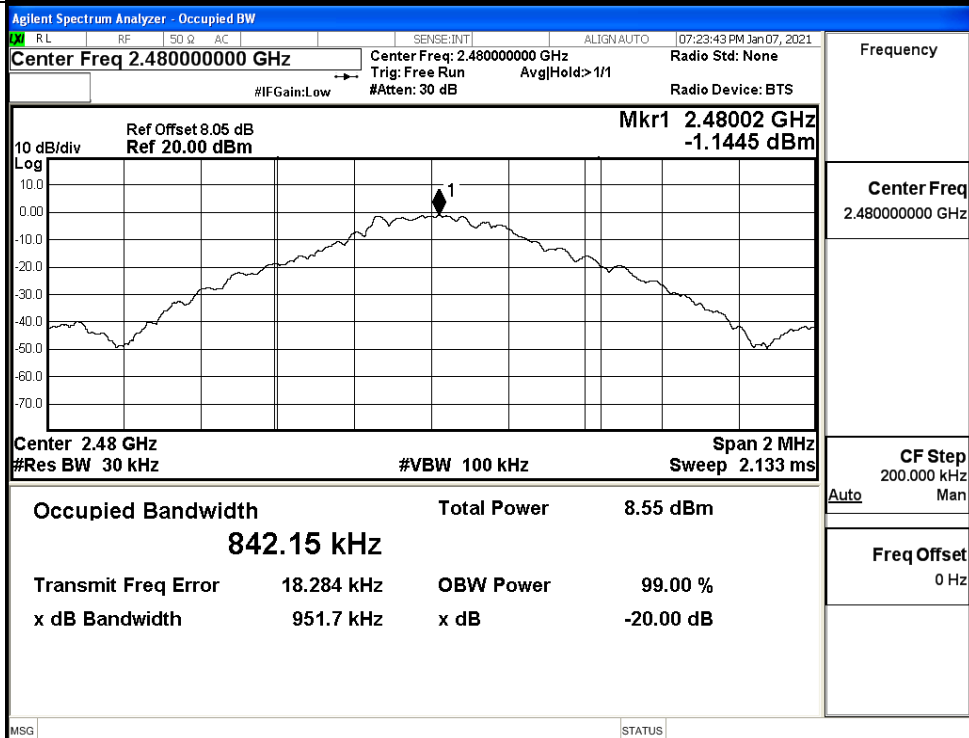
Test Graphs

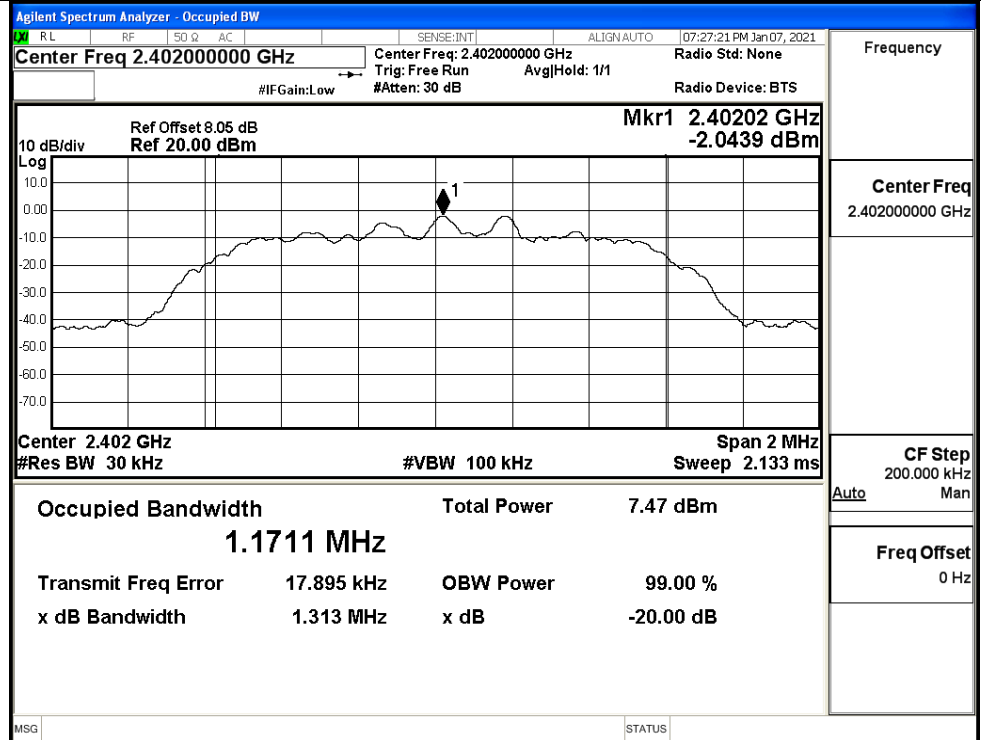
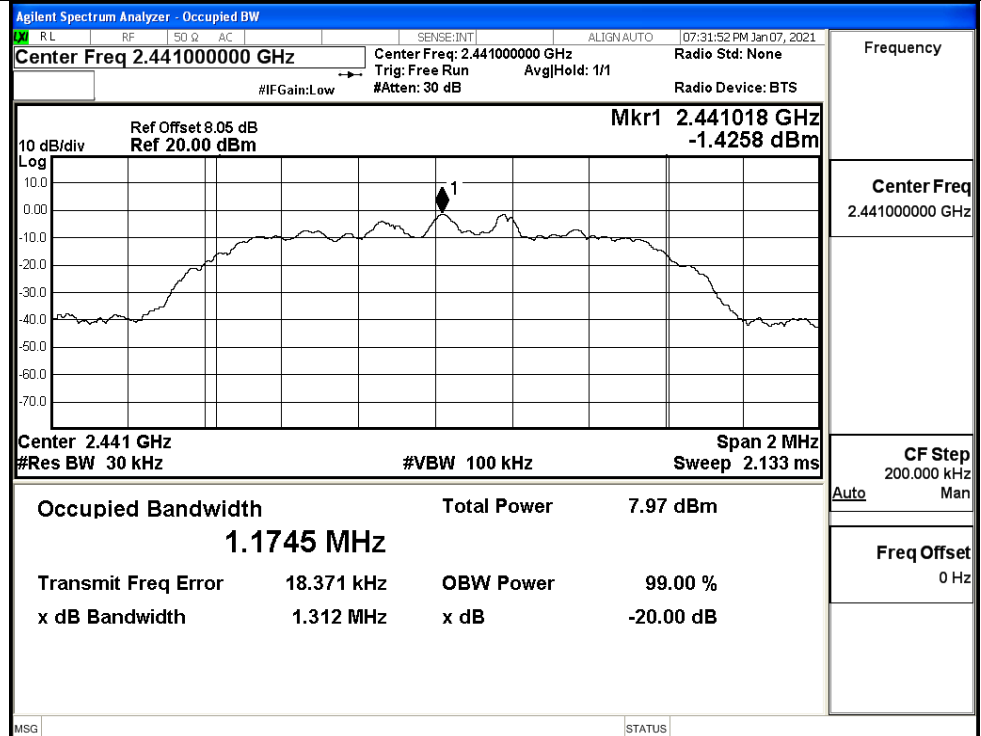


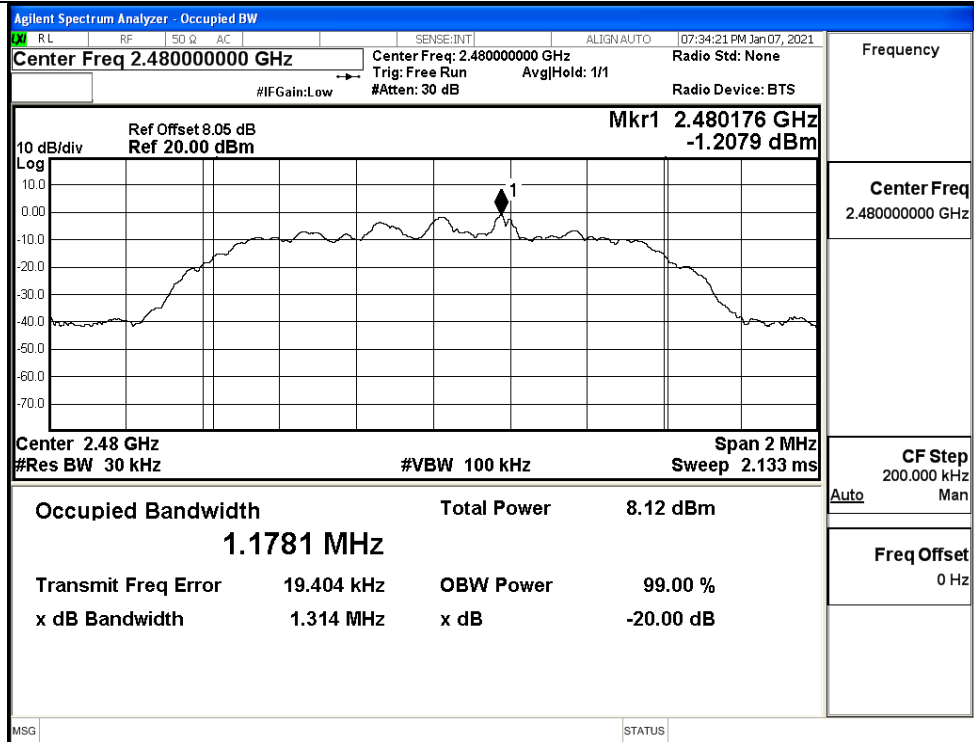
GFSK/MCH



GFSK/HCH



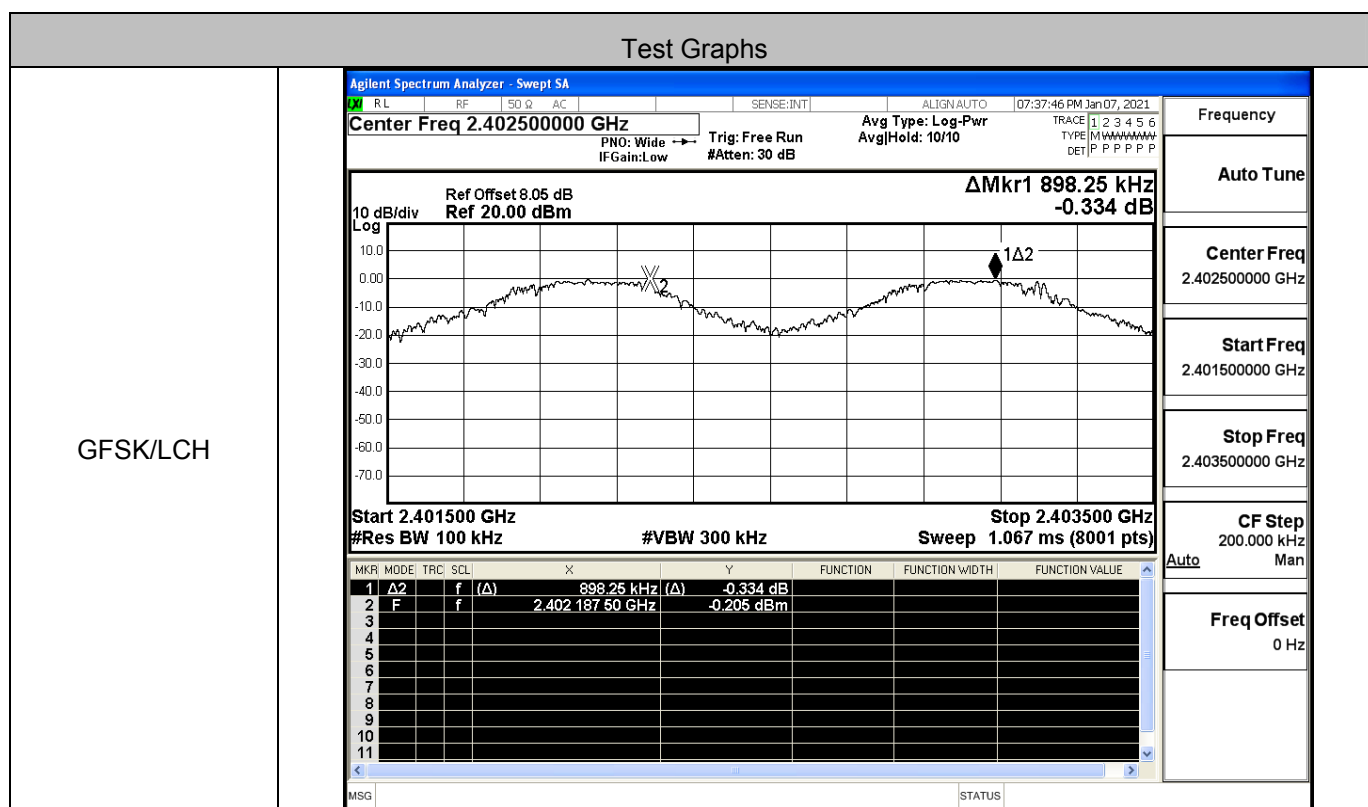
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

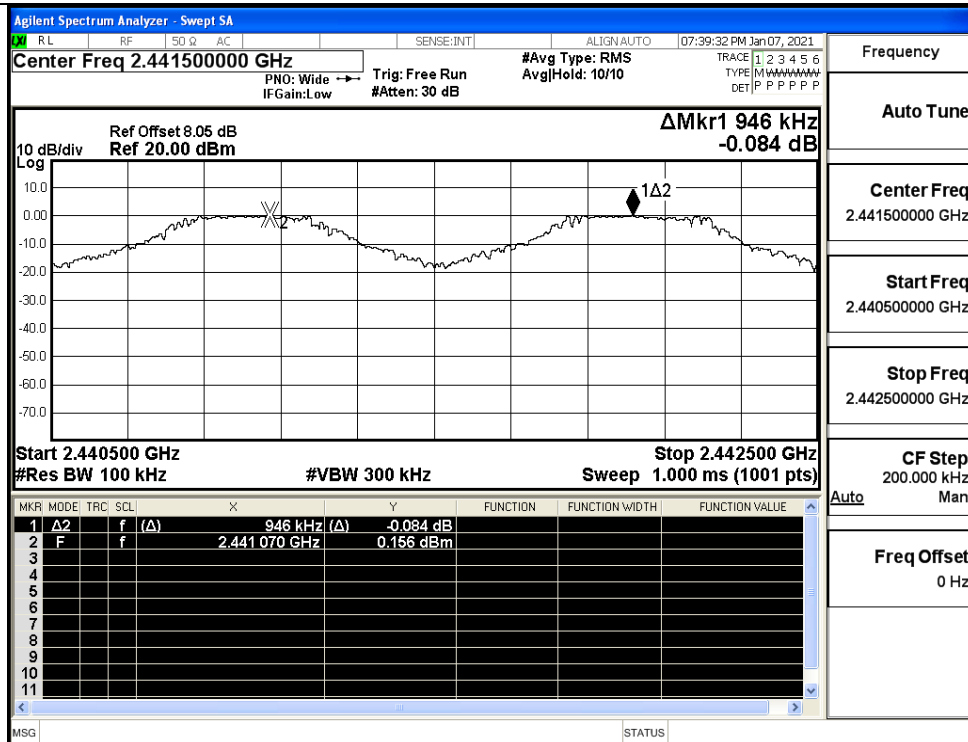
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.898	0.636	PASS
	MCH	0.946	0.636	PASS
	HCH	1.156	0.636	PASS
π /4DQPSK	LCH	1.010	0.796	PASS
	MCH	1.160	0.796	PASS
	HCH	0.900	0.796	PASS

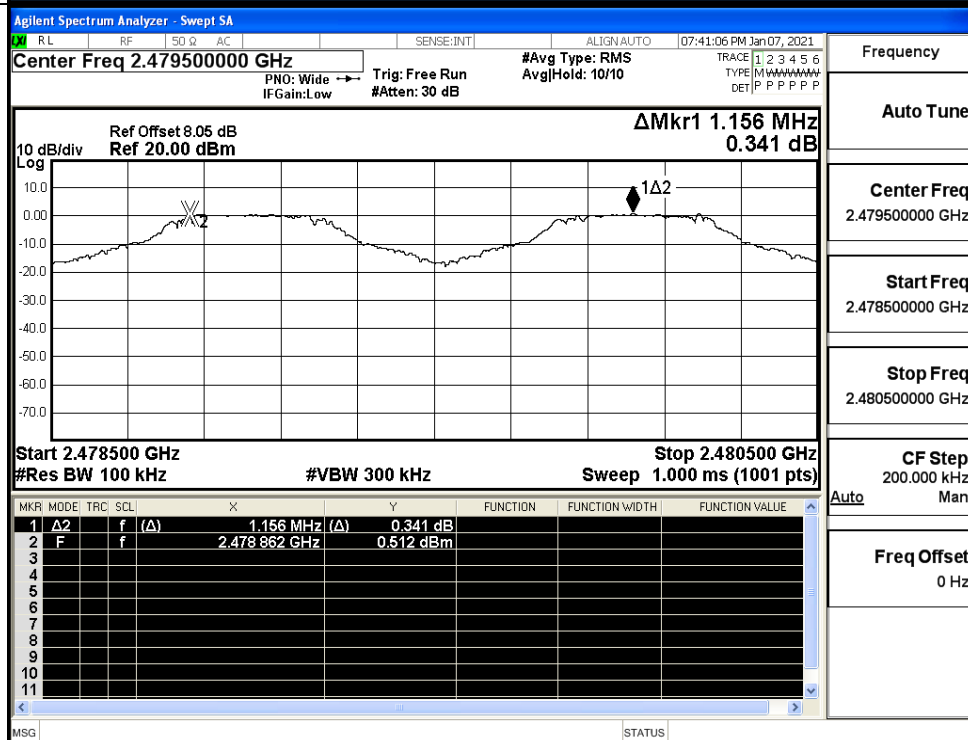
Test Graphs

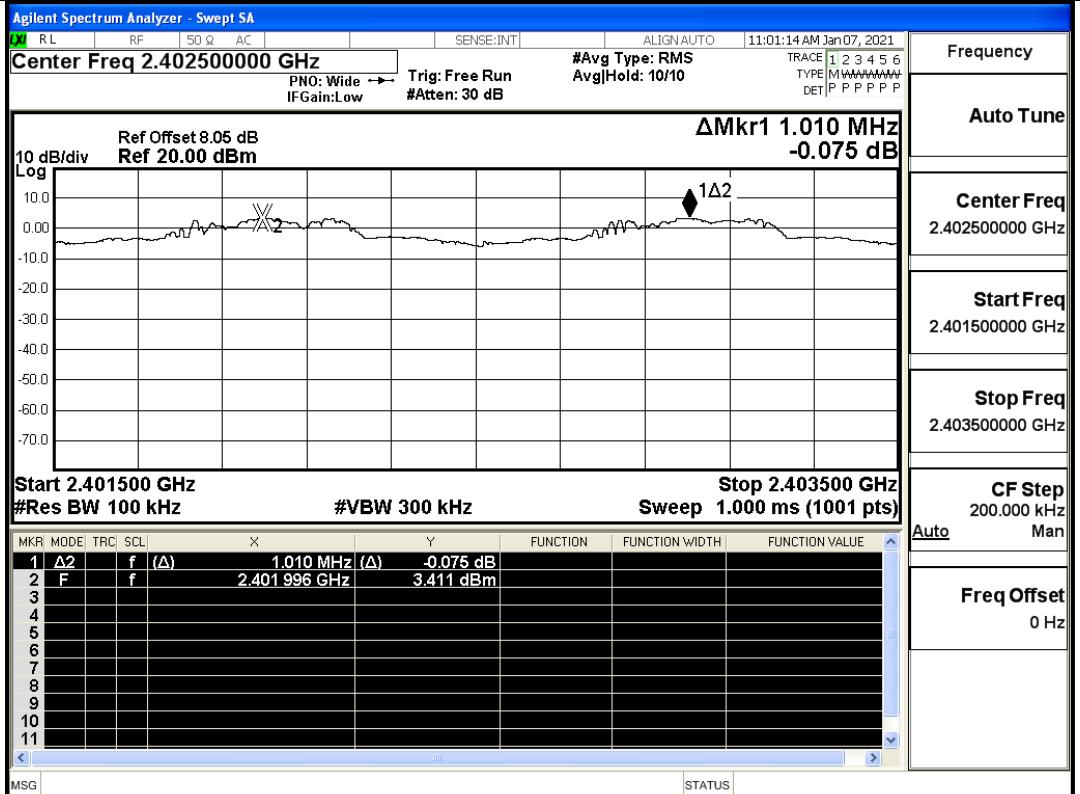
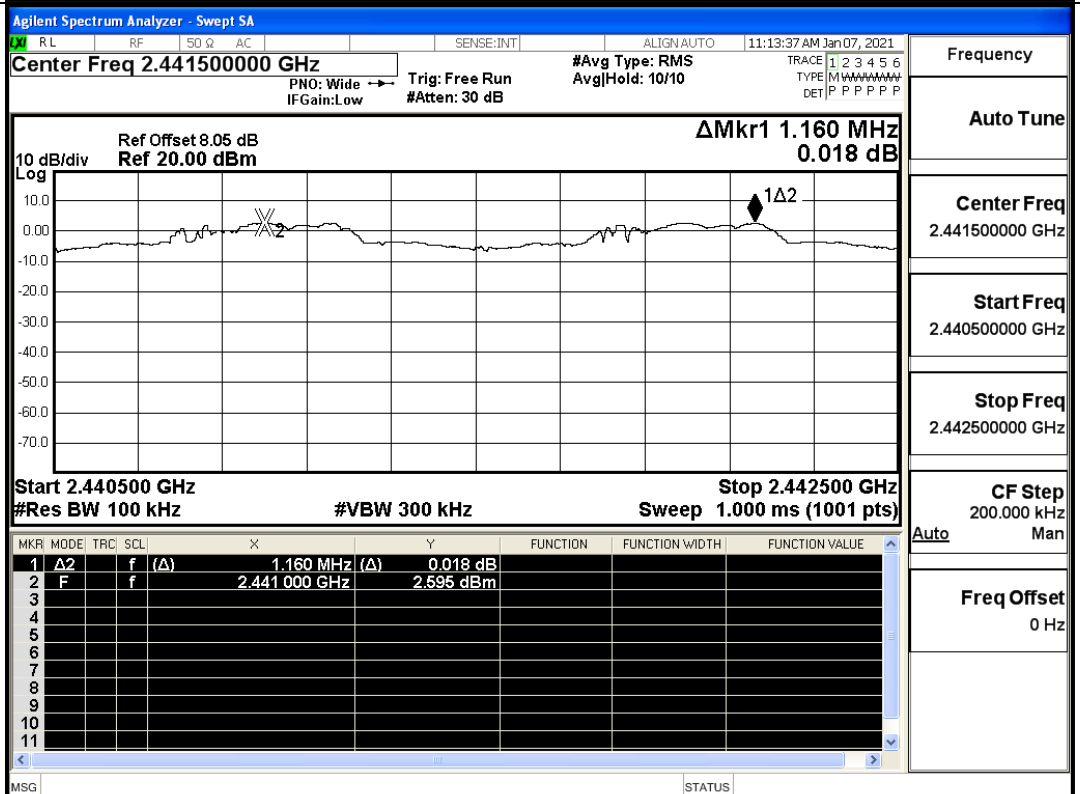


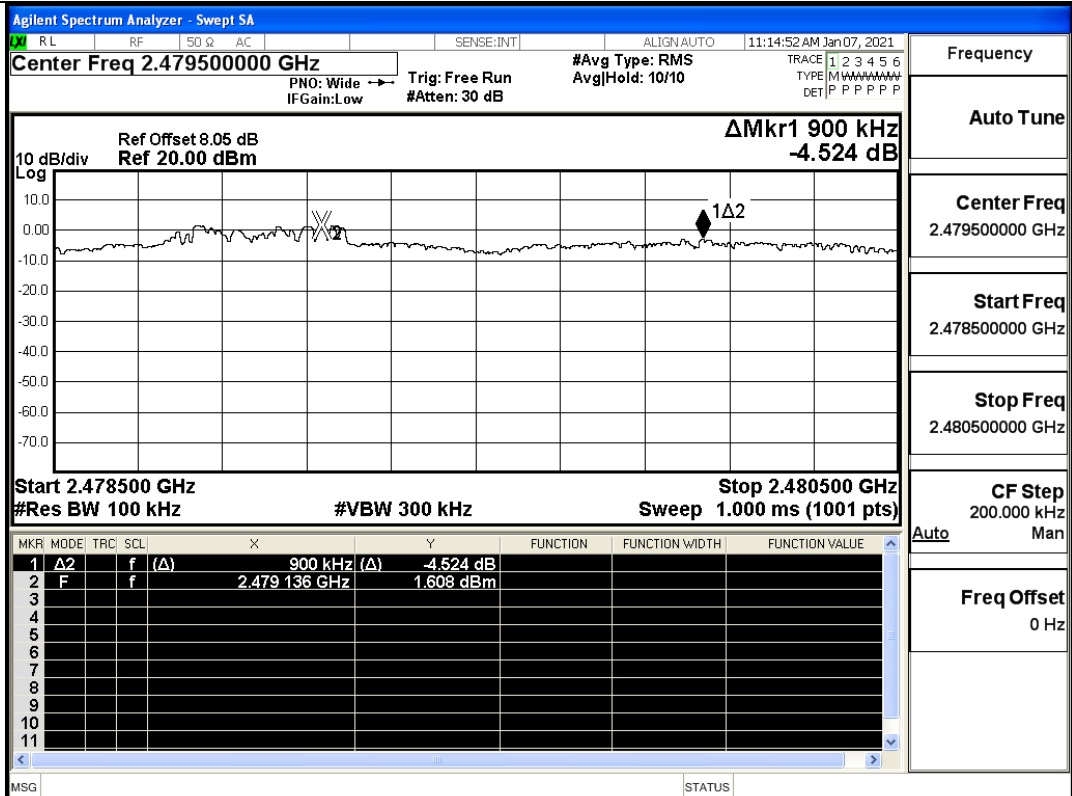
GFSK/MCH



GFSK/HCH



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

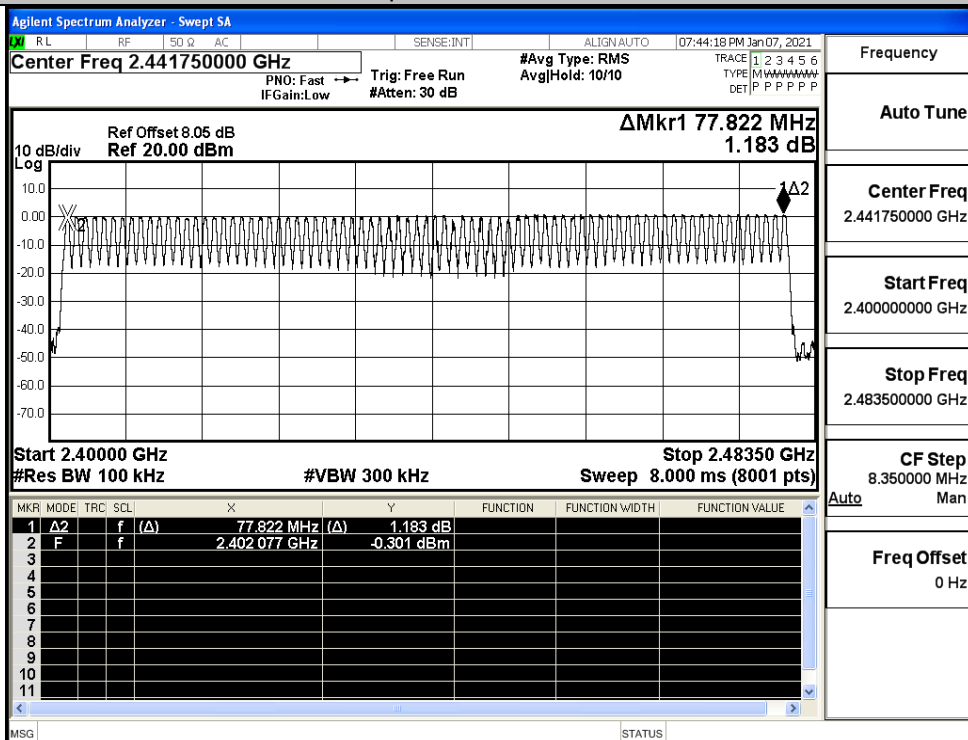
$\pi/4$ DQPSK/HCH

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

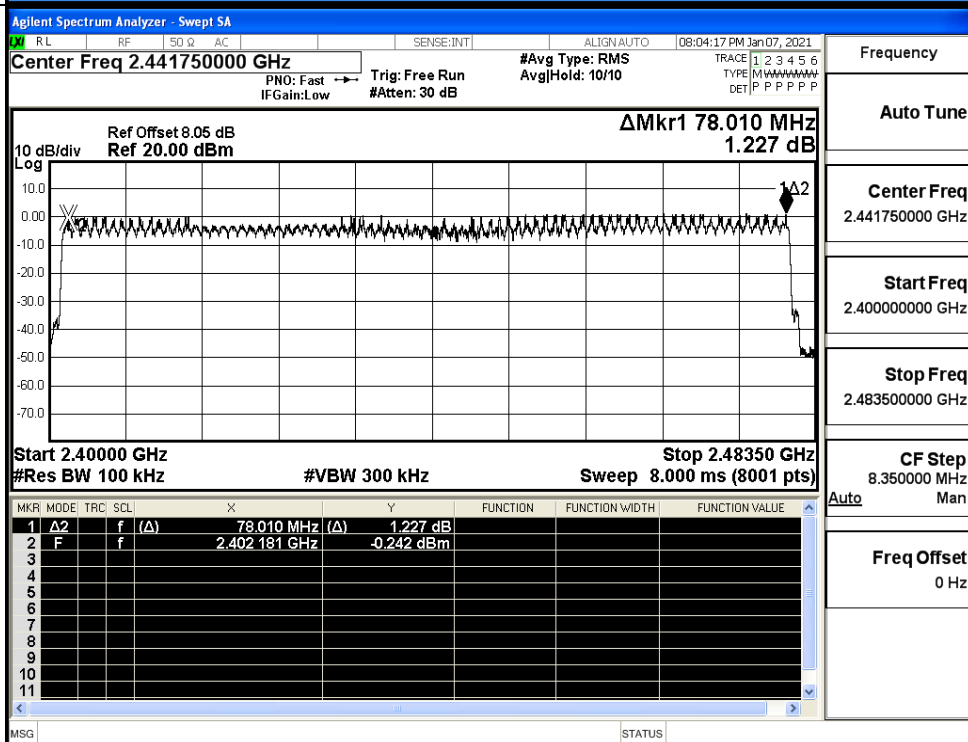
Test Graphs

GFSK/Hop



Frequency

Auto Tune

Center Freq
2.441750000 GHzStart Freq
2.400000000 GHzStop Freq
2.483500000 GHzCF Step
8.350000 MHz
ManFreq Offset
0 Hz $\pi/4$ DQPSK/Hop

Frequency

Auto Tune

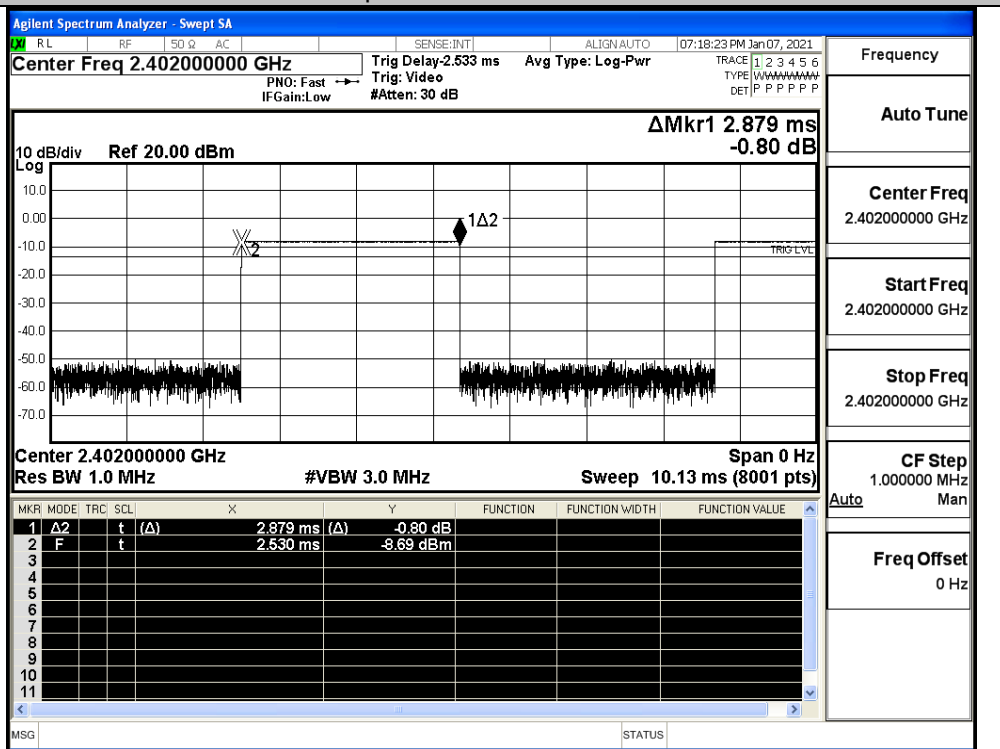
Center Freq
2.441750000 GHzStart Freq
2.400000000 GHzStop Freq
2.483500000 GHzCF Step
8.350000 MHz
ManFreq Offset
0 Hz

A.5 Dwell Time

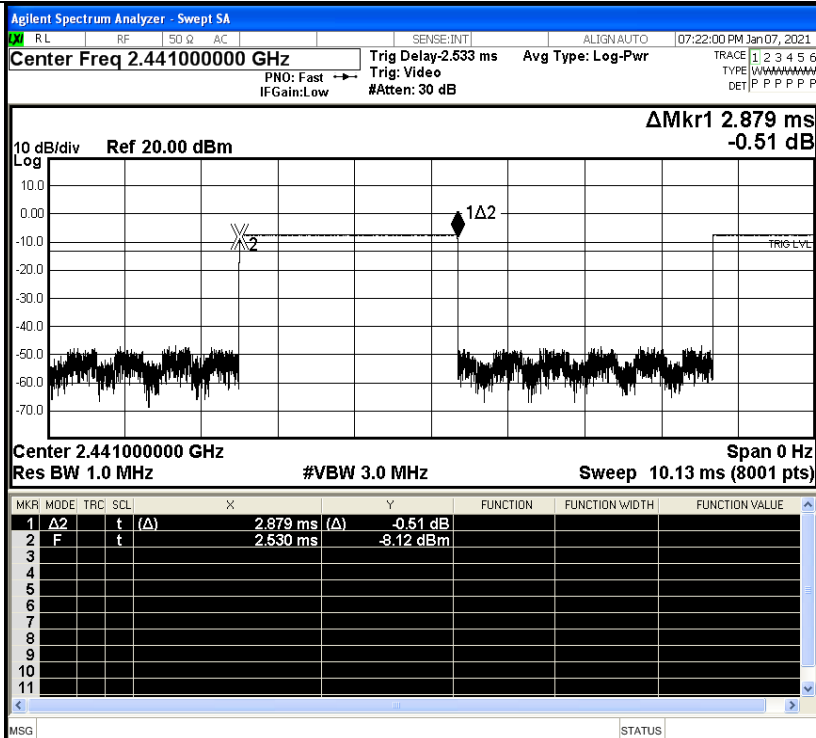
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.308	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88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

Test Graphs

GFSK_DH5/LCH



GFSK_DH5/MCH

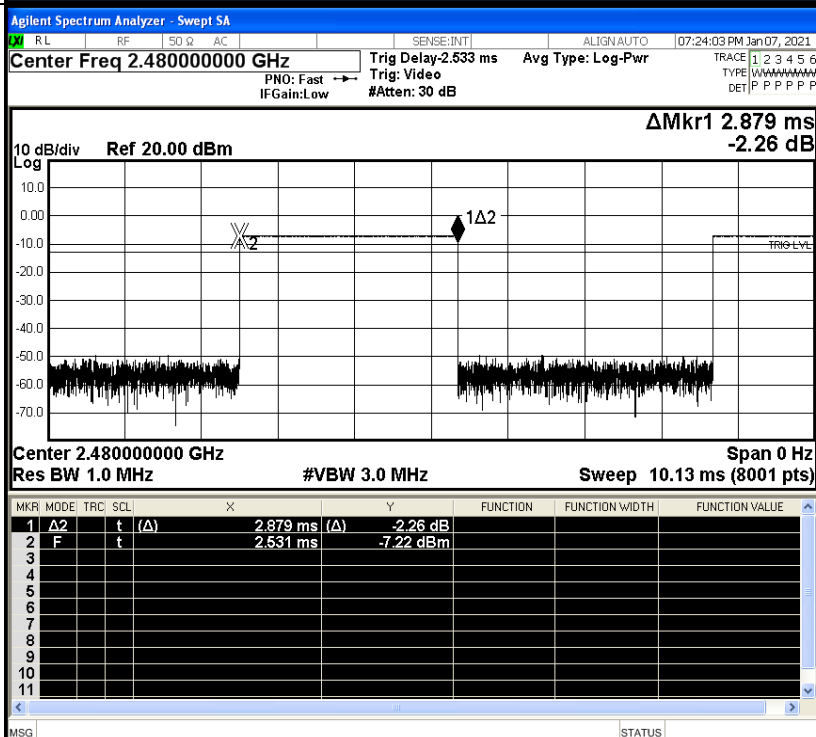


Frequency

Auto Tune

Center Freq
2.441000000 GHzStart Freq
2.441000000 GHzStop Freq
2.441000000 GHzCF Step
1.000000 MHz
Auto ManFreq Offset
0 Hz

GFSK_DH5/HCH



Frequency

Auto Tune

Center Freq
2.480000000 GHzStart Freq
2.480000000 GHzStop Freq
2.480000000 GHzCF Step
1.000000 MHz
Auto ManFreq Offset
0 Hz

Agilent Spectrum Analyzer - Swept SA

RL RF SO Q AC SENSE:INT ALIGN AUTO 07:27:42 PM Jan 07, 2021

Center Freq 2.40200000 GHz Trig Delay: 2.533 ms Avg Type: Log-Pwr
 PNO: Fast → Trig: Video TYPE: 1 2 3 4 5 6
 IF Gain: Low #Atten: 30 dB DET: P P P P P P

ΔMkr1 2.885 ms -2.60 dB

10 dB/div Ref 20.00 dBm

The main display shows a spectrum plot with a horizontal axis representing frequency and a vertical axis representing power in dBm. A signal is visible as a noisy trace around -60 dBm. A specific point on the trace is highlighted with a marker labeled Δ2, indicating a measurement of 2.885 ms and -2.60 dB. The plot includes grid lines and various control labels like 'Log' and 'TRIG LVL'.

Center 2.40200000 GHz Span 0 Hz
Res BW 1.0 MHz #VBW 3.0 MHz Sweep 10.13 ms (8001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	Δ2	t	(Δ)	2.885 ms	(Δ) -2.60 dB			
2	F	t		5.975 ms	-9.10 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								

Frequency
Auto Tune
Center Freq 2.40200000 GHz
Start Freq 2.40200000 GHz
Stop Freq 2.40200000 GHz
CF Step 1.000000 MHz Man
Auto
Freq Offset 0 Hz

MSG STATUS

Agilent Spectrum Analyzer - Swept SA

RL RF SO Q AC SENSE:INT ALIGN AUTO 07:32:14 PM Jan 07, 2021

Center Freq 2.441000000 GHz Trig Delay: 2.533 ms Avg Type: Log-Pwr
 PNO: Fast IF Gain: Low Trig: Video #Atten: 30 dB TRACE 1 2 3 4 5 6 TYPE WWWWWW DET PPPPP

ΔMkr1 2.884 ms -1.05 dB

10 dB/div Ref 20.00 dBm Log

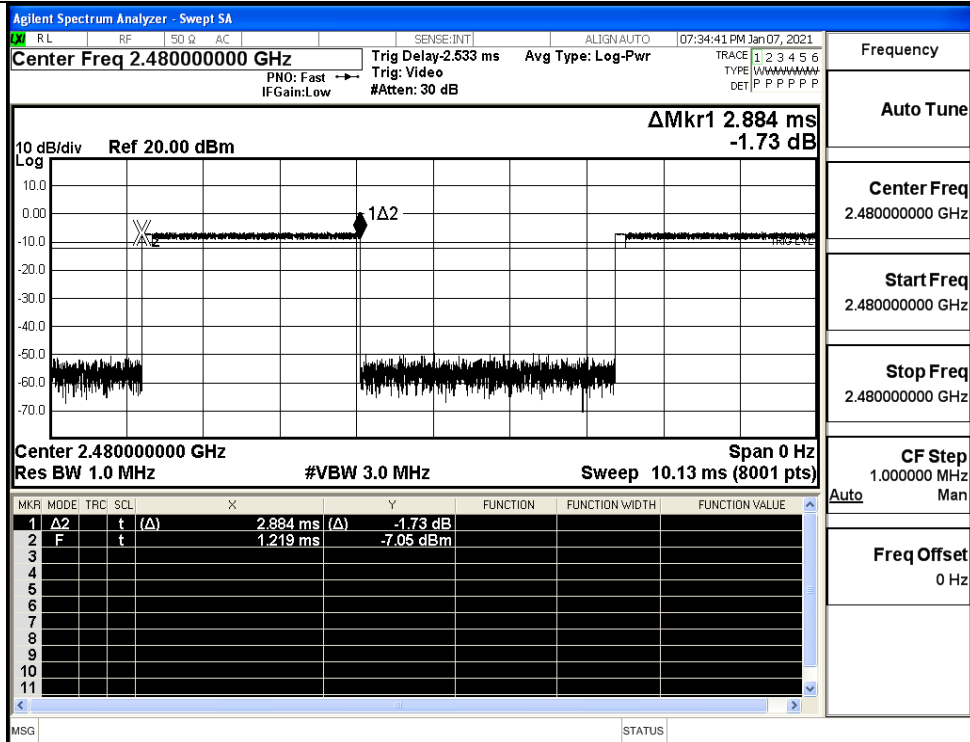
Center 2.441000000 GHz Span 0 Hz
Res BW 1.0 MHz #VBW 3.0 MHz Sweep 10.13 ms (8001 pts)

MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 Δ2 t (Δ) 2.884 ms (Δ) -1.05 dB
2 F t 2.194 ms -7.67 dBm
3
4
5
6
7
8
9
10
11

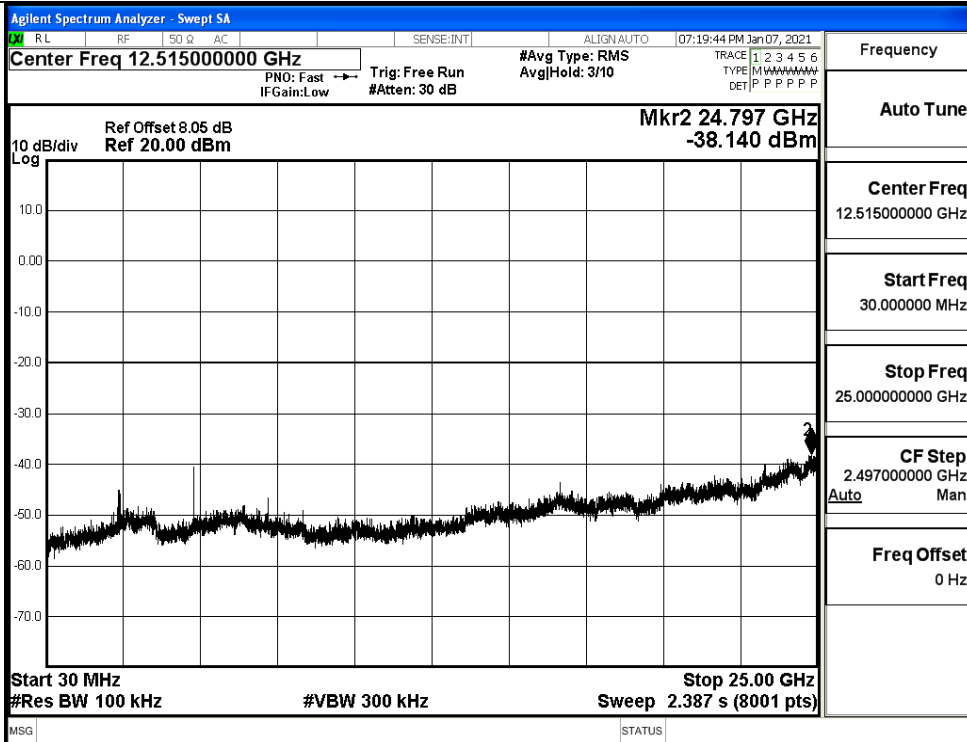
MSG STATUS

Frequency Auto Tune Center Freq 2.441000000 GHz Start Freq 2.441000000 GHz Stop Freq 2.441000000 GHz CF Step 1.000000 MHz Man Auto Freq Offset 0 Hz

$\pi/4$ DQPSK
_2DH5/HCH

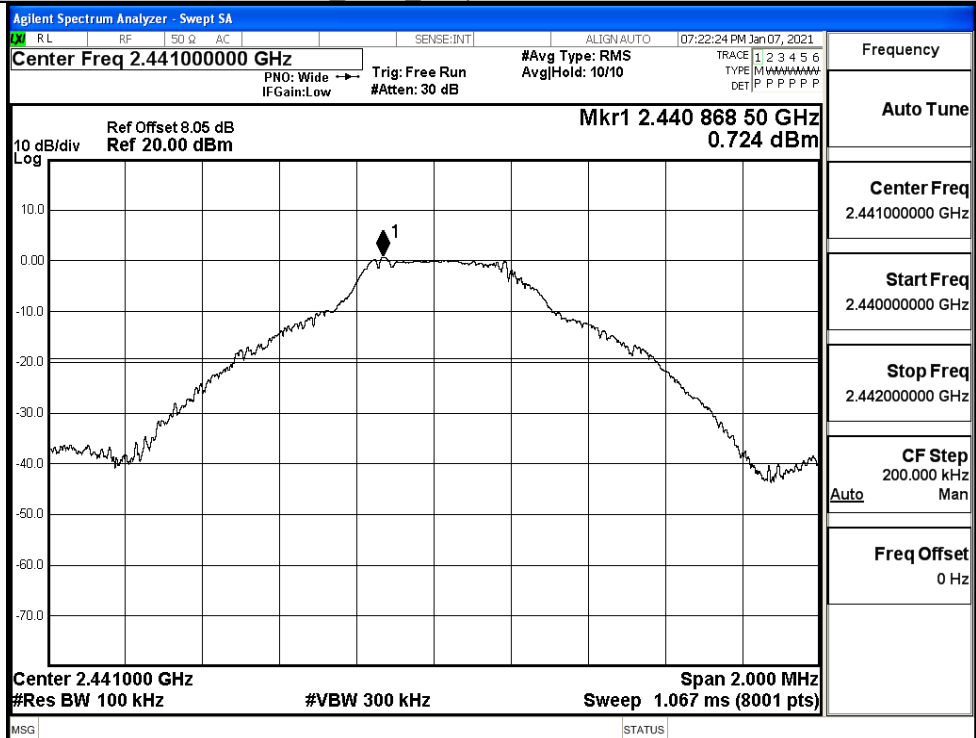


Puw

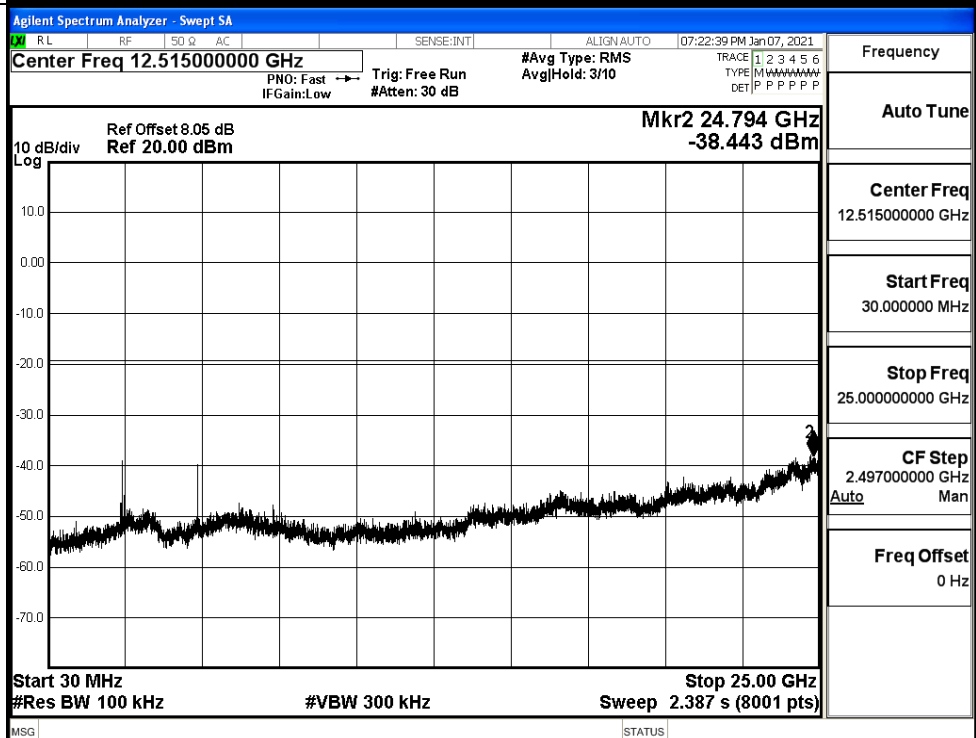


GFSK_MCH_Graphs

Pref

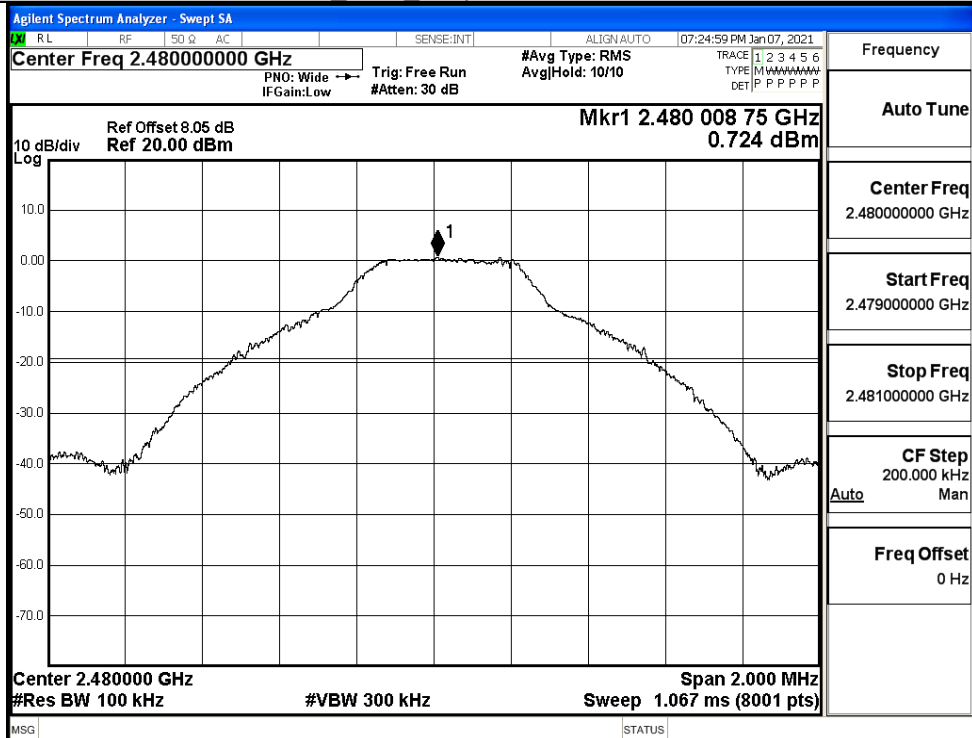


Puw

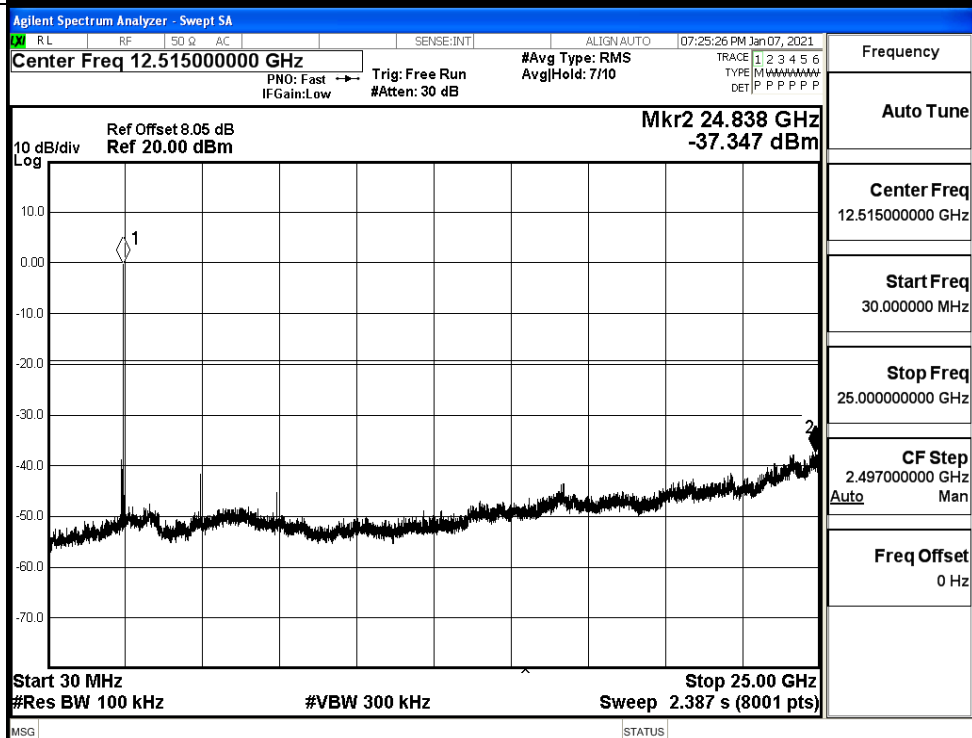


GFSK_HCH_Graphs

Pref

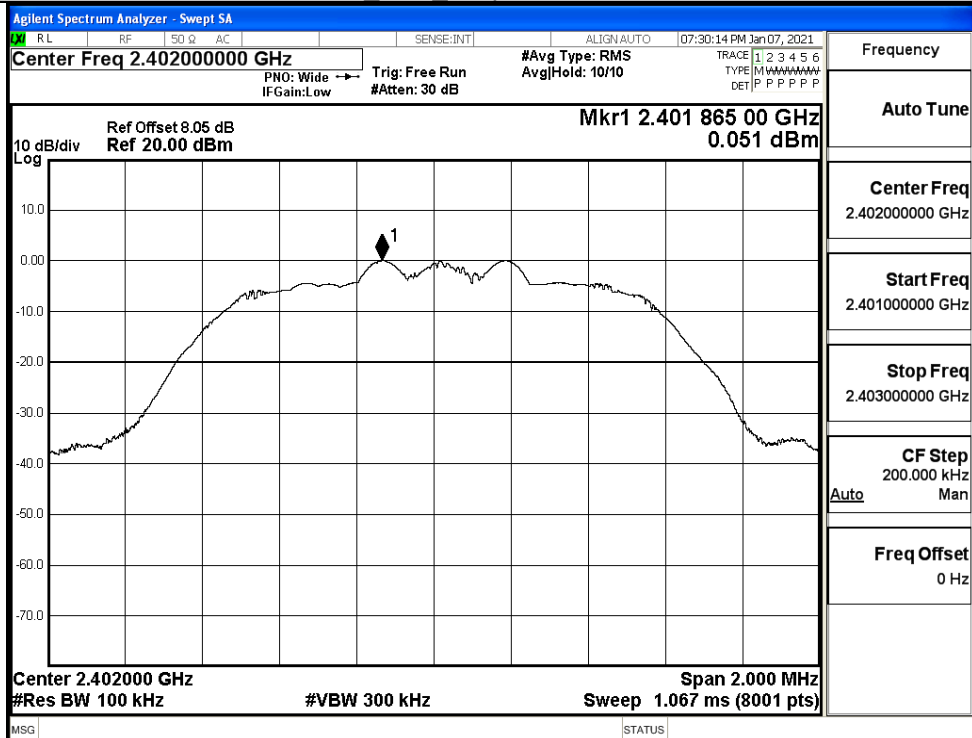


Puw

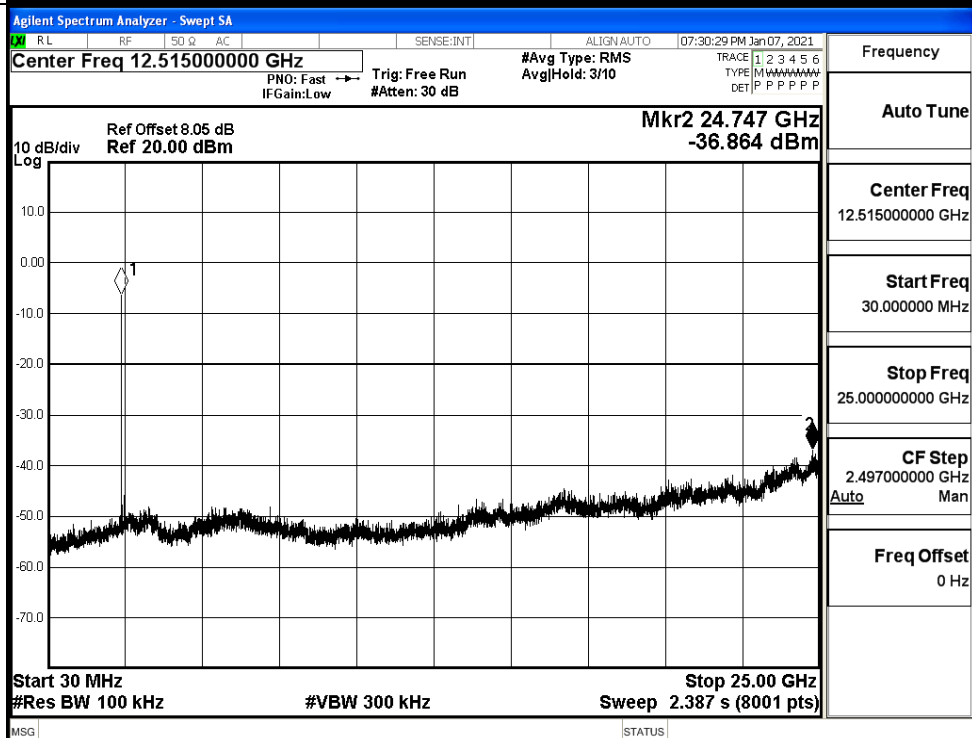


$\pi/4$ DQPSK_LCH_Graphs

Pref

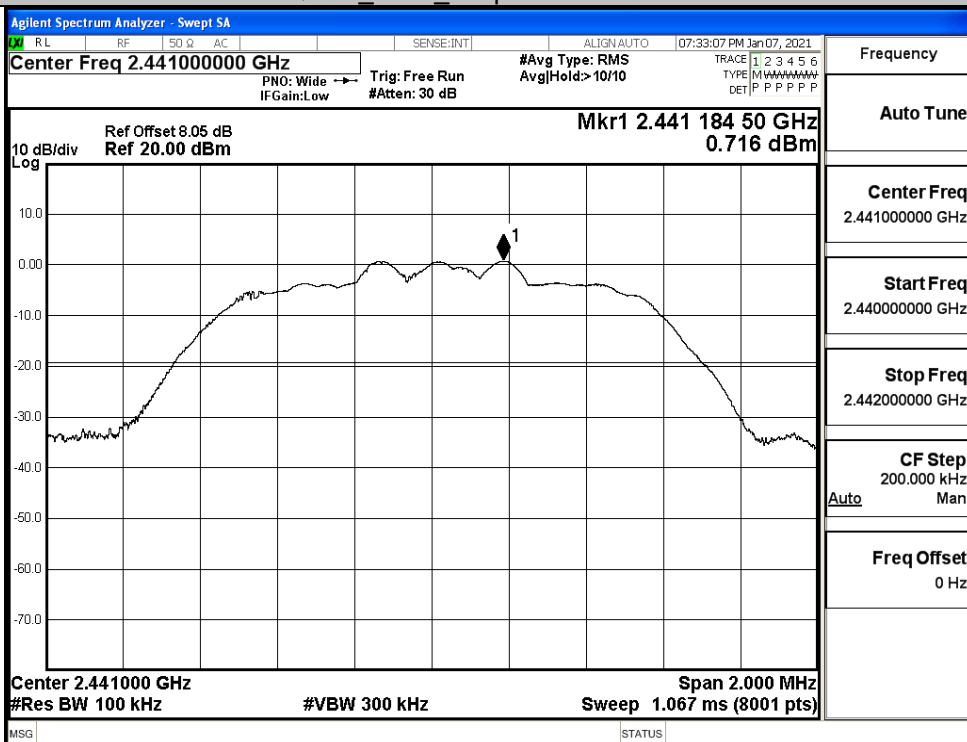


Puw

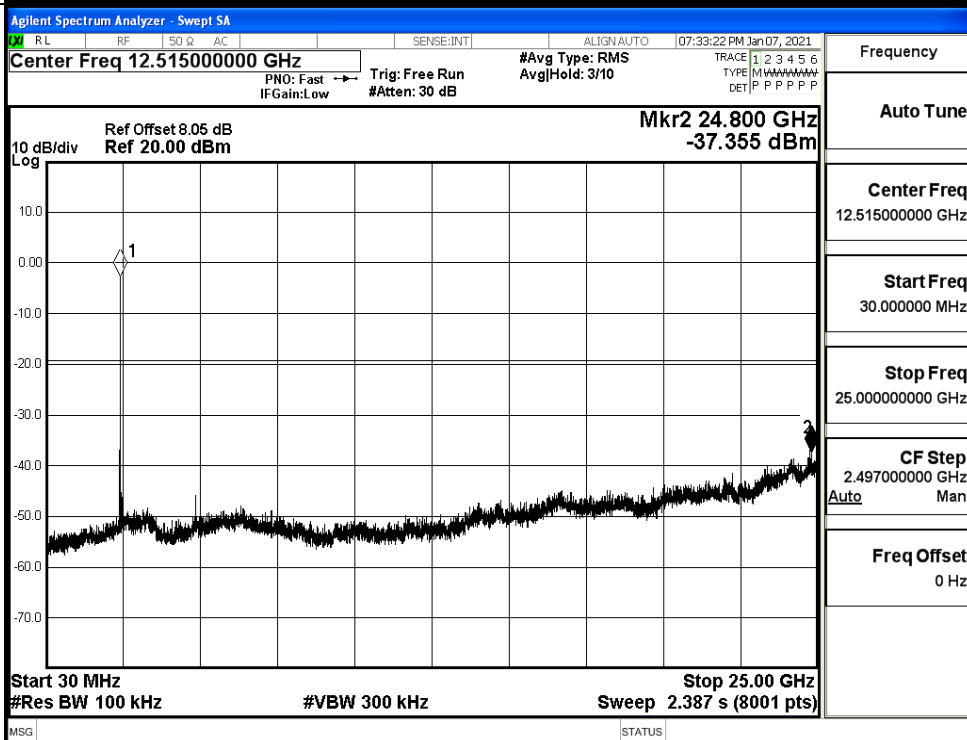


π /4DQPSK_MCH_Graphs

Pref

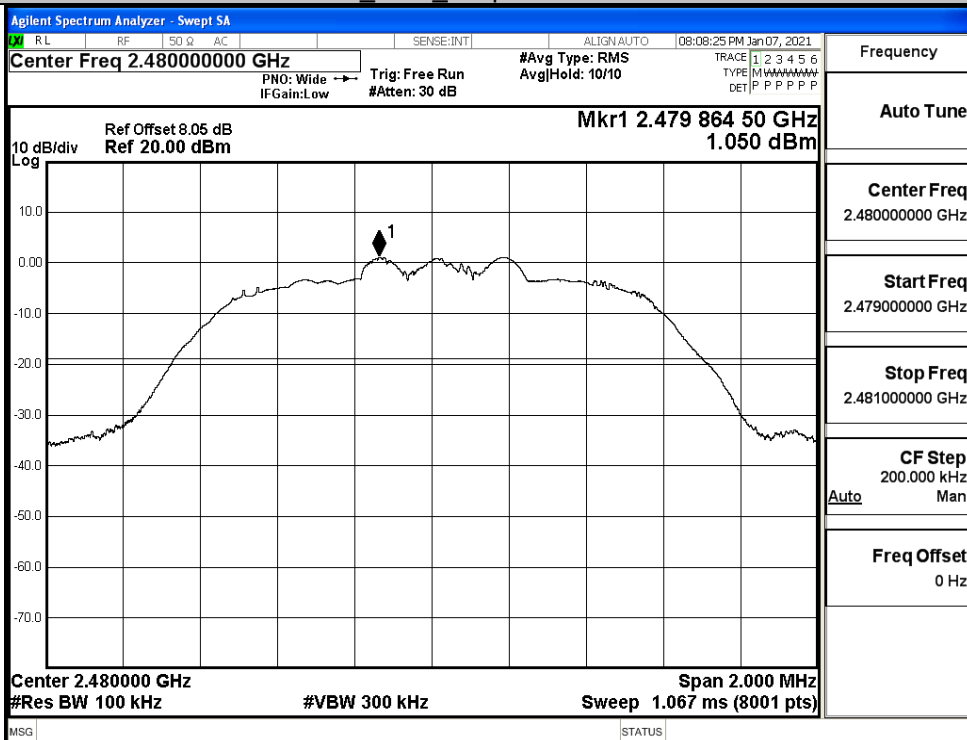


Puw

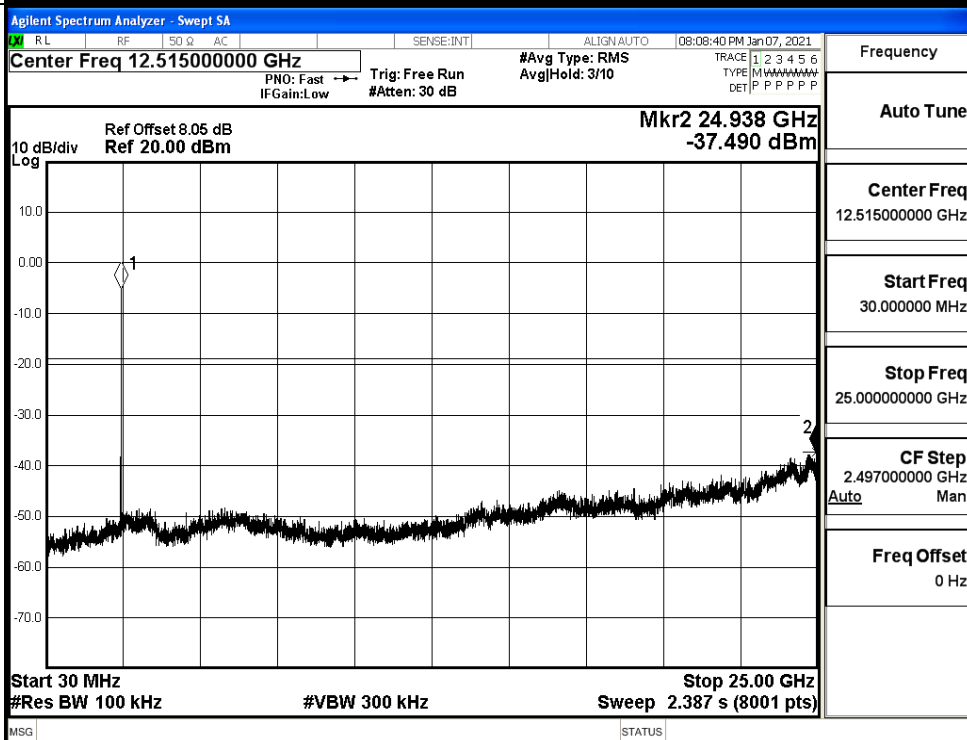


π /4DQPSK_HCH_Graphs

Pref



Puw

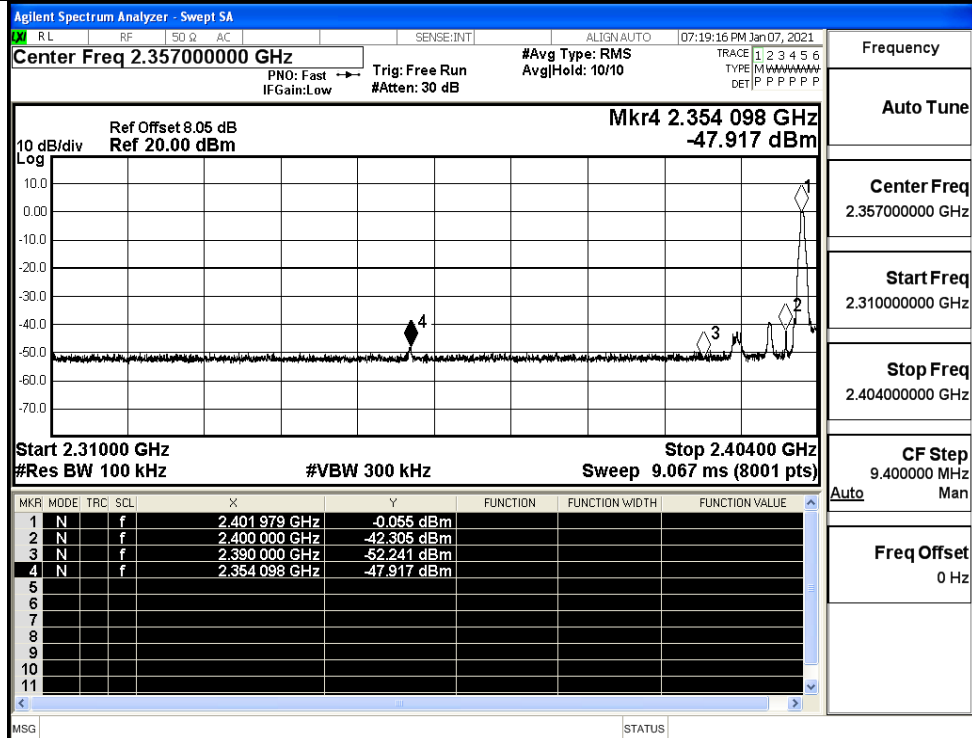


A.7 Band-edge for RF Conducted Emissions

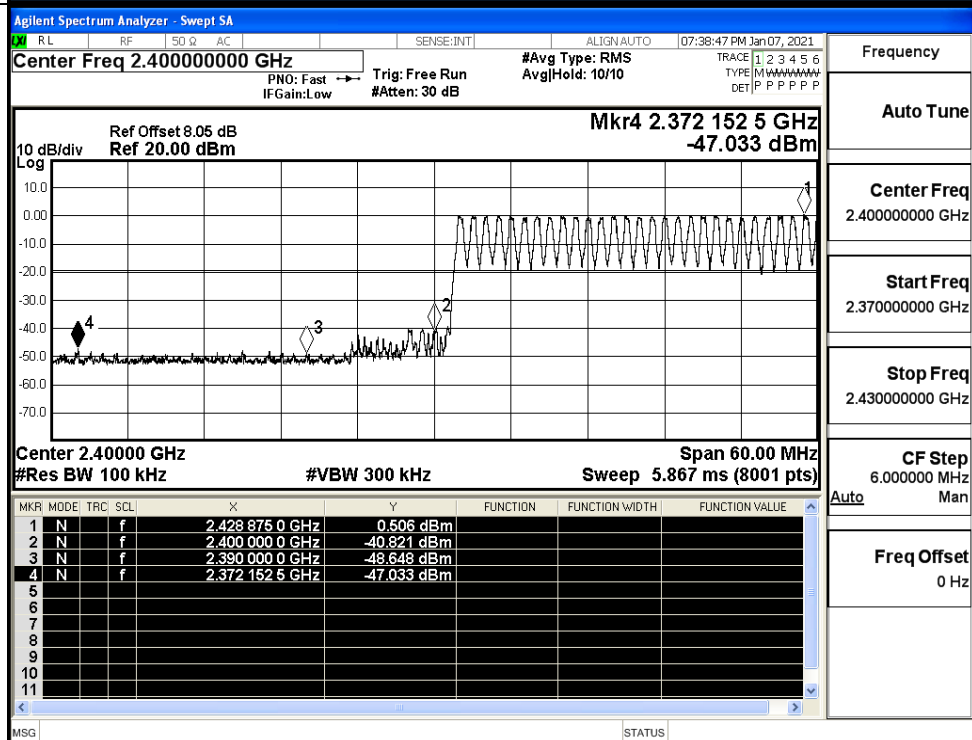
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-0.055	Off	-47.917	-20.06	PASS
			0.506	On	-47.033	-19.49	PASS
	HCH	2480	1.018	Off	-46.758	-18.98	PASS
			0.946	On	-43.851	-19.05	PASS
$\pi/4$ DQPSK	LCH	2402	0.179	Off	-47.278	-19.82	PASS
			0.131	On	-48.517	-19.87	PASS
	HCH	2480	1.049	Off	-48.329	-18.95	PASS
			1.017	On	-44.496	-18.98	PASS

Test Graphs

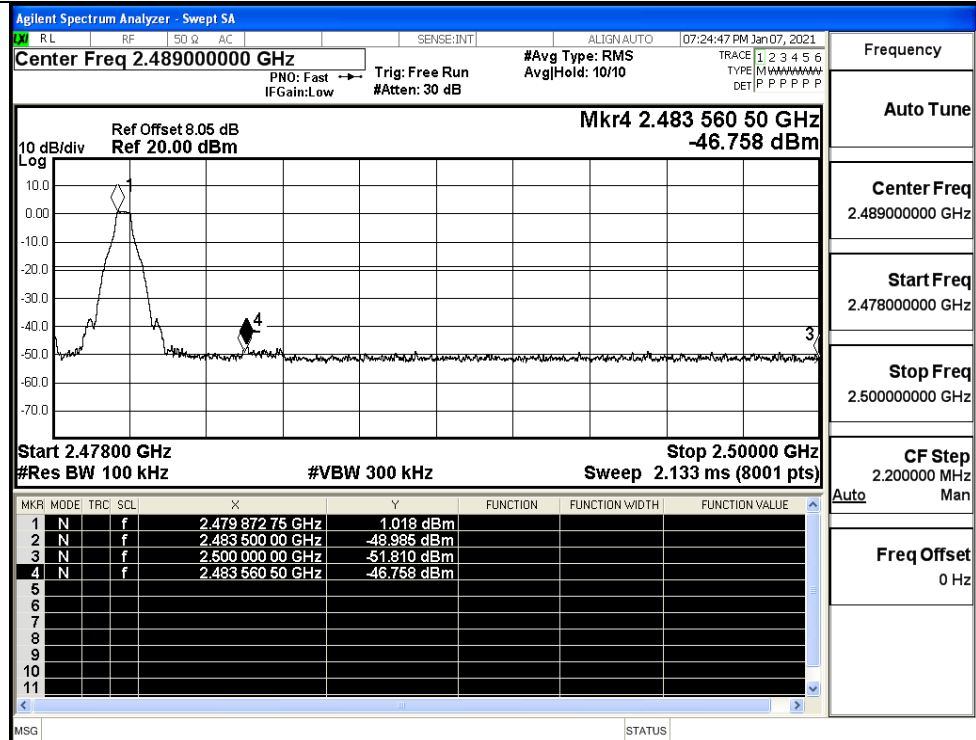
GFSK/LCH/No Hop



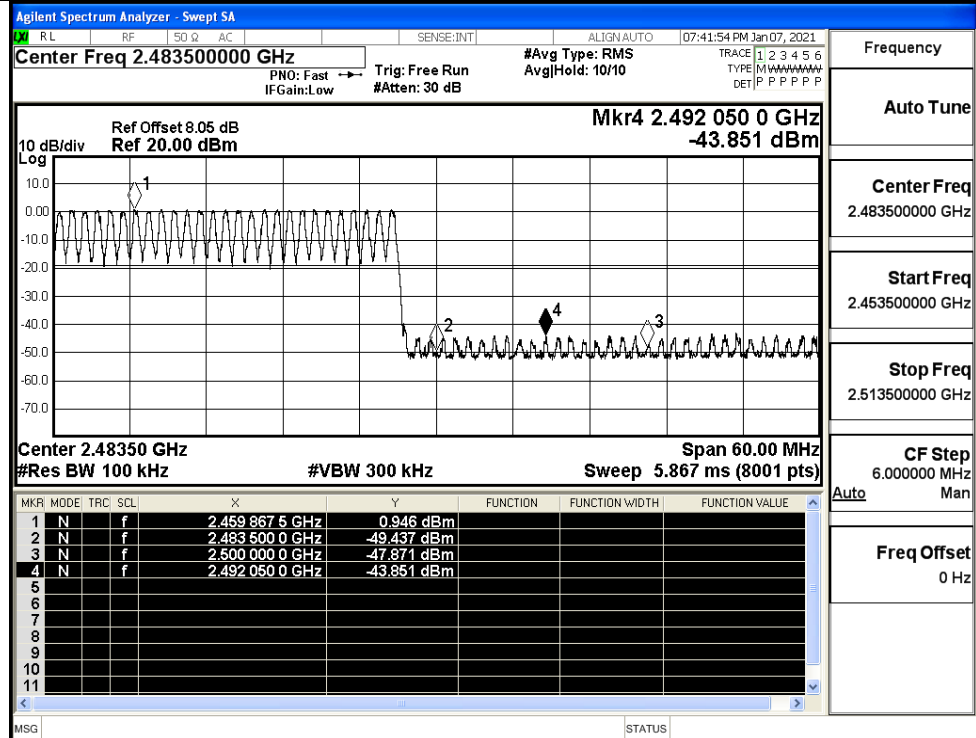
GFSK/LCH/Hop



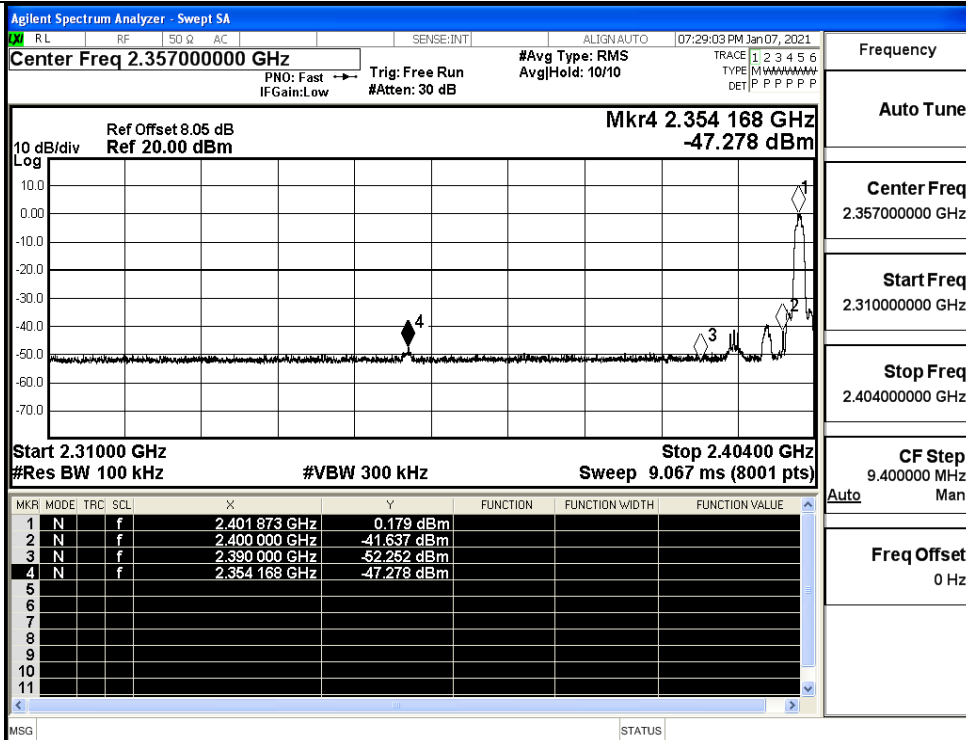
GFSK/HCH/No Hop



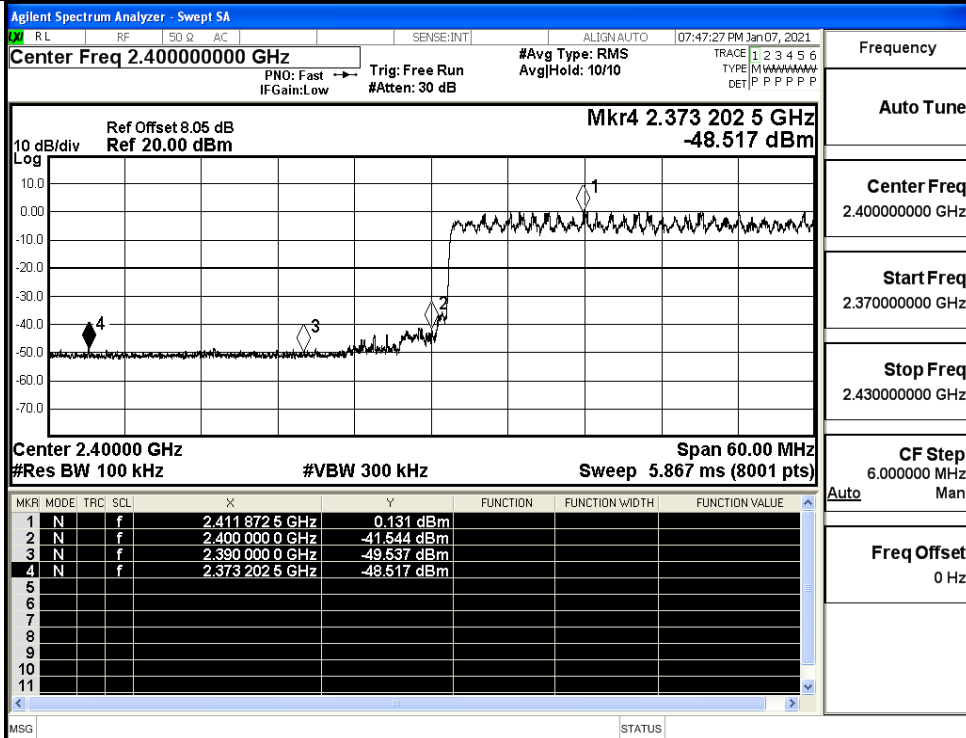
GFSK/HCH/Hop



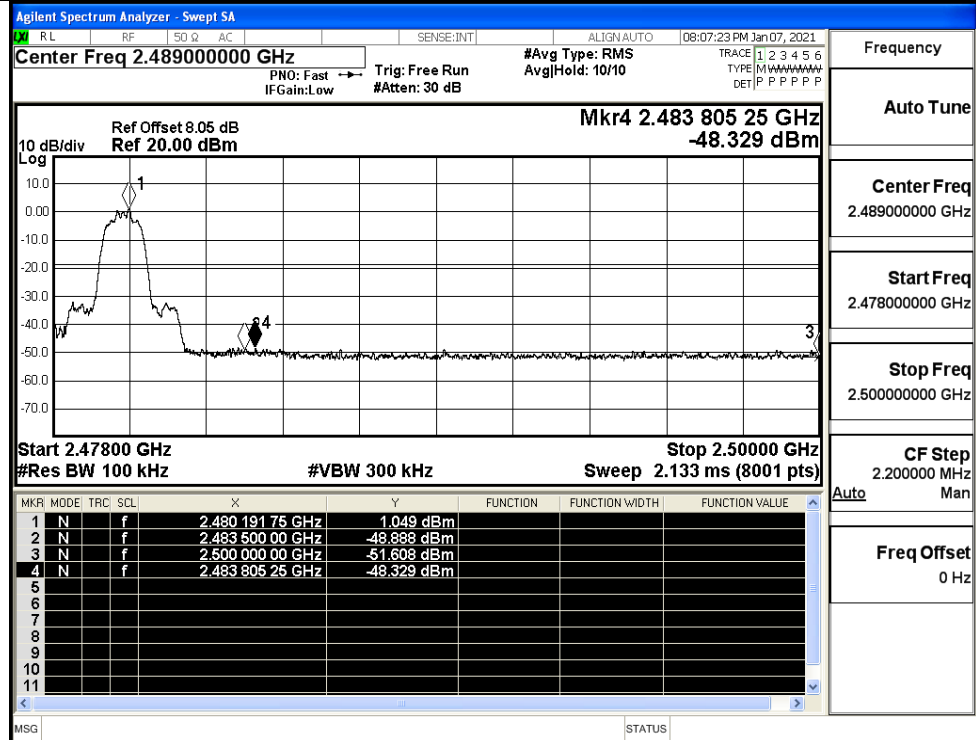
$\pi/4$ DQPSK/LCH/No
Hop



$\pi/4$ DQPSK/LCH/Hop



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

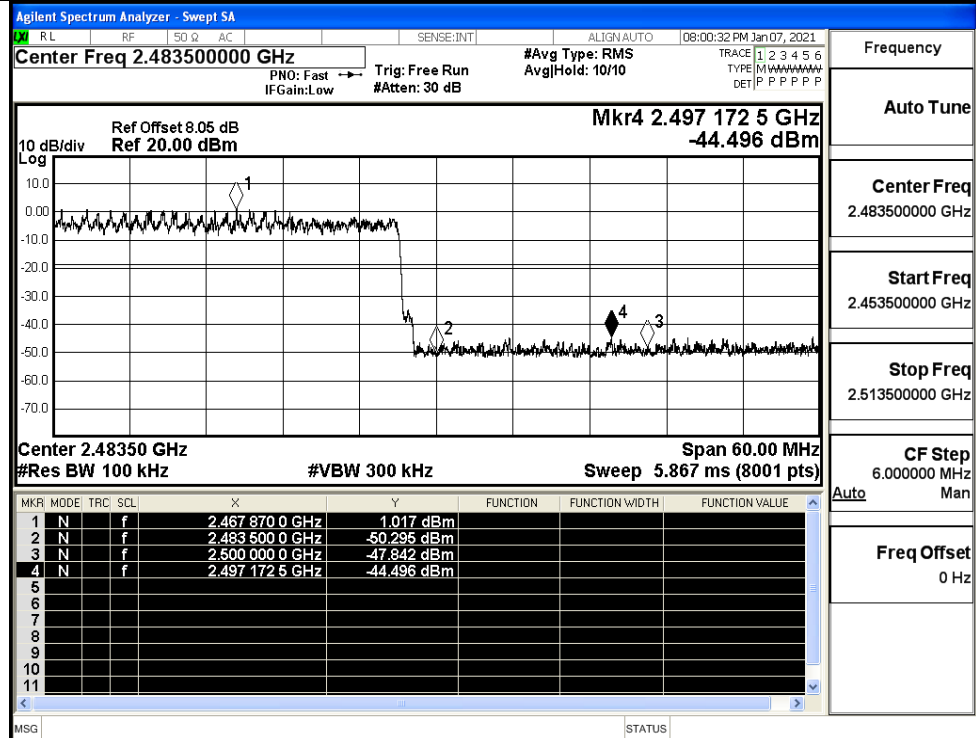


Frequency

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

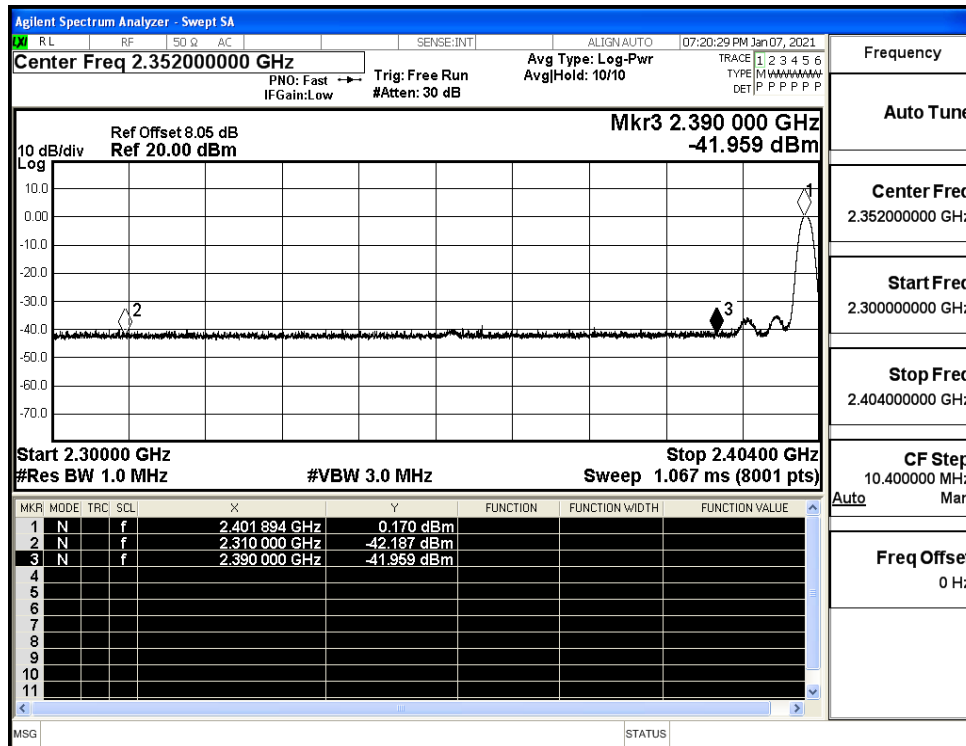
Auto Tune

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

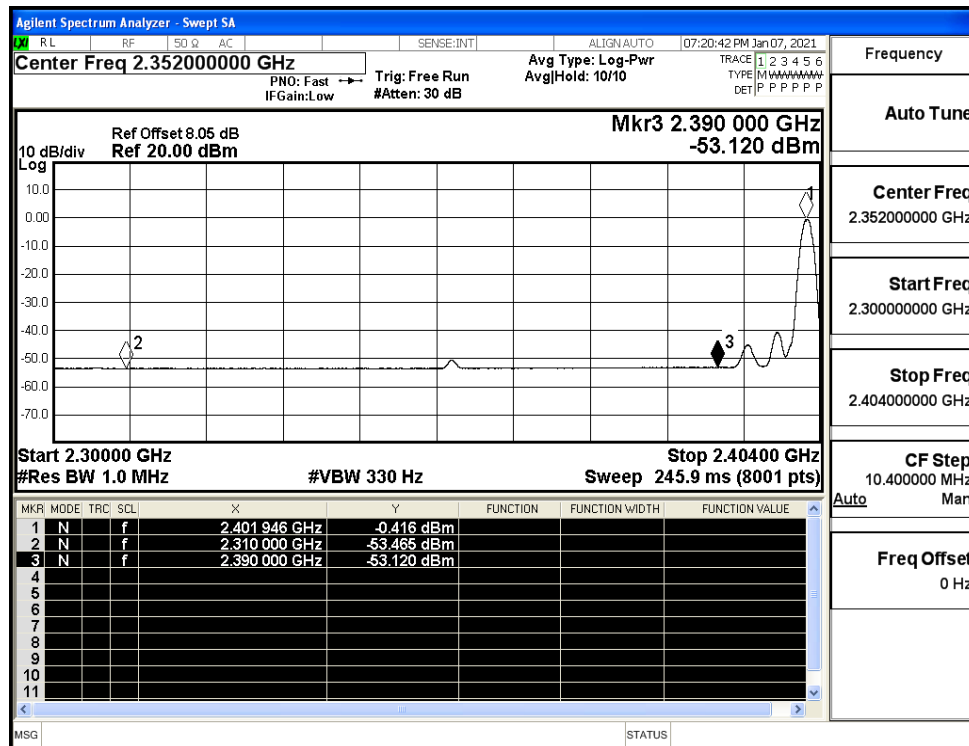
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-42.19	2.0	0	55.04	PEAK	74	PASS
	Off	2310.0	-53.47	2.0	0	43.76	AV	54	PASS
	Off	2390.0	-41.96	2.0	0	55.27	PEAK	74	PASS
	Off	2390.0	-53.12	2.0	0	44.11	AV	54	PASS
	Off	2483.5	-39.64	2.0	0	57.59	PEAK	74	PASS
	Off	2483.5	-49.83	2.0	0	47.40	AV	54	PASS
	Off	2500.0	-41.98	2.0	0	55.25	PEAK	74	PASS
	Off	2500.0	-52.50	2.0	0	44.73	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-41.55	2.0	0	55.68	PEAK	74	PASS
	Off	2310.0	-53.61	2.0	0	43.62	AV	54	PASS
	Off	2390.0	-42.40	2.0	0	54.83	PEAK	74	PASS
	Off	2390.0	-53.11	2.0	0	44.12	AV	54	PASS
	Off	2483.5	-40.01	2.0	0	57.22	PEAK	74	PASS
	Off	2483.5	-50.72	2.0	0	46.51	AV	54	PASS
	Off	2500.0	-42.82	2.0	0	54.41	PEAK	74	PASS
	Off	2500.0	-52.48	2.0	0	44.75	AV	54	PASS

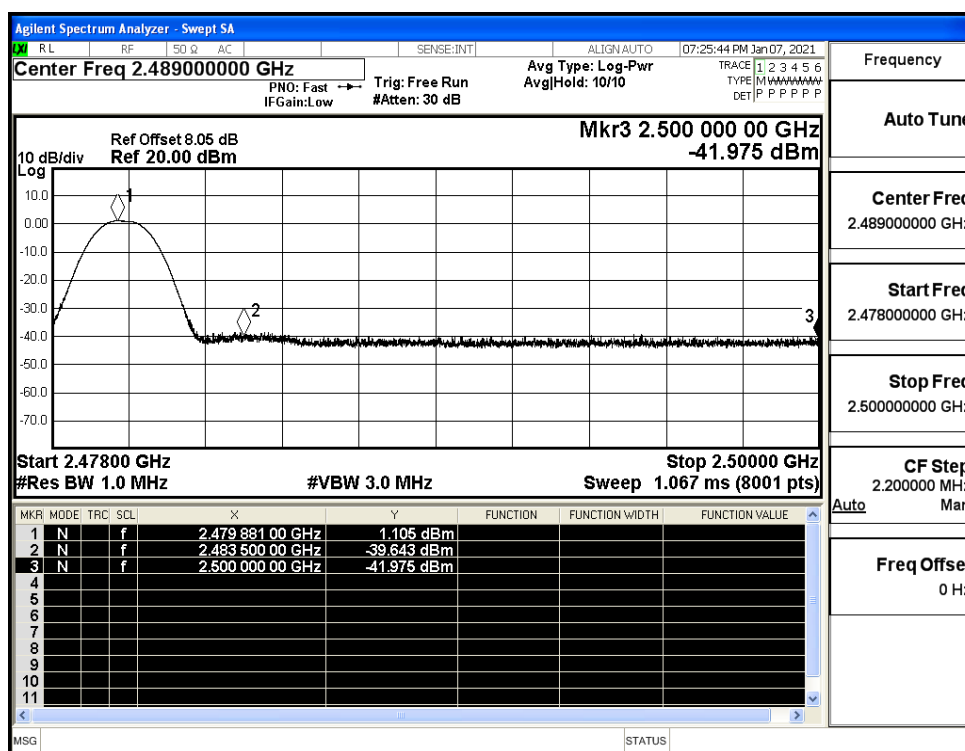
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



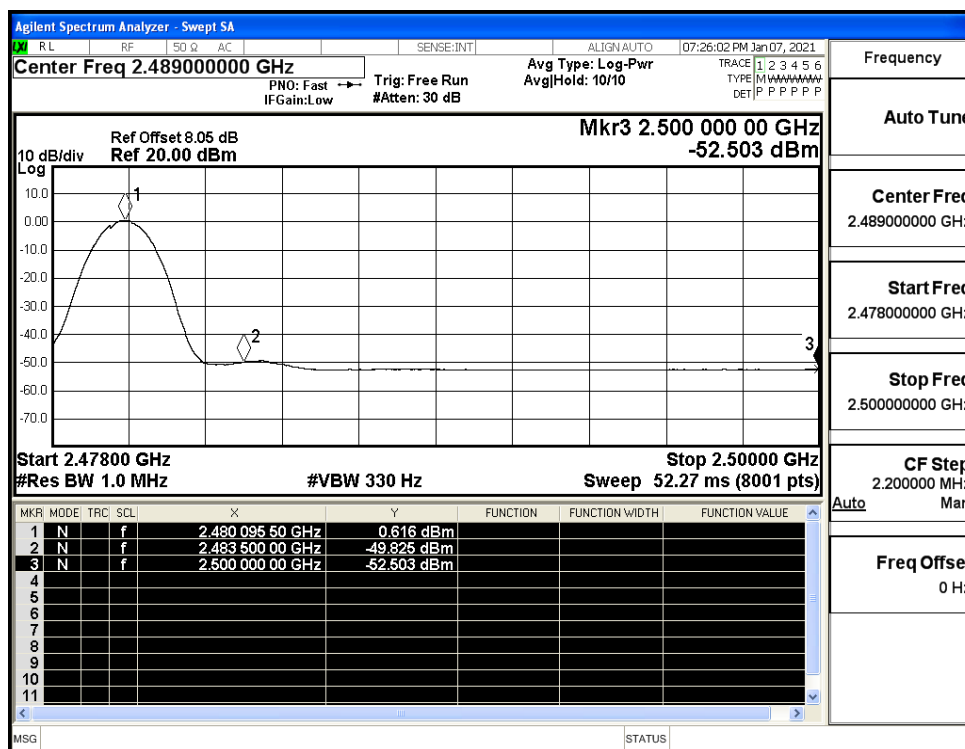
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

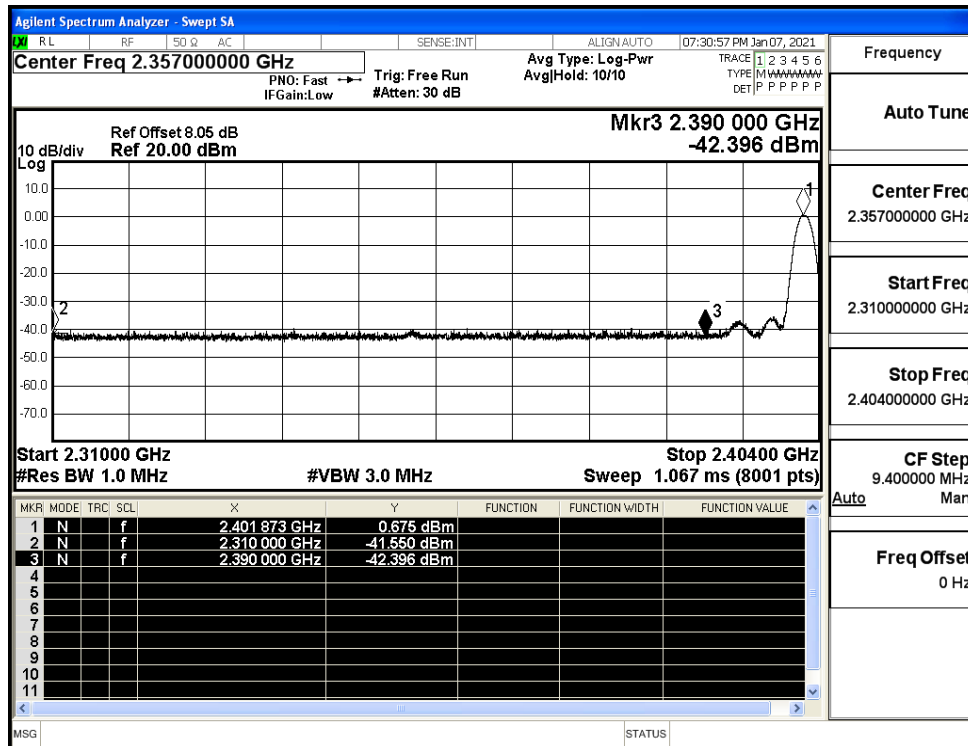
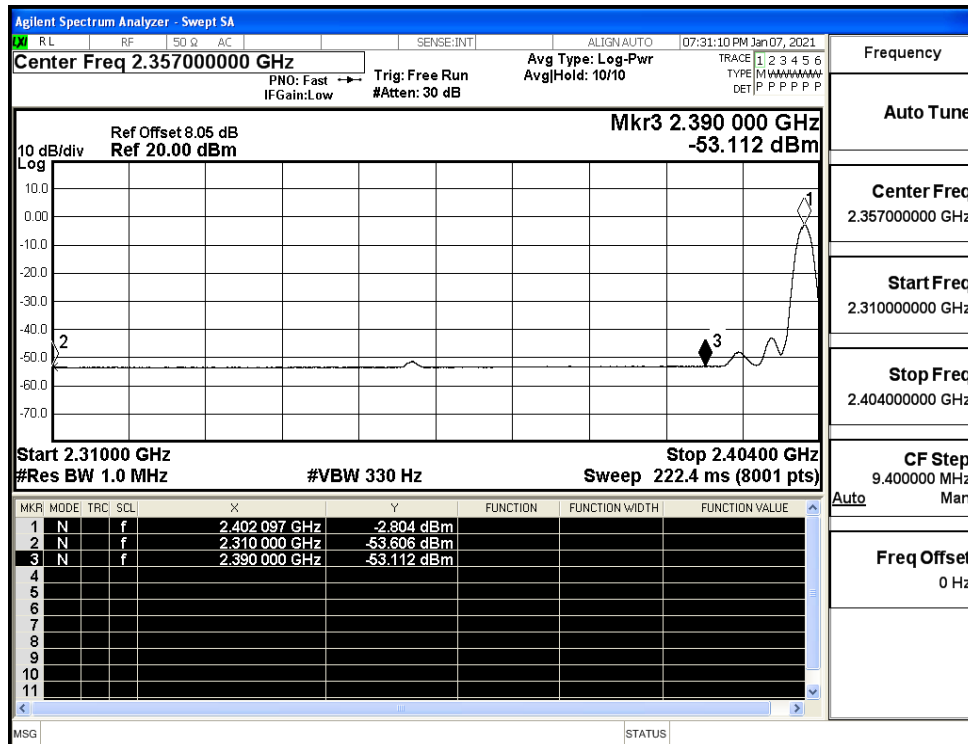


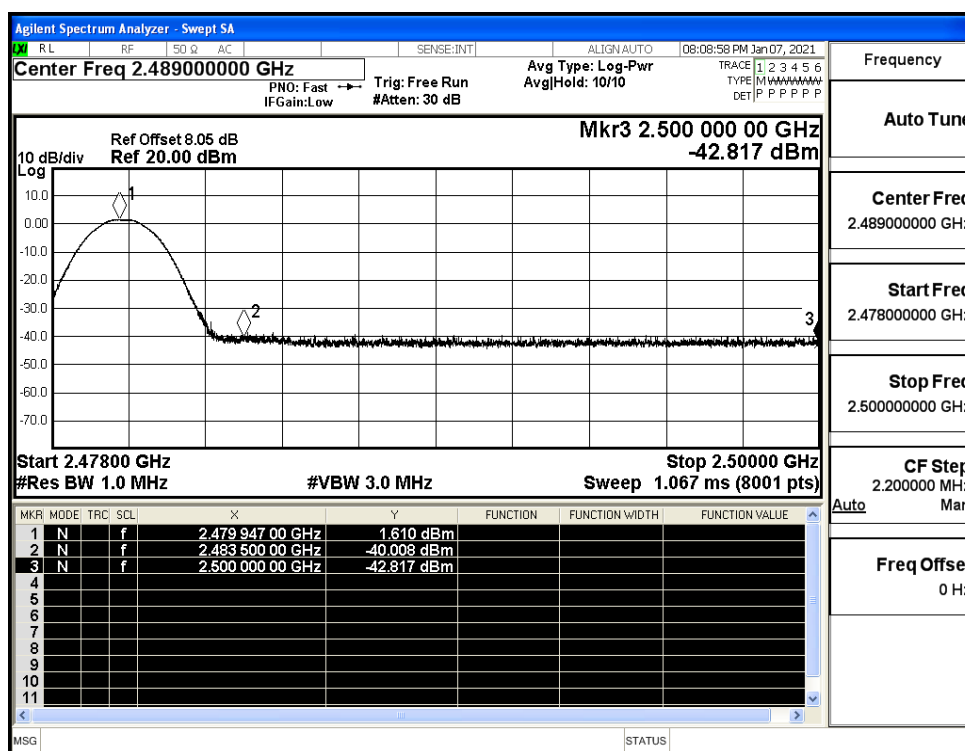
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



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)