

Appendix A

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

Product Name: PORTABLE PARTY SPEAKER

Trade Mark: DS18

Test Model: TLV6

Environmental Conditions

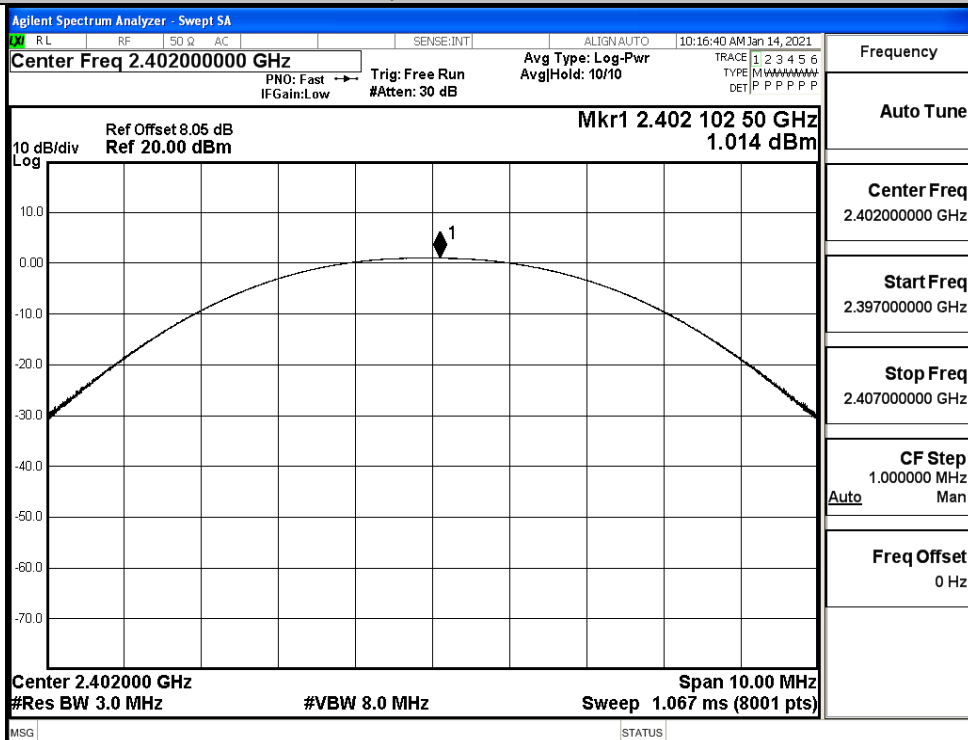
Temperature:	22.3° C
Relative Humidity:	53.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Ben Jin
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

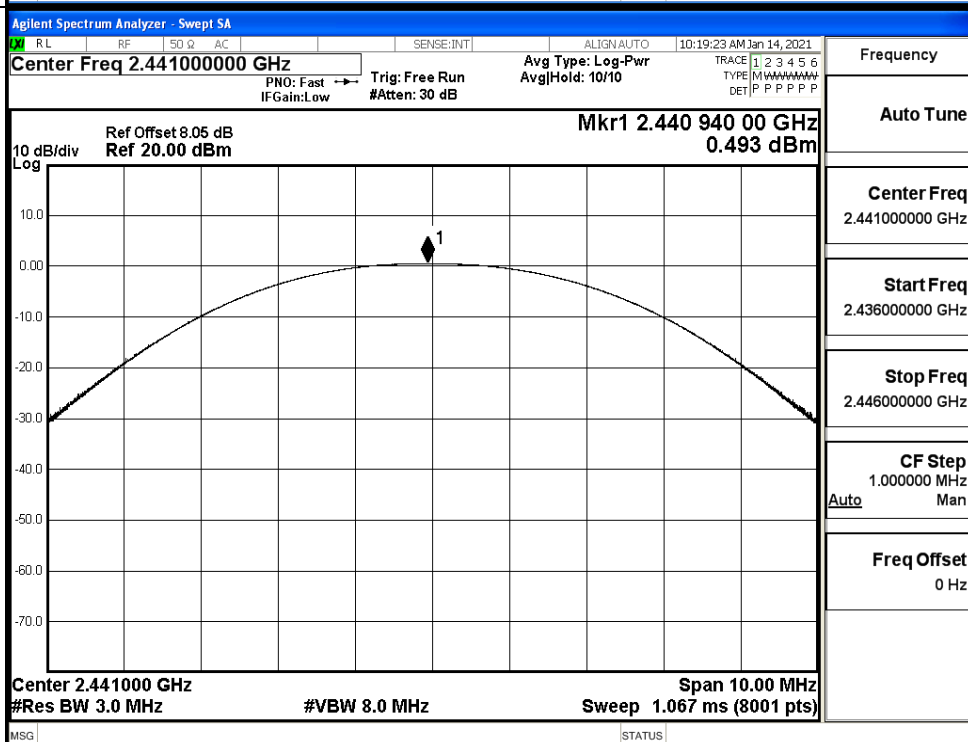
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.014	21	PASS
	MCH	0.493	21	PASS
	HCH	-0.032	21	PASS
$\pi/4$ DQPSK	LCH	1.004	21	PASS
	MCH	0.503	21	PASS
	HCH	-0.073	21	PASS
8DPSK	LCH	1.056	21	PASS
	MCH	0.486	21	PASS
	HCH	-0.066	21	PASS

Test Graphs

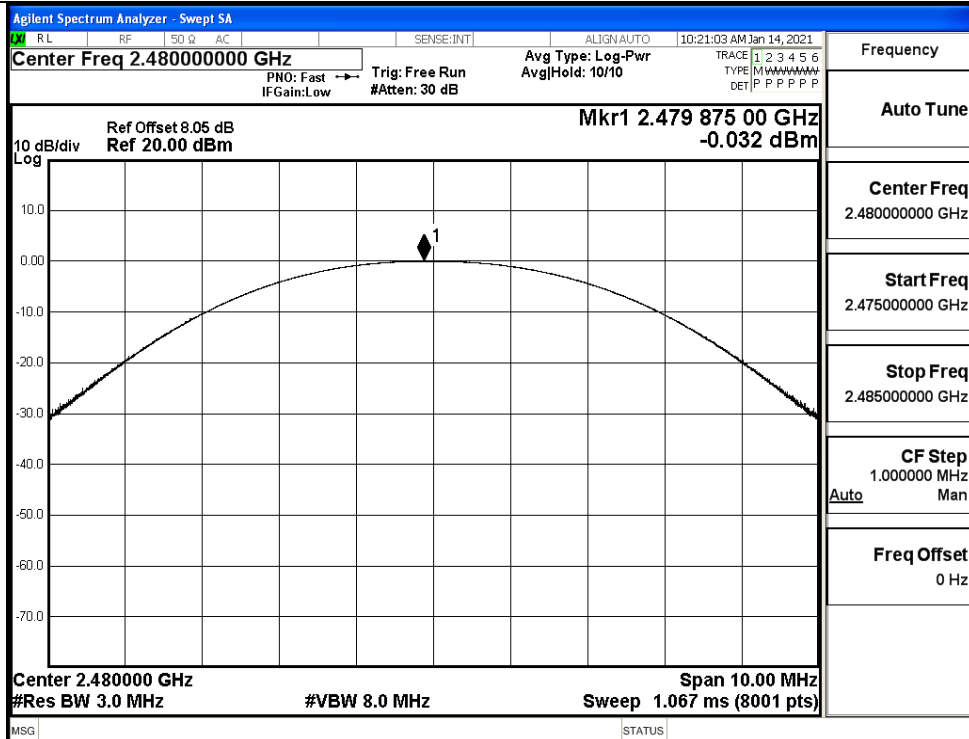
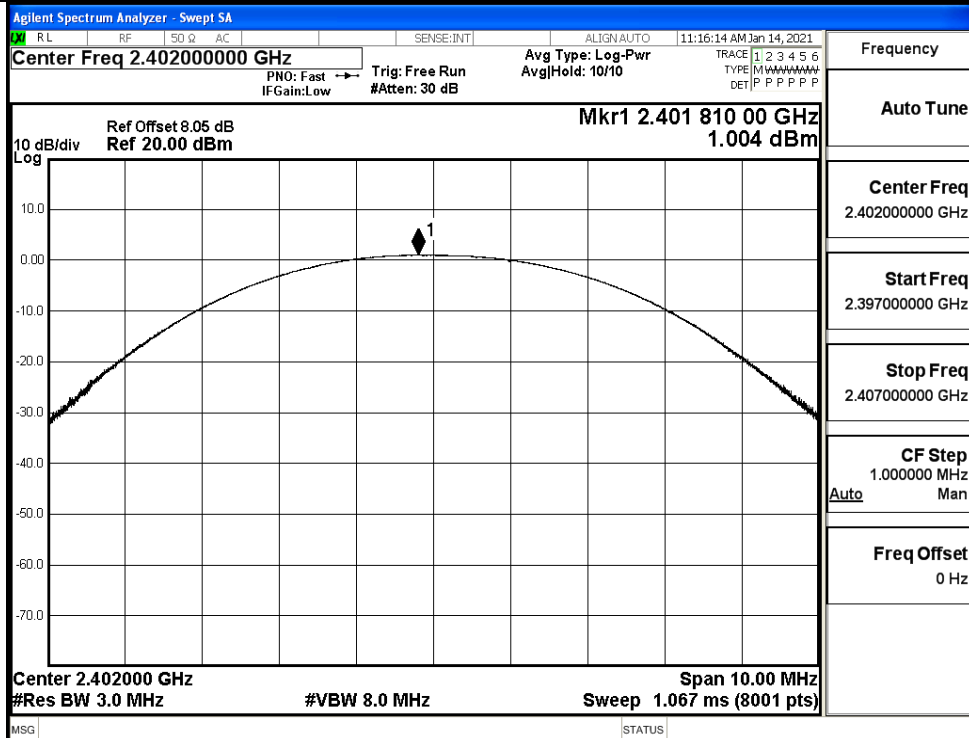
GFSK/LCH

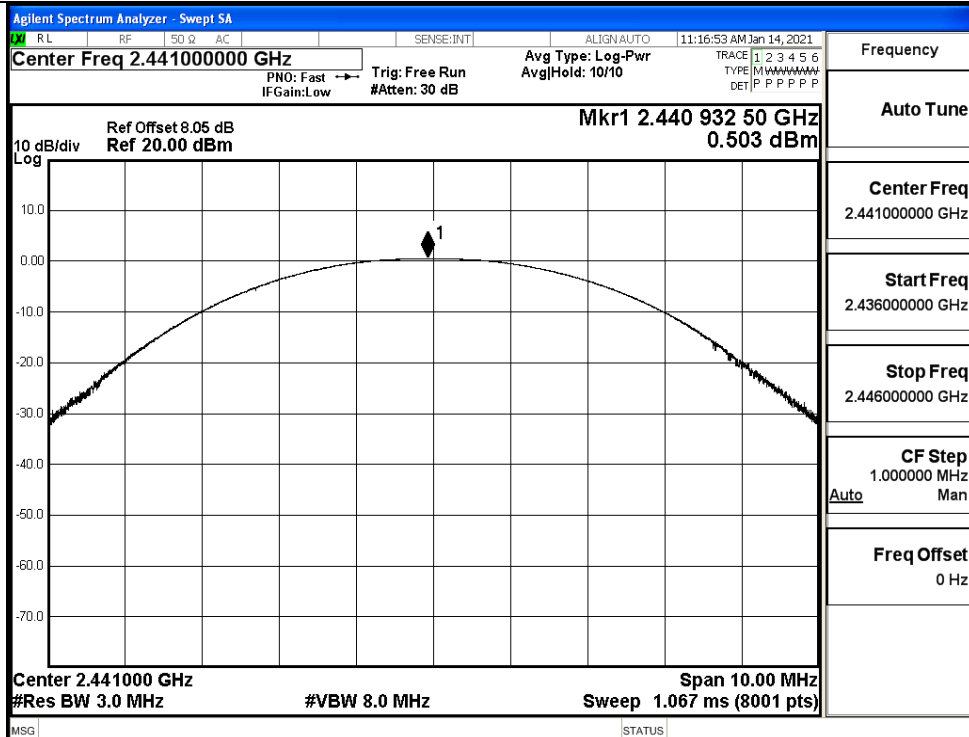
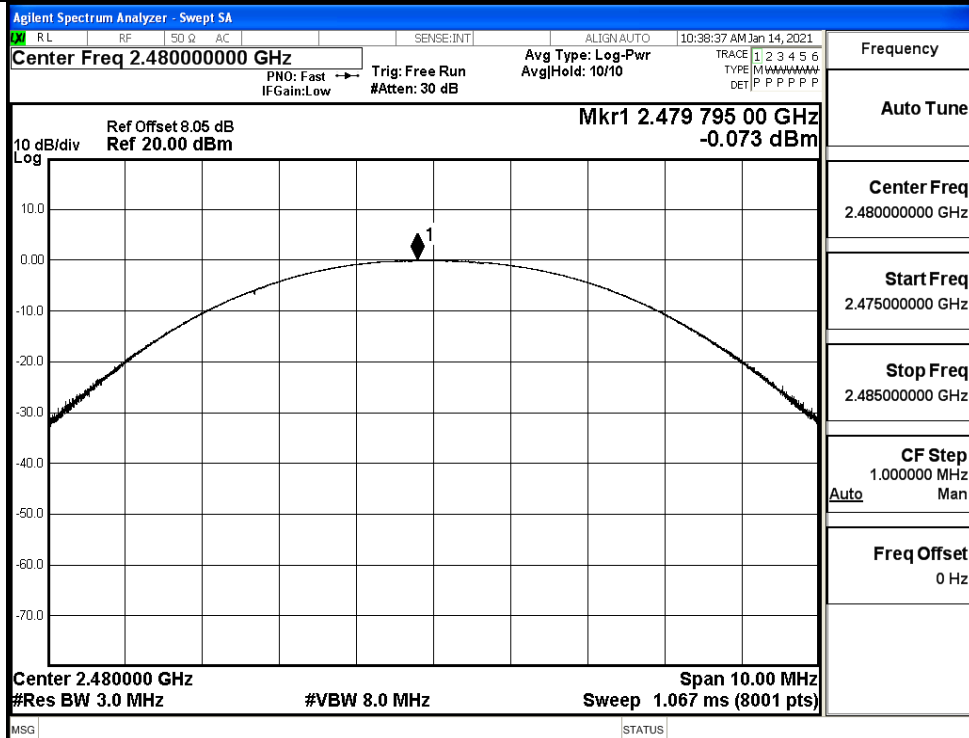


GFSK/MCH

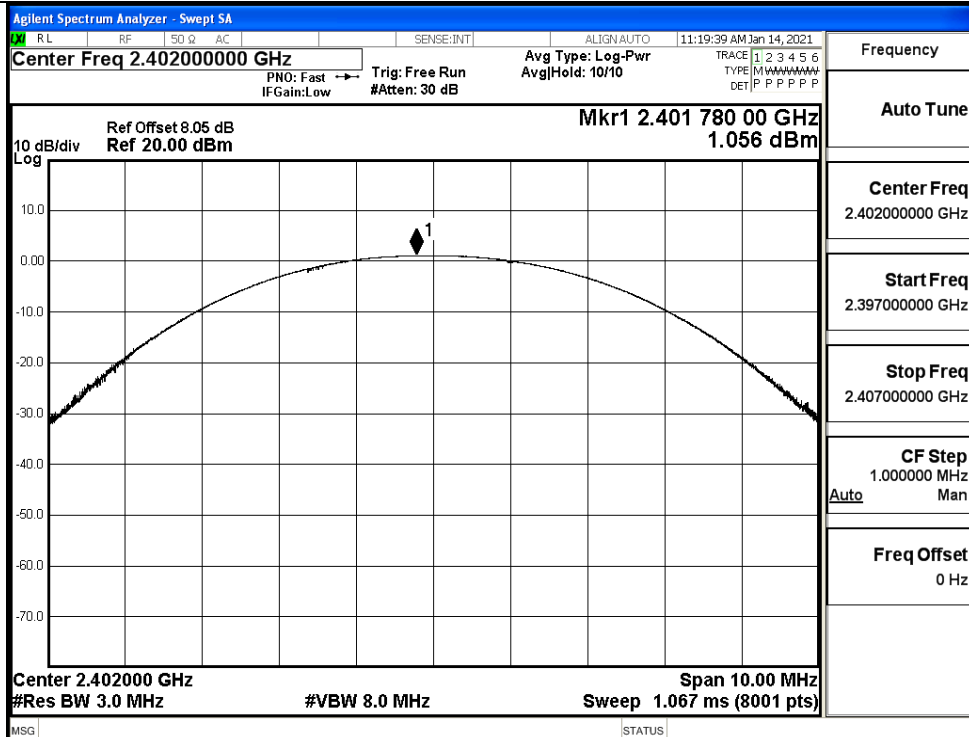


GFSK/HCH

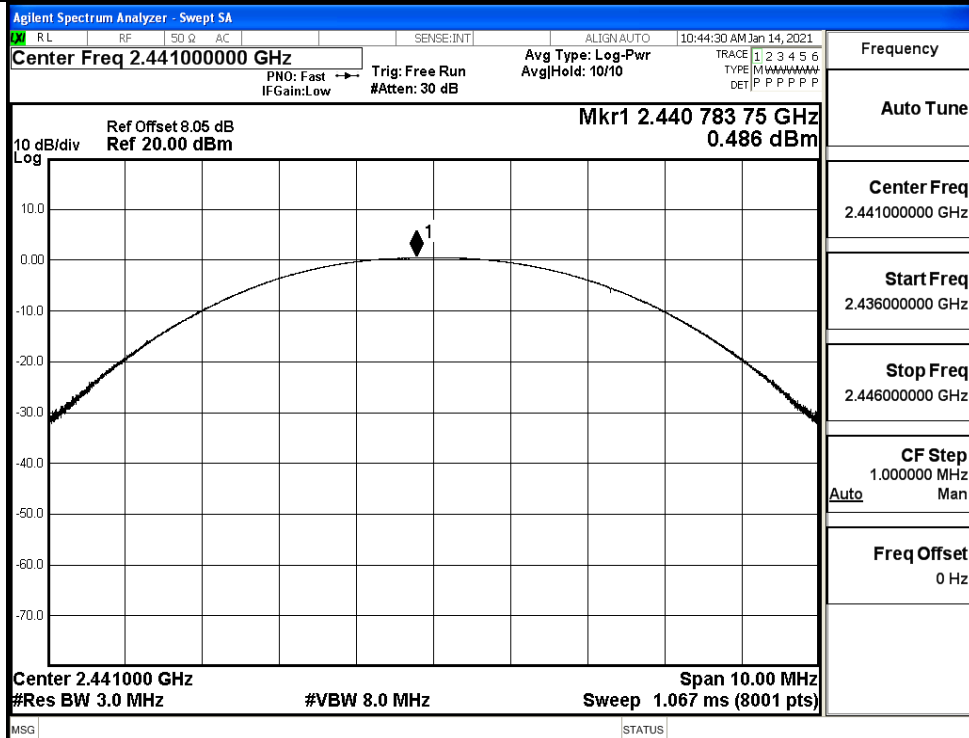
 $\pi/4$ DQPSK/LCH

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

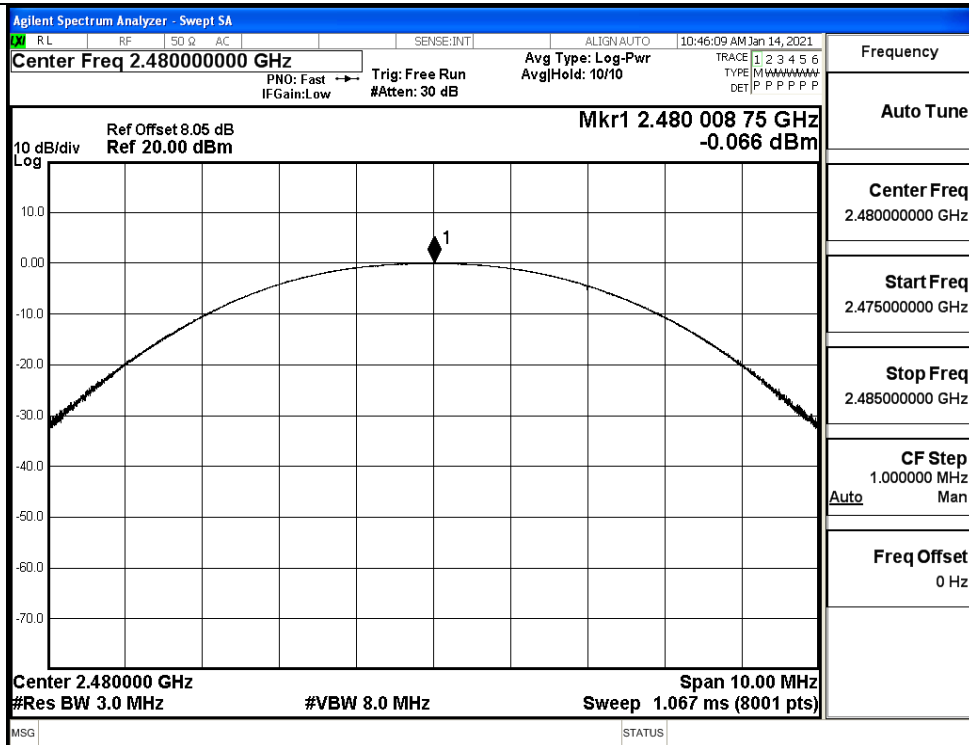
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

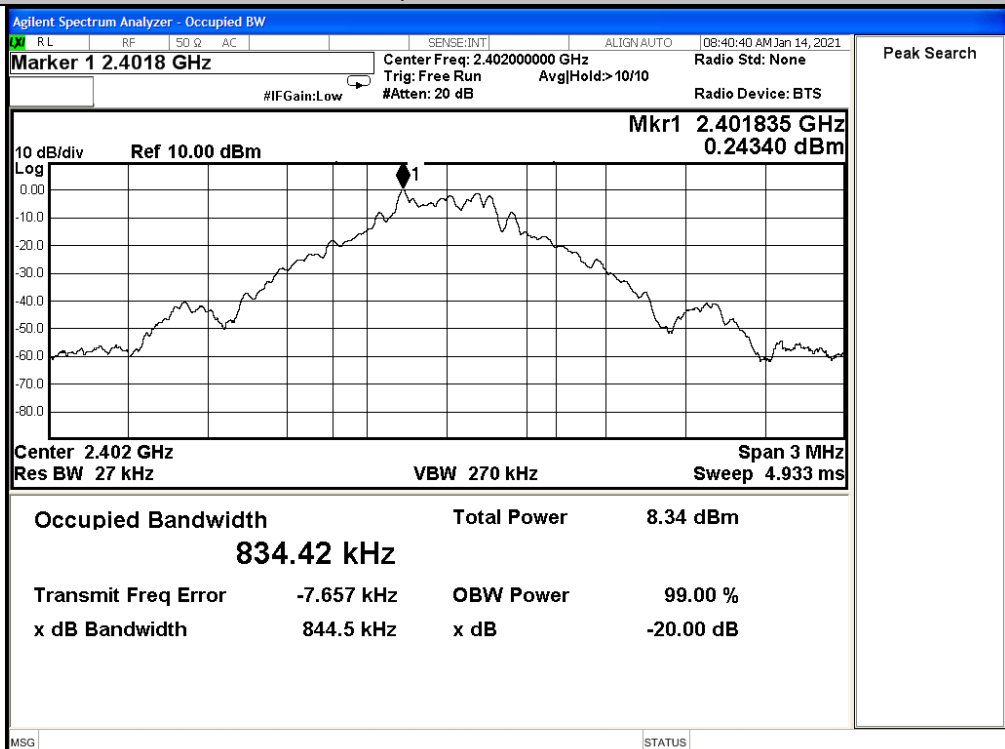


A.2 20dB Bandwidth

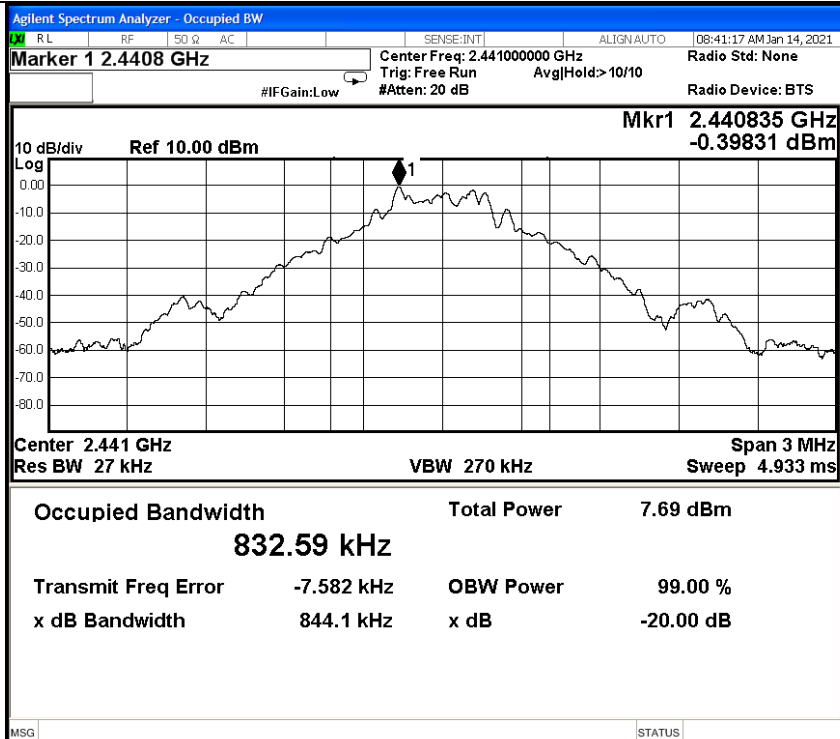
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.8445	Not Specified	PASS
	MCH	0.8441	Not Specified	PASS
	HCH	0.8450	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.2020	Not Specified	PASS
	MCH	1.2010	Not Specified	PASS
	HCH	1.2030	Not Specified	PASS
8DPSK	LCH	1.2740	Not Specified	PASS
	MCH	1.2750	Not Specified	PASS
	HCH	1.2760	Not Specified	PASS

Test Graphs

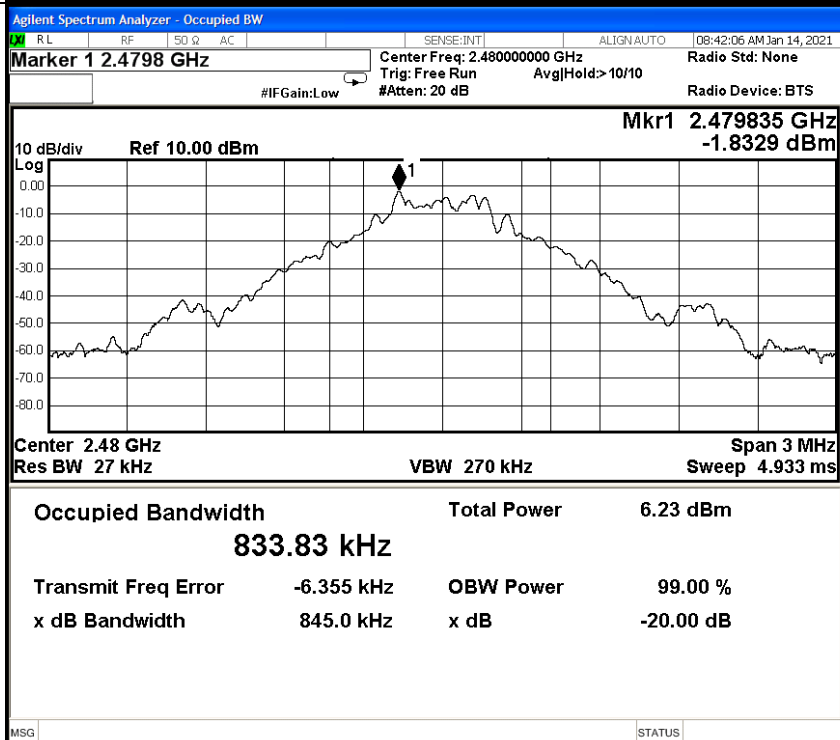
GFSK/LCH

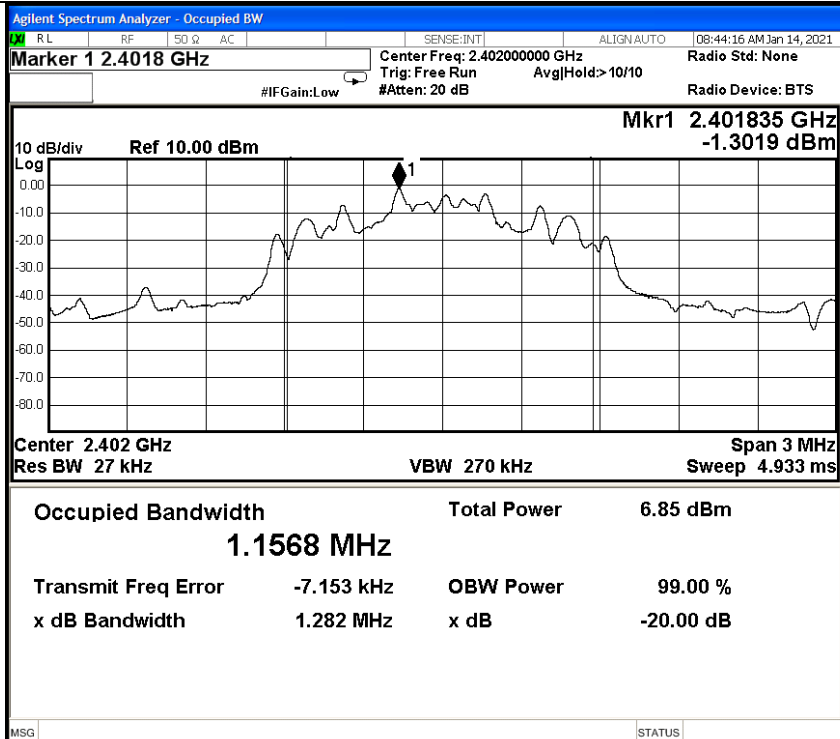
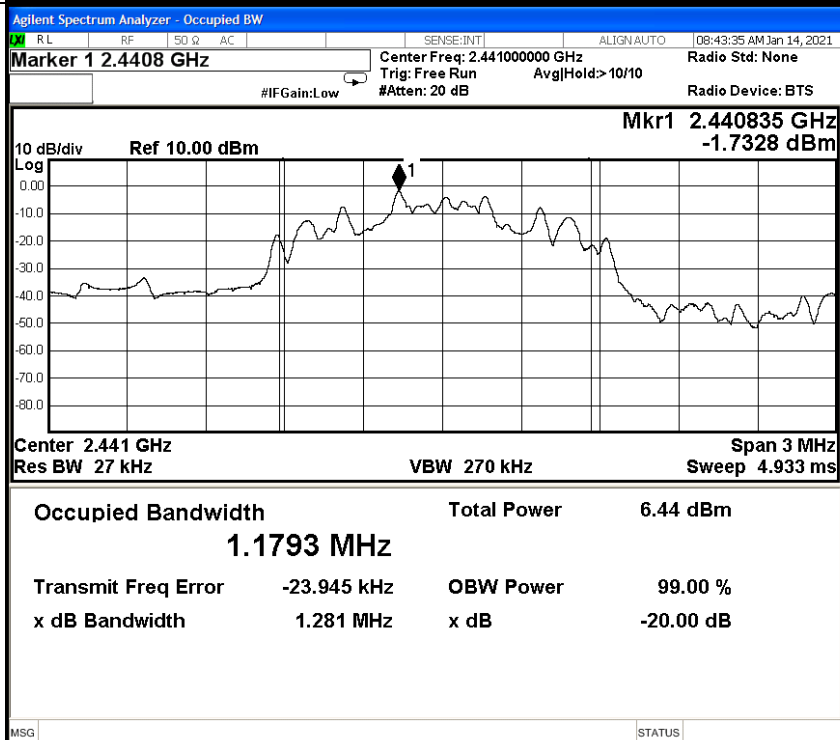


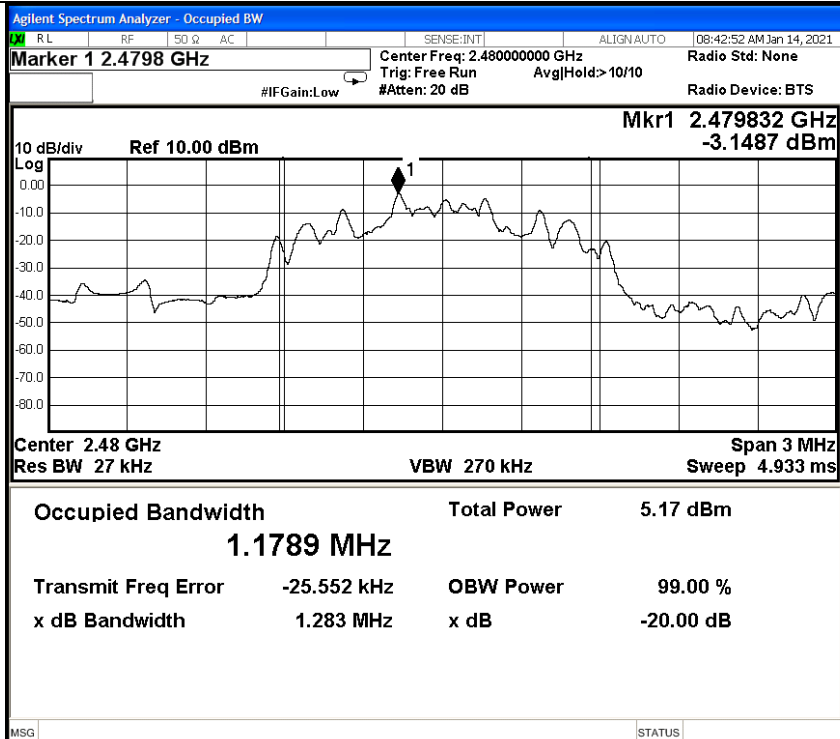
GFSK/MCH



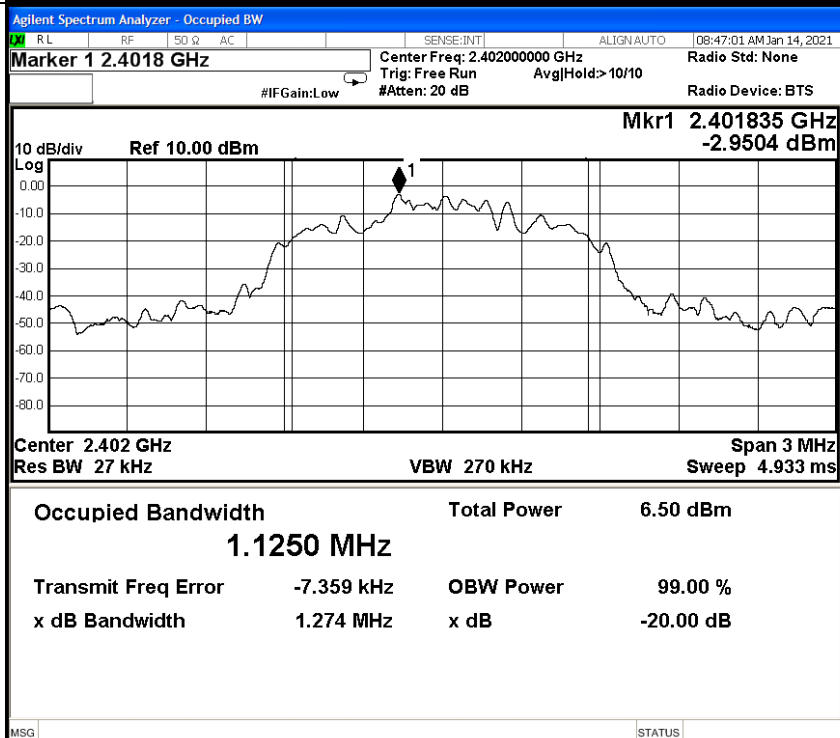
GFSK/HCH



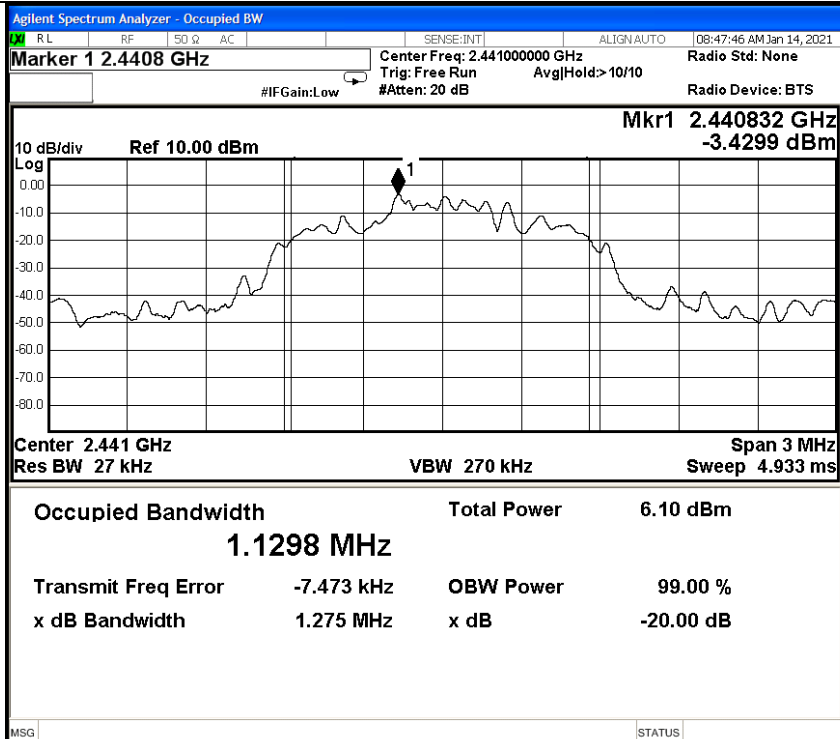
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

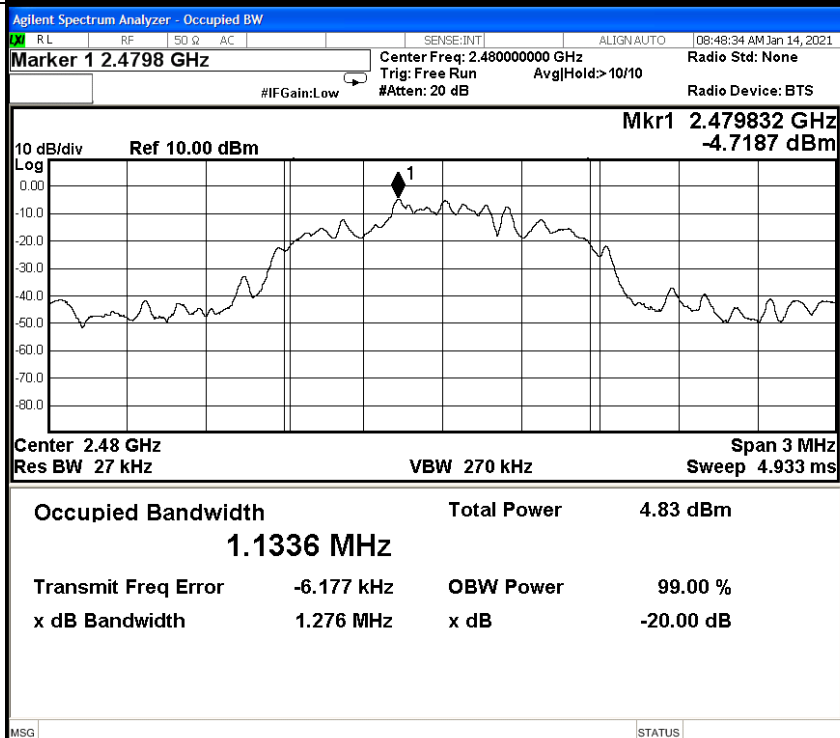
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH



Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.999	0.563	PASS
	MCH	0.984	0.563	PASS
	HCH	1.029	0.563	PASS
$\pi/4$ DQPSK	LCH	0.993	0.801	PASS
	MCH	0.996	0.801	PASS
	HCH	0.988	0.802	PASS
8DPSK	LCH	1.009	0.849	PASS
	MCH	0.994	0.850	PASS
	HCH	1.016	0.851	PASS

Test Graphs

Agilent Spectrum Analyzer - Swept SA

R L RF 50 Ω AC SENSE:INT ALIGN:AUTO 08:58:40 AM Jan 14, 2021

Marker 2 2.40183601200 GHz Avg Type: RMS
PNO: Wide IF Gain: Low Trig: Free Run Attenuation: 20 dB Avg Hold: >100/100

TRACE 1 2 3 4 5 6 TYPE M N N N N N DET A N N N N N

Mkr2 2.401 836 01 GHz 2.399 dBm

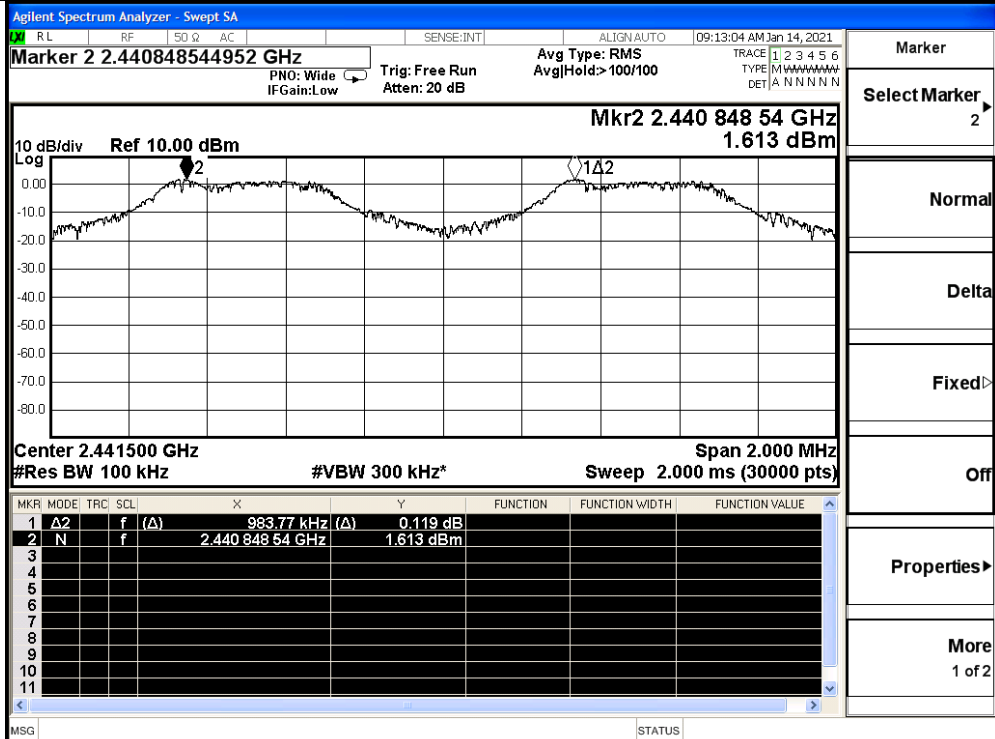
10 dB/div Ref 10.00 dBm Log

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	Δ2	f	(Δ)	998.83 kHz	(Δ) 0.039 dB			
2	N	f		2.401 836 01 GHz	2.399 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								

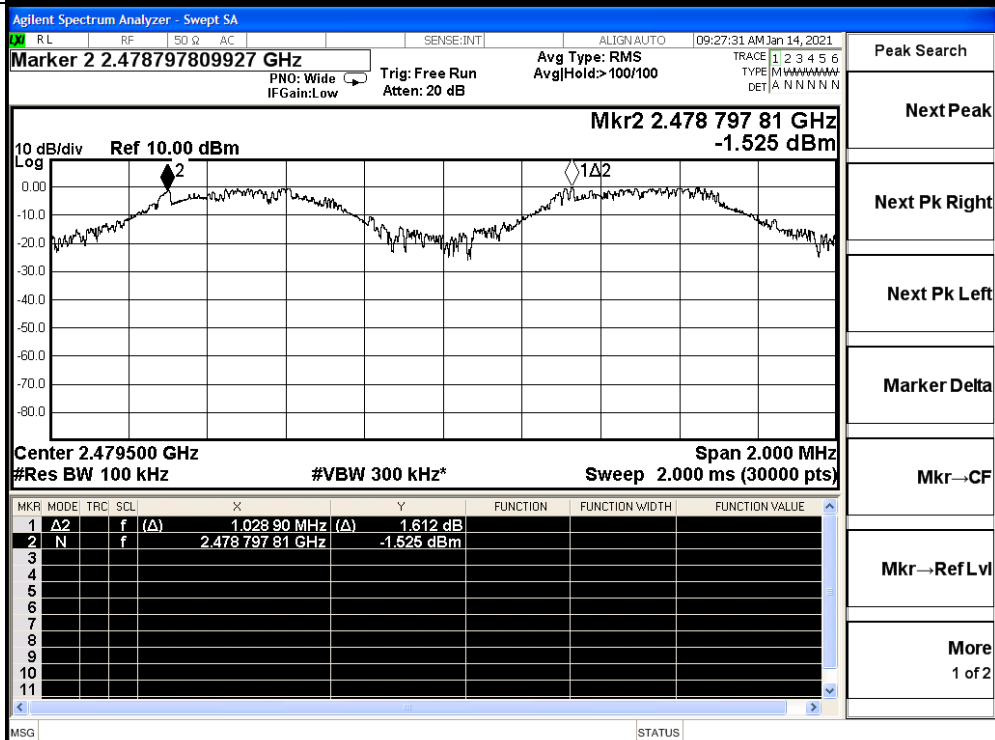
Center 2.402500 GHz Span 2.000 MHz
#Res BW 100 kHz #VBW 300 kHz* Sweep 2.000 ms (30000 pts)

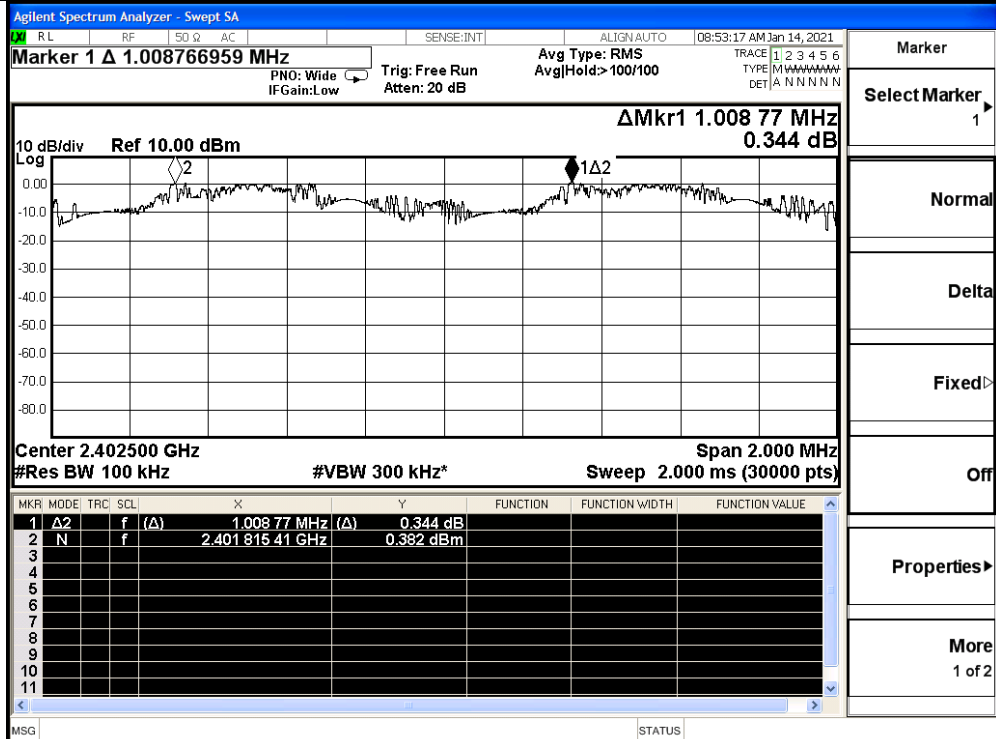
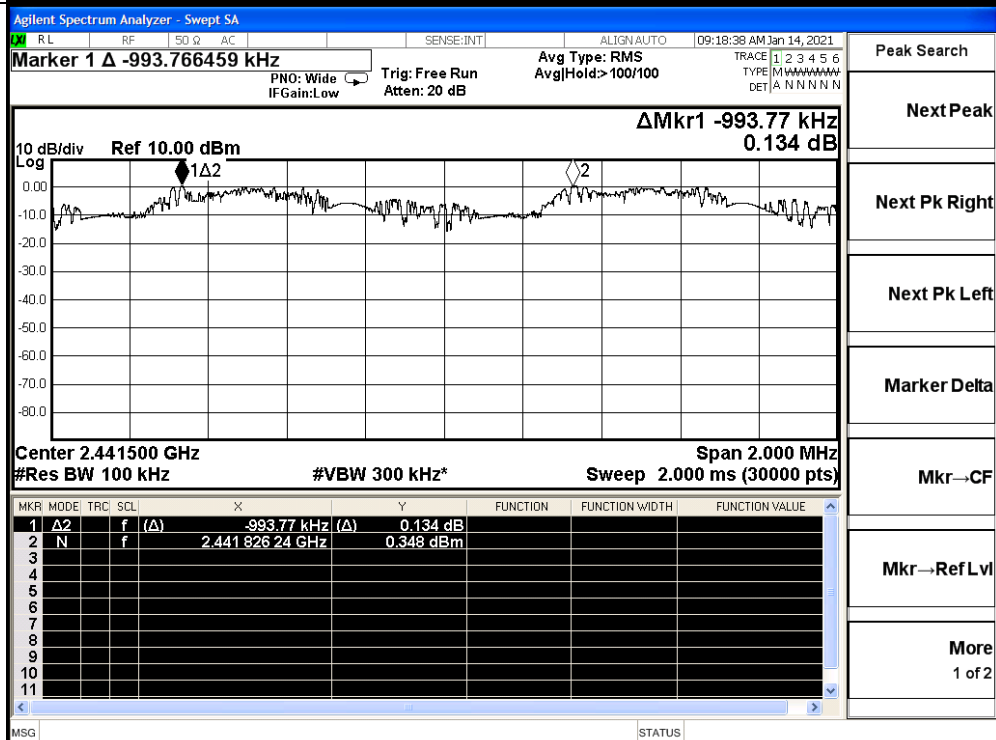
MSG STATUS

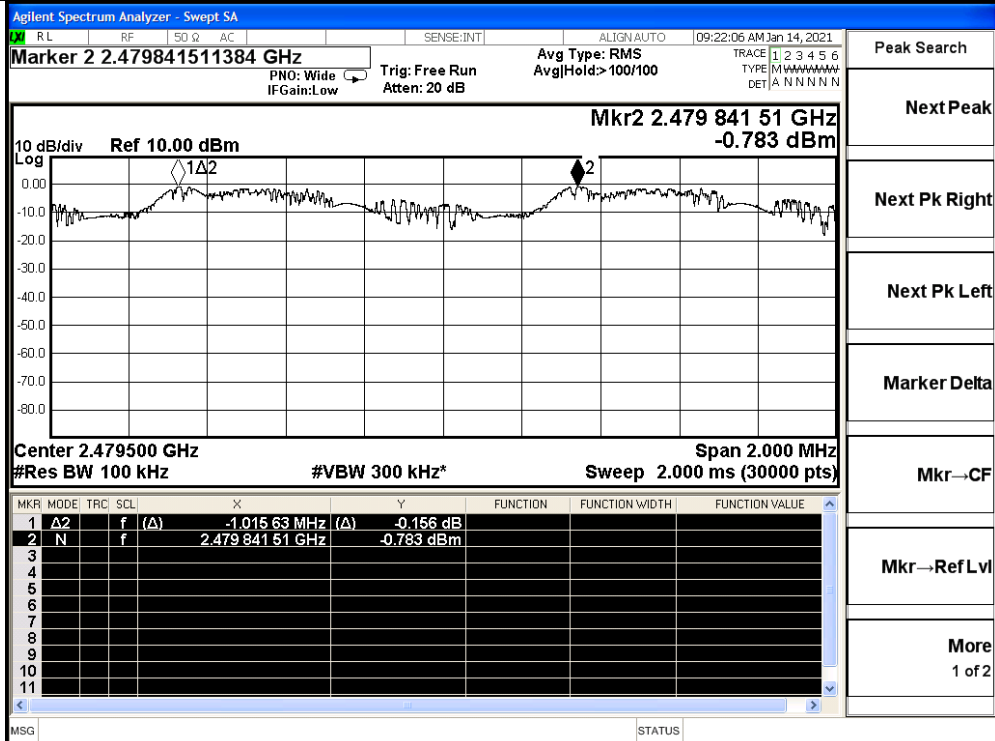
GFSK/MCH



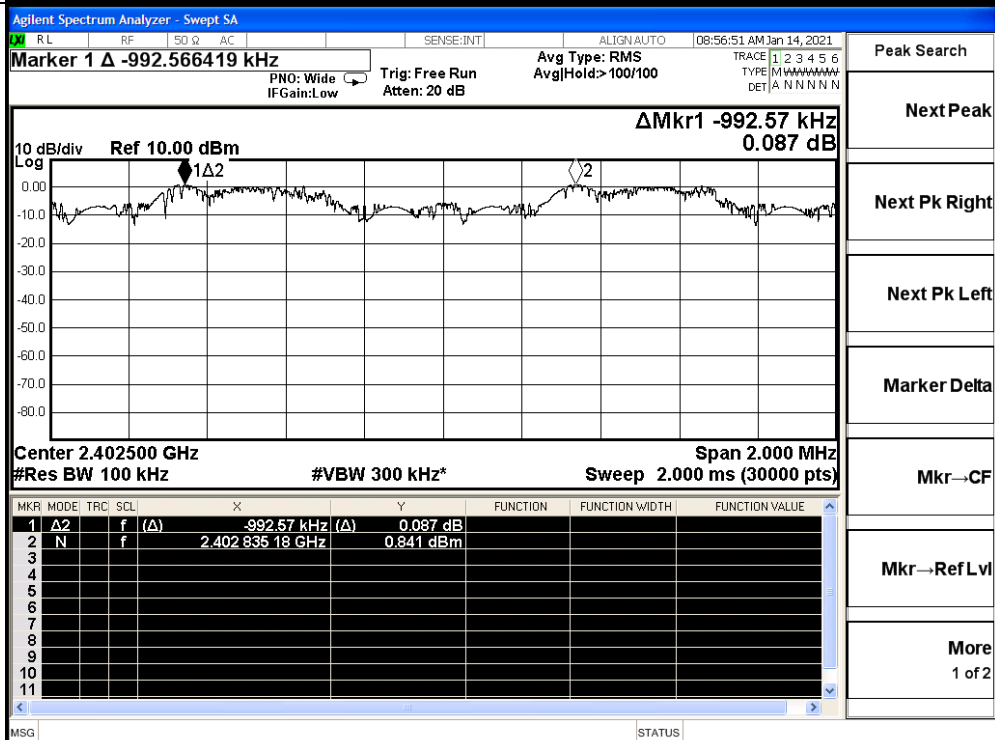
GFSK/HCH



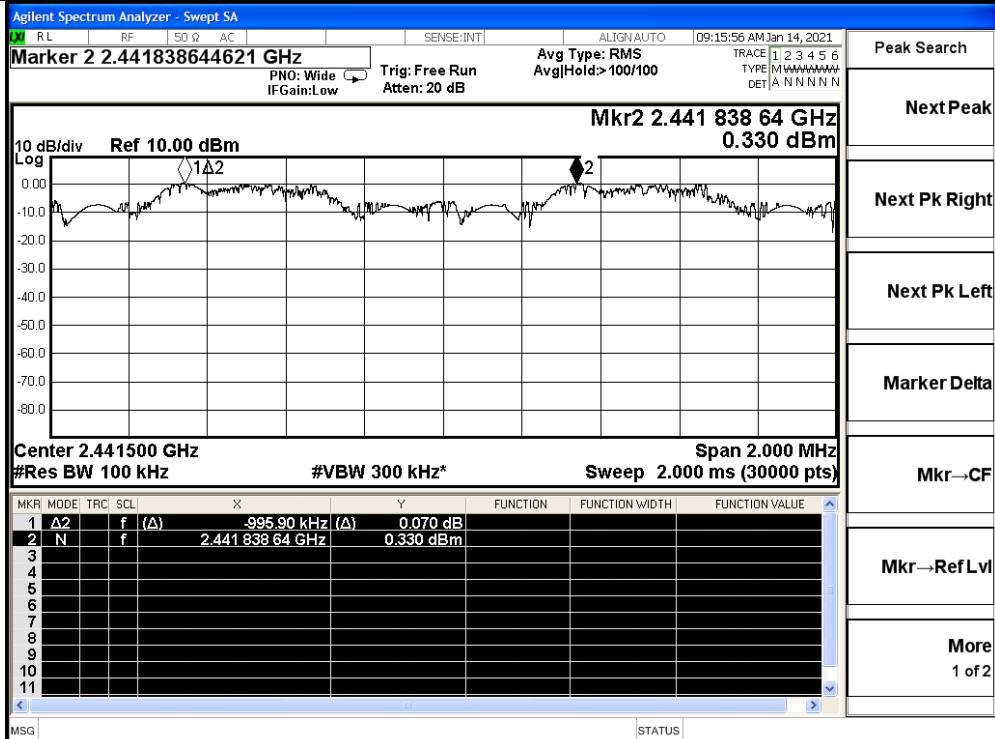
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

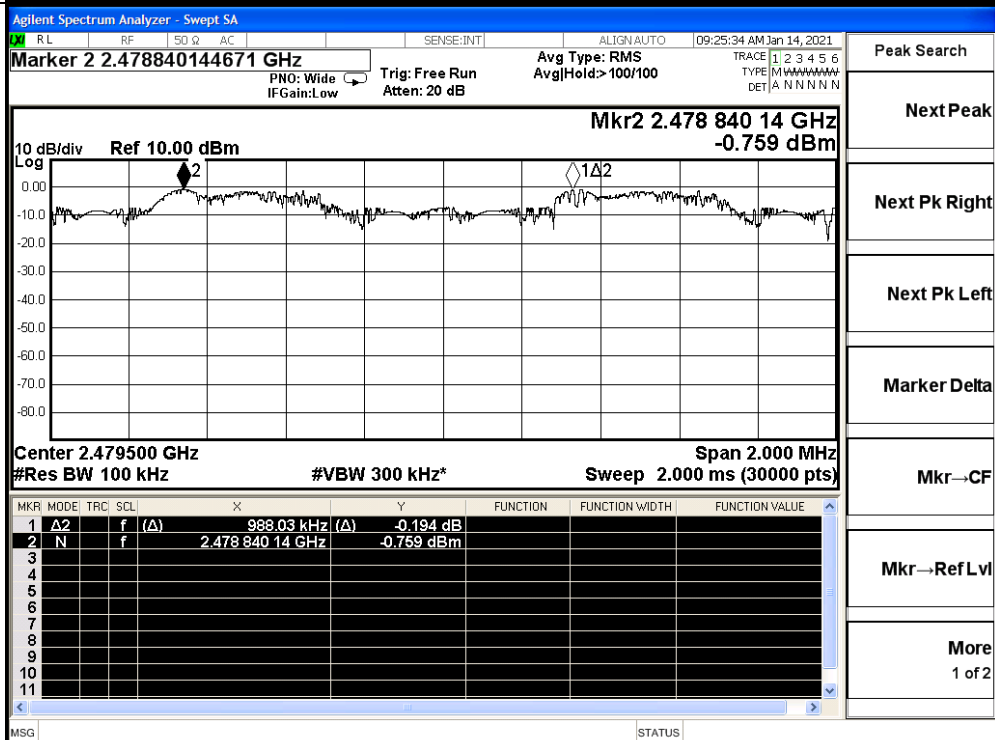
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

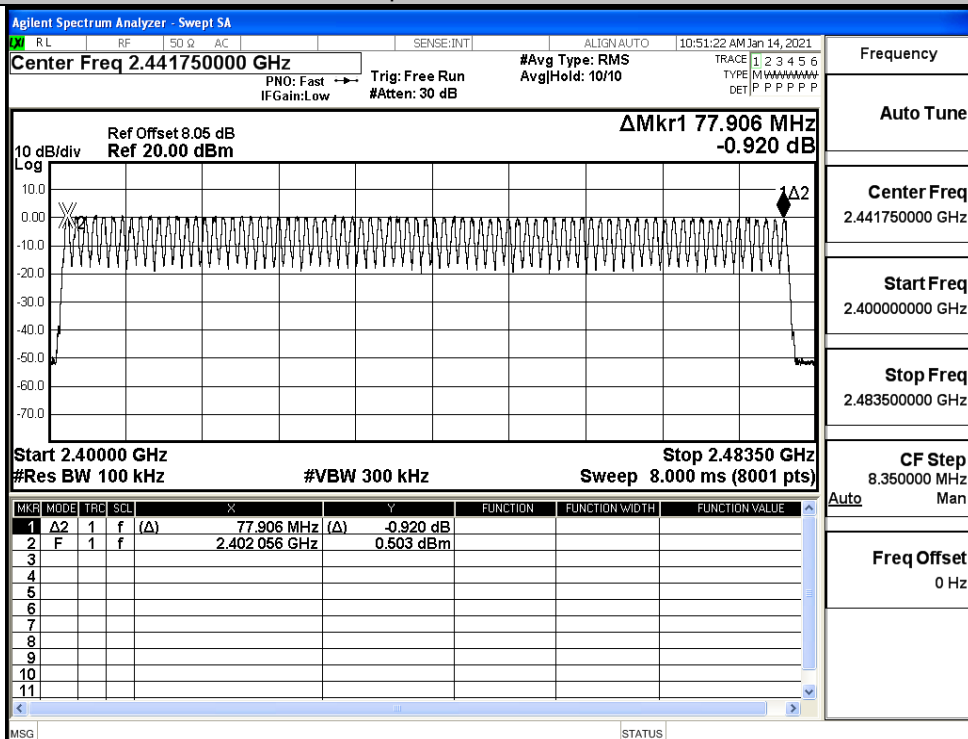


A.4 Hopping Channel Number

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

Test Graphs

GFSK/Hop



Frequency

Auto Tune

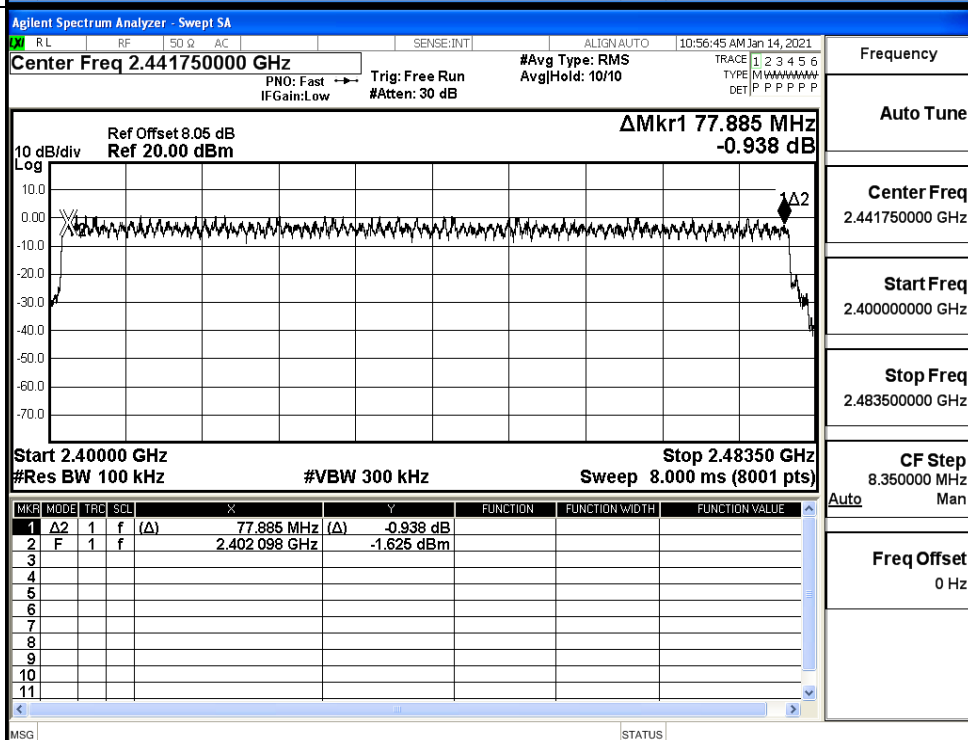
Center Freq
2.441750000 GHz

Start Freq
2.400000000 GHz

Stop Freq
2.483500000 GHz

CF Step
8.350000 MHz
Man

Freq Offset
0 Hz

 $\pi/4$ DQPSK/Hop

Frequency

Auto Tune

Center Freq
2.441750000 GHz

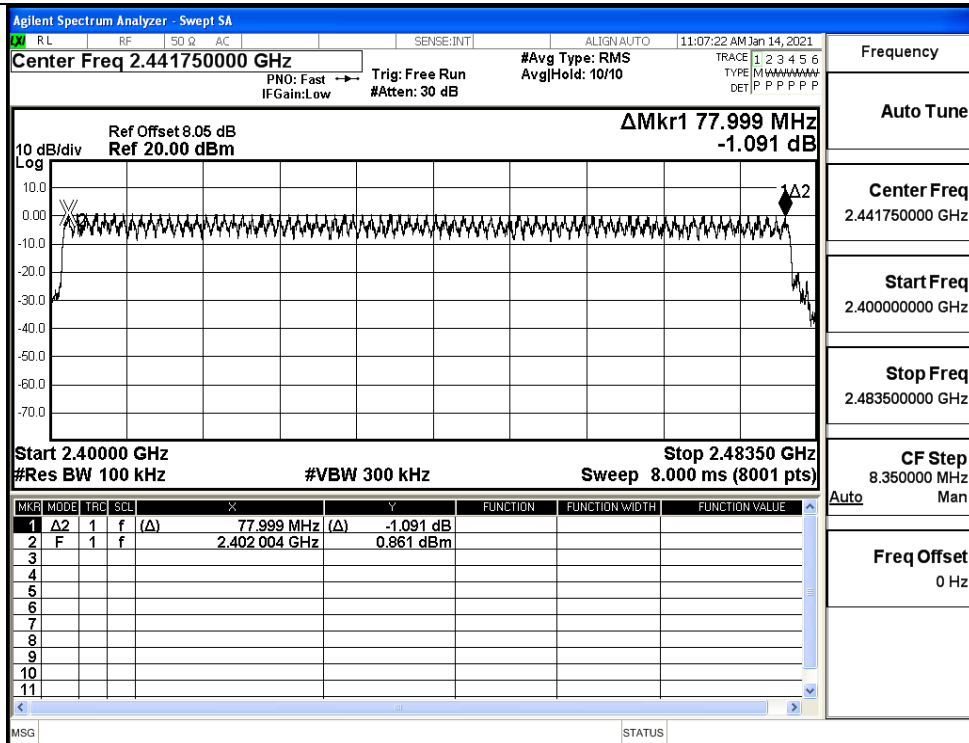
Start Freq
2.400000000 GHz

Stop Freq
2.483500000 GHz

CF Step
8.350000 MHz
Man

Freq Offset
0 Hz

8DPSK/Hop

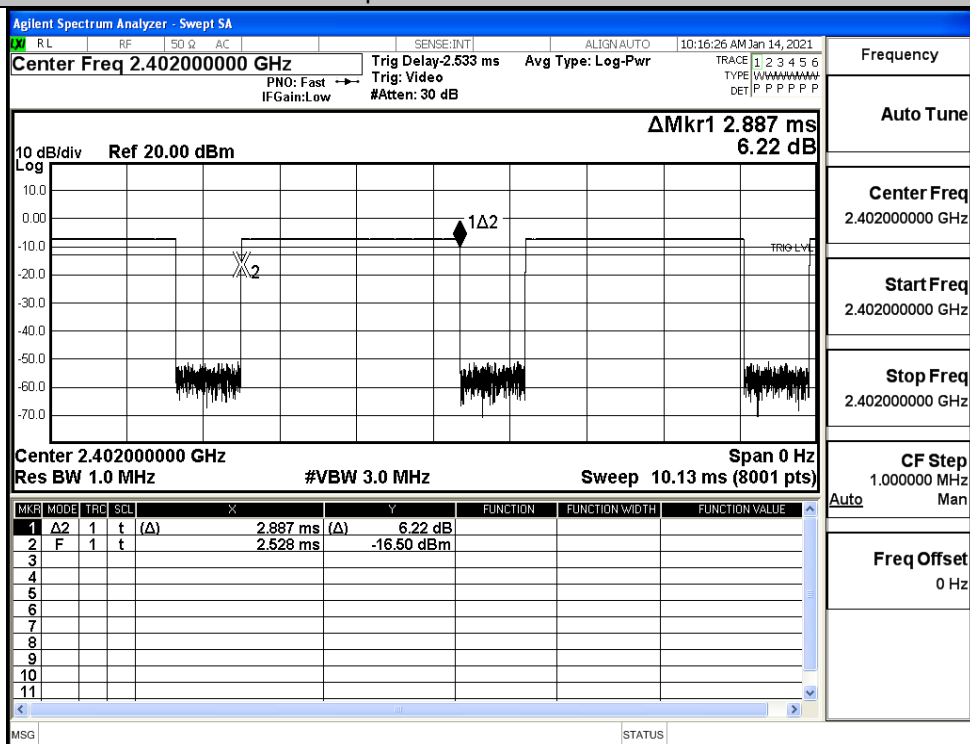


A.5 Dwell Time

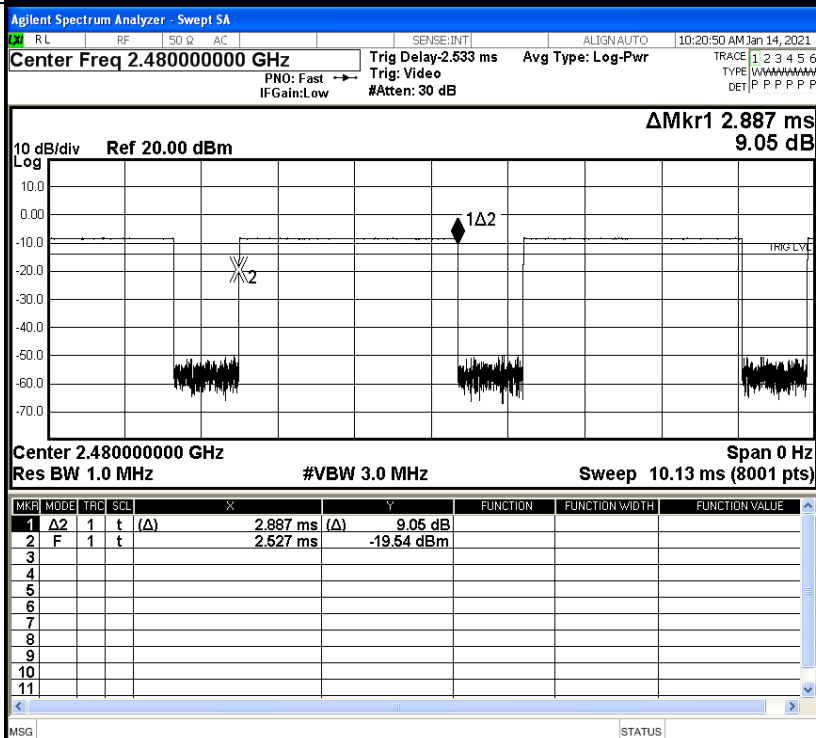
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.89	106.7	0.308	0.4	PASS
	DH5	MCH	2.89	106.7	0.308	0.4	PASS
	DH5	HCH	2.89	106.7	0.308	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.89	106.7	0.307	0.4	PASS
	2DH5	MCH	2.89	106.7	0.307	0.4	PASS
	2DH5	HCH	2.89	106.7	0.307	0.4	PASS
8DPSK	3DH5	LCH	2.89	106.7	0.089	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

Test Graphs

GFSK_DH5/LCH

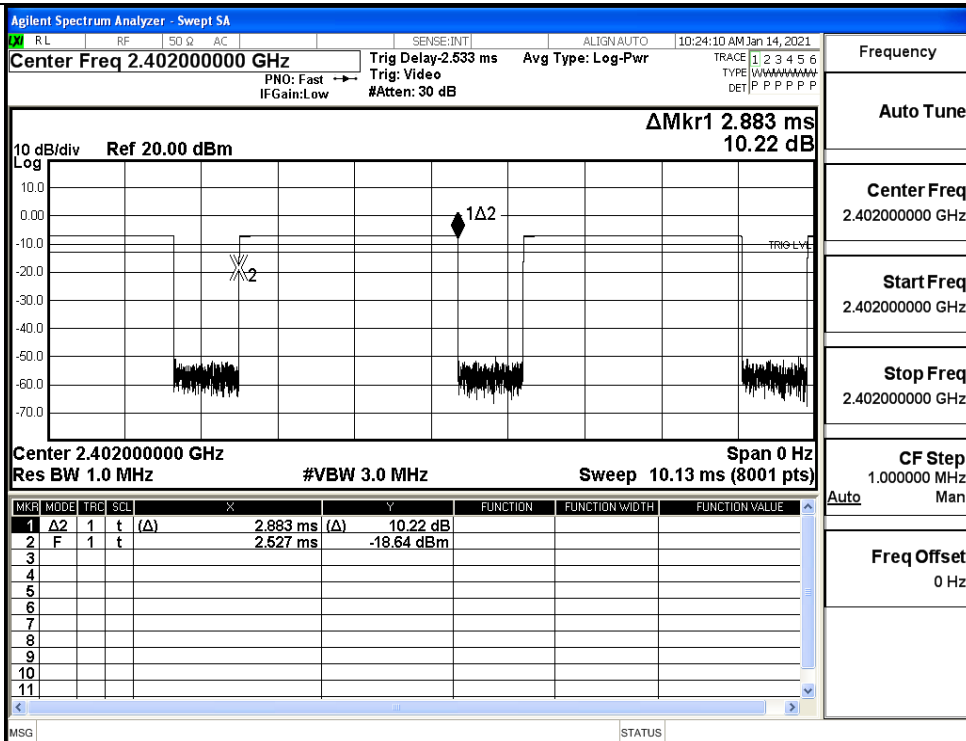


GFSK_DH5/HCH

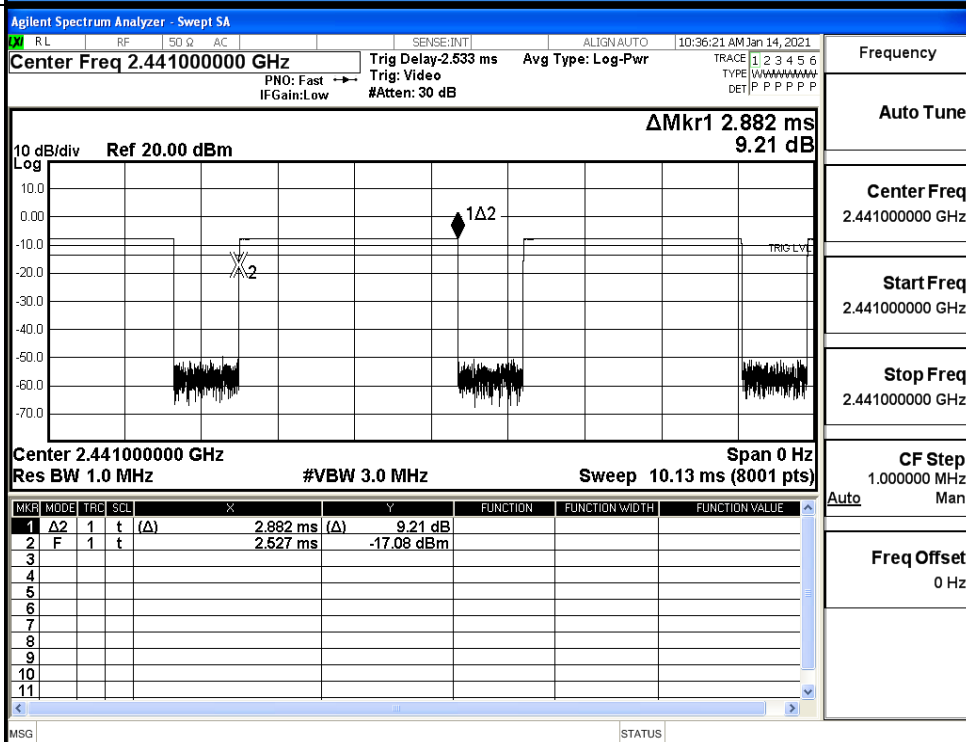


Frequency	
Auto Tune	
Center Freq	2.480000000 GHz
Start Freq	2.480000000 GHz
Stop Freq	2.480000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

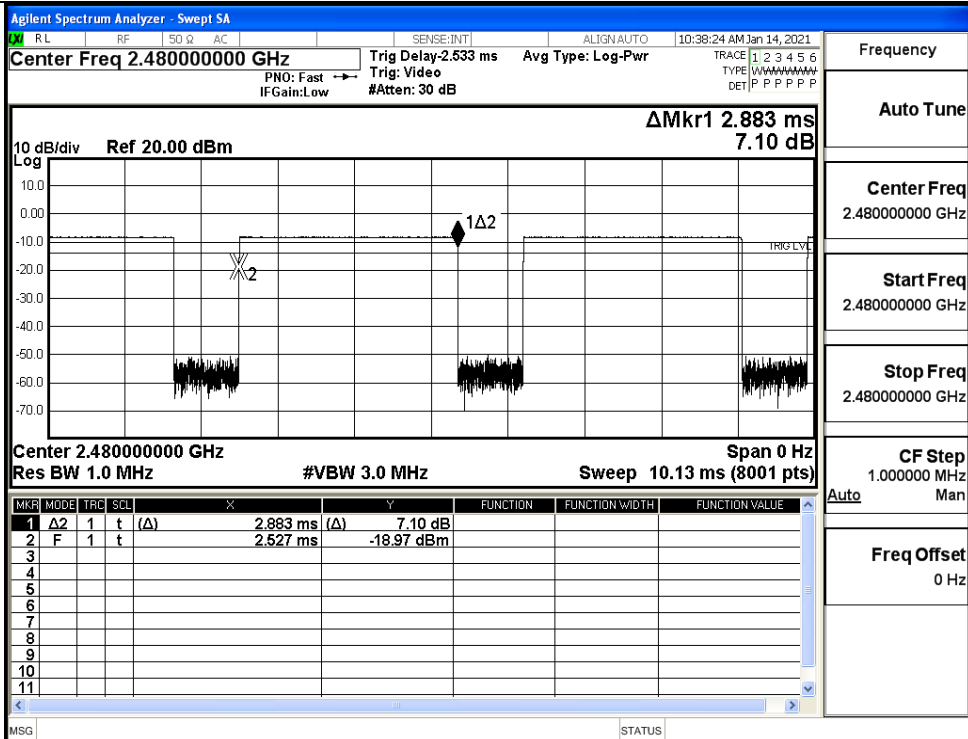
$\pi/4$ DQPSK
_2DH5/LCH



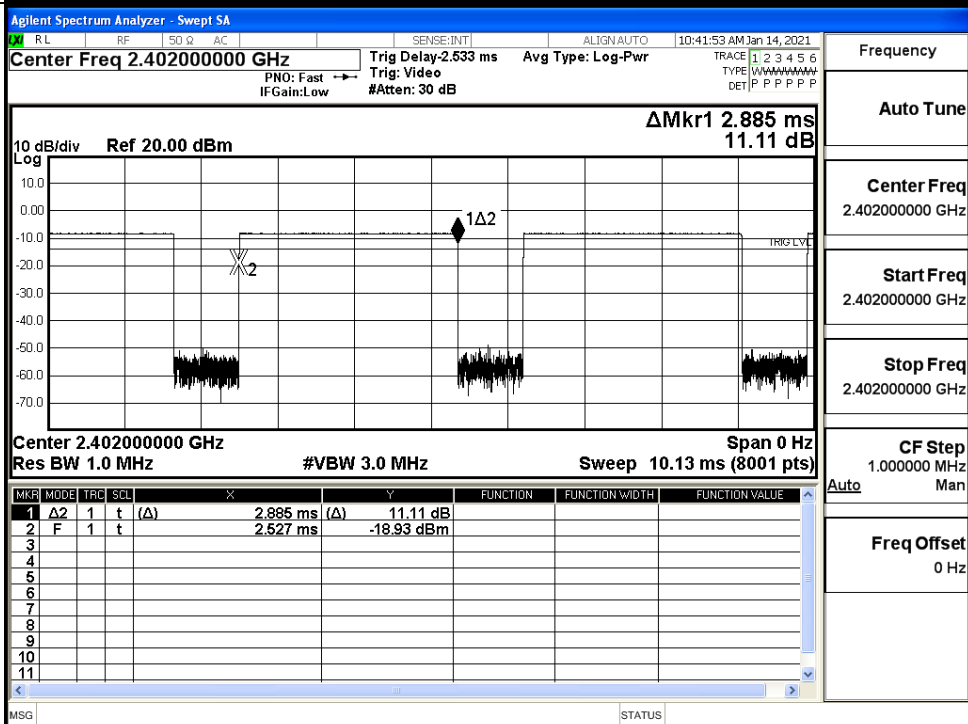
$\pi/4$ DQPSK
_2DH5/MCH



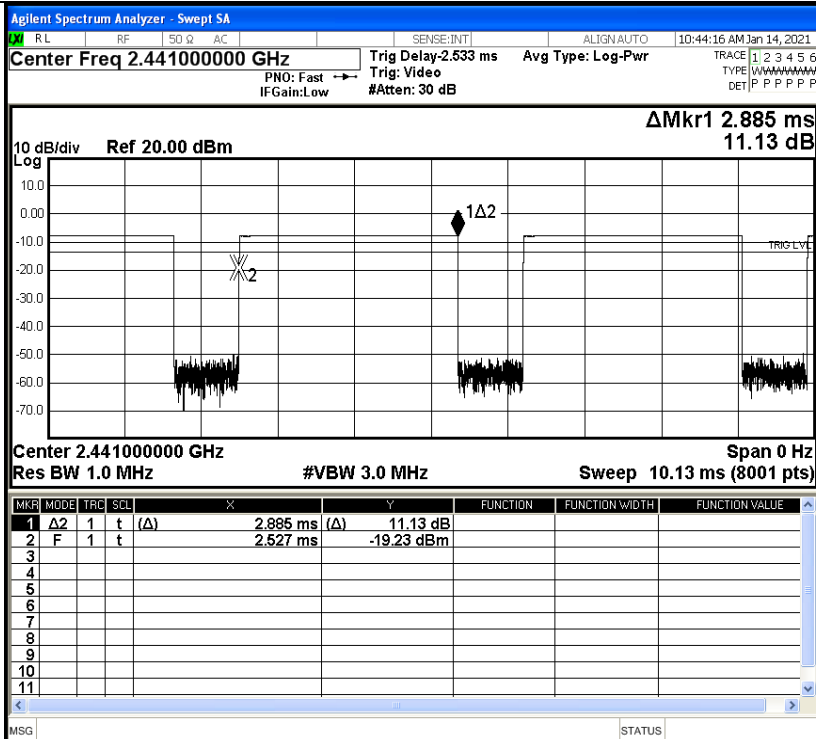
$\pi/4$ DQPSK
_2DH5/HCH



8DPSK _3DH5/LCH



8DPSK_3DH5/MCH

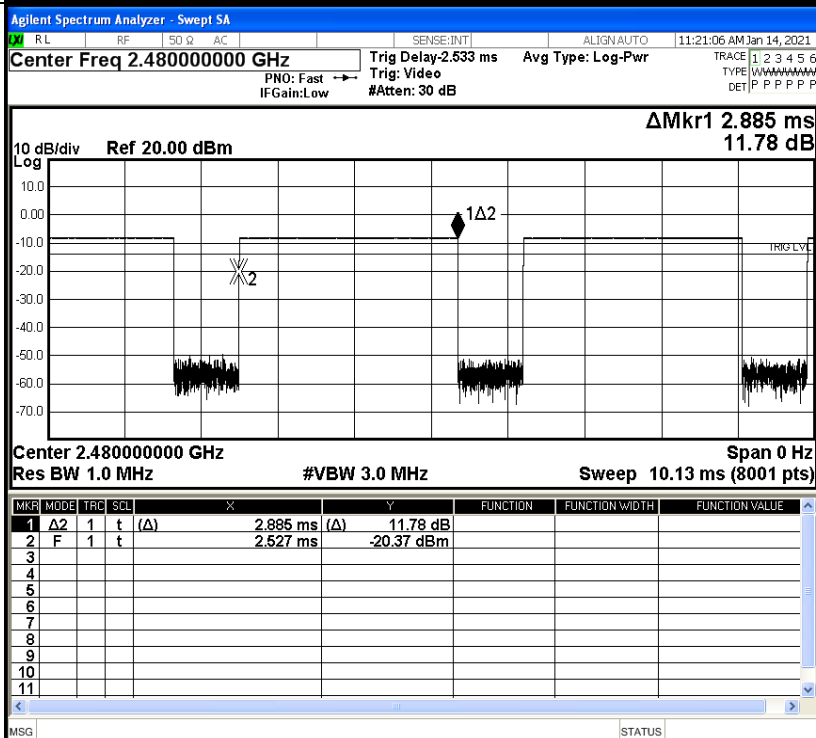


Frequency

Auto Tune

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

8DPSK_3DH5/HCH

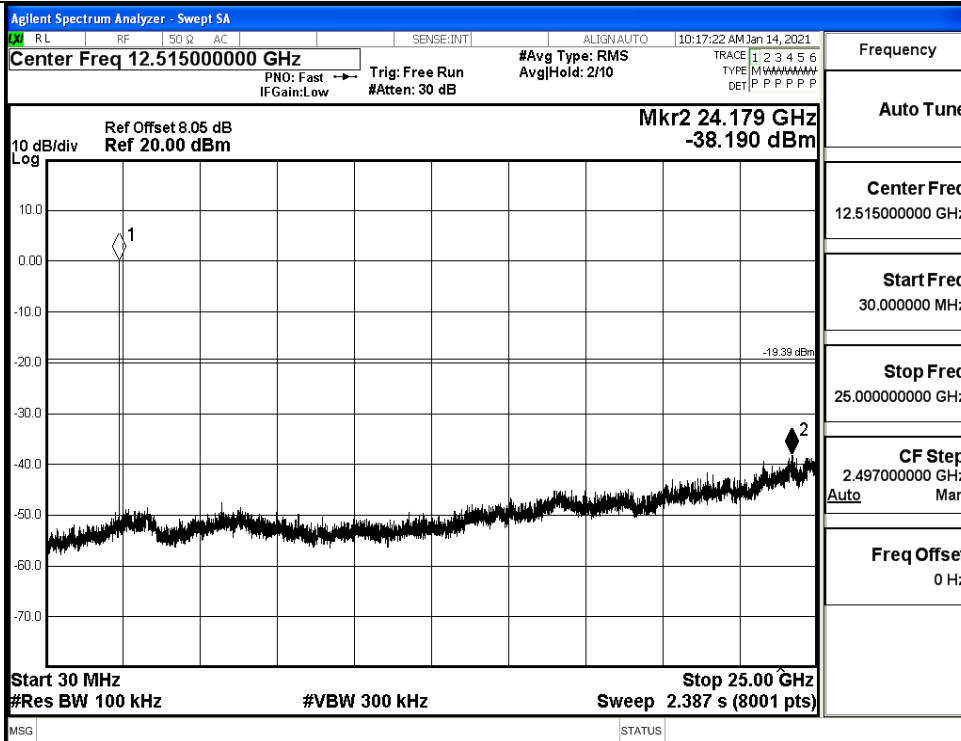


Frequency

Auto Tune

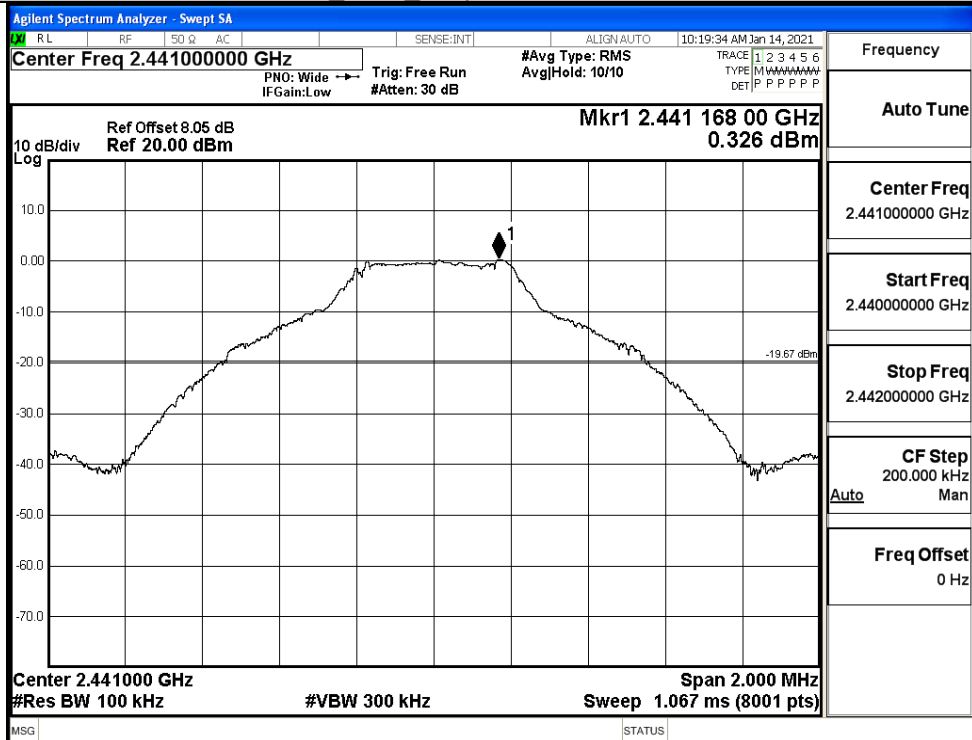
Center Freq
2.480000000 GHzStart Freq
2.480000000 GHzStop Freq
2.480000000 GHzCF Step
1.000000 MHz
Auto ManFreq Offset
0 Hz

Puw

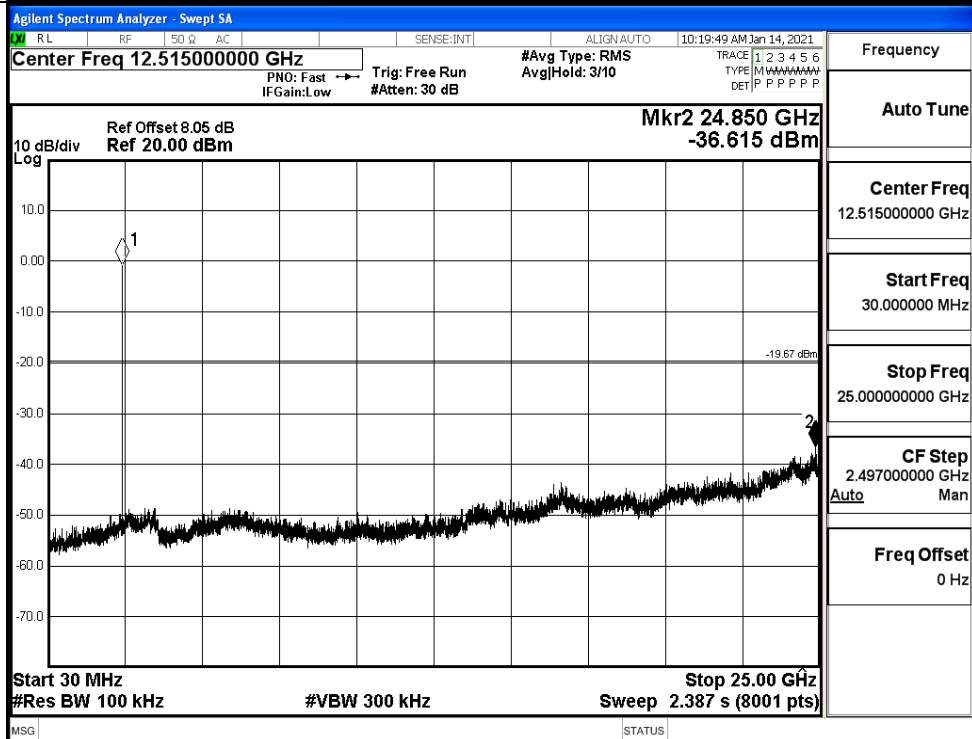


GFSK_MCH_Graphs

Pref

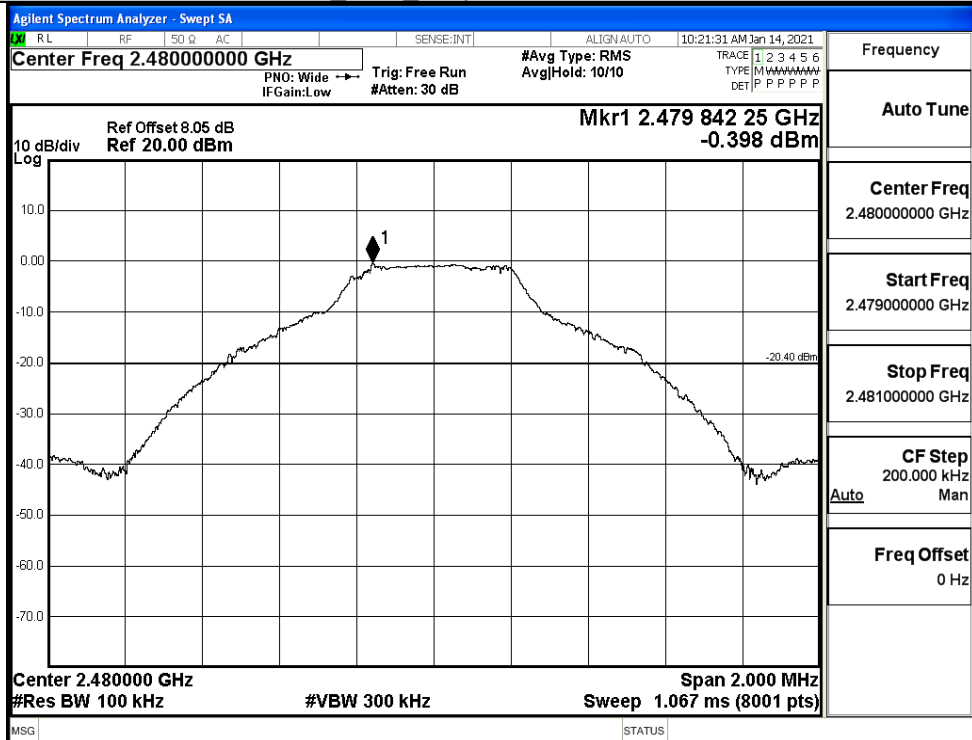


Puw

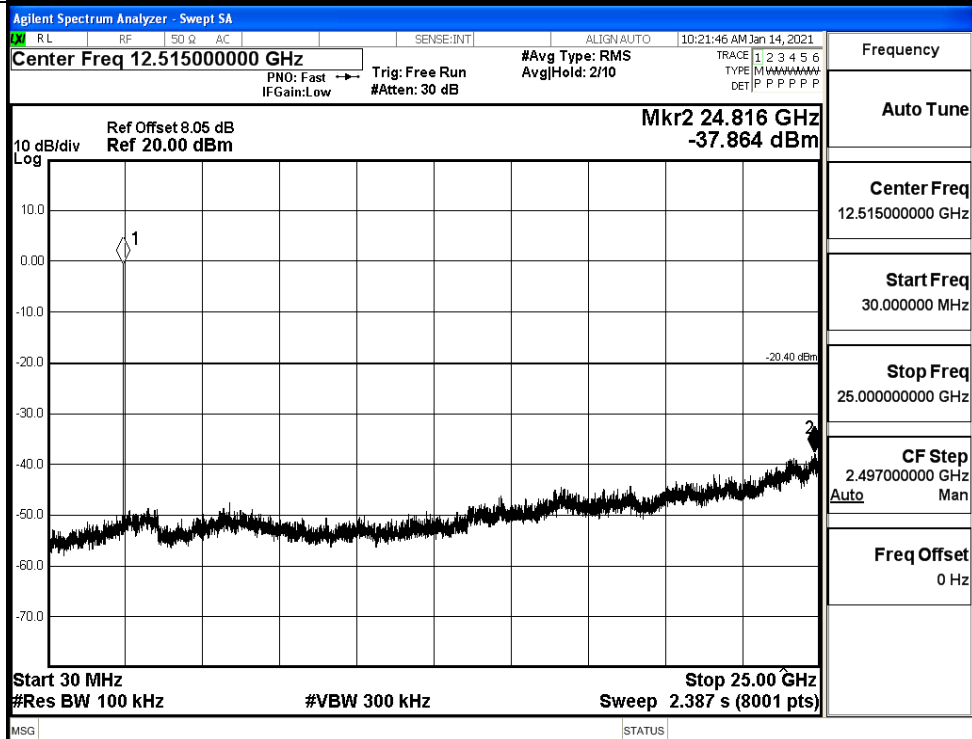


GFSK HCH Graphs

Pref

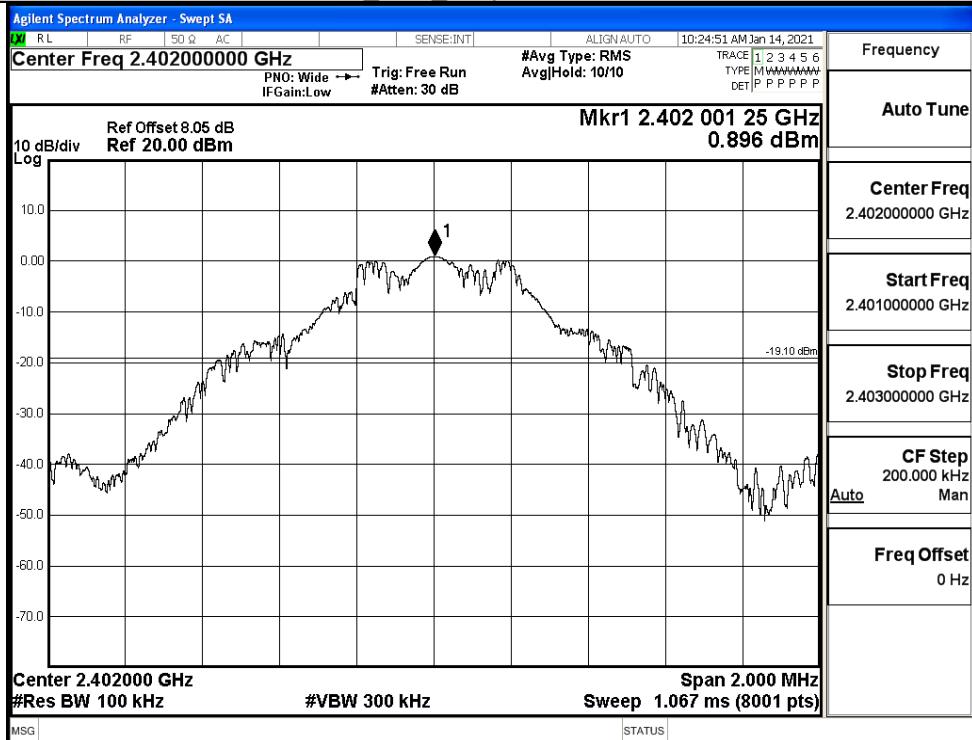


Puw

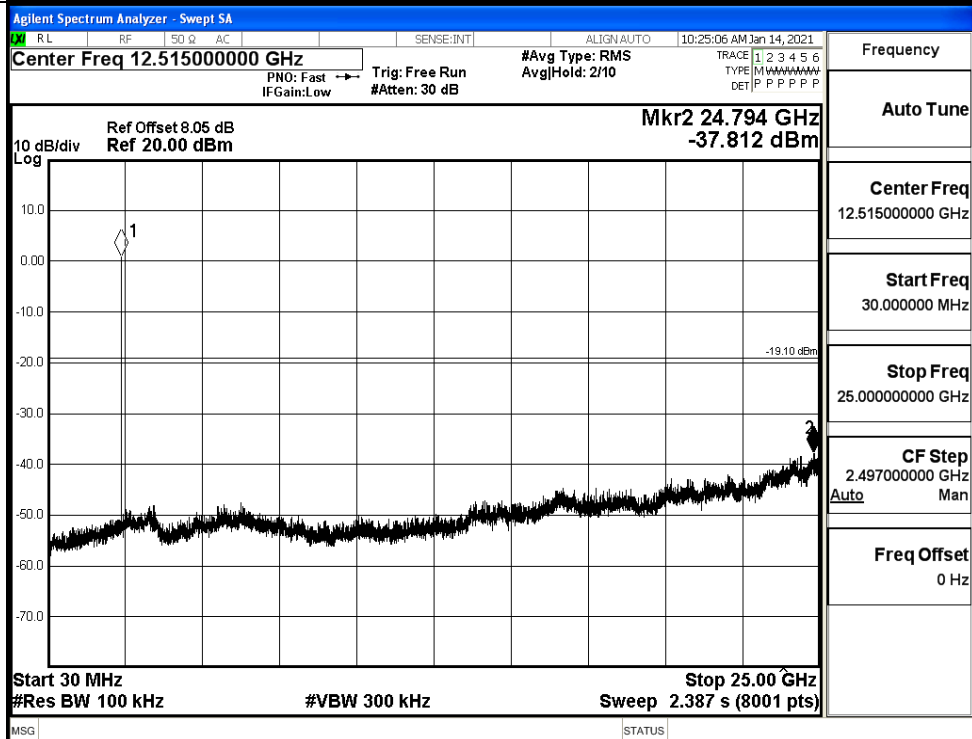


$\pi/4$ DQPSK_LCH_Graphs

Pref

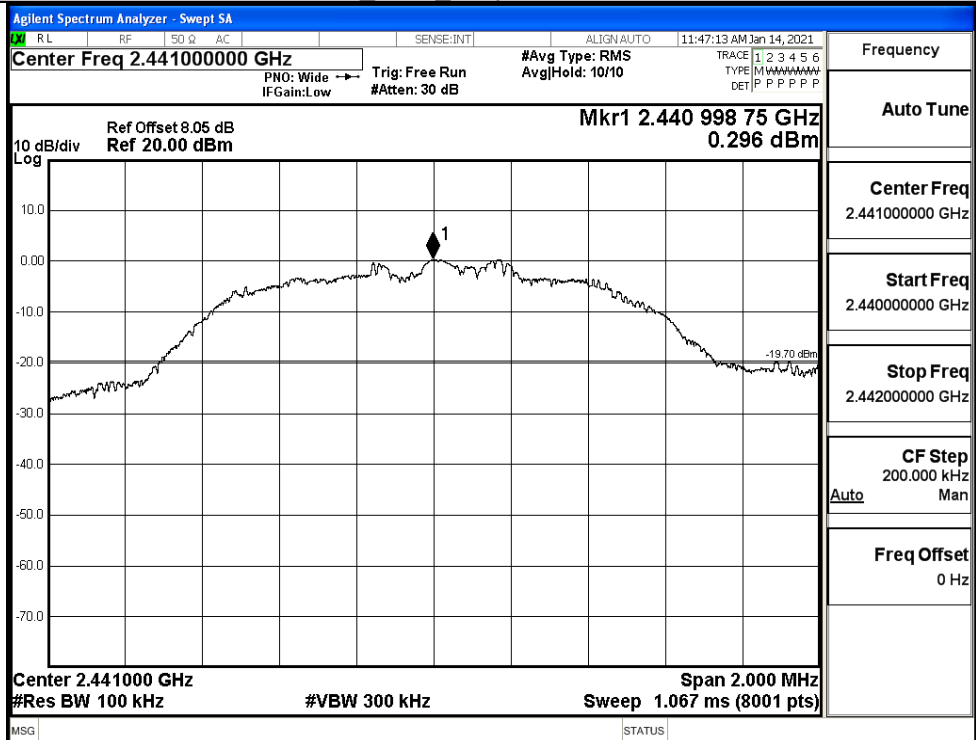


Puw

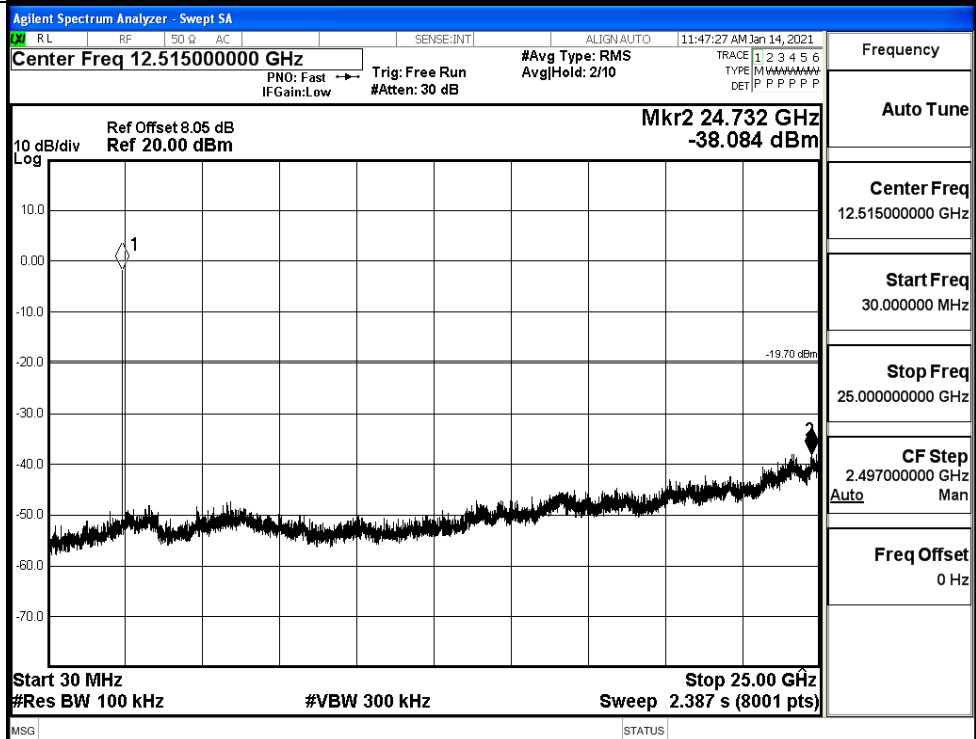


π /4DQPSK_MCH_Graphs

Pref

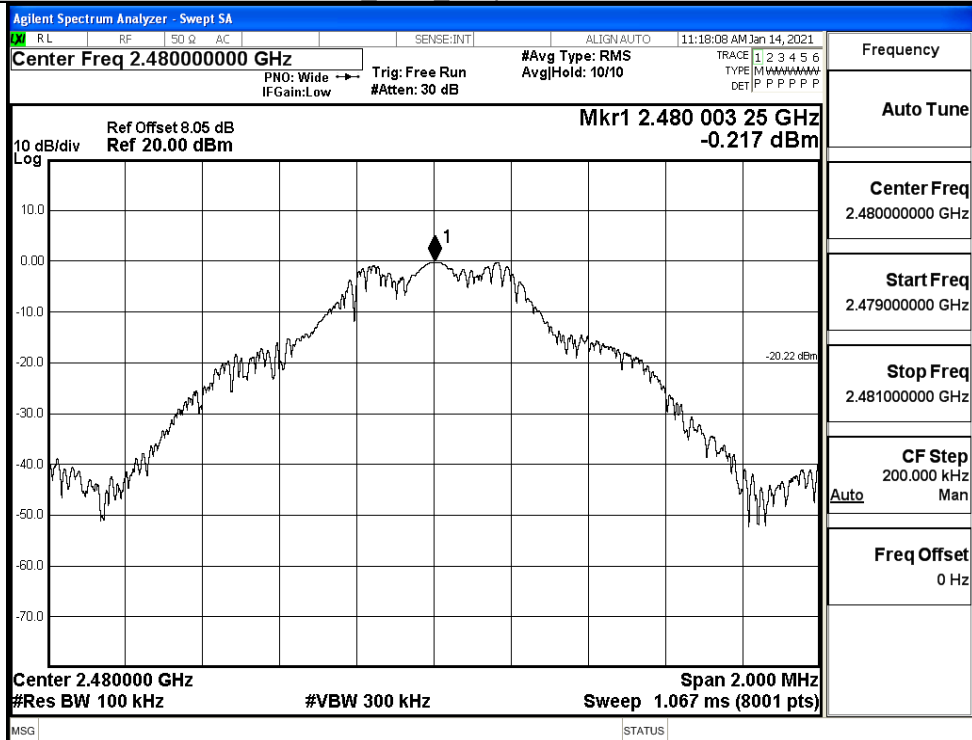


Puw

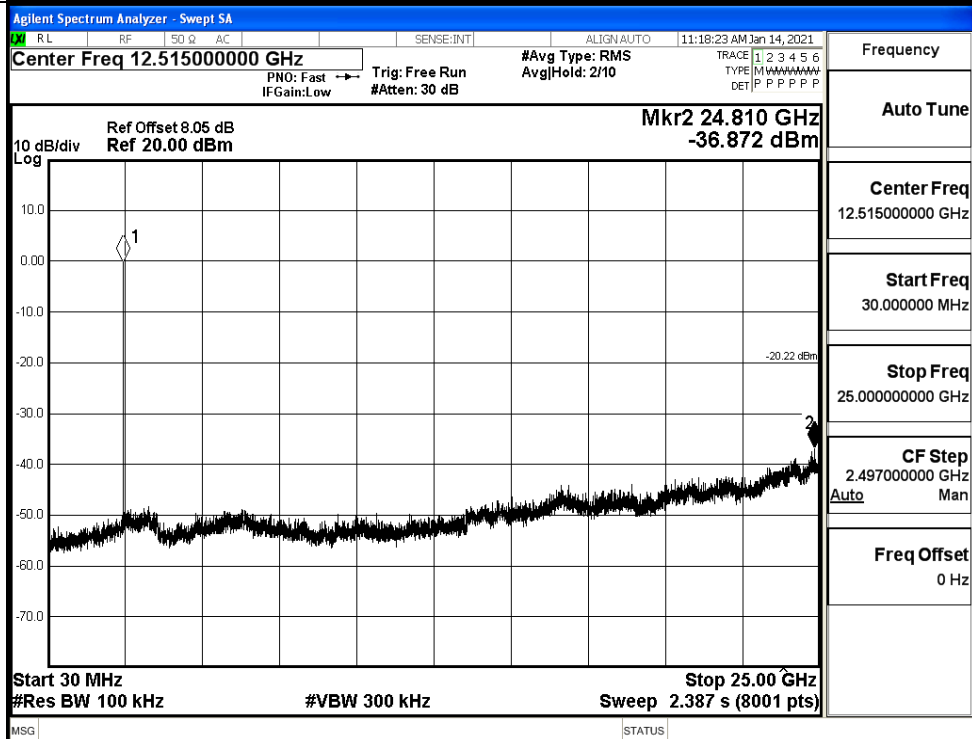


$\pi/4$ DQPSK_HCH_Graphs

Pref

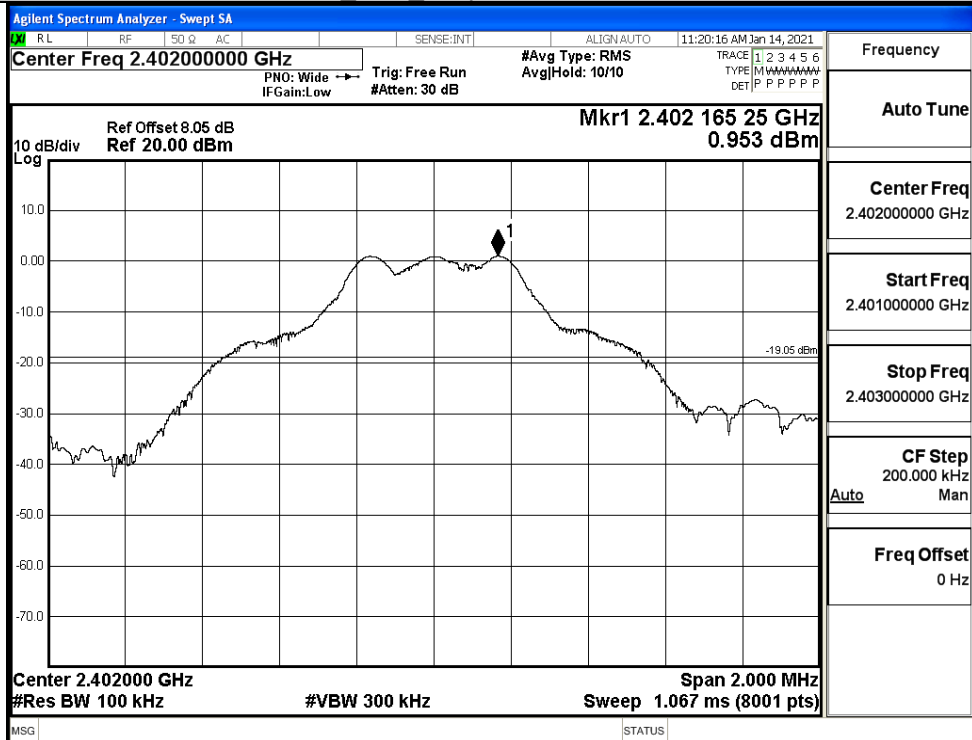


Puw

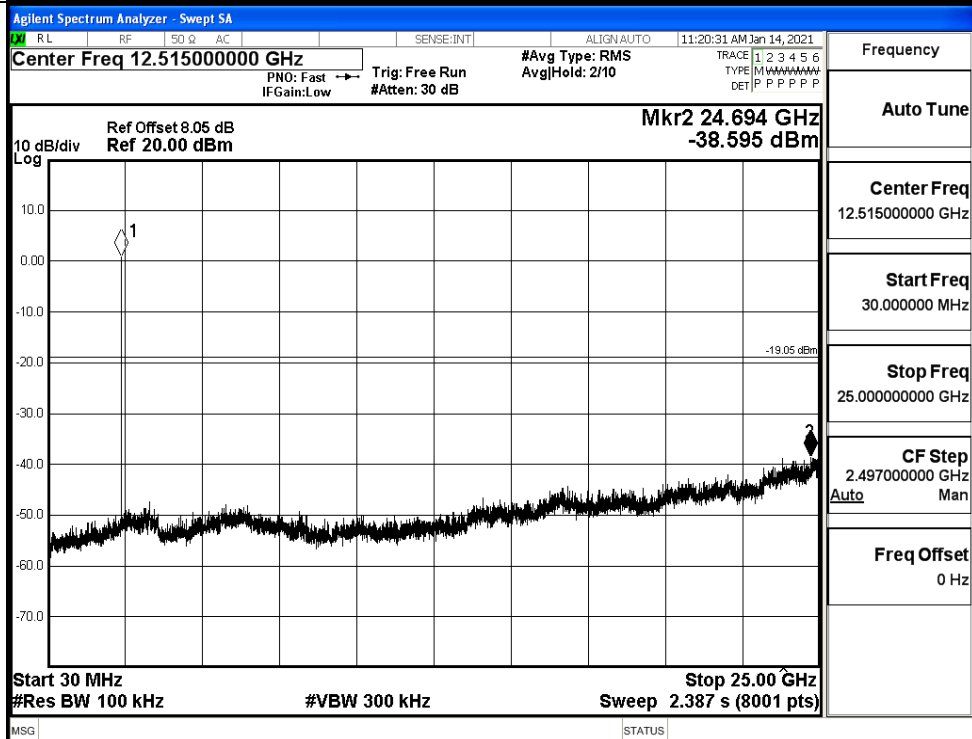


8DPSK_LCH_Graphs

Pref

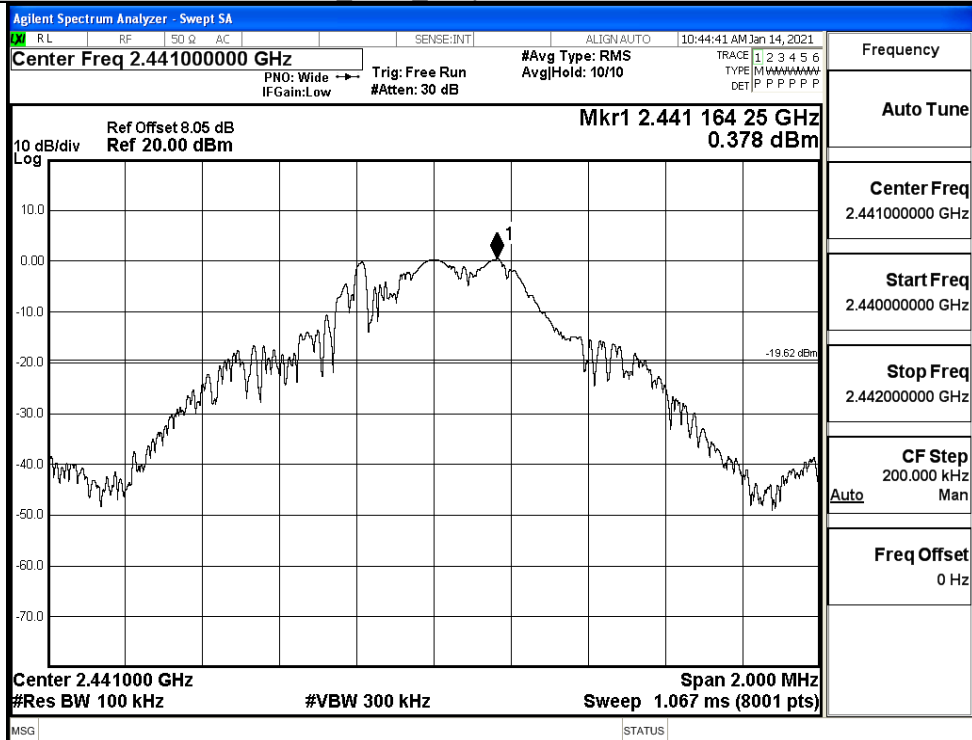


Puw

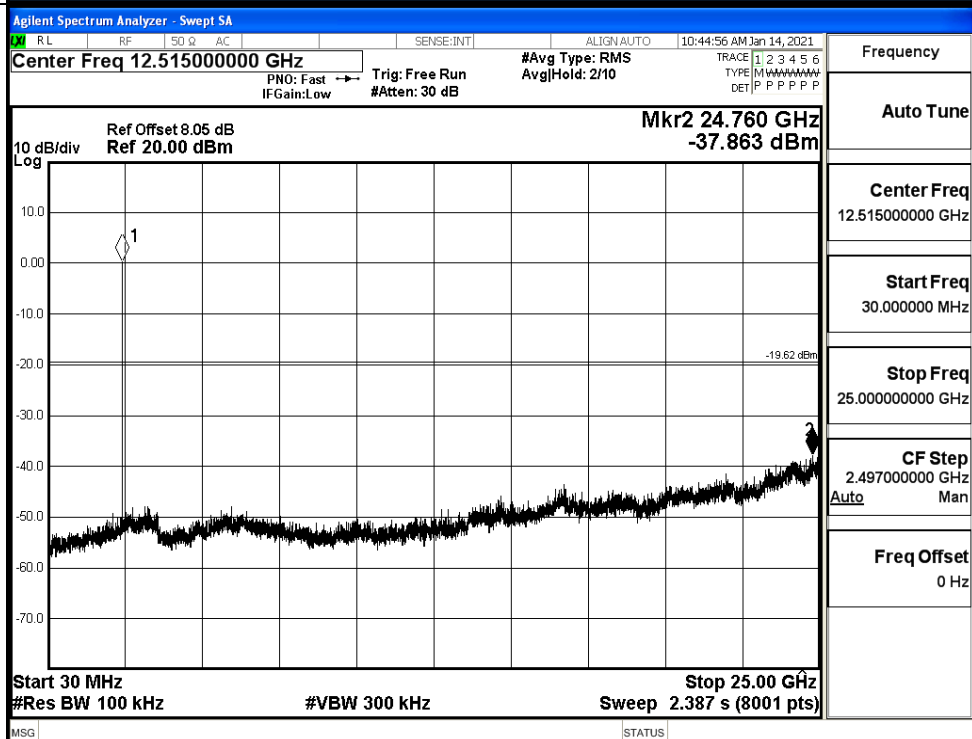


8DPSK_MCH_Graphs

Pref

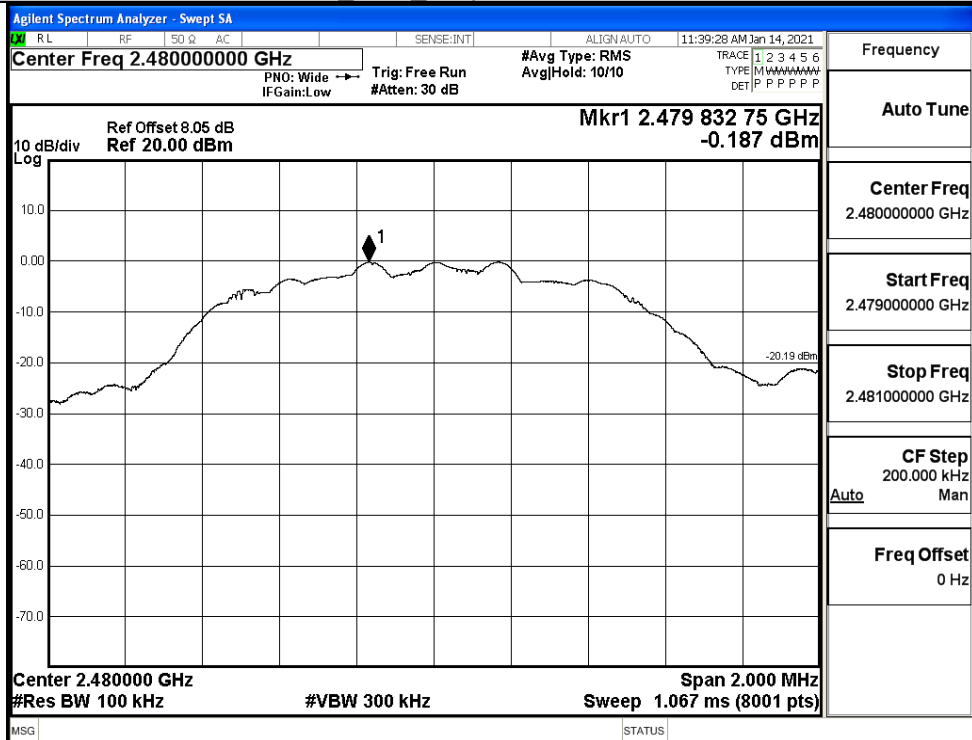


Puw

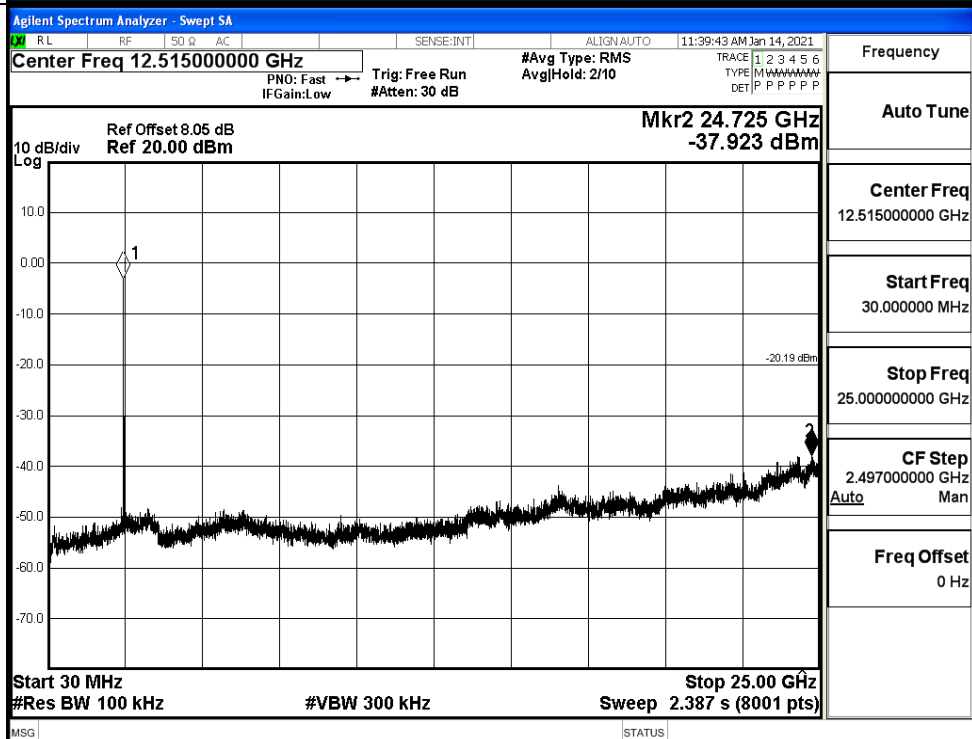


8DPSK_HCH_Graphs

Pref



Puw

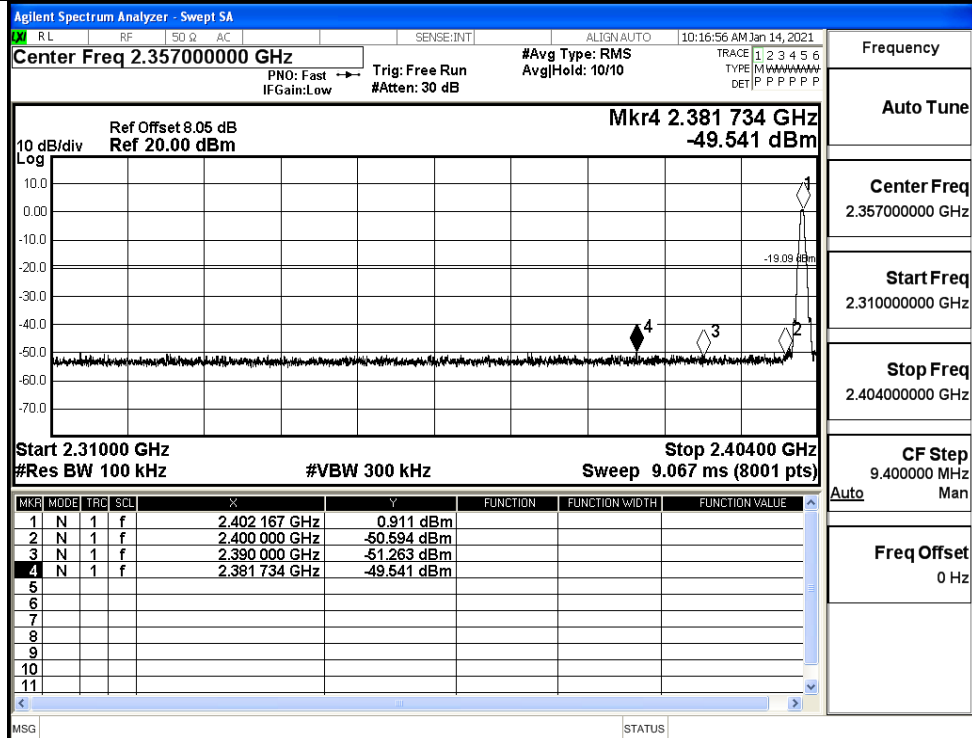


A.7 Band-edge for RF Conducted Emissions

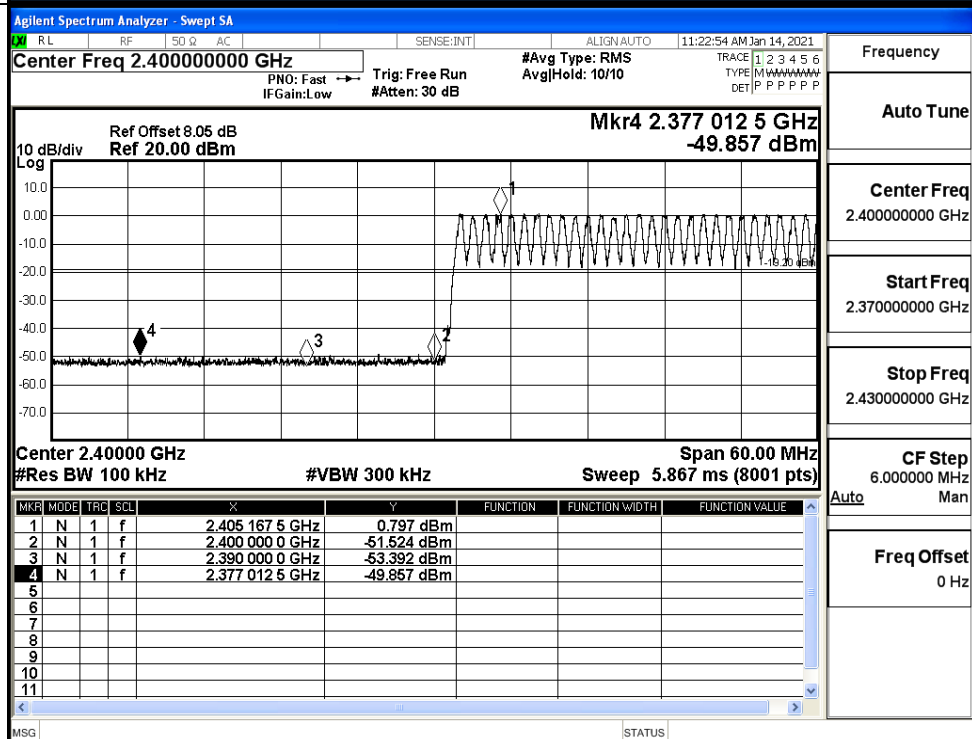
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	0.911	Off	-49.541	-19.09	PASS
			0.797	On	-49.857	-19.2	PASS
	HCH	2480	-0.085	Off	-49.328	-20.09	PASS
			0.274	On	-48.901	-19.73	PASS
$\pi/4$ DQPSK	LCH	2402	0.912	Off	-50.240	-19.09	PASS
			0.606	On	-49.074	-19.39	PASS
	HCH	2480	-0.155	Off	-49.924	-20.16	PASS
			0.200	On	-38.778	-19.8	PASS
8DPSK	LCH	2402	0.971	Off	-49.966	-19.03	PASS
			0.910	On	-49.679	-19.09	PASS
	HCH	2480	-0.062	Off	-49.046	-20.06	PASS
			0.200	On	-34.372	-19.8	PASS

Test Graphs

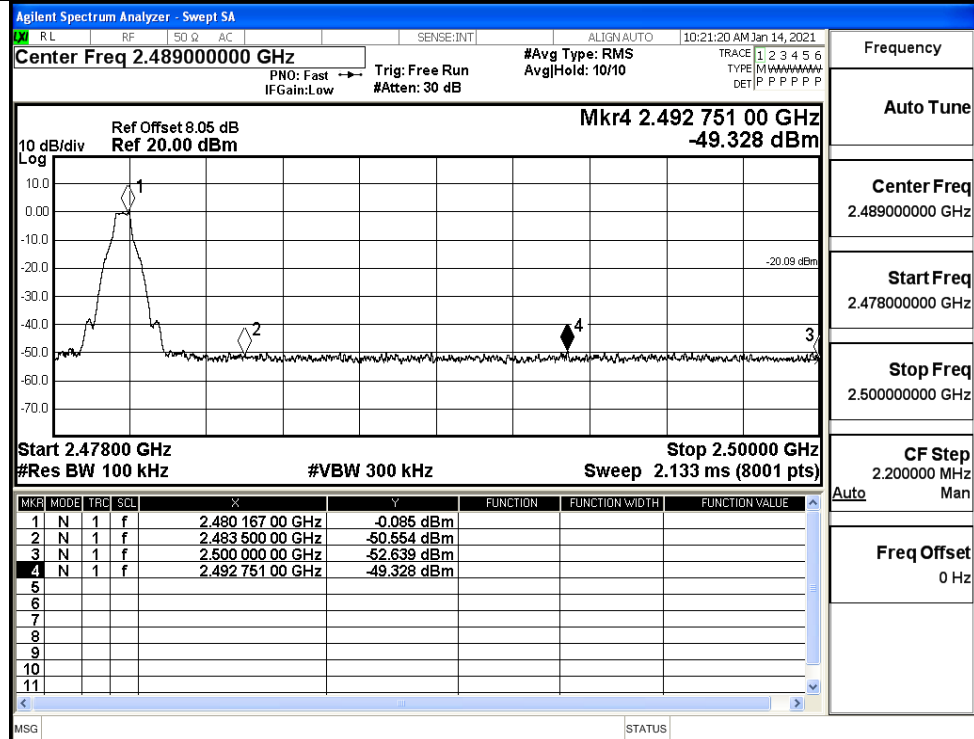
GFSK/LCH/No Hop



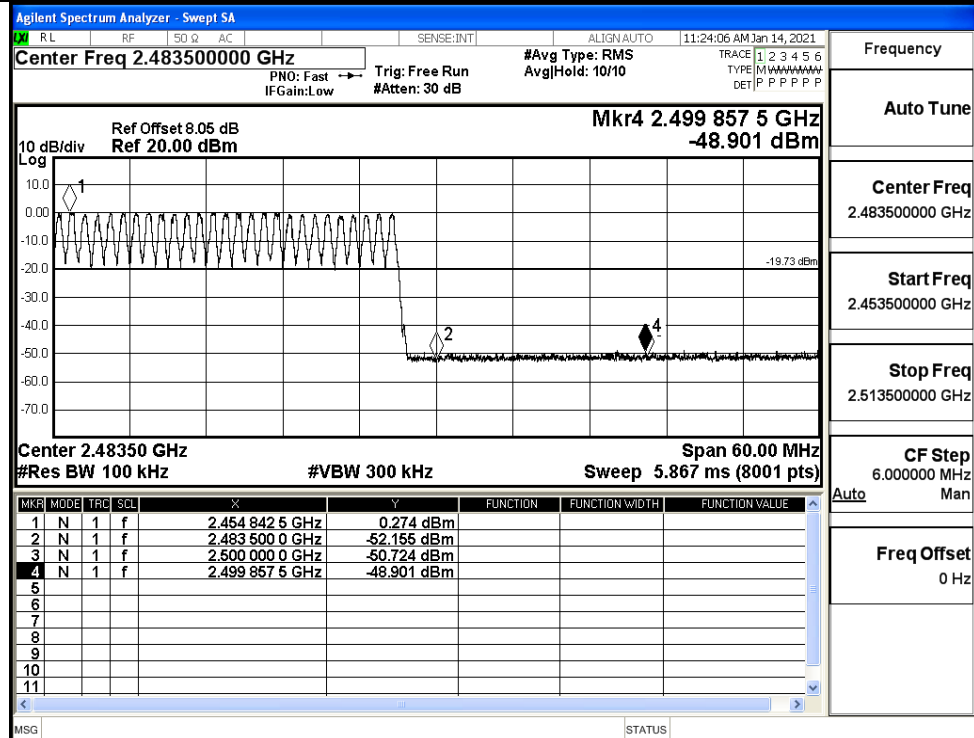
GFSK/LCH/Hop



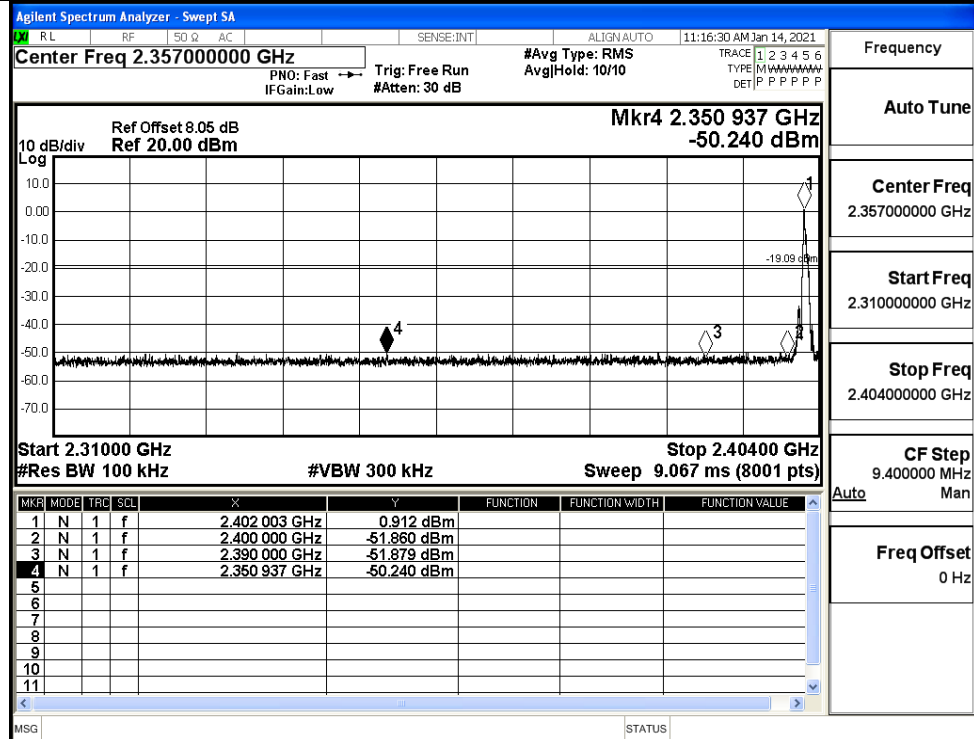
GFSK/HCH/No Hop



GFSK/HCH/Hop



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



Frequency

Auto Tune

Center Freq
2.357000000 GHz

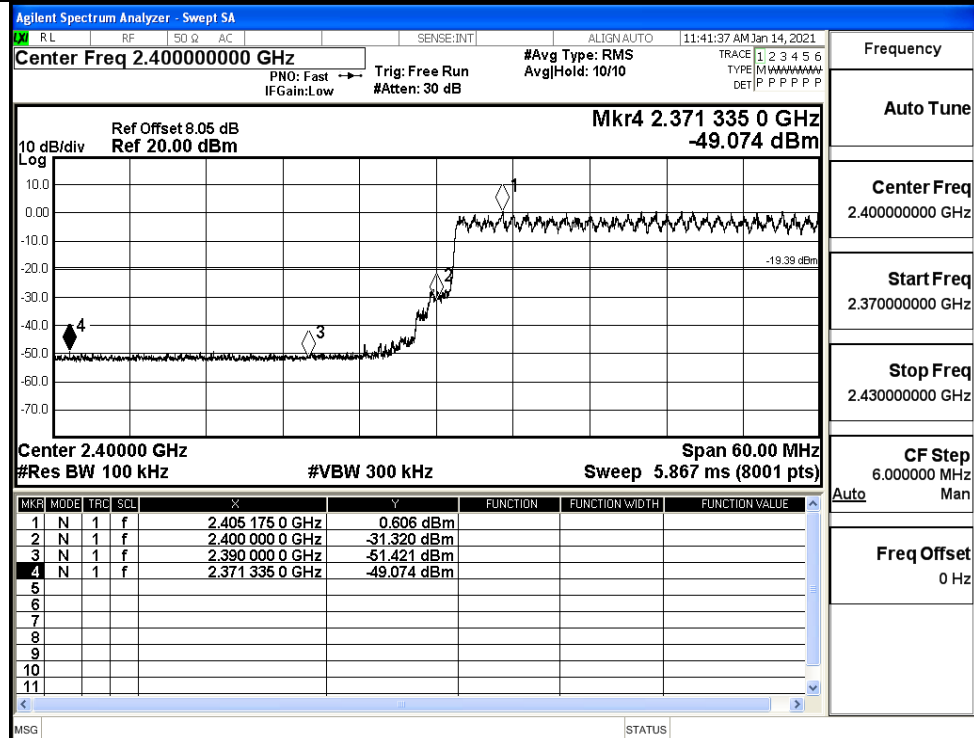
Start Freq
2.310000000 GHz

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

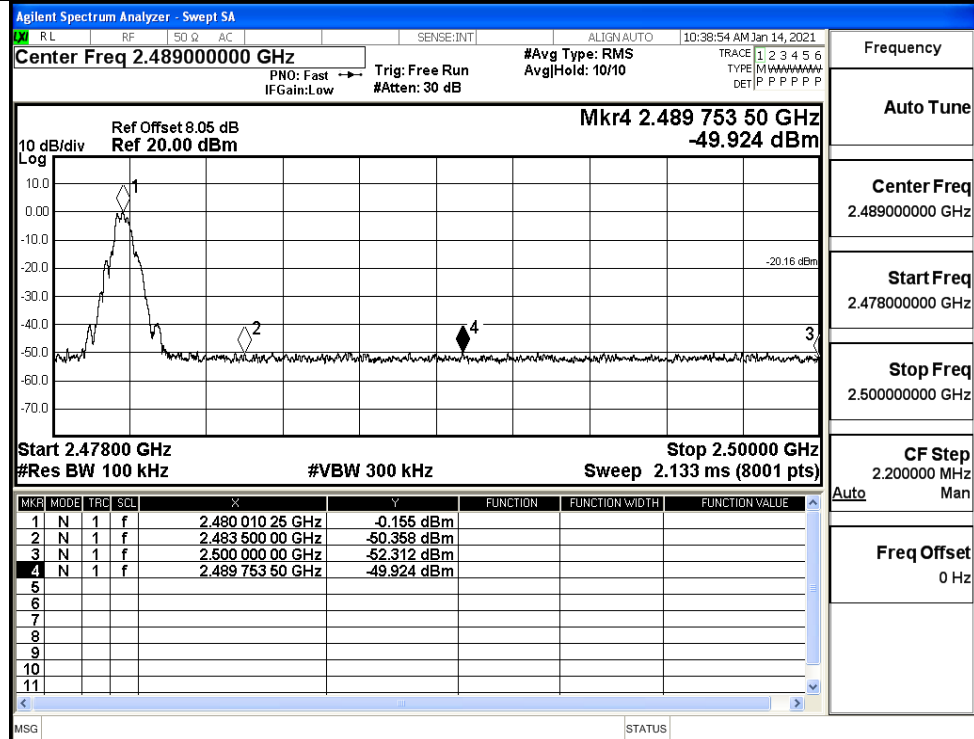
Start Freq
2.370000000 GHz

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 GHz

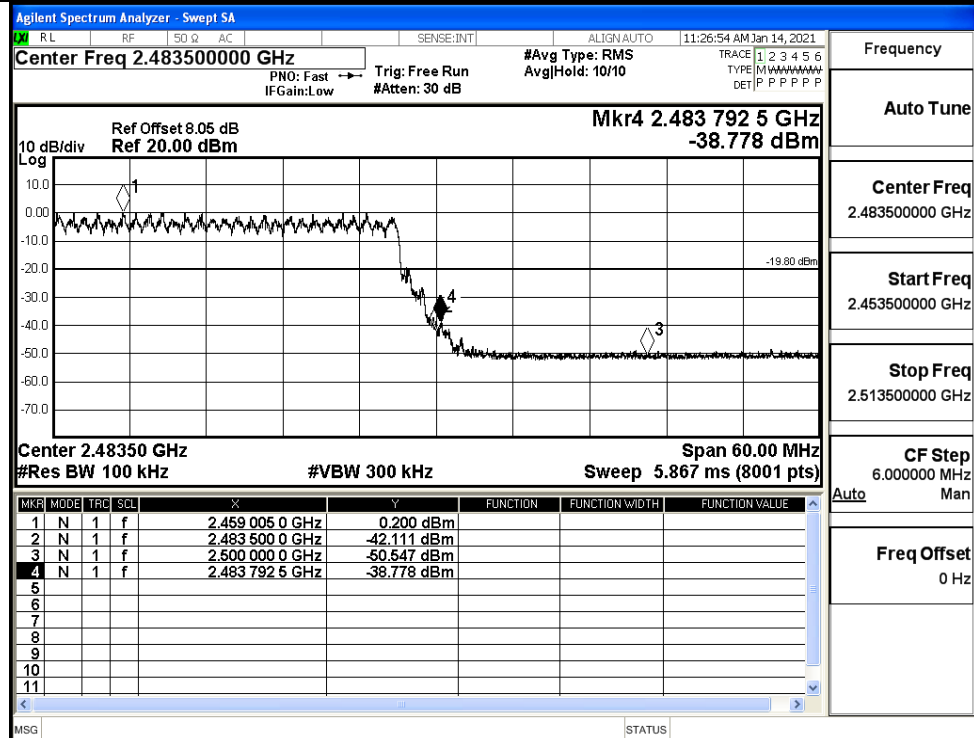
Start Freq
2.478000000 GHz

Stop Freq
2.500000000 GHz

CF Step
2.200000 MHz
Auto Man

Freq Offset
0 Hz

$\pi/4$ DQPSK/HCH/Hop



Frequency

Auto Tune

Center Freq
2.483500000 GHz

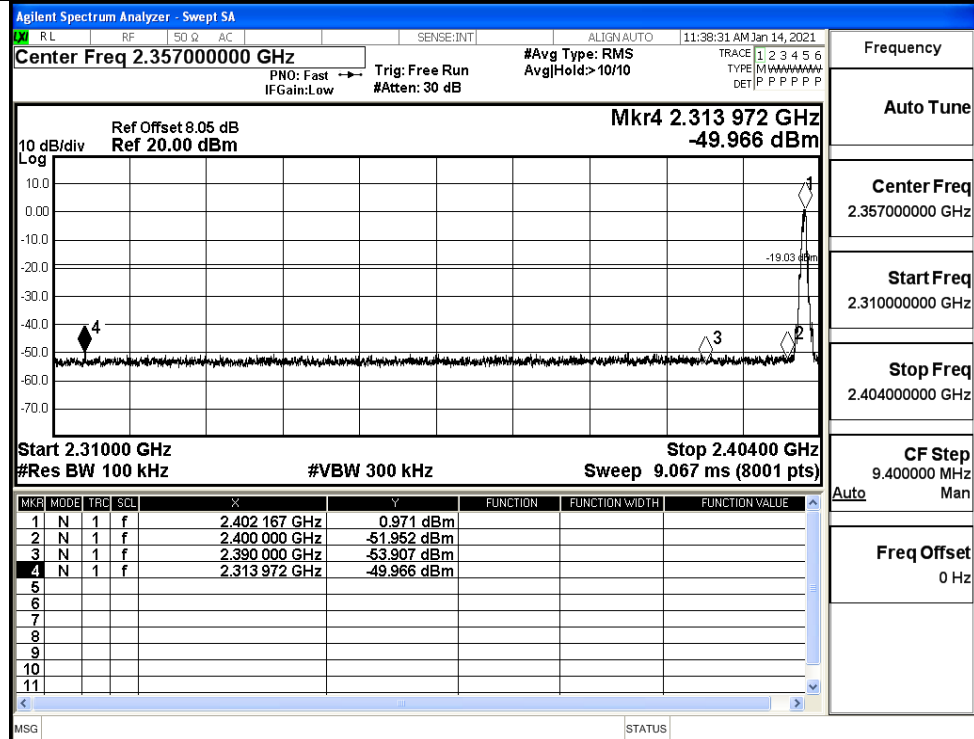
Start Freq
2.453500000 GHz

Stop Freq
2.513500000 GHz

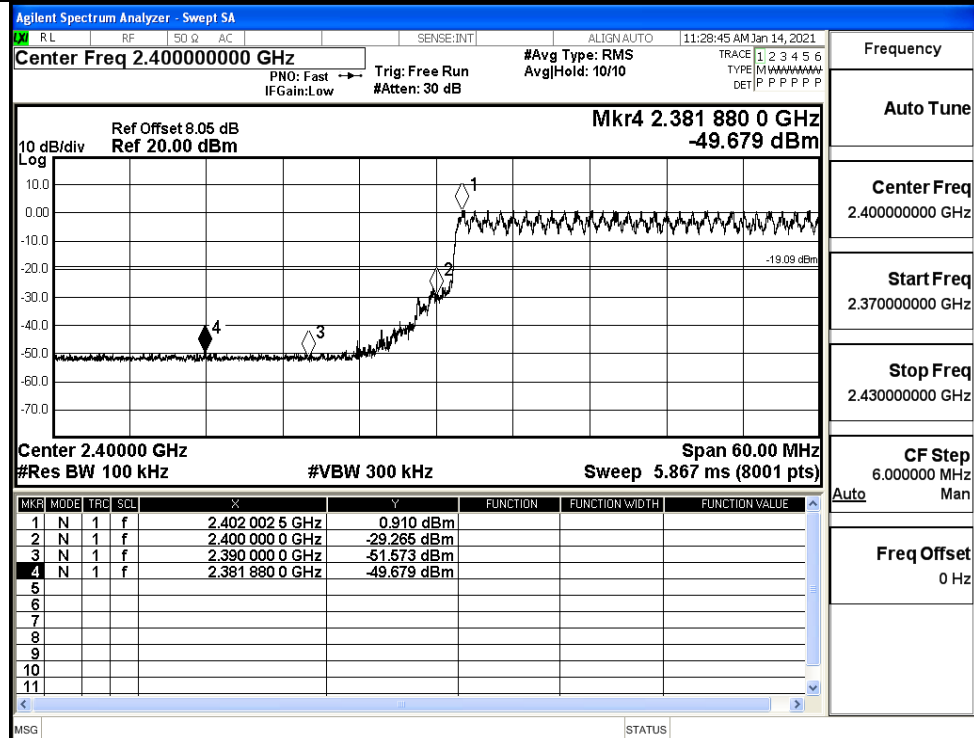
CF Step
6.000000 MHz
Auto Man

Freq Offset
0 Hz

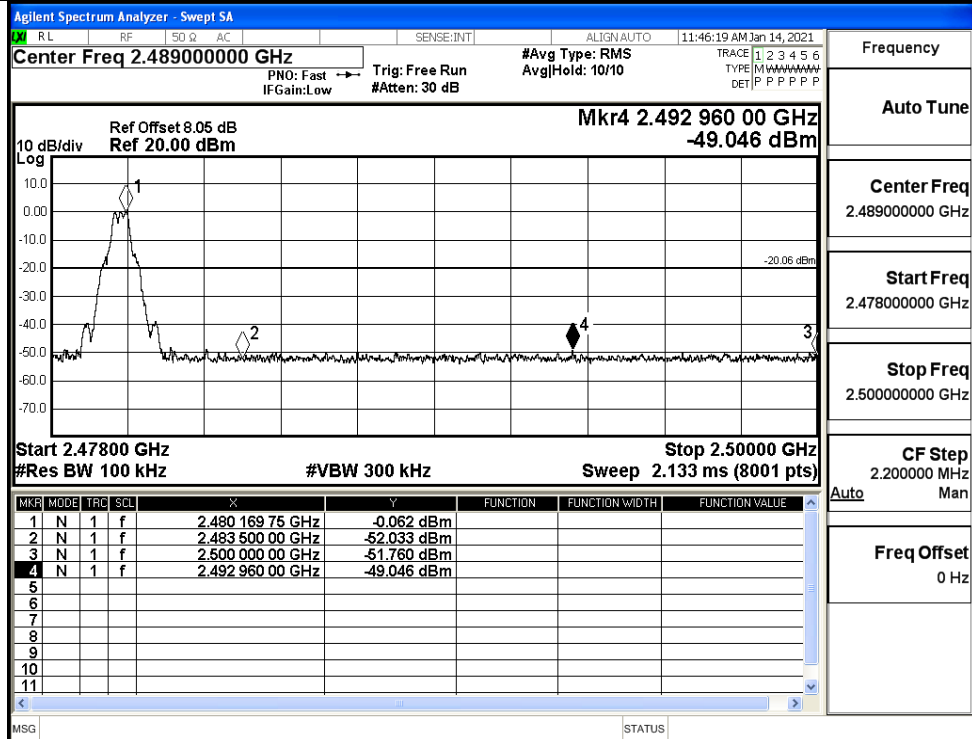
8DPSK/LCH/No Hop



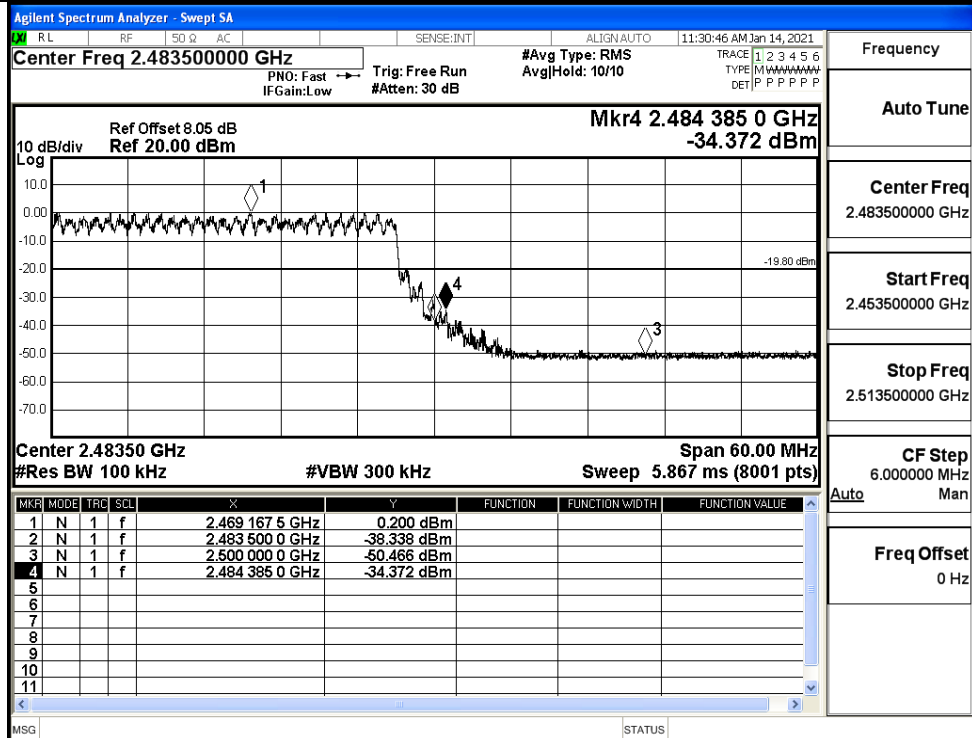
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



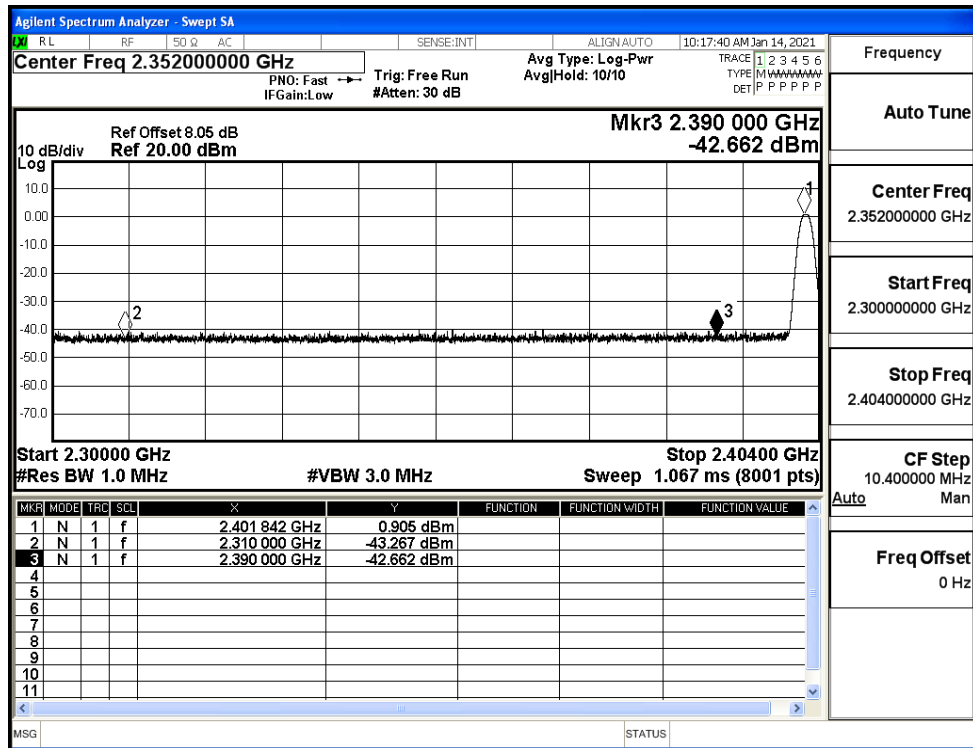
8DPSK/HCH/Hop



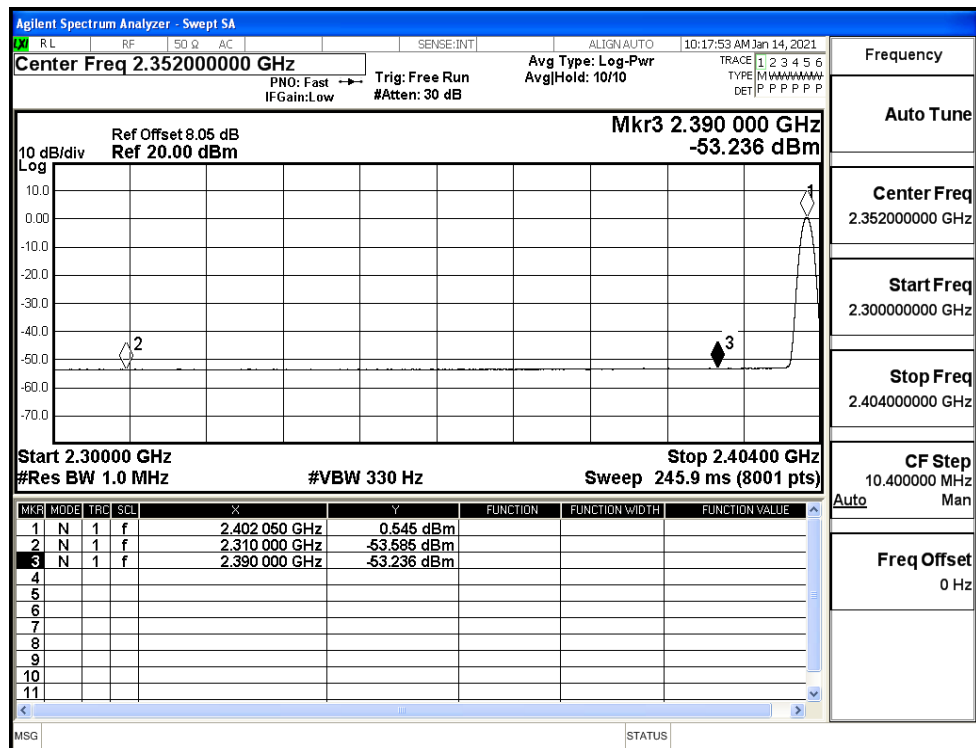
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.27	2.0	0	51.99	PEAK	74	PASS
	Off	2310.0	-53.59	2.0	0	41.67	AV	54	PASS
	Off	2390.0	-42.66	2.0	0	52.60	PEAK	74	PASS
	Off	2390.0	-53.24	2.0	0	42.02	AV	54	PASS
	Off	2483.5	-42.48	2.0	0	52.77	PEAK	74	PASS
	Off	2483.5	-52.66	2.0	0	42.59	AV	54	PASS
	Off	2500.0	-42.61	2.0	0	52.65	PEAK	74	PASS
	Off	2500.0	-52.62	2.0	0	42.64	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.34	2.0	0	51.92	PEAK	74	PASS
	Off	2310.0	-53.57	2.0	0	41.69	AV	54	PASS
	Off	2390.0	-44.24	2.0	0	51.02	PEAK	74	PASS
	Off	2390.0	-53.24	2.0	0	42.02	AV	54	PASS
	Off	2483.5	-42.39	2.0	0	52.87	PEAK	74	PASS
	Off	2483.5	-52.68	2.0	0	42.57	AV	54	PASS
	Off	2500.0	-43.43	2.0	0	51.83	PEAK	74	PASS
	Off	2500.0	-52.63	2.0	0	42.63	AV	54	PASS
8DPSK	Off	2310.0	-42.91	2.0	0	52.34	PEAK	74	PASS
	Off	2310.0	-53.64	2.0	0	41.62	AV	54	PASS
	Off	2390.0	-43.24	2.0	0	52.02	PEAK	74	PASS
	Off	2390.0	-53.20	2.0	0	42.06	AV	54	PASS
	Off	2483.5	-40.58	2.0	0	54.68	PEAK	74	PASS
	Off	2483.5	-52.71	2.0	0	42.55	AV	54	PASS
	Off	2500.0	-42.46	2.0	0	52.80	PEAK	74	PASS
	Off	2500.0	-52.58	2.0	0	42.68	AV	54	PASS

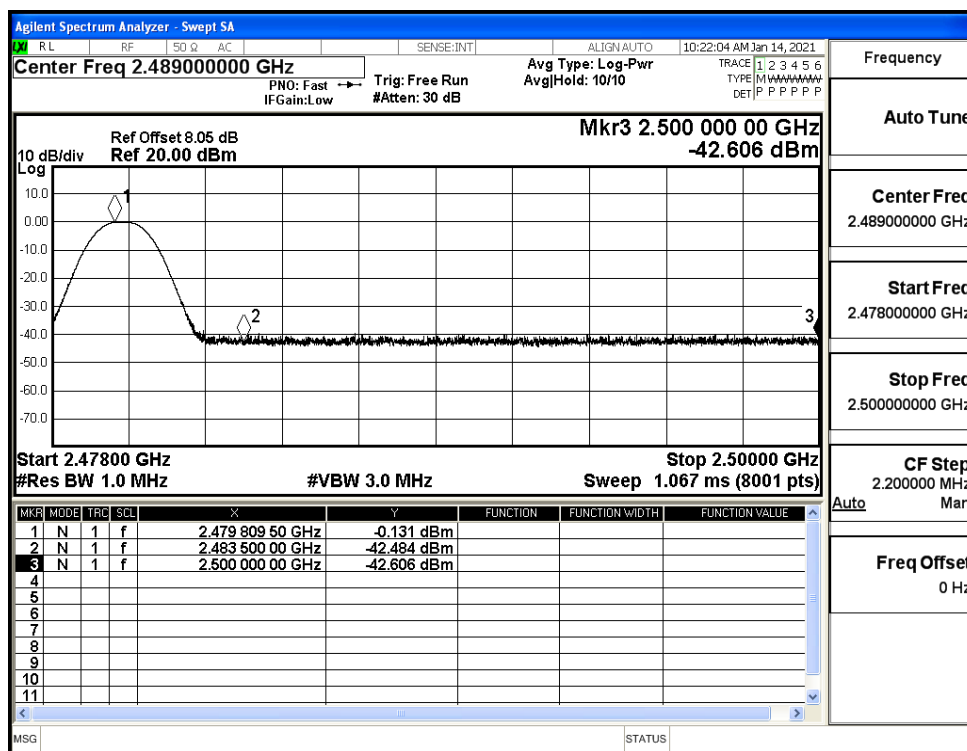
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



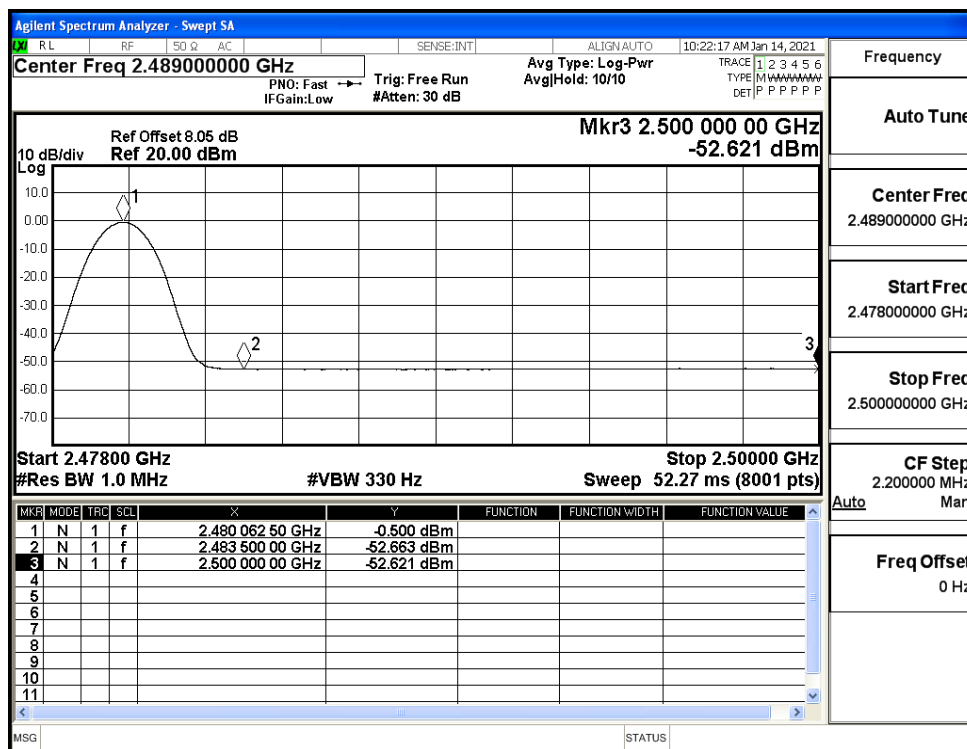
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

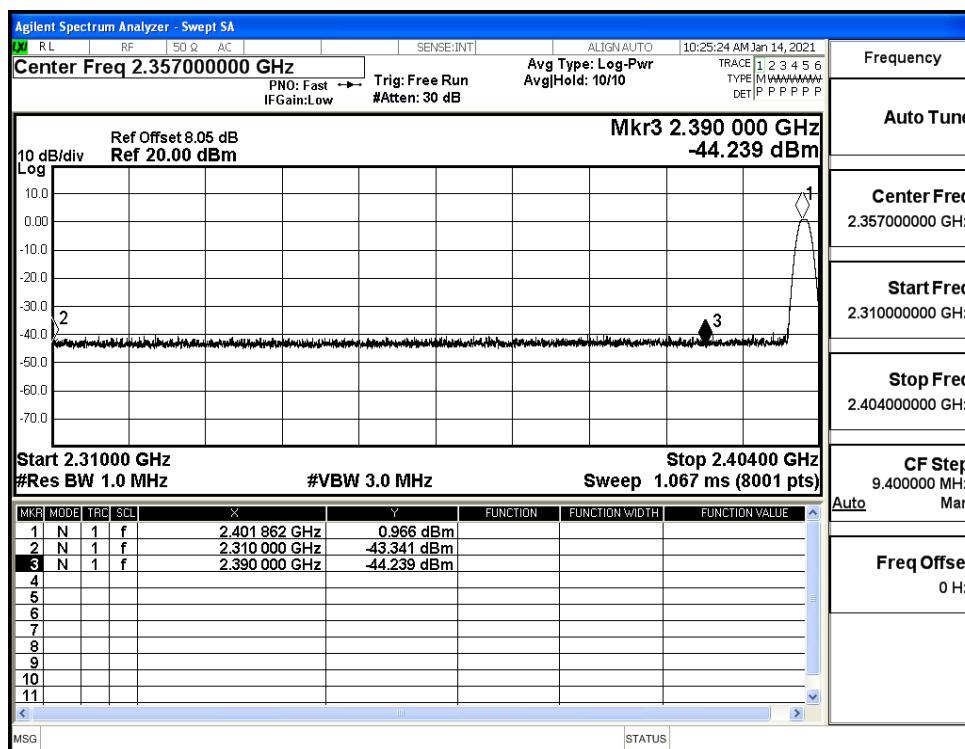
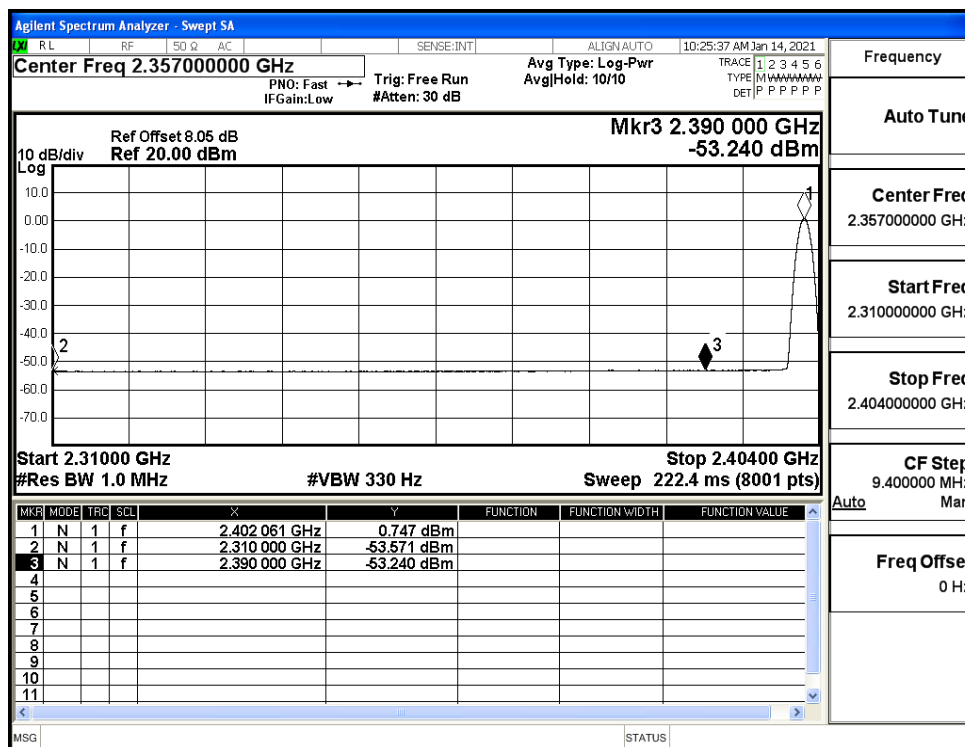


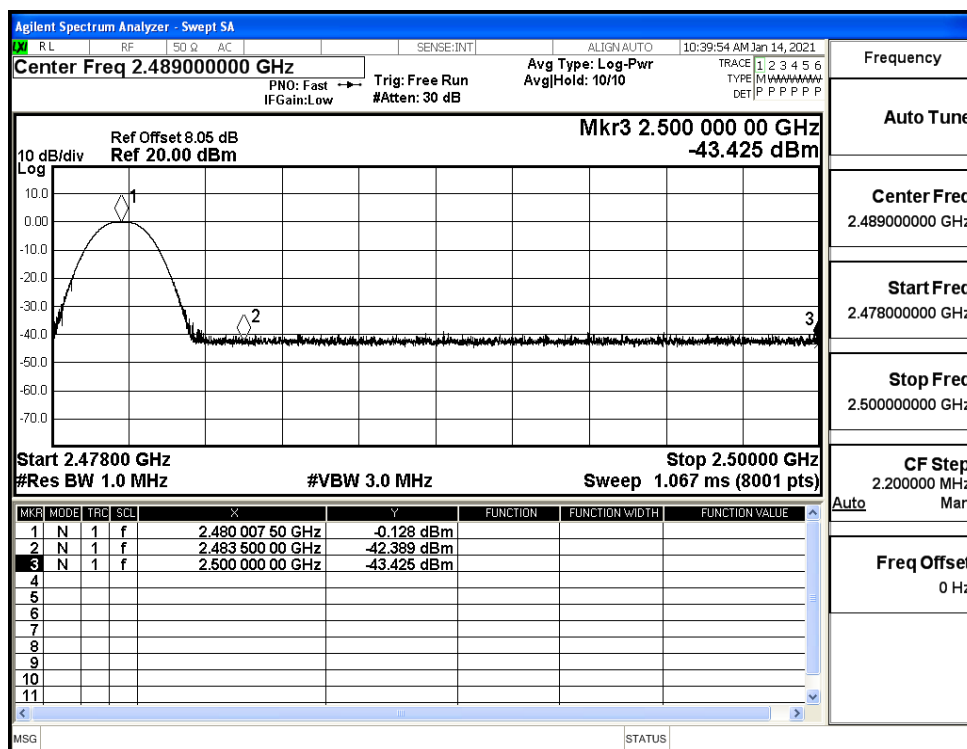
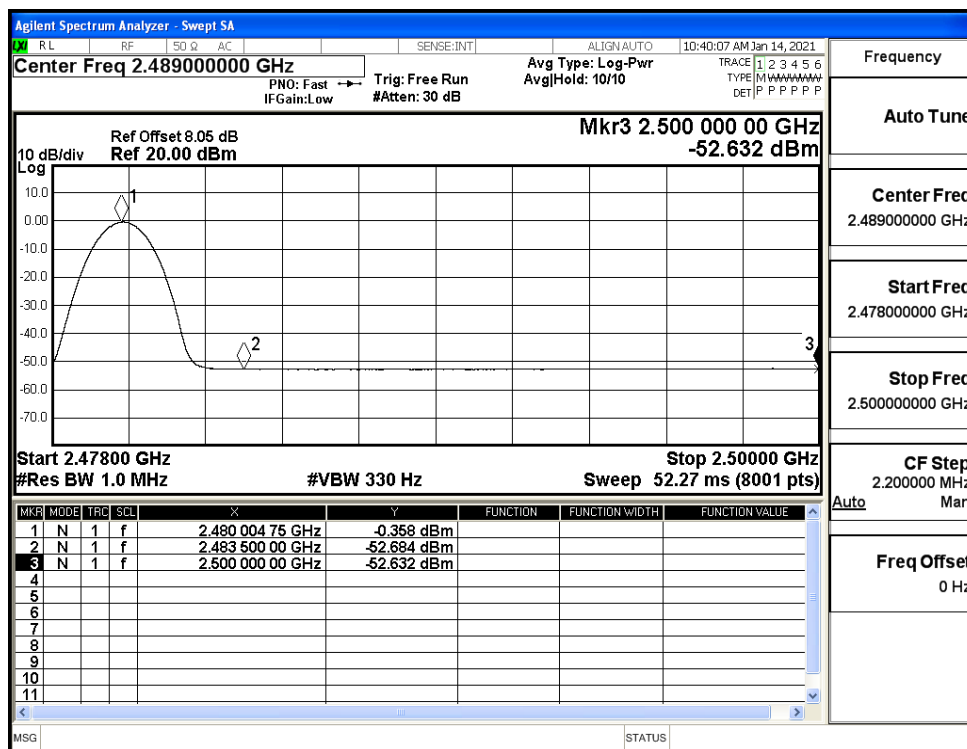
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



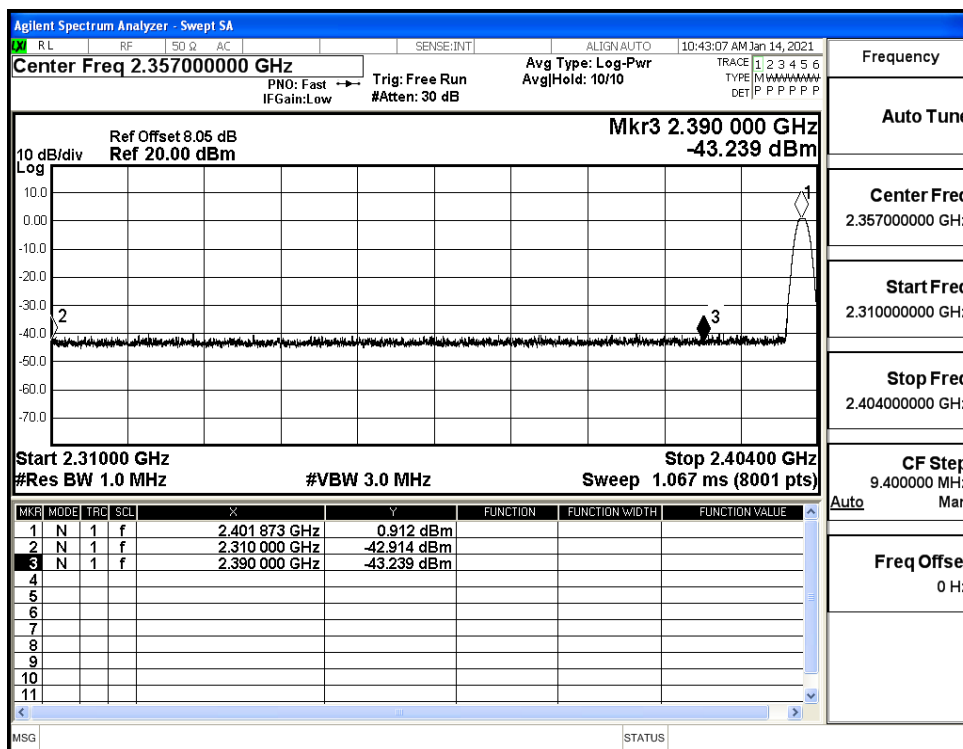
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



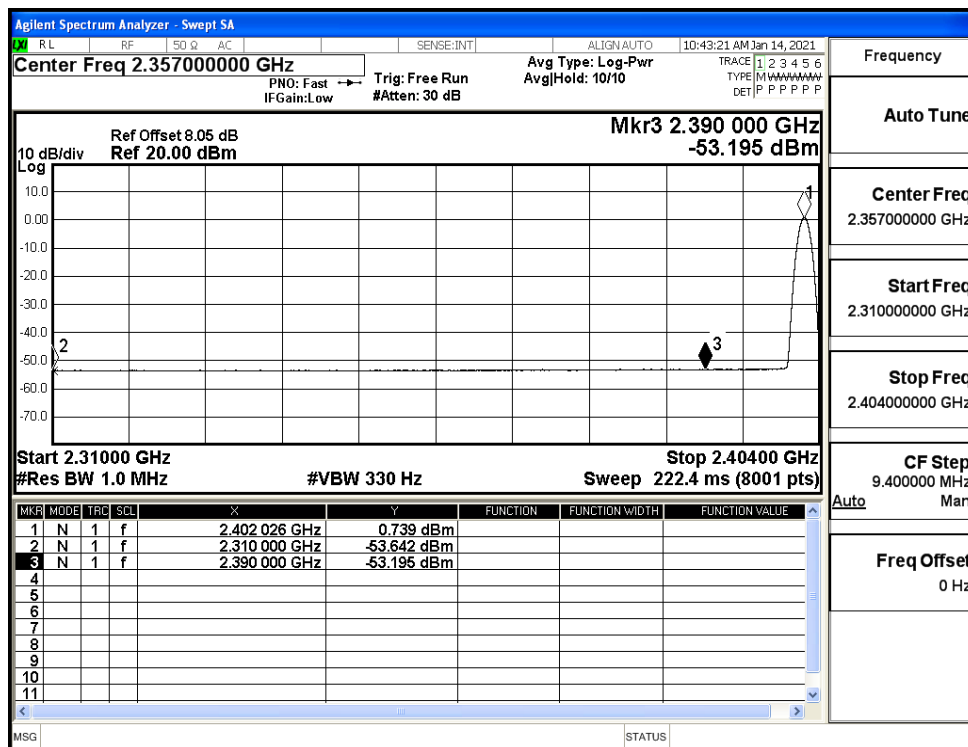
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

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)

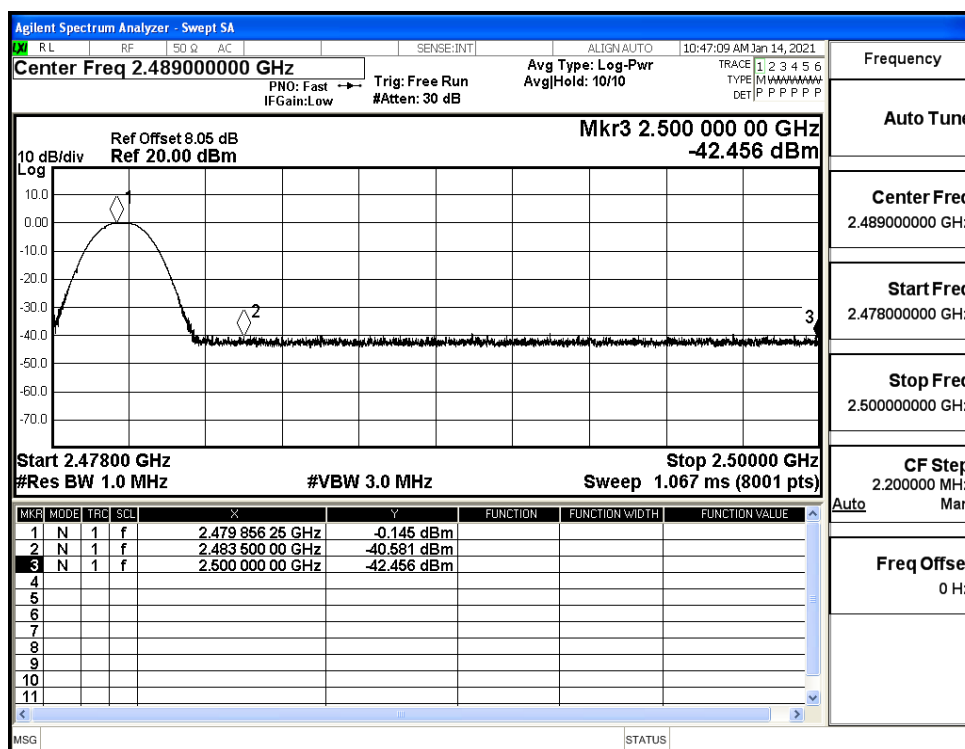
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

