

Appendix A

RF Test Data for BT V4.2(BDR/EDR) (Conducted Measurement)

Product Name: Laptop
Trade Mark: Wings Mobile
Test Model: Wings Book

Environmental Conditions

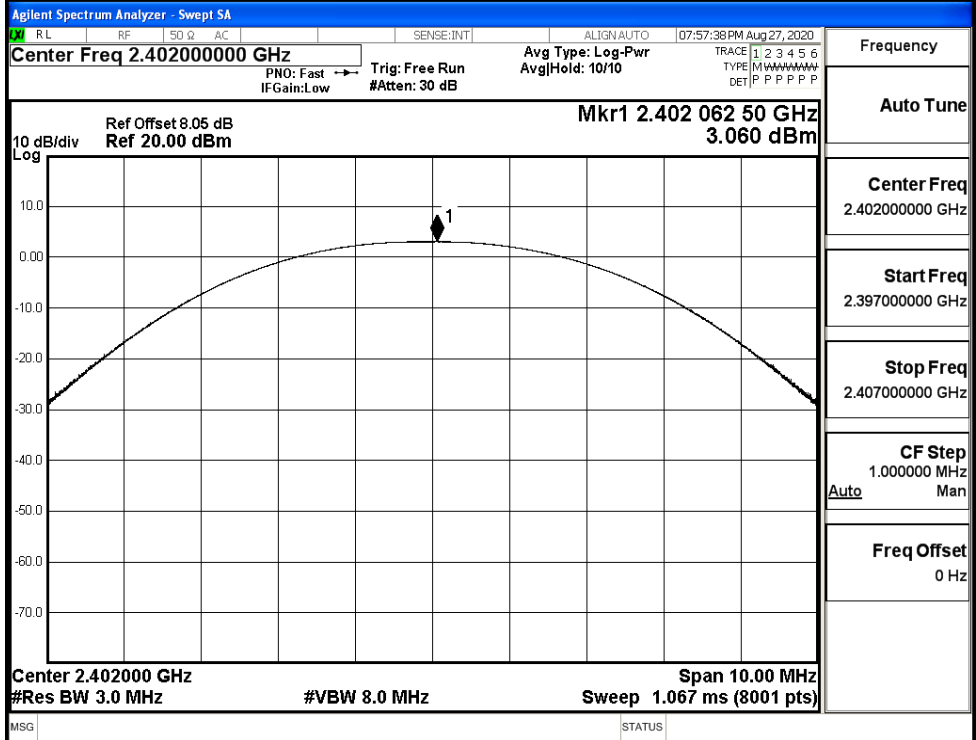
Temperature:	24.6° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Li
Supervised by:	Li Huan

A.1 Maxmum Conducted Peak Output Power

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	3.060	21	PASS
	MCH	-0.002	21	PASS
	HCH	0.953	21	PASS
$\pi/4$ DQPSK	LCH	1.571	21	PASS
	MCH	-1.565	21	PASS
	HCH	-3.285	21	PASS
8DPSK	LCH	3.701	21	PASS
	MCH	0.607	21	PASS
	HCH	2.861	21	PASS

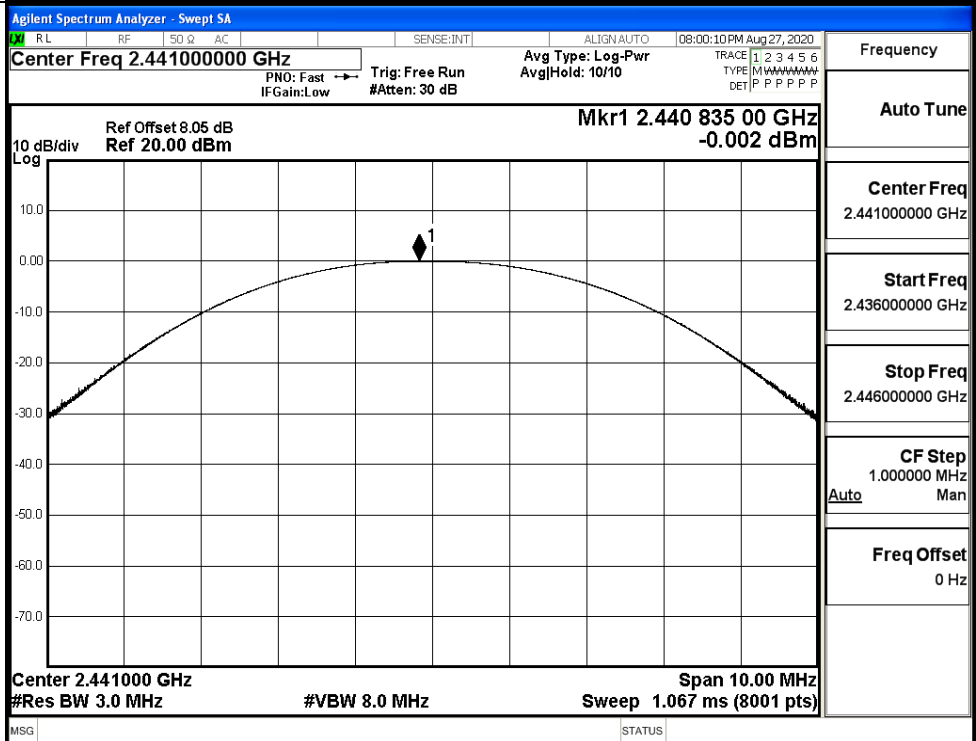
Test Graphs

GFSK/LCH



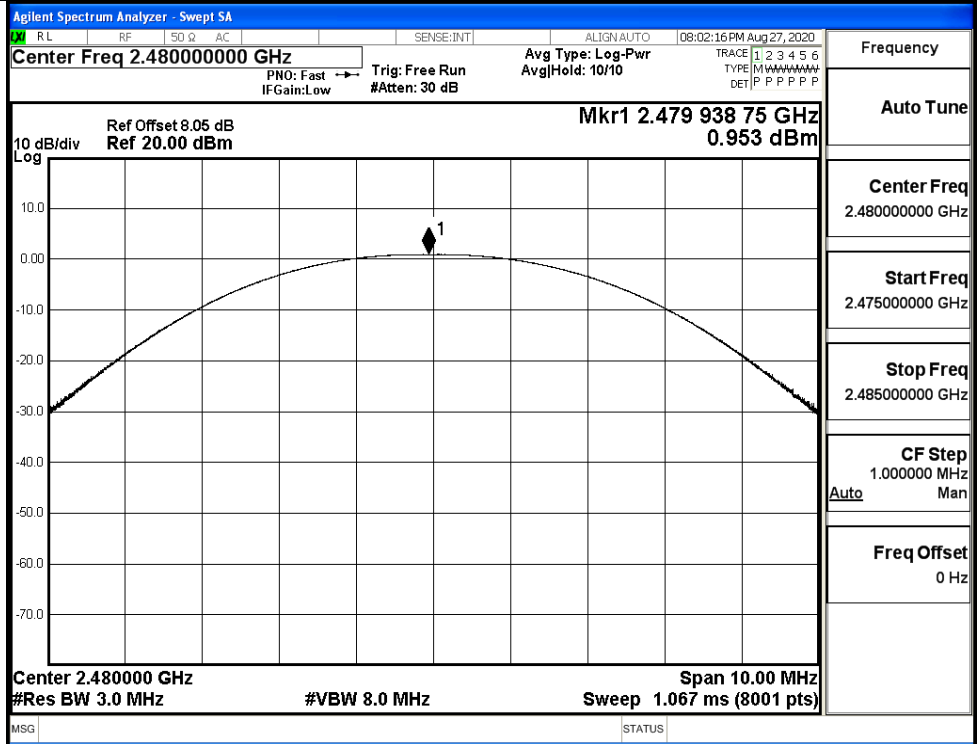
Frequency	2.402000000 GHz
Auto Tune	
Center Freq	2.402000000 GHz
Start Freq	2.397000000 GHz
Stop Freq	2.407000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

GFSK/MCH

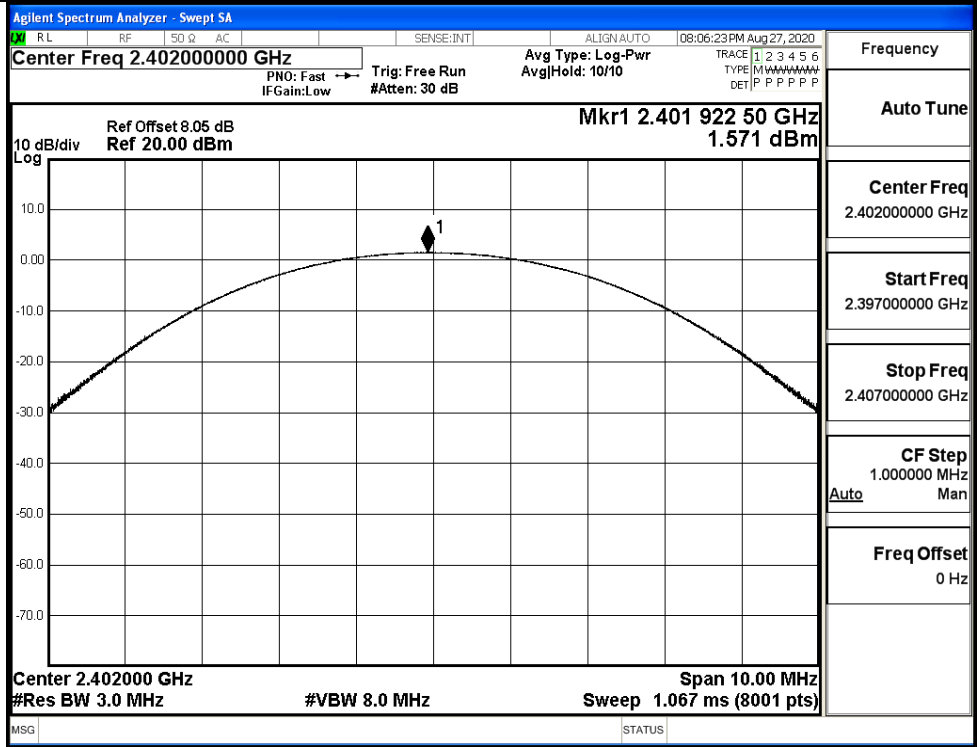


Frequency	2.441000000 GHz
Auto Tune	
Center Freq	2.441000000 GHz
Start Freq	2.436000000 GHz
Stop Freq	2.446000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

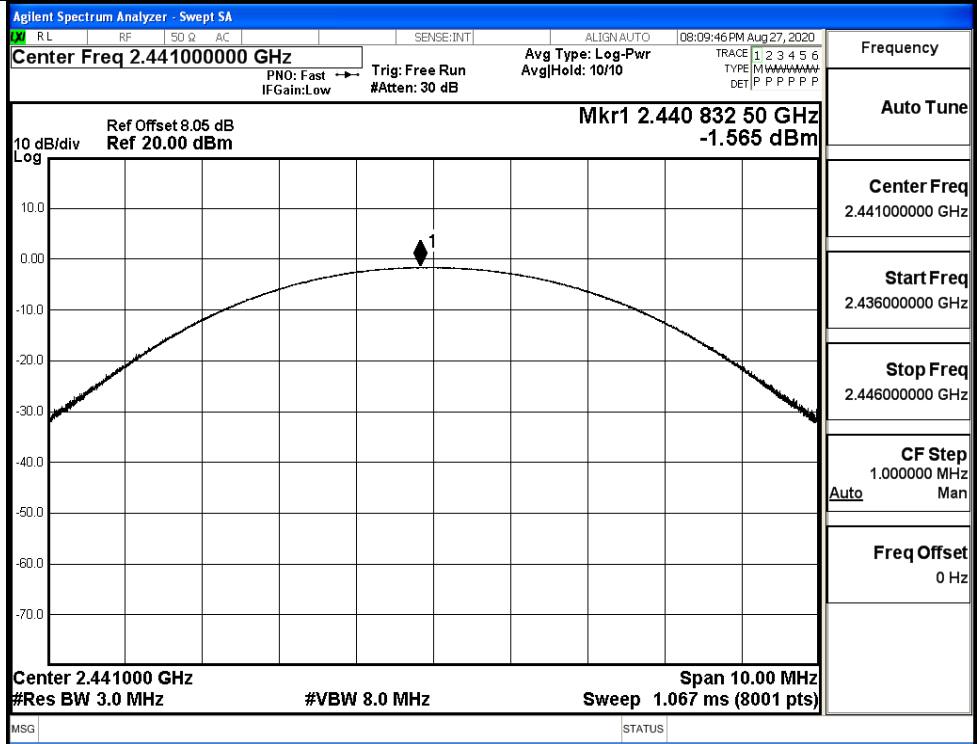
GFSK/HCH



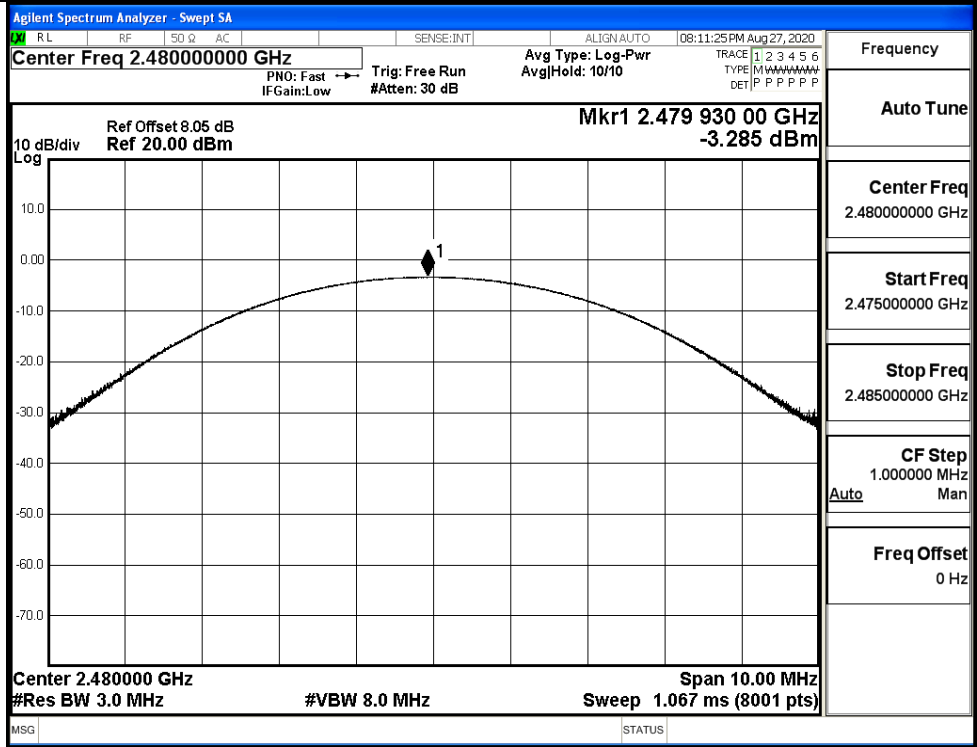
$\pi/4$ DQPSK/LCH



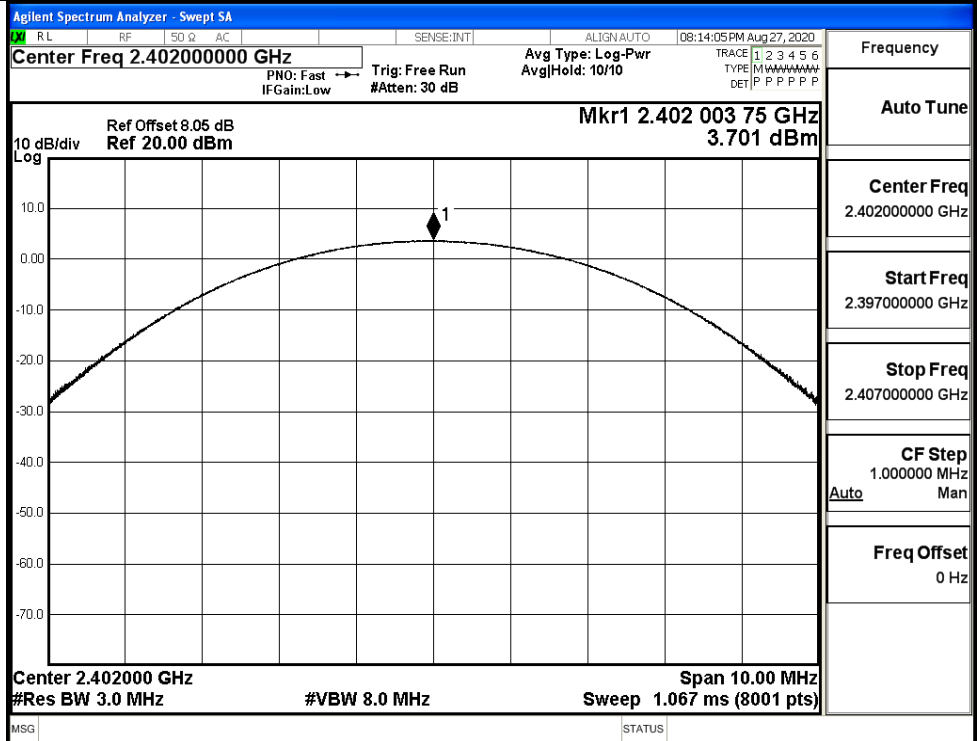
$\pi/4$ DQPSK/MCH



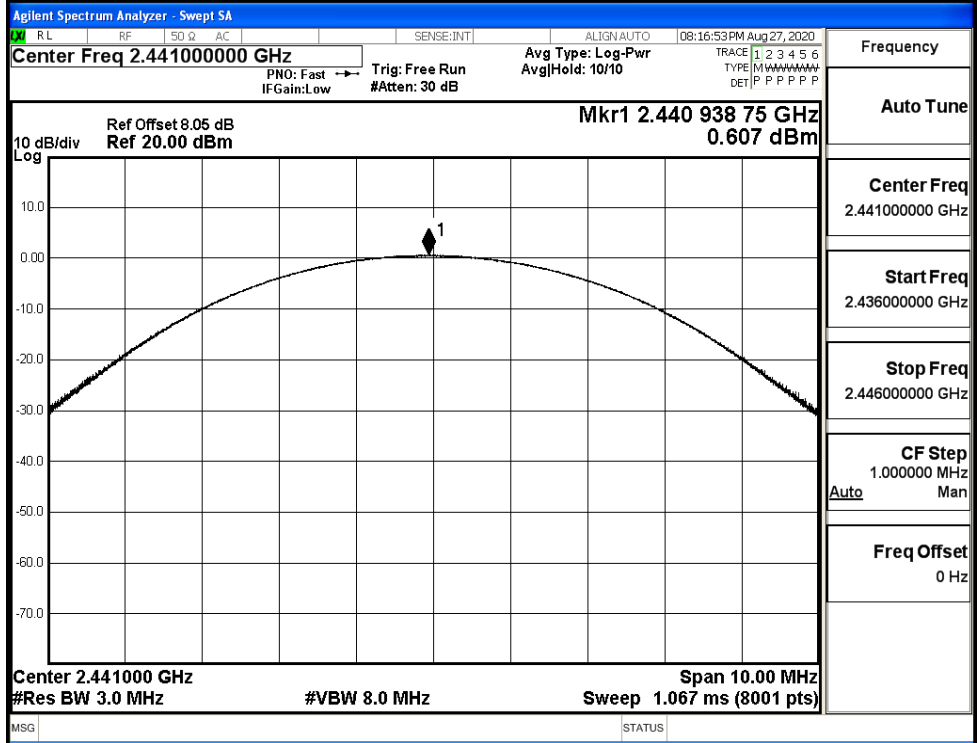
$\pi/4$ DQPSK/HCH



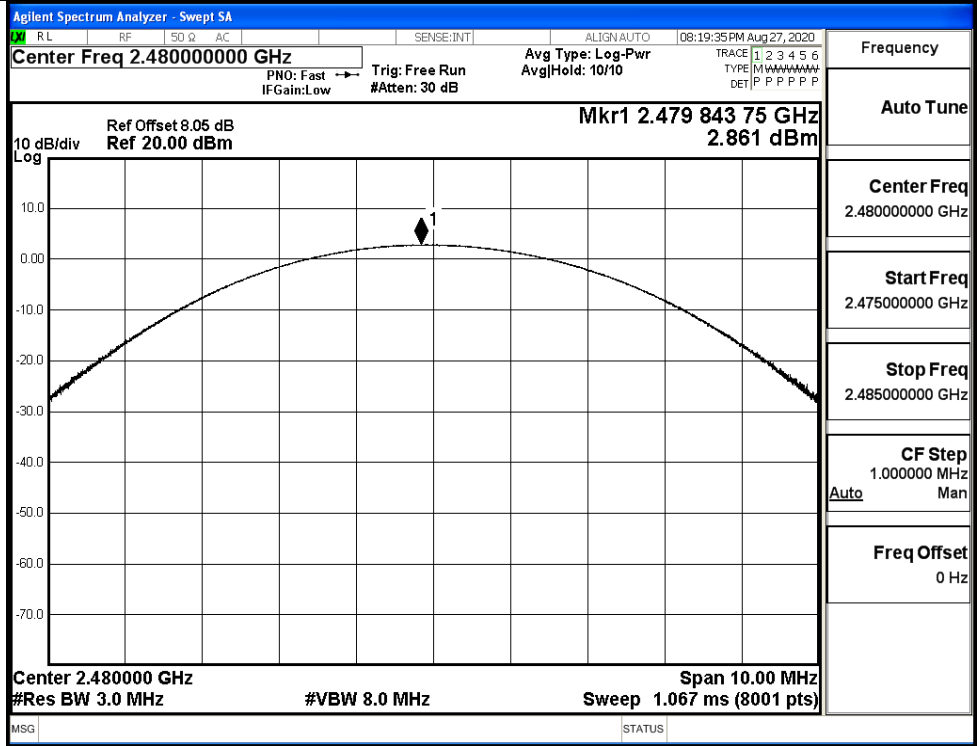
8DPSK/LCH



8DPSK/MCH

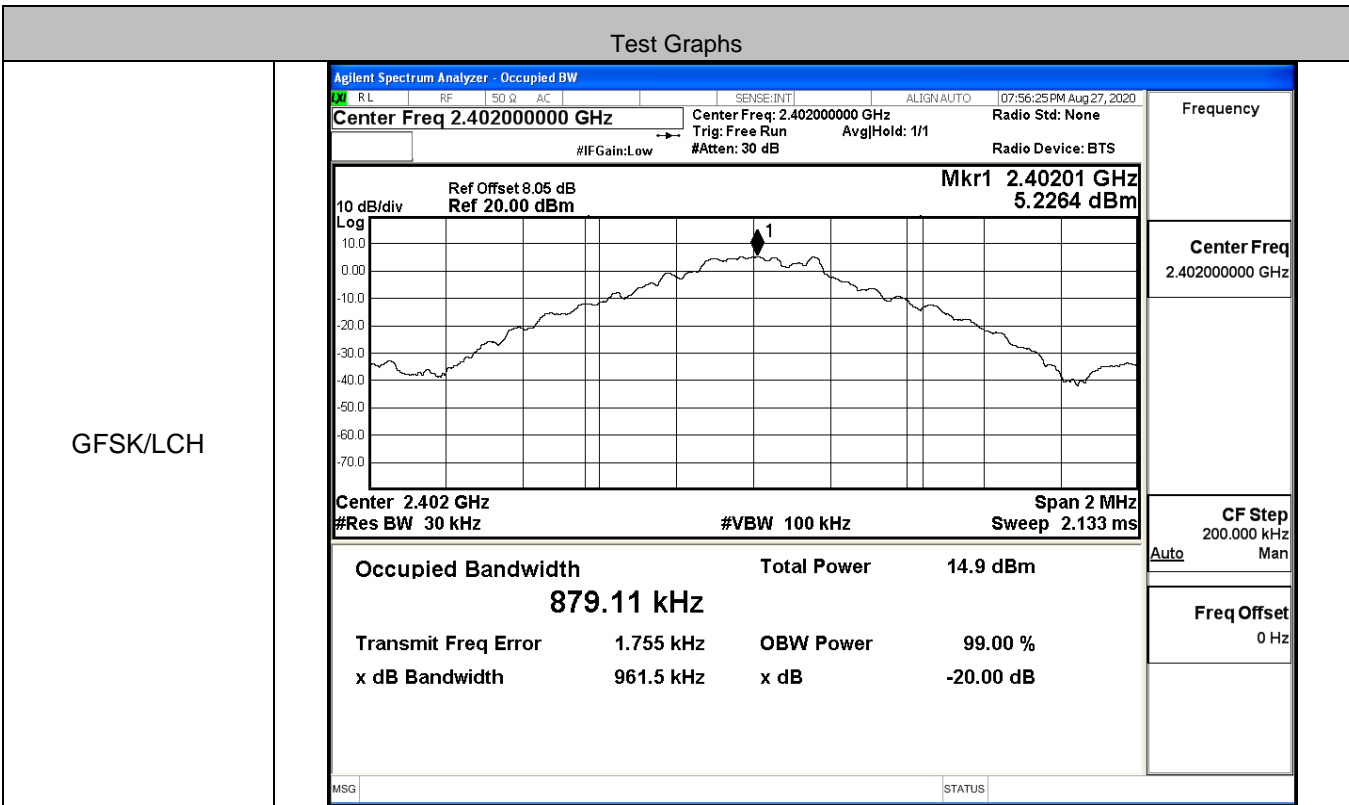


8DPSK/HCH

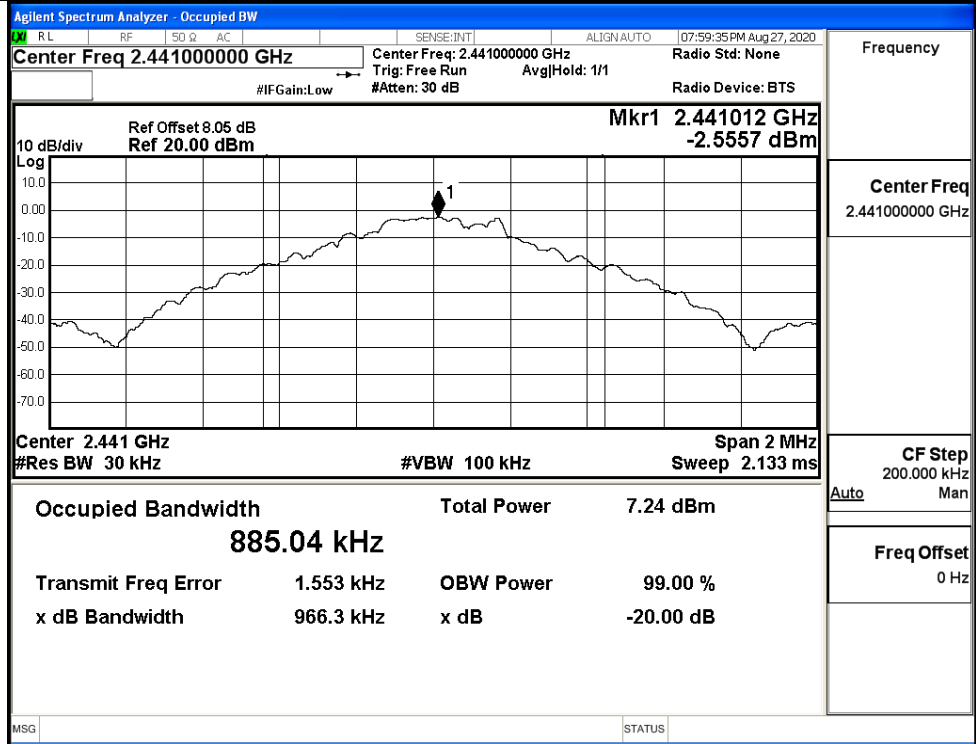


A.2 20dB Bandwidth

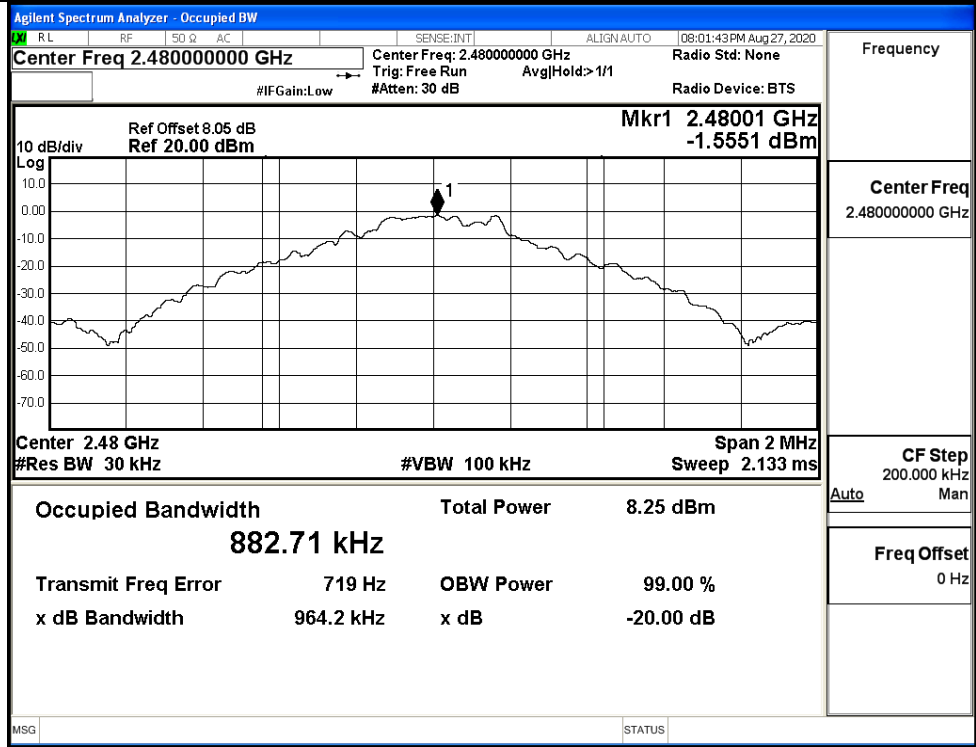
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9615	Not Specified	PASS
	MCH	0.9663	Not Specified	PASS
	HCH	0.9642	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.440	Not Specified	PASS
	MCH	1.450	Not Specified	PASS
	HCH	1.494	Not Specified	PASS
8DPSK	LCH	1.489	Not Specified	PASS
	MCH	1.488	Not Specified	PASS
	HCH	1.486	Not Specified	PASS



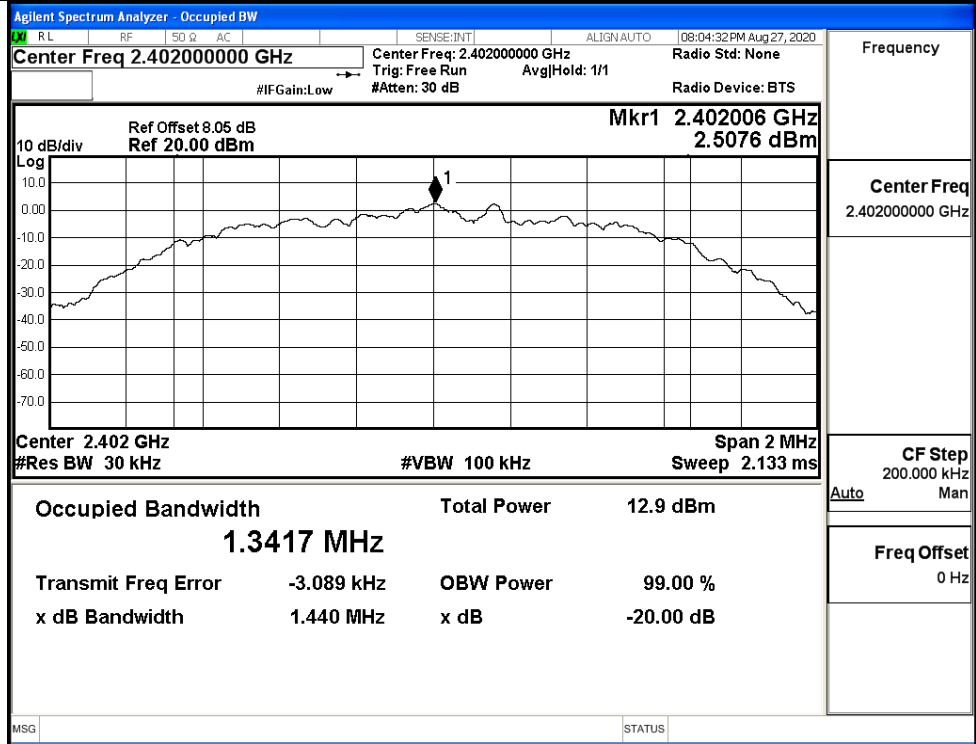
GFSK/MCH



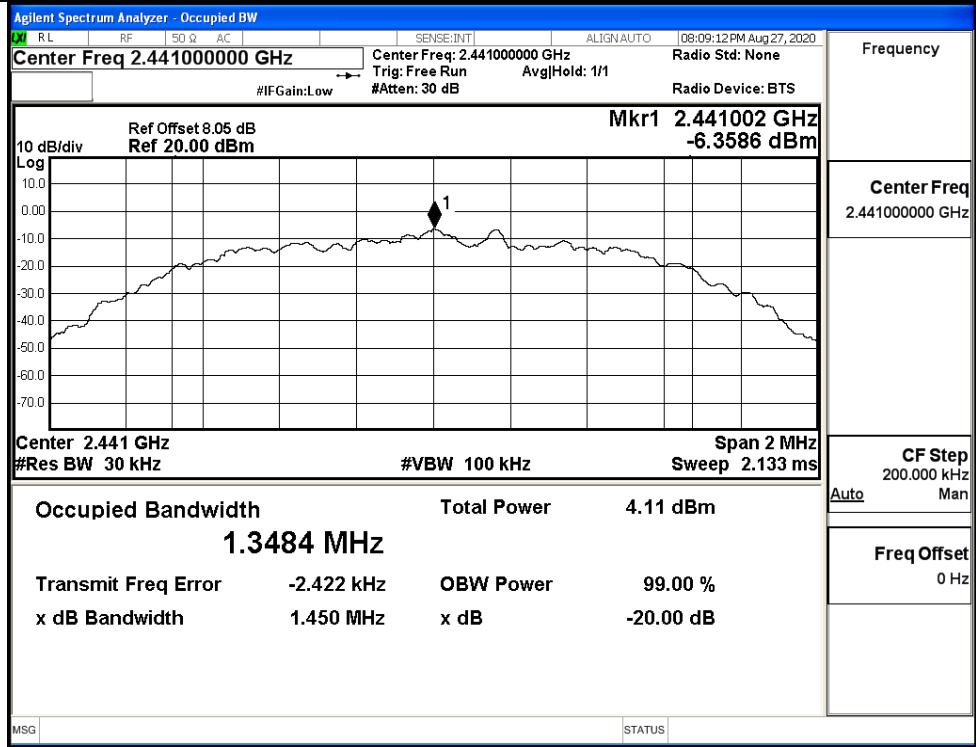
GFSK/HCH



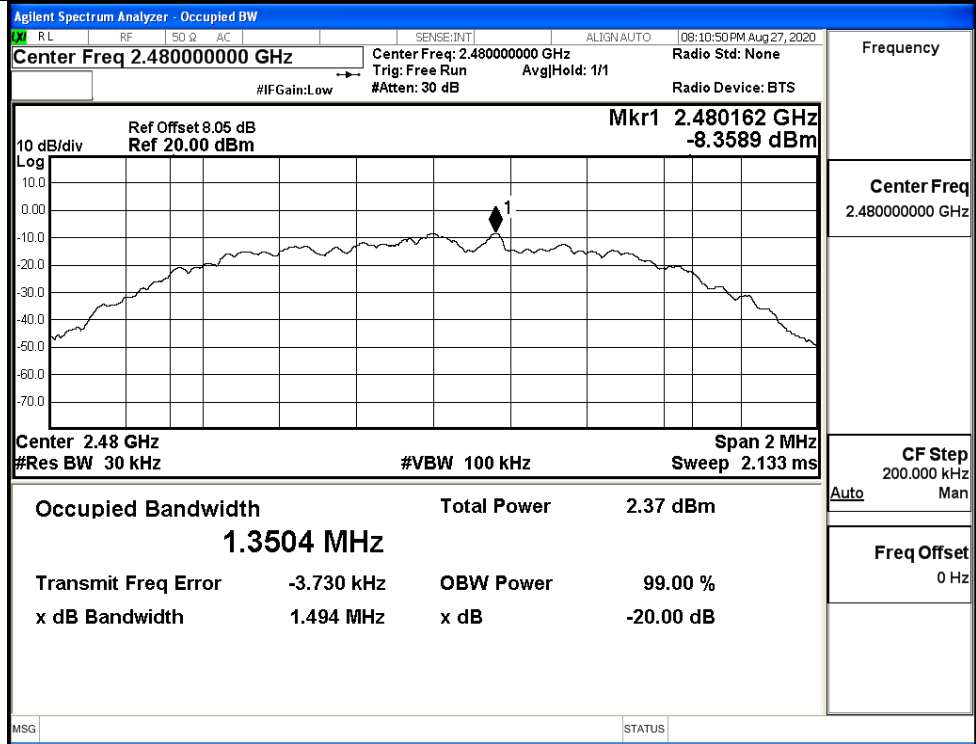
$\pi/4$ DQPSK/LCH



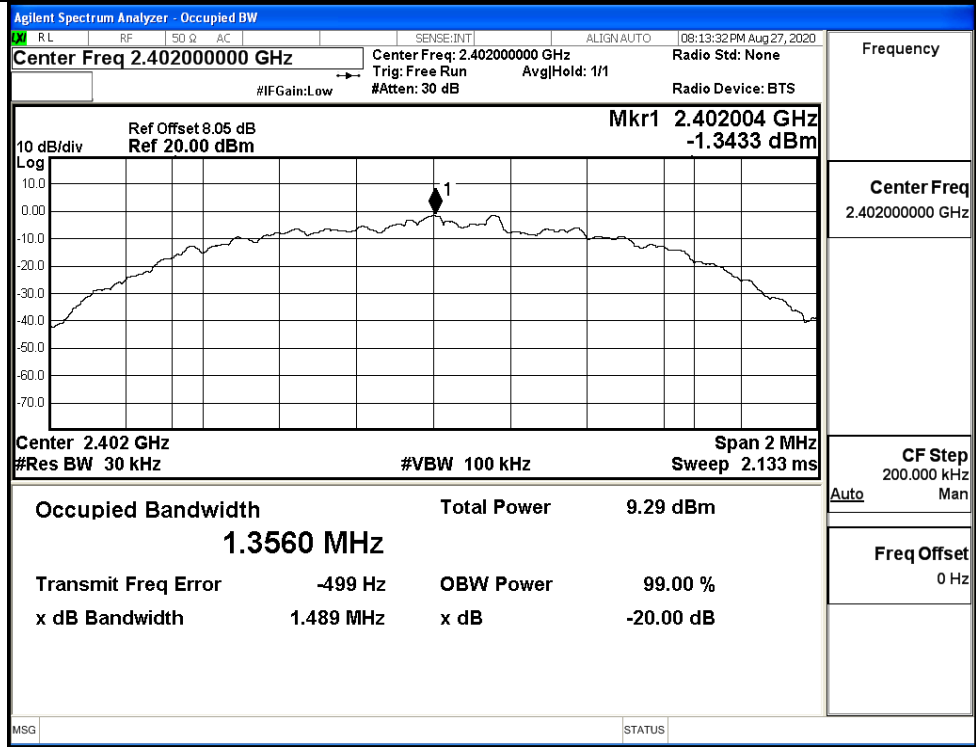
$\pi/4$ DQPSK/MCH



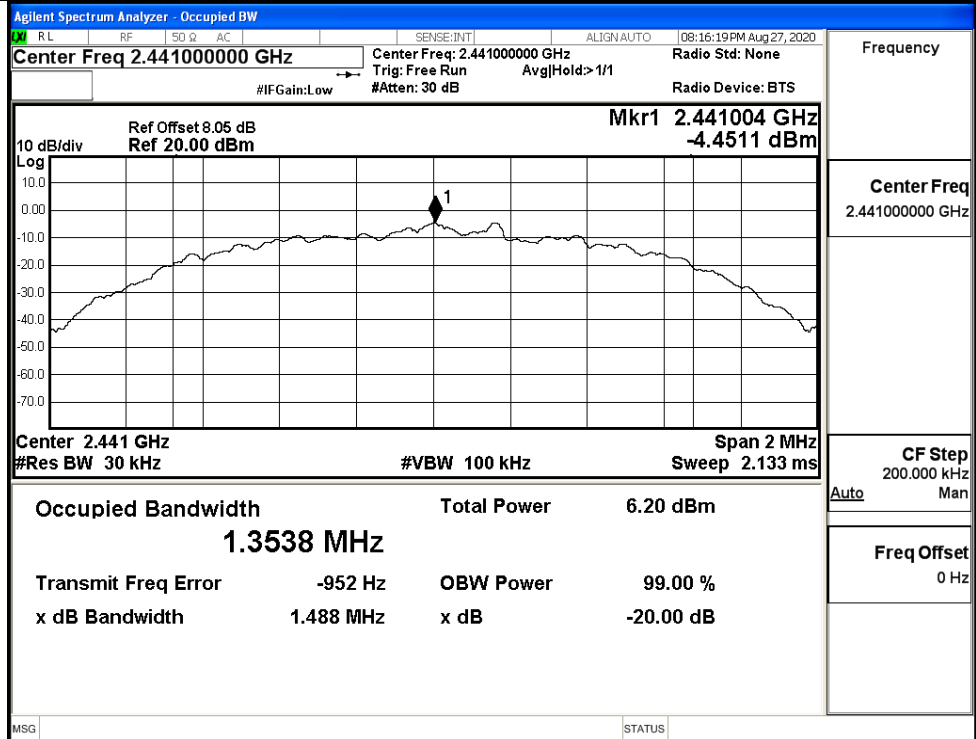
$\pi/4$ DQPSK/HCH



8DPSK/LCH

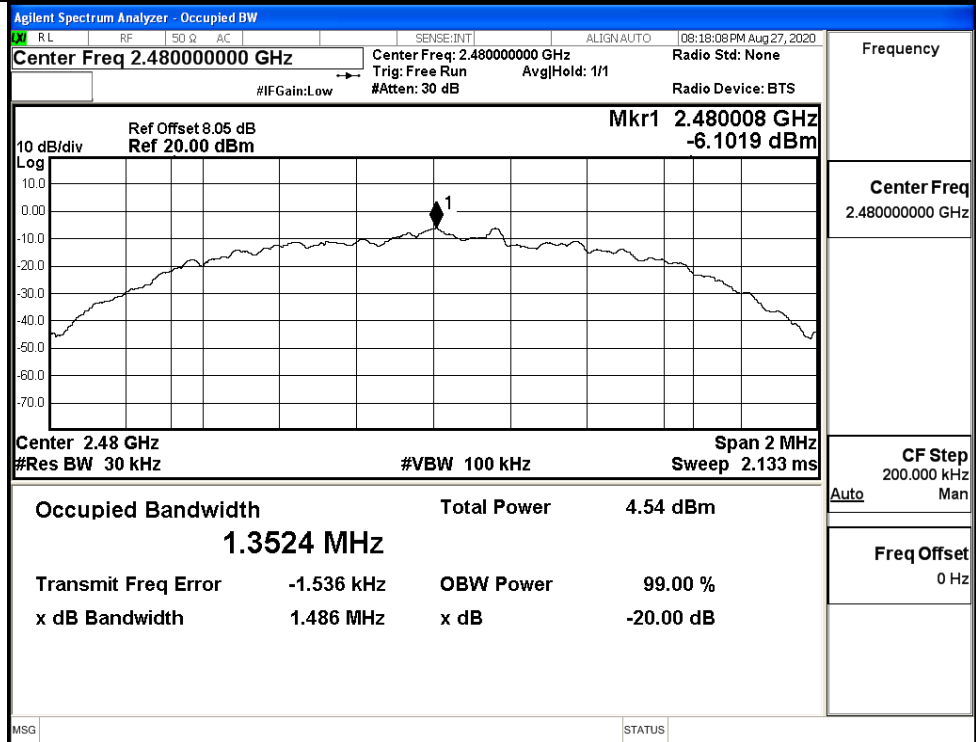


8DPSK/MCH



Frequency	2.441000000 GHz
Center Freq	2.441000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

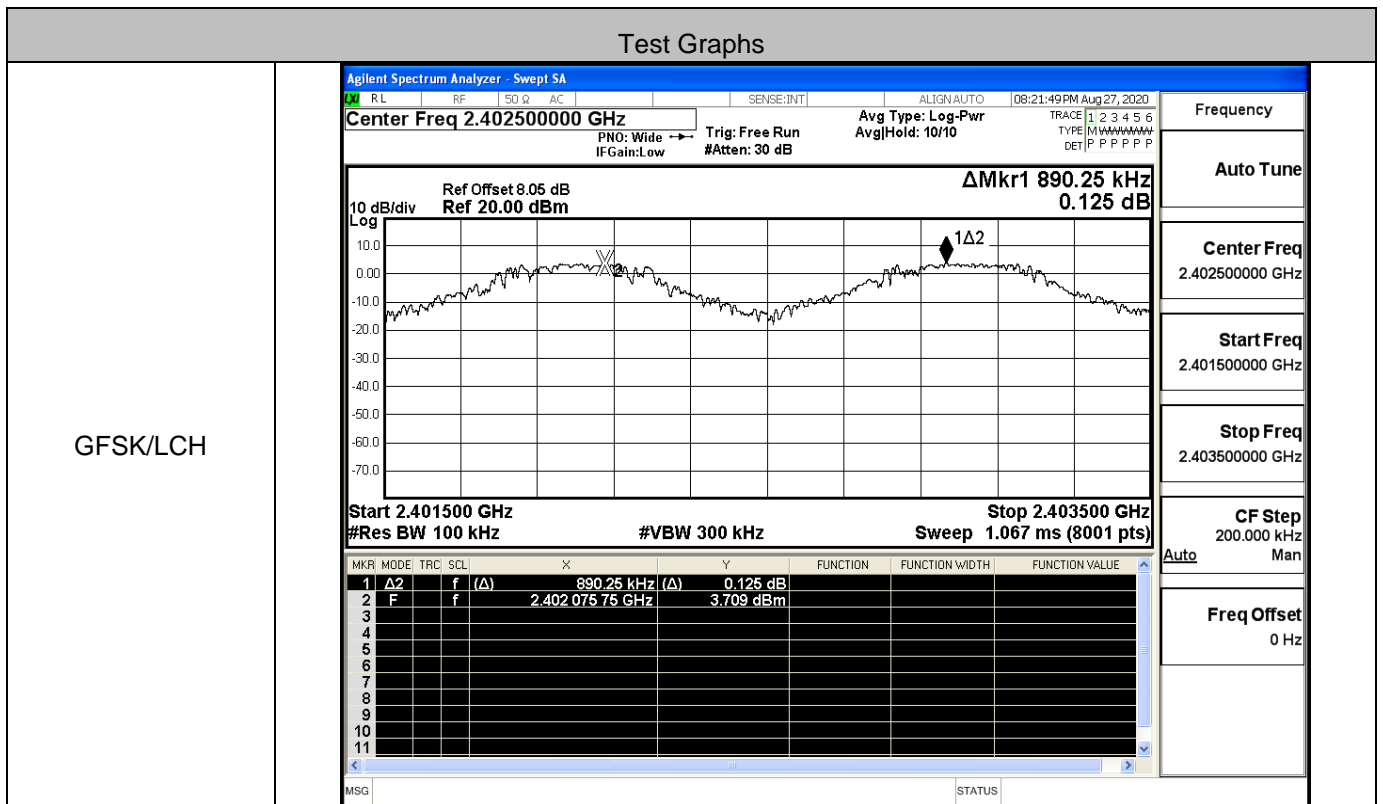
8DPSK/HCH



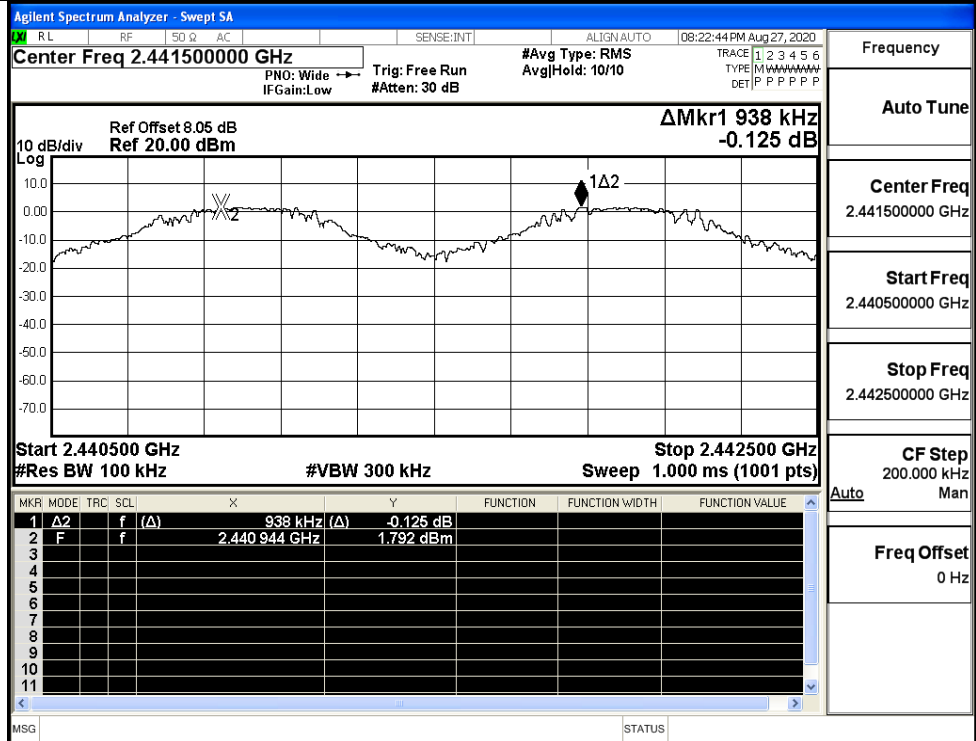
Frequency	2.480000000 GHz
Center Freq	2.480000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

A.3 Carrier Frequency Separation

Mode	Channel	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.890	0.641	PASS
	MCH	0.938	0.644	PASS
	HCH	0.978	0.643	PASS
π/4DQPSK	LCH	1.120	0.960	PASS
	MCH	1.100	0.967	PASS
	HCH	1.150	0.996	PASS
8DPSK	LCH	1.158	0.993	PASS
	MCH	1.106	0.992	PASS
	HCH	1.000	0.991	PASS

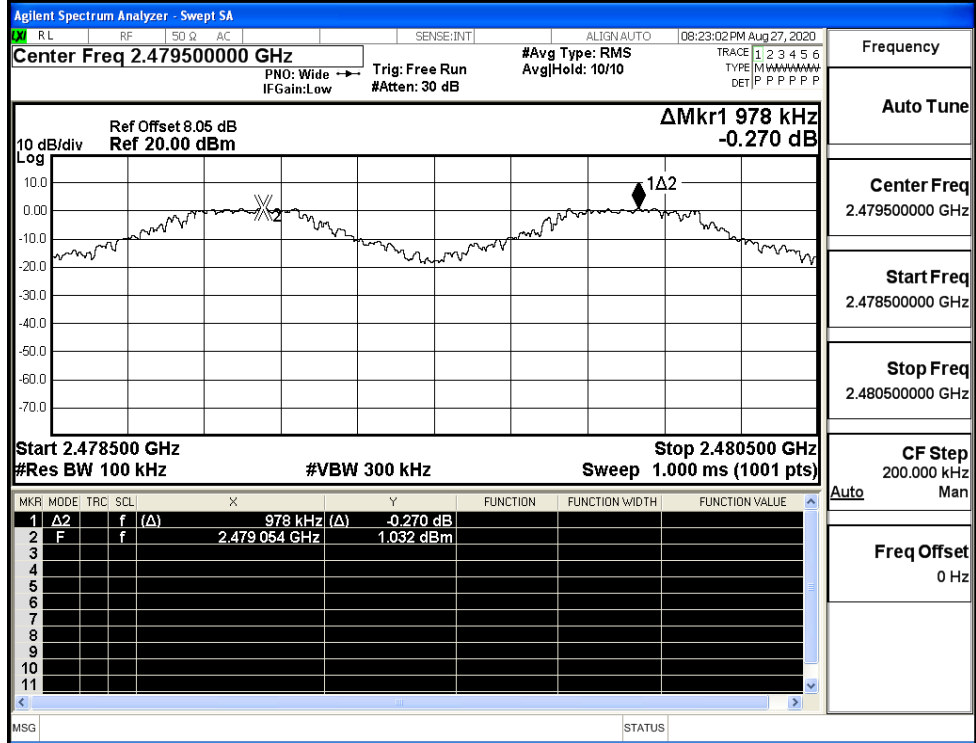


GFSK/MCH



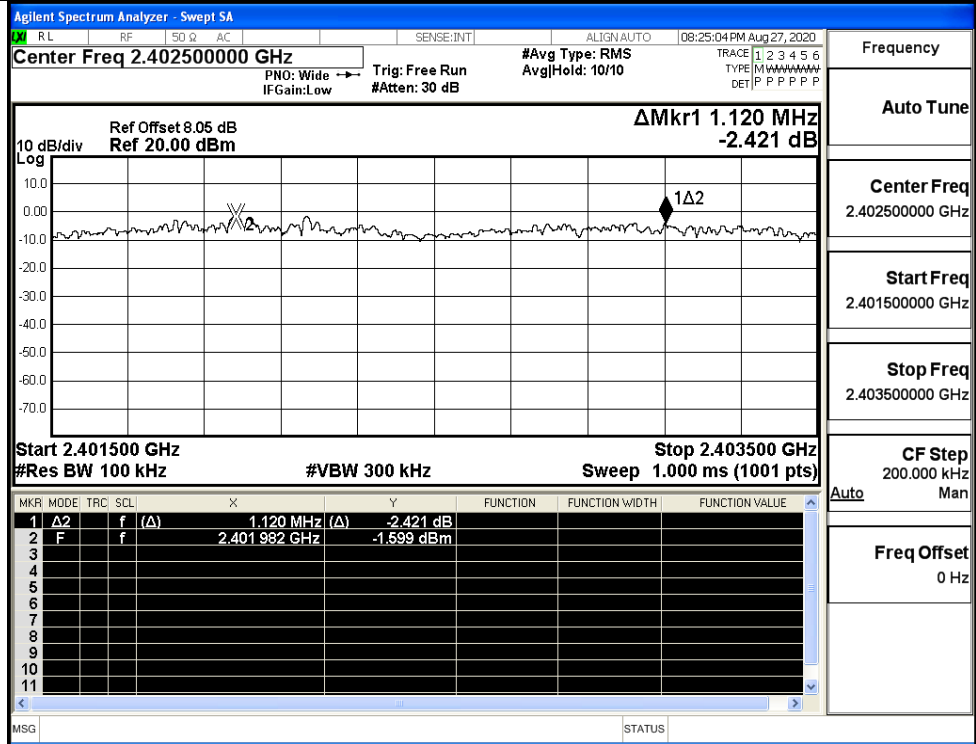
Frequency
Auto Tune
Center Freq 2.441500000 GHz
Start Freq 2.440500000 GHz
Stop Freq 2.442500000 GHz
CF Step 200.000 kHz Auto Man
Freq Offset 0 Hz

GFSK/HCH



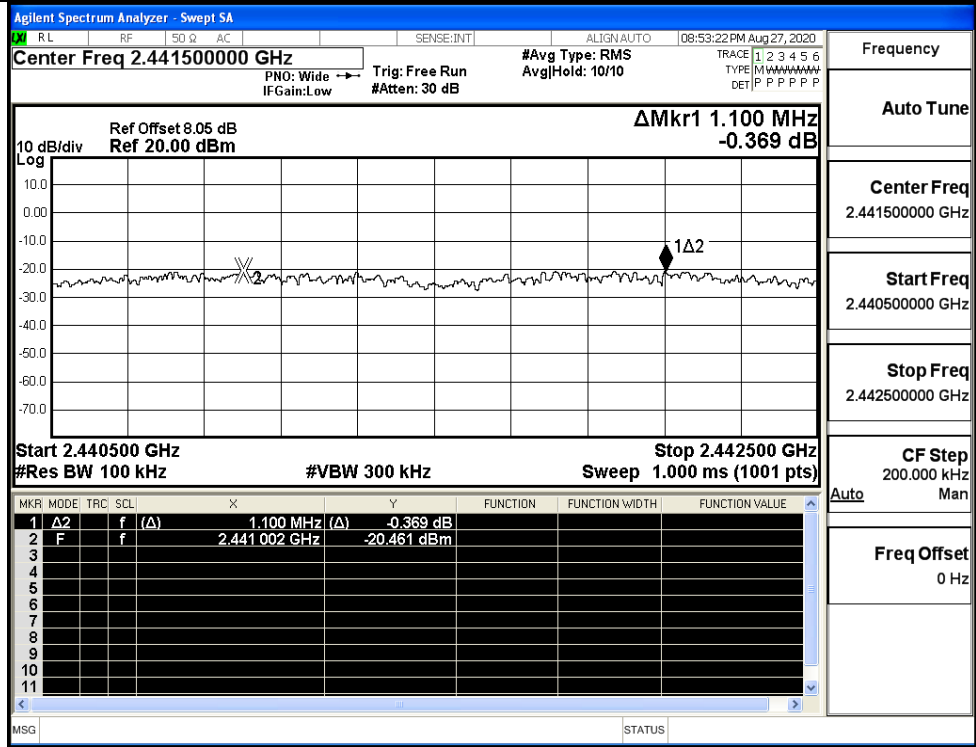
Frequency
Auto Tune
Center Freq 2.479500000 GHz
Start Freq 2.478500000 GHz
Stop Freq 2.480500000 GHz
CF Step 200.000 kHz Auto Man
Freq Offset 0 Hz

π/4DQPSK/LCH



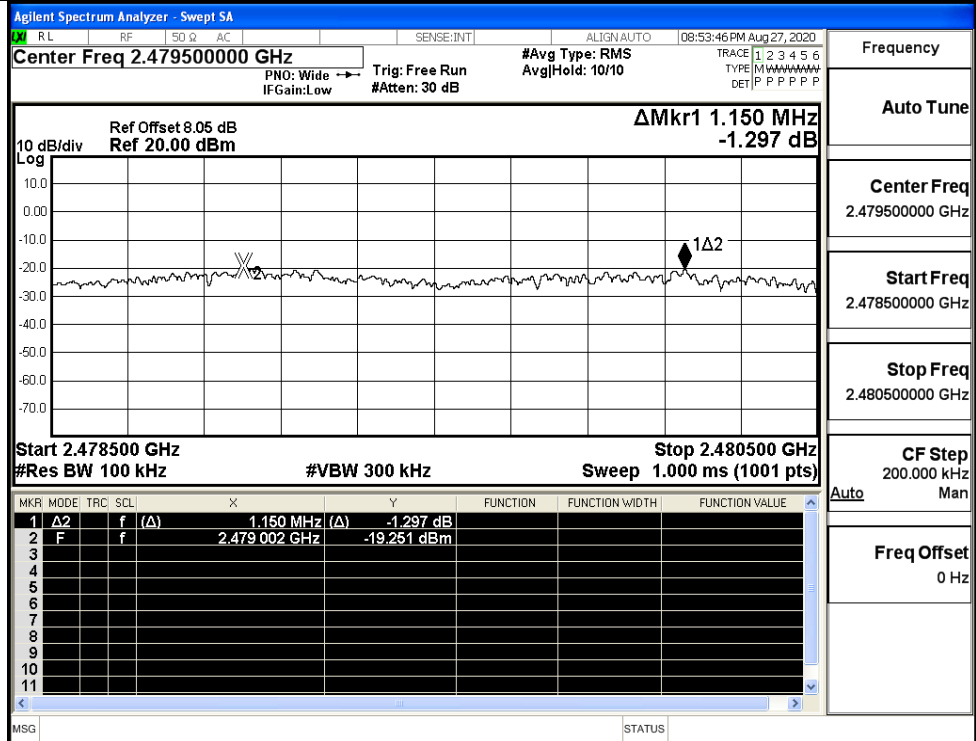
Frequency
Auto Tune
Center Freq 2.402500000 GHz
Start Freq 2.401500000 GHz
Stop Freq 2.403500000 GHz
CF Step 200.000 kHz
Auto
Freq Offset 0 Hz

π/4DQPSK/MCH



Frequency
Auto Tune
Center Freq 2.441500000 GHz
Start Freq 2.440500000 GHz
Stop Freq 2.442500000 GHz
CF Step 200.000 kHz
Auto
Freq Offset 0 Hz

π/4DQPSK/HCH



Frequency

Auto Tune

Center Freq
2.479500000 GHz

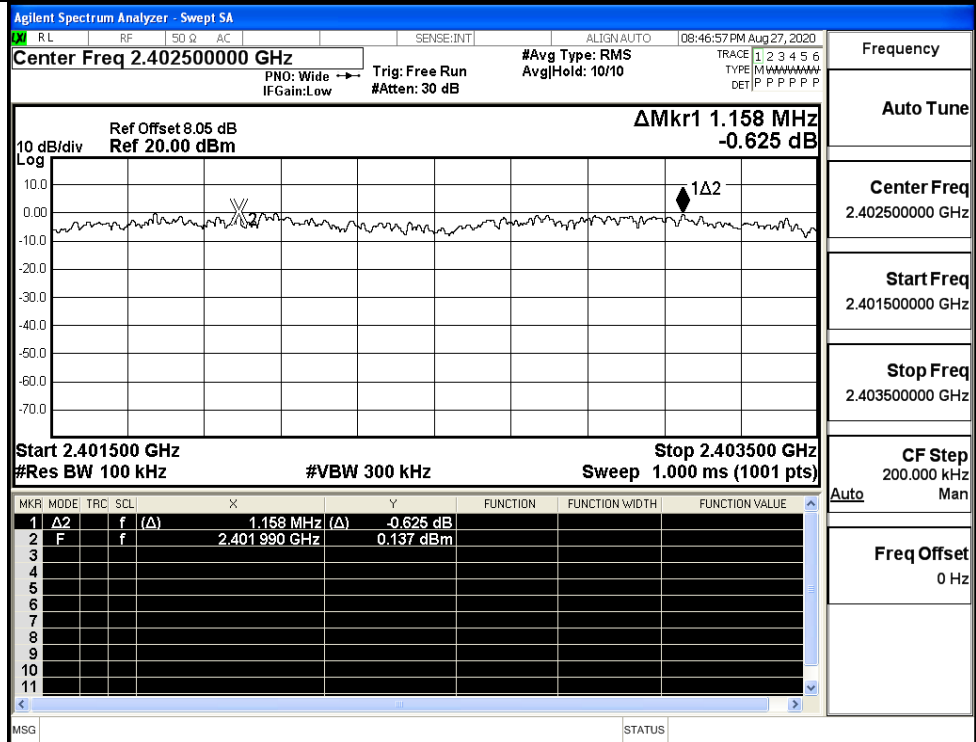
Start Freq
2.478500000 GHz

Stop Freq
2.480500000 GHz

CF Step
200.000 kHz

Freq Offset
0 Hz

8DPSK/LCH



Frequency

Auto Tune

Center Freq
2.402500000 GHz

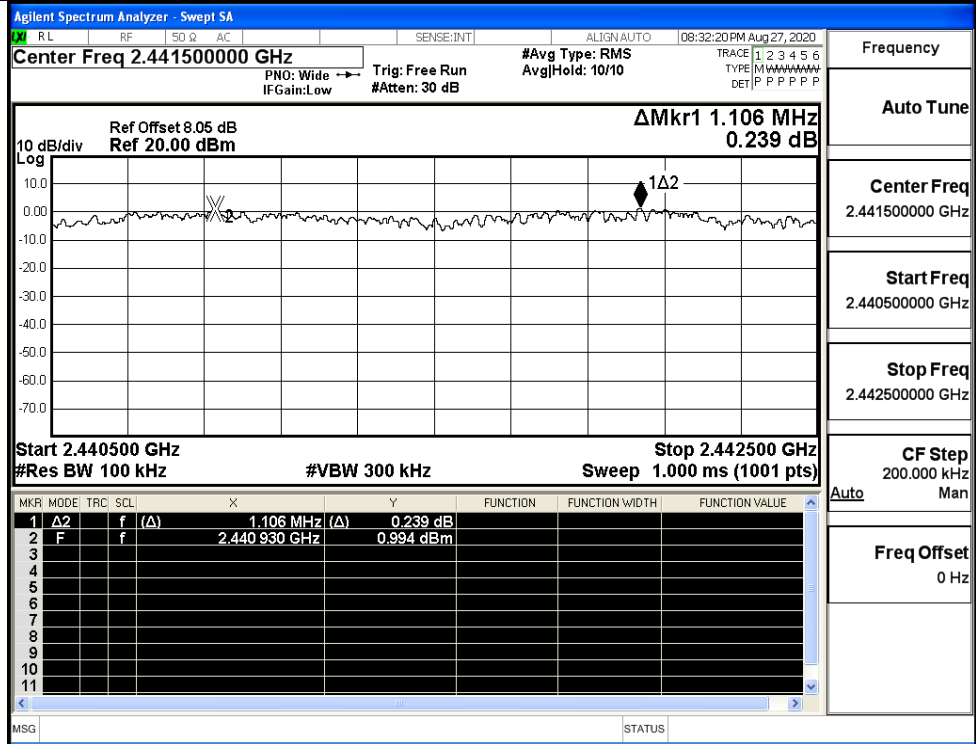
Start Freq
2.401500000 GHz

Stop Freq
2.403500000 GHz

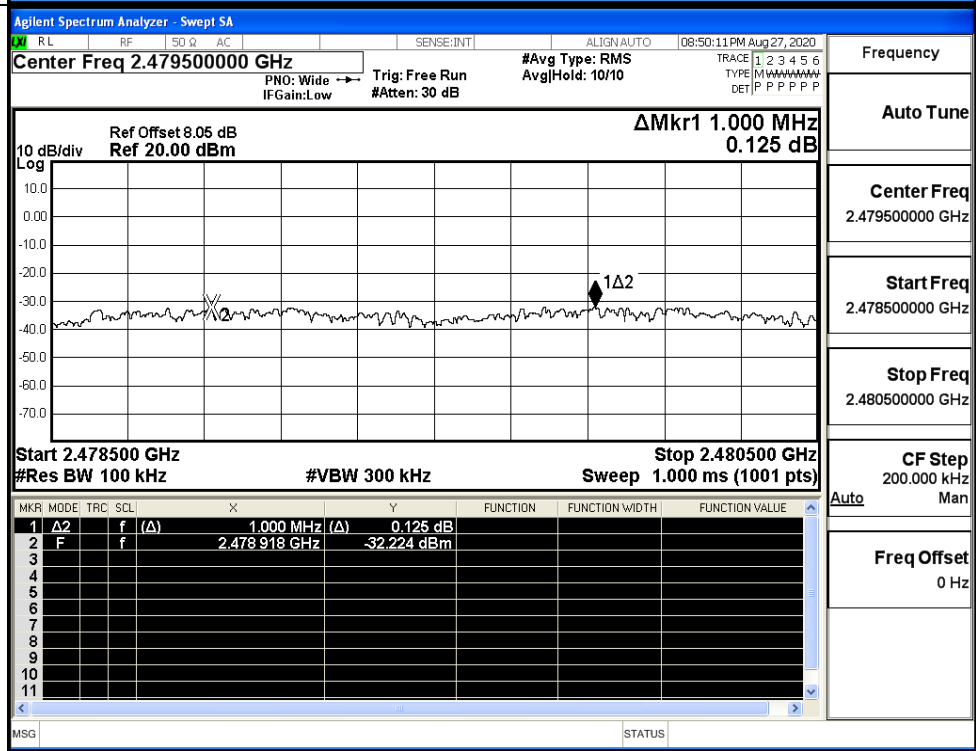
CF Step
200.000 kHz

Freq Offset
0 Hz

8DPSK/MCH



8DPSK/HCH



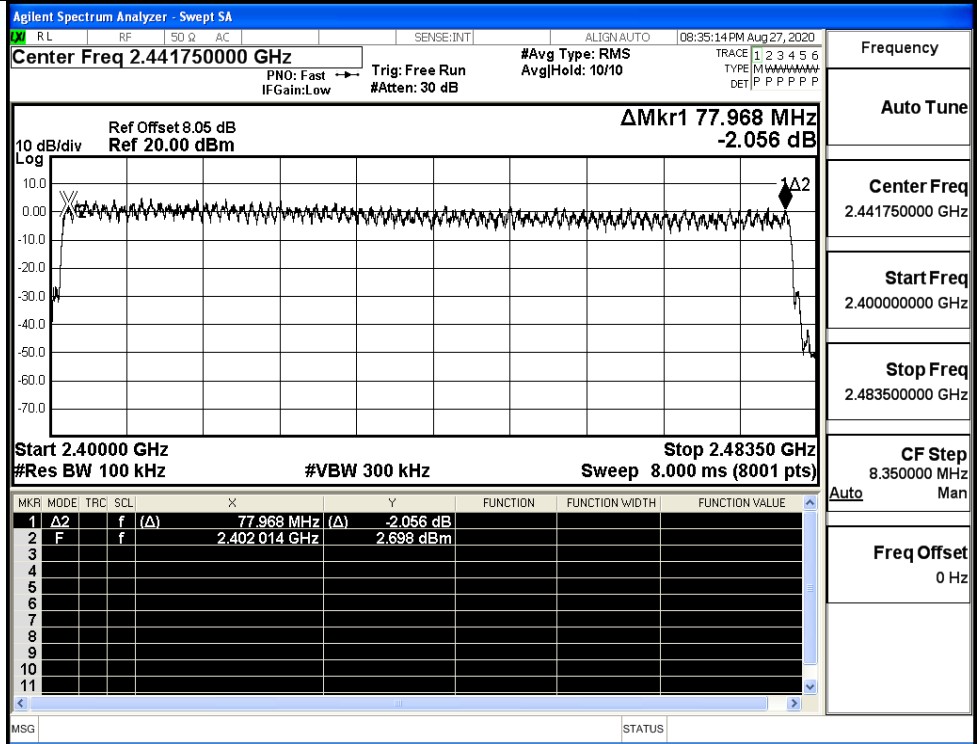
A.4 Hopping Channel Number

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

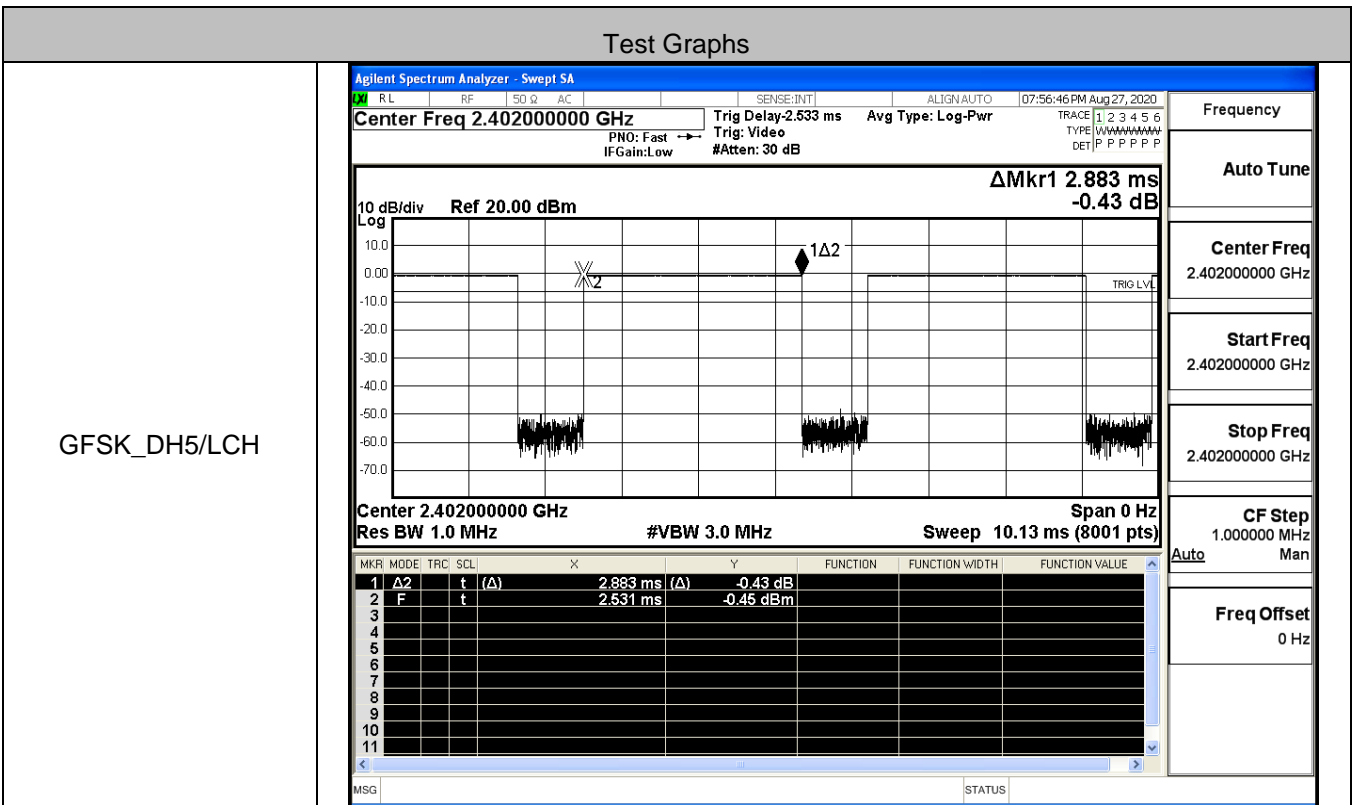
GFSK/Hop	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.441750000 GHz</p> <p>Ref Offset 8.05 dB Ref 20.00 dBm</p> <p>ΔMkr1 78.010 MHz -3.527 dB</p> <p>Start 2.40000 GHz Stop 2.48350 GHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 8.000 ms (8001 pts)</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <thead> <tr> <th>MKR</th> <th>MODE</th> <th>TRC</th> <th>SCL</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Δ2</td> <td>f</td> <td>(Δ)</td> <td>78.010 MHz (Δ)</td> <td>-3.527 dB</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td>(Δ)</td> <td>2.401 879 GHz</td> <td>4.052 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	Δ 2	f	(Δ)	78.010 MHz (Δ)	-3.527 dB				2	F	f	(Δ)	2.401 879 GHz	4.052 dBm			
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																				
1	Δ 2	f	(Δ)	78.010 MHz (Δ)	-3.527 dB																							
2	F	f	(Δ)	2.401 879 GHz	4.052 dBm																							
$\pi/4$ DQPSK/Hop	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.441750000 GHz</p> <p>Ref Offset 8.05 dB Ref 20.00 dBm</p> <p>ΔMkr1 78.240 MHz -2.999 dB</p> <p>Start 2.40000 GHz Stop 2.48350 GHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 8.000 ms (8001 pts)</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <thead> <tr> <th>MKR</th> <th>MODE</th> <th>TRC</th> <th>SCL</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Δ2</td> <td>f</td> <td>(Δ)</td> <td>78.240 MHz (Δ)</td> <td>-2.999 dB</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td>(Δ)</td> <td>2.401 774 GHz</td> <td>-3.190 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	Δ 2	f	(Δ)	78.240 MHz (Δ)	-2.999 dB				2	F	f	(Δ)	2.401 774 GHz	-3.190 dBm			
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																				
1	Δ 2	f	(Δ)	78.240 MHz (Δ)	-2.999 dB																							
2	F	f	(Δ)	2.401 774 GHz	-3.190 dBm																							

8DPSK/Hop

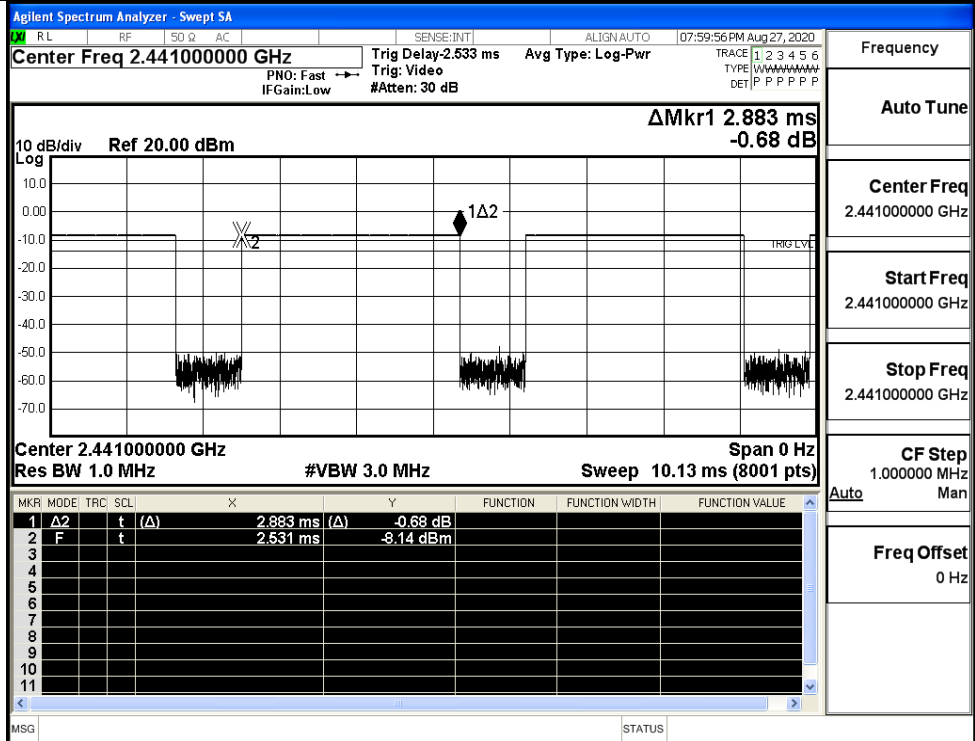


A.5 Dwell Time

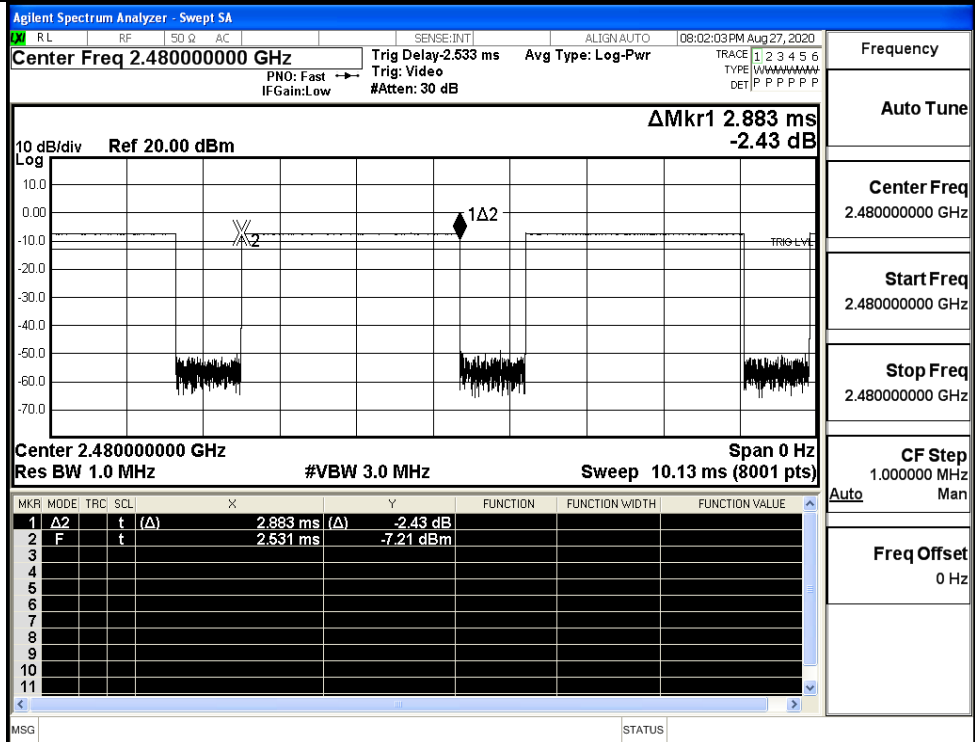
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
π/4DQPSK	2DH5	LCH	2.88	106.7	0.015	0.4	PASS
	2DH5	MCH	2.88	106.7	0.015	0.4	PASS
	2DH5	HCH	2.88	106.7	0.015	0.4	PASS
8DPSK	3DH5	LCH	2.88	106.7	0.015	0.4	PASS
	3DH5	MCH	2.88	106.7	0.015	0.4	PASS
	3DH5	HCH	2.88	106.7 </td <td>0.015</td> <td>0.4</td> <td>PASS</td>	0.015	0.4	PASS



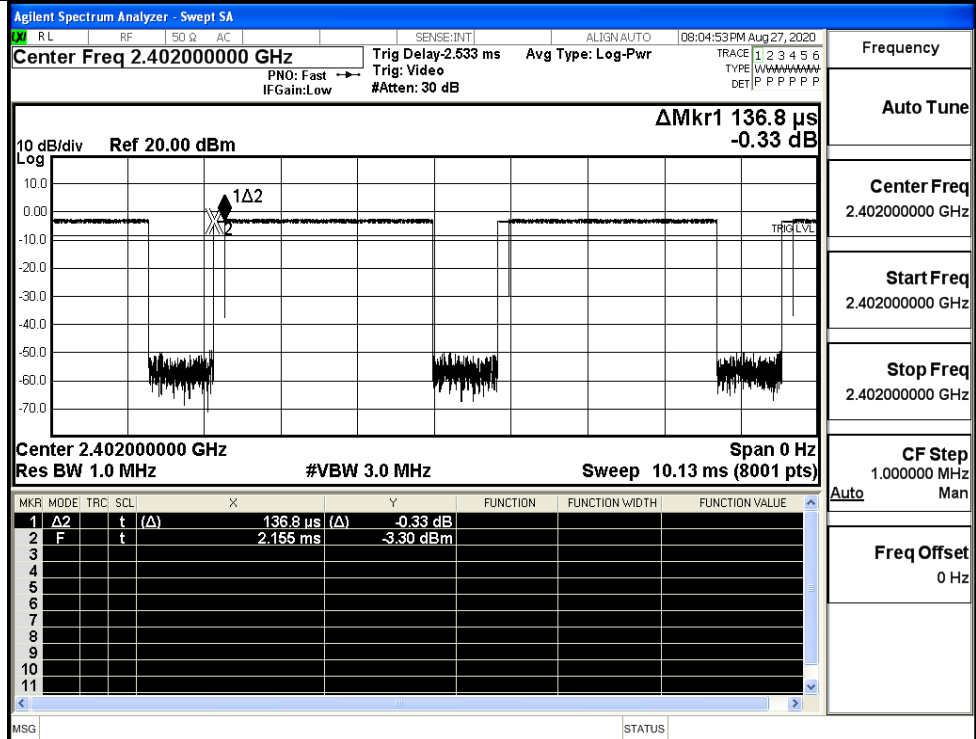
GFSK_DH5/MCH



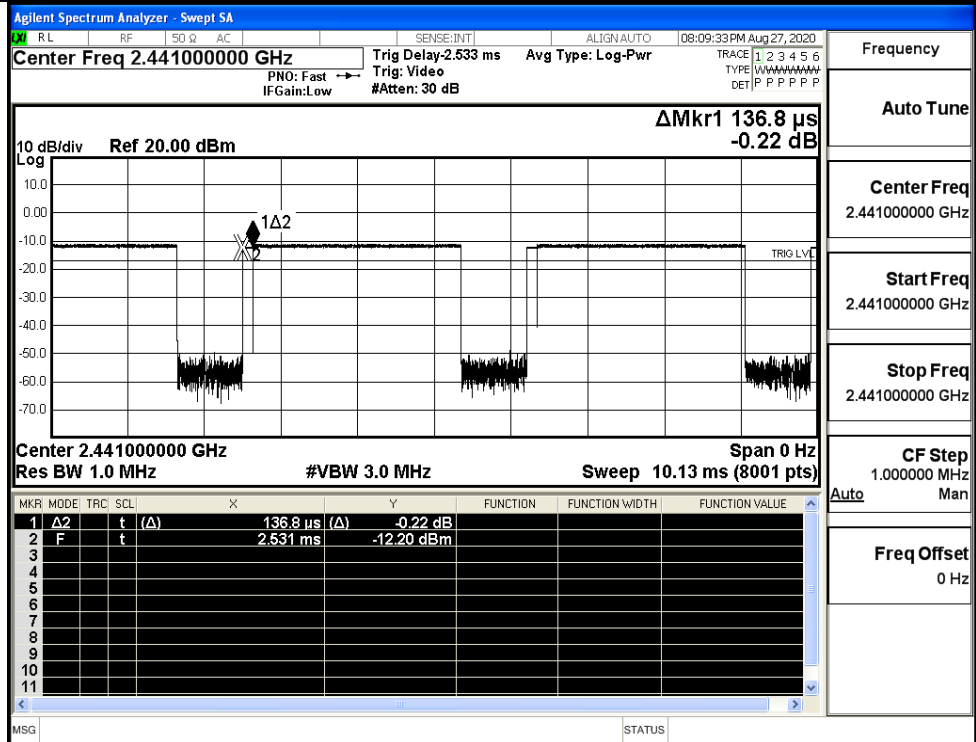
GFSK_DH5/HCH



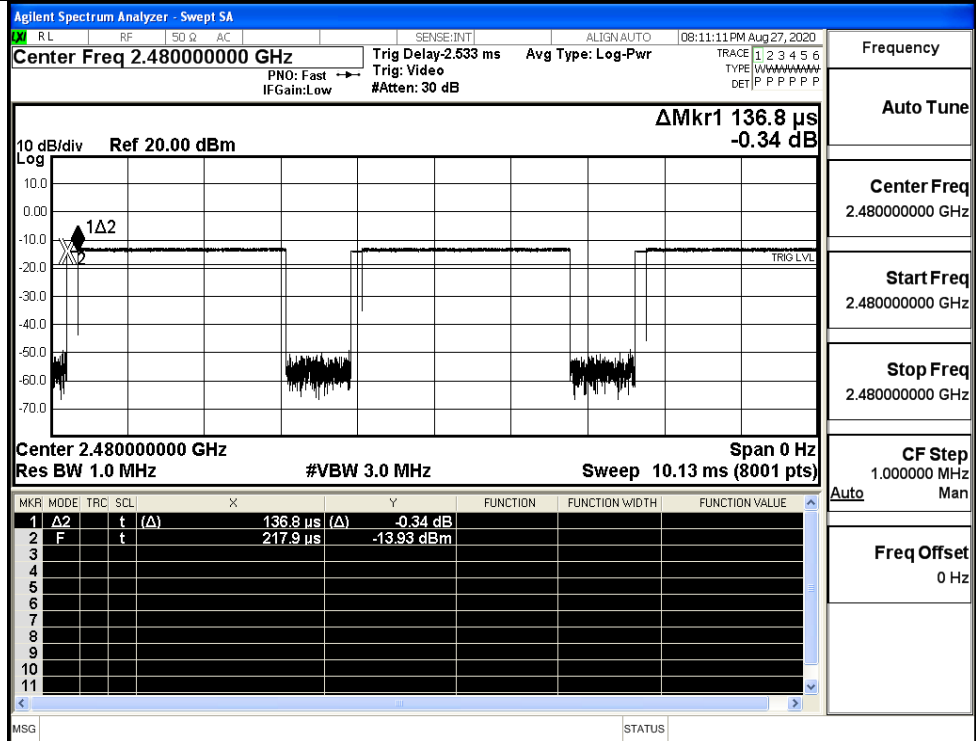
$\pi/4$ DQPSK
_2DH5/LCH



$\pi/4$ DQPSK
_2DH5/MCH

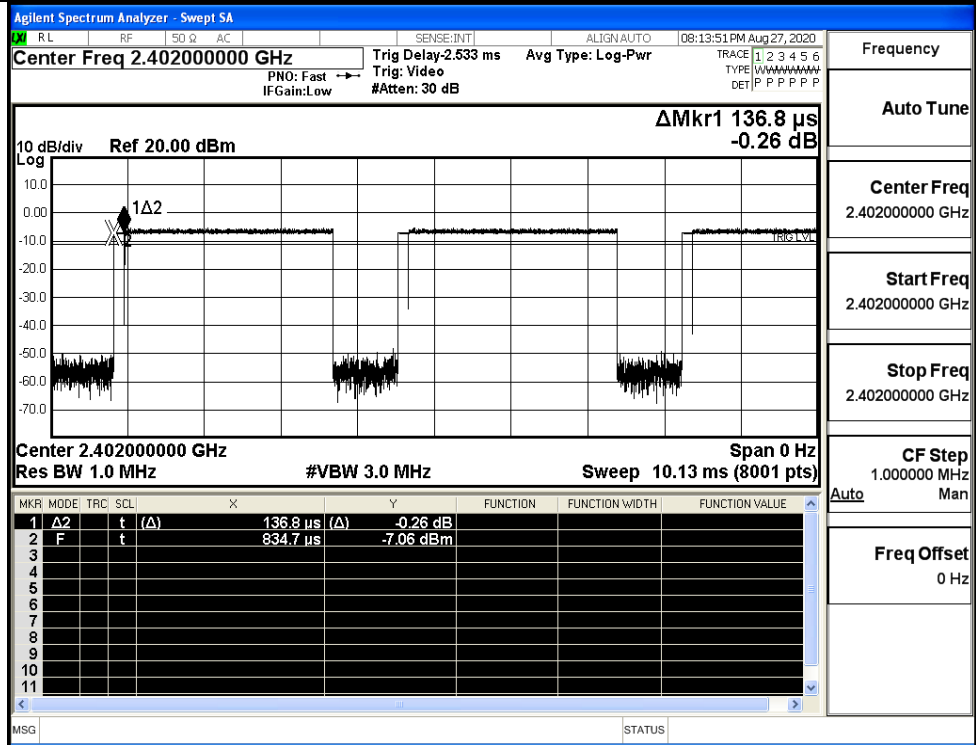


$\pi/4$ DQPSK
_2DH5/HCH



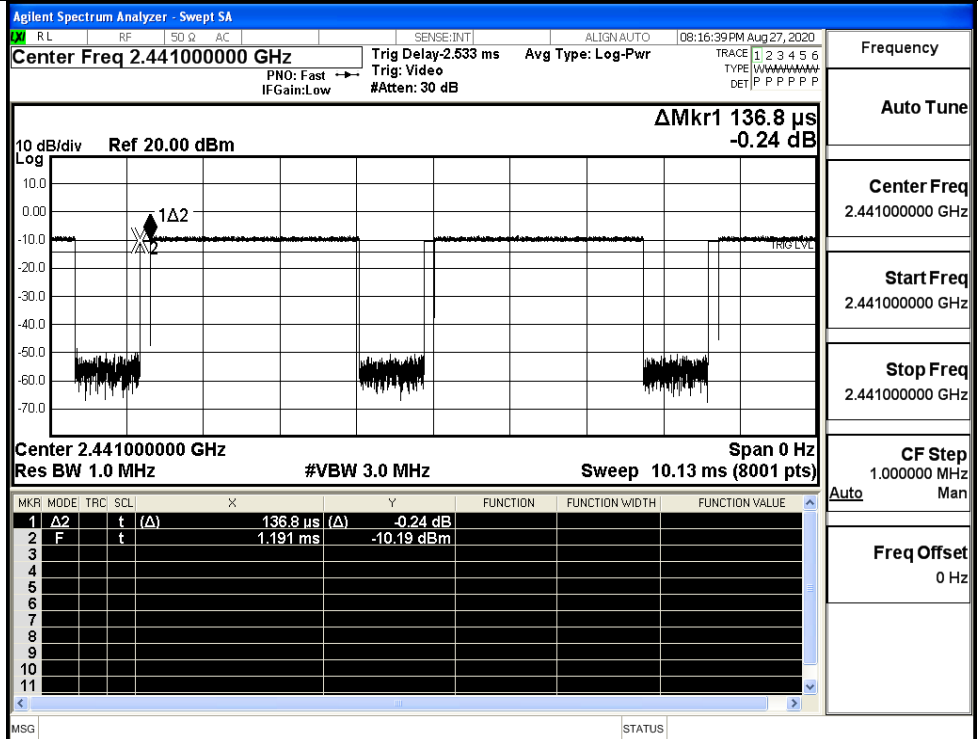
Frequency	2.48000000 GHz
Auto Tune	
Center Freq	2.48000000 GHz
Start Freq	2.48000000 GHz
Stop Freq	2.48000000 GHz
CF Step	1.000000 MHz
Freq Offset	0 Hz

8DPSK_3DH5/LCH

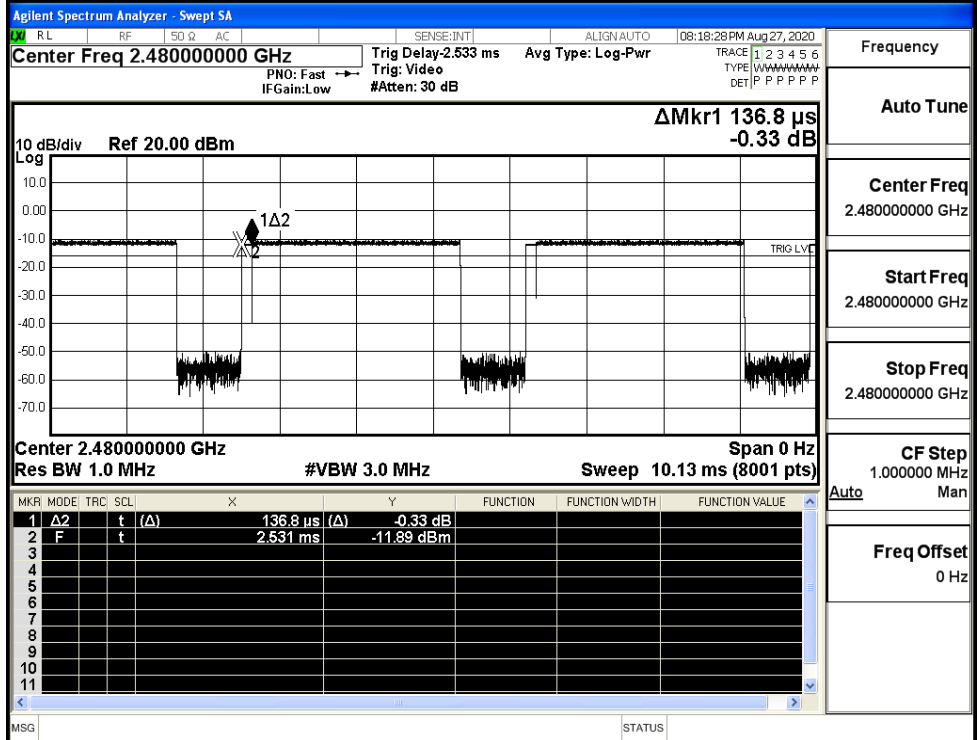


Frequency	2.40200000 GHz
Auto Tune	
Center Freq	2.40200000 GHz
Start Freq	2.40200000 GHz
Stop Freq	2.40200000 GHz
CF Step	1.000000 MHz
Freq Offset	0 Hz

8DPSK_3DH5/MCH



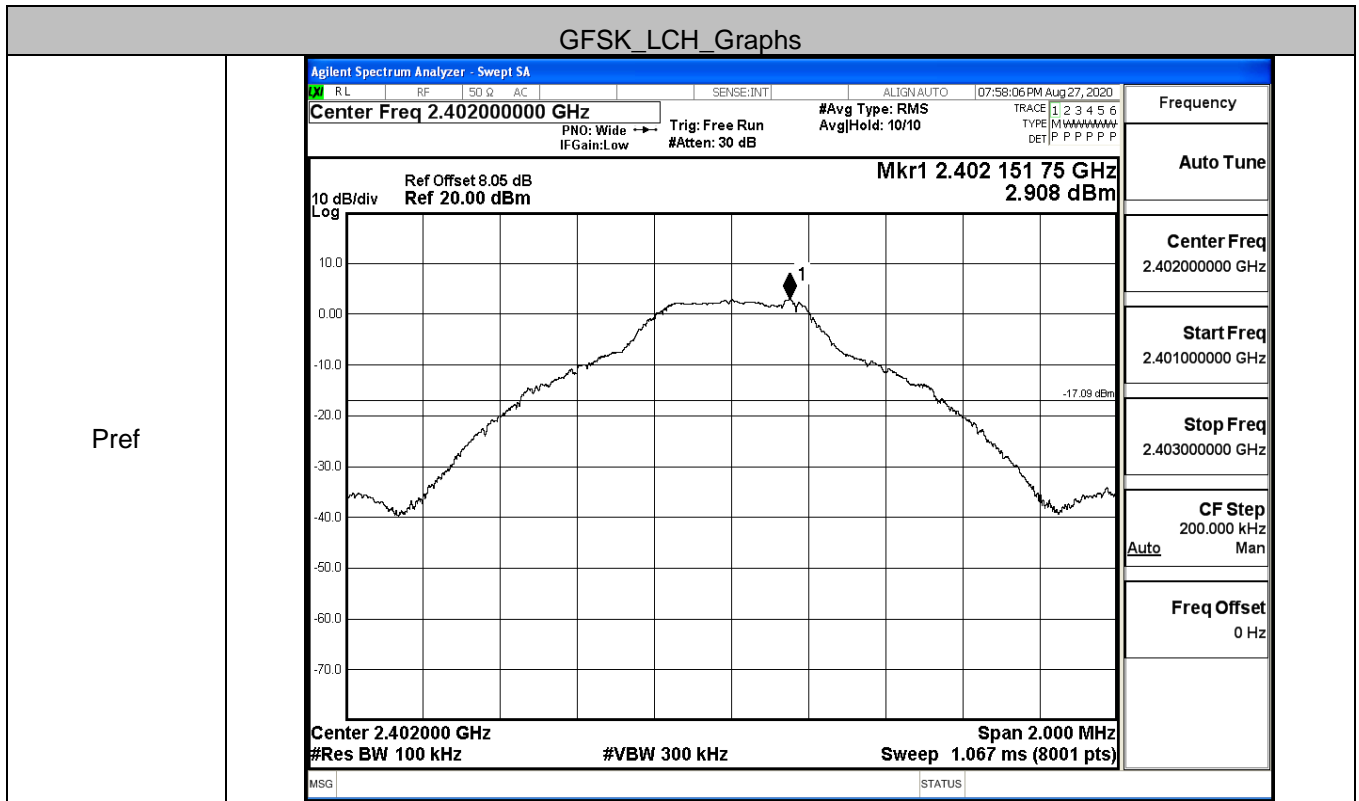
8DPSK_3DH5/HCH



A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2.908	-38.188	-17.092	PASS
	MCH	-0.172	-37.506	-20.172	PASS
	HCH	0.757	-38.463	-19.243	PASS
π /4DQPSK	LCH	-1.15	-37.134	-21.150	PASS
	MCH	-4.342	-38.071	-24.342	PASS
	HCH	-6.232	-38.159	-26.232	PASS
8DPSK	LCH	0.492	-37.613	-19.508	PASS
	MCH	-2.213	-37.708	-22.213	PASS
	HCH	0.735	-37.293	-19.265	PASS

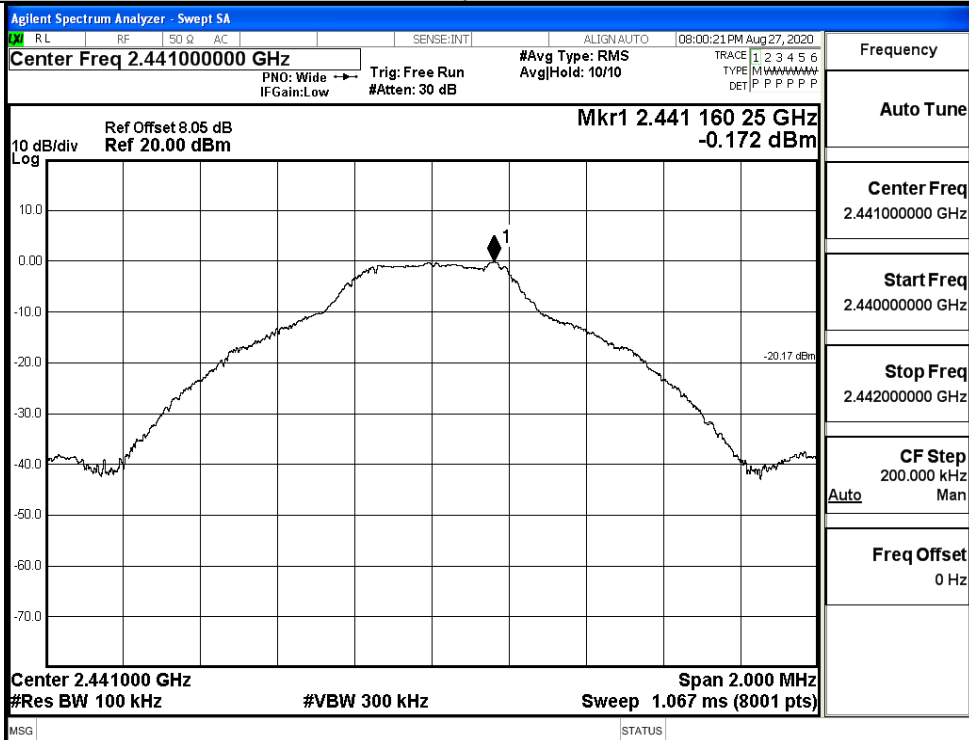
GFSK_LCH_Graphs



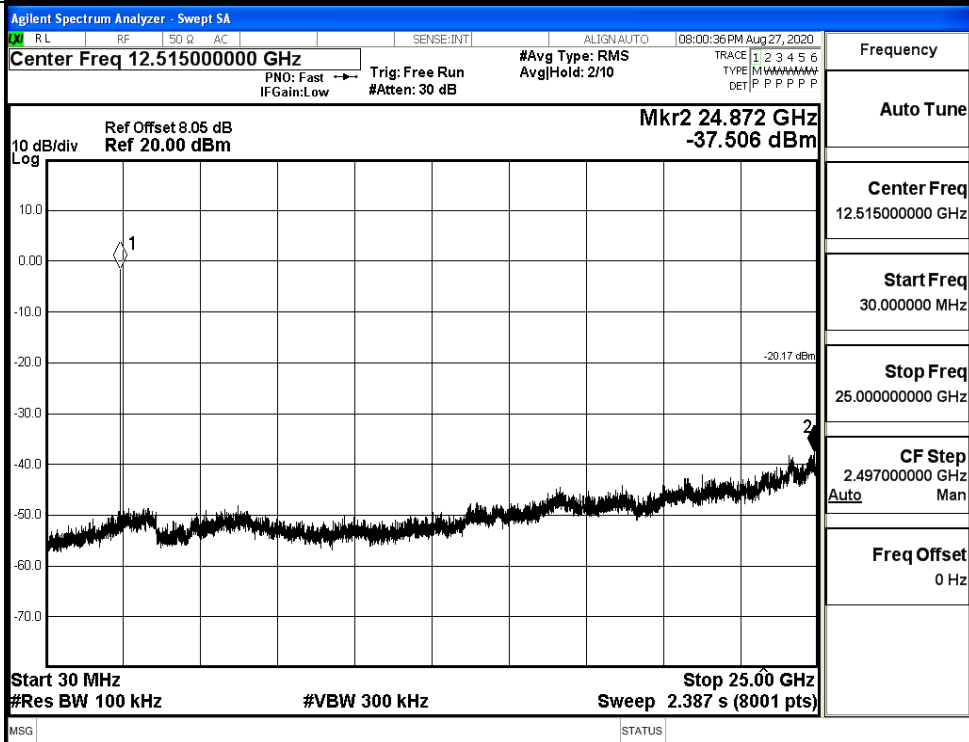
Pref

GFSK_MCH_Graphs

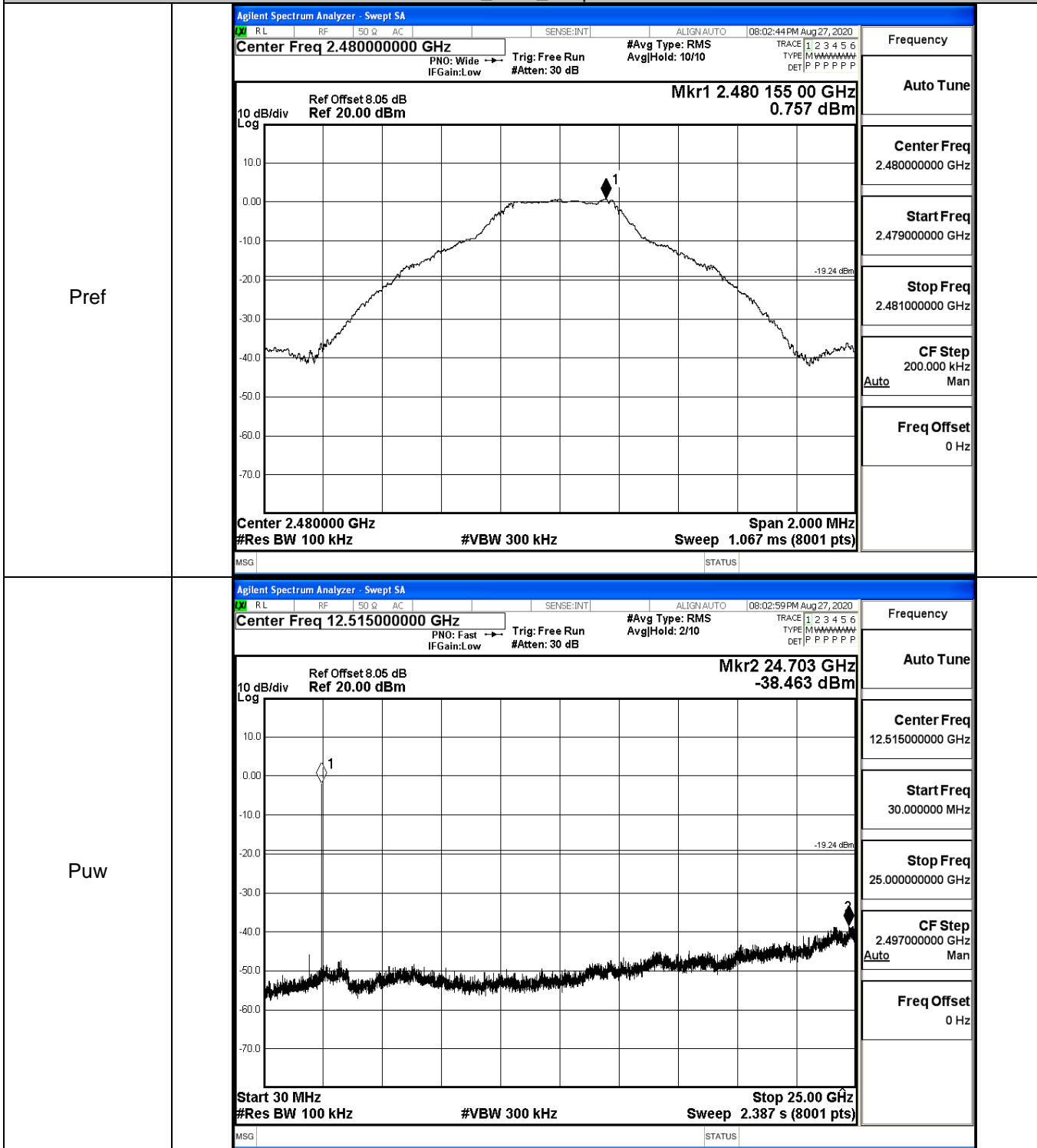
Pref



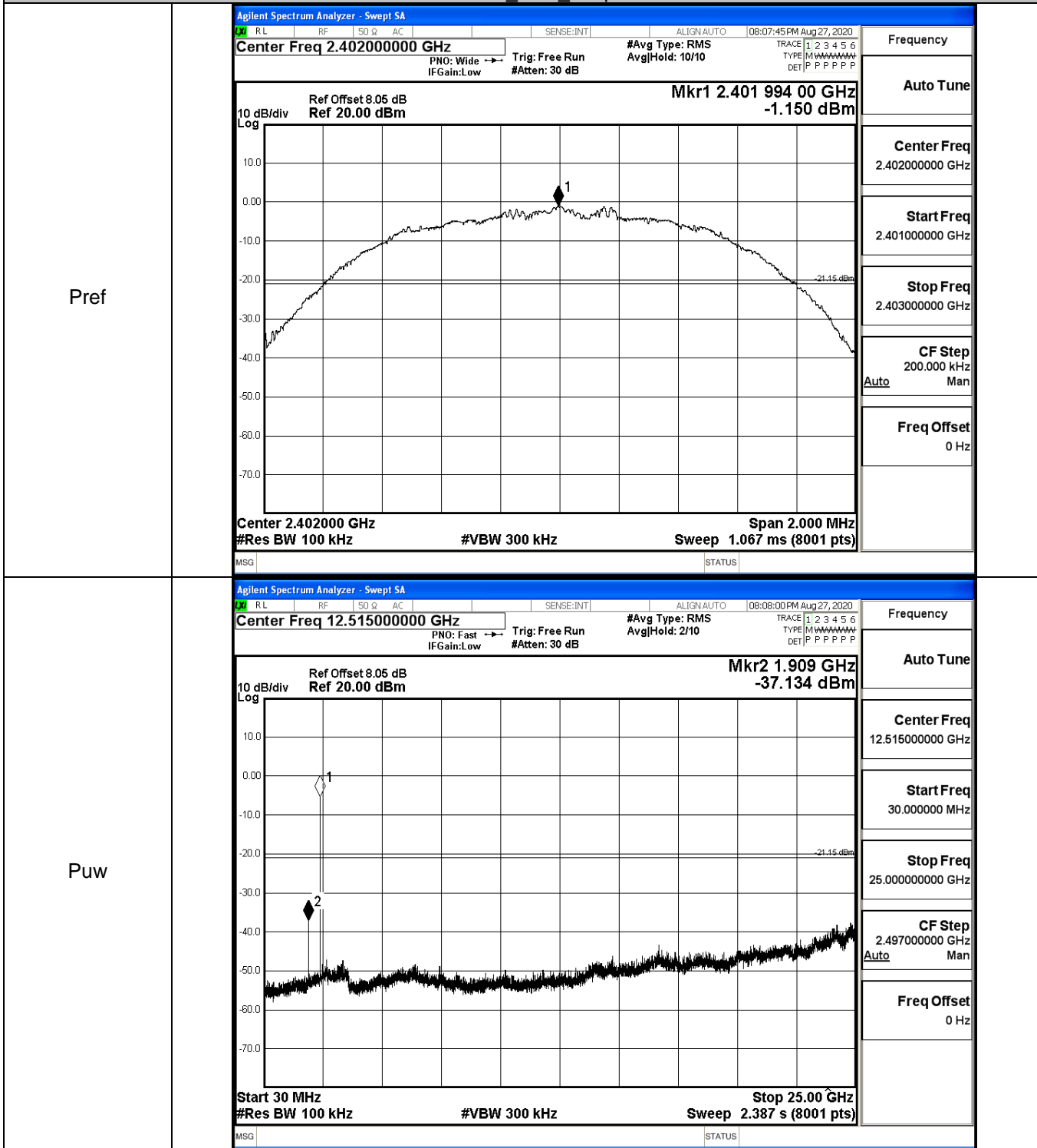
Puw



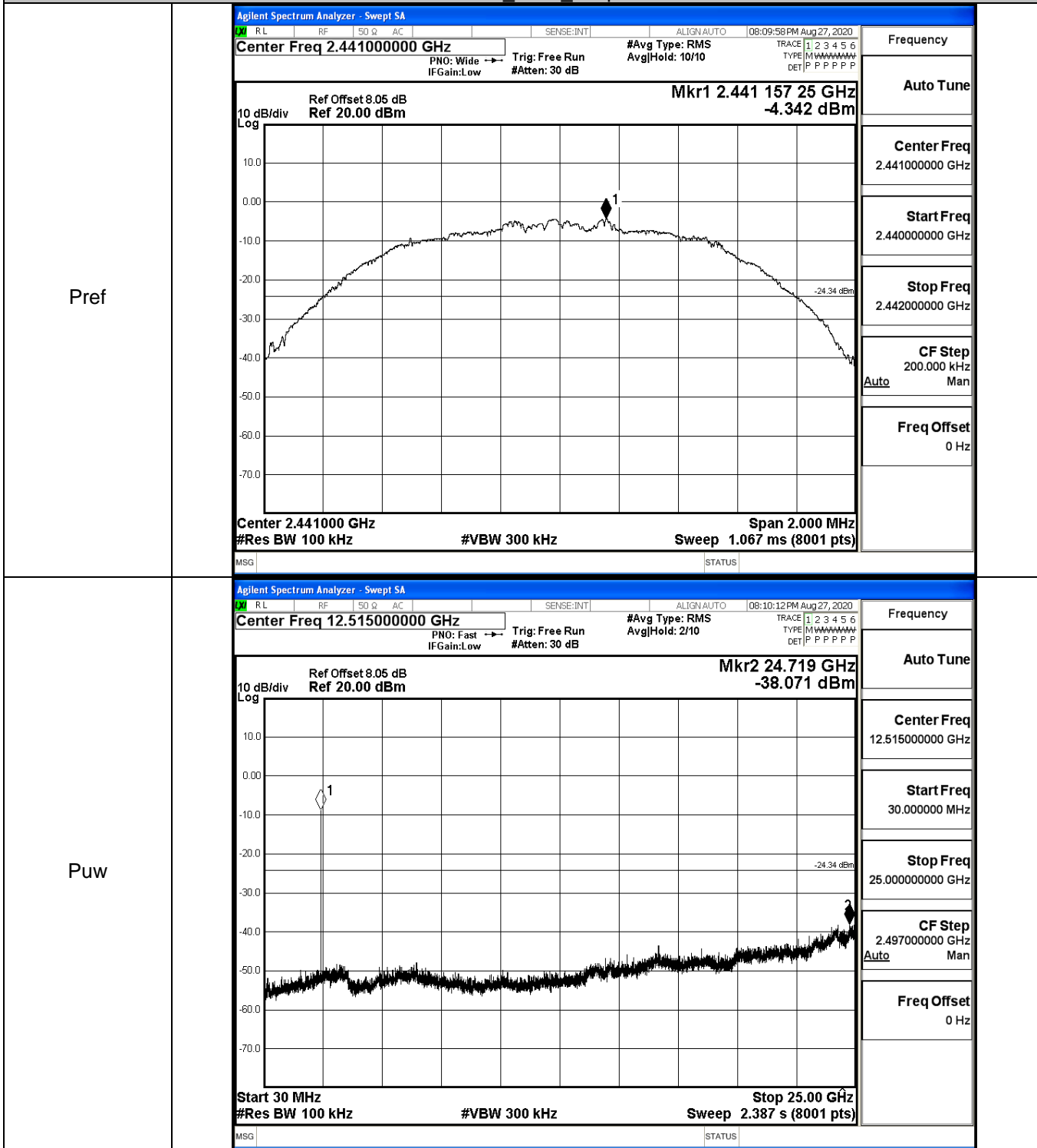
GFSK_HCH_Graphs



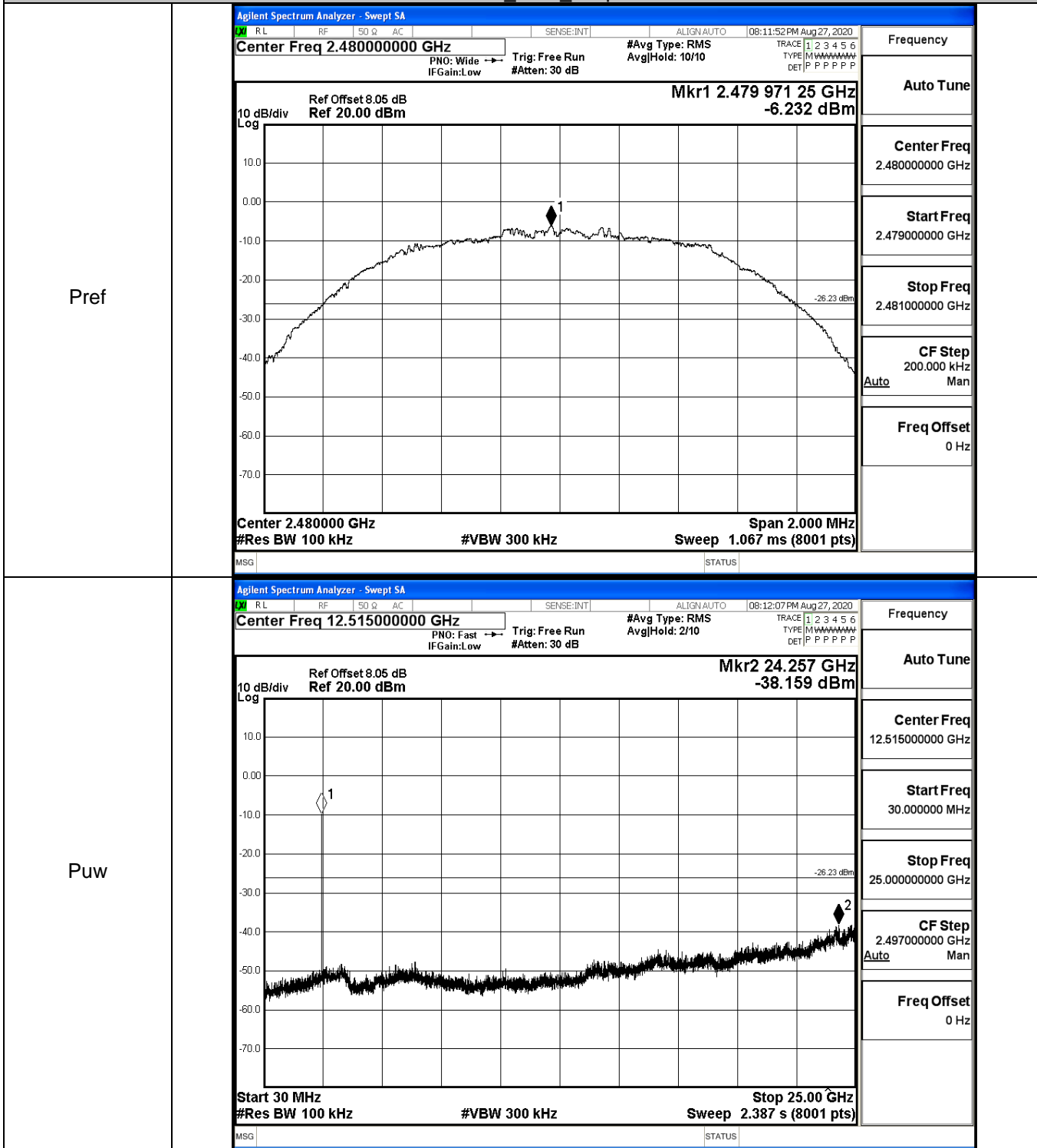
$\pi/4$ DQPSK_LCH_Graphs



$\pi/4$ DQPSK_MCH_Graphs

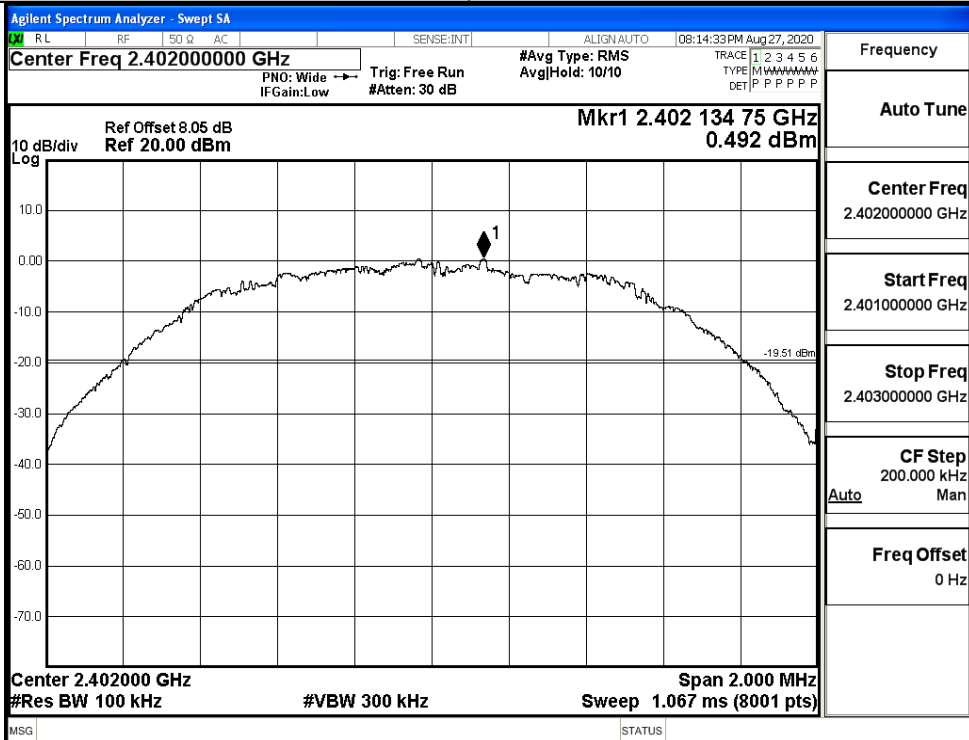


$\pi/4$ DQPSK_HCH_Graphs

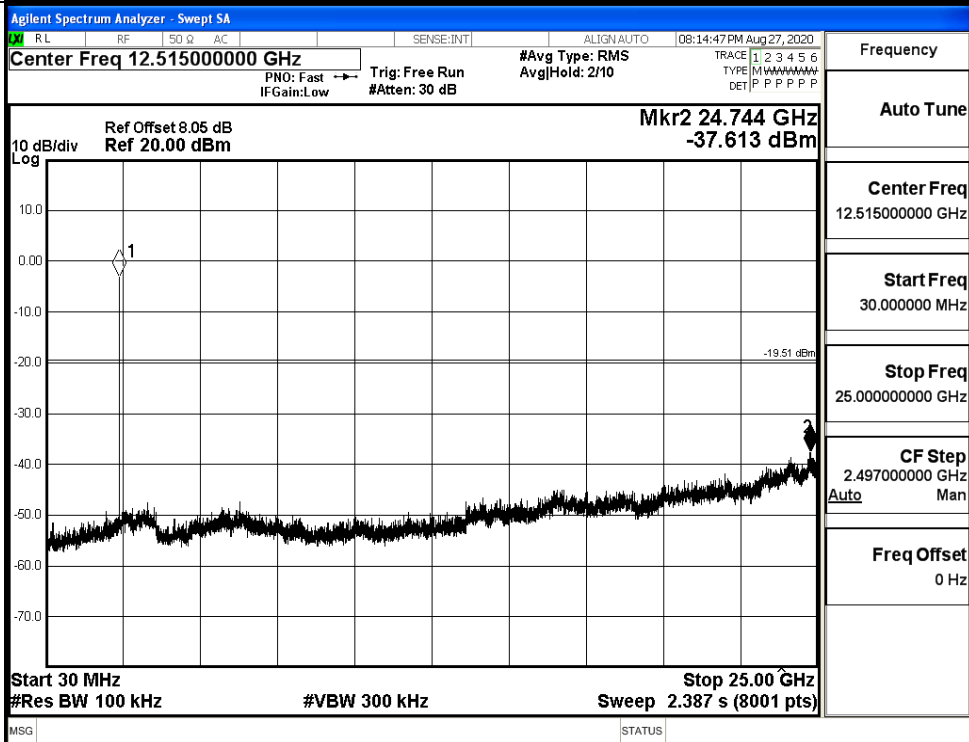


8DPSK_LCH_Graphs

Pref

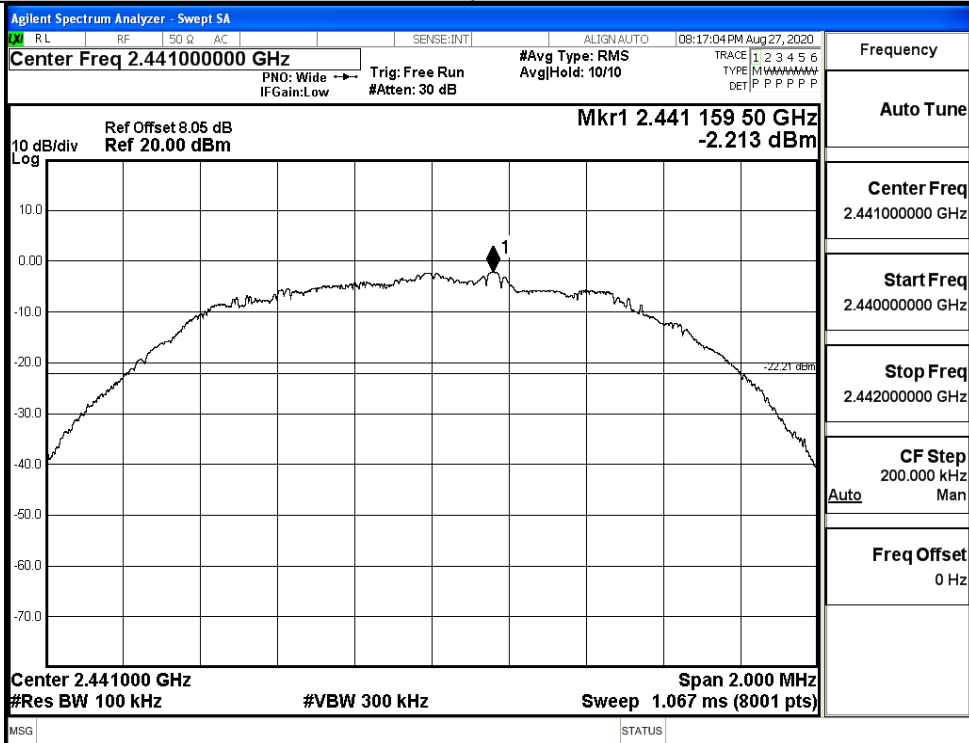


Puw

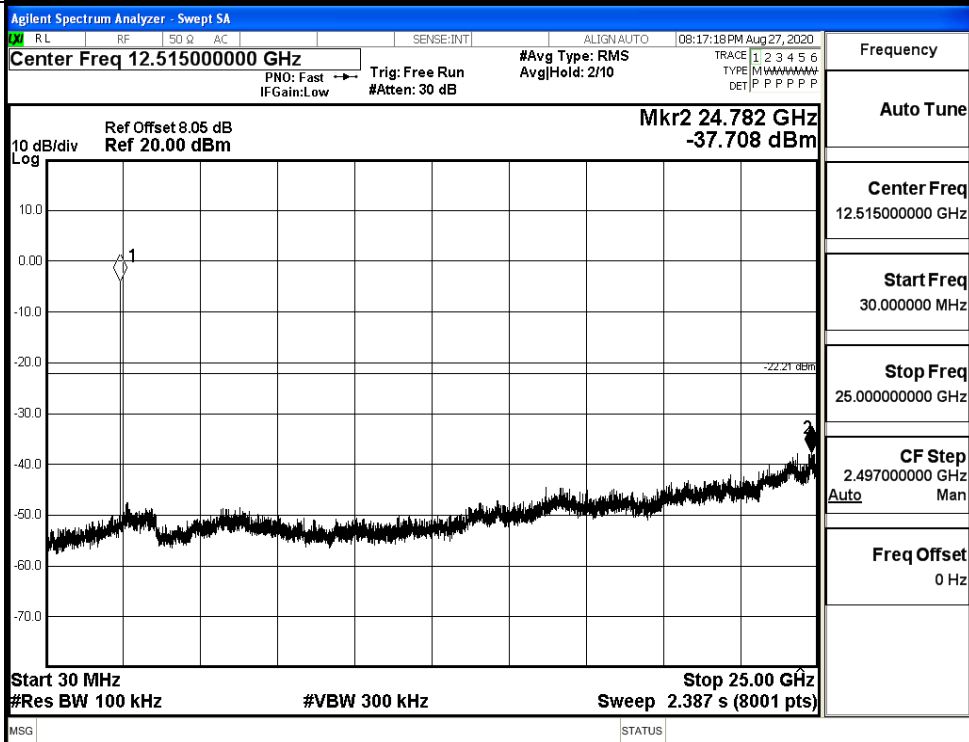


8DPSK_MCH_Graphs

Pref

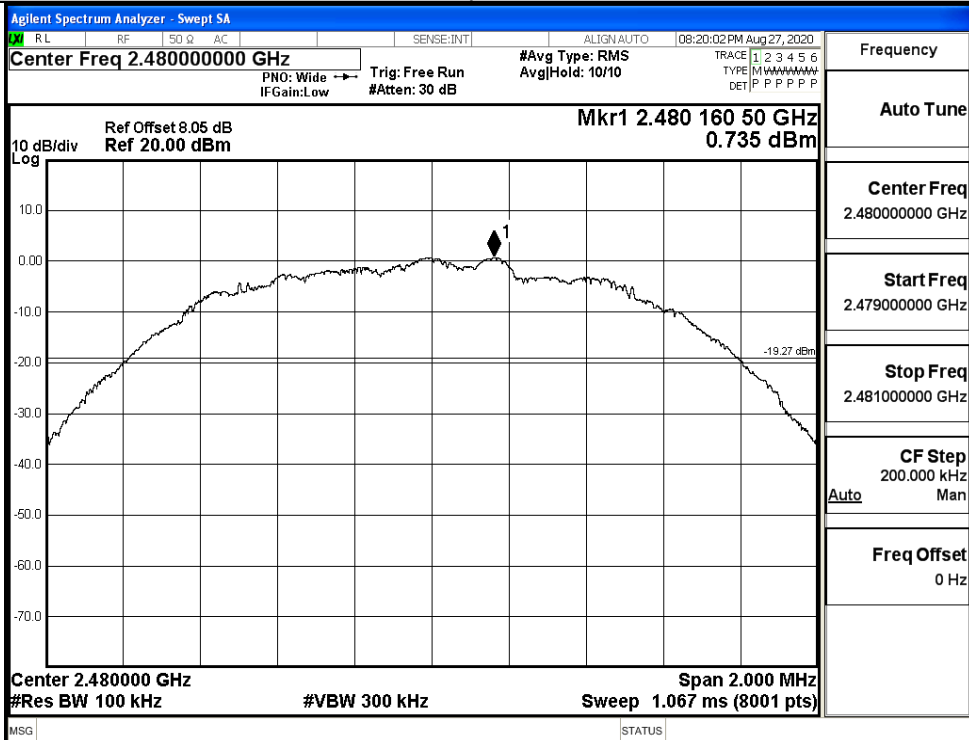


Puw

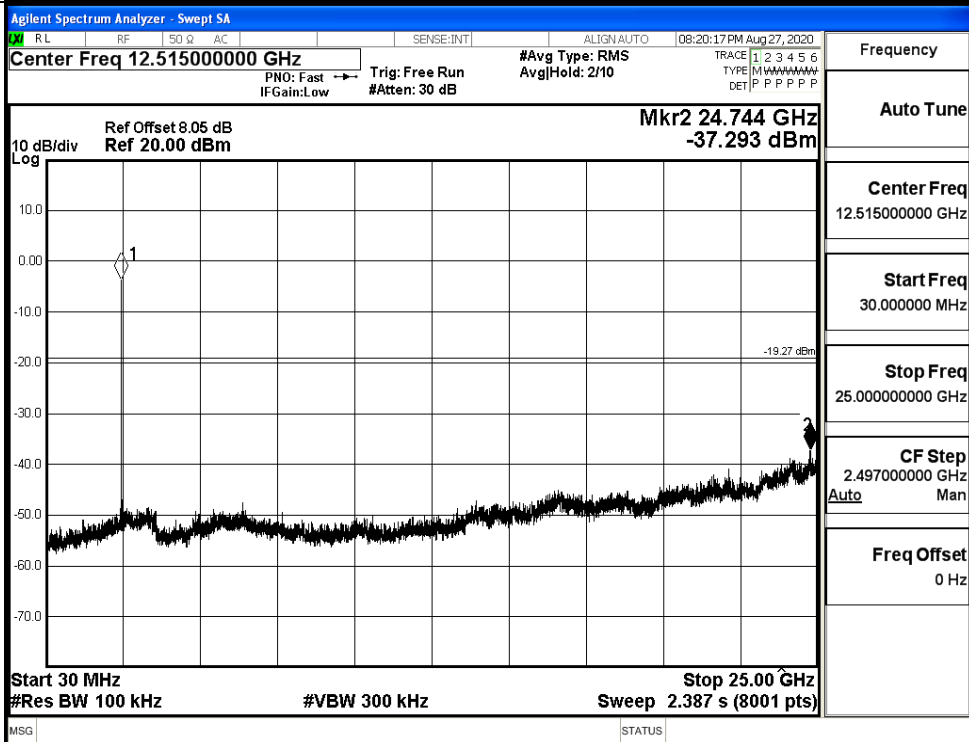


8DPSK_HCH_Graphs

Pref



Puw

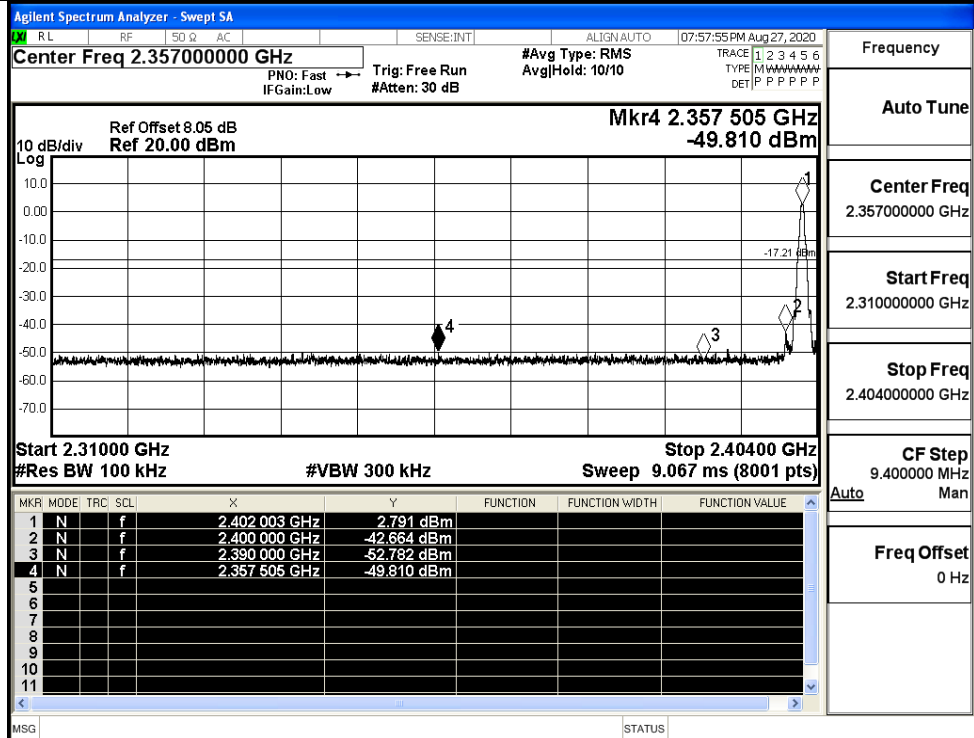


A.7 Band-edge for RF Conducted Emissions

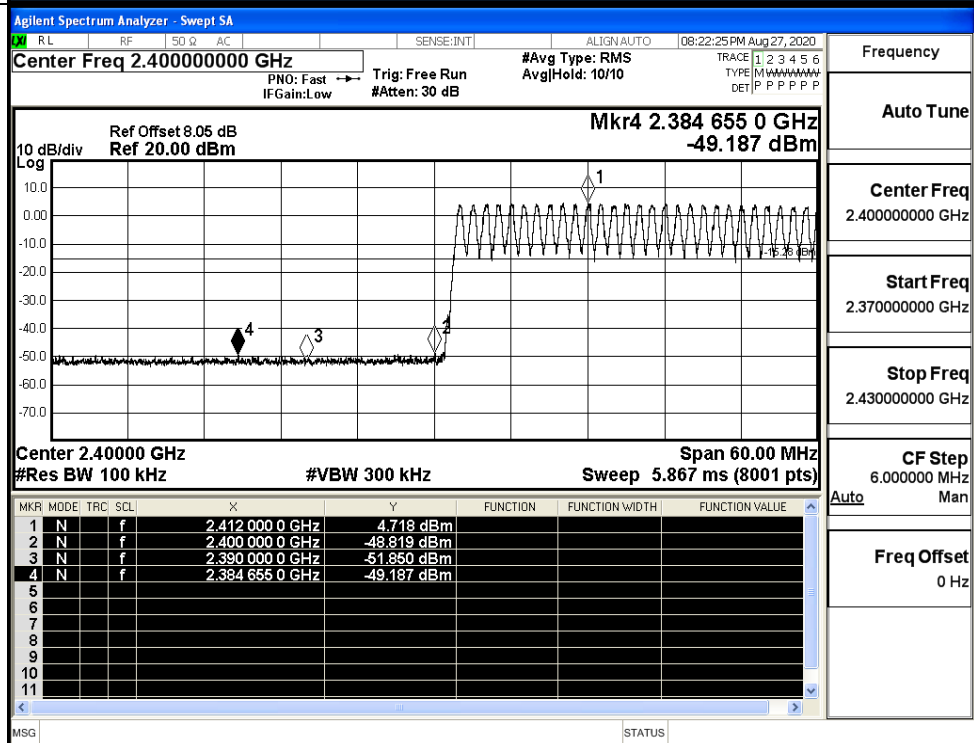
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	2.791	Off	-49.810	-17.21	PASS
			4.718	On	-49.187	-15.28	PASS
	HCH	2480	0.847	Off	-49.156	-19.15	PASS
			1.279	On	-47.678	-18.72	PASS
$\pi/4$ DQPSK	LCH	2402	-1.067	Off	-49.168	-21.07	PASS
			-1.056	On	-49.142	-21.06	PASS
	HCH	2480	-5.902	Off	-48.792	-25.9	PASS
			-4.630	On	-47.881	-24.63	PASS
8DPSK	LCH	2402	-0.455	Off	-49.219	-20.46	PASS
			4.565	On	-48.551	-15.44	PASS
	HCH	2480	0.820	Off	-48.906	-19.18	PASS
			1.514	On	-47.600	-18.49	PASS

Test Graphs

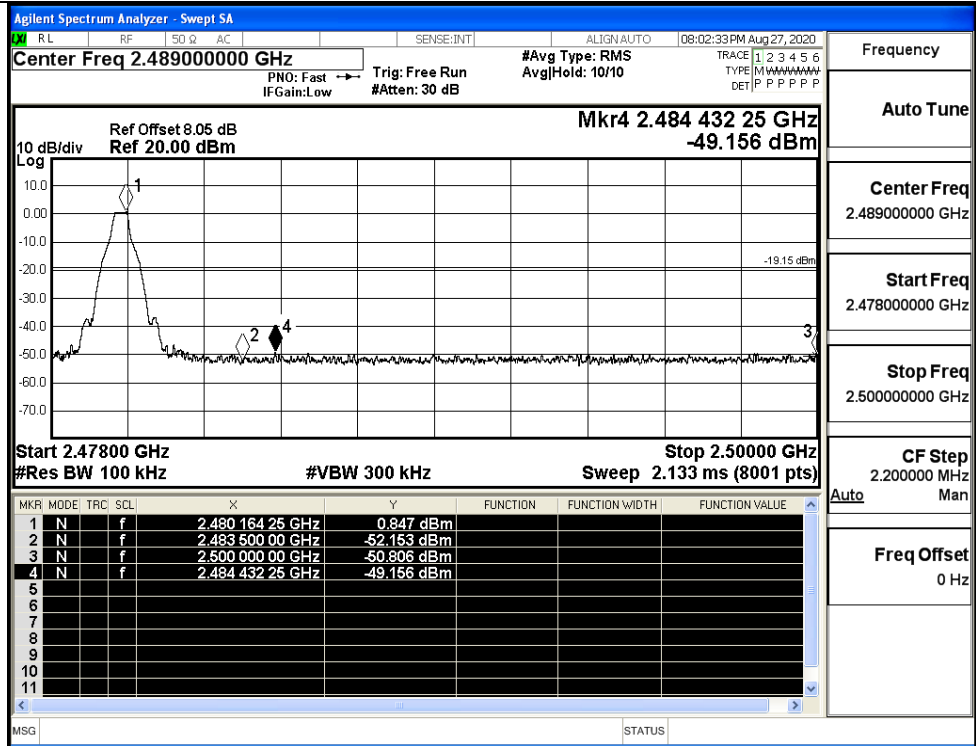
GFSK/LCH/No Hop



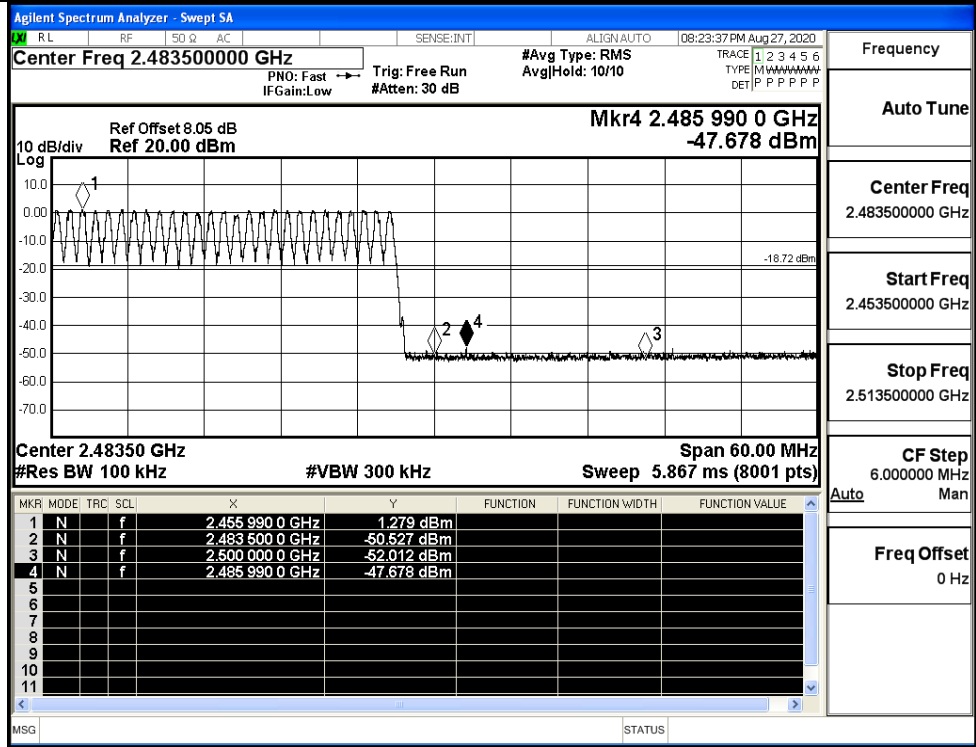
GFSK/LCH/Hop



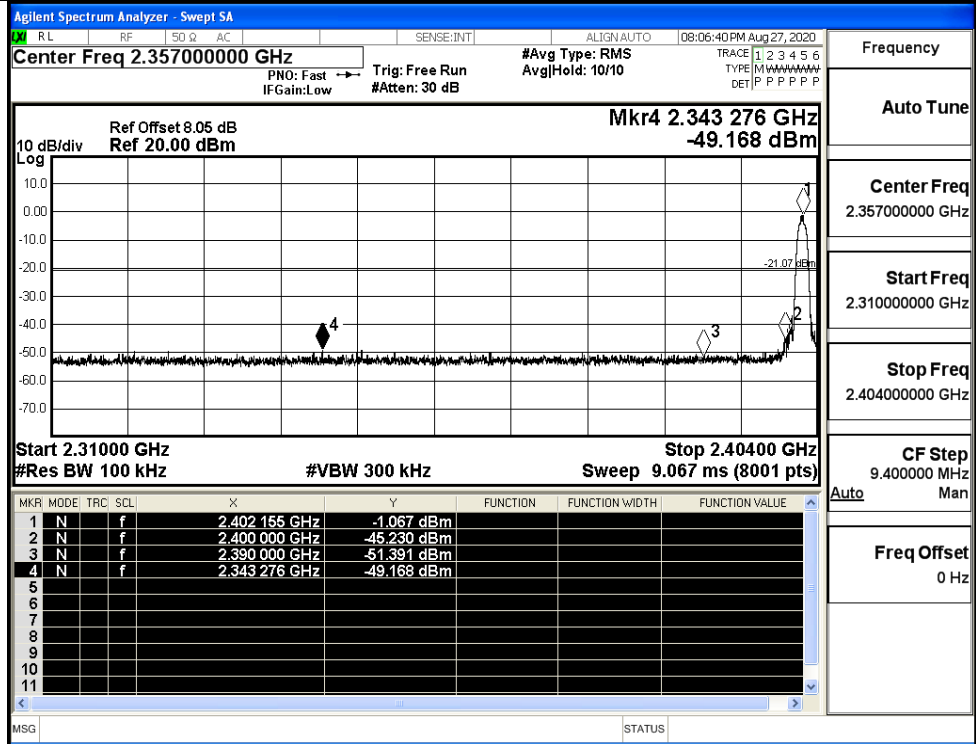
GFSK/HCH/No Hop



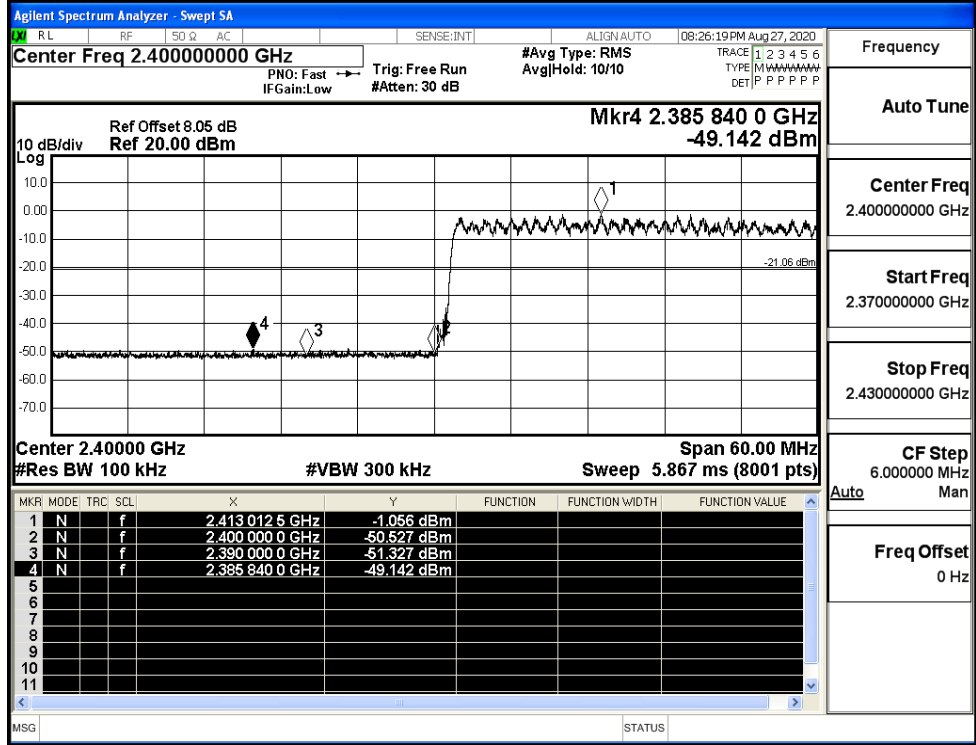
GFSK/HCH/Hop



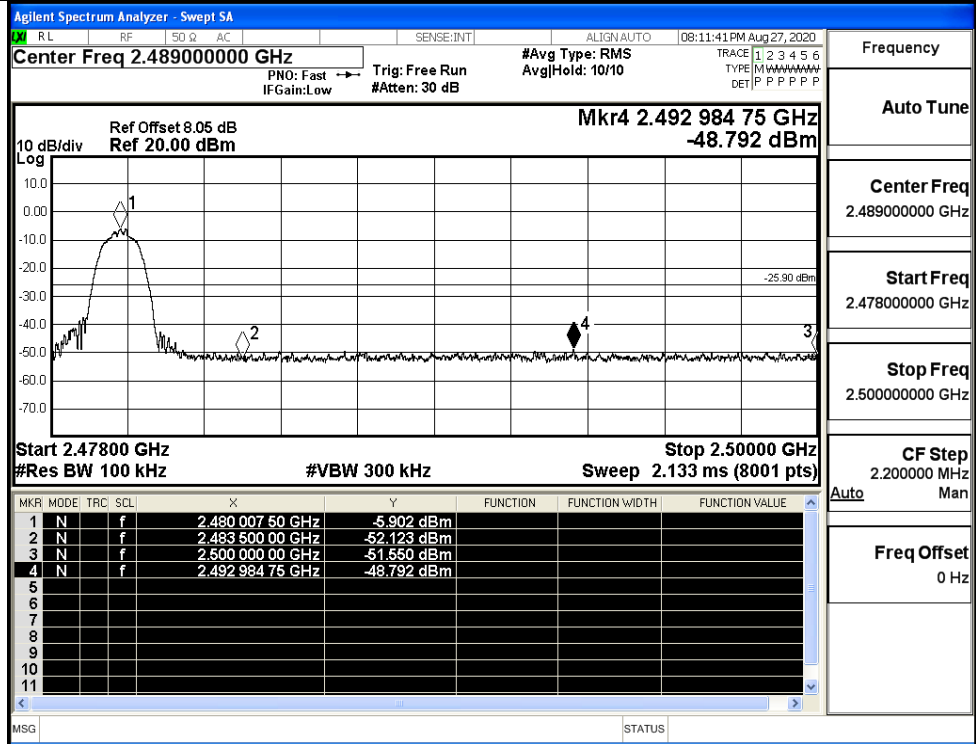
$\pi/4$ DQPSK/LCH/No Hop



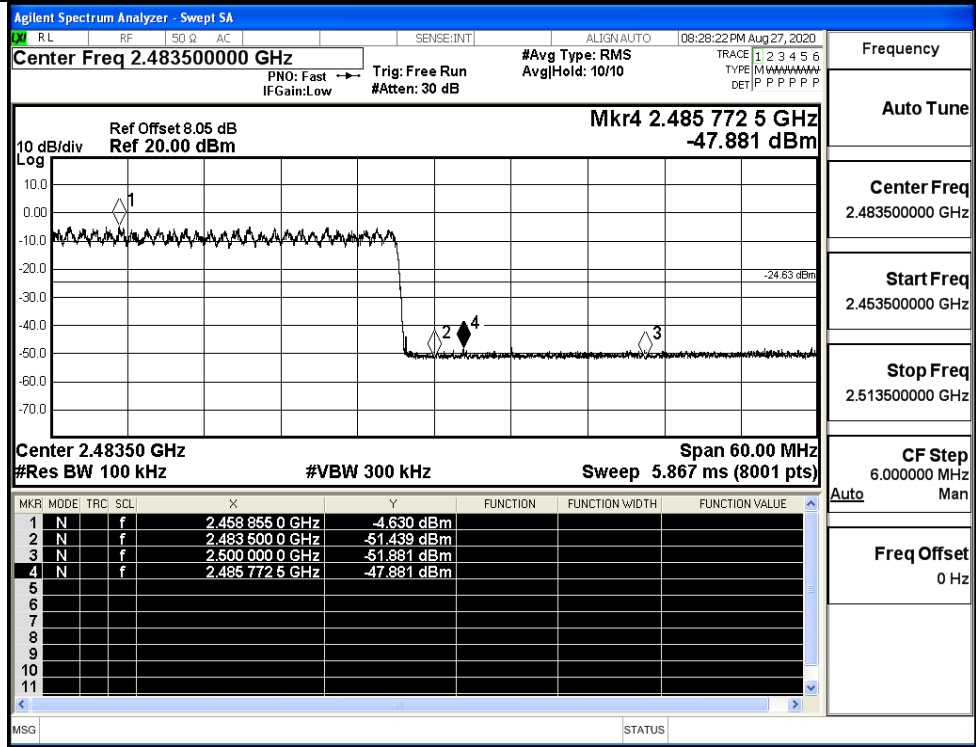
$\pi/4$ DQPSK/LCH/Hop



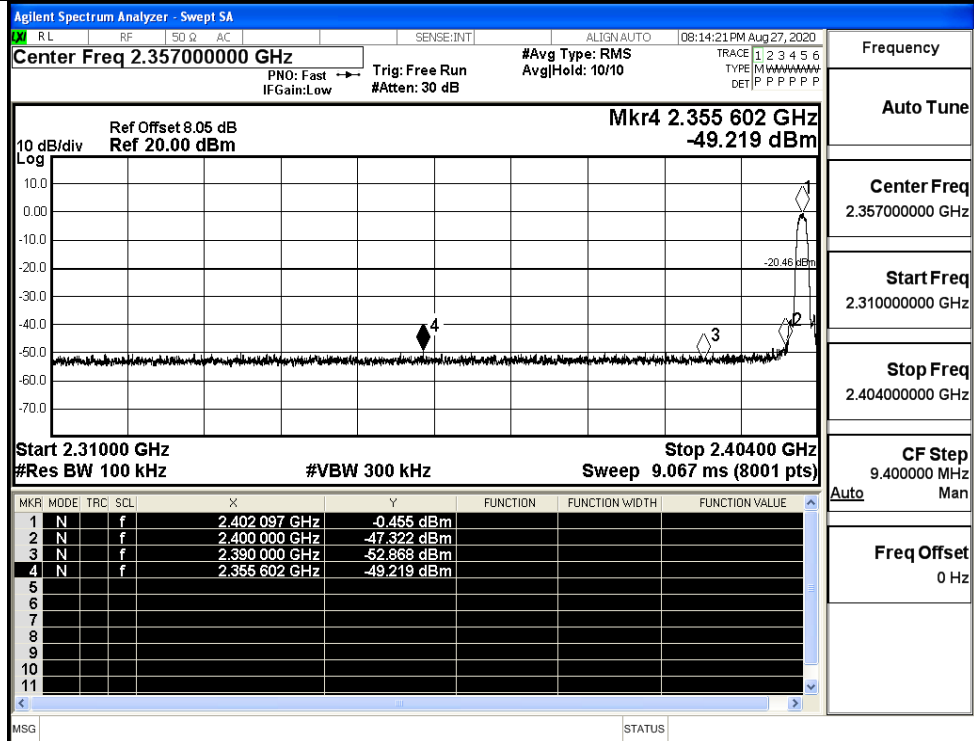
π /4DQPSK/HCH/No
Hop



π /4DQPSK/HCH/Hop

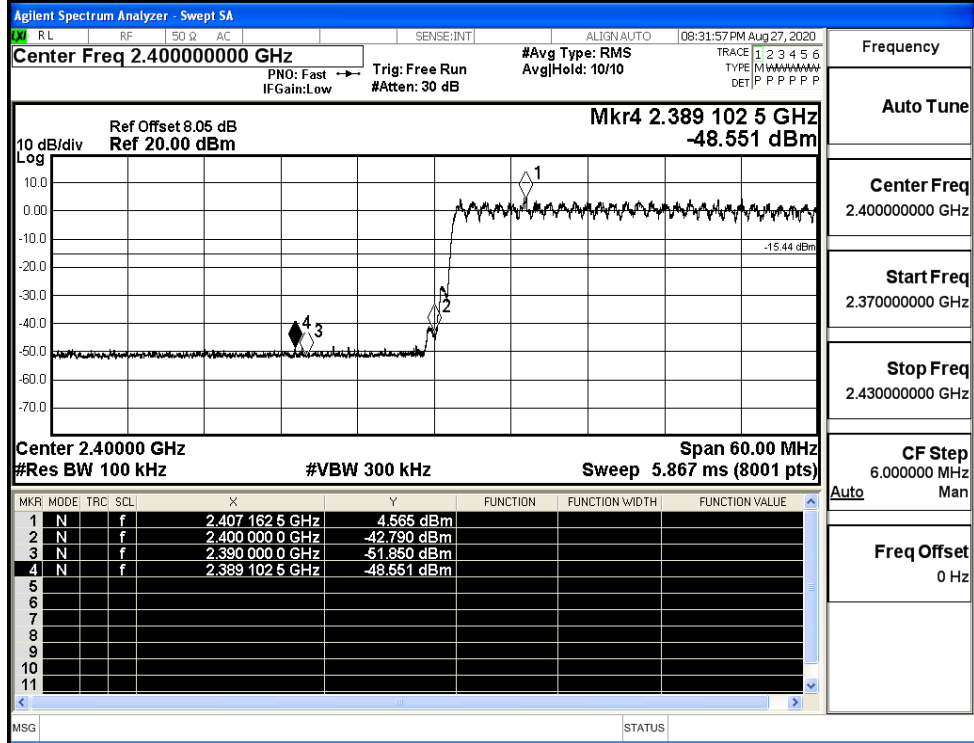


8DPSK/LCH/No Hop



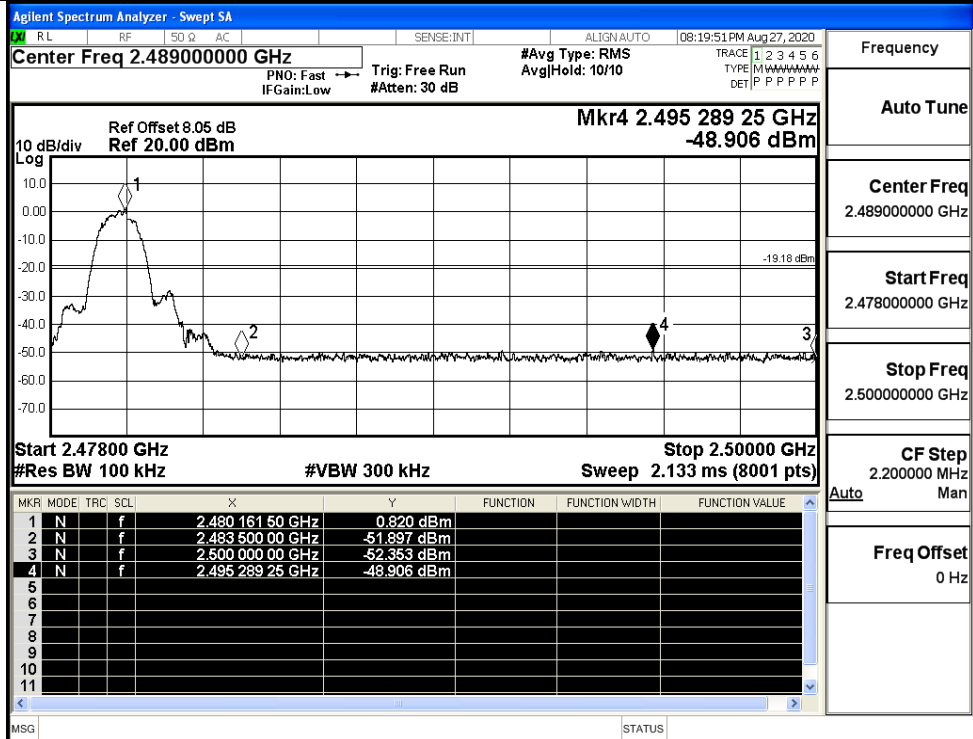
Frequency
Auto Tune
Center Freq
2.357000000 GHz
Start Freq
2.310000000 GHz
Stop Freq
2.404000000 GHz
CF Step
9.400000 MHz
Auto Man
Freq Offset
0 Hz

8DPSK/LCH/Hop



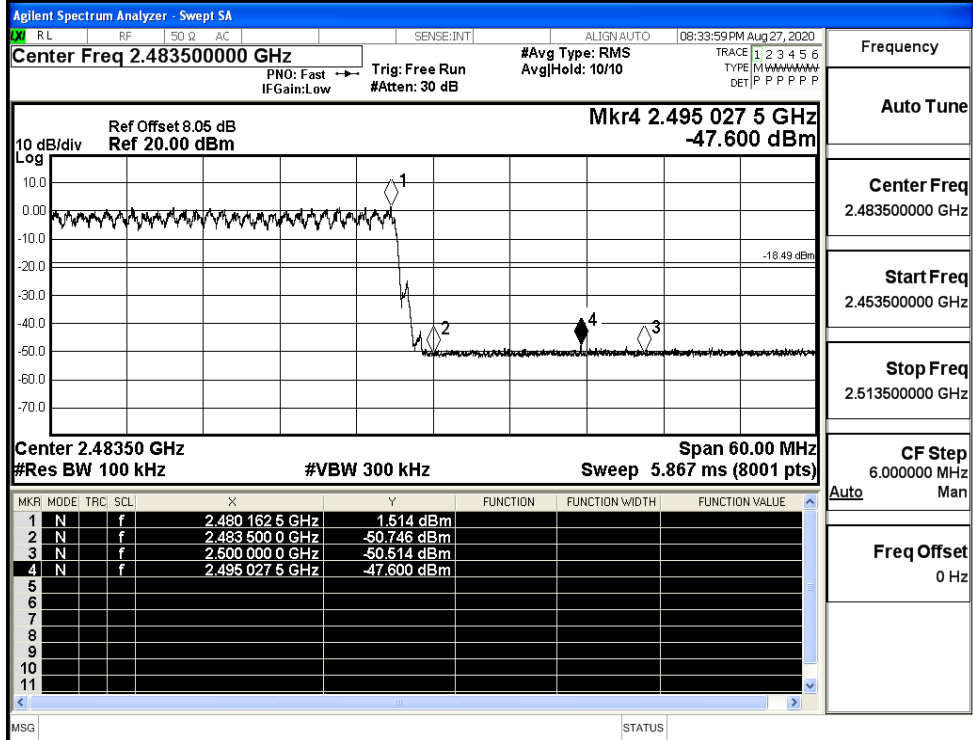
Frequency
Auto Tune
Center Freq
2.400000000 GHz
Start Freq
2.370000000 GHz
Stop Freq
2.430000000 GHz
CF Step
6.000000 MHz
Auto Man
Freq Offset
0 Hz

8DPSK/HCH/No Hop



Frequency	2.489000000 GHz
Auto Tune	
Center Freq	2.489000000 GHz
Start Freq	2.478000000 GHz
Stop Freq	2.500000000 GHz
CF Step	2.200000 MHz
Freq Offset	0 Hz

8DPSK/HCH/Hop

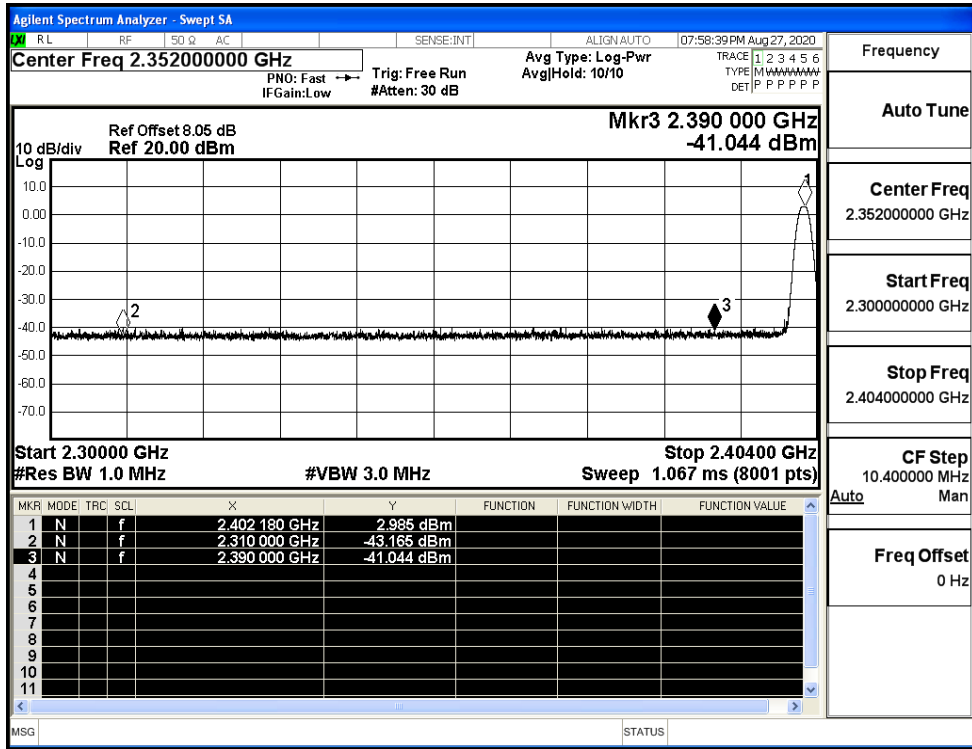


Frequency	2.483500000 GHz
Auto Tune	
Center Freq	2.483500000 GHz
Start Freq	2.453500000 GHz
Stop Freq	2.513500000 GHz
CF Step	6.000000 MHz
Freq Offset	0 Hz

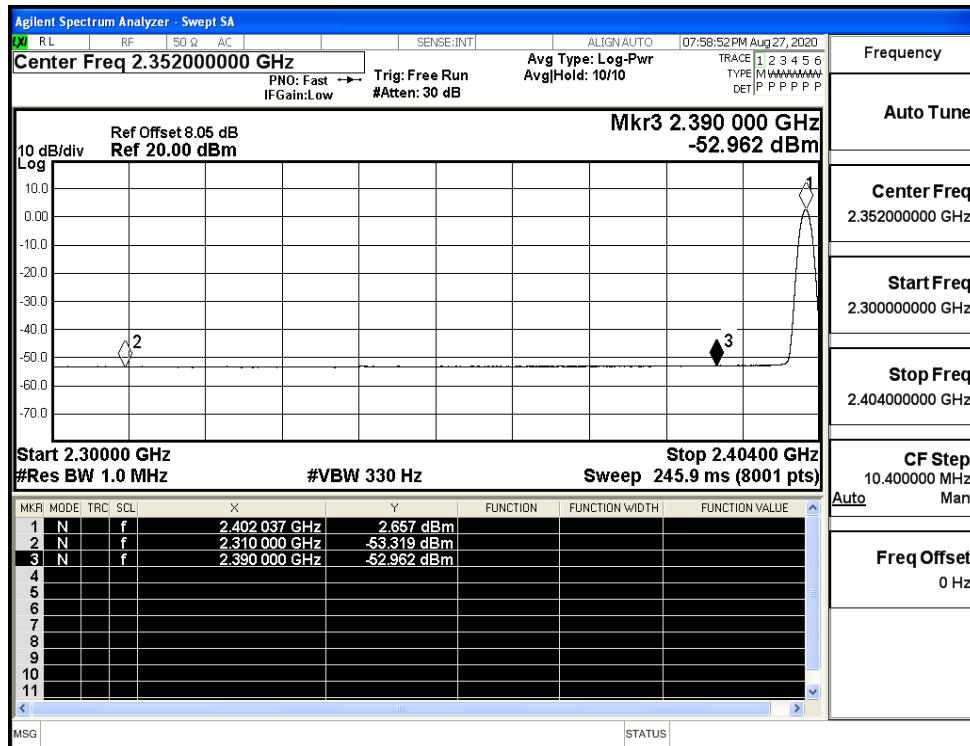
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.17	6.0	0	58.06	PEAK	74	PASS
	Off	2310.0	-53.32	6.0	0	47.91	AV	54	PASS
	Off	2390.0	-41.04	6.0	0	60.19	PEAK	74	PASS
	Off	2390.0	-52.96	6.0	0	48.27	AV	54	PASS
	Off	2483.5	-40.82	6.0	0	60.41	PEAK	74	PASS
	Off	2483.5	-52.21	6.0	0	49.02	AV	54	PASS
	Off	2500.0	-40.77	6.0	0	60.46	PEAK	74	PASS
	Off	2500.0	-52.29	6.0	0	48.94	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-41.10	6.0	0	60.13	PEAK	74	PASS
	Off	2310.0	-53.30	6.0	0	47.93	AV	54	PASS
	Off	2390.0	-43.22	6.0	0	58.01	PEAK	74	PASS
	Off	2390.0	-52.83	6.0	0	48.40	AV	54	PASS
	Off	2483.5	-42.48	6.0	0	58.75	PEAK	74	PASS
	Off	2483.5	-52.25	6.0	0	48.98	AV	54	PASS
	Off	2500.0	-41.90	6.0	0	59.33	PEAK	74	PASS
	Off	2500.0	-52.29	6.0	0	48.94	AV	54	PASS
8DPSK	Off	2310.0	-41.85	6.0	0	59.38	PEAK	74	PASS
	Off	2310.0	-53.32	6.0	0	47.91	AV	54	PASS
	Off	2390.0	-40.85	6.0	0	60.38	PEAK	74	PASS
	Off	2390.0	-52.82	6.0	0	48.41	AV	54	PASS
	Off	2483.5	-41.48	6.0	0	59.75	PEAK	74	PASS
	Off	2483.5	-51.46	6.0	0	49.77	AV	54	PASS
	Off	2500.0	-42.82	6.0	0	58.41	PEAK	74	PASS
	Off	2500.0	-52.12	6.0	0	49.11	AV	54	PASS

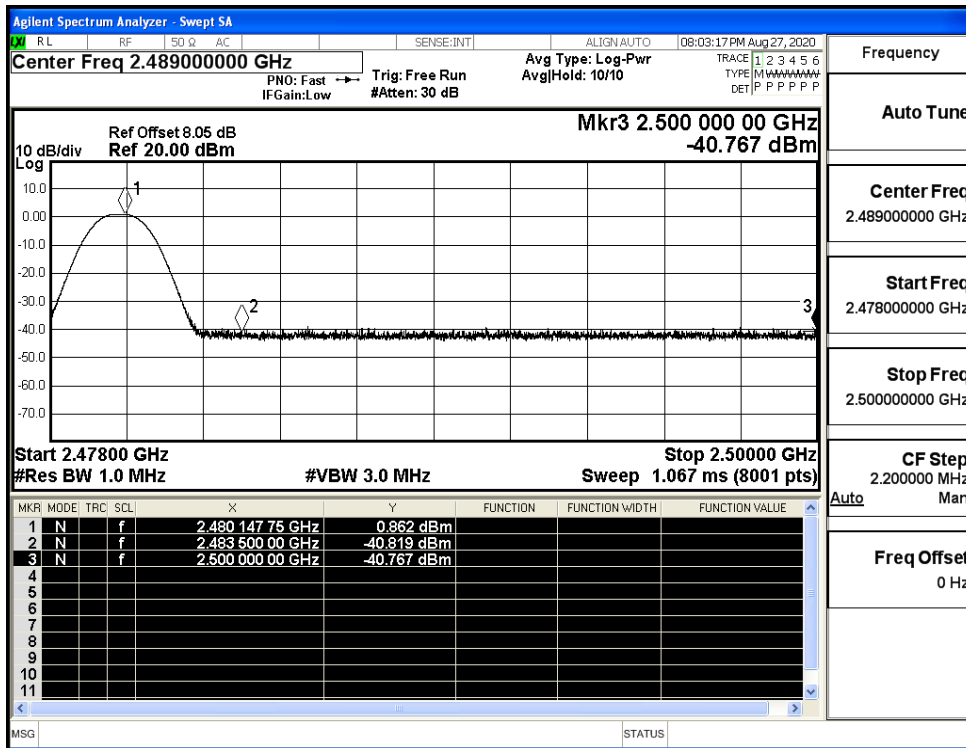
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



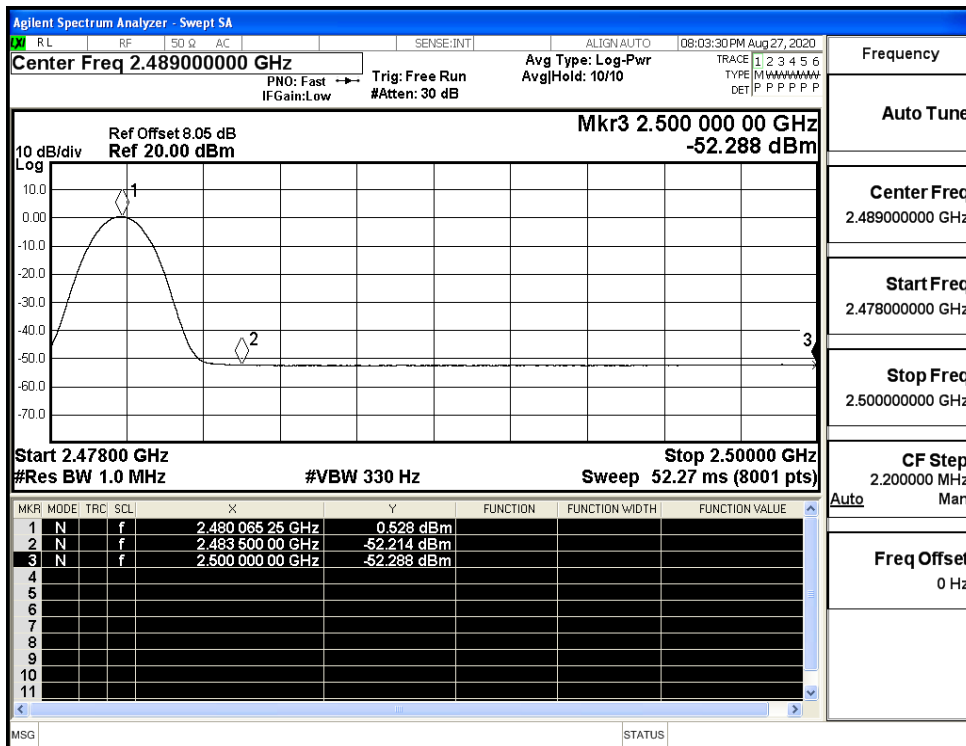
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



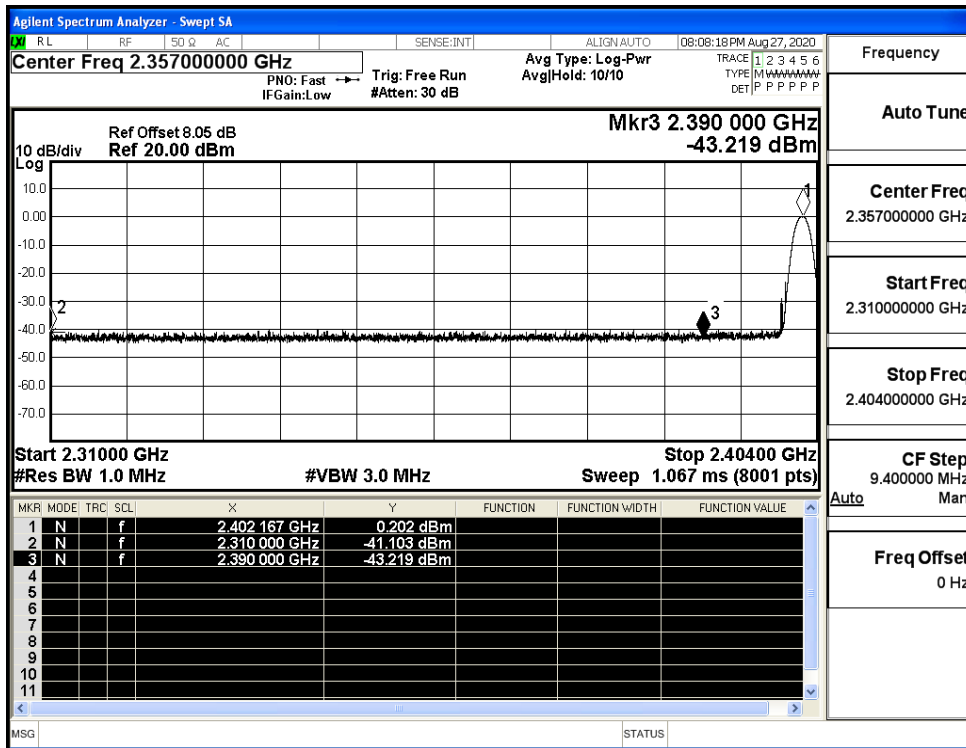
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



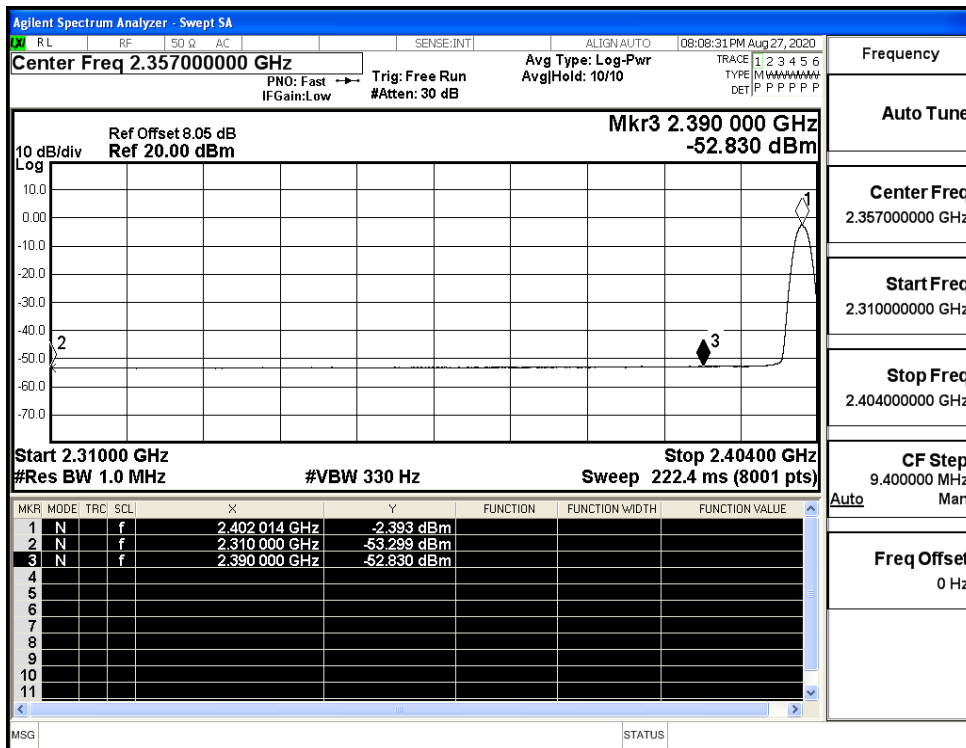
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



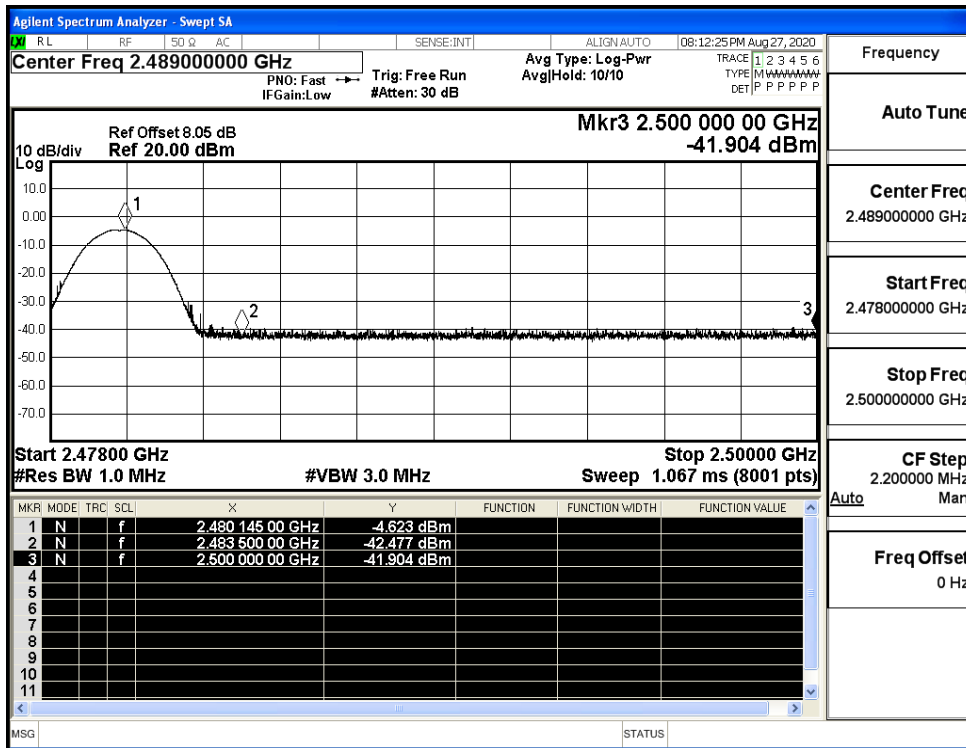
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)



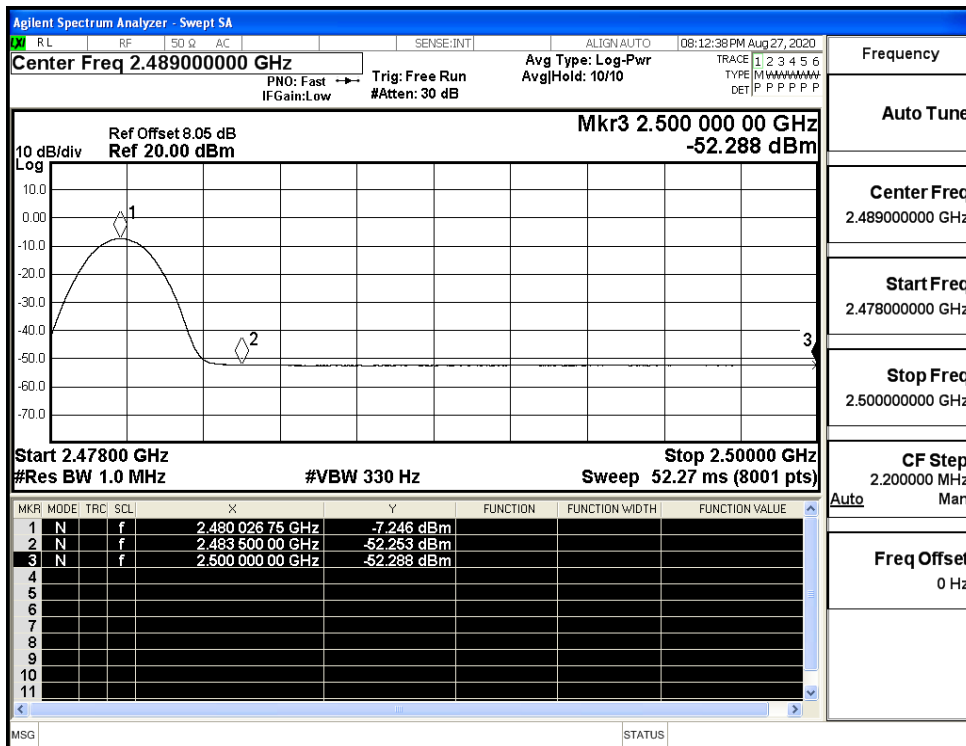
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)



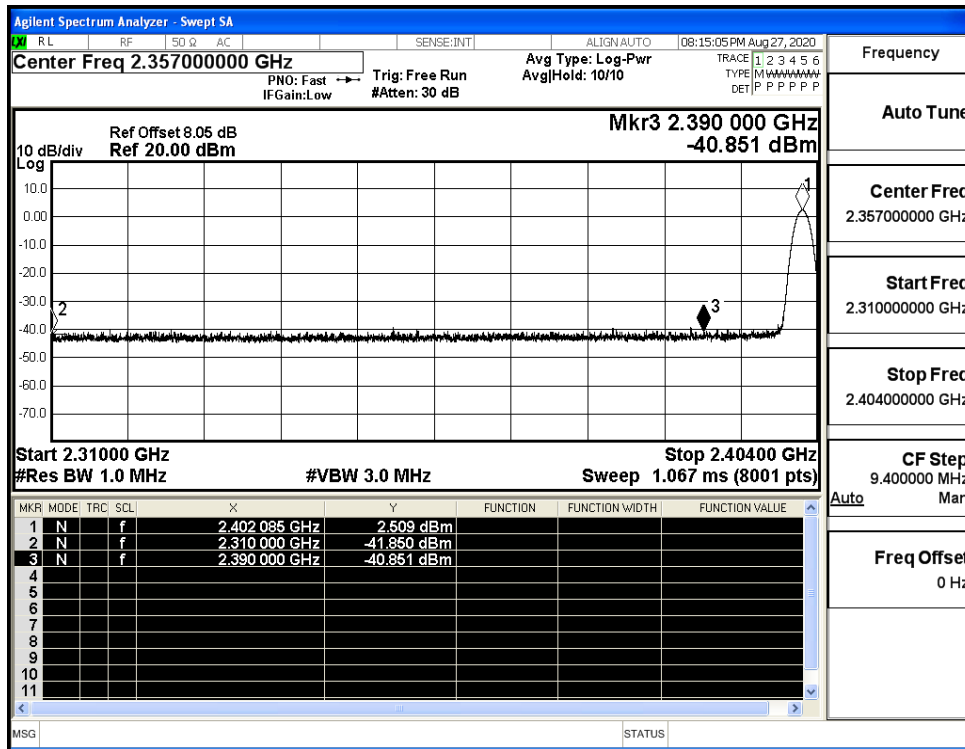
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



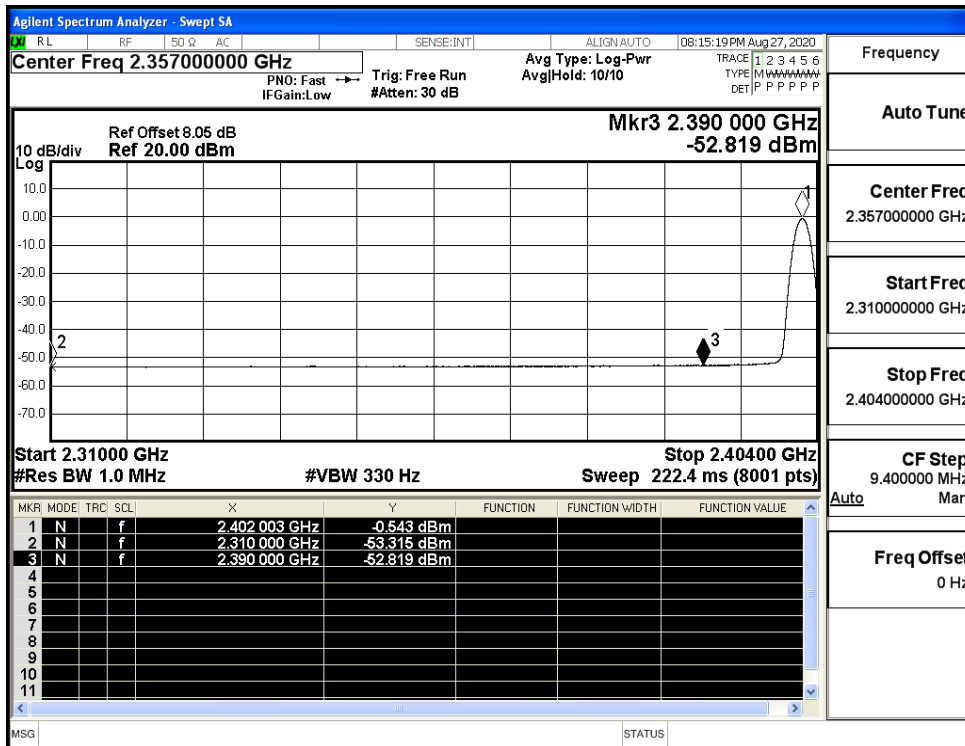
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



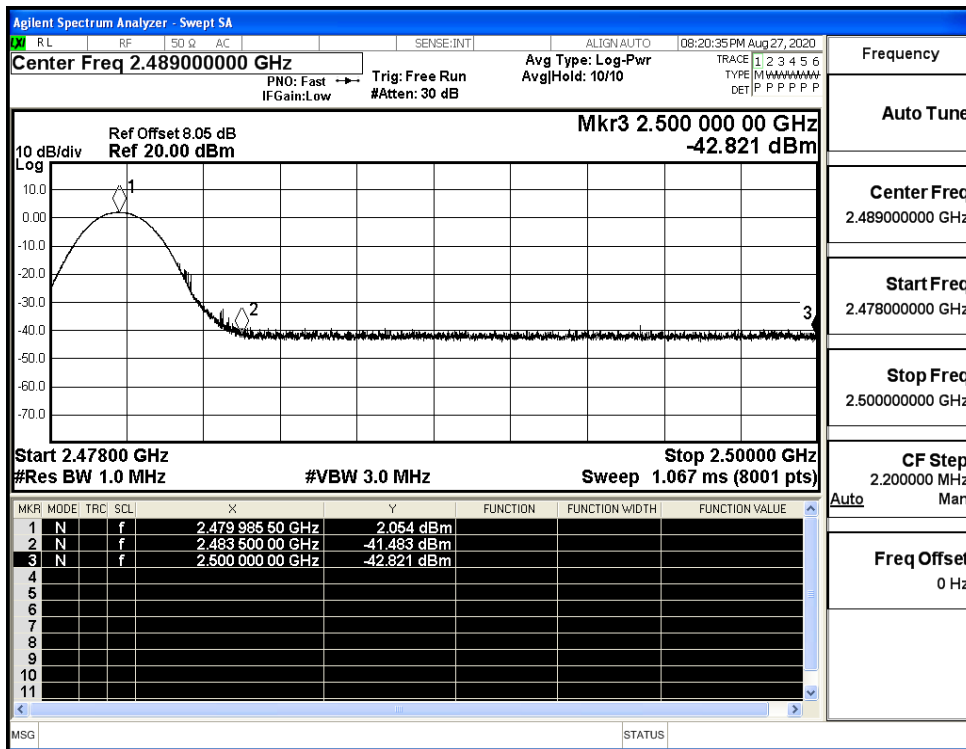
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

