

Appendix A

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

Product Name: PureBoom Headphones

Trade Mark: PureGear

Test Model: 09292PG

Environmental Conditions

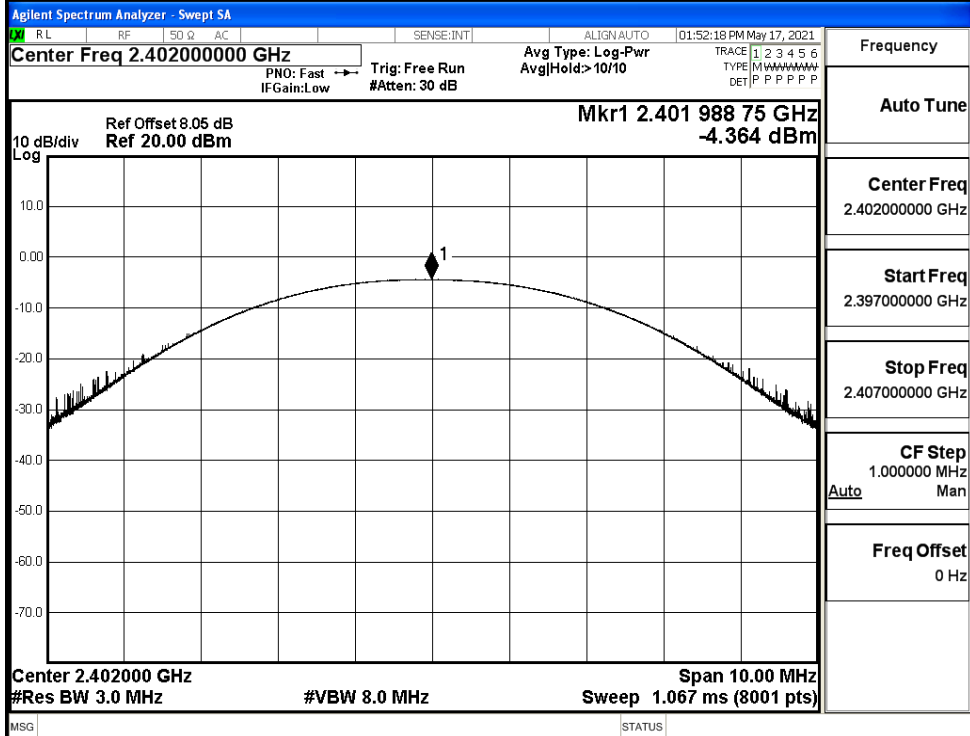
Temperature:	22.1° C
Relative Humidity:	53.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Li
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

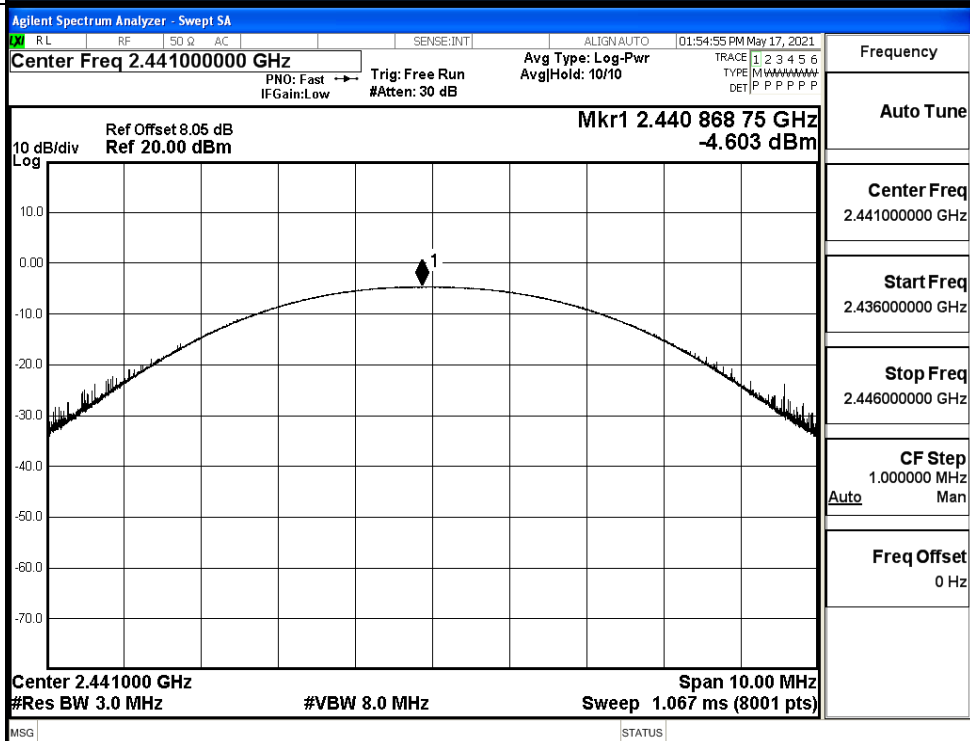
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-4.364	21	PASS
	MCH	-4.603	21	PASS
	HCH	-5.099	21	PASS
$\pi/4$ DQPSK	LCH	-3.036	21	PASS
	MCH	-3.359	21	PASS
	HCH	-3.922	21	PASS

Test Graphs

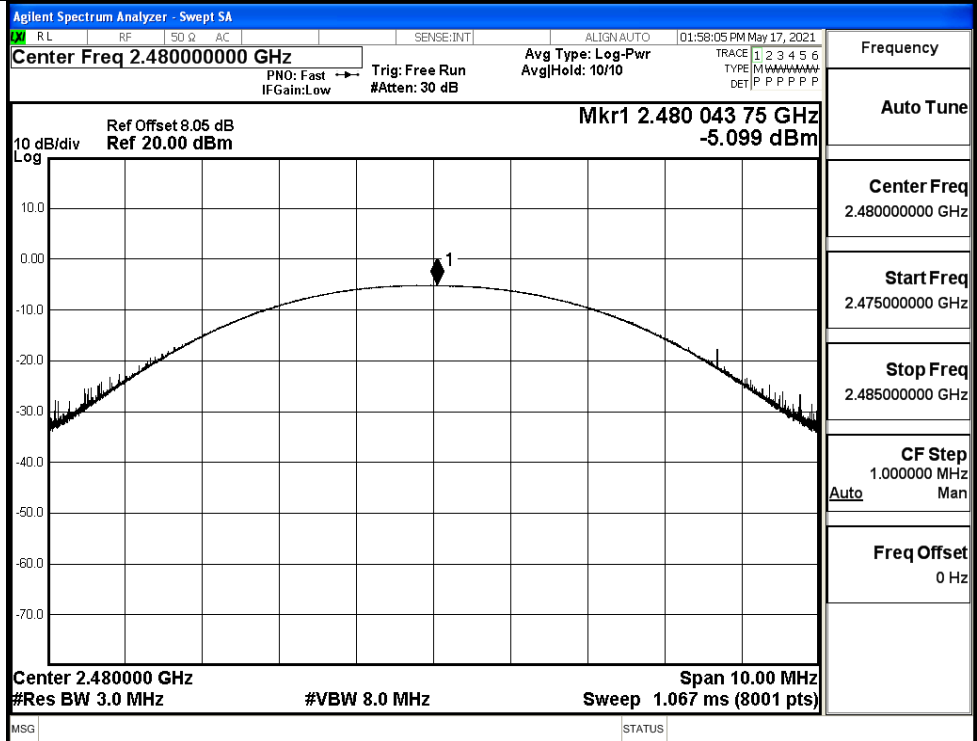
GFSK/LCH



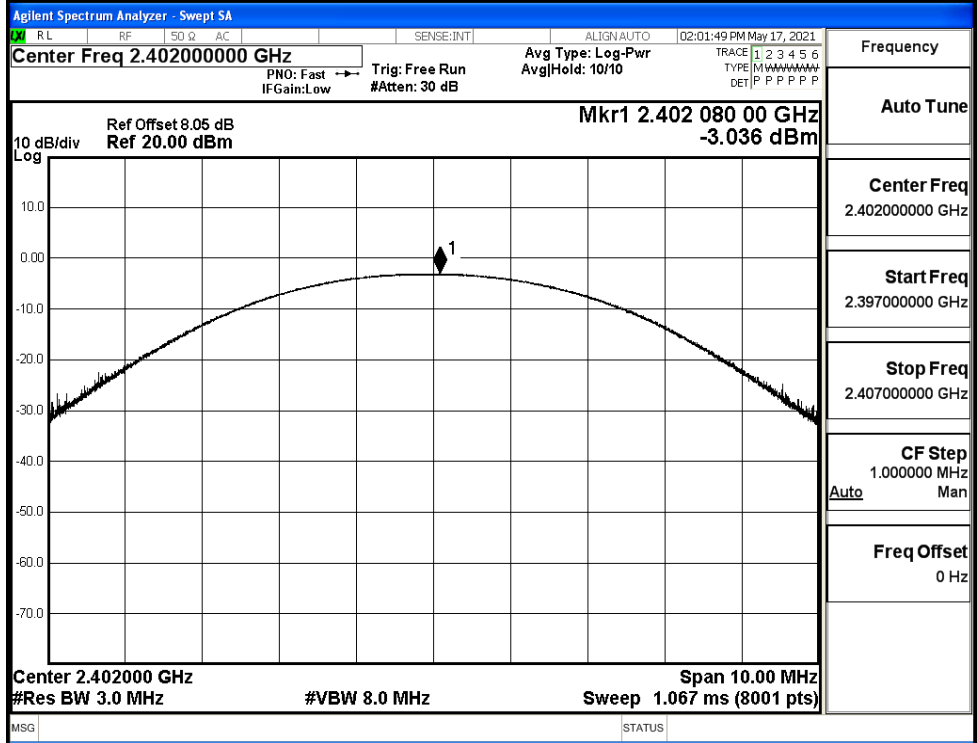
GFSK/MCH

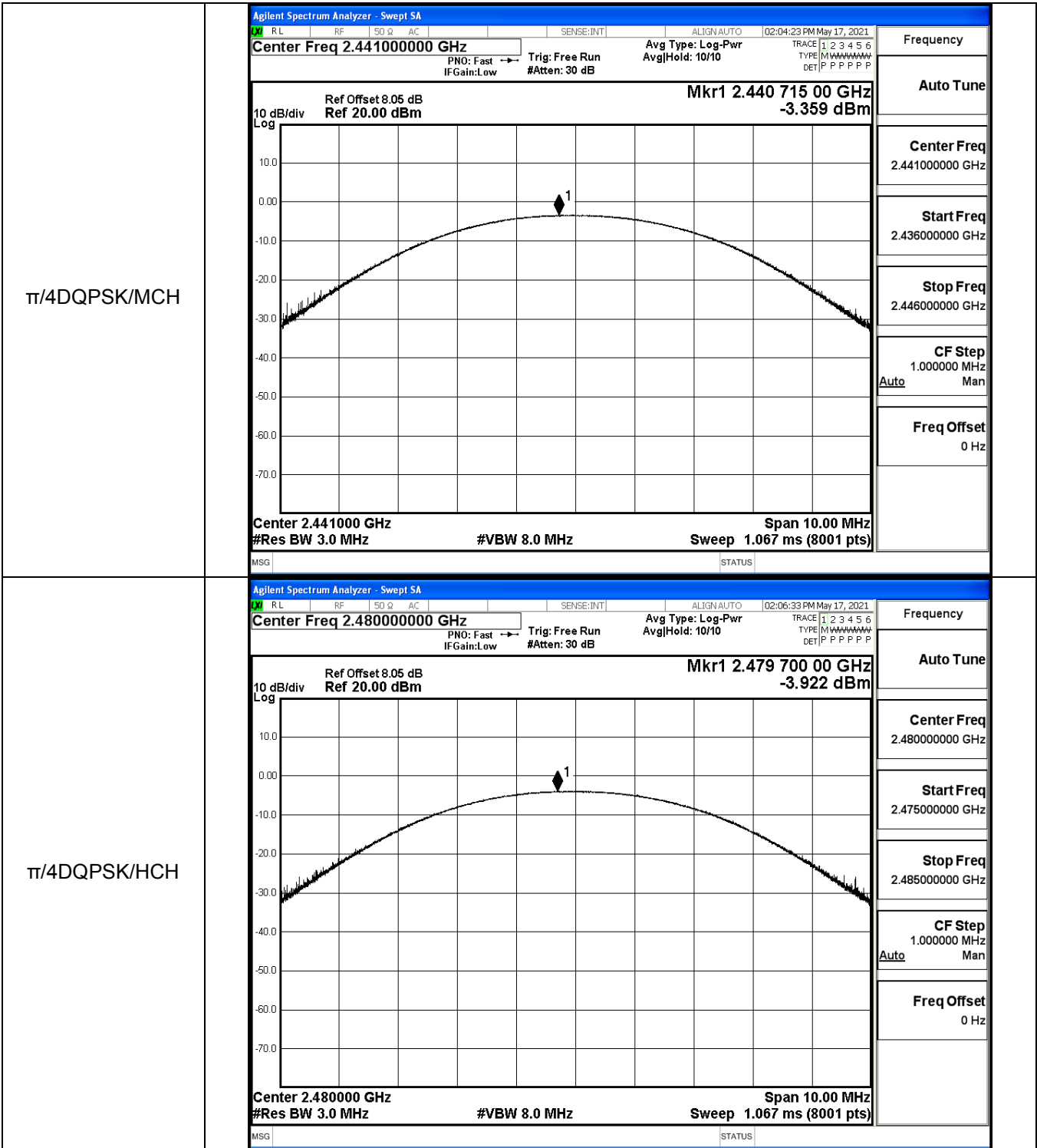


GFSK/HCH



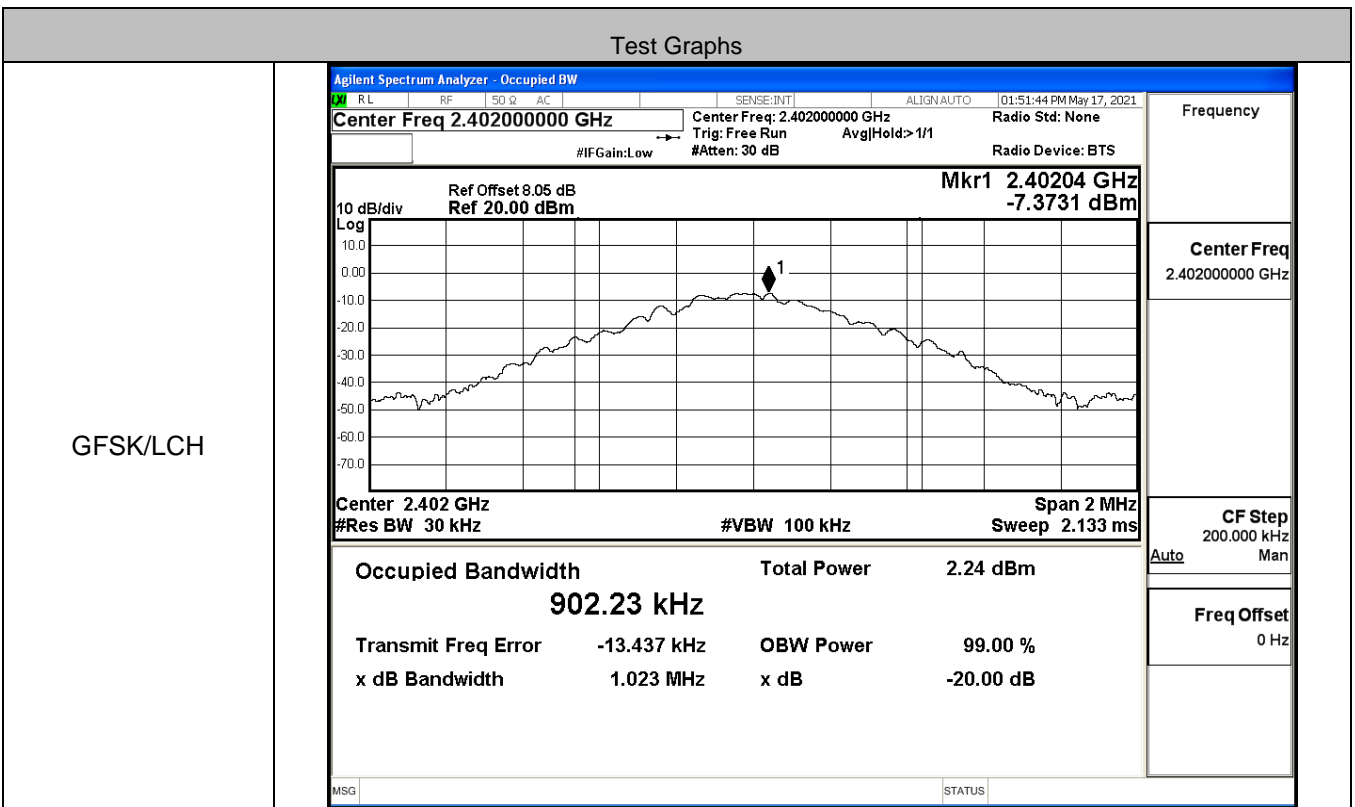
π /4DQPSK/LCH



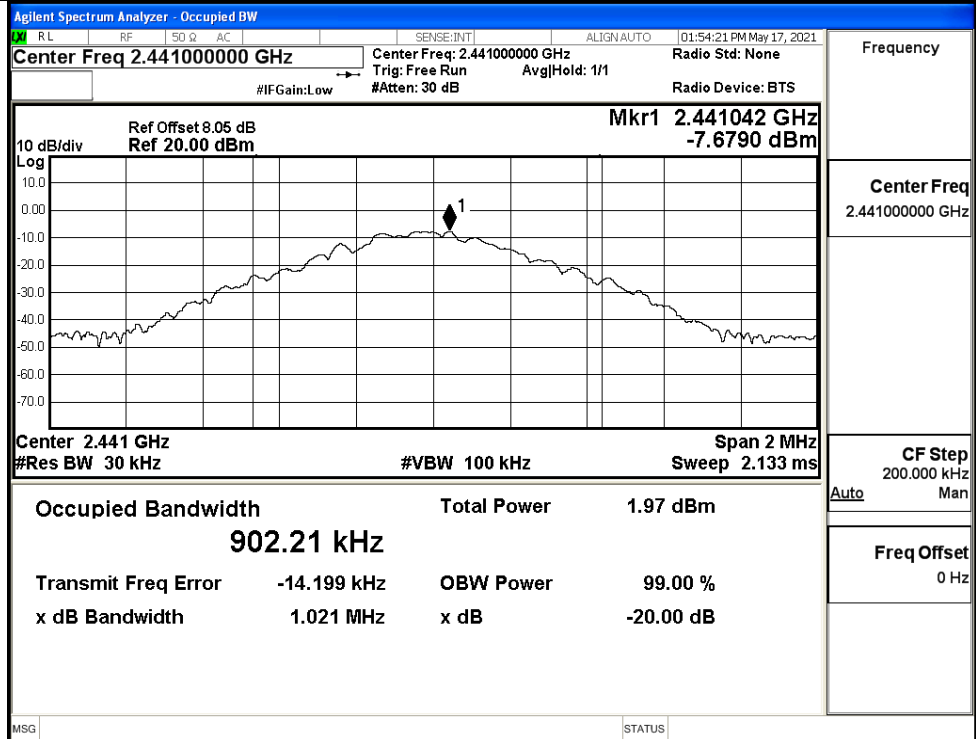


A.2 20dB Bandwidth

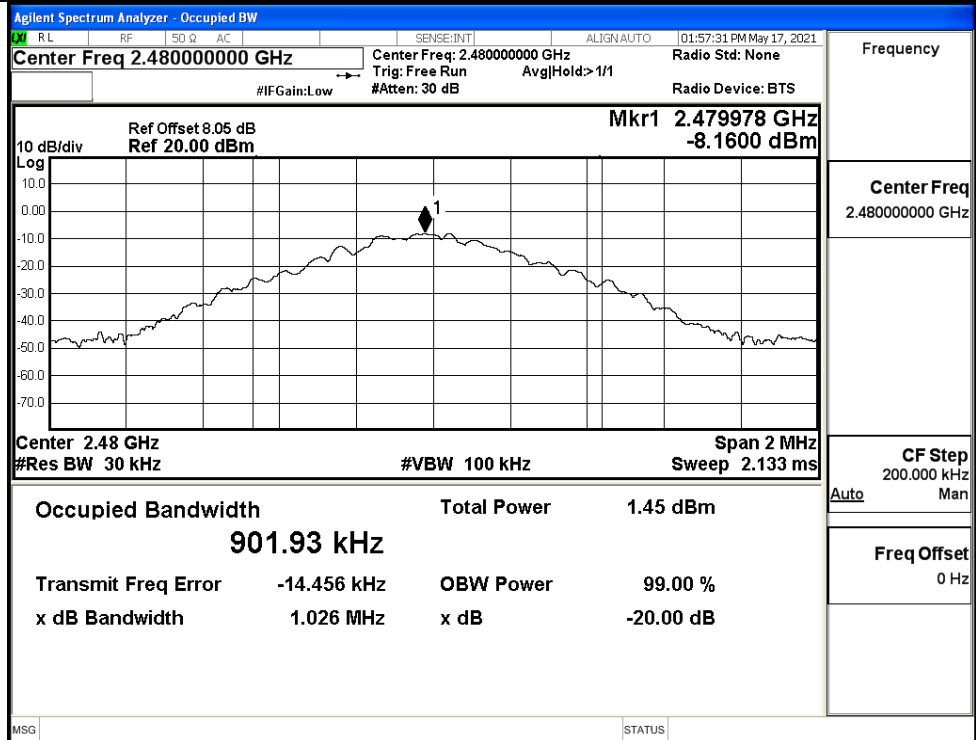
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.023	Not Specified	PASS
	MCH	1.021	Not Specified	PASS
	HCH	1.026	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.385	Not Specified	PASS
	MCH	1.385	Not Specified	PASS
	HCH	1.387	Not Specified	PASS



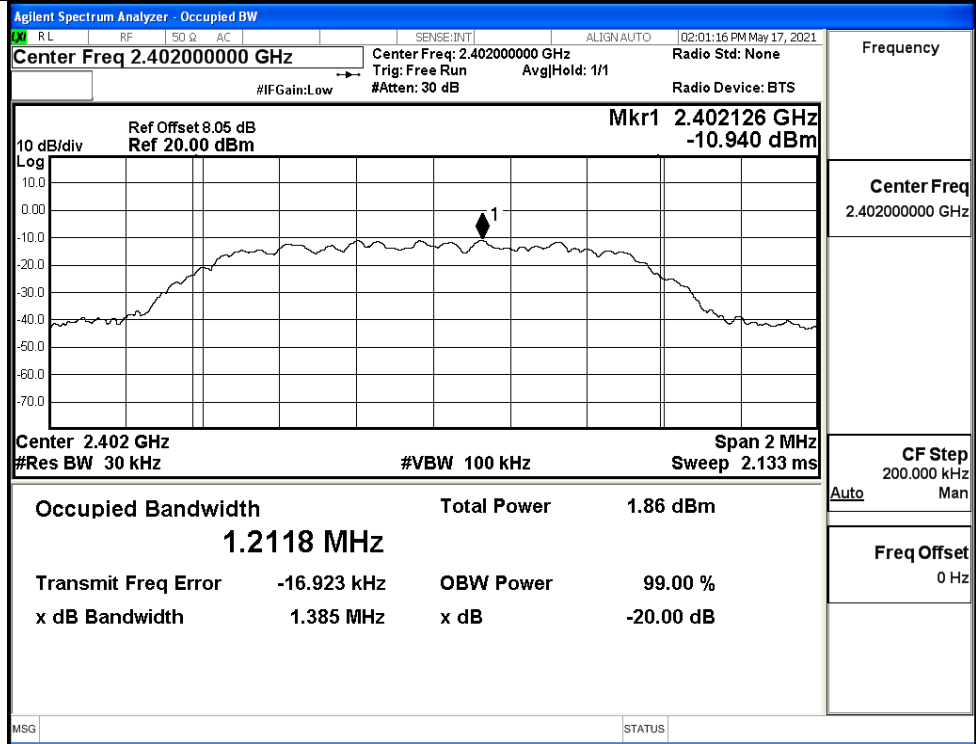
GFSK/MCH



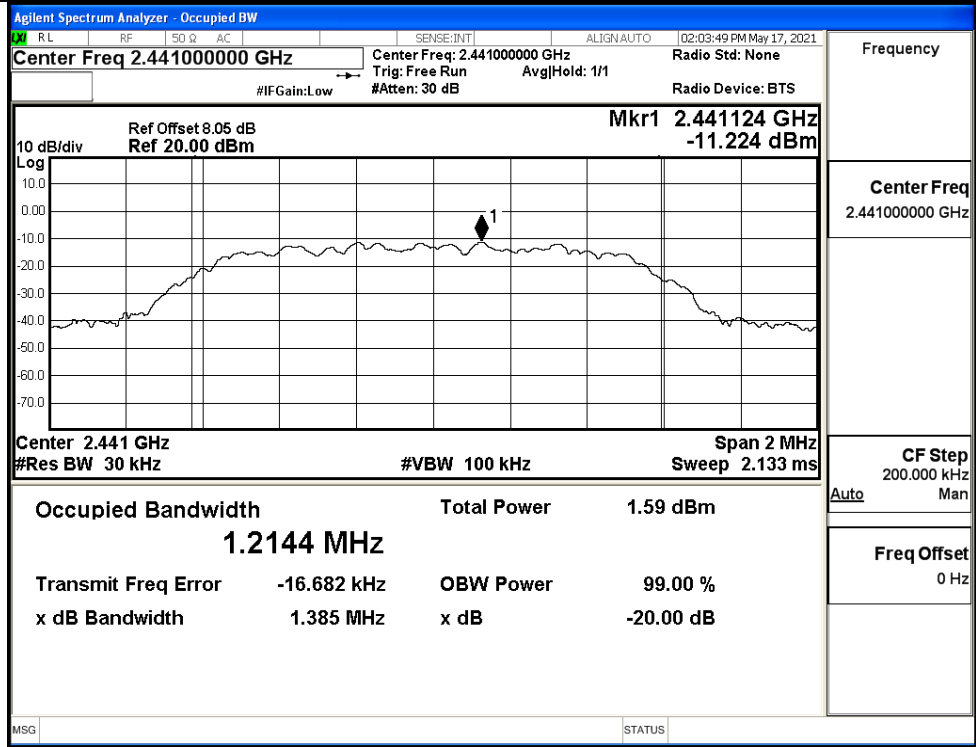
GFSK/HCH



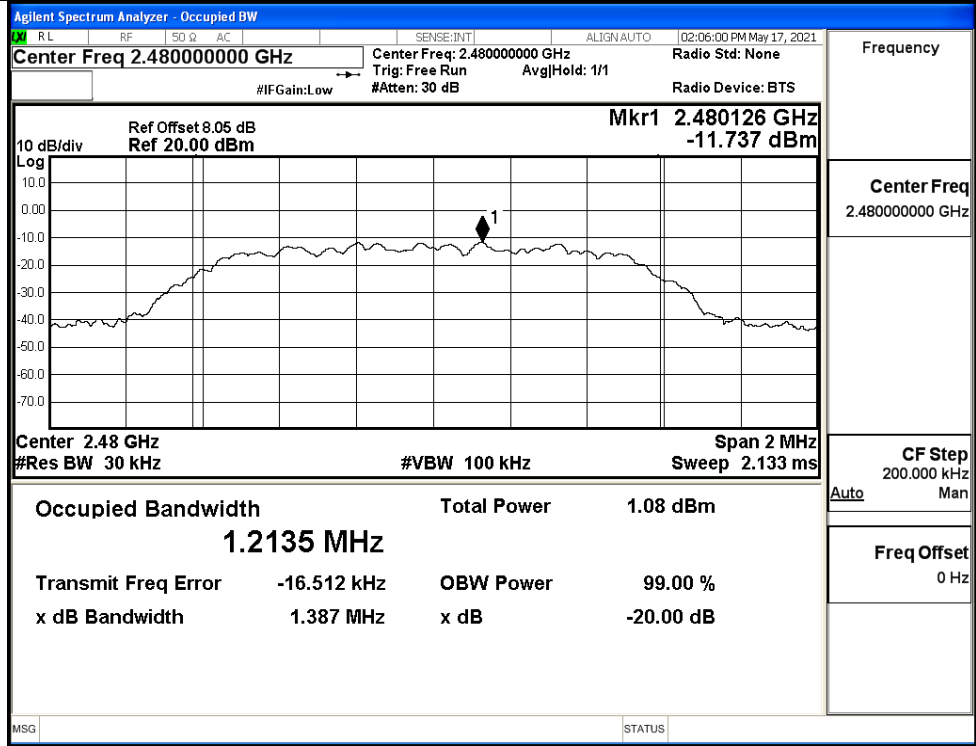
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH

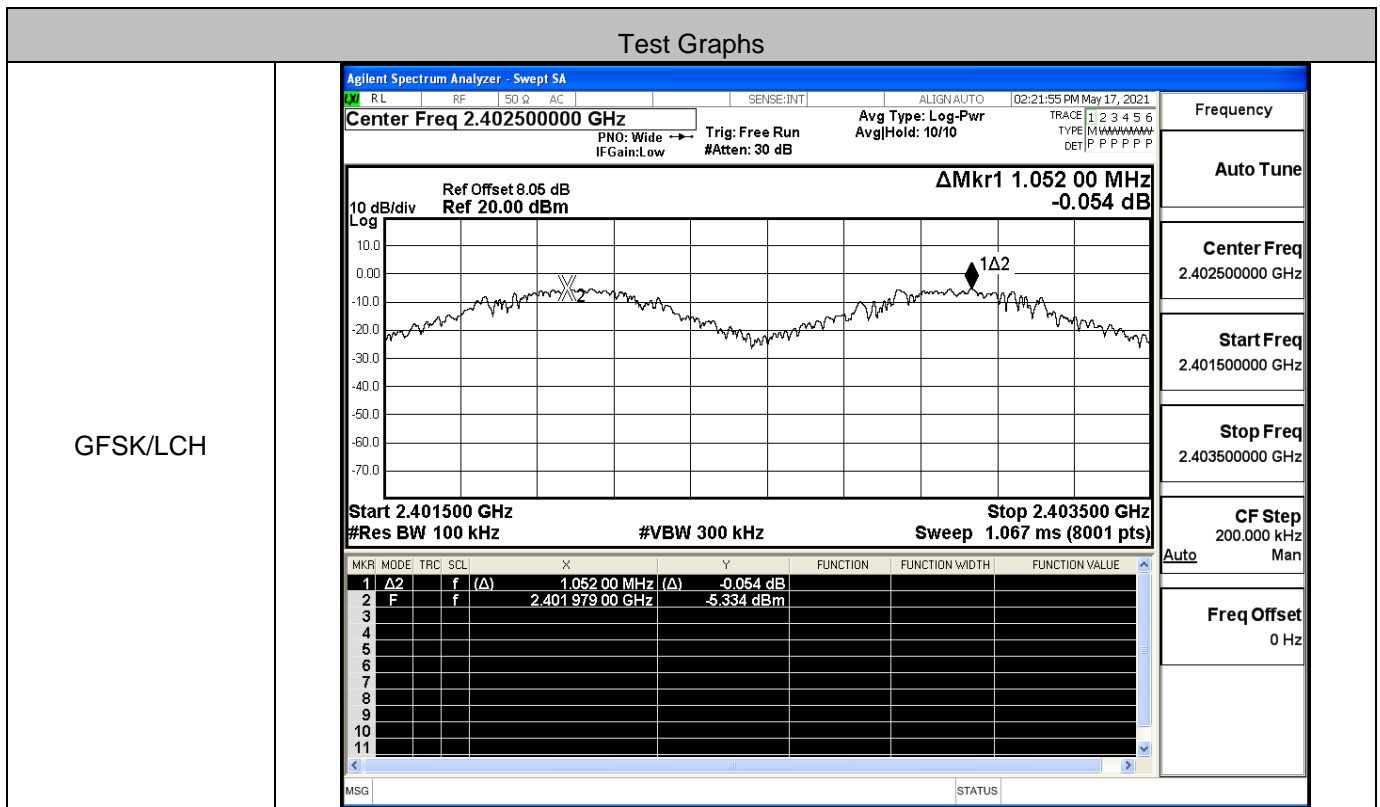


$\pi/4$ DQPSK/HCH

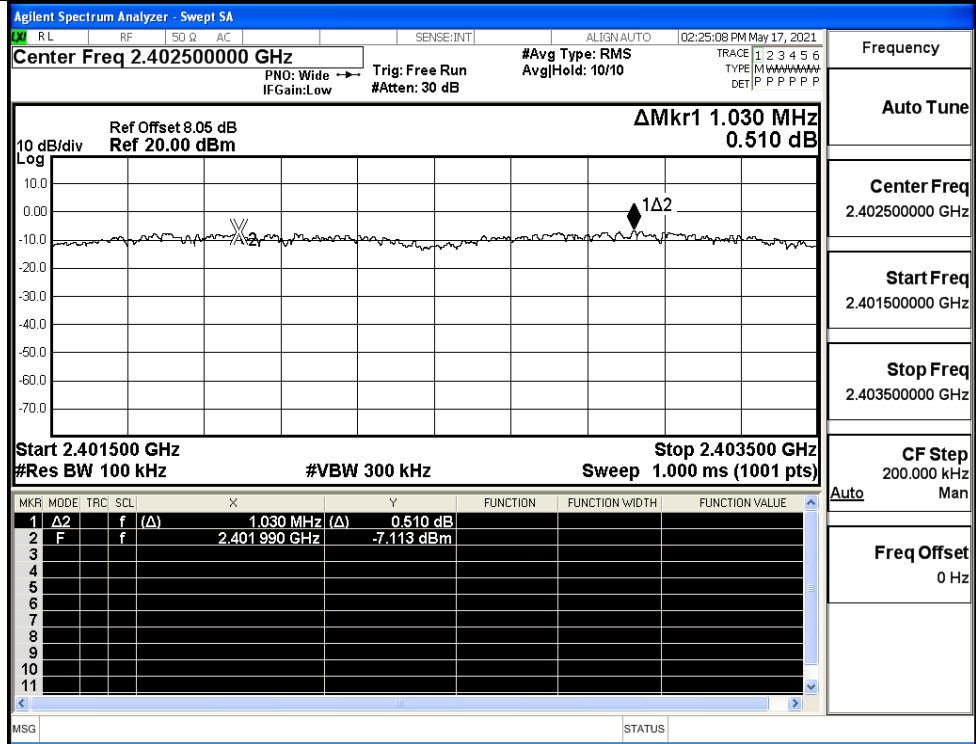


A.3 Carrier Frequency Separation

Mode	Channel	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.052	0.684	PASS
	MCH	0.992	0.684	PASS
	HCH	0.948	0.684	PASS
π/4DQPSK	LCH	1.030	0.925	PASS
	MCH	1.012	0.925	PASS
	HCH	0.994	0.925	PASS

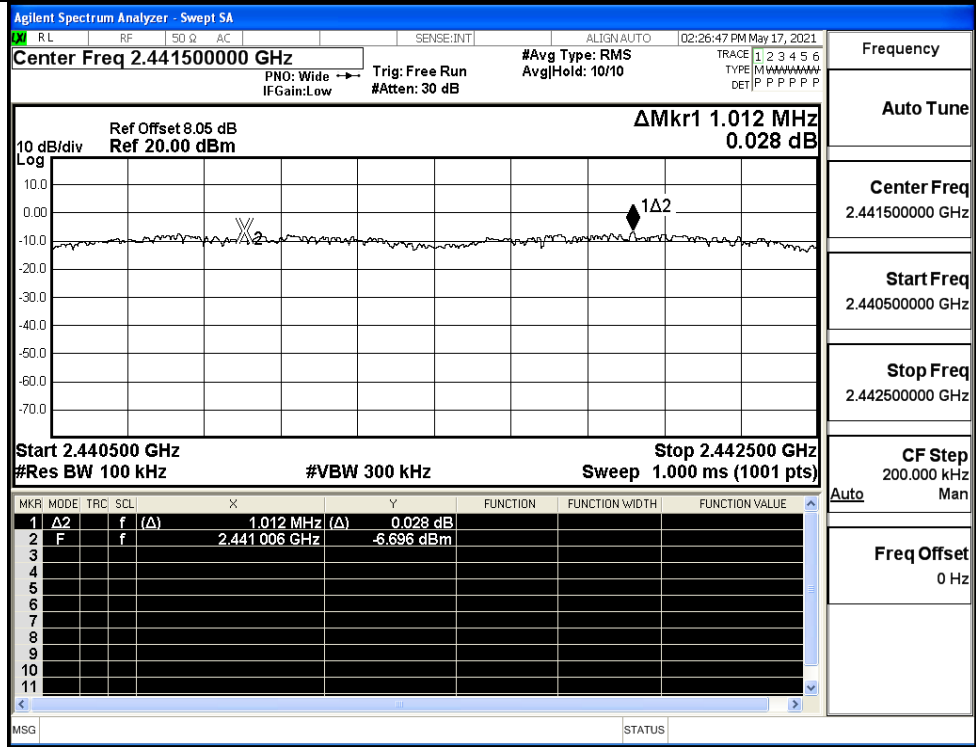


$\pi/4$ DQPSK/LCH



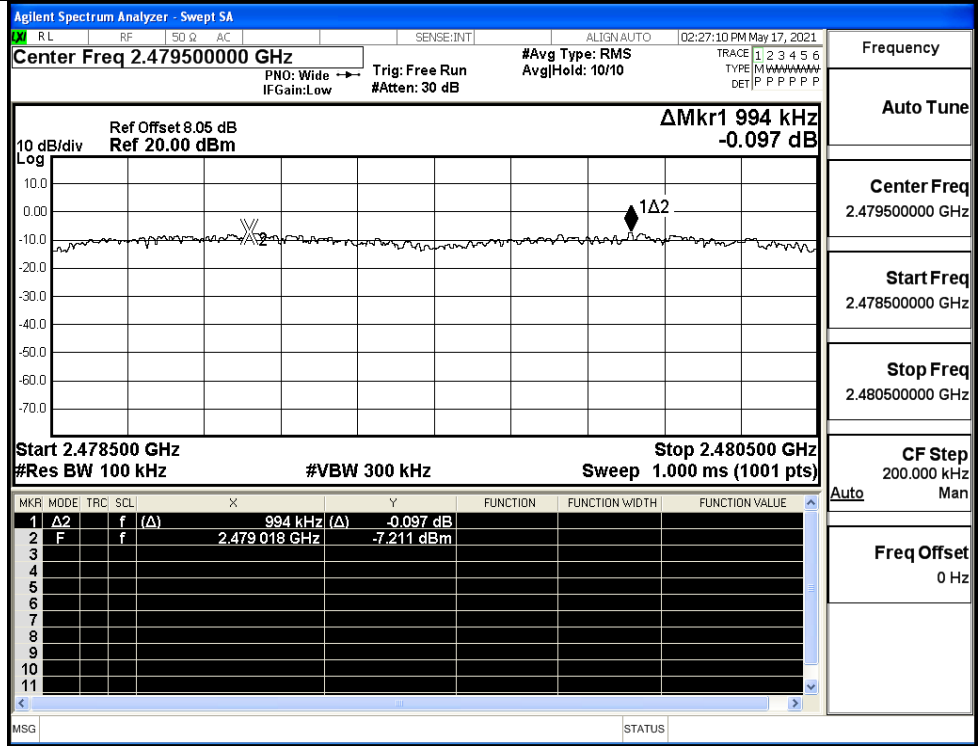
Frequency	2.402500000 GHz
Auto Tune	
Center Freq	2.402500000 GHz
Start Freq	2.401500000 GHz
Stop Freq	2.403500000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

$\pi/4$ DQPSK/MCH



Frequency	2.441500000 GHz
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

$\pi/4$ DQPSK/HCH



A.4 Hopping Channel Number

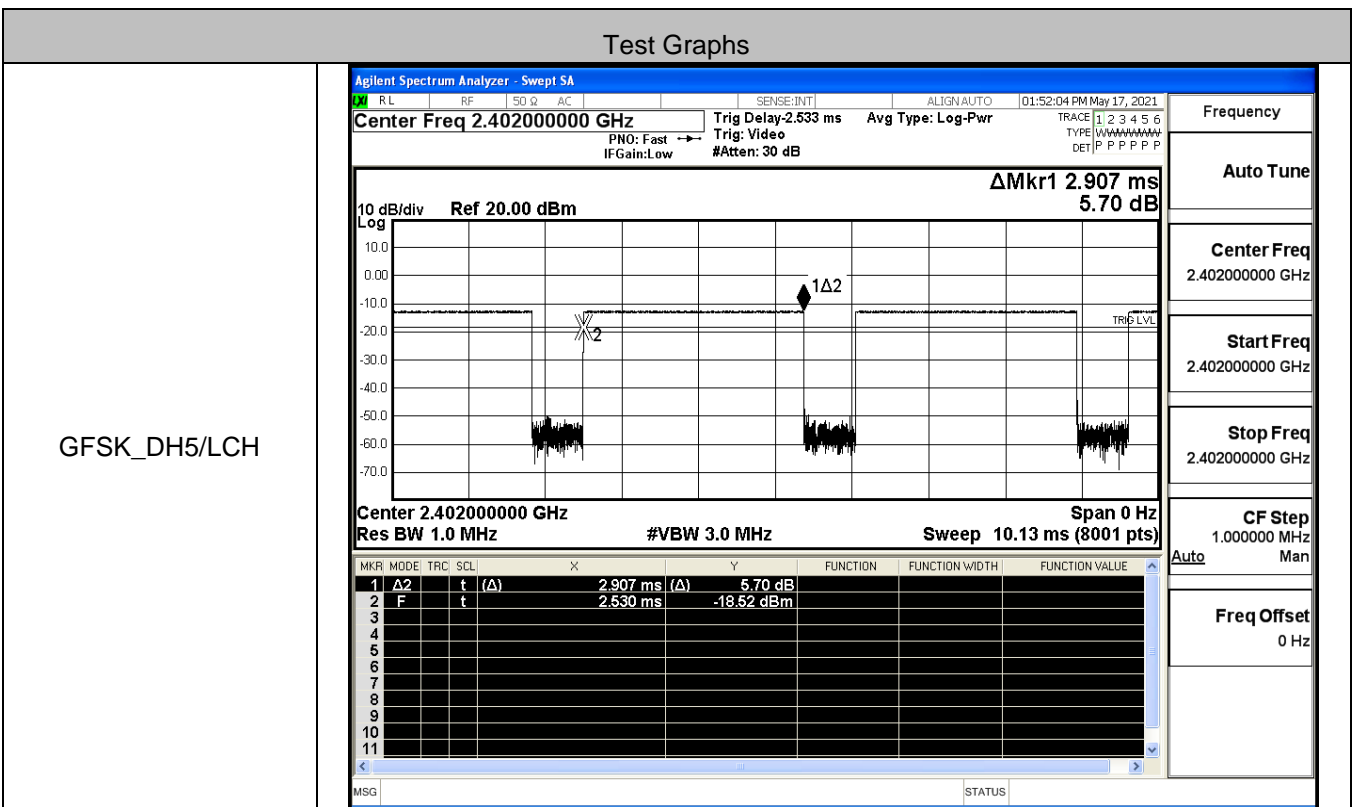
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS

Test Graphs

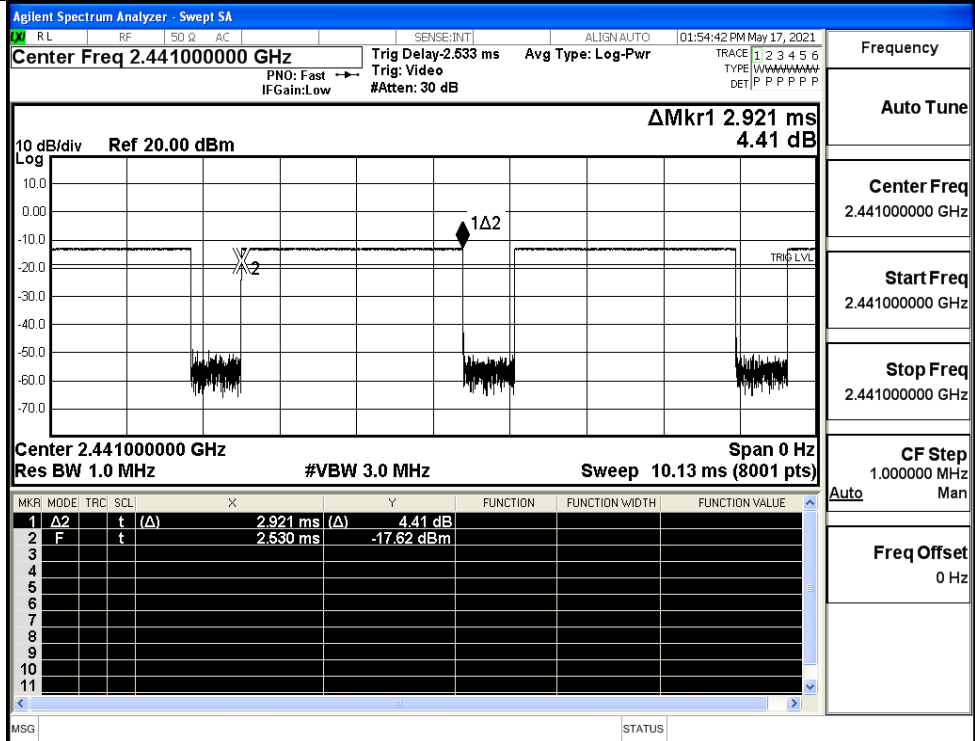
<p>GFSK/Hop</p>	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.441750000 GHz</p> <p>Ref Offset 8.05 dB Ref 20.00 dBm</p> <p>ΔMkr1 78.010 MHz -1.137 dB</p> <p>Start 2.40000 GHz #Res BW 100 kHz</p> <p>Stop 2.48350 GHz #VBW 300 kHz Sweep 8.000 ms (8001 pts)</p> <table border="1"> <thead> <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</td> <td>(Δ)</td> <td>-1.137 dB</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td></td> <td>2.401 994 GHz</td> <td></td> <td>-4.990 dBm</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)	-1.137 dB			2	F	f		2.401 994 GHz		-4.990 dBm			<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.441750000 GHz</p> <p>Start Freq 2.400000000 GHz</p> <p>Stop Freq 2.483500000 GHz</p> <p>CF Step 8.350000 MHz Man</p> <p>Freq Offset 0 Hz</p>
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																					
1	Δ 2	f	(Δ)	78.010 MHz	(Δ)	-1.137 dB																							
2	F	f		2.401 994 GHz		-4.990 dBm																							
<p>$\pi/4$DQPSK/Hop</p>	<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 78.208 MHz -0.599 dB</p> <p>Start 2.40000 GHz #Res BW 100 kHz</p> <p>Stop 2.48350 GHz #VBW 300 kHz Sweep 8.000 ms (8001 pts)</p> <table border="1"> <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>78.208 MHz</td> <td>(Δ)</td> <td>-0.599 dB</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td></td> <td>2.401 858 GHz</td> <td></td> <td>-6.903 dBm</td> <td></td> <td></td> </tr> </tbody> </table>	MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	Δ 2	f	(Δ)	78.208 MHz	(Δ)	-0.599 dB			2	F	f		2.401 858 GHz		-6.903 dBm			<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.441750000 GHz</p> <p>Start Freq 2.400000000 GHz</p> <p>Stop Freq 2.483500000 GHz</p> <p>CF Step 8.350000 MHz Man</p> <p>Freq Offset 0 Hz</p>
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																					
1	Δ 2	f	(Δ)	78.208 MHz	(Δ)	-0.599 dB																							
2	F	f		2.401 858 GHz		-6.903 dBm																							

A.5 Dwell Time

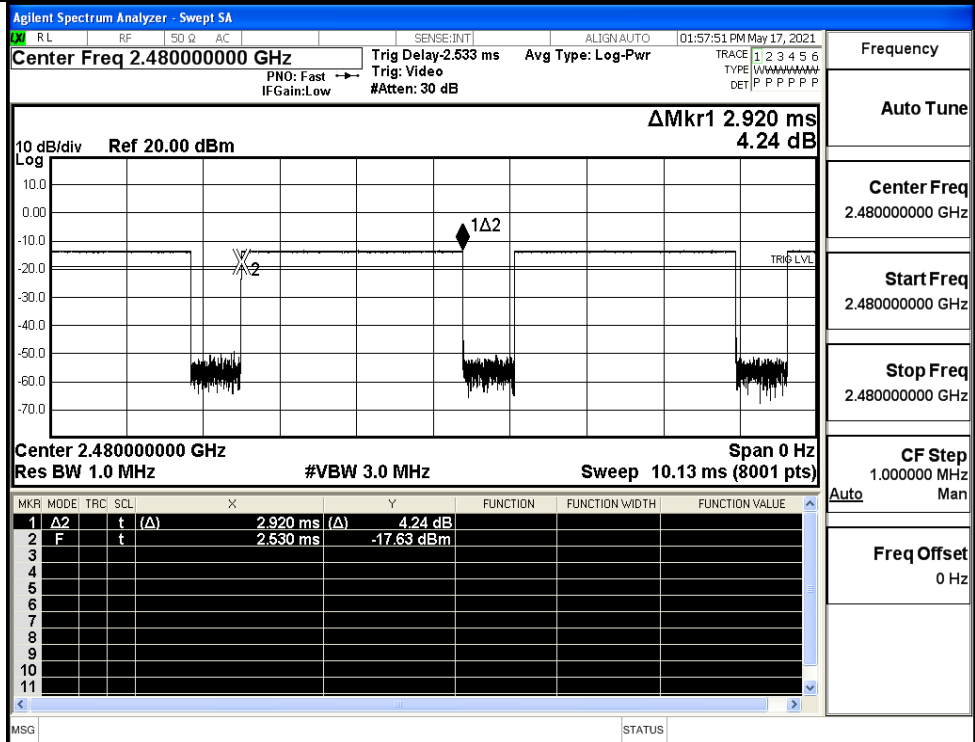
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.91	106.7	0.31	0.4	PASS
	DH5	MCH	2.92	106.7	0.312	0.4	PASS
	DH5	HCH	2.92	106.7	0.312	0.4	PASS
π/4DQPSK	2DH5	LCH	2.91	106.7	0.312	0.4	PASS
	2DH5	MCH	2.92	106.7	0.312	0.4	PASS
	2DH5	HCH	2.92	106.7	0.312	0.4	PASS



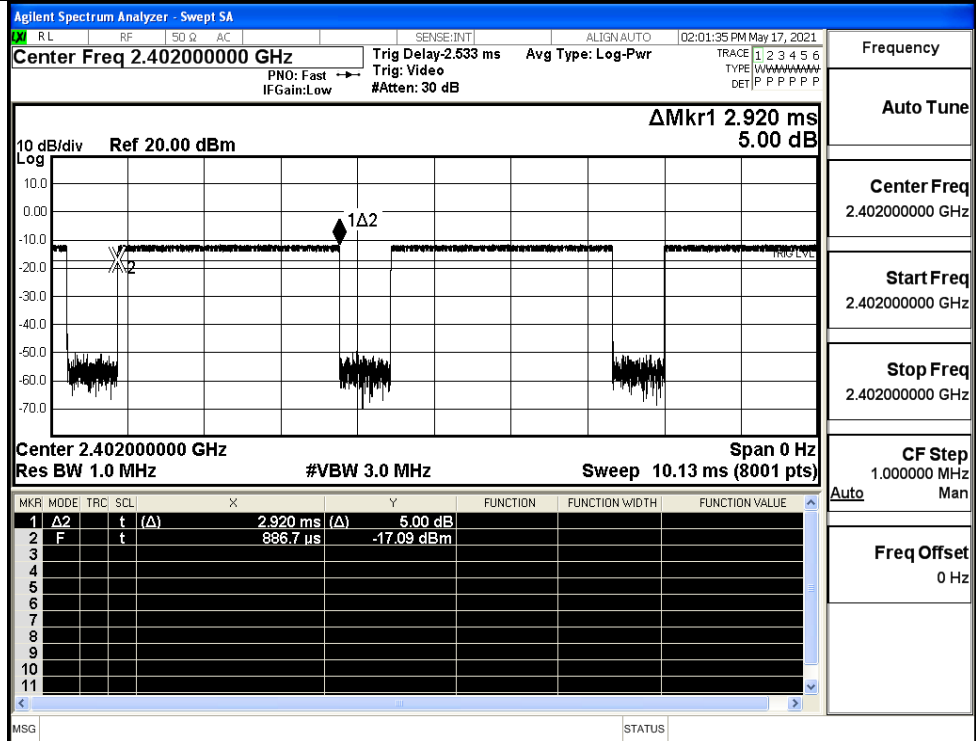
GFSK_DH5/MCH



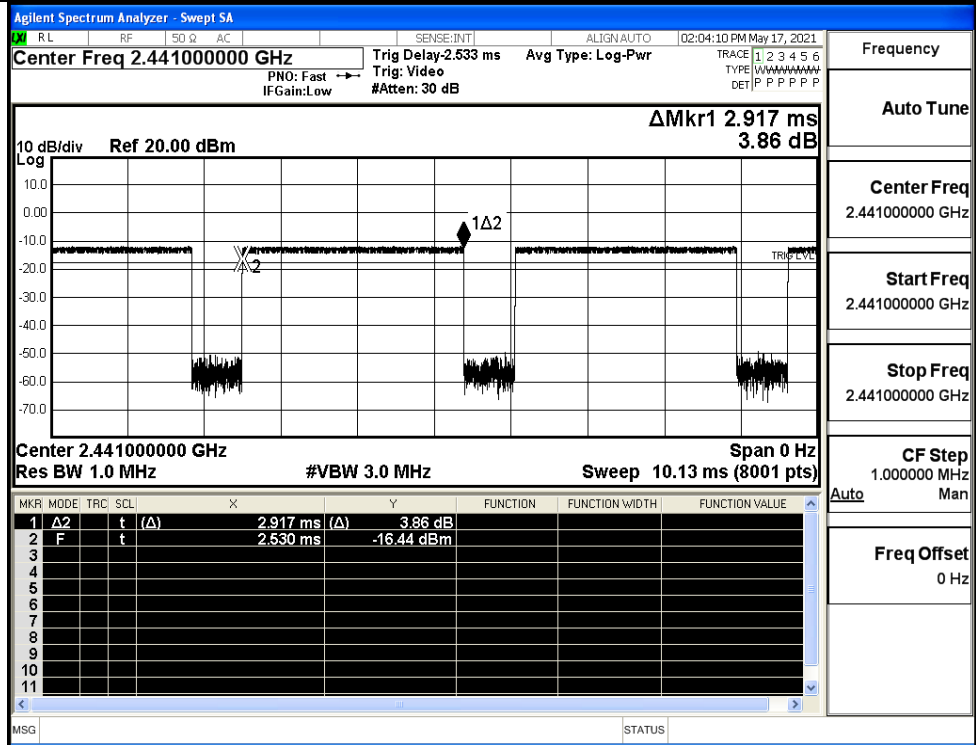
GFSK_DH5/HCH



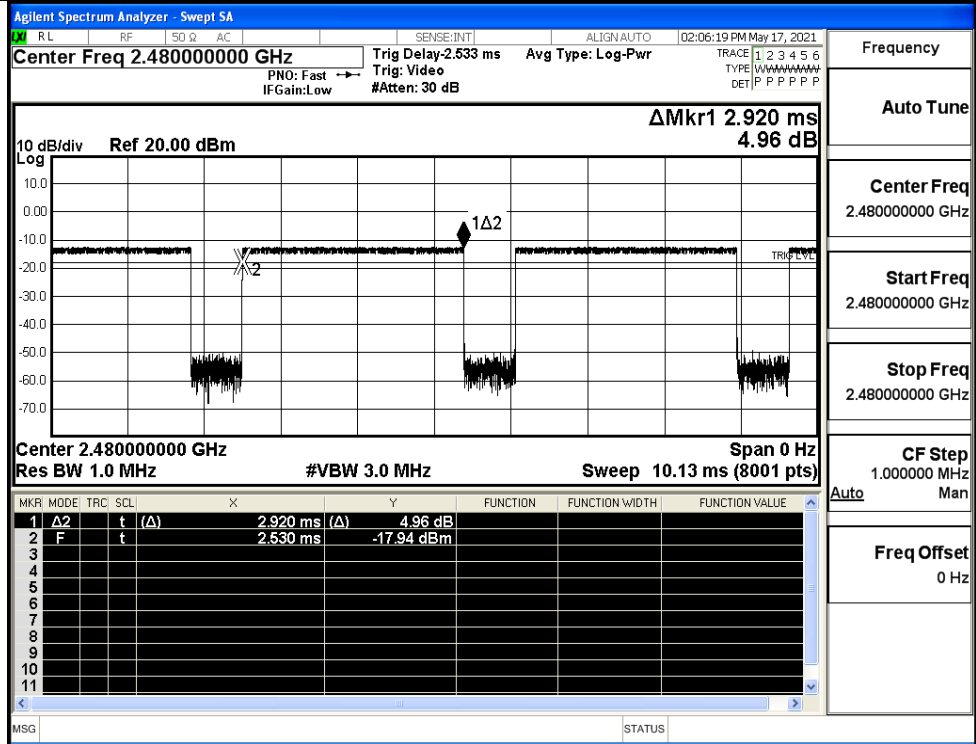
π /4DQPSK
_2DH5/LCH



π /4DQPSK
_2DH5/MCH



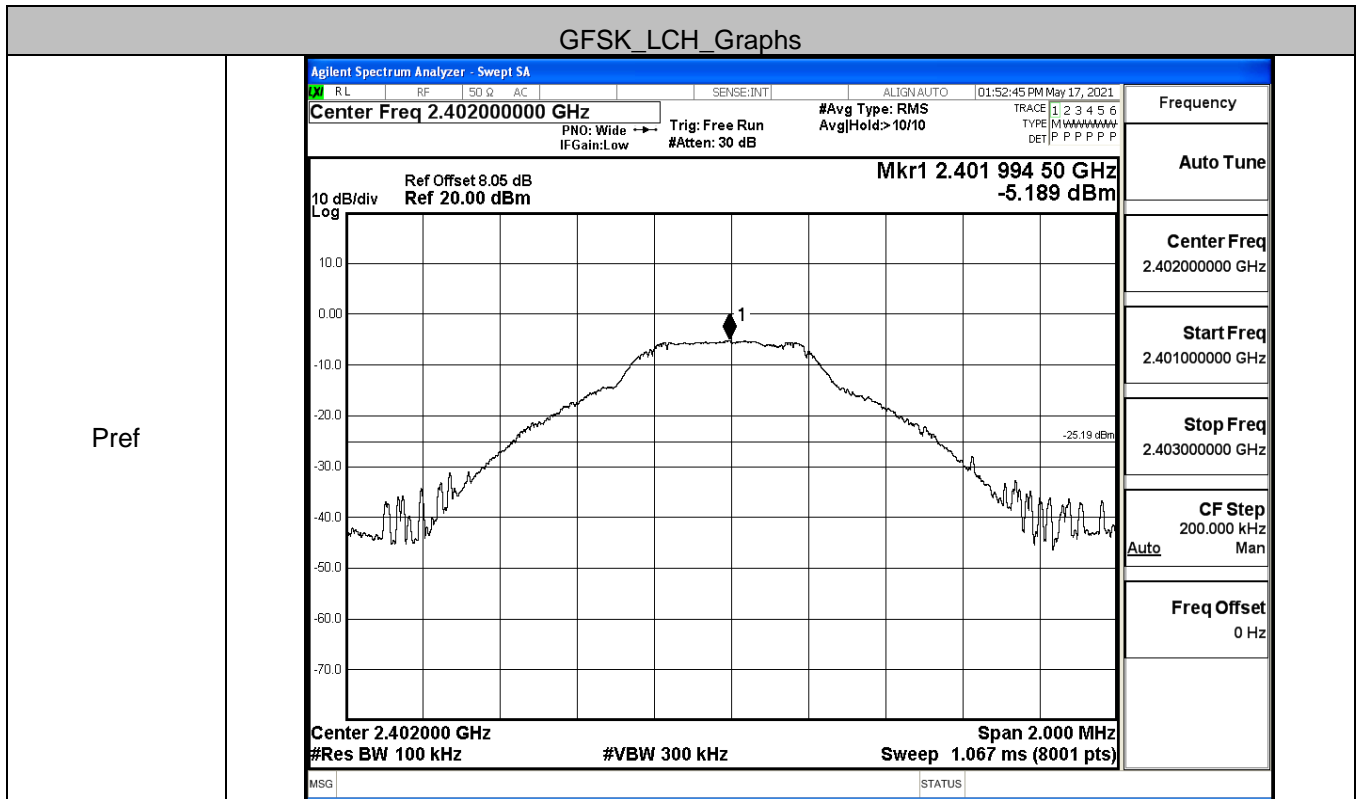
$\pi/4$ DQPSK
_2DH5/HCH

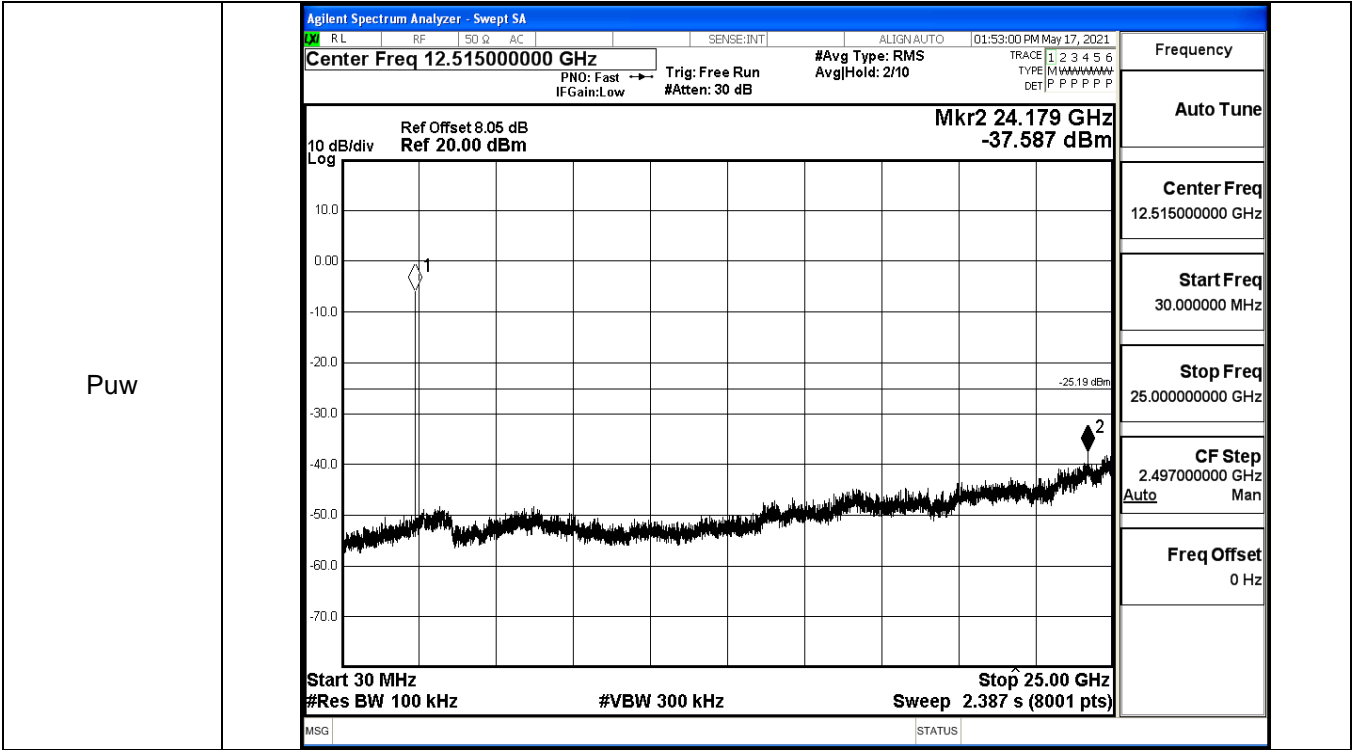


A.6 RF Conducted Spurious Emissions

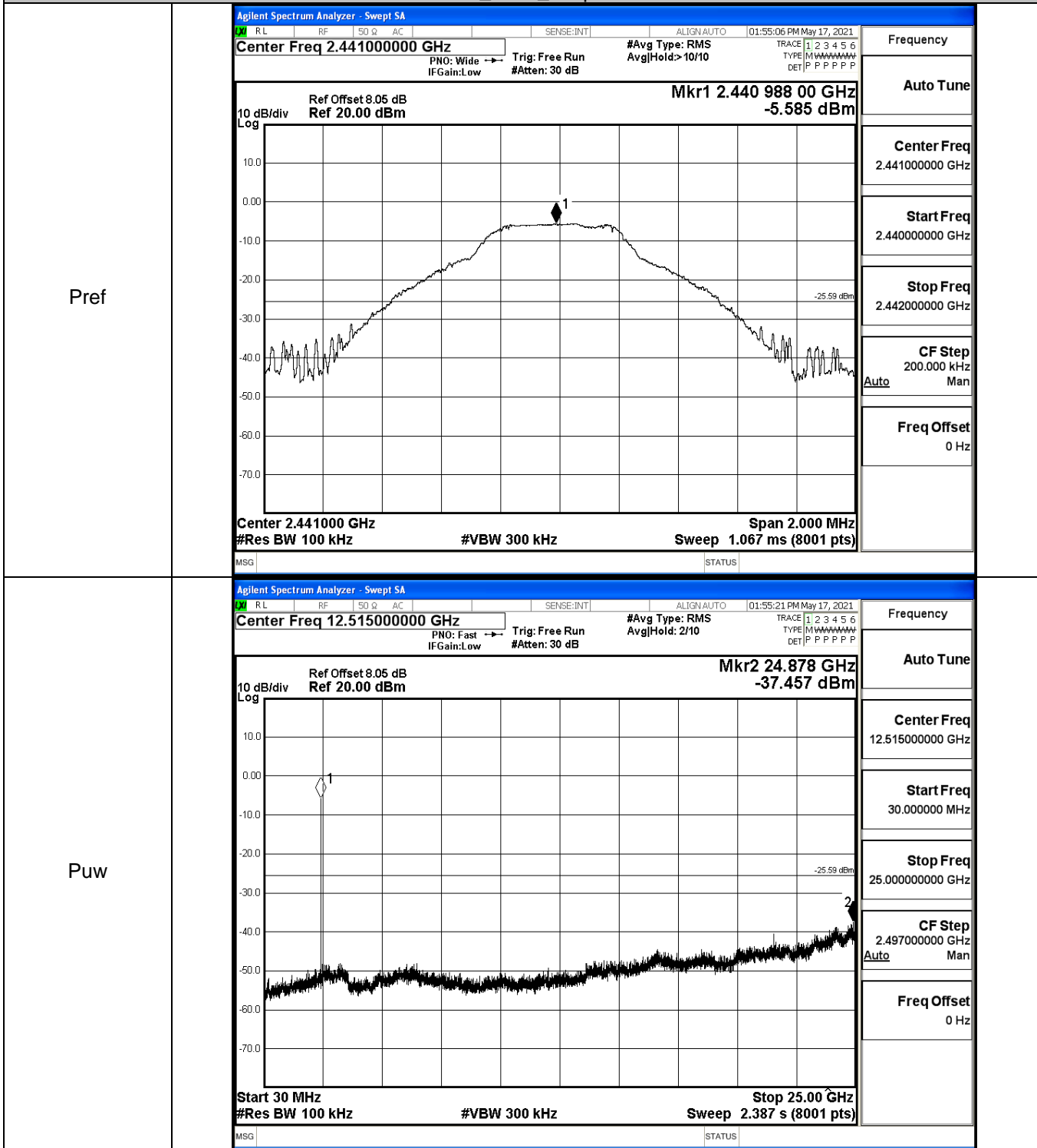
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-5.189	-37.587	-25.189	PASS
	MCH	-5.585	-37.457	-25.585	PASS
	HCH	-5.942	-37.450	-25.942	PASS
π /4DQPSK	LCH	-6.352	-38.288	-26.352	PASS
	MCH	-6.728	-38.176	-26.728	PASS
	HCH	-7.132	-37.728	-27.132	PASS

GFSK_LCH_Graphs

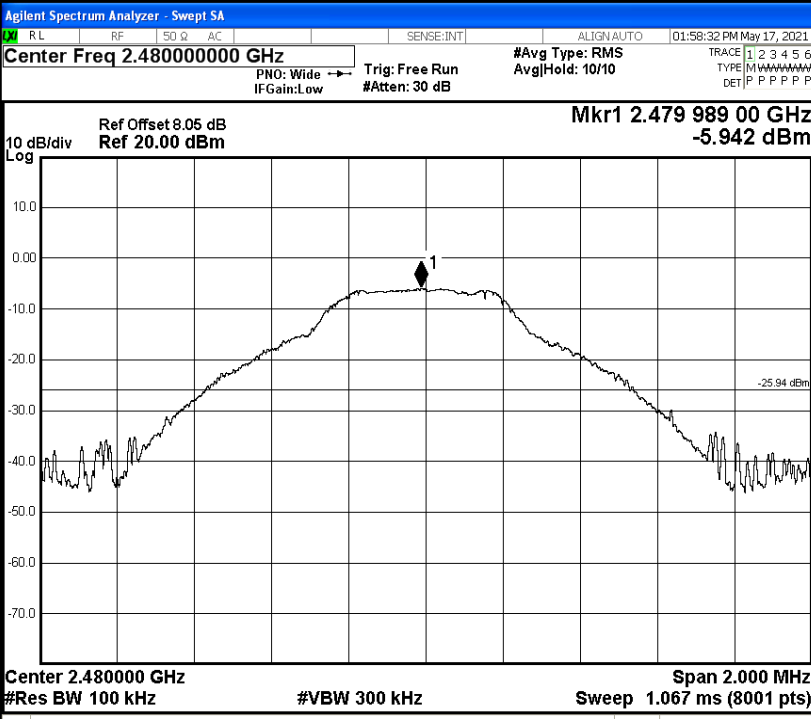
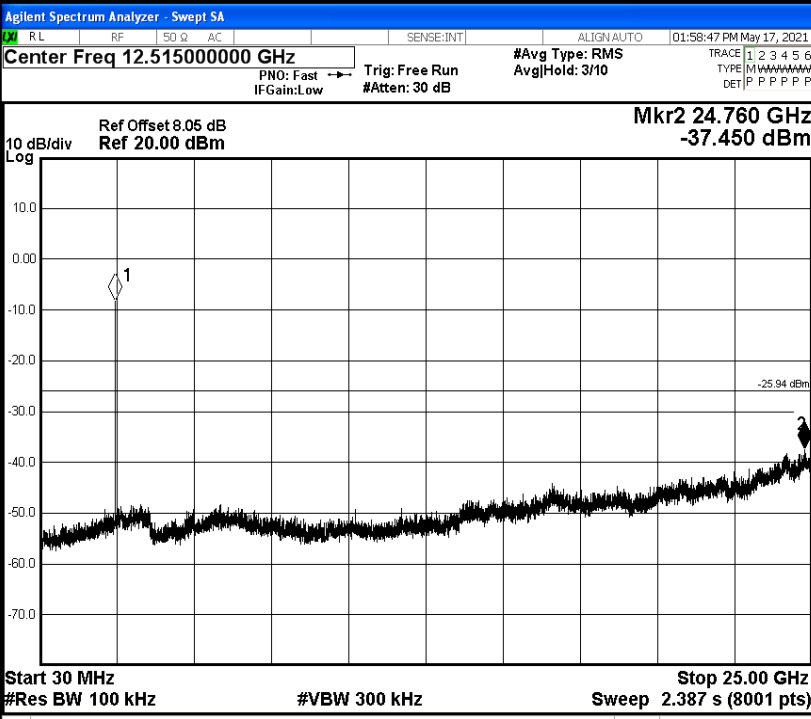




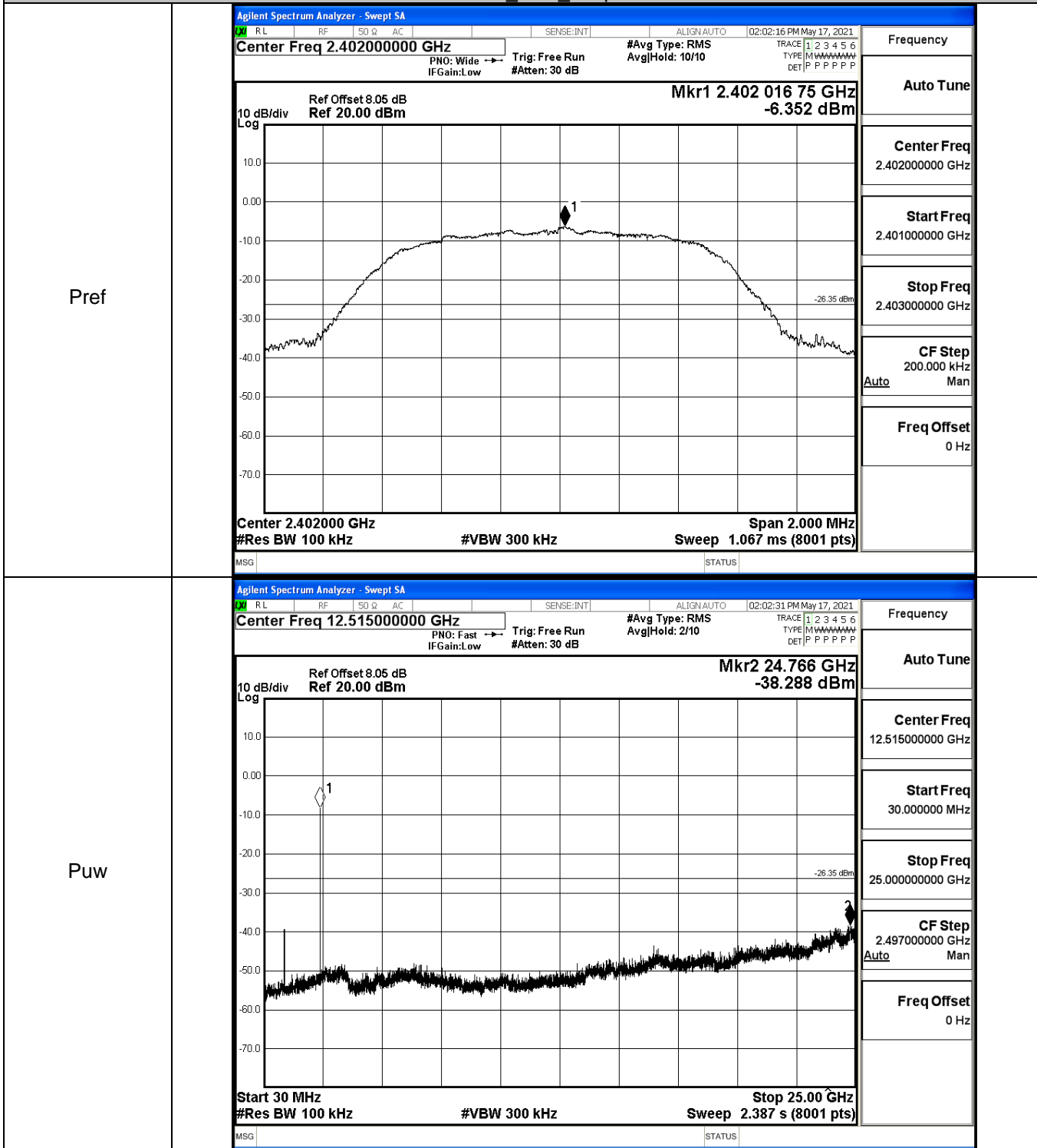
GFSK_MCH_Graphs



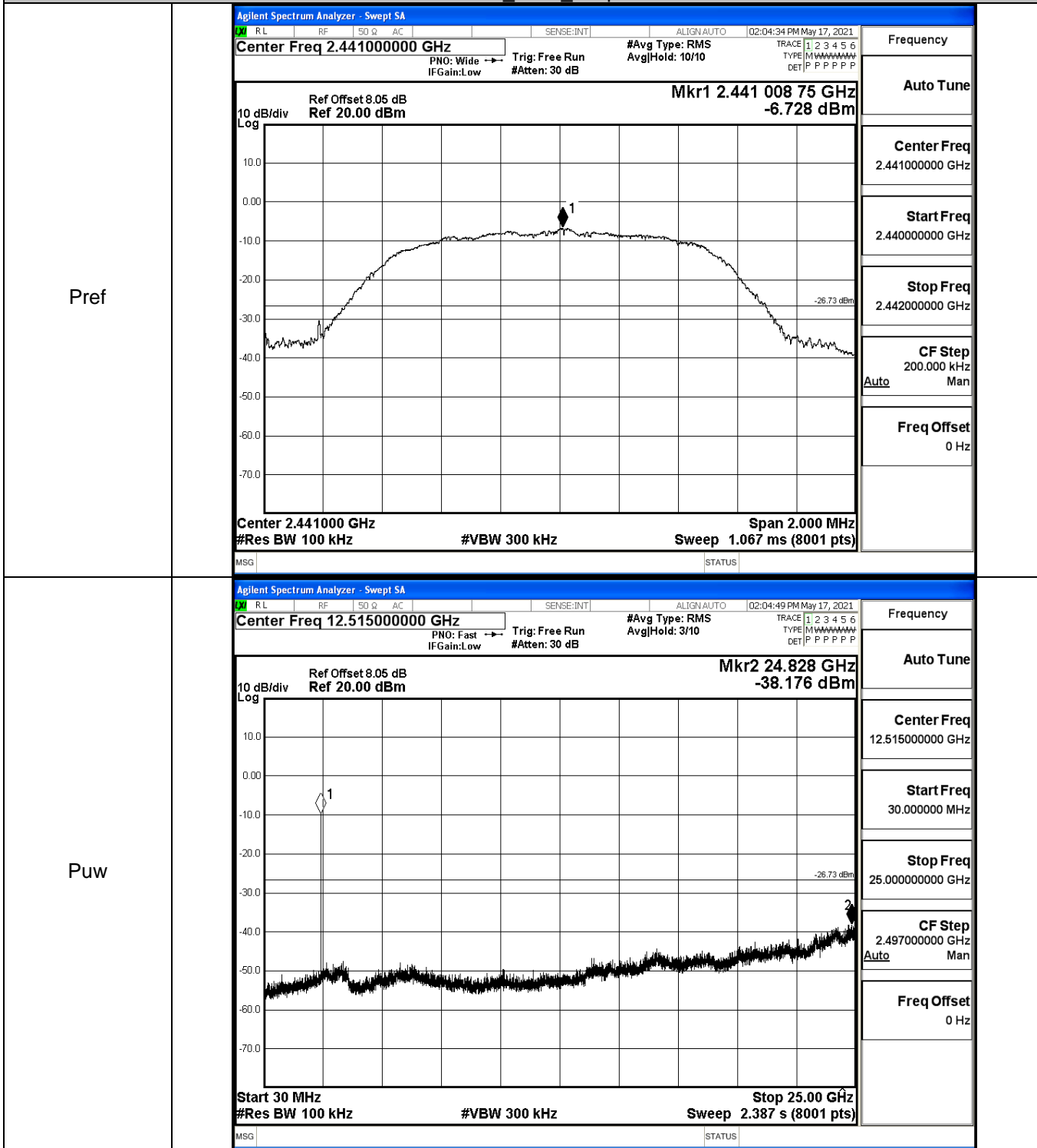
GFSK_HCH_Graphs

<p>Pref</p>	 <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.48000000 GHz</p> <p>Mkr1 2.479 989 00 GHz -5.942 dBm</p> <p>10 dB/div Log</p> <p>Ref Offset 8.05 dB Ref 20.00 dBm</p> <p>Center 2.480000 GHz #Res BW 100 kHz #VBW 300 kHz Span 2.000 MHz Sweep 1.067 ms (8001 pts)</p>	<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.480000000 GHz</p> <p>Start Freq 2.479000000 GHz</p> <p>Stop Freq 2.481000000 GHz</p> <p>CF Step 200.000 kHz Auto Man</p> <p>Freq Offset 0 Hz</p>
	<p>Puw</p>	 <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 12.51500000 GHz</p> <p>Mkr2 24.760 GHz -37.450 dBm</p> <p>10 dB/div Log</p> <p>Ref Offset 8.05 dB Ref 20.00 dBm</p> <p>Start 30 MHz #Res BW 100 kHz #VBW 300 kHz Stop 25.00 GHz Sweep 2.387 s (8001 pts)</p>

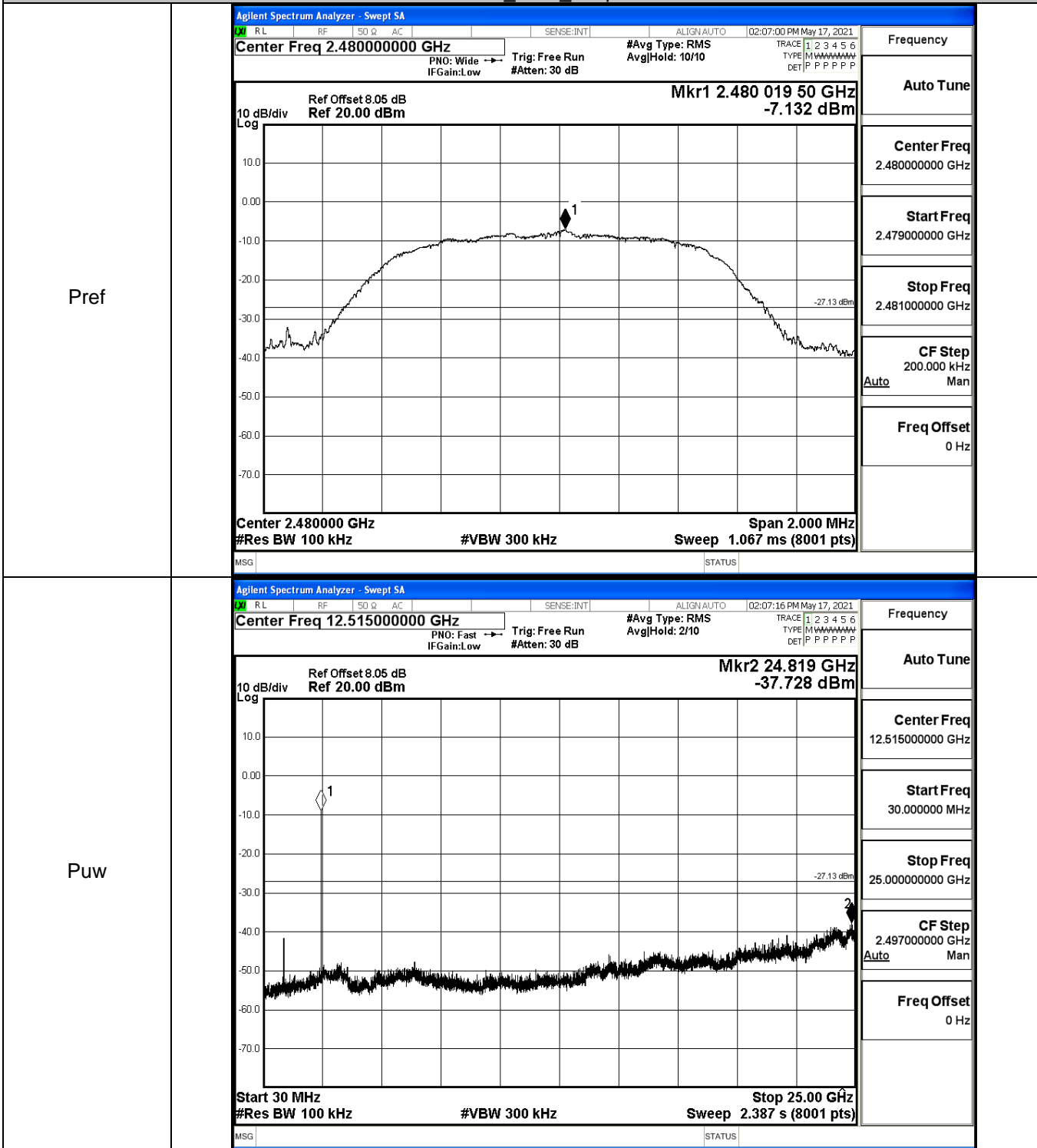
$\pi/4$ DQPSK_LCH_Graphs



$\pi/4$ DQPSK_MCH_Graphs



$\pi/4$ DQPSK_HCH_Graphs

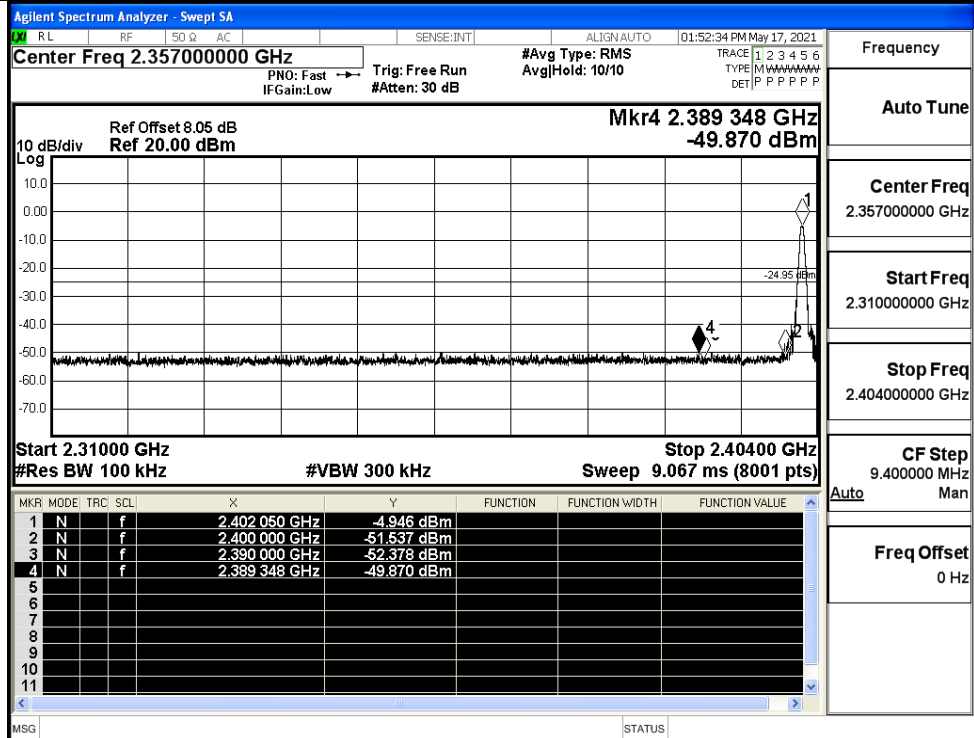


A.7 Band-edge for RF Conducted Emissions

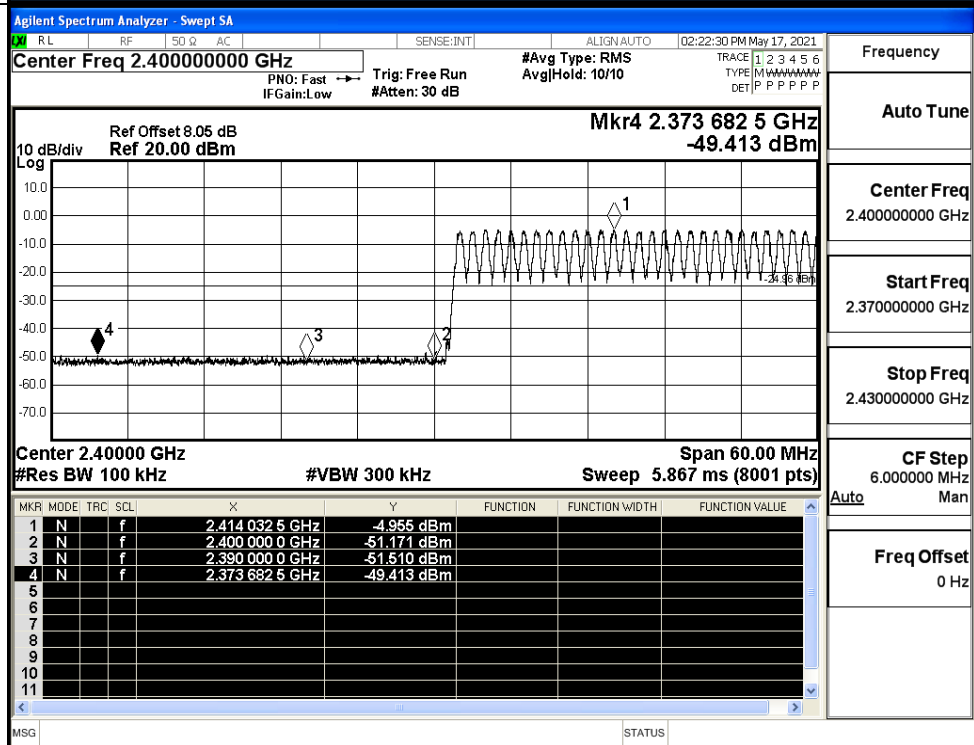
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-4.946	Off	-49.870	-24.95	PASS
			-4.955	On	-49.413	-24.96	PASS
	HCH	2480	-5.773	Off	-49.048	-25.77	PASS
			-5.428	On	-48.900	-25.43	PASS
$\pi/4$ DQPSK	LCH	2402	-6.082	Off	-49.442	-26.08	PASS
			-6.113	On	-49.221	-26.11	PASS
	HCH	2480	-6.853	Off	-49.392	-26.85	PASS
			-6.479	On	-48.762	-26.48	PASS

Test Graphs

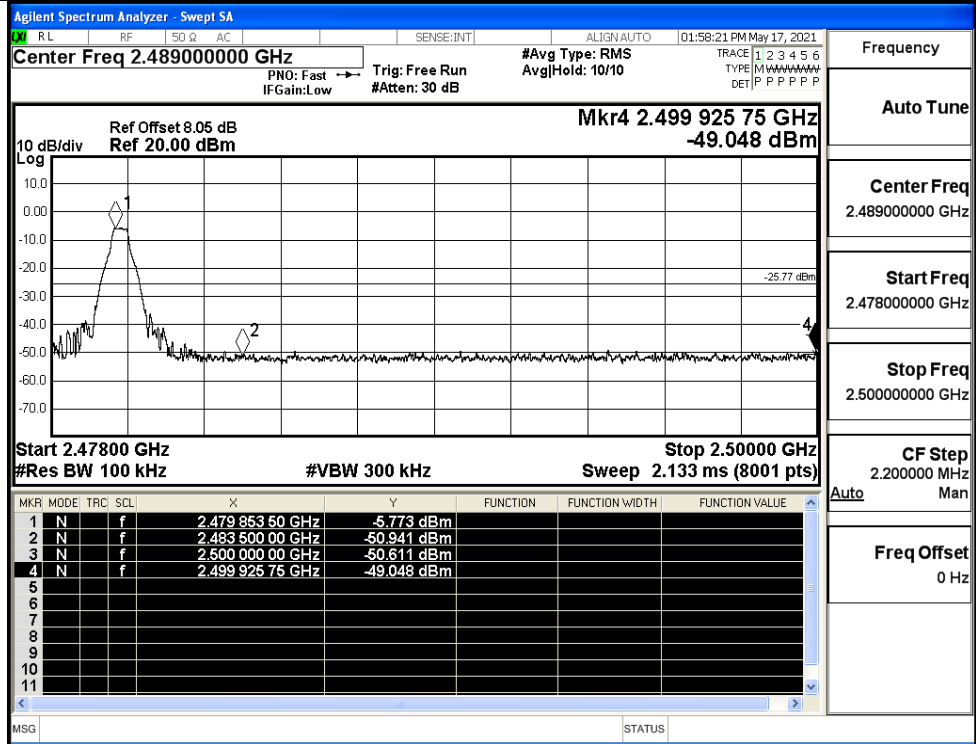
GFSK/LCH/No Hop



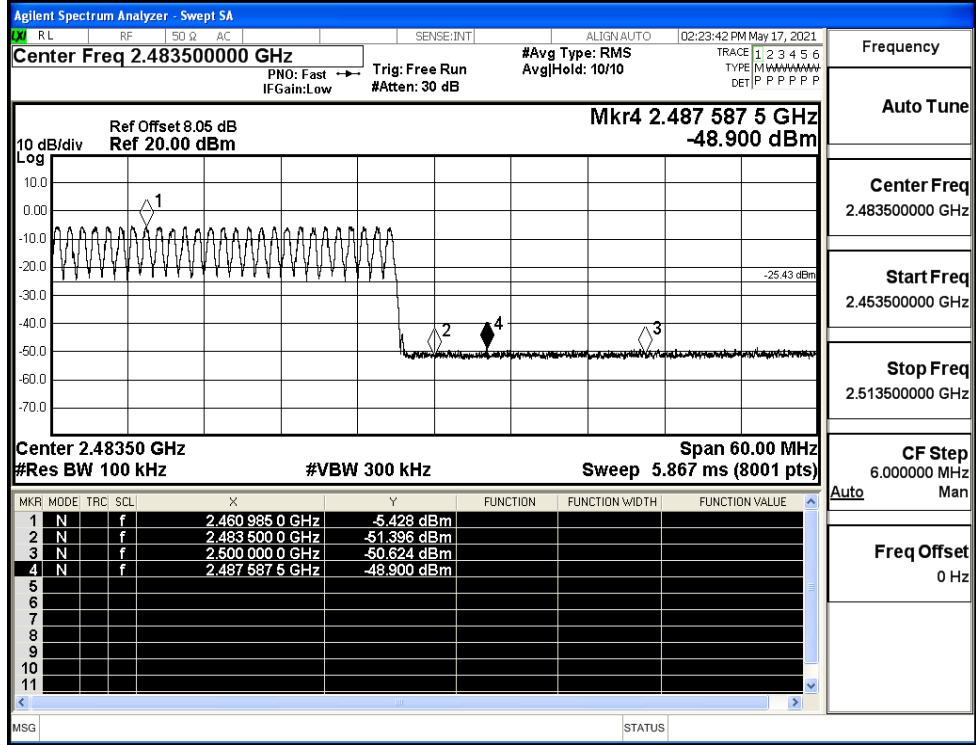
GFSK/LCH/Hop



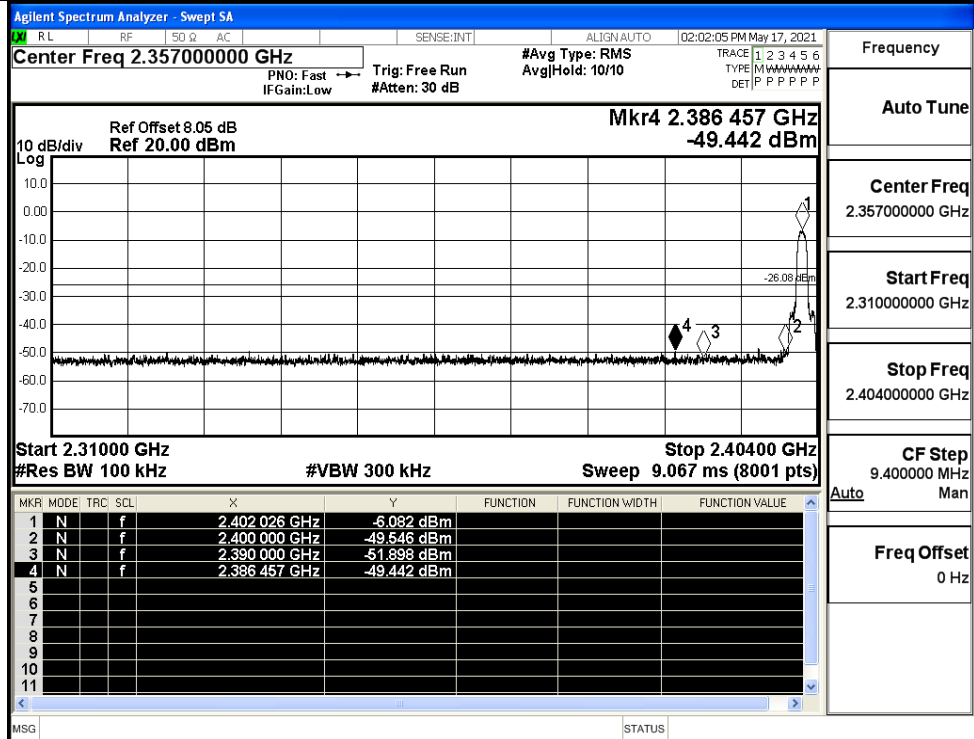
GFSK/HCH/No Hop



GFSK/HCH/Hop

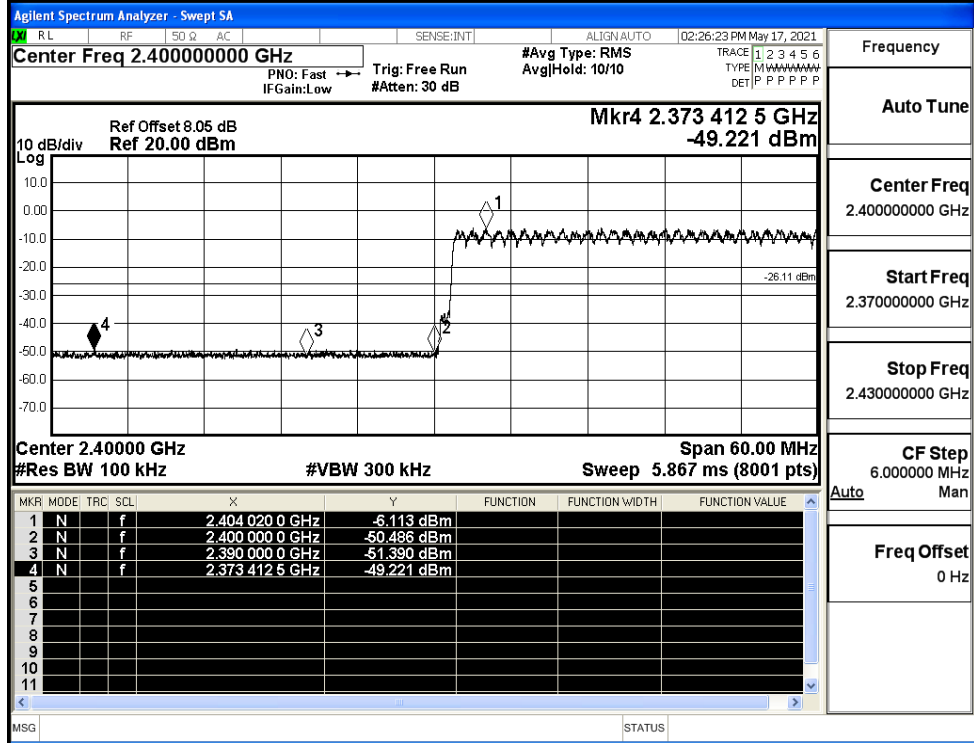


$\pi/4$ DQPSK/LCH/No
Hop



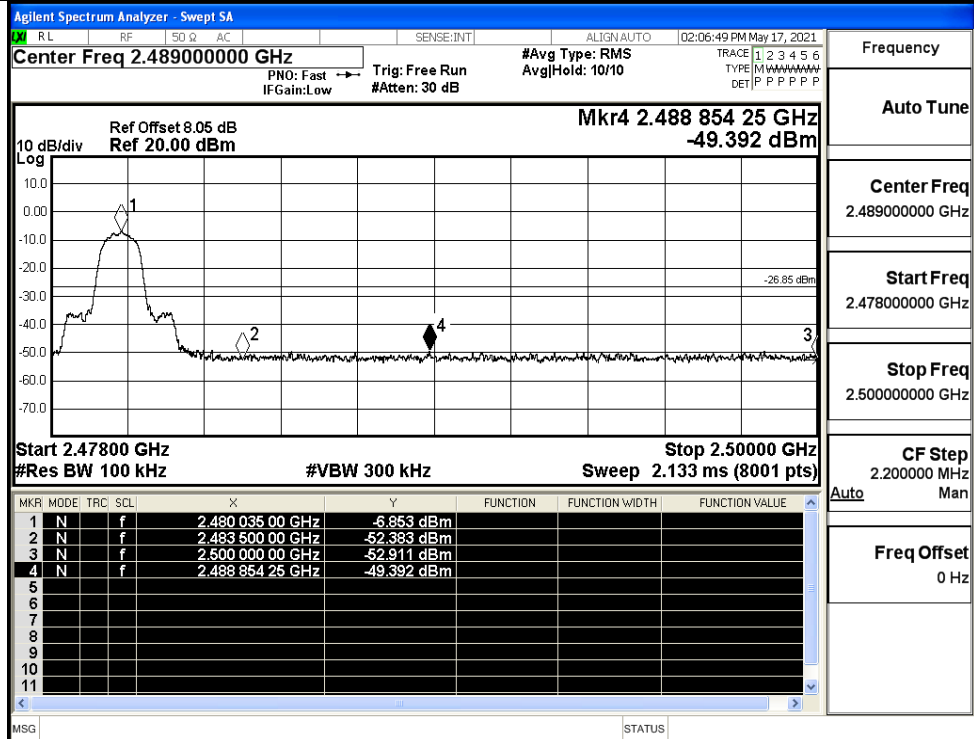
Frequency
Auto Tune
Center Freq
2.357000000 GHz
Start Freq
2.310000000 GHz
Stop Freq
2.404000000 GHz
CF Step
9.400000 MHz
Auto Man
Freq Offset
0 Hz

$\pi/4$ DQPSK/LCH/Hop



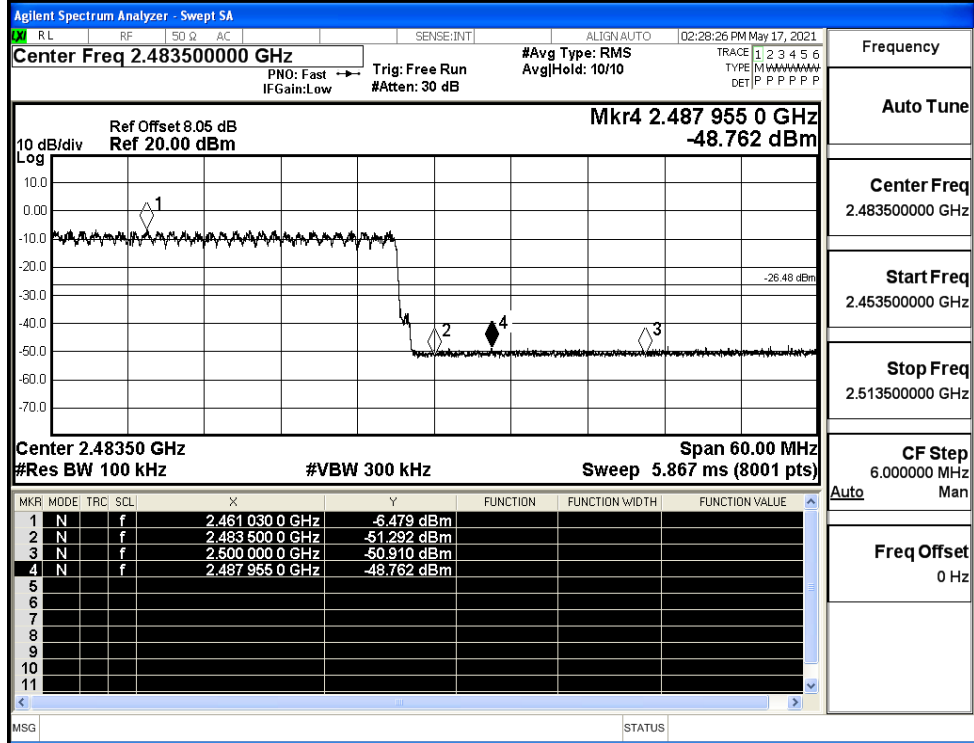
Frequency
Auto Tune
Center Freq
2.400000000 GHz
Start Freq
2.370000000 GHz
Stop Freq
2.430000000 GHz
CF Step
6.000000 MHz
Auto Man
Freq Offset
0 Hz

π /4DQPSK/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

π /4DQPSK/HCH/Hop

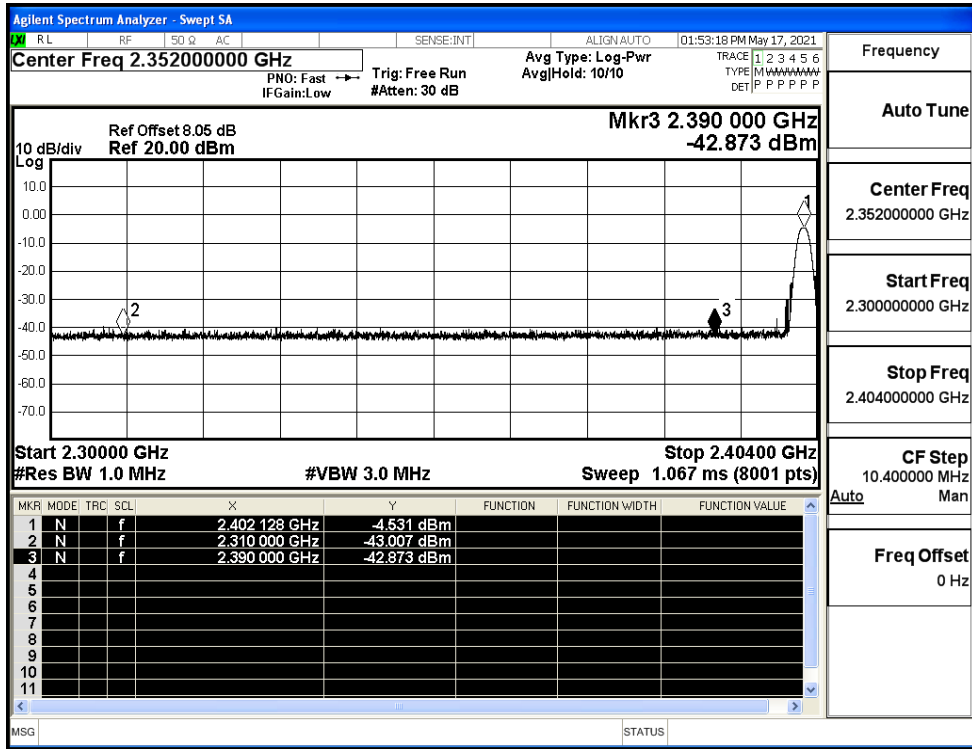


Frequency
Auto Tune
Center Freq
2.483500000 GHz
Start Freq
2.463500000 GHz
Stop Freq
2.513500000 GHz
CF Step
6.000000 MHz
Auto Man
Freq Offset
0 Hz

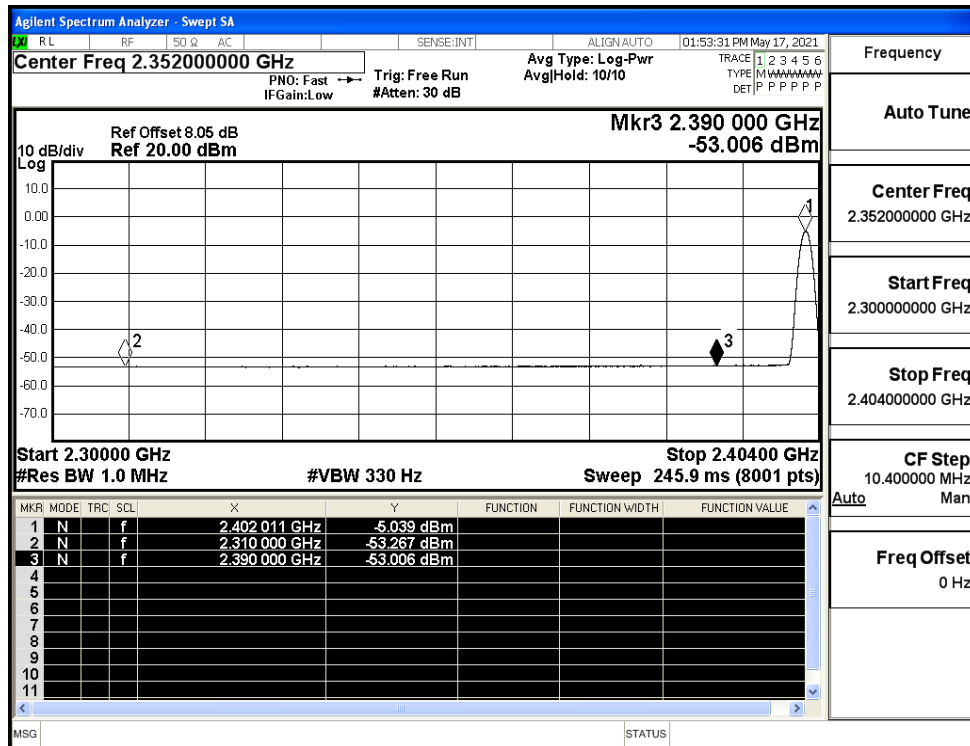
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.01	2.0	0	52.25	PEAK	74	PASS
	Off	2310.0	-53.27	2.0	0	41.99	AV	54	PASS
	Off	2390.0	-42.87	2.0	0	52.38	PEAK	74	PASS
	Off	2390.0	-53.01	2.0	0	42.25	AV	54	PASS
	Off	2483.5	-40.71	2.0	0	54.55	PEAK	74	PASS
	Off	2483.5	-52.40	2.0	0	42.86	AV	54	PASS
	Off	2500.0	-42.73	2.0	0	52.53	PEAK	74	PASS
	Off	2500.0	-52.20	2.0	0	43.06	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.49	2.0	0	52.77	PEAK	74	PASS
	Off	2310.0	-53.35	2.0	0	41.90	AV	54	PASS
	Off	2390.0	-42.25	2.0	0	53.00	PEAK	74	PASS
	Off	2390.0	-52.89	2.0	0	42.37	AV	54	PASS
	Off	2483.5	-41.41	2.0	0	53.85	PEAK	74	PASS
	Off	2483.5	-52.42	2.0	0	42.83	AV	54	PASS
	Off	2500.0	-41.98	2.0	0	53.28	PEAK	74	PASS
	Off	2500.0	-52.23	2.0	0	43.03	AV	54	PASS

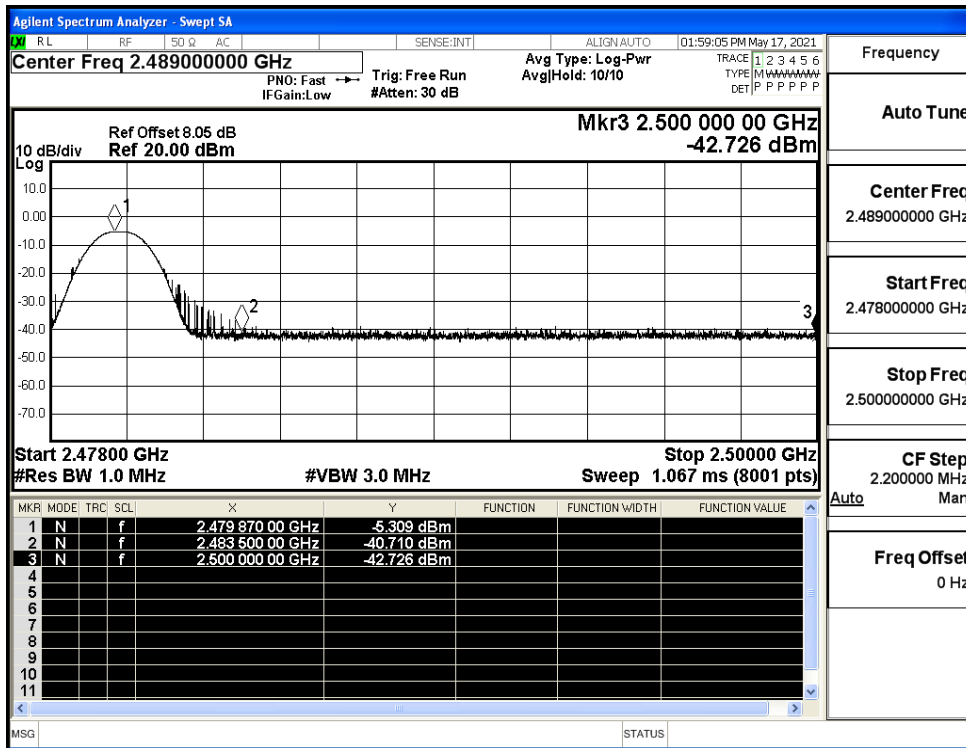
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



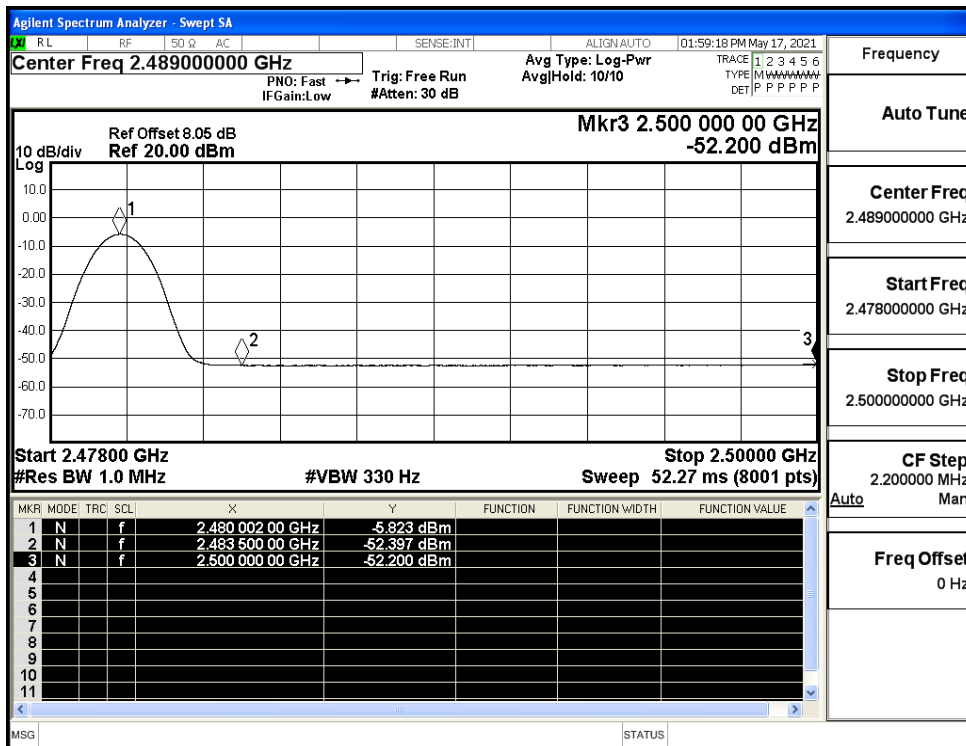
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



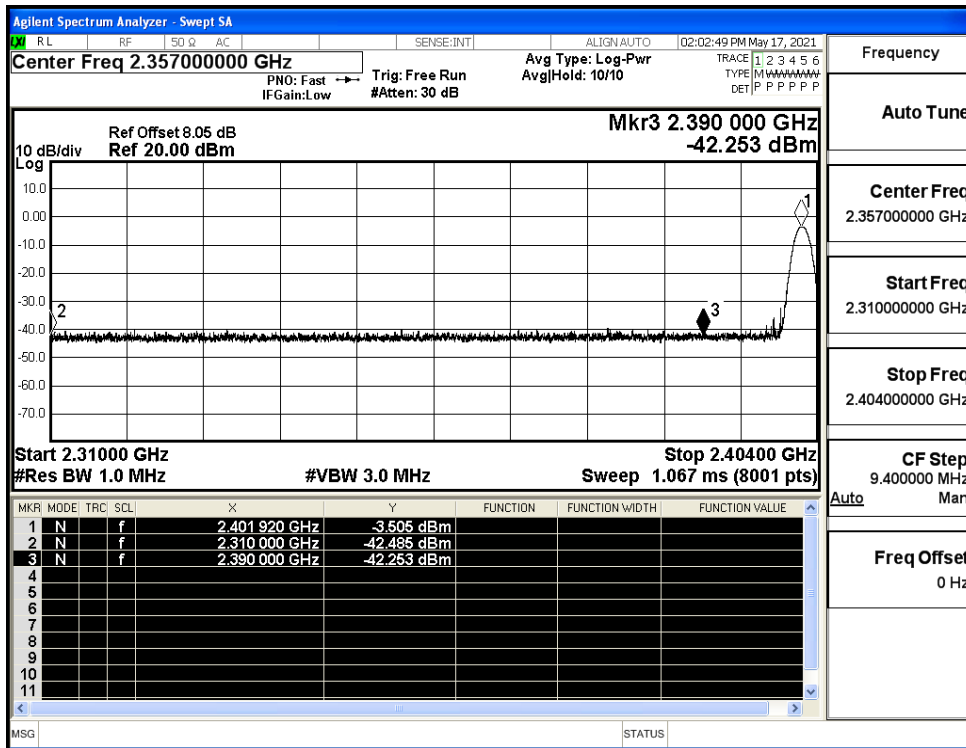
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



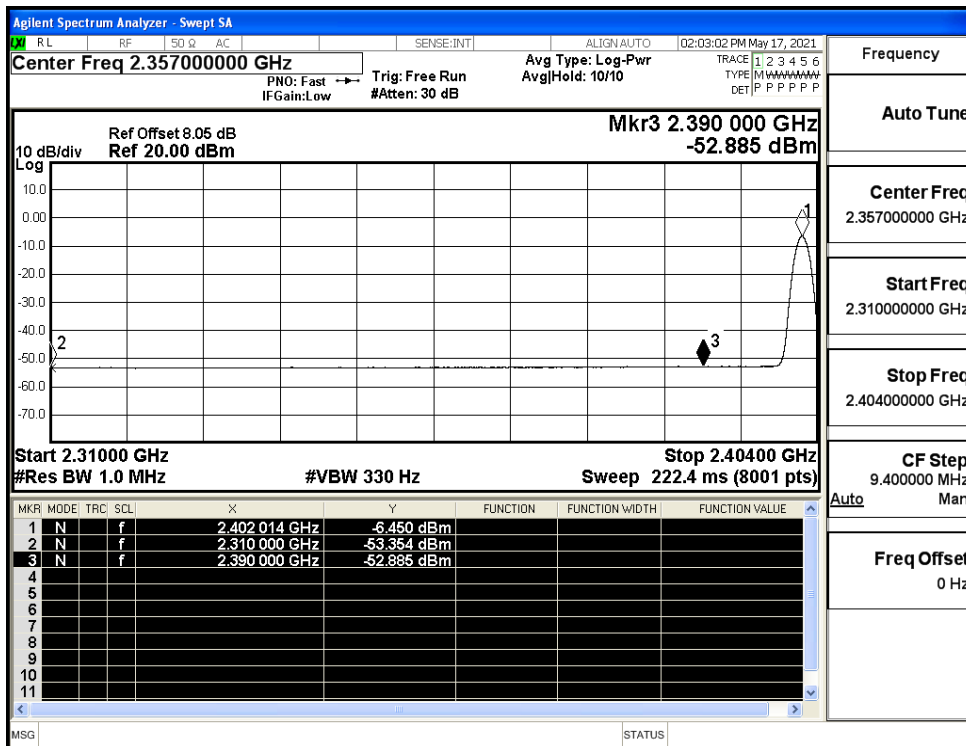
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



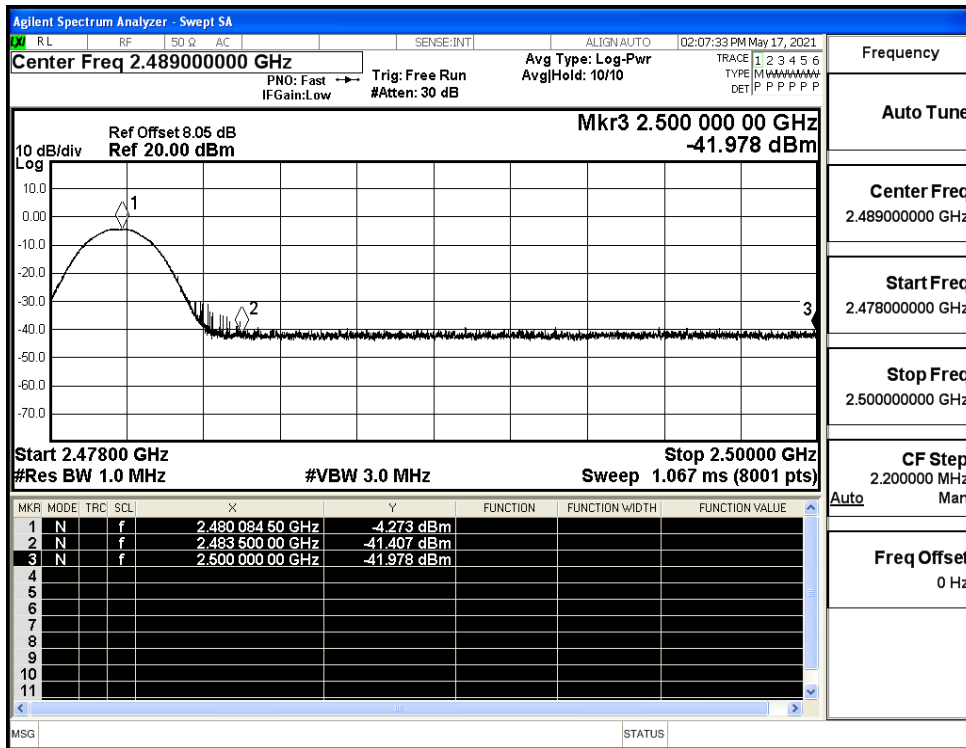
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)



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)

