

## Appendix A

### RF Test Data for BT V5.1(BDR/EDR) (Conducted Measurement)

Product Name: VIDEO PROJECTOR

Trade Mark: GROVIEW, TOPVISION, KJM

Test Model: G210

#### Environmental Conditions

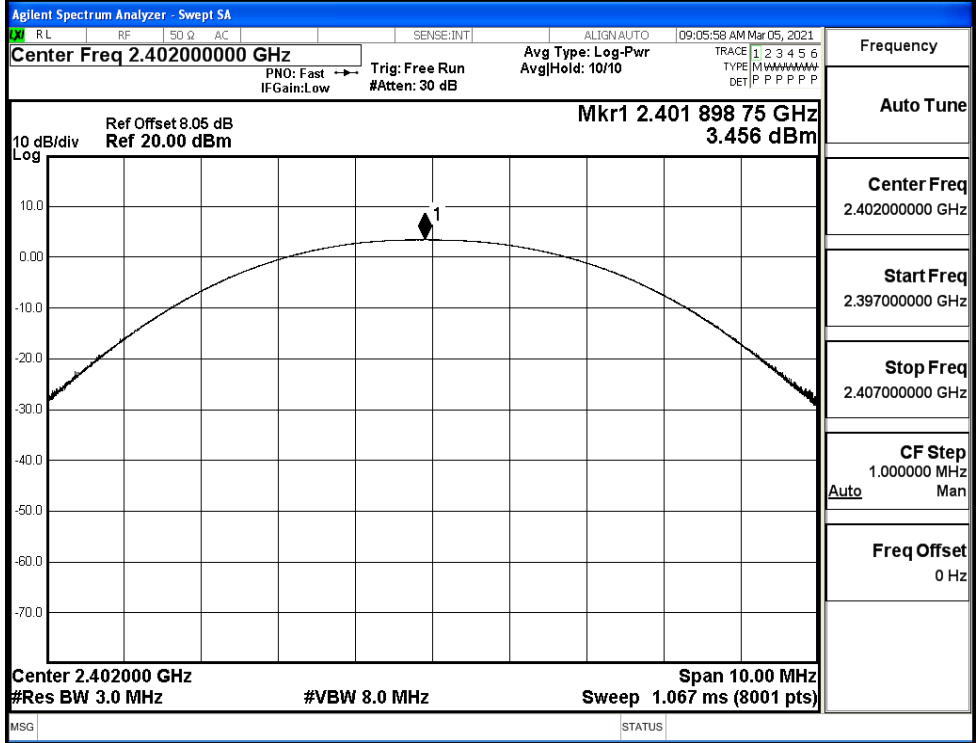
Temperature:	24.2° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Ben Jin
Supervised by:	Li Huan

#### A.1 Maximum Conducted Peak Output Power

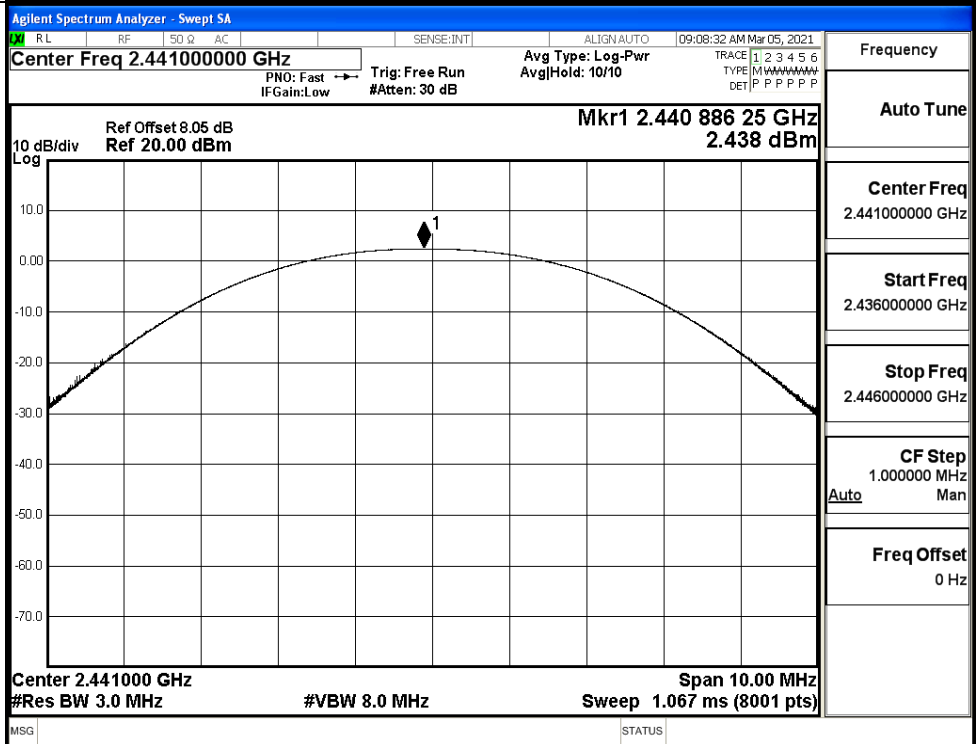
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	3.456	21	PASS
	MCH	2.438	21	PASS
	HCH	1.253	21	PASS
$\pi/4$ DQPSK	LCH	4.196	21	PASS
	MCH	3.273	21	PASS
	HCH	2.033	21	PASS

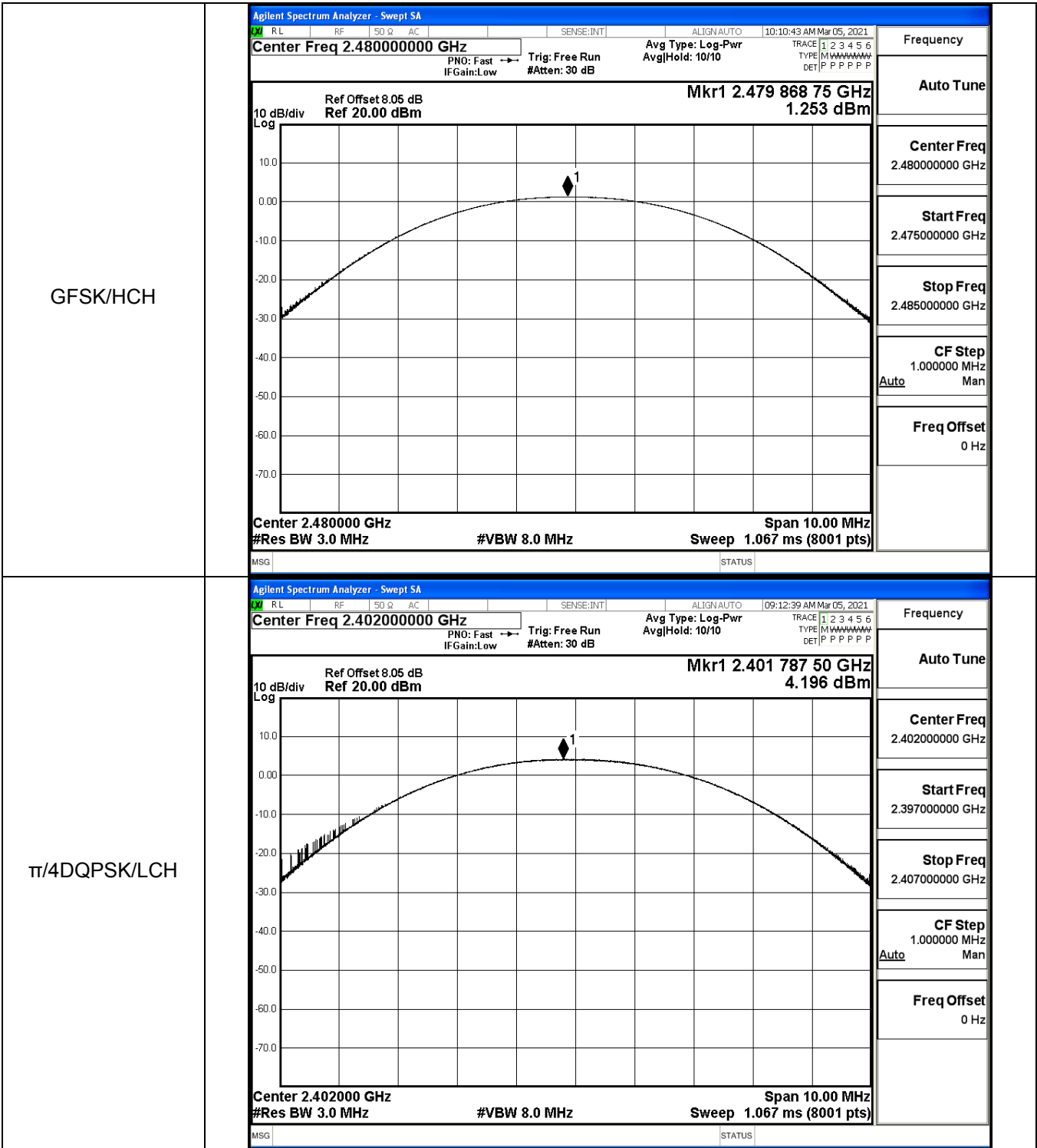
Test Graphs

GFSK/LCH



GFSK/MCH

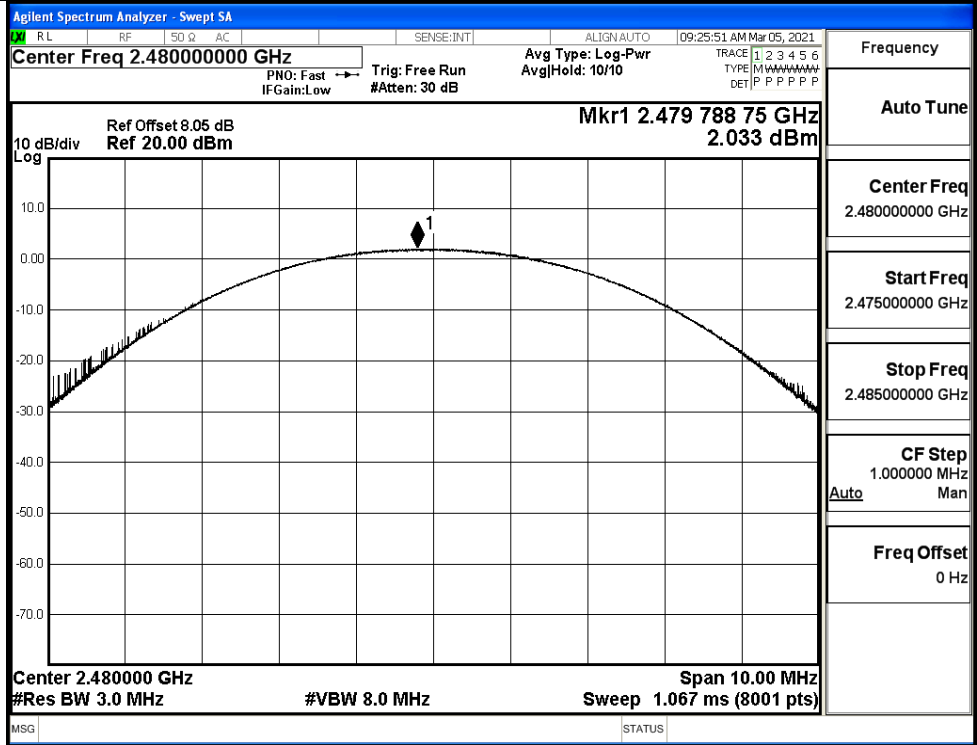




$\pi/4$ DQPSK/MCH

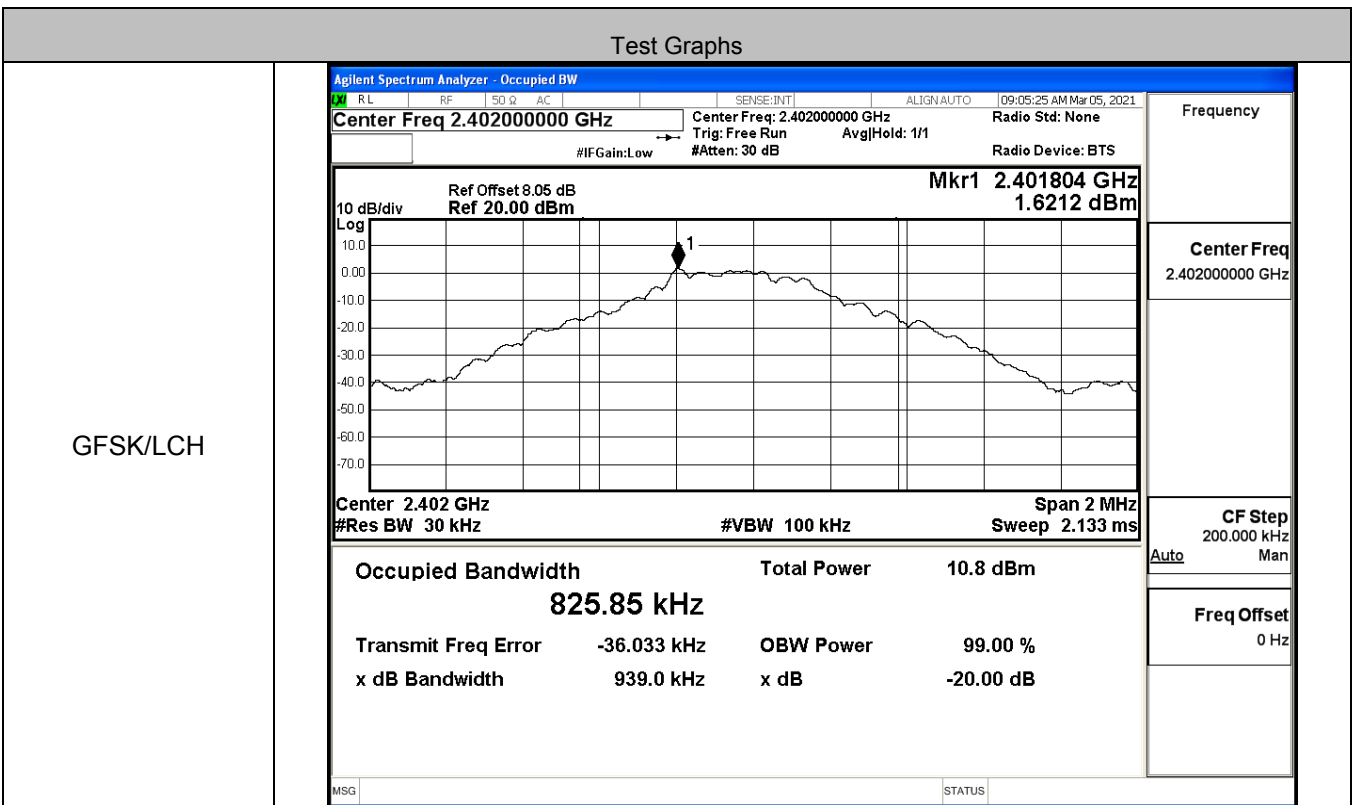


$\pi/4$ DQPSK/HCH

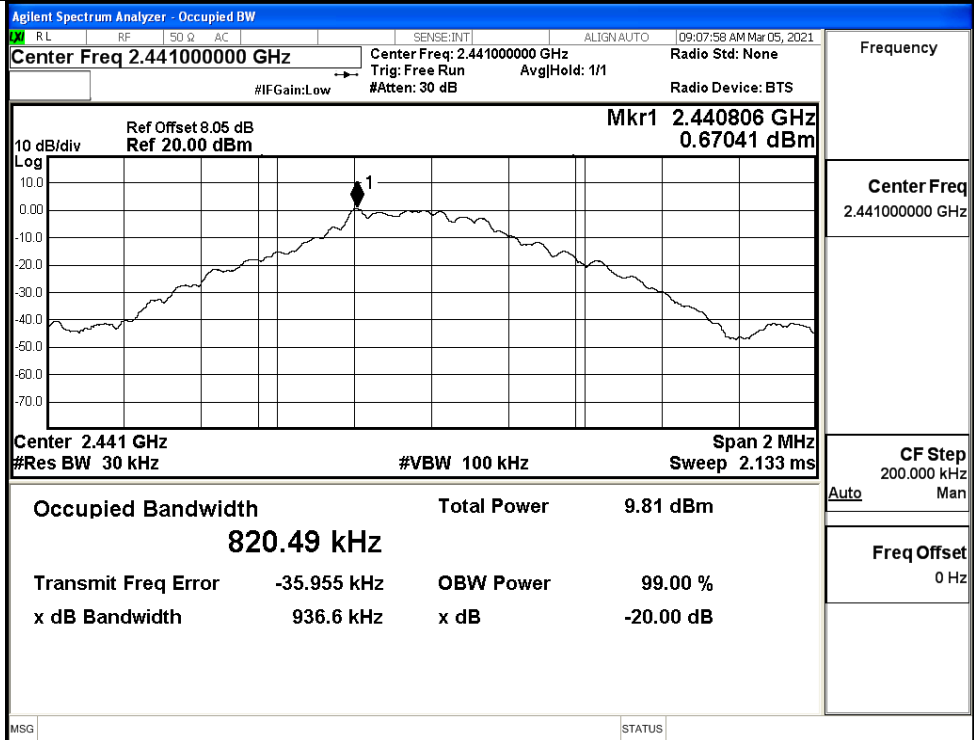


**A.2 20dB Bandwidth**

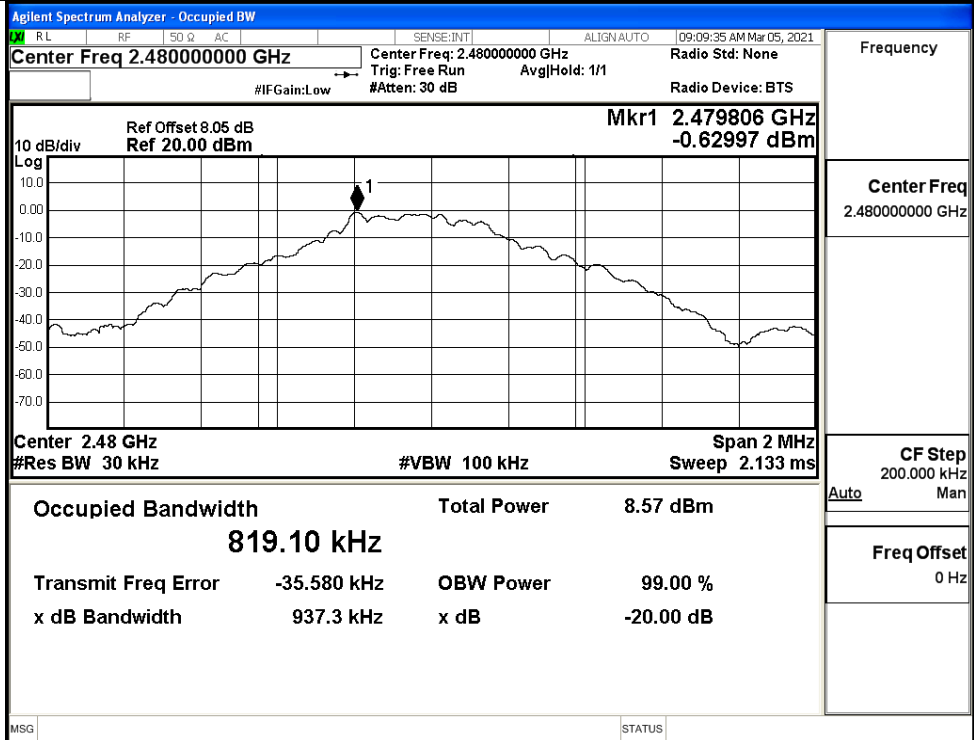
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9390	Not Specified	PASS
	MCH	0.9366	Not Specified	PASS
	HCH	0.9373	Not Specified	PASS
π/4DQPSK	LCH	1.309	Not Specified	PASS
	MCH	1.288	Not Specified	PASS
	HCH	1.293	Not Specified	PASS



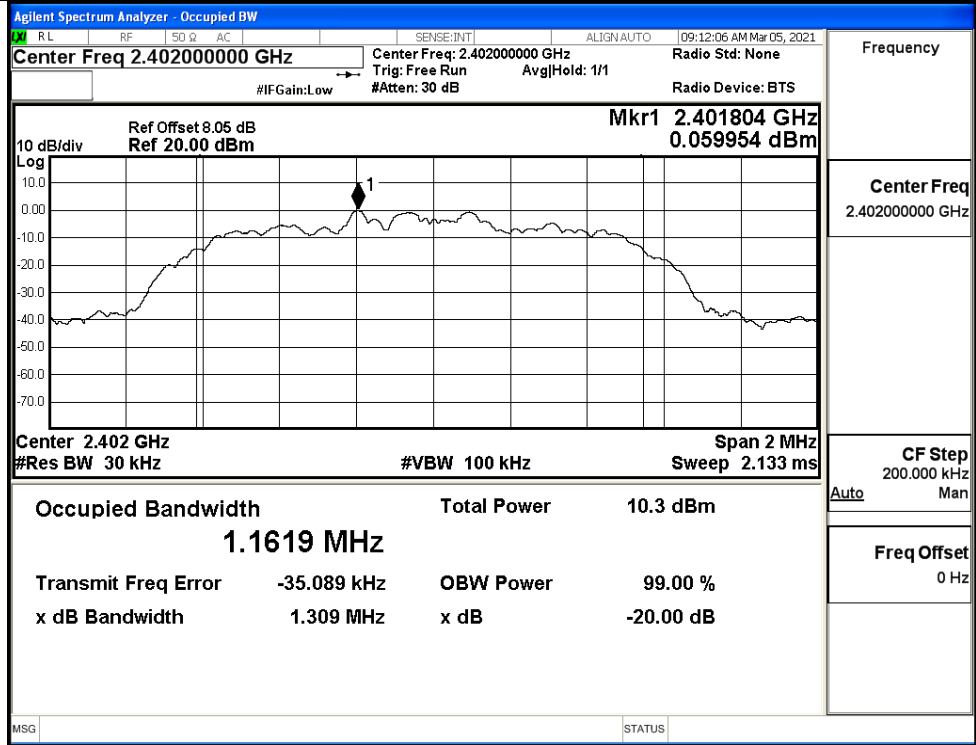
GFSK/MCH



GFSK/HCH

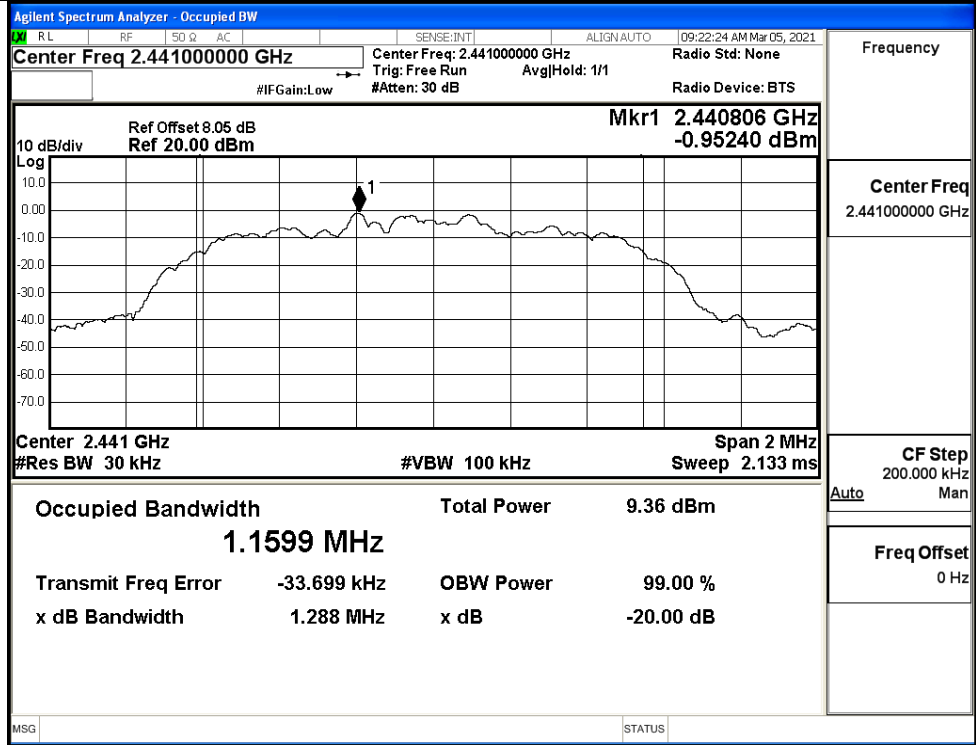


$\pi$ /4DQPSK/LCH



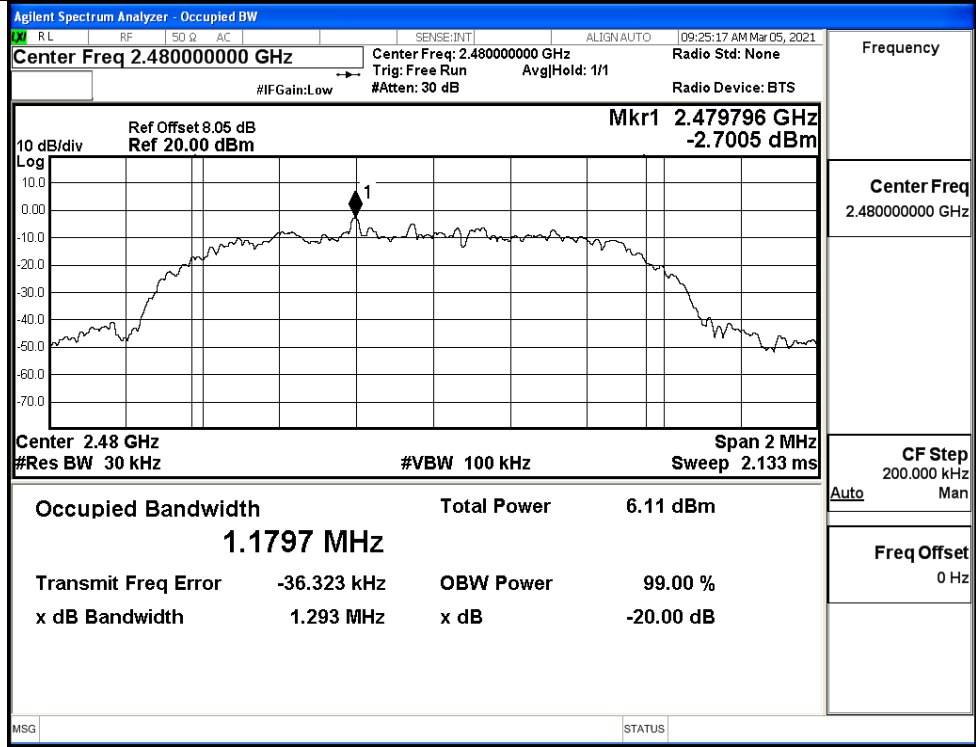
Frequency	2.40200000 GHz
Center Freq	2.40200000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

$\pi$ /4DQPSK/MCH



Frequency	2.44100000 GHz
Center Freq	2.44100000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

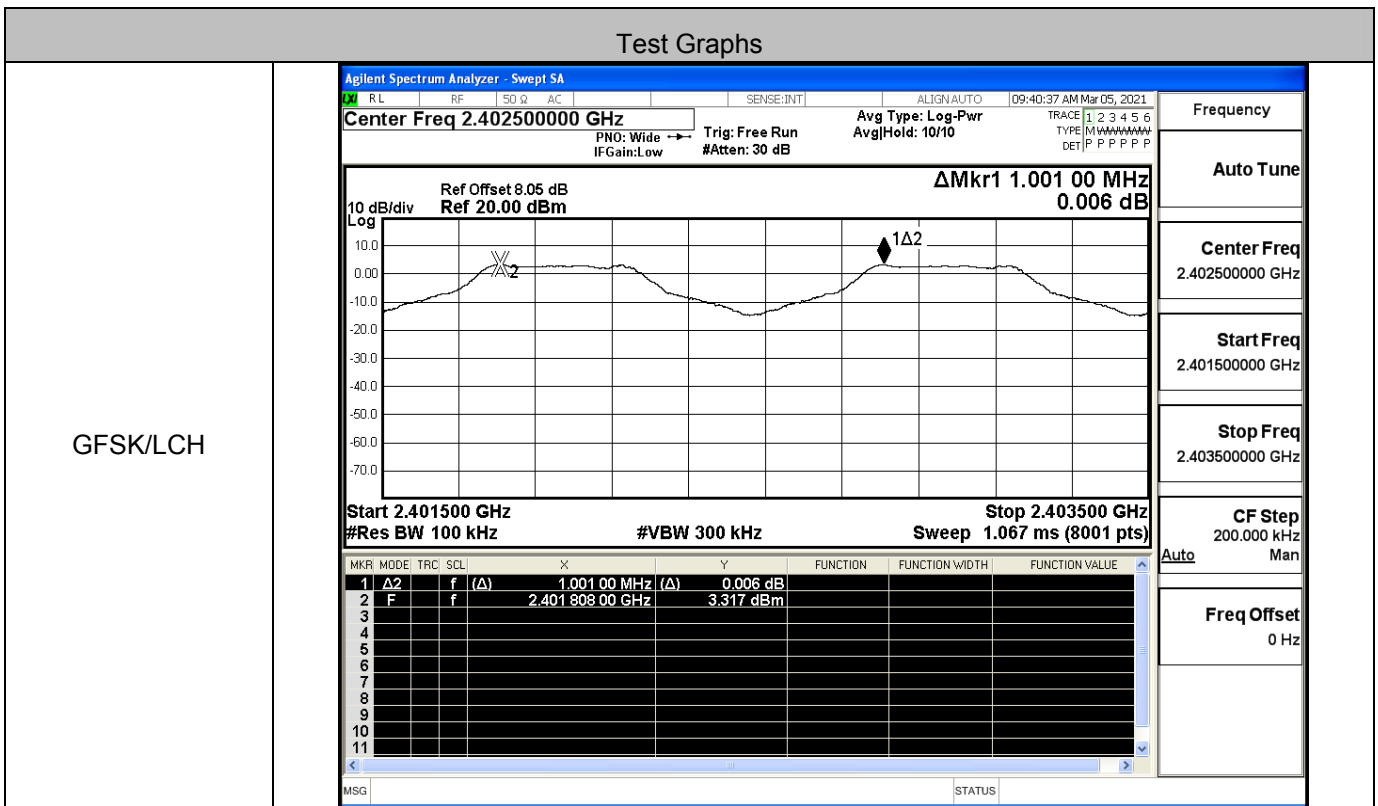
$\pi/4$ DQPSK/HCH



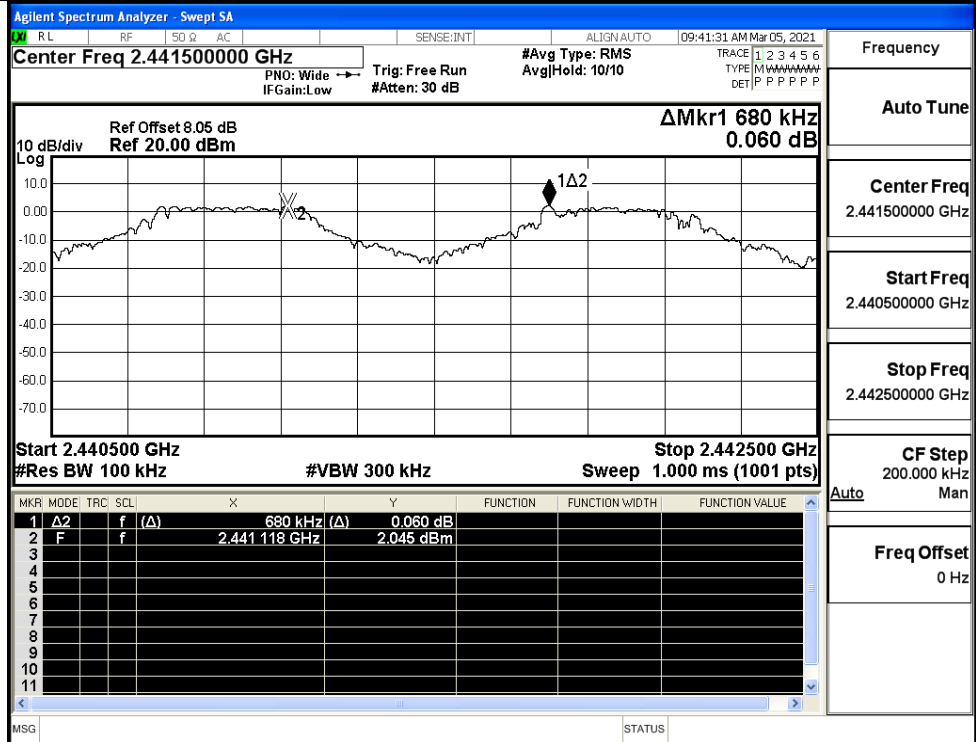


### A.3 Carrier Frequency Separation

Mode	Channel	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.001	0.626	PASS
	MCH	0.680	0.626	PASS
	HCH	1.124	0.626	PASS
π/4DQPSK	LCH	1.152	0.873	PASS
	MCH	0.984	0.873	PASS
	HCH	1.102	0.873	PASS



GFSK/MCH



Frequency

Auto Tune

Center Freq

2.441500000 GHz

Start Freq

2.440500000 GHz

Stop Freq

2.442500000 GHz

CF Step

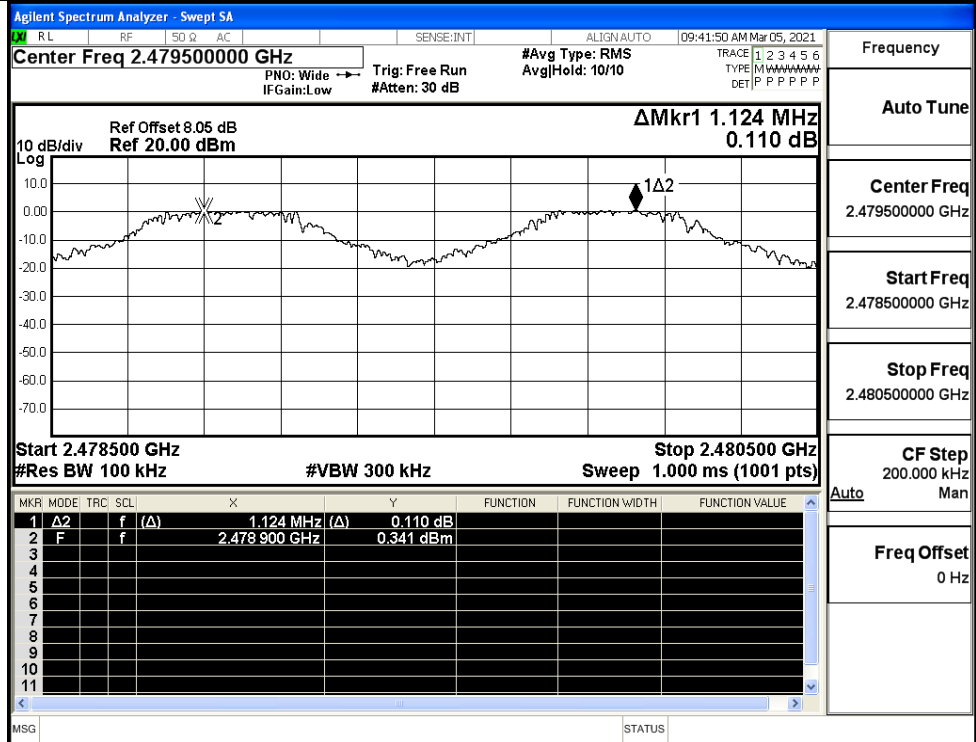
200.000 kHz

Auto

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

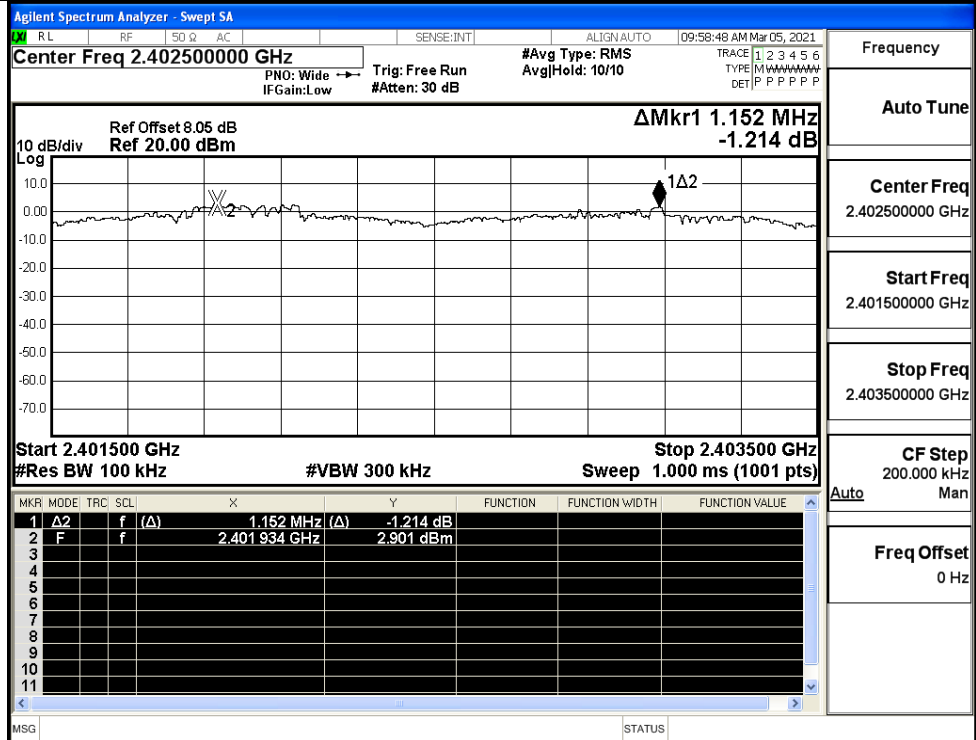
200.000 kHz

Auto

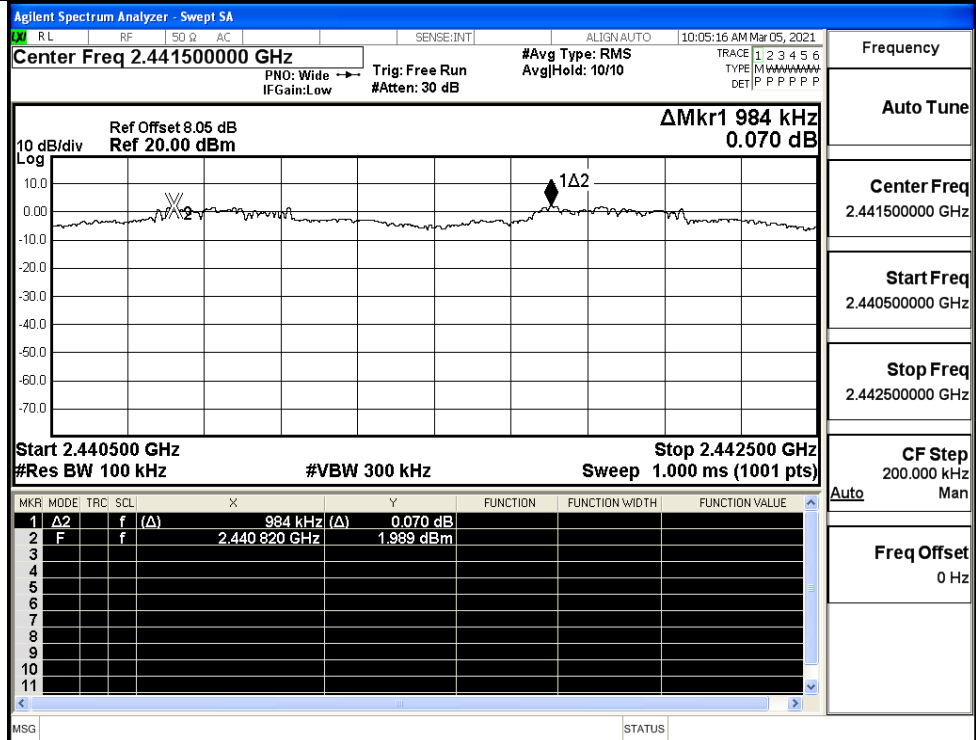
Freq Offset

0 Hz

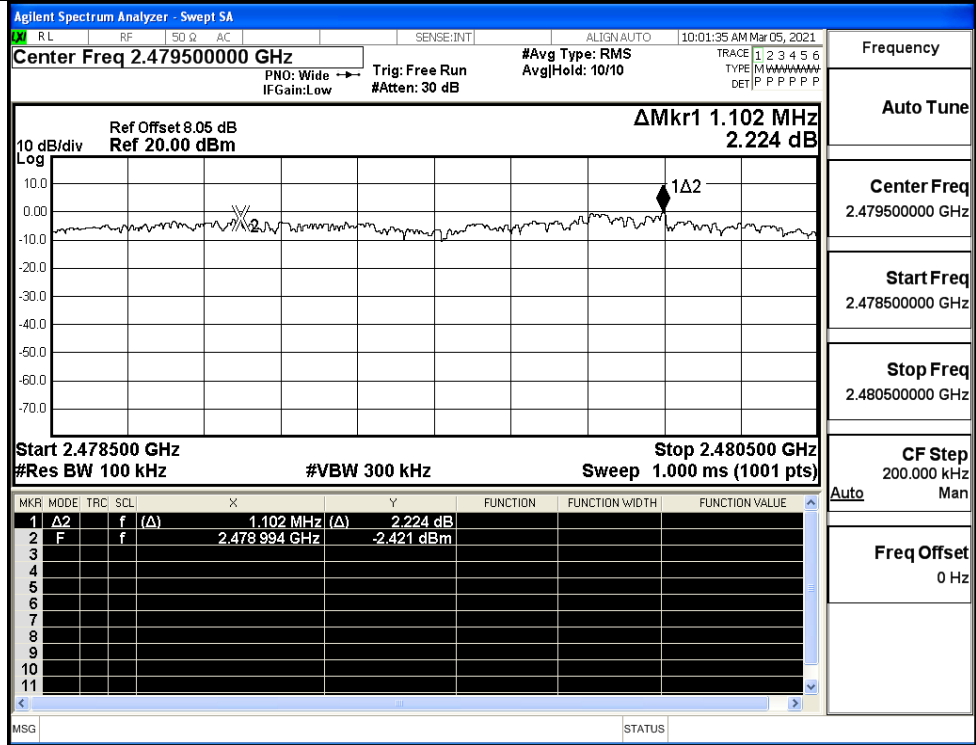
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



$\pi/4$ DQPSK/HCH



### A.4 Hopping Channel Number

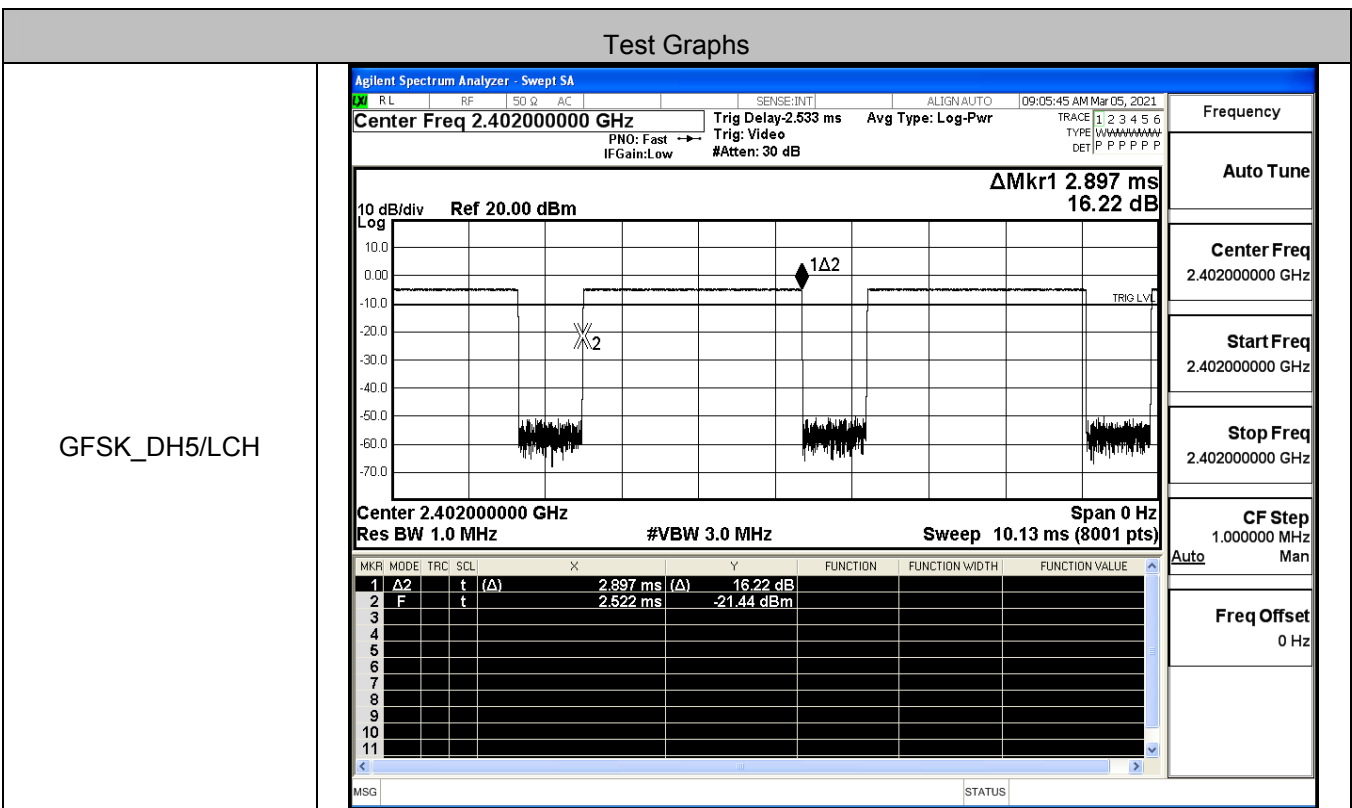
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS

#### Test Graphs

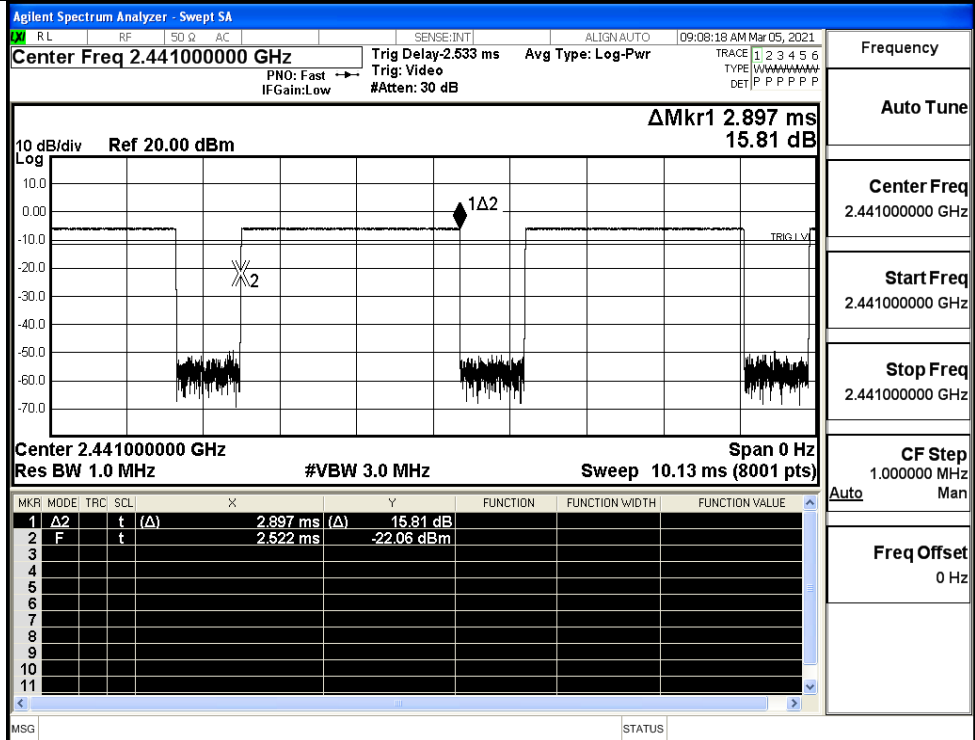
<p>GFSK/Hop</p>	<table border="1"> <thead> <tr> <th>MKR</th> <th>MODE</th> <th>TRC</th> <th>SCL</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td><math>\Delta</math>2</td> <td>f</td> <td>(<math>\Delta</math>)</td> <td>78.281 MHz (<math>\Delta</math>)</td> <td>-2.084 dB</td> <td></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>2.765 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	$\Delta$ 2	f	( $\Delta$ )	78.281 MHz ( $\Delta$ )	-2.084 dB				2	F	f		2.401 858 GHz	2.765 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</p> <p>Freq Offset 0 Hz</p>
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																					
1	$\Delta$ 2	f	( $\Delta$ )	78.281 MHz ( $\Delta$ )	-2.084 dB																								
2	F	f		2.401 858 GHz	2.765 dBm																								
<p><math>\pi/4</math>DQPSK/Hop</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><math>\Delta</math>2</td> <td>f</td> <td>(<math>\Delta</math>)</td> <td>78.073 MHz (<math>\Delta</math>)</td> <td>-4.158 dB</td> <td></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>1.760 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	$\Delta$ 2	f	( $\Delta$ )	78.073 MHz ( $\Delta$ )	-4.158 dB				2	F	f		2.401 994 GHz	1.760 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</p> <p>Freq Offset 0 Hz</p>
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																					
1	$\Delta$ 2	f	( $\Delta$ )	78.073 MHz ( $\Delta$ )	-4.158 dB																								
2	F	f		2.401 994 GHz	1.760 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	2.9	106.7	0.309	0.4	PASS
	DH5	MCH	2.9	106.7	0.309	0.4	PASS
	DH5	HCH	2.9	106.7	0.309	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.9	106.7	0.309	0.4	PASS
	2DH5	MCH	2.9	106.7	0.309	0.4	PASS
	2DH5	HCH	2.9	106.7	0.309	0.4	PASS

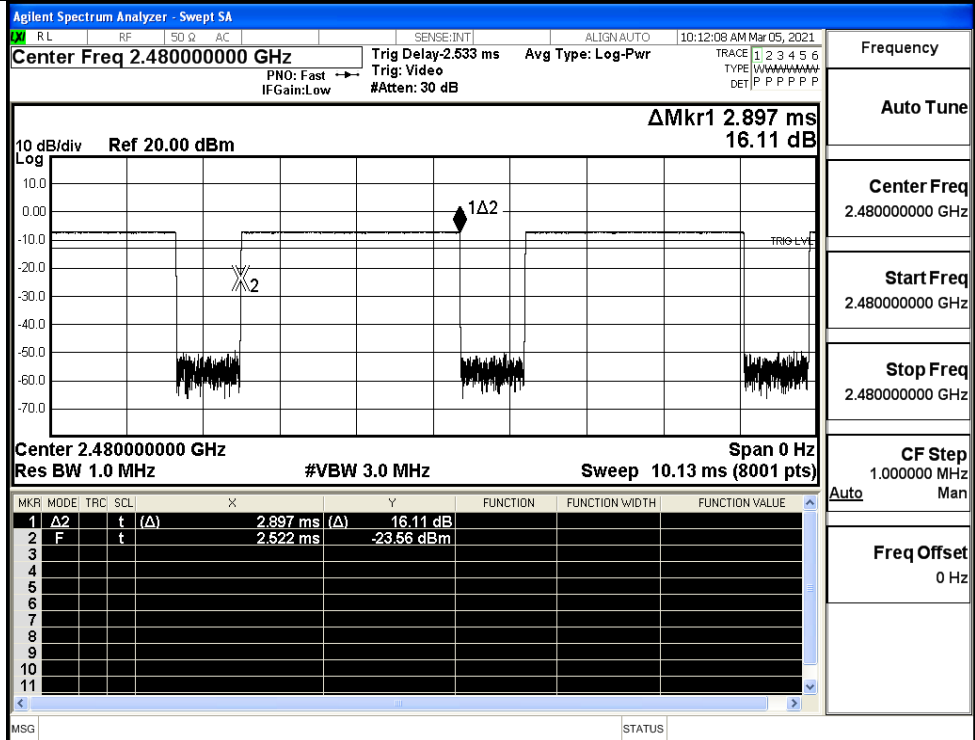


GFSK\_DH5/MCH



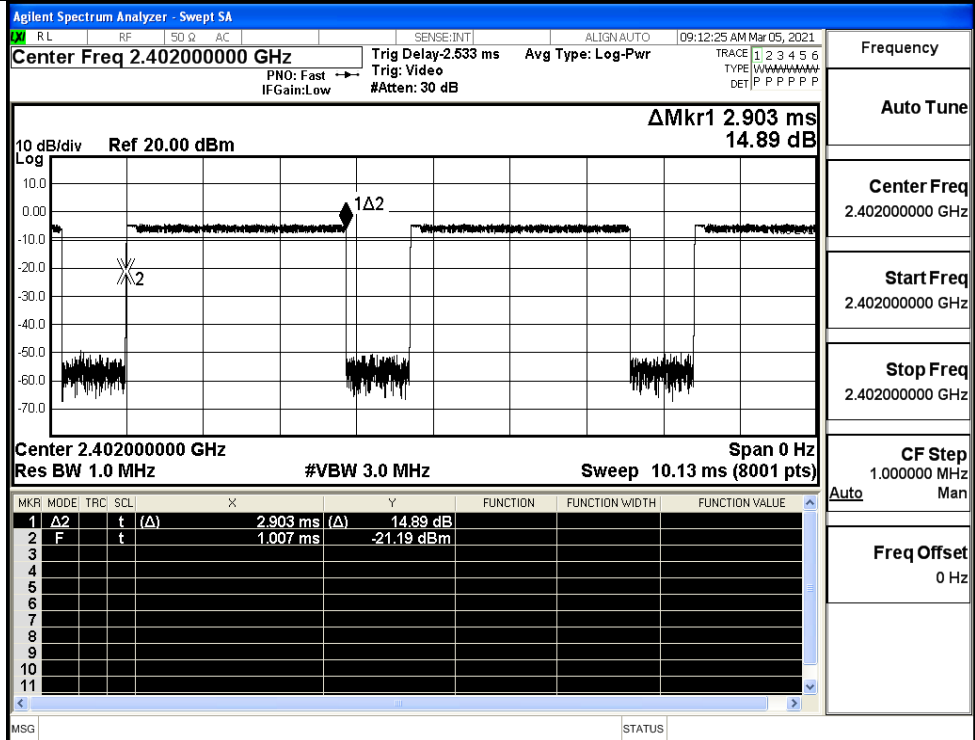
Frequency	
Auto Tune	
Center Freq	2.441000000 GHz
Start Freq	2.441000000 GHz
Stop Freq	2.441000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

GFSK\_DH5/HCH

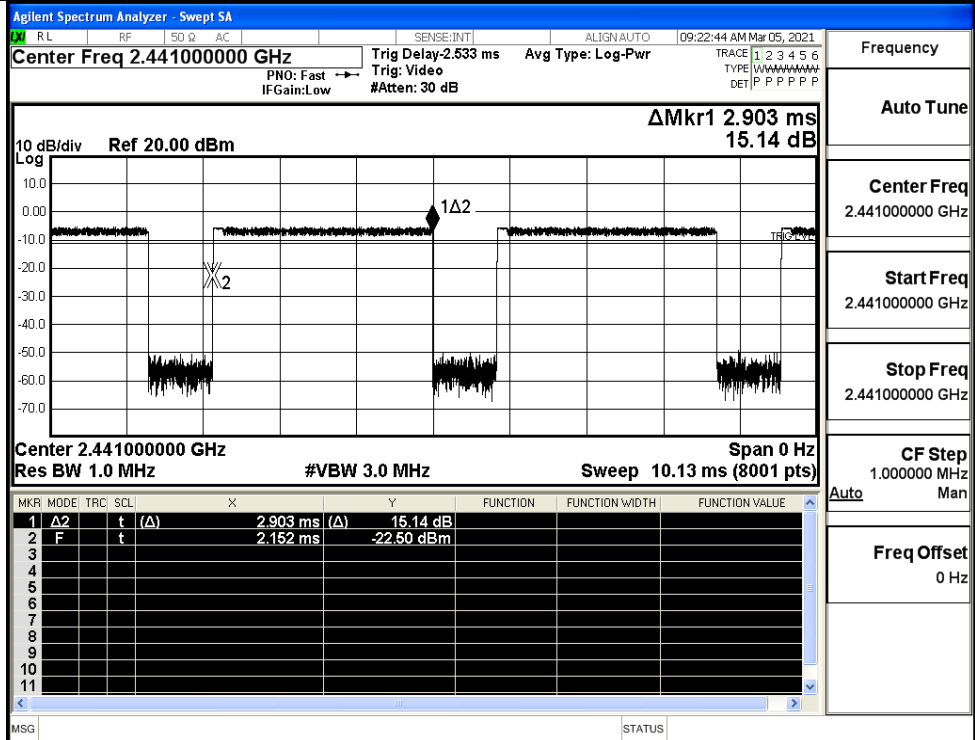


Frequency	
Auto Tune	
Center Freq	2.480000000 GHz
Start Freq	2.480000000 GHz
Stop Freq	2.480000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

$\pi/4$ DQPSK  
\_2DH5/LCH

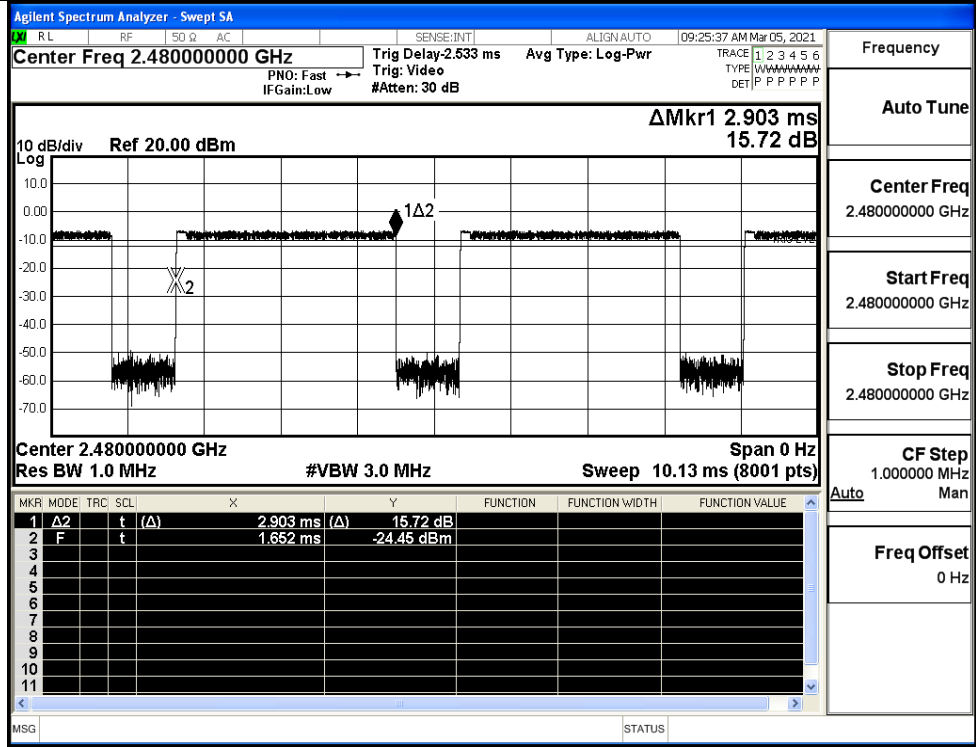


$\pi/4$ DQPSK  
\_2DH5/MCH





$\pi/4$ DQPSK  
\_2DH5/HCH

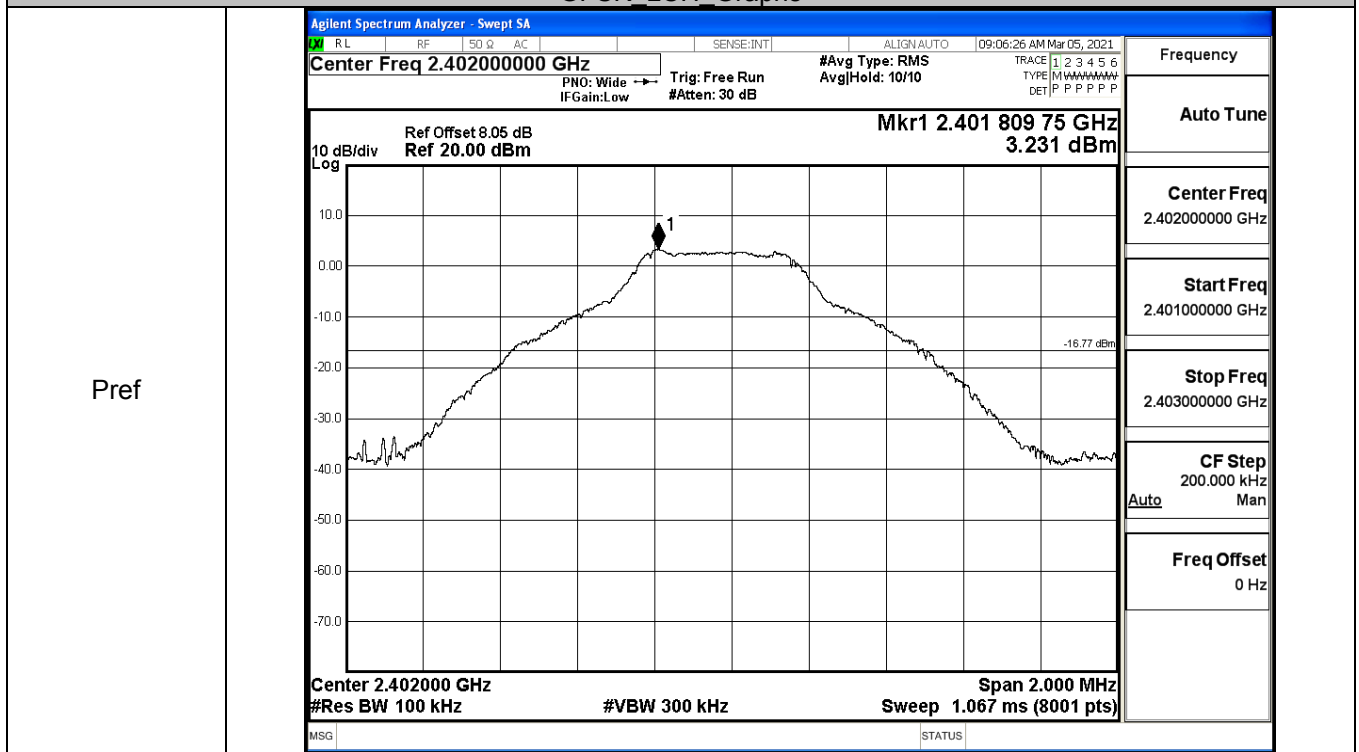


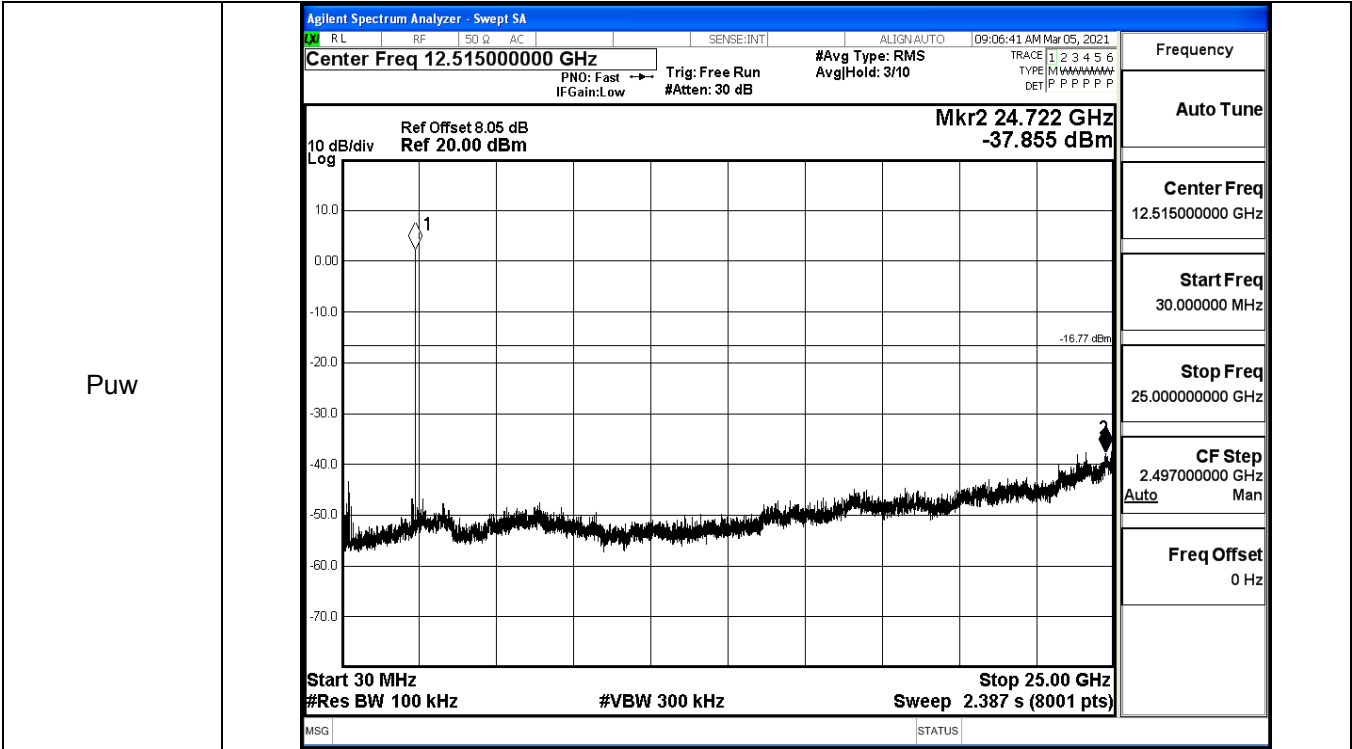
Frequency	
Auto Tune	
Center Freq	2.480000000 GHz
Start Freq	2.480000000 GHz
Stop Freq	2.480000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

### A.6 RF Conducted Spurious Emissions

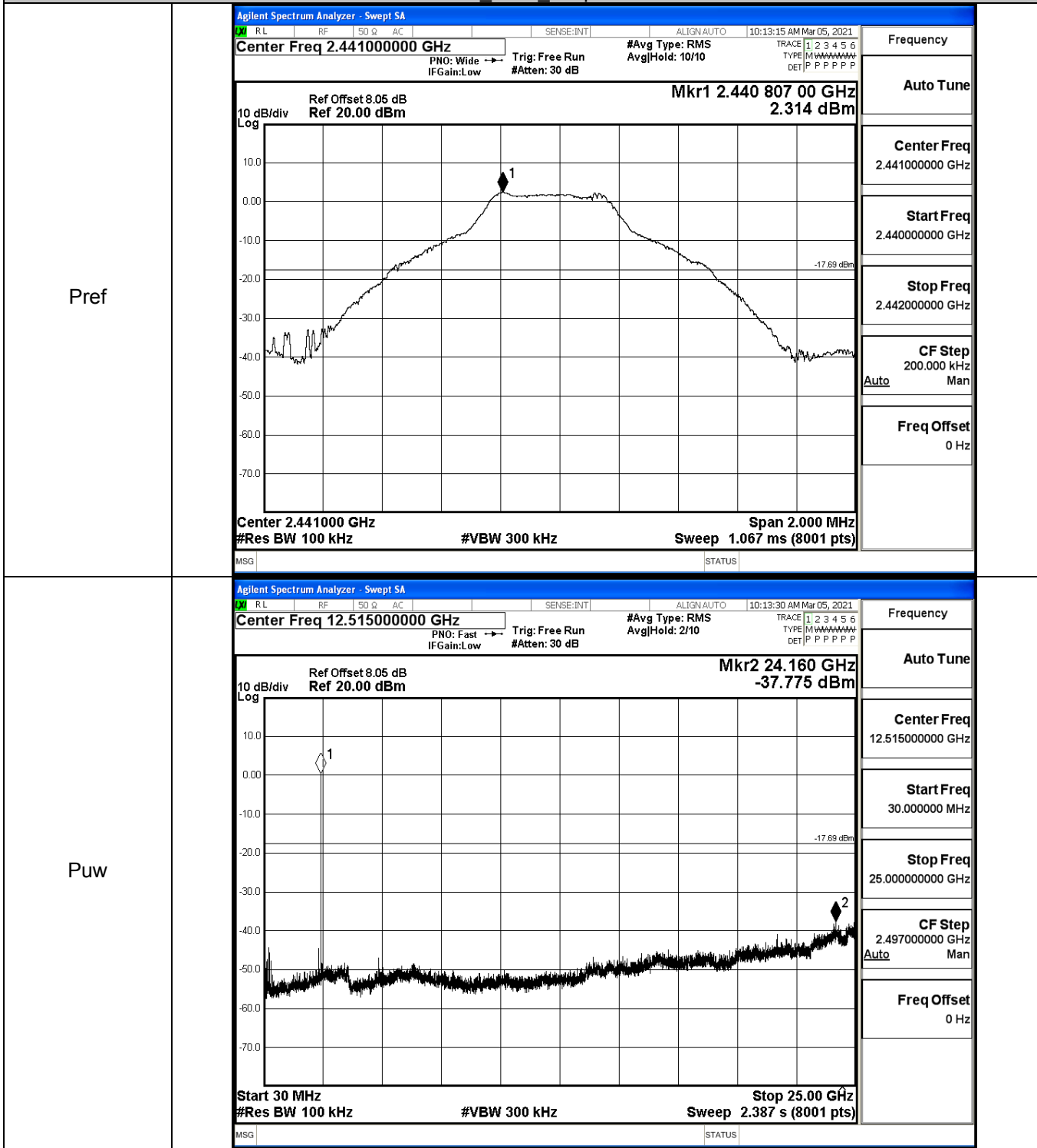
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	3.231	-37.855	-16.769	PASS
	MCH	2.314	-37.775	-17.686	PASS
	HCH	0.985	-37.511	-19.015	PASS
π/4DQPSK	LCH	3.154	-38.094	-16.846	PASS
	MCH	1.673	-36.920	-18.327	PASS
	HCH	0.88	-38.088	-19.120	PASS

GFSK LCH Graphs



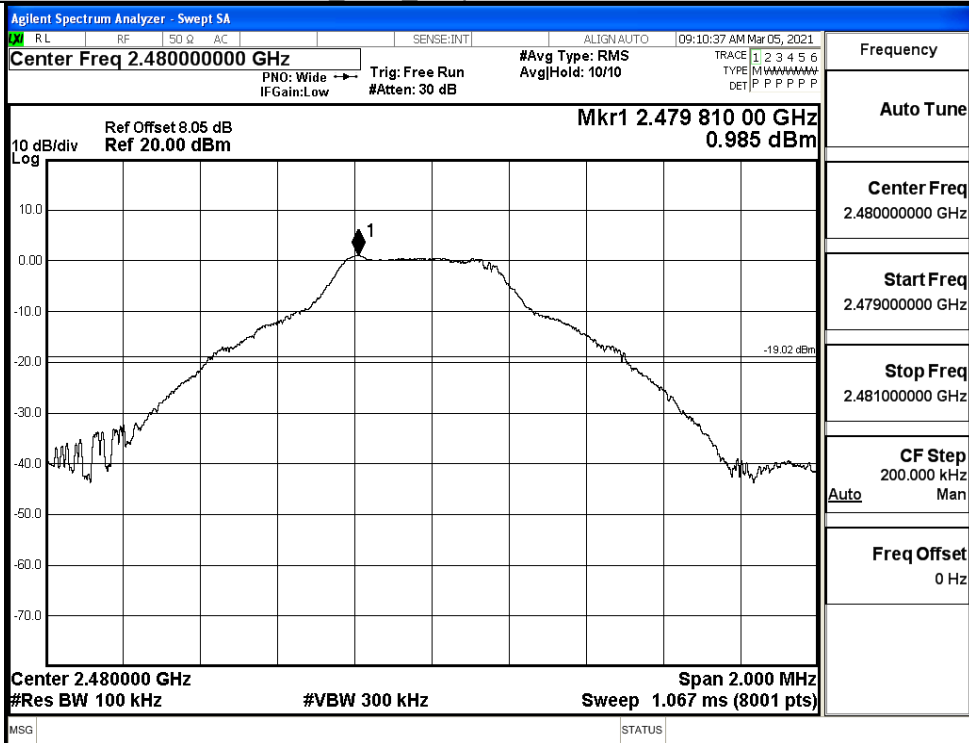


GFSK\_MCH\_Graphs

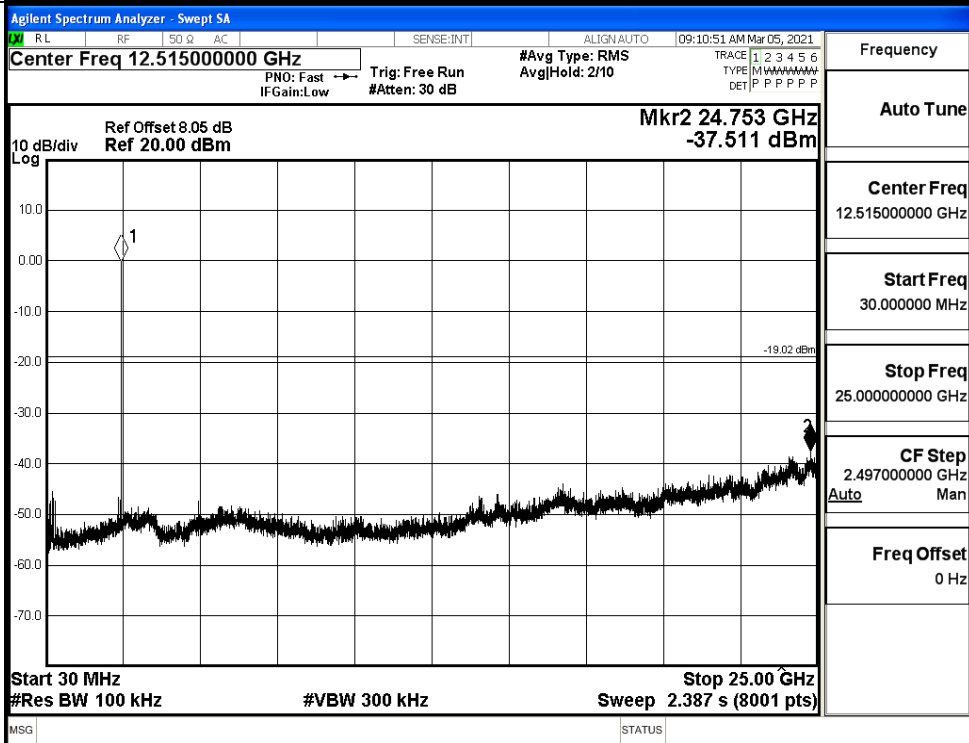


GFSK\_HCH\_Graphs

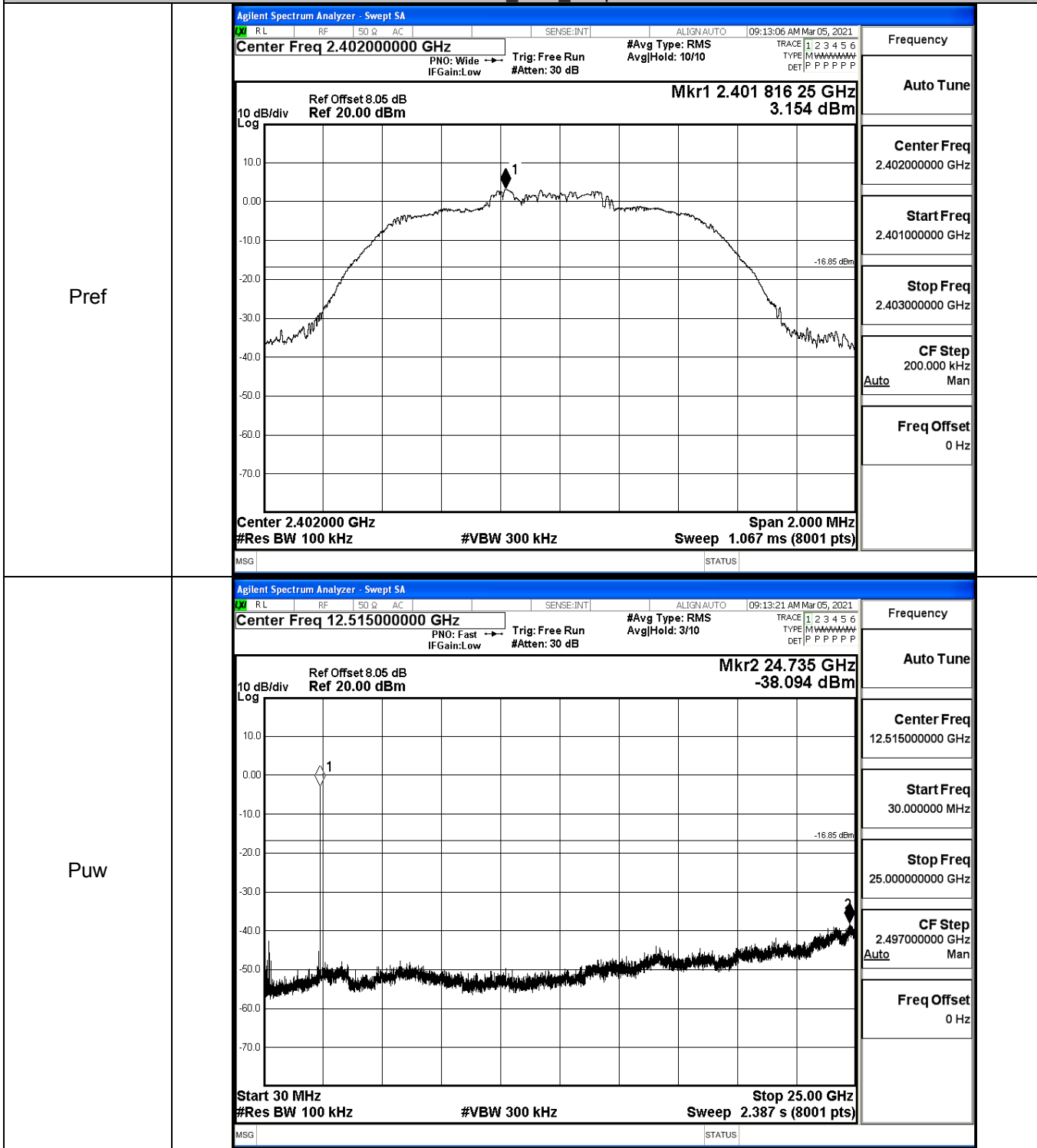
Pref



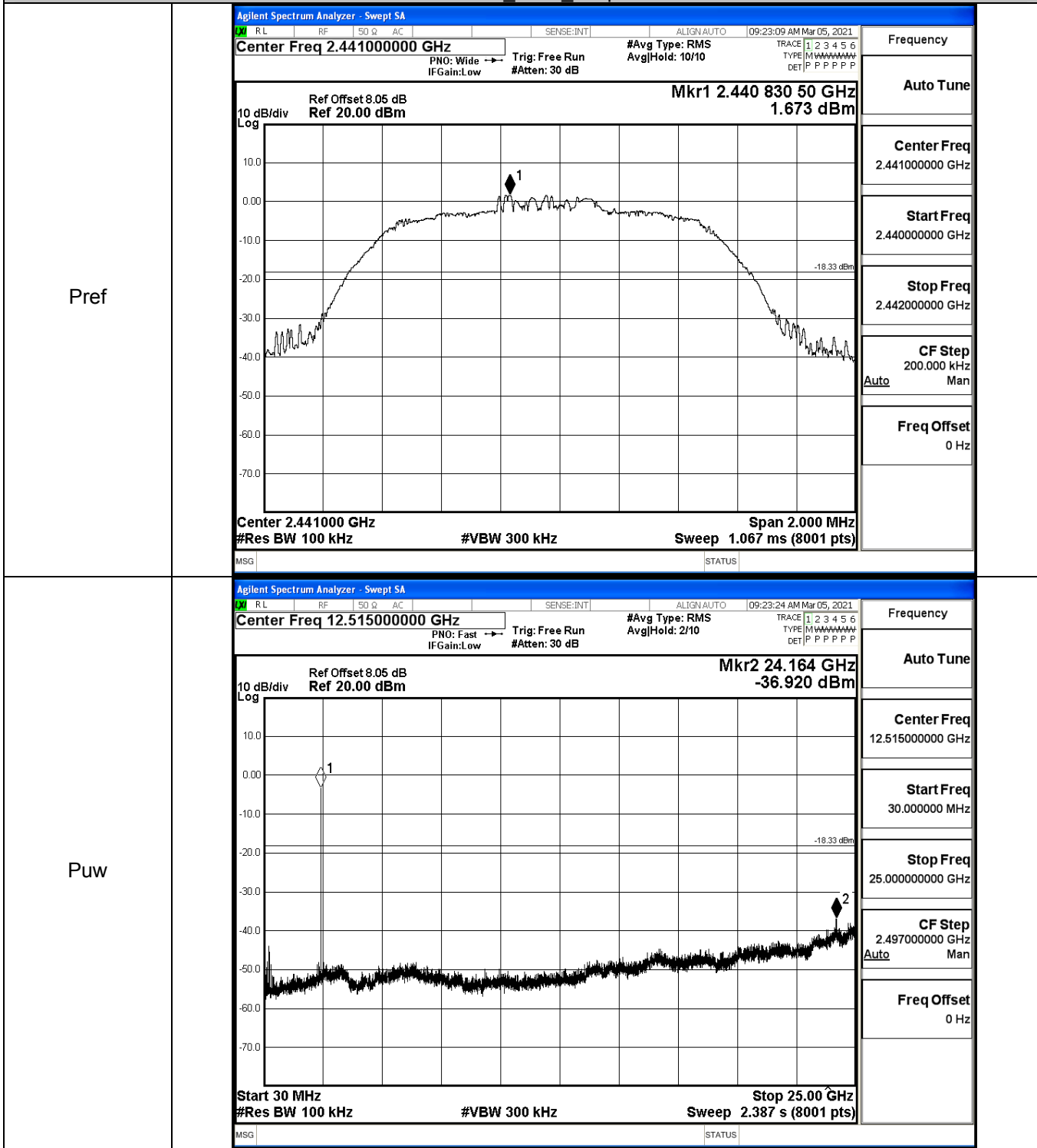
Puw



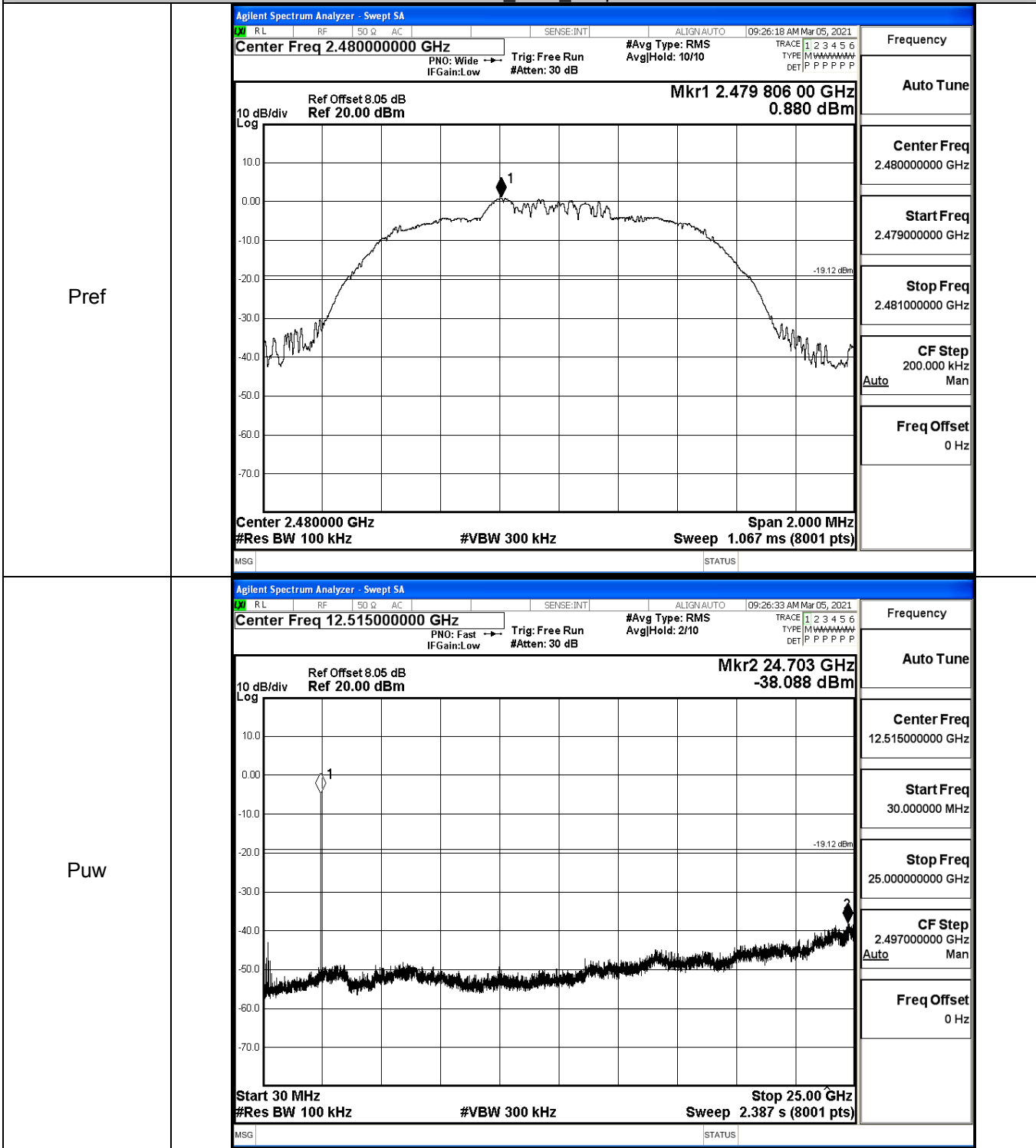
$\pi/4$ DQPSK\_LCH\_Graphs



$\pi/4$ DQPSK\_MCH\_Graphs



$\pi/4$ DQPSK\_HCH\_Graphs



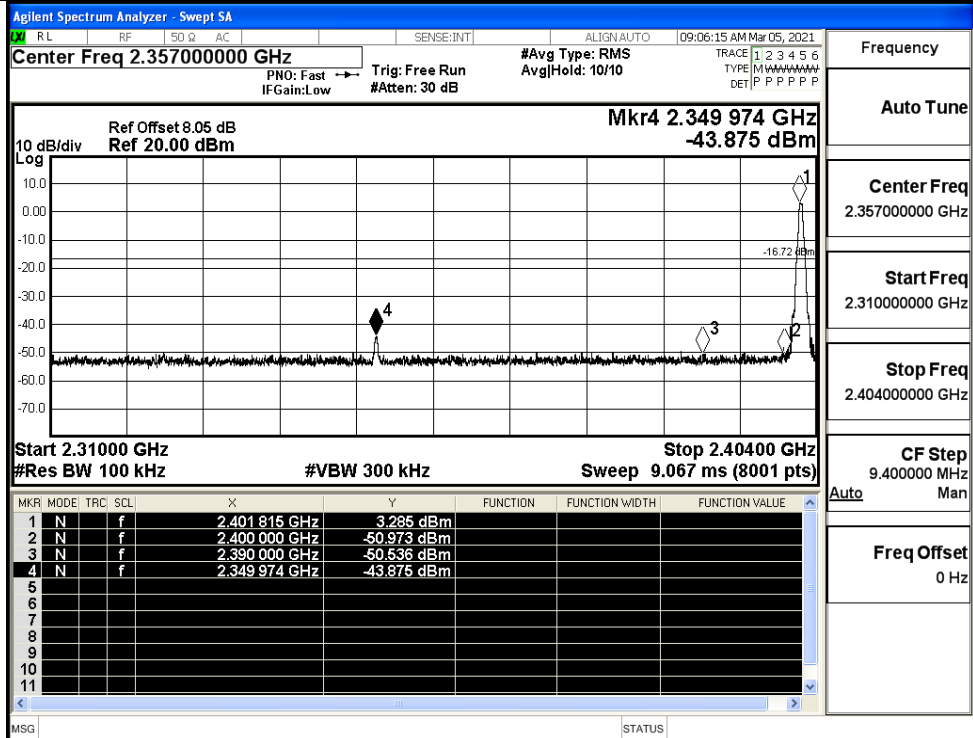


## A.7 Band-edge for RF Conducted Emissions

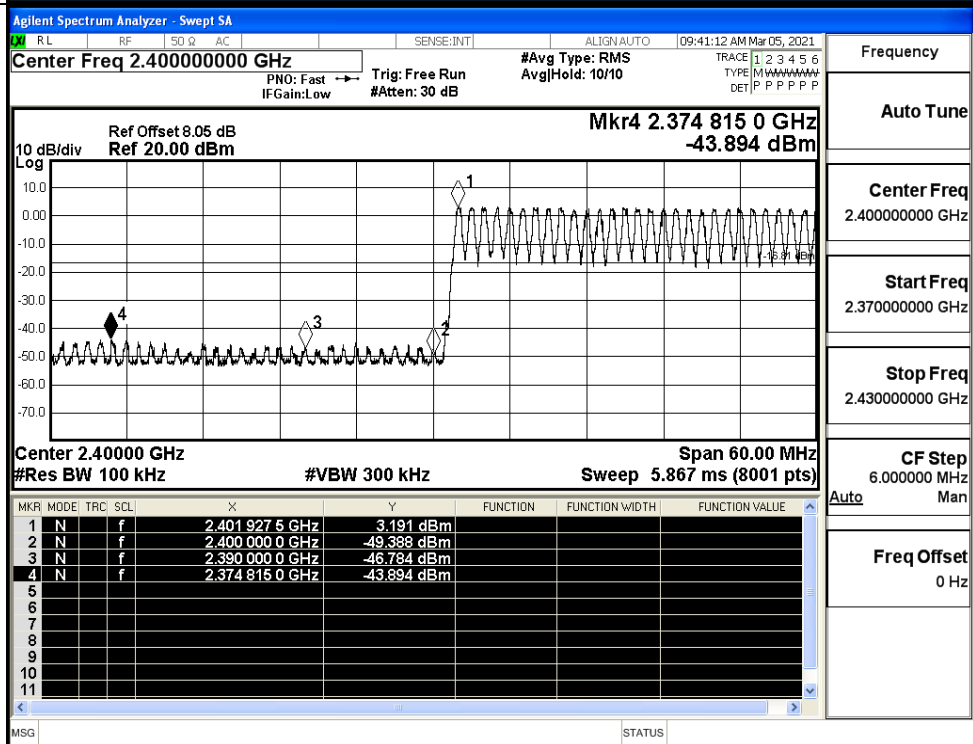
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	3.285	Off	-43.875	-16.72	PASS
			3.191	On	-43.894	-16.81	PASS
	HCH	2480	0.974	Off	-49.480	-19.03	PASS
			1.704	On	-46.938	-18.3	PASS
$\pi/4$ DQPSK	LCH	2402	1.824	Off	-46.727	-18.18	PASS
			2.992	On	-44.501	-17.01	PASS
	HCH	2480	1.012	Off	-49.524	-18.99	PASS
			1.661	On	-47.432	-18.34	PASS

Test Graphs

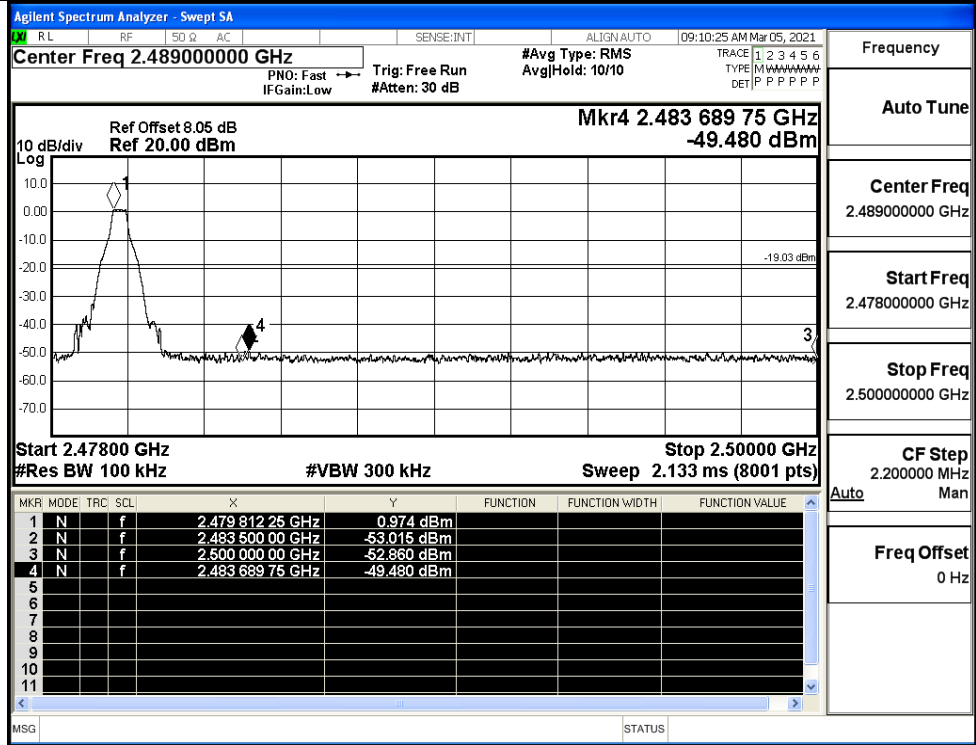
GFSK/LCH/No Hop



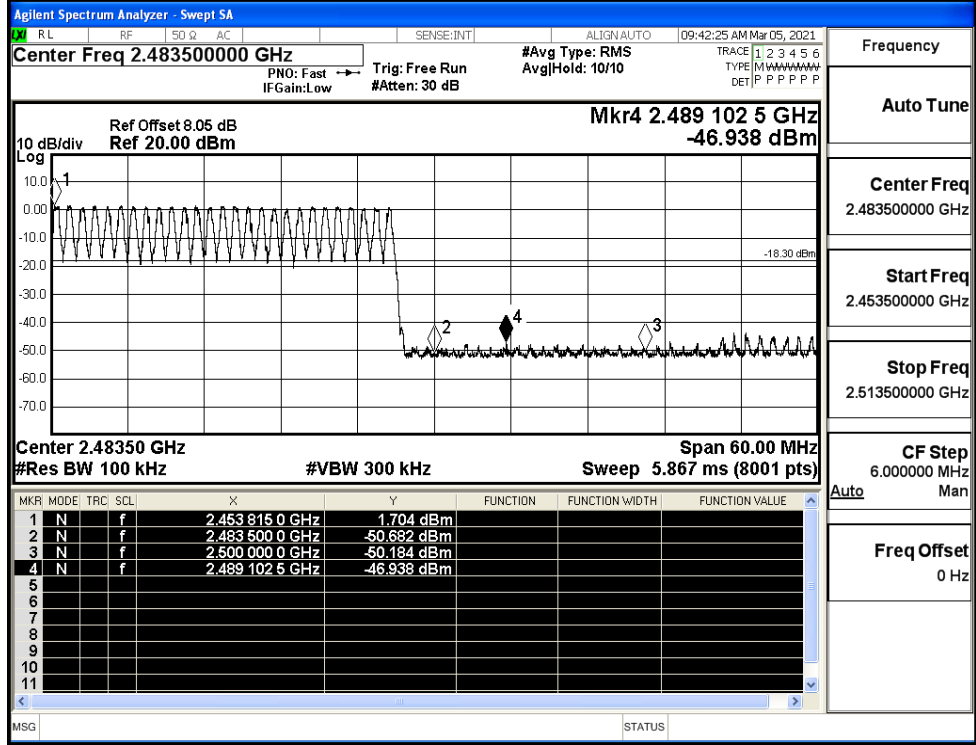
GFSK/LCH/Hop



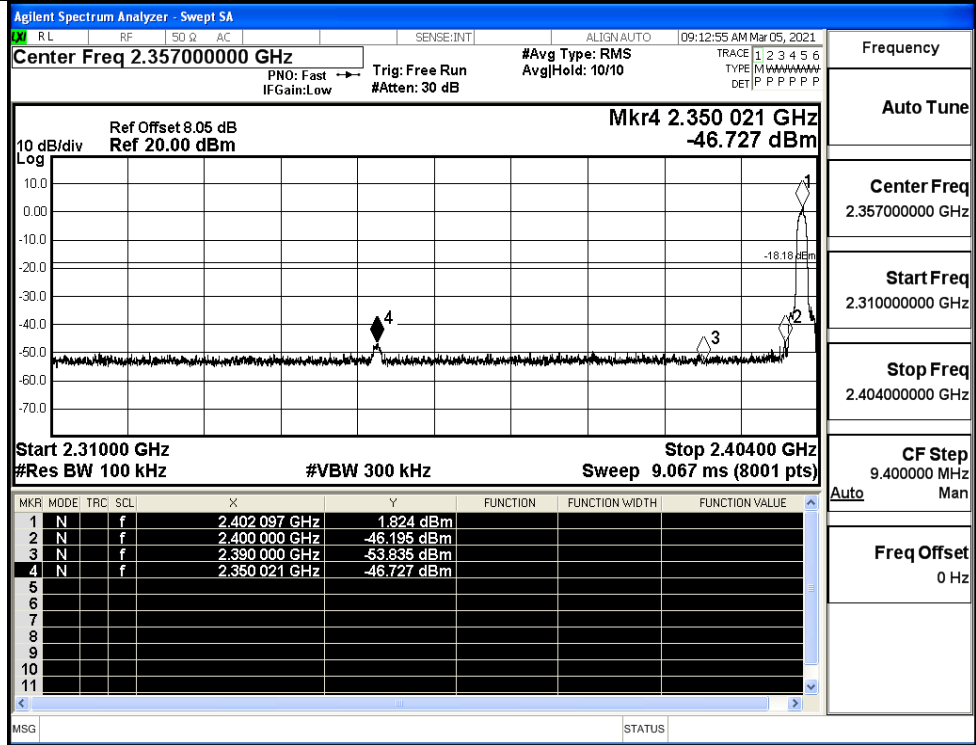
GFSK/HCH/No Hop



GFSK/HCH/Hop

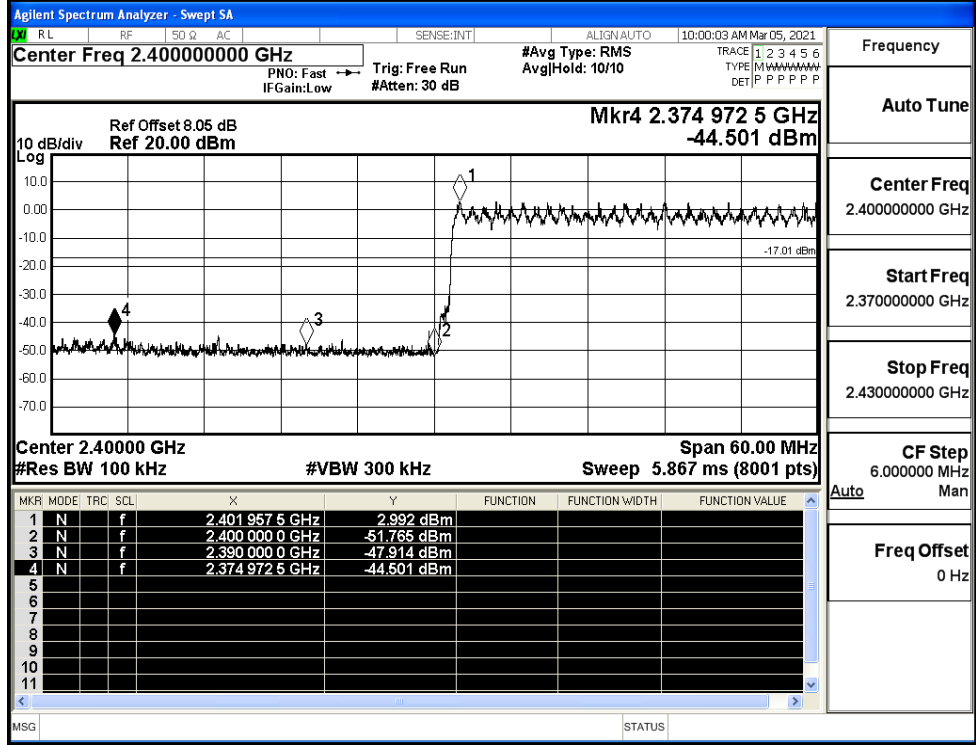


$\pi/4$ DQPSK/LCH/No  
Hop



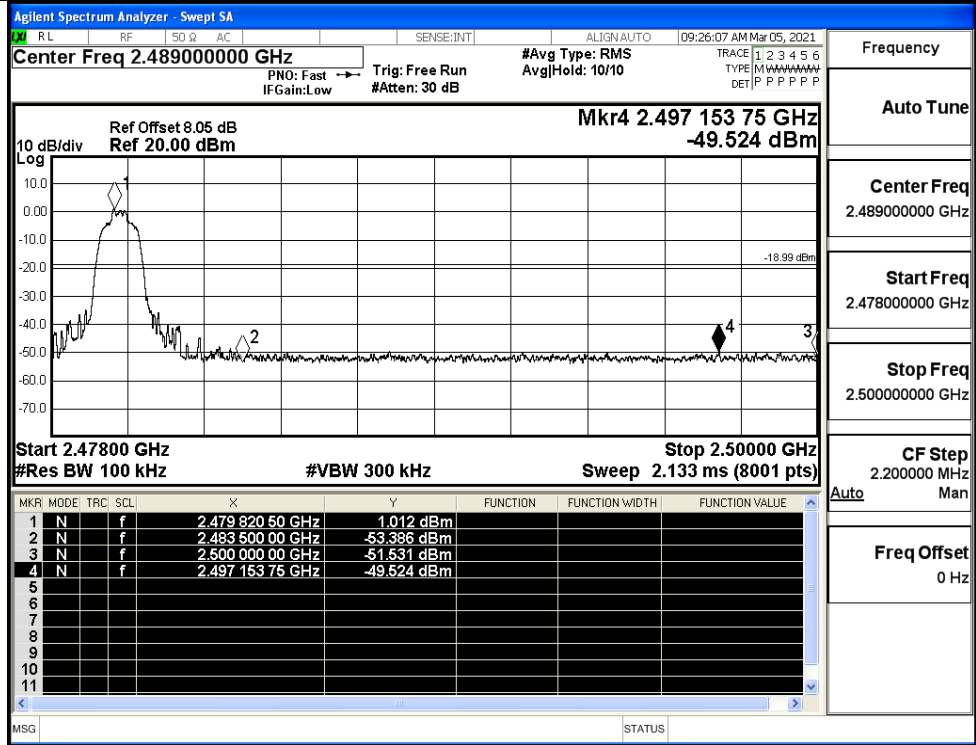
Frequency	
Auto Tune	
Center Freq	2.357000000 GHz
Start Freq	2.310000000 GHz
Stop Freq	2.404000000 GHz
CF Step	9.400000 MHz
Freq Offset	0 Hz

$\pi/4$ DQPSK/LCH/Hop

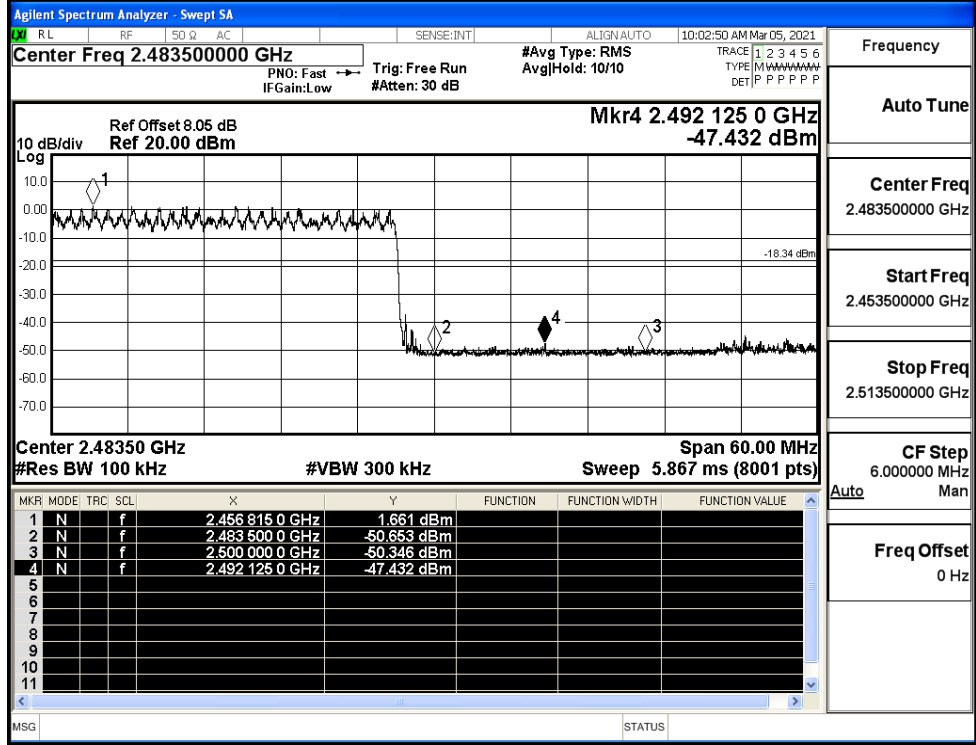


Frequency	
Auto Tune	
Center Freq	2.400000000 GHz
Start Freq	2.370000000 GHz
Stop Freq	2.430000000 GHz
CF Step	6.000000 MHz
Freq Offset	0 Hz

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



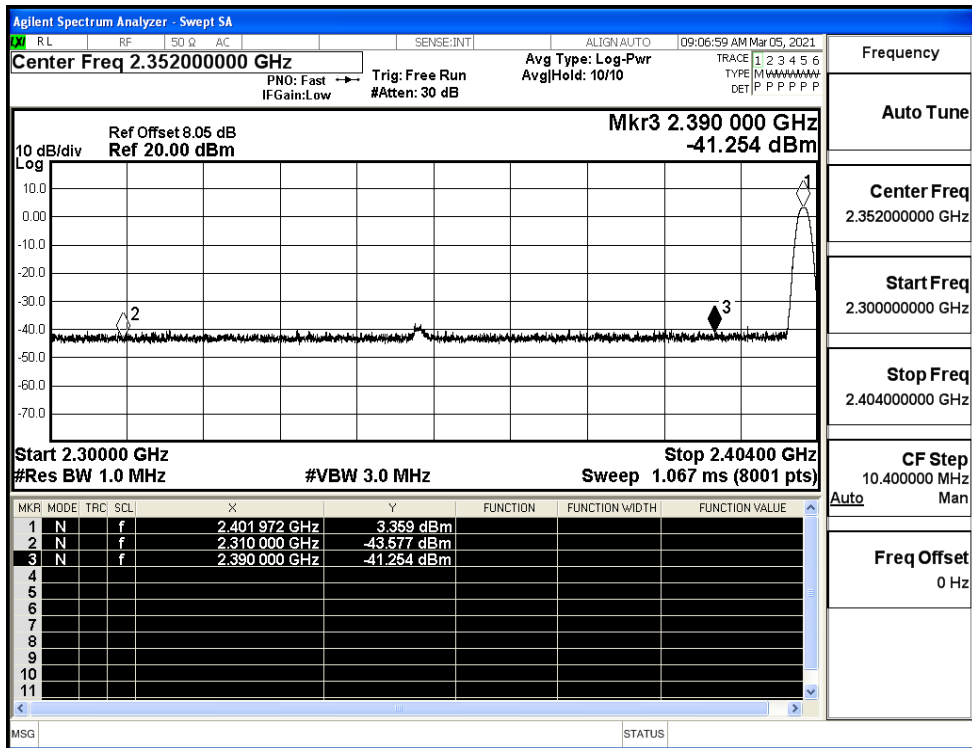
$\pi/4$ DQPSK/HCH/Hop



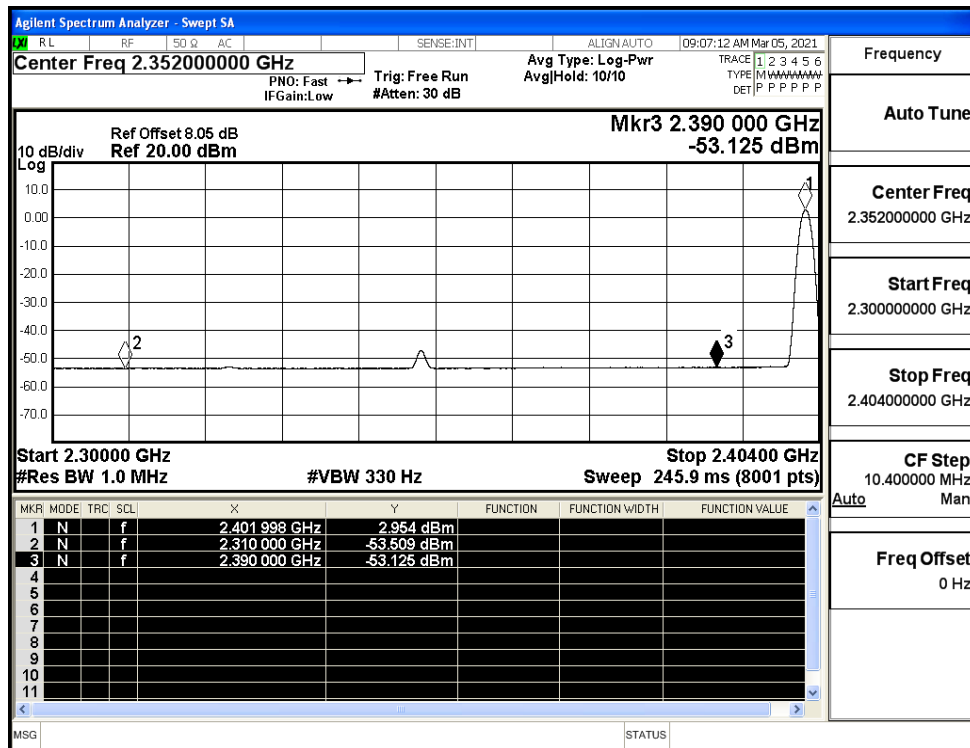
### A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.58	2.0	0	53.65	PEAK	74	PASS
	Off	2310.0	-53.51	2.0	0	43.72	AV	54	PASS
	Off	2390.0	-41.25	2.0	0	55.98	PEAK	74	PASS
	Off	2390.0	-53.13	2.0	0	44.10	AV	54	PASS
	Off	2483.5	-43.08	2.0	0	54.15	PEAK	74	PASS
	Off	2483.5	-52.49	2.0	0	44.74	AV	54	PASS
	Off	2500.0	-42.30	2.0	0	54.93	PEAK	74	PASS
	Off	2500.0	-52.49	2.0	0	44.74	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.98	2.0	0	54.25	PEAK	74	PASS
	Off	2310.0	-53.36	2.0	0	43.87	AV	54	PASS
	Off	2390.0	-42.90	2.0	0	54.33	PEAK	74	PASS
	Off	2390.0	-53.10	2.0	0	44.13	AV	54	PASS
	Off	2483.5	-41.38	2.0	0	55.85	PEAK	74	PASS
	Off	2483.5	-52.49	2.0	0	44.74	AV	54	PASS
	Off	2500.0	-42.26	2.0	0	54.97	PEAK	74	PASS
	Off	2500.0	-52.41	2.0	0	44.82	AV	54	PASS

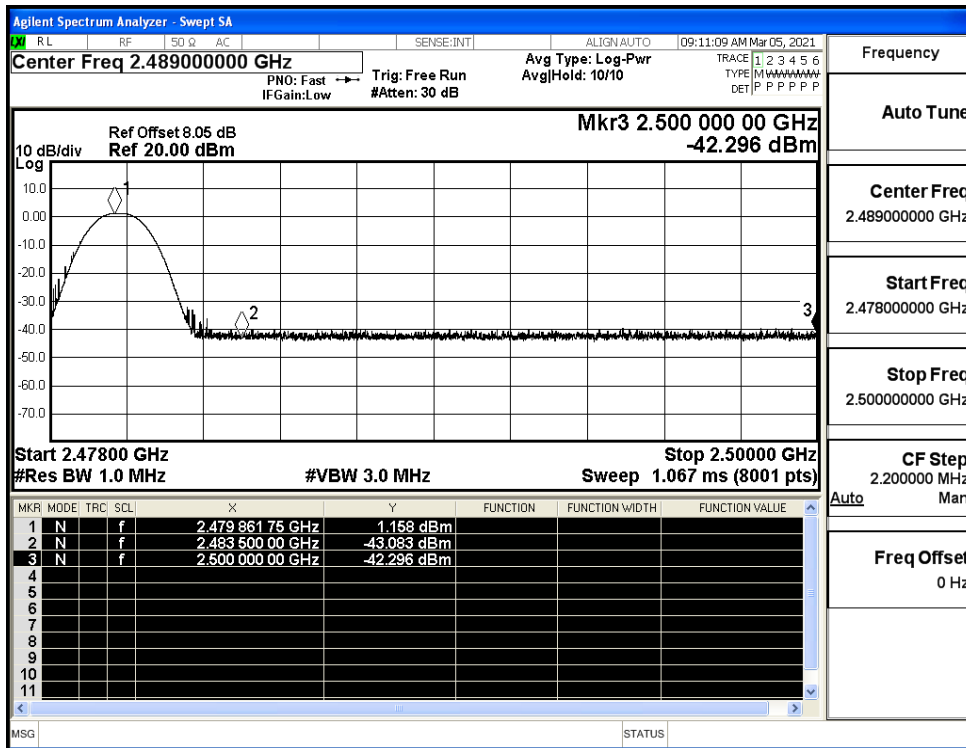
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (Low Channel)



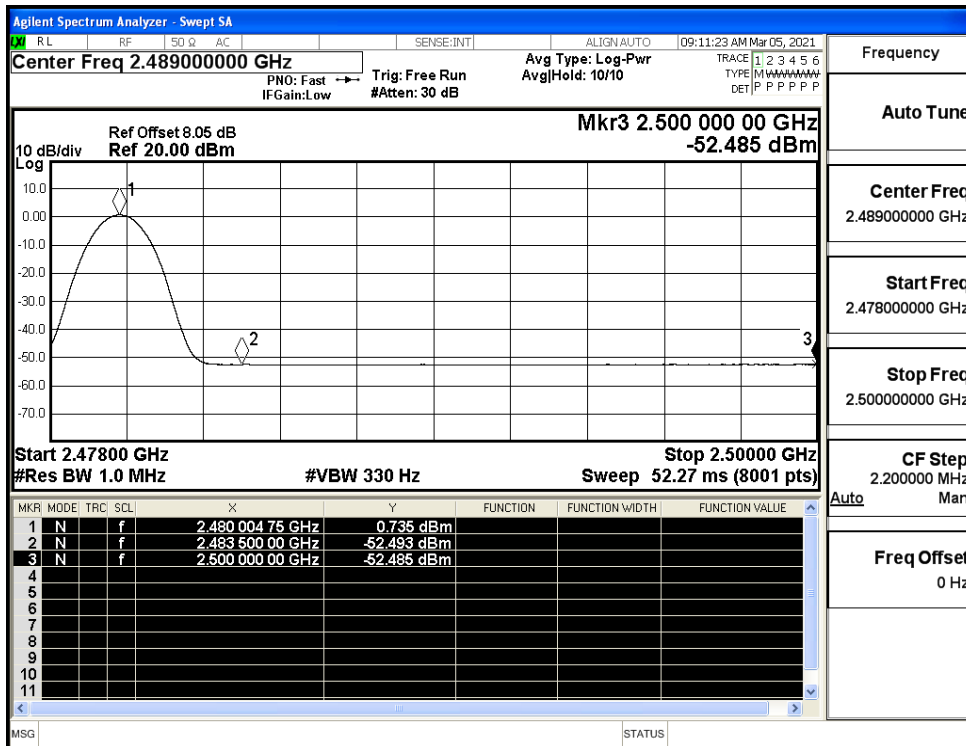
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (Low Channel)



Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (High Channel)

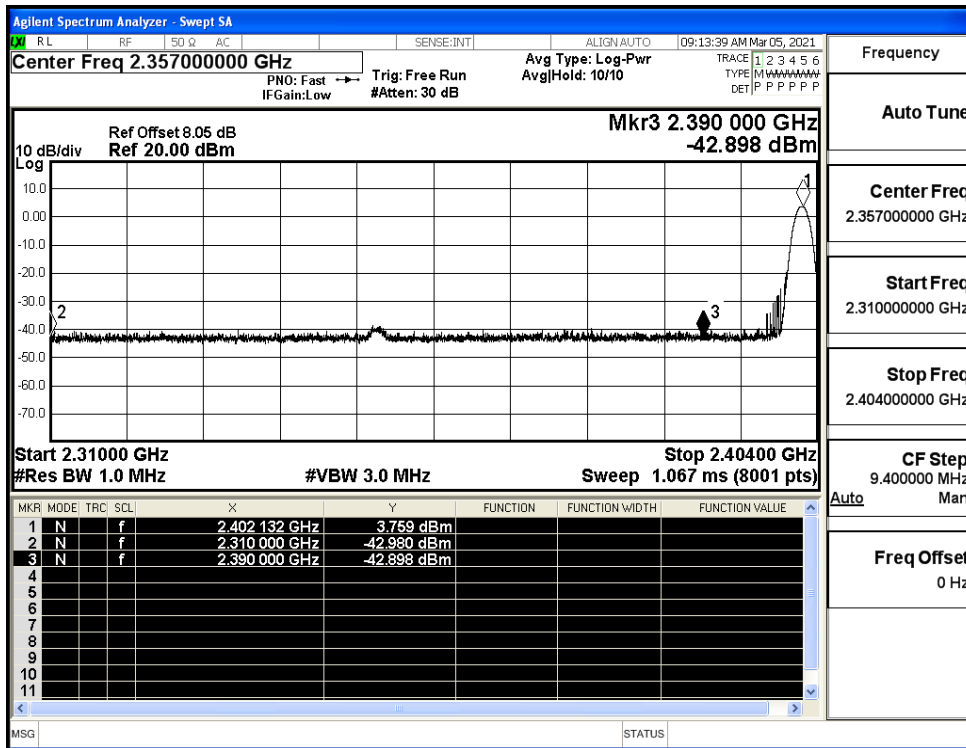


Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (High Channel)

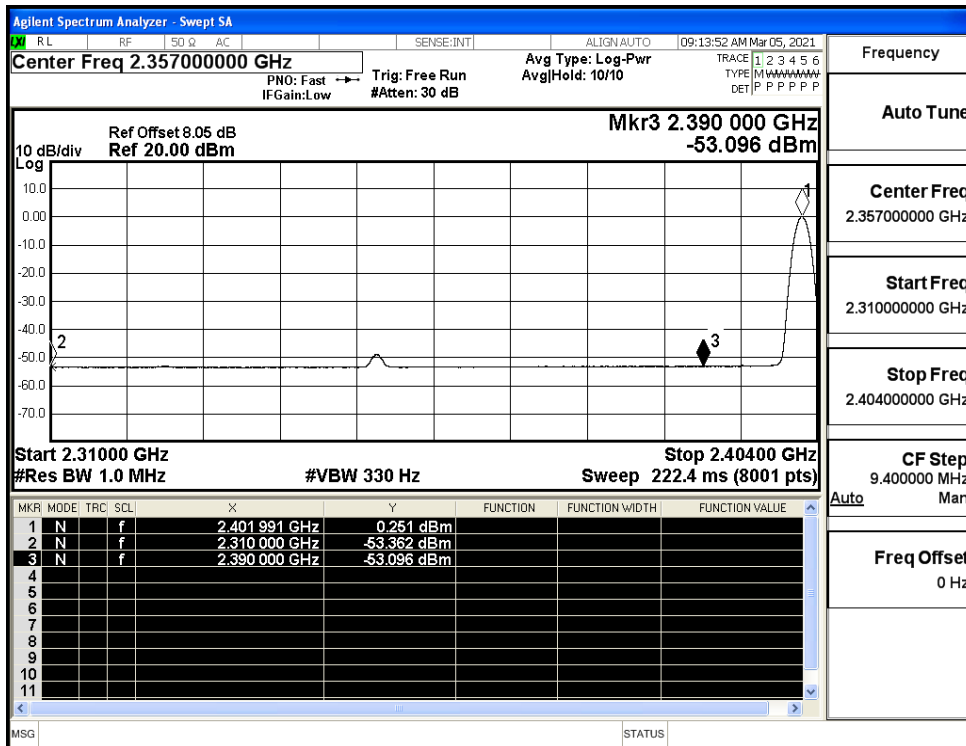




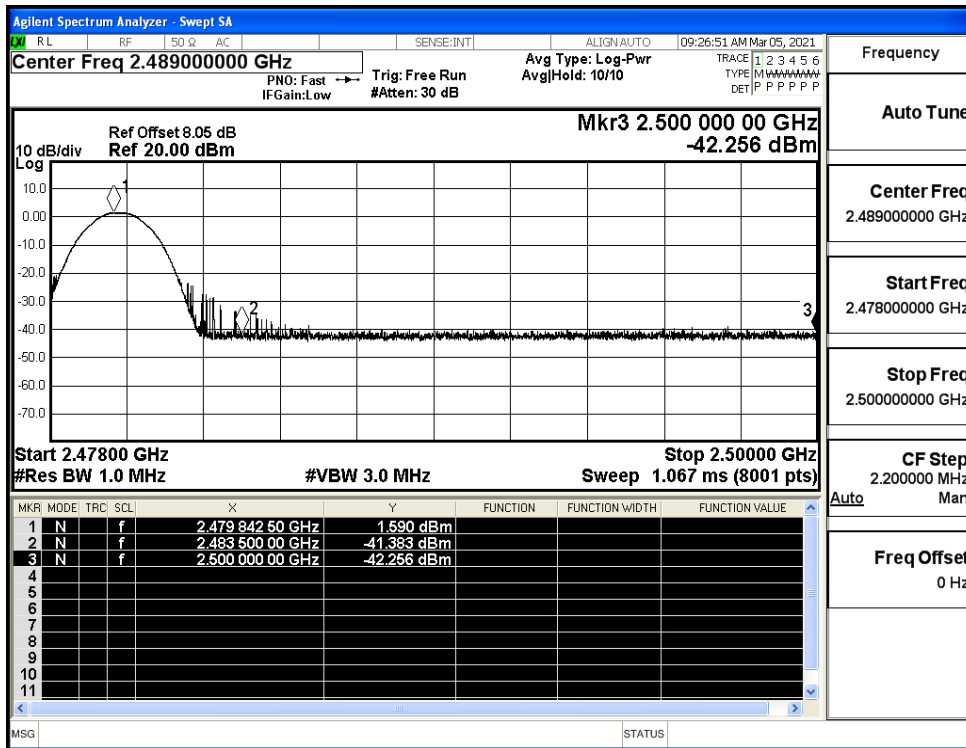
Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_PEAK (Low Channel)



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)

