

## Appendix A

### RF Test Data for BT V4.1 (BDR/EDR) (Conducted Measurement)

Product Name: TURNTABLE

Trade Mark: N/A

Test Model: RTB-01

#### Environmental Conditions

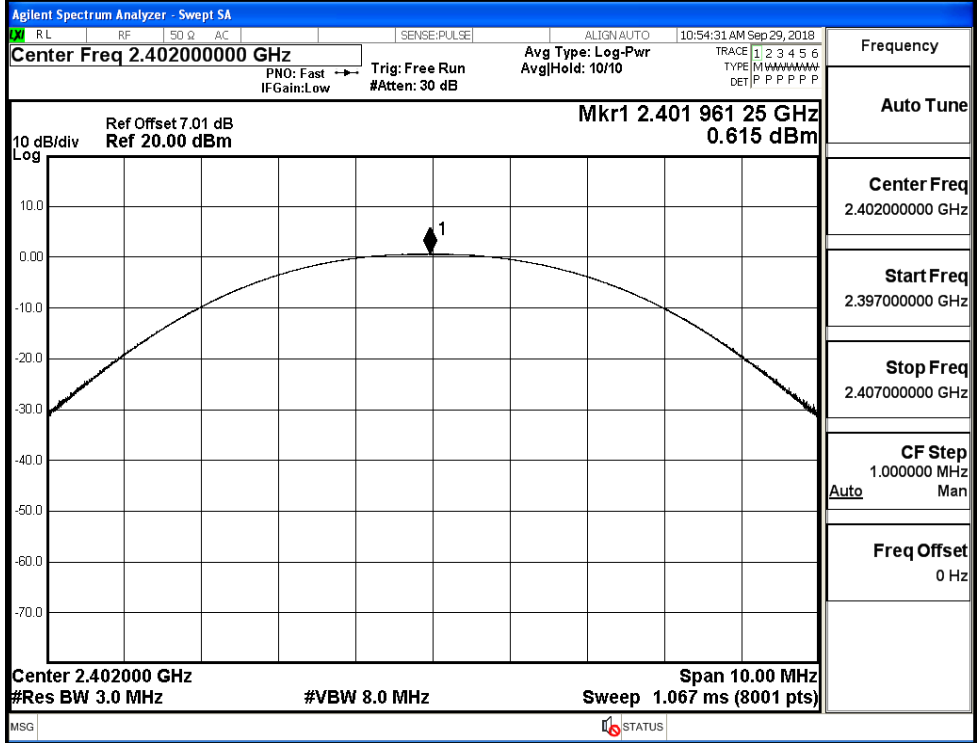
Temperature:	24.3 ° C
Relative Humidity:	53.6%
ATM Pressure:	100.0 kPa
Test Engineer:	WANGCHUANG
Supervised by:	Jayden.Zhuo

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

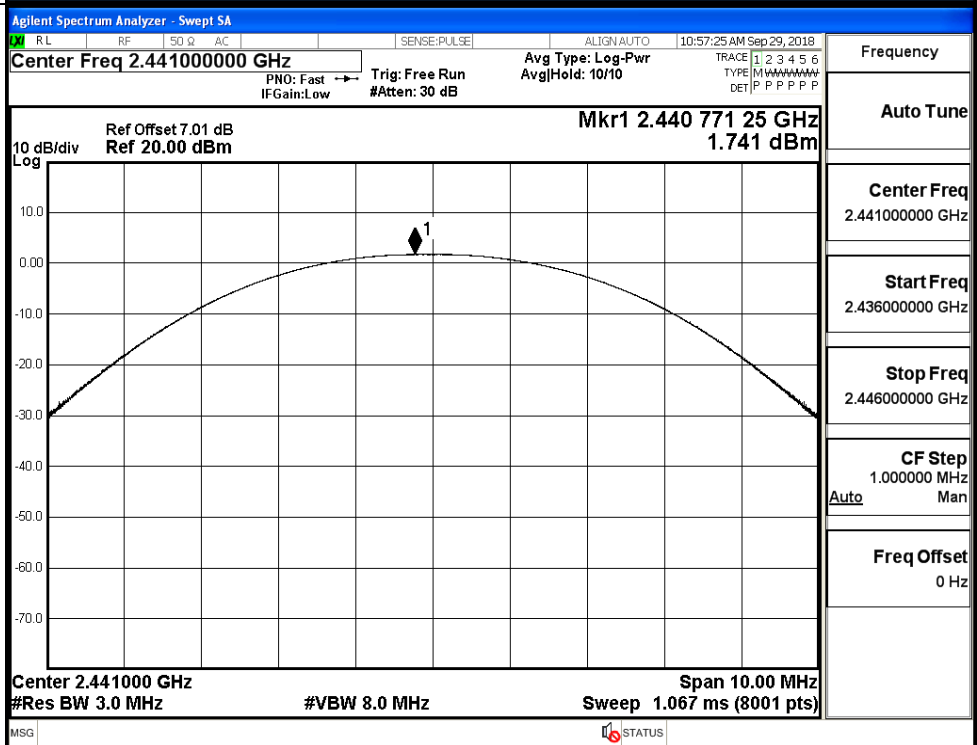
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.615	21	PASS
	MCH	1.741	21	PASS
	HCH	2.636	21	PASS
$\pi/4$ DQPSK	LCH	0.063	21	PASS
	MCH	1.107	21	PASS
	HCH	1.956	21	PASS

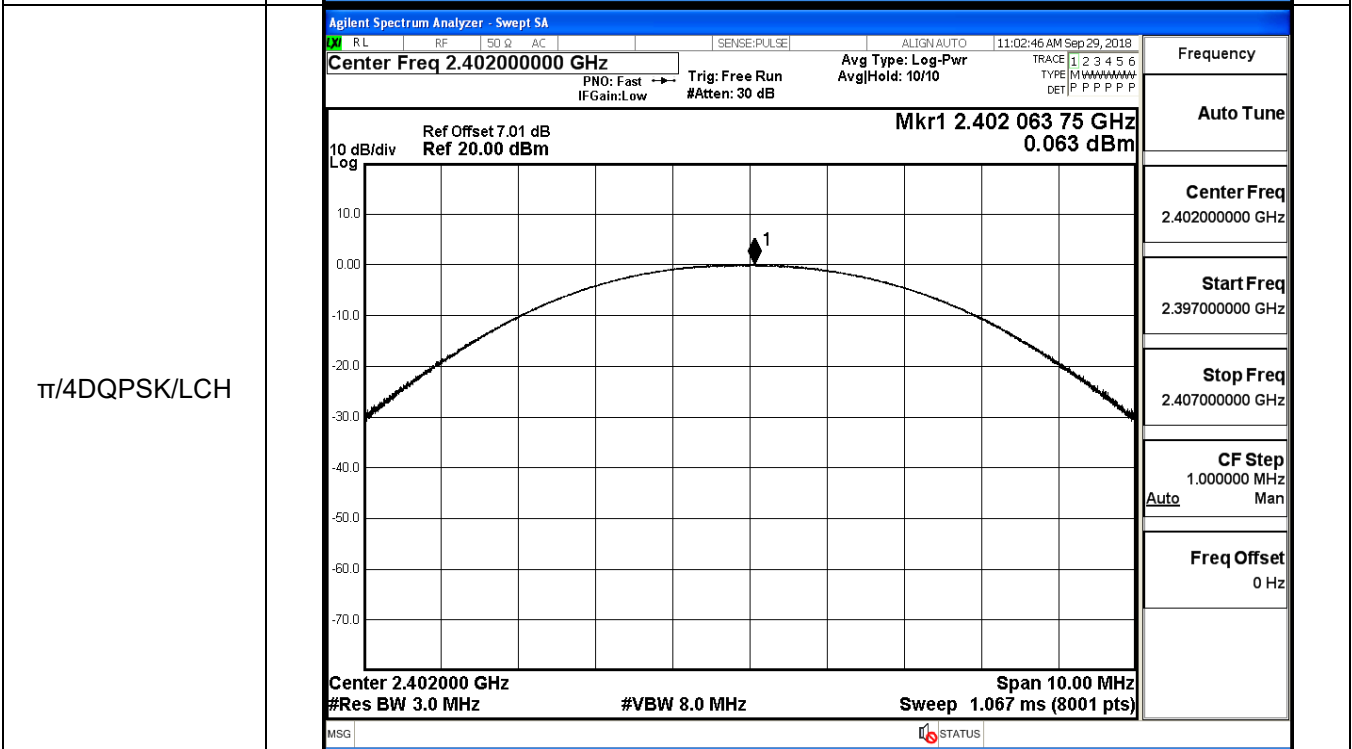
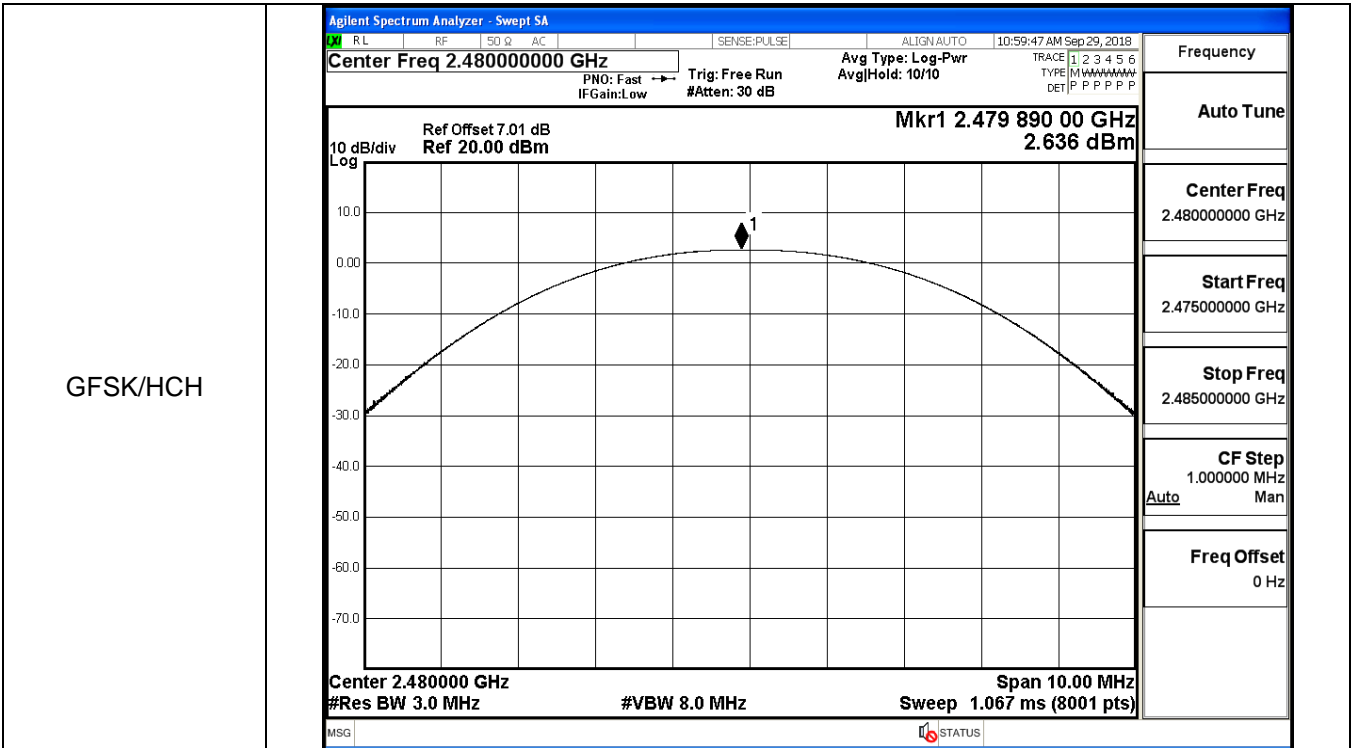
Test Graphs

GFSK/LCH

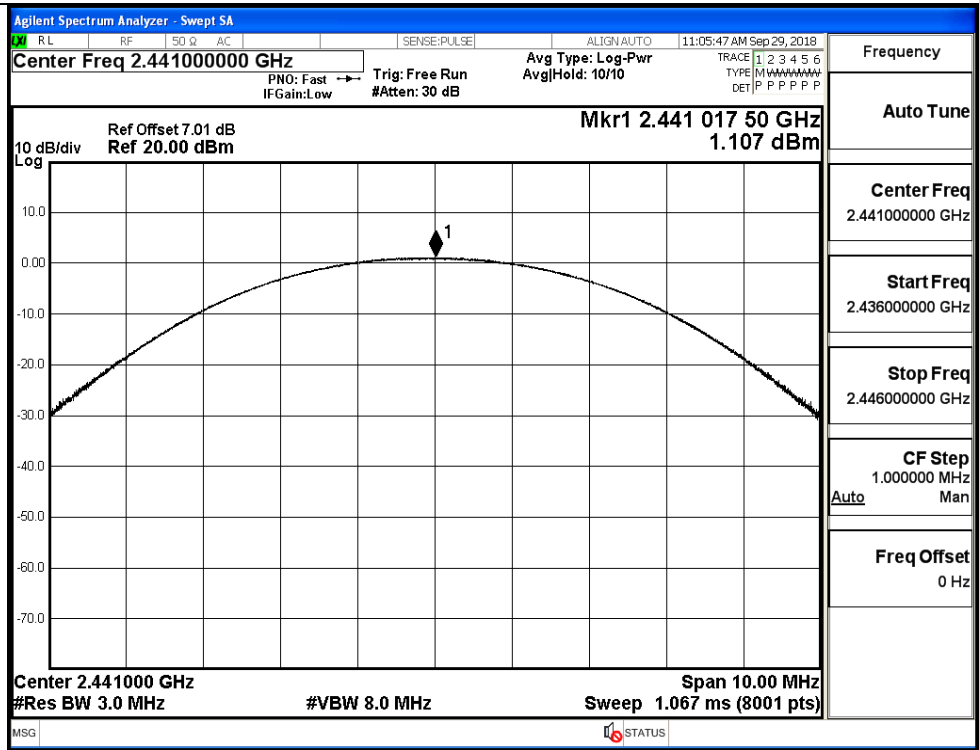


GFSK/MCH

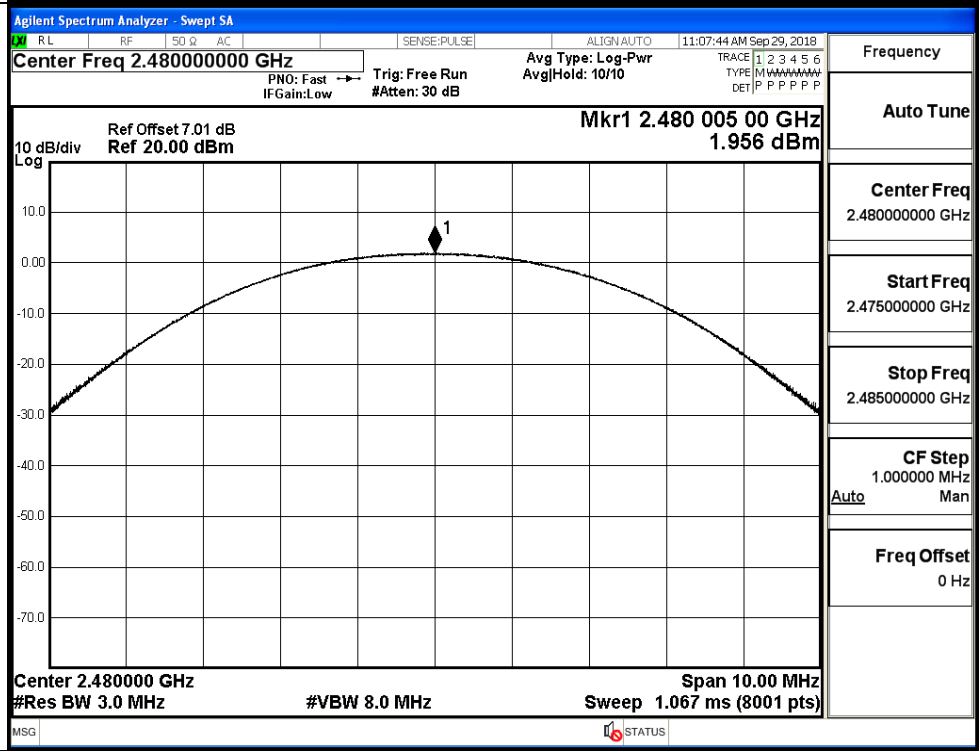




$\pi$ /4DQPSK/MCH

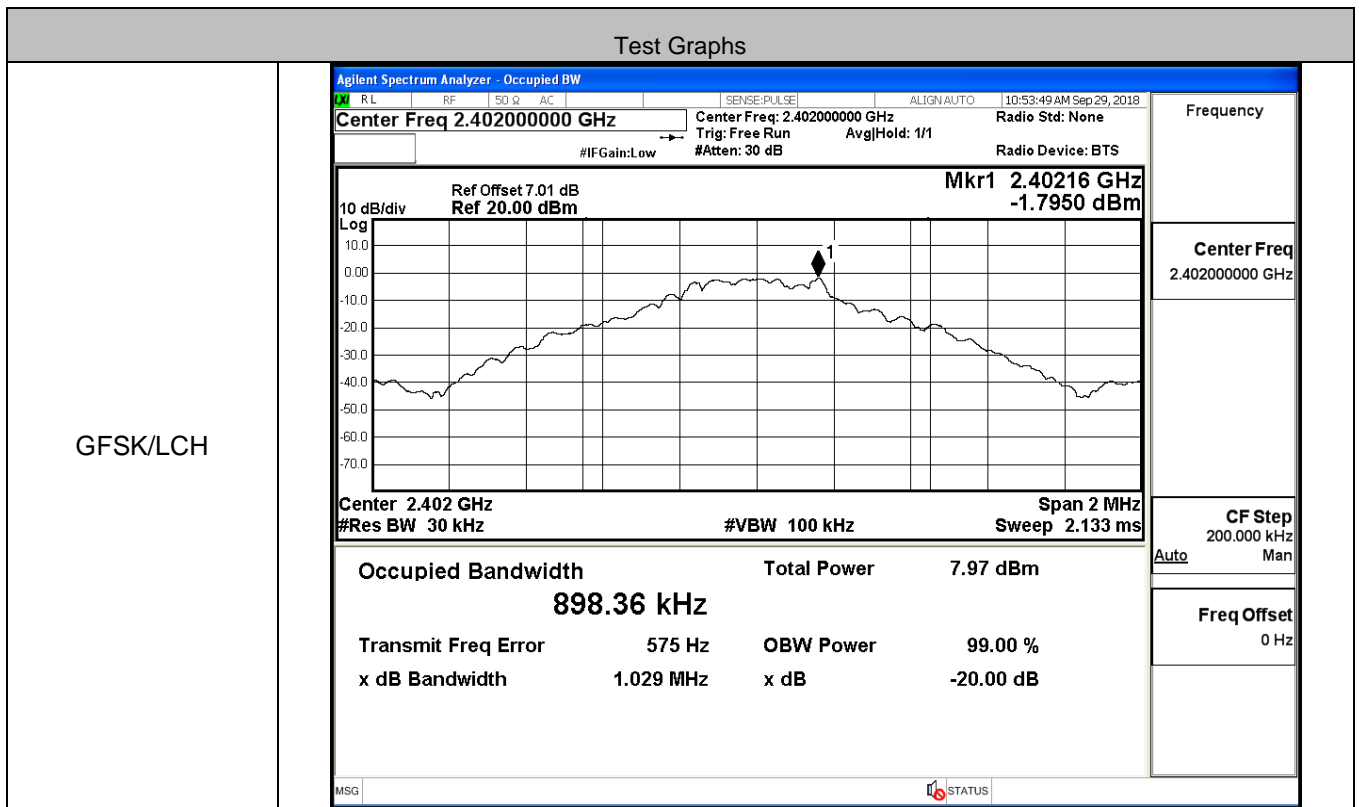


$\pi$ /4DQPSK/HCH

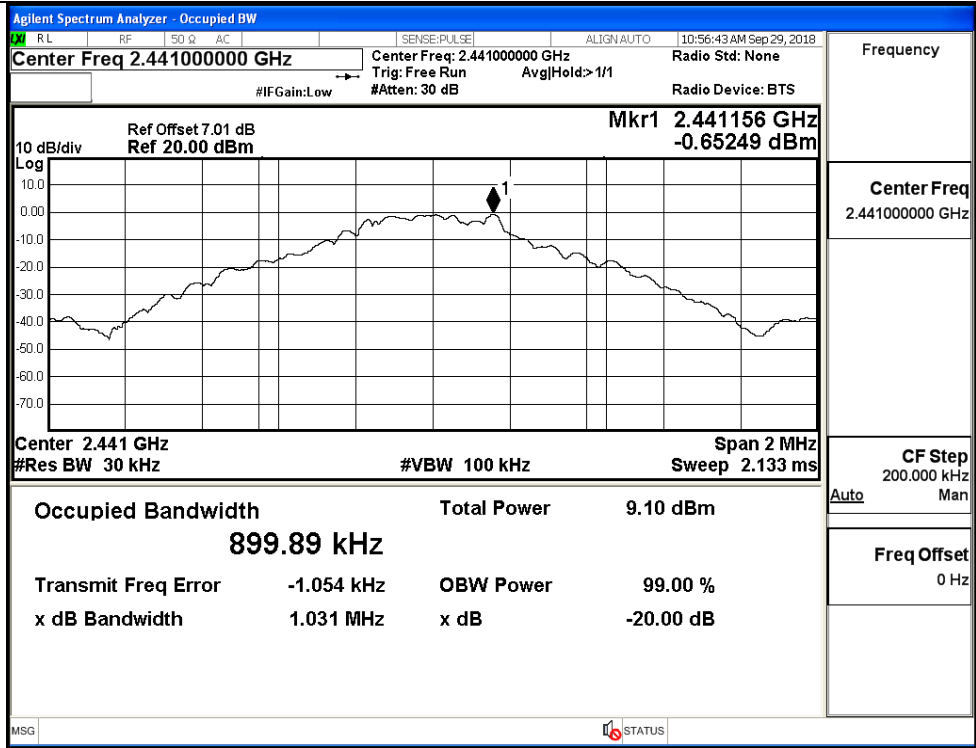


**A.2 99% and 20dB Bandwidth**

Mode	Channel.	99% Bandwidth [MHz]	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.89836	1.029	Not Specified	PASS
	MCH	0.89989	1.031	Not Specified	PASS
	HCH	0.89985	1.036	Not Specified	PASS
π/4DQPSK	LCH	1.1768	1.308	Not Specified	PASS
	MCH	1.1736	1.291	Not Specified	PASS
	HCH	1.1722	1.292	Not Specified	PASS

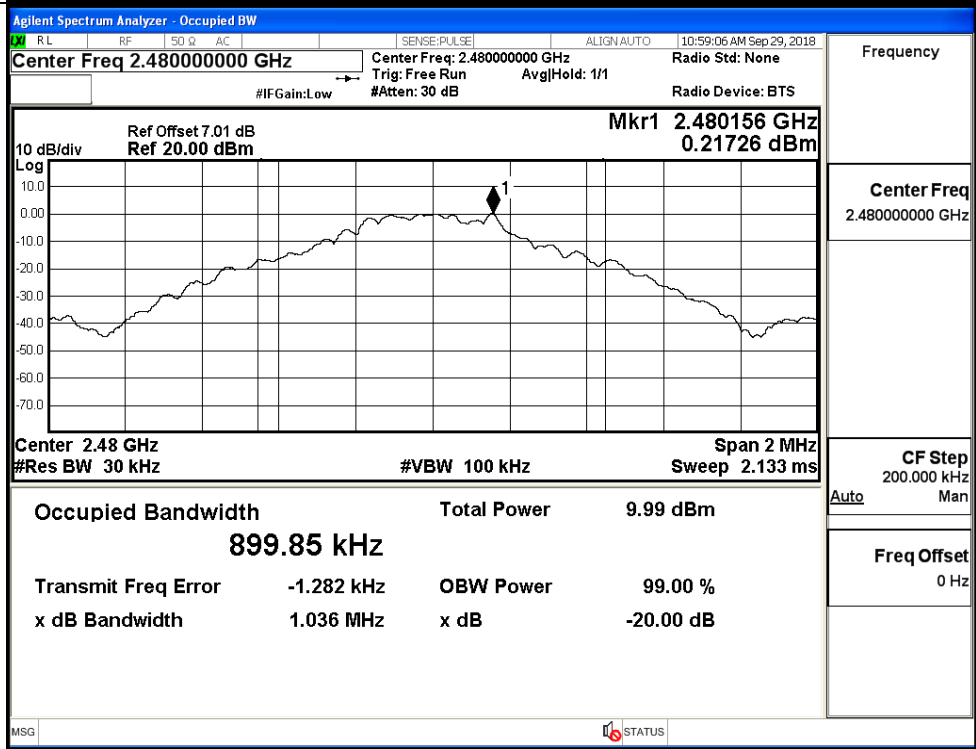


GFSK/MCH



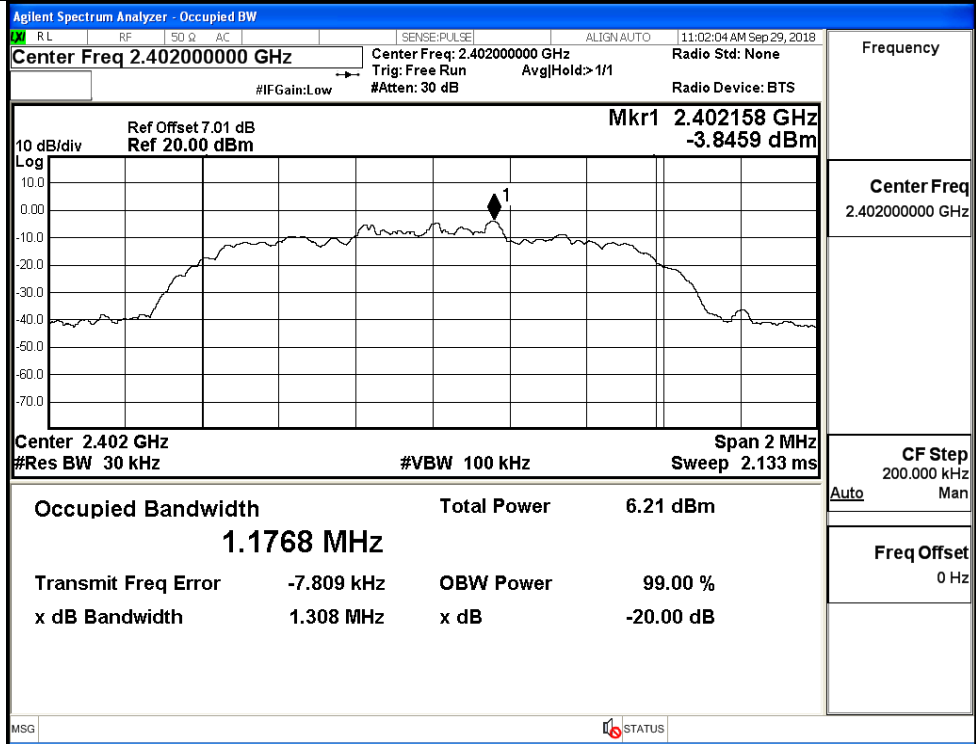
Frequency	2.44100000 GHz
Center Freq	2.44100000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

GFSK/HCH

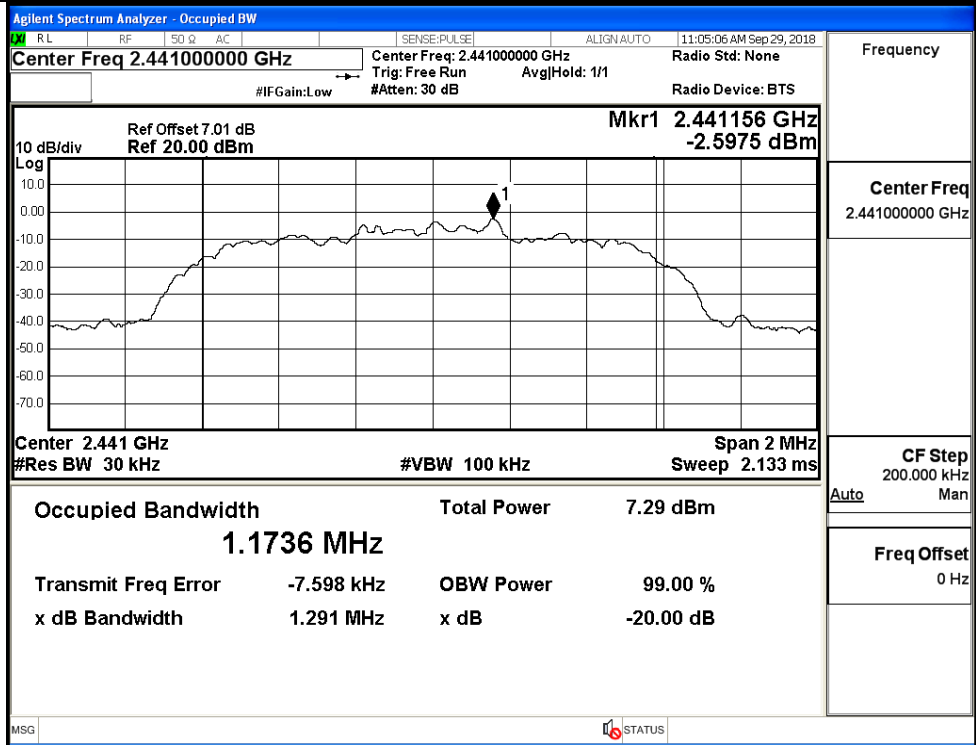


Frequency	2.48000000 GHz
Center Freq	2.48000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

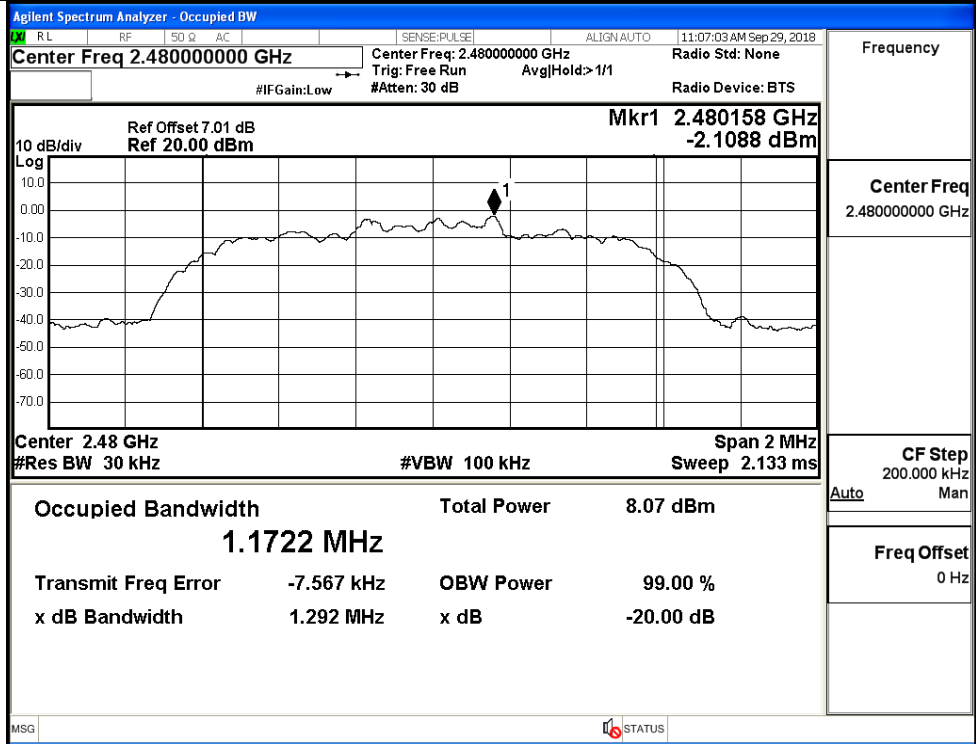
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



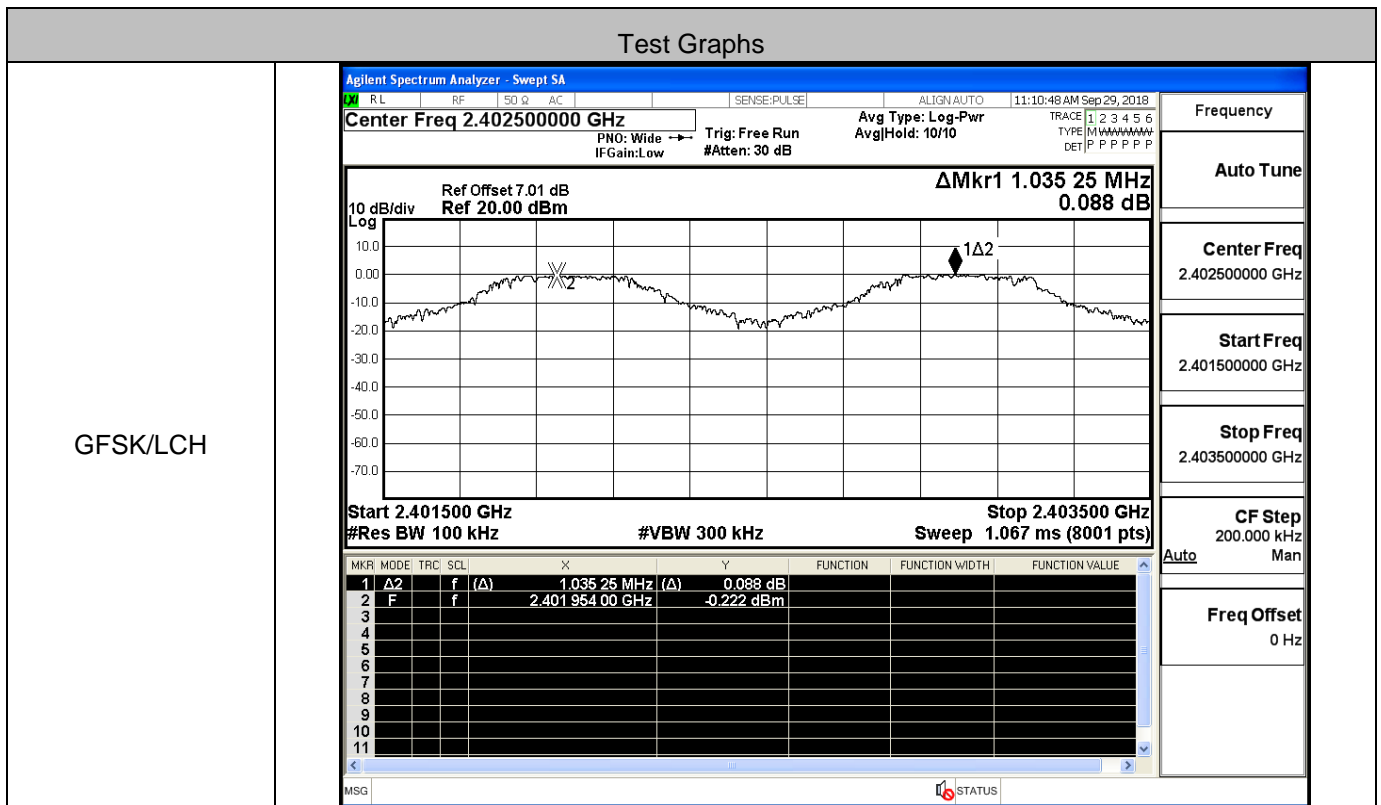
$\pi/4$ DQPSK/HCH



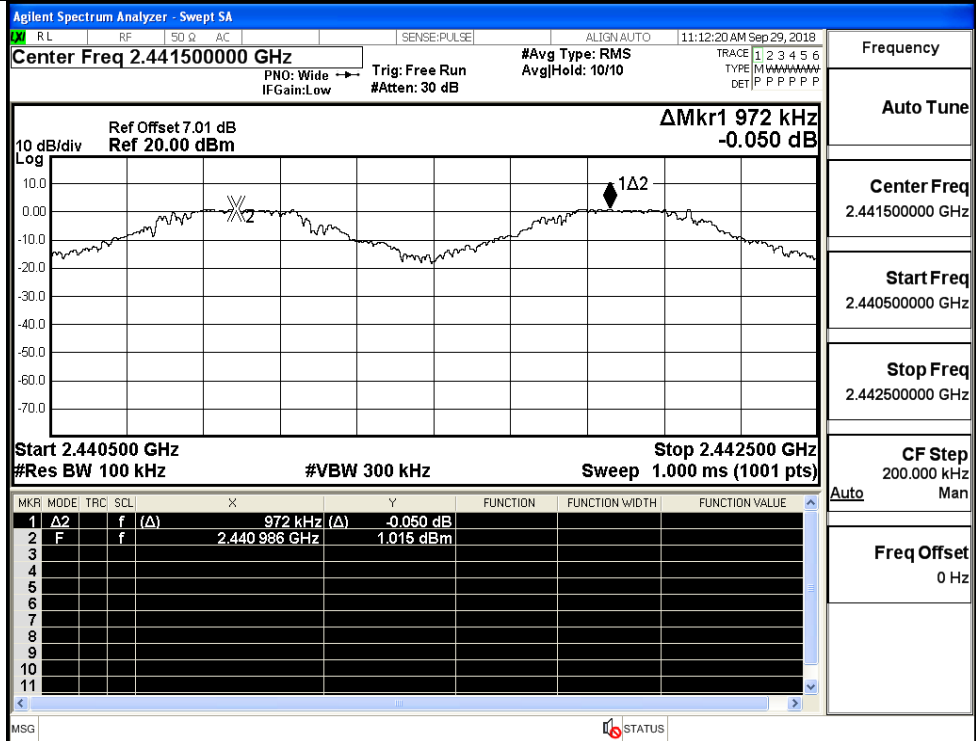


### A.3 Carrier Frequency Separation

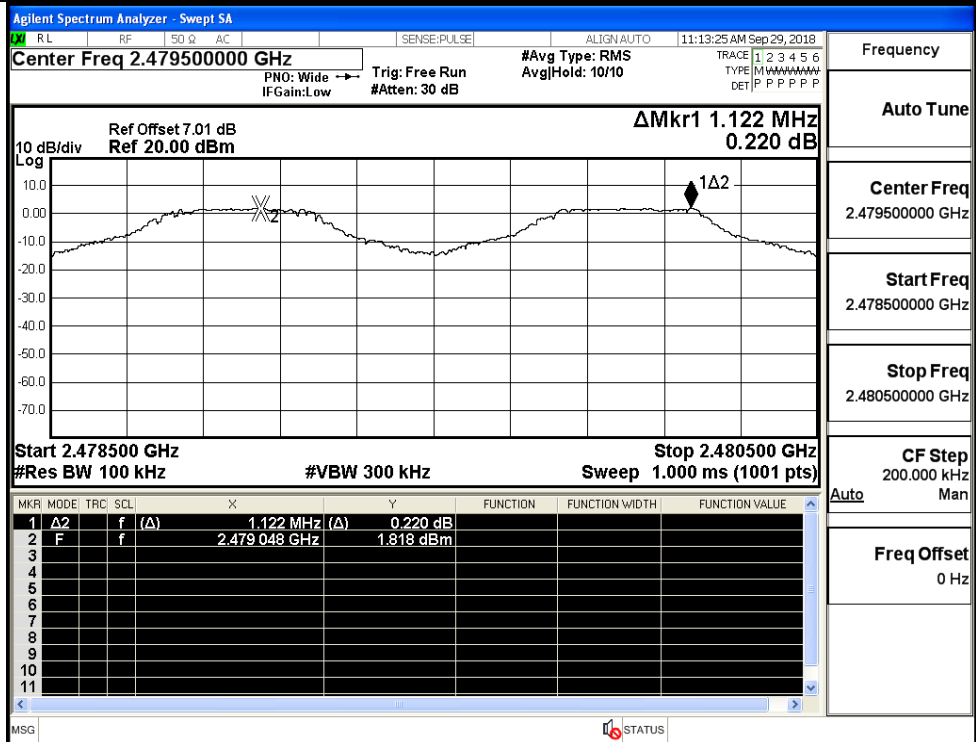
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.035	0.691	PASS
	MCH	0.972	0.691	PASS
	HCH	1.122	0.691	PASS
π/4DQPSK	LCH	1.310	0.872	PASS
	MCH	1.230	0.872	PASS
	HCH	1.006	0.872	PASS



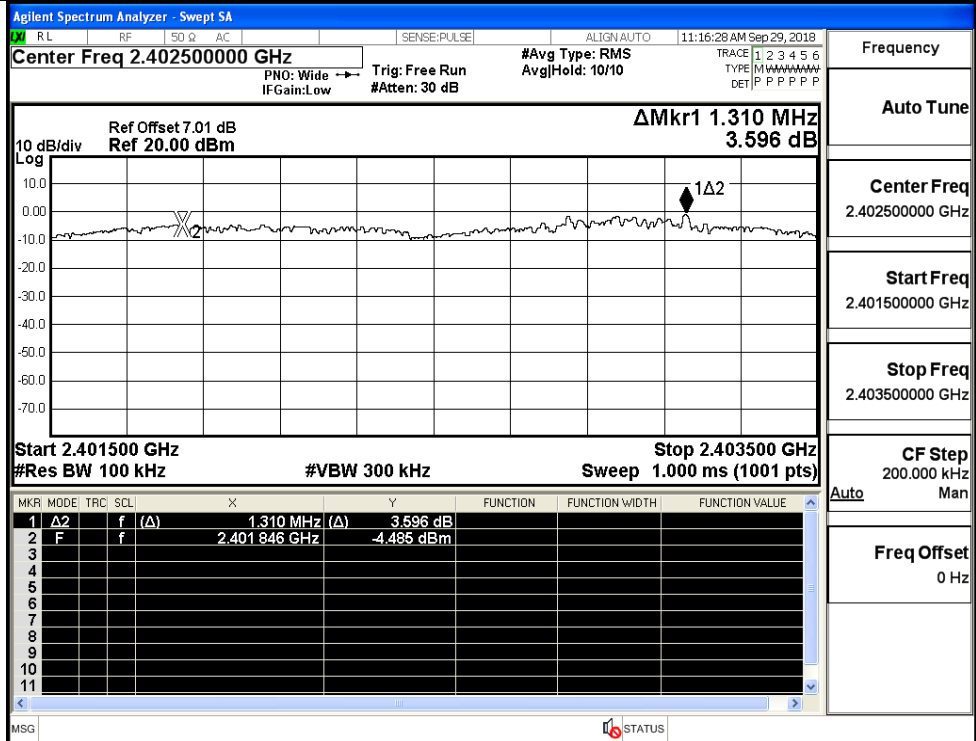
GFSK/MCH



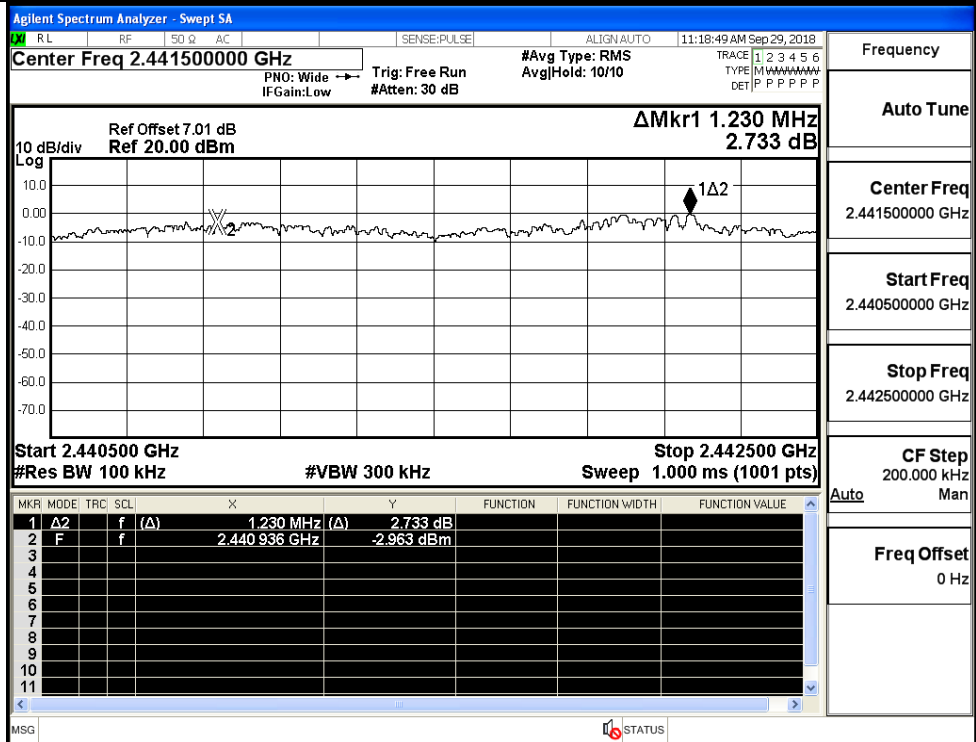
GFSK/HCH



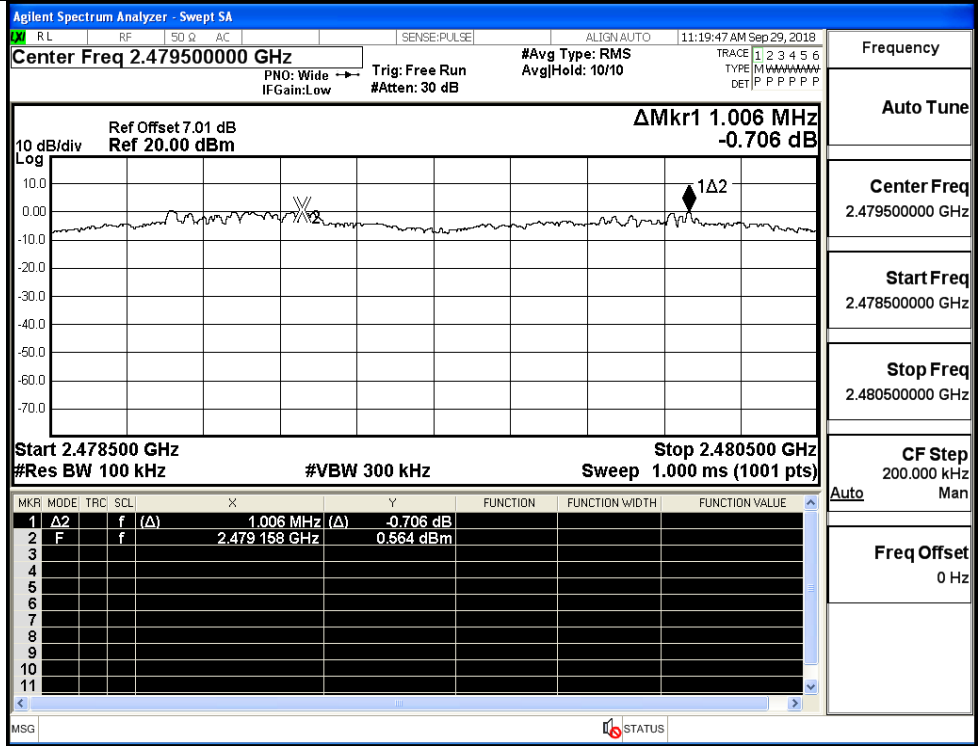
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



$\pi/4$ DQPSK/HCH



### A.4 Hopping Channel Number

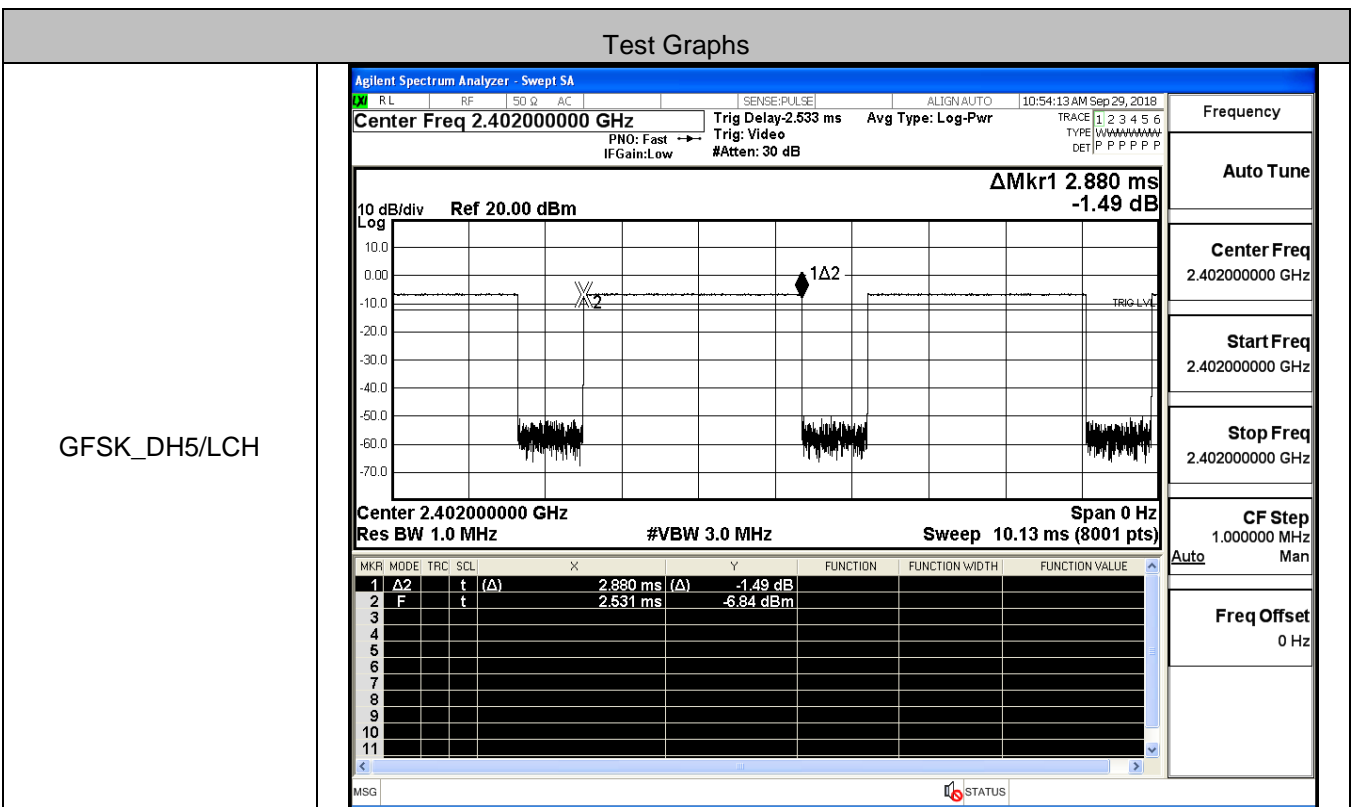
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS

#### Test Graphs

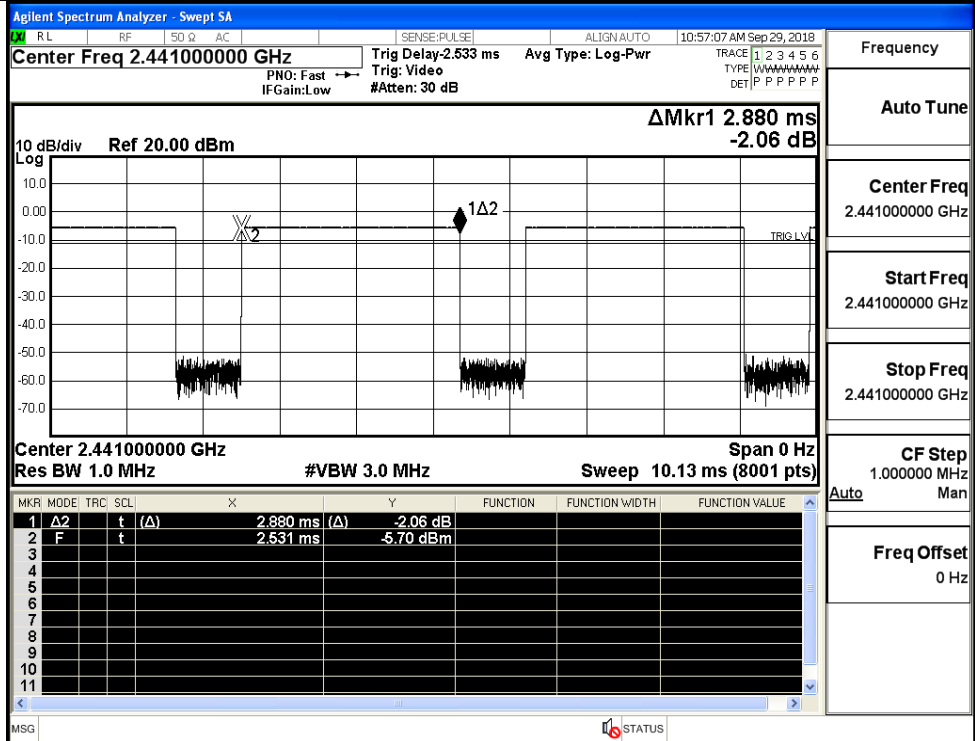
<p>GFSK/Hop</p>	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.441750000 GHz</p> <p>Ref Offset 7.01 dB Ref 20.00 dBm</p> <p><math>\Delta</math>Mkr1 77.947 MHz 1.813 dB</p> <p>Start 2.40000 GHz #Res BW 100 kHz</p> <p>Stop 2.48350 GHz #VBW 300 kHz Sweep 8.000 ms (8001 pts)</p> <table border="1"> <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><math>\Delta</math>2</td> <td>f</td> <td>(<math>\Delta</math>)</td> <td>77.947 MHz (<math>\Delta</math>)</td> <td>1.813 dB</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td></td> <td>2.402 035 GHz</td> <td>0.325 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	( $\Delta$ )	77.947 MHz ( $\Delta$ )	1.813 dB				2	F	f		2.402 035 GHz	0.325 dBm			
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																				
1	$\Delta$ 2	f	( $\Delta$ )	77.947 MHz ( $\Delta$ )	1.813 dB																							
2	F	f		2.402 035 GHz	0.325 dBm																							
<p><math>\pi/4</math>DQPSK/Hop</p>	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.441750000 GHz</p> <p>Ref Offset 7.01 dB Ref 20.00 dBm</p> <p><math>\Delta</math>Mkr1 78.031 MHz 1.131 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><math>\Delta</math>2</td> <td>f</td> <td>(<math>\Delta</math>)</td> <td>78.031 MHz (<math>\Delta</math>)</td> <td>1.131 dB</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td></td> <td>2.402 035 GHz</td> <td>-2.491 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	( $\Delta$ )	78.031 MHz ( $\Delta$ )	1.131 dB				2	F	f		2.402 035 GHz	-2.491 dBm			
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																				
1	$\Delta$ 2	f	( $\Delta$ )	78.031 MHz ( $\Delta$ )	1.131 dB																							
2	F	f		2.402 035 GHz	-2.491 dBm																							

### A.5 Dwell Time

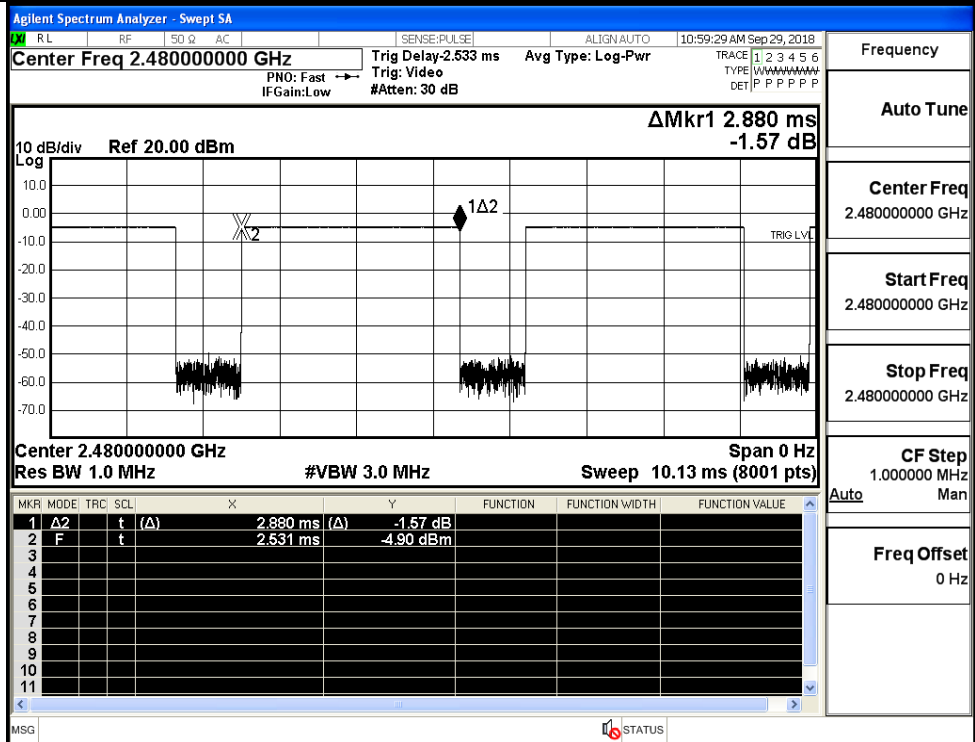
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
π/4DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88	106.7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



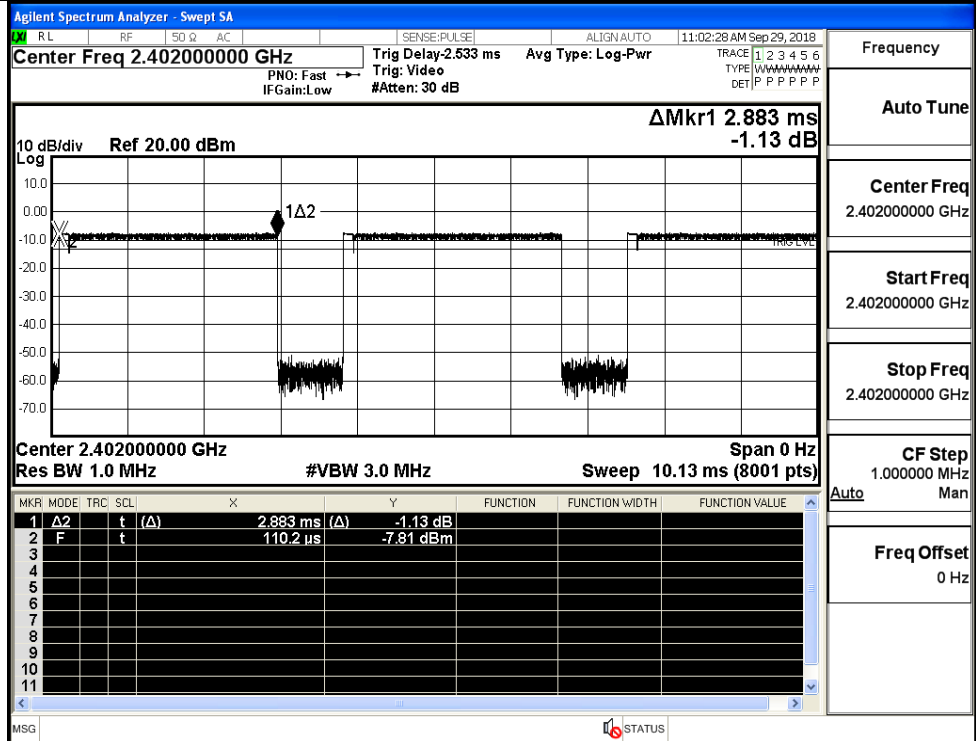
GFSK\_DH5/MCH



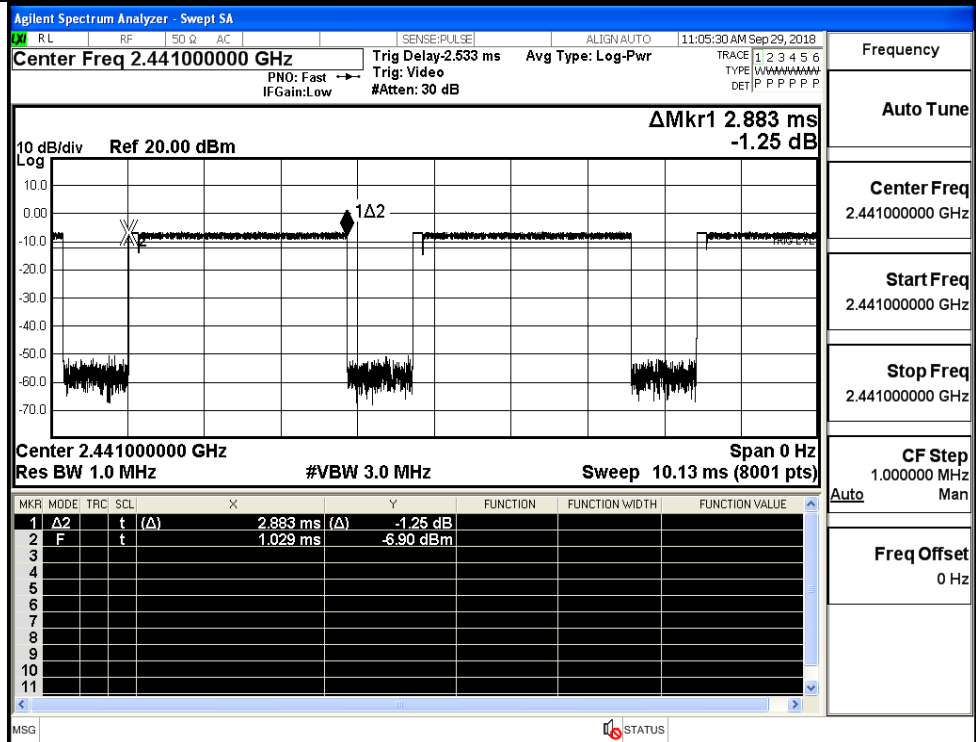
GFSK\_DH5/HCH



$\pi/4$ DQPSK  
\_2DH5/LCH

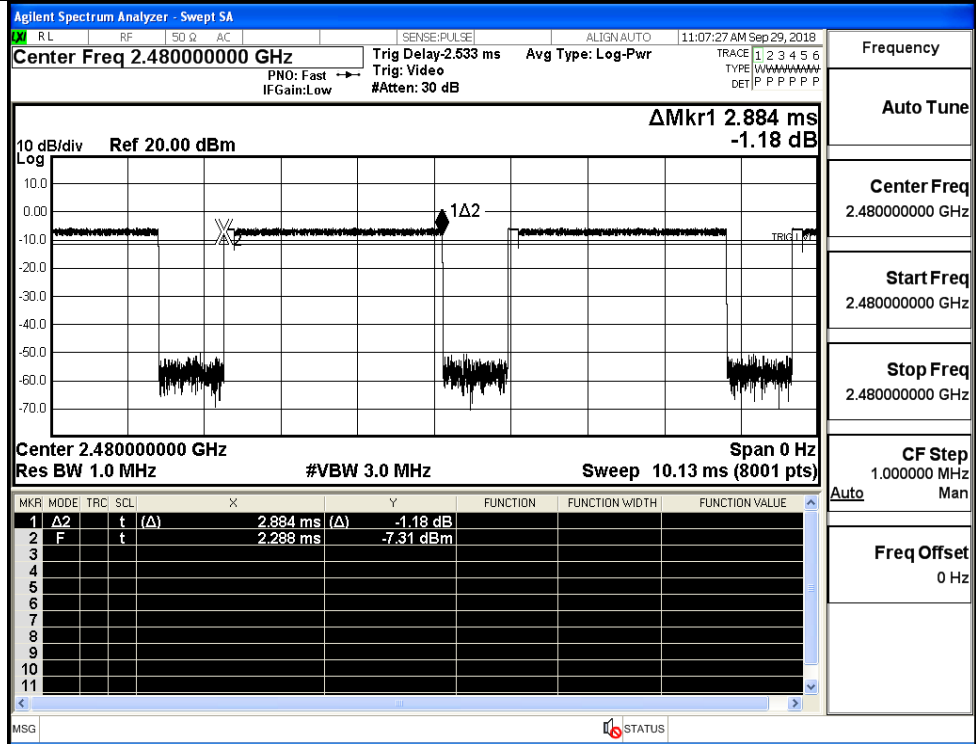


$\pi/4$ DQPSK  
\_2DH5/MCH





$\pi/4$ DQPSK  
\_2DH5/HCH



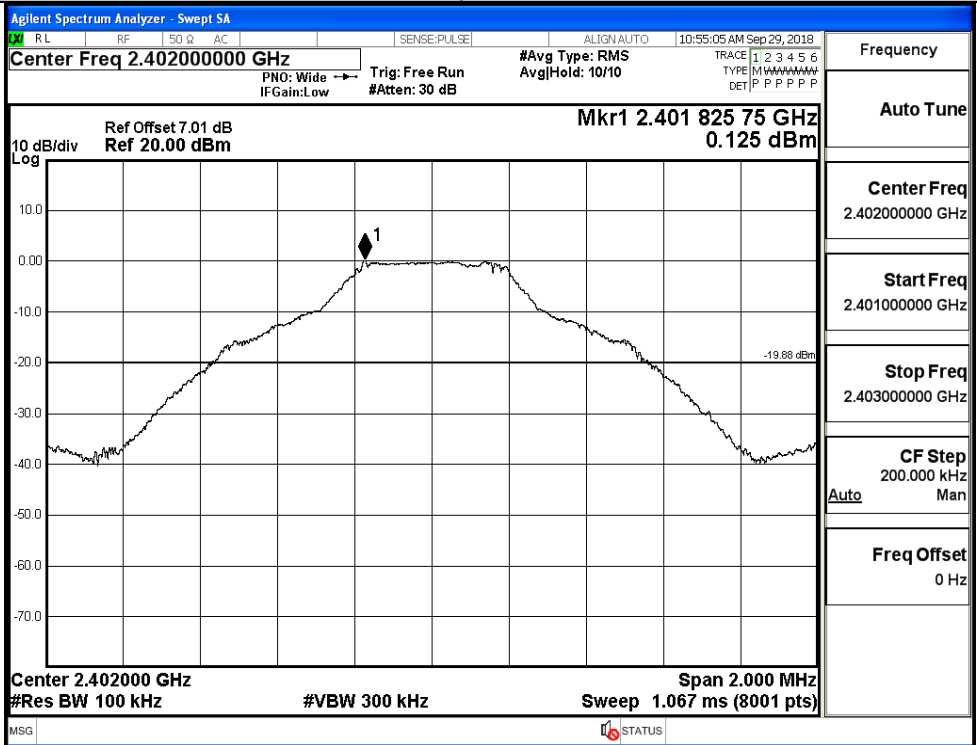
Frequency	
Auto Tune	
Center Freq	2.480000000 GHz
Start Freq	2.480000000 GHz
Stop Freq	2.480000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

**A.6 RF Conducted Spurious Emissions**

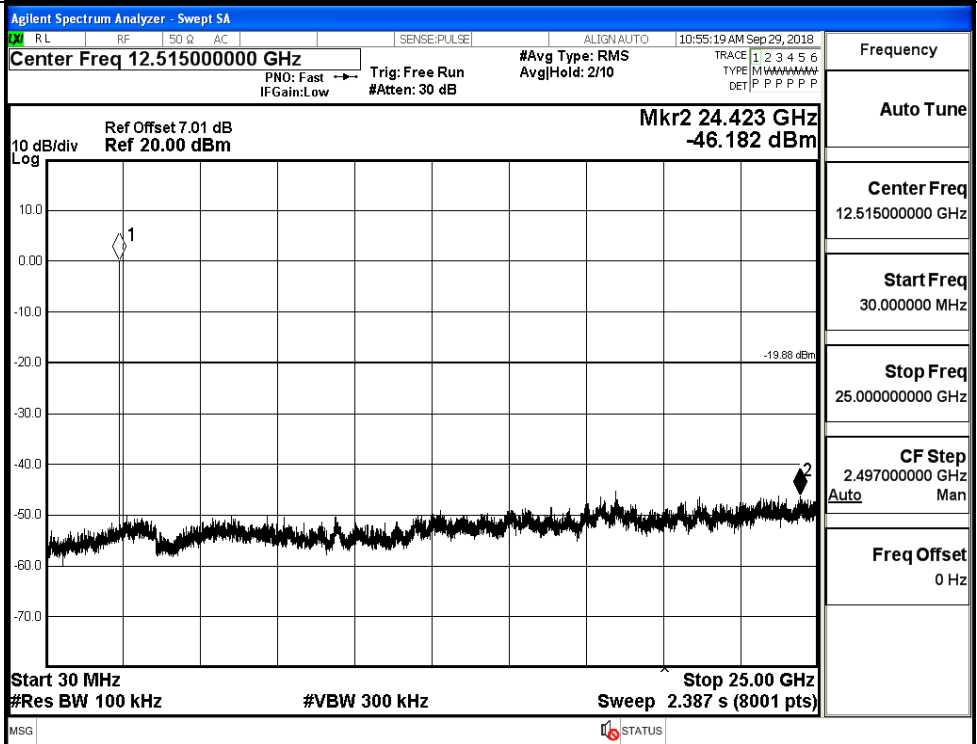
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.125	-46.182	-19.875	PASS
	MCH	1.48	-45.532	-18.520	PASS
	HCH	2.277	-44.976	-17.723	PASS
$\pi/4$ DQPSK	LCH	-1.464	-31.809	-21.464	PASS
	MCH	-0.478	-43.890	-20.478	PASS
	HCH	0.766	-45.603	-19.234	PASS

GFSK\_LCH\_Graphs

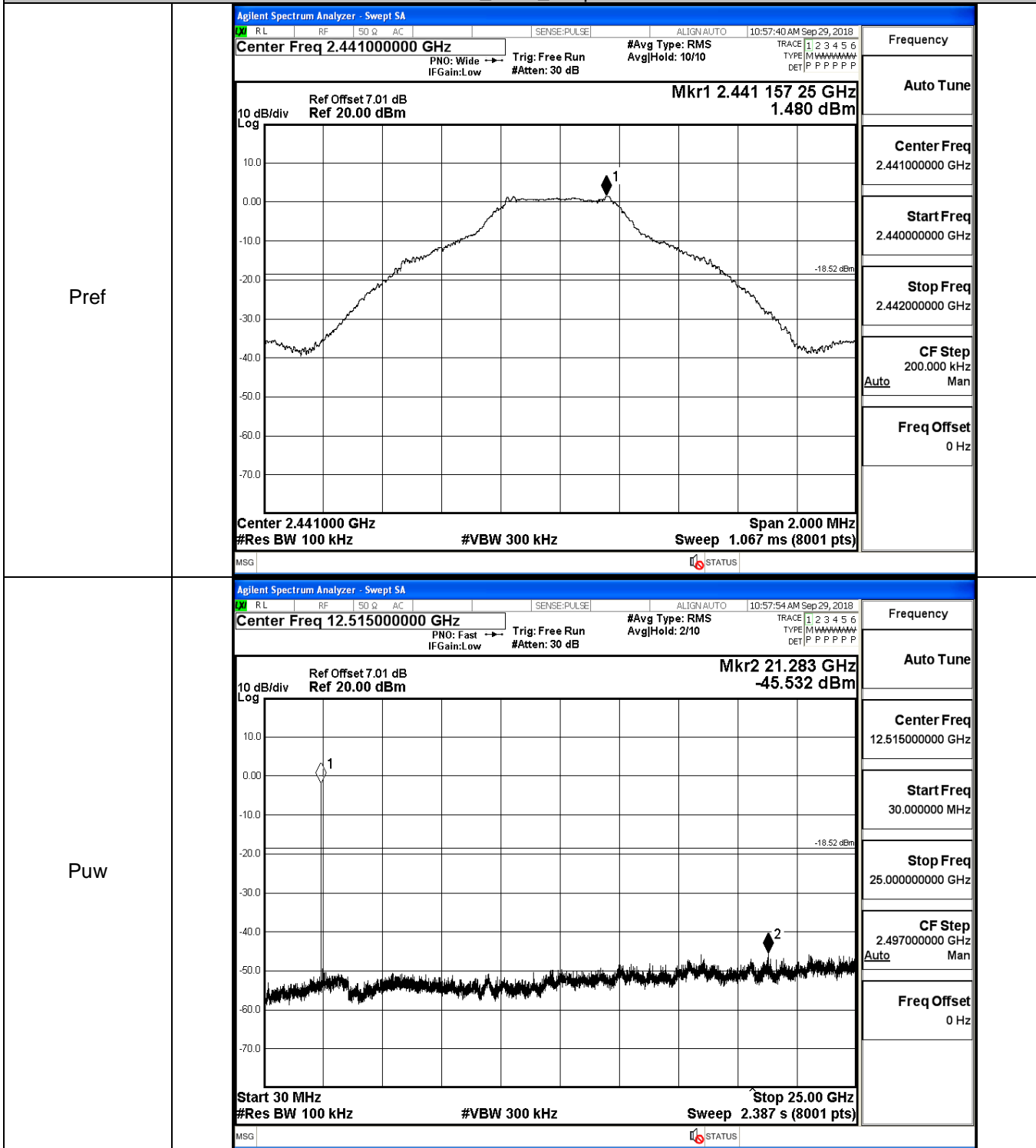
Pref



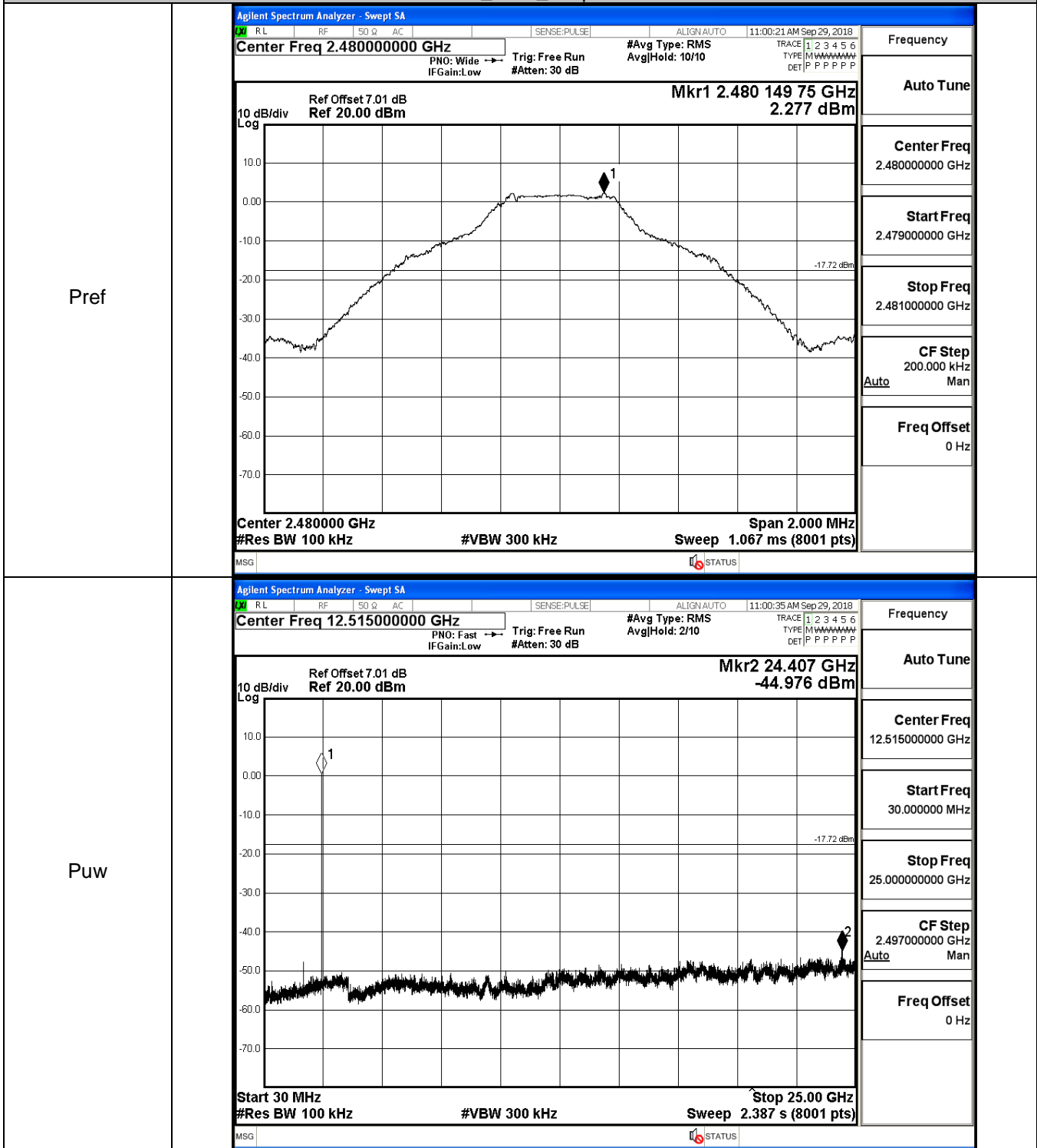
Puw



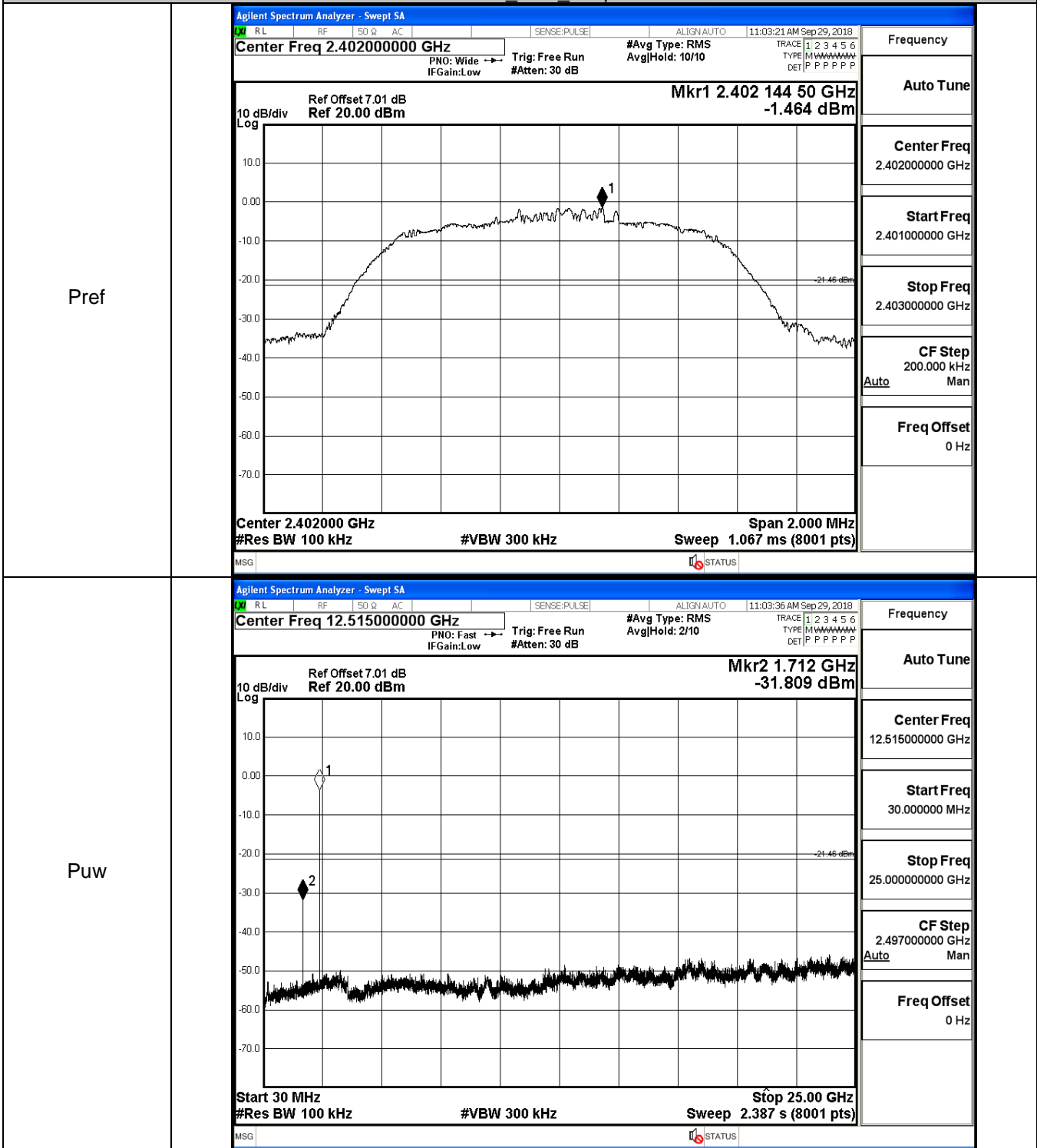
GFSK\_MCH\_Graphs



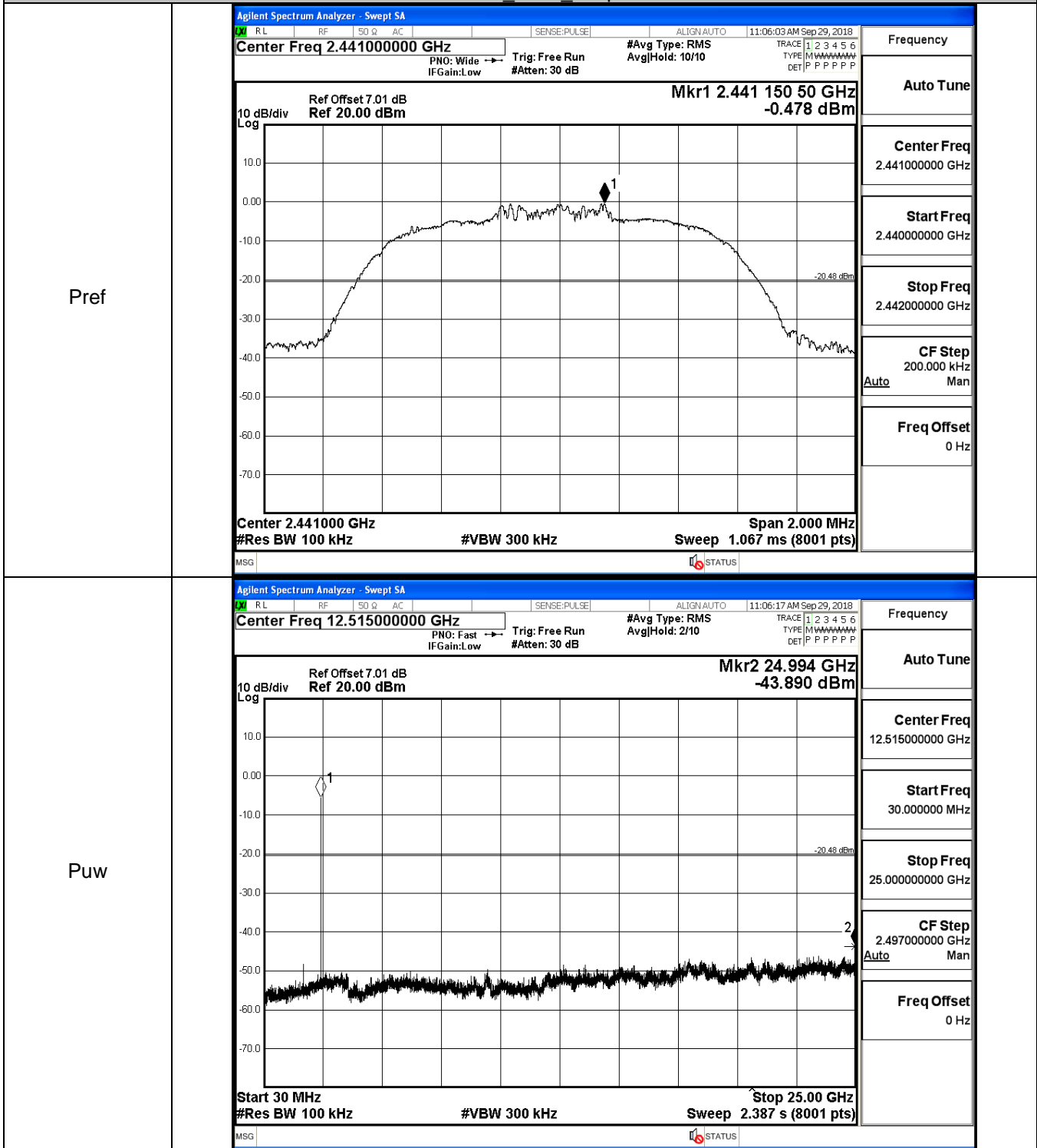
GFSK\_HCH\_Graphs



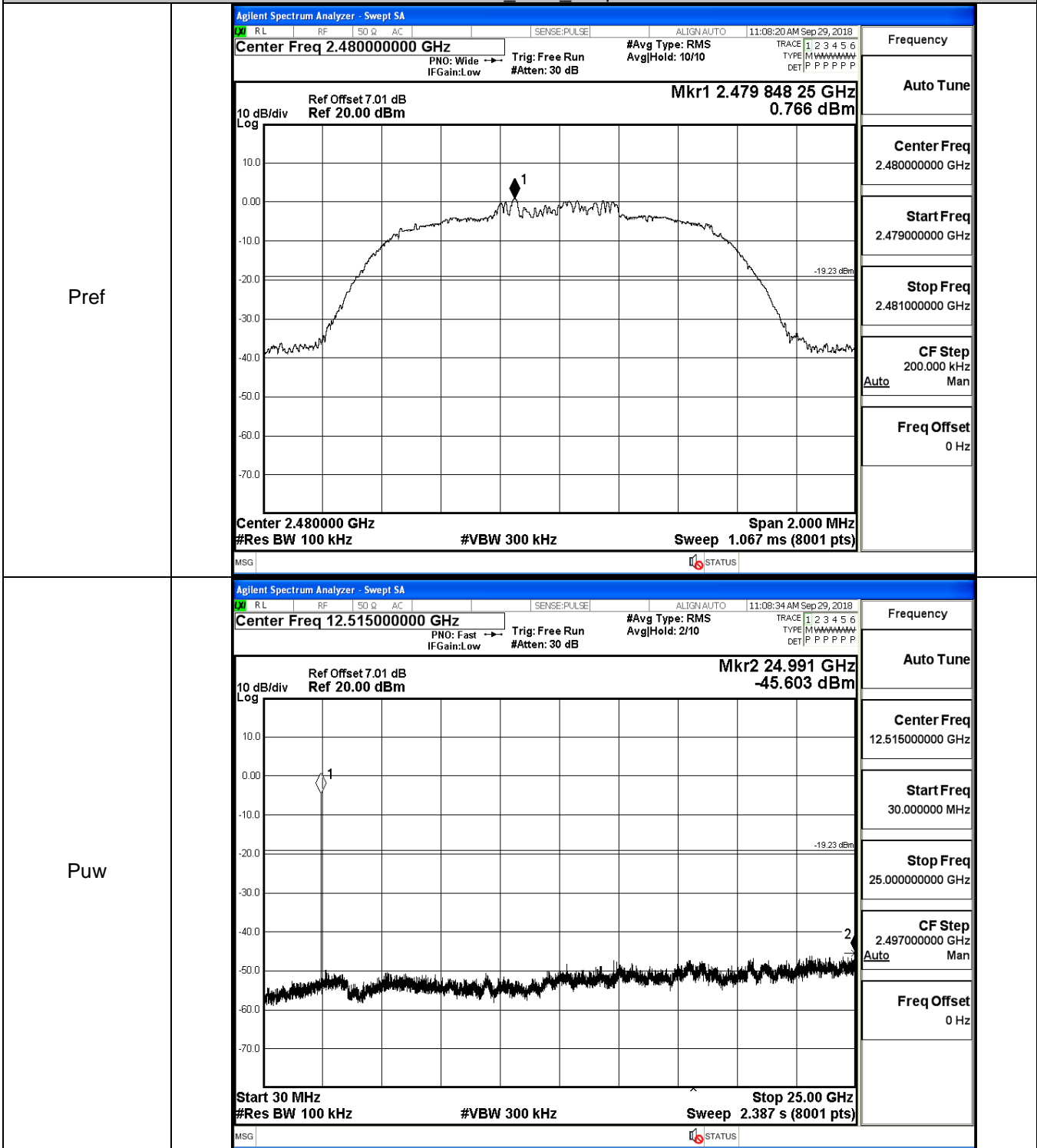
$\pi/4$ DQPSK LCH\_Graphs



$\pi/4$ DQPSK\_MCH\_Graphs



$\pi/4$ DQPSK\_HCH\_Graphs



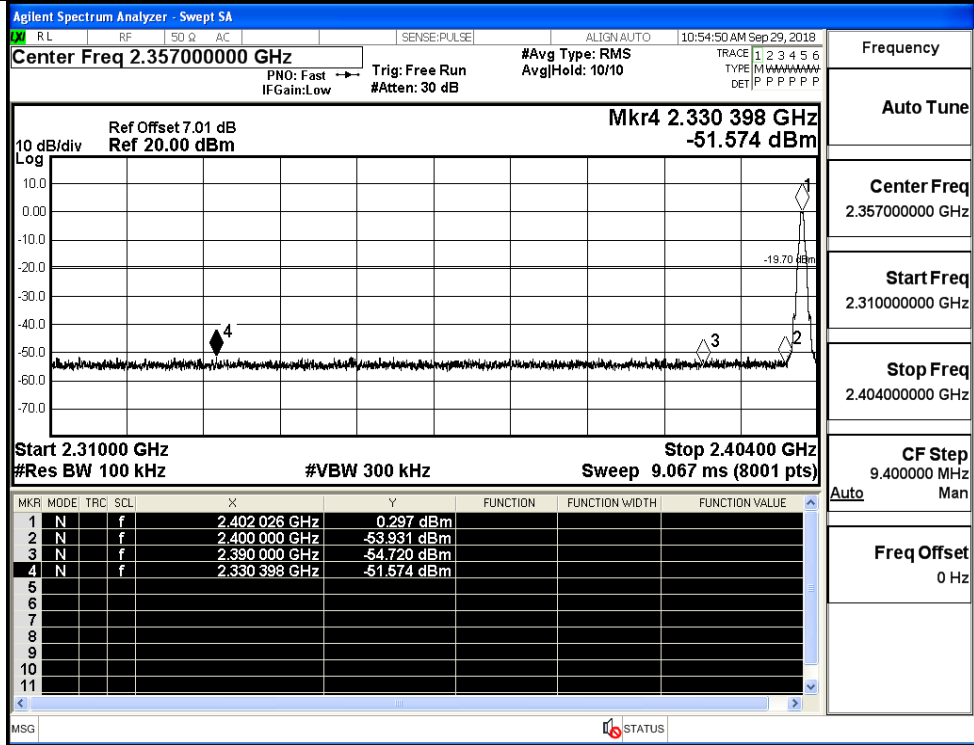


## A.7 Band-edge for RF Conducted Emissions

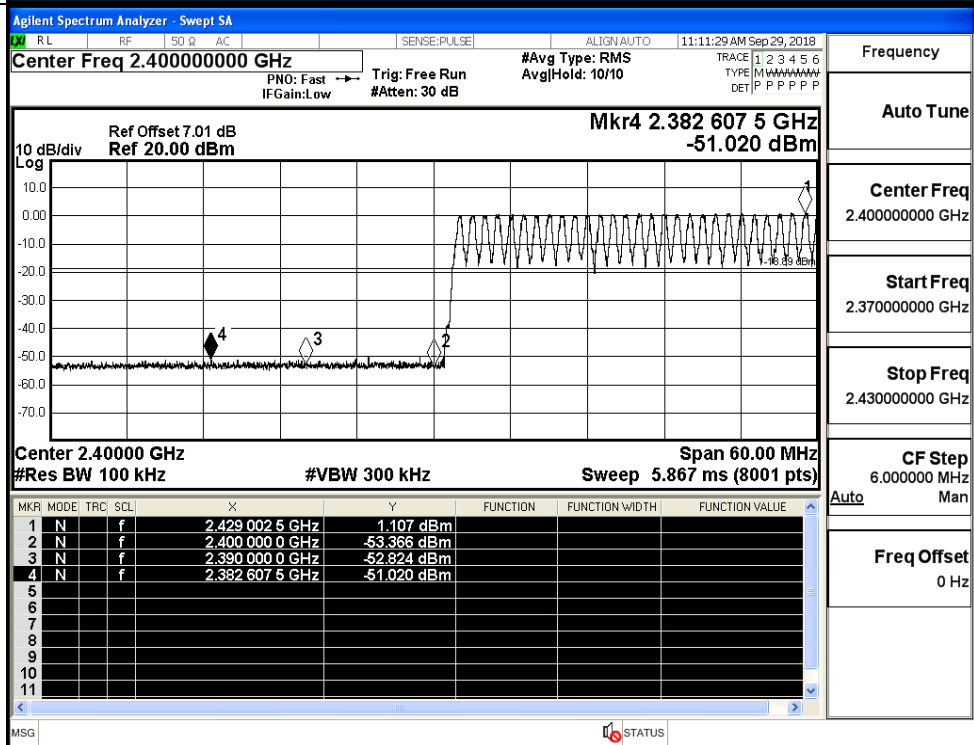
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	0.297	Off	-51.574	-19.7	PASS
			1.107	On	-51.020	-18.89	PASS
	HCH	2480	2.223	Off	-50.539	-17.78	PASS
			2.373	On	-49.971	-17.63	PASS
$\pi/4$ DQPSK	LCH	2402	-1.506	Off	-51.146	-21.51	PASS
			-0.255	On	-49.637	-20.26	PASS
	HCH	2480	1.021	Off	-51.286	-18.98	PASS
			0.774	On	-50.153	-19.23	PASS

Test Graphs

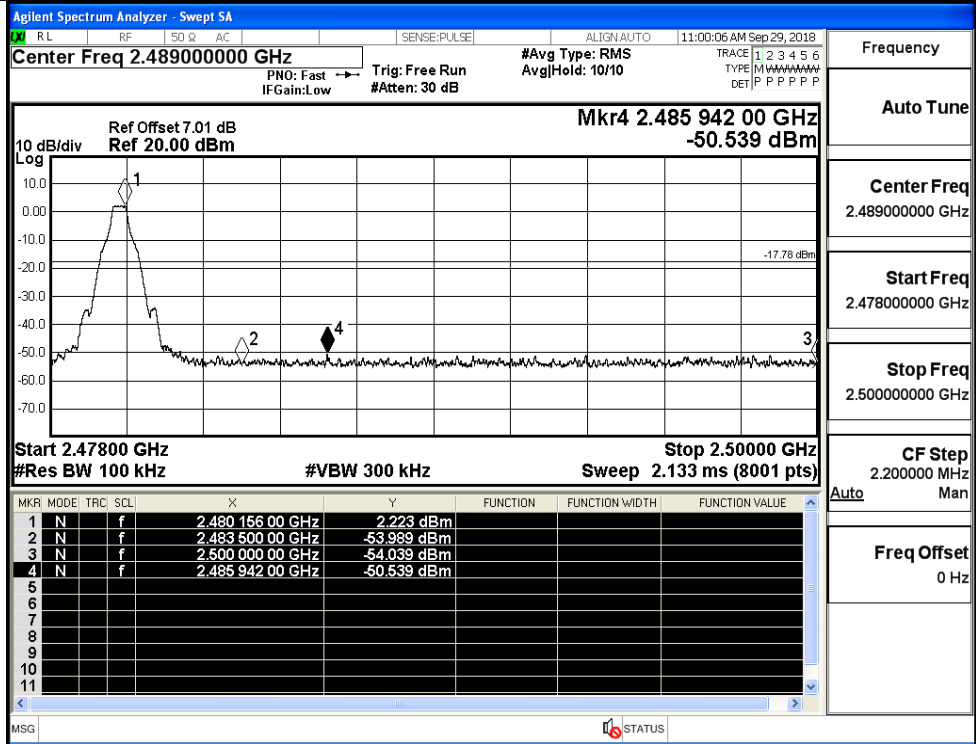
GFSK/LCH/No Hop



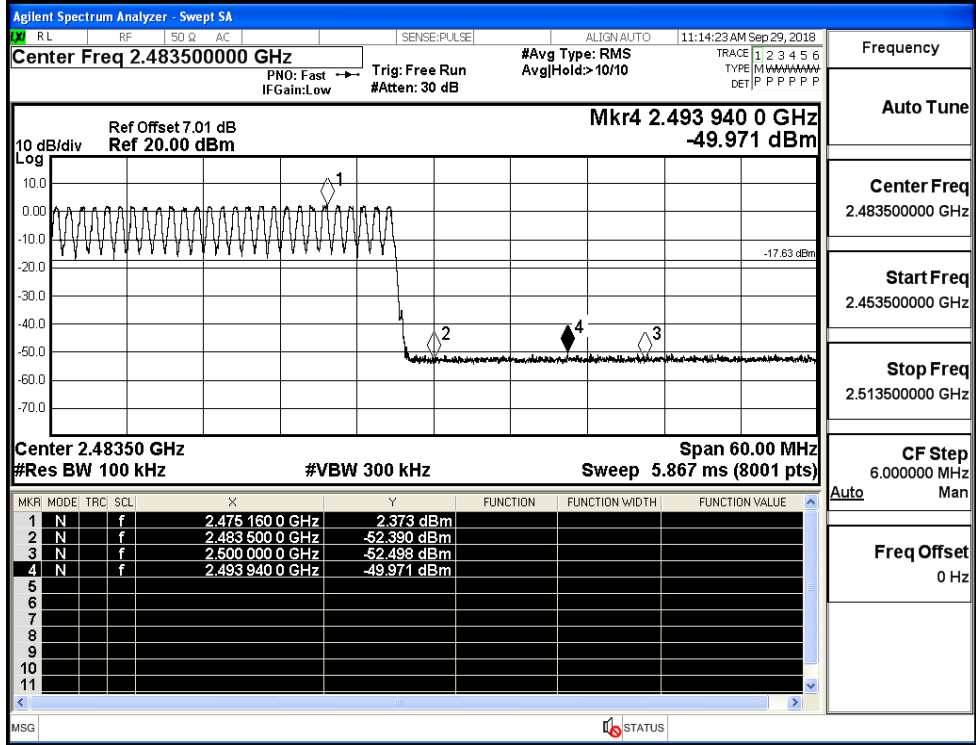
GFSK/LCH/Hop



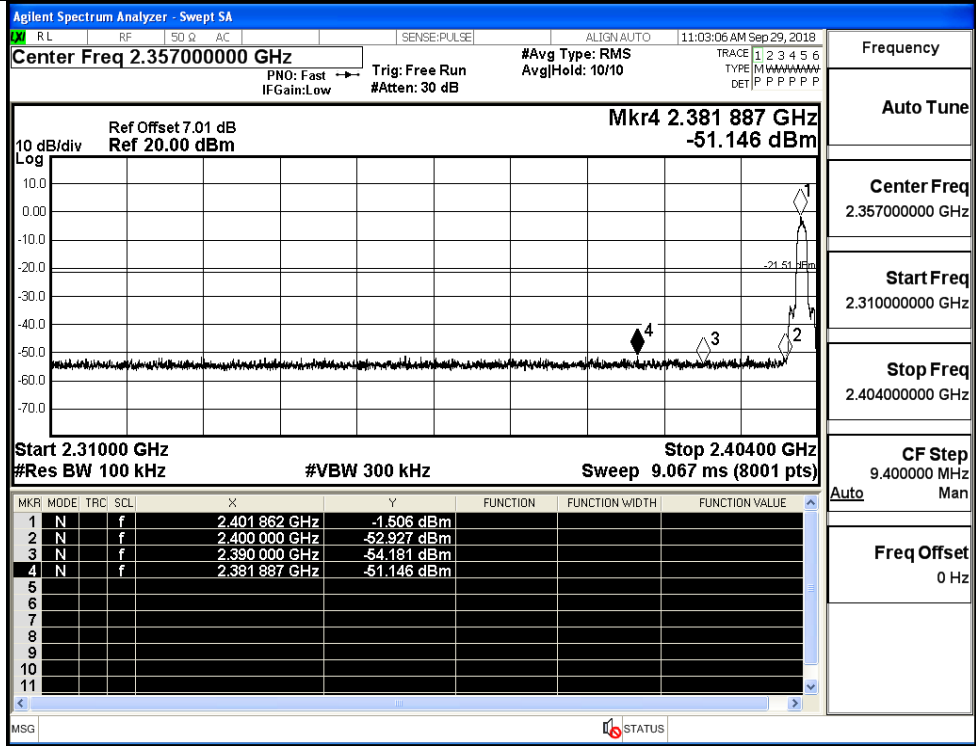
GFSK/HCH/No Hop



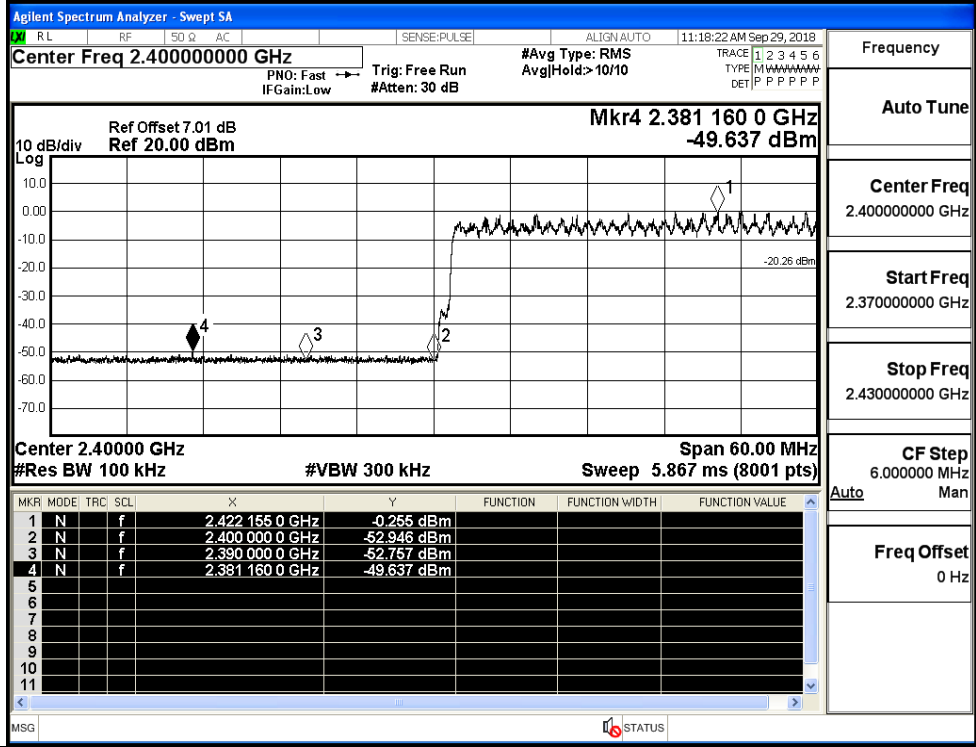
GFSK/HCH/Hop



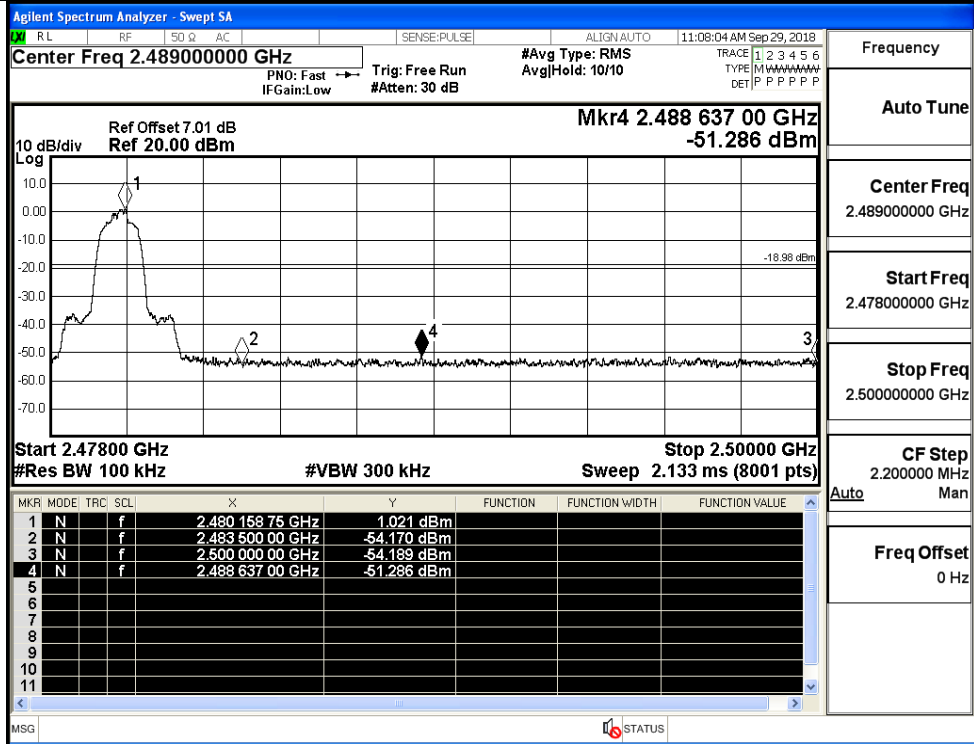
$\pi/4$ DQPSK/LCH/No  
Hop



$\pi/4$ DQPSK/LCH/Hop

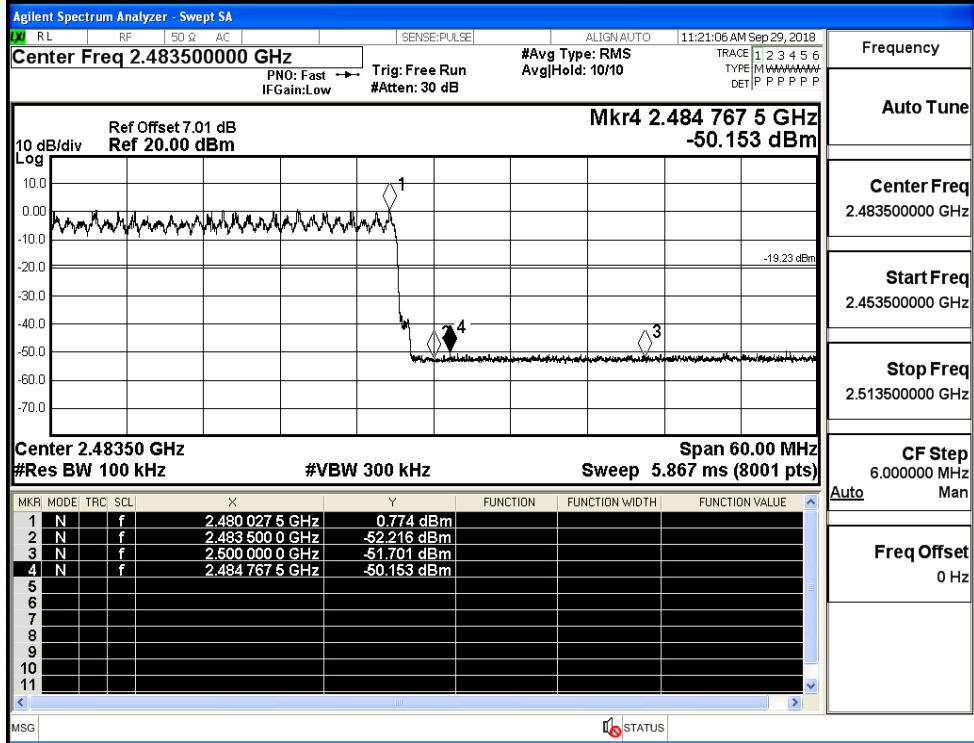


$\pi$ /4DQPSK/HCH/No  
Hop



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

$\pi$ /4DQPSK/HCH/Hop

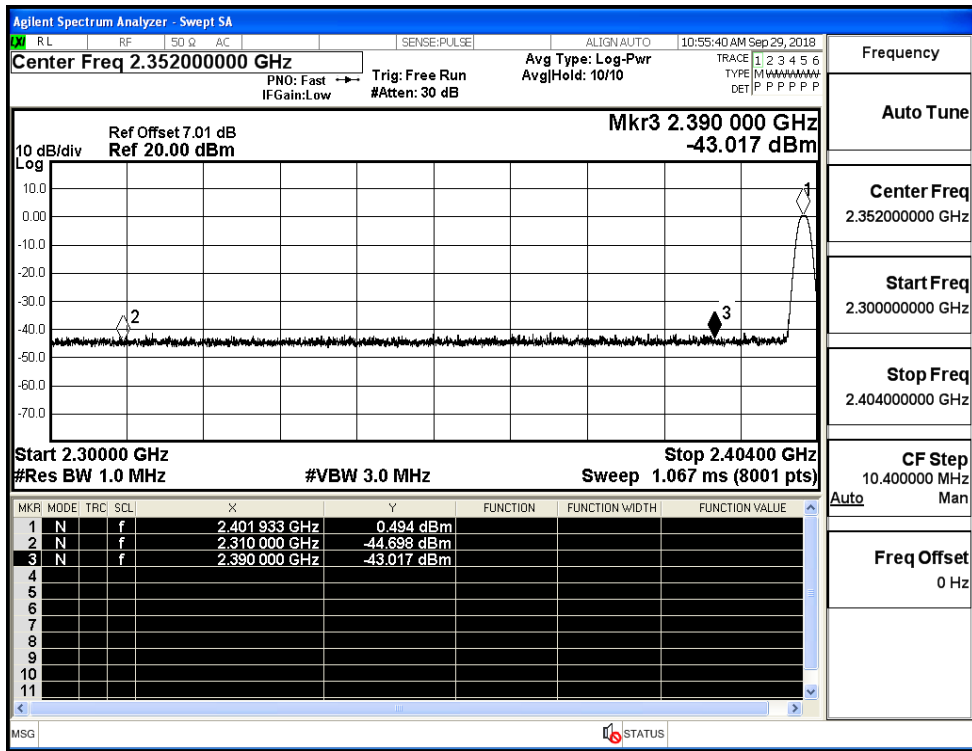


Frequency
Auto Tune
Center Freq 2.483500000 GHz
Start Freq 2.453500000 GHz
Stop Freq 2.513500000 GHz
CF Step 6.000000 MHz
Auto Man
Freq Offset 0 Hz

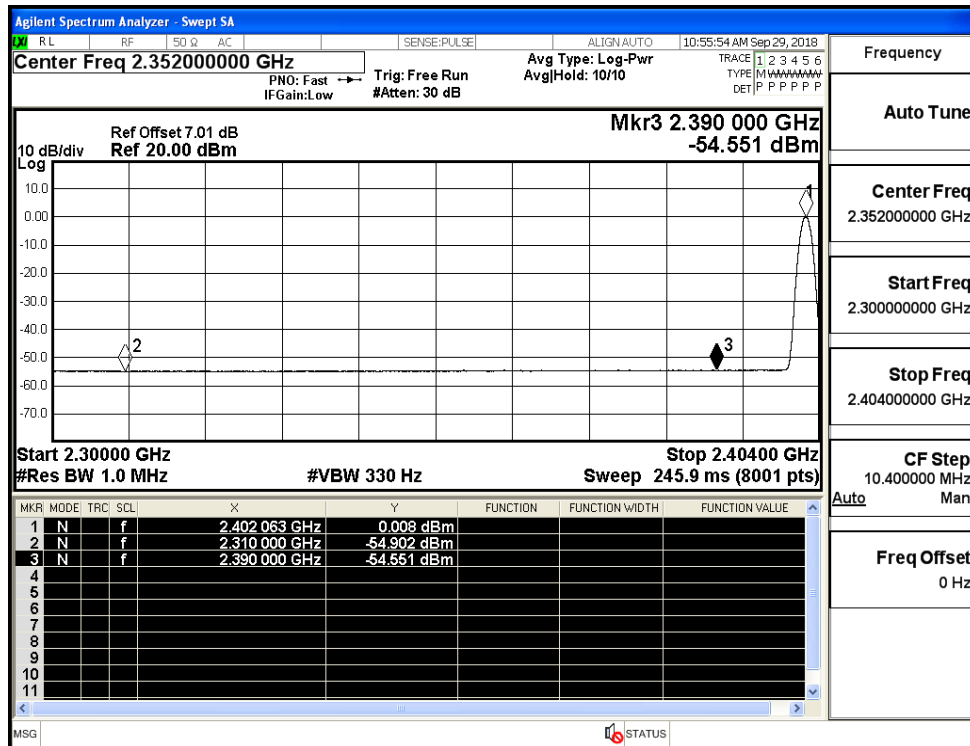
## A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-44.70	2.0	0	50.56	PEAK	74	PASS
	Off	2310.0	-54.90	2.0	0	40.36	AV	54	PASS
	Off	2390.0	-43.02	2.0	0	52.24	PEAK	74	PASS
	Off	2390.0	-54.55	2.0	0	40.71	AV	54	PASS
	Off	2483.5	-44.56	2.0	0	50.70	PEAK	74	PASS
	Off	2483.5	-54.14	2.0	0	41.12	AV	54	PASS
	Off	2500.0	-43.17	2.0	0	52.08	PEAK	74	PASS
	Off	2500.0	-54.16	2.0	0	41.10	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-44.71	2.0	0	50.54	PEAK	74	PASS
	Off	2310.0	-54.86	2.0	0	40.40	AV	54	PASS
	Off	2390.0	-44.34	2.0	0	50.92	PEAK	74	PASS
	Off	2390.0	-54.55	2.0	0	40.71	AV	54	PASS
	Off	2483.5	-45.39	2.0	0	49.86	PEAK	74	PASS
	Off	2483.5	-54.03	2.0	0	41.22	AV	54	PASS
	Off	2500.0	-45.07	2.0	0	50.19	PEAK	74	PASS
	Off	2500.0	-54.17	2.0	0	41.09	AV	54	PASS

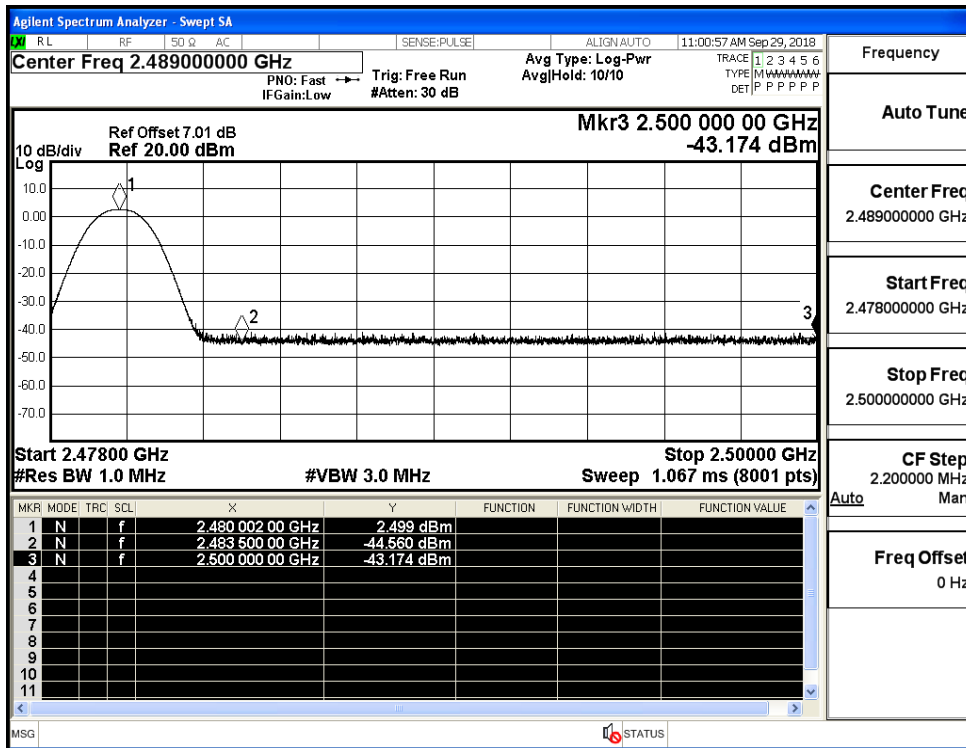
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (Low Channel)



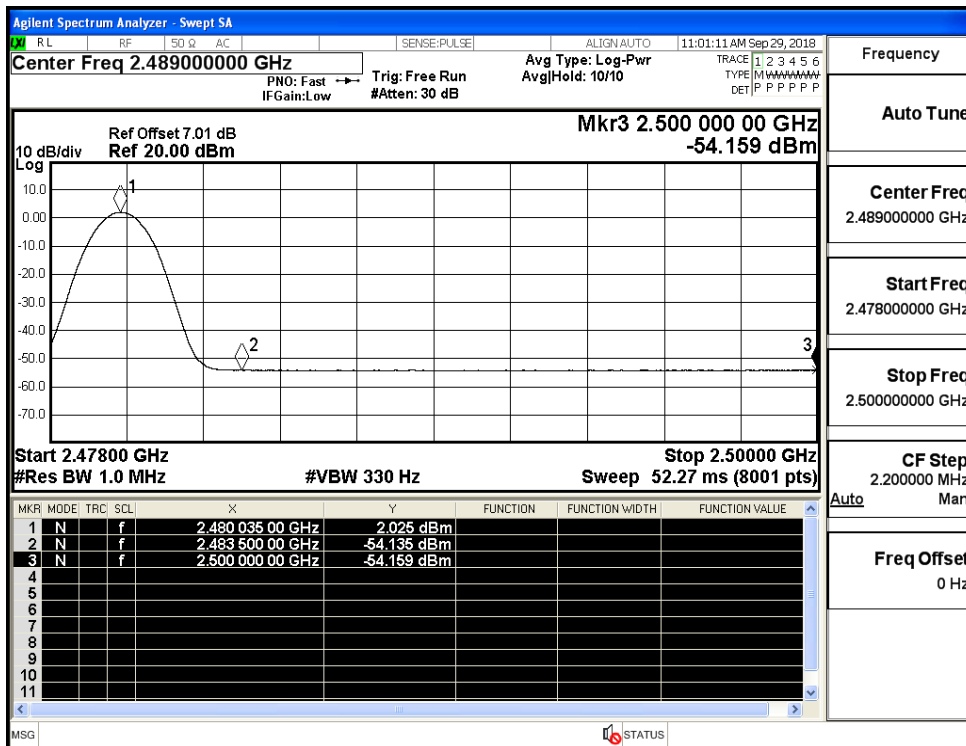
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (Low Channel)



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

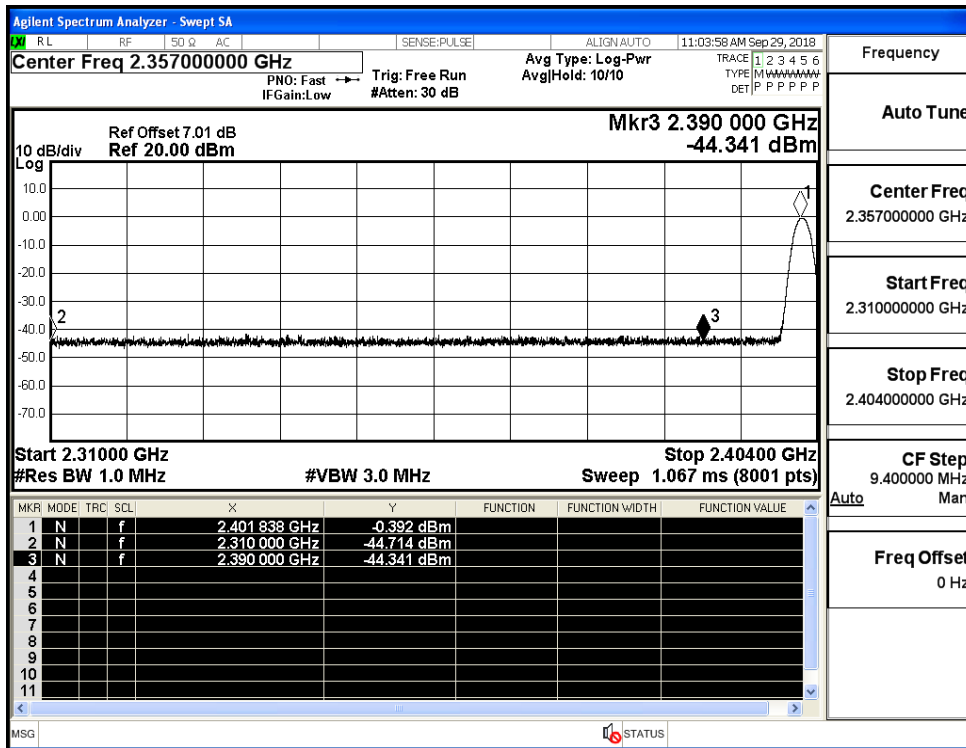


Restrict-band band-edge measurements\_Hopping Off\_ GFSK\_Average (High Channel)

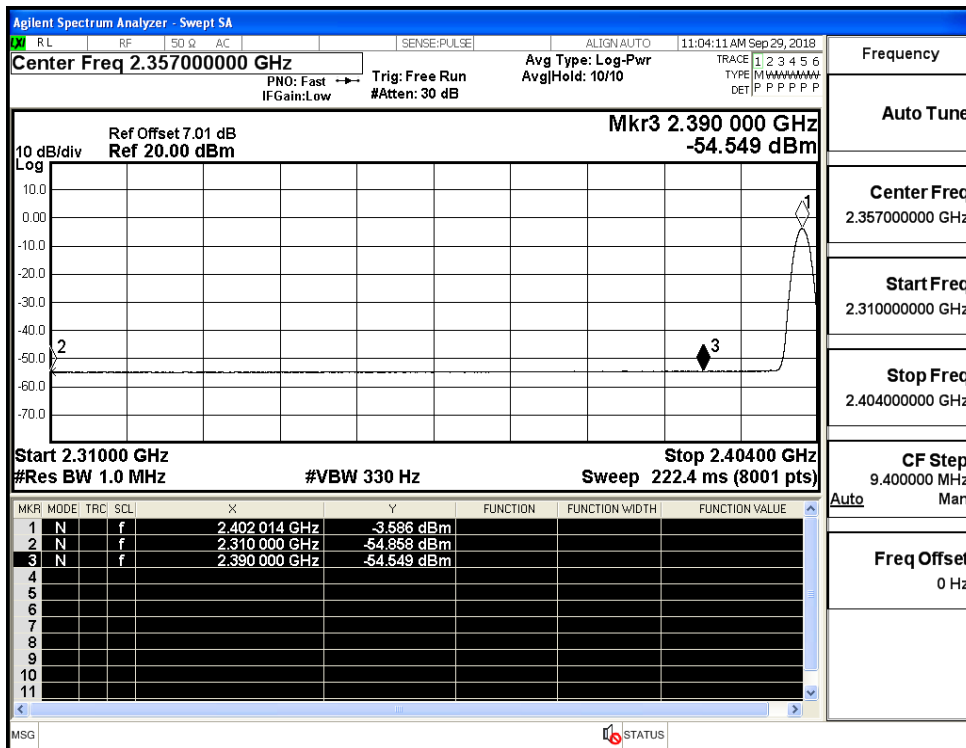




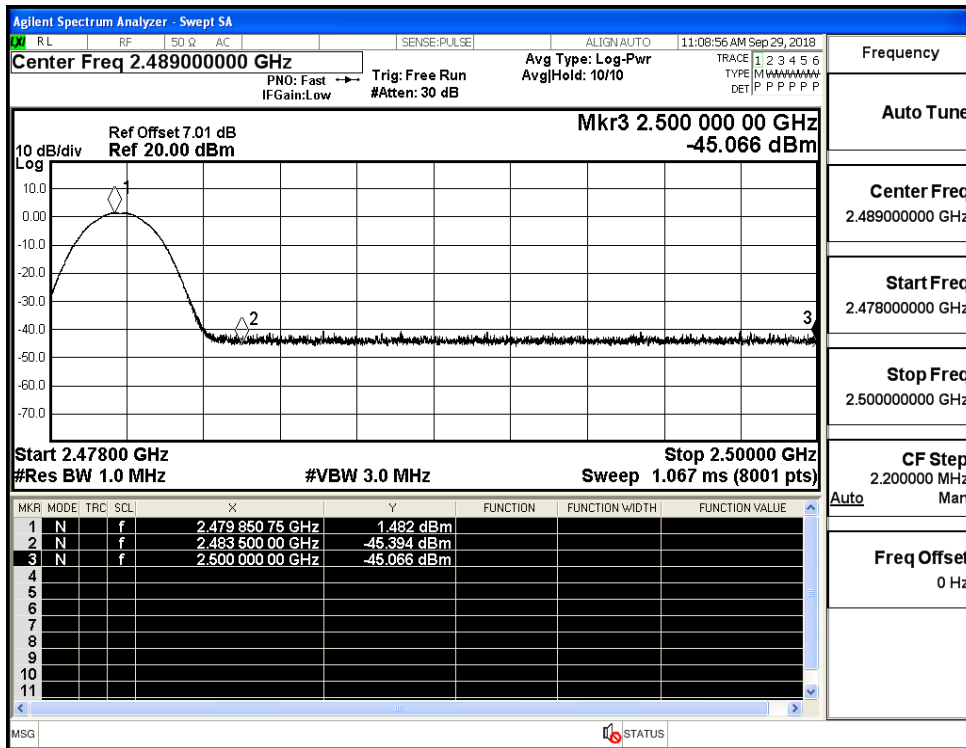
Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_PEAK (Low Channel)



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)

