

## Appendix A

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

Product Name: Bluetooth earphone

Trade Mark: Candiecouture

Test Model: CCBT-1001-RS

#### Environmental Conditions

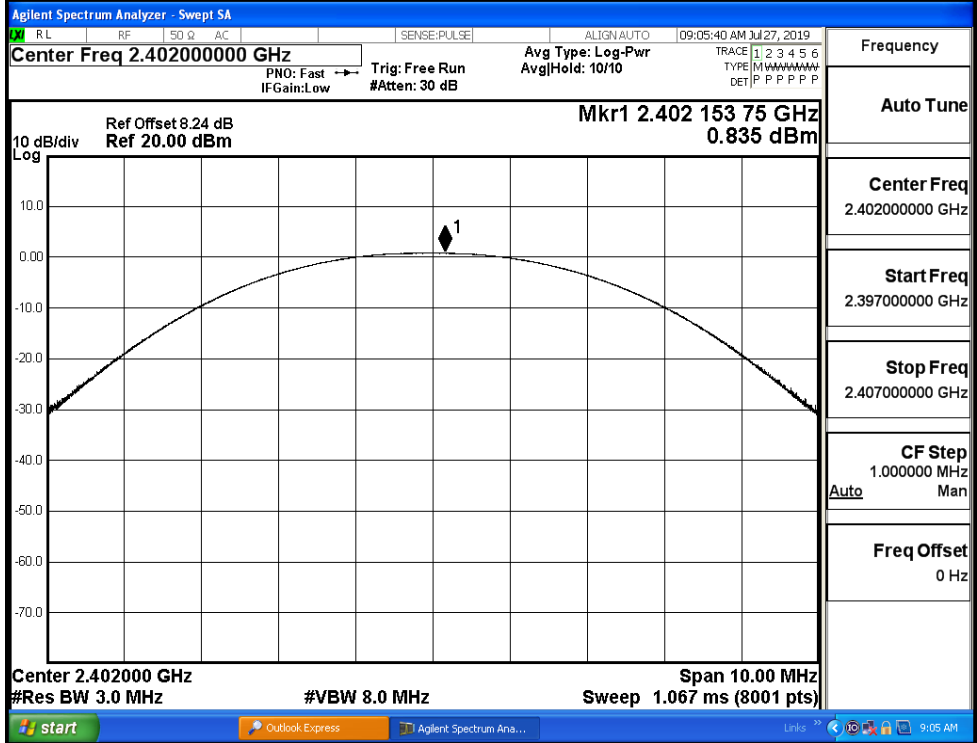
Temperature:	24.5 ° C
Relative Humidity:	53.6%
ATM Pressure:	100.0 kPa
Test Engineer:	JERRY.ZENG
Supervised by:	Wang.Chuang

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

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.835	21	PASS
	MCH	1.302	21	PASS
	HCH	0.179	21	PASS
$\pi/4$ DQPSK	LCH	-0.097	21	PASS
	MCH	0.463	21	PASS
	HCH	-0.724	21	PASS

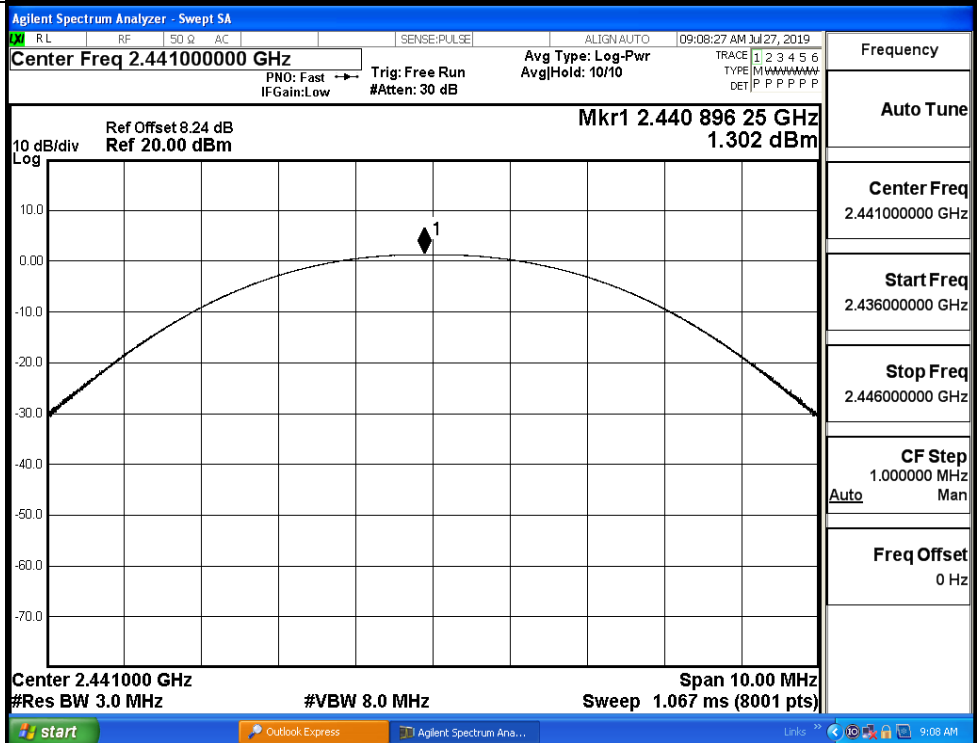
Test Graphs

GFSK/LCH



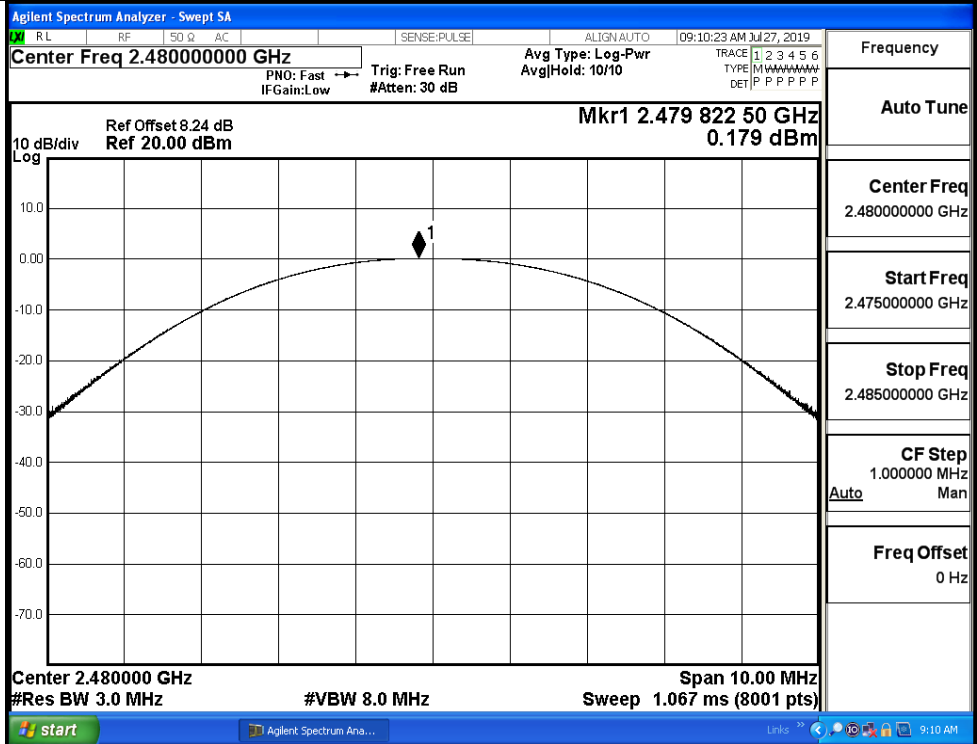
Frequency	
Auto Tune	
Center Freq	2.402000000 GHz
Start Freq	2.397000000 GHz
Stop Freq	2.407000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

GFSK/MCH



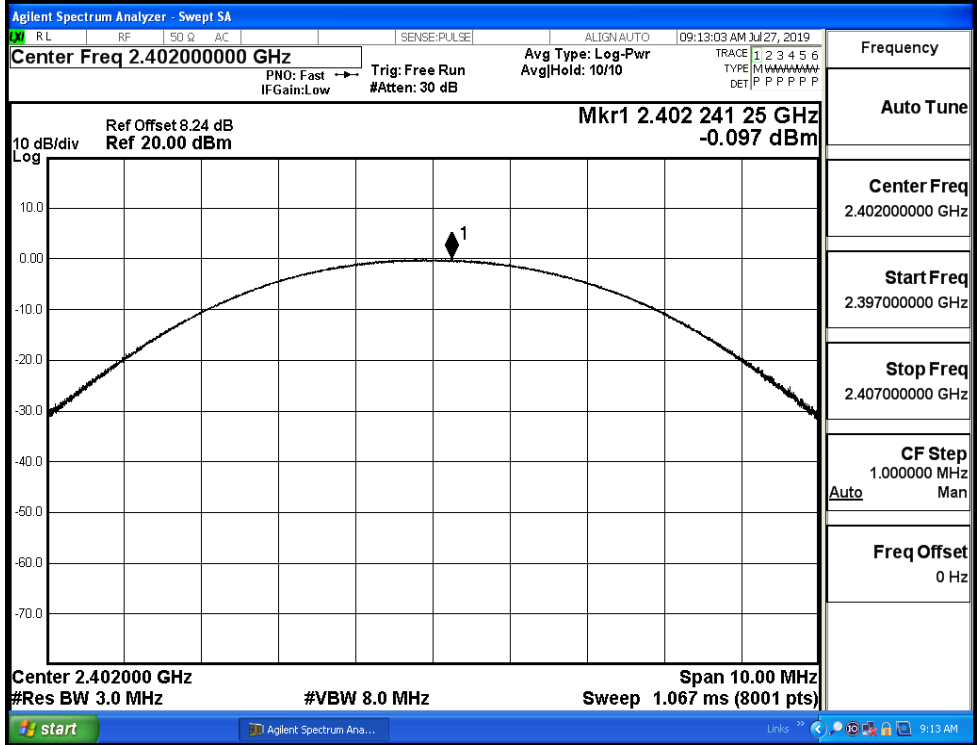
Frequency	
Auto Tune	
Center Freq	2.441000000 GHz
Start Freq	2.436000000 GHz
Stop Freq	2.446000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

GFSK/HCH



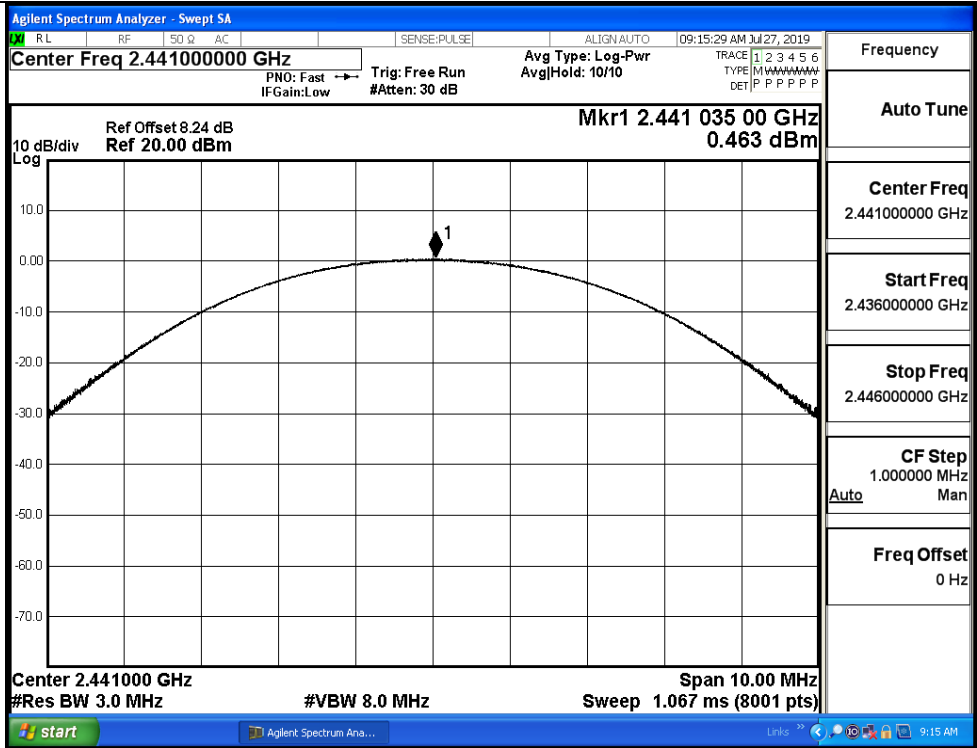
Frequency	2.480000000 GHz
Auto Tune	
Center Freq	2.480000000 GHz
Start Freq	2.475000000 GHz
Stop Freq	2.485000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

$\pi$ /4DQPSK/LCH

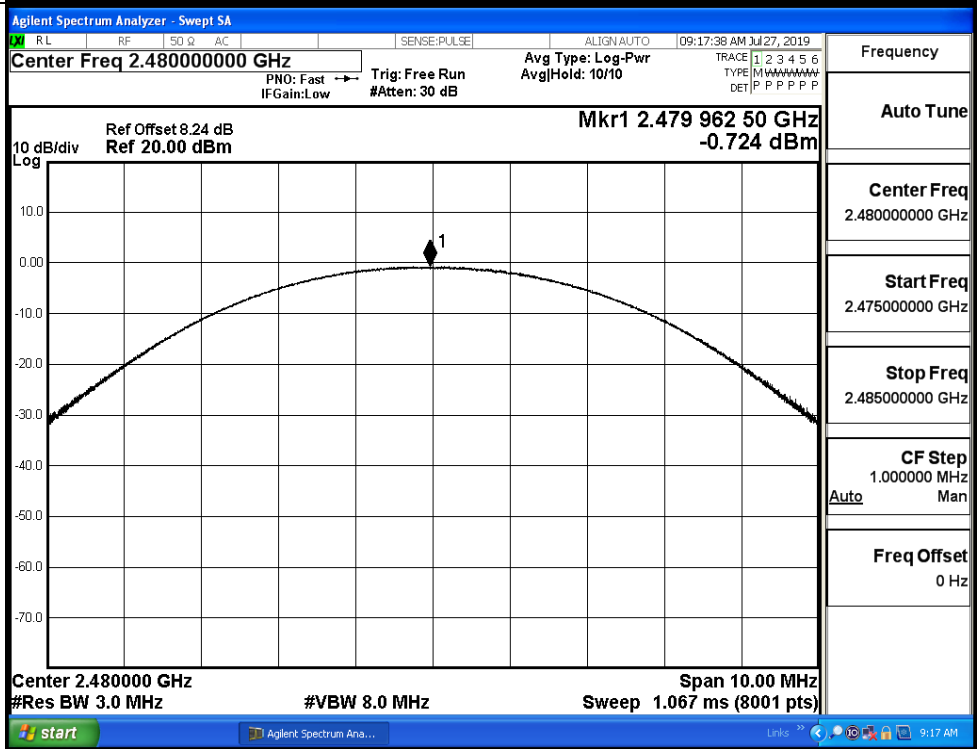


Frequency	2.402000000 GHz
Auto Tune	
Center Freq	2.402000000 GHz
Start Freq	2.397000000 GHz
Stop Freq	2.407000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

$\pi$ /4DQPSK/MCH

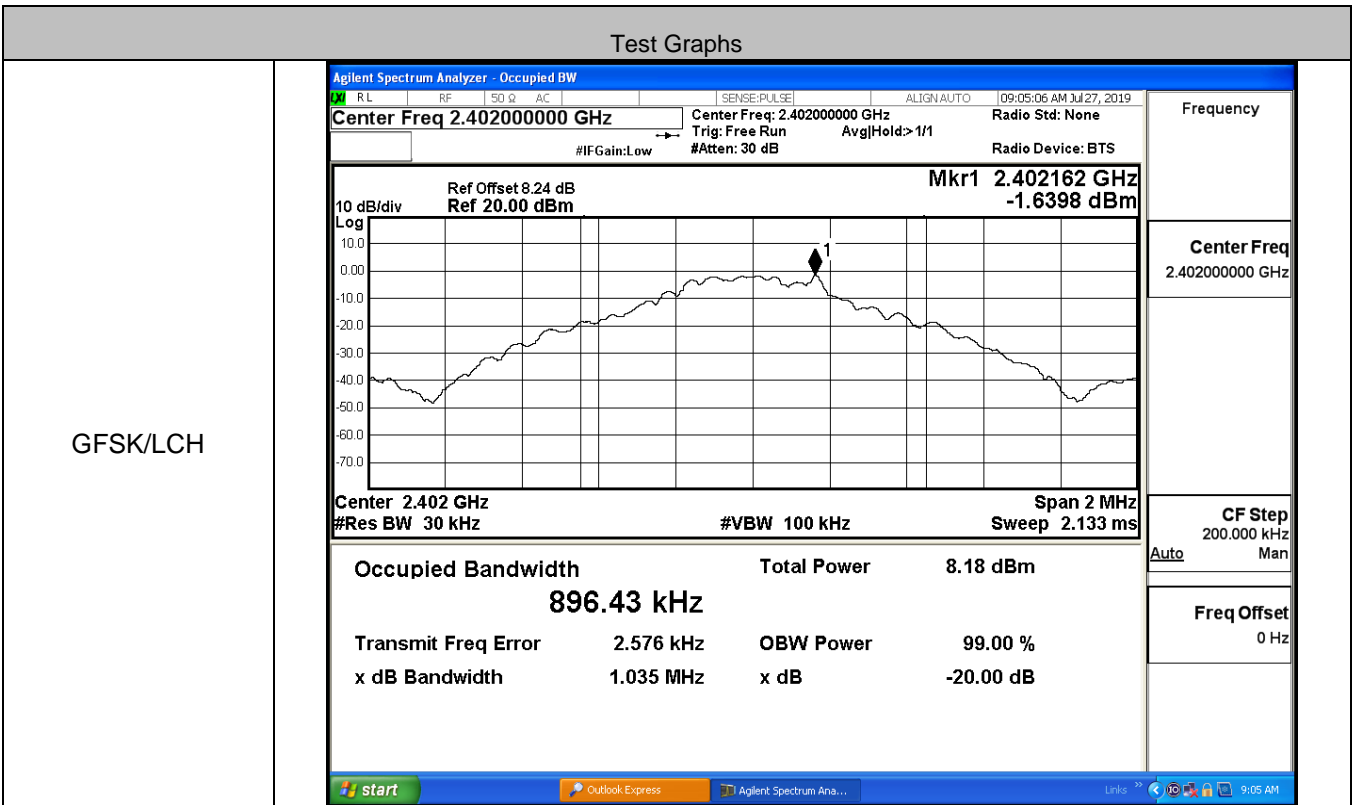


$\pi$ /4DQPSK/HCH

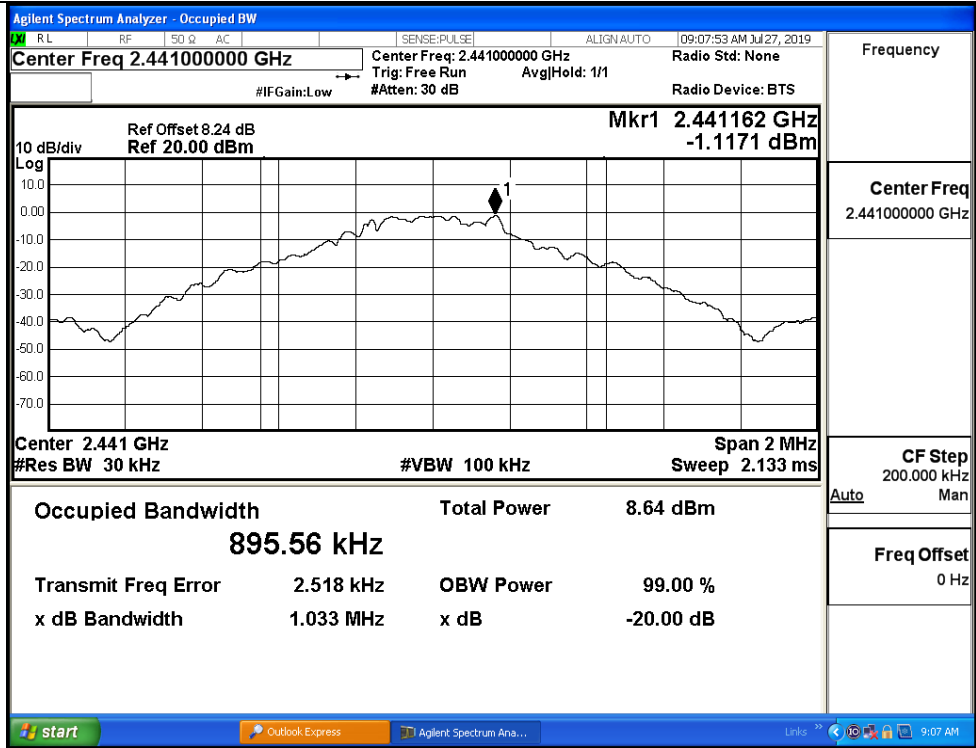


**A.2 20dB Bandwidth**

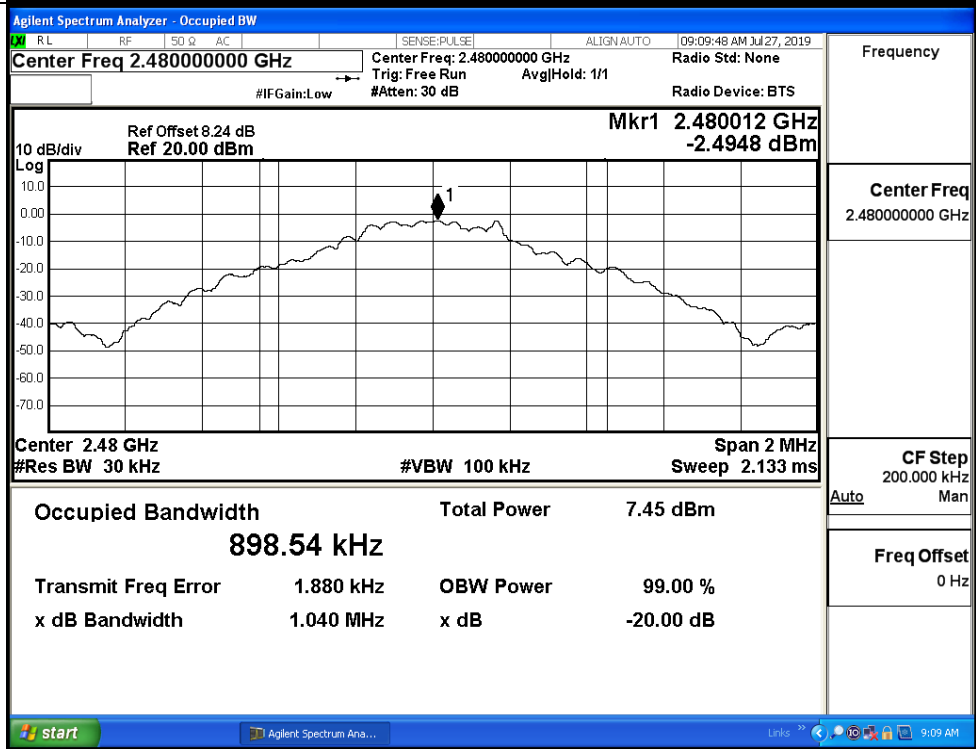
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.035	Not Specified	PASS
	MCH	1.033	Not Specified	PASS
	HCH	1.040	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.291	Not Specified	PASS
	MCH	1.289	Not Specified	PASS
	HCH	1.288	Not Specified	PASS



GFSK/MCH

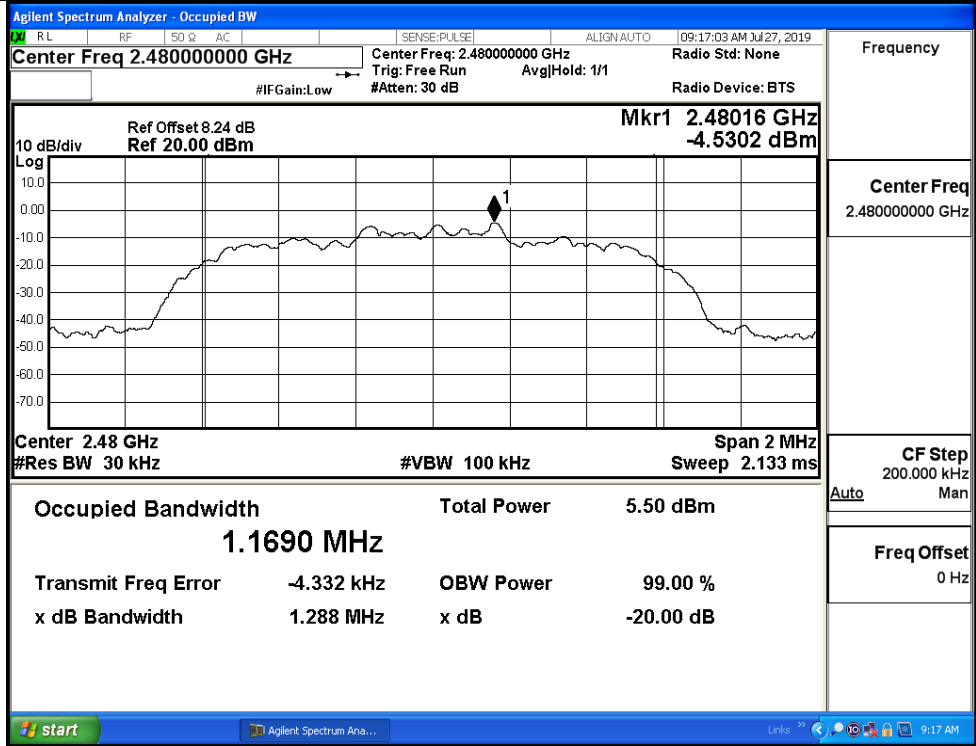


GFSK/HCH



<p style="text-align: center;">π/4DQPSK/LCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.40200000 GHz</p> <p>Mkr1 2.402162 GHz -4.1349 dBm</p> <p>Occupied Bandwidth 1.1720 MHz</p> <p>Total Power 6.00 dBm</p> <p>Transmit Freq Error -2.813 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 1.291 MHz</p> <p>x dB -20.00 dB</p>	<p>Frequency</p> <p>Center Freq 2.40200000 GHz</p> <p>CF Step 200.000 kHz</p> <p>Freq Offset 0 Hz</p>
<p style="text-align: center;">π/4DQPSK/MCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.44100000 GHz</p> <p>Mkr1 2.441116 GHz -3.3588 dBm</p> <p>Occupied Bandwidth 1.1702 MHz</p> <p>Total Power 6.65 dBm</p> <p>Transmit Freq Error -3.529 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 1.289 MHz</p> <p>x dB -20.00 dB</p>	<p>Frequency</p> <p>Center Freq 2.44100000 GHz</p> <p>CF Step 200.000 kHz</p> <p>Freq Offset 0 Hz</p>

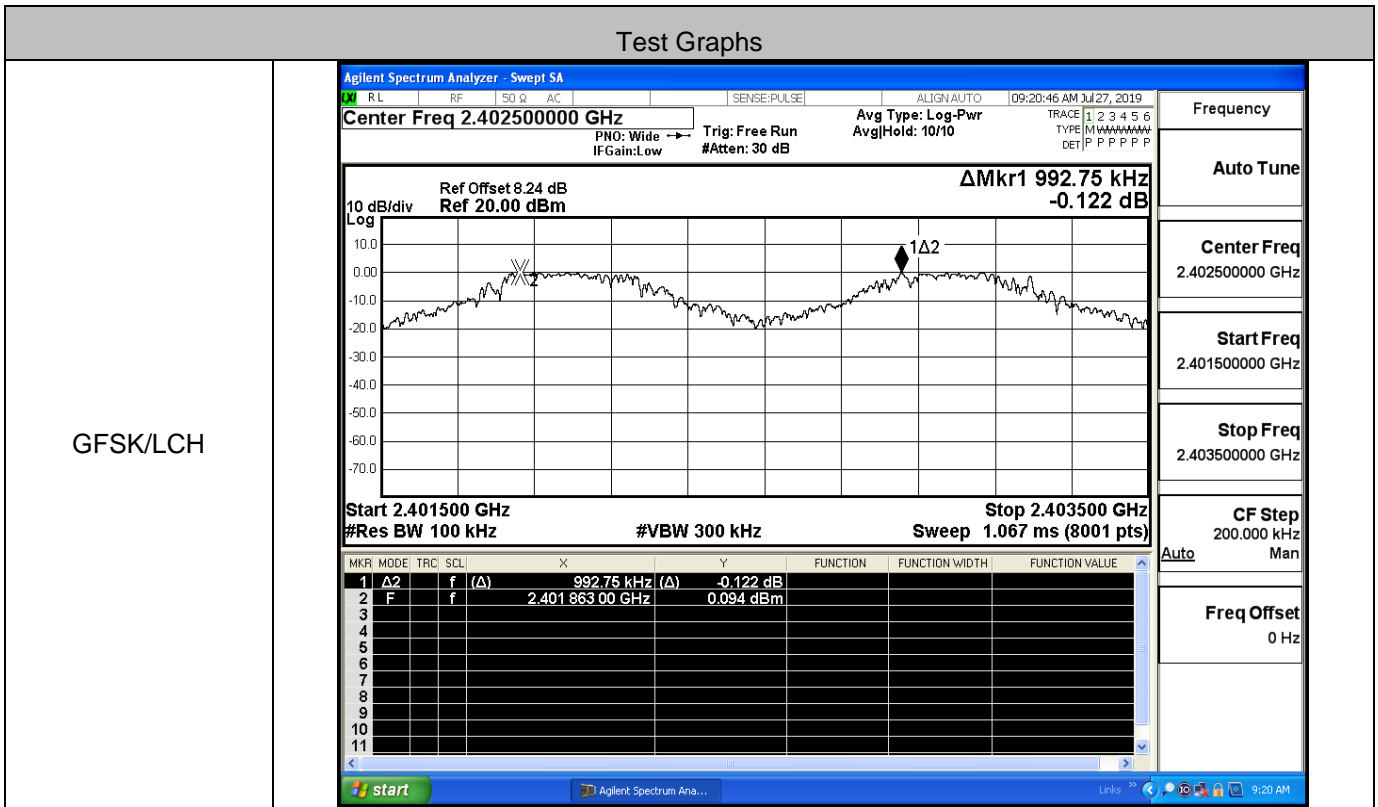
$\pi/4$ DQPSK/HCH



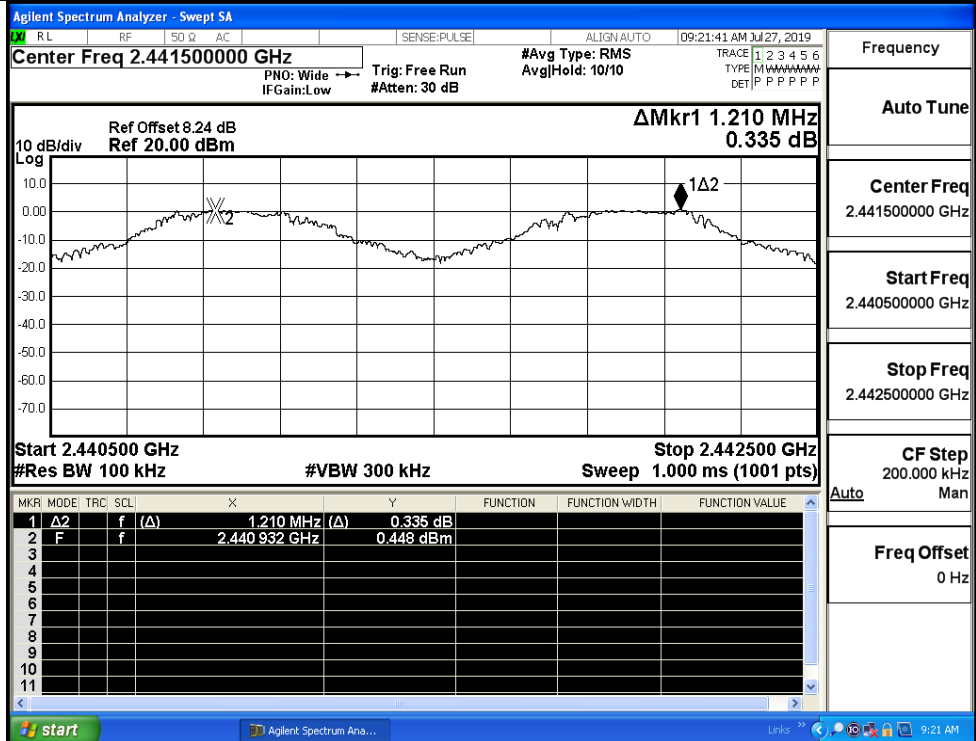


### A.3 Carrier Frequency Separation

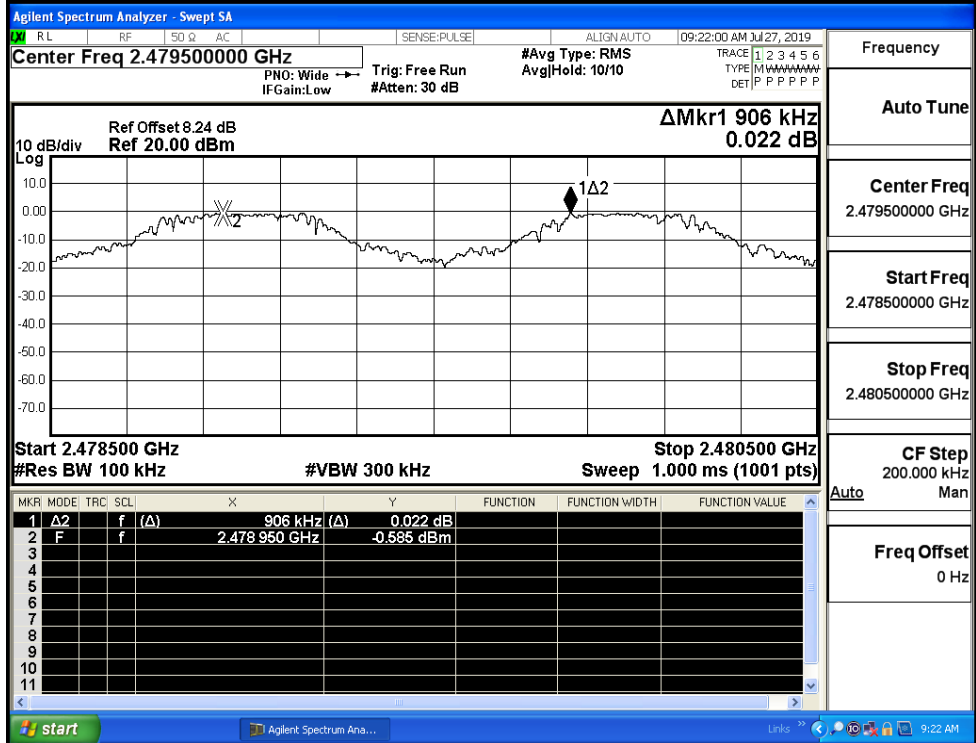
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.993	0.693	PASS
	MCH	1.210	0.693	PASS
	HCH	0.906	0.693	PASS
π/4DQPSK	LCH	0.932	0.861	PASS
	MCH	1.074	0.861	PASS
	HCH	1.176	0.861	PASS



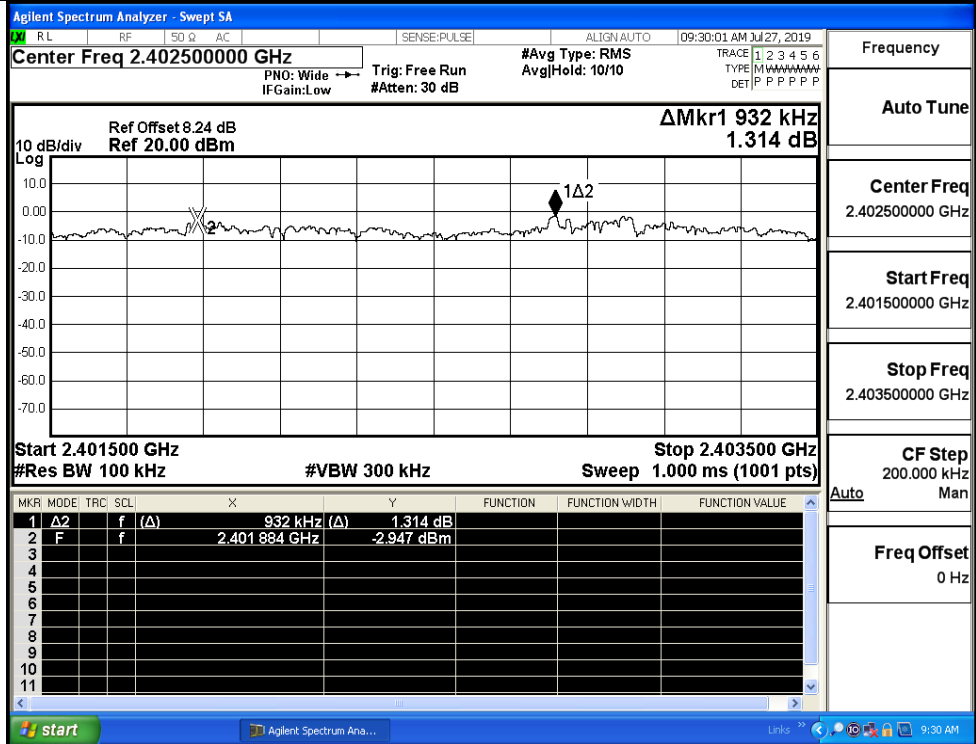
GFSK/MCH



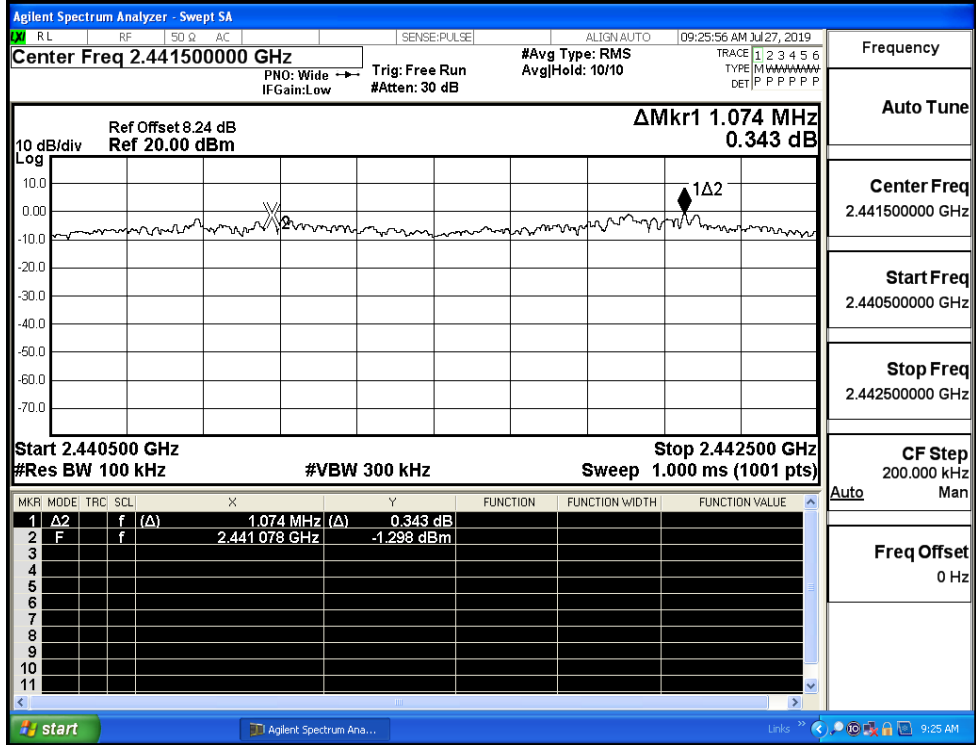
GFSK/HCH



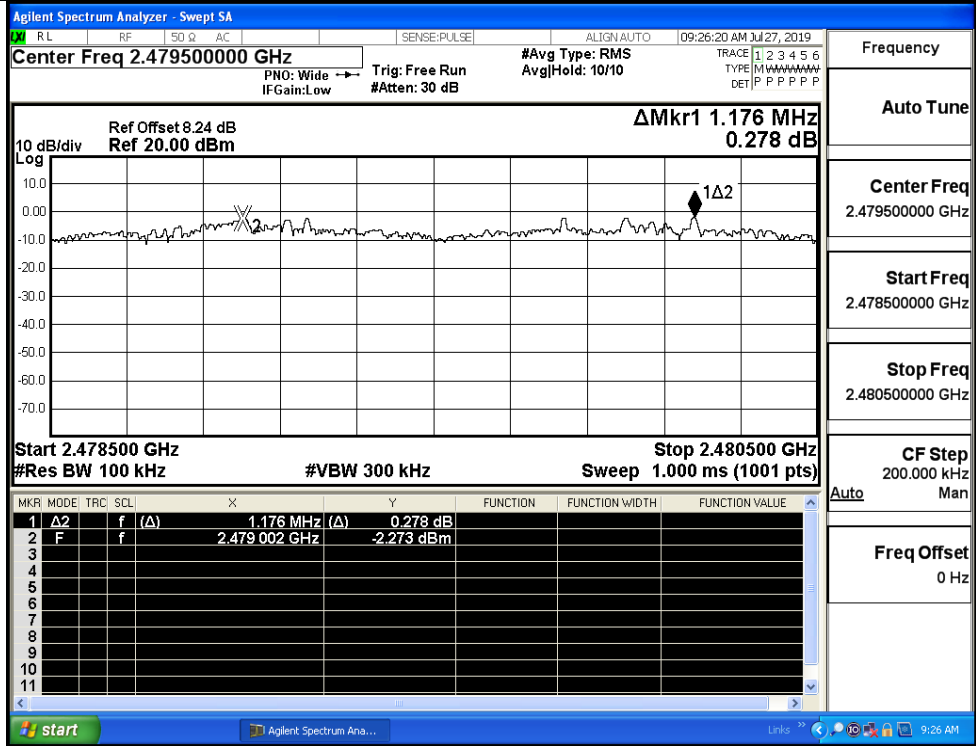
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



$\pi/4$ DQPSK/HCH



### A.4 Hopping Channel Number

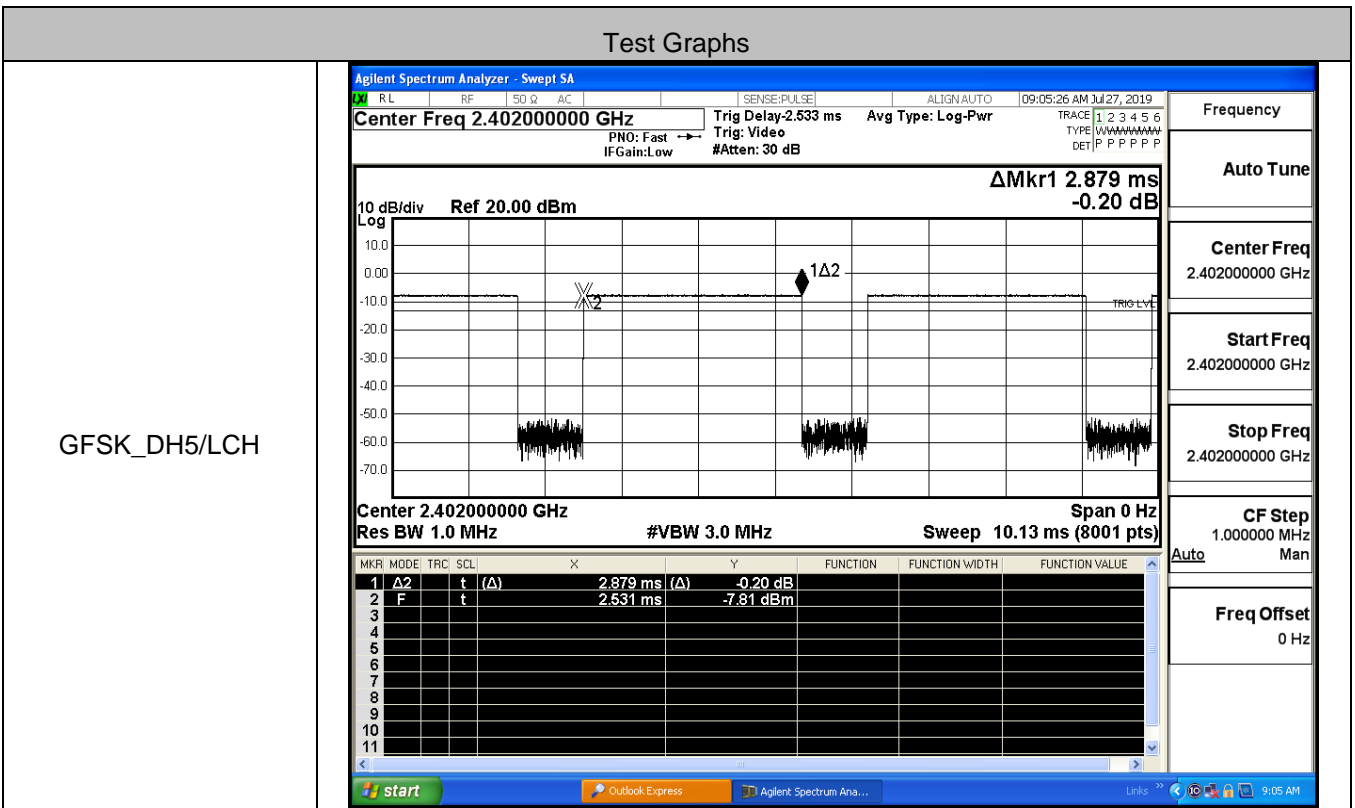
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS

Test Graphs

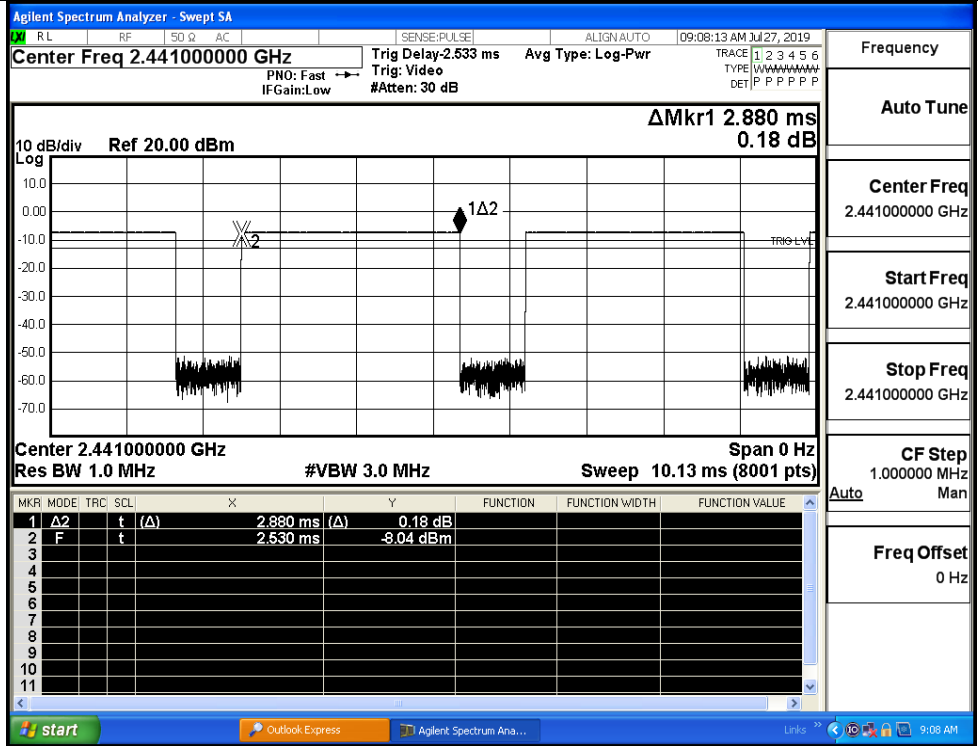
GFSK/Hop	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.441750000 GHz</p> <p>Ref Offset 8.24 dB Ref 20.00 dBm</p> <p><math>\Delta</math>Mkr1 77.968 MHz -0.739 dB</p> <p>Start 2.40000 GHz Stop 2.48350 GHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 8.000 ms (8001 pts)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <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>77.968 MHz (<math>\Delta</math>)</td> <td>-0.739 dB</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td></td> <td>2.402004 GHz</td> <td>0.326 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	( $\Delta$ )	77.968 MHz ( $\Delta$ )	-0.739 dB				2	F	f		2.402004 GHz	0.326 dBm			
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																				
1	$\Delta$ 2	f	( $\Delta$ )	77.968 MHz ( $\Delta$ )	-0.739 dB																							
2	F	f		2.402004 GHz	0.326 dBm																							
$\pi/4$ DQPSK/Hop	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.441750000 GHz</p> <p>Ref Offset 8.24 dB Ref 20.00 dBm</p> <p><math>\Delta</math>Mkr1 78.250 MHz -1.504 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;"> <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>78.250 MHz (<math>\Delta</math>)</td> <td>-1.504 dB</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td></td> <td>2.401879 GHz</td> <td>-3.451 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	( $\Delta$ )	78.250 MHz ( $\Delta$ )	-1.504 dB				2	F	f		2.401879 GHz	-3.451 dBm			
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																				
1	$\Delta$ 2	f	( $\Delta$ )	78.250 MHz ( $\Delta$ )	-1.504 dB																							
2	F	f		2.401879 GHz	-3.451 dBm																							

### A.5 Dwell Time

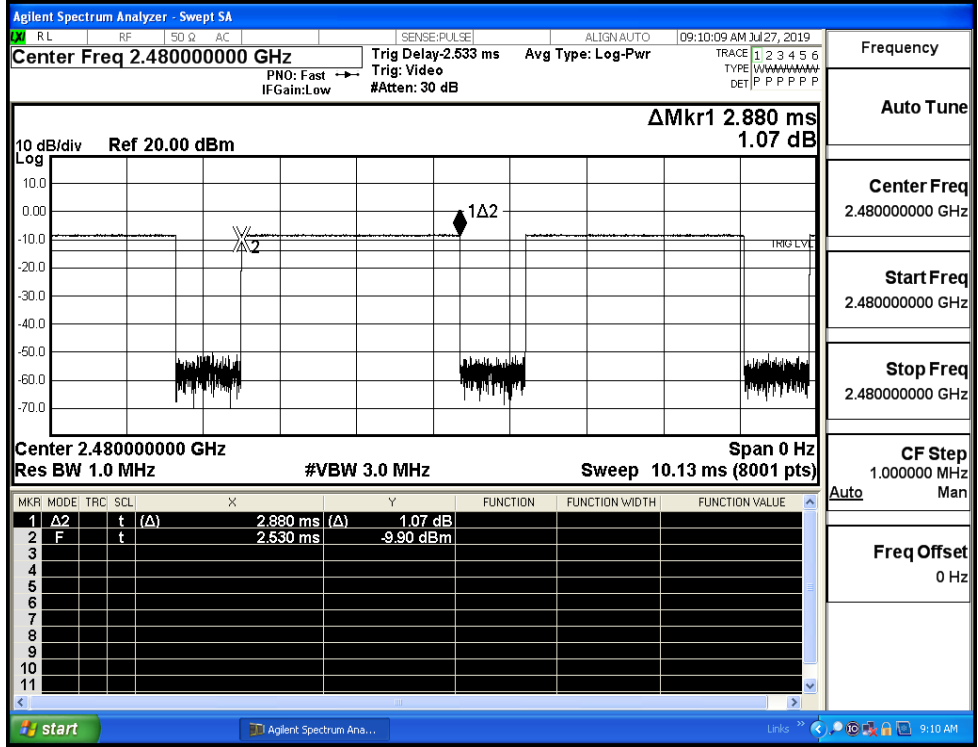
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88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



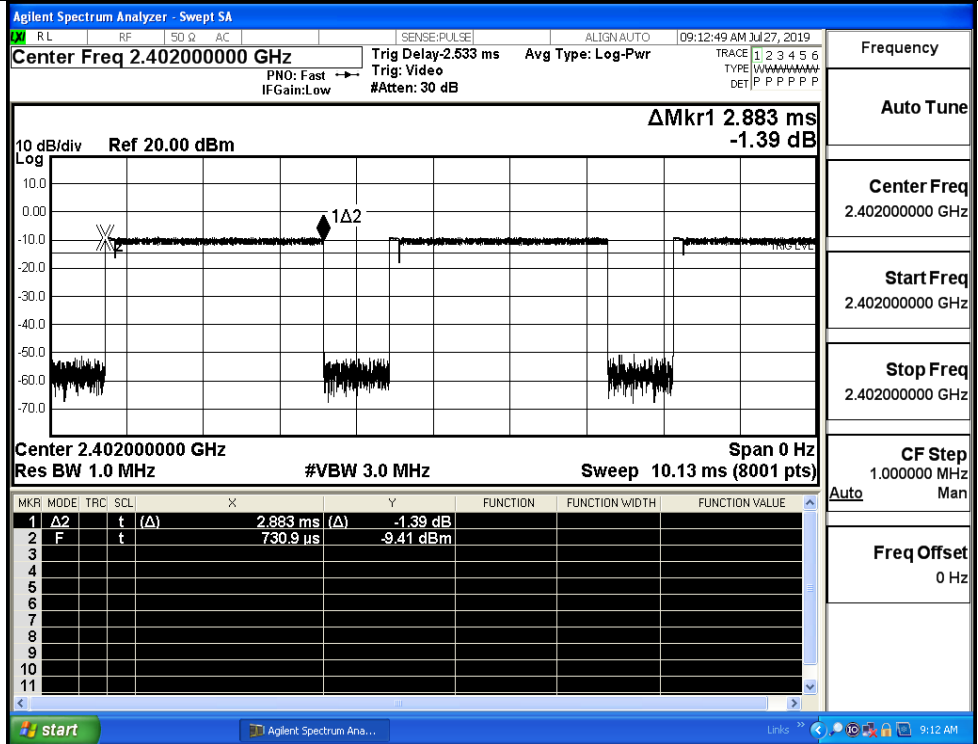
GFSK\_DH5/MCH



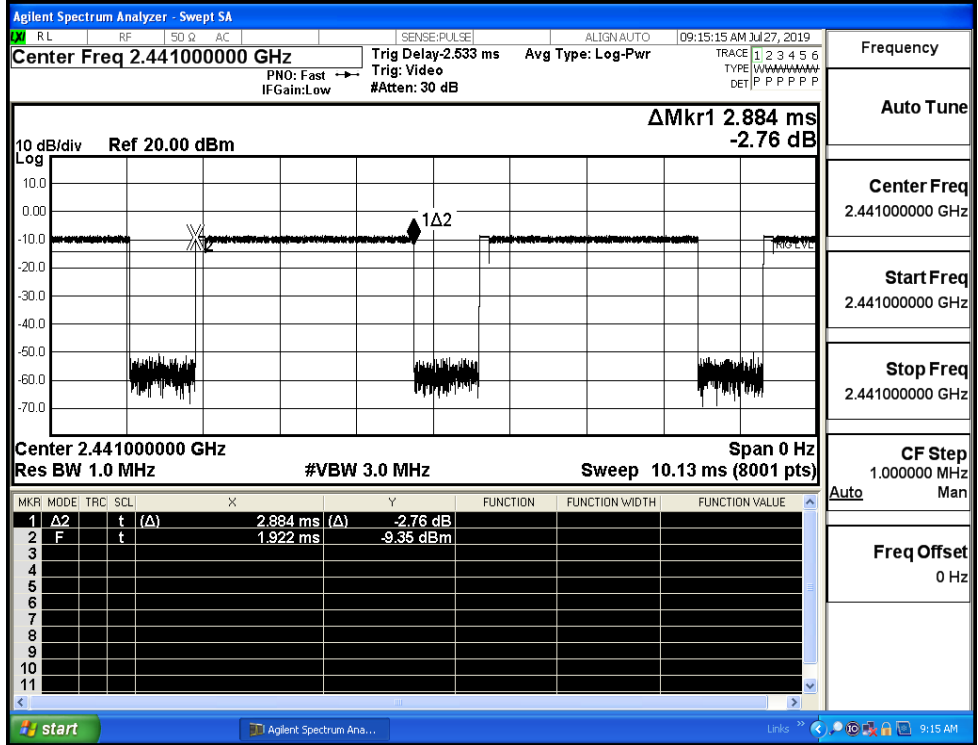
GFSK\_DH5/HCH



$\pi/4$ DQPSK  
\_2DH5/LCH

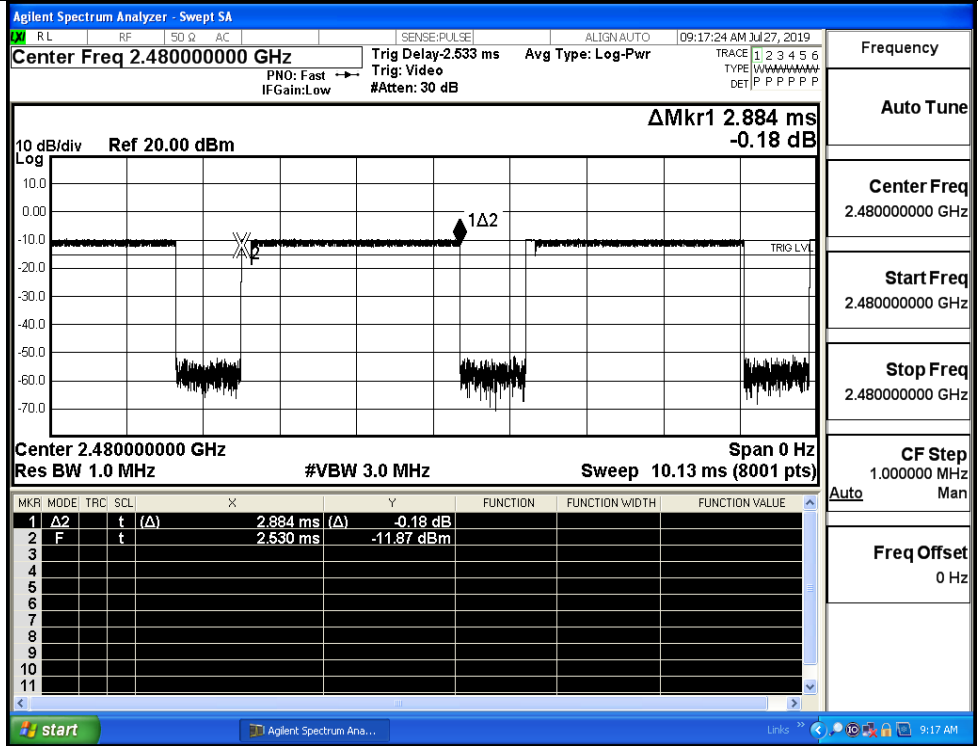


$\pi/4$ DQPSK  
\_2DH5/MCH



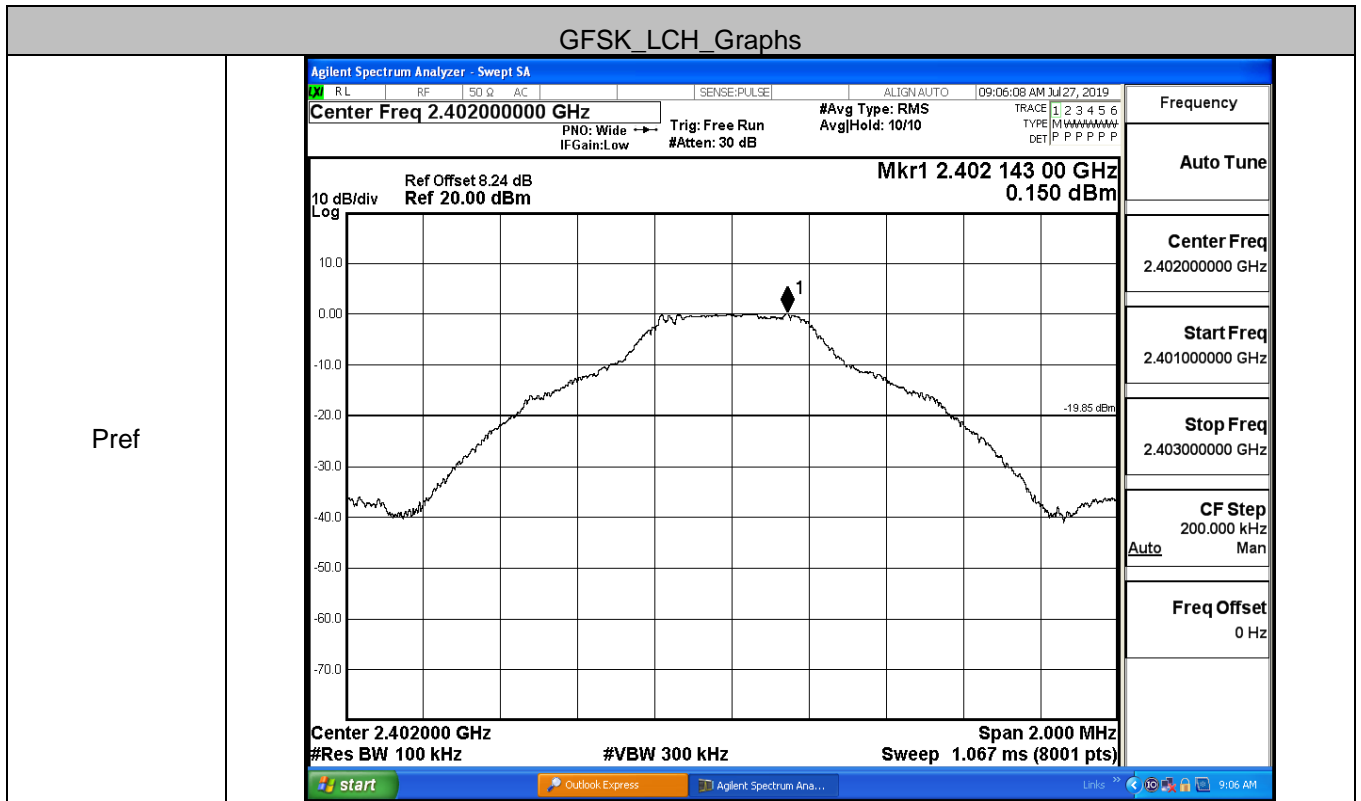


$\pi/4$ DQPSK  
\_2DH5/HCH

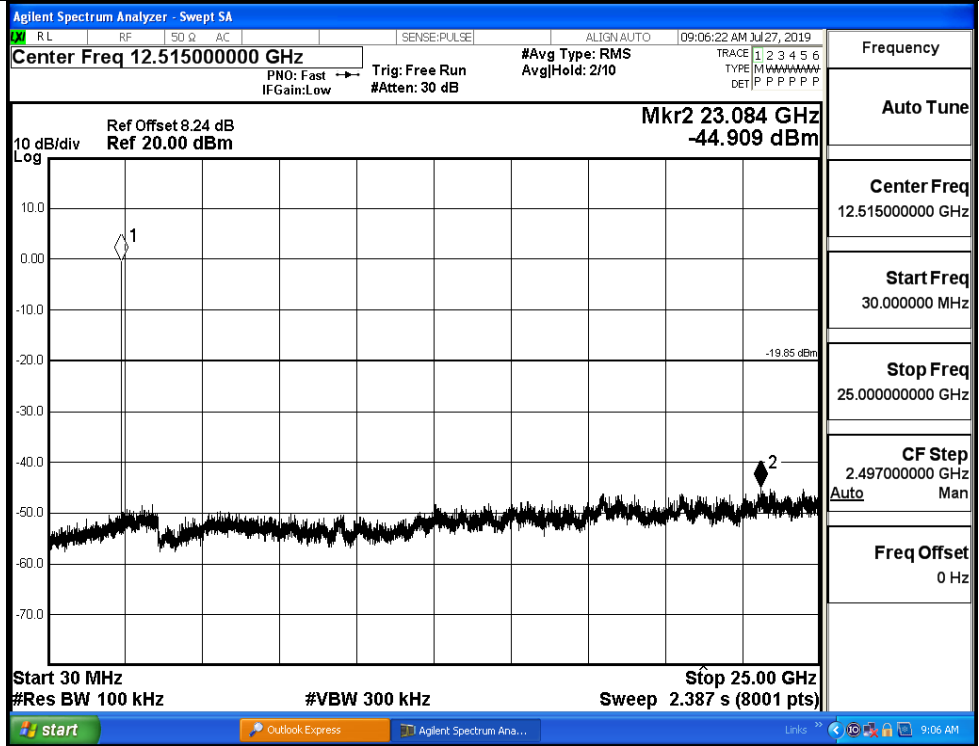


### A.6 RF Conducted Spurious Emissions

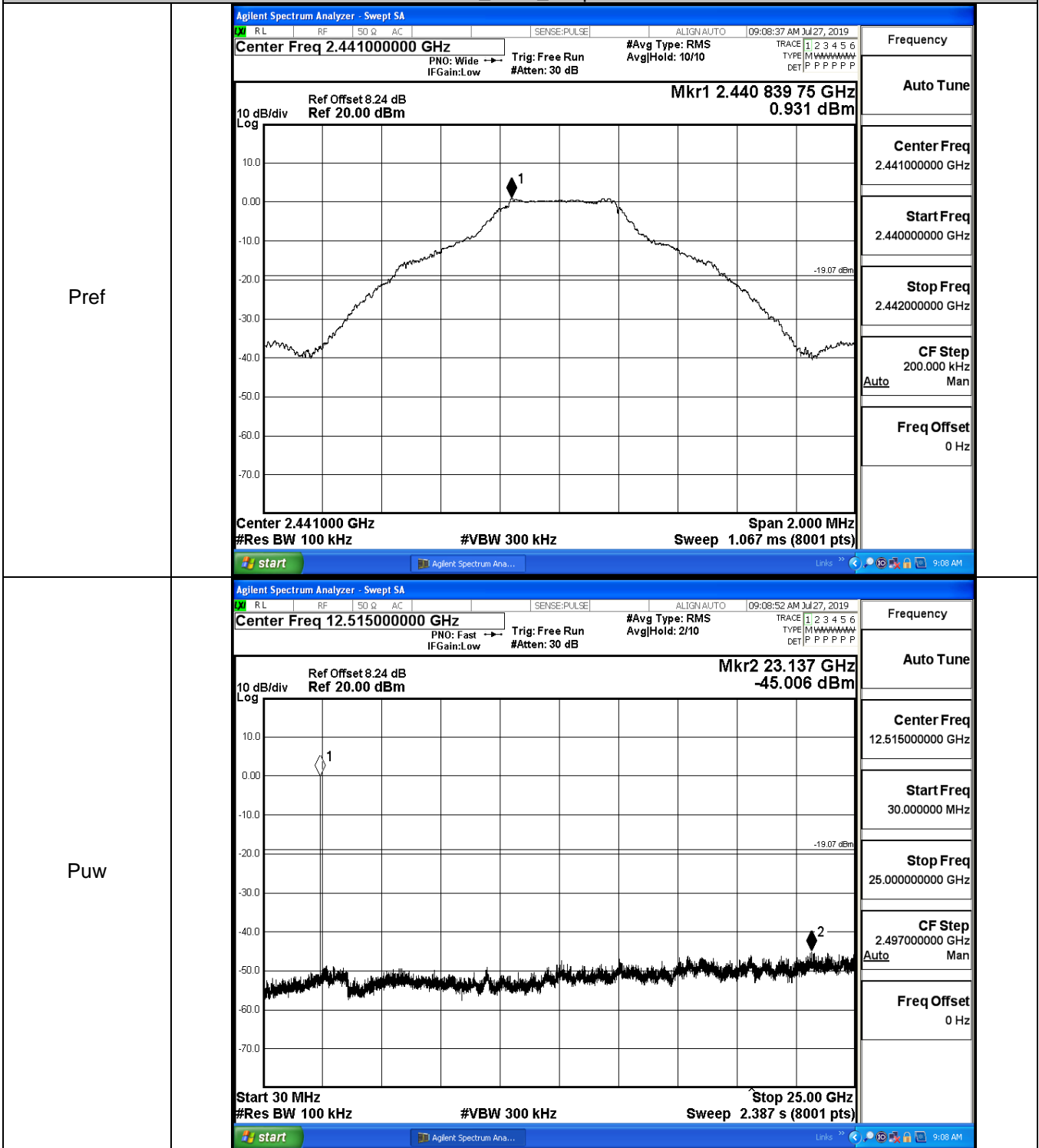
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.15	-44.909	-19.850	PASS
	MCH	0.931	-45.006	-19.069	PASS
	HCH	-0.201	-44.714	-20.201	PASS
$\pi$ /4DQPSK	LCH	-1.367	-44.932	-21.367	PASS
	MCH	-0.642	-45.171	-20.642	PASS
	HCH	-1.872	-45.264	-21.872	PASS



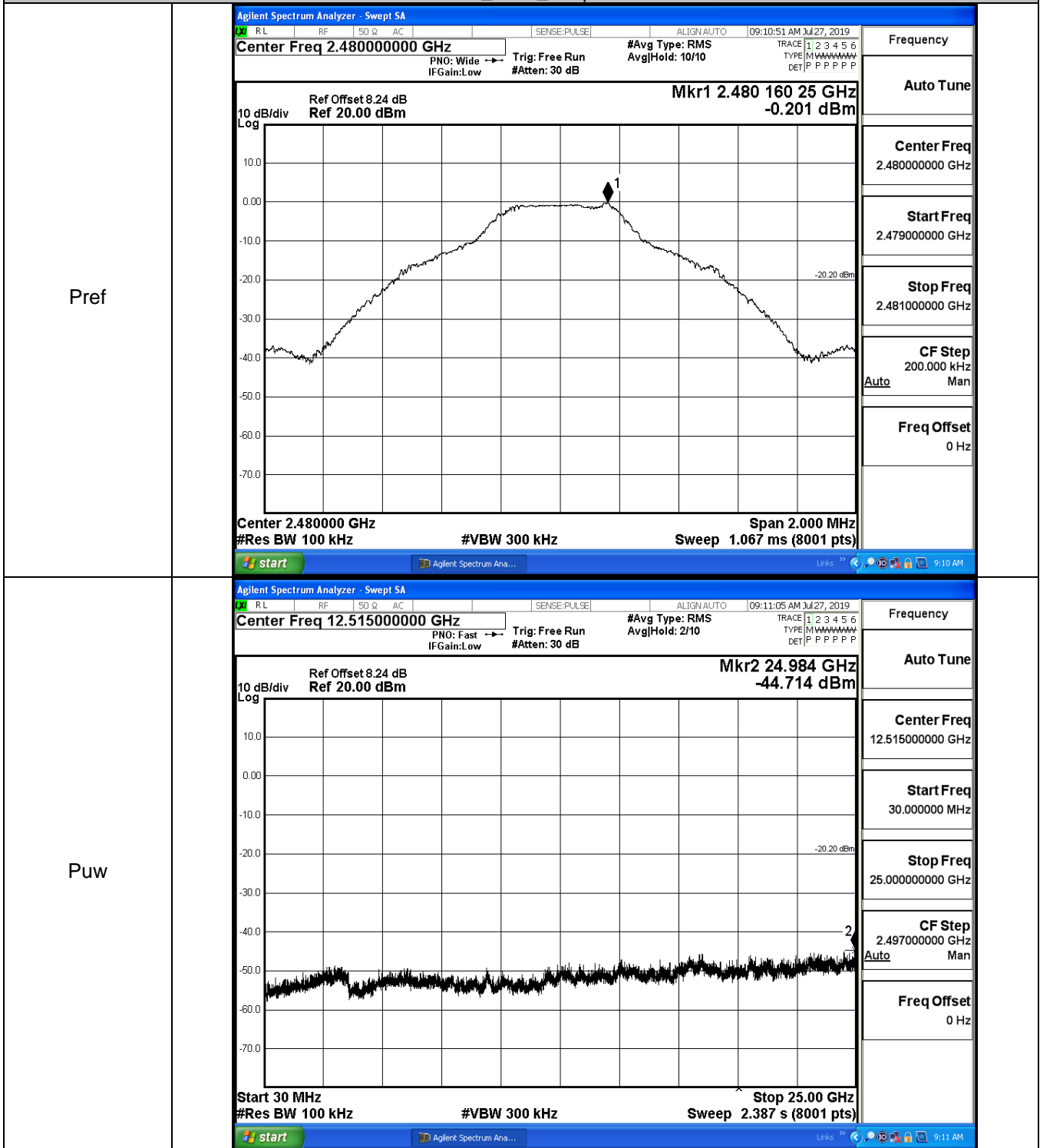
Puw



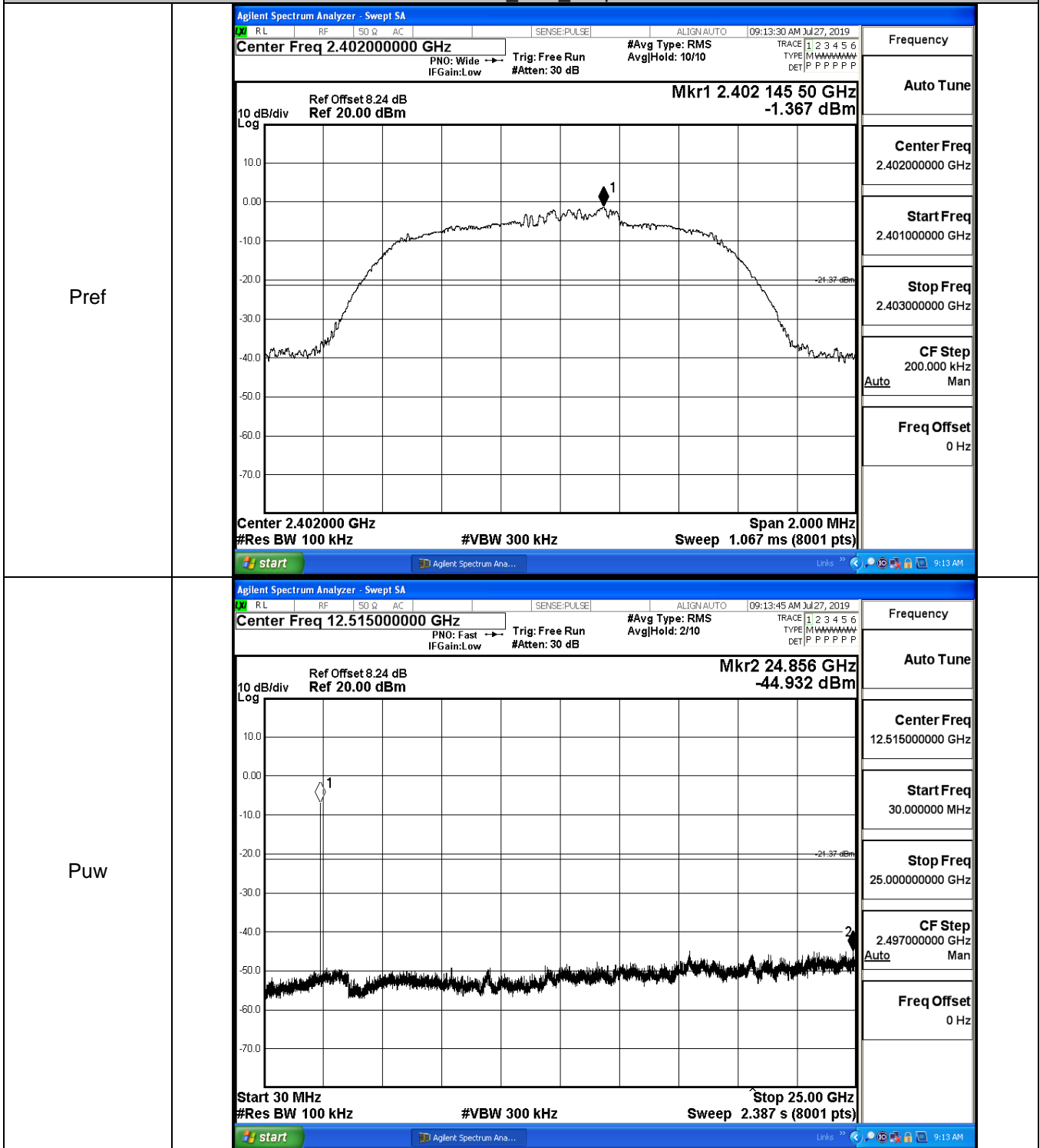
GFSK\_MCH\_Graphs



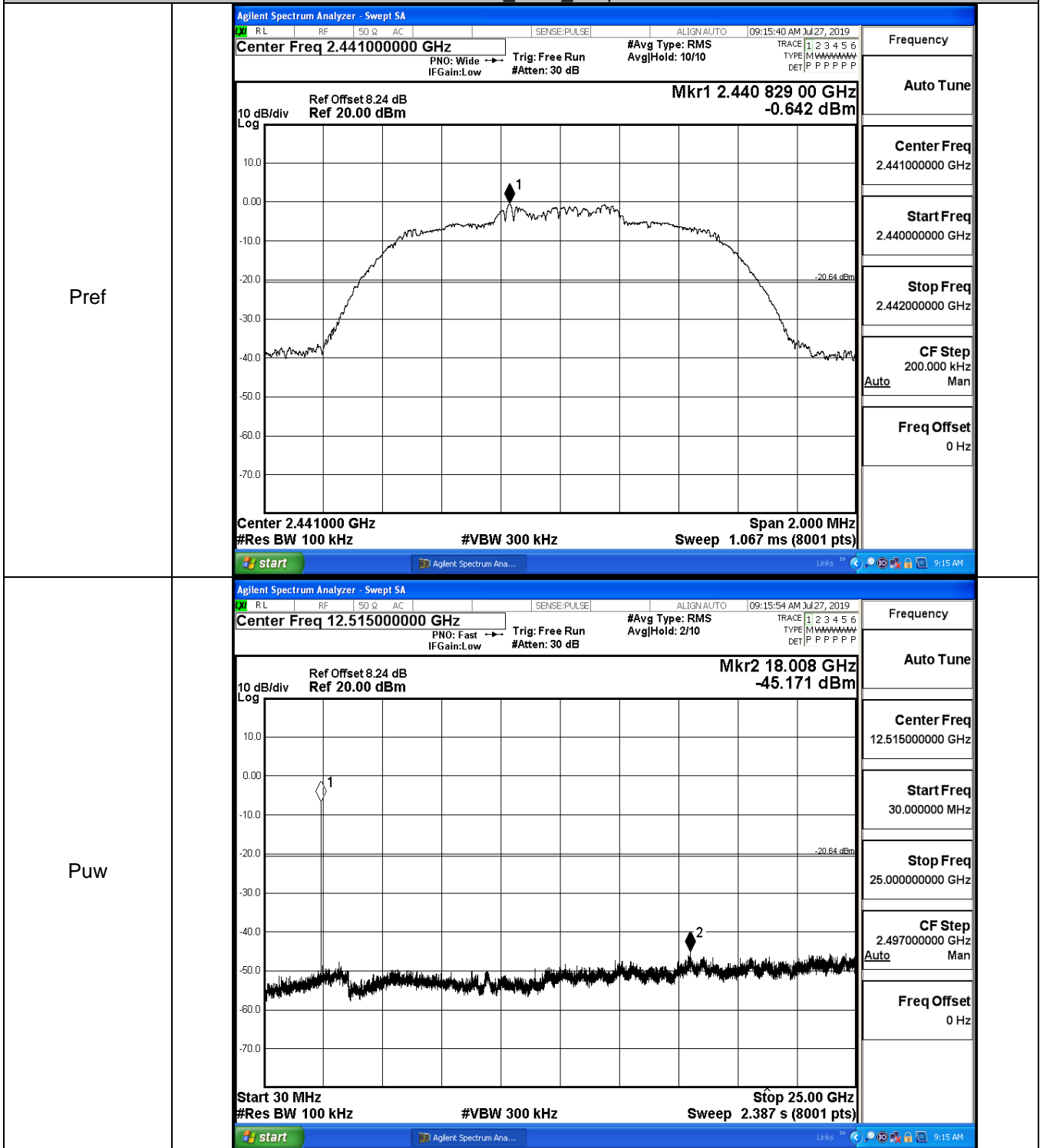
GFSK\_HCH\_Graphs



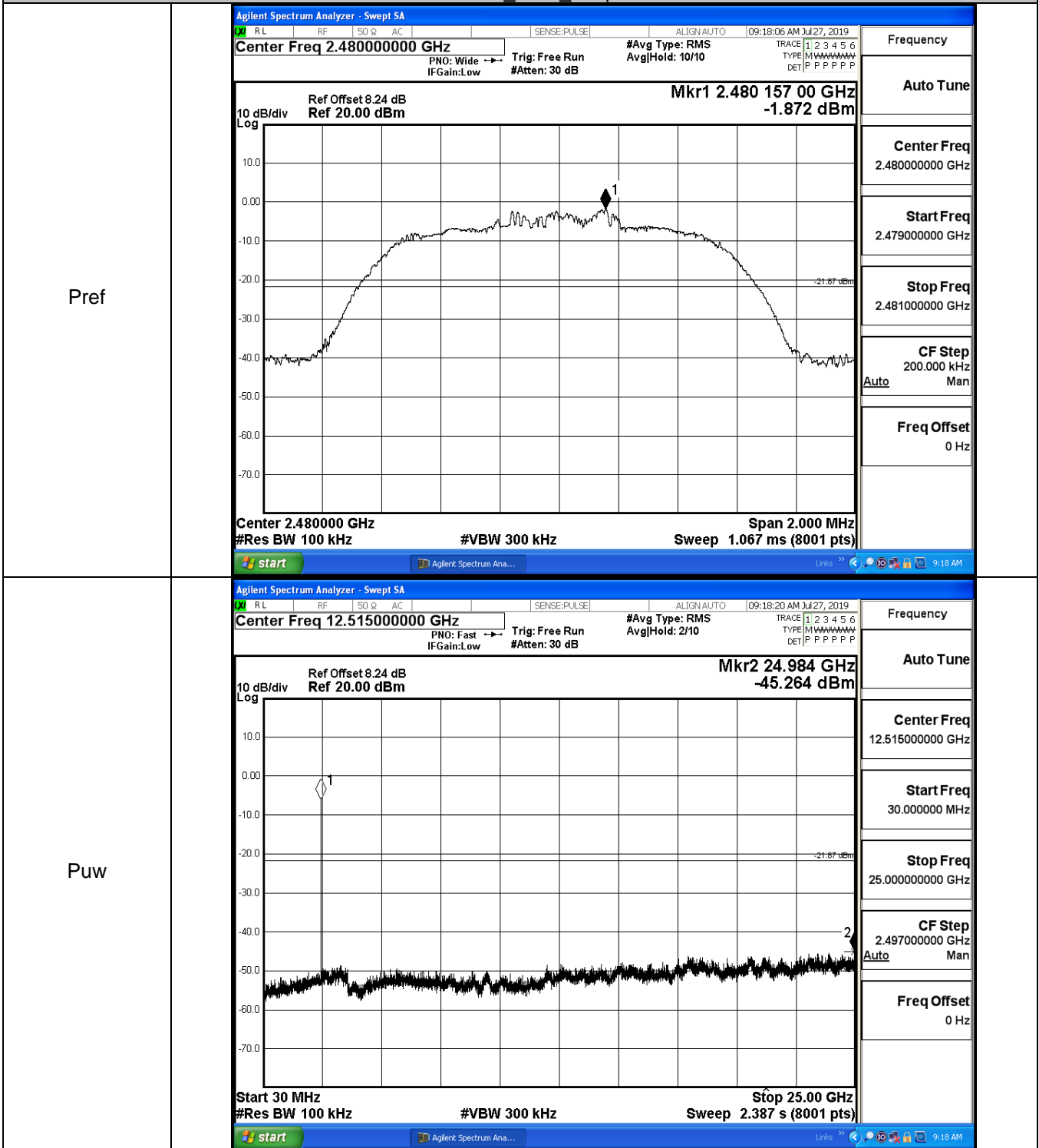
$\pi/4$ DQPSK\_LCH\_Graphs



$\pi/4$ DQPSK\_MCH\_Graphs



$\pi/4$ DQPSK\_HCH\_Graphs



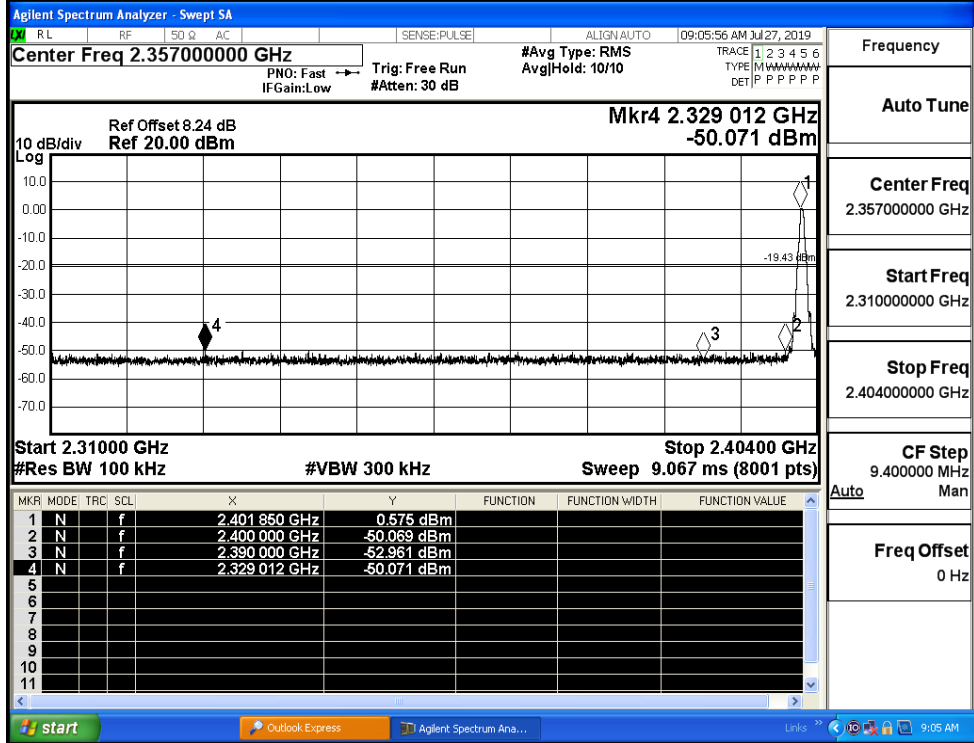


### A.7 Band-edge for RF Conducted Emissions

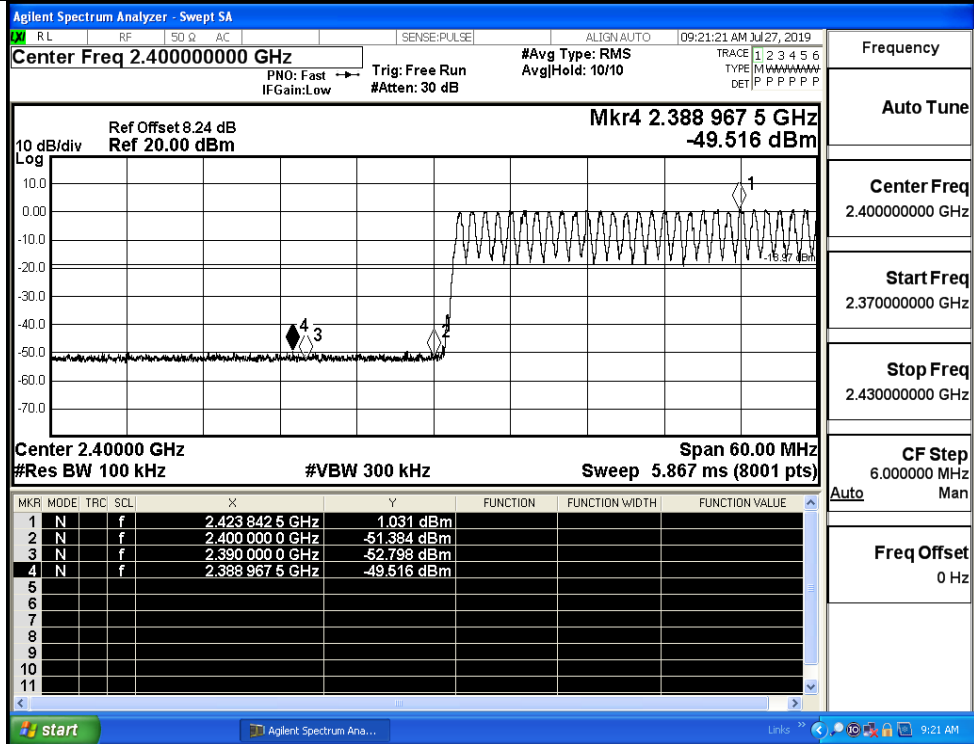
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	0.575	Off	-50.071	-19.43	PASS
			1.031	On	-49.516	-18.97	PASS
	HCH	2480	-0.216	Off	-49.534	-20.22	PASS
			0.716	On	-49.279	-19.28	PASS
$\pi/4$ DQPSK	LCH	2402	-1.622	Off	-49.759	-21.62	PASS
			-0.511	On	-48.713	-20.51	PASS
	HCH	2480	-1.962	Off	-49.360	-21.96	PASS
			-0.375	On	-49.044	-20.38	PASS

Test Graphs

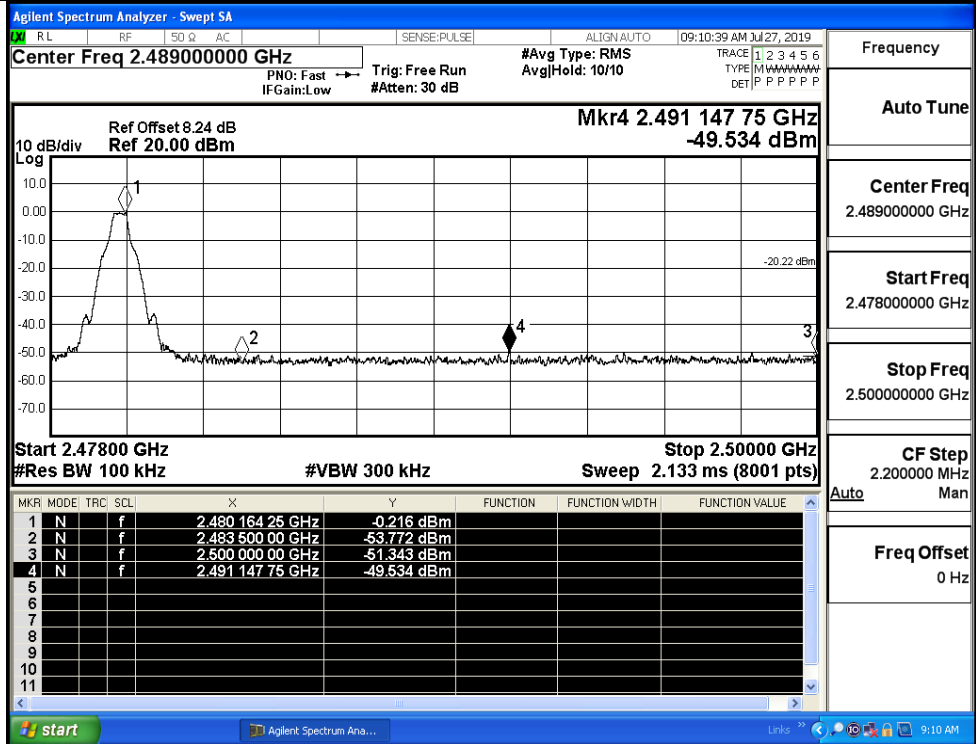
GFSK/LCH/No Hop



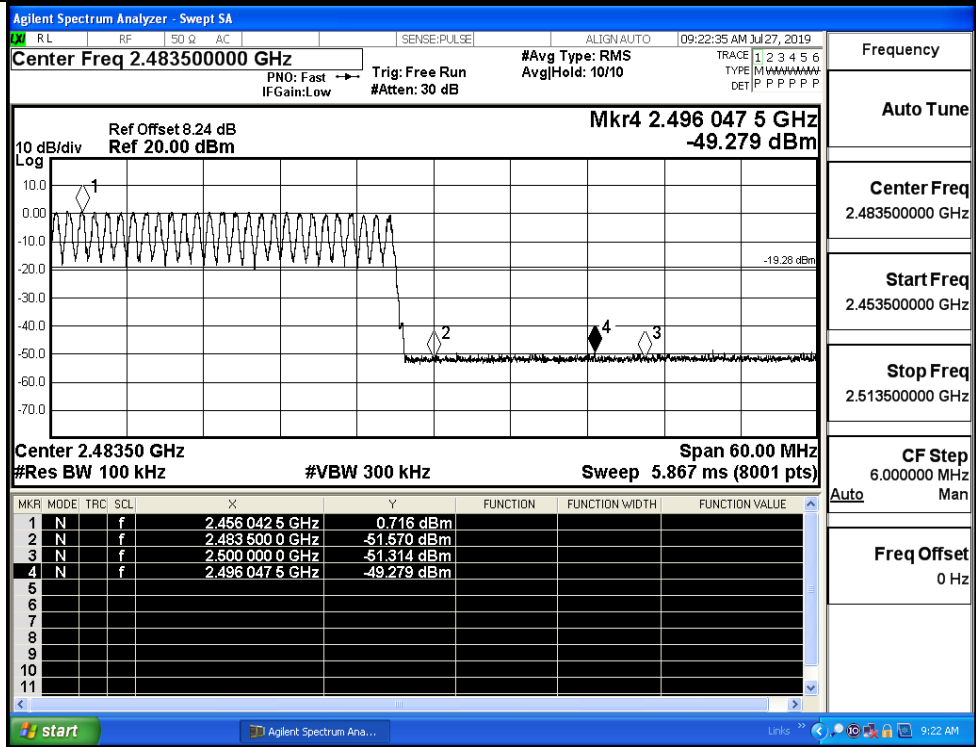
GFSK/LCH/Hop



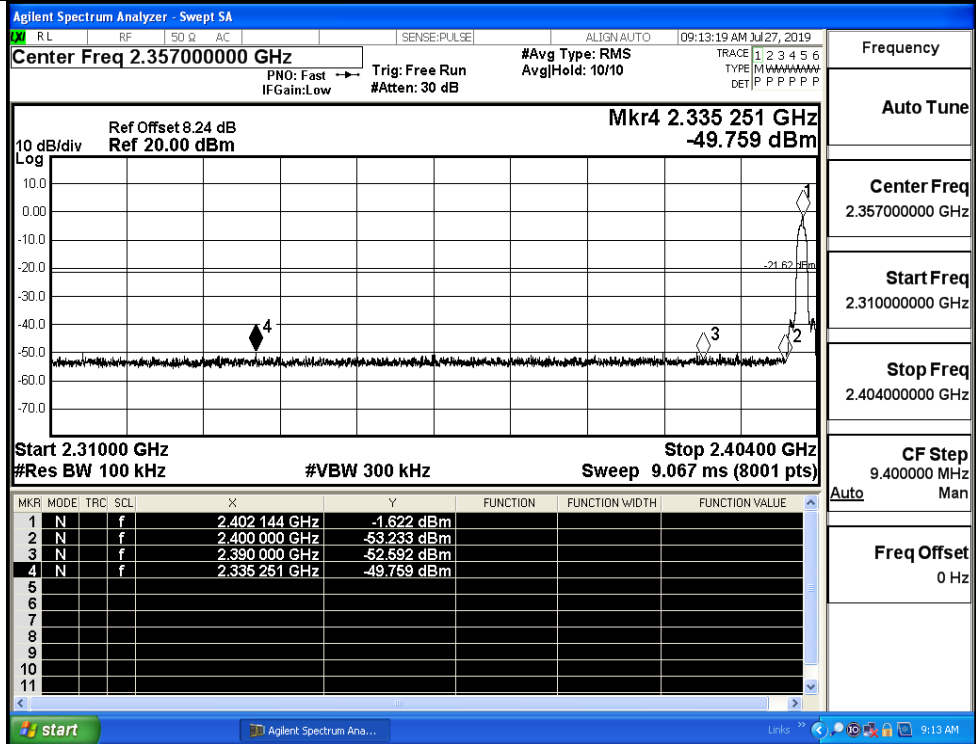
GFSK/HCH/No Hop



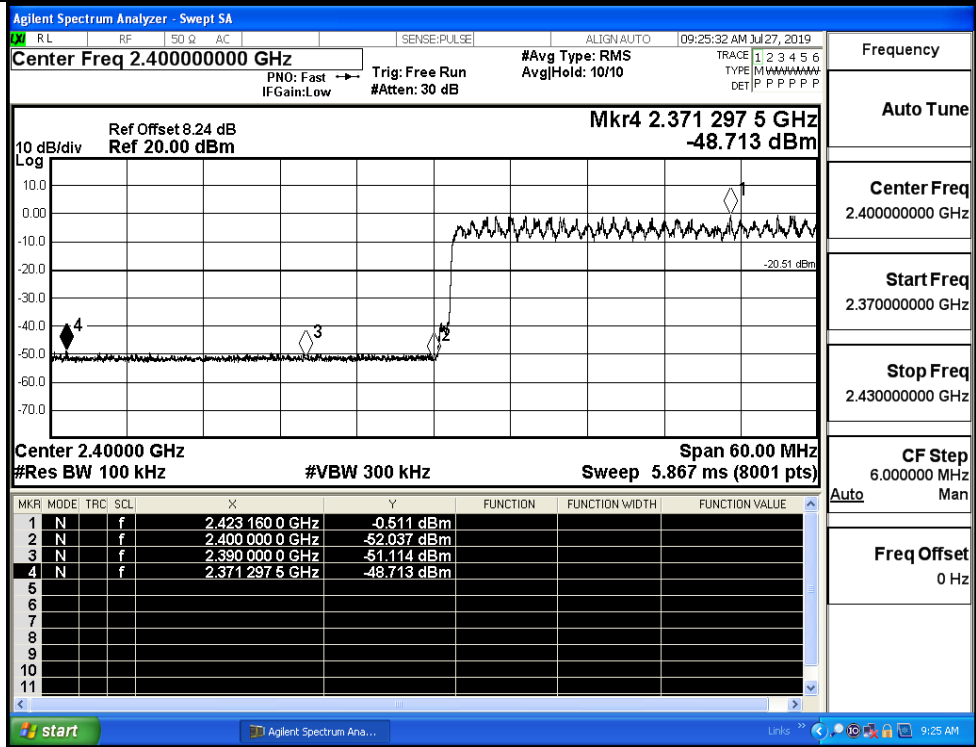
GFSK/HCH/Hop



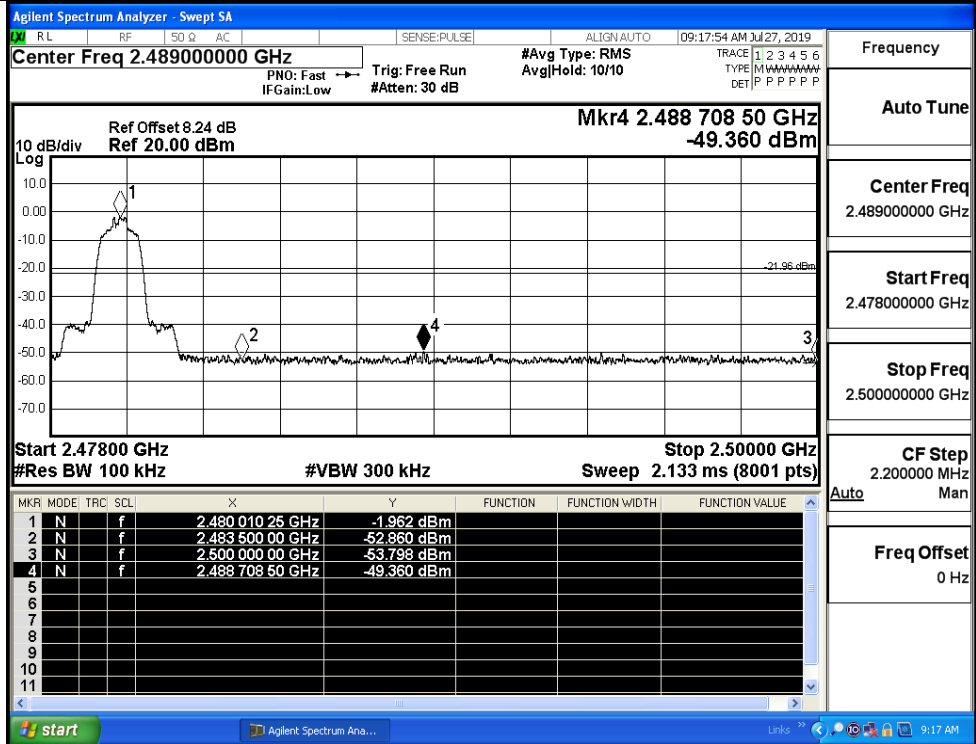
$\pi/4$ DQPSK/LCH/No  
Hop



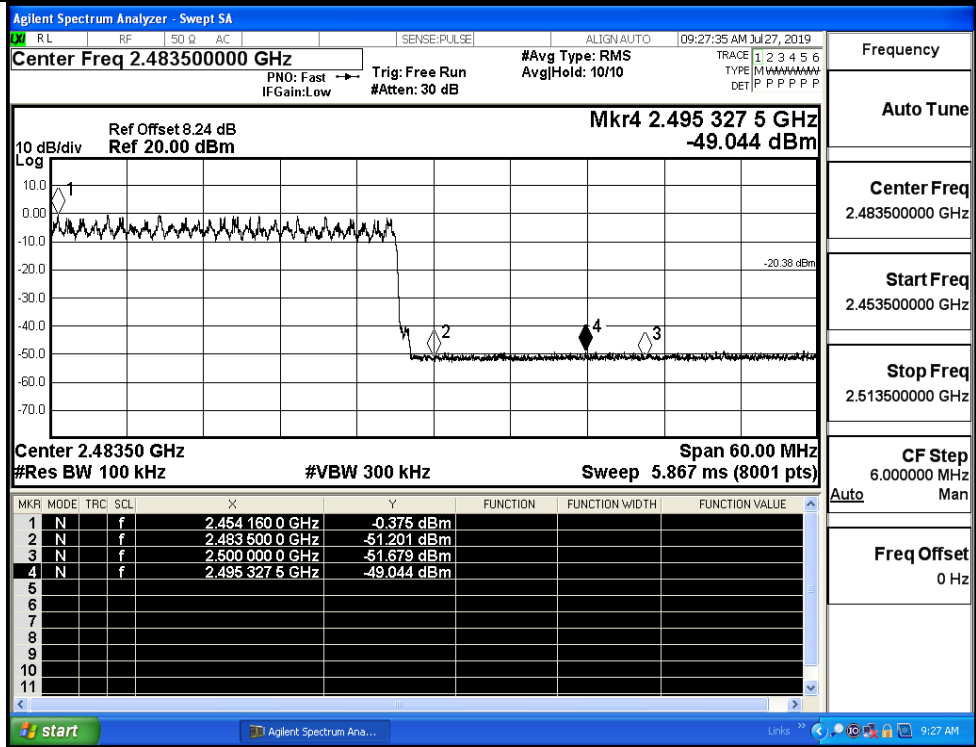
$\pi/4$ DQPSK/LCH/Hop



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



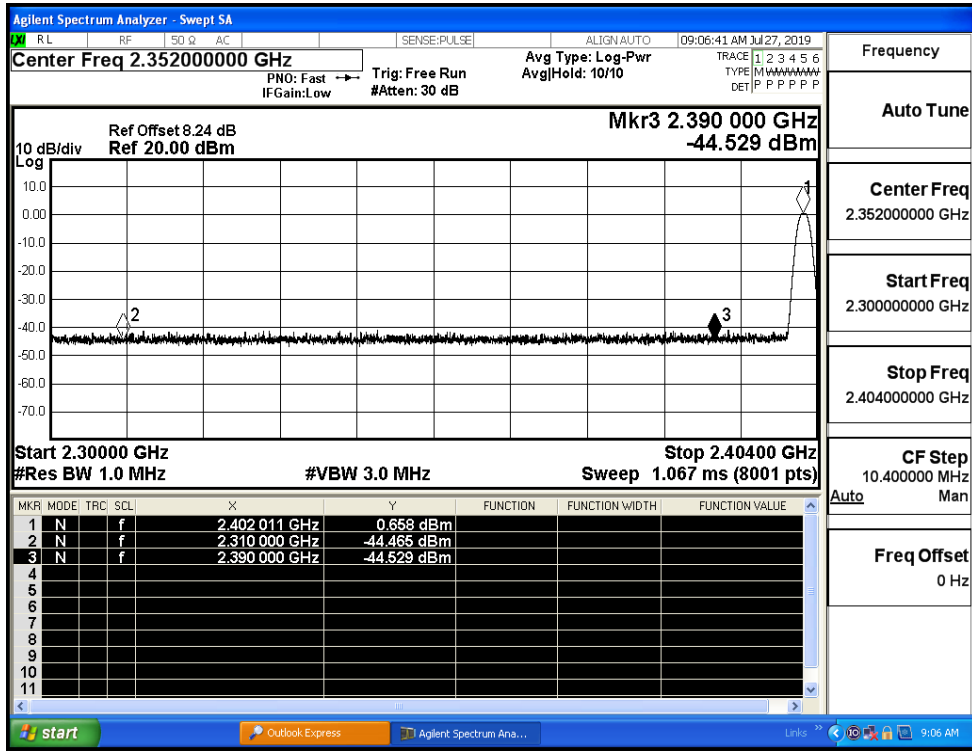
$\pi/4$ DQPSK/HCH/Hop



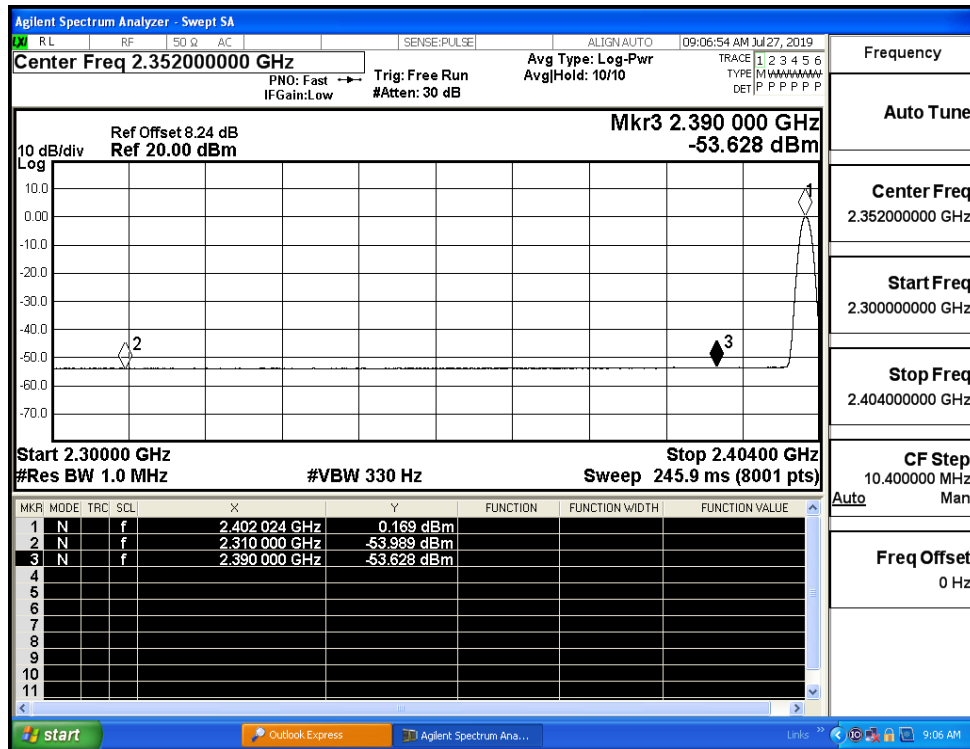
### A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-44.47	2.0	0	50.79	PEAK	74	PASS
	Off	2310.0	-53.99	2.0	0	41.27	AV	54	PASS
	Off	2390.0	-44.53	2.0	0	50.73	PEAK	74	PASS
	Off	2390.0	-53.63	2.0	0	41.63	AV	54	PASS
	Off	2483.5	-43.18	2.0	0	52.07	PEAK	74	PASS
	Off	2483.5	-53.27	2.0	0	41.99	AV	54	PASS
	Off	2500.0	-42.58	2.0	0	52.68	PEAK	74	PASS
	Off	2500.0	-53.20	2.0	0	42.06	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.48	2.0	0	51.78	PEAK	74	PASS
	Off	2310.0	-53.77	2.0	0	41.49	AV	54	PASS
	Off	2390.0	-44.55	2.0	0	50.70	PEAK	74	PASS
	Off	2390.0	-53.61	2.0	0	41.65	AV	54	PASS
	Off	2483.5	-42.79	2.0	0	52.46	PEAK	74	PASS
	Off	2483.5	-53.35	2.0	0	41.91	AV	54	PASS
	Off	2500.0	-43.27	2.0	0	51.99	PEAK	74	PASS
	Off	2500.0	-53.21	2.0	0	42.05	AV	54	PASS

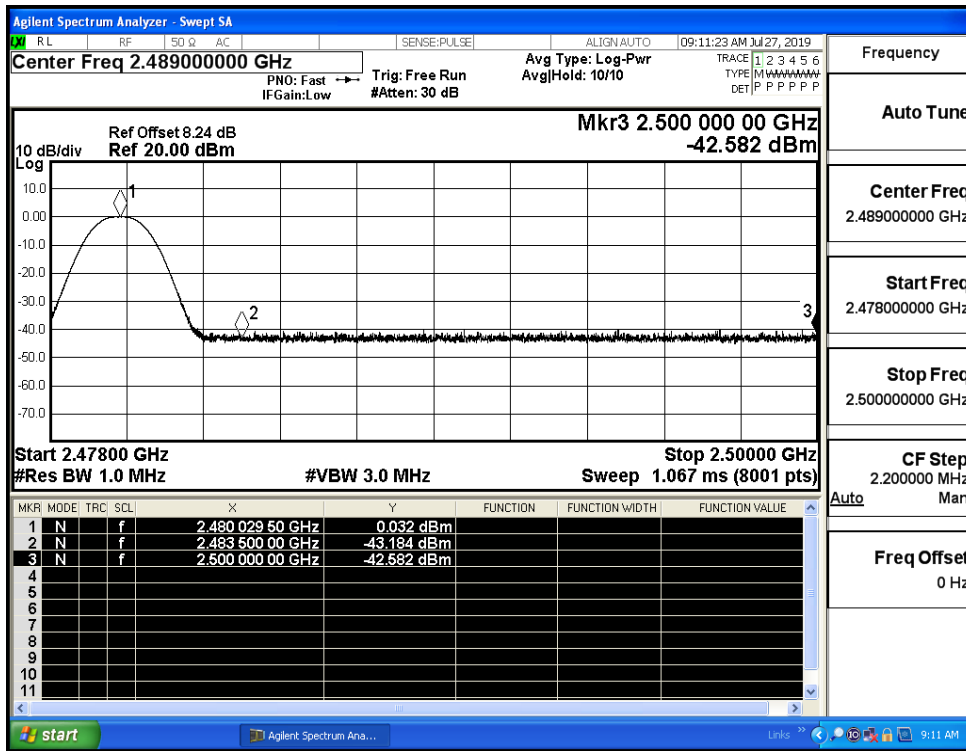
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (Low Channel)



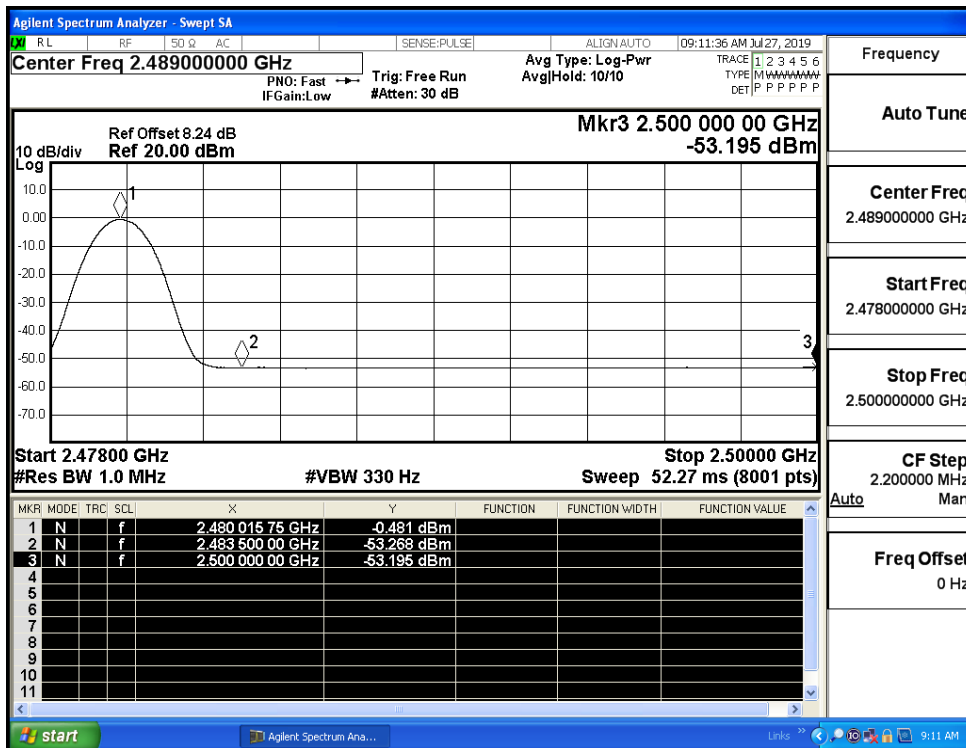
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (Low Channel)



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

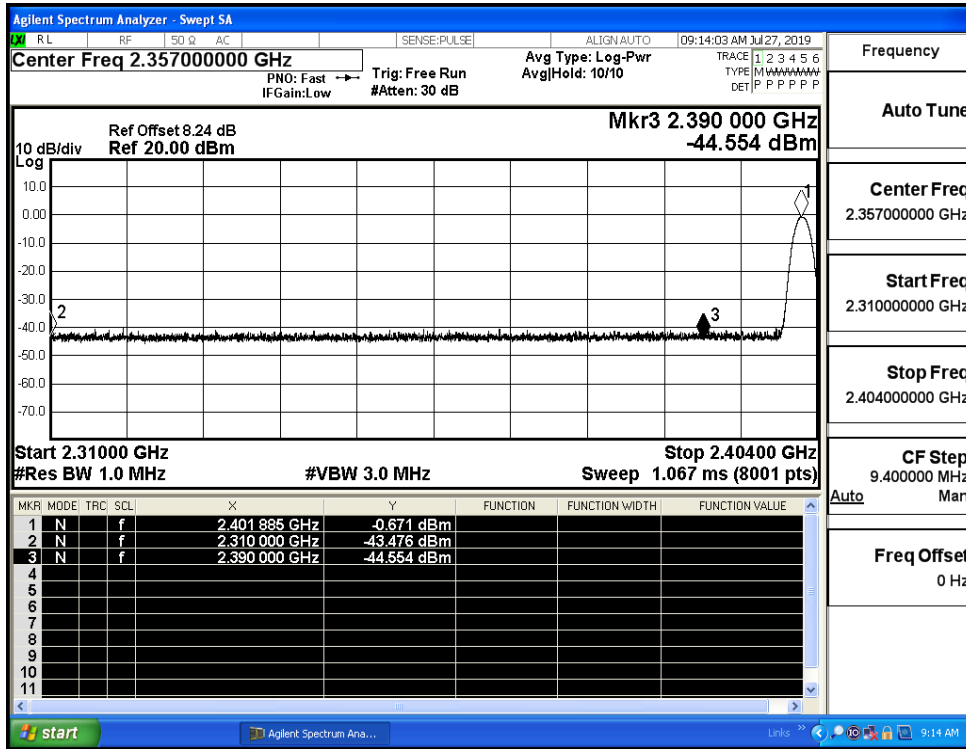


Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (High Channel)

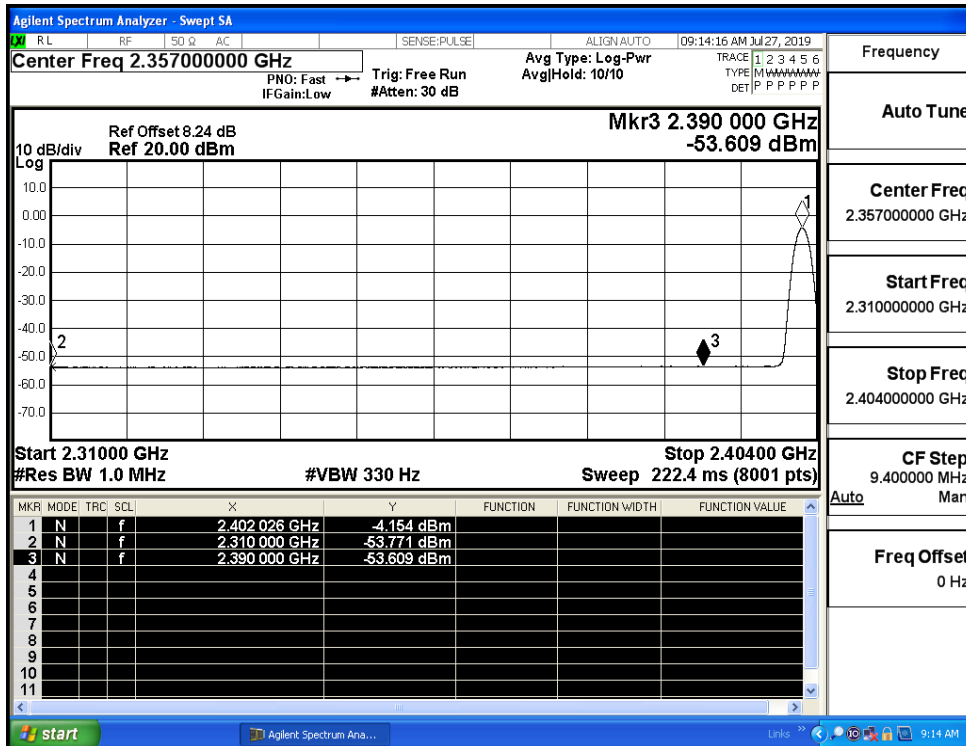




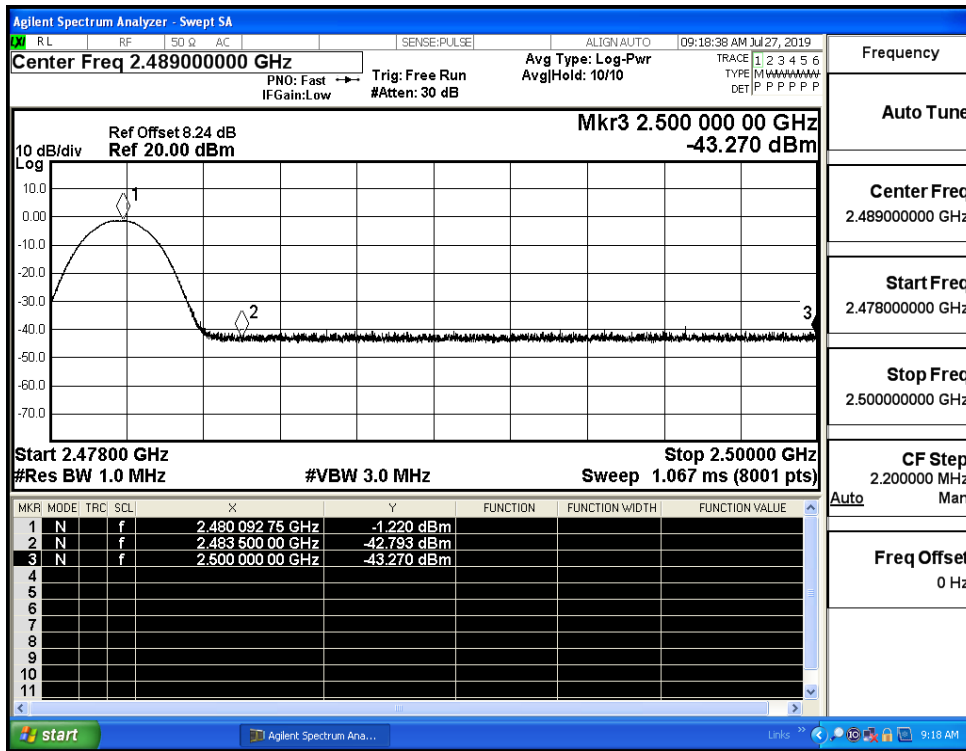
Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_PEAK (Low Channel)



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)

