

## Appendix A

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

Product Name: Bluetooth headphones

Trade Mark: N/A

Test Model: AZ10012

#### Environmental Conditions

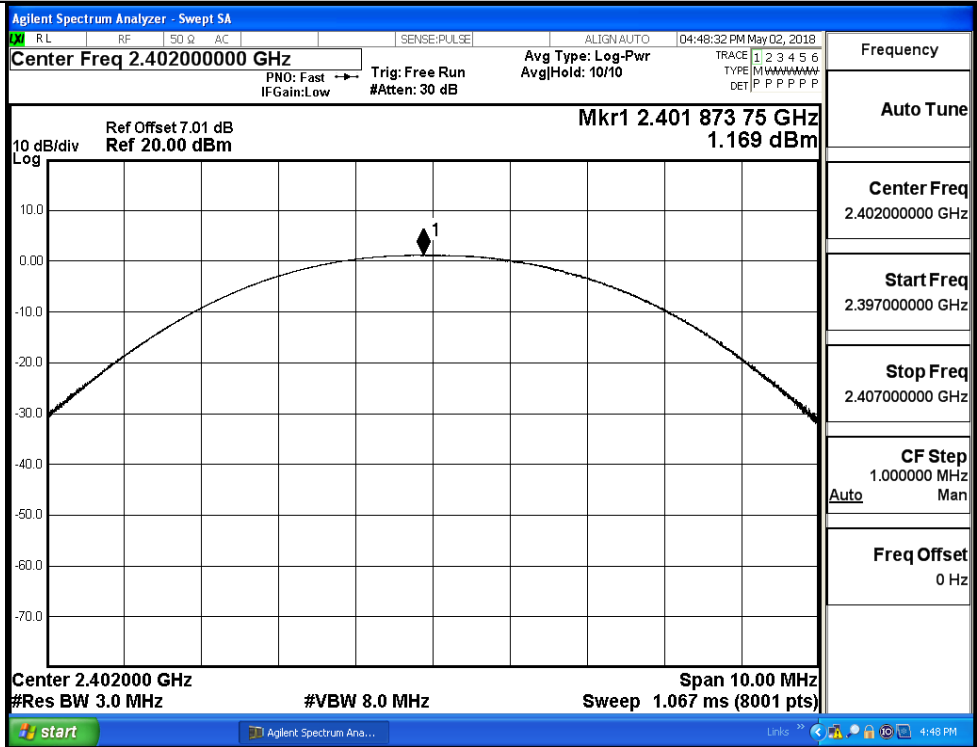
Temperature:	21.3 ° C
Relative Humidity:	53.2%
ATM Pressure:	100.0 kPa
Test Engineer:	WANGCHUANG
Supervised by:	Jayden.Zhuo

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

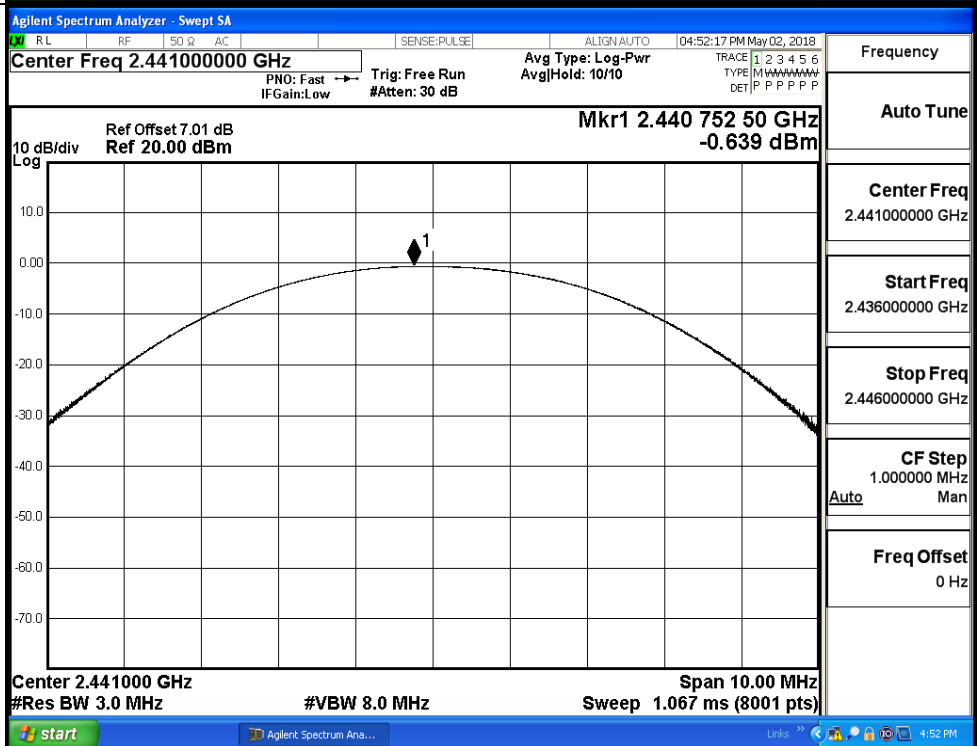
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.169	30	PASS
	MCH	-0.639	30	PASS
	HCH	-0.629	30	PASS
π/4DQPSK	LCH	0.055	21	PASS
	MCH	-1.470	21	PASS
	HCH	-1.735	21	PASS

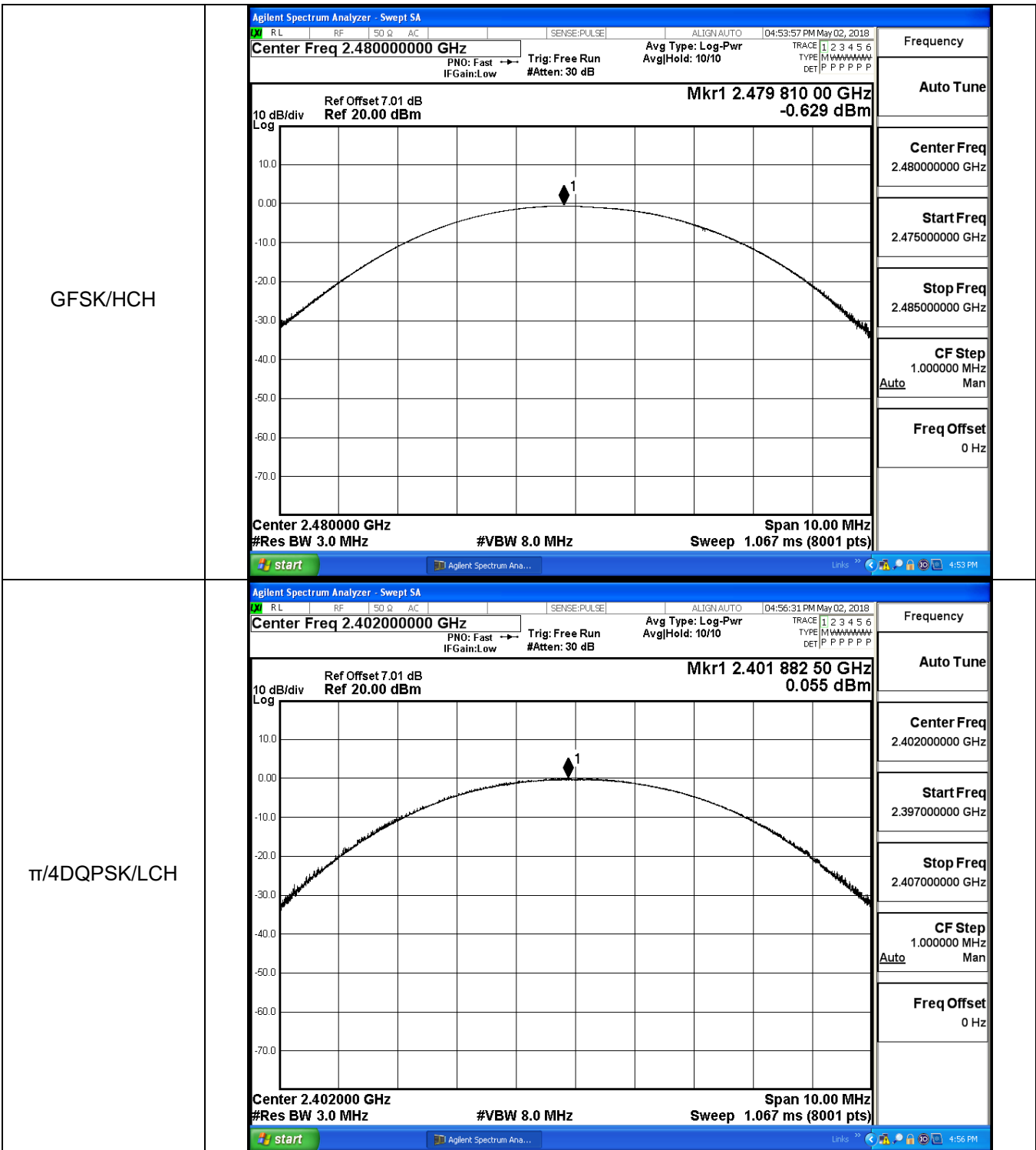
Test Graphs

GFSK/LCH

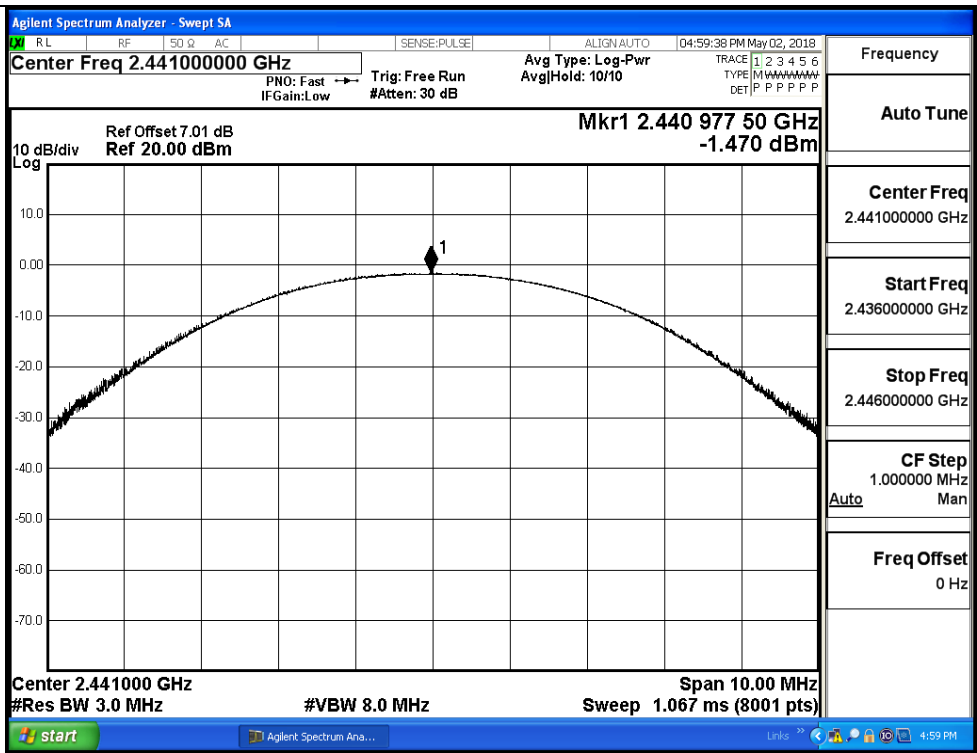


GFSK/MCH

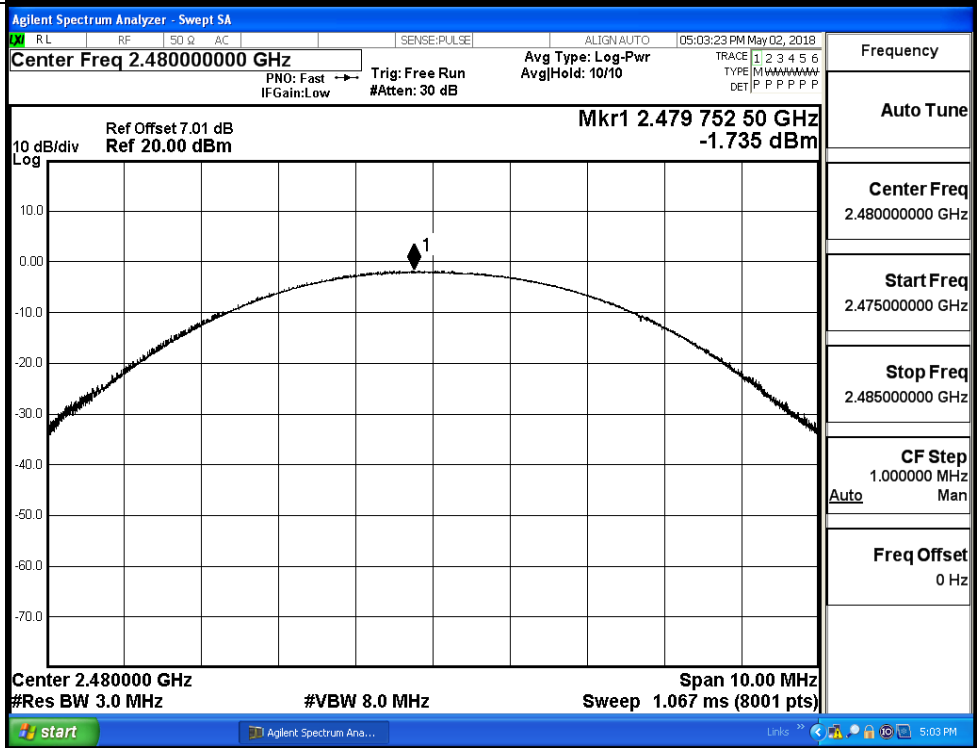




$\pi$ /4DQPSK/MCH

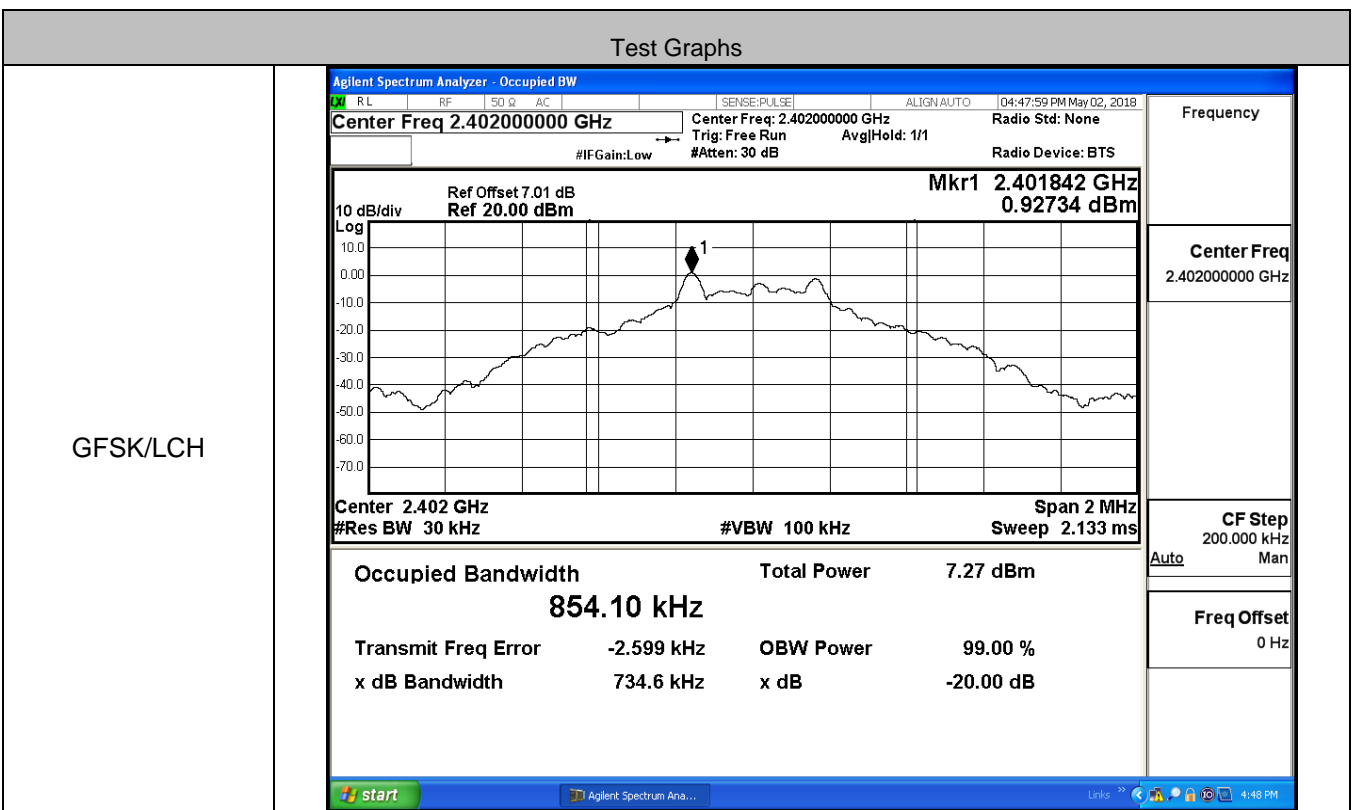


$\pi$ /4DQPSK/HCH

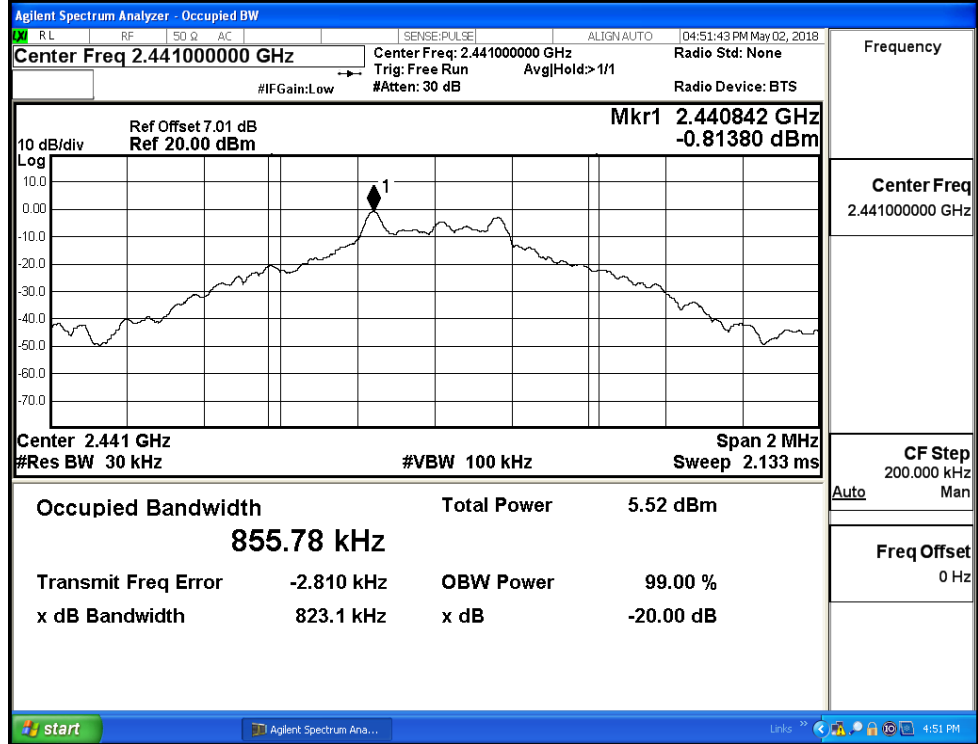


**A.2 20dB Bandwidth**

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.7346	Not Specified	PASS
	MCH	0.8231	Not Specified	PASS
	HCH	0.8233	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.135	Not Specified	PASS
	MCH	1.121	Not Specified	PASS
	HCH	1.116	Not Specified	PASS



GFSK/MCH

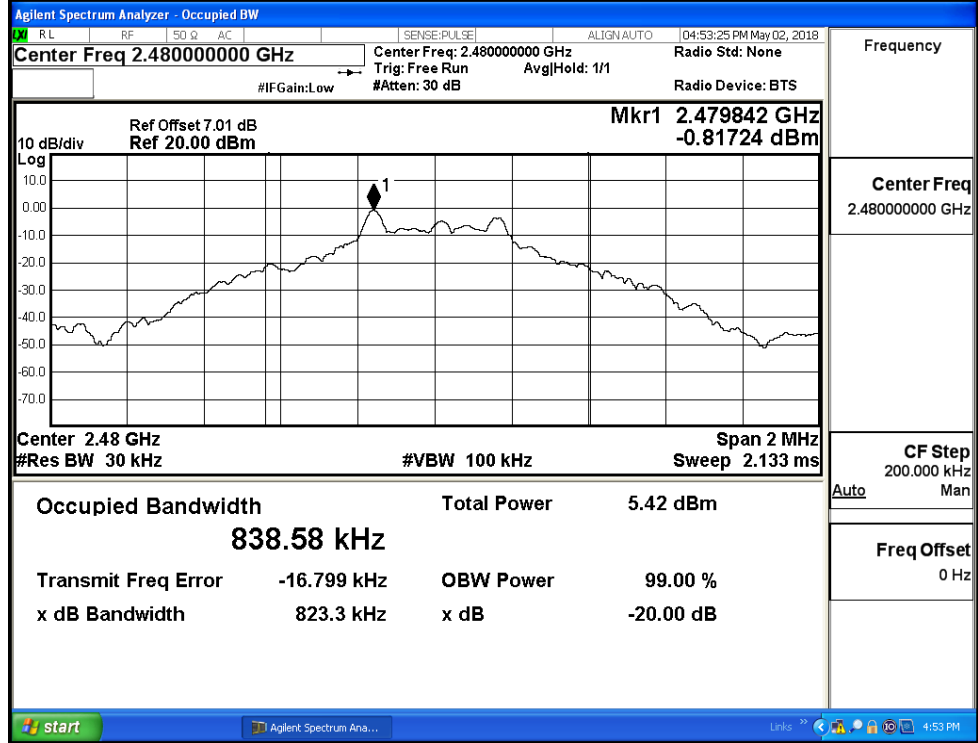


Frequency  
 2.441000000 GHz

CF Step  
 200.000 kHz  
 Auto Man

Freq Offset  
 0 Hz

GFSK/HCH

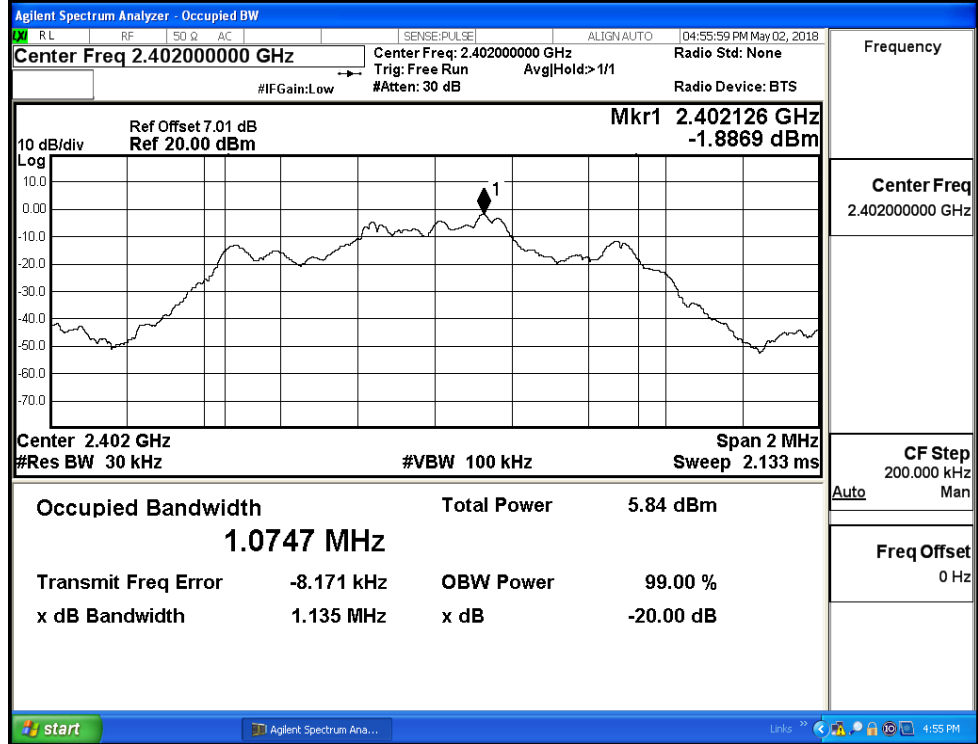


Frequency  
 2.480000000 GHz

CF Step  
 200.000 kHz  
 Auto Man

Freq Offset  
 0 Hz

$\pi/4$ DQPSK/LCH



Frequency

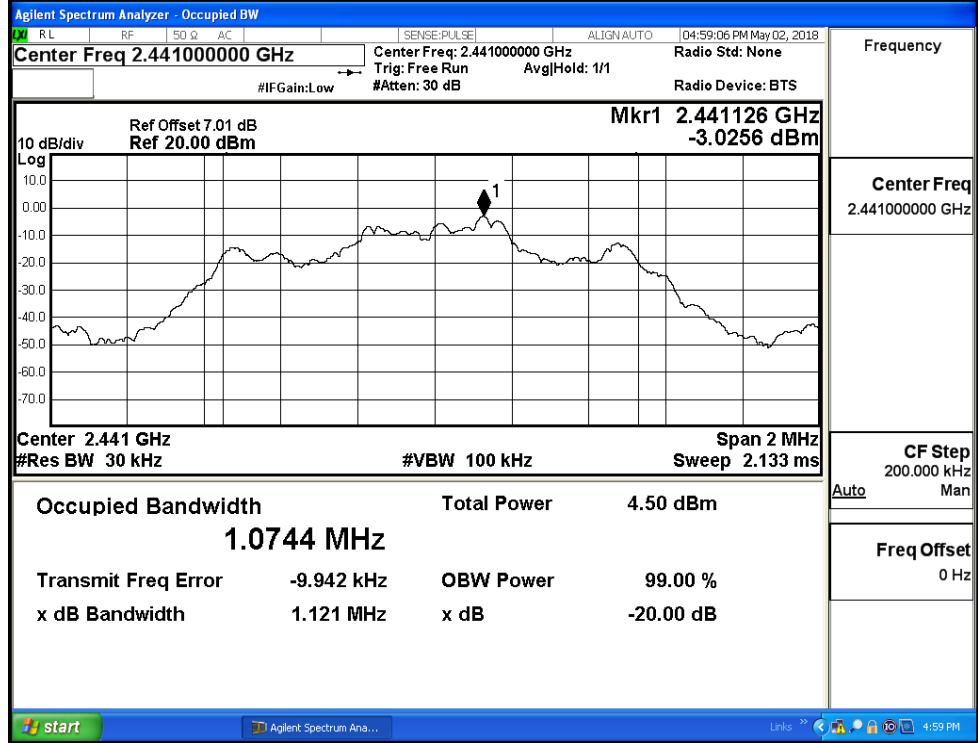
Center Freq  
2.40200000 GHz

CF Step  
200.000 kHz

Auto Man

Freq Offset  
0 Hz

$\pi/4$ DQPSK/MCH



Frequency

Center Freq  
2.44100000 GHz

CF Step  
200.000 kHz

Auto Man

Freq Offset  
0 Hz

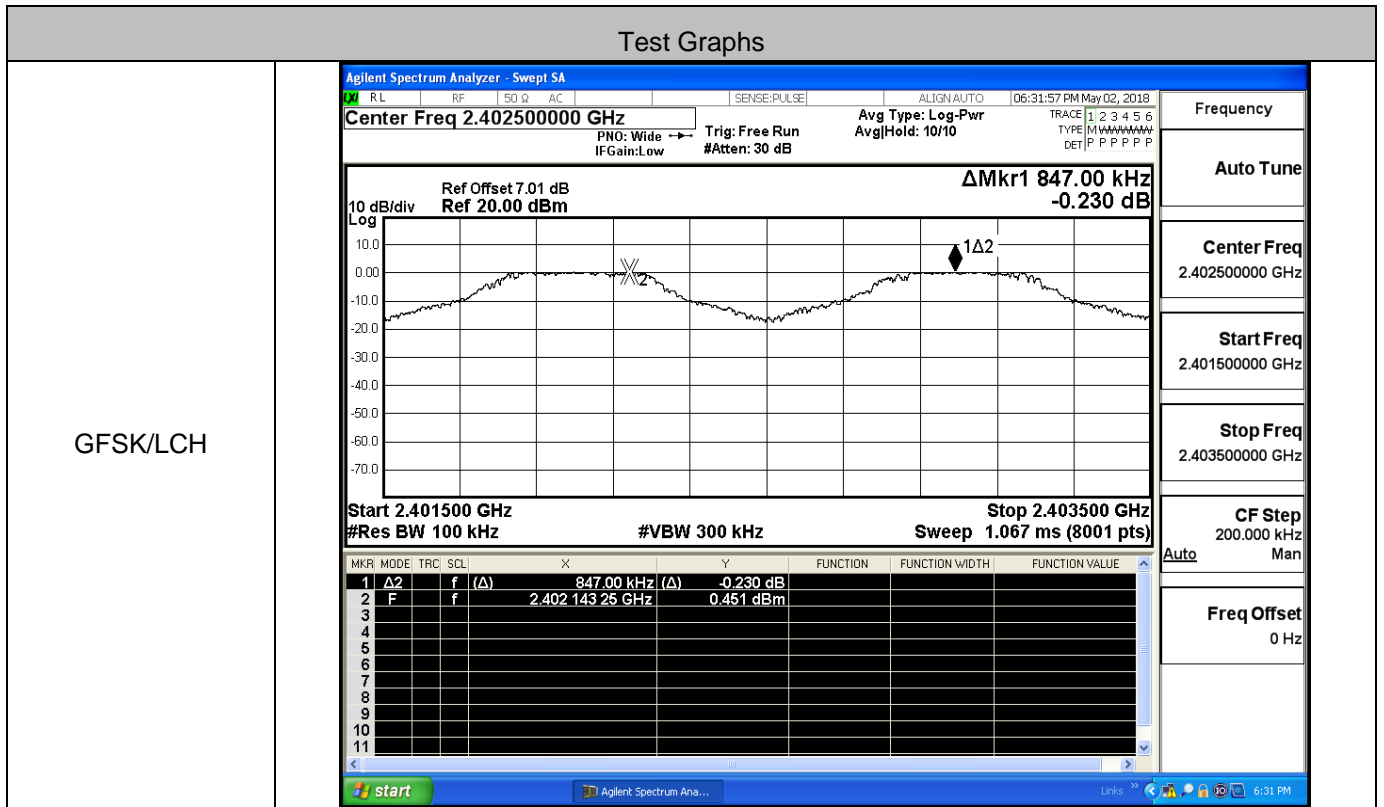
$\pi/4$ DQPSK/HCH

Center Freq 2.48000000 GHz		Center Freq: 2.48000000 GHz		Radio Std: None	
#IFGain: Low		Trig: Free Run		Avg Hold > 1/1	
		#Atten: 30 dB		Radio Device: BTS	
Ref Offset 7.01 dB		Mkr1 2.480126 GHz		-3.6262 dBm	
Ref 20.00 dBm					
Center 2.48 GHz		#Res BW 30 kHz		#VBW 100 kHz	
				Span 2 MHz	
				Sweep 2.133 ms	
Occupied Bandwidth		Total Power		4.21 dBm	
1.0670 MHz					
Transmit Freq Error		-10.710 kHz		OBW Power	
				99.00 %	
x dB Bandwidth		1.116 MHz		x dB	
				-20.00 dB	
				CF Step	
				200.000 kHz	
				Auto	
				Man	
				Freq Offset	
				0 Hz	

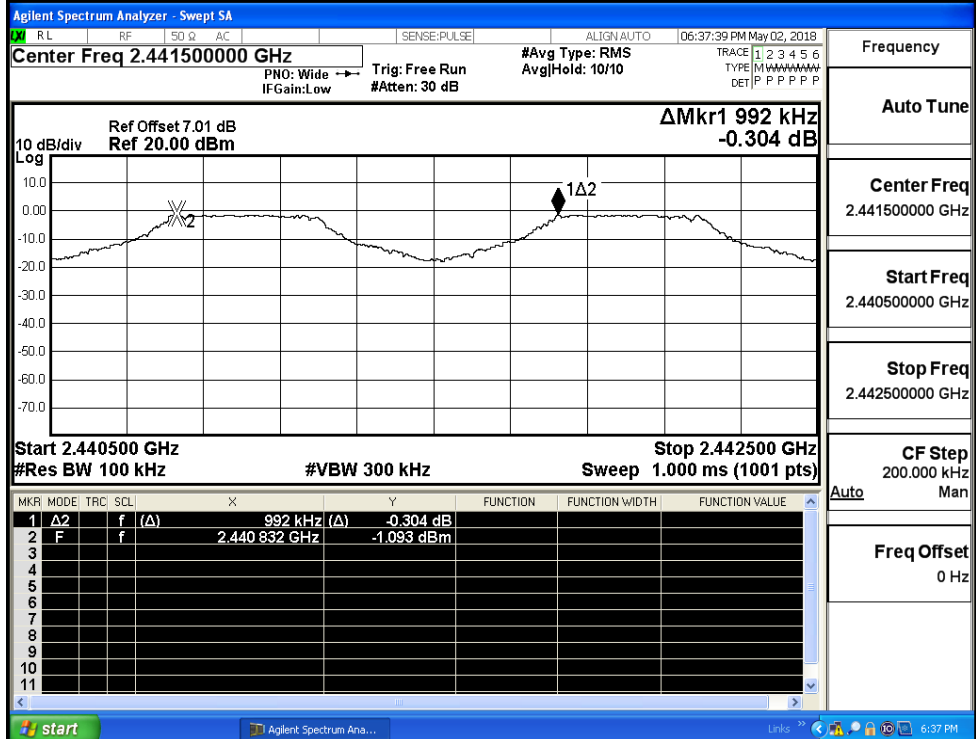


### A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.847	0.549	PASS
	MCH	0.992	0.549	PASS
	HCH	1.000	0.549	PASS
π/4DQPSK	LCH	1.008	0.757	PASS
	MCH	0.998	0.757	PASS
	HCH	0.994	0.757	PASS



GFSK/MCH



Frequency

Auto Tune

Center Freq  
2.441500000 GHz

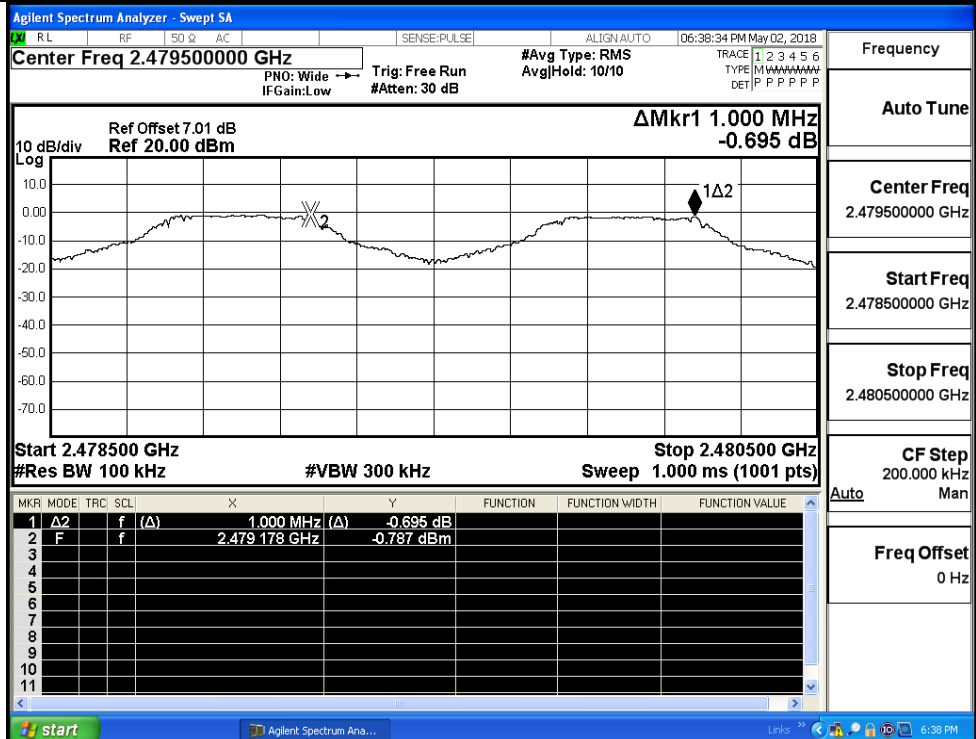
Start Freq  
2.440500000 GHz

Stop Freq  
2.442500000 GHz

CF Step  
200.000 kHz

Freq Offset  
0 Hz

GFSK/HCH



Frequency

Auto Tune

Center Freq  
2.479500000 GHz

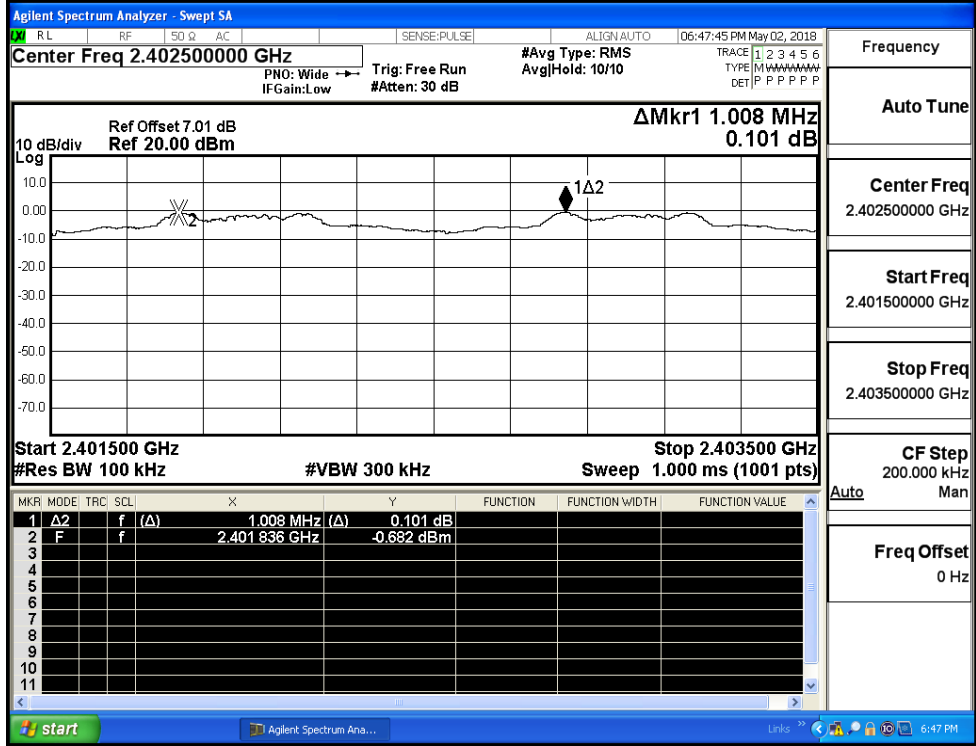
Start Freq  
2.478500000 GHz

Stop Freq  
2.480500000 GHz

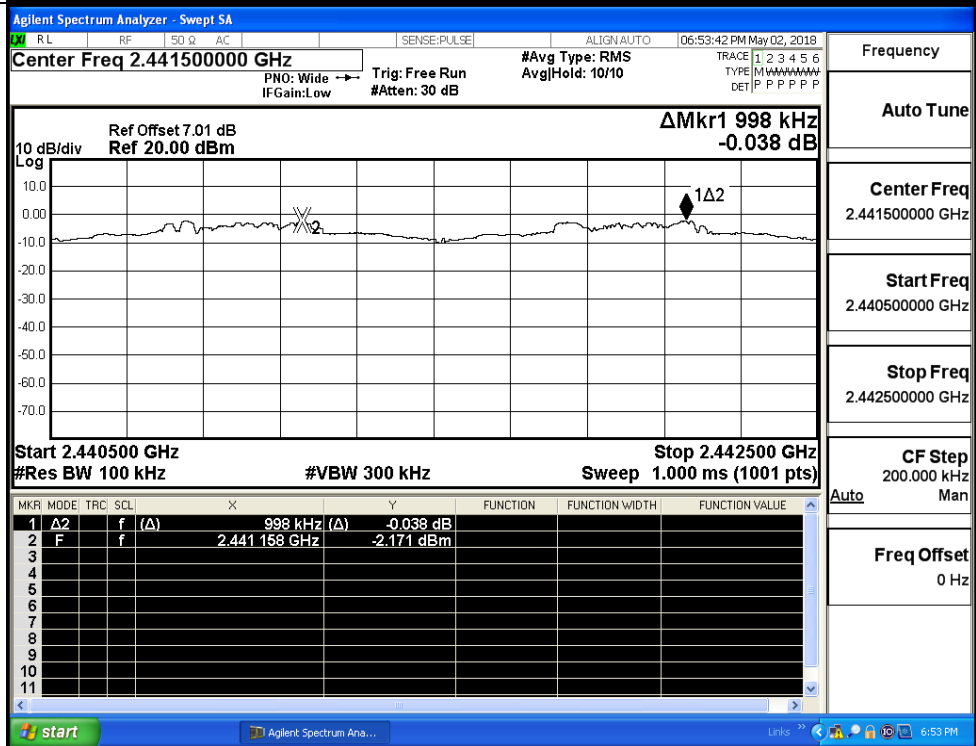
CF Step  
200.000 kHz

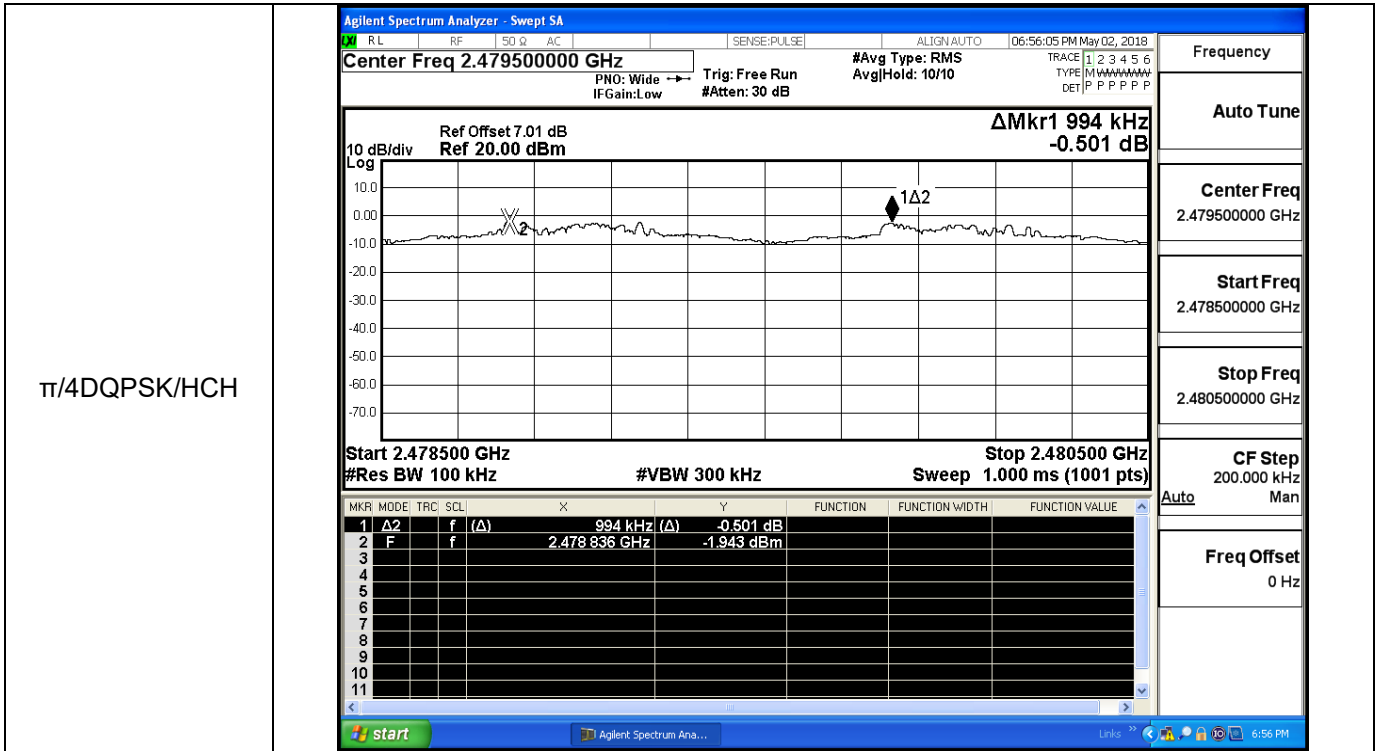
Freq Offset  
0 Hz

$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



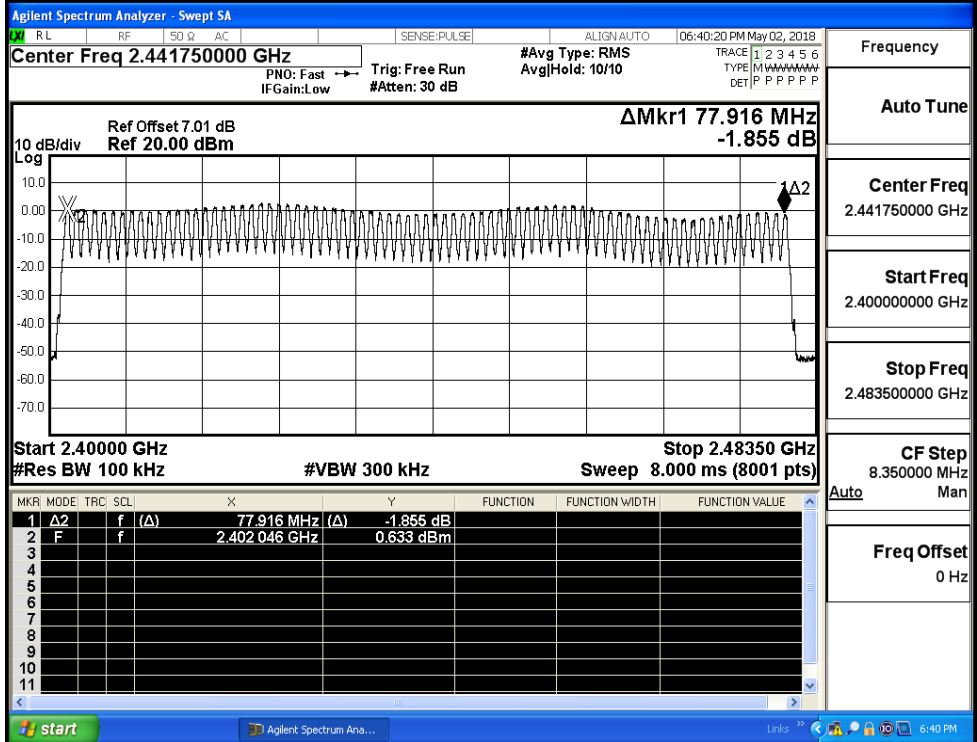


#### A.4 Hopping Channel Number

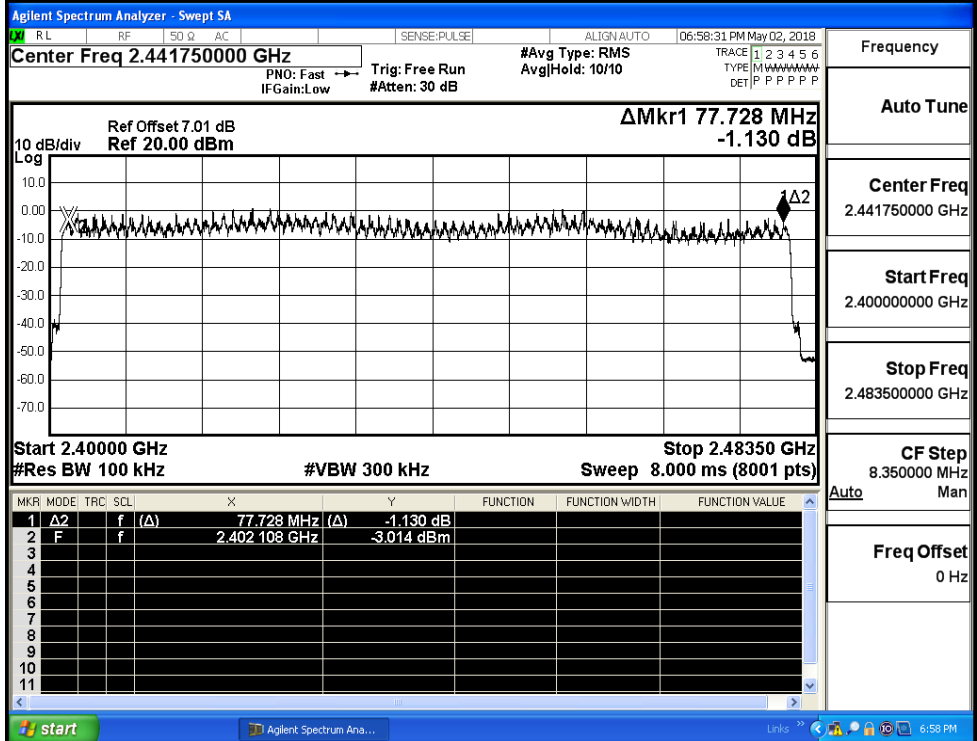
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	$\geq 15$	PASS
$\pi/4$ DQPSK	Hop	79	$\geq 15$	PASS

Test Graphs

GFSK/Hop

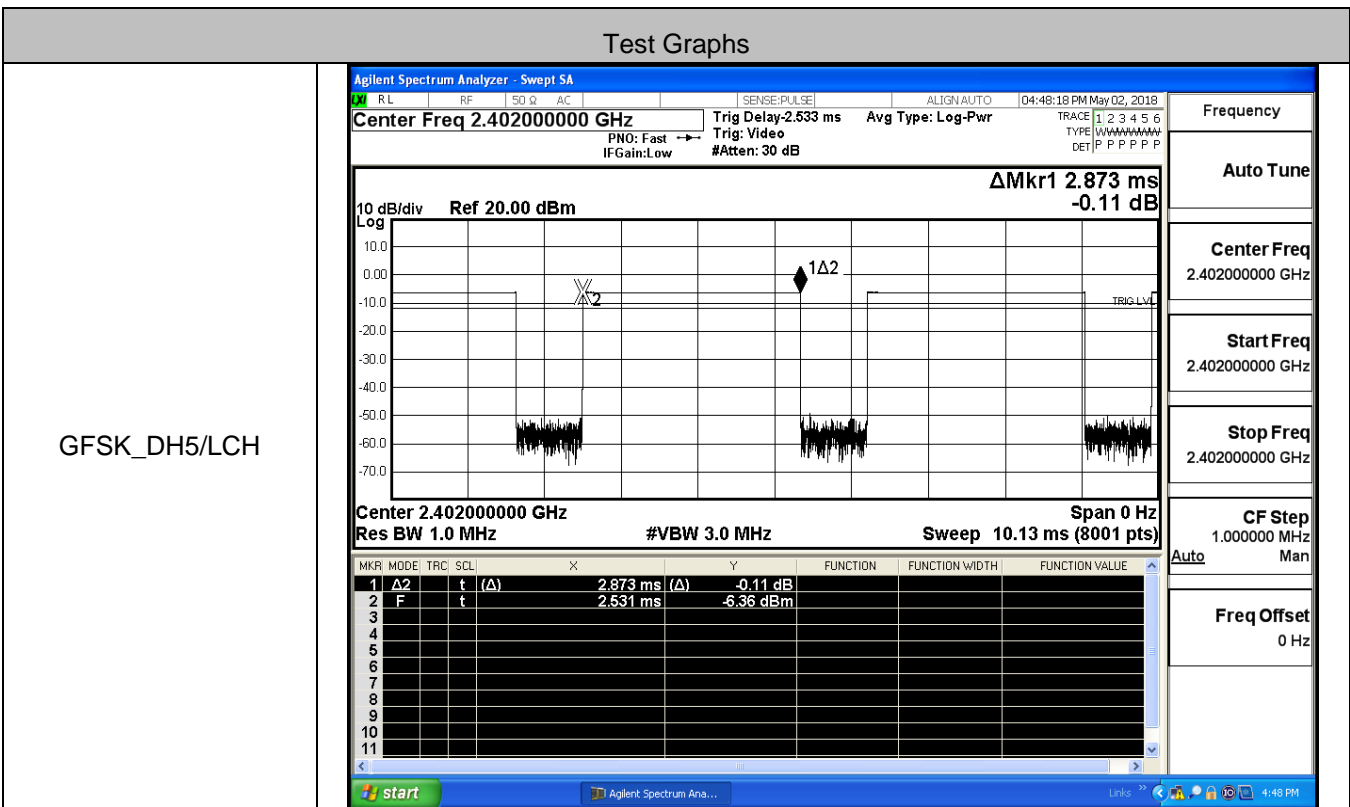


$\pi$ /4DQPSK/Hop

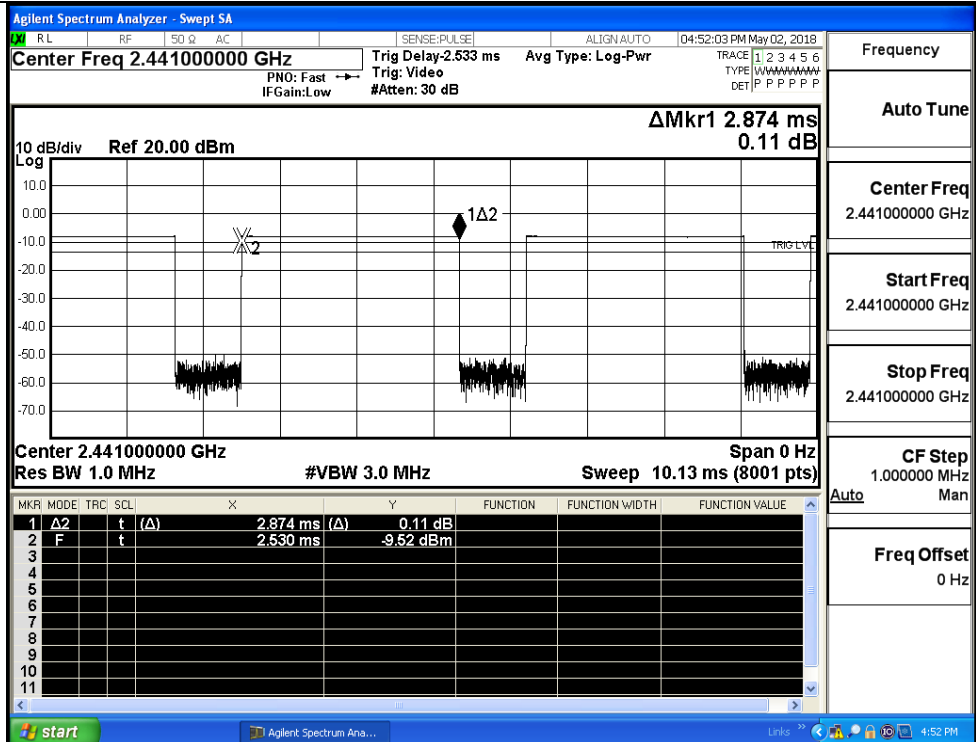


### A.5 Dwell Time

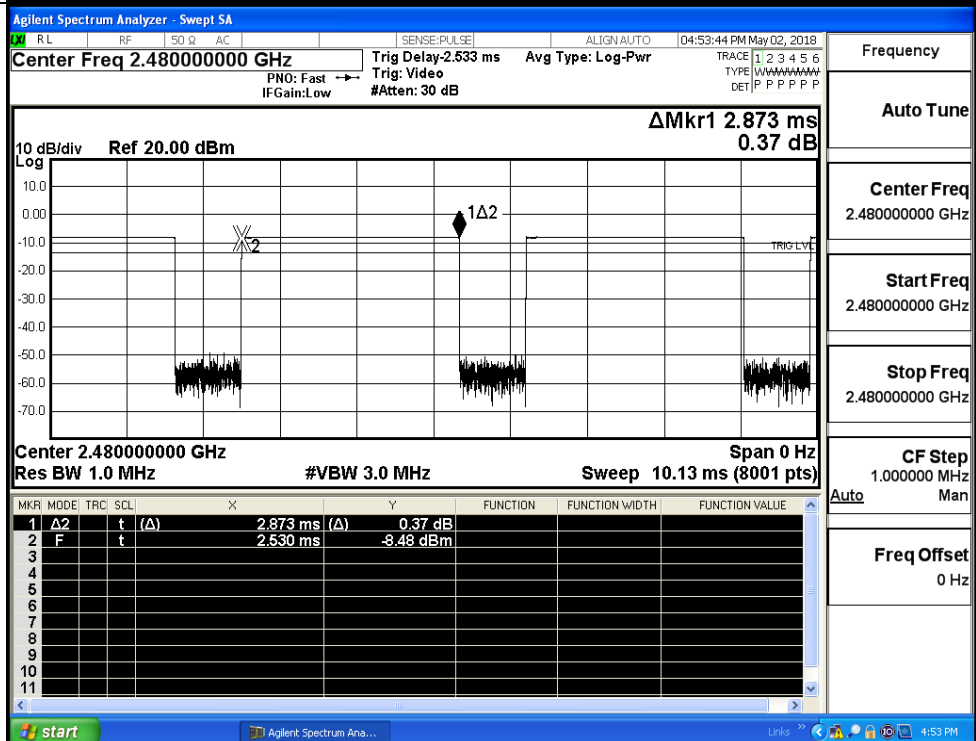
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.87	106.7	0.306	0.4	PASS
	DH5	MCH	2.87	106.7	0.306	0.4	PASS
	DH5	HCH	2.87	106.7	0.306	0.4	PASS
π/4DQPSK	2DH5	LCH	2.87	106.7	0.307	0.4	PASS
	2DH5	MCH	2.87	106.7	0.307	0.4	PASS
	2DH5	HCH	2.87	106.7	0.307	0.4	PASS



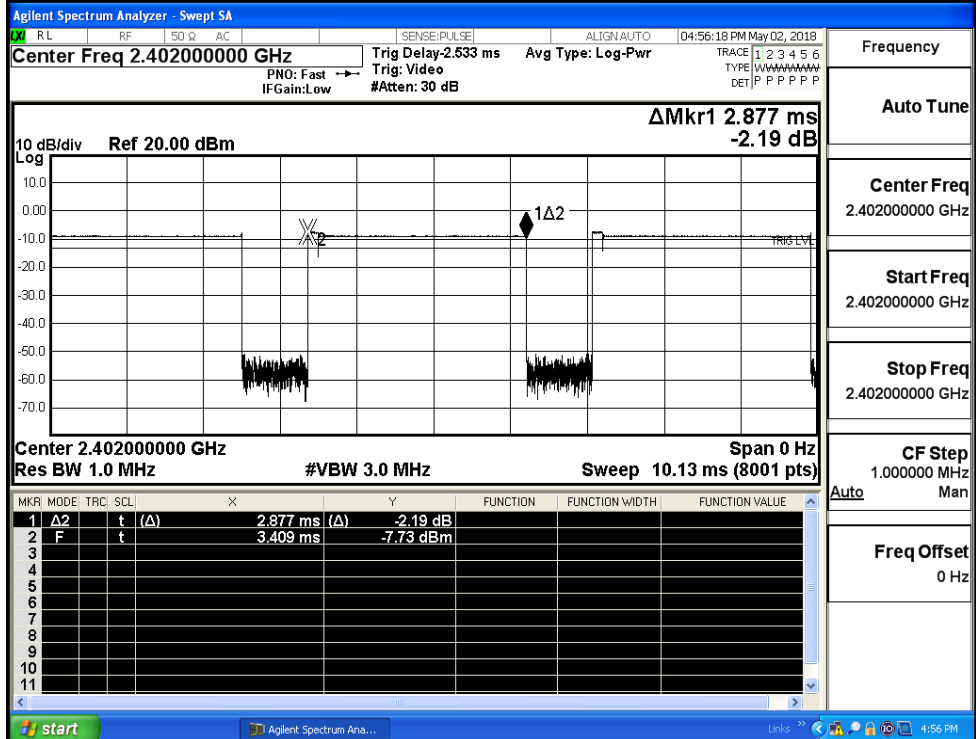
GFSK\_DH5/MCH



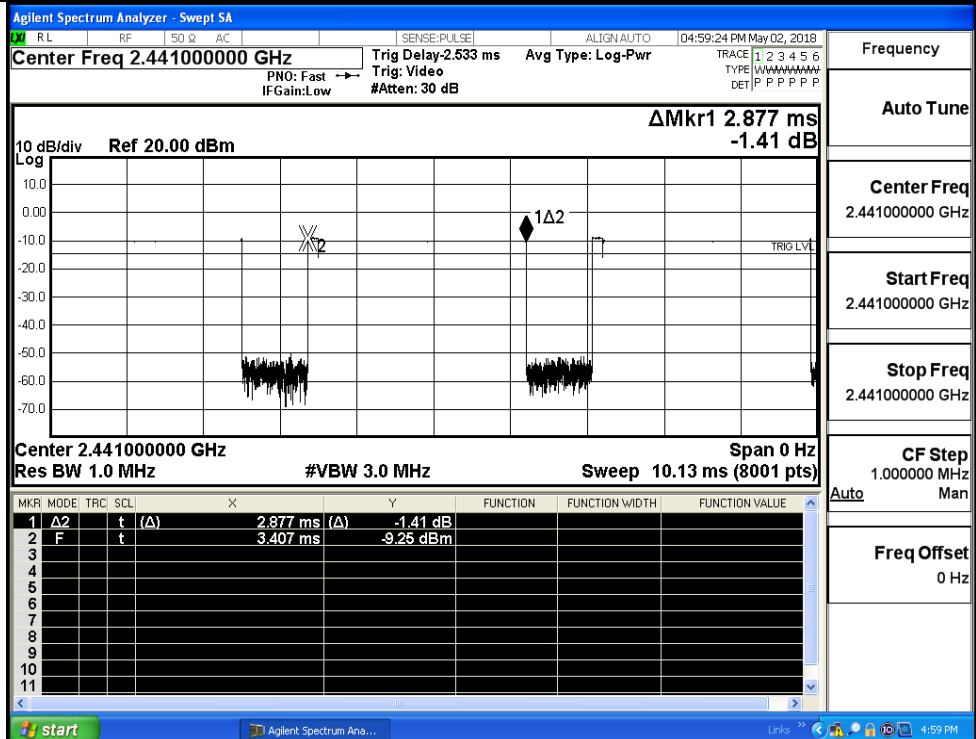
GFSK\_DH5/HCH



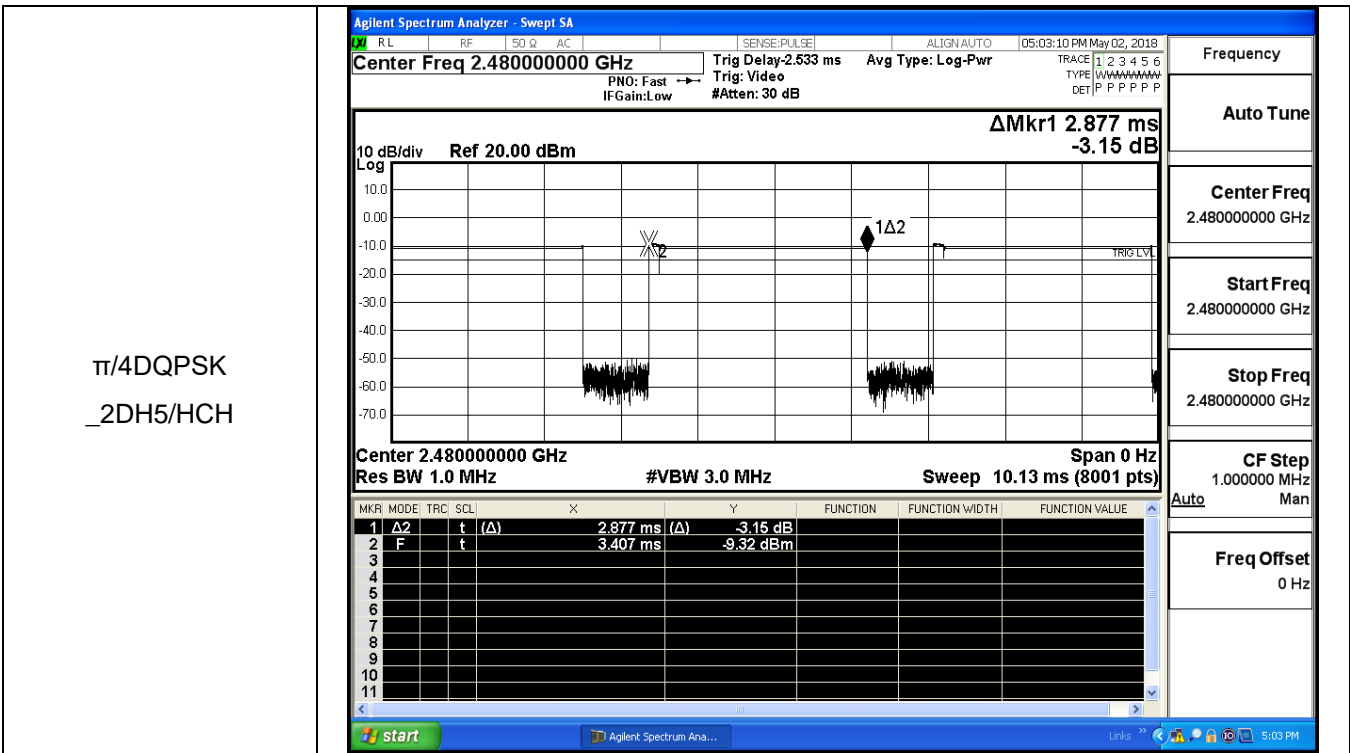
$\pi/4$ DQPSK  
\_2DH5/LCH



$\pi/4$ DQPSK  
\_2DH5/MCH





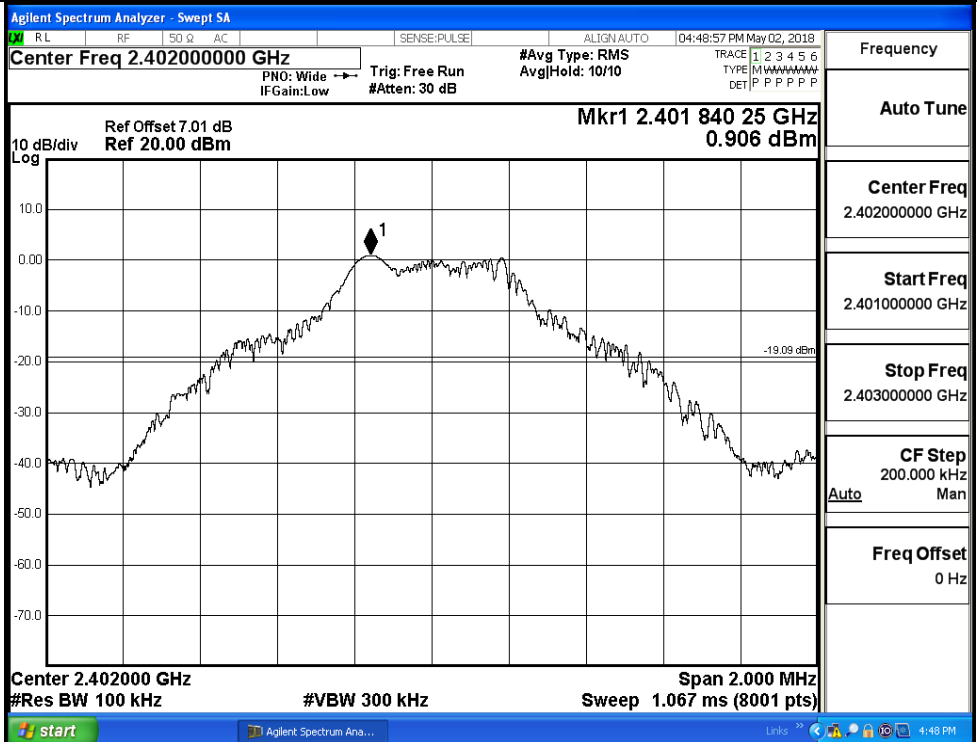


### A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.906	-45.411	-19.094	PASS
	MCH	-0.824	-45.720	-20.824	PASS
	HCH	-0.88	-45.426	-20.880	PASS
$\pi/4$ DQPSK	LCH	-0.577	-45.803	-20.577	PASS
	MCH	-2.298	-45.272	-22.298	PASS
	HCH	-2.577	-45.714	-22.577	PASS

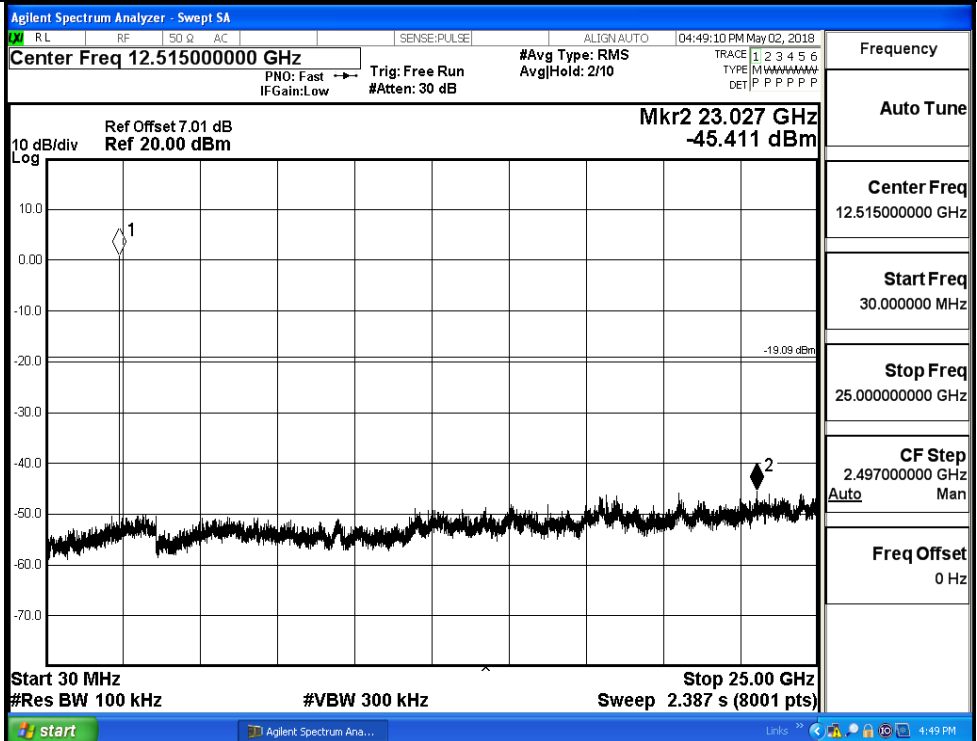
GFSK\_LCH\_Graphs

Pref



Frequency
Auto Tune
Center Freq 2.402000000 GHz
Start Freq 2.401000000 GHz
Stop Freq 2.403000000 GHz
CF Step 200.000 kHz Auto Man
Freq Offset 0 Hz

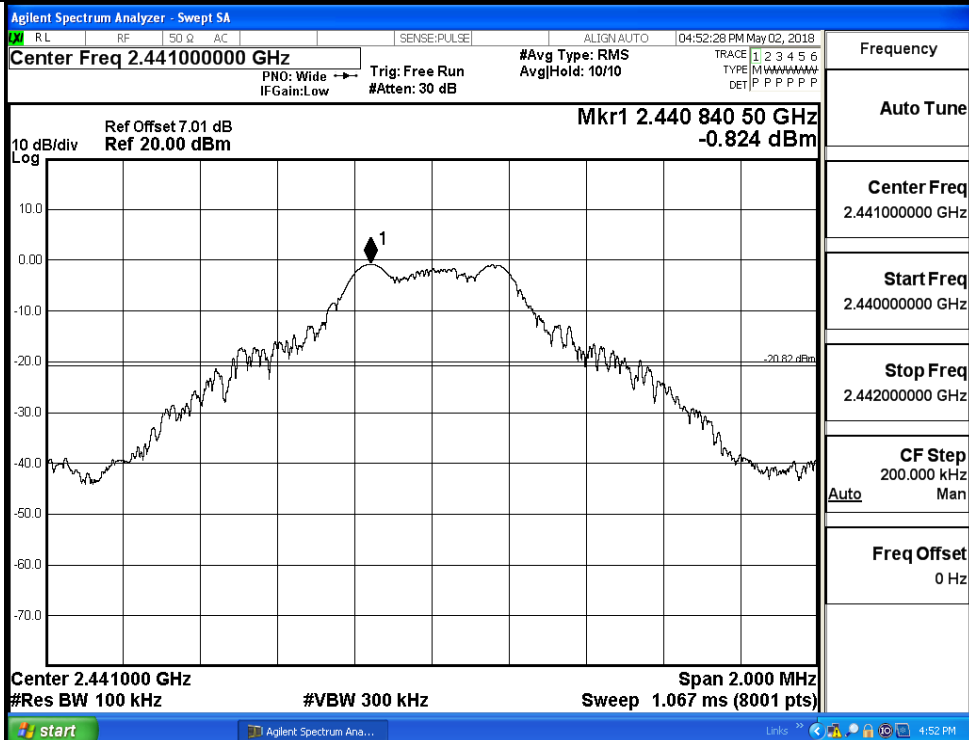
Puw



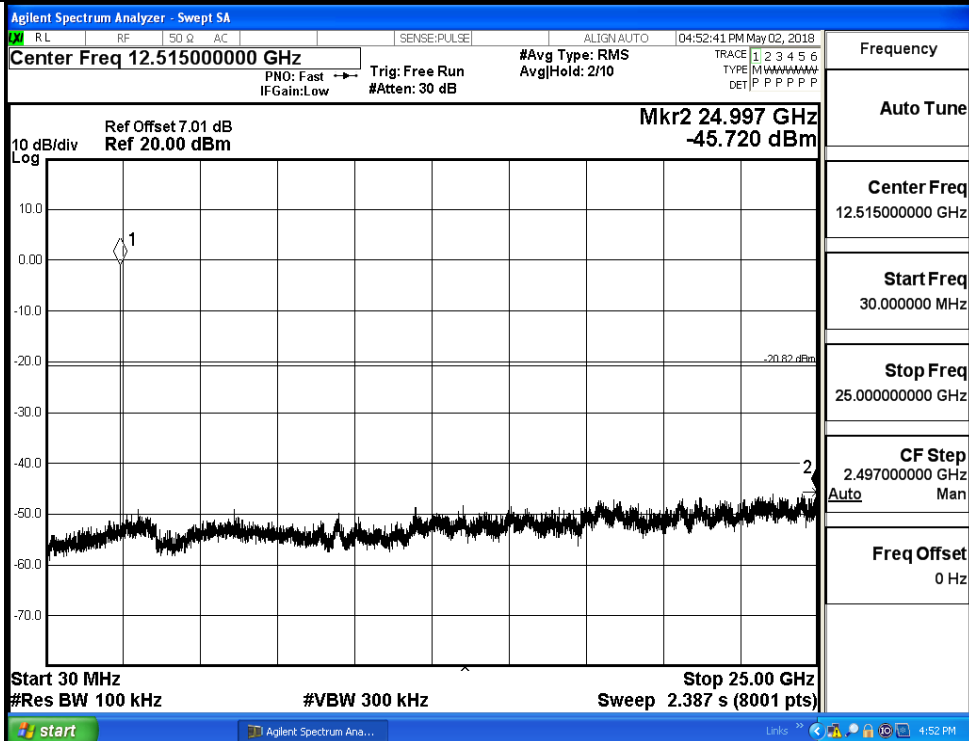
Frequency
Auto Tune
Center Freq 12.515000000 GHz
Start Freq 30.0000000 MHz
Stop Freq 25.000000000 GHz
CF Step 2.497000000 GHz Auto Man
Freq Offset 0 Hz

GFSK\_MCH\_Graphs

Pref

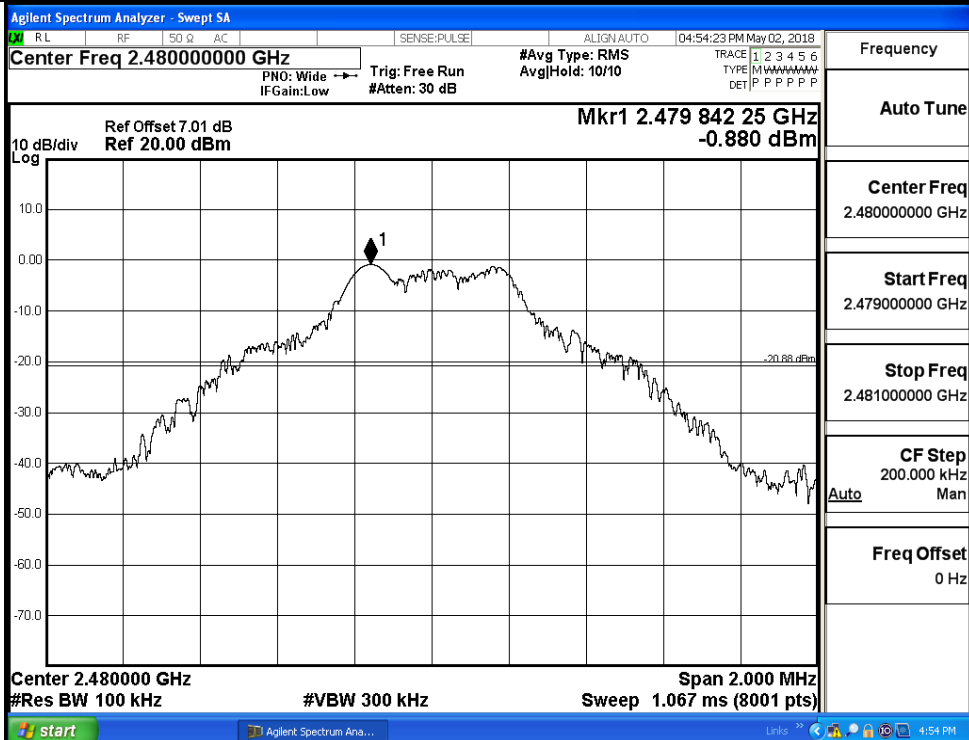


Puw



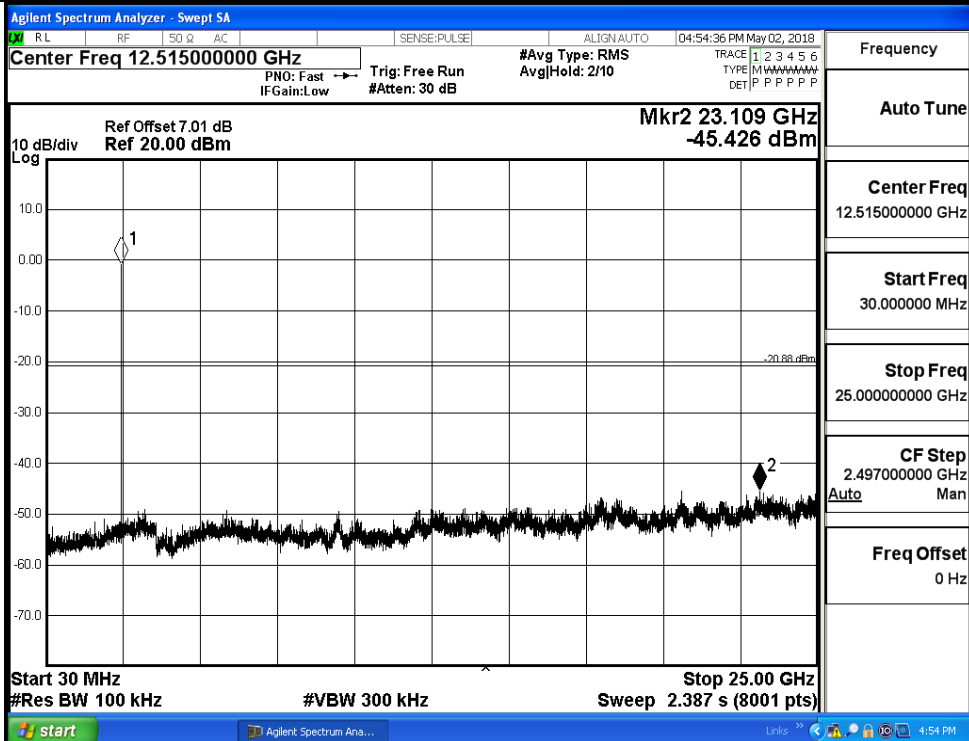
GFSK\_HCH\_Graphs

Pref



Frequency
Auto Tune
Center Freq 2.48000000 GHz
Start Freq 2.479000000 GHz
Stop Freq 2.481000000 GHz
CF Step 200.000 kHz Auto Man
Freq Offset 0 Hz

Puw



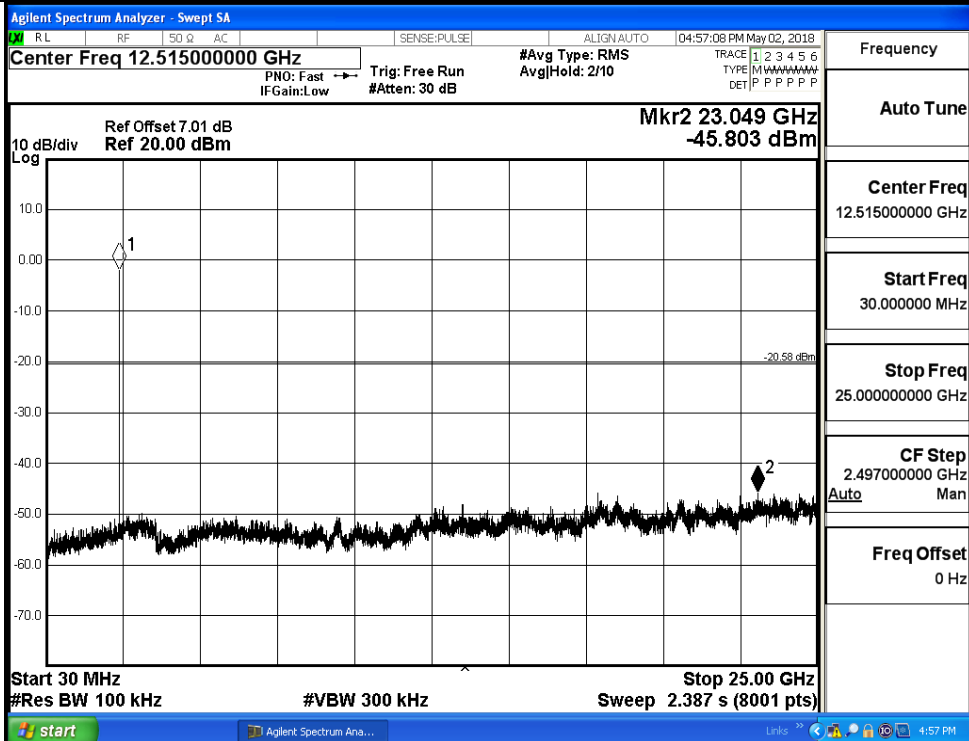
Frequency
Auto Tune
Center Freq 12.51500000 GHz
Start Freq 30.000000 MHz
Stop Freq 25.00000000 GHz
CF Step 2.497000000 GHz Auto Man
Freq Offset 0 Hz

$\pi/4$ DQPSK LCH Graphs

Pref

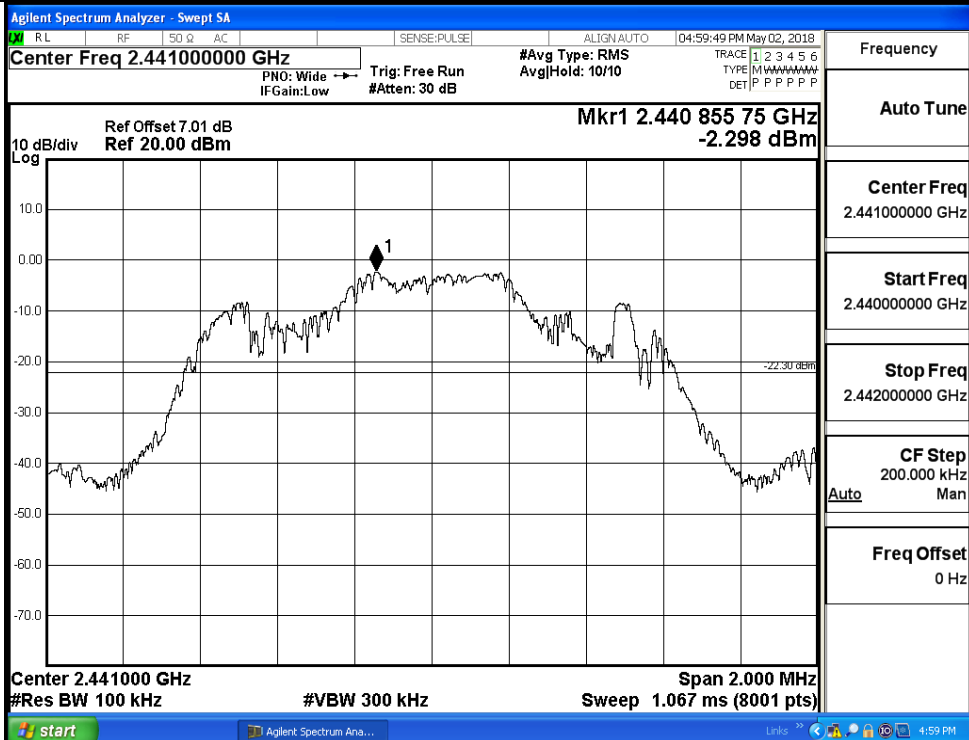


Puw



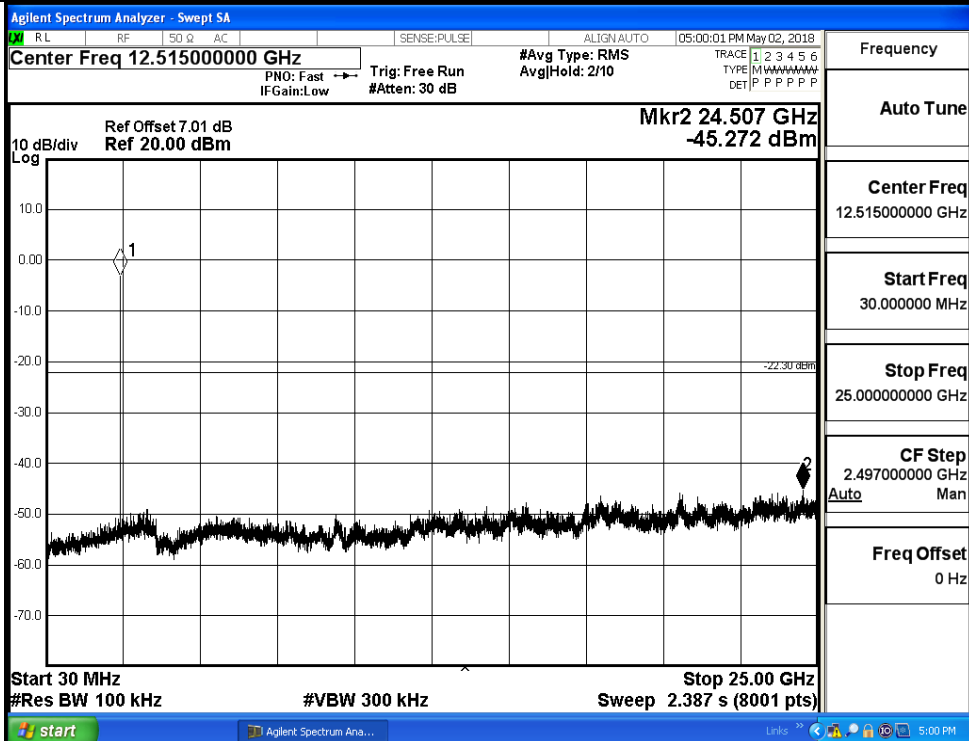
π/4DQPSK MCH Graphs

Pref



Frequency
Auto Tune
Center Freq 2.441000000 GHz
Start Freq 2.440000000 GHz
Stop Freq 2.442000000 GHz
CF Step 200.000 kHz Auto Man
Freq Offset 0 Hz

Puw



Frequency
Auto Tune
Center Freq 12.515000000 GHz
Start Freq 30.000000 MHz
Stop Freq 25.000000000 GHz
CF Step 2.497000000 GHz Auto Man
Freq Offset 0 Hz

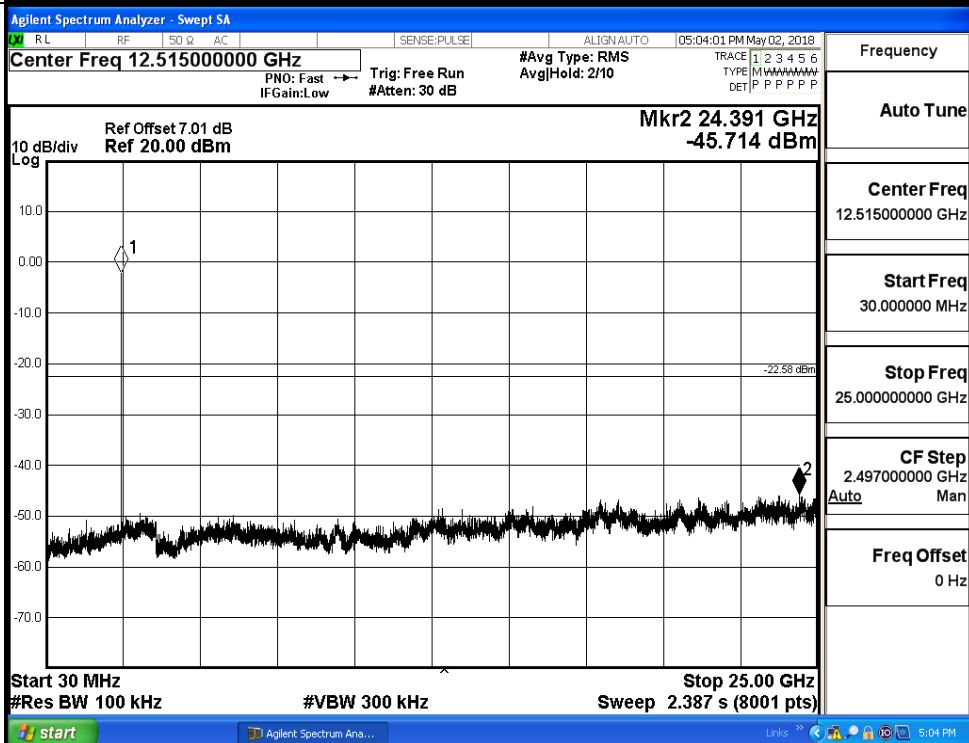
$\pi/4$ DQPSK HCH Graphs

Pref



Frequency
Auto Tune
Center Freq 2.48000000 GHz
Start Freq 2.479000000 GHz
Stop Freq 2.481000000 GHz
CF Step 200.000 kHz Auto Man
Freq Offset 0 Hz

Puw



Frequency
Auto Tune
Center Freq 12.51500000 GHz
Start Freq 30.000000 MHz
Stop Freq 25.00000000 GHz
CF Step 2.497000000 GHz Auto Man
Freq Offset 0 Hz

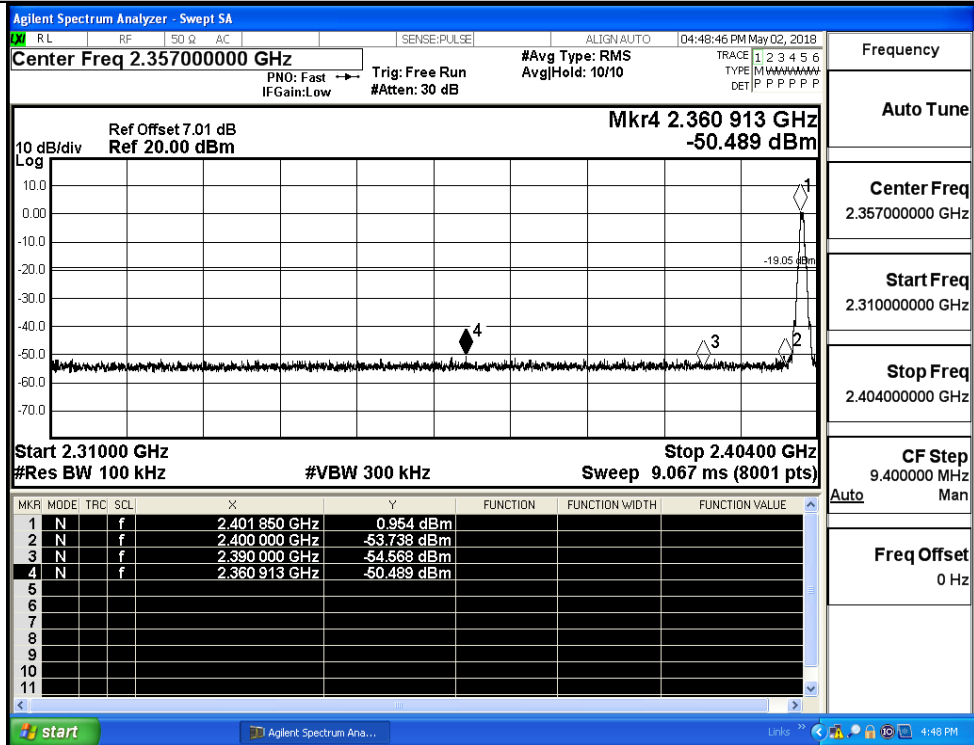
### A.7 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	0.954	Off	-50.489	-19.05	PASS
			2.666	On	-50.085	-17.33	PASS
	HCH	2480	-0.818	Off	-50.939	-20.82	PASS
			1.941	On	-49.450	-18.06	PASS
π/4DQPSK	LCH	2402	-0.552	Off	-49.452	-20.55	PASS
			0.746	On	-50.294	-19.25	PASS
	HCH	2480	-2.459	Off	-50.707	-22.46	PASS
			0.583	On	-50.092	-19.42	PASS



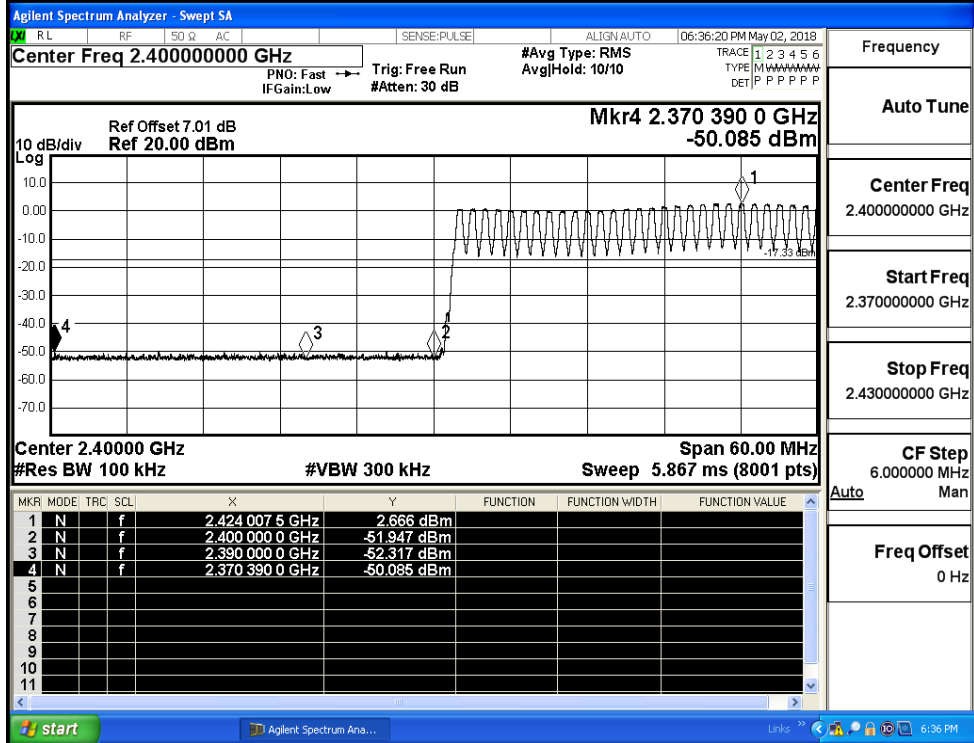
Test Graphs

GFSK/LCH/No Hop



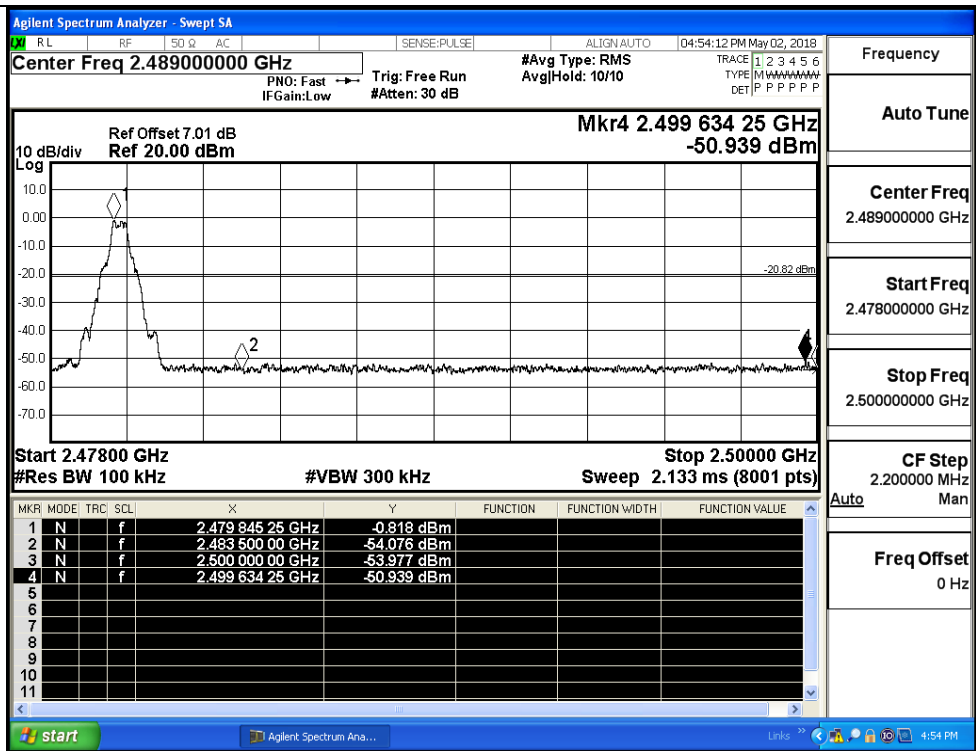
Frequency	Auto Tune
Center Freq	2.357000000 GHz
Start Freq	2.310000000 GHz
Stop Freq	2.404000000 GHz
CF Step	9.400000 MHz
Freq Offset	0 Hz

GFSK/LCH/Hop



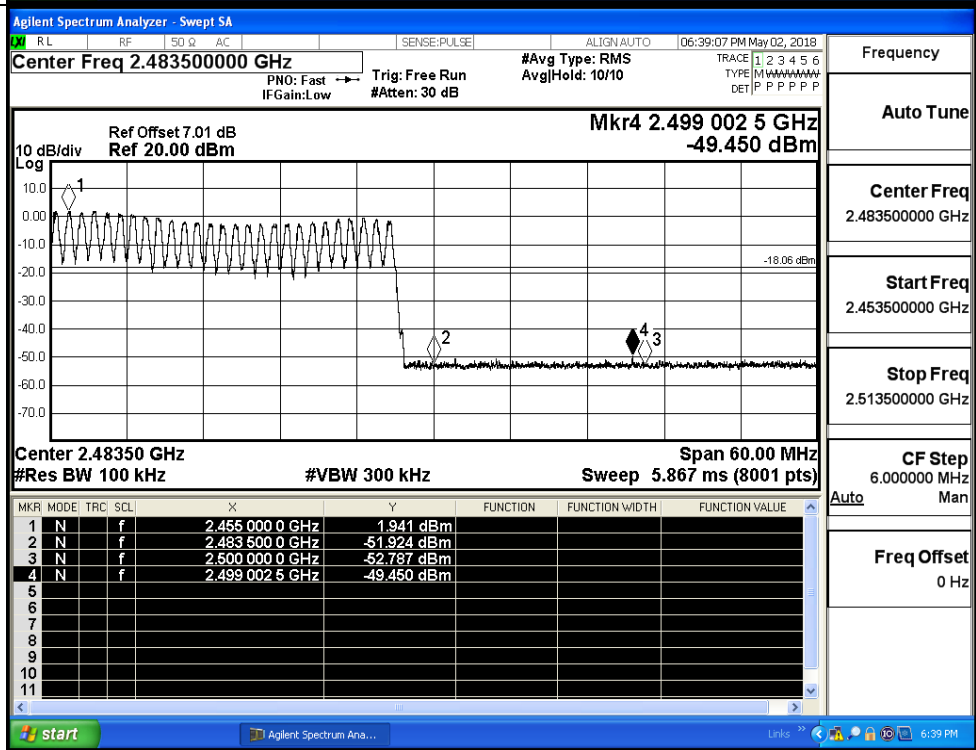
Frequency	Auto Tune
Center Freq	2.400000000 GHz
Start Freq	2.370000000 GHz
Stop Freq	2.430000000 GHz
CF Step	6.000000 MHz
Freq Offset	0 Hz

GFSK/HCH/No Hop



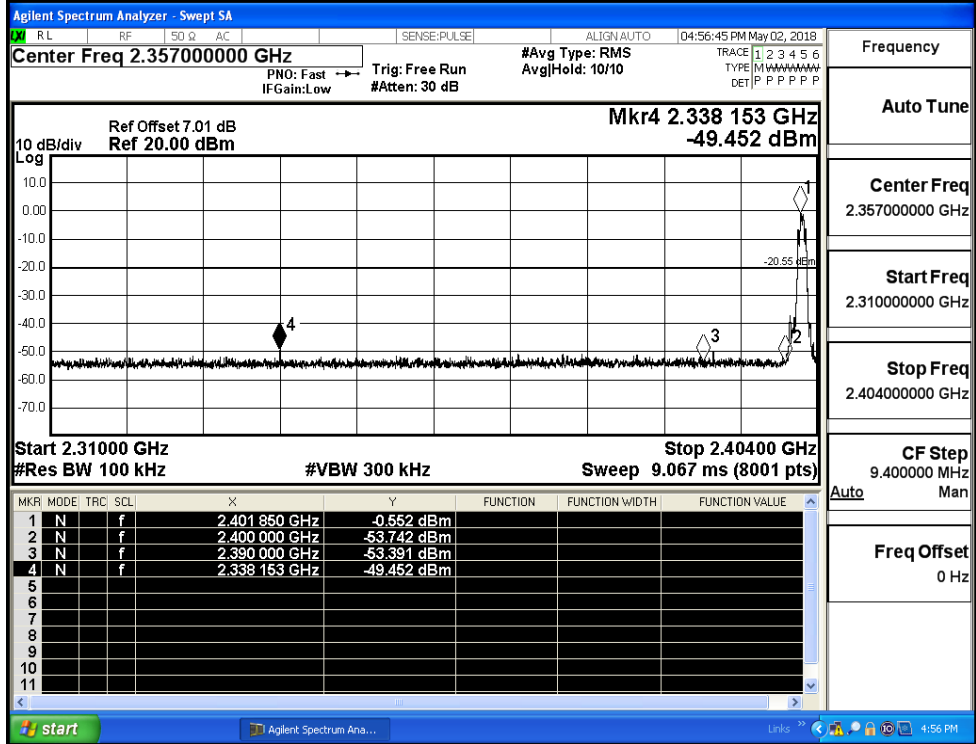
Frequency	
Auto Tune	
Center Freq	2.489000000 GHz
Start Freq	2.478000000 GHz
Stop Freq	2.500000000 GHz
CF Step	2.200000 MHz
Auto	Man
Freq Offset	0 Hz

GFSK/HCH/Hop



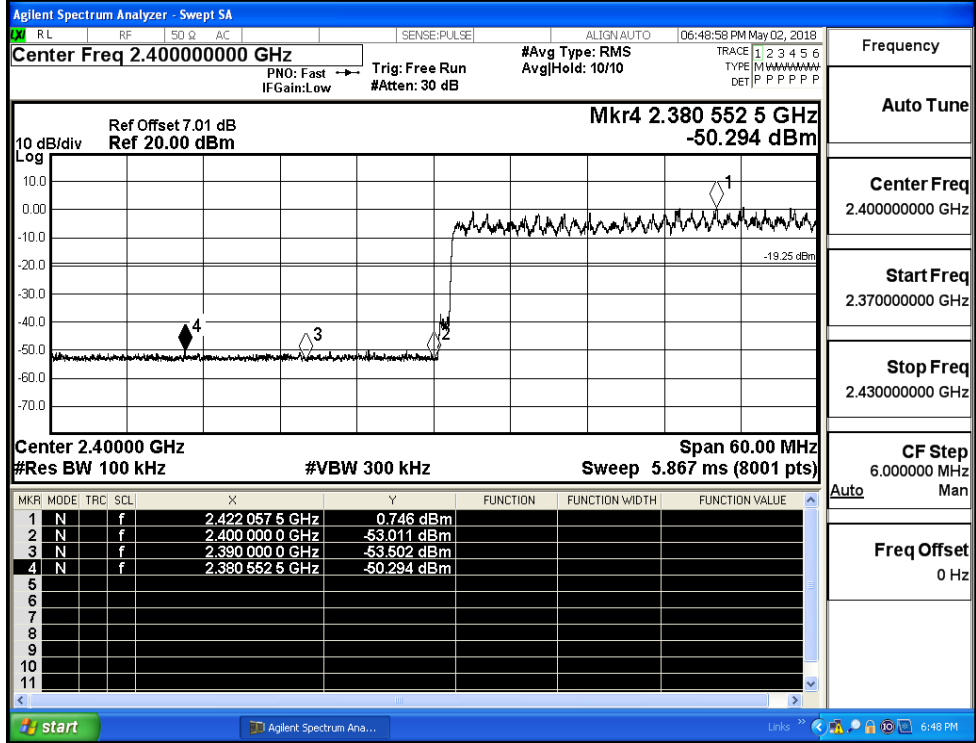
Frequency	
Auto Tune	
Center Freq	2.483500000 GHz
Start Freq	2.453500000 GHz
Stop Freq	2.513500000 GHz
CF Step	6.000000 MHz
Auto	Man
Freq Offset	0 Hz

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



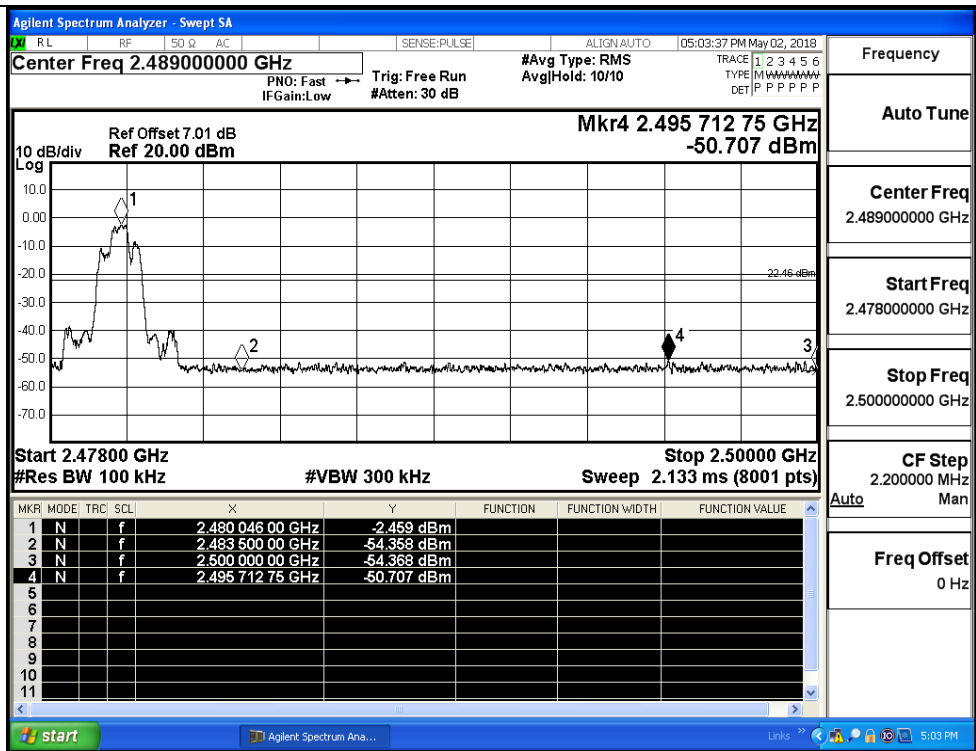
Frequency
Auto Tune
Center Freq 2.357000000 GHz
Start Freq 2.310000000 GHz
Stop Freq 2.404000000 GHz
CF Step 9.400000 MHz
Auto Man
Freq Offset 0 Hz

$\pi/4$ DQPSK/LCH/Hop

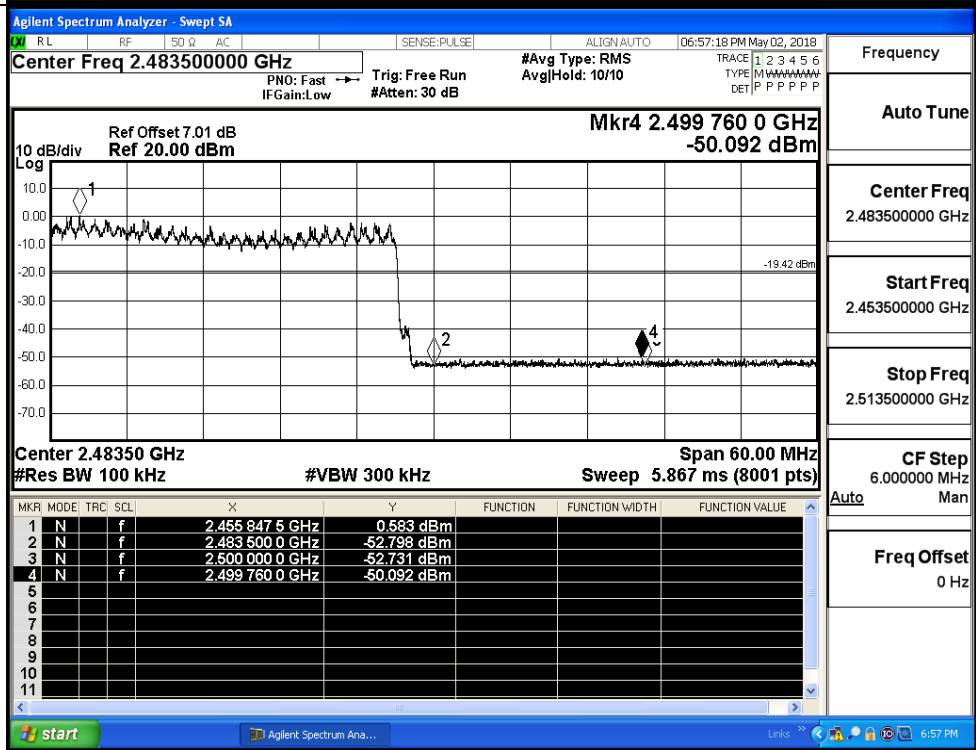


Frequency
Auto Tune
Center Freq 2.400000000 GHz
Start Freq 2.370000000 GHz
Stop Freq 2.430000000 GHz
CF Step 6.000000 MHz
Auto Man
Freq Offset 0 Hz

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



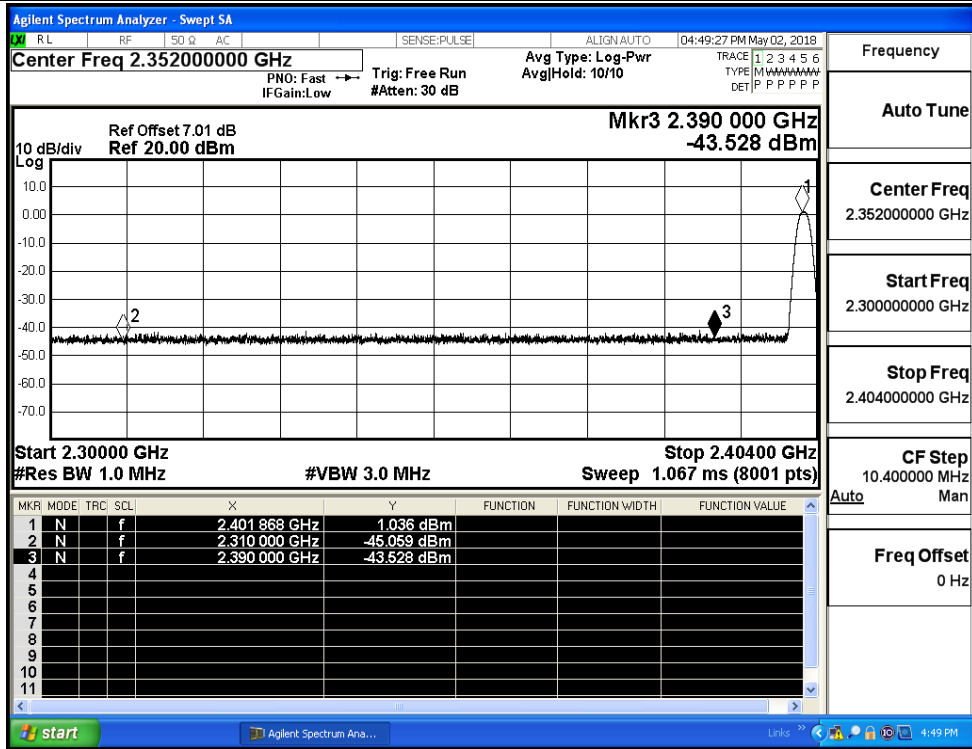
$\pi/4$ DQPSK/HCH/Hop



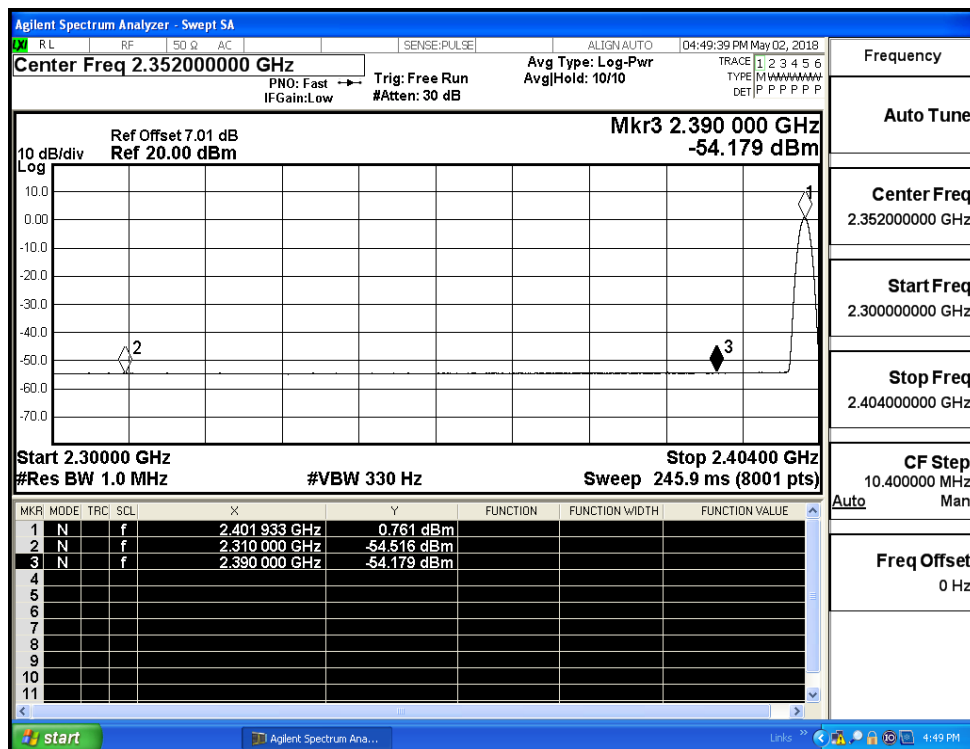
### A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-45.06	2.0	0	50.20	PEAK	74	PASS
	Off	2310.0	-54.52	2.0	0	40.74	AV	54	PASS
	Off	2390.0	-43.53	2.0	0	51.73	PEAK	74	PASS
	Off	2390.0	-54.18	2.0	0	41.08	AV	54	PASS
	Off	2483.5	-43.22	2.0	0	52.03	PEAK	74	PASS
	Off	2483.5	-54.14	2.0	0	41.12	AV	54	PASS
	Off	2500.0	-44.73	2.0	0	50.53	PEAK	74	PASS
	Off	2500.0	-53.98	2.0	0	41.28	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-44.78	2.0	0	50.47	PEAK	74	PASS
	Off	2310.0	-54.64	2.0	0	40.61	AV	54	PASS
	Off	2390.0	-44.11	2.0	0	51.15	PEAK	74	PASS
	Off	2390.0	-54.36	2.0	0	40.90	AV	54	PASS
	Off	2483.5	-44.57	2.0	0	50.69	PEAK	74	PASS
	Off	2483.5	-54.19	2.0	0	41.07	AV	54	PASS
	Off	2500.0	-43.68	2.0	0	51.58	PEAK	74	PASS
	Off	2500.0	-54.01	2.0	0	41.24	AV	54	PASS
	Off	2500.0	#rbr33dh51hc hnnpeak	2.0	#rbgf3dh51hc hnnpeak	#rbe33dh51 hchnnpeak	PEAK	74	PASS
	Off	2500.0	#rbr33dh51hc hnnav	2.0	#rbgf3dh51hc hnnav	#rbe33dh51 hchnnav	AV	54	PASS

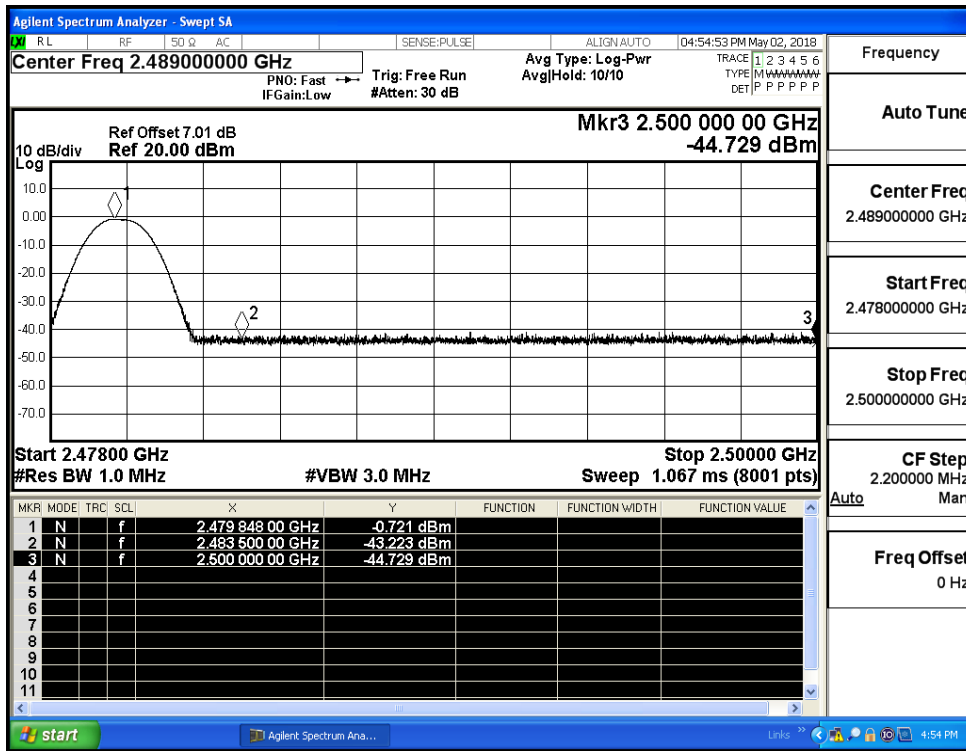
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (Low Channel)



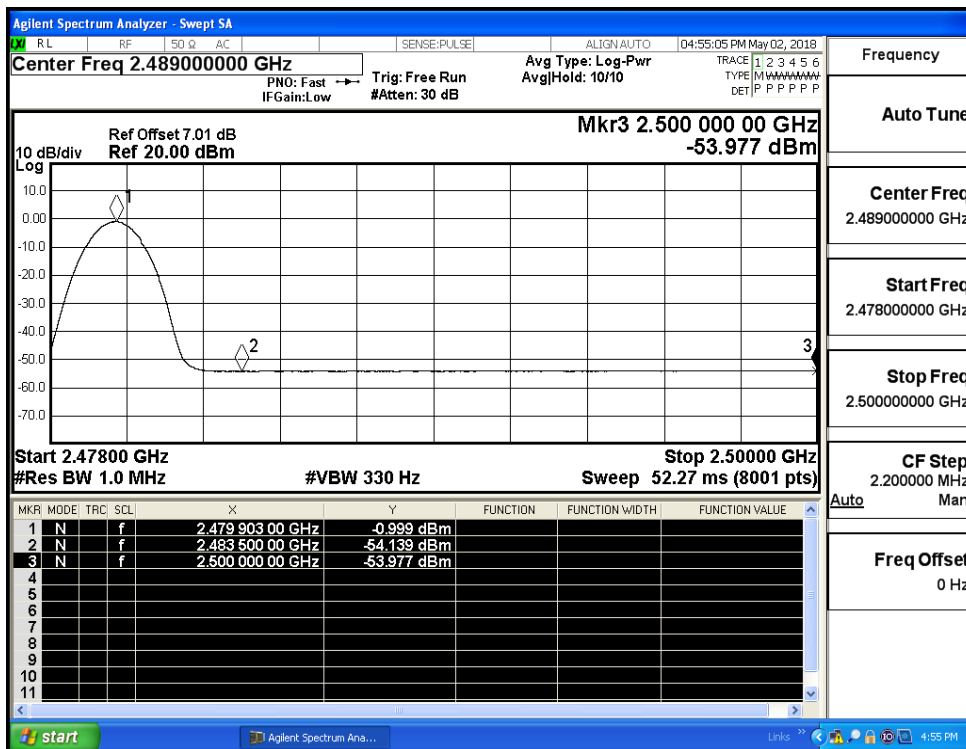
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (Low Channel)



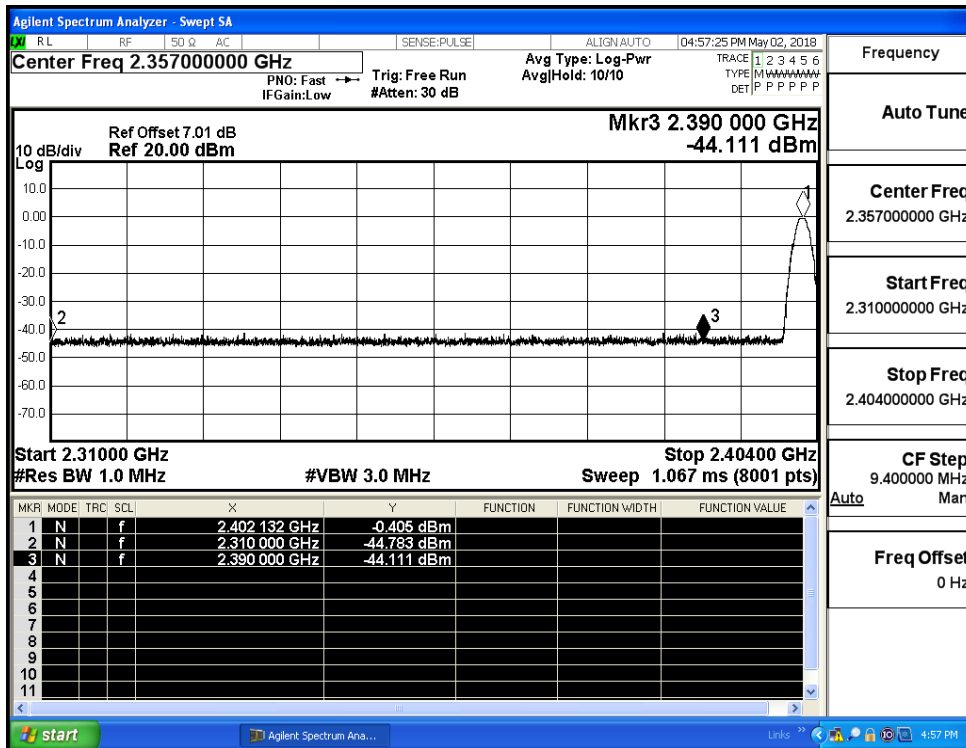
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (High Channel)



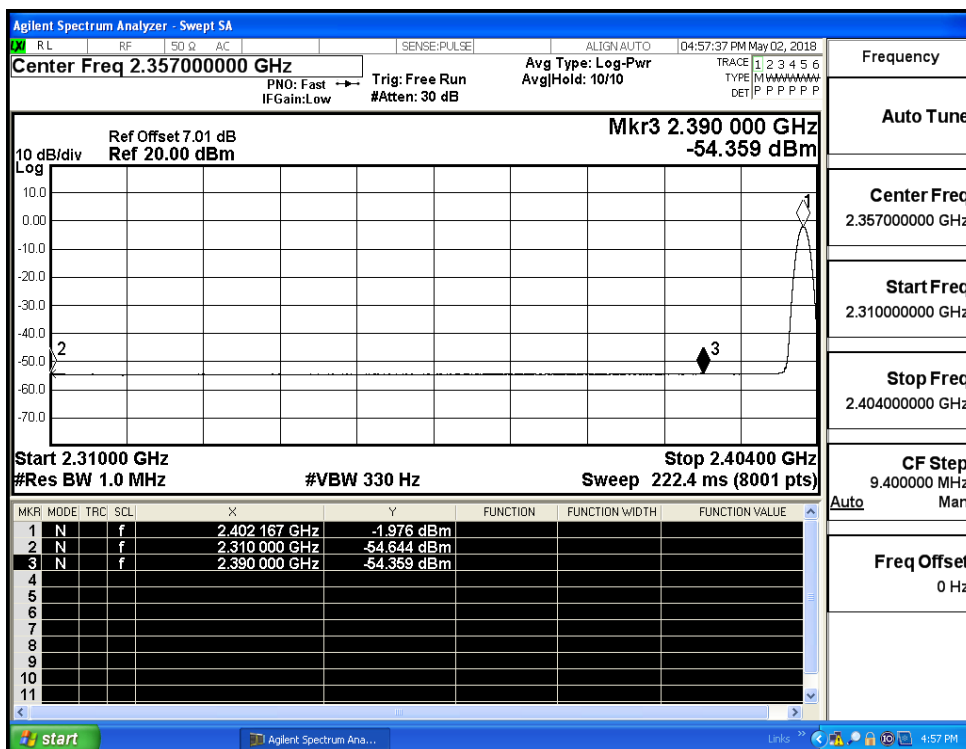
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (High Channel)



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

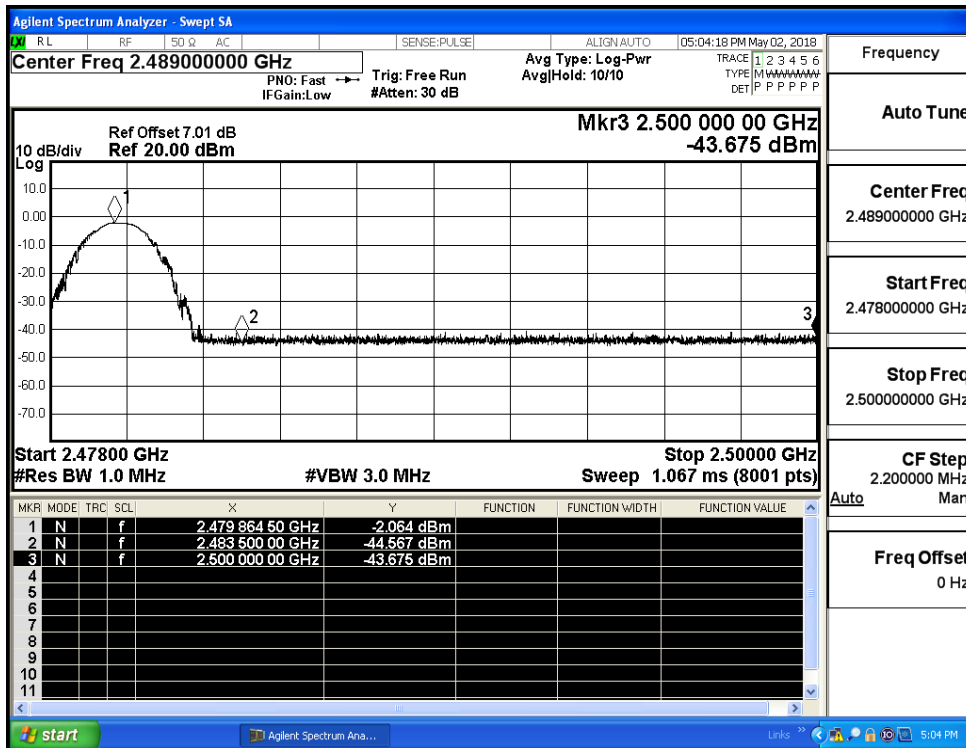


Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_Average (Low Channel)





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)

