



AUDIX Technology Corp.
No. 53-11, Dingfu, Linkou, Dist.,
New Taipei City 244, Taiwan

APPENDIX A

Tel: +886 2 26099301
Fax: +886 2 26099303

APPENDIX A

TEST PLOTS

(Model: mPAD-12.....)

TABLE OF CONTENTS

A.1	20dB BANDWIDTH MEASUREMENT	2
A.1.1	20dB Bandwidth Result.....	2
A.1.2	Measurement Plots	3
A.2	CARRIER FREQUENCY SEPARATION MEASUREMENT.....	4
A.2.1	Measurement Plots	4
A.3	TIME OF OCCUPANCY MEASUREMENT	6
A.3.1	Time of Occupancy.....	6
A.3.2	Measurement Plots	10
A.4	NUMBER OF HOPPING CHANNELS MEASUREMENT	16
A.4.1	Measurement Plots	16
A.5	MAXIMUM PEAK OUTPUT POWER MEASUREMENT	17
A.5.1	Output Power	17
A.5.2	Measurement Plots	18
A.6	EMISSION LIMITATIONS MEASUREMENT	19
A.6.1	Band Edge	19
A.6.2	Spurious Emission	21

A.1 20dB BANDWIDTH MEASUREMENT

Test Date	2016/05/20	Temp./Hum.	25°C/58%
Cable Loss	---	Test Voltage	AC 120V, 60Hz

A.1.1 20dB Bandwidth Result

Modulation	Centre Frequency (MHz)	20 dB Bandwidth (MHz)	2/3 (20dB Bandwidth)
GFSK	2402	0.9225	0.615
	2441	0.9226	0.615
	2480	0.9223	0.615

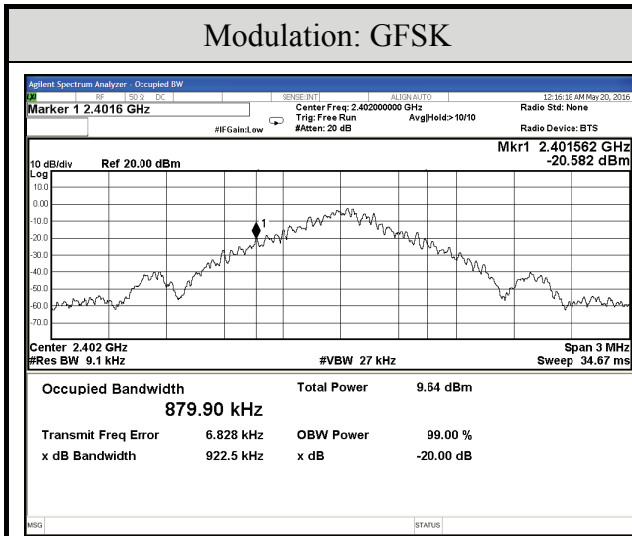
Remark: The maximum two-thirds of the 20dB bandwidth is the limit for carrier frequency separation presented.

Modulation	Centre Frequency (MHz)	20 dB Bandwidth (MHz)	2/3 (20dB Bandwidth)
8-DPSK	2402	1.248	0.832
	2441	1.245	0.830
	2480	1.245	0.830

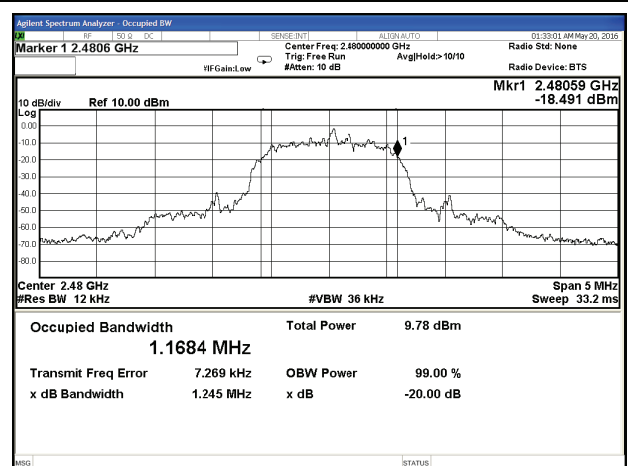
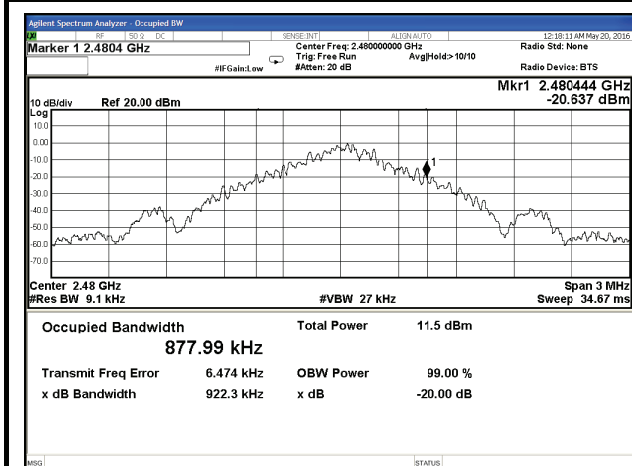
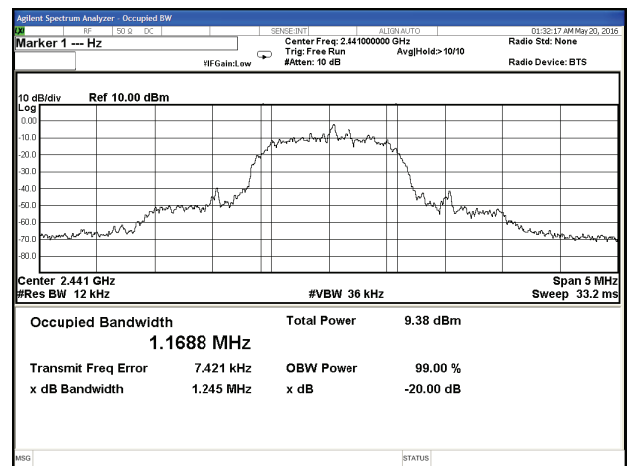
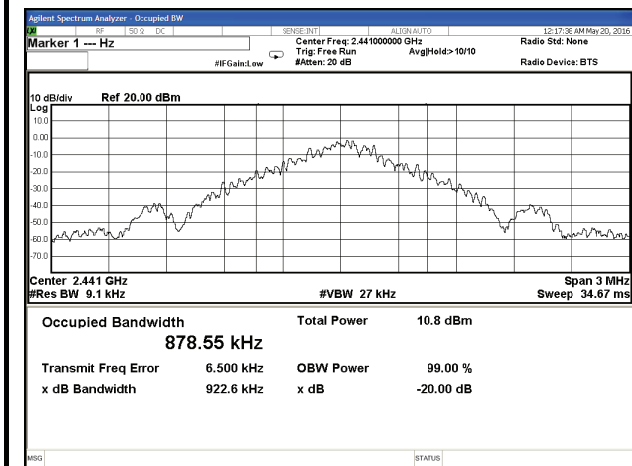
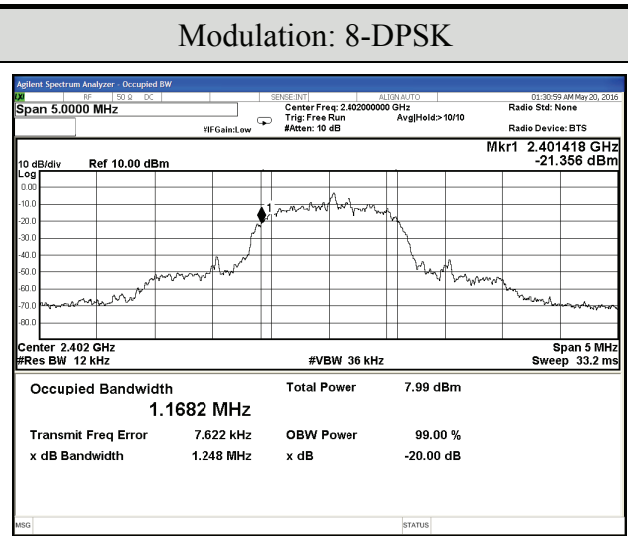
Remark: The maximum two-thirds of the 20dB bandwidth is the limit for carrier frequency separation presented.

A.1.2 Measurement Plots

Modulation: GFSK



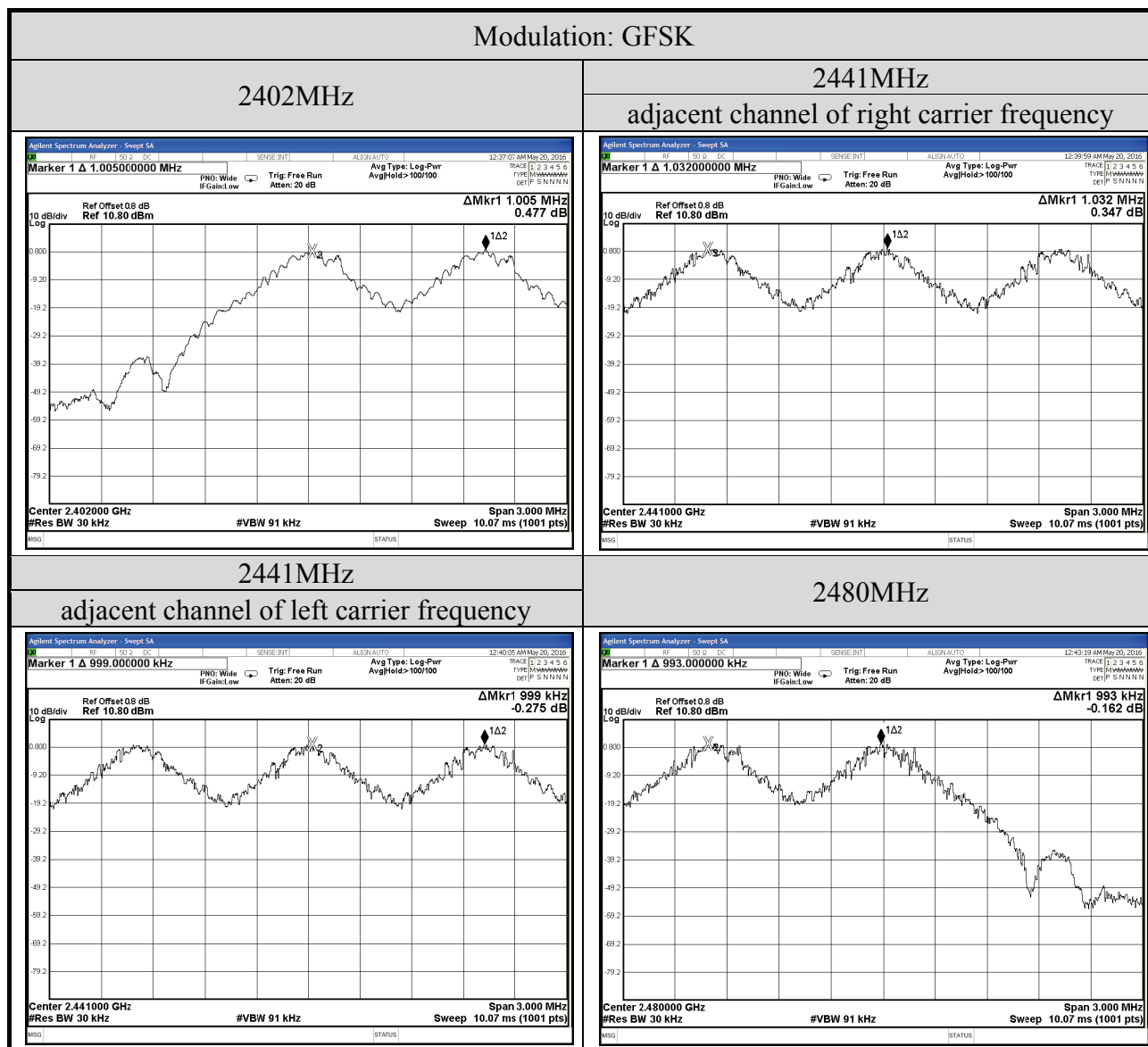
Modulation: 8-DPSK



A.2 CARRIER FREQUENCY SEPARATION MEASUREMENT

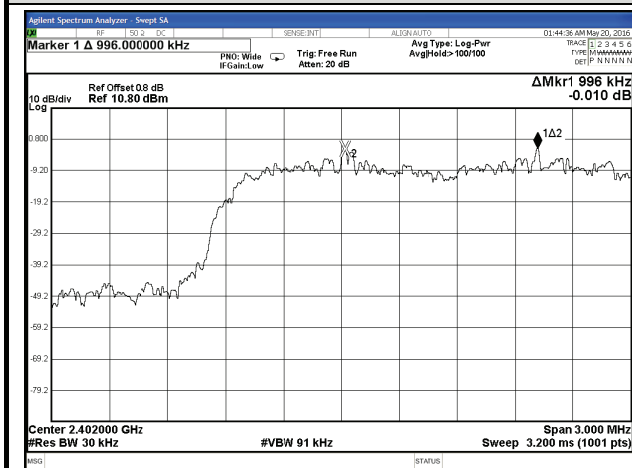
Test Date	2016/05/20	Temp./Hum.	25°C/58%
Cable Loss	0.8dB	Test Voltage	AC 120V, 60Hz

A.2.1 Measurement Plots



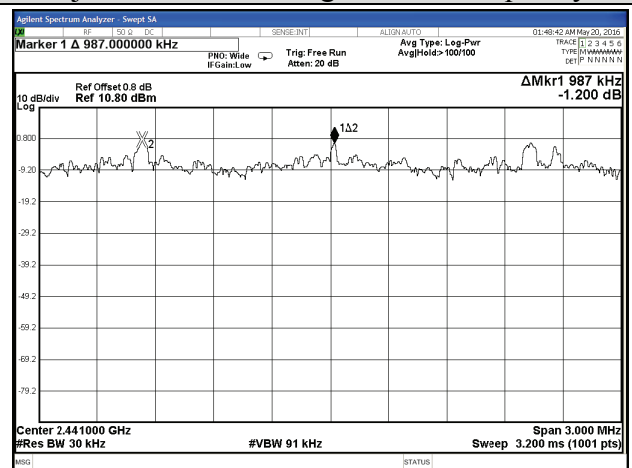
Modulation: 8-DPSK

2402MHz



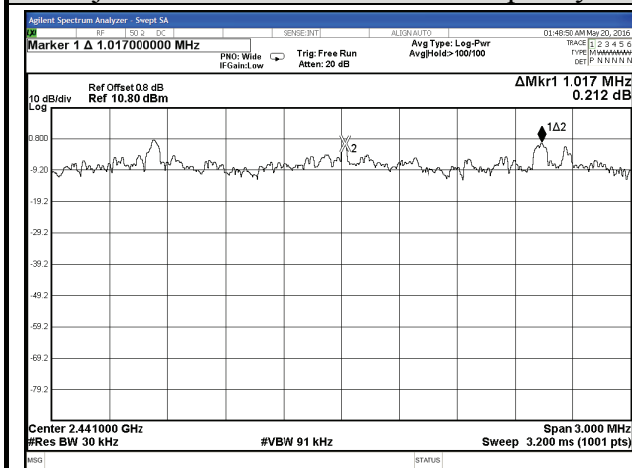
2441MHz

adjacent channel of right carrier frequency

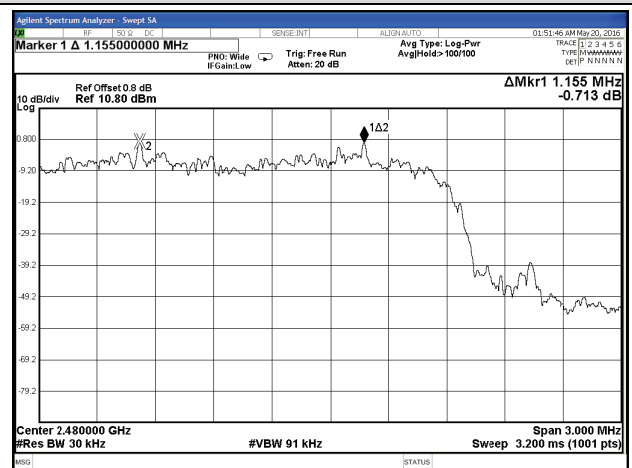


2441MHz

adjacent channel of left carrier frequency



2480MHz



A.3 TIME OF OCCUPANCY MEASUREMENT

Test Date	2016/05/20	Temp./Hum.	25°C/58%
Cable Loss	0.8dB	Test Voltage	AC 120V, 60Hz

A.3.1 Time of Occupancy

Modulation	Centre Frequency (MHz)	Mode	Time of Occupancy (ms)	Maximum accumulated Time of Occupancy (ms)	Limit (ms)
GFSK	2402	DH1	0.375	118.500	<400
		DH3	1.625	308.100	<400
		DH5	2.870	362.768	<400
	2441	DH1	0.381	120.396	<400
		DH3	1.635	206.664	<400
		DH5	2.885	364.664	<400
	2480	DH1	0.378	119.448	<400
		DH3	1.635	309.996	<400
		DH5	2.885	273.498	<400

Observation Period: 79 channels*0.4 seconds = 31.6 seconds

Centre Frequency: 2402MHz

DH1: For each second of 10 channel appearance, the longest time of occupancy for each of 31.6 seconds is:

10 channels*31.6 seconds* **0.375** ms= **118.500** ms

DH3: For each second of 6 channel appearance, the longest time of occupancy for each of 31.6 seconds is:

6 channels*31.6 seconds* **1.625** ms= **308.100** ms

DH5: For each second of 4 channel appearance, the longest time of occupancy for each of 31.6 seconds is:

4 channels*31.6 seconds* **2.870** ms= **362.768** ms

Centre Frequency: 2441MHz

DH1: For each second of 10 channel appearance, the longest time of occupancy for each of 31.6 seconds is:

10 channels*31.6 seconds* **0.381** ms= **120.396** ms

DH3: For each second of 4 channel appearance, the longest time of occupancy for each of 31.6 seconds is:

4 channels*31.6 seconds* **1.635** ms= **206.664** ms

DH5: For each second of 4 channel appearance, the longest time of occupancy for each of 31.6 seconds is:

4 channels*31.6 seconds* **2.885** ms= **364.664** ms

Centre Frequency: 2480MHz

DH1: For each second of 10 channel appearance, the longest time of occupancy for each of 31.6 seconds is:

10 channels*31.6 seconds* **0.378** ms= **119.448** ms

DH3: For each second of 6 channel appearance, the longest time of occupancy for each of 31.6 seconds is:

6 channels*31.6 seconds* **1.635** ms= **309.996** ms

DH5: For each second of 3 channel appearance, the longest time of occupancy for each of 31.6 seconds is:

3 channels*31.6 seconds* **2.885** ms= **273.498** ms

Modulation	Centre Frequency (MHz)	Mode	Time of Occupancy (ms)	Maximum accumulated Time of Occupancy (ms)	Limit (ms)
8-DPSK	2402	3DH1	0.384	121.344	<400
		3DH3	1.625	205.400	<400
		3DH5	2.878	363.779	<400
	2441	3DH1	0.381	120.396	<400
		3DH3	1.630	309.048	<400
		3DH5	2.863	361.883	<400
	2480	3DH1	0.384	121.344	<400
		3DH3	1.625	256.750	<400
		3DH5	2.878	363.779	<400

Observation Period: 79 channels*0.4 seconds = 31.6 seconds

Centre Frequency: 2402MHz

3DH1: For each second of 10 channel appearance, the longest time of occupancy for each of 31.6 seconds is:

10 channels*31.6 seconds* **0.384** ms= **121.344** ms

3DH3: For each second of 4 channel appearance, the longest time of occupancy for each of 31.6 seconds is:

4 channels*31.6 seconds* **1.625** ms= **205.400** ms

3DH5: For each second of 4 channel appearance, the longest time of occupancy for each of 31.6 seconds is:

4 channels*31.6 seconds* **2.878** ms= **363.779** ms

Centre Frequency: 2441MHz

3DH1: For each second of 10 channel appearance, the longest time of occupancy for each of 31.6 seconds is:

10 channels*31.6 seconds* **0.381** ms= **120.396** ms

3DH3: For each second of 6 channel appearance, the longest time of occupancy for each of 31.6 seconds is:

6 channels*31.6 seconds* **1.630** ms= **309.048** ms

3DH5: For each second of 4 channel appearance, the longest time of occupancy for each of 31.6 seconds is:

4 channels*31.6 seconds* **2.863** ms= **361.883** ms

Centre Frequency: 2480MHz

3DH1: For each second of 10 channel appearance, the longest time of occupancy for each of 31.6 seconds is:

10 channels*31.6 seconds* **0.384** ms= **121.344** ms

3DH3: For each second of 5 channel appearance, the longest time of occupancy for each of 31.6 seconds is:

5 channels*31.6 seconds* **1.625** ms= **256.750** ms

3DH5: For each second of 4 channel appearance, the longest time of occupancy for each of 31.6 seconds is:

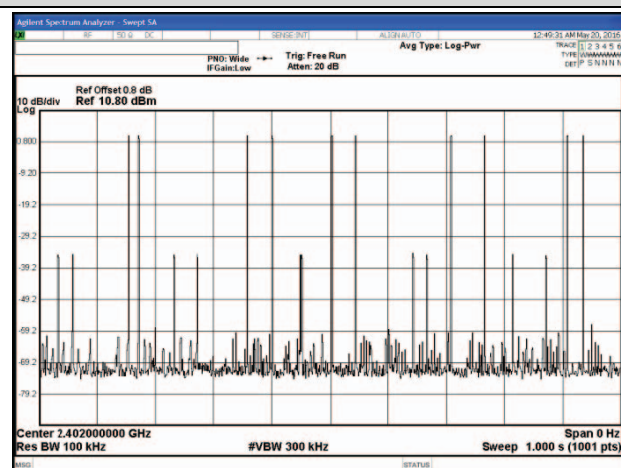
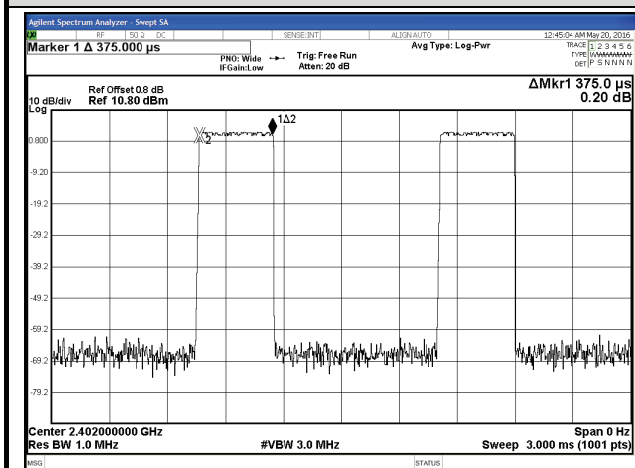
4 channels*31.6 seconds* **2.878** ms= **363.779** ms

A.3.2 Measurement Plots

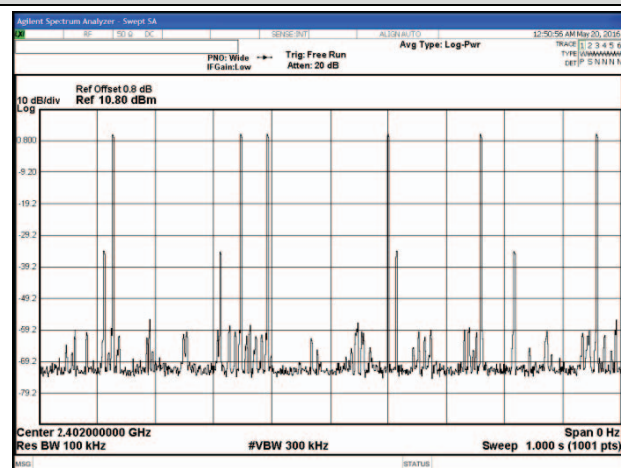
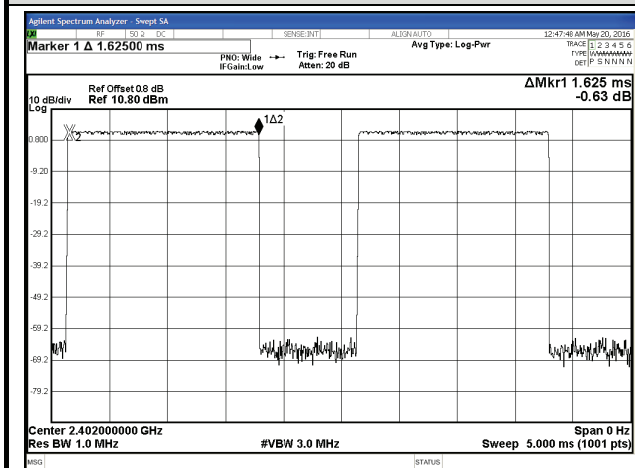
Modulation: GFSK

Centre Frequency: 2402MHz

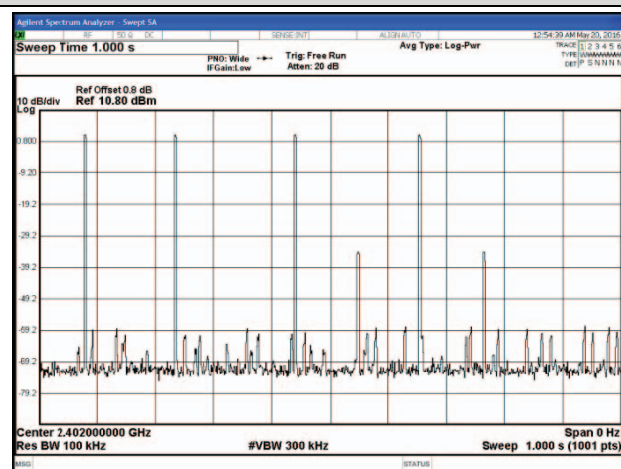
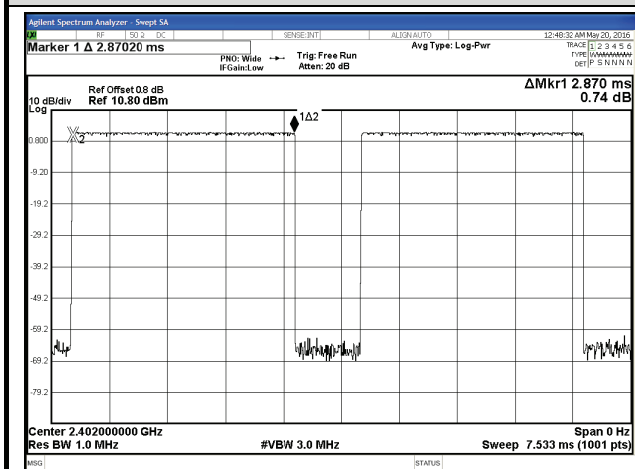
Mode: DH1



Mode: DH3



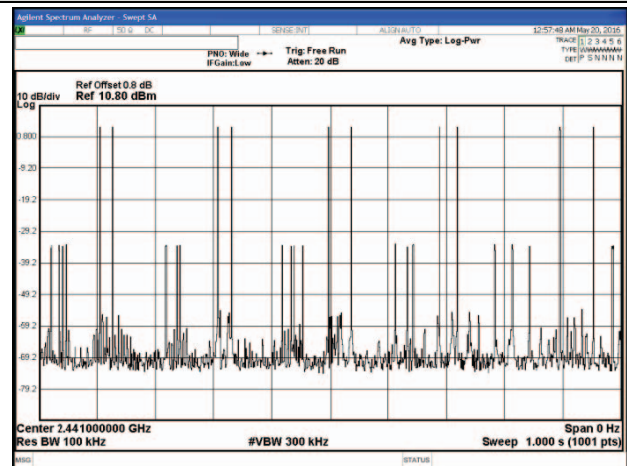
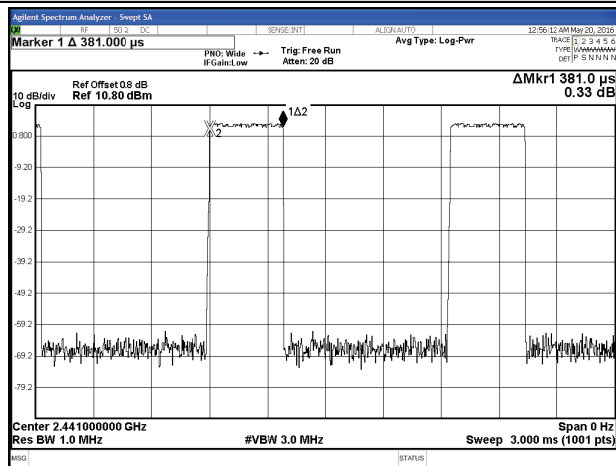
Mode: DH5



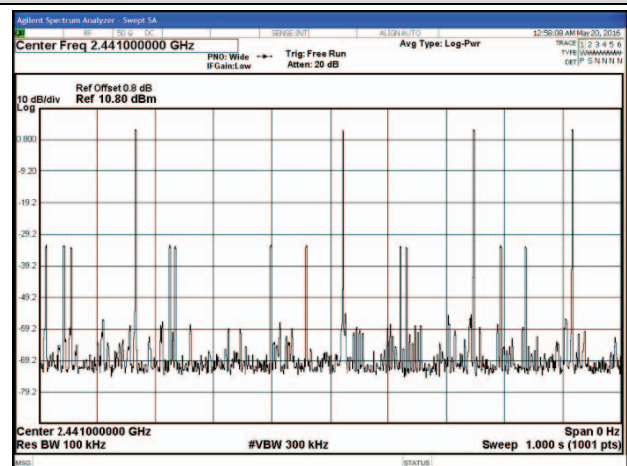
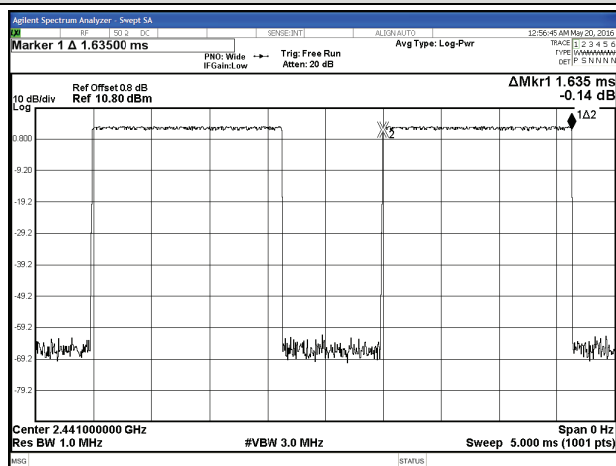
Modulation: GFSK

Centre Frequency: 2441MHz

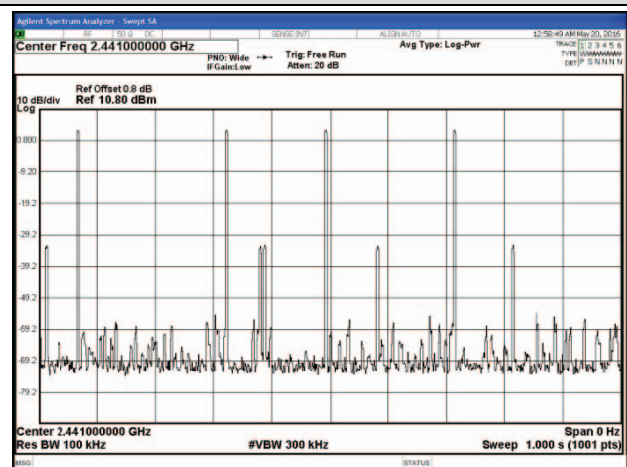
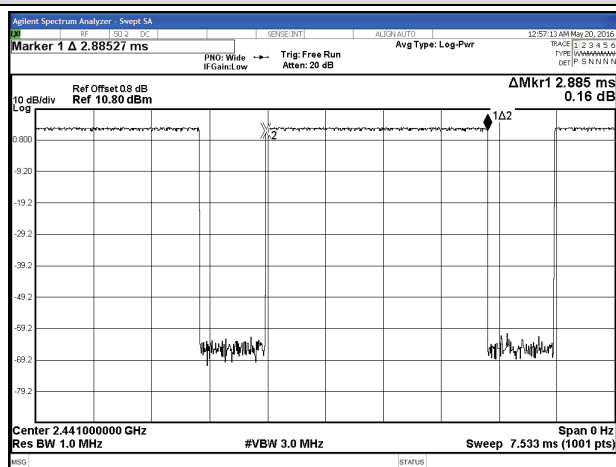
Mode: DH1



Mode: DH3



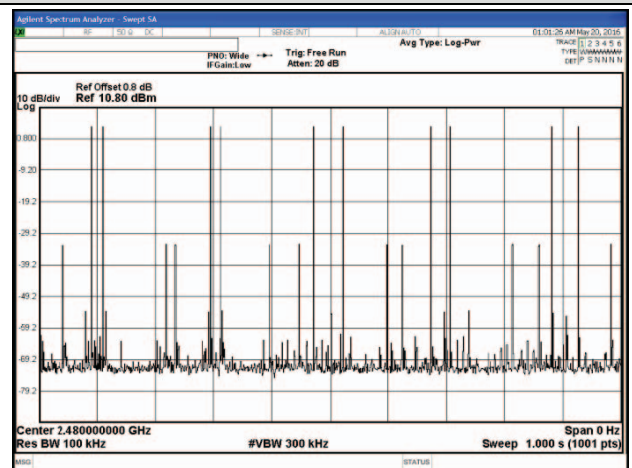
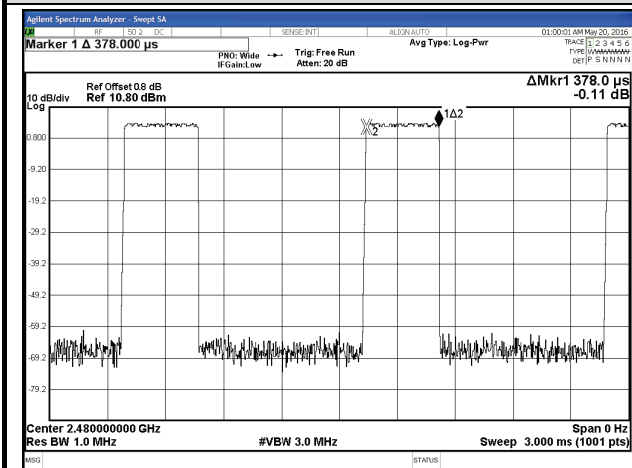
Mode: DH5



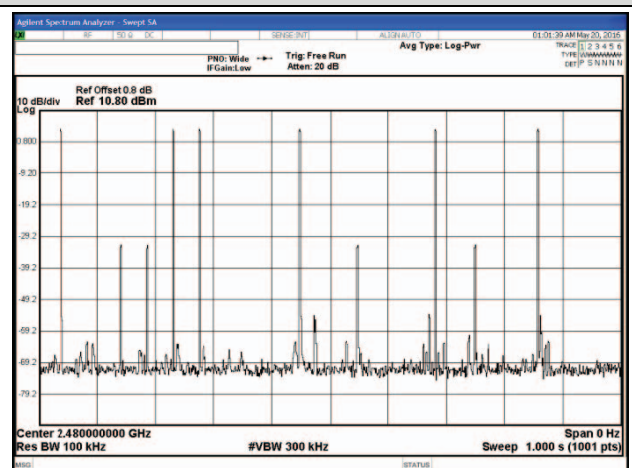
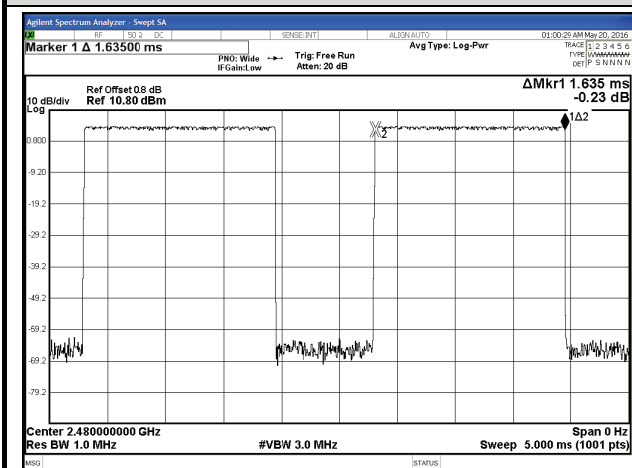
Modulation: GFSK

Centre Frequency: 2480MHz

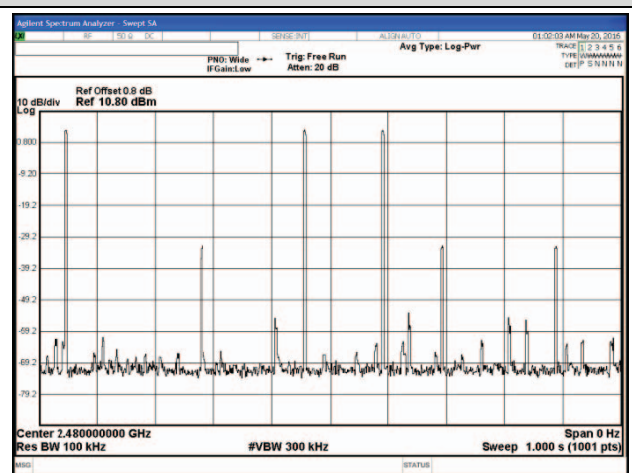
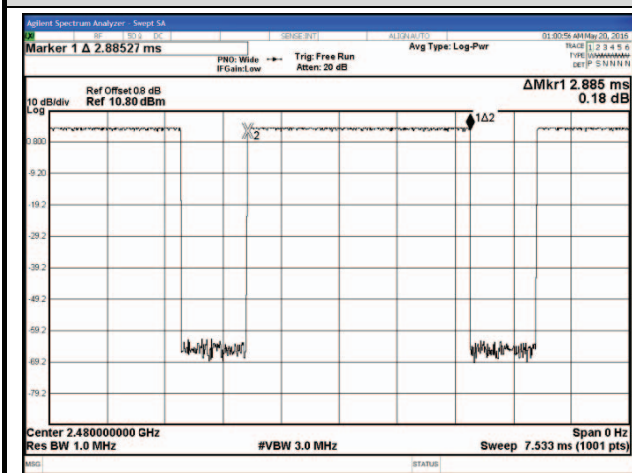
Mode: DH1



Mode: DH3



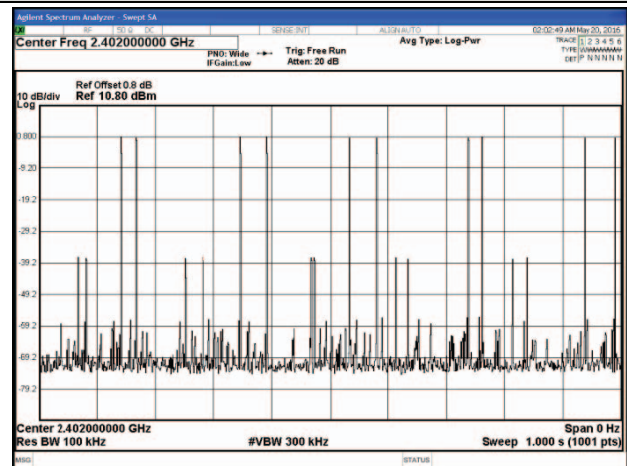
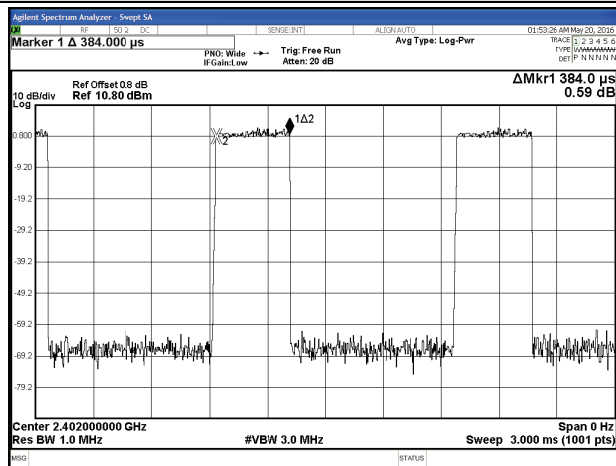
Mode: DH5



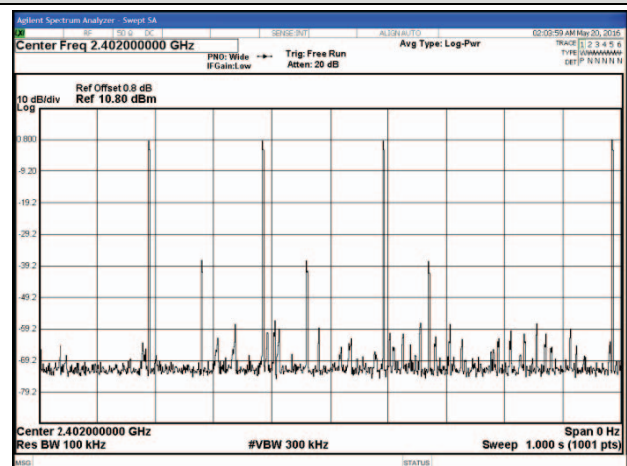
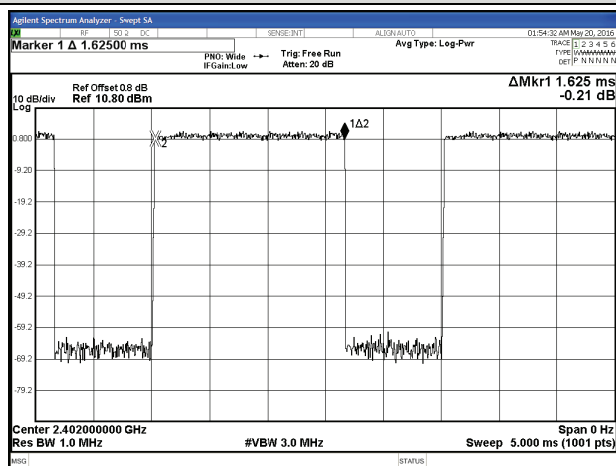
Modulation: 8-DPSK

Centre Frequency: 2402MHz

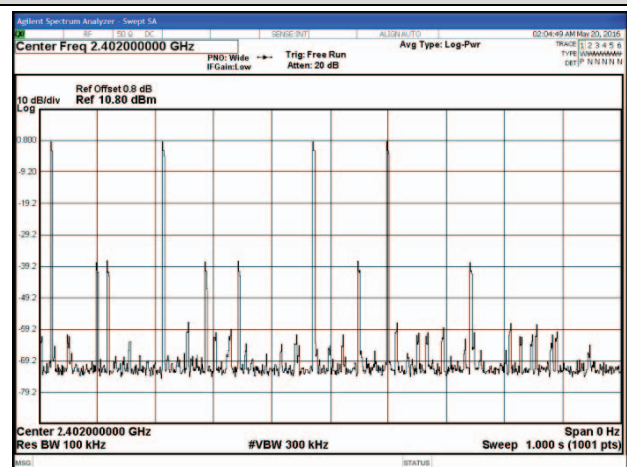
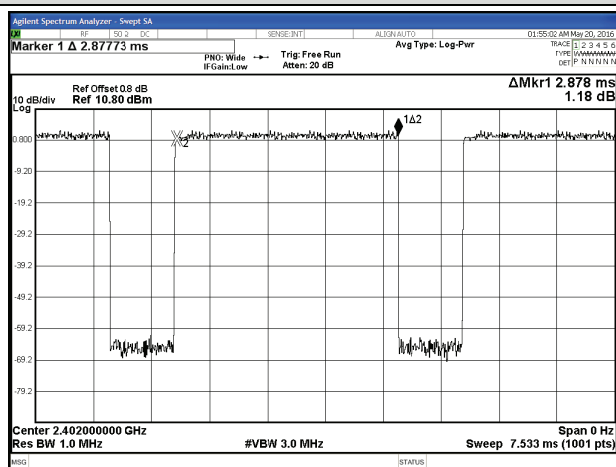
Mode: 3DH1



Mode: 3DH3



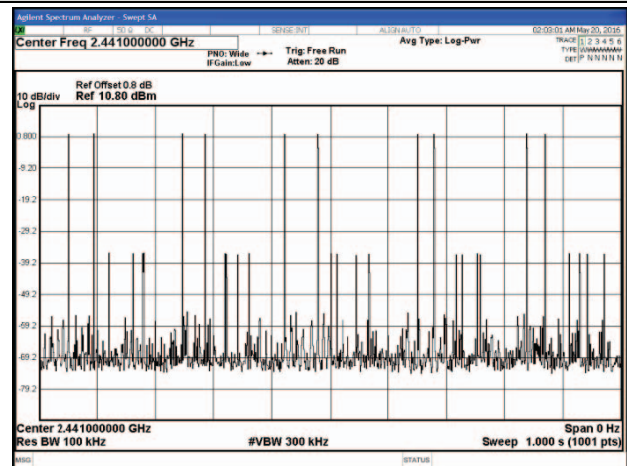
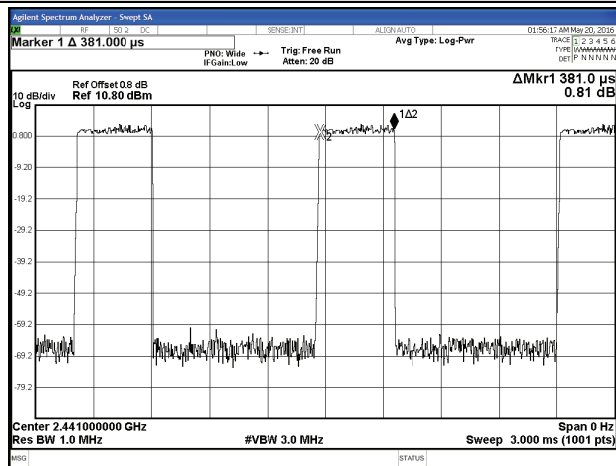
Mode: 3DH5



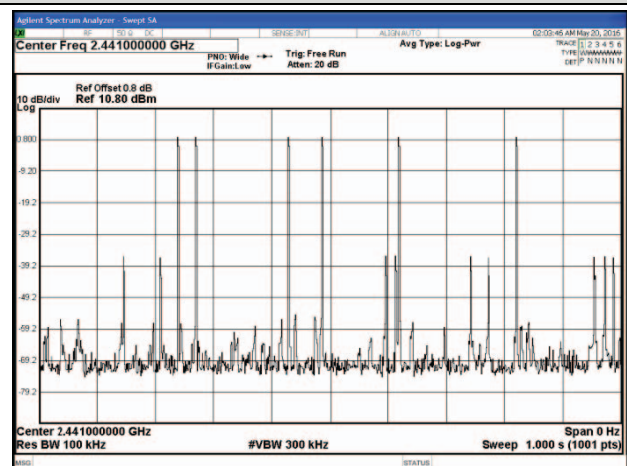
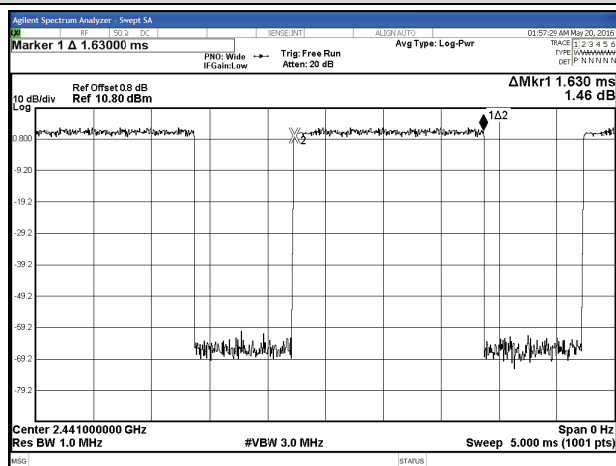
Modulation: 8-DPSK

Centre Frequency: 2441MHz

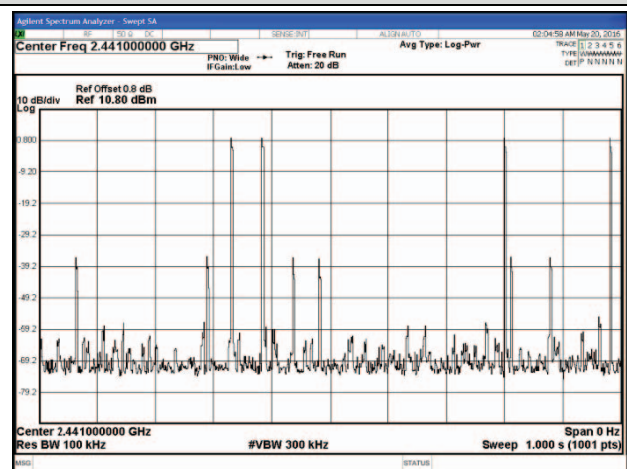
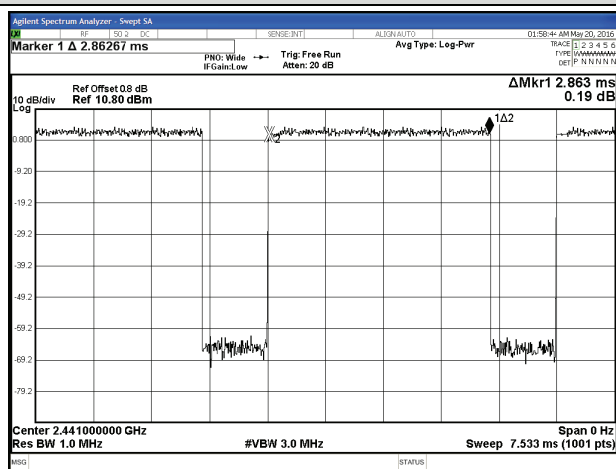
Mode: 3DH1



Mode: 3DH3



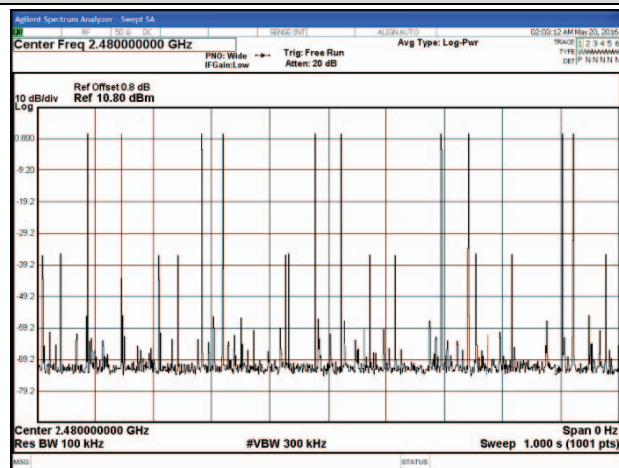
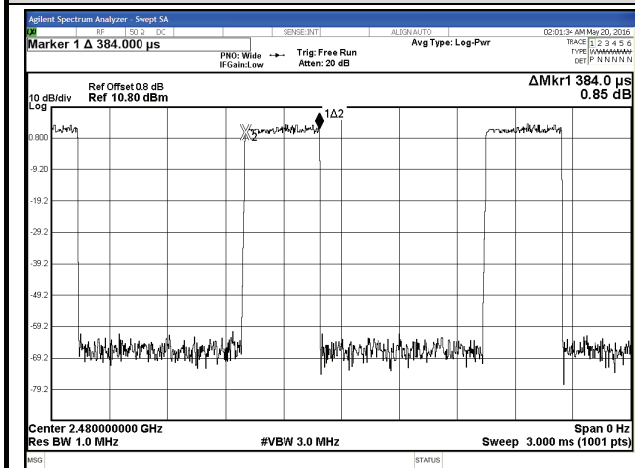
Mode: 3DH5



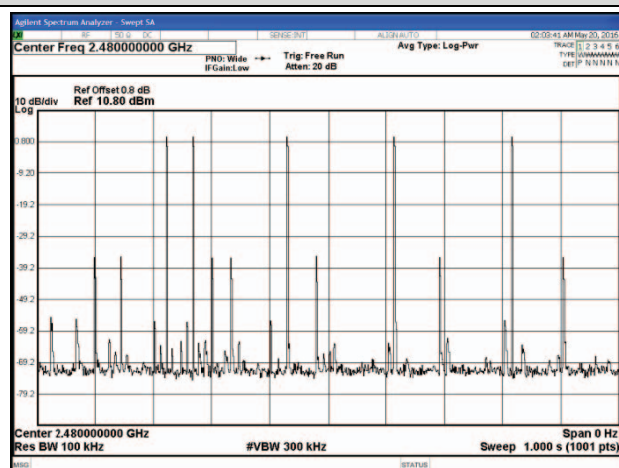
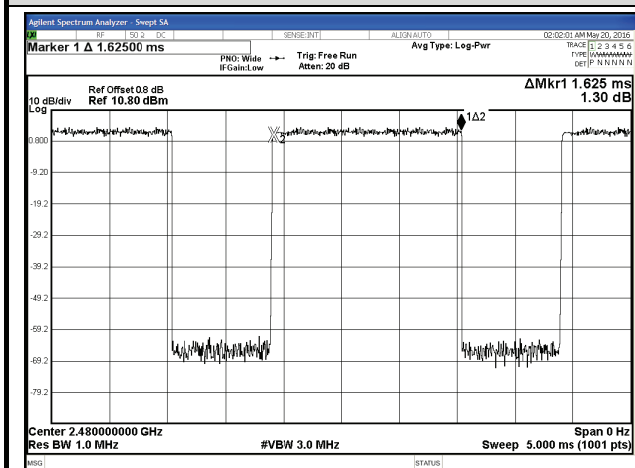
Modulation: 8-DPSK

Centre Frequency: 2480MHz

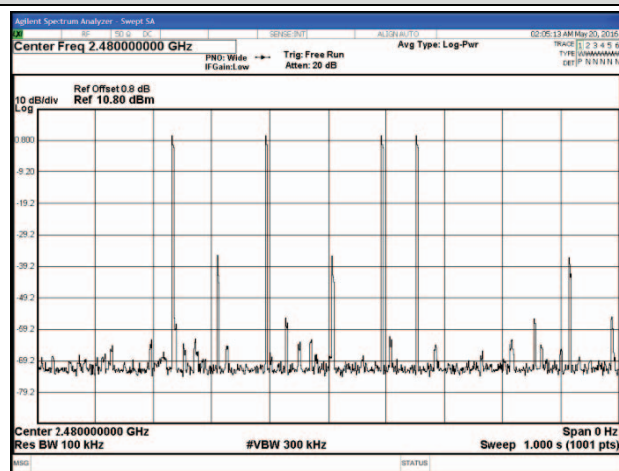
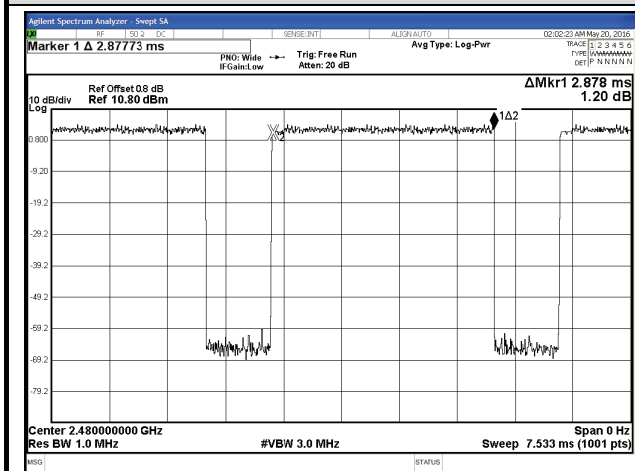
Mode: 3DH1



Mode: 3DH3



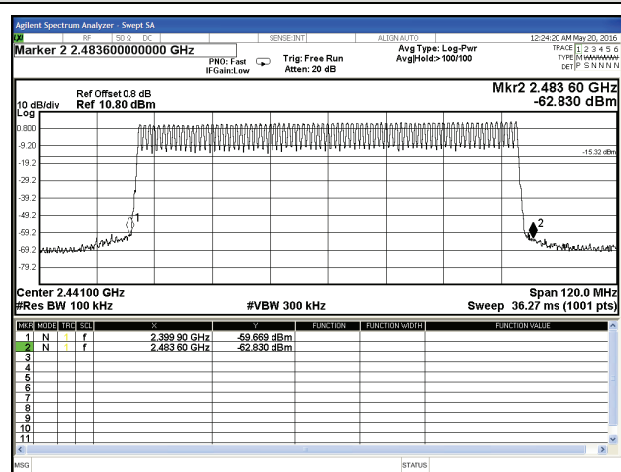
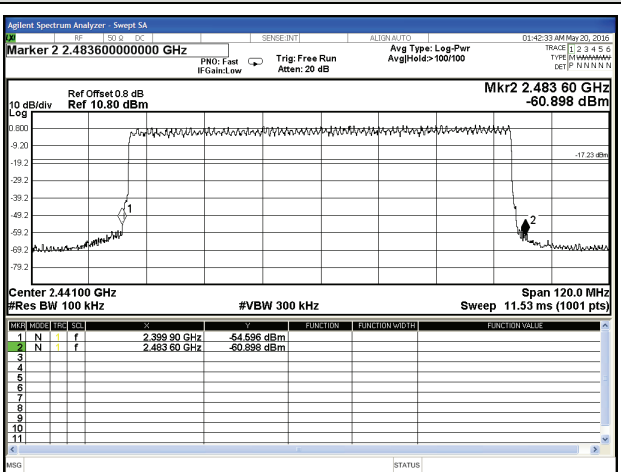
Mode: 3DH5



A.4 NUMBER OF HOPPING CHANNELS MEASUREMENT

Test Date	2016/05/20	Temp./Hum.	25°C/58%
Cable Loss	0.8dB	Test Voltage	AC 120V, 60Hz

A.4.1 Measurement Plots

Modulation: GFSK	Modulation: 8-DPSK
 Marker 2 2.483600000000 GHz Mkr2 2.483 60 GHz -62.830 dBm Center 2.44100 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 36.27 ms (1001 pts) The number hopping channel is 79.	 Marker 2 2.483600000000 GHz Mkr2 2.483 60 GHz -60.898 dBm Center 2.44100 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 11.53 ms (1001 pts) The number hopping channel is 79.

A.5 MAXIMUM PEAK OUTPUT POWER MEASUREMENT

Test Date	2016/05/20	Temp./Hum.	25°C/58%
Cable Loss	0.7dB	Test Voltage	AC 120V, 60Hz

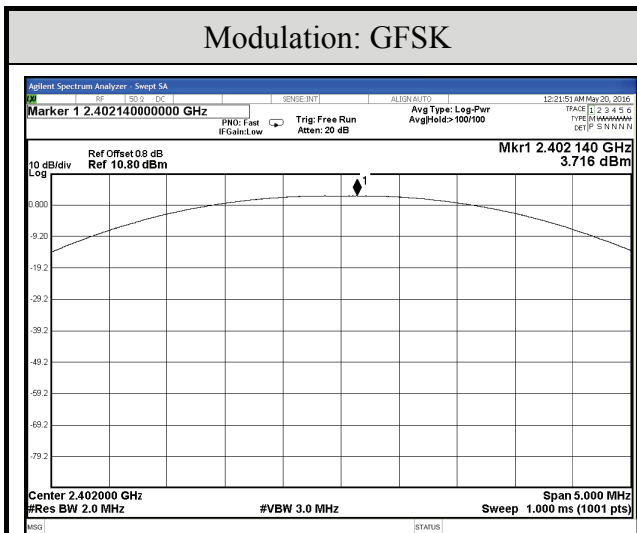
A.5.1 Output Power

Modulation	Centre Frequency (MHz)	Peak Output Power		Limit
		dBm	W	
GFSK	2402	3.716	0.002353	21dBm (0.125W)
	2441	4.839	0.003047	
	2480	5.543	0.003583	

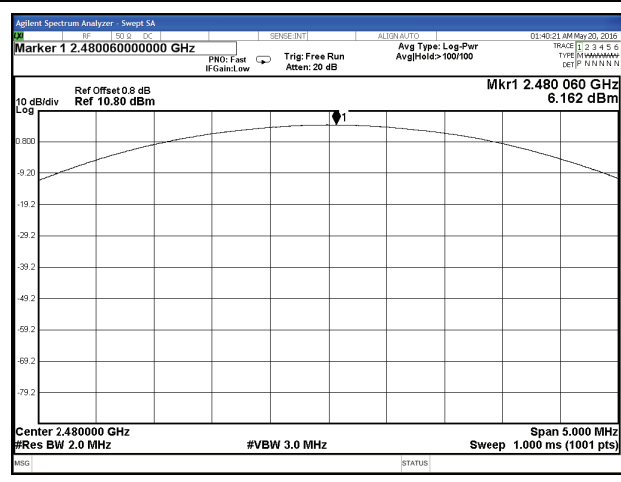
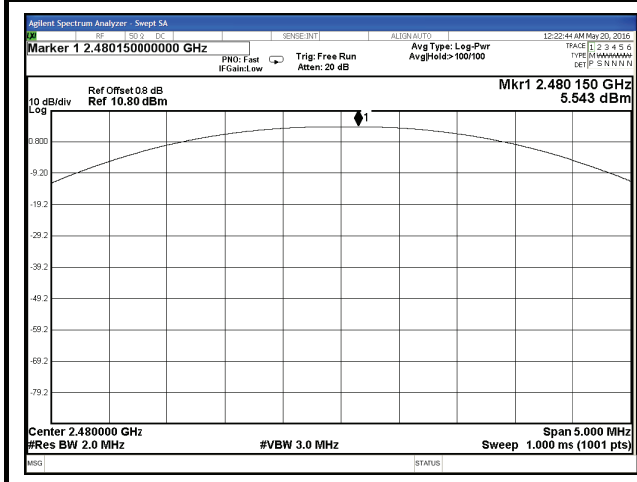
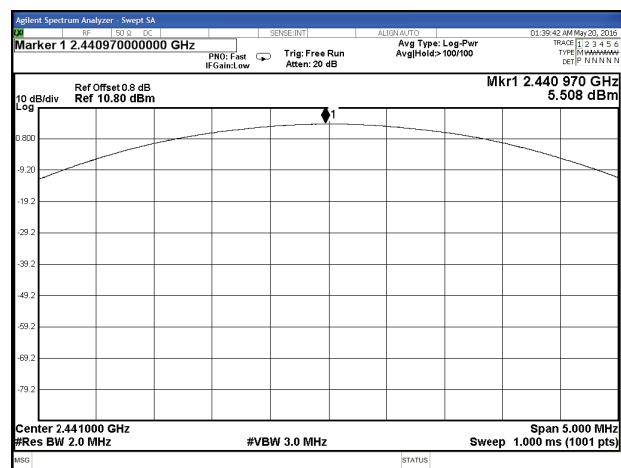
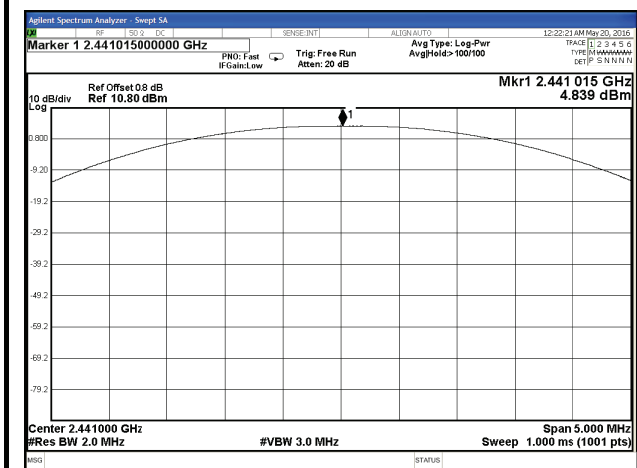
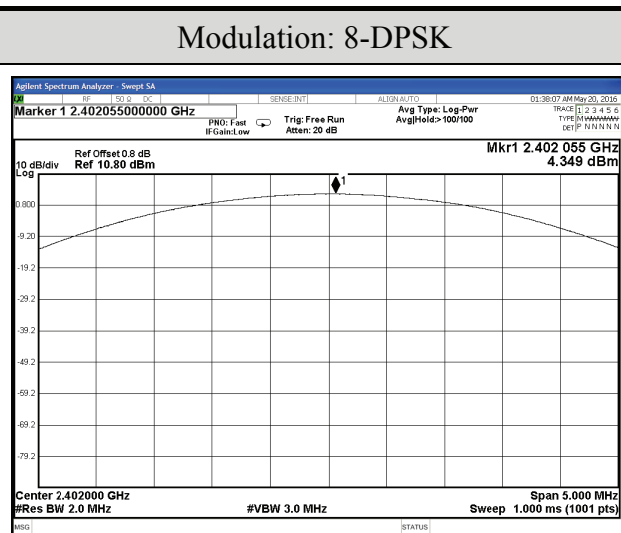
Modulation	Centre Frequency (MHz)	Peak Output Power		Limit
		dBm	W	
8-DPSK	2402	4.349	0.002722	21dBm (0.125W)
	2441	5.508	0.003555	
	2480	6.162	0.004132	

A.5.2 Measurement Plots

Modulation: GFSK



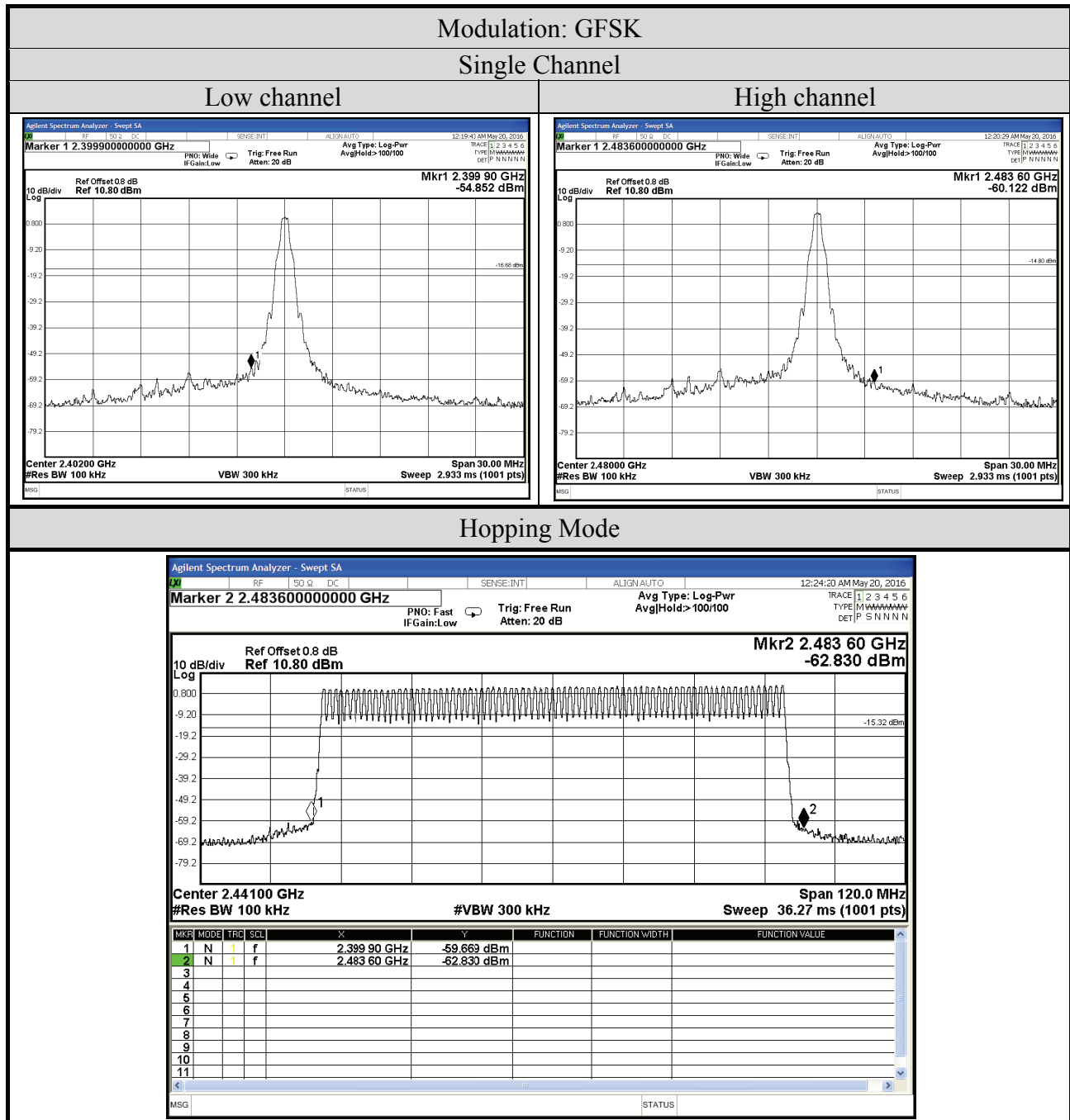
Modulation: 8-DPSK



A.6 EMISSION LIMITATIONS MEASUREMENT

A.6.1 Band Edge

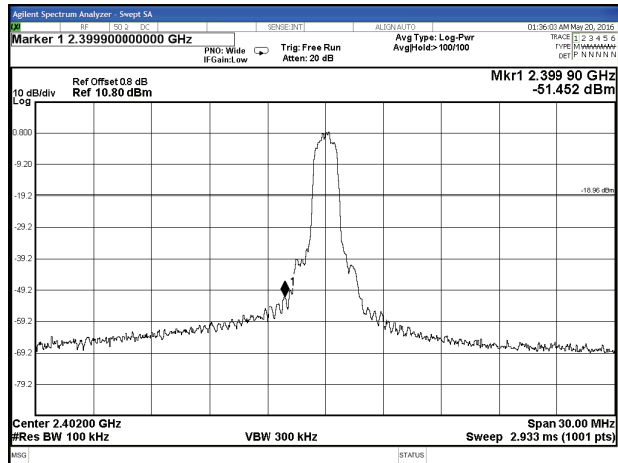
Test Date	2016/05/20	Temp./Hum.	25°C/58%
Cable Loss	0.8dB	Test Voltage	AC 120V, 60Hz



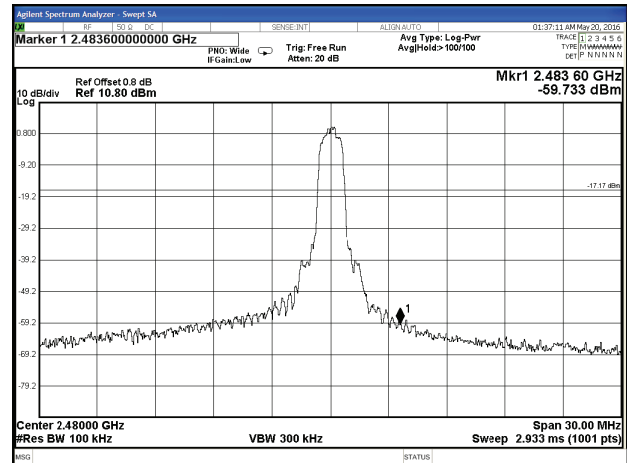
Modulation: 8-DPSK

Single Channel

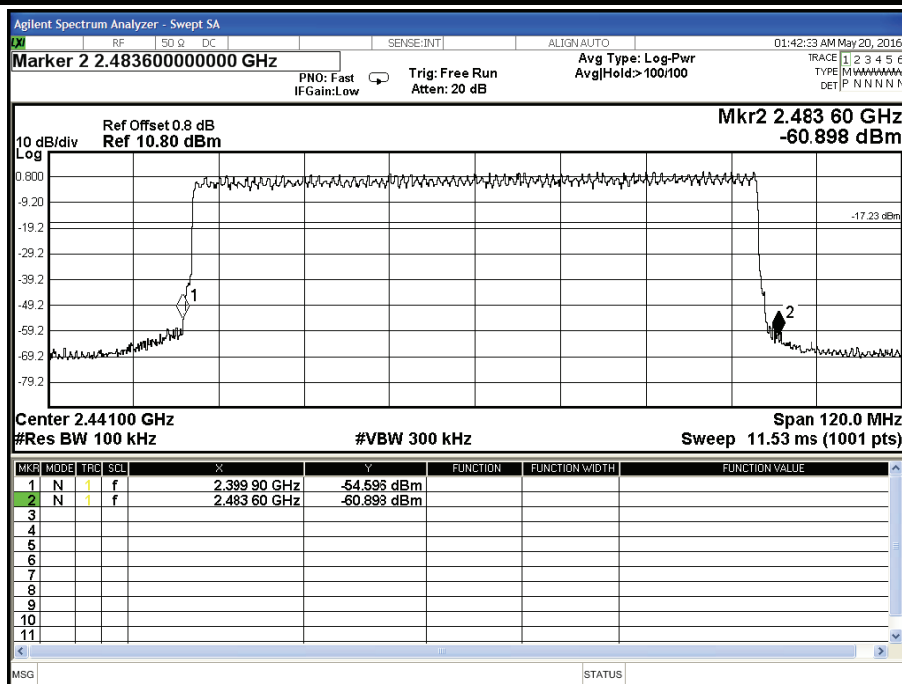
Low channel



High channel

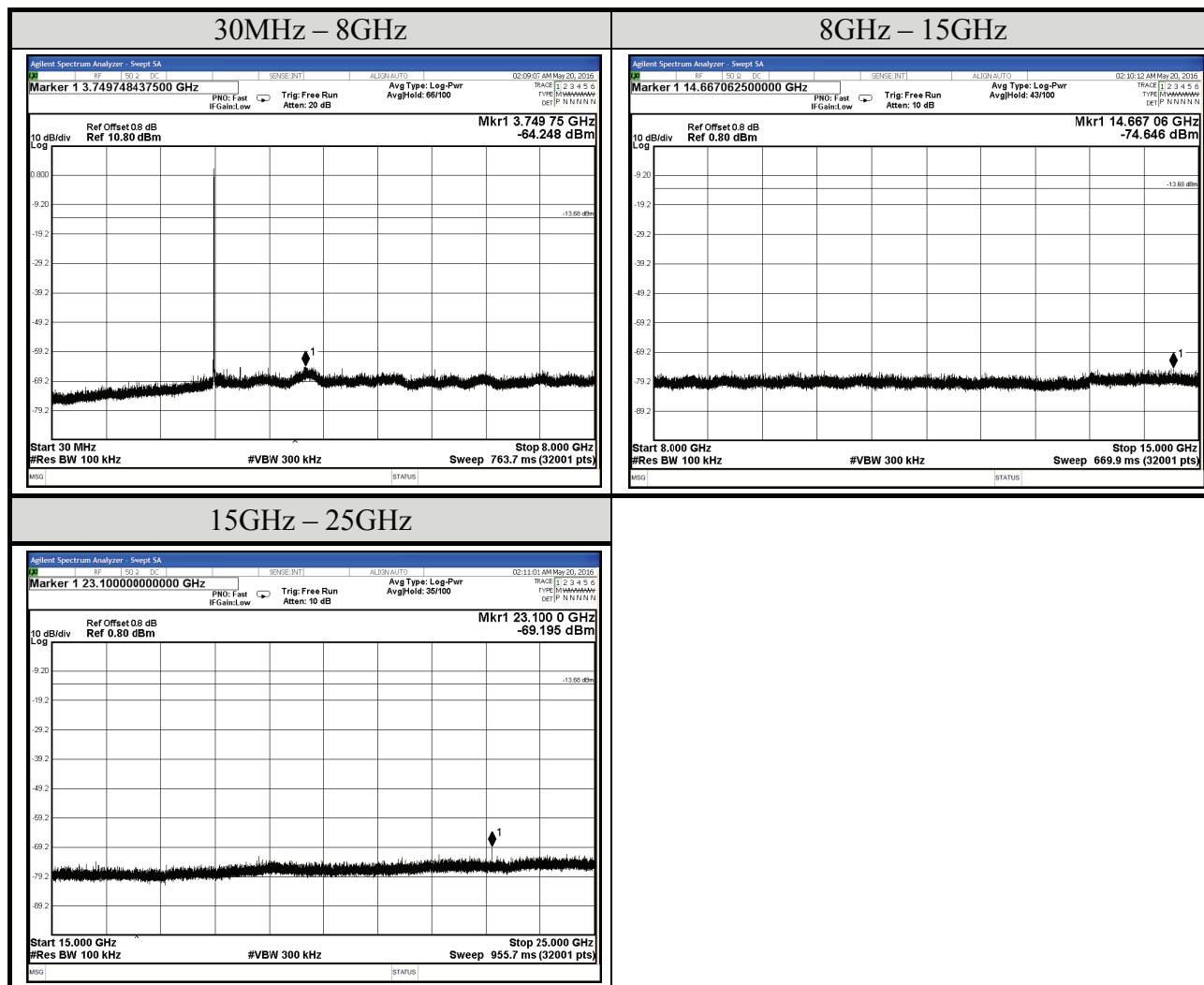


Hopping Mode



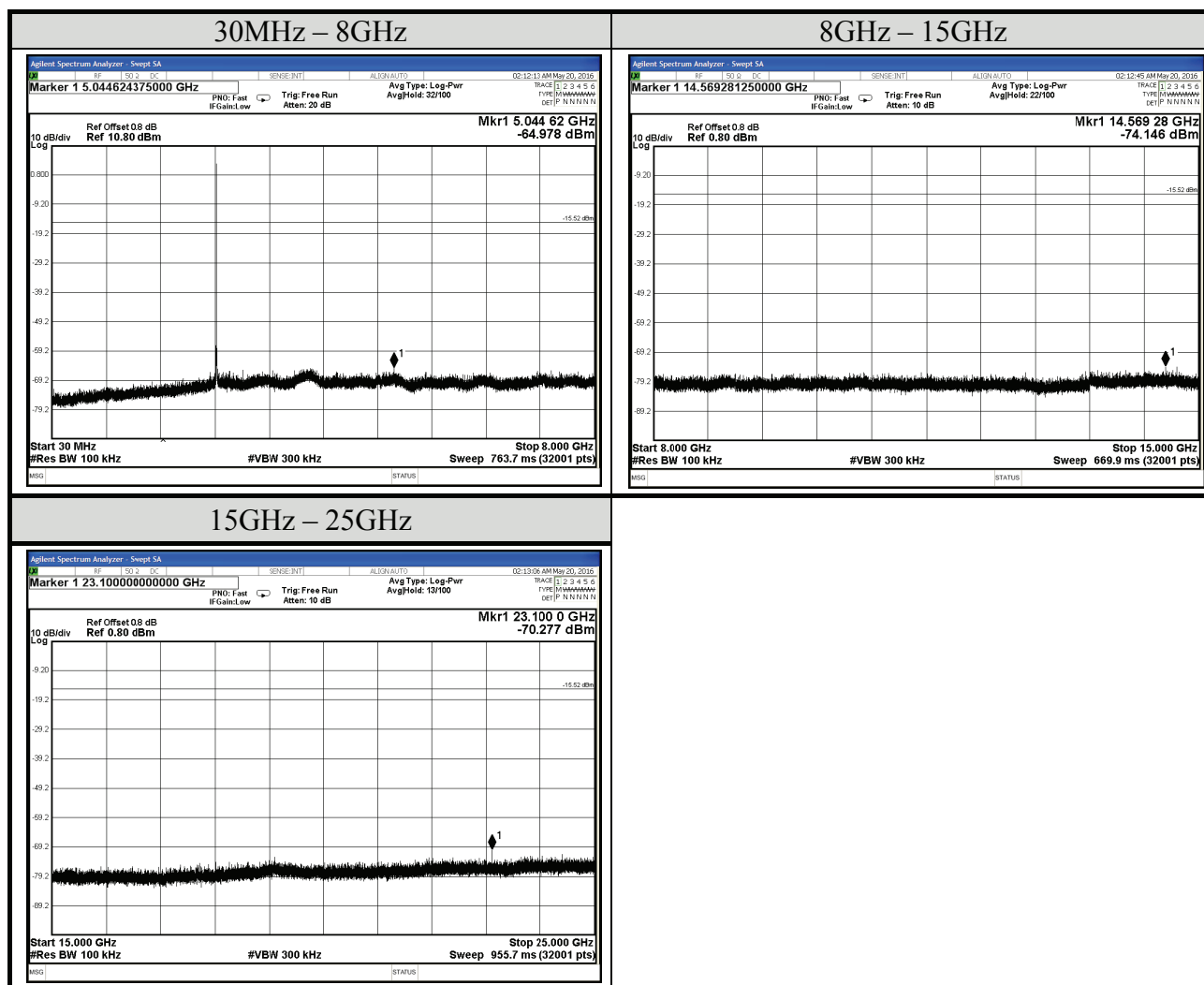
A.6.2 Spurious Emission

Test Date	2016/05/20	Temp./Hum.	25°C/58%
Modulation	GFSK	Frequency	2402MHz
Cable Loss	0.8dB	Test Voltage	AC 120V, 60Hz



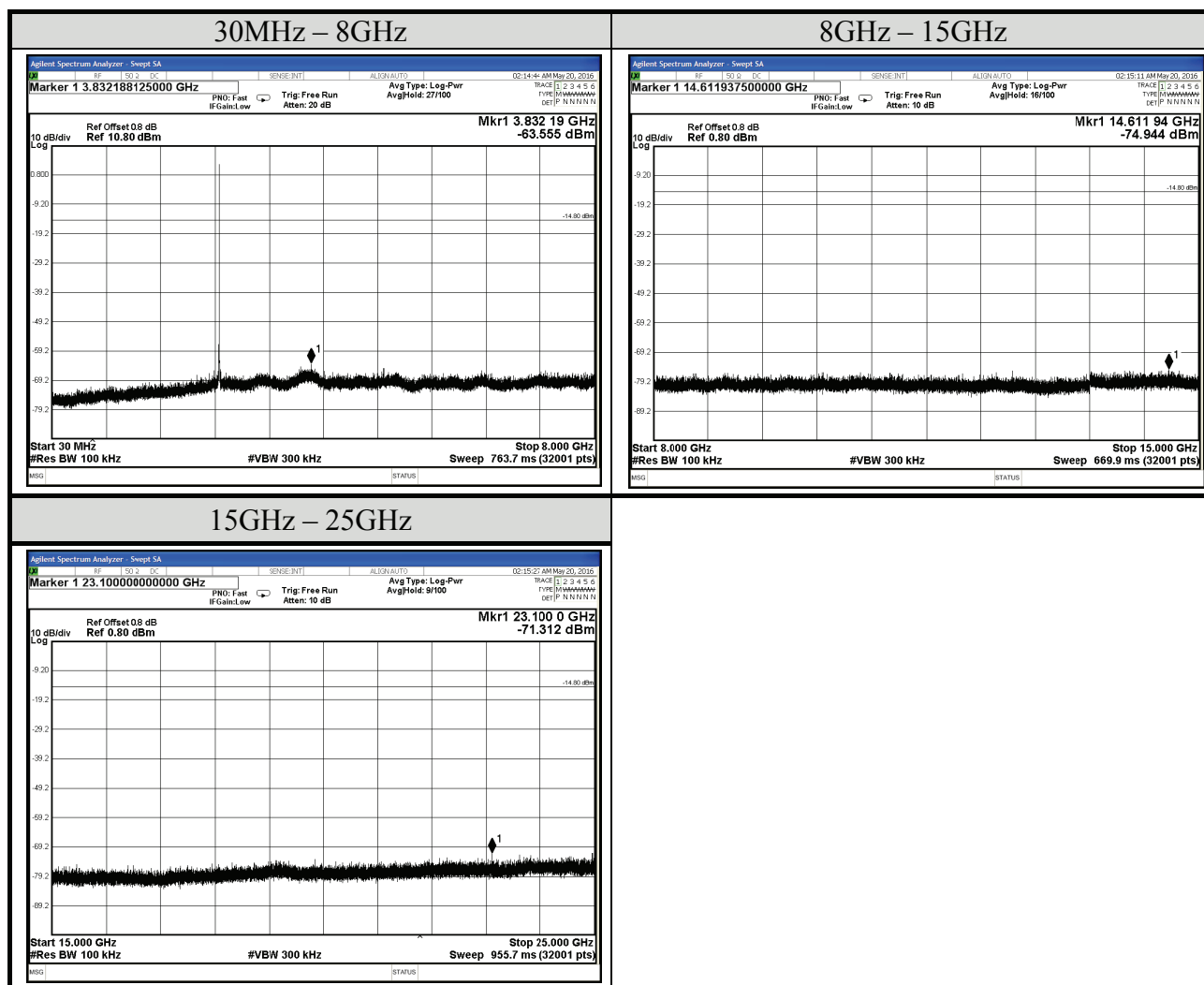
Note: All results have been included cable loss.

Test Date	2016/05/20	Temp./Hum.	25°C/58%
Modulation	GFSK	Frequency	2441MHz
Cable Loss	0.8dB	Test Voltage	AC 120V, 60Hz



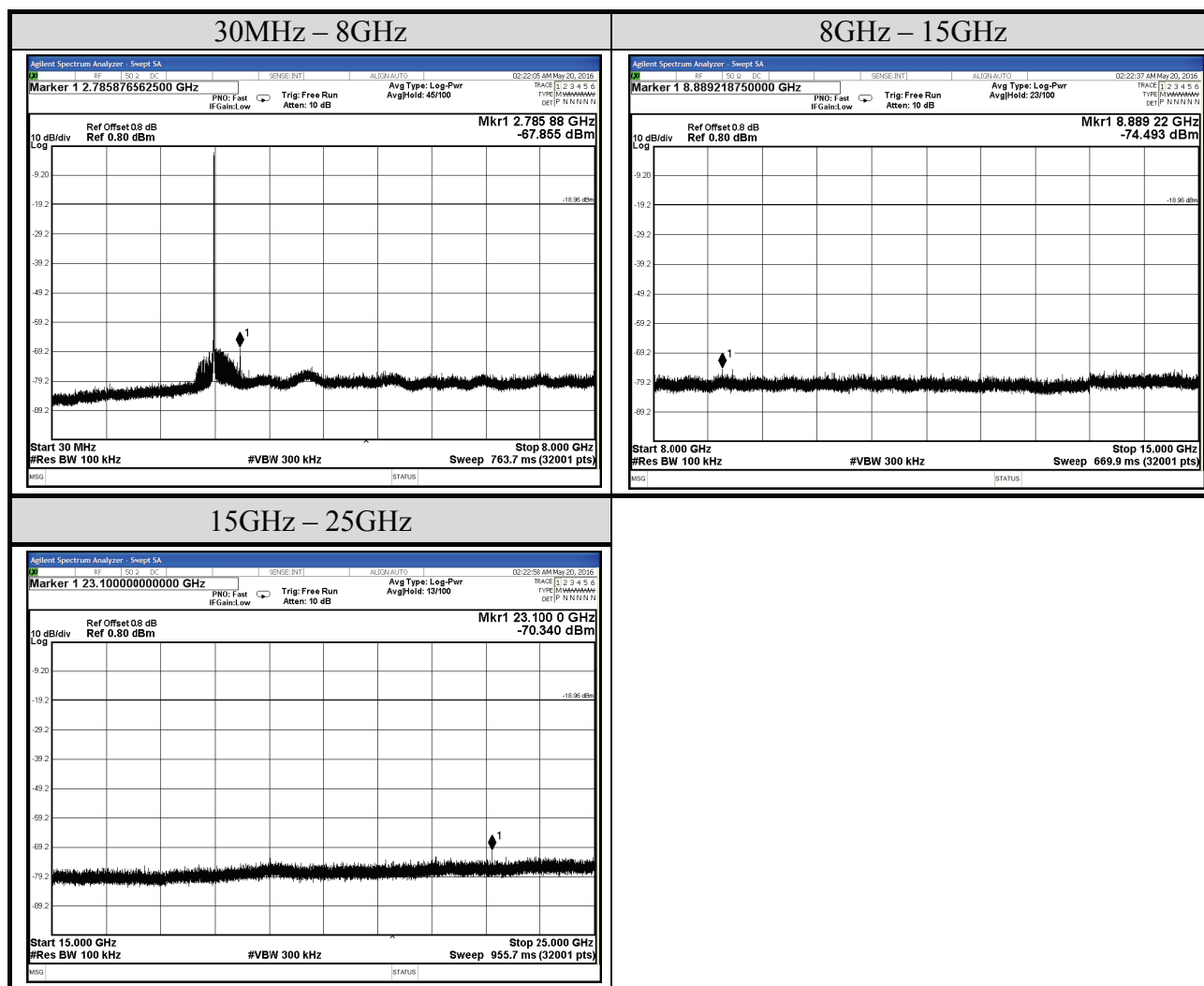
Note: All results have been included cable loss.

Test Date	2016/05/20	Temp./Hum.	25°C/58%
Modulation	GFSK	Frequency	2480MHz
Cable Loss	0.8dB	Test Voltage	AC 120V, 60Hz



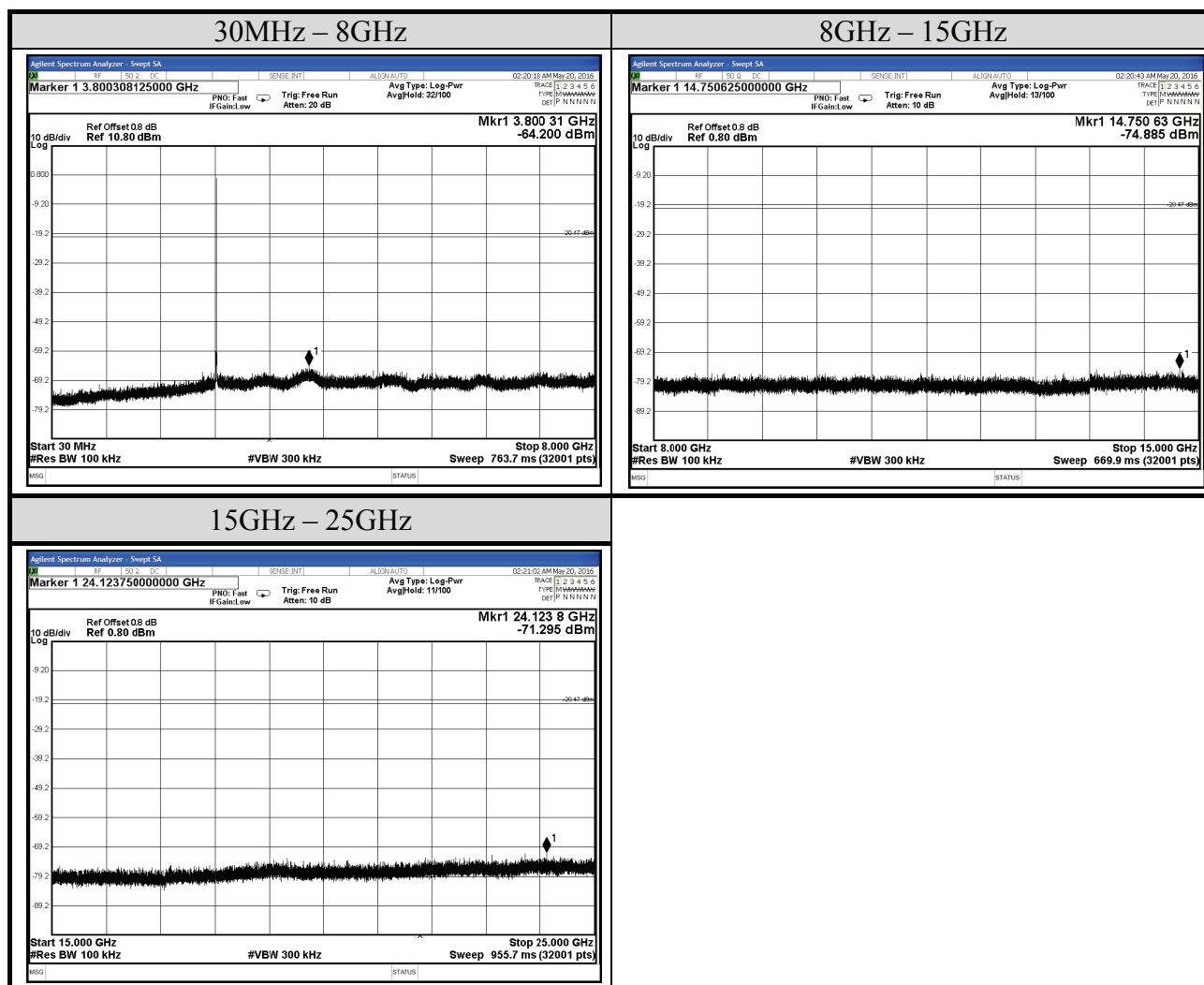
Note: All results have been included cable loss.

Test Date	2016/05/20	Temp./Hum.	25°C/58%
Modulation	8-DPSK	Frequency	2402MHz
Cable Loss	0.8dB	Test Voltage	AC 120V, 60Hz



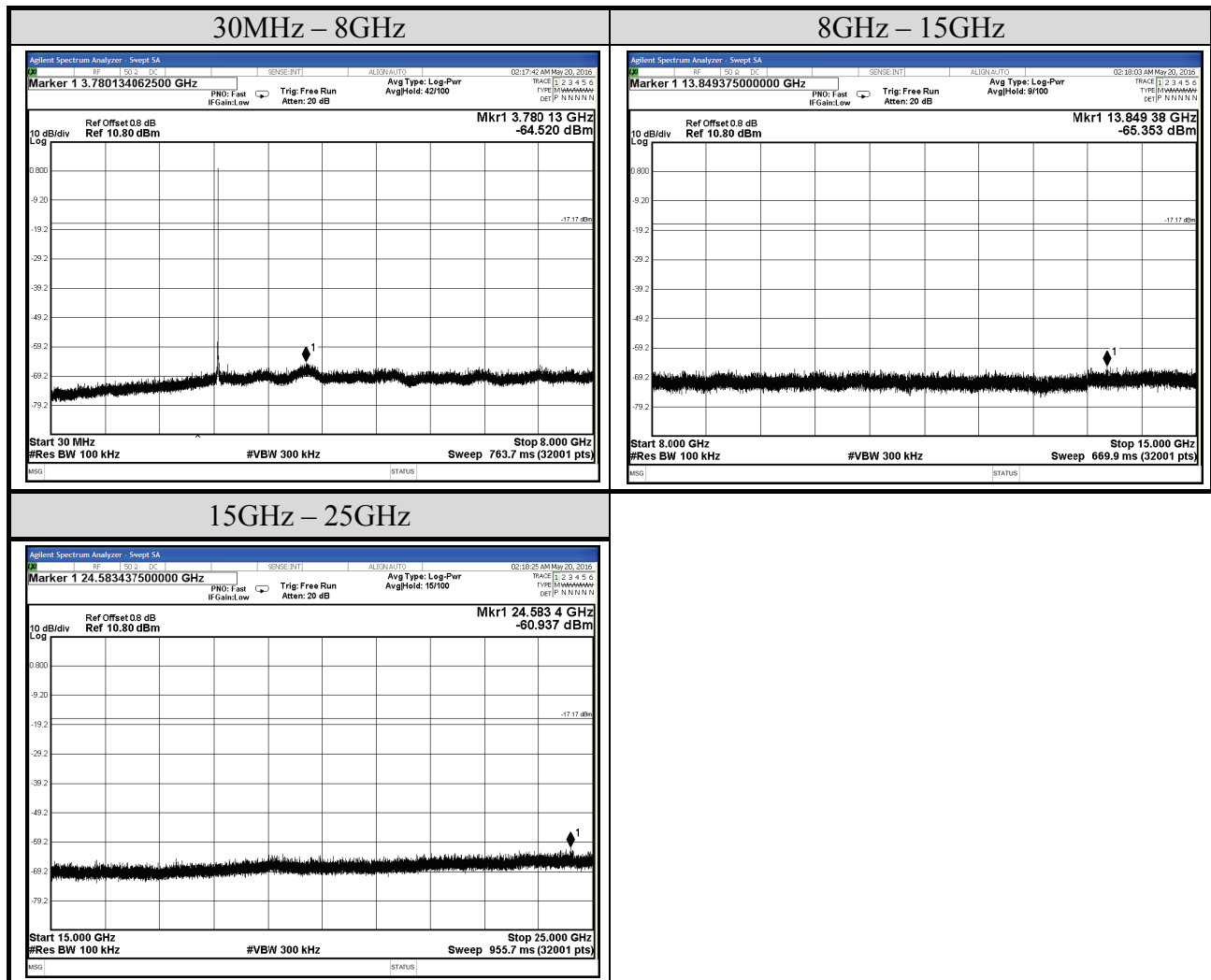
Note: All results have been included cable loss.

Test Date	2016/05/20	Temp./Hum.	25°C/58%
Modulation	8-DPSK	Frequency	2441MHz
Cable Loss	0.8dB	Test Voltage	AC 120V, 60Hz



Note: All results have been included cable loss.

Test Date	2016/05/20	Temp./Hum.	25°C/58%
Modulation	8-DPSK	Frequency	2480MHz
Cable Loss	0.8dB	Test Voltage	AC 120V, 60Hz



Note: All results have been included cable loss.