APPLICATION FOR CERTIFICATION

On Behalf of

VeriSonix Corporation

VERI FOLDER

Model No.：FS001B

FCC ID：OJTFS001B

Brand: VERISONIX

Prepared for : VeriSonix Corporation
4F, No.176, Jian 1st Rd., Zhonghe Dist.,
New Taipei City 235, Taiwan R.O.C.

Prepared By : AUDIX Technology Corporation
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File Number	：	C1M1109016
Report Number	：	EM-F1010547
Date of Test	：	Jul. 09 ~ 12, 2012
Date of Report	：	Jul. 13, 2012

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TEST REPORT CERTIFICATION

Applicant	:	VeriSonix Corporation
Manufacturer	:	VeriSonix Corporation
EUT Description	:	VERI FOLDER
FCC ID	:	**OJTFS001B**
		(A) Model No. : FS001B
		(B) Serial No. : N/A
		(C) Brand : VERISONIX
		(D) Power Supply : DC 4.5V
		(E) Test Voltage : DC 4.5V (Via Battery)

Measurement Procedure Used:

FCC RULES AND REGULATIONS PART 15 SUBPART C, Oct. 2011
AND ANSI C63.4/2003

(FCC CFR 47 Part 15C, §15.207 and §15.209 and §15.247)

The device described above was tested by AUDIX Technology Corporation to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15 subpart C limits.

The measurement results are contained in this test report and AUDIX Technology Corporation is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the FCC official limits.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX Technology Corporation.

Date of Test : Jul. 09 ~ 12, 2012 Date of Report : Jul. 13, 2012

Producer : Annie Yu
(Annie Yu/Assistant Administrator)

Signatory : Leon Liu
(Leon Liu/Deputy General Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	VERI FOLDER
Model Number	:	FS001B
Serial Number	:	N/A
Brand	:	VERISONIX
IC	:	OJTFS001B
Applicant	:	VeriSonix Corporation 4F, No.176, Jian 1st Rd., Zhonghe Dist., New Taipei City 235, Taiwan R.O.C.
Manufacturer	:	VeriSonix Corporation 4F, No.176, Jian 1st Rd., Zhonghe Dist., New Taipei City 235, Taiwan R.O.C.
Fundamental Range	:	2402MHz - 2480MHz
Channel Number	:	79
Radio Technology	:	GFSK, π/4DQPSK, 8-DPSK
Antenna Gain	:	-5.63dBi (Peak)
Date of Receipt of Sample	:	Jun. 27, 2012
Date of Test	:	Jul. 11 ~ 12, 2012

1.2. Tested Supporting System Details

1.2.1. DC POWER SUPPLY

Model Number	:	3303D
Manufacturer	:	Topward
DC Power Cable	:	Non-Shielded, Detachable, 0.5m
AC Power Cable	:	Non-Shielded, Detachable, 1.8m

1.2.2. SIMULATOR

Model Number	:	N/A
Manufacturer	:	N/A
Signal Cable	:	Non-Shielded, Detachable, 0.6m

1.3. Description of Test Facility

Name of Firm	:	**AUDIX Technology Corporation** EMC Department No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan, R.O.C.
Test Site (Semi-AC)	:	**Semi-Anechoic Chamber** No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan, R.O.C. Federal Communication Commission Registration Number: 90993 Date of Renewal: May 14, 2009
NVLAP Lab. Code	:	200077-0
TAF Accreditation No	:	1724

1.4. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty (dB)
Radiation Test (Distance: 3m)	30MHz~300MHz	±2.91dB
	300MHz~1000MHz	±2.94dB
	Above 1GHz	± 5.02dB

Remark **:** Uncertainty = $ku_c(y)$

Test Item	Uncertainty
20dB Bandwidth	± 0.2kHz
Carrier Frequency Separation	± 0.2kHz
Time Of Occupancy	± 0.03sec
Maximum peak Output power	± 0.52dBm
Emission Limitations	± 0.13dB
Band Edges	± 0.13dB

2. CONDUCTED EMISSION MEASUREMET

【The EUT only employs battery power for operation, no conductive emission limits are required according to FCC Part 15 Section §15.207】

3. RADIATED EMISSION MEASUREMENT

3.1. Test Equipment

The following test equipment was used during the radiated emission measurement:

3.1.1. For Frequency Range 30MHz~1000MHz (at Semi-Anechoic Chamber)

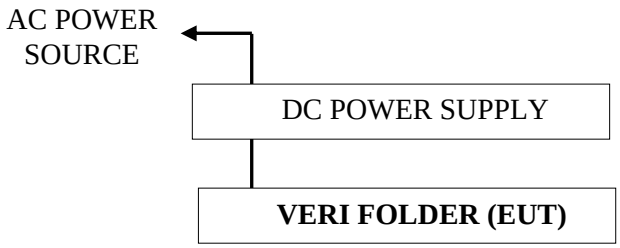
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E4446A	US44300366	Aug. 04, 11’	Aug. 03, 12’
2.	Test Receiver	R & S	ESCS30	100265	Aug. 25, 11’	Aug. 24, 12’
3.	Pre-Amplifier	HP	8447D	2944A06305	Feb. 13, 12’	Feb. 11, 13’
4.	Biconical Antenna	CHASE	VBA6106A	1264	Mar. 03, 12’	Mar. 02, 13’
5.	Log Periodic Antenna	Schwarzbeck	UHALP9108 -A	0810	Mar. 03, 12’	Mar. 02, 13’

3.1.2. For Frequency Above 1GHz (at Semi-Anechoic Chamber)

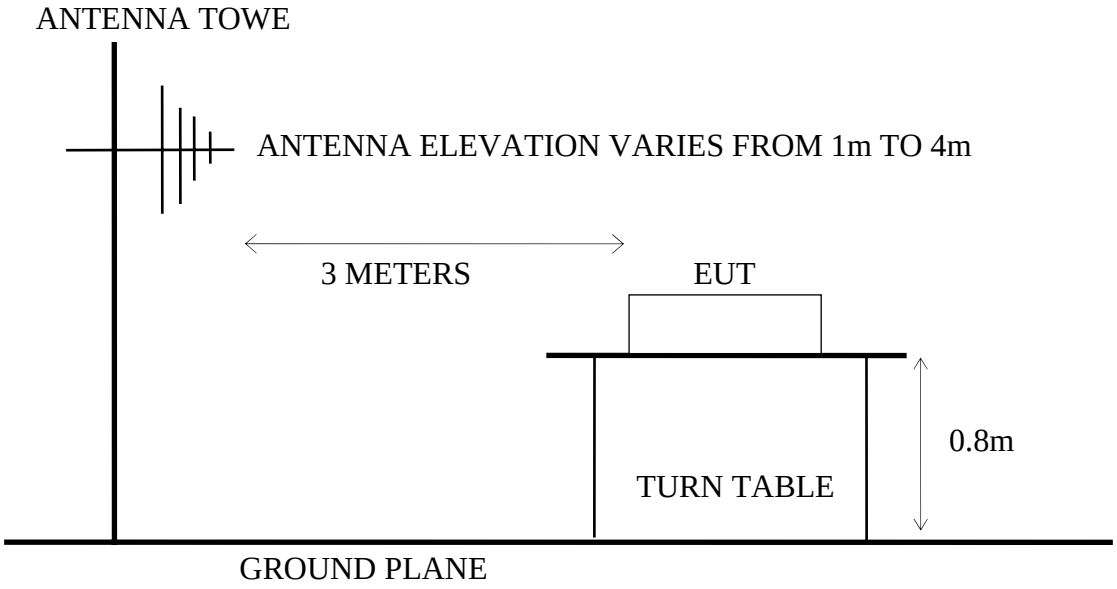
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E4446A	US44300366	Aug. 04, 11’	Aug. 03, 12’
2.	Amplifier	HP	8449B	3008A00529	Dec. 09, 11’	Dec. 08, 12’
3.	Horn Antenna	EMCO	3115	9112-3775	May 09, 12’	May 08, 13’
4.	Horn Antenna	EMCO	3116	2653	Oct. 07, 11’	Oct. 06, 12’

3.2. Block Diagram of Test Setup

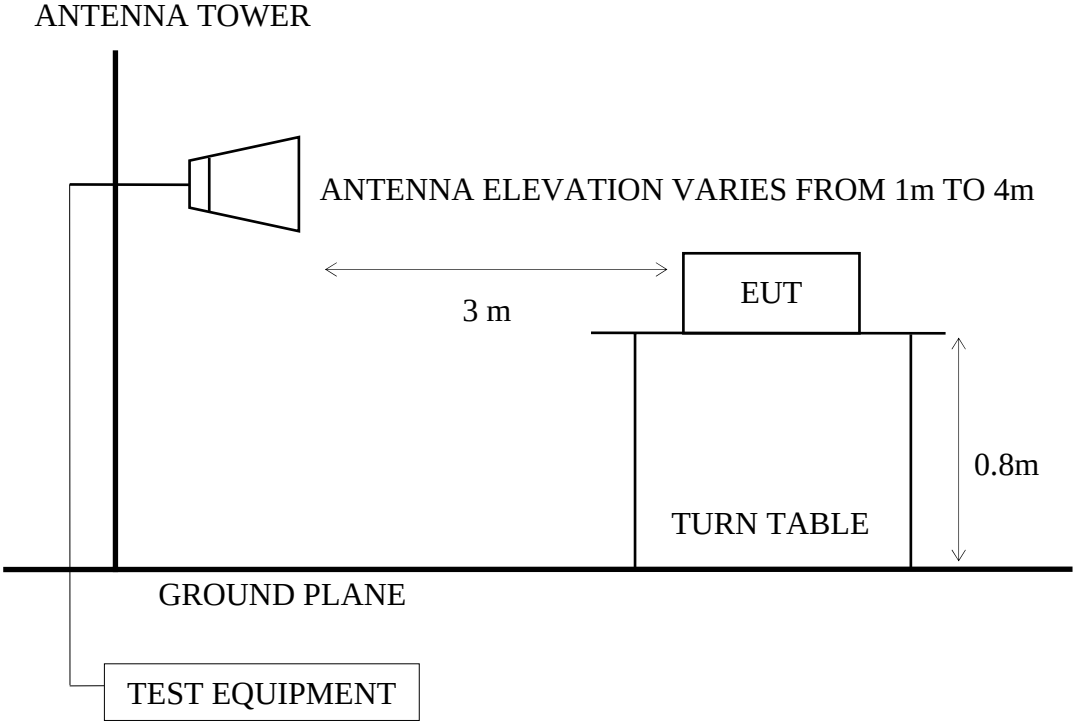
3.2.1. Block Diagram of connection between EUT and simulators



3.2.2. Semi-Anechoic Chamber (3m) Setup Diagram for 30-1000MHz



3.2.3. Semi-Anechoic Chamber (3m) Setup Diagram for above 1GHz



3.3. Radiated Emission Limits (§15.209)

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMITS	
		μV/m	dBμV/m
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0
Above 1000	3	74.0 dBμV/m (Peak) 54.0 dBμV/m (Average)	

Remark：(1) Emission level (dBμV/m) = 20 log Emission level (μV/m)
(2) The tighter limit applies at the edge between two frequency bands.
(3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
(4) The limits in this table are based on CFR 47 Part 15.205(a)(b) and Part 15.209 (a).
(5) The over 1GHz limit, FCC limit is used based on CFR 47 Part 15.35(b) and Part 15.205(b) & Part 15.209(e) and Part 15.207(c).

3.4. Operating Condition of EUT

3.4.1. Set up the EUT (VERI FOLDER) and simulator as shown on 3.2.

3.4.2. To turn on the power of all equipment.

3.4.3. Transmitting Mode: The EUT was set to continuously transmit signals at 2402MHz, 2441MHz and 2480MHz during the testing.

3.4.4. Receiver Mode: The EUT was set to continuously receive signals at 2441MHz during the testing.

3.5. Test Procedure

The EUT and its simulators were placed on a turn table which was 0.8 meter above the ground. The turn table rotated 360 degrees to determine the position of the maximum emission level. EUT was set to 3 meters away from the receiving antenna which was mounted on an antenna tower. The antenna moved up and down between 1 to 4 meters to find out the maximum emission level. Broadband antennas such as calibrated biconical and log-periodical antenna or horn antenna were used as a receiving antenna. Both horizontal and vertical polarization of the antenna were set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4-2003 regulation during radiated measurement.

The bandwidth of the R&S Test Receiver was set at 120kHz. (For 30MHz to 1000MHz)

The resolution bandwidth and video bandwidth of test spectrum analyzer is 1MHz for peak detection (PK) at frequency above 1GHz.

The resolution bandwidth of test spectrum analyzer is 1MHz and the video bandwidth is 10Hz for average detection (AV) at frequency above 1GHz.

The frequency range from 30MHz to 25GHz (Up to 10^{th} harmonics from fundamental frequency) was checked. 30MHz to 1000MHz was measured with Quasi-Peak detector. Above 1GHz was measured with peak and average detector. For average reading in frequency from 5.5G to 25GHz, we checked it in 1 meter distance and with a shorter cable 2 meter instead of original's. There is no signal exist.

3.6. Radiated Emission Measurement Results

PASSED. (All the emissions not reported below are too low against the prescribed limits.)

EUT：VERI FOLDER M/N：FS001B

Test Date：Jul. 11, 2012 Temperature：24℃ Humidity：58%

The radiation tests on three different axes (stand, lie and side), we assessed the value and we selected the worst radiation position "stand" for our measured results.

For Frequency Range 30MHz-1000MHz:

[Note: Three types of modulation (8-DPSK, π /4DQPSK, GFSK) were evaluated but only the worst case (GFSK) was reported in this report.]

The EUT with the following test modes was tested during the testing and all the test results are listed in section 3.6.1.

No.	Test Mode and Frequency		Reference Test Data No.	
			Horizontal	Vertical
1.	Transmitting	2402MHz (CH0)	# 1	# 2
2.		2441MHz (CH39)	# 2	# 1
3.		2480MHz (CH78)	# 1	# 2
4.	Receiving	2441MHz (CH39)	# 2	# 1

* All above final readings were measured with Quasi-Peak detector.

For Frequency Range above 1GHz:

[Note: Three types of modulation (8-DPSK, π /4DQPSK, GFSK) were evaluated but only the worst case (GFSK) was reported in this report.]

The EUT with the following test modes was tested during the testing and all the test results are listed in section 3.6.2.

No.	Test Mode and Frequency		Reference Test Data No.	
			Horizontal	Vertical
1.	Transmitting	2402MHz (CH0)	# 4, 8	# 3, 7
2.		2441MHz (CH39)	# 3, 7	# 4, 8
3.		2480MHz (CH78)	# 4, 8	# 3, 7
4.	Receiving	2441MHz (CH39)	# 3	# 4

* For transmitting mode: There is no emission be found at vertical polarization at 2680-4000MHz & 5500-25000MHz frequency.
* For receiving mode: There is no emission be found at vertical polarization at 2680-25000MHz3 frequency.

For Restricted Bands:

[Note: Three types of modulation (8-DPSK, π /4DQPSK, GFSK) were evaluated but only two types of modulation (8-DPSK and GFSK) were reported in this report.]

The EUT was tested in restricted bands and all the test results are listed in section 3.6.3. (The restricted bands defined in part 15.205(a))

No.	Test Mode and Frequency		Reference Test Data No.	
			Horizontal	Vertical
1.	Transmitting	2402MHz (CH0)	# 2	# 1
2.		2480MHz (CH78)	# 4	# 3

* Type of modulation: 8-DPSK.

No.	Test Mode and Frequency		Reference Test Data No.	
			Horizontal	Vertical
1.	Transmitting	2402MHz (CH0)	# 3	# 1
2.		2480MHz (CH78)	# 5	# 7

* Type of modulation: GFSK.

3.6.1. Frequency Range 30MHz-1000MHz Measurement Result

BT(GFSK), Transmit, Frequency: 2402MHz

```
Site no.      : A/C Chamber                  Data no.  : 1
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A     Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 24℃/58%                          □Vic Fong
EUT           : FS001B
Power Rating  : DC 4.5V
Test Mode     : TX2402MHz (GFSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	91.110	15.90	2.00	15.95	33.86	43.50	9.64	QP
2	224.970	21.95	3.30	11.38	36.63	46.00	9.37	QP
3	345.250	15.05	4.40	6.94	26.40	46.00	19.60	QP
4	498.510	18.79	6.50	6.03	31.32	46.00	14.68	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

```
Site no.      : A/C Chamber                  Data no.  : 2
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A     Ant. pol. : VERTICAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 24℃/58%                          □Vic Fong
EUT           : FS001B
Power Rating  : DC 4.5V
Test Mode     : TX2402MHz (GFSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	33.880	23.12	1.10	6.24	30.46	40.00	9.54	QP
2	111.480	18.28	2.20	17.17	37.65	43.50	5.85	QP
3	220.120	21.91	3.30	7.29	32.51	46.00	13.49	QP
4	498.510	18.79	6.50	10.70	35.99	46.00	10.01	QP
5	623.640	21.32	6.20	4.88	32.40	46.00	13.60	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

BT(GFSK), Transmit, Frequency: 2441MHz

```
Site no.      : A/C Chamber                  Data no.  : 2
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A     Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 24℃/58%                          □Vic Fong
EUT           : FS001B
Power Rating  : DC 4.5V
Test Mode     : TX2441MHz (GFSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	67.830	11.84	1.70	15.79	29.34	40.00	10.66	QP
2	224.970	21.95	3.30	9.48	34.73	46.00	11.27	QP
3	345.250	15.05	4.40	6.10	25.56	46.00	20.44	QP
4	365.620	16.65	4.50	3.84	24.99	46.00	21.01	QP
5	498.510	18.79	6.50	6.03	31.32	46.00	14.68	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

```
Site no.      : A/C Chamber                  Data no.  : 1
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A     Ant. pol. : VERTICAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 24℃/58%                          □Vic Fong
EUT           : FS001B
Power Rating  : DC 4.5V
Test Mode     : TX2441MHz (GFSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	39.700	20.71	1.20	8.77	30.68	40.00	9.32	QP
2	111.480	18.28	2.20	16.63	37.11	43.50	6.39	QP
3	284.140	25.51	3.80	1.70	31.01	46.00	14.99	QP
4	498.510	18.79	6.50	10.70	35.99	46.00	10.01	QP
5	623.640	21.32	6.20	3.87	31.39	46.00	14.61	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

BT(GFSK), Transmit, Frequency: 2480MHz

Site no. : A/C Chamber Data no. : 1
Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : HORIZONTAL
Limit : FCC PART-15C
Env. / Ins. : E4446A 24℃/58% ☐Vic Fong
EUT : FS001B
Power Rating : DC 4.5V
Test Mode : TX2480MHz (GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	99.840	17.08	2.10	19.63	38.81	43.50	4.69	QP
2	160.950	20.82	2.70	10.26	33.79	43.50	9.71	QP
3	225.940	21.94	3.30	8.57	33.82	46.00	12.18	QP
4	352.040	15.55	4.30	10.51	30.37	46.00	15.63	QP
5	498.510	18.79	6.50	6.03	31.32	46.00	14.68	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Site no. : A/C Chamber Data no. : 2
Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : VERTICAL
Limit : FCC PART-15C
Env. / Ins. : E4446A 24℃/58% ☐Vic Fong
EUT : FS001B
Power Rating : DC 4.5V
Test Mode : TX2480MHz (GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	111.480	18.28	2.20	16.78	37.26	43.50	6.24	QP
2	278.320	25.25	3.80	5.80	34.85	46.00	11.15	QP
3	474.260	18.48	5.85	4.82	29.14	46.00	16.86	QP
4	498.510	18.79	6.50	10.79	36.08	46.00	9.92	QP
5	623.640	21.32	6.20	4.27	31.79	46.00	14.21	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

BT(GFSK), Receive, Frequency: 2441MHz

```
Site no.      : A/C Chamber                  Data no.  : 2
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A     Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 24℃/58%                         □Vic Fong
EUT           : FS001B
Power Rating  : DC 4.5V
Test Mode     : RX2441MHz
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	109.540	18.13	2.20	7.62	27.95	43.50	15.55	QP
2	160.950	20.82	2.70	6.11	29.64	43.50	13.86	QP
3	225.940	21.94	3.30	7.21	32.46	46.00	13.54	QP
4	257.950	24.44	3.50	6.85	34.78	46.00	11.22	QP
5	410.240	17.18	4.90	3.77	25.85	46.00	20.15	QP
6	498.510	18.79	6.50	6.22	31.51	46.00	14.49	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

```
Site no.      : A/C Chamber                  Data no.  : 1
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A     Ant. pol. : VERTICAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 24℃/58%                         □Vic Fong
EUT           : FS001B
Power Rating  : DC 4.5V
Test Mode     : RX2441MHz
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	33.880	23.12	1.10	6.15	30.37	40.00	9.63	QP
2	112.450	18.36	2.20	16.86	37.42	43.50	6.08	QP
3	254.070	24.13	3.60	12.53	40.26	46.00	5.74	QP
4	413.150	17.06	5.00	7.59	29.65	46.00	16.35	QP
5	498.510	18.79	6.50	10.70	35.99	46.00	10.01	QP
6	624.610	21.31	6.20	2.37	29.88	46.00	16.12	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

3.6.2. Frequency Range Above 1GHz Measurement Results

Date of Test： Jul. 11, 2012 Temperature： 24℃

EUT： VERI FOLDER Humidity： 58%

Test Mode： Transmitting Mode, Frequency: 2402MHz

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading Horizontal (dBμV)	Emission Level Horizontal (dBμV/m)	Limits (dBμV/m)	Margin (dB)
1325.920	25.22	4.91	14.00	44.13	74.00	29.87
1603.120	26.08	6.18	30.40	62.66	74.00	11.34
4805.500	33.06	9.14	16.44	58.64	74.00	15.36

Remarks: 1. Emission level=Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.
3. All final readings of measurement were with Peak values.
4. The pre-amplifier factor has been subtracted by test program actively.

Emission Frequency (MHz)	Peak Value (dB/m)	PDCF (dB)	Average Value (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1325.92	44.13	-30.34	13.79	54.00	40.21
1603.12	62.66	-30.34	32.32	54.00	21.68
4805.50	58.64	-30.34	28.30	54.00	25.70

Remarks: 1. PDCF=20log(dwell time/100ms)=20log(3.040ms/100ms)=-30.34
2. Average value=Peak value+PDCF
3. All final readings of measurement were with Average values.
4. The pre-amplifier factor has been subtracted by test program actively.

Date of Test： Jul. 11, 2012 Temperature： 24℃

EUT： VERI FOLDER Humidity： 58%

Test Mode： Transmitting Mode, Frequency: 2402MHz

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading Vertical (dBμV)	Emission Level Vertical (dBμV/m)	Limits (dBμV/m)	Margin (dB)
1330.960	25.22	4.93	19.31	49.45	74.00	24.55
1603.120	26.08	6.18	26.83	59.09	74.00	14.91
2666.560	29.27	6.73	15.42	51.41	74.00	22.59
4805.500	33.06	9.14	20.21	62.41	74.00	11.59

Remarks: 1. Emission level=Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.
3. All final readings of measurement were with Peak values.
4. The pre-amplifier factor has been subtracted by test program actively.

Emission Frequency (MHz)	Peak Value (dB/m)	PDCF (dB)	Average Value (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1330.96	49.45	-30.34	19.11	54.00	34.89
1603.12	59.09	-30.34	28.75	54.00	25.25
2666.56	51.41	-30.34	21.07	54.00	32.93
4805.50	62.41	-30.34	32.07	54.00	21.93

Remarks: 1. PDCF=20log(dwell time/100ms)=20log(3.040ms/100ms)=-30.34
2. Average value=Peak value+PDCF
3. All final readings of measurement were with Average values.
4. The pre-amplifier factor has been subtracted by test program actively.

Date of Test： Jul. 11, 2012 Temperature： 24℃

EUT： VERI FOLDER Humidity： 58%

Test Mode： Transmitting Mode, Frequency: 2441MHz

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading Horizontal (dBμV)	Emission Level Horizontal (dBμV/m)	Limits (dBμV/m)	Margin (dB)
1006.720	24.30	4.19	12.88	41.37	74.00	32.63
1330.960	25.22	4.93	13.40	43.54	74.00	30.46
1628.320	26.21	6.36	30.26	62.83	74.00	11.17
4883.500	33.18	9.15	13.54	55.86	74.00	18.14

Remarks: 1. Emission level=Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.
3. All final readings of measurement were with Peak values.
4. The pre-amplifier factor has been subtracted by test program actively.

Emission Frequency (MHz)	Peak Value (dB/m)	PDCF (dB)	Average Value (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1006.72	41.37	-30.34	11.03	54.00	42.97
1330.96	43.54	-30.34	13.20	54.00	40.80
1628.32	62.83	-30.34	32.49	54.00	21.51
4883.50	55.86	-30.34	25.52	54.00	28.48

Remarks: 1. PDCF=20log(dwell time/100ms)=20log(3.040ms/100ms)=-30.34
2. Average value=Peak value+PDCF
3. All final readings of measurement were with Average values.
4. The pre-amplifier factor has been subtracted by test program actively.

Date of Test： Jul. 11, 2012 Temperature： 24℃

EUT： VERI FOLDER Humidity： 58%

Test Mode： Transmitting Mode, Frequency: 2441MHz

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading Vertical (dBμV)	Emission Level Vertical (dBμV/m)	Limits (dBμV/m)	Margin (dB)
1006.720	24.30	4.19	12.14	40.63	74.00	33.37
1330.960	25.22	4.93	19.06	49.20	74.00	24.80
1628.320	26.21	6.36	26.28	58.85	74.00	15.15
2666.560	29.27	6.73	15.79	51.78	74.00	22.22
4883.500	33.18	9.15	13.70	56.02	74.00	17.98

Remarks: 1. Emission level=Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.
3. All final readings of measurement were with Peak values.
4. The pre-amplifier factor has been subtracted by test program actively.

Emission Frequency (MHz)	Peak Value (dB/m)	PDCF (dB)	Average Value (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1006.72	40.63	-30.34	10.29	54.00	43.71
1330.96	49.20	-30.34	18.86	54.00	35.14
1628.32	58.85	-30.34	28.51	54.00	25.49
2666.56	51.78	-30.34	21.44	54.00	32.56
4883.50	56.02	-30.34	25.68	54.00	28.32

Remarks: 1. PDCF=20log(dwell time/100ms)=20log(3.040ms/100ms)=-30.34
2. Average value=Peak value+PDCF
3. All final readings of measurement were with Average values.
4. The pre-amplifier factor has been subtracted by test program actively.

Date of Test： Jul. 11, 2012 Temperature： 24℃

EUT： VERI FOLDER Humidity： 58%

Test Mode： Transmitting Mode, Frequency: 2480MHz

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading Horizontal (dBμV)	Emission Level Horizontal (dBμV/m)	Limits (dBμV/m)	Margin (dB)
1006.720	24.30	4.19	13.15	41.64	74.00	32.36
1325.920	25.22	4.91	17.75	47.88	74.00	26.12
1653.520	26.27	6.52	30.85	63.65	74.00	10.35
2666.560	29.27	6.73	10.57	46.56	74.00	27.44
4963.000	33.34	9.12	13.58	56.04	74.00	17.96

Remarks: 1. Emission level=Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.
3. All final readings of measurement were with Peak values.
4. The pre-amplifier factor has been subtracted by test program actively.

Emission Frequency (MHz)	Peak Value (dB/m)	PDCF (dB)	Average Value (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1006.72	41.64	-30.35	11.29	54.00	42.71
1325.92	47.88	-30.35	17.53	54.00	36.47
1653.52	63.65	-30.35	33.30	54.00	20.70
2666.56	46.56	-30.35	16.21	54.00	37.79
4963.00	56.04	-30.35	25.69	54.00	28.31

Remarks: 1. PDCF=20log(dwell time/100ms)=20log(3.035ms/100ms)=-30.35
2. Average value=Peak value+PDCF
3. All final readings of measurement were with Average values.
4. The pre-amplifier factor has been subtracted by test program actively.

Date of Test： Jul. 11, 2012 Temperature： 24℃

EUT： VERI FOLDER Humidity： 58%

Test Mode： Transmitting Mode, Frequency: 2480MHz

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading Vertical (dBμV)	Emission Level Vertical (dBμV/m)	Limits (dBμV/m)	Margin (dB)
1006.720	24.30	4.19	11.84	40.33	74.00	33.67
1330.960	25.22	4.93	18.19	48.33	74.00	25.67
1653.520	26.27	6.52	27.36	60.16	74.00	13.84
2669.920	29.27	6.74	13.80	49.81	74.00	24.19
4963.000	33.34	9.12	13.60	56.06	74.00	17.94

Remarks: 1. Emission level=Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.
3. All final readings of measurement were with Peak values.
4. The pre-amplifier factor has been subtracted by test program actively.

Emission Frequency (MHz)	Peak Value (dB/m)	PDCF (dB)	Average Value (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1006.72	40.33	-30.35	9.98	54.00	44.02
1330.96	48.33	-30.35	17.98	54.00	36.02
1653.52	60.16	-30.35	29.81	54.00	24.19
2669.92	49.81	-30.35	19.46	54.00	34.54
4963.00	56.06	-30.35	25.71	55.00	29.29

Remarks: 1. PDCF=20log(dwell time/100ms)=20log(3.035ms/100ms)=-30.35
2. Average value=Peak value+PDCF
3. All final readings of measurement were with Average values.
4. The pre-amplifier factor has been subtracted by test program actively.

Date of Test： Jul. 11, 2012 Temperature： 24℃

EUT： VERI FOLDER Humidity： 58%

Test Mode： Receiving Mode, Frequency: 2441MHz

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading Horizontal (dBμV)	Emission Level Horizontal (dBμV/m)	Limits (dBμV/m)	Margin (dB)
1330.960	25.22	4.93	18.34	48.48	74.00	25.52
1628.320	26.21	6.36	30.18	62.75	74.00	11.25

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading Horizontal (dBμV)	Emission Level Horizontal (dBμV/m)	Limits (dBμV/m)	Margin (dB)
1628.320	26.21	6.36	25.96	58.53	74.00	15.47

Remarks: 1. Emission level=Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.
3. All final readings of measurement were with Peak values.
4. The pre-amplifier factor has been subtracted by test program actively.

3.6.3. Restricted Bands Measurement Results

Date of Test： Jul. 11, 2012 Temperature： 24℃

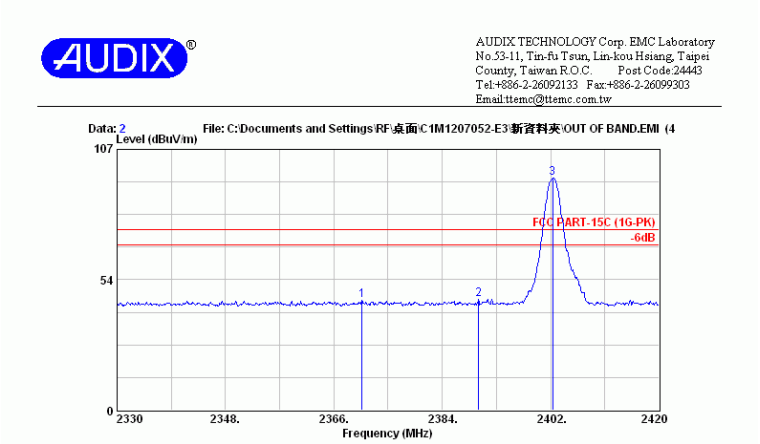
EUT： VERI FOLDER Humidity： 58%

Test Mode： Transmit, Frequency: 2402MHz, 8-DPSK

	Emission Frequency	Antenna Factor	Cable Loss	Meter Reading Horizontal	Emission Level Horizontal	Limits	Margin
	(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)
Peak *	2370.680	28.43	6.31	10.38	45.12	74.00	28.88

	Emission Frequency	Peak Value	PDCF	Average Value	Limit	Margin
	(MHz)	(dB/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
Average *	2370.68	45.12	-30.32	14.80	54.00	39.20

Remark ： 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.
2. Low frequency section (spurious in the restricted band 2330-2420MHz).
3. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.
4. PDCF=20log(dwell time/100ms)=20log(3.045ms/100ms)=-30.32
5. The pre-amplifier factor has been subtracted by test program actively.



Site no. : A/C Chamber Data no. : 2
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC PART-15C (1G-PK)
Env. / Ins. : E4446A 24℃/58% ☐Vic Fong
EUT : FS001B
Power Rating : DC 4.5V
Test Mode : TX2402MHz (8DPSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark	
1	2370.680	28.43	6.31	10.38	45.12	74.00	28.88	Peak	
2	2390.030	28.47	6.34	10.53	45.35	74.00	28.65	Peak	
3	2402.360	28.47	6.36	60.26	95.09	74.00	-21.09	Peak	X

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test： Jul. 11, 2012 Temperature： 24℃

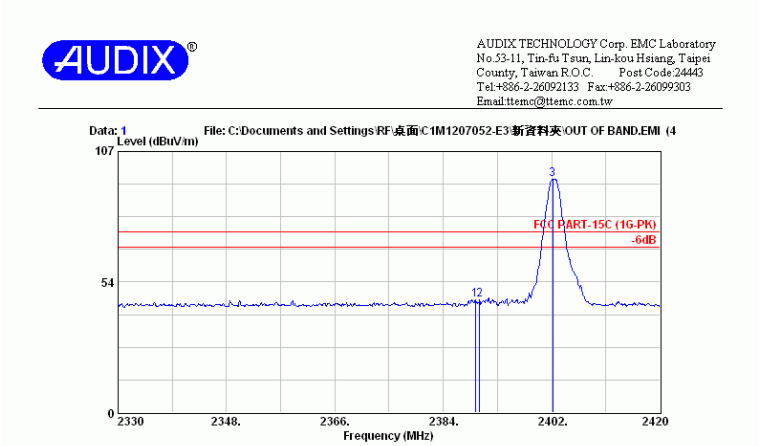
EUT： VERI FOLDER Humidity： 58%

Test Mode： Transmit, Frequency: 2402MHz, 8-DPSK

	Emission Frequency	Antenna Factor	Cable Loss	Meter Reading Vertical	Emission Level Vertical	Limits	Margin
	(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)
Peak *	2389.310	28.47	6.34	11.29	46.11	74.00	27.89

	Emission Frequency	Peak Value	PDCF	Average Value	Limit	Margin
	(MHz)	(dB/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
Average *	2389.31	46.11	-30.32	15.79	54.00	38.21

Remark ： 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.
2. Low frequency section (spurious in the restricted band 2330-2420MHz).
3. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.
4. PDCF=20log(dwell time/100ms)=20log(3.045ms/100ms)=-30.32
5. The pre-amplifier factor has been subtracted by test program actively.



Site no. : A/C Chamber Data no. : 1
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : FCC PART-15C (1G-PK)
Env. / Ins. : E4446A 24℃/58% Vic Fong
EUT : FS001B
Power Rating : DC 4.5V
Test Mode : TX2402MHz (8DPSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark	
1	2389.310	28.47	6.34	11.29	46.11	74.00	27.89	Peak	
2	2390.030	28.47	6.34	11.24	46.06	74.00	27.94	Peak	
3	2402.180	28.47	6.36	60.96	95.79	74.00	-21.79	Peak	X

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test： Jul. 11, 2012 Temperature： 24℃

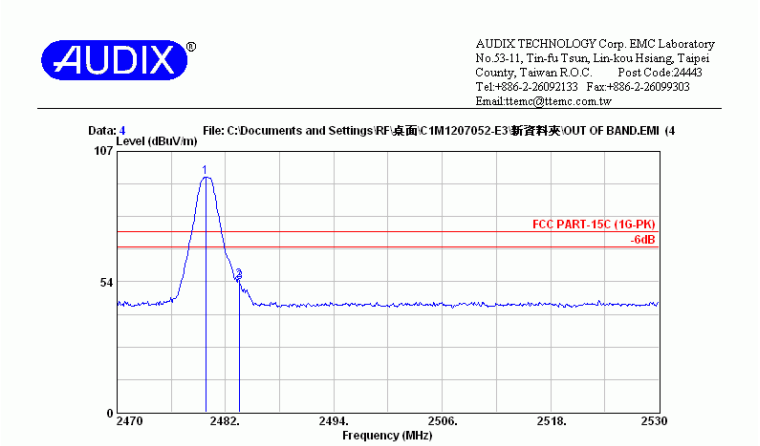
EUT： VERI FOLDER Humidity： 58%

Test Mode： Transmit, Frequency: 2480MHz, 8-DPSK

	Emission Frequency	Antenna Factor	Cable Loss	Meter Reading Horizontal	Emission Level Horizontal	Limits	Margin
	(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)
Peak *	2483.500	28.66	6.45	18.92	54.03	74.00	19.97

	Emission Frequency	Peak Value	PDCF	Average Value	Limit	Margin
	(MHz)	(dB/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
Average *	2483.50	54.03	-30.32	23.71	54.00	30.29

Remark ： 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.
2. Low frequency section (spurious in the restricted band 2470-2530MHz).
3. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.
4. PDCF=20log(dwell time/100ms)=20log(3.045ms/100ms)=-30.32
5. The pre-amplifier factor has been subtracted by test program actively.



	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark	
1	2479.840	28.66	6.44	61.32	96.43	74.00	-22.43	Peak	@
2	2483.500	28.66	6.45	18.92	54.03	74.00	19.97	Peak	
3	2483.560	28.66	6.45	18.25	53.36	74.00	20.64	Peak	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test： Jul. 11, 2012 Temperature： 24℃

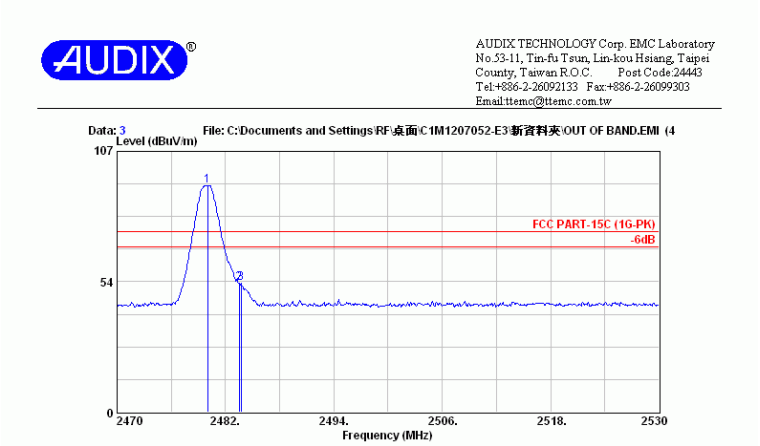
EUT： VERI FOLDER Humidity： 58%

Test Mode： Transmit, Frequency: 2480MHz, 8-DPSK

	Emission Frequency	Antenna Factor	Cable Loss	Meter Reading Vertical	Emission Level Vertical	Limits	Margin
	(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)
Peak *	2483.740	28.66	6.45	17.98	53.10	74.00	20.90

	Emission Frequency	Peak Value	PDCF	Average Value	Limit	Margin
	(MHz)	(dB/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
Average *	2483.74	53.10	-30.32	22.78	54.00	31.22

Remark ： 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.
2. Low frequency section (spurious in the restricted band 2470-2530MHz).
3. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.
4. PDCF=20log(dwell time/100ms)=20log(3.045ms/100ms)=-30.32
5. The pre-amplifier factor has been subtracted by test program actively.



	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark	
1	2480.020	28.66	6.44	57.90	93.01	74.00	-19.01	Peak	X
2	2483.500	28.66	6.45	17.67	52.78	74.00	21.22	Peak	
3	2483.740	28.66	6.45	17.98	53.10	74.00	20.90	Peak	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test： Jul. 11, 2012 Temperature： 24℃

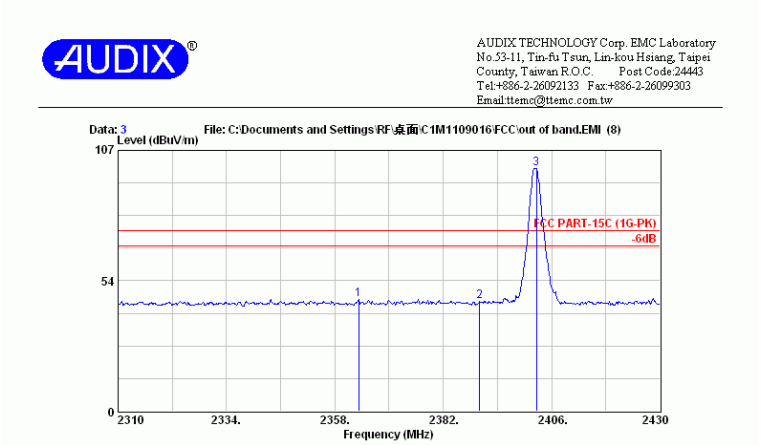
EUT： VERI FOLDER Humidity： 58%

Test Mode： Transmit, Frequency: 2402MHz, GFSK

	Emission Frequency	Antenna Factor	Cable Loss	Meter Reading Horizontal	Emission Level Horizontal	Limits	Margin
	(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)
Peak *	2363.280	28.04	6.30	11.25	45.95	74.00	28.05

	Emission Frequency	Peak Value	PDCF	Average Value	Limit	Margin
	(MHz)	(dB/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
Average *	2363.28	45.95	-30.34	15.61	54.00	38.39

Remark ： 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.
2. Low frequency section (spurious in the restricted band 2310-2430MHz).
3. ‘*’ The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.
4. PDCF=20log(dwell time/100ms)=20log(3.040ms/100ms)=-30.34
5. The pre-amplifier factor has been subtracted by test program actively.



Site no. : A/C Chamber Data no. : 3
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC PART-15C (1G-PK)
Env. / Ins. : E4446A 24℃/58% ☐Vic Fong
EUT : FS001B
Power Rating : DC 4.5V
Test Mode : TX2402MHz (GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark	
1	2363.280	28.40	6.30	11.25	45.95	74.00	28.05	Peak	@
2	2390.040	28.47	6.34	10.32	45.14	74.00	28.86	Peak	@
3	2402.640	28.51	6.36	64.67	99.54	74.00	-25.54	Peak	@

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test： Jul. 11, 2012 Temperature： 24℃

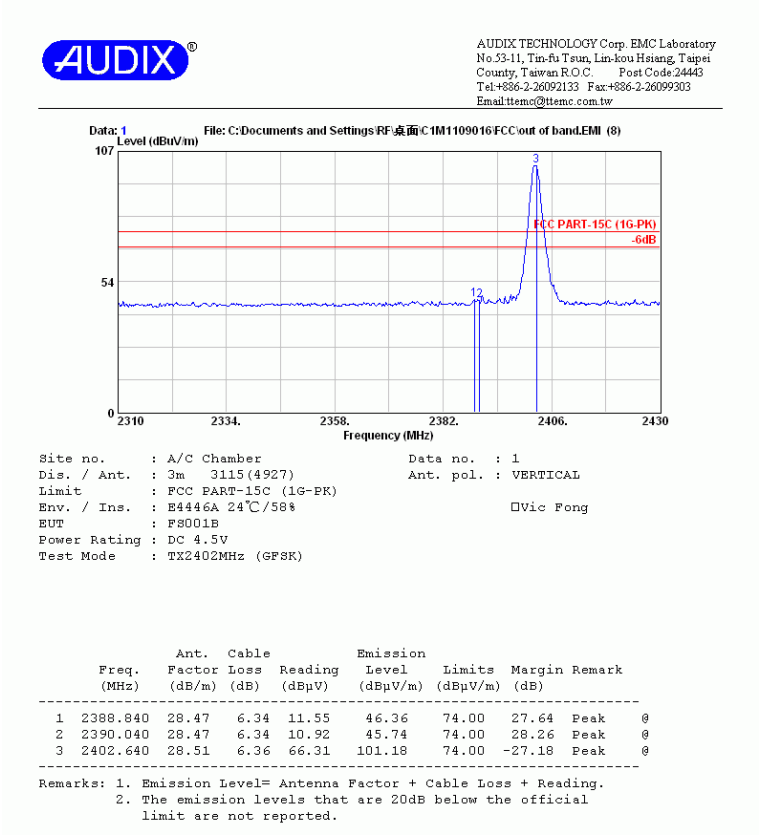
EUT： VERI FOLDER Humidity： 58%

Test Mode： Transmit, Frequency: 2402MHz, GFSK

	Emission Frequency	Antenna Factor	Cable Loss	Meter Reading Vertical	Emission Level Vertical	Limits	Margin
	(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)
Peak *	2388.840	28.47	6.34	11.55	46.36	74.00	27.64

	Emission Frequency	Peak Value	PDCF	Average Value	Limit	Margin
	(MHz)	(dB/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
Average *	2388.84	46.36	-30.34	16.02	54.00	37.98

Remark ： 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.
2. Low frequency section (spurious in the restricted band 2310-2430MHz).
3. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.
4. PDCF=20log(dwell time/100ms)=20log(3.040ms/100ms)=-30.34
5. The pre-amplifier factor has been subtracted by test program actively.



Site no. : A/C Chamber Data no. : 1
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : FCC PART-15C (1G-PK)
Env. / Ins. : E4446A 24℃/58% Vic Fong
EUT : FS001B
Power Rating : DC 4.5V
Test Mode : TX2402MHz (GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark	
1	2388.840	28.47	6.34	11.55	46.36	74.00	27.64	Peak	@
2	2390.040	28.47	6.34	10.92	45.74	74.00	28.26	Peak	@
3	2402.640	28.51	6.36	66.31	101.18	74.00	-27.18	Peak	@

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test： Jul. 11, 2012 Temperature： 24℃

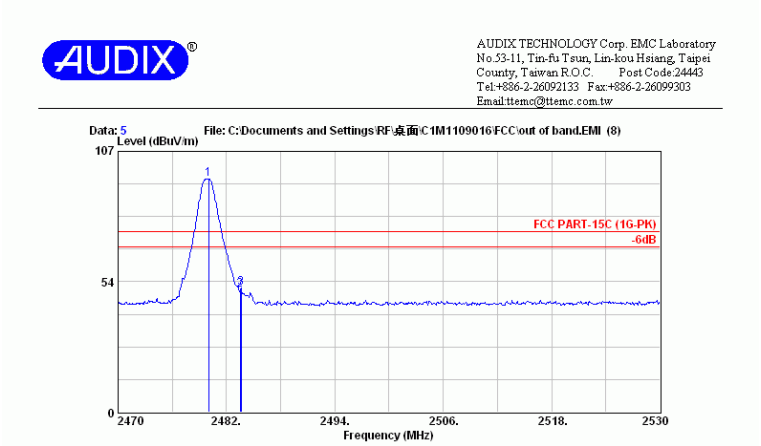
EUT： VERI FOLDER Humidity： 58%

Test Mode： Transmit, Frequency: 2480MHz, GFSK

	Emission Frequency	Antenna Factor	Cable Loss	Meter Reading Horizontal	Emission Level Horizontal	Limits	Margin
	(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)
Peak *	2483.620	28.66	6.45	15.80	50.92	74.00	23.08

	Emission Frequency	Peak Value	PDCF	Average Value	Limit	Margin
	(MHz)	(dB/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
Average *	2483.62	50.92	-30.34	20.58	54.00	33.42

Remark ： 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.
2. Low frequency section (spurious in the restricted band 2470-2530MHz).
3. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.
4. PDCF=20log(dwell time/100ms)=20log(3.035ms/100ms)=-30.35
5. The pre-amplifier factor has been subtracted by test program actively.



Site no. : A/C Chamber Data no. : 5
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC PART-15C (1G-PK)
Env. / Ins. : E4446A 24℃/58% Vic Fong
EUT : FS001B
Power Rating : DC 4.5V
Test Mode : TX2480MHz (GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark	
1	2480.020	28.66	6.44	60.58	95.69	74.00	-21.69	Peak	@
2	2483.500	28.66	6.45	14.87	49.98	74.00	24.02	Peak	@
3	2483.620	28.66	6.45	15.80	50.92	74.00	23.08	Peak	@

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test： Jul. 11, 2012 Temperature： 24℃

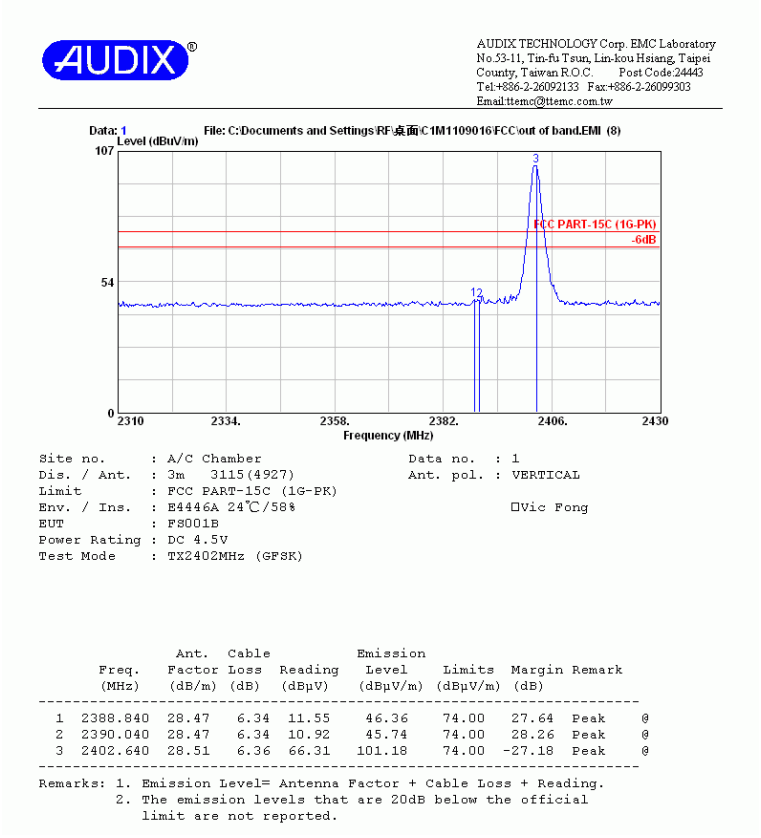
EUT： VERI FOLDER Humidity： 58%

Test Mode： Transmit, Frequency: 2480MHz, GFSK

	Emission Frequency	Antenna Factor	Cable Loss	Meter Reading Vertical	Emission Level Vertical	Limits	Margin
	(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)
Peak *	2483.500	28.66	6.45	17.80	52.91	74.00	21.09

	Emission Frequency	Peak Value	PDCF	Average Value	Limit	Margin
	(MHz)	(dB/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
Average *	2483.50	52.91	-30.34	22.57	54.00	31.43

Remark ： 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.
2. Low frequency section (spurious in the restricted band 2470-2530MHz).
3. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.
4. PDCF=20log(dwell time/100ms)=20log(3.035ms/100ms)=-30.35
5. The pre-amplifier factor has been subtracted by test program actively.



Site no. : A/C Chamber Data no. : 1
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : FCC PART-15C (1G-PK)
Env. / Ins. : E4446A 24℃/58% Vic Fong
EUT : FS001B
Power Rating : DC 4.5V
Test Mode : TX2402MHz (GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark	
1	2388.840	28.47	6.34	11.55	46.36	74.00	27.64	Peak	@
2	2390.040	28.47	6.34	10.92	45.74	74.00	28.26	Peak	@
3	2402.640	28.51	6.36	66.31	101.18	74.00	-27.18	Peak	@

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

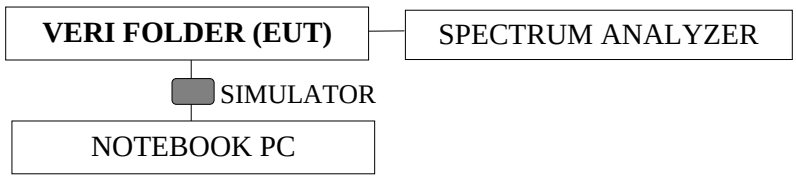
4. 20dB BANDWIDTH MEASUREMENT

4.1. Test Equipment

The following test equipment was used during the 20dB bandwidth measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E4446A	US44300366	Aug. 04, 11'	Aug. 03, 12'

4.2. Block Diagram of Test Setup



4.3. Specification Limits (§15.247(a)(1))

Alternatively, frequency hopping systems operating in the 2400-2483.5MHz band may have hopping channel carrier frequencies that are separated by 25kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater.

4.4. Operating Condition of EUT

4.4.1. Set up the EUT and simulator as shown on 4.2.

4.4.2. To turn on the power of all equipment.

4.4.3. The EUT (VERI FOLDER) was on transmitting frequency function during the testing.

4.5. Test Procedure (DA 00-705)

The transmitter output was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measure by spectrum analyzer with span is encompassed a completed signal envelope.
RBW=1% of the 20dB bandwidth
VBW=RBW

4.6. Test Results

PASSED. All the test results are attached in next pages.

[Note: Three types of modulation (8-DPSK, π /4DQPSK, GFSK) were evaluated but only two types of modulation (8-DPSK and GFSK) were reported in this report.]

EUT：VERI FOLDER M/N：FS001B

Test Date: Jul. 09, 2012 Temperature : 25℃ Humidity : 59%

4.6.1.Type of Modulation: 8-DPSK

No.	Channel	Test Frequency	**20dB Bandwidth**	**2/3 (20dB Bandwidth)**
1.	0	2402MHz	**1.290MHz**	**0.860MHz**
2.	39	2441MHz	**1.290MHz**	**0.860MHz**
3.	78	2480MHz	**1.263MHz**	**0.842MHz**

The maximum two-thirds of the 20dB bandwidth shall be at maximum 1.263MHz.

4.6.2.Type of Modulation: GFSK

No.	Channel	Test Frequency	**20dB Bandwidth**	**2/3 (20dB Bandwidth)**
1.	0	2402MHz	**0.924MHz**	**0.616MHz**
2.	39	2441MHz	**0.924MHz**	**0.616MHz**
3.	78	2480MHz	**0.927MHz**	**0.618MHz**

The maximum two-thirds of the 20dB bandwidth shall be at maximum 0.927MHz.

Figure 1: 8-DPSK, Channel 0, Frequency: 2402MHz

Figure 2: 8-DPSK, Channel 39, Frequency: 2441MHz

Figure 3: 8-DPSK, Channel 78, Frequency: 2480MHz

Figure 4: GFSK, Channel 0, Frequency: 2402MHz

Figure 5: GFSK, Channel 39, Frequency: 2441MHz

Figure 6: GFSK, Channel 78, Frequency: 2480MHz

5. CARRIER FREQUENCY SEPARATION MEASUREMENT

5.1. Test Equipment

The following test equipment was used during the carrier frequency separation measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E4446A	US44300366	Aug. 04, 11’	Aug. 03, 12’

5.2. Block Diagram of Test Setup

The same as section.4.2.

5.3. Specification Limits (§15.247(a)(1))

Alternatively, frequency hopping systems operating in the 2400-2483.5MHz band may have hopping channel carrier frequencies that are separated by 25kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output no greater than 125mW.

5.4. Operating Condition of EUT

Same as carrier frequency separation measurement which was listed in section 4.4.

5.5. Test Procedure (DA 00-705)

The transmitter output was connected to the spectrum analyzer. The channel separation was measure by spectrum analyzer with span is encompassed a completed signal envelope, the peak was mark on adjacent bandwidth, the between of peak is carrier frequency separation.
RBW=1% Span
VBW=RBW

5.6. Test Results

PASSED. All the test results are attached in next pages.

[Note: Three types of modulation (8-DPSK, π /4DQPSK, GFSK) were evaluated but only two types of modulation (8-DPSK and GFSK) were reported in this report.]

EUT：VERI FOLDER M/N：FS001B

Test Date: Jul. 09, 2012 Temperature : 25℃ Humidity : 59%

5.6.1.Type of Modulation: 8-DPSK

1. 2402MHz adjacent channel of carrier frequency separation: 1.002MHz。
2. 2441MHz adjacent channel of right carrier frequency separation: 1.002MHz。
3. 2441MHz adjacent channel of left carrier frequency separation: 1.002MHz。
4. 2480MHz adjacent channel of carrier frequency separation: 1.002MHz。

[Above values have met the requirement as specified in section 4.3: frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.]

5.6.2.Type of Modulation: GFSK

1. 2402MHz adjacent channel of carrier frequency separation: 1.002MHz。
2. 2441MHz adjacent channel of right carrier frequency separation: 1.002MHz。
3. 2441MHz adjacent channel of left carrier frequency separation: 1.002MHz。
4. 2480MHz adjacent channel of carrier frequency separation: 1.002MHz。

[Above values have met the requirement as specified in section 4.3: frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.]

Figure 1: 8-DPSK, 2402MHz adjacent channel of carrier frequency separation

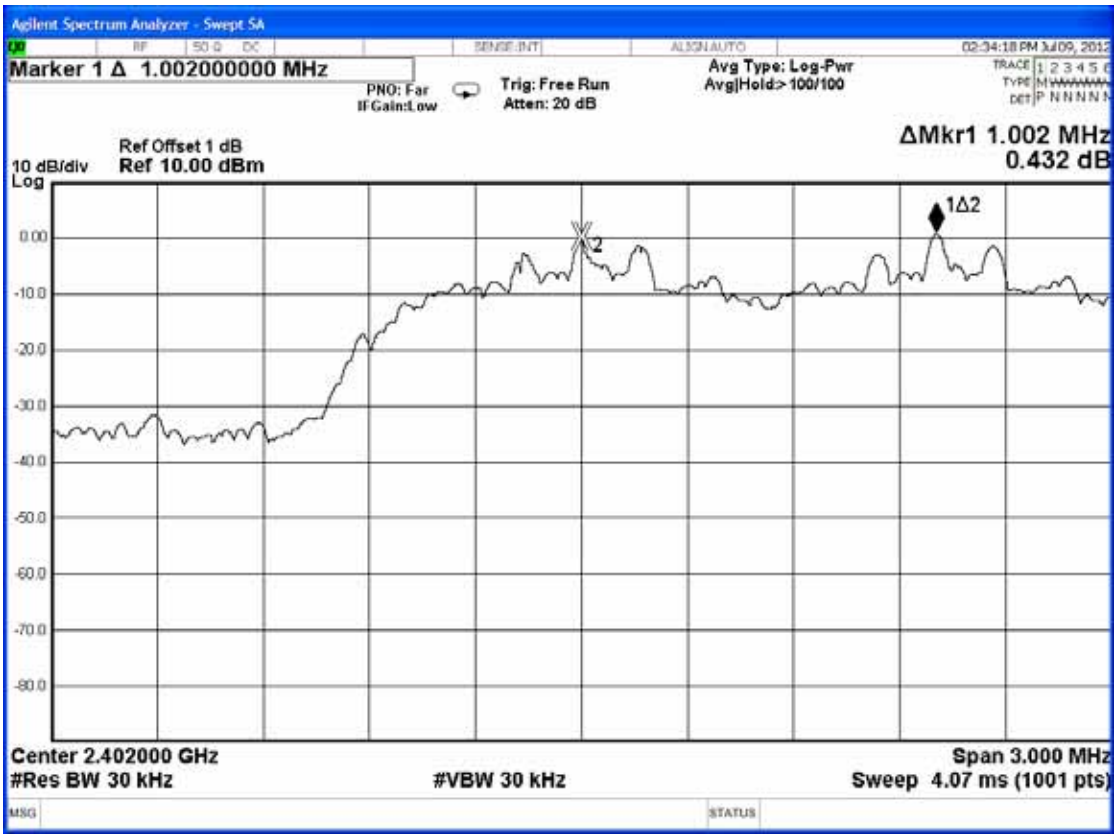


Figure 2: 8-DPSK, 2441MHz adjacent channel of right carrier frequency separation

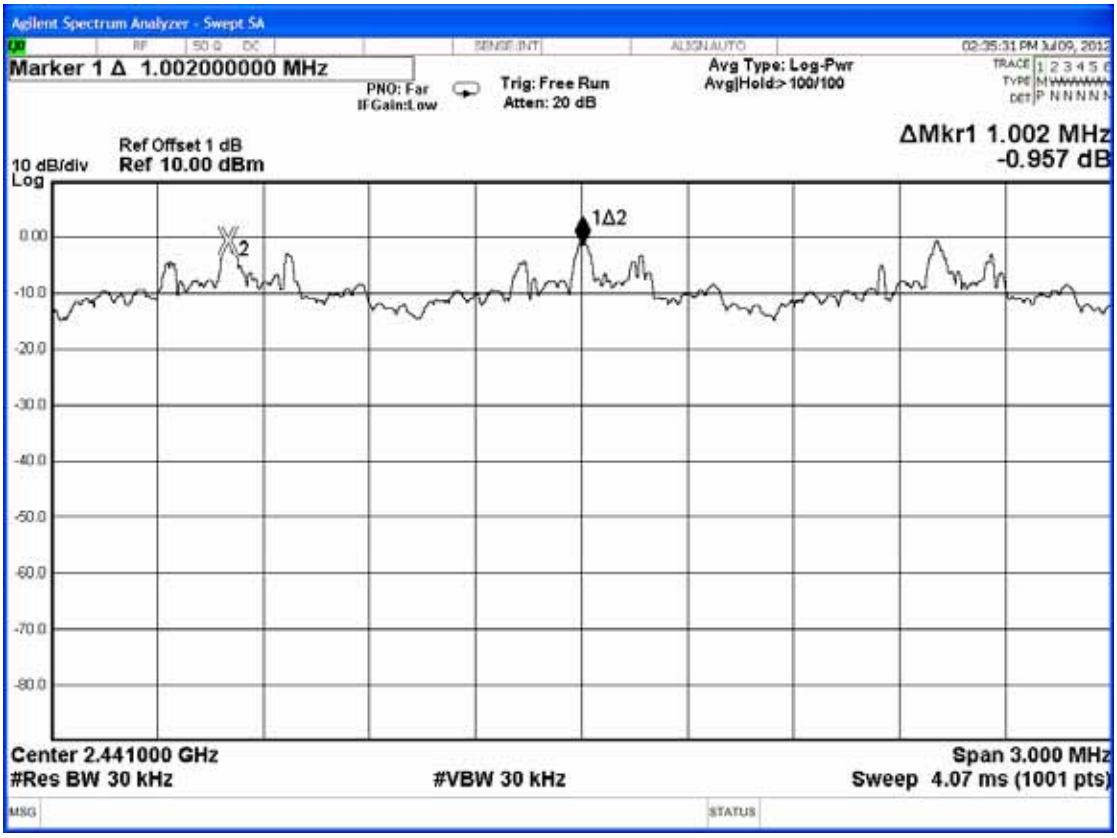


Figure 3: 8-DPSK, 2441MHz adjacent channel of left carrier frequency separation

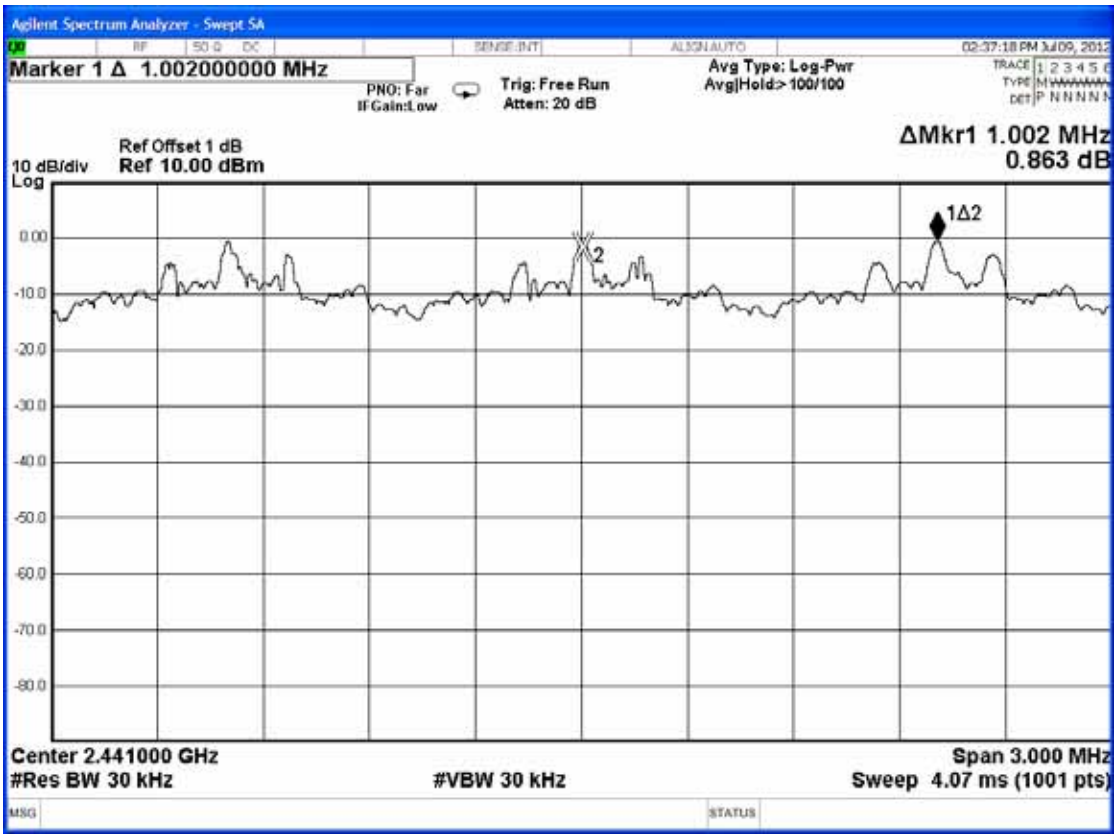


Figure 4: 8-DPSK, 2480MHz adjacent channel of carrier frequency separation

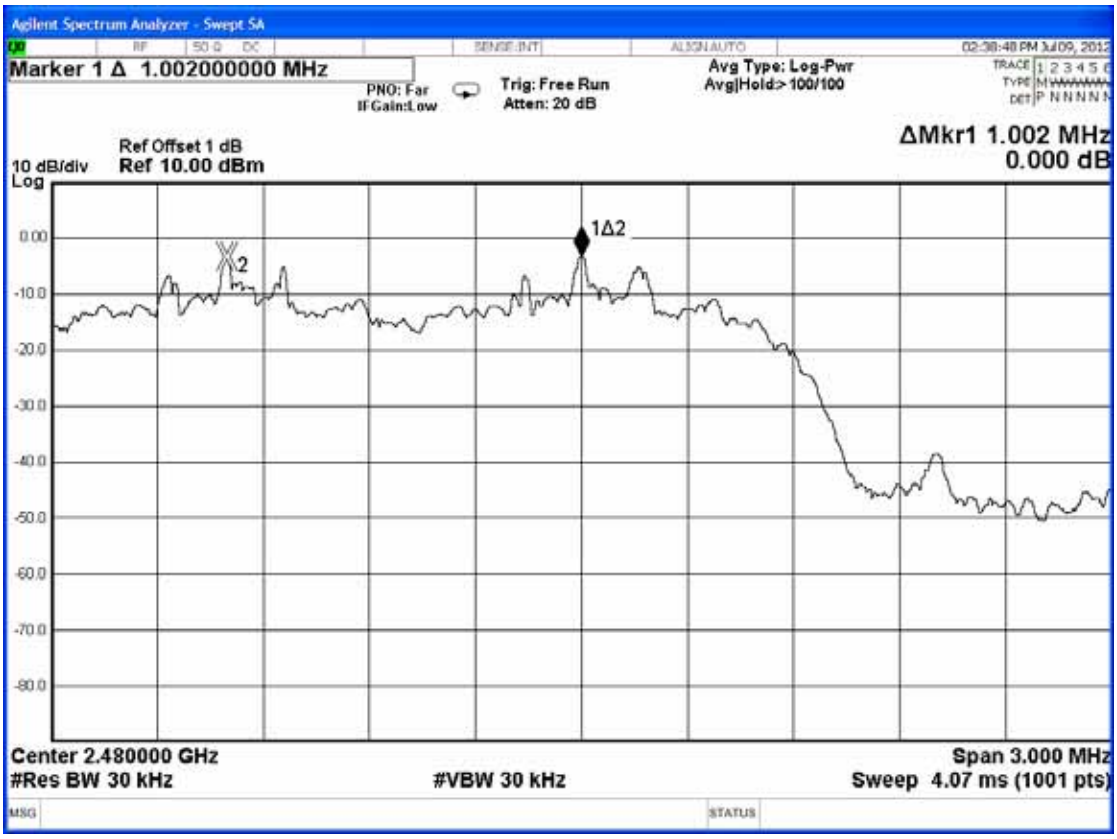


Figure 5: GFSK, 2402MHz adjacent channel of carrier frequency separation

Figure 6: GFSK, 2441MHz adjacent channel of right carrier frequency separation

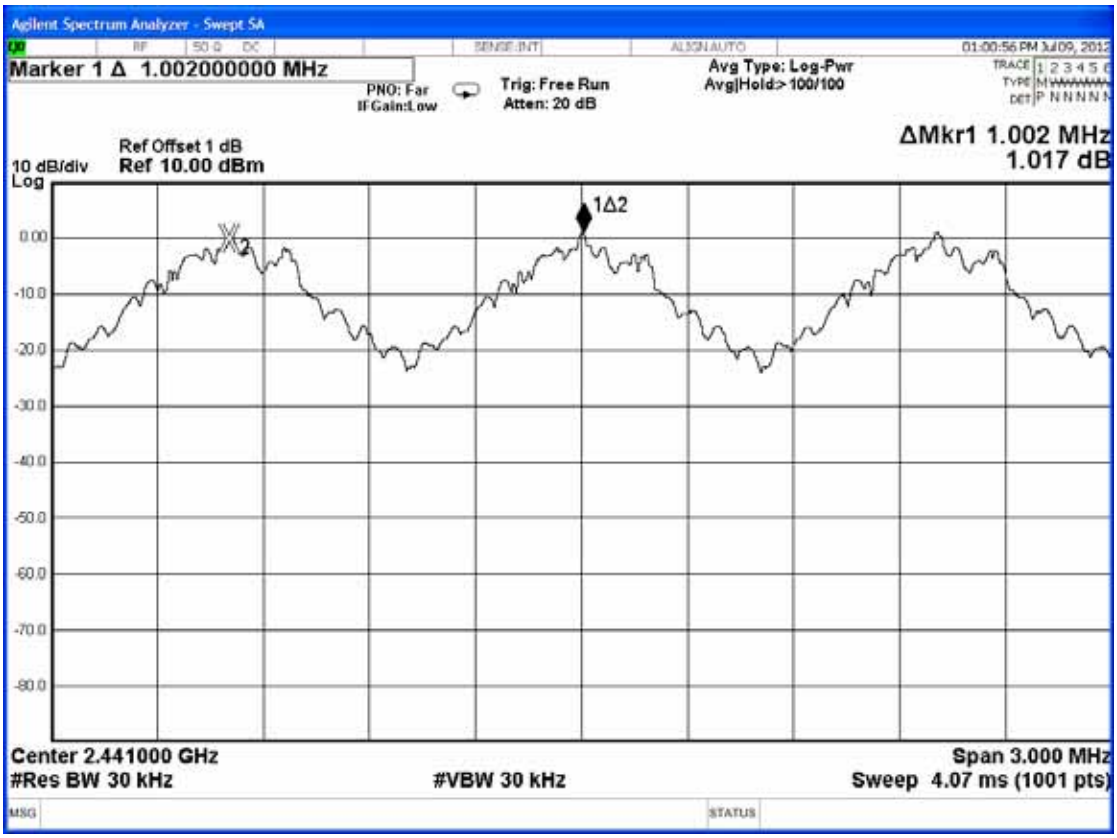


Figure 7: GFSK, 2441MHz adjacent channel of left carrier frequency separation

Figure 8: GFSK, 2480MHz adjacent channel of carrier frequency separation

6. TIME OF OCCUPANCY MEASUREMENT

6.1. Test Equipment

The following test equipment was used during the time of occupancy measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E4446A	US44300366	Aug. 04, 11’	Aug. 03, 12

6.2. Block Diagram of Test Setup

The same as section.4.2.

6.3. Specification Limits (§15.247(a)(1)(iii))

Frequency hopping systems in the 2400-2483.5MHz shall use at least 15 non-overlapping channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by number of hopping channels employed.

6.4. Operating Condition of EUT

Same as carrier frequency separation measurement which was listed in section 4.4.

6.5. Test Procedure (DA 00-705)

The transmitter output was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measure by spectrum analyzer with 1MHz RBW and 1MHz VBW. VBW≥RBW ; Span=zero span.
Centered on a hopping channel sweep=as necessary to capture the entire dwell time per hopping channel ; Detector function=peak ; Trace=Max hold

6.6. Test Results

PASSED. All the test results are attached in next pages.

[Note: Three types of modulation (8-DPSK, π /4DQPSK, GFSK) were evaluated but only two types of modulation (8-DPSK and GFSK) were reported in this report.]

EUT：VERI FOLDER M/N：FS001B

Test Date: Jul. 09, 2012 Temperature : 25℃ Humidity : 59%

6.6.1. Type of Modulation：8-DPSK, Test Frequency：2441MHz

Duty cycle: 79channels*0.4 seconds = 31.6 seconds

3DH1 : For each 5 seconds of 51 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

51 channels*31.6 seconds/5* 0.555ms = 177.8876ms (<400ms)

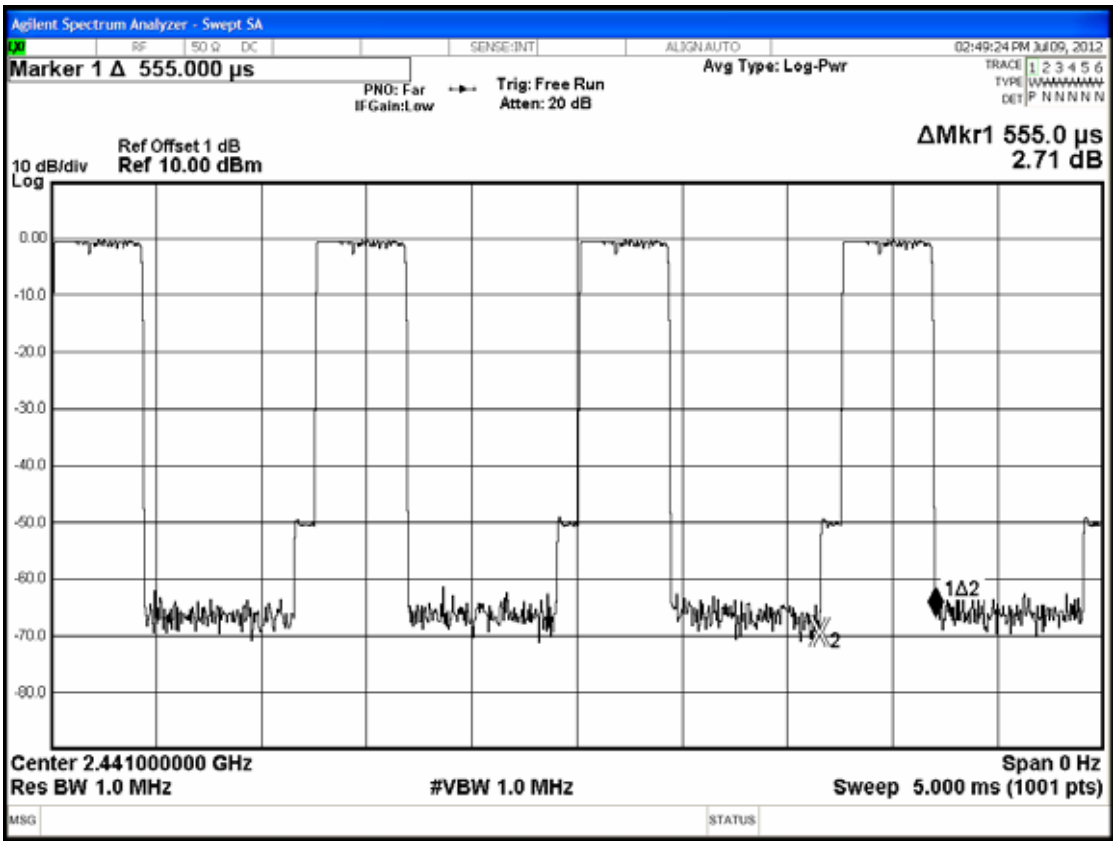
3DH3 : For each 5 seconds of 25 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

25 channels*31.6 seconds/5* 1.8ms = 295.776ms (<400ms)

3DH5 : For each 5 seconds of 17 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

17 channels*31.6 seconds/5* 3.04ms = 326.6176ms (<400ms)

Figure 1: 8-DPSK, 2441MHz, 3DH1



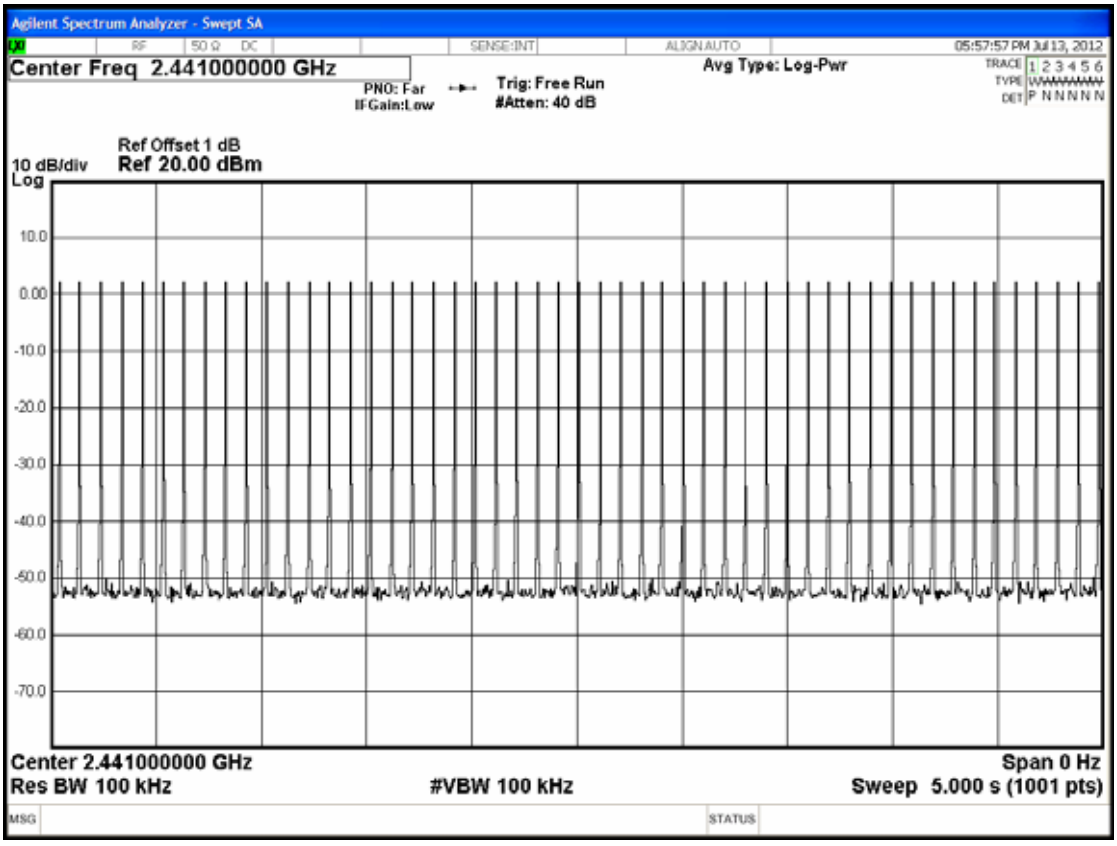
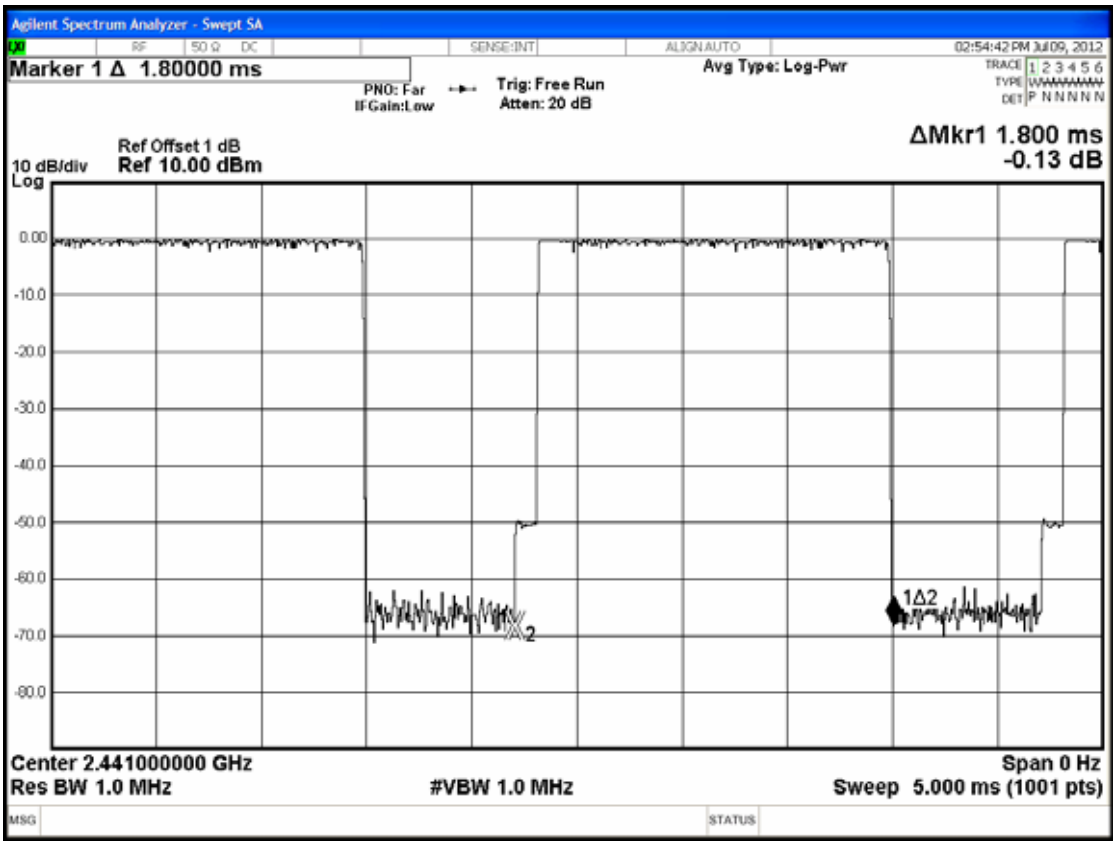


Figure 2: 8-DPSK, 2441MHz, 3DH3



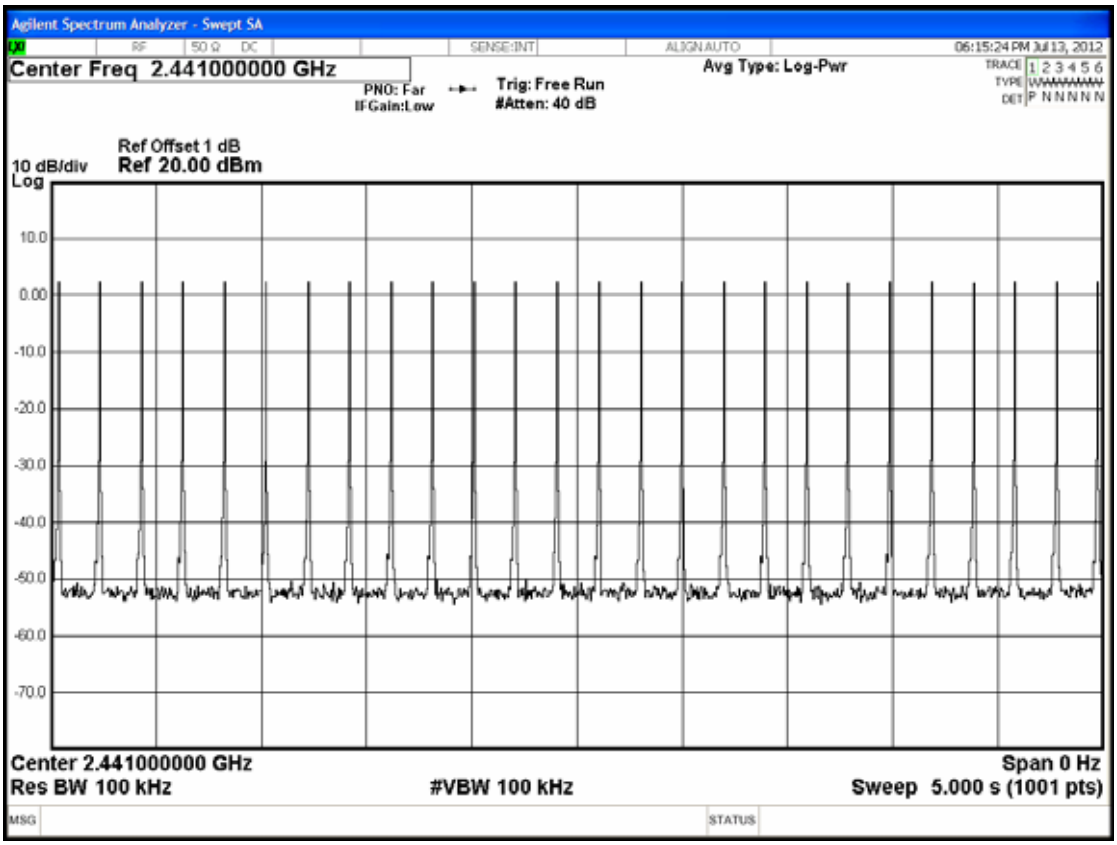
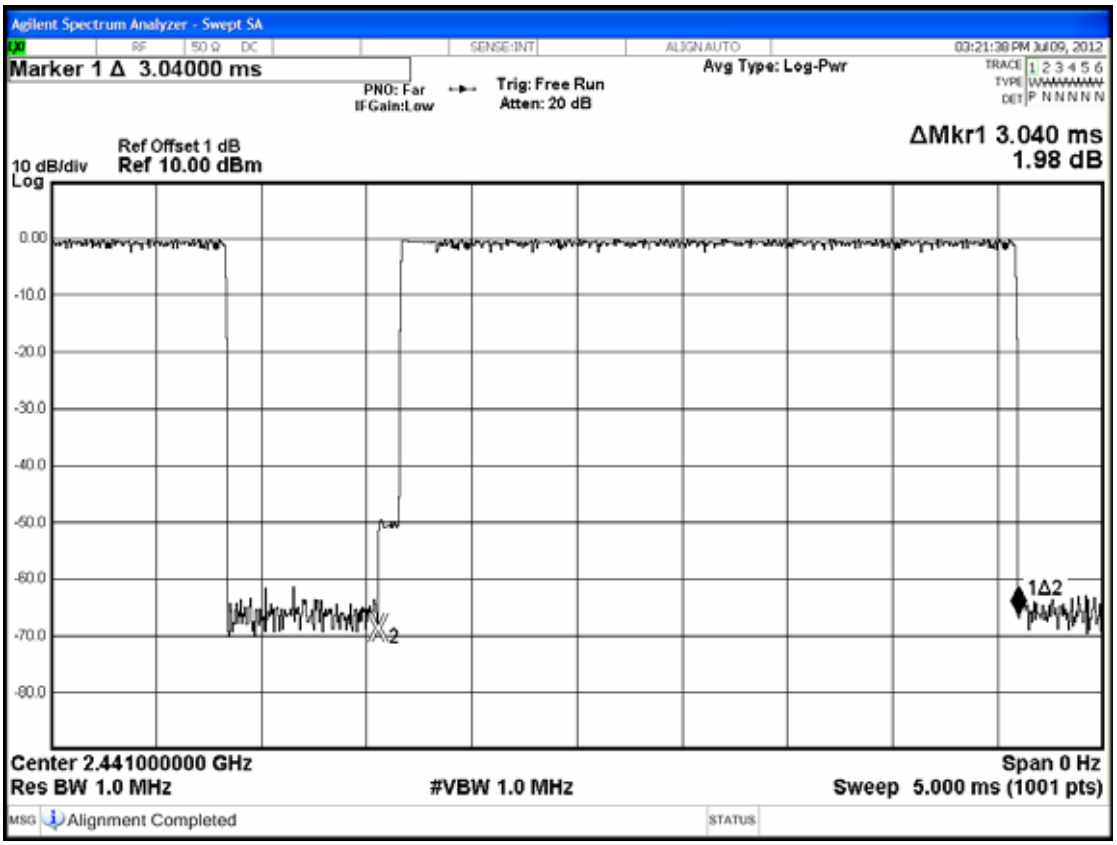
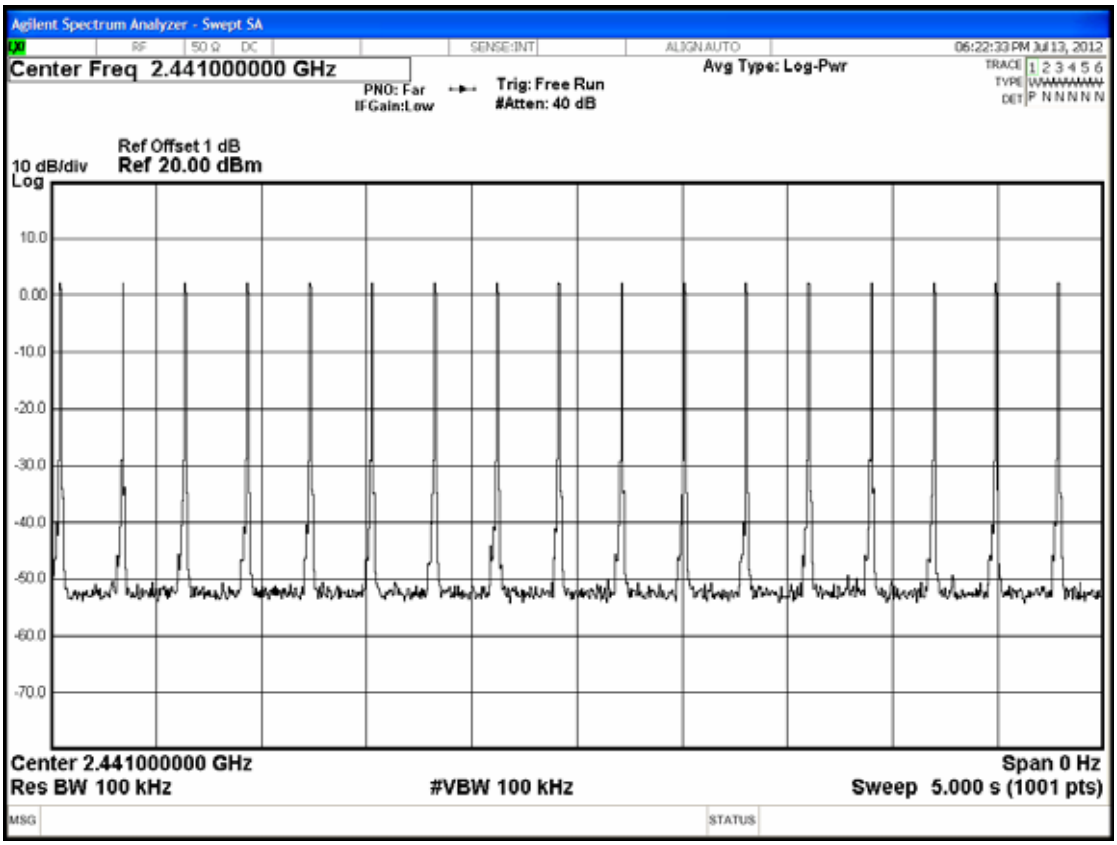


Figure 3: 8-DPSK, 2441MHz, 3DH5





6.6.2. Type of Modulation：GFSK, Test Frequency：2441MHz

Duty cycle: 79channels*0.4 seconds = 31.6 seconds

DH1：For each 5 seconds of 51 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

51 channels*31.6 seconds/5* 0.54ms = 170.64ms (<400ms)

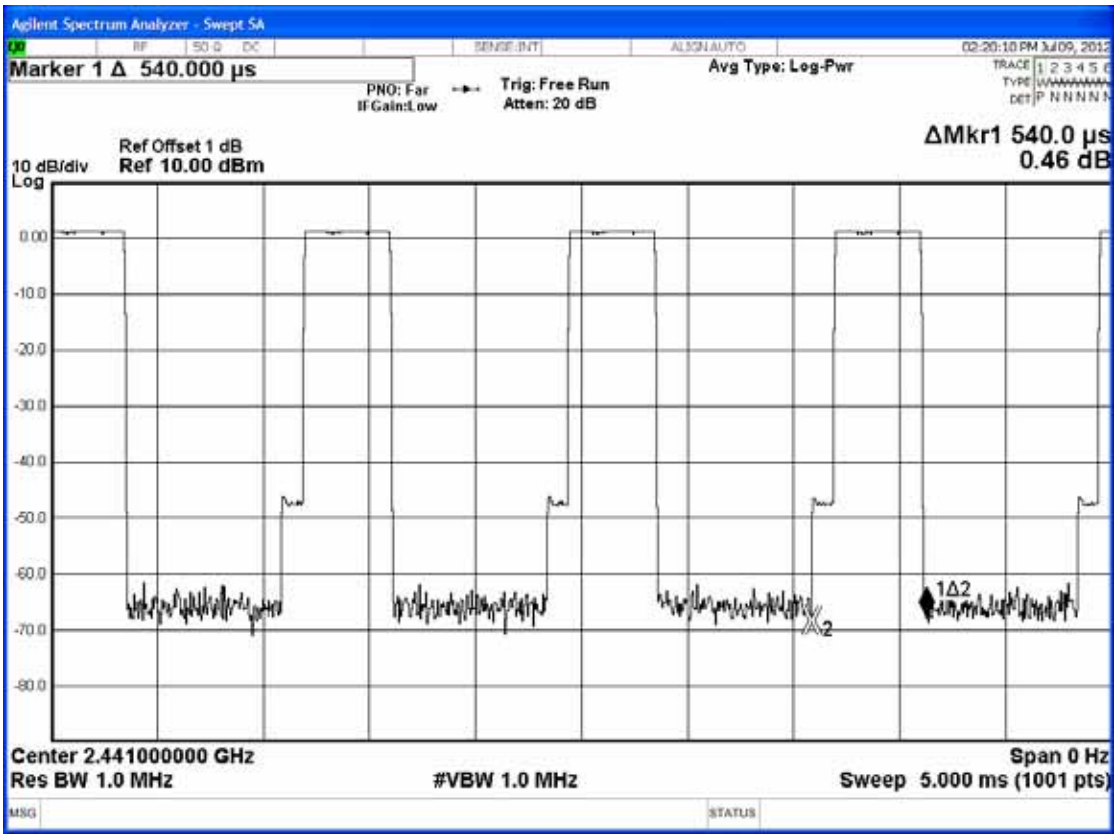
DH3：For each 5 seconds of 25 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

25 channels*31.6 seconds/5* 1.8ms = 284.4ms (<400ms)

DH5：For each 5 seconds of 17 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

17 channels*31.6 seconds/5* 3.04ms = 326.6176ms (<400ms)

Figure 1: GFSK, 2441MHz, DH1



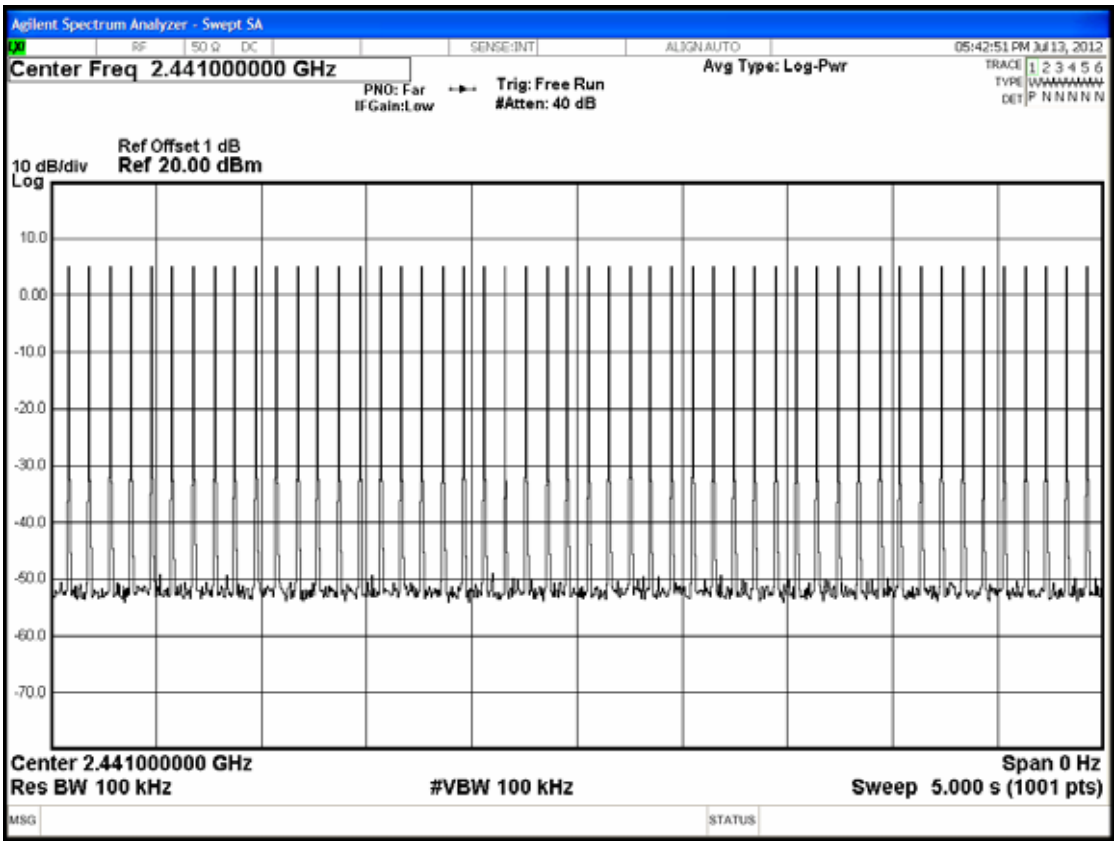
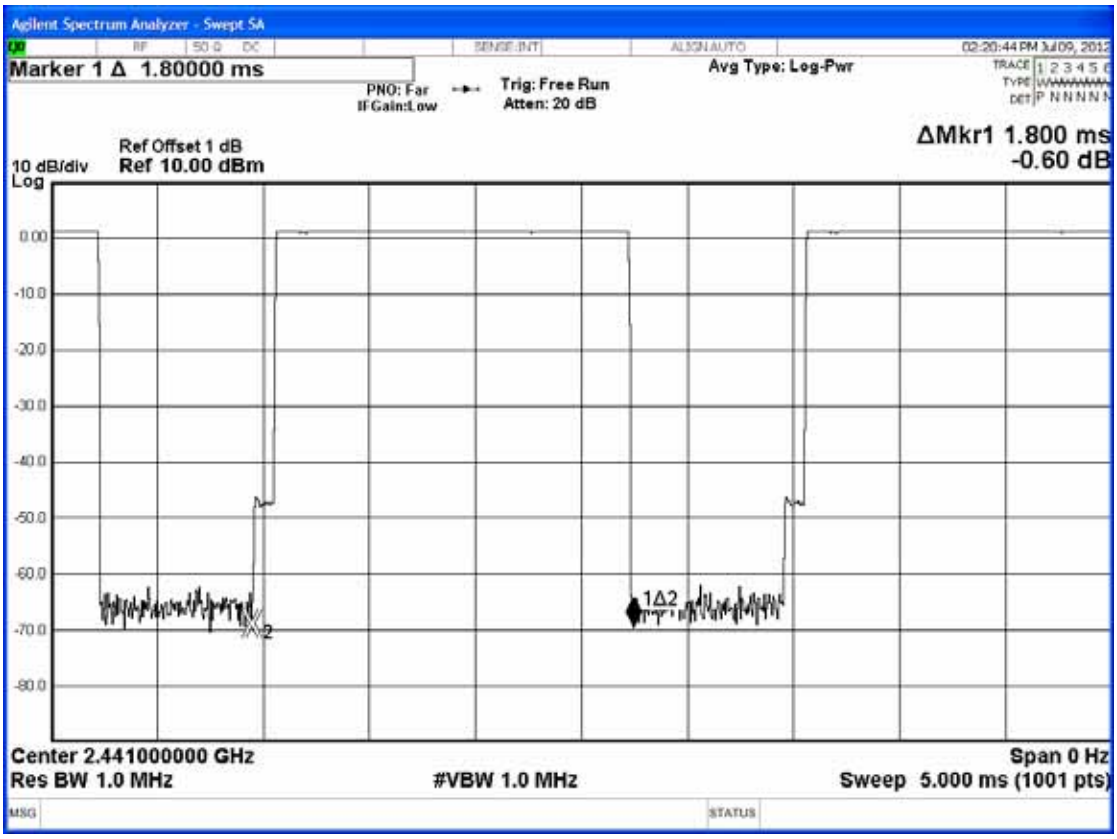


Figure 2: GFSK, 2441MHz, DH3



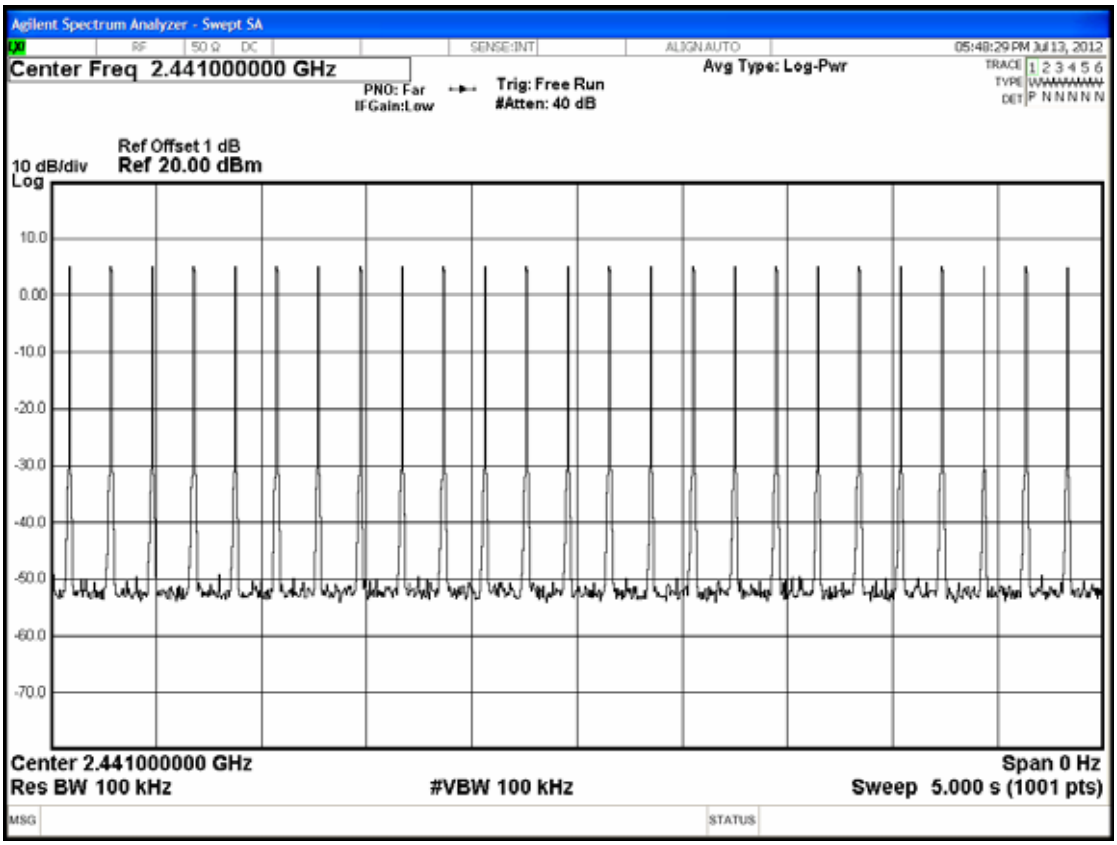
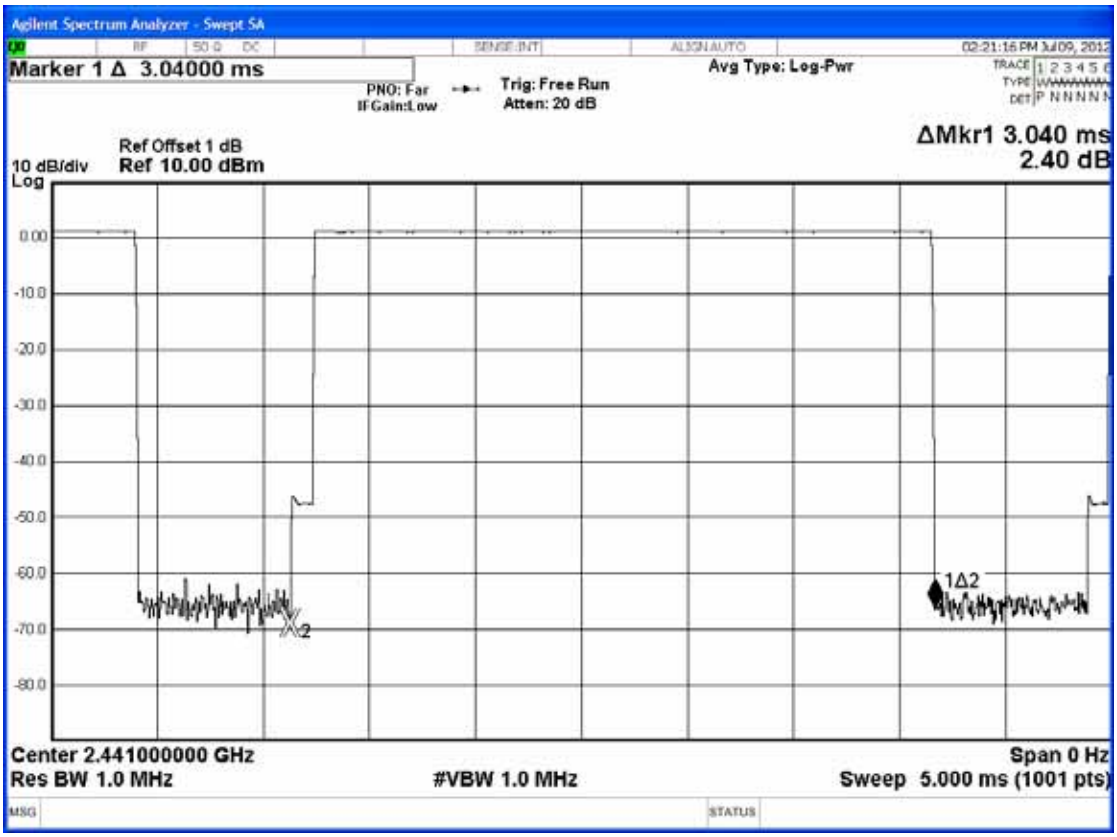
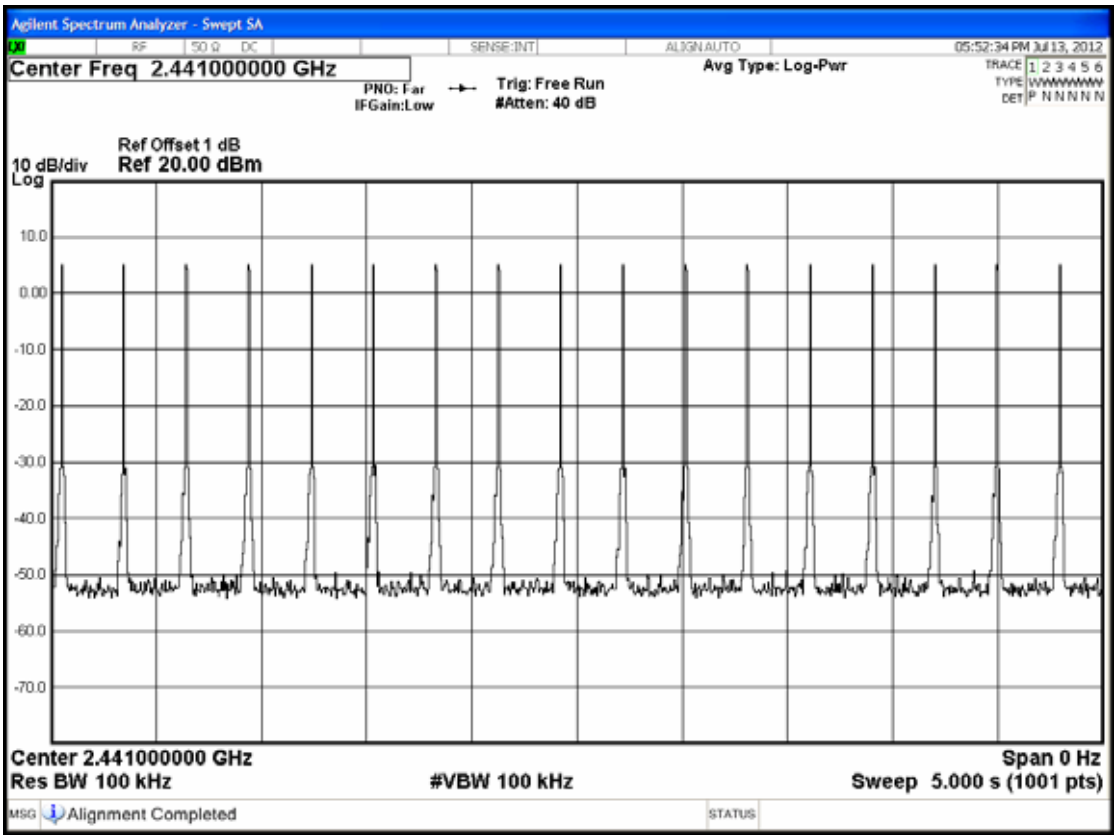


Figure 3: GFSK, 2441MHz, DH5





7. NUMBER OF HOPPING CHANNELS MEASUREMENT

7.1. Test Equipment

The following test equipment was used during the number of hopping channels measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E4446A	US44300366	Aug. 04, 11'	Aug. 03, 12'

7.2. Block Diagram of Test Setup

The same as section.4.2.

7.3. Specification Limits (§15.247(a)(1)(iii))

Frequency hopping systems which use fewer than 20 hopping frequencies may employ intelligent hopping techniques to avoid interference to other transmissions. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 non-overlapping channels.

7.4. Operating Condition of EUT

Same as carrier frequency separation measurement which was listed in section 4.4.

7.5. Test Procedure (DA 00-705)

The transmitter output was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measure by spectrum analyzer with 100kHz RBW and 100kHz VBW. Sweep=Auto ; Detector function=peak ; Trace=Max hold

7.6. Test Results

PASSED. All the test results are attached in next page.

[Note: Three types of modulation (8-DPSK, π /4DQPSK, GFSK) were evaluated but only two types of modulation (8-DPSK and GFSK) were reported in this report.]

EUT：VERI FOLDER M/N：FS001B

Test Date: Jul. 09, 2012 Temperature : 25℃ Humidity : 59%

7.6.1.Type of Modulation: 8-DPSK

The number hopping channel is 79.

7.6.2.Type of Modulation: GFSK

The number hopping channel is 79.

Figure 1: 8-DPSK

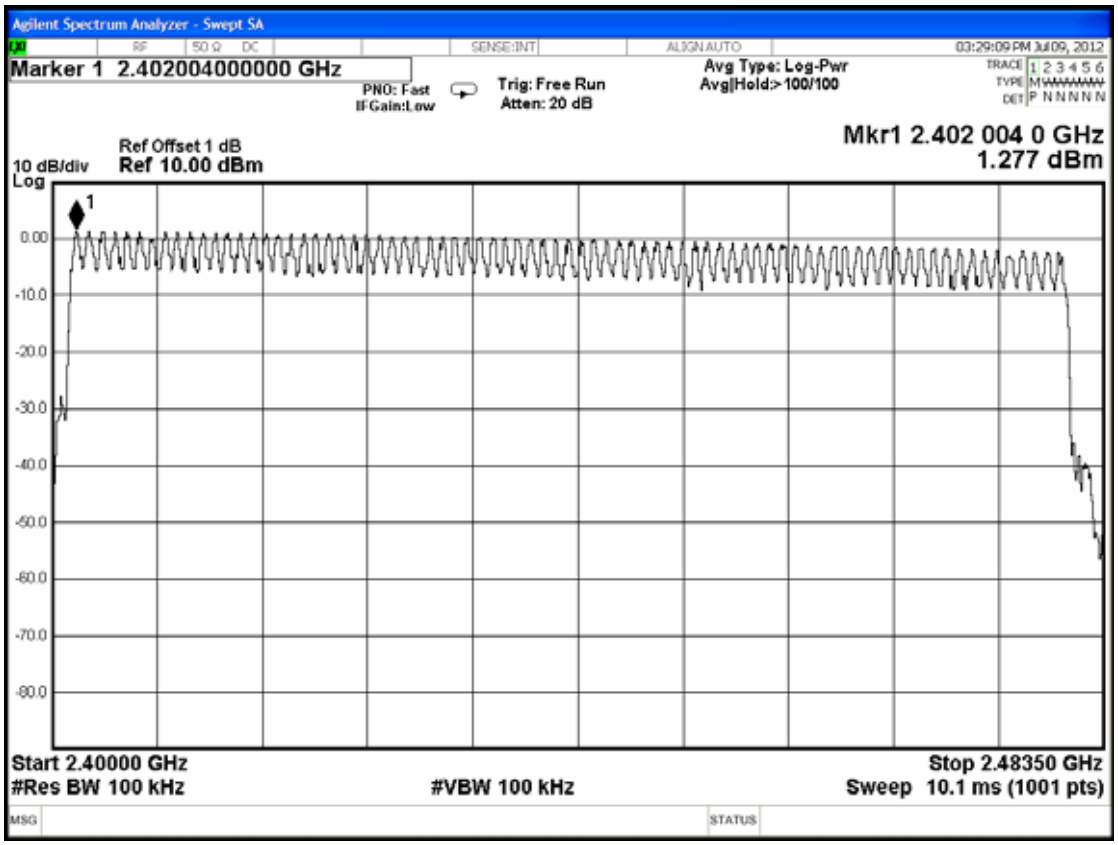
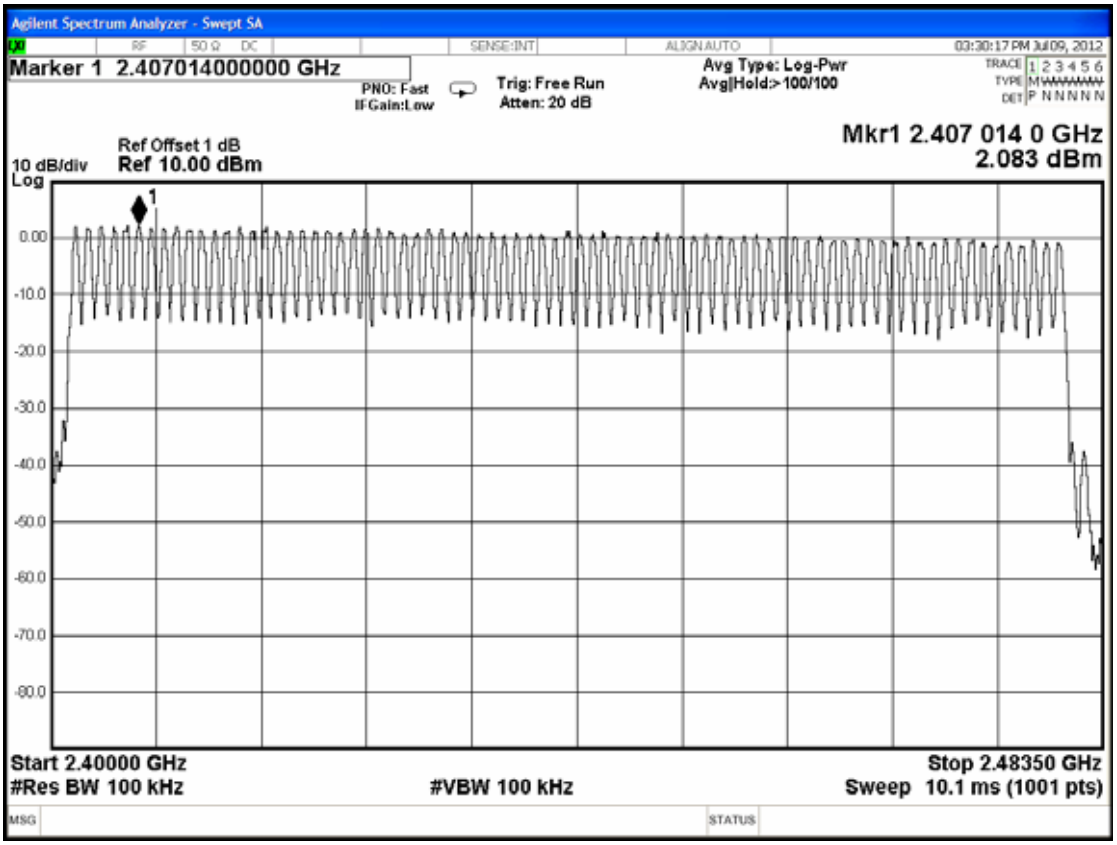


Figure 2: GFSK



8. MAXIMUM PEAK OUTPUT POWER MEASUREMENT

8.1. Test Equipment

The following test equipment was used during the maximum peak output power measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E4446A	US44300366	Aug. 04, 11’	Aug. 03, 12’

8.2. Block Diagram of Test Setup

The same as section.4.2.

8.3. Specification Limits (§15.247(b)-(1))

The Limits of maximum Peak Output Power for frequency hopping systems in 2400-2483.5MHz is: 0.125Watt. (21dBm)

8.4. Operating Condition of EUT

Same as carrier frequency separation measurement which was listed in 4.4 except the test set up replaced by section 8.2.

8.5. Test Procedure (DA 00-705)

The transmitter output was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measure by spectrum analyzer with span is encompassed a completed signal envelope. Sweep=Auto ; Detector function=peak ; Trace=Max hold

8.6. Test Results

PASSED. All the test results are listed below.

[Note: Three types of modulation (8-DPSK, π /4DQPSK, GFSK) were evaluated but only two types of modulation (8-DPSK and GFSK) were reported in this report.]

EUT：VERI FOLDER M/N：FS001B

Test Date: Jul. 09, 2012 Temperature : 25℃ Humidity : 59%

8.6.1.Type of Modulation: 8-DPSK

No.	Channel	Test Frequency	**Peak Output Power**	Limit
1.	0	2402MHz	**1.756dBm**	21dBm
2.	39	2441MHz	**0.573dBm**	21dBm
3.	78	2480MHz	**-1.553dBm**	21dBm

8.6.2.Type of Modulation: GFSK

No.	Channel	Test Frequency	**Peak Output Power**	Limit
1.	0	2402MHz	**1.908dBm**	21dBm
2.	39	2441MHz	**0.768dBm**	21dBm
3.	78	2480MHz	**-0.827dBm**	21dBm

Figure 1: 8-DPSK, Channel 0, Frequency: 2402MHz

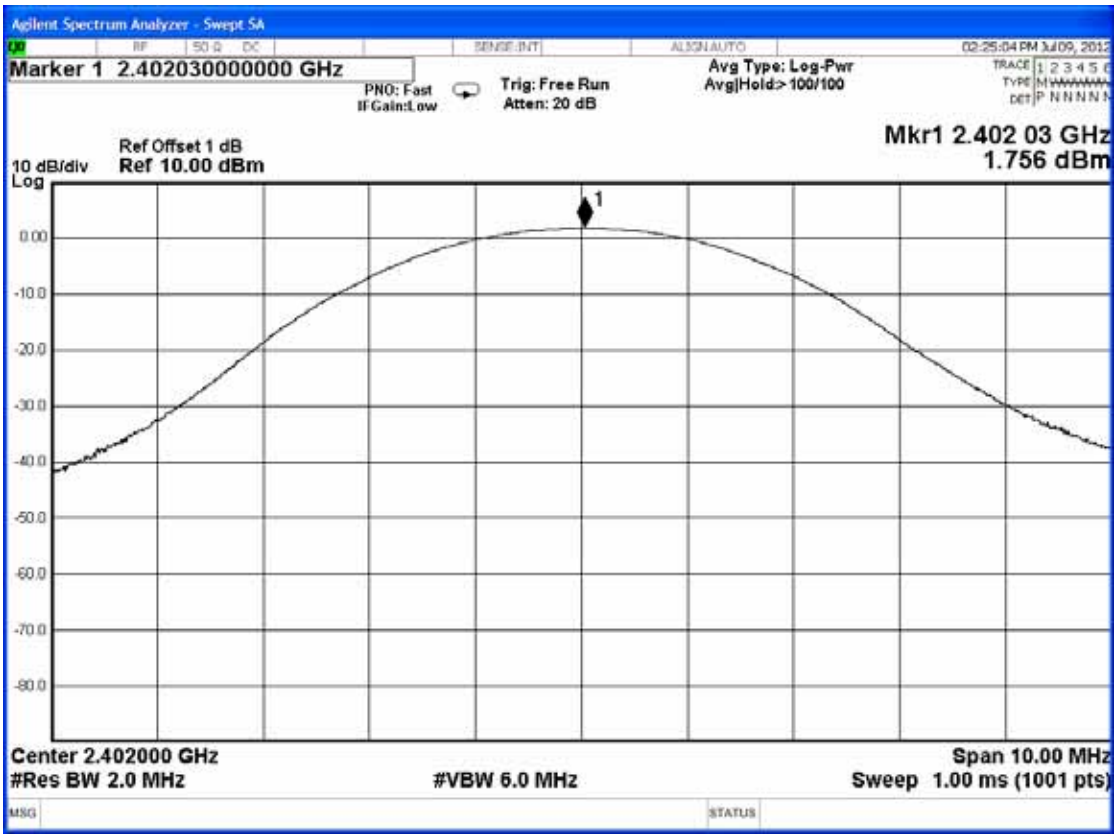


Figure 2: 8-DPSK, Channel 39, Frequency: 2441MHz

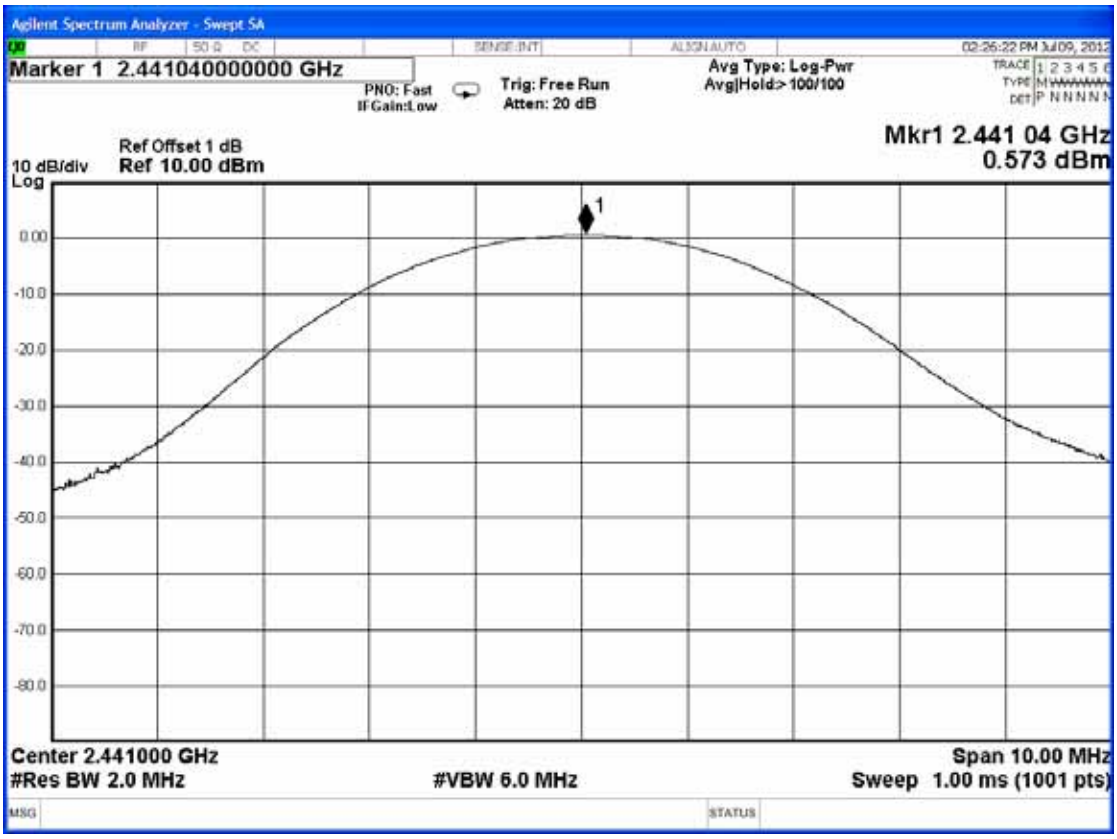


Figure 3: 8-DPSK, Channel 78, Frequency: 2480MHz

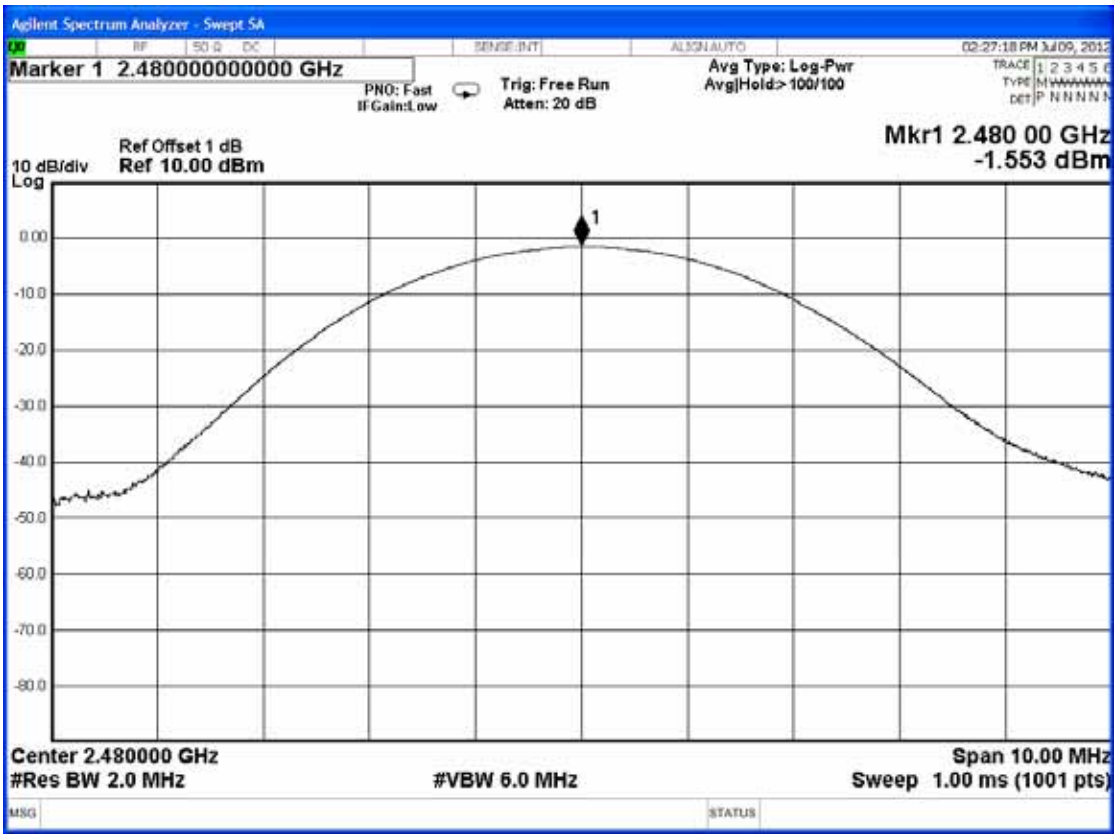


Figure 4: GFSK, Channel 0, Frequency: 2402MHz

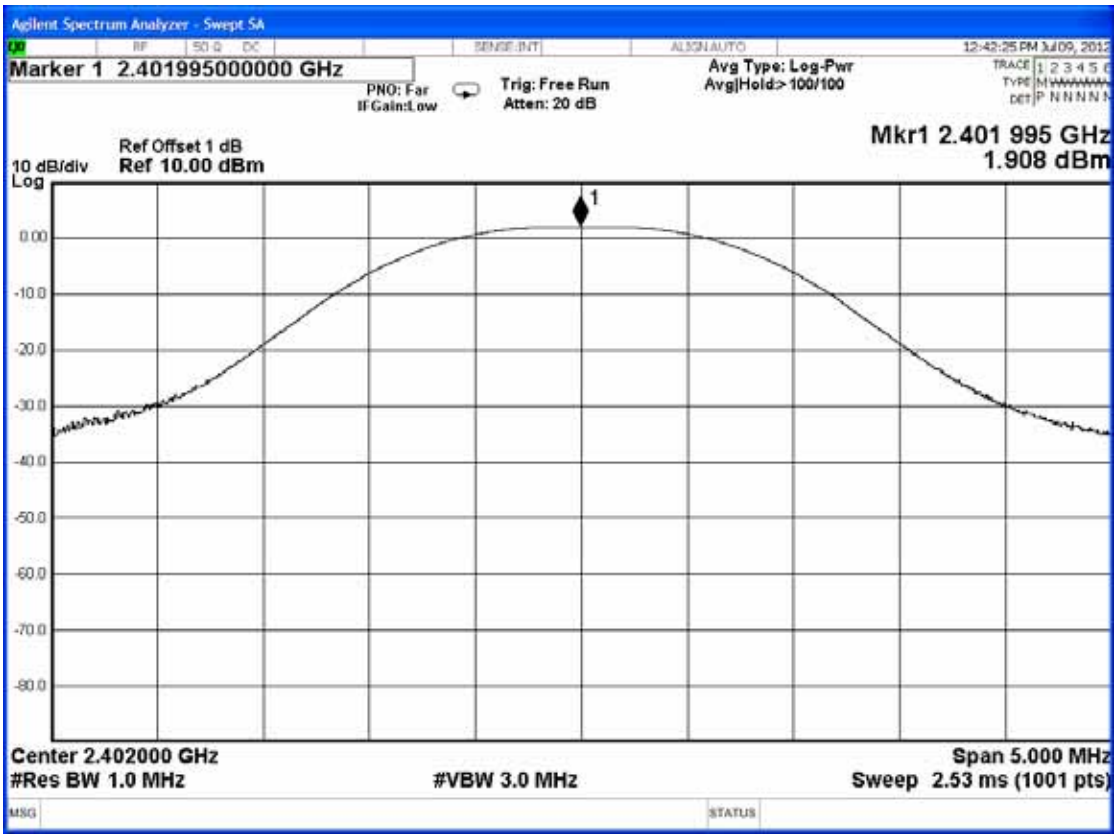


Figure 5: GFSK, Channel 39, Frequency: 2441MHz

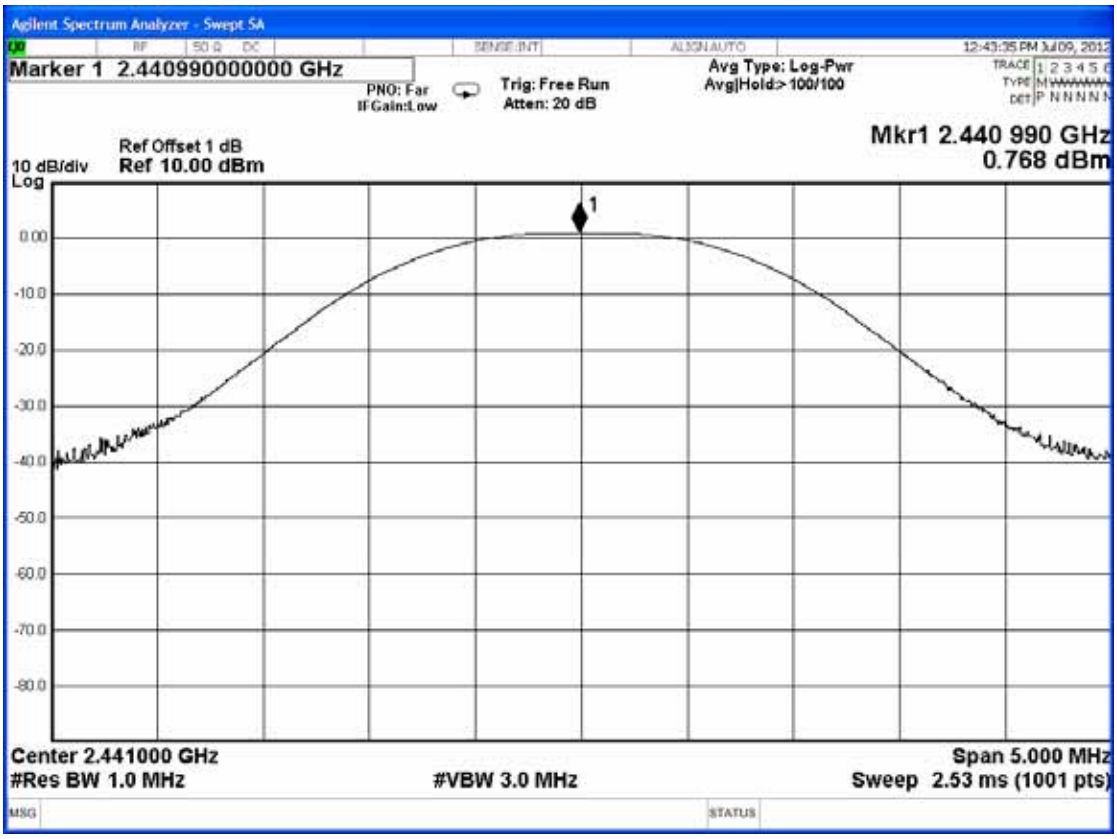
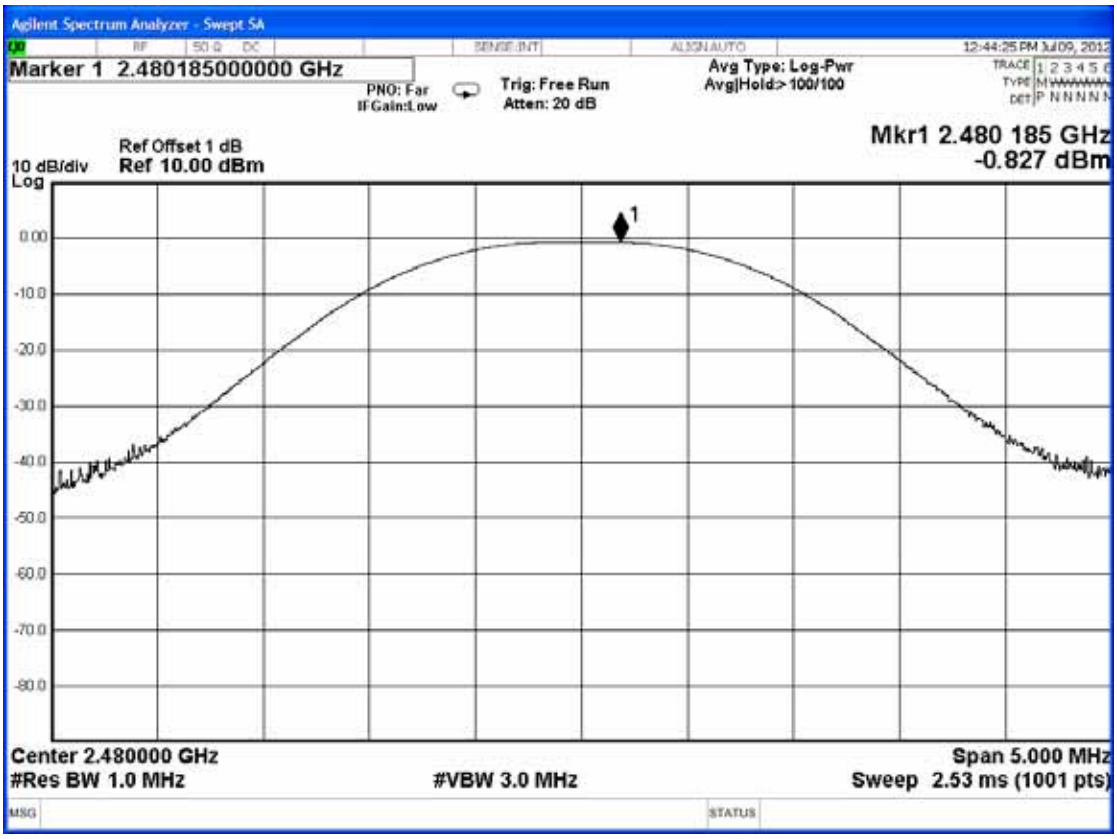


Figure 6: GFSK, Channel 78, Frequency: 2480MHz



9. EMISSION LIMITATIONS MEASUREMENT

9.1. Test Equipment

The following test equipment was used during the emission limitations measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E4446A	US44300366	Aug. 04, 11'	Aug. 03, 12'

9.2. Block Diagram of Test Setup

The same as section.4.2.

9.3. Specification Limits (§15.247(c))

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (See Section 15.205(c)).(※ This test result attaching to §3.6.3)

9.4. Operating Condition of EUT

Same as carrier frequency separation measurement which was listed in section 4.4.

9.5. Test Procedure (DA 00-705)

The transmitter output was connected to the spectrum analyzer. Set both RBW and VBW of spectrum analyzer to 100kHz with frequency range from 30MHz to 25GHz.

9.6. Test Results

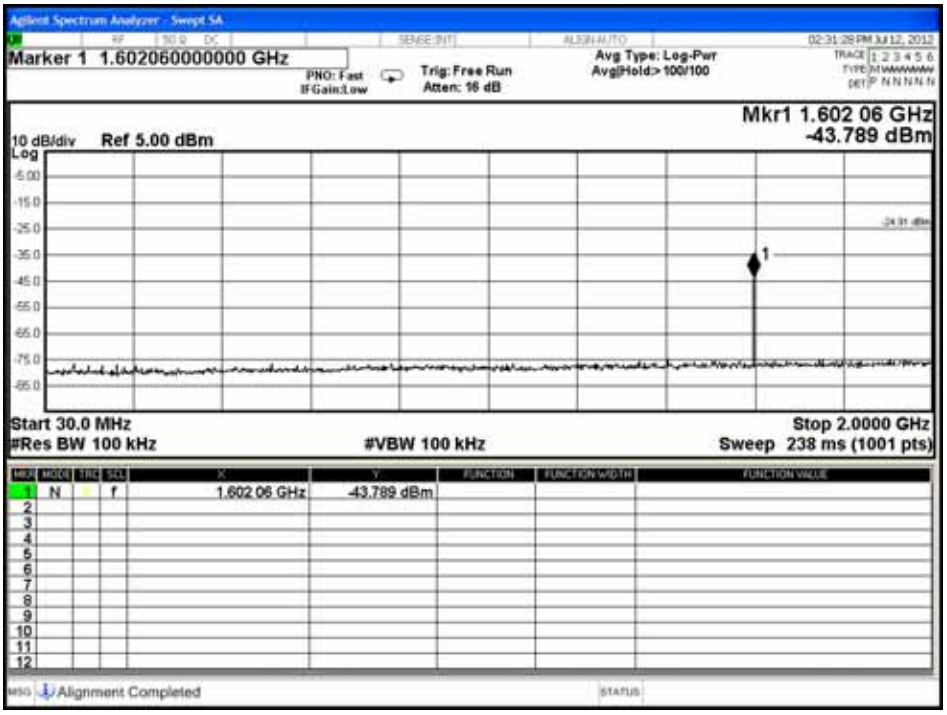
PASSED. All the test results are attached in next pages.

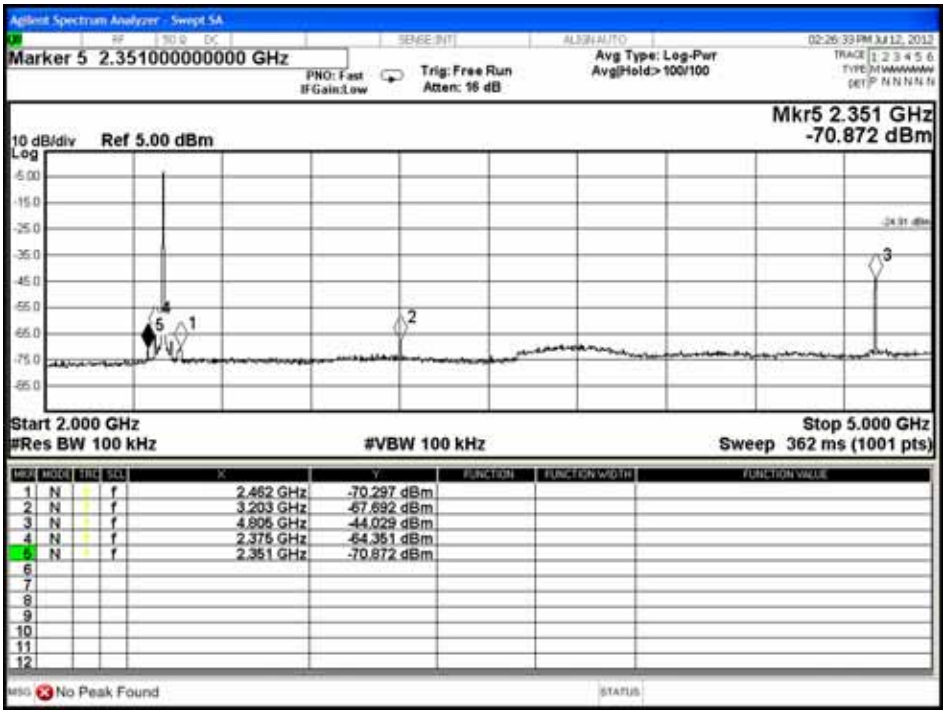
[Note: Three types of modulation (8-DPSK, π /4DQPSK, GFSK) were evaluated but only two types of modulation (8-DPSK and GFSK) were reported in this report.]

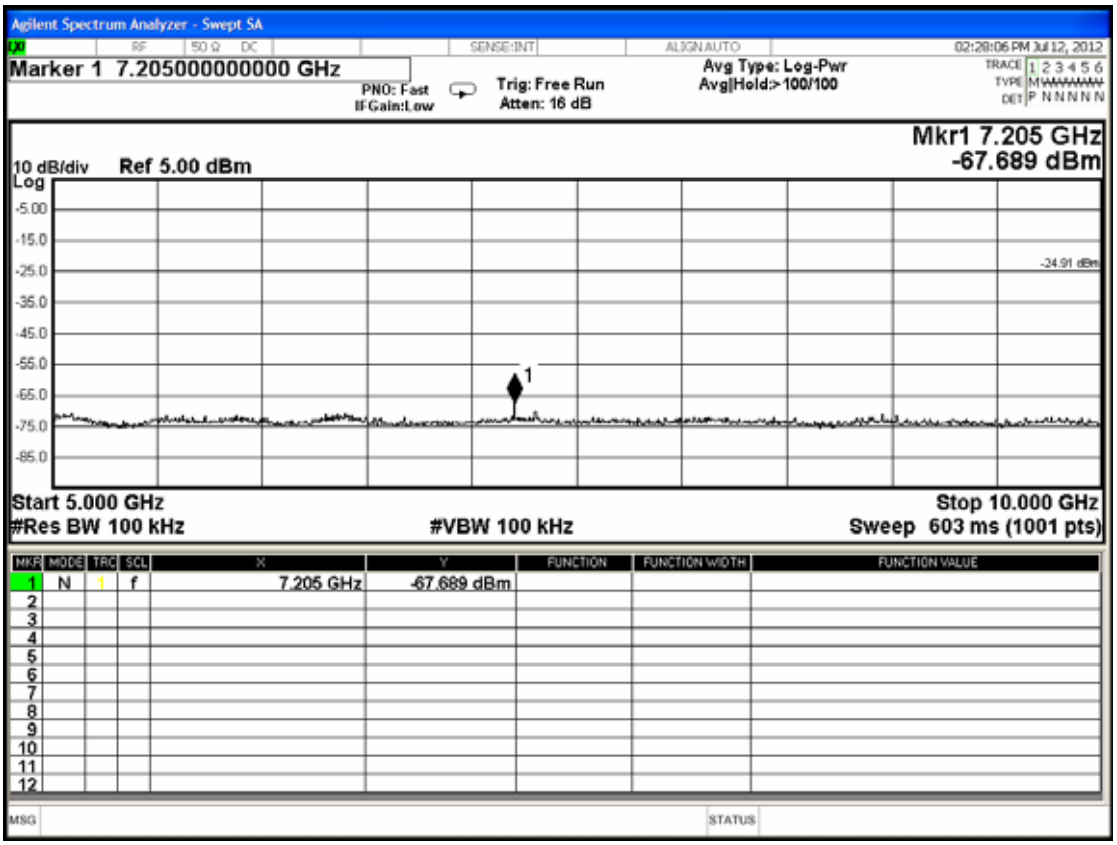
EUT：VERI FOLDER M/N：FS001B

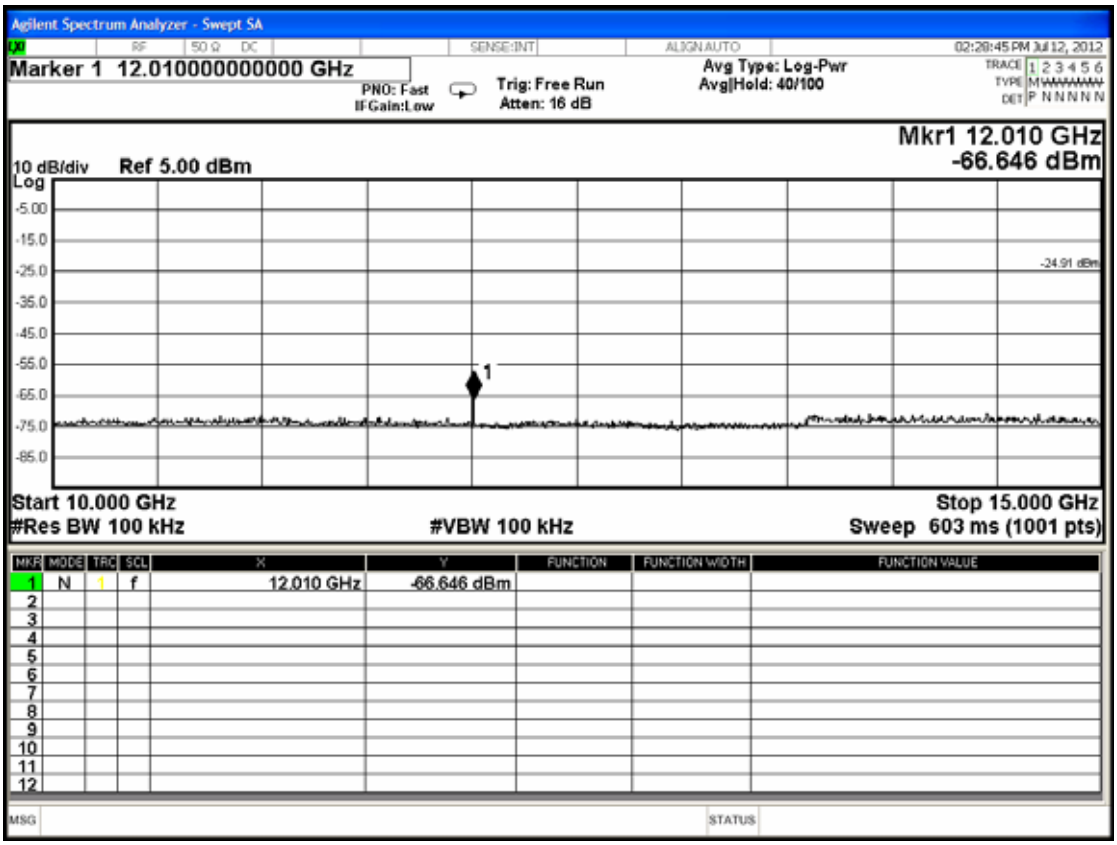
Test Date: Jul. 12, 2012 Temperature : 25℃ Humidity : 59%

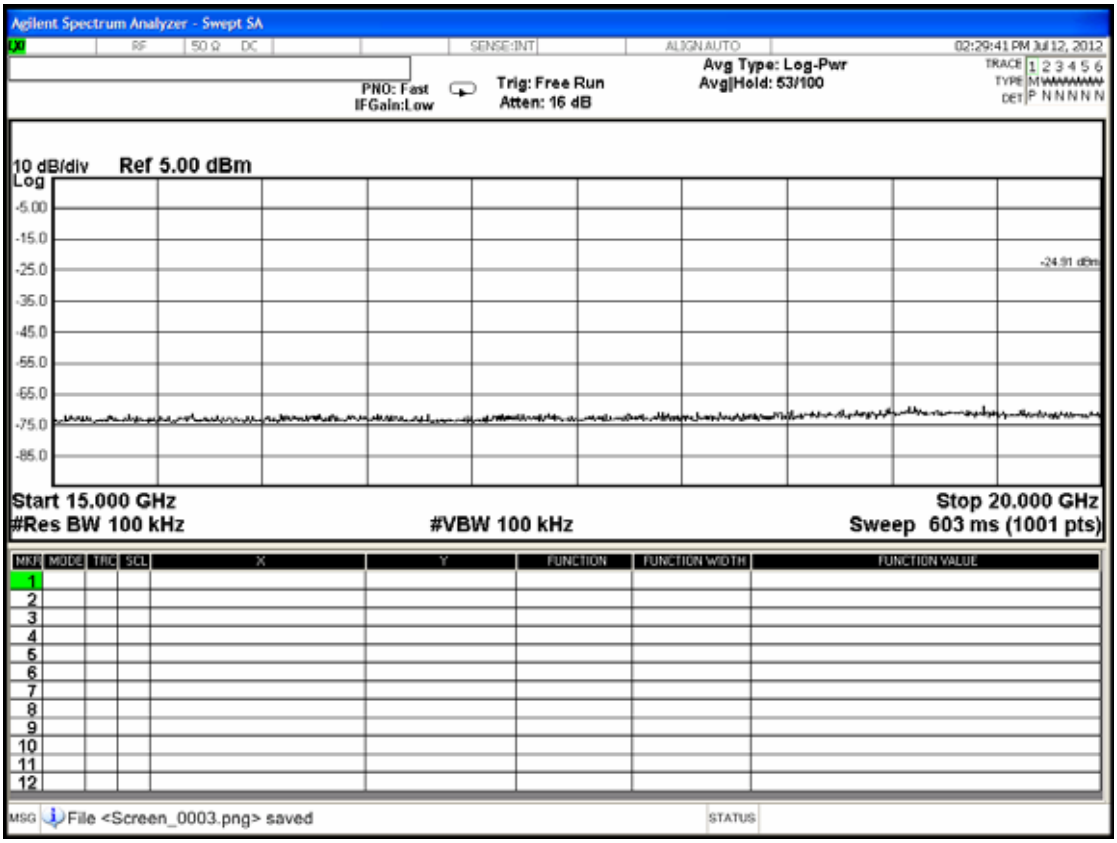
Figure 1: 8-DPSK, Channel 0, Frequency: 2402MHz






Agilent Spectrum Analyzer - Swept SA
Marker 1 7.205000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:28:06 PM Jul 12, 2012
Mkr1 7.205 GHz
-67.689 dBm
10 dB/div
Log
Ref 5.00 dBm
-24.91 dBm
Start 5.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 10.000 GHz
Sweep 603 ms (1001 pts)
1 N 1 f 7.205 GHz -67.689 dBm


Agilent Spectrum Analyzer - Swept SA
Marker 1 12.010000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold: 40/100
02:28:45 PM Jul 12, 2012
Mkr1 12.010 GHz
-66.646 dBm
10 dB/div
Log
Ref 5.00 dBm
-24.91 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 15.000 GHz
Sweep 603 ms (1001 pts)
1 N 1 f 12.010 GHz -66.646 dBm


Agilent Spectrum Analyzer - Swept SA
02:29:41 PM Jul 12, 2012
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold: 53/100
10 dB/div
Log
Ref 5.00 dBm
-5.00
-15.0
-25.0
-35.0
-45.0
-55.0
-65.0
-75.0
-85.0
-24.91 dBm
Start 15.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 20.000 GHz
Sweep 603 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1
2
3
4
5
6
7
8
9
10
11
12
MSG
File <Screen_0003.png> saved
STATUS

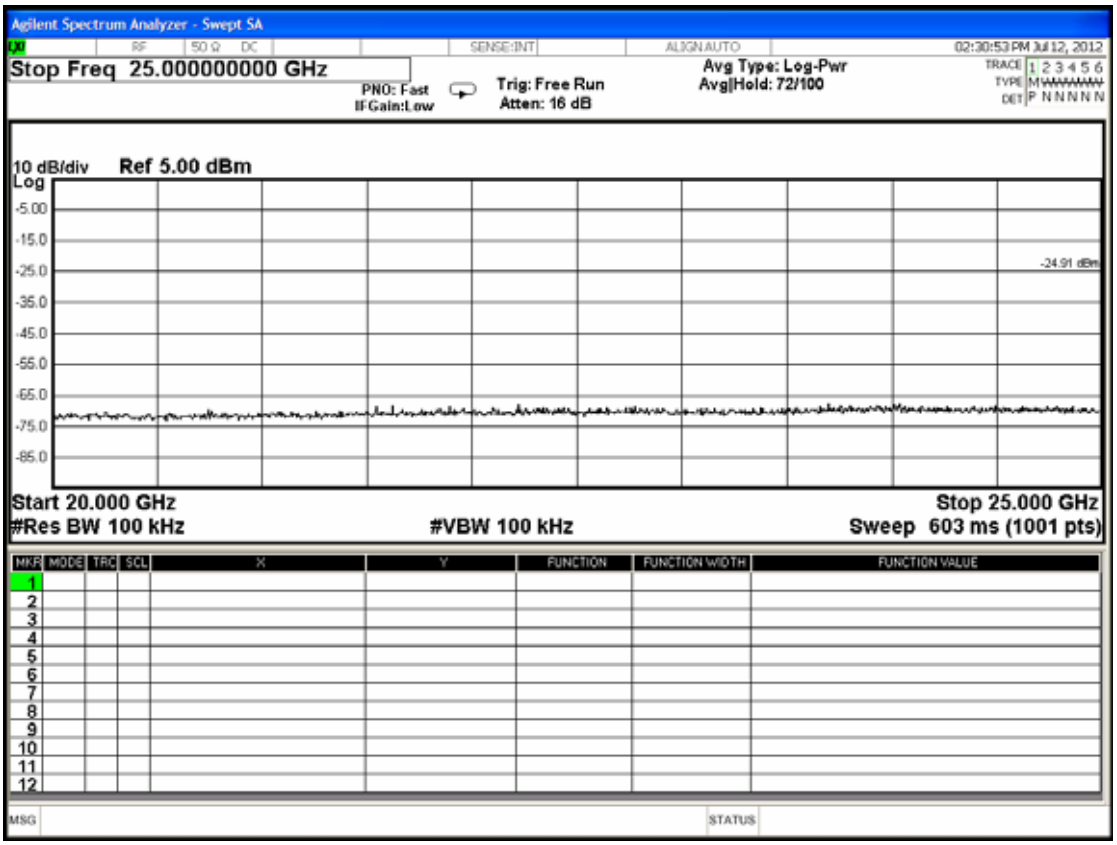
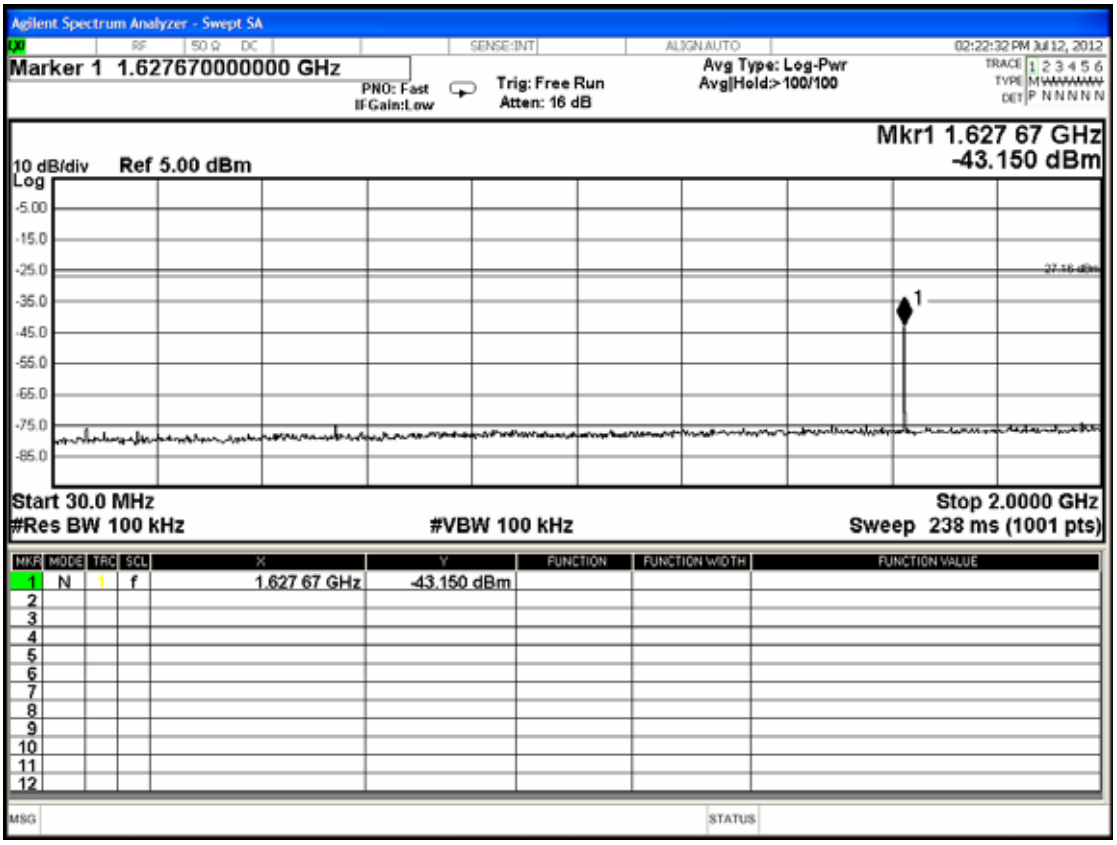
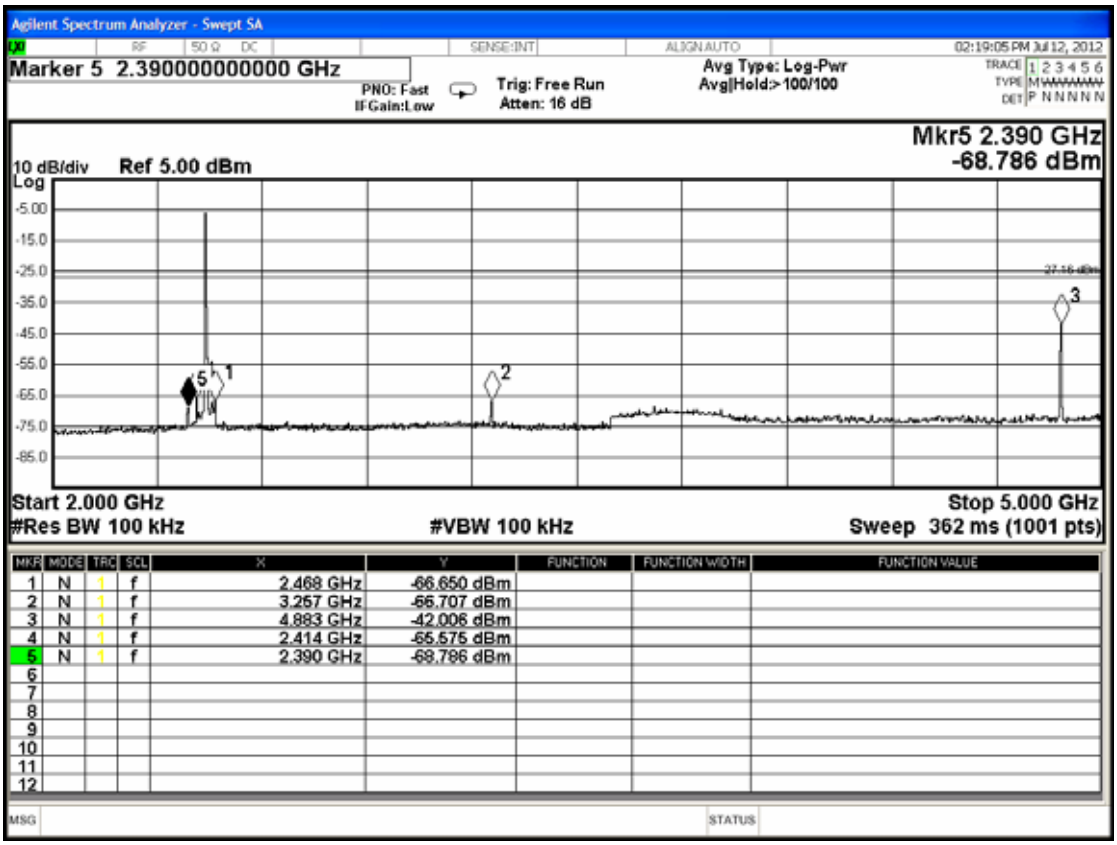
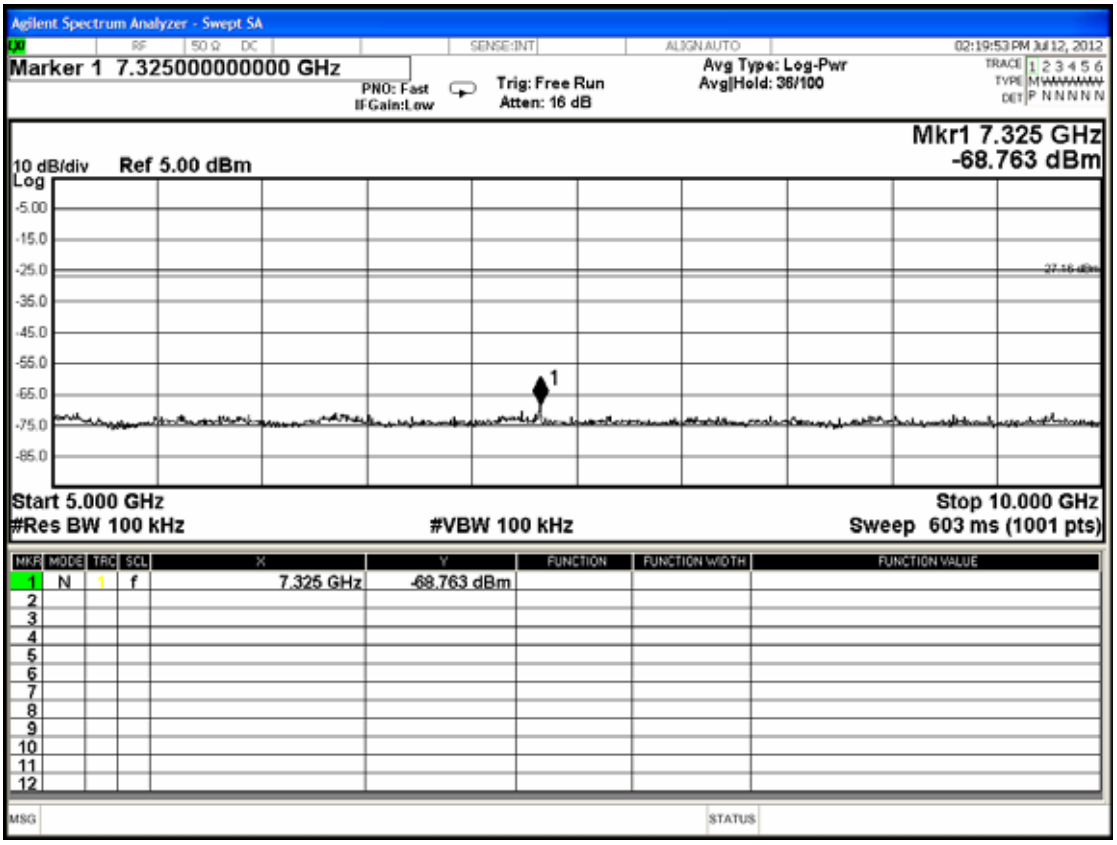
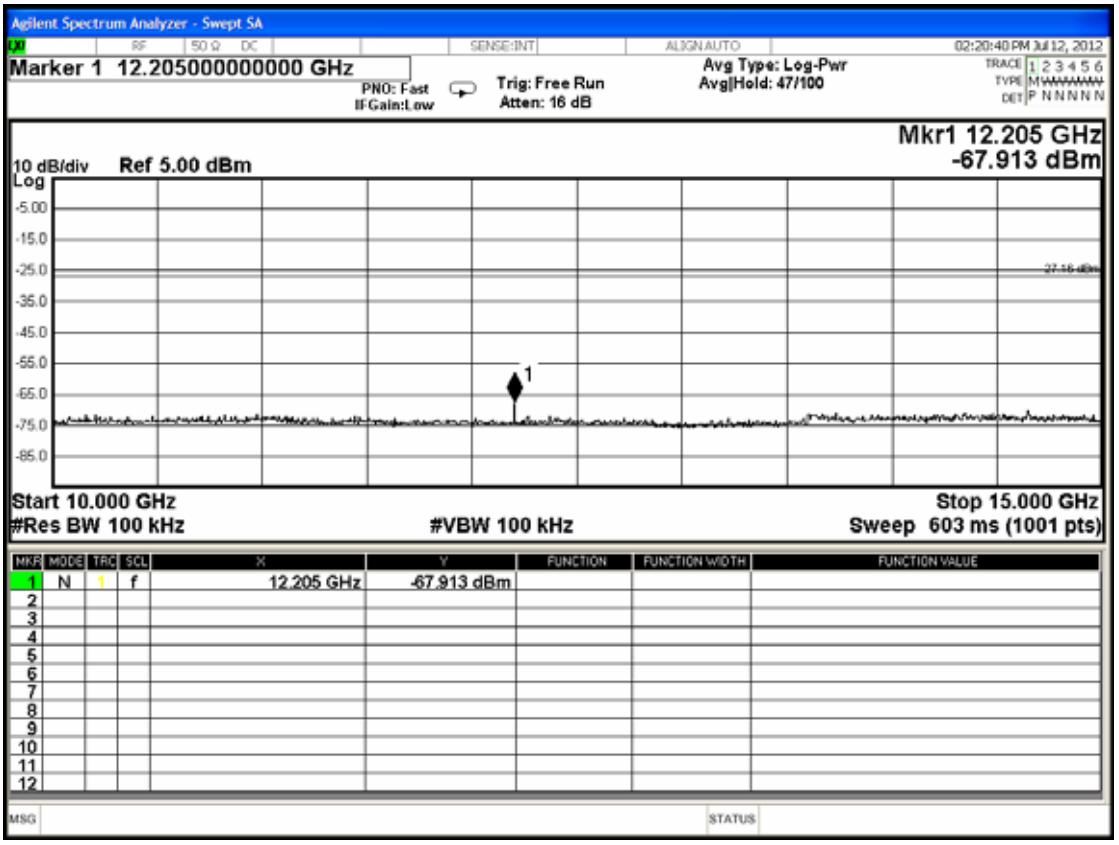

Agilent Spectrum Analyzer - Swept SA
02:30:53 PM Jul 12, 2012
Stop Freq 25.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold: 72/100
10 dB/div
Log
Ref 5.00 dBm
-5.00
-15.0
-25.0
-35.0
-45.0
-55.0
-65.0
-75.0
-85.0
-24.91 dBm
Start 20.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 25.000 GHz
Sweep 603 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1
2
3
4
5
6
7
8
9
10
11
12
MSG
STATUS

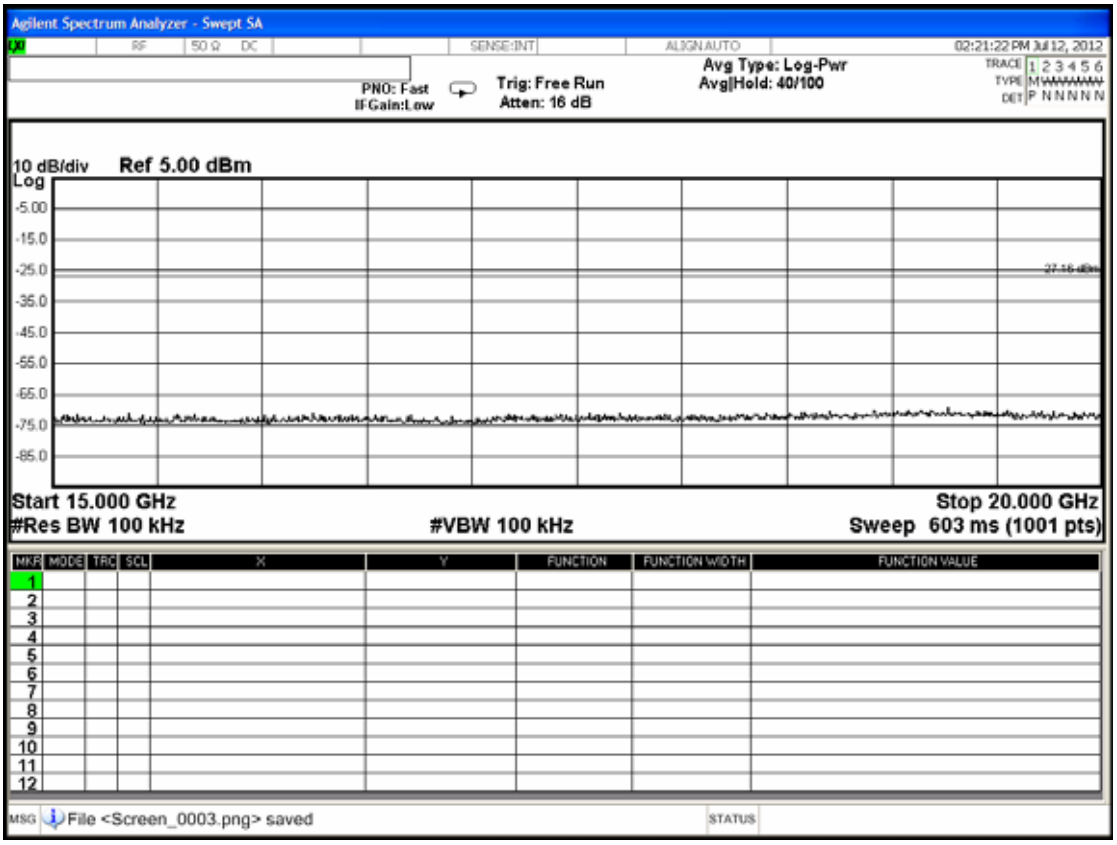
Figure 2: 8-DPSK, Channel 39, Frequency: 2441MHz






Agilent Spectrum Analyzer - Swept SA
Marker 1 7.325000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold: 36/100
02:19:53 PM Jul 12, 2012
Mkr1 7.325 GHz
-68.763 dBm
10 dB/div
Log
Ref 5.00 dBm
-5.00
-15.0
-25.0
-35.0
-45.0
-55.0
-65.0
-75.0
-85.0
Start 5.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 10.000 GHz
Sweep 603 ms (1001 pts)
1 N 1 f 7.325 GHz -68.763 dBm


Agilent Spectrum Analyzer - Swept SA
Marker 1 12.205000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold: 47/100
02:20:40 PM Jul 12, 2012
Mkr1 12.205 GHz
-67.913 dBm
10 dB/div
Log
Ref 5.00 dBm
-5.00
-15.0
-25.0
-35.0
-45.0
-55.0
-65.0
-75.0
-85.0
Start 10.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 15.000 GHz
Sweep 603 ms (1001 pts)
1 N 1 f 12.205 GHz -67.913 dBm


Agilent Spectrum Analyzer - Swept SA
RF 50 Ω DC
SENSE:INT
ALIGN AUTO
02:21:22 PM Jul 12, 2012
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold: 40/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
10 dB/div
Log
Ref 5.00 dBm
-5.00
-15.0
-25.0
-35.0
-45.0
-55.0
-65.0
-75.0
-85.0
27.16 dBm
Start 15.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 20.000 GHz
Sweep 603 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1
2
3
4
5
6
7
8
9
10
11
12
MSG
File <Screen_0003.png> saved
STATUS

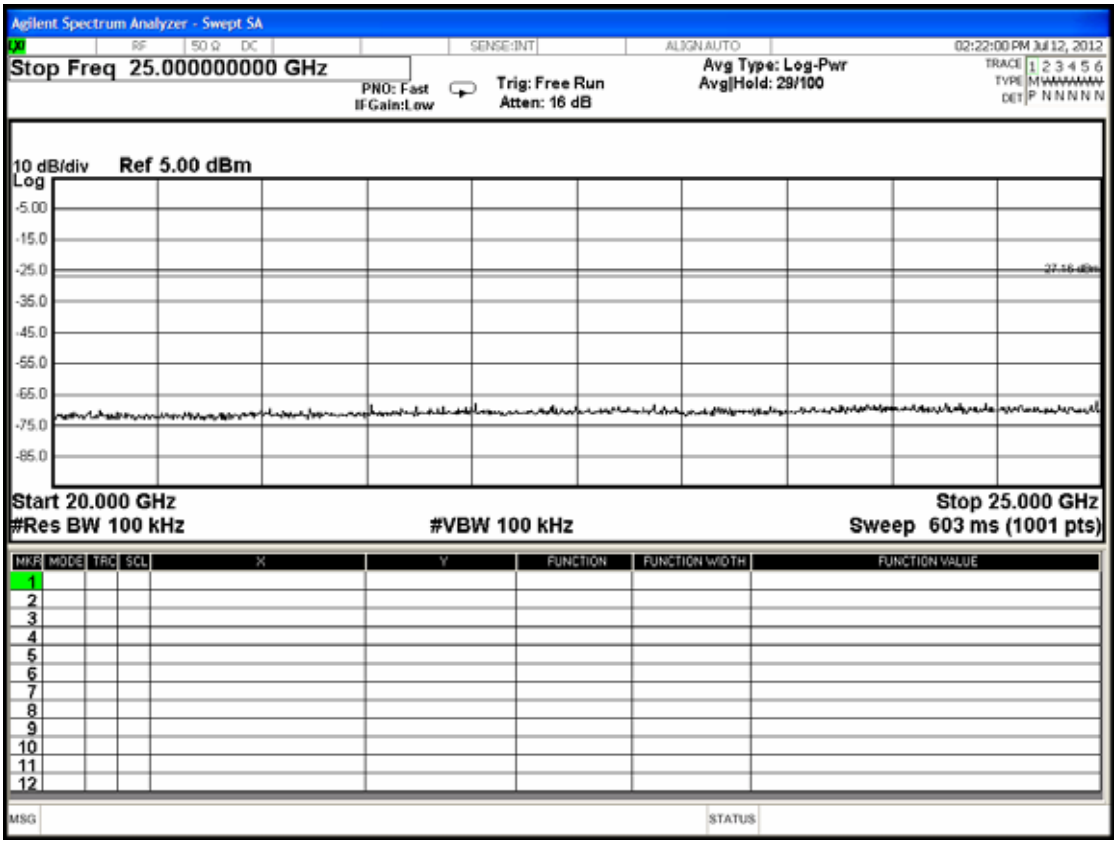
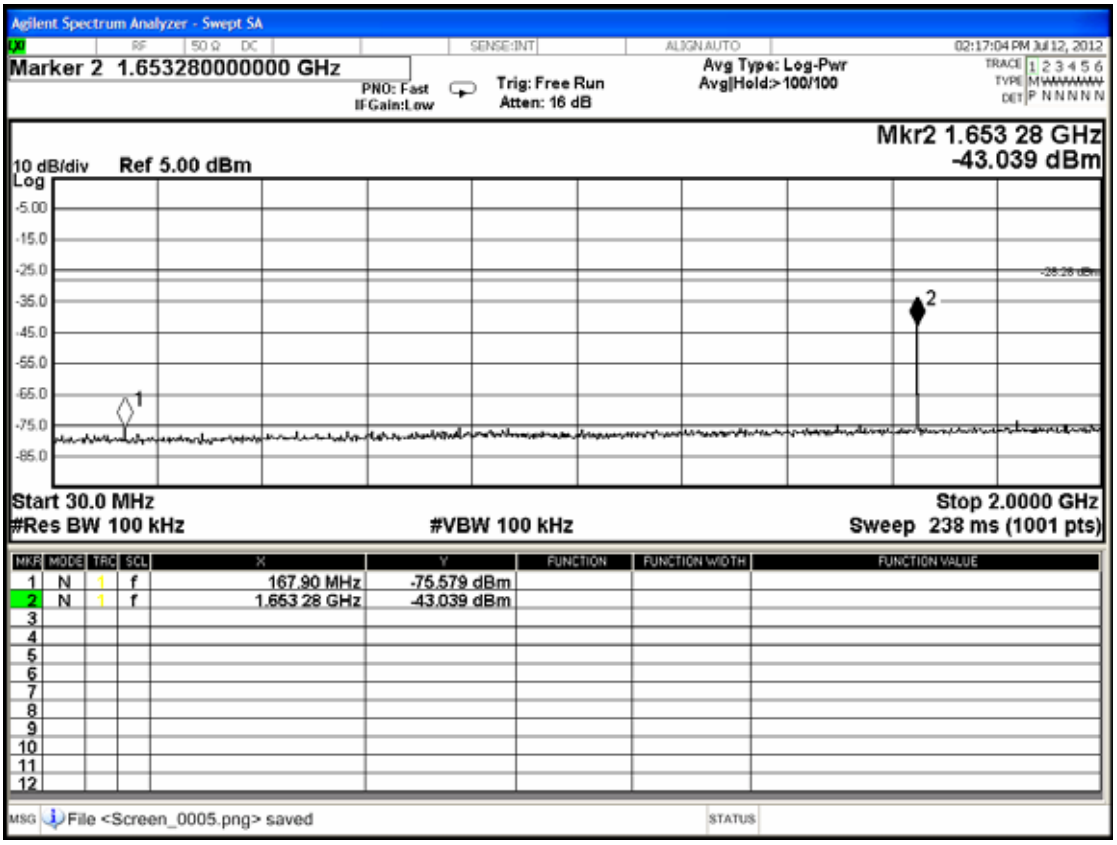
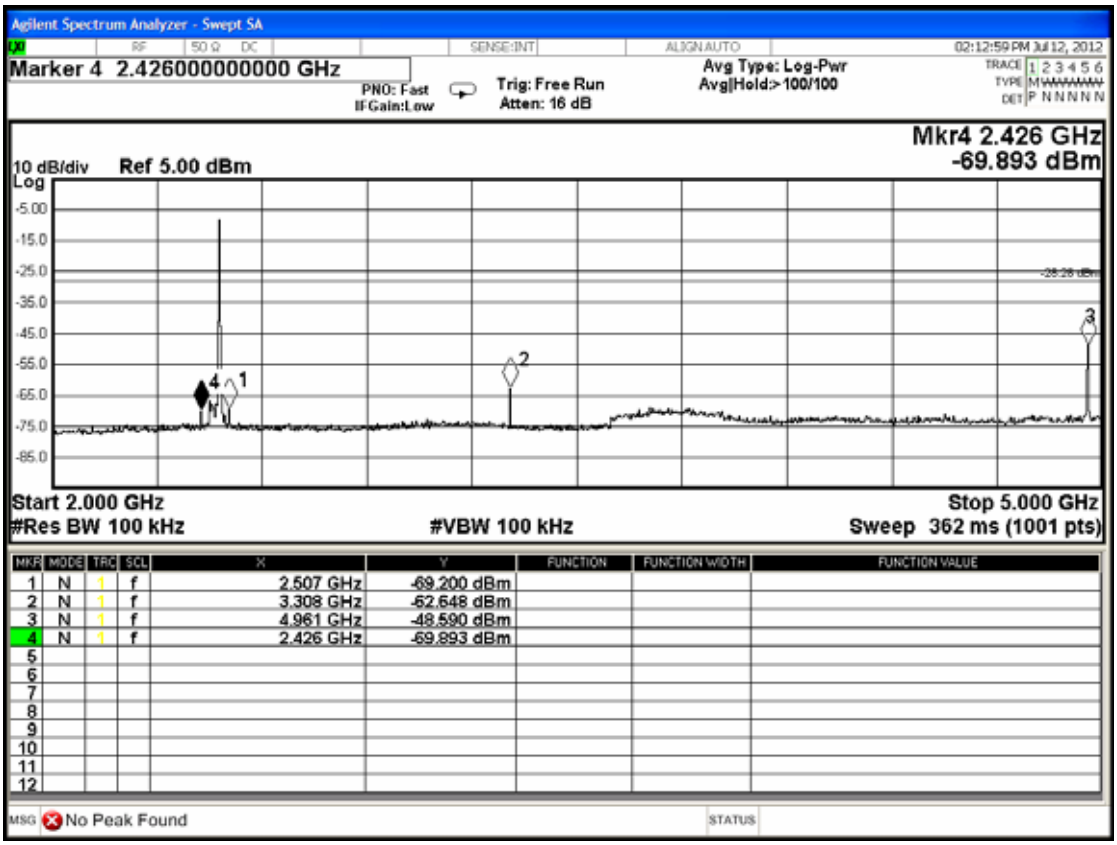
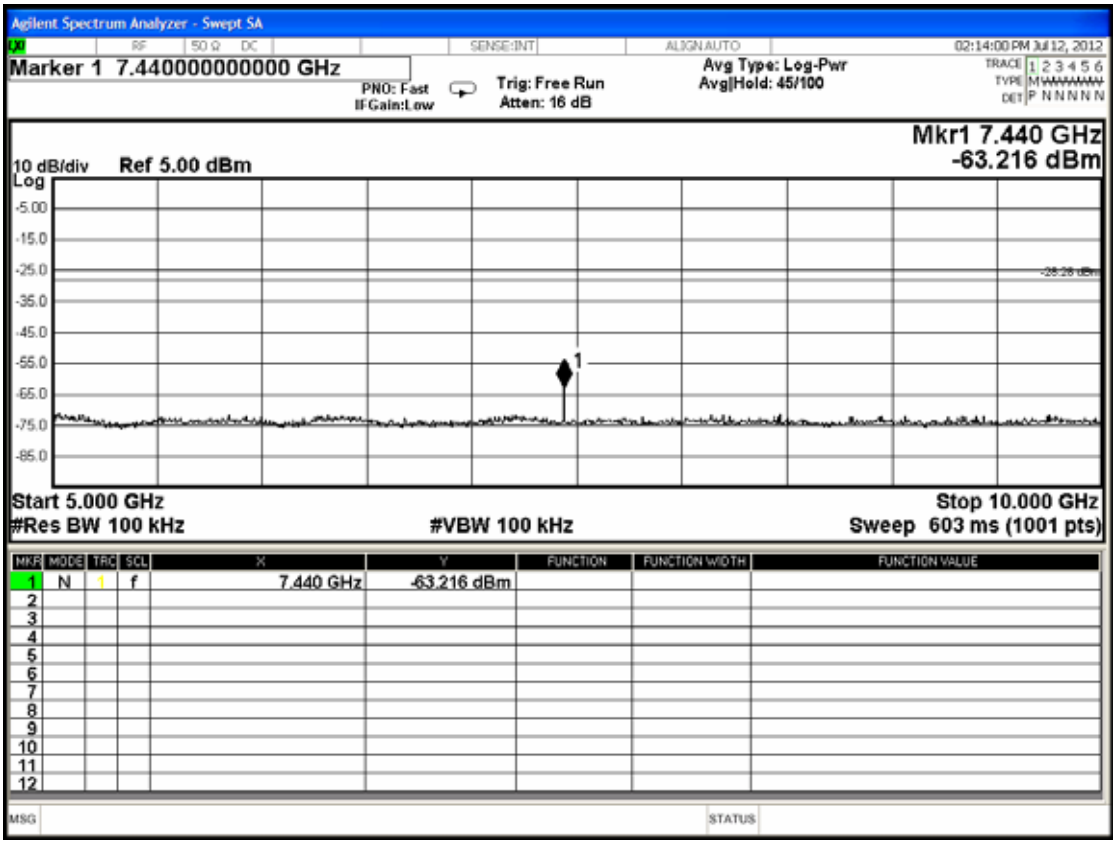
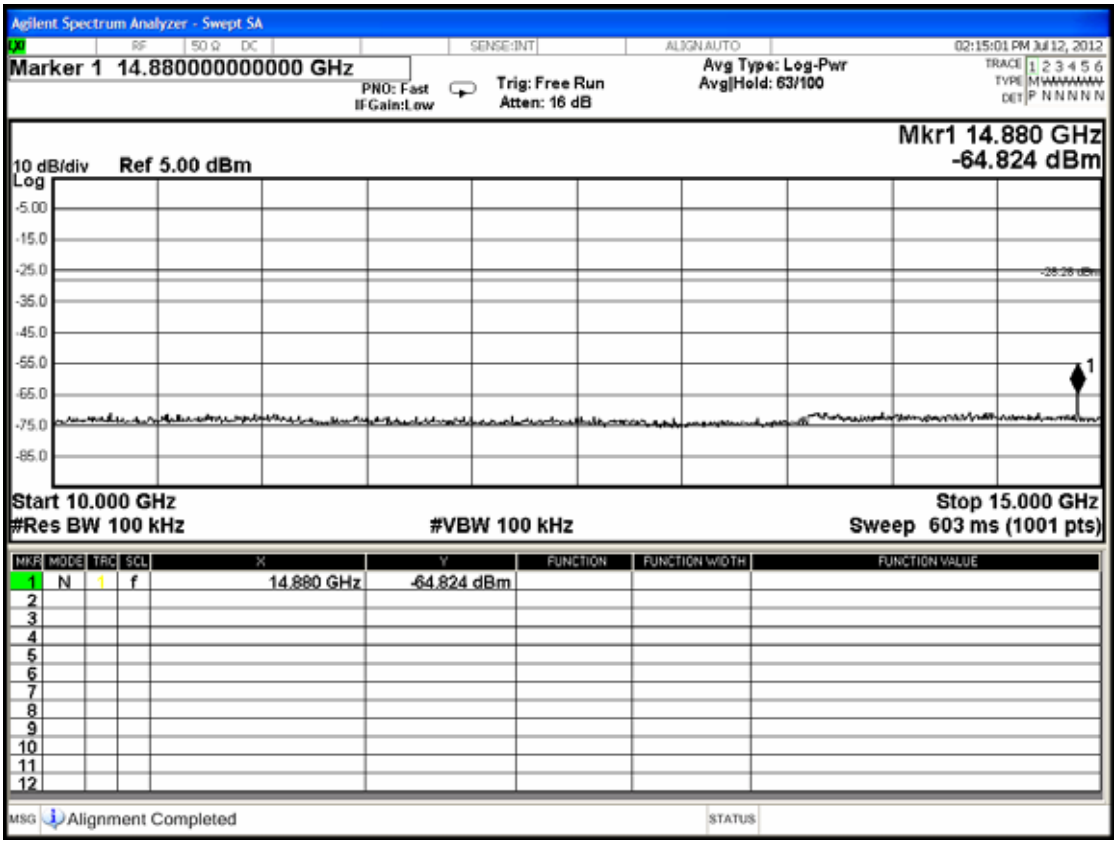

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω DC
SENSE:INT
ALIGN AUTO
02:22:00 PM Jul 12, 2012
Stop Freq 25.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold: 29/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
10 dB/div
Log
Ref 5.00 dBm
-5.00
-15.0
-25.0
-35.0
-45.0
-55.0
-65.0
-75.0
-85.0
27.16 dBm
Start 20.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 25.000 GHz
Sweep 603 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1
2
3
4
5
6
7
8
9
10
11
12
MSG
STATUS

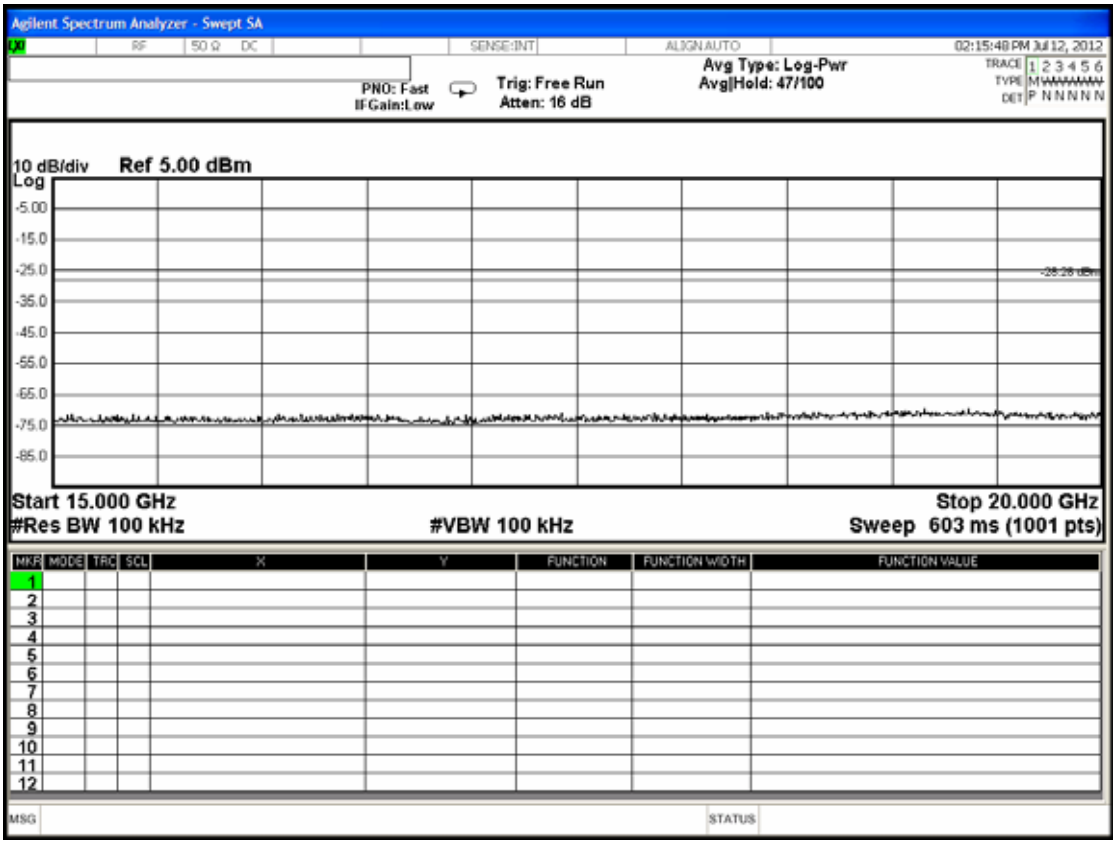
Figure 3: 8-DPSK, Channel 78, Frequency: 2480MHz






Agilent Spectrum Analyzer - Swept SA
Marker 1 7.440000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold: 45/100
02:14:00 PM Jul 12, 2012
Mkr1 7.440 GHz
-63.216 dBm
10 dB/div
Log
Ref 5.00 dBm
-5.00
-15.0
-25.0
-35.0
-45.0
-55.0
-65.0
-75.0
-85.0
-28.28 dBm
Start 5.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 10.000 GHz
Sweep 603 ms (1001 pts)
1 N 1 f 7.440 GHz -63.216 dBm
MSG
STATUS


Agilent Spectrum Analyzer - Swept SA
Marker 1 14.880000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold: 63/100
02:15:01 PM Jul 12, 2012
Mkr1 14.880 GHz
-64.824 dBm
10 dB/div
Log
Ref 5.00 dBm
-5.00
-15.0
-25.0
-35.0
-45.0
-55.0
-65.0
-75.0
-85.0
-28.28 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 15.000 GHz
Sweep 603 ms (1001 pts)
1 N 1 f 14.880 GHz -64.824 dBm
MSG
Alignment Completed
STATUS


Agilent Spectrum Analyzer - Swept SA
RF
50 Ω DC
SENSE:INT
ALIGN AUTO
02:15:48 PM Jul 12, 2012
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold: 47/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
10 dB/div
Log
Ref 5.00 dBm
-5.00
-15.0
-25.0
-35.0
-45.0
-55.0
-65.0
-75.0
-85.0
-28.28 dBm
Start 15.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 20.000 GHz
Sweep 603 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1
2
3
4
5
6
7
8
9
10
11
12
MSG
STATUS

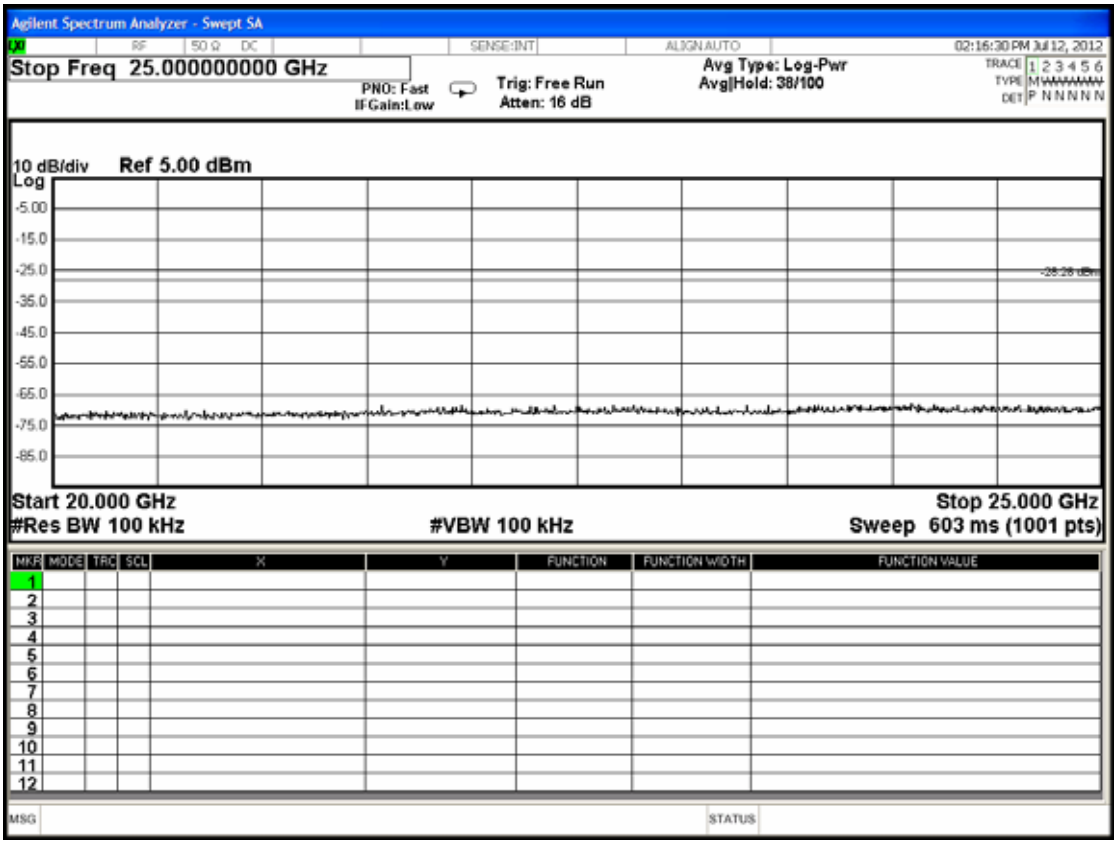
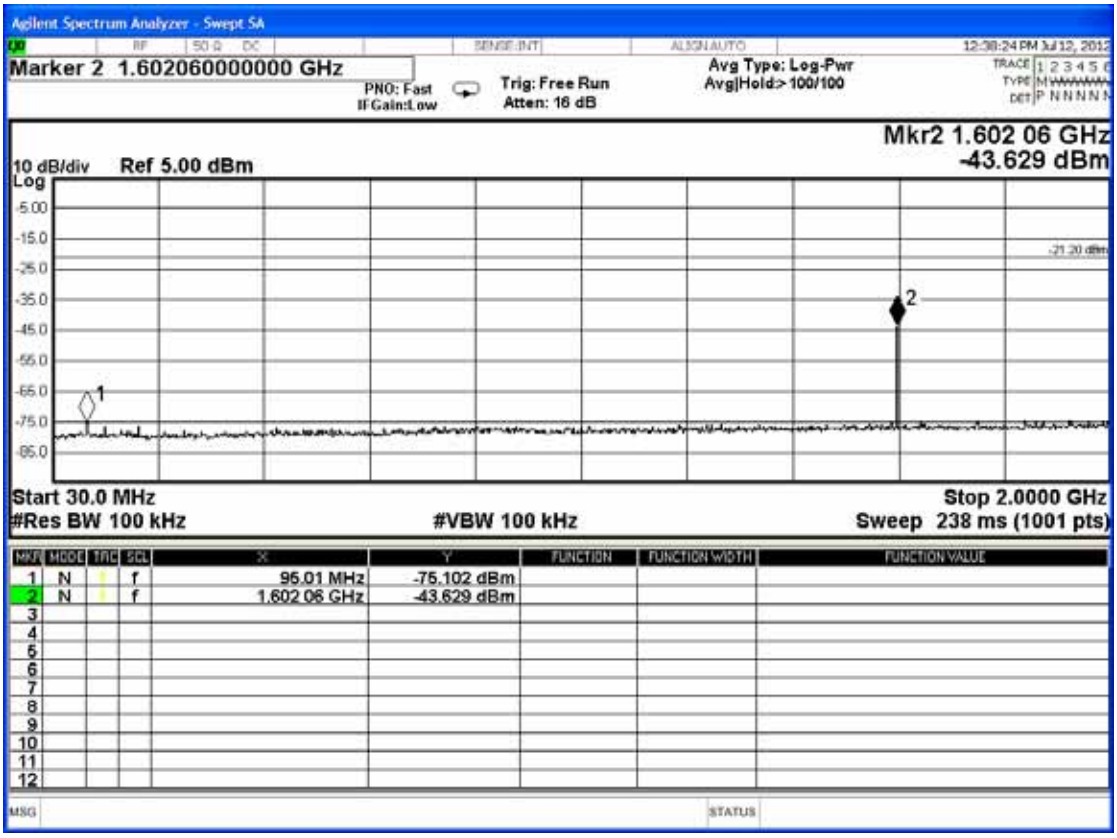
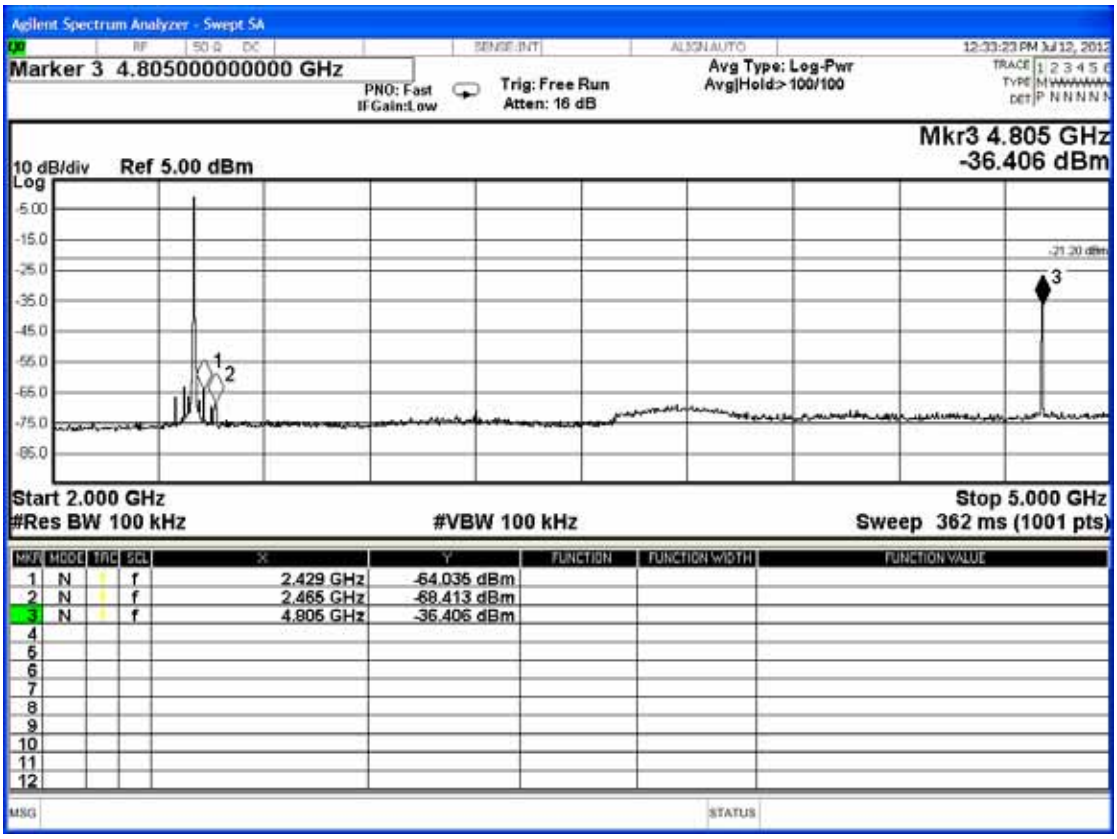
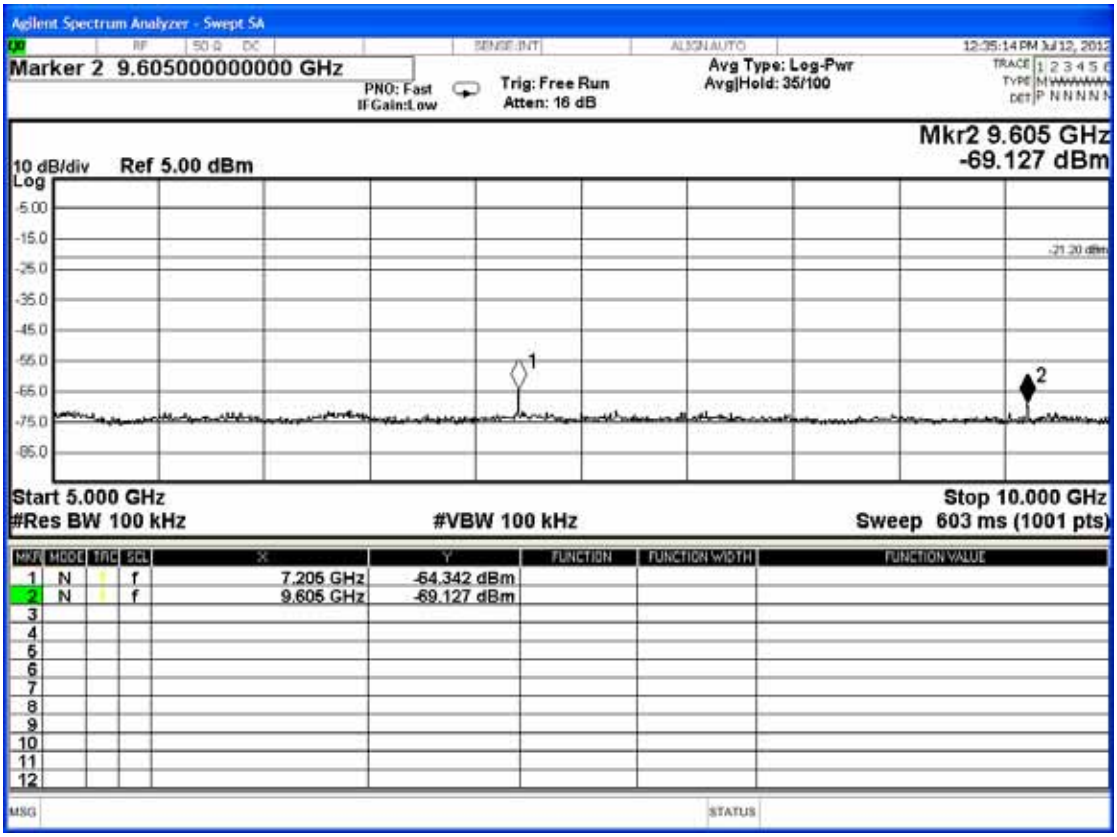
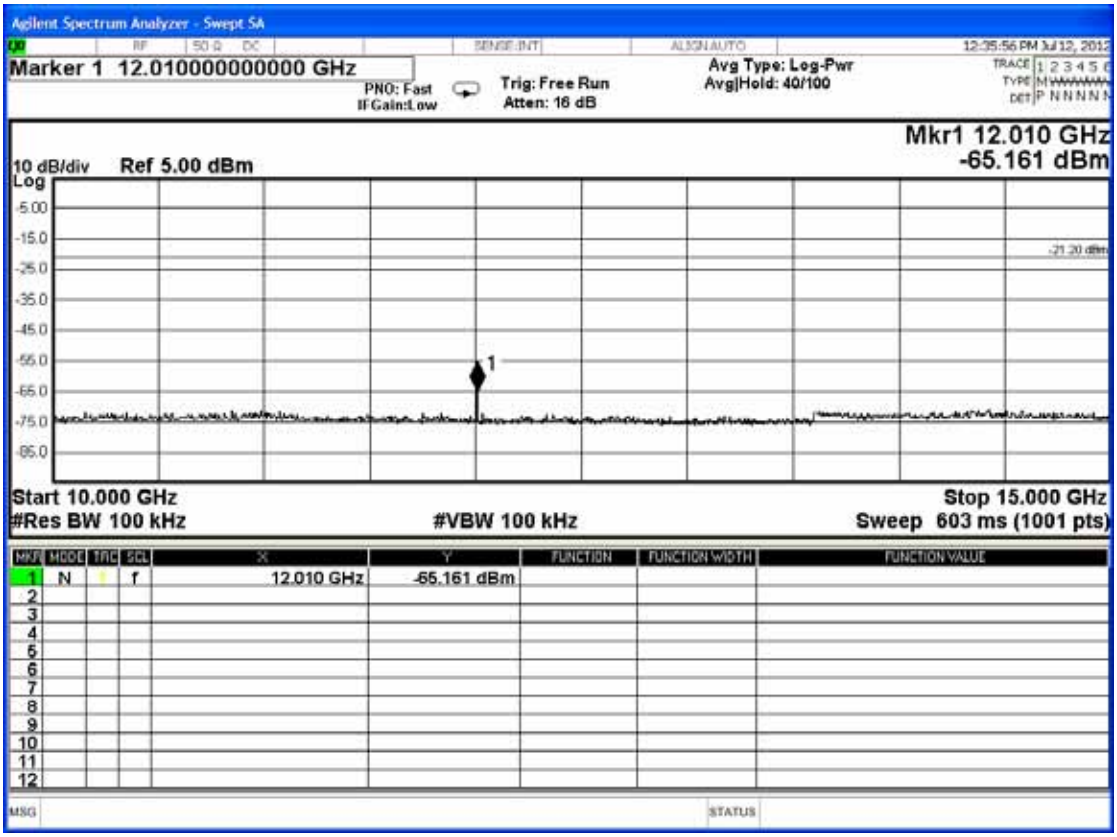

Agilent Spectrum Analyzer - Swept SA
RF
50 Ω DC
SENSE:INT
ALIGN AUTO
02:16:30 PM Jul 12, 2012
Stop Freq 25.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold: 38/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
10 dB/div
Log
Ref 5.00 dBm
-5.00
-15.0
-25.0
-35.0
-45.0
-55.0
-65.0
-75.0
-85.0
-28.28 dBm
Start 20.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 25.000 GHz
Sweep 603 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1
2
3
4
5
6
7
8
9
10
11
12
MSG
STATUS

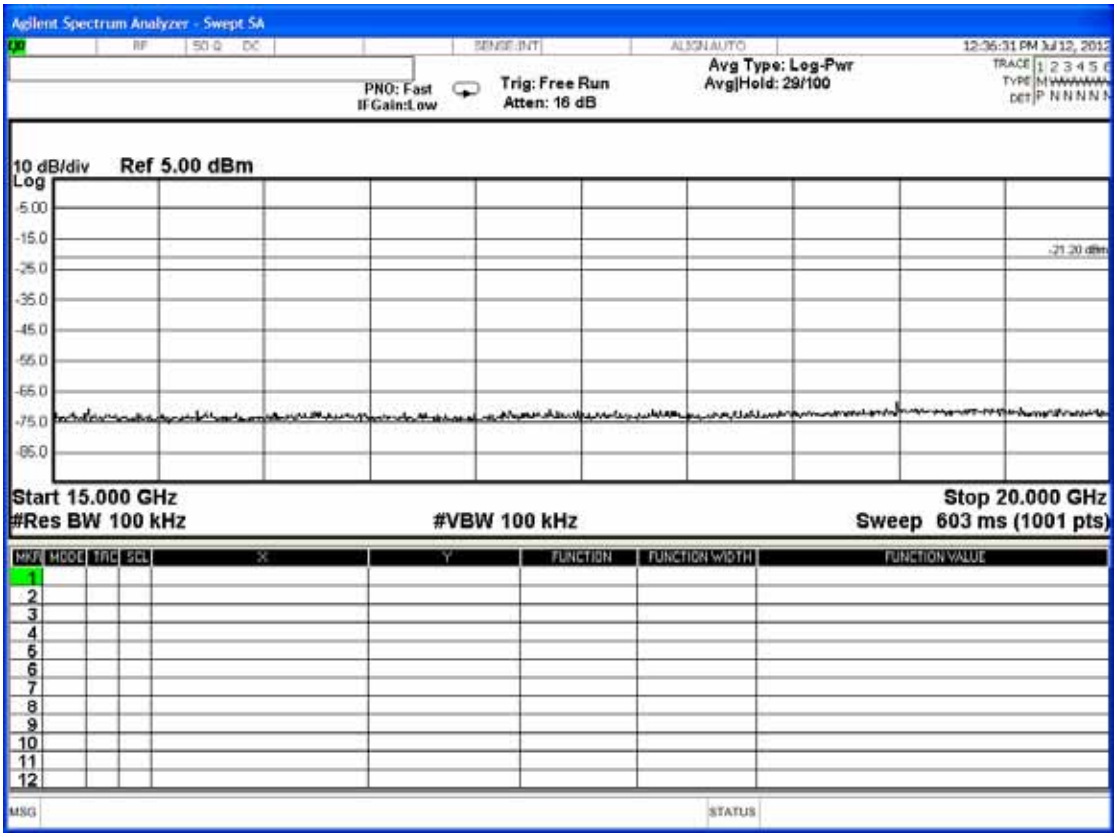
Figure 4: GFSK, Channel 0, Frequency: 2402MHz






Agilent Spectrum Analyzer - Swept SA
Marker 2 9.605000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold: 35/100
Mkr2 9.605 GHz
-69.127 dBm
10 dB/div
Log
Ref 5.00 dBm
Start 5.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 10.000 GHz
Sweep 603 ms (1001 pts)
1 N 1 f 7.205 GHz -64.342 dBm
2 N 1 f 9.605 GHz -69.127 dBm


Agilent Spectrum Analyzer - Swept SA
Marker 1 12.010000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold: 40/100
Mkr1 12.010 GHz
-65.161 dBm
10 dB/div
Log
Ref 5.00 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 15.000 GHz
Sweep 603 ms (1001 pts)
1 N 1 f 12.010 GHz -65.161 dBm


Agilent Spectrum Analyzer - Swept SA
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold: 29/100
10 dB/div
Log
Ref 5.00 dBm
Start 15.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 20.000 GHz
Sweep 603 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
MSG
STATUS

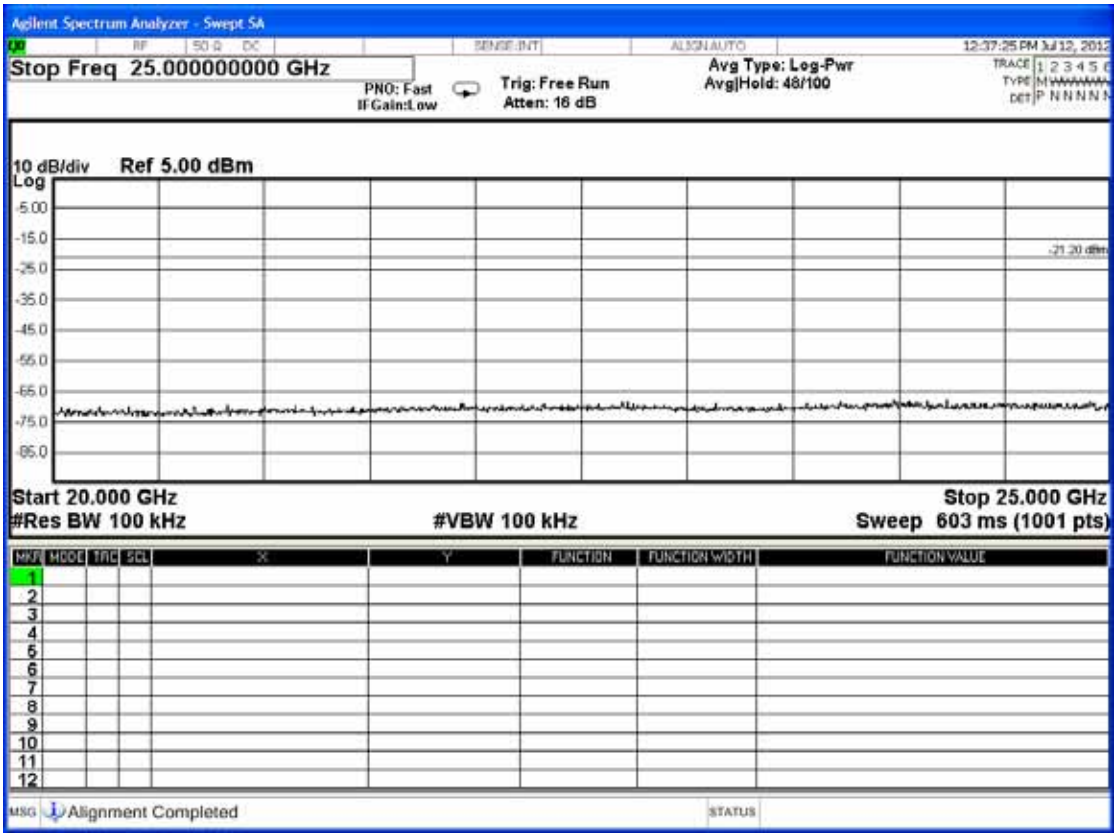
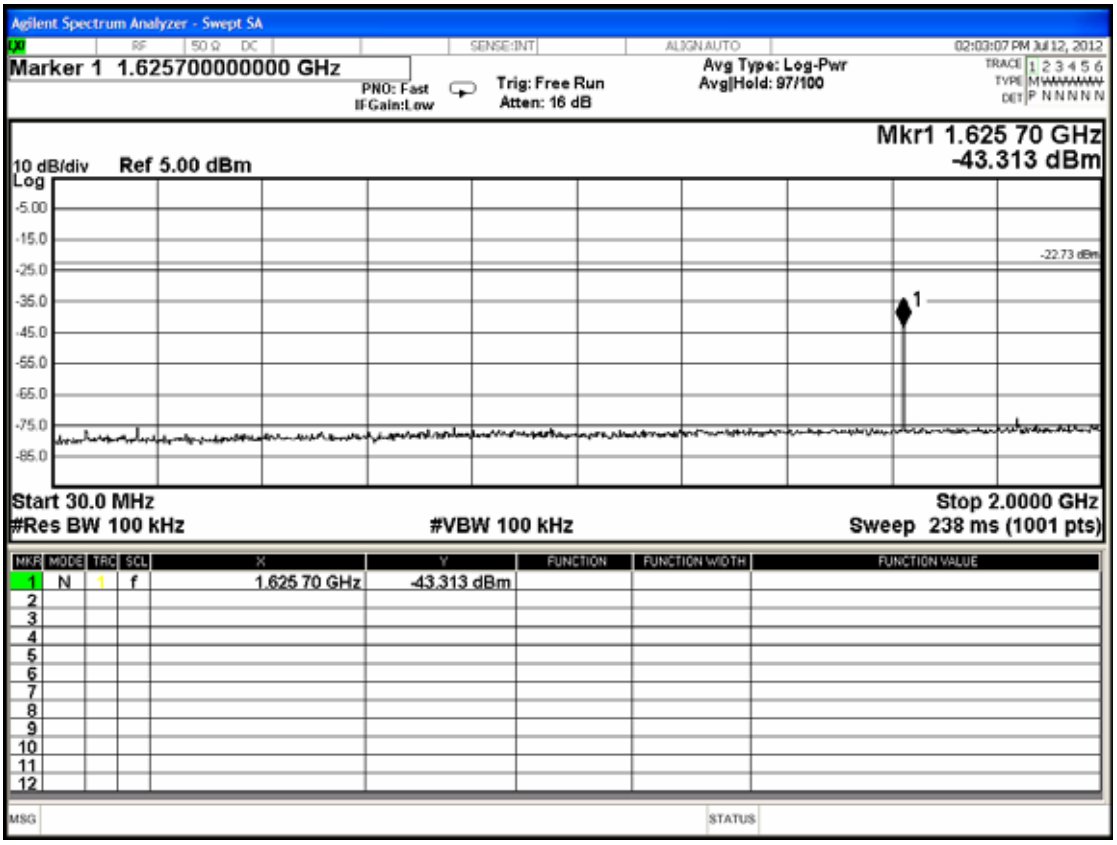
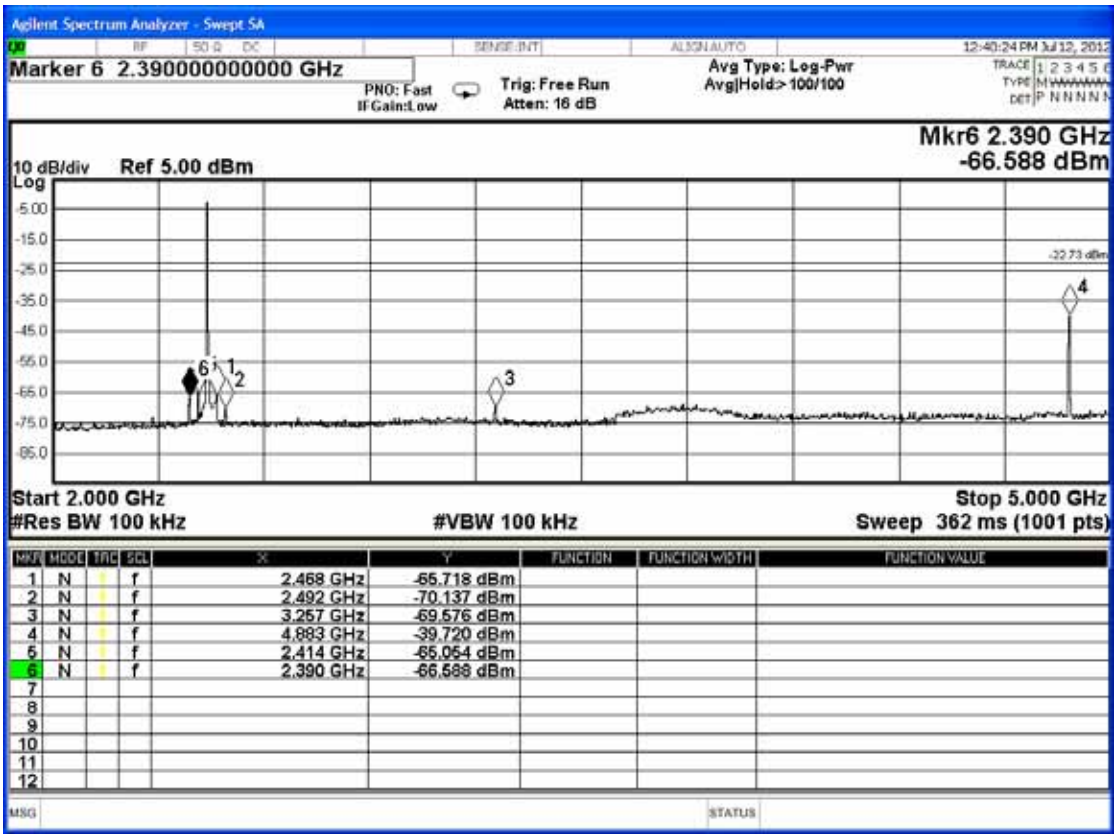
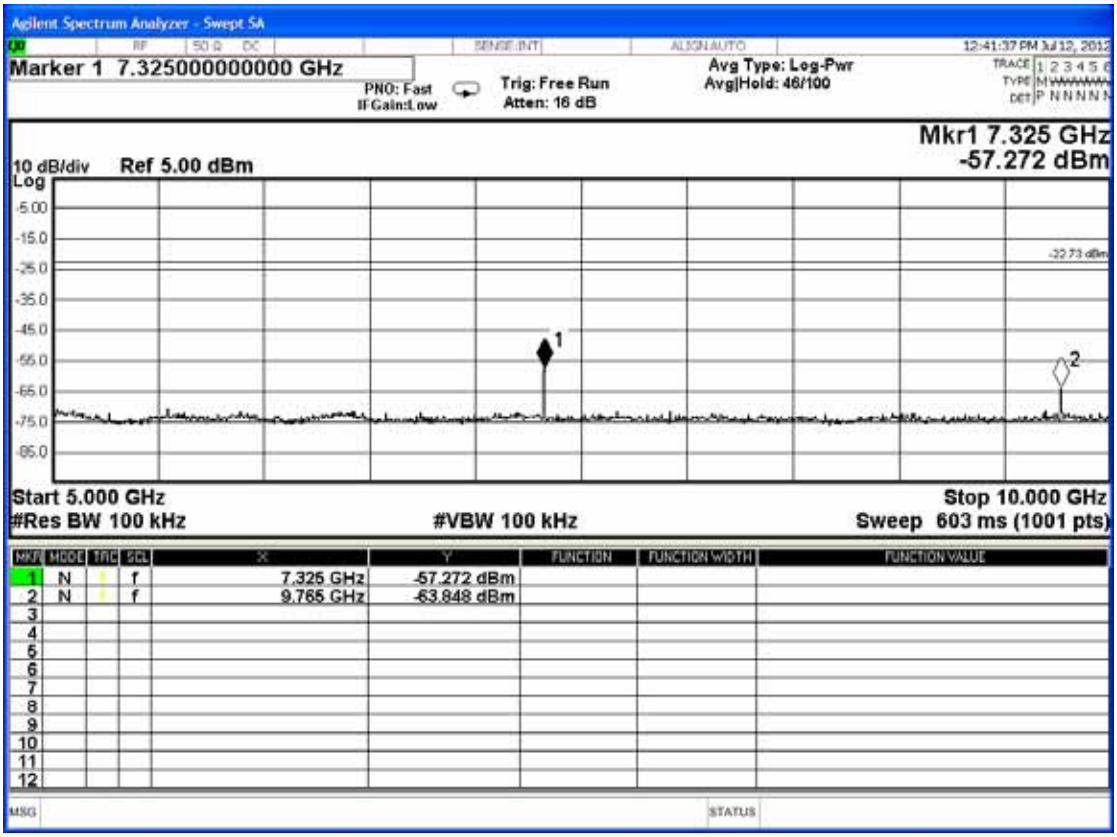
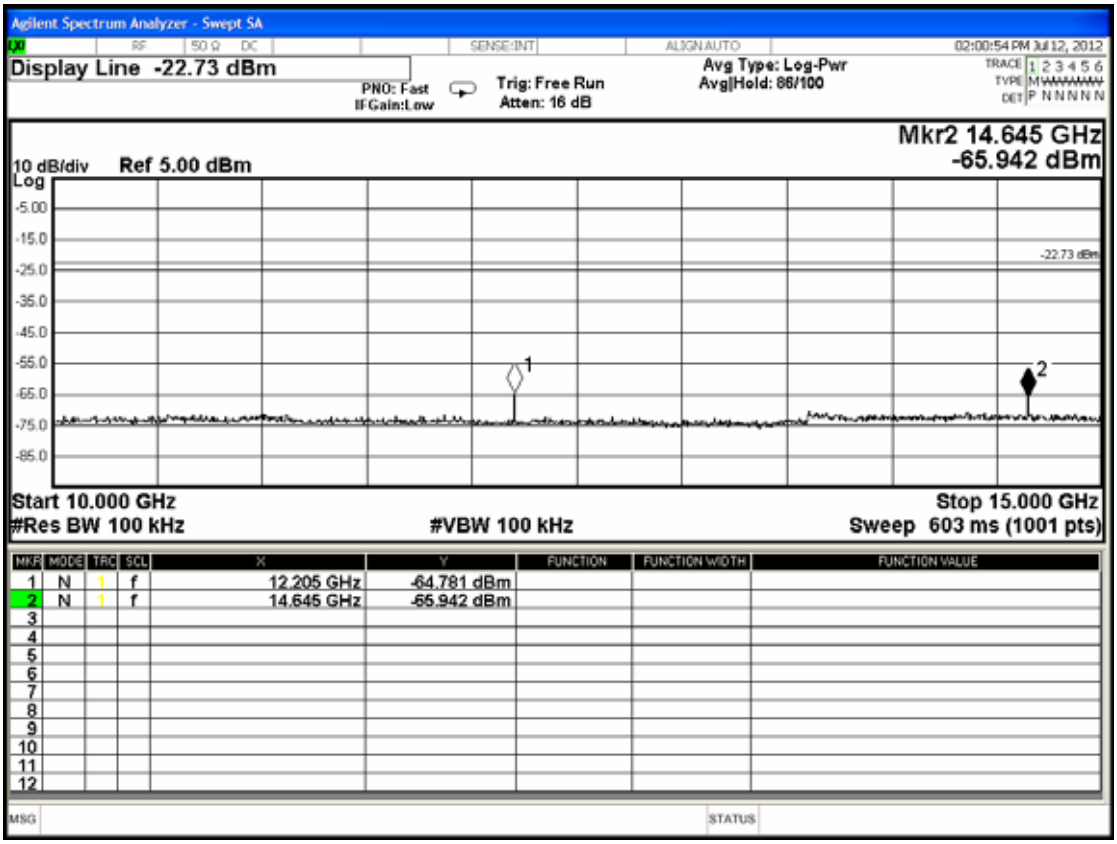

Agilent Spectrum Analyzer - Swept SA
Stop Freq 25.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold: 48/100
10 dB/div
Log
Ref 5.00 dBm
Start 20.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 25.000 GHz
Sweep 603 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
MSG
Alignment Completed
STATUS

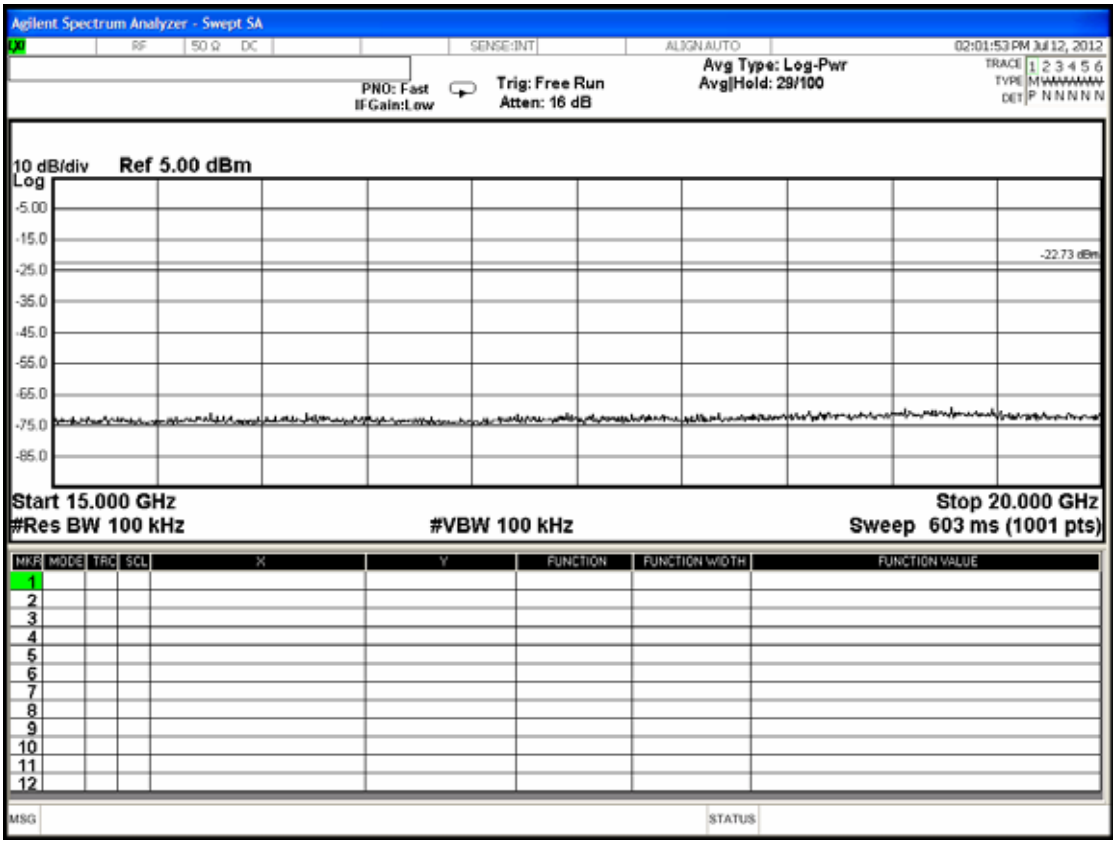
Figure 5: GFSK, Channel 39, Frequency: 2441MHz






Agilent Spectrum Analyzer - Swept SA
Marker 1 7.325000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold: 46/100
12:41:37 PM Jul 12, 2012
Mkr1 7.325 GHz
-57.272 dBm
10 dB/div
Log
Ref 5.00 dBm
-22.73 dBm
Start 5.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 10.000 GHz
Sweep 603 ms (1001 pts)
1 N 1 f 7.325 GHz -57.272 dBm
2 N 1 f 9.765 GHz -63.848 dBm


Agilent Spectrum Analyzer - Swept SA
Display Line -22.73 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold: 86/100
02:00:54 PM Jul 12, 2012
Mkr2 14.645 GHz
-65.942 dBm
10 dB/div
Log
Ref 5.00 dBm
-22.73 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 15.000 GHz
Sweep 603 ms (1001 pts)
1 N 1 f 12.205 GHz -64.781 dBm
2 N 1 f 14.645 GHz -65.942 dBm


Agilent Spectrum Analyzer - Swept SA
RF 50 Ω DC
SENSE:INT
ALIGN AUTO
02:01:53 PM Jul 12, 2012
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold: 29/100
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
10 dB/div
Log
Ref 5.00 dBm
-5.00
-15.0
-25.0
-35.0
-45.0
-55.0
-65.0
-75.0
-85.0
-22.73 dBm
Start 15.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 20.000 GHz
Sweep 603 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1
2
3
4
5
6
7
8
9
10
11
12
MSG
STATUS

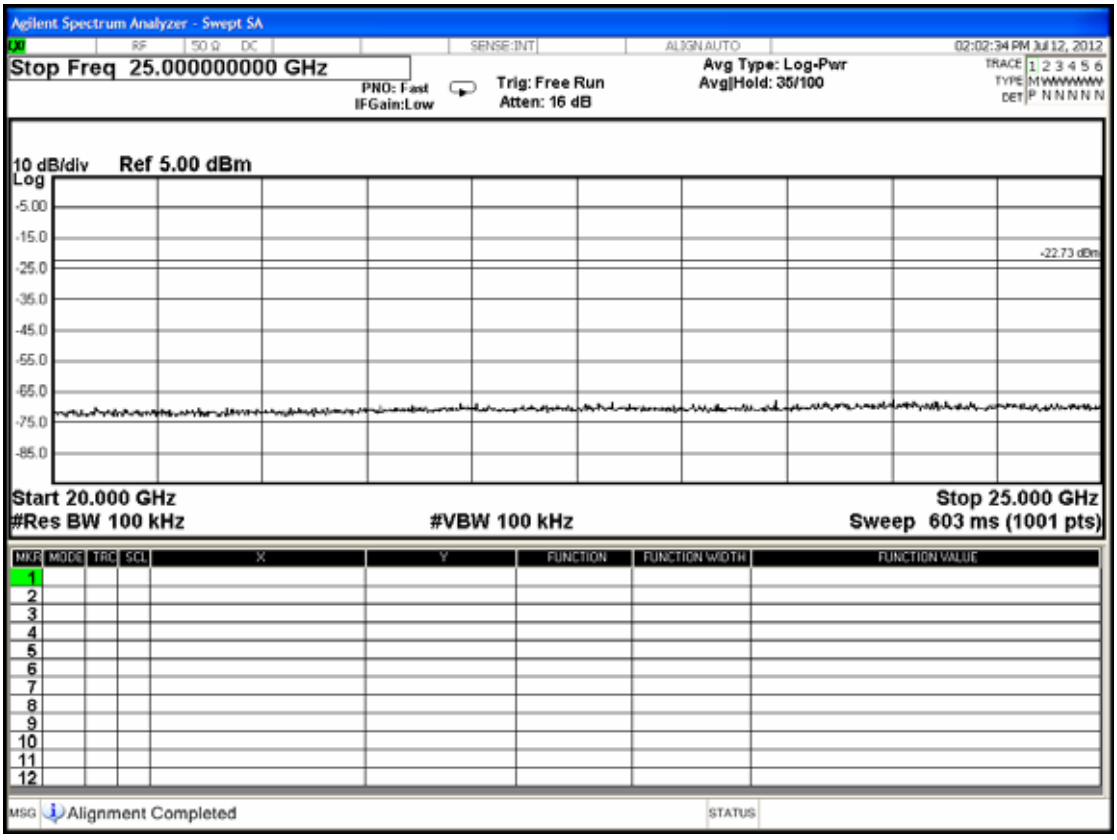
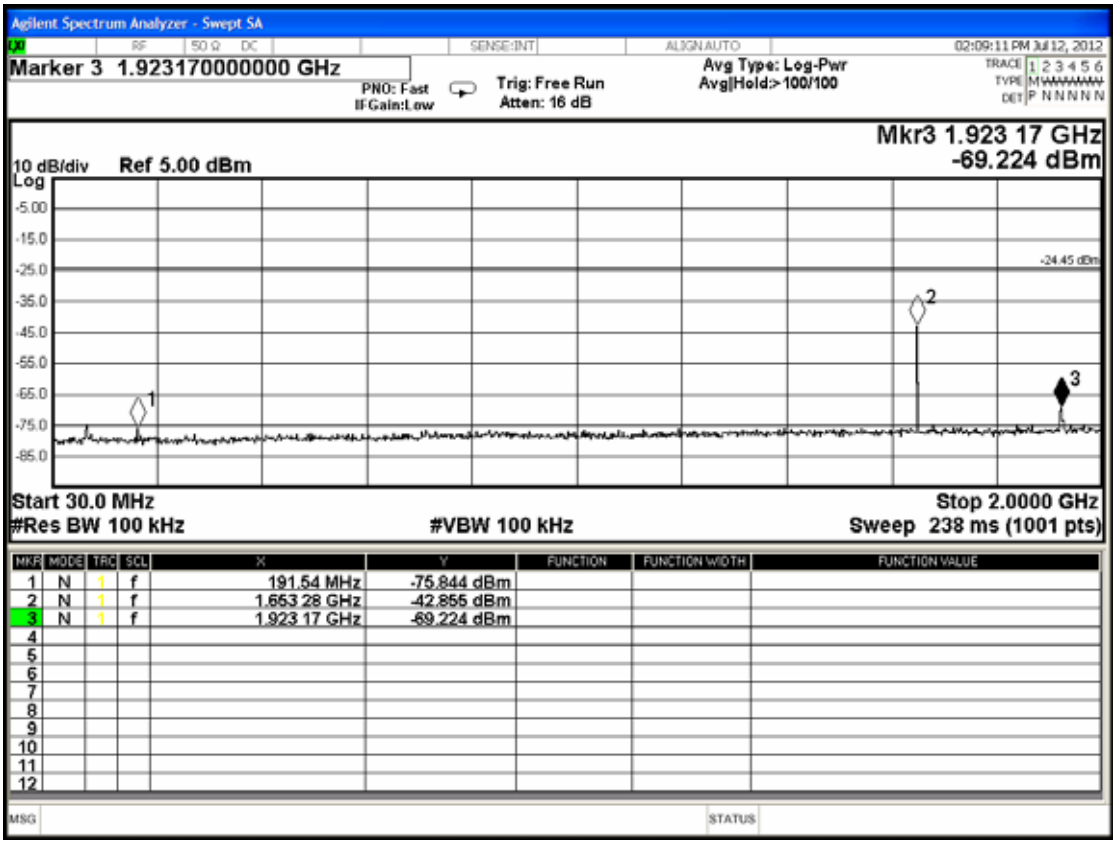
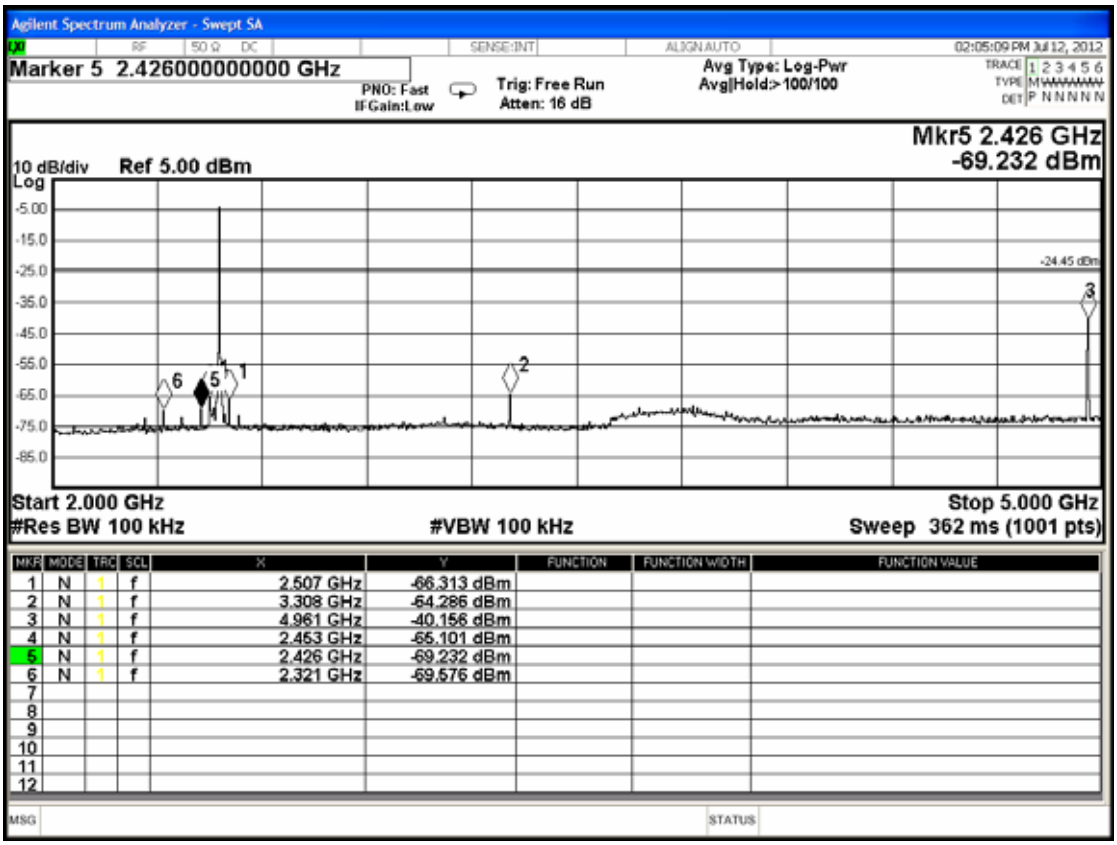
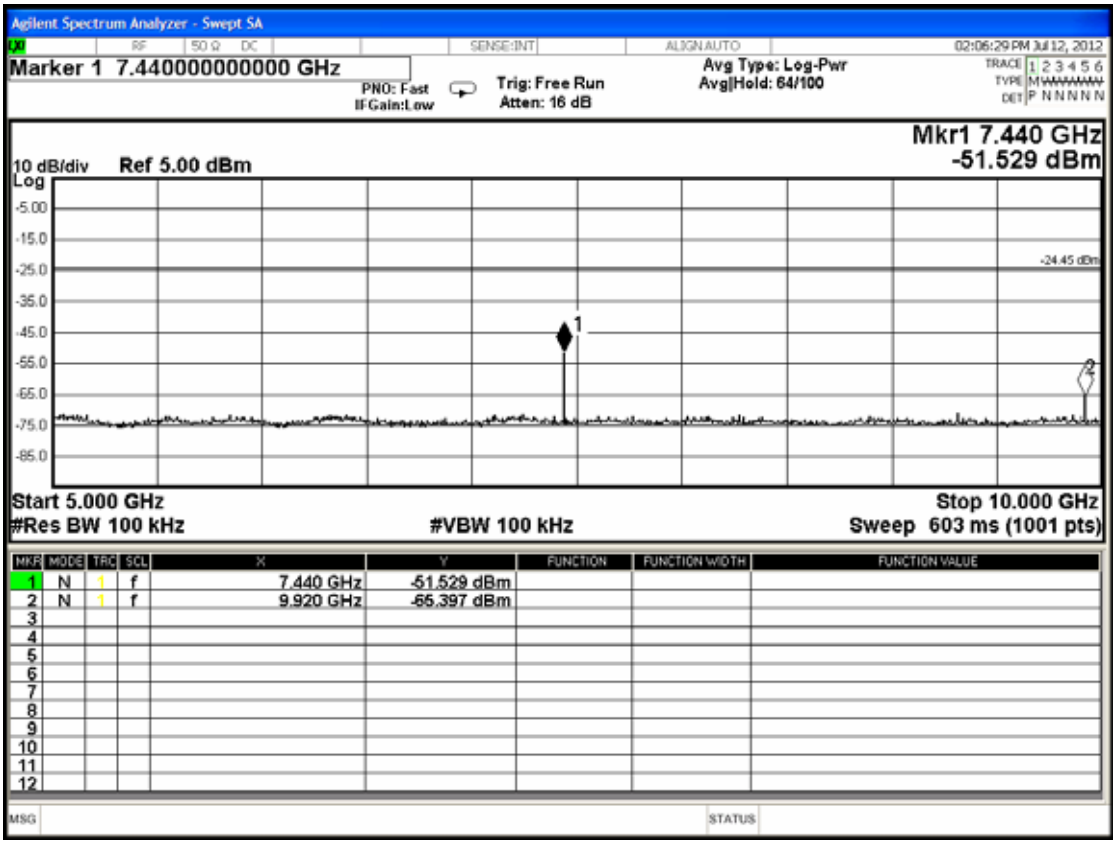
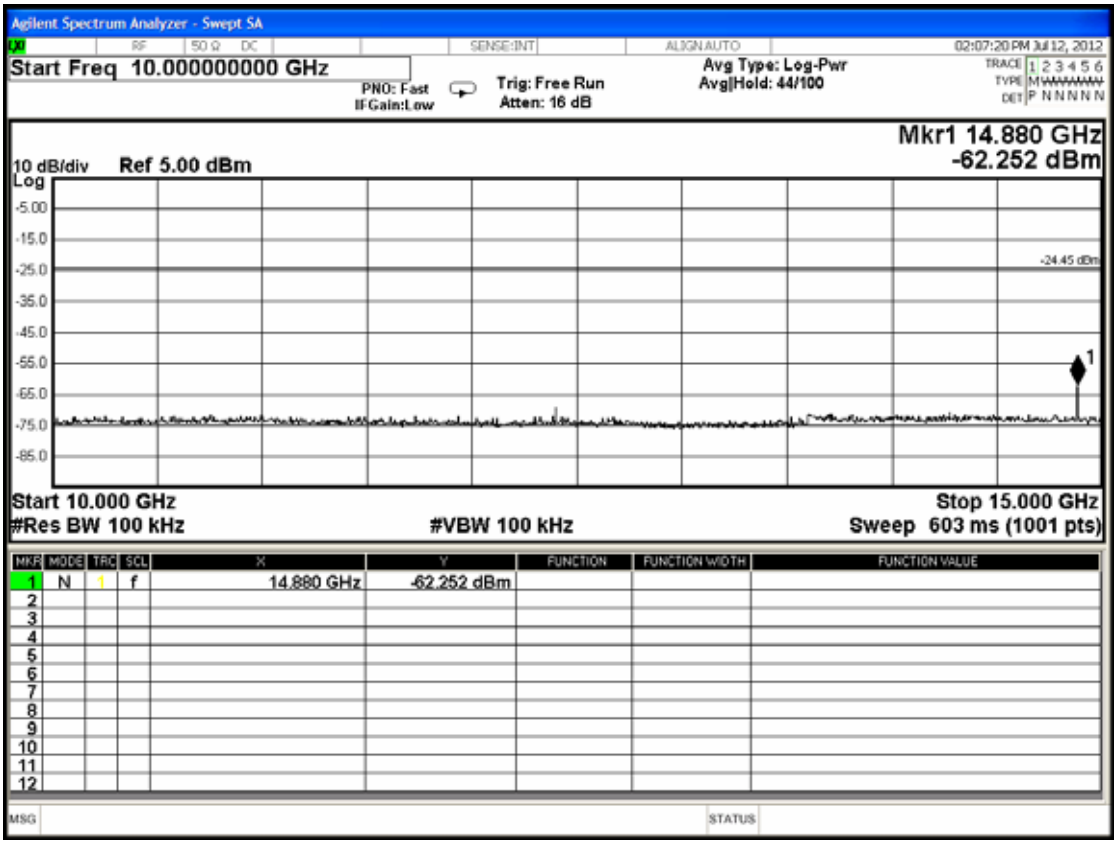

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω DC
SENSE:INT
ALIGN AUTO
02:02:34 PM Jul 12, 2012
Stop Freq 25.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold: 35/100
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
10 dB/div
Log
Ref 5.00 dBm
-5.00
-15.0
-25.0
-35.0
-45.0
-55.0
-65.0
-75.0
-85.0
-22.73 dBm
Start 20.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 25.000 GHz
Sweep 603 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1
2
3
4
5
6
7
8
9
10
11
12
MSG
Alignment Completed
STATUS

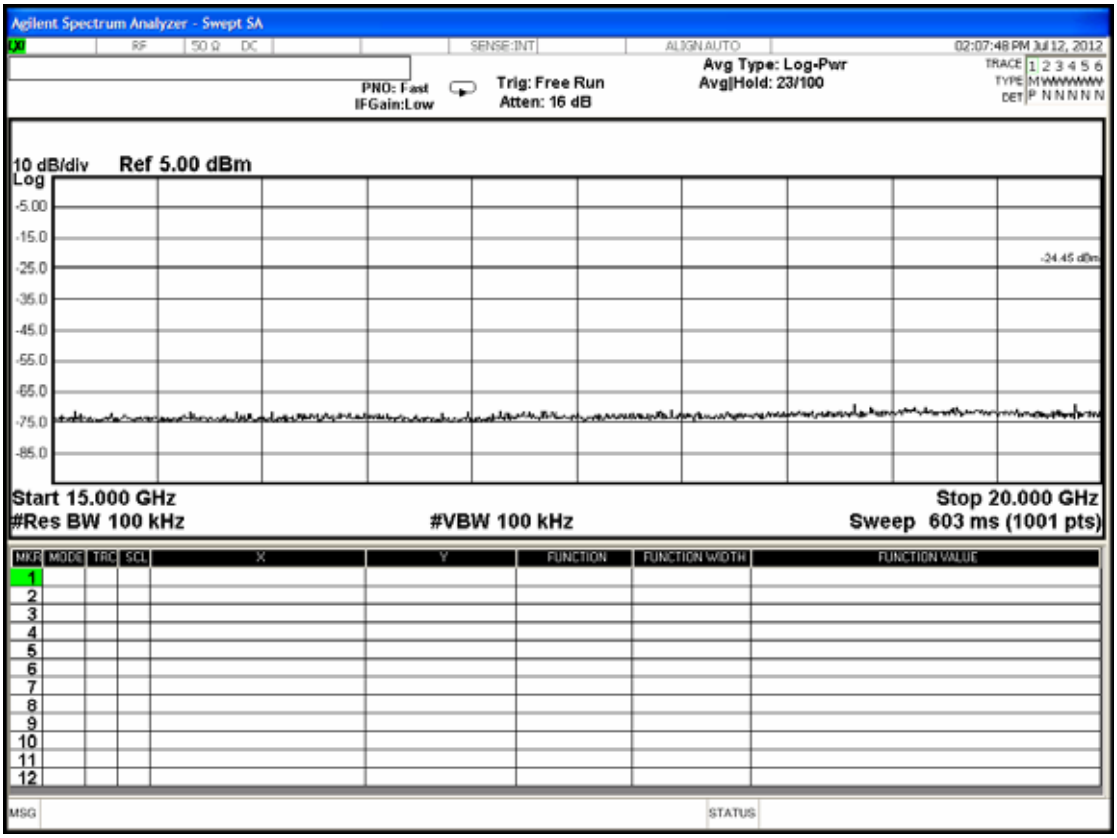
Figure 6: GFSK, Channel 78, Frequency: 2480MHz

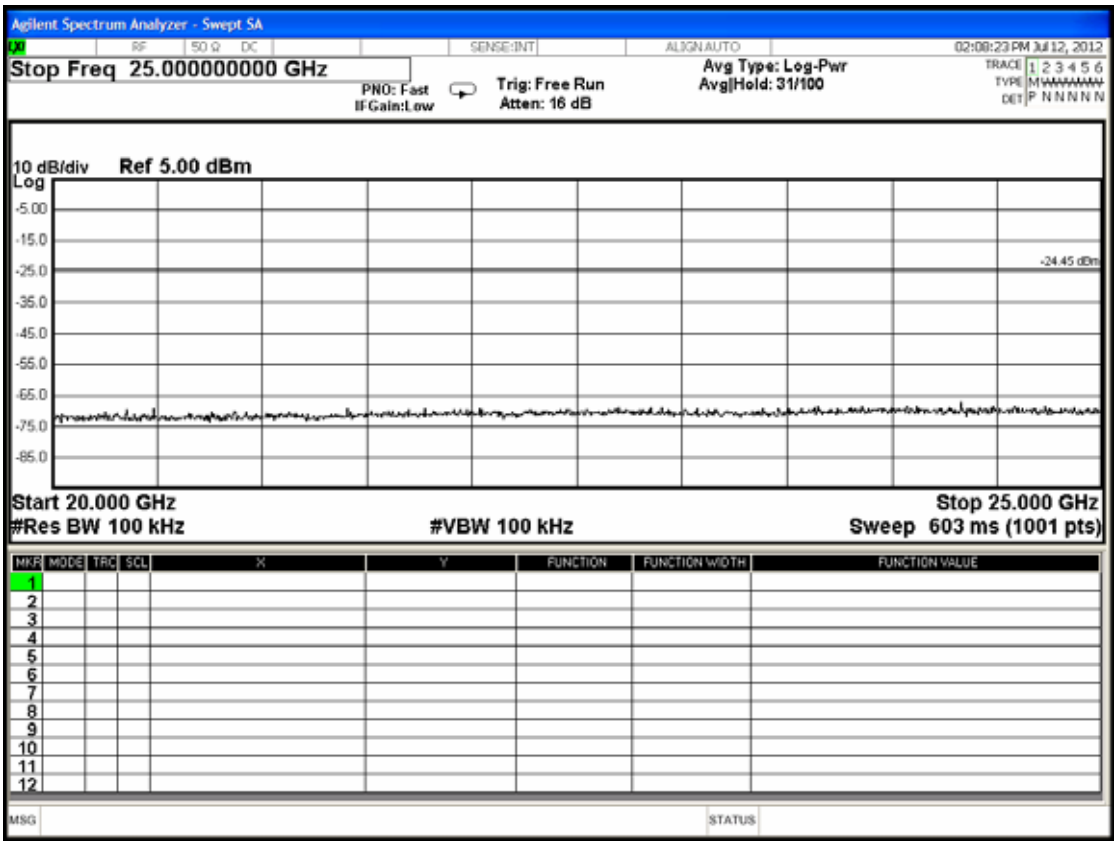





Agilent Spectrum Analyzer - Swept SA
Marker 1 7.440000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold: 64/100
02:06:29 PM Jul 12, 2012
Mkr1 7.440 GHz
-51.529 dBm
10 dB/div
Log
Ref 5.00 dBm
-24.45 dBm
Start 5.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 10.000 GHz
Sweep 603 ms (1001 pts)
1 N 1 f 7.440 GHz -51.529 dBm
2 N 1 f 9.920 GHz -65.397 dBm


Agilent Spectrum Analyzer - Swept SA
Start Freq 10.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold: 44/100
02:07:20 PM Jul 12, 2012
Mkr1 14.880 GHz
-62.252 dBm
10 dB/div
Log
Ref 5.00 dBm
-24.45 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 15.000 GHz
Sweep 603 ms (1001 pts)
1 N 1 f 14.880 GHz -62.252 dBm


Agilent Spectrum Analyzer - Swept SA
RF 50 Ω DC
SENSE:INT
ALIGN AUTO
02:07:48 PM Jul 12, 2012
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold: 23/100
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
10 dB/div
Log
Ref 5.00 dBm
-5.00
-15.0
-25.0
-35.0
-45.0
-55.0
-65.0
-75.0
-85.0
-24.45 dBm
Start 15.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 20.000 GHz
Sweep 603 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1
2
3
4
5
6
7
8
9
10
11
12
MSG
STATUS


Agilent Spectrum Analyzer - Swept SA
RF 50 Ω DC
SENSE:INT
ALIGN AUTO
02:08:23 PM Jul 12, 2012
Stop Freq 25.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold: 31/100
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
10 dB/div
Log
Ref 5.00 dBm
-5.00
-15.0
-25.0
-35.0
-45.0
-55.0
-65.0
-75.0
-85.0
-24.45 dBm
Start 20.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 25.000 GHz
Sweep 603 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1
2
3
4
5
6
7
8
9
10
11
12
MSG
STATUS

10. BAND EDGES MEASUREMENT

10.1. Test Equipment

The following test equipment was used during the band edges measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E4446A	US44300366	Aug. 04, 11'	Aug. 03, 12'

10.2. Block Diagram of Test Setup

The same as section.4.2.

10.3. Specification Limits (§15.247(c))

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (See Section 15.205(c)). (※ This test result attaching to §3.6.3)

10.4. Operating Condition of EUT

Same as carrier frequency separation measurement which was listed in section 4.4.

10.5. Test Procedure (DA 00-705)

The transmitter output was connected to the spectrum analyzer. Set both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span including 100kHz bandwidth from band edge.

10.6. Test Results

PASSED. The testing data was attached in the next pages.

[Note: Three types of modulation (8-DPSK, π /4DQPSK, GFSK) were evaluated but only two types of modulation (8-DPSK and GFSK) were reported in this report.]

EUT：VERI FOLDER M/N：FS001B

Test Date: Jul. 09, 2012 Temperature : 25℃ Humidity : 59%

10.6.1. Type of Modulation: 8-DPSK

1. Below Band edge : The highest emission level is -44.671dBm on 2.39992GHz。
2. Upper Band edge: The highest emission level is -48.031dBm on 2.48350GHz。

10.6.2. Type of Modulation: GFSK

1. Below Band edge : The highest emission level is -43.655dBm on 2.39992GHz。
2. Upper Band edge: The highest emission level is -52.144dBm on 2.48350GHz。

Figure 1: 8-DPSK, Below Band edge

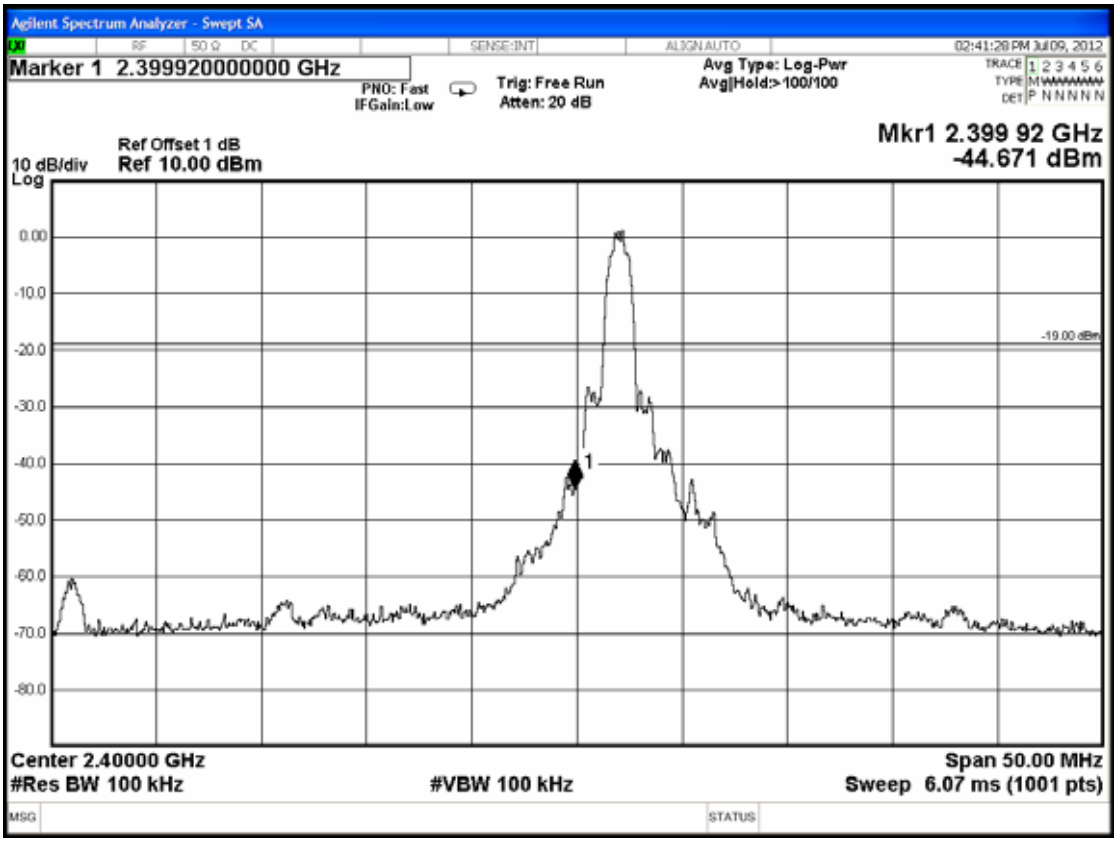


Figure 2: 8-DPSK, Upper Band edge

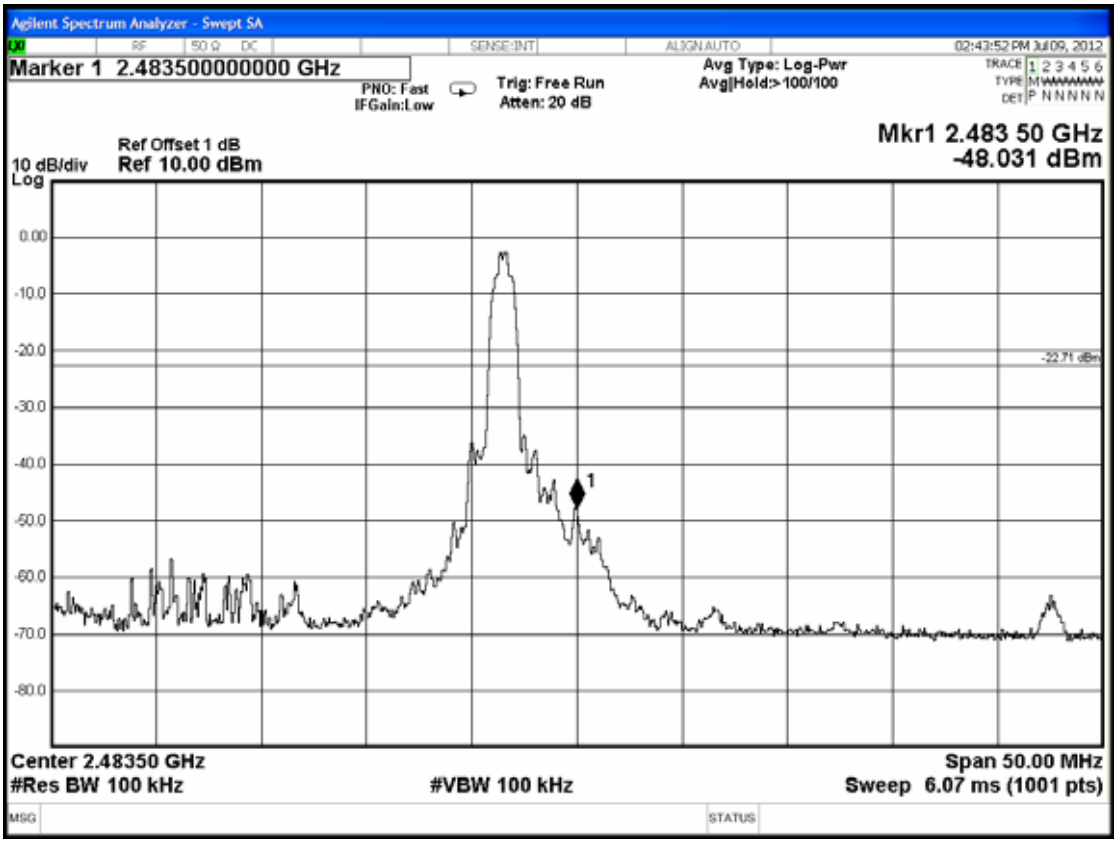


Figure 5: GFSK, Below Band edge

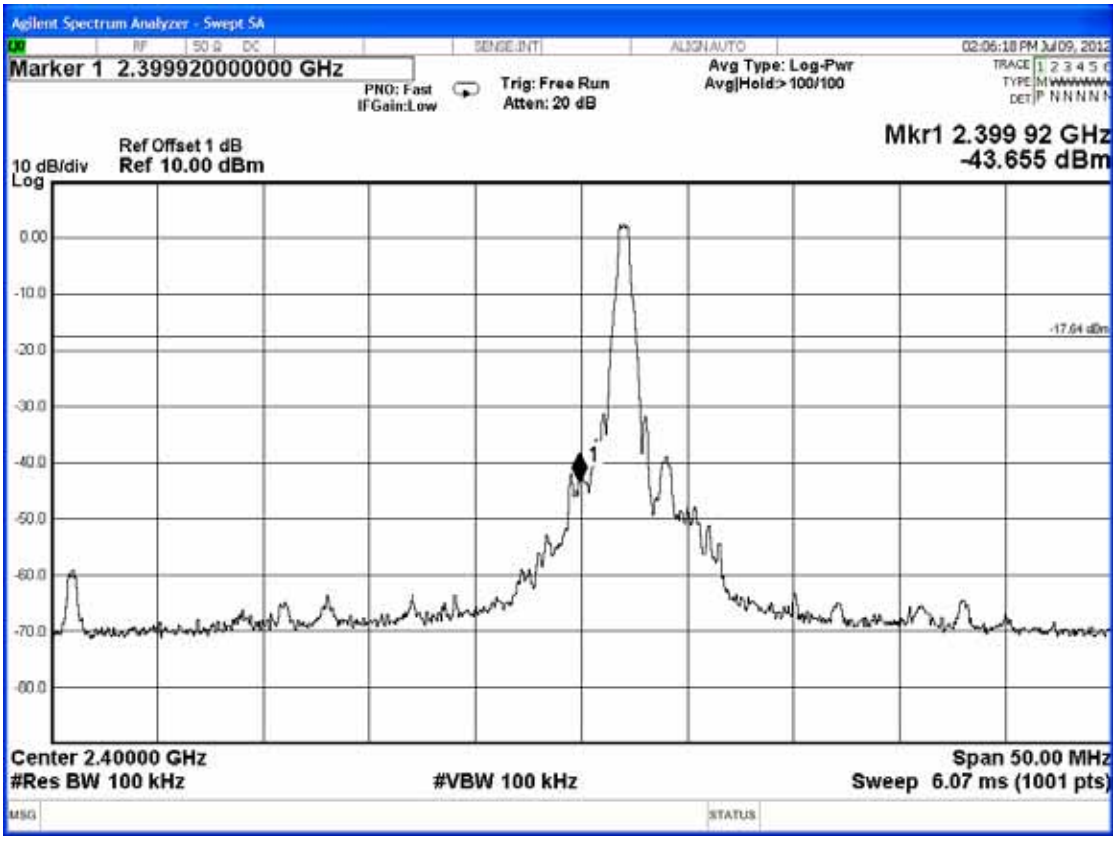
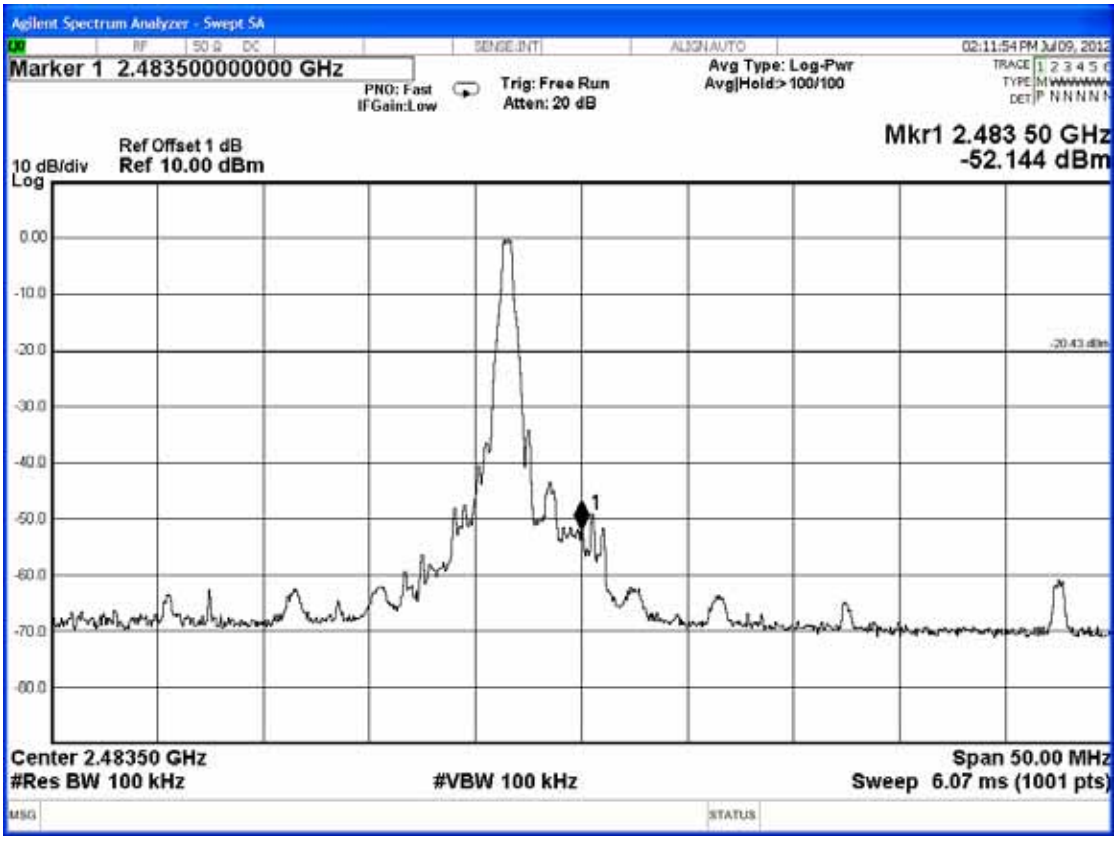


Figure 6: GFSK, Upper Band edge



11. DEVIATION TO TEST SPECIFICATIONS

【NONE】