

FCC 47 CFR PART 15 SUBPART C

Product Type : IPDA

Applicant : LXE Inc

Address : 125 Technology Parkway Norcross Georgia
United States 30092-2913

Trade Name : LXE

Model Number : MX9, FC300

Test Specification : FCC 47 CFR PART 15 SUBPART C: Oct, 2008
FCC KDB DA 00 705
Canada RSS-210 ISSUE 7: Jun, 2007
Canada RSS-Gen ISSUE 2: Jun, 2007
ANSI C63.4-2003

Issue Date : Apr. 14, 2010

Issue by

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Taiwan Accreditation Foundation accreditation number: 1330

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Revision History

Rev.	Issue Date	Revisions	Revised By
00	Apr. 14, 2010	Initial Issue	

Test Report Verification

Issued Date: 2010/04/14

Product Type : IPDA
Applicant : LXE Inc
Address : 125 Technology Parkway Norcross Georgia
United States 30092-2913
Trade Name : LXE
Model Number : MX9, FC300
FCC ID : KDZLXEMX9GSM2G
IC ID : 1995B-MX9GSM2G
IMEI No. : 353227020592392
EUT Rated Voltage : AC 100-240V, 50/60Hz, 1.5A
Test Voltage : 120 Vac / 60 Hz
Applicable : FCC 47 CFR PART 15 SUBPART C: Oct, 2008
Standard : FCC KDB DA 00 705
Canada RSS-210 ISSUE 7: Jun, 2007
Canada RSS-Gen ISSUE 2: Jun, 2007
ANSI C63.4-2003
Test Result : Complied
Performed Lab. : A Test Lab Techno Corp.
No. 140-1, Changan Street, Bade City,
Taoyuan Country 334, Taiwan R.O.C.
Tel : +86-3-2710188 / Fax : +86-3-2710190
Taiwan Accreditation Foundation accreditation number:
1330
<http://www.atl-lab.com.tw/e-index.htm>



The above equipment has been tested by A Test Lab Techno Corp., and found compliance with the requirements set forth in the Electromagnetic Compatibility Directive 2004/108/EC and technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

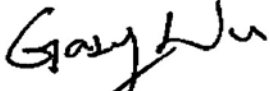
Approved By :  Reviewed By : 
(Manager) (Miller Lee) (Testing Engineer) (Gary Wu)

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1 General Information

1.1 Summary of Test Result

Standard		Item	Result	Remark
15.247	RSS-GEN			
15.207	7.2.2	AC Power Conducted Emission	PASS	-----
-----	6	Receiver Radiated Emissions	PASS	-----
Standard		Item	Result	Remark
15.247	RSS-210			
15.247(c)	A8.5	Transmitter Radiated Emissions	PASS	-----
15.247(b)(1)	A8.4 (2)	Max. Output Power	PASS	-----
15.247(a)(1)	A8.1 (1)	20dB RF Bandwidth	PASS	-----
15.247(a)(1)(iii)	A8.1 (2)	Carrier Frequency Separation	PASS	-----
15.247(a)(1)(iii)	A8.1 (4)	Number of Hopping	PASS	-----
15.247(a)(1)(iii)	A8.1 (4)	Time of Occupancy (Dwell Time)	PASS	-----
15.247(c)	A8.5	Out of Band Conducted Spurious Emission	PASS	-----
15.247(c)	A8.5	Band Edge Measurement	PASS	-----
15.247(c)	A8.5	Occupied Bandwidth Measurement	PASS	-----
15.203	-	Antenna Requirement	PASS	-----

The test results of this report relate only to the tested sample(s) identified in this report. Manufacturer or whom it may concern should recognize the pass or fail of the test result.

1.2 Measurement Uncertainty

Conducted Emission

The measurement uncertainty is evaluated as ± 2.24 dB.

Radiated Emission

The measurement uncertainty of 30 MHz - 1GHz is evaluated as ± 3.072 dB.

2 EUT Description

Product	:	IPDA
Trade Name	:	LXE
Model Number	:	MX9, FC300
Applicant	:	LXE Inc 125 Technology Parkway Norcross Georgia United States 30092-2913
Manufacturer	:	LXE Inc 125 Technology Parkway Norcross Georgia United States 30092-2913
FCC ID	:	KDZLXEMX9GSM2G
IC ID	:	1995B-MX9GSM2G
IMEI No.	:	353227020592392
Frequency Range	:	2402 ~ 2480 MHz
Modulation Type	:	GFSK for 1Mbps
	:	$\pi/4$ -DQPSK for 2Mbps
	:	8DPSK for 3Mbps
Antenna Type	:	Dipole
Antenna Gain	:	0 dBi
Software Version	:	WANG1GSM01A
Hardware Version	:	163730-0001
RF Output Power	:	0.001 W (-2.07 dBm) GFSK/ $\pi/4$ -DQPSK/8DPSK
Component		
Power Adapter	:	GlobTek, Inc. GT-81081-6015-T3 Input: 100-240V, 50/60Hz, 1.5A Output: 15Vdc, 4A Cable in: Shielded, 0.44 m Cable out: Non-Shielded, 1.83 m
Battery	:	10.8 Vdc, 27Wh

I/O Port Description :

I/O PORT TYPES	Q'TY	Test Description
1). N/A	---	---

3 Test Methodology

3.1. Mode of Operation

Decision of Test ATL has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: IDLE Mode
Mode 2: Normal Operation Mode
Mode 3: Receiver Mode
Mode 4: GFSK Link Mode
Mode 5: $\pi/4$ -DQPSK Link Mode
Mode 6: 8DPSK Link Mode

Description of Test Modes

Preliminary tests were performed in different modulation to find the worst case. The modulation shown in the table below is the worst-case. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Modulation Type	Channel	Frequency (MHz)	Packet Type	Conducted Power (dBm)	Worst Case
GFSK	Low	2402	DH1	-2.07	☒
	Low	2402	DH3	-2.13	☐
	Low	2402	DH5	-2.12	☐
	Middle	2441	DH1	-2.81	☐
	Middle	2441	DH3	-2.81	☐
	Middle	2441	DH5	-2.80	☐
	High	2480	DH1	-2.88	☐
	High	2480	DH3	-2.88	☐
	High	2480	DH5	-2.87	☐
$\pi/4$ -DQPSK	Low	2402	2DH1	-2.11	☐
	Low	2402	2DH3	-2.13	☐
	Low	2402	2DH5	-2.15	☐
	Middle	2441	2DH1	-2.81	☐
	Middle	2441	2DH3	-2.82	☐
	Middle	2441	2DH5	-2.81	☐
	High	2480	2DH1	-2.87	☐
	High	2480	2DH3	-2.87	☐
	High	2480	2DH5	-2.87	☐
8DPSK	Low	2402	3DH1	-2.11	☐
	Low	2402	3DH3	-2.11	☐
	Low	2402	3DH5	-2.11	☐
	Middle	2441	3DH1	-2.81	☐
	Middle	2441	3DH3	-2.82	☐
	Middle	2441	3DH5	-2.81	☐
	High	2480	3DH1	-2.88	☐
	High	2480	3DH3	-2.88	☐
	High	2480	3DH5	-2.76	☐

Tested System Details

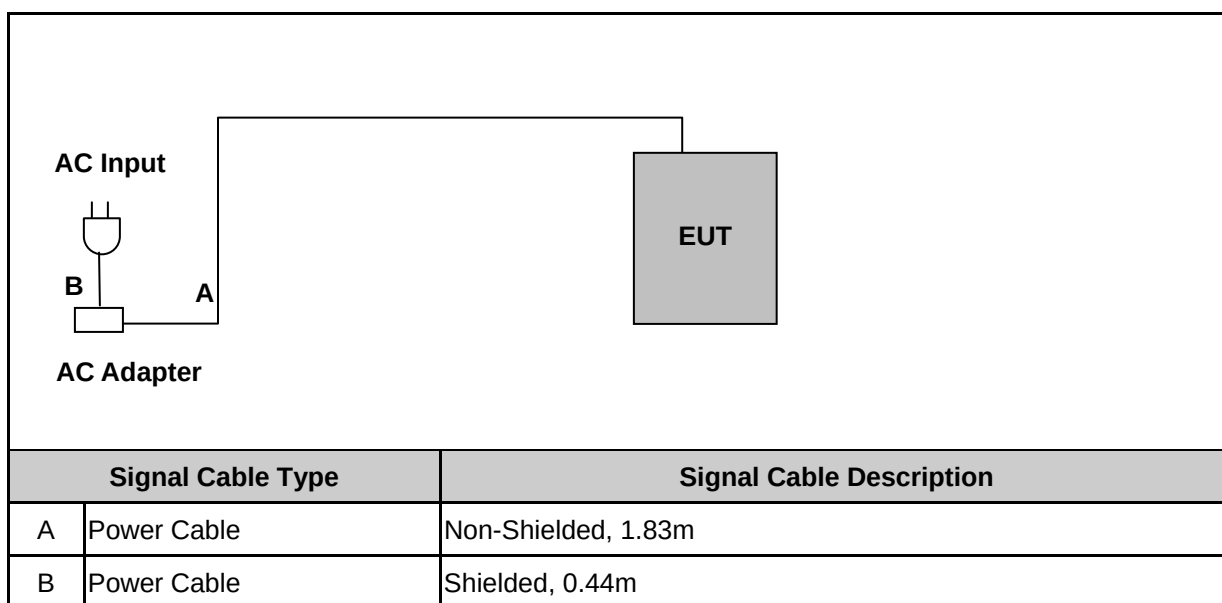
The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

	Product	Manufacturer	Model Number	Serial Number	Power Cord
1.	Bluetooth Tester	R & S	CBT	100350	NA

3.2. EUT Exercise Software

1.	Setup the EUT and simulators as shown on 3.3.
2.	Turn on the power of all equipment.
3.	Open Bluetooth function and connect to Bluetooth Tester.
4.	Start test.

3.3. Configuration of Test System Details



3.4. Test Site Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	25
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

4 Conducted Emission Measurement

4.1. Limit

Frequency (MHz)	Quasi-peak	Average
0.15 - 0.5	66 to 56	56 to 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

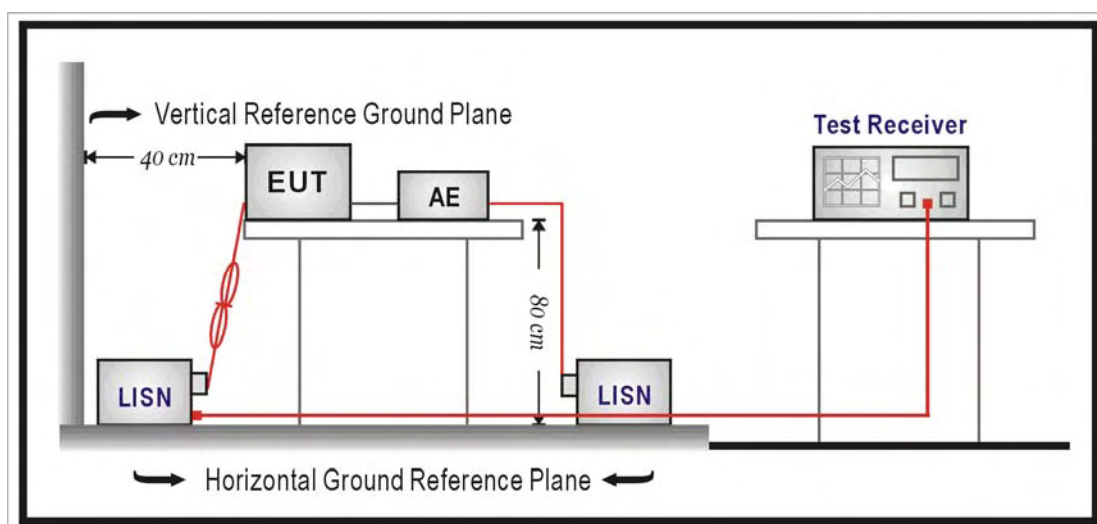
4.2. Test Instruments

Describe	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Test Receiver	R&S	ESCI	100367	07/01/2009	(1)
LISN	EMCO	3816/2 SH	00060110	06/05/2009	(1)
LISN	EMCO	3816/2 SH	00060111	06/29/2009	(1)
Transient Limiter	ELECTRO-METRICS	EM-7600	777	09/22/2009	(1)
Test Site	ATL	TE02	TE02	N.C.R.	-----

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

4.3. Test Setup



4.4. Test Procedure

The power line conducted emission measurements were performed in a shielded enclosure. The EUT was assembled on a wooden table which is 80 centimeters high, was placed 40 centimeters from the back wall and at least 1 meter from the sidewall.

Power was fed to the EUT from the public utility power grid through a line filter and EMCO Model 3162/2 SH Line Impedance Stabilization Networks (LISN). The LISN housing, measuring instrumentation case, ground plane, etc., were electrically bonded together at the same RF potential. The Spectrum analyzer was connected to the AC line through an isolation transformer. The 50-ohm output of the LISN was connected to the spectrum analyzer directly. Conducted emission levels were in the CISPR quasi-peak detection mode. The analyzer's 6 dB bandwidth was set to 9 KHz. No post-detector video filter was used.

The spectrum was scanned from 150 KHz to 30 MHz. The physical arrangement of the test system and associated cabling was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude and frequency. All spurious emission frequencies were observed. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in paragraph 4.1.

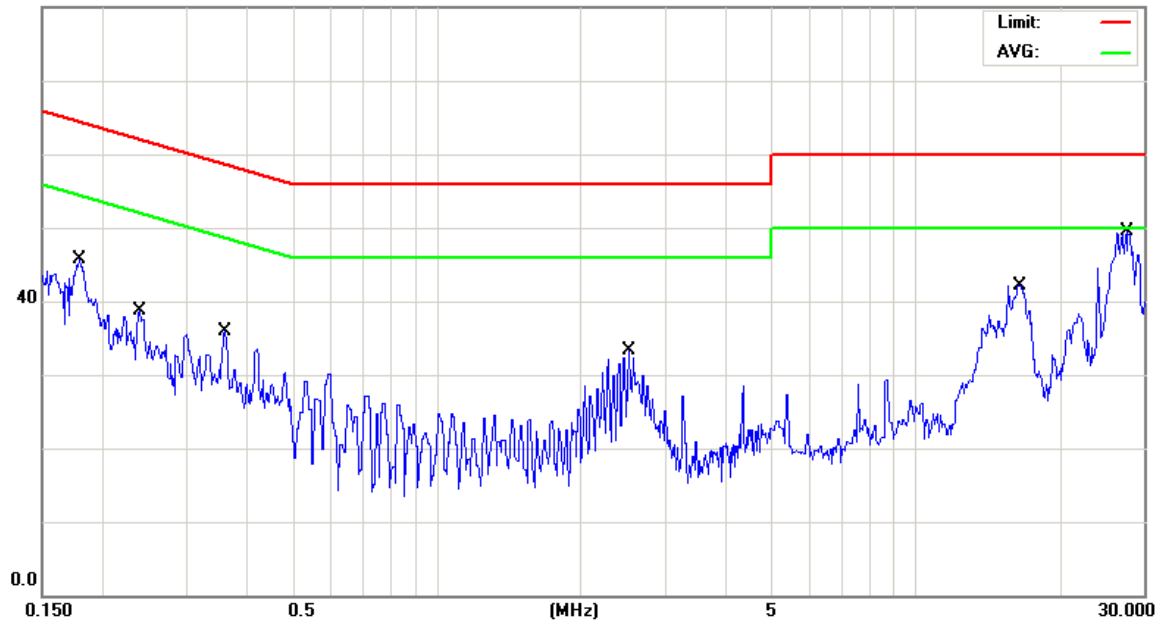
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Data :#1

Date: 2010/02/04

Time: 下午 02:37:45

80.0 dBuV/m



Site : Conducted

Phase: **L1**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 120V/60Hz

Humidity: 55 %

EUT: IPDA

M/N: MX9, FC300

Mode: 2

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		0.1794	33.20	9.74	42.94	64.51	-21.57	QP	
2		0.1794	22.00	9.74	31.74	54.51	-22.77	AVG	
3		0.2403	25.60	9.75	35.35	62.08	-26.73	QP	
4		0.2403	19.20	9.75	28.95	52.08	-23.13	AVG	
5		0.3607	24.40	9.78	34.18	58.71	-24.53	QP	
6		0.3607	21.40	9.78	31.18	48.71	-17.53	AVG	
7		2.5159	19.40	9.90	29.30	56.00	-26.70	QP	
8		2.5159	10.60	9.90	20.50	46.00	-25.50	AVG	
9		16.4000	29.80	10.25	40.05	60.00	-19.95	QP	
10		16.4000	23.80	10.25	34.05	50.00	-15.95	AVG	
11		27.7000	35.80	10.40	46.20	60.00	-13.80	QP	
12	*	27.7000	28.60	10.40	39.00	50.00	-11.00	AVG	

*:Maximum data x:Over limit !:over margin

●Reference Only

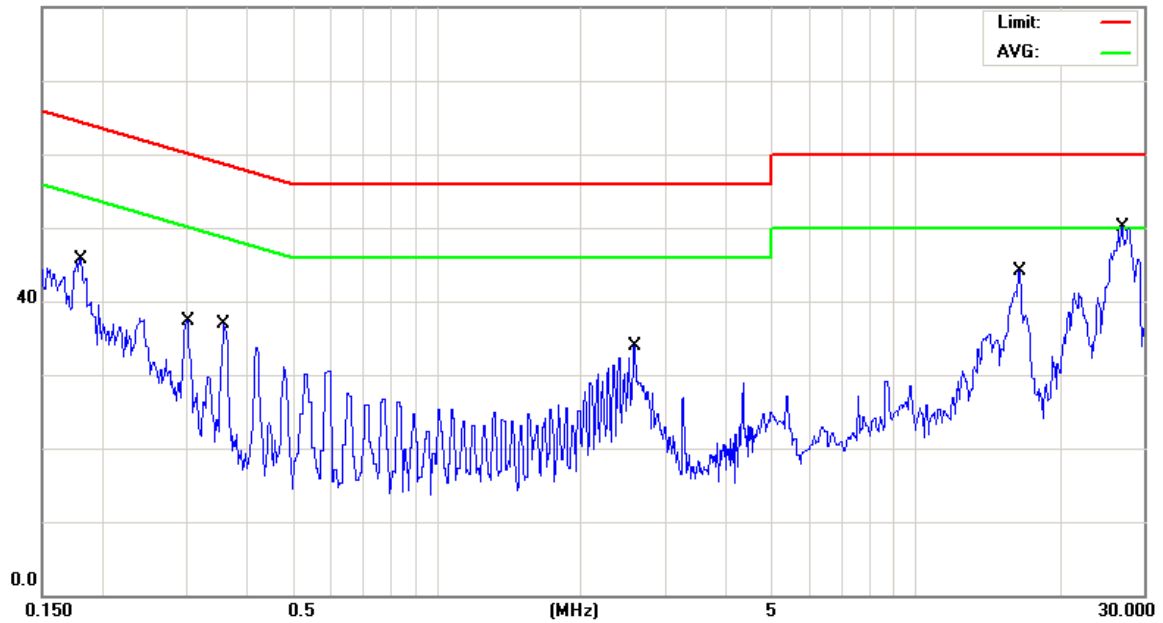
File :10-0040-CSEO

Data :#2

Date: 2010/02/04

Time: 下午 02:40:18

80.0 dBuV/m



Site : Conducted

Phase: **L2**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 120V/60Hz

Humidity: 55 %

EUT: IPDA

M/N: MX9, FC300

Mode: 2

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		0.1801	33.60	9.74	43.34	64.48	-21.14	QP	
2		0.1801	23.40	9.74	33.14	54.48	-21.34	AVG	
3		0.3005	24.30	9.77	34.07	60.23	-26.16	QP	
4		0.3005	17.10	9.77	26.87	50.23	-23.36	AVG	
5		0.3593	24.80	9.78	34.58	58.74	-24.16	QP	
6		0.3593	22.30	9.78	32.08	48.74	-16.66	AVG	
7		2.5880	16.70	9.93	26.63	56.00	-29.37	QP	
8		2.5880	8.90	9.93	18.83	46.00	-27.17	AVG	
9		16.4000	30.60	10.25	40.85	60.00	-19.15	QP	
10	*	16.4000	24.80	10.25	35.05	50.00	-14.95	AVG	
11		26.8500	32.20	10.27	42.47	60.00	-17.53	QP	
12		26.8500	23.90	10.27	34.17	50.00	-15.83	AVG	

*:Maximum data x:Over limit !:over margin

●Reference Only

5 Radiated Interference Measurement

5.1. Limit

Frequency Range (MHz)	Peak (dBuV)
30 to 88	39
88 to 216	43.5
216 to 960	46.4
Above 960	49.5

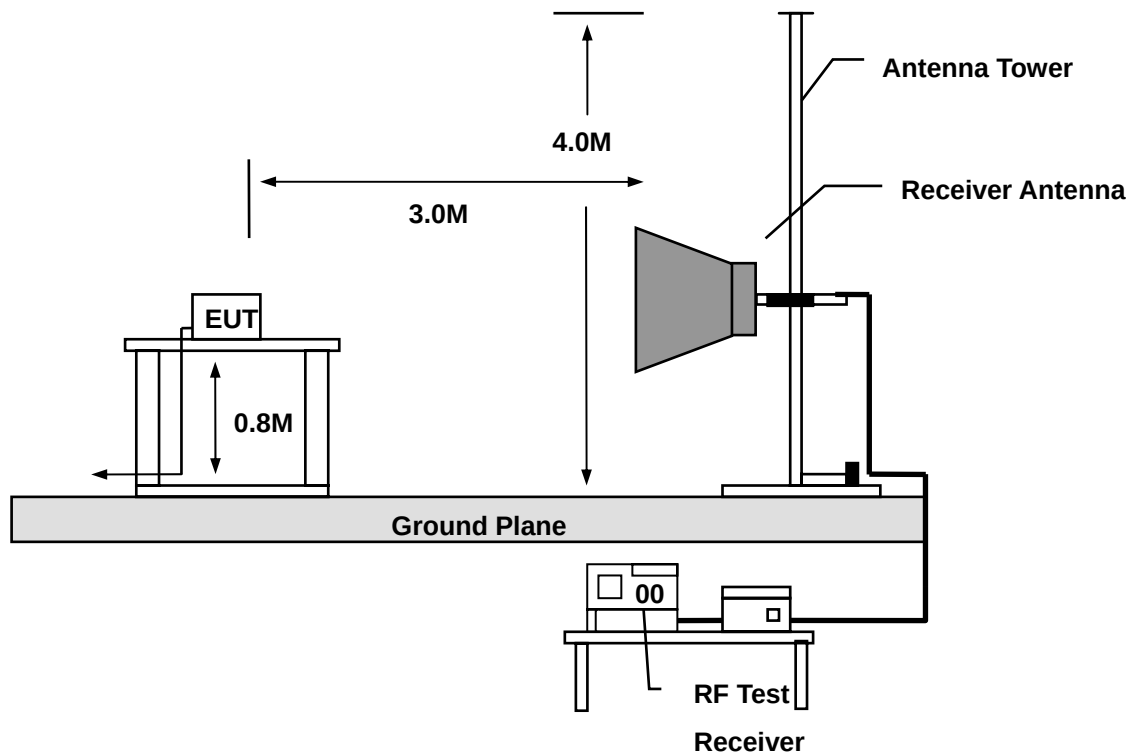
5.2. Test Instruments

3 Meter Chamber					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
RF Pre-selector	Agilent	N9039A	MY46520256	01/27/2009	(2)
Spectrum Analyzer	Agilent	E4446A	MY46180578	01/20/2009	(2)
Pre Amplifier	Agilent	8449B	3008A02237	07/01/2009	(1)
Pre Amplifier	Agilent	8447D	2944A10961	06/30/2009	(1)
Bi-log Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	06/23/2009	(2)
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	07/01/2009	(2)
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	06/30/2009	(2)
Test Site	ATL	TE01	888001	08/06/2009	(1)

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

5.3. Setup



5.4. Test Procedure

Final radiation measurements were made on a three-meter, Semi Anechoic Chamber. The EUT system was placed on a nonconductive turntable which is 0.8 meters height, top surface 1.0 x 1.5 meter. The spectrum was examined from 250 MHz to 2.5 GHz in order to cover the whole spectrum below 10th harmonic which could generate from the EUT. During the test, EUT was set to transmit continuously & Measurements spectrum range from 30 MHz to 26.5 GHz is investigated.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

A nonconductive material surrounded the EUT to supporting the EUT for standing on three orthogonal planes. At each condition, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

SCHWARZBECK MESS-ELEKTRONIK Biconilog Antenna (mode VULB9163) at 3 Meter and the SCHWARZBECK Double Ridged Guide Antenna (model BBHA9120D&9170) was used in frequencies 1 – 26.5 GHz at a distance of 1 meter. All test results were extrapolated to equivalent signal at 3 meters utilizing an inverse linear distance extrapolation Factor (20dB/decade).

For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. No post – detector video filters were used in the test.

The spectrum analyzer's 6 dB bandwidth was set to 1 MHz, and the analyzer was operated in the peak detection mode, for frequencies both below and up 1 GHz. The average levels were obtained by subtracting the duty cycle correction factor from the peak readings.

The following procedures were used to convert the emission levels measured in decibels referenced to 1 microvolt (dBuV) into field intensity in micro volts per meter (uV/m).

The actual field intensity in decibels referenced to 1 microvolt in to field intensity in micro volts per meter (dBuV/m).

The actual field intensity in decibels referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) and Subtracting the gain of preamplifier (dB) is auto calculate in spectrum analyzer.

$$(1) \text{ Amplitude (dBuV/m) = FI (dBuV) + AF (dBuV) + CL (dBuV) - Gain (dB)}$$

FI= Reading of the field intensity.

AF= Antenna factor.

CL= Cable loss.

P.S Amplitude is auto calculate in spectrum analyzer.

$$(2) \text{ Actual Amplitude (dBuV/m) = Amplitude (dBuV) - Dis(dB)}$$

The FCC specified emission limits were calculated according the EUT operating frequency and by following linear interpolation equations:

(a) For fundamental frequency : Transmitter Output < +30dBm

(b) For spurious frequency : Spurious emission limits = fundamental emission limit /10

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in **lie-down position (X axis)** and the worst case was recorded.

5.5. Test Result

5.5.1. Below 1GHz

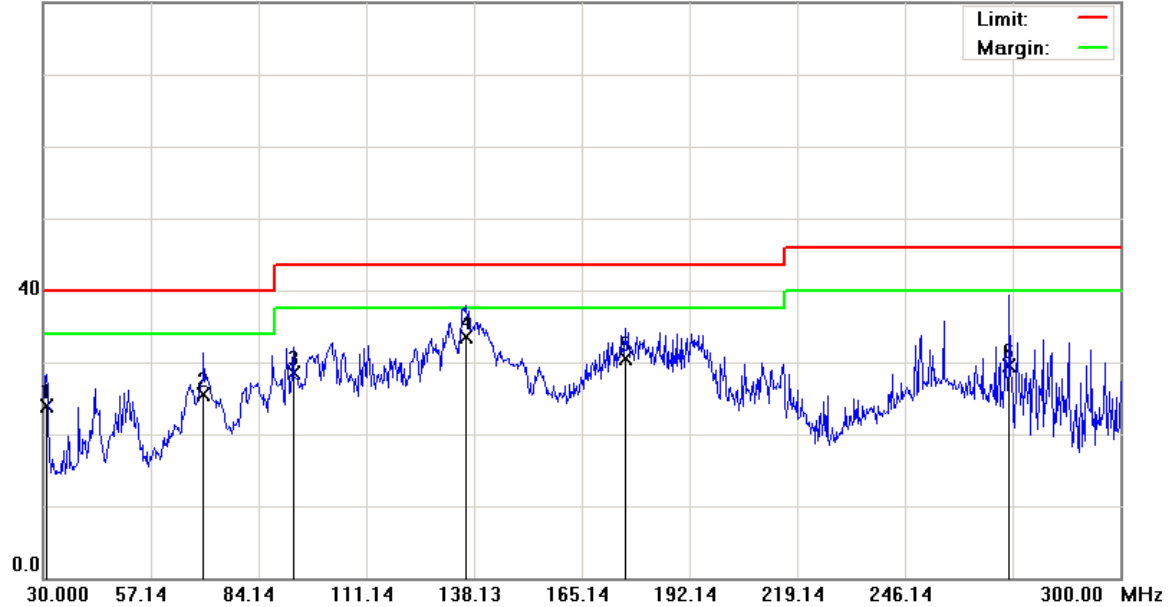
File :MX9(Normal Link)

Data :#1

Date: 2010/2/10

Time: 上午 01:58:04

80.0 dBuV/m



Site: : 966 Chamber

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC Class B 3M Radiation

Power:

Humidity: 60 %

EUT: IPDA

Distance: 3m

RBW: 120 KHz VBW: 300 KHz

M/N: MX9, FC300

Mode: 2

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		30.8100	37.14	-13.30	23.84	40.00	-16.16	QP		
2		70.2300	42.06	-16.61	25.45	40.00	-14.55	QP		
3		92.7750	40.97	-12.55	28.42	43.50	-15.08	QP		
4	*	135.9750	49.51	-16.04	33.47	43.50	-10.03	QP		
5		175.8000	45.08	-14.59	30.49	43.50	-13.01	QP		
6		272.1900	40.34	-10.87	29.47	46.00	-16.53	QP		

*:Maximum data x:Over limit !:over margin

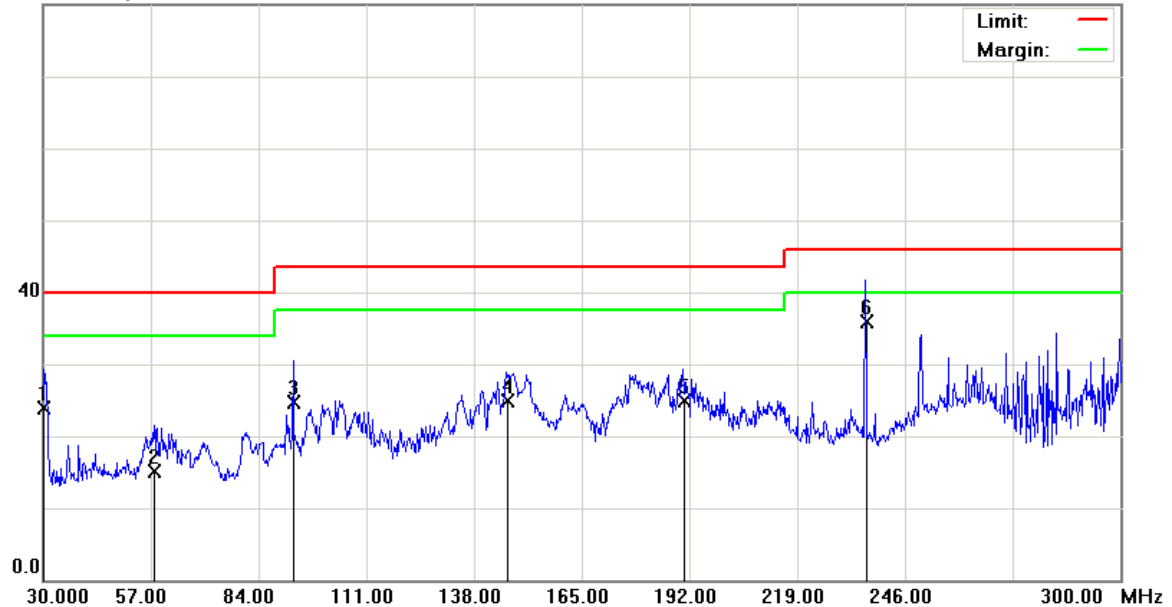
File :MX9(Normal Link)

Data :#3

Date: 2010/2/10

Time: 上午 02:03:52

80.0 dBuV/m



Site: : 966 Chamber

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC Class B 3M Radiation

Power:

Humidity: 60 %

EUT: IPDA

Distance: 3m

RBW: 120 KHz VBW: 300 KHz

M/N: MX9, FC300

Mode: 2

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		30.0000	37.24	-13.32	23.92	40.00	-16.08	QP		
2		57.8100	27.41	-12.40	15.01	40.00	-24.99	QP		
3		92.7750	37.34	-12.55	24.79	43.50	-18.71	QP		
4		146.2350	40.97	-16.15	24.82	43.50	-18.68	QP		
5		190.5150	38.34	-13.34	25.00	43.50	-18.50	QP		
6	*	236.1450	47.64	-11.65	35.99	46.00	-10.01	QP		

*:Maximum data x:Over limit !:over margin

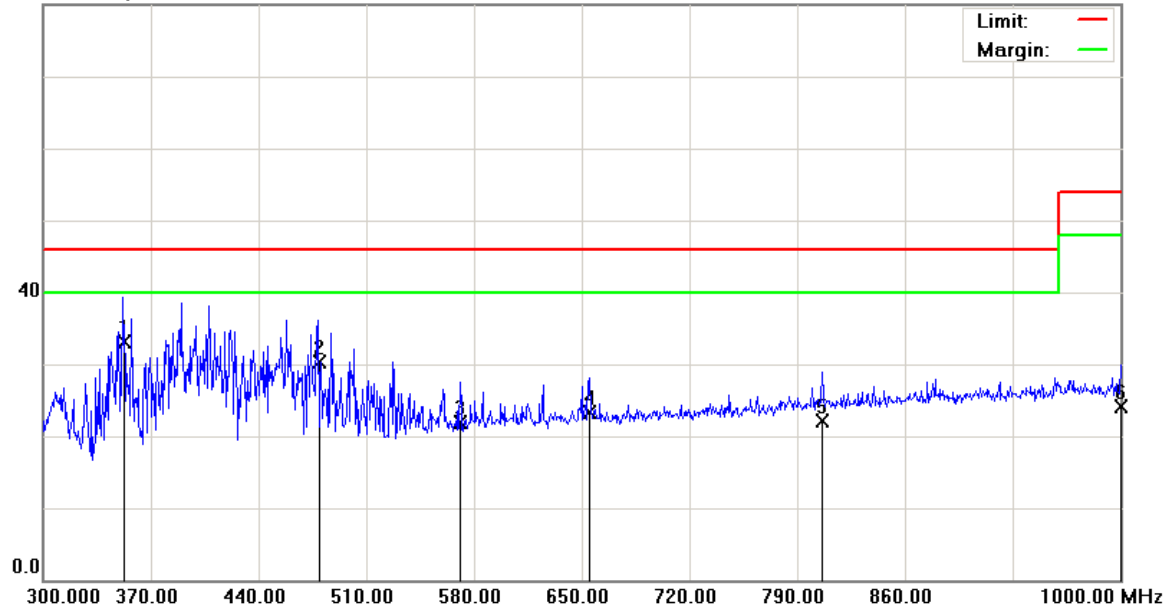
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Data :#2

Date: 2010/2/10

Time: 上午 02:00:58

80.0 dBuV/m



Site: : 966 Chamber

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC Class B 3M Radiation

Power:

Humidity: 60 %

EUT: IPDA

Distance: 3m

RBW: 120 KHz VBW: 300 KHz

M/N: MX9, FC300

Mode: 2

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	352.1500	42.06	-8.89	33.17	46.00	-12.83	QP		
2		478.8500	37.94	-7.63	30.31	46.00	-15.69	QP		
3		570.9000	27.41	-5.48	21.93	46.00	-24.07	QP		
4		654.9000	27.69	-4.48	23.21	46.00	-22.79	QP		
5		806.1000	24.05	-1.96	22.09	46.00	-23.91	QP		
6		1000.0000	23.57	0.62	24.19	54.00	-29.81	QP		

*:Maximum data x:Over limit !:over margin

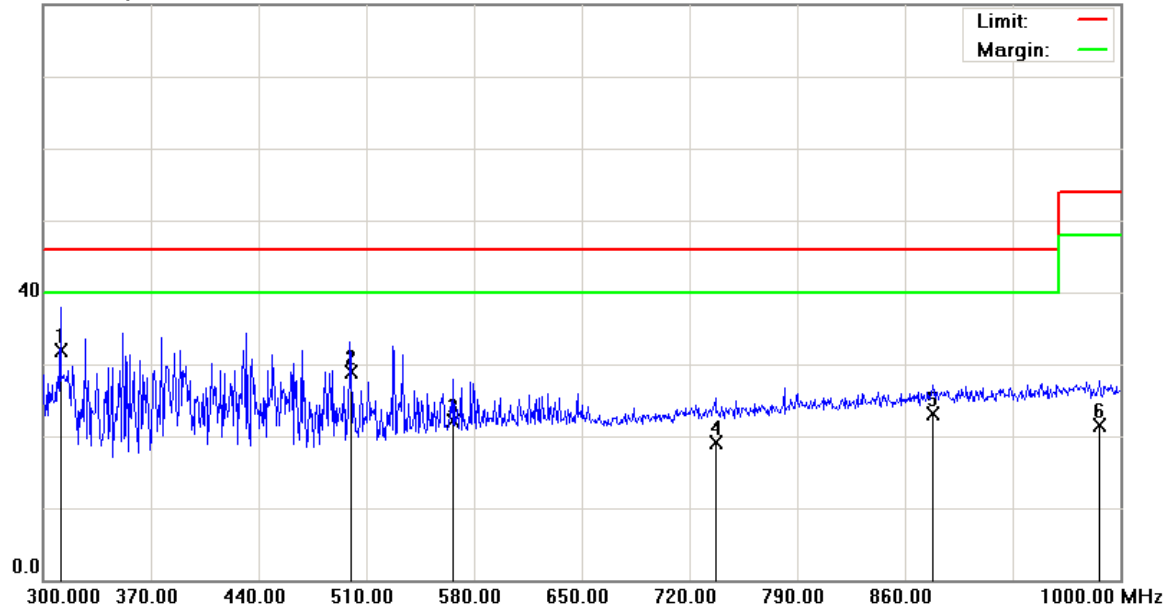
File :MX9(Normal Link)

Data :#4

Date: 2010/2/10

Time: 上午 02:06:46

80.0 dBuV/m



Site: : 966 Chamber

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC Class B 3M Radiation

Power:

Humidity: 60 %

EUT: IPDA

Distance: 3m

RBW: 120 KHz VBW: 300 KHz

M/N: MX9, FC300

Mode: 2

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	311.2000	41.74	-9.82	31.92	46.00	-14.08	QP		
2		499.8500	35.98	-7.17	28.81	46.00	-17.19	QP		
3		566.7000	27.69	-5.60	22.09	46.00	-23.91	QP		
4		737.1500	22.49	-3.29	19.20	46.00	-26.80	QP		
5		878.2000	23.91	-0.73	23.18	46.00	-22.82	QP		
6		986.7000	20.74	0.67	21.41	54.00	-32.59	QP		

*:Maximum data x:Over limit !:over margin

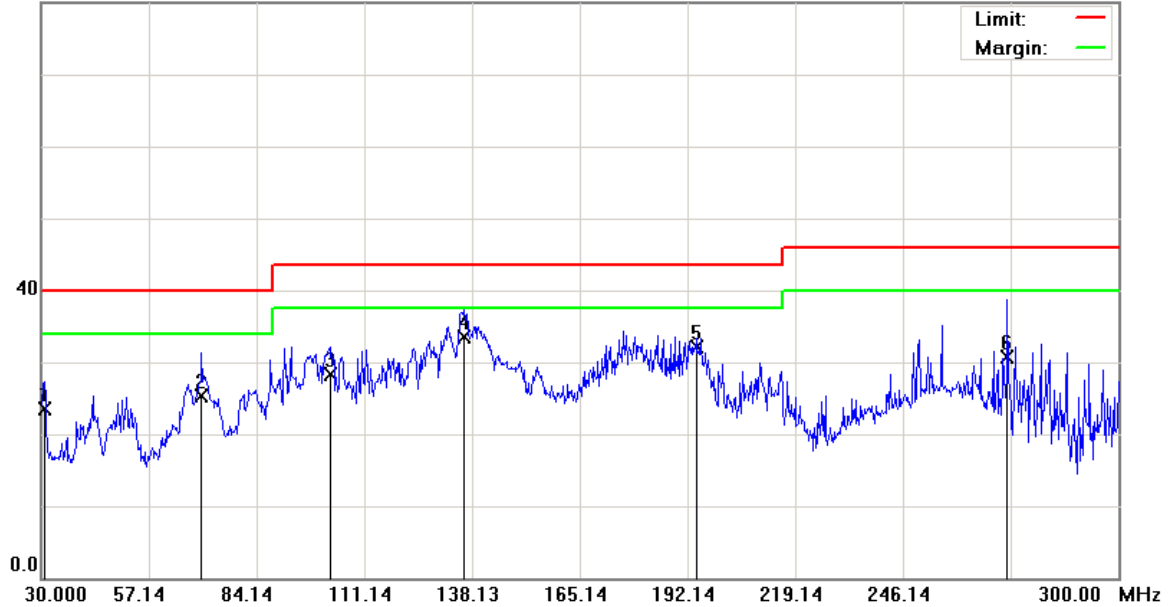
File :MX9(Rx)1G以下

Data :#1

Date: 2010/2/24

Time: 下午 05:58:04

80.0 dBuV/m



Site: : 966 Chamber

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC Class B 3M Radiation

Power:

Humidity: 60 %

EUT: IPDA

Distance: 3m

RBW: 120 KHz VBW: 300KHz

M/N: MX9, FC300

Mode: 3

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		30.8100	36.78	-13.30	23.48	40.00	-16.52	QP		
2		70.2300	41.87	-16.61	25.26	40.00	-14.74	QP		
3		102.3600	40.18	-11.91	28.27	43.50	-15.23	QP		
4	*	135.9750	49.51	-16.04	33.47	43.50	-10.03	QP		
5		194.2950	45.31	-13.14	32.17	43.50	-11.33	QP		
6		272.1900	41.52	-10.87	30.65	46.00	-15.35	QP		

*:Maximum data x:Over limit !:over margin

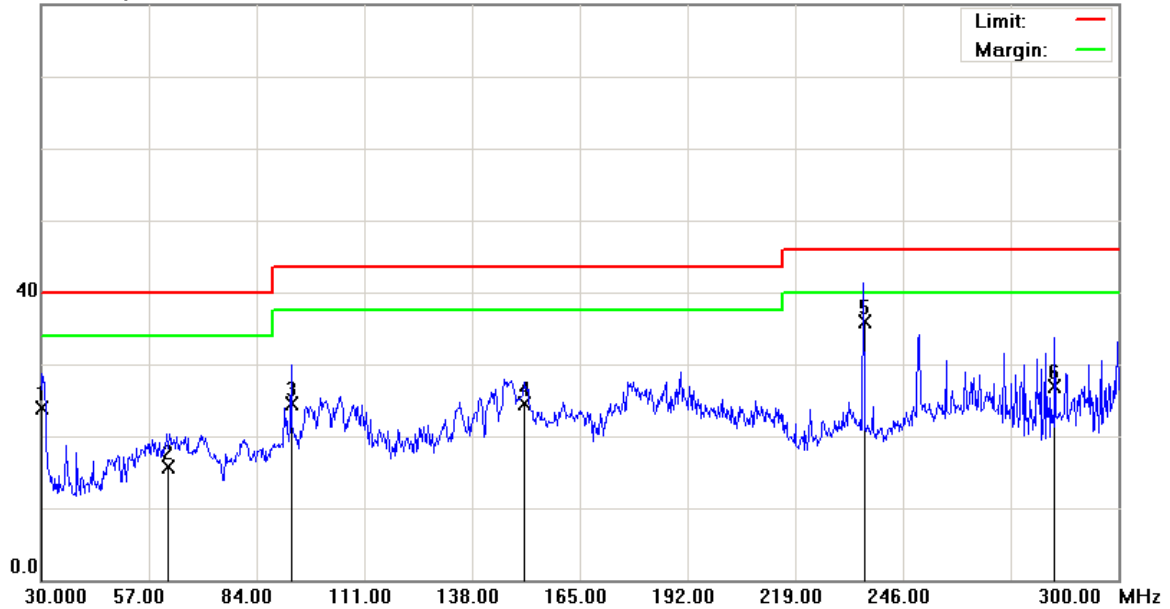
File :MX9(Rx)1G以下

Data :#3

Date: 2010/2/24

Time: 下午 06:03:52

80.0 dBuV/m



Site: : 966 Chamber

Polarization: *Horizontal*

Temperature: 22 °C

Limit: FCC Class B 3M Radiation

Power:

Humidity: 60 %

EUT: IPDA

Distance: 3m

RBW: 120 KHz VBW: 300KHz

M/N: MX9, FC300

Mode: 3

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		30.0000	37.24	-13.32	23.92	40.00	-16.08	QP		
2		61.7250	28.89	-13.16	15.73	40.00	-24.27	QP		
3		92.7750	37.12	-12.55	24.57	43.50	-18.93	QP		
4		151.0950	40.52	-15.99	24.53	43.50	-18.97	QP		
5	*	236.1450	47.64	-11.65	35.99	46.00	-10.01	QP		
6		284.0700	37.18	-10.32	26.86	46.00	-19.14	QP		

*:Maximum data x:Over limit !:over margin

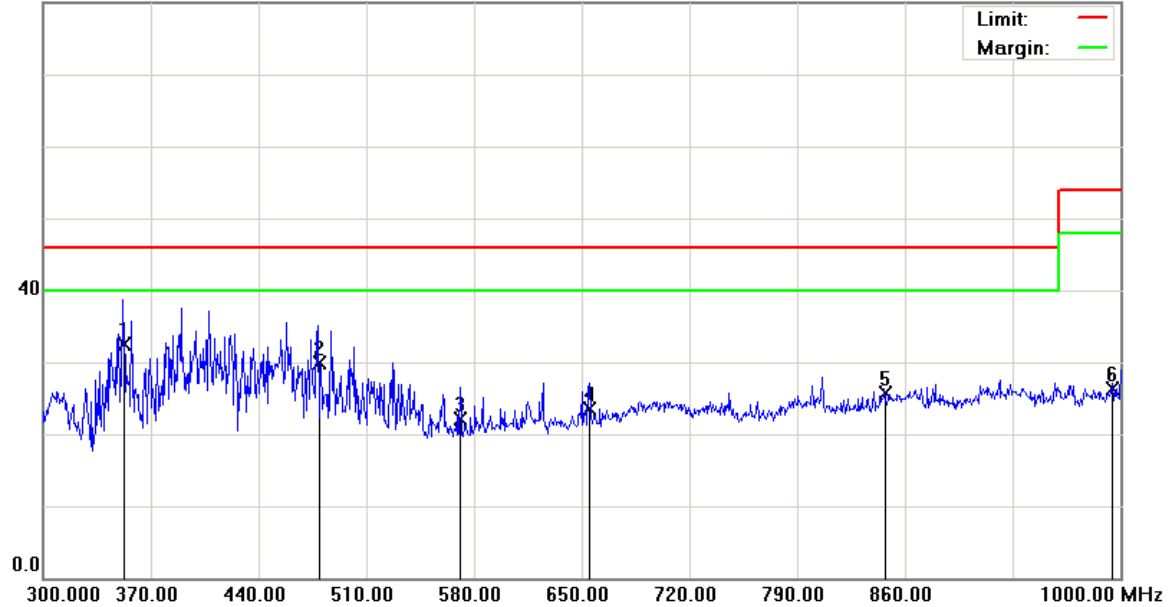
File :MX9(Rx)1G以下

Data :#2

Date: 2010/2/24

Time: 下午 06:00:58

80.0 dBuV/m



Site: : 966 Chamber

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC Class B 3M Radiation

Power:

Humidity: 60 %

EUT: IPDA

Distance: 3m

RBW: 120 KHz VBW: 300KHz

M/N: MX9, FC300

Mode: 3

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	352.1500	41.37	-8.89	32.48	46.00	-13.52	QP		
2		478.8500	37.45	-7.63	29.82	46.00	-16.18	QP		
3		570.9000	27.58	-5.48	22.10	46.00	-23.90	QP		
4		654.9000	27.93	-4.48	23.45	46.00	-22.55	QP		
5		847.0500	26.89	-1.25	25.64	46.00	-20.36	QP		
6		995.1000	25.57	0.78	26.35	54.00	-27.65	QP		

*:Maximum data x:Over limit !:over margin

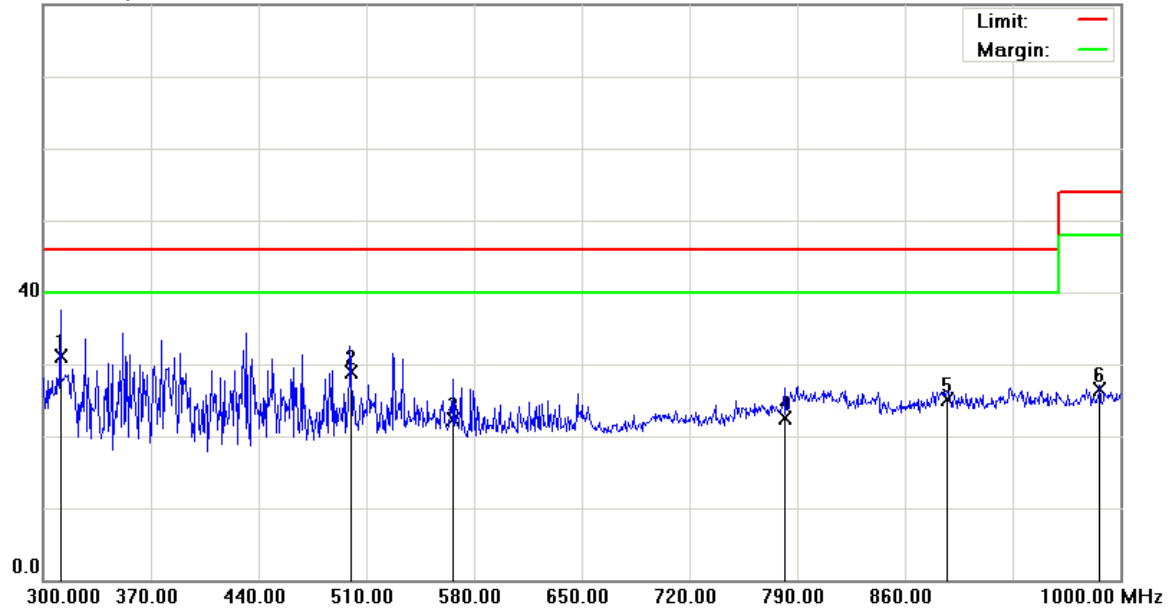
File :MX9(Rx)1G以下

Data :#4

Date: 2010/2/24

Time: 下午 06:06:46

80.0 dBuV/m



Site: : 966 Chamber

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC Class B 3M Radiation

Power:

Humidity: 60 %

EUT: IPDA

Distance: 3m

RBW: 120 KHz VBW: 300KHz

M/N: MX9, FC300

Mode: 3

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	311.2000	40.83	-9.82	31.01	46.00	-14.99	QP		
2		499.8500	36.05	-7.17	28.88	46.00	-17.12	QP		
3		566.7000	27.81	-5.60	22.21	46.00	-23.79	QP		
4		781.6000	24.98	-2.38	22.60	46.00	-23.40	QP		
5		887.3000	25.61	-0.45	25.16	46.00	-20.84	QP		
6		986.7000	25.78	0.67	26.45	54.00	-27.55	QP		

*:Maximum data x:Over limit !:over margin

5.5.2. Above 1GHz

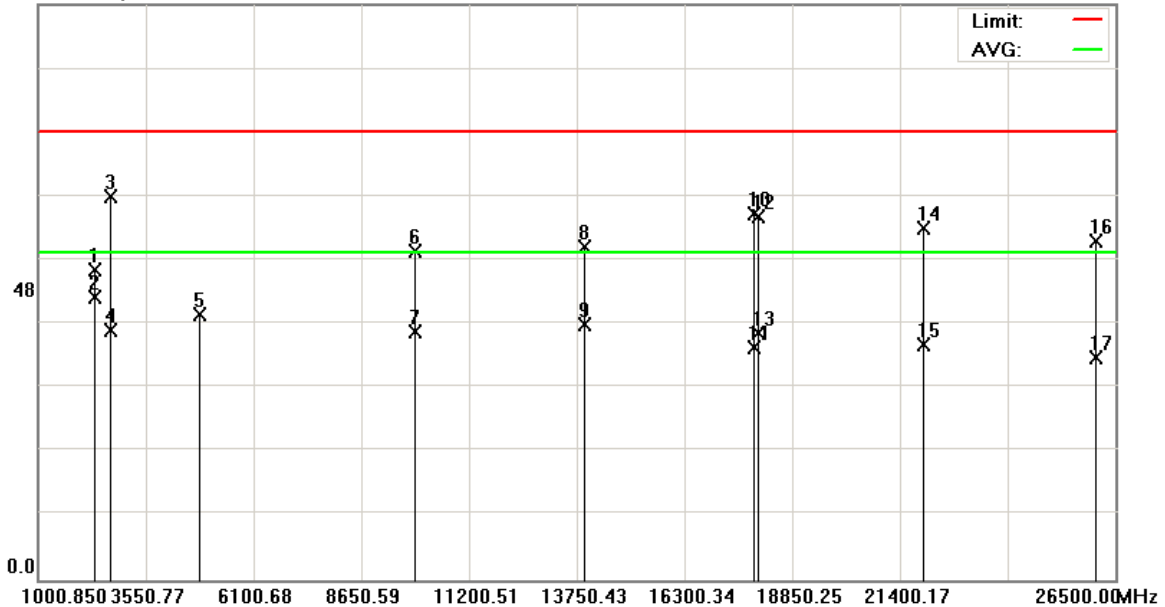
File :MX9(2402MHZ)

Data :#17

Date: 2010/2/9

Time: 下午 08:17:03

95.0 dBuV/m



Site: : 966 Chamber

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: IPDA

Distance: 3m

RBW: 1000KHz VBW: 1000KHz

M/N: MX9, FC300

Mode: 4

Note: 2402MHz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		2345.550	50.96	0.19	51.15	74.00	-22.85	peak		
2	*	2345.550	46.45	0.19	46.64	54.00	-7.36	AVG		
3		2700.000	40.72	22.58	63.30	74.00	-10.70	peak		
4		2700.000	18.69	22.58	41.27	54.00	-12.73	AVG		
5		4804.000	36.44	7.32	43.76	74.00	-30.24	peak		
6		9908.750	36.40	17.78	54.18	74.00	-19.82	peak		
7		9908.750	23.25	17.78	41.03	54.00	-12.97	AVG		
8		13928.000	36.57	18.53	55.10	74.00	-18.90	peak		
9		13928.000	23.67	18.53	42.20	54.00	-11.80	AVG		
10		17928.000	35.63	24.78	60.41	74.00	-13.59	peak		
11		17928.000	13.65	24.78	38.43	54.00	-15.57	AVG		
12		18055.250	36.69	23.26	59.95	74.00	-14.05	peak		
13		18055.250	17.36	23.26	40.62	54.00	-13.38	AVG		
14		21956.750	36.82	21.14	57.96	74.00	-16.04	peak		
15		21956.750	17.80	21.14	38.94	54.00	-15.06	AVG		
16		26019.750	37.49	18.54	56.03	74.00	-17.97	peak		
17		26019.750	18.26	18.54	36.80	54.00	-17.20	AVG		

*:Maximum data x:Over limit !:over margin

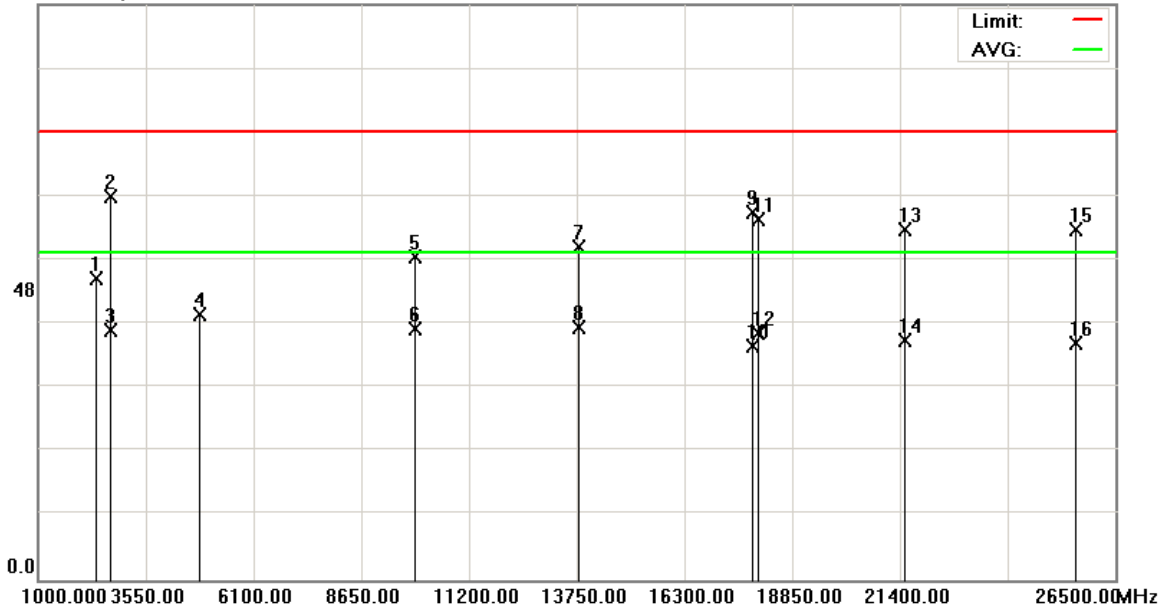
File :MX9(2402MHZ)

Data :#18

Date: 2010/2/9

Time: 下午 08:18:20

95.0 dBuV/m



Site: : 966 Chamber

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: IPDA

Distance: 3m

RBW: 1000KHz VBW: 1000KHz

M/N: MX9, FC300

Mode: 4

Note: 2402MHz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		2360.850	49.43	0.22	49.65	74.00	-24.35	peak		
2	*	2700.000	40.82	22.58	63.40	74.00	-10.60	peak		
3		2700.000	18.69	22.58	41.27	54.00	-12.73	AVG		
4		4804.000	36.45	7.32	43.77	74.00	-30.23	peak		
5		9908.750	35.51	17.78	53.29	74.00	-20.71	peak		
6		9908.750	23.56	17.78	41.34	54.00	-12.66	AVG		
7		13776.000	36.97	18.02	54.99	74.00	-19.01	peak		
8		13776.000	23.67	18.02	41.69	54.00	-12.31	AVG		
9		17904.000	35.80	24.94	60.74	74.00	-13.26	peak		
10		17904.000	13.68	24.94	38.62	54.00	-15.38	AVG		
11		18055.250	36.26	23.26	59.52	74.00	-14.48	peak		
12		18055.250	17.41	23.26	40.67	54.00	-13.33	AVG		
13		21514.750	36.41	21.35	57.76	74.00	-16.24	peak		
14		21514.750	18.10	21.35	39.45	54.00	-14.55	AVG		
15		25543.750	38.97	18.95	57.92	74.00	-16.08	peak		
16		25543.750	20.18	18.95	39.13	54.00	-14.87	AVG		

*:Maximum data x:Over limit !:over margin

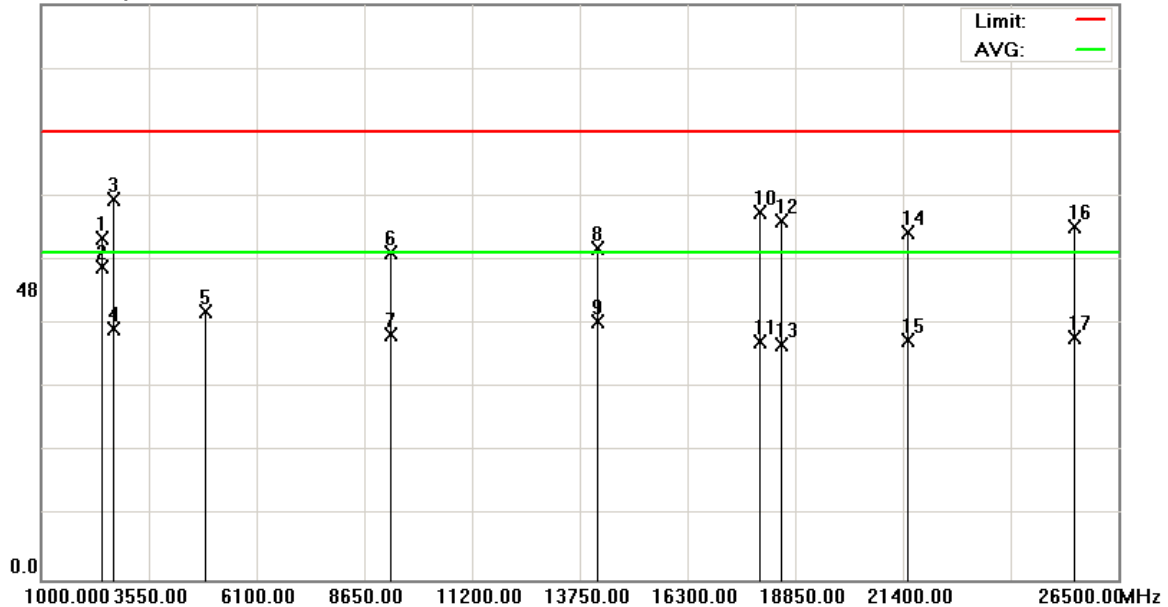
File :MX9(2441MHZ)

Data :#17

Date: 2010/2/9

Time: 下午 08:31:51

95.0 dBuV/m



Site: : 966 Chamber

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: IPDA

Distance: 3m

RBW: 1000KHz VBW: 1000 KHz

M/N: MX9, FC300

Mode: 5

Note: 2441MHz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		2421.200	56.29	0.08	56.37	74.00	-17.63	peak		
2	*	2421.200	51.64	0.08	51.72	54.00	-2.28	AVG		
3		2700.000	40.25	22.58	62.83	74.00	-11.17	peak		
4		2700.000	18.94	22.58	41.52	54.00	-12.48	AVG		
5		4882.000	36.63	7.74	44.37	74.00	-29.63	peak		
6		9284.600	37.37	16.74	54.11	74.00	-19.89	peak		
7		9284.600	23.67	16.74	40.41	54.00	-13.59	AVG		
8		14176.000	35.98	18.85	54.83	74.00	-19.17	peak		
9		14176.000	23.69	18.85	42.54	54.00	-11.46	AVG		
10		17992.000	35.16	25.43	60.59	74.00	-13.41	peak		
11		17992.000	13.98	25.43	39.41	54.00	-14.59	AVG		
12		18518.500	36.26	23.10	59.36	74.00	-14.64	peak		
13		18518.500	15.73	23.10	38.83	54.00	-15.17	AVG		
14		21510.500	36.10	21.35	57.45	74.00	-16.55	peak		
15		21510.500	18.16	21.35	39.51	54.00	-14.49	AVG		
16		25437.500	39.17	19.02	58.19	74.00	-15.81	peak		
17		25437.500	20.92	19.02	39.94	54.00	-14.06	AVG		

*:Maximum data x:Over limit !:over margin

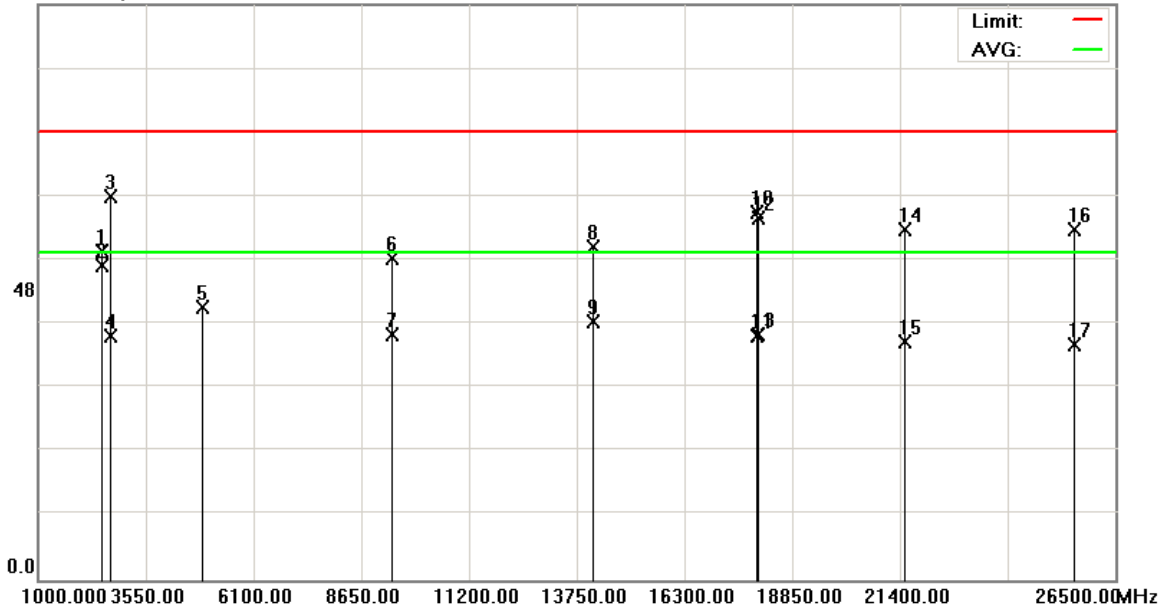
File :MX9(2441MHZ)

Data :#18

Date: 2010/2/9

Time: 下午 08:33:10

95.0 dBuV/m



Site: : 966 Chamber

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: IPDA

Distance: 3m

RBW: 1000KHz VBW: 1000KHz

M/N: MX9, FC300

Mode: 5

Note: 2441MHz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		2481.550	54.11	0.24	54.35	74.00	-19.65	peak		
2	*	2481.550	51.62	0.24	51.86	54.00	-2.14	AVG		
3		2703.650	41.45	21.89	63.34	74.00	-10.66	peak		
4		2703.650	18.28	21.89	40.17	54.00	-13.83	AVG		
5		4882.000	37.16	7.74	44.90	74.00	-29.10	peak		
6		9343.000	36.18	16.93	53.11	74.00	-20.89	peak		
7		9343.000	23.62	16.93	40.55	54.00	-13.45	AVG		
8		14108.000	36.18	18.89	55.07	74.00	-18.93	peak		
9		14108.000	23.74	18.89	42.63	54.00	-11.37	AVG		
10		18000.000	35.01	25.57	60.58	74.00	-13.42	peak		
11		18000.000	14.67	25.57	40.24	54.00	-13.76	AVG		
12		18017.000	36.49	23.29	59.78	74.00	-14.22	peak		
13		18017.000	17.26	23.29	40.55	54.00	-13.45	AVG		
14		21514.750	36.59	21.35	57.94	74.00	-16.06	peak		
15		21514.750	18.05	21.35	39.40	54.00	-14.60	AVG		
16		25526.750	38.95	18.96	57.91	74.00	-16.09	peak		
17		25526.750	19.96	18.96	38.92	54.00	-15.08	AVG		

*:Maximum data x:Over limit !:over margin

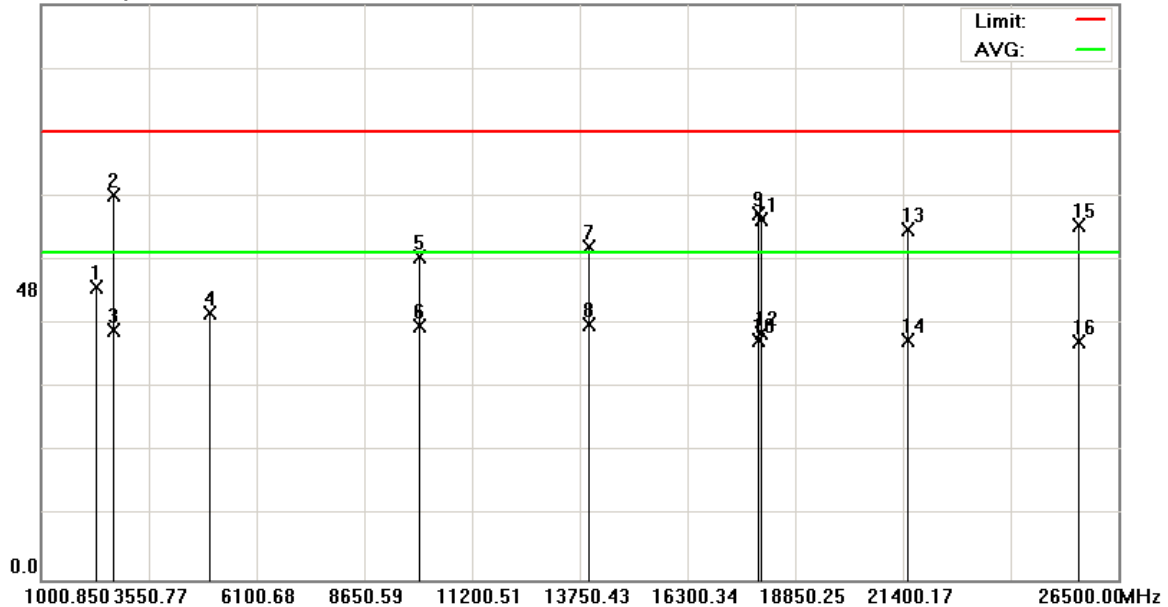
File :MX9(2480MHZ)

Data :#17

Date: 2010/2/9

Time: 下午 08:34:56

95.0 dBuV/m



Site: : 966 Chamber

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: IPDA

Distance: 3m

RBW: 1000KHz VBW: 1000KHz

M/N: MX9, FC300

Mode: 6

Note: 2480MHz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		2286.050	47.86	0.42	48.28	74.00	-25.72	peak		
2	*	2700.000	40.98	22.58	63.56	74.00	-10.44	peak		
3		2700.000	18.61	22.58	41.19	54.00	-12.81	AVG		
4		4960.000	36.19	7.80	43.99	74.00	-30.01	peak		
5		9930.650	35.54	17.78	53.32	74.00	-20.68	peak		
6		9930.650	24.20	17.78	41.98	54.00	-12.02	AVG		
7		13948.000	36.55	18.53	55.08	74.00	-18.92	peak		
8		13948.000	23.68	18.53	42.21	54.00	-11.79	AVG		
9		17964.000	35.60	24.91	60.51	74.00	-13.49	peak		
10		17964.000	14.54	24.91	39.45	54.00	-14.55	AVG		
11		18017.000	36.11	23.29	59.40	74.00	-14.60	peak		
12		18017.000	17.51	23.29	40.80	54.00	-13.20	AVG		
13		21502.000	36.45	21.36	57.81	74.00	-16.19	peak		
14		21502.000	18.18	21.36	39.54	54.00	-14.46	AVG		
15		25539.500	39.48	18.95	58.43	74.00	-15.57	peak		
16		25539.500	20.34	18.95	39.29	54.00	-14.71	AVG		

*:Maximum data x:Over limit !:over margin

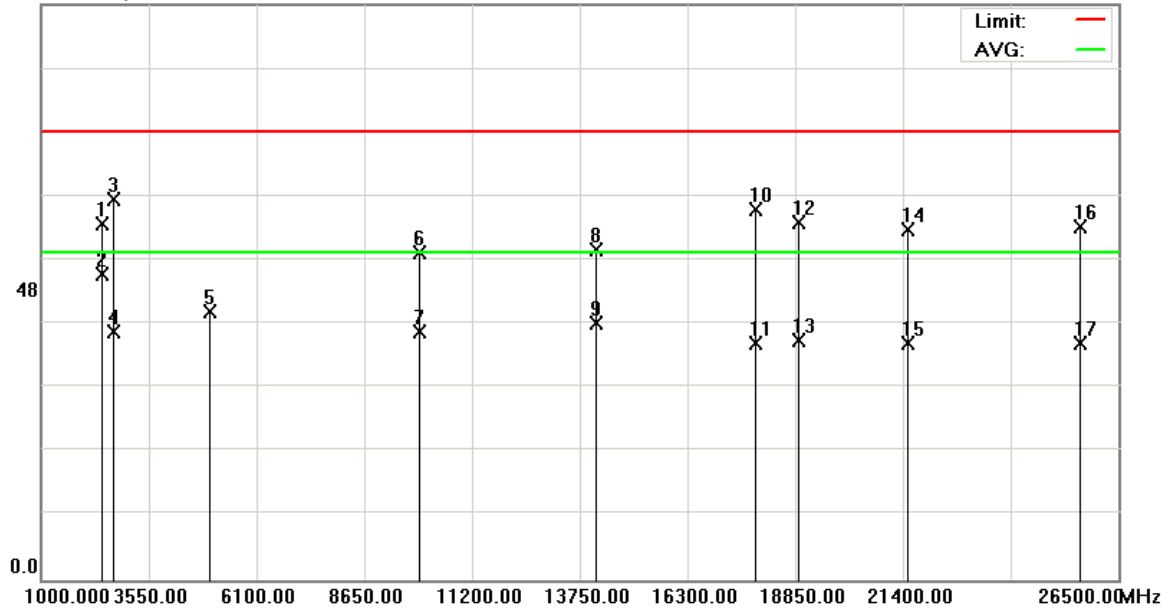
File :MX9(2480MHZ)

Data :#18

Date: 2010/2/9

Time: 下午 08:36:13

95.0 dBuV/m



Site: : 966 Chamber

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: IPDA

Distance: 3m

RBW: 1000KHz VBW: 1000KHz

M/N: MX9, FC300

Mode: 6

Note: 2480MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		2421.200	58.74	0.08	58.82	74.00	-15.18	peak		
2	*	2421.200	50.41	0.08	50.49	54.00	-3.51	AVG		
3		2700.000	40.25	22.58	62.83	74.00	-11.17	peak		
4		2700.000	18.42	22.58	41.00	54.00	-13.00	AVG		
5		4960.000	36.61	7.80	44.41	74.00	-29.59	peak		
6		9927.000	36.31	17.78	54.09	74.00	-19.91	peak		
7		9927.000	23.28	17.78	41.06	54.00	-12.94	AVG		
8		14112.000	35.61	18.89	54.50	74.00	-19.50	peak		
9		14112.000	23.52	18.89	42.41	54.00	-11.59	AVG		
10		17888.000	36.62	24.60	61.22	74.00	-12.78	peak		
11		17888.000	14.54	24.60	39.14	54.00	-14.86	AVG		
12		18922.250	35.92	23.13	59.05	74.00	-14.95	peak		
13		18922.250	16.53	23.13	39.66	54.00	-14.34	AVG		
14		21514.750	36.40	21.35	57.75	74.00	-16.25	peak		
15		21514.750	17.63	21.35	38.98	54.00	-15.02	AVG		
16		25565.000	39.42	18.94	58.36	74.00	-15.64	peak		
17		25565.000	20.20	18.94	39.14	54.00	-14.86	AVG		

*:Maximum data x:Over limit !:over margin

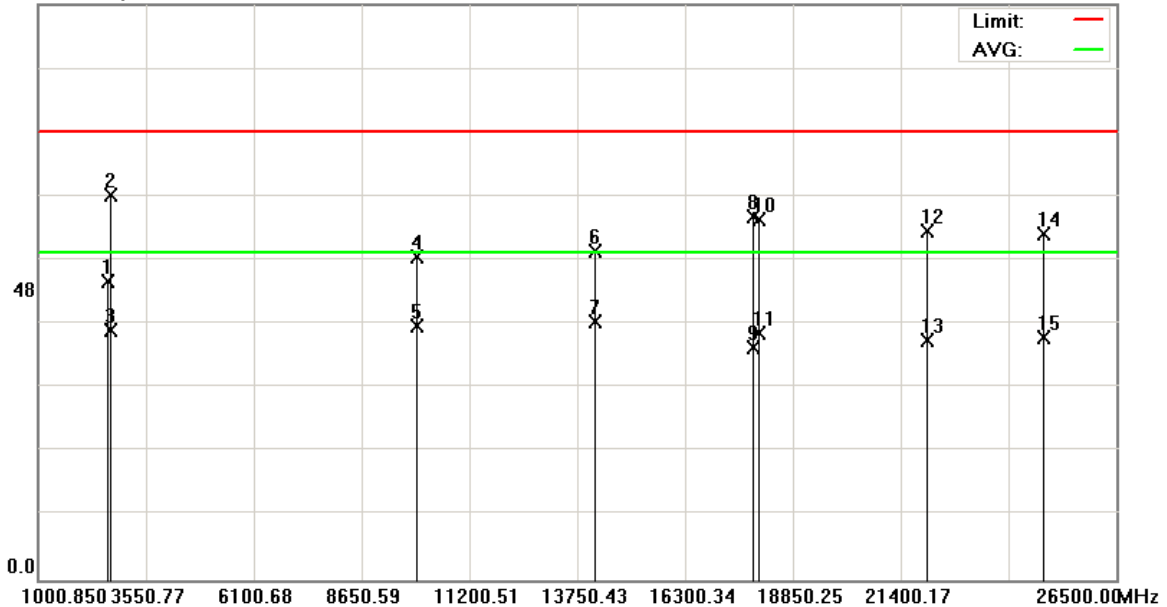
File :MX9(Rx)1G以上

Data :#19

Date: 2010/2/24

Time: 下午 06:34:56

95.0 dBuV/m



Site: : 966 Chamber

Limit: FCC part 15 (PK)

EUT: IPDA

M/N: MX9, FC300

Mode: 3

Note:

Polarization: **Vertical**

Power:

Distance: 3m

Temperature: 22 °C

Humidity: 60 %

RBW: 1000 KHz VBW: 1000KHz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		2630.300	48.38	0.91	49.29	74.00	-24.71	peak		
2	*	2700.000	40.98	22.58	63.56	74.00	-10.44	peak		
3		2700.000	18.61	22.58	41.19	54.00	-12.81	AVG		
4		9930.650	35.54	17.78	53.32	74.00	-20.68	peak		
5		9930.650	24.20	17.78	41.98	54.00	-12.02	AVG		
6		14176.000	35.36	18.85	54.21	74.00	-19.79	peak		
7		14176.000	23.81	18.85	42.66	54.00	-11.34	AVG		
8		17900.000	35.10	24.96	60.06	74.00	-13.94	peak		
9		17900.000	13.45	24.96	38.41	54.00	-15.59	AVG		
10		18017.000	36.11	23.29	59.40	74.00	-14.60	peak		
11		18017.000	17.51	23.29	40.80	54.00	-13.20	AVG		
12		22020.500	36.42	21.11	57.53	74.00	-16.47	peak		
13		22020.500	18.40	21.11	39.51	54.00	-14.49	AVG		
14		24778.750	37.46	19.56	57.02	74.00	-16.98	peak		
15		24778.750	20.56	19.56	40.12	54.00	-13.88	AVG		

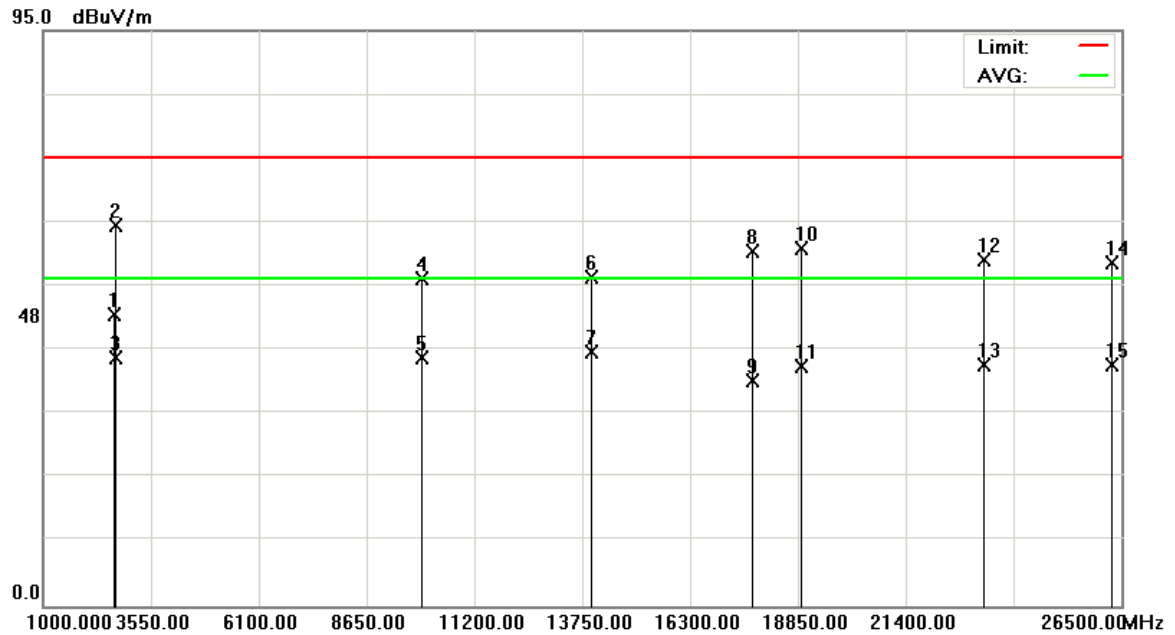
*:Maximum data x:Over limit !:over margin

File :MX9(Rx)1G以上

Data :#20

Date: 2010/2/24

Time: 下午 06:36:13



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: IPDA
M/N: MX9, FC300
Mode: 3
Note:

Polarization: **Horizontal**
Power:
Distance: 3m

Temperature: 22 °C
Humidity: 60 %
RBW: 1000 KHz VBW: 1000KHz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		2676.200	47.15	1.02	48.17	74.00	-25.83	peak		
2	*	2700.000	40.25	22.58	62.83	74.00	-11.17	peak		
3		2700.000	18.42	22.58	41.00	54.00	-13.00	AVG		
4		9927.000	36.31	17.78	54.09	74.00	-19.91	peak		
5		9927.000	23.28	17.78	41.06	54.00	-12.94	AVG		
6		13932.000	35.71	18.54	54.25	74.00	-19.75	peak		
7		13932.000	23.45	18.54	41.99	54.00	-12.01	AVG		
8		17776.000	35.37	23.25	58.62	74.00	-15.38	peak		
9		17776.000	13.98	23.25	37.23	54.00	-16.77	AVG		
10		18922.250	35.92	23.13	59.05	74.00	-14.95	peak		
11		18922.250	16.53	23.13	39.66	54.00	-14.34	AVG		
12		23253.000	36.30	20.79	57.09	74.00	-16.91	peak		
13		23253.000	19.10	20.79	39.89	54.00	-14.11	AVG		
14		26266.250	38.18	18.42	56.60	74.00	-17.40	peak		
15		26266.250	21.31	18.42	39.73	54.00	-14.27	AVG		

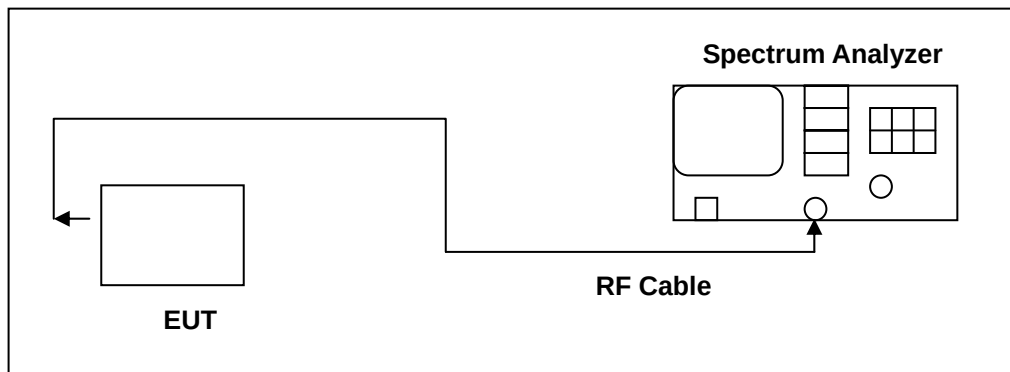
*:Maximum data x:Over limit !:over margin

6 Maximum Conducted Output Power Measurement

6.1. Limit

For frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels < 1 watt.

6.2. Test Setup



6.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/14/2009	⁽²⁾
Test Site	ATL	TE06	TE06	N.C.R.	-----

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

6.4. Test Procedure

The tests below are run with the EUT's transmitter set at high power in TX mode. The EUT is needed to force selection of output power level and channel number. While testing, EUT was set to transmit continuously. Remove the Subjective device's antenna and connect the RF output port to spectrum analyzer. The maximum peak output power shall not exceed 1 watt.

Use a direct connection between the antenna port of transmitter and the spectrum Analyzer, for prevent the spectrum analyzer input attenuation 40-50 dB. Set the RBW Bandwidth of the emission or use a channel power meter mode.

For antennas with gains of 6 dBi or less, maximum allowed transmitter output is 1 watt (+30 dBm). For antennas with gains greater than 6 dBi, transmitter output level must be decreased by an amount equal to (GAIN - 6)/3 dBm.

The antenna port of the EUT was connected to the input of a power meter. Power was read directly and cable loss correction was added to the reading to obtain power at the EUT antenna terminals.

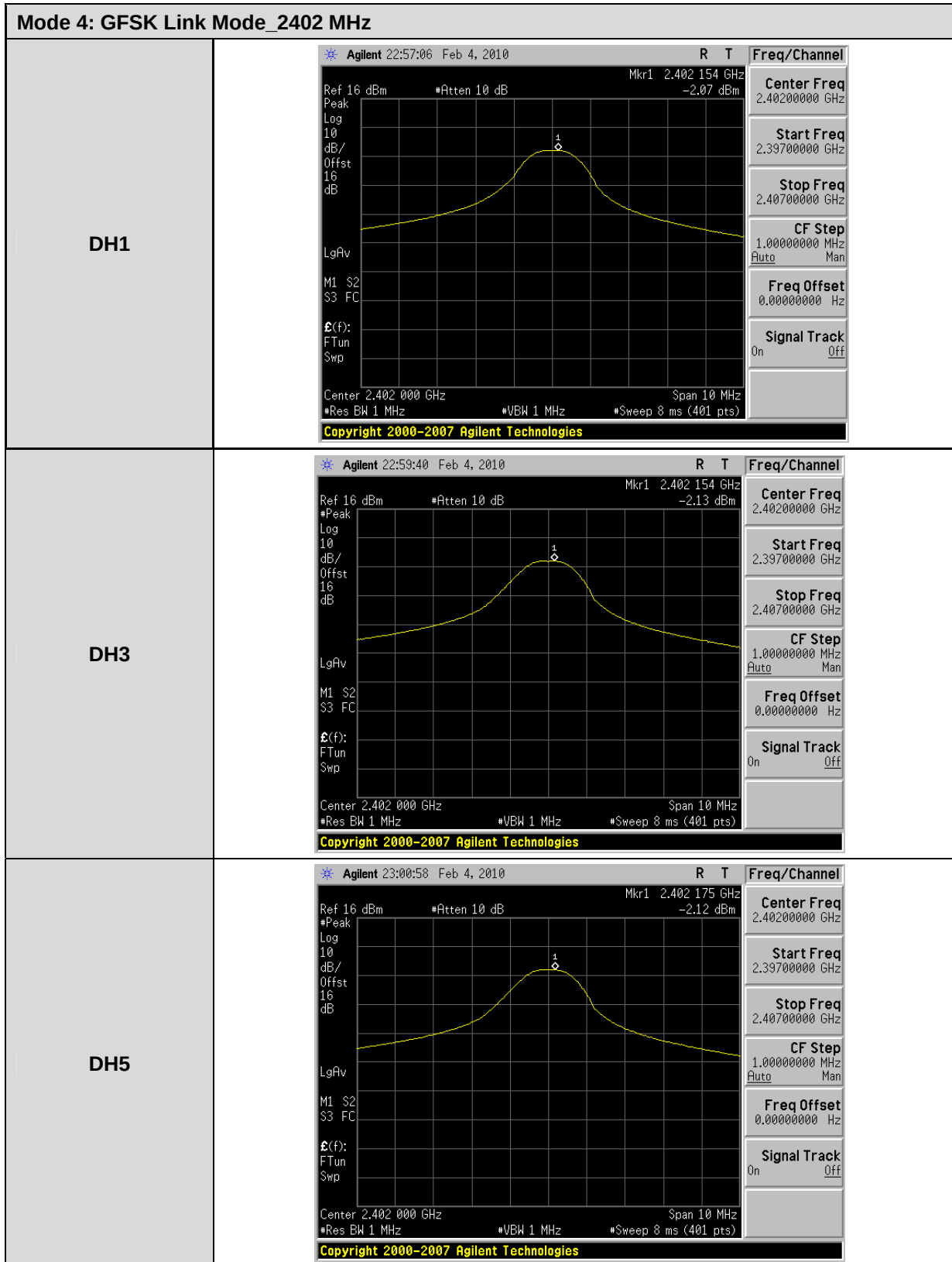
6.5. Test Result

Product	IPDA			
Test Item	Maximum Conducted Output Power			
Test Mode	Mode 4: GFSK Link Mode			
Date of Test	02/04/2010		Test Site	TE06
Frequency (MHz)	Packet Type	Measurement		Limit (W)
		(dBm)	(W)	
2402	DH1	-2.07	0.001	< 1
	DH3	-2.13	0.001	< 1
	DH5	-2.12	0.001	< 1
2441	DH1	-2.81	0.001	< 1
	DH3	-2.81	0.001	< 1
	DH5	-2.8	0.001	< 1
2480	DH1	-2.88	0.001	< 1
	DH3	-2.88	0.001	< 1
	DH5	-2.87	0.001	< 1

Product	IPDA			
Test Item	Maximum Conducted Output Power			
Test Mode	Mode 4: $\pi/4$ -DQPSK Mode			
Date of Test	02/04/2010		Test Site	TE06
Frequency (MHz)	Packet Type	Measurement		Limit (W)
		(dBm)	(W)	
2402	2DH1	-2.11	0.001	< 1
	2DH3	-2.13	0.001	< 1
	2DH5	-2.15	0.001	< 1
2441	2DH1	-2.81	0.001	< 1
	2DH3	-2.82	0.001	< 1
	2DH5	-2.81	0.001	< 1
2480	2DH1	-2.87	0.001	< 1
	2DH3	-2.87	0.001	< 1
	2DH5	-2.87	0.001	< 1

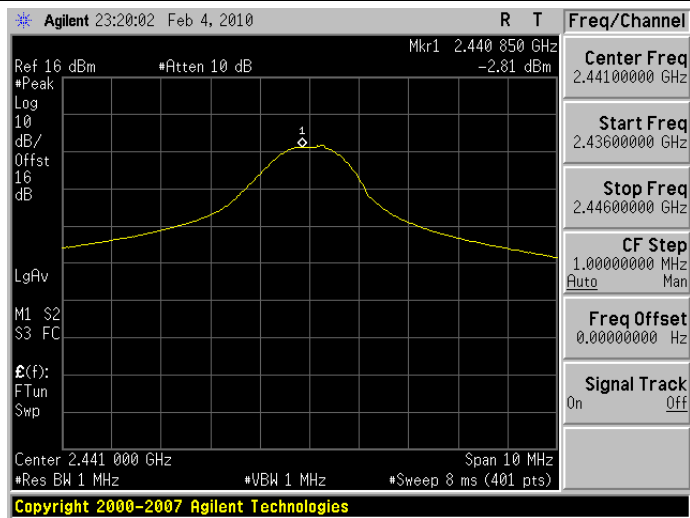
Product	IPDA			
Test Item	Maximum Conducted Output Power			
Test Mode	Mode 6: 8DPSK Link Mode			
Date of Test	02/04/2010	Test Site		TE06
Frequency (MHz)	Packet Type	Measurement		Limit (W)
		(dBm)	(W)	
2402	3DH1	-2.11	0.001	< 1
	3DH3	-2.11	0.001	< 1
	3DH5	-2.11	0.001	< 1
2441	3DH1	-2.81	0.001	< 1
	3DH3	-2.82	0.001	< 1
	3DH5	-2.81	0.001	< 1
2480	3DH1	-2.88	0.001	< 1
	3DH3	-2.88	0.001	< 1
	3DH5	-2.76	0.001	< 1

6.6. Test Graphs

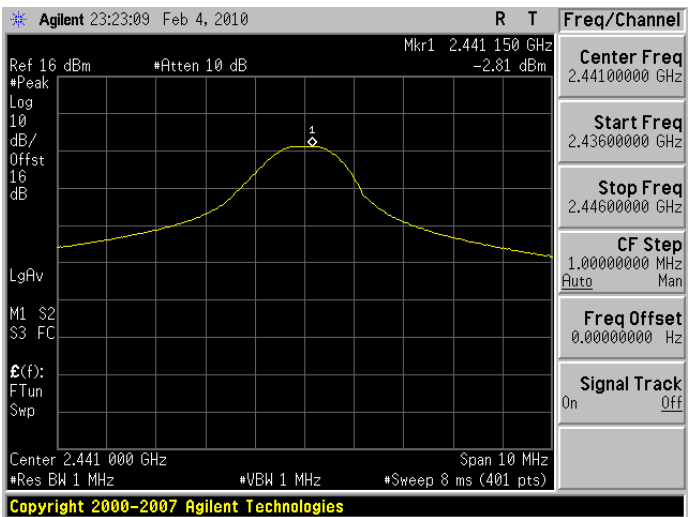


Mode 4: GFSK Link Mode_2441 MHz

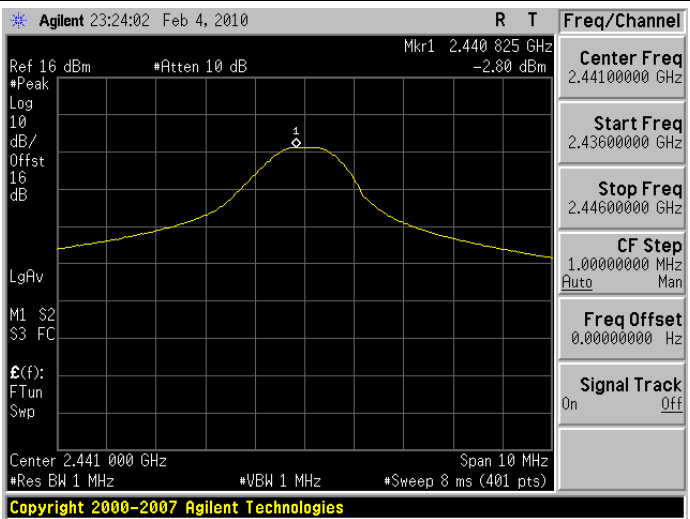
DH1



DH3

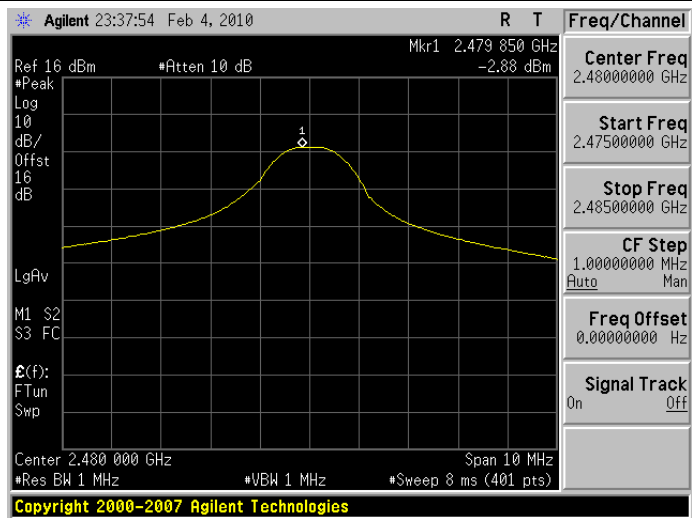


DH5

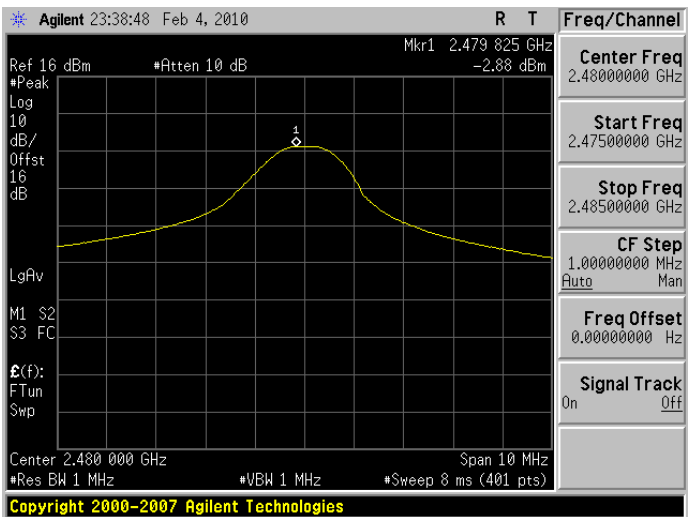


Mode 4: GFSK Link Mode_2480 MHz

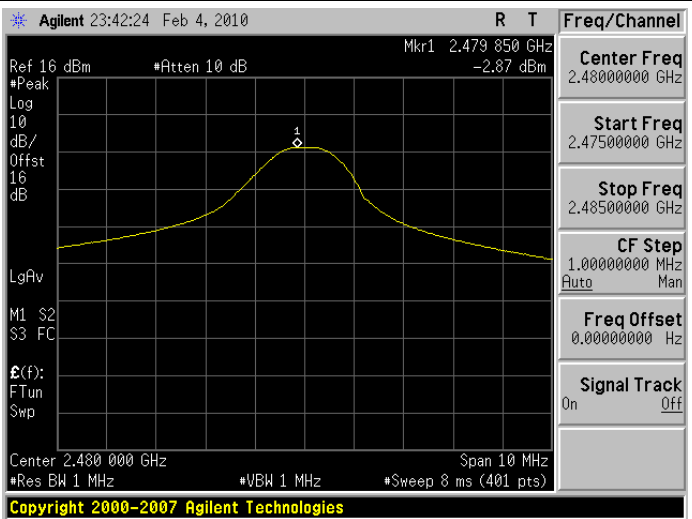
DH1



DH3

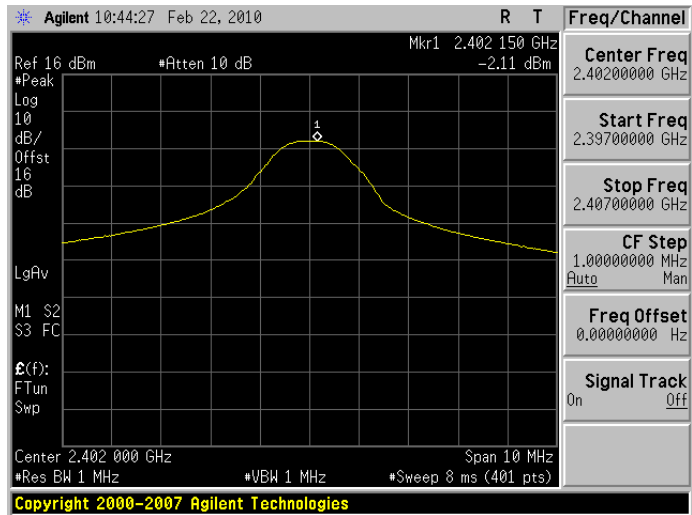


DH5

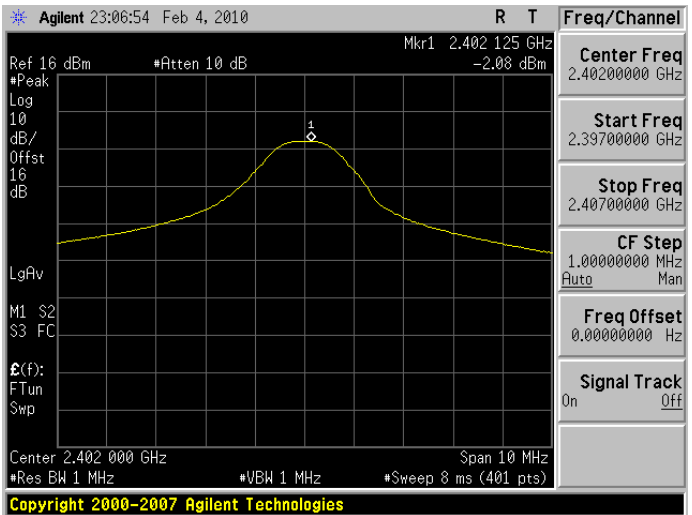


Mode 4: $\pi/4$ -DQPSK Link Mode_2402 MHz

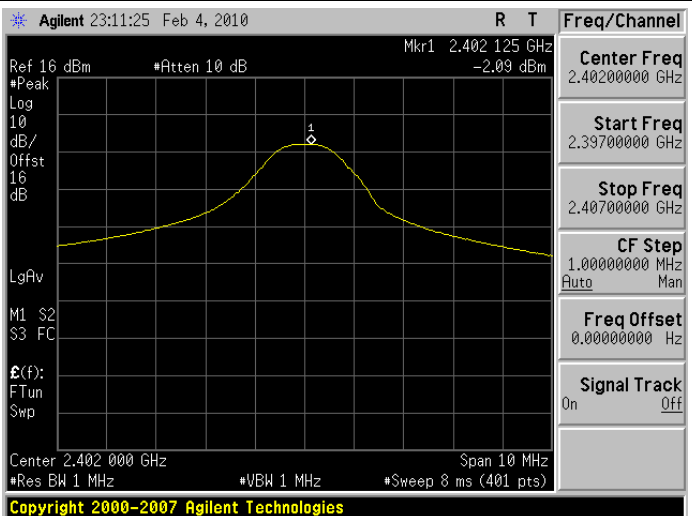
DH1



DH3

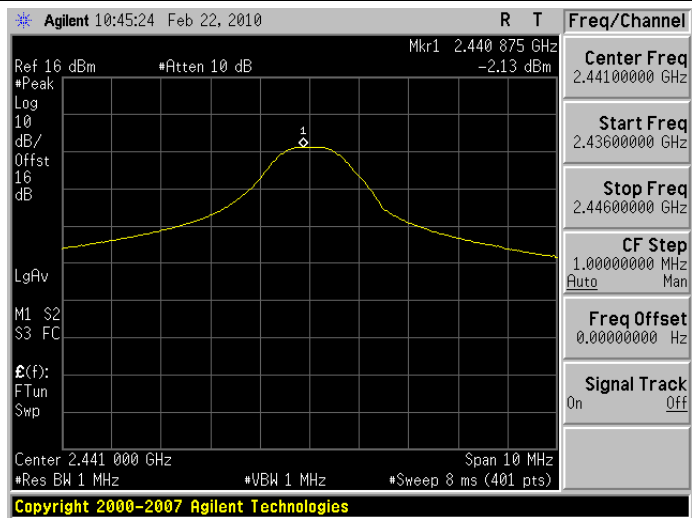


DH5

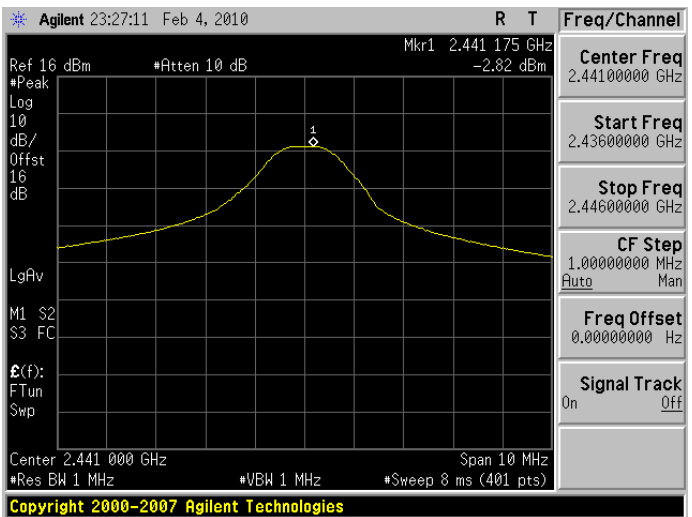


Mode 4: $\pi/4$ -DQPSK Link Mode_2441 MHz

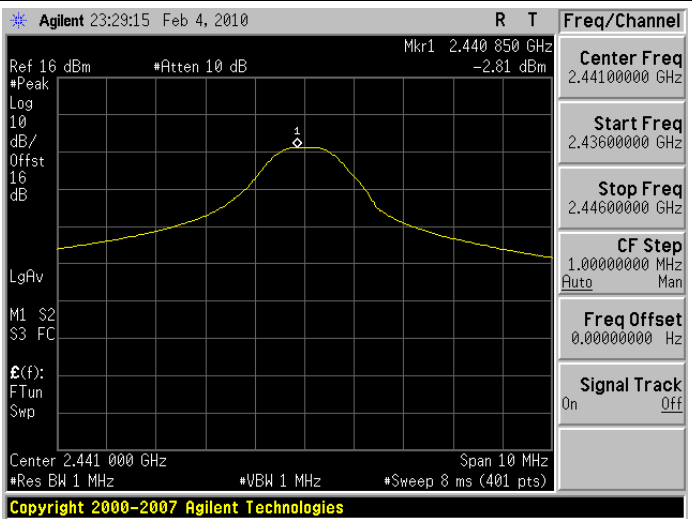
DH1



DH3

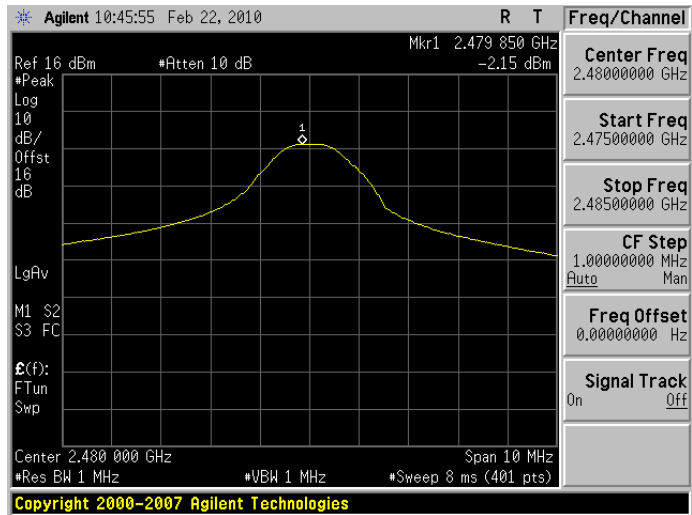


DH5

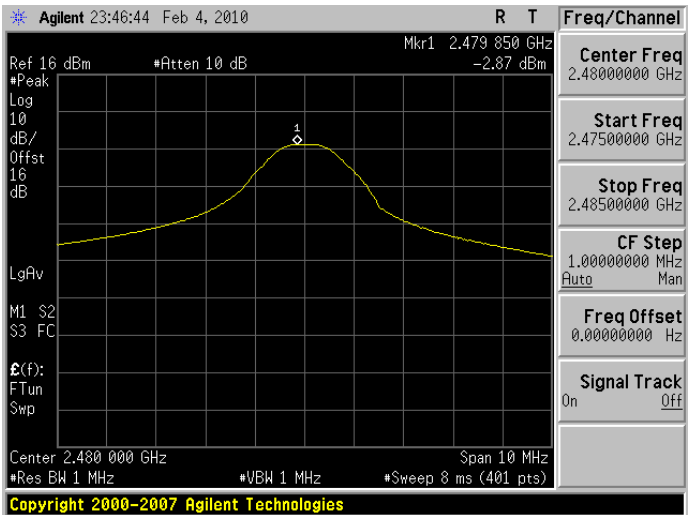


Mode 4: $\pi/4$ -DQPSK Link Mode_2480 MHz

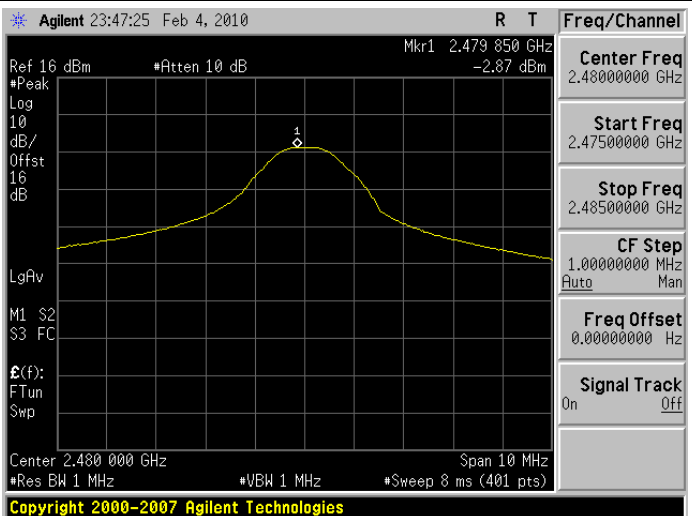
DH1



DH3

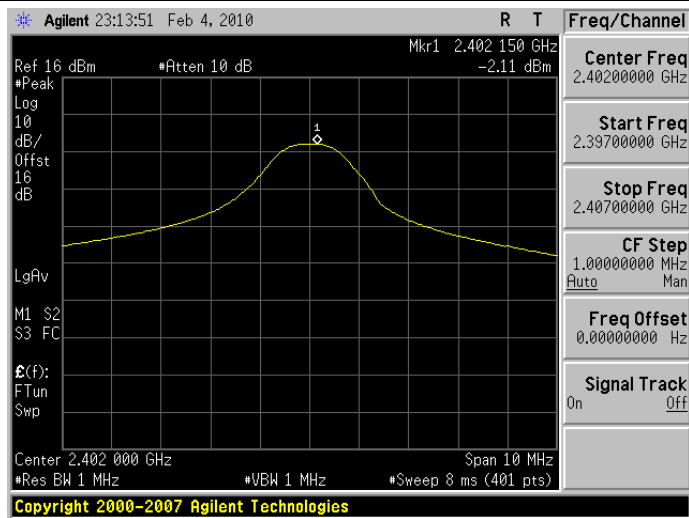


DH5

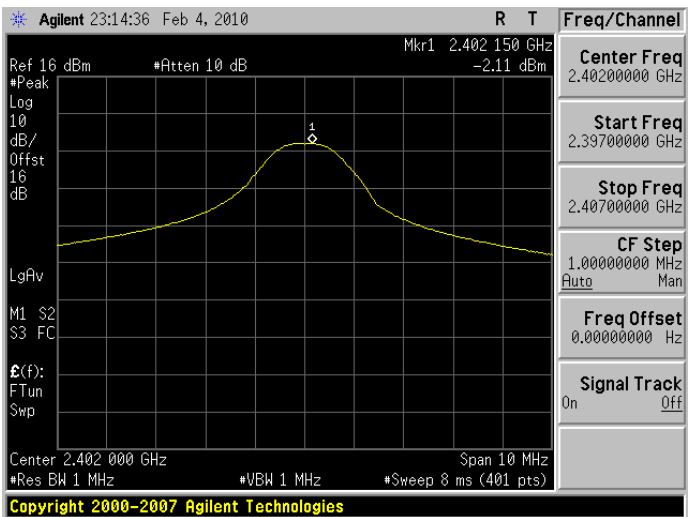


Mode3: 8DPSK Link Mode_2402 MHz

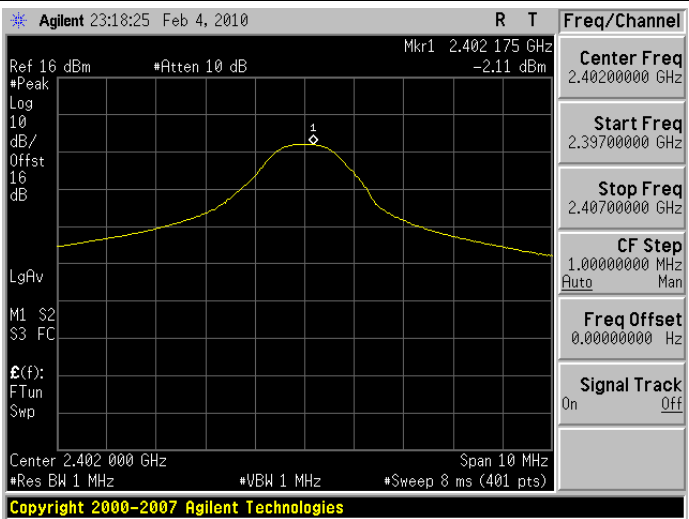
DH1



DH3

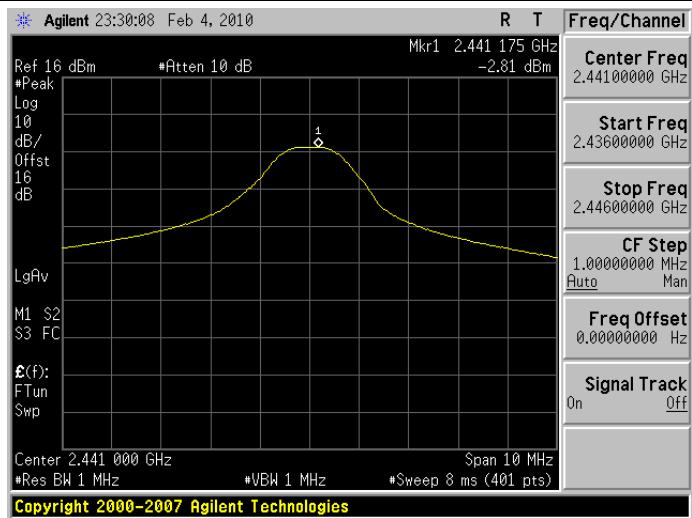


DH5

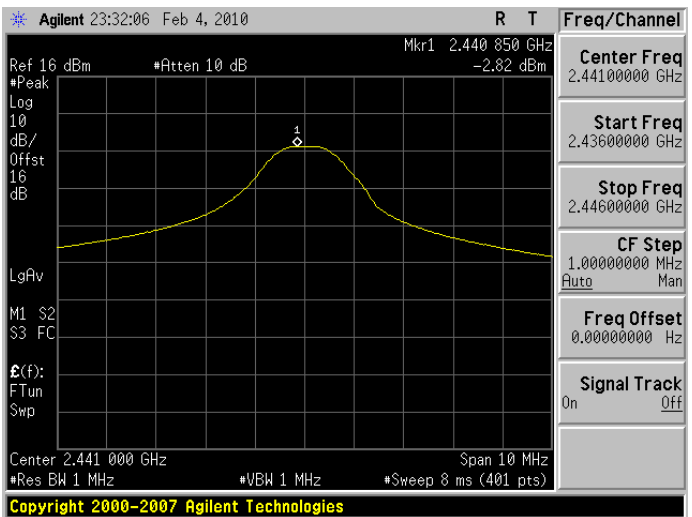


Mode3: 8DPSK Link Mode_2441 MHz

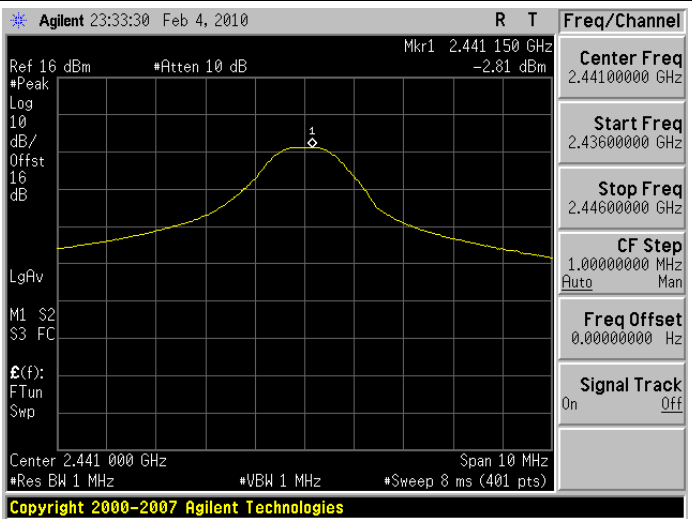
DH1



DH3

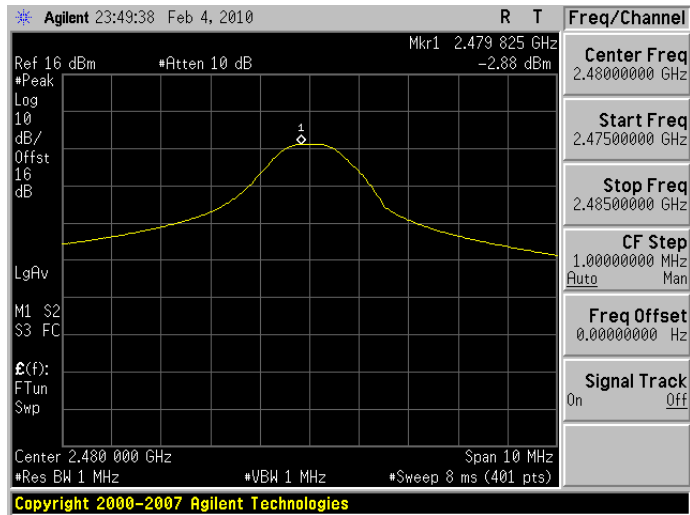


DH5

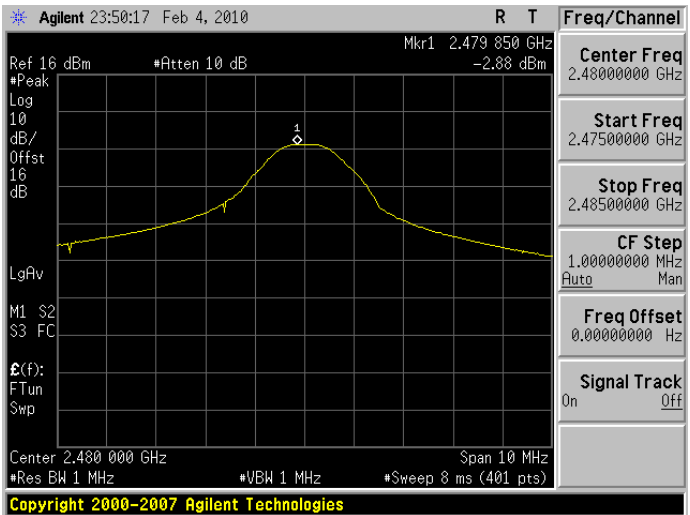


Mode3: 8DPSK Link Mode_2480 MHz

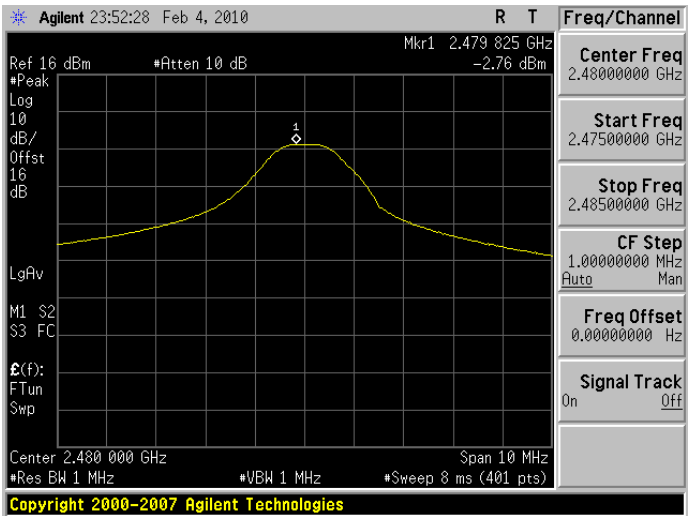
DH1



DH3



DH5

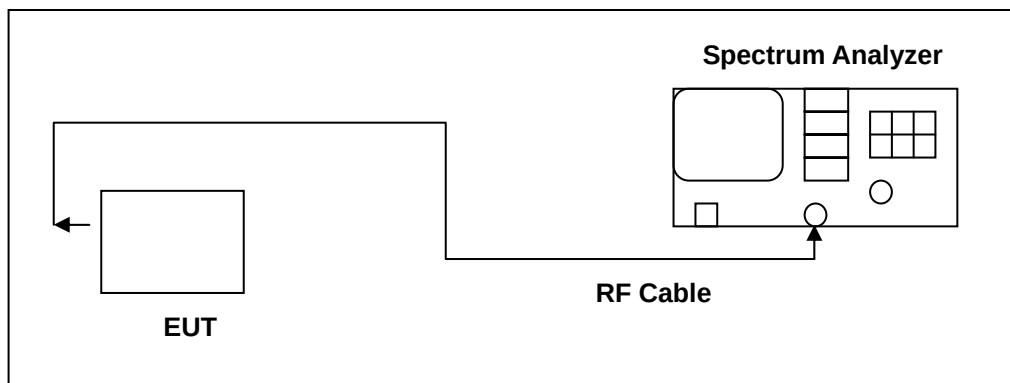


7 Minimum 20dB RF Bandwidth Measurement

7.1. Limit

For frequency hopping systems operating in the 2400–2483.5 MHz band shall use at least 75 hopping frequencies. The maximum 20 dB bandwidth of the hop-ping channel is < 1 MHz.

7.2. Test Setup



7.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/14/2009	⁽²⁾
Test Site	ATL	TE06	TE06	N.C.R.	-----

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

7.4. Test Procedure

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth frequency hopping function of the EUT was enabled. The spectrum analyzer used the following settings:

1. Span = approx. 2 to 3 times the 20dB bandwidth, centered on a hopping frequency
2. RBW $\geq$ 1% of the 20dB span
3. VBW $\geq$ RBW
4. Sweep = auto
5. Detector function = peak
6. Trace = max hold

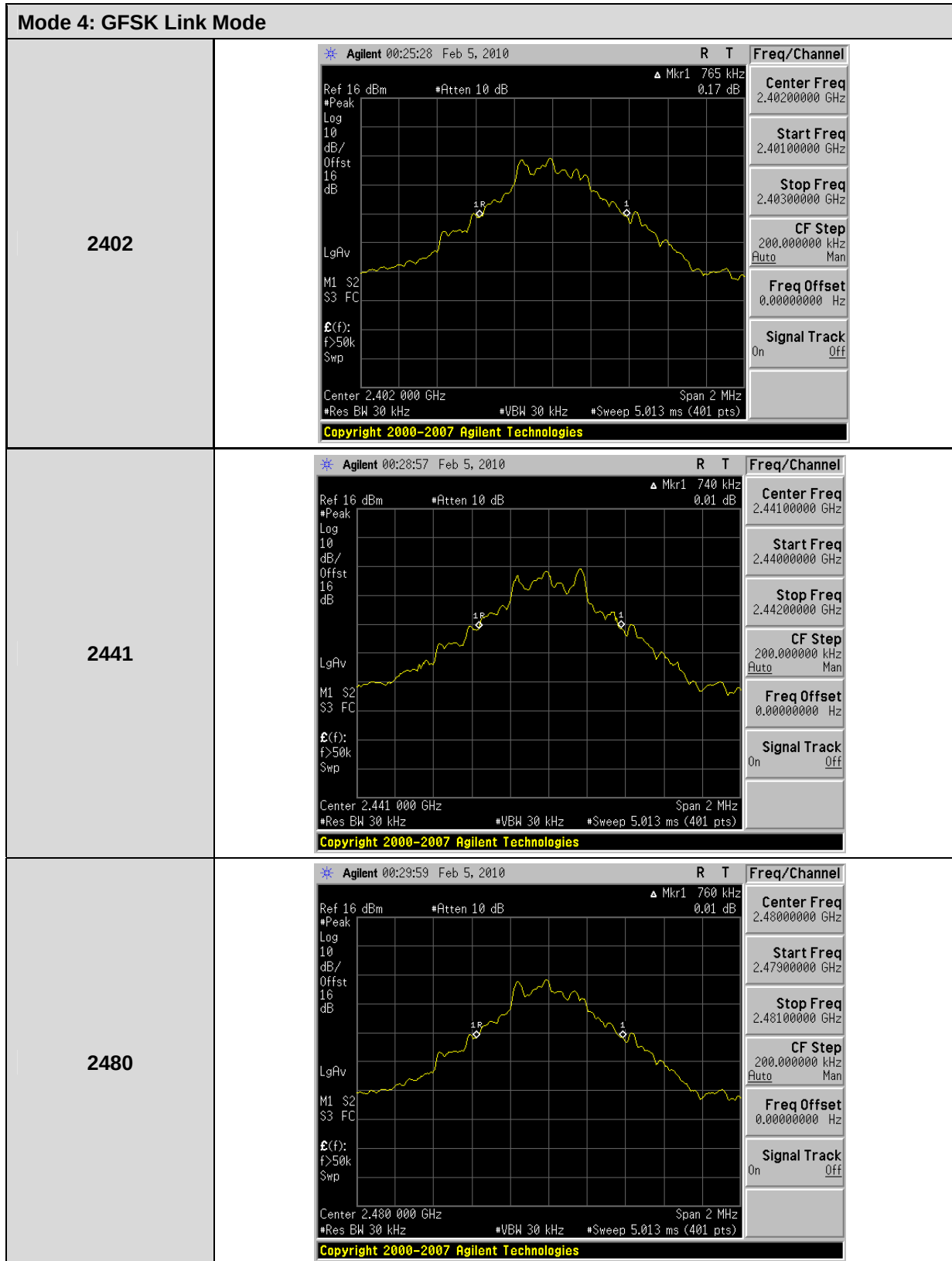
The trace was allowed to stabilize. The EUT was transmitting at its maximum data rate. The marker-to-peak function was used to set the marker to the peak of the emission. The marker-delta function was used to measure 20dB down one side of the emission. The marker-delta function and marker was moved to the other side of the emission until it was even with the reference marker. The marker-delta reading at this point was the 20dB bandwidth of the emission.

7.5. Test Result

Product	IPDA		
Test Item	Minimum 20dB RF Bandwidth		
Test Mode	Mode 4: GFSK Link Mode		
Date of Test	02/05/2010	Test Site	TE06
Frequency (MHz)	Measurement (MHz)		Limit (MHz)
2402	0.765		< 1
2441	0.740		< 1
2480	0.760		< 1

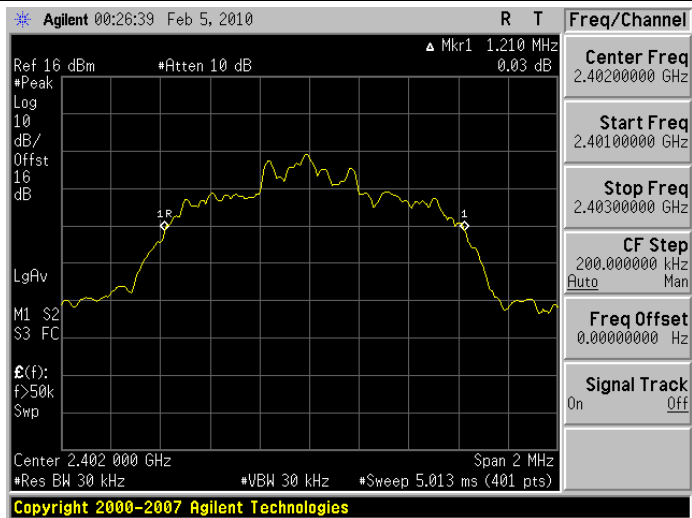
Product	IPDA		
Test Item	Minimum 20dB RF Bandwidth		
Test Mode	Mode 6: 8DPSK Link Mode		
Date of Test	02/05/2010	Test Site	TE06
Frequency (MHz)	20dB Bandwidth (MHz)	2/3 20dB Bandwidth (MHz)	Limit (MHz)
2402	1.210	0.807	< 1
2441	1.205	0.803	< 1
2480	1.210	0.807	< 1

7.6. Test Graphs

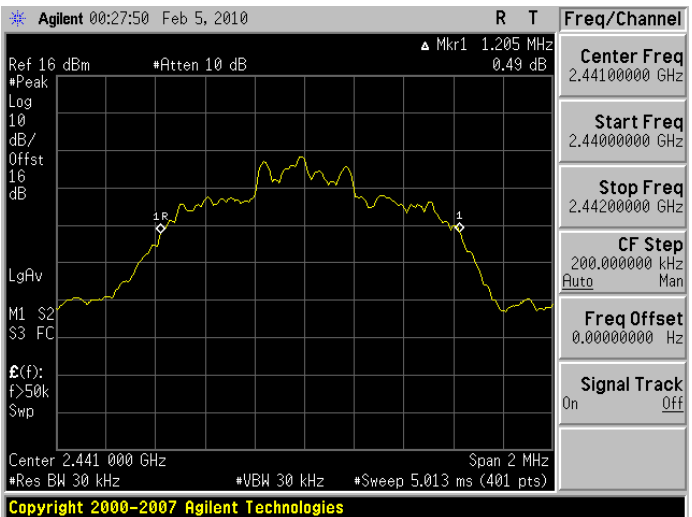


Mode3: 8DPSK Link Mode

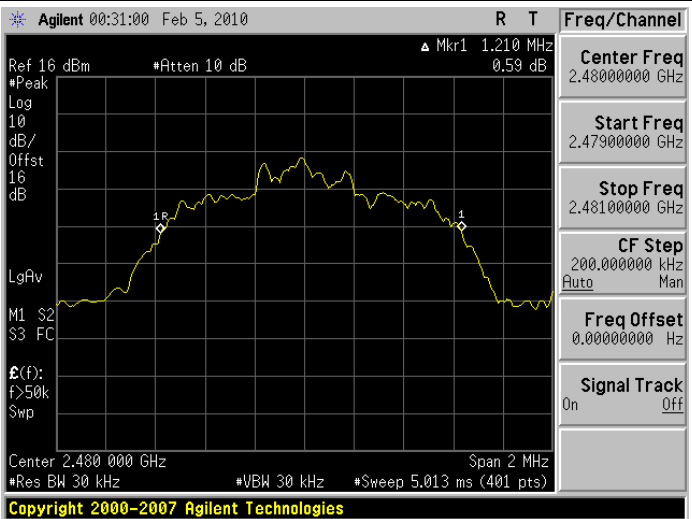
2402



2441



2480

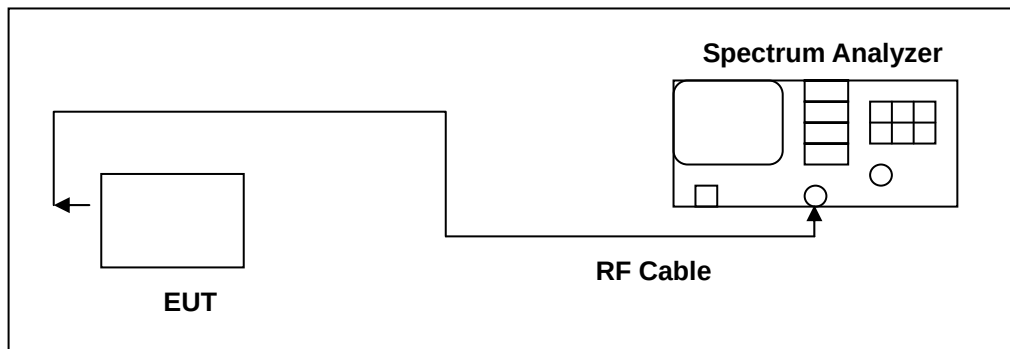


8 Carrier Frequency Separation Measurement

8.1. Limit

For frequency hopping systems operating in the 2400–2483.5 MHz band shall use at least 75 hopping frequencies. The Carrier Frequency Separation is 1 MHz.

8.2. Test Setup



8.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/14/2009	⁽²⁾
Test Site	ATL	TE06	TE06	N.C.R.	-----

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

8.4. Test Procedure

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth transmitter of the V6 had its hopping function enabled. The following spectrum analyzer settings were used:

1. Span = wide enough to capture the peaks of two adjacent channels
2. Resolution (or IF) Bandwidth (RBW) $\geq$ 1% of the span
3. Video (or Average) Bandwidth (VBW) $\geq$ RBW
4. Sweep = auto
5. Detector function = peak
6. Trace = max hold

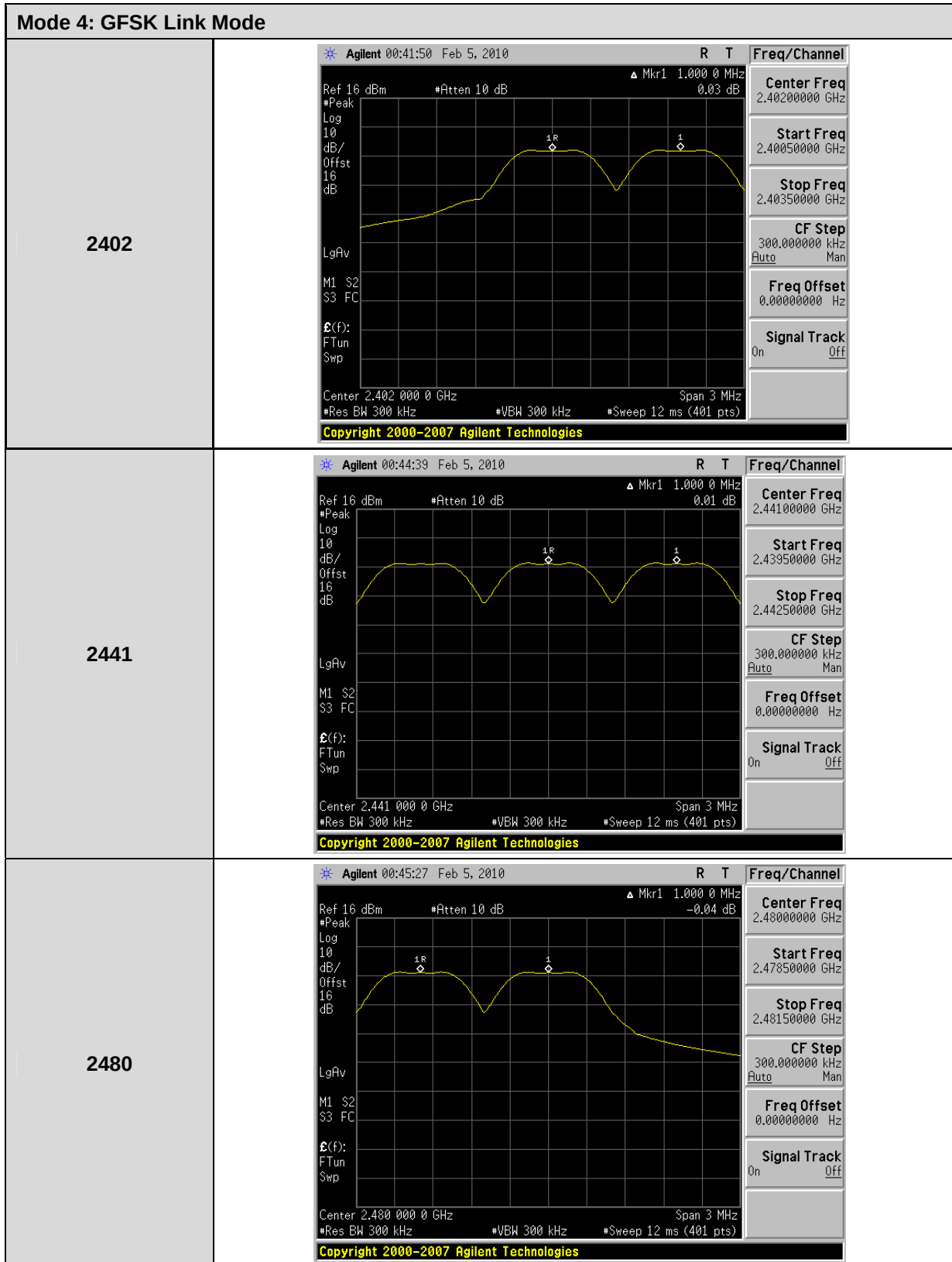
The trace was allowed to stabilize. The marker-delta function was used to determine the separation between the peaks of the adjacent channels.

8.5. Test Result

Product	IPDA		
Test Item	Carrier Frequency Separation		
Test Mode	Mode 4: GFSK Link Mode		
Date of Test	02/05/2010	Test Site	TE06
Frequency (MHz)	Measurement (MHz)	Limit (MHz)	
2402	1	1	
2441	1	1	
2480	1	1	

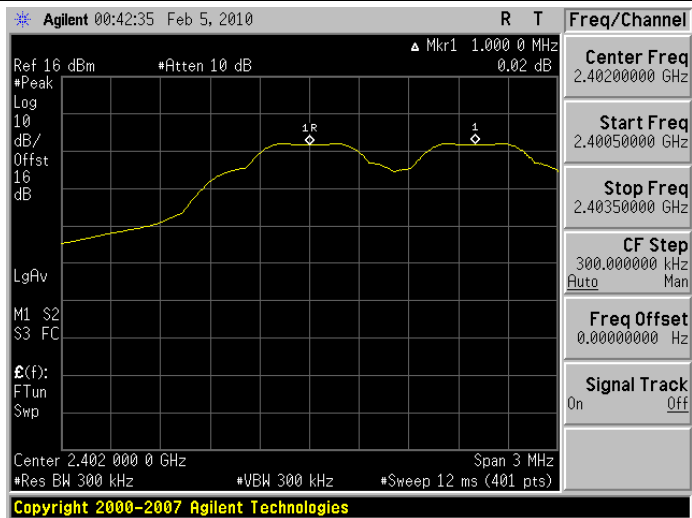
Product	IPDA		
Test Item	Carrier Frequency Separation		
Test Mode	Mode 6: 8DPSK Link Mode		
Date of Test	02/05/2010	Test Site	TE06
Frequency (MHz)	Measurement (MHz)	Limit (MHz)	
2402	1	1	
2441	1	1	
2480	1	1	

8.6. Test Graphs

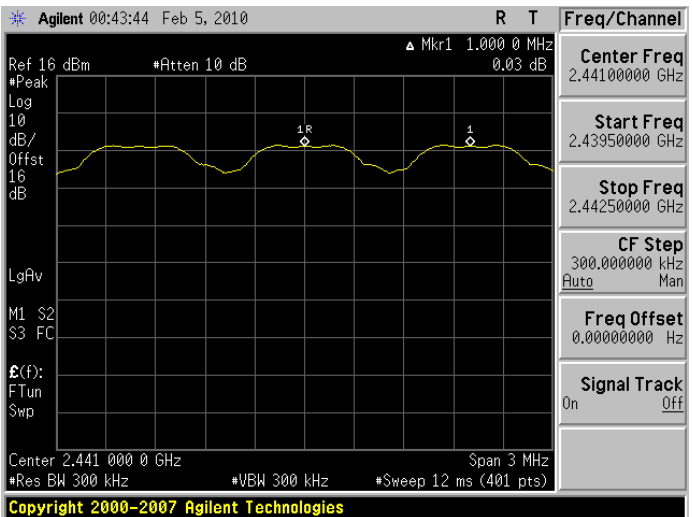


Mode3: 8DPSK Link Mode

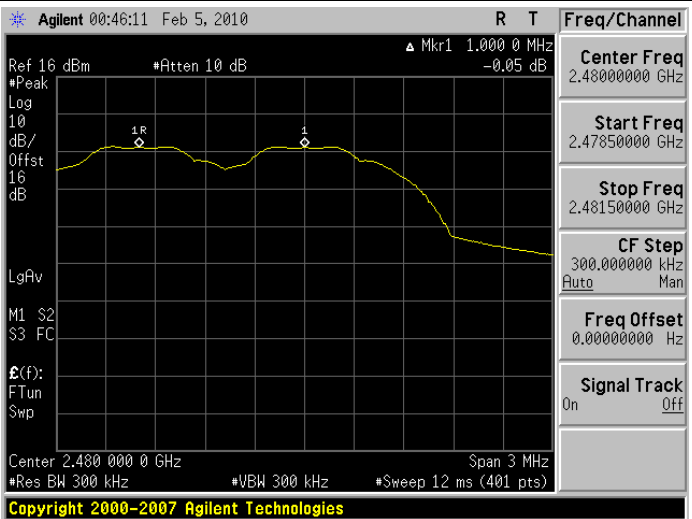
2402



2441



2480

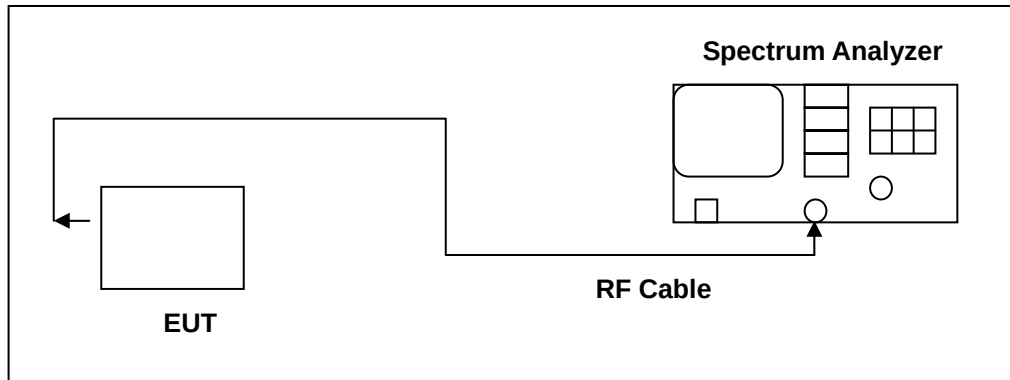


9 Number of Hopping Measurement

9.1. Limit

Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels.

9.2. Test Setup



9.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/14/2009	⁽²⁾
Test Site	ATL	TE06	TE06	N.C.R.	-----

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

9.4. Test Procedure

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth frequency hopping function of the EUT was enabled. The spectrum analyzer used the following settings:

1. Span = the frequency band of operation
2. RBW $\geq$ 1% of the span
3. VBW $\geq$ RBW
4. Sweep = auto
5. Detector function = peak
6. Trace = max hold

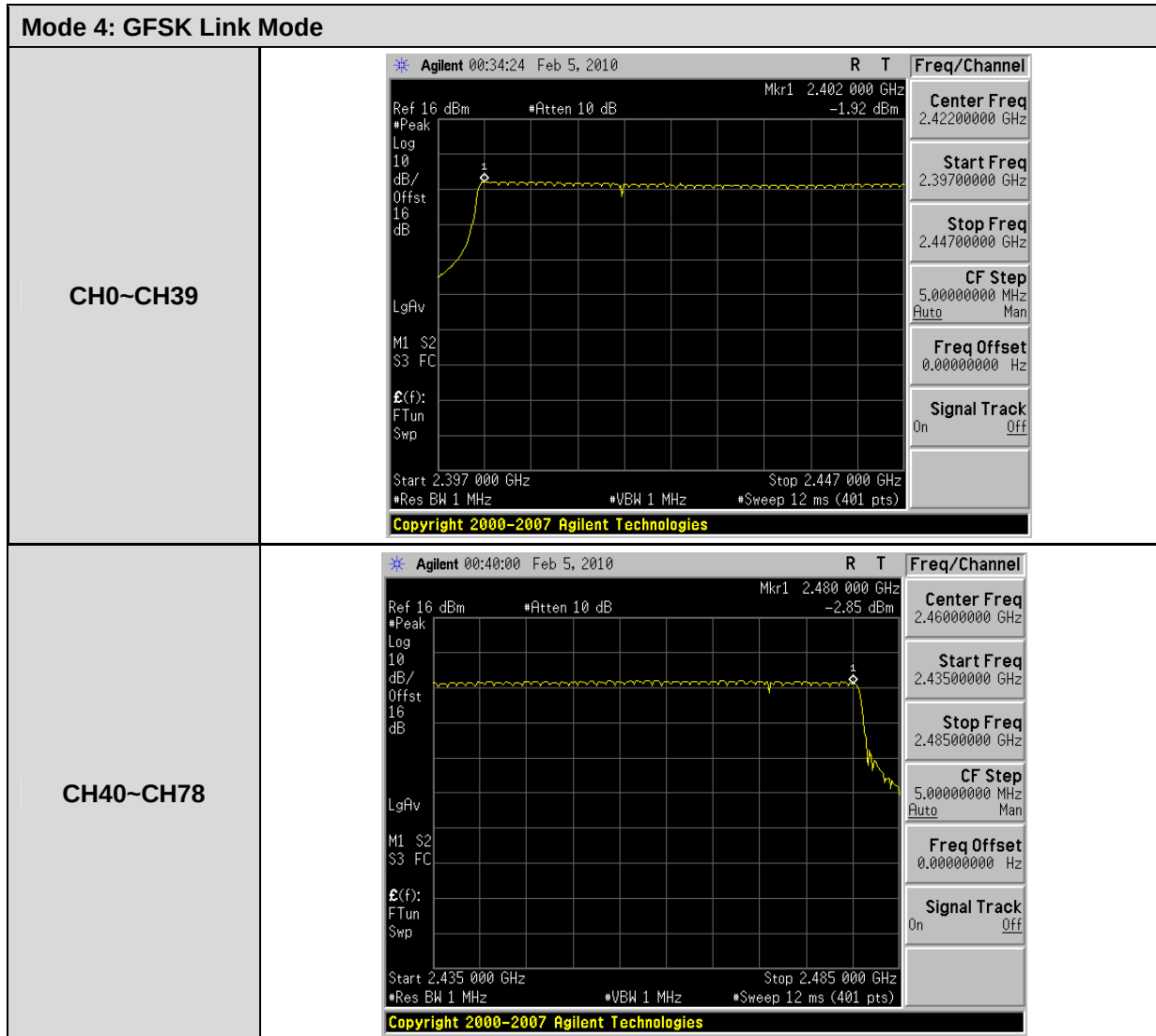
The trace was allowed to stabilize.

9.5. Test Result

Product	IPDA		
Test Item	Number of Hopping		
Test Mode	Mode 4: GFSK Link Mode		
Date of Test	02/05/2010	Test Site	TE06
Frequency Range (MHz)	Measurement (ch)		Limit (ch)
2402 - 2480	79		> 15

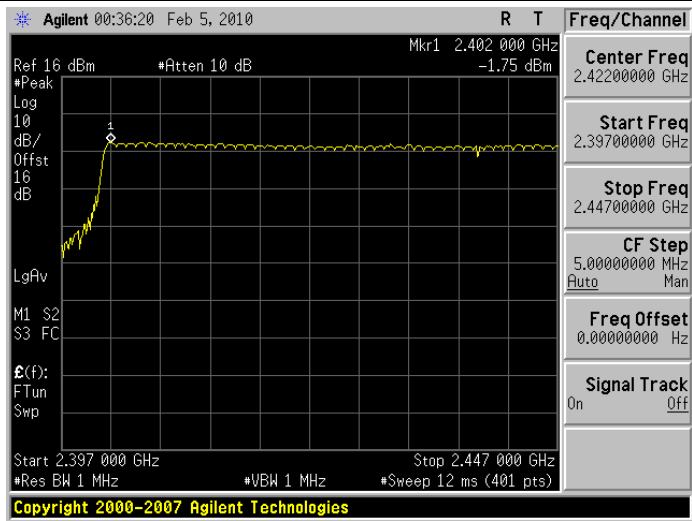
Product	IPDA		
Test Item	Number of Hopping		
Test Mode	Mode 6: 8DPSK Link Mode		
Date of Test	02/05/2010	Test Site	TE06
Frequency Range (MHz)	Measurement (ch)		Limit (ch)
2402 - 2480	79		> 15

9.6. Test Graphs

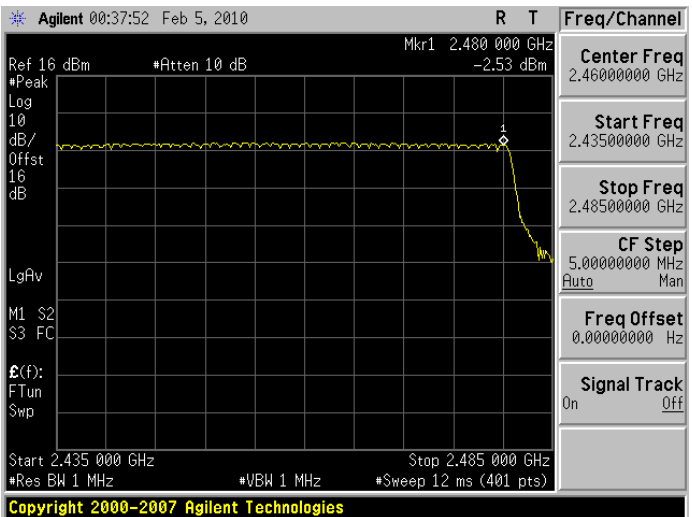


Mode 3: 8DPSK Link Mode

CH0~CH39



CH40~CH78

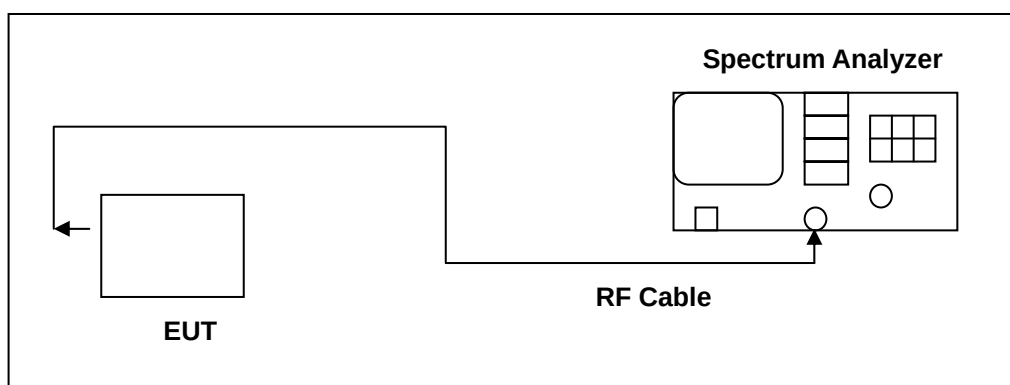


10 Time of Occupancy (Dwell Time) Measurement

10.1. Limit

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 the number of hopping channels employed.

10.2. Test Setup



10.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/14/2009	⁽²⁾
Test Site	ATL	TE06	TE06	N.C.R.	-----

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

10.4. Test Procedure

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth hopping function of the EUT was enabled. The following spectrum analyzer settings were used:

1. Span = zero span, centered on a hopping channel
2. RBW = 1 MHz
3. VBW $\geq$ RBW
4. Sweep = as necessary to capture the entire dwell time per hopping channel
5. Detector function = peak
6. Trace = max hold

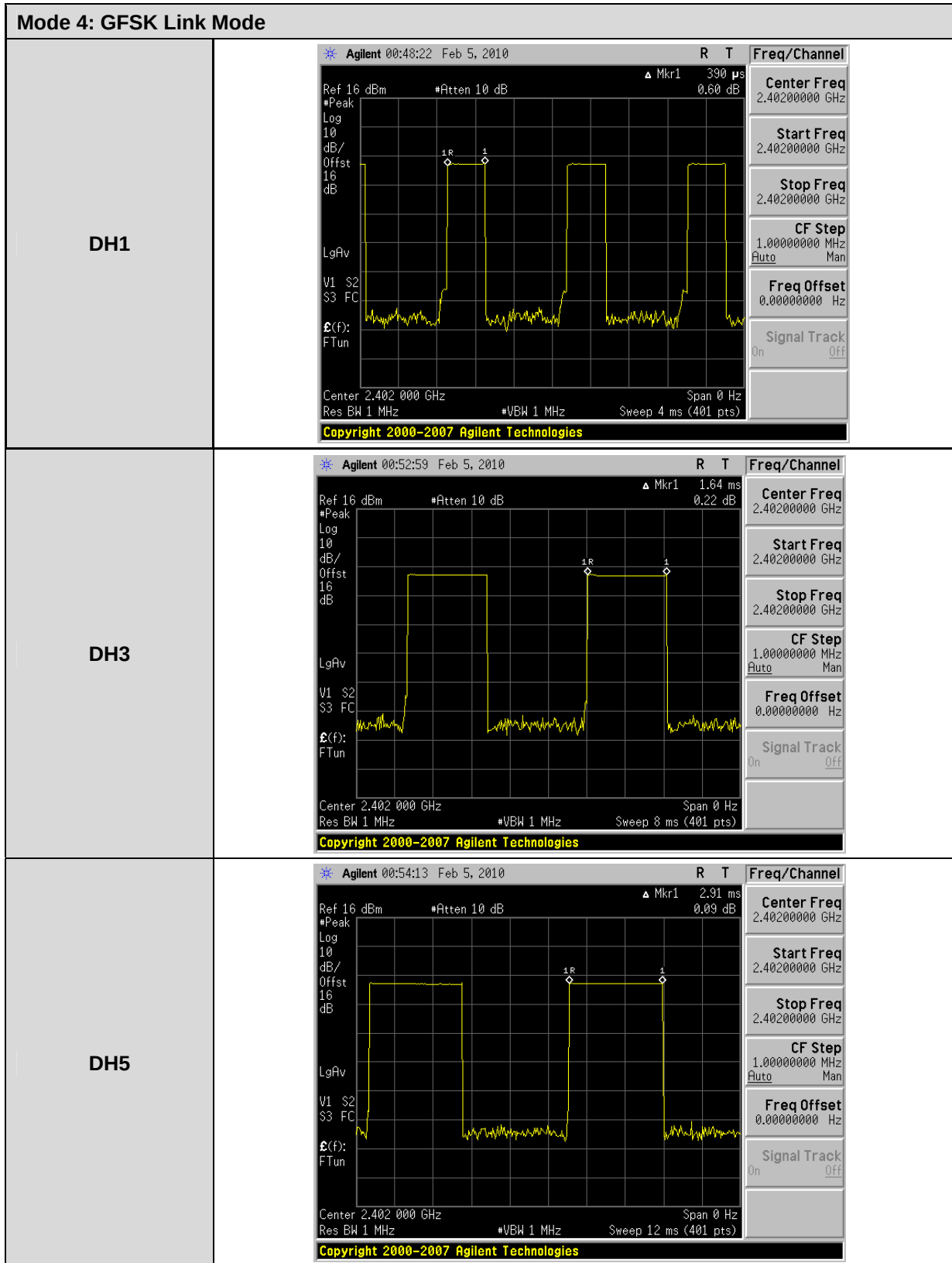
The marker-delta function was used to determine the dwell time.

10.5. Test Result

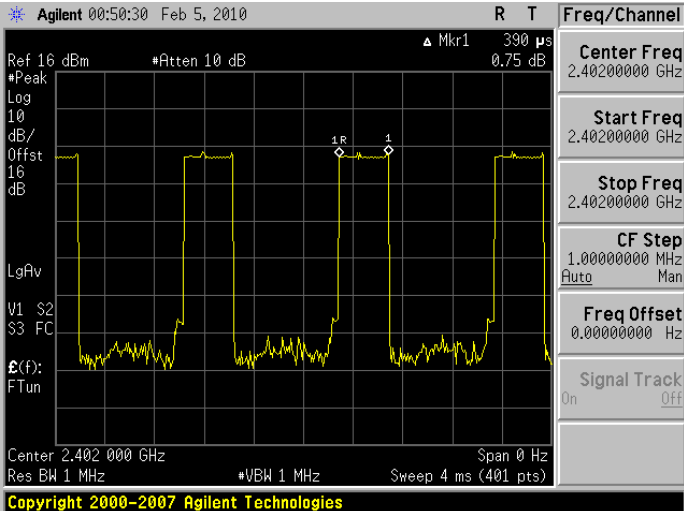
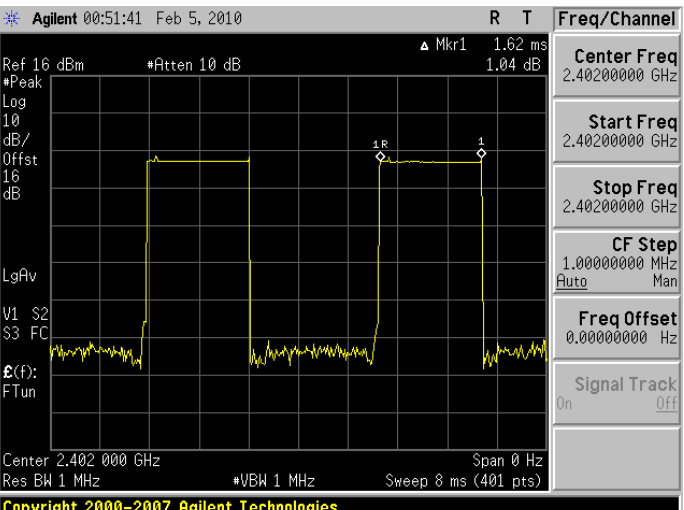
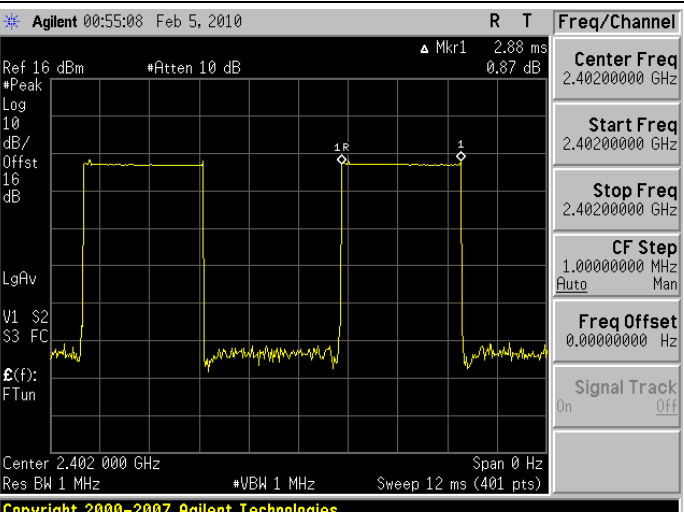
Product	IPDA		
Test Item	Time of Occupancy (Dwell Time)		
Test Mode	Mode 4: GFSK Link Mode		
Date of Test	02/05/2010	Test Site	TE06
DH1			
Cycle Calculate	79CH * 0.4 = 31.6 (sec)		
The EUT Hopping Number per Sec	1600 times/sec		
Each Channel Dwell Times per Sec	800/79CH = 10.13(times/sec)		
Each Channel Dwell Times (1)	0.390 ms (sec)		
Each Channel Dwell Times on Cycle(2)	31.6 * 10.13 = 320.108(times)		
Dwell Times on Cycle (1) * (2)	124.84212 ms (sec)		
LIMIT(msec)	< = 400		
DH3			
Cycle Calculate	79CH * 0.4 = 31.6 (sec)		
The EUT Hopping Number per Sec	1600 times/sec		
Each Channel Dwell Times per Sec	400/79CH = 5.1(times/sec)		
Each Channel Dwell Times (1)	1.640 ms (sec)		
Each Channel Dwell Times on Cycle(2)	31.6 * 5.1 = 161.16(times)		
Dwell Times on Cycle (1) * (2)	264.30240 ms (sec)		
LIMIT(msec)	< = 400		
DH5			
Cycle Calculate	79CH * 0.4 = 31.6 (sec)		
The EUT Hopping Number per Sec	1600 times/sec		
Each Channel Dwell Times per Sec	266.7/79CH = 3.37(times/sec)		
Each Channel Dwell Times (1)	2.910 ms (sec)		
Each Channel Dwell Times on Cycle(2)	31.6 * 3.37 = 106.492(times)		
Dwell Times on Cycle (1) * (2)	309.89172 ms (sec)		
LIMIT(msec)	< = 400		

Product	IPDA		
Test Item	Time of Occupancy (Dwell Time)		
Test Mode	Mode 6: 8DPSK Link Mode		
Date of Test	02/05/2010	Test Site	TE06
DH1			
Cycle Calculate	79CH * 0.4 = 31.6 (sec)		
The EUT Hopping Number per Sec	1600 times/sec		
Each Channel Dwell Times per Sec	800/79CH = 10.13(times/sec)		
Each Channel Dwell Times (1)	0.390 ms (sec)		
Each Channel Dwell Times on Cycle(2)	31.6 * 10.13 = 320.108(times)		
Dwell Times on Cycle (1) * (2)	124.84212 ms (sec)		
LIMIT(msec)	< = 400		
DH3			
Cycle Calculate	79CH * 0.4 = 31.6 (sec)		
The EUT Hopping Number per Sec	1600 times/sec		
Each Channel Dwell Times per Sec	400/79CH = 5.1(times/sec)		
Each Channel Dwell Times (1)	1.620 ms (sec)		
Each Channel Dwell Times on Cycle(2)	31.6 * 5.1 = 161.16(times)		
Dwell Times on Cycle (1) * (2)	261.07920 ms (sec)		
LIMIT(msec)	< = 400		
DH5			
Cycle Calculate	79CH * 0.4 = 31.6 (sec)		
The EUT Hopping Number per Sec	1600 times/sec		
Each Channel Dwell Times per Sec	266.7/79CH = 3.37(times/sec)		
Each Channel Dwell Times (1)	2.880 ms (sec)		
Each Channel Dwell Times on Cycle(2)	31.6 * 3.37 = 106.492(times)		
Dwell Times on Cycle (1) * (2)	306.69696 ms (sec)		
LIMIT(msec)	< = 400		

10.6. Test Graphs



Mode3: 8DPSK Link Mode

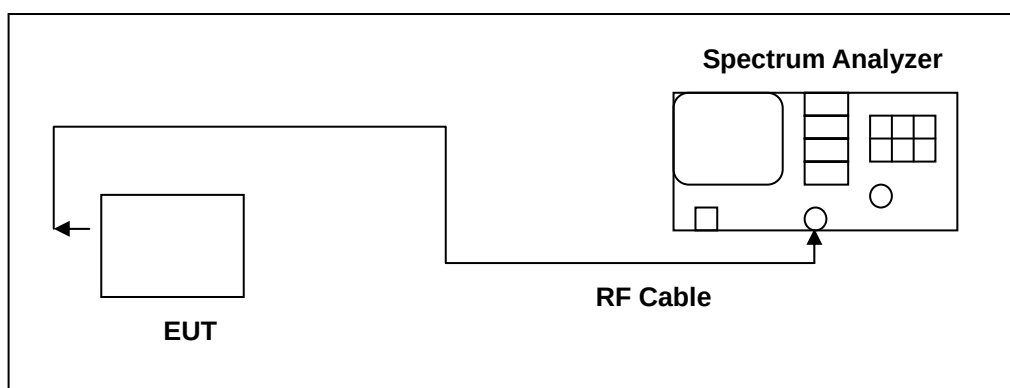
3DH1	 Agilent 00:50:30 Feb 5, 2010 Ref 16 dBm #Atten 10 dB Δ Mkr1 390 μs 0.75 dB Center 2.402 000 GHz Res BW 1 MHz #VBW 1 MHz Sweep 4 ms (401 pts) Copyright 2000–2007 Agilent Technologies Freq/Channel Center Freq 2.40200000 GHz Start Freq 2.40200000 GHz Stop Freq 2.40200000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
3DH3	 Agilent 00:51:41 Feb 5, 2010 Ref 16 dBm #Atten 10 dB Δ Mkr1 1.62 ms 1.04 dB Center 2.402 000 GHz Res BW 1 MHz #VBW 1 MHz Sweep 8 ms (401 pts) Copyright 2000–2007 Agilent Technologies Freq/Channel Center Freq 2.40200000 GHz Start Freq 2.40200000 GHz Stop Freq 2.40200000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
3DH5	 Agilent 00:55:08 Feb 5, 2010 Ref 16 dBm #Atten 10 dB Δ Mkr1 2.88 ms 0.87 dB Center 2.402 000 GHz Res BW 1 MHz #VBW 1 MHz Sweep 12 ms (401 pts) Copyright 2000–2007 Agilent Technologies Freq/Channel Center Freq 2.40200000 GHz Start Freq 2.40200000 GHz Stop Freq 2.40200000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off

11 Out of Band Conducted Emissions Measurement

11.1. Limit

In any 100 kHz 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 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

11.2. Test Setup



11.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/14/2009	⁽²⁾
Test Site	ATL	TE06	TE06	N.C.R.	-----

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

11.4. Test Procedure

In any 100 kHz bandwidth outside the EUT pass band, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 20 dB below that of the maximum in-band 100 kHz emission, antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.

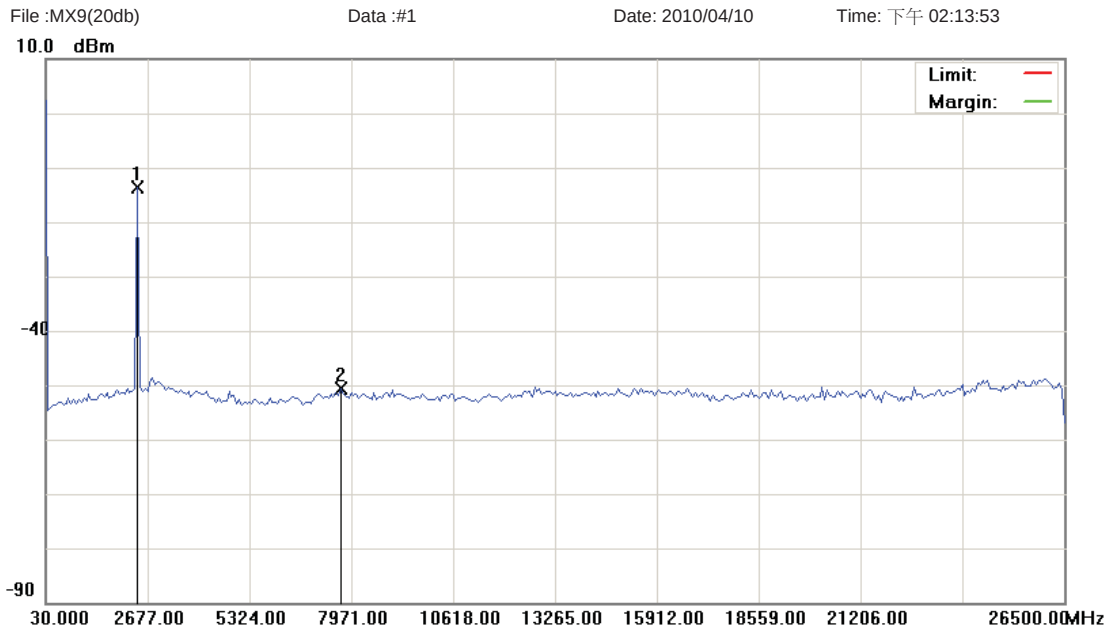
All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the pass band. The test was performed at 3 channels (Channel 0, 39, 78)

11.5. Test Result

Product	IPDA		
Test Item	Out of Band Conducted		
Test Mode	Mode 4: GFSK Link Mode		
Date of Test	04/10/2010	Test Site	TE06
Frequency (MHz)	Fundamental (dBμV)	Limit (dBμV)	Measurement (dBμV)
2402	-13.65	-33.65	-50.72
2441	-13.96	-33.96	-50.65
2480	-11.65	-31.65	-51.61

Product	IPDA		
Test Item	Out of Band Conducted		
Test Mode	Mode 6: 8DPSK Link Mode		
Date of Test	04/10/2010	Test Site	TE06
Frequency (MHz)	Fundamental (dBμV)	Limit (dBμV)	Measurement (dBμV)
2402	-13.65	-33.65	-50.72
2441	-13.96	-33.96	-50.65
2480	-11.65	-31.65	-51.61

11.6. Test Graphs



Site: : RF Conducted Polarization: Temperature: 22 °C
Limit: Power: AC 110V/60Hz Humidity: 60 %
EUT: IPDA Distance: RBW: 100 KHz VBW: 100 KHz
M/N: MX9, FC300
Mode: 4
Note: 2402MHz

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree	Comment
1	*	2402.000	-19.74	6.09	-13.65			peak		TX
2		7706.300	-57.01	6.29	-50.72			peak		

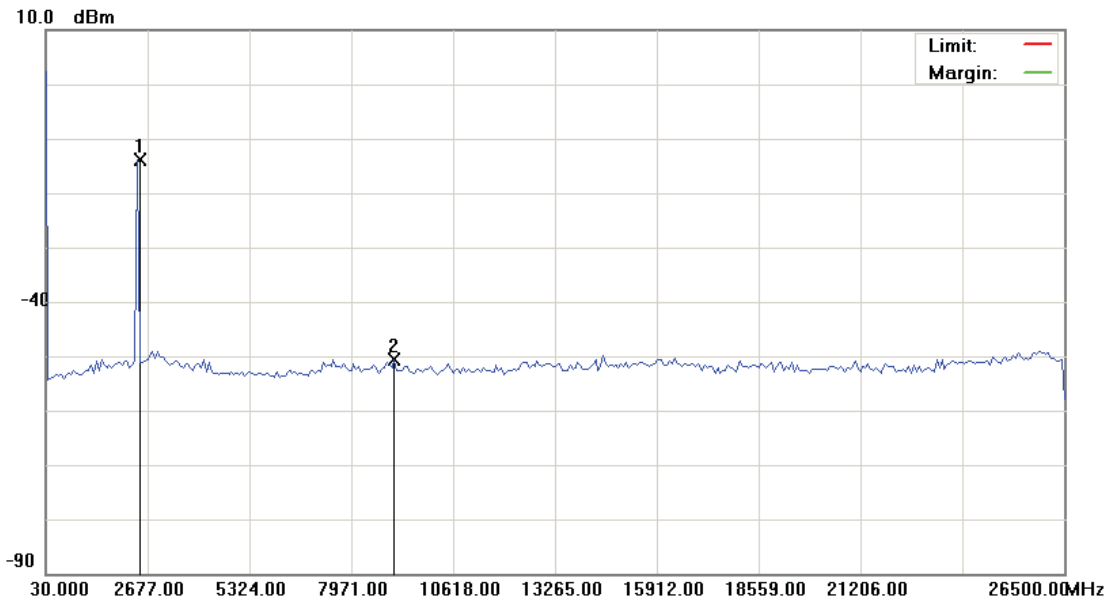
*:Maximum data x:Over limit !:over margin

File :MX9(20db)

Data :#2

Date: 2010/04/10

Time: 下午 02:14:22



Site: : RF Conducted

Polarization:

Temperature: 22 °C

Limit:

Power: AC 110V/60Hz

Humidity: 60 %

EUT: IPDA

Distance:

RBW: 100 KHz VBW: 100 KHz

M/N: MX9, FC300

Mode: 4

Note: 2441MHz

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree	Comment
1	*	2441.000	-20.05	6.09	-13.96			peak		TX
2		9095.975	-56.99	6.34	-50.65			peak		

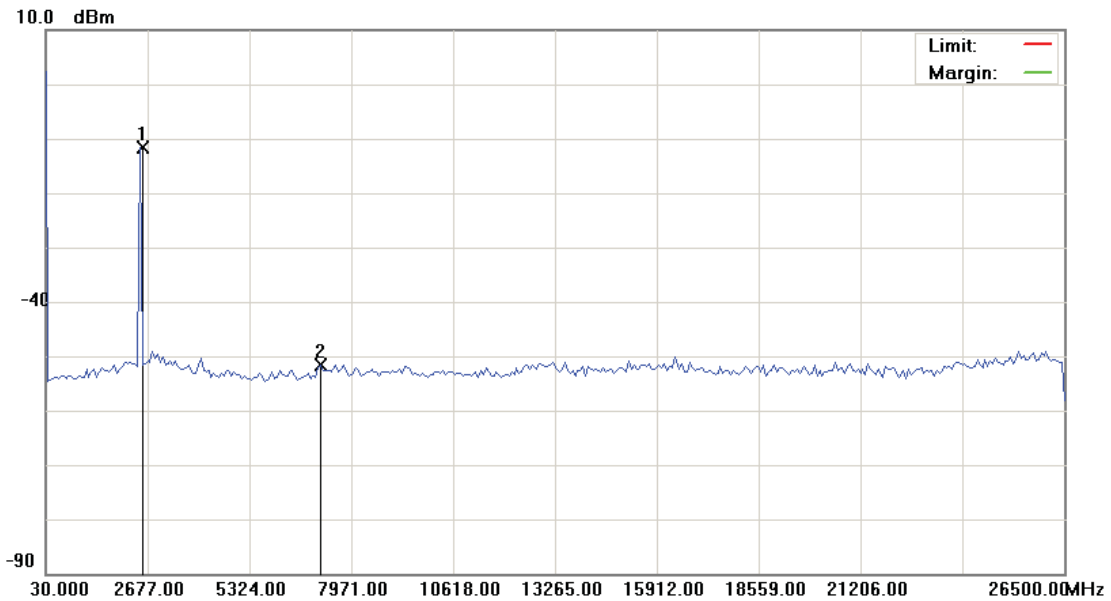
*:Maximum data x:Over limit !:over margin

File :MX9(20db)

Data :#3

Date: 2010/04/10

Time: 下午 02:14:39



Site: : RF Conducted

Polarization:

Temperature: 22 °C

Limit:

Power: AC 110V/60Hz

Humidity: 60 %

EUT: IPDA

Distance:

RBW: 100 KHz VBW: 100 KHz

M/N: MX9, FC300

Mode: 4

Note: 2480MHz

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree	Comment
1	*	2480.000	-17.74	6.09	-11.65			peak		TX
2		7176.900	-57.88	6.27	-51.61			peak		

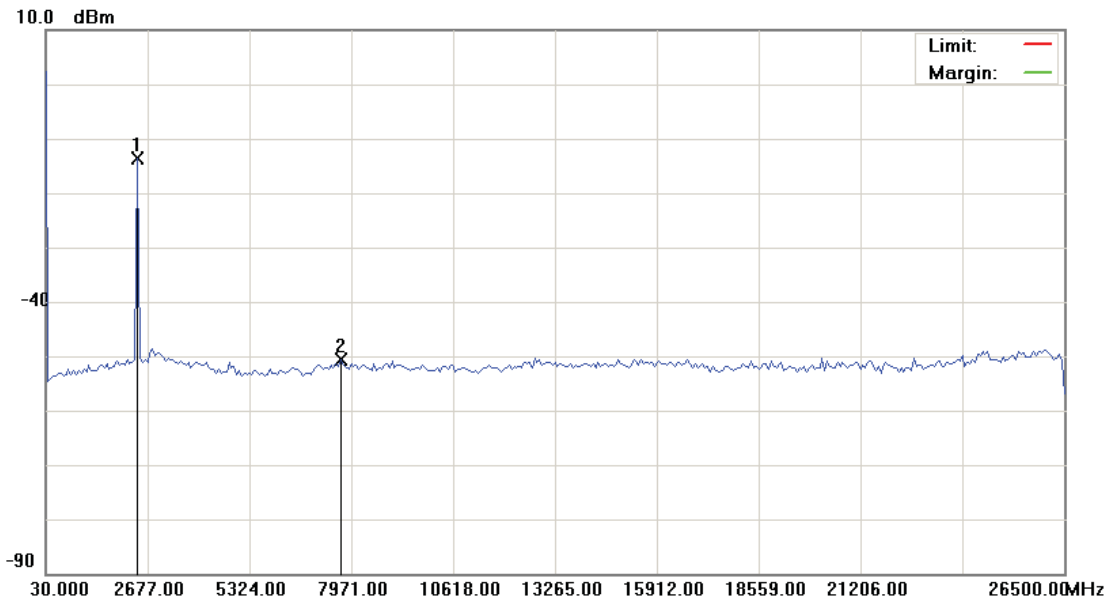
*:Maximum data x:Over limit !:over margin

File :MX9(20db)

Data :#4

Date: 2010/04/10

Time: 下午 03:13:53



Site: : RF Conducted

Polarization:

Temperature: 22 °C

Limit:

Power: AC 110V/60Hz

Humidity: 60 %

EUT: IPDA

Distance:

RBW: 100 KHz VBW: 100 KHz

M/N: MX9, FC300

Mode: 6

Note: 2402MHz

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree	Comment
1	*	2402.000	-19.74	6.09	-13.65			peak		TX
2		7706.300	-57.01	6.29	-50.72			peak		

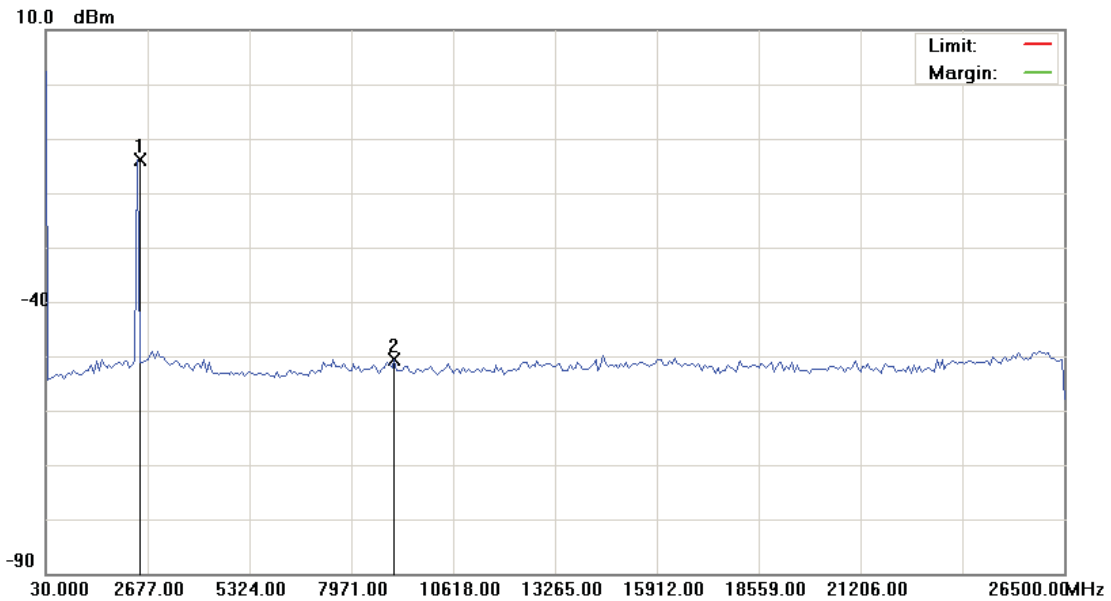
*:Maximum data x:Over limit !:over margin

File :MX9(20db)

Data :#5

Date: 2010/04/10

Time: 下午 03:14:22



Site: : RF Conducted

Polarization:

Temperature: 22 °C

Limit:

Power: AC 110V/60Hz

Humidity: 60 %

EUT: IPDA

Distance:

RBW: 100 KHz VBW: 100 KHz

M/N: MX9, FC300

Mode: 6

Note: 2441MHz

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree	Comment
1	*	2441.000	-20.05	6.09	-13.96			peak		TX
2		9095.975	-56.99	6.34	-50.65			peak		

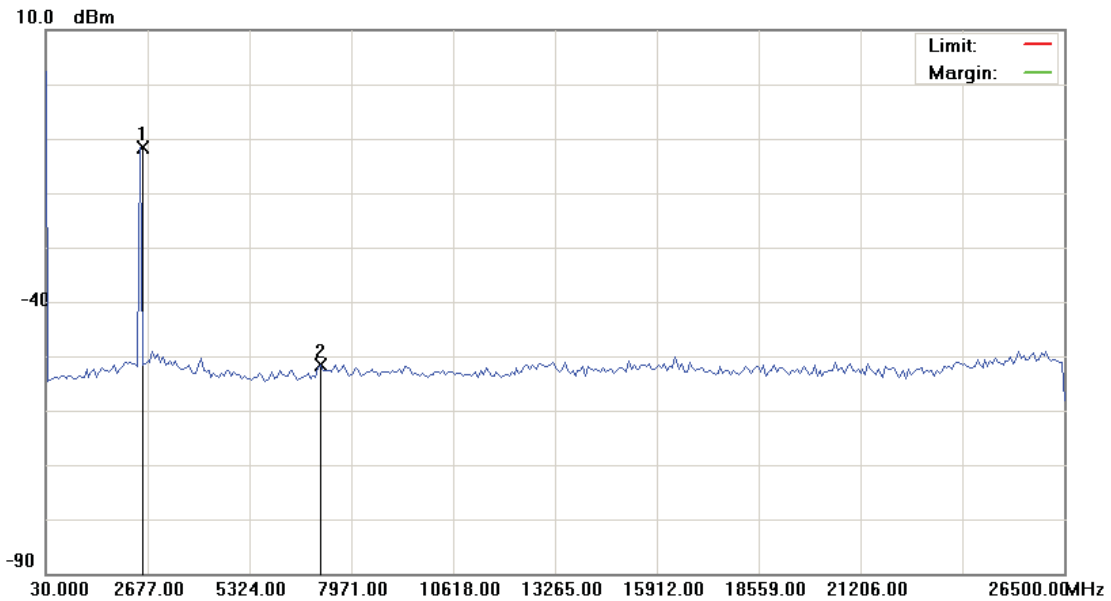
*:Maximum data x:Over limit !:over margin

File :MX9(20db)

Data :#6

Date: 2010/04/10

Time: 下午 03:14:39



Site: : RF Conducted

Polarization:

Temperature: 22 °C

Limit:

Power: AC 110V/60Hz

Humidity: 60 %

EUT: IPDA

Distance:

RBW: 100 KHz VBW: 100 KHz

M/N: MX9, FC300

Mode: 6

Note: 2480MHz

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree	Comment
1	*	2480.000	-17.74	6.09	-11.65			peak		TX
2		7176.900	-57.88	6.27	-51.61			peak		

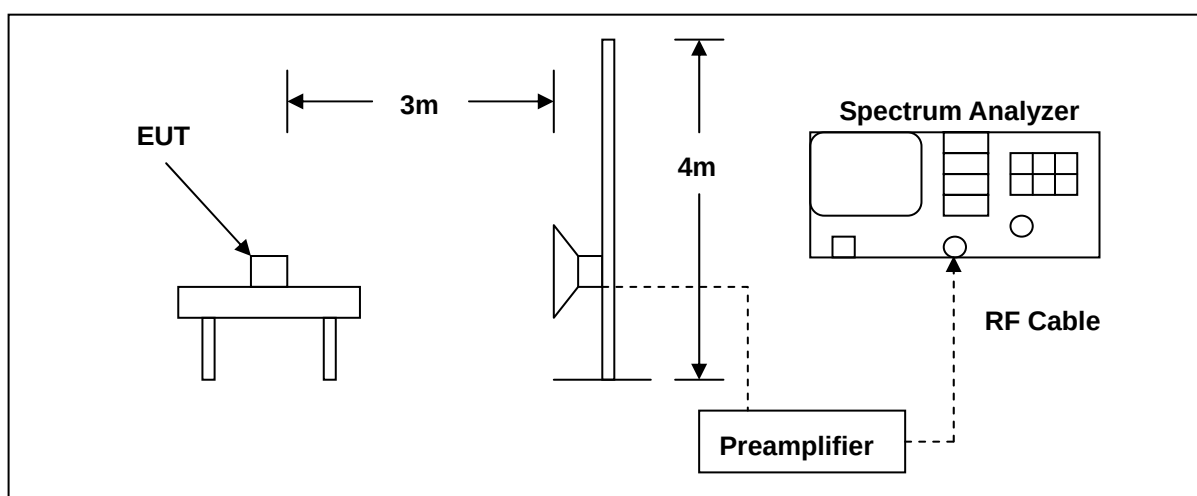
*:Maximum data x:Over limit !:over margin

12 Band Edges Measurement

12.1. Limit

In any 100 kHz 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 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

12.2. Test Setup



12.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4408B	MY45107753	06/23/2009	(2)
Pre Amplifier	Agilent	8449B	3008A02237	07/01/2009	(1)
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	9120D	9120D-550	07/01/2009	(2)
Test Site	ATL	TE06	TE06	N.C.R.	-----

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

12.4. Test Procedure

The emissions on the harmonics frequencies, the limits, and the margin of compliance are presented. These tests were made when the transmitter was in full radiated power. The additional test was performed to show compliance with the requirement at the band-edge frequency 2483.5 MHz and up to 2500 MHz and at 2390.0 MHz.

The transmitter was configured with the worst case antenna and setup to transmit at the highest channel. Then the field strength was measured at 2483.5 MHz.

The transmitter was then configured with the worst case antenna and setup to transmit at the lowest channel. Then the field strength was measured at 2390.0 MHz. These tests were performed at 4 different bit rates.

12.5. Test Graphs

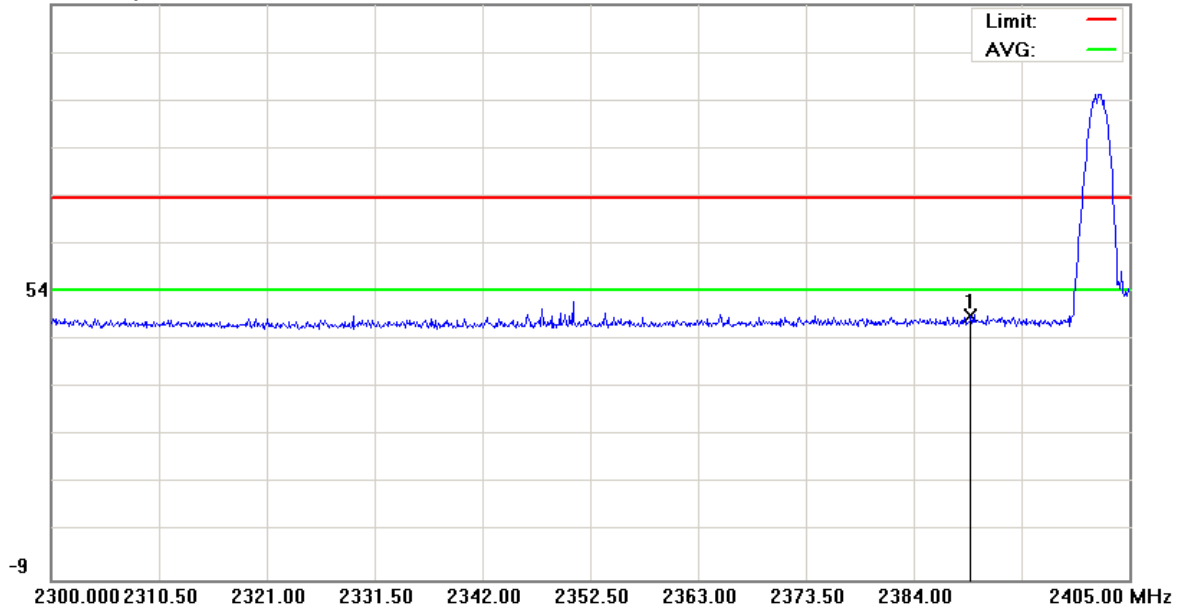
File :MX9(BANDEDGE)

Data :#1

Date: 2010/2/9

Time: 下午 06:14:07

116.0 dBuV/m



Site: : 966 Chamber

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: IPDA

Distance: 3m

RBW: 1000KHz VBW: 1000KHz

M/N: MX9, FC300

Mode: 4

Note: 2402MHz,Ant 100cm

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2389.510	48.06	0.19	48.25	74.00	-25.75	peak		

*:Maximum data x:Over limit !:over margin

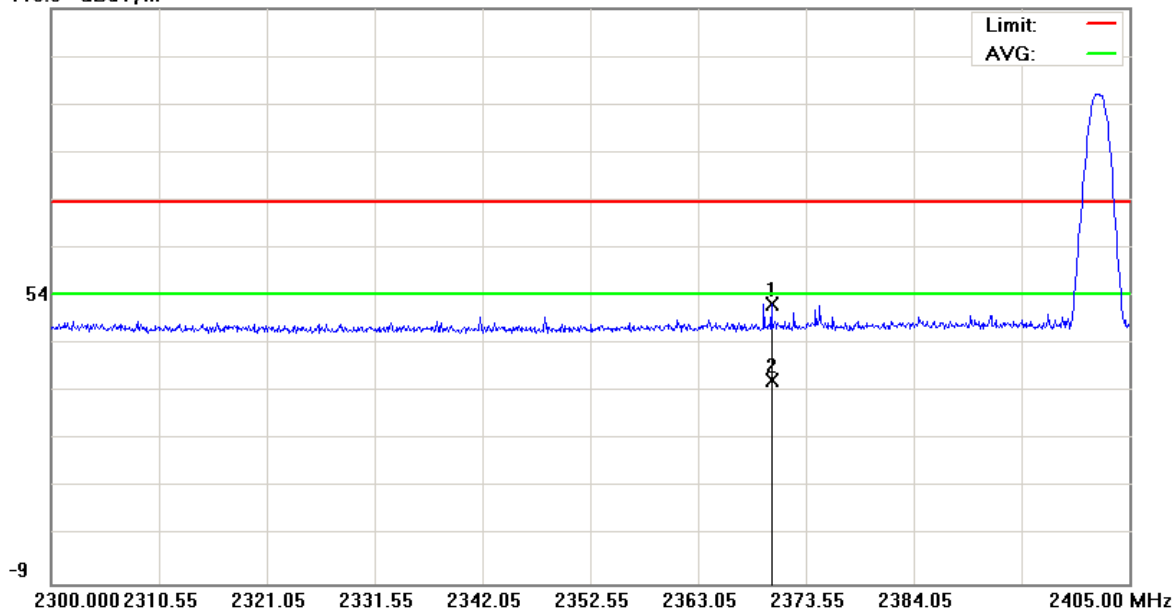
File :MX9(BANDEDGE)

Data :#5

Date: 2010/2/9

Time: 下午 06:26:43

116.0 dBuV/m



Site: : 966 Chamber

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: IPDA

Distance: 3m

RBW: 1000KHz VBW: 1000KHz

M/N: MX9, FC300

Mode: 4

Note: 2402MHz,Ant 100cm

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		2370.140	51.73	0.18	51.91	74.00	-22.09	peak		
2	*	2370.140	34.97	0.18	35.15	54.00	-18.85	AVG		

*:Maximum data x:Over limit !:over margin

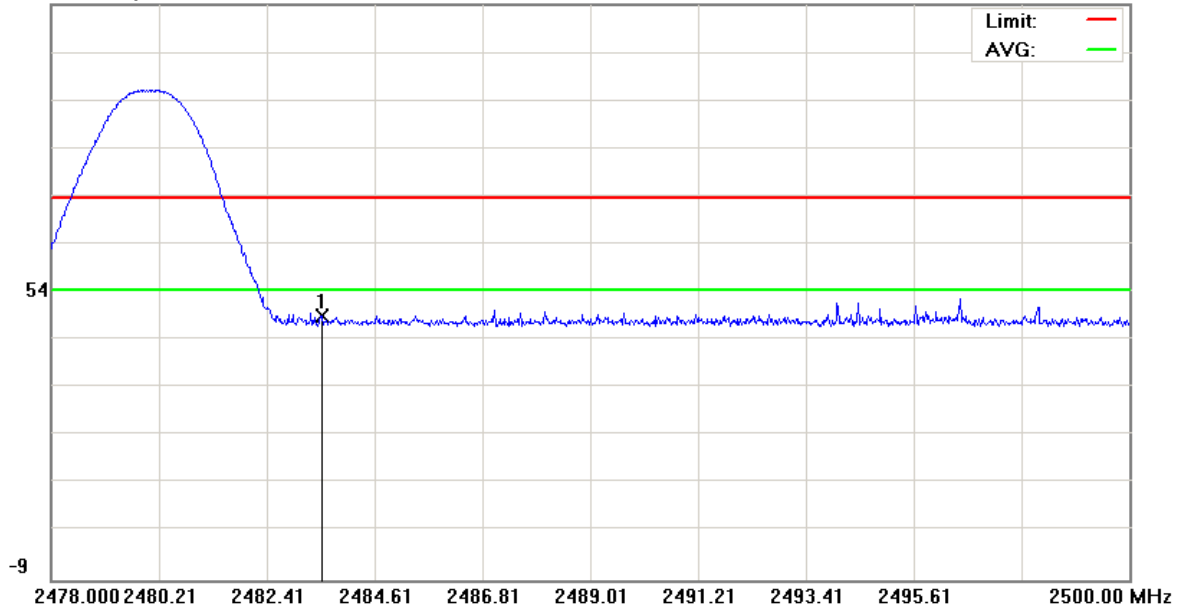
File :MX9(BANDEDGE)

Data :#3

Date: 2010/2/9

Time: 下午 06:24:26

116.0 dBuV/m



Site: : 966 Chamber

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: IPDA

Distance: 3m

RBW: 1000KHz VBW: 1000KHz

M/N: MX9, FC300

Mode: 4

Note: 2480MHz,Ant 100cm

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2483.510	47.96	0.25	48.21	74.00	-25.79	peak		

*:Maximum data x:Over limit !:over margin

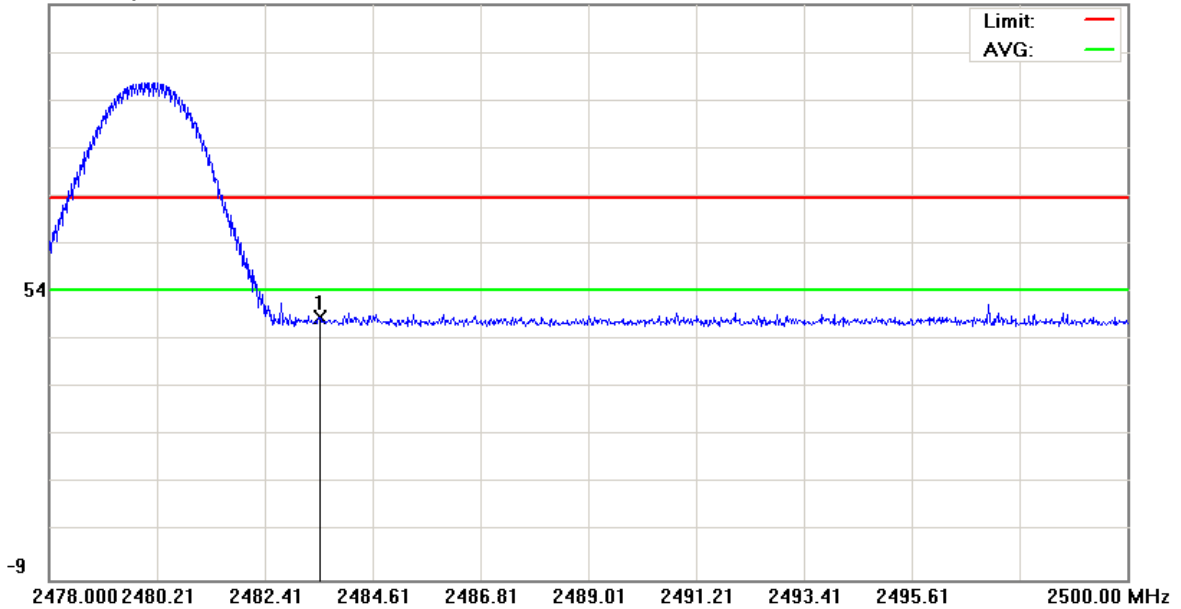
File :MX9(BANDEDGE)

Data :#7

Date: 2010/2/9

Time: 下午 06:32:56

116.0 dBuV/m



Site: : 966 Chamber

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: IPDA

Distance: 3m

RBW: 1000KHz VBW: 1000KHz

M/N: MX9, FC300

Mode: 4

Note: 2480MHz,Ant 100cm

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2483.510	47.89	0.25	48.14	74.00	-25.86	peak		

*:Maximum data x:Over limit !:over margin

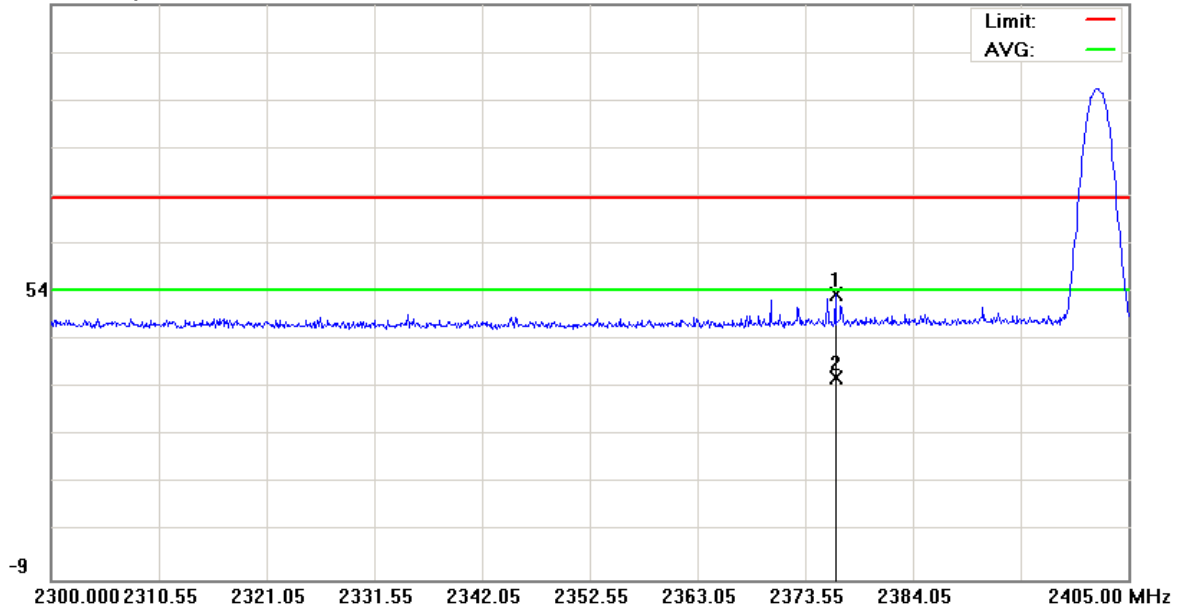
File :MX9(BANDEDGE+EDR)

Data :#1

Date: 2010/2/9

Time: 下午 06:17:52

116.0 dBuV/m



Site: : 966 Chamber

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: IPDA

Distance: 3m

RBW: 1000KHz VBW: 1000KHz

M/N: MX9, FC300

Mode: 6

Note: 2402MHz,Ant 100cm

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		2376.492	52.80	0.17	52.97	74.00	-21.03	peak		
2	*	2376.492	34.75	0.17	34.92	54.00	-19.08	AVG		

*:Maximum data x:Over limit !:over margin

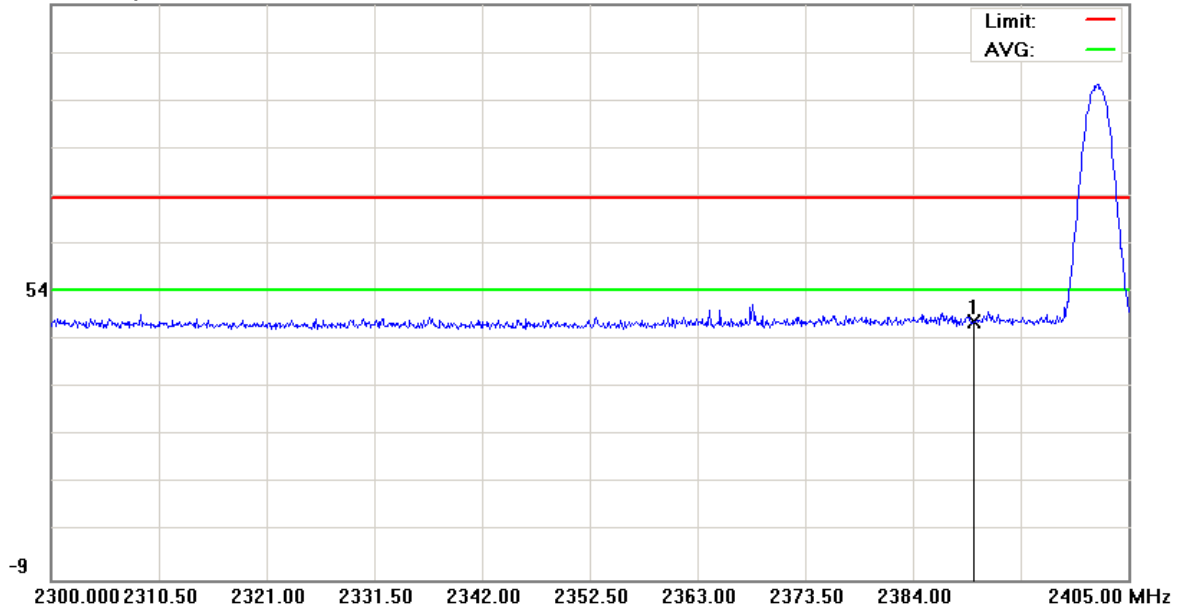
File :MX9(BANDEDGE+EDR)

Data :#5

Date: 2010/2/9

Time: 下午 06:29:05

116.0 dBuV/m



Site: : 966 Chamber

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: IPDA

Distance: 3m

RBW: 1000KHz VBW: 1000KHz

M/N: MX9, FC300

Mode: 6

Note: 2402MHz,Ant 100cm

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	2389.800	47.01	0.19	47.20	74.00	-26.80	peak		

*:Maximum data x:Over limit !:over margin

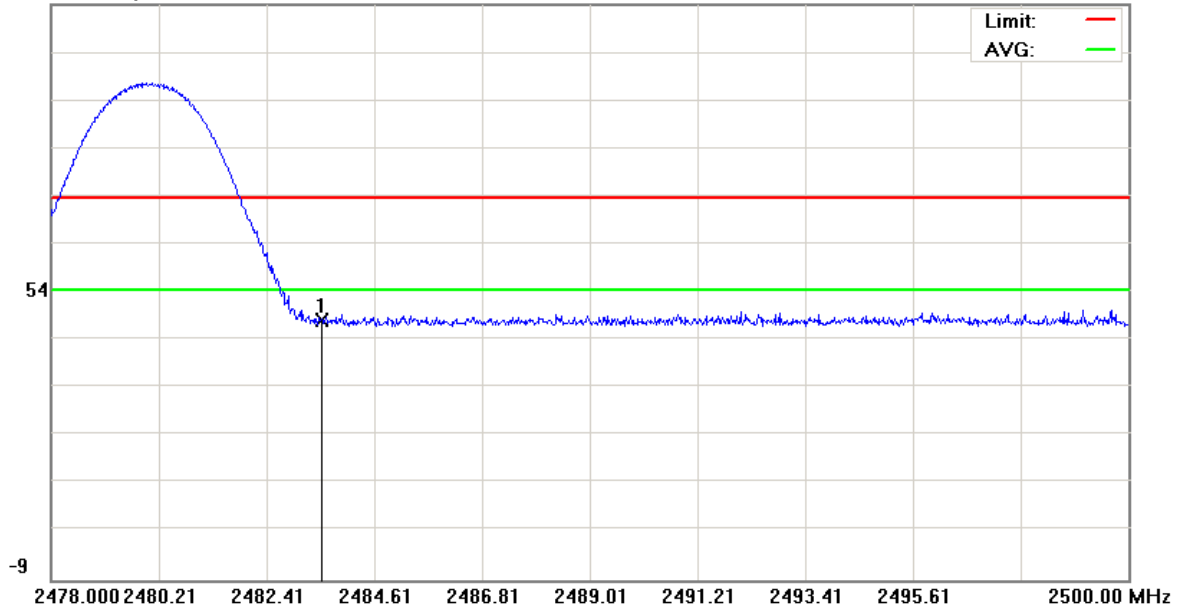
File :MX9(BANDEDGE+EDR)

Data :#3

Date: 2010/2/9

Time: 下午 06:22:23

116.0 dBuV/m



Site: : 966 Chamber

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: IPDA

Distance: 3m

RBW: 1000KHz VBW: 1000KHz

M/N: MX9, FC300

Mode: 6

Note: 2480MHz,Ant 100cm

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2483.510	47.02	0.25	47.27	74.00	-26.73	peak		

*:Maximum data x:Over limit !:over margin

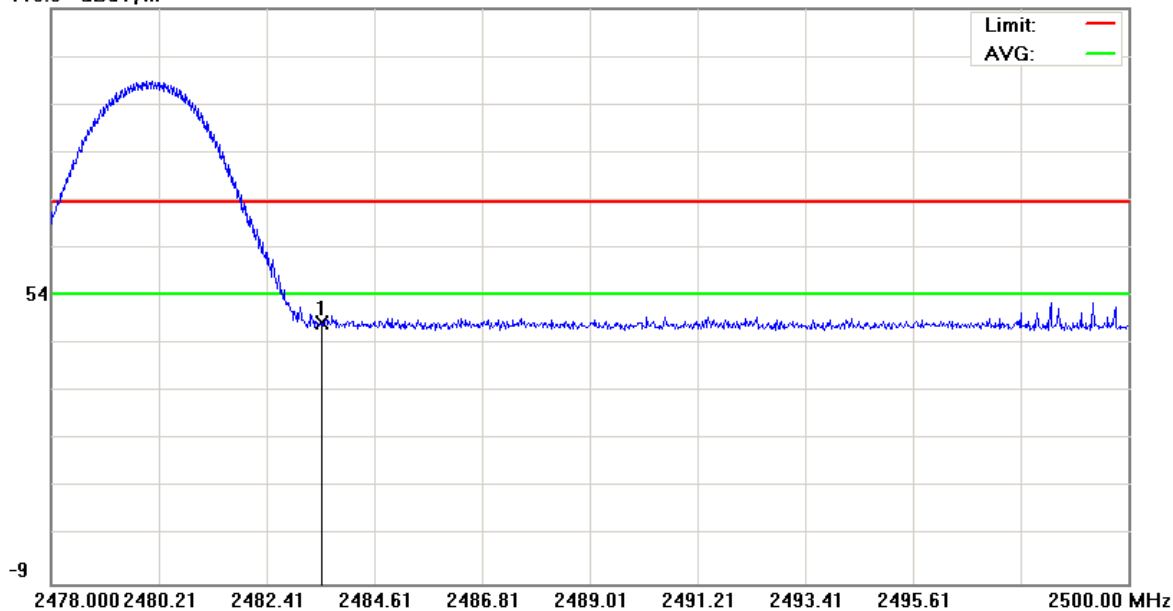
File :MX9(BANDEDGE+EDR)

Data :#7

Date: 2010/2/9

Time: 下午 06:31:01

116.0 dBuV/m



Site: : 966 Chamber

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: IPDA

Distance: 3m

RBW: 1000KHz VBW: 1000KHz

M/N: MX9, FC300

Mode: 6

Note: 2480MHz,Ant 100cm

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2483.510	47.43	0.25	47.68	74.00	-26.32	peak		

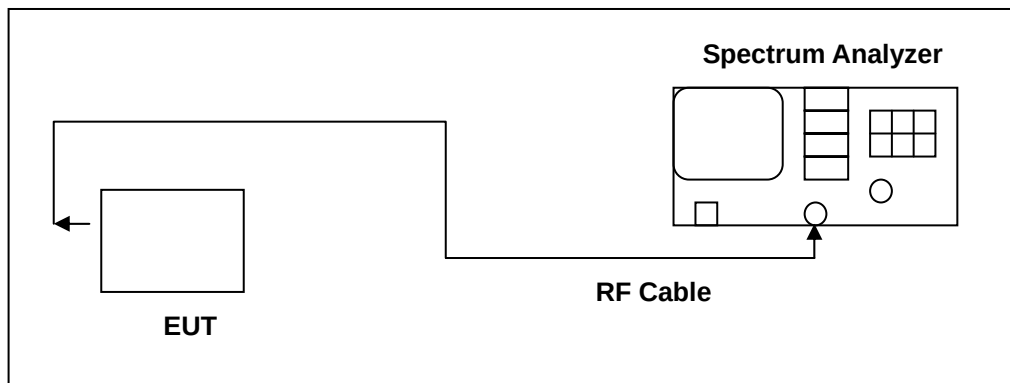
*:Maximum data x:Over limit !:over margin

13 99 % Occupied Bandwidth Measurement

13.1. Limit

N/A

13.2. Test Setup



13.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/14/2009	⁽²⁾
Test Site	ATL	TE06	TE06	N.C.R.	-----

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

13.4. Test Procedure

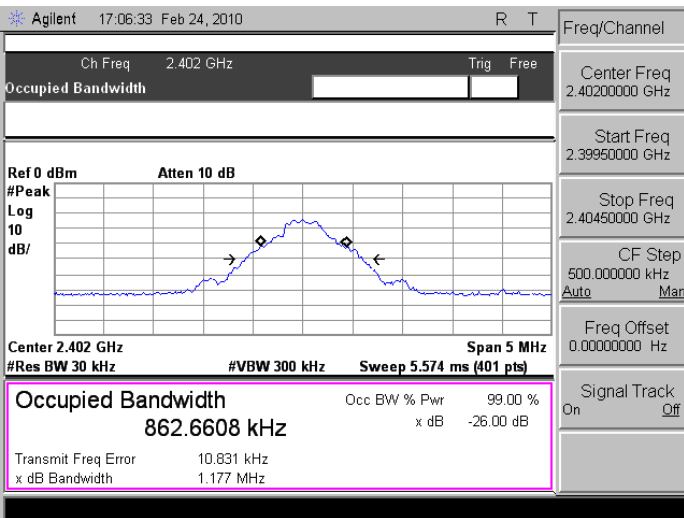
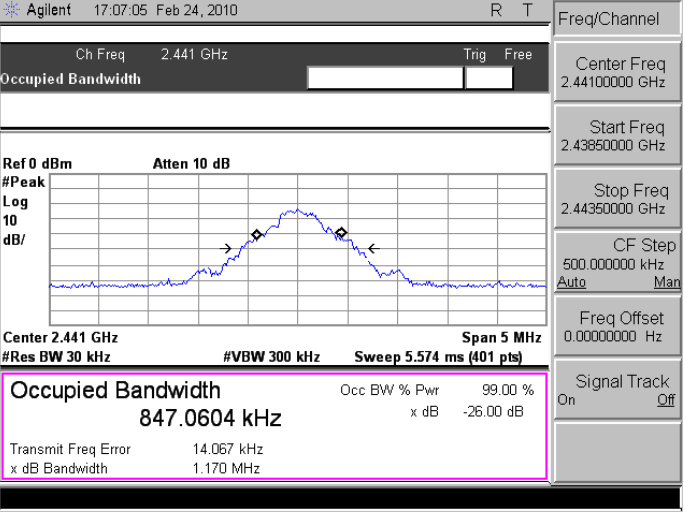
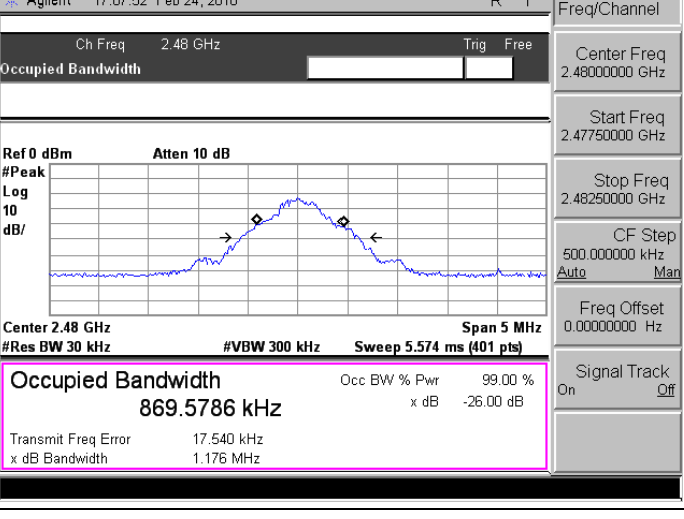
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled.

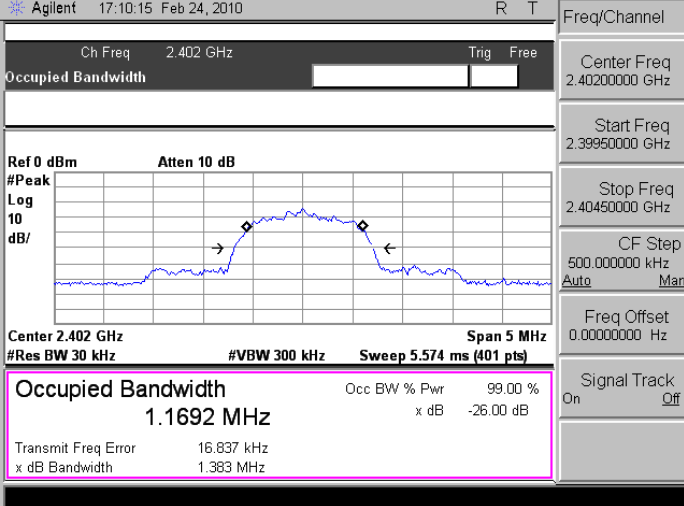
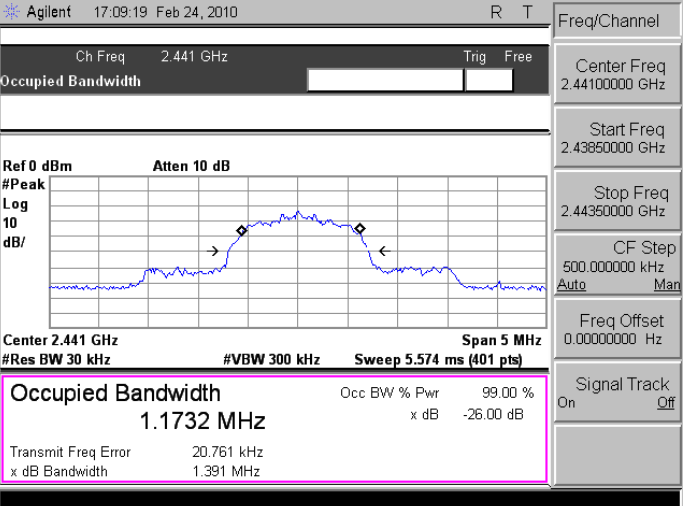
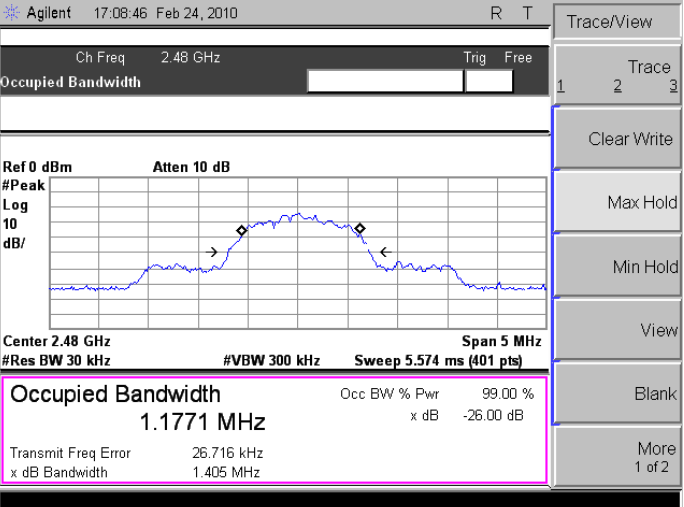
13.5. Test Result

Product	IPDA		
Test Item	99 % Occupied Bandwidth		
Test Mode	Mode 4: GFSK Link Mode		
Date of Test	02/24/2010	Test Site	TE06
Frequency (MHz)	Measurement (MHz)	Limit (MHz)	
2402	0.862	-----	
2441	0.847	-----	
2480	0.869	-----	

Product	IPDA		
Test Item	99 % Occupied Bandwidth		
Test Mode	Mode 6: 8DPSK Link Mode		
Date of Test	02/24/2010	Test Site	TE06
Frequency (MHz)	Measurement (MHz)	Limit (MHz)	
2402	1.169	-----	
2441	1.173	-----	
2480	1.177	-----	

13.6. Test Graphs

Mode 4: GFSK Link Mode	
2402	 Agilent 17:06:33 Feb 24, 2010 R T Ch Freq 2.402 GHz Trig Free Occupied Bandwidth Ref 0 dBm Atten 10 dB #Peak Log 10 dB/ Center 2.402 GHz Span 5 MHz #Res BW 30 kHz #VBW 300 kHz Sweep 5.574 ms (401 pts) Occupied Bandwidth 862.6608 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 10.831 kHz x dB Bandwidth 1.177 MHz Freq/Channel Center Freq 2.40200000 GHz Start Freq 2.39950000 GHz Stop Freq 2.40450000 GHz CF Step 500.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2441	 Agilent 17:07:05 Feb 24, 2010 R T Ch Freq 2.441 GHz Trig Free Occupied Bandwidth Ref 0 dBm Atten 10 dB #Peak Log 10 dB/ Center 2.441 GHz Span 5 MHz #Res BW 30 kHz #VBW 300 kHz Sweep 5.574 ms (401 pts) Occupied Bandwidth 847.0604 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 14.067 kHz x dB Bandwidth 1.170 MHz Freq/Channel Center Freq 2.44100000 GHz Start Freq 2.43850000 GHz Stop Freq 2.44350000 GHz CF Step 500.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2480	 Agilent 17:07:52 Feb 24, 2010 R T Ch Freq 2.48 GHz Trig Free Occupied Bandwidth Ref 0 dBm Atten 10 dB #Peak Log 10 dB/ Center 2.48 GHz Span 5 MHz #Res BW 30 kHz #VBW 300 kHz Sweep 5.574 ms (401 pts) Occupied Bandwidth 869.5786 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 17.540 kHz x dB Bandwidth 1.176 MHz Freq/Channel Center Freq 2.48000000 GHz Start Freq 2.47750000 GHz Stop Freq 2.48250000 GHz CF Step 500.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off

Mode 3: 8DPSK Link Mode	
2402	 Agilent 17:10:15 Feb 24, 2010 R T Ch Freq 2.402 GHz Trig Free Occupied Bandwidth Ref 0 dBm Atten 10 dB #Peak Log 10 dB/ Center 2.402 GHz Span 5 MHz #Res BW 30 kHz #VBW 300 kHz Sweep 5.574 ms (401 pts) Occupied Bandwidth 1.1692 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 16.837 kHz x dB Bandwidth 1.383 MHz Freq/Channel Center Freq 2.4020000 GHz Start Freq 2.39950000 GHz Stop Freq 2.40450000 GHz CF Step 500.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2441	 Agilent 17:09:19 Feb 24, 2010 R T Ch Freq 2.441 GHz Trig Free Occupied Bandwidth Ref 0 dBm Atten 10 dB #Peak Log 10 dB/ Center 2.441 GHz Span 5 MHz #Res BW 30 kHz #VBW 300 kHz Sweep 5.574 ms (401 pts) Occupied Bandwidth 1.1732 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 20.761 kHz x dB Bandwidth 1.391 MHz Freq/Channel Center Freq 2.44100000 GHz Start Freq 2.43850000 GHz Stop Freq 2.44350000 GHz CF Step 500.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2480	 Agilent 17:08:46 Feb 24, 2010 R T Ch Freq 2.48 GHz Trig Free Occupied Bandwidth Ref 0 dBm Atten 10 dB #Peak Log 10 dB/ Center 2.48 GHz Span 5 MHz #Res BW 30 kHz #VBW 300 kHz Sweep 5.574 ms (401 pts) Occupied Bandwidth 1.1771 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 26.716 kHz x dB Bandwidth 1.405 MHz Trace/View 1 2 3 Trace Clear Write Max Hold Min Hold View Blank More 1 of 2

14 Antenna Measurement

14.1. Limit

For intentional device, according to 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And According to 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

14.2. Antenna Connector Construction

The antenna used in this product is **Dipole antenna**. And the maximum Gain of this antenna is only **0 dBi**.