

**(Configuration 2: Notebook + Office Docking + WLAN + Bluetooth)**

# **Test Report**

## **for**

### **FCC Part 15 Subpart B & C**

*of*

*Product Name*

**Notebook Personal Computer;  
Notebook Personal Computer with Office Docking;  
Notebook Personal Computer with Vehicle Docking**

*Model*

**ML900;  
ML900 Office Docking;  
ML900 Vehicle Docking  
(Brand:MOTOROLA)**

*Applied by:*

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**Report Number: ISL-05LR022FC**

**Issue Date: 2005/09/21**

HC LAB:NVLAP:200234-0;VCCI: R-341,C-354;NEMKO:ELA 113a,113c;BSMI:SL2-IN-E-0037;SL2-R1-E-0037;CNLA:1178

LT LAB:NVLAP:200234-0;VCCI: R-1435,C-1440;NEMKO:ELA 113b,113d;BSMI:SL2-IN-E-0013;CNLA:0997

ISL-T10-R29-1

Contents of Report

- 1. General ..... 1
  - 1.1 Certification of Accuracy of Test Data ..... 1
- 2. Test Results Summary ..... 2
- 3. TEST RESULTS (802.11b) ..... 3
  - 3.1 Powerline Conducted Emissions [Section 15.207] ..... 3
    - 3.1.1 EUT Configuration ..... 3
    - 3.1.2 Test Procedure ..... 3
    - 3.1.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)..... 3
    - 3.1.4 Test Data:..... 4
  - 3.2 Bandwidth for DSSS [Section 15.247 (a)(2)]..... 6
    - 3.2.1 Test Procedure ..... 6
    - 3.2.2 Test Setup ..... 6
    - 3.2.3 Test Data:..... 6
  - 3.3 DSSS Maximum Peak Output Power [Section 15.247 (b)(1)]..... 9
    - 3.3.1 Test Procedure ..... 9
    - 3.3.2 Test Setup ..... 9
    - 3.3.3 Test Data..... 9
  - 3.4 Radiated Emission Measurement [Section [15.247(c)(4)] ..... 10
    - 3.4.1 EUT Configuration ..... 10
    - 3.4.2 Test Procedure ..... 10
    - 3.4.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)..... 10
    - 3.4.4 Test Data (30MHz – 1GHz): ..... 11
    - 3.4.5 Test Data ( 1GHz – 25 GHz) ..... 12
  - 3.5 Band Edge Measurement..... 18
    - 3.5.1 Test Procedure (Conducted) ..... 18
    - 3.5.2 Test Setup (Conducted) ..... 18
    - 3.5.3 Test Data:..... 18
    - 3.5.4 Test Procedure (Radiated) ..... 20
    - 3.5.5 Test Setup (Radiated) ..... 20
    - 3.5.6 Test Data..... 21
  - 3.6 RF Exposure Measurement [Section 15.247(b)(4) & 1.1307(b)]..... 24
  - 3.7 DSSS Peak Power Spectral Density [Section 15.247(d) ]..... 25
    - 3.7.1 Test Procedure ..... 25
    - 3.7.2 Test Setup ..... 25
    - 3.7.3 Test Data..... 25
- 4. TEST RESULTS (802.11g) ..... 28
  - 4.1 Powerline Conducted Emissions [Section 15.207] ..... 28
    - 4.1.1 EUT Configuration ..... 28
    - 4.1.2 Test Procedure ..... 28
    - 4.1.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)..... 28
    - 4.1.4 Test Data:..... 29
  - 4.2 Bandwidth for DSSS [Section 15.247 (a)(2)]..... 31
    - 4.2.1 Test Procedure ..... 31
    - 4.2.2 Test Setup ..... 31
    - 4.2.3 Test Data:..... 31
  - 4.3 DSSS Maximum Peak Output Power [Section 15.247 (b)(1)]..... 34
    - 4.3.1 Test Procedure ..... 34
    - 4.3.2 Test Setup ..... 34
    - 4.3.3 Test Data..... 34
  - 4.4 Radiated Emission Measurement [Section [15.247(c)(4)] ..... 35
    - 4.4.1 EUT Configuration ..... 35

4.4.2 Test Procedure ..... 35

4.4.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)..... 35

4.4.4 Test Data (30MHz – 1GHz): ..... 36

4.4.5 Test Data ( 1GHz – 25 GHz) ..... 37

4.5 Band Edge Measurement..... 43

4.5.1 Test Procedure (Conducted) ..... 43

4.5.2 Test Setup (Conducted) ..... 43

4.5.3 Test Data:..... 43

4.5.4 Test Procedure (Radiated) ..... 45

4.5.5 Test Setup (Radiated) ..... 45

4.5.6 Test Data..... 46

4.6 RF Exposure Measurement [Section 15.247(b)(4) & 1.1307(b)]..... 49

4.7 DSSS Peak Power Spectral Density [Section 15.247(d) ]..... 50

4.7.1 Test Procedure ..... 50

4.7.2 Test Setup ..... 50

4.7.3 Test Data..... 50

5. TEST RESULTS (Bluetooth)..... 53

5.1 Powerline Conducted Emissions ..... 53

5.1.1 EUT Configuration ..... 53

5.1.2 Test Procedure ..... 53

5.1.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)..... 53

5.1.4 Test Data:..... 54

5.2 FHSS Maximum Peak Output Power ..... 56

5.2.1 Test Procedure ..... 56

5.2.2 Test Setup ..... 56

5.2.3 Test Data..... 56

5.3 Radiated Emission Measurement ..... 58

5.3.1 EUT Configuration ..... 58

5.3.2 Test Procedure ..... 58

5.3.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)..... 58

5.3.4 Test Data (30MHz – 1GHz): ..... 59

5.3.5 Test Data ( 1GHz – 25 GHz) ..... 60

5.4 Band Edge Measurement..... 63

5.4.1 Test Procedure (Conducted) ..... 63

5.4.2 Test Setup (Conducted) ..... 63

5.4.3 Test Data:..... 63

5.4.4 Test Procedure (Radiated) ..... 65

5.4.5 Test Setup (Radiated) ..... 65

5.4.6 Test Data..... 66

5.5 Bandwidth & Hopping Channel Separation ..... 69

5.5.1 Standard Applicable..... 69

5.5.2 Test Procedure ..... 69

5.5.3 Test Setup ..... 69

5.5.4 Test Data..... 70

5.6 Number of Hopping Frequency Used..... 74

5.6.1 Test Setup ..... 74

5.6.2 Test Data..... 74

5.7 Dwell Time ..... 76

5.7.1 Test Procedure ..... 76

5.7.2 Test Setup ..... 76

5.7.3 Test Data..... 76

5.8 Appendix G: Photographs of EUT Configuration Test Set Up..... 82

5.9 Appendix H: Antenna Spec. .... 85

# 1. General

## 1.1 Certification of Accuracy of Test Data

**Standards:** CFR 47 Part 15 Subpart B Class B  
CFR 47 Part 15 Subpart C (Section 15.247)

**Test Procedure:** ANSI C63.4:2003  
Notebook Personal Computer;  
Notebook Personal Computer with Office Docking;

**Equipment Tested:** Notebook Personal Computer with Vehicle Docking

**Model:** ML900; ML900 Office Docking; ML900 Vehicle Docking

**Applied by:** MITAC Technology Corporation

**Sample received Date:** 2005/07/26

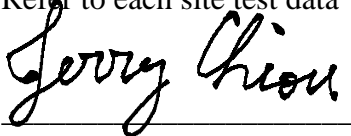
**Final test Date :** 2005/08/08-2005/09/05

**Test Result** PASS

**Test Site:** Chamber 02, Conduction 02

**Temperature** Refer to each site test data

**Humidity:** Refer to each site test data

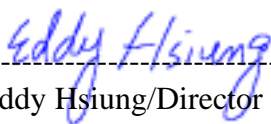
  
\_\_\_\_\_

**Test Engineer:** Jerry Chiou

All the tests in this report have been performed and recorded in accordance with the standards described above and performed by an independent electromagnetic compatibility consultant, International Standards Laboratory.

The test results contained in this report accurately represent the measurements of the characteristics and the energy generated by sample equipment under test at the time of the test. The sample equipment tested as described in this report is in compliance with the limits of above standards.

Approve & Signature

  
-----  
Eddy Hsiung/Director

Test results given in this report apply only to the specific sample(s) tested under stated test conditions. This report shall not be reproduced other than in full without the explicit written consent of ISL. This report totally contains 88 pages, including 1 cover page , 2 contents page, and 85 pages for the test description. This report must not be use to claim product endorsement by NVLAP or any agency of the U.S. Government.

This test data shown below is traceable to NIST or national or international standard. International Standards Laboratory certifies that no party to this application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 853(a).

## 2. Test Results Summary

The 802.11b functions of EUT has been tested according to the FCC regulations listed below:

Tested Standards: 47 CFR Part 15 Subpart C			
Standard Section	Test Type	Result	Remarks
15.207	AC Power Line Emissions	Pass	
15.247(a)(2)	Spectrum Bandwidth Of DSSS device	Pass	
15.247(b)	Max. Peak Output Power	Pass	
15.247( c )	Radiated Emissions 30MHz – 25 GHz	Pass	
15.247 ( c )	Band Edge Measurement	Pass	
15.247(b)(4)	Radiation Exposure	Pass	MPE report attached
15.247 (d)	Power Spectral Density	Pass	

The 802.11g functions of EUT has been tested according to the FCC regulations listed below:

Tested Standards: 47 CFR Part 15 Subpart C			
Standard Section	Test Type	Result	Remarks
15.207	AC Power Line Emissions	Pass	
15.247(a)(2)	Spectrum Bandwidth Of DSSS device	Pass	
15.247(b)	Max. Peak Output Power	Pass	
15.247( c )	Radiated Emissions 30MHz – 25 GHz	Pass	
15.247 ( c )	Band Edge Measurement	Pass	
15.247(b)(4)	Radiation Exposure	Pass	MPE report attached
15.247 (d)	Power Spectral Density	Pass	

The Bluetooth functions of EUT has been tested according to the FCC regulations listed below:

Tested Standards: 47 CFR Part 15 Subpart C			
Standard Section	Test Type	Result	Remarks
15.207(a)	AC Power Line Emissions	Pass	
15.247(b) (1)	Max. Peak Output Power	Pass	
15.209( a )	Radiated Emissions 30MHz – 25 GHz	Pass	
15.247 ( c )	Band Edge Measurement	Pass	
15.247(a)(1)(iii)	Number of Hopping Frequency Used	Pass	
15.247(a) (1)(ii)	Spectrum Bandwidth Of FHSS device	Pass	
15.247(a)(1)	Hopping Channel Separation	Pass	
15.247(a)(1)(iii)	Dwell Time	Pass	

### 3. TEST RESULTS (802.11b)

#### 3.1 Powerline Conducted Emissions [Section 15.207]

##### 3.1.1 EUT Configuration

The EUT was set up on the non-conductive table that is 1.0 by 1.5 meter, 80cm above ground. The wall of the shielded room was located 40cm to the rear of the EUT.

Power to the EUT was provided through the LISN. The impedance vs. frequency characteristic of the LISN is complied with the limit used.

Both lines (neutral and hot) were connected to the LISN in series at testing. A coaxial-type connector which provides one 50 ohms terminating impedance was provided for connecting the test instrument. The excess length of the power cord was folded back and forth at the center of the lead so as to form a bundle not exceeding 40cm in length.

Any changes made to the configuration, or modifications made to the EUT, during testing are noted in the following test record.

If the EUT is a Personal Computer or a peripheral of personal computer, and the personal computer has an auxiliary AC outlet which can be used for providing power to an external monitor, then all measurements will be made with the monitor power from first the computer-mounted AC outlet and then a floor-mounted AC outlet.

##### 3.1.2 Test Procedure

The system was set up as described above, with the EMI diagnostic software running. The main power line conducted EMI tests were run on the hot and neutral conductors of the power cord and the results were recorded. The effect of varying the position of the interface cables has been investigated to find the configuration that produces maximum emission.

At the frequencies where the peak values of the emissions were higher than 6dB below the applicable limits, the emissions were also measured with the quasi-peak detectors. At the frequencies where the quasi-peak values of the emissions were higher than 6dB below the applicable average limits, the emissions were also measured with the average detectors.

The highest emissions were analyzed in details by operating the spectrum analyzer in fixed tuned mode to determine the nature of the emissions and to provide information which could be useful in reducing their amplitude.

##### 3.1.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)

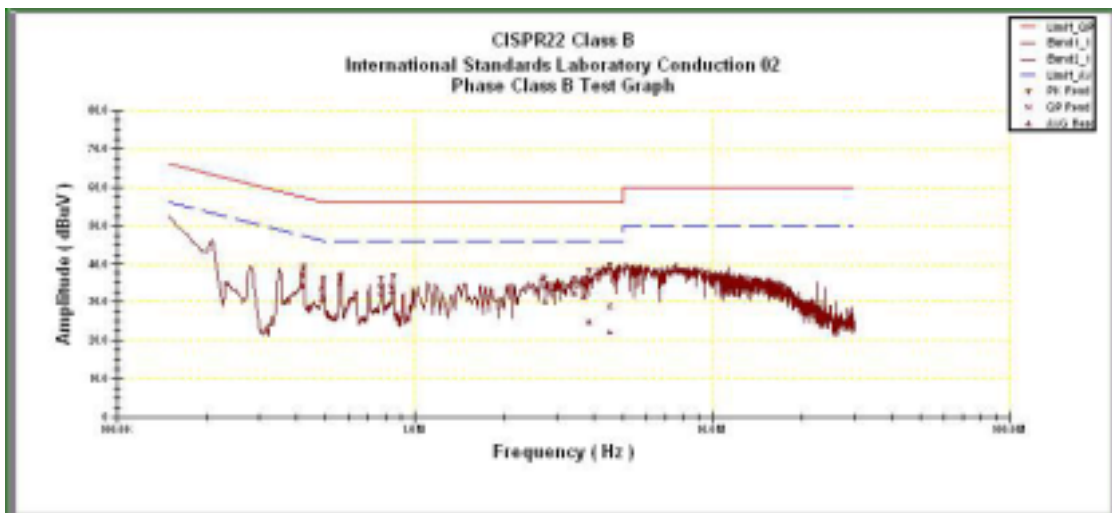
Frequency Range	150 KHz--30MHz
Detector Function	Quasi-Peak/Average
Bandwidth (RBW)	9KHz

3.1.4 Test Data:

Power Line Conducted Emissions (Hot) Channel 1, 6, 11

Operator: Jerry Chiou  
 Temperature(C): 26  
 Humidity(%): 55

Frequency	LISN Loss	Cable Loss	QPCorrt.	QPLimit	QPMargin	AVECorrt.	AVELimit	AVEMargin
MHz	(dB)	(dB)	Amp.(dBuV)	(dBuV)	(dB)	Amp.(dBuV)	(dBuV)	(dB)
0.41848	0.1	0.08	37.09	58.33	-21.24	34.1	48.33	-14.23
0.48933	0.11	0.07	33.5	56.3	-22.81	31.01	46.3	-15.29
0.55981	0.13	0.07	36.52	56	-19.48	35.23	46	-10.77
0.76746	0.16	0.07	34.19	56	-21.81	32.12	46	-13.88
0.83791	0.17	0.07	34.12	56	-21.88	32.48	46	-13.52
2.72904	0.2	0.11	33.77	56	-22.23	30.32	46	-15.68
3.42891	0.2	0.13	34.36	56	-21.64	32.47	46	-13.53
3.7072	0.2	0.13	35.07	56	-20.93	31.34	46	-14.66
3.85114	0.2	0.14	35.54	56	-20.46	24.93	46	-21.07
4.50079	0.21	0.15	29.02	56	-26.98	22.07	46	-23.93



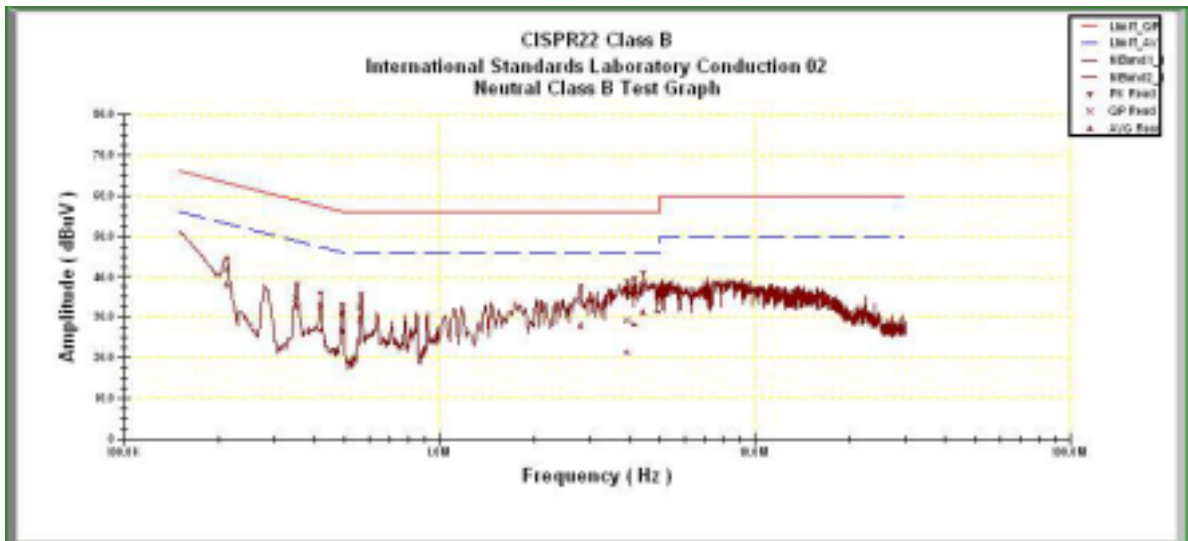
**Power Line Conducted Emissions (Neutral) Channel 1, 6, 11**

Operator: Jerry Chiou

Temperature(C): 26

Humidity(%): 55

Frequency	LISN Loss	Cable Loss	QPCorret.	QPLimit	QPMargin	AVECorret.	AVELimit	AVEMargin
MHz	(dB)	(dB)	Amp.(dBuV)	(dBuV)	(dB)	Amp.(dBuV)	(dBuV)	(dB)
0.2117	0.1	0.05	41.91	64.24	-22.32	38.1	54.24	-16.13
0.35136	0.1	0.09	34.69	60.25	-25.55	32.75	50.25	-17.5
0.42056	0.1	0.08	32.79	58.27	-25.48	26.8	48.27	-21.47
0.49148	0.12	0.07	31.1	56.24	-25.15	26.7	46.24	-19.54
0.56213	0.13	0.07	32.56	56	-23.44	29.46	46	-16.54
2.80628	0.2	0.11	33.99	56	-22.01	28.07	46	-17.93
3.93326	0.2	0.14	29.3	56	-26.7	21.48	46	-24.52
4.13875	0.2	0.14	36.51	56	-19.49	28.16	46	-17.84
4.41697	0.2	0.14	37.15	56	-18.85	31.39	46	-14.61
4.90278	0.19	0.15	36.58	56	-19.42	31.52	46	-14.48



\* NOTE: During the test, the EMI receiver was set to Max. Hold then switch the EUT Channel between 1 , 6, 11 to get the maximum reading of all these channels.  
 Margin = Amplitude + Insertion Loss- Limit  
 A margin of -8dB means that the emission is 8dB below the limit



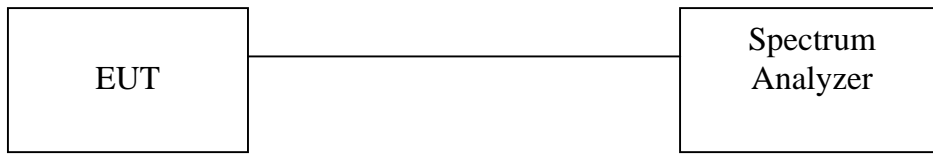
### 3.2 Bandwidth for DSSS [Section 15.247 (a)(2)]

#### 3.2.1 Test Procedure

The Transmitter output of EUT was connected to the spectrum analyzer. The 6 dB bandwidth of the fundamental frequency was measured. The setting of spectrum analyzer is as follows

Equipment mode	Spectrum analyzer
Detector function	Peak mode
RBW	100KHz
VBW	100KHz

#### 3.2.2 Test Setup



#### 3.2.3 Test Data:

##### 6dB Bandwidth

Test Engineer: Jerry Chiou

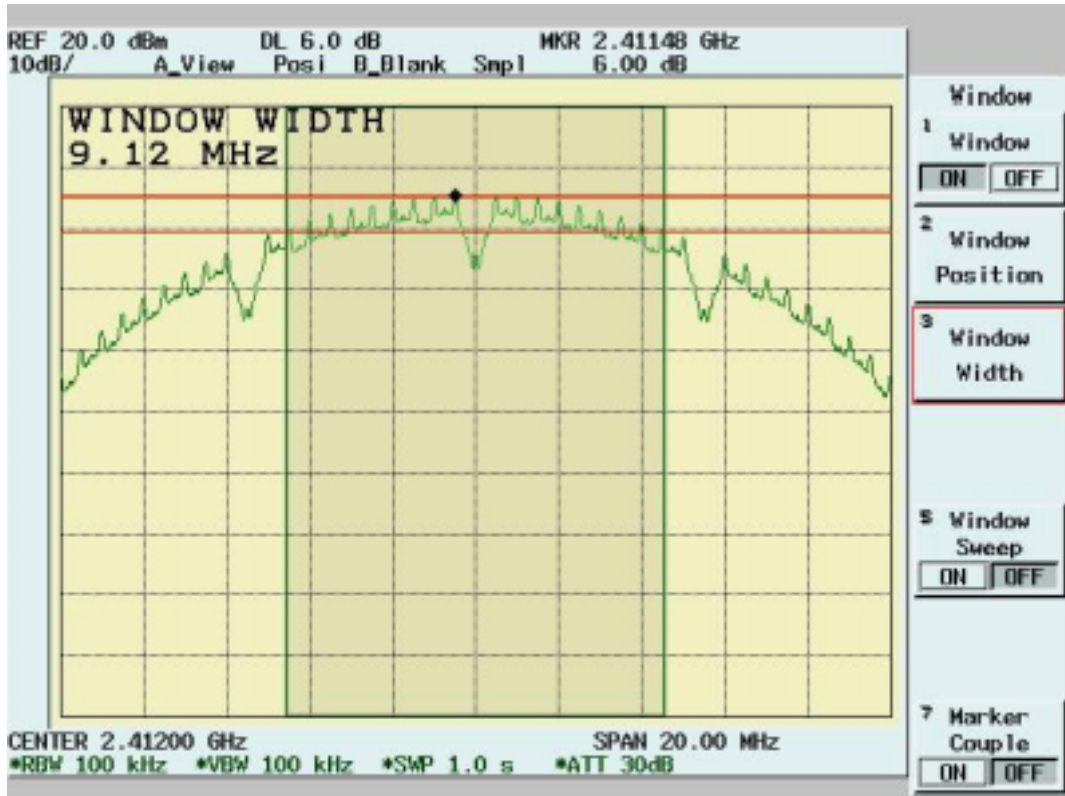
Temperature ( ): 27

Tx Data Rate=1Mbps

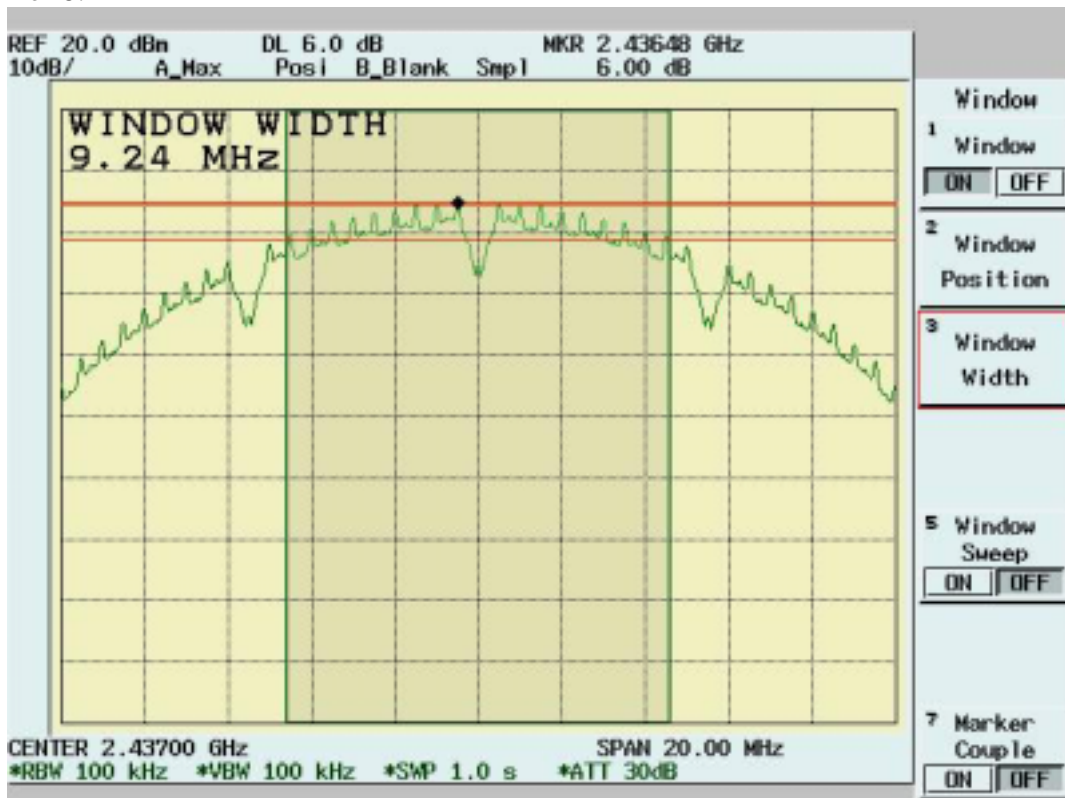
Humidity (%): 55

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Pass/Fail
1	2412	9.12	0.5	Pass
6	2437	9.24	0.5	Pass
11	2462	9.16	0.5	Pass

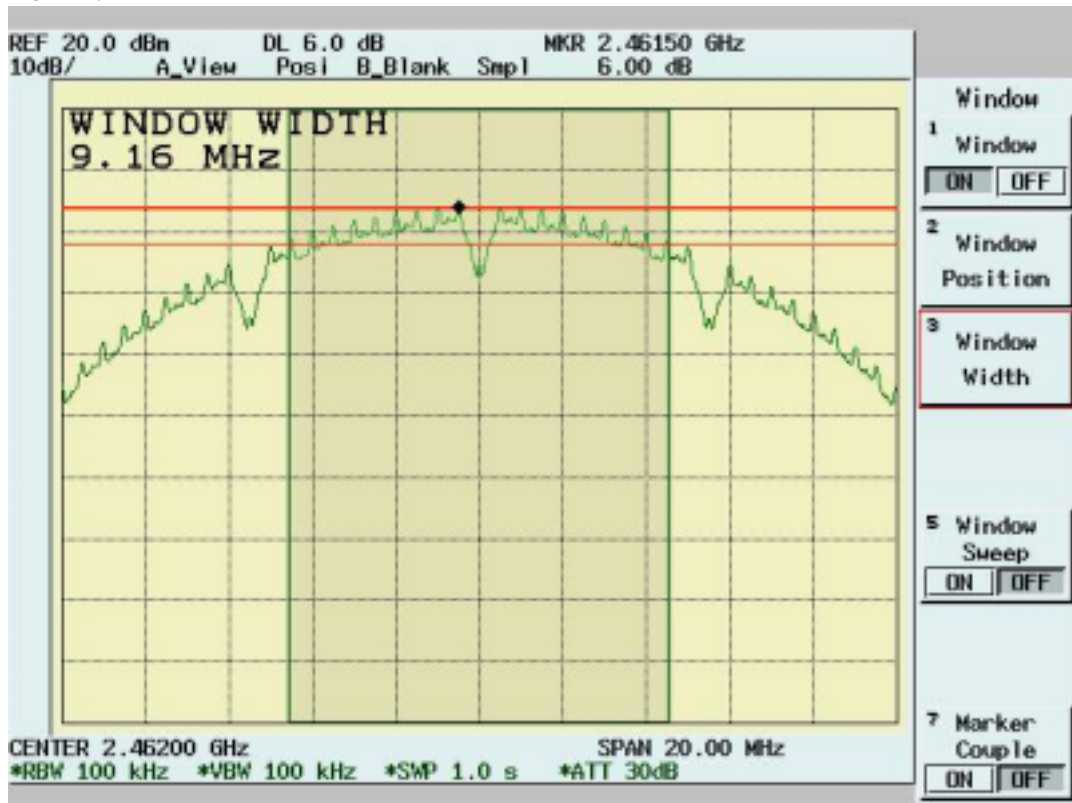
Channel 1:



Channel 6:



Channel 11:

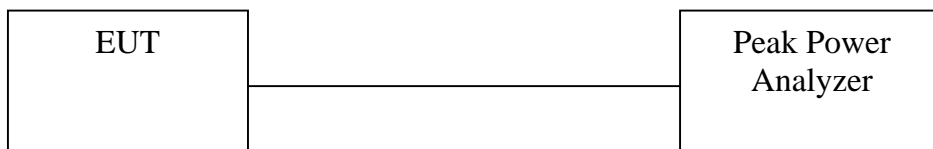


### 3.3 DSSS Maximum Peak Output Power [Section 15.247 (b)(1)]

#### 3.3.1 Test Procedure

The Transmitter output of EUT was connected to the peak power analyzer.

#### 3.3.2 Test Setup



#### 3.3.3 Test Data

##### Maximum Peak Output Power

Test Engineer: Jerry Chiou

Temperature ( ): 27

Tx Data Rate=1Mbps

Humidity (%): 55

Channel	Frequency (Mhz)	Analyzer Reading (dBm)	Cable Loss (dB)	Peak Power Output (mW)	Peak Power Output (dBm)	Limit (dBm)	Pass/Fail
1	2412	16.16	1.10	53.16	17.26	30	Pass
6	2437	15.50	1.10	45.71	16.60	30	Pass
11	2462	15.47	1.10	45.37	16.57	30	Pass

Note: Two RF output( MAIN & AUX) have been test,the worse data shown above.

### 3.4 Radiated Emission Measurement [Section [15.247(c)(4)]

#### 3.4.1 EUT Configuration

The equipment under test was set up on the 10 meter chamber with measurement distance of 3 meters. The EUT was placed on a non-conductive table 80cm above ground.

Any changes made to the configuration, or modifications made to the EUT, during testing are noted in the following test record.

#### 3.4.2 Test Procedure

The system was set up as described above, with the EMI diagnostic software running. We found the maximum readings by varying the height of antenna and then rotating the turntable. Both polarization of antenna, horizontal and vertical, are measured.

30M to 1GHz: The highest emissions between 30 MHz to 1000 MHz were also analyzed in details by operating the spectrum analyzer and/or EMI receiver in quasi-peak mode to determine the precise amplitude of the emissions. While doing so, the interconnecting cables and major parts of the system were moved around, the antenna height was varied between one and four meters, its polarization was varied between vertical and horizontal, and the turntable was slowly rotated, to maximize the emission.

1GHz – 25GHz: The highest emissions were also analyzed in details by operating the spectrum analyzer and/or EMI receiver in peak mode to determine the precise amplitude of the emission. While doing so, the interconnecting cables and major parts of the system were moved around, the antenna height was varied between one and four meters, its polarization was varied between vertical and horizontal, and the turntable was slowly rotated, to maximize the emission. During test the EMI receiver and spectrum was setup according to *EMI Receiver/Spectrum Analyzer Configuration*.

For the test of 2<sup>nd</sup> to 10<sup>th</sup> harmonics frequencies , the equipment setup was also refer to *EMI Receiver/Spectrum Analyzer Configuration*. The frequencies were tested using Peak mode first, if the test data is higher than the emissions limit, an additional measurement using Average mode will be performed and the average reading will be compared to the limit and record in test report.

#### 3.4.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)

Frequency Range Tested:	30MHz~1000MHz
Detector Function:	Quasi-Peak Mode
Resolution Bandwidth (RBW):	120KHz
Video Bandwidth (VBW)	1MHz
Frequency Range Tested:	1GHz – 25 GHz
Detector Function:	Peak Mode
Resolution Bandwidth (RBW):	1MHz
Video Bandwidth (VBW)	3MHz
Frequency Range Tested:	1GHz – 25 GHz
Detector Function:	Average Mode
Resolution Bandwidth (RBW):	1MHz
Video Bandwidth (VBW)	10 Hz

3.4.4 Test Data (30MHz – 1GHz):

30M – 1GHz Open Field Radiated Emissions (Horizontal) Channel 1, 6, 11

Operator:JerryChiou  
Temperature(C):23  
Humidity(%):54

06:12:18PM,Friday,August12,2005

Frequency MHz	RxAmp. (dBuV)	AntFact (dB/m)	CableLoss (dB)	PreAmpGain (dB)	Corrct.Emi. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.Pos. (cm)	TablePos (deg)
332.64	12.57	16.10	3.95	0.00	32.62	46.00	-13.38	103.00	337.00
366.59	10.94	16.10	4.22	0.00	31.25	46.00	-14.75	103.00	353.00
455.83	10.85	16.34	4.90	0.00	32.09	46.00	-13.91	103.00	337.00
466.5	9.89	16.60	4.96	0.00	31.45	46.00	-14.55	103.00	287.00
499.48	9.19	17.39	5.28	0.00	31.86	46.00	-14.14	103.00	337.00
666.32	17.48	19.00	6.41	0.00	42.89	46.00	-3.11	103.00	337.00
733.25	9.77	19.80	6.89	0.00	36.45	46.00	-9.55	196.00	285.00
833.16	1.55	20.43	7.71	0.00	29.70	46.00	-16.30	103.00	42.00
999.03	10.31	21.30	8.84	0.00	40.46	54.00	-13.54	103.00	156.00

30M – 1GHz Open Field Radiated Emissions (Vertical) Channel 1, 6, 11

Operator:JerryChiou  
Temperature(C):23  
Humidity(%):54

06:12:18PM,Friday,August12,2005

Frequency MHz	RxAmp. (dBuV)	AntFact (dB/m)	CableLoss (dB)	PreAmpGain (dB)	Corrct.Emi. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.Pos. (cm)	TablePos (deg)
299.66	13.27	15.85	3.60	0.00	32.72	46.00	-13.28	103.00	353.00
332.64	12.27	16.10	3.95	0.00	32.31	46.00	-13.69	103.00	337.00
366.59	11.95	16.10	4.22	0.00	32.26	46.00	-13.74	103.00	353.00
466.5	11.56	16.60	4.96	0.00	33.12	46.00	-12.88	103.00	287.00
480.08	11.82	16.92	5.07	0.00	33.81	46.00	-12.19	103.00	321.00
499.48	12.94	17.39	5.28	0.00	35.61	46.00	-10.39	103.00	337.00
599.39	8.57	18.70	5.85	0.00	33.12	46.00	-12.88	103.00	304.00
666.32	17.48	19.00	6.41	0.00	42.88	46.00	-3.12	103.00	337.00
733.25	10.28	19.80	6.89	0.00	36.97	46.00	-9.03	196.00	285.00
933.07	3.63	21.06	8.31	0.00	33.01	46.00	-12.99	196.00	187.00
999.03	11.36	21.30	8.84	0.00	41.50	54.00	-12.50	103.00	156.00

NOTE:

➤ During the Pre-test, the EUT has been tested for Channel 1, 6, 11 transmit from Main and Aux antenna respectively to get all the critical emission frequencies. In the final test all the critical emission frequencies has been tested and the test data are listed above.

➤ Margin = Corrected Amplitude – Limit  
Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain  
A margin of -8dB means that the emission is 8dB below the limit

**All frequencies from 30MHz to 1GHz have been tested**

3.4.5 Test Data ( 1GHz – 25 GHz) .

1GHz~ 25 GHz (Horizontal), Channel 1: 2412 MHz

Operator:JerryChiou

RBW:1MHz  
Humidity(%):41  
Temperature(C):27

Frequency MHz	Rx_R. dBuV	Ant_F. dB/m	Cab_L. dB	PreAmpl dB	Emission dBuV/m	Limit dBuV/m	Margin dB	A.Tower cm	T.Table deg
1067.43	46.87pk	24.81	2.18	33.97	39.89pk	54.00av	-14.11	102	107
1164.84	47.07pk	25.26	2.19	34.02	40.50pk	54.00av	-13.50	102	101
1199.8	46.52pk	25.42	2.19	34.04	40.10pk	54.00av	-13.90	102	98
1232.27	46.05pk	25.57	2.20	34.06	39.76pk	54.00av	-14.24	102	96
1439.56	45.76pk	26.52	2.22	34.17	40.34pk	54.00av	-13.66	101	82
2146.35	41.88pk	30.97	2.15	35.19	39.81pk	54.00av	-14.19	100	89
2288.71	45.80pk	30.94	1.72	35.19	43.27pk	54.00av	-10.73	101	134
2311.19	51.23pk	30.94	1.65	35.19	48.63pk	54.00av	-5.37	101	141
2326.17	47.78pk	30.93	1.60	35.19	45.13pk	54.00av	-8.87	101	145
2510.99	44.60pk	30.90	1.36	35.19	41.68pk	54.00av	-12.32	102	203
2518.48	44.16pk	30.91	1.36	35.18	41.25pk	54.00av	-12.75	102	206
2610.89	43.11pk	30.94	1.38	35.10	40.33pk	54.00av	-13.67	102	235
2878.12	43.91pk	31.05	1.43	34.86	41.53pk	54.00av	-12.47	103	319
3085.41	42.36pk	31.17	1.49	34.94	40.09pk	54.00av	-13.91	103	335
4823.94	46.98pk	34.93	2.12	37.72	46.32pk	54.00av	-7.68	100.00	343.00
7237.8	45.48pk	39.48	2.68	36.83	50.82pk	54.00av	-3.18	100.00	347.00
9648.14	45.19pk	40.57	3.25	34.33	54.68pk	74.00pk	-19.32	100.00	360.00
9648.14	29.96av	40.57	3.25	34.33	39.45av	54.00av	-14.55	100.00	360.00

1GHz~ 25 GHz (Vertical), Channel 1: 2412 MHz

Operator:JerryChiou

RBW:1MHz  
Humidity(%):41  
Temperature(C):27

Frequency	Rx_R	Ant_F	Cab_L	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1626.87	45.32pk	27.87	2.32	34.45	41.06pk	54.00av	-12.94	101	69
1691.81	45.49pk	28.41	2.37	34.58	41.70pk	54.00av	-12.30	101	64
1799.2	43.98pk	29.31	2.45	34.79	40.95pk	54.00av	-13.05	100	57
1814.19	43.36pk	29.44	2.46	34.82	40.45pk	54.00av	-13.55	100	56
1844.16	45.47pk	29.69	2.48	34.87	42.77pk	54.00av	-11.23	100	54
2148.85	43.76pk	30.97	2.15	35.19	41.69pk	54.00av	-12.31	100	90
2248.75	42.88pk	30.95	1.84	35.19	40.48pk	54.00av	-13.52	101	121
2311.19	52.76pk	30.94	1.65	35.19	50.15pk	54.00av	-3.85	101	141
2331.17	47.66pk	30.93	1.59	35.19	44.99pk	54.00av	-9.01	101	147
2361.14	48.95pk	30.93	1.50	35.19	46.18pk	54.00av	-7.82	101	156
2510.99	45.14pk	30.90	1.36	35.19	42.22pk	54.00av	-11.78	102	203
2878.12	43.54pk	31.05	1.43	34.86	41.16pk	54.00av	-12.84	103	319
3357.64	43.50pk	31.39	1.64	35.53	40.99pk	54.00av	-13.01	103	265
4823.92	46.57pk	34.93	2.12	37.72	45.91pk	54.00av	-8.09	100.00	292.00
7237.44	46.16pk	39.48	2.68	36.83	51.49pk	54.00av	-2.51	100.00	292.00
9647.96	44.84pk	40.57	3.25	34.33	54.33pk	74.00pk	-19.67	100.00	229.00
9647.96	30.42av	40.57	3.25	34.33	39.91av	54.00av	-14.09	100.00	229.00

Note:

- According to the standards used, Where limits are specified by agencies for both average and peak (or quasi-peak) detection , if the peak (or quasi-peak) measured value complies with the average limit , it is unnecessary to perform an average measurement.
- “ \* ”: Fundamental Frequency
- “\*\*\*”: Not in the restricted band, Limit level=Fundamental Emission-20dB
- “ pk” : peak mode
- “ av” : average mode
- “ --- “: No meter reading data due to the emission level is smaller than spectrum noise level.
- The Spectrum noise level+Correction Factor < Limit - 6 dB
- Margin=Corrected Amplitude – Limit
- Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
- A margin of -8dB means that the emission is 8dB below the limit.

**All frequencies from 1GHz to 25 GHz have been tested.**



1GHz~ 25 GHz (Horizontal) , Channel 6 : 2437 MHz

Operator:JerryChiou

RBW:1MHz  
Humidity(%):41  
Temperature(C):27

Frequency MHz	Rx_R. dBuV	Ant_F. dB/m	Cab_L. dB	PreAmpl dB	Emission dBuV/m	Limit dBuV/m	Margin dB	A.Tower cm	T.Table deg
1164.84	48.31pk	25.26	2.19	34.02	41.74pk	54.00av	-12.26	102	101
1199.8	46.67pk	25.42	2.19	34.04	40.25pk	54.00av	-13.75	102	98
2171.33	43.46pk	30.97	2.08	35.19	41.32pk	54.00av	-12.68	101	97
2231.27	43.71pk	30.95	1.89	35.19	41.37pk	54.00av	-12.63	101	116
2316.18	48.47pk	30.94	1.64	35.19	45.85pk	54.00av	-8.15	101	142
2333.67	51.66pk	30.93	1.58	35.19	48.98pk	54.00av	-5.02	101	148
2353.65	48.50pk	30.93	1.52	35.19	45.76pk	54.00av	-8.24	101	154
2518.48	44.89pk	30.91	1.36	35.18	41.98pk	54.00av	-12.02	102	206
2535.96	45.60pk	30.91	1.37	35.17	42.71pk	54.00av	-11.29	102	211
2605.89	43.63pk	30.94	1.38	35.10	40.84pk	54.00av	-13.16	102	233
2638.36	43.51pk	30.96	1.38	35.08	40.77pk	54.00av	-13.23	102	243
2878.12	43.77pk	31.05	1.43	34.86	41.39pk	54.00av	-12.61	103	319
3357.64	43.52pk	31.39	1.64	35.53	41.01pk	54.00av	-12.99	103	265
4873.9	47.51pk	35.12	2.14	37.77	47.00pk	54.00av	-7.00	100.00	347.00
7310.72	46.05pk	39.60	2.55	36.70	51.50pk	54.00av	-2.50	100.00	24.00
9747.88	43.59pk	40.35	3.30	34.37	52.87pk	54.00av	-1.13	100.00	87.00

**1GHz~ 25 GHz (Vertical), Channel 6 : 2437 MHz**

Operator:JerryChiou

RBW:1MHz  
Humidity(%):41  
Temperature(C):27

Frequency	Rx_R	Ant_F	Cab_L	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1132.37	47.34pk	25.11	2.19	34.00	40.63pk	54.00av	-13.37	102	103
1167.33	47.90pk	25.27	2.19	34.02	41.34pk	54.00av	-12.66	102	100
1264.74	46.66pk	25.72	2.20	34.07	40.51pk	54.00av	-13.49	101	94
1332.17	46.19pk	26.03	2.21	34.11	40.32pk	54.00av	-13.68	101	89
1626.87	45.26pk	27.87	2.32	34.45	41.00pk	54.00av	-13.00	101	69
1811.69	43.18pk	29.42	2.46	34.81	40.25pk	54.00av	-13.75	100	56
1819.18	43.48pk	29.48	2.47	34.83	40.60pk	54.00av	-13.40	100	55
1841.66	44.27pk	29.67	2.48	34.87	41.56pk	54.00av	-12.44	100	54
2231.27	45.53pk	30.95	1.89	35.19	43.19pk	54.00av	-10.81	101	116
2333.67	52.58pk	30.93	1.58	35.19	49.90pk	54.00av	-4.10	101	148
2518.48	45.64pk	30.91	1.36	35.18	42.73pk	54.00av	-11.27	102	206
2535.96	47.30pk	30.91	1.37	35.17	44.42pk	54.00av	-9.58	102	211
2595.9	44.00pk	30.94	1.38	35.11	41.20pk	54.00av	-12.80	102	230
4874.18	47.65pk	35.12	2.14	37.77	47.14pk	54.00av	-6.86	100.00	21.00
7310.58	46.11pk	39.60	2.55	36.70	51.56pk	54.00av	-2.44	100.00	360.00
9747.92	43.16pk	40.35	3.30	34.37	52.44pk	54.00av	-1.56	100.00	280.00

Note:

- According to the standards used, Where limits are specified by agencies for both average and peak (or quasi-peak) detection , if the peak (or quasi-peak) measured value complies with the average limit , it is unnecessary to perform an average measurement.
- “ \* ”: Fundamental Frequency
- “\*\*”: Not in the restricted band, Limit level=Fundamental Emission-20dB
- “ pk”: peak mode
- “av”: average mode
- “---“: No meter reading data due to the emission level is smaller than spectrum noise level.
- The Spectrum noise level+Correction Factor < Limit - 6 dB
- Margin=Corrected Amplitude – Limit
- Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
- A margin of -8dB means that the emission is 8dB below the limit.

**All frequencies from 1GHz to 25 GHz have been tested.**

1GHz~ 25 GHz (Horizontal), Channel 11: 2462 MHz

Operator:JerryChiou

RBW:1MHz  
Humidity(%):41  
Temperature(C):27

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1164.84	48.09pk	25.26	2.19	34.02	41.52pk	54.00av	-12.48	102	101
1232.27	46.04pk	25.57	2.20	34.06	39.75pk	54.00av	-14.25	102	96
1846.65	42.90pk	29.71	2.49	34.88	40.22pk	54.00av	-13.78	100	54
2256.24	44.42pk	30.95	1.82	35.19	42.00pk	54.00av	-12.00	101	123
2286.21	48.72pk	30.94	1.73	35.19	46.20pk	54.00av	-7.80	101	133
2296.2	47.63pk	30.94	1.70	35.19	45.07pk	54.00av	-8.93	101	136
2338.66	45.97pk	30.93	1.57	35.19	43.27pk	54.00av	-10.73	101	149
2358.64	50.12pk	30.93	1.51	35.19	47.36pk	54.00av	-6.64	101	156
2381.12	47.07pk	30.92	1.44	35.20	44.24pk	54.00av	-9.76	101	163
2535.96	42.83pk	30.91	1.37	35.17	39.94pk	54.00av	-14.06	102	211
2618.38	43.57pk	30.95	1.38	35.09	40.81pk	54.00av	-13.19	102	237
2878.12	44.63pk	31.05	1.43	34.86	42.25pk	54.00av	-11.75	103	319
2938.06	42.19pk	31.08	1.44	34.81	39.90pk	54.00av	-14.10	103	338
4924.04	50.48pk	35.31	2.15	37.83	50.12pk	54.00av	-3.88	100.00	344.00
7386	43.82pk	39.72	2.42	36.56	49.40pk	54.00av	-4.60	100.00	239.00
9848.4	45.25pk	40.13	3.35	34.41	54.33pk	74.00pk	-19.67	100.00	239.00
9848.4	28.80av	40.13	3.35	34.41	37.87av	54.00av	-16.13	100.00	239.00

**1GHz~ 25 GHz (Vertical), Channel 11 : 2462 MHz**

Operator:JerryChiou

RBW:1MHz  
Humidity(%):41  
Temperature(C):27

Frequency	Rx_R	Ant_F	Cab_L	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1164.84	50.24pk	25.26	2.19	34.02	43.67pk	54.00av	-10.33	102	101
1267.23	47.24pk	25.73	2.20	34.07	41.10pk	54.00av	-12.90	101	94
1626.87	46.88pk	27.87	2.32	34.45	42.62pk	54.00av	-11.38	101	69
1811.69	44.25pk	29.42	2.46	34.81	41.32pk	54.00av	-12.68	100	56
1831.67	44.31pk	29.59	2.48	34.85	41.52pk	54.00av	-12.48	100	55
1844.16	47.06pk	29.69	2.48	34.87	44.36pk	54.00av	-9.64	100	54
2256.24	46.62pk	30.95	1.82	35.19	44.19pk	54.00av	-9.81	101	123
2286.21	50.38pk	30.94	1.73	35.19	47.86pk	54.00av	-6.14	101	133
2303.7	48.41pk	30.94	1.67	35.19	45.83pk	54.00av	-8.17	101	138
2358.64	50.45pk	30.93	1.51	35.19	47.68pk	54.00av	-6.32	101	156
2386.11	48.99pk	30.92	1.42	35.20	46.14pk	54.00av	-7.86	101	164
2598.4	44.55pk	30.94	1.38	35.11	41.76pk	54.00av	-12.24	102	231
2618.38	45.09pk	30.95	1.38	35.09	42.32pk	54.00av	-11.68	102	237
4924.2	50.21pk	35.31	2.15	37.83	49.85pk	54.00av	-4.15	100.00	35.00
7384.94	46.09pk	39.72	2.42	36.56	51.66pk	54.00av	-2.34	100.00	28.00
9847.54	44.66pk	40.14	3.35	34.41	53.74pk	74.00pk	-20.26	100.00	360.00
9847.54	28.70av	40.14	3.35	34.41	37.78av	54.00av	-16.22	100.00	360.00

Note:

- According to the standards used, Where limits are specified by agencies for both average and peak (or quasi-peak) detection , if the peak (or quasi-peak) measured value complies with the average limit , it is unnecessary to perform an average measurement.
- “ \* ”: Fundamental Frequency
- “\*\*\*”: Not in the restricted band, Limit level=Fundamental Emission-20dB
- “ pk” : peak mode
- “ av” : average mode
- “ --- “: No meter reading data due to the emission level is smaller than spectrum noise level.
- The Spectrum noise level+Correction Factor < Limit - 6 dB
- Margin=Corrected Amplitude – Limit
- Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
- A margin of -8dB means that the emission is 8dB below the limit.

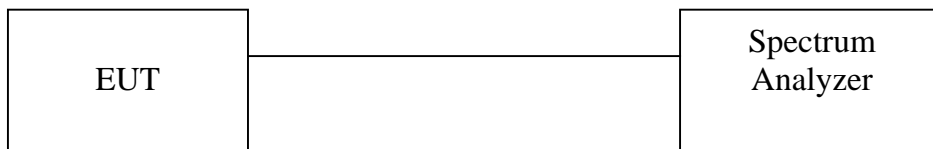
**All frequencies from 1GHz to 25 GHz have been tested.**

### 3.5 Band Edge Measurement

#### 3.5.1 Test Procedure (Conducted)

1. The transmitter output of EUT was connected to the spectrum analyzer.  
 Equipment mode: Spectrum analyzer  
 Detector function: Peak mode  
 SPAN: 100MHz  
 RBW: 100KHz  
 VBW: 100KHz  
 Center frequency: 2.4GHz, 2.4835GHz.
2. Using Peak Search to read the peak power of Carrier frequencies after Maximum Hold function is completed
3. Find the next peak frequency outside the operation frequency band

#### 3.5.2 Test Setup (Conducted)



#### 3.5.3 Test Data:

**Table: Band Edge measurement (Conducted)**

Test Engineer: Jerry Chiou

Temperature ( ): 27

Tx Data Rate=1Mbps

Humidity (%): 55

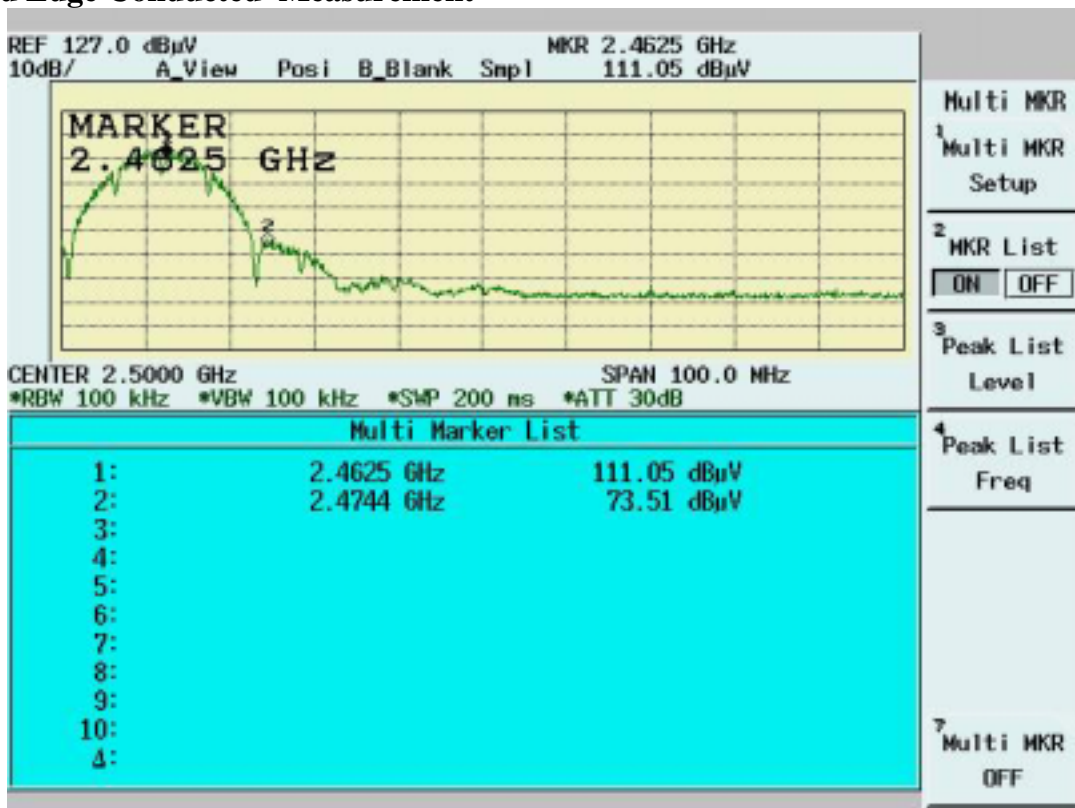
Channel	Frequency (MHz)	Spectrum Reading (dBuV)	Carrier - Outsideband Limit: >20dB (dB)	Pass/Fail
1	2411.5	111.80	---	---
Outside band	2399.5	74.39	37.41	Pass
11	2462.5	111.05	---	---
Outside band	2474.4	73.51	37.54	Pass

Note: Two RF output( MAIN & AUX) have been test, the worse data shown above.

### Band Edge Conducted measurement



### Band Edge Conducted Measurement



### 3.5.4 Test Procedure (Radiated)

1. Antenna and Turntable test procedure same as Radiated Emission Measurement.  
Equipment mode: Spectrum analyzer  
Detector function: Peak mode  
SPAN: 100MHz  
RBW: 1MHz  
VBW: 3MHz  
Center frequency: 2.395GHz, 2.48GHz.
2. Using Peak Search to read the peak power of Carrier frequencies after Maximum Hold function is completed.
3. Find the next peak frequency outside the operation frequency band
4. For peak frequency emission level measurement in Restricted Band  
Change RBW: 1MHz  
VBW: 10Hz  
Span: 100MHz.
5. Get the spectrum reading after Maximum Hold function is completed.

### 3.5.5 Test Setup (Radiated)

Same as *Radiated Emission Measurement*

3.5.6 Test Data

Table Band Edge measurement (Radiated)

Test Engineer: Jerry Chiou

Temperature ( ): 26

Tx Data Rate=1Mbps

Humidity (%): 43

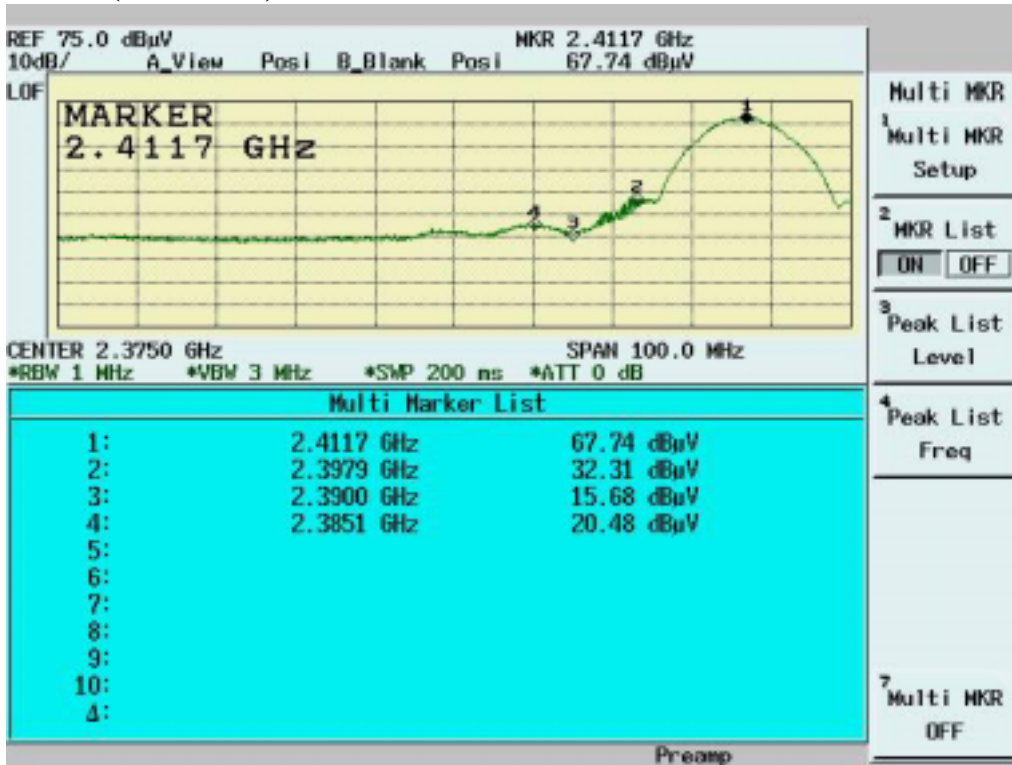
Description	Frequency (MHz)	Spectrum Reading (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	dBc ( Limit: > 20dBc)	Limit (dBuV/m)	Equip. Setup VBW	Pass or Fail
Channel_1 (average mode)	2410.8	61.87	35.48	97.35	---	---	10Hz	---
Channel_1 (peak mode)	2411.7	67.74	35.48	103.22	---	---	3MHz	---
Outside band (peak mode)	2397.9	32.31	35.48	67.79	35.43	---	3MHz	Pass
Channel_11 (average mode)	2462.8	60.79	35.50	96.29	---	---	10Hz	---
Channel_11 (peak mode)	2462.8	67.43	35.50	102.93	---	---	3MHz	---
Outside band (peak mode)	2474.8	31.35	35.51	66.86	36.07	---	3MHz	Pass
Channel_1 Restricted band (peak mode)	2385.1	20.48	35.47	55.95	---	74	3MHz	Pass
Restricted band (average mode)	2385.3	11.64	35.47	47.11	---	54	10Hz	Pass
Channel_11 Restricted band (peak mode)	2488.4	19.65	35.51	55.16	---	74	3MHz	Pass
Restricted band (average mode)	2488.2	9.15	35.51	44.66	---	54	10Hz	Pass

Note:

- > The Spectrum plot of emission level measurement in Restricted band is attached.
- > Emission Level=Spectrum Reading+Correction Factor
- > Correction Factor=Antenna Factor+cable loss–amplifier gain
- > Both Horizontal and Vertical polarizaion have been tested and the worst data is listed above.



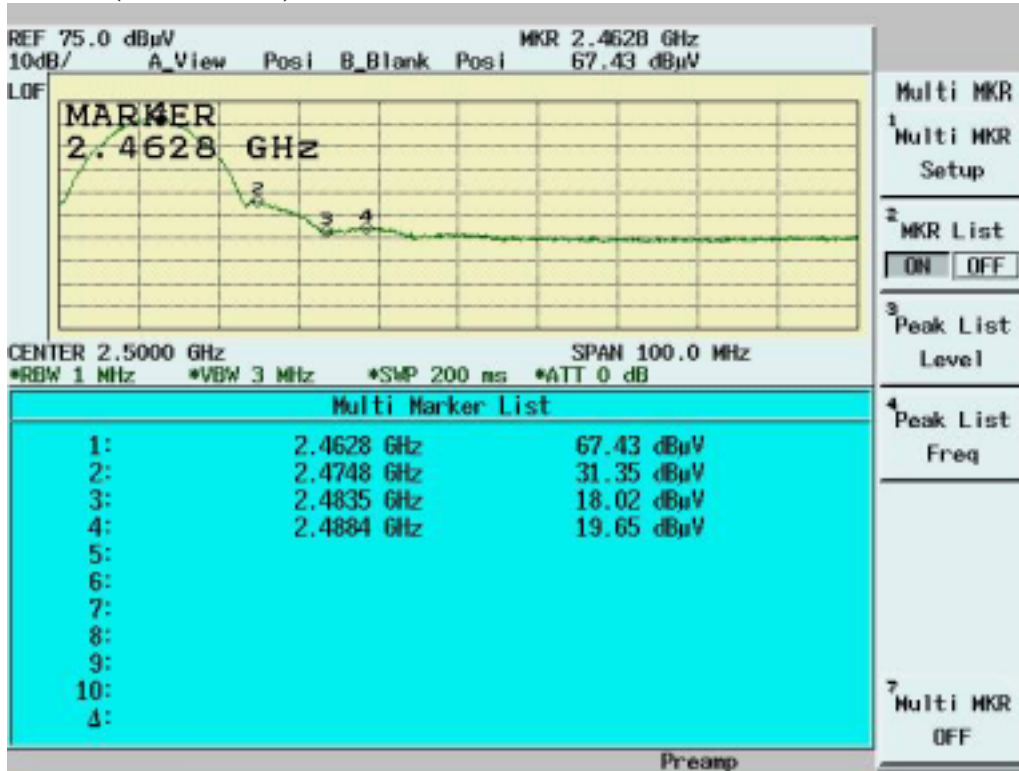
**Band Edge measurement for radiated emission in Restricted Band(Radiated) Peak Mode (Channel 1)**



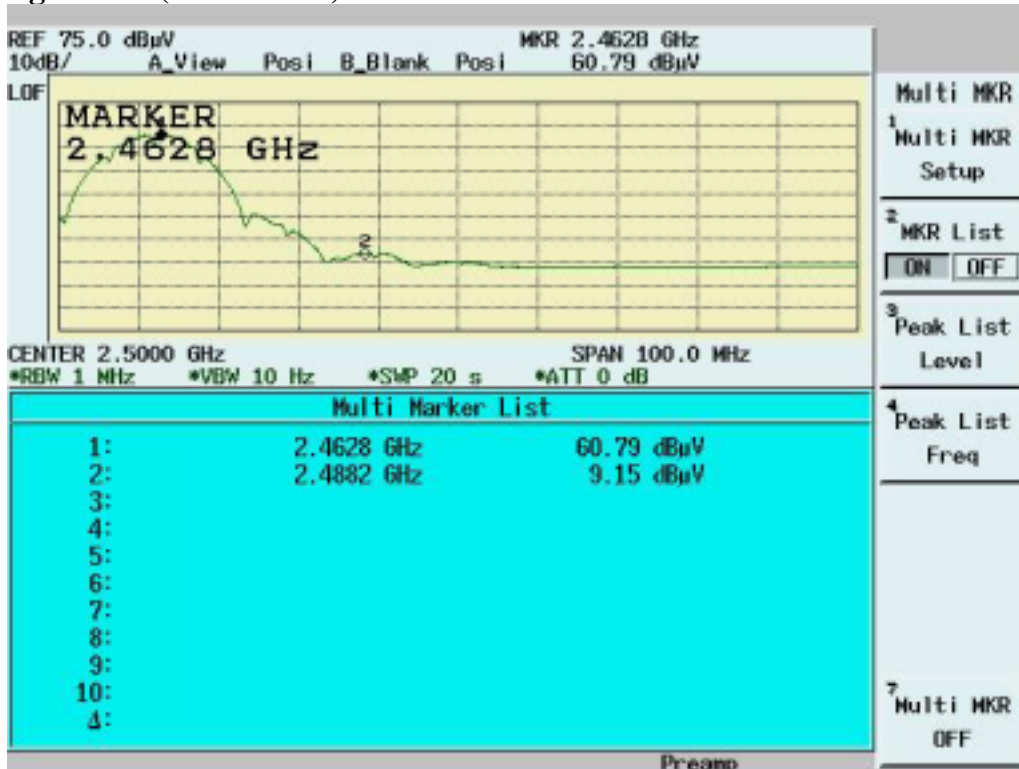
**Band Edge measurement for radiated emission in Restricted Band(Radiated) Average Mode (Channel 1)**



**Band Edge measurement for radiated emission in Restricted Band(Radiated) Peak Mode (Channel 11)**



**Band Edge measurement for radiated emission in Restricted Band(Radiated) Average Mode (Channel 11)**



### 3.6 RF Exposure Measurement [Section 15.247(b)(4) & 1.1307(b)]

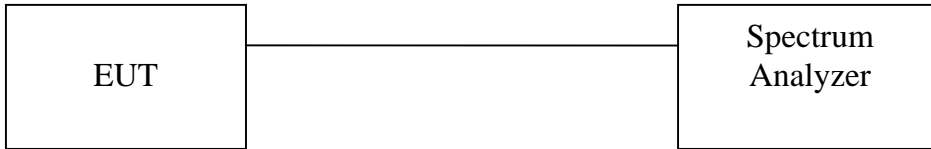
See MPE report

### 3.7 DSSS Peak Power Spectral Density [Section 15.247(d) ]

#### 3.7.1 Test Procedure

1. The Transmitter output of EUT was connected to the spectrum analyzer.  
 Equipment mode: Spectrum analyzer  
 Detector function: Peak mode  
 SPAN:1.5MHz  
 RBW: 3KHz  
 VBW: 30KHz  
 Center frequency: fundamental frequency tested.  
 Sweep time= 500 sec.
2. Using Peak Search to read the peak power after Maximum Hold function is completed.

#### 3.7.2 Test Setup



#### 3.7.3 Test Data

##### Maximum Peak Output Power Density

Test Engineer: Jerry Chiou

Temperature ( ): 27

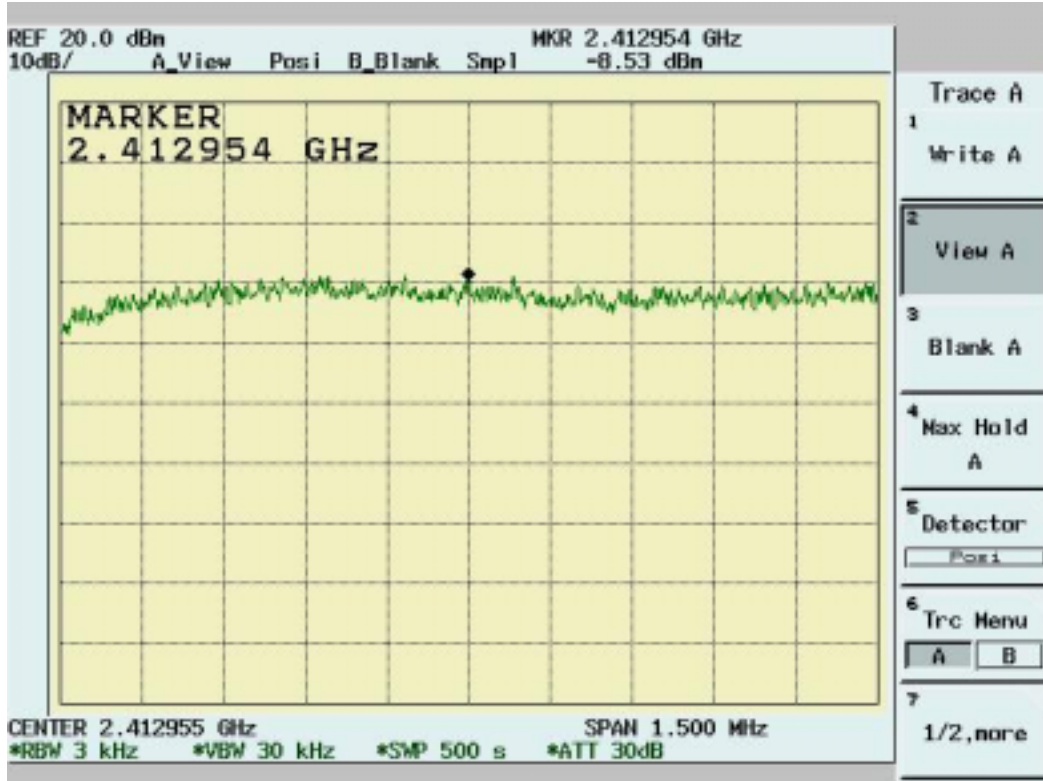
Tx Data Rate=1Mbps

Humidity (%): 55

Channel	Frequency (MHz)	Spectrum Reading (dBm/3KHz)	Cable Loss (dB)	Peak Power Output (dBm/3KHz)	Limit (dBm/3KHz)	Pass/Fail
1	2412	-8.53	1.10	-7.43	8	Pass
6	2437	-9.20	1.10	-8.10	8	Pass
11	2462	-9.02	1.10	-7.92	8	Pass

Note: Two RF output( MAIN & AUX) have been test,the worse data shown above.

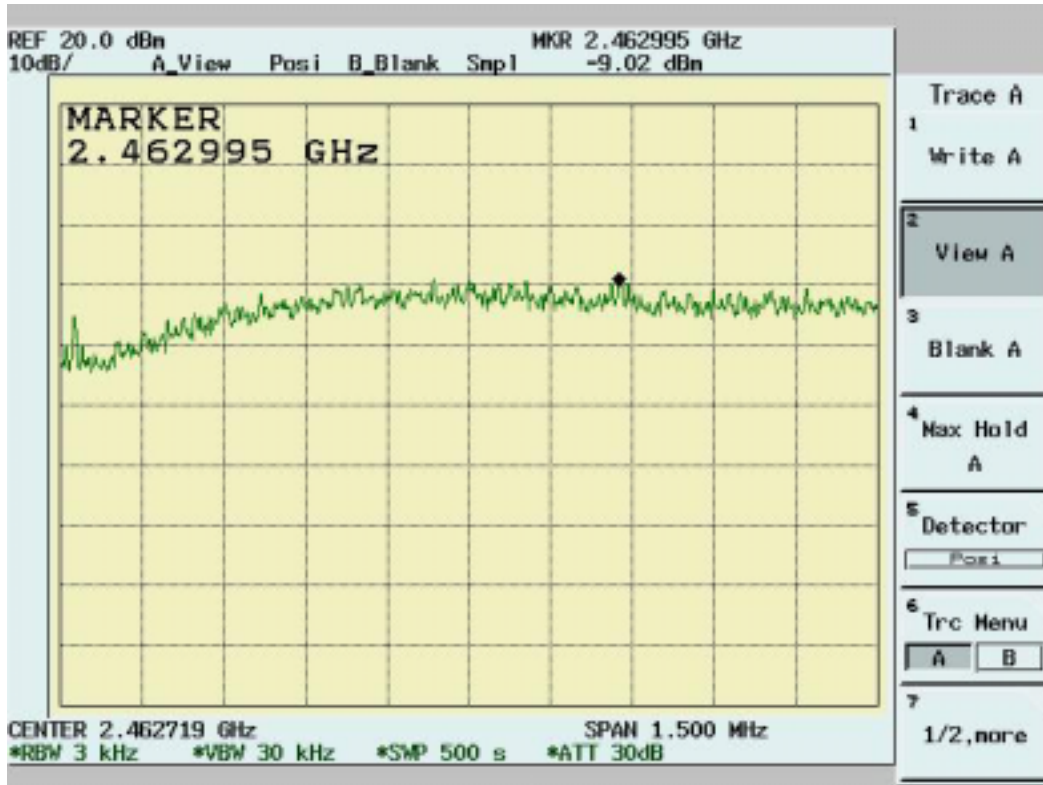
Channel 1



Channel 6



Channel 11



## 4. TEST RESULTS (802.11g)

### 4.1 Powerline Conducted Emissions [Section 15.207]

#### 4.1.1 EUT Configuration

The EUT was set up on the non-conductive table that is 1.0 by 1.5 meter, 80cm above ground. The wall of the shielded room was located 40cm to the rear of the EUT.

Power to the EUT was provided through the LISN. The impedance vs. frequency characteristic of the LISN is complied with the limit used.

Both lines (neutral and hot) were connected to the LISN in series at testing. A coaxial-type connector which provides one 50 ohms terminating impedance was provided for connecting the test instrument. The excess length of the power cord was folded back and forth at the center of the lead so as to form a bundle not exceeding 40cm in length.

Any changes made to the configuration, or modifications made to the EUT, during testing are noted in the following test record.

If the EUT is a Personal Computer or a peripheral of personal computer, and the personal computer has an auxiliary AC outlet which can be used for providing power to an external monitor, then all measurements will be made with the monitor power from first the computer-mounted AC outlet and then a floor-mounted AC outlet.

#### 4.1.2 Test Procedure

The system was set up as described above, with the EMI diagnostic software running. The main power line conducted EMI tests were run on the hot and neutral conductors of the power cord and the results were recorded. The effect of varying the position of the interface cables has been investigated to find the configuration that produces maximum emission.

At the frequencies where the peak values of the emissions were higher than 6dB below the applicable limits, the emissions were also measured with the quasi-peak detectors. At the frequencies where the quasi-peak values of the emissions were higher than 6dB below the applicable average limits, the emissions were also measured with the average detectors.

The highest emissions were analyzed in details by operating the spectrum analyzer in fixed tuned mode to determine the nature of the emissions and to provide information which could be useful in reducing their amplitude.

#### 4.1.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)

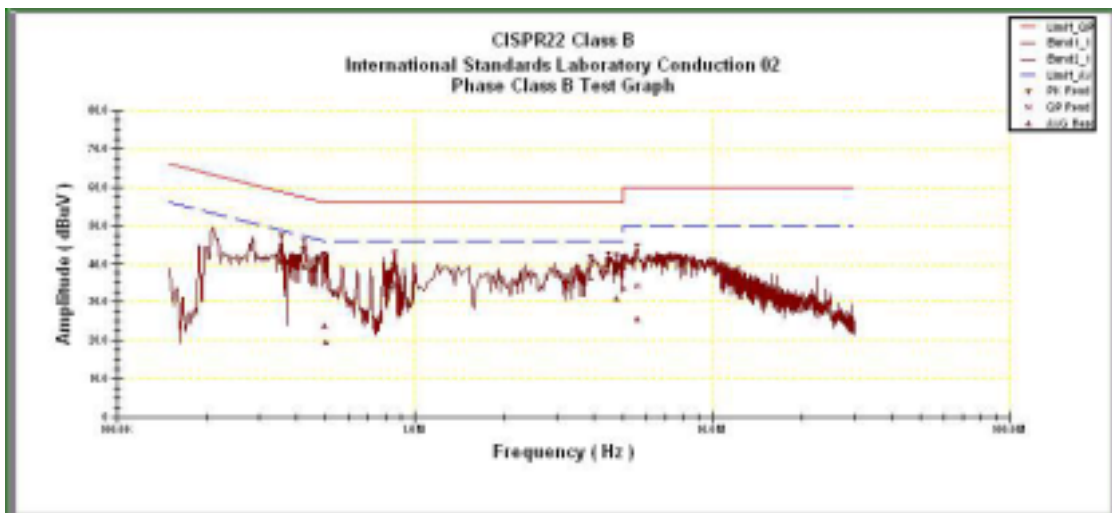
Frequency Range	150 KHz--30MHz
Detector Function	Quasi-Peak/Average
Bandwidth (RBW)	9KHz

4.1.4 Test Data:

Power Line Conducted Emissions (Hot) Channel 1, 6, 11

Operator: Jerry Chiou  
 Temperature(C): 26  
 Humidity(%): 55

Frequency	LISN Loss	Cable Loss	QPCorrt.	QPLimit	QPMargin	AVECorrt.	AVELimit	AVEMargin
MHz	(dB)	(dB)	Amp.(dBuV)	(dBuV)	(dB)	Amp.(dBuV)	(dBuV)	(dB)
0.35343	0.1	0.09	42.86	60.19	-17.33	40.72	50.19	-9.47
0.42355	0.1	0.08	43.86	58.18	-14.33	39.19	48.18	-8.99
0.49618	0.12	0.07	38.97	56.11	-17.14	23.79	46.11	-22.32
0.50048	0.12	0.07	39.32	56	-16.68	19.51	46	-26.49
0.85033	0.18	0.07	39.6	56	-16.4	34.51	46	-11.49
3.88988	0.2	0.14	39.94	56	-16.06	36.23	46	-9.77
4.45623	0.21	0.15	41.19	56	-14.81	37.99	46	-8.01
4.74201	0.21	0.15	37.85	56	-18.15	31.03	46	-14.97
5.01286	0.22	0.15	39.18	60	-20.82	33.68	50	-16.32
5.58685	0.23	0.16	34.31	60	-25.69	25.5	50	-24.5





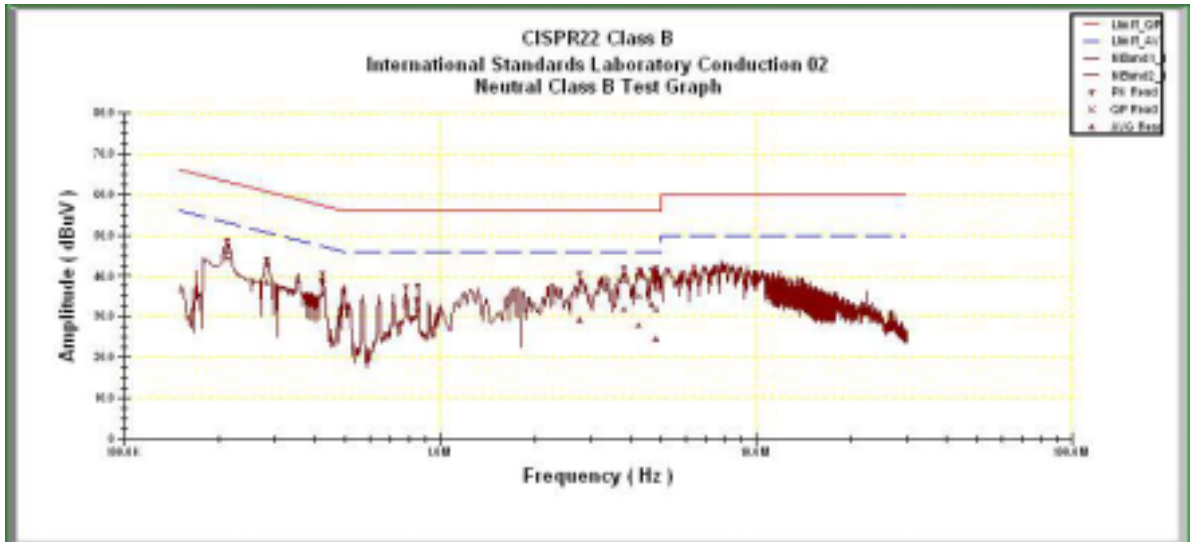
**Power Line Conducted Emissions (Neutral) Channel 1, 6, 11**

Operator: Jerry Chiou

Temperature(C): 26

Humidity(%): 55

Frequency	LISN Loss	Cable Loss	QPCorret.	QPLimit	QPMargin	AVECorret.	AVELimit	AVEMargin
MHz	(dB)	(dB)	Amp.(dBuV)	(dBuV)	(dB)	Amp.(dBuV)	(dBuV)	(dB)
0.21133	0.1	0.05	46.04	64.25	-18.21	44.37	54.25	-9.88
0.28201	0.1	0.09	42.55	62.23	-19.68	38.55	52.23	-13.68
0.4233	0.1	0.08	38.82	58.19	-19.38	35.6	48.19	-12.59
0.77805	0.16	0.07	33.8	56	-22.2	32.53	46	-13.47
0.84706	0.17	0.07	34.12	56	-21.88	31.89	46	-14.11
2.75855	0.2	0.11	36.24	56	-19.76	29.22	46	-16.78
3.8182	0.2	0.14	38.94	56	-17.06	31.78	46	-14.22
4.24136	0.2	0.14	35.02	56	-20.98	27.88	46	-18.12
4.66021	0.19	0.15	38.84	56	-17.16	33.11	46	-12.89
4.81368	0.19	0.15	31.7	56	-24.3	24.47	46	-21.53



\* NOTE: During the test, the EMI receiver was set to Max. Hold then switch the EUT Channel between 1, 6, 11 to get the maximum reading of all these channels.  
 Margin = Amplitude + Insertion Loss - Limit  
 A margin of -8dB means that the emission is 8dB below the limit

### 4.2 Bandwidth for DSSS [Section 15.247 (a)(2)]

#### 4.2.1 Test Procedure

The Transmitter output of EUT was connected to the spectrum analyzer. The 6 dB bandwidth of the fundamental frequency was measured. The setting of spectrum analyzer is as follows

Equipment mode	Spectrum analyzer
Detector function	Peak mode
RBW	100KHz
VBW	100KHz

#### 4.2.2 Test Setup



#### 4.2.3 Test Data:

##### 6dB Bandwidth

Test Engineer: Jerry Chiou

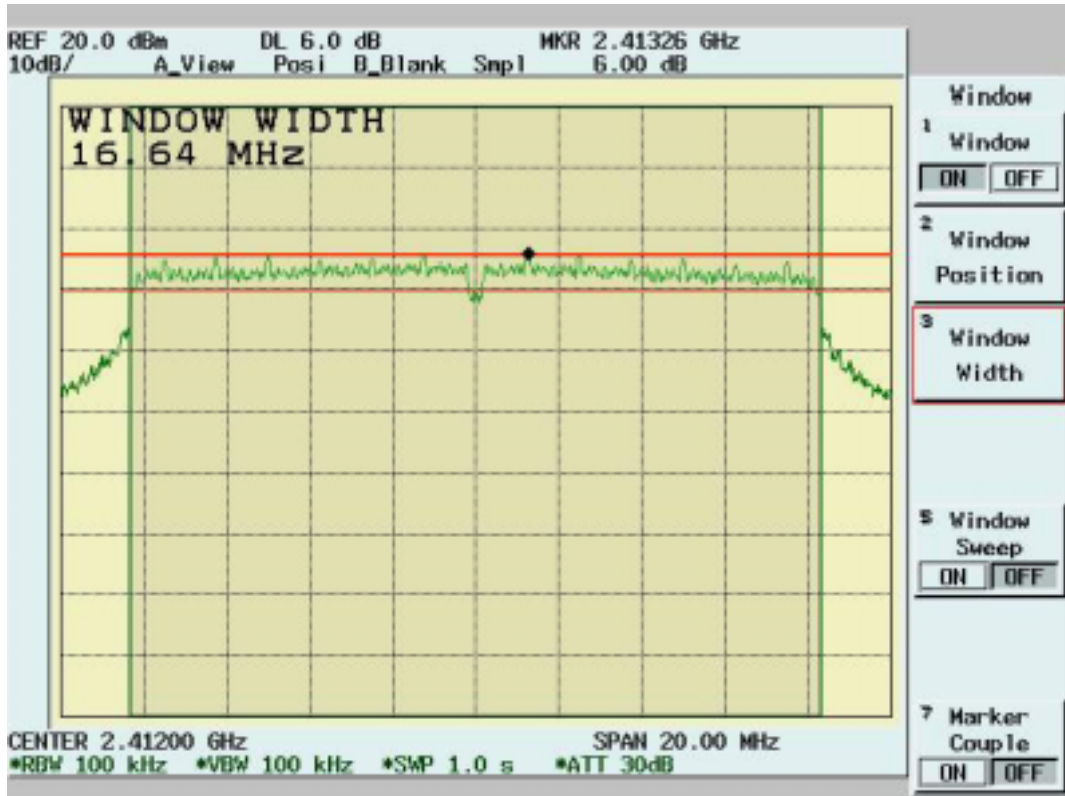
Temperature ( ): 27

Tx Data Rate=6Mbps

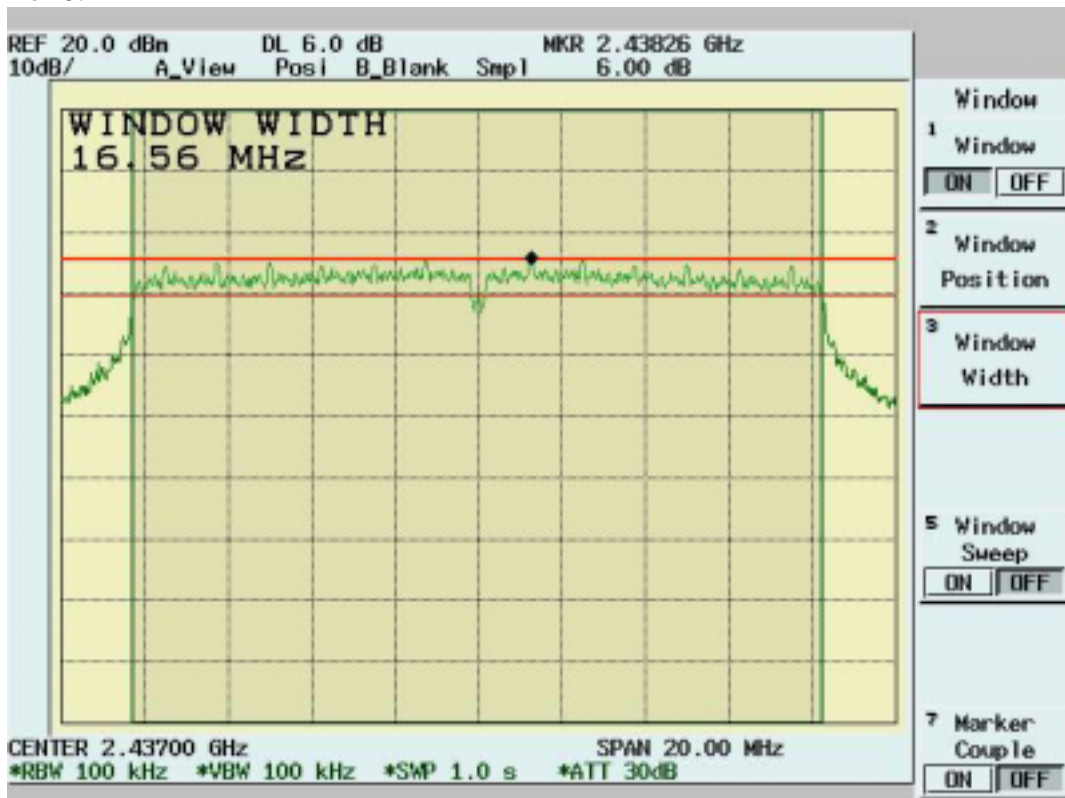
Humidity (%): 55

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Pass/Fail
1	2412	16.64	0.5	Pass
6	2437	16.56	0.5	Pass
11	2462	16.44	0.5	Pass

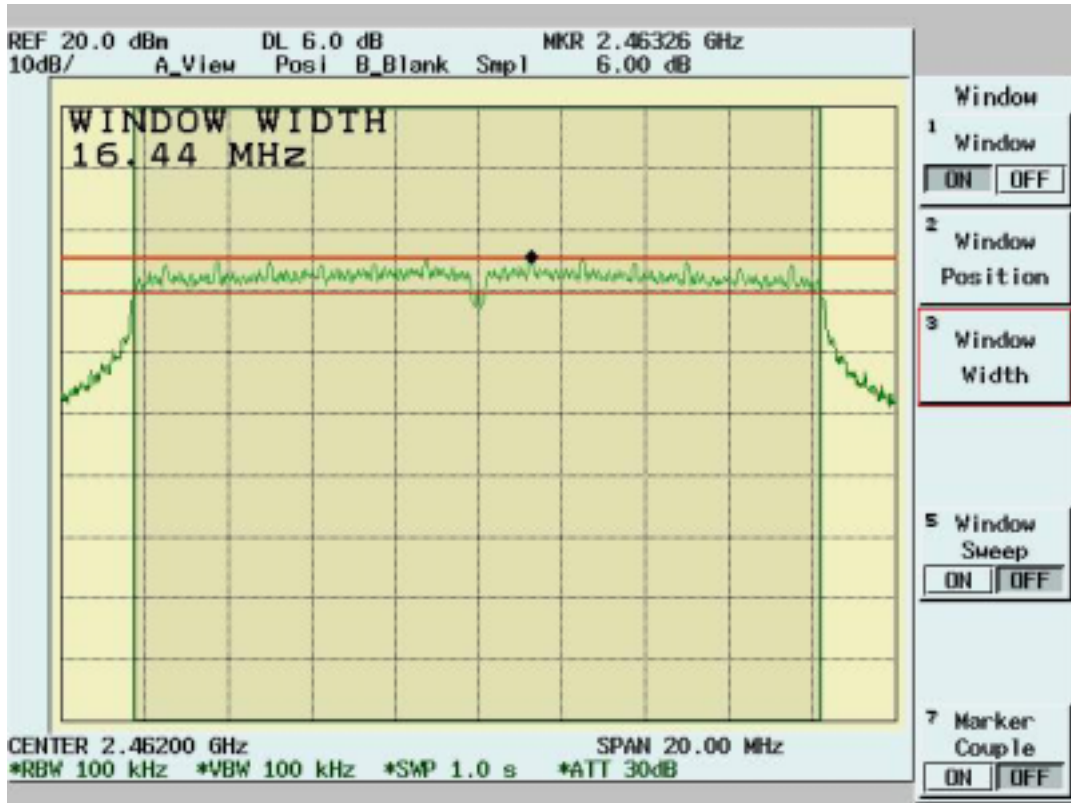
Channel 1:



Channel 6:



Channel 11:



### 4.3 DSSS Maximum Peak Output Power [Section 15.247 (b)(1)]

#### 4.3.1 Test Procedure

The Transmitter output of EUT was connected to the peak power analyzer.

#### 4.3.2 Test Setup



#### 4.3.3 Test Data

### Maximum Peak Output Power

Test Engineer: Jerry Chiou

Temperature ( ): 27

Tx Data Rate=6Mbps

Humidity (%): 55

Channel	Frequency (Mhz)	Analyzer Reading (dBm)	Cable Loss (dB)	Peak Power Output (mW)	Peak Power Output (dBm)	Limit (dBm)	Pass/Fail
1	2412	15.69	1.10	47.72	16.79	30	Pass
6	2437	15.75	1.10	48.41	16.85	30	Pass
11	2462	15.56	1.10	46.37	16.66	30	Pass

Note: Two RF output( MAIN & AUX) have been test,the worse data shown above.

#### 4.4 Radiated Emission Measurement [Section [15.247(c)(4)]

##### 4.4.1 EUT Configuration

The equipment under test was set up on the 10 meter chamber with measurement distance of 3 meters. The EUT was placed on a non-conductive table 80cm above ground.

Any changes made to the configuration, or modifications made to the EUT, during testing are noted in the following test record.

##### 4.4.2 Test Procedure

The system was set up as described above, with the EMI diagnostic software running. We found the maximum readings by varying the height of antenna and then rotating the turntable. Both polarization of antenna, horizontal and vertical, are measured.

30M to 1GHz: The highest emissions between 30 MHz to 1000 MHz were also analyzed in details by operating the spectrum analyzer and/or EMI receiver in quasi-peak mode to determine the precise amplitude of the emissions. While doing so, the interconnecting cables and major parts of the system were moved around, the antenna height was varied between one and four meters, its polarization was varied between vertical and horizontal, and the turntable was slowly rotated, to maximize the emission.

1GHz – 25GHz: The highest emissions were also analyzed in details by operating the spectrum analyzer and/or EMI receiver in peak mode to determine the precise amplitude of the emission. While doing so, the interconnecting cables and major parts of the system were moved around, the antenna height was varied between one and four meters, its polarization was varied between vertical and horizontal, and the turntable was slowly rotated, to maximize the emission. During test the EMI receiver and spectrum was setup according to *EMI Receiver/Spectrum Analyzer Configuration*.

For the test of 2<sup>nd</sup> to 10<sup>th</sup> harmonics frequencies , the equipment setup was also refer to *EMI Receiver/Spectrum Analyzer Configuration*. The frequencies were tested using Peak mode first, if the test data is higher than the emissions limit, an additional measurement using Average mode will be performed and the average reading will be compared to the limit and record in test report.

##### 4.4.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)

Frequency Range Tested:	30MHz~1000MHz
Detector Function:	Quasi-Peak Mode
Resolution Bandwidth (RBW):	120KHz
Video Bandwidth (VBW)	1MHz

Frequency Range Tested:	1GHz – 25 GHz
Detector Function:	Peak Mode
Resolution Bandwidth (RBW):	1MHz
Video Bandwidth (VBW)	3MHz

Frequency Range Tested:	1GHz – 25 GHz
Detector Function:	Average Mode
Resolution Bandwidth (RBW):	1MHz
Video Bandwidth (VBW)	10 Hz

**4.4.4 Test Data (30MHz – 1GHz):**

**30M – 1GHz Open Field Radiated Emissions (Horizontal) Channel 1, 6, 11**

Operator: JerryChiou  
 Temperature(C): 23  
 Humidity(%): 54

06:16:35PM, Friday, August 12, 2005

Frequency MHz	RxAmp. (dBuV)	AntFact (dB/m)	CableLoss (dB)	PreAmpGain (dB)	Corrct.Emi. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.Pos. (cm)	TablePos (deg)
332.64	14.82	16.10	3.95	0.00	34.87	46.00	-11.13	102.00	352.00
366.59	14.27	16.10	4.22	0.00	34.59	46.00	-11.41	102.00	336.00
466.5	9.09	16.60	4.96	0.00	30.65	46.00	-15.35	102.00	286.00
499.48	10.36	17.39	5.28	0.00	33.03	46.00	-12.97	196.00	303.00
599.39	7.96	18.70	5.85	0.00	32.51	46.00	-13.49	102.00	319.00
666.32	17.59	19.00	6.41	0.00	43.00	46.00	-3.00	102.00	319.00
733.25	9.52	19.80	6.89	0.00	36.20	46.00	-9.80	196.00	336.00
866.14	2.29	20.60	7.97	0.00	30.86	46.00	-15.14	196.00	336.00
999.03	11.20	21.30	8.84	0.00	41.34	54.00	-12.66	102.00	155.00

**30M – 1GHz Open Field Radiated Emissions (Vertical) Channel 1, 6, 11**

Operator: JerryChiou  
 Temperature(C): 23  
 Humidity(%): 54

06:16:35PM, Friday, August 12, 2005

Frequency MHz	RxAmp. (dBuV)	AntFact (dB/m)	CableLoss (dB)	PreAmpGain (dB)	Corrct.Emi. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.Pos. (cm)	TablePos (deg)
332.64	14.33	16.10	3.95	0.00	34.37	46.00	-11.63	102.00	352.00
366.59	14.03	16.10	4.22	0.00	34.35	46.00	-11.65	102.00	336.00
466.5	12.66	16.60	4.96	0.00	34.22	46.00	-11.78	102.00	286.00
480.08	10.14	16.92	5.07	0.00	32.13	46.00	-13.87	102.00	336.00
499.48	11.85	17.39	5.28	0.00	34.52	46.00	-11.48	196.00	303.00
599.39	10.34	18.70	5.85	0.00	34.89	46.00	-11.11	102.00	319.00
666.32	16.71	19.00	6.41	0.00	42.12	46.00	-3.88	102.00	319.00
733.25	10.76	19.80	6.89	0.00	37.45	46.00	-8.55	196.00	336.00
866.14	3.74	20.60	7.97	0.00	32.31	46.00	-13.69	196.00	336.00
999.03	11.77	21.30	8.84	0.00	41.91	54.00	-12.09	102.00	155.00

NOTE:

- During the Pre-test, the EUT has been tested for Channel 1, 6, 11 transmit from Main and Aux antenna respectively to get all the critical emission frequencies. In the final test all the critical emission frequencies has been tested and the test data are listed above.
- Margin = Corrected Amplitude – Limit  
 Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain  
 A margin of -8dB means that the emission is 8dB below the limit

**All frequencies from 30MHz to 1GHz have been tested**

4.4.5 Test Data ( 1GHz – 25 GHz) .

1GHz~ 25 GHz (Horizontal), Channel 1: 2412 MHz

Operator:JerryChiou

RBW:1MHz  
Humidity(%):41  
Temperature(C):27

Frequency MHz	Rx_R dBuV	Ant_F. dB/m	Cab_L. dB	PreAmpl dB	Emission dBuV/m	Limit dBuV/m	Margin dB	A.Tower cm	T.Table deg
1132.37	48.60pk	25.11	2.19	34.00	41.89pk	54.00av	-12.11	102	103
1332.17	50.68pk	26.03	2.21	34.11	44.81pk	54.00av	-9.19	101	89
2208.79	45.32pk	30.96	1.96	35.19	43.05pk	54.00av	-10.95	101	109
2246.25	45.78pk	30.95	1.85	35.19	43.39pk	54.00av	-10.61	101	120
2278.72	46.80pk	30.94	1.75	35.19	44.30pk	54.00av	-9.70	101	131
2291.21	46.72pk	30.94	1.71	35.19	44.18pk	54.00av	-9.82	101	134
2358.64	51.12pk	30.93	1.51	35.19	48.36pk	54.00av	-5.64	101	156
2510.99	52.27pk	30.90	1.36	35.19	49.34pk	54.00av	-4.66	102	203
2518.48	49.44pk	30.91	1.36	35.18	46.52pk	54.00av	-7.48	102	206
2610.89	47.26pk	30.94	1.38	35.10	44.48pk	54.00av	-9.52	102	235
2650.85	46.84pk	30.96	1.39	35.06	44.12pk	54.00av	-9.88	102	247
2678.32	44.42pk	30.97	1.39	35.04	41.75pk	54.00av	-12.25	102	256
2710.79	44.62pk	30.98	1.40	35.01	41.99pk	54.00av	-12.01	102	266
4822.65	45.85pk	34.93	2.12	37.71	45.19pk	54.00av	-8.81	100.00	341.00
9648.82	43.44pk	40.57	3.25	34.33	52.93pk	54.00av	-1.07	100.00	33.00



1GHz~ 25 GHz (Vertical), Channel 1: 2412 MHz

Operator:JerryChiou

RBW:1MHz  
Humidity(%):41  
Temperature(C):27

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1064.94	49.21pk	24.80	2.18	33.97	42.22pk	54.00av	-11.78	102	108
1299.7	47.59pk	25.88	2.21	34.09	41.59pk	54.00av	-12.41	101	91
2168.83	44.61pk	30.97	2.08	35.19	42.47pk	54.00av	-11.53	101	96
2208.79	47.54pk	30.96	1.96	35.19	45.27pk	54.00av	-8.73	101	109
2253.75	48.05pk	30.95	1.83	35.19	45.63pk	54.00av	-8.37	101	123
2278.72	47.63pk	30.94	1.75	35.19	45.13pk	54.00av	-8.87	101	131
2318.68	52.04pk	30.94	1.63	35.19	49.41pk	54.00av	-4.59	101	143
2491.01	49.10pk	30.90	1.41	35.20	46.21pk	54.00av	-7.79	101	197
2510.99	53.09pk	30.90	1.36	35.19	50.16pk	54.00av	-3.84	102	203
2538.46	49.62pk	30.92	1.37	35.17	46.73pk	54.00av	-7.27	102	212
2598.4	45.41pk	30.94	1.38	35.11	42.62pk	54.00av	-11.38	102	231
2610.89	46.79pk	30.94	1.38	35.10	44.01pk	54.00av	-9.99	102	235
2650.85	46.22pk	30.96	1.39	35.06	43.50pk	54.00av	-10.50	102	247
4822.53	46.29pk	34.93	2.12	37.71	45.62pk	54.00av	-8.38	100.00	21.00
9650.38	42.98pk	40.57	3.25	34.33	52.46pk	54.00av	-1.54	100.00	339.00

Note:

- According to the standards used, Where limits are specified by agencies for both average and peak (or quasi-peak) detection , if the peak (or quasi-peak) measured value complies with the average limit , it is unnecessary to perform an average measurement.
- “ \* ”: Fundamental Frequency
- “\*\*”: Not in the restricted band, Limit level=Fundamental Emission-20dB
- “ pk” : peak mode
- “ av” : average mode
- “---“: No meter reading data due to the emission level is smaller than spectrum noise level.
- The Spectrum noise level+Correction Factor < Limit - 6 dB
- Margin=Corrected Amplitude – Limit
- Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
- A margin of -8dB means that the emission is 8dB below the limit.

**All frequencies from 1GHz to 25 GHz have been tested.**

1GHz~ 25 GHz (Horizontal) , Channel 6 : 2437 MHz

Operator:JerryChiou

RBW:1MHz  
Humidity(%):41  
Temperature(C):27

Frequency MHz	Rx_R. dBuV	Ant_F. dB/m	Cab_L. dB	PreAmpl dB	Emission dBuV/m	Limit dBuV/m	Margin dB	A.Tower cm	T.Table deg
1264.74	47.70pk	25.72	2.20	34.07	41.54pk	54.00av	-12.46	101	94
1299.7	47.23pk	25.88	2.21	34.09	41.23pk	54.00av	-12.77	101	91
1332.17	50.75pk	26.03	2.21	34.11	44.88pk	54.00av	-9.12	101	89
1364.64	48.40pk	26.18	2.21	34.13	42.66pk	54.00av	-11.34	101	87
2196.3	43.47pk	30.96	2.00	35.19	41.24pk	54.00av	-12.76	101	105
2231.27	51.49pk	30.95	1.89	35.19	49.15pk	54.00av	-4.85	101	116
2278.72	50.71pk	30.94	1.75	35.19	48.21pk	54.00av	-5.79	101	131
2318.68	51.43pk	30.94	1.63	35.19	48.80pk	54.00av	-5.20	101	143
2518.48	51.14pk	30.91	1.36	35.18	48.23pk	54.00av	-5.77	102	206
2535.96	51.86pk	30.91	1.37	35.17	48.97pk	54.00av	-5.03	102	211
2598.4	49.23pk	30.94	1.38	35.11	46.44pk	54.00av	-7.56	102	231
2638.36	46.94pk	30.96	1.38	35.08	44.20pk	54.00av	-9.80	102	243
2678.32	44.21pk	30.97	1.39	35.04	41.53pk	54.00av	-12.47	102	256
4873.7	45.58pk	35.12	2.14	37.77	45.07pk	54.00av	-8.93	100.00	133.00
9749.27	43.49pk	40.35	3.30	34.37	52.77pk	54.00av	-1.23	100.00	343.00

1GHz~ 25 GHz (Vertical), Channel 6 : 2437 MHz

Operator:JerryChiou

RBW:1MHz  
Humidity(%):41  
Temperature(C):27

Frequency	Rx_R	Ant_F	Cab_L	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1132.37	47.68pk	25.11	2.19	34.00	40.97pk	54.00av	-13.03	102	103
1167.33	47.69pk	25.27	2.19	34.02	41.13pk	54.00av	-12.87	102	100
1299.7	46.59pk	25.88	2.21	34.09	40.59pk	54.00av	-13.41	101	91
2158.84	42.51pk	30.97	2.12	35.19	40.41pk	54.00av	-13.59	100	93
2201.3	45.03pk	30.96	1.99	35.19	42.79pk	54.00av	-11.21	101	106
2231.27	53.83pk	30.95	1.89	35.19	51.49pk	54.00av	-2.51	101	116
2278.72	53.17pk	30.94	1.75	35.19	50.67pk	54.00av	-3.33	101	131
2318.68	54.27pk	30.94	1.63	35.19	51.64pk	54.00av	-2.36	101	143
2518.48	52.41pk	30.91	1.36	35.18	49.50pk	54.00av	-4.50	102	206
2535.96	53.09pk	30.91	1.37	35.17	50.20pk	54.00av	-3.80	102	211
2598.4	49.59pk	30.94	1.38	35.11	46.79pk	54.00av	-7.21	102	231
2638.36	47.21pk	30.96	1.38	35.08	44.48pk	54.00av	-9.52	102	243
2738.26	44.74pk	31.00	1.40	34.99	42.15pk	54.00av	-11.85	102	275
4874	45.98pk	35.12	2.14	37.77	45.47pk	54.00av	-8.53	100.00	57.00
9748	43.12pk	40.35	3.30	34.37	52.40pk	54.00av	-1.60	100.00	158.00

Note:

- According to the standards used,Where limits are specified by agencies for both average and peak (or quasi-peak) detection , if the peak (or quasi-peak) measured value complies with the average limit , it is unnecessary to perform an average measurement.
- “ \* ”: Fundamental Frequency
- “\*\*”: Not in the restricted band, Limit level=Fundamental Emission-20dB
- “ pk ”: peak mode
- “ av ”: average mode
- “---“: No meter reading data due to the emission level is smaller than spectrum noise level.
- The Spectrum noise level+Correction Factor < Limit - 6 dB
- Margin=Corrected Amplitude – Limit
- Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
- A margin of -8dB means that the emission is 8dB below the limit.

**All frequencies from 1GHz to 25 GHz have been tested.**

1GHz~ 25 GHz (Horizontal), Channel 11: 2462 MHz

Operator:JerryChiou

RBW:1MHz  
Humidity(%):41  
Temperature(C):27

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1332.17	48.24pk	26.03	2.21	34.11	42.37pk	54.00av	-11.63	101	89
2226.27	44.17pk	30.95	1.91	35.19	41.85pk	54.00av	-12.15	101	114
2238.76	45.11pk	30.95	1.87	35.19	42.74pk	54.00av	-11.26	101	118
2256.24	51.25pk	30.95	1.82	35.19	48.83pk	54.00av	-5.17	101	123
2318.68	50.52pk	30.94	1.63	35.19	47.89pk	54.00av	-6.11	101	143
2386.11	52.08pk	30.92	1.42	35.20	49.23pk	54.00av	-4.77	101	164
2518.48	52.23pk	30.91	1.36	35.18	49.32pk	54.00av	-4.68	102	206
2563.44	48.35pk	30.93	1.37	35.14	45.51pk	54.00av	-8.49	102	220
2600.9	47.57pk	30.94	1.38	35.11	44.78pk	54.00av	-9.22	102	232
2618.38	46.68pk	30.95	1.38	35.09	43.91pk	54.00av	-10.09	102	237
2670.83	44.03pk	30.97	1.39	35.05	41.34pk	54.00av	-12.66	102	254
4924	44.48pk	35.31	2.15	37.83	44.12pk	54.00av	-9.88	100.00	358.00
9848	43.17pk	40.13	3.35	34.41	52.25pk	54.00av	-1.75	100.00	259.00

1GHz~ 25 GHz (Vertical), Channel 11 : 2462 MHz

Operator:JerryChiou

RBW:1MHz  
Humidity(%):41  
Temperature(C):27

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1132.37	46.66pk	25.11	2.19	34.00	39.96pk	54.00av	-14.04	102	103
1264.74	46.34pk	25.72	2.20	34.07	40.19pk	54.00av	-13.81	101	94
2151.35	44.60pk	30.97	2.14	35.19	42.52pk	54.00av	-11.48	100	91
2223.78	46.28pk	30.96	1.92	35.19	43.96pk	54.00av	-10.04	101	113
2238.76	47.70pk	30.95	1.87	35.19	45.34pk	54.00av	-8.66	101	118
2256.24	53.64pk	30.95	1.82	35.19	51.22pk	54.00av	-2.78	101	123
2318.68	53.41pk	30.94	1.63	35.19	50.79pk	54.00av	-3.21	101	143
2386.11	54.22pk	30.92	1.42	35.20	51.37pk	54.00av	-2.63	101	164
2518.48	51.17pk	30.91	1.36	35.18	48.26pk	54.00av	-5.74	102	206
2540.96	47.73pk	30.92	1.37	35.16	44.85pk	54.00av	-9.15	102	213
2560.94	50.10pk	30.92	1.37	35.15	47.25pk	54.00av	-6.75	102	219
2618.38	47.52pk	30.95	1.38	35.09	44.75pk	54.00av	-9.25	102	237
4924	45.38pk	35.31	2.15	37.83	45.02pk	54.00av	-8.98	100.00	318.00
9848	42.94pk	40.13	3.35	34.41	52.02pk	54.00av	-1.98	100.00	283.00

Note:

- According to the standards used, Where limits are specified by agencies for both average and peak (or quasi-peak) detection , if the peak (or quasi-peak) measured value complies with the average limit , it is unnecessary to perform an average measurement.
- “ \* ”: Fundamental Frequency
- “\*\*\*”: Not in the restricted band, Limit level=Fundamental Emission-20dB
- “ pk” : peak mode
- “ av” : average mode
- “ --- “: No meter reading data due to the emission level is smaller than spectrum noise level.
- The Spectrum noise level+Correction Factor < Limit - 6 dB
- Margin=Corrected Amplitude – Limit
- Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
- A margin of -8dB means that the emission is 8dB below the limit.

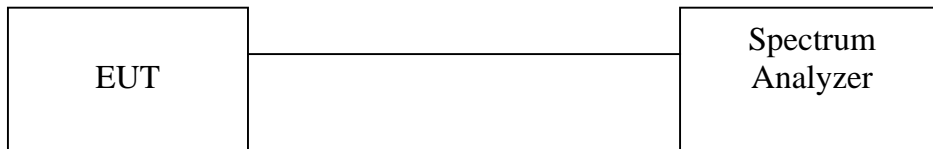
**All frequencies from 1GHz to 25 GHz have been tested.**

### 4.5 Band Edge Measurement

#### 4.5.1 Test Procedure (Conducted)

1. The transmitter output of EUT was connected to the spectrum analyzer.  
 Equipment mode: Spectrum analyzer  
 Detector function: Peak mode  
 SPAN: 100MHz  
 RBW: 100KHz  
 VBW: 100KHz  
 Center frequency: 2.4GHz, 2.4835GHz.
2. Using Peak Search to read the peak power of Carrier frequencies after Maximum Hold function is completed
3. Find the next peak frequency outside the operation frequency band

#### 4.5.2 Test Setup (Conducted)



#### 4.5.3 Test Data:

**Table: Band Edge measurement (Conducted)**

Test Engineer: Jerry Chiou

Temperature ( ): 27

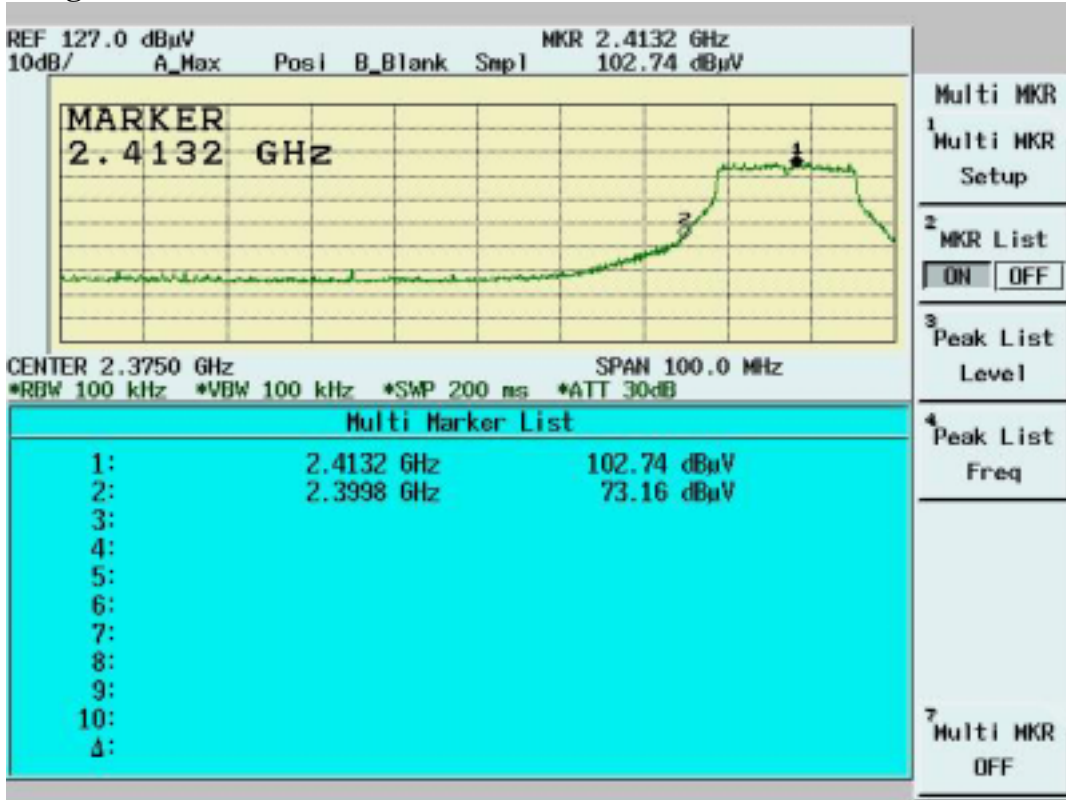
Tx Data Rate=6Mbps

Humidity (%): 55

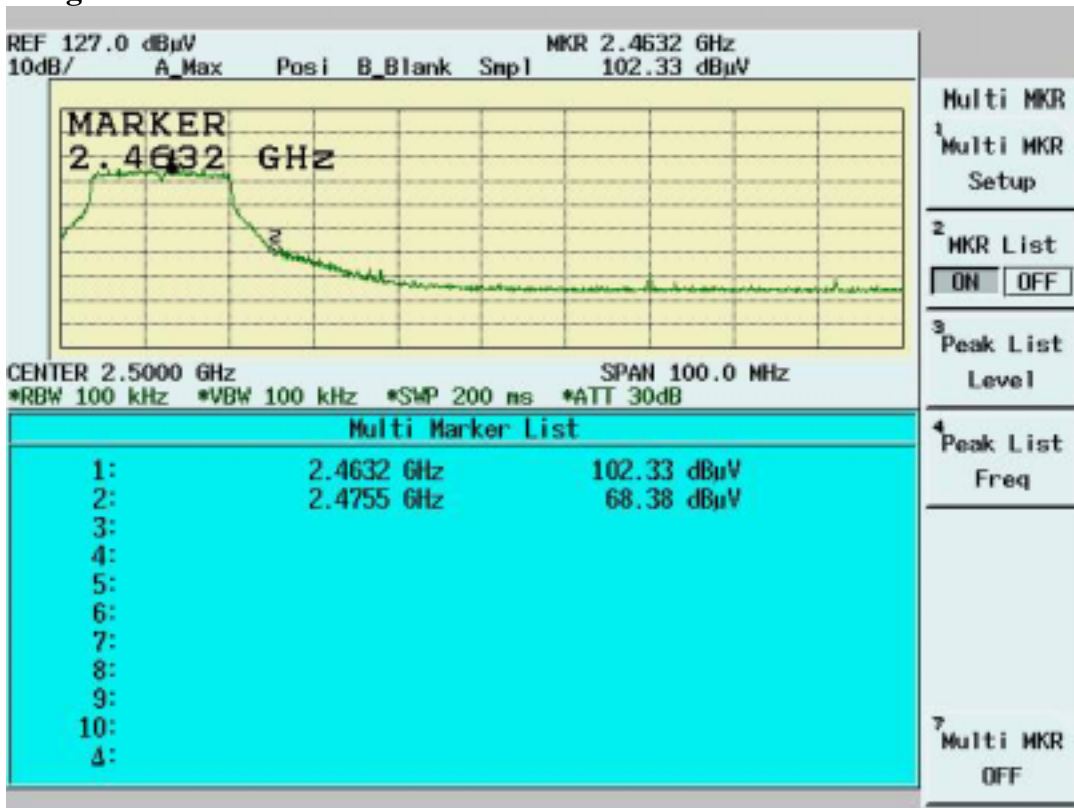
Channel	Frequency (MHz)	Spectrum Reading (dBuV)	Carrier - Outsideband Limit: >20dB (dB)	Pass/Fail
1	2413.2	102.73	---	---
Outside band	2399.8	73.16	29.57	Pass
11	2463.2	102.33	---	---
Outside band	2475.5	68.38	33.95	Pass

Note: Two RF output( MAIN & AUX) have been test,the worse data shown above.

Band Edge Conducted measurement



Band Edge Conducted Measurement



#### 4.5.4 Test Procedure (Radiated)

1. Antenna and Turntable test procedure same as Radiated Emission Measurement.  
Equipment mode: Spectrum analyzer  
Detector function: Peak mode  
SPAN: 100MHz  
RBW: 1MHz  
VBW: 3MHz  
Center frequency: 2.395GHz, 2.48GHz.
2. Using Peak Search to read the peak power of Carrier frequencies after Maximum Hold function is completed.
3. Find the next peak frequency outside the operation frequency band
4. For peak frequency emission level measurement in Restricted Band ,  
Change RBW: 1MHz  
VBW: 10Hz  
Span: 100MHz.
5. Get the spectrum reading after Maximum Hold function is completed.

#### 4.5.5 Test Setup (Radiated)

Same as *Radiated Emission Measurement*



4.5.6 Test Data

Table Band Edge measurement (Radiated)

Test Engineer: Jerry Chiou

Temperature ( ): 26

Tx Data Rate=6Mbps

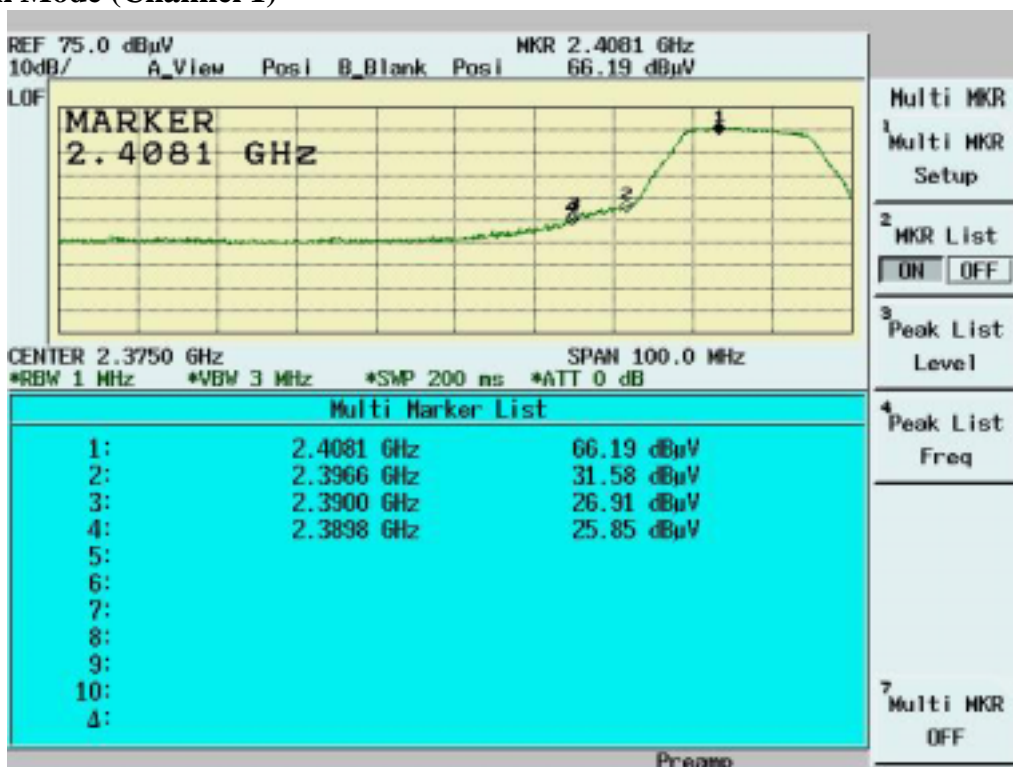
Humidity (%): 43

Description	Frequency (MHz)	Spectrum Reading (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	dBc ( Limit: > 20dBc)	Limit (dBuV/m)	Equip. Setup VBW	Pass or Fail
Channel_1 (average mode)	2410.3	51.52	35.48	87.00	---	---	10Hz	---
Channel_1 (peak mode)	2408.1	66.19	35.48	101.67	---	---	3MHz	---
Outside band (peak mode)	2396.6	31.58	35.48	67.06	34.61	---	3MHz	Pass
Channel_11 (average mode)	2460.5	50.27	35.50	85.77	---	---	10Hz	---
Channel_11 (peak mode)	2464.7	64.23	35.50	99.73	---	---	3MHz	---
Outside band (peak mode)	2475.7	34.43	35.51	69.94	29.79	---	3MHz	Pass
Channel_1 Restricted band (peak mode)	2389.8	25.85	35.47	61.32	---	74	3MHz	Pass
Restricted band (average mode)	2390.0	7.88	35.47	43.35	---	54	10Hz	Pass
Channel_11 Restricted band (peak mode)	2483.7	27.04	35.51	62.55	---	74	3MHz	Pass
Restricted band (average mode)	2483.5	8.96	35.51	44.47	---	54	10Hz	Pass

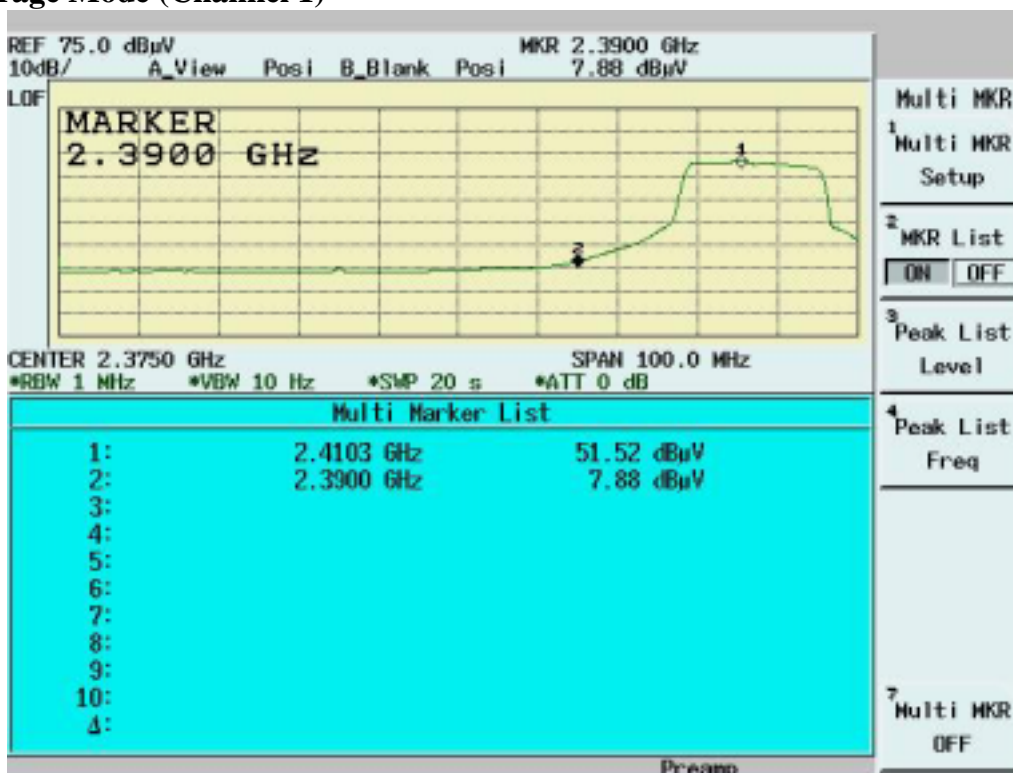
Note:

- The Spectrum plot of emission level measurement in Restricted band is attached.
- Emission Level=Spectrum Reading+Correction Factor
- Correction Factor=Antenna Factor+cable loss–amplifier gain
- Both Horizontal and Vertical polarizaion have been tested and the worst data is listed above.

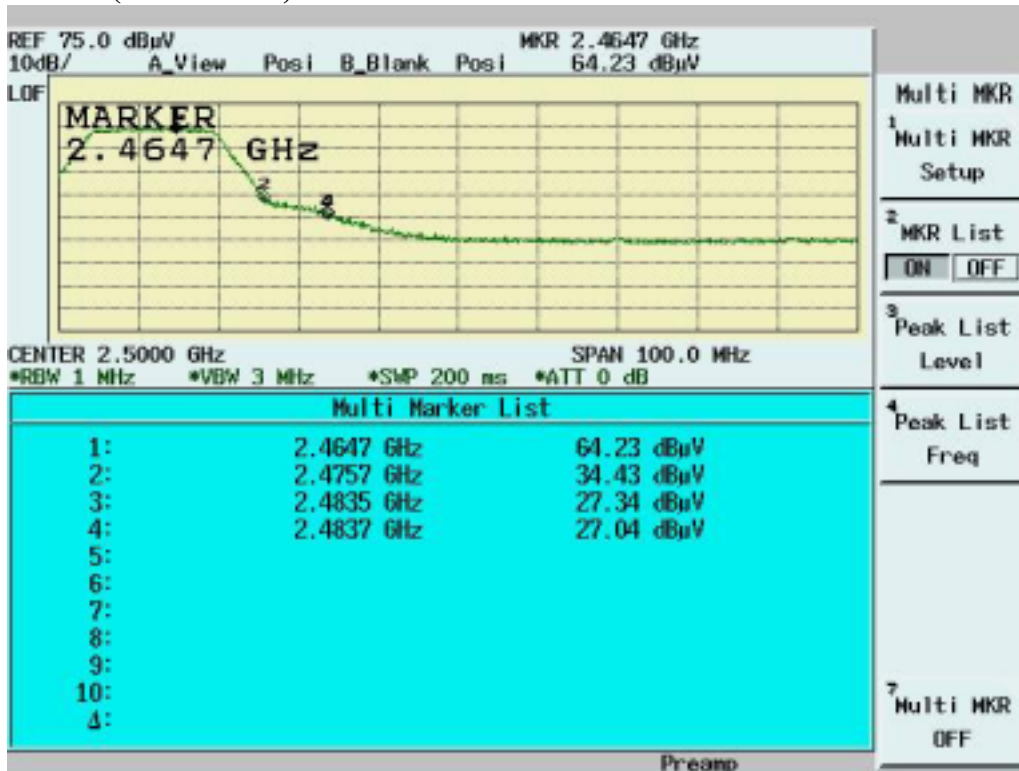
**Band Edge measurement for radiated emission in Restricted Band(Radiated) Peak Mode (Channel 1)**



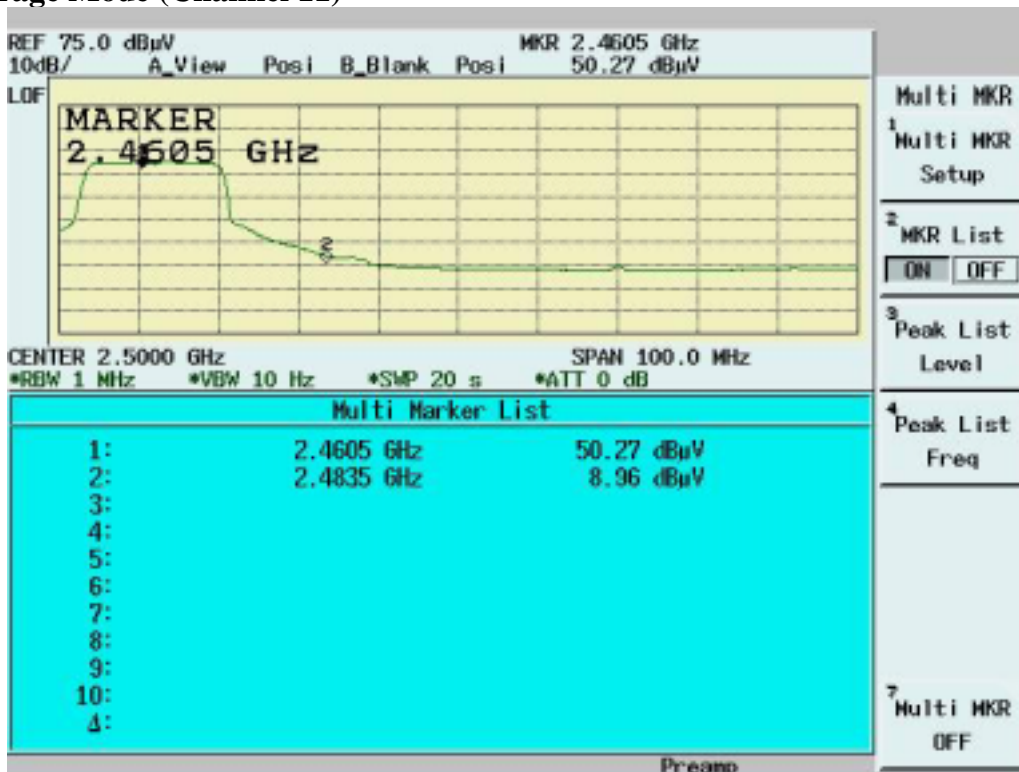
**Band Edge measurement for radiated emission in Restricted Band(Radiated) Average Mode (Channel 1)**



**Band Edge measurement for radiated emission in Restricted Band(Radiated) Peak Mode (Channel 11)**



**Band Edge measurement for radiated emission in Restricted Band(Radiated) Average Mode (Channel 11)**



#### 4.6 RF Exposure Measurement [Section 15.247(b)(4) & 1.1307(b)]

See MPE report

### 4.7 DSSS Peak Power Spectral Density [Section 15.247(d) ]

#### 4.7.1 Test Procedure

1. The Transmitter output of EUT was connected to the spectrum analyzer.  
 Equipment mode: Spectrum analyzer  
 Detector function: Peak mode  
 SPAN:1.5MHz  
 RBW: 3KHz  
 VBW: 30KHz  
 Center frequency: fundamental frequency tested.  
 Sweep time= 500 sec.
2. Using Peak Search to read the peak power after Maximum Hold function is completed.

#### 4.7.2 Test Setup



#### 4.7.3 Test Data

##### Maximum Peak Output Power Density

Test Engineer:Jerry  
Chiou

Temperature ( ):27

Tx Data Rate=6Mbps

Humidity (%):55

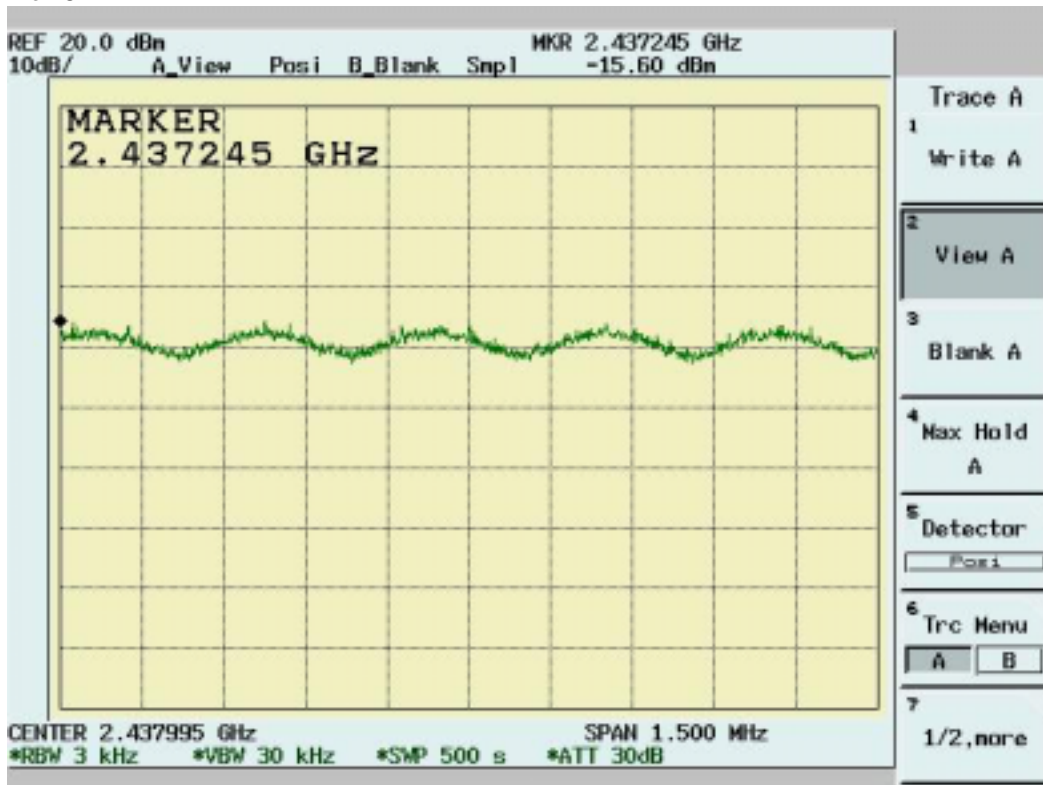
Channel	Frequency (MHz)	Spectrum Reading (dBm/3KHz)	Cable Loss (dB)	Peak Power Output (dBm/3KHz)	Limit (dBm/3KHz)	Pass/Fail
1	2412	-15.23	1.10	-14.13	8	Pass
6	2437	-15.60	1.10	-14.50	8	Pass
11	2462	-15.97	1.10	-14.87	8	Pass

Note: Two RF output( MAIN & AUX) have been test,the worse data shown above.

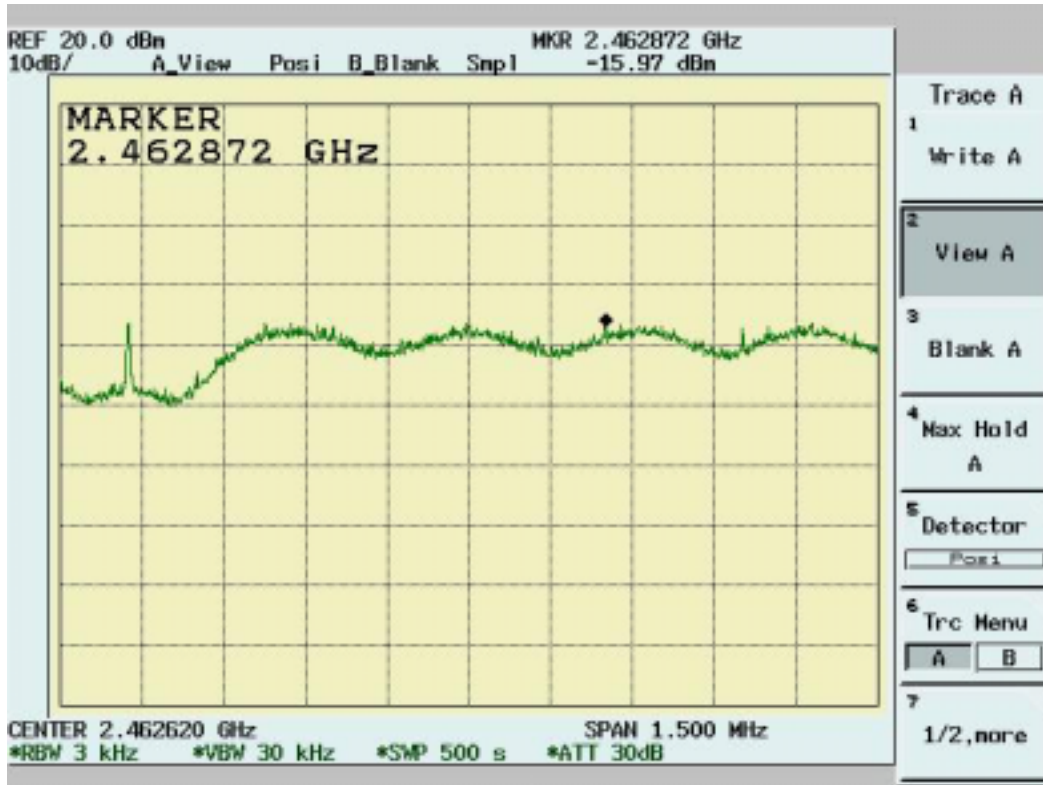
Channel 1



Channel 6



Channel 11



## 5. TEST RESULTS (Bluetooth)

### 5.1 Powerline Conducted Emissions

#### 5.1.1 EUT Configuration

The EUT was set up on the non-conductive table that is 1.0 by 1.5 meter, 80cm above ground. The wall of the shielded room was located 40cm to the rear of the EUT.

Power to the EUT was provided through the LISN. The impedance vs. frequency characteristic of the LISN is complied with the limit used.

Both lines (neutral and hot) were connected to the LISN in series at testing. A coaxial-type connector which provides one 50 ohms terminating impedance was provided for connecting the test instrument. The excess length of the power cord was folded back and forth at the center of the lead so as to form a bundle not exceeding 40cm in length.

Any changes made to the configuration, or modifications made to the EUT, during testing are noted in the following test record.

If the EUT is a Personal Computer or a peripheral of personal computer, and the personal computer has an auxiliary AC outlet which can be used for providing power to an external monitor, then all measurements will be made with the monitor power from first the computer-mounted AC outlet and then a floor-mounted AC outlet.

#### 5.1.2 Test Procedure

The system was set up as described above, with the EMI diagnostic software running. The main power line conducted EMI tests were run on the hot and neutral conductors of the power cord and the results were recorded. The effect of varying the position of the interface cables has been investigated to find the configuration that produces maximum emission.

At the frequencies where the peak values of the emissions were higher than 6dB below the applicable limits, the emissions were also measured with the quasi-peak detectors. At the frequencies where the quasi-peak values of the emissions were higher than 6dB below the applicable average limits, the emissions were also measured with the average detectors.

The highest emissions were analyzed in details by operating the spectrum analyzer in fixed tuned mode to determine the nature of the emissions and to provide information which could be useful in reducing their amplitude.

#### 5.1.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)

Frequency Range	150 KHz--30MHz
Detector Function	Quasi-Peak/Average
Bandwidth (RBW)	9KHz

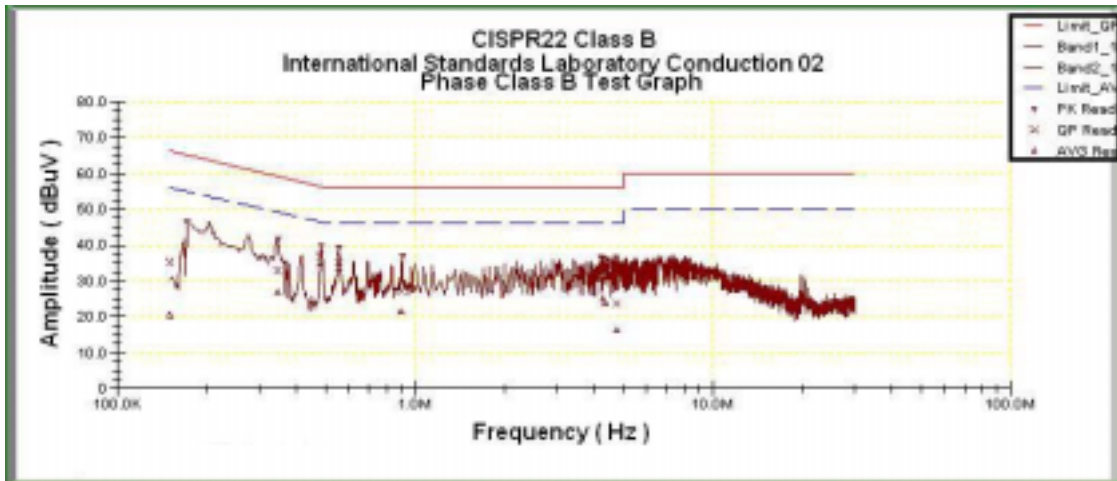


5.1.4 Test Data:

Power Line Conducted Emissions (Hot) Channel 00, 39, 78

Operator: Jerry Chiou  
 Temperature(C): 26  
 Humidity(%): 60

Frequency	LISN Loss	Cable Loss	QPCorrt.	QPLimit	QPMargin	AVECorrt.	AVELimit	AVEMargin
MHz	(dB)	(dB)	Amp.(dBuV)	(dBuV)	(dB)	Amp.(dBuV)	(dBuV)	(dB)
0.15022	0.1	0.02	35.24	65.99	-30.75	20.41	55.99	-35.58
0.34673	0.1	0.09	32.85	60.38	-27.53	26.98	50.38	-23.4
0.4813	0.11	0.07	36.81	56.53	-19.73	34.8	46.53	-11.74
0.5531	0.13	0.07	35.05	56	-20.95	33.65	46	-12.35
0.89823	0.18	0.07	27.15	56	-28.85	21.57	46	-24.43
4.2078	0.2	0.14	33.63	56	-22.37	31.14	46	-14.86
4.27354	0.2	0.14	30.81	56	-25.19	24.85	46	-21.15
4.34552	0.21	0.14	29.59	56	-26.41	23.63	46	-22.37
4.4831	0.21	0.15	34.47	56	-21.53	32.67	46	-13.33
4.74552	0.21	0.15	23.65	56	-32.35	16.17	46	-29.83



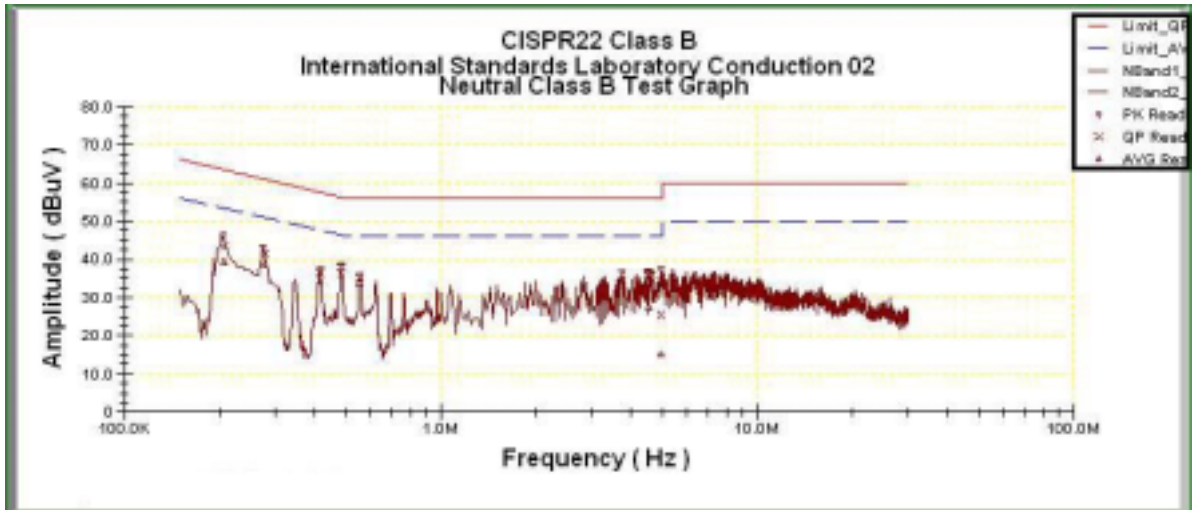
Power Line Conducted Emissions (Neutral) Channel 00, 39, 78

Operator: Jerry Chiou

Temperature(C): 26

Humidity(%): 60

Frequency	LISN Loss	Cable Loss	QPCorret.	QPLimit	QPMargin	AVECorret.	AVELimit	AVEMargin
MHz	(dB)	(dB)	Amp.(dBuV)	(dBuV)	(dB)	Amp.(dBuV)	(dBuV)	(dB)
0.20623	0.1	0.05	43.38	64.39	-21.01	39.31	54.39	-15.08
0.27798	0.1	0.09	41.38	62.34	-20.97	38.85	52.34	-13.49
0.41473	0.1	0.08	36.42	58.44	-22.02	34.1	48.44	-14.34
0.48313	0.11	0.07	37.83	56.48	-18.66	35.81	46.48	-10.68
0.55308	0.13	0.07	35.27	56	-20.73	33.84	46	-12.16
3.72716	0.2	0.13	34.35	56	-21.65	33.13	46	-12.87
4.48797	0.2	0.15	35.67	56	-20.33	34.06	46	-11.94
4.55769	0.19	0.15	34.67	56	-21.33	27.52	46	-18.48
4.62914	0.19	0.15	34.06	56	-21.94	32.22	46	-13.78
4.93977	0.19	0.15	25.41	56	-30.59	15.08	46	-30.92



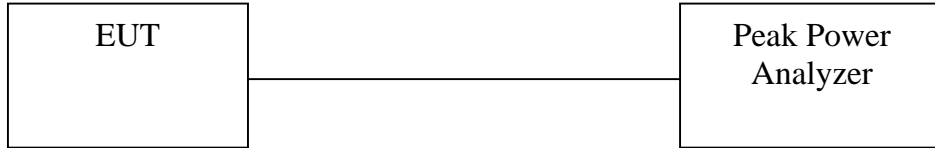
\* NOTE: During the test, the EMI receiver was set to Max. Hold then switch the EUT Channel between 00, 39, 78 to get the maximum reading of all these channels.  
 Margin = Amplitude + Insertion Loss- Limit  
 A margin of -8dB means that the emission is 8dB below the limit

### 5.2 FHSS Maximum Peak Output Power

#### 5.2.1 Test Procedure

The Transmitter output of EUT was connected to the peak power analyzer.

#### 5.2.2 Test Setup



#### 5.2.3 Test Data

### Maximum Peak Output Power

Temperature ( ):25

Test Engineer:Jerry Chiou

Humidity (%):55

Channel	Frequency (Mhz)	Analyzer Reading (dBm)	Cable Loss (dB)	Peak Power Output (mW)	Peak Power Output (dBm)	Limit (dBm)	Pass/Fail
00	2412	3.55	1.10	2.92	4.65	30	Pass
39	2437	2.97	1.10	2.55	4.07	30	Pass
78	2462	2.69	1.10	2.39	3.79	30	Pass

