

TEST REPORT

of

FCC Part 15 Subpart B & C

<Class II Permissive Change>

Product : 802.11 bg Wireless Mini Card

Model(s): VNT6656GEV00

Brand: VIA

Applicant: VIA Technologies, Inc.

**Address: 8F,533,Chung-Cheng Road,
Hsin-Tien,Taipei 231,
Taiwan, R. O. C.**

Test Performed by:

International Standards Laboratory

<Lung-Tan LAB>

*Site Registration No.

BSMI: SL2-IN-E-0013; TAF: 0997; NVLAP: 200234-0; IC: IC4164-1;
VCCI: R-1435, C-1440, T-299, R-2598, C-2845; NEMKO: ELA 113B

*Address:

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Report No.: **ISL-07LR031FC**

Issue Date : **2008/02/04**

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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

Equipment Tested: 802.11 BG Wireless Module

Model: VNT6656GEV00

Applied by: VIA Technologies, Inc.

Sample received Date: 2007/11/08

Final test Date : 2007/11/09-2007/11/23

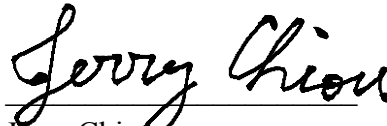
Test Result PASS

Test Site: Chamber 02, Conduction 02

Temperature Refer to each site test data

Humidity: Refer to each site test data

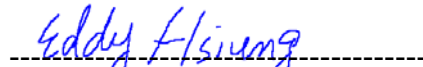
Test Engineer:


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 67 pages, including 1 cover page, 2 contents page, and 64 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	

3. Description of Equipment Under Test (EUT)

Description: 802.11 BG Wireless Module
 Model No.: VNT6656GEV00
 Brand: VIA
 Frequency Range 802.11b/g: 2400~2483.5 MHz
 Support channel:
 802.11b/g 11 Channels

Modulation Skill:
 802.11b DBPSK(1Mbps), DQPSK(2Mbps),
 CCK(5.5/11Mbps)
 802.11g OFDM (6M - 54Mbps)

Antenna List:

No.	Manufacturer	Model or P/N	Type	Connector	Length	Max. Gain	New
1	FAVORTRON CO., LTD	6-23-7M59K-021	PIFA	IPX-MHF	576mm±3mm	-0.01dBi (2.4GHz)	No
2	FAVORTRON CO., LTD	6-23-7M59K-011	PIFA	IPX-MHF	896mm±3mm	-0.97dBi (2.4GHz)	No
3	VSO ELECTRIC CO., LTD	13-130-F14911	PIFA	IPX-MHF	383mm±2mm	-4.4dBi (2.4GHz)	No
4	VSO ELECTRIC CO., LTD	13-130-F14931	PIFA	IPX-MHF	398mm±3mm	-4.4dBi (2.4GHz)	No
5	VSO ELECTRIC CO., LTD	13-130-F53021	PIFA	IPX-MHF	Black 860±3mm	-6.03dBi (2.4GHz)	No
					Grey 1065±3mm	-3.37dBi (2.4GHz)	
6	VSO ELECTRIC CO., LTD	13-130-F62011	PIFA	IPX-MHF	543mm±5mm	-0.22dBi (2.4GHz)	No
7	VSO ELECTRIC CO., LTD	13-130-F62021	PIFA	IPX-MHF	688.5mm±5mm	-0.22dBi (2.4GHz)	No
8	VSO ELECTRIC CO., LTD	14-211-F66021	PIFA	IPX-MHF	550mm±5mm	-0.31dBi (2.4GHz)	No
9	VSO ELECTRIC CO., LTD	14-211-F66041	PIFA	IPX-MHF	570mm±5mm	-1.55dBi (2.4GHz)	No
10	FAVORTRON CO., LTD	K05008004451	PIFA	IPX-MHF	750mm±2mm	0.79dBi (2.4GHz)	No
11	FAVORTRON CO., LTD	K05008004351	PIFA	IPX-MHF	530mm±2mm	-0.80dBi (2.4GHz)	No
12	FAVORTRON CO., LTD	K05008003651	PIFA	IPX-MHF	820mm±2mm	0.74dBi (2.4GHz)	No
13	FAVORTRON CO., LTD	K05008003751	PIFA	IPX-MHF	570mm±2mm	0.18dBi (2.4GHz)	No
14	FAVORTRON CO., LTD	K05004002251	PIFA	IPX-MHF	Black 500±3mm	2.80dBi (2.4GHz)	No
					Grey 710±3mm	1.68dBi (2.4GHz)	

No.	Manufacturer	Model or P/N	Type	Connector	Length	Max. Gain	New
15	FAVORTRON CO., LTD	K05004002351	PIFA	IPX-MHF	Black 525±3mm	0.93dBi (2.4GHz)	No
					Grey 843±3mm	1.26dBi (2.4GHz)	
16	Hon Hai Precision Industry Co.,Ltd (Brand:FOXCONN)	WDAN-U1L41001-DF	PIFA	IPX-MHF	Black 745±3mm	-1.38dBi (2.4GHz)	No
					Grey 530±3mm	0dBi (2.4GHz)	
17	Hon Hai Precision Industry Co.,Ltd (Brand:FOXCONN)	WDAN-U1L51002-DF	PIFA	IPX-MHF	Black 820±3mm	-1.99dBi (2.4GHz)	No
					Grey 570±3mm	-1.4dBi (2.4GHz)	
18	Well Green Technology Co., Ltd	H12V-R	PIFA	IPX-MHF	Black 533±3mm	0.03dBi (2.4GHz)	Yes
		H12V-L			Brown 653±3mm	-0.42dBi (2.4GHz)	
19	Well Green Technology Co., Ltd	S14Y-R	PIFA	IPX-MHF	Black 315±3mm	-1.13dBi (2.4GHz)	Yes
		S14Y-L			Grey 505±3mm	-4.29dBi (2.4GHz)	
20	Tyco Electronics	S-37	PIFA	IPX-MHF	400mm±3mm	0.61dBi (2.4GHz)	Yes
21	FAVORTRON CO., LTD	M73XT	PIFA	IPX-MHF	Black 585±3mm	-1.47dBi (2.4GHz)	Yes
					Grey 500±3mm	0.42dBi (2.4GHz)	
22	FAVORTRON CO., LTD	M76XT	PIFA	IPX-MHF	Black 650±3mm	2.01dBi (2.4GHz)	Yes
					Grey 385±3mm	-2.39dBi (2.4GHz)	
23	FAVORTRON CO., LTD	6-23-7M54S-010	PIFA	IPX-MHF	Black 545±3mm	-0.23dBi (2.4GHz)	Yes
		6-23-7M54S-020			Grey 440±3mm	0.15dBi (2.4GHz)	

Antenna Connected: The antenna is connected to the RF connector of the WLAN adapter.

WLAN Power Type : 3.3V DC from the EUT

The channel and the operation frequency of 802.11b and 802.11g is listed below:

Channel	Frequency(MHz)	Channel	Frequency (MHz)
01	2412	07	2442
02	2417	08	2447
03	2422	09	2452
04	2427	10	2457
05	2432	11	2462
06	2437		

During the test, the EUT was tested as a modular device of a notebook PC using a USB extender board to extend the EUT outside the notebook PC enclosure.

The reason of change on this application is the EUT was added 6 new antennas. and modified some circuits and component under no influence on radio frequency characteristic

There are 23 PIFA antennas in the EUT:

The antenna 1~17 has already been tested in the original application. Please refer to ISL report-07LR001FC. The antenna 18~23 are newly-increased.

All of antennas have been tested. Only the worst data as following configuration is listed in this test report:

VNT6656GEV00	PIFA Antenna
802.11b/g	Antenna 14

4. TEST RESULTS

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

4.1.4 802.11b Test Data:

802.11b Power Line Conducted Emissions (Hot) Channel 1, 6, 11

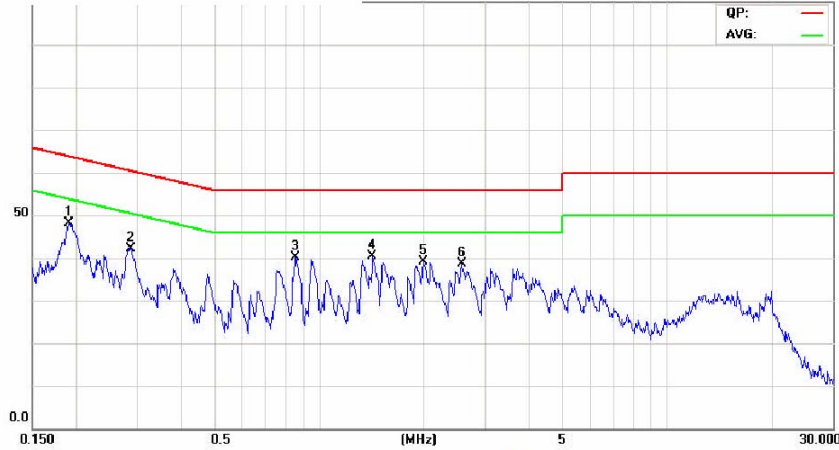


Address: No.120, Lane 180, San Ho Tsuen, Hsin Ho Road, Lung-Tan Hsiang,
Tao Yuan Conty, Taiwan R.O.C.
Tel: 03-4071718

Conducted Emission Measurement

operator: Jerry
Temperature: 26 °C
Humidity: 54 %

Date: 2007/11/9
Time: PM 06:21:54



Site: Conduction 02

Phase: L1

Limit: CISPR22 Class B Conduction(QP)

Power:

Frequency MHz	LISN Loss dB	Cable Loss dB	QP Correct. dBuV	QP Limit dBuV	QP Margin dB	AVG Correct. dBuV	AVG Limit dBuV	AVG Margin dB	Note
0.1914	0.1	0.04	45.90	63.9	-18.0	36.70	53.9	-17.2	
0.2878	0.14	0.09	42.50	60.5	-18.0	36.40	50.5	-14.1	
0.8573	0.2	0.07	38.50	56.0	-17.5	33.60	46.0	-12.4	
* 1.4256	0.2	0.08	39.00	56.0	-17.0	33.80	46.0	-12.2	
1.9906	0.2	0.09	38.20	56.0	-17.8	31.70	46.0	-14.3	
2.5671	0.26	0.1	35.20	56.0	-20.8	28.10	46.0	-17.9	

*: Maximum data x: Over limit

802.11b Power Line Conducted Emissions (Neutral) Channel 1, 6, 11

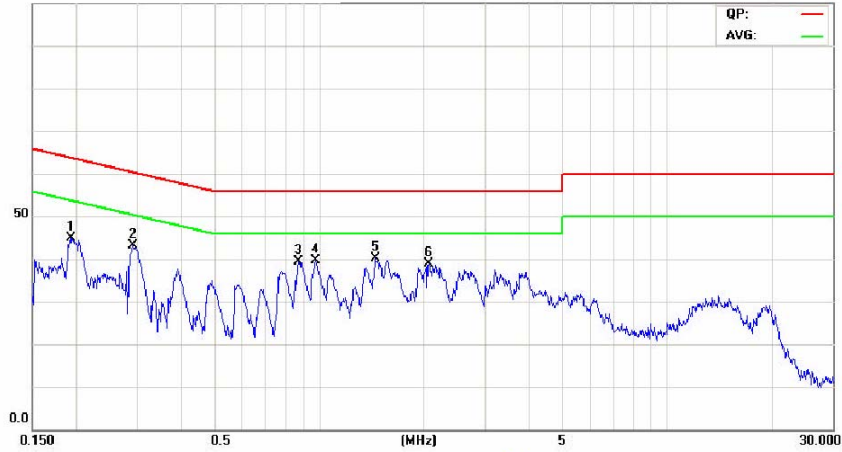


Address: No.120, Lane 180, San Ho Tsuen, Hsin Ho Road, Lung-Tan Hsiang,
Tao Yuan Conty, Taiwan R.O.C.
Tel: 03-4071718

Conducted Emission Measurement

operator: Jerry
Temperature: 26 °C
Humidity: 54 %

Date: 2007/11/9
Time: PM 06:29:20



Site: Conduction 02 Phase: **N**
Limit: CISPR22 Class B Conduction(QP) Power:

Frequency MHz	LISN Loss dB	Cable Loss dB	QP Correct dBuV	QP Limit dBuV	QP Margin dB	AVG Correct dBuV	AVG Limit dBuV	AVG Margin dB	Note
0.1934	0.1	0.04	42.40	63.8	-21.4	34.70	53.8	-19.1	
0.2924	0.15	0.1	36.50	60.4	-23.9	29.50	50.4	-20.9	
* 0.8710	0.2	0.07	37.30	56.0	-18.7	31.70	46.0	-14.3	
0.9787	0.2	0.07	37.00	56.0	-19.0	31.00	46.0	-15.0	
1.4485	0.2	0.08	36.60	56.0	-19.4	30.00	46.0	-16.0	
2.0660	0.2	0.09	35.60	56.0	-20.4	29.20	46.0	-16.8	

*:Maximum data x:Over limit

* 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

4.1.5 802.11g Test Data:

802.11g Power Line Conducted Emissions (Hot) Channel 1, 6, 11

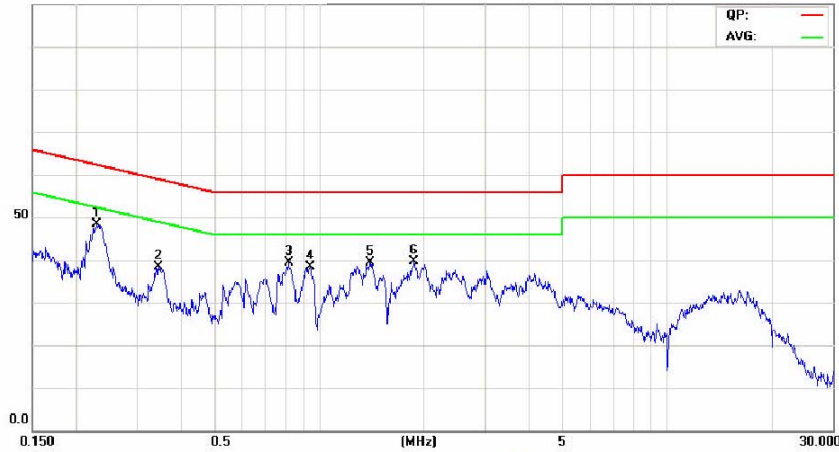


Address: No.120, Lane 180, San Ho Tsuen, Hsin Ho Road, Lung-Tan Hsiang,
Tao Yuan Conty, Taiwan R.O.C.
Tel: 03-4071718

Conducted Emission Measurement

operator: Jerry
Temperature: 26 °C
Humidity: 54 %

Date: 2007/11/9
Time: PM 06:04:31



Site: Conduction 02

Phase: L1

Limit: CISPR22 Class B Conduction(QP)

Power:

Frequency MHz	LISN Loss dB	Cable Loss dB	QP Correct. dBuV	QP Limit dBuV	QP Margin dB	AVG Correct. dBuV	AVG Limit dBuV	AVG Margin dB	Note
0.2292	0.11	0.06	40.90	62.4	-21.5	32.90	52.4	-19.5	
0.3465	0.17	0.09	31.40	59.0	-27.6	25.00	49.0	-24.0	
* 0.8174	0.2	0.07	38.50	56.0	-17.5	34.40	46.0	-11.6	
0.9431	0.2	0.07	37.80	56.0	-18.2	33.50	46.0	-12.5	
1.4032	0.2	0.08	40.00	56.0	-16.0	33.60	46.0	-12.4	
1.8780	0.2	0.09	38.80	56.0	-17.2	33.60	46.0	-12.4	

*: Maximum data x: Over limit

802.11g Power Line Conducted Emissions (Neutral) Channel 1, 6, 11

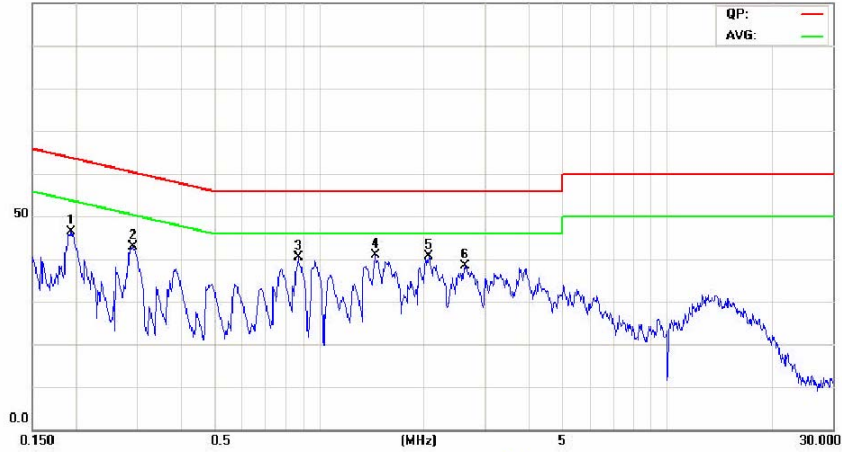


Address: No.120, Lane 180, San Ho Tsuen, Hsin Ho Road, Lung-Tan Hsiang,
Tao Yuan Conty, Taiwan R.O.C.
Tel: 03-4071718

Conducted Emission Measurement

operator: Jerry
Temperature: 26 °C
Humidity: 54 %

Date: 2007/11/9
Time: PM 06:14:00



Site: Conduction 02 Phase: **N**
Limit: CISPR22 Class B Conduction(QP) Power:

Frequency MHz	LISN Loss dB	Cable Loss dB	QP Correct dBuV	QP Limit dBuV	QP Margin dB	AVG Correct dBuV	AVG Limit dBuV	AVG Margin dB	Note
0.1945	0.1	0.04	28.90	63.8	-34.9	17.30	53.8	-36.5	
0.2924	0.15	0.1	41.20	60.4	-19.2	27.90	50.4	-22.5	
* 0.8710	0.2	0.07	38.30	56.0	-17.7	32.30	46.0	-13.7	
1.4485	0.2	0.08	35.90	56.0	-20.1	30.10	46.0	-15.9	
2.0660	0.2	0.09	32.10	56.0	-23.9	19.70	46.0	-26.3	
2.6360	0.2	0.11	32.10	56.0	-23.9	25.80	46.0	-20.2	

*:Maximum data x:Over limit

* 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

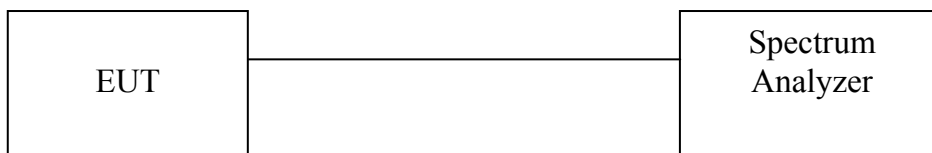
4.2 Bandwidth for DSSS [Section 15.247 (a)(2)]

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



4.2.3 802.11b Test Data:

This item has already been tested in original report.
Please refer to ISL report 06LR016FC.

4.2.4 802.11g Test Data:

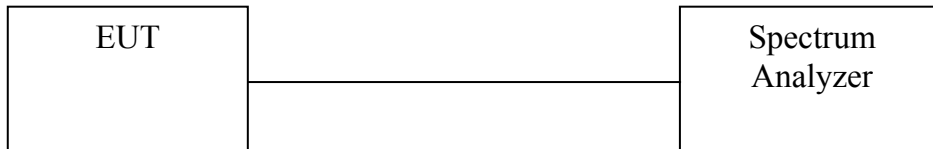
This item has already been tested in original report.
Please refer to ISL report 06LR016FC.

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 Spectrum analyzer.

4.3.2 Test Setup



4.3.3 802.11b Test Data

802.11b Maximum Peak Output Power

Temp. (° C): 25

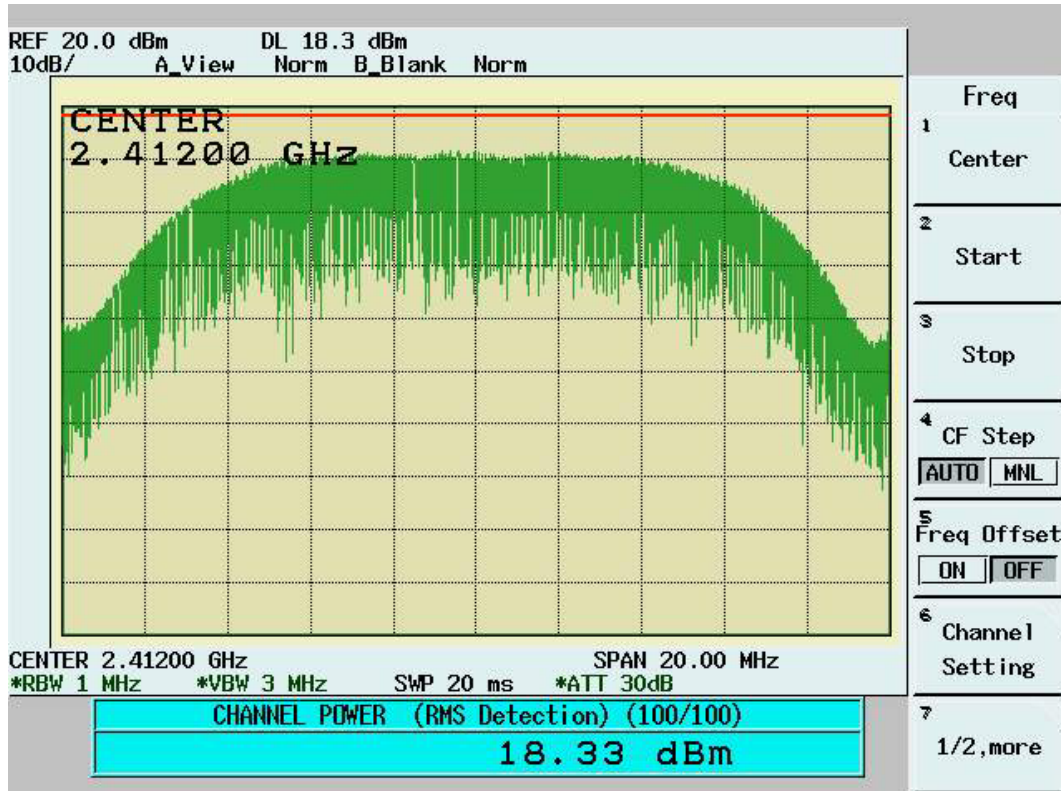
Test Engr: Jerry

Humidity (%): 55

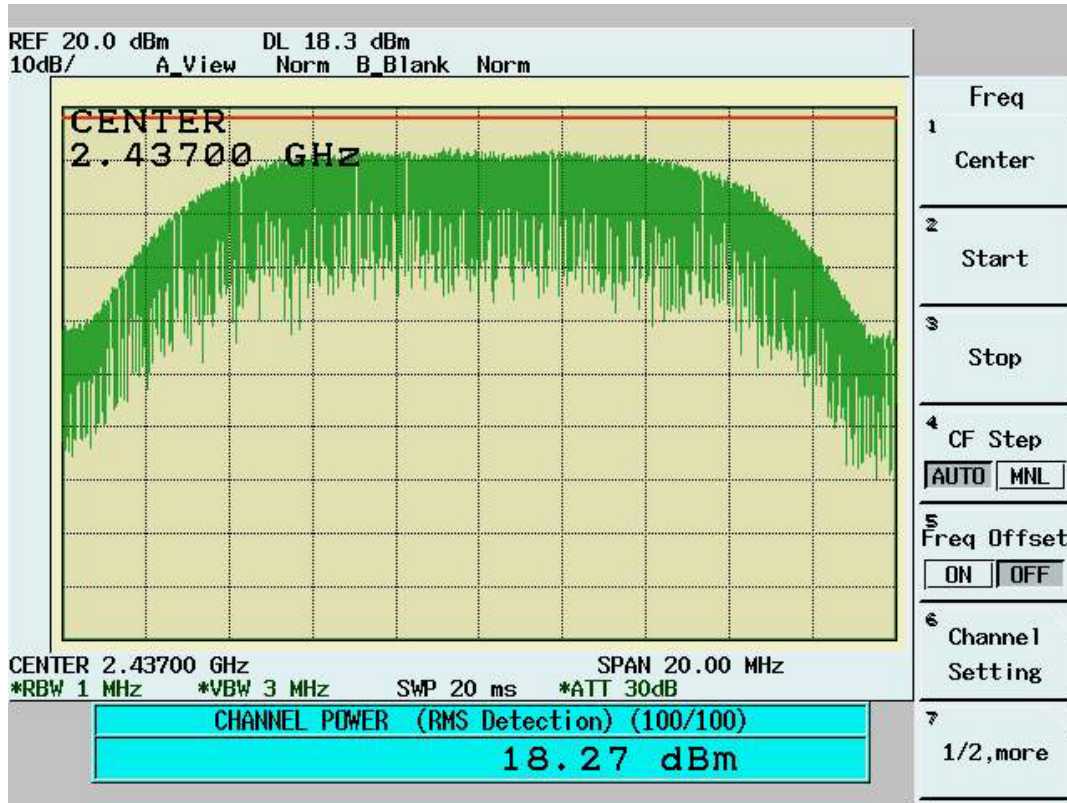
Channel	Frequency (MHz)	Analyzer Reading (dBm)	Cable Loss (dB)	Peak Power Output (mW)	Peak Power Output (dBm)	Limit (dBm)	Pass/Fail
1	2412	18.33	1.1	87.70	19.43	30	Pass
6	2437	18.27	1.1	86.50	19.37	30	Pass
11	2462	17.99	1.1	81.10	19.09	30	Pass

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

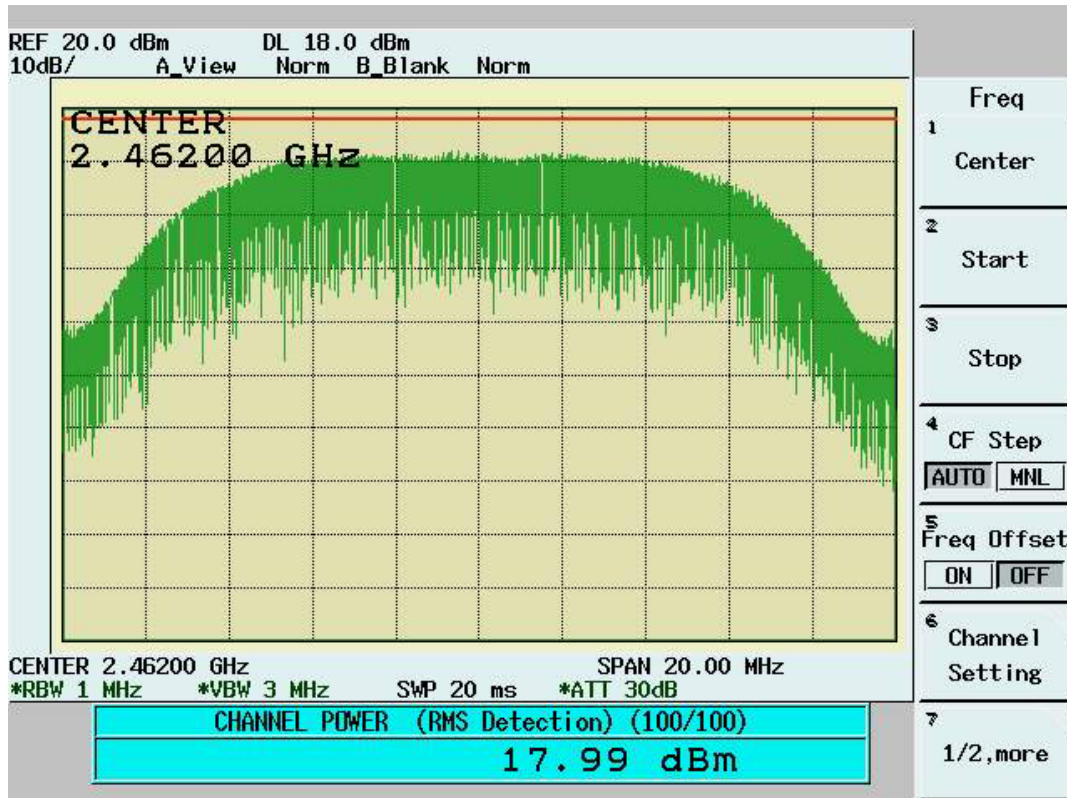
802.11b Channel 1:



802.11b Channel 6:



802.11b Channel 11:



**802.11b Maximum Peak Output Power Measured by Peak Power Analyzer
Test result form original report(ISL report 06LR016FC)**

Channel	Frequency (Mhz)	Analyzer Reading (dBm)	Cable Loss (dB)	Peak Power Output (mW)	Peak Power Output (dBm)	Limit (dBm)	Pass/Fail
1	2412	18.031	1.1	81.87	19.131	30	Pass
6	2437	18.124	1.1	83.64	19.224	30	Pass
11	2462	17.812	1.1	77.84	18.912	30	Pass

Test result by new WLAN card

Channel	Frequency (MHz)	Analyzer Reading (dBm)	Cable Loss (dB)	Peak Power Output (mW)	Peak Power Output (dBm)	Limit (dBm)	Pass/Fail
1	2412	18.12	1.1	83.56	19.22	30	Pass
6	2437	18.23	1.1	85.70	19.33	30	Pass
11	2462	18.18	1.1	84.72	19.28	30	Pass

4.3.4 802.11g Test Data

802.11g Maximum Peak Output Power

Temp. (° C): 25

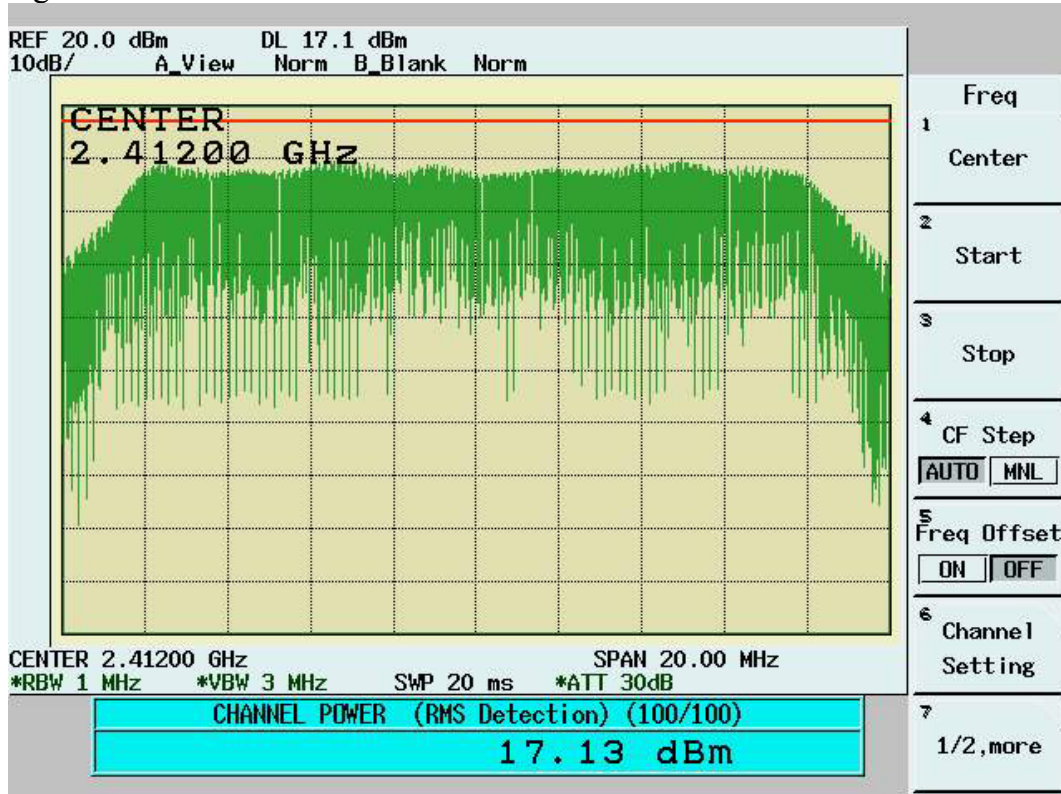
Test Engr: Jerry

Humidity (%): 55

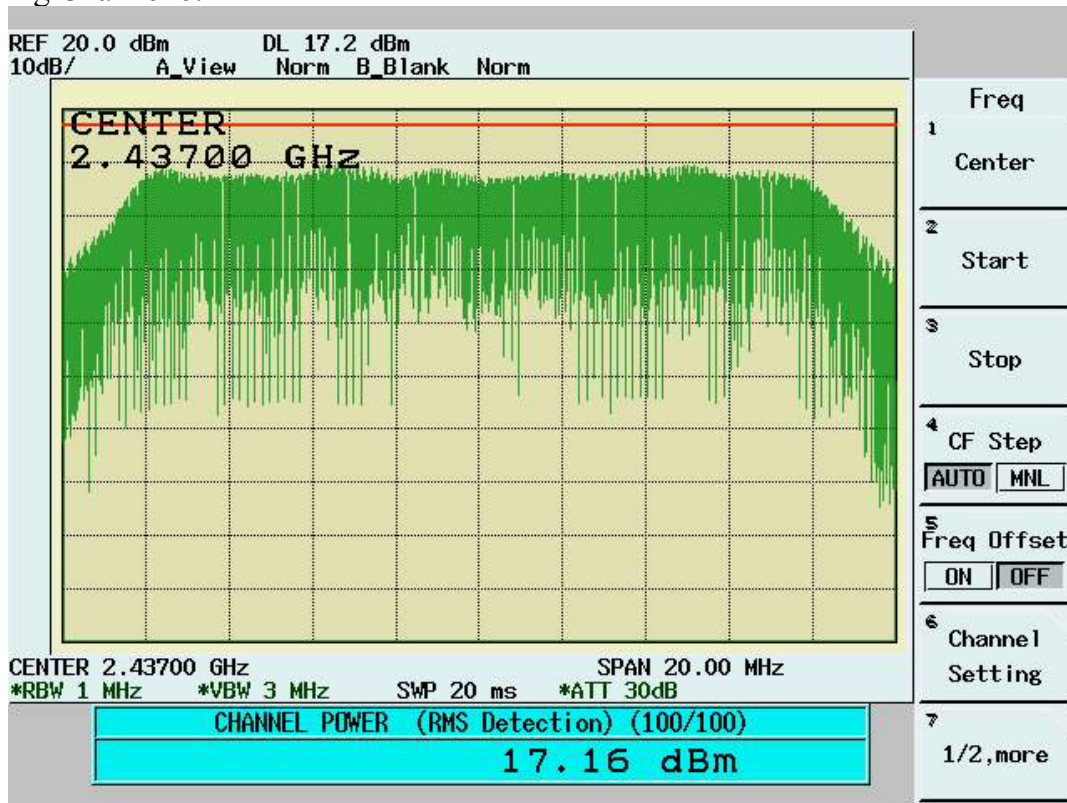
Channel	Frequency (MHz)	Analyzer Reading (dBm)	Cable Loss (dB)	Peak Power Output (mW)	Peak Power Output (dBm)	Limit (dBm)	Pass/Fail
1	2412	17.13	1.1	66.53	18.23	30	Pass
6	2437	17.16	1.1	66.99	18.26	30	Pass
11	2462	16.99	1.1	64.42	18.09	30	Pass

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

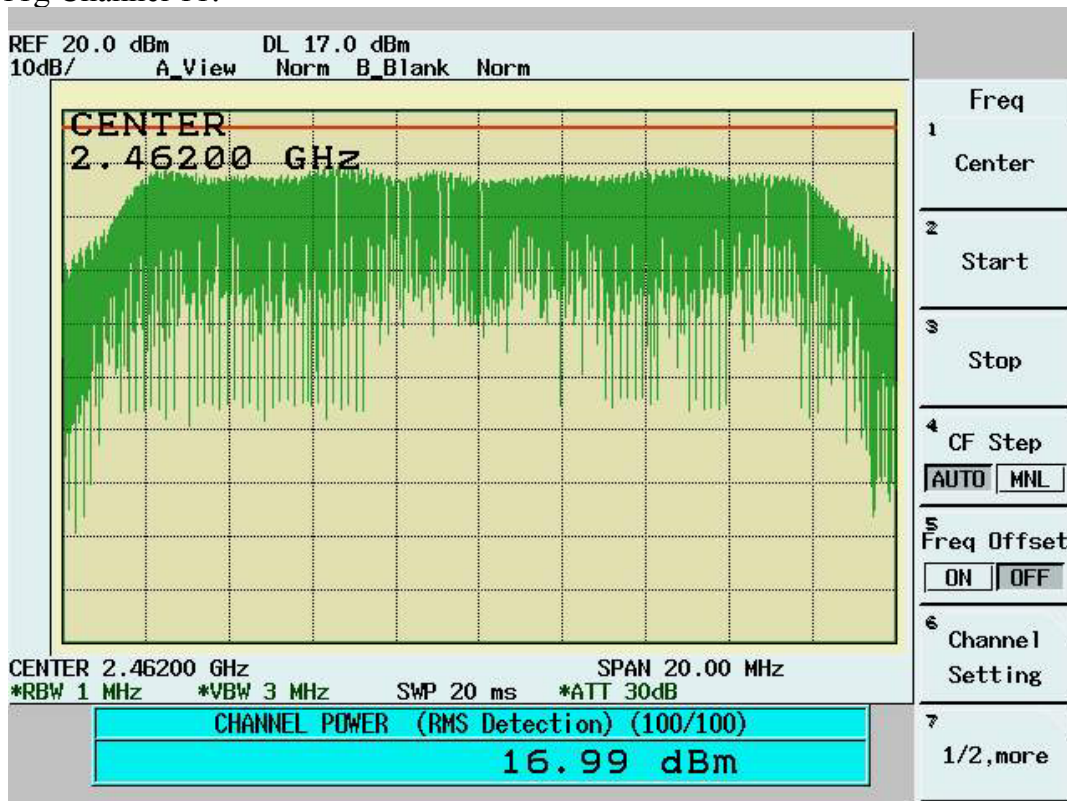
802.11g Channel 1:



802.11g Channel 6:



802.11g Channel 11:



**802.11g Maximum Peak Output Power Measured by Peak Power Analyzer
Test result form original report(ISL report 06LR016FC)**

Channel	Frequency (Mhz)	Analyzer Reading (dBm)	Cable Loss (dB)	Peak Power Output (mW)	Peak Power Output (dBm)	Limit (dBm)	Pass/Fail
1	2412	21.375	1.1	176.81	22.475	30	Pass
6	2437	20.937	1.1	159.85	22.037	30	Pass
11	2462	20.781	1.1	154.21	21.881	30	Pass

Test result by new WLAN card

Channel	Frequency (MHz)	Analyzer Reading (dBm)	Cable Loss (dB)	Peak Power Output (mW)	Peak Power Output (dBm)	Limit (dBm)	Pass/Fail
1	2412	20.94	1.1	159.96	22.04	30	Pass
6	2437	20.75	1.1	153.11	21.85	30	Pass
11	2462	20.69	1.1	151.01	21.79	30	Pass

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 2nd to 10th 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)	360KHz

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

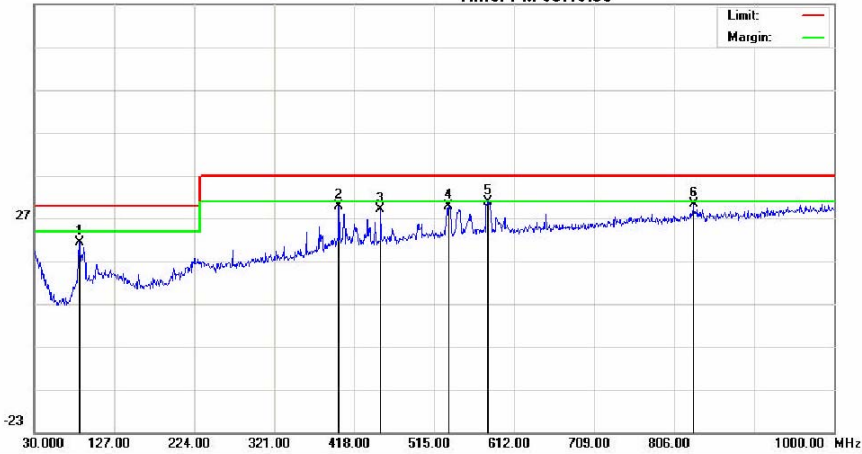
4.4.4 802.11b Test Data:

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



Address: No. 120, Lane 180, San Ho Tsuen, Hsin Ho Road
Lung-Tan Hsiang, Tao Yuan Conty, Taiwan R.O.C.
Tel: 03-4071718

Radiated Emission Measurement Operator: Jerry
Date: 2007/11/9 Temperature: 26 °C
Time: PM 05:10:53 Humidity: 54 %



Site : Chamber 02

Condition : CISPR22 ClassB 10M Radiation

Polarization: *Horizontal*

Mk.	Frequency (MHz)	RX_R (dBuV/m)	Ant_F (dB)	Cab_L (dB)	PreAmp (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.Pos (cm)	Tab.Pos (deg.)	Detector
	84.3200	12.54	7.38	1.44	0	21.36	30.00	-8.64	200	235	peak
	399.5700	10.25	15.99	3.65	0	29.89	37.00	-7.11	150	143	peak
	450.0100	9.09	16.3	3.85	0	29.24	37.00	-7.76	150	262	peak
	532.4600	7.18	18.38	4.25	0	29.81	37.00	-7.19	250	32	peak
*	579.9900	7.54	18.86	4.54	0	30.94	37.00	-6.06	250	336	peak
	829.2800	4.23	20.35	5.73	0	30.31	37.00	-6.69	250	240	peak

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

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



Address: No. 120, Lane 180, San Ho Tsuen, Hsin Ho Road
, Lung-Tan Hsiang, Tao Yuan Conty, Taiwan R.O.C.
Tel: 03-4071718

Radiated Emission Measurement Operator: Jerry
Date: 2007/11/9 Temperature: 26 °C
Time: PM 05:15:54 Humidity: 54 %



Site : Chamber 02

Condition : CISPR22 ClassB 10M Radiation

Polarization: Vertical

Mk.	Frequency (MHz)	RX_R (dBuV/m)	Ant_F (dB)	Cab_L (dB)	PreAmp (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.Pos (cm)	Tab.Pos (deg.)	Detector
*	88.2000	14.32	8.08	1.47	0	23.87	30.00	-6.13	101	72	peak
	405.3900	5.81	16.03	3.68	0	25.52	37.00	-11.48	101	238	peak
	499.4800	4.69	17.59	4.05	0	26.33	37.00	-10.67	150	42	peak
	535.3700	7.55	18.45	4.27	0	30.27	37.00	-6.73	150	268	peak
	579.0200	7.45	18.86	4.54	0	30.85	37.00	-6.15	101	2	peak
	832.1900	4.09	20.39	5.73	0	30.21	37.00	-6.79	101	335	peak

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

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

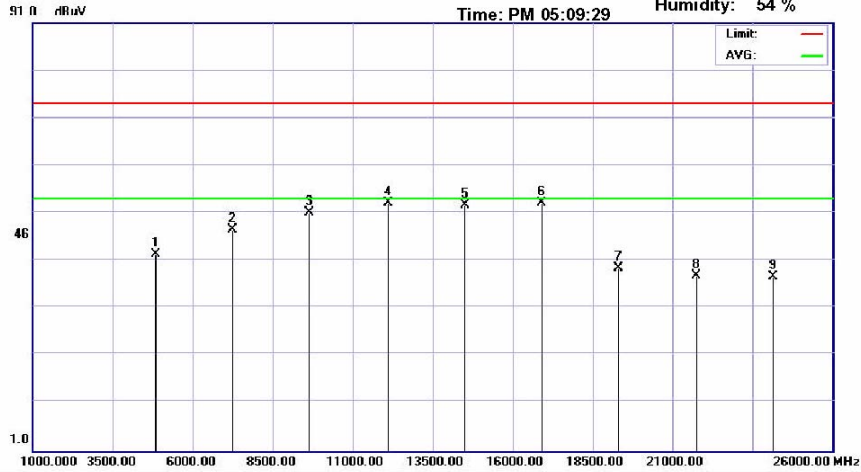
All frequencies from 30MHz to 1GHz have been tested

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



Address: No.120, Lane 180, San Ho Tsuen, Hsin Ho Road
Lung-Tan Hsiang, Tao Yuan Conty, Taiwan R.O.C.
Tel: 03-4071718

Radiated Emission Measurement Operator: Jerry
Date: 2008-11-17 Temperature: 26 °C
Time: PM 05:09:29 Humidity: 54 %



Site : Chamber 02

Condition : FCC Class B 3M(Peak)

Polarization: *Horizontal*

Mk.	Frequency (MHz)	RX_R (dBuV)	Ant_F (dB)	Cab_L (dB)	PreAmp (dB)	Emission (dBuV)	Limit (dBuV)	Margin (dB)	Ant.Pos (cm)	Tab.Pos (deg.)	Detector
	4824.000	32.37	34.66	2.83	27.48	42.38	74.00	-31.62	285	80	peak
	7236.000	31.82	38.82	3.37	26.59	47.42	74.00	-26.58	100	140	peak
	9646.000	31.63	40.19	4	24.84	50.98	74.00	-23.02	296	99	peak
*	12060.000	34.89	42.15	4.49	28.45	53.08	74.00	-20.92	347	302	peak
	14472.000	31.51	44.8	4.86	28.49	52.68	74.00	-21.32	381	39	peak
	16884.000	31.02	44.38	5.39	27.79	53.00	74.00	-21.00	322	73	peak
	19296.000	28.05	32.42	5.68	26.77	39.38	74.00	-34.62	397	319	peak
	21708.000	25.14	33.1	6.03	26.58	37.69	74.00	-36.31	319	128	peak
	24120.000	25.25	33.35	5.78	26.8	37.58	74.00	-36.42	100	257	peak

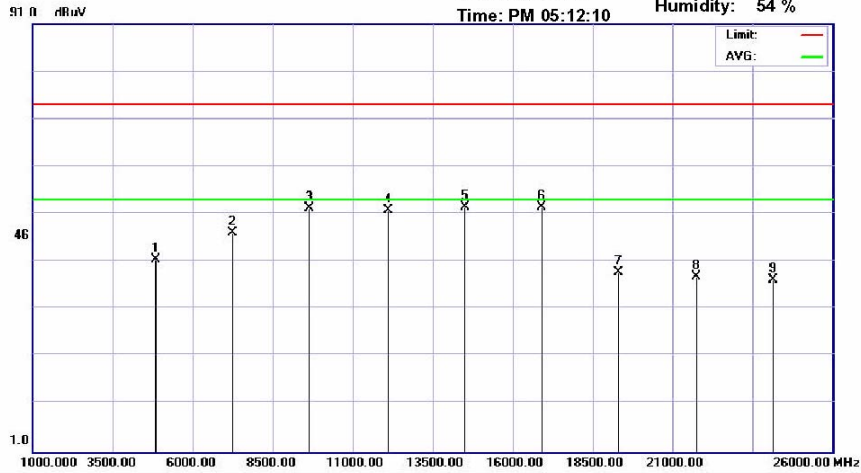
*:Maximum data x:Over limit !:over margin

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



Address: No.120, Lane 180, San Ho Tsuen, Hsin Ho Road
Lung-Tan Hsiang, Tao Yuan Conty, Taiwan R.O.C.
Tel: 03-4071718

Radiated Emission Measurement Operator: Jerry
Date: 2008-11-17 Temperature: 26 °C
Time: PM 05:12:10 Humidity: 54 %



Site : Chamber 02
Condition : FCC Class B 3M(Peak) Polarization: Vertical

Mk.	Frequency (MHz)	RX_R (dBuV)	Ant_F (dB)	Cab_L (dB)	PreAmp (dB)	Emission (dBuV)	Limit (dBuV)	Margin (dB)	Ant.Pos (cm)	Tab.Pos (deg.)	Detector
	4824.000	31.35	34.66	2.83	27.48	41.36	74.00	-32.64	100	134	peak
	7236.000	31.31	38.82	3.37	26.59	46.91	74.00	-27.09	125	219	peak
	9646.000	32.75	40.19	4	24.84	52.10	74.00	-21.90	211	89	peak
	12060.000	33.59	42.15	4.49	28.45	51.78	74.00	-22.22	338	13	peak
	14472.000	31.18	44.8	4.86	28.49	52.35	74.00	-21.65	254	337	peak
*	16884.000	30.49	44.38	5.39	27.79	52.47	74.00	-21.53	317	230	peak
	19296.000	27.44	32.42	5.68	26.77	38.77	74.00	-35.23	100	194	peak
	21708.000	25.30	33.1	6.03	26.58	37.85	74.00	-36.15	350	330	peak
	24120.000	24.81	33.35	5.78	26.8	37.14	74.00	-36.86	192	169	peak

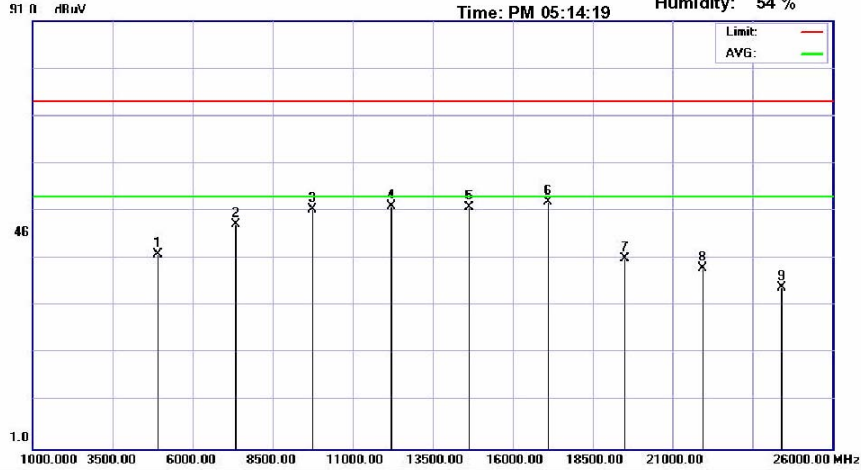
*:Maximum data x:Over limit !:over margin

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



Address: No.120, Lane 180, San Ho Tsuen, Hsin Ho Road
Lung-Tan Hsiang, Tao Yuan Conty, Taiwan R.O.C.
Tel: 03-4071718

Radiated Emission Measurement Operator: Jerry
Date: 2008-11-17 Temperature: 26 °C
Time: PM 05:14:19 Humidity: 54 %



Site : Chamber 02

Condition : FCC Class B 3M(Peak)

Polarization: Horizontal

Mk.	Frequency (MHz)	RX_R (dBuV)	Ant_F (dB)	Cab_L (dB)	PreAmp (dB)	Emission (dBuV)	Limit (dBuV)	Margin (dB)	Ant.Pos (cm)	Tab.Pos (deg.)	Detector
	4874.000	31.55	34.87	2.82	27.41	41.83	74.00	-32.17	398	254	peak
	7311.000	32.36	38.96	3.38	26.56	48.14	74.00	-25.86	236	142	peak
	9748.000	31.83	40.25	4.03	24.77	51.34	74.00	-22.66	282	72	peak
	12185.000	33.39	42.25	4.52	28.29	51.87	74.00	-22.13	100	20	peak
	14622.000	30.12	45.07	4.87	28.41	51.65	74.00	-22.35	257	297	peak
*	17059.000	29.85	45.28	5.43	27.79	52.77	74.00	-21.23	342	48	peak
	19496.000	29.55	32.5	5.71	26.86	40.90	74.00	-33.10	233	340	peak
	21933.000	26.39	33.1	6.07	26.54	39.02	74.00	-34.98	359	138	peak
	24370.000	22.68	33.45	5.56	26.73	34.96	74.00	-39.04	311	352	peak

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

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



Address: No.120, Lane 180, San Ho Tsuen, Hsin Ho Road
Lung-Tan Hsiang, Tao Yuan Conty, Taiwan R.O.C.
Tel: 03-4071718

Radiated Emission Measurement Operator: Jerry
Date: 2008-11-17 Temperature: 26 °C
Time: PM 05:16:40 Humidity: 54 %



Site : Chamber 02

Condition : FCC Class B 3M(Peak)

Polarization: Vertical

Mk.	Frequency (MHz)	RX_R (dBuV)	Ant_F (dB)	Cab_L (dB)	PreAmp (dB)	Emission (dBuV)	Limit (dBuV)	Margin (dB)	Ant.Pos (cm)	Tab.Pos (deg.)	Detector
	4874.000	31.12	34.87	2.82	27.41	41.40	74.00	-32.60	288	94	peak
	7311.000	31.40	38.96	3.38	26.56	47.18	74.00	-26.82	281	48	peak
	9748.000	32.42	40.25	4.03	24.77	51.93	74.00	-22.07	100	331	peak
	12185.000	34.16	42.25	4.52	28.29	52.64	74.00	-21.36	357	189	peak
	14622.000	30.72	45.07	4.87	28.41	52.25	74.00	-21.75	204	7	peak
*	17059.000	31.00	45.28	5.43	27.79	53.92	74.00	-20.08	100	156	peak
	19496.000	28.09	32.5	5.71	26.86	39.44	74.00	-34.56	179	7	peak
	21933.000	25.16	33.1	6.07	26.54	37.79	74.00	-36.21	293	253	peak
	24370.000	23.41	33.45	5.56	26.73	35.69	74.00	-38.31	228	187	peak

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

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



Address: No.120, Lane 180, San Ho Tsuen, Hsin Ho Road
Lung-Tan Hsiang, Tao Yuan Conty, Taiwan R.O.C.
Tel: 03-4071718

Radiated Emission Measurement Operator: Jerry
Date: 2008-11-17 Temperature: 26 °C
Time: PM 05:19:06 Humidity: 54 %



Site : Chamber 02

Condition : FCC Class B 3M(Peak)

Polarization : Horizontal

Mk.	Frequency (MHz)	RX_R (dBuV)	Ant_F (dB)	Cab_L (dB)	PreAmp (dB)	Emission (dBuV)	Limit (dBuV)	Margin (dB)	Ant.Pos (cm)	Tab.Pos (deg.)	Detector
	4924.000	31.61	35.08	2.81	27.34	42.16	74.00	-31.84	116	197	peak
	7386.000	32.62	39.09	3.39	26.53	48.57	74.00	-25.43	271	348	peak
	9848.000	32.05	40.31	4.06	24.7	51.72	74.00	-22.28	369	146	peak
	12310.000	34.48	42.35	4.56	28.14	53.25	74.00	-20.75	395	177	peak
	14772.000	29.01	45.28	4.88	28.27	50.90	74.00	-23.10	100	226	peak
*	17234.000	29.91	45.8	5.44	27.64	53.51	74.00	-20.49	205	16	peak
	19696.000	27.05	32.5	5.74	26.79	38.50	74.00	-35.50	212	284	peak
	22158.000	24.52	33.35	6.11	26.56	37.42	74.00	-36.58	256	178	peak
	24620.000	25.71	33.84	5.43	26.73	38.25	74.00	-35.75	207	187	peak

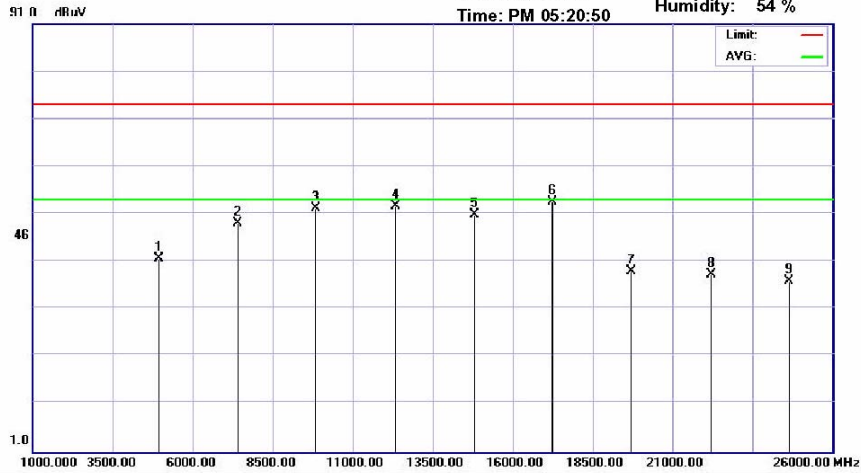
*:Maximum data x:Over limit !:over margin

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



Address: No.120, Lane 180, San Ho Tsuen, Hsin Ho Road
Lung-Tan Hsiang, Tao Yuan Conty, Taiwan R.O.C.
Tel: 03-4071718

Radiated Emission Measurement Operator: Jerry
Date: 2008-11-17 Temperature: 26 °C
Time: PM 05:20:50 Humidity: 54 %



Site : Chamber 02

Condition : FCC Class B 3M(Peak)

Polarization: Vertical

Mk.	Frequency (MHz)	RX_R (dBuV)	Ant_F (dB)	Cab_L (dB)	PreAmp (dB)	Emission (dBuV)	Limit (dBuV)	Margin (dB)	Ant.Pos (cm)	Tab.Pos (deg.)	Detector
	4924.000	31.01	35.08	2.81	27.34	41.56	74.00	-32.44	340	303	peak
	7386.000	33.07	39.09	3.39	26.53	49.02	74.00	-24.98	322	183	peak
	9848.000	32.59	40.31	4.06	24.7	52.26	74.00	-21.74	384	250	peak
	12310.000	33.89	42.35	4.56	28.14	52.66	74.00	-21.34	399	49	peak
	14772.000	28.88	45.28	4.88	28.27	50.77	74.00	-23.23	100	190	peak
*	17234.000	29.94	45.8	5.44	27.64	53.54	74.00	-20.46	198	77	peak
	19696.000	27.55	32.5	5.74	26.79	39.00	74.00	-35.00	321	39	peak
	22158.000	25.33	33.35	6.11	26.56	38.23	74.00	-35.77	100	229	peak
	24620.000	24.41	33.84	5.43	26.73	36.95	74.00	-37.05	123	92	peak

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

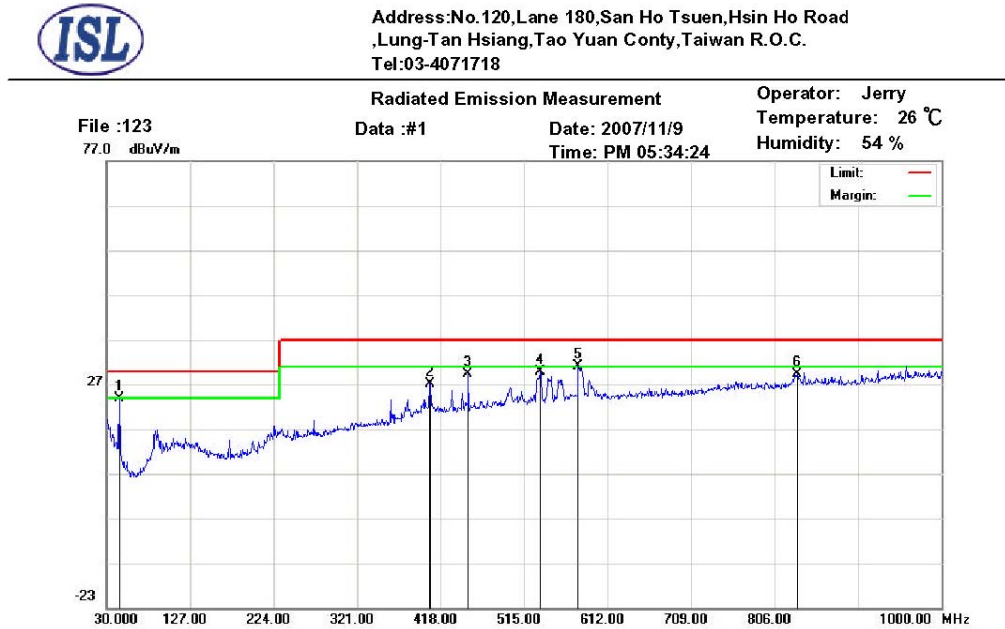
Note:

- 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.
- “pk”: peak mode
- “av”: average mode
- 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.

4.4.5 802.11g Test Data.

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



Site : Chamber 02
 Condition : CISPR22 ClassB 10M Radiation
 Company : VIA
 EUT Model: VNT6656GEV00
 Execute Program :
 Note :

Operator: Jerry
 Temperature: 26 °C
 Humidity: 54 %

Polarization: *Horizontal*
 Power :
 Witness:

Mk.	Frequency (MHz)	RX_R (dBuV/m)	Ant_F (dB)	Cab_L (dB)	PreAmp (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.Pos (cm)	Tab.Pos (deg.)	Detector
	44.5500	12.69	10.03	1.08	0	23.80	30.00	-6.20	252	248	peak
	405.3900	7.43	16.03	3.68	0	27.14	37.00	-9.86	150	135	peak
	450.0100	9.18	16.3	3.85	0	29.33	37.00	-7.67	252	31	peak
	533.4300	7.21	18.4	4.25	0	29.86	37.00	-7.14	200	5	peak
*	578.0500	7.70	18.86	4.54	0	31.10	37.00	-5.90	200	85	peak
	832.1900	3.16	20.39	5.73	0	29.28	37.00	-7.72	252	15	peak

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

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



Address: No. 120, Lane 180, San Ho Tsuen, Hsin Ho Road
Lung-Tan Hsiang, Tao Yuan Conty, Taiwan R.O.C.
Tel: 03-4071718

File : 123
77.0 dBuV/m

Radiated Emission Measurement
Data : #2
Date : 2007/11/9
Time : PM 05:39:25

Operator: Jerry
Temperature: 26 °C
Humidity: 54 %



Site : Chamber 02

Condition : CISPR22 ClassB 10M Radiation

Company : VIA

EUT Model: VNT6656GEV00

Execute Program :

Note :

Polarization: Vertical

Power :

Witness:

Mk.	Frequency (MHz)	RX_R (dBuV/m)	Ant_F (dB)	Cab_L (dB)	PreAmp (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.Pos (cm)	Tab.Pos (deg.)	Detector
	72.6800	12.84	5.72	1.33	0	19.89	30.00	-10.11	100	21	peak
	224.9700	11.09	8.7	2.44	0	22.23	30.00	-7.77	100	8	peak
	405.3900	6.56	16.03	3.68	0	26.27	37.00	-10.73	153	21	peak
	531.4900	7.04	18.36	4.24	0	29.64	37.00	-7.36	100	139	peak
!	580.9600	8.16	18.86	4.54	0	31.56	37.00	-5.44	153	271	peak
*	829.2800	5.92	20.35	5.73	0	32.00	37.00	-5.00	100	257	peak

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

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

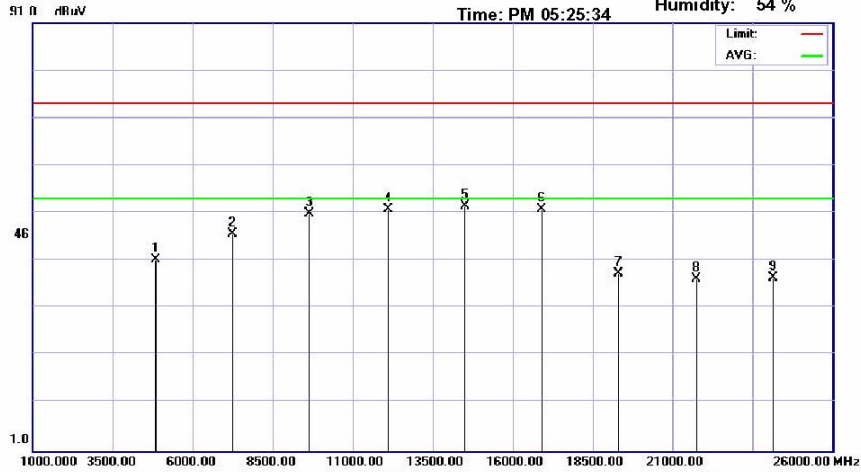
All frequencies from 30MHz to 1GHz have been tested

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



Address: No.120, Lane 180, San Ho Tsuen, Hsin Ho Road
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Tel: 03-4071718

Radiated Emission Measurement Operator: Jerry
Date: 2008-11-17 Temperature: 26 °C
Time: PM 05:25:34 Humidity: 54 %



Site : Chamber 02

Condition : FCC Class B 3M(Peak)

Polarization : *Horizontal*

Mk.	Frequency (MHz)	RX_R (dBuV)	Ant_F (dB)	Cab_L (dB)	PreAmp (dB)	Emission (dBuV)	Limit (dBuV)	Margin (dB)	Ant.Pos (cm)	Tab.Pos (deg.)	Detector
	4824.000	31.14	34.66	2.83	27.48	41.15	74.00	-32.85	216	12	peak
	7236.000	30.99	38.82	3.37	26.59	46.59	74.00	-27.41	100	250	peak
	9646.000	31.43	40.19	4	24.84	50.78	74.00	-23.22	126	110	peak
	12060.000	33.58	42.15	4.49	28.45	51.77	74.00	-22.23	108	79	peak
*	14472.000	31.35	44.8	4.86	28.49	52.52	74.00	-21.48	197	278	peak
	16884.000	29.79	44.38	5.39	27.79	51.77	74.00	-22.23	296	201	peak
	19296.000	26.95	32.42	5.68	26.77	38.28	74.00	-35.72	125	68	peak
	21708.000	24.63	33.1	6.03	26.58	37.18	74.00	-36.82	175	38	peak
	24120.000	25.06	33.35	5.78	26.8	37.39	74.00	-36.61	215	169	peak

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