

Test Report for FCC Part 15 Subpart B & C

of

Product Name

802.11b/g USB Dongle

Model

VNT6656GUV00

Applied by:

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Test Performed by:

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HC LAB: NVLAP:200234-0;VCCI: R-341,C-354; NEMKO:ELA 113A;BSMI:SL2-IN-E-0037;SL2-R1-E-0037;CNLA:1178; IC:IC4067

LT LAB: NVLAP:200234-0;VCCI: R-1435,C-1440;NEMKO:ELA 113B; BSMI:SL2-IN-E-0013;CNLA:0997; IC:IC4164-1

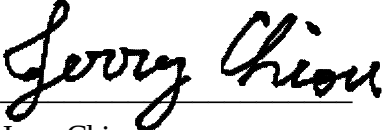
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1. General

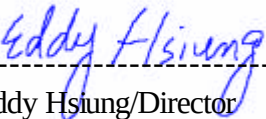
1.1 Certification of Accuracy of Test Data

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:	802.11b/g USB Dongle
Model:	VNT6656GUV00
Applied by:	VIA Technologies, Inc.
Sample received Date:	2006/07/13
Final test Date :	2006/07/17-2006/07/20
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 62 pages, including 1 cover page, 2 contents page, and 60 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).

International Standards Laboratory

Report Number: 06LR018FC

HC LAB: NVLAP:200234-0; VCCI: R-341, C-354; NEMKO: ELA 113A; BSMI: SL2-IN-E-0037; SL2-R1-E-0037; CNLA: 1178; IC: IC4067

LT LAB: NVLAP:200234-0; VCCI: R-1435, C-1440; NEMKO: ELA 113B; CNLA: 0997; IC: IC4164-1

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	SAR 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	SAR report attached
15.247 (d)	Power Spectral Density	Pass	

3. Description of Equipment Under Test (EUT)

Description:	802.11b/g USB Dongle
Condition:	Pre-Production
Model:	VNT6656GUV00
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)
Antennas Type:	Dual band printed IFA type made by VIA
Antenna peak Gain:	4.78 dBi
Antenna Connected:	The Antenna is layout in the PCB of the WLAN module, the user is not possible to change the antenna.
Power Type:	3.3V DC from Notebook PC

The EUT is a 802.11b/g USB Dongle .

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		

All types of Transmit data rate have been tested, we present the worst case test data in the report.

4. TEST RESULTS (802.11b)

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:

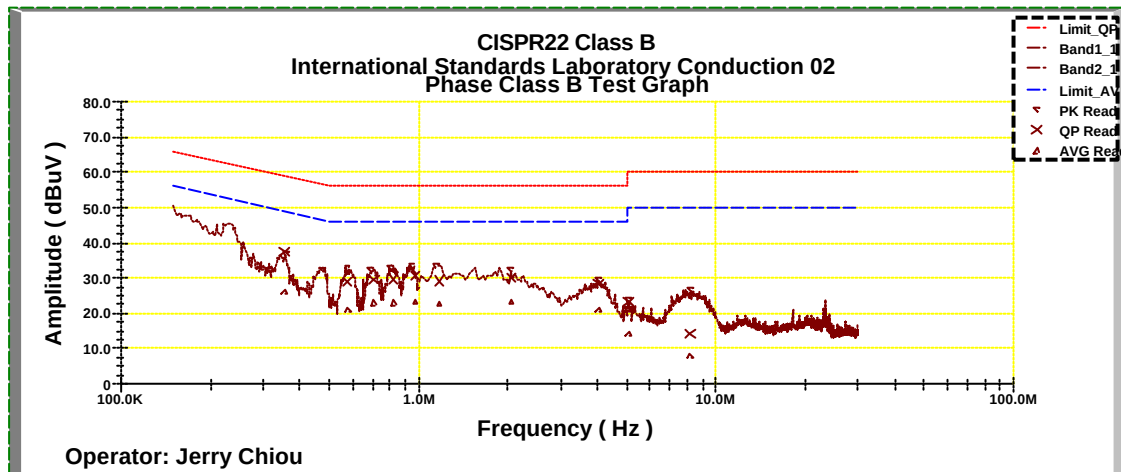
Power Line Conducted Emissions (Hot) Channel 1, 6, 11

Operator: Jerry Chiou

Temperature(C):26

Humidity(%):56

Frequency	LISN Loss	Cable Loss	QPCorrt.	QPLimit	QPMargin	AVECorrt.	AVELimit	AVEMargin
MHz	(dB)	(dB)	Amp.(dBuV)	(dBuV)	(dB)	Amp.(dBuV)	(dBuV)	(dB)
0.35436	0.18	0.09	37.47	60.16	-22.69	26.00	50.16	-24.16
0.57826	0.20	0.07	28.83	56.00	-27.17	21.00	46.00	-25.00
0.70936	0.20	0.07	29.59	56.00	-26.41	22.88	46.00	-23.13
0.82568	0.20	0.07	29.78	56.00	-26.22	22.94	46.00	-23.06
0.974	0.20	0.07	30.54	56.00	-25.46	23.02	46.00	-22.98
1.17336	0.22	0.07	29.22	56.00	-26.78	22.45	46.00	-23.55
2.0487	0.30	0.09	29.99	56.00	-26.01	23.35	46.00	-22.65
4.02886	0.40	0.14	28.49	56.00	-27.51	20.92	46.00	-25.08
5.07268	0.41	0.15	23.22	60.00	-36.78	13.90	50.00	-36.10
8.18899	0.44	0.19	14.14	60.00	-45.86	7.90	50.00	-42.10



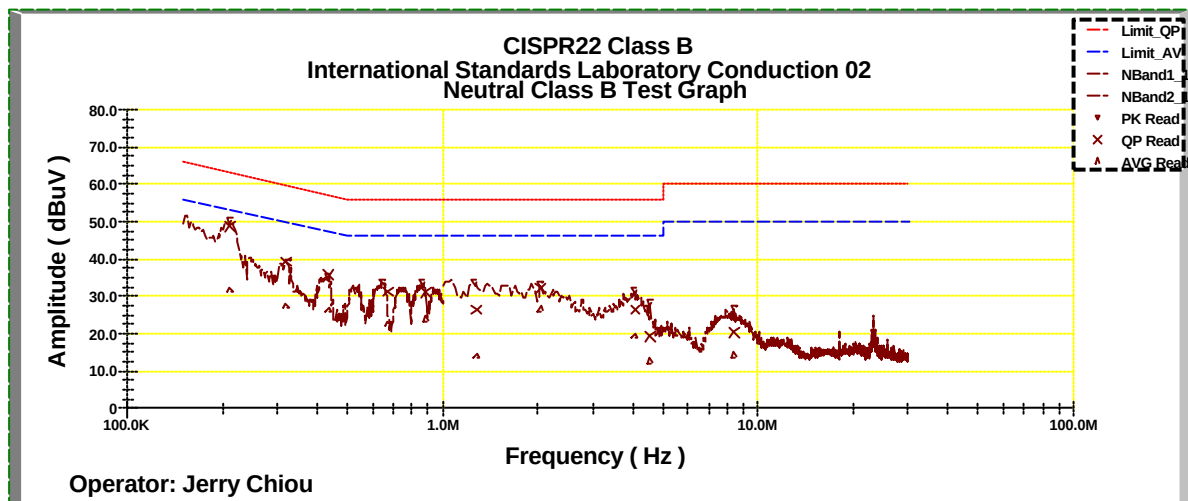
Power Line Conducted Emissions (Neutral) Channel 1, 6, 11

Operator: Jerry Chiou

Temperature(C):26

Humidity(%):56

Frequency	LISN Loss	Cable Loss	QPCorrt.	QPLimit	QPMargin	AVECorrt.	AVELimit	AVEMargin
MHz	(dB)	(dB)	Amp.(dBuV)	(dBuV)	(dB)	Amp.(dBuV)	(dBuV)	(dB)
0.21118	0.40	0.05	48.61	64.25	-15.64	31.57	54.25	-22.68
0.31808	0.40	0.10	39.24	61.20	-21.96	27.43	51.20	-23.77
0.43486	0.40	0.08	35.62	57.86	-22.24	26.20	47.86	-21.66
0.67041	0.40	0.07	31.26	56.00	-24.74	22.57	46.00	-23.43
0.88363	0.40	0.07	30.98	56.00	-25.02	23.90	46.00	-22.10
1.28316	0.50	0.08	26.36	56.00	-29.64	14.03	46.00	-31.97
2.04899	0.50	0.09	32.13	56.00	-23.87	26.40	46.00	-19.60
4.07427	0.50	0.14	26.33	56.00	-29.67	19.14	46.00	-26.86
4.55258	0.50	0.15	19.29	56.00	-36.71	12.67	46.00	-33.33
8.4016	0.50	0.19	20.24	60.00	-39.76	14.11	50.00	-35.89



* 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

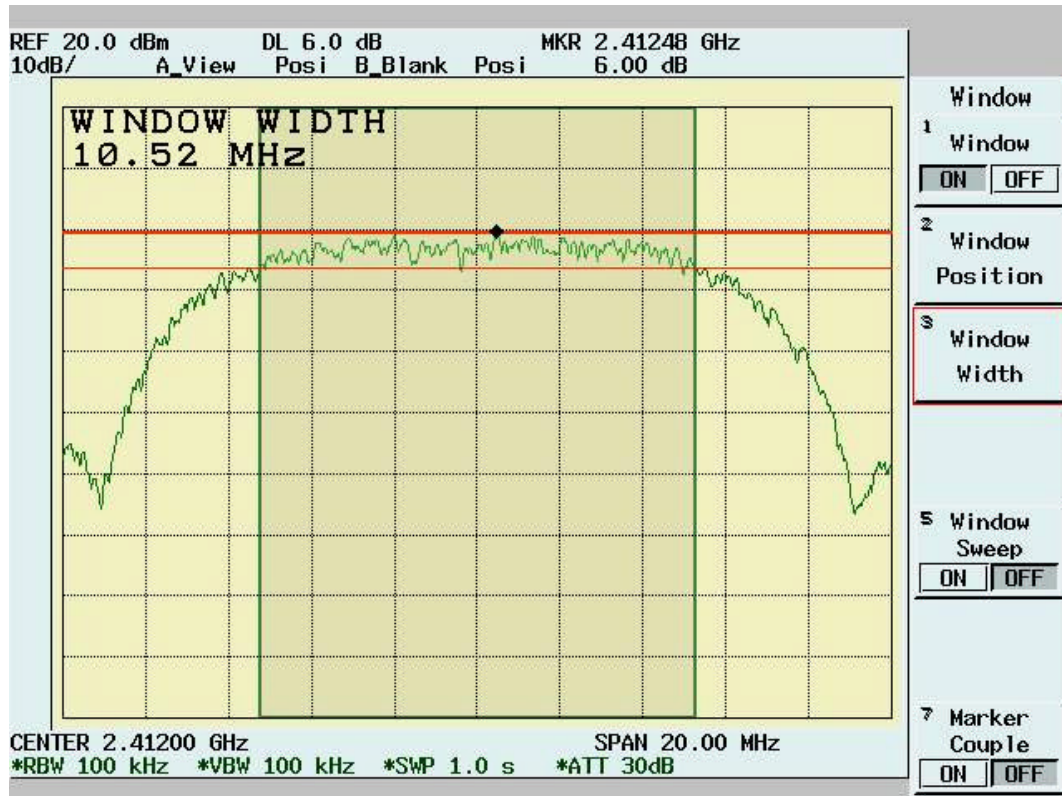
Temp. (deg. C): 25

Test Engr: Jerry Chiou

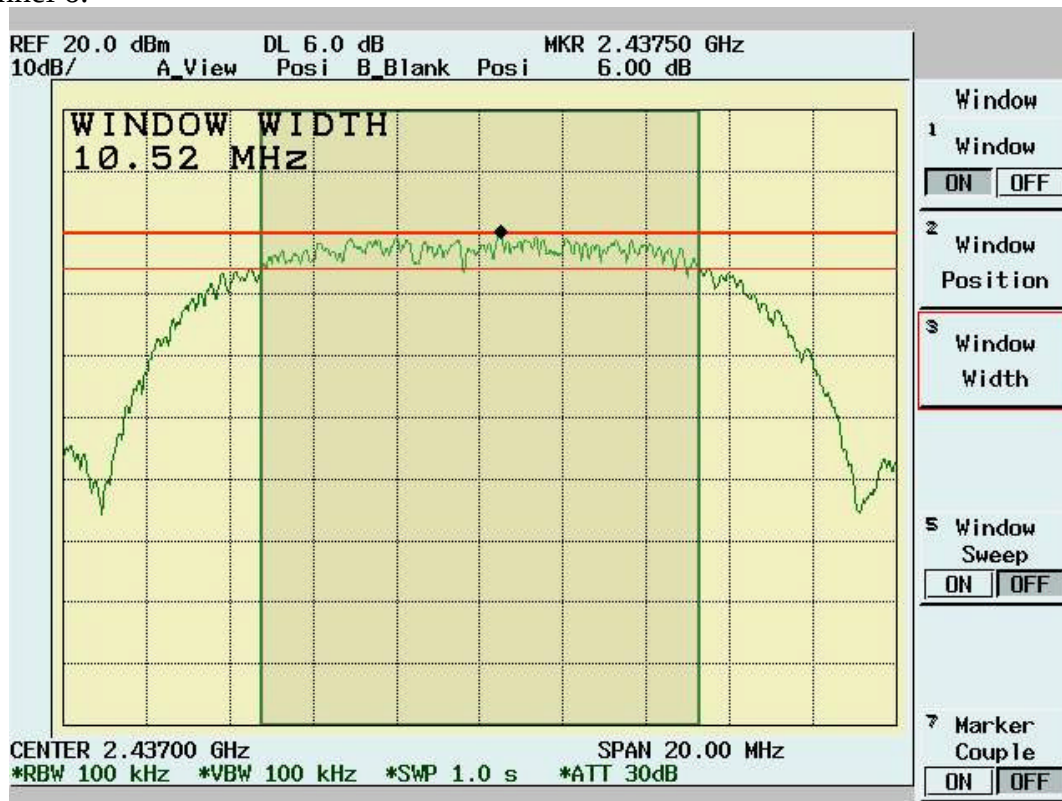
Humidity (%): 50

Chennel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Pass/Fail
1	2412	10.52	0.5	Pass
6	2437	10.52	0.5	Pass
11	2462	10.52	0.5	Pass

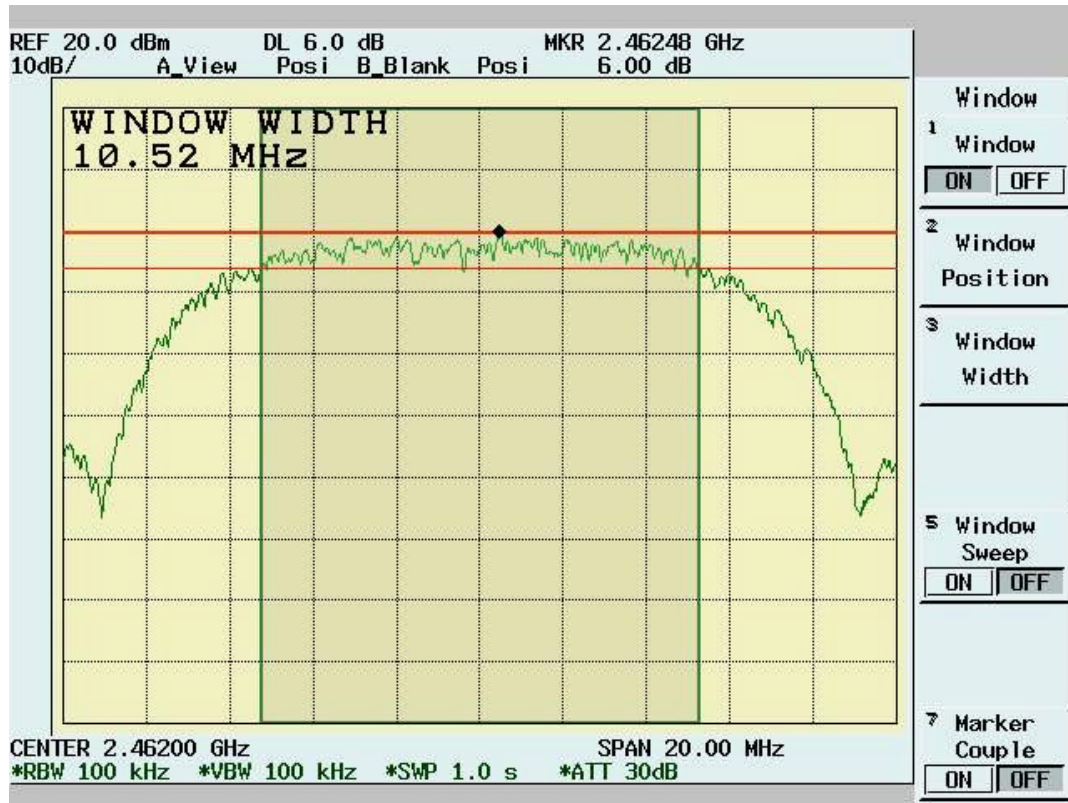
Channel 1:



Channel 6:



Channel 11:



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LT LAB: NVLAP:200234-0; VCCI: R-1435, C-1440; NEMKO: ELA 113B; CNLA: 0997; IC: IC4164-1

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

Temp. (deg. C): 25

Test Engr: Jerry Chiou

Humidity (%): 50

Channel	Frequency (Mhz)	Analyzer Reading (dBm)	Cable Loss (dB)	Peak Power Output (mW)	Peak Power Output (dBm)	Limit (dBm)	Pass/Fail
1	2412	13.86	1.1	31.33	14.96	30	Pass
6	2437	14.01	1.1	32.43	15.11	30	Pass
11	2462	13.71	1.1	30.27	14.81	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)	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: Jerry Chiou
Temperature(C): 25
Humidity(%): 59

Frequency	RxAmp.	AntFact	CableLoss	PreAmpGain	Corrct.Emi.	Limit	Margin	Ant.Pos.	TablePos.
MHz	(dBuV)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg)
450.01	11.67	16.20	5.21	0.00	33.08	46.00	-12.92	196.00	131.00
496.57	5.91	17.32	5.51	0.00	28.74	46.00	-17.26	102.00	328.00
540.22	5.95	18.37	5.88	0.00	30.19	46.00	-15.81	102.00	51.00
756.53	2.48	20.19	7.71	0.00	30.37	46.00	-15.63	196.00	1.00
765.26	2.05	20.17	7.74	0.00	29.97	46.00	-16.03	102.00	246.00
831.22	3.70	20.41	8.34	0.00	32.45	46.00	-13.55	102.00	213.00
945.68	1.23	21.24	8.99	0.00	31.46	46.00	-14.54	102.00	328.00
959.26	1.01	21.30	9.14	0.00	31.45	46.00	-14.55	196.00	131.00

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

Operator: Jerry Chiou
Temperature(C): 25
Humidity(%): 59

Frequency	RxAmp.	AntFact	CableLoss	PreAmpGain	Corrct.Emi.	Limit	Margin	Ant.Pos.	TablePos.
MHz	(dBuV)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg)
377.26	6.02	16.04	4.57	0.00	26.63	46.00	-19.37	196.00	17.00
450.01	7.66	16.20	5.21	0.00	29.07	46.00	-16.93	196.00	131.00
498.51	3.16	17.36	5.52	0.00	26.05	46.00	-19.95	102.00	311.00
527.61	1.79	18.06	5.77	0.00	25.62	46.00	-20.38	102.00	294.00
540.22	4.07	18.37	5.88	0.00	28.31	46.00	-17.69	102.00	51.00
639.16	0.70	18.93	6.71	0.00	26.35	46.00	-19.65	102.00	164.00
754.59	1.82	20.19	7.70	0.00	29.71	46.00	-16.29	196.00	1.00
832.19	1.09	20.42	8.35	0.00	29.86	46.00	-16.14	102.00	68.00

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 have 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(%):39
Temperature(C):26

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
4818.18	32.56pk	34.11	5.14	27.49	44.32pk	54.00av	-9.68	100	18
7222.78	36.73pk	38.09	3.85	26.60	52.08pk	54.00av	-1.92	101	142

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

Operator:JerryChiou

RBW:1MHz
Humidity(%):39
Temperature(C):26

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
9641.86	31.41pk	38.84	3.94	24.84	49.35pk	54.00av	-4.65	102	7
12046.5	32.28pk	41.83	4.71	28.46	50.36pk	54.00av	-3.64	100	97

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(%):39
Temperature(C):26

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
7309.69	38.00pk	38.44	3.89	26.56	53.77pk	54.00av	-0.23	101	154
9728.77	29.78pk	38.69	4.00	24.78	47.69pk	54.00av	-6.31	102	5

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

Operator:JerryChiou

RBW:1MHz
Humidity(%):39
Temperature(C):26

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
4861.64	34.45pk	34.27	5.13	27.43	46.42pk	54.00av	-7.58	100	14
9728.77	29.46pk	38.69	4.00	24.78	47.36pk	54.00av	-6.64	102	5

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(%):39
Temperature(C):26

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
2518.48	43.22pk	30.91	1.36	24.85	50.64pk	54.00av	-3.36	102	206
4919.58	32.28pk	34.49	5.13	27.35	44.55pk	54.00av	-9.45	100	8
7367.63	39.34pk	38.67	3.92	26.54	55.40pk	74.00pk	-18.6	101	163
7354.11	27.67av	38.67	3.92	26.54	43.73av	54.00av	-10.27	101	163
9830.17	29.01pk	38.51	4.07	24.72	46.87pk	54.00va	-7.13	101	3

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

Operator:JerryChiou

RBW:1MHz
Humidity(%):39
Temperature(C):26

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
4919.58	36.13pk	34.49	5.13	27.35	48.40pk	54.00av	-5.60	100	8
9830.17	29.70pk	38.51	4.07	24.72	47.56pk	54.00av	-6.44	101	3

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)

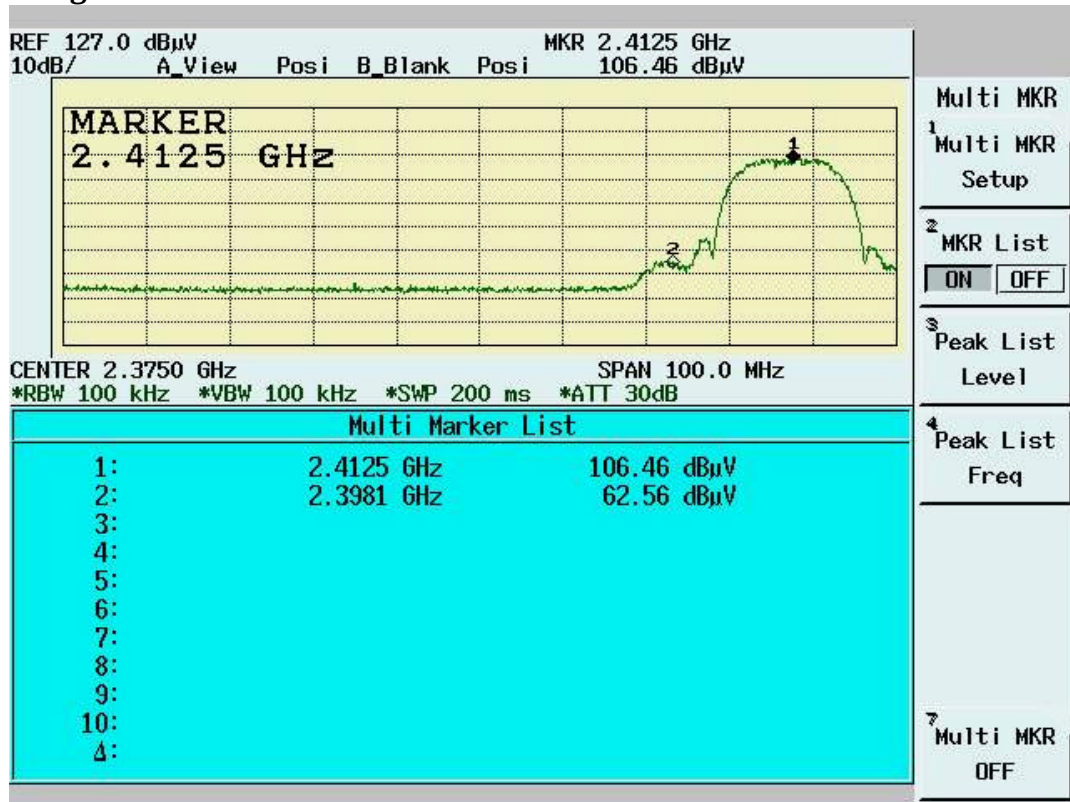


4.5.3 Test Data:

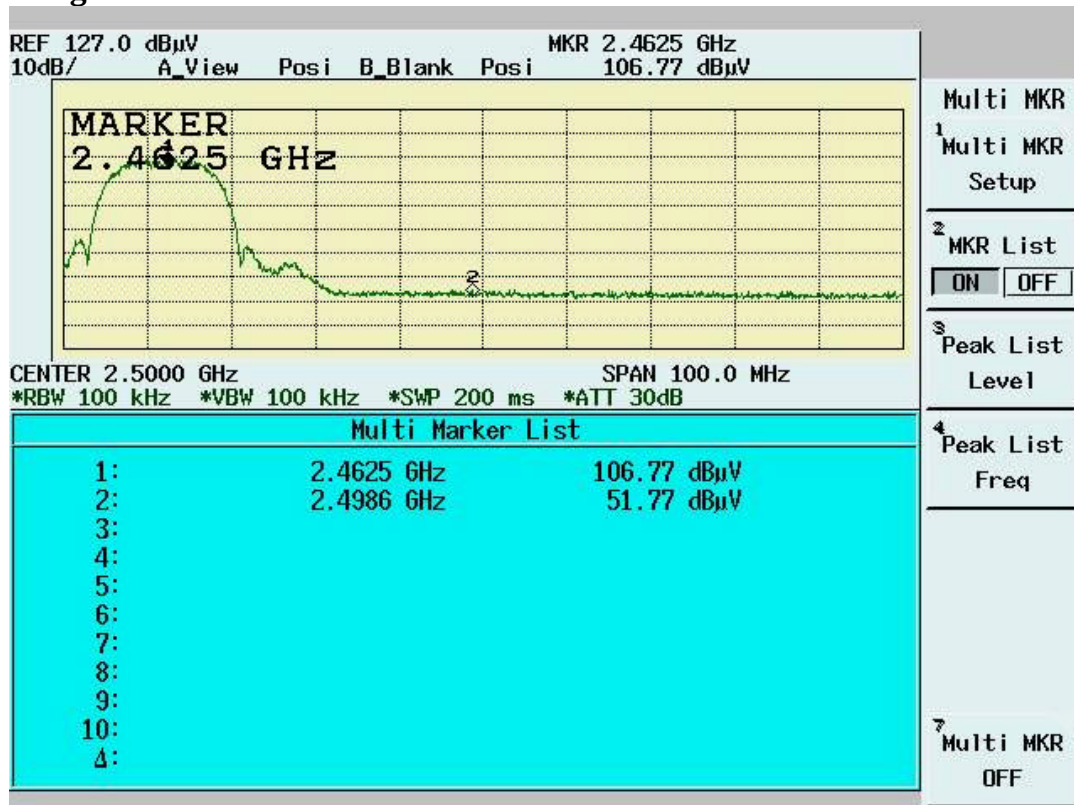
Table: Band Edge measurement (Conducted)

Test Engr: Jerry Chiou		Temp. (deg. C):	25	
		Humidity (%):	50	
Channel	Frequency (MHz)	Spectrum Reading (dBuV)	Carrier - Outsideband Limit: >20dB (dB)	Pass/Fail
1	2412.5	106.46	---	---
Outside band	2398.1	62.56	43.9	Pass
11	2462.5	106.77	---	---
Outside band	2498.6	51.77	55	Pass

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)

Temp. (deg. C): 25

Test Engr: Jerry Chiou

Humidity (%): 50

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)	2414.5	59.3	35.48	94.78	---	---	10Hz	---
Channel_1 (peak mode)	2410.2	67.8	35.48	103.28	---	---	3MHz	---
Outside band (peak mode)	2395.8	25.26	35.48	60.74	42.54	---	3MHz	Pass
Channel_11 (average mode)	2464.3	59.85	35.5	95.35	---	---	10Hz	---
Channel_11 (peak mode)	2460.3	68.68	35.5	104.18	---	---	3MHz	---
Outside band (peak mode)	2485	16.24	35.51	51.75	52.43	---	3MHz	Pass
Channel_1 Restricted band (peak mode)	2387.4	16.34	35.47	51.81	---	74	3MHz	Pass
Restricted band (average mode)	2390	5.23	35.47	40.7	---	54	10Hz	Pass
Channel_11 Restricted band (peak mode)	2485	16.24	35.51	51.75	---	74	3MHz	Pass
Restricted band (average mode)	2483.5	5.74	35.51	41.25	---	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.

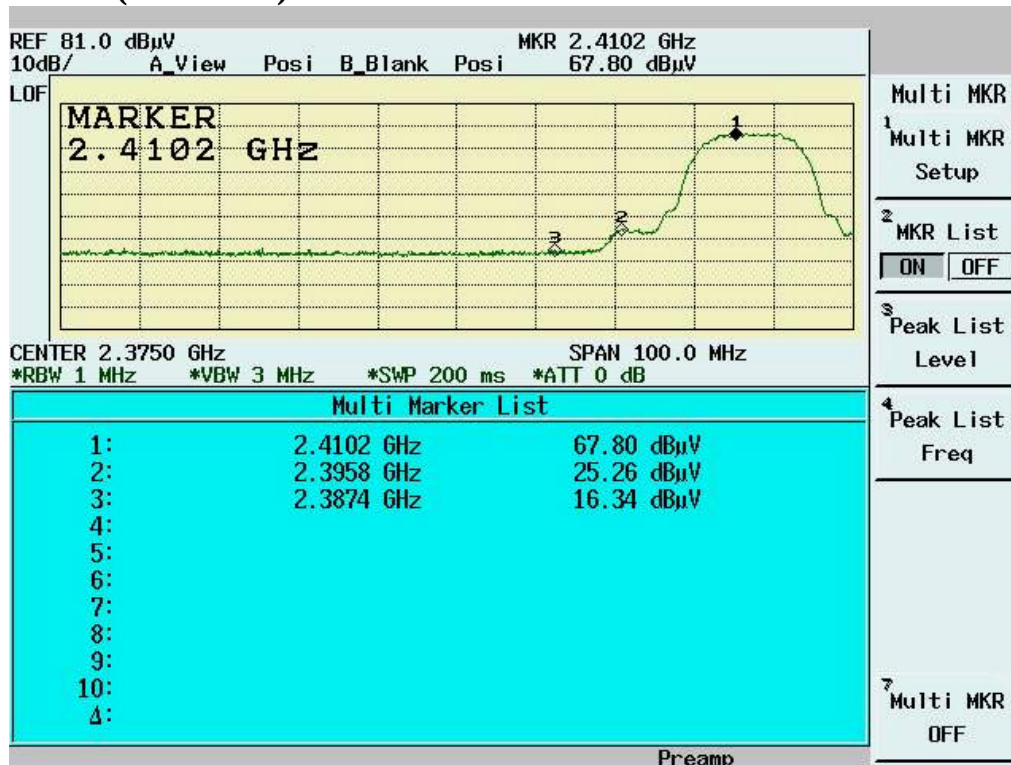
International Standards Laboratory

Report Number: 06LR018FC

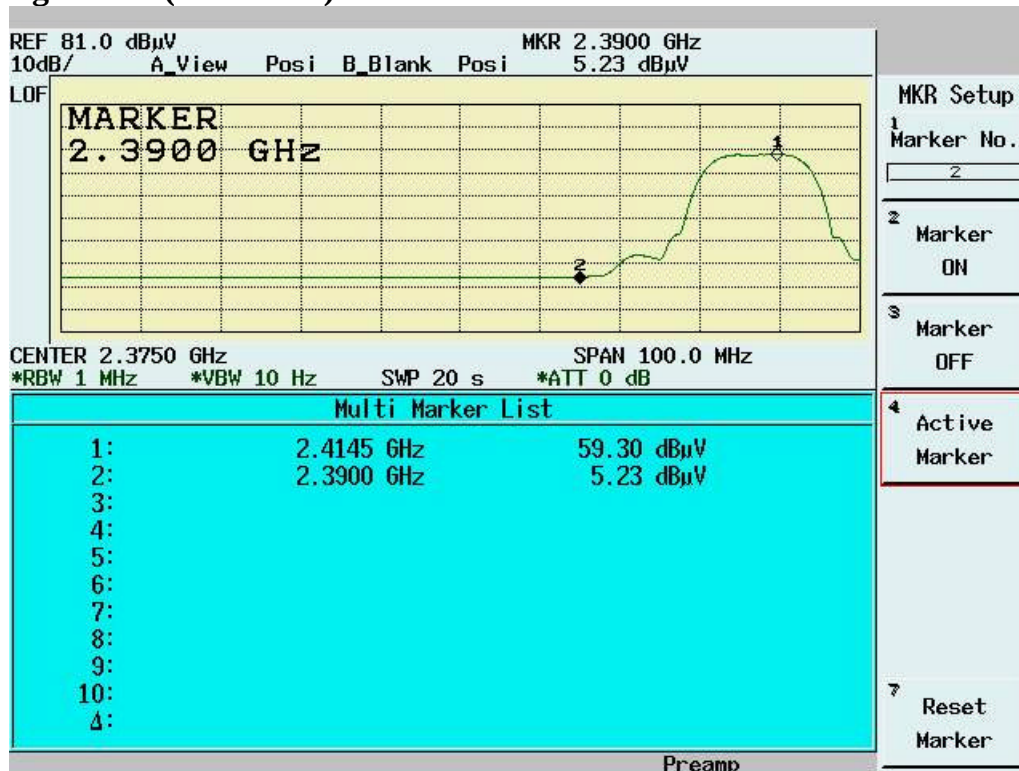
HC LAB: NVLAP:200234-0; VCCI: R-341, C-354; NEMKO: ELA 113A; BSMI: SL2-IN-E-0037; SL2-R1-E-0037; CNLA: 1178; IC: IC4067

LT LAB: NVLAP:200234-0; VCCI: R-1435, C-1440; NEMKO: ELA 113B; CNLA: 0997; IC: IC4164-1

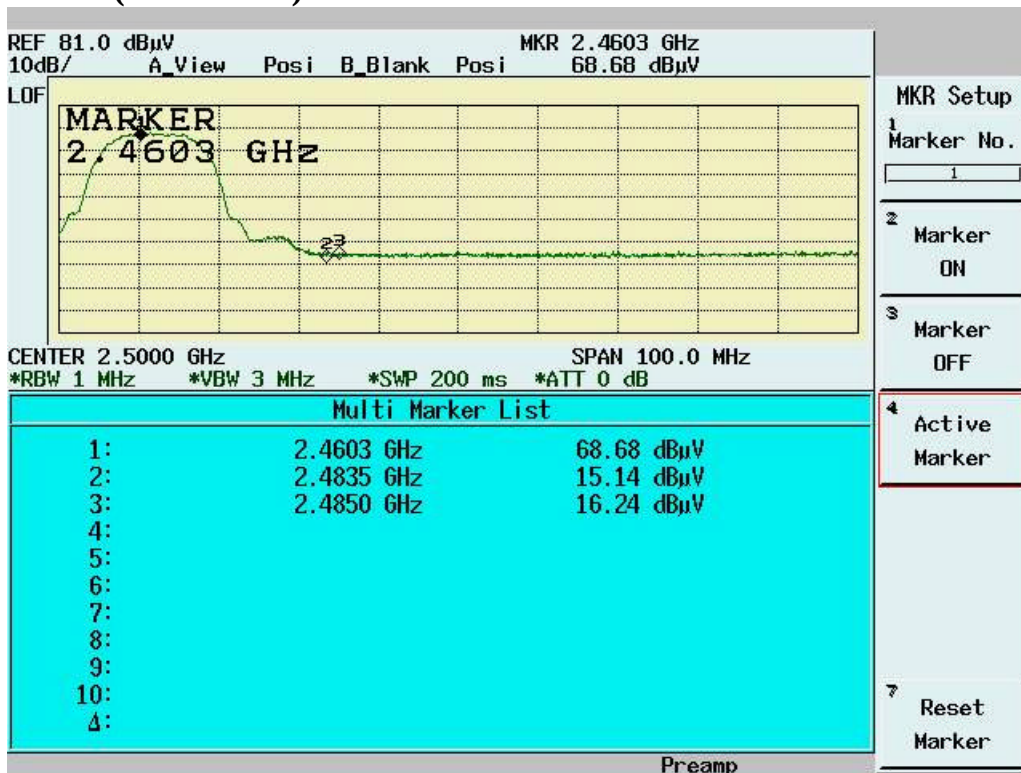
Band Edge measurement for radiated emission in Restricted Band(Radiated) Peak Mode (Channel 1)



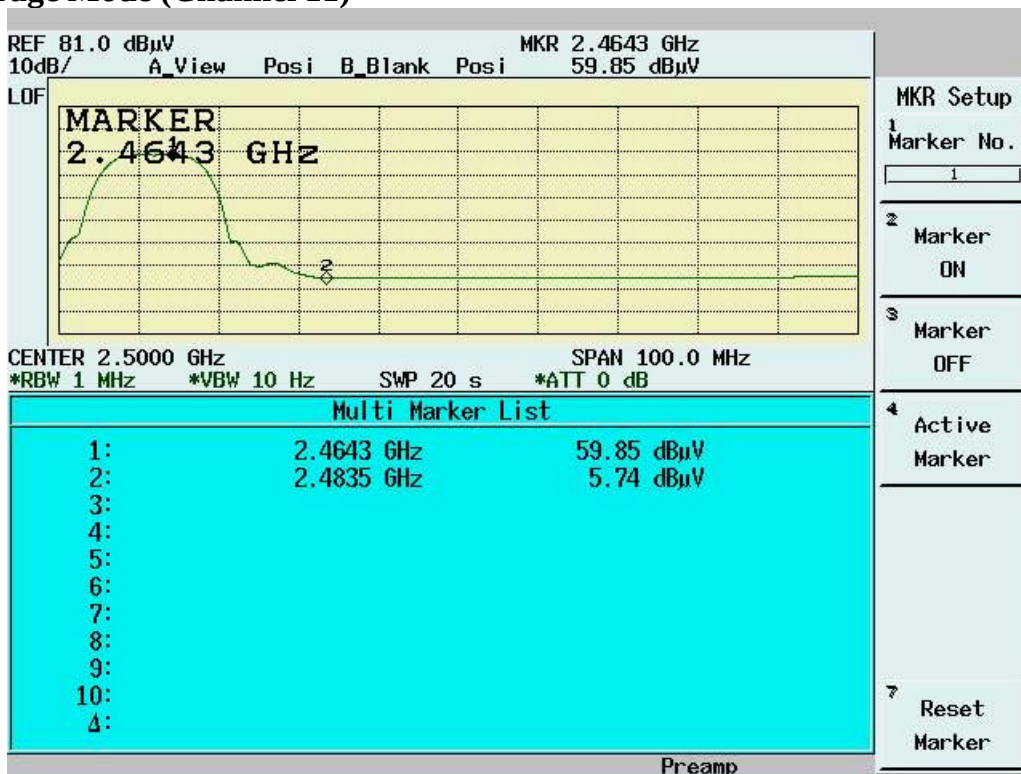
Band Edge measurement for radiated emission in Restricted Band(Radiated) Average Mode (Channel 1)



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 SAR 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

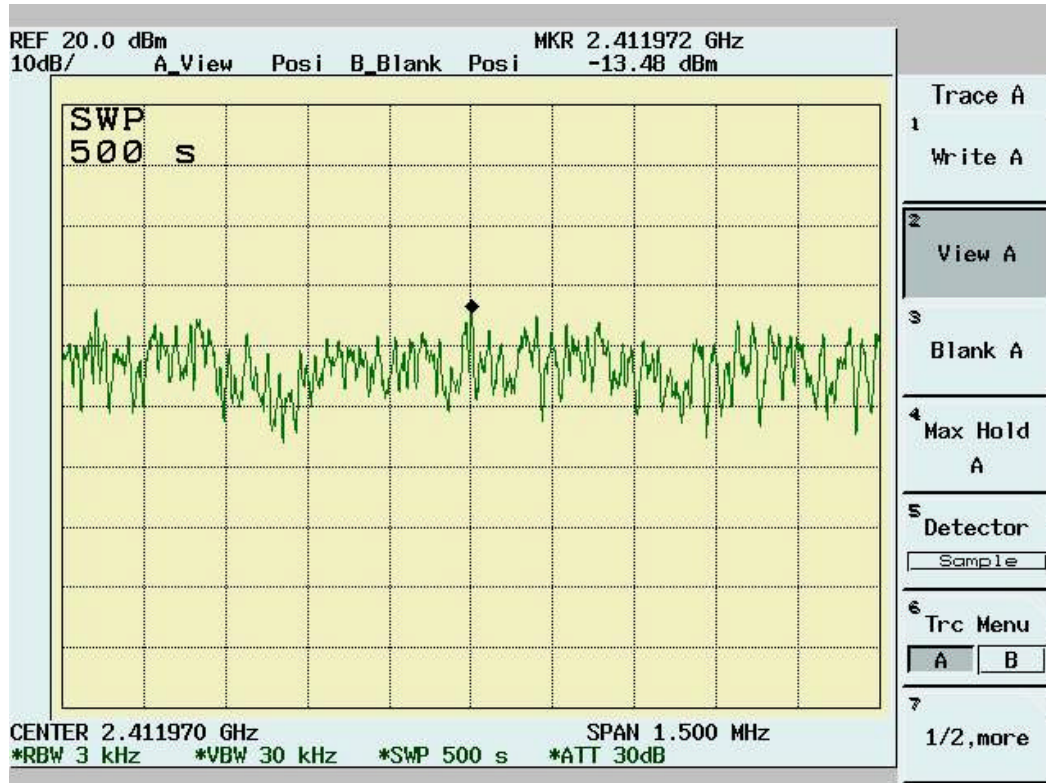
Temp. (deg. C): 25

Test Engr: Jerry Chiou

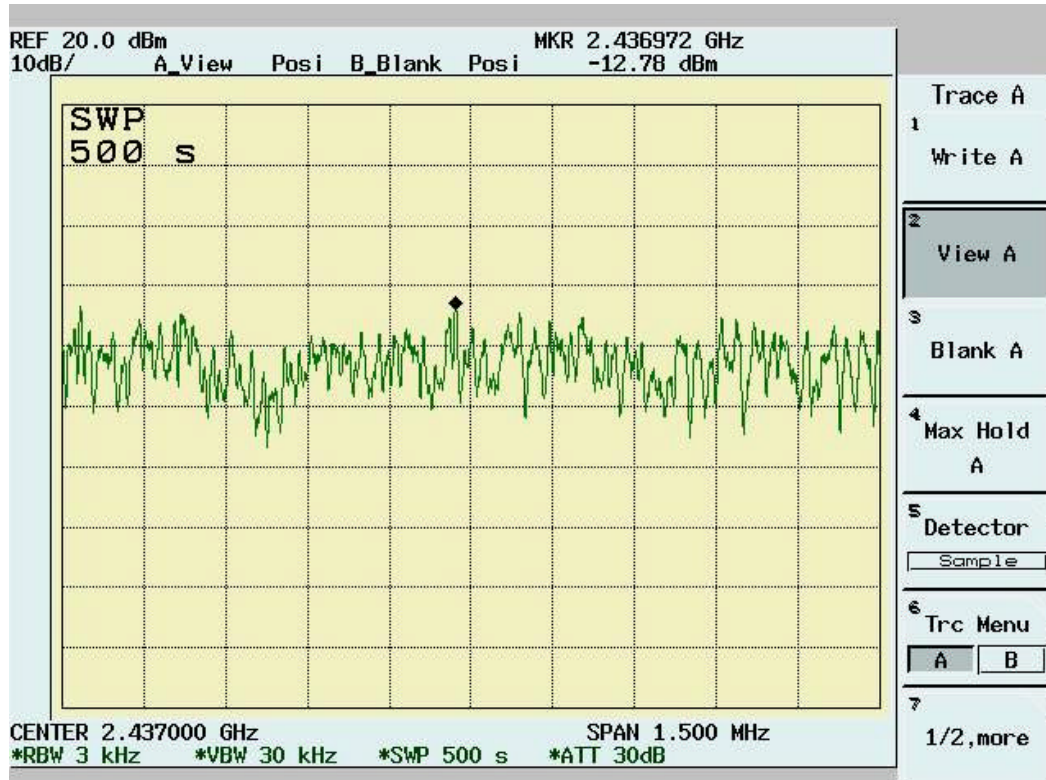
Humidity (%): 50

Chennel	Frequency (MHz)	Spectrum Reading (dBm/3KHz)	Cable Loss (dB)	Peak Power Output (dBm/3KHz)	Limit (dBm/3KHz)	Pass/Fail
1	2412	-13.48	1.1	-12.38	8	Pass
6	2437	-12.78	1.1	-11.68	8	Pass
11	2462	-13.66	1.1	-12.56	8	Pass

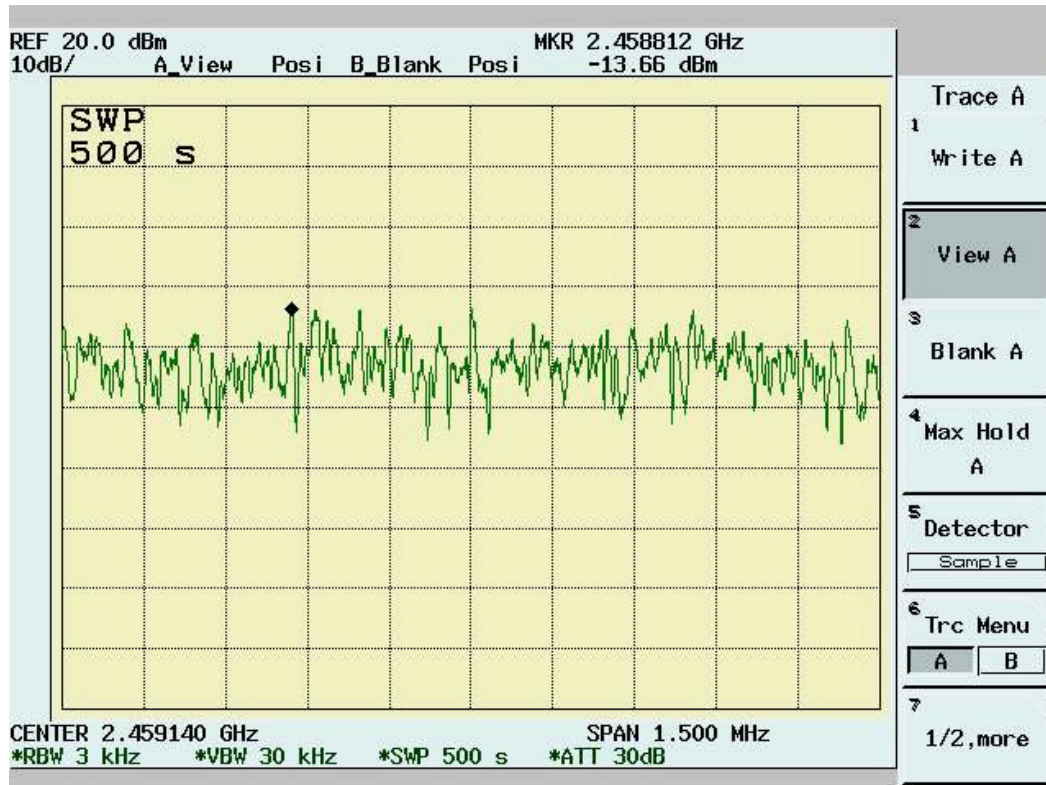
Channel 1



Channel 6



Channel 11



International Standards Laboratory

Report Number: 06LR018FC

HC LAB: NVLAP:200234-0; VCCI: R-341, C-354; NEMKO: ELA 113A; BSMI: SL2-IN-E-0037; SL2-R1-E-0037; CNLA: 1178; IC: IC4067

LT LAB: NVLAP:200234-0; VCCI: R-1435, C-1440; NEMKO: ELA 113B; CNLA: 0997; IC: IC4164-1

5. TEST RESULTS (802.11g)

5.1 Powerline Conducted Emissions [Section 15.207]

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 1, 6, 11

Operator: Jerry Chiou

Temperature(C):26

Humidity(%):56

Frequency	LISN Loss	Cable Loss	QP Corrt.	QP Limit	QP Margin	AVE Corrt.	AVE Limit	AVE Margin
MHz	(dB)	(dB)	Amp.(dBuV)	(dBuV)	(dB)	Amp.(dBuV)	(dBuV)	(dB)
0.37121	0.19	0.09	36.49	59.68	-23.18	26.52	49.68	-23.16
0.48196	0.20	0.07	33.87	56.52	-22.64	25.88	46.52	-20.63
0.60628	0.20	0.07	30.13	56.00	-25.87	24.28	46.00	-21.72
0.8565	0.20	0.07	30.85	56.00	-25.15	24.19	46.00	-21.81
0.97705	0.20	0.07	31.33	56.00	-24.67	25.04	46.00	-20.96
1.21525	0.22	0.07	29.13	56.00	-26.87	23.09	46.00	-22.91
1.94625	0.29	0.09	29.31	56.00	-26.69	22.20	46.00	-23.80
4.22895	0.40	0.14	26.68	56.00	-29.32	19.47	46.00	-26.53
4.85863	0.41	0.15	22.69	56.00	-33.31	14.13	46.00	-31.87
18.0434	0.68	0.32	19.04	60.00	-40.96	16.17	50.00	-33.83

