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FCC TEST REPORT

REPORT NO.: RF971208H06B

MODEL NO.: E1000

RECEIVED: Dec. 08, 2008

TESTED: Feb. 08 to 24, 2009 & May 07 to 18, 2009

ISSUED: Dec. 17, 2009

APPLICANT: Cisco-Linksys LLC

ADDRESS: 121 Theory Drive Irvine, CA 92617 (USA)

ISSUED BY: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory

ADDRESS: No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

TEST LAB (1): Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory

LAB LOCATION: No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

TEST LAB (2): Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories

LAB LOCATION: No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan

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Lin Kou Laboratories



Hsin Chu Laboratory





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1. CERTIFICATION

PRODUCT : Wireless-N Broadband Router
MODEL NO.: E1000
BRAND : Linksys
APPLICANT : Cisco-Linksys LLC
Feb. 08 to 24, 2009 &
TESTED : May 07 to 18, 2009 (only for conducted emission mode 2,
radiated emission mode 2 and maximum peak output
power)
TEST SAMPLE : ENGINEERING SAMPLE
STANDARDS : FCC Part 15, Subpart C (Section 15.247),
ANSI C63.4-2003

We, **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, declare that the equipment above has been tested in our facility and found compliance with the requirement limits of applicable standards. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate under the standards herein specified. This report contains conducted emission test data of mode 1 and radiated emission test data (below 1 GHz) of mode 1 that were produced under subcontract by Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories.

PREPARED BY : Sunny Wen , **DATE:** Dec 17, 2009
(Sunny Wen, Specialist)

TECHNICAL ACCEPTANCE : Hank Chung , **DATE:** Dec 17, 2009
(Hank Chung, Deputy Manager)

APPROVED BY : May Chen , **DATE:** Dec 17, 2009
(May Chen, Deputy Manager)



2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -6.06dB at 0.157MHz.
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit : min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Transmitter Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -0.18dB at 4824.00MHz.
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.



2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

For Lab 1:

Measurement	Value
Conducted emissions	2.45 dB
Radiated emissions (30MHz-1GHz)	3.94 dB
Radiated emissions (1GHz -18GHz)	2.49 dB
Radiated emissions (18GHz -40GHz)	2.70 dB

For Lab 2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.19 dB
	200MHz ~1000MHz	3.21 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB



3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wireless-N Broadband Router
MODEL NO.	E1000
FCC ID	Q87-E1000
POWER SUPPLY	DC 12V from power adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11 / 5.5 / 2 / 1Mbps 802.11g: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6Mbps Draft 802.11n (20MHz, 800ns GI): 65 / 58.5 / 52 / 39 / 26 / 19.5 / 13 / 6.5Mbps Draft 802.11n (40MHz, 800ns GI): 135 / 121.5 / 108 / 81 / 54 / 40.5 / 27 / 13.5Mbps Draft 802.11n (20MHz, 400ns GI): 72.2 / 65 / 57.8 / 43.3 / 28.9 / 21.7 / 14.4 / 7.2Mbps Draft 802.11n (40MHz, 400ns GI): 150 / 135 / 120 / 90 / 60 / 45 / 30 / 15Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, draft 802.11n (20MHz) 7 for draft 802.11n (40MHz)
MAXIMUM OUTPUT POWER	802.11b: 134.9mW 802.11g: 309.0mW draft 802.11n (20MHz): 743.1mW draft 802.11n (40MHz): 805.9mW
ANTENNA TYPE	Pifa antenna without connector (Antenna gain : 1.5dBi)
DATA CABLE	NA
I/O PORT	WAN Port x 1, LAN Port x 4
ASSOCIATED DEVICES	Adapter x 1

NOTE:

1. The EUT must be supplied with a power adapter as following:

Adapter 1	
Brand:	Bestec
Model No.:	EA0061WAA
Input power :	AC100-240V, 0.5A, 50-60Hz
Output power :	DC 12V, 0.5A DC output cable (Unshielded, 1.8m)
Adapter 2	
Brand:	LEADER
Model No.:	MU06-6120050-A1
Input power :	AC100-240V, 0.5A, 50-60Hz
Output power :	DC 12V, 0.5A DC output cable (Unshielded, 1.5m)

2. The EUT was pre-tested in chamber under the following modes:

Test Mode	Description
Mode A	Level-set (Put on tabletop)
Mode B	Tower-set (Wall-mounted)

From the above modes, the worst case was found in **Mode B**. Therefore only the test data of the modes were recorded in this report.

3. The EUT incorporates a MIMO function with draft 802.11n. Physically, the EUT provides two completed transmitters and two receivers.
4. The EUT is 2 * 2 spatial MIMO without beam forming function. The antenna configuration is two transmitter antennas and two receiver antennas, as there are 2 antennas. Spatial multiplexing modes for simultaneous transmission using 2 antennas, and for simultaneous receiver using 2 antennas.
5. The EUT complies with draft 802.11n standards and backwards compatible with 802.11b, 802.11g products.
6. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.



3.2 DESCRIPTION OF TEST MODES

Eleven channels are provided for 802.11b, 802.11g, draft 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

Seven channels are provided for draft 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2422MHz	5	2442MHz
2	2427MHz	6	2447MHz
3	2432MHz	7	2452MHz
4	2437MHz		



3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE < 1G	RE ≥ 1G	APCM	
1	√	√			Adapter 1
2	√	√	√	√	Adapter 2

Where **PLC**: Power Line Conducted Emission **RE < 1G**: Radiated Emission below 1GHz
RE ≥ 1G: Radiated Emission above 1GHz **APCM**: Antenna Port Conducted Measurement

POWER LINE CONDUCTED EMISSION TEST:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	CONFIGURE MODE
Draft 802.11n (40MHz)	1 to 7	4	OFDM	BPSK	27	1, 2

RADIATED EMISSION TEST (BELOW 1 GHZ):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	CONFIGURE MODE
Draft 802.11n (40MHz)	1 to 7	4	OFDM	BPSK	27	1, 2



RADIATED EMISSION TEST (ABOVE 1 GHZ):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	CONFIGURE MODE
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	2
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	2
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	13	2
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	27	2

BANDEDGE MEASUREMENT:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	CONFIGURE MODE
802.11b	1 to 11	1, 11	DSSS	DBPSK	1	2
802.11g	1 to 11	1, 11	OFDM	BPSK	6	2
Draft 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	13	2
Draft 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	27	2

ANTENNA PORT CONDUCTED MEASUREMENT:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	CONFIGURE MODE
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	2
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	2
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	13	2
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	27	2



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3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C. (15.247)

ANSI C63.4-2003

All test items have been performed and recorded as per the above standards.

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.



3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Conducted test mode 1 and Radiated test mode 1 – below 1 GHz					
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP18L	D1T5W1S 28407620224	QDS-BRCM1019
2	NOTEBOOK COMPUTER	DELL	PP05L	14307680656	E2K24CLNS
Conducted test mode 2					
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP18L	12252644560	FCC
2	NOTEBOOK COMPUTER	HP	HSTNN-S19C	JP96X-4Y88K-BXX Y8-K27B3-M86FT	FCC DoC
3	NOTEBOOK COMPUTER	DELL	PPT	17044664176	E2K24GBRL
Radiated test mode 2 – below 1 GHz					
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP18L	D1T5W1S 28407620224	QDS-BRCM1019
2	NOTEBOOK COMPUTER	DELL	PP05L	14307680656	E2K24CLNS
Radiated test – above 1 GHz					
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP18L	6976685584	DoC
2	NOTEBOOK COMPUTER	DELL	PP19L	CN-OHC416-70166 -5CA-0448	PIW632500516610
3	HUB	AVSYS	110H8	01-20E-000002	DoC



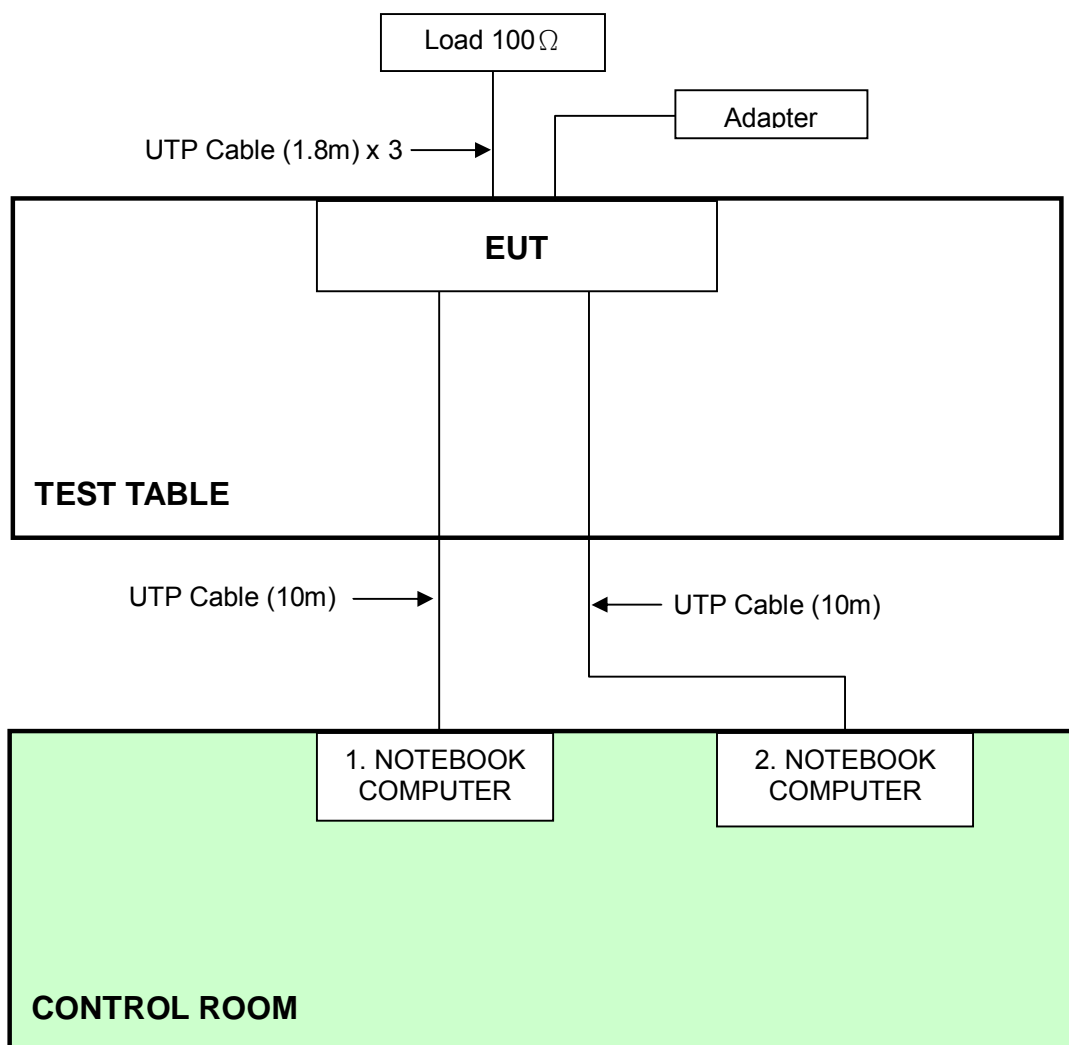
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Conducted test mode 1 & Radiated test mode 1~2 - below 1 GHz	
NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	UTP Cable (10m)
2	UTP Cable (10m)
Conducted test mode 2	
NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	UTP Cable (10m)
3	UTP Cable (10m)
Radiated test – above 1 GHz	
NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	UTP Cable (10m)
2	UTP Cable (10m)
3	UTP Cable (10m)

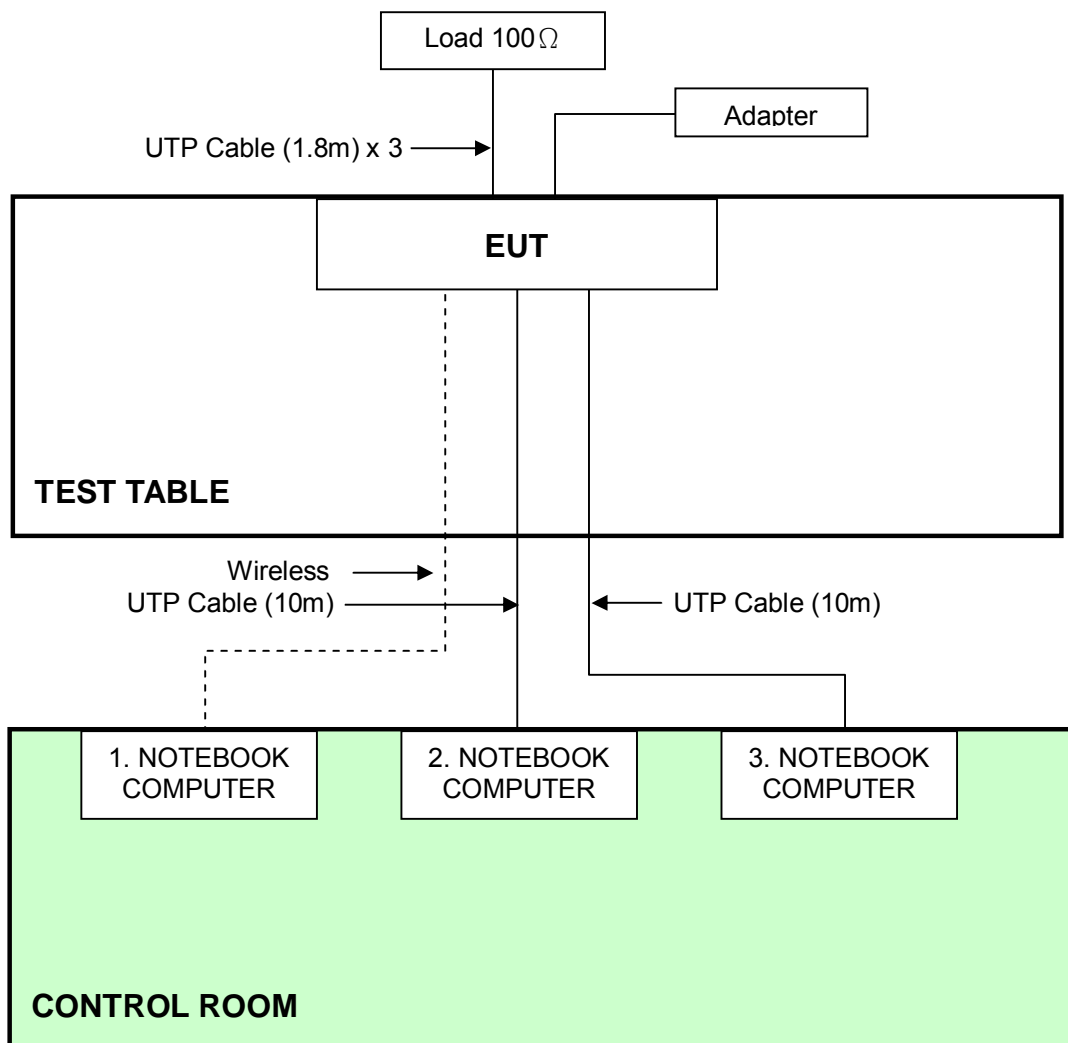
NOTE: All power cords of the above support units are non shielded (1.8m).

3.5 CONFIGURATION OF SYSTEM UNDER TEST

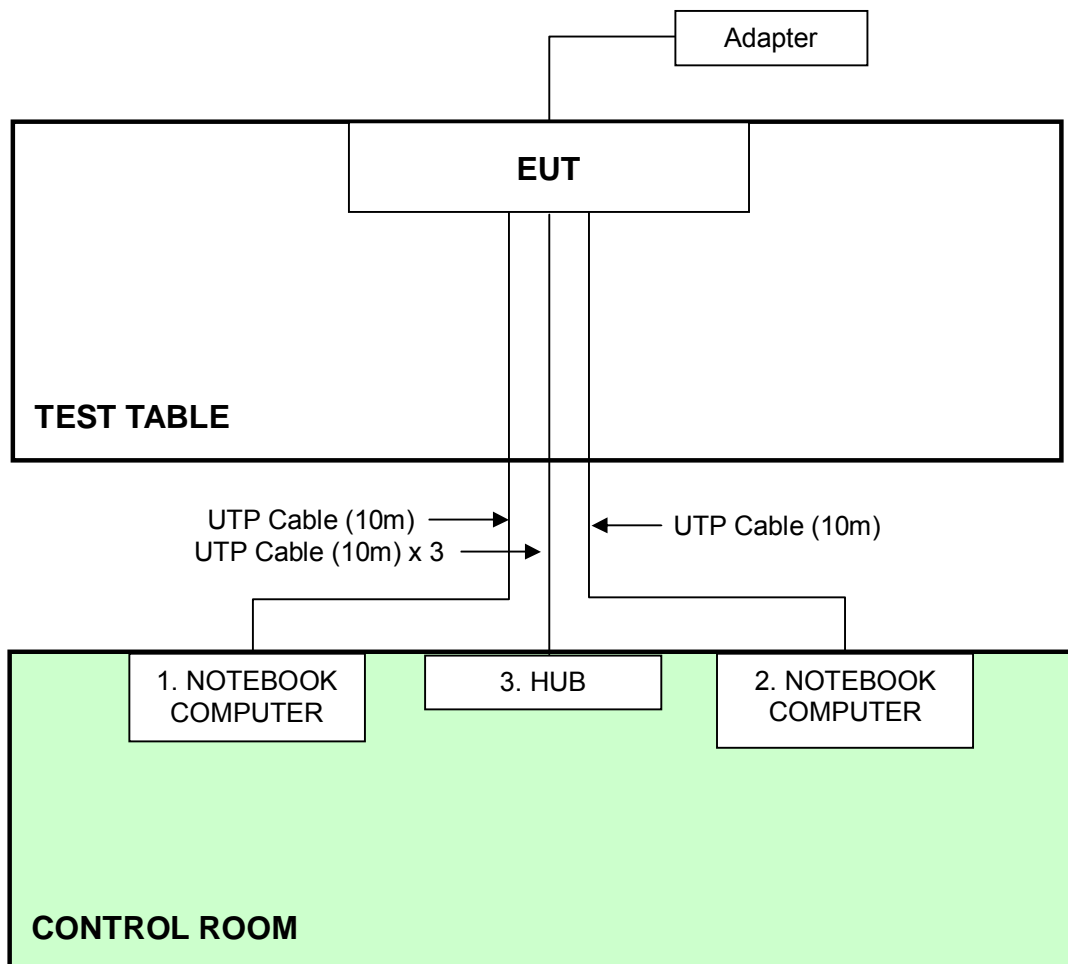
For Conducted test mode 1 & Radiated test mode 1~2 - below 1 GHz:



For Conducted test mode 2:



For Radiated test - above 1 GHz:





4. TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
 3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

For test mode 1:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Sep. 22, 2008	Sep. 21, 2009
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Jan. 04, 2009	Jan. 03, 2010
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Dec. 29, 2008	Dec. 28, 2009
LISN ROHDE & SCHWARZ	ESH3-Z5	100311	Jul. 30, 2008	Jul. 29, 2009
Software ADT	ADT_Cond_ V7.3.6	NA	NA	NA

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Shielded Room 2.
 3. The VCCI Site Registration No. is C-2047.



For test mode 2:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Mar. 05, 2009	Mar. 04, 2010
Line-Impedance Stabilization Network (for EUT)	KNW-407	8-1395-12	May 06, 2009	May 05, 2010
Line-Impedance Stabilization Network (for Peripheral)	ENV-216	100072	June 13, 2008	June 12, 2009
RF Cable (JYEBAO)	5DFB	COACAB-001	Dec 15, 2008	Dec 14, 2009
50 ohms Terminator	50	3	Nov. 05, 2008	Nov. 04, 2009
Software	BV ADT_Cond_V7.3.7	NA	NA	NA

- NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. A.
3. The VCCI Con A Registration No. is C-817.

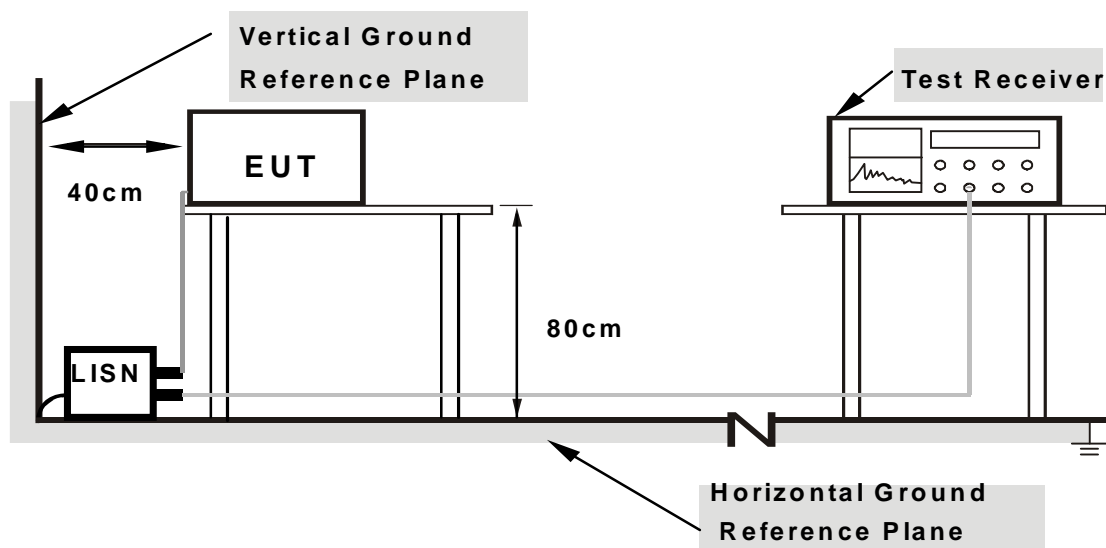
4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.1.6 EUT OPERATING CONDITIONS

For test mode 1:

1. Placed the EUT on testing table.
2. Prepared other computer systems (support units 1 ~ 2) to act as communication partners and placed them outside of testing area.
3. The communication partners run test program “MFGTEST” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

For test mode 2:

1. Placed the EUT on testing table.
2. Prepared other computer systems (support units 1 ~ 3) to act as communication partners and placed them outside of testing area.
3. The communication partners run test program “Ping.exe” to enable EUT under transmission/receiving condition continuously via UTP cables and wireless transmission.

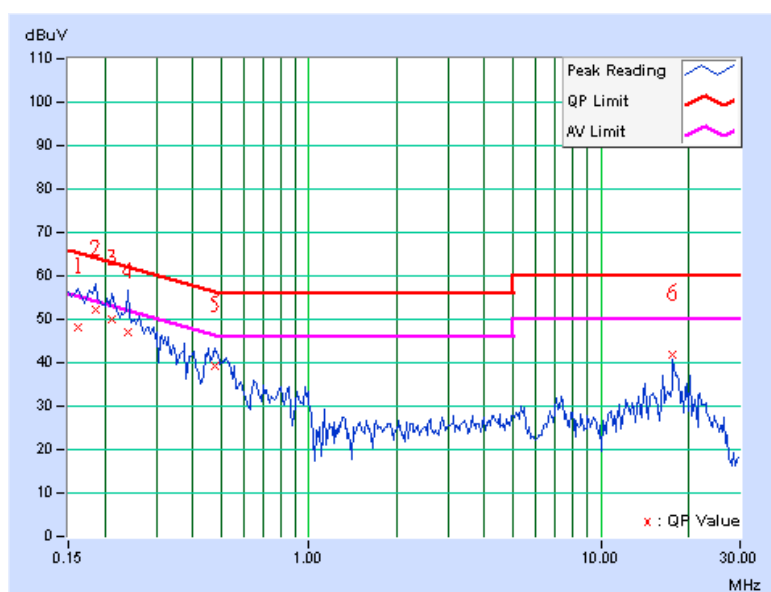
4.1.7 TEST RESULTS (MODE 1, SUBCONTRACT ITEM)

DRAFT 802.11N (40MHZ) OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	PHASE	Line (L)
MODULATION TYPE	OFDM	6dB BANDWIDTH	9 kHz
TRANSFER RATE	27Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 963hPa	TESTED BY	Daniel Lin

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.162	0.14	46.63	-	46.77	-	65.38
2	0.185	0.13	50.82	-	50.95	-	64.25	54.25	-13.30	-
3	0.213	0.12	48.55	-	48.67	-	63.11	53.11	-14.44	-
4	0.240	0.12	45.80	-	45.92	-	62.10	52.10	-16.18	-
5	0.474	0.12	37.67	-	37.79	-	56.44	46.44	-18.64	-
6	17.695	1.41	40.41	-	41.82	-	60.00	50.00	-18.18	-

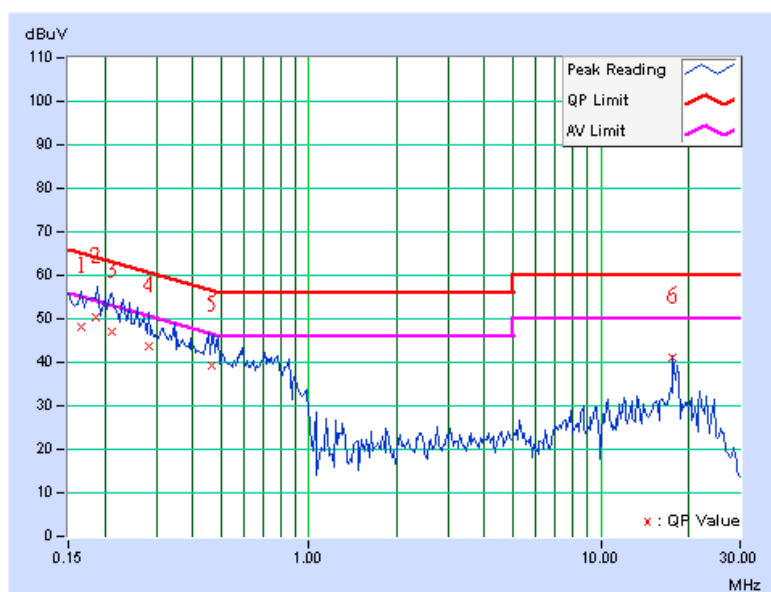
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	PHASE	Line (L)
MODULATION TYPE	OFDM	6dB BANDWIDTH	9 kHz
TRANSFER RATE	27Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 963hPa	TESTED BY	Daniel Lin

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.166	0.10	46.91	-	47.01	-	65.18
2	0.185	0.10	49.46	-	49.56	-	64.25	54.25	-14.69	-
3	0.213	0.10	45.87	-	45.97	-	63.11	53.11	-17.14	-
4	0.283	0.10	42.58	-	42.68	-	60.73	50.73	-18.05	-
5	0.466	0.11	38.27	-	38.38	-	56.58	46.58	-18.20	-
6	17.695	1.06	39.97	-	41.03	-	60.00	50.00	-18.97	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



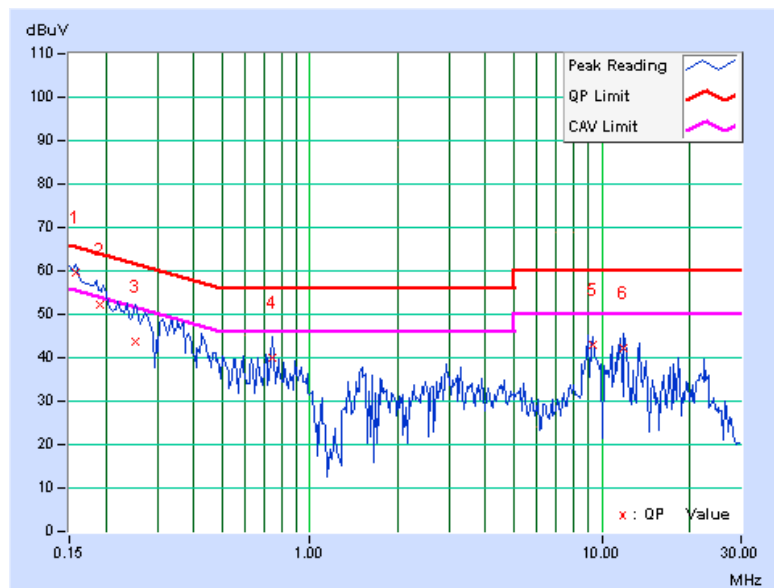
4.1.8 TEST RESULTS (MODE 2)

DRAFT 802.11N (40MHZ) OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	PHASE	Line (L)
MODULATION TYPE	OFDM	6dB BANDWIDTH	9 kHz
TRANSFER RATE	27Mbps	INPUT POWER	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 960hPa	TESTED BY	Eagle Chen

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
	1	0.157	0.60	58.97	47.01	59.57	47.61	65.63	55.63	-6.06
2	0.192	0.53	51.60	-	52.13	-	63.95	53.95	-11.82	-
3	0.252	0.48	43.34	-	43.82	-	61.71	51.71	-17.88	-
4	0.744	0.40	39.68	-	40.08	-	56.00	46.00	-15.92	-
5	9.328	0.52	42.60	-	43.12	-	60.00	50.00	-16.88	-
6	11.891	0.56	41.65	-	42.21	-	60.00	50.00	-17.79	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.

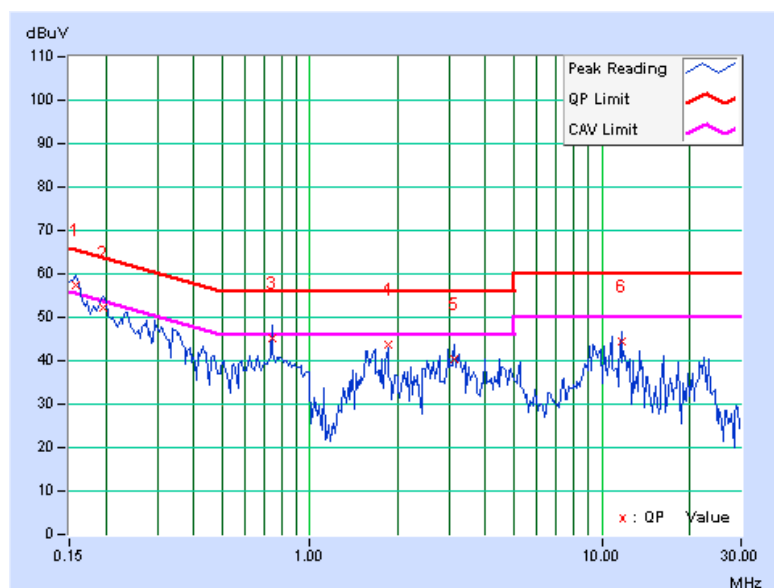




EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	PHASE	Neutral (N)
MODULATION TYPE	OFDM	6dB BANDWIDTH	9 kHz
TRANSFER RATE	27Mbps	INPUT POWER	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 960hPa	TESTED BY	Eagle Chen

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.158	0.35	56.94	45.46	57.29	45.81	65.58
2	0.197	0.27	51.92	-	52.19	-	63.74	53.74	-11.56	-
3	0.740	0.16	45.06	-	45.22	-	56.00	46.00	-10.78	-
4	1.852	0.18	43.56	-	43.74	-	56.00	46.00	-12.26	-
5	3.125	0.21	40.12	-	40.33	-	56.00	46.00	-15.67	-
6	11.648	0.36	44.05	-	44.41	-	60.00	50.00	-15.59	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.





4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
0.009 ~ 0.490	2400 / F(kHz)	300
0.490 ~ 1.705	24000 / F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



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4.2.2 TEST INSTRUMENTS

For test mode 1 below 1 GHz:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESI7	838496/016	Dec. 29, 2008	Dec. 28, 2009
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Dec. 08, 2008	Dec. 07, 2009
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Apr. 30, 2008	Apr. 29, 2009
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-408	Dec. 29, 2008	Dec. 28, 2009
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 06, 2009	Jan. 05, 2010
Preamplifier Agilent	8449B	3008A01960	Nov. 03, 2008	Nov. 02, 2009
Preamplifier Agilent	8447D	2944A10631	Nov. 03, 2008	Nov. 02, 2009
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	274041/4	Aug. 21, 2008	Aug. 20, 2009
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283397/4	Aug. 21, 2008	Aug. 20, 2009
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA	NA
Turn Table ADT.	TT100.	TT93021704	NA	NA
Turn Table Controller ADT.	SC100.	SC93021704	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	07026401	Aug. 27, 2008	Aug. 26, 2009

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Chamber 4.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Site Registration No. is 988962.
 5. The IC Site Registration No. is IC7450F-4.



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For other test mode :

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 09, 2008	Dec. 08, 2009
HP Pre_Amplifier	8449B	3008A01923	Nov. 10, 2008	Nov. 09, 2009
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 09, 2008	Sep. 08, 2009
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	April 29, 2009	April 28, 2010
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 09, 2008	Dec. 08, 2009
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2009	Jan. 21, 2010
R&S Loop Antenna	HFH2-Z2	100070	Jan. 14, 2008	Jan. 13, 2010
RF Switches	EMH-011	08009	Oct. 07, 2008	Oct. 06, 2009
RF CABLE (Chaintek)	Sucoflex 106	28077	Aug. 15, 2008	Aug. 14, 2009
RF Cable	8DFB	STCCAB-30M-1GHz	Oct. 07, 2008	Oct. 06, 2009
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: FSP40) are used only for the measurement of emission frequency above 1GHz if tested.

3. The test was performed in Open Site No. C.

4. The FCC Site Registration No. is 656396.

5. The VCCI Site Registration No. is R-1626.

6. The CANADA Site Registration No. is IC 7450G-3.



4.2.3 TEST PROCEDURES

For test mode 1 below 1 GHz:

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi- anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.



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For other test mode:

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using the quasi-peak method or average method as specified and then reported in Data sheet peak mode and QP mode.

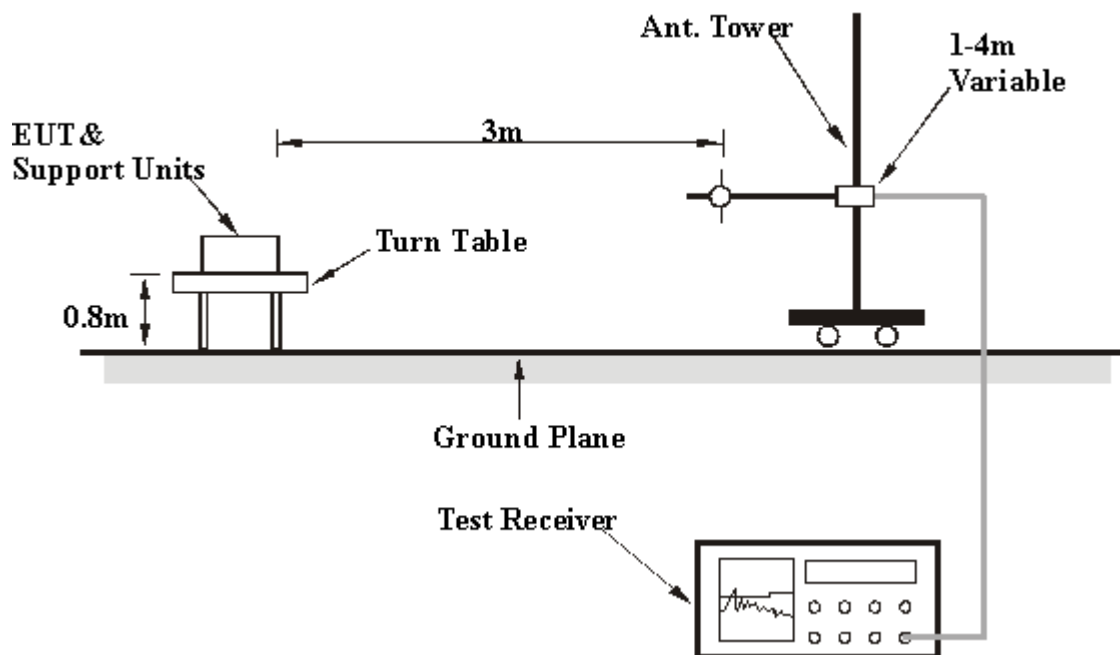
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.2.6 EUT OPERATING CONDITIONS

1. Placed the EUT on testing table.
2. Prepared other computer systems (support units 1 ~ 2) to act as communication partners and placed them outside of testing area.
3. The communication partners run test program “MFGTEST” to enable EUT under transmission/receiving condition continuously at specific channel frequency.



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4.2.7 TEST RESULTS – below 1GHz (MODE 1, SUBCONTRACT ITEM)

BELOW 1GHz WORST-CASE DATA : DRAFT 802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 963hPa	TESTED BY	Mark Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	181.55	34.95 QP	43.50	-8.55	1.25 H	298	22.39	12.56
2	249.60	39.33 QP	46.00	-6.67	1.00 H	88	25.65	13.68
3	266.64	44.58 QP	46.00	-1.42	1.01 H	86	30.54	14.04
4	399.31	37.51 QP	46.00	-8.49	1.00 H	52	20.22	17.29
5	599.58	42.06 QP	46.00	-3.94	1.25 H	34	18.95	23.11
6	976.77	36.68 QP	54.00	-17.32	2.00 H	313	7.55	29.13
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	37.68	37.94 QP	40.00	-2.06	2.00 V	37	25.42	12.52
2	70.00	36.11 QP	40.00	-3.89	2.51 V	260	24.13	11.98
3	399.31	38.90 QP	46.00	-7.10	1.25 V	10	21.61	17.29
4	599.58	40.15 QP	46.00	-5.85	1.00 V	76	17.04	23.11
5	751.23	36.82 QP	46.00	-9.18	1.50 V	325	10.95	25.87
6	1000.00	38.72 QP	54.00	-15.28	1.00 V	55	9.20	29.52

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.



4.2.8 TEST RESULTS (MODE 2)

BELOW 1GHz WORST-CASE DATA : DRAFT 802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 63%RH 960hPa	TESTED BY	Wen Yu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	125.00	33.73 QP	43.50	-9.77	1.47 H	109	19.61	14.12
2	200.00	36.03 QP	43.50	-7.47	1.49 H	133	23.05	12.98
3	250.00	40.62 QP	46.00	-5.38	1.26 H	269	25.20	15.42
4	266.67	43.96 QP	46.00	-2.04	1.00 H	124	27.99	15.97
5	300.00	38.56 QP	46.00	-7.44	1.00 H	130	21.54	17.02
6	333.33	38.26 QP	46.00	-7.74	1.00 H	138	19.88	18.38
7	400.00	40.36 QP	46.00	-5.64	1.00 H	146	19.22	21.14
8	500.00	40.71 QP	46.00	-5.29	1.48 H	140	18.05	22.66
9	533.34	39.62 QP	46.00	-6.38	1.38 H	144	16.16	23.46
10	600.00	40.36 QP	46.00	-5.64	1.23 H	228	15.59	24.77

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	125.00	31.01 QP	43.50	-12.49	1.00 V	64	16.89	14.12
2	200.00	30.84 QP	43.50	-12.66	1.00 V	19	17.86	12.98
3	250.00	35.38 QP	46.00	-10.62	1.28 V	174	19.96	15.42
4	266.67	36.33 QP	46.00	-9.67	1.00 V	175	20.36	15.97
5	300.00	35.60 QP	46.00	-10.40	1.38 V	198	18.58	17.02
6	375.00	31.32 QP	46.00	-14.68	1.29 V	190	11.22	20.10
7	400.00	40.49 QP	46.00	-5.51	1.00 V	182	19.35	21.14
8	500.00	42.56 QP	46.00	-3.44	1.00 V	109	19.90	22.66
9	750.00	36.22 QP	46.00	-9.78	1.30 V	279	7.76	28.46
10	875.00	35.53 QP	46.00	-10.47	1.23 V	0	4.81	30.72

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.



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4.2.9 TEST RESULTS – above 1GHz

802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30deg. C, 55%RH 960hPa	TESTED BY	Wen Yu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.10 PK	74.00	-16.90	1.49 H	74	26.82	30.28
2	2390.00	46.43 AV	54.00	-7.57	1.49 H	74	16.15	30.28
3	*2412.00	111.58 PK			1.49 H	87	81.22	30.36
4	*2412.00	107.01 AV			1.49 H	87	76.65	30.36
5	4824.00	57.37 PK	74.00	-16.63	1.32 H	34	20.58	36.79
6	4824.00	53.82 AV	54.00	-0.18	1.32 H	34	17.03	36.79
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	55.15 PK	74.00	-18.85	1.00 V	114	24.87	30.28
2	2390.00	44.31 AV	54.00	-9.69	1.00 V	114	14.03	30.28
3	*2412.00	105.10 PK			1.00 V	113	74.74	30.36
4	*2412.00	100.90 AV			1.00 V	113	70.54	30.36
5	4824.00	54.24 PK	74.00	-19.76	1.46 V	355	17.45	36.79
6	4824.00	49.98 AV	54.00	-4.02	1.46 V	355	13.19	36.79

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30deg. C, 55%RH 960hPa	TESTED BY	Wen Yu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	113.67 PK			1.51 H	76	83.21	30.46
2	*2437.00	109.23 AV			1.51 H	76	78.77	30.46
3	4874.00	57.29 PK	74.00	-16.71	1.16 H	38	20.37	36.92
4	4874.00	53.58 AV	54.00	-0.42	1.16 H	38	16.66	36.92
5	7311.00	54.53 PK	74.00	-19.47	1.02 H	31	11.39	43.14
6	7311.00	44.06 AV	54.00	-9.94	1.02 H	31	0.92	43.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.30 PK			1.00 V	168	75.84	30.46
2	*2437.00	102.20 AV			1.00 V	168	71.74	30.46
3	4874.00	54.56 PK	74.00	-19.44	1.00 V	355	17.64	36.92
4	4874.00	50.05 AV	54.00	-3.95	1.00 V	355	13.13	36.92
5	7311.00	52.56 PK	74.00	-21.44	1.15 V	313	9.42	43.14
6	7311.00	39.45 AV	54.00	-14.55	1.15 V	313	-3.69	43.14

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30deg. C, 55%RH 960hPa	TESTED BY	Wen Yu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	112.84 PK			1.50 H	78	82.29	30.55
2	*2462.00	108.42 AV			1.50 H	78	77.87	30.55
3	2483.50	60.62 PK	74.00	-13.38	1.43 H	72	29.99	30.63
4	2483.50	48.47 AV	54.00	-5.53	1.43 H	72	17.84	30.63
5	4924.00	56.60 PK	74.00	-17.40	1.32 H	32	19.54	37.06
6	4924.00	52.69 AV	54.00	-1.31	1.32 H	32	15.63	37.06
7	7386.00	54.91 PK	74.00	-19.09	1.00 H	30	11.78	43.13
8	7386.00	44.52 AV	54.00	-9.48	1.00 H	30	1.39	43.13

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

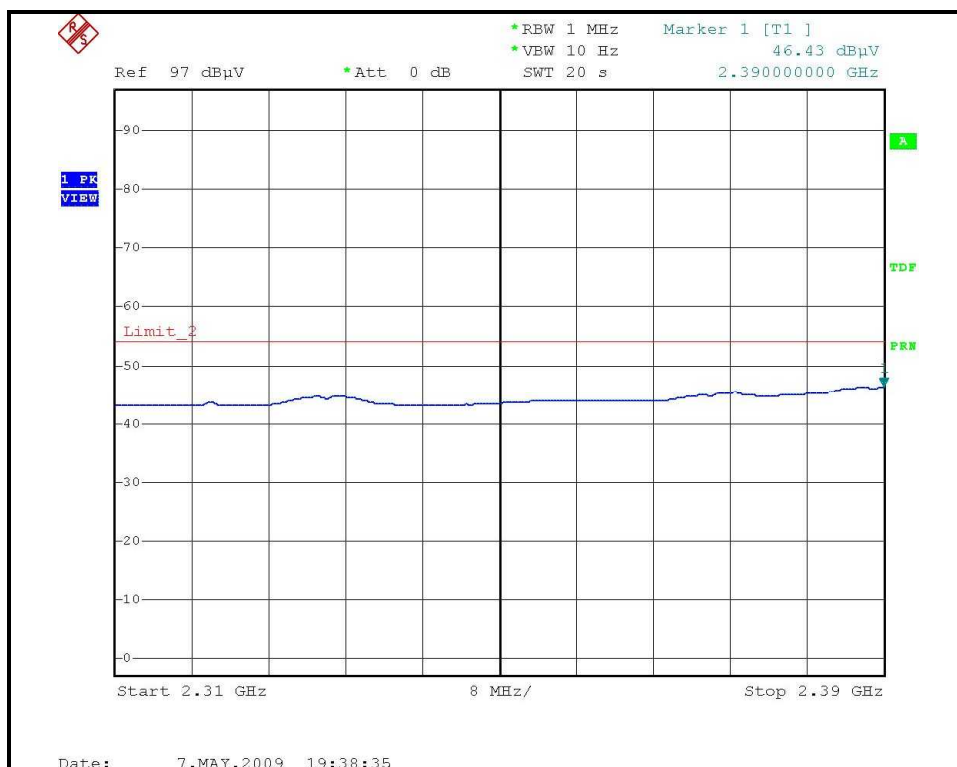
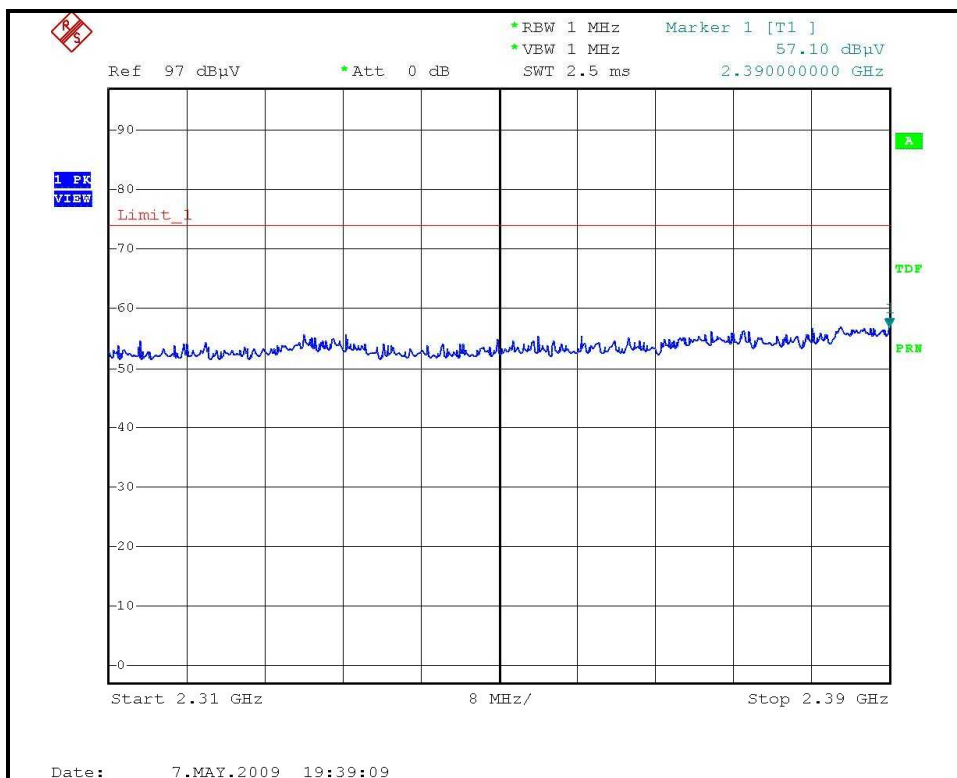
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.80 PK			1.00 V	277	74.25	30.55
2	*2462.00	100.60 AV			1.00 V	277	70.05	30.55
3	2483.50	56.04 PK	74.00	-17.96	1.00 V	277	25.41	30.63
4	2483.50	44.64 AV	54.00	-9.36	1.00 V	277	14.01	30.63
5	4924.00	54.42 PK	74.00	-19.58	1.10 V	347	17.36	37.06
6	4924.00	50.00 AV	54.00	-4.00	1.10 V	347	12.94	37.06
7	7386.00	52.33 PK	74.00	-21.67	1.33 V	341	9.20	43.13
8	7386.00	39.27 AV	54.00	-14.73	1.33 V	341	-3.86	43.13

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.



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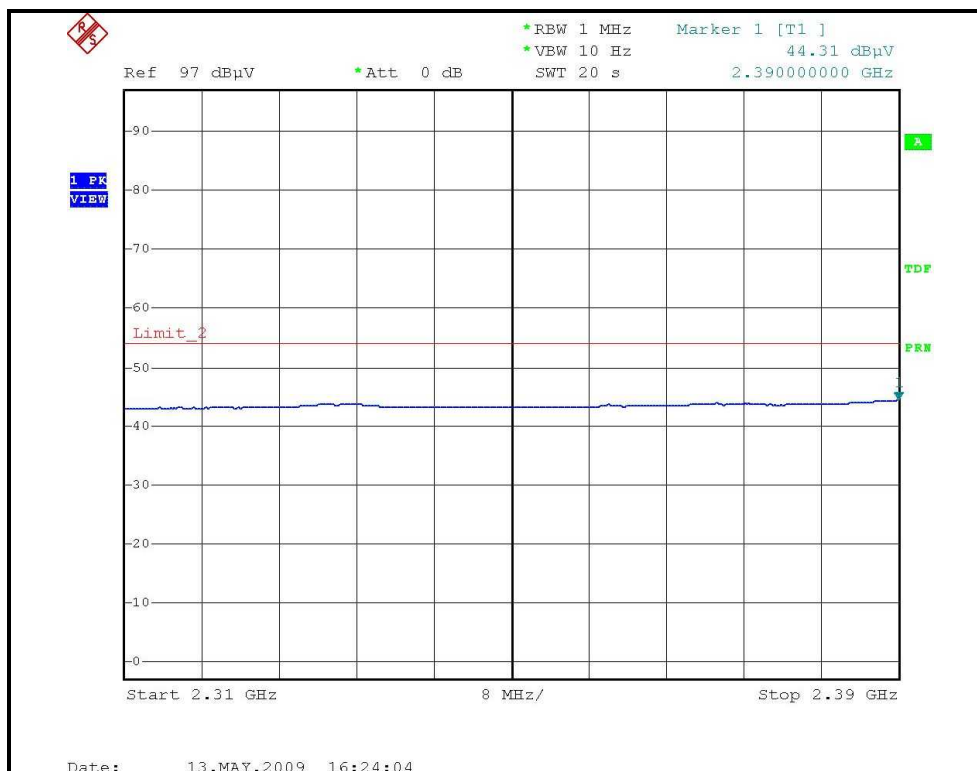
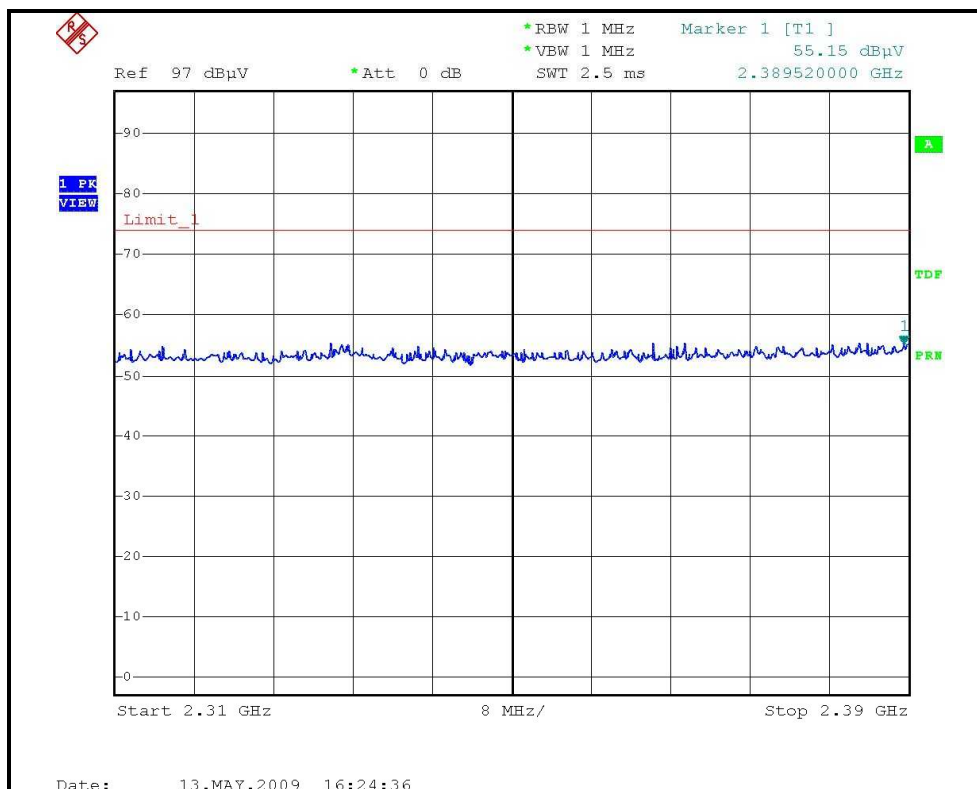
RESTRICTED BANDEDGE (802.11b MODE, CH1, HORIZONTAL)





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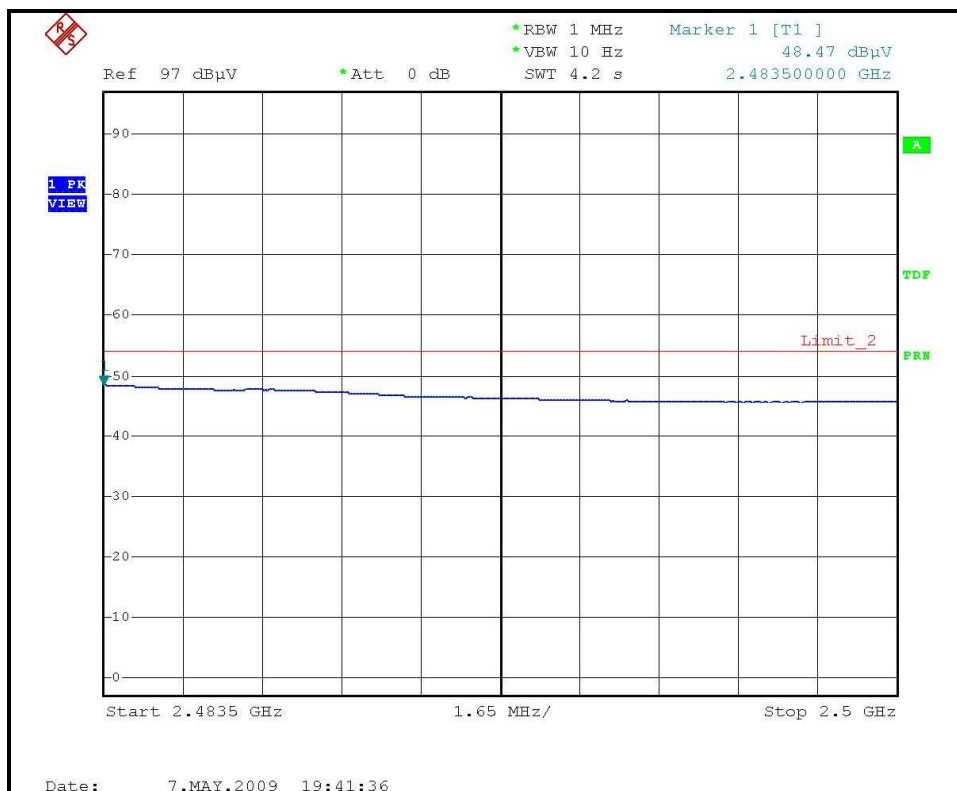
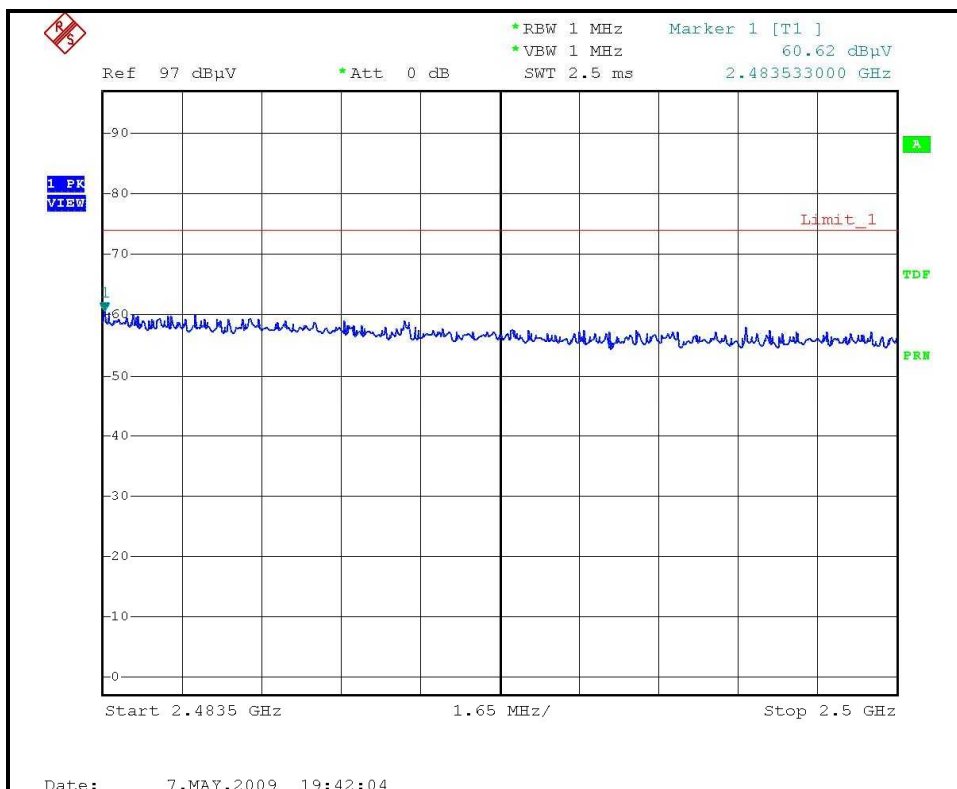
RESTRICTED BANDEDGE (802.11b MODE, CH1, VERTICAL)





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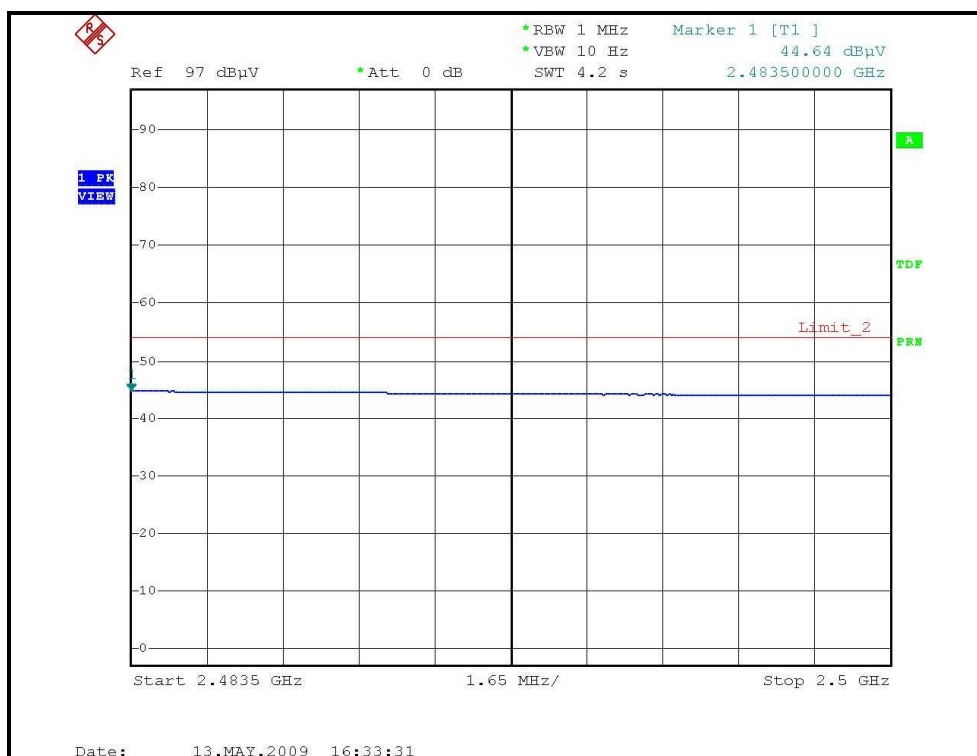
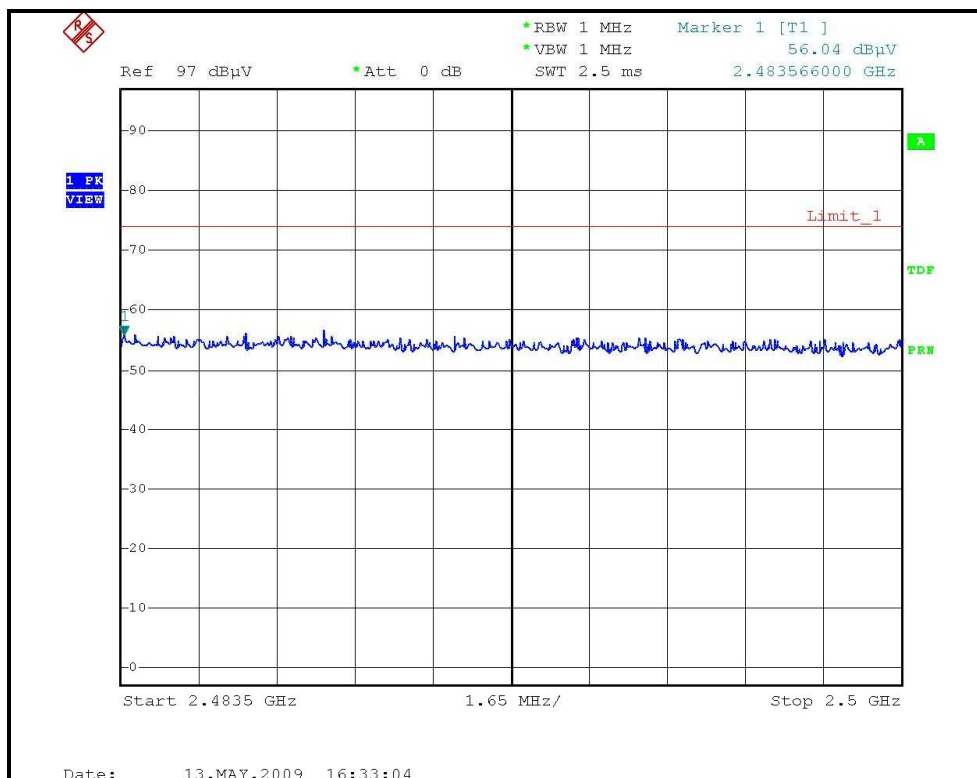
RESTRICTED BANDEDGE (802.11b MODE, CH11, HORIZONTAL)





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RESTRICTED BANDEDGE (802.11b MODE, CH11, VERTICAL)





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802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30deg. C, 55%RH 960hPa	TESTED BY	Wen Yu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.21 PK	74.00	-17.79	1.50 H	73	25.93	30.28
2	2390.00	48.59 AV	54.00	-5.41	1.50 H	73	18.31	30.28
3	*2412.00	112.32 PK			1.50 H	75	81.96	30.36
4	*2412.00	100.69 AV			1.50 H	75	70.33	30.36
5	4824.00	54.39 PK	74.00	-19.61	1.28 H	42	17.60	36.79
6	4824.00	41.11 AV	54.00	-12.89	1.28 H	42	4.32	36.79
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.72 PK	74.00	-11.28	1.00 V	113	32.44	30.28
2	2390.00	45.46 AV	54.00	-8.54	1.00 V	113	15.18	30.28
3	*2412.00	105.70 PK			1.00 V	113	75.34	30.36
4	*2412.00	93.70 AV			1.00 V	113	63.34	30.36
5	4824.00	52.48 PK	74.00	-21.52	1.45 V	355	15.69	36.79
6	4824.00	39.01 AV	54.00	-14.99	1.45 V	355	2.22	36.79

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30deg. C, 55%RH 960hPa	TESTED BY	Wen Yu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	113.04 PK			1.48 H	77	82.58	30.46
2	*2437.00	102.41 AV			1.48 H	77	71.95	30.46
3	4874.00	54.57 PK	74.00	-19.43	1.20 H	40	17.65	36.92
4	4874.00	41.25 AV	54.00	-12.75	1.20 H	40	4.33	36.92
5	7311.00	52.71 PK	74.00	-21.29	1.02 H	30	9.57	43.14
6	7311.00	38.94 AV	54.00	-15.06	1.02 H	30	-4.20	43.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.00 PK			1.00 V	168	75.54	30.46
2	*2437.00	95.30 AV			1.00 V	168	64.84	30.46
3	4874.00	52.61 PK	74.00	-21.39	1.00 V	355	15.69	36.92
4	4874.00	39.26 AV	54.00	-14.74	1.00 V	355	2.34	36.92
5	7311.00	52.67 PK	74.00	-21.33	1.15 V	312	9.53	43.14
6	7311.00	38.26 AV	54.00	-15.74	1.15 V	312	-4.88	43.14

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30deg. C, 55%RH 960hPa	TESTED BY	Wen Yu

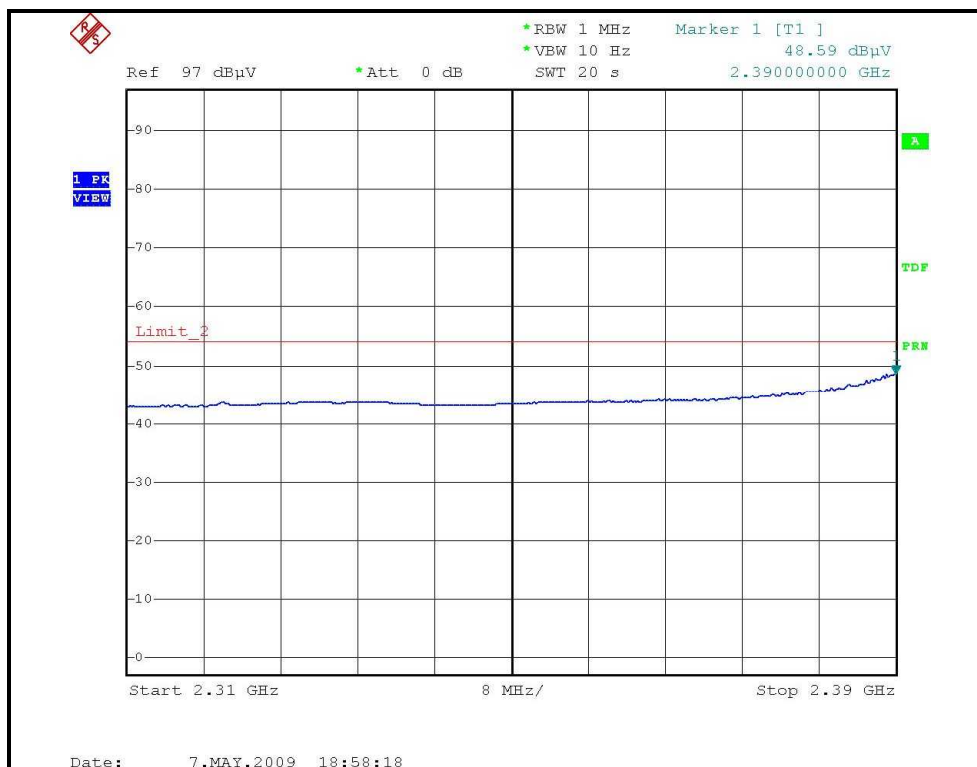
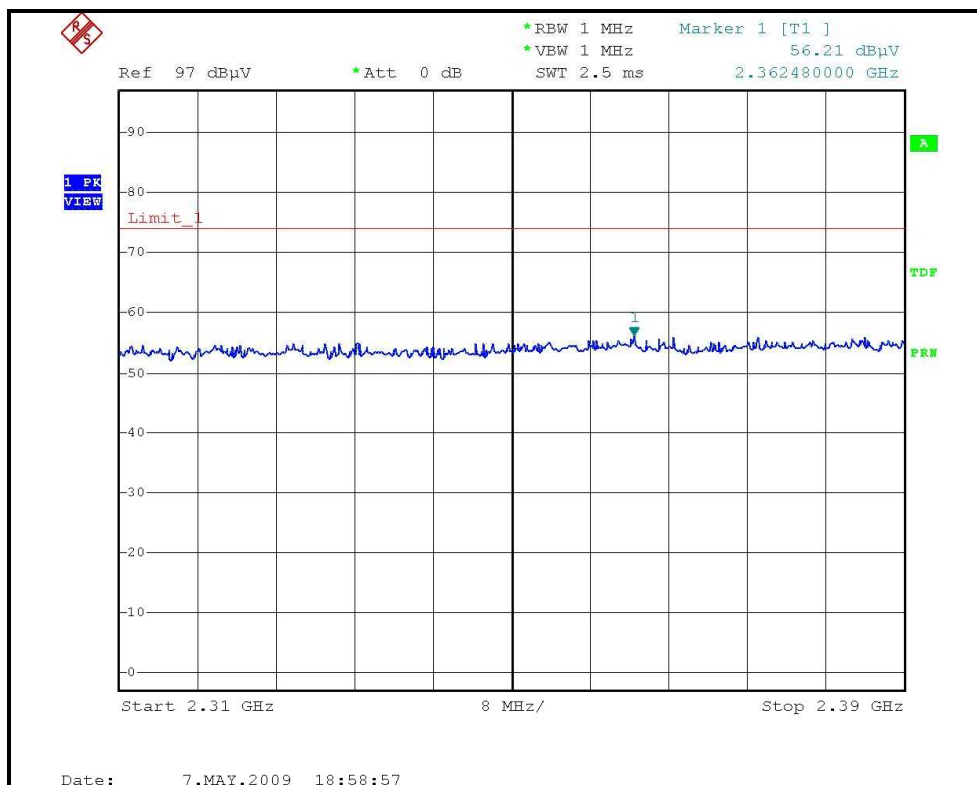
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	112.90 PK			1.51 H	70	82.35	30.55
2	*2462.00	101.70 AV			1.51 H	70	71.15	30.55
3	2483.50	71.37 PK	74.00	-2.63	1.51 H	71	40.74	30.63
4	2483.50	51.06 AV	54.00	-2.94	1.51 H	71	20.43	30.63
5	4924.00	54.52 PK	74.00	-19.48	1.30 H	34	17.46	37.06
6	4924.00	41.38 AV	54.00	-12.62	1.30 H	34	4.32	37.06
7	7386.00	52.78 PK	74.00	-21.22	1.00 H	31	9.65	43.13
8	7386.00	38.99 AV	54.00	-15.01	1.00 H	31	-4.14	43.13
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.00 PK			1.00 V	277	73.45	30.55
2	*2462.00	93.80 AV			1.00 V	277	63.25	30.55
3	2483.50	65.16 PK	74.00	-8.84	1.00 V	276	34.53	30.63
4	2483.50	45.75 AV	54.00	-8.25	1.00 V	276	15.12	30.63
5	4924.00	52.65 PK	74.00	-21.35	1.10 V	350	15.59	37.06
6	4924.00	39.33 AV	54.00	-14.67	1.10 V	350	2.27	37.06
7	7386.00	52.74 PK	74.00	-21.26	1.34 V	342	9.61	43.13
8	7386.00	38.36 AV	54.00	-15.64	1.34 V	342	-4.77	43.13

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.



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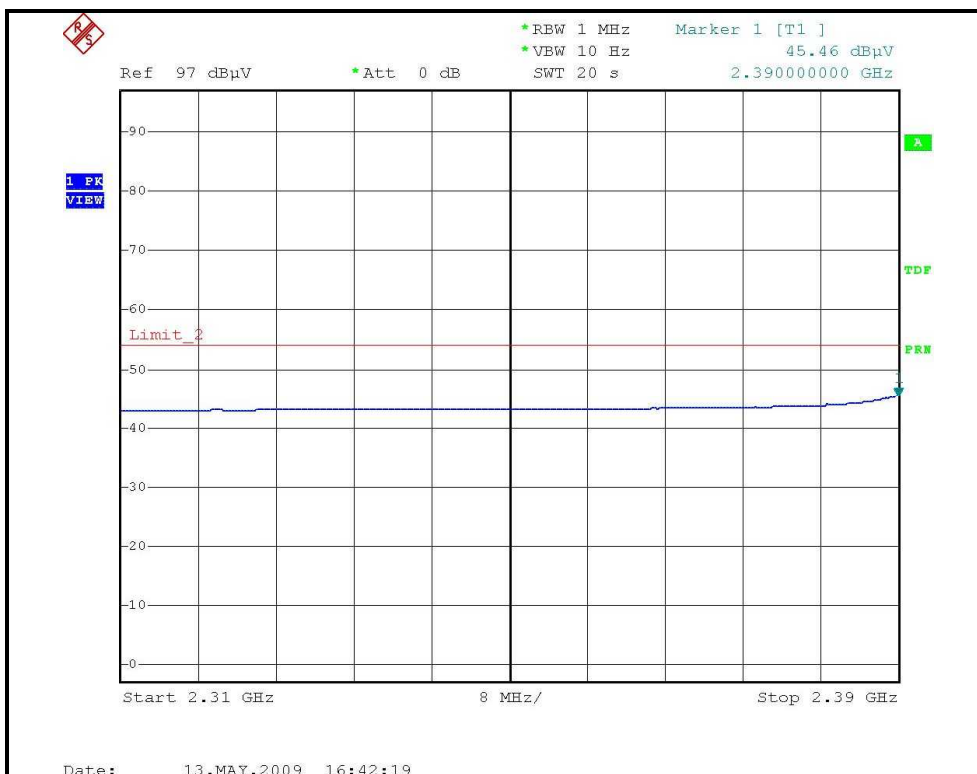
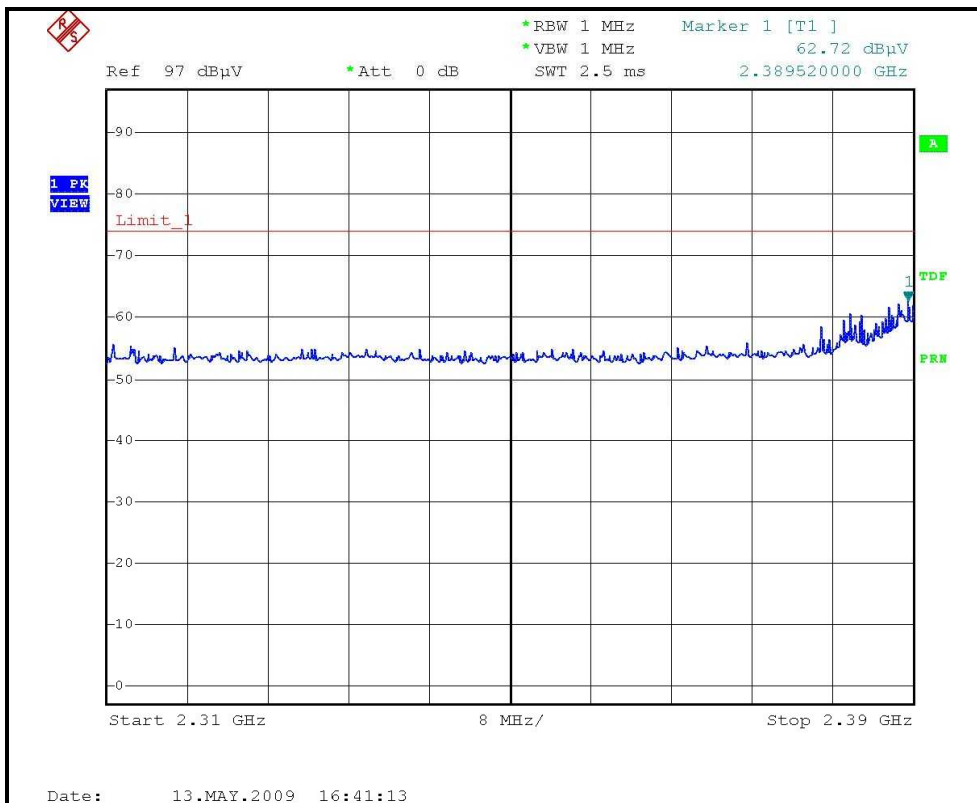
RESTRICTED BANDEDGE (802.11g MODE, CH1, HORIZONTAL)





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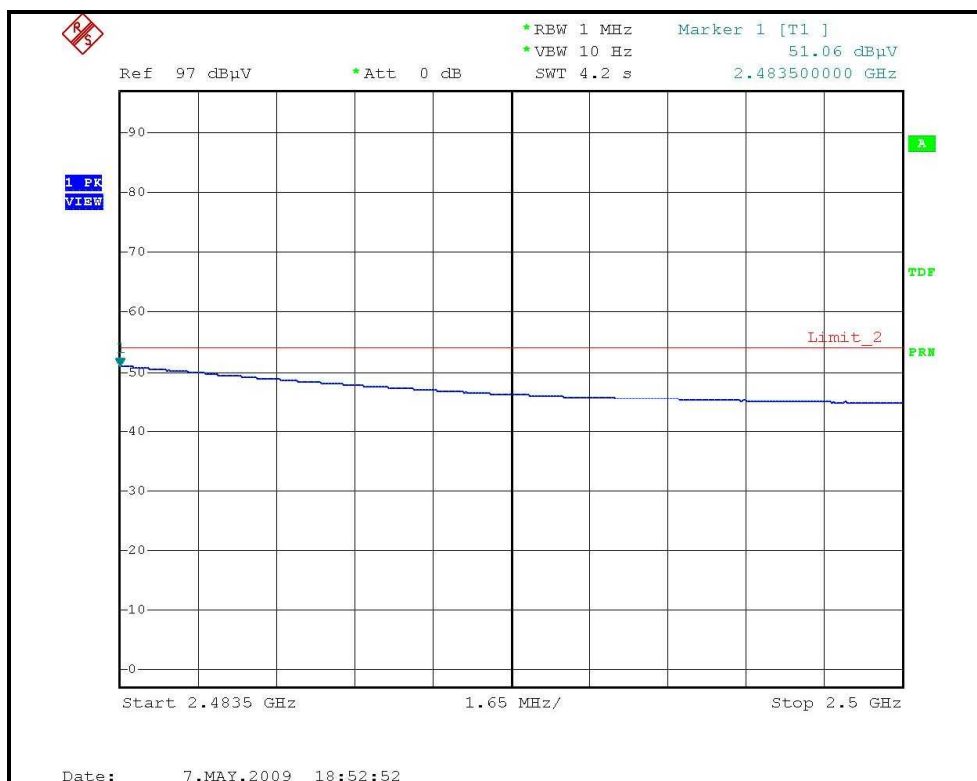
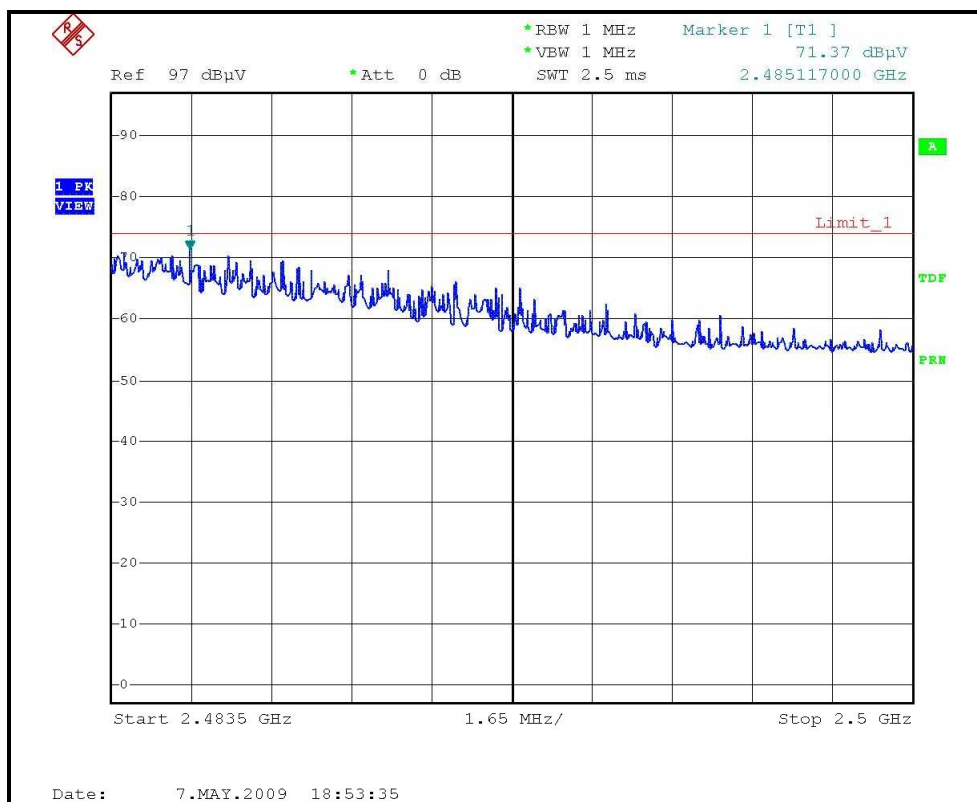
RESTRICTED BANDEDGE (802.11g MODE, CH1, VERTICAL)





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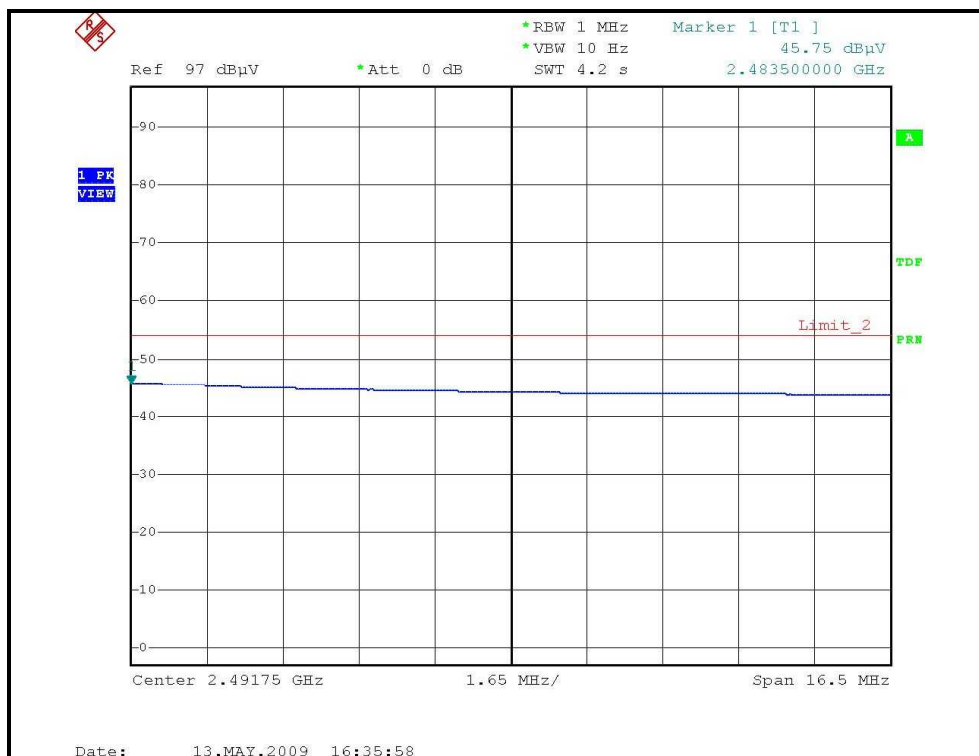
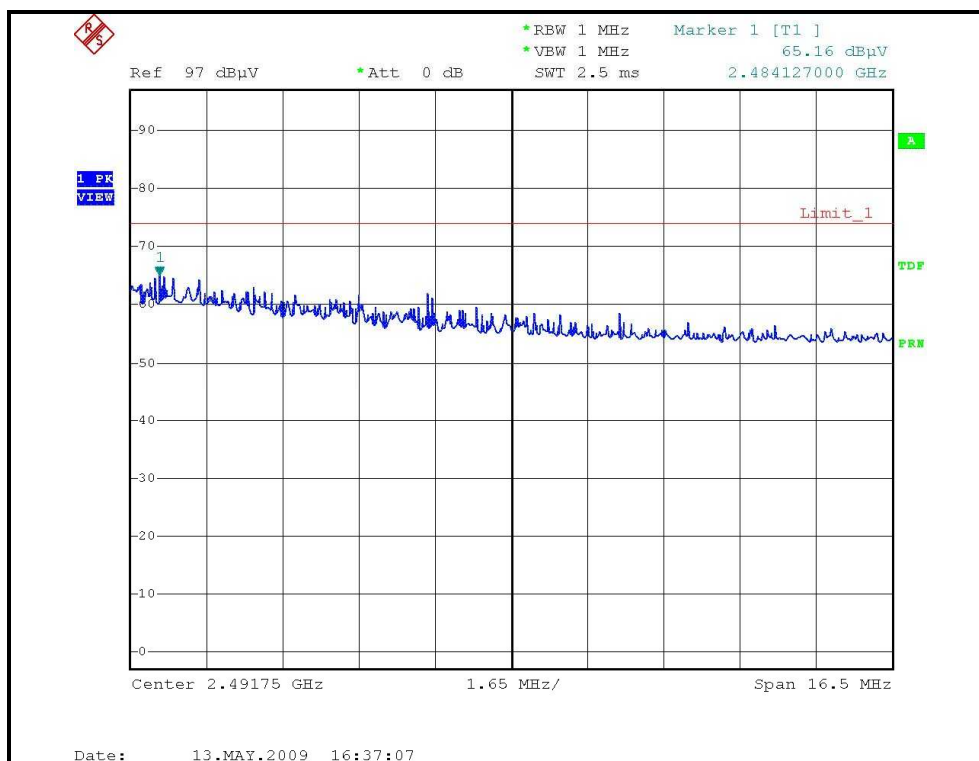
RESTRICTED BANDEDGE (802.11g MODE, CH11, HORIZONTAL)





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RESTRICTED BANDEDGE (802.11g MODE, CH11, VERTICAL)



**DRAFT 802.11n (20MHz) OFDM MODULATION**

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30deg. C, 55%RH 960hPa	TESTED BY	Wen Yu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.48 PK	74.00	-1.52	1.92 H	261	42.20	30.28
2	2390.00	52.62 AV	54.00	-1.38	1.92 H	261	22.34	30.28
3	*2412.00	113.23 PK			1.91 H	261	82.87	30.36
4	*2412.00	102.41 AV			1.91 H	261	72.05	30.36
5	4824.00	54.47 PK	74.00	-19.53	1.28 H	41	17.68	36.79
6	4824.00	41.26 AV	54.00	-12.74	1.28 H	41	4.47	36.79

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2389.00	64.49 PK	74.00	-9.51	1.35 V	166	34.21	30.28
2	2389.00	46.88 AV	54.00	-7.12	1.35 V	166	16.60	30.28
3	*2412.00	105.40 PK			1.35 V	166	75.04	30.36
4	*2412.00	95.10 AV			1.35 V	166	64.74	30.36
5	4824.00	52.51 PK	74.00	-21.49	1.44 V	355	15.72	36.79
6	4824.00	39.11 AV	54.00	-14.89	1.44 V	355	2.32	36.79

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30deg. C, 55%RH 960hPa	TESTED BY	Wen Yu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	113.59 PK			1.49 H	285	83.13	30.46
2	*2437.00	103.17 AV			1.49 H	285	72.71	30.46
3	4874.00	54.66 PK	74.00	-19.34	1.21 H	36	17.74	36.92
4	4874.00	41.38 AV	54.00	-12.62	1.21 H	36	4.46	36.92
5	7311.00	52.82 PK	74.00	-21.18	1.01 H	31	9.68	43.14
6	7311.00	38.96 AV	54.00	-15.04	1.01 H	31	-4.18	43.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.70 PK			1.28 V	166	76.24	30.46
2	*2437.00	95.50 AV			1.28 V	166	65.04	30.46
3	4874.00	52.72 PK	74.00	-21.28	1.00 V	356	15.80	36.92
4	4874.00	39.33 AV	54.00	-14.67	1.00 V	356	2.41	36.92
5	7311.00	52.86 PK	74.00	-21.14	1.16 V	312	9.72	43.14
6	7311.00	38.40 AV	54.00	-15.60	1.16 V	312	-4.74	43.14

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30deg. C, 55%RH 960hPa	TESTED BY	Wen Yu

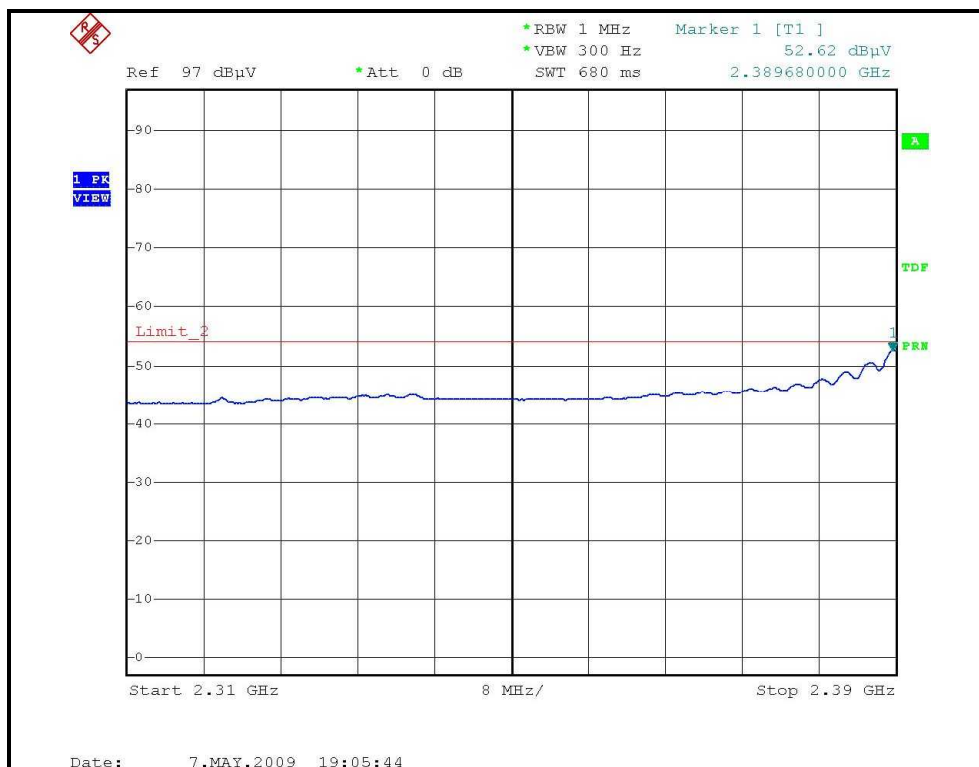
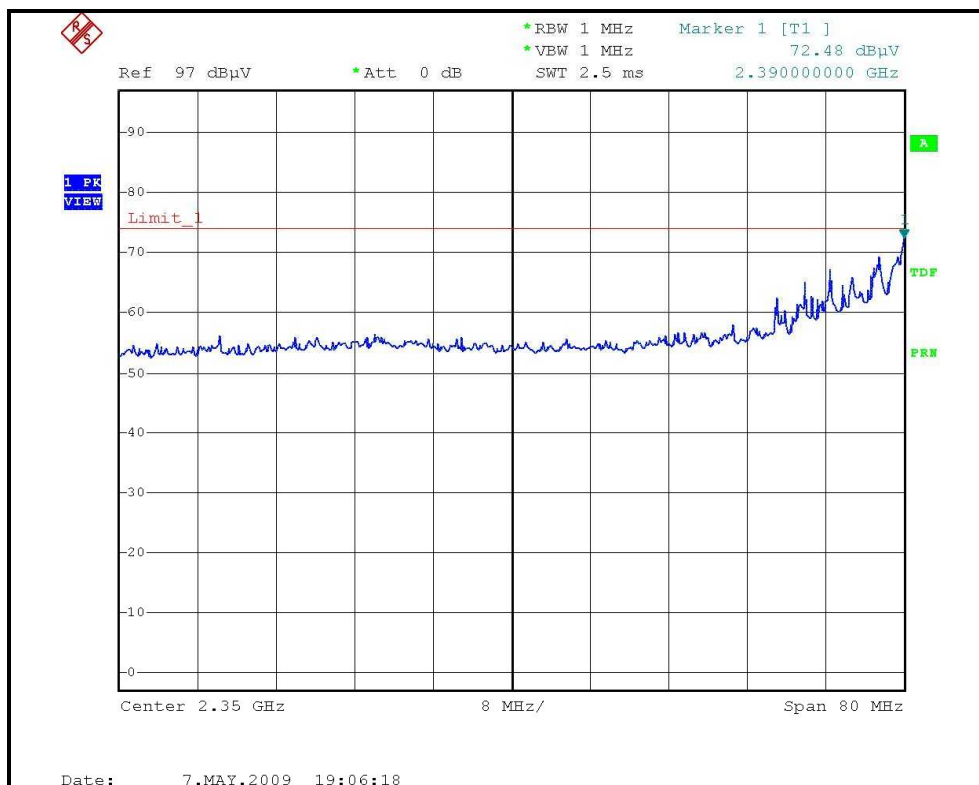
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	111.65 PK			1.89 H	288	81.10	30.55
2	*2462.00	100.73 AV			1.89 H	288	70.18	30.55
3	2483.50	60.89 PK	74.00	-13.11	1.90 H	267	30.26	30.63
4	2483.50	50.35 AV	54.00	-3.65	1.90 H	267	19.72	30.63
5	4924.00	54.62 PK	74.00	-19.38	1.30 H	33	17.56	37.06
6	4924.00	41.45 AV	54.00	-12.55	1.30 H	33	4.39	37.06
7	7386.00	52.88 PK	74.00	-21.12	1.00 H	30	9.75	43.13
8	7386.00	39.27 AV	54.00	-14.73	1.00 H	30	-3.86	43.13
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.20 PK			1.29 V	167	75.65	30.55
2	*2462.00	95.40 AV			1.29 V	167	64.85	30.55
3	2483.50	65.17 PK	74.00	-8.83	1.29 V	167	34.54	30.63
4	2483.50	46.82 AV	54.00	-7.18	1.29 V	167	16.19	30.63
5	4924.00	52.74 PK	74.00	-21.26	1.10 V	350	15.68	37.06
6	4924.00	39.47 AV	54.00	-14.53	1.10 V	350	2.41	37.06
7	7386.00	52.83 PK	74.00	-21.17	1.34 V	343	9.70	43.13
8	7386.00	38.42 AV	54.00	-15.58	1.34 V	343	-4.71	43.13

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.



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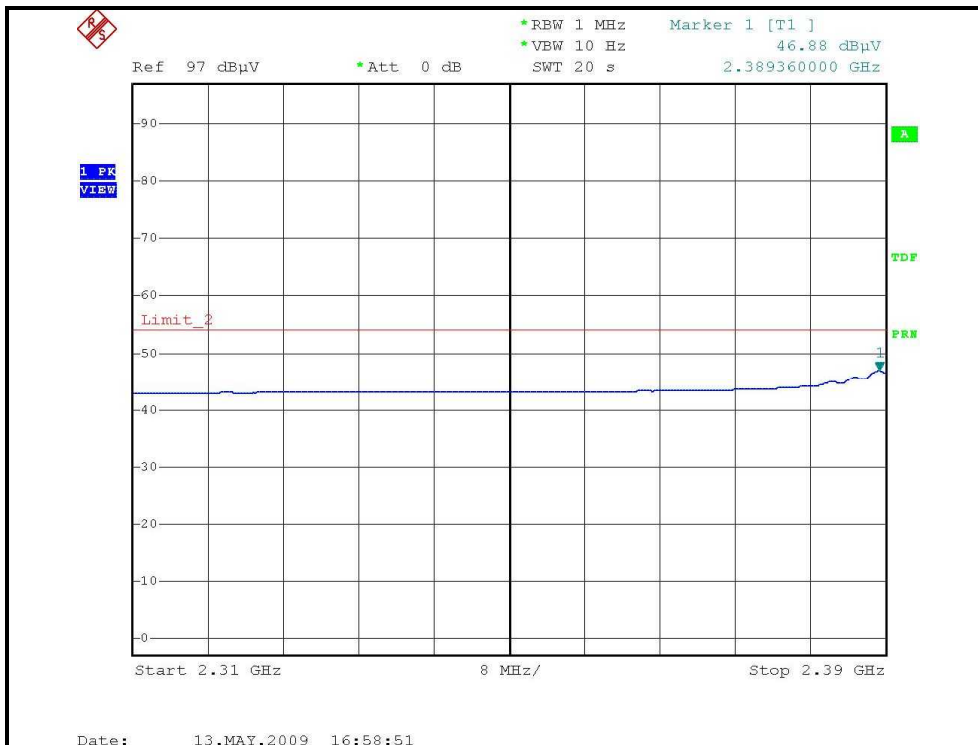
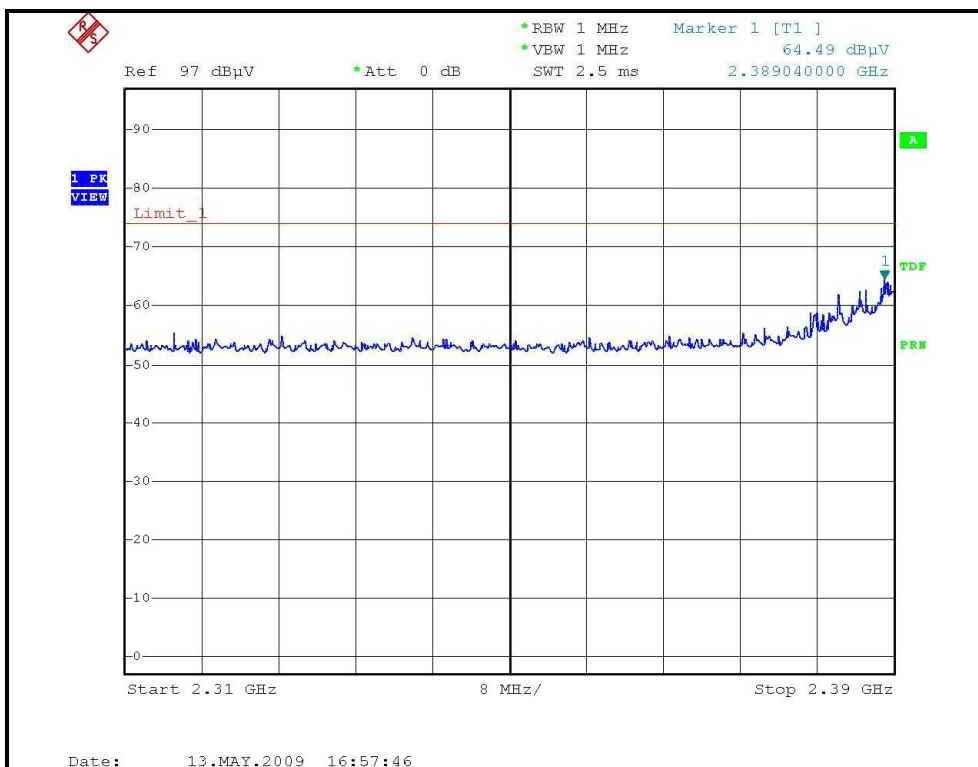
RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE, CH1, HORIZONTAL)





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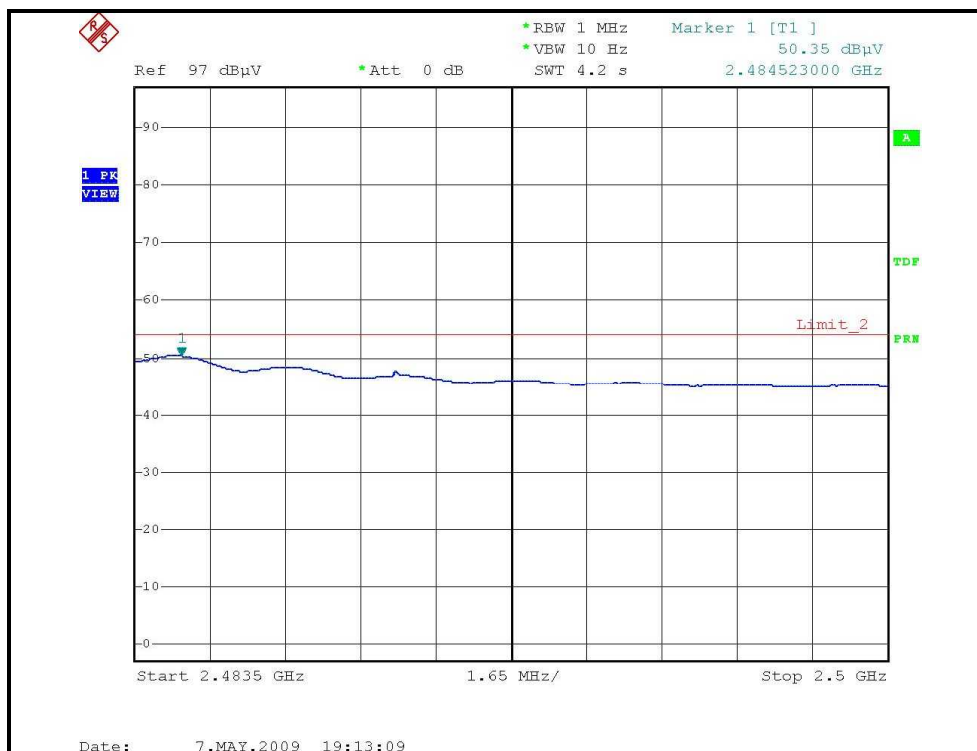
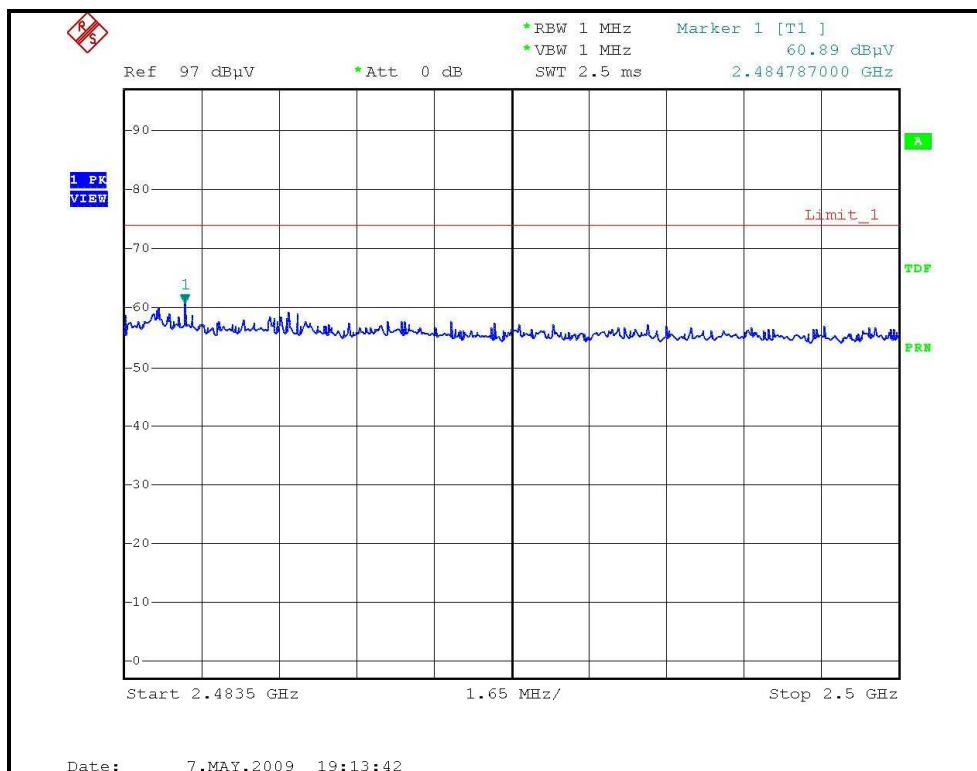
RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH1, VERTICAL)





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RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE, CH11, HORIZONTAL)





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RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH11, VERTICAL)

