

FCC TEST REPORT (15.247)

REPORT NO.: RF970821H05

MODEL NO.: WMP-ND02, WMP-N08, WMP-N10

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ISSUED BY: Bureau Veritas Consumer Products Services
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1. CERTIFICATION

PRODUCT: 11N Wireless LAN CARD
BRAND NAME: Alpha
MODEL NO.: WMP-ND02, WMP-N08, WMP-N10
TEST SAMPLE: MASS-PRODUCTION
TESTED: Sep. 22 to Nov. 26, 2008
APPLICANT: Alpha Networks Inc.
STANDARDS: FCC Part 15, Subpart C (Section 15.247),
ANSI C63.4-2003

The above equipment (Model: WMP-ND02) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Sunny Wen , **DATE:** Jan. 16, 2009
(Sunny Wen, Specialist)

TECHNICAL ACCEPTANCE : Hank Chung , **DATE:** Jan. 16, 2009
Responsible for RF (Hank Chung, Deputy Manager)

APPROVED BY : May Chen , **DATE:** Jan. 16, 2009
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

For 802.11b & g, 2412~2462MHz Band

APPLIED STANDARD: FCC Part 15, Subpart C (Section 15.247)			
Standard Section	Test Type and Limit	Result	Remark
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -14.02dB at 0.173MHz
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)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -0.55dB At 2483.50MHz
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.



For 802.11a, 5725~5850MHz Band

APPLIED STANDARD: FCC Part 15, Subpart C (Section 15.247)			
Standard Section	Test Type and Limit	Result	Remark
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -15.30dB at 0.176MHz
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)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -1.73dB at 797.92MHz
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.

NOTE:

1. The EUT was operating in 2400 ~ 2483.5MHz, 5.15~5.25GHz and 5.725~5.85GHz frequencies band. This report was recorded the RF parameters including 2400 ~ 2483.5MHz and 5.725~5.850GHz. For the 5.15~5.25GHz RF parameters was recorded in another test report.

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:

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

Measurement	Value
Conducted emissions	2.44 dB
Radiated emissions (30MHz-1GHz) - Open Site No. B	3.83 dB
Radiated emissions (1GHz -18GHz) - Open Site No. B	2.44 dB
Radiated emissions (18GHz -40GHz) - Open Site No. B	2.66 dB
Radiated emissions (30MHz-1GHz) - Open Site No. C	3.94 dB
Radiated emissions (1GHz -18GHz) - Open Site No. C	2.49 dB
Radiated emissions (18GHz -40GHz) - Open Site No. C	2.70 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	11N Wireless LAN CARD
MODEL NO.	WMP-ND02, WMP-N08, WMP-N10
FCC ID	RRK-WMPND02A1
POWER SUPPLY	DC 3.3V $\pm$ 5% from host equipment
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 802.11a: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6Mbps HT20 MCS0~7 (800ns GI): 65 / 58.5 / 52 / 39 / 26 / 19.5 / 13 / 6.5Mbps. HT20 MCS8~15 (800ns GI): 130 / 117 / 104 / 78 / 52 / 39 / 26 / 13Mbps. HT40 MCS0~7 (800ns GI): 135 / 121.5 / 108 / 81 / 54 / 40.5 / 27 / 13.5Mbps. HT40 MCS8~15 (800ns GI): 270 / 243 / 216 / 162 / 108 / 81 / 54 / 27Mbps. HT20 MCS0~7 (400ns GI): 72.2 / 65 / 57.8 / 43.3 / 28.9 / 21.7 / 14.4 / 7.2 HT20 MCS8~15 (400ns GI): 144.444 / 130 / 115.556 / 86.667 / 57.778 / 43.333 / 28.889 / 14.444 HT40 MCS0~7 (400ns GI): 150 / 135 / 120 / 90 / 60 / 45 / 30 / 15 HT40 MCS8~15 (400ns GI): 300 / 270 / 240 / 180 / 120 / 90 / 60 / 30
FREQUENCY RANGE	For 15.407 802.11a: 5.18 ~ 5.24GHz
	For 15.247 802.11b & 802.11g: 2412 ~ 2462MHz 802.11a: 5.745 ~ 5.825GHz

NUMBER OF CHANNEL	For 15.407 4 for 802.11a, draft 802.11n (20MHz) 2 for draft 802.11n (40MHz)
	For 15.247(2.4GHz) 11 for 802.11b, 802.11g, draft 802.11n (20MHz) 7 for draft 802.11n (40MHz)
	For 15.247(5GHz) 5 for 802.11a, draft 802.11n (20MHz) 2 for draft 802.11n (40MHz)
MAXIMUM OUTPUT POWER	For 15.407 802.11a: 18.836mW draft 802.11n (20MHz): 29.251mW draft 802.11n (40MHz): 28.533mW For 15.247(2.4GHz) 802.11b: 134.276mW 802.11g: 302.691mW draft 802.11n (20MHz): 549.592mW draft 802.11n (40MHz): 422.715mW For 15.247(5GHz) 802.11a: 206.538mW draft 802.11n (20MHz): 238.593mW draft 802.11n (40MHz): 235.215mW
ANTENNA TYPE	Please see note 2
DATA CABLE	NA
I/O PORT	NA
ASSOCIATED DEVICES	NA

NOTE:

1. The EUT has three model names which are identical to each other in all aspects except for the following:

Brand	Model No.	Difference
Alpha	WMP-ND02	For IEEE 802.11a/b/g/n
	WMP-N08	For IEEE 802.11b/g/n, Via Software to disable 11a/n function
	WMP-N10	For IEEE 802.11a/n, Via Software to disable 11b/g/n function

From the above models, model: **WMP-ND02** was selected as representative model for the test and its data were recorded in this report.



2. There are five set antennas provided to this EUT, please refer to the following table:

Set No.	Transmitter Circuit	Antenna Gain	For 2.4GHz Gain (dBi)	For 5.15~5.25GHz Gain (dBi)	For 5.725~5.850GHz Gain (dBi)	Cable Length (cm)
Set. 1	Chain(0), Chain(1), Chain(2)	Gain (dBi)	2.31	2.26	3.91	18
		Cable Loss (dB)	1.48	1.45	1.53	
		Net Gain (dB)	0.83	0.81	2.38	
Set 2	Chain(0)	Gain (dBi)	2.31	2.26	3.91	40
		Cable Loss (dB)	1.51	2.16	2.29	
		Net Gain (dB)	0.8	0.1	1.62	
	Chain(1)	Gain (dBi)	2.31	2.26	3.91	18
		Cable Loss (dB)	1.48	1.45	1.53	
		Net Gain (dB)	0.83	0.81	2.38	
	Chain(2)	Gain (dBi)	2.31	2.26	3.91	27
		Cable Loss (dB)	1.16	1.17	1.87	
		Net Gain (dB)	1.15	1.09	2.04	
Set 3	Chain(0), Chain(1)	Gain (dBi)	3.72	3.55	2.76	25.5
		Cable Loss (dB)	0.52	0.82	1.00	
		Net Gain (dB)	3.2	2.73	1.76	
	Chain(2)	Gain (dBi)	3.72	3.55	2.76	12
		Cable Loss (dB)	0.51	0.75	0.90	
		Net Gain (dB)	3.21	2.8	1.86	
Set 4	Chain(0)	Gain (dBi) involve cable loss	2.65	NA	NA	11
	Chain(1), Chain(2)	Gain (dBi) involve cable loss	2.49	NA	NA	10
Set 5	Chain(0), Chain(1), Chain(2)	Gain (dBi) involve cable loss	2.43	NA	NA	6

Set No.	Transmitter Circuit	Antenna Type	Manufacture	Model No.	Antenna Connector
Set 1	Chain(0)	Dipole	WANSHIH ELECTRONIC CO., LTD.	WSS001	RP-SMA(M)
	Chain(1)				
	Chain(2)				
Set 2	Chain(0)	Dipole	WANSHIH ELECTRONIC CO., LTD.	WSS001	RP-SMA(M)
	Chain(1)				
	Chain(2)				
Set 3	Chain(0)	Dipole	WHA YU INDUSTRIAL CO., LTD.	C056-510399-A	SMA Plug Reverse
	Chain(1)				
	Chain(2)				
Set 4	Chain(0)	PCB	WHA YU GROUP	C037-510934-A (SSR-83320)	I-PEX
	Chain(1)			C037-510935-A (SSR-83347)	
	Chain(2)			C037-510935-A (SSR-83347)	
Set 5	Chain(0)	PCB	WHA YU GROUP	C037-510953-A (SSR-84244)	MHF Plug
	Chain(1)				
	Chain(2)				

From the above antennas, the worst case was found in set no. 1 for 5GHz, no. 3 & no. 4 for 2.4GHz. Therefore only the test data of the mode was recorded in this report individually.

- The EUT incorporates a MIMO function with 802.11a, 802.11b, 802.11g, draft 802.11n. Physically, the EUT provides two completed transmits and three completed receivers.
- The EUT is 2 * 3 spatial MIMO (2Tx & 3Rx) without beam forming function. The antenna configurations are two transmitter antennas and three receiver antennas, as there are 3 Dipole or PCB antennas. Spatial multiplexing modes for simultaneous transmission using 2 antennas, and for simultaneous receiver using 3 antennas. The 11a and 11bg legacy mode is limited to single transmitter only.
- When the EUT operating in draft 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 15.
- The EUT complies with draft 802.11n standards and backwards compatible with 802.11a, 802.11b, 802.11g products.
- 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

Operated in 2400 ~ 2483.5MHz band:

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		

Operated in 5725 ~ 5850MHz band:

Five channels are provided for 802.11a, draft 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	5745 MHz	4	5805 MHz
2	5765 MHz	5	5825 MHz
3	5785 MHz		

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

CHANNEL	FREQUENCY
1	5755 MHz
2	5795 MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE < 1G	RE ³ 1G	APCM	
-	√	√	√	√	-

Where **PLC**: Power Line Conducted Emission

RE < 1G: Radiated Emission below 1GHz

RE ³ 1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

ANTENNA COMBINATION MODE:

COMBINATION MODE	OPERATION MODE	CHAIN(0) (TX)	CHAIN(1) (TX)
A	802.11a	√	
B	802.11b	√	
C	802.11g	√	
D	DRAFT 802.11n(20MHz)	√	√
E	DRAFT 802.11n(40MHz)	√	√
Note: 1. The above information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual. 2. Antenna 1~3 are Dipole or PCB antennas.			

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)	TX COMBINATION
For 2.4 GHz Draft 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	13	D
For 5 GHz 802.11a	1 to 5	1	OFDM	BPSK	6	A

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)	TX COMBINATION
For 2.4 GHz 802.11b	1 to 11	1	DSSS	DBPSK	1	B
For 5 GHz 802.11a	1 to 5	5	OFDM	BPSK	6	A

- ☒ The EUT was tested in 2.4GHz as the following test modes:

Test Mode	Description
Mode 1	With Dipole antenna
Mode 2	With PCB antenna

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)	TX COMBINATION
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	B
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	C
For 2.4 GHz Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	13	D
For 2.4 GHz Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	27	E
802.11a	1 to 5	1, 3, 5	OFDM	BPSK	6	A
For 5 GHz Draft 802.11n (20MHz)	1 to 5	1, 3, 5	OFDM	BPSK	13	D
For 5 GHz Draft 802.11n (40MHz)	1 to 2	1, 2	OFDM	BPSK	27	E

- ☒ The EUT was tested in 2.4GHz as the following test modes:

Test Mode	Description
Mode 1	With Dipole antenna
Mode 2	With PCB antenna

CONDUCTED OUT-BAND EMISSION 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)	TX COMBINATION
802.11b	1 to 11	1, 11	DSSS	DBPSK	1	B
802.11g	1 to 11	1, 11	OFDM	BPSK	6	C
For 2.4 GHz Draft 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	13	D
For 2.4 GHz Draft 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	27	E
802.11a	1 to 5	1, 5	OFDM	BPSK	6	A
For 5 GHz Draft 802.11n (20MHz)	1 to 5	1, 5	OFDM	BPSK	13	D
For 5 GHz Draft 802.11n (40MHz)	1 to 2	1, 2	OFDM	BPSK	27	E

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)	TX COMBINATION
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	B
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	C
For 2.4 GHz Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	13	D
For 2.4 GHz Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	27	E
802.11a	1 to 5	1, 3, 5	OFDM	BPSK	6	A
For 5 GHz Draft 802.11n (20MHz)	1 to 5	1, 3, 5	OFDM	BPSK	13	D
For 5 GHz Draft 802.11n (40MHz)	1 to 2	1, 2	OFDM	BPSK	27	E

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a 11N Wireless LAN CARD. 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.



3.4 DESCRIPTION OF SUPPORT UNITS

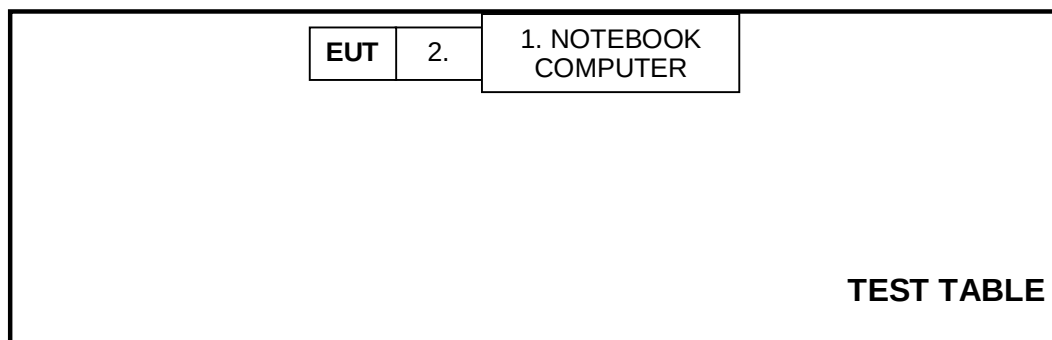
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP01L	TW-09C748-12800-165-3171	DoC
2	MPCI EXTEND CARD	Alpha	NA	NA	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	NA

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

3.5 CONFIGURATION OF SYSTEM UNDER TEST



4. TEST TYPES AND RESULTS (802.11b & g, 2400 ~ 2483.5MHz Band)

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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver	ESCS 30	847124/029	Feb. 29, 2008	Feb. 28, 2009
Line-Impedance Stabilization Network (for EUT)	ENV-216	100071	Nov. 27, 2007	Nov. 26, 2008
Line-Impedance Stabilization Network (for Peripheral)	ESH3-Z5	848773/004	Nov. 05, 2008	Nov. 04, 2009
RF Cable (JYEBAO)	5DFB	COBCAB-001	July 24, 2008	July 23, 2009
50 ohms Terminator	50	3	Nov. 05, 2008	Nov. 04, 2009
Software	BV 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 Shielded Room No. B.
3. The VCCI Con B Registration No. is C-2193.

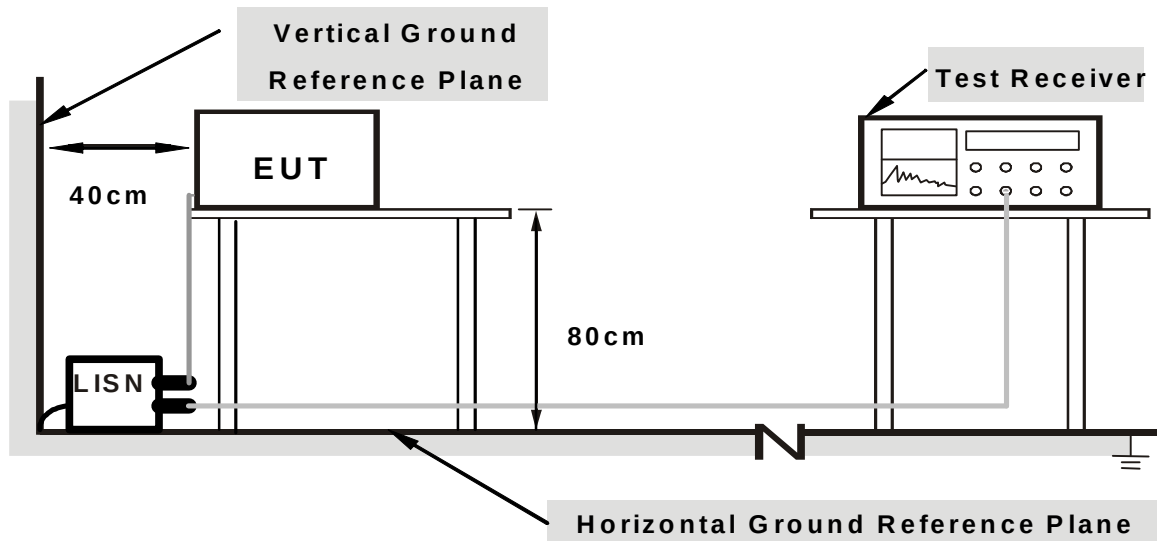
4.1.3 TEST PROCEDURES

- 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) were 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

- Plug the EUT into the support unit 1 (Personal computer) which placed on a testing table.
- Support unit 1 (Personal computer) run test program “Ralink ATE TEST Utility V 0.0.2.3” to enable EUT under transmission condition continuously at specific channel frequency.

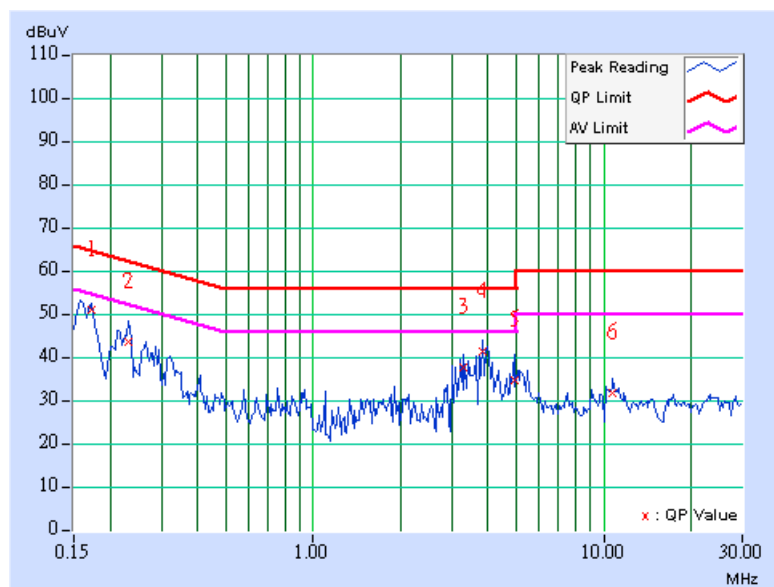
4.1.7 TEST RESULTS

DRAFT 802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line (L)
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	13Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 69%RH, 965hPa	TESTED BY	Phoenix Huang

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	9.68	41.09	-	50.77	-	64.79	54.79	-14.02	-
2	0.232	9.74	33.95	-	43.69	-	62.38	52.38	-18.69	-
3	3.309	9.75	27.83	-	37.58	-	56.00	46.00	-18.42	-
4	3.832	9.76	31.76	-	41.52	-	56.00	46.00	-14.48	-
5	4.926	9.77	24.91	-	34.68	-	56.00	46.00	-21.32	-
6	10.727	9.86	22.17	-	32.03	-	60.00	50.00	-27.97	-

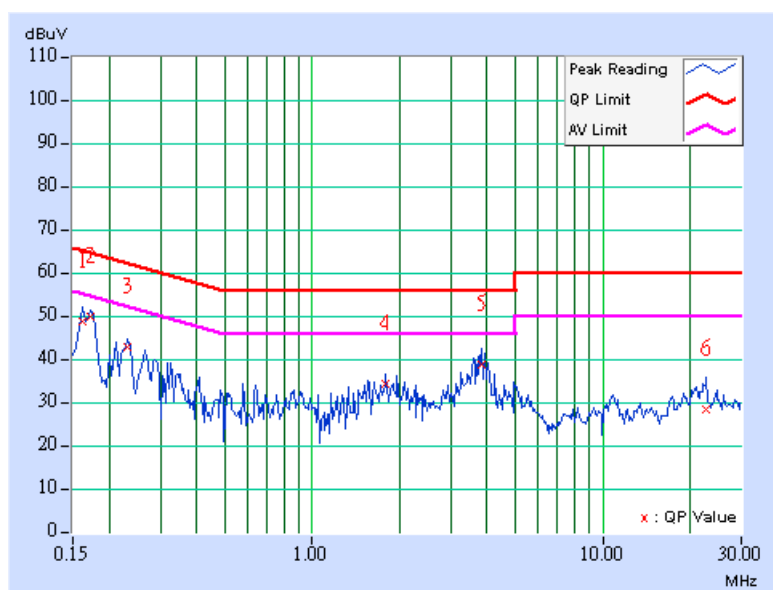
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Neutral (N)
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	13Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 69%RH, 965hPa	TESTED BY	Phoenix Huang

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	9.68	38.68	-	48.36	-	65.38	55.38	-17.02	-
2	0.173	9.68	40.03	-	49.71	-	64.79	54.79	-15.08	-
3	0.232	9.74	32.79	-	42.53	-	62.38	52.38	-19.85	-
4	1.793	9.71	24.33	-	34.04	-	56.00	46.00	-21.96	-
5	3.832	9.76	28.68	-	38.44	-	56.00	46.00	-17.56	-
6	22.719	10.12	18.58	-	28.70	-	60.00	50.00	-31.30	-

- 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.

**A D T**

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ADVANTEST Spectrum Analyzer	R3271A	85060311	July 22, 2008	July 21, 2009
HP Pre_Amplifier	8449B	3008A01922	Sep. 25, 2008	Sep. 24, 2009
ROHDE & SCHWARZ Test Receiver	ESCS 30	841977/002	Nov. 13, 2007	Nov. 12, 2008
SCHAFFNER(CHASE) Broadband Antenna	CBL6112B	2798	April 30, 2008	April 29, 2009
Schwarzbeck Horn_Antenna	BBHA9120-D1	D123	Sep. 30, 2008	Sep. 29, 2009
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 28, 2008	Jan. 27, 2009
RF Switches	MP59B	6100175593	Sep. 02, 2008	Sep. 01, 2009
RF Cable	8DFB	STBCAB-30M-1GHz	Sep. 02, 2008	Sep. 01, 2009
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA
CORCOM AC Filter	MRI2030	024/019	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: R3271A) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Open Site No. B.
4. The VCCI Site Registration No. is R-847.
5. The FCC Site Registration No. is 92753.
6. The CANADA Site Registration No. is IC 7450G-2.

**A D T**

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ADVANTEST Spectrum Analyzer	R3271A	85060311	July 16, 2008	July 15, 2009
HP Pre_Amplifier	8449B	3008A01922	Sep. 25, 2008	Sep. 24, 2009
ROHDE & SCHWARZ Test Receiver	ESCS30	100375	April 01, 2008	Mar. 31, 2009
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	April 30, 2008	April 29, 2009
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 17, 2007	Dec. 16, 2008
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 28, 2008	Jan. 27, 2009
RF Switches	EMH-011	08009	Oct. 07, 2008	Oct. 06, 2009
RF CABLE (Chaintek)	SF102	22054-2	Dec. 07, 2007	Dec. 06, 2008
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: R3271A) 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

- 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 10dB 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 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

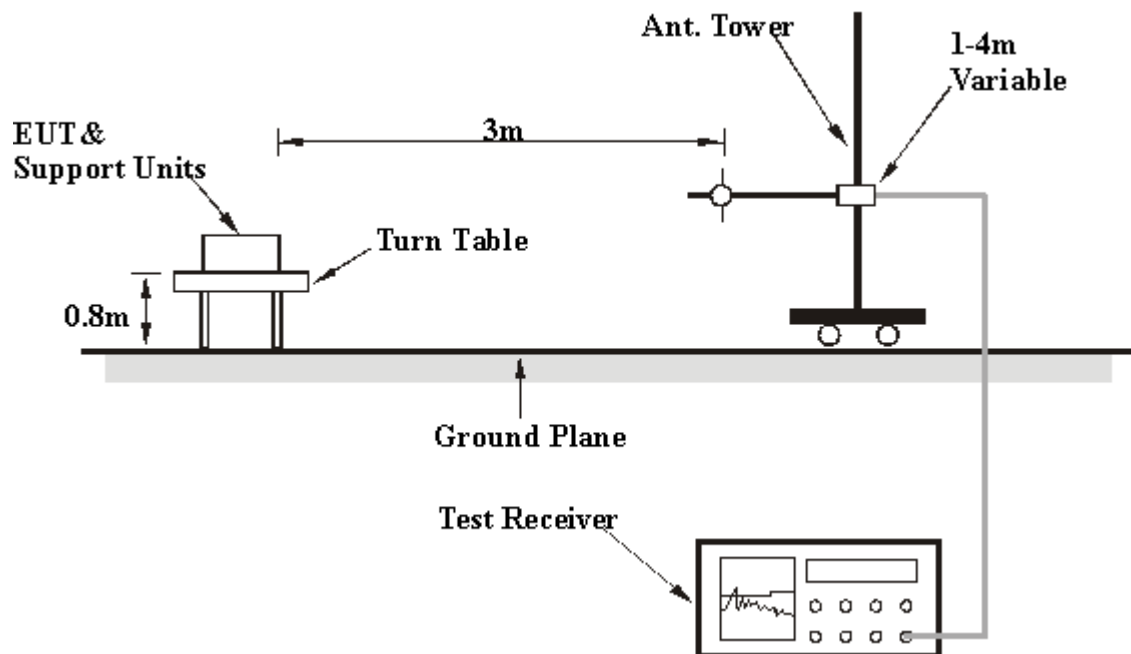
NOTE:

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

Same as the 4.1.6

Below 1GHz Test Data

4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA : 802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 965hPa	TESTED BY	Eric Lee
TEST MODE	Dipole Antenna		

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	132.56	29.69 QP	43.50	-13.81	2.30 H	258	15.14	14.55
2	166.32	28.17 QP	43.50	-15.33	2.46 H	9	12.74	15.43
3	265.53	27.43 QP	46.00	-18.57	1.01 H	266	11.50	15.93
4	300.00	22.48 QP	46.00	-23.52	1.00 H	6	5.46	17.02
5	398.96	41.00 QP	46.00	-5.00	1.00 H	95	19.90	21.10
6	400.00	30.33 QP	46.00	-15.67	1.40 H	311	9.19	21.14
7	500.02	36.11 QP	46.00	-9.89	1.63 H	191	13.45	22.66
8	797.92	44.27 QP	46.00	-1.73	1.85 H	124	14.39	29.88
9	800.01	31.17 QP	46.00	-14.83	1.20 H	326	1.23	29.94
10	999.99	43.13 QP	54.00	-10.87	1.01 H	85	10.43	32.70
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	133.32	26.96 QP	43.50	-16.54	1.24 V	36	12.36	14.60
2	166.04	26.24 QP	43.50	-17.26	1.18 V	19	10.78	15.46
3	265.52	24.23 QP	46.00	-21.77	1.30 V	49	8.30	15.93
4	300.01	22.14 QP	46.00	-23.86	1.55 V	296	5.12	17.02
5	398.95	38.98 QP	46.00	-7.02	1.26 V	0	17.88	21.10
6	400.00	30.81 QP	46.00	-15.19	1.44 V	159	9.67	21.14
7	500.00	32.96 QP	46.00	-13.04	1.41 V	87	10.30	22.66
8	797.90	43.45 QP	46.00	-2.55	1.43 V	340	13.57	29.88
9	1000.00	43.01 QP	54.00	-10.99	1.00 V	0	10.31	32.70

- 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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 965hPa	TESTED BY	Eric Lee
TEST MODE	PCB Antenna		

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	133.33	25.21 QP	43.50	-18.29	1.35 H	285	10.61	14.60
2	166.02	27.89 QP	43.50	-15.61	1.26 H	326	12.43	15.46
3	265.53	26.34 QP	46.00	-19.66	1.68 H	95	10.41	15.93
4	300.01	22.14 QP	46.00	-23.86	1.55 H	296	5.12	17.02
5	398.95	38.98 QP	46.00	-7.02	1.26 H	0	17.88	21.10
6	400.00	30.81 QP	46.00	-15.19	1.44 H	159	9.67	21.14
7	499.99	33.02 QP	46.00	-12.98	1.53 H	305	10.36	22.66
8	797.90	43.45 QP	46.00	-2.55	1.43 H	340	13.57	29.88
9	1000.00	42.61 QP	54.00	-11.39	1.65 H	2	9.91	32.70
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	133.34	26.54 QP	43.50	-16.96	1.25 V	32	11.94	14.60
2	166.03	25.41 QP	43.50	-18.09	1.54 V	226	9.95	15.46
3	265.56	25.30 QP	46.00	-20.70	1.68 V	236	9.37	15.93
4	300.00	23.57 QP	46.00	-22.43	1.63 V	344	6.55	17.02
5	398.96	28.45 QP	46.00	-17.55	1.36 V	62	7.35	21.10
6	400.00	32.12 QP	46.00	-13.88	1.32 V	65	10.98	21.14
7	500.01	33.25 QP	46.00	-12.75	1.60 V	326	10.59	22.66
8	797.91	42.62 QP	46.00	-3.38	1.02 V	236	12.74	29.88
9	999.99	42.01 QP	54.00	-11.99	1.47 V	253	9.31	32.70

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.



A D T

Above 1GHz Test Data

4.2.8 TEST RESULTS

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	27deg. C, 68%RH 965hPa	TESTED BY	Phoenix Huang
TEST MODE	Dipole Antenna		

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	2385.68	58.30 PK	74.00	-15.70	1.71 H	238	28.28	30.02
2	2385.68	45.83 AV	54.00	-8.17	1.71 H	238	15.81	30.02
3	*2412.00	102.72 PK			1.41 H	237	72.60	30.12
4	*2412.00	97.63 AV			1.41 H	237	67.51	30.12
5	4824.00	45.80 PK	74.00	-28.20	1.41 H	71	10.32	35.48
6	4824.00	34.20 AV	54.00	-19.80	1.41 H	71	-1.28	35.48
7	#7236.00	54.70 PK	82.72	-28.02	1.62 H	55	13.63	41.07
8	#7236.00	44.81 AV	77.63	-32.82	1.62 H	55	3.74	41.07
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	2387.44	63.42 PK	74.00	-10.58	1.00 V	90	33.40	30.02
2	2387.44	53.17 AV	54.00	-0.83	1.00 V	90	23.15	30.02
3	*2412.00	111.40 PK			1.00 V	90	81.28	30.12
4	*2412.00	107.06 AV			1.00 V	90	76.94	30.12
5	4824.00	47.80 PK	74.00	-26.20	1.41 V	5	12.32	35.48
6	4824.00	37.10 AV	54.00	-16.90	1.41 V	5	1.62	35.48
7	#7236.00	57.07 PK	91.40	-34.33	1.09 V	5	16.00	41.07
8	#7236.00	50.11 AV	87.06	-36.95	1.09 V	5	9.04	41.07

- 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.
 6. “#”:The radiated frequency is out the restricted band.



A D T

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	27deg. C, 68%RH 965hPa	TESTED BY	Phoenix Huang
TEST MODE	Dipole Antenna		

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	99.68 PK			1.38 H	234	69.47	30.21
2	*2437.00	94.36 AV			1.38 H	234	64.15	30.21
3	4874.00	44.50 PK	74.00	-29.50	1.53 H	60	8.88	35.62
4	4874.00	34.10 AV	54.00	-19.90	1.53 H	60	-1.52	35.62
5	7311.00	54.91 PK	74.00	-19.09	1.39 H	54	13.64	41.27
6	7311.00	46.00 AV	54.00	-8.00	1.39 H	54	4.73	41.27
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	109.40 PK			1.50 V	276	79.19	30.21
2	*2437.00	104.80 AV			1.50 V	276	74.59	30.21
3	4874.00	46.20 PK	74.00	-27.80	1.48 V	296	10.58	35.62
4	4874.00	35.58 AV	54.00	-18.42	1.48 V	296	-0.04	35.62
5	7311.00	59.73 PK	74.00	-14.27	1.22 V	72	18.46	41.27
6	7311.00	53.00 AV	54.00	-1.00	1.22 V	72	11.73	41.27

- 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.



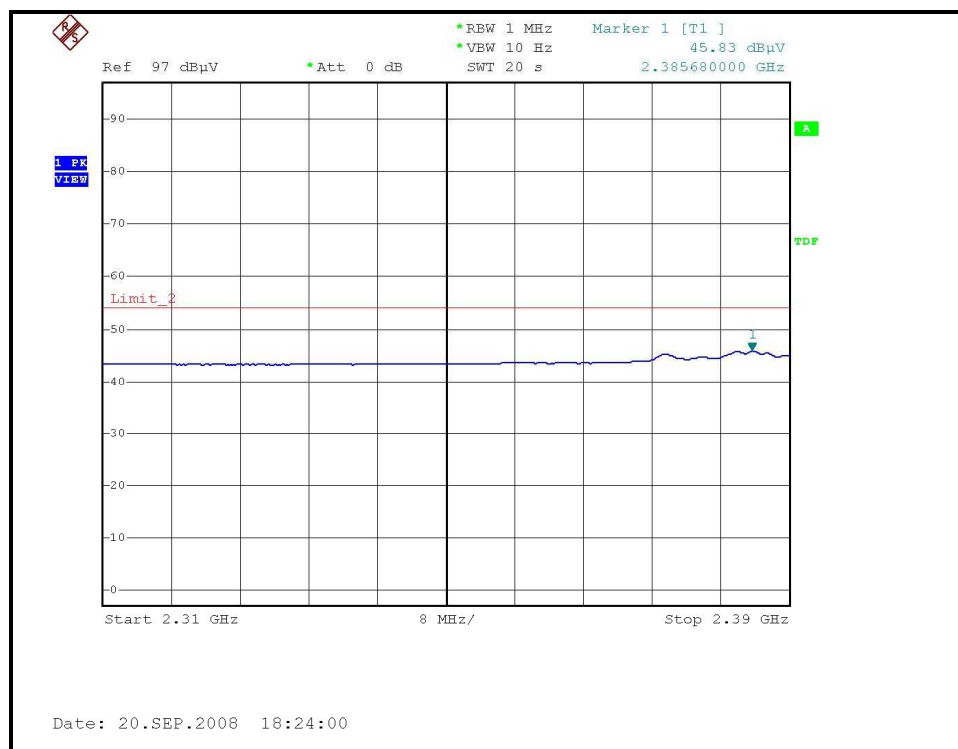
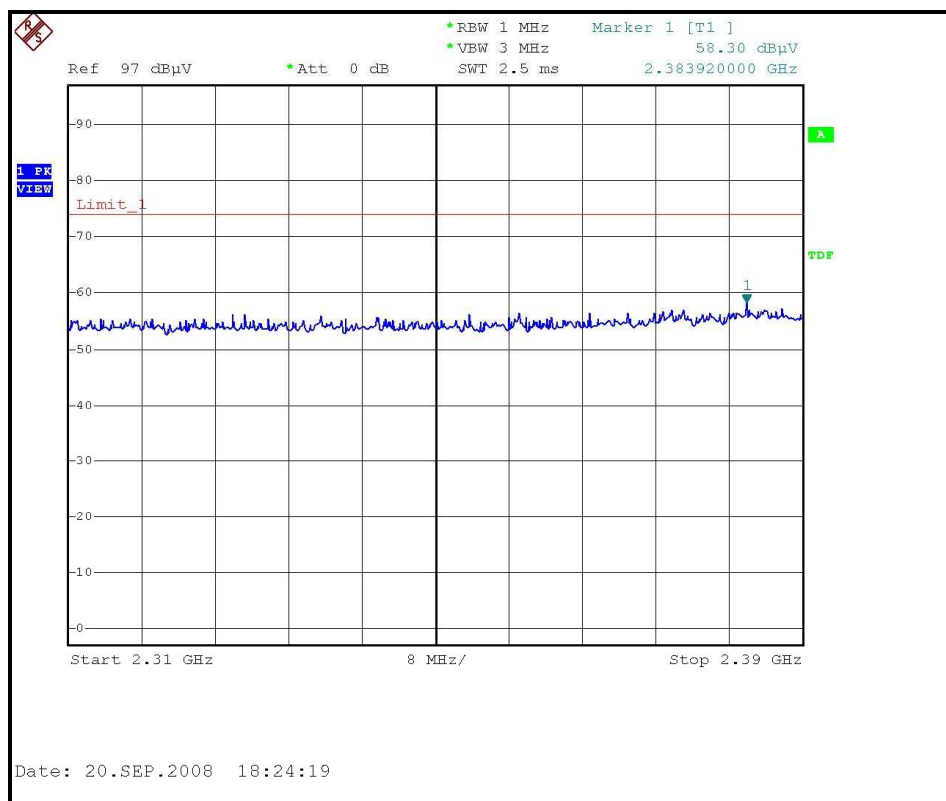
A D T

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	27deg. C, 68%RH 965hPa	TESTED BY	Phoenix Huang
TEST MODE	Dipole Antenna		

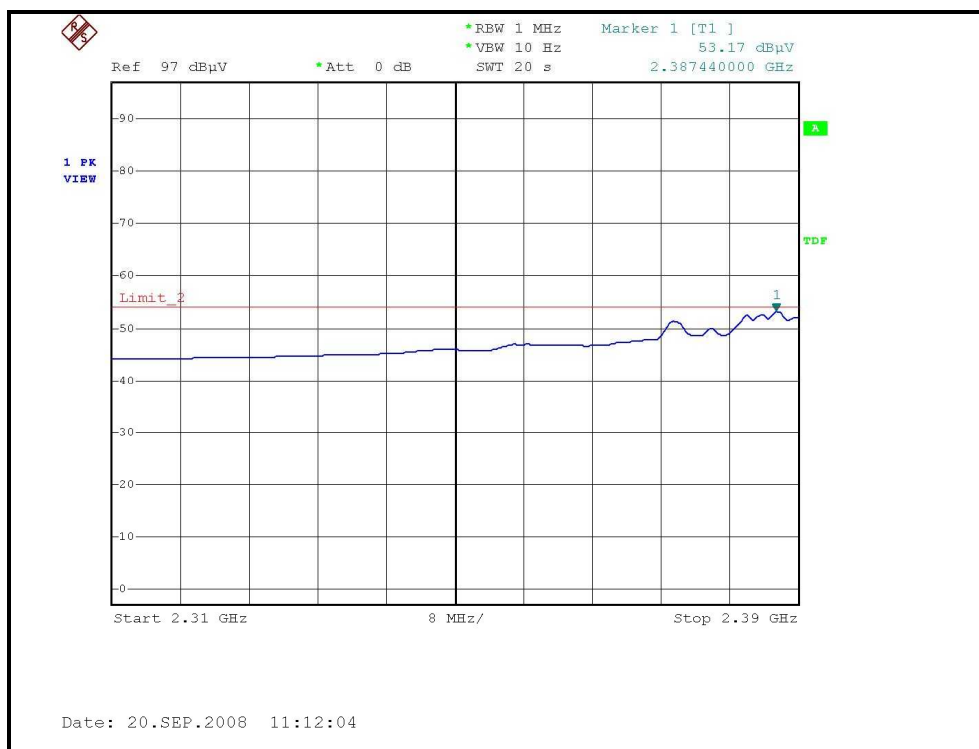
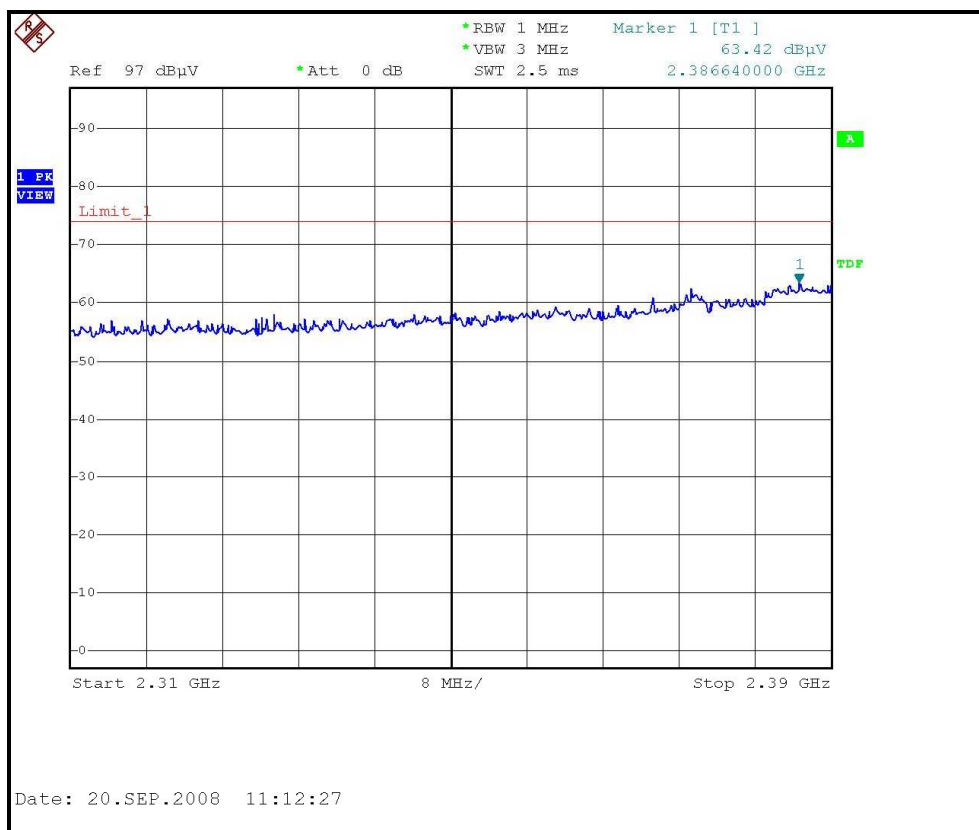
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	99.77 PK			1.70 H	220	69.46	30.31
2	*2462.00	94.48 AV			1.70 H	220	64.17	30.31
3	2483.50	57.22 PK	74.00	-16.78	1.71 H	236	26.82	30.40
4	2483.50	44.92 AV	54.00	-9.08	1.71 H	236	14.52	30.40
5	4924.00	48.80 PK	74.00	-25.20	1.43 H	69	13.05	35.75
6	4924.00	36.50 AV	54.00	-17.50	1.43 H	69	0.75	35.75
7	7386.00	53.90 PK	74.00	-20.10	1.72 H	30	12.46	41.44
8	7386.00	42.60 AV	54.00	-11.40	1.72 H	30	1.16	41.44
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	108.16 PK			1.47 V	278	77.85	30.31
2	*2462.00	103.39 AV			1.47 V	278	73.08	30.31
3	2483.50	63.77 PK	74.00	-10.23	1.39 V	277	33.37	30.40
4	2483.50	53.10 AV	54.00	-0.90	1.39 V	277	22.70	30.40
5	4924.00	45.23 PK	74.00	-28.77	1.11 V	146	9.48	35.75
6	4924.00	32.90 AV	54.00	-21.10	1.11 V	146	-2.85	35.75
7	7386.00	60.35 PK	74.00	-13.65	1.30 V	75	18.91	41.44
8	7386.00	53.26 AV	54.00	-0.74	1.30 V	75	11.82	41.44

- 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.

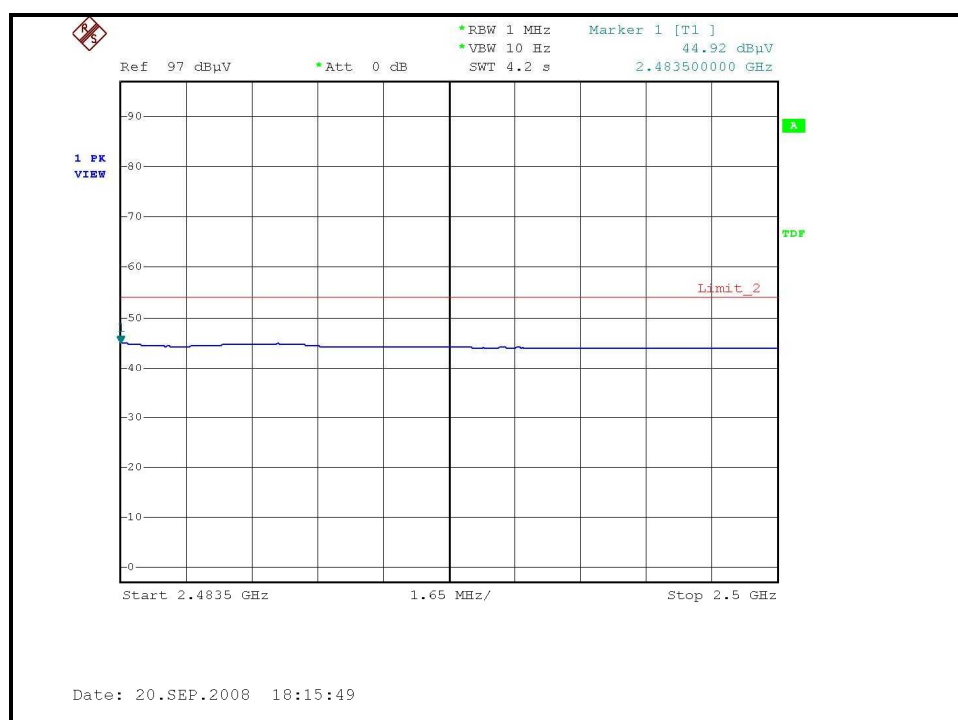
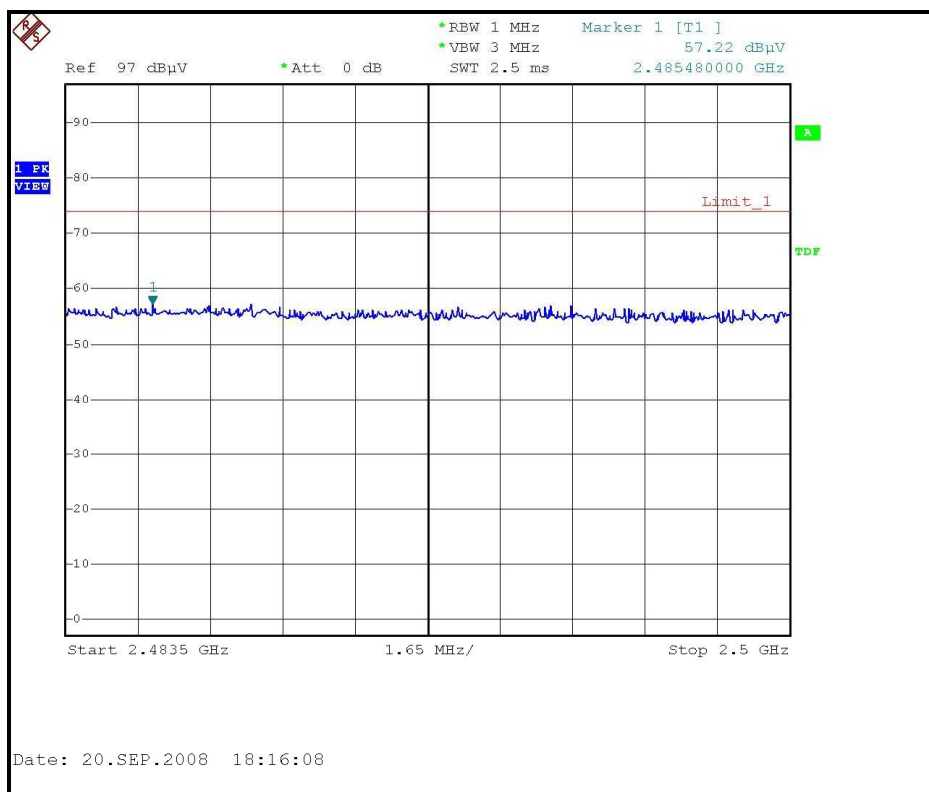
RESTRICTED BANDEDGE (802.11b MODE,CH1, HORIZONTAL)



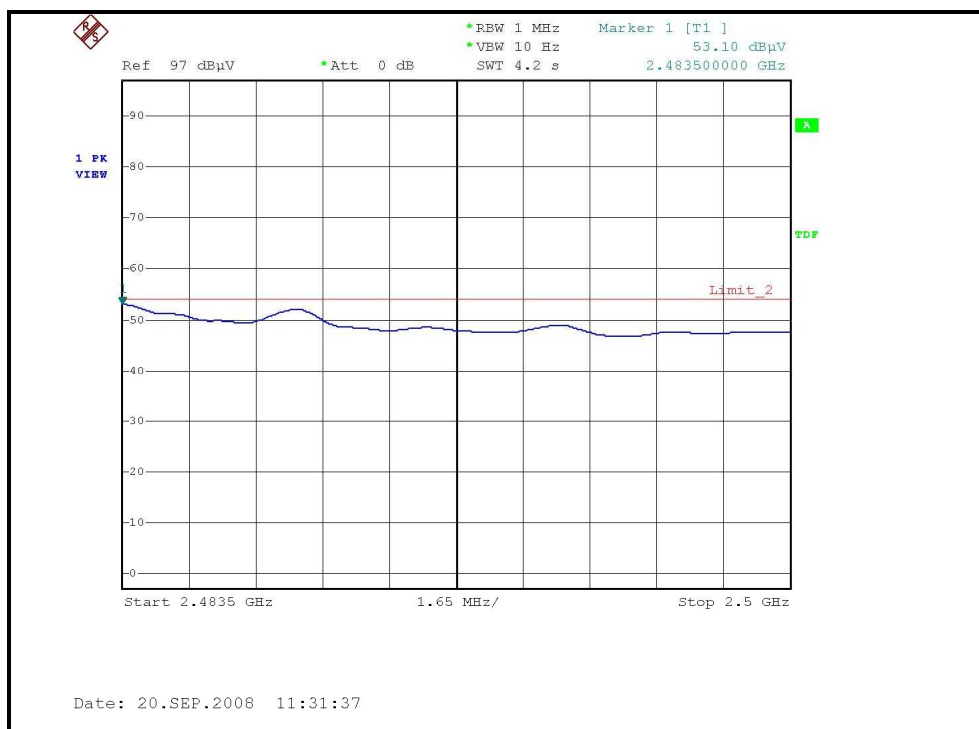
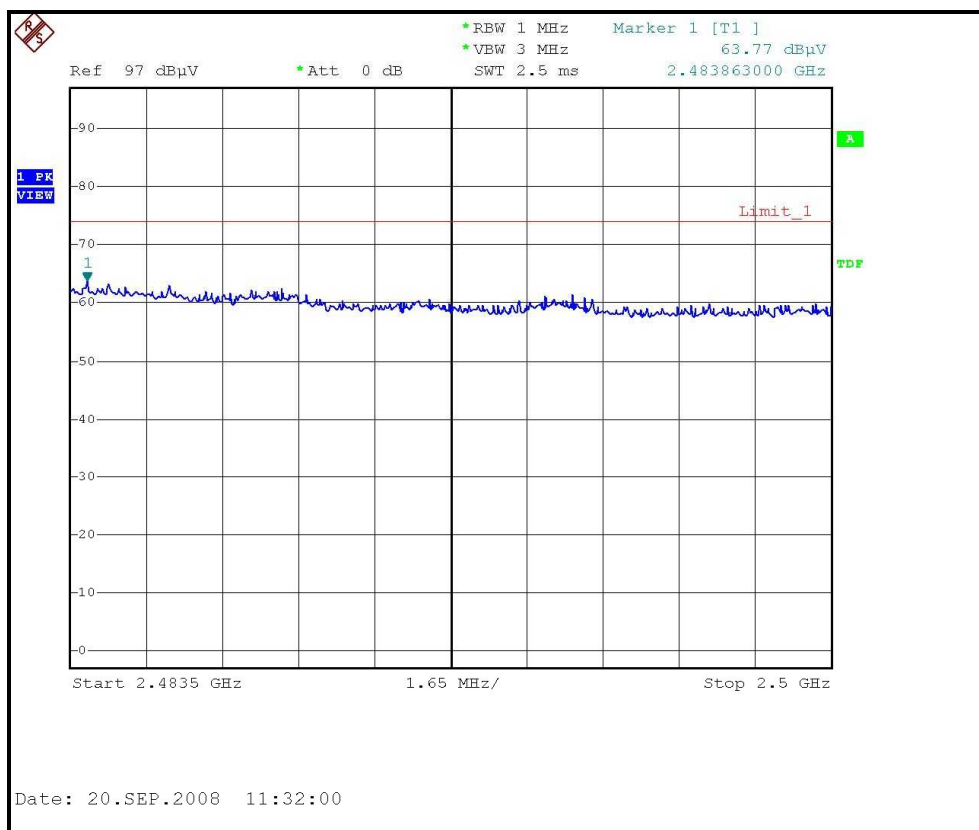
RESTRICTED BANDEDGE (802.11b MODE,CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL)



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	27deg. C, 68%RH 965hPa	TESTED BY	Phoenix Huang
TEST MODE	Dipole Antenna		

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	61.82 PK	74.00	-12.18	1.05 H	337	31.79	30.03
2	2390.00	45.40 AV	54.00	-8.60	1.05 H	337	15.37	30.03
3	*2412.00	101.70 PK			1.00 H	345	71.58	30.12
4	*2412.00	91.20 AV			1.00 H	345	61.08	30.12
5	4824.00	45.87 PK	74.00	-28.13	1.30 H	106	10.39	35.48
6	4824.00	32.00 AV	54.00	-22.00	1.30 H	106	-3.48	35.48
7	#7236.00	53.70 PK	81.70	-28.00	1.55 H	53	12.63	41.07
8	#7236.00	40.00 AV	71.20	-31.20	1.55 H	53	-1.07	41.07
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	72.87 PK	74.00	-1.13	1.00 V	91	42.84	30.03
2	2390.00	53.16 AV	54.00	-0.84	1.00 V	91	23.13	30.03
3	*2412.00	112.70 PK			1.00 V	89	82.58	30.12
4	*2412.00	102.10 AV			1.00 V	89	71.98	30.12
5	4824.00	46.10 PK	74.00	-27.90	1.32 V	136	10.62	35.48
6	4824.00	32.50 AV	54.00	-21.50	1.32 V	136	-2.98	35.48
7	#7236.00	59.15 PK	92.70	-33.55	1.40 V	90	18.08	41.07
8	#7236.00	45.84 AV	82.10	-36.26	1.40 V	90	4.77	41.07

- 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.
 6. “#”:The radiated frequency is out the restricted band.



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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	27deg. C, 68%RH 965hPa	TESTED BY	Phoenix Huang
TEST MODE	Dipole Antenna		

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	2384.88	57.06 PK	74.00	-16.94	1.00 H	338	27.05	30.01
2	2384.88	44.22 AV	54.00	-9.78	1.00 H	338	14.21	30.01
3	*2437.00	106.75 PK			1.00 H	345	76.54	30.21
4	*2437.00	95.87 AV			1.00 H	345	65.66	30.21
5	4874.00	46.30 PK	74.00	-27.70	1.33 H	117	10.68	35.62
6	4874.00	32.50 AV	54.00	-21.50	1.33 H	117	-3.12	35.62
7	7311.00	57.20 PK	74.00	-16.80	1.72 H	25	15.93	41.27
8	7311.00	44.20 AV	54.00	-9.80	1.72 H	25	2.93	41.27
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	2384.88	66.47 PK	74.00	-7.53	1.00 V	91	36.46	30.01
2	2384.88	51.73 AV	54.00	-2.27	1.00 V	91	21.72	30.01
3	*2437.00	113.90 PK			1.00 V	88	83.69	30.21
4	*2437.00	103.75 AV			1.00 V	88	73.54	30.21
5	4874.00	46.50 PK	74.00	-27.50	1.09 V	171	10.88	35.62
6	4874.00	33.10 AV	54.00	-20.90	1.09 V	171	-2.52	35.62
7	7311.00	66.21 PK	74.00	-7.79	1.50 V	89	24.94	41.27
8	7311.00	52.76 AV	54.00	-1.24	1.50 V	89	11.49	41.27

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.



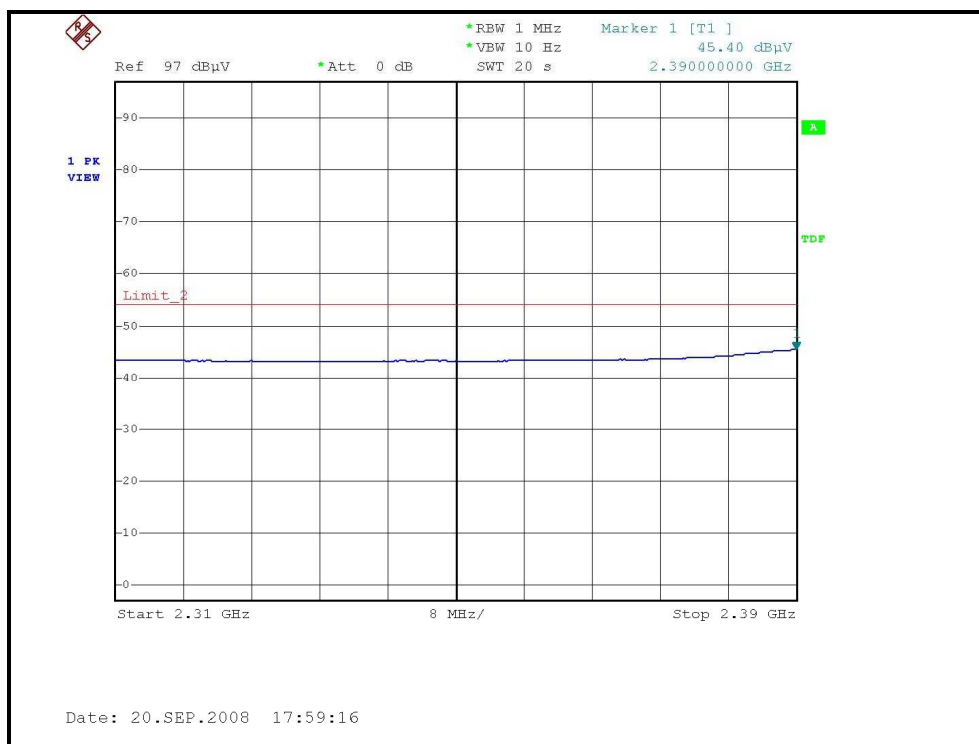
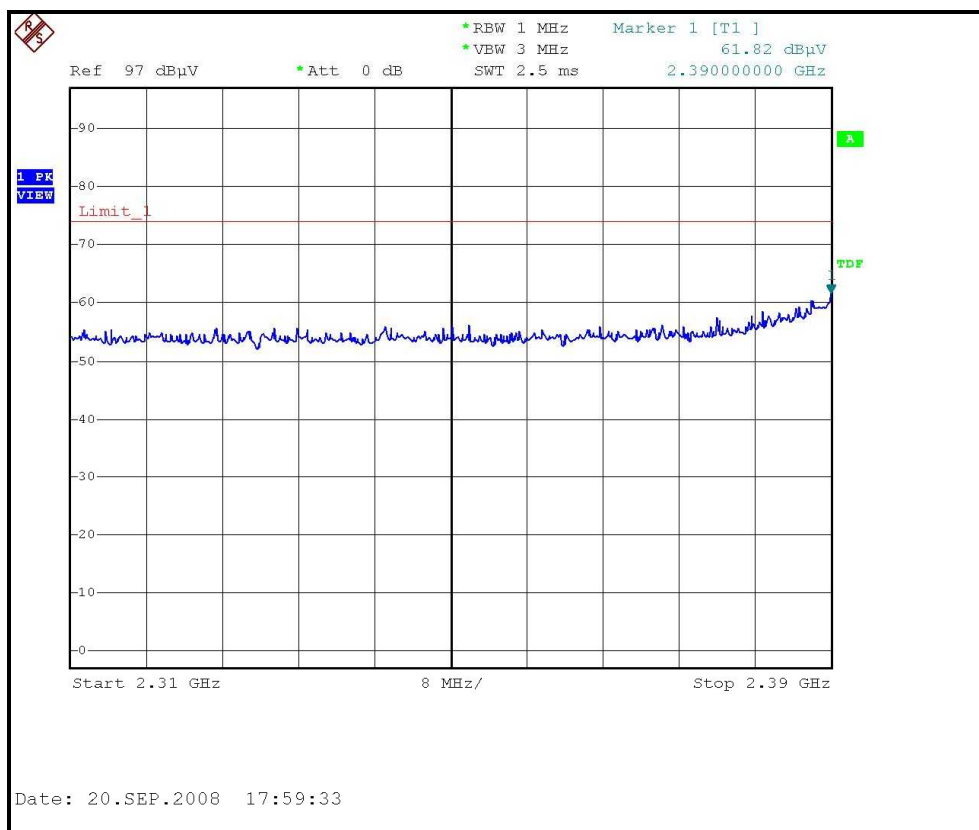
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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 68%RH 965hPa	TESTED BY	Phoenix Huang
TEST MODE	Dipole Antenna		

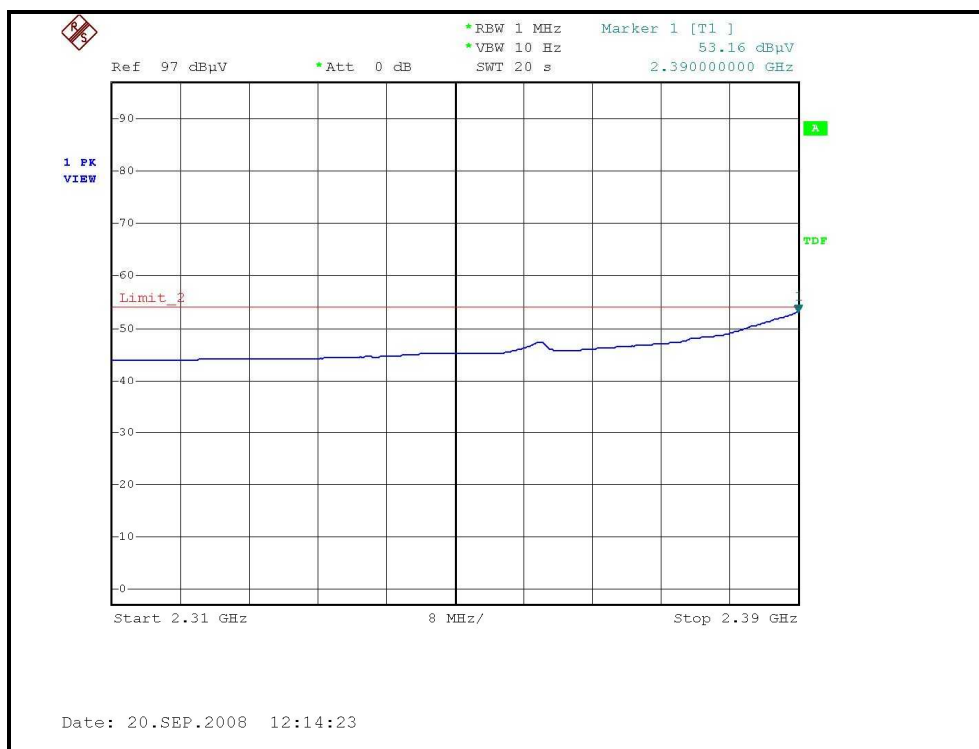
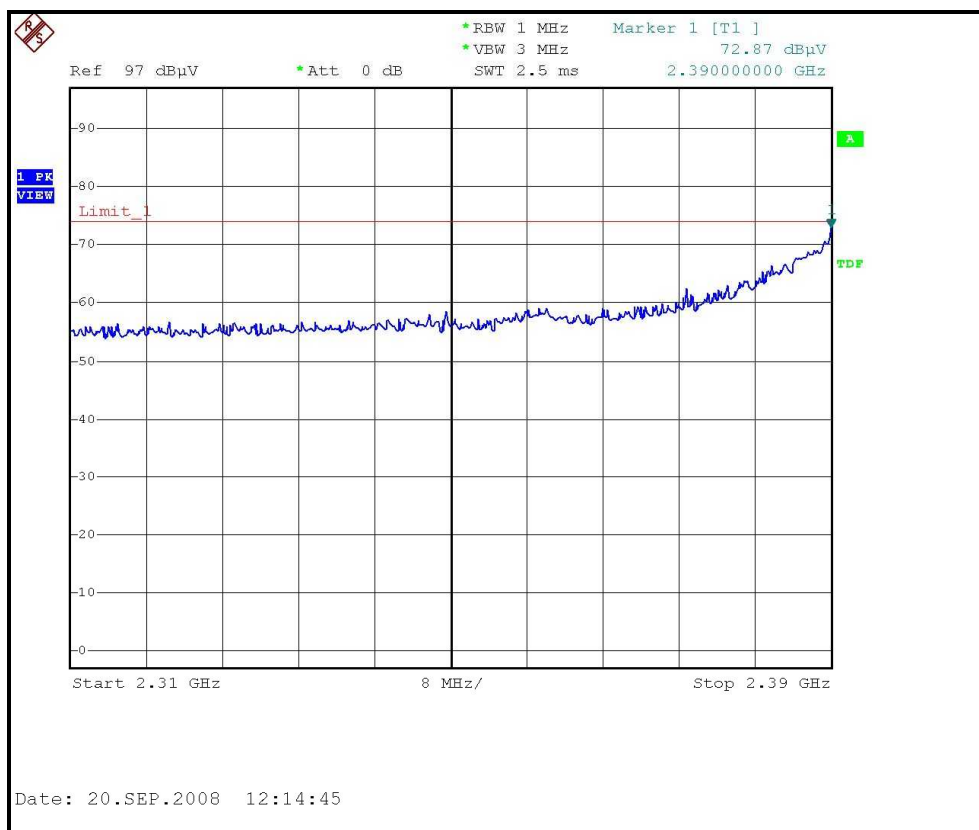
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NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	101.90 PK			1.69 H	338	71.59	30.31
2	*2462.00	91.16 AV			1.69 H	338	60.85	30.31
3	2483.50	67.32 PK	74.00	-6.68	1.70 H	338	36.92	30.40
4	2483.50	48.14 AV	54.00	-5.86	1.70 H	338	17.74	30.40
5	4924.00	46.60 PK	74.00	-27.40	1.37 H	110	10.85	35.75
6	4924.00	32.80 AV	54.00	-21.20	1.37 H	110	-2.95	35.75
7	7386.00	55.70 PK	74.00	-18.30	1.71 H	29	14.26	41.44
8	7386.00	41.70 AV	54.00	-12.30	1.71 H	29	0.26	41.44
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	110.76 PK			1.46 V	278	80.45	30.31
2	*2462.00	100.33 AV			1.46 V	278	70.02	30.31
3	2483.50	71.78 PK	74.00	-2.22	1.49 V	278	41.38	30.40
4	2483.50	53.39 AV	54.00	-0.61	1.49 V	278	22.99	30.40
5	4924.00	46.73 PK	74.00	-27.27	1.34 V	103	10.98	35.75
6	4924.00	32.76 AV	54.00	-21.24	1.34 V	103	-2.99	35.75
7	7386.00	64.09 PK	74.00	-9.91	1.30 V	75	22.65	41.44
8	7386.00	49.45 AV	54.00	-4.55	1.30 V	75	8.01	41.44

- 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.

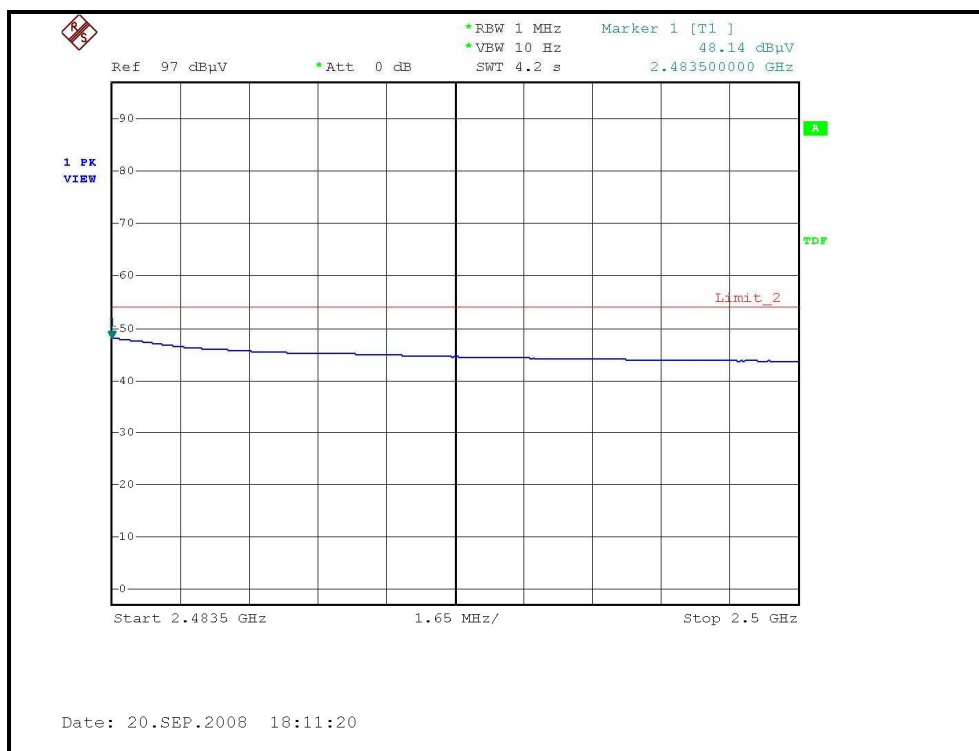
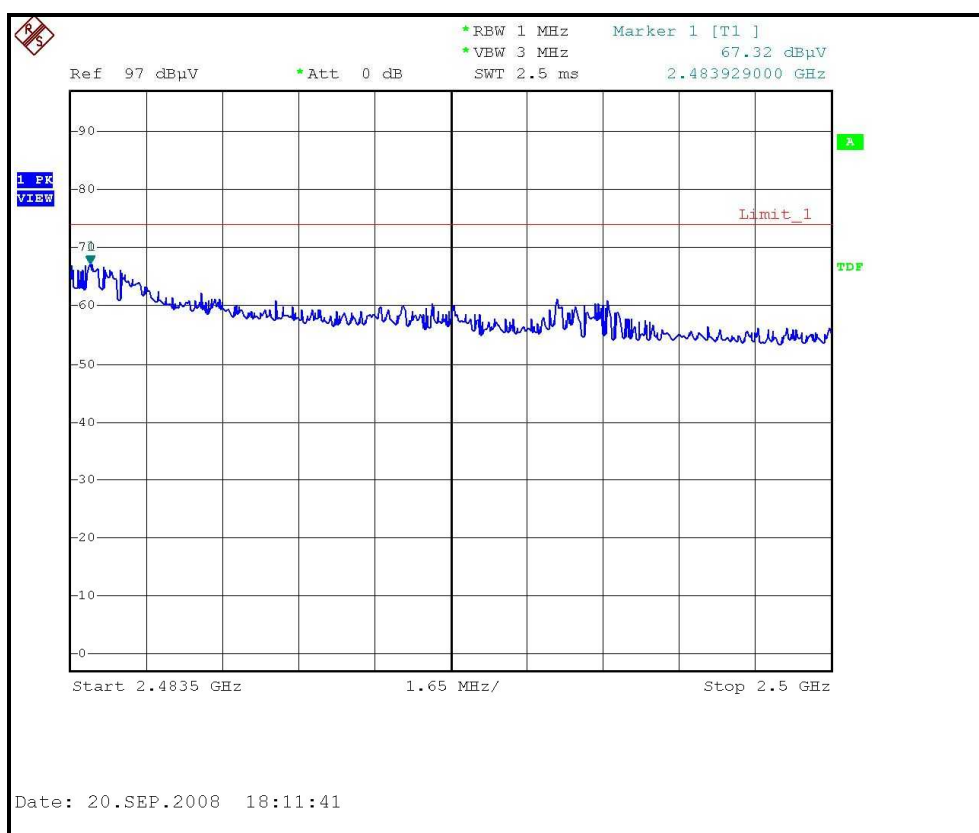
RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL)



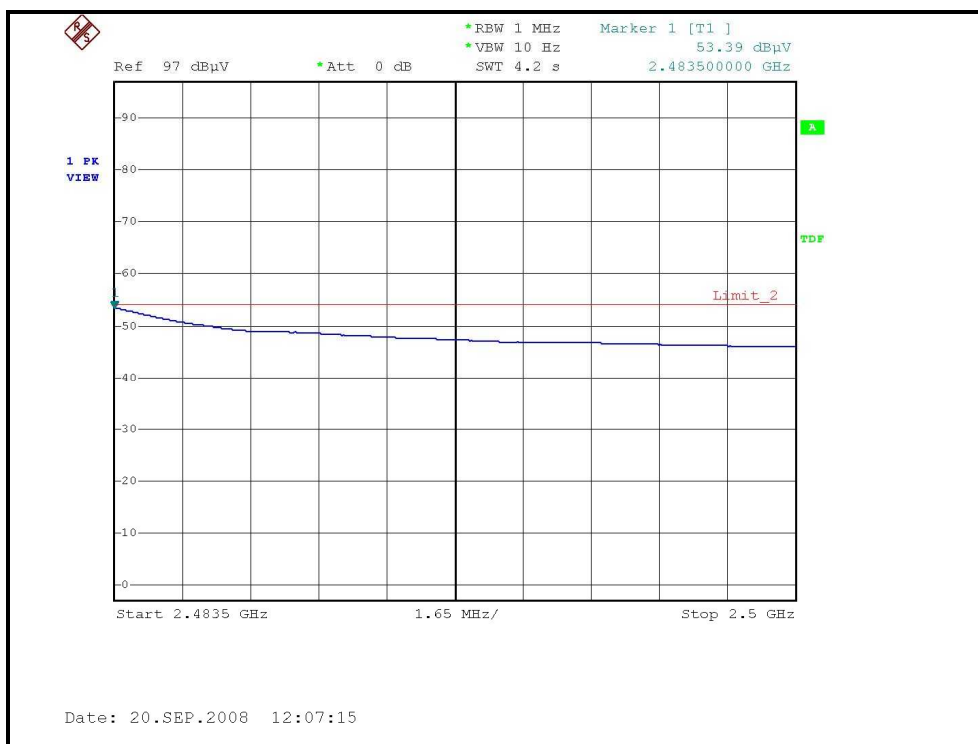
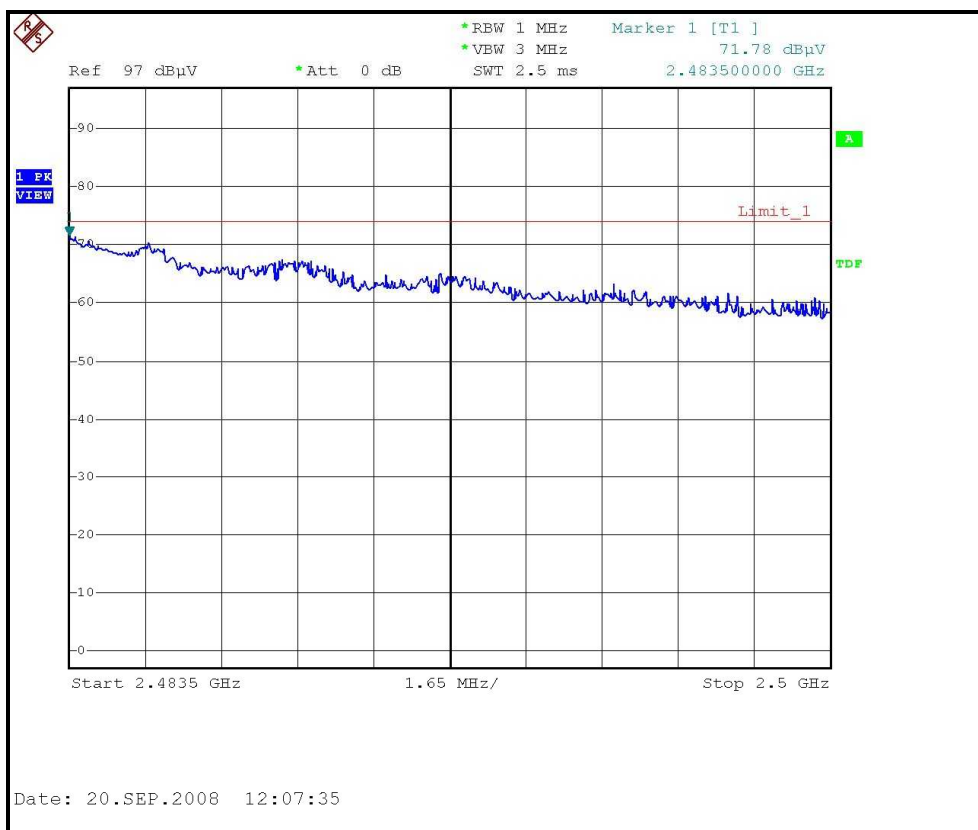
RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11g MODE,CH11, HORIZONTAL)



RESTRICTED BANDEDGE (802.11g MODE,CH11, VERTICAL)





A D T

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	27deg. C, 68%RH 965hPa	TESTED BY	Phoenix Huang
TEST MODE	Dipole Antenna		

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	57.87 PK	74.00	-16.13	1.10 H	233	27.84	30.03
2	2390.00	44.68 AV	54.00	-9.32	1.10 H	233	14.65	30.03
3	*2412.00	101.14 PK			1.49 H	233	71.02	30.12
4	*2412.00	89.88 AV			1.49 H	233	59.76	30.12
5	4824.00	45.72 PK	74.00	-28.28	1.39 H	332	10.24	35.48
6	4824.00	32.00 AV	54.00	-22.00	1.39 H	332	-3.48	35.48
7	#7236.00	52.90 PK	81.14	-28.24	1.48 H	68	11.83	41.07
8	#7236.00	39.50 AV	69.88	-30.38	1.48 H	68	-1.57	41.07
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	69.48 PK	74.00	-4.52	1.21 V	93	39.45	30.03
2	2390.00	53.23 AV	54.00	-0.77	1.21 V	93	23.20	30.03
3	*2412.00	113.62 PK			1.00 V	91	83.50	30.12
4	*2412.00	102.12 AV			1.00 V	91	72.00	30.12
5	4824.00	45.93 PK	74.00	-28.07	1.39 V	108	10.45	35.48
6	4824.00	32.13 AV	54.00	-21.87	1.39 V	108	-3.35	35.48
7	#7236.00	59.57 PK	93.62	-34.05	1.21 V	93	18.50	41.07
8	#7236.00	45.54 AV	82.12	-36.58	1.21 V	93	4.47	41.07

- 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.
 6. “#”:The radiated frequency is out the restricted band.



A D T

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	27deg. C, 68%RH 965hPa	TESTED BY	Phoenix Huang
TEST MODE	Dipole Antenna		

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	2384.72	56.67 PK	74.00	-17.33	1.27 H	221	26.66	30.01
2	2384.72	44.35 AV	54.00	-9.65	1.27 H	221	14.34	30.01
3	*2437.00	104.50 PK			1.41 H	232	74.29	30.21
4	*2437.00	92.92 AV			1.41 H	232	62.71	30.21
5	4874.00	47.00 PK	74.00	-27.00	1.52 H	306	11.38	35.62
6	4874.00	32.87 AV	54.00	-21.13	1.52 H	306	-2.75	35.62
7	7311.00	56.40 PK	74.00	-17.60	1.96 H	26	15.13	41.27
8	7311.00	42.60 AV	54.00	-11.40	1.96 H	26	1.33	41.27
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	2385.36	62.52 PK	74.00	-11.48	1.50 V	279	32.51	30.01
2	2385.36	50.69 AV	54.00	-3.31	1.50 V	279	20.68	30.01
3	*2437.00	113.56 PK			1.47 V	276	83.35	30.21
4	*2437.00	102.22 AV			1.47 V	276	72.01	30.21
5	4874.00	46.98 PK	74.00	-27.02	1.47 V	123	11.36	35.62
6	4874.00	33.10 AV	54.00	-20.90	1.47 V	123	-2.52	35.62
7	7311.00	66.50 PK	74.00	-7.50	1.30 V	93	25.23	41.27
8	7311.00	53.00 AV	54.00	-1.00	1.30 V	93	11.73	41.27

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.



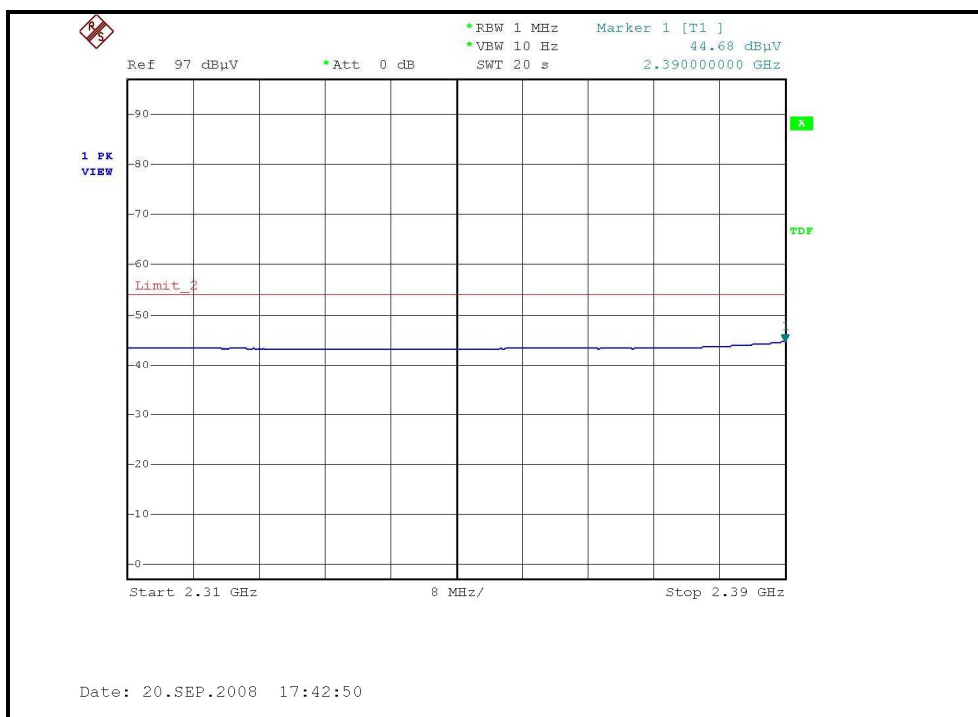
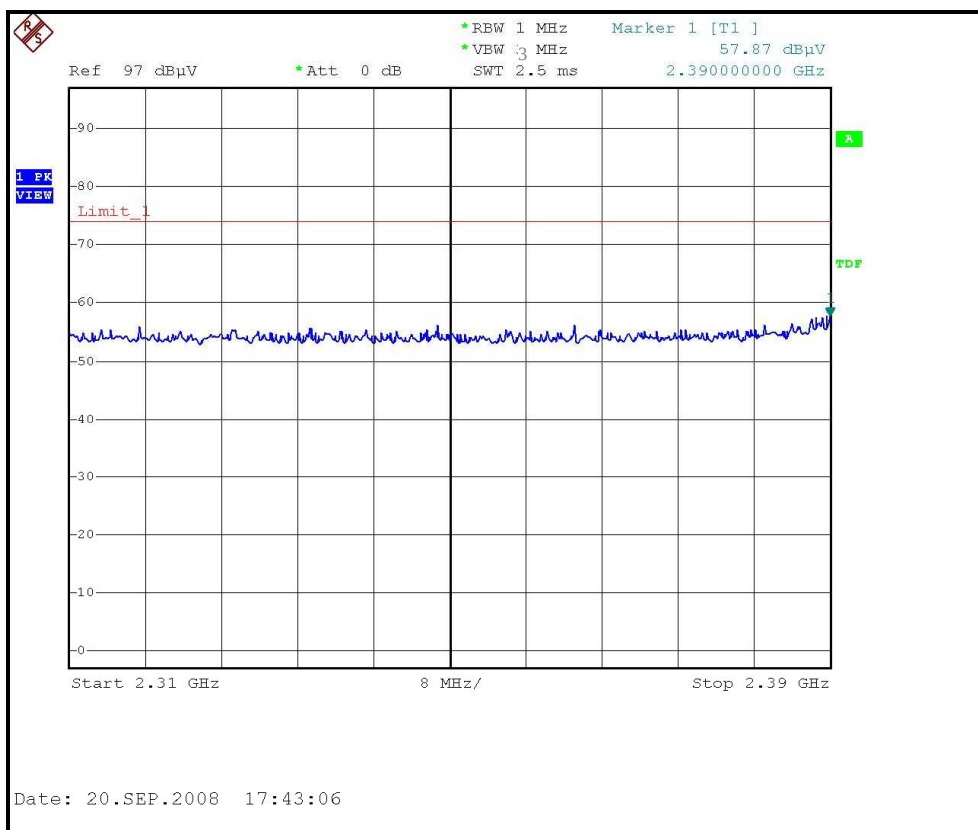
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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 68%RH 965hPa	TESTED BY	Phoenix Huang
TEST MODE	Dipole Antenna		

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	103.16 PK			1.71 H	222	72.85	30.31
2	*2462.00	91.24 AV			1.71 H	222	60.93	30.31
3	2483.50	61.87 PK	74.00	-12.13	1.70 H	223	31.47	30.40
4	2483.50	46.61 AV	54.00	-7.39	1.70 H	223	16.21	30.40
5	4924.00	46.20 PK	74.00	-27.80	1.55 H	311	10.45	35.75
6	4924.00	32.40 AV	54.00	-21.60	1.55 H	311	-3.35	35.75
7	7386.00	54.30 PK	74.00	-19.70	1.75 H	300	12.86	41.44
8	7386.00	40.70 AV	54.00	-13.30	1.75 H	300	-0.74	41.44
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	110.91 PK			1.39 V	60	80.60	30.31
2	*2462.00	99.06 AV			1.39 V	60	68.75	30.31
3	2483.50	68.47 PK	74.00	-5.53	1.36 V	60	38.07	30.40
4	2483.50	53.45 AV	54.00	-0.55	1.36 V	60	23.05	30.40
5	4924.00	46.50 PK	74.00	-27.50	1.53 V	114	10.75	35.75
6	4924.00	32.80 AV	54.00	-21.20	1.53 V	114	-2.95	35.75
7	7386.00	62.42 PK	74.00	-11.58	1.32 V	62	20.98	41.44
8	7386.00	48.56 AV	54.00	-5.44	1.32 V	62	7.12	41.44

- 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.

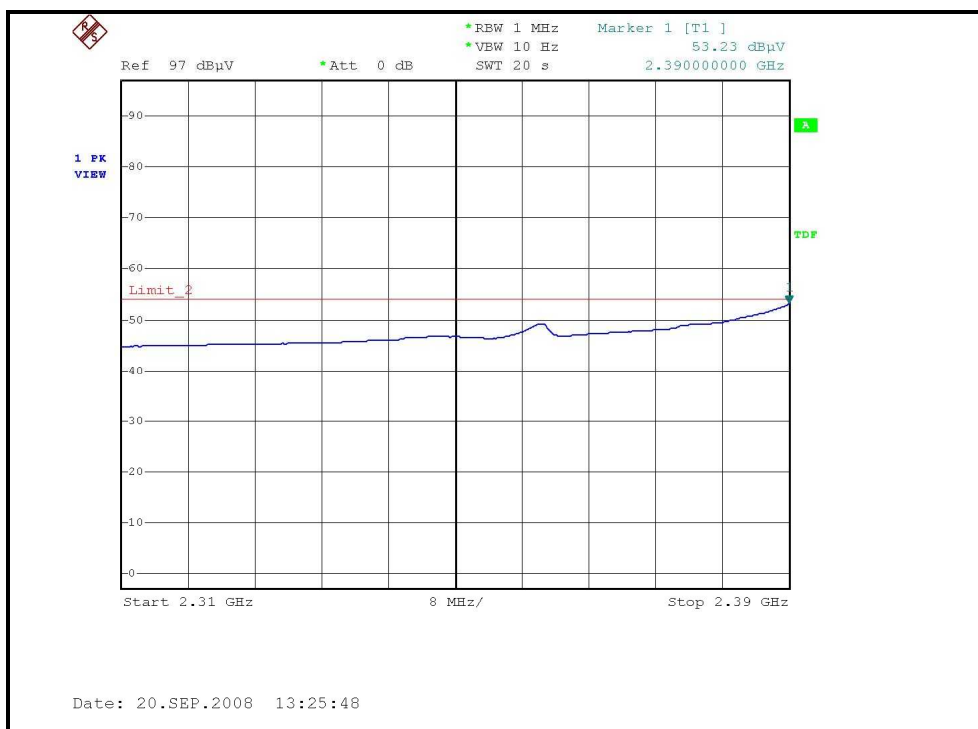
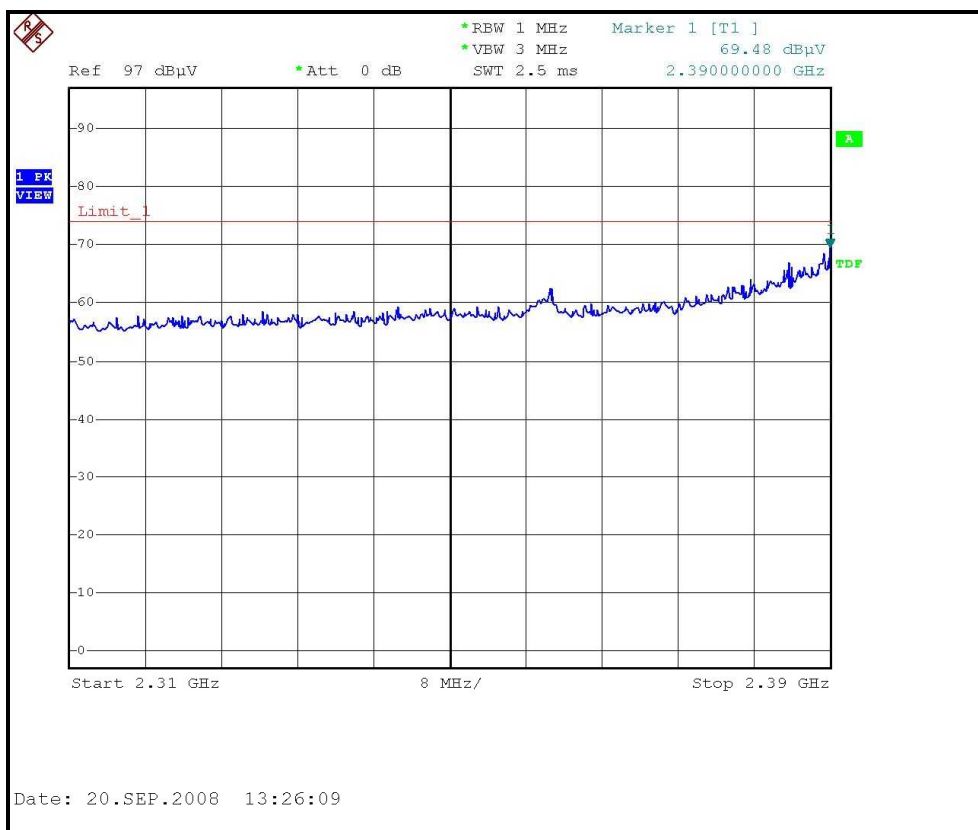
RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH1, HORIZONTAL)



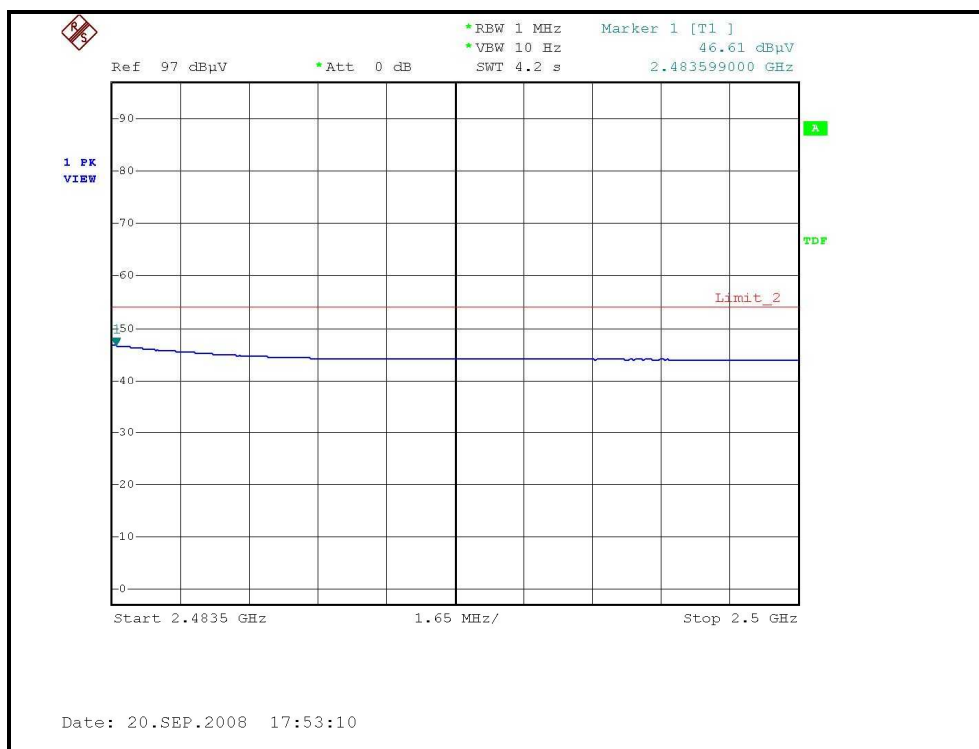
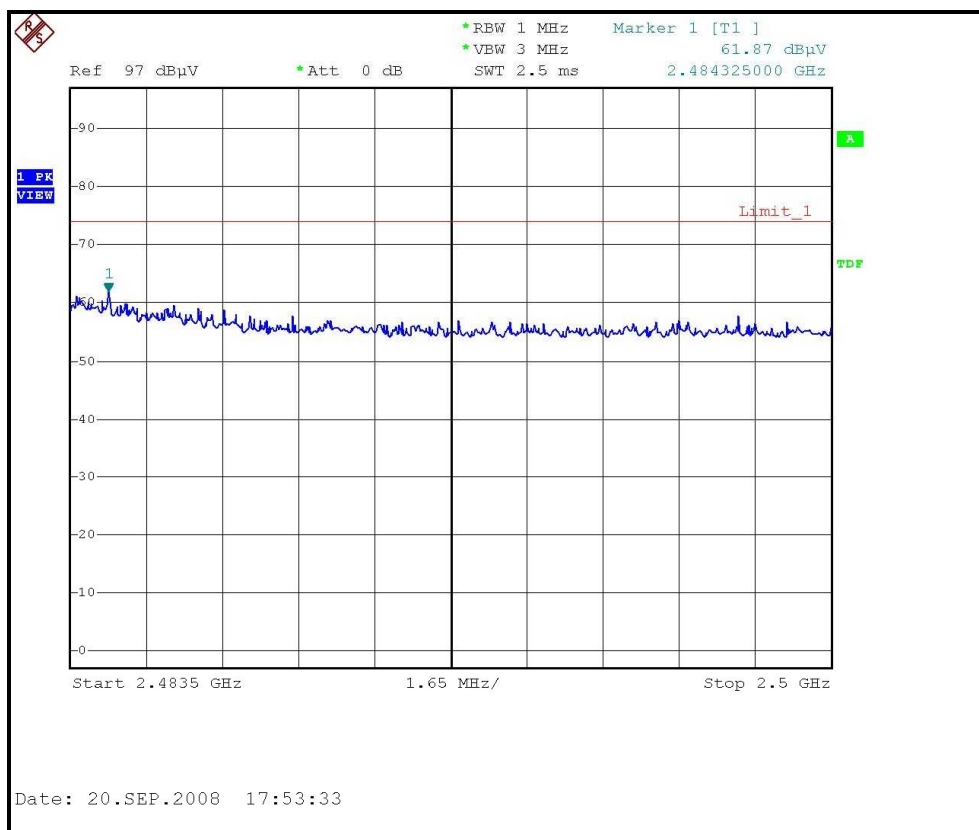


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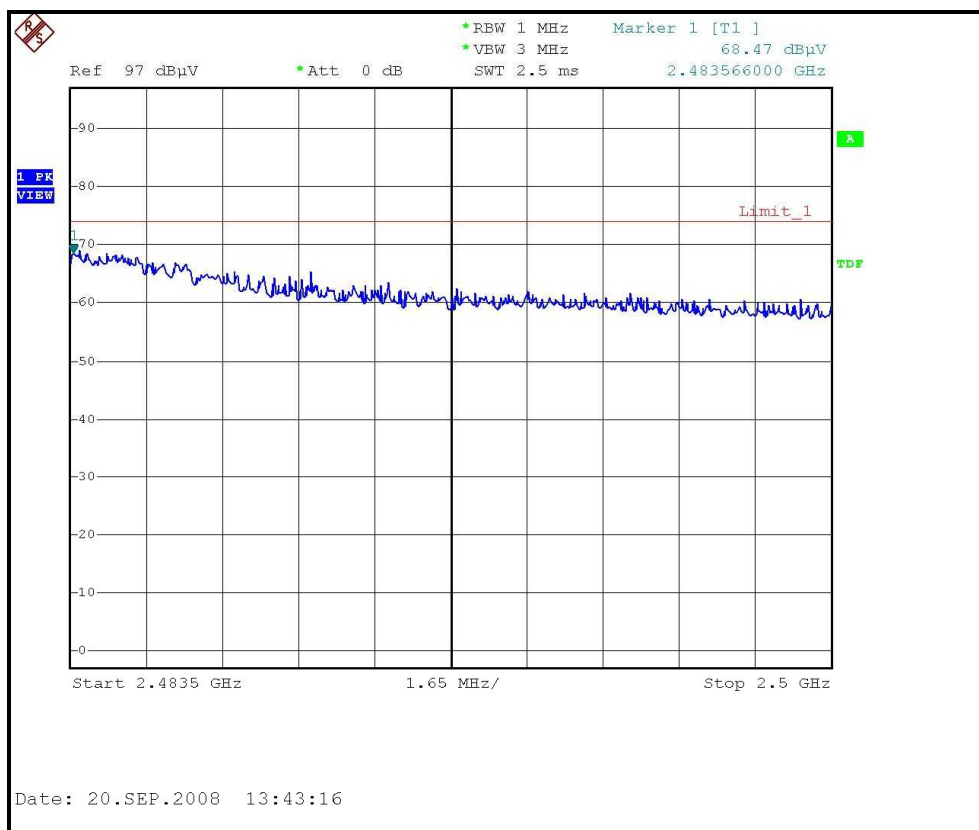
RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH1, VERTICAL)



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



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





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DRAFT 802.11n (40MHz) 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	27deg. C, 68%RH 965hPa	TESTED BY	Phoenix Huang
TEST MODE	Dipole Antenna		

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	59.55 PK	74.00	-14.45	1.05 H	258	29.52	30.03
2	2390.00	45.80 AV	54.00	-8.20	1.05 H	258	15.77	30.03
3	*2422.00	98.80 PK			1.03 H	258	68.64	30.16
4	*2422.00	87.32 AV			1.03 H	258	57.16	30.16
5	4844.00	46.50 PK	74.00	-27.50	1.55 H	271	10.96	35.54
6	4844.00	33.30 AV	54.00	-20.70	1.55 H	271	-2.24	35.54
7	7266.00	52.10 PK	74.00	-21.90	1.43 H	55	10.95	41.15
8	7266.00	37.83 AV	54.00	-16.17	1.43 H	55	-3.32	41.15
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	2386.64	66.66 PK	74.00	-7.34	1.49 V	262	36.64	30.02
2	2386.64	53.01 AV	54.00	-0.99	1.49 V	262	22.99	30.02
3	*2422.00	108.28 PK			1.49 V	259	78.12	30.16
4	*2422.00	96.71 AV			1.49 V	259	66.55	30.16
5	4844.00	64.73 PK	74.00	-9.27	1.36 V	172	29.19	35.54
6	4844.00	33.52 AV	54.00	-20.48	1.36 V	172	-2.02	35.54
7	7266.00	56.70 PK	74.00	-17.30	1.27 V	42	15.55	41.15
8	7266.00	43.90 AV	54.00	-10.10	1.27 V	42	2.75	41.15

- 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 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 68%RH 965hPa	TESTED BY	Phoenix Huang
TEST MODE	Dipole Antenna		

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	57.27 PK	74.00	-16.73	1.06 H	259	27.24	30.03
2	2390.00	44.97 AV	54.00	-9.03	1.06 H	259	14.94	30.03
3	*2437.00	98.60 PK			1.03 H	258	68.39	30.21
4	*2437.00	87.80 AV			1.03 H	258	57.59	30.21
5	2483.50	57.91 PK	74.00	-16.09	1.03 H	227	27.51	30.40
6	2483.50	44.48 AV	54.00	-9.52	1.03 H	227	14.08	30.40
7	4874.00	46.90 PK	74.00	-27.10	1.49 H	223	11.28	35.62
8	4874.00	33.80 AV	54.00	-20.20	1.49 H	223	-1.82	35.62
9	7311.00	51.38 PK	74.00	-22.62	1.39 H	54	10.11	41.27
10	7311.00	38.70 AV	54.00	-15.30	1.39 H	54	-2.57	41.27

- 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.
 6. “ # ”: The radiated frequency is out the restricted band.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 68%RH 965hPa	TESTED BY	Phoenix Huang
TEST MODE	Dipole Antenna		

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	67.49 PK	74.00	-6.51	1.49 V	278	37.46	30.03
2	2390.00	51.81 AV	54.00	-2.19	1.49 V	278	21.78	30.03
3	*2437.00	109.24 PK			1.00 V	81	79.03	30.21
4	*2437.00	98.42 AV			1.00 V	81	68.21	30.21
5	2483.50	69.66 PK	74.00	-4.34	1.37 V	59	39.26	30.40
6	2483.50	53.45 AV	54.00	-0.55	1.37 V	59	23.05	30.40
7	4874.00	47.12 PK	74.00	-26.88	1.34 V	245	11.50	35.62
8	4874.00	34.20 AV	54.00	-19.80	1.34 V	245	-1.42	35.62
9	7311.00	58.90 PK	74.00	-15.10	1.29 V	94	17.63	41.27
10	7311.00	45.90 AV	54.00	-8.10	1.29 V	94	4.63	41.27

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 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 68%RH 965hPa	TESTED BY	Phoenix Huang
TEST MODE	Dipole Antenna		

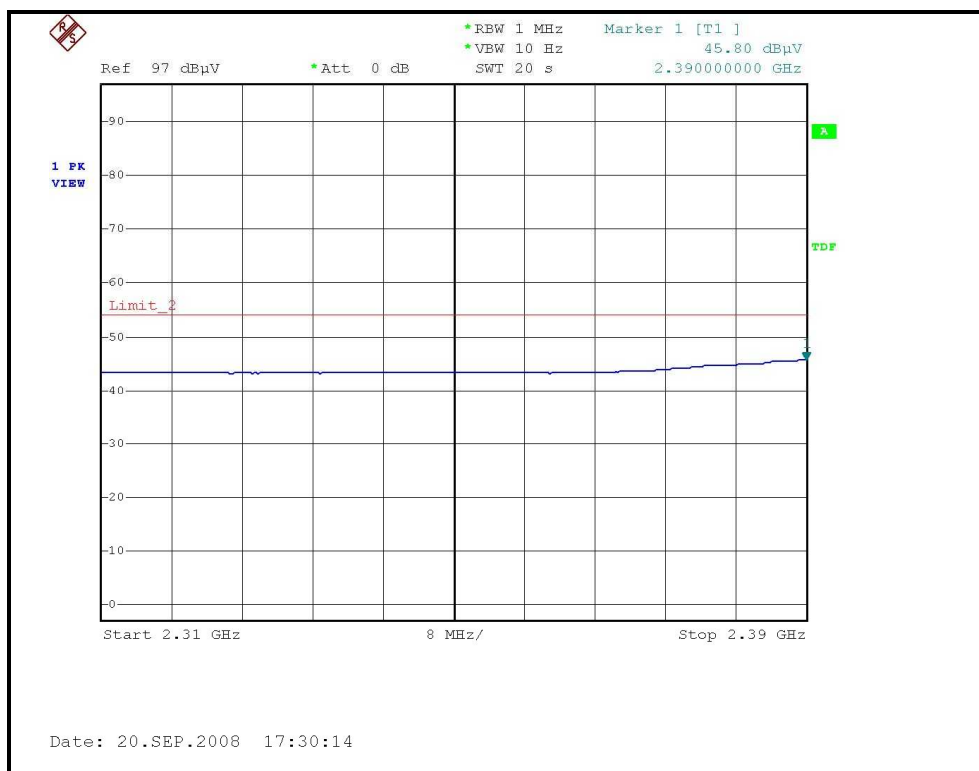
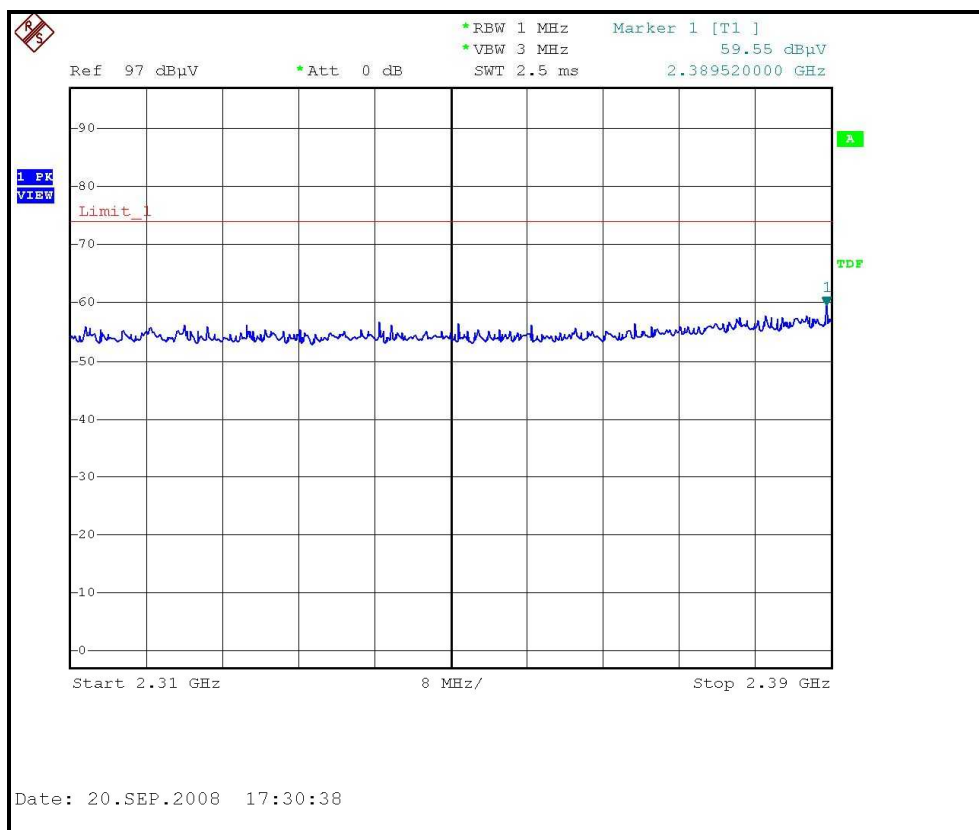
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NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	96.00 PK			1.56 H	195	65.73	30.27
2	*2452.00	84.80 AV			1.56 H	195	54.53	30.27
3	2484.29	60.89 PK	74.00	-13.11	1.48 H	178	30.49	30.40
4	2484.29	46.91 AV	54.00	-7.09	1.48 H	178	16.51	30.40
5	4904.00	46.21 PK	74.00	-27.79	1.60 H	109	10.51	35.70
6	4904.00	33.50 AV	54.00	-20.50	1.60 H	109	-2.20	35.70
7	7356.00	52.40 PK	74.00	-21.60	1.48 H	21	11.03	41.37
8	7356.00	37.97 AV	54.00	-16.03	1.48 H	21	-3.40	41.37
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	*2452.00	109.43 PK			1.00 V	88	79.16	30.27
2	*2452.00	98.00 AV			1.00 V	88	67.73	30.27
3	2484.12	66.92 PK	74.00	-7.08	1.40 V	61	36.52	30.40
4	2484.12	53.07 AV	54.00	-0.93	1.40 V	61	22.67	30.40
5	4904.00	46.92 PK	74.00	-27.08	1.45 V	179	11.22	35.70
6	4904.00	33.80 AV	54.00	-20.20	1.45 V	179	-1.90	35.70
7	7356.00	57.50 PK	74.00	-16.50	1.29 V	73	16.13	41.37
8	7356.00	44.46 AV	54.00	-9.54	1.29 V	73	3.09	41.37

- 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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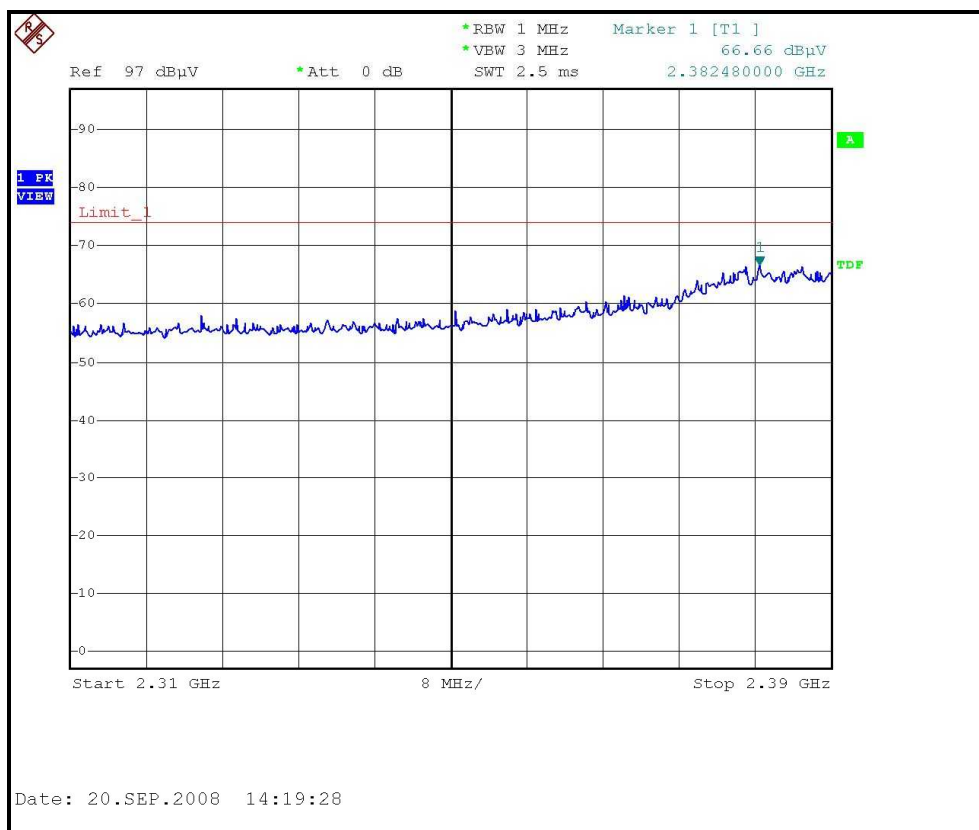
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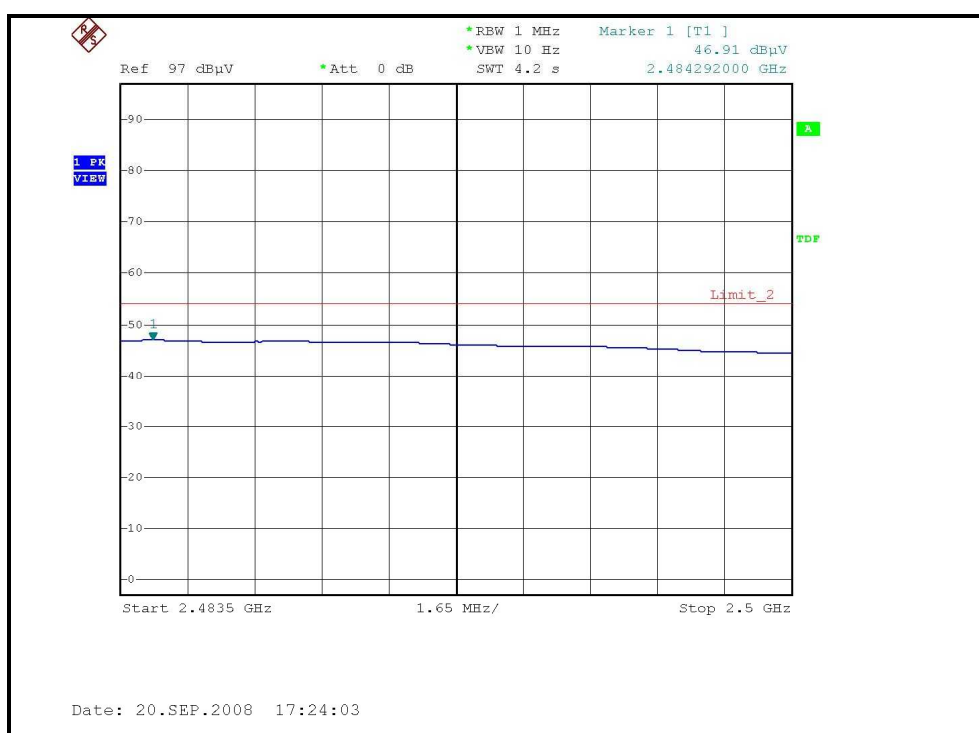
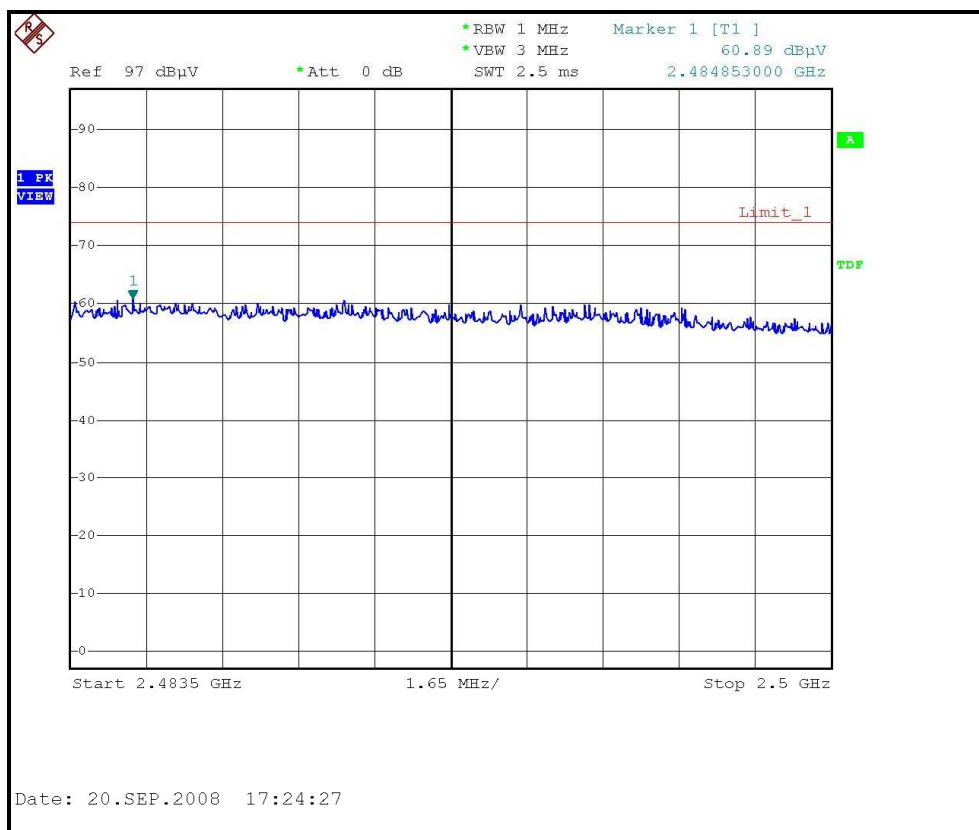
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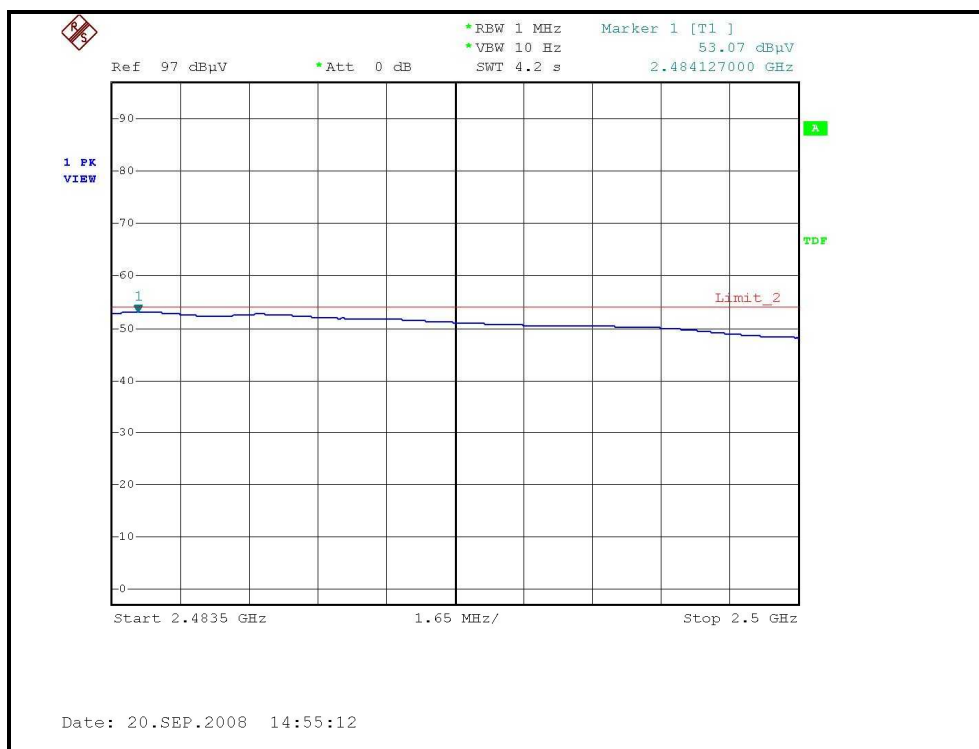
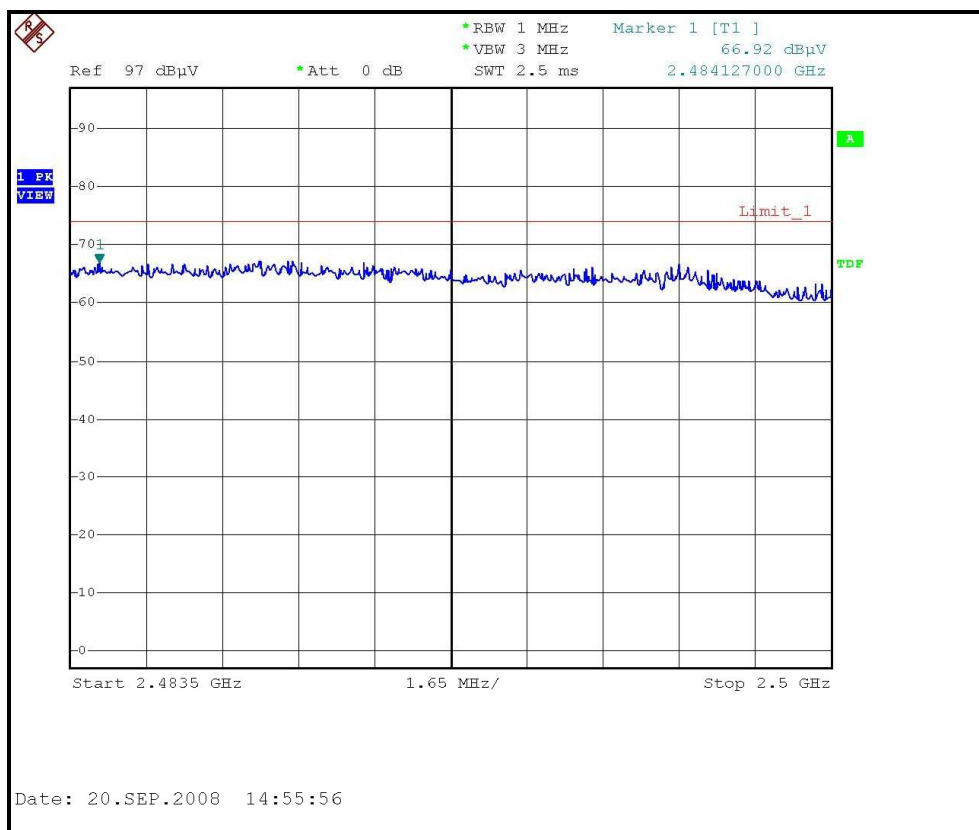


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RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH7, HORIZONTAL)



RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH7, VERTICAL)





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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	25deg. C, 65 %RH 965hPa	TESTED BY	Frank Liu
TEST MODE	PCB Antenna		

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	61.87 PK	74.00	-12.13	1.30 H	55	31.81	30.06
2	2390.00	53.40 AV	54.00	-0.60	1.30 H	55	23.34	30.06
3	*2412.00	106.80 PK			1.30 H	55	76.65	30.15
4	*2412.00	101.90 AV			1.30 H	55	71.75	30.15
5	4824.00	48.60 PK	74.00	-25.40	1.37 H	67	13.14	35.46
6	4824.00	43.40 AV	54.00	-10.60	1.37 H	67	7.94	35.46
7	#7236.00	55.30 PK	86.80	-31.50	1.70 H	25	13.45	41.85
8	#7236.00	47.40 AV	81.90	-34.50	1.70 H	25	5.55	41.85
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	61.41 PK	74.00	-12.59	1.19 V	335	31.35	30.06
2	2390.00	53.28 AV	54.00	-0.72	1.19 V	335	23.22	30.06
3	*2412.00	106.40 PK			1.19 V	335	76.25	30.15
4	*2412.00	101.50 AV			1.19 V	335	71.35	30.15
5	4824.00	49.60 PK	74.00	-24.40	1.31 V	189	14.14	35.46
6	4824.00	44.60 AV	54.00	-9.40	1.31 V	189	9.14	35.46
7	#7236.00	58.80 PK	86.40	-27.60	1.22 V	352	16.95	41.85
8	#7236.00	52.00 AV	81.50	-29.50	1.22 V	352	10.15	41.85

- 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.
 6. “#”: The radiated frequency is out the restricted band.



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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	25deg. C, 65%RH 965hPa	TESTED BY	Frank Liu
TEST MODE	PCB Antenna		

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	107.50 PK			1.36 H	51	77.26	30.24
2	*2437.00	101.60 AV			1.36 H	51	71.36	30.24
3	4874.00	46.90 PK	74.00	-27.10	1.54 H	3	11.35	35.55
4	4874.00	40.00 AV	54.00	-14.00	1.54 H	3	4.45	35.55
5	7311.00	51.60 PK	74.00	-22.40	1.40 H	6	9.56	42.04
6	7311.00	46.20 AV	54.00	-7.80	1.40 H	6	4.16	42.04
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	107.10 PK			1.16 V	357	76.86	30.24
2	*2437.00	101.70 AV			1.16 V	357	71.46	30.24
3	4874.00	50.20 PK	74.00	-23.80	1.57 V	0	14.65	35.55
4	4874.00	45.00 AV	54.00	-9.00	1.57 V	0	9.45	35.55
5	7311.00	56.00 PK	74.00	-18.00	1.17 V	317	13.96	42.04
6	7311.00	48.50 AV	54.00	-5.50	1.17 V	317	6.46	42.04

- 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.



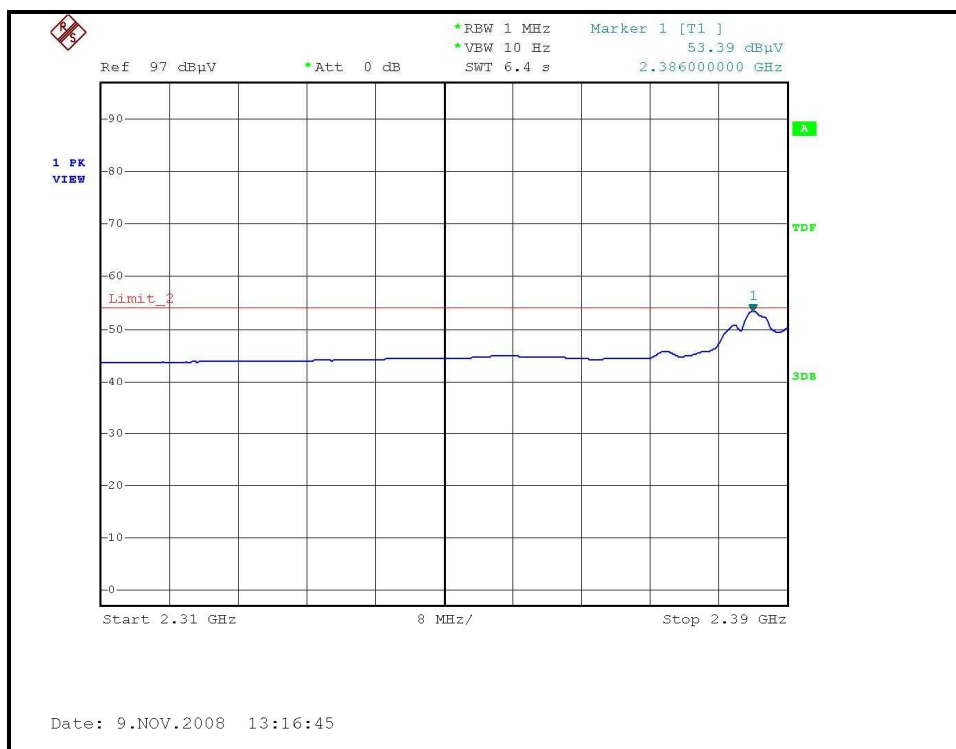
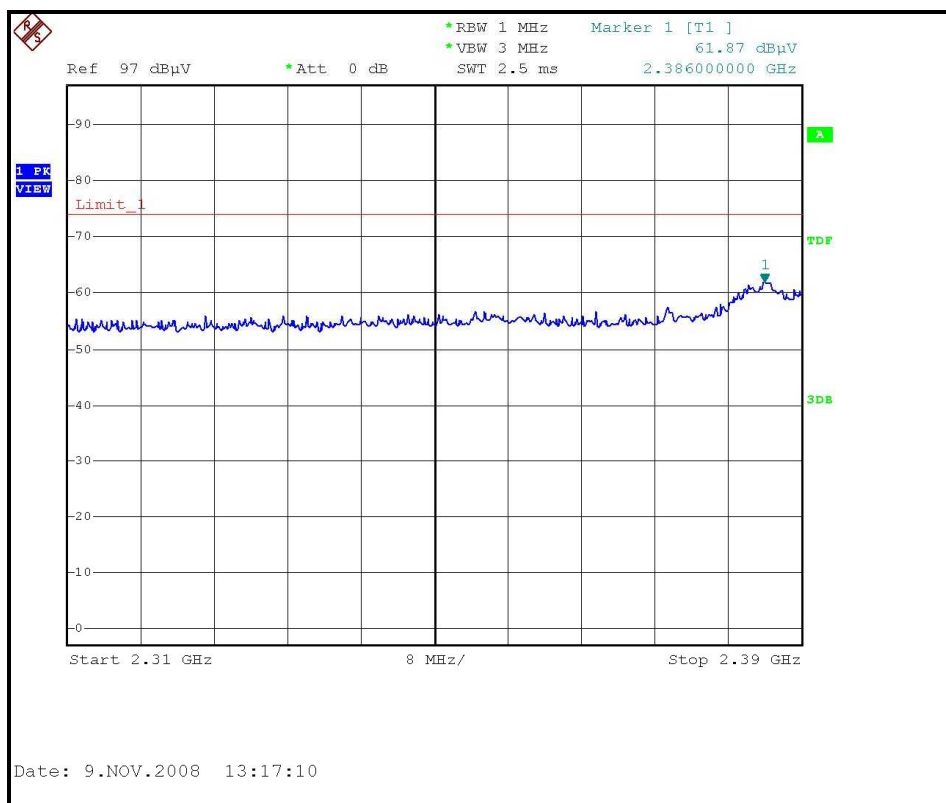
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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 965hPa	TESTED BY	Frank Liu
TEST MODE	PCB Antenna		

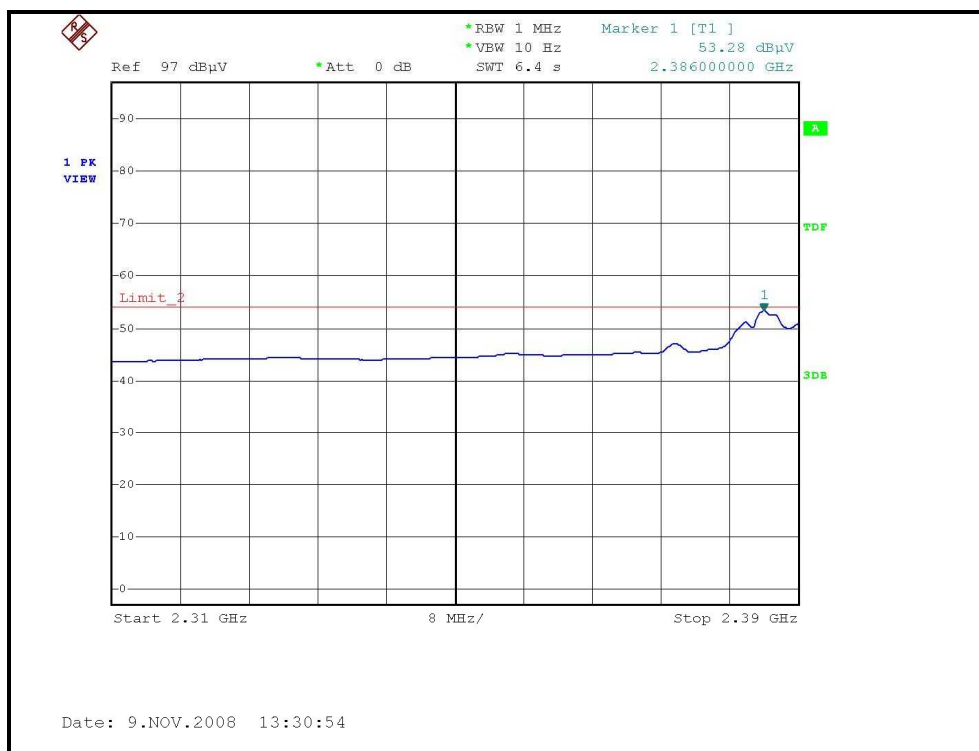
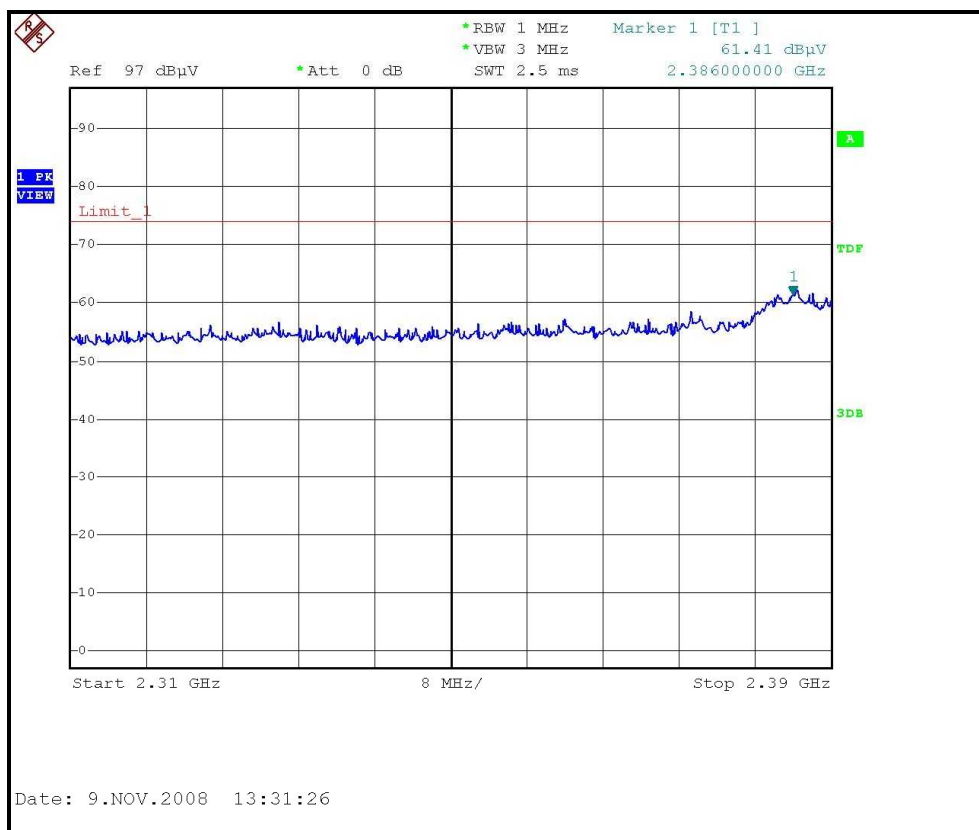
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	103.20 PK			1.27 H	101	72.86	30.34
2	*2462.00	98.00 AV			1.27 H	101	67.66	30.34
3	2483.50	56.41 PK	74.00	-17.59	1.67 H	232	25.98	30.43
4	2483.50	45.01 AV	54.00	-8.99	1.67 H	232	14.58	30.43
5	4924.00	45.10 PK	74.00	-28.90	1.40 H	355	9.47	35.63
6	4924.00	39.20 AV	54.00	-14.80	1.40 H	355	3.57	35.63
7	7386.00	50.60 PK	74.00	-23.40	1.38 H	8	8.37	42.23
8	7386.00	45.30 AV	54.00	-8.70	1.38 H	8	3.07	42.23
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	103.20 PK			1.13 V	336	72.86	30.34
2	*2462.00	98.20 AV			1.13 V	336	67.86	30.34
3	2483.50	56.35 PK	74.00	-17.65	1.47 V	352	25.92	30.43
4	2483.50	45.47 AV	54.00	-8.53	1.47 V	352	15.04	30.43
5	4924.00	49.40 PK	74.00	-24.60	1.47 V	352	13.77	35.63
6	4924.00	41.50 AV	54.00	-12.50	1.47 V	352	5.87	35.63
7	7386.00	53.40 PK	74.00	-20.60	1.19 V	355	11.17	42.23
8	7386.00	45.90 AV	54.00	-8.10	1.19 V	355	3.67	42.23

- 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.

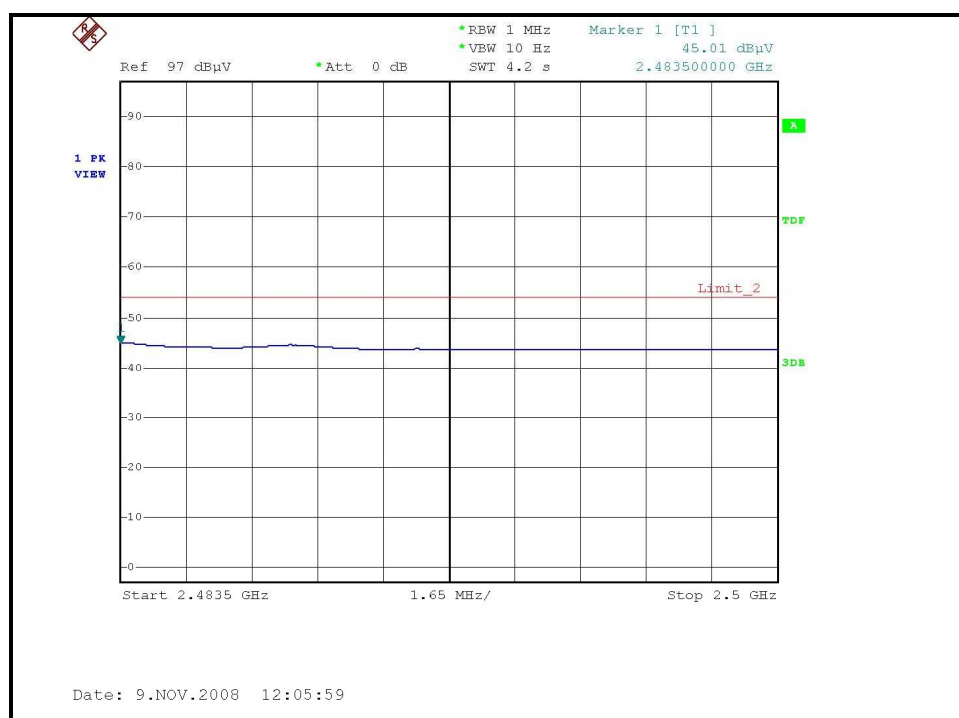
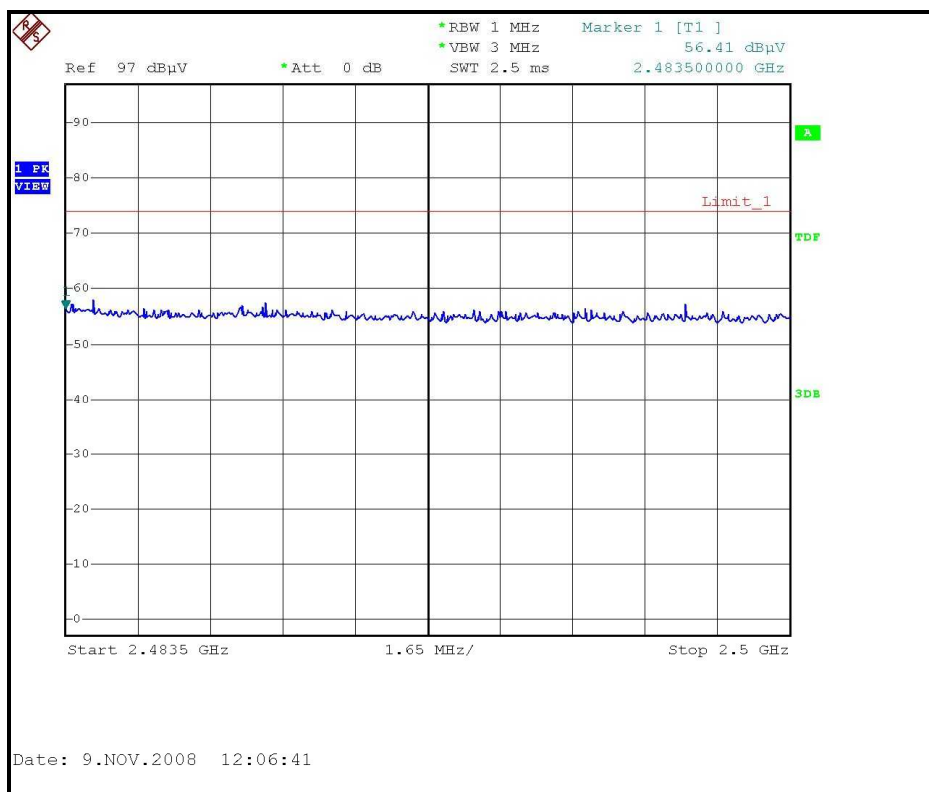
RESTRICTED BANDEDGE (802.11b MODE,CH1, HORIZONTAL)



RESTRICTED BANDEDGE (802.11b MODE,CH1, VERTICAL)



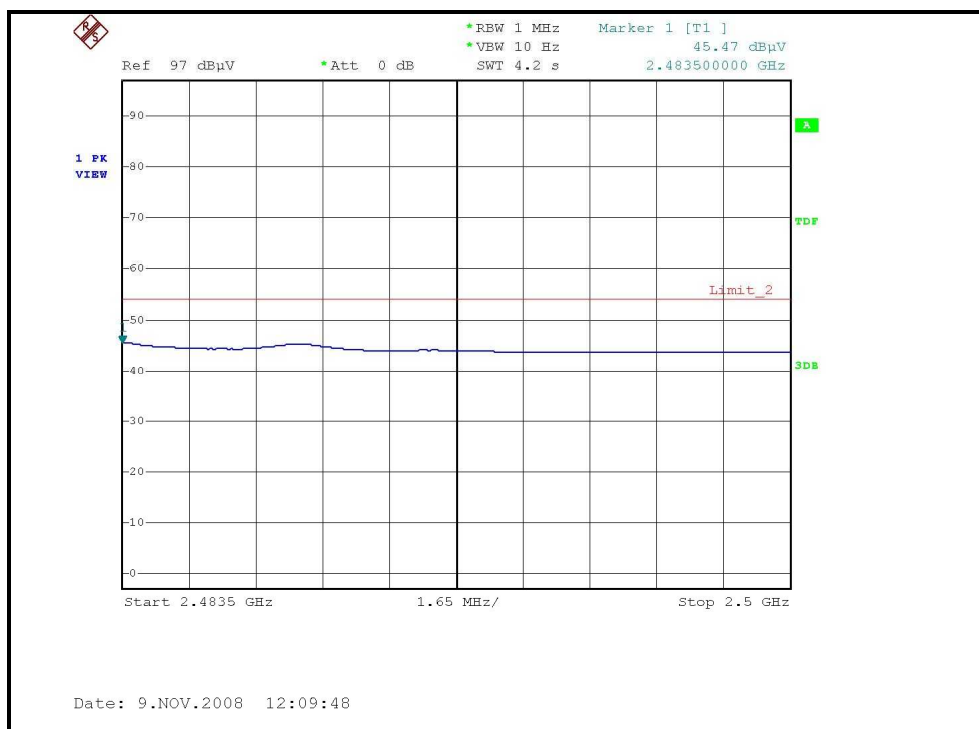
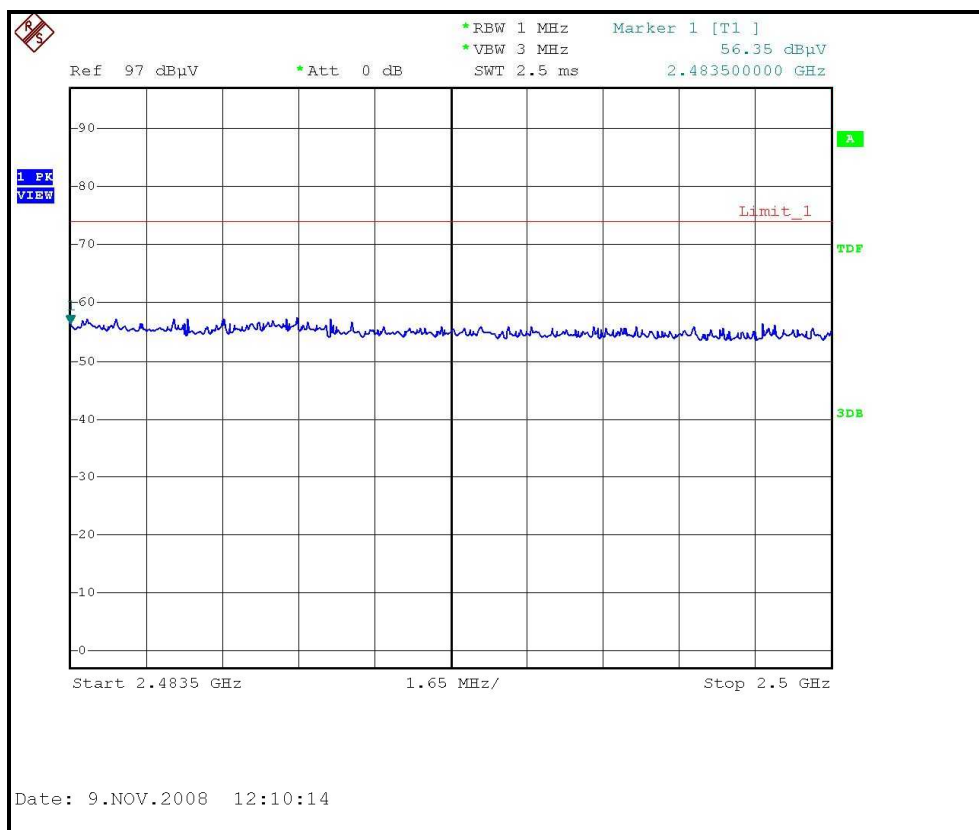
RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL)





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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	25deg. C, 65%RH 965hPa	TESTED BY	Frank Liu
TEST MODE	PCB Antenna		

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	68.10 PK	74.00	-5.90	1.64 H	53	38.04	30.06
2	2390.00	52.39 AV	54.00	-1.61	1.64 H	53	22.33	30.06
3	*2412.00	107.50 PK			1.29 H	53	77.35	30.15
4	*2412.00	97.00 AV			1.29 H	53	66.85	30.15
5	4824.00	45.60 PK	74.00	-28.40	1.37 H	326	10.14	35.46
6	4824.00	31.20 AV	54.00	-22.80	1.37 H	326	-4.26	35.46
7	#7236.00	52.90 PK	87.50	-34.60	1.23 H	58	11.05	41.85
8	#7236.00	42.70 AV	77.00	-34.30	1.23 H	58	0.85	41.85
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	67.72 PK	74.00	-6.28	1.02 V	318	37.66	30.06
2	2390.00	52.86 AV	54.00	-1.14	1.02 V	318	22.80	30.06
3	*2412.00	107.30 PK			1.00 V	314	77.15	30.15
4	*2412.00	97.10 AV			1.00 V	314	66.95	30.15
5	4824.00	47.20 PK	74.00	-26.80	1.32 V	12	11.74	35.46
6	4824.00	34.20 AV	54.00	-19.80	1.32 V	12	-1.26	35.46
7	#7236.00	60.00 PK	87.30	-27.30	1.26 V	116	18.15	41.85
8	#7236.00	45.60 AV	77.10	-31.50	1.26 V	116	3.75	41.85

- 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.
 6. “#”: The radiated frequency is out the restricted band.



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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	25deg. C, 65%RH 965hPa	TESTED BY	Frank Liu
TEST MODE	PCB Antenna		

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	108.00 PK			1.28 H	101	77.76	30.24
2	*2437.00	97.20 AV			1.28 H	101	66.96	30.24
3	4874.00	44.20 PK	74.00	-29.80	1.35 H	324	8.65	35.55
4	4874.00	30.90 AV	54.00	-23.10	1.35 H	324	-4.65	35.55
5	7311.00	57.80 PK	74.00	-16.20	1.26 H	6	15.76	42.04
6	7311.00	43.30 AV	54.00	-10.70	1.26 H	6	1.26	42.04
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	110.50 PK			1.02 V	21	80.26	30.24
2	*2437.00	99.80 AV			1.02 V	21	69.56	30.24
3	4874.00	46.30 PK	74.00	-27.70	1.31 V	0	10.75	35.55
4	4874.00	33.00 AV	54.00	-21.00	1.31 V	0	-2.55	35.55
5	7311.00	60.90 PK	74.00	-13.10	1.06 V	176	18.86	42.04
6	7311.00	47.90 AV	54.00	-6.10	1.06 V	176	5.86	42.04

- 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	25deg. C, 65%RH 965hPa	TESTED BY	Frank Liu
TEST MODE	PCB Antenna		

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	106.20 PK			1.28 H	99	75.86	30.34
2	*2462.00	95.50 AV			1.28 H	99	65.16	30.34
3	2483.50	65.02 PK	74.00	-8.98	1.50 H	98	34.59	30.43
4	2483.50	49.75 AV	54.00	-4.25	1.50 H	98	19.32	30.43
5	4924.00	43.10 PK	74.00	-30.90	1.34 H	329	7.47	35.63
6	4924.00	30.60 AV	54.00	-23.40	1.34 H	329	-5.03	35.63
7	7386.00	56.20 PK	74.00	-17.80	1.31 H	3	13.97	42.23
8	7386.00	41.10 AV	54.00	-12.90	1.31 H	3	-1.13	42.23
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	108.10 PK			1.00 V	20	77.76	30.34
2	*2462.00	97.10 AV			1.00 V	20	66.76	30.34
3	2483.50	66.96 PK	74.00	-7.04	1.00 V	327	36.53	30.43
4	2483.50	50.53 AV	54.00	-3.47	1.00 V	327	20.10	30.43
5	4924.00	43.40 PK	74.00	-30.60	1.47 V	0	7.77	35.63
6	4924.00	31.40 AV	54.00	-22.60	1.47 V	0	-4.23	35.63
7	7386.00	58.20 PK	74.00	-15.80	1.12 V	354	15.97	42.23
8	7386.00	45.30 AV	54.00	-8.70	1.12 V	354	3.07	42.23

- 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.