RADIO TEST REPORT

(2412 ~ 2462MHz and 5.745 ~ 5.825GHz)

REPORT NO.:	RF980615H07
MODEL NO.:	AR5BHB92, AR5BHB92-H
RECEIVED:	June 15, 2009
TESTED:	June 25 to July 07, 2009
ISSUED:	July 14, 2009

APPLICANT:	Atheros Communications, Inc.
ADDRESS:	5480 Great America Parkway, Santa Clara, CA 95054

ISSUED BY:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
TEST LOCATION:	No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

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1. CERTIFICATION

PRODUCT:	802.11n 2×2 PCIE MINICARD TRANSCEIVER
BRAND NAME:	Atheros
MODEL NO.:	AR5BHB92, AR5BHB92-H
TEST SAMPLE:	R&D SAMPLE
TESTED:	June 25 to July 07, 2009
APPLICANT:	Atheros Communications, Inc.
STANDARDS:	FCC Part 15, Subpart C (Section 15.247), ANSI C63.4-2003 Canada RSS-210 issue 7 Canada RSS-Gen issue 2

The above equipment 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 : Carol Liao , **DATE:** July 14, 2009
(Carol Liao, Specialist)

TECHNICAL ACCEPTANCE : , **DATE:** July 14, 2009
Responsible for RF
(Hank Chung, Deputy Manager)

APPROVED BY : , **DATE:** July 14, 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: 47 CFR Part 15, Subpart C ; RSS-210; RSS-Gen					
Standard Section			Test Type and Limit	Result	REMARK
RSS-210	RSS-Gen	47 CFR Part 15			
A8.4(4)	4.8	15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit
A8.5	4.9	15.247(c)	Transmitter Radiated Emissions FCC Limit: Table 15.209 RSS-210 Limit: Table 2	PASS	Meet the requirement of limit Minimum passing margin is -0.53dB at 2390.00MHz
-	6	-	Receiver Radiated Emissions RSS-210 Limit: Table 2	PASS	Meet the requirement of limit Minimum passing margin is -2.62dB at 399.64MHz

For 802.11a, 5725~5850MHz Band

APPLIED STANDARD: 47 CFR Part 15, Subpart C ; RSS-210; RSS-Gen					
Standard Section			Test Type and Limit	Result	REMARK
RSS-210	RSS-Gen	47 CFR Part 15			
A8.4(4)	4.8	15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit
A8.5	4.9	15.247(c)	Transmitter Radiated Emissions FCC Limit: Table 15.209 RSS-210 Limit: Table 2	PASS	Meet the requirement of limit Minimum passing margin is -0.50dB at 11570MHz
-	6	-	Receiver Radiated Emissions RSS-210 Limit: Table 2	PASS	Meet the requirement of limit Minimum passing margin is -2.14dB at 199.89MHz

NOTE:

1. This report is prepared for FCC class II permissive change. Only radiated emission and maximum peak output power were presented in this test report.
2. The EUT was operating in 2400 ~ 2483.5MHz, 5.15~5.35GHz, 5.47 ~ 5.60GHz, 5.65 ~5.725GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 2400 ~ 2483.5MHz and 5.725~5.850GHz. For the 5.15~5.35GHz and 5.47 ~ 5.60GHz and 5.65 ~5.725GHz 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 16-4-2:

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

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	802.11n 2x2 PCIE MINICARD TRANSCEIVER
MODEL NO.	AR5BHB92, AR5BHB92-H
FCC ID	PPD-AR5BHB92-H
IC ID	4104A-ARBHB92H
POWER SUPPLY	DC 3.3V 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 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
FREQUENCY RANGE	**For 15.407** 802.11a: 5.18 ~ 5.32GHz, 5.50 ~ 5.70GHz
	For 15.247 802.11b & 802.11g: 2412 ~ 2462MHz 802.11a: 5.745 ~ 5.825GHz
NUMBER OF CHANNEL	**For 15.407** 19 for 802.11a, draft 802.11n (20MHz) 9 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: 127.797mW draft 802.11n (20MHz): 157.129mW draft 802.11n (40MHz): 143.843mW **For 15.247(2.4GHz)** 802.11b: 346.505mW 802.11g: 838.557mW draft 802.11n (20MHz): 765.895mW draft 802.11n (40MHz): 317.344mW **For 15.247(5GHz)** 802.11a: 683.818mW draft 802.11n (20MHz): 649.168mW draft 802.11n (40MHz): 771.010mW
ANTENNA TYPE	Please see note 1
DATA CABLE	NA
I/O PORT	NA
ASSOCIATED DEVICES	NA

NOTE:

1. This report is prepared for FCC class II permissive change. The difference compared with the original report design is as the following:

   u add two antennas:

No.	Manufacture	Model No.	Antenna Type	Antenna Connector	Antenna Gain (dBi)	Frequency range (MHz)	Remark
1	Tyco	1513327-1	Dipole	RPSMA	3 (2.4GHz) 4 (5GHz)	2400~2483.5 5150~5850	without Diversity
2	Tyco	1513327-1	Dipole	RPSMA	3 (2.4GHz) 4 (5GHz)	2400~2483.5 5150~5850	without Diversity

2. The EUT has two model names which are identical to each other in all aspects except for the followings:

Brand	Model Name	Description
Atheros	AR5BHB92 (For FCC use)	For marking requirement
	AR5BHB92-H (For Canada use)	

3. The EUT incorporates CDD function with 802.11a, 802.11b, 802.11g and MIMO function with draft 802.11n.

4. The EUT is 2 * 2 spatial MIMO (2Tx & 2Rx) without beam forming function. The antenna configurations are two transmitter antennas and two receiver antennas, as there are 2 Dipole antennas. Spatial multiplexing modes for simultaneous transmission using 2 antennas, and for simultaneous receiver using 2 antennas. The 11a and 11bg legacy mode is limited to single transmitter only.
5. 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.
6. The EUT have MIMO power save mode, one transmitter may be active (chain 0) while other is inactive (chain 1). Output power is no different compared to operation when both transmitter chains are active. Transmitter power is not increased or decreased for chain 0 when in single chain mode, compared to dual chain active mode.
7. The EUT complies with draft 802.11n standards and backwards compatible with 802. 11a, 802.11b, 802.11g products.
8. The reason of the output power measured in the mode is about 2dBm less than theoriginal filing:

For 15.247 2.4GHz					
Channel	Total Power (dBm)		Power setting	Original and Class 2 change	Restric by
	New Peak	Original Peak			
11n 20 : ch 6	28.84	29.54	21	0.69	bandedge
11n 40 : ch 3	18.98	20.79	10.5	1.81	bandedge
For 15.247 5GHz					
Channel	Total Power (dBm)		Power setting	Original and Class 2 change	Restric by
	New Peak	Original Peak			
11a : ch157	26.58	28.88	18.5	2.30	2th harmonic
11n 20 : ch 157	26.67	29.02	18.5	2.35	2th hormonic
11n 40 : ch 159	27.89	29.48	20	1.59	2th harmonic
For 15.407 5GHz					
Channel	Total Power (dBm)		Power setting	Original and Class 2 change	Restric by
	New Peak	Original Peak			
11a: ch140	19.84	21.47	17.5	1.63	5725MHz
11n 20 : ch 52	20.58	23.68	18.5	3.10	3th harmonic
11n 40 : ch 54	21.47	23.43	18.5	1.96	3th harmonic

9. 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
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		

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

CHANNEL	FREQUENCY
151	5755 MHz
159	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/RX)	CHAIN(1) (TX/RX)
A	802.11b	√	√
B	802.11g	√	√
C	802.11a	√	√
D	DRAFT 802.11n(20MHz)	√	√
E	DRAFT 802.11n(40MHz)	√	√
COMBINATION MODE	**OPERATION MODE**	**CHAIN(0) (RX)**	**CHAIN(1) (RX)**
F	Receiver	√	√

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 and Antenna 2 are Dipole antennas.

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).

☒ The receiving mode had show equal or better than Tx mode during the pre-scan and hence the Tx mode data is re-used for Receiving-mode worst-case data.

☒ 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	A
802.11a	149 to 165	149	OFDM	BPSK	6	C

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)	COMBINATION
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	A
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	B
For 2.4 GHz Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	D
For 2.4 GHz Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5	E
For 2.4 GHz Receiver	1 to 11	1, 6, 11	-	-	-	F
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6	C
For 5 GHz Draft 802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	6.5	D
For 5 GHz Draft 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	13.5	E
For 5 GHz Receiver	149 to 165	149, 157, 165	-	-	-	F

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	A
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	B
For 2.4 GHz Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	D
For 2.4 GHz Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5	E
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6	C
For 5 GHz Draft 802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	6.5	D
For 5 GHz Draft 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	13.5	E

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is an 802.11n 2x2 PCIE MINICARD TRANSCEIVER. 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
Canada RSS-210 issue 7
Canada RSS-Gen issue 2

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

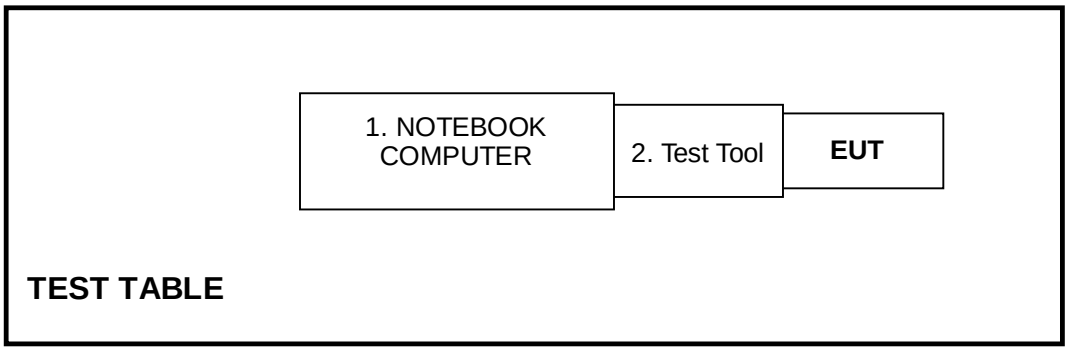
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	lenovo	0769	NA	FCC DoC
2	TEST TOOL	Atheros	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 RADIATED EMISSION MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 (RSS-210 table 2 & 3) 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.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 9, 2008	Dec. 8, 2009
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	Apr. 24 , 2009	Apr. 23 , 2010
HP Pre_Amplifier	8449B	3008A01923	Nov. 10, 2008	Nov. 9, 2009
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 9, 2008	Sep. 8, 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.

4.1.3 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.

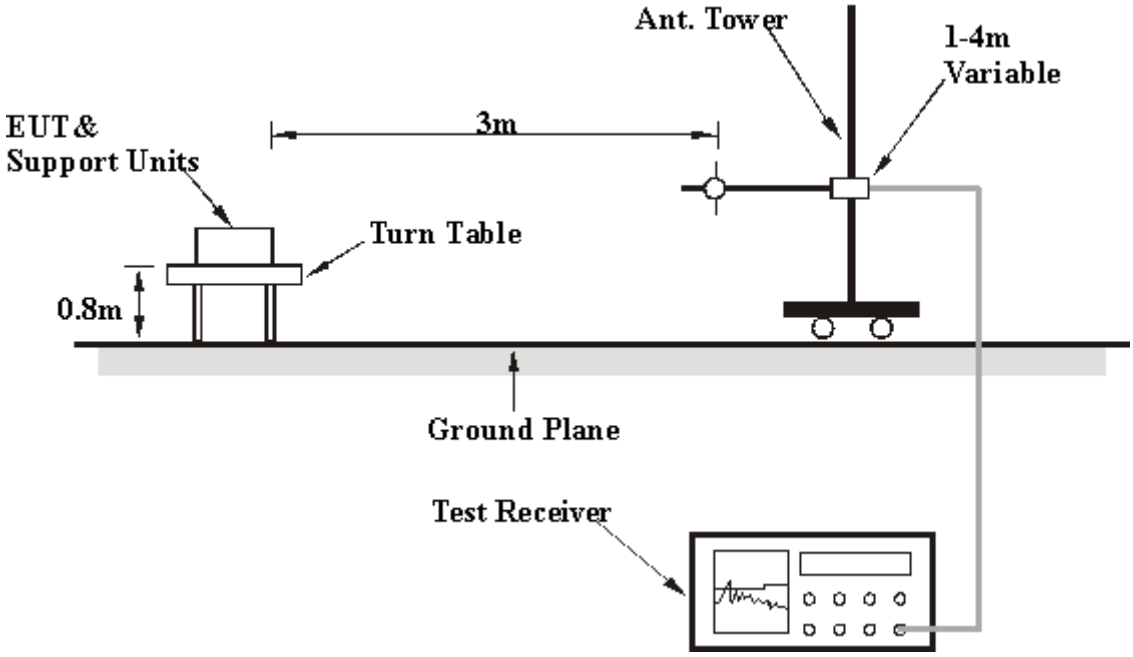
NOTE:

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.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



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

4.1.6 EUT OPERATING CONDITIONS

1. Connect the EUT with the support unit 1 (Notebook computer) which placed on a testing table via test tool.
2. The support unit 1 (Notebook computer) ran a test program “ART_V0_9_b4” to enable EUT under transmission condition continuously.

Below 1GHz Test Data

4.1.7 TEST RESULTS (FOR TRANSMITTER PART)

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	25.0deg. C, 55.0%RH 965hPa	TESTED BY	Eric Lee

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	120.00	23.27 QP	43.50	-20.23	1.66 H	198	10.72	12.55
2	199.80	39.79 QP	43.50	-3.71	1.71 H	20	27.39	12.40
3	240.00	31.94 QP	46.00	-14.06	1.32 H	187	18.06	13.88
4	360.00	27.99 QP	46.00	-18.01	1.00 H	145	9.59	18.40
5	399.64	43.38 QP	46.00	-2.62	2.20 H	149	23.89	19.49
6	480.00	26.89 QP	46.00	-19.11	1.17 H	261	5.00	21.89
7	600.00	32.03 QP	46.00	-13.97	1.53 H	197	6.99	25.04
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	120.00	26.24 QP	43.50	-17.26	1.10 V	212	13.69	12.55
2	200.00	27.32 QP	43.50	-16.18	1.61 V	294	14.93	12.39
3	240.00	28.67 QP	46.00	-17.33	1.03 V	268	14.79	13.88
4	250.00	24.69 QP	46.00	-21.31	2.06 V	295	10.44	14.25
5	399.67	42.92 QP	46.00	-3.08	1.74 V	109	23.43	19.49
6	535.10	33.39 QP	46.00	-12.61	1.67 V	354	9.91	23.48

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.

Above 1GHz Test Data

4.1.8 TEST RESULTS (FOR TRANSMITTER PART)

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	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	2386.90	62.06 PK	74.00	-11.94	1.51 H	220	31.79	30.27
2	2386.90	50.57 AV	54.00	-3.43	1.51 H	220	20.30	30.27
3	*2412.00	111.23 PK			1.52 H	214	80.87	30.36
4	*2412.00	101.47 AV			1.52 H	214	71.11	30.36
5	4824.00	53.19 PK	74.00	-20.81	1.11 H	225	16.40	36.79
6	4824.00	37.28 AV	54.00	-16.72	1.11 H	225	0.49	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	2386.00	66.40 PK	74.00	-7.60	1.59 V	133	36.13	30.27
2	2386.00	53.45 AV	54.00	-0.55	1.59 V	133	23.18	30.27
3	*2412.00	114.63 PK			1.62 V	78	84.27	30.36
4	*2412.00	104.55 AV			1.62 V	78	74.19	30.36
5	4824.00	59.62 PK	74.00	-14.38	1.13 V	319	22.83	36.79
6	4824.00	45.26 AV	54.00	-8.74	1.13 V	319	8.47	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	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	111.14 PK			1.49 H	152	80.68	30.46
2	*2437.00	101.41 AV			1.49 H	152	70.95	30.46
3	4874.00	52.66 PK	74.00	-21.34	1.11 H	233	15.74	36.92
4	4874.00	37.82 AV	54.00	-16.18	1.11 H	233	0.90	36.92
5	7311.00	52.14 PK	74.00	-21.86	1.15 H	169	9.00	43.14
6	7311.00	39.71 AV	54.00	-14.29	1.15 H	169	-3.43	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	114.15 PK			1.59 V	199	83.69	30.46
2	*2437.00	104.30 AV			1.59 V	199	73.84	30.46
3	4874.00	58.76 PK	74.00	-15.24	1.12 V	273	21.84	36.92
4	4874.00	44.82 AV	54.00	-9.18	1.12 V	273	7.90	36.92
5	7311.00	54.29 PK	74.00	-19.71	1.15 V	348	11.15	43.14
6	7311.00	42.76 AV	54.00	-11.24	1.15 V	348	-0.38	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.

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	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	111.18 PK			1.60 H	148	80.63	30.55
2	*2462.00	101.22 AV			1.60 H	148	70.67	30.55
3	2487.76	61.77 PK	74.00	-12.23	1.71 H	114	31.13	30.64
4	2487.76	49.91 AV	54.00	-4.09	1.71 H	114	19.27	30.64
5	4924.00	51.75 PK	74.00	-22.25	1.09 H	242	14.69	37.06
6	4924.00	36.81 AV	54.00	-17.19	1.09 H	242	-0.25	37.06
7	7386.00	51.53 PK	74.00	-22.47	1.13 H	151	8.40	43.13
8	7386.00	38.89 AV	54.00	-15.11	1.13 H	151	-4.24	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	114.74 PK			1.59 V	200	84.19	30.55
2	*2462.00	104.65 AV			1.59 V	200	74.10	30.55
3	2487.70	66.41 PK	74.00	-7.59	1.56 V	193	35.77	30.64
4	2487.70	53.31 AV	54.00	-0.69	1.56 V	193	22.67	30.64
5	4924.00	58.31 PK	74.00	-15.69	1.10 V	333	21.25	37.06
6	4924.00	43.36 AV	54.00	-10.64	1.10 V	333	6.30	37.06
7	7386.00	53.22 PK	74.00	-20.78	1.13 V	359	10.09	43.13
8	7386.00	41.47 AV	54.00	-12.53	1.13 V	359	-1.66	43.13

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

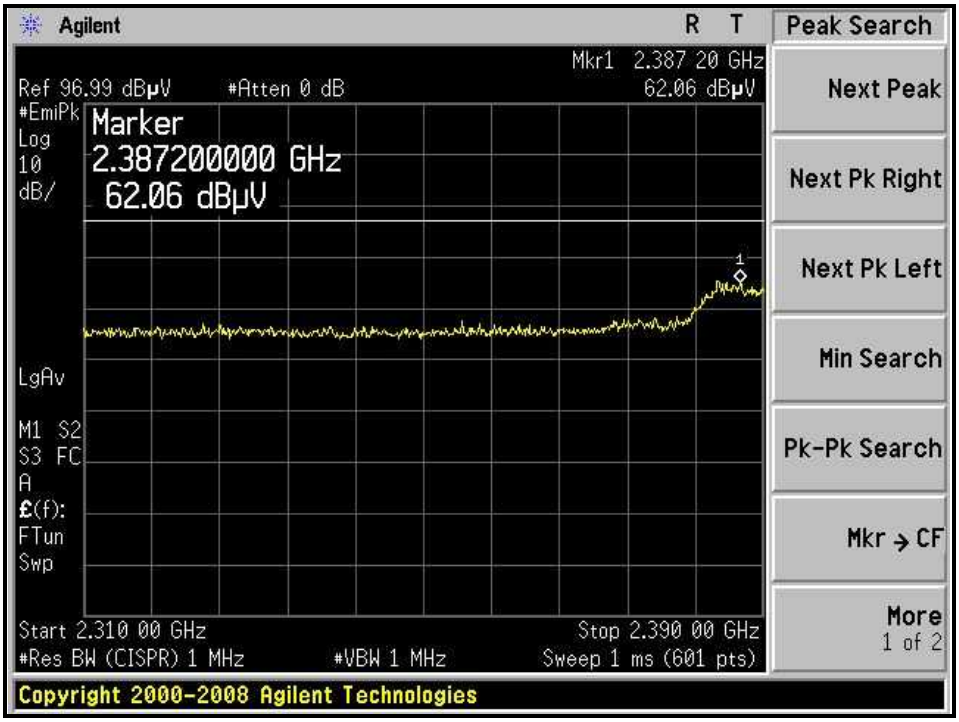
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

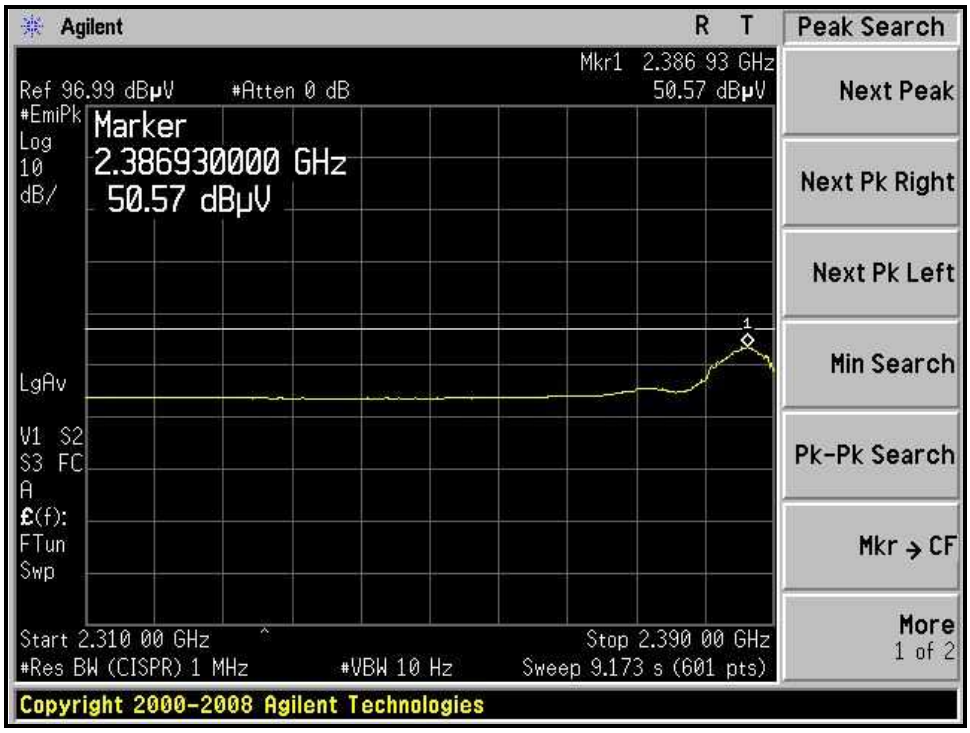
3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

RESTRICTED BANDEDGE (802.11b MODE,CH1, HORIZONTAL)





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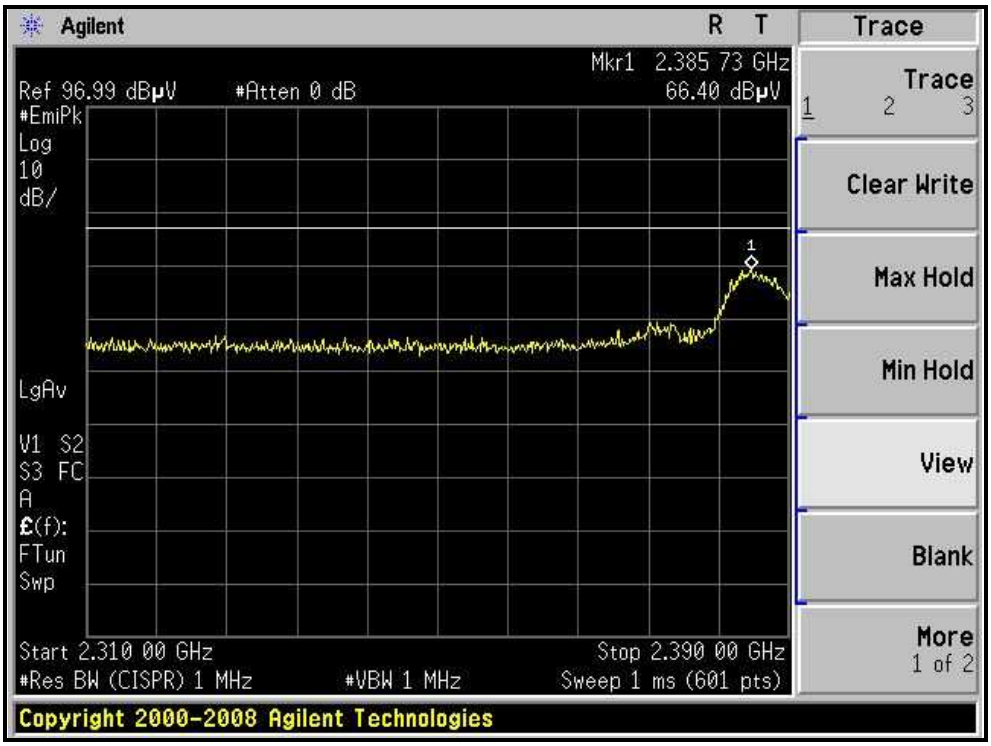

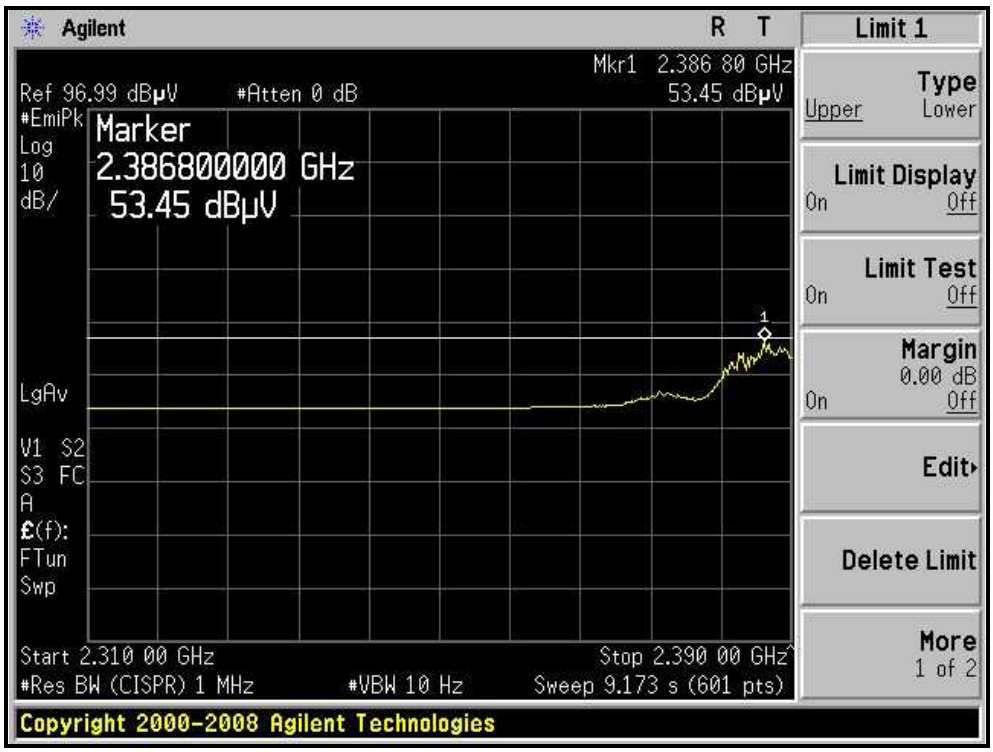

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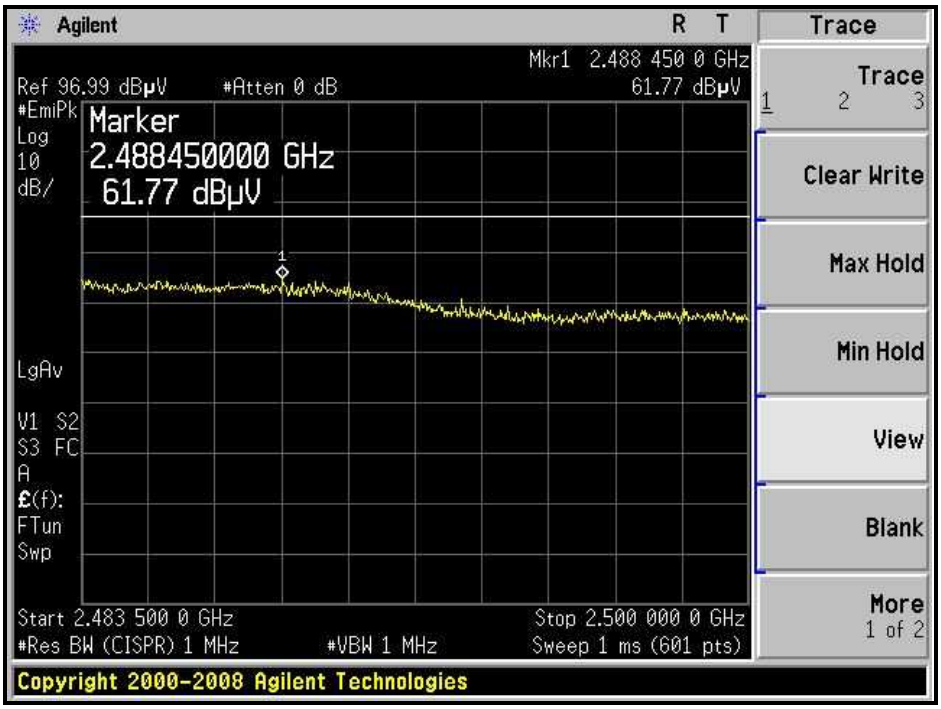
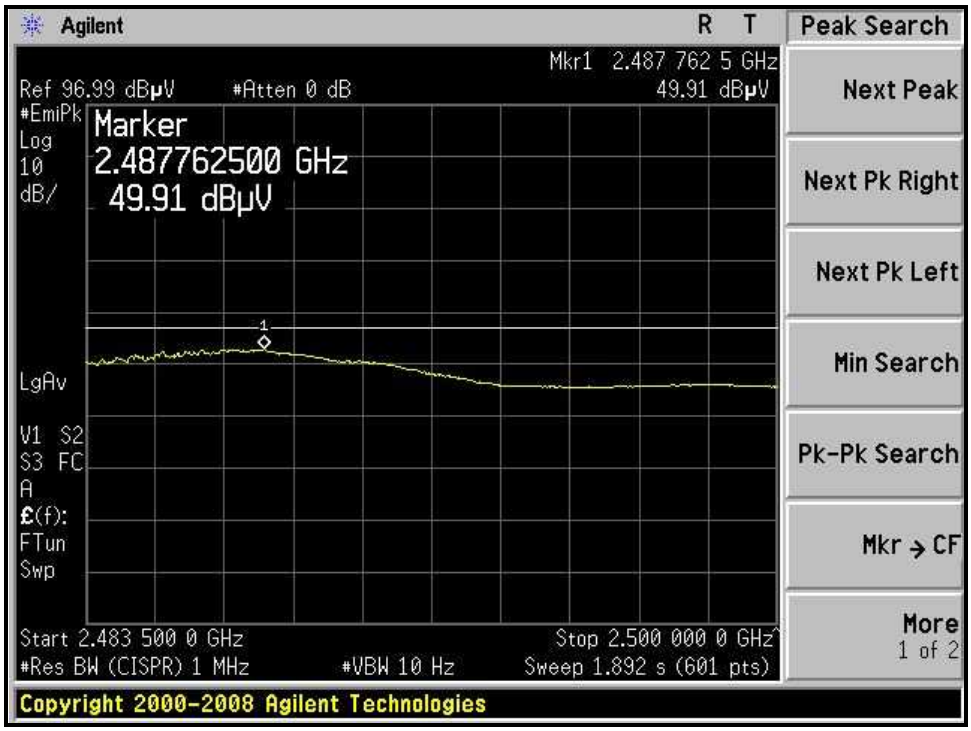
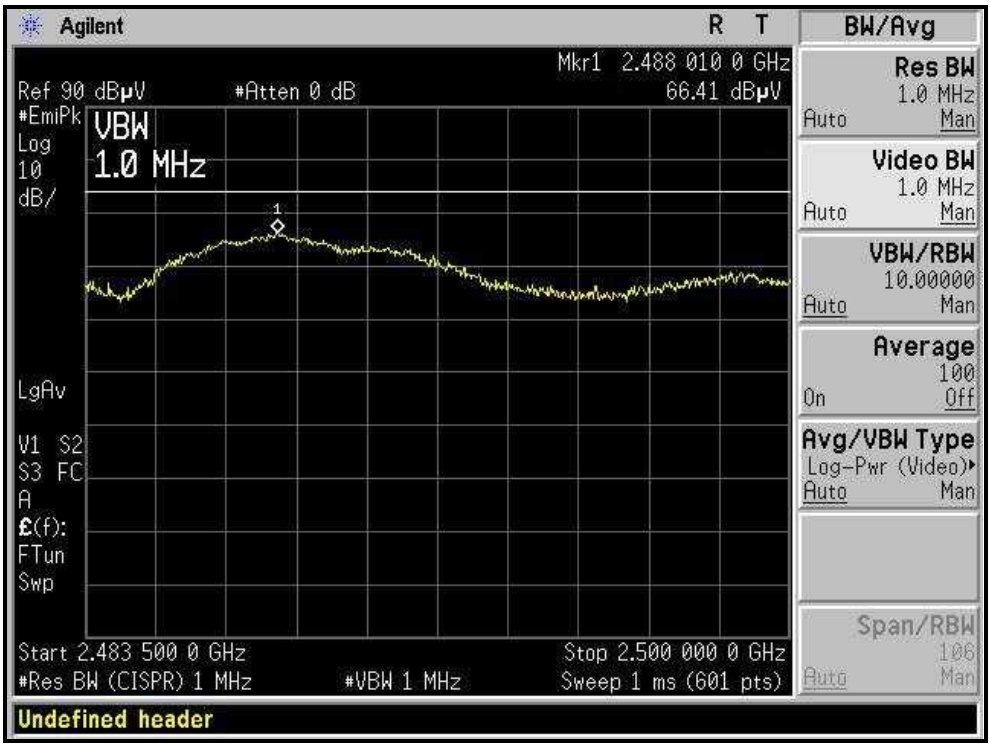
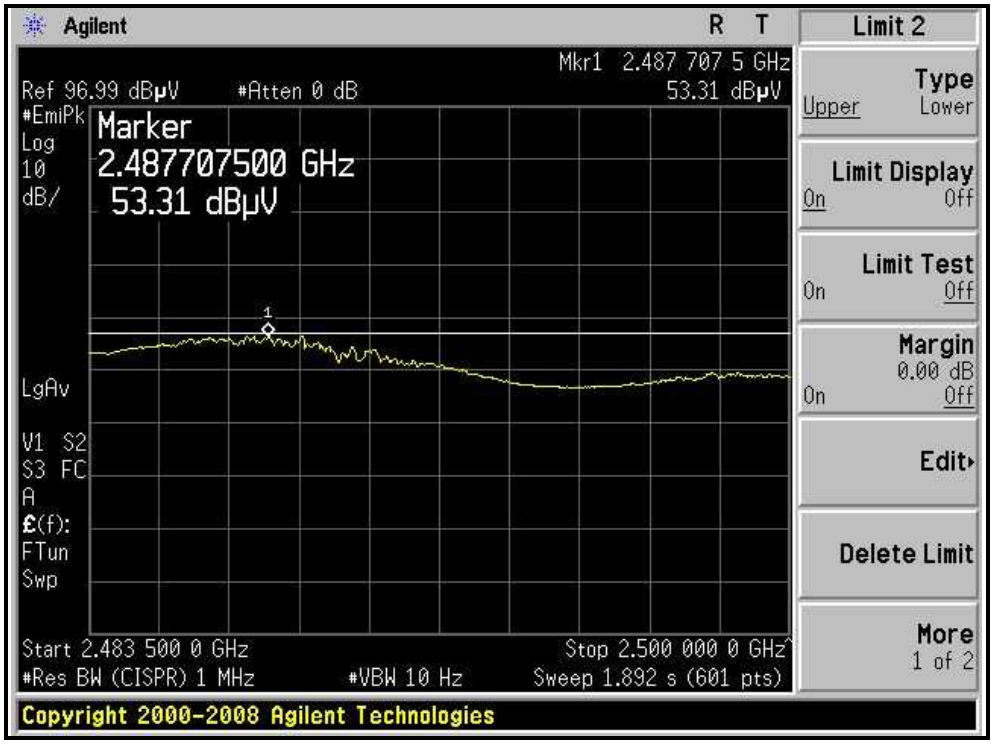




RESTRICTED BANDEDGE (802.11b MODE,CH11, VERTICAL)





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	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	68.30 PK	74.00	-5.70	1.69 H	250	38.02	30.28
2	2390.00	51.34 AV	54.00	-2.66	1.69 H	250	21.06	30.28
3	*2412.00	110.04 PK			1.42 H	222	79.68	30.36
4	*2412.00	100.00 AV			1.42 H	222	69.64	30.36
5	4824.00	50.35 PK	74.00	-23.65	1.35 H	85	13.56	36.79
6	4824.00	37.79 AV	54.00	-16.21	1.35 H	85	1.00	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	69.37 PK	74.00	-4.63	1.57 V	122	39.09	30.28
2	**2390.00**	**53.47 AV**	**54.00**	**-0.53**	**1.57 V**	**122**	**23.19**	**30.28**
3	*2412.00	112.78 PK			1.44 V	85	82.42	30.36
4	*2412.00	102.91 AV			1.44 V	85	72.55	30.36
5	4824.00	55.01 PK	74.00	-18.99	1.37 V	21	18.22	36.79
6	4824.00	42.10 AV	54.00	-11.90	1.37 V	21	5.31	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	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	113.26 PK			1.39 H	248	82.80	30.46
2	*2437.00	103.99 AV			1.39 H	248	73.53	30.46
3	4874.00	52.27 PK	74.00	-21.73	1.32 H	100	15.35	36.92
4	4874.00	39.18 AV	54.00	-14.82	1.32 H	100	2.26	36.92
5	7311.00	50.80 PK	74.00	-23.20	1.48 H	153	7.66	43.14
6	7311.00	37.04 AV	54.00	-16.96	1.48 H	153	-6.10	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	117.62 PK			1.38 V	92	87.16	30.46
2	*2437.00	107.69 AV			1.38 V	92	77.23	30.46
3	4874.00	57.82 PK	74.00	-16.18	1.34 V	67	20.90	36.92
4	4874.00	45.06 AV	54.00	-8.94	1.34 V	67	8.14	36.92
5	7311.00	52.51 PK	74.00	-21.49	1.32 V	180	9.37	43.14
6	7311.00	38.10 AV	54.00	-15.90	1.32 V	180	-5.04	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.

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	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	110.34 PK			1.50 H	216	79.79	30.55
2	*2462.00	100.58 AV			1.50 H	216	70.03	30.55
3	2483.80	70.04 PK	74.00	-3.96	1.69 H	260	39.41	30.63
4	2483.80	51.23 AV	54.00	-2.77	1.69 H	260	20.60	30.63
5	4924.00	50.22 PK	74.00	-23.78	1.41 H	94	13.16	37.06
6	4924.00	37.68 AV	54.00	-16.32	1.41 H	94	0.62	37.06
7	7386.00	50.54 PK	74.00	-23.46	1.46 H	172	7.41	43.13
8	7386.00	36.99 AV	54.00	-17.01	1.46 H	172	-6.14	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	113.01 PK			1.39 V	76	82.46	30.55
2	*2462.00	103.18 AV			1.39 V	76	72.63	30.55
3	2483.72	73.21 PK	74.00	-0.79	1.31 V	196	42.58	30.63
4	2483.72	53.44 AV	54.00	-0.56	1.31 V	196	22.81	30.63
5	4924.00	55.97 PK	74.00	-18.03	1.42 V	30	18.91	37.06
6	4924.00	43.28 AV	54.00	-10.72	1.42 V	30	6.22	37.06
7	7386.00	51.62 PK	74.00	-22.38	1.29 V	171	8.49	43.13
8	7386.00	37.99 AV	54.00	-16.01	1.29 V	171	-5.14	43.13

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

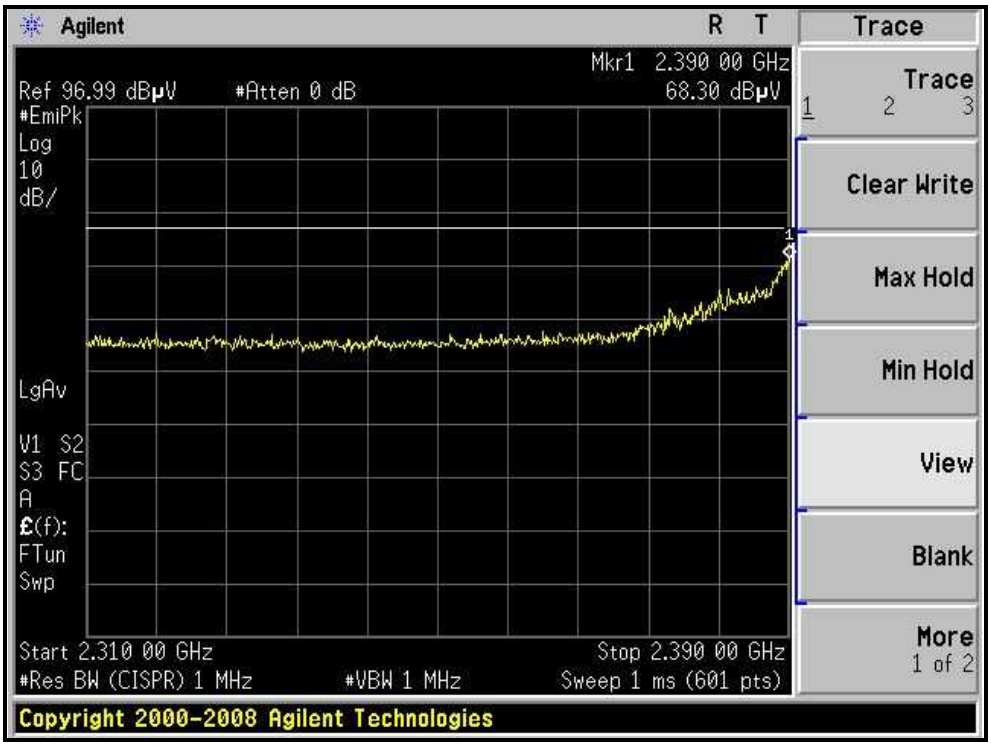
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

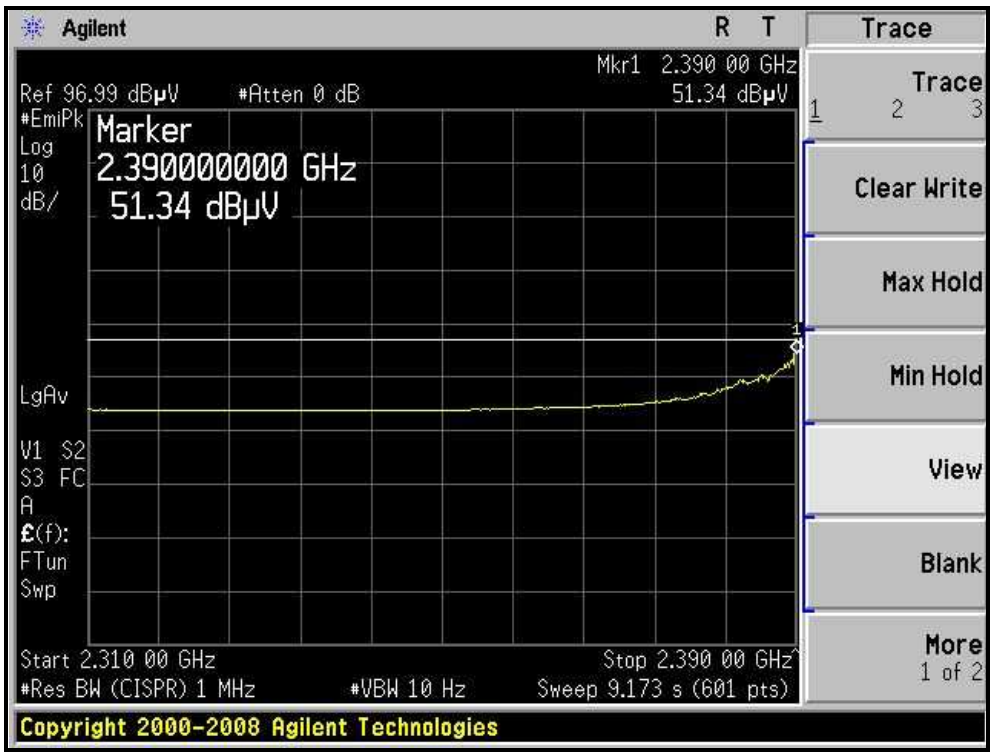
3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

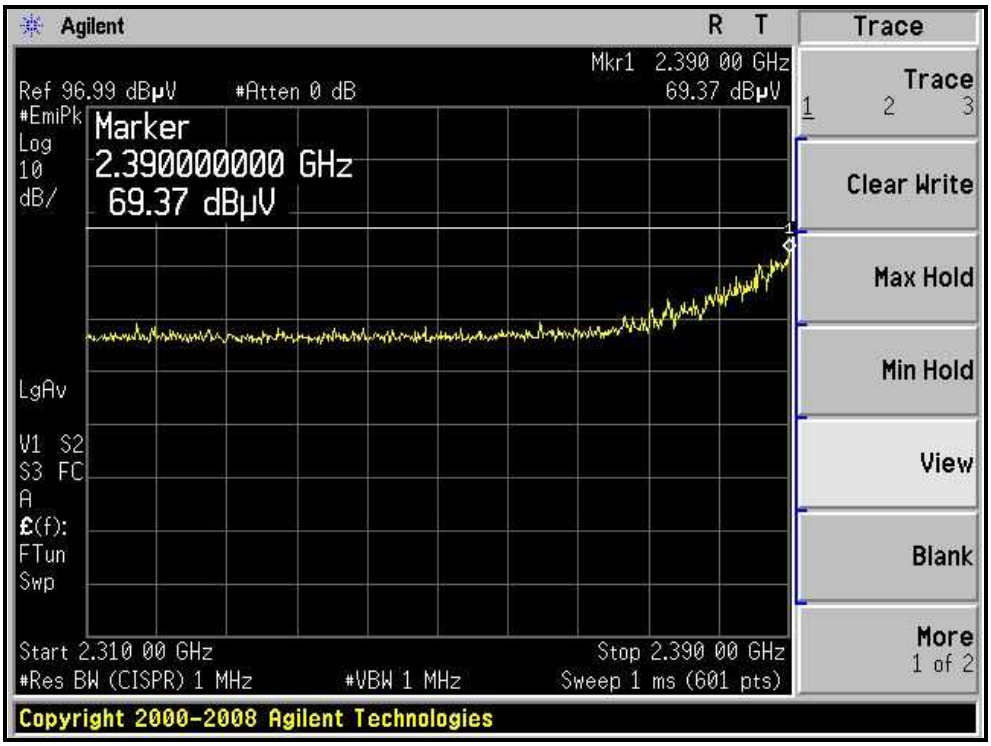
5. " * ": Fundamental frequency.

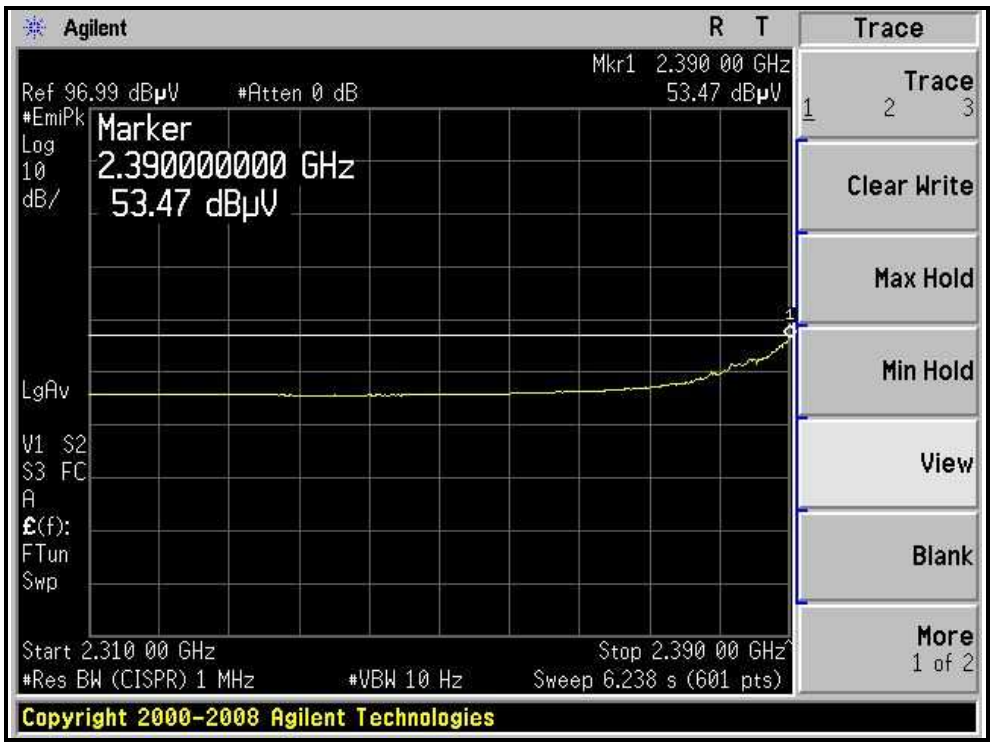
RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL)



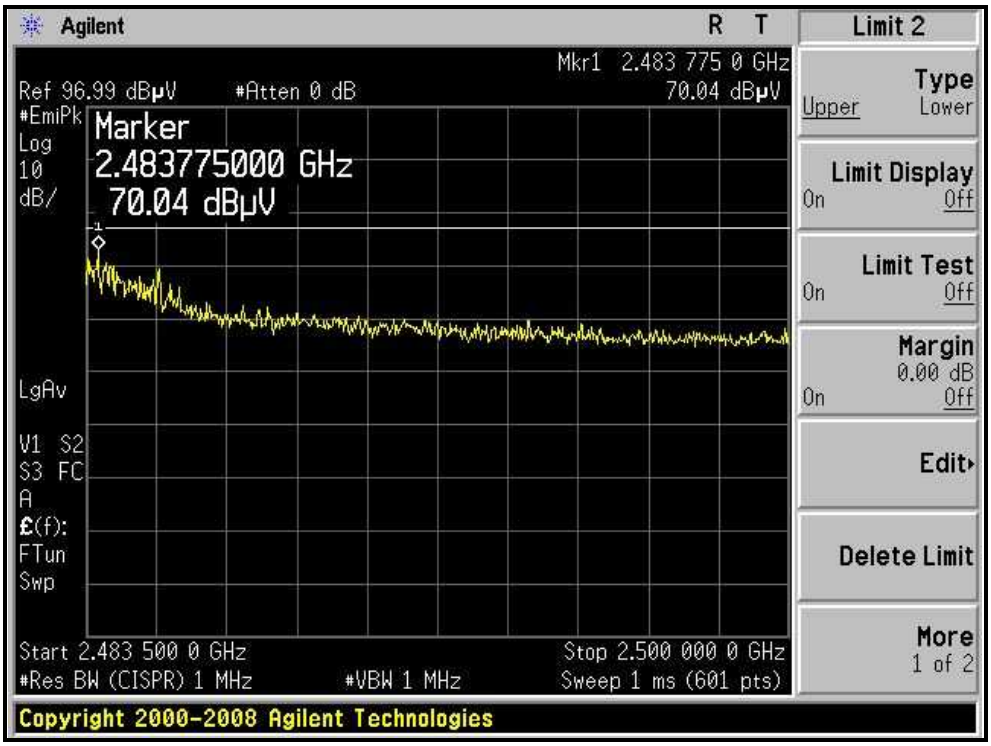


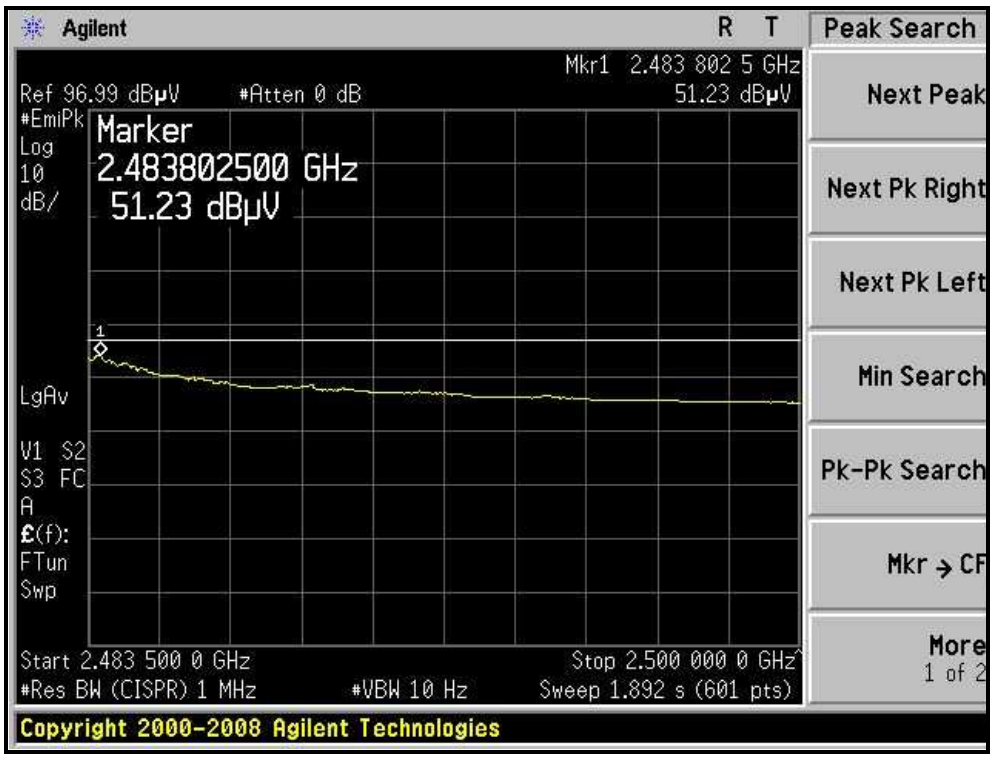
RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)



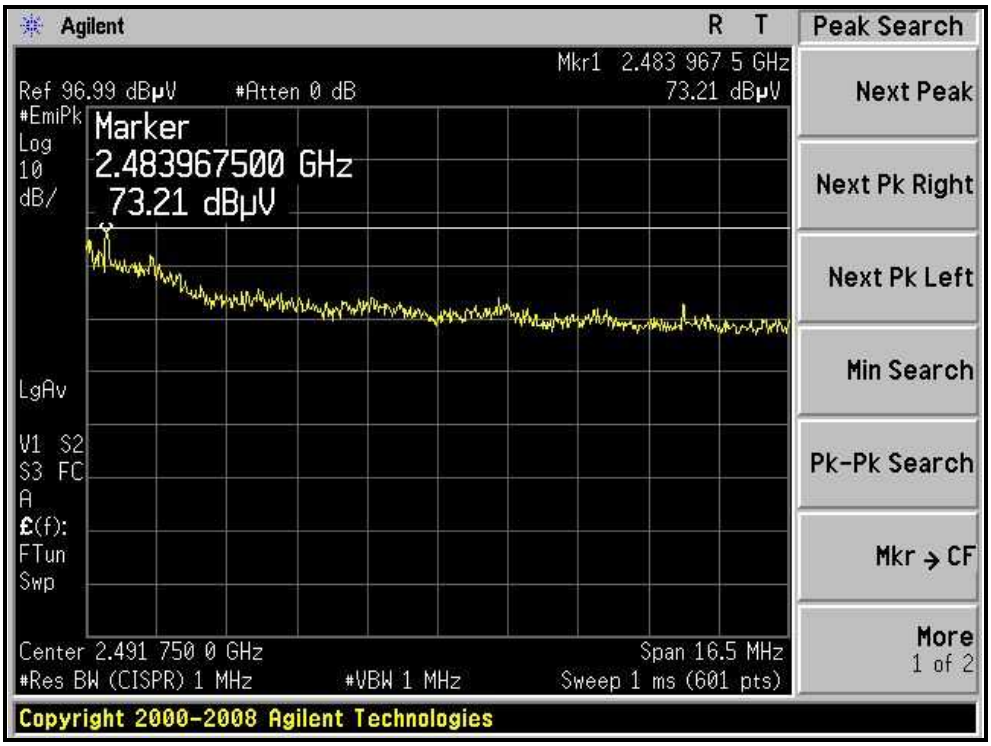


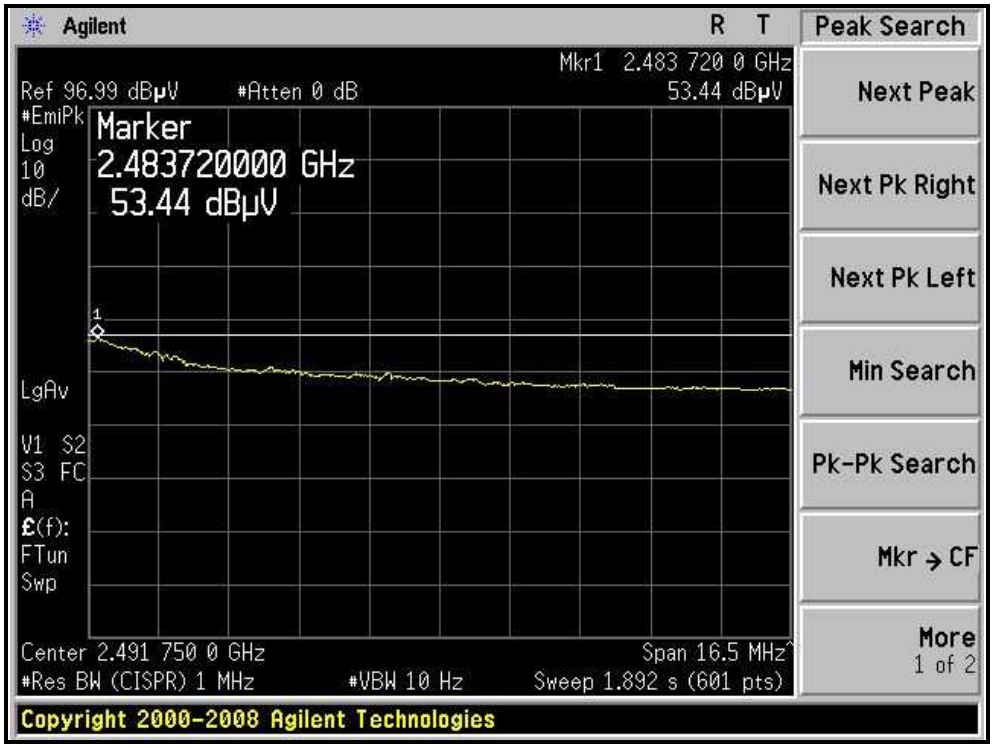
RESTRICTED BANDEDGE (802.11g MODE,CH11, HORIZONTAL)





RESTRICTED BANDEDGE (802.11g MODE,CH11, VERTICAL)





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	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	66.75 PK	74.00	-7.25	1.36 H	160	36.47	30.28
2	2390.00	50.47 AV	54.00	-3.53	1.36 H	160	20.19	30.28
3	*2412.00	107.84 PK			1.40 H	142	77.48	30.36
4	*2412.00	96.23 AV			1.40 H	142	65.87	30.36
5	4824.00	46.43 PK	74.00	-27.57	1.52 H	280	9.64	36.79
6	4824.00	33.69 AV	54.00	-20.31	1.52 H	280	-3.10	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	71.10 PK	74.00	-2.90	1.73 V	32	40.82	30.28
2	**2390.00**	**53.47 AV**	**54.00**	**-0.53**	**1.73 V**	**32**	**23.19**	**30.28**
3	*2412.00	111.66 PK			1.38 V	88	81.30	30.36
4	*2412.00	100.21 AV			1.38 V	88	69.85	30.36
5	4824.00	53.65 PK	74.00	-20.35	1.70 V	200	16.86	36.79
6	4824.00	39.48 AV	54.00	-14.52	1.70 V	200	2.69	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	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	111.54 PK			1.31 H	157	81.08	30.46
2	*2437.00	101.21 AV			1.31 H	157	70.75	30.46
3	4874.00	48.15 PK	74.00	-25.85	1.49 H	243	11.23	36.92
4	4874.00	34.99 AV	54.00	-19.01	1.49 H	243	-1.93	36.92
5	7311.00	50.98 PK	74.00	-23.02	1.43 H	32	7.84	43.14
6	7311.00	38.42 AV	54.00	-15.58	1.43 H	32	-4.72	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	118.00 PK			1.35 V	107	87.54	30.46
2	*2437.00	106.81 AV			1.35 V	107	76.35	30.46
3	4874.00	55.77 PK	74.00	-18.23	1.66 V	192	18.85	36.92
4	4874.00	41.33 AV	54.00	-12.67	1.66 V	192	4.41	36.92
5	7311.00	51.48 PK	74.00	-22.52	1.58 V	15	8.34	43.14
6	7311.00	38.87 AV	54.00	-15.13	1.58 V	15	-4.27	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.

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	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	105.40 PK			1.32 H	159	74.85	30.55
2	*2462.00	94.71 AV			1.32 H	159	64.16	30.55
3	2483.85	67.30 PK	74.00	-6.70	1.35 H	158	36.67	30.63
4	2483.85	49.63 AV	54.00	-4.37	1.35 H	158	19.00	30.63
5	4924.00	46.99 PK	74.00	-27.01	1.38 H	250	9.93	37.06
6	4924.00	33.89 AV	54.00	-20.11	1.38 H	250	-3.17	37.06
7	7386.00	49.62 PK	74.00	-24.38	1.50 H	94	6.49	43.13
8	7386.00	38.33 AV	54.00	-15.67	1.50 H	94	-4.80	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	110.19 PK			1.36 V	88	79.64	30.55
2	*2462.00	98.94 AV			1.36 V	88	68.39	30.55
3	2483.50	71.70 PK	74.00	-2.30	1.36 V	88	41.07	30.63
4	2483.50	53.36 AV	54.00	-0.64	1.36 V	88	22.73	30.63
5	4824.00	53.40 PK	74.00	-20.60	1.63 V	199	16.61	36.79
6	4824.00	38.65 AV	54.00	-15.35	1.63 V	199	1.86	36.79
7	7386.00	50.22 PK	74.00	-23.78	1.58 V	65	7.09	43.13
8	7386.00	37.44 AV	54.00	-16.56	1.58 V	65	-5.69	43.13

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

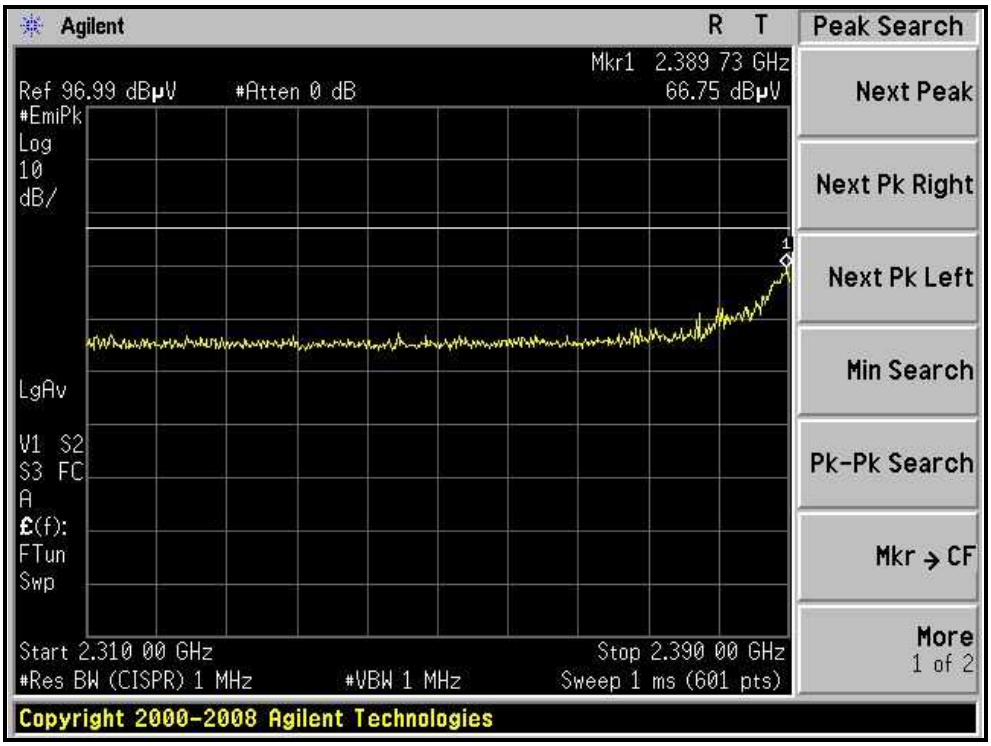
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

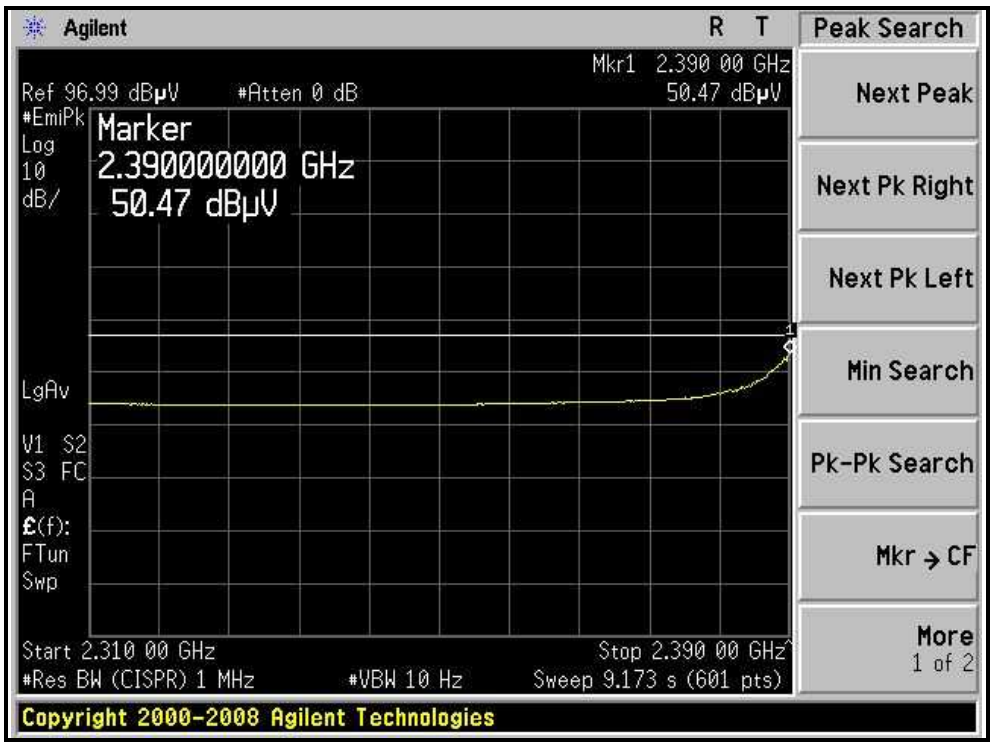
3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

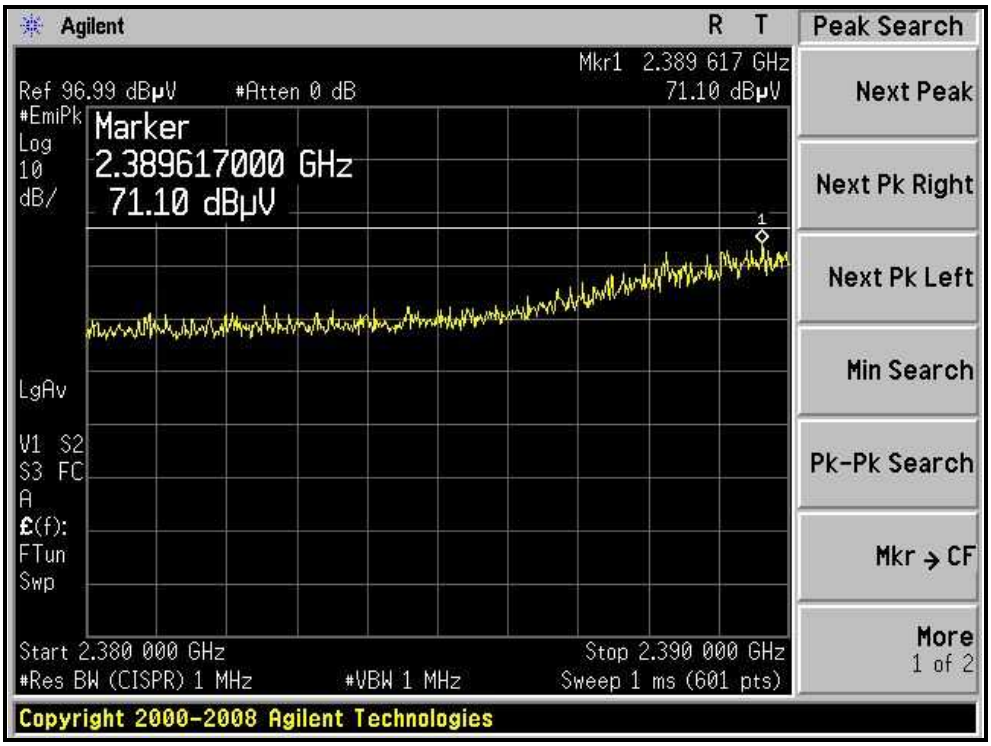
5. " * ": Fundamental frequency.

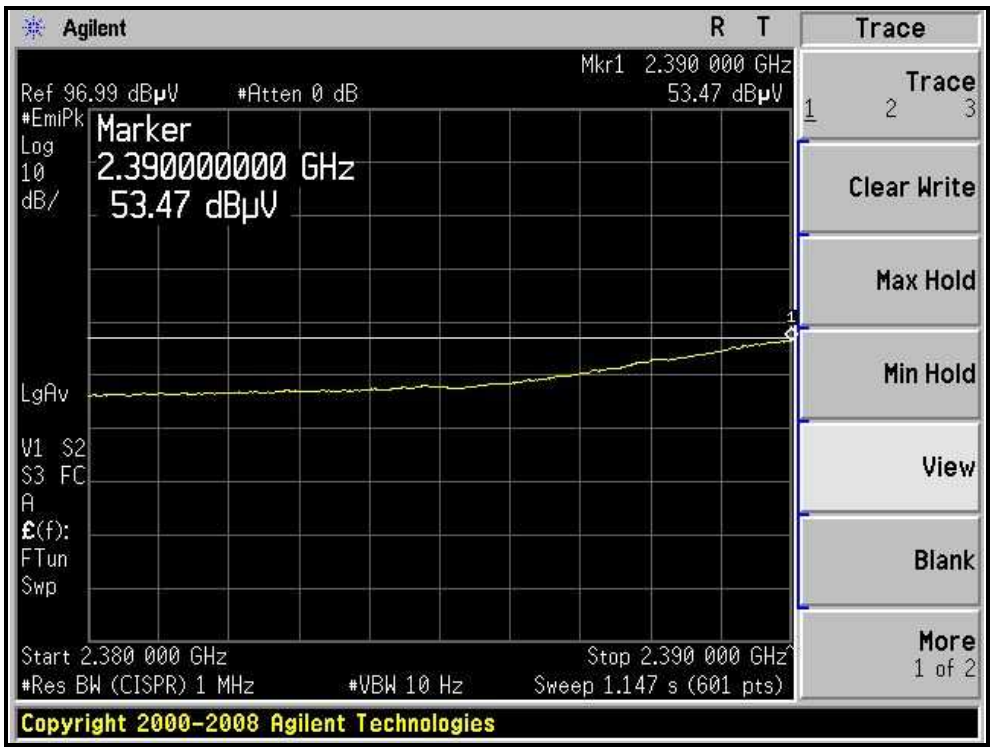
RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH1, HORIZONTAL)



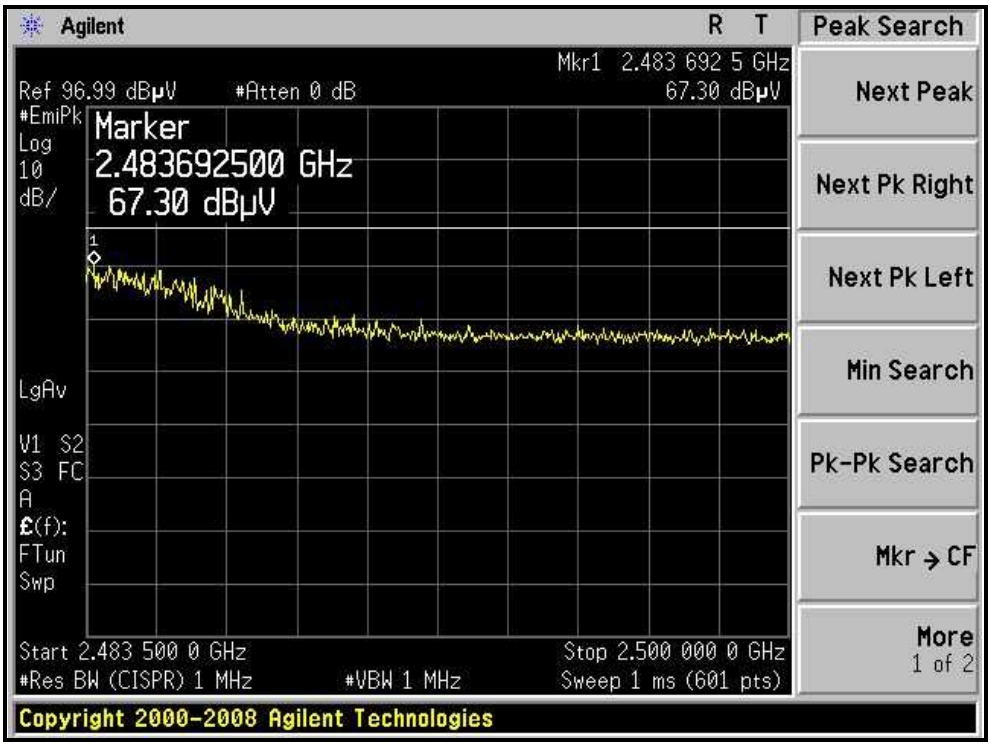


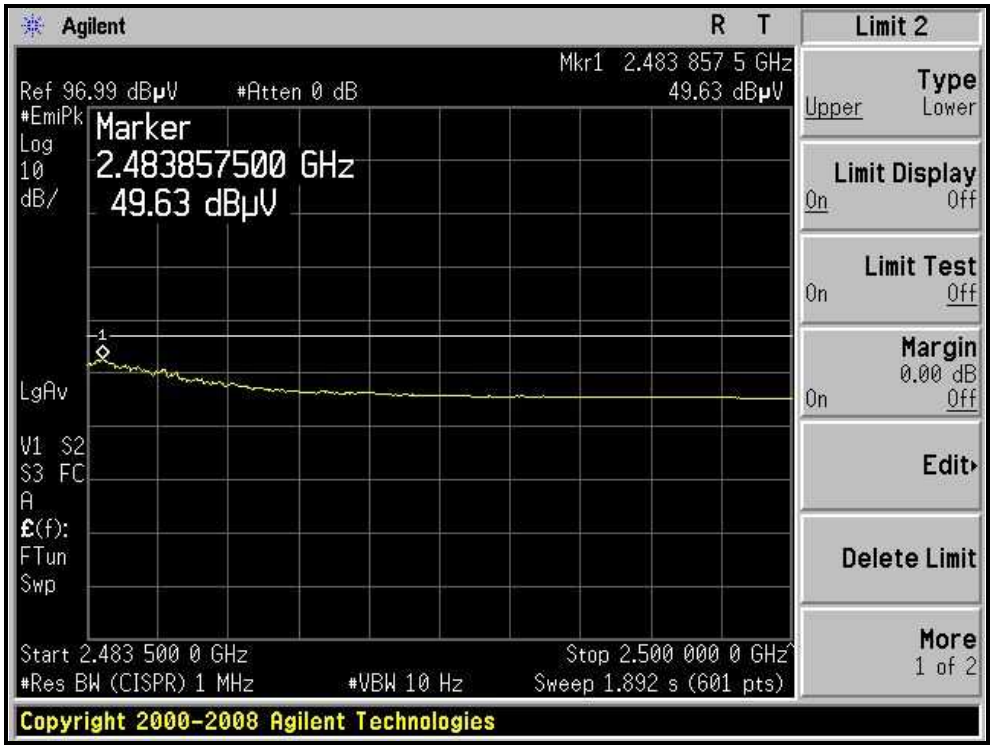
RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH1, VERTICAL)



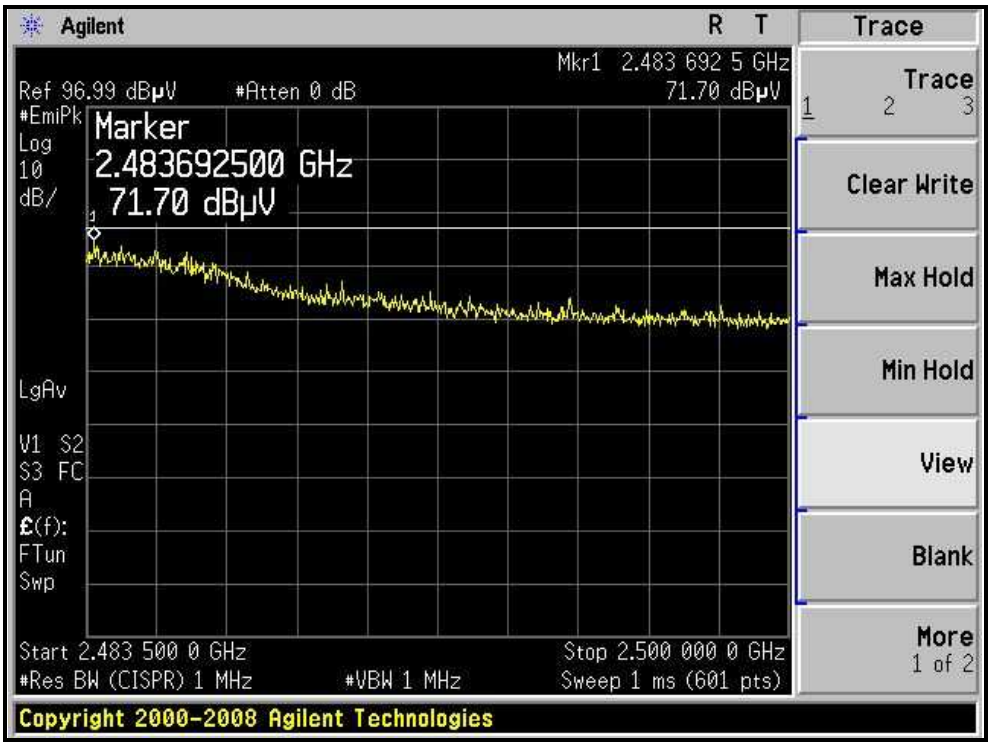


RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH11, HORIZONTAL)





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



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	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	58.05 PK	74.00	-15.95	1.30 H	164	27.77	30.28
2	2390.00	46.98 AV	54.00	-7.02	1.30 H	164	16.70	30.28
3	*2422.00	94.30 PK			1.27 H	151	63.90	30.40
4	*2422.00	82.70 AV			1.27 H	151	52.30	30.40
5	4844.00	46.13 PK	74.00	-27.87	1.00 H	284	9.29	36.84
6	4844.00	32.79 AV	54.00	-21.21	1.00 H	284	-4.05	36.84
7	7266.00	44.60 PK	74.00	-29.40	1.41 H	29	1.46	43.14
8	7266.00	38.10 AV	54.00	-15.90	1.41 H	29	-5.04	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	2390.00	69.39 PK	74.00	-4.61	1.50 V	85	39.11	30.28
2	2390.00	53.35 AV	54.00	-0.65	1.50 V	85	23.07	30.28
3	*2422.00	103.99 PK			1.44 V	164	73.59	30.40
4	*2422.00	92.02 AV			1.44 V	164	61.62	30.40
5	4844.00	53.13 PK	74.00	-20.87	1.74 V	213	16.29	36.84
6	4844.00	38.14 AV	54.00	-15.86	1.74 V	213	1.30	36.84
7	7266.00	51.33 PK	74.00	-22.67	1.54 V	29	8.19	43.14
8	7266.00	38.42 AV	54.00	-15.58	1.54 V	29	-4.72	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.

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	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	98.60 PK			1.31 H	169	68.14	30.46
2	*2437.00	87.30 AV			1.31 H	169	56.84	30.46
3	4874.00	44.23 PK	74.00	-29.77	1.43 H	279	7.31	36.92
4	4874.00	35.60 AV	54.00	-18.40	1.43 H	279	-1.32	36.92
5	7311.00	44.90 PK	74.00	-29.10	1.40 H	31	1.76	43.14
6	7311.00	38.60 AV	54.00	-15.40	1.40 H	31	-4.54	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	110.62 PK			1.38 V	199	80.16	30.46
2	*2437.00	99.22 AV			1.38 V	199	68.76	30.46
3	4874.00	55.42 PK	74.00	-18.58	1.71 V	216	18.50	36.92
4	4874.00	40.37 AV	54.00	-13.63	1.71 V	216	3.45	36.92
5	7311.00	51.24 PK	74.00	-22.76	1.51 V	34	8.10	43.14
6	7311.00	39.42 AV	54.00	-14.58	1.51 V	34	-3.72	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.

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	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	*2452.00	94.40 PK			1.33 H	170	63.89	30.51
2	*2452.00	82.36 AV			1.33 H	170	51.85	30.51
3	2483.50	58.88 PK	74.00	-15.12	1.30 H	169	28.25	30.63
4	2483.50	44.33 AV	54.00	-9.67	1.30 H	169	13.70	30.63
5	4904.00	44.12 PK	74.00	-29.88	1.41 H	283	7.12	37.00
6	4904.00	35.70 AV	54.00	-18.30	1.41 H	283	-1.30	37.00
7	7356.00	44.30 PK	74.00	-29.70	1.37 H	39	1.17	43.13
8	7356.00	38.40 AV	54.00	-15.60	1.37 H	39	-4.73	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	*2452.00	106.20 PK			1.48 V	171	75.69	30.51
2	*2452.00	94.28 AV			1.48 V	171	63.77	30.51
3	2483.66	67.48 PK	74.00	-6.52	1.36 V	100	36.85	30.63
4	2483.66	53.35 AV	54.00	-0.65	1.36 V	100	22.72	30.63
5	4904.00	53.44 PK	74.00	-20.56	1.72 V	211	16.44	37.00
6	4904.00	38.23 AV	54.00	-15.77	1.72 V	211	1.23	37.00
7	7356.00	51.42 PK	74.00	-22.58	1.53 V	31	8.29	43.13
8	7356.00	38.13 AV	54.00	-15.87	1.53 V	31	-5.00	43.13

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

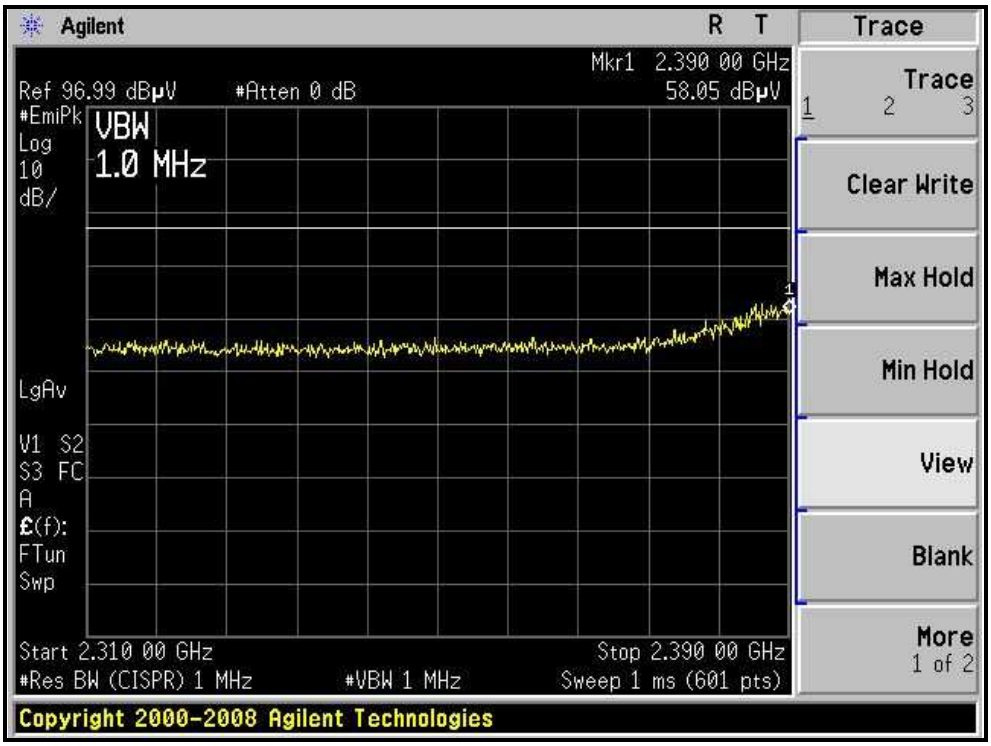
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

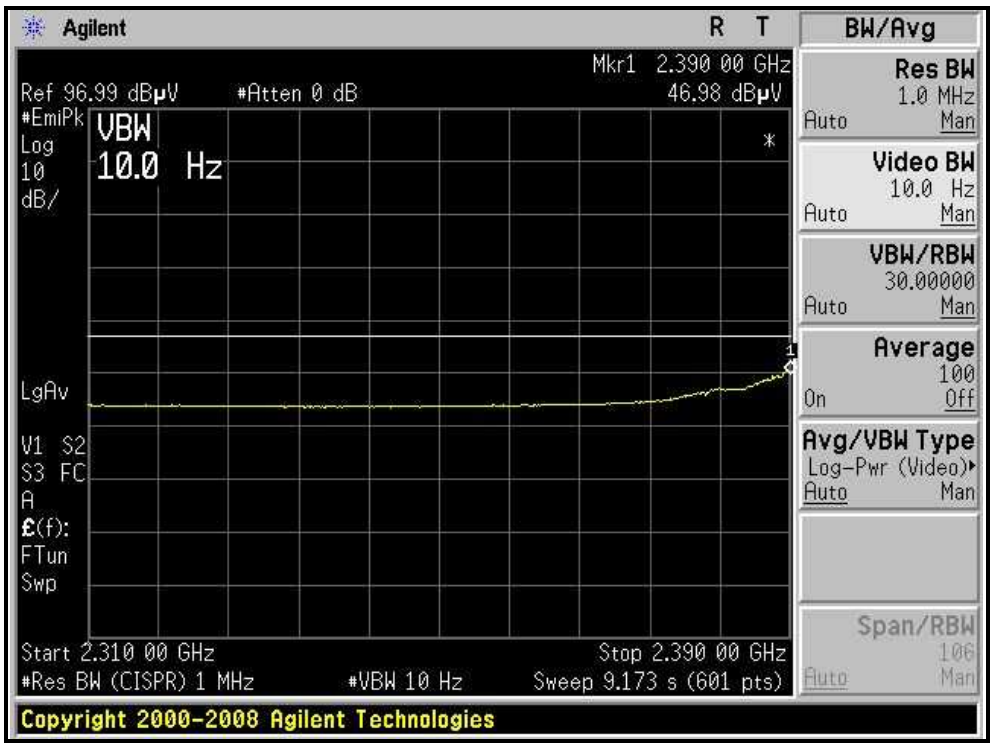
3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

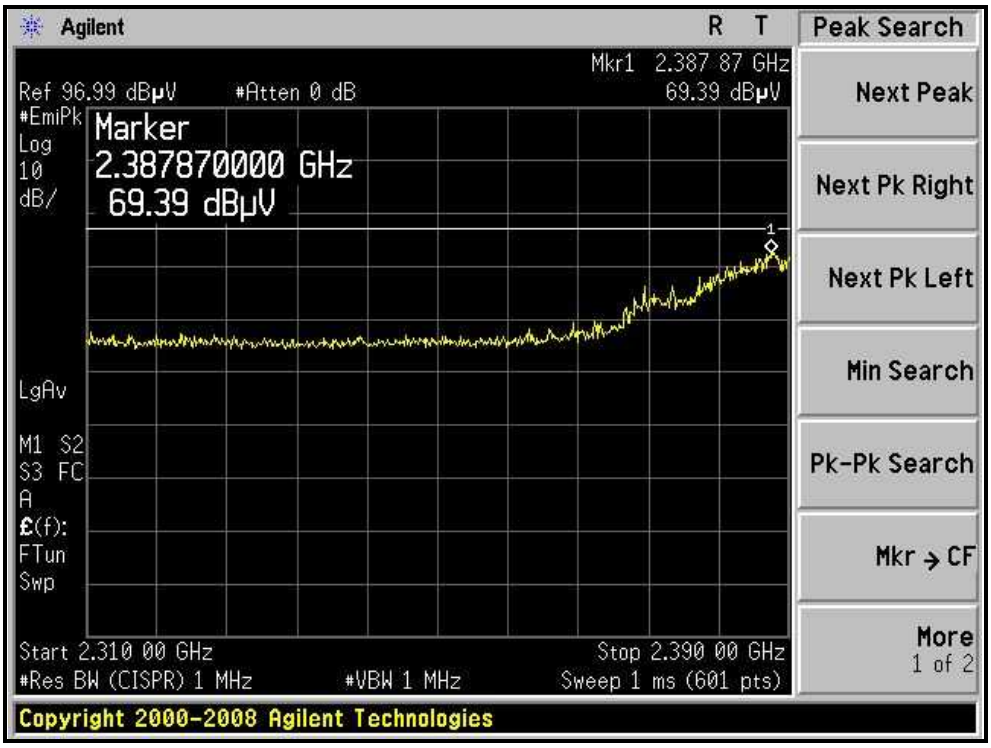
5. " * ": Fundamental frequency.

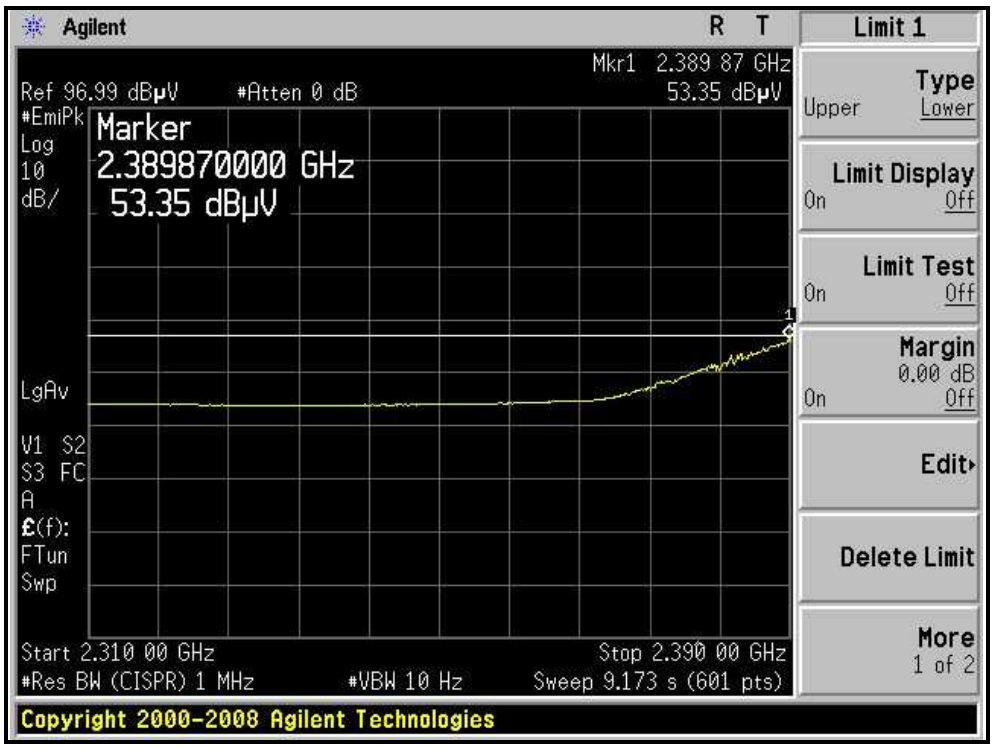
RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH1, HORIZONTAL)



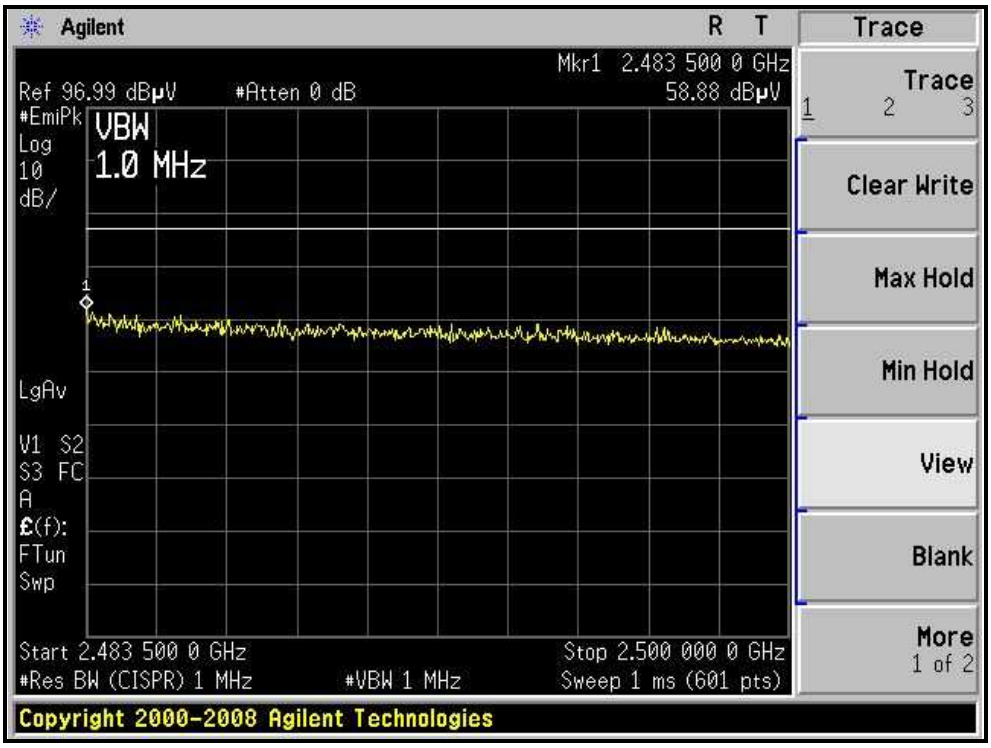


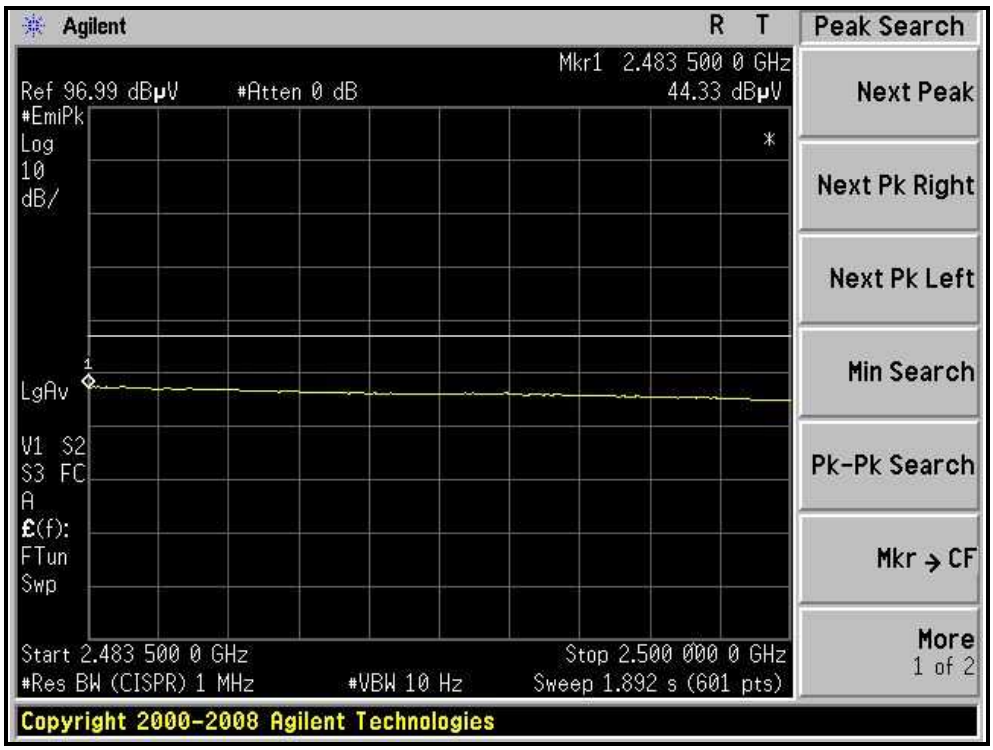
RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH1, VERTICAL)



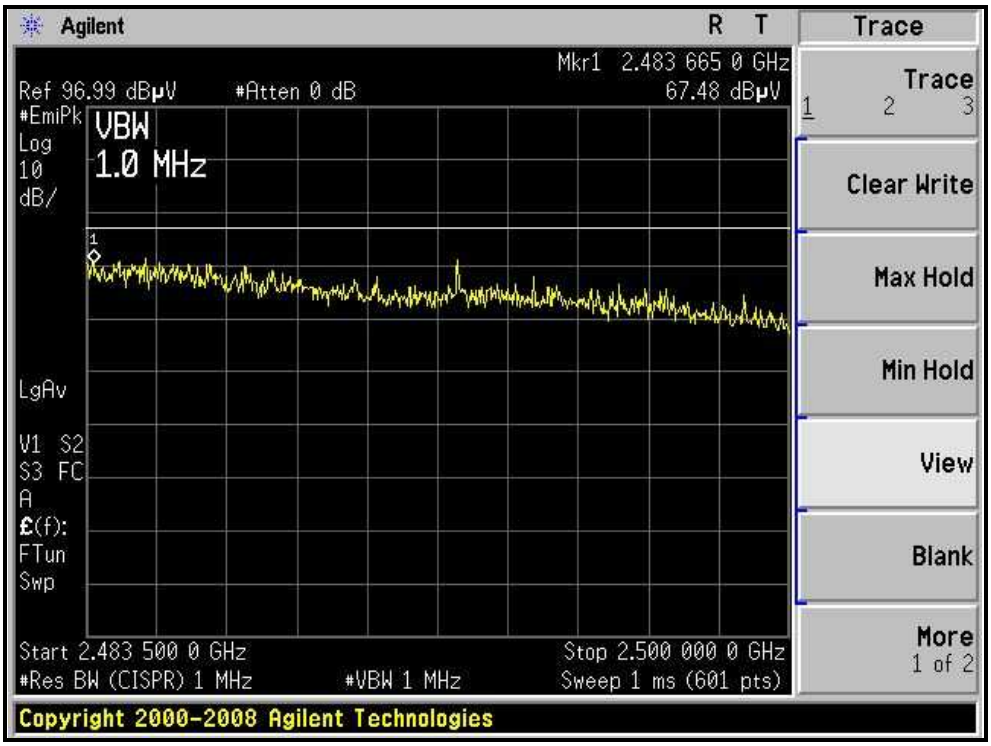


RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH7, HORIZONTAL)





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



Below 1GHz Test Data

4.1.9 TEST RESULTS (FOR RECEIVER PART)

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	25.0deg. C, 55.0%RH 965hPa	**TESTED BY**	Eric Lee

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	120.00	23.27 QP	43.50	-20.23	1.66 H	198	10.72	12.55
2	199.80	39.79 QP	43.50	-3.71	1.71 H	20	27.39	12.40
3	240.00	31.94 QP	46.00	-14.06	1.32 H	187	18.06	13.88
4	360.00	27.99 QP	46.00	-18.01	1.00 H	145	9.59	18.40
5	**399.64**	**43.38 QP**	**46.00**	**-2.62**	**2.20 H**	**149**	**23.89**	**19.49**
6	480.00	26.89 QP	46.00	-19.11	1.17 H	261	5.00	21.89
7	600.00	32.03 QP	46.00	-13.97	1.53 H	197	6.99	25.04
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	120.00	26.24 QP	43.50	-17.26	1.10 V	212	13.69	12.55
2	200.00	27.32 QP	43.50	-16.18	1.61 V	294	14.93	12.39
3	240.00	28.67 QP	46.00	-17.33	1.03 V	268	14.79	13.88
4	250.00	24.69 QP	46.00	-21.31	2.06 V	295	10.44	14.25
5	399.67	42.92 QP	46.00	-3.08	1.74 V	109	23.43	19.49
6	535.10	33.39 QP	46.00	-12.61	1.67 V	354	9.91	23.48

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.

Above 1GHz Test Data

4.1.10 TEST RESULTS (FOR RECEIVER PART)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 12.5GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	3216.00	45.10 PK	74.00	-28.90	1.00 H	74	12.47	32.63
2	3216.00	31.20 AV	54.00	-22.80	1.00 H	74	-1.43	32.63
3	6432.00	42.60 PK	74.00	-31.40	1.00 H	27	1.16	41.44
4	6432.00	31.50 AV	54.00	-22.50	1.00 H	27	-9.94	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	3216.00	45.30 PK	74.00	-28.70	1.00 V	124	12.67	32.63
2	3216.00	31.40 AV	54.00	-22.60	1.00 V	124	-1.23	32.63
3	6432.00	43.00 PK	74.00	-31.00	1.00 V	42	1.56	41.44
4	6432.00	32.50 AV	54.00	-21.50	1.00 V	42	-8.94	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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 12.5GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	3249.00	45.20 PK	74.00	-28.80	1.00 H	76	12.54	32.66
2	3249.00	31.30 AV	54.00	-22.70	1.00 H	76	-1.36	32.66
3	6498.00	42.70 PK	74.00	-31.30	1.00 H	42	0.83	41.87
4	6498.00	31.60 AV	54.00	-22.40	1.00 H	42	-10.27	41.87
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	3249.00	45.60 PK	74.00	-28.40	1.00 V	126	12.94	32.66
2	3249.00	31.60 AV	54.00	-22.40	1.00 V	126	-1.06	32.66
3	6498.00	43.10 PK	74.00	-30.90	1.00 V	27	1.23	41.87
4	6498.00	32.70 AV	54.00	-21.30	1.00 V	27	-9.17	41.87

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 12.5GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	3282.00	45.60 PK	74.00	-28.40	1.00 H	73	12.91	32.69
2	3282.00	31.40 AV	54.00	-22.60	1.00 H	73	-1.29	32.69
3	6565.00	42.50 PK	74.00	-31.50	1.00 H	37	0.45	42.05
4	6565.00	31.70 AV	54.00	-22.30	1.00 H	37	-10.35	42.05
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	3282.00	45.90 PK	74.00	-28.10	1.00 V	123	13.21	32.69
2	3282.00	31.70 AV	54.00	-22.30	1.00 V	123	-0.99	32.69
3	6565.00	43.20 PK	74.00	-30.80	1.00 V	37	1.15	42.05
4	6565.00	33.00 AV	54.00	-21.00	1.00 V	37	-9.05	42.05

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 MAXIMUM PEAK OUTPUT POWER

4.2.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.2.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
AGILENT SPECTRUM ANALYZER	E4446A	MY46180622	Apr. 24, 2009	Apr. 23, 2010

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

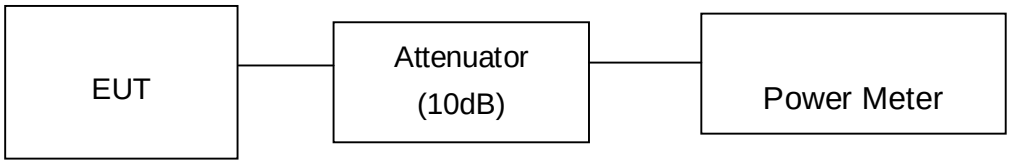
4.2.3 TEST PROCEDURES

1. The transmitter output was connected to the power meter through an attenuator; the bandwidth of the fundamental frequency was measured with the power meter.
2. Record the power level.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



4.2.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

4.2.7 TEST RESULTS

802.11b DSSS MODULATION:

MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	30deg.C, 50%RH, 965hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		PEAK POWER OUTPUT (mW)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2412	22.51	22.26	178.238	168.267	346.505	25.40	30	PASS
6	2437	22.15	21.98	164.059	157.761	321.820	25.08	30	PASS
11	2462	22.29	22.18	169.434	165.196	334.630	25.25	30	PASS

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)
Effective Legacy Gain (dBi)=6
The effective legacy gain is 6dBi, therefore the limit doesn't reduce.

802.11g OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	30deg.C, 50%RH, 965hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		PEAK POWER OUTPUT (mW)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2412	21.93	21.54	155.955	142.561	298.516	24.75	30	PASS
6	2437	26.21	26.24	417.830	420.727	838.557	29.24	30	PASS
11	2462	21.43	21.70	138.995	147.911	286.906	24.58	30	PASS

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)
Effective Legacy Gain (dBi)=6
The effective legacy gain is 6dBi, therefore the limit doesn't reduce.

DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	6.5Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	30deg.C, 50%RH, 965hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		PEAK POWER OUTPUT (mW)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2412	20.00	19.40	100.000	87.096	187.096	22.72	30	PASS
6	2437	25.72	25.94	373.250	392.645	765.895	28.84	30	PASS
11	2462	17.98	18.10	62.806	64.565	127.371	21.05	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	13.5Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	30deg.C, 50%RH, 965hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		PEAK POWER OUTPUT (mW)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2422	15.62	16.29	36.475	42.560	79.035	18.98	30	PASS
4	2437	22.01	22.00	158.855	158.489	317.344	25.02	30	PASS
7	2452	17.72	17.90	59.156	61.660	120.816	20.82	30	PASS

5. TEST TYPES AND RESULTS (802.11a, 5725~5850MHz Band)

5.1 RADIATED EMISSION MEASUREMENT

5.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 (RSS-210 table 2 & 3) 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.

5.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 9, 2008	Dec. 8, 2009
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	Apr. 24 , 2009	Apr. 23 , 2010
HP Pre_Amplifier	8449B	3008A01923	Nov. 10, 2008	Nov. 9, 2009
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 9, 2008	Sep. 8, 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.

5.1.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. 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.

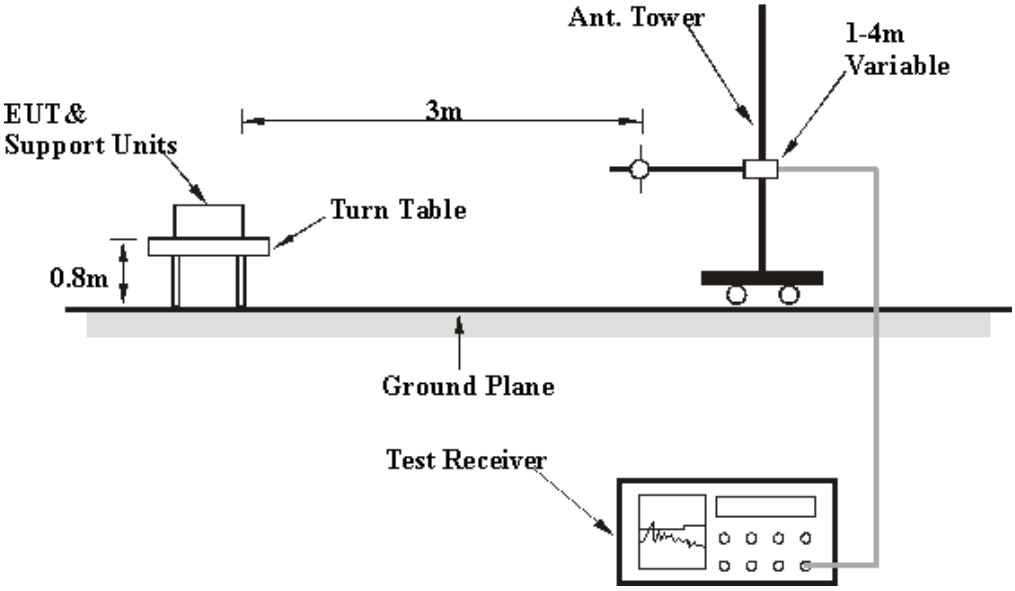
NOTE:

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.

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

5.1.5 TEST SETUP



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

5.1.6 EUT OPERATING CONDITIONS

1. Connect the EUT with the support unit 1 (Notebook computer) which placed on a testing table via test tool.
2. The support unit 1 (Notebook computer) ran a test program “ART_V0_9_b4” to enable EUT under transmission condition continuously.

Below 1GHz Test Data

5.1.7 TEST RESULTS (FOR TRANSMITTER PART)

BELOW 1GHz WORST-CASE DATA：802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25.0deg. C, 55.0%RH 965hPa	TESTED BY	Eric Lee

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	120.03	25.67 QP	43.50	-17.83	1.20 H	326	13.12	12.55
2	199.89	41.36 QP	43.50	-2.14	1.35 H	9	28.96	12.40
3	239.98	32.54 QP	46.00	-13.46	1.86 H	60	18.66	13.88
4	360.01	28.50 QP	46.00	-17.50	1.20 H	333	10.10	18.40
5	399.69	42.46 QP	46.00	-3.54	2.22 H	256	22.97	19.49
6	480.03	29.54 QP	46.00	-16.46	1.64 H	1	7.65	21.89
7	600.01	35.10 QP	46.00	-10.90	1.08 H	360	10.06	25.04
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	120.00	28.64 QP	43.50	-14.86	1.33 V	230	16.09	12.55
2	200.00	29.90 QP	43.50	-13.60	1.28 V	333	17.51	12.39
3	240.00	27.45 QP	46.00	-18.55	1.15 V	96	13.57	13.88
4	249.98	26.59 QP	46.00	-19.41	2.01 V	125	12.34	14.25
5	399.73	42.51 QP	46.00	-3.49	1.83 V	258	23.02	19.49
6	535.15	35.21 QP	46.00	-10.79	1.11 V	245	11.73	23.48

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.

Above 1GHz Test Data

5.1.8 TEST RESULTS (FOR TRANSMITTER PART)

802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	4596.00	52.98 PK	74.00	-21.02	1.11 H	74	16.80	36.18
2	4596.00	43.84 AV	54.00	-10.16	1.11 H	74	7.66	36.18
3	*5745.00	102.73 PK			1.41 H	191	64.77	37.96
4	*5745.00	92.57 AV			1.41 H	191	54.61	37.96
5	11490.00	67.11 PK	74.00	-6.89	1.08 H	323	19.88	47.23
6	11490.00	46.97 AV	54.00	-7.03	1.08 H	323	-0.26	47.23
7	#17235.00	62.70 PK	82.73	-20.03	1.20 H	4	10.37	52.33
8	#17235.00	45.08 AV	72.57	-27.49	1.20 H	4	-7.25	52.33
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	4596.00	53.80 PK	74.00	-20.20	1.01 V	62	17.62	36.18
2	4596.00	44.30 AV	54.00	-9.70	1.01 V	62	8.12	36.18
3	*5745.00	113.20 PK			1.14 V	79	75.24	37.96
4	*5745.00	108.40 AV			1.14 V	79	70.44	37.96
5	11490.00	73.10 PK	74.00	-0.90	1.02 V	358	25.87	47.23
6	11490.00	53.45 AV	54.00	-0.55	1.02 V	358	6.22	47.23
7	#17235.00	65.80 PK	93.20	-27.40	1.16 V	359	13.47	52.33
8	#17235.00	53.40 AV	88.40	-35.00	1.16 V	359	1.07	52.33

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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	4628.00	53.28 PK	74.00	-20.72	1.22 H	68	17.02	36.26
2	4628.00	41.58 AV	54.00	-12.42	1.22 H	68	5.32	36.26
3	*5785.00	100.74 PK			1.20 H	354	62.67	38.07
4	*5785.00	90.22 AV			1.20 H	354	52.15	38.07
5	11570.00	63.74 PK	74.00	-10.26	1.18 H	37	16.52	47.22
6	11570.00	46.84 AV	54.00	-7.16	1.18 H	37	-0.38	47.22
7	#17355.00	54.87 PK	80.74	-25.87	1.60 H	308	1.72	53.15
8	#17355.00	45.65 AV	70.22	-24.57	1.60 H	308	-7.50	53.15
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	4628.00	53.40 PK	74.00	-20.60	1.04 V	69	17.14	36.26
2	4628.00	44.50 AV	54.00	-9.50	1.04 V	69	8.24	36.26
3	*5785.00	111.40 PK			1.12 V	83	73.33	38.07
4	*5785.00	106.30 AV			1.12 V	83	68.23	38.07
5	11570.00	70.60 PK	74.00	-3.40	1.00 V	289	23.38	47.22
6	**11570.00**	**53.50 AV**	**54.00**	**-0.50**	**1.00 V**	**289**	**6.28**	**47.22**
7	#17355.00	64.99 PK	91.40	-26.41	1.09 V	330	11.84	53.15
8	#17355.00	53.22 AV	86.30	-33.08	1.09 V	330	0.07	53.15

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.
6. The limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	4660.00	53.84 PK	74.00	-20.16	1.18 H	148	17.49	36.35
2	4660.00	43.71 AV	54.00	-10.29	1.18 H	148	7.36	36.35
3	*5825.00	101.56 PK			1.19 H	253	63.38	38.18
4	*5825.00	91.73 AV			1.19 H	253	53.55	38.18
5	11650.00	60.11 PK	74.00	-13.89	1.20 H	62	12.89	47.22
6	11650.00	47.11 AV	54.00	-6.89	1.20 H	62	-0.11	47.22
7	#17475.00	53.58 PK	81.56	-27.98	1.69 H	33	-0.40	53.98
8	#17475.00	46.84 AV	71.73	-24.89	1.69 H	33	-7.14	53.98
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	4660.00	53.70 PK	74.00	-20.30	1.03 V	29	17.35	36.35
2	4660.00	44.20 AV	54.00	-9.80	1.03 V	29	7.85	36.35
3	*5825.00	111.60 PK			1.11 V	79	73.42	38.18
4	*5825.00	106.70 AV			1.11 V	79	68.52	38.18
5	11650.00	69.60 PK	74.00	-4.40	1.54 V	358	22.38	47.22
6	11650.00	53.41 AV	54.00	-0.59	1.54 V	358	6.19	47.22
7	#17475.00	65.24 PK	91.60	-26.36	1.14 V	351	11.26	53.98
8	#17475.00	53.29 AV	86.70	-33.41	1.14 V	351	-0.69	53.98

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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

DRAFT 802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	4596.00	57.10 PK	74.00	-16.90	1.04 H	79	20.92	36.18
2	4596.00	43.70 AV	54.00	-10.30	1.04 H	79	7.52	36.18
3	*5745.00	101.23 PK			1.28 H	195	63.27	37.96
4	*5745.00	90.99 AV			1.28 H	195	53.03	37.96
5	11490.00	68.20 PK	74.00	-5.80	1.31 H	217	20.97	47.23
6	11490.00	53.10 AV	54.00	-0.90	1.31 H	217	5.87	47.23
7	#17235.00	68.60 PK	81.23	-12.63	1.42 H	259	16.27	52.33
8	#17235.00	52.90 AV	70.99	-18.09	1.42 H	259	0.57	52.33
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	4596.00	57.44 PK	74.00	-16.56	1.20 V	267	21.26	36.18
2	4596.00	44.10 AV	54.00	-9.90	1.20 V	267	7.92	36.18
3	*5745.00	113.40 PK			1.03 V	84	75.44	37.96
4	*5745.00	108.30 AV			1.03 V	84	70.34	37.96
5	11490.00	68.70 PK	74.00	-5.30	1.10 V	333	21.47	47.23
6	11490.00	53.49 AV	54.00	-0.51	1.10 V	333	6.26	47.23
7	#17235.00	69.20 PK	93.40	-24.20	1.00 V	258	16.87	52.33
8	#17235.00	53.50 AV	88.30	-34.80	1.00 V	258	1.17	52.33

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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	4628.00	56.80 PK	74.00	-17.20	1.03 H	84	20.54	36.26
2	4628.00	43.10 AV	54.00	-10.90	1.03 H	84	6.84	36.26
3	*5785.00	99.94 PK			1.22 H	252	61.87	38.07
4	*5785.00	89.61 AV			1.22 H	252	51.54	38.07
5	11570.00	67.60 PK	74.00	-6.40	1.30 H	230	20.38	47.22
6	11570.00	52.90 AV	54.00	-1.10	1.30 H	230	5.68	47.22
7	#17355.00	67.70 PK	79.94	-12.24	1.41 H	244	14.55	53.15
8	#17355.00	53.10 AV	69.61	-16.51	1.41 H	244	-0.05	53.15
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	4628.00	57.53 PK	74.00	-16.47	1.20 V	243	21.27	36.26
2	4628.00	44.20 AV	54.00	-9.80	1.20 V	243	7.94	36.26
3	*5785.00	113.70 PK			1.04 V	79	75.63	38.07
4	*5785.00	108.50 AV			1.04 V	79	70.43	38.07
5	11570.00	68.90 PK	74.00	-5.10	1.09 V	332	21.68	47.22
6	**11570.00**	**53.50 AV**	**54.00**	**-0.50**	**1.09 V**	**332**	**6.28**	**47.22**
7	#17355.00	68.80 PK	93.70	-24.90	1.00 V	291	15.65	53.15
8	#17355.00	53.50 AV	88.50	-35.00	1.00 V	291	0.35	53.15

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.
6. The limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	4660.00	55.70 PK	74.00	-18.30	1.04 H	79	19.35	36.35
2	4660.00	43.40 AV	54.00	-10.60	1.04 H	79	7.05	36.35
3	*5825.00	103.44 PK			1.20 H	251	65.26	38.18
4	*5825.00	93.30 AV			1.20 H	251	55.12	38.18
5	11650.00	69.30 PK	74.00	-4.70	1.31 H	217	22.08	47.22
6	11650.00	52.60 AV	54.00	-1.40	1.31 H	217	5.38	47.22
7	#17475.00	67.10 PK	83.44	-16.34	1.39 H	234	13.12	53.98
8	#17475.00	52.40 AV	73.30	-20.90	1.39 H	234	-1.58	53.98
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	4660.00	57.62 PK	74.00	-16.38	1.21 V	244	21.27	36.35
2	4660.00	44.10 AV	54.00	-9.90	1.21 V	244	7.75	36.35
3	*5825.00	113.50 PK			1.04 V	86	75.32	38.18
4	*5825.00	108.40 AV			1.04 V	86	70.22	38.18
5	11650.00	70.80 PK	74.00	-3.20	1.00 V	247	23.58	47.22
6	11650.00	53.40 AV	54.00	-0.60	1.00 V	247	6.18	47.22
7	#17475.00	67.60 PK	93.50	-25.90	1.00 V	269	13.62	53.98
8	#17475.00	53.10 AV	88.40	-35.30	1.00 V	269	-0.88	53.98

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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

DRAFT 802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	4604.00	53.89 PK	74.00	-20.11	1.27 H	48	17.69	36.20
2	4604.00	42.74 AV	54.00	-11.26	1.27 H	48	6.54	36.20
3	*5755.00	103.55 PK			1.30 H	206	65.57	37.98
4	*5755.00	91.48 AV			1.30 H	206	53.50	37.98
5	11510.00	56.94 PK	74.00	-17.06	1.48 H	69	9.71	47.23
6	11510.00	46.18 AV	54.00	-7.82	1.48 H	69	-1.05	47.23
7	#17265.00	53.88 PK	83.55	-29.67	1.65 H	97	1.35	52.53
8	#17265.00	45.71 AV	71.48	-25.77	1.65 H	97	-6.82	52.53
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	4604.00	52.60 PK	74.00	-21.40	1.09 V	172	16.40	36.20
2	4604.00	44.10 AV	54.00	-9.90	1.09 V	172	7.90	36.20
3	*5755.00	117.10 PK			1.04 V	121	79.12	37.98
4	*5755.00	104.10 AV			1.04 V	121	66.12	37.98
5	11510.00	68.40 PK	74.00	-5.60	1.33 V	331	21.17	47.23
6	11510.00	53.30 AV	54.00	-0.70	1.33 V	331	6.07	47.23
7	#17265.00	65.35 PK	97.10	-31.75	1.00 V	267	12.82	52.53
8	#17265.00	53.40 AV	84.10	-30.70	1.00 V	267	0.87	52.53

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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	4636.00	52.74 PK	74.00	-21.26	1.60 H	58	16.46	36.28
2	4636.00	41.98 AV	54.00	-12.02	1.60 H	58	5.70	36.28
3	*5795.00	102.77 PK			1.30 H	191	64.67	38.10
4	*5795.00	90.69 AV			1.30 H	191	52.59	38.10
5	11590.00	51.84 PK	74.00	-22.16	1.42 H	69	4.62	47.22
6	11590.00	44.19 AV	54.00	-9.81	1.42 H	69	-3.03	47.22
7	#17385.00	56.73 PK	82.77	-26.04	1.74 H	161	3.37	53.36
8	#17385.00	46.92 AV	70.69	-23.77	1.74 H	161	-6.44	53.36
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	4636.00	52.10 PK	74.00	-21.90	1.05 V	76	15.82	36.28
2	4636.00	44.40 AV	54.00	-9.60	1.05 V	76	8.12	36.28
3	*5795.00	116.20 PK			1.01 V	124	78.10	38.10
4	*5795.00	103.60 AV			1.01 V	124	65.50	38.10
5	11590.00	66.89 PK	74.00	-7.11	1.38 V	330	19.67	47.22
6	11590.00	52.60 AV	54.00	-1.40	1.38 V	330	5.38	47.22
7	#17385.00	65.60 PK	96.20	-30.60	1.00 V	360	12.24	53.36
8	#17385.00	53.30 AV	83.60	-30.30	1.00 V	360	-0.06	53.36

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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

Below 1GHz Test Data

5.1.9 TEST RESULTS (FOR RECEIVER PART)

BELOW 1GHz WORST-CASE DATA：802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25.0deg. C, 55.0%RH 965hPa	TESTED BY	Eric Lee

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	120.03	25.67 QP	43.50	-17.83	1.20 H	326	13.12	12.55
2	**199.89**	**41.36 QP**	**43.50**	**-2.14**	**1.35 H**	**9**	**28.96**	**12.40**
3	239.98	32.54 QP	46.00	-13.46	1.86 H	60	18.66	13.88
4	360.01	28.50 QP	46.00	-17.50	1.20 H	333	10.10	18.40
5	399.69	42.46 QP	46.00	-3.54	2.22 H	256	22.97	19.49
6	480.03	29.54 QP	46.00	-16.46	1.64 H	1	7.65	21.89
7	600.01	35.10 QP	46.00	-10.90	1.08 H	360	10.06	25.04
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	120.00	28.64 QP	43.50	-14.86	1.33 V	230	16.09	12.55
2	200.00	29.90 QP	43.50	-13.60	1.28 V	333	17.51	12.39
3	240.00	27.45 QP	46.00	-18.55	1.15 V	96	13.57	13.88
4	249.98	26.59 QP	46.00	-19.41	2.01 V	125	12.34	14.25
5	399.73	42.51 QP	46.00	-3.49	1.83 V	258	23.02	19.49
6	535.15	35.21 QP	46.00	-10.79	1.11 V	245	11.73	23.48

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.

Above 1GHz Test Data

5.1.10 TEST RESULTS (FOR RECEIVER PART)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 30GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	3830.00	44.10 PK	74.00	-29.90	1.04 H	213	10.19	33.91
2	3830.00	35.80 AV	54.00	-18.20	1.04 H	213	1.89	33.91
3	7660.00	46.20 PK	74.00	-27.80	1.51 H	213	2.78	43.42
4	7660.00	41.40 AV	54.00	-12.60	1.51 H	213	-2.02	43.42
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	3830.00	45.40 PK	74.00	-28.60	1.14 V	273	11.49	33.91
2	3830.00	36.80 AV	54.00	-17.20	1.14 V	273	2.89	33.91
3	7660.00	47.80 PK	74.00	-26.20	1.54 V	351	4.38	43.42
4	7660.00	44.90 AV	54.00	-9.10	1.54 V	351	1.48	43.42

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 30GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	3854.24	44.90 PK	74.00	-29.10	1.02 H	244	10.92	33.98
2	3854.24	36.10 AV	54.00	-17.90	1.02 H	244	2.12	33.98
3	7713.30	46.50 PK	74.00	-27.50	1.52 H	309	2.97	43.53
4	7713.30	41.20 AV	54.00	-12.80	1.52 H	309	-2.33	43.53
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	3854.24	45.20 PK	74.00	-28.80	1.16 V	285	11.22	33.98
2	3854.24	36.70 AV	54.00	-17.30	1.16 V	285	2.72	33.98
3	7713.30	49.80 PK	74.00	-24.20	1.68 V	357	6.27	43.53
4	7713.30	45.10 AV	54.00	-8.90	1.68 V	357	1.57	43.53

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 30GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25.0deg. C, 66.0%RH 965hPa	TESTED BY	Frank Liu

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	3883.40	45.10 PK	74.00	-28.90	1.03 H	246	11.03	34.07
2	3883.40	36.90 AV	54.00	-17.10	1.03 H	246	2.83	34.07
3	7766.00	46.30 PK	74.00	-27.70	1.54 H	323	2.67	43.63
4	7766.00	41.60 AV	54.00	-12.40	1.54 H	323	-2.03	43.63
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	3883.40	45.70 PK	74.00	-28.30	1.17 V	285	11.63	34.07
2	3883.40	39.00 AV	54.00	-15.00	1.17 V	285	4.93	34.07
3	7766.00	49.30 PK	74.00	-24.70	1.57 V	353	5.67	43.63
4	7766.00	45.50 AV	54.00	-8.50	1.57 V	353	1.87	43.63

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.

5.2 MAXIMUM PEAK OUTPUT POWER

5.2.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

5.2.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
AGILENT SPECTRUM ANALYZER	E4446A	MY46180622	Apr. 24, 2009	Apr. 23, 2010

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

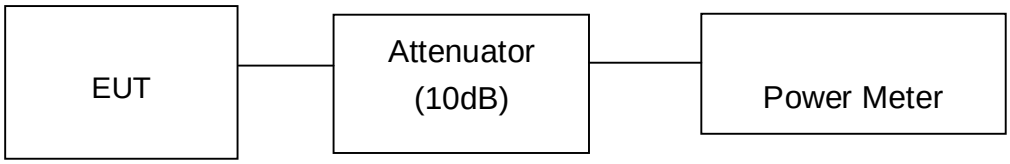
5.2.3 TEST PROCEDURES

1. The transmitter output was connected to the power meter through an attenuator; the bandwidth of the fundamental frequency was measured with the power meter.
2. Record the power level.

5.2.4 DEVIATION FROM TEST STANDARD

No deviation

5.2.5 TEST SETUP



5.2.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

5.2.7 TEST RESULTS

802.11a OFDM modulation

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	30deg. C, 50%RH, 965hPa
TESTED BY	Eric Lee		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (DBM)		PEAK POWER OUTPUT (MW)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
149	5745	24.76	25.85	299.226	384.592	683.818	28.35	29	PASS
157	5785	23.19	23.92	208.449	246.604	455.053	26.58	29	PASS
165	5825	24.15	24.27	260.016	267.301	527.317	27.22	29	PASS

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)
Effective Legacy Gain (dBi)=7
The effective legacy gain is 7dBi, therefore the limit reduce to 29dBm

DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	6.5Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	30deg. C, 50%RH, 965hPa
TESTED BY	Eric Lee		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (DBM)		PEAK POWER OUTPUT (MW)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
149	5745	24.20	25.14	263.027	326.588	589.615	27.71	30	PASS
157	5785	23.28	24.01	212.814	251.768	464.582	26.67	30	PASS
165	5825	24.64	25.54	291.072	358.096	649.168	28.12	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	**TRANSFER RATE**	13.5Mbps
INPUT POWER	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	30deg. C, 50%RH, 965hPa
TESTED BY	Eric Lee		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (DBM)		PEAK POWER OUTPUT (mW)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
151	5755	25.04	26.55	319.154	451.856	771.010	28.87	30	PASS
159	5795	24.86	24.89	306.196	308.319	614.515	27.89	30	PASS

6. INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA	FCC, NVLAP
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA, CSA
R.O.C.	TAF, BSMI, NCC
Netherlands	Telefication
Singapore	GOST-ASIA (MOU)
Russia	CERTIS (MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml.
If you have any comments, please feel free to contact us at the following:

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Email: service@adt.com.tw
Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.

7.APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

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