FCC TEST REPORT

REPORT NO.:	RF991029E01
MODEL NO.:	AR5B195
FCC ID:	PPD-AR5B195
RECEIVED:	Oct. 29, 2010
TESTED:	Nov. 02 to 10, 2010
ISSUED:	Nov. 15, 2010
APPLICANT:	Atheros Communications, Inc.
ADDRESS:	1700 Technology Drive, San Jose, CA 95110
ISSUED BY:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
LAB ADDRESS:	No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan
TEST LOCATION (1):	No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan
TEST LOCATION (2):	No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

Table of Contents

1. CERTIFICATION

PRODUCT:	802.11n-BT COMBO CARD
BRAND NAME:	Atheros
MODEL NO.:	AR5B195
TEST SAMPLE:	R&D SAMPLE
TESTED:	Nov. 02 to 10, 2010
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 (Model: AR5B195) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and was in 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:** Nov. 15, 2010
(Carol Liao, Specialist)

TECHNICAL ACCEPTANCE : , **DATE:** Nov. 15, 2010
(Hank Chung, Deputy Manager)

APPROVED BY : , **DATE:** Nov. 15, 2010
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C ; RSS-210; RSS-Gen					
Standard Section			Test Type and Limit	Result	REMARK
RSS-210	RSS-Gen	FCC 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 -0.5dB at 2483.5MHz
-	6	-	Receiver Radiated Emissions RSS-210 Limit: Table 2	PASS	Meet the requirement of limit Minimum passing margin is -3.0dB at 275.02MHz

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.

2.1 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)	3.3 dB
Radiated emissions (1GHz -18GHz)	2.19 dB
Radiated emissions (18GHz -40GHz)	2.55 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	802.11n-BT COMBO CARD
MODEL NO.	AR5B195
FCC ID	PPD-AR5B195
IC ID	4104A-AR5B195
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 HT20 (800ns GI): 65 / 58.5 / 52 / 39 / 26 / 19.5 / 13 / 6.5Mbps. HT40 (800ns GI): 135 / 121.5 / 108 / 81 / 54 / 40.5 / 27 / 13.5Mbps. HT40 (400ns GI): 150 / 135 / 120 / 90 / 60 / 45 / 30 / 15Mbps.
OPRTAING FREQUENCY	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz)
MAXIMUM OUTPUT POWER	802.11b: 114.8mW 802.11g: 407.4mW 802.11n (20MHz): 407.4mW 802.11n (40MHz): 316.2mW
ANTENNA TYPE	See item 3.2
ANTENNA CONNECTOR	See item 3.2
DATA CABLE	NA
I/O PORTS	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 information:
   - **u** Add pre-tested estimate for three different axes placements of EUT's antenna.

2. There are Bluetooth technology and WLAN technology used for the EUT. <the Bluetooth test data please refer "RF991029E01-1">

3. The EUT incorporates CDD function with 802.11b, 802.11g and SISO function with 802.11n.

4. The EUT is 1 * 1 spatial SISO without beam forming function. The antenna configuration is one transmitter antenna and one receiver antenna, as there is 1 PIFA antenna.

5. The EUT complies with 802.11n standards and backwards compatible with 802.11b, 802.11g products.

6. The EUT was pre-tested under the following modes:

Test Mode	Data rate
Mode A	400ns GI
Mode B	**800ns GI**

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

7. For radiated emission test: The EUT's antenna was pre-tested under the following modes:

Test Mode	Description
Mode A	**X-Y axis**
Mode B	Y-Z axis
Mode C	X-Z axis

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

8. 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 ANTENNA

There is one set of antenna provided to this EUT, please refer to the following table:

Brand	Model	Gain(dBi) (included cable loss)	Antenna Type	Connector	Cable Loss(dB)	Cable Length
WNC	81-EBJ15.005	3.62	PIFA	IPEX	1.15	300mm

3.3 DESCRIPTION OF TEST MODES

Operated in 2400 ~ 2483.5MHz band:

Eleven channels are provided for 802.11b, 802.11g, 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 802.11n (40MHz):

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

3.3.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

Where **RE < 1G:** Radiated Emission below 1GHz **RE ³ 1G:** Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

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)
802.11n (20MHz)	1 to 11	6	OFDM	BPSK	6.5

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)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5
Receiver	1 to 11	1, 6, 11	-	-	-

ANTENNA PORT CONDUCTED MEASUREMENT:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

☒ 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)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE≥1G	23deg. C, 70%RH, 1015 hPa	120Vac, 60Hz	Frank Liu
RE<1G	21deg. C, 68%RH, 1015 hPa	120Vac, 60Hz	Frank Liu
APCM	23deg. C, 58%RH, 1015 hPa	120Vac, 60Hz	Frank Liu

3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C. (15.247)
ANSI C63.4-2003
Canada RSS-210 issue 7
Canada RSS-Gen issue 2

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

3.5 DESCRIPTION OF SUPPORT UNITS

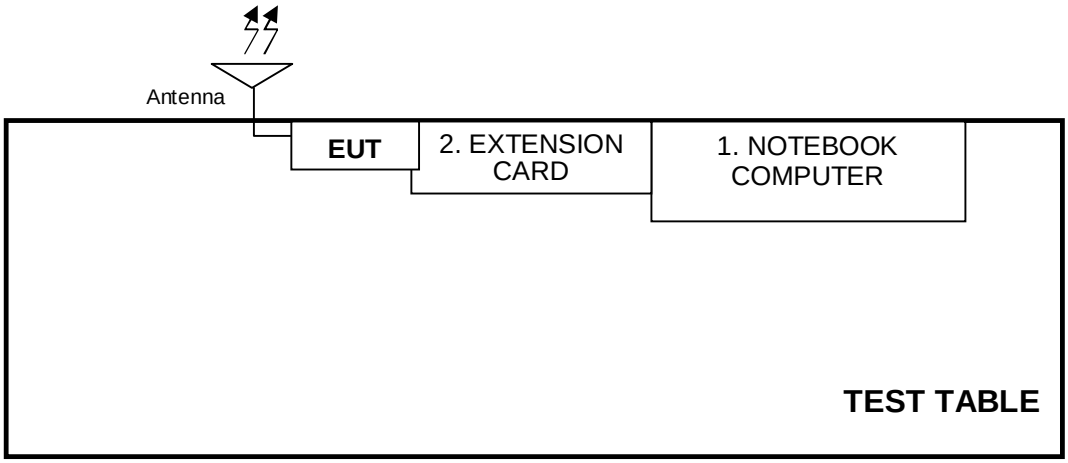
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	E6400	D814C A00 APCC	NA
2	EXTENSION CARD	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).

3.6 CONFIGURATION OF SYSTEM UNDER TEST



4.TEST TYPES AND RESULTS

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
Agilent Spectrum Analyzer	E4446A	MY48250253	Aug. 23, 2010	Aug. 22, 2011
Agilent Pre-Selector	N9039A	MY46520310	Aug. 23, 2010	Aug. 22, 2011
Agilent Signal Generator	N5181A	MY49060347	July 30, 2010	July 29, 2011
LIG NEX1 Test Receiver	ER-265	L09068005	Aug. 30, 2010	Aug. 29, 2011
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-04	Nov. 18, 2009	Nov. 17, 2010
Agilent Pre-Amplifier	8449B	3008A02465	Mar. 01, 2010	Feb. 28, 2011
Miteq Pre-Amplifier	AFS33-18002650-30-8P-44	881786	NA	NA
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-361	Apr. 28, 2010	Apr. 27, 2011
AISI Horn_Antenna	AIH.8018	0000220091110	Nov. 16, 2009	Nov. 15, 2010
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Oct. 08, 2010	Oct. 07, 2011
RF CABLE	NA	RF104-205 RF104-207 RF104-208	Dec. 24, 2009	Dec. 23, 2010
RF Cable	NA	CHHCAB_001	NA	NA
Software	ADT_Radiated_V8.7.05	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, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in 966 Chamber No. H.
4. The FCC Site Registration No. is 797305.
5. The CANADA Site Registration No. is IC 7450H-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 3 meter chamber room. 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.

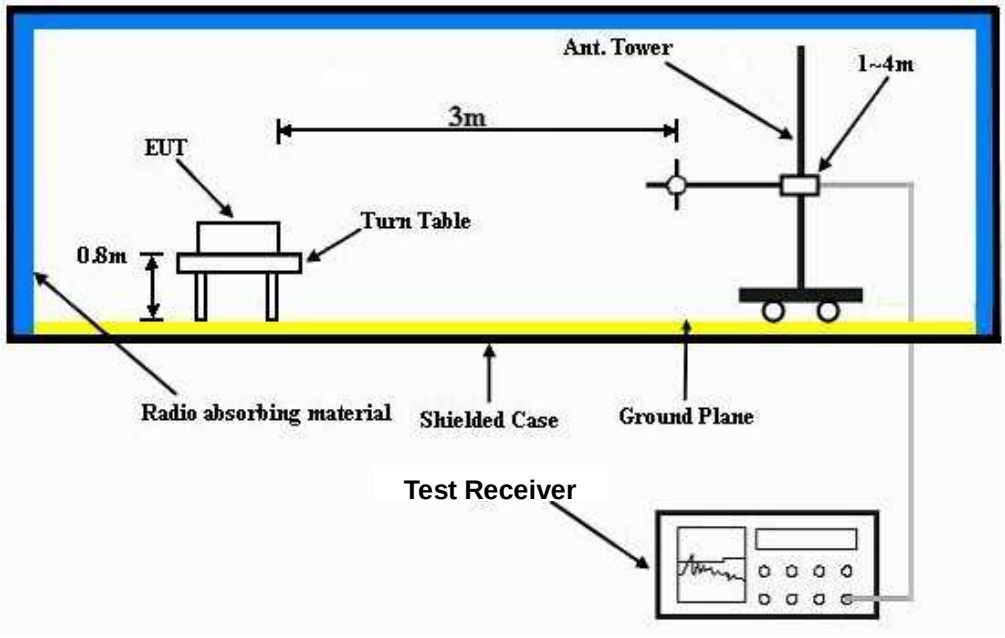
NOTE:

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 is placed on a testing table.
2. The communication partner run test program “ArcMfgTool 2.0.0.9” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.1.7 TEST RESULTS (FOR TRANSMITTER PART)

BELOW 1GHz WORST-CASE DATA：802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	21deg. C, 68%RH 1015 hPa	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	233.21	40.5 QP	46.0	-5.5	1.00 H	325	28.10	12.40
2	275.02	43.0 QP	46.0	-3.0	1.00 H	108	29.10	13.90
3	415.23	41.6 QP	46.0	-4.4	1.00 H	250	23.30	18.30
4	499.90	39.0 QP	46.0	-7.0	2.00 H	243	18.90	20.10
5	527.97	38.9 QP	46.0	-7.1	1.50 H	331	18.10	20.80
6	600.32	40.6 QP	46.0	-5.4	1.00 H	11	18.10	22.50
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	168.20	39.8 QP	43.5	-3.7	2.00 V	22	25.90	13.90
2	249.91	40.1 QP	46.0	-5.9	1.50 V	10	27.20	12.90
3	287.45	38.0 QP	46.0	-8.0	1.50 V	89	23.60	14.40
4	450.05	39.4 QP	46.0	-6.6	1.00 V	0	20.40	19.00
5	600.32	40.4 QP	46.0	-5.6	1.00 V	50	17.90	22.50
6	699.80	36.7 QP	46.0	-9.3	1.50 V	281	13.30	23.40

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 WORST-CASE DATA

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	23deg. C, 70%RH 1015 hPa	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	2389.47	60.2 PK	74.0	-13.8	1.54 H	139	29.10	31.10
2	2389.47	51.3 AV	54.0	-2.7	1.54 H	139	20.20	31.10
3	*2412.00	107.4 PK			1.54 H	139	76.20	31.20
4	*2412.00	105.1 AV			1.54 H	139	73.90	31.20
5	4824.00	48.2 PK	74.0	-25.8	1.57 H	103	11.10	37.10
6	4824.00	41.0 AV	54.0	-13.0	1.57 H	103	3.90	37.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2389.50	58.1 PK	74.0	-15.9	1.42 V	265	27.00	31.10
2	2389.50	47.9 AV	54.0	-6.1	1.42 V	265	16.80	31.10
3	*2412.00	103.5 PK			1.39 V	270	72.30	31.20
4	*2412.00	101.2 AV			1.39 V	270	70.00	31.20
5	4824.00	47.6 PK	74.0	-26.4	1.56 V	98	10.50	37.10
6	4824.00	38.9 AV	54.0	-15.1	1.56 V	98	1.80	37.10

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	23deg. C, 70%RH 1015 hPa	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	108.2 PK			1.00 H	136	76.90	31.30
2	*2437.00	105.8 AV			1.00 H	136	74.50	31.30
3	4874.00	47.3 PK	74.0	-26.7	1.59 H	106	10.10	37.20
4	4874.00	39.6 AV	54.0	-14.4	1.59 H	106	2.40	37.20
5	7311.00	51.4 PK	74.0	-22.6	1.31 H	185	7.90	43.50
6	7311.00	40.3 AV	54.0	-13.7	1.31 H	185	-3.20	43.50
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	103.9 PK			1.41 V	288	72.60	31.30
2	*2437.00	101.4 AV			1.41 V	288	70.10	31.30
3	4874.00	47.3 PK	74.0	-26.7	1.52 V	107	10.10	37.20
4	4874.00	38.6 AV	54.0	-15.4	1.52 V	107	1.40	37.20
5	7311.00	51.1 PK	74.0	-22.9	1.51 V	211	7.60	43.50
6	7311.00	40.1 AV	54.0	-13.9	1.51 V	211	-3.40	43.50

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.

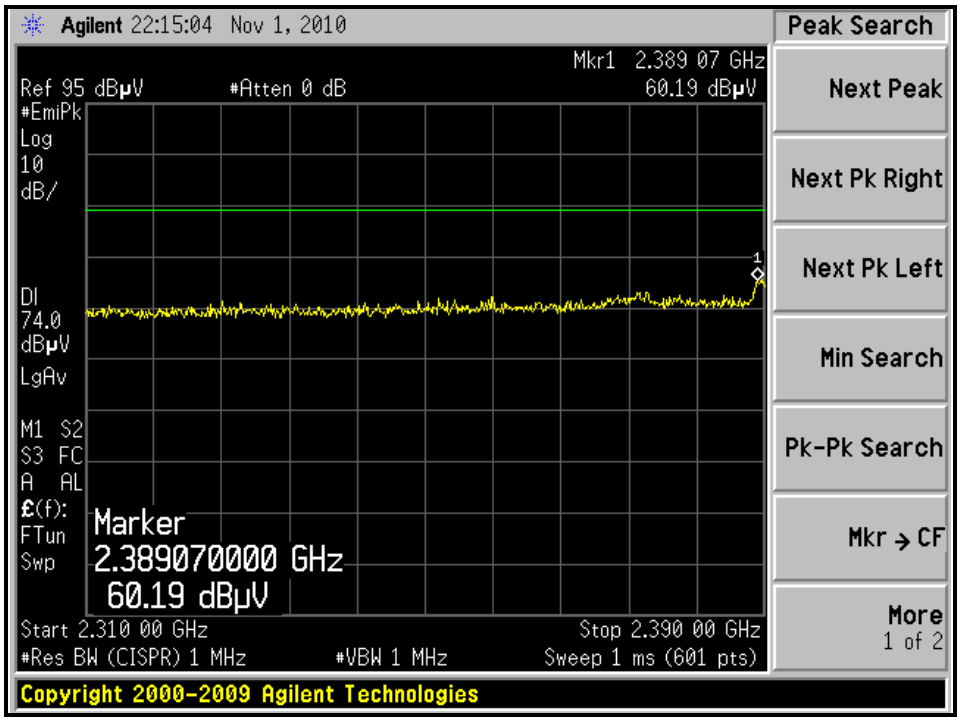
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH 1015 hPa	TESTED BY	Frank Liu

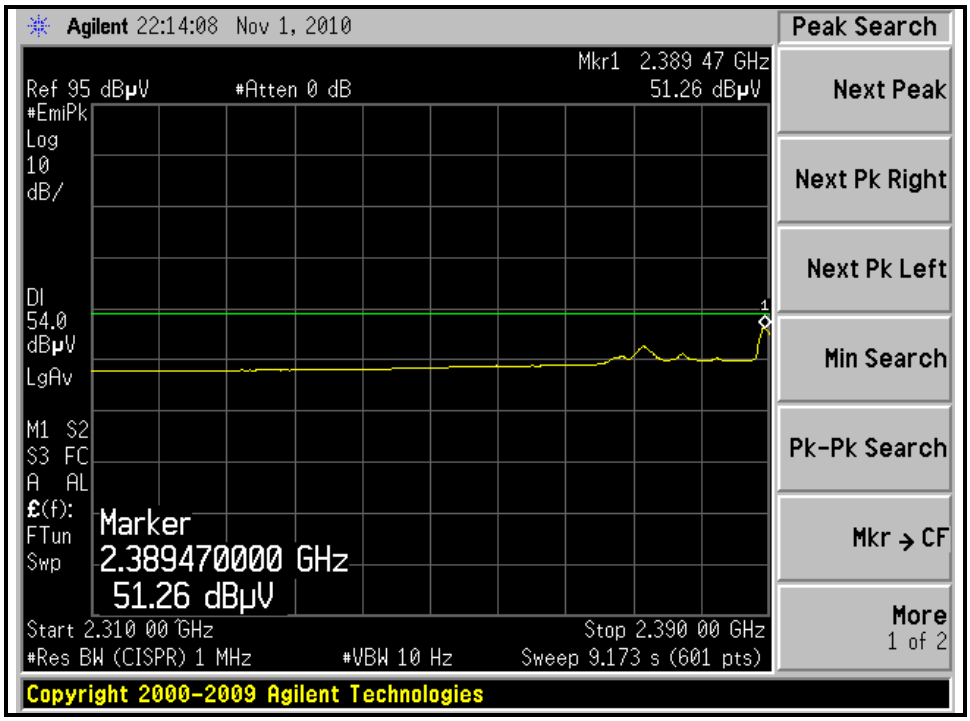
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	107.1 PK			1.49 H	137	75.70	31.40
2	*2462.00	104.7 AV			1.49 H	132	73.30	31.40
3	2484.60	60.1 PK	74.0	-13.9	1.46 H	132	28.60	31.50
4	2484.60	48.8 AV	54.0	-5.2	1.46 H	132	17.30	31.50
5	4924.00	46.9 PK	74.0	-27.1	1.58 H	101	9.50	37.40
6	4924.00	37.6 AV	54.0	-16.4	1.58 H	101	0.20	37.40
7	7386.00	51.6 PK	74.0	-22.4	1.39 H	196	7.90	43.70
8	7386.00	40.2 AV	54.0	-13.8	1.39 H	196	-3.50	43.70
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	*2462.00	103.1 PK			1.34 V	269	71.70	31.40
2	*2462.00	100.9 AV			1.34 V	269	69.50	31.40
3	2484.60	57.6 PK	74.0	-16.4	1.31 V	300	26.10	31.50
4	2484.60	46.0 AV	54.0	-8.0	1.31 V	300	14.50	31.50
5	4924.00	47.1 PK	74.0	-26.9	1.46 V	109	9.70	37.40
6	4924.00	38.3 AV	54.0	-15.7	1.46 V	109	0.90	37.40
7	7386.00	51.1 PK	74.0	-22.9	1.54 V	219	7.40	43.70
8	7386.00	40.2 AV	54.0	-13.8	1.54 V	219	-3.50	43.70

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

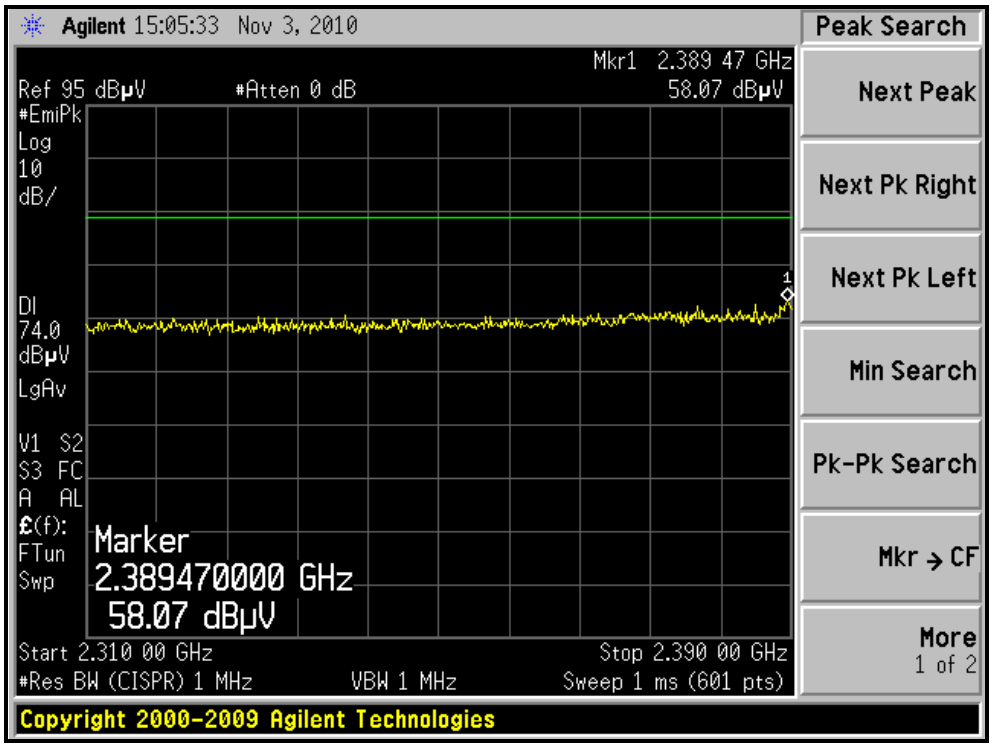
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

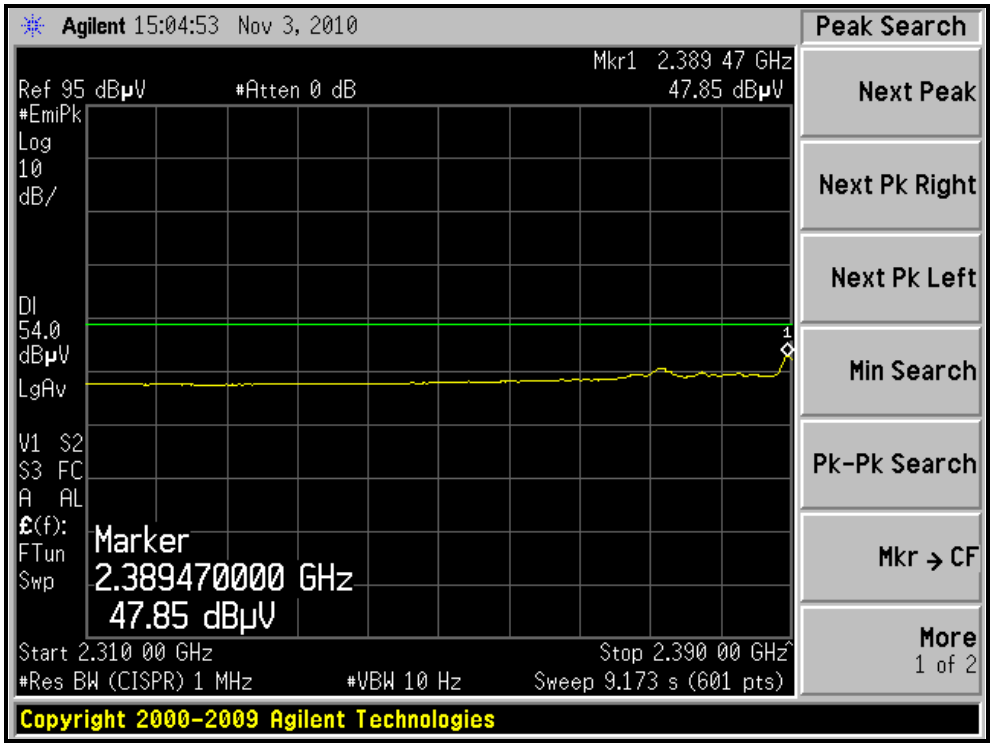
RESTRICTED BANDEDGE (802.11b MODE,CH1, HORIZONTAL)



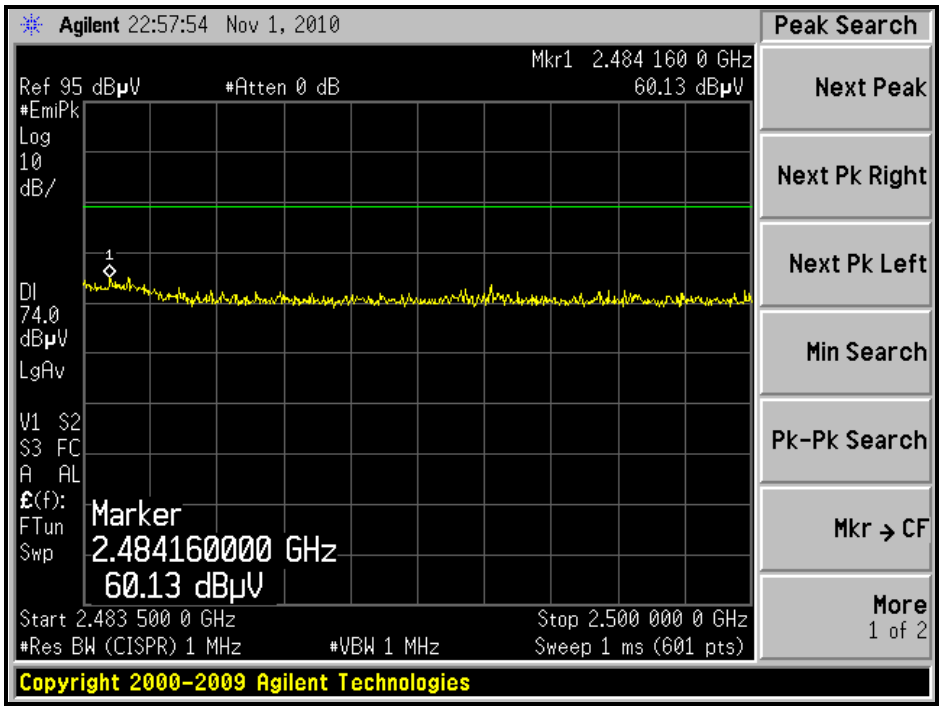


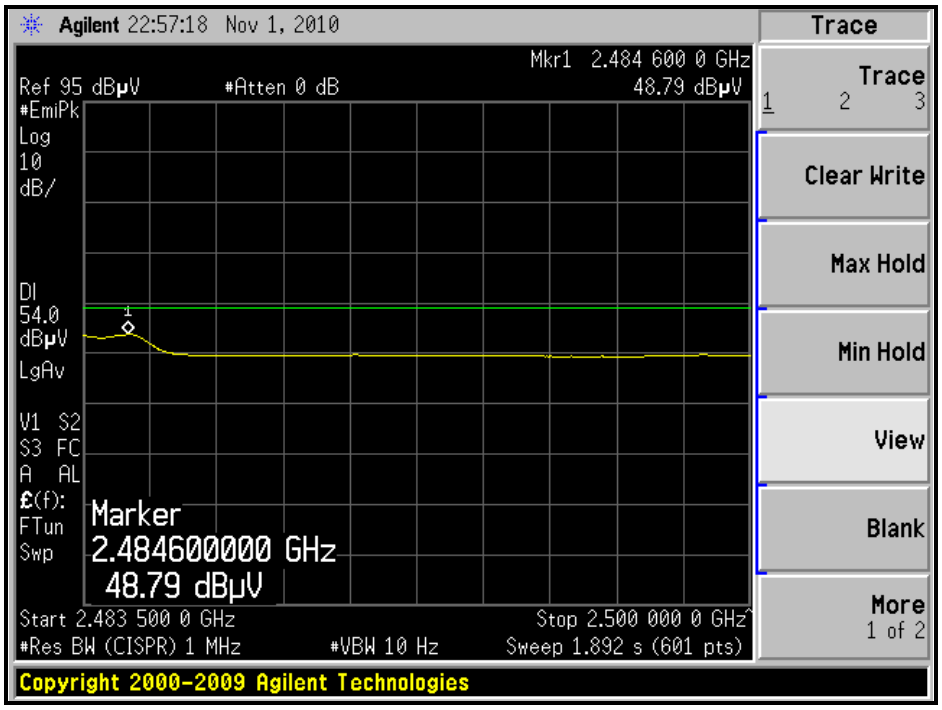
RESTRICTED BANDEDGE (802.11b MODE,CH1, VERTICAL)



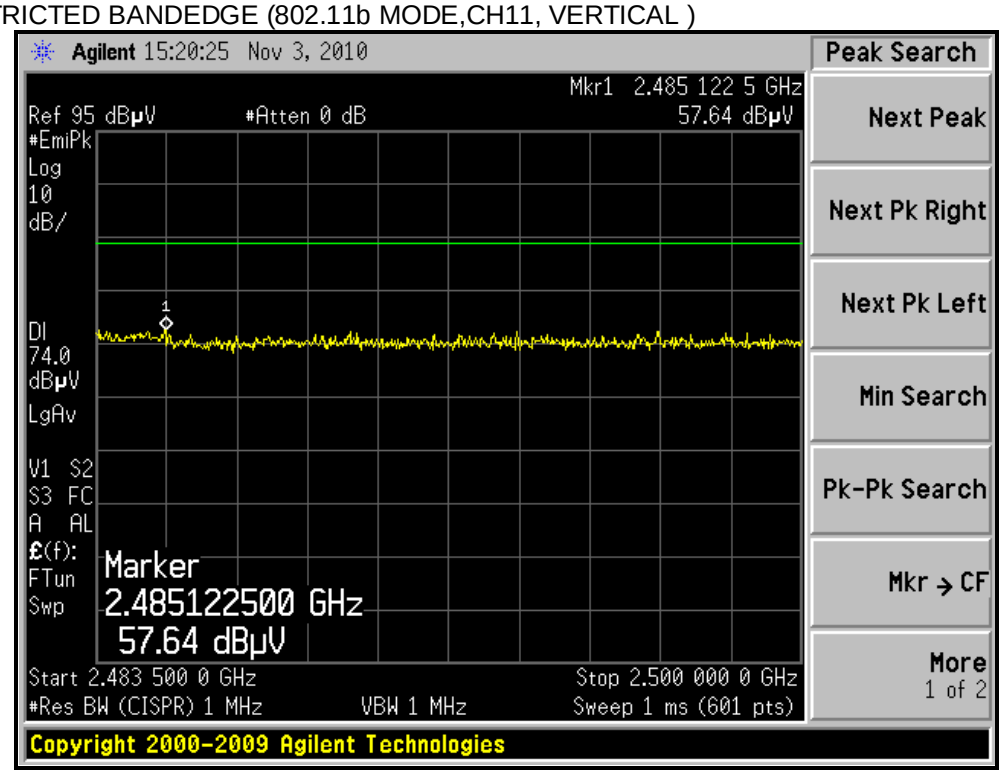


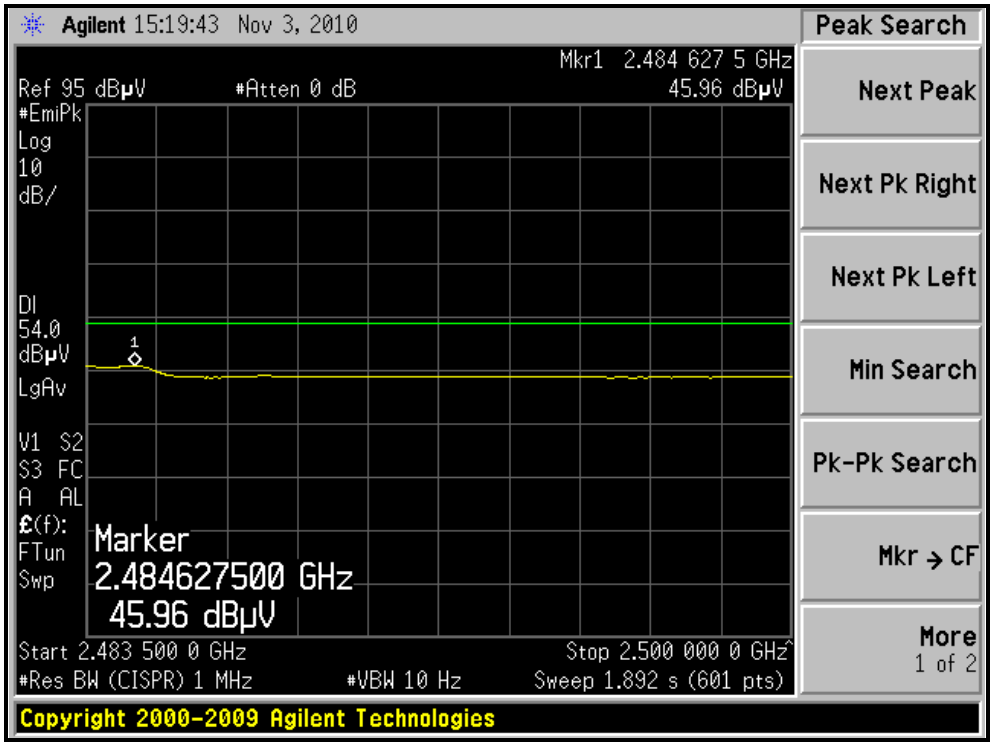
RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL)





RESTRICTED BANDEDGE (802.11b MODE,CH11, VERTICAL)





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	23deg. C, 70%RH 1015 hPa	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	66.9 PK	74.0	-7.1	1.53 H	126	35.80	31.10
2	2390.00	49.4 AV	54.0	-4.6	1.53 H	126	18.30	31.10
3	*2412.00	107.2 PK			1.51 H	137	76.00	31.20
4	*2412.00	96.7 AV			1.51 H	137	65.50	31.20
5	4824.00	46.1 PK	74.0	-27.9	1.54 H	102	9.00	37.10
6	4824.00	36.2 AV	54.0	-17.8	1.54 H	102	-0.90	37.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.3 PK	74.0	-11.7	1.42 V	265	31.20	31.10
2	2390.00	48.2 AV	54.0	-5.8	1.42 V	265	17.10	31.10
3	*2412.00	102.6 PK			1.44 V	288	71.40	31.20
4	*2412.00	92.3 AV			1.44 V	288	61.10	31.20
5	4824.00	44.2 PK	74.0	-29.8	1.51 V	73	7.10	37.10
6	4824.00	34.1 AV	54.0	-19.9	1.51 V	73	-3.00	37.10

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	23deg. C, 70%RH 1015 hPa	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	62.8 PK	74.0	-11.2	1.49 H	138	31.70	31.10
2	2390.00	45.6 AV	54.0	-8.4	1.49 H	138	14.50	31.10
3	*2437.00	109.2 PK			1.53 H	139	77.90	31.30
4	*2437.00	98.9 AV			1.53 H	139	67.60	31.30
5	2483.50	61.3 PK	74.0	-12.7	1.49 H	126	29.80	31.50
6	2483.50	45.1 AV	54.0	-8.9	1.49 H	126	13.60	31.50
7	4874.00	46.3 PK	74.0	-27.7	1.52 H	107	9.10	37.20
8	4874.00	36.4 AV	54.0	-17.6	1.52 H	107	-0.80	37.20
9	7311.00	51.1 PK	74.0	-22.9	1.27 H	177	7.60	43.50
10	7311.00	40.1 AV	54.0	-13.9	1.27 H	177	-3.40	43.50
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	105.1 PK			1.50 V	304	73.80	31.30
2	*2437.00	94.7 AV			1.50 V	304	63.40	31.30
3	4874.00	44.4 PK	74.0	-29.6	1.54 V	69	7.20	37.20
4	4874.00	34.3 AV	54.0	-19.7	1.54 V	69	-2.90	37.20
5	7311.00	51.3 PK	74.0	-22.7	1.09 V	219	7.80	43.50
6	7311.00	40.4 AV	54.0	-13.6	1.09 V	219	-3.10	43.50

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.

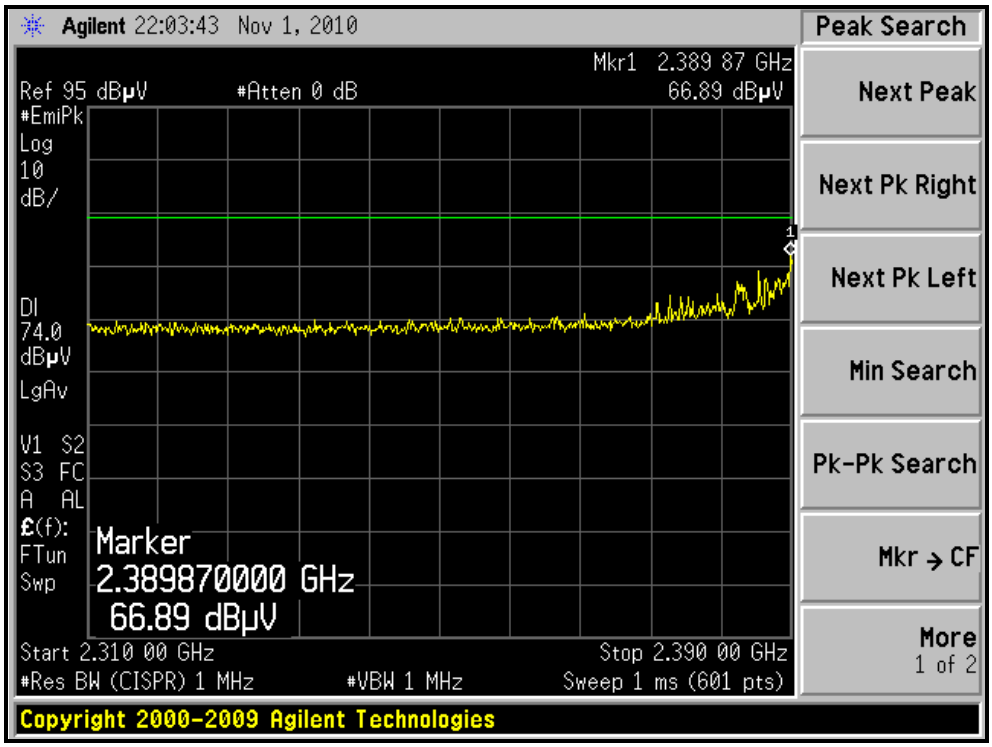
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH 1015 hPa	TESTED BY	Frank Liu

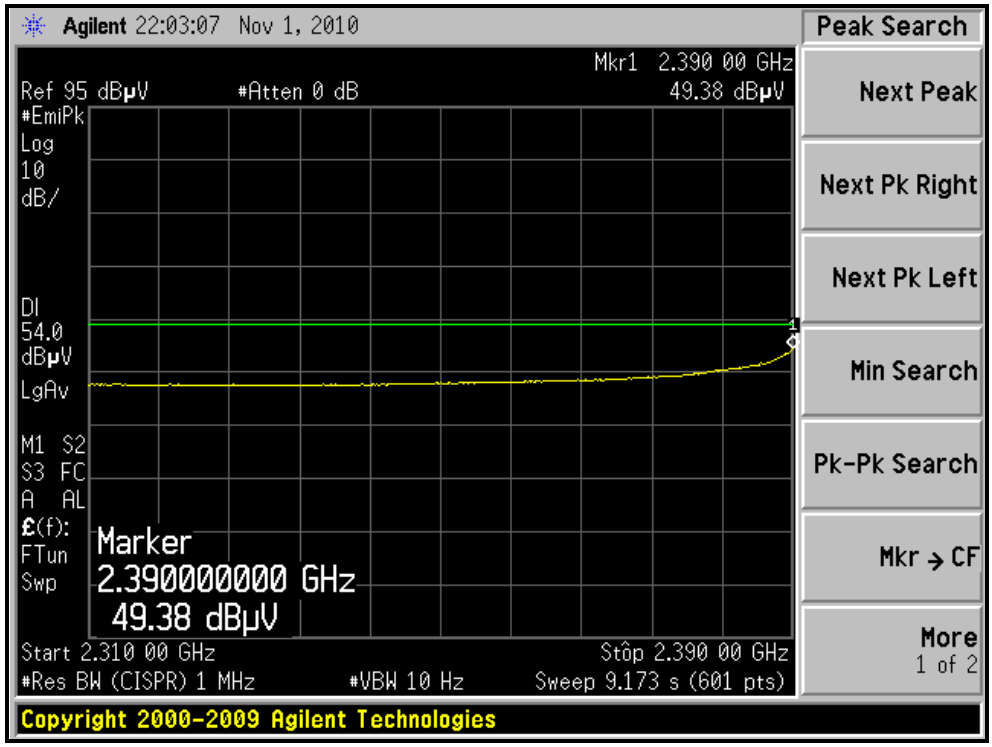
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.1 PK			1.50 H	138	74.70	31.40
2	*2462.00	95.9 AV			1.50 H	138	64.50	31.40
3	2483.50	68.4 PK	74.0	-5.6	1.47 H	136	36.90	31.50
4	2483.50	51.0 AV	54.0	-3.0	1.47 H	136	19.50	31.50
5	4924.00	46.4 PK	74.0	-27.6	1.42 H	104	9.00	37.40
6	4924.00	36.2 AV	54.0	-17.8	1.42 H	104	-1.20	37.40
7	7386.00	51.3 PK	74.0	-22.7	1.26 H	169	7.60	43.70
8	7386.00	40.2 AV	54.0	-13.8	1.26 H	169	-3.50	43.70
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	*2462.00	101.9 PK			1.53 V	123	70.50	31.40
2	*2462.00	91.9 AV			1.53 V	123	60.50	31.40
3	2483.50	62.5 PK	74.0	-11.5	1.58 V	121	31.00	31.50
4	2483.50	46.9 AV	54.0	-7.1	1.58 V	121	15.40	31.50
5	4924.00	44.6 PK	74.0	-29.4	1.56 V	72	7.20	37.40
6	4924.00	34.4 AV	54.0	-19.6	1.56 V	72	-3.00	37.40
7	7386.00	51.7 PK	74.0	-22.3	1.24 V	213	8.00	43.70
8	7386.00	40.6 AV	54.0	-13.4	1.24 V	213	-3.10	43.70

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

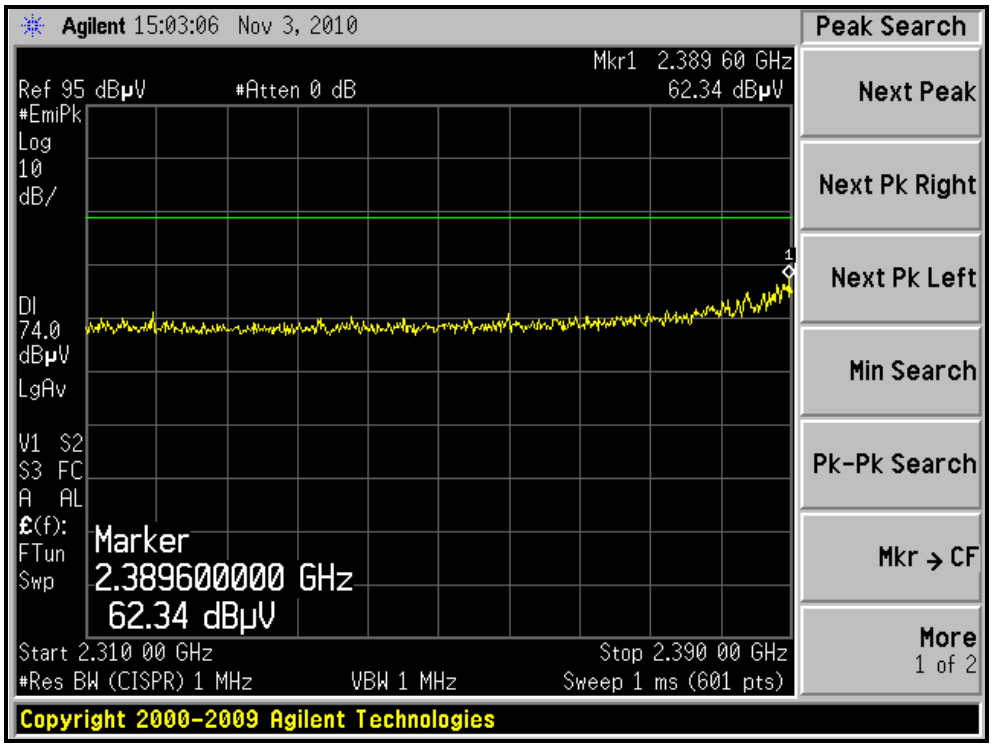
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

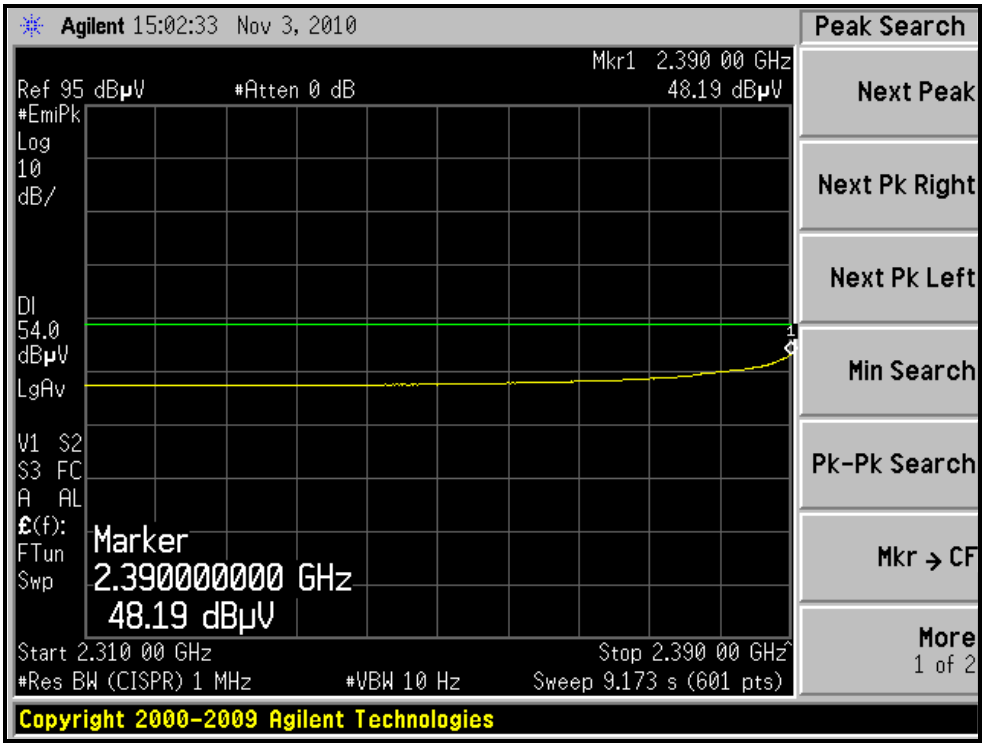
RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL)



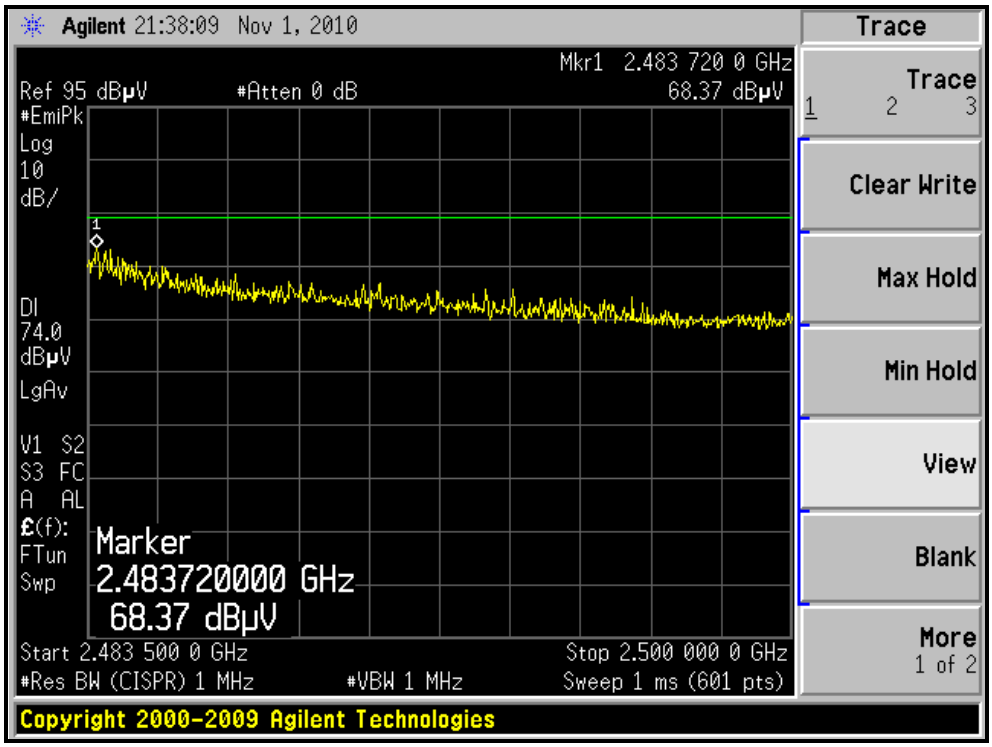


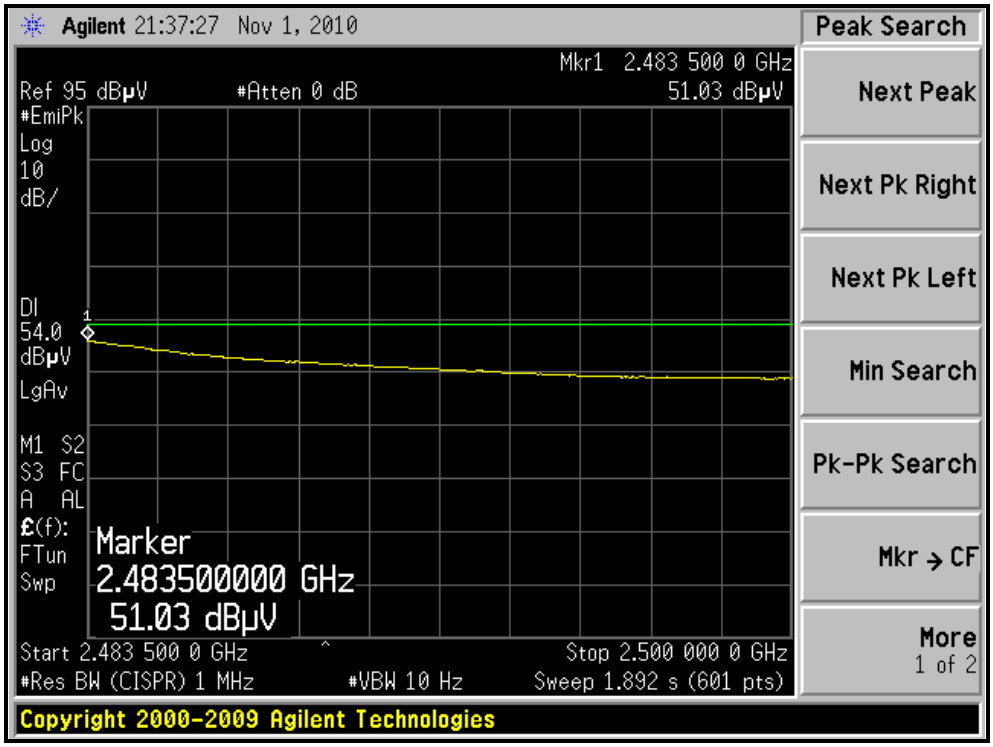
RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)



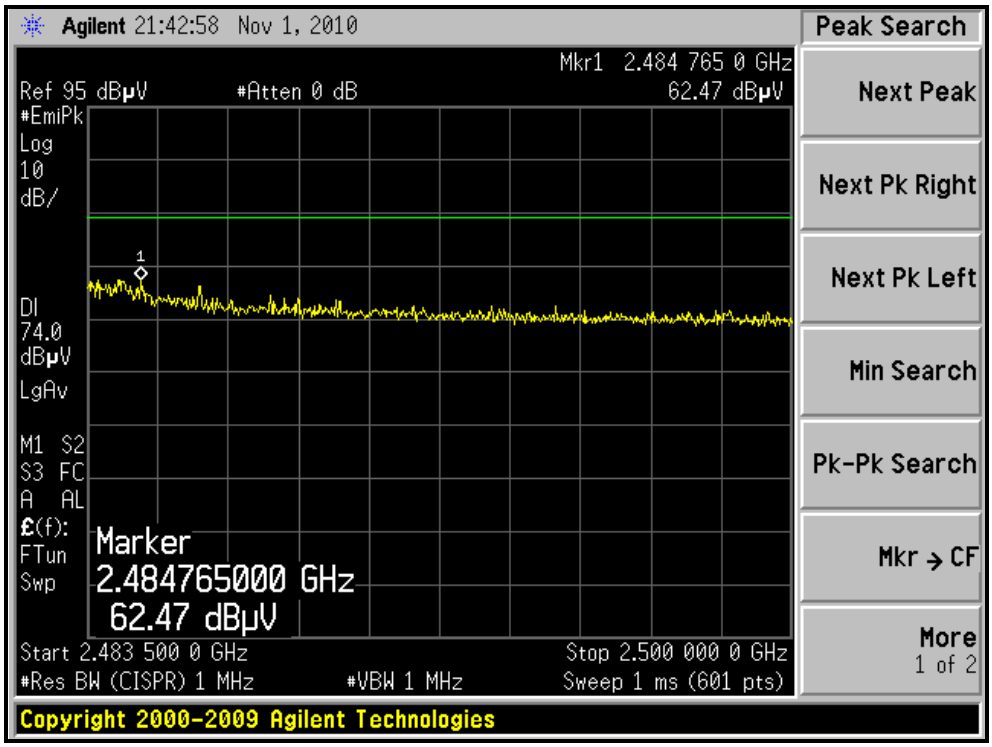


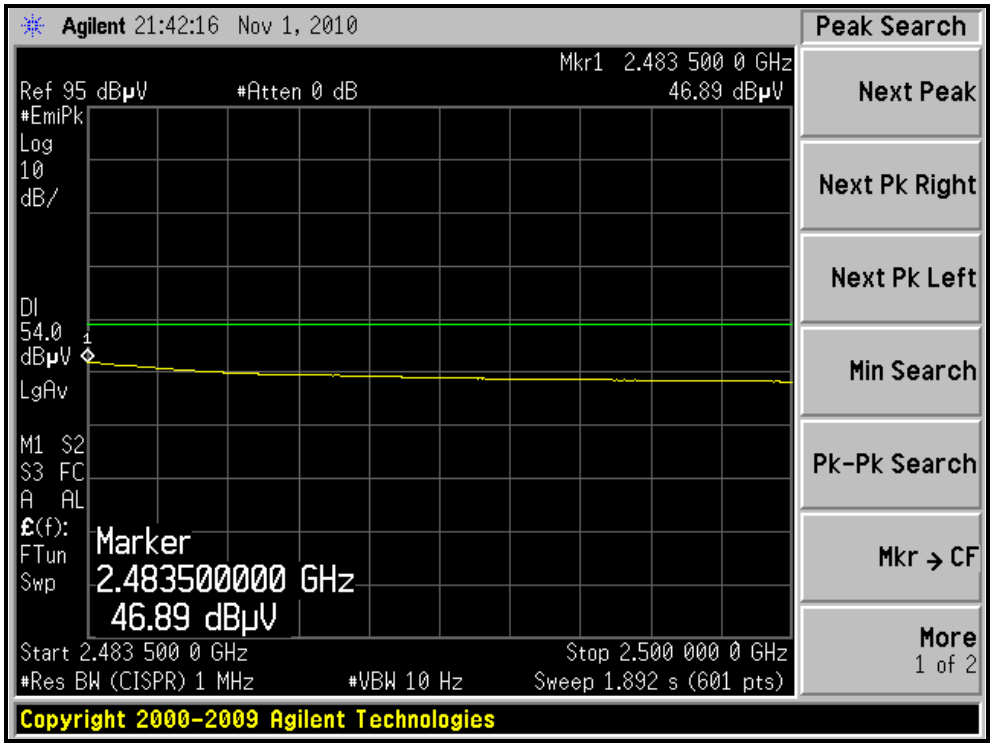
RESTRICTED BANDEDGE (802.11g MODE,CH11, HORIZONTAL)





RESTRICTED BANDEDGE (802.11g MODE,CH11, VERTICAL)





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	23deg. C, 70%RH 1015 hPa	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	66.3 PK	74.0	-7.7	1.44 H	214	35.20	31.10
2	2390.00	50.1 AV	54.0	-3.9	1.44 H	214	19.00	31.10
3	*2412.00	106.2 PK			1.55 H	138	75.00	31.20
4	*2412.00	95.0 AV			1.55 H	138	63.80	31.20
5	4824.00	46.0 PK	74.0	-28.0	1.44 H	109	8.90	37.10
6	4824.00	36.1 AV	54.0	-17.9	1.44 H	109	-1.00	37.10
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	64.8 PK	74.0	-9.2	1.50 V	266	33.70	31.10
2	2390.00	47.3 AV	54.0	-6.7	1.50 V	266	16.20	31.10
3	*2412.00	102.3 PK			1.50 V	266	71.10	31.20
4	*2412.00	91.3 AV			1.50 V	266	60.10	31.20
5	4824.00	44.1 PK	74.0	-29.9	1.52 V	69	7.00	37.10
6	4824.00	34.1 AV	54.0	-19.9	1.52 V	69	-3.00	37.10

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	23deg. C, 70%RH 1015 hPa	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	109.1 PK			1.49 H	134	77.80	31.30
2	*2437.00	97.8 AV			1.49 H	134	66.50	31.30
3	4874.00	46.1 PK	74.0	-27.9	1.44 H	109	8.90	37.20
4	4874.00	36.2 AV	54.0	-17.8	1.44 H	109	-1.00	37.20
5	7311.00	51.4 PK	74.0	-22.6	1.22 H	151	7.90	43.50
6	7311.00	40.3 AV	54.0	-13.7	1.22 H	151	-3.20	43.50
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	105.4 PK			1.49 V	301	74.10	31.30
2	*2437.00	93.2 AV			1.49 V	301	61.90	31.30
3	4874.00	44.2 PK	74.0	-29.8	1.54 V	73	7.00	37.20
4	4874.00	34.3 AV	54.0	-19.7	1.54 V	73	-2.90	37.20
5	7311.00	51.3 PK	74.0	-22.7	1.27 V	214	7.80	43.50
6	7311.00	40.6 AV	54.0	-13.4	1.27 V	214	-2.90	43.50

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.

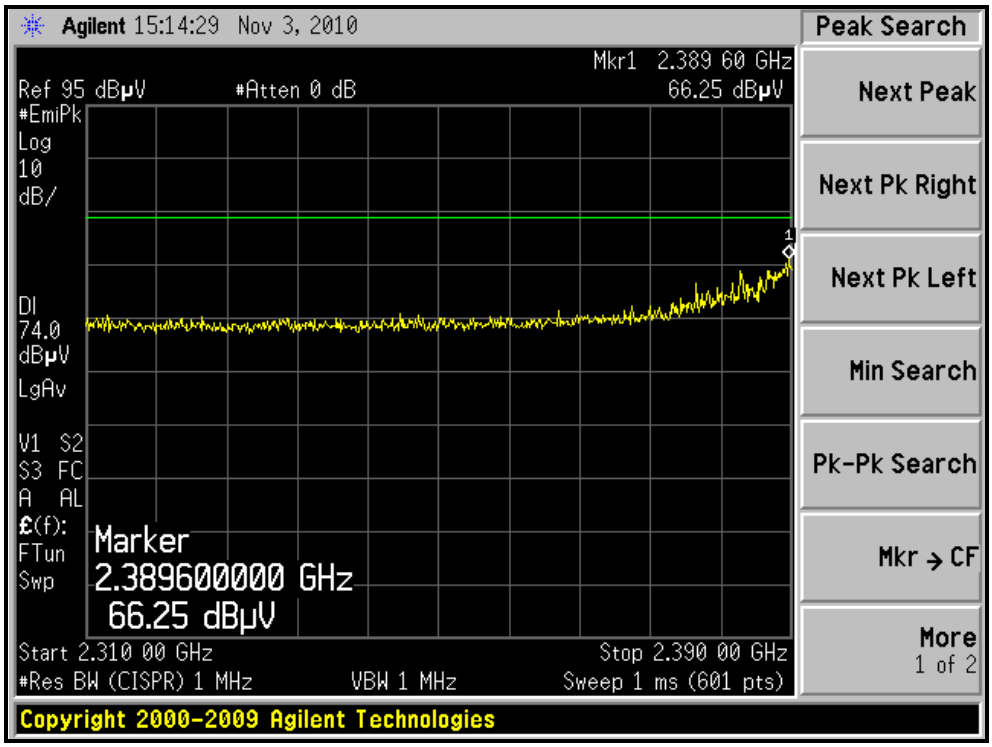
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH 1015 hPa	TESTED BY	Frank Liu

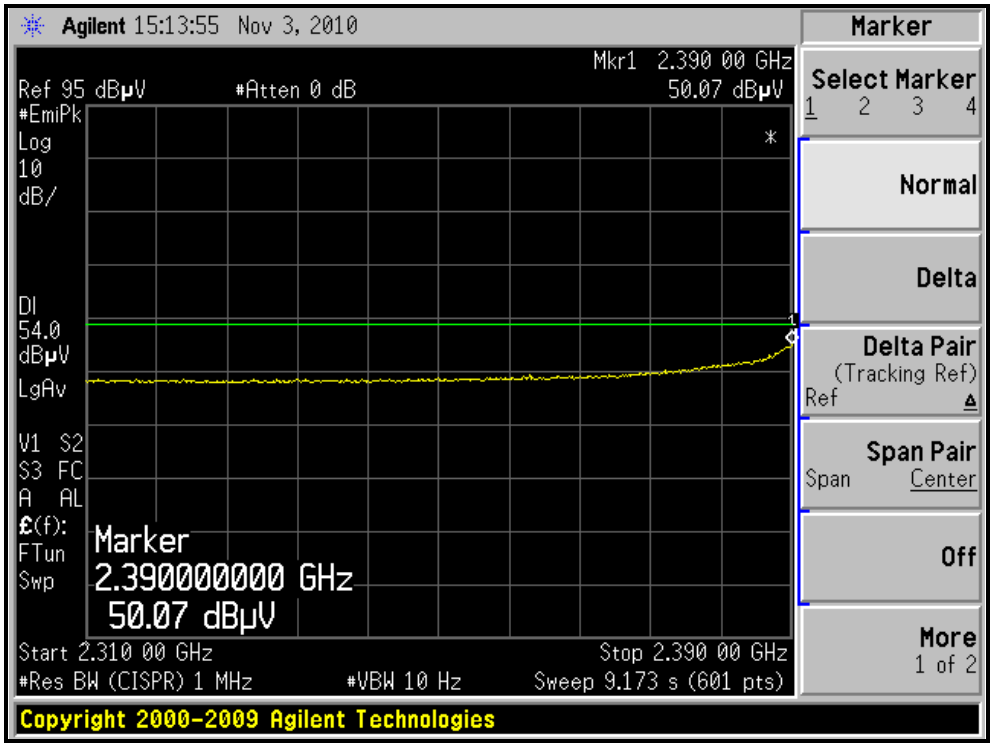
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.5 PK			1.47 H	139	74.10	31.40
2	*2462.00	94.9 AV			1.47 H	139	63.50	31.40
3	2483.50	71.4 PK	74.0	-2.6	1.44 H	133	39.90	31.50
4	2483.50	51.8 AV	54.0	-2.2	1.44 H	133	20.30	31.50
5	4924.00	46.3 PK	74.0	-27.7	1.49 H	107	8.90	37.40
6	4924.00	36.4 AV	54.0	-17.6	1.49 H	107	-1.00	37.40
7	7386.00	51.6 PK	74.0	-22.4	1.27 H	154	7.90	43.70
8	7386.00	40.1 AV	54.0	-13.9	1.27 H	154	-3.60	43.70
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	*2462.00	101.7 PK			1.48 V	304	70.30	31.40
2	*2462.00	90.8 AV			1.48 V	304	59.40	31.40
3	2483.50	69.5 PK	74.0	-4.5	1.44 V	166	38.00	31.50
4	2483.50	49.8 AV	54.0	-4.2	1.44 V	166	18.30	31.50
5	4924.00	44.7 PK	74.0	-29.3	1.52 V	69	7.30	37.40
6	4924.00	34.6 AV	54.0	-19.4	1.52 V	69	-2.80	37.40
7	7386.00	51.9 PK	74.0	-22.1	1.26 V	219	8.20	43.70
8	7386.00	40.7 AV	54.0	-13.3	1.26 V	219	-3.00	43.70

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

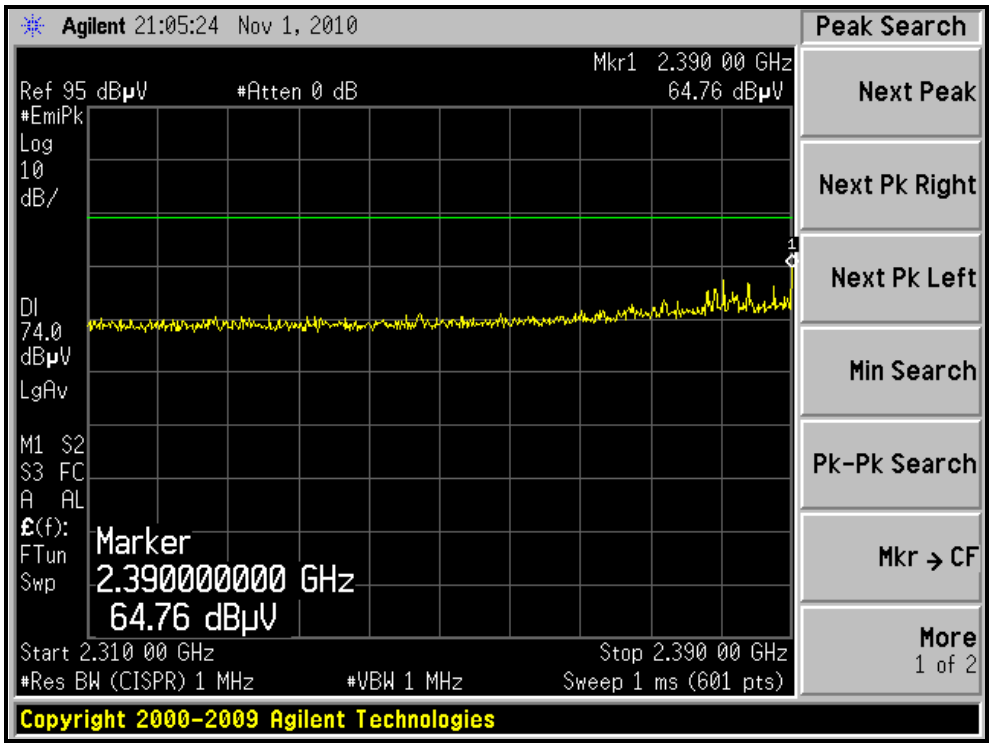
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

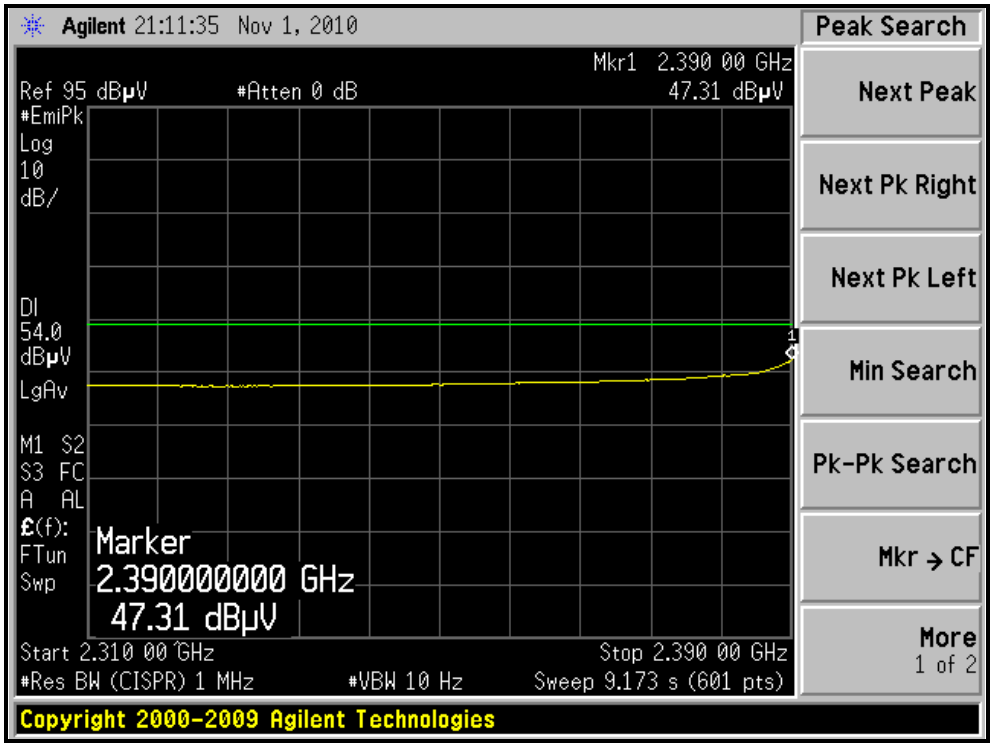
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, HORIZONTAL)



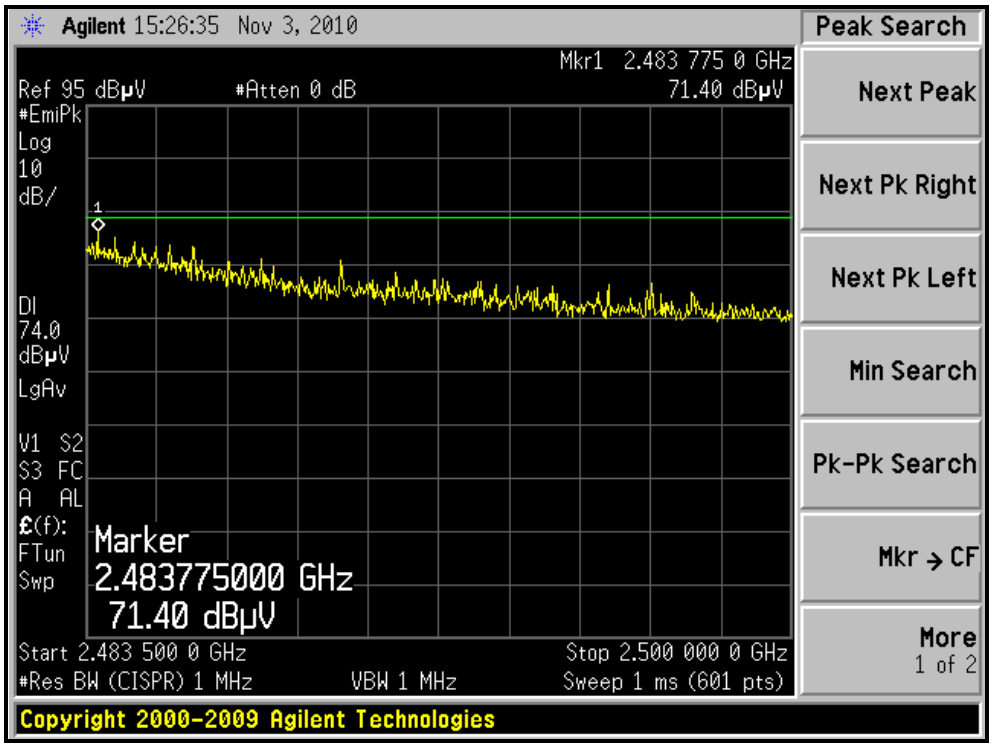


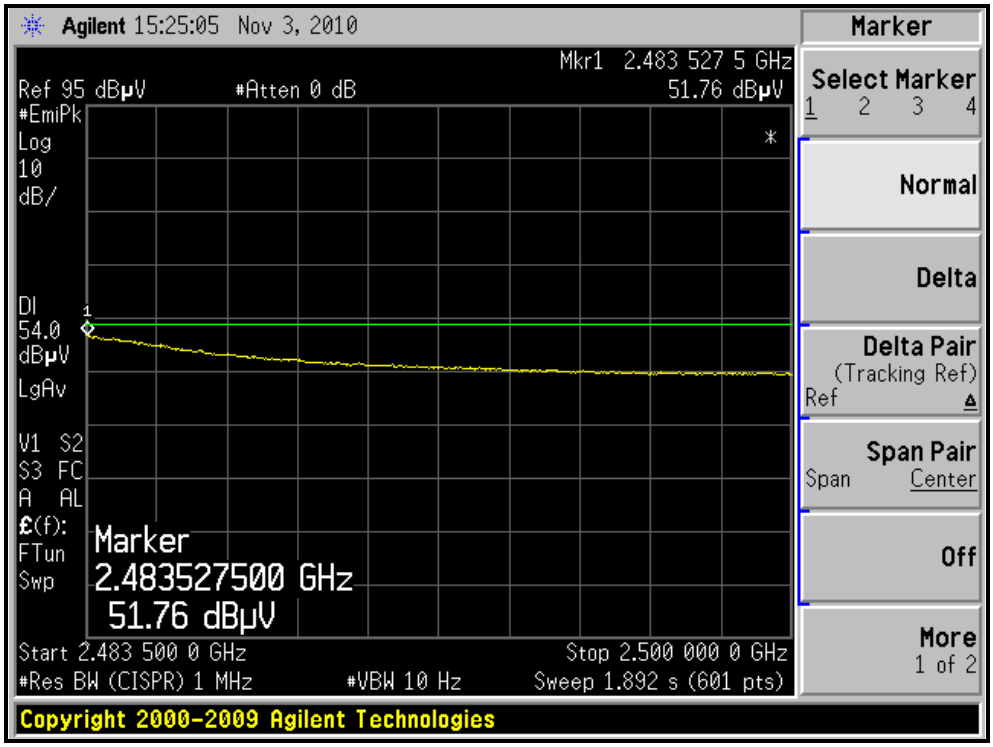
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, VERTICAL)



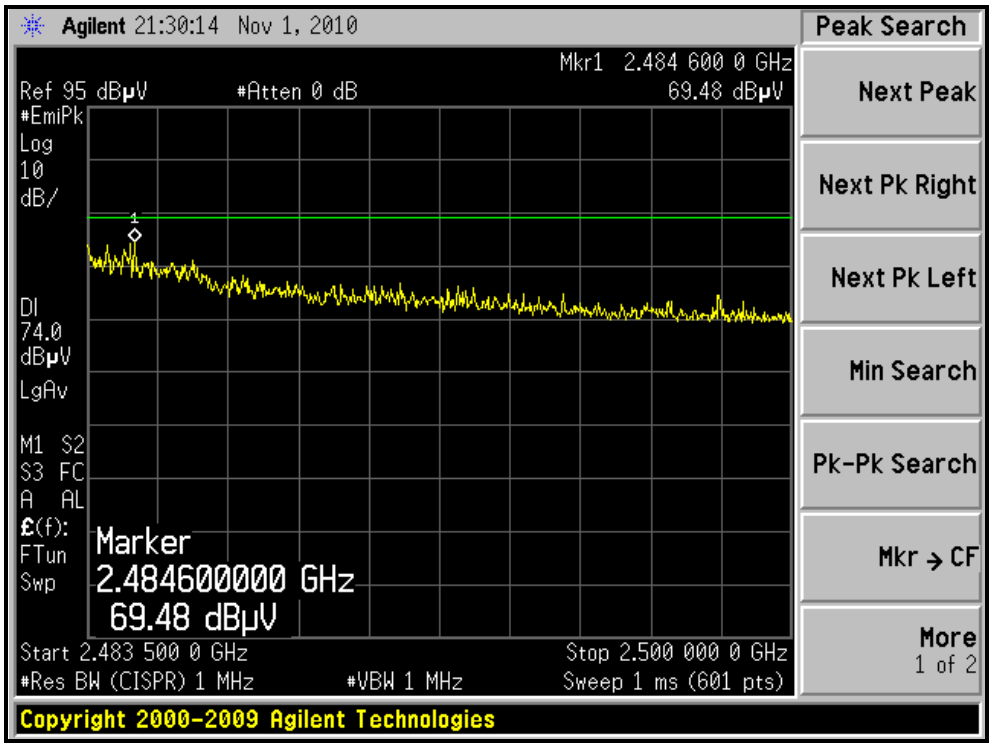


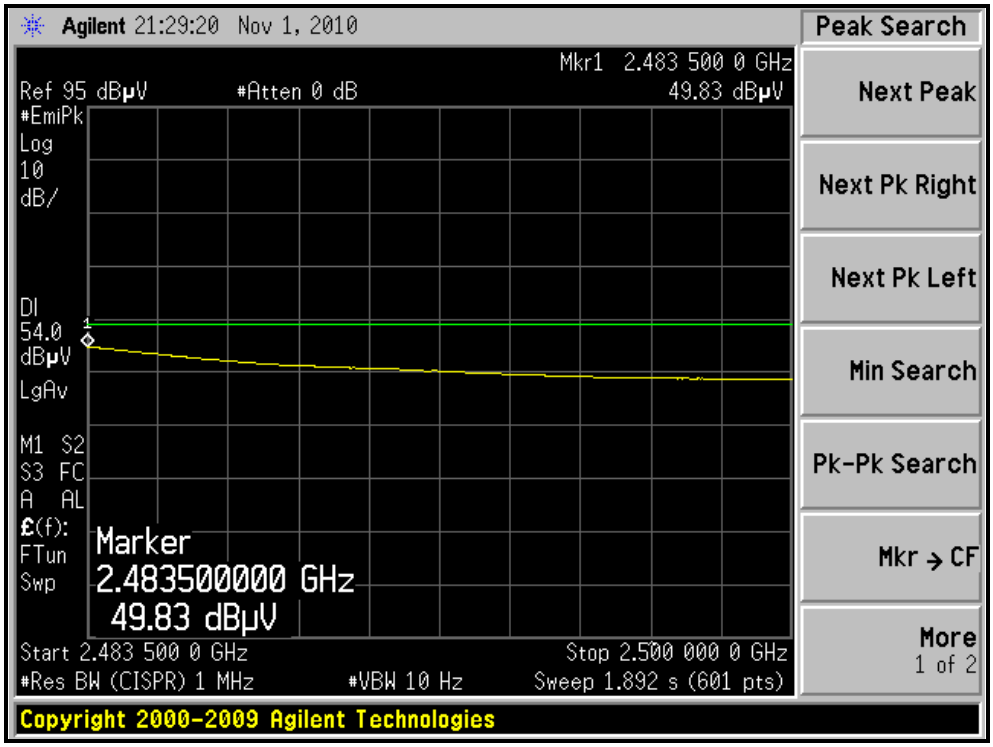
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH11, HORIZONTAL)





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





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	23deg. C, 70%RH 1015 hPa	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	71.4 PK	74.0	-2.6	1.53 H	232	40.30	31.10
2	2390.00	53.4 AV	54.0	-0.6	1.53 H	232	22.30	31.10
3	*2422.00	103.4 PK			1.44 H	140	72.20	31.20
4	*2422.00	92.9 AV			1.44 H	140	61.70	31.20
5	4844.00	46.3 PK	74.0	-27.7	1.54 H	107	9.20	37.10
6	4844.00	36.2 AV	54.0	-17.8	1.54 H	107	-0.90	37.10
7	7266.00	51.8 PK	74.0	-22.2	1.24 H	133	8.40	43.40
8	7266.00	40.4 AV	54.0	-13.6	1.24 H	133	-3.00	43.40
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	69.8 PK	74.0	-4.2	1.42 V	265	38.70	31.10
2	2390.00	52.5 AV	54.0	-1.5	1.42 V	265	21.40	31.10
3	*2422.00	99.6 PK			1.39 V	270	68.40	31.20
4	*2422.00	88.9 AV			1.39 V	270	57.70	31.20
5	4844.00	44.1 PK	74.0	-29.9	1.57 V	69	7.00	37.10
6	4844.00	33.1 AV	54.0	-20.9	1.57 V	69	-4.00	37.10
7	7266.00	52.6 PK	74.0	-21.4	1.24 V	213	9.20	43.40
8	7266.00	40.2 AV	54.0	-13.8	1.24 V	213	-3.20	43.40

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	23deg. C, 70%RH 1015 hPa	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	67.2 PK	74.0	-6.8	1.53 H	129	36.10	31.10
2	2390.00	51.7 AV	54.0	-2.3	1.53 H	129	20.60	31.10
3	*2437.00	105.1 PK			1.44 H	130	73.80	31.30
4	*2437.00	94.0 AV			1.44 H	130	62.70	31.30
5	2483.50	69.9 PK	74.0	-4.1	1.50 H	144	38.40	31.50
6	**2483.50**	**53.5 AV**	**54.0**	**-0.5**	**1.50 H**	**144**	**22.00**	**31.50**
7	4874.00	46.2 PK	74.0	-27.8	1.51 H	104	9.00	37.20
8	4874.00	36.1 AV	54.0	-17.9	1.51 H	104	-1.10	37.20
9	7311.00	51.9 PK	74.0	-22.1	1.21 H	133	8.40	43.50
10	7311.00	40.6 AV	54.0	-13.4	1.21 H	133	-2.90	43.50
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	100.3 PK			1.44 V	266	69.00	31.30
2	*2437.00	89.1 AV			1.44 V	266	57.80	31.30
3	4874.00	44.3 PK	74.0	-29.7	1.54 V	73	7.10	37.20
4	4874.00	33.2 AV	54.0	-20.8	1.54 V	73	-4.00	37.20
5	7311.00	52.1 PK	74.0	-21.9	1.21 V	214	8.60	43.50
6	7311.00	40.6 AV	54.0	-13.4	1.21 V	214	-2.90	43.50

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	23deg. C, 70%RH 1015 hPa	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	102.1 PK			1.44 H	138	70.80	31.30
2	*2452.00	91.7 AV			1.44 H	138	60.40	31.30
3	2483.50	73.1 PK	74.0	-0.9	1.43 H	136	41.60	31.50
4	2483.50	53.4 AV	54.0	-0.6	1.43 H	136	21.90	31.50
5	4904.00	46.4 PK	74.0	-27.6	1.53 H	102	9.10	37.30
6	4904.00	36.6 AV	54.0	-17.4	1.53 H	102	-0.70	37.30
7	7356.00	51.7 PK	74.0	-22.3	1.24 H	149	8.00	43.70
8	7356.00	40.2 AV	54.0	-13.8	1.24 H	149	-3.50	43.70
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	*2452.00	98.5 PK			1.33 V	270	67.20	31.30
2	*2452.00	88.1 AV			1.33 V	270	56.80	31.30
3	2483.50	69.1 PK	74.0	-4.9	1.42 V	265	37.60	31.50
4	2483.50	51.2 AV	54.0	-2.8	1.42 V	265	19.70	31.50
5	4904.00	44.2 PK	74.0	-29.8	1.52 V	73	6.90	37.30
6	4904.00	33.2 AV	54.0	-20.8	1.52 V	73	-4.10	37.30
7	7356.00	52.1 PK	74.0	-21.9	1.21 V	213	8.40	43.70
8	7356.00	40.3 AV	54.0	-13.7	1.21 V	213	-3.40	43.70

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

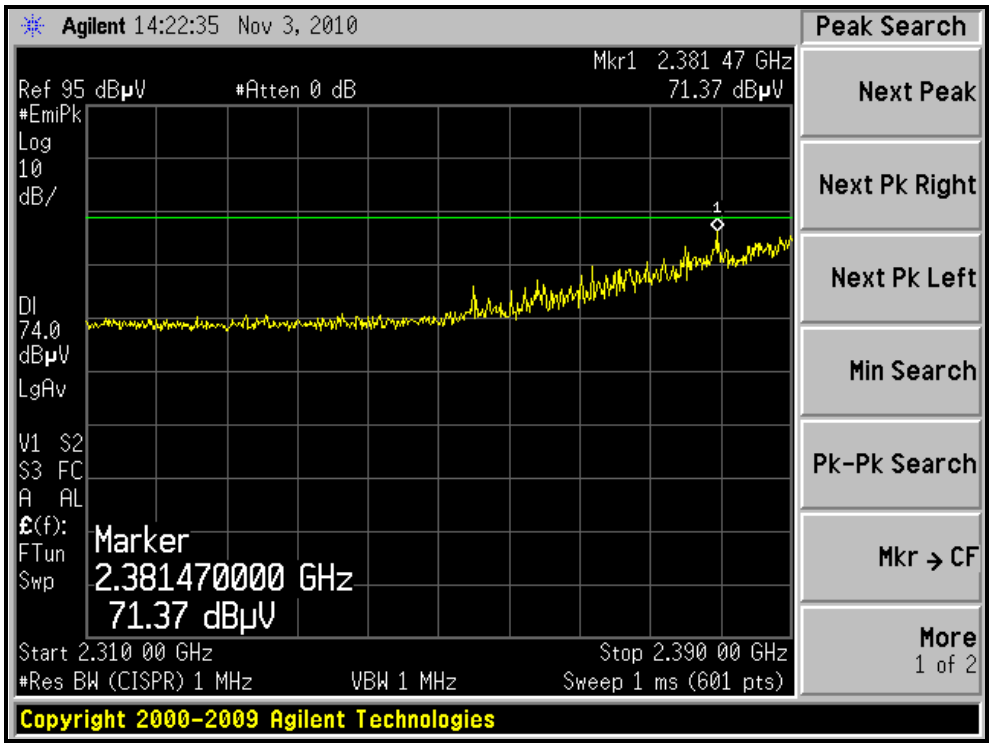
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

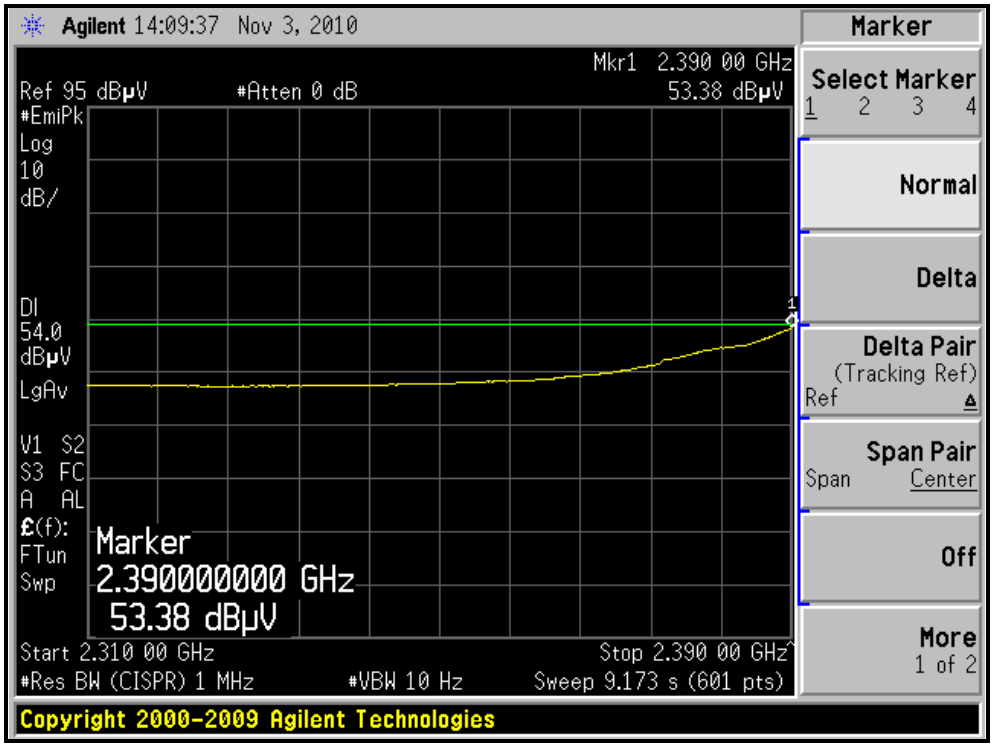
3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

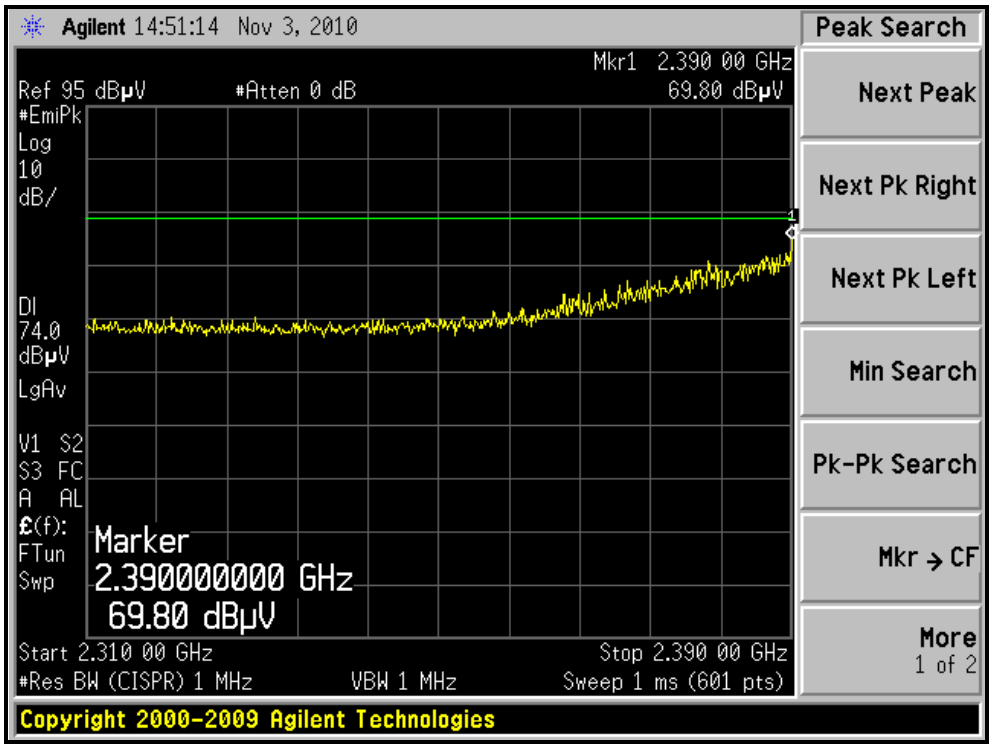
5. " * ": Fundamental frequency.

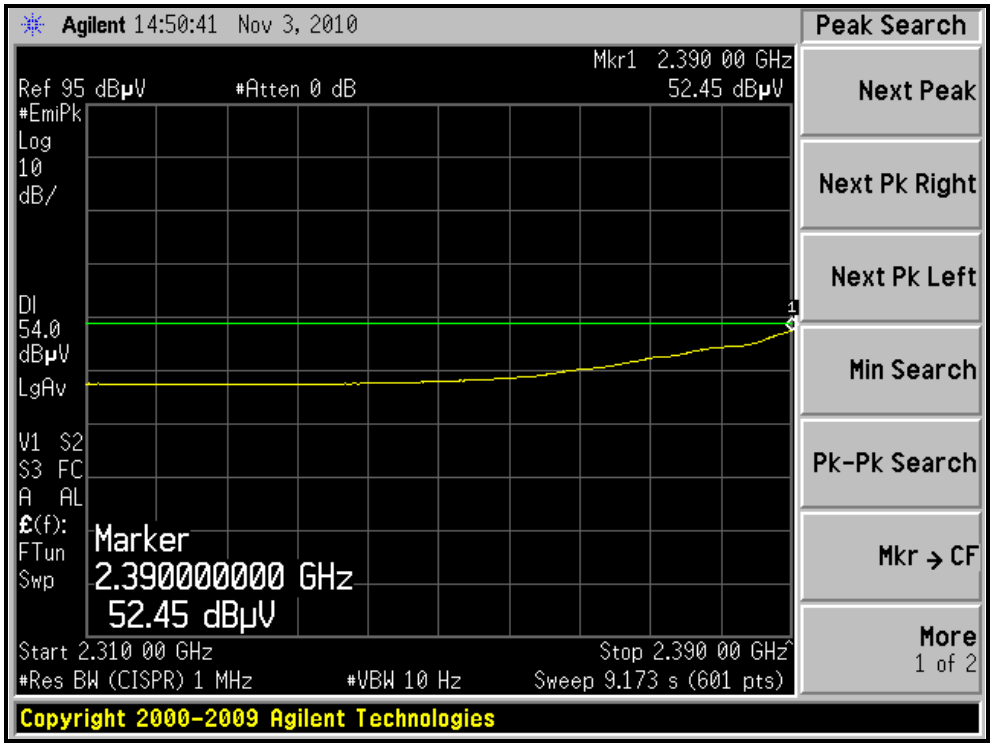
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, HORIZONTAL)



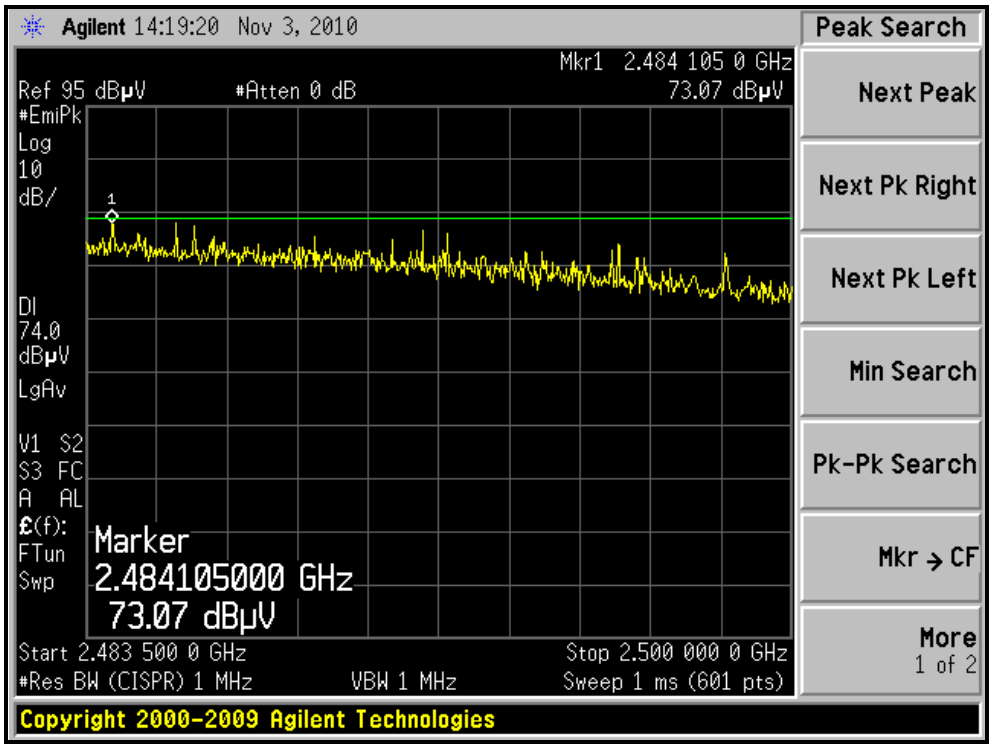


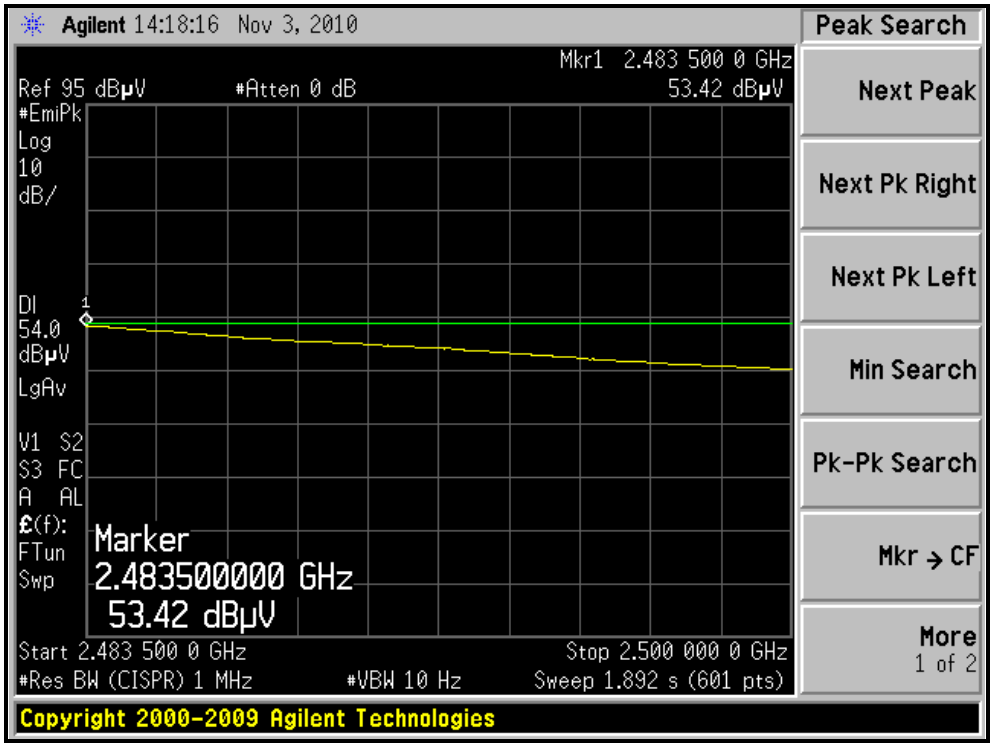
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, VERTICAL)



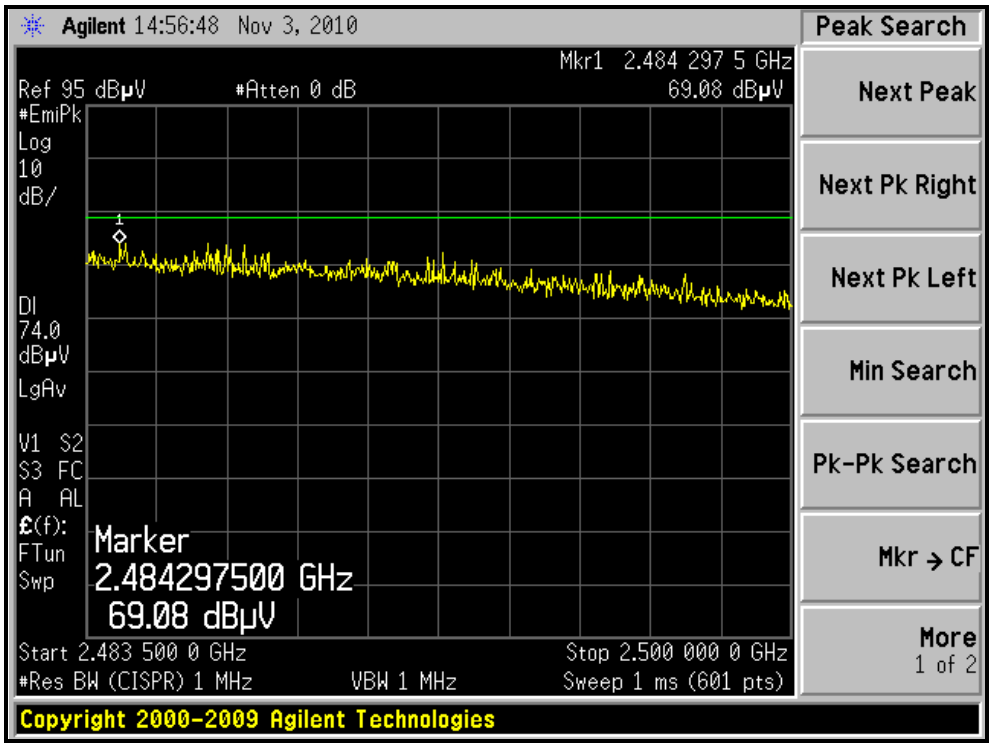


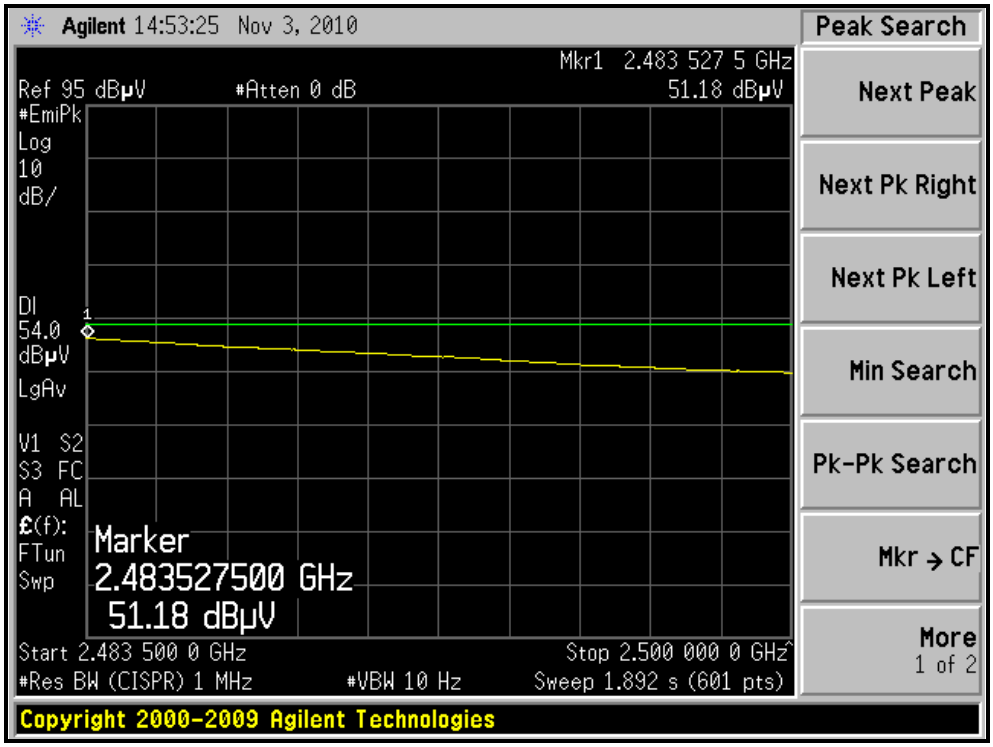
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH7, HORIZONTAL)





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





4.1.8 TEST RESULTS (FOR RECEIVER PART)

BELOW 1GHz WORST-CASE DATA：

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	21deg. C, 68%RH 1015 hPa	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	233.21	40.5 QP	46.0	-5.5	1.00 H	325	28.10	12.40
2	**275.02**	**43.0 QP**	**46.0**	**-3.0**	**1.00 H**	**108**	**29.10**	**13.90**
3	415.23	41.6 QP	46.0	-4.4	1.00 H	250	23.30	18.30
4	499.90	39.0 QP	46.0	-7.0	2.00 H	243	18.90	20.10
5	527.97	38.9 QP	46.0	-7.1	1.50 H	331	18.10	20.80
6	600.32	40.6 QP	46.0	-5.4	1.00 H	11	18.10	22.50
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	168.20	39.8 QP	43.5	-3.7	2.00 V	22	25.90	13.90
2	249.91	40.1 QP	46.0	-5.9	1.50 V	10	27.20	12.90
3	287.45	38.0 QP	46.0	-8.0	1.50 V	89	23.60	14.40
4	450.05	39.4 QP	46.0	-6.6	1.00 V	0	20.40	19.00
5	600.32	40.4 QP	46.0	-5.6	1.00 V	50	17.90	22.50
6	699.80	36.7 QP	46.0	-9.3	1.50 V	281	13.30	23.40

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 WORST-CASE DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 7.5GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH 1015 hPa	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	40.9 PK	74.0	-33.1	1.00 H	123	7.70	33.20
2	3216.00	30.7 AV	54.0	-23.3	1.00 H	123	-2.50	33.20
3	6432.00	47.9 PK	74.0	-26.1	1.04 H	128	7.30	40.60
4	6432.00	36.4 AV	54.0	-17.6	1.04 H	128	-4.20	40.60
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	40.5 PK	74.0	-33.5	1.06 V	124	7.30	33.20
2	3216.00	30.4 AV	54.0	-23.6	1.06 V	124	-2.80	33.20
3	6432.00	47.8 PK	74.0	-26.2	1.09 V	121	7.20	40.60
4	6432.00	36.2 AV	54.0	-17.8	1.09 V	121	-4.40	40.60

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 ~ 7.5GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH 1015 hPa	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	3249.30	40.3 PK	74.0	-33.7	1.00 H	124	7.00	33.30
2	3249.30	30.4 AV	54.0	-23.6	1.00 H	124	-2.90	33.30
3	6498.60	47.9 PK	74.0	-26.1	1.06 H	121	7.10	40.80
4	6498.60	36.5 AV	54.0	-17.5	1.06 H	121	-4.30	40.80
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	3249.30	40.6 PK	74.0	-33.4	1.07 V	121	7.30	33.30
2	3249.30	30.5 AV	54.0	-23.5	1.07 V	121	-2.80	33.30
3	6498.60	48.1 PK	74.0	-25.9	1.04 V	124	7.30	40.80
4	6498.60	36.3 AV	54.0	-17.7	1.04 V	124	-4.50	40.80

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 ~ 7.5GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH 1015 hPa	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	3282.60	40.6 PK	74.0	-33.4	1.07 H	129	7.30	33.30
2	3282.60	30.7 AV	54.0	-23.3	1.07 H	129	-2.60	33.30
3	6565.30	48.1 PK	74.0	-25.9	1.07 H	126	7.00	41.10
4	6565.30	36.2 AV	54.0	-17.8	1.07 H	126	-4.90	41.10
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	3282.60	40.8 PK	74.0	-33.2	1.09 V	126	7.50	33.30
2	3282.60	30.6 AV	54.0	-23.4	1.09 V	126	-2.70	33.30
3	6565.30	48.3 PK	74.0	-25.7	1.06 V	127	7.20	41.10
4	6565.30	36.4 AV	54.0	-17.6	1.06 V	127	-4.70	41.10

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
Peak Power Meter	ML2495A	0824006	May 04, 2010	May 03, 2011
Power Sensor	MA2411B	0738172	May 04, 2010	May 03, 2011

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

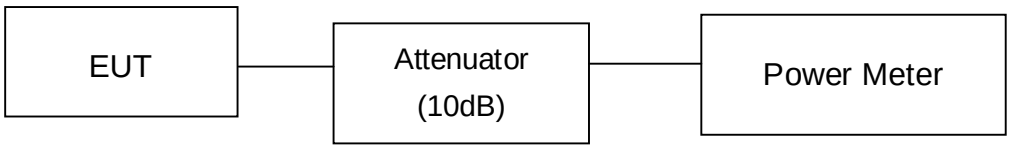
4.2.3 TEST PROCEDURES

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 4.1.6

4.2.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER OUTPUT (mW)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	20.1	102.3	30	PASS
6	2437	20.6	114.8	30	PASS
11	2462	20.4	109.6	30	PASS

802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER OUTPUT (mW)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	23.3	213.8	30	PASS
6	2437	26.1	407.4	30	PASS
11	2462	23.1	204.2	30	PASS

802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER OUTPUT (mW)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	22.8	190.5	30	PASS
6	2437	26.1	407.4	30	PASS
11	2462	21.7	147.9	30	PASS

802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER OUTPUT (mW)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2422	22.9	195.0	30	PASS
4	2437	25.0	316.2	30	PASS
7	2452	23.1	204.2	30	PASS

5. 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 according to ISO/IEC 17025:

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:

Linko EMC/RF Lab:
Tel: 886-2-26052180
Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:
Tel: 886-3-5935343
Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Telecom Lab:
Tel: 886-3-3183232
Fax: 886-3-3185050

Web Site: www.adt.com.tw

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

6.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.

---END---