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FCC TEST REPORT

REPORT NO.: RF970825H06B

MODEL NO.: WMP-G15

RECEIVED: Feb. 04, 2010

TESTED: Feb. 11 to 12, 2010

ISSUED: Mar. 15, 2010

APPLICANT: Alpha Networks Inc.

ADDRESS: No.8 Li-shing 7th Rd., Science-based Industrial Park,
Hsinchu, Taiwan, R.O.C.

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

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

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1. CERTIFICATION

PRODUCT : 802.11b/g WLAN Mini PCI Card

BRAND : Alpha

MODEL NO.: WMP-G15

APPLICANT : Alpha Networks Inc.

TESTED : Feb. 11 to 12, 2010

TEST SAMPLE : MASS-PRODUCTION

STANDARDS : FCC Part 15, Subpart C (Section 15.247),
ANSI C63.4-2003

The above equipment (Model: WMP-G15) 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:** Mar. 15, 2010
(Carol Liao, Specialist)

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

APPROVED BY : May Chen , **DATE:** Mar. 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			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Transmitter Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -2.80dB at 2288.00MHz.
15.203	Antenna Requirement	PASS	Antenna connector is SMA Plug Reverse not a standard connector.

NOTE: 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)	3.94 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	802.11b/g WLAN Mini PCI Card
MODEL NO.	WMP-G15
FCC ID	RRK-WMPG15
POWER SUPPLY	DC 3.3V+/-5% from host equipment
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11
MAXIMUM OUTPUT POWER	802.11b: 83.2mW 802.11g: 69.2mW
ANTENNA TYPE	Please see note 1
ANTENNA CONNECTOR	SMA Plug Reverse connector
DATA CABLE	NA
I/O PORT	NA
ASSOCIATED DEVICES	NA

NOTE:

- This report is prepared for FCC class II permissive change. The difference compared with the Report No.: RF970825H06A design is as the following:

- u Remove one of antenna connector
- u Add one new antenna as following table

Original					
Item	Antenna Type	Gain (dBi)	Cable Loss (dB)	Net Gain (dBi)	Antenna Connector
1	PIFA	1.8	0.5	1.3	Hirose Connector
2	PIFA	1.8	0.7	0.9	Hirose Connector
Newly					
Item	Antenna Type	Gain (dBi)	Cable Loss (dB)	Net Gain (dBi)	Antenna Connector
1	Dipole	2	2	0	SMA Plug Reverse

2. The EUT operates in the 2.4GHz frequency spectrum with throughput of up to 54Mbps.
3. The EUT complies with IEEE 802.11g standards, and backwards compatible with IEEE 802.11b products.
4. The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

Eleven channels are provided for 802.11b, 802.11g:

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		

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

Where **PLC**: Power Line Conducted Emission

RE < 1G: Radiated Emission below 1GHz

RE ≥ 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).
- ☒ 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	11	DSSS	DBPSK	1

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

ANTENNA PORT CONDUCTED MEASUREMENT:

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



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TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE ³ 1G	23deg. C, 60%RH, 1022 hPa	120Vac, 60Hz	Phoenix Huang
RE<1G	23deg. C, 60%RH, 1022 hPa	120Vac, 60Hz	Phoenix Huang
APCM	23deg. C, 68%RH, 1022 hPa	120Vac, 60Hz	Phoenix Huang

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C. (15.247)

ANSI C63.4-2003

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

3.4 DESCRIPTION OF SUPPORT UNITS

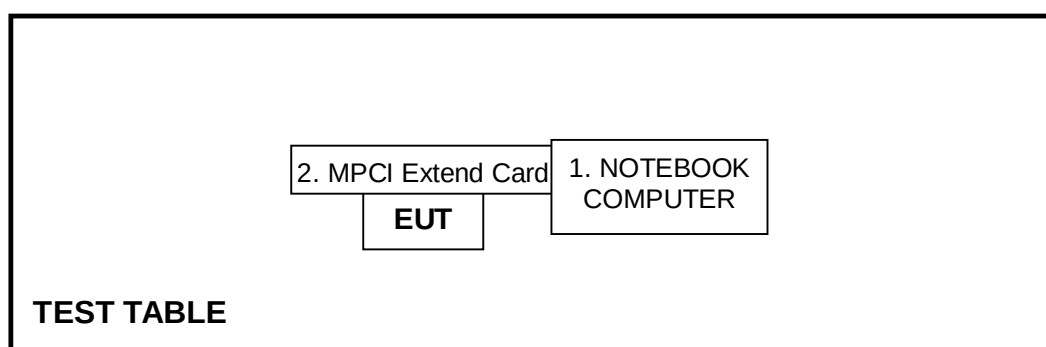
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP32LA	DSL32S	FCC DoC
2	MPCI Extend Card	Alpha	NA	NA	NA

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

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

3.5 CONFIGURATION OF SYSTEM UNDER TEST



4. TEST TYPES AND RESULTS

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 as following:

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

NOTE:

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

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4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Apr. 03 , 2009	Apr. 02 , 2010
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	Apr. 24 , 2009	Apr. 23 , 2010
HP Pre_Amplifier	8449B	3008A01923	Nov. 02, 2009	Nov. 01, 2010
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Aug. 28, 2009	Aug. 28, 2010
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	April 29, 2009	April 28, 2010
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 18, 2009	Dec. 17, 2010
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2010	Jan. 21, 2011
RF Switches	EMH-011	08009	Sep. 26, 2009	Sep. 25, 2010
RF CABLE (Chaintek)	Sucoflex 106	28077	Aug. 14, 2009	Aug. 13, 2010
RF Cable	8D	STCCAB-001	Sep. 26, 2009	Sep. 25, 2010
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 lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

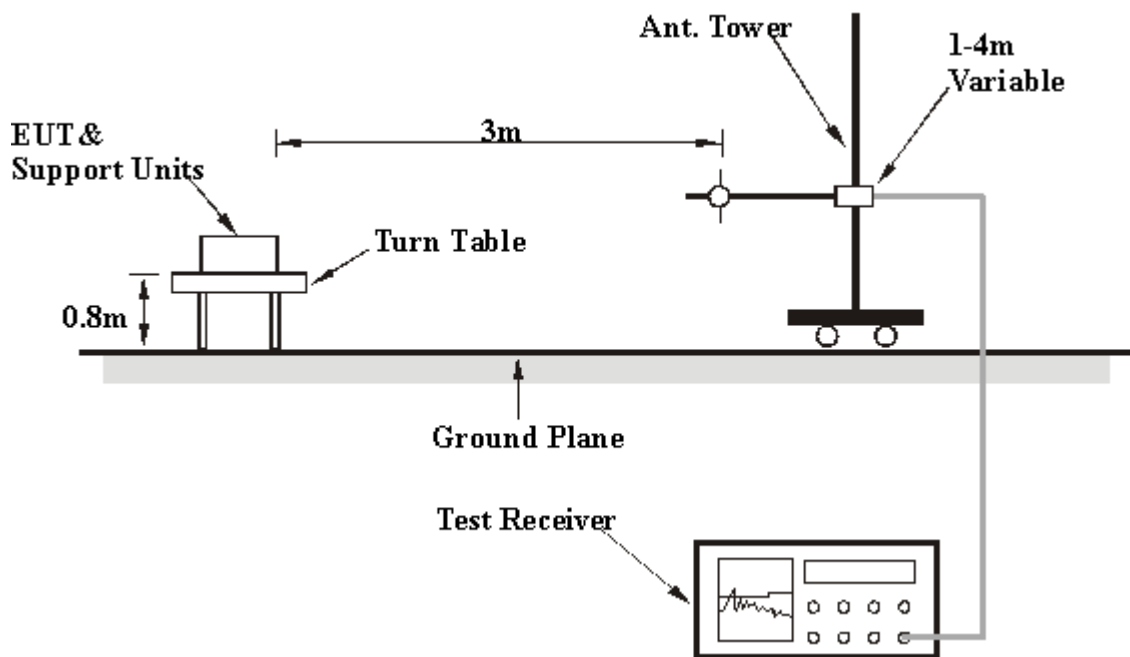
NOTE:

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 is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz 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

- Plug the EUT into test board and placed on the testing table.
- The support unit 1 (Notebook Computer) ran a test program “ART V53 build 38ALL” to enable EUT under transmission condition continuously at specific channel frequency.

**Below 1GHz Test Data****4.1.7 TEST RESULTS****BELOW 1GHz WORST-CASE DATA : 802.11b DSSS MODULATION**

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH 1022 hPa	TESTED BY	Phoenix Huang

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	158.60	26.9 QP	43.5	-16.6	4.00 H	35	12.02	14.86
2	293.75	34.8 QP	46.0	-11.2	3.73 H	159	19.11	15.72
3	333.07	35.6 QP	46.0	-10.4	3.79 H	72	18.78	16.84
4	480.00	26.3 QP	46.0	-19.7	2.04 H	73	5.53	20.74
5	528.00	28.8 QP	46.0	-17.2	1.68 H	234	6.76	22.03
6	609.10	30.2 QP	46.0	-15.8	1.40 H	74	6.20	23.96
7	720.00	28.8 QP	46.0	-17.2	1.06 H	18	3.60	25.22
8	800.00	29.3 QP	46.0	-16.7	1.00 H	9	2.67	26.63
9	960.00	33.9 QP	46.0	-12.1	1.00 H	51	5.22	28.68
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	64.32	32.3 QP	40.0	-7.7	1.00 V	19	19.24	13.10
2	120.00	26.6 QP	43.5	-16.9	1.00 V	297	14.69	11.95
3	166.55	27.5 QP	43.5	-16.0	1.00 V	114	12.80	14.66
4	254.37	30.0 QP	46.0	-16.0	1.00 V	75	16.08	13.91
5	457.93	37.2 QP	46.0	-8.8	1.00 V	25	17.12	20.12
6	528.00	30.1 QP	46.0	-15.9	1.35 V	279	8.10	22.03
7	720.00	30.5 QP	46.0	-15.5	1.46 V	267	5.31	25.22
8	960.00	34.0 QP	46.0	-12.0	1.22 V	289	5.29	28.68

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

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, 60%RH 1022 hPa	TESTED BY	Phoenix Huang

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	2288.00	55.3 PK	74.0	-18.8	1.40 H	107	25.59	29.66
2	2288.00	44.8 AV	54.0	-9.2	1.40 H	107	15.17	29.66
3	2386.93	52.9 PK	74.0	-21.1	1.40 H	261	22.85	30.05
4	2386.93	41.4 AV	54.0	-12.6	1.40 H	261	11.33	30.05
5	*2412.00	97.2 PK			1.32 H	114	67.00	30.15
6	*2412.00	93.8 AV			1.32 H	114	63.68	30.15
7	4824.00	44.7 PK	74.0	-29.3	1.39 H	260	9.23	35.43
8	4824.00	36.3 AV	54.0	-17.7	1.39 H	260	0.85	35.43
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	2288.00	58.0 PK	74.0	-16.1	1.46 V	87	28.29	29.66
2	2288.00	51.1 AV	54.0	-2.9	1.46 V	87	21.44	29.66
3	2386.13	55.5 PK	74.0	-18.5	1.42 V	266	25.42	30.05
4	2386.13	46.0 AV	54.0	-8.0	1.42 V	266	15.94	30.05
5	*2412.00	105.3 PK			1.37 V	101	75.15	30.15
6	*2412.00	102.8 AV			1.37 V	101	72.65	30.15
7	4824.00	46.9 PK	74.0	-27.1	1.13 V	91	11.45	35.43
8	4824.00	39.6 AV	54.0	-14.4	1.13 V	91	4.13	35.43

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH 1022 hPa	TESTED BY	Phoenix Huang

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	2288.00	54.4 PK	74.0	-19.6	1.40 H	225	24.72	29.66
2	2288.00	44.3 AV	54.0	-9.7	1.40 H	225	14.62	29.66
3	*2437.00	96.3 PK			1.33 H	115	66.03	30.24
4	*2437.00	92.5 AV			1.33 H	115	62.21	30.24
5	4874.00	46.2 PK	74.0	-27.8	1.52 H	242	10.66	35.52
6	4874.00	37.9 AV	54.0	-16.1	1.52 H	242	2.40	35.52
7	7311.00	44.8 PK	74.0	-29.2	1.38 H	137	2.85	41.96
8	7311.00	31.8 AV	54.0	-22.2	1.38 H	137	-10.20	41.96
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	2288.00	56.8 PK	74.0	-17.2	1.45 V	88	27.12	29.66
2	2288.00	49.1 AV	54.0	-4.9	1.45 V	88	19.44	29.66
3	*2437.00	105.2 PK			1.33 V	277	74.96	30.24
4	*2437.00	102.7 AV			1.33 V	277	72.48	30.24
5	4874.00	46.2 PK	74.0	-27.8	1.25 V	300	10.68	35.52
6	4874.00	39.9 AV	54.0	-14.1	1.25 V	300	4.38	35.52
7	7311.00	44.6 PK	74.0	-29.4	1.33 V	210	2.64	41.96
8	7311.00	33.6 AV	54.0	-20.4	1.33 V	210	-8.36	41.96

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



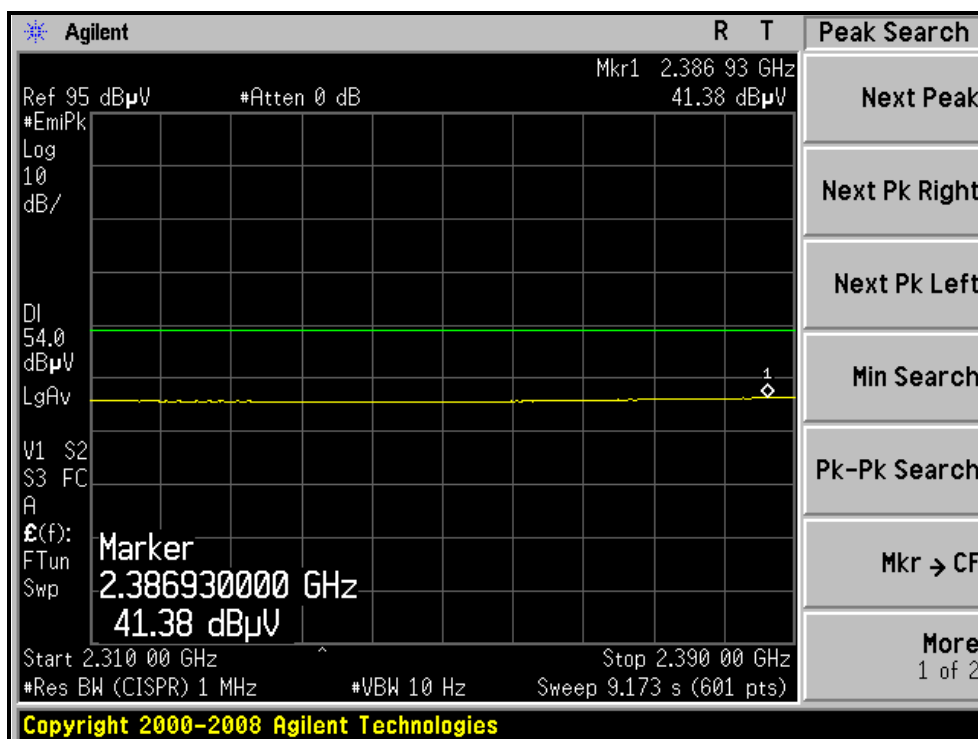
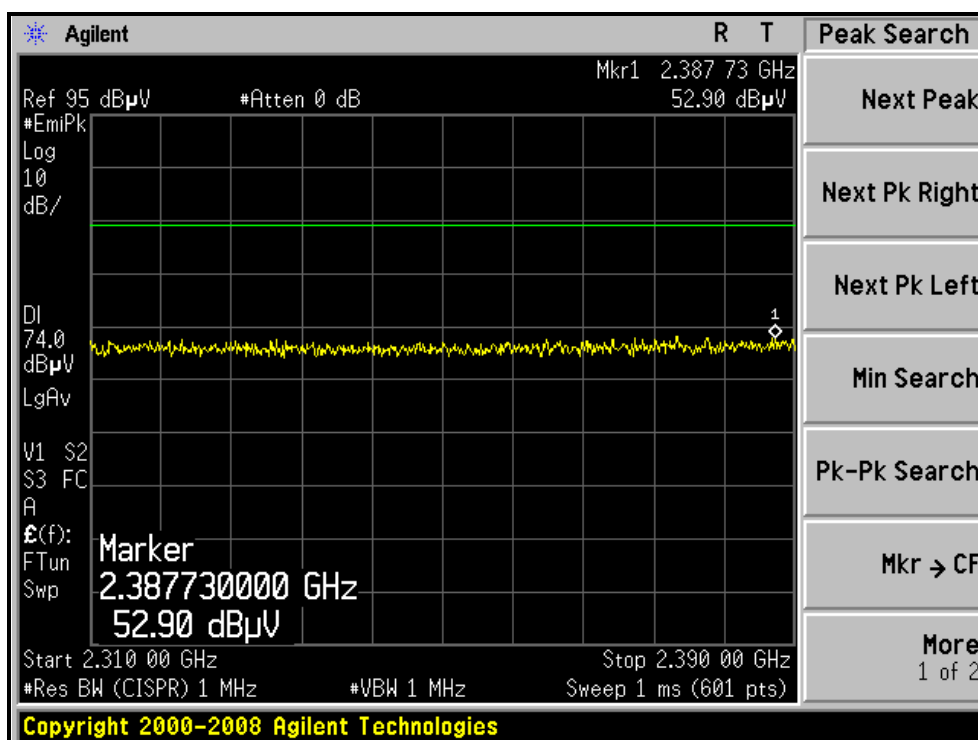
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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH 1022 hPa	TESTED BY	Phoenix Huang

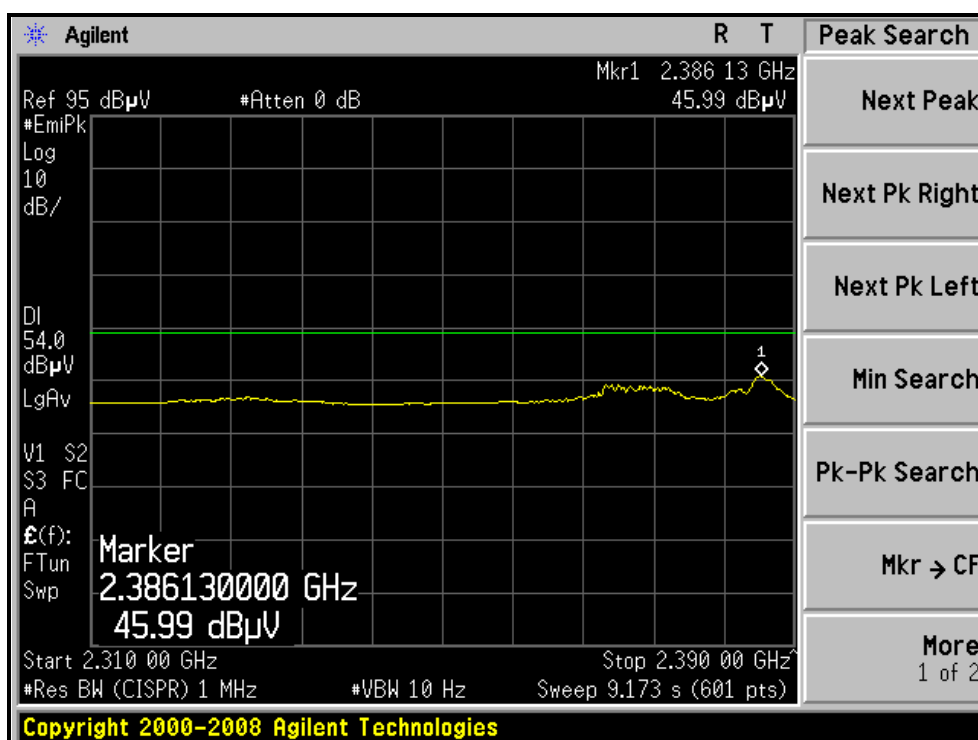
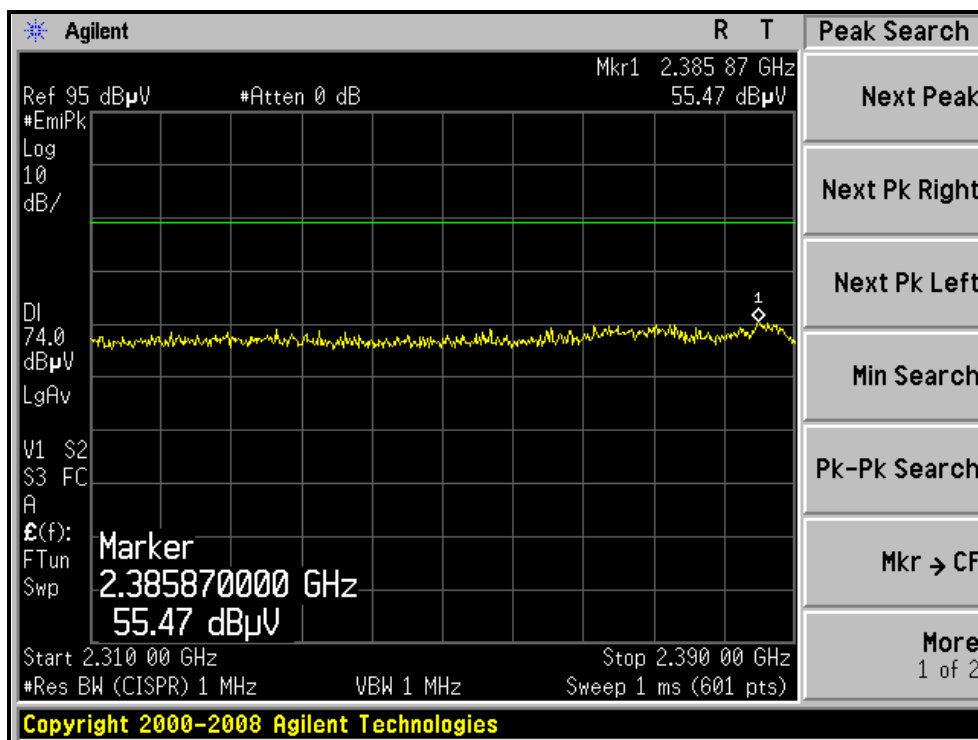
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2288.00	54.7 PK	74.0	-19.3	1.40 H	241	25.01	29.66
2	2288.00	44.1 AV	54.0	-9.9	1.40 H	241	14.45	29.66
3	*2462.00	95.6 PK			1.34 H	114	65.25	30.34
4	*2462.00	91.8 AV			1.34 H	114	61.41	30.34
5	2499.80	52.6 PK	74.0	-21.4	1.49 H	67	22.10	30.49
6	2499.80	41.8 AV	54.0	-12.2	1.49 H	67	11.34	30.49
7	4924.00	46.3 PK	74.0	-27.7	1.58 H	276	10.72	35.62
8	4924.00	38.6 AV	54.0	-15.5	1.58 H	276	2.93	35.62
9	7386.00	44.5 PK	74.0	-29.6	1.51 H	67	2.35	42.10
10	7386.00	31.7 AV	54.0	-22.3	1.51 H	67	-10.36	42.10
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	2288.00	56.6 PK	74.0	-17.4	1.25 V	146	26.91	29.66
2	2288.00	49.1 AV	54.0	-4.9	1.25 V	146	19.47	29.66
3	*2462.00	105.5 PK			1.33 V	278	75.16	30.34
4	*2462.00	102.8 AV			1.33 V	278	72.46	30.34
5	2499.64	56.9 PK	74.0	-17.1	1.40 V	161	26.39	30.49
6	2499.64	45.6 AV	54.0	-8.4	1.40 V	161	15.08	30.49
7	4924.00	49.5 PK	74.0	-24.5	1.40 V	300	13.89	35.62
8	4924.00	44.4 AV	54.0	-9.6	1.40 V	300	8.78	35.62
9	7386.00	44.0 PK	74.0	-30.0	1.29 V	65	1.90	42.10
10	7386.00	33.2 AV	54.0	-20.8	1.29 V	65	-8.90	42.10

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.

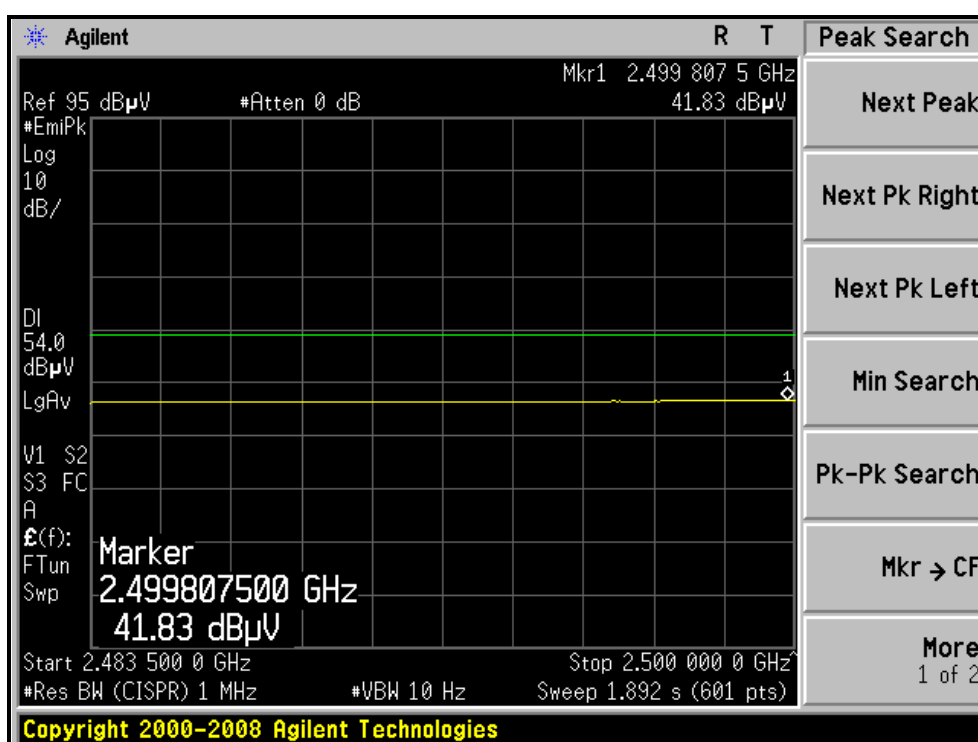
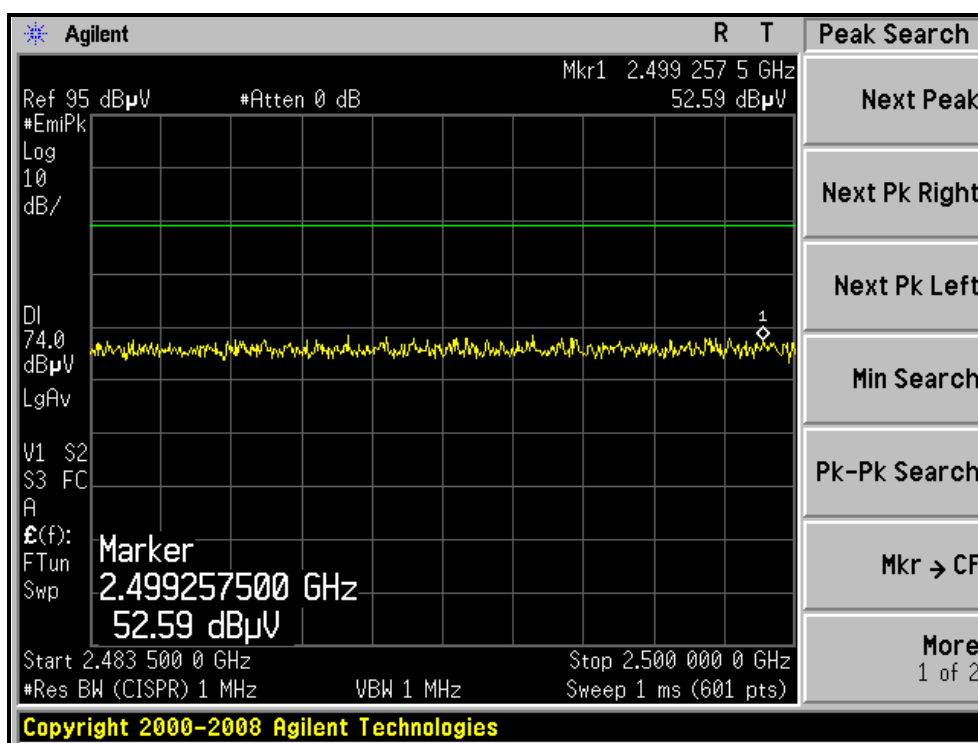
RESTRICTED BANDEDGE (802.11b MODE,CH1, HORIZONTAL)



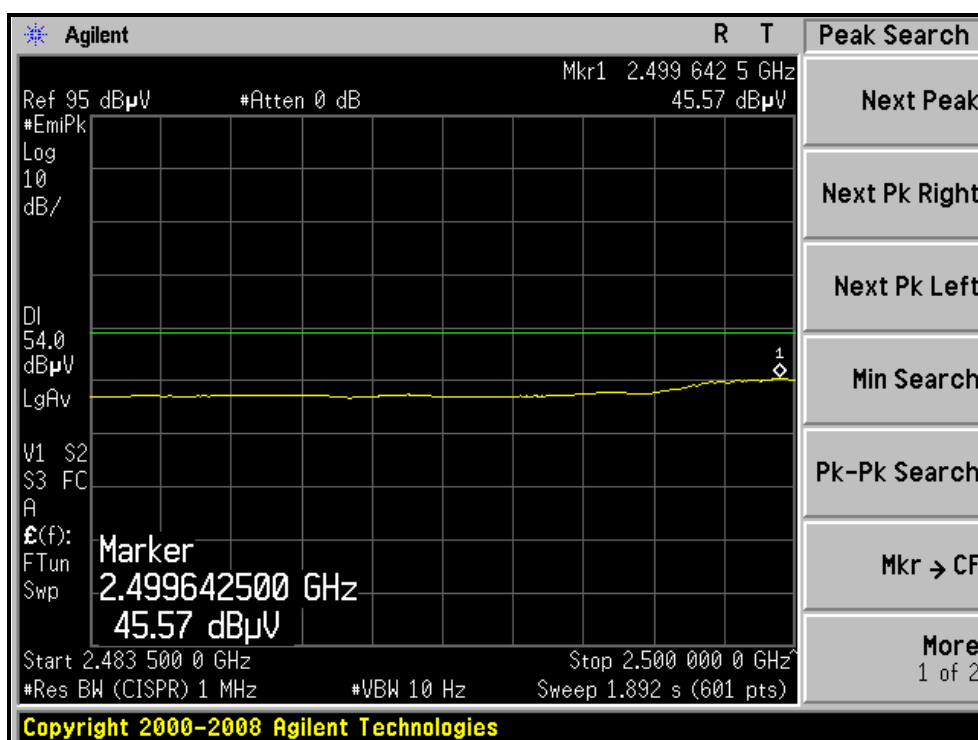
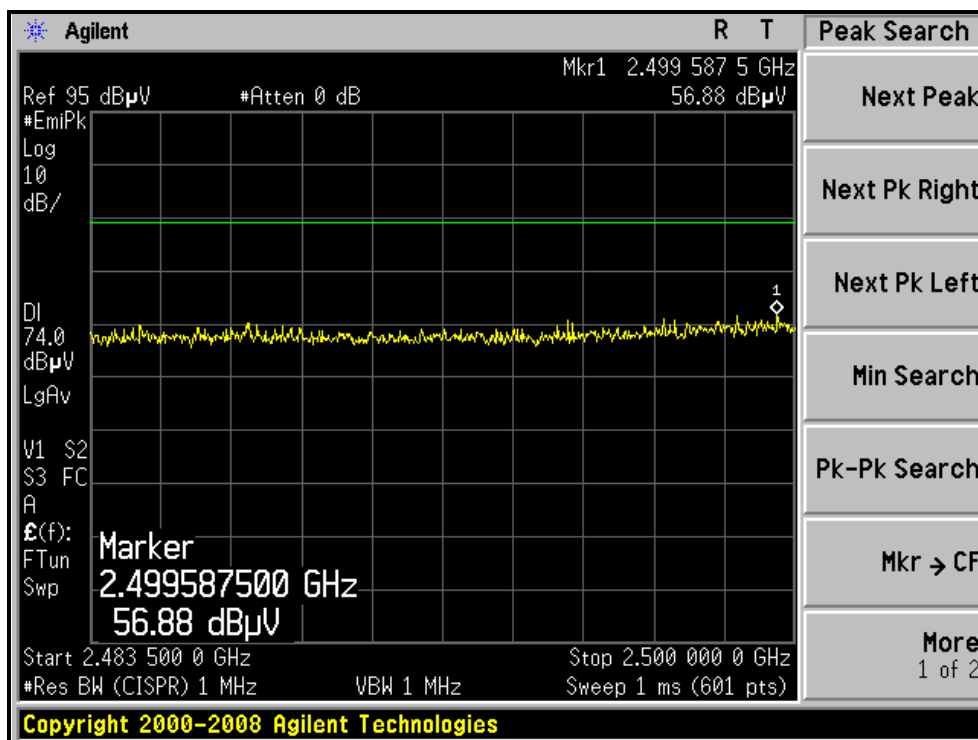
RESTRICTED BANDEDGE (802.11b MODE,CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL)



RESTRICTED BANDEDGE (802.11b MODE,CH11, VERTICAL)





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802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH 1022 hPa	TESTED BY	Phoenix Huang

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	2288.00	55.9 PK	74.0	-18.1	1.41 H	277	26.24	29.66
2	2288.00	45.1 AV	54.0	-8.9	1.41 H	277	15.44	29.66
3	2390.00	53.8 PK	74.0	-20.2	1.32 H	118	23.78	30.06
4	2390.00	42.3 AV	54.0	-11.7	1.32 H	118	12.23	30.06
5	*2412.00	97.2 PK			1.31 H	115	67.05	30.15
6	*2412.00	86.7 AV			1.31 H	115	56.55	30.15
7	4824.00	44.6 PK	74.0	-29.4	1.40 H	143	9.13	35.43
8	4824.00	31.8 AV	54.0	-22.2	1.40 H	143	-3.64	35.43
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	2288.00	57.2 PK	74.0	-16.8	1.47 V	257	27.54	29.66
2	2288.00	50.9 AV	54.0	-3.1	1.47 V	257	21.24	29.66
3	2390.00	59.4 PK	74.0	-14.7	1.38 V	267	29.29	30.06
4	2390.00	45.9 AV	54.0	-8.1	1.38 V	267	15.83	30.06
5	*2412.00	106.9 PK			1.38 V	100	76.75	30.15
6	*2412.00	96.0 AV			1.38 V	100	65.89	30.15
7	4824.00	44.7 PK	74.0	-29.3	1.40 V	82	9.27	35.43
8	4824.00	32.2 AV	54.0	-21.8	1.40 V	82	-3.23	35.43

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH 1022 hPa	TESTED BY	Phoenix Huang

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	2288.00	53.7 PK	74.0	-20.3	1.40 H	261	24.04	29.66
2	2288.00	44.5 AV	54.0	-9.5	1.40 H	261	14.86	29.66
3	*2437.00	96.6 PK			1.28 H	116	66.31	30.24
4	*2437.00	85.7 AV			1.28 H	116	55.46	30.24
5	4874.00	44.8 PK	74.0	-29.2	1.40 H	206	9.24	35.52
6	4874.00	31.3 AV	54.0	-22.7	1.40 H	206	-4.26	35.52
7	7311.00	44.8 PK	74.0	-29.2	1.40 H	142	2.86	41.96
8	7311.00	32.2 AV	54.0	-21.8	1.40 H	142	-9.74	41.96
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	2288.00	58.0 PK	74.0	-16.0	1.24 V	144	28.34	29.66
2	2288.00	51.2 AV	54.0	-2.8	1.24 V	144	21.54	29.66
3	*2437.00	106.5 PK			1.34 V	278	76.26	30.24
4	*2437.00	95.7 AV			1.34 V	278	65.46	30.24
5	4874.00	43.9 PK	74.0	-30.1	1.40 V	83	8.38	35.52
6	4874.00	31.8 AV	54.0	-22.2	1.40 V	83	-3.72	35.52
7	7311.00	45.2 PK	74.0	-28.8	1.40 V	232	3.25	41.96
8	7311.00	32.4 AV	54.0	-21.6	1.40 V	232	-9.56	41.96

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



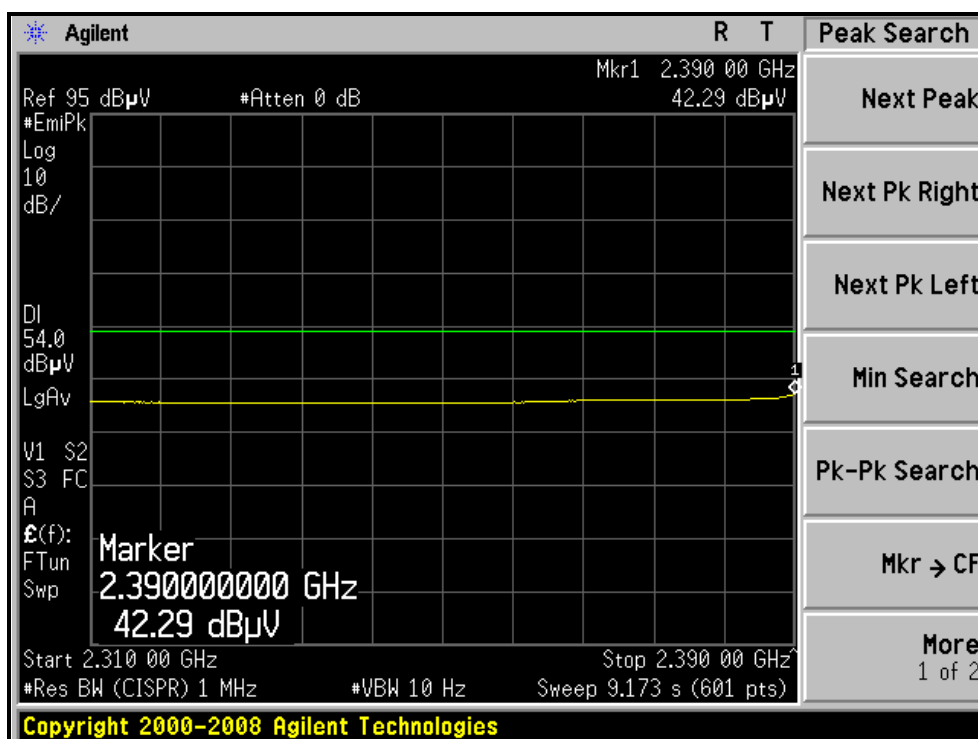
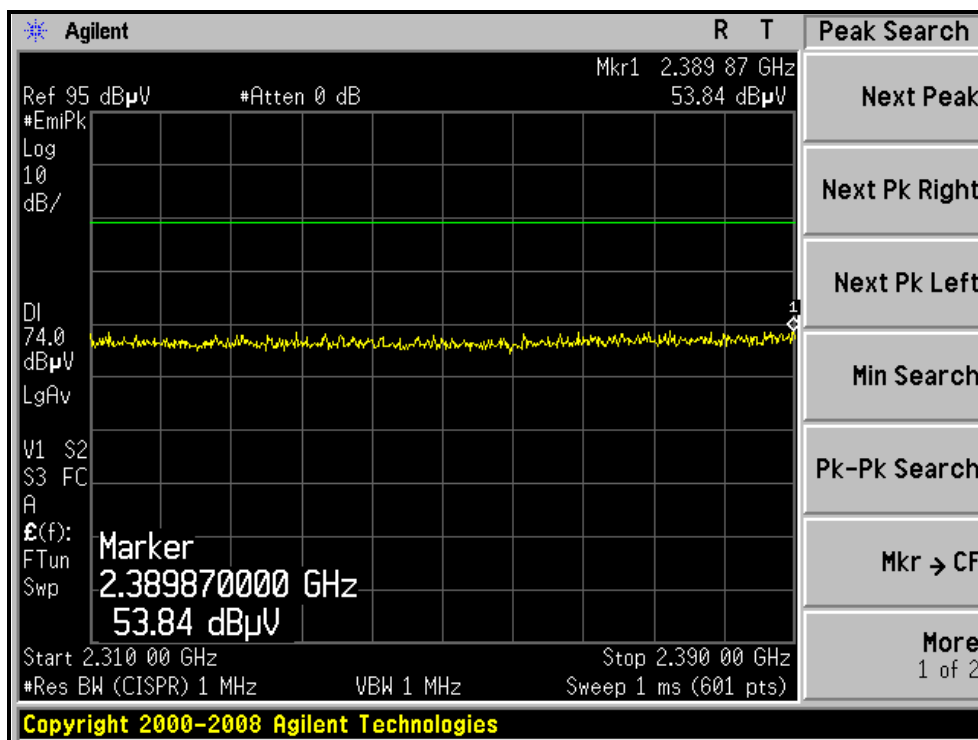
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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH 1022 hPa	TESTED BY	Phoenix Huang

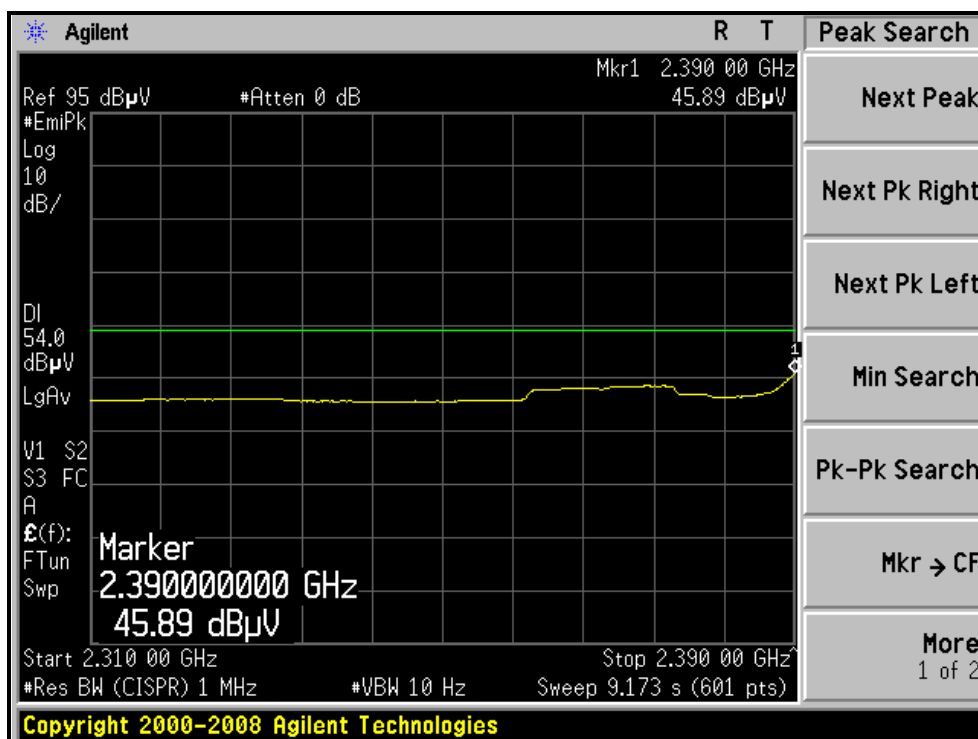
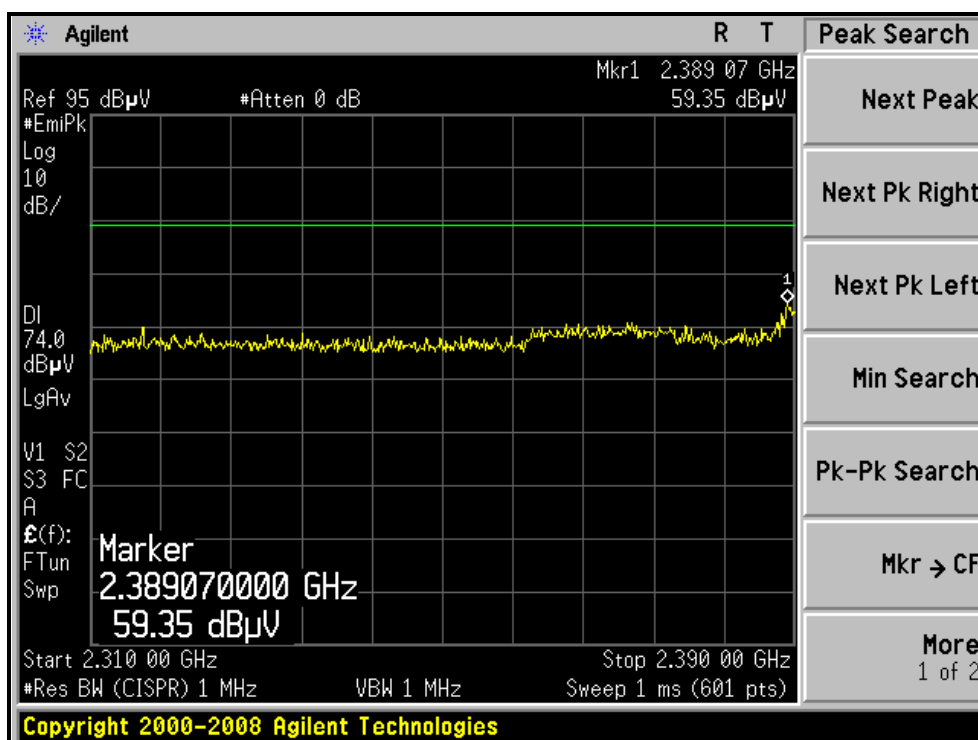
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2288.00	53.8 PK	74.0	-20.2	1.40 H	272	24.15	29.66
2	2288.00	43.9 AV	54.0	-10.1	1.40 H	272	14.26	29.66
3	*2462.00	96.5 PK			1.30 H	113	66.13	30.34
4	*2462.00	85.6 AV			1.30 H	113	55.29	30.34
5	2499.60	54.3 PK	74.0	-19.7	1.42 H	117	23.78	30.49
6	2499.60	41.6 AV	54.0	-12.4	1.42 H	117	11.13	30.49
7	4924.00	44.6 PK	74.0	-29.5	1.40 H	120	8.93	35.62
8	4924.00	31.7 AV	54.0	-22.3	1.40 H	120	-3.94	35.62
9	7386.00	44.9 PK	74.0	-29.1	1.40 H	132	2.77	42.10
10	7386.00	32.2 AV	54.0	-21.8	1.40 H	132	-9.87	42.10
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	2288.00	56.9 PK	74.0	-17.1	1.20 V	143	27.24	29.66
2	2288.00	48.9 AV	54.0	-5.1	1.20 V	143	19.24	29.66
3	*2462.00	107.0 PK			1.34 V	252	76.66	30.34
4	*2462.00	96.2 AV			1.34 V	252	65.86	30.34
5	2483.50	58.9 PK	74.0	-15.1	1.39 V	162	28.45	30.43
6	2483.50	46.1 AV	54.0	-7.9	1.39 V	162	15.64	30.43
7	4924.00	44.5 PK	74.0	-29.5	1.40 V	84	8.92	35.62
8	4924.00	31.8 AV	54.0	-22.2	1.40 V	84	-3.85	35.62
9	7386.00	45.4 PK	74.0	-28.6	1.40 V	88	3.26	42.10
10	7386.00	32.7 AV	54.0	-21.3	1.40 V	88	-9.40	42.10

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.

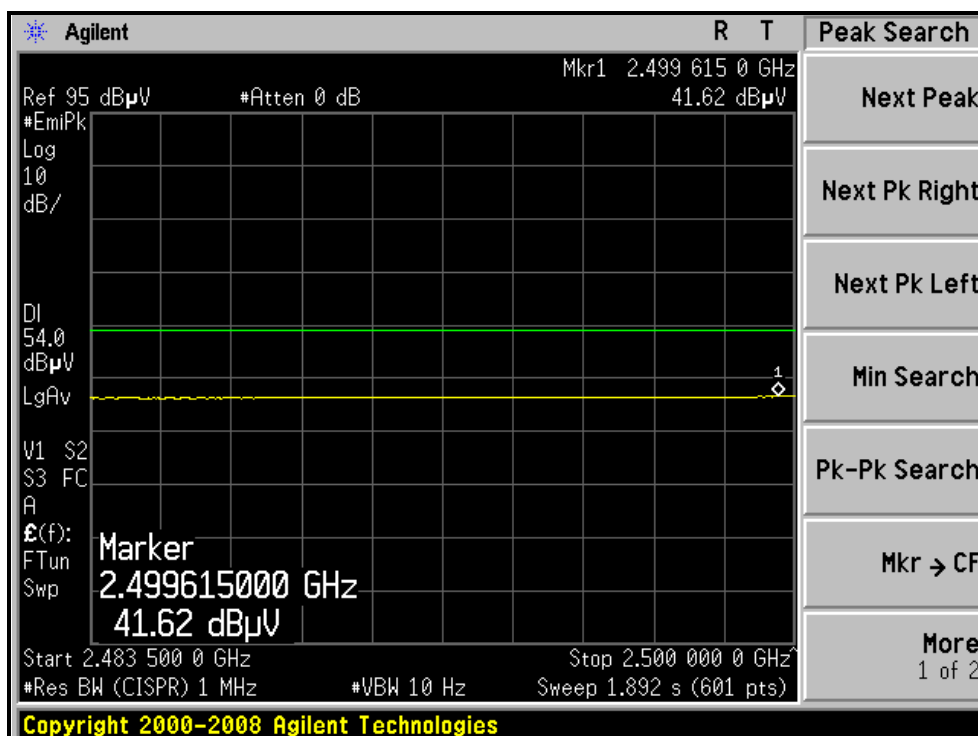
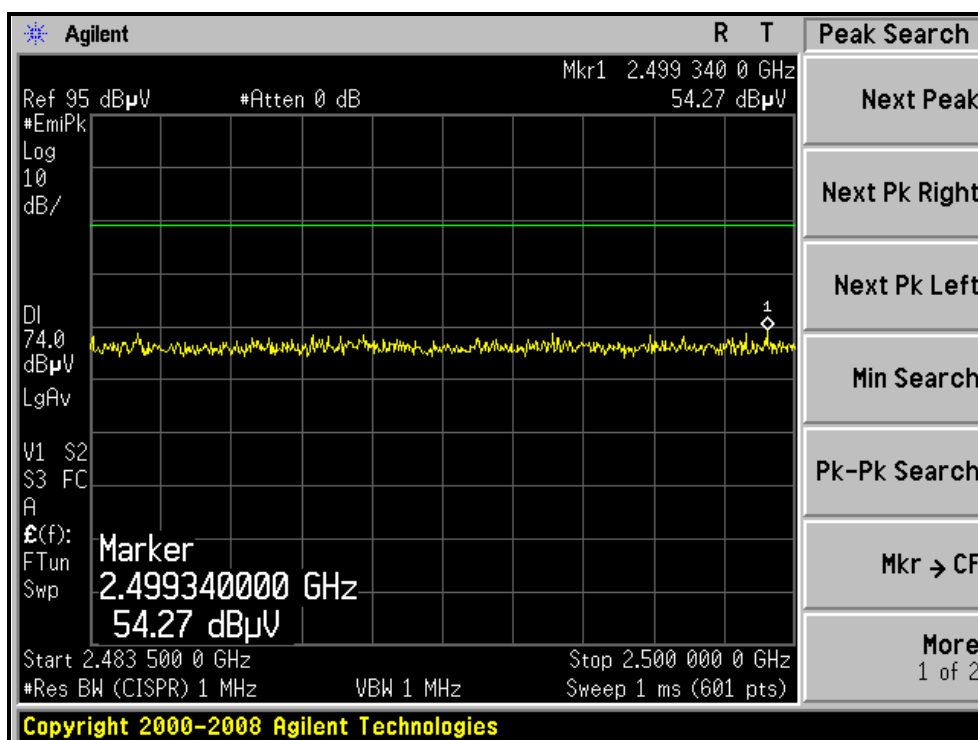
RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL)



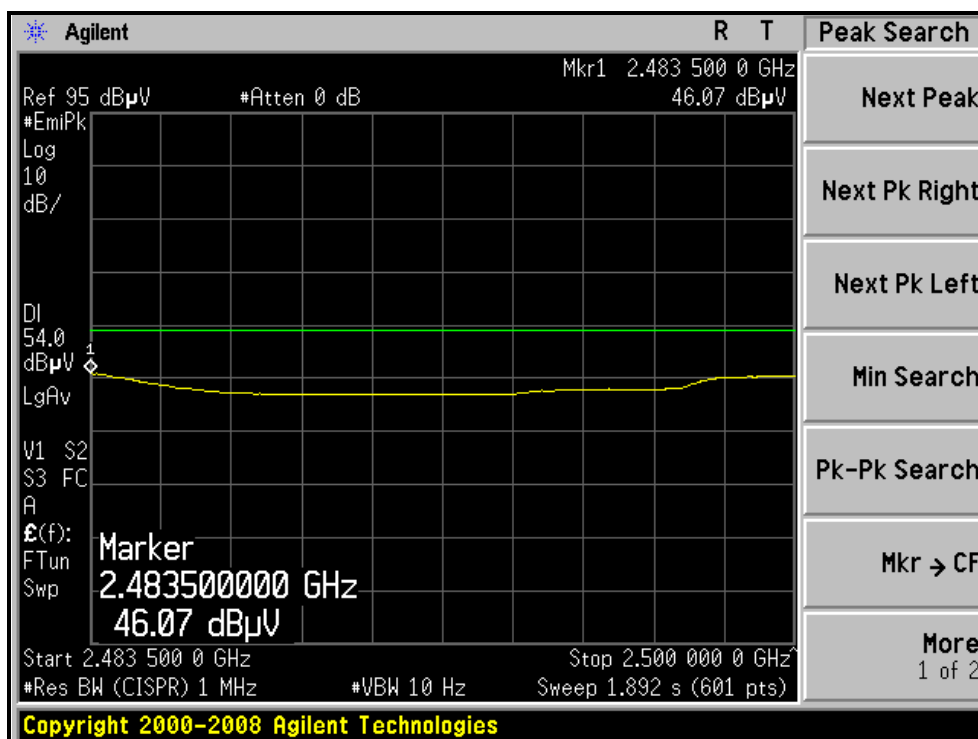
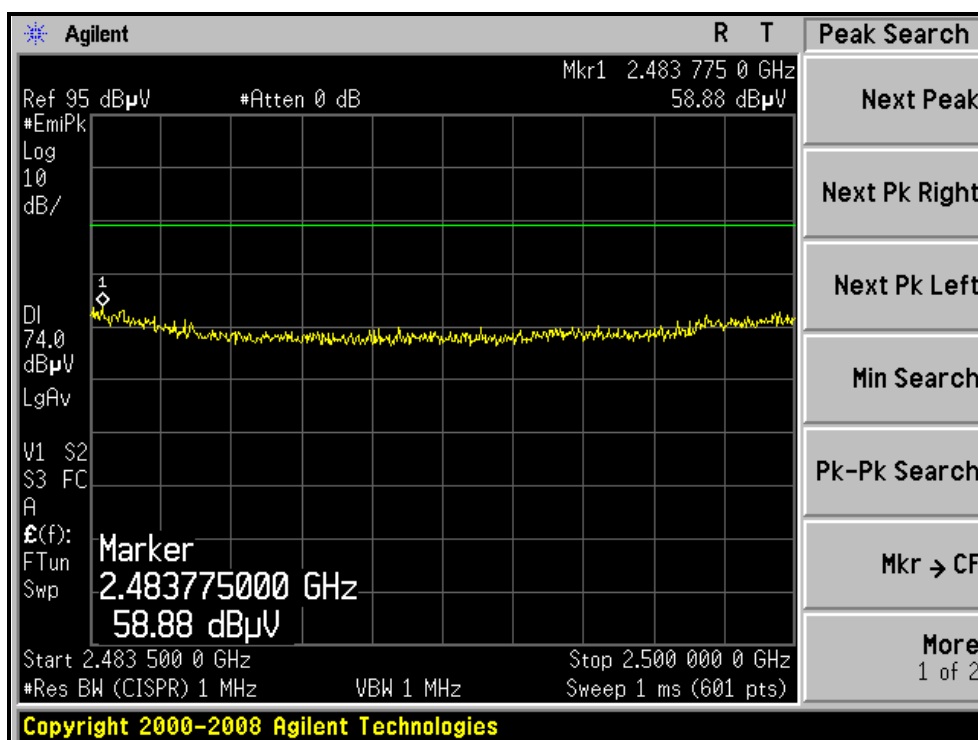
RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11g MODE,CH11, HORIZONTAL)



RESTRICTED BANDEDGE (802.11g MODE,CH11, VERTICAL)



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
Anritsu Power Meter	ML2495A	0824006	April 25, 2009	April 24, 2010
Pulse Power Sensor	MA2411B	0738172	April 25, 2009	April 24, 2010

NOTE:

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

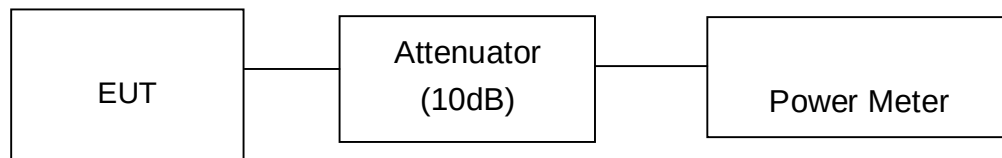
4.4.3 TEST PROCEDURES

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.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.1.6

4.4.7 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	19.0	79.4	30	PASS
6	2437	19.1	81.3	30	PASS
11	2462	19.2	83.2	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	18.4	69.2	30	PASS
6	2437	18.0	63.1	30	PASS
11	2462	17.9	61.7	30	PASS

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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.



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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.

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