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FCC TEST REPORT(WLAN)

REPORT NO.: RF981102H02

MODEL NO.: T77H134

RECEIVED: Nov. 02, 2009

TESTED: Nov. 16, 2009 to Jan. 08, 2010

ISSUED: Jan. 13, 2010

APPLICANT: Hon Hai PRECISION IND.CO.,LTD

ADDRESS: 5F-1,5 Hsin-An Road Hsinchu, Science-Based
Industrial Park 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 : WLAN and Bluetooth combo module
BRAND : Foxconn
MODEL NO.: T77H134
APPLICANT : Hon Hai PRECISION IND.CO.,LTD
TESTED : Nov. 16, 2009 to Jan. 08, 2010
TEST SAMPLE : ENGINEERING SAMPLE
STANDARDS : FCC Part 15, Subpart C (Section 15.247),
ANSI C63.4-2003

The above equipment (Model: T77H134) 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 :  , **DATE:** Jan. 13, 2010
(Claire Kaun, Specialist)

TECHNICAL ACCEPTANCE :  , **DATE:** Jan. 13, 2010
(Hank Chung, Deputy Manager)

APPROVED BY :  , **DATE:** Jan. 13, 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
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -20.68dB at 0.150MHz.
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit : min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Transmitter Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -0.50dB at 7311.00MHz.
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Conducted Out-Band Emission Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is U.FL-R-SMT not a standard connector.

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



3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	WLAN and Bluetooth combo module
MODEL NO.	T77H134
FCC ID	MCLT77H134
POWER SUPPLY	3.3VDC
MODULATION TYPE	For WLAN : CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM For Bluetooth : GFSK, $\pi/4$ -DQPSK, 8DPSK
MODULATION TECHNOLOGY	For WLAN : DSSS, OFDM For Bluetooth : FHSS
TRANSFER RATE	For WLAN : 802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps For Bluetooth : 3/2/1 Mbits/s
FREQUENCY RANGE	For WLAN : 2412MHz ~ 2462MHz For Bluetooth : 2402MHz ~ 2480MHz
NUMBER OF CHANNEL	For WLAN : 11 For Bluetooth : 79
MAXIMUM OUTPUT POWER (FOR WLAN)	802.11b: 162.2mW 802.11g: 323.6mW
MAXIMUM OUTPUT POWER (FOR Bluetooth)	GFSK: 0.4 mW $\pi/4$ -DQPSK: 0.2mW 8DPSK: 0.2mW
ANTENNA TYPE	Please see note 1
ANTENNA CONNECTOR	NA
DATA CABLE	NA
I/O PORT	NA
ASSOCIATED DEVICES	NA

NOTE:

1. There are two sets of antennas (four antennas) provided to this EUT, please refer to the following table:

Set	No.	Antenna Type	Net Gain (dBi) include cable loss	Cable Loss (dBi)	Cable Length	Antenna Connector	Note
A	1	PCB Printed	3.37	NA	NA	NA	For WLAN use
	2		3.37	NA	NA		For BT use
B	3	PIFA	4.51	1.083	380mm		For WLAN use
	4		3.51	1.112	390mm		For BT use

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

Pre-test Mode	Description
Mode A	X-Y plane
Mode B	Y-Z plane
Mode C	Z-X plane

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

3. The EUT complies with IEEE 802.11g standards, and backwards compatible with IEEE 802.11b products.
4. There are Bluetooth technology and WLAN technology used for the EUT. <the Bluetooth test data please refer "RF981102H02-1", and Dual Xmit test data please refer "RF981102H02-2">
5. 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:

For 802.11b/g normal mode: Eleven channels are provided to this EUT.

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	
A	√	√	√	√	PCB Printed antenna
B	-	√	√	√	PIFA antenna

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

POWER LINE CONDUCTED EMISSION TEST:

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

MODE	CONFIGURE MODE
Ping mode	A

RADIATED EMISSION TEST (BELOW 1 GHZ):

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	CONFIGURE MODE
802.11g	1 to 11	6	OFDM	BPSK	6	A
802.11g	1 to 11	6	OFDM	BPSK	6	B

RADIATED EMISSION TEST (ABOVE 1 GHZ):

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	CONFIGURE MODE
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	A
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	B
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	A
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	B



BANDEDGE MEASUREMENT:

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	CONFIGURE MODE
802.11b	1 to 11	1, 11	DSSS	DBPSK	1	A
802.11b	1 to 11	1, 11	DSSS	DBPSK	1	B
802.11g	1 to 11	1, 11	OFDM	BPSK	6	A
802.11g	1 to 11	1, 11	OFDM	BPSK	6	B

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)	CONFIGURE MODE
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	A
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	B
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	A
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	B

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE ³ 1G	29deg. C, 64%RH, 1016 hPa	120Vac, 60Hz	Frank Liu / Wen Yu
RE<1G	29deg. C, 67%RH, 1016 hPa	120Vac, 60Hz	Kent Liu / Wen Yu
PLC	26deg. C, 60%RH, 1016 hPa	120Vac, 60Hz	Kent Liu
APCM	25deg. C, 60%RH, 1016 hPa	120Vac, 60Hz	Eric Lee



3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C. (15.247)

ANSI C63.4-2003

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

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



3.4 DESCRIPTION OF SUPPORT UNITS

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

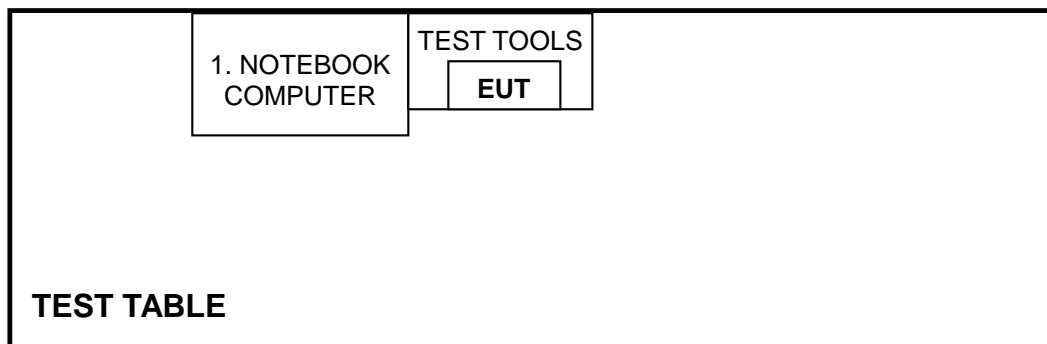
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	IBM	X40	00045-506-217-9	FCC DoC

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	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 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver	ESCS 30	100375	Mar. 23, 2009	Mar. 22, 2010
Line-Impedance Stabilization Network (for Peripheral)	ENV-216	100071	Nov. 25, 2009	Nov. 24, 2010
Line-Impedance Stabilization Network (for EUT)	ESH3-Z5	848773/004	Nov. 04, 2009	Nov. 03, 2010
RF Cable (JYEBAO)	5DFB	COBCAB-001	Aug. 14, 2009	Aug. 13, 2010
50 ohms Terminator	50	3	Nov. 04, 2009	Nov. 03, 2010
Software	BV ADT_Cond_V7.3.7	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. B.
3. The VCCI Con B Registration No. is C-2193.

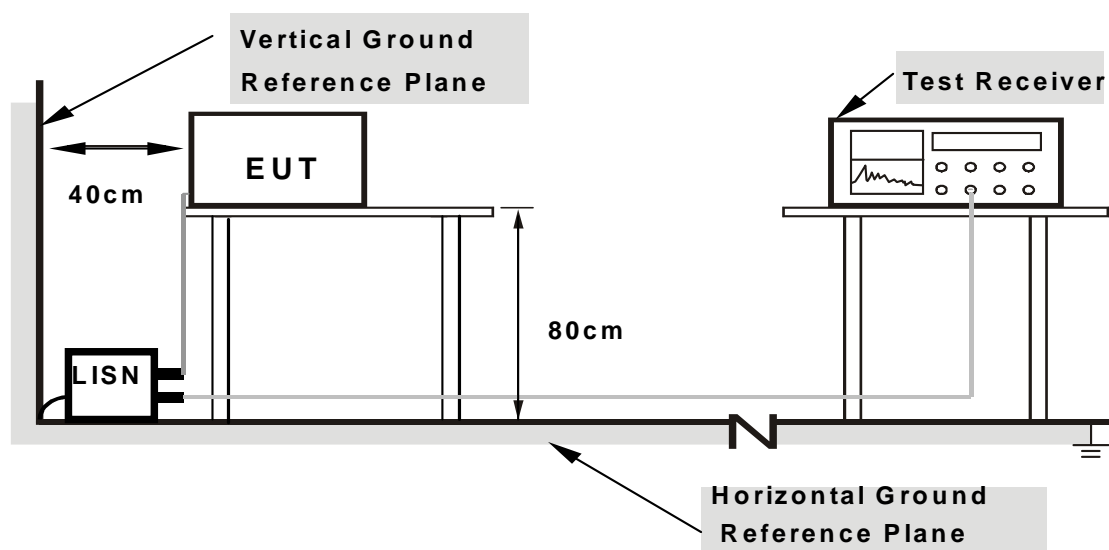
4.1.3 TEST PROCEDURES

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

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



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

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

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



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4.1.6 EUT OPERATING CONDITIONS

1. Connect the EUT with the support unit 1 (Notebook Computer) which placed on a testing table.
2. The communication partner run test program “DutApiSD868x” to enable EUT under transmission/receiving condition continuously at specific channel frequency.



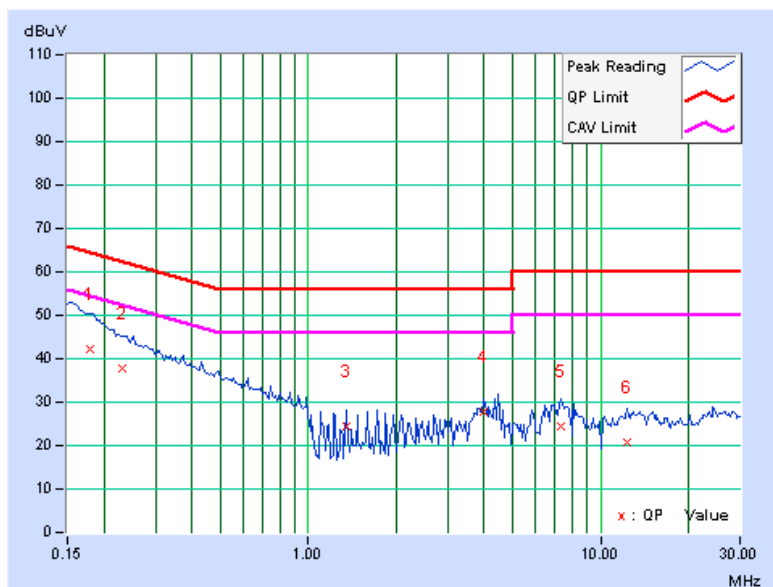
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4.1.7 TEST RESULTS

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
TEST MODE	Normal made		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
	1	0.180	9.68	32.62	14.61	42.30	24.29	64.49	54.49	-22.18
2	0.232	9.69	28.10	-0.25	37.79	9.44	62.39	52.39	-24.60	-42.95
3	1.357	9.86	14.55	8.50	24.41	18.36	56.00	46.00	-31.59	-27.64
4	3.984	9.84	18.08	9.02	27.92	18.86	56.00	46.00	-28.08	-27.14
5	7.332	10.04	14.37	-1.30	24.41	8.74	60.00	50.00	-35.59	-41.26
6	12.320	10.11	10.54	-1.95	20.65	8.16	60.00	50.00	-39.35	-41.84

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



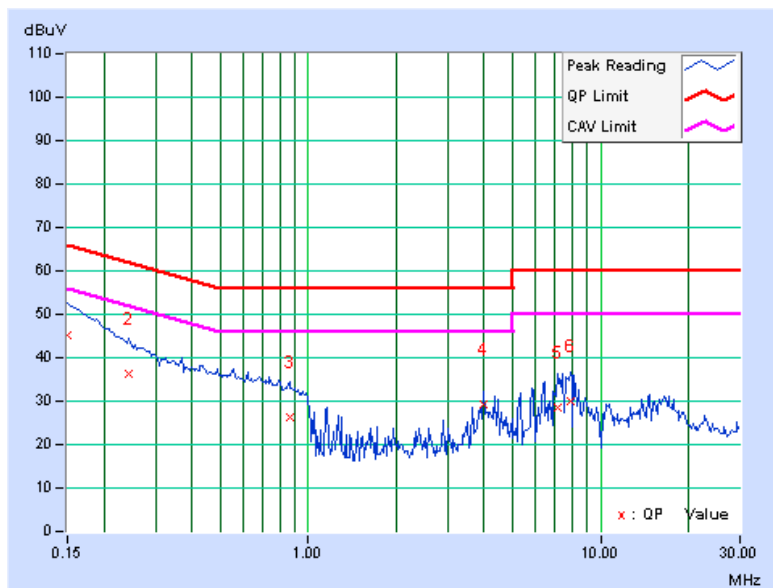


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PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
TEST MODE	Normal made		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
	1	0.150	9.68	35.64	-	45.32	-	66.00	56.00	-20.68
2	0.244	9.69	26.77	-	36.46	-	61.97	51.97	-25.51	-
3	0.861	9.82	16.41	-	26.23	-	56.00	46.00	-29.77	-
4	4.000	9.84	19.48	-	29.32	-	56.00	46.00	-26.68	-
5	7.113	10.04	18.38	-	28.42	-	60.00	50.00	-31.58	-
6	7.871	10.09	19.77	-	29.86	-	60.00	50.00	-30.14	-

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





4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

NOTE:

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



4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 18, 2009	Dec. 17, 2010
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	Apr. 24 , 2009	Apr. 23 , 2010
HP Pre_Amplifier	8449B	300801923	Nov. 02, 2009	Nov. 01, 2010
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Aug. 28, 2009	Aug. 27, 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, 2009	Jan. 21, 2010
R&S Loop Antenna	HFH2-Z2	100070	Jan. 14, 2008	Jan. 13, 2010
RF Switches	EMH-011	1001	NA	NA
RF CABLE (Chaintek)	Sucoflex 106	28077	Aug. 14, 2009	Aug. 13, 2010
RF Cable	8DFB	STCCAB-30M-1GHz	NA	NA
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.



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4.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 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.

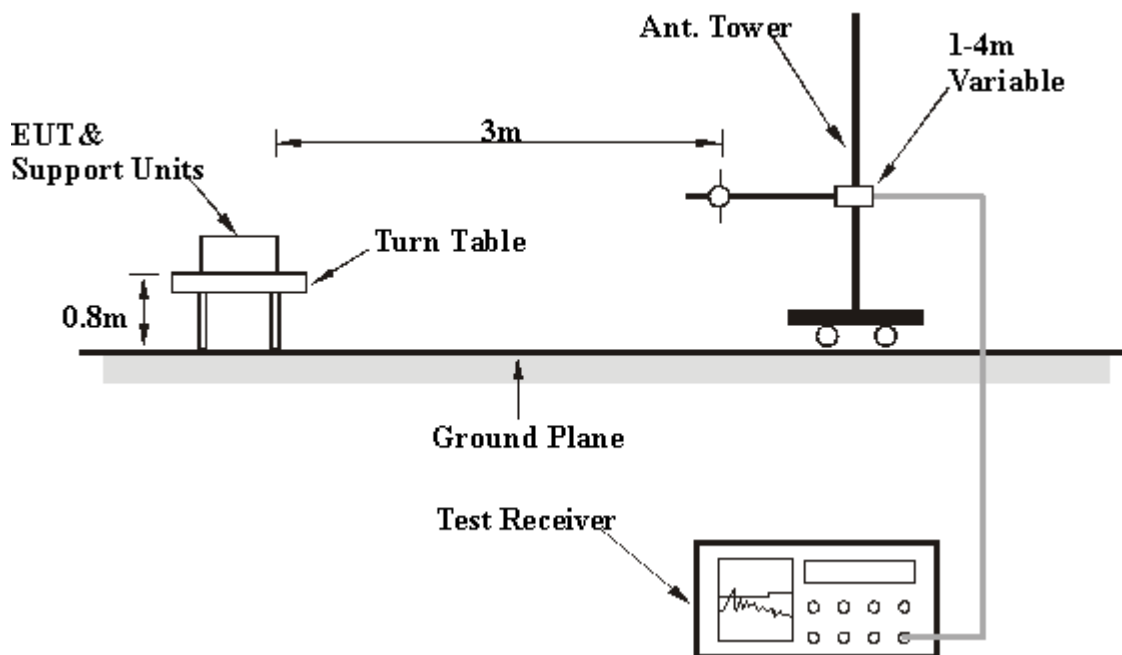
NOTE:

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.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



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

4.2.6 EUT OPERATING CONDITIONS

1. Connect the EUT with the support unit 1 (Notebook Computer) which placed on a testing table.
2. The communication partner run test program “DutApiSD868x” to enable EUT under transmission/receiving condition continuously at specific channel frequency.



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Below 1GHz Test Data

4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA : 802.11g OFDM 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	26deg. C, 62%RH 1016 hPa	TESTED BY	Rex Huang
TEST MODE	PCB Printed antenna		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	250.00	37.20 QP	46.00	-8.80	1.25 H	127	23.50	13.70
2	320.00	33.31 QP	46.00	-12.69	1.00 H	254	16.80	16.51
3	500.00	32.91 QP	46.00	-13.09	1.54 H	55	11.60	21.31
4	640.00	37.67 QP	46.00	-8.33	1.33 H	183	13.40	24.27
5	746.67	40.16 QP	46.00	-5.84	1.10 H	130	14.50	25.66
6	853.33	38.72 QP	46.00	-7.28	1.00 H	224	11.30	27.42
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	125.00	27.68 QP	43.50	-15.82	1.02 V	9	15.20	12.48
2	250.00	31.80 QP	46.00	-14.20	1.20 V	334	18.10	13.70
3	500.00	31.81 QP	46.00	-14.19	1.57 V	155	10.50	21.31
4	640.00	38.97 QP	46.00	-7.03	1.20 V	66	14.70	24.27
5	746.67	37.16 QP	46.00	-8.84	1.30 V	85	11.50	25.66
6	853.33	36.92 QP	46.00	-9.08	1.33 V	45	9.50	27.42

- 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.



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BELOW 1GHz WORST-CASE DATA : 802.11g 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	16deg. C, 58%RH 1023 hPa	TESTED BY	Wen Yu
TEST MODE	PIFA antenna		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	240.00	22.4 QP	46.00	-23.7	1.00 H	125	9.01	13.34
2	498.00	36.9 QP	46.00	-9.1	1.34 H	102	15.17	21.71
3	639.23	33.6 QP	46.00	-12.4	1.10 H	55	8.67	24.91
4	719.24	30.6 QP	46.00	-15.4	1.44 H	124	4.17	26.40
5	809.14	33.9 QP	46.00	-12.1	1.22 H	269	6.15	27.71
6	899.06	34.9 QP	46.00	-11.1	1.33 H	52	6.03	28.84
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	71.25	31.6 QP	40.00	-8.4	1.23 V	13	19.29	12.27
2	120.00	22.9 QP	43.50	-20.6	1.33 V	225	11.06	11.82
3	498.90	29.9 QP	46.00	-16.1	1.00 V	245	8.17	21.73
4	599.00	30.6 QP	46.00	-15.4	1.31 V	73	6.10	24.46
5	720.00	30.5 QP	46.00	-15.5	1.41 V	155	4.04	26.42
6	899.00	32.0 QP	46.00	-14.1	1.24 V	111	3.11	28.84

- 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

4.2.8 TEST RESULTS

802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 66%RH 1016 hPa	TESTED BY	Frank Liu
TEST MODE	PCB Printed antenna		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.8 PK	74.00	-16.2	1.48 H	133	27.52	30.28
2	2390.00	48.6 AV	54.00	-5.4	1.48 H	133	18.35	30.28
3	*2412.00	110.1 PK			1.51 H	138	79.74	30.36
4	*2412.00	107.0 AV			1.51 H	138	76.64	30.36
5	4824.00	54.6 PK	74.00	-19.4	1.26 H	111	17.81	36.79
6	4824.00	52.0 AV	54.00	-2.0	1.26 H	111	15.17	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	2386.27	57.2 PK	74.00	-16.8	1.00 V	24	26.92	30.27
2	2386.27	45.3 AV	54.00	-8.7	1.00 V	24	15.04	30.27
3	*2412.00	106.3 PK			1.00 V	13	75.94	30.36
4	*2412.00	102.1 AV			1.00 V	13	71.74	30.36
5	4824.00	49.6 PK	74.00	-24.4	1.01 V	223	12.81	36.79
6	4824.00	46.4 AV	54.00	-7.6	1.01 V	223	9.61	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	25deg. C, 66%RH 1016 hPa	TESTED BY	Frank Liu
TEST MODE	PCB Printed antenna		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	109.6 PK			1.72 H	209	79.14	30.46
2	*2437.00	107.4 AV			1.72 H	209	76.94	30.46
3	4874.00	51.0 PK	74.00	-23.0	1.18 H	175	14.08	36.92
4	4874.00	48.0 AV	54.00	-6.0	1.18 H	175	11.08	36.92
5	7311.00	57.6 PK	74.00	-16.4	1.12 H	102	14.46	43.14
6	7311.00	51.3 AV	54.00	-2.7	1.12 H	102	8.16	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	105.1 PK			1.00 V	24	74.64	30.46
2	*2437.00	101.3 AV			1.00 V	24	70.84	30.46
3	4874.00	47.6 PK	74.00	-26.4	1.00 V	176	10.68	36.92
4	4874.00	42.0 AV	54.00	-12.0	1.00 V	176	5.08	36.92
5	7311.00	58.0 PK	74.00	-16.0	1.15 V	282	14.86	43.14
6	7311.00	53.5 AV	54.00	-0.5	1.15 V	282	10.36	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	25deg. C, 66%RH 1016 hPa	TESTED BY	Frank Liu
TEST MODE	PCB Printed antenna		

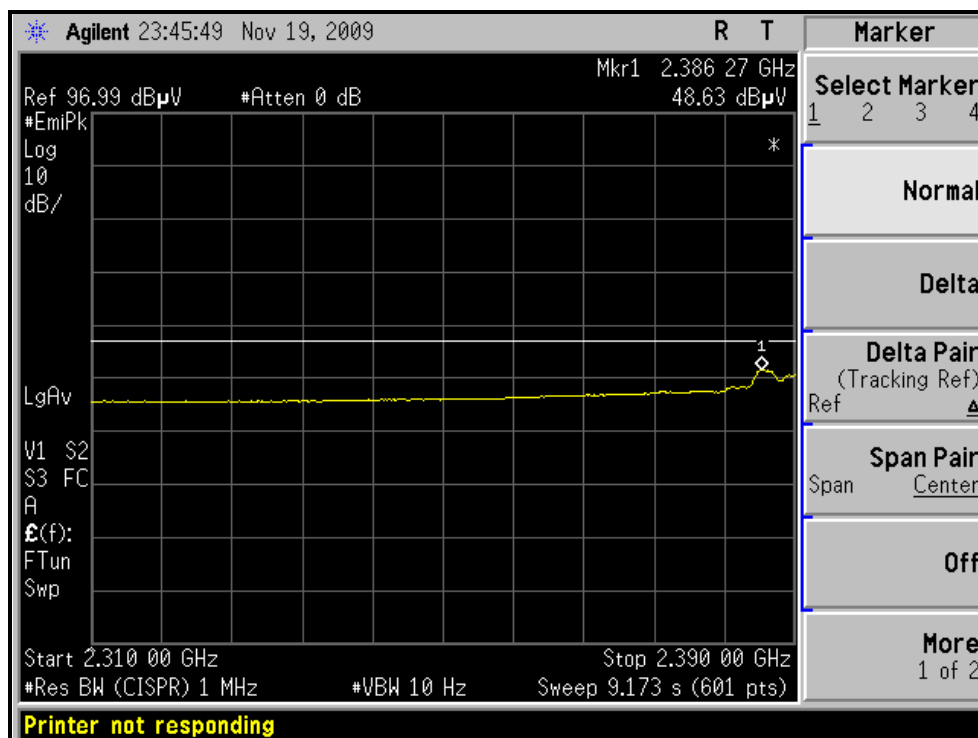
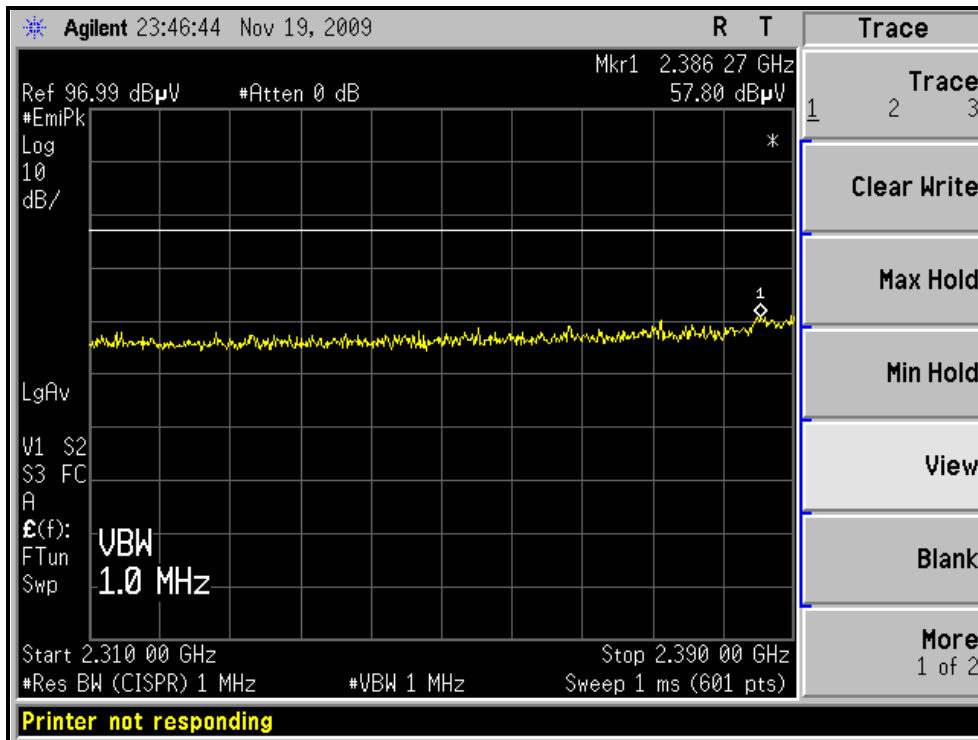
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NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	111.4 PK			1.70 H	312	80.85	30.55
2	*2462.00	109.3 AV			1.70 H	312	78.75	30.55
3	2488.00	60.8 PK	74.00	-13.17	1.79 H	360	30.18	30.65
4	2488.00	50.2 AV	54.00	-3.8	1.79 H	360	19.53	30.65
5	4924.00	49.8 PK	74.00	-24.2	1.26 H	315	12.74	37.06
6	4924.00	45.3 AV	54.00	-8.7	1.26 H	315	8.24	37.06
7	7386.00	56.9 PK	74.00	-17.1	1.04 H	124	13.77	43.13
8	7386.00	50.3 AV	54.00	-3.7	1.04 H	124	7.17	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	105.4 PK			1.00 V	69	74.85	30.55
2	*2462.00	101.3 AV			1.00 V	69	70.75	30.55
3	2483.50	57.9 PK	74.00	-16.1	1.00 V	16	27.27	30.63
4	2483.50	50.8 AV	54.00	-3.2	1.00 V	16	20.13	30.63
5	4924.00	50.8 PK	74.00	-23.2	1.04 V	234	13.74	37.06
6	4924.00	47.6 AV	54.00	-6.4	1.04 V	234	10.54	37.06
7	7386.00	57.9 PK	74.00	-16.1	1.00 V	141	14.77	43.13
8	7386.00	53.2 AV	54.00	-0.8	1.00 V	141	10.07	43.13

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



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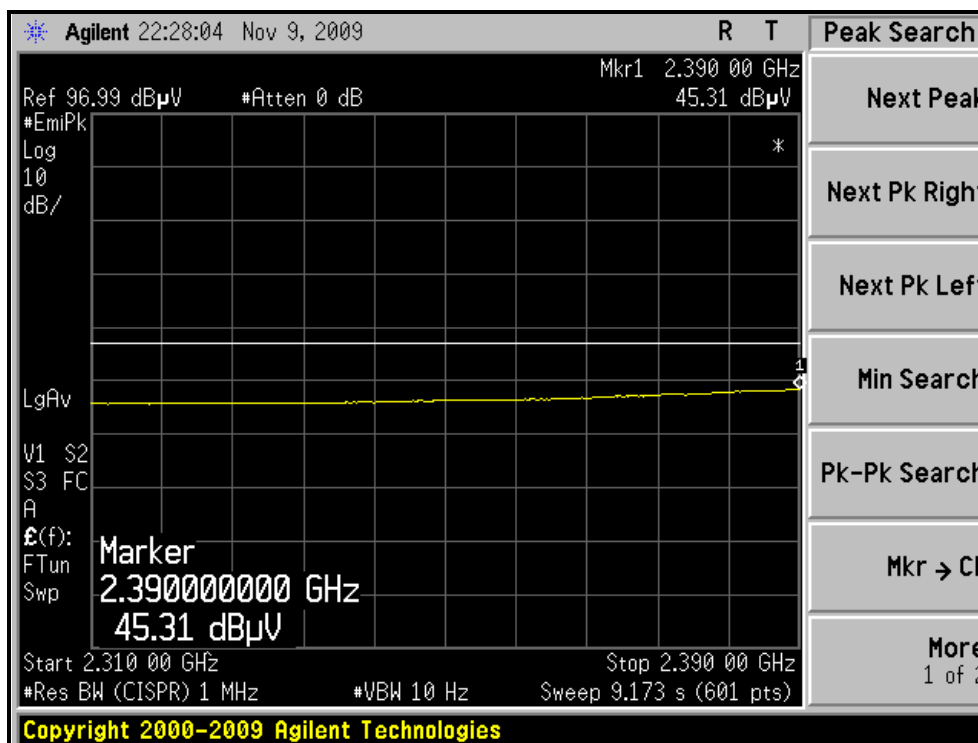
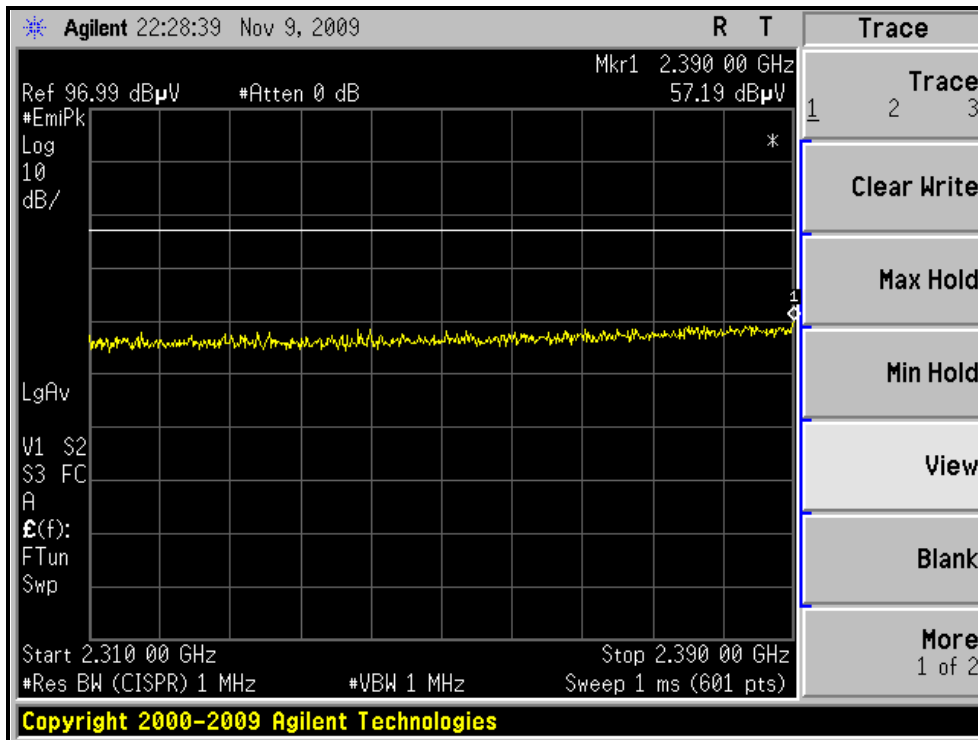
RESTRICTED BANDEDGE (802.11b MODE, CH1, HORIZONTAL)





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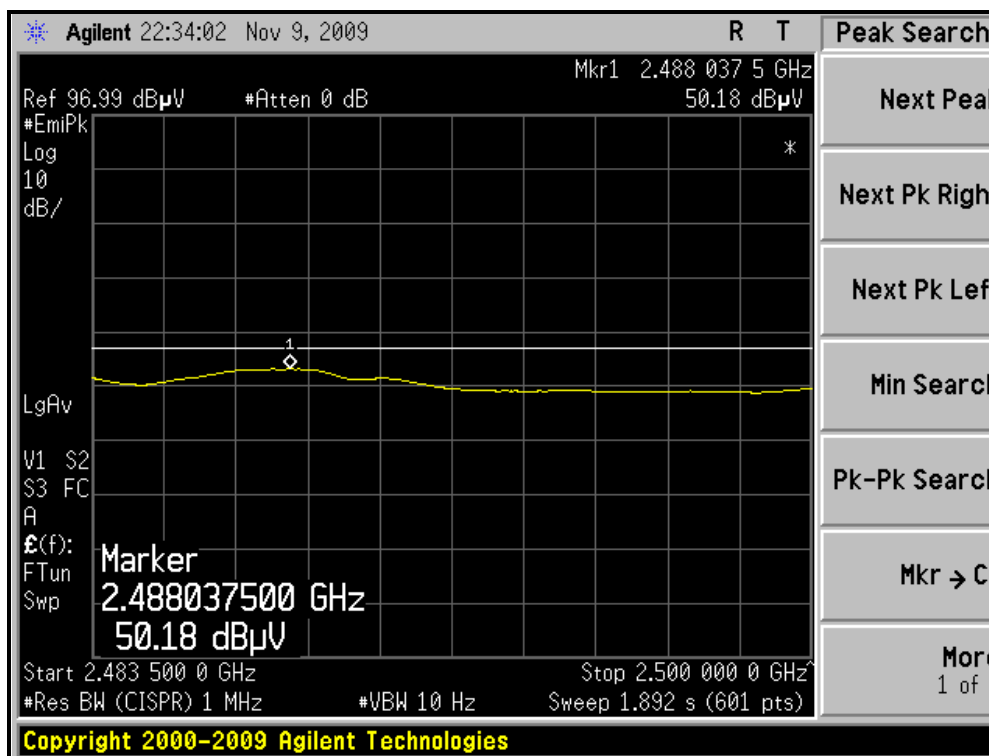
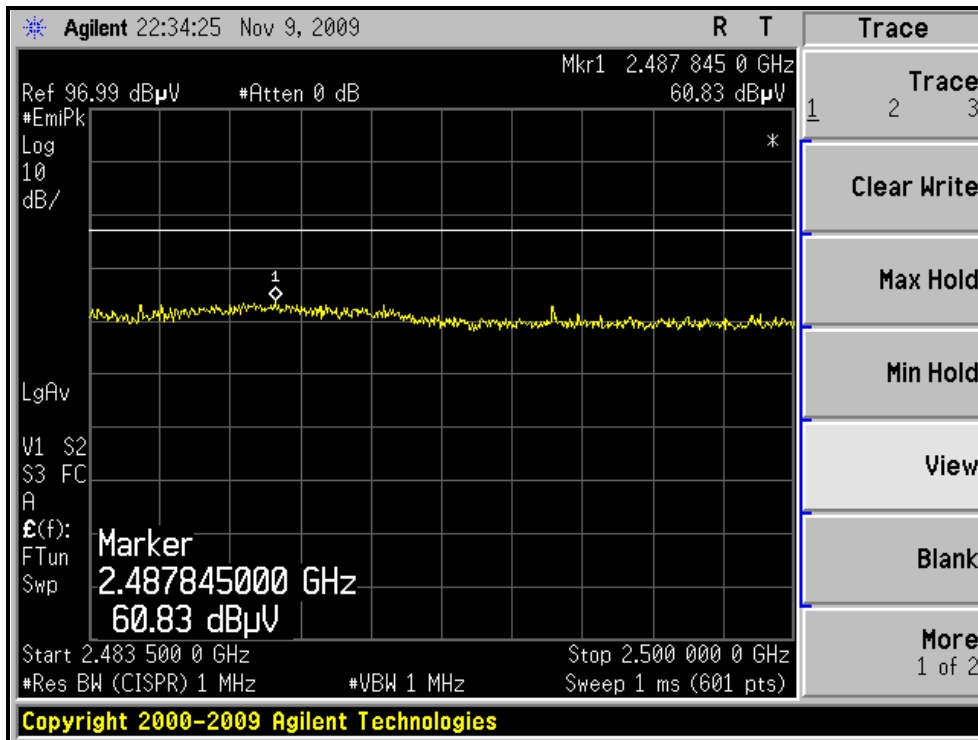
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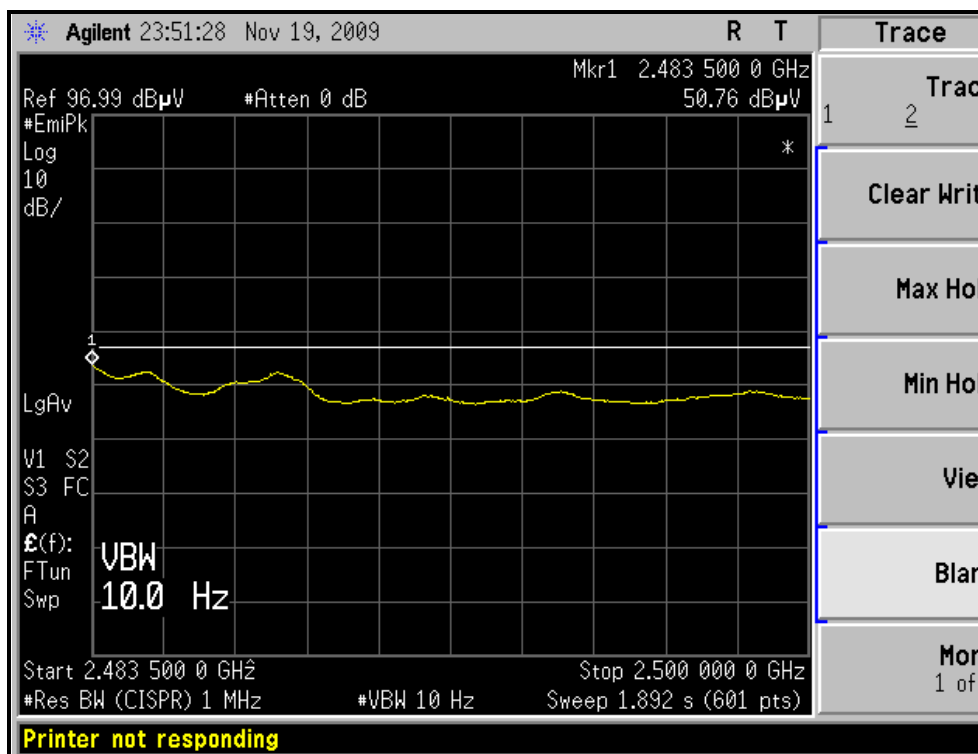
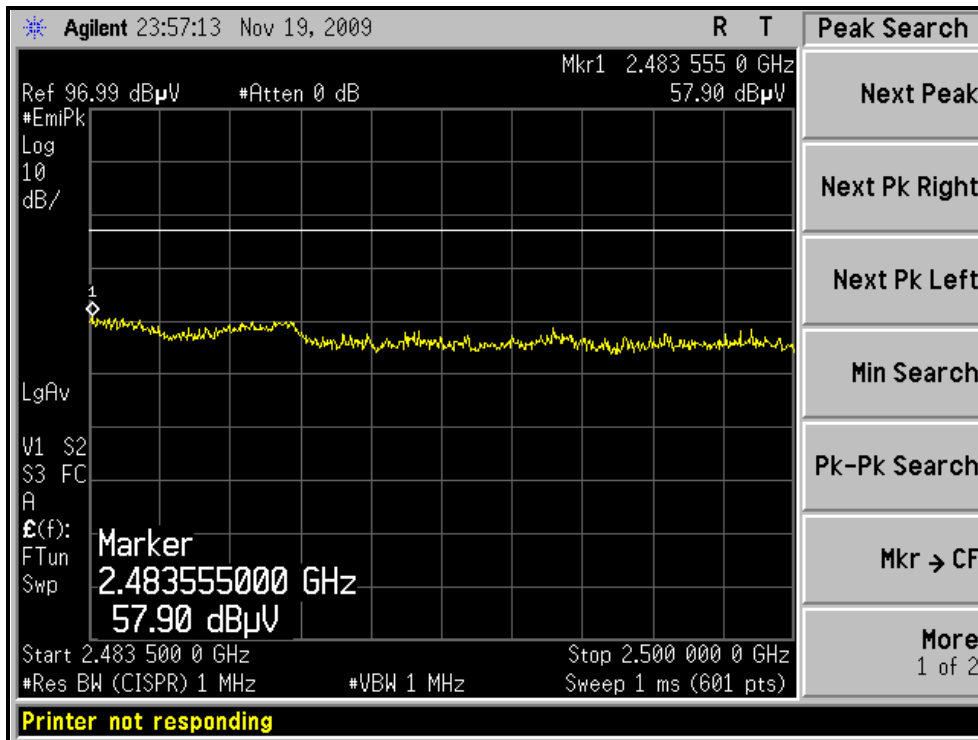
RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL)





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RESTRICTED BANDEDGE (802.11b MODE,CH11, VERTICAL)





802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 66%RH 1016 hPa	TESTED BY	Frank Liu
TEST MODE	PIFA antenna		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.00	60.5 PK	74.00	-13.5	1.70 H	24	30.43	30.05
2	2386.00	52.9 AV	54.00	-1.1	1.70 H	24	22.86	30.05
3	*2412.00	109.1 PK			1.68 H	23	78.99	30.15
4	*2412.00	106.9 AV			1.68 H	23	76.75	30.15
5	4824.00	45.4 PK	74.00	-28.6	1.34 H	10	9.93	35.46
6	4824.00	39.0 AV	54.00	-15.0	1.34 H	10	3.55	35.46
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	59.6 PK	74.00	-14.4	1.09 V	34	29.56	30.05
2	2386.00	52.0 AV	54.00	-2.0	1.09 V	34	21.97	30.05
3	*2412.00	107.8 PK			1.05 V	33	77.63	30.15
4	*2412.00	105.5 AV			1.05 V	33	75.35	30.15
5	4824.00	46.0 PK	74.00	-28.1	1.20 V	36	10.49	35.46
6	4824.00	41.4 AV	54.00	-12.6	1.20 V	36	5.93	35.46

- 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	19deg. C, 69%RH 1023 hPa	TESTED BY	Wen Yu
TEST MODE	PIFA antenna		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	108.8 PK			1.70 H	10	78.56	30.24
2	*2437.00	107.1 AV			1.70 H	10	76.86	30.24
3	4874.00	44.8 PK	74.00	-29.2	1.41 H	135	9.21	35.55
4	4874.00	37.2 AV	54.00	-16.8	1.41 H	135	1.63	35.55
5	7311.00	52.7 PK	74.00	-21.3	1.81 H	164	10.65	42.04
6	7311.00	45.7 AV	54.00	-8.4	1.81 H	164	3.61	42.04
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	107.5 PK			1.00 V	31	77.26	30.24
2	*2437.00	104.7 AV			1.00 V	31	74.46	30.24
3	4874.00	46.8 PK	74.00	-27.2	1.10 V	357	11.28	35.55
4	4874.00	42.2 AV	54.00	-11.9	1.10 V	357	6.60	35.55
5	7311.00	55.8 PK	74.00	-18.3	1.88 V	199	13.71	42.04
6	7311.00	51.3 AV	54.00	-2.7	1.88 V	199	9.25	42.04

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 69%RH 1023 hPa	TESTED BY	Wen Yu
TEST MODE	PIFA antenna		

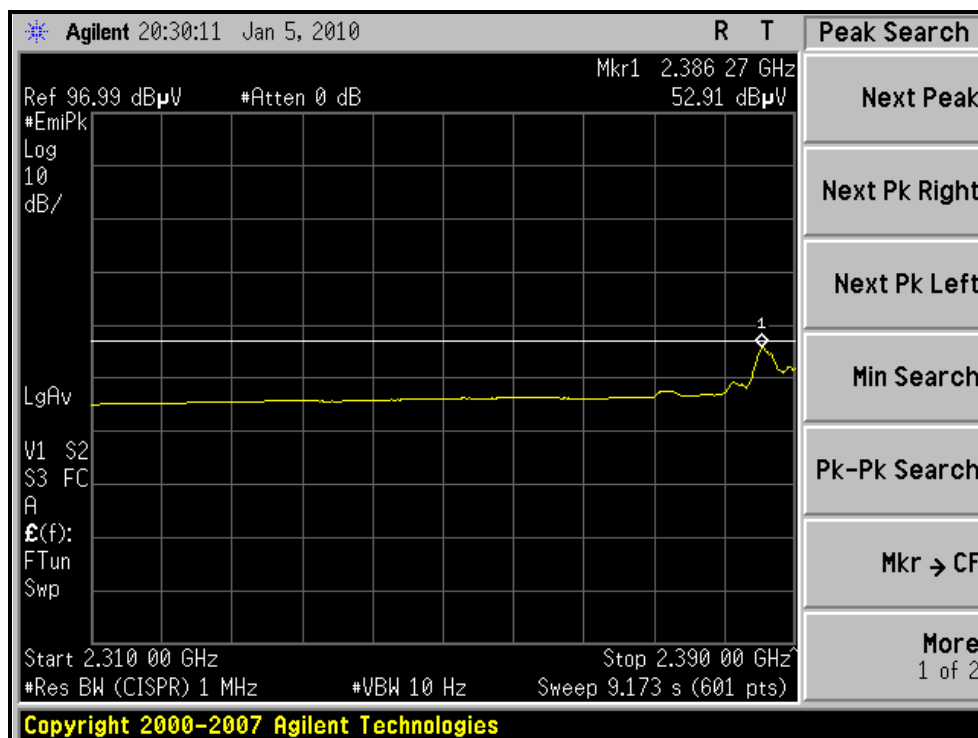
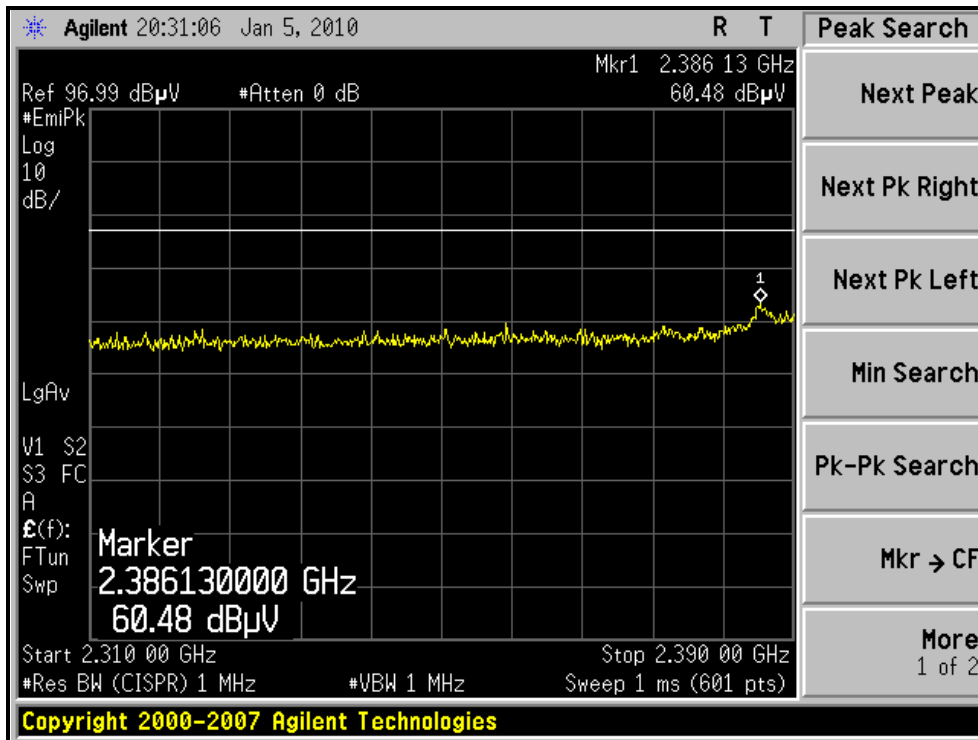
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	111.9 PK			1.68 H	11	81.56	30.34
2	*2462.00	109.8 AV			1.68 H	11	79.46	30.34
3	2484.70	60.6 PK	74.00	-13.5	1.41 H	177	30.12	30.43
4	2484.70	52.6 AV	54.00	-1.4	1.41 H	177	22.20	30.43
5	4924.00	45.9 PK	74.00	-28.2	1.24 H	135	10.22	35.63
6	4924.00	39.3 AV	54.00	-14.7	1.24 H	135	3.66	35.63
7	7386.00	53.4 PK	74.00	-20.6	1.65 H	191	11.21	42.23
8	7386.00	47.1 AV	54.00	-6.9	1.65 H	191	4.87	42.23
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.7 PK			1.00 V	32	78.36	30.34
2	*2462.00	106.5 AV			1.00 V	32	76.16	30.34
3	2484.70	59.5 PK	74.00	-14.5	1.00 V	93	29.06	30.43
4	2484.70	50.9 AV	54.00	-3.1	1.00 V	93	20.49	30.43
5	4924.00	45.8 PK	74.00	-28.3	1.20 V	25	10.12	35.63
6	4924.00	39.6 AV	54.00	-14.4	1.20 V	25	4.01	35.63
7	7386.00	55.9 PK	74.00	-18.1	1.96 V	188	13.67	42.23
8	7386.00	51.6 AV	54.00	-2.4	1.96 V	188	9.38	42.23

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



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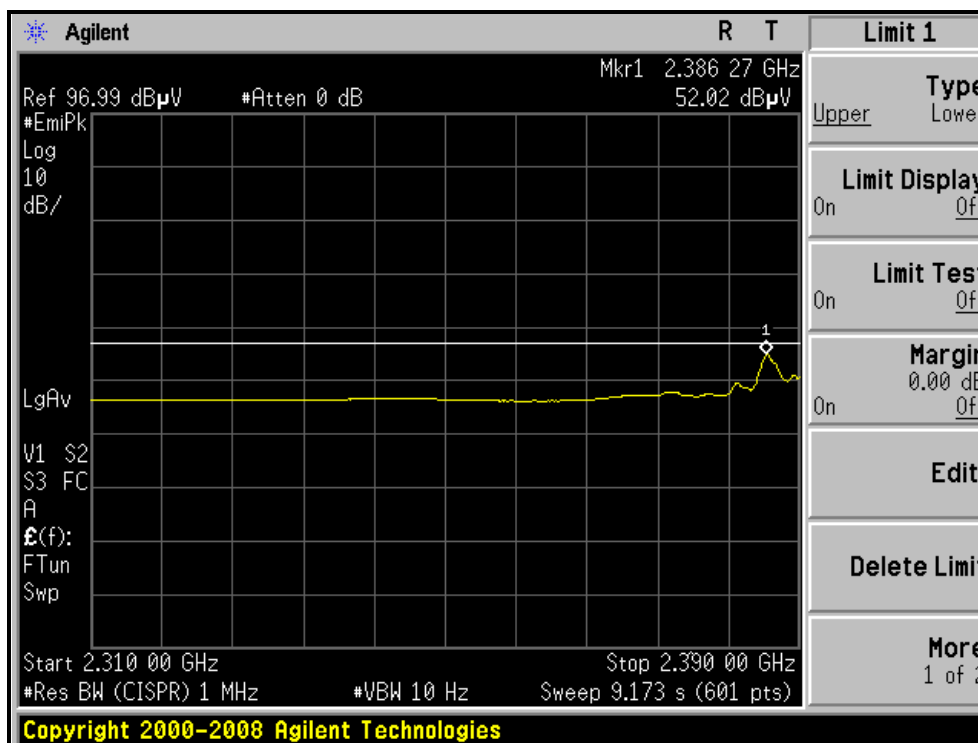
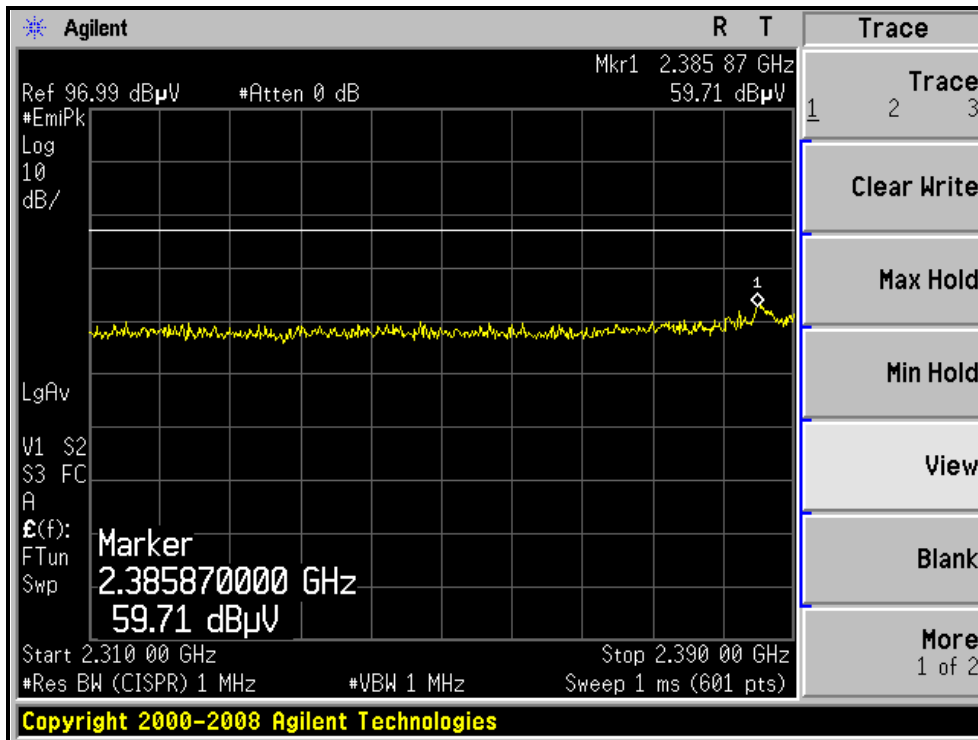
RESTRICTED BANDEDGE (802.11b MODE,CH1, HORIZONTAL)





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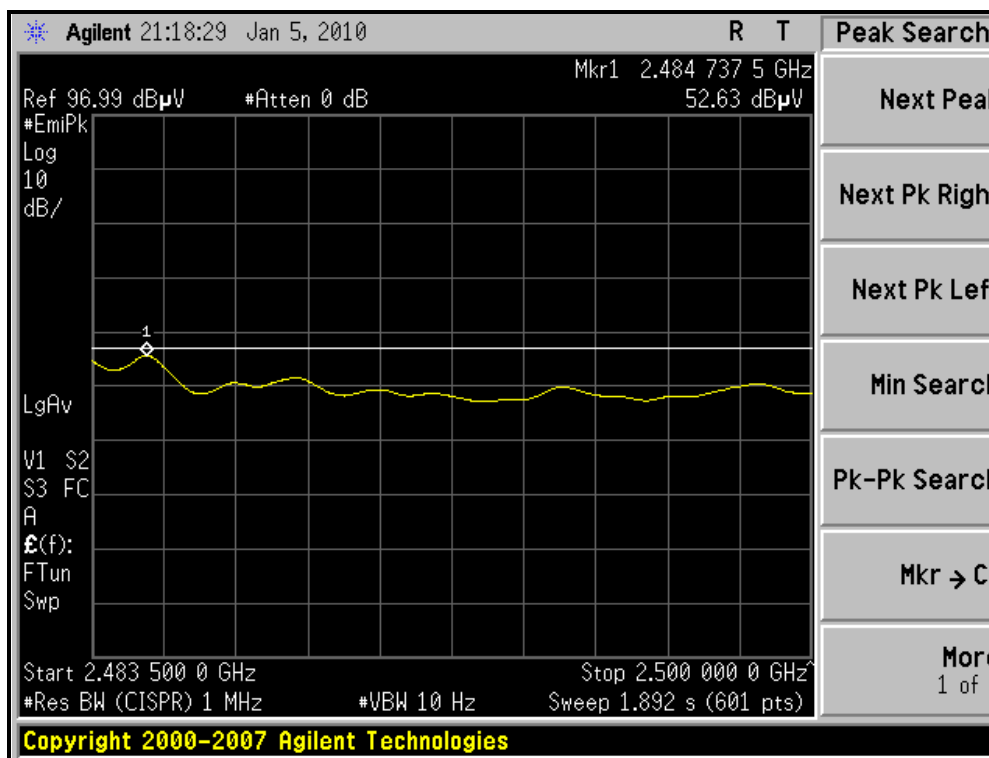
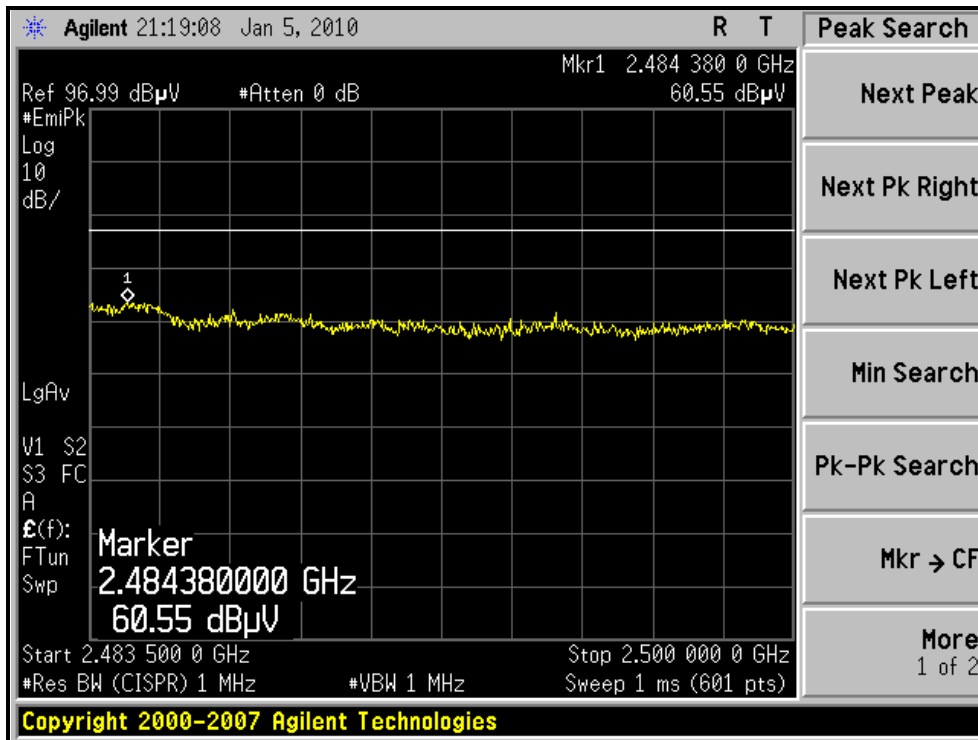
RESTRICTED BANDEDGE (802.11b MODE,CH1, VERTICAL)





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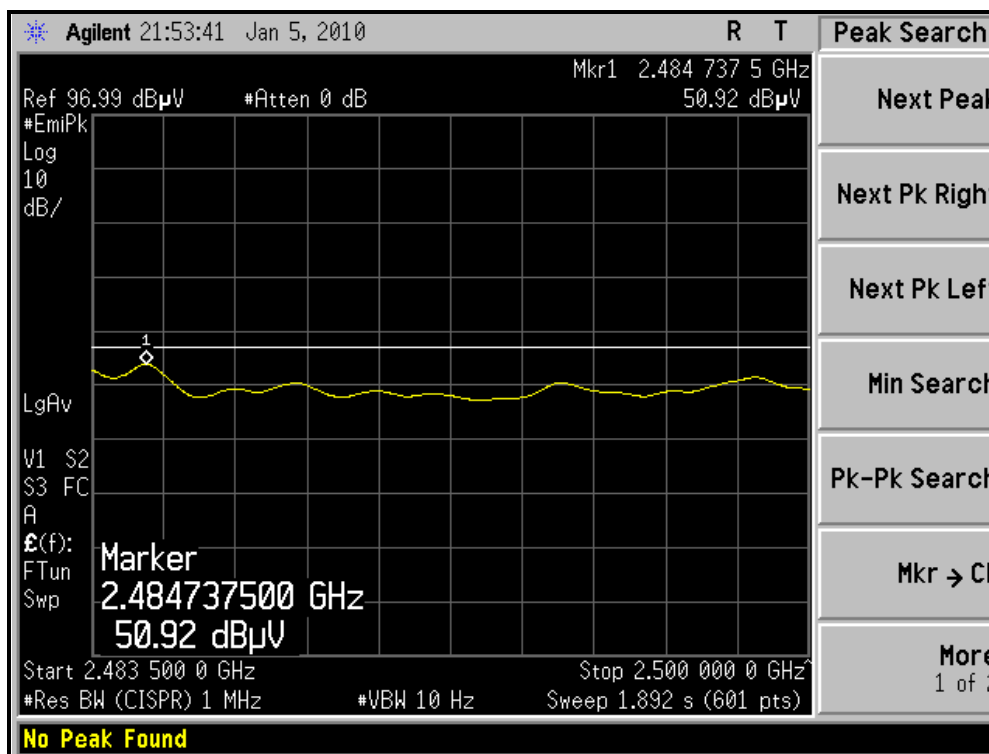
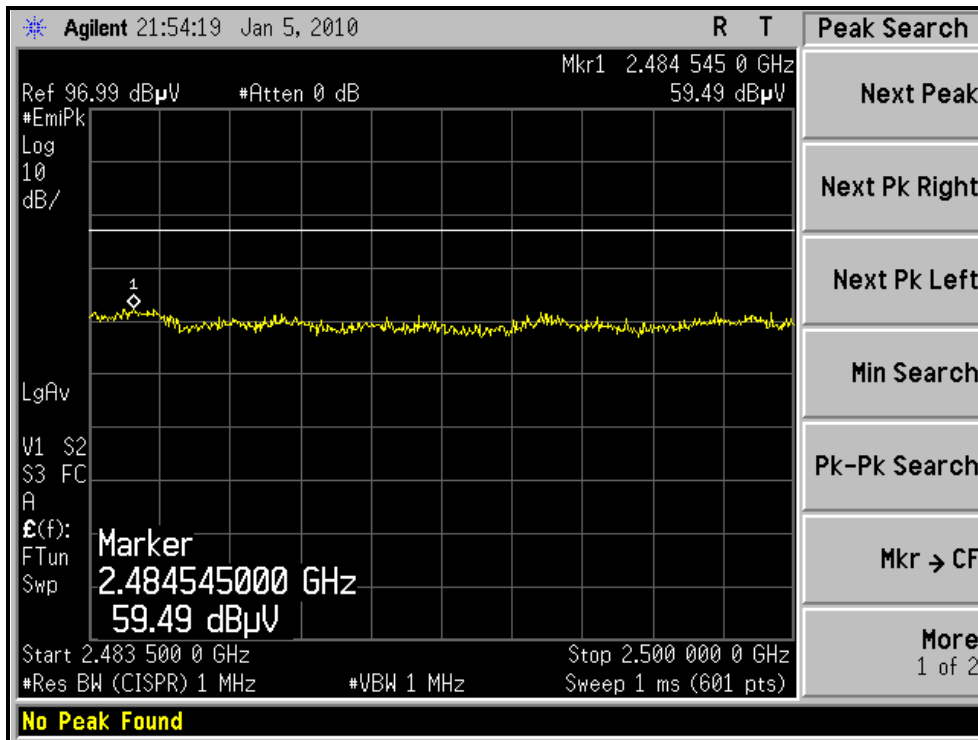
RESTRICTED BANDEDGE (802.11b MODE, CH11, HORIZONTAL)





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RESTRICTED BANDEDGE (802.11b MODE,CH11, VERTICAL)





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	28deg. C, 65%RH 1016 hPa	TESTED BY	Frank Liu
TEST MODE	PCB Printed antenna		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.6 PK	74.00	-5.4	1.76 H	212	38.30	30.28
2	2390.00	53.3 AV	54.00	-0.7	1.76 H	212	22.99	30.28
3	*2412.00	108.6 PK			1.80 H	215	78.24	30.36
4	*2412.00	100.0 AV			1.80 H	215	69.64	30.36
5	4824.00	49.7 PK	74.00	-24.3	1.24 H	123	12.91	36.79
6	4824.00	45.4 AV	54.00	-8.6	1.24 H	123	8.61	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	60.1 PK	74.00	-14.0	1.00 V	64	29.77	30.28
2	2390.00	46.5 AV	54.00	-7.5	1.00 V	64	16.19	30.28
3	*2412.00	105.2 PK			1.00 V	61	74.84	30.36
4	*2412.00	97.3 AV			1.00 V	61	66.94	30.36
5	4824.00	47.3 PK	74.00	-26.7	1.00 V	123	10.51	36.79
6	4824.00	41.8 AV	54.00	-12.2	1.00 V	123	5.01	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	28deg. C, 65%RH 1016 hPa	TESTED BY	Frank Liu
TEST MODE	PCB Printed antenna		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	109.3 PK			1.84 H	213	78.84	30.46
2	*2437.00	102.6 AV			1.84 H	213	72.14	30.46
3	2483.50	67.5 PK	74.00	-6.5	1.70 H	305	36.91	30.63
4	2483.50	50.4 AV	54.00	-3.6	1.70 H	305	19.77	30.63
5	4874.00	51.4 PK	74.00	-22.6	1.43 H	153	14.48	36.92
6	4874.00	48.3 AV	54.00	-5.7	1.43 H	153	11.38	36.92
7	7311.00	64.3 PK	74.00	-9.7	1.00 H	126	21.16	43.14
8	7311.00	50.6 AV	54.00	-3.4	1.00 H	126	7.46	43.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.9 PK			1.00 V	57	76.44	30.46
2	*2437.00	98.6 AV			1.00 V	57	68.14	30.46
3	4874.00	48.1 PK	74.00	-25.9	1.00 V	154	11.18	36.92
4	4874.00	42.9 AV	54.00	-11.1	1.00 V	154	5.98	36.92
5	7311.00	66.7 PK	74.00	-7.3	1.00 V	231	23.56	43.14
6	7311.00	53.2 AV	54.00	-0.8	1.00 V	231	10.06	43.14

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 65%RH 1016 hPa	TESTED BY	Frank Liu
TEST MODE	PCB Printed antenna		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	110.9 PK			1.79 H	215	80.35	30.55
2	*2462.00	102.0 AV			1.79 H	215	71.45	30.55
3	2483.50	72.1 PK	74.00	-1.9	1.78 H	217	41.44	30.63
4	2483.50	53.0 AV	54.00	-1.0	1.78 H	217	22.41	30.63
5	4924.00	50.2 PK	74.00	-23.8	1.26 H	109	13.14	37.06
6	4924.00	46.3 AV	54.00	-7.7	1.26 H	109	9.24	37.06
7	7386.00	60.3 PK	74.00	-13.7	1.00 H	137	17.17	43.13
8	7386.00	45.4 AV	54.00	-8.6	1.00 H	137	2.27	43.13

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

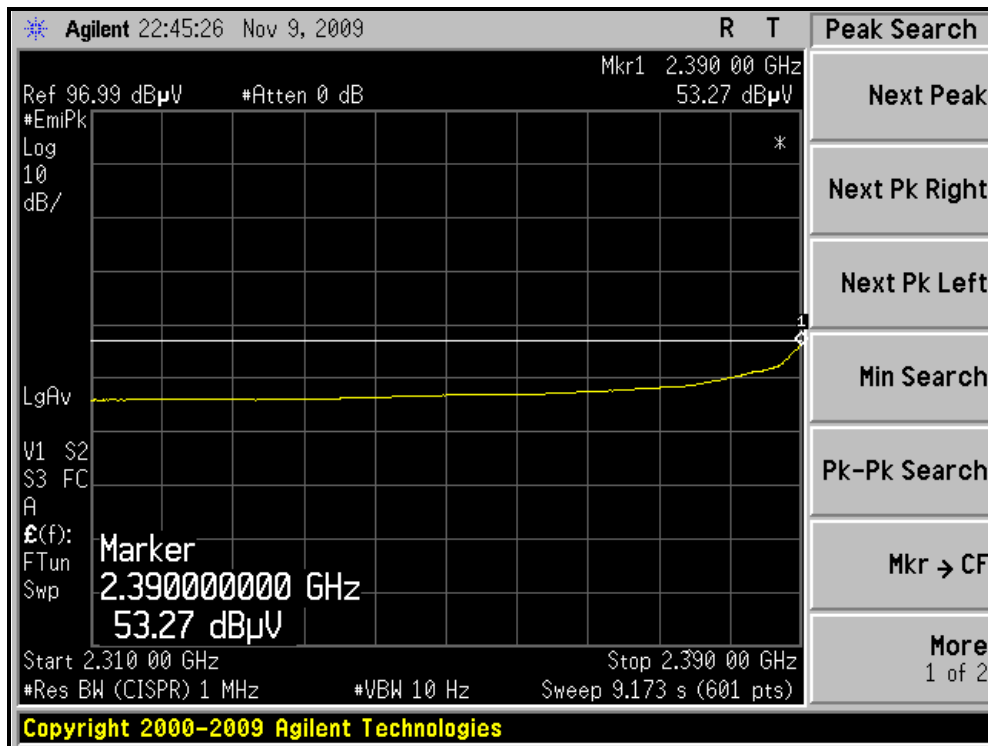
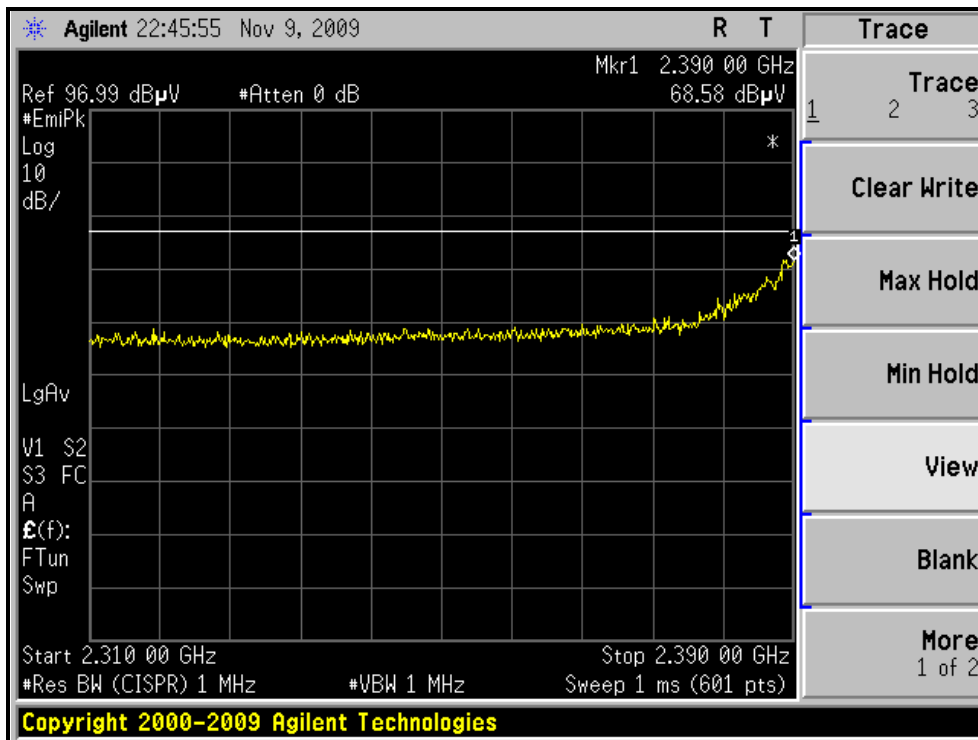
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.9 PK			1.00 V	29	74.35	30.55
2	*2462.00	96.8 AV			1.00 V	29	66.25	30.55
3	2483.50	61.3 PK	74.00	-12.7	1.00 V	23	30.71	30.63
4	2483.50	48.4 AV	54.00	-5.6	1.00 V	23	17.79	30.63
5	4924.00	48.3 PK	74.00	-25.7	1.00 V	257	11.24	37.06
6	4924.00	41.6 AV	54.00	-12.4	1.00 V	257	4.54	37.06
7	7386.00	61.4 PK	74.00	-12.6	1.04 V	239	18.27	43.13
8	7386.00	48.7 AV	54.00	-5.3	1.04 V	239	5.57	43.13

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



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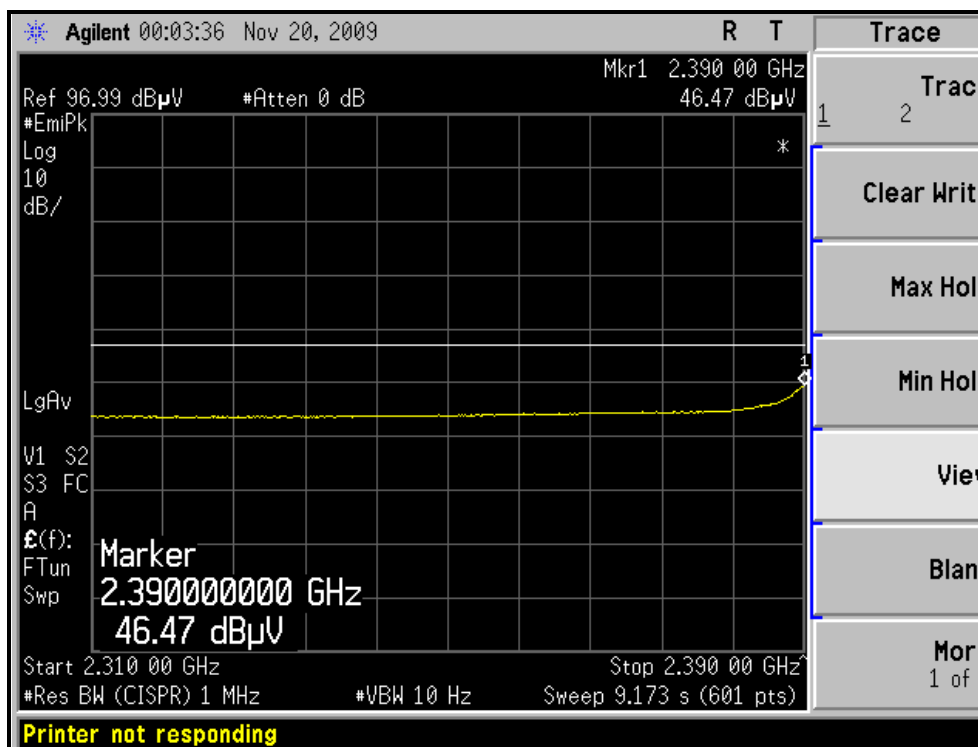
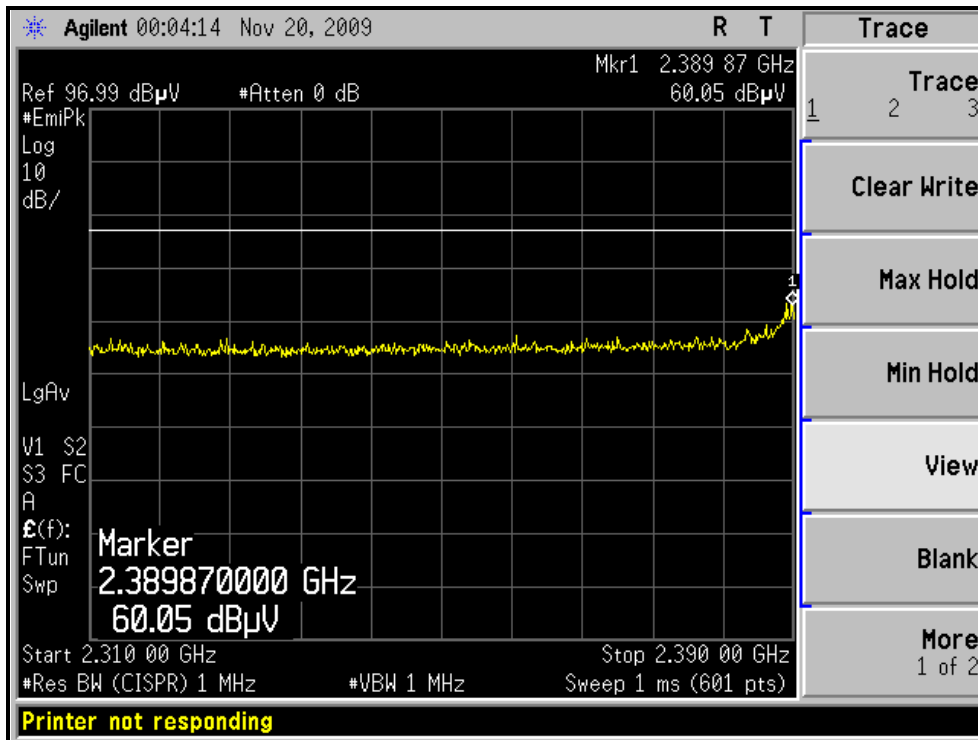
RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL)





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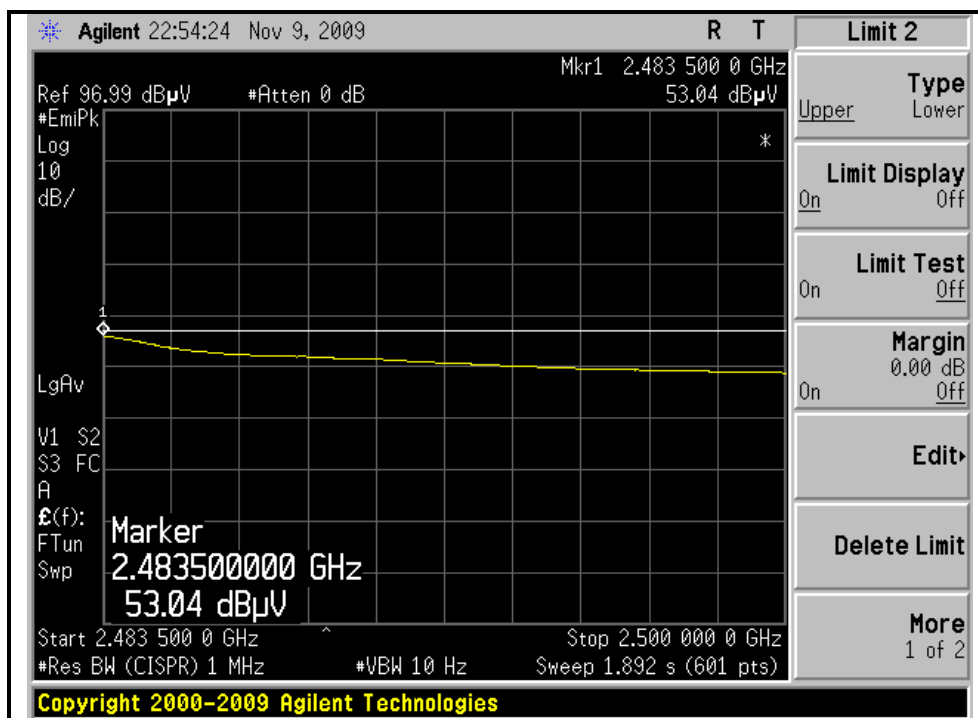
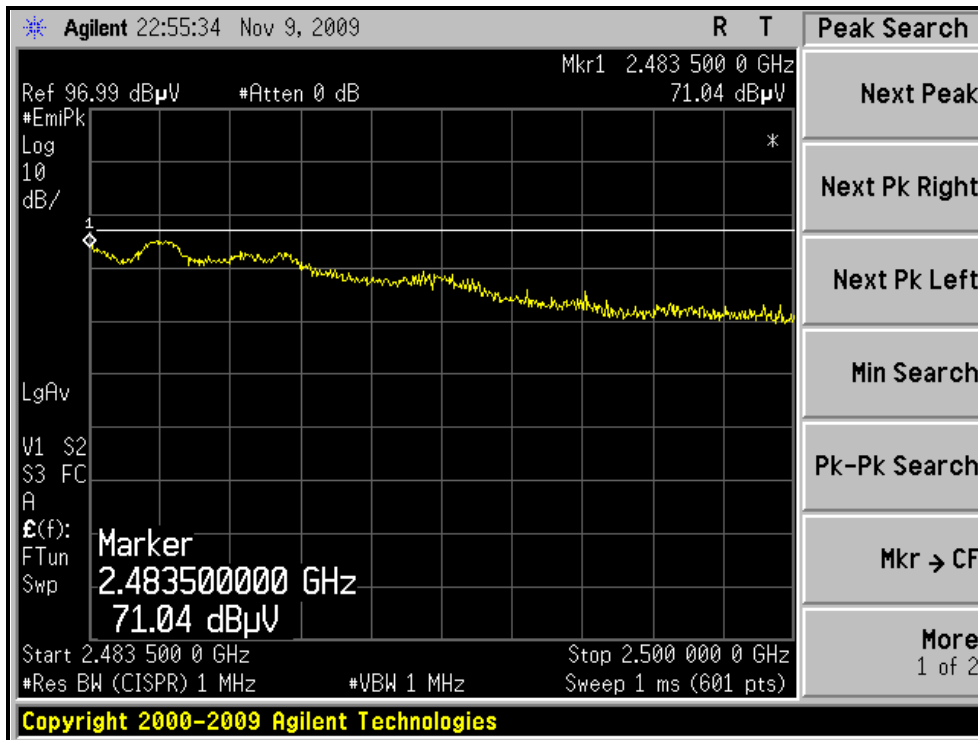
RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)





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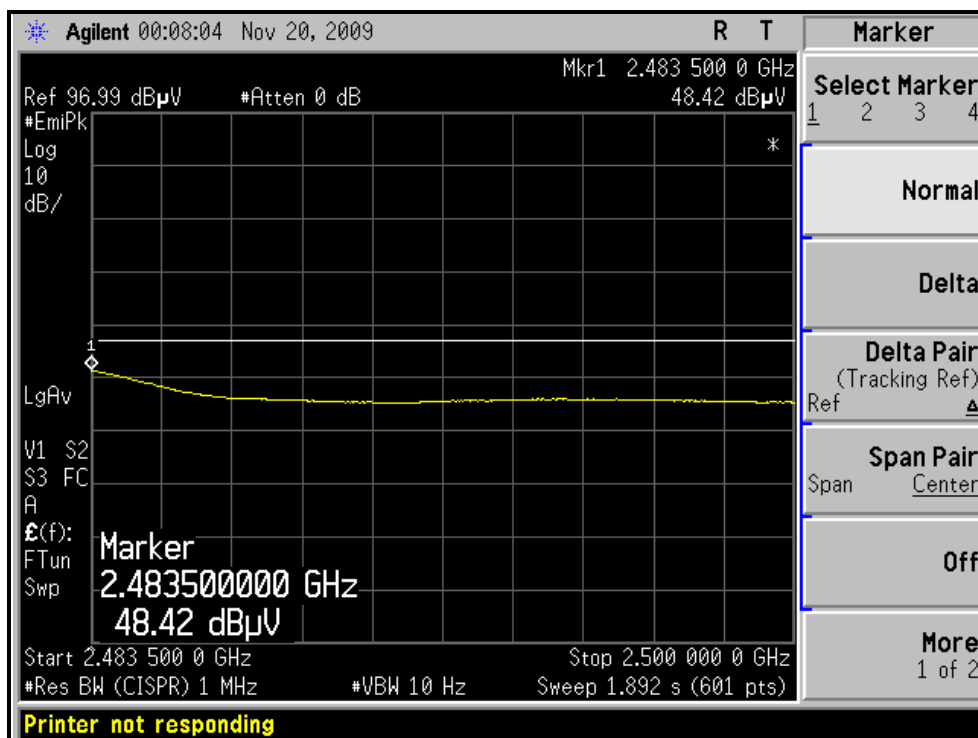
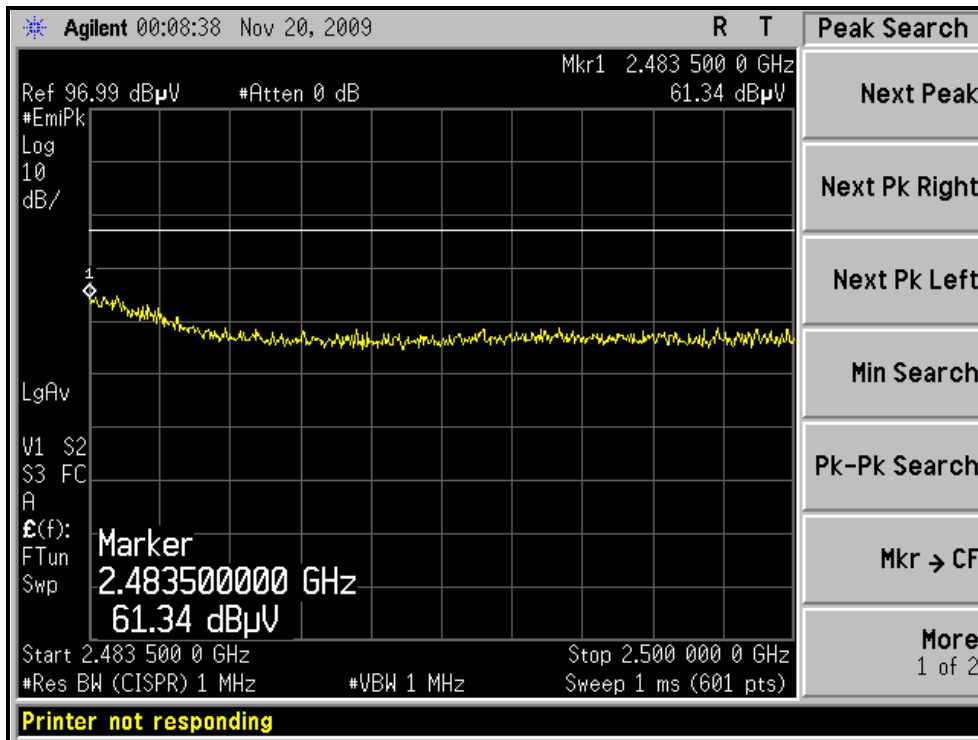
RESTRICTED BANDEDGE (802.11g MODE,CH11, HORIZONTAL)





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RESTRICTED BANDEDGE (802.11g MODE,CH11, VERTICAL)





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	28deg. C, 65%RH 1016 hPa	TESTED BY	Frank Liu
TEST MODE	PIFA antenna		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.9 PK	74.00	-9.2	1.58 H	195	34.79	30.06
2	2390.00	50.7 AV	54.00	-3.3	1.58 H	195	20.65	30.06
3	*2412.00	103.8 PK			1.46 H	198	73.65	30.15
4	*2412.00	95.2 AV			1.46 H	198	65.05	30.15
5	4824.00	43.1 PK	74.00	-30.9	1.76 H	11	7.64	35.46
6	4824.00	32.0 AV	54.00	-22.0	1.76 H	11	-3.46	35.46
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	63.8 PK	74.00	-10.2	1.02 V	295	33.74	30.06
2	2390.00	49.7 AV	54.00	-4.3	1.02 V	295	19.62	30.06
3	*2412.00	103.2 PK			1.05 V	294	73.05	30.15
4	*2412.00	95.3 AV			1.05 V	294	65.15	30.15
5	4824.00	43.3 PK	74.00	-30.7	1.07 V	2	7.84	35.46
6	4824.00	32.3 AV	54.00	-21.7	1.07 V	2	-3.16	35.46

- 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	19deg. C, 69%RH 1023 hPa	TESTED BY	Wen Yu
TEST MODE	PIFA antenna		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	109.0 PK			1.00 H	48	78.76	30.24
2	*2437.00	99.9 AV			1.00 H	48	69.68	30.24
3	4874.00	43.5 PK	74.00	-30.5	1.45 H	8	7.95	35.55
4	4874.00	33.1 AV	54.00	-20.9	1.45 H	8	-2.45	35.55
5	7311.00	55.5 PK	74.00	-18.5	1.27 H	154	13.46	42.04
6	7311.00	43.2 AV	54.00	-10.9	1.27 H	154	1.11	42.04
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	108.5 PK			1.09 V	344	78.26	30.24
2	*2437.00	99.5 AV			1.09 V	344	69.26	30.24
3	4874.00	43.9 PK	74.00	-30.1	1.23 V	0	8.35	35.55
4	4874.00	33.5 AV	54.00	-20.5	1.23 V	0	-2.05	35.55
5	7311.00	63.1 PK	74.00	-10.9	1.22 V	285	21.06	42.04
6	7311.00	48.7 AV	54.00	-5.3	1.22 V	285	6.66	42.04

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



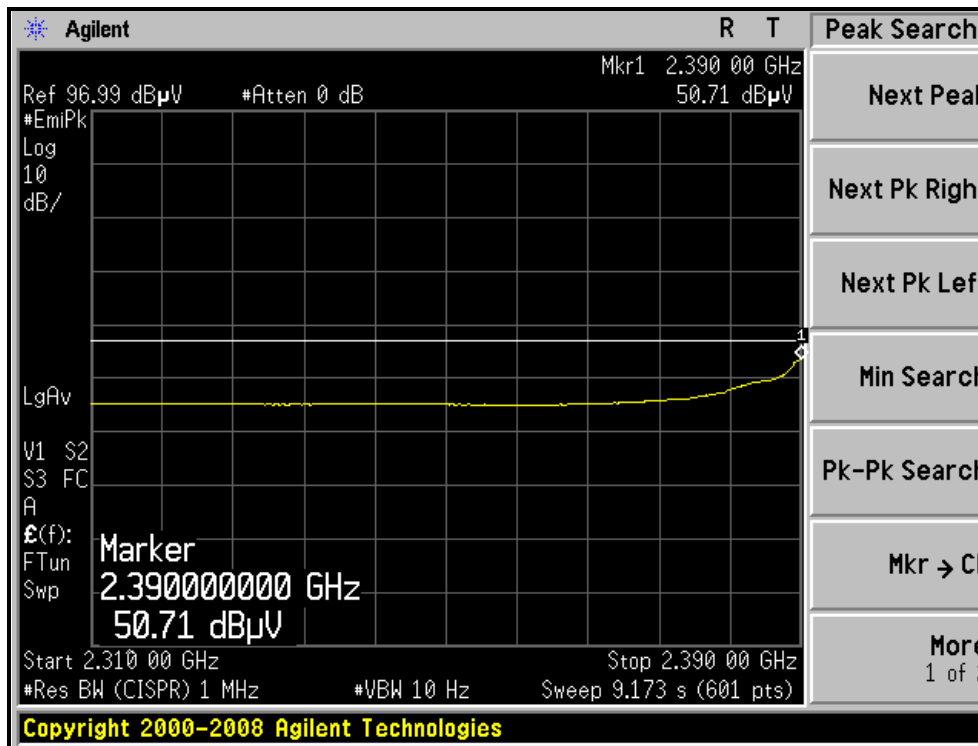
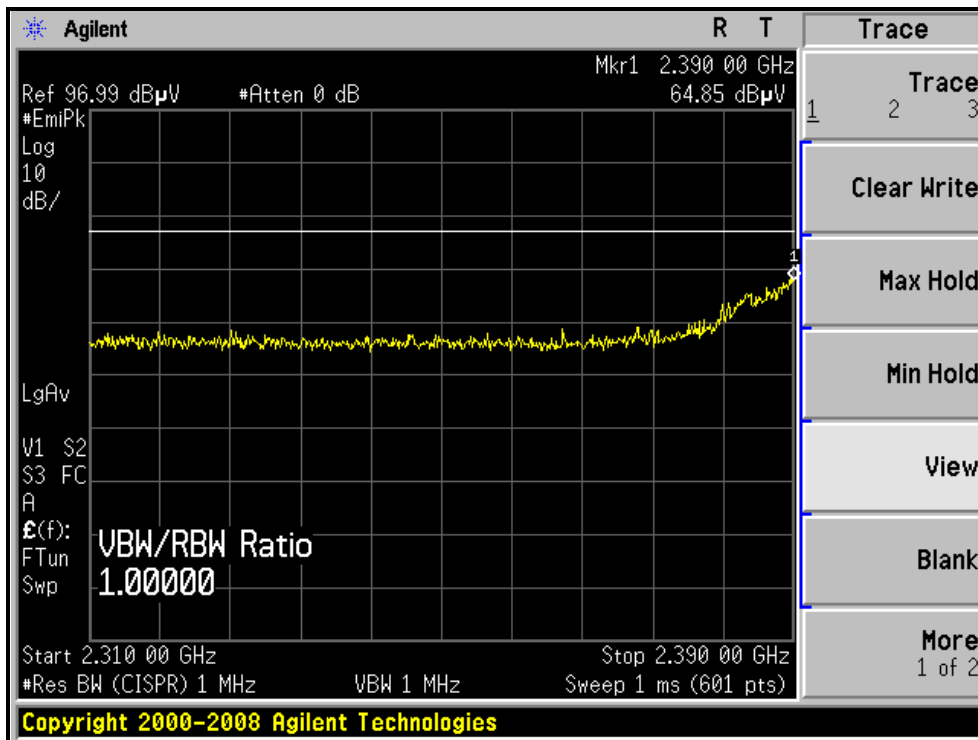
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 69%RH 1023 hPa	TESTED BY	Wen Yu
TEST MODE	PIFA antenna		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.6 PK			1.48 H	297	74.26	30.34
2	*2462.00	95.1 AV			1.48 H	297	64.76	30.34
3	2483.50	66.5 PK	74.00	-7.5	1.48 H	295	36.07	30.43
4	2483.50	49.3 AV	54.00	-4.7	1.48 H	295	18.86	30.43
5	4924.00	42.8 PK	74.00	-31.2	1.24 H	192	7.17	35.63
6	4924.00	32.3 AV	54.00	-21.7	1.24 H	192	-3.33	35.63
7	7386.00	48.9 PK	74.00	-25.1	1.11 H	21	6.67	42.23
8	7386.00	37.8 AV	54.00	-16.2	1.11 H	21	-4.43	42.23
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.4 PK			1.04 V	294	74.06	30.34
2	*2462.00	95.3 AV			1.04 V	294	64.96	30.34
3	2483.50	68.0 PK	74.00	-6.0	1.08 V	295	37.61	30.43
4	2483.50	50.8 AV	54.00	-3.2	1.08 V	295	20.34	30.43
5	4924.00	43.0 PK	74.00	-31.0	1.05 V	1	7.37	35.63
6	4924.00	32.4 AV	54.00	-21.6	1.05 V	1	-3.23	35.63
7	7386.00	55.8 PK	74.00	-18.2	1.09 V	9	13.57	42.23
8	7386.00	41.4 AV	54.00	-12.6	1.09 V	9	-0.83	42.23

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



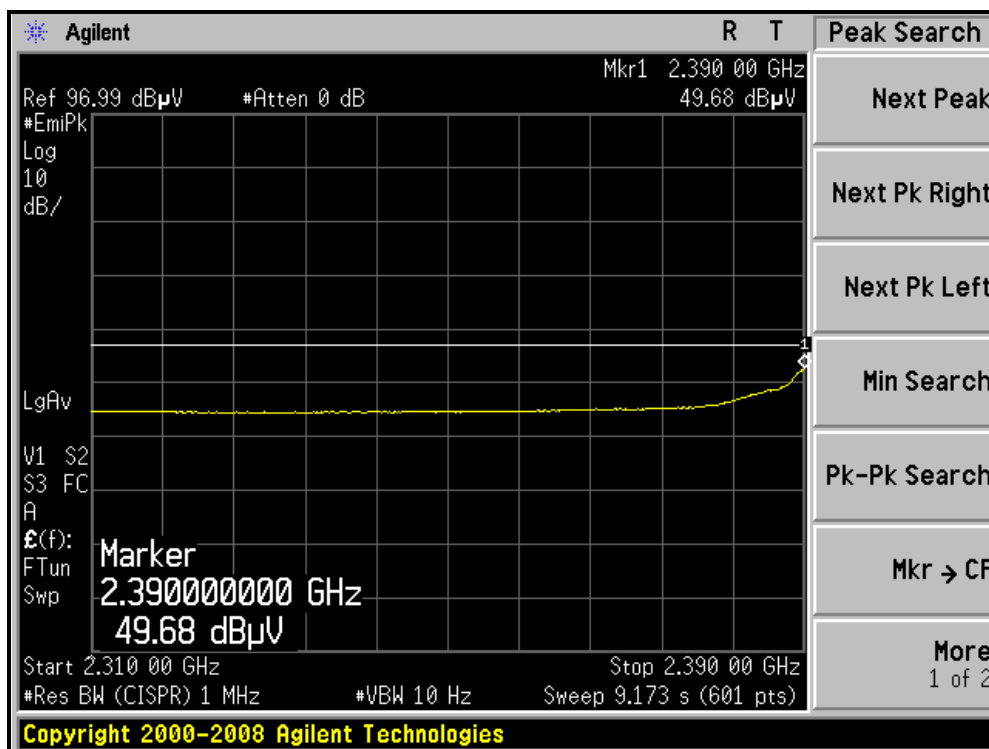
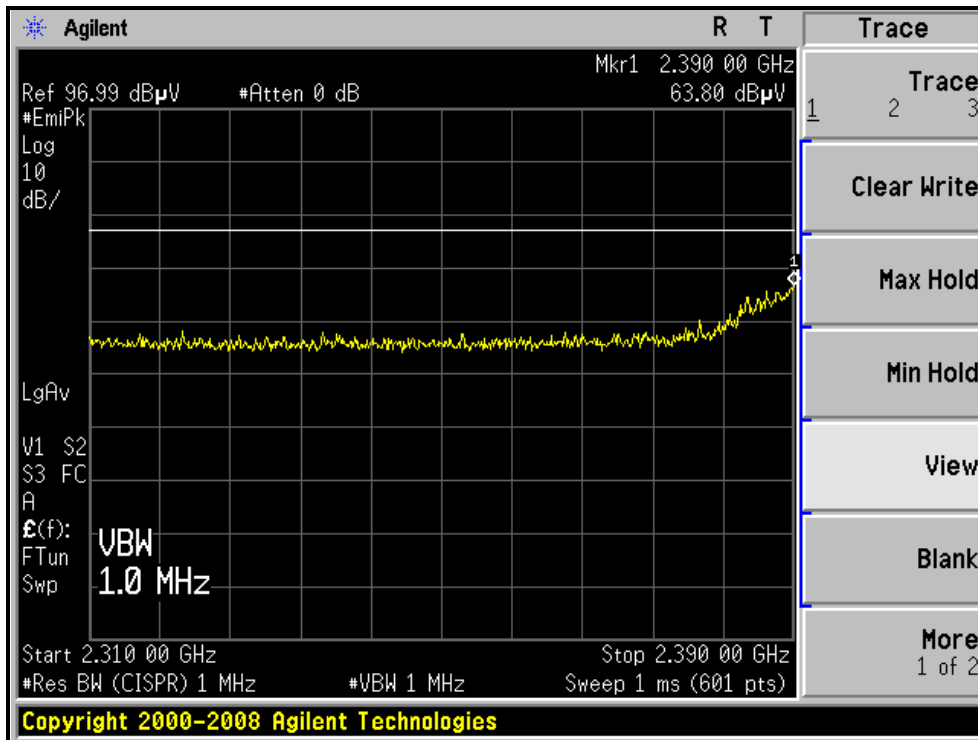
RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL)





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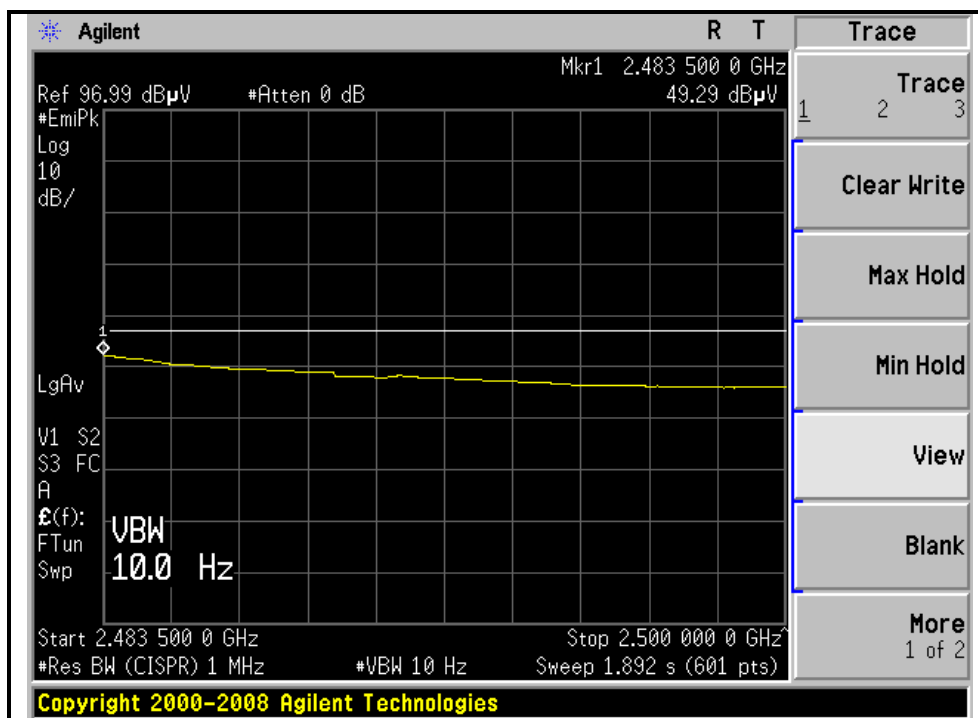
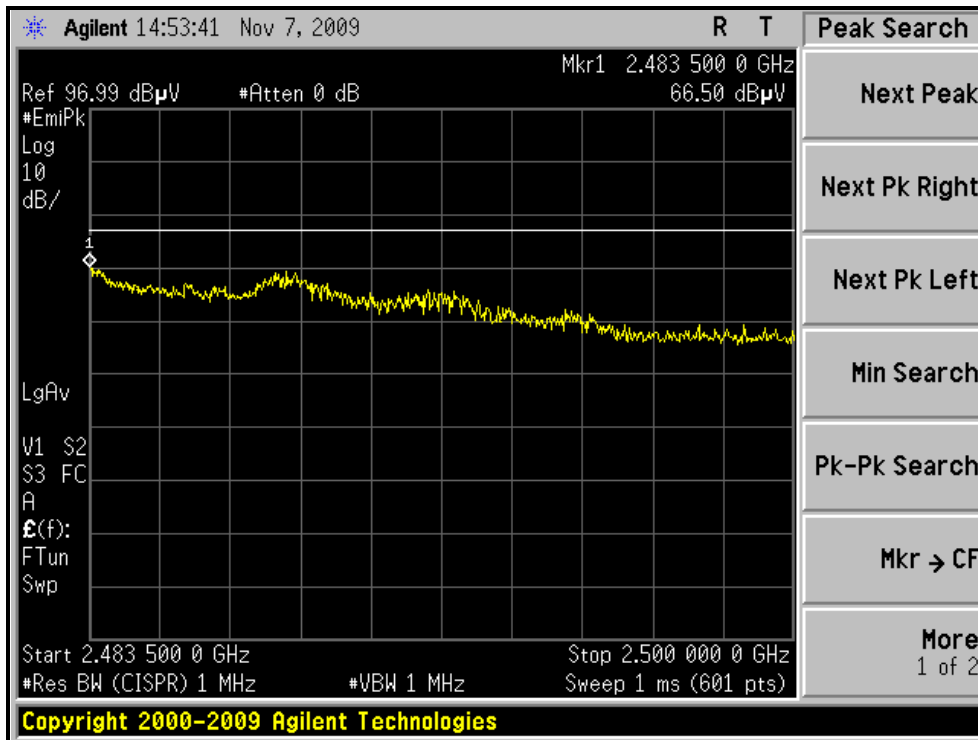
RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)





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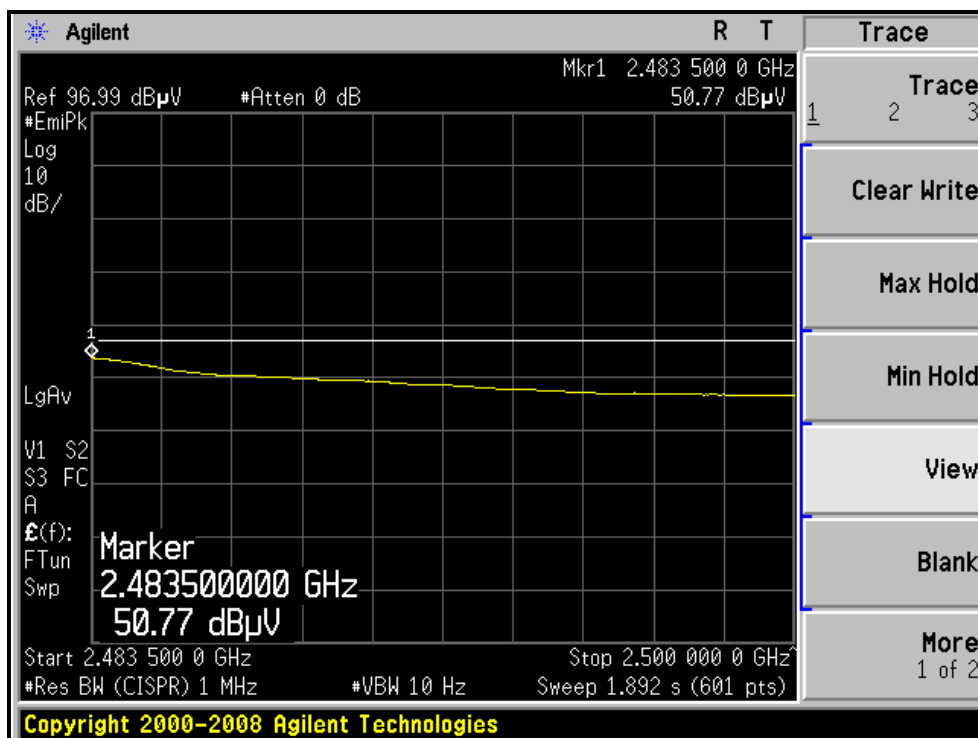
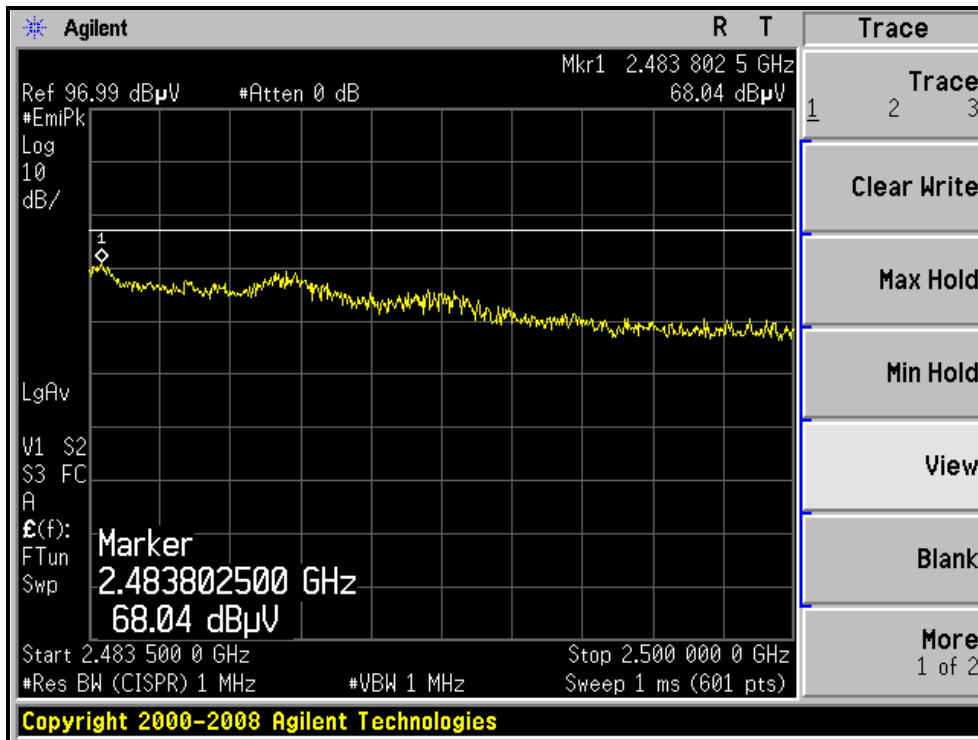
RESTRICTED BANDEDGE (802.11g MODE,CH11, HORIZONTAL)





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RESTRICTED BANDEDGE (802.11g MODE,CH11, VERTICAL)





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4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 03, 2009	Aug. 02, 2010

NOTE:

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

4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 100kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation



4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

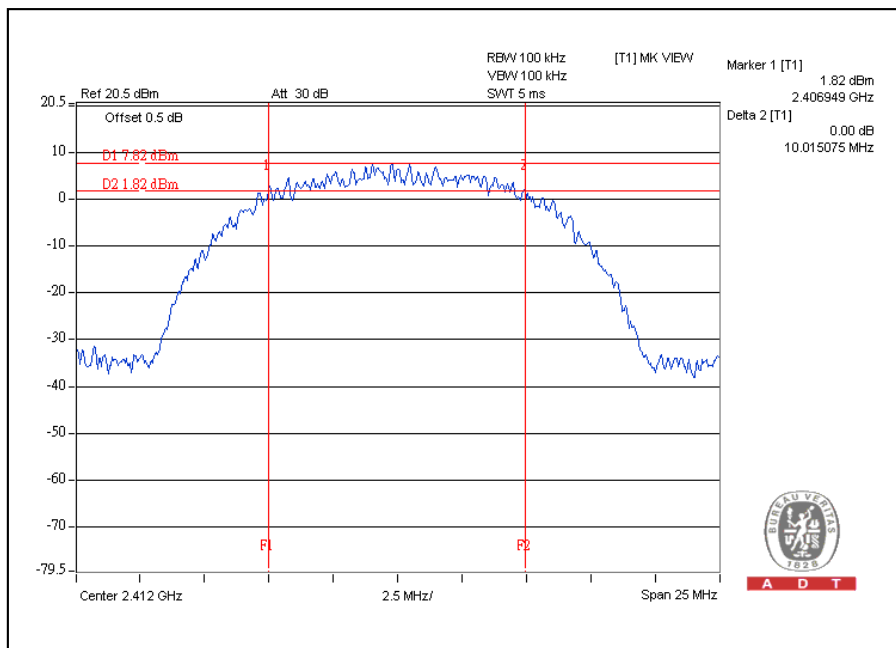
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.02	0.5	PASS
6	2437	9.97	0.5	PASS
11	2462	9.55	0.5	PASS

CH1



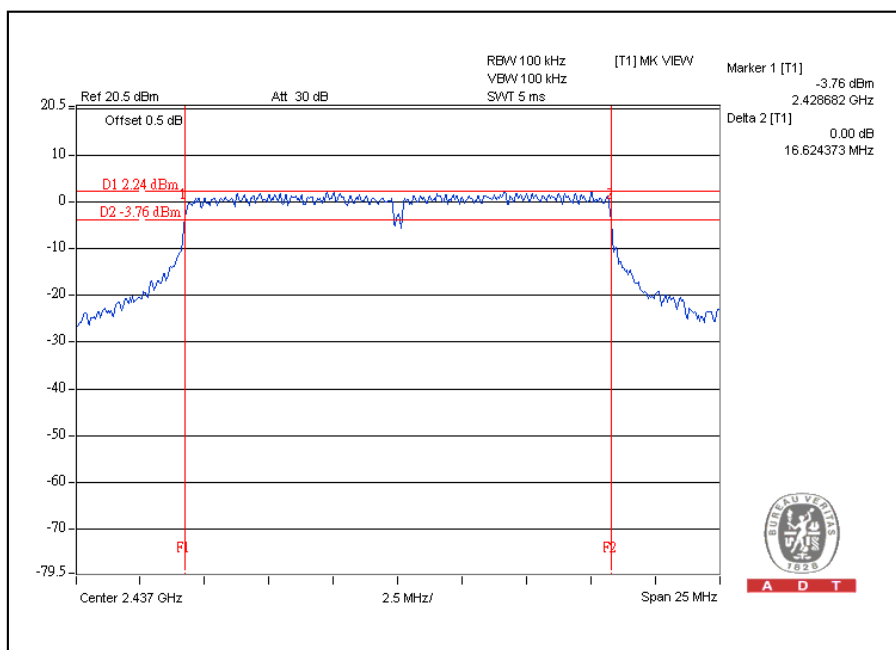


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802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.62	0.5	PASS
6	2437	16.62	0.5	PASS
11	2462	16.60	0.5	PASS

CH6





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4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 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.

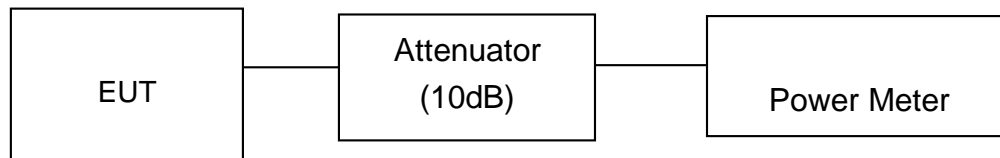
4.4.3 TEST PROCEDURES

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 4.2.6



4.4.7 TEST RESULTS

For PCB printed antenna:

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER OUTPUT (mW)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	22.1	162.2	30	PASS
6	2437	19.9	97.7	30	PASS
11	2462	21.5	141.3	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	23.0	199.5	30	PASS
6	2437	25.1	323.6	30	PASS
11	2462	23.0	199.5	30	PASS



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For PIFA antenna:

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER OUTPUT (mW)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	22.1	162.2	30	PASS
6	2437	19.9	97.7	30	PASS
11	2462	21.5	141.3	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	23.0	199.5	30	PASS
6	2437	25.1	323.6	30	PASS
11	2462	23.0	199.5	30	PASS



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4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100036	Dec. 18, 2009	Dec. 17, 2010

NOTE:

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

4.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

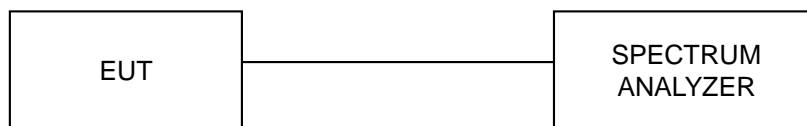
The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation



4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

Same as Item 4.2.6



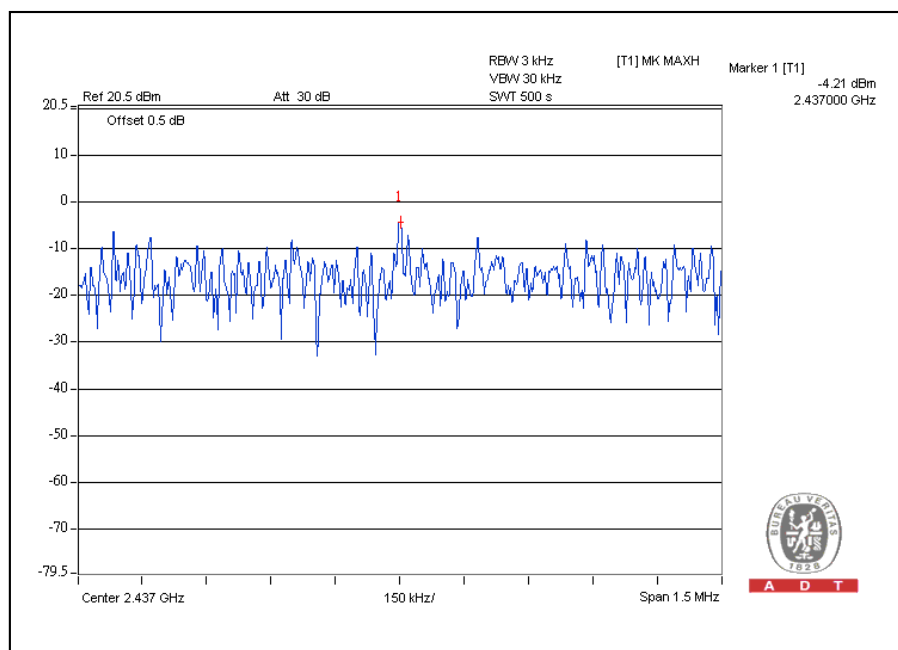
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4.5.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-5.6	8	PASS
6	2437	-4.2	8	PASS
11	2462	-4.3	8	PASS

CH6



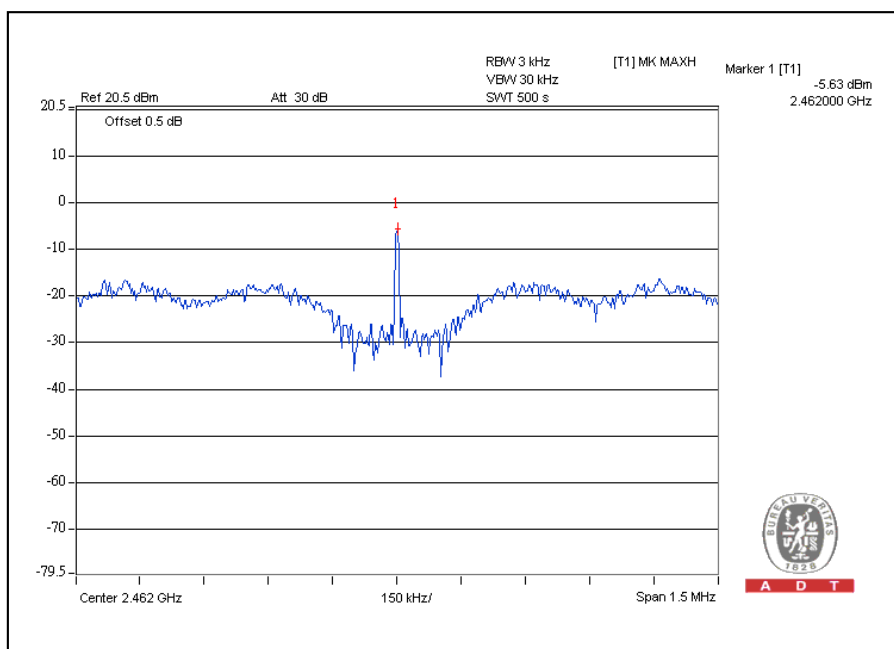


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802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-8.1	8	PASS
6	2437	-8.6	8	PASS
11	2462	-5.6	8	PASS

CH11



4.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100036	Dec. 18, 2009	Dec. 17, 2010

NOTE:

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

4.6.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 100kHz and 300kHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (RBW = 100kHz and VBW = 300kHz) are attached on the following pages.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

Same as Item 4.2.6

4.6.6 TEST RESULTS

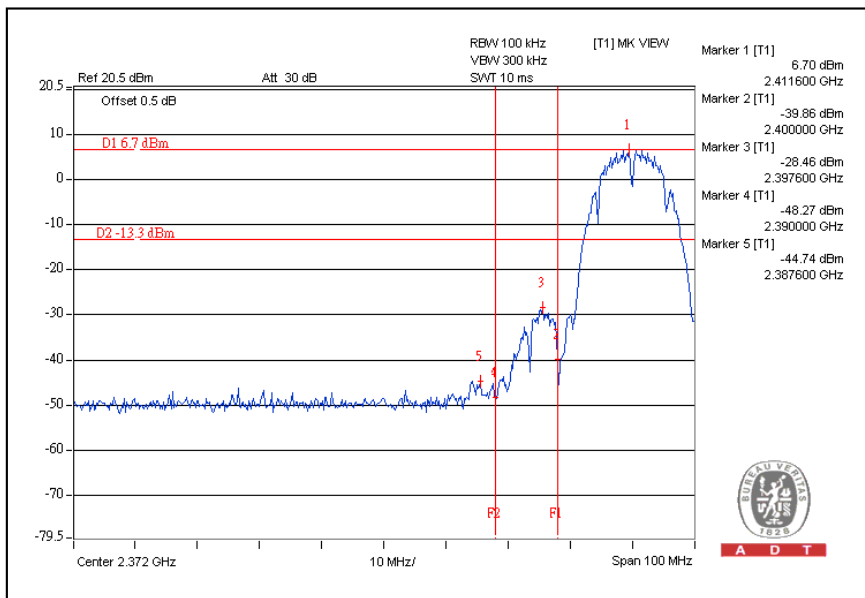
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).



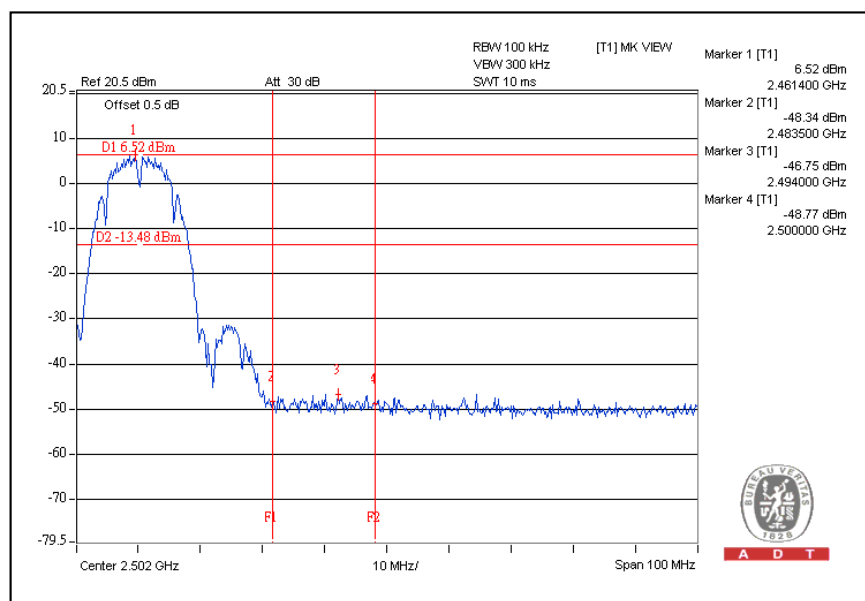
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802.11b DSSS MODULATION:

CH1



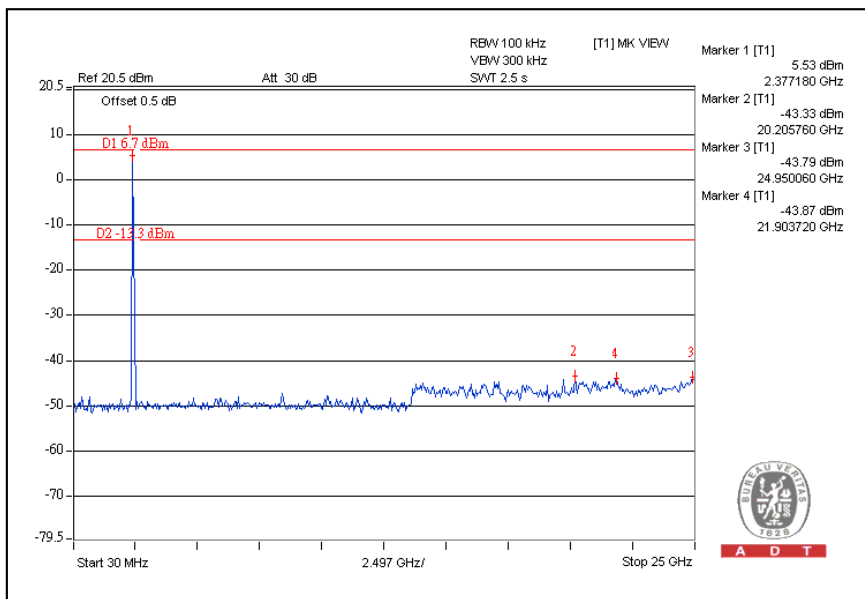
CH11



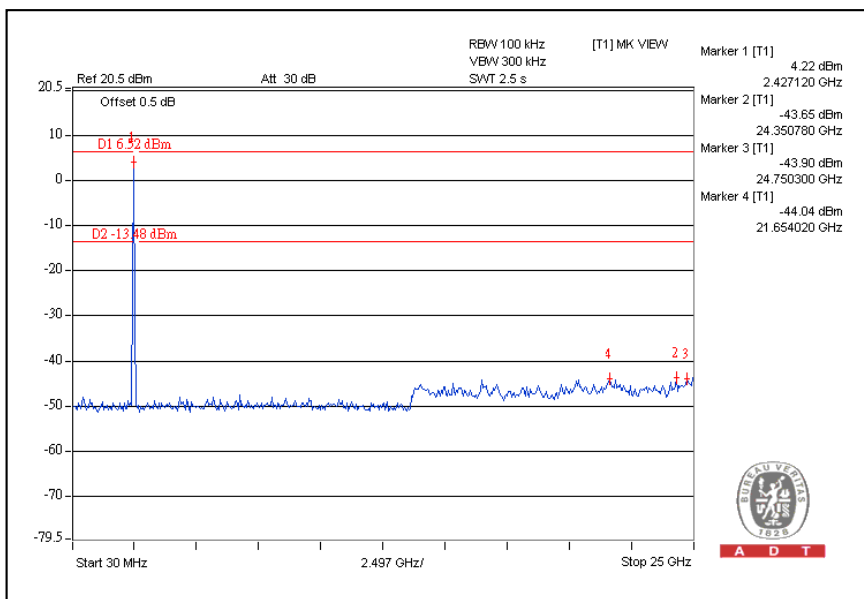


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CH1



CH11

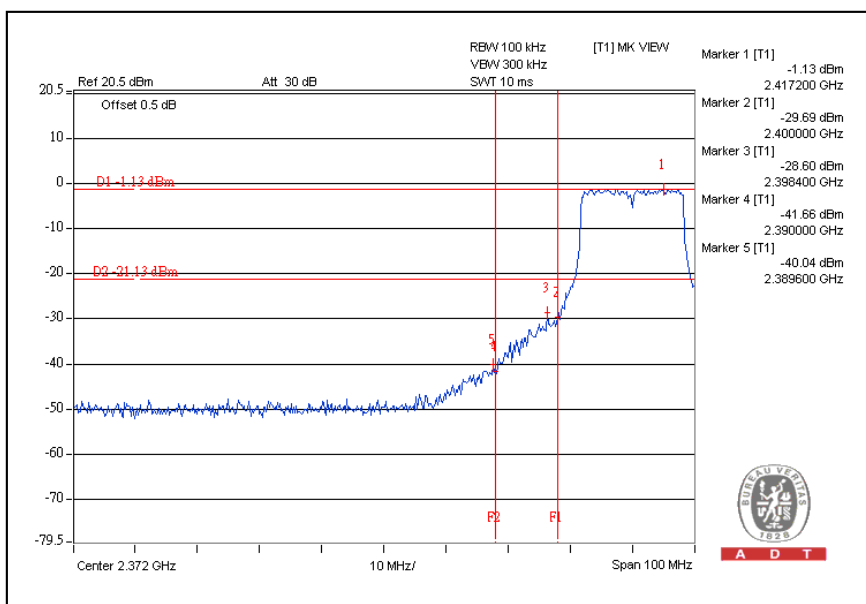




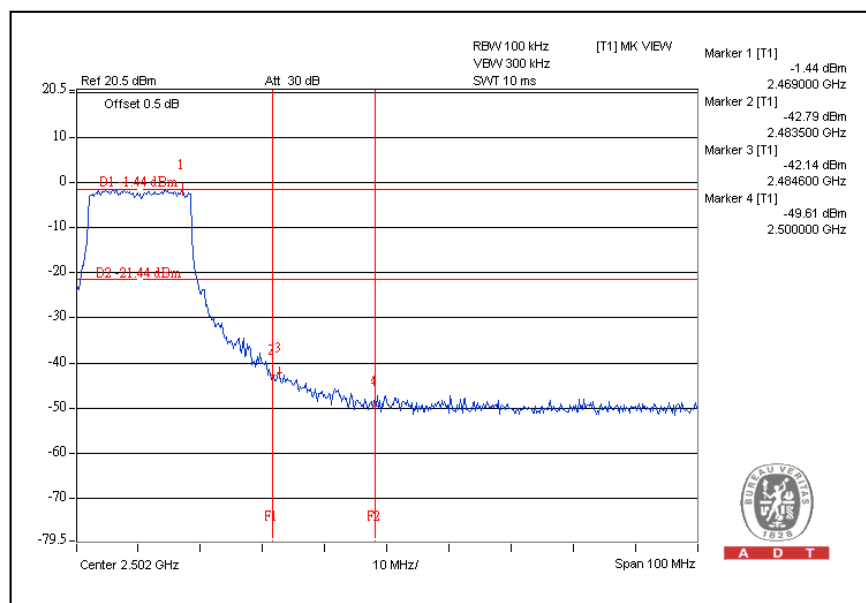
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802.11g OFDM MODULATION:

CH 1



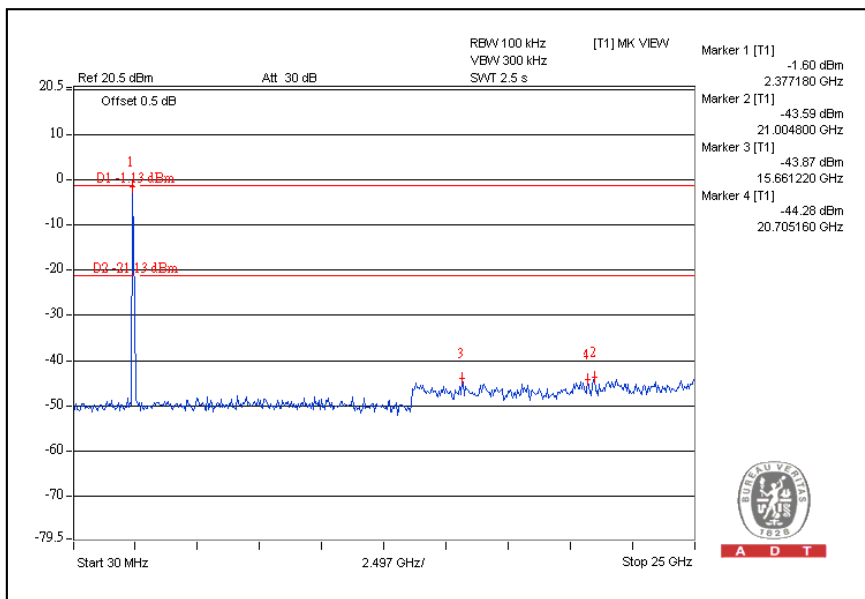
CH11



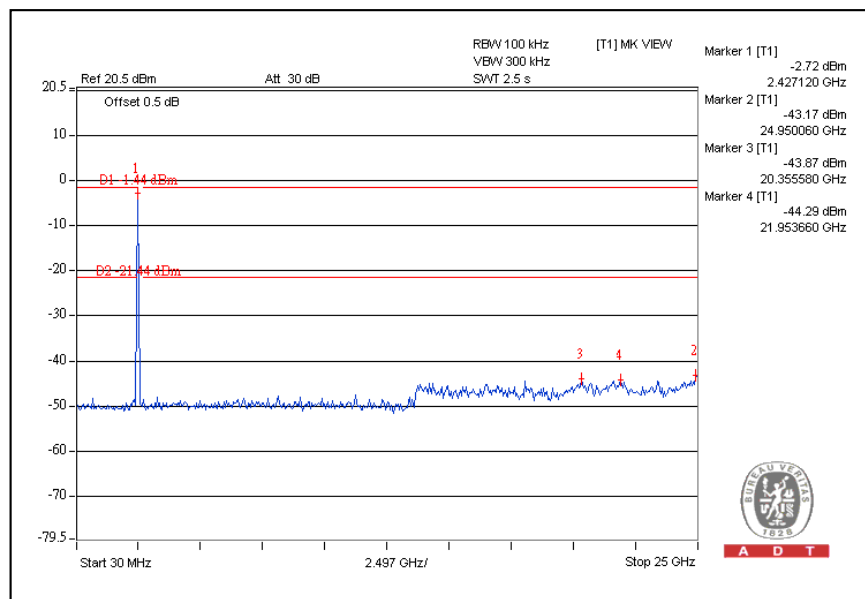


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CH1



CH11





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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 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:

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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