



FCC TEST REPORT

REPORT NO.: RF991130E02

MODEL NO.: PHS2000W

FCC ID: UXX-PHS2000W

RECEIVED: Nov. 30, 2010

TESTED: Dec. 14 to 18, 2010

ISSUED: Jan. 26, 2011

APPLICANT: Cradlepoint, Inc.

ADDRESS: 805 W. Franklin Street, Boise, ID 83702

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

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	NA	Jan. 26, 2011



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1. CERTIFICATION

PRODUCT: TableRock
BRAND NAME: Cradlepoint
MODEL NO.: PHS2000W
TEST SAMPLE: ENGINEERING SAMPLE
TESTED: Dec. 14 to 18, 2010
APPLICANT: Cradlepoint, Inc.
STANDARDS: FCC Part 15, Subpart C (Section 15.247)
ANSI C63.4-2003
ANSI C63.10-2009

The above equipment (Model: PHS2000W) 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 : Claire Kuan , **DATE:** Jan. 26, 2011
(Claire Kuan, Specialist)

APPROVED BY : May Chen , **DATE:** Jan. 26, 2011
(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 -0.41dB at 0.322MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -8.4dB at 44.6MHz
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	No antenna connector is used.

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	TableRock
MODEL NO.	PHS2000W
FCC ID	UXX-PHS2000W
POWER SUPPLY	DC 5V from adapter or DC 5V from dock or DC 3.7V from battery
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11 / 5.5 / 2 / 1Mbps 802.11g: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6Mbps 802.11n (20MHz, 800ns GI): 130 / 117 / 104 / 78 / 65 / 58.5 / 52 / 39 / 26 / 19.5 / 13 / 6.5Mbps 802.11n (40MHz, 800ns GI): 270 / 243 / 216 / 162 / 135 / 121.5 / 108 / 81 / 54 / 40.5 / 27 / 13.5Mbps
OPERATING FREQUENCY	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz)
MAXIMUM OUTPUT POWER	802.11b: 26.3mW 802.11g: 46.8mW 802.11n (20MHz): 44.7mW 802.11n (40MHz): 39.8mW
ANTENNA TYPE	Please see note 2
DATA CABLE	Micro USB cable (Shielded, 1.0m)
I/O PORTS	USB port x 1 Micro USB port x 1 10 pin connector port x 1 Antenna port x 2
ASSOCIATED DEVICES	Adapter x 1 Battery x 1 Micro USB cable x 1 Dock x 1

NOTE:

1. The EUT is Multi-function product, this report was recorded the **WiFi** test data. For the WiMAX test data was recorded in another test report<RF991130E02-1>.
2. There are two sets of antennas provided to this EUT, please refer to the following table:

Set 1 for WiMAX antenna						
Antenna	Antenna Type	Antenna Connector	Gain (dBi)	Cable Length(mm)	Frequency range (MHz)	Diversity Function
1	PCB	I-PEX	2	30	2500~2700	YES
2	PCB	I-PEX	2	45	2500~2700	YES
Set 2 for WIFI antenna						
Antenna	Antenna Type	Antenna Connector	Gain (dBi)	Cable Length(mm)	Frequency range (MHz)	Diversity Function
1	PIFA	NA	1	NA	2412~2472	YES
2	PIFA	NA	1	NA	2412~2472	YES

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

Antenna	Antenna Type	Antenna Connector	Gain (dBi)	Cable Length(mm)	Frequency range (MHz)	Diversity Function
1	PCB	TS-9	5	140	2500~2700	YES
2	PCB	TS-9	5	140	2500~2700	YES

4. The EUT could be supplied with 3.7V battery, dock or the following power adapter which will be sold together with the EUT:

Item	Brand	Model No.	Spec.
Adapter	Tenpao	S012UM0500180	AC I/P: 100-240V, 50/60Hz, 400mA DC O/P: 5V, 1800mA
Battery	ETI CA	0340-1371080001 (BP08-000720)	DC 3.7V, 1900mAh
Dock	Cradlepoint	PHS2000WD	

5. The EUT could be applied with one 3G card and following three different models could be chosen: <only for test, not for sale>

No.	Brand	Model No.	FCC ID
1	SIERRA WIRELESS	AirCard 875U	N7N-MC8775U
2	HUAWEI	E169u	QISE169
3	D-Link	DWM-156	KA2WM156A2

The EUT was pre-tested in chamber with above 3G cards, the worst case was found in model no.: **AirCard 875U**. Therefore only the test data of the mode was recorded in this report.

6. The EUT was pre-tested under the following test modes for three different axes placements:

Test Mode	Description
Mode A	X-Y plane
Mode B	Y-Z plane
Mode C	X-Z plane

From the above modes, the radiated emissions Test (Below 1 GHz), worse case was found in **Mode B**. For radiated emissions Test (Above 1 GHz), worse case was found in **Mode A**. Therefore only the test data of the modes was recorded in this report.

7. The EUT incorporates a SIMO function with 802.11n.
8. The EUT is 1 * 2 spatial SIMO (1Tx & 2Rx) without beam forming function. The 11b/g legacy mode is limited to single transmitter only.
9. The EUT complies with 802.11n standards and backwards compatible with 802.11b, 802.11g products.
10. The EUT, operates in the 2.4GHz frequency range, lets you connect IEEE 802.11g or IEEE 802.11b and 802.11n technique devices to the network.
11. 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, 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

Seven channels are provided for 802.11n (40MHz):

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

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE < 1G	RE ≥ 1G	APCM	
MODE 1	√	-	-	-	EUT + Battery + Dock + Adapter
MODE 2	√	-	-	-	EUT + Battery + USB cable + Dock
MODE 3	√	-	-	-	EUT + Battery + USB cable with 3G card
MODE 4	√	√	√	√	EUT + Battery + Adapter with 3G card

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

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)
802.11g	1 to 11	6	OFDM	BPSK	6

RADIATED EMISSION TEST (ABOVE 1 GHz):

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5

CONDUCTED OUT-BAND EMISSION MEASUREMENT:

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 11	OFDM	BPSK	6
802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	6.5
802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	13.5

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
802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5

※ **TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE ³ 1G	19deg. C, 66%RH, 1022 hPa	120Vac, 60Hz	Frank Liu
RE<1G	20deg. C, 72%RH, 1022 hPa	120Vac, 60Hz	Frank Liu
PLC	19deg. C, 47%RH, 1022 hPa	120Vac, 60Hz	Moris Lin
APCM	25deg. C, 60%RH, 1022 hPa	120Vac, 60Hz	Moris Lin

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

ANSI C63.10-2009

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

NOTE: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.



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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.

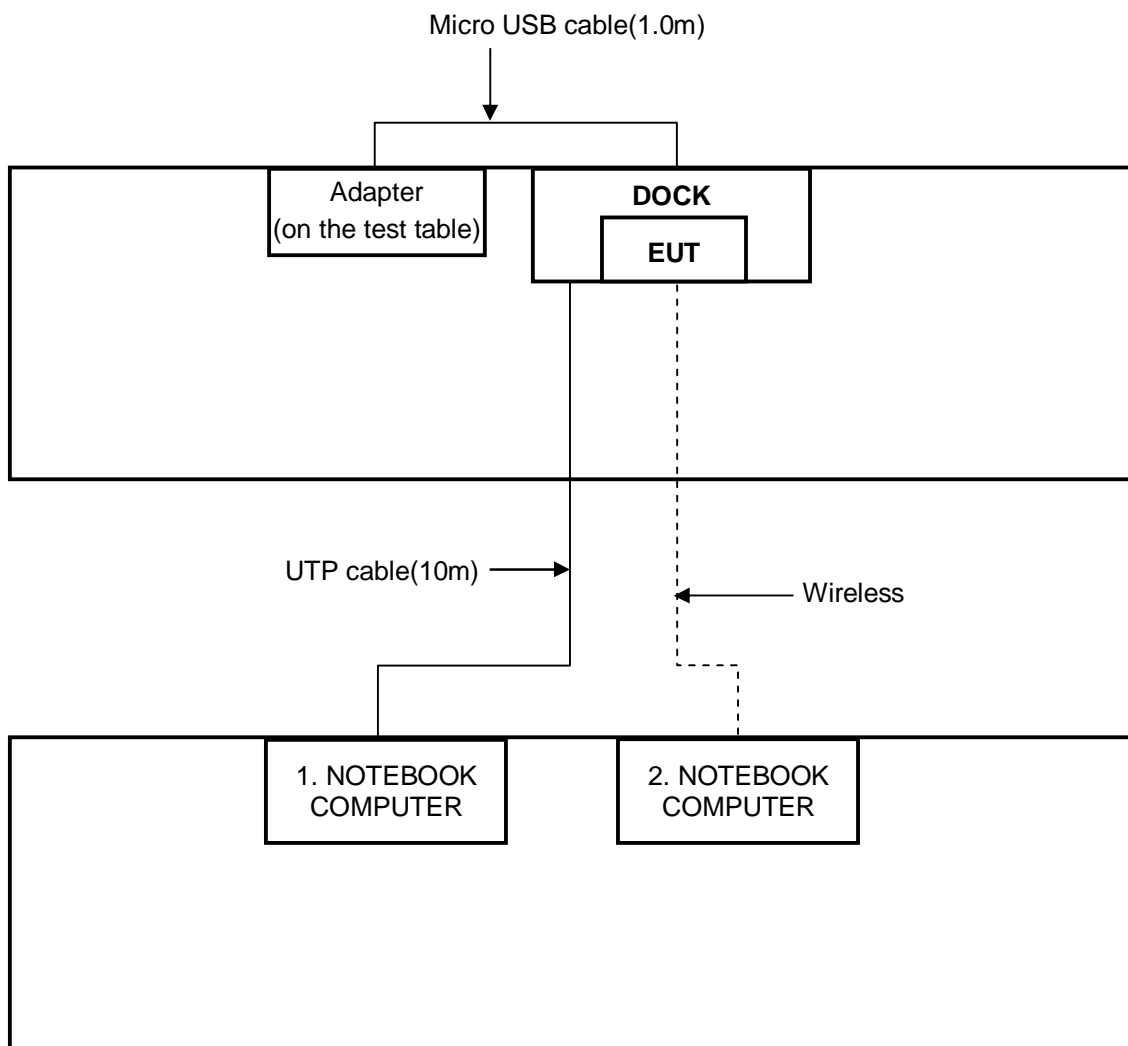
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	D531	CN-0XM006-48643-8 6L-4472	QDS-BRCM1019
2	NOTEBOOK COMPUTER	DELL	PP17L	CN-ONF743-48643-7 AV-0124	FCC DoC
3	NOTEBOOK COMPUTER	DELL	PP21L	CN-0GD366-70166-5 B3-09ZX	QDS-BRCM1016
4	iPod	Apple	A1137	6U6078FMUPR	FCC DoC

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	UTP cable(10m)
2	NA
3	USB cable(Shielded, 1m)
4	USB cable(Shielded, 1m)

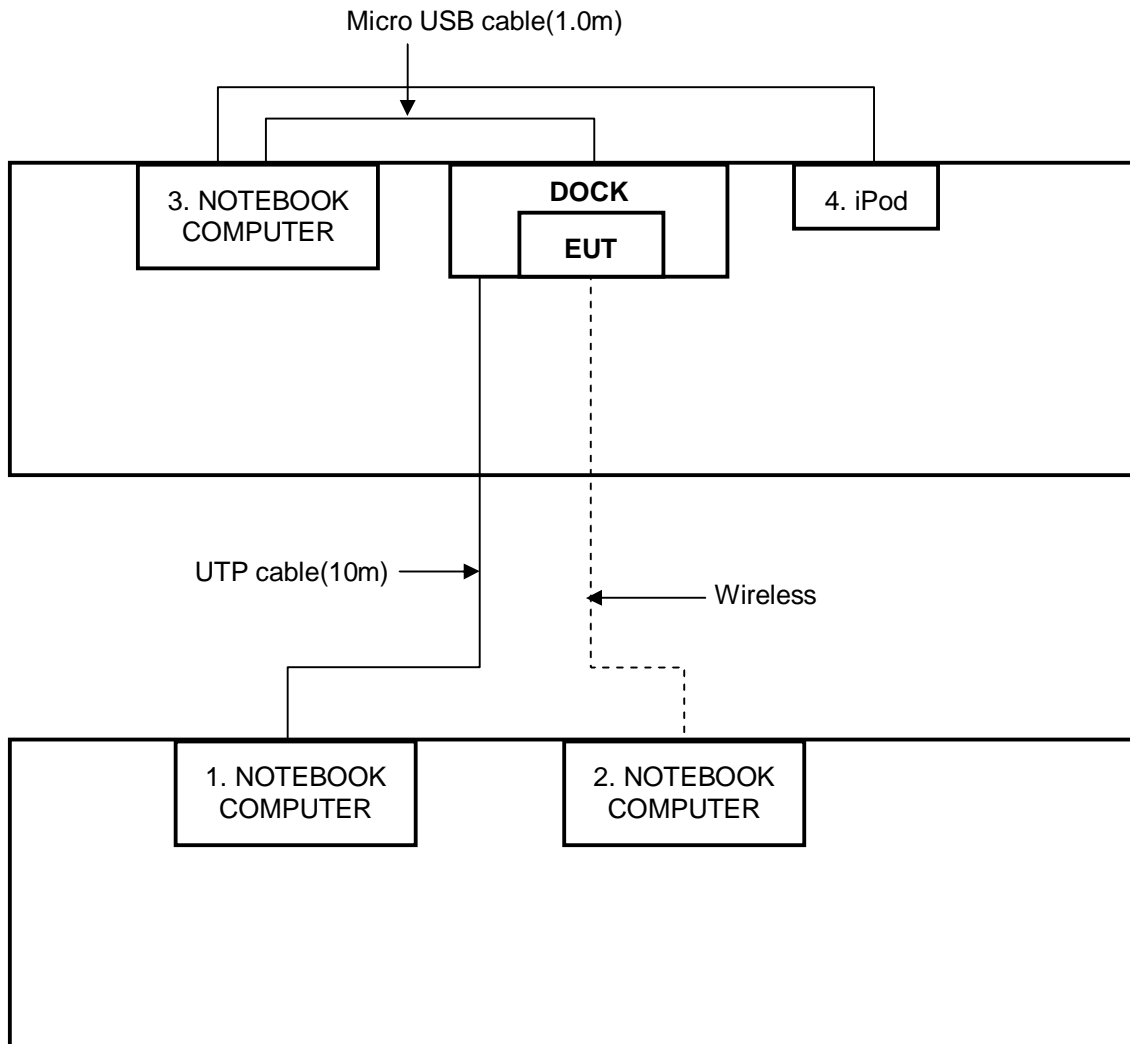
NOTE: 1. All power cords of the above support units are non shielded (1.8m).

3.5 CONFIGURATION OF SYSTEM UNDER TEST

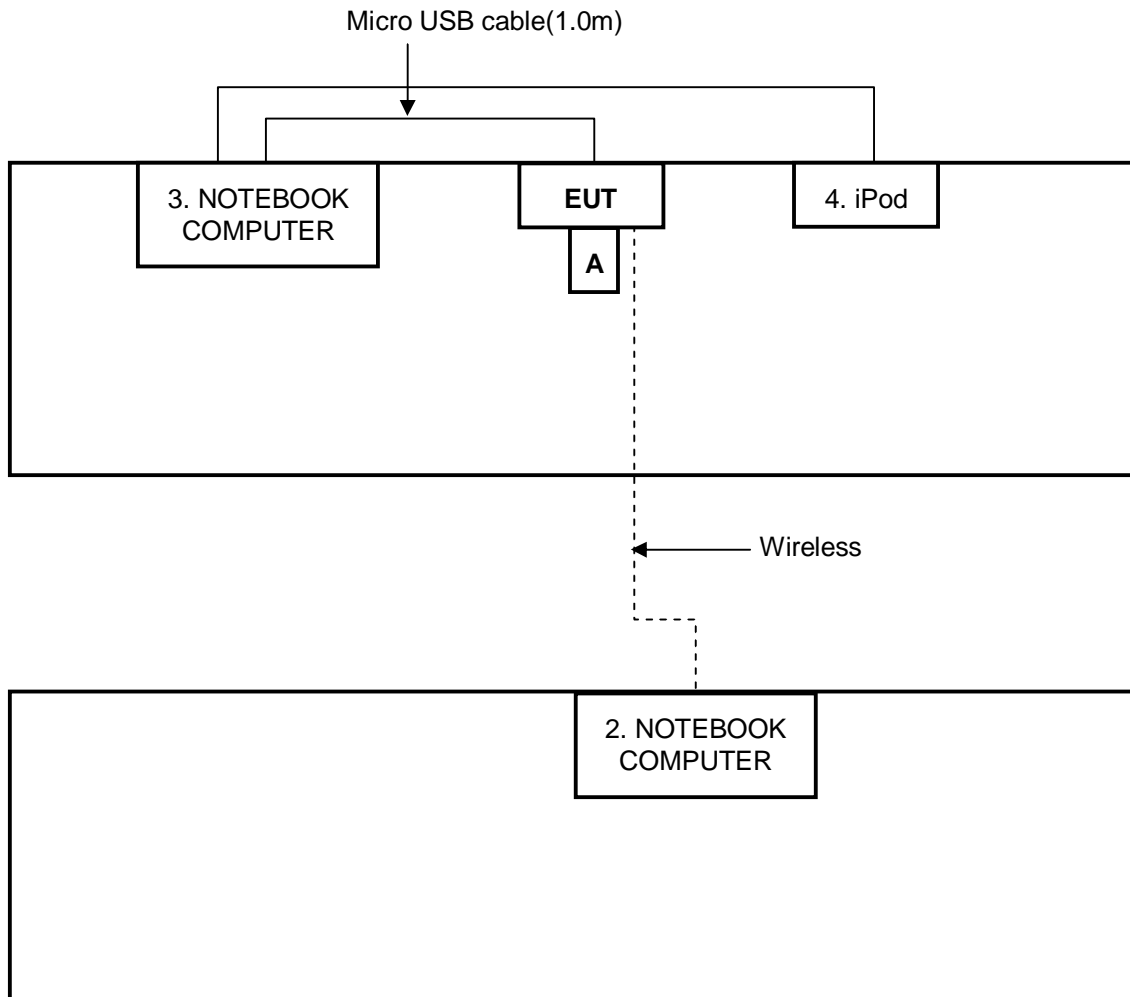
For conducted test mode 1:



For conducted test mode 2:

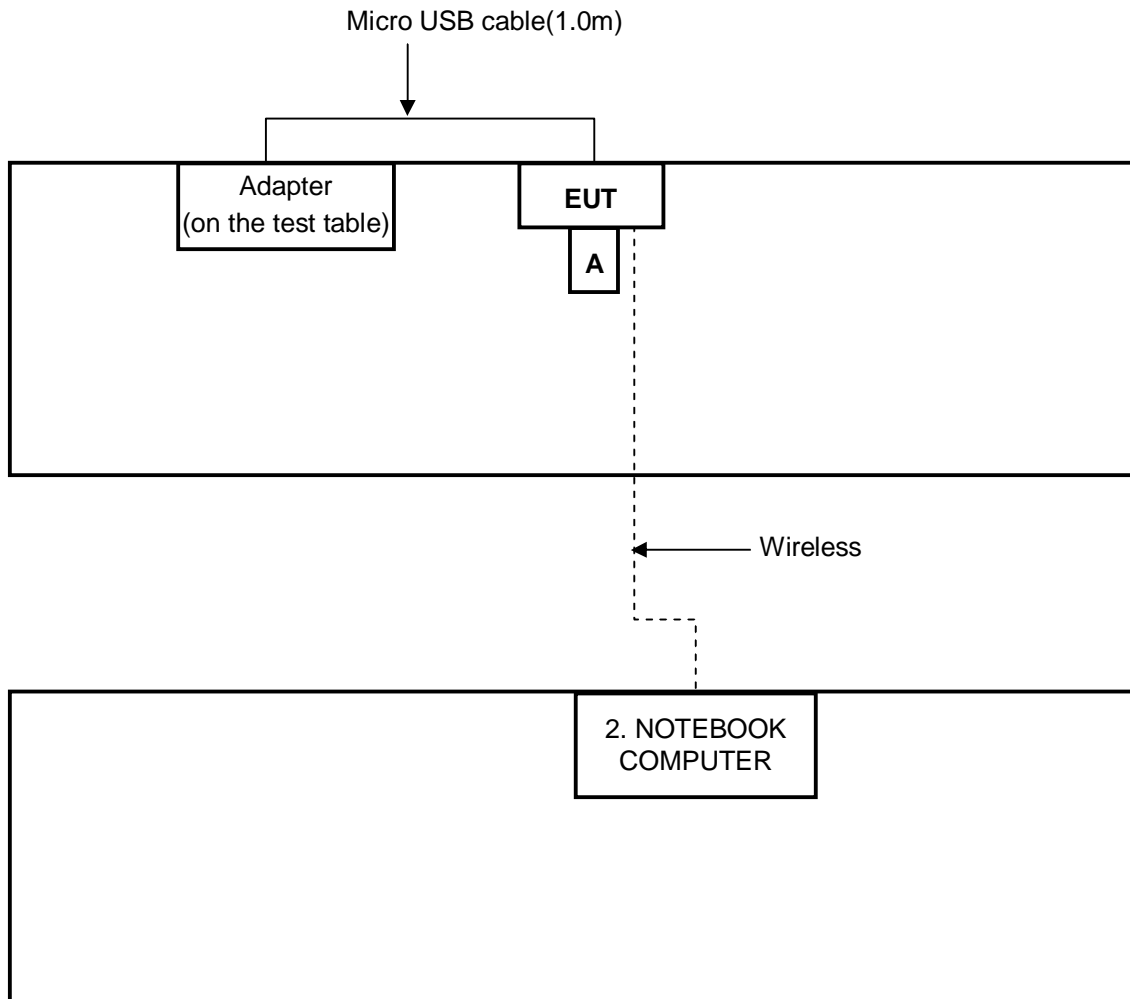


For conducted test mode 3:



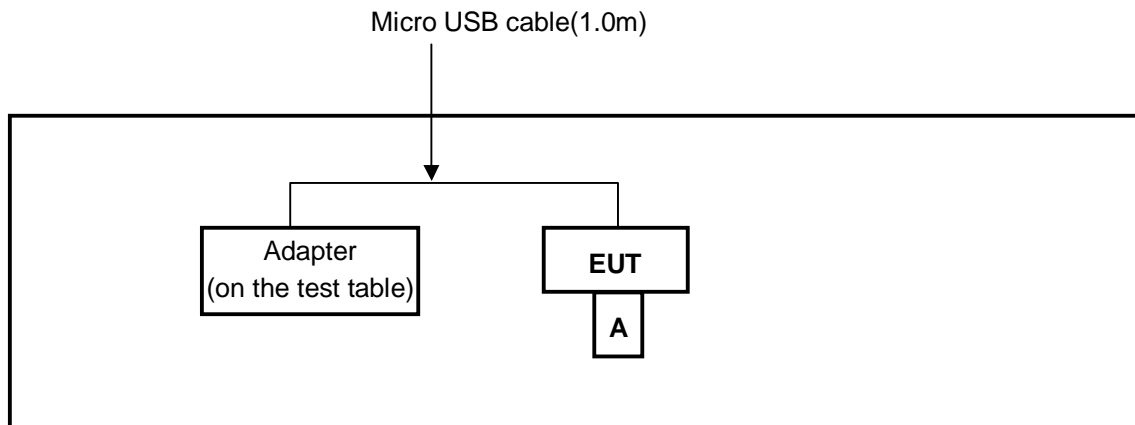
NOTE: 1. Item A is the 3G card.

For conducted test mode 4:



NOTE: 1. Item A is the 3G card.

For other test items:



NOTE: 1. Item A is the 3G card.

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
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Mar. 01, 2010	Feb. 28, 2011
Line-Impedance Stabilization Network (for EUT)	NSLK 8127	8127-523	Sep. 17, 2010	Sep. 16, 2011
Line-Impedance Stabilization Network (for Peripheral)	ENV-216	100072	June 11, 2010	June 10, 2011
RF Cable (JYEBAO)	5DFB	CONCAB-003	Aug. 06, 2010	Aug. 05, 2011
50 ohms Terminator	50	3	Nov. 03, 2010	Nov. 02, 2011
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. A.
3. The VCCI Con A Registration No. is C-817.

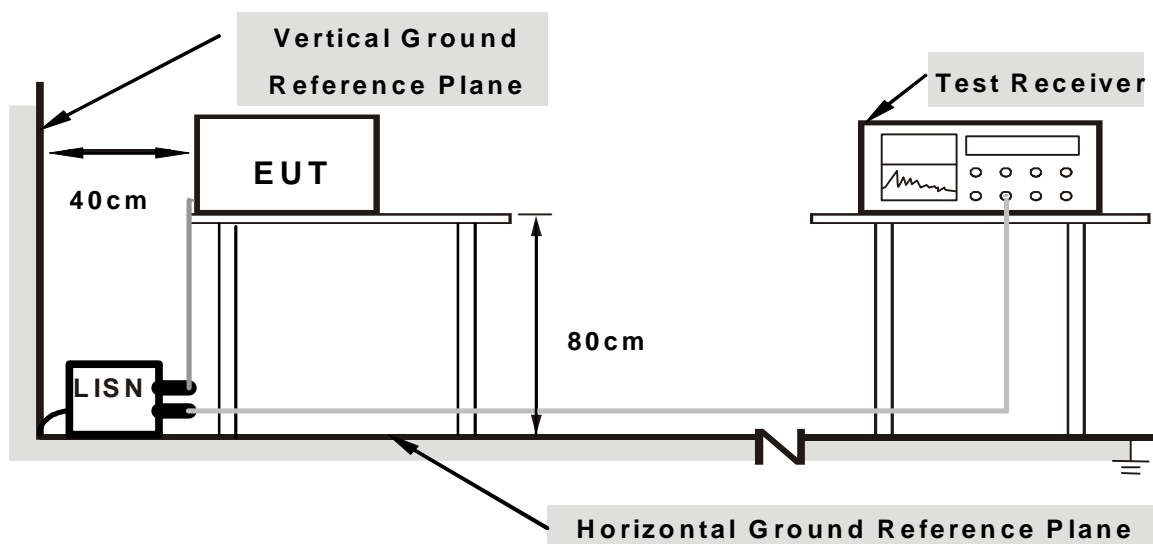
4.1.3 TEST PROCEDURES

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

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



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

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

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

4.1.6 EUT OPERATING CONDITIONS

For test mode 1:

1. Placed the EUT on testing table.
2. Prepared other computer systems (support units 1~2) to act as communication partners and placed them outside of testing area.
3. The communication partners ran test programs “Ping.exe” to enable EUT under transmission/receiving condition continuously via one UTP cable and wireless.

For test mode 2:

1. Placed the EUT on testing table.
2. Prepared other computer systems (support units 1~2) to act as communication partners and placed them outside of testing area.
3. The communication partners ran test programs “Ping.exe” to enable EUT under transmission/receiving condition continuously via one UTP cable, one USB cable and wireless.

For test mode 3:

4. Placed the EUT on testing table.
5. Prepared other computer systems (support unit 1) to act as communication partners and placed them outside of testing area.
6. The communication partners ran test programs “Ping.exe” to enable EUT under transmission/receiving condition continuously via one USB cable and wireless.

For test mode 4:

1. Placed the EUT on testing table.
2. Prepared other computer systems (support unit 1) to act as communication partners and placed them outside of testing area.
3. The communication partners ran test programs “Ping.exe” to enable EUT under transmission/receiving condition continuously via wireless.

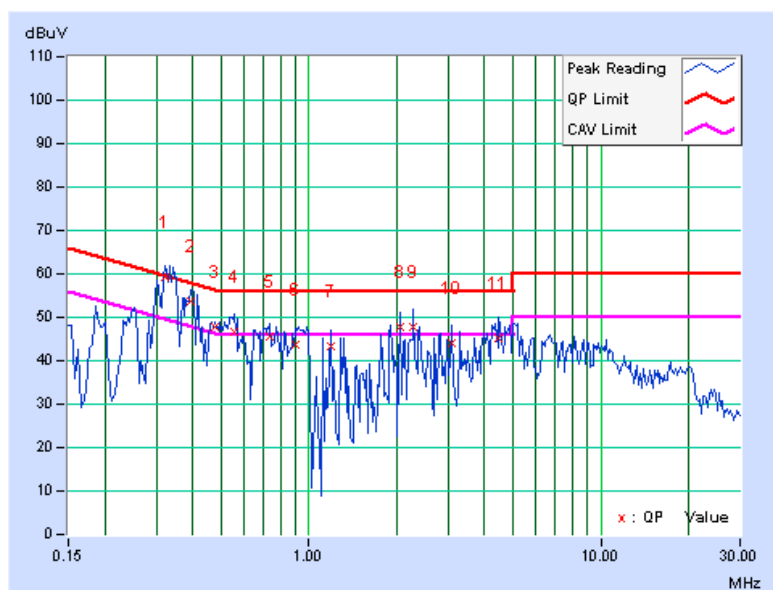
4.1.7 TEST RESULTS (MODE 1)

802.11g OFDM MODULATION:

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
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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	0.322	0.36	58.89	42.09	59.25	42.45	59.66	49.66	-0.41	-7.21
2	0.392	0.36	53.44	37.57	53.80	37.93	58.02	48.02	-4.22	-10.09
3	0.478	0.37	47.29	30.65	47.66	31.02	56.37	46.37	-8.72	-15.36
4	0.556	0.37	46.27	31.62	46.64	31.99	56.00	46.00	-9.36	-14.01
5	0.736	0.39	45.03	-	45.42	-	56.00	46.00	-10.58	-
6	0.904	0.40	43.27	-	43.67	-	56.00	46.00	-12.33	-
7	1.184	0.42	42.98	-	43.40	-	56.00	46.00	-12.60	-
8	2.059	0.46	47.20	31.10	47.66	31.56	56.00	46.00	-8.34	-14.44
9	2.270	0.47	47.49	32.24	47.96	32.71	56.00	46.00	-8.04	-13.29
10	3.102	0.49	43.58	-	44.07	-	56.00	46.00	-11.93	-
11	4.465	0.52	44.65	-	45.17	-	56.00	46.00	-10.83	-

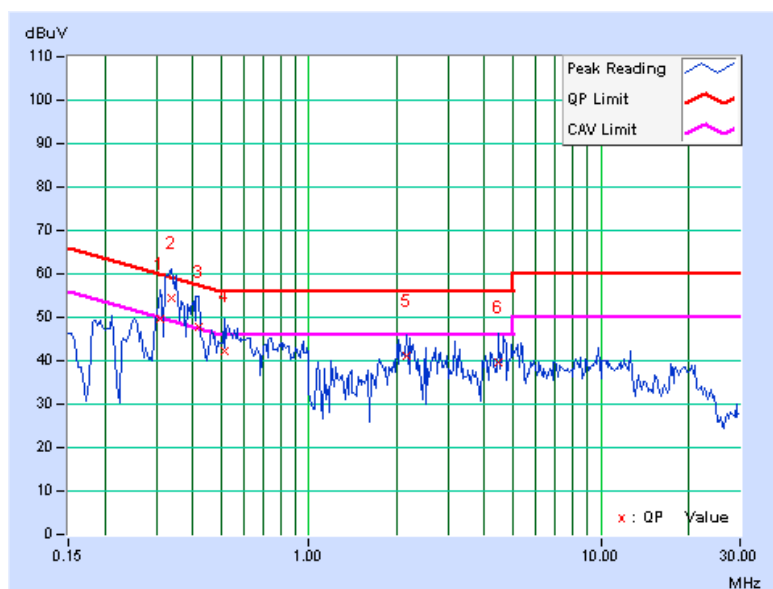
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.310	0.11	49.35	-	49.46	-	59.97	49.97	-10.51	-
2	0.338	0.11	54.44	38.58	54.55	38.69	59.26	49.26	-4.72	-10.58
3	0.420	0.11	47.58	33.91	47.69	34.02	57.46	47.46	-9.77	-13.44
4	0.513	0.12	41.99	-	42.11	-	56.00	46.00	-13.89	-
5	2.160	0.20	40.97	-	41.17	-	56.00	46.00	-14.83	-
6	4.473	0.26	39.44	-	39.70	-	56.00	46.00	-16.30	-

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



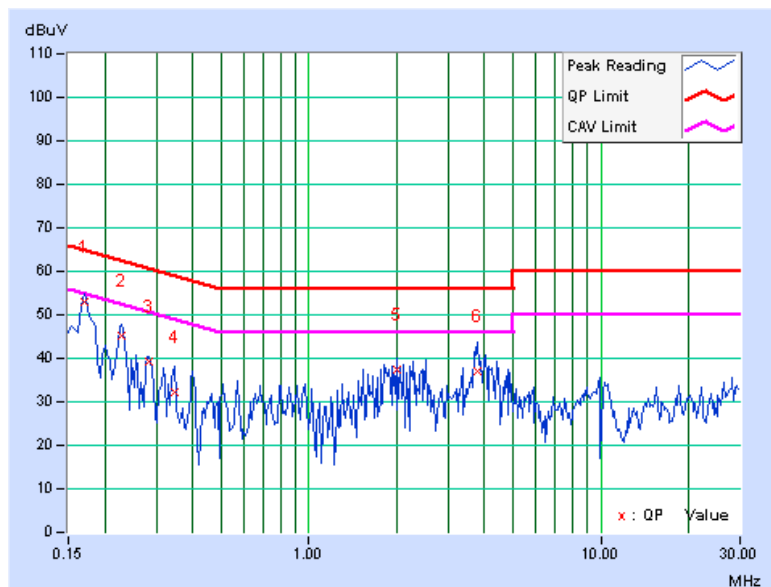
4.1.8 TEST RESULTS (MODE 2)

802.11g OFDM MODULATION:

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
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	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.36	52.50	-	52.86	-	64.98	54.98	-12.12	-
2	0.228	0.36	44.96	-	45.32	-	62.52	52.52	-17.20	-
3	0.283	0.36	39.02	-	39.38	-	60.73	50.73	-21.35	-
4	0.345	0.36	31.88	-	32.24	-	59.07	49.07	-26.83	-
5	1.996	0.46	37.04	-	37.50	-	56.00	46.00	-18.50	-
6	3.766	0.50	36.40	-	36.90	-	56.00	46.00	-19.10	-

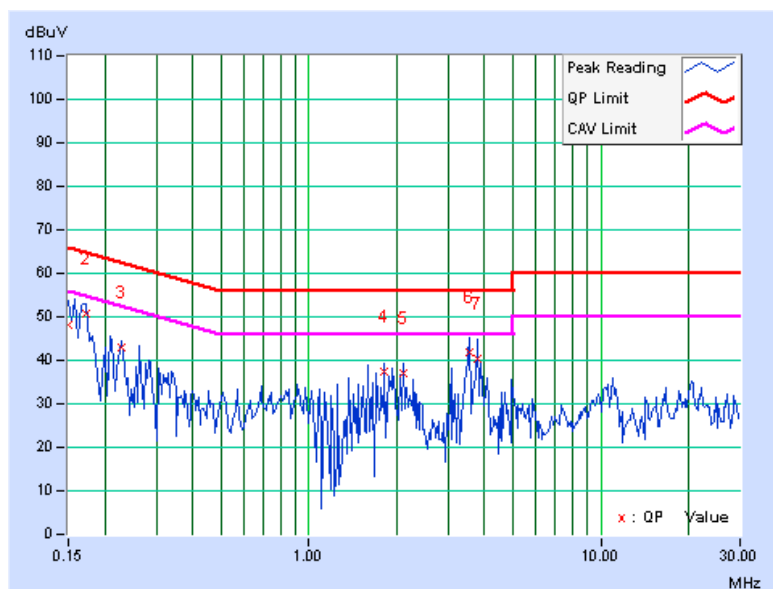
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
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	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.10	47.99	-	48.09	-	66.00	56.00	-17.91	-
2	0.173	0.10	50.52	-	50.62	-	64.79	54.79	-14.18	-
3	0.228	0.10	42.90	-	43.00	-	62.52	52.52	-19.52	-
4	1.820	0.19	37.32	-	37.51	-	56.00	46.00	-18.49	-
5	2.109	0.20	36.77	-	36.97	-	56.00	46.00	-19.03	-
6	3.531	0.23	41.64	-	41.87	-	56.00	46.00	-14.13	-
7	3.766	0.24	40.23	-	40.47	-	56.00	46.00	-15.53	-

- 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.



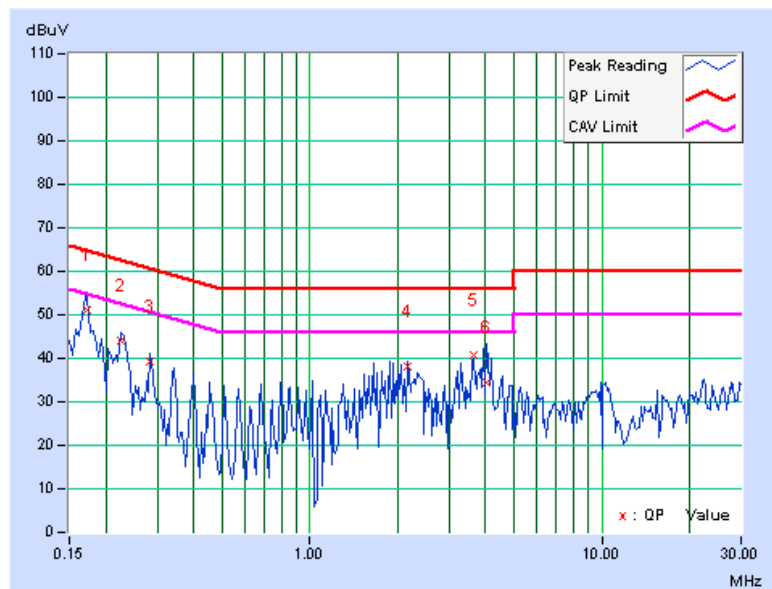
4.1.9 TEST RESULTS (MODE 3)

802.11g OFDM MODULATION:

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
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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	0.173	0.36	50.83	-	51.19	-	64.79	54.79	-13.60	-
2	0.224	0.36	43.83	-	44.19	-	62.66	52.66	-18.47	-
3	0.283	0.36	38.84	-	39.20	-	60.73	50.73	-21.53	-
4	2.164	0.46	37.77	-	38.23	-	56.00	46.00	-17.77	-
5	3.637	0.50	40.30	-	40.80	-	56.00	46.00	-15.20	-
6	4.047	0.51	34.06	-	34.57	-	56.00	46.00	-21.43	-

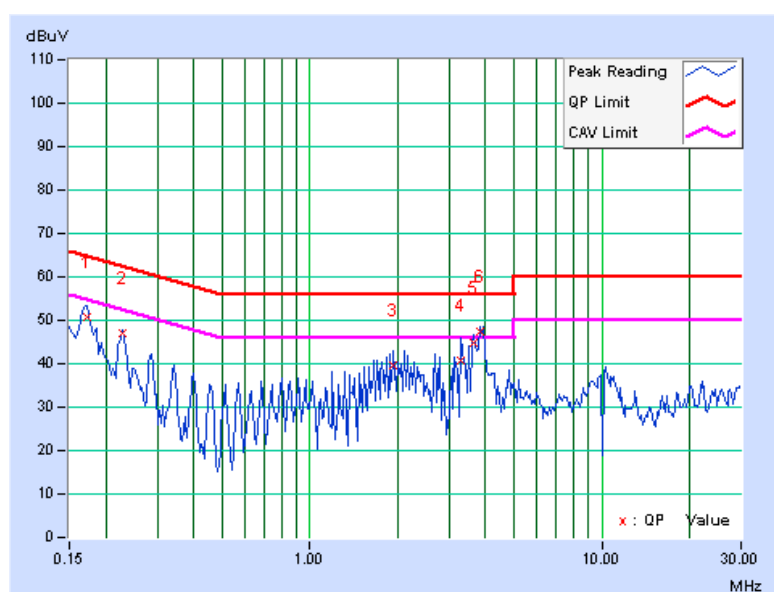
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.10	50.52	-	50.62	-	64.79	54.79	-14.18	-
2	0.228	0.10	46.80	-	46.90	-	62.52	52.52	-15.62	-
3	1.938	0.20	39.53	-	39.73	-	56.00	46.00	-16.27	-
4	3.301	0.23	40.35	-	40.58	-	56.00	46.00	-15.42	-
5	3.645	0.23	44.46	-	44.69	-	56.00	46.00	-11.31	-
6	3.813	0.24	47.04	34.54	47.28	34.78	56.00	46.00	-8.72	-11.22

- 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.



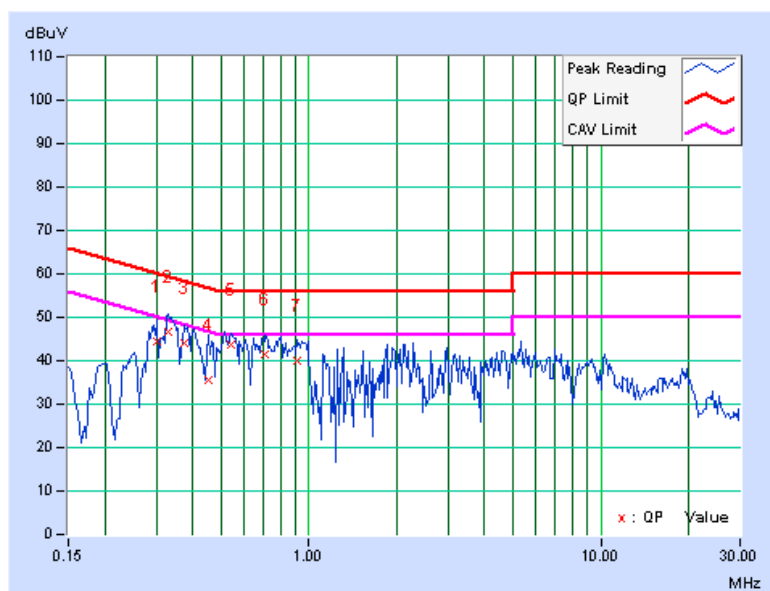
4.1.10 TEST RESULTS (MODE 4)

802.11g OFDM MODULATION:

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
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	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.302	0.36	44.21	-	44.57	-	60.18	50.18	-15.61	-
2	0.330	0.36	46.45	-	46.81	-	59.46	49.46	-12.65	-
3	0.373	0.36	43.70	-	44.06	-	58.44	48.44	-14.38	-
4	0.451	0.36	35.27	-	35.63	-	56.86	46.86	-21.23	-
5	0.541	0.37	43.26	-	43.63	-	56.00	46.00	-12.37	-
6	0.709	0.39	41.26	-	41.65	-	56.00	46.00	-14.35	-
7	0.916	0.40	39.58	-	39.98	-	56.00	46.00	-16.02	-

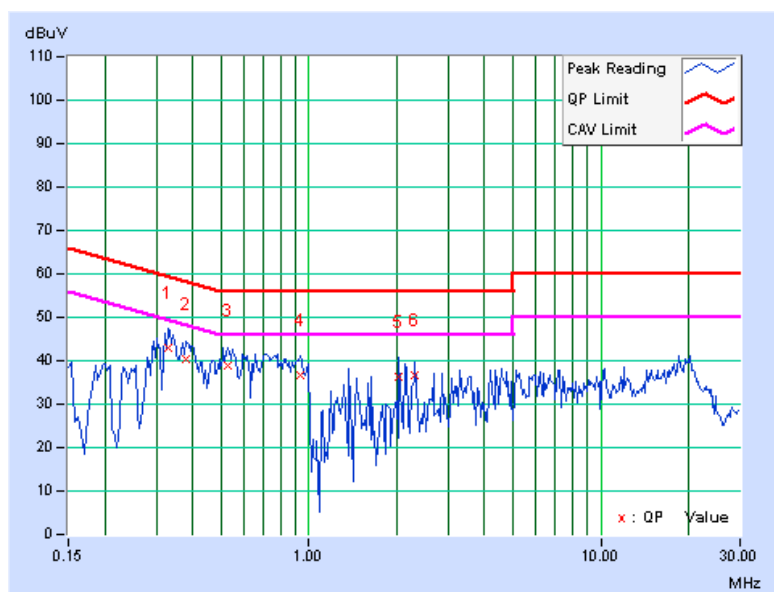
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
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	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.330	0.11	42.92	-	43.03	-	59.46	49.46	-16.43	-
2	0.380	0.11	40.08	-	40.19	-	58.27	48.27	-18.08	-
3	0.525	0.12	38.78	-	38.90	-	56.00	46.00	-17.10	-
4	0.939	0.15	36.53	-	36.68	-	56.00	46.00	-19.32	-
5	2.035	0.20	36.12	-	36.32	-	56.00	46.00	-19.68	-
6	2.297	0.21	36.34	-	36.55	-	56.00	46.00	-19.45	-

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



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

Frequencies (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

NOTE:

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



A D T

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 17, 2010	Dec. 16, 2011
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	May 12 , 2010	May 11 , 2011
HP Pre_Amplifier	8449B	300801923	Nov. 01, 2010	Oct. 31, 2011
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 03, 2010	Sep. 02, 2011
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 28, 2010	Apr. 27, 2011
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 17, 2010	Dec. 16, 2011
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2010	Jan. 21, 2011
RF Switches	EMH-011	1001	NA	NA
RF CABLE (Chaintek)	Sucoflex 104+ Sucoflex 106	RF104-101+R F106-101	Aug. 24, 2010	Aug. 23, 2011
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, 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.

4.2.3 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 field 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 height of antenna 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 quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

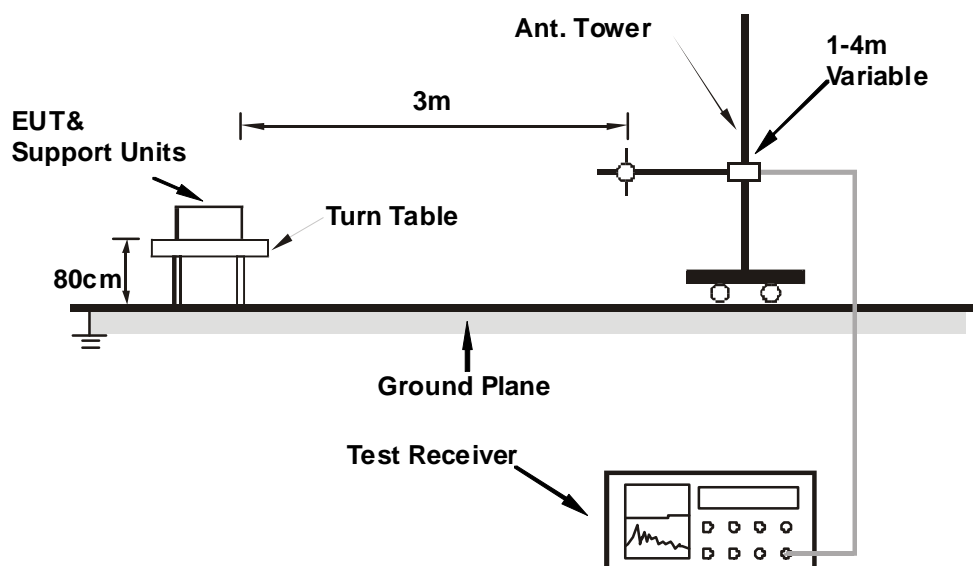
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for 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. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz for Average detection (AV) at frequency above 1GHz.
3. For measurement of frequency above 1000 MHz, the EUT was set 3 meters away from the interference-receiving antenna.

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. Placed the EUT on testing table.
2. The notebook computer ran test program to enable EUT under transmission/receiving condition continuously at specific channel frequency via wireless.

4.2.7 TEST RESULTS

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	20deg. C, 72%RH 1012 hPa	TESTED BY	Frank Lin

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	122.90	25.8 QP	43.50	-17.7	1.00 H	244	12.97	12.87
2	150.93	29.2 QP	43.50	-14.3	1.00 H	19	14.73	14.50
3	181.27	27.6 QP	43.50	-15.9	1.00 H	14	15.63	12.01
4	267.25	25.4 QP	46.00	-20.6	1.00 H	120	10.78	14.64
5	396.61	29.6 QP	46.00	-16.4	1.00 H	111	11.03	18.54
6	855.50	31.1 QP	46.00	-14.9	1.00 H	29	3.61	27.52
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	44.60	31.6 QP	40.00	-8.4	1.00 V	41	17.84	13.80
2	120.00	30.7 QP	43.50	-12.8	1.00 V	59	18.26	12.48
3	131.27	23.8 QP	43.50	-19.7	1.00 V	265	9.84	14.00
4	160.00	27.4 QP	43.50	-16.1	1.00 V	84	11.67	15.75
5	200.00	19.6 QP	43.50	-23.9	1.00 V	12	8.41	11.20
6	250.00	23.2 QP	46.00	-22.8	1.00 V	53	9.32	13.89
7	375.00	23.7 QP	46.00	-22.3	1.00 V	42	5.68	17.98

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

ABOVE 1GHz WORST-CASE DATA

802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 66%RH 1012 hPa	TESTED BY	Frank Lin

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	55.3 PK	74.00	-18.7	1.51 H	341	24.30	31.00
2	2390.00	42.8 AV	54.00	-11.2	1.51 H	341	11.80	31.00
3	*2412.00	89.6 PK			1.54 H	341	58.50	31.10
4	*2412.00	85.5 AV			1.54 H	341	54.40	31.10
5	4824.00	46.6 PK	74.00	-27.4	1.35 H	294	9.50	37.10
6	4824.00	41.4 AV	54.00	-12.6	1.35 H	294	4.30	37.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	55.1 PK	74.00	-18.9	1.06 V	45	24.10	31.00
2	2390.00	43.6 AV	54.00	-10.4	1.06 V	45	12.60	31.00
3	*2412.00	98.7 PK			1.06 V	45	67.60	31.10
4	*2412.00	96.1 AV			1.06 V	45	65.00	31.10
5	4824.00	44.8 PK	74.00	-29.2	1.14 V	185	7.70	37.10
6	4824.00	38.6 AV	54.00	-15.4	1.14 V	185	1.50	37.10

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



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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, 66%RH 1012 hPa	TESTED BY	Frank Lin

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	91.7 PK			1.49 H	318	60.50	31.20
2	*2437.00	86.1 AV			1.49 H	318	54.90	31.20
3	4874.00	46.4 PK	74.00	-27.6	1.36 H	279	9.20	37.20
4	4874.00	41.3 AV	54.00	-12.7	1.36 H	279	4.10	37.20
5	7311.00	50.2 PK	74.00	-23.8	1.24 H	219	5.80	44.40
6	7311.00	39.1 AV	54.00	-14.9	1.24 H	219	-5.30	44.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	99.1 PK			1.10 V	290	67.90	31.20
2	*2437.00	95.7 AV			1.10 V	290	64.50	31.20
3	4874.00	44.3 PK	74.00	-29.7	1.13 V	127	7.10	37.20
4	4874.00	38.4 AV	54.00	-15.6	1.13 V	127	1.20	37.20
5	7311.00	50.7 PK	74.00	-23.3	1.04 V	32	6.30	44.40
6	7311.00	39.4 AV	54.00	-14.6	1.04 V	32	-5.00	44.40

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



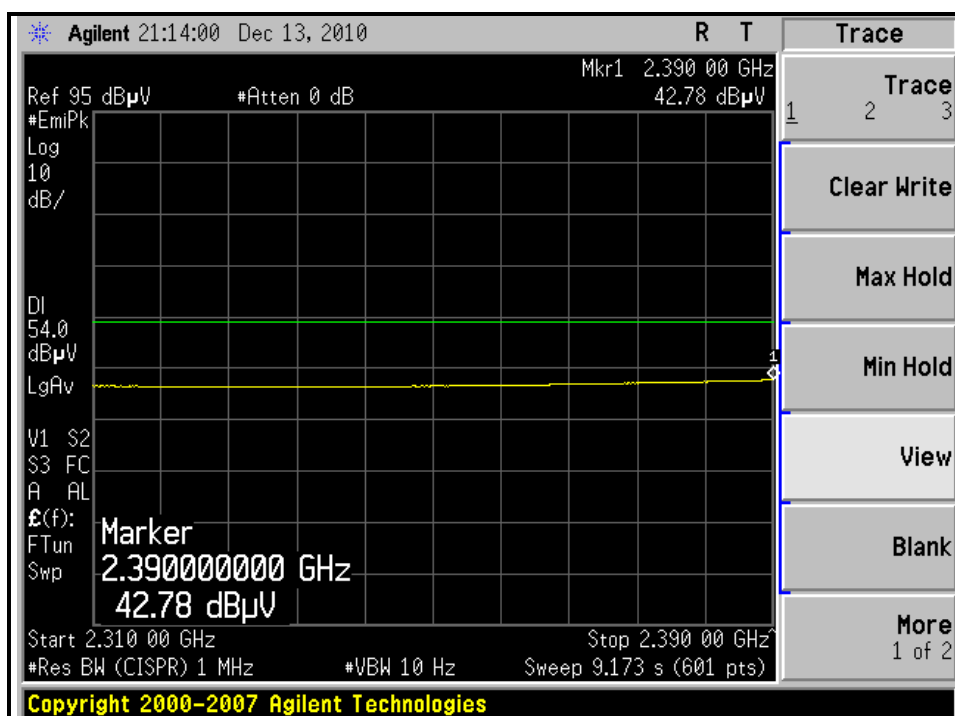
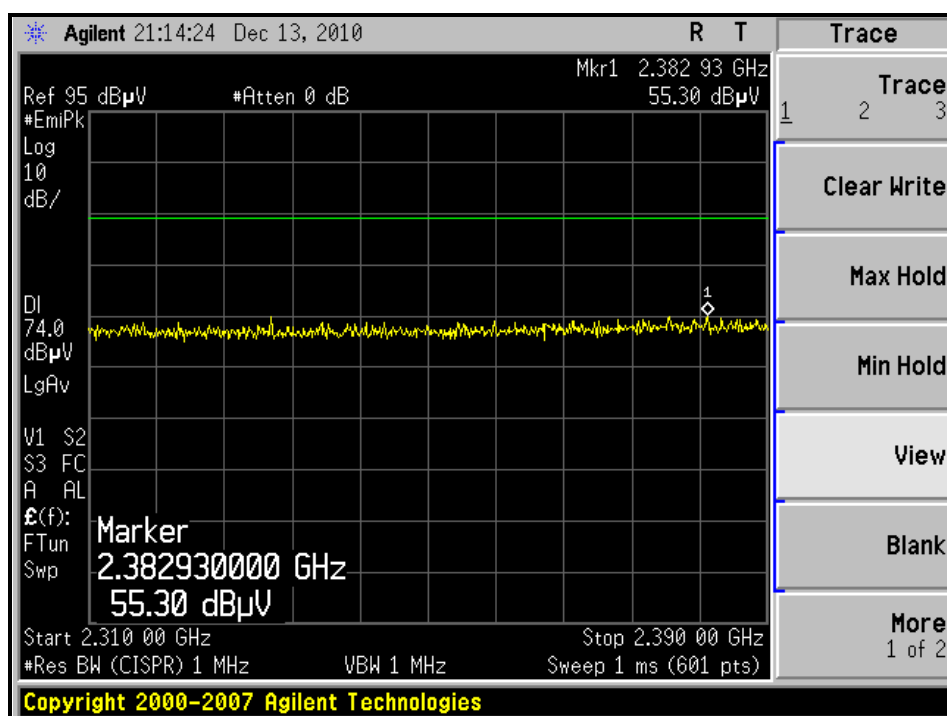
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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 66%RH 1012 hPa	TESTED BY	Frank Lin

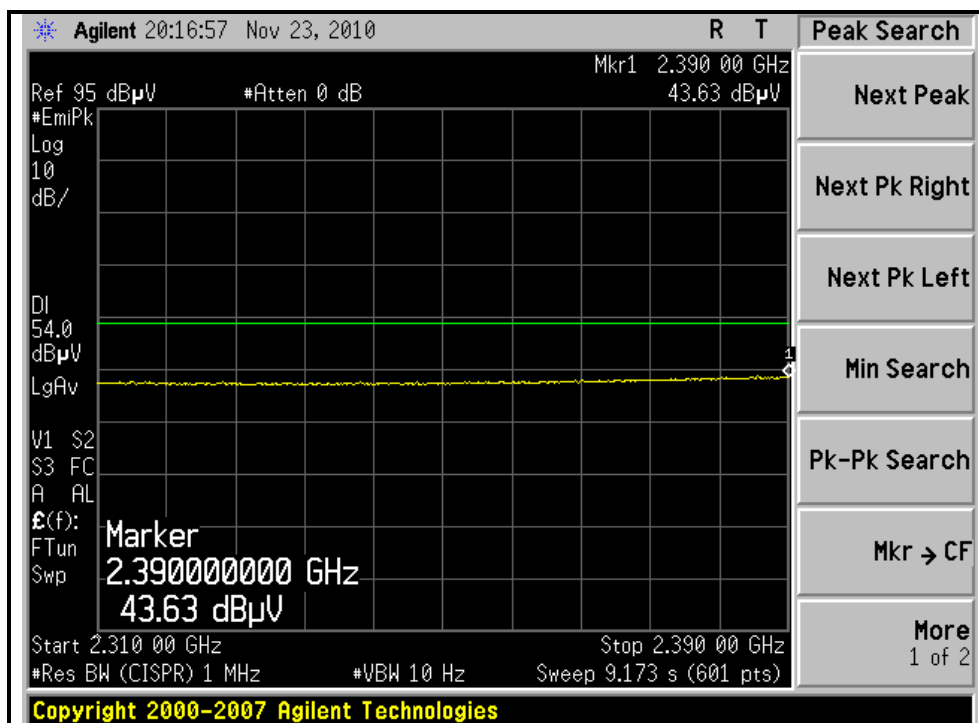
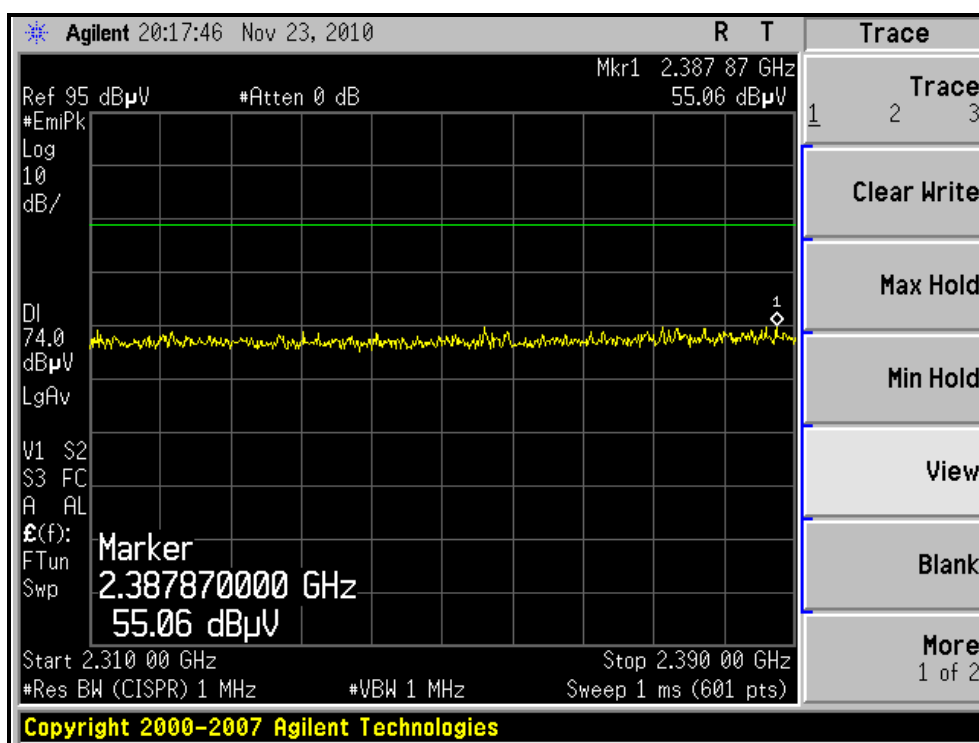
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	92.8 PK			1.20 H	342	61.50	31.30
2	*2462.00	87.8 AV			1.20 H	342	56.50	31.30
3	2483.50	55.3 PK	74.00	-18.7	1.20 H	342	23.90	31.40
4	2483.50	42.2 AV	54.00	-11.8	1.20 H	342	10.80	31.40
5	4924.00	46.9 PK	74.00	-27.1	1.37 H	283	9.60	37.30
6	4924.00	41.6 AV	54.00	-12.4	1.37 H	283	4.30	37.30
7	7386.00	50.3 PK	74.00	-23.7	1.26 H	213	5.70	44.60
8	7386.00	39.4 AV	54.00	-14.6	1.26 H	213	-5.20	44.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	98.6 PK			1.06 V	45	67.30	31.30
2	*2462.00	95.2 AV			1.06 V	45	63.90	31.30
3	2483.50	54.3 PK	74.00	-19.7	1.07 V	63	22.90	31.40
4	2483.50	43.0 AV	54.00	-11.0	1.07 V	63	11.60	31.40
5	4924.00	44.9 PK	74.00	-29.1	1.13 V	179	7.60	37.30
6	4924.00	38.7 AV	54.00	-15.3	1.13 V	179	1.40	37.30
7	7386.00	50.6 PK	74.00	-23.4	1.03 V	29	6.00	44.60
8	7386.00	39.2 AV	54.00	-14.8	1.03 V	29	-5.40	44.60

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

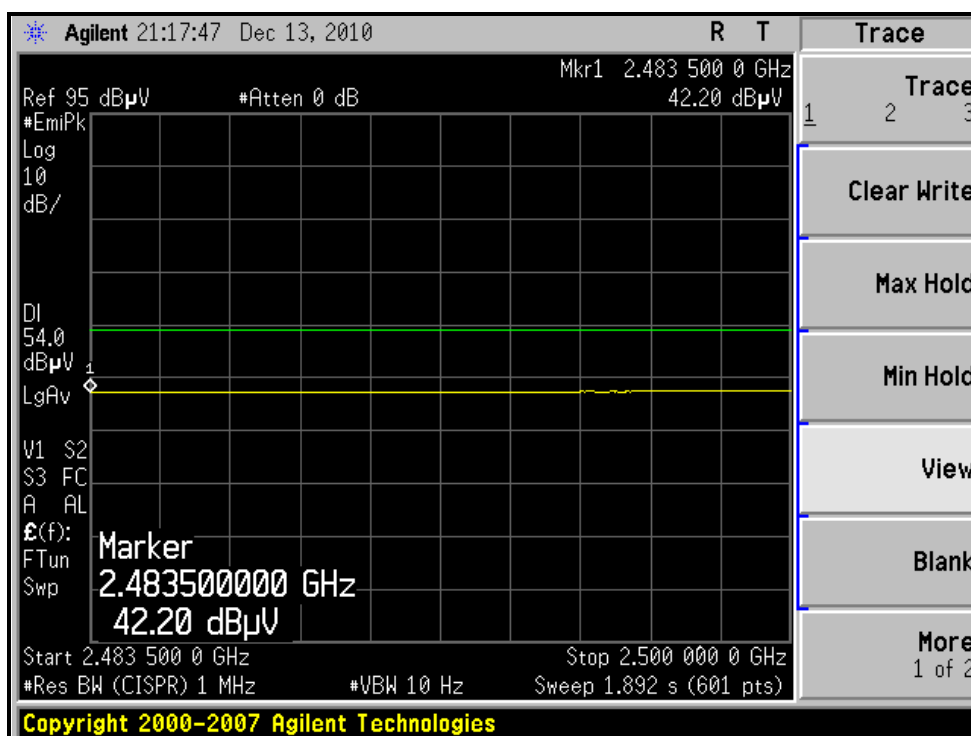
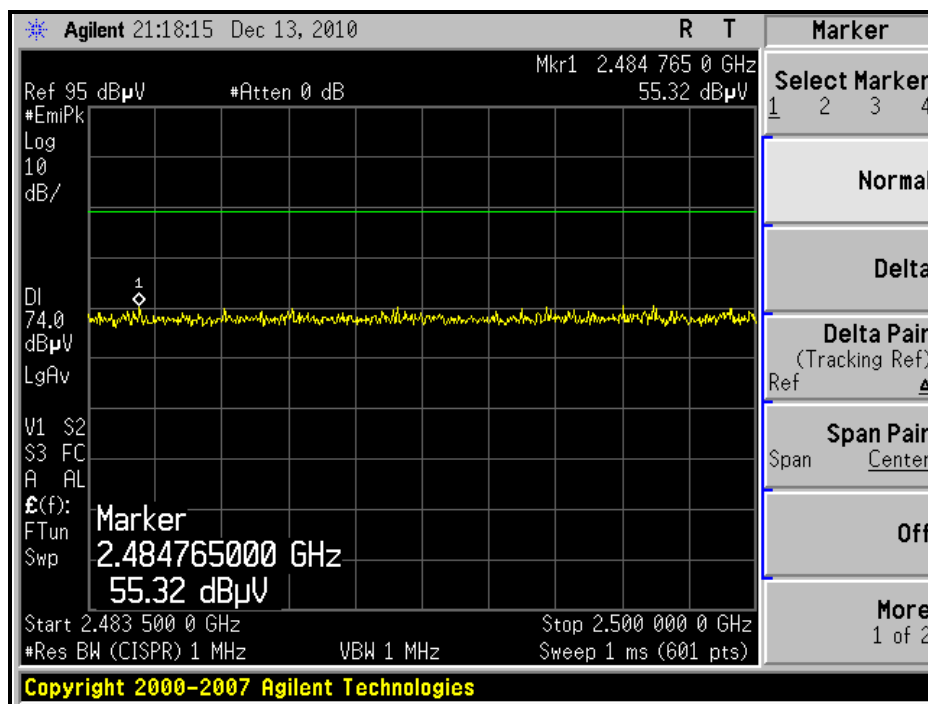
RESTRICTED BANDEDGE (802.11b MODE,CH1, HORIZONTAL)



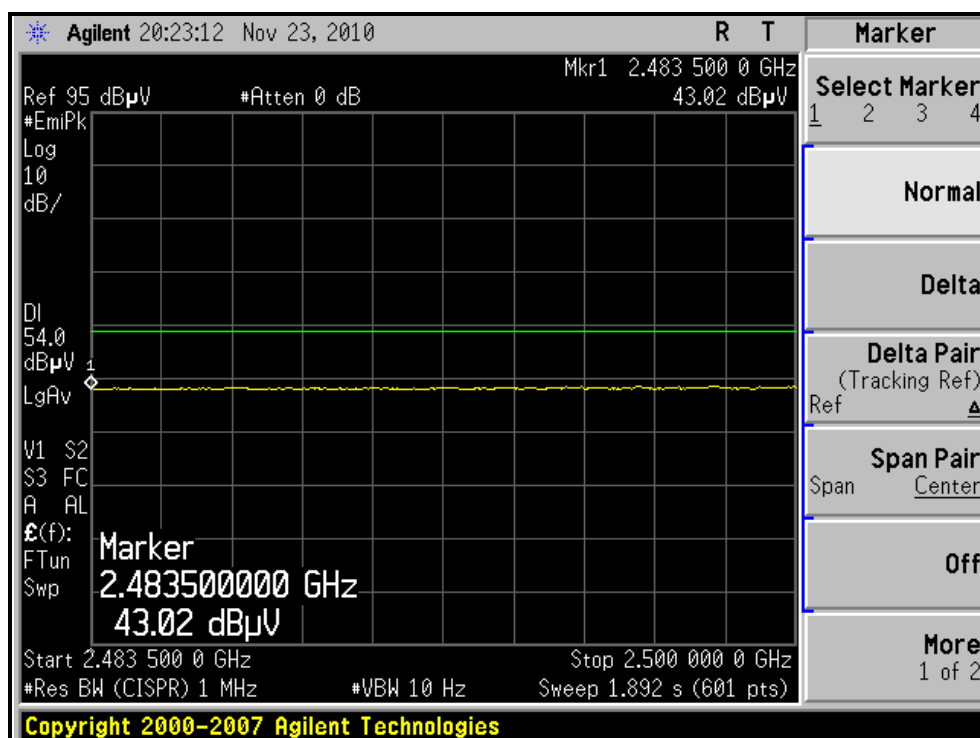
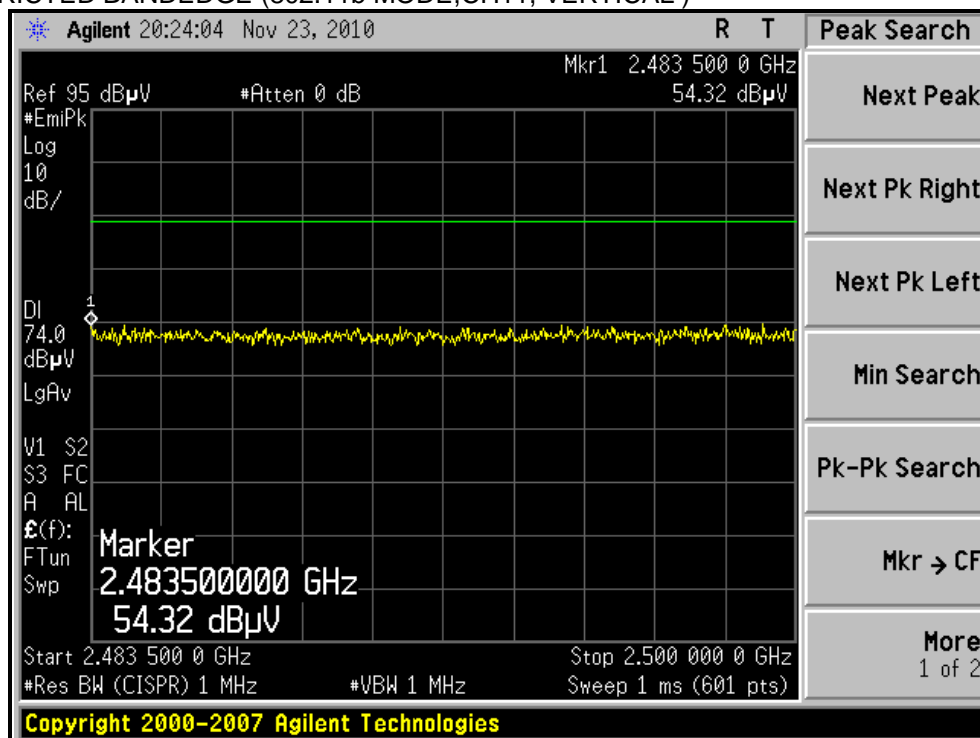
RESTRICTED BANDEDGE (802.11b MODE,CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL)



RESTRICTED BANDEDGE (802.11b MODE,CH11, VERTICAL)



802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 66%RH 1012 hPa	TESTED BY	Frank Lin

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	55.2 PK	74.00	-18.8	1.38 H	266	24.20	31.00
2	2390.00	42.8 AV	54.00	-11.2	1.38 H	266	11.80	31.00
3	*2412.00	89.5 PK			1.38 H	266	58.40	31.10
4	*2412.00	78.0 AV			1.38 H	266	46.90	31.10
5	4824.00	44.3 PK	74.00	-29.7	1.27 H	283	7.20	37.10
6	4824.00	35.4 AV	54.00	-18.6	1.27 H	283	-1.70	37.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.9 PK	74.00	-19.1	1.13 V	46	23.90	31.00
2	2390.00	42.8 AV	54.00	-11.2	1.13 V	46	11.80	31.00
3	*2412.00	98.3 PK			1.13 V	46	67.20	31.10
4	*2412.00	88.7 AV			1.13 V	46	57.60	31.10
5	4824.00	43.2 PK	74.00	-30.8	1.13 V	169	6.10	37.10
6	4824.00	34.6 AV	54.00	-19.4	1.13 V	169	-2.50	37.10

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 66%RH 1012 hPa	TESTED BY	Frank Lin

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	92.3 PK			1.30 H	11	61.10	31.20
2	*2437.00	80.4 AV			1.30 H	11	49.20	31.20
3	4874.00	44.1 PK	74.00	-29.9	1.26 H	279	6.90	37.20
4	4874.00	35.2 AV	54.00	-18.8	1.26 H	279	-2.00	37.20
5	7311.00	50.4 PK	74.00	-23.6	1.06 H	59	6.00	44.40
6	7311.00	39.4 AV	54.00	-14.6	1.06 H	59	-5.00	44.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	99.2 PK			1.08 V	289	68.00	31.20
2	*2437.00	88.2 AV			1.08 V	289	57.00	31.20
3	4874.00	43.6 PK	74.00	-30.4	1.14 V	157	6.40	37.20
4	4874.00	34.9 AV	54.00	-19.1	1.14 V	157	-2.30	37.20
5	7311.00	50.3 PK	74.00	-23.7	1.07 V	36	5.90	44.40
6	7311.00	39.2 AV	54.00	-14.8	1.07 V	36	-5.20	44.40

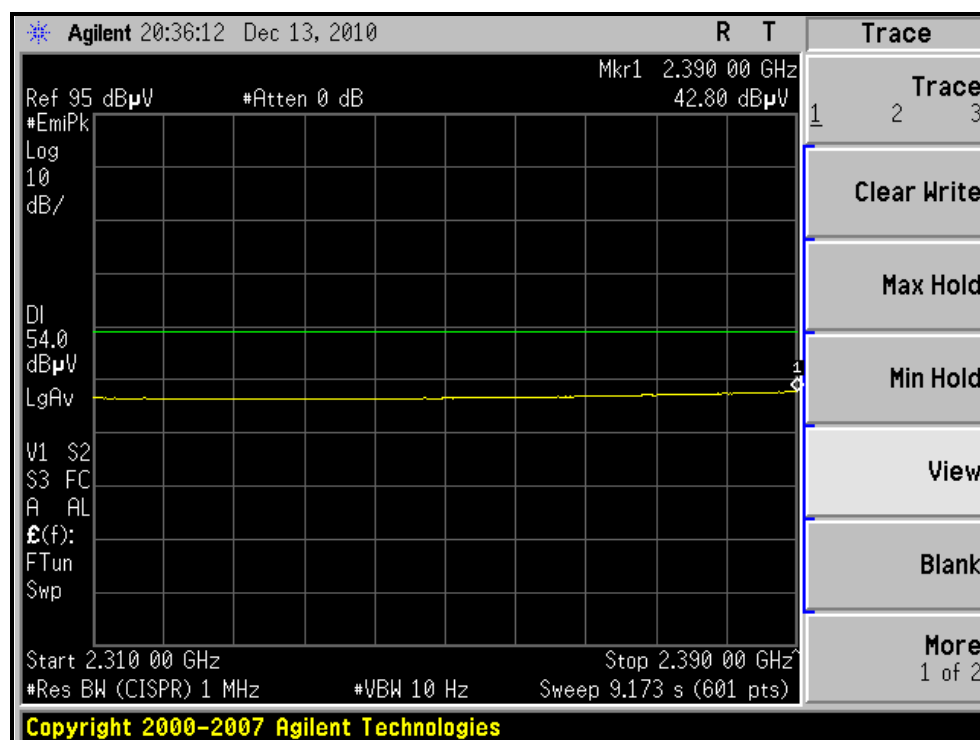
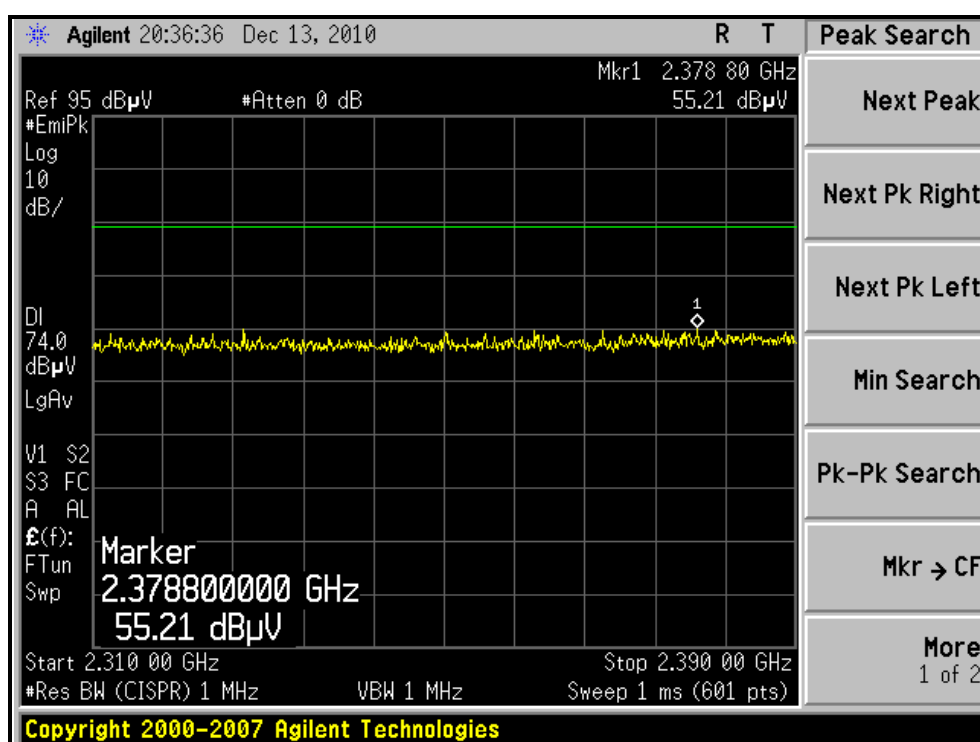
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 66%RH 1012 hPa	TESTED BY	Frank Lin

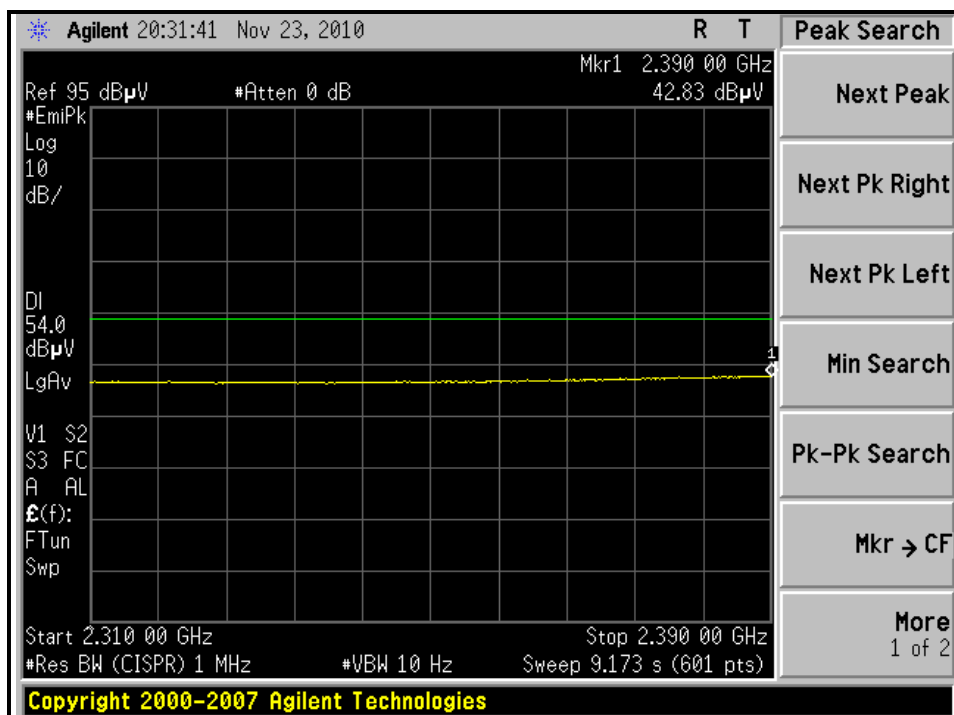
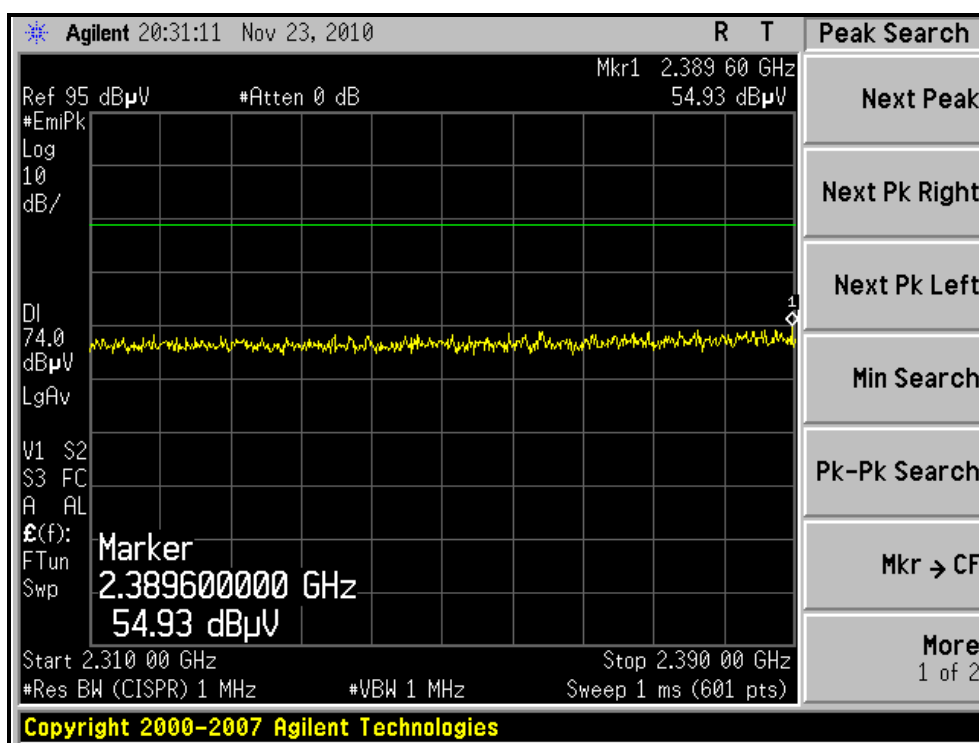
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	92.9 PK			1.29 H	12	61.60	31.30
2	*2462.00	81.7 AV			1.29 H	12	50.40	31.30
3	2483.50	57.2 PK	74.00	-16.8	1.29 H	12	25.80	31.40
4	2483.50	43.4 AV	54.00	-10.6	1.29 H	12	12.00	31.40
5	4924.00	44.3 PK	74.00	-29.7	1.27 H	283	7.00	37.30
6	4924.00	35.4 AV	54.00	-18.6	1.27 H	283	-1.90	37.30
7	7386.00	50.7 PK	74.00	-23.3	1.07 H	62	6.10	44.60
8	7386.00	39.6 AV	54.00	-14.4	1.07 H	62	-5.00	44.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	98.1 PK			1.06 V	46	66.80	31.30
2	*2462.00	88.2 AV			1.06 V	46	56.90	31.30
3	2483.50	55.3 PK	74.00	-18.7	1.06 V	46	23.90	31.40
4	2483.50	42.7 AV	54.00	-11.3	1.06 V	46	11.30	31.40
5	4924.00	43.7 PK	74.00	-30.3	1.09 V	151	6.40	37.30
6	4924.00	34.8 AV	54.00	-19.2	1.09 V	151	-2.50	37.30
7	7386.00	50.6 PK	74.00	-23.4	1.04 V	73	6.00	44.60
8	7386.00	39.4 AV	54.00	-14.6	1.04 V	73	-5.20	44.60

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

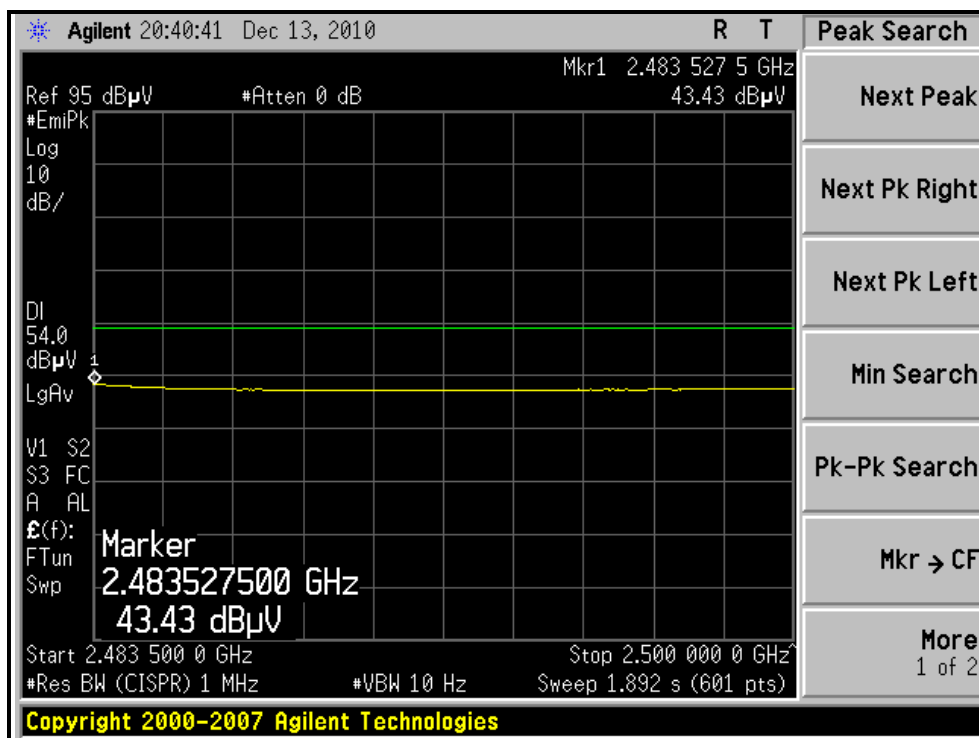
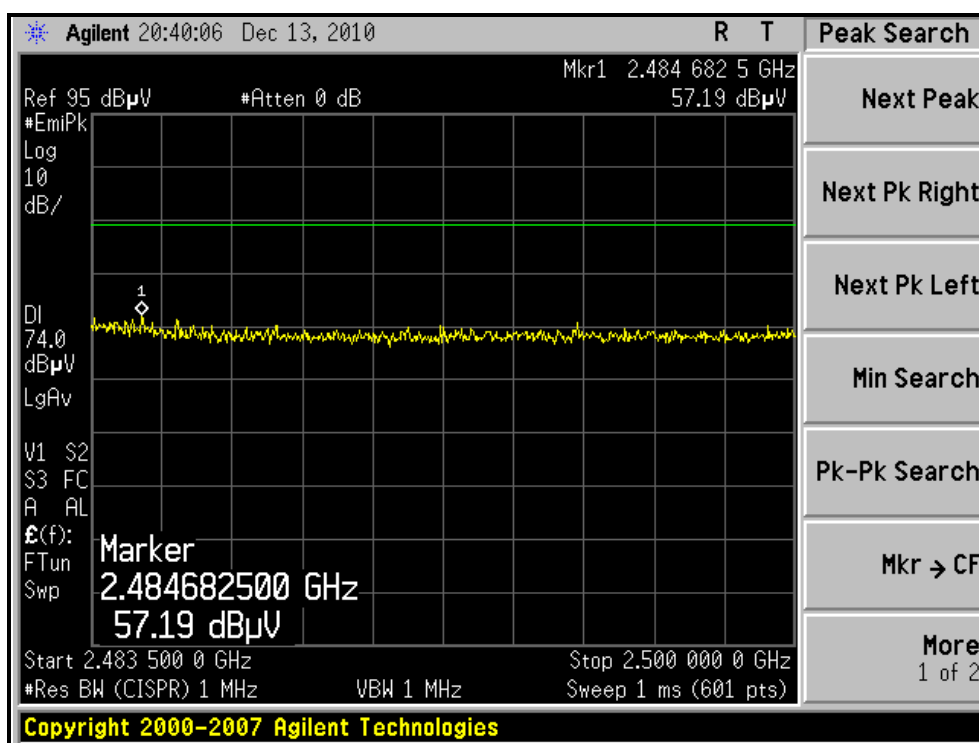
RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL)



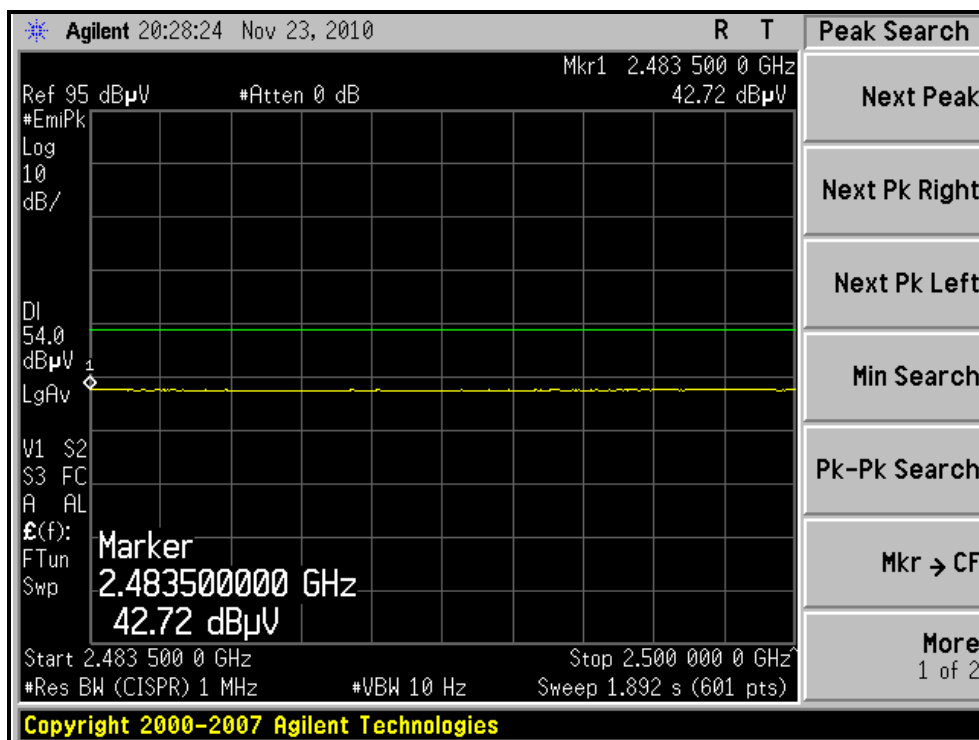
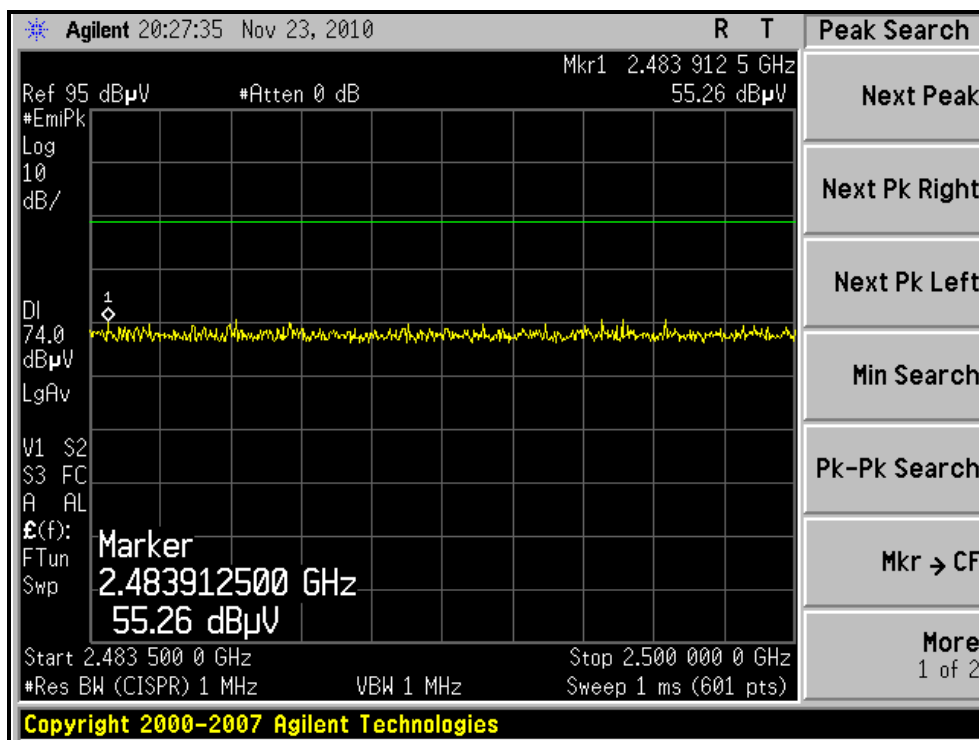
RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11g MODE,CH11, HORIZONTAL)



RESTRICTED BANDEDGE (802.11g MODE,CH11, VERTICAL)



802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 66%RH 1012 hPa	TESTED BY	Frank Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2389.60	55.1 PK	74.00	-18.9	1.28 H	12	24.10	31.00
2	2389.60	42.9 AV	54.00	-11.1	1.28 H	12	11.90	31.00
3	*2412.00	89.6 PK			1.28 H	12	58.50	31.10
4	*2412.00	78.6 AV			1.28 H	12	47.50	31.10
5	4824.00	44.3 PK	74.00	-29.7	1.24 H	269	7.20	37.10
6	4824.00	35.7 AV	54.00	-18.3	1.24 H	269	-1.40	37.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.9 PK	74.00	-19.1	1.10 V	69	23.90	31.00
2	2390.00	43.0 AV	54.00	-11.0	1.10 V	69	12.00	31.00
3	*2412.00	98.1 PK			1.12 V	73	67.00	31.10
4	*2412.00	88.5 AV			1.12 V	73	57.40	31.10
5	4824.00	43.6 PK	74.00	-30.4	1.06 V	157	6.50	37.10
6	4824.00	35.4 AV	54.00	-18.6	1.06 V	157	-1.70	37.10

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



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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, 66%RH 1012 hPa	TESTED BY	Frank Lin

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	91.0 PK			1.27 H	11	59.80	31.20
2	*2437.00	79.2 AV			1.27 H	11	48.00	31.20
3	4874.00	44.7 PK	74.00	-29.3	1.27 H	273	7.50	37.20
4	4874.00	35.4 AV	54.00	-18.6	1.27 H	273	-1.80	37.20
5	7311.00	50.9 PK	74.00	-23.1	1.07 H	69	6.50	44.40
6	7311.00	39.7 AV	54.00	-14.3	1.07 H	69	-4.70	44.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	98.2 PK			1.07 V	291	67.00	31.20
2	*2437.00	86.5 AV			1.07 V	291	55.30	31.20
3	4874.00	43.7 PK	74.00	-30.3	1.07 V	162	6.50	37.20
4	4874.00	35.2 AV	54.00	-18.8	1.07 V	162	-2.00	37.20
5	7311.00	50.7 PK	74.00	-23.3	1.04 V	73	6.30	44.40
6	7311.00	39.4 AV	54.00	-14.6	1.04 V	73	-5.00	44.40

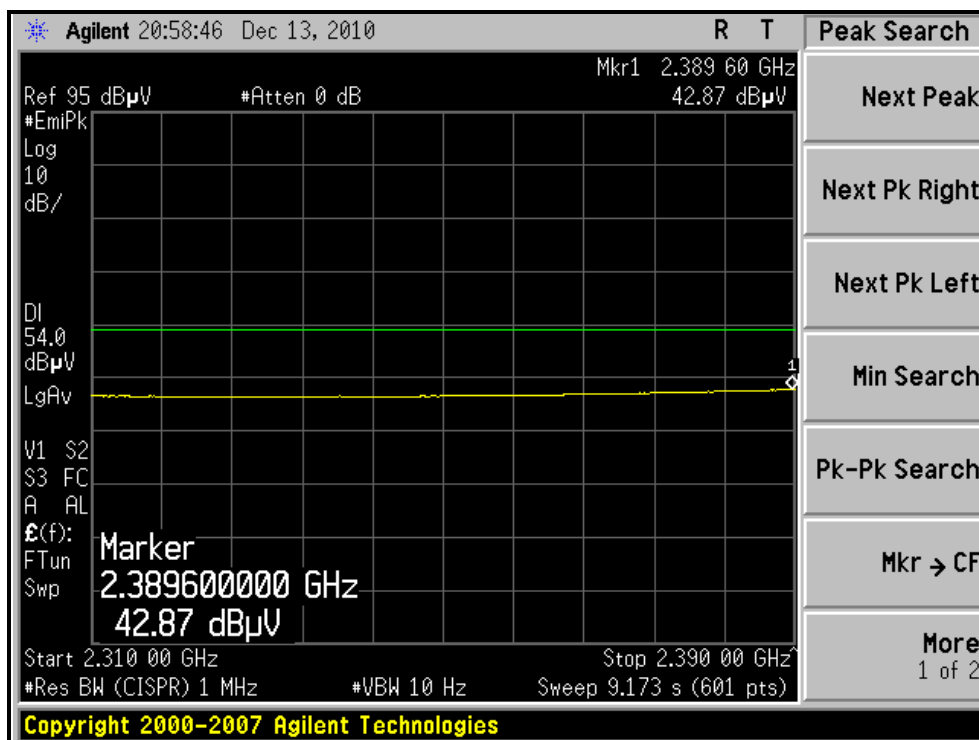
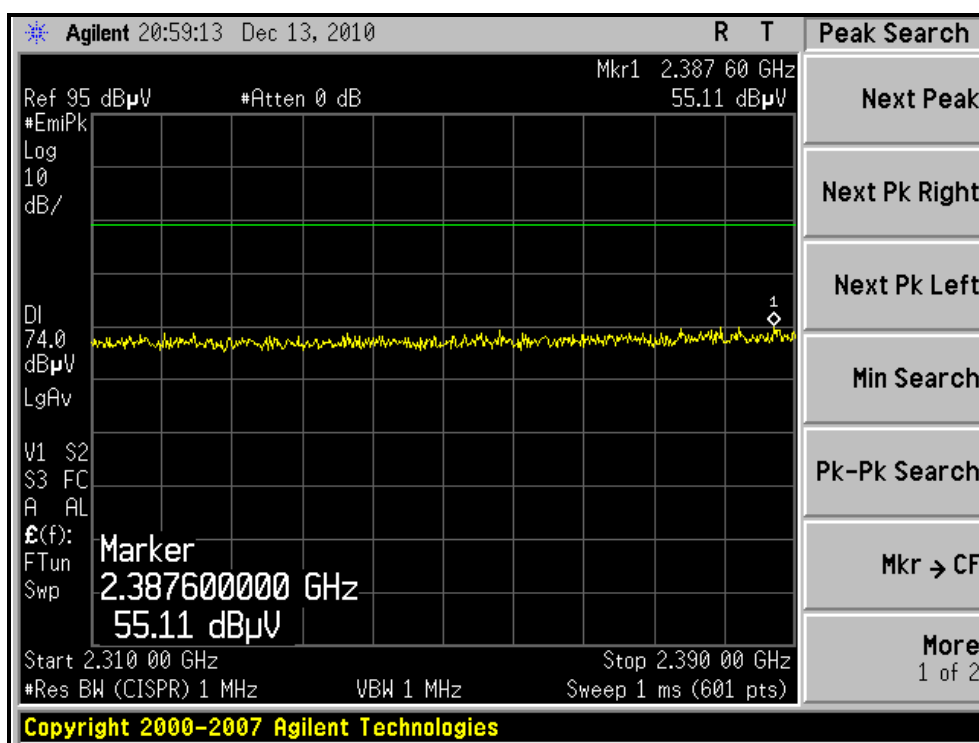
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 66%RH 1012 hPa	TESTED BY	Frank Lin

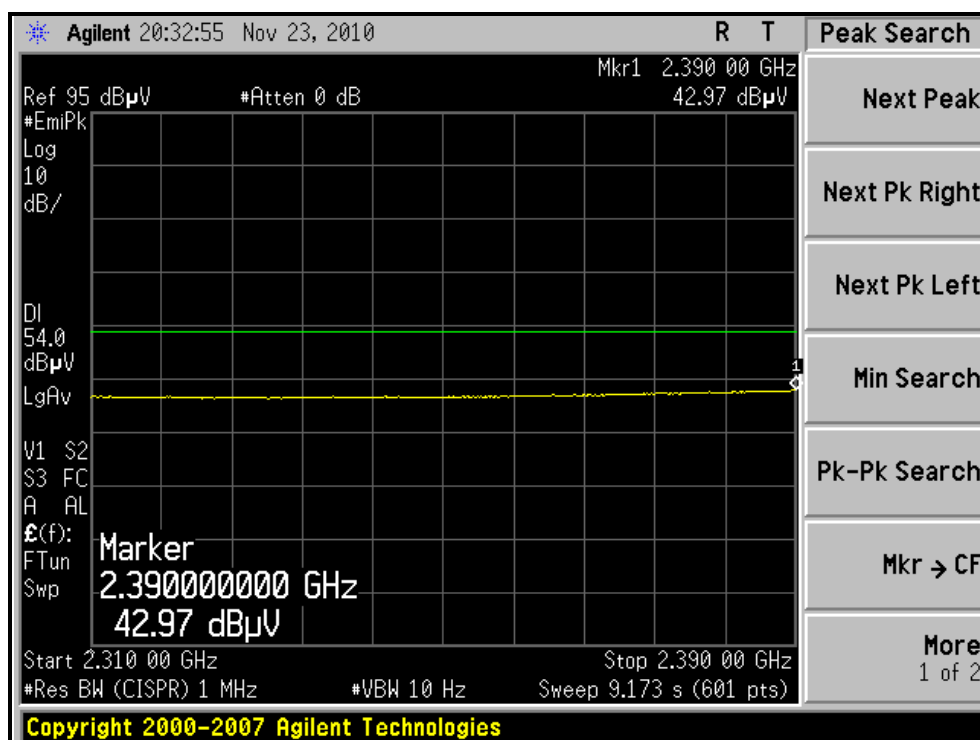
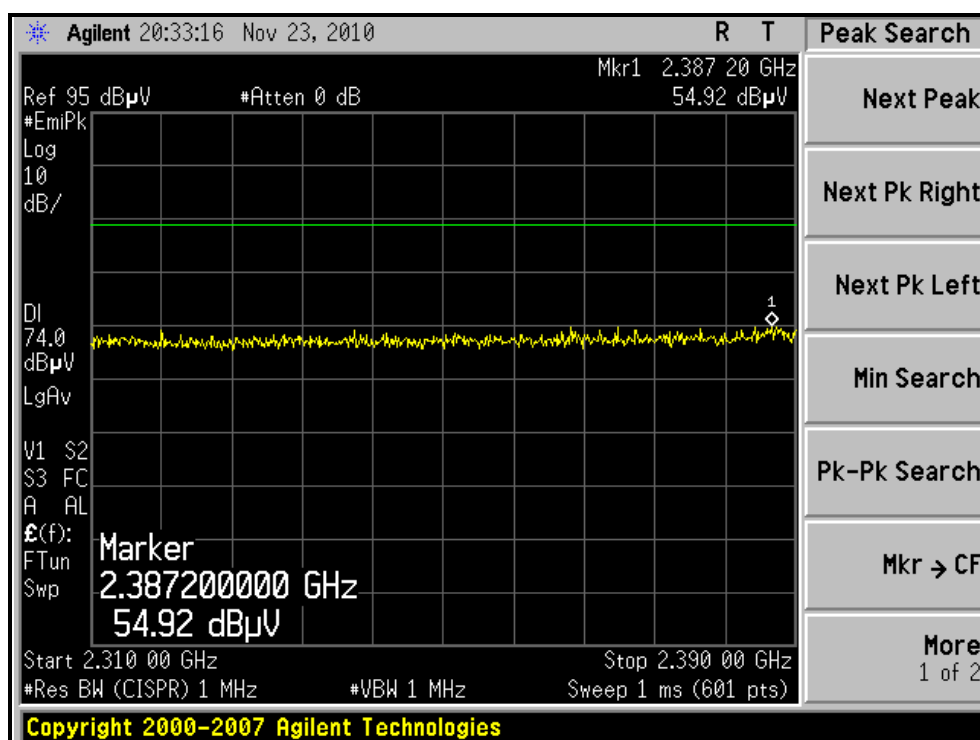
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	93.5 PK			1.28 H	12	62.20	31.30
2	*2462.00	81.8 AV			1.28 H	12	50.50	31.30
3	2483.50	55.2 PK	74.00	-18.8	1.28 H	12	23.80	31.40
4	2483.50	42.5 AV	54.00	-11.5	1.28 H	12	11.10	31.40
5	4924.00	44.7 PK	74.00	-29.3	1.26 H	279	7.40	37.30
6	4924.00	35.6 AV	54.00	-18.4	1.26 H	279	-1.70	37.30
7	7386.00	50.6 PK	74.00	-23.4	1.04 H	73	6.00	44.60
8	7386.00	39.4 AV	54.00	-14.6	1.04 H	73	-5.20	44.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	98.2 PK			1.04 V	53	66.90	31.30
2	*2462.00	88.1 AV			1.04 V	53	56.80	31.30
3	2483.50	55.5 PK	74.00	-18.5	1.03 V	56	24.10	31.40
4	2483.50	43.0 AV	54.00	-11.0	1.03 V	56	11.60	31.40
5	4924.00	43.6 PK	74.00	-30.4	1.04 V	159	6.30	37.30
6	4924.00	34.9 AV	54.00	-19.1	1.04 V	159	-2.40	37.30
7	7386.00	50.4 PK	74.00	-23.6	1.07 V	69	5.80	44.60
8	7386.00	39.2 AV	54.00	-14.8	1.07 V	69	-5.40	44.60

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

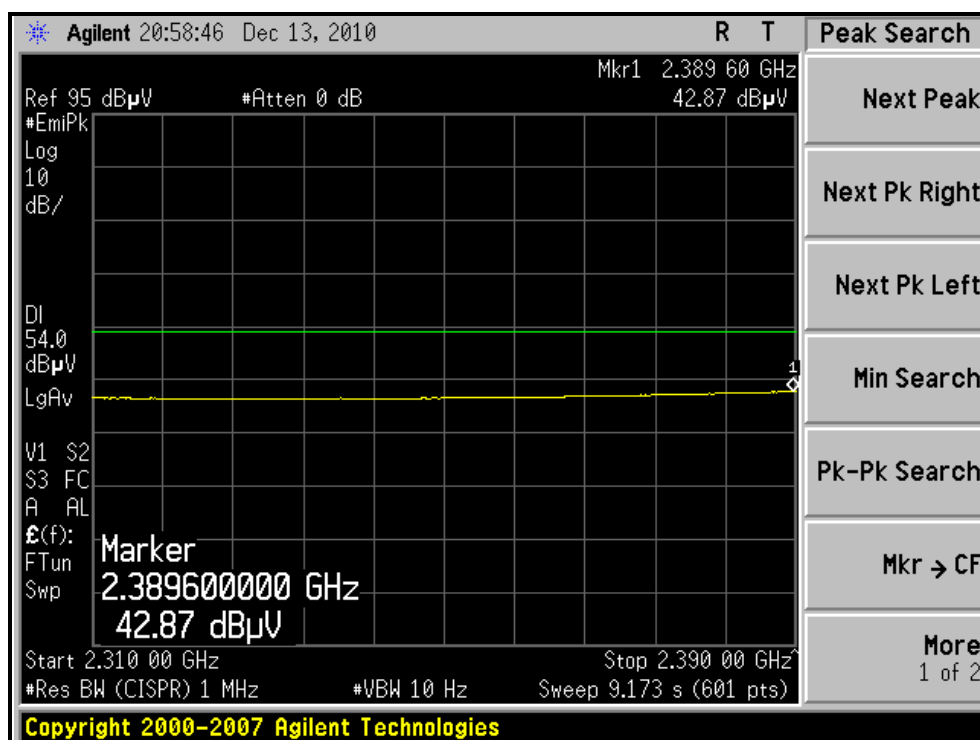
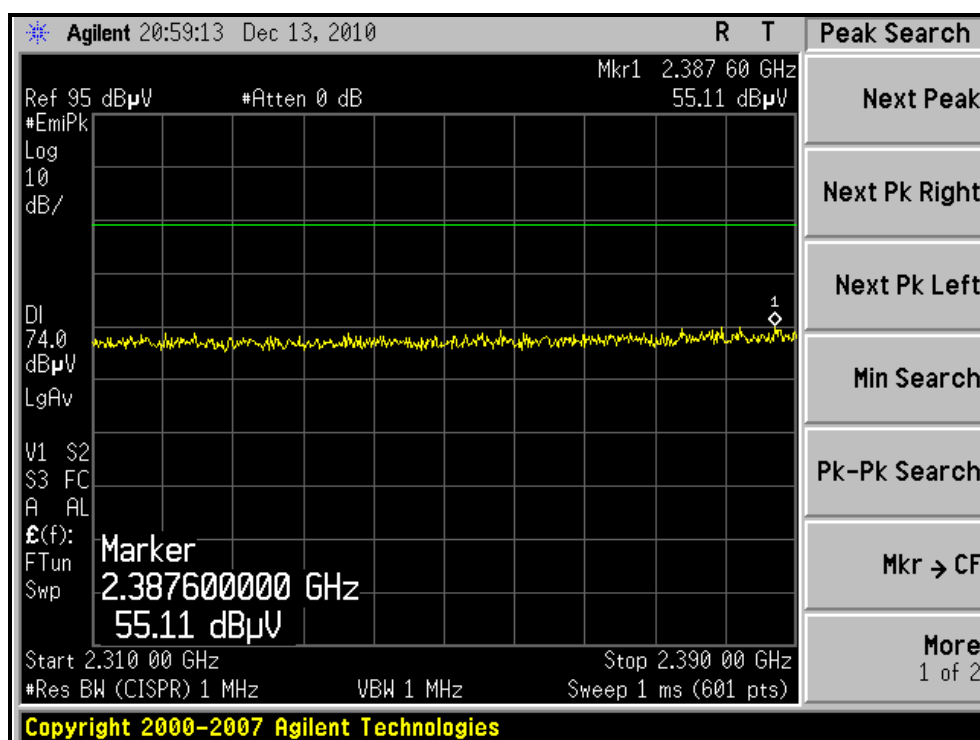
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, HORIZONTAL)



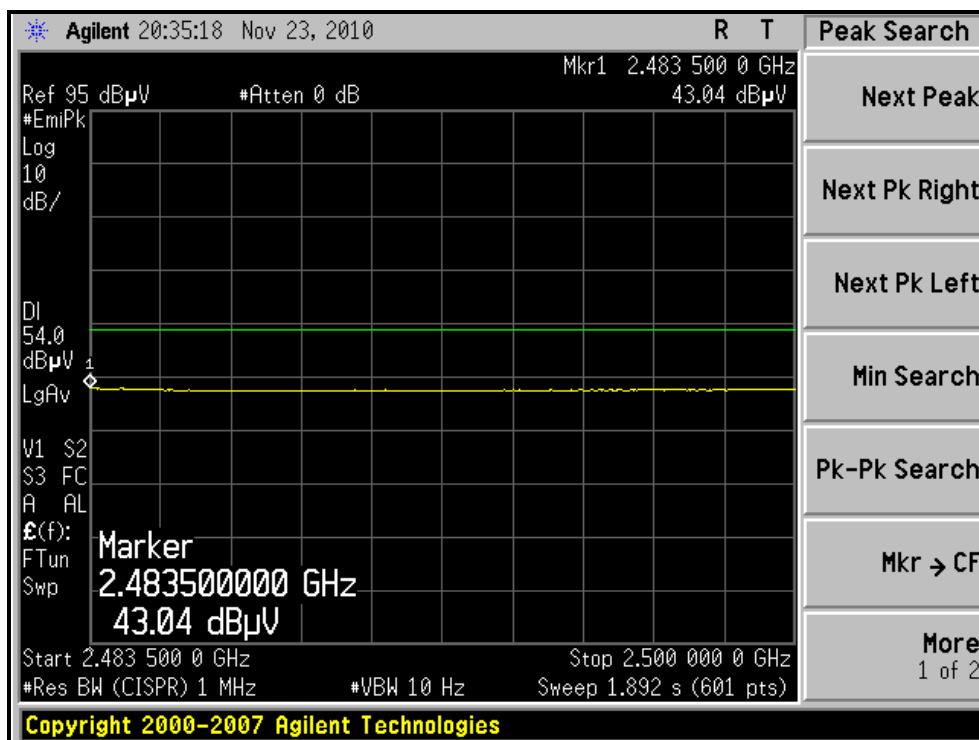
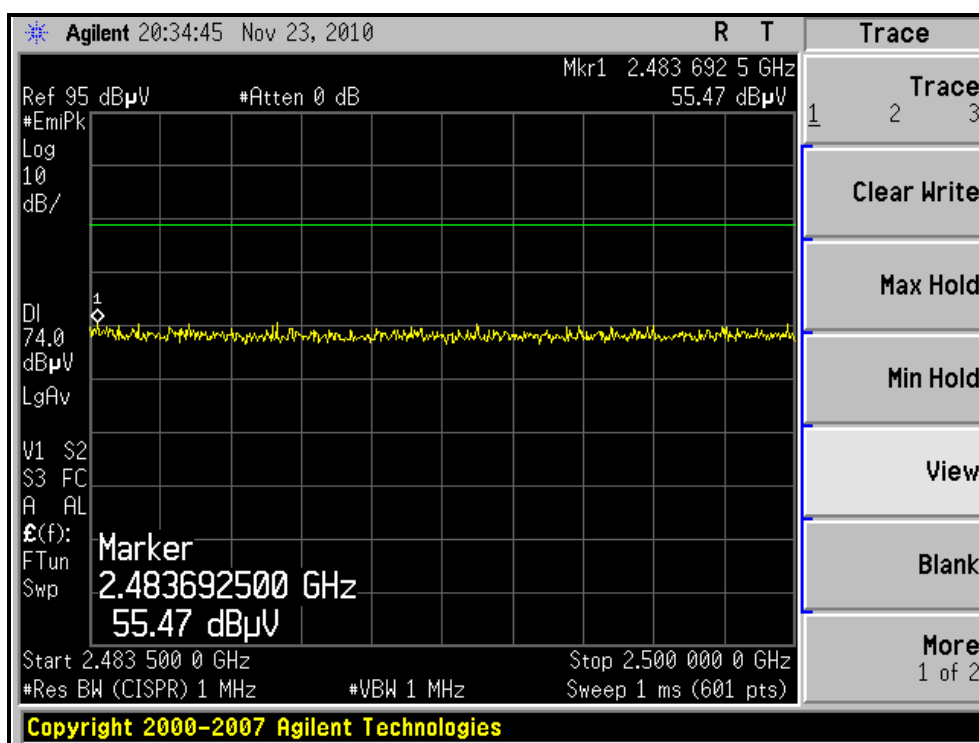
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, VERTICAL)



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



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



802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 66%RH 1012 hPa	TESTED BY	Frank Lin

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	54.8 PK	74.00	-19.2	1.38 H	11	23.80	31.00
2	2390.00	43.1 AV	54.00	-10.9	1.38 H	11	12.10	31.00
3	*2422.00	88.7 PK			1.38 H	11	57.60	31.10
4	*2422.00	75.8 AV			1.38 H	11	44.70	31.10
5	4844.00	43.2 PK	74.00	-30.8	1.21 H	287	6.00	37.20
6	4844.00	34.1 AV	54.00	-19.9	1.21 H	287	-3.10	37.20
7	7266.00	50.4 PK	74.00	-23.6	1.04 H	69	6.20	44.20
8	7266.00	39.1 AV	54.00	-14.9	1.04 H	69	-5.10	44.20
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	54.9 PK	74.00	-19.1	1.31 V	55	23.90	31.00
2	2390.00	42.9 AV	54.00	-11.1	1.31 V	55	11.90	31.00
3	*2422.00	93.7 PK			1.43 V	62	62.60	31.10
4	*2422.00	82.4 AV			1.43 V	62	51.30	31.10
5	4844.00	43.4 PK	74.00	-30.6	1.02 V	154	6.20	37.20
6	4844.00	32.4 AV	54.00	-21.6	1.02 V	154	-4.80	37.20
7	7266.00	50.1 PK	74.00	-23.9	1.04 V	73	5.90	44.20
8	7266.00	39.2 AV	54.00	-14.8	1.04 V	73	-5.00	44.20

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 66%RH 1012 hPa	TESTED BY	Frank Lin

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	89.4 PK			1.27 H	13	58.20	31.20
2	*2437.00	76.1 AV			1.27 H	13	44.90	31.20
3	4874.00	43.6 PK	74.00	-30.4	1.26 H	284	6.40	37.20
4	4874.00	34.4 AV	54.00	-19.6	1.26 H	284	-2.80	37.20
5	7311.00	50.6 PK	74.00	-23.4	1.06 H	72	6.20	44.40
6	7311.00	39.2 AV	54.00	-14.8	1.06 H	72	-5.20	44.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	96.0 PK			1.06 V	291	64.80	31.20
2	*2437.00	81.5 AV			1.06 V	291	50.30	31.20
3	4874.00	43.7 PK	74.00	-30.3	1.04 V	152	6.50	37.20
4	4874.00	32.9 AV	54.00	-21.1	1.04 V	152	-4.30	37.20
5	7311.00	50.4 PK	74.00	-23.6	1.07 V	69	6.00	44.40
6	7311.00	39.6 AV	54.00	-14.4	1.07 V	69	-4.80	44.40

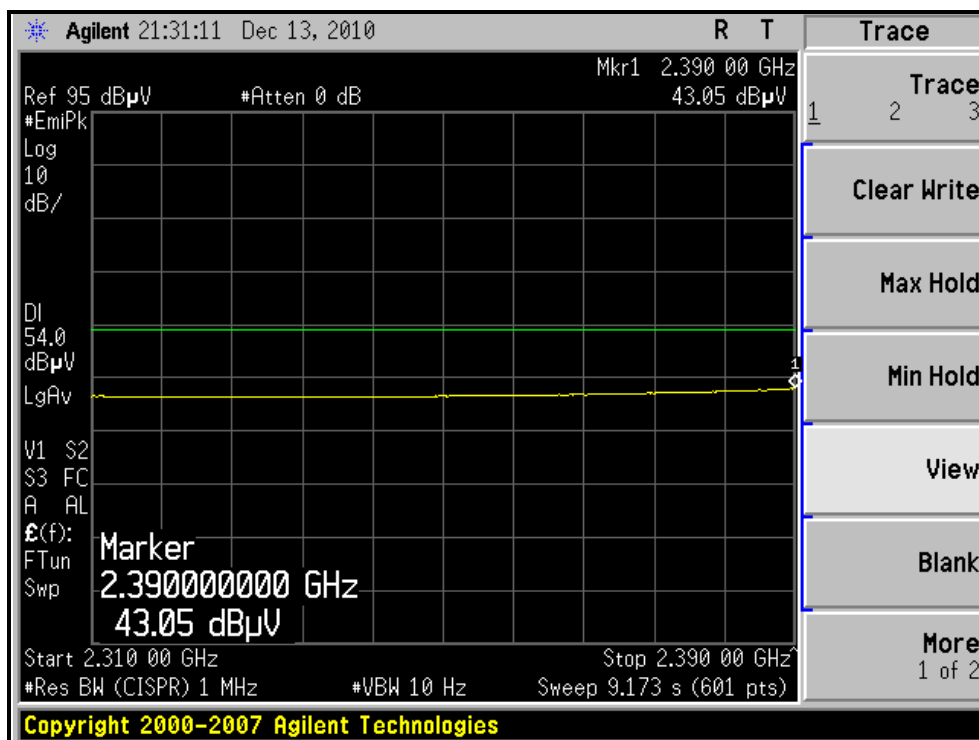
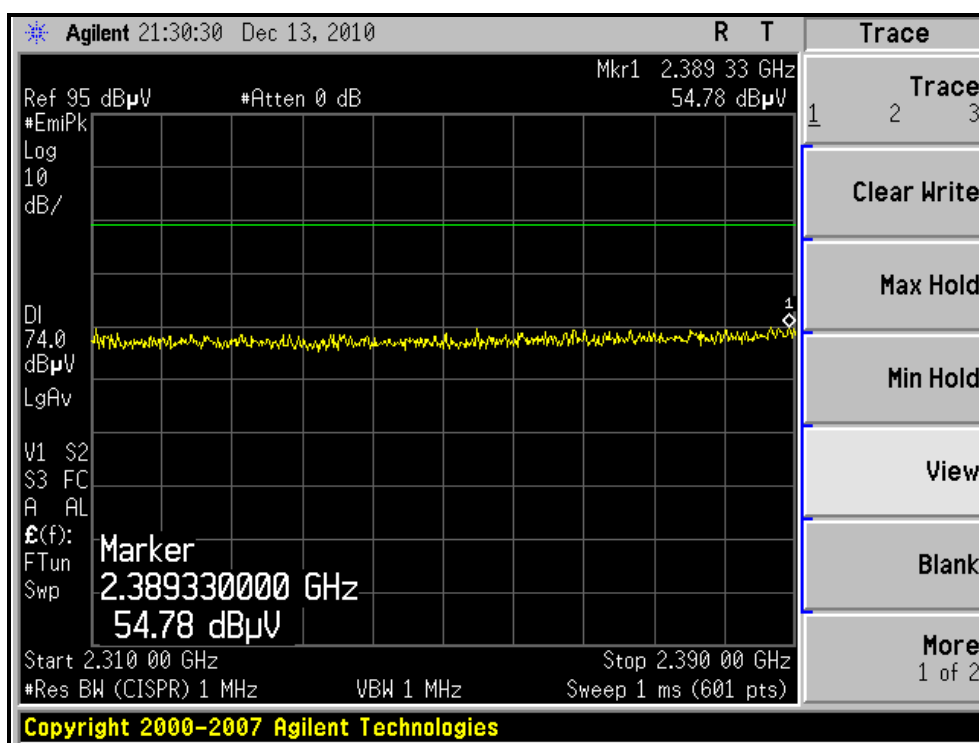
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 66%RH 1012 hPa	TESTED BY	Frank Lin

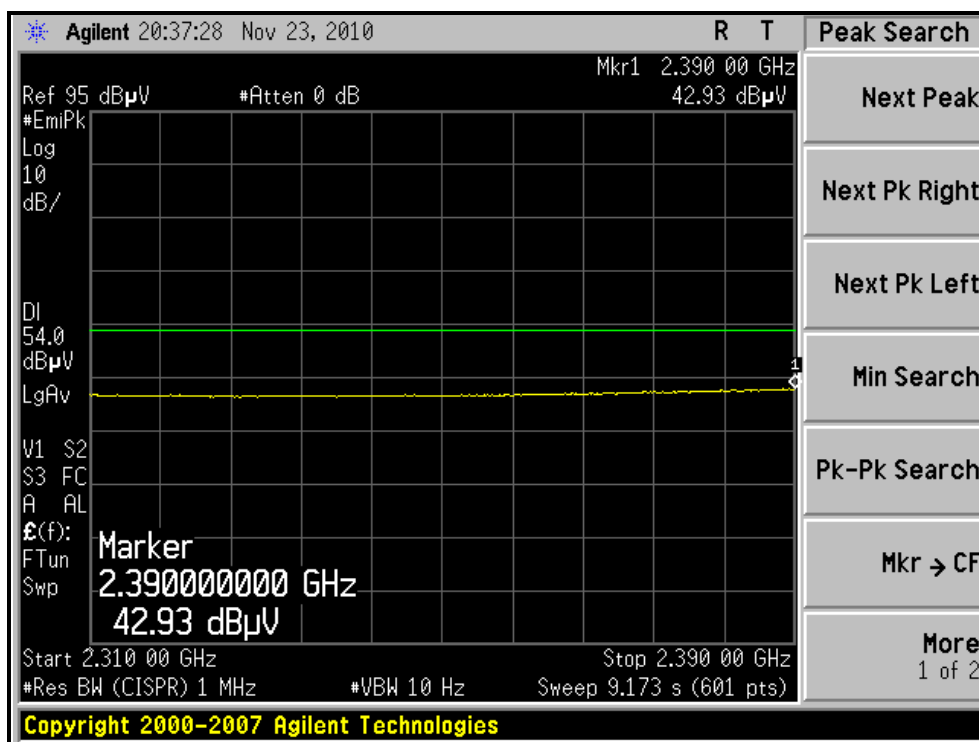
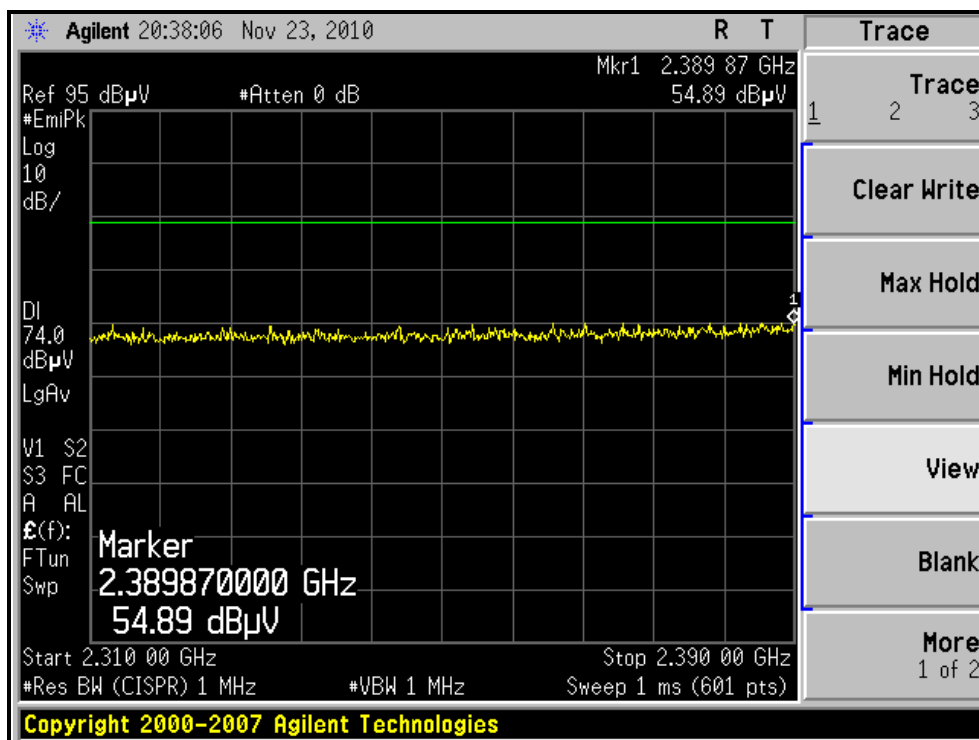
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	88.0 PK			1.28 H	15	56.80	31.20
2	*2452.00	75.5 AV			1.28 H	15	44.30	31.20
3	2483.50	55.6 PK	74.00	-18.4	1.28 H	15	24.20	31.40
4	2483.50	42.8 AV	54.00	-11.2	1.28 H	15	11.40	31.40
5	4904.00	44.9 PK	74.00	-29.1	1.24 H	281	7.60	37.30
6	4904.00	34.1 AV	54.00	-19.9	1.24 H	281	-3.20	37.30
7	7356.00	50.7 PK	74.00	-23.3	1.07 H	69	6.20	44.50
8	7356.00	39.1 AV	54.00	-14.9	1.07 H	69	-5.40	44.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	94.3 PK			1.44 V	59	63.10	31.20
2	*2452.00	83.7 AV			1.44 V	59	52.50	31.20
3	2483.50	54.8 PK	74.00	-19.2	1.37 V	62	23.40	31.40
4	2483.50	43.8 AV	54.00	-10.2	1.37 V	62	12.40	31.40
5	4904.00	43.2 PK	74.00	-30.8	1.03 V	154	5.90	37.30
6	4904.00	32.4 AV	54.00	-21.6	1.03 V	154	-4.90	37.30
7	7356.00	50.1 PK	74.00	-23.9	1.04 V	73	5.60	44.50
8	7356.00	39.4 AV	54.00	-14.6	1.04 V	73	-5.10	44.50

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

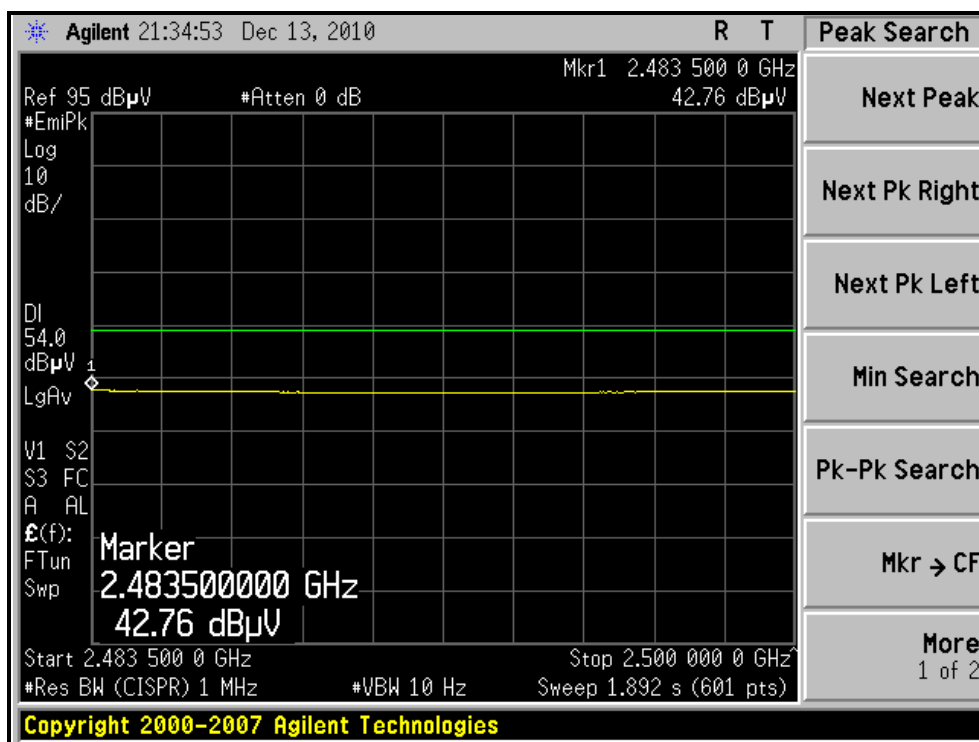
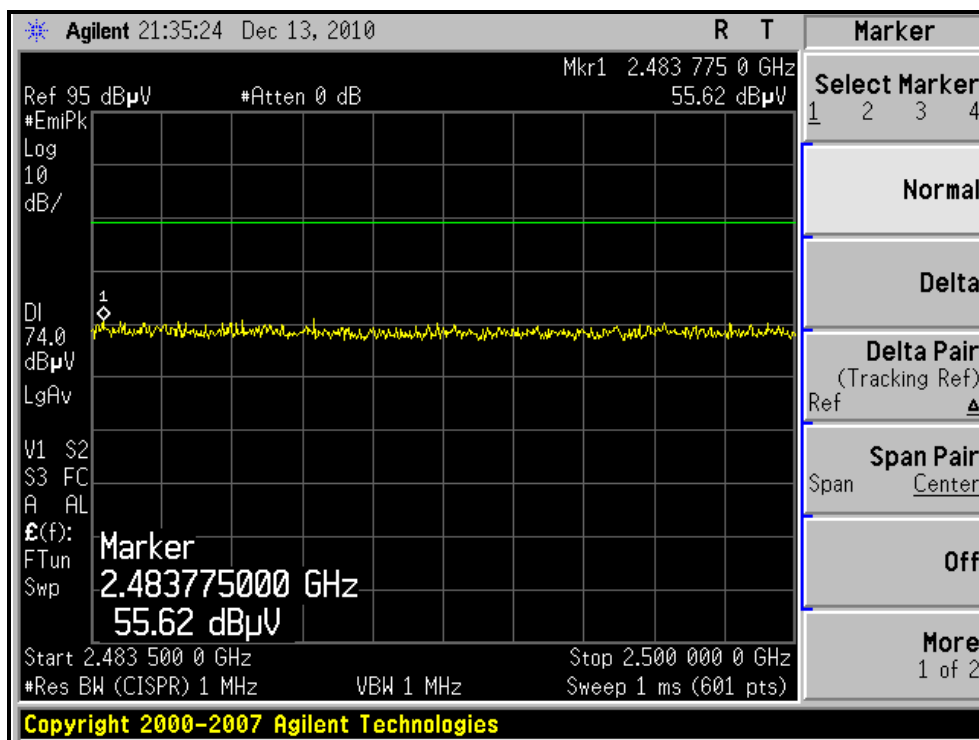
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, HORIZONTAL)



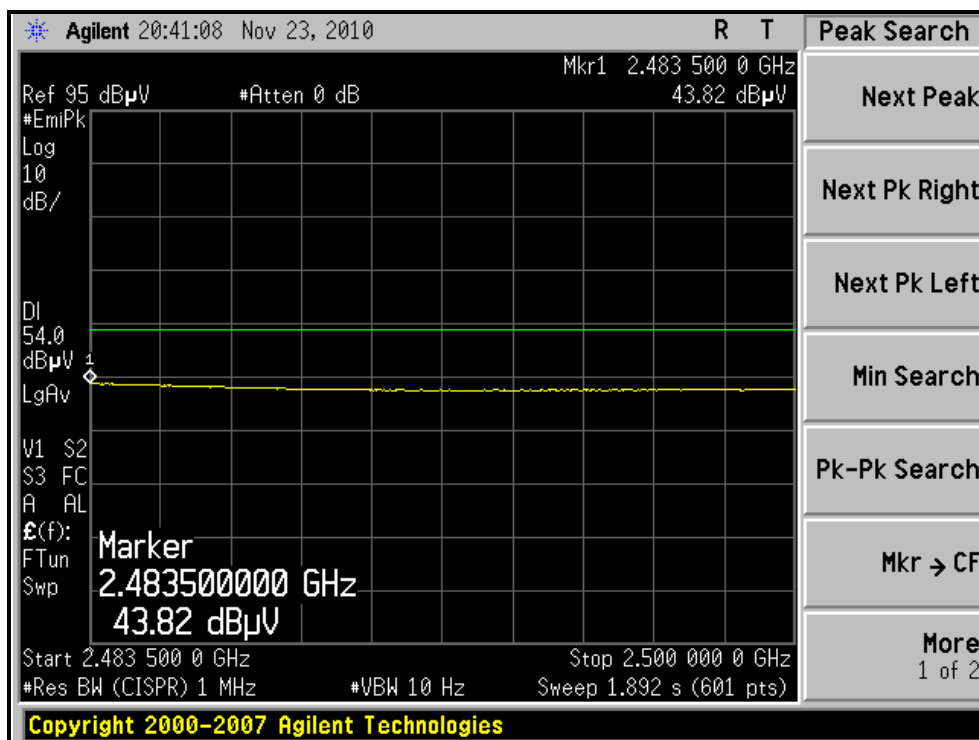
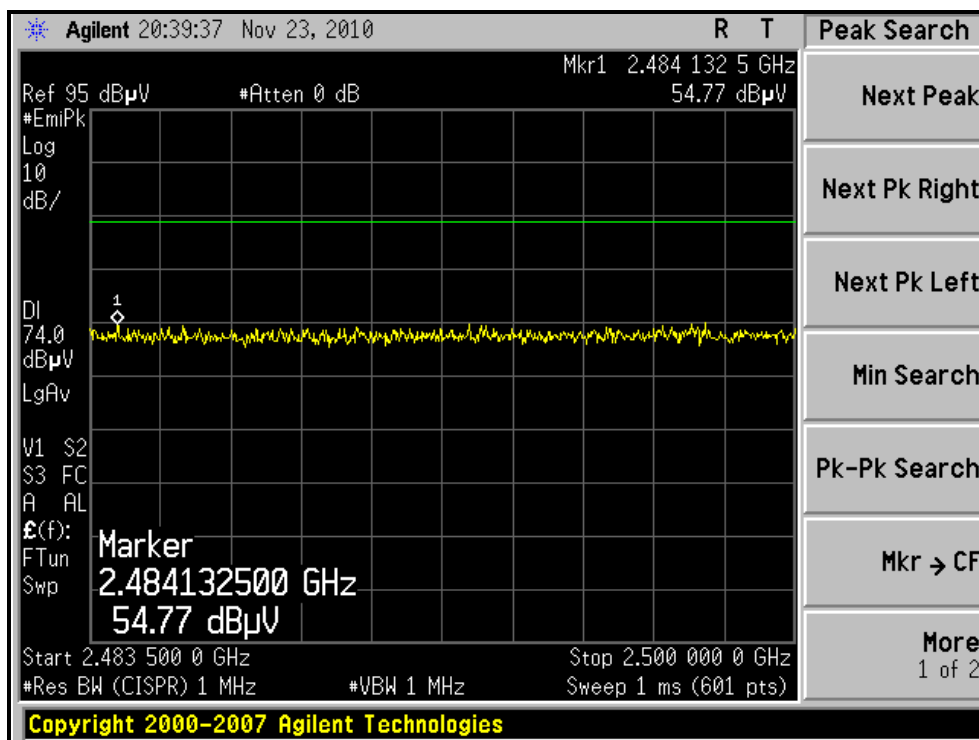
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, VERTICAL)



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



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



4.3 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	Sep. 08, 2010	Sep. 07, 2011

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

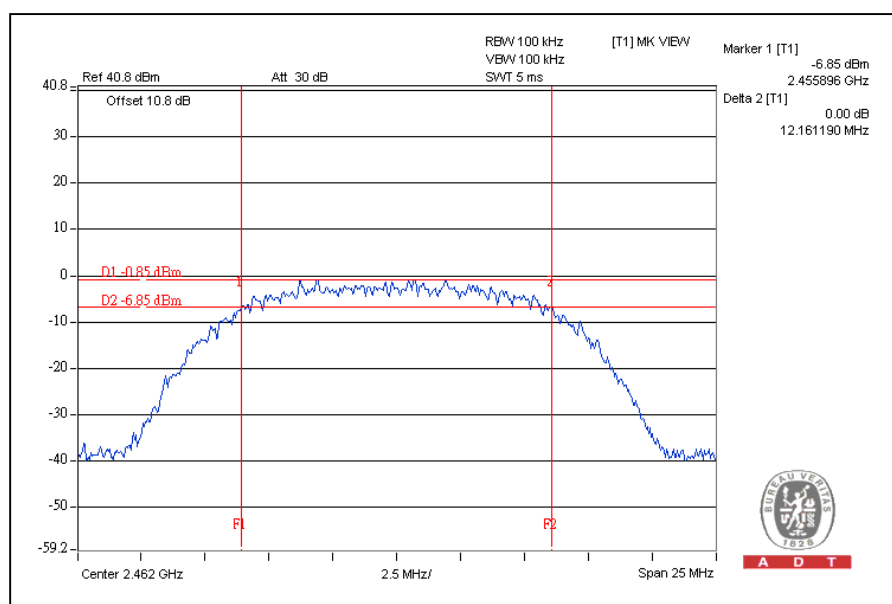
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	11.79	0.5	PASS
6	2437	12.00	0.5	PASS
11	2462	12.16	0.5	PASS

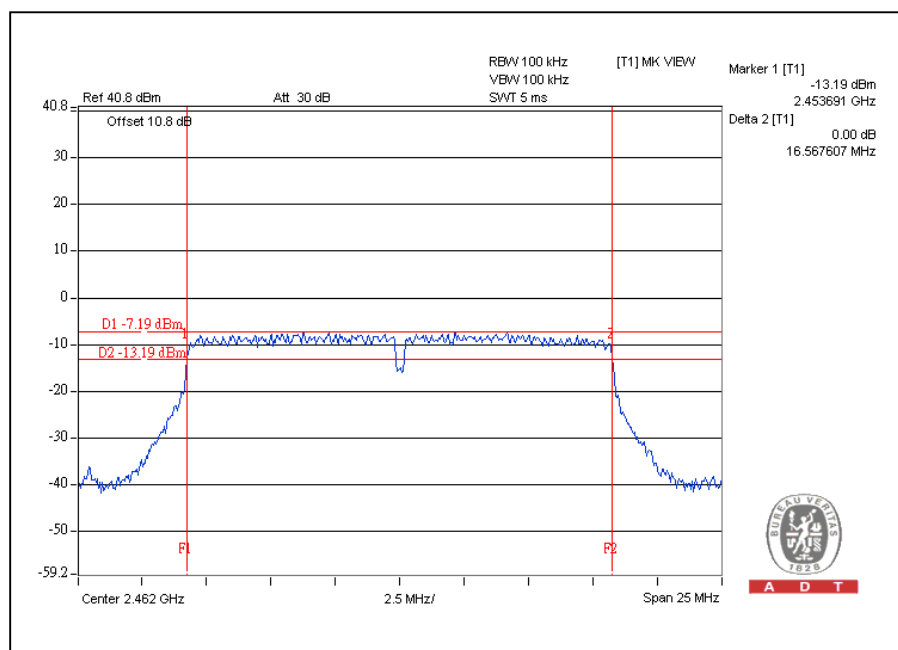
CH11



802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.48	0.5	PASS
6	2437	16.52	0.5	PASS
11	2462	16.56	0.5	PASS

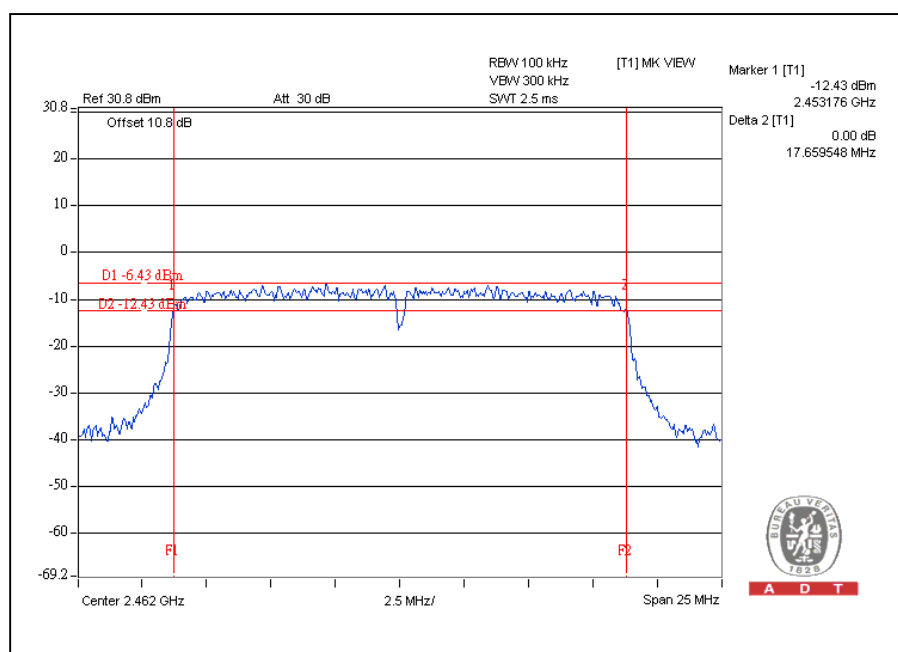
CH11



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.37	0.5	PASS
6	2437	17.65	0.5	PASS
11	2462	17.65	0.5	PASS

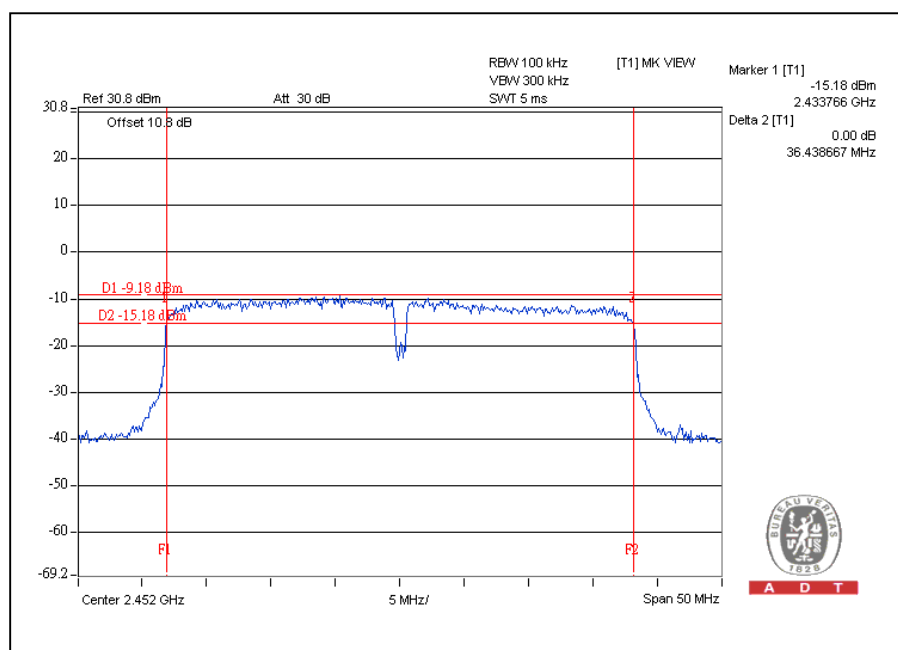
CH11



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2422	36.32	0.5	PASS
4	2437	36.11	0.5	PASS
7	2452	36.43	0.5	PASS

CH11



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	May 04, 2010	May 03, 2011
Pulse Power Sensor	MA2411B	0738172	May 04, 2010	May 03, 2011

NOTE:

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

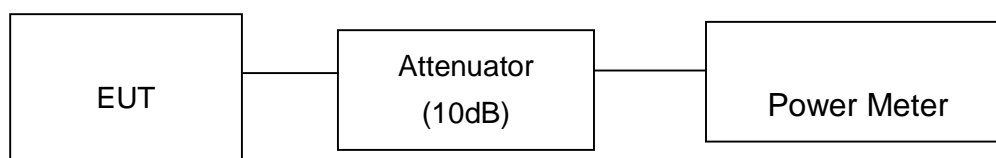
4.4.3 TEST PROCEDURES

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 4.3.6

4.4.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	25.7	14.1	30	PASS
6	2437	26.3	14.2	30	PASS
11	2462	25.1	14.0	30	PASS

802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	41.7	16.2	30	PASS
6	2437	46.8	16.7	30	PASS
11	2462	38.9	15.9	30	PASS

802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	44.7	16.5	30	PASS
6	2437	44.7	16.5	30	PASS
11	2462	41.7	16.2	30	PASS



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802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2422	38.0	15.8	30	PASS
4	2437	39.8	16.0	30	PASS
7	2452	38.0	15.8	30	PASS

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	100037	Sep. 08, 2010	Sep. 07, 2011

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.

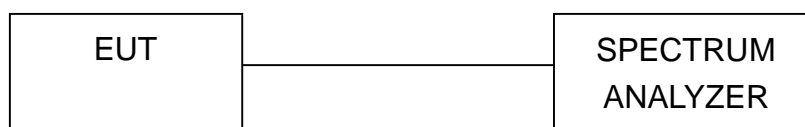
The power spectral density was measured and recorded.

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

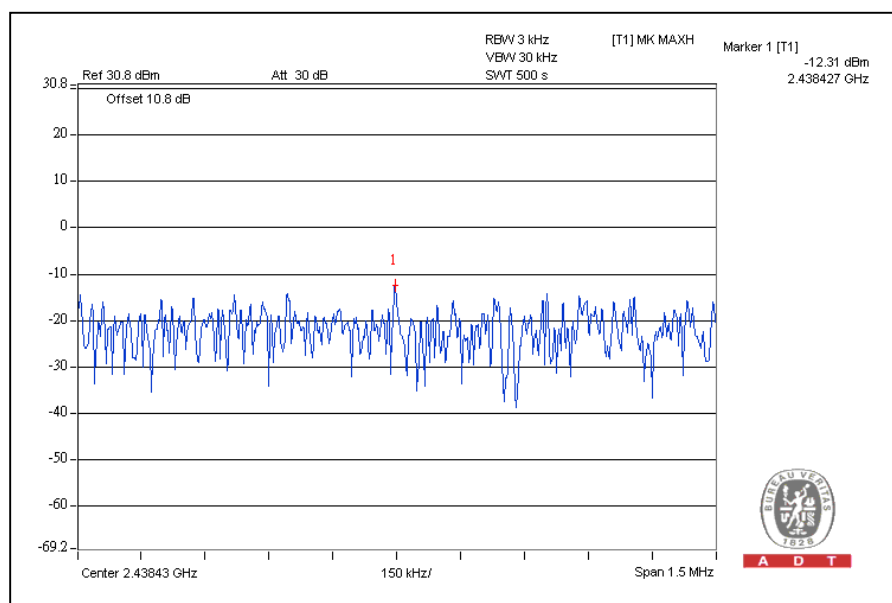
Same as Item 4.3.6

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	-12.5	8	PASS
6	2437	-12.3	8	PASS
11	2462	-13.7	8	PASS

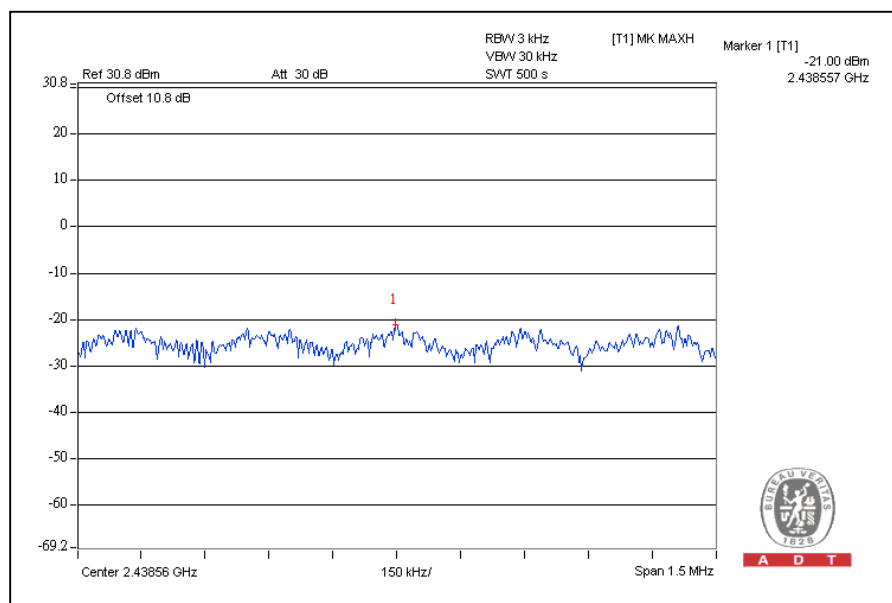
CH6



802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-21.1	8	PASS
6	2437	-21.0	8	PASS
11	2462	-21.1	8	PASS

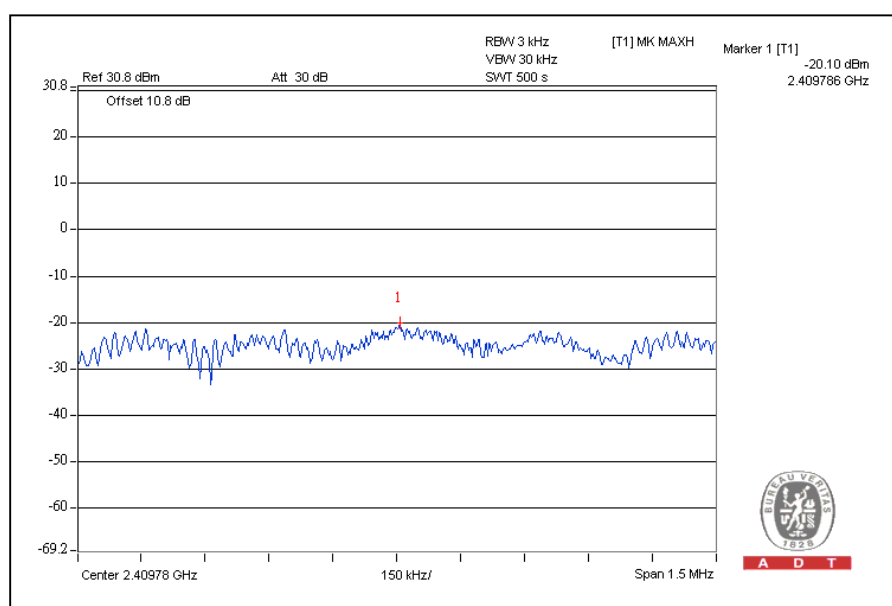
CH6



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-20.1	8	PASS
6	2437	-20.9	8	PASS
11	2462	-20.2	8	PASS

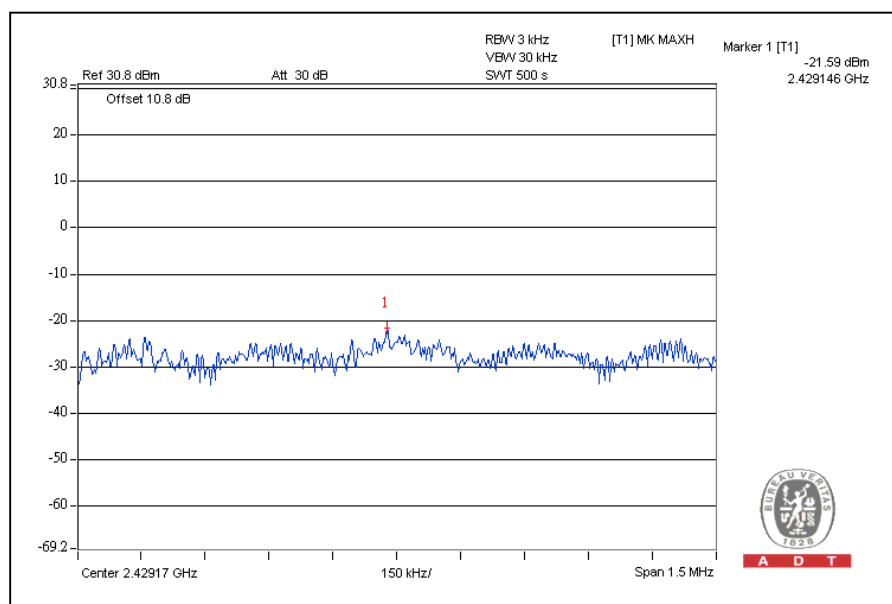
CH1



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2422	-22.9	8	PASS
4	2437	-21.6	8	PASS
7	2452	-21.7	8	PASS

CH4



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	100037	Sep. 08, 2010	Sep. 07, 2011

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 loss cable. Set RBW of spectrum analyzer to 100kHz and VBW of spectrum analyzer to 300kHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges were measured and recorded.

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

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

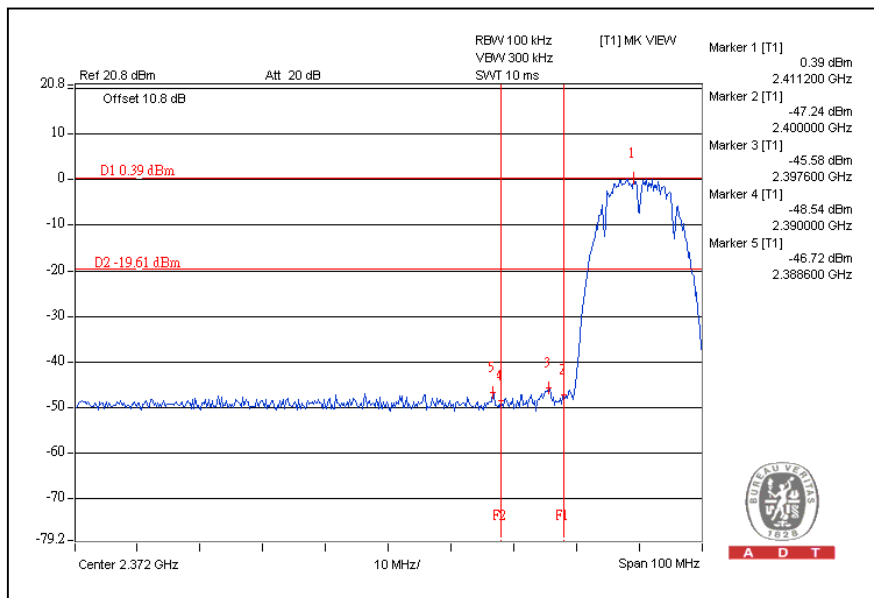
Same as Item 4.3.6

4.6.6 TEST RESULTS

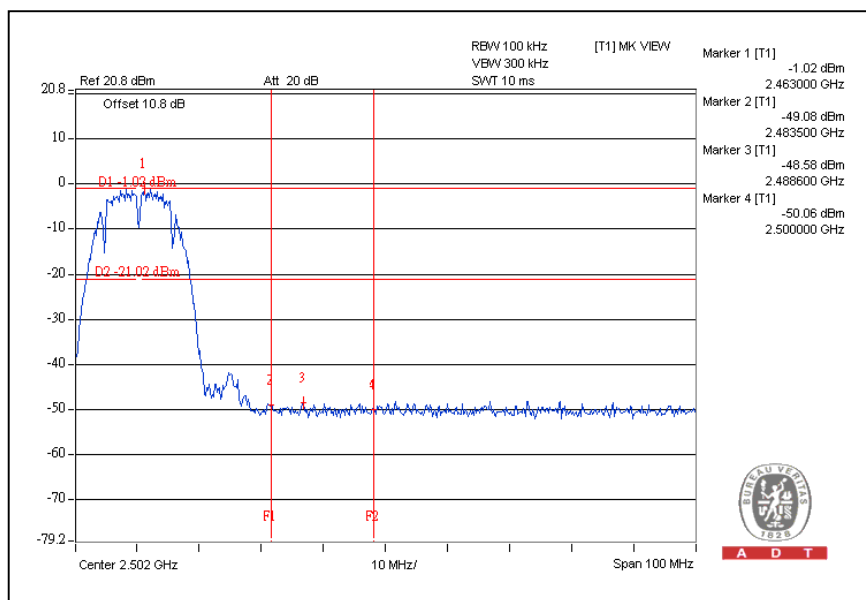
The spectrum plots are attached on the following images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11b DSSS MODULATION:

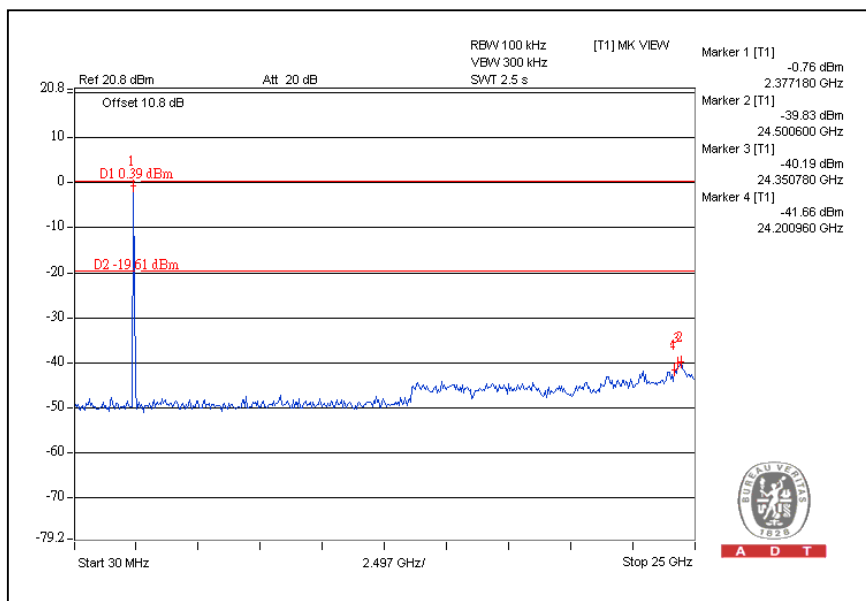
CH1



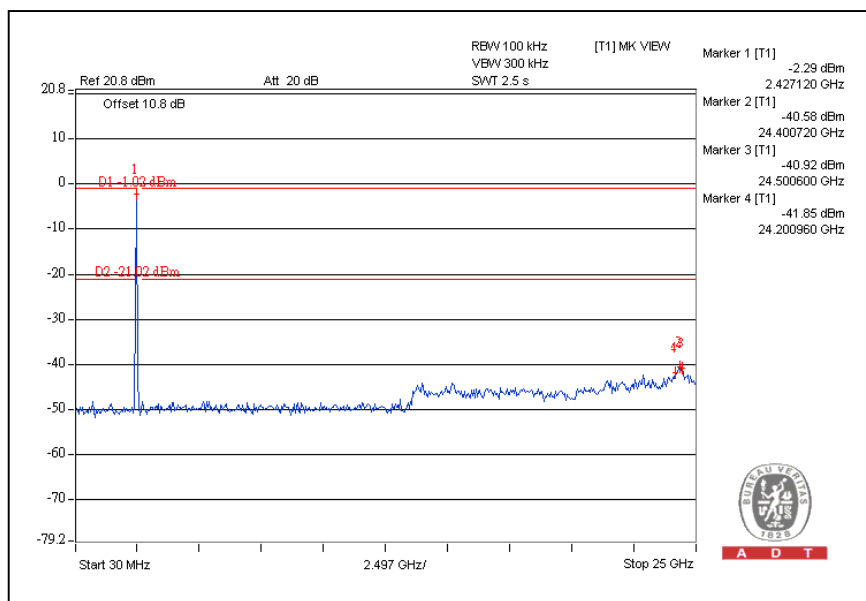
CH11



CH1

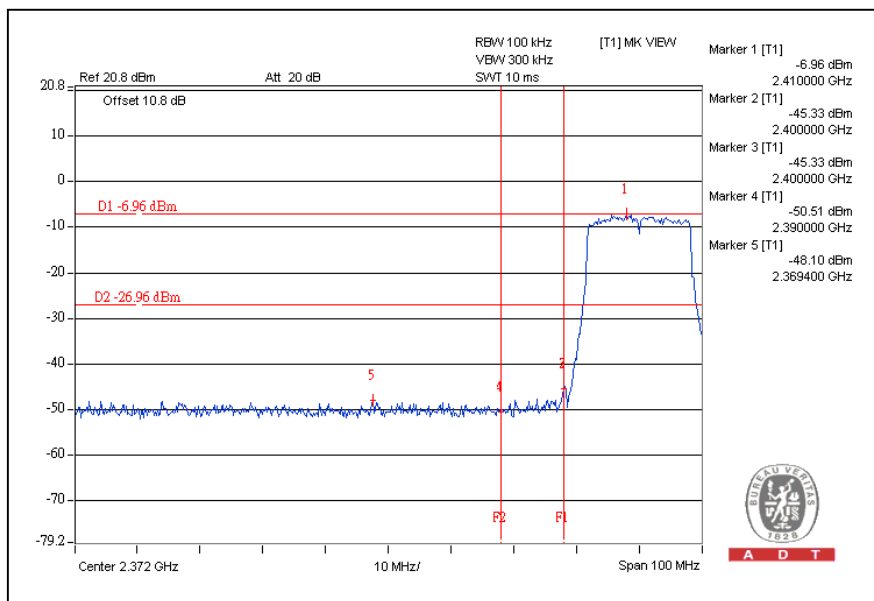


CH11

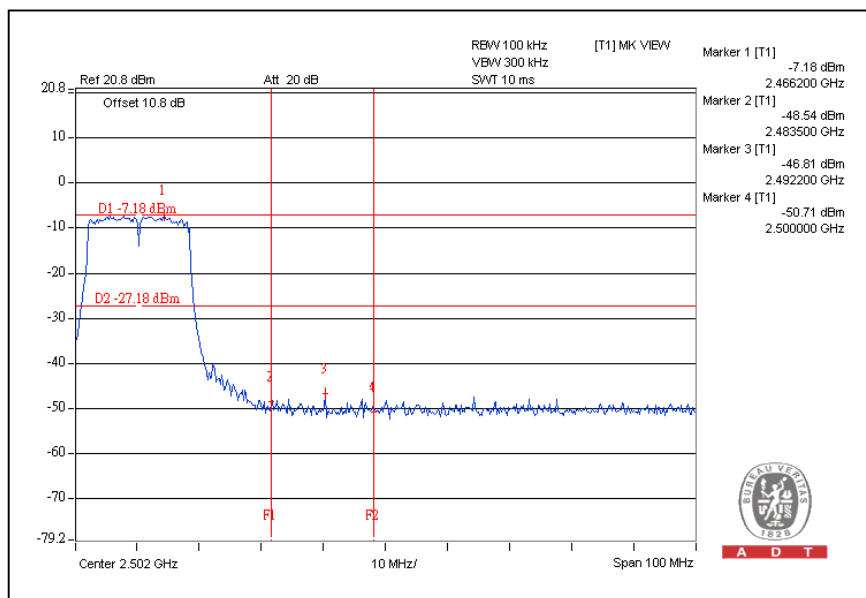


802.11g OFDM MODULATION:

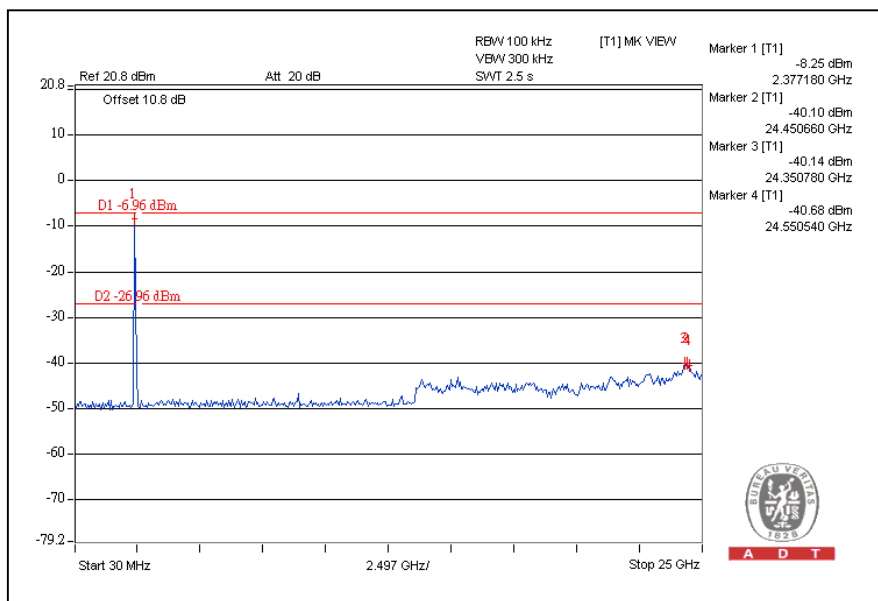
CH1



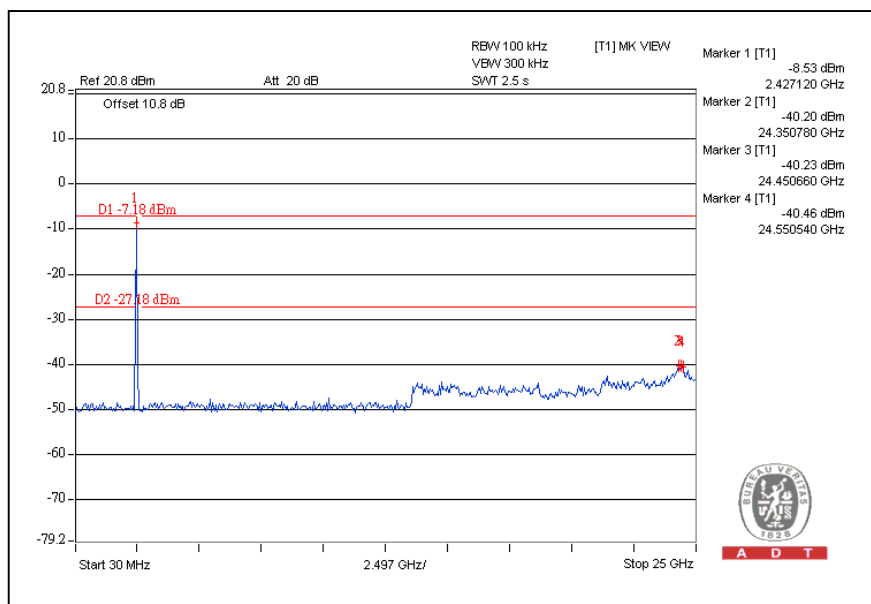
CH11



CH1

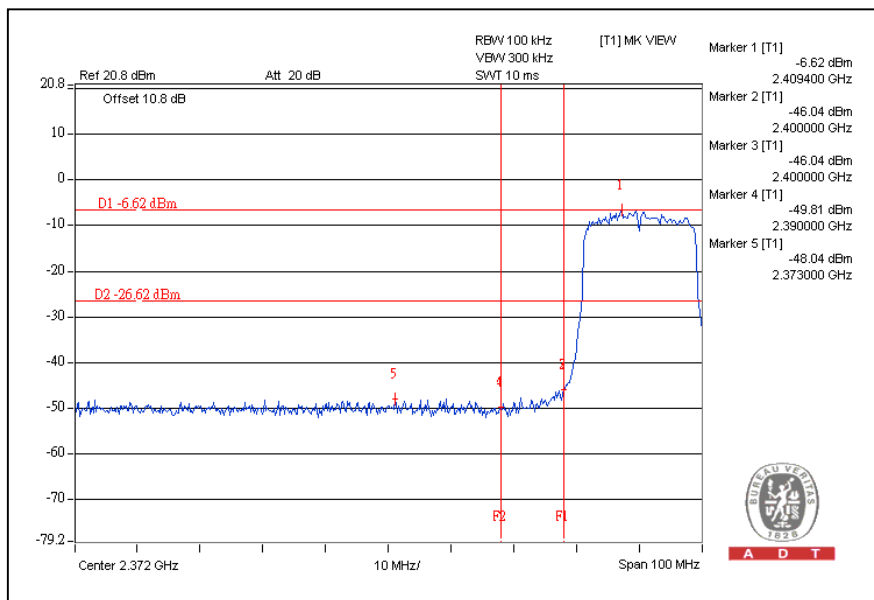


CH11

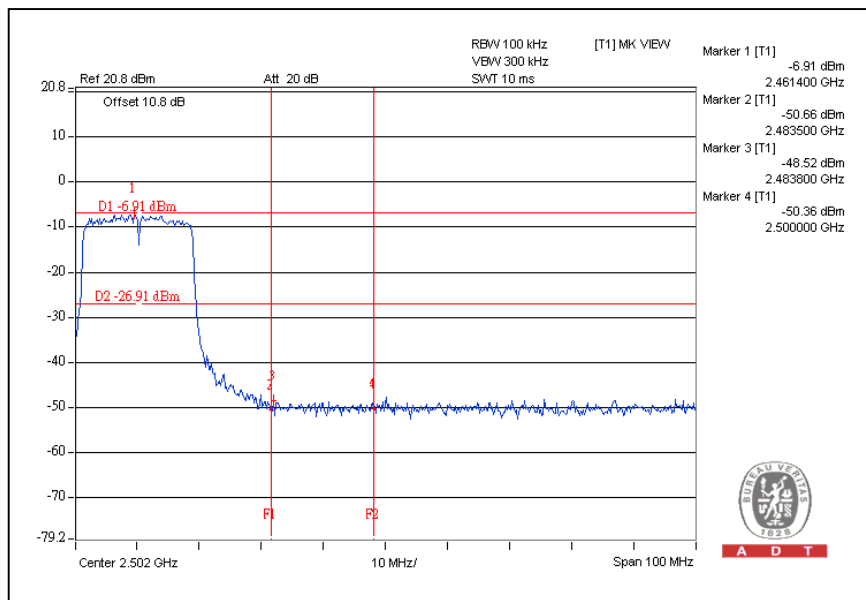


802.11n (20MHz) OFDM MODULATION:

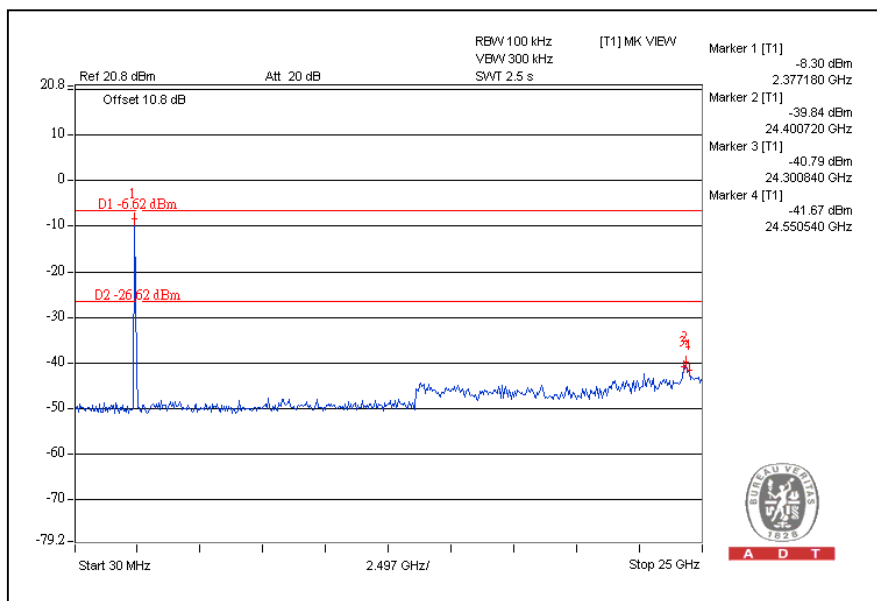
CH1



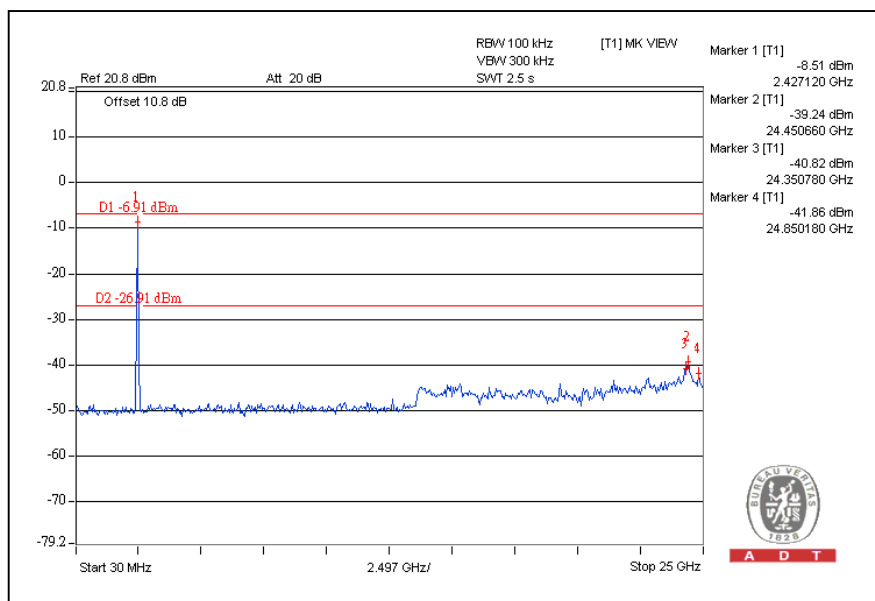
CH11



CH1

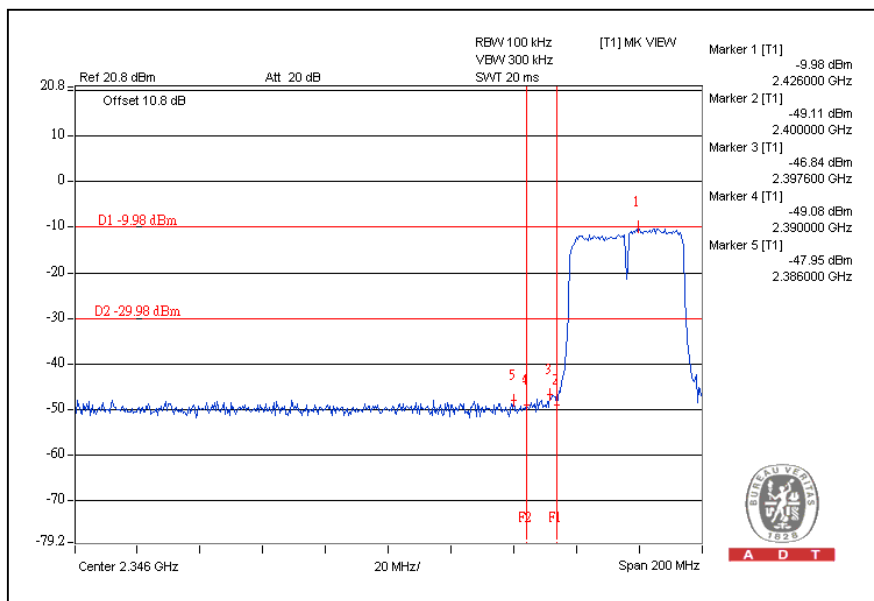


CH11

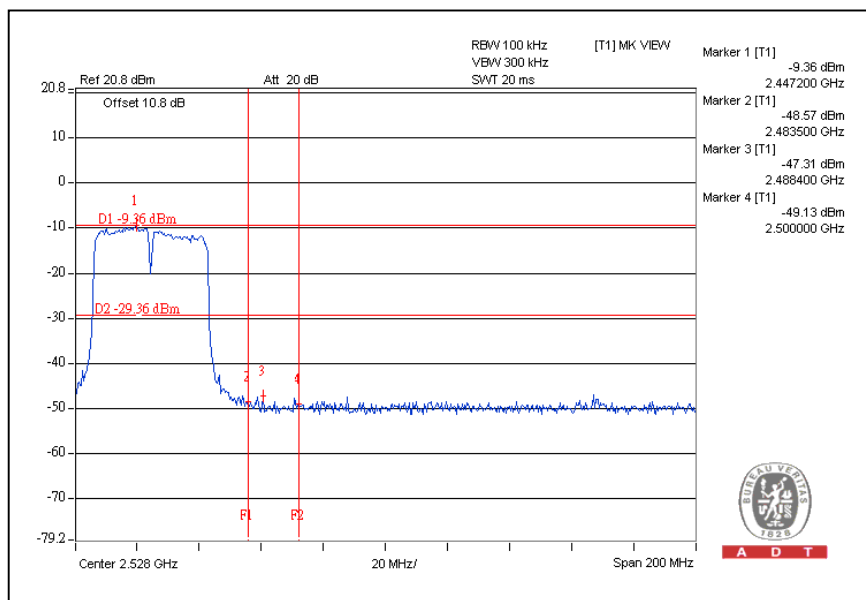


802.11n (40MHz) OFDM MODULATION:

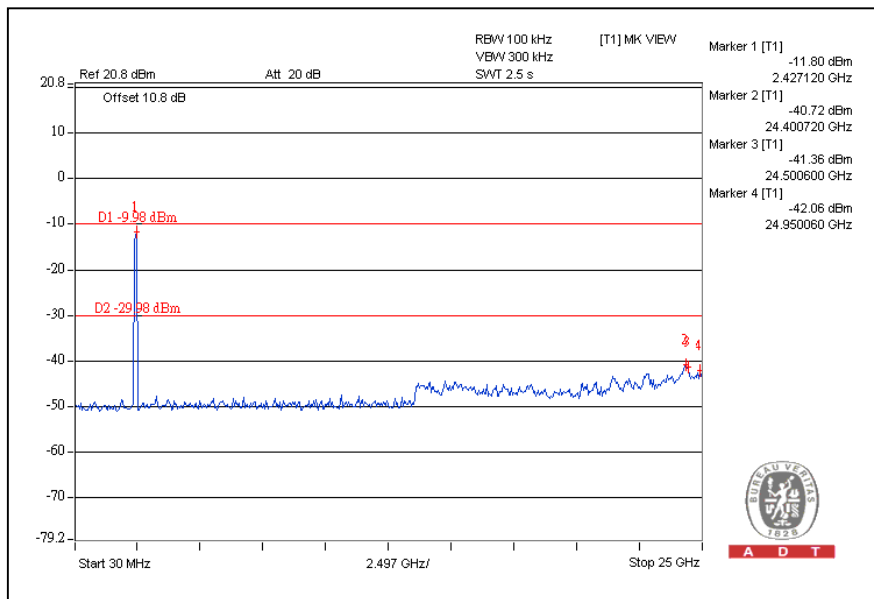
CH1



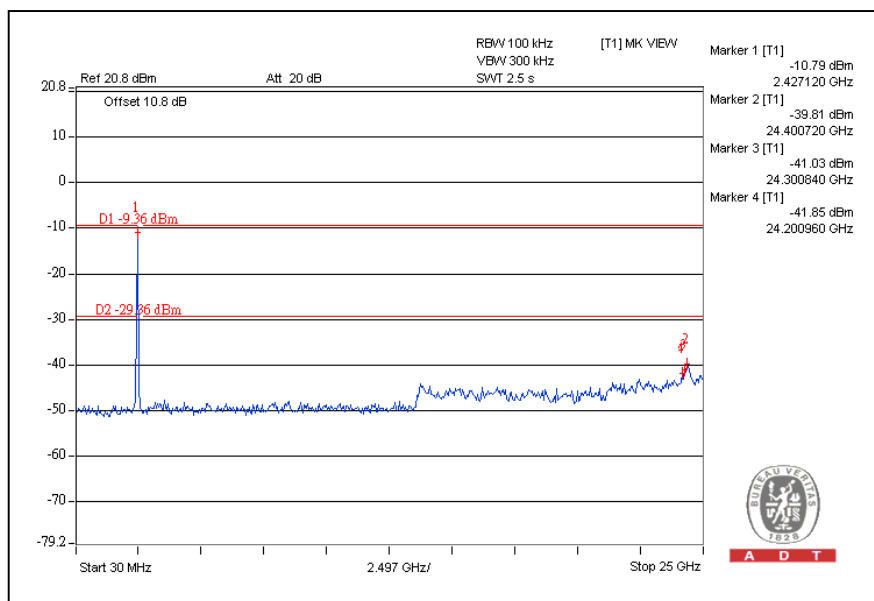
CH7



CH1



CH7



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:

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Web Site: www.adt.com.tw

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



A D T

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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