



# FCC TEST REPORT

**REPORT NO.:** RF991025E04

**MODEL NO.:** RT5392

**FCC ID:** VQF-RT5392

**RECEIVED:** Oct. 25, 2010

**TESTED:** Nov. 04 to 10, 2010

**ISSUED:** Nov. 17, 2010

**APPLICANT:** Ralink Technology Corporation

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

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## 1. CERTIFICATION

**PRODUCT:** 802.11b/g/n 2T2R WLAN Mini Card  
**BRAND:** Ralink  
**MODEL NO.:** RT5392  
**TEST SAMPLE:** MASS-PRODUCTION  
**TESTED:** Nov. 04 to 10, 2010  
**APPLICANT:** Ralink Technology Corporation  
**STANDARDS:** FCC Part 15, Subpart C (Section 15.247)  
ANSI C63.4-2003

The above equipment (Model: RT5392) 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 :** Sunny Wen , **DATE:** Nov. 17, 2010  
( Sunny Wen, Specialist )

**TECHNICAL ACCEPTANCE :** Hank Chung , **DATE:** Nov. 17, 2010  
( Hank Chung, Deputy Manager )

**APPROVED BY :** May Chen , **DATE:** Nov. 17, 2010  
( May Chen, Deputy Manager )



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## 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 -10.40dB 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)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -0.5dB at 2489.33MHz & 4874.00MHz
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 I-PEX connector.



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## 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



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### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	802.11b/g/n 2T2R WLAN Mini Card
<b>MODEL NO.</b>	RT5392
<b>FCC ID</b>	VQF-RT5392
<b>POWER SUPPLY</b>	DC 3.3V±10% from host equipment
<b>MODULATION TYPE</b>	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
<b>MODULATION TECHNOLOGY</b>	DSSS, OFDM
<b>TRANSFER RATE</b>	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps HT20 MCS 0~7 (800ns GI): 65/58.5/52/39/26/19.5/13/6.5Mbps HT20 MCS 8~15 (800ns GI): 130/117/104/78/52/39/26/13Mbps HT40 MCS 0~7 (800ns GI): 135/121.5/108/81/54/40.5/27/13.5Mbps HT40 MCS 8~15 (800ns GI): 270/243/216/162/108/81/54/27Mbps HT20 MCS 0~7 (400ns GI): 72.2/65/57.8/43.3/28.9/21.7/14.47.2Mbps HT20 MCS 8~15 (400ns GI): 144.444/130/115.556/86.667/57.778/43.333/28.889/14.444Mbps HT40 MCS 0~7 (400ns GI): 150/135/120/90/60/45/30/15Mbps HT40 MCS 8~15 (400ns GI): 300/27/240/180/120/90/60/30Mbps
<b>FREQUENCY RANGE</b>	2412MHz ~ 2462MHz
<b>NUMBER OF CHANNEL</b>	11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz)
<b>MAXIMUM OUTPUT POWER</b>	802.11b: 251.2mW 802.11g: 371.5mW 802.11n (20MHz): 453.2mW 802.11n (40MHz): 427.7mW
<b>ANTENNA TYPE</b>	See note 1
<b>DATA CABLE</b>	NA
<b>I/O PORTS</b>	NA
<b>ASSOCIATED DEVICES</b>	NA





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**NOTE:**

1. There are six sets antennas provided to this EUT, please refer to the following table:

Set 1						
Transmitter Circuit	Brand	Model No.	Antenna Type	Antenna Gain (dBi)	Connector	Cable length (mm)
Chain (0)	JOYMAX	IWX-145XRSXX-999	Dipole	3.7	I-PEX	200
Chain (1)	JOYMAX	IWX-145XRSXX-999	Dipole	3.7	I-PEX	200
Set 2						
Transmitter Circuit	Brand	Model No.	Antenna Type	Antenna Gain (dBi)	Connector	Cable length (mm)
Chain (0)	ACON	APP6P-700119	PIFA	3.5	I-PEX	225
Chain (1)	ACON	APP6P-700119	PIFA	3.5	I-PEX	225
Set 3						
Transmitter Circuit	Brand	Model No.	Antenna Type	Antenna Gain (dBi)	Connector	Cable length (mm)
Chain (0)	WHA YU GROUP	C923-520020-A	PIFA	0.82	I-PEX	205
Chain (1)	WHA YU GROUP	C923-520021-A	PIFA	0.12	I-PEX	310
Set 4						
Transmitter Circuit	Brand	Model No.	Antenna Type	Antenna Gain (dBi)	Connector	Cable length (mm)
Chain (0)	WHA YU GROUP	C680-520238-A	PIFA	1.1	I-PEX	267
Chain (1)	WHA YU GROUP	C680-520238-A	PIFA	0.31	I-PEX	797
Set 5						
Transmitter Circuit	Brand	Model No.	Antenna Type	Antenna Gain (dBi)	Connector	Cable length (mm)
Chain (0)	WHA YU GROUP	C680-520216-A	PIFA	-0.13	I-PEX	508
Chain (1)	WHA YU GROUP	C680-520216-A	PIFA	0.3	I-PEX	508
Set 6						
Transmitter Circuit	Brand	Model No.	Antenna Type	Antenna Gain (dBi)	Connector	Cable length (mm)
Chain (0)	WHA YU GROUP	C680-520245-A	PIFA	0.24	I-PEX	168
Chain (1)	WHA YU GROUP	C680-520245-A	PIFA	-1.35	I-PEX	385

From the above antennas, sets 1 & 2 were chosen to test. Therefore only the test data of sets 1 & 2 was recorded in this report individually



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

Pre-test Mode	Description
Mode A	PIFA antenna: Level-set
<b>Mode B</b>	<b>PIFA antenna: Tower-set</b>

The worst radiated emission was found in **Mode B**. Therefore only the test data of the modes were recorded in this report.

3. The EUT incorporates a MIMO function with 802.11n.

4. The EUT is 2 \* 2 spatial MIMO (2Tx & 2Rx) without beam forming function. The 11b/g legacy mode is limited to single transmitter only.

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.



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### 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		



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### 3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE < 1G	RE ≥ 1G	APCM	
A	√	√	√	√	Dipole antenna
B		√	√		PIFA antenna: Tower-set

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

#### ANTENNA COMBINATION MODE:

COMBINATION MODE	OPERATION MODE	CHAIN(0) (TX)	CHAIN(1) (TX)
A	802.11b	√	
B	802.11g	√	
C	802.11n (20MHz) for MCS 0~7	√	
D	802.11n (20MHz) for MCS 8~15	√	√
E	802.11n (40MHz) for MCS 0~7	√	
F	802.11n (40MHz) for MCS 8~15	√	√

Note:

1. The above information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.
2. Mode A, B, D & F the worst modes were selected as representative mode for the report.

#### 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)	COMBINATION MODE
802.11n (20MHz)	1 to 11	6	OFDM	BPSK	13	D



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**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)	COMBINATION MODE
802.11n (20MHz)	1 to 11	6	OFDM	BPSK	13	D

**RADIATED EMISSION TEST (ABOVE 1 GHz):**

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	COMBINATION MODE
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	A
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	B
802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	13	D
802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	27	F

**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)	COMBINATION MODE
802.11b	1 to 11	1, 11	DSSS	DBPSK	1	A
802.11g	1 to 11	1, 11	OFDM	BPSK	6	B
802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	13	D
802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	27	F

※ After verification, conducted out band emission as show worst chain in report by investigations.



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**ANTENNA PORT CONDUCTED MEASUREMENT:**

- This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- The EUT have MIMO power save mode, one transmitter may be active (chain 0) while other is inactive (chain 1). Output power is no different compared to operation when both transmitter chains are active. Transmitter power is not increased or decreased for chain 0 when in single chain mode, compared to dual chain active mode.
- 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)	COMBINATIO N MODE
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	A
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	B
802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	13	D
802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	27	F

※ After verification, conducted out band emission as show worst chain in report by investigations.

**TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (system)	TESTED BY
RE <sup>3</sup> 1G	25deg. C, 67%RH, 1015 hPa	120Vac, 60Hz	Frank Liu
RE<1G	25deg. C, 67%RH, 1015 hPa	120Vac, 60Hz	Frank Liu
PLC	25deg. C, 60%RH, 1015 hPa	120Vac, 60Hz	Kent Liu
APCM	25deg. C, 60%RH, 1015 hPa	120Vac, 60Hz	Kent Liu

**3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS**

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

**FCC Part 15, Subpart C. (15.247)**  
**ANSI C63.4-2003**

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



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### 3.4 DESCRIPTION OF SUPPORT UNITS

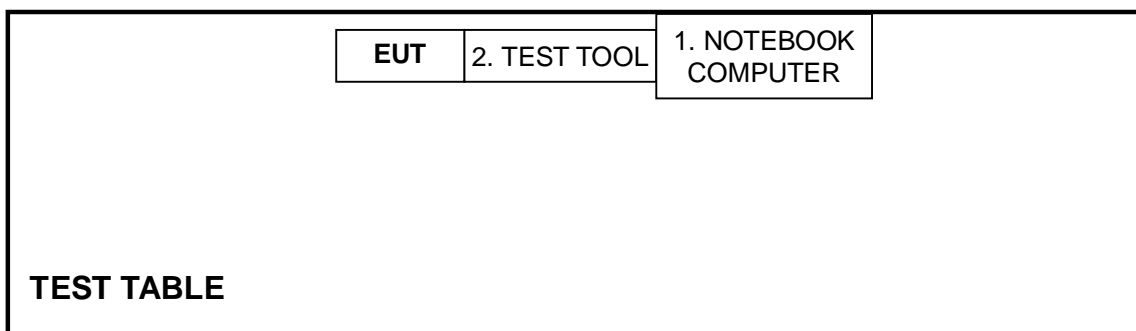
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	E6400	D814C A00 APCC	NA
2	TEST TOOL	Ralink	NA	NA	NA

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

**NOTE:** 1. 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 $\mu$ V)	
0.15-0.5	Quasi-peak	Average
0.5-5	66 to 56	56 to 46
5-30	56	46
	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	COACAB-001	Dec. 14, 2009	Dec. 13, 2010
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.



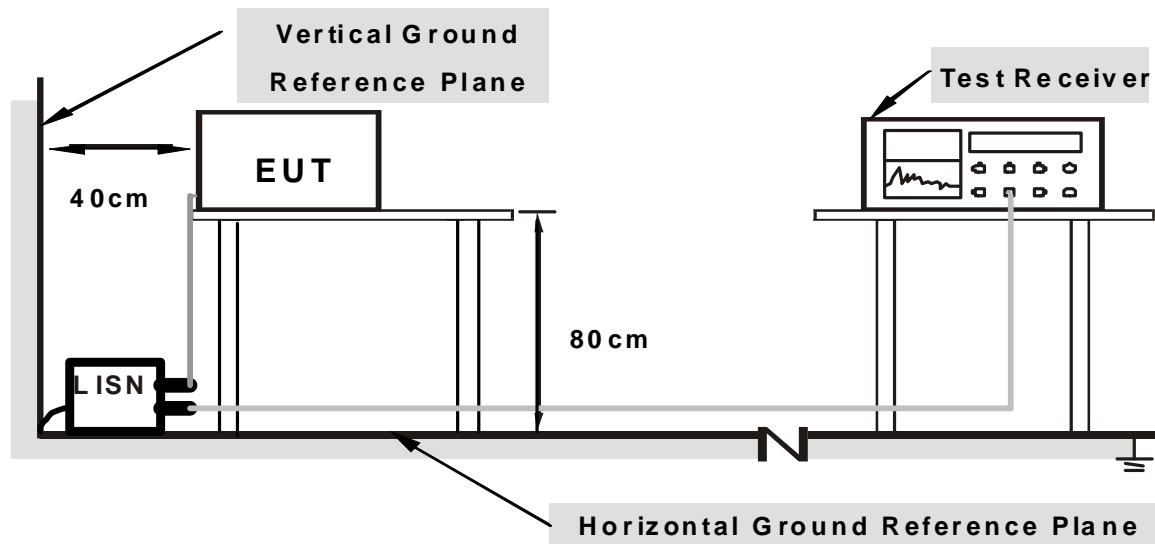
### 4.1.3 TEST PROCEDURES

- 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 cm 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

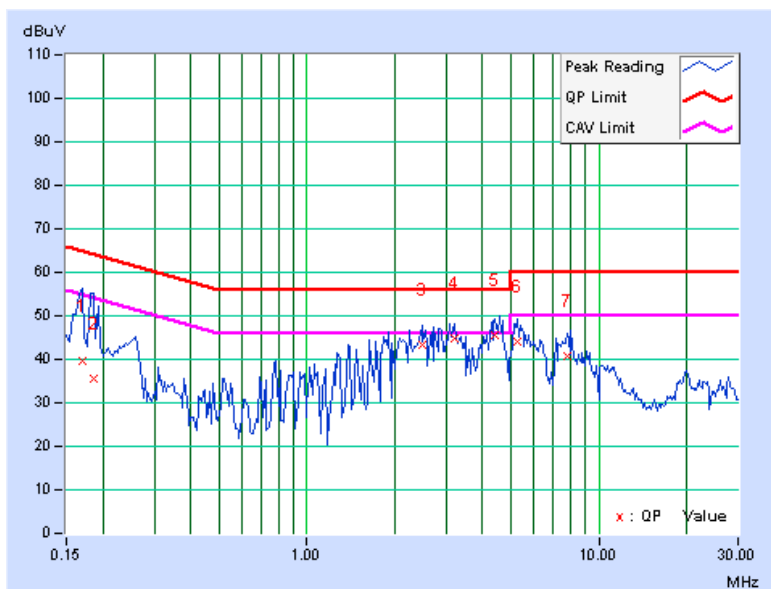
1. Connect the EUT with the support unit 1 (Notebook Computer) which is placed in test table.
2. The support unit 1 (Notebook Computer) runs test program "RT539x\_V\_1.0.2.0" to enable EUT under transmission/receiving condition continuously at specific channel frequency.

### 4.1.7 TEST RESULTS

<b>PHASE</b>	Line (L)	<b>6dB BANDWIDTH</b>	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	0.170	0.36	39.40	-	39.76	-	64.98
2	0.185	0.36	35.32	-	35.68	-	64.25	54.25	-28.57	-
3	2.477	0.47	42.99	-	43.46	-	56.00	46.00	-12.54	-
4	3.219	0.49	44.38	-	44.87	-	56.00	46.00	-11.13	-
5	4.406	0.52	45.05	-	45.57	-	56.00	46.00	-10.43	-
6	5.250	0.55	43.34	-	43.89	-	60.00	50.00	-16.11	-
7	7.789	0.62	39.94	-	40.56	-	60.00	50.00	-19.44	-

- 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.



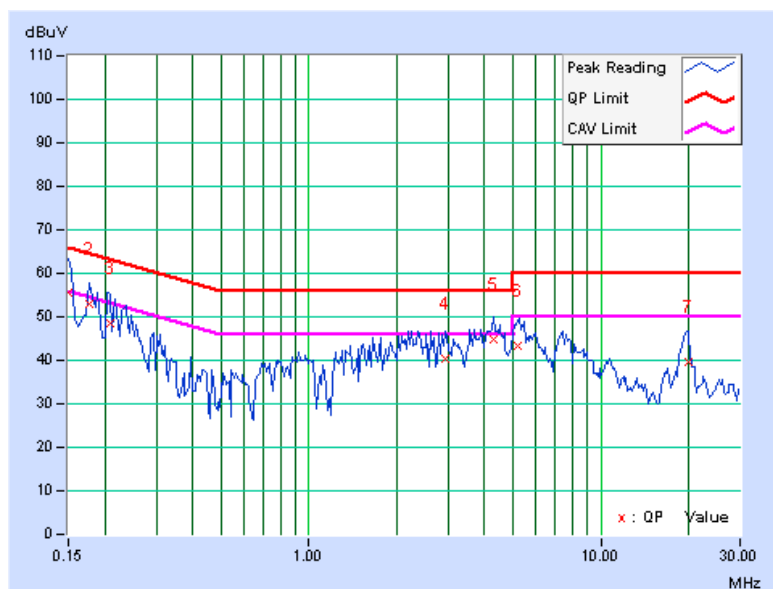


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<b>PHASE</b>	Neutral (N)	<b>6dB BANDWIDTH</b>	9 kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.10	55.50	-	55.60	-	66.00	56.00	-10.40	-
2	0.177	0.10	52.78	-	52.88	-	64.61	54.61	-11.73	-
3	0.209	0.10	48.41	-	48.51	-	63.26	53.26	-14.75	-
4	2.941	0.22	40.14	-	40.36	-	56.00	46.00	-15.64	-
5	4.301	0.25	44.53	-	44.78	-	56.00	46.00	-11.22	-
6	5.219	0.29	42.89	-	43.18	-	60.00	50.00	-16.82	-
7	19.855	1.12	38.46	-	39.58	-	60.00	50.00	-20.42	-

- 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. Section 15.205 restricted bands of operation shall compliance with the limits in Section 15.209.



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#### 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	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. 18, 2009	Dec. 17, 2010
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2010	Jan. 21, 2011
R&S Loop Antenna	HFH2-Z2	100070	Feb. 03, 2010	Feb. 02, 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 10 meters open 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 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.

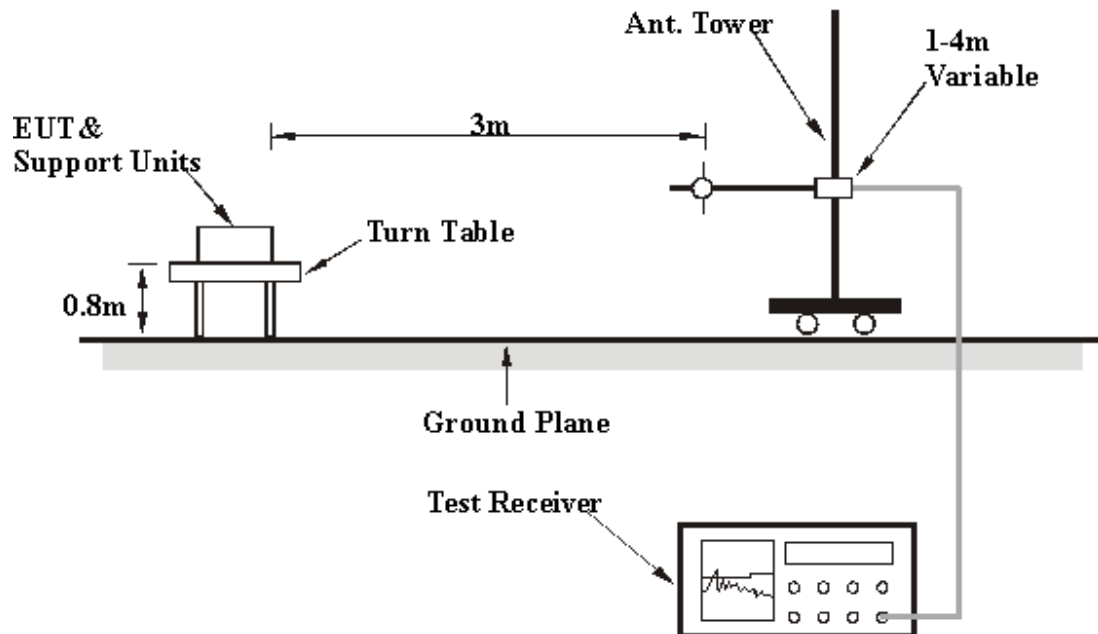
**NOTE:**

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 of test receiver/spectrum analyzer is 1 MHz and video bandwidth 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

Same as 4.1.6.





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### 4.2.7 TEST RESULTS (DIPOLE ANTENNA)

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 hPa	TESTED BY	Frank Liu
TEST MODE	Dipole 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	137.50	30.9 QP	43.5	-12.6	1.52 H	270	16.05	14.84
2	144.00	37.3 QP	43.5	-6.2	1.90 H	229	24.43	14.86
3	176.93	37.1 QP	43.5	-6.4	1.46 H	279	23.96	13.10
4	194.30	36.2 QP	43.5	-7.3	1.24 H	310	24.73	11.45
5	239.42	34.9 QP	46.0	-11.1	1.13 H	121	21.62	13.32
6	660.00	34.9 QP	46.0	-11.1	1.47 H	138	9.10	25.80
7	899.50	35.8 QP	46.0	-10.3	1.47 H	0	7.61	28.14

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	124.53	18.3 QP	43.5	-25.2	1.00 V	0	5.23	13.09
2	146.57	23.9 QP	43.5	-19.6	1.00 V	271	9.27	14.65
3	177.23	30.3 QP	43.5	-13.2	1.00 V	254	17.34	13.00
4	194.53	31.9 QP	43.5	-11.6	1.00 V	220	20.45	11.44
5	227.50	32.0 QP	46.0	-14.0	1.00 V	129	19.28	12.68
6	400.00	27.1 QP	46.0	-18.9	1.00 V	131	8.45	18.63
7	497.83	37.8 QP	46.0	-8.2	1.11 V	315	16.60	21.20
8	697.17	30.0 QP	46.0	-16.1	1.00 V	306	3.79	26.16
9	780.00	33.1 QP	46.0	-13.0	1.21 V	34	6.53	26.52

- 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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**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, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 hPa	TESTED BY	Frank Liu
TEST MODE	Dipole 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	2375.00	56.3 PK	74.0	-17.7	1.01 H	122	25.40	30.90
2	2375.00	45.2 AV	54.0	-8.8	1.01 H	122	14.30	30.90
3	*2412.00	101.3 PK			1.00 H	123	70.24	31.06
4	*2412.00	99.2 AV			1.00 H	123	68.14	31.06
5	4824.00	55.2 PK	74.0	-18.8	1.24 H	293	18.08	37.12
6	4824.00	53.2 AV	54.0	-0.8	1.24 H	293	16.08	37.12

**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	2375.20	61.2 PK	74.0	-12.8	1.34 V	100	30.29	30.91
2	2375.20	53.3 AV	54.0	-0.7	1.34 V	100	22.39	30.91
3	*2412.00	112.8 PK			1.32 V	102	81.74	31.06
4	*2412.00	110.6 AV			1.32 V	102	79.54	31.06
5	4824.00	53.4 PK	74.0	-20.6	1.24 V	293	16.28	37.12
6	4824.00	50.8 AV	54.0	-3.2	1.24 V	293	13.68	37.12

- 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, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 hPa	TESTED BY	Frank Liu
TEST MODE	Dipole 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	102.6 PK			1.00 H	200	71.43	31.17
2	*2437.00	101.2 AV			1.00 H	200	70.03	31.17
3	4874.00	54.9 PK	74.0	-19.1	1.01 H	298	17.67	37.23
4	<b>4874.00</b>	<b>53.5 AV</b>	<b>54.0</b>	<b>-0.5</b>	<b>1.01 H</b>	<b>298</b>	<b>16.27</b>	<b>37.23</b>
5	7311.00	54.4 PK	74.0	-19.6	1.33 H	165	10.04	44.36
6	7311.00	39.9 AV	54.0	-14.1	1.33 H	165	-4.46	44.36
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2358.80	60.7 PK	74.0	-13.3	1.31 V	111	29.86	30.84
2	2358.80	52.4 AV	54.0	-1.6	1.31 V	111	21.56	30.84
3	*2437.00	113.9 PK			1.32 V	101	82.73	31.17
4	*2437.00	111.7 AV			1.32 V	101	80.53	31.17
5	4874.00	54.4 PK	74.0	-19.6	1.47 V	292	17.17	37.23
6	4874.00	52.4 AV	54.0	-1.6	1.47 V	292	15.17	37.23
7	7311.00	51.2 PK	74.0	-22.8	1.44 V	267	6.84	44.36
8	7311.00	39.7 AV	54.0	-14.3	1.44 V	267	-4.66	44.36

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 hPa	TESTED BY	Frank Liu
TEST MODE	Dipole 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	101.1 PK			1.01 H	133	69.82	31.28
2	*2462.00	99.0 AV			1.01 H	133	67.72	31.28
3	2483.50	55.5 PK	74.0	-18.5	1.00 H	144	24.13	31.37
4	2483.50	44.0 AV	54.0	-10.0	1.00 H	144	12.63	31.37
5	4924.00	55.1 PK	74.0	-18.9	1.00 H	300	17.75	37.35
6	4924.00	53.2 AV	54.0	-0.8	1.00 H	300	15.85	37.35
7	7386.00	53.3 PK	74.0	-20.7	1.27 H	140	8.70	44.60
8	7386.00	40.1 AV	54.0	-13.9	1.27 H	140	-4.50	44.60

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

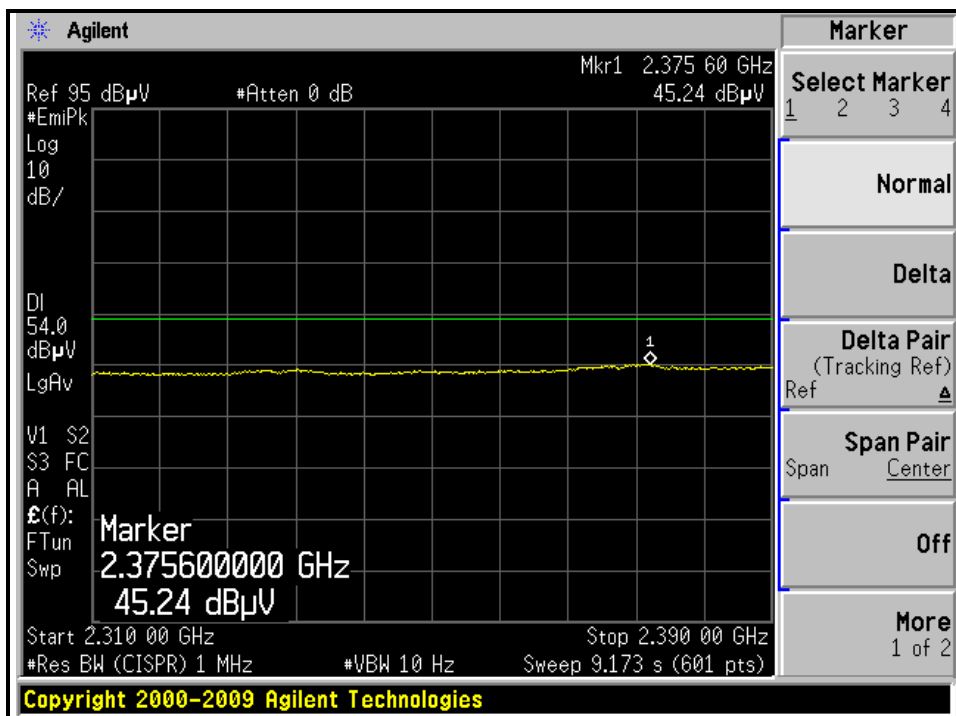
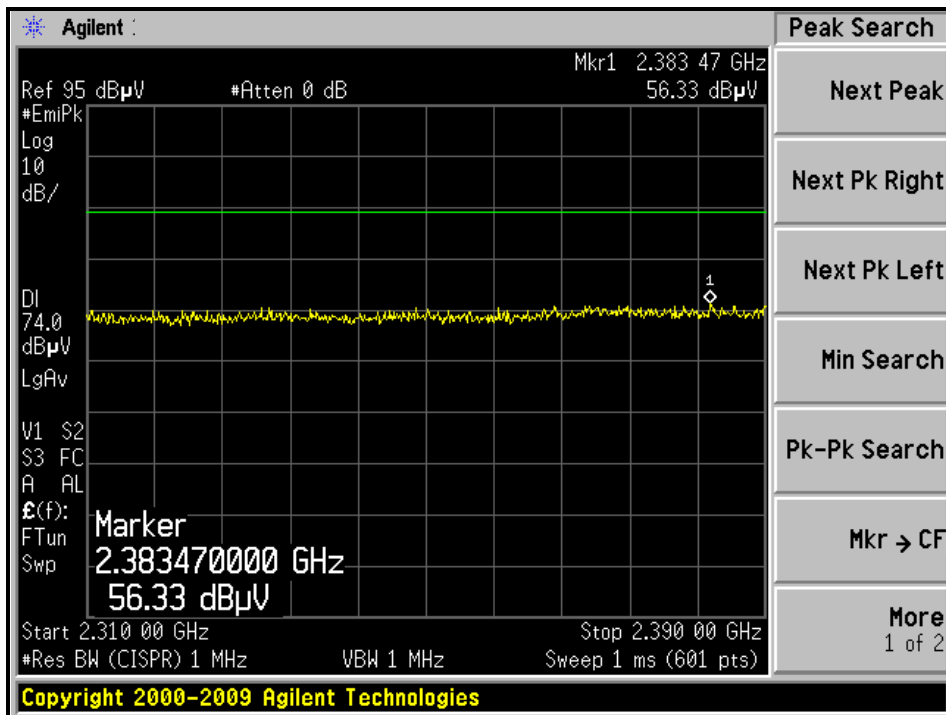
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	111.2 PK			1.33 V	115	79.92	31.28
2	*2462.00	109.3 AV			1.33 V	115	78.02	31.28
3	2483.50	60.8 PK	74.0	-13.2	1.32 V	116	29.43	31.37
4	2483.50	52.6 AV	54.0	-1.4	1.32 V	116	21.23	31.37
5	4924.00	52.7 PK	74.0	-21.3	1.22 V	265	15.35	37.35
6	4924.00	49.9 AV	54.0	-4.1	1.22 V	265	12.55	37.35
7	7386.00	52.6 PK	74.0	-21.4	1.14 V	89	8.00	44.60
8	7386.00	39.2 AV	54.0	-14.8	1.14 V	89	-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.



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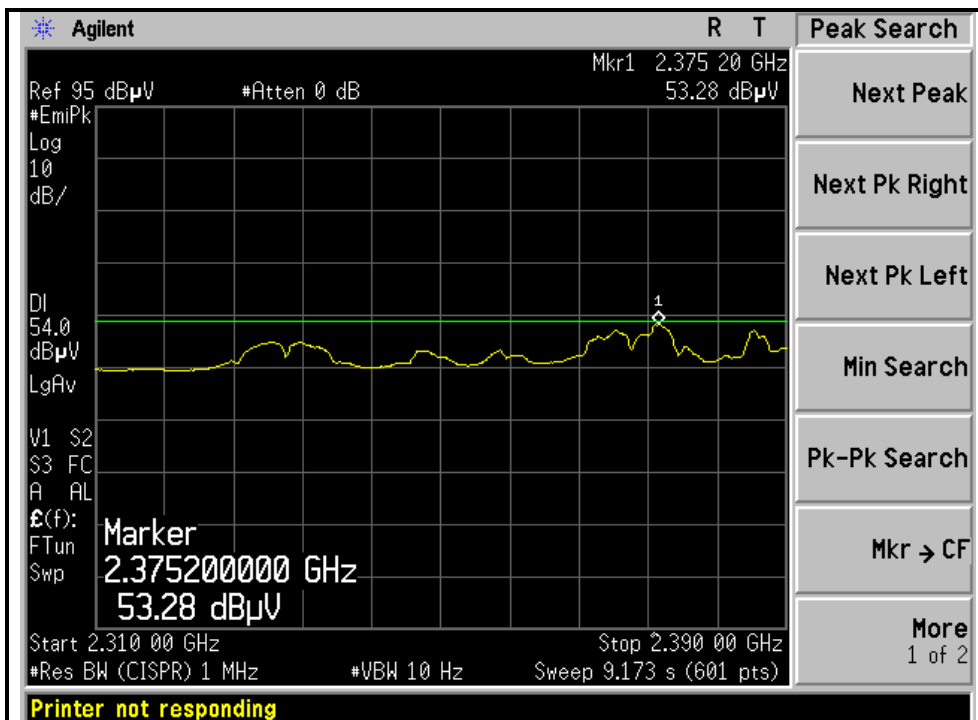
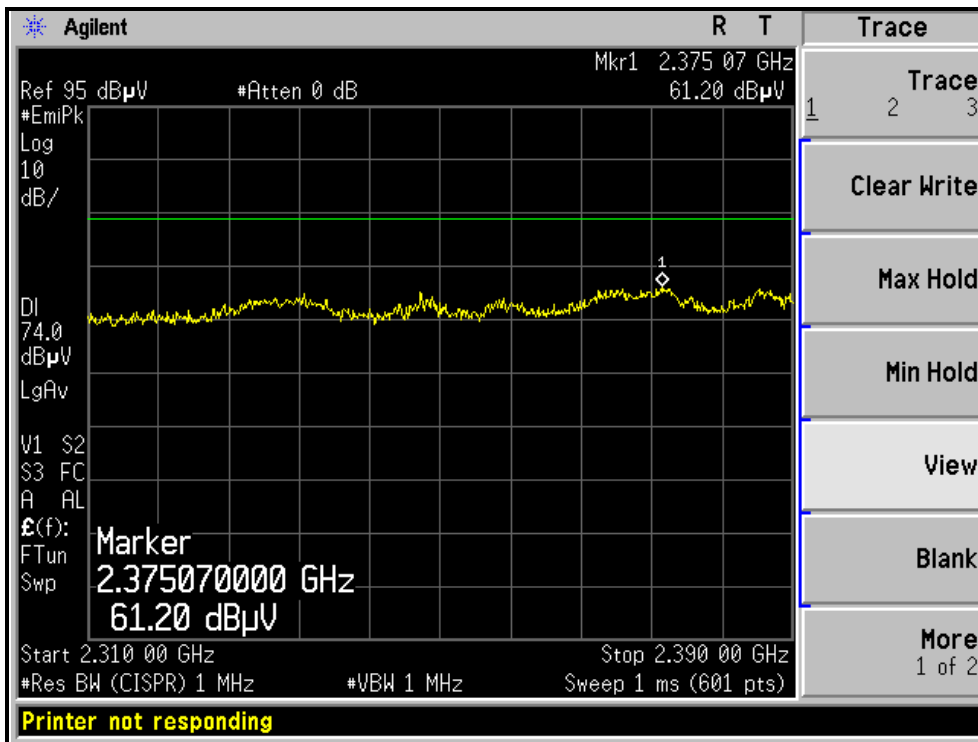
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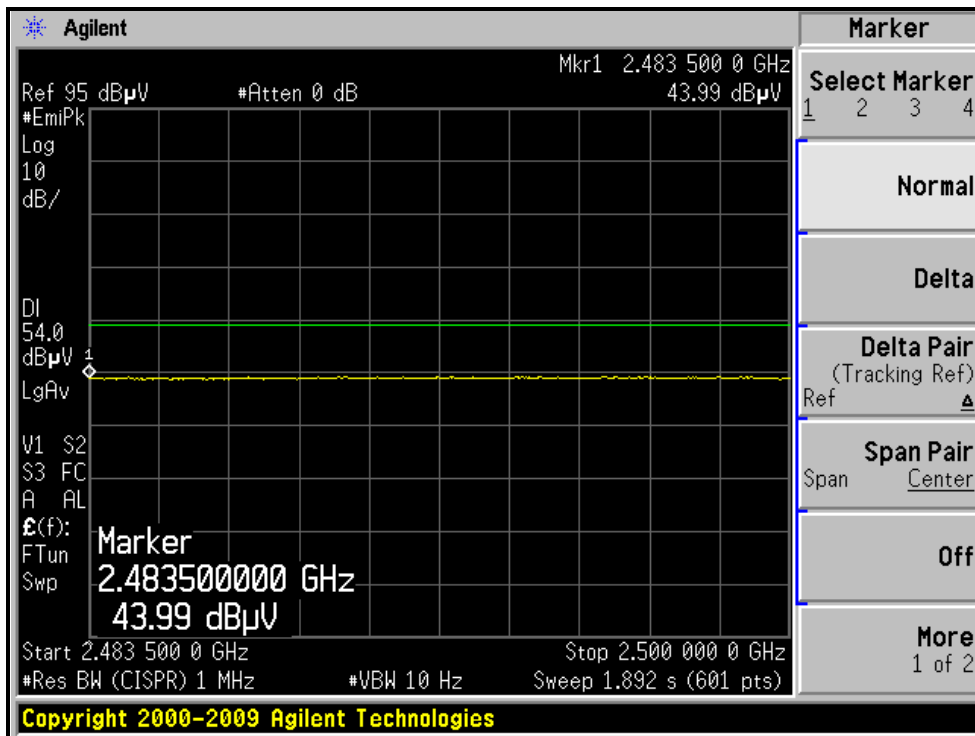
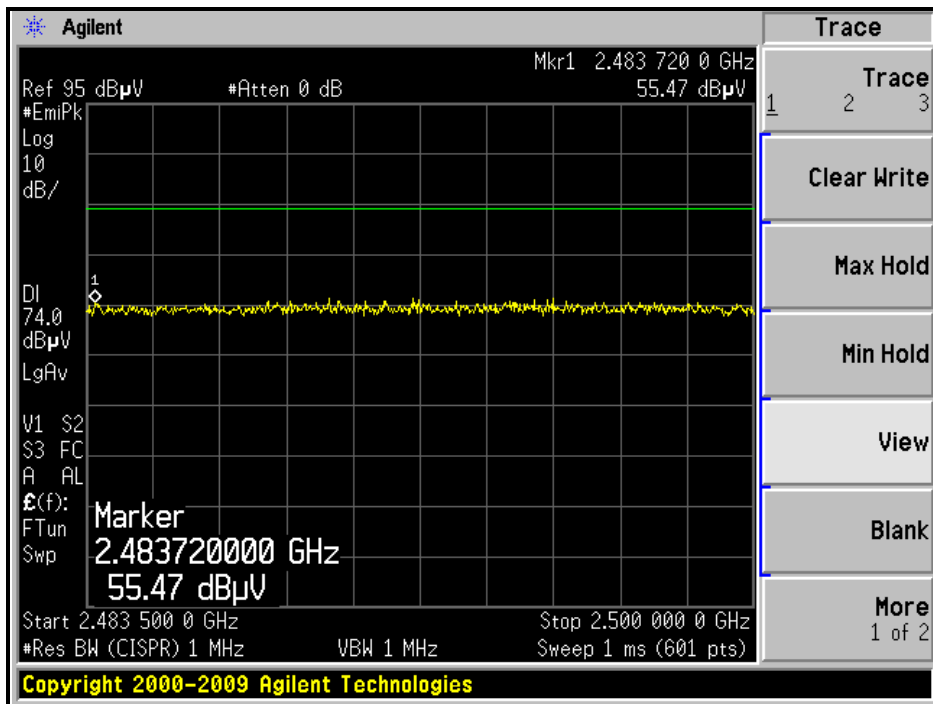
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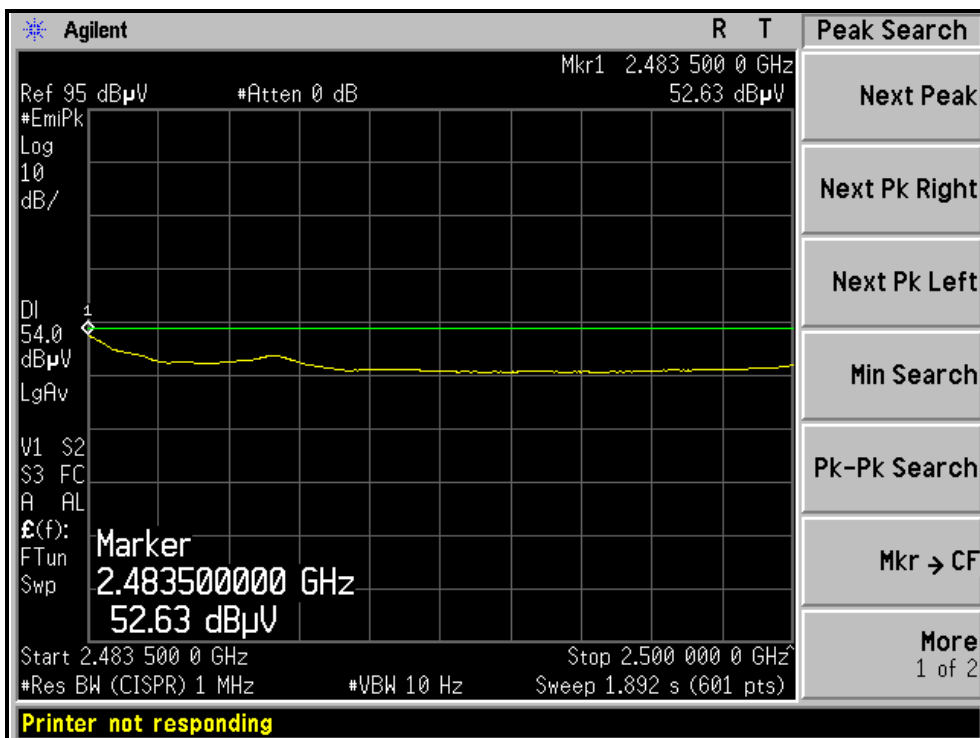
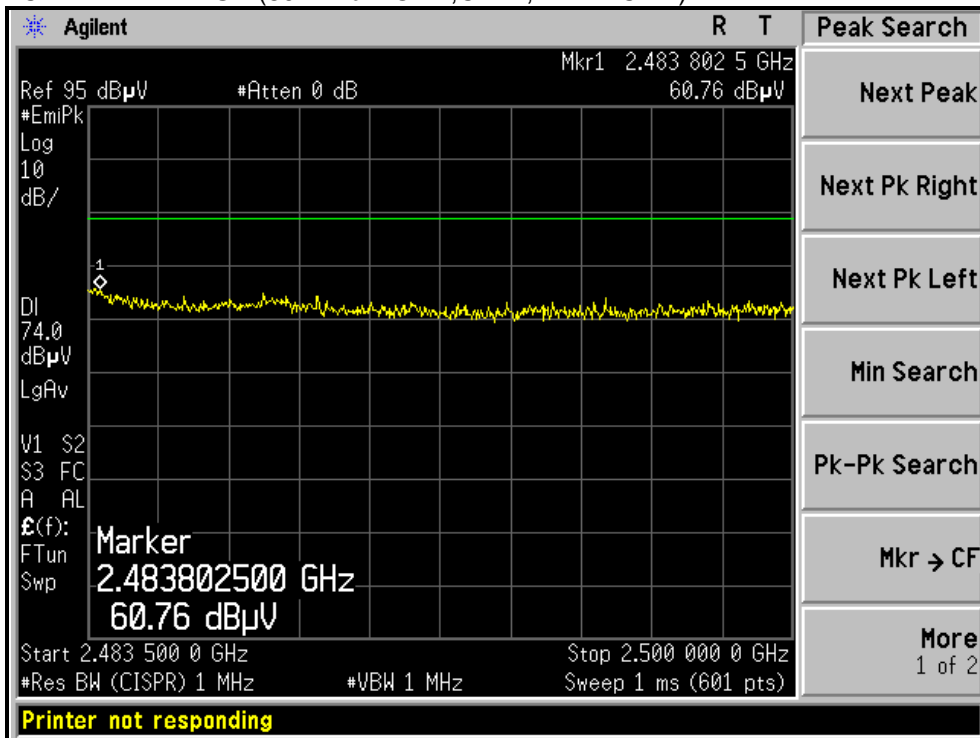
RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL )





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### RESTRICTED BANDEDGE (802.11b MODE, CH11, VERTICAL)







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802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 hPa	TESTED BY	Frank Liu
TEST MODE	Dipole 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	55.8 PK	74.0	-18.2	1.00 H	123	24.83	30.97
2	2390.00	44.7 AV	54.0	-9.3	1.00 H	123	13.73	30.97
3	*2412.00	98.1 PK			1.01 H	22	67.04	31.06
4	*2412.00	90.1 AV			1.01 H	22	59.04	31.06
5	4824.00	46.1 PK	74.0	-27.9	1.13 H	71	8.98	37.12
6	4824.00	35.4 AV	54.0	-18.6	1.13 H	71	-1.72	37.12

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	67.8 PK	74.0	-6.2	1.35 V	100	36.83	30.97
2	2390.00	52.9 AV	54.0	-1.1	1.35 V	100	21.93	30.97
3	*2412.00	109.3 PK			1.33 V	100	78.24	31.06
4	*2412.00	100.8 AV			1.33 V	100	69.74	31.06
5	4824.00	45.8 PK	74.0	-28.2	1.34 V	69	8.68	37.12
6	4824.00	35.3 AV	54.0	-18.7	1.34 V	69	-1.82	37.12

- 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, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 hPa	TESTED BY	Frank Liu
TEST MODE	Dipole 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	102.6 PK			1.11 H	48	71.43	31.17
2	*2437.00	93.8 AV			1.11 H	48	62.63	31.17
3	4874.00	45.6 PK	74.0	-28.4	1.12 H	38	8.37	37.23
4	4874.00	35.3 AV	54.0	-18.7	1.12 H	38	-1.93	37.23
5	7311.00	53.2 PK	74.0	-20.8	1.18 H	69	8.84	44.36
6	7311.00	39.1 AV	54.0	-14.9	1.18 H	69	-5.26	44.36

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2385.07	61.4 PK	74.0	-12.6	1.33 V	100	30.45	30.95
2	2385.07	51.8 AV	54.0	-2.2	1.33 V	100	20.85	30.95
3	*2437.00	113.2 PK			1.33 V	101	82.03	31.17
4	*2437.00	104.1 AV			1.33 V	101	72.93	31.17
5	2489.33	67.0 PK	74.0	-7.0	1.29 V	116	35.61	31.39
<b>6</b>	<b>2489.33</b>	<b>53.5 AV</b>	<b>54.0</b>	<b>-0.5</b>	<b>1.29 V</b>	<b>116</b>	<b>22.11</b>	<b>31.39</b>
7	4874.00	44.9 PK	74.0	-29.1	1.14 V	50	7.67	37.23
8	4874.00	35.0 AV	54.0	-19.0	1.14 V	50	-2.23	37.23
9	7311.00	52.8 PK	74.0	-21.2	1.10 V	69	8.44	44.36
10	7311.00	38.9 AV	54.0	-15.1	1.10 V	69	-5.46	44.36

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 hPa	TESTED BY	Frank Liu
TEST MODE	Dipole 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	99.2 PK			1.00 H	123	67.92	31.28
2	*2462.00	90.2 AV			1.00 H	123	58.92	31.28
3	2484.10	57.3 PK	74.0	-16.7	1.01 H	140	25.93	31.37
4	2484.10	45.0 AV	54.0	-9.0	1.01 H	140	13.63	31.37
5	4924.00	46.9 PK	74.0	-27.1	1.35 H	71	9.55	37.35
6	4924.00	35.4 AV	54.0	-18.6	1.35 H	71	-1.95	37.35
7	7386.00	53.6 PK	74.0	-20.4	1.48 H	265	9.00	44.60
8	7386.00	39.2 AV	54.0	-14.8	1.48 H	265	-5.40	44.60

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

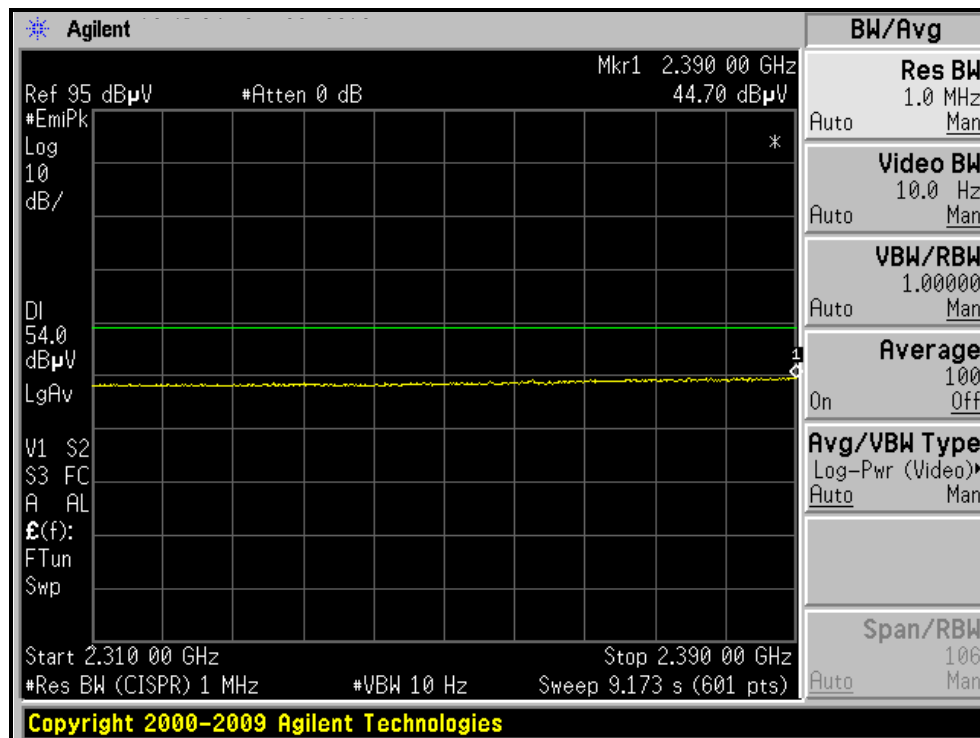
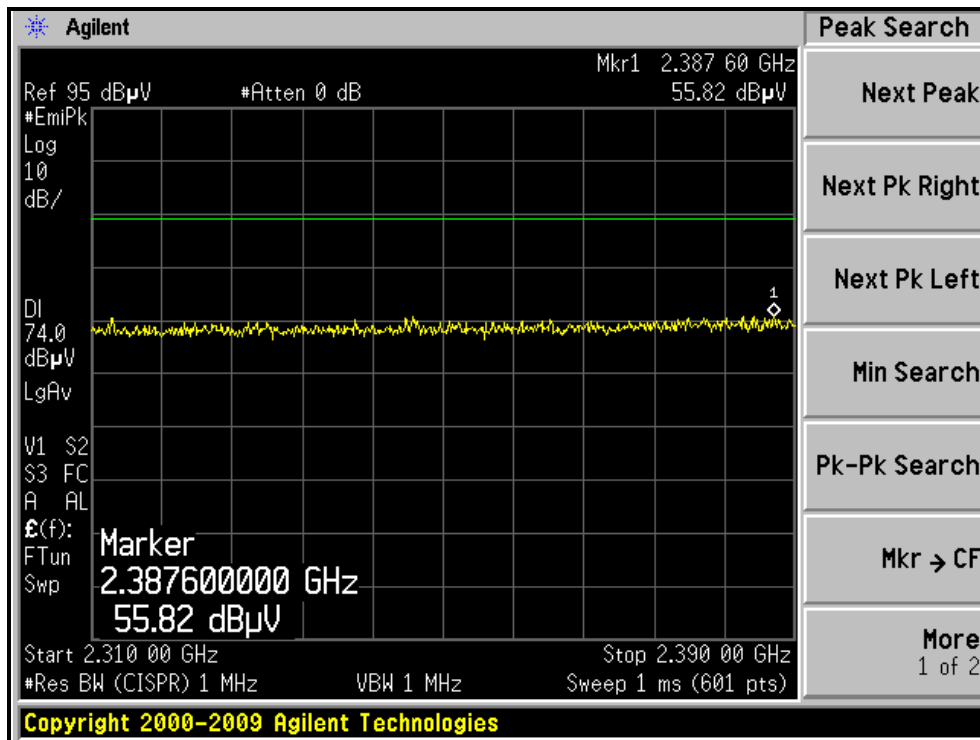
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.8 PK			1.32 V	115	77.52	31.28
2	*2462.00	100.0 AV			1.32 V	115	68.72	31.28
3	2483.50	72.8 PK	74.0	-1.2	1.29 V	117	41.43	31.37
4	2483.50	53.3 AV	54.0	-0.7	1.29 V	117	21.93	31.37
5	4924.00	46.3 PK	74.0	-27.7	1.46 V	148	8.95	37.35
6	4924.00	34.8 AV	54.0	-19.2	1.46 V	148	-2.55	37.35
7	7386.00	52.9 PK	74.0	-21.1	1.53 V	271	8.30	44.60
8	7386.00	39.1 AV	54.0	-14.9	1.53 V	271	-5.50	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.



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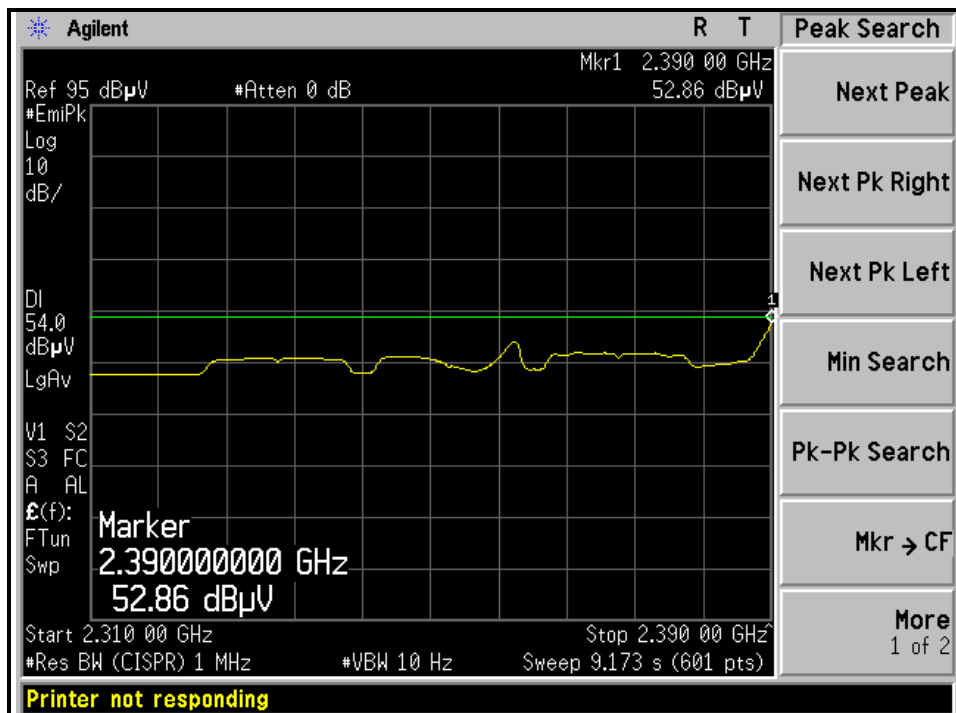
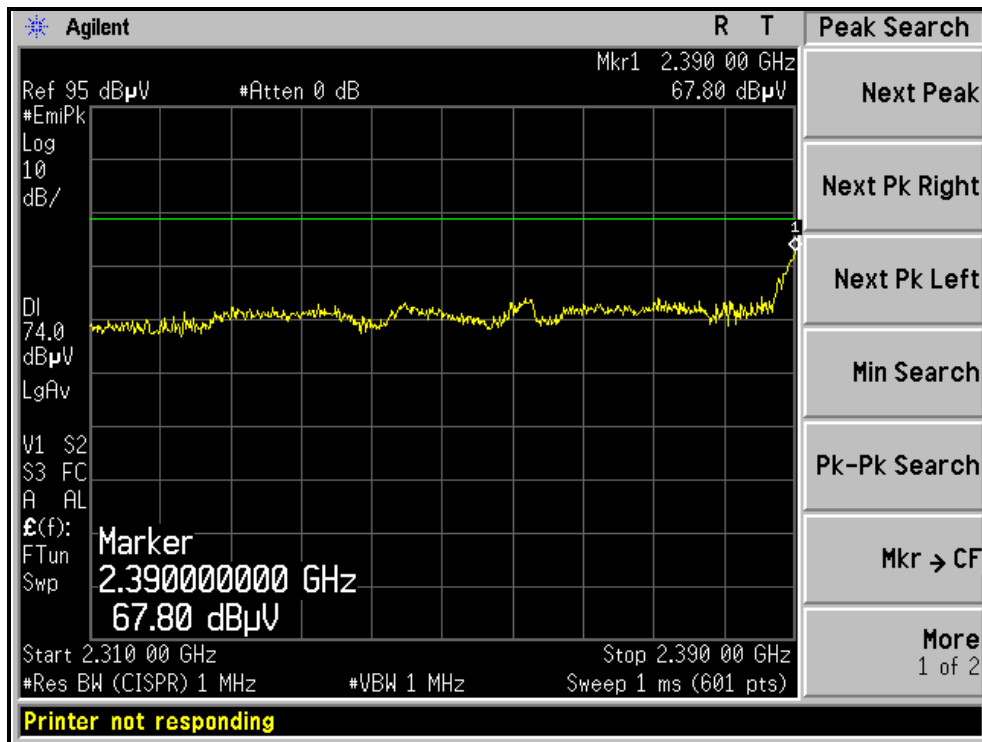
RESTRICTED BANDEDGE (802.11g MODE, CH1, HORIZONTAL )





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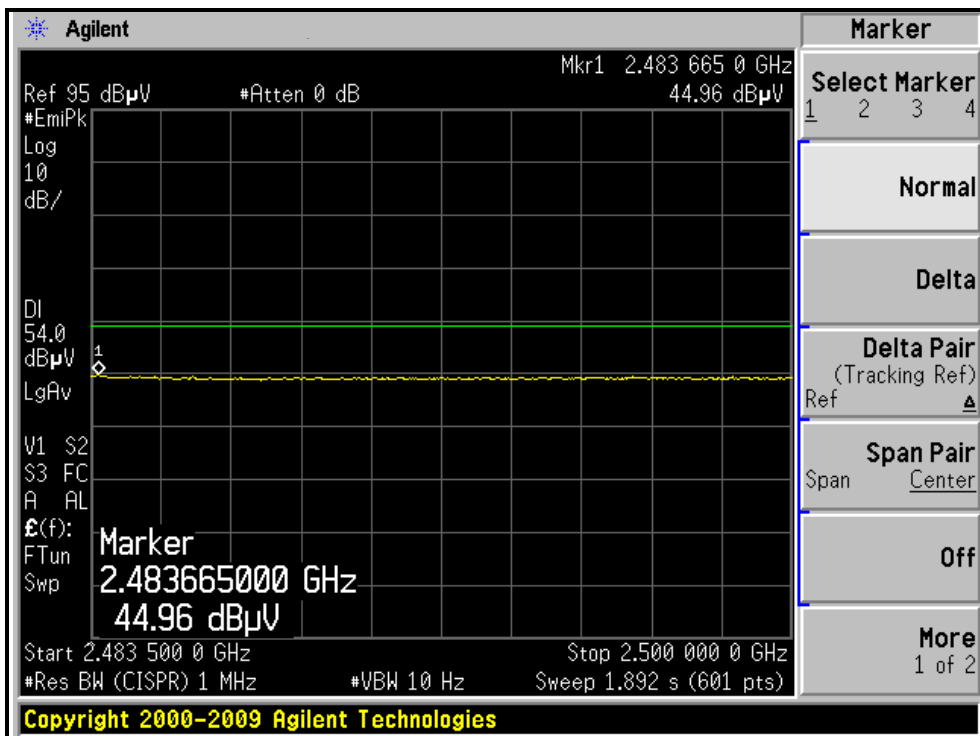
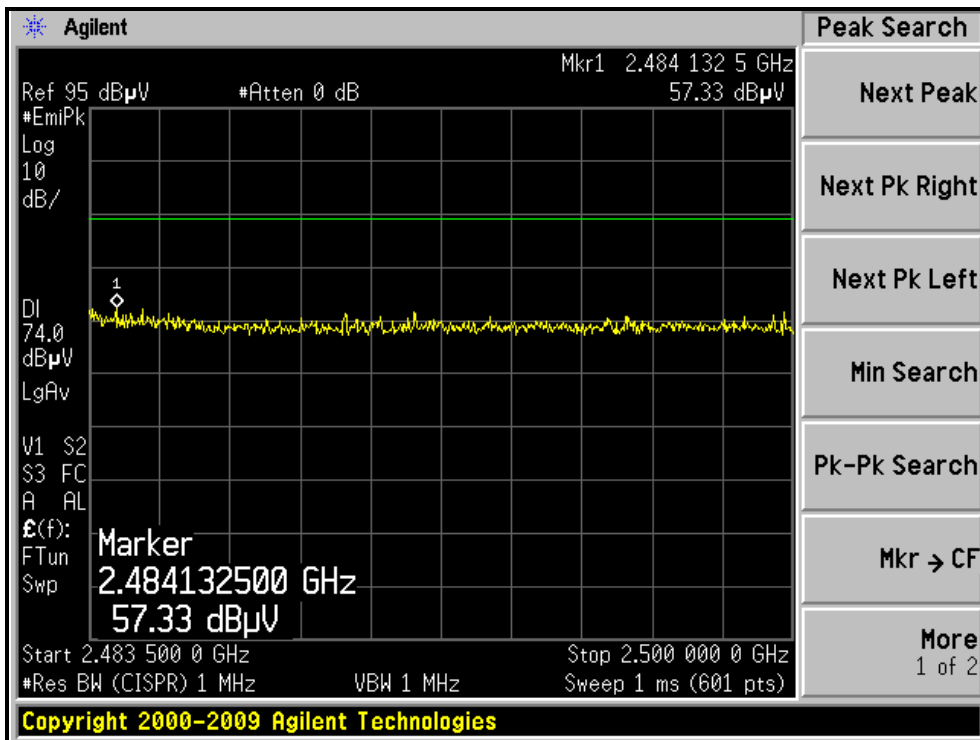
RESTRICTED BANDEDGE (802.11g MODE, CH1, VERTICAL )





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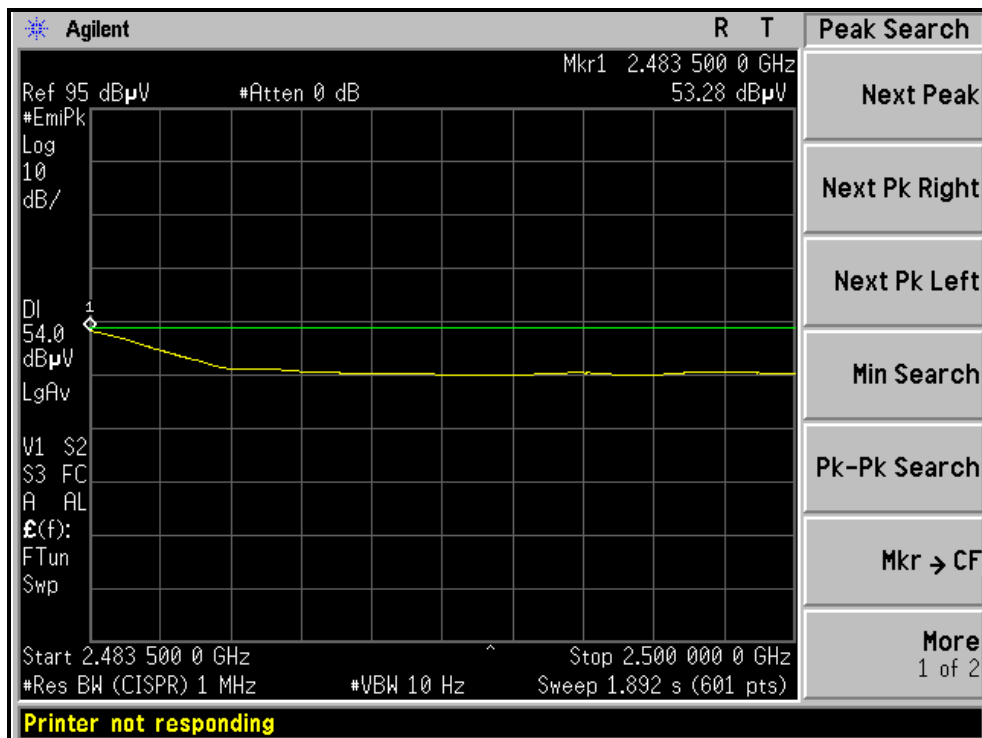
RESTRICTED BANDEDGE (802.11g MODE, CH11, HORIZONTAL )





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### RESTRICTED BANDEDGE (802.11g MODE, CH11, VERTICAL )





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### 802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 hPa	TESTED BY	Frank Liu
TEST MODE	Dipole 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	56.4 PK	74.0	-17.6	1.01 H	122	25.43	30.97
2	2390.00	44.8 AV	54.0	-9.2	1.01 H	122	13.83	30.97
3	*2412.00	101.2 PK			1.00 H	104	70.14	31.06
4	*2412.00	91.8 AV			1.00 H	104	60.74	31.06
5	4824.00	46.8 PK	74.0	-27.2	1.44 H	222	9.68	37.12
6	4824.00	36.2 AV	54.0	-17.8	1.44 H	222	-0.92	37.12
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	68.3 PK	74.0	-5.7	1.33 V	74	37.33	30.97
2	2390.00	53.3 AV	54.0	-0.7	1.33 V	74	22.33	30.97
3	*2412.00	110.0 PK			1.34 V	82	78.94	31.06
4	*2412.00	100.2 AV			1.34 V	82	69.14	31.06
5	4824.00	46.2 PK	74.0	-27.8	1.38 V	69	9.08	37.12
6	4824.00	35.8 AV	54.0	-18.2	1.38 V	69	-1.32	37.12

- 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, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 hPa	TESTED BY	Frank Liu
TEST MODE	Dipole 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	102.8 PK			1.01 H	111	71.63	31.17
2	*2437.00	92.9 AV			1.01 H	111	61.73	31.17
3	4874.00	46.2 PK	74.0	-27.8	1.50 H	214	8.97	37.23
4	4874.00	35.9 AV	54.0	-18.1	1.50 H	214	-1.33	37.23
5	7311.00	52.9 PK	74.0	-21.1	1.48 H	120	8.54	44.36
6	7311.00	39.1 AV	54.0	-14.9	1.48 H	120	-5.26	44.36

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2385.30	64.3 PK	74.0	-9.7	1.34 V	75	33.35	30.95
2	2385.30	52.4 AV	54.0	-1.6	1.34 V	75	21.45	30.95
3	*2437.00	111.3 PK			1.30 V	116	80.13	31.17
4	*2437.00	101.7 AV			1.30 V	116	70.53	31.17
5	2488.80	63.1 PK	74.0	-10.9	1.30 V	116	31.71	31.39
6	2488.80	52.7 AV	54.0	-1.3	1.30 V	116	21.31	31.39
7	4874.00	45.9 PK	74.0	-28.1	1.44 V	68	8.67	37.23
8	4874.00	35.7 AV	54.0	-18.3	1.44 V	68	-1.53	37.23
9	7311.00	52.6 PK	74.0	-21.4	1.50 V	11	8.24	44.36
10	7311.00	38.9 AV	54.0	-15.1	1.50 V	11	-5.46	44.36

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 hPa	TESTED BY	Frank Liu
TEST MODE	Dipole 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	100.8 PK			1.02 H	222	69.52	31.28
2	*2462.00	91.3 AV			1.02 H	222	60.02	31.28
3	2483.50	58.8 PK	74.0	-15.2	1.00 H	244	27.43	31.37
4	2483.50	45.1 AV	54.0	-8.9	1.00 H	244	13.73	31.37
5	4924.00	46.3 PK	74.0	-27.7	1.46 H	208	8.95	37.35
6	4924.00	36.1 AV	54.0	-17.9	1.46 H	208	-1.25	37.35
7	7386.00	53.2 PK	74.0	-20.8	1.51 H	114	8.60	44.60
8	7386.00	39.5 AV	54.0	-14.5	1.51 H	114	-5.10	44.60

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

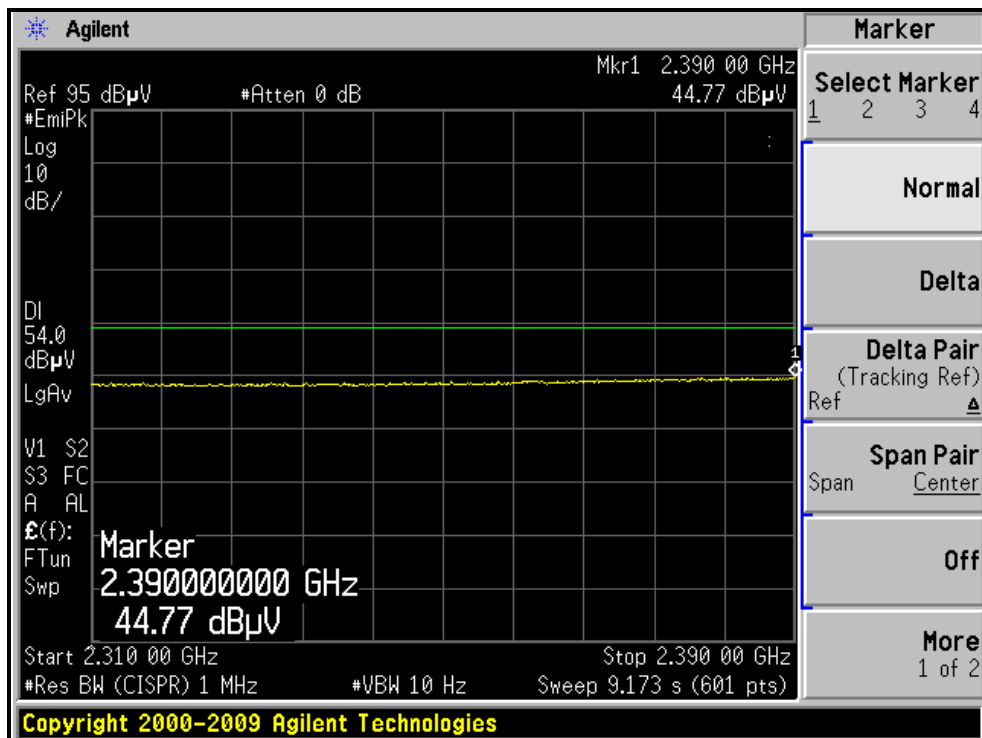
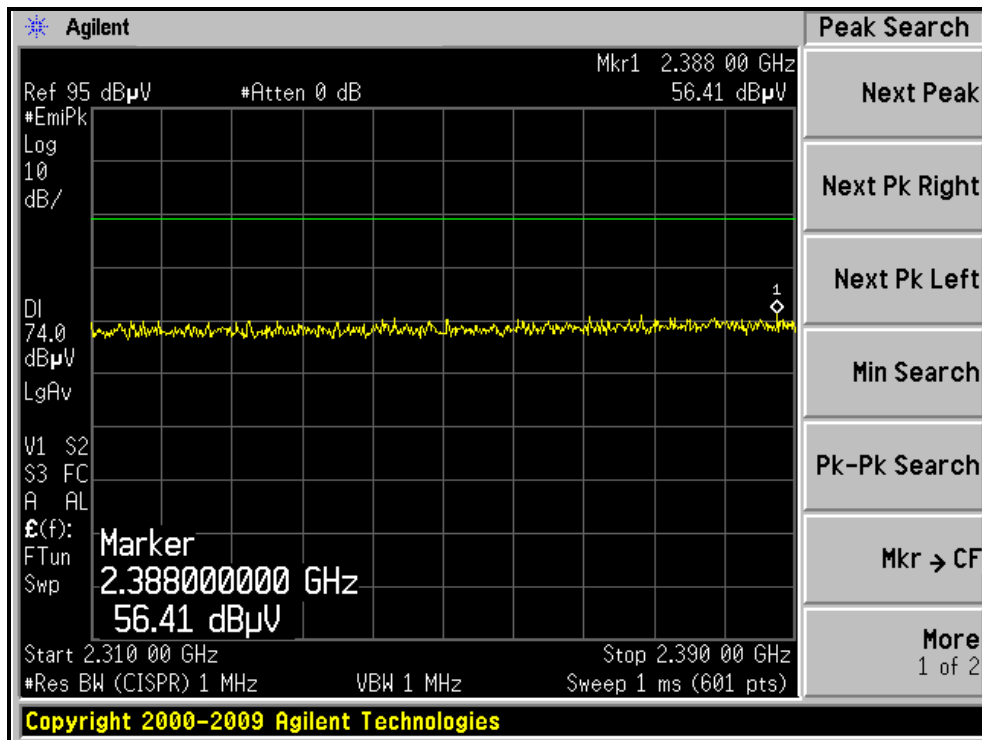
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.3 PK			1.32 V	117	78.02	31.28
2	*2462.00	99.4 AV			1.32 V	117	68.12	31.28
3	2483.50	68.3 PK	74.0	-5.7	1.33 V	117	36.93	31.37
4	2483.50	52.1 AV	54.0	-1.9	1.33 V	117	20.73	31.37
5	4924.00	46.1 PK	74.0	-27.9	1.18 V	71	8.75	37.35
6	4924.00	36.0 AV	54.0	-18.0	1.18 V	71	-1.35	37.35
7	7386.00	52.8 PK	74.0	-21.2	1.42 V	314	8.20	44.60
8	7386.00	38.6 AV	54.0	-15.4	1.42 V	314	-6.00	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.



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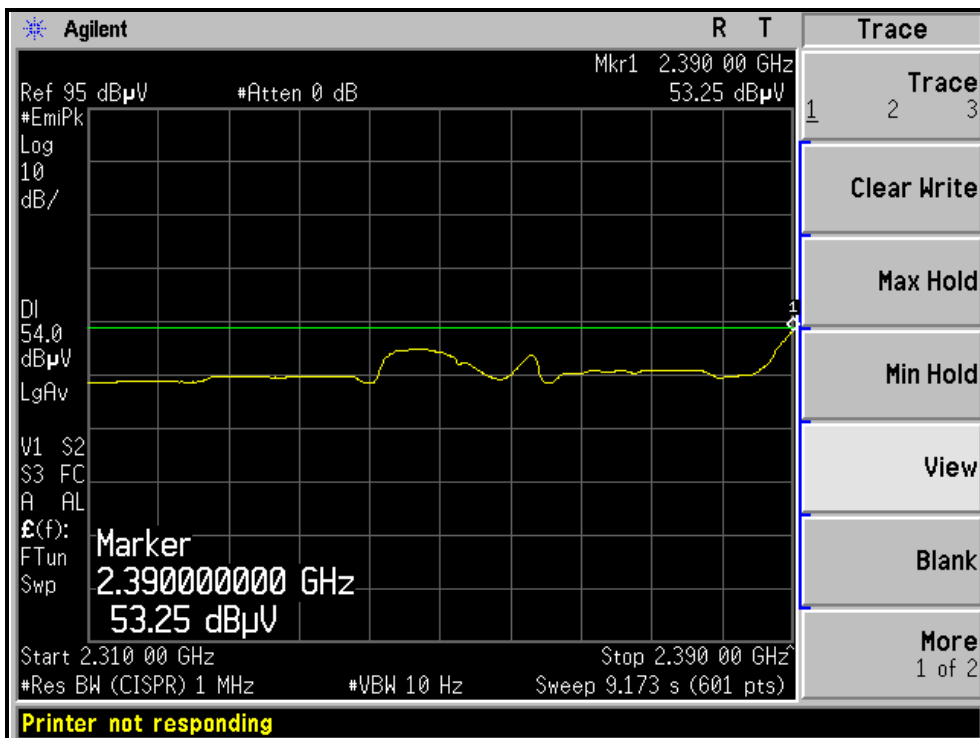
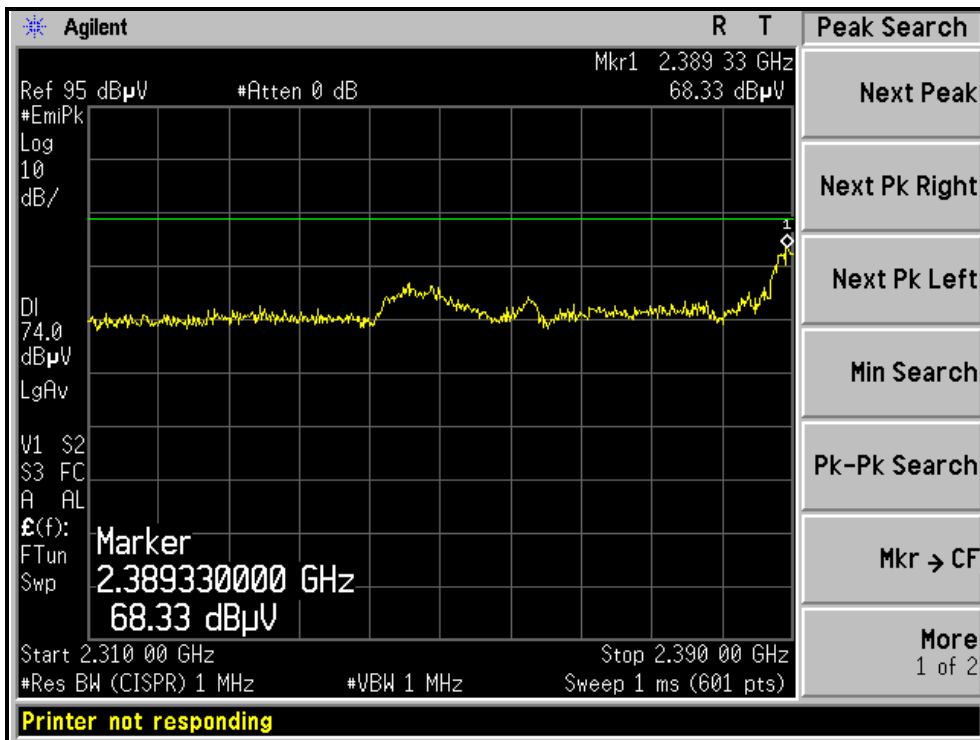
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, HORIZONTAL )





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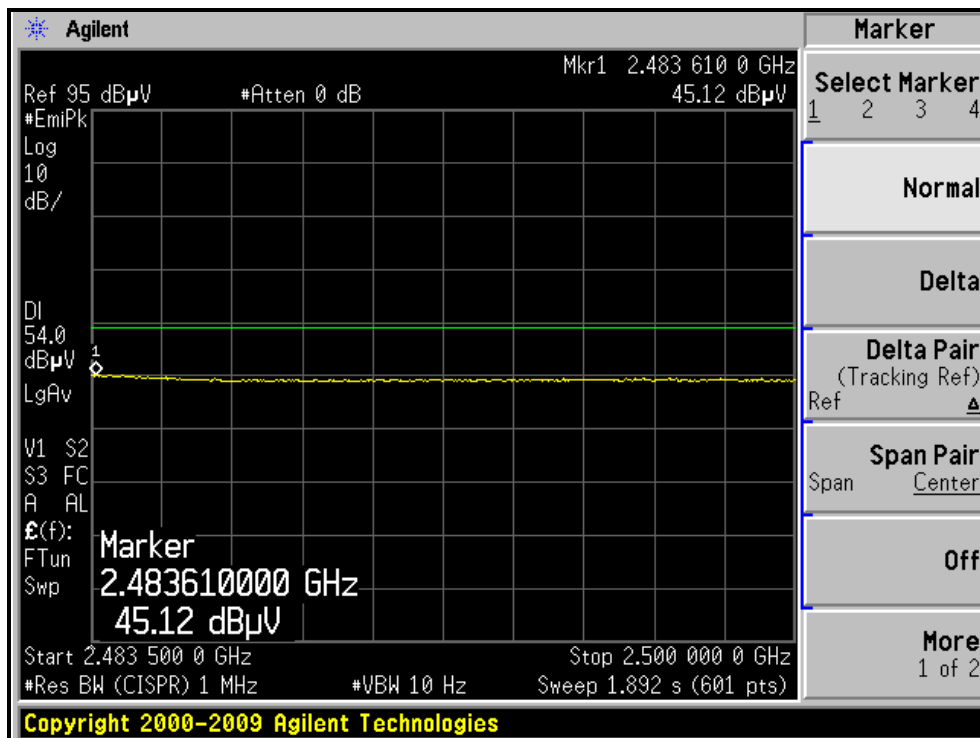
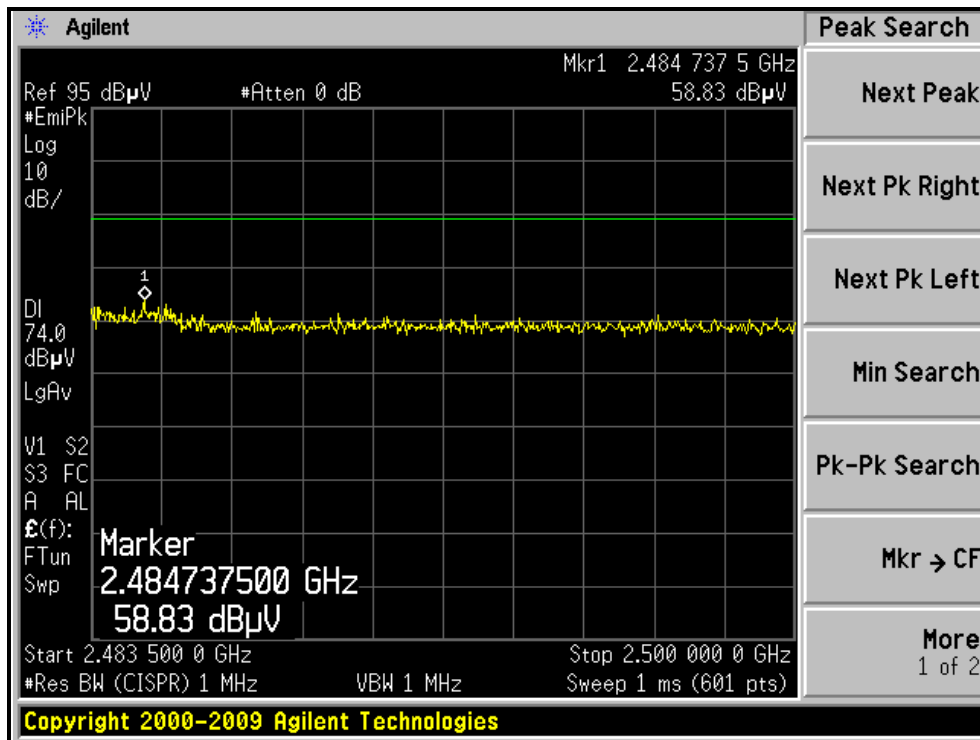
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, VERTICAL )





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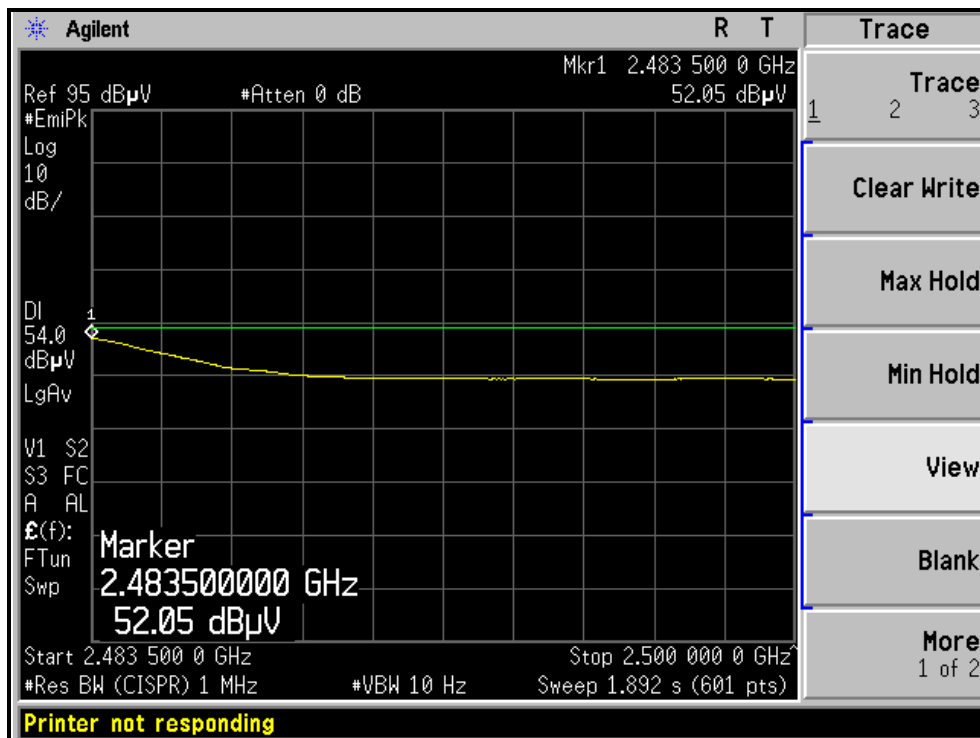
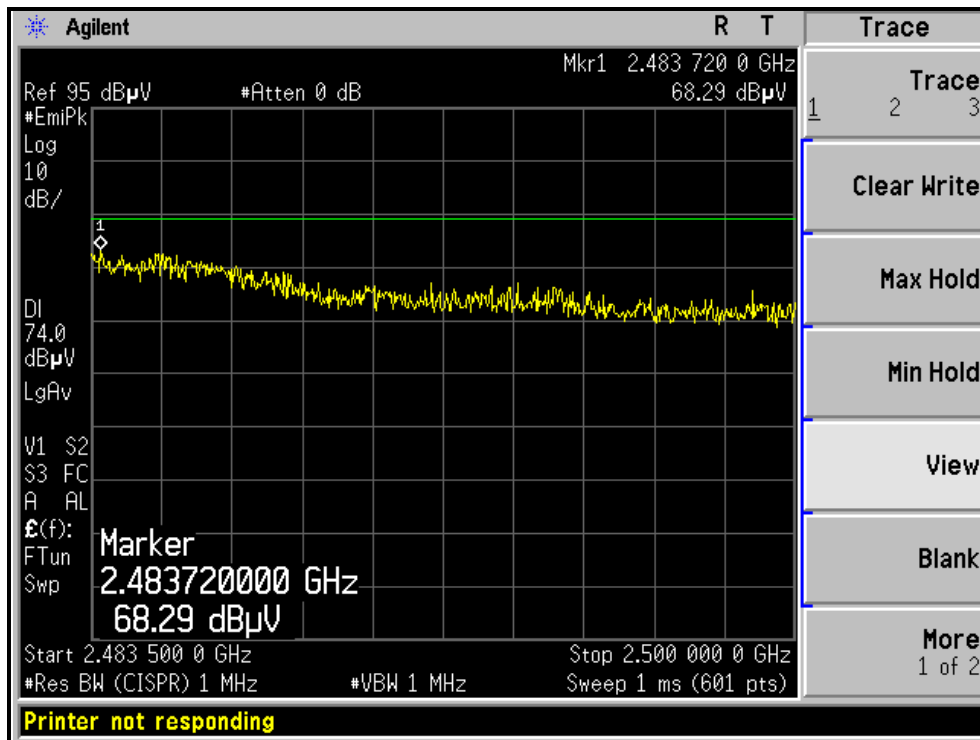
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH11, HORIZONTAL )





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





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**802.11n (40MHz) OFDM MODULATION**

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 hPa	TESTED BY	Frank Liu
TEST MODE	Dipole 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	2381.30	57.7 PK	74.0	-16.3	1.00 H	111	26.77	30.93
2	2381.30	45.9 AV	54.0	-8.1	1.00 H	111	14.97	30.93
3	*2422.00	93.8 PK			1.01 H	150	62.70	31.10
4	*2422.00	84.8 AV			1.01 H	150	53.70	31.10
5	4844.00	46.7 PK	74.0	-27.3	1.15 H	48	9.54	37.16
6	4844.00	36.3 AV	54.0	-17.7	1.15 H	48	-0.86	37.16
7	7266.00	53.4 PK	74.0	-20.6	1.20 H	140	9.18	44.22
8	7266.00	39.8 AV	54.0	-14.2	1.20 H	140	-4.42	44.22

**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	67.3 PK	74.0	-6.7	1.34 V	74	36.33	30.97
2	2390.00	52.5 AV	54.0	-1.5	1.34 V	74	21.53	30.97
3	*2422.00	102.7 PK			1.31 V	81	71.60	31.10
4	*2422.00	92.9 AV			1.31 V	81	61.80	31.10
5	4844.00	46.2 PK	74.0	-27.8	1.60 V	69	9.04	37.16
6	4844.00	35.9 AV	54.0	-18.1	1.60 V	69	-1.26	37.16
7	7266.00	53.1 PK	74.0	-20.9	1.15 V	183	8.88	44.22
8	7266.00	39.6 AV	54.0	-14.4	1.15 V	183	-4.62	44.22

- 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 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 hPa	TESTED BY	Frank Liu
TEST MODE	Dipole 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	98.6 PK			1.01 H	123	67.43	31.17
2	*2437.00	89.4 AV			1.01 H	123	58.23	31.17
3	4874.00	47.2 PK	74.0	-26.8	1.14 H	50	9.97	37.23
4	4874.00	36.9 AV	54.0	-17.1	1.14 H	50	-0.33	37.23
5	7311.00	53.8 PK	74.0	-20.2	1.18 H	269	9.44	44.36
6	7311.00	39.4 AV	54.0	-14.6	1.18 H	269	-4.96	44.36

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.0 PK	74.0	-10.0	1.35 V	74	33.03	30.97
2	2390.00	52.8 AV	54.0	-1.2	1.35 V	74	21.83	30.97
3	*2437.00	108.0 PK			1.32 V	100	76.83	31.17
4	*2437.00	98.0 AV			1.32 V	100	66.83	31.17
5	2483.50	68.3 PK	74.0	-5.7	1.32 V	117	36.93	31.37
6	2483.50	53.2 AV	54.0	-0.8	1.32 V	117	21.83	31.37
7	4874.00	46.8 PK	74.0	-27.2	1.41 V	48	9.57	37.23
8	4874.00	36.7 AV	54.0	-17.3	1.41 V	48	-0.53	37.23
9	7311.00	53.5 PK	74.0	-20.5	1.51 V	156	9.14	44.36
10	7311.00	38.2 AV	54.0	-15.8	1.51 V	156	-6.16	44.36

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





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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 hPa	TESTED BY	Frank Liu
TEST MODE	Dipole 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	*2452.00	93.5 PK			1.11 H	49	62.27	31.23
2	*2452.00	84.8 AV			1.11 H	49	53.57	31.23
3	2483.50	59.1 PK	74.0	-14.9	1.10 H	50	27.73	31.37
4	2483.50	46.2 AV	54.0	-7.8	1.10 H	50	14.83	31.37
5	4904.00	47.3 PK	74.0	-26.7	1.15 H	60	10.00	37.30
6	4904.00	36.1 AV	54.0	-17.9	1.15 H	60	-1.20	37.30
7	7356.00	54.1 PK	74.0	-19.9	1.20 H	301	9.60	44.50
8	7356.00	39.8 AV	54.0	-14.2	1.20 H	301	-4.70	44.50

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

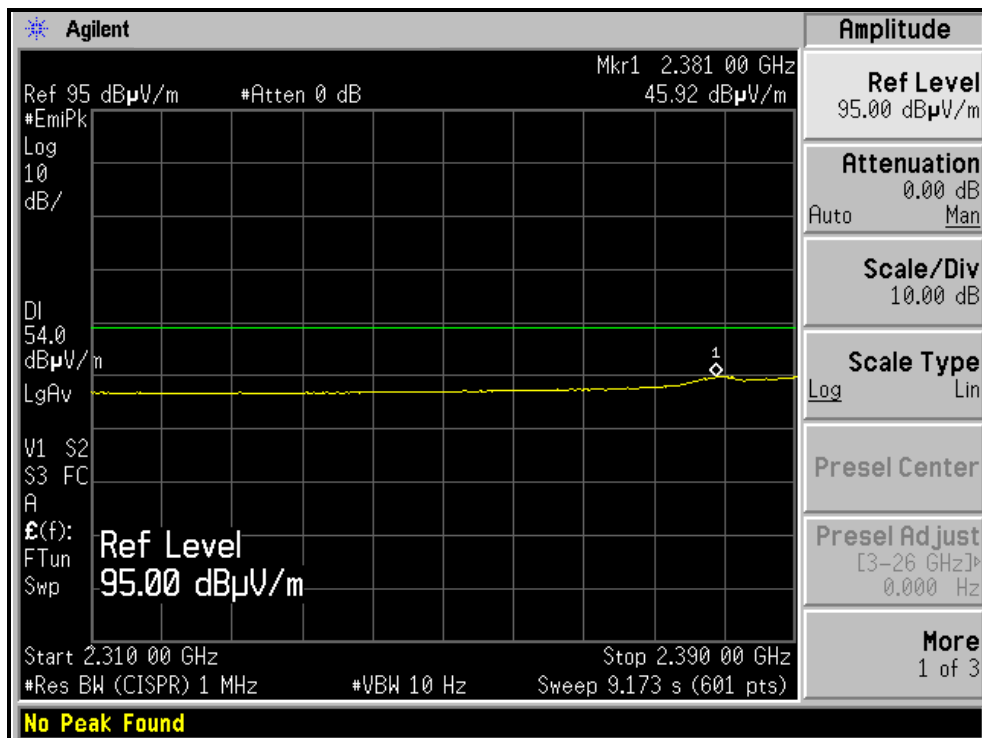
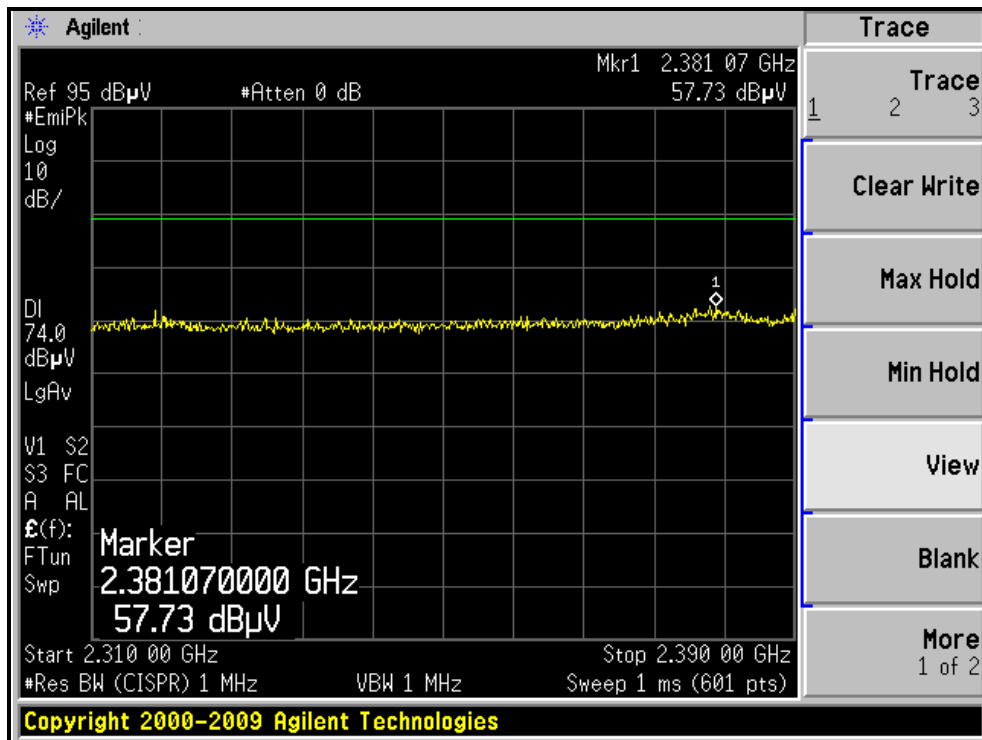
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	103.9 PK			1.32 V	116	72.67	31.23
2	*2452.00	93.7 AV			1.32 V	116	62.47	31.23
3	2483.50	69.8 PK	74.0	-4.2	1.31 V	115	38.43	31.37
4	2483.50	52.1 AV	54.0	-1.9	1.31 V	115	20.73	31.37
5	4904.00	46.9 PK	74.0	-27.1	1.13 V	56	9.60	37.30
6	4904.00	35.9 AV	54.0	-18.1	1.13 V	56	-1.40	37.30
7	7356.00	53.8 PK	74.0	-20.2	1.18 V	299	9.30	44.50
8	7356.00	38.9 AV	54.0	-15.1	1.18 V	299	-5.60	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.



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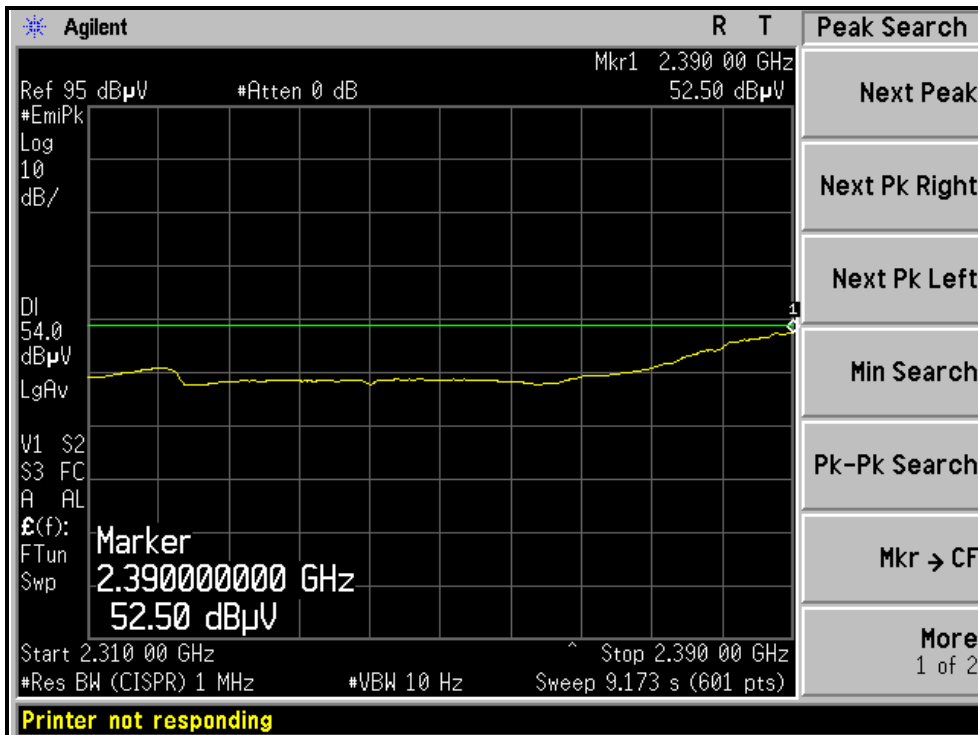
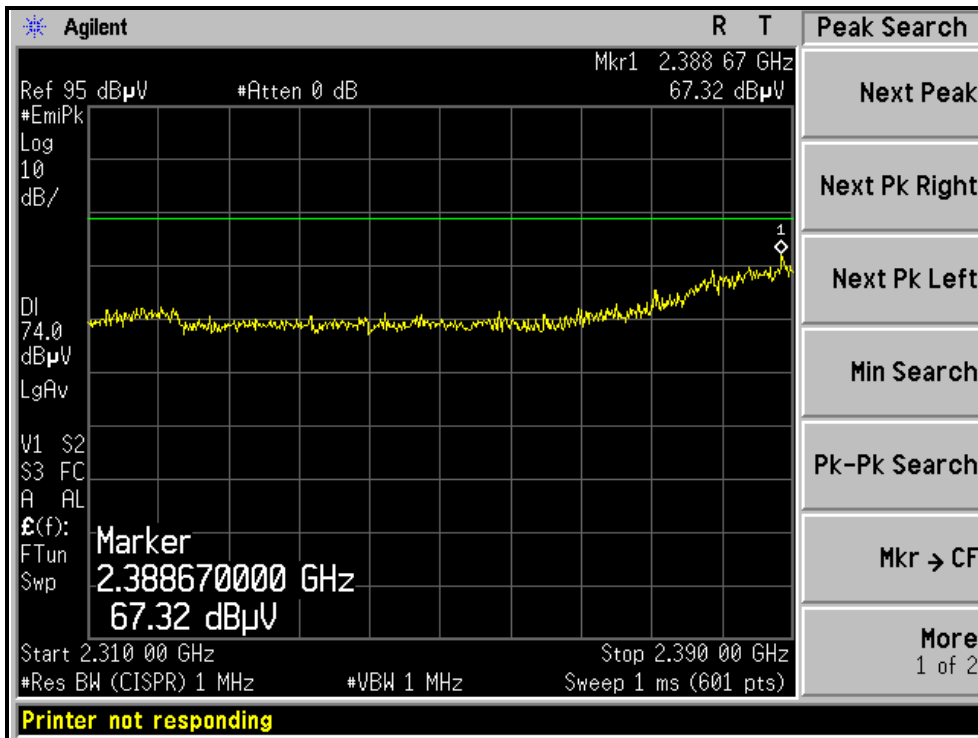
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, HORIZONTAL )





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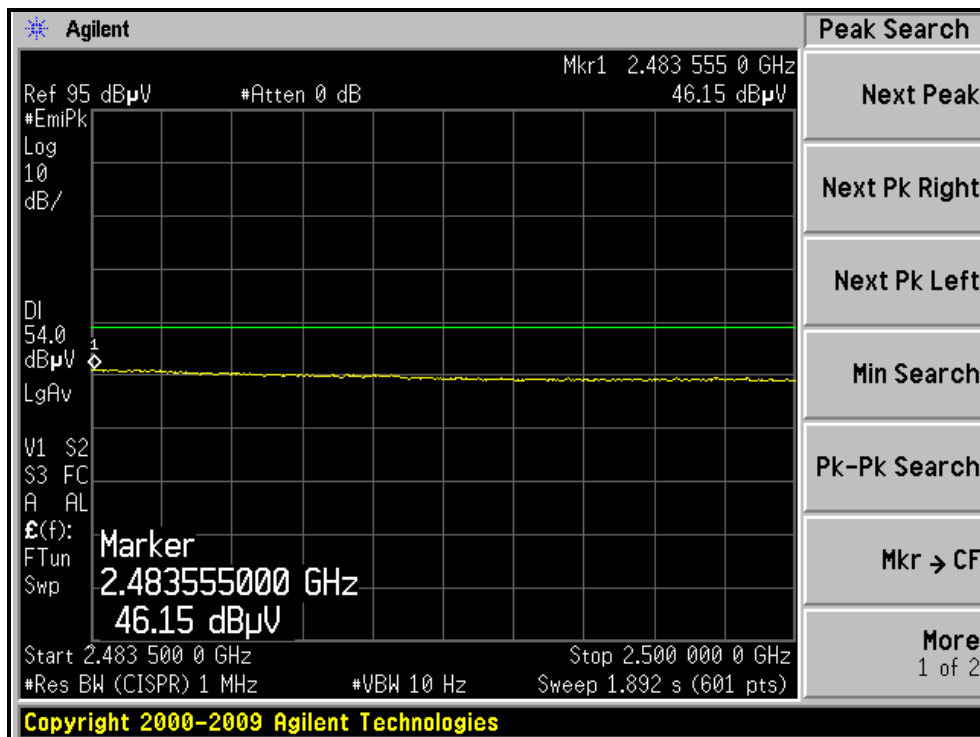
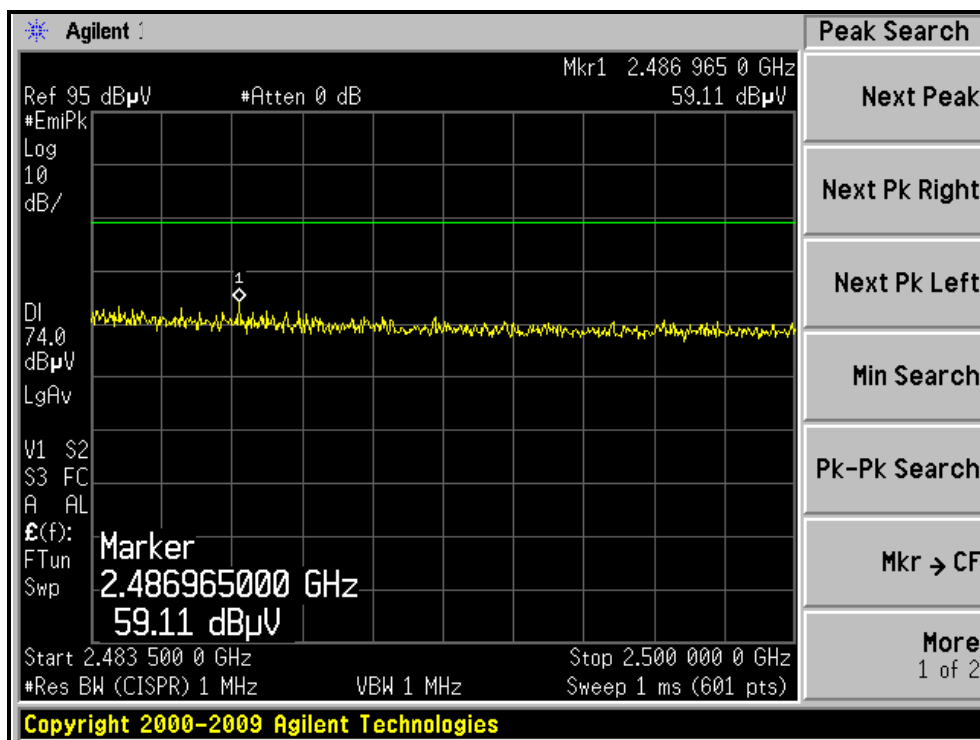
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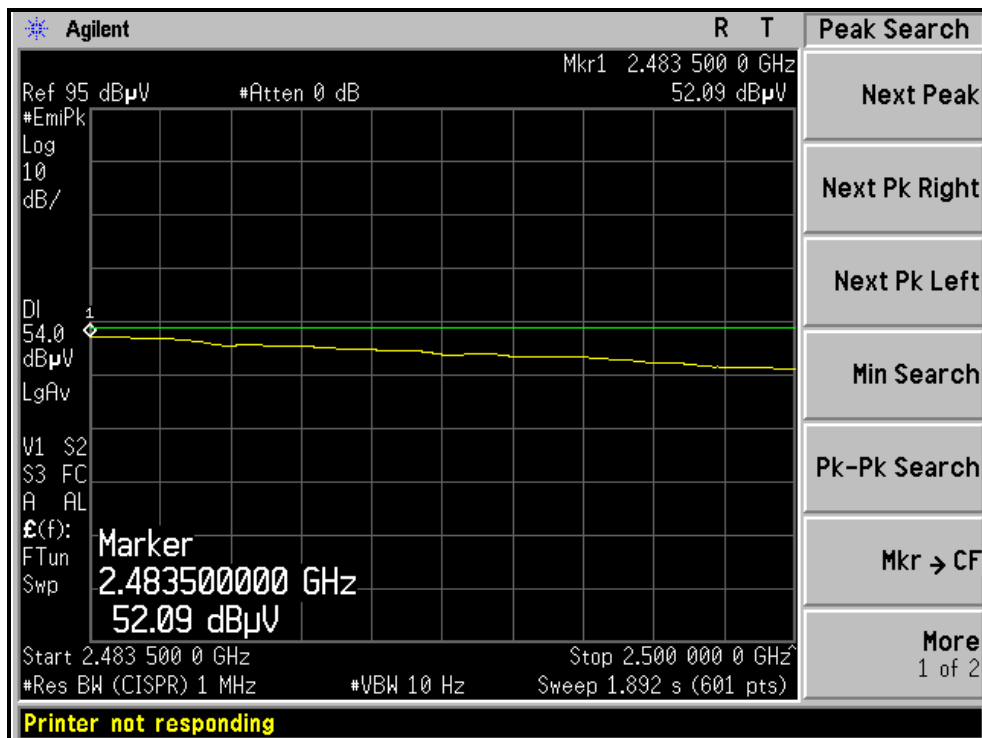
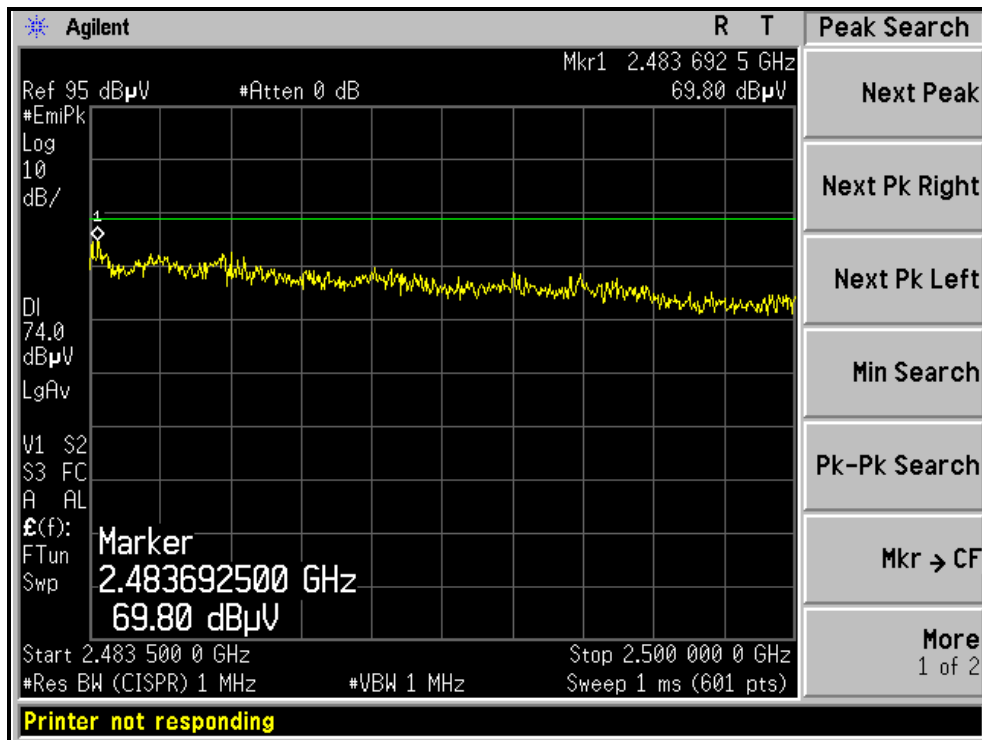
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH7, HORIZONTAL )





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





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## 4.2.8 TEST RESULTS (PIFA ANTENNA)

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 hPa	TESTED BY	Frank Liu
TEST MODE	PIFA antenna		

## ANTENNA POLARITY &amp; 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	137.50	30.2 QP	43.5	-13.3	1.12 H	211	15.32	14.84
2	144.00	36.9 QP	43.5	-6.6	1.84 H	203	22.03	14.86
3	176.93	36.6 QP	43.5	-6.9	1.37 H	211	23.54	13.10
4	194.30	36.6 QP	43.5	-6.9	1.12 H	219	25.18	11.45
5	239.42	34.3 QP	46.0	-11.7	1.09 H	116	20.94	13.32
6	660.00	34.4 QP	46.0	-11.6	1.23 H	144	8.64	25.80
7	899.50	35.5 QP	46.0	-10.5	1.33 H	16	7.40	28.14

## ANTENNA POLARITY &amp; 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	124.53	20.1 QP	43.5	-23.4	1.00 V	19	7.04	13.09
2	146.57	22.5 QP	43.5	-21.1	1.00 V	257	7.80	14.65
3	177.23	28.1 QP	43.5	-15.4	1.00 V	244	15.13	13.00
4	194.53	32.7 QP	43.5	-10.8	1.00 V	219	21.22	11.44
5	227.50	30.6 QP	46.0	-15.4	1.00 V	184	17.96	12.68
6	400.00	26.1 QP	46.0	-19.9	1.00 V	113	7.50	18.63
7	497.83	35.2 QP	46.0	-10.8	1.09 V	211	14.03	21.20
8	697.17	28.1 QP	46.0	-17.9	1.00 V	316	1.97	26.16
9	780.00	34.4 QP	46.0	-11.6	1.09 V	13	7.92	26.52

- 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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**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, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	2386.27	59.8 PK	74.0	-14.2	1.62 H	90	28.85	30.95
2	2386.27	53.1 AV	54.0	-0.9	1.62 H	90	22.15	30.95
3	*2412.00	108.9 PK			1.62 H	253	77.84	31.06
4	*2412.00	106.4 AV			1.62 H	253	75.34	31.06
5	4824.00	51.5 PK	74.0	-22.5	1.71 H	169	14.38	37.12
6	4824.00	47.8 AV	54.0	-6.2	1.71 H	169	10.68	37.12

**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	59.4 PK	74.0	-14.6	1.69 V	104	28.45	30.95
2	2386.27	49.6 AV	54.0	-4.4	1.69 V	104	18.65	30.95
3	*2412.00	103.4 PK			1.67 V	103	72.34	31.06
4	*2412.00	101.2 AV			1.67 V	103	70.14	31.06
5	4824.00	53.6 PK	74.0	-20.4	1.25 V	336	16.48	37.12
6	4824.00	50.4 AV	54.0	-3.6	1.25 V	336	13.28	37.12

- 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, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	*2437.00	108.7 PK			1.59 H	256	77.53	31.17
2	*2437.00	106.6 AV			1.59 H	256	75.43	31.17
3	4874.00	51.7 PK	74.0	-22.3	1.70 H	168	14.47	37.23
4	4874.00	48.1 AV	54.0	-5.9	1.70 H	168	10.87	37.23
5	7311.00	51.0 PK	74.0	-23.0	1.40 H	58	6.64	44.36
6	7311.00	37.2 AV	54.0	-16.8	1.40 H	58	-7.16	44.36
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	102.0 PK			1.64 V	121	70.83	31.17
2	*2437.00	99.4 AV			1.64 V	121	68.23	31.17
3	4874.00	53.2 PK	74.0	-20.8	1.20 V	317	15.97	37.23
4	4874.00	51.5 AV	54.0	-2.5	1.20 V	317	14.27	37.23
5	7311.00	51.1 PK	74.0	-22.9	1.73 V	22	6.74	44.36
6	7311.00	37.1 AV	54.0	-16.9	1.73 V	22	-7.26	44.36

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





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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	*2462.00	108.4 PK			1.48 H	103	77.12	31.28
2	*2462.00	106.1 AV			1.48 H	103	74.82	31.28
3	2483.50	55.7 PK	74.0	-18.3	1.65 H	265	24.33	31.37
4	2483.50	46.6 AV	54.0	-7.4	1.65 H	265	15.23	31.37
5	4924.00	49.9 PK	74.0	-24.1	1.70 H	149	12.55	37.35
6	4924.00	45.9 AV	54.0	-8.1	1.70 H	149	8.55	37.35
7	7386.00	51.4 PK	74.0	-22.6	1.41 H	55	6.80	44.60
8	7386.00	37.8 AV	54.0	-16.2	1.41 H	55	-6.80	44.60

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

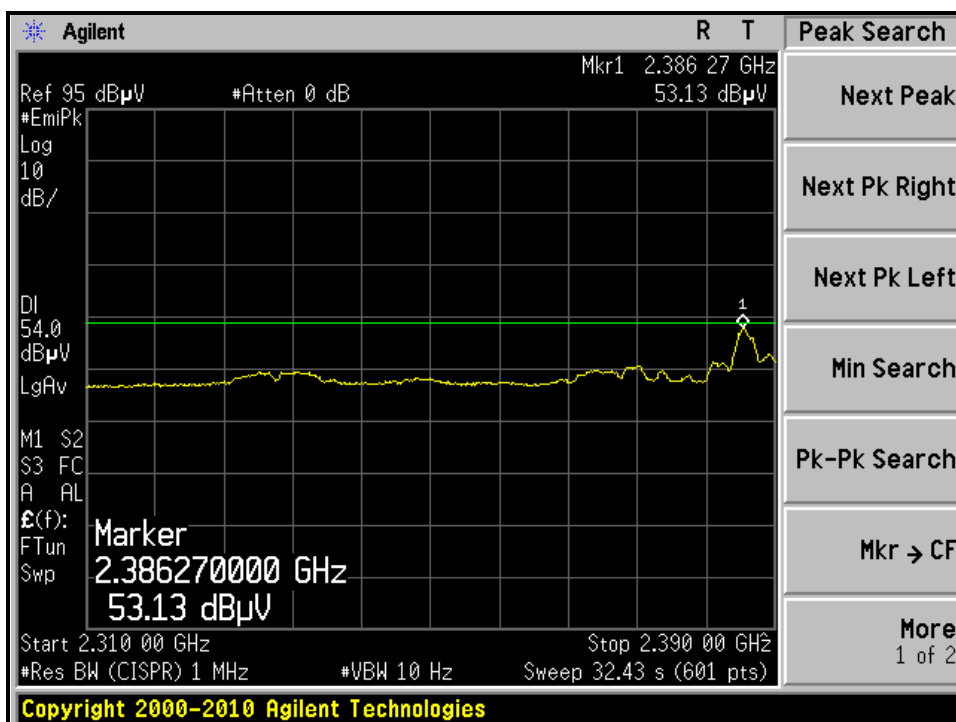
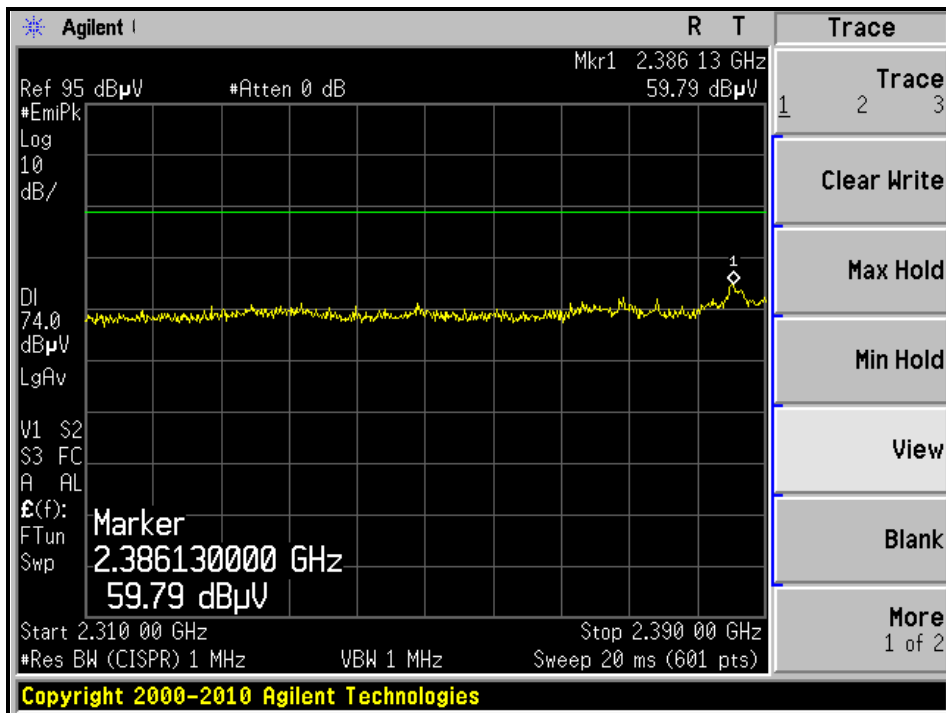
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	102.2 PK			1.65 V	111	70.92	31.28
2	*2462.00	99.6 AV			1.65 V	111	68.32	31.28
3	2483.50	55.7 PK	74.0	-18.3	1.64 V	110	24.33	31.37
4	2483.50	41.5 AV	54.0	-12.5	1.64 V	110	10.13	31.37
5	4924.00	50.5 PK	74.0	-23.5	1.22 V	316	13.15	37.35
6	4924.00	47.9 AV	54.0	-6.1	1.22 V	316	10.55	37.35
7	7386.00	51.9 PK	74.0	-22.1	1.74 V	29	7.30	44.60
8	7386.00	37.6 AV	54.0	-16.4	1.74 V	29	-7.00	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.



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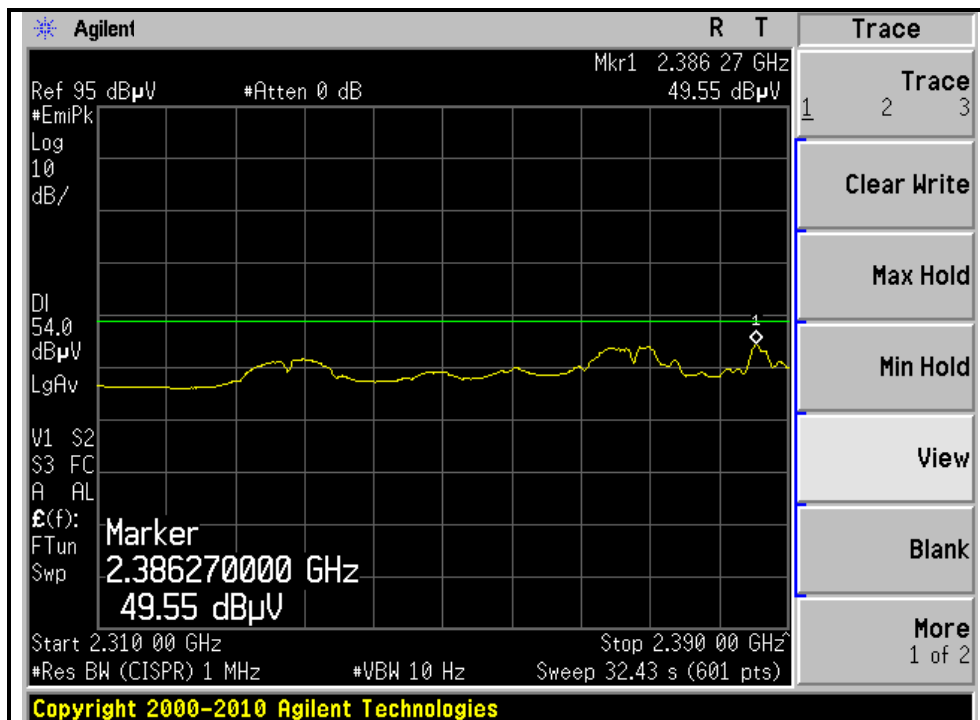
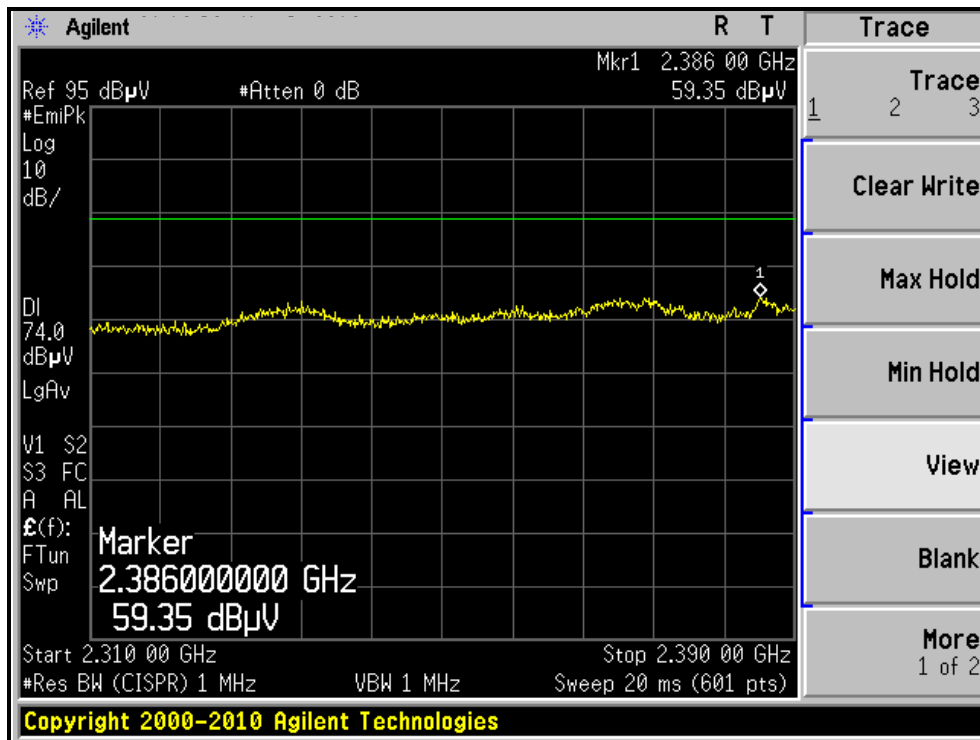
RESTRICTED BANDEDGE (802.11b MODE, CH1, HORIZONTAL)





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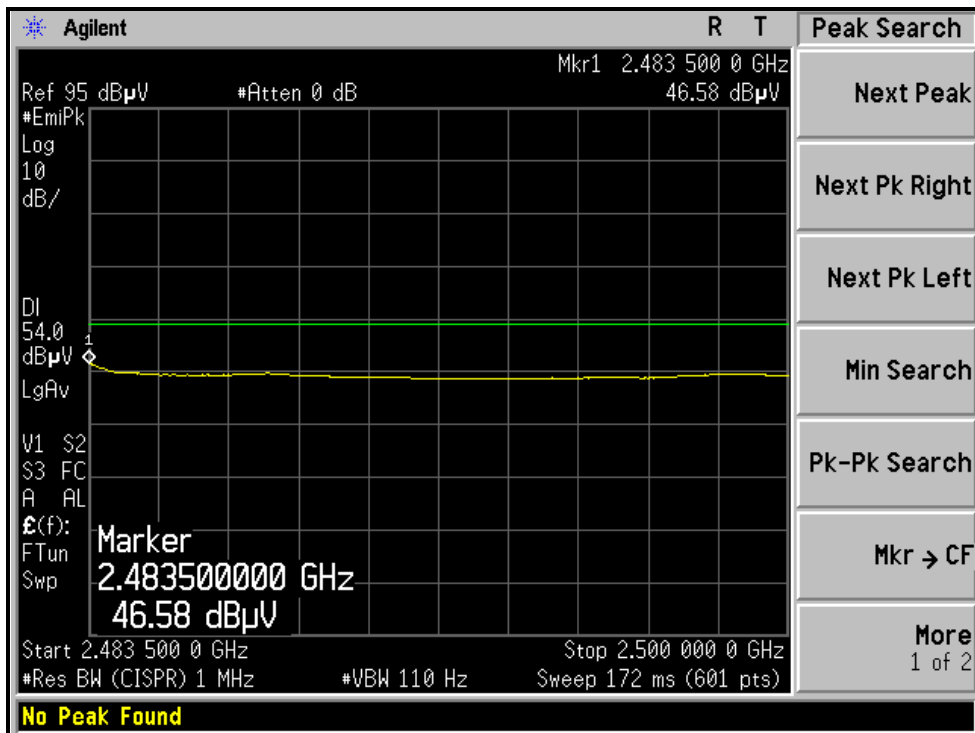
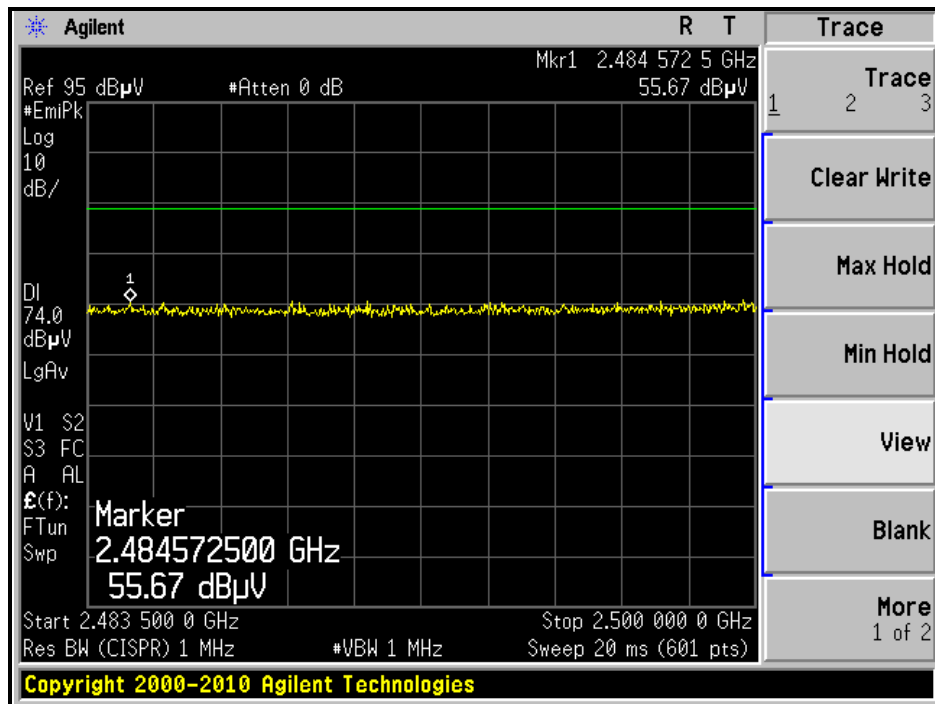
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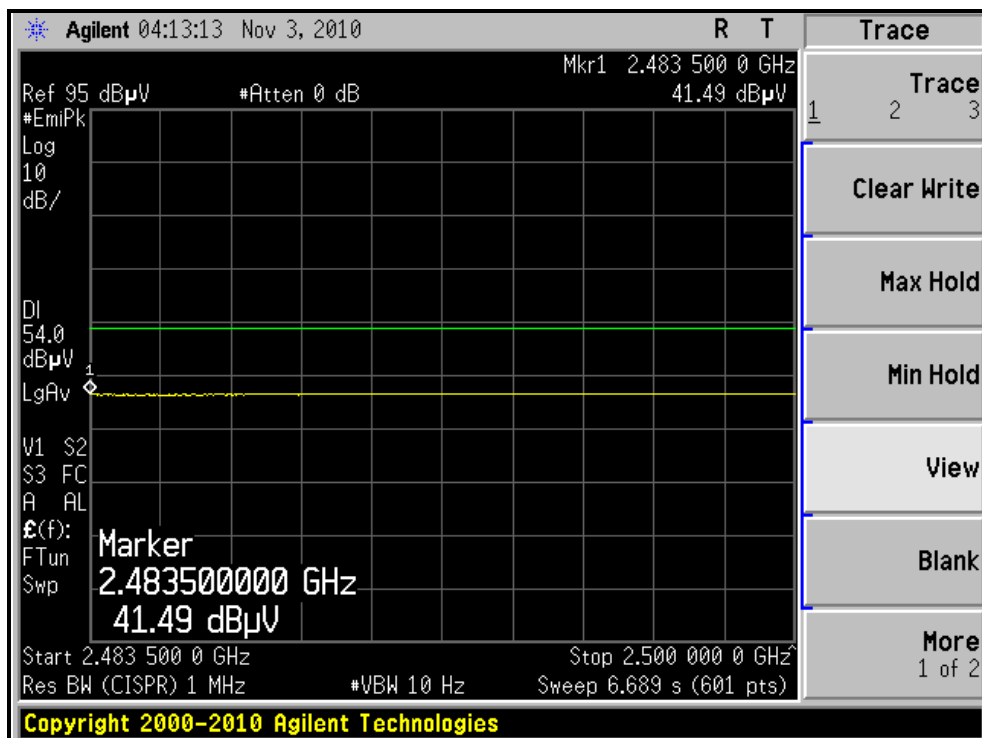
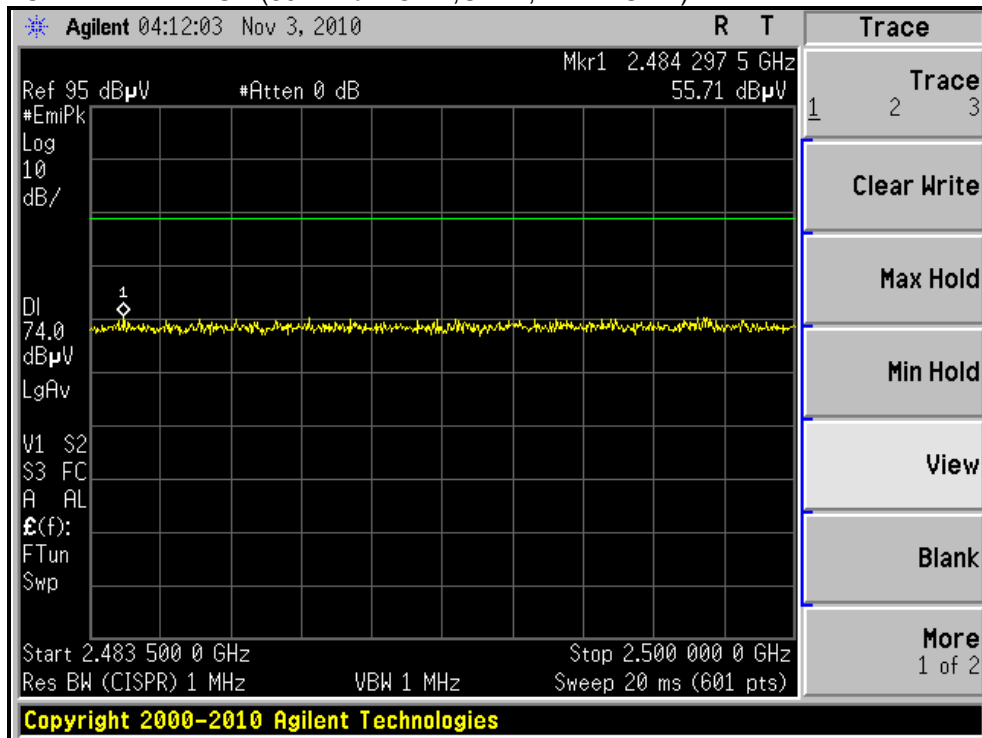
RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL )





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### RESTRICTED BANDEDGE (802.11b MODE, CH11, VERTICAL)





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## 802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	65.1 PK	74.0	-8.9	1.67 H	265	34.13	30.97
2	2390.00	48.1 AV	54.0	-5.9	1.67 H	265	17.13	30.97
3	*2412.00	108.7 PK			1.67 H	264	77.64	31.06
4	*2412.00	97.5 AV			1.67 H	264	66.44	31.06
5	4824.00	45.6 PK	74.0	-28.4	1.70 H	179	8.48	37.12
6	4824.00	32.8 AV	54.0	-21.2	1.70 H	179	-4.32	37.12
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	58.4 PK	74.0	-15.6	1.67 V	105	27.43	30.97
2	2390.00	43.2 AV	54.0	-10.8	1.67 V	105	12.23	30.97
3	*2412.00	100.8 PK			1.67 V	103	69.74	31.06
4	*2412.00	88.7 AV			1.67 V	103	57.64	31.06
5	4824.00	50.2 PK	74.0	-23.8	1.44 V	239	13.08	37.12
6	4824.00	36.8 AV	54.0	-17.2	1.44 V	239	-0.32	37.12

- 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, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	*2437.00	109.0 PK			1.62 H	265	77.83	31.17
2	*2437.00	98.4 AV			1.62 H	265	67.23	31.17
3	4874.00	50.7 PK	74.0	-23.3	1.72 H	178	13.47	37.23
4	4874.00	36.3 AV	54.0	-17.7	1.72 H	178	-0.93	37.23
5	7311.00	51.4 PK	74.0	-22.6	1.42 H	342	7.04	44.36
6	7311.00	38.1 AV	54.0	-15.9	1.42 H	342	-6.26	44.36
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	101.0 PK			1.65 V	132	69.83	31.17
2	*2437.00	89.2 AV			1.65 V	132	58.03	31.17
3	4874.00	56.3 PK	74.0	-17.7	1.45 V	237	19.07	37.23
4	4874.00	42.8 AV	54.0	-11.2	1.45 V	237	5.57	37.23
5	7311.00	50.3 PK	74.0	-23.7	1.25 V	240	5.94	44.36
6	7311.00	38.3 AV	54.0	-15.7	1.25 V	240	-6.06	44.36

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	*2462.00	105.7 PK			1.52 H	98	74.42	31.28
2	*2462.00	94.1 AV			1.52 H	98	62.82	31.28
3	2483.50	60.3 PK	74.0	-13.7	1.51 H	78	28.93	31.37
4	2483.50	45.3 AV	54.0	-8.7	1.51 H	78	13.93	31.37
5	4924.00	45.3 PK	74.0	-28.7	1.78 H	154	7.95	37.35
6	4924.00	32.4 AV	54.0	-21.6	1.78 H	154	-4.95	37.35
7	7386.00	50.9 PK	74.0	-23.1	1.44 H	349	6.30	44.60
8	7386.00	38.5 AV	54.0	-15.5	1.44 H	349	-6.10	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	99.8 PK			1.68 V	314	68.52	31.28
2	*2462.00	88.1 AV			1.68 V	314	56.82	31.28
3	2483.50	57.0 PK	74.0	-17.0	1.68 V	315	25.63	31.37
4	2483.50	42.2 AV	54.0	-11.8	1.68 V	315	10.83	31.37
5	4924.00	49.9 PK	74.0	-24.1	1.53 V	267	12.55	37.35
6	4924.00	36.2 AV	54.0	-17.8	1.53 V	267	-1.15	37.35
7	7386.00	51.3 PK	74.0	-22.7	1.23 V	238	6.70	44.60
8	7386.00	38.3 AV	54.0	-15.7	1.23 V	238	-6.30	44.60

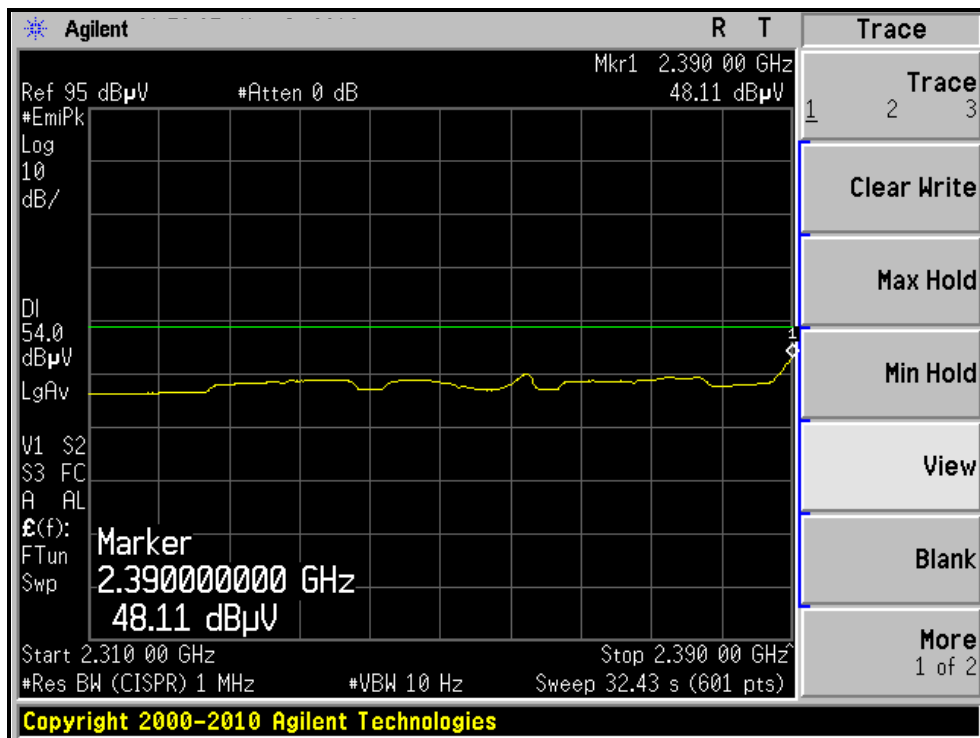
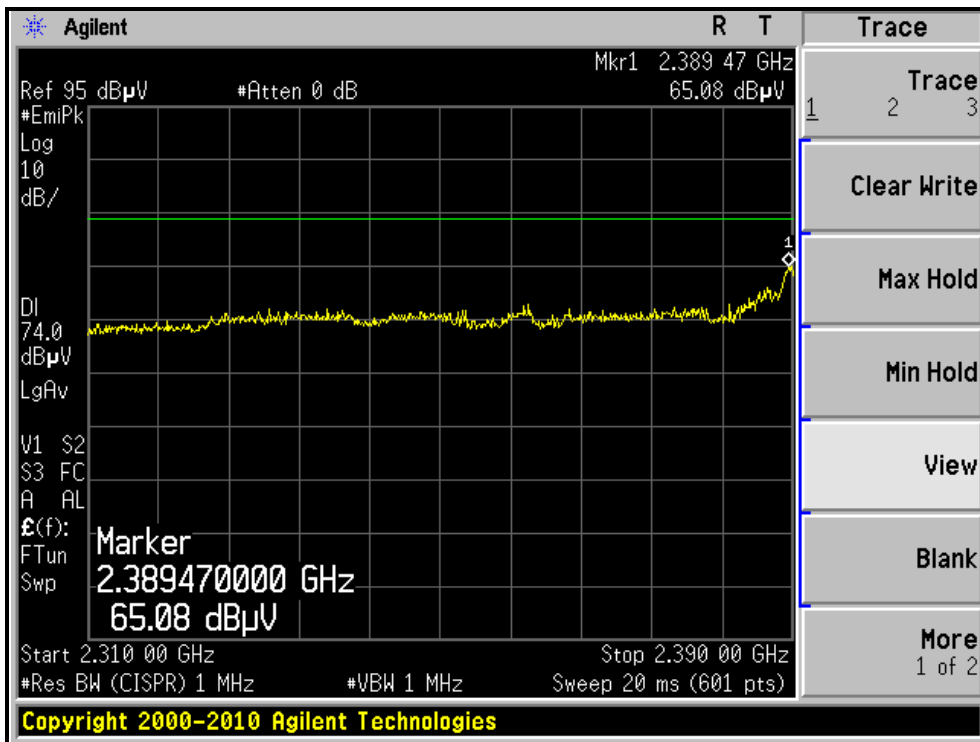
- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
  2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.
  5. “ \* “: Fundamental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





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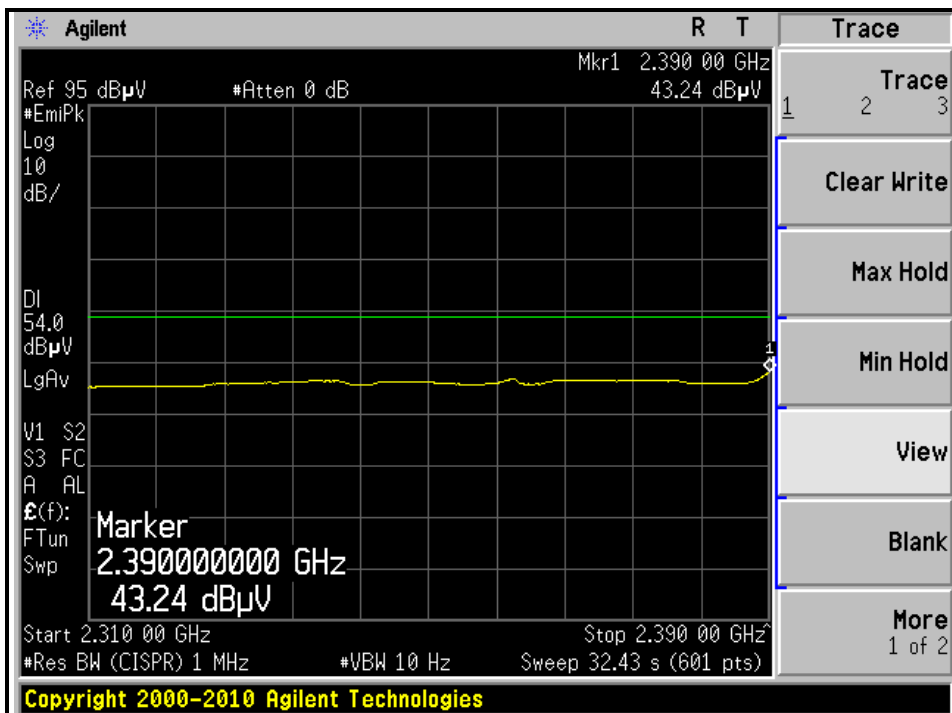
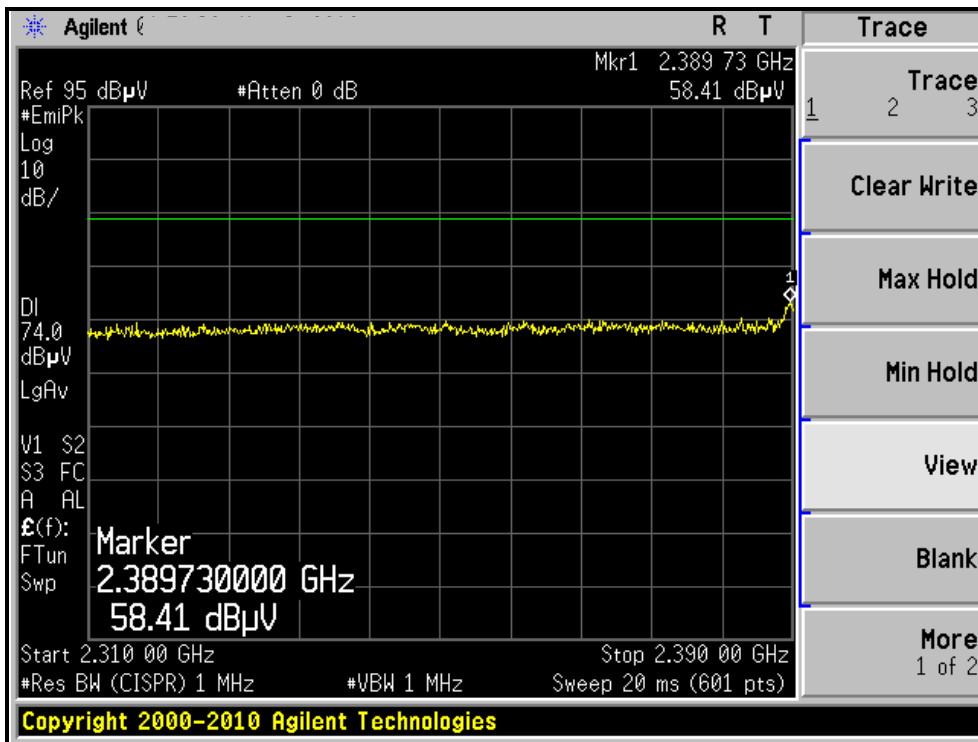
RESTRICTED BANDEDGE (802.11g MODE, CH1, HORIZONTAL )





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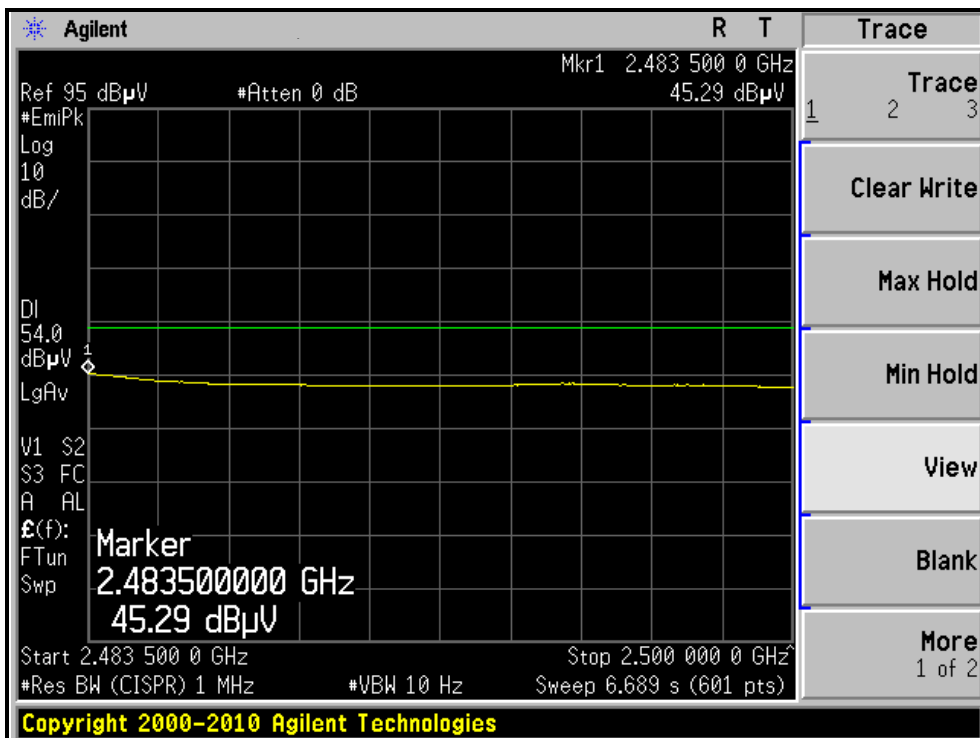
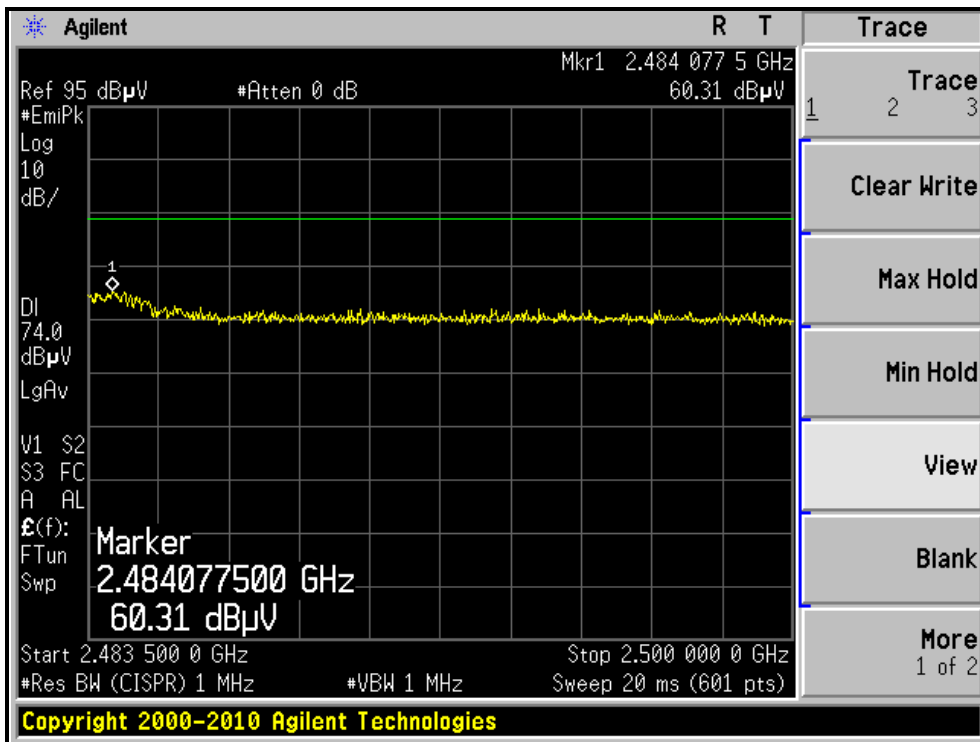
### RESTRICTED BANDEDGE (802.11g MODE, CH1, VERTICAL )





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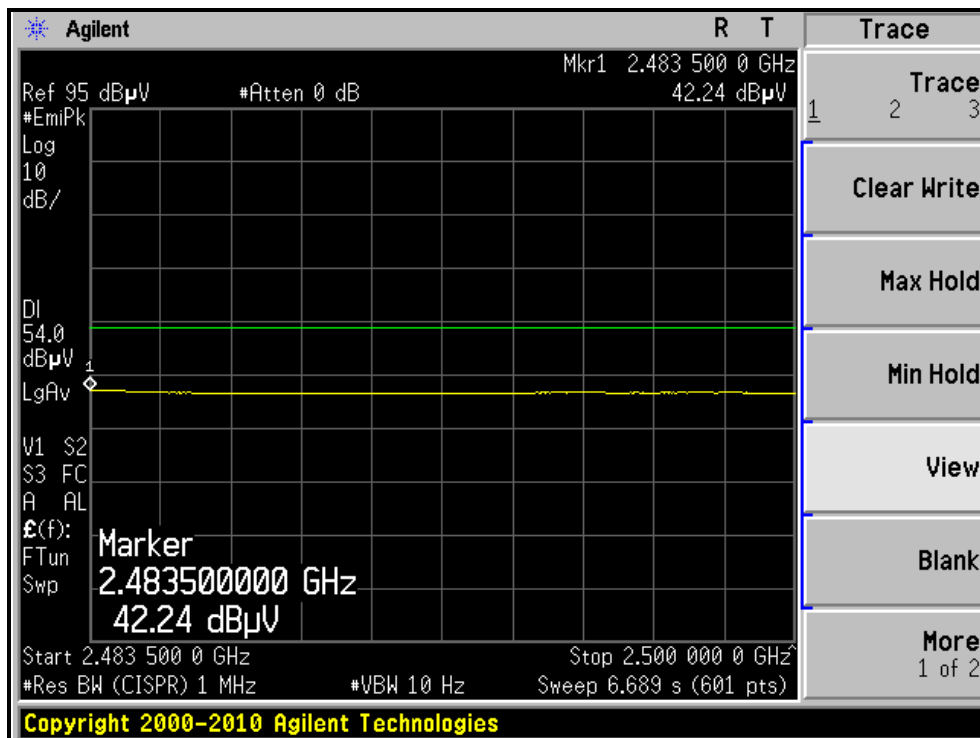
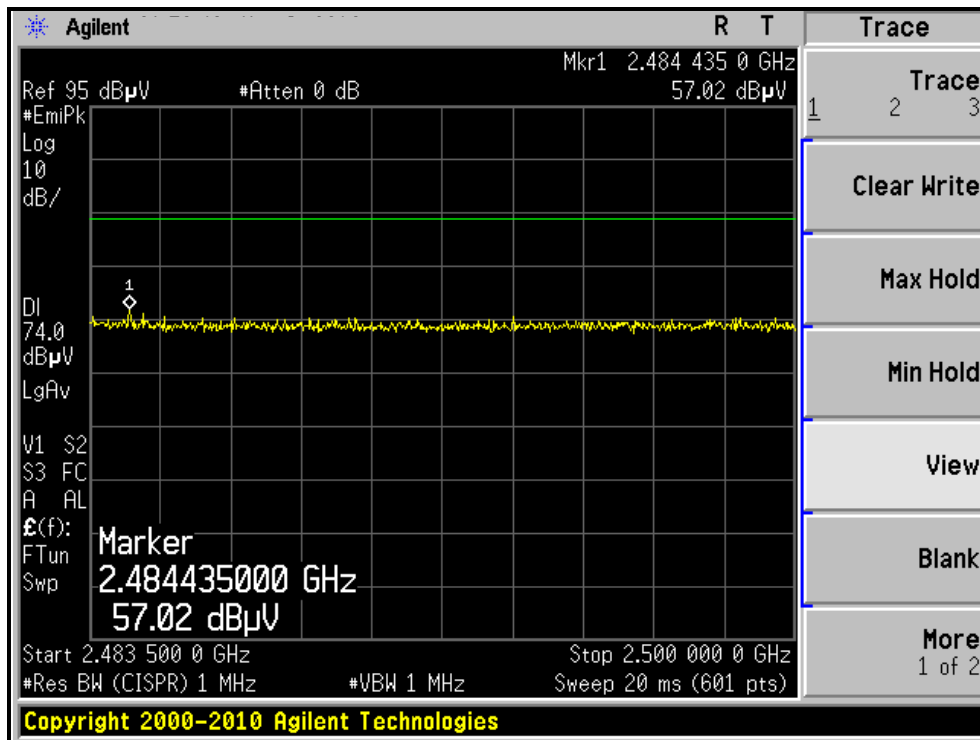
RESTRICTED BANDEDGE (802.11g MODE, CH11, HORIZONTAL )





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### RESTRICTED BANDEDGE (802.11g MODE, CH11, VERTICAL )





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**802.11n (20MHz) OFDM MODULATION**

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	65.0 PK	74.0	-9.0	1.60 H	254	34.03	30.97
2	2390.00	47.1 AV	54.0	-6.9	1.60 H	254	16.13	30.97
3	*2412.00	106.6 PK			1.60 H	255	75.54	31.06
4	*2412.00	94.0 AV			1.60 H	255	62.94	31.06
5	4824.00	45.1 PK	74.0	-28.9	1.39 H	96	7.98	37.12
6	4824.00	32.4 AV	54.0	-21.6	1.39 H	96	-4.72	37.12
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	63.1 PK	74.0	-10.9	1.48 V	277	32.13	30.97
2	2390.00	45.7 AV	54.0	-8.3	1.48 V	277	14.73	30.97
3	*2412.00	105.9 PK			1.48 V	277	74.84	31.06
4	*2412.00	93.3 AV			1.48 V	277	62.20	31.06
5	4824.00	49.6 PK	74.0	-24.4	1.14 V	291	12.48	37.12
6	4824.00	35.3 AV	54.0	-18.7	1.14 V	291	-1.82	37.12

- 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, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	*2437.00	107.3 PK			1.62 H	258	76.13	31.17
2	*2437.00	94.7 AV			1.62 H	258	63.53	31.17
3	4874.00	47.3 PK	74.0	-26.7	1.38 H	102	10.07	37.23
4	4874.00	34.5 AV	54.0	-19.5	1.38 H	102	-2.73	37.23
5	7311.00	51.2 PK	74.0	-22.8	1.43 H	335	6.84	44.36
6	7311.00	38.3 AV	54.0	-15.7	1.43 H	335	-6.06	44.36
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.3 PK			1.47 V	268	75.13	31.17
2	*2437.00	93.7 AV			1.47 V	268	62.53	31.17
3	4874.00	54.1 PK	74.0	-19.9	1.20 V	288	16.87	37.23
4	4874.00	39.9 AV	54.0	-14.1	1.20 V	288	2.67	37.23
5	7311.00	50.9 PK	74.0	-23.1	1.23 V	247	6.54	44.36
6	7311.00	38.0 AV	54.0	-16.0	1.23 V	247	-6.36	44.36

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	*2462.00	106.4 PK			1.62 H	264	75.12	31.28
2	*2462.00	93.2 AV			1.62 H	264	61.92	31.28
3	2483.50	62.1 PK	74.0	-11.9	1.60 H	263	30.73	31.37
4	2483.50	44.9 AV	54.0	-9.1	1.60 H	263	13.53	31.37
5	4924.00	45.7 PK	74.0	-28.3	1.36 H	98	8.35	37.35
6	4924.00	32.2 AV	54.0	-21.8	1.36 H	98	-5.15	37.35
7	7386.00	51.8 PK	74.0	-22.2	1.46 H	329	7.20	44.60
8	7386.00	38.4 AV	54.0	-15.6	1.46 H	329	-6.20	44.60

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

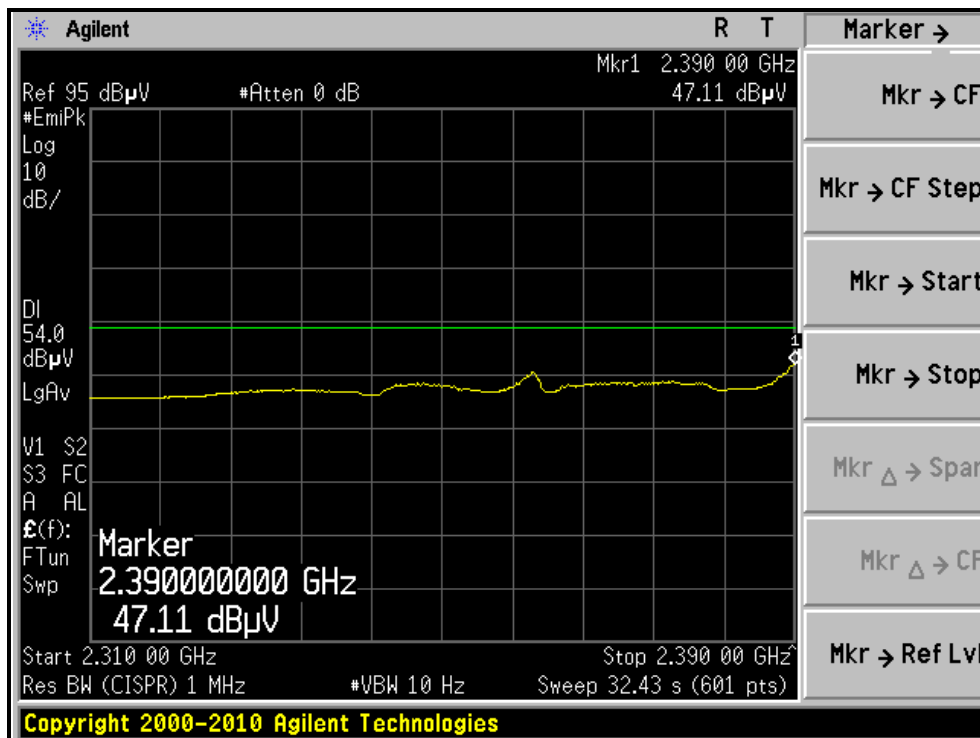
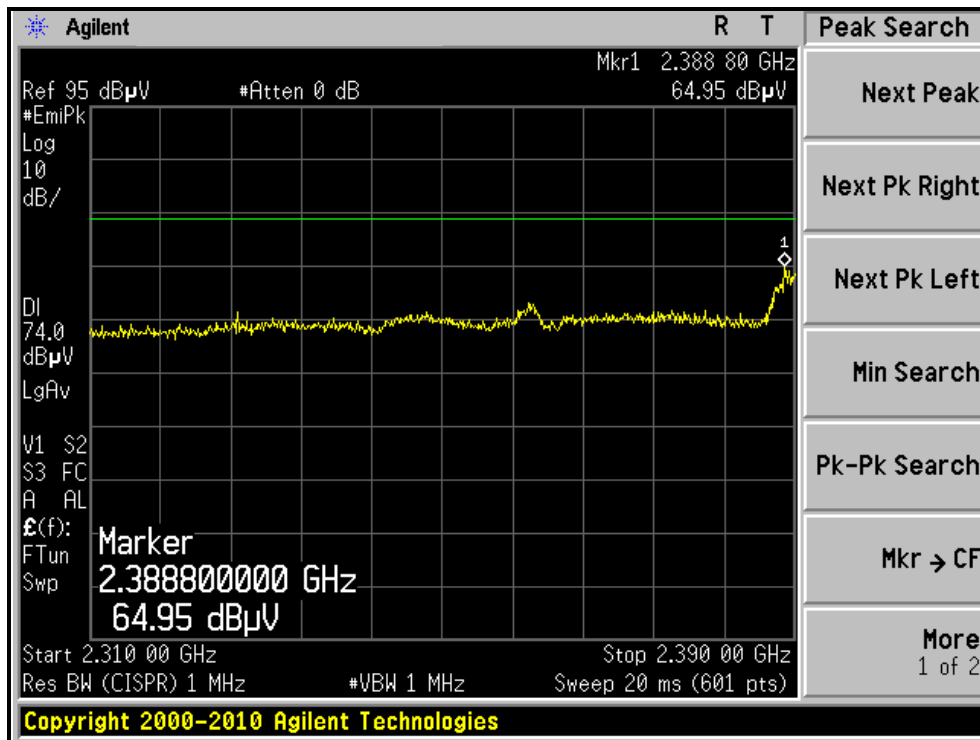
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	103.9 PK			1.43 V	292	72.62	31.28
2	*2462.00	91.7 AV			1.43 V	292	60.42	31.28
3	2483.50	60.6 PK	74.0	-13.4	1.42 V	293	29.23	31.37
4	2483.50	44.1 AV	54.0	-9.9	1.42 V	293	12.73	31.37
5	4924.00	48.3 PK	74.0	-25.7	1.15 V	293	10.95	37.35
6	4924.00	34.8 AV	54.0	-19.2	1.15 V	293	-2.55	37.35
7	7386.00	51.3 PK	74.0	-22.7	1.20 V	249	6.70	44.60
8	7386.00	38.2 AV	54.0	-15.8	1.20 V	249	-6.40	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.



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

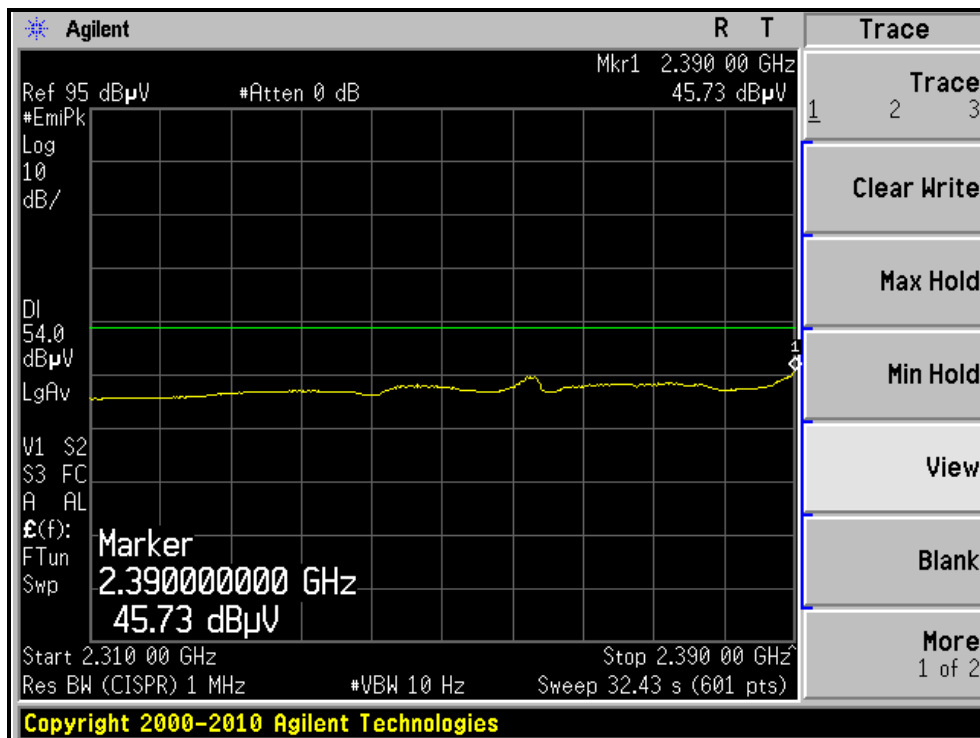
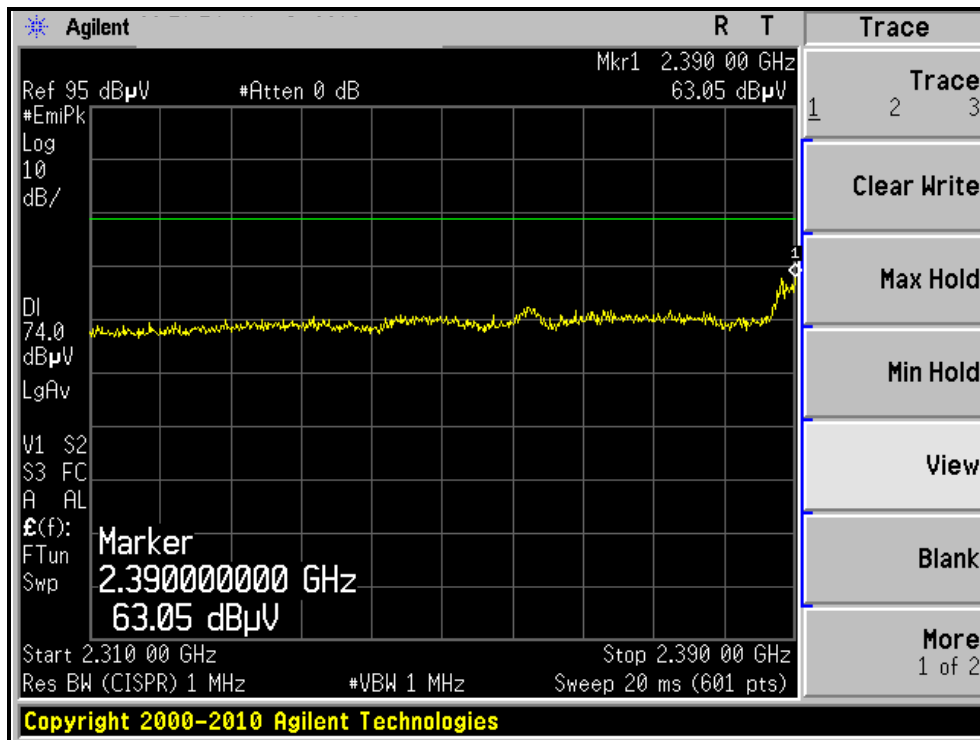






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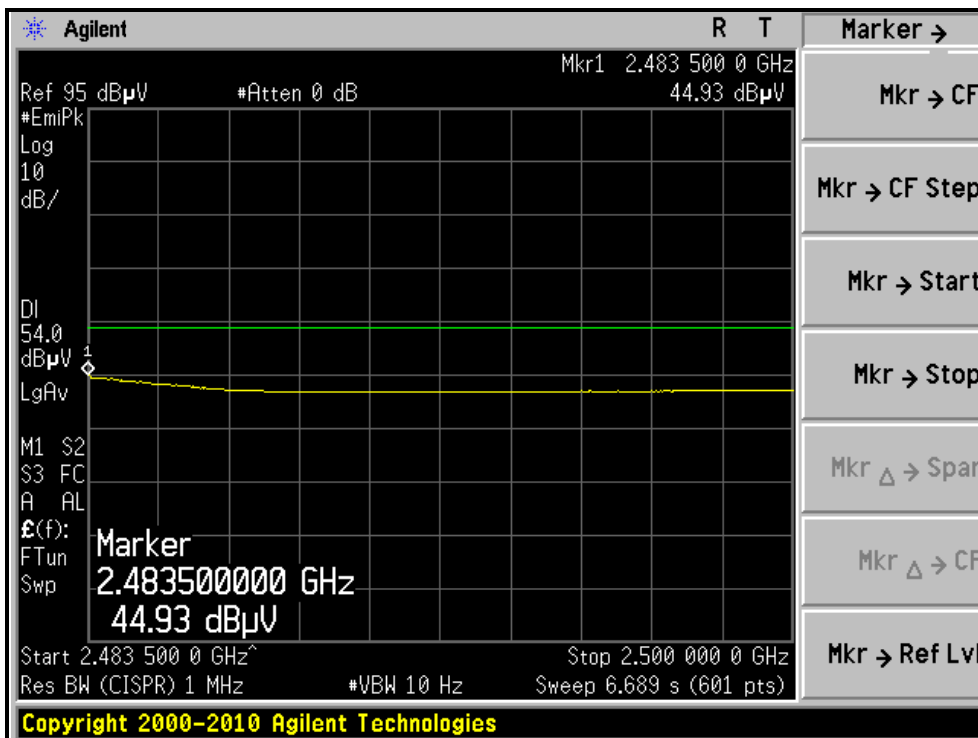
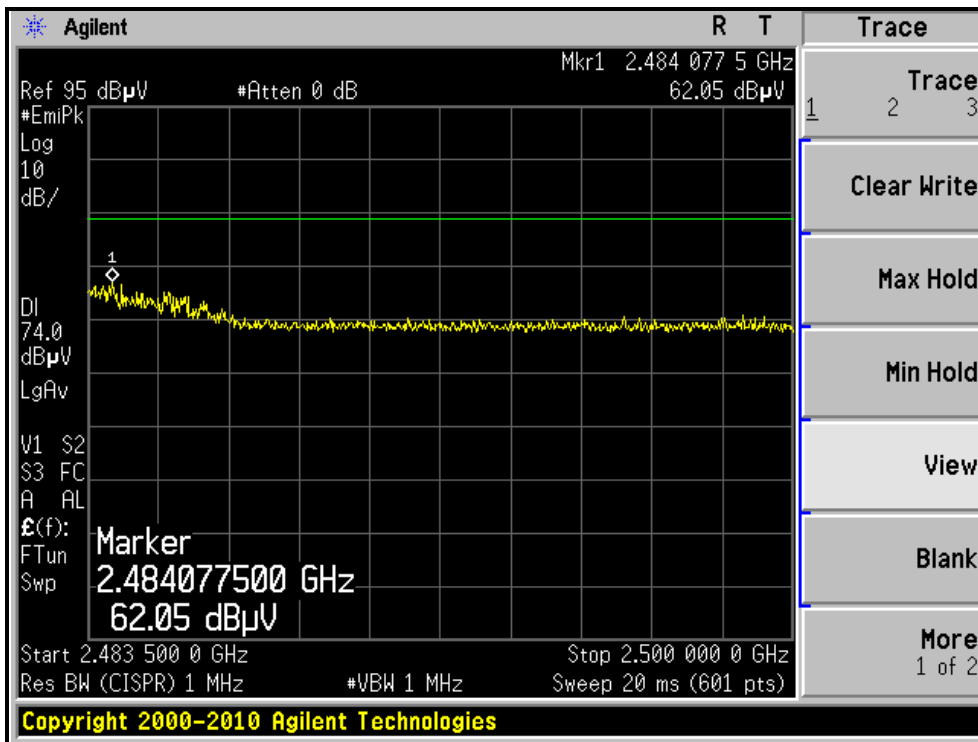
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, VERTICAL )





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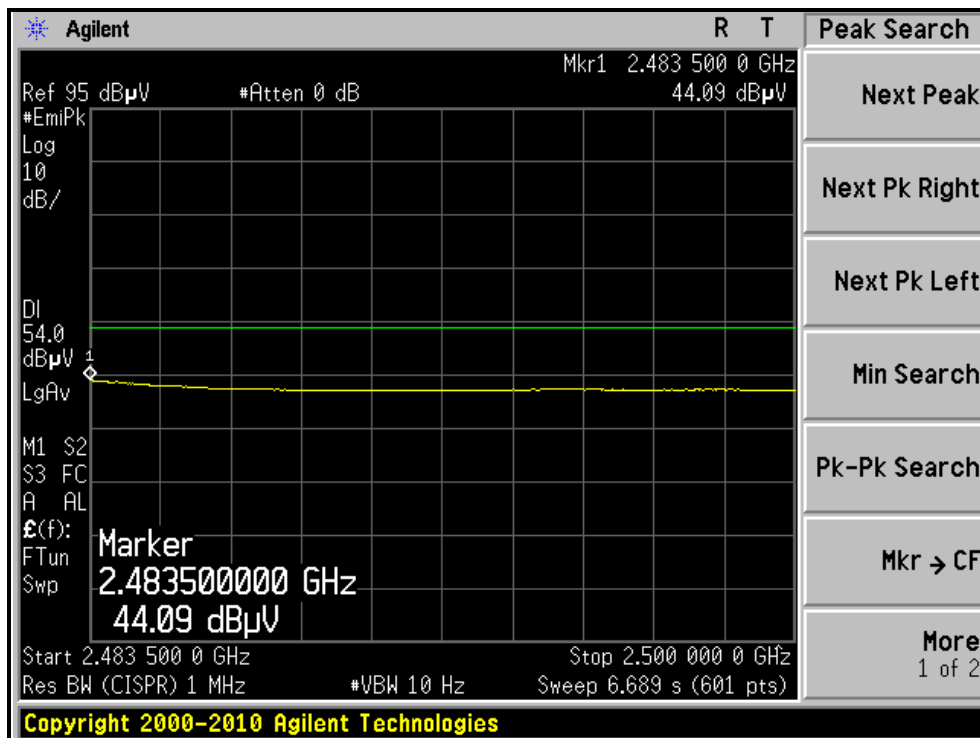
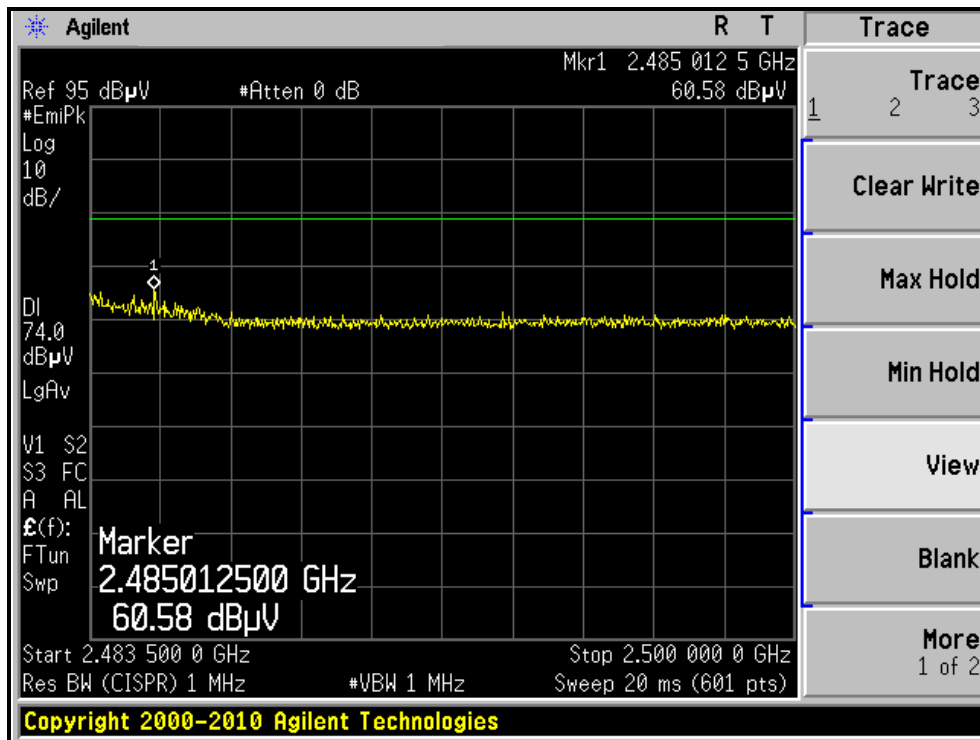
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH11, HORIZONTAL )





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





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**802.11n (40MHz) OFDM MODULATION**

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	64.4 PK	74.0	-9.6	1.62 H	94	33.43	30.97
2	2390.00	45.5 AV	54.0	-8.5	1.62 H	94	14.53	30.97
3	*2422.00	100.8 PK			1.61 H	88	69.70	31.10
4	*2422.00	87.2 AV			1.61 H	88	56.10	31.10
5	4844.00	44.3 PK	74.0	-29.7	1.32 H	104	7.14	37.16
6	4844.00	31.3 AV	54.0	-22.7	1.32 H	104	-5.86	37.16
7	7266.00	51.0 PK	74.0	-23.0	1.44 H	305	6.78	44.22
8	7266.00	38.0 AV	54.0	-16.0	1.44 H	305	-6.22	44.22

**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	61.4 PK	74.0	-12.6	1.43 V	276	30.43	30.97
2	2390.00	44.6 AV	54.0	-9.4	1.43 V	276	13.63	30.97
3	*2422.00	99.4 PK			1.45 V	272	68.30	31.10
4	*2422.00	86.1 AV			1.45 V	272	55.00	31.10
5	4844.00	45.7 PK	74.0	-28.3	1.20 V	296	8.54	37.16
6	4844.00	32.6 AV	54.0	-21.4	1.20 V	296	-4.56	37.16
7	7266.00	52.3 PK	74.0	-21.7	1.29 V	263	8.08	44.22
8	7266.00	38.1 AV	54.0	-15.9	1.29 V	263	-6.12	44.22

- 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 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	*2437.00	103.3 PK			1.63 H	86	72.13	31.17
2	*2437.00	89.6 AV			1.63 H	86	58.43	31.17
3	4874.00	45.3 PK	74.0	-28.7	1.31 H	112	8.07	37.23
4	4874.00	32.3 AV	54.0	-21.7	1.31 H	112	-4.93	37.23
5	7311.00	52.9 PK	74.0	-21.1	1.43 H	300	8.54	44.36
6	7311.00	38.3 AV	54.0	-15.7	1.43 H	300	-6.06	44.36

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	102.5 PK			1.44 V	273	71.33	31.17
2	*2437.00	88.4 AV			1.44 V	273	57.23	31.17
3	4874.00	46.9 PK	74.0	-27.1	1.29 V	307	9.67	37.23
4	4874.00	34.4 AV	54.0	-19.6	1.29 V	307	-2.83	37.23
5	7311.00	51.9 PK	74.0	-22.1	1.25 V	255	7.54	44.36
6	7311.00	38.3 AV	54.0	-15.7	1.25 V	255	-6.06	44.36

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	*2452.00	99.1 PK			1.58 H	81	67.87	31.23
2	*2452.00	86.1 AV			1.58 H	81	54.87	31.23
3	2483.50	57.5 PK	74.0	-16.5	1.58 H	83	26.13	31.37
4	2483.50	42.6 AV	54.0	-11.4	1.58 H	83	11.23	31.37
5	4904.00	44.9 PK	74.0	-29.1	1.33 H	99	7.60	37.30
6	4904.00	31.8 AV	54.0	-22.2	1.33 H	99	-5.50	37.30
7	7356.00	53.2 PK	74.0	-20.8	1.48 H	330	8.70	44.50
8	7356.00	38.4 AV	54.0	-15.6	1.48 H	330	-6.10	44.50

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

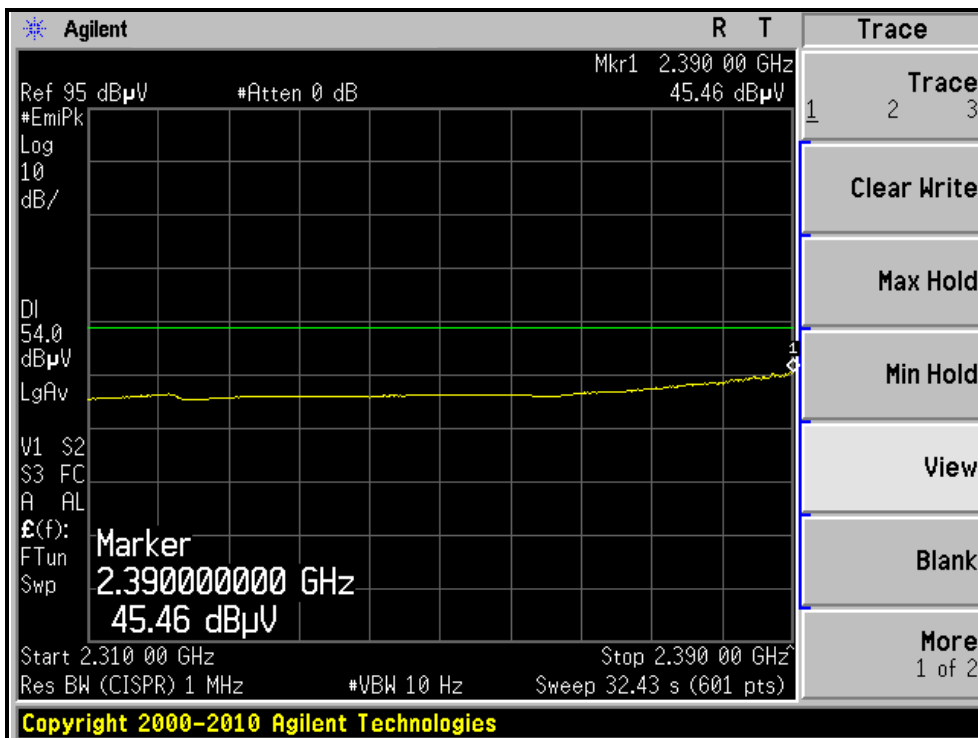
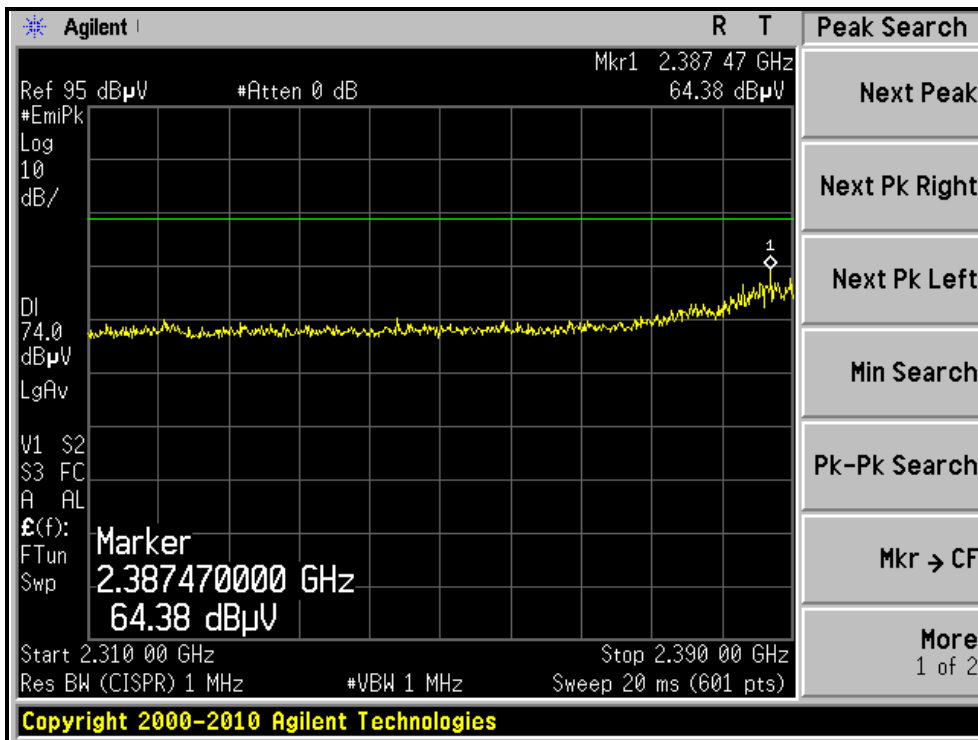
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1	*2452.00	97.9 PK			1.43 V	277	66.67	31.23
2	*2452.00	84.9 AV			1.43 V	277	53.67	31.23
3	2483.50	56.7 PK	74.0	-17.3	1.49 V	274	25.33	31.37
4	2483.50	42.2 AV	54.0	-11.8	1.49 V	274	10.83	31.37
5	4904.00	45.2 PK	74.0	-28.8	1.17 V	296	7.90	37.30
6	4904.00	32.4 AV	54.0	-21.6	1.17 V	296	-4.90	37.30
7	7356.00	52.1 PK	74.0	-21.9	1.24 V	251	7.60	44.50
8	7356.00	38.8 AV	54.0	-15.2	1.24 V	251	-5.70	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.



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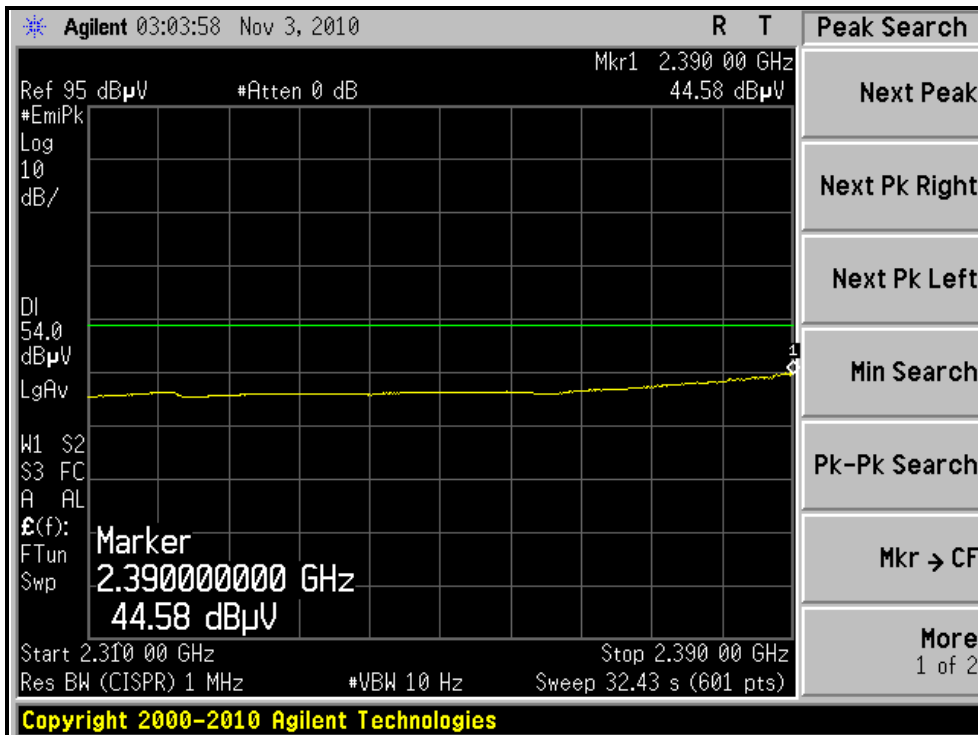
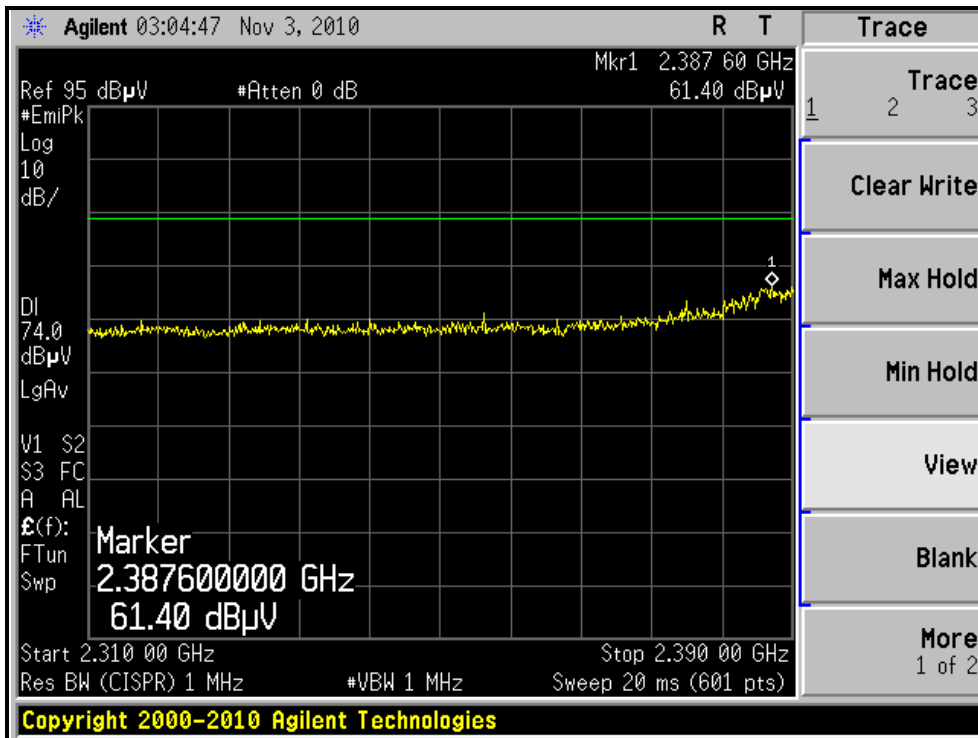
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, HORIZONTAL )





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

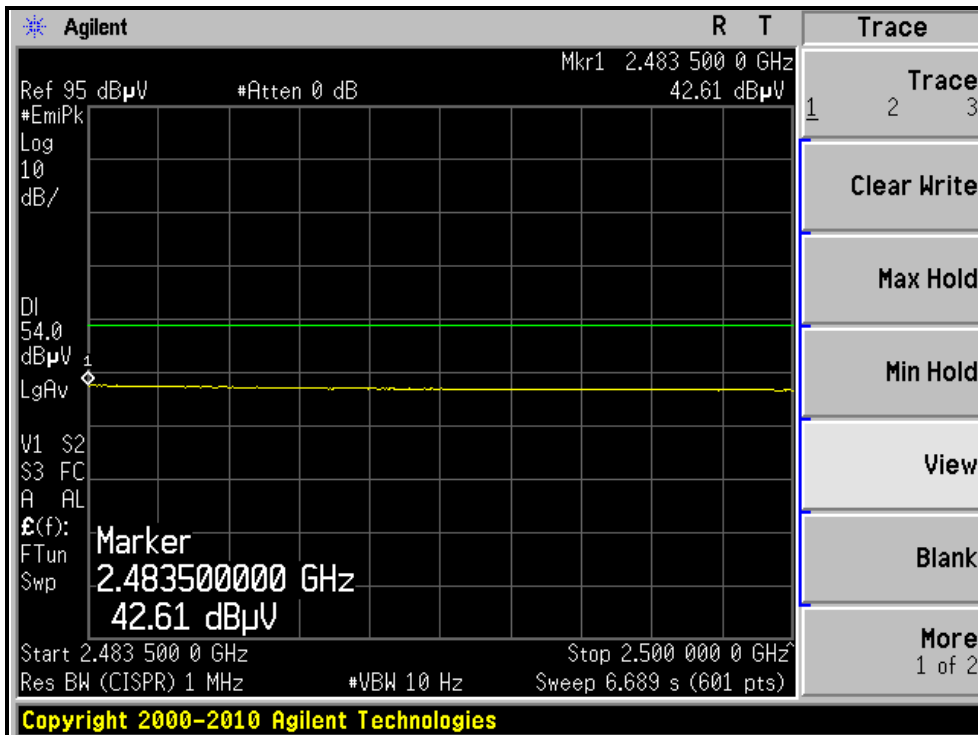
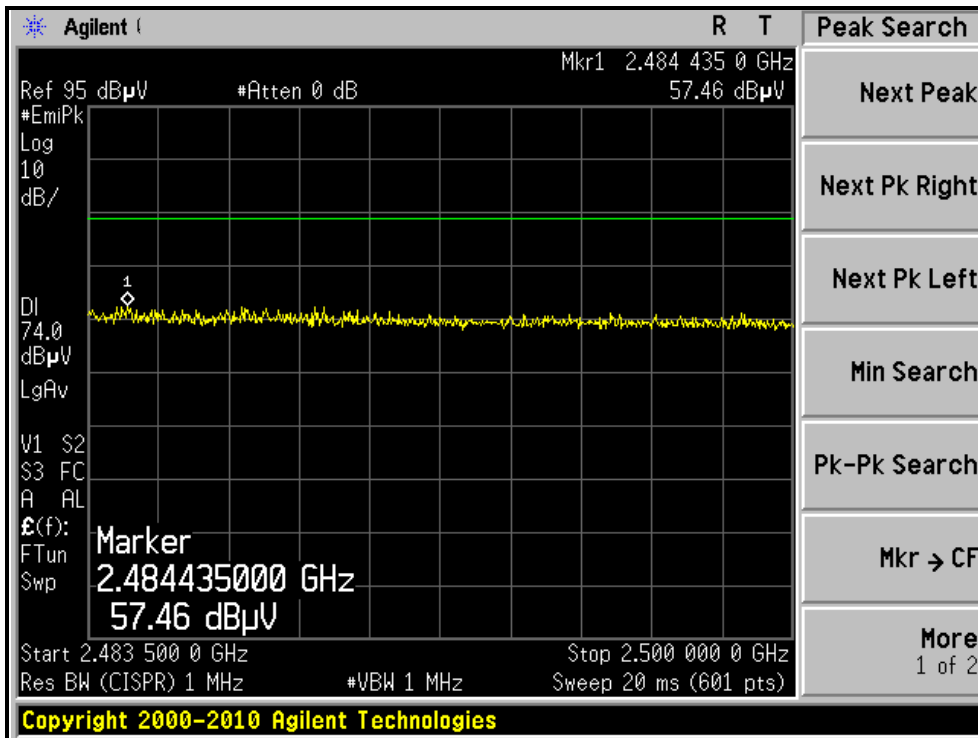






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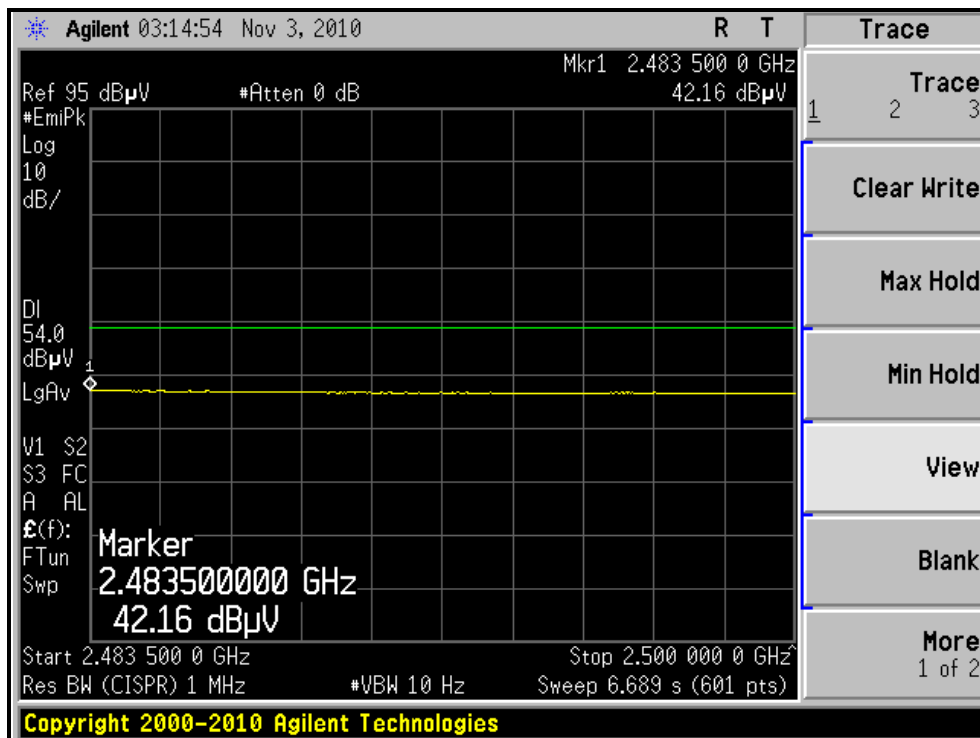
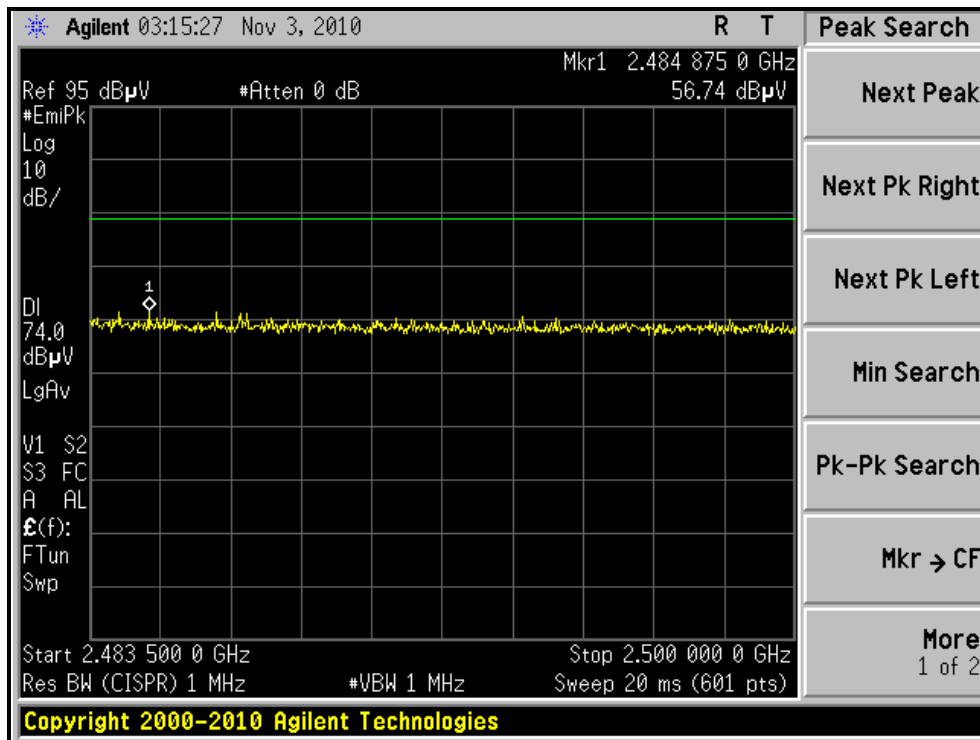
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH7, HORIZONTAL )





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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
Spectrum Analyzer	FSP 40	100036	Dec. 18, 2009	Dec. 17, 2010

**NOTE:**

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

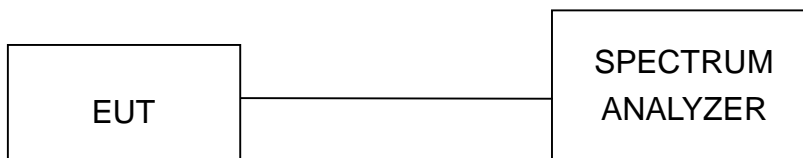
#### 4.3.3 TEST PROCEDURE

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 or 300kHz 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.



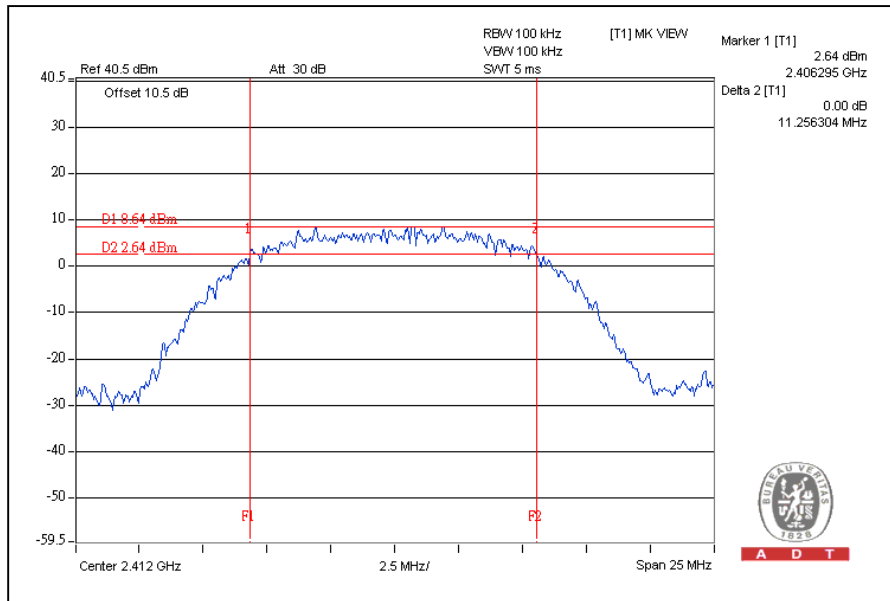
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### 4.3.7 TEST RESULTS

#### 802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	11.25	0.5	PASS
6	2437	11.21	0.5	PASS
11	2462	11.22	0.5	PASS

CH1



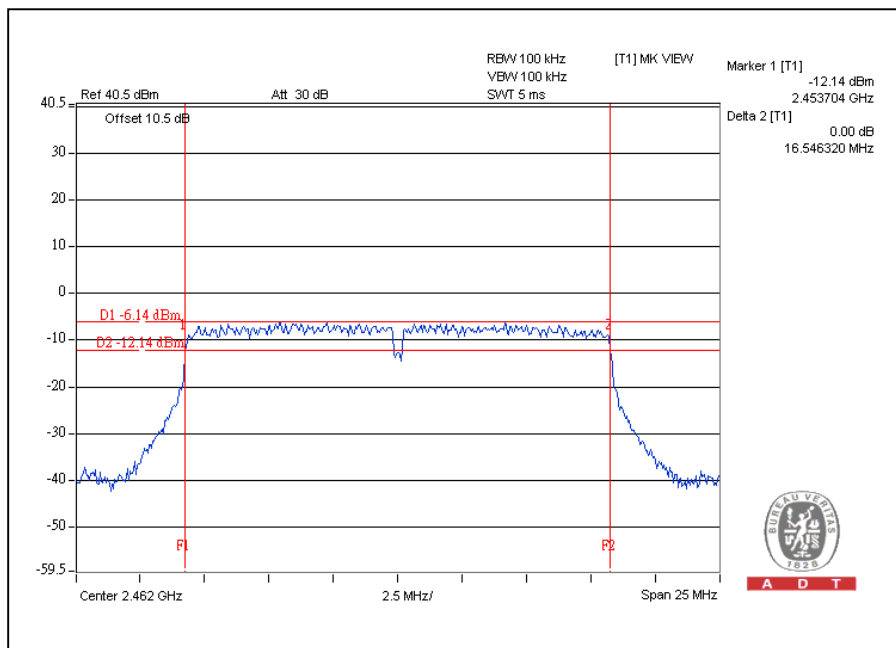


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### 802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.53	0.5	PASS
6	2437	16.52	0.5	PASS
11	2462	16.54	0.5	PASS

### CH11



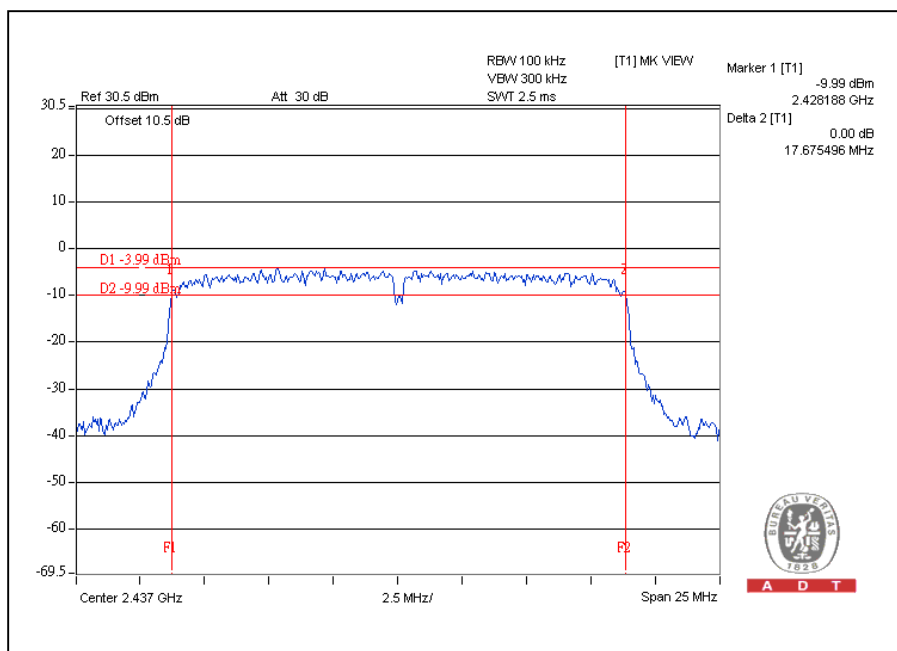


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### 802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.64	0.5	PASS
6	2437	17.67	0.5	PASS
11	2462	17.66	0.5	PASS

CH6



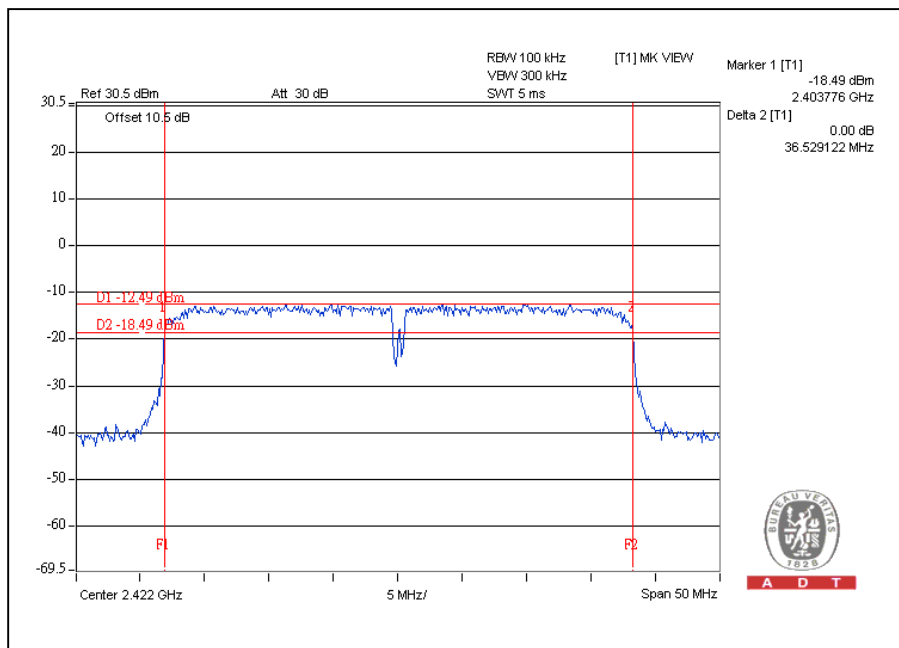


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802.11n (40MHz) OFDM modulation:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2422	36.52	0.5	PASS
4	2437	36.47	0.5	PASS
7	2452	36.45	0.5	PASS

CH1



#### 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.

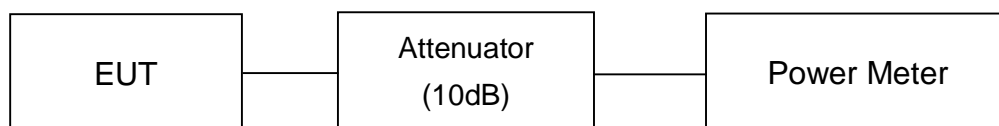
##### 4.4.3 TEST PROCEDURES

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	234.4	23.7	30	PASS
6	2437	251.2	24.0	30	PASS
11	2462	169.8	22.3	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	288.4	24.6	30	PASS
6	2437	371.5	25.7	30	PASS
11	2462	218.8	23.4	30	PASS

##### 802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
1	2412	23.4	22.3	388.6	25.9	30	PASS
6	2437	23.7	23.4	453.2	26.6	30	PASS
11	2462	21.6	21.4	282.6	24.5	30	PASS

##### 802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
1	2422	19.1	19.2	164.5	22.2	30	PASS
4	2437	23.4	23.2	427.7	26.3	30	PASS
7	2452	19.1	19.3	166.4	22.2	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
Spectrum Analyzer	FSP 40	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 4.3.6



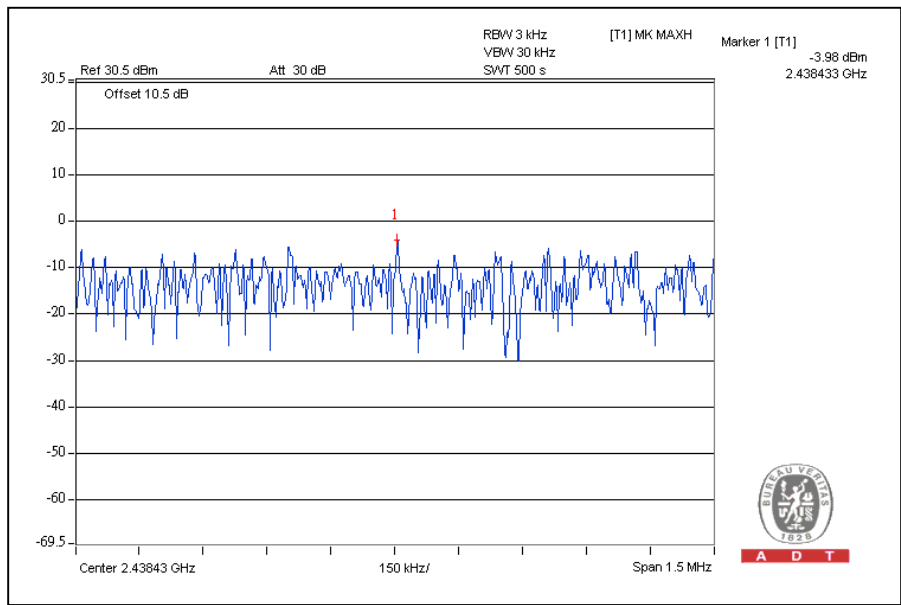
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### 4.5.7 TEST RESULTS

#### 802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz )	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-4.2	8	PASS
6	2437	-4.0	8	PASS
11	2462	-7.1	8	PASS

#### CH6



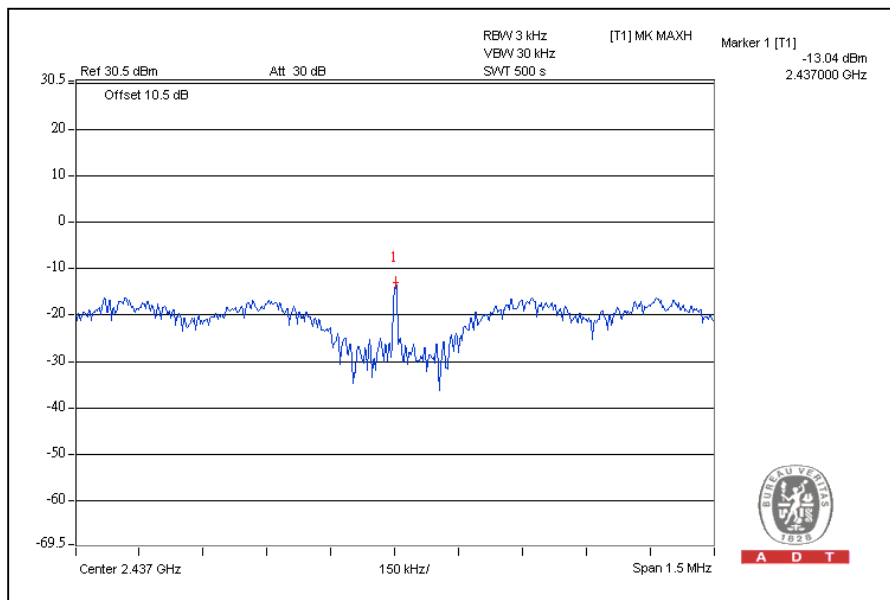


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### 802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz )	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-14.3	8	PASS
6	2437	-13.0	8	PASS
11	2462	-17.4	8	PASS

CH6



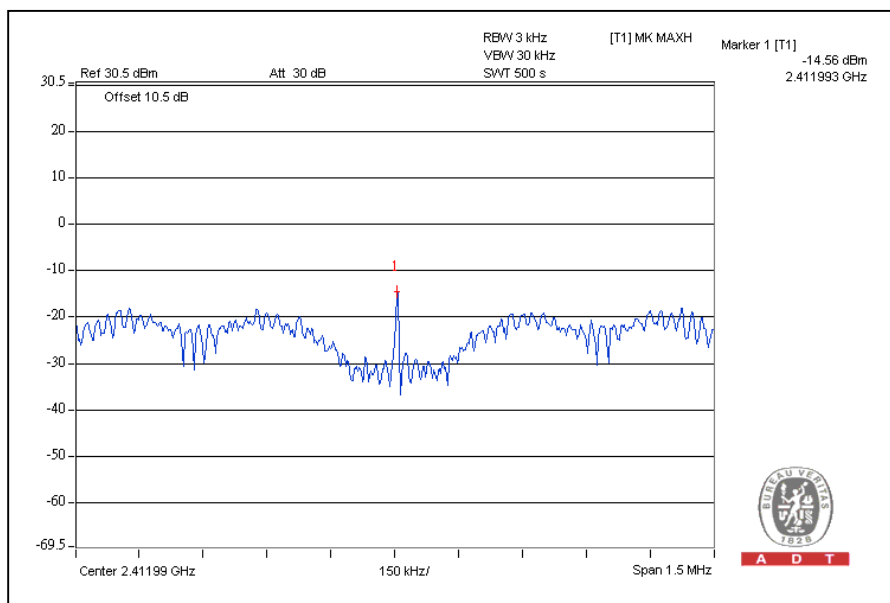


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### 802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)			
1	2412	-17.2	-14.6	-12.7	8	PASS
6	2437	-15.5	-15.5	-12.5	8	PASS
11	2462	-20.2	-16.4	-14.9	8	PASS

For Chain(1): CH1



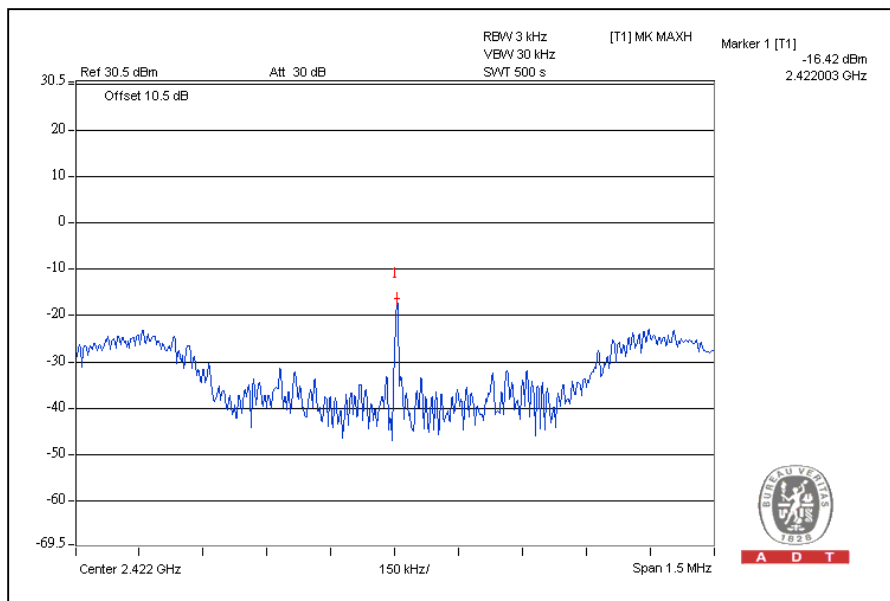


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### 802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)			
1	2422	-21.5	-16.4	-15.2	8	PASS
4	2437	-17.8	-16.9	-14.3	8	PASS
7	2452	-22.0	-17.4	-16.1	8	PASS

For Chain (1): CH1



## 4.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

### 4.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

Below  $-20\text{dB}$  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
Spectrum Analyzer	FSP 40	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 loss cable. Set RBW of spectrum analyzer to 100kHz and VBW of spectrum analyzer to 300kHz with suitable frequency span including 100MHz or 200MHz bandwidth from band edge. The band edges was 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

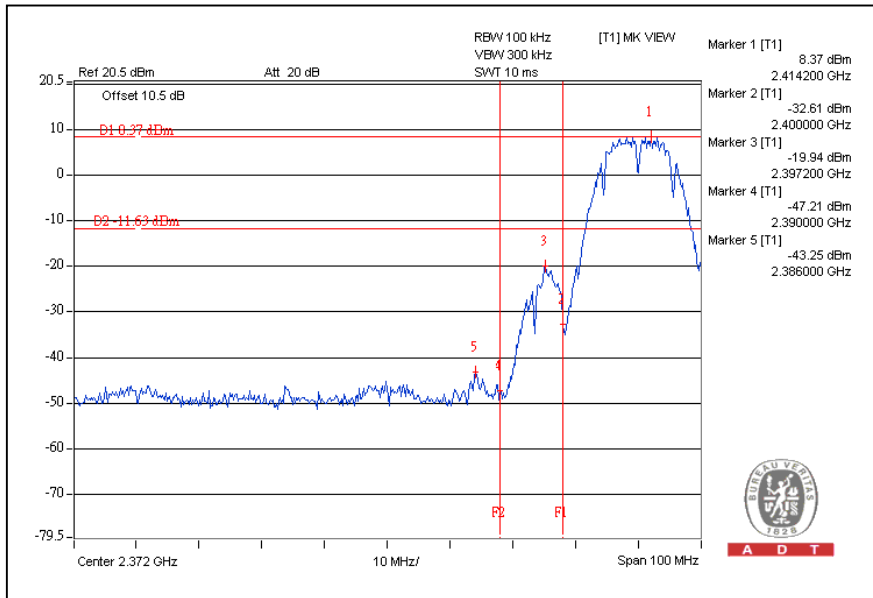
The spectrum plots are attached on the following images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).



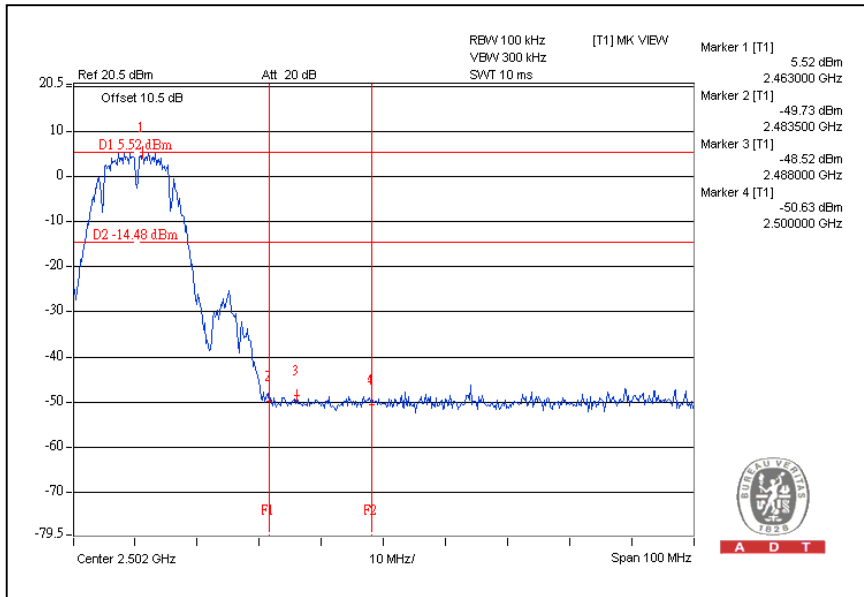
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## 802.11b DSSS MODULATION:

### CH1

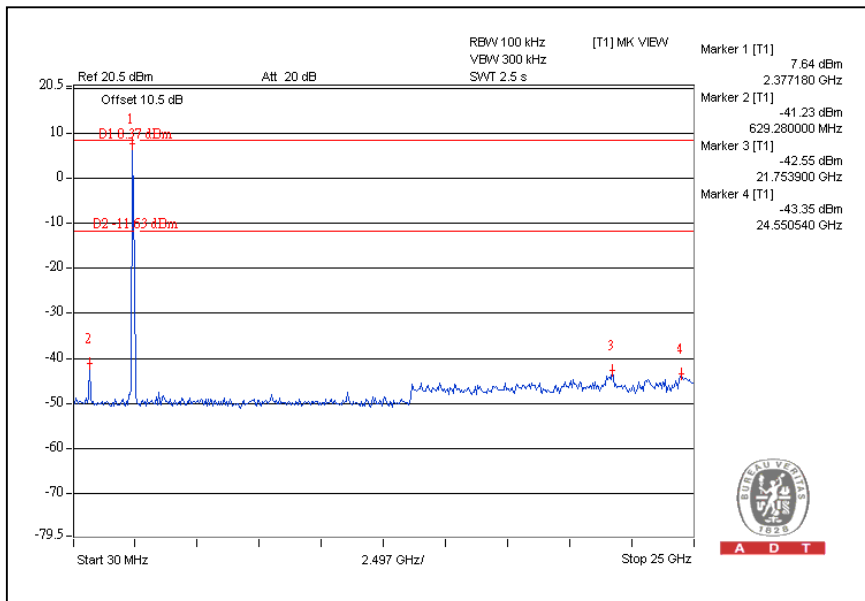


### CH11

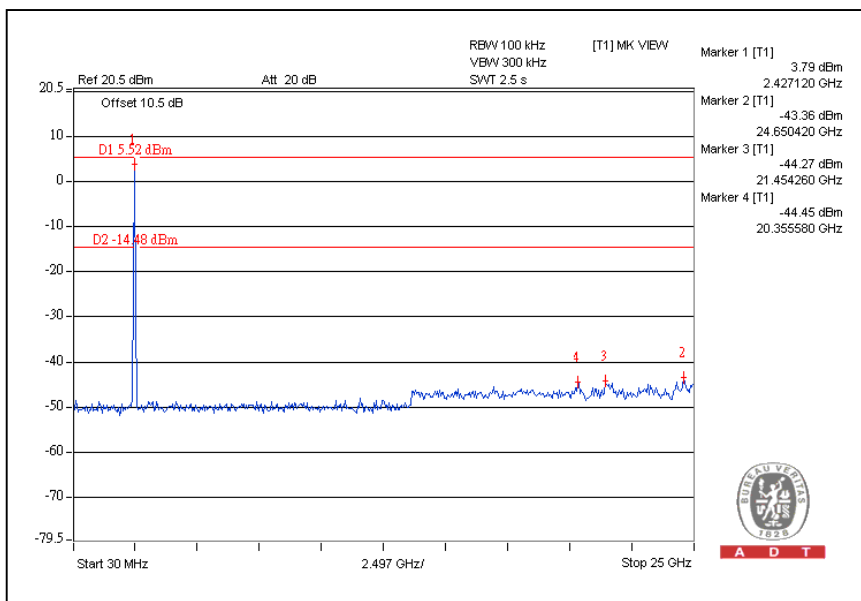




### CH1

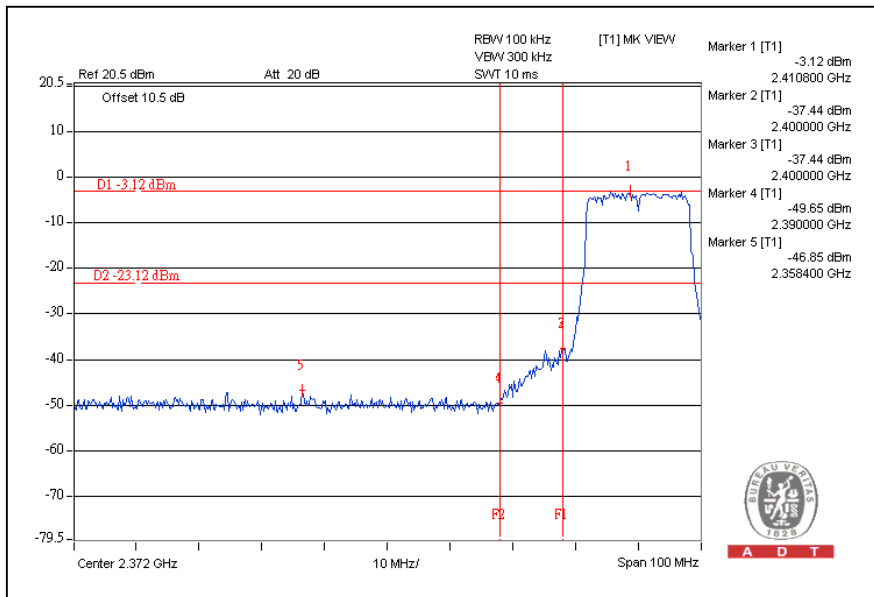


### CH11

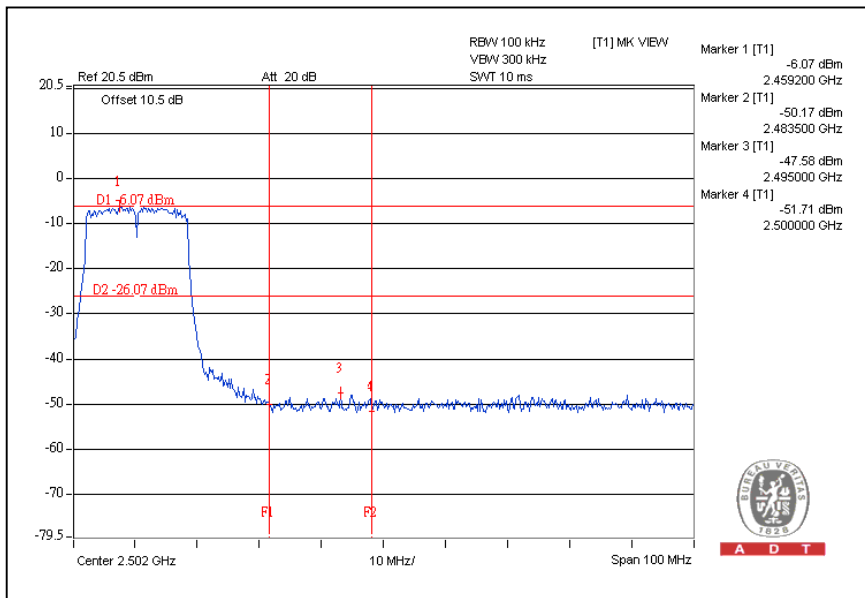


## 802.11g OFDM MODULATION:

### CH1



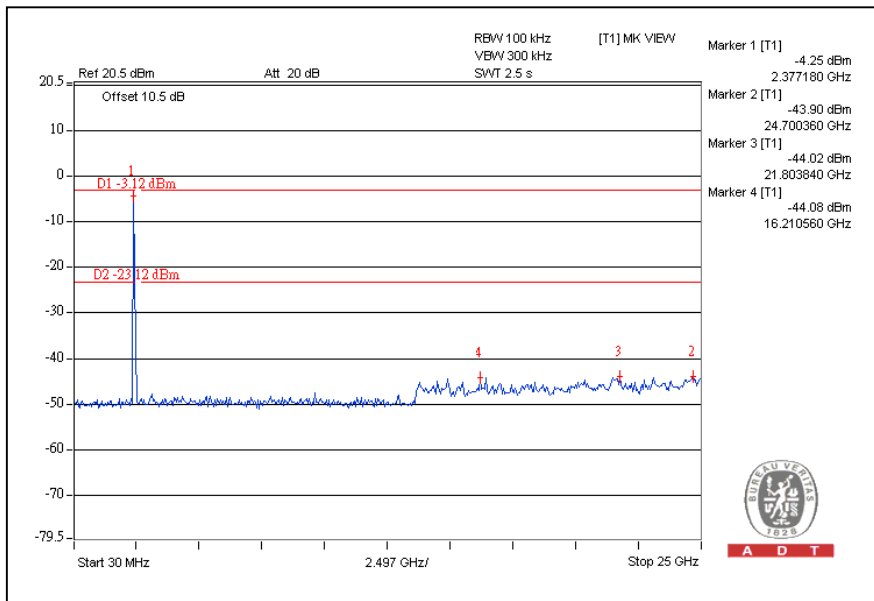
### CH11



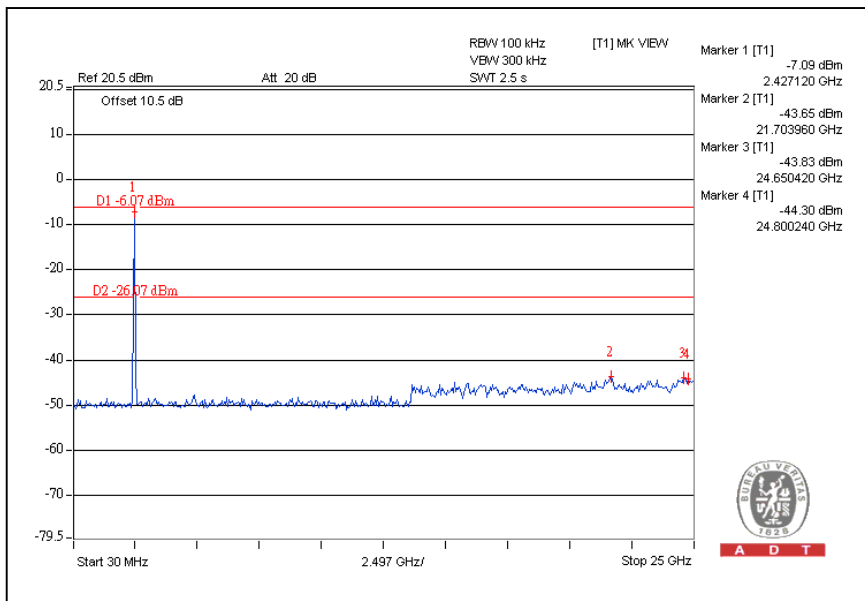


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### CH1



### CH11

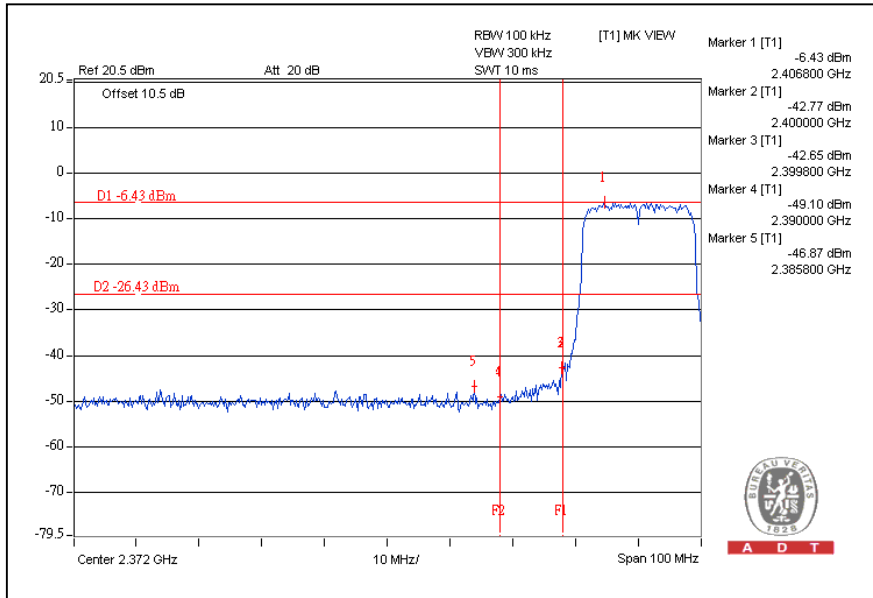




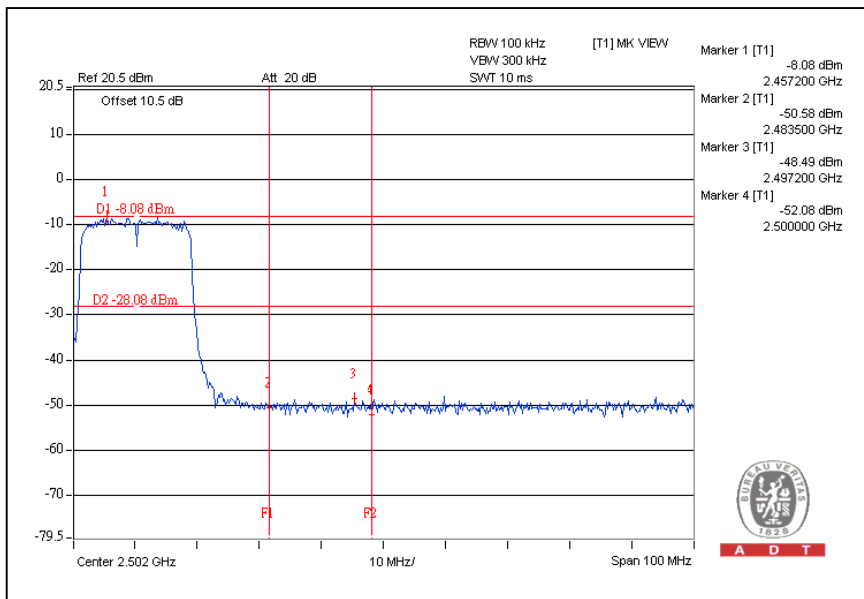
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## 802.11n (20MHz) OFDM MODULATION:

CH1



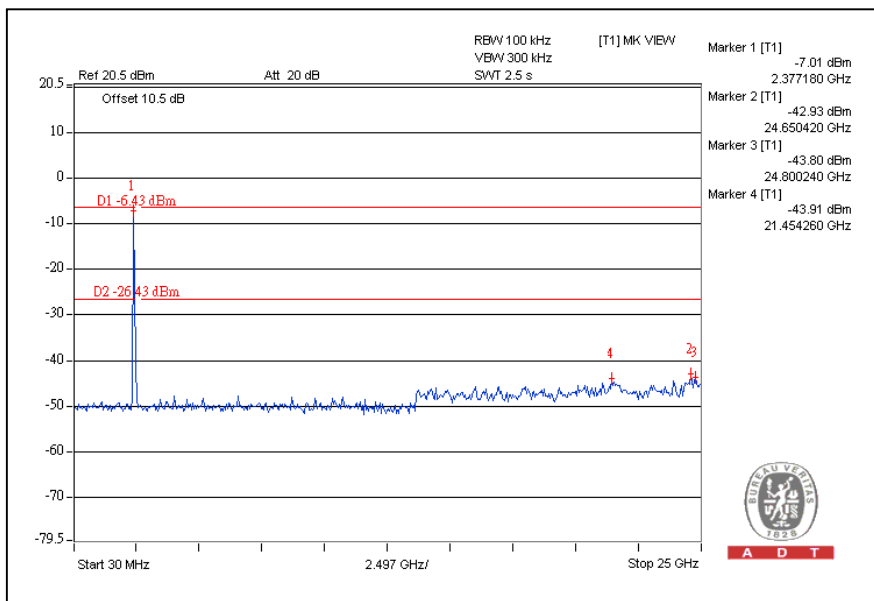
CH11



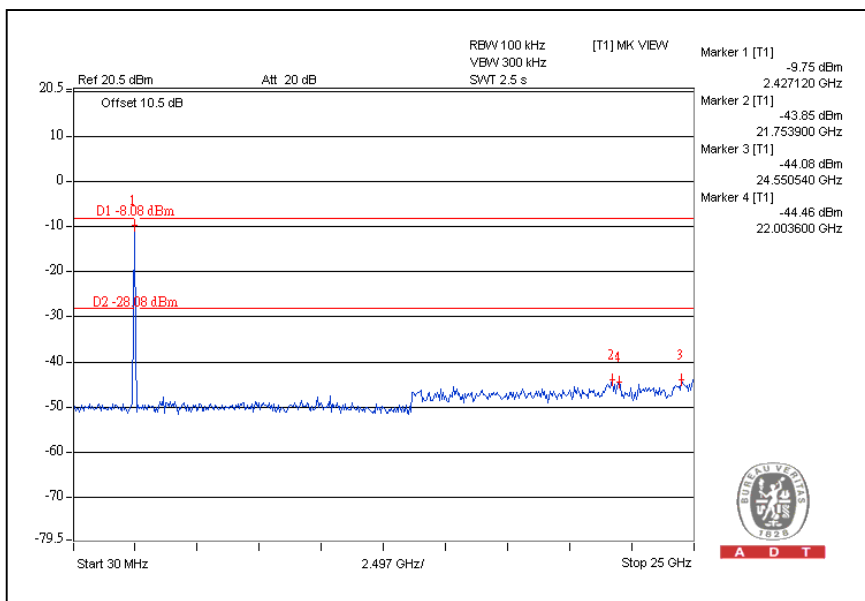


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### CH1

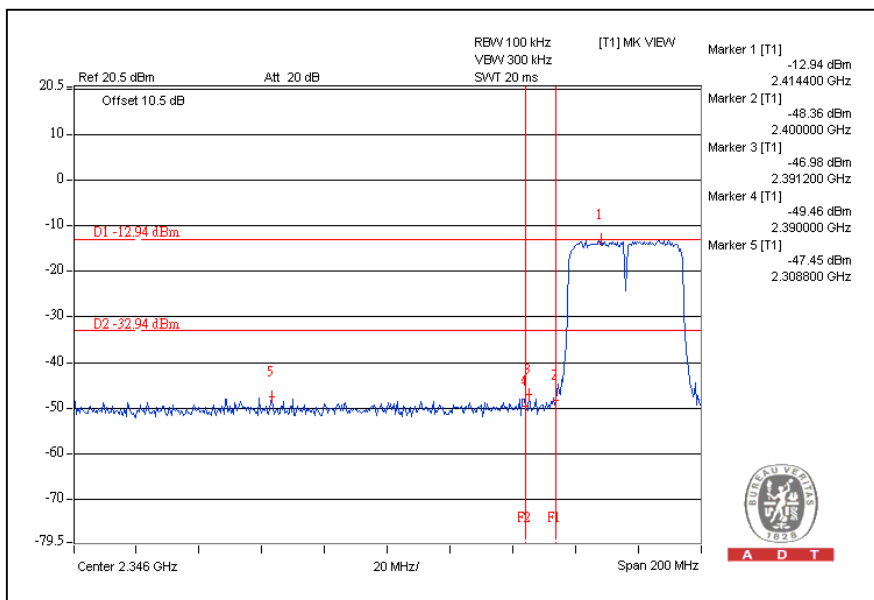


### CH11

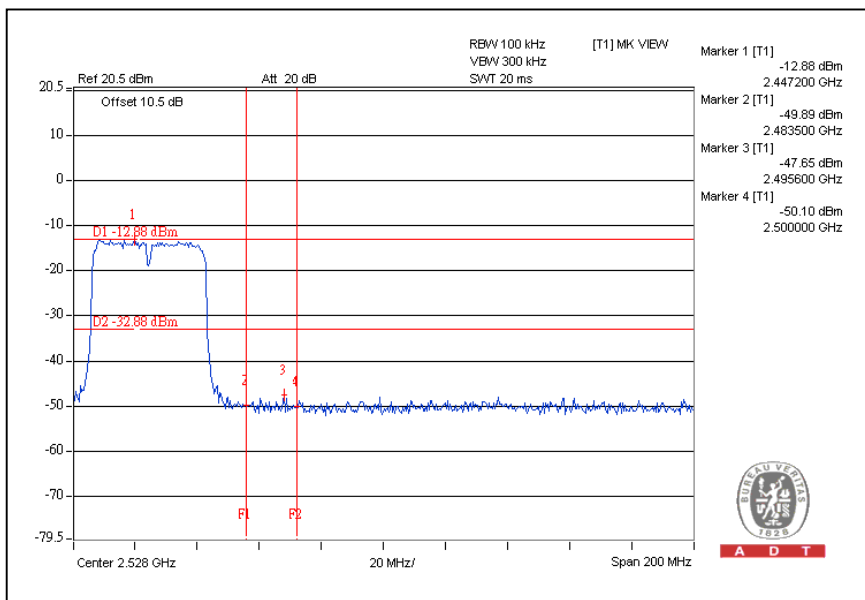


## 802.11n (40MHz) OFDM MODULATION:

### CH1



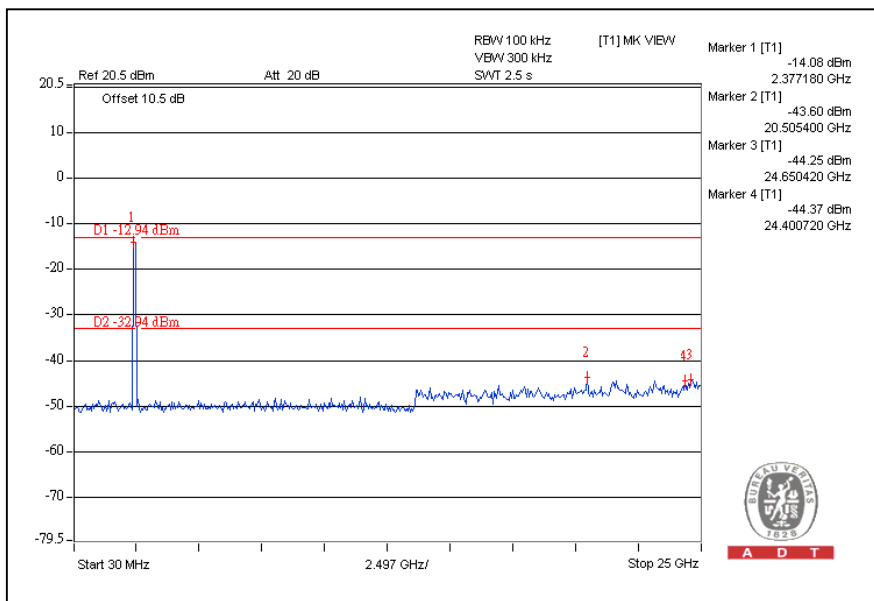
### CH7



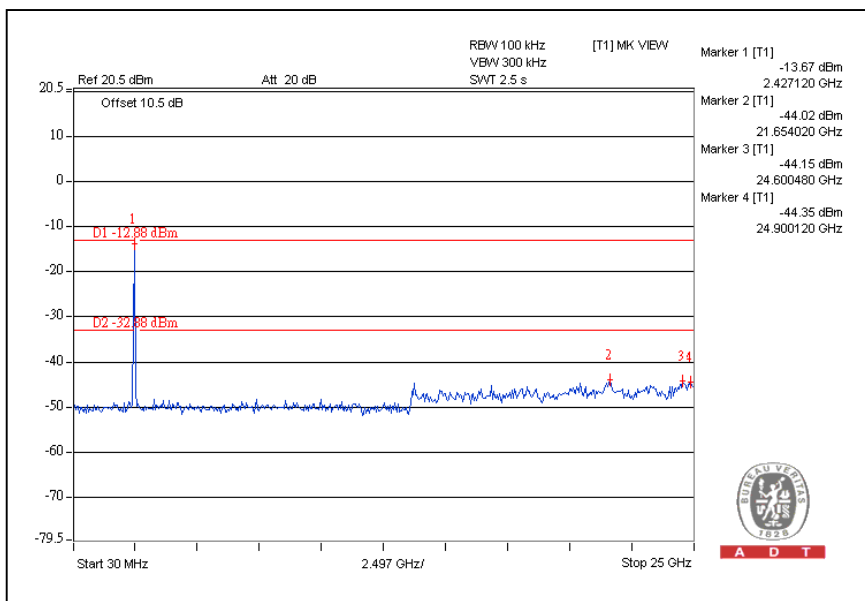


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### CH1



### 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](http://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

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Tel: 886-3-5935343

Fax: 886-3-5935342

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Fax: 886-3-3185050

**Email:** [service@adt.com.tw](mailto:service@adt.com.tw)

**Web Site:** [www.adt.com.tw](http://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.

**--- END ---**