

FCC TEST REPORT (15.247)

REPORT NO.: RF991230E02 R1

MODEL NO.: RT3572

FCC ID: N89-RT3572

RECEIVED: Dec. 30, 2010

TESTED: Jan. 06 to 10, 2011

ISSUED: Mar. 22, 2011

APPLICANT: CyberTAN Technology, Inc.

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

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	NA	Mar. 18, 2011
RF991230E02 R1	Modified the product name and model name of EUT	Mar. 22, 2011

1. CERTIFICATION

PRODUCT: WLAN Dual Band 802.11 a/b/g/n module
BRAND NAME: CyberTAN
MODEL NO.: RT3572
TEST SAMPLE: ENGINEERING SAMPLE
TESTED: Jan. 06 to 10, 2011
APPLICANT: CyberTAN Technology, Inc.
STANDARDS: FCC Part 15, Subpart C (Section 15.247)
ANSI C63.4-2003
ANSI C63.10-2009

The above equipment (Model: RT3572) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Carol Liao , **DATE:** Mar. 22, 2011
(Carol Liao, Specialist)

APPROVED BY : May Chen , **DATE:** Mar. 22, 2011
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

For 2.4GHz, 2412~2462MHz Band

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 -18.55dB at 4.047MHz
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 -3.0dB at 2385.10MHz
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.

For 5GHz, 5725~5850MHz Band

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 -18.55dB at 4.047MHz
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 -3.1dB at 11490.0MHz
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.

NOTE:

1. The EUT was operating in 2400 ~ 2483.5MHz, 5.15~5.25GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 2400 ~ 2483.5MHz and 5.725~5.850GHz. For the 5.15~5.25GHz RF parameters was recorded in another test report.

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Measurement	Value
Conducted emissions	2.45 dB
Radiated emissions (30MHz-1GHz) – Chamber G	3.30 dB
Radiated emissions (1GHz -18GHz) – Site C	2.49 dB
Radiated emissions (18GHz -40GHz) – Site C	2.70 dB



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MAXIMUM OUTPUT POWER	For 15.407 802.11a: 29.5mW 802.11n (20MHz): 27.7mW 802.11n (40MHz): 38.1mW For 15.247(2.4GHz) 802.11b: 151.4mW 802.11g: 229.1mW 802.11n (20MHz): 368.2mW 802.11n (40MHz): 209.5mW For 15.247(5GHz) 802.11a: 169.8mW 802.11n (20MHz): 302.8mW 802.11n (40MHz): 279.3mW
ANTENNA TYPE	Please see note
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

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

Set 1									
Transmitter Circuit	Antenna Type	Antenna Connector	Antenna Gain (dBi)		Cable Loss (dB)		Net Gain (dBi)		Frequency range
			2.4GHz	5GHz	2.4GHz	5GHz	2.4GHz	5GHz	
Chain(0)	Dipole	I-PEX	6.27	5.63	0.27	0.42	6	5.21	2.4GHz & 5GHz
Chain(1)	Dipole	I-PEX	6.27	5.63	0.27	0.42	6	5.21	
Set 2									
Transmitter Circuit	Antenna Type	Antenna Connector	Antenna Gain (dBi)		Cable Loss (dB)		Net Gain (dBi)		Frequency range
			2.4GHz	5GHz	2.4GHz	5GHz	2.4GHz	5GHz	
Chain(0)	Metal PIFA	I-PEX	5.48	5.55	0.27	0.42	5.21	5.13	2.4GHz & 5GHz
Chain(1)	Metal PIFA	I-PEX	5.48	5.55	0.27	0.42	5.21	5.13	
Set 3									
Transmitter Circuit	Antenna Type	Antenna Connector	Antenna Gain (dBi)		Cable Loss (dB)		Net Gain (dBi)		Frequency range
			2.4GHz	5GHz	2.4GHz	5GHz	2.4GHz	5GHz	
Chain(0)	Dipole	I-PEX	6.27	5.63	0.27	0.42	6	5.21	2.4GHz & 5GHz
Chain(1)	Metal PIFA	I-PEX	5.48	5.55	0.27	0.42	5.21	5.13	

From the above antennas, the worst cases were found in set 1 & set 2. Therefore only the test data of the mode was recorded in this report individually.

2. The EUT incorporates a MIMO function with 802.11n.
3. The EUT is 2 * 2 spatial MIMO (2Tx & 2Rx) without beam forming function. The 11a, 11b & 11g legacy mode is limited to single transmitter only.
4. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 DESCRIPTION OF TEST MODES

Operated in 2400 ~ 2483.5MHz band:

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		

Operated in 5725 ~ 5850MHz band:

Five channels are provided for 802.11a, 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745 MHz	161	5805 MHz
153	5765 MHz	165	5825 MHz
157	5785 MHz		

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

CHANNEL	FREQUENCY
151	5755 MHz
159	5795 MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE < 1G	RE ≥ 1G	APCM	
1	√	√	√	√	With antenna set 1
2		√	√		With antenna set 2

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	TX CHAIN (0)	TX CHAIN (1)
A	802.11 b	√	
B	802.11 b		√
C	802.11 g	√	
D	802.11 g		√
E	802.11 a	√	
F	802.11 a		√
G	802.11n (20MHz) for MCS0~15	√	√
H	802.11n (40MHz) for MCS0~15	√	√

Note:

- The above information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

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
Worst Channel	-	-	-	-	-	-

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
For 2.4 GHz 802.11n (20MHz)	1 to 11	1	OFDM	BPSK	6.5	G
For 5 GHz 802.11n (20MHz)	149 to 165	165	OFDM	BPSK	6.5	G

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	C
For 2.4 GHz 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	G
For 2.4 GHz 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5	H
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6	E
For 5 GHz 802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	6.5	G
For 5 GHz 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	13.5	H

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	C
For 2.4 GHz 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	6.5	G
For 2.4 GHz 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	13.5	H
802.11a	149 to 165	149, 165	OFDM	BPSK	6	E
For 5 GHz 802.11n (20MHz)	149 to 165	149, 165	OFDM	BPSK	6.5	G
For 5 GHz 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	13.5	H

※ Conducted out band emission as show worst chain in report base on preliminary measurement.

ANTENNA PORT CONDUCTED MEASUREMENT:

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	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	C
For 2.4 GHz 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	G
For 2.4 GHz 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5	H
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6	E
For 5 GHz 802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	6.5	G
For 5 GHz 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	13.5	H

※ Bandwidth as show worst chain in report base on preliminary measurement.



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TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (system)	TESTED BY
RE ³ 1G	15deg. C, 64%RH, 1013 hPa	120Vac, 60Hz	Frank Liu
RE<1G	14deg. C, 66%RH, 1013 hPa	120Vac, 60Hz	Eric Lee
PLC	20deg. C, 60%RH, 1013 hPa	120Vac, 60Hz	Eric Lee
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

ANSI C63.10-2009

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

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

3.4 DESCRIPTION OF SUPPORT UNITS

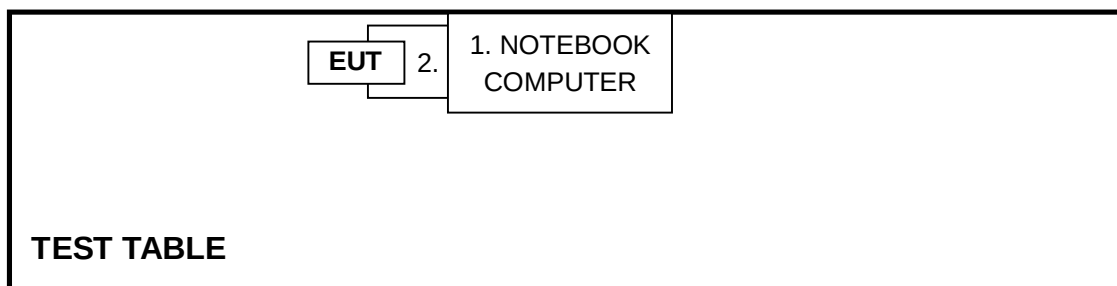
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID
1	NOTEBOOK COMPUTER (conducted test)	DELL	PP32LA	DSLB32S	FCC DoC
	NOTEBOOK COMPUTER (others test)	DELL	PP17L	CN-ONF743-48643-7AV-0124	FCC DoC
2	TEST TOOL	CyberTAN	NA	NA	NA

No.	Signal cable description
1	NA
2	NA

Note: The power cords of the above support units were unshielded (1.8m).

3.5 CONFIGURATION OF SYSTEM UNDER TEST



4. TEST TYPES AND RESULTS (802.11b & g, 2400 ~ 2483.5MHz Band)

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
0.15-0.5 0.5-5 5-30	Quasi-peak	Average
	66 to 56	56 to 46
	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
Test Receiver	ESCS 30	100375	Mar. 09, 2010	Mar. 08, 2011
Line-Impedance Stabilization Network (for EUT)	NSLK 8127	8127-522	Sep. 08, 2010	Sep. 07, 2011
Line-Impedance Stabilization Network (for Peripheral)	ESH3-Z5	848773/004	Nov. 03, 2010	Nov. 02, 2011
RF Cable (JYEBAO)	5DFB	COCCAB-002	Aug. 30, 2010	Aug. 29, 2011
50 ohms Terminator	50	3	Nov. 03, 2010	Nov. 02, 2011
Software	BV ADT_Cond_V7.3.7	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. C.
3. The VCCI Con C Registration No. is C-3611.

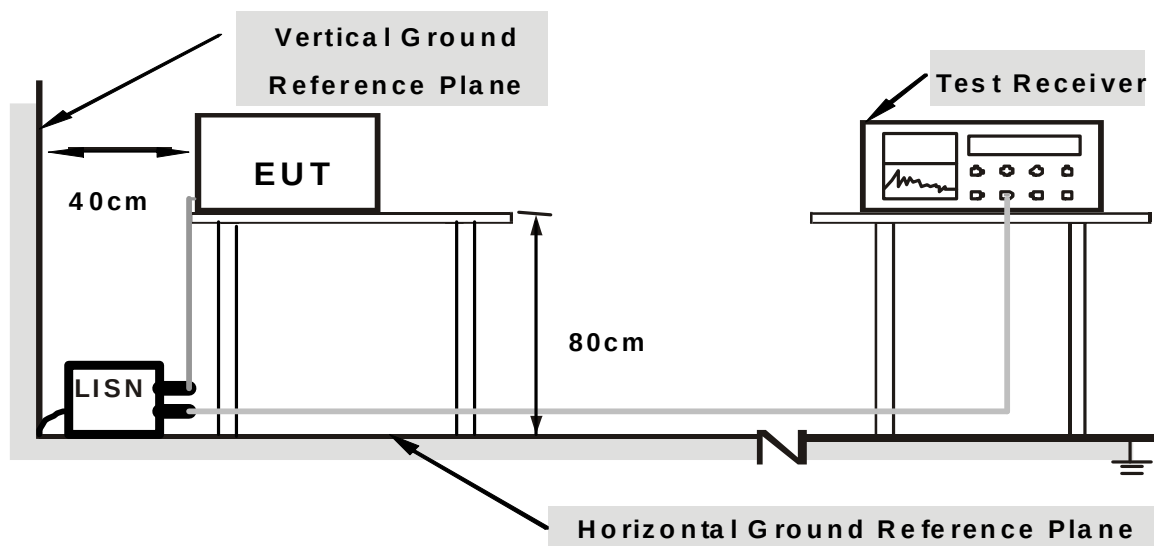
4.1.3 TEST PROCEDURES

- 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.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- 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

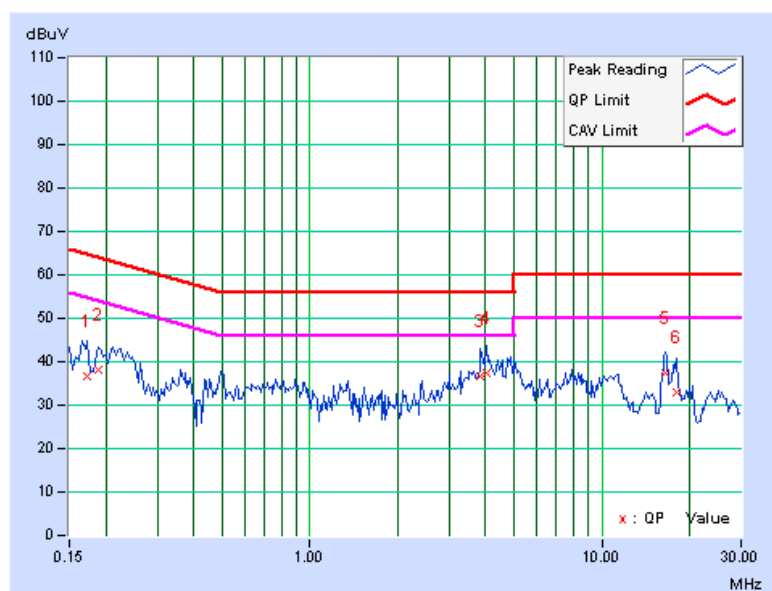
1. Connect the EUT with the support unit 1 (Notebook Computer) which is placed in test table.
2. The support unit 1 (Notebook Computer) runs test program "RT3x7xQA.exe" to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.1.7 TEST RESULTS

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
-------	----------	---------------	-------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.12	36.73	-	36.85	-	64.79	54.79	-27.95	-
2	0.189	0.12	37.91	-	38.03	-	64.08	54.08	-26.04	-
3	3.852	0.20	36.32	-	36.52	-	56.00	46.00	-19.48	-
4	4.047	0.20	37.25	-	37.45	-	56.00	46.00	-18.55	-
5	16.531	0.59	36.73	-	37.32	-	60.00	50.00	-22.68	-
6	17.973	0.62	32.31	-	32.93	-	60.00	50.00	-27.07	-

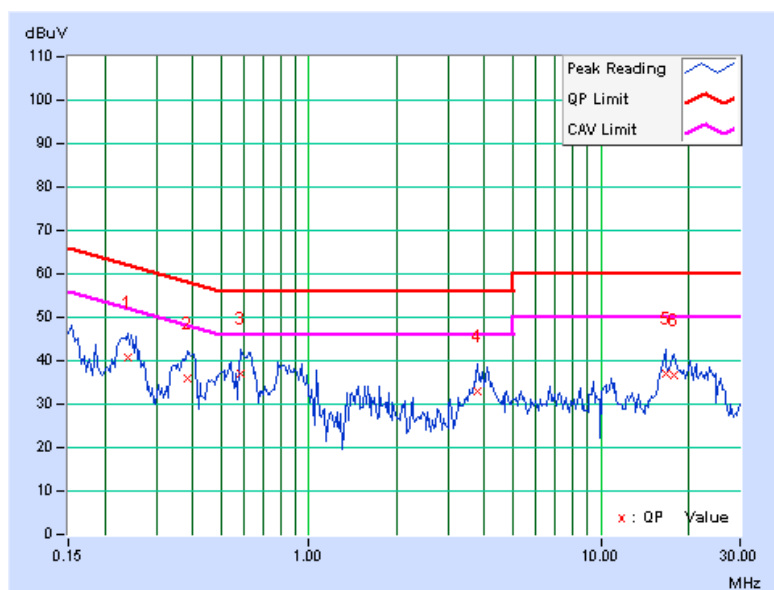
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
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	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.240	0.14	40.54	-	40.68	-	62.10	52.10	-21.42	-
2	0.384	0.15	35.73	-	35.88	-	58.18	48.18	-22.31	-
3	0.588	0.15	36.88	-	37.03	-	56.00	46.00	-18.97	-
4	3.766	0.27	32.62	-	32.89	-	56.00	46.00	-23.11	-
5	16.641	1.22	35.74	-	36.96	-	60.00	50.00	-23.04	-
6	17.742	1.28	35.42	-	36.70	-	60.00	50.00	-23.30	-

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



4.2 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.

4.2.2 TEST INSTRUMENTS

Below 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250254	July 14, 2010	July 13, 2011
Agilent Pre-Selector	N9039A	MY46520311	July 14, 2010	July 13, 2011
Agilent Signal Generator	N5181A	MY49060517	July 14, 2010	July 13, 2011
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-03	Nov. 16, 2010	Nov. 15, 2011
Agilent Pre-Amplifier	8449B	3008A02578	July 05, 2010	July 04, 2011
Miteq Pre-Amplifier	AFS33-1800265 0-30-8P-44	881786	NA	NA
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-360	Apr. 29, 2010	Apr. 28, 2011
AISI Horn Antenna	AIH.8018	0000320091110	Nov. 12, 2010	Nov. 11, 2011
SCHWARZBECK Horn Antenna	BBHA 9170	9170-424	Oct. 08, 2010	Oct. 07, 2011
RF CABLE	NA	RF104-201 RF104-203 RF104-204	Dec. 27, 2010	Dec. 26, 2011
RF Cable	NA	CHGCAB_001	NA	NA
Software	ADT_Radiated_ V8.7.05	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 3. The test was performed in 966 Chamber No. G.
 4. The FCC Site Registration No. is 966073.
 5. The VCCI Site Registration No. is G-137.
 6. The CANADA Site Registration No. is IC 7450H-2.

**A D T****Above 1GHz test:**

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 08, 2010	Dec. 07, 2011
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	May 12 , 2010	May 11 , 2011
HP Pre_Amplifier	8449B	300801923	Nov. 01, 2010	Oct. 31, 2011
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 03, 2010	Sep. 02, 2011
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 28, 2010	Apr. 27, 2011
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 17, 2010	Dec. 16, 2011
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2010	Jan. 21, 2011
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 a 3 meter chamber room for below 1GHz and 10 meter open area test site for above 1GHz. 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:

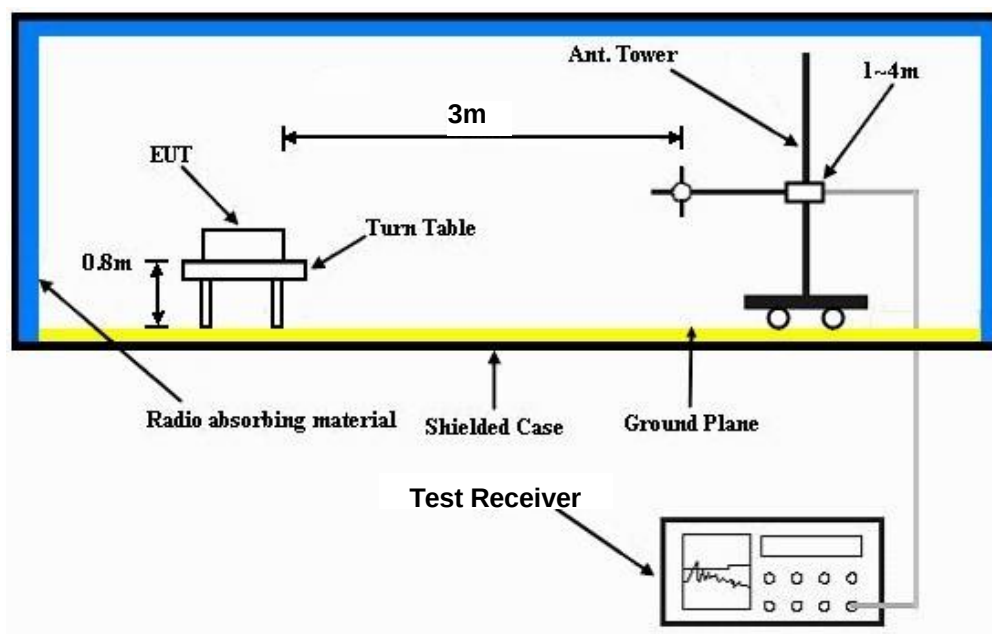
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

4.2.4 DEVIATION FROM TEST STANDARD

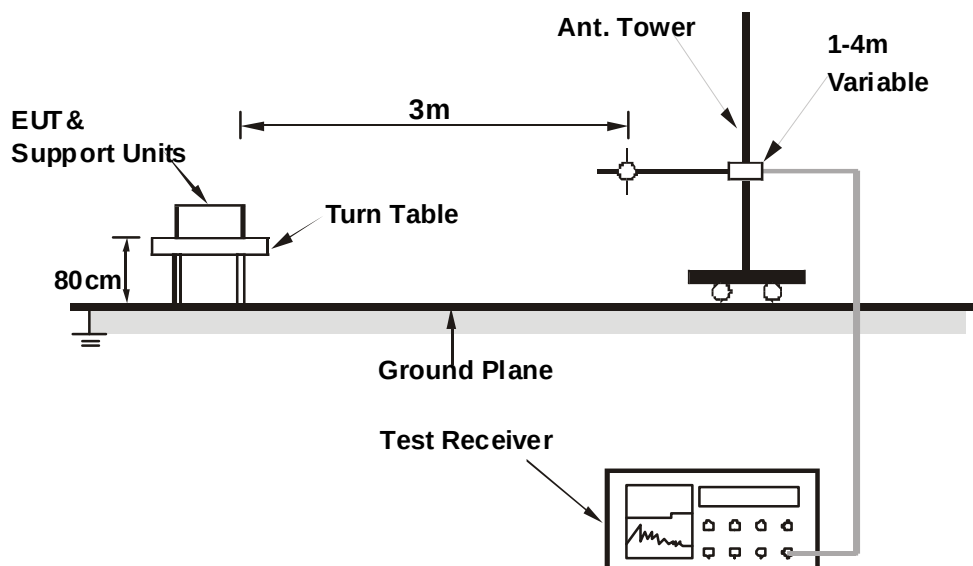
No deviation

4.2.5 TEST SETUP

Below 1GHz test:



Above 1GHz test:



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

4.2.7 TEST RESULTS (DIPOLE ANTENNA)

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	14deg. C, 66%RH 1013 hPa	TESTED BY	Eric Lee
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	279.12	37.2 QP	46.0	-8.8	1.25 H	10	22.62	14.61
2	285.68	38.0 QP	46.0	-8.0	1.00 H	323	23.10	14.87
3	300.00	40.2 QP	46.0	-5.8	1.00 H	42	24.78	15.46
4	309.27	39.5 QP	46.0	-6.5	1.00 H	25	23.85	15.66
5	320.20	39.6 QP	46.0	-6.4	2.00 H	23	23.74	15.90
6	326.80	36.7 QP	46.0	-9.3	1.50 H	109	20.65	16.05
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	145.66	29.0 QP	43.5	-14.5	1.00 V	163	14.96	14.00
2	299.96	35.8 QP	46.0	-10.2	1.50 V	340	20.31	15.46
3	311.12	34.1 QP	46.0	-11.9	1.50 V	360	18.40	15.70
4	320.34	35.3 QP	46.0	-10.7	1.50 V	360	19.43	15.91
5	698.43	32.5 QP	46.0	-13.5	1.00 V	160	8.89	23.65
6	898.92	33.5 QP	46.0	-12.5	1.25 V	171	6.76	26.78

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

ABOVE 1GHz WORST-CASE DATA

802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	15deg. C, 64%RH 1013 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	2386.80	58.4 PK	74.0	-15.6	1.61 H	275	26.62	31.78
2	2386.80	49.0 AV	54.0	-5.0	1.61 H	275	17.22	31.78
3	*2412.00	105.9 PK			1.50 H	267	74.04	31.86
4	*2412.00	103.1 AV			1.50 H	267	71.24	31.86
5	4824.00	49.3 PK	74.0	-24.7	1.57 H	109	8.34	40.96
6	4824.00	43.8 AV	54.0	-10.2	1.57 H	109	2.84	40.96
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.8 PK	74.0	-16.2	1.00 V	344	26.01	31.79
2	2390.00	46.5 AV	54.0	-7.5	1.00 V	344	14.71	31.79
3	*2412.00	101.4 PK			1.09 V	30	69.54	31.86
4	*2412.00	98.1 AV			1.09 V	30	66.24	31.86
5	4824.00	47.4 PK	74.0	-26.6	1.41 V	87	6.44	40.96
6	4824.00	42.9 AV	54.0	-11.1	1.41 V	87	1.94	40.96

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



A D T

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	15deg. C, 64%RH 1013 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	107.4 PK			1.51 H	269	75.47	31.93
2	*2437.00	105.2 AV			1.51 H	269	73.27	31.93
3	4874.00	50.4 PK	74.0	-23.6	1.56 H	107	9.35	41.05
4	4874.00	44.6 AV	54.0	-9.4	1.56 H	107	3.55	41.05
5	7311.00	48.1 PK	74.0	-25.9	1.27 H	146	2.62	45.48
6	7311.00	39.2 AV	54.0	-14.8	1.27 H	146	-6.28	45.48
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	103.7 PK			1.04 V	73	71.77	31.93
2	*2437.00	100.3 AV			1.04 V	73	68.37	31.93
3	4874.00	48.4 PK	74.0	-25.6	1.45 V	86	7.35	41.05
4	4874.00	44.3 AV	54.0	-9.7	1.45 V	86	3.25	41.05
5	7311.00	48.2 PK	74.0	-25.8	1.27 V	124	2.72	45.48
6	7311.00	39.4 AV	54.0	-14.6	1.27 V	124	-6.08	45.48

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.



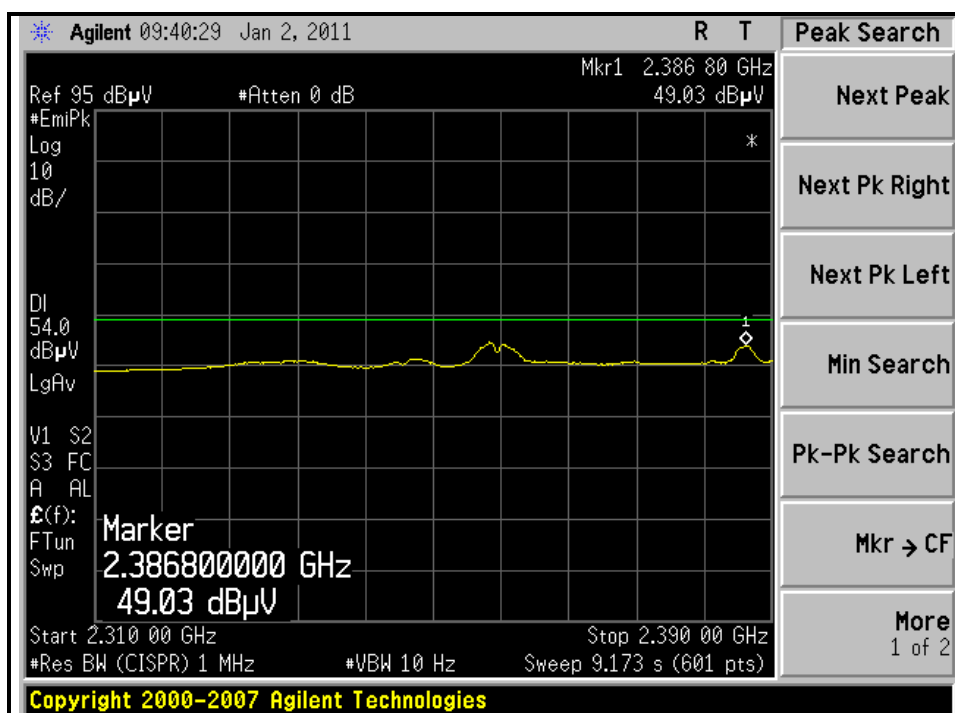
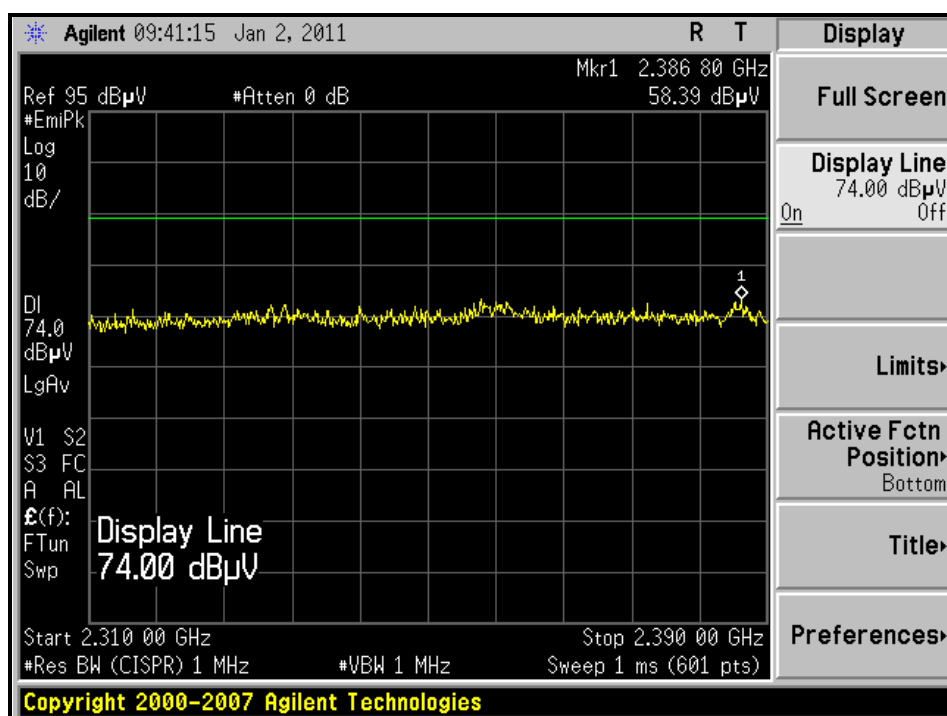
A D T

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	15deg. C, 64%RH 1013 hPa	TESTED BY	Frank Liu
TEST MODE	Dipole Antenna		

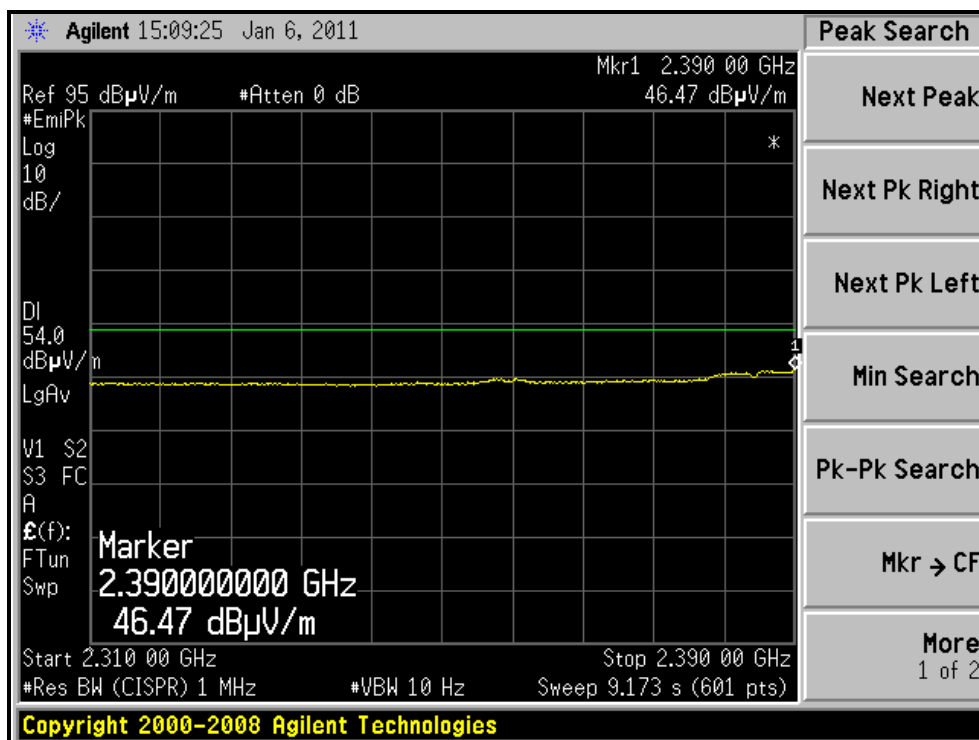
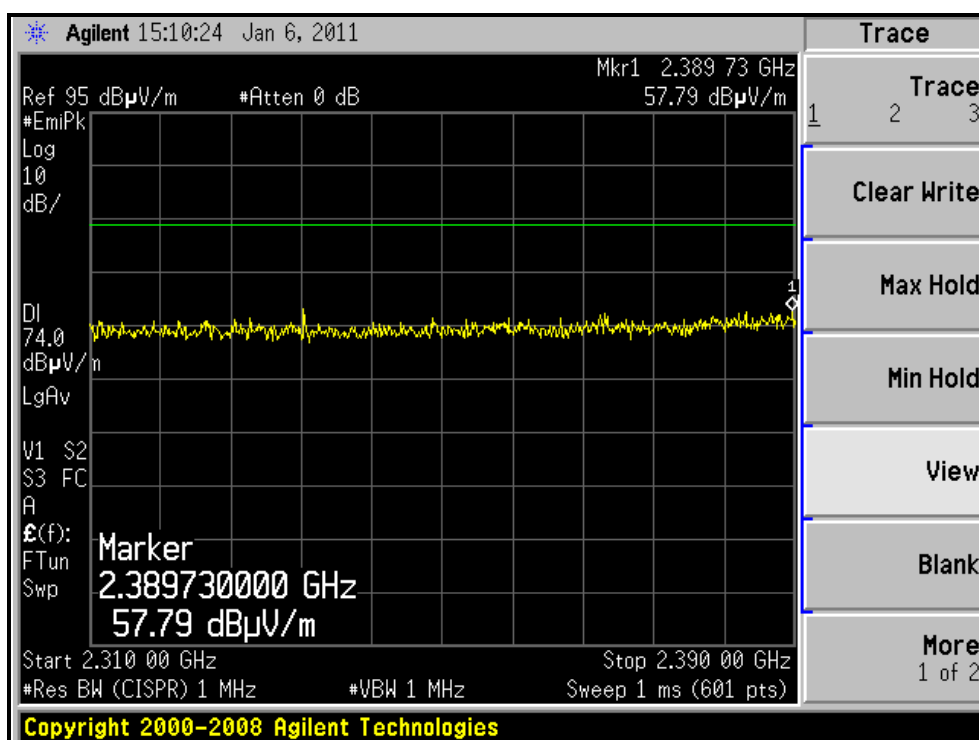
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.2 PK			1.50 H	275	77.19	32.01
2	*2462.00	106.9 AV			1.50 H	275	74.89	32.01
3	2484.10	58.5 PK	74.0	-15.5	1.50 H	275	26.42	32.08
4	2484.10	48.9 AV	54.0	-5.1	1.50 H	275	16.82	32.08
5	4924.00	49.9 PK	74.0	-24.1	1.44 H	104	8.75	41.15
6	4924.00	45.6 AV	54.0	-8.4	1.44 H	104	4.45	41.15
7	7386.00	48.3 PK	74.0	-25.7	1.24 H	157	2.64	45.66
8	7386.00	39.1 AV	54.0	-14.9	1.24 H	157	-6.56	45.66
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	103.4 PK			1.00 V	313	71.39	32.01
2	*2462.00	100.7 AV			1.00 V	313	68.69	32.01
3	2484.10	56.7 PK	74.0	-17.3	1.00 V	351	24.62	32.08
4	2484.10	44.1 AV	54.0	-9.9	1.00 V	351	12.02	32.08
5	4924.00	48.2 PK	74.0	-25.8	1.47 V	119	7.05	41.15
6	4924.00	44.1 AV	54.0	-9.9	1.47 V	119	2.95	41.15
7	7386.00	48.4 PK	74.0	-25.6	1.26 V	129	2.74	45.66
8	7386.00	39.7 AV	54.0	-14.3	1.26 V	129	-5.96	45.66

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

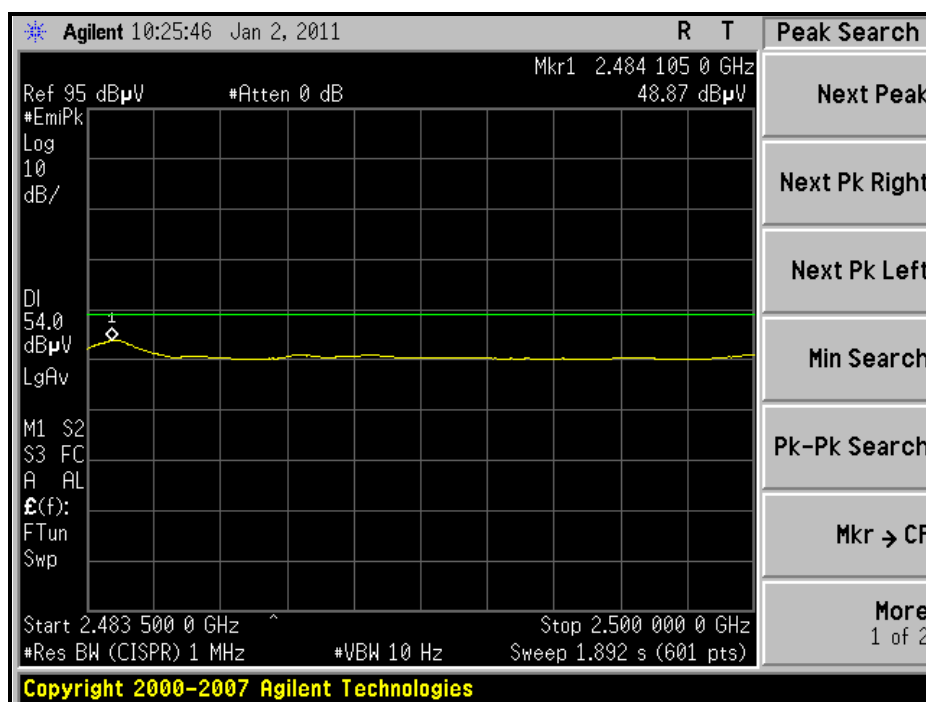
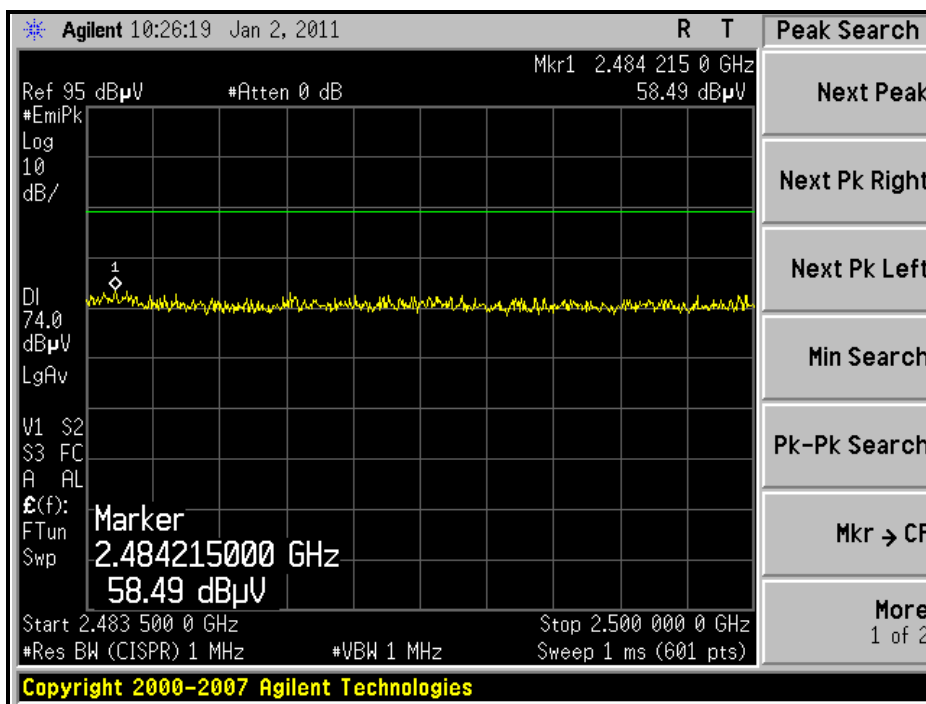
RESTRICTED BANDEDGE (802.11b MODE,CH1, HORIZONTAL)



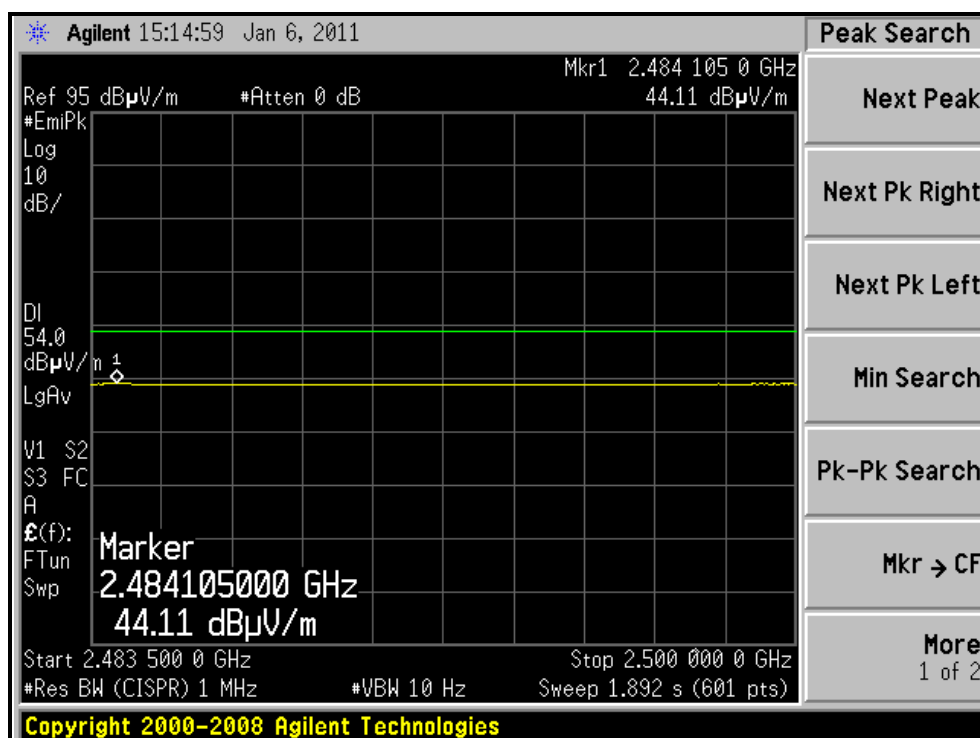
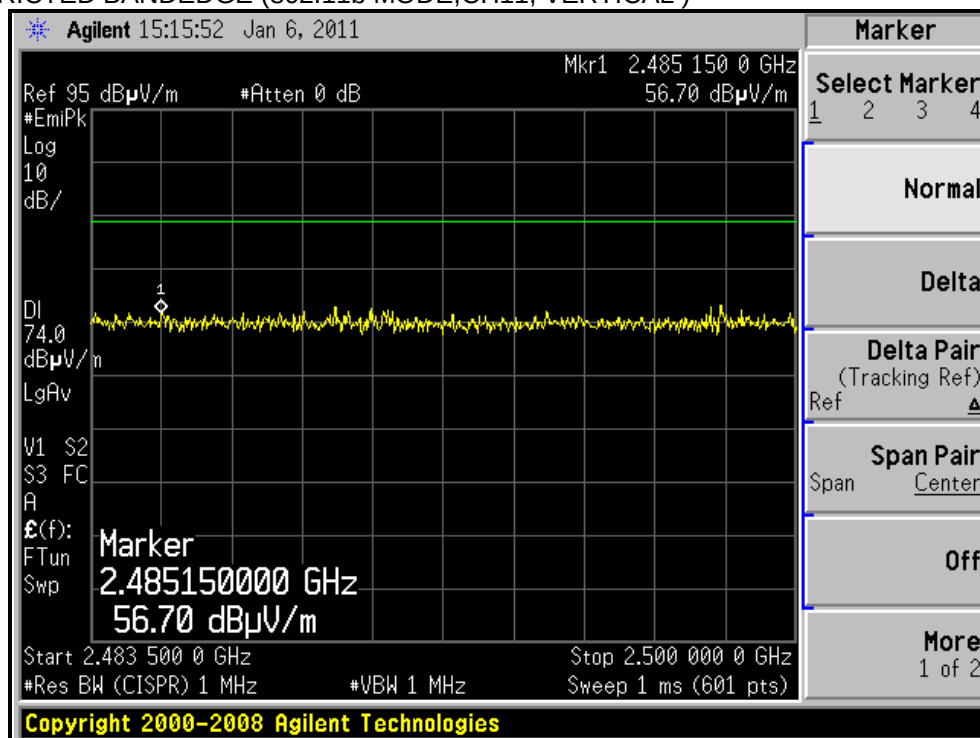
RESTRICTED BANDEDGE (802.11b MODE,CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL)



RESTRICTED BANDEDGE (802.11b MODE, CH11, VERTICAL)



802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	15deg. C, 64%RH 1013 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	2359.73	63.7 PK	74.0	-10.3	1.60 H	269	32.01	31.69
2	2359.73	50.4 AV	54.0	-3.6	1.60 H	269	18.71	31.69
3	*2412.00	109.1 PK			1.51 H	267	77.24	31.86
4	*2412.00	99.5 AV			1.51 H	267	67.64	31.86
5	4824.00	49.6 PK	74.0	-24.4	1.44 H	280	8.64	40.96
6	4824.00	40.1 AV	54.0	-13.9	1.44 H	280	-0.86	40.96
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.1 PK	74.0	-9.9	1.00 V	327	32.31	31.79
2	2390.00	47.6 AV	54.0	-6.4	1.00 V	327	15.81	31.79
3	*2412.00	105.4 PK			1.00 V	345	73.54	31.86
4	*2412.00	95.9 AV			1.00 V	345	64.04	31.86
5	4824.00	48.0 PK	74.0	-26.0	1.19 V	158	7.04	40.96
6	4824.00	39.6 AV	54.0	-14.4	1.19 V	158	-1.36	40.96

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



A D T

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	15deg. C, 64%RH 1013 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	2384.80	62.7 PK	74.0	-11.3	1.60 H	166	30.93	31.77
2	2384.80	50.8 AV	54.0	-3.2	1.60 H	166	19.03	31.77
3	*2437.00	108.5 PK			1.50 H	267	76.57	31.93
4	*2437.00	98.7 AV			1.50 H	267	66.77	31.93
5	2489.50	62.5 PK	74.0	-11.5	1.49 H	276	30.40	32.10
6	2489.50	49.4 AV	54.0	-4.6	1.49 H	276	17.30	32.10
7	4874.00	50.2 PK	74.0	-23.8	1.34 H	265	9.15	41.05
8	4874.00	40.6 AV	54.0	-13.4	1.34 H	265	-0.45	41.05
9	7311.00	47.8 PK	74.0	-26.2	1.33 H	310	2.32	45.48
10	7311.00	39.3 AV	54.0	-14.7	1.33 H	310	-6.18	45.48
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	104.7 PK			1.00 V	313	72.77	31.93
2	*2437.00	94.8 AV			1.00 V	313	62.87	31.93
3	4874.00	48.1 PK	74.0	-25.9	1.25 V	205	7.05	41.05
4	4874.00	39.2 AV	54.0	-14.8	1.25 V	205	-1.85	41.05
5	7311.00	48.3 PK	74.0	-25.7	1.19 V	134	2.82	45.48
6	7311.00	39.5 AV	54.0	-14.5	1.19 V	134	-5.98	45.48

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	15deg. C, 64%RH 1013 hPa	TESTED BY	Frank Liu
TEST MODE	Dipole Antenna		

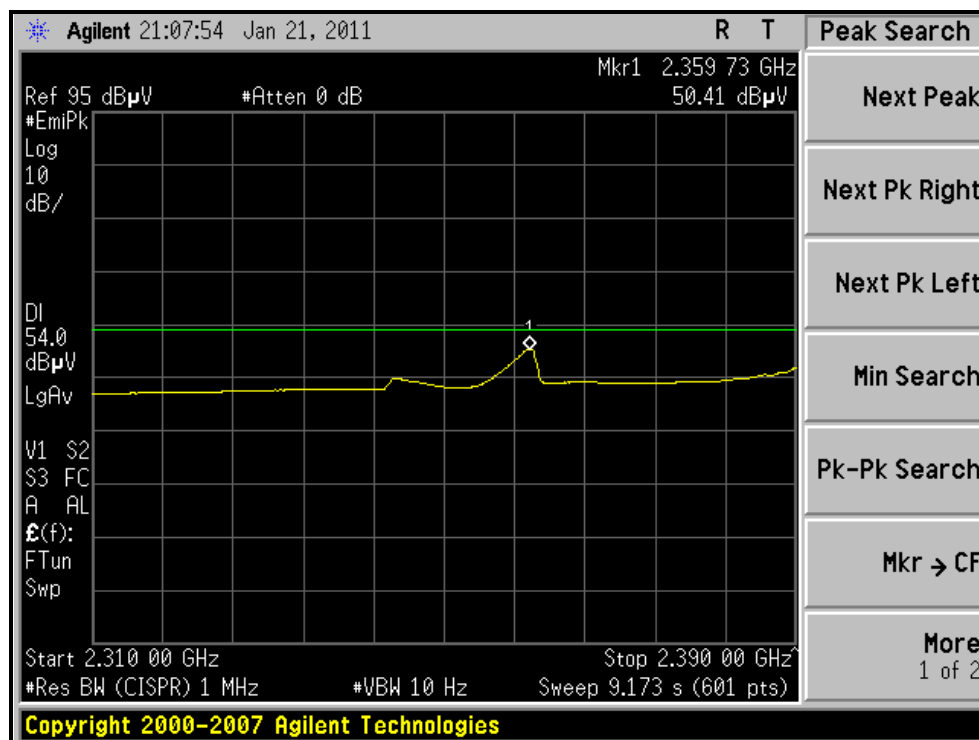
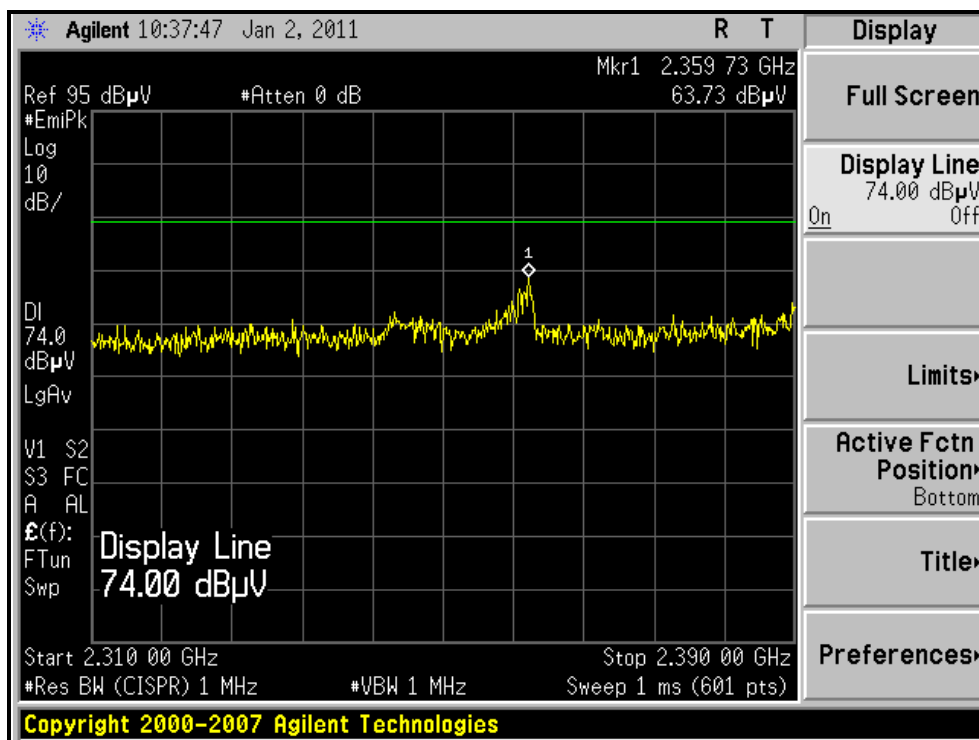
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NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	111.2 PK			1.51 H	275	79.19	32.01
2	*2462.00	100.7 AV			1.51 H	275	68.69	32.01
3	2483.55	70.8 PK	74.0	-3.2	1.50 H	276	38.72	32.08
4	2483.55	50.0 AV	54.0	-4.0	1.50 H	276	17.92	32.08
5	4924.00	49.8 PK	74.0	-24.2	1.32 H	244	8.65	41.15
6	4924.00	40.3 AV	54.0	-13.7	1.32 H	244	-0.85	41.15
7	7386.00	47.6 PK	74.0	-26.4	1.26 H	307	1.94	45.66
8	7386.00	39.1 AV	54.0	-14.9	1.26 H	307	-6.56	45.66
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	107.4 PK			1.00 V	342	75.39	32.01
2	*2462.00	97.2 AV			1.00 V	342	65.19	32.01
3	2483.50	62.6 PK	74.0	-11.4	1.00 V	347	30.52	32.08
4	2483.50	45.7 AV	54.0	-8.3	1.00 V	347	13.62	32.08
5	4924.00	48.3 PK	74.0	-25.7	1.22 V	165	7.15	41.15
6	4924.00	39.8 AV	54.0	-14.2	1.22 V	165	-1.35	41.15
7	7386.00	48.6 PK	74.0	-25.4	1.30 V	130	2.94	45.66
8	7386.00	39.7 AV	54.0	-14.3	1.30 V	130	-5.96	45.66

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.

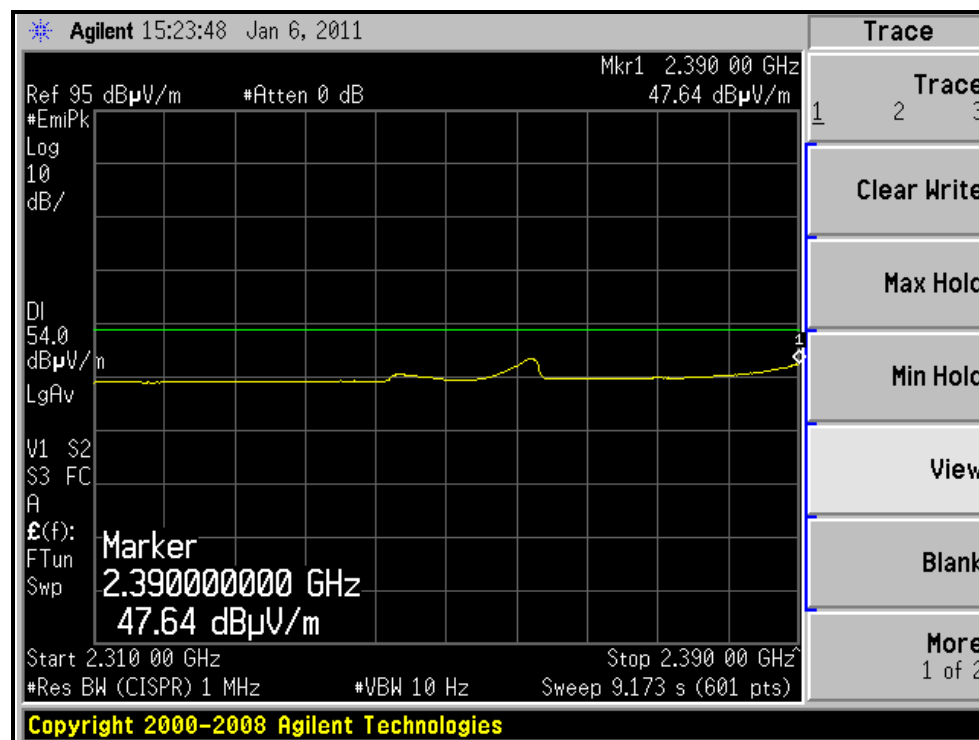
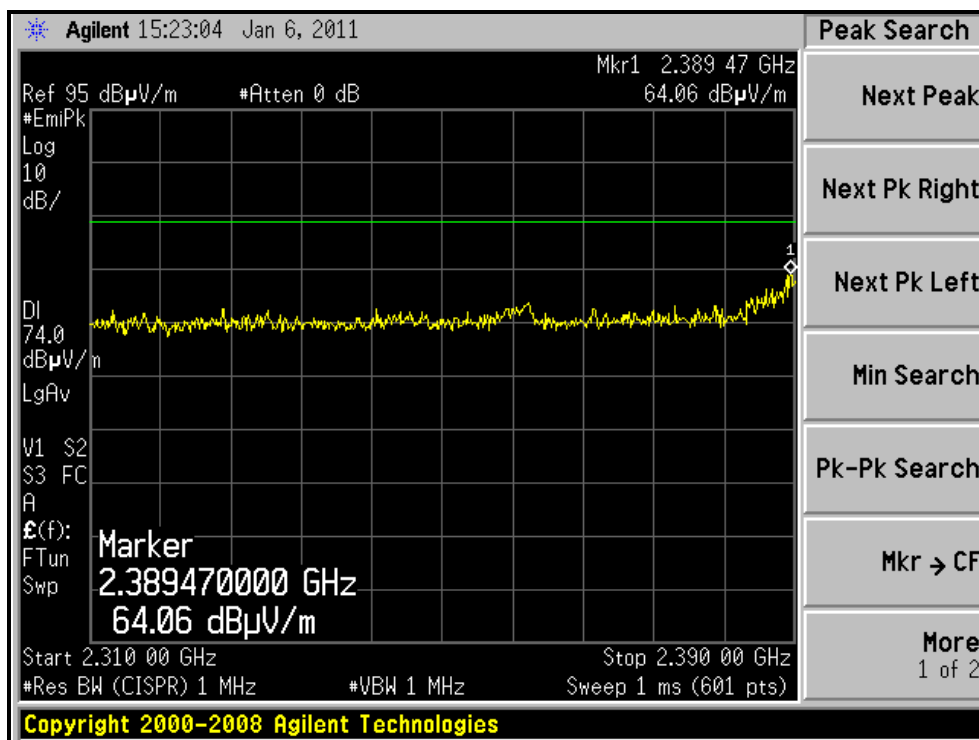


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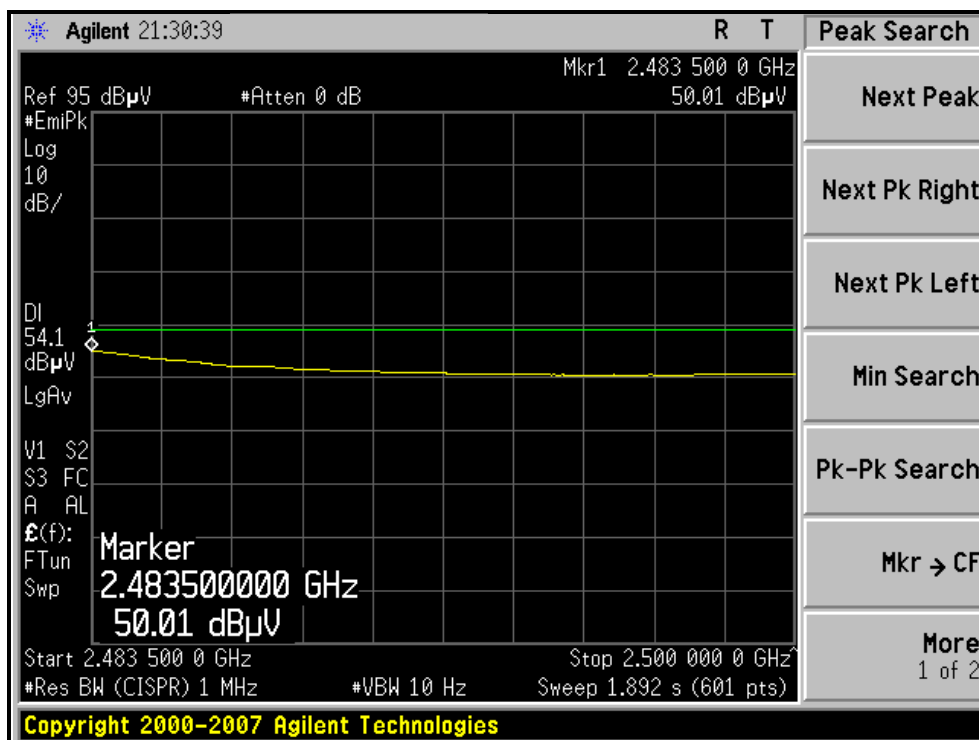
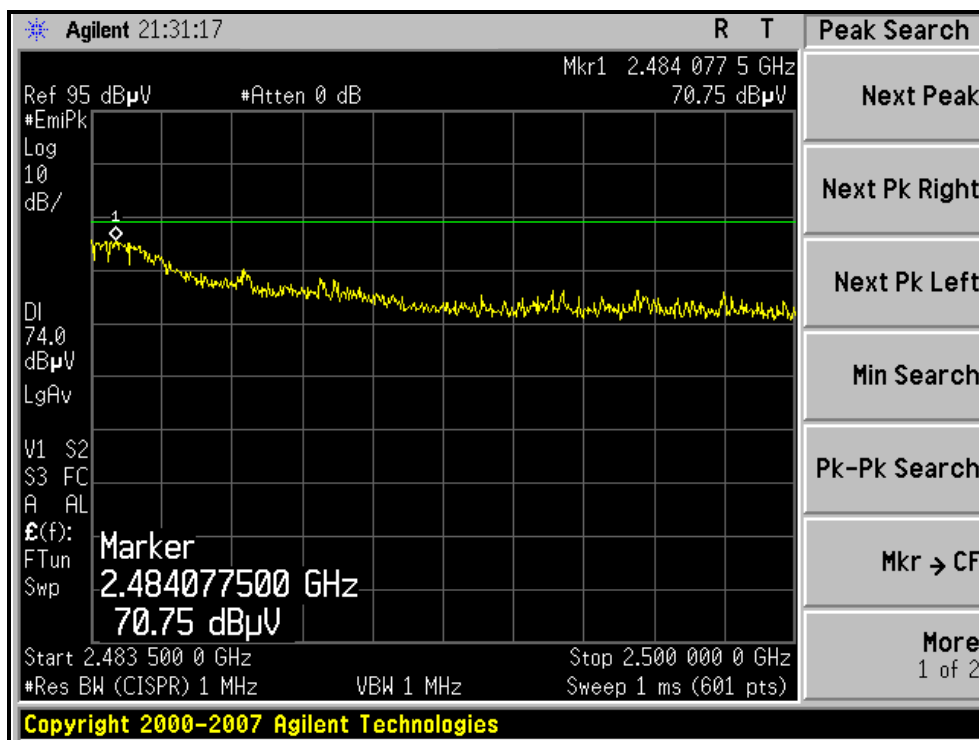
RESTRICTED BANDEDGE (802.11g MODE, CH1, HORIZONTAL)



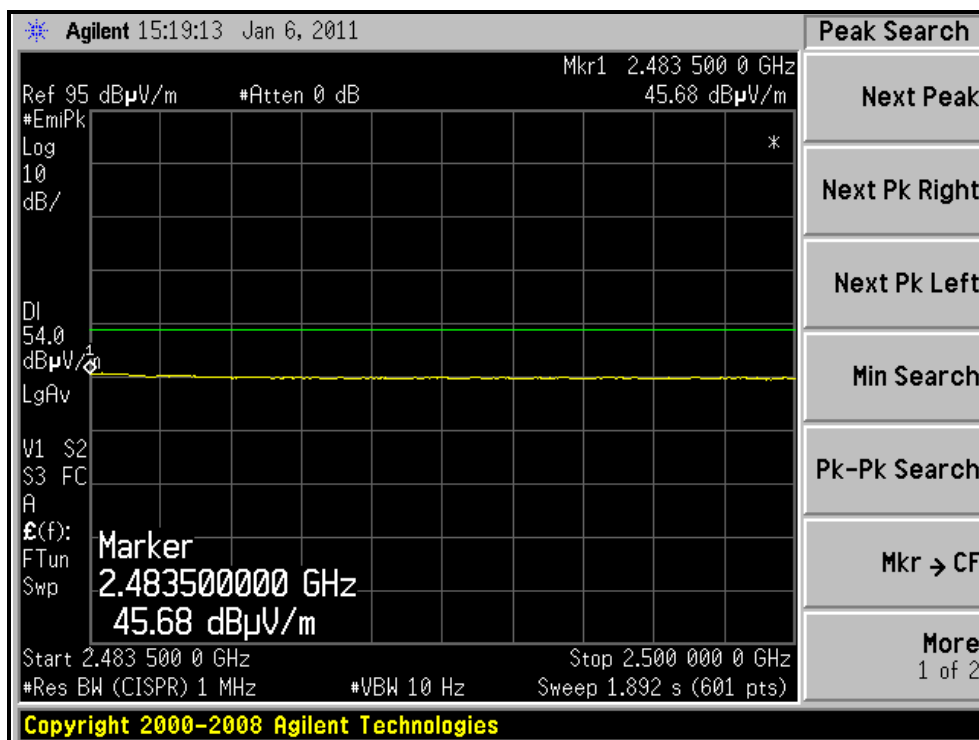
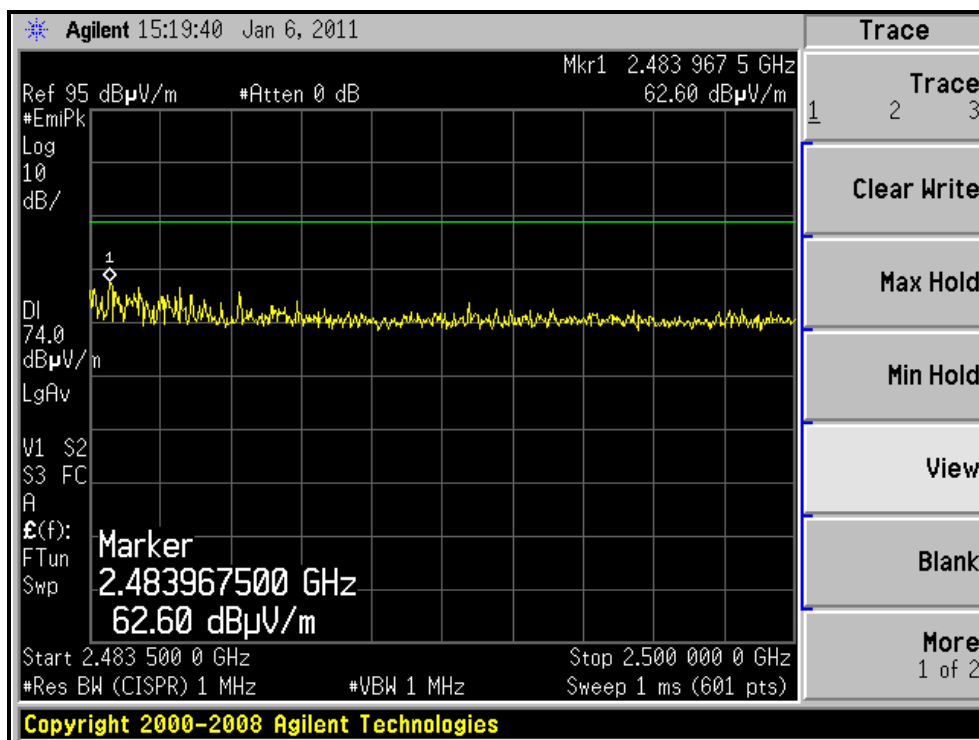
RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11g MODE,CH11, HORIZONTAL)



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	15deg. C, 64%RH 1013 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	2360.27	62.3 PK	74.0	-11.7	1.71 H	287	30.61	31.69
2	2360.27	50.9 AV	54.0	-3.1	1.71 H	287	19.21	31.69
3	2390.00	68.7 PK	74.0	-5.3	1.63 H	263	36.91	31.79
4	2390.00	47.4 AV	54.0	-6.6	1.63 H	263	15.61	31.79
5	*2412.00	111.0 PK			1.62 H	283	79.14	31.86
6	*2412.00	99.4 AV			1.62 H	283	67.54	31.86
7	4824.00	49.6 PK	74.0	-24.4	1.29 H	314	8.64	40.96
8	4824.00	40.1 AV	54.0	-13.9	1.29 H	314	-0.86	40.96
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2360.27	59.4 PK	74.0	-14.6	1.00 V	346	27.71	31.69
2	2360.27	47.5 AV	54.0	-6.5	1.00 V	346	15.81	31.69
3	2390.00	64.0 PK	74.0	-10.0	1.00 V	346	32.21	31.79
4	2390.00	45.0 AV	54.0	-9.0	1.00 V	346	13.21	31.79
5	*2412.00	107.4 PK			1.00 V	342	75.54	31.86
6	*2412.00	96.9 AV			1.00 V	342	65.04	31.86
7	4824.00	48.1 PK	74.0	-25.9	1.19 V	200	7.14	40.96
8	4824.00	39.2 AV	54.0	-14.8	1.19 V	200	-1.76	40.96

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	15deg. C, 64%RH 1013 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	2385.10	63.0 PK	74.0	-11.0	1.61 H	266	31.23	31.77
2	2385.10	51.0 AV	54.0	-3.0	1.61 H	266	19.23	31.77
3	*2437.00	111.0 PK			1.65 H	274	79.07	31.93
4	*2437.00	99.2 AV			1.65 H	274	67.27	31.93
5	4874.00	49.4 PK	74.0	-24.6	1.22 H	298	8.35	41.05
6	4874.00	40.3 AV	54.0	-13.7	1.22 H	298	-0.75	41.05
7	7311.00	47.2 PK	74.0	-26.8	1.39 H	323	1.72	45.48
8	7311.00	39.0 AV	54.0	-15.0	1.39 H	323	-6.48	45.48
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	106.2 PK			1.00 V	341	74.27	31.93
2	*2437.00	96.4 AV			1.00 V	341	64.47	31.93
3	4874.00	48.4 PK	74.0	-25.6	1.20 V	194	7.35	41.05
4	4874.00	39.3 AV	54.0	-14.7	1.20 V	194	-1.75	41.05
5	7311.00	48.9 PK	74.0	-25.1	1.33 V	359	3.42	45.48
6	7311.00	39.4 AV	54.0	-14.6	1.33 V	359	-6.08	45.48

- 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.



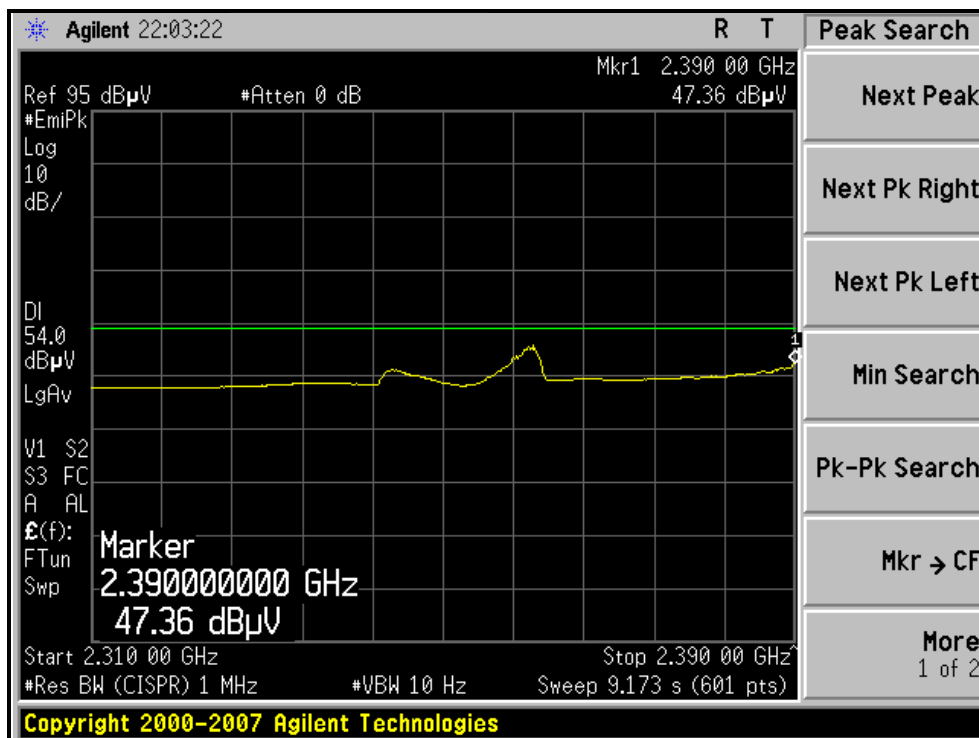
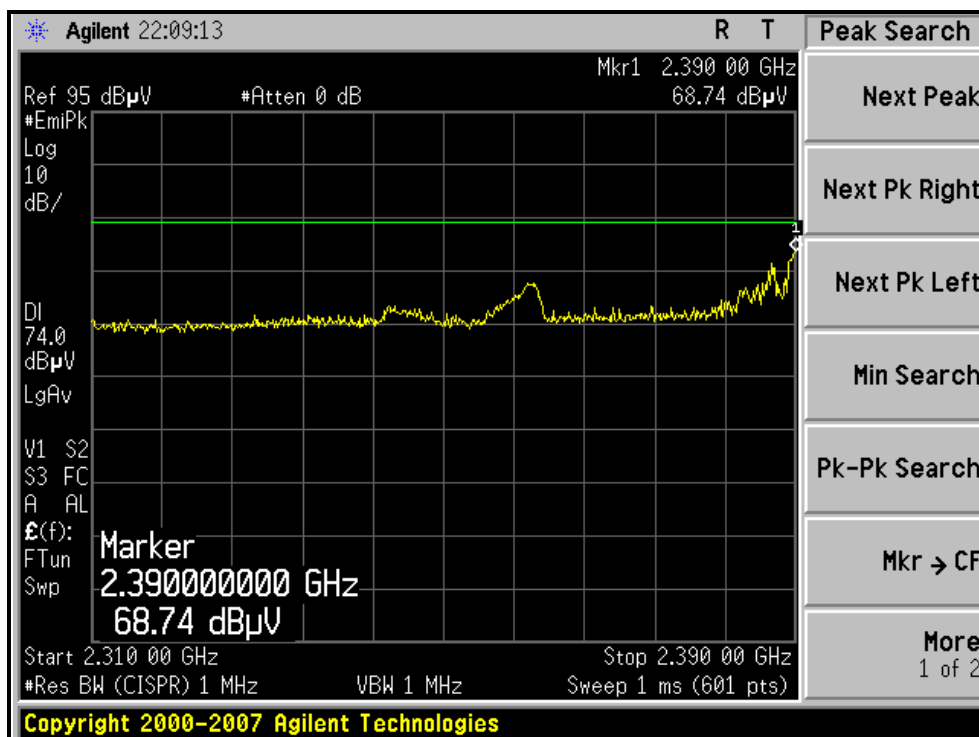
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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	15deg. C, 64%RH 1013 hPa	TESTED BY	Frank Liu
TEST MODE	Dipole Antenna		

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	111.9 PK			1.00 H	276	79.89	32.01
2	*2462.00	100.1 AV			1.00 H	276	68.09	32.01
3	2483.50	70.9 PK	74.0	-3.1	1.53 H	285	38.82	32.08
4	2483.50	48.4 AV	54.0	-5.6	1.53 H	285	16.32	32.08
5	4924.00	50.1 PK	74.0	-23.9	1.29 H	276	8.95	41.15
6	4924.00	39.8 AV	54.0	-14.2	1.29 H	276	-1.35	41.15
7	7386.00	47.5 PK	74.0	-26.5	1.40 H	311	1.84	45.66
8	7386.00	39.0 AV	54.0	-15.0	1.40 H	311	-6.66	45.66
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	107.3 PK			1.00 V	355	75.29	32.01
2	*2462.00	97.4 AV			1.00 V	355	65.39	32.01
3	2483.50	64.7 PK	74.0	-9.3	1.00 V	351	32.62	32.08
4	2483.50	46.8 AV	54.0	-7.2	1.00 V	351	14.72	32.08
5	4924.00	48.2 PK	74.0	-25.8	1.19 V	200	7.05	41.15
6	4924.00	39.2 AV	54.0	-14.8	1.19 V	200	-1.95	41.15
7	7386.00	48.5 PK	74.0	-25.5	1.28 V	342	2.84	45.66
8	7386.00	39.3 AV	54.0	-14.7	1.28 V	342	-6.36	45.66

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

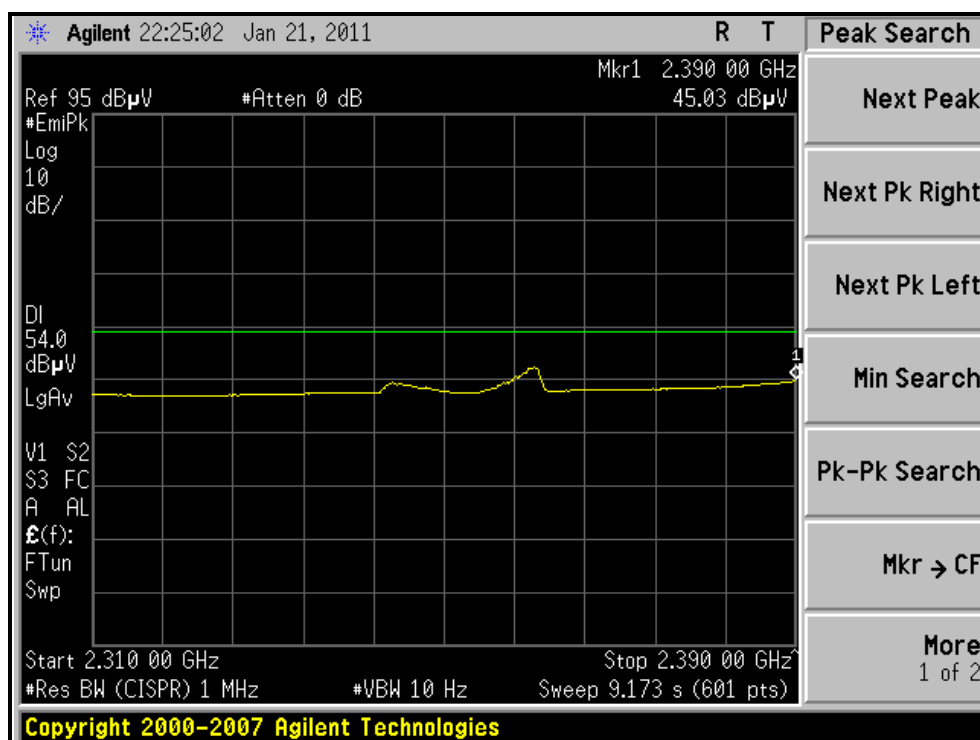
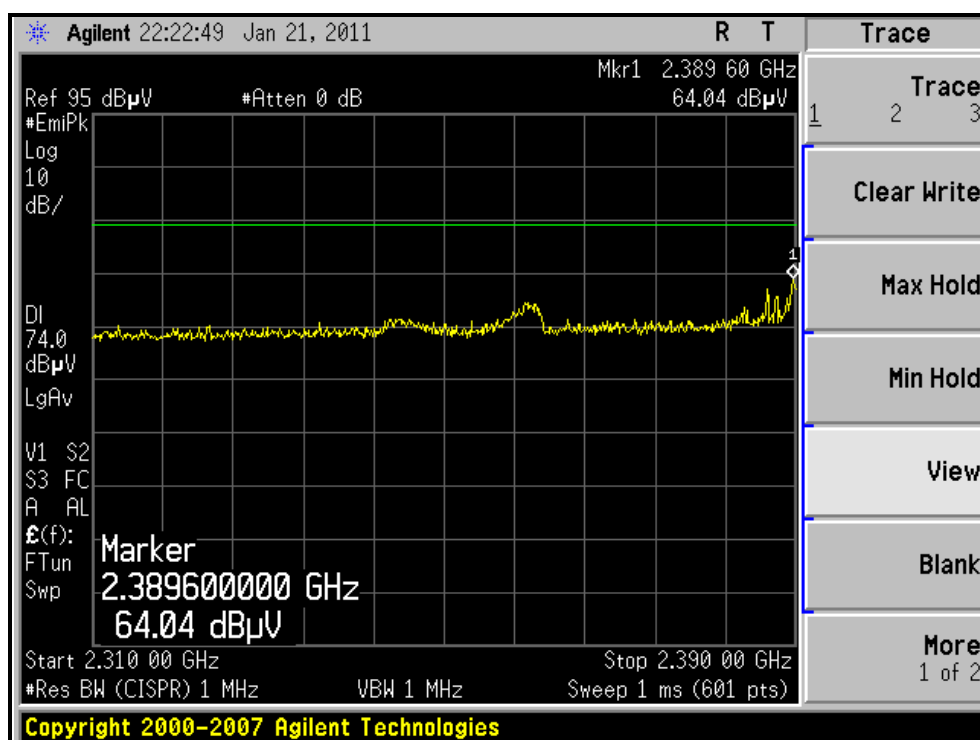
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, HORIZONTAL)



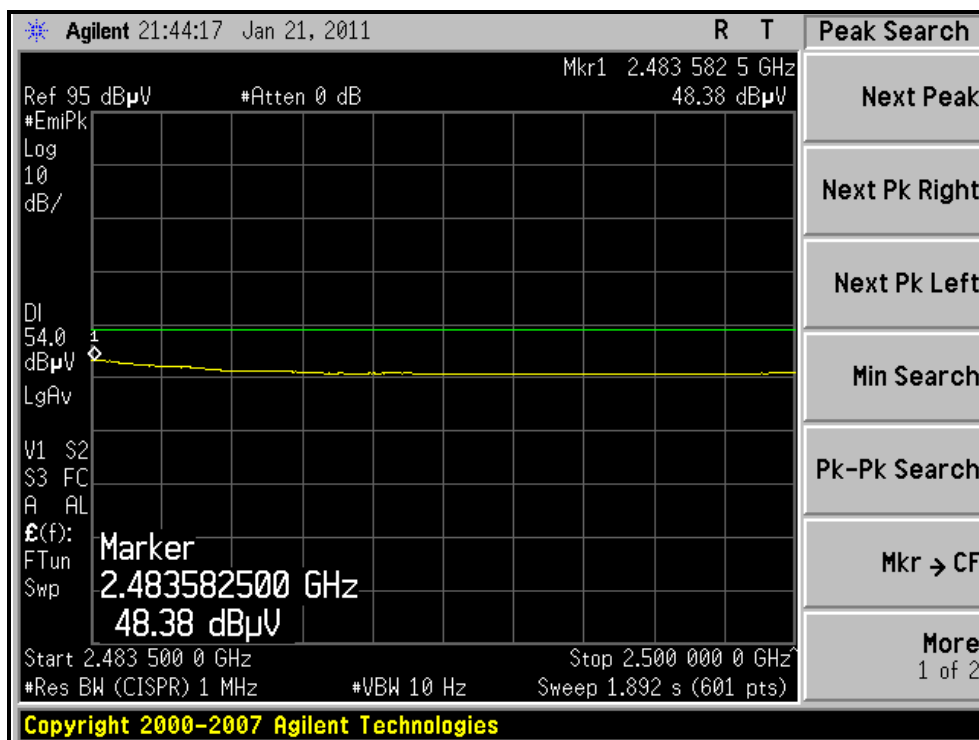
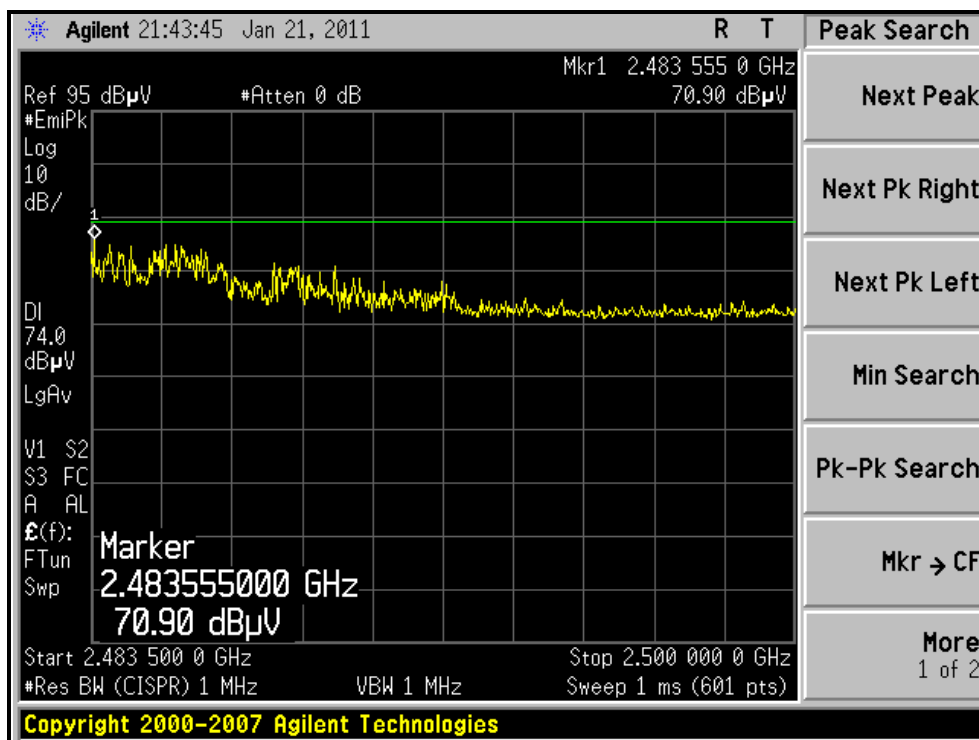


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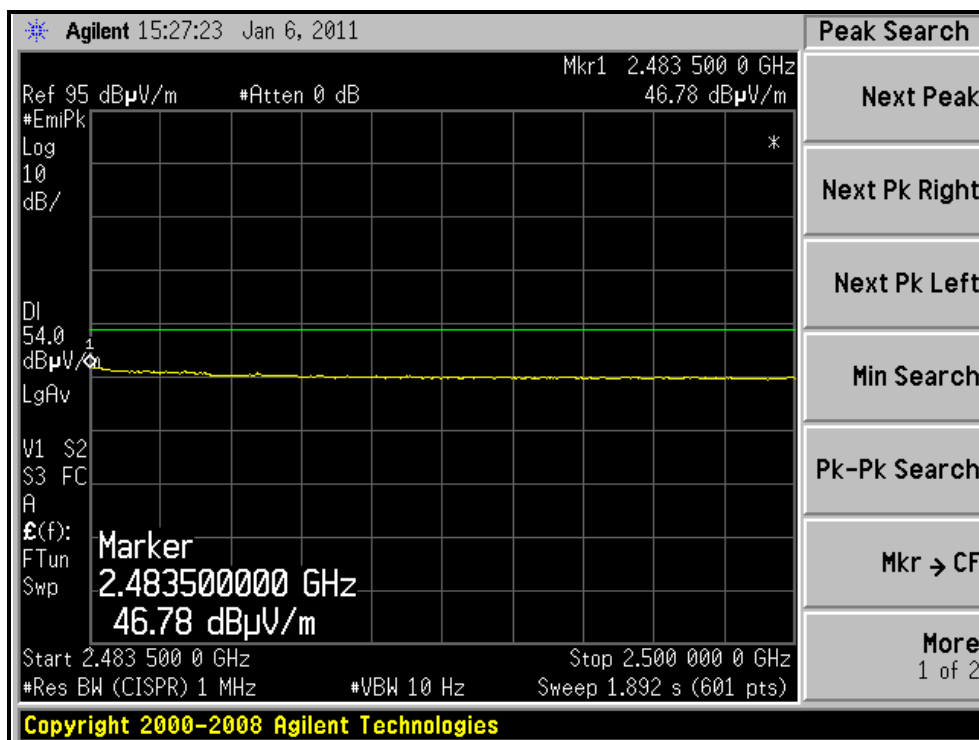
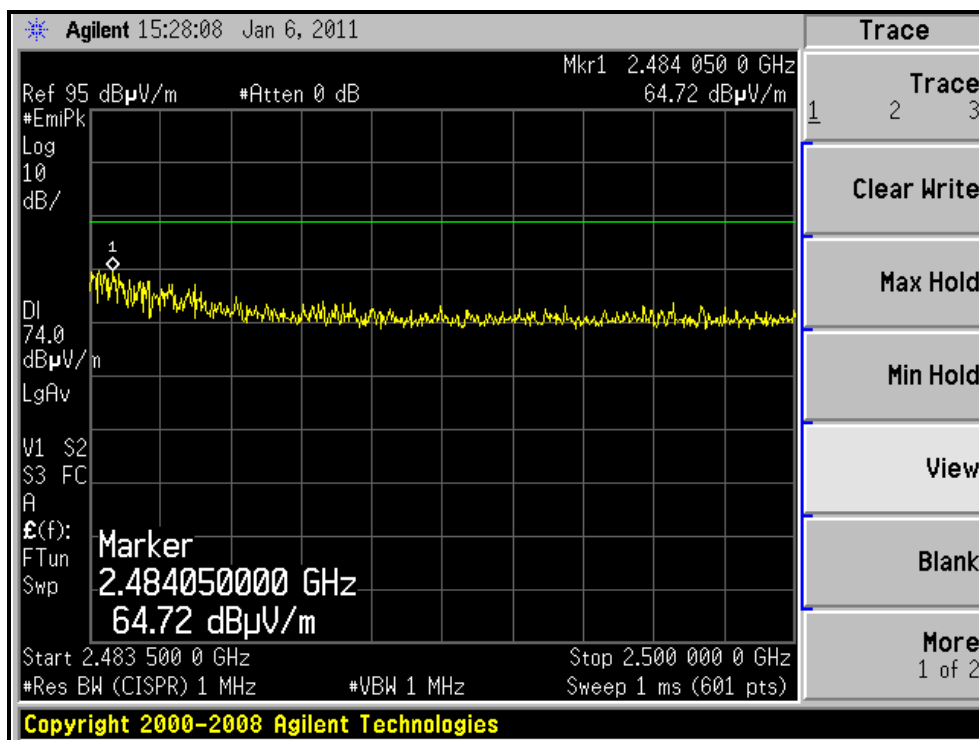
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, VERTICAL)



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



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	15deg. C, 64%RH 1013 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	70.6 PK	74.0	-3.4	1.54 H	275	38.81	31.79
2	2390.00	50.1 AV	54.0	-3.9	1.54 H	275	18.31	31.79
3	*2422.00	105.2 PK			1.64 H	271	73.31	31.89
4	*2422.00	93.1 AV			1.64 H	271	61.21	31.89
5	4844.00	47.6 PK	74.0	-26.4	1.33 H	2	6.60	41.00
6	4844.00	38.2 AV	54.0	-15.8	1.33 H	2	-2.80	41.00
7	7266.00	48.3 PK	74.0	-25.7	1.45 H	314	2.94	45.36
8	7266.00	38.9 AV	54.0	-15.1	1.45 H	314	-6.46	45.36
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	66.2 PK	74.0	-7.8	1.00 V	347	34.41	31.79
2	2390.00	45.6 AV	54.0	-8.4	1.00 V	347	13.81	31.79
3	*2422.00	103.4 PK			1.00 V	347	71.51	31.89
4	*2422.00	92.4 AV			1.00 V	347	60.51	31.89
5	4844.00	47.2 PK	74.0	-26.8	1.20 V	324	6.20	41.00
6	4844.00	38.3 AV	54.0	-15.7	1.20 V	324	-2.70	41.00
7	7266.00	49.1 PK	74.0	-24.9	1.34 V	6	3.74	45.36
8	7266.00	39.1 AV	54.0	-14.9	1.34 V	6	-6.26	45.36

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 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	15deg. C, 64%RH 1013 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	67.1 PK	74.0	-6.9	1.54 H	263	35.31	31.79
2	2390.00	50.2 AV	54.0	-3.8	1.54 H	263	18.41	31.79
3	*2437.00	105.4 PK			1.59 H	262	73.47	31.93
4	*2437.00	93.2 AV			1.59 H	262	61.27	31.93
5	4874.00	49.9 PK	74.0	-24.1	1.33 H	21	8.85	41.05
6	4874.00	39.9 AV	54.0	-14.1	1.33 H	21	-1.15	41.05
7	7311.00	47.3 PK	74.0	-26.7	1.41 H	322	1.82	45.48
8	7311.00	39.2 AV	54.0	-14.8	1.41 H	322	-6.28	45.48
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	103.6 PK			1.00 V	354	71.67	31.93
2	*2437.00	92.7 AV			1.00 V	354	60.77	31.93
3	4874.00	47.4 PK	74.0	-26.6	1.08 V	122	6.35	41.05
4	4874.00	39.1 AV	54.0	-14.9	1.08 V	122	-1.95	41.05
5	7311.00	49.1 PK	74.0	-24.9	1.22 V	170	3.62	45.48
6	7311.00	38.6 AV	54.0	-15.4	1.22 V	170	-6.88	45.48

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.



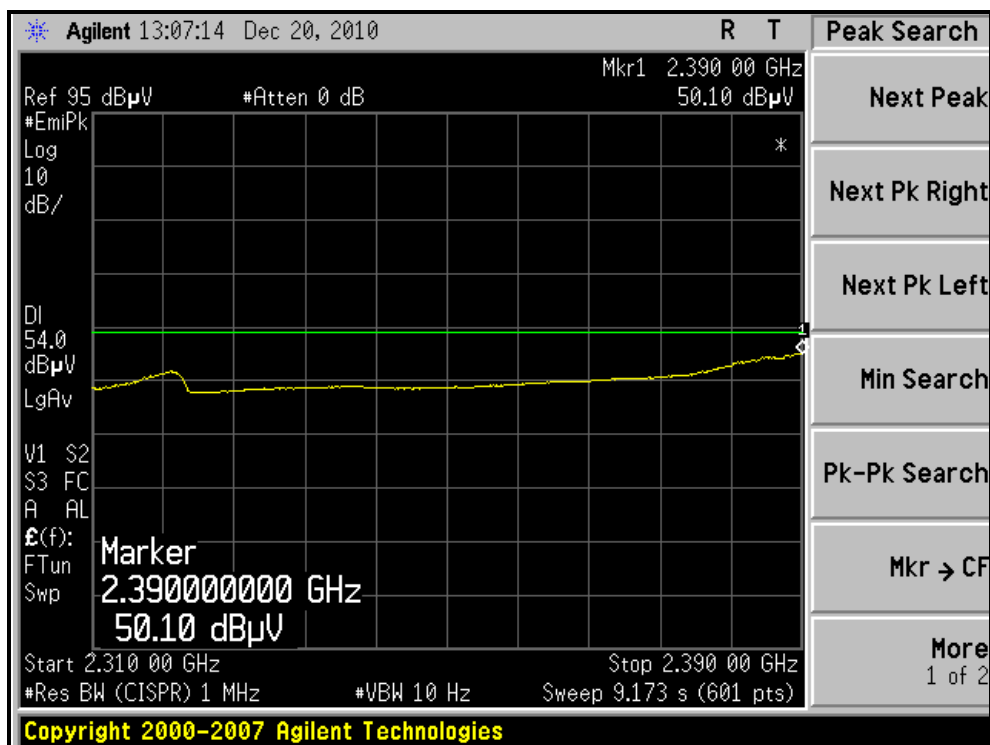
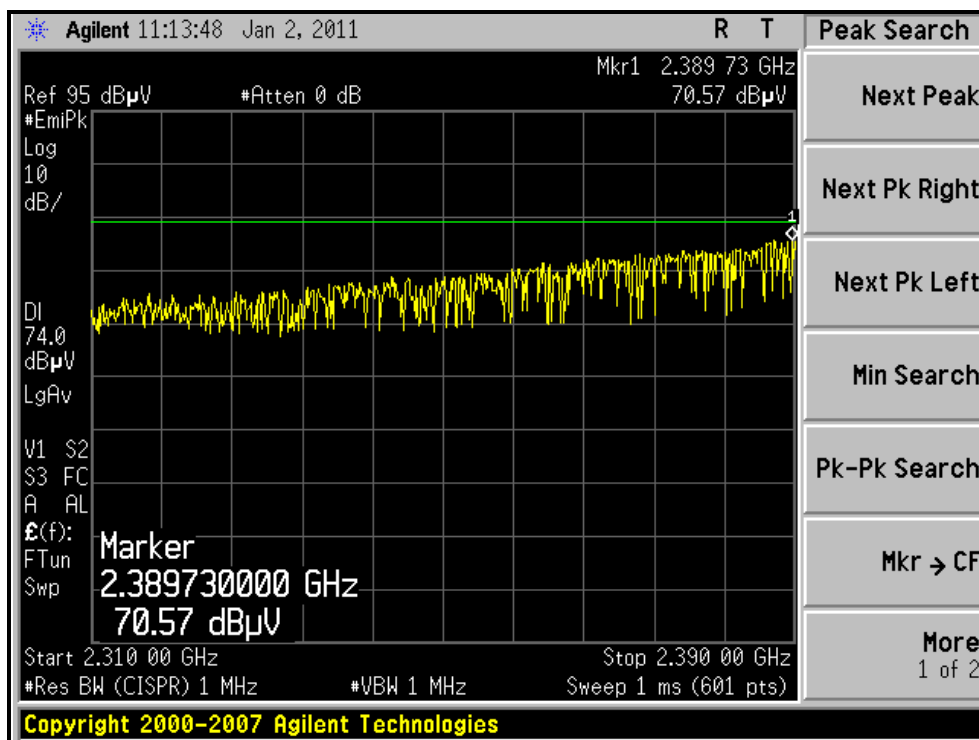
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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	15deg. C, 64%RH 1013 hPa	TESTED BY	Frank Liu
TEST MODE	Dipole Antenna		

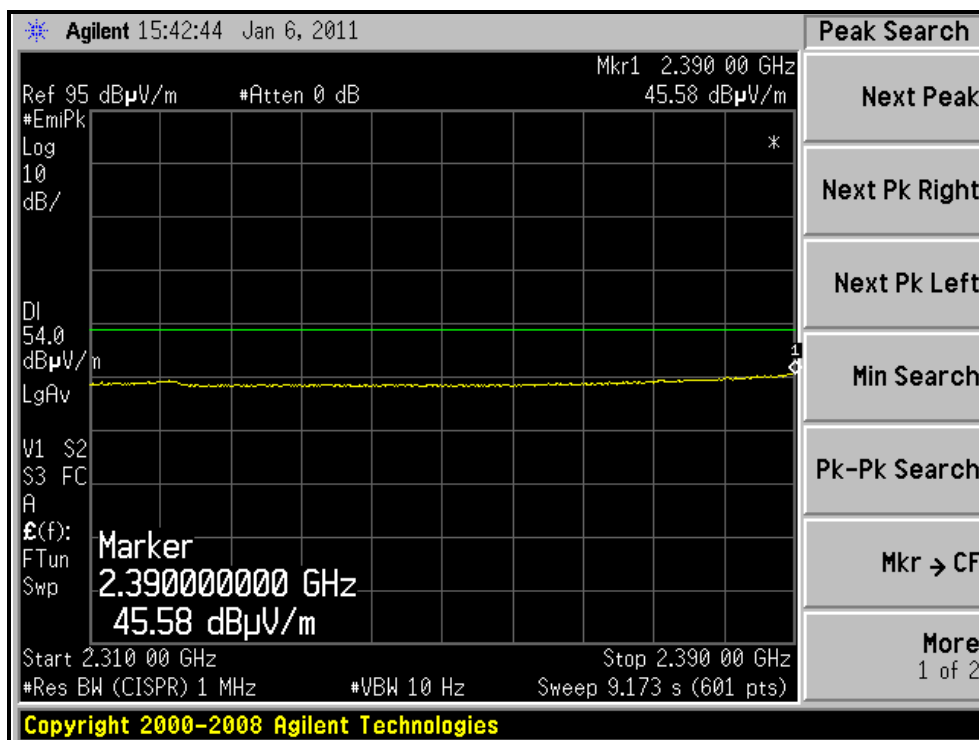
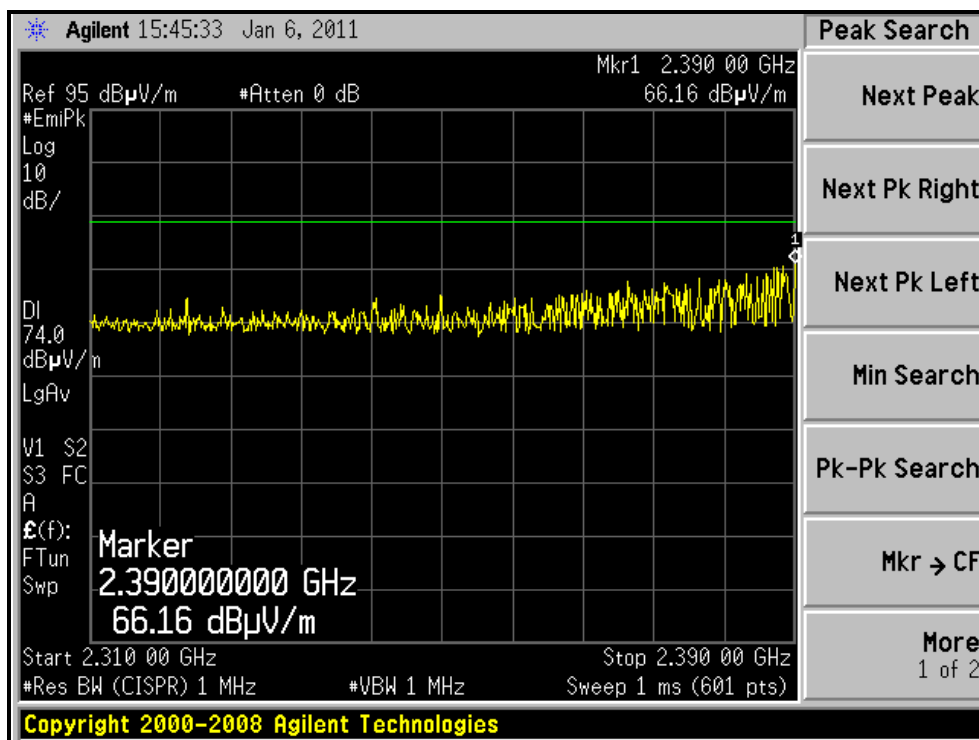
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NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	105.2 PK			1.54 H	257	73.22	31.98
2	*2452.00	93.1 AV			1.54 H	257	61.12	31.98
3	2483.50	67.4 PK	74.0	-6.6	1.69 H	285	35.32	32.08
4	2483.50	48.5 AV	54.0	-5.5	1.69 H	285	16.42	32.08
5	4904.00	49.8 PK	74.0	-24.2	1.20 H	5	8.69	41.11
6	4904.00	39.7 AV	54.0	-14.3	1.20 H	5	-1.41	41.11
7	7356.00	46.9 PK	74.0	-27.1	1.08 H	79	1.31	45.59
8	7356.00	38.2 AV	54.0	-15.8	1.08 H	79	-7.39	45.59
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	103.4 PK			1.00 V	310	71.42	31.98
2	*2452.00	92.6 AV			1.00 V	310	60.62	31.98
3	2483.50	63.4 PK	74.0	-10.6	1.00 V	324	31.32	32.08
4	2483.50	47.7 AV	54.0	-6.3	1.00 V	324	15.62	32.08
5	4904.00	47.3 PK	74.0	-26.7	1.18 V	114	6.19	41.11
6	4904.00	38.9 AV	54.0	-15.1	1.18 V	114	-2.21	41.11
7	7356.00	49.2 PK	74.0	-24.8	1.31 V	161	3.61	45.59
8	7356.00	39.4 AV	54.0	-14.6	1.31 V	161	-6.19	45.59

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

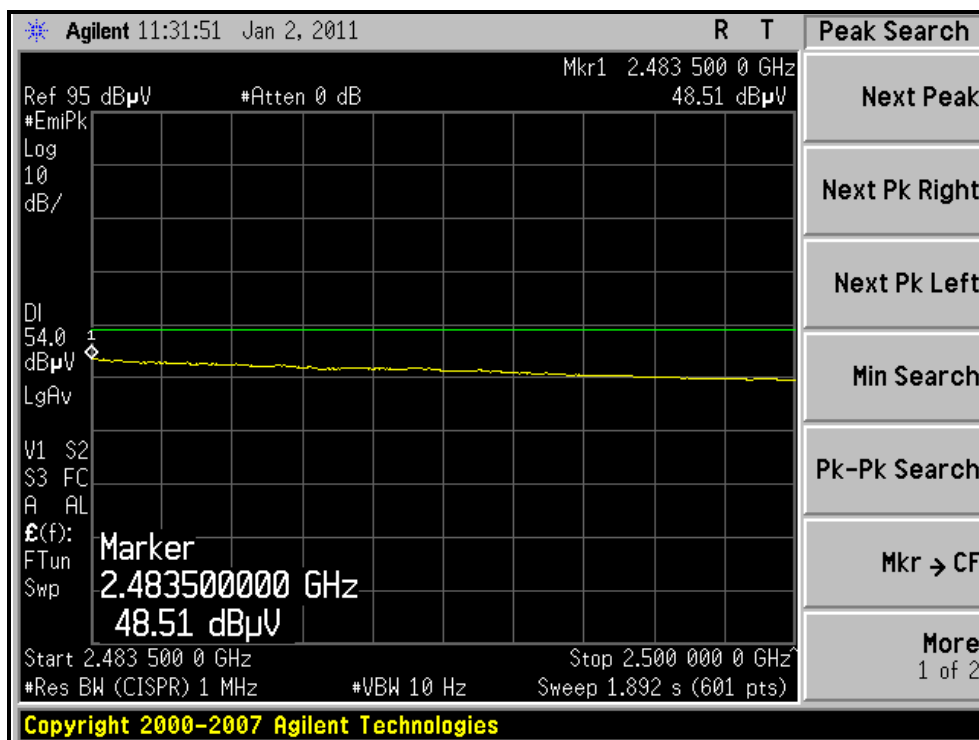
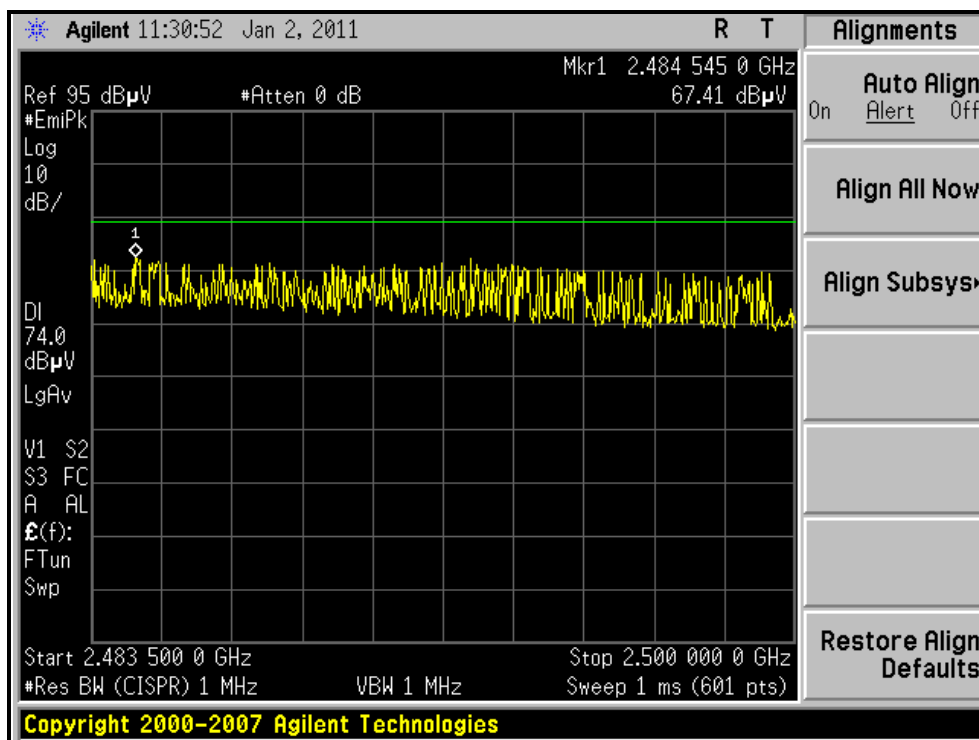
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, HORIZONTAL)



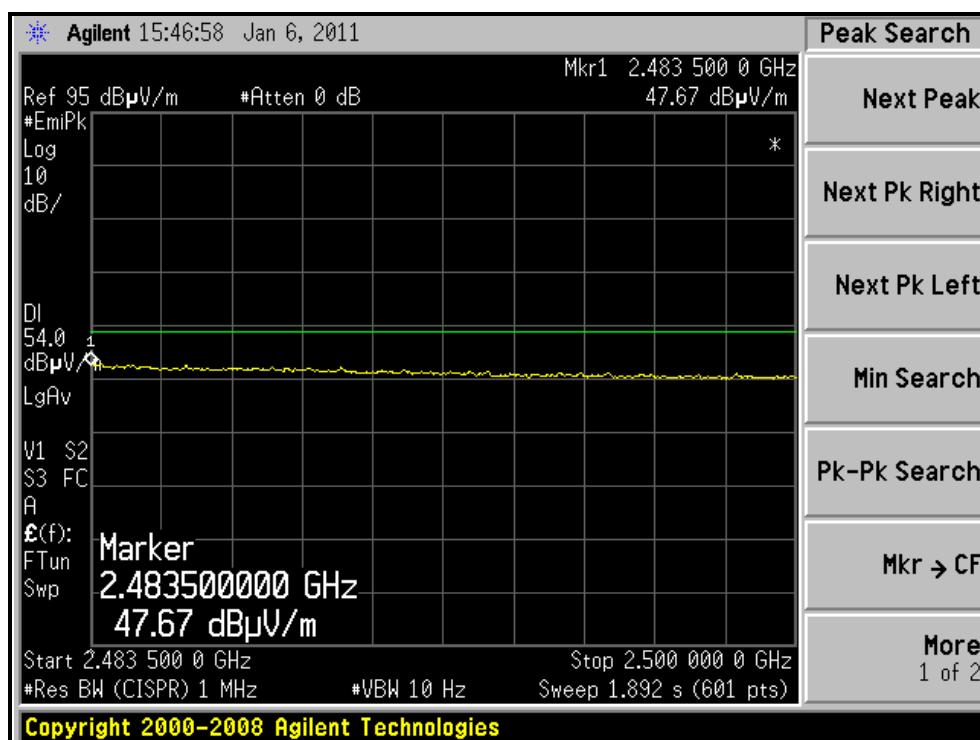
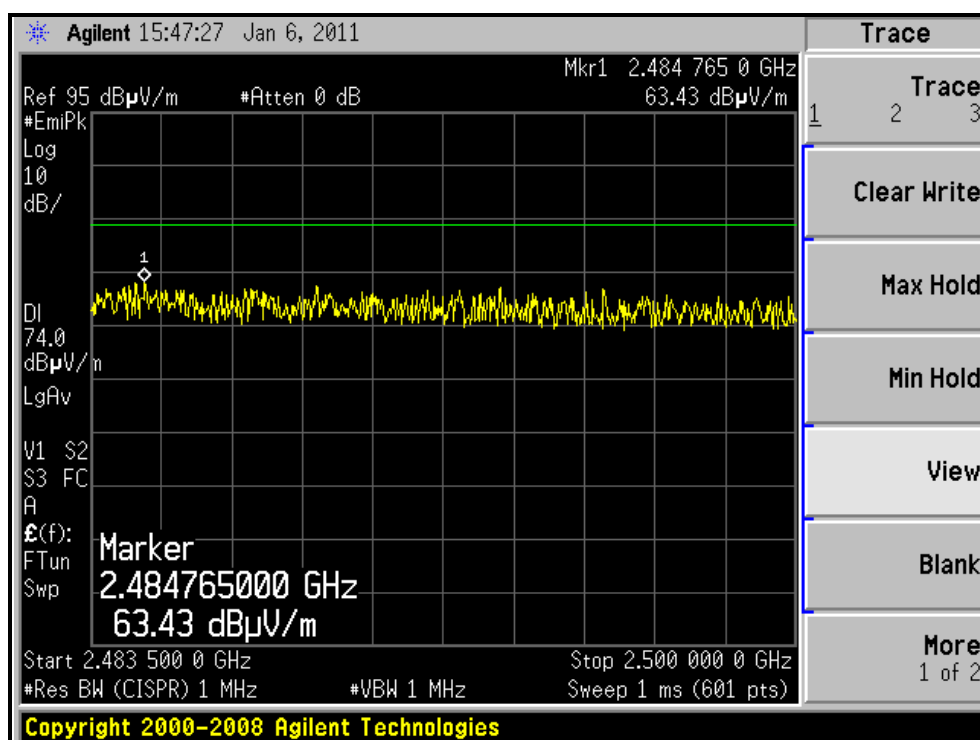
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, VERTICAL)



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



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



4.2.8 TEST RESULTS (PIFA ANTENNA)

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	14deg. C, 66%RH 1013 hPa	TESTED BY	Eric Lee
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	279.66	37.4 QP	46.0	-8.6	1.25 H	10	22.77	14.63
2	285.21	37.5 QP	46.0	-8.6	1.00 H	323	22.60	14.85
3	300.00	40.1 QP	46.0	-5.9	1.00 H	42	24.64	15.46
4	309.04	39.6 QP	46.0	-6.4	1.00 H	25	23.94	15.66
5	320.60	39.9 QP	46.0	-6.1	2.00 H	23	23.99	15.91
6	327.20	36.9 QP	46.0	-9.1	1.50 H	109	20.84	16.06
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	145.34	28.6 QP	43.5	-14.9	1.00 V	163	14.56	14.00
2	299.06	35.9 QP	46.0	-10.1	1.50 V	340	20.45	15.42
3	311.02	34.3 QP	46.0	-11.7	1.50 V	360	18.63	15.70
4	320.73	35.8 QP	46.0	-10.2	1.50 V	360	19.85	15.91
5	698.73	32.9 QP	46.0	-13.1	1.00 V	160	9.29	23.65
6	897.92	33.5 QP	46.0	-12.5	1.25 V	171	6.72	26.76

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

ABOVE 1GHz WORST-CASE DATA

802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	15deg. C, 64%RH 1013 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	59.0 PK	74.0	-15.0	1.55 H	188	27.22	31.78
2	2386.27	50.1 AV	54.0	-3.9	1.55 H	188	18.32	31.78
3	*2412.00	104.5 PK			1.60 H	193	72.64	31.86
4	*2412.00	102.4 AV			1.60 H	193	70.54	31.86
5	4824.00	53.5 PK	74.0	-20.5	1.33 H	247	12.54	40.96
6	4824.00	50.7 AV	54.0	-3.3	1.33 H	247	9.74	40.96
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.27	57.2 PK	74.0	-16.8	1.27 V	320	25.42	31.78
2	2386.27	48.1 AV	54.0	-5.9	1.27 V	320	16.32	31.78
3	*2412.00	101.2 PK			1.27 V	327	69.34	31.86
4	*2412.00	97.6 AV			1.27 V	327	65.74	31.86
5	4824.00	50.3 PK	74.0	-23.7	1.06 V	271	9.34	40.96
6	4824.00	46.6 AV	54.0	-7.4	1.06 V	271	5.64	40.96

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	15deg. C, 64%RH 1013 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	106.8 PK			1.61 H	172	74.87	31.93
2	*2437.00	104.7 AV			1.61 H	172	72.77	31.93
3	4874.00	53.3 PK	74.0	-20.7	1.32 H	250	12.25	41.05
4	4874.00	50.5 AV	54.0	-3.5	1.32 H	250	9.45	41.05
5	7311.00	60.2 PK	74.0	-13.8	1.20 H	69	14.72	45.48
6	7311.00	46.8 AV	54.0	-7.2	1.20 H	69	1.32	45.48
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	103.1 PK			1.24 V	329	71.17	31.93
2	*2437.00	99.6 AV			1.24 V	329	67.67	31.93
3	4874.00	50.9 PK	74.0	-23.1	1.08 V	288	9.85	41.05
4	4874.00	45.8 AV	54.0	-8.2	1.08 V	288	4.75	41.05
5	7311.00	52.1 PK	74.0	-21.9	1.11 V	314	6.62	45.48
6	7311.00	40.3 AV	54.0	-13.7	1.11 V	314	-5.18	45.48

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.



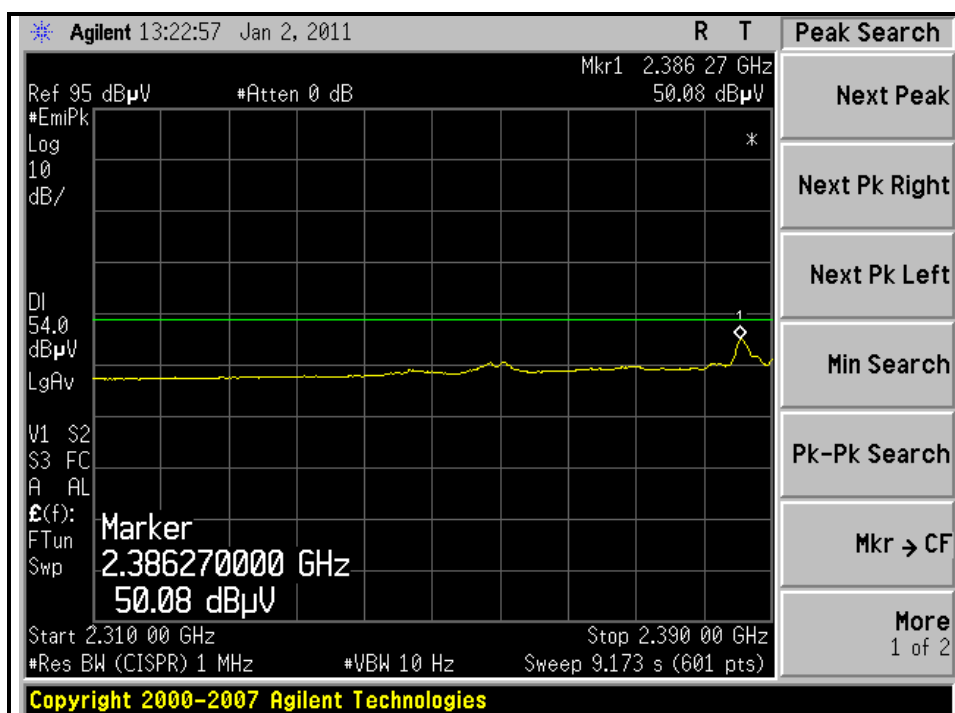
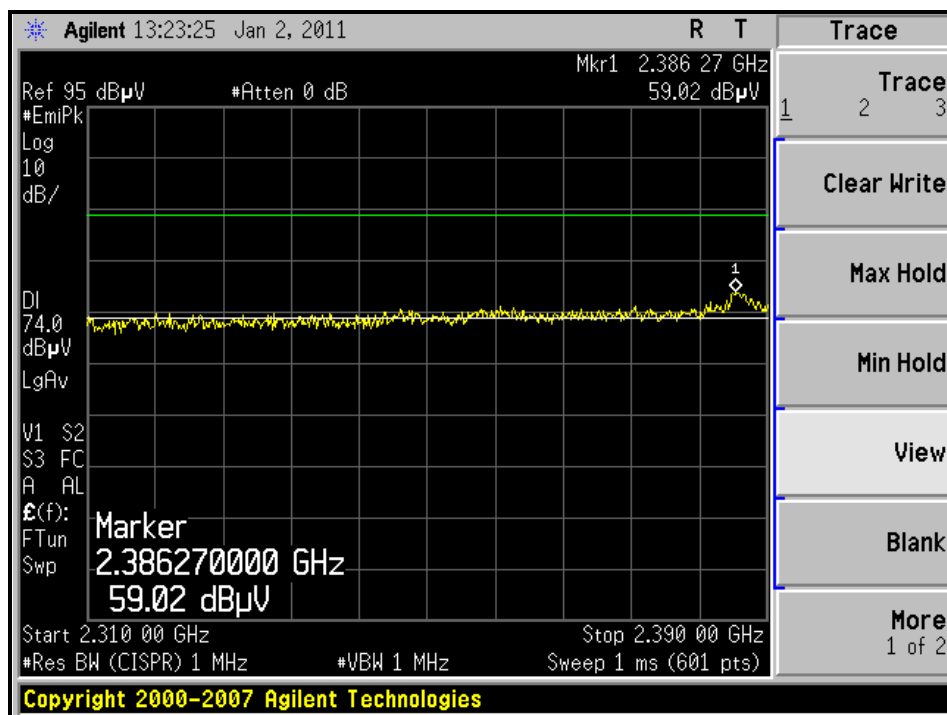
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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	15deg. C, 64%RH 1013 hPa	TESTED BY	Frank Liu
TEST MODE	PIFA Antenna		

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	108.3 PK			1.48 H	182	76.29	32.01
2	*2462.00	106.2 AV			1.48 H	182	74.19	32.01
3	2484.05	58.6 PK	74.0	-15.4	1.50 H	182	26.52	32.08
4	2484.05	48.1 AV	54.0	-5.9	1.50 H	182	16.02	32.08
5	4924.00	53.5 PK	74.0	-20.5	1.49 H	257	12.35	41.15
6	4924.00	50.3 AV	54.0	-3.7	1.49 H	257	9.15	41.15
7	7386.00	55.8 PK	74.0	-18.2	1.32 H	268	10.14	45.66
8	7386.00	43.2 AV	54.0	-10.8	1.32 H	268	-2.46	45.66
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	103.2 PK			1.21 V	341	71.19	32.01
2	*2462.00	100.4 AV			1.21 V	341	68.39	32.01
3	2483.50	58.3 PK	74.0	-15.7	1.27 V	327	26.22	32.08
4	2483.50	43.8 AV	54.0	-10.2	1.27 V	327	11.72	32.08
5	4924.00	44.6 PK	74.0	-29.4	1.10 V	290	3.45	41.15
6	4924.00	41.3 AV	54.0	-12.7	1.10 V	290	0.15	41.15
7	7386.00	51.9 PK	74.0	-22.1	1.21 V	114	6.24	45.66
8	7386.00	39.2 AV	54.0	-14.8	1.21 V	114	-6.46	45.66

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

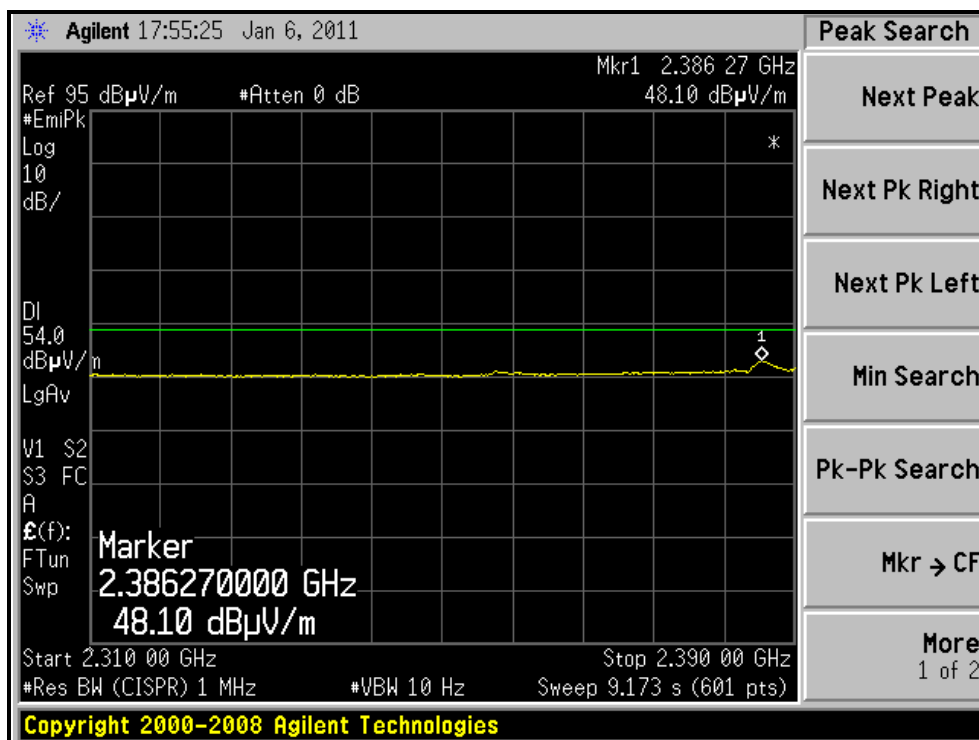
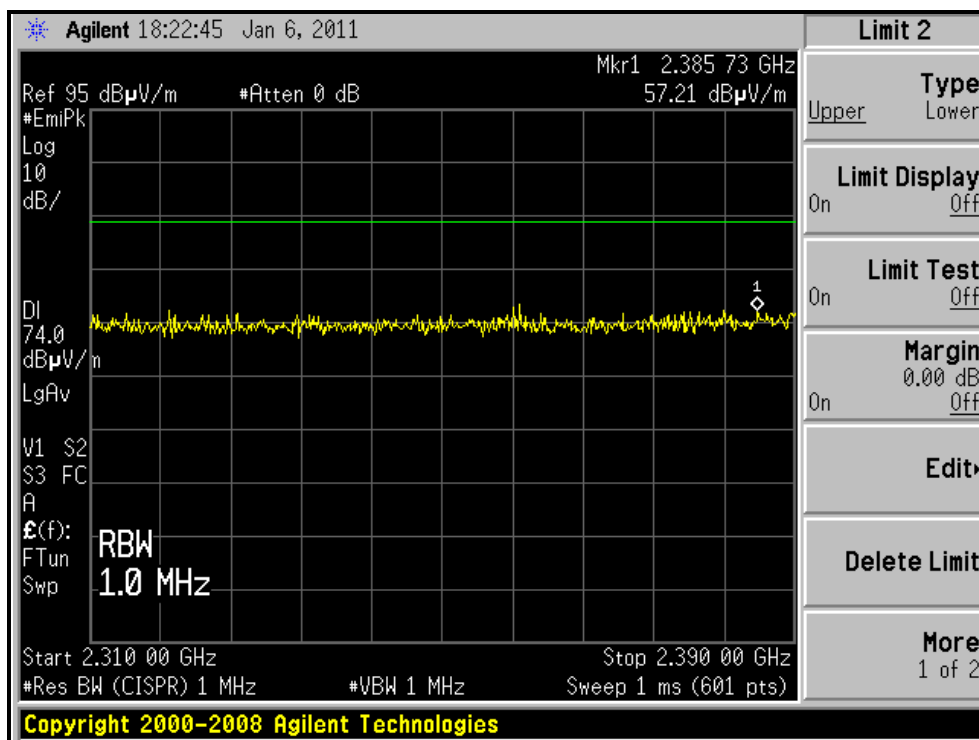
RESTRICTED BANDEDGE (802.11b MODE,CH1, HORIZONTAL)



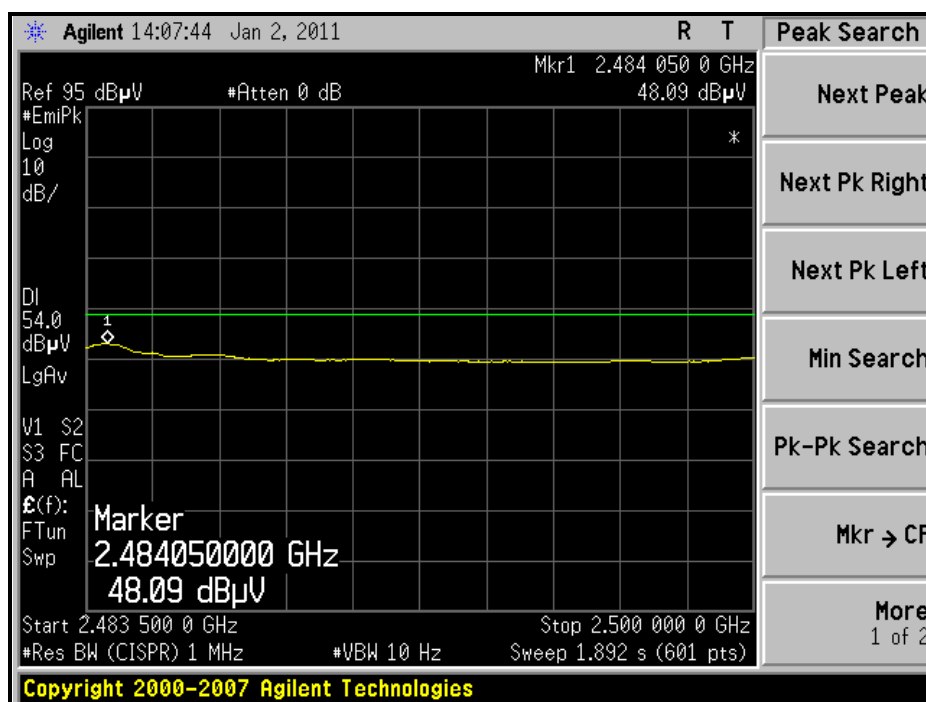
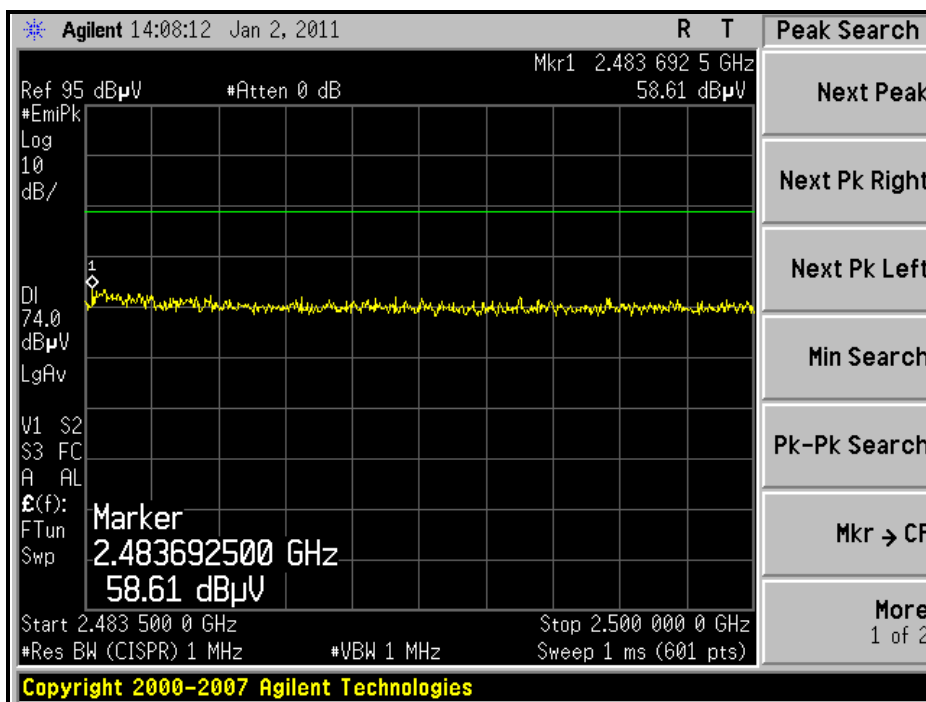


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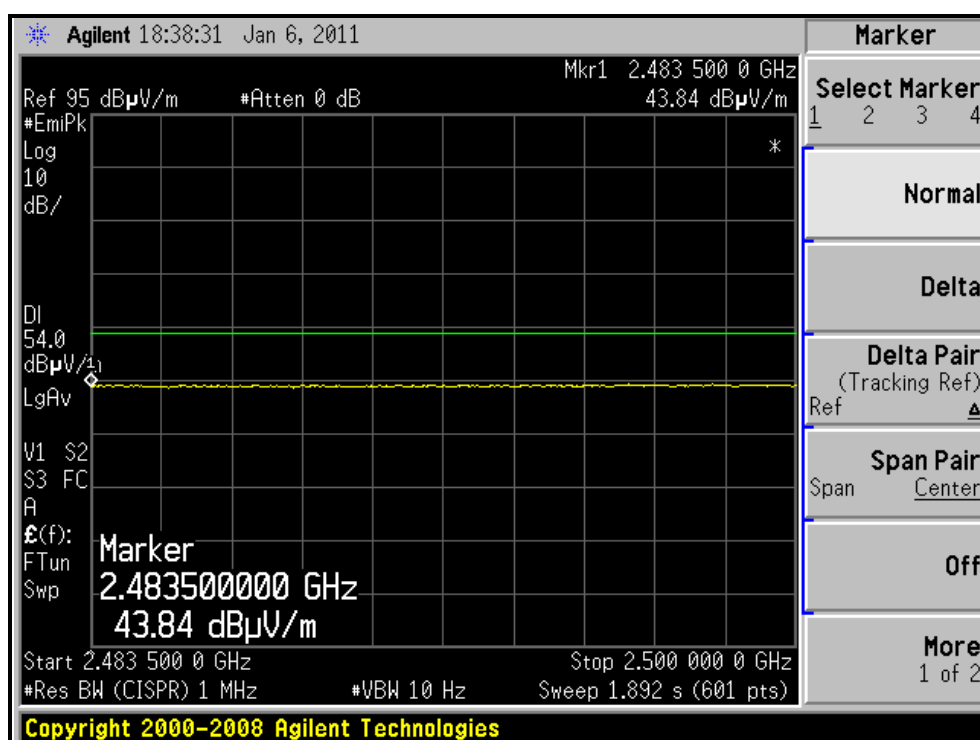
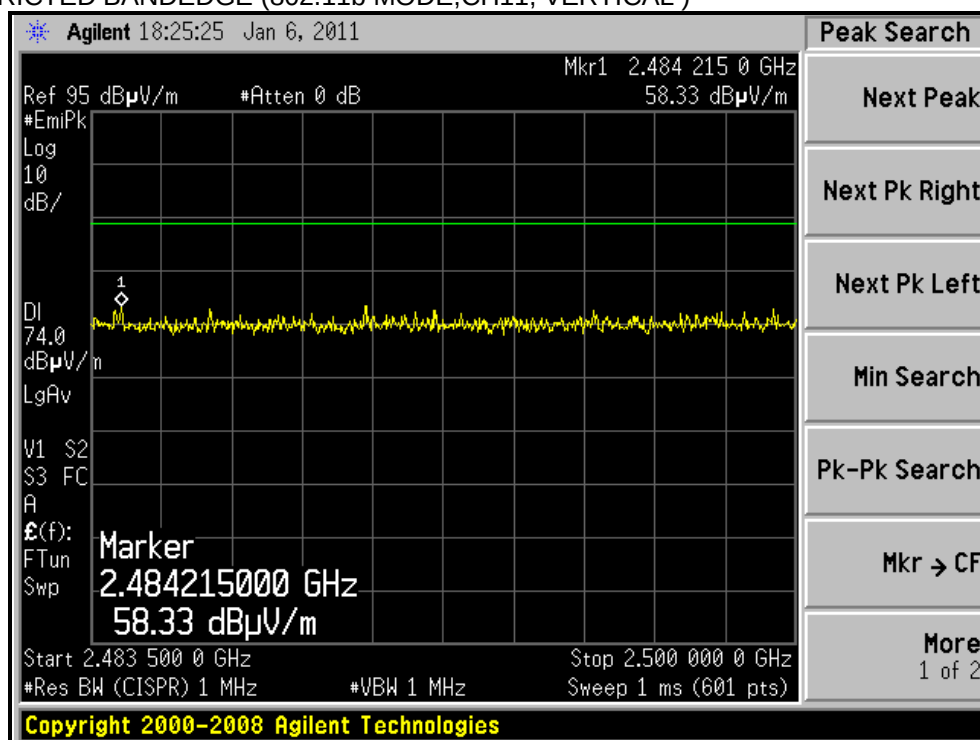
RESTRICTED BANDEDGE (802.11b MODE,CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL)



RESTRICTED BANDEDGE (802.11b MODE, CH11, VERTICAL)





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802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	15deg. C, 64%RH 1013 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	2359.60	59.7 PK	74.0	-14.3	1.60 H	189	28.01	31.69
2	2359.60	47.6 AV	54.0	-6.4	1.60 H	189	15.91	31.69
3	*2412.00	107.6 PK			1.64 H	187	75.74	31.86
4	*2412.00	97.3 AV			1.64 H	187	65.44	31.86
5	4824.00	58.9 PK	74.0	-15.1	1.14 H	28	17.94	40.96
6	4824.00	46.9 AV	54.0	-7.1	1.14 H	28	5.94	40.96
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.8 PK	74.0	-14.2	1.21 V	246	28.01	31.79
2	2390.00	44.5 AV	54.0	-9.5	1.21 V	246	12.71	31.79
3	*2412.00	103.2 PK			1.21 V	249	71.34	31.86
4	*2412.00	92.7 AV			1.21 V	249	60.84	31.86
5	4824.00	47.2 PK	74.0	-26.8	1.11 V	43	6.24	40.96
6	4824.00	36.9 AV	54.0	-17.1	1.11 V	43	-4.06	40.96

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	15deg. C, 64%RH 1013 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	2384.80	61.1 PK	74.0	-12.9	1.29 H	193	29.33	31.77
2	2384.80	49.6 AV	54.0	-4.4	1.29 H	193	17.83	31.77
3	*2437.00	107.2 PK			1.69 H	201	75.27	31.93
4	*2437.00	96.7 AV			1.69 H	201	64.77	31.93
5	2489.30	60.4 PK	74.0	-13.6	1.19 H	201	28.30	32.10
6	2489.30	48.7 AV	54.0	-5.3	1.19 H	201	16.60	32.10
7	4874.00	54.5 PK	74.0	-19.5	1.20 H	146	13.45	41.05
8	4874.00	43.1 AV	54.0	-10.9	1.20 H	146	2.05	41.05
9	7311.00	53.2 PK	74.0	-20.8	1.19 H	200	7.72	45.48
10	7311.00	39.3 AV	54.0	-14.7	1.19 H	200	-6.18	45.48
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	102.8 PK			1.24 V	289	70.87	31.93
2	*2437.00	92.4 AV			1.24 V	289	60.47	31.93
3	4874.00	47.3 PK	74.0	-26.7	1.35 V	29	6.25	41.05
4	4874.00	37.4 AV	54.0	-16.6	1.35 V	29	-3.65	41.05
5	7311.00	50.3 PK	74.0	-23.7	1.22 V	308	4.82	45.48
6	7311.00	38.9 AV	54.0	-15.1	1.22 V	308	-6.58	45.48

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	15deg. C, 64%RH 1013 hPa	TESTED BY	Frank Liu
TEST MODE	PIFA Antenna		

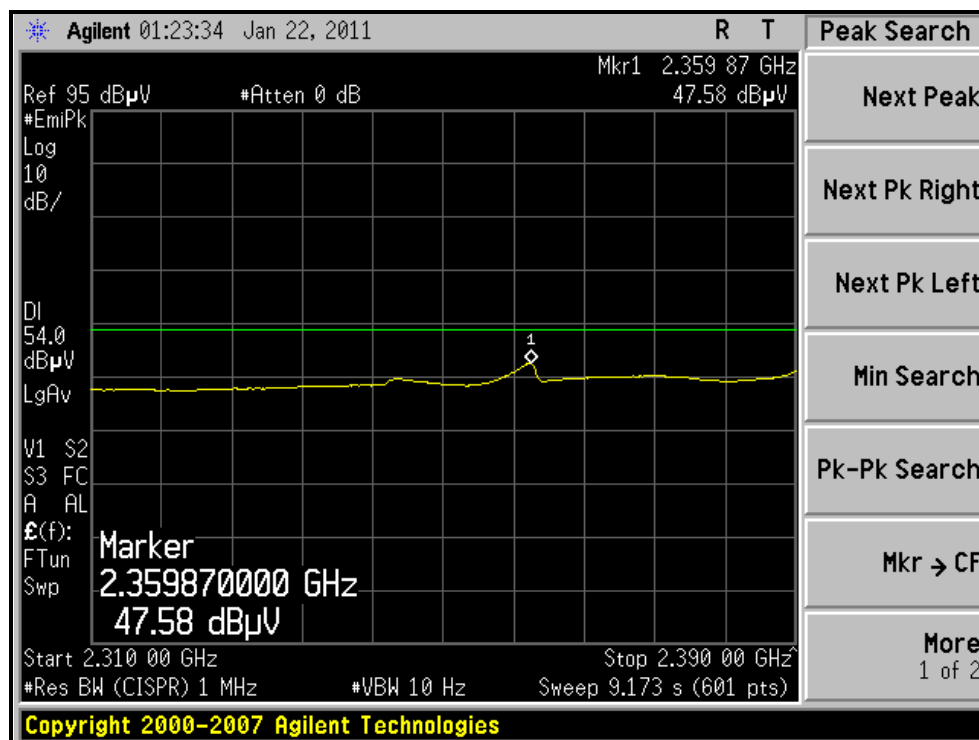
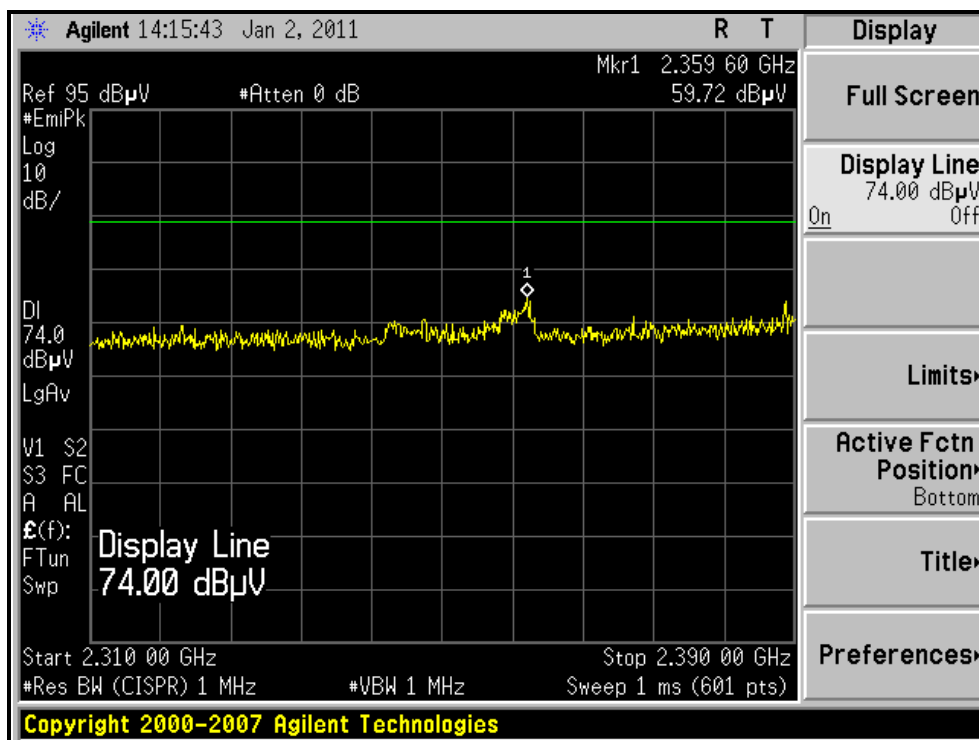
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.4 PK			1.64 H	184	76.39	32.01
2	*2462.00	97.5 AV			1.64 H	184	65.49	32.01
3	2483.50	66.3 PK	74.0	-7.7	1.51 H	184	34.22	32.08
4	2483.50	48.2 AV	54.0	-5.8	1.51 H	184	16.12	32.08
5	4924.00	52.3 PK	74.0	-21.7	1.33 H	269	11.15	41.15
6	4924.00	41.2 AV	54.0	-12.8	1.33 H	269	0.05	41.15
7	7386.00	52.9 PK	74.0	-21.1	1.20 H	305	7.24	45.66
8	7386.00	38.4 AV	54.0	-15.6	1.20 H	305	-7.26	45.66
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	102.8 PK			1.26 V	273	70.79	32.01
2	*2462.00	92.5 AV			1.26 V	273	60.49	32.01
3	2483.50	63.1 PK	74.0	-10.9	1.27 V	249	31.02	32.08
4	2483.50	45.9 AV	54.0	-8.1	1.27 V	249	13.82	32.08
5	4924.00	46.9 PK	74.0	-27.1	1.43 V	174	5.75	41.15
6	4924.00	37.3 AV	54.0	-16.7	1.43 V	174	-3.85	41.15
7	7386.00	41.9 PK	74.0	-32.1	1.38 V	265	-3.76	45.66
8	7386.00	38.2 AV	54.0	-15.8	1.38 V	265	-7.46	45.66

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.

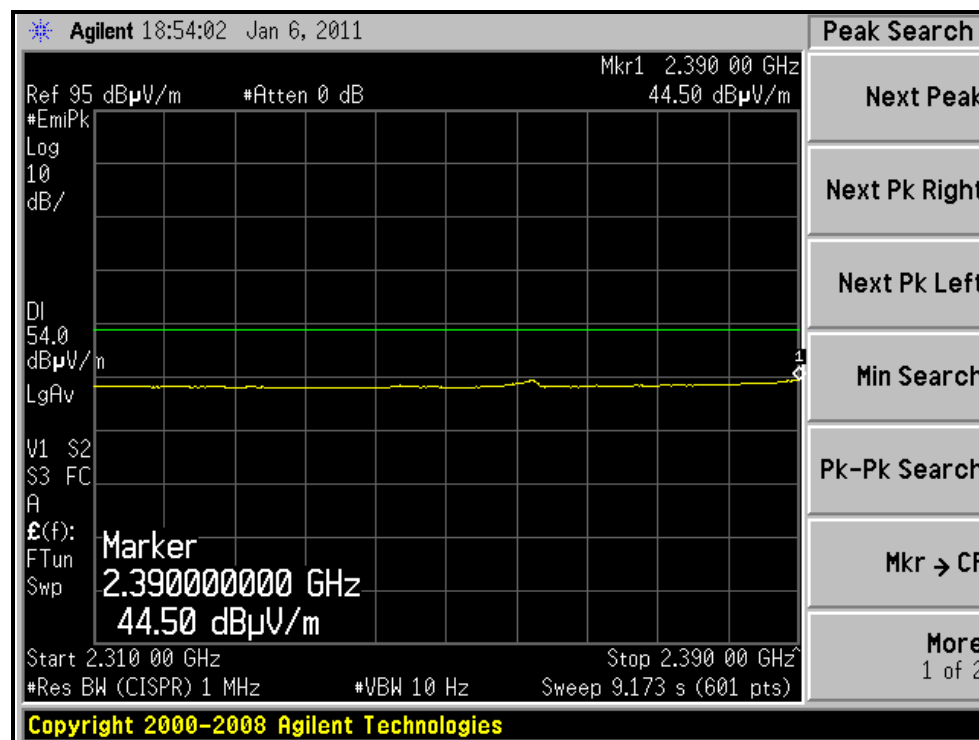
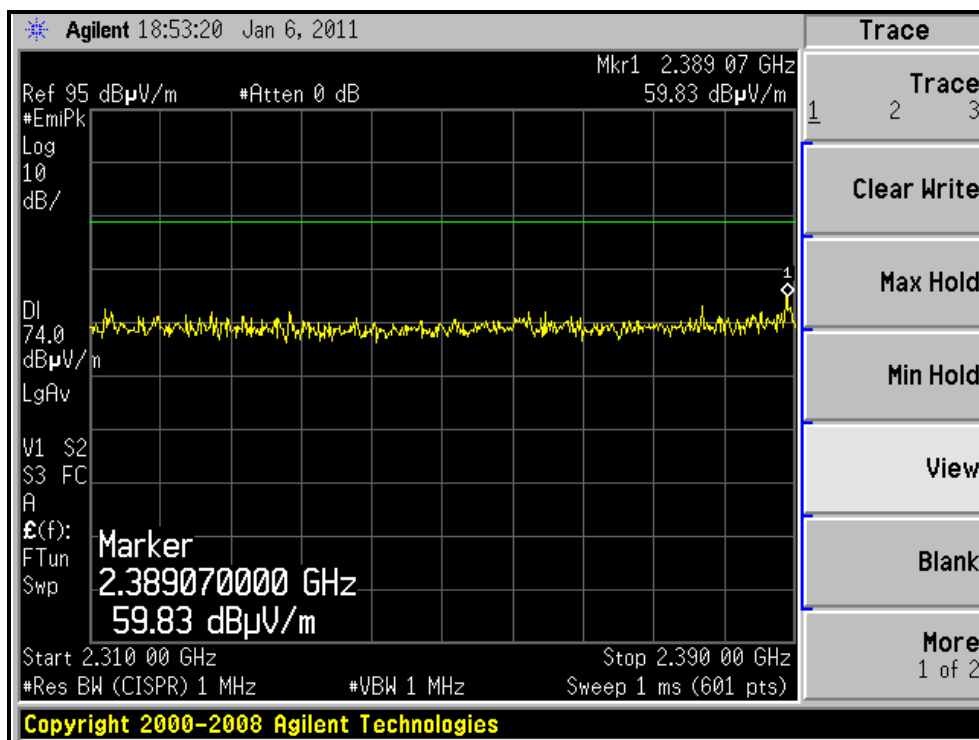


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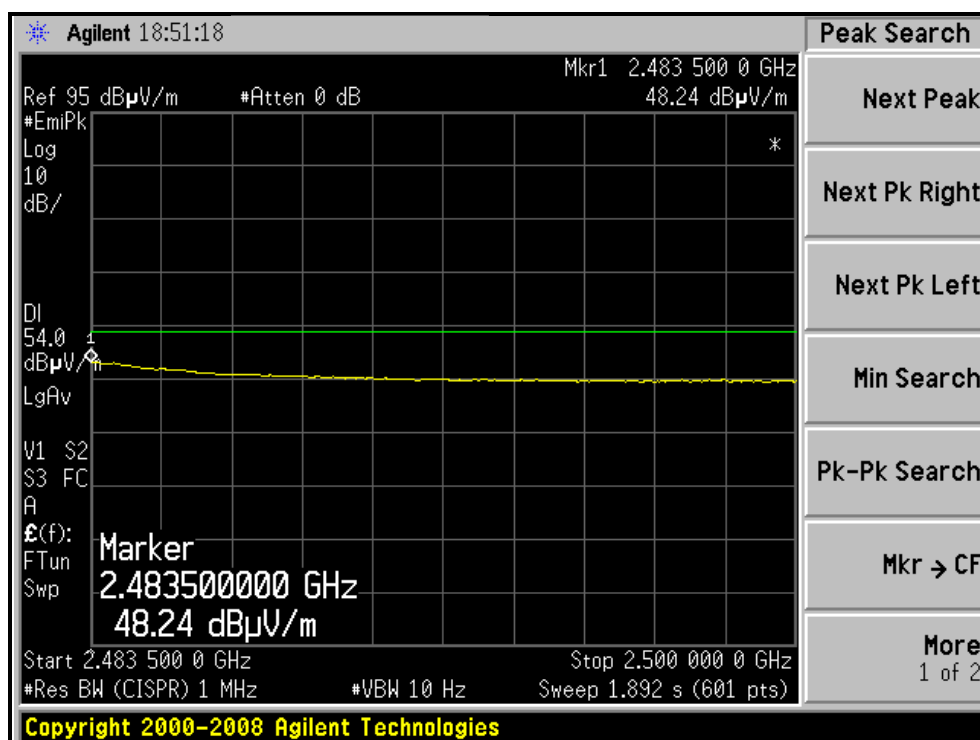
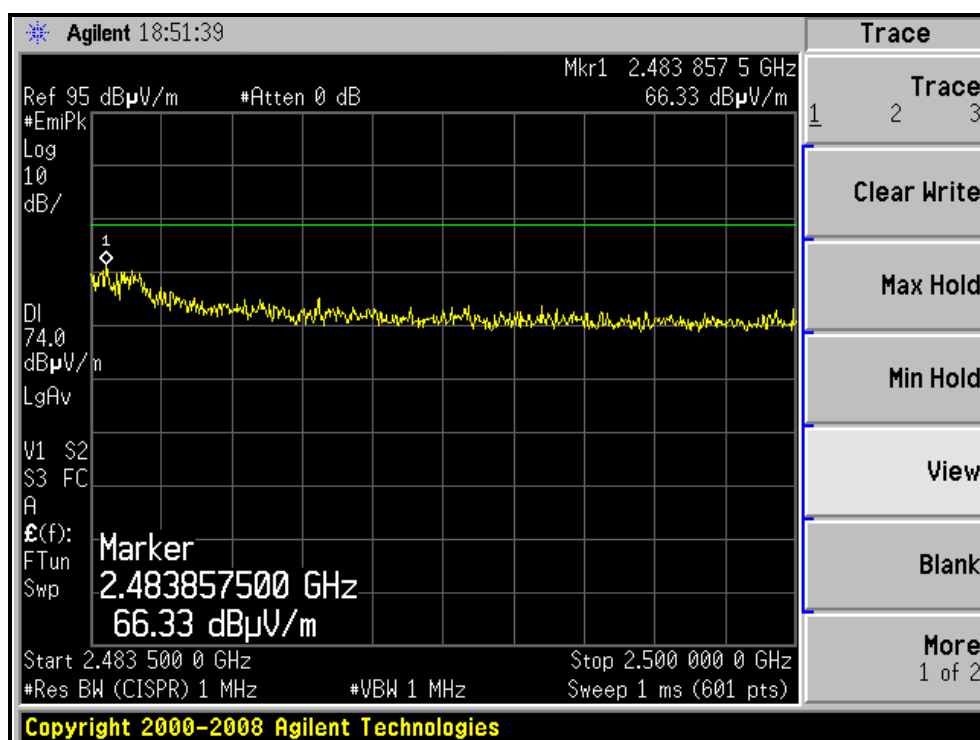
RESTRICTED BANDEDGE (802.11g MODE, CH1, HORIZONTAL)



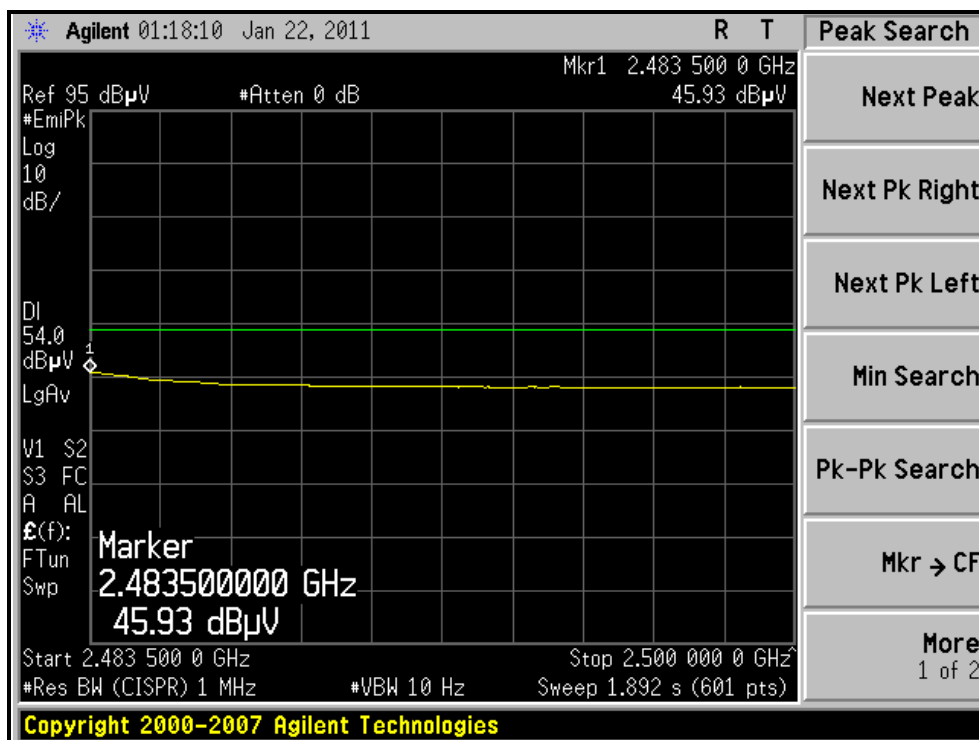
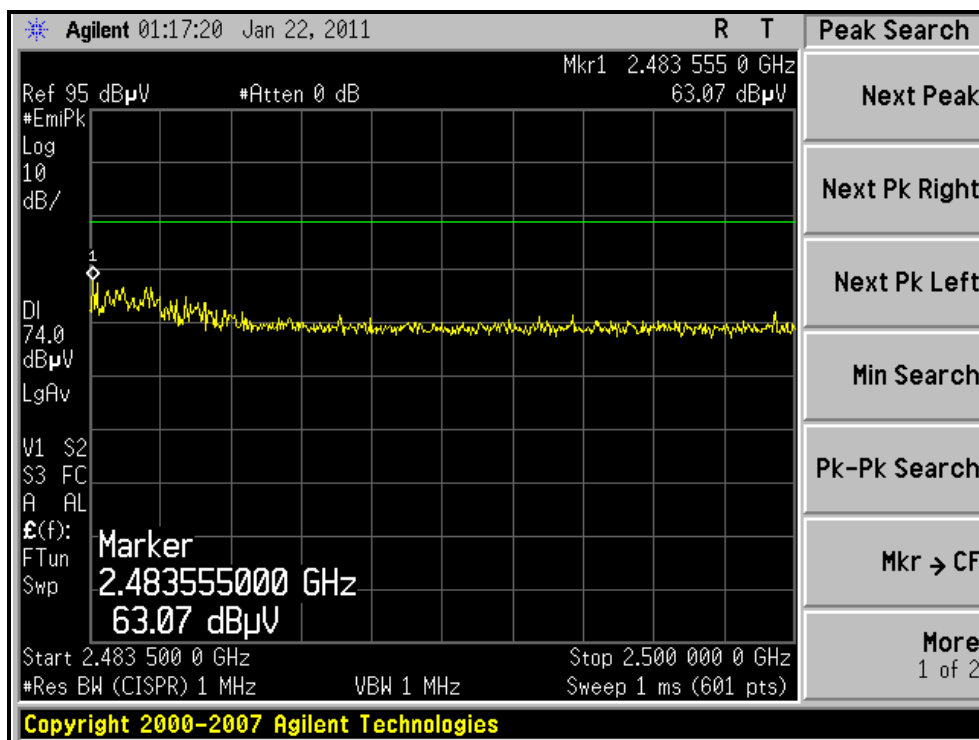
RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11g MODE,CH11, HORIZONTAL)



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	15deg. C, 64%RH 1013 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	2359.89	58.0 PK	74.0	-16.0	1.29 H	186	26.31	31.69
2	2359.89	46.7 AV	54.0	-7.3	1.29 H	186	15.01	31.69
3	2390.00	60.7 PK	74.0	-13.3	1.29 H	186	28.91	31.79
4	2390.00	46.5 AV	54.0	-7.5	1.29 H	186	14.71	31.79
5	*2412.00	109.1 PK			1.24 H	183	77.24	31.86
6	*2412.00	97.8 AV			1.24 H	183	65.94	31.86
7	4824.00	52.8 PK	74.0	-21.2	1.40 H	88	11.84	40.96
8	4824.00	42.9 AV	54.0	-11.1	1.40 H	88	1.94	40.96
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.9 PK	74.0	-15.1	1.24 V	139	27.11	31.79
2	2390.00	44.6 AV	54.0	-9.4	1.24 V	139	12.81	31.79
3	*2412.00	103.2 PK			1.20 V	137	71.34	31.86
4	*2412.00	92.7 AV			1.20 V	137	60.84	31.86
5	4824.00	48.5 PK	74.0	-25.5	1.11 V	148	7.54	40.96
6	4824.00	38.9 AV	54.0	-15.1	1.11 V	148	-2.06	40.96

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	15deg. C, 64%RH 1013 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	2385.10	60.3 PK	74.0	-13.7	1.60 H	202	28.53	31.77
2	2385.10	48.2 AV	54.0	-5.8	1.60 H	202	16.43	31.77
3	*2437.00	110.6 PK			1.21 H	196	78.67	31.93
4	*2437.00	97.4 AV			1.21 H	196	65.47	31.93
5	2488.60	60.6 PK	74.0	-13.4	1.51 H	181	28.51	32.09
6	2488.60	48.6 AV	54.0	-5.4	1.51 H	181	16.51	32.09
7	4874.00	53.4 PK	74.0	-20.6	1.38 H	73	12.35	41.05
8	4874.00	43.3 AV	54.0	-10.7	1.38 H	73	2.25	41.05
9	7311.00	54.1 PK	74.0	-19.9	1.00 H	5	8.62	45.48
10	7311.00	39.9 AV	54.0	-14.1	1.00 H	5	-5.58	45.48
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	103.7 PK			1.24 V	139	71.77	31.93
2	*2437.00	92.9 AV			1.24 V	139	60.97	31.93
3	4874.00	47.6 PK	74.0	-26.4	1.14 V	150	6.55	41.05
4	4874.00	37.2 AV	54.0	-16.8	1.14 V	150	-3.85	41.05
5	7311.00	51.3 PK	74.0	-22.7	1.04 V	38	5.82	45.48
6	7311.00	38.2 AV	54.0	-15.8	1.04 V	38	-7.28	45.48

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.



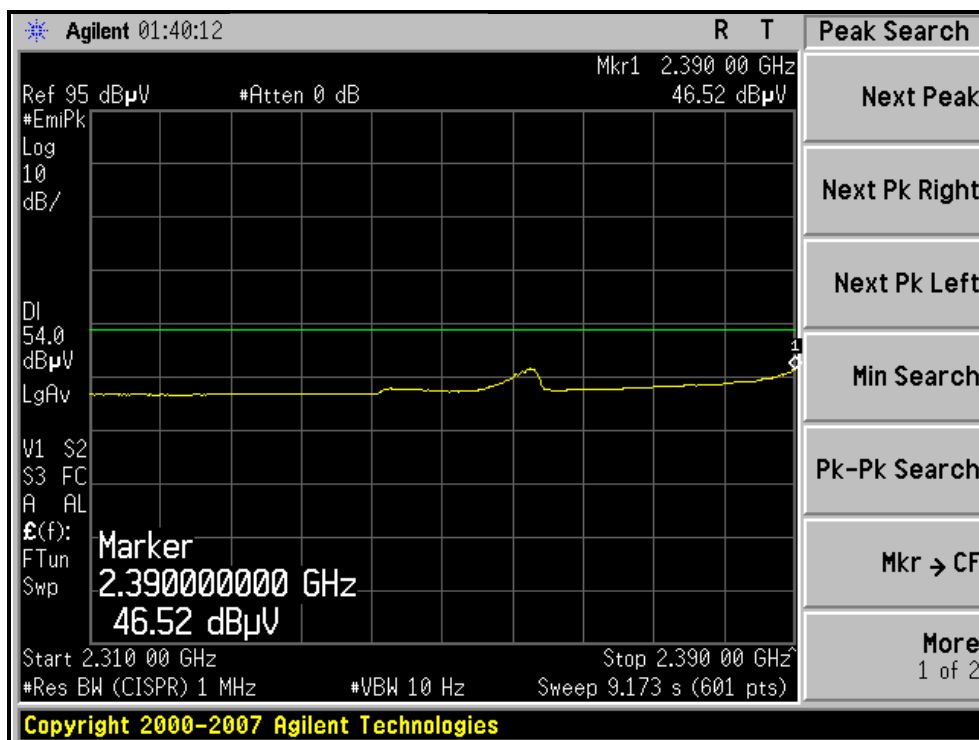
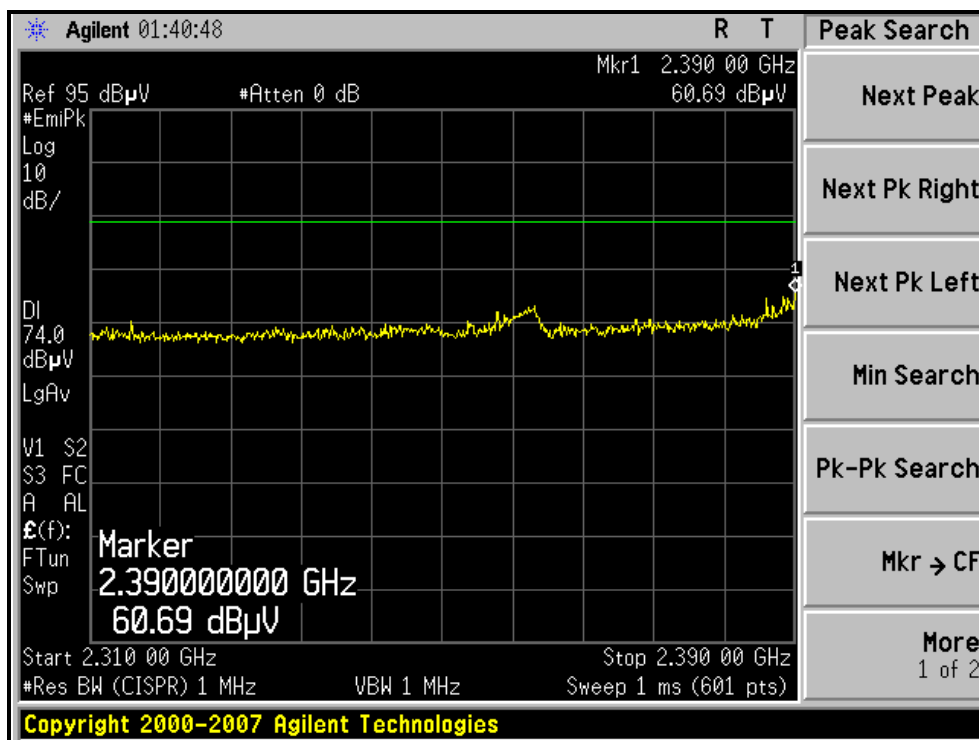
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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	15deg. C, 64%RH 1013 hPa	TESTED BY	Frank Liu
TEST MODE	PIFA Antenna		

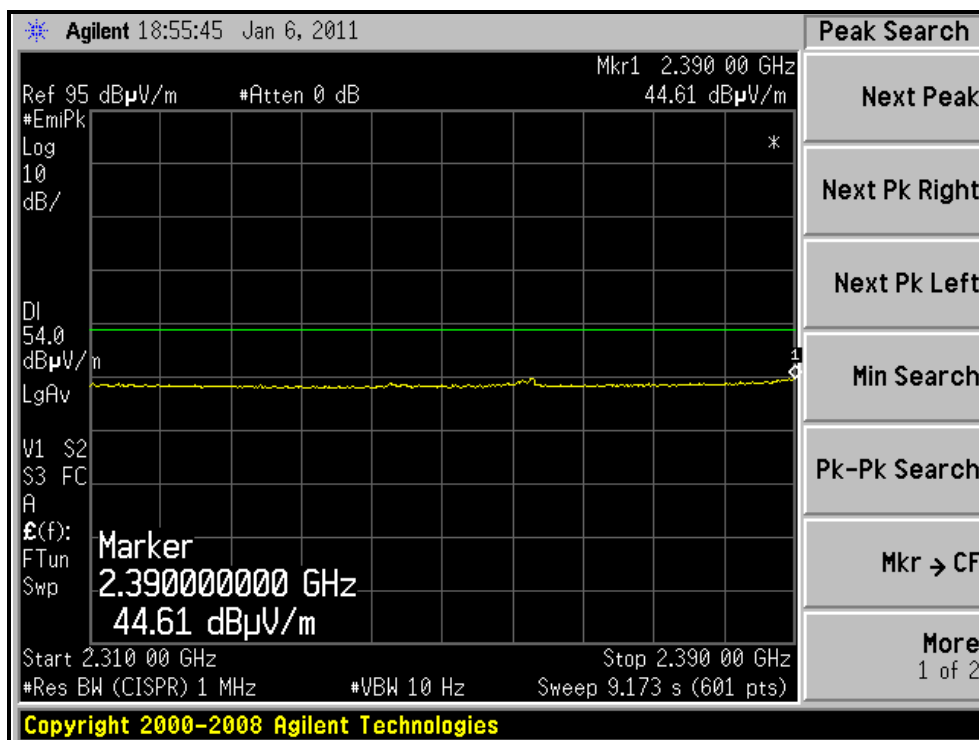
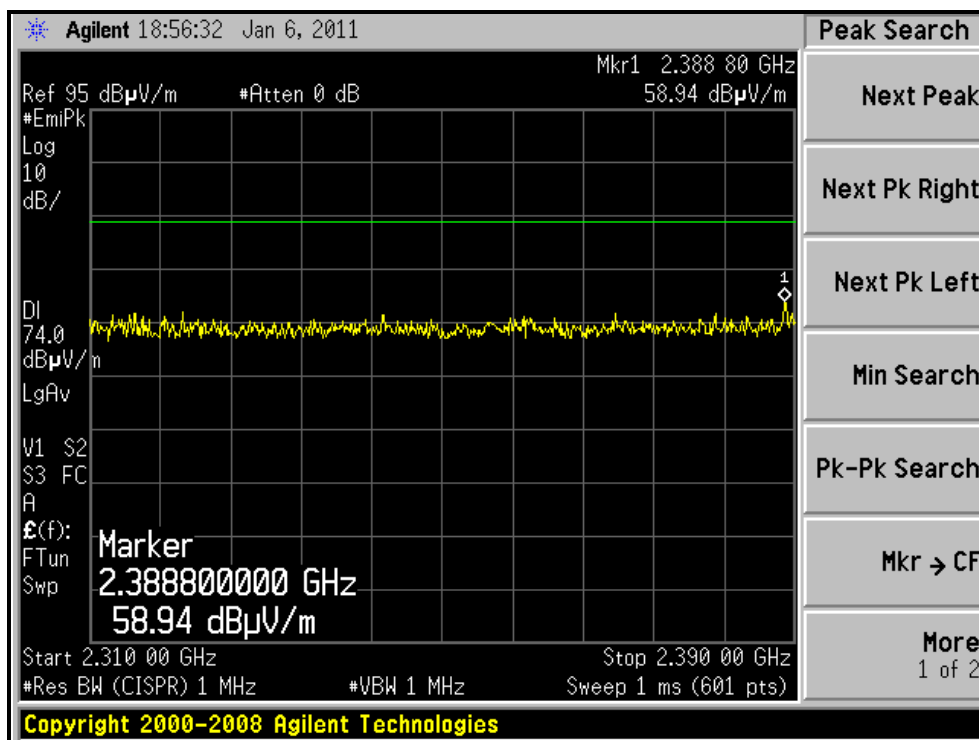
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	110.5 PK			1.24 H	182	78.49	32.01
2	*2462.00	98.5 AV			1.24 H	182	66.49	32.01
3	2483.50	70.7 PK	74.0	-3.3	1.20 H	173	38.62	32.08
4	2483.50	49.1 AV	54.0	-4.9	1.20 H	173	17.02	32.08
5	4924.00	52.9 PK	74.0	-21.1	1.22 H	84	11.75	41.15
6	4924.00	42.8 AV	54.0	-11.2	1.22 H	84	1.65	41.15
7	7386.00	53.2 PK	74.0	-20.8	1.38 H	167	7.54	45.66
8	7386.00	39.2 AV	54.0	-14.8	1.38 H	167	-6.46	45.66
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.9 PK			1.31 V	146	72.89	32.01
2	*2462.00	94.3 AV			1.31 V	146	62.29	32.01
3	2483.50	61.5 PK	74.0	-12.5	1.21 V	130	29.42	32.08
4	2483.50	44.9 AV	54.0	-9.1	1.21 V	130	12.82	32.08
5	4924.00	46.1 PK	74.0	-27.9	1.41 V	73	4.95	41.15
6	4924.00	36.9 AV	54.0	-17.1	1.41 V	73	-4.25	41.15
7	7386.00	50.2 PK	74.0	-23.8	1.58 V	265	4.54	45.66
8	7386.00	38.1 AV	54.0	-15.9	1.58 V	265	-7.56	45.66

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

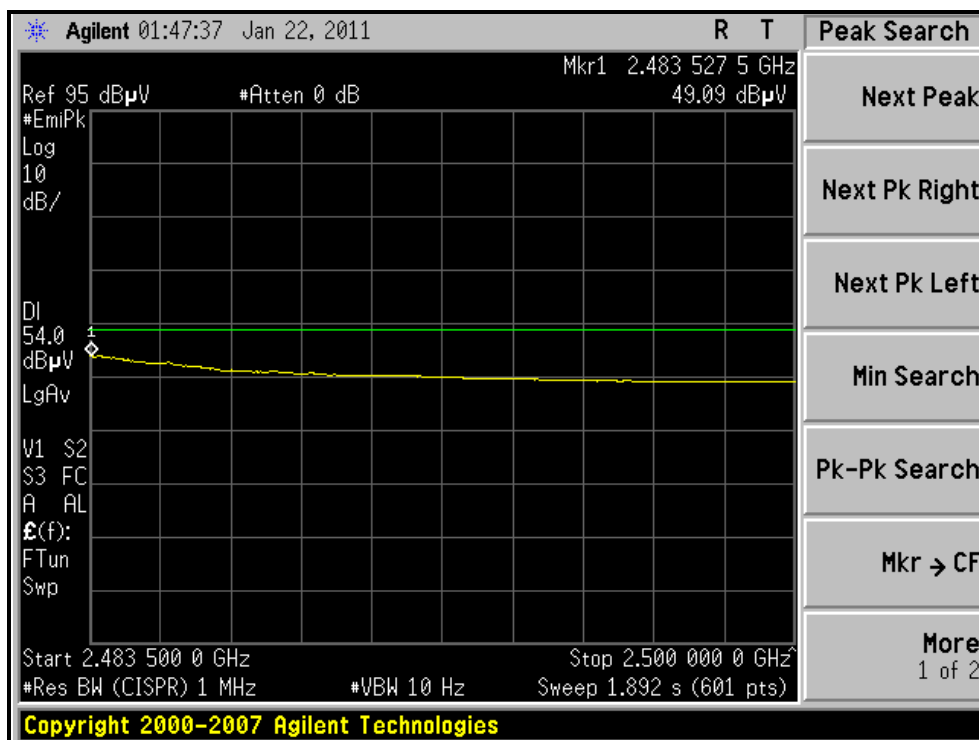
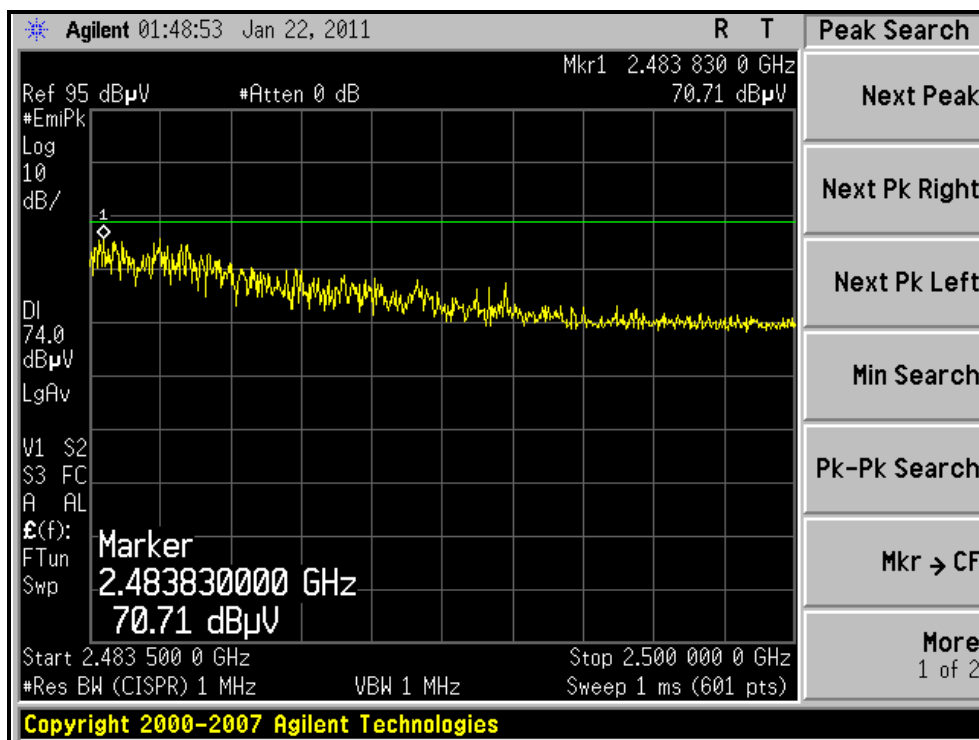
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, HORIZONTAL)



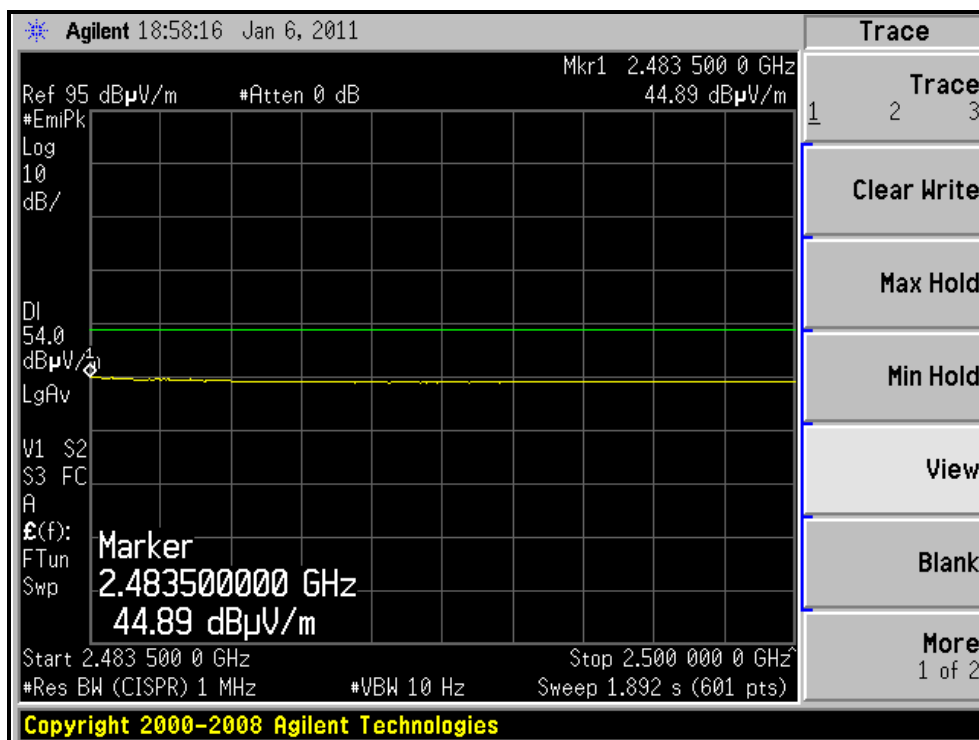
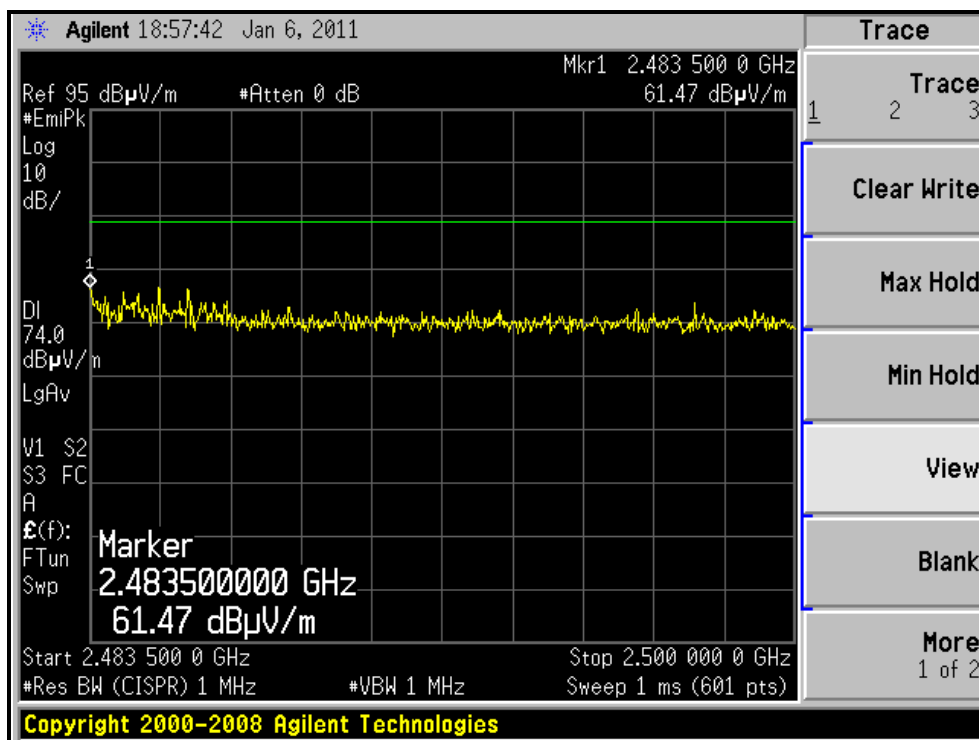
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, VERTICAL)



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



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





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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	15deg. C, 64%RH 1013 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	70.4 PK	74.0	-3.6	1.30 H	187	38.61	31.79
2	2390.00	48.4 AV	54.0	-5.6	1.30 H	187	16.61	31.79
3	*2422.00	104.3 PK			1.41 H	182	72.41	31.89
4	*2422.00	92.1 AV			1.41 H	182	60.21	31.89
5	4844.00	47.2 PK	74.0	-26.8	1.44 H	94	6.20	41.00
6	4844.00	38.3 AV	54.0	-15.7	1.44 H	94	-2.70	41.00
7	7266.00	52.8 PK	74.0	-21.2	1.50 H	271	7.44	45.36
8	7266.00	39.1 AV	54.0	-14.9	1.50 H	271	-6.26	45.36
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	60.1 PK	74.0	-13.9	1.21 V	314	28.31	31.79
2	2390.00	44.3 AV	54.0	-9.7	1.21 V	314	12.51	31.79
3	*2422.00	97.1 PK			1.21 V	314	65.21	31.89
4	*2422.00	87.4 AV			1.21 V	314	55.51	31.89
5	4844.00	46.3 PK	74.0	-27.7	1.10 V	144	5.30	41.00
6	4844.00	37.1 AV	54.0	-16.9	1.10 V	144	-3.90	41.00
7	7266.00	51.1 PK	74.0	-22.9	1.14 V	208	5.74	45.36
8	7266.00	37.5 AV	54.0	-16.5	1.14 V	208	-7.86	45.36

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 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	15deg. C, 64%RH 1013 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	66.7 PK	74.0	-7.3	1.30 H	187	34.91	31.79
2	2390.00	45.2 AV	54.0	-8.8	1.30 H	187	13.41	31.79
3	*2437.00	104.2 PK			1.42 H	179	72.27	31.93
4	*2437.00	92.3 AV			1.42 H	179	60.37	31.93
5	4874.00	47.6 PK	74.0	-26.4	1.18 H	99	6.55	41.05
6	4874.00	38.2 AV	54.0	-15.8	1.18 H	99	-2.85	41.05
7	7311.00	54.3 PK	74.0	-19.7	1.26 H	271	8.82	45.48
8	7311.00	39.9 AV	54.0	-14.1	1.26 H	271	-5.58	45.48
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	97.4 PK			1.26 V	350	65.47	31.93
2	*2437.00	87.2 AV			1.26 V	350	55.27	31.93
3	4874.00	46.5 PK	74.0	-27.5	1.33 V	15	5.45	41.05
4	4874.00	36.9 AV	54.0	-17.1	1.33 V	15	-4.15	41.05
5	7311.00	51.4 PK	74.0	-22.6	1.40 V	168	5.92	45.48
6	7311.00	38.1 AV	54.0	-15.9	1.40 V	168	-7.38	45.48

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.



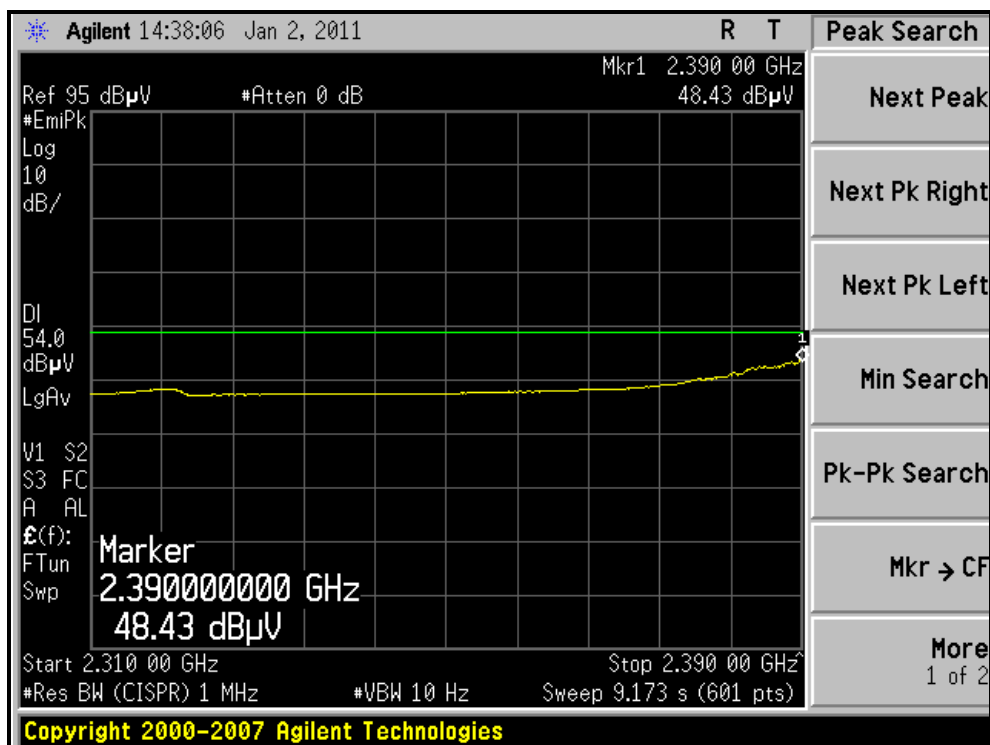
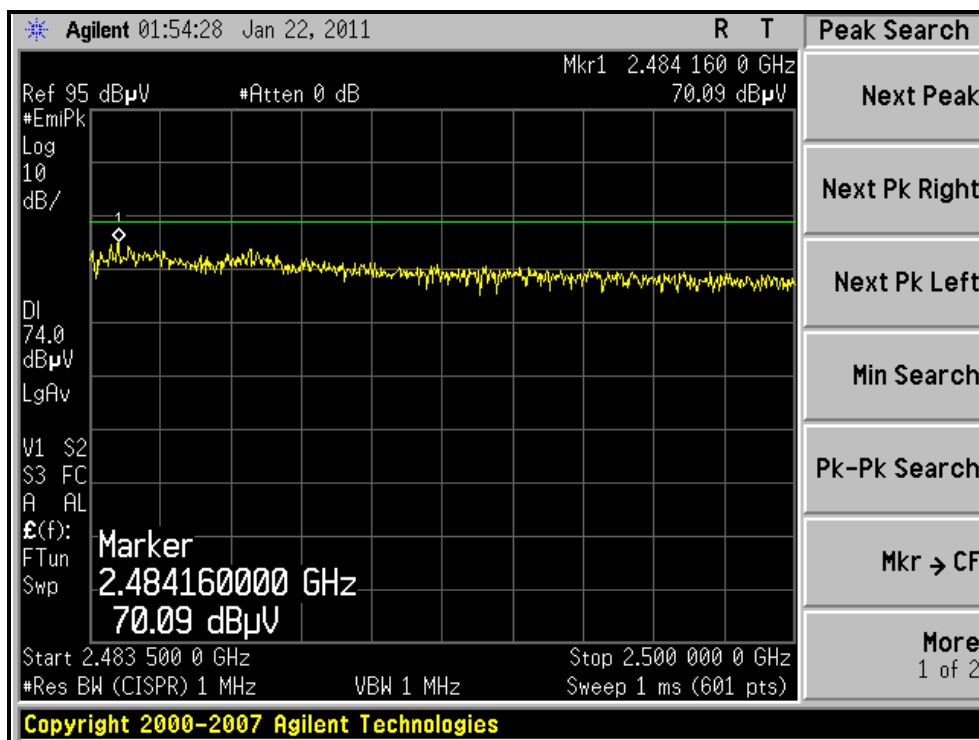
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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	15deg. C, 64%RH 1013 hPa	TESTED BY	Frank Liu
TEST MODE	PIFA Antenna		

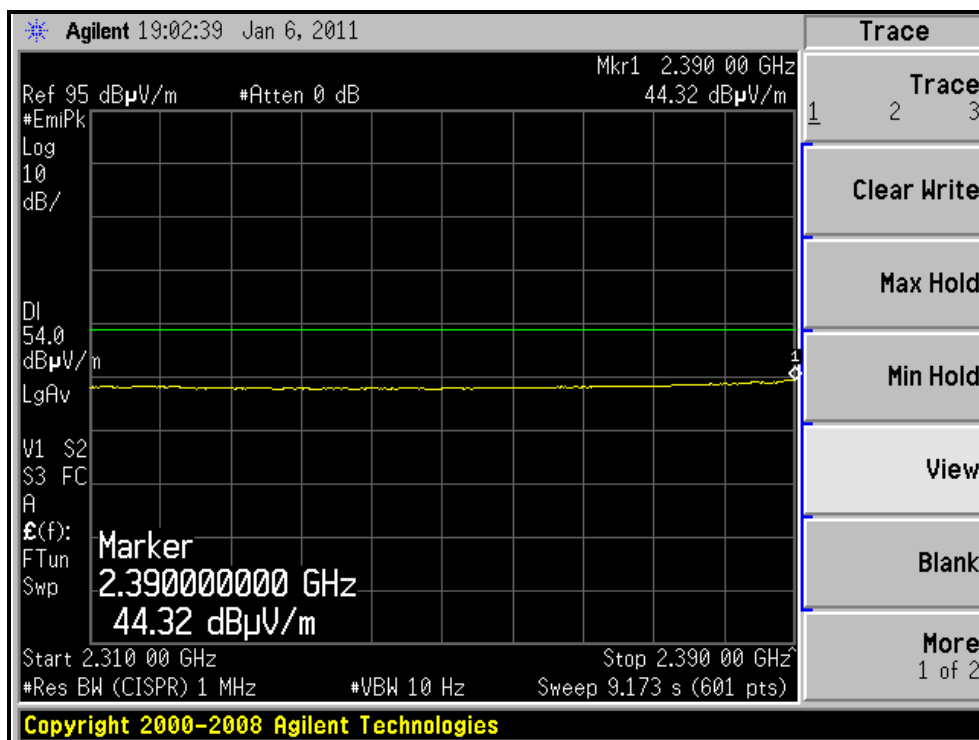
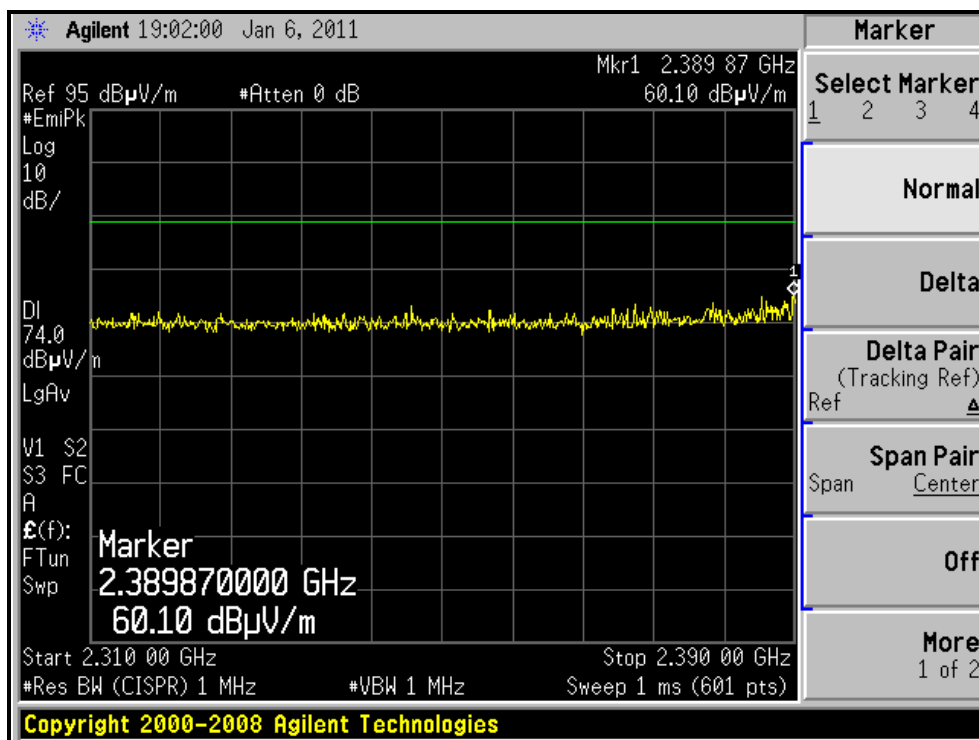
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	104.4 PK			1.41 H	183	72.42	31.98
2	*2452.00	92.1 AV			1.41 H	183	60.12	31.98
3	#2483.00	70.1 PK	84.4	-3.9	1.48 H	187	38.02	32.08
4	#2483.00	50.9 AV	72.1	-21.2	1.48 H	187	18.82	32.08
5	4904.00	48.2 PK	74.0	-25.8	1.50 H	88	7.09	41.11
6	4904.00	39.1 AV	54.0	-14.9	1.50 H	88	-2.01	41.11
7	7356.00	54.5 PK	74.0	-19.5	1.46 H	269	8.91	45.59
8	7356.00	40.1 AV	54.0	-13.9	1.46 H	269	-5.49	45.59
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	97.7 PK			1.24 V	357	65.72	31.98
2	*2452.00	87.6 AV			1.24 V	357	55.62	31.98
3	2483.50	59.8 PK	74.0	-14.2	1.29 V	321	27.72	32.08
4	2483.50	46.2 AV	54.0	-7.8	1.29 V	321	14.12	32.08
5	4904.00	47.3 PK	74.0	-26.7	1.60 V	146	6.19	41.11
6	4904.00	38.1 AV	54.0	-15.9	1.60 V	146	-3.01	41.11
7	7356.00	51.2 PK	74.0	-22.8	1.78 V	208	5.61	45.59
8	7356.00	38.3 AV	54.0	-15.7	1.78 V	208	-7.29	45.59

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

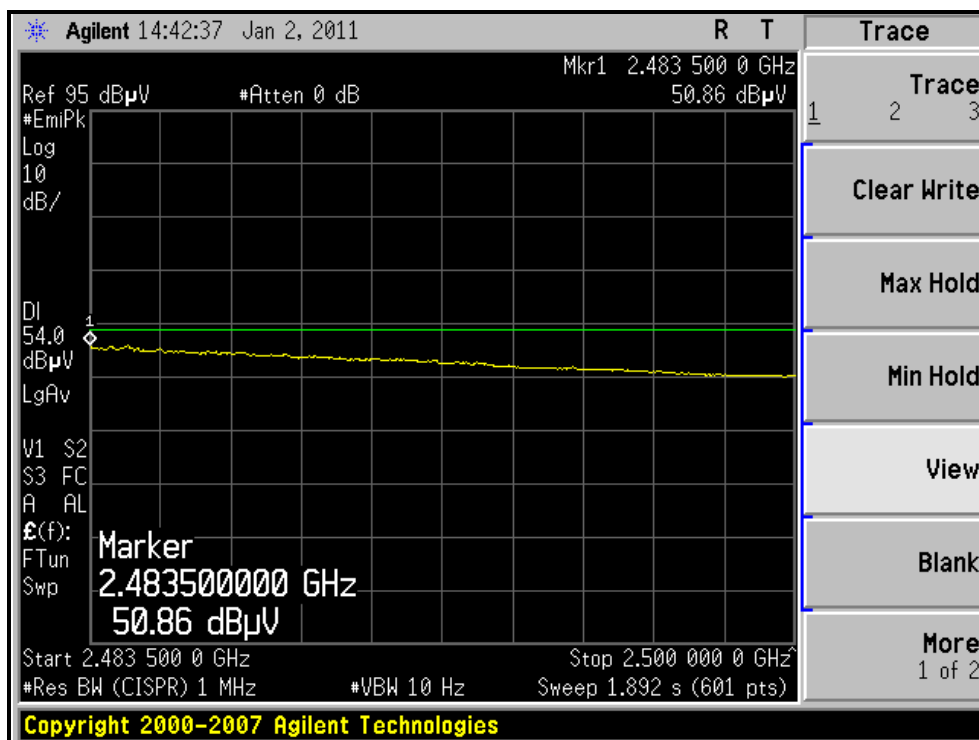
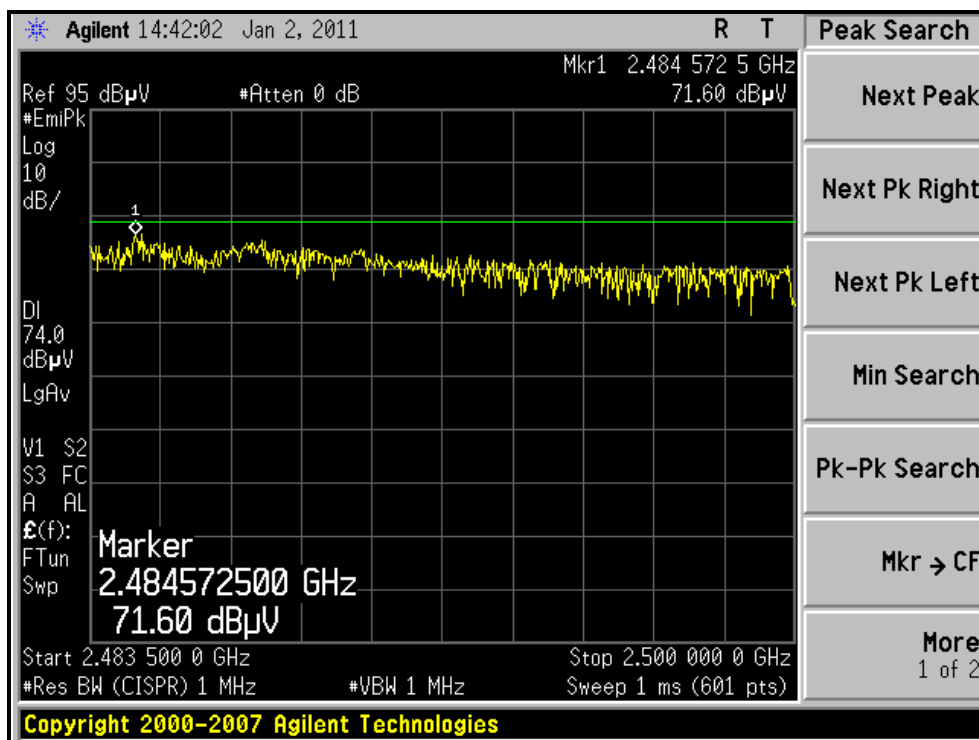
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, HORIZONTAL)



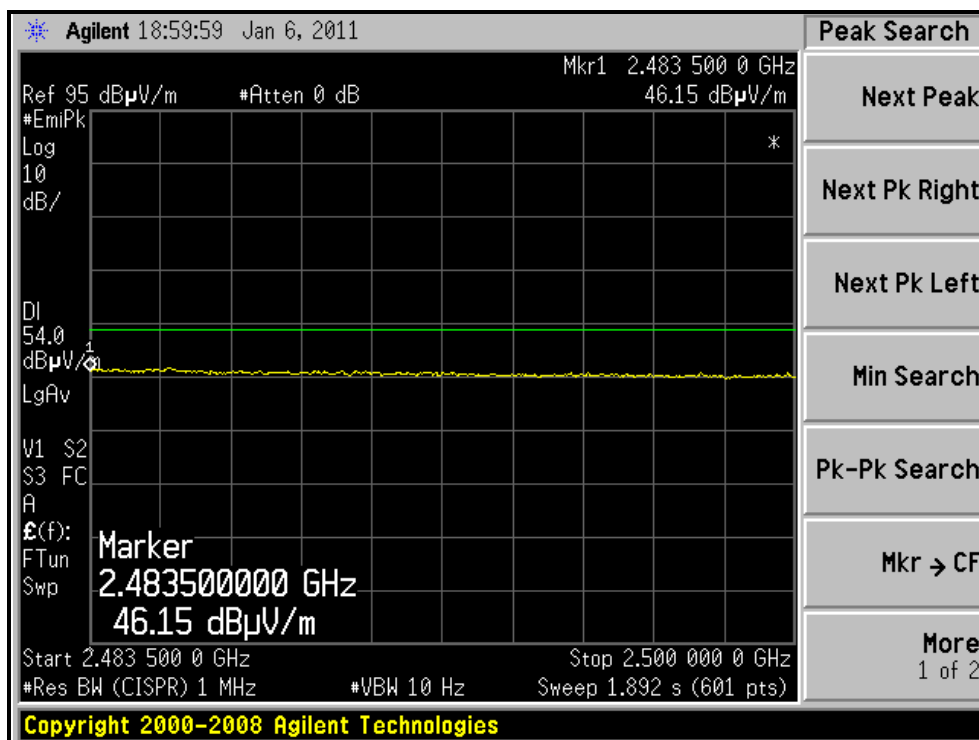
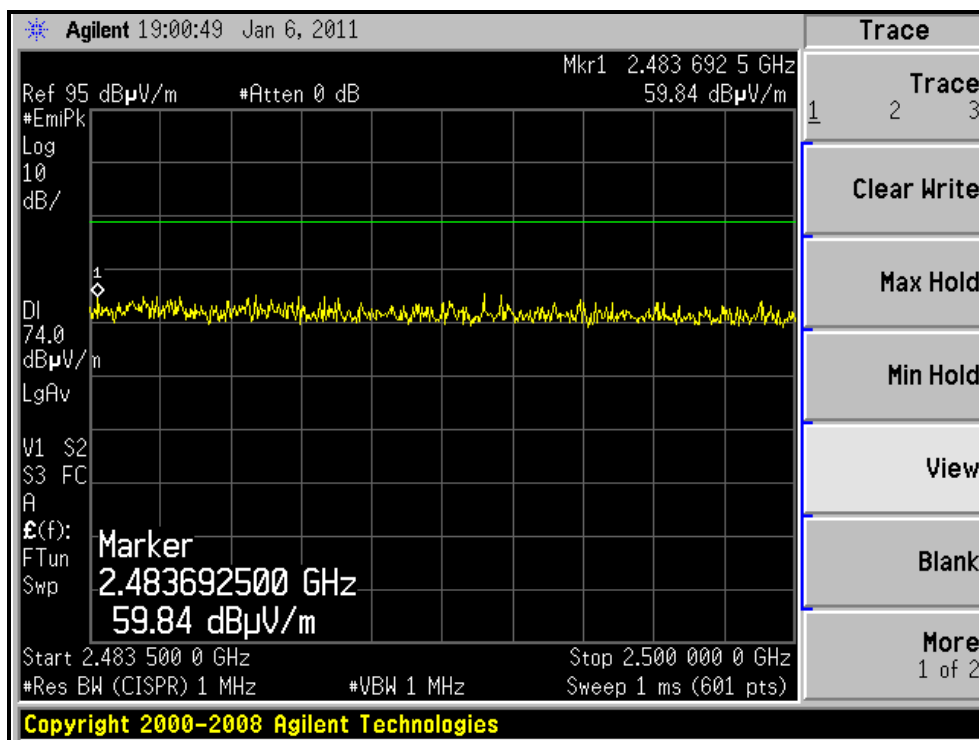
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, VERTICAL)



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



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



4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100036	Apr. 27, 2010	Apr. 26, 2011

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

4.3.3 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 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

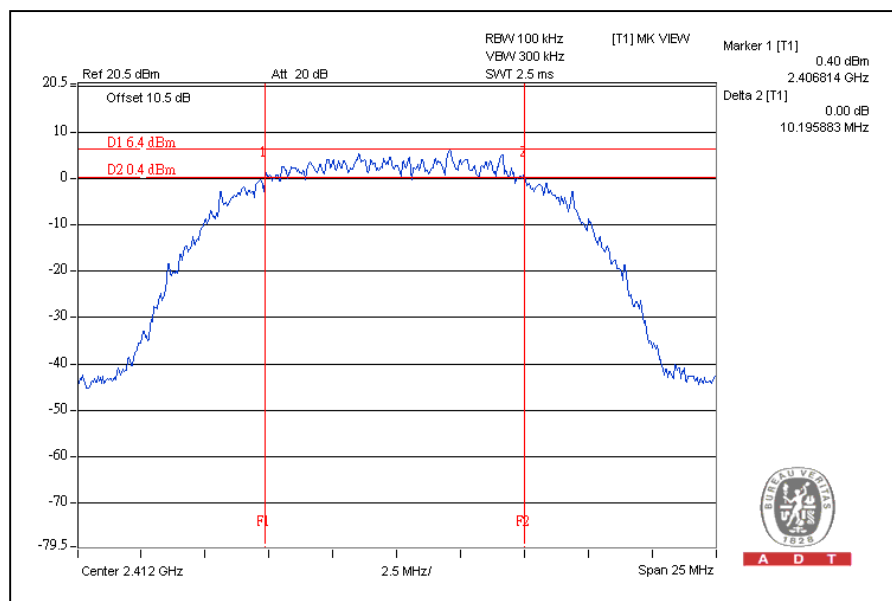
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.19	0.5	PASS
6	2437	9.03	0.5	PASS
11	2462	8.94	0.5	PASS

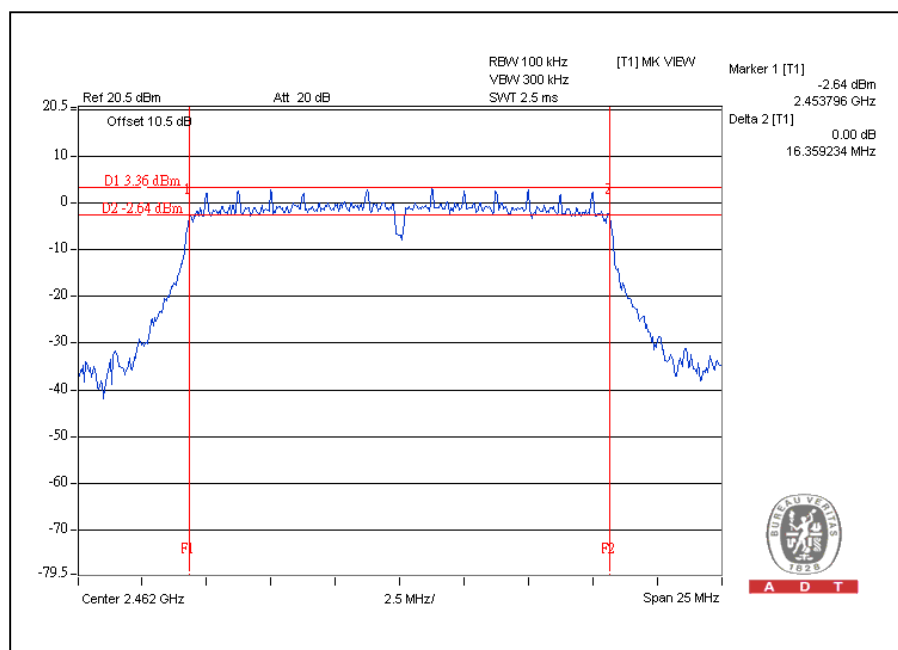
CH1



802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	15.91	0.5	PASS
6	2437	16.35	0.5	PASS
11	2462	16.35	0.5	PASS

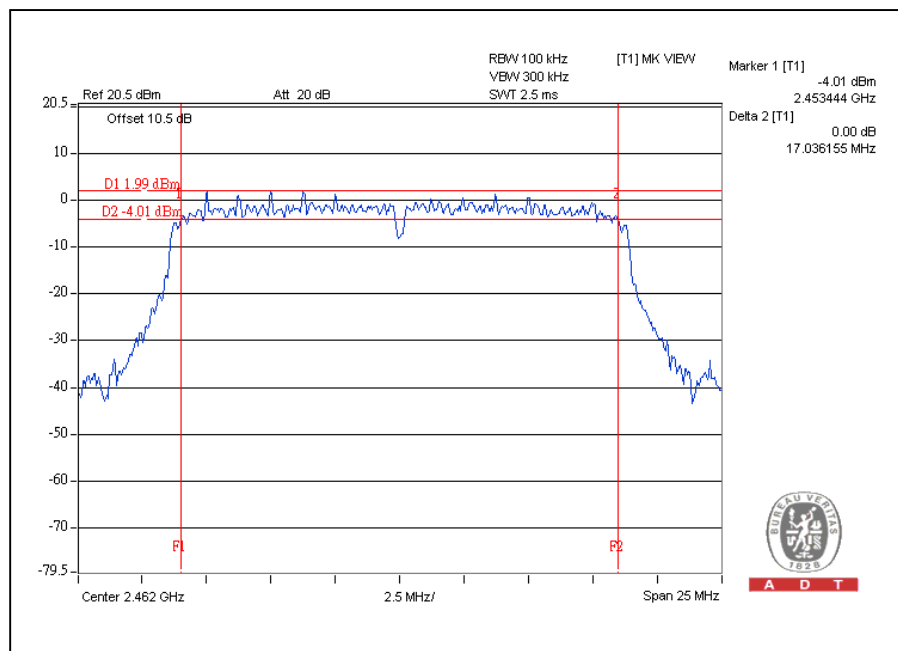
CH11



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.57	0.5	PASS
6	2437	16.93	0.5	PASS
11	2462	17.00	0.5	PASS

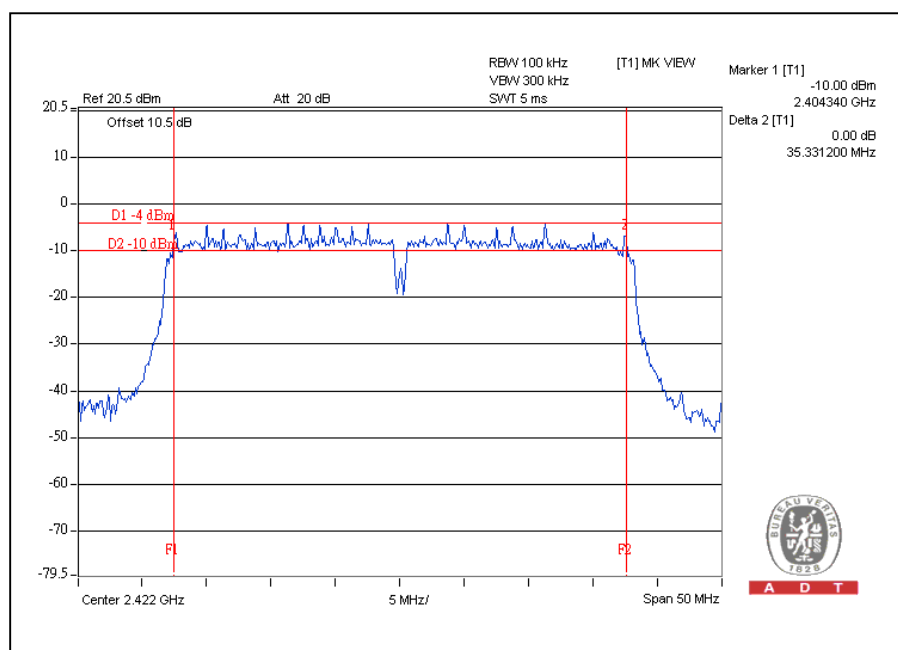
CH11



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2422	35.33	0.5	PASS
4	2437	35.27	0.5	PASS
7	2452	35.26	0.5	PASS

CH1





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4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Peak Power Meter	ML2495A	0824006	May 04, 2010	May 03, 2011
Power Sensor	MA2411B	0738172	May 04, 2010	May 03, 2011

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

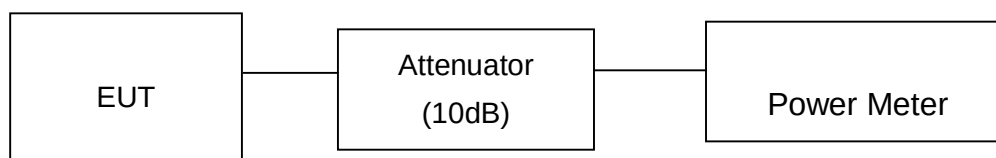
4.4.3 TEST PROCEDURES

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	87.1	19.4	30	PASS
6	2437	112.2	20.5	30	PASS
11	2462	151.4	21.8	30	PASS

802.11g OFDM MODULATION FOR PIFA ANTENNA:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	229.1	23.6	30	PASS
6	2437	162.2	22.1	30	PASS
11	2462	208.9	23.2	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	21.1	20.6	243.6	23.9	30	PASS
6	2437	21.3	21.5	276.2	24.4	30	PASS
11	2462	22.7	22.6	368.2	25.7	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	20.3	20.1	209.5	23.2	30	PASS
4	2437	20.1	20.3	209.5	23.2	30	PASS
7	2452	20.1	20.2	207.0	23.2	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
R&S SPECTRUM ANALYZER	FSP40	100036	Apr. 27, 2010	Apr. 26, 2011

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

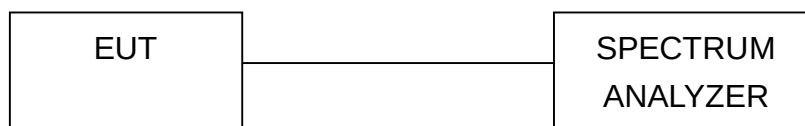
4.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded. The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

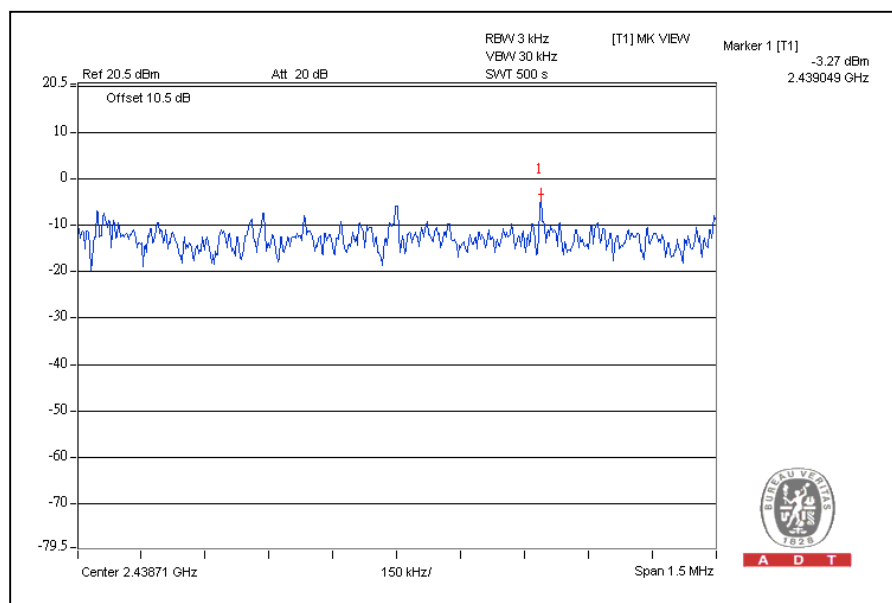
Same as Item 4.3.6

4.5.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-7.3	8	PASS
6	2437	-3.3	8	PASS
11	2462	-4.9	8	PASS

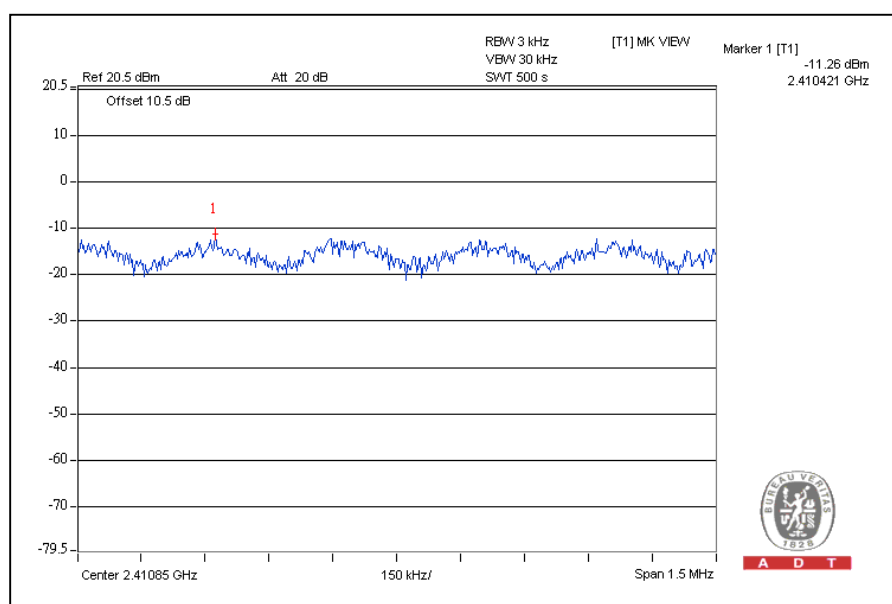
CH6



802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-11.3	8	PASS
6	2437	-13.3	8	PASS
11	2462	-12.6	8	PASS

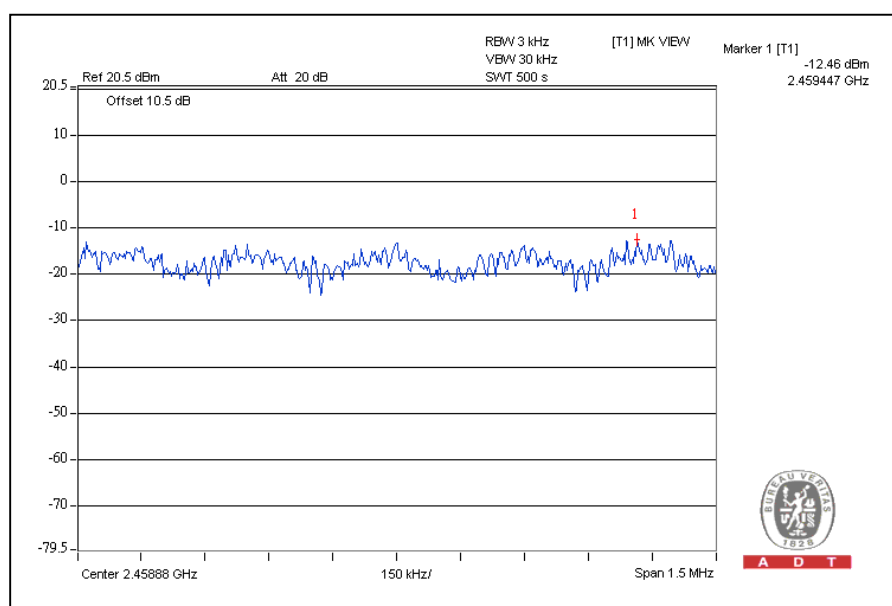
CH1



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	-14.8	-14.5	-11.6	8	PASS
6	2437	-14.2	-15.0	-11.6	8	PASS
11	2462	-12.5	-12.6	-9.5	8	PASS

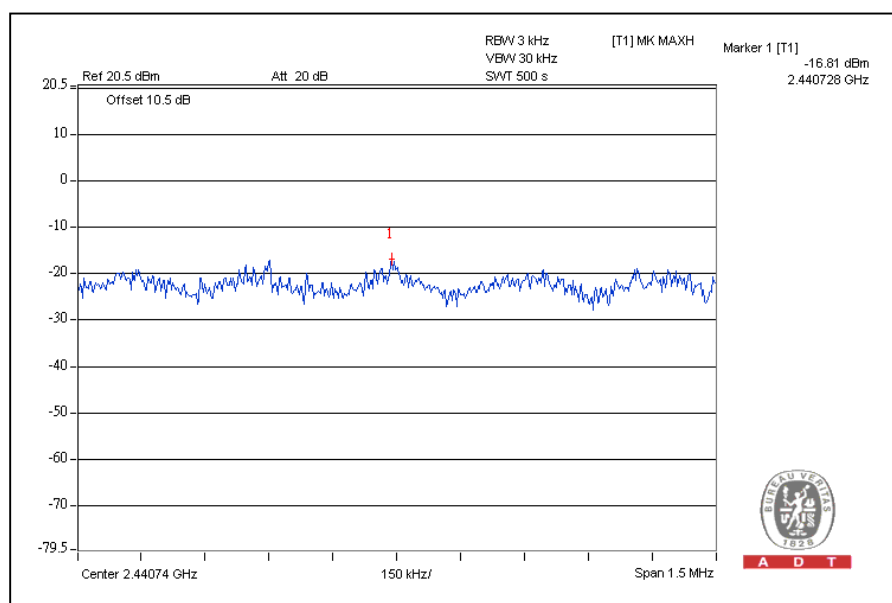
For Chain(0): CH11



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	-19.2	-17.7	-15.4	8	PASS
4	2437	-16.8	-17.3	-14.0	8	PASS
7	2452	-17.6	-17.1	-14.3	8	PASS

For Chain (0): CH4



4.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

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

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100036	Apr. 27, 2010	Apr. 26, 2011

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

4.6.3 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

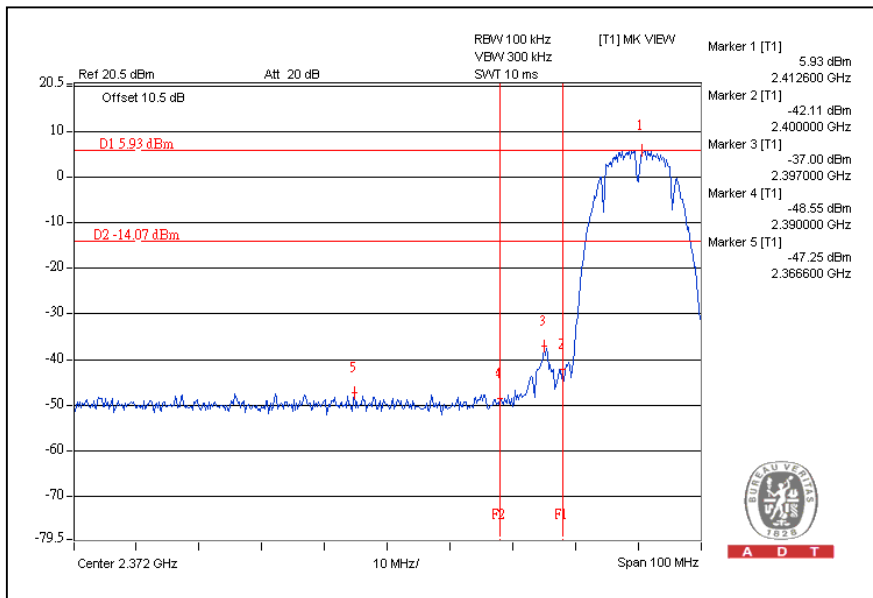
Same as Item 4.3.6

4.6.6 TEST RESULTS

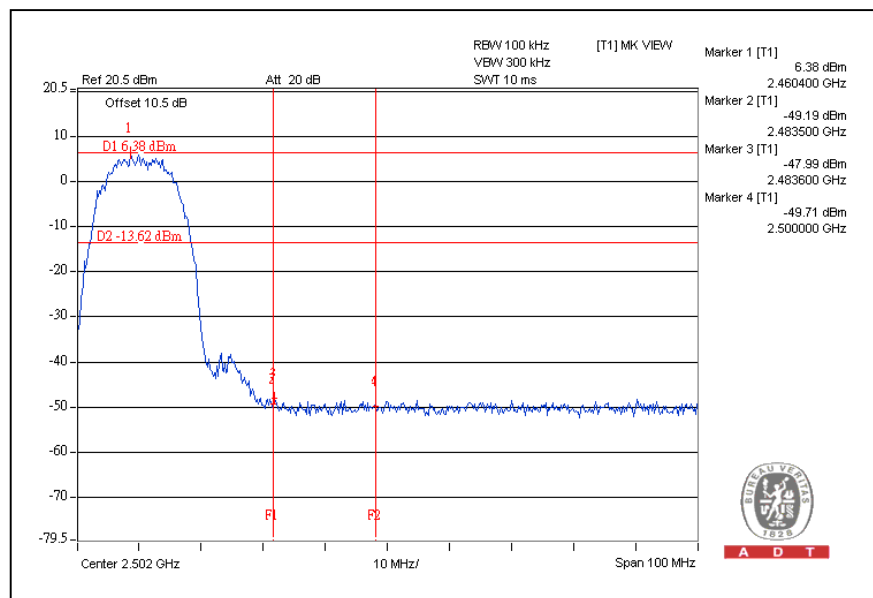
The spectrum plots are attached on the following images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11b DSSS MODULATION:

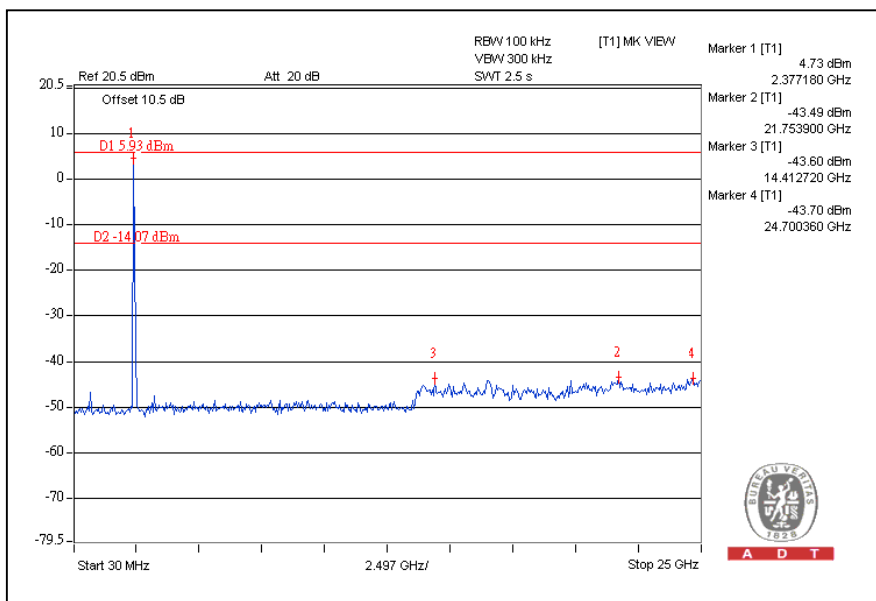
CH1



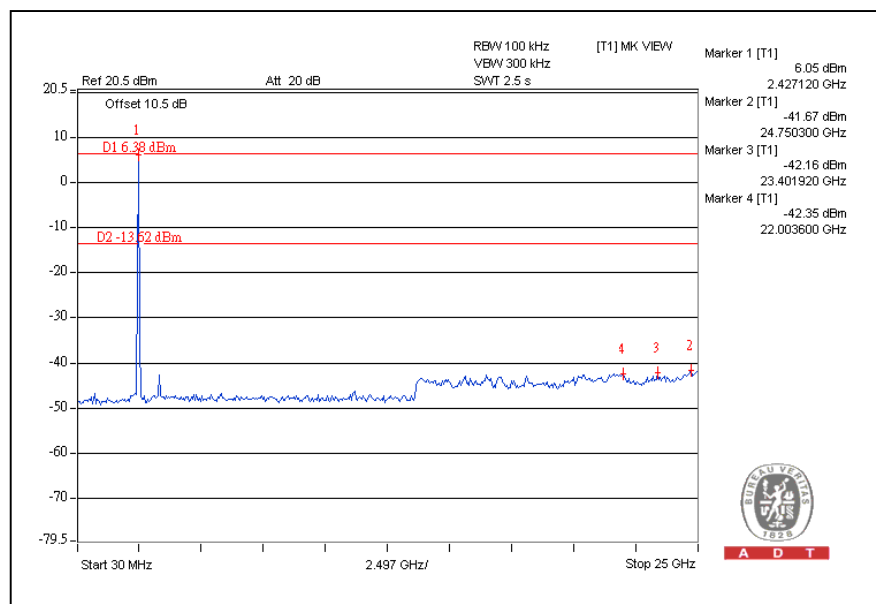
CH11



CH1

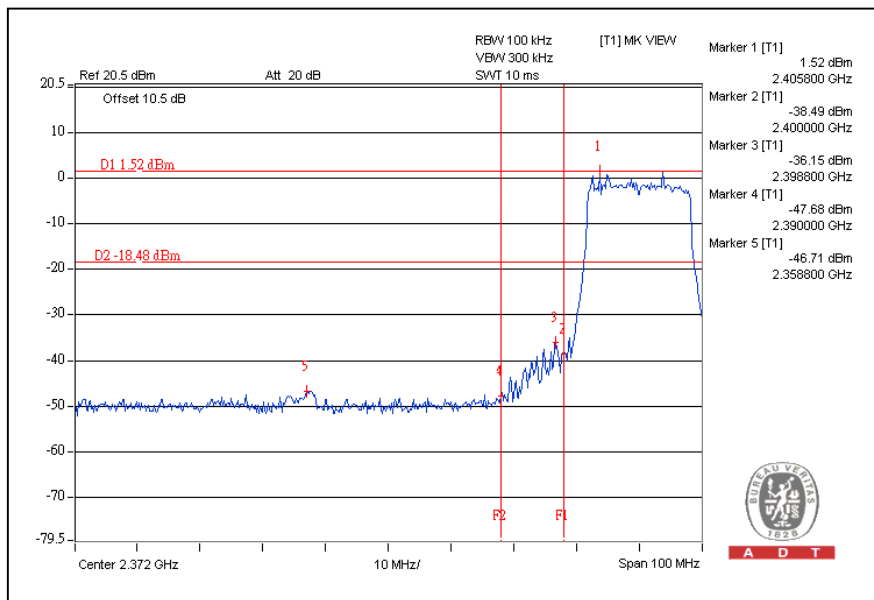


CH11

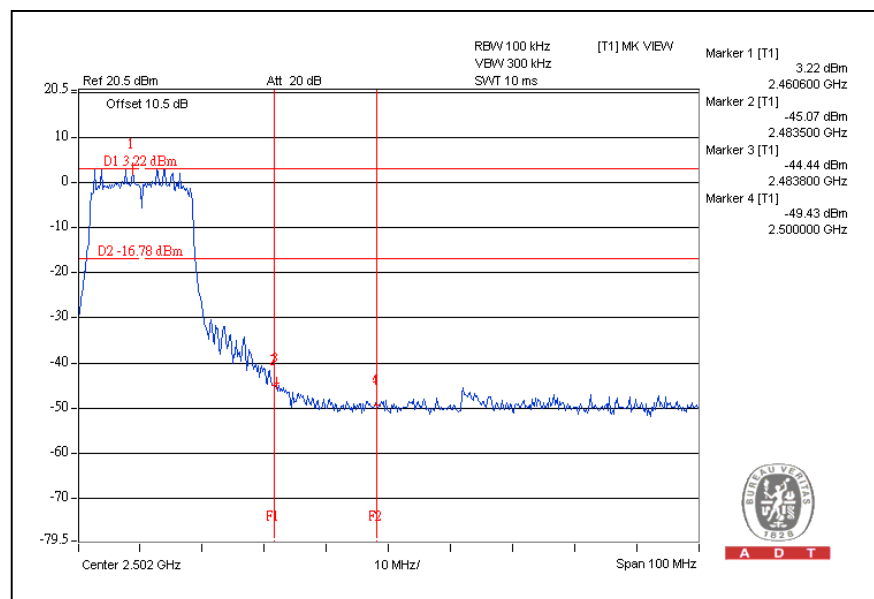


802.11g OFDM MODULATION:

CH1



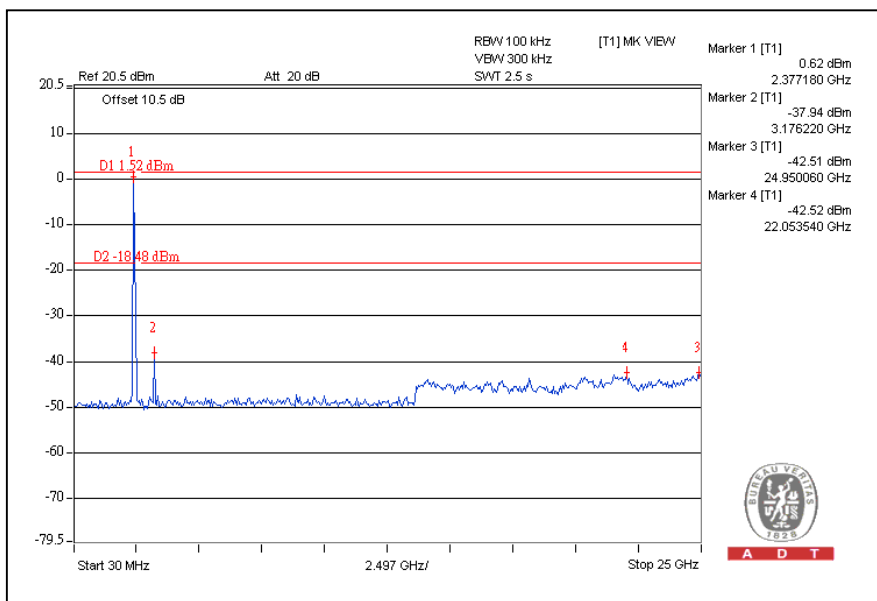
CH11



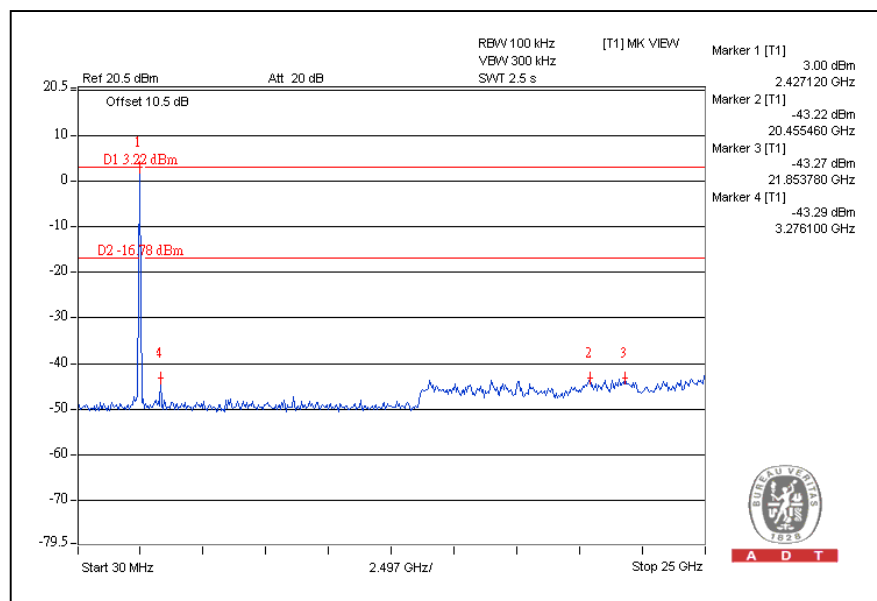


A D T

CH1

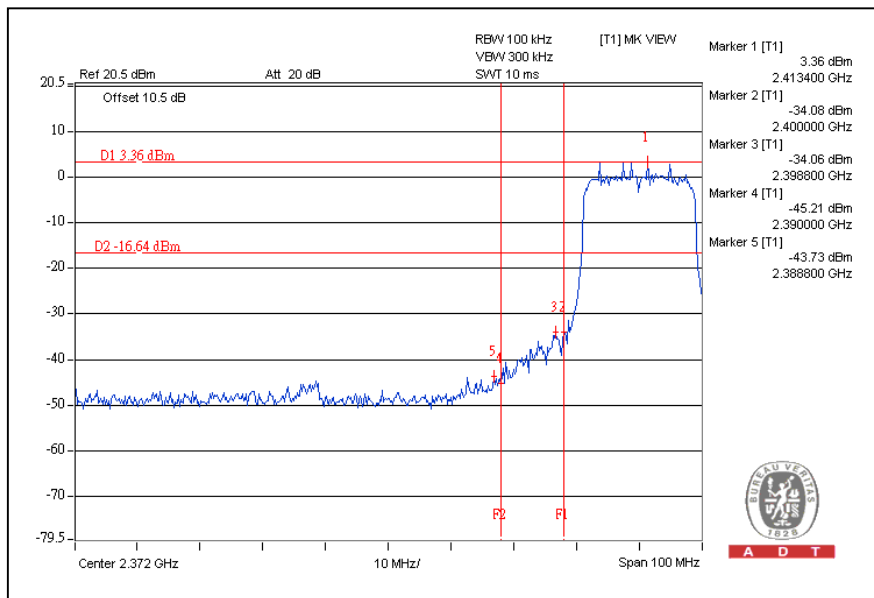


CH11

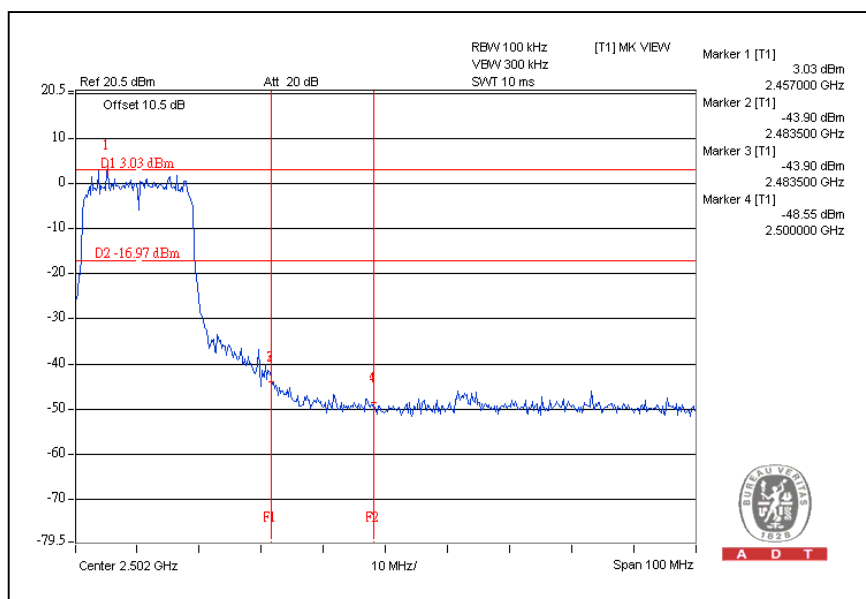


802.11n (20MHz) OFDM MODULATION:

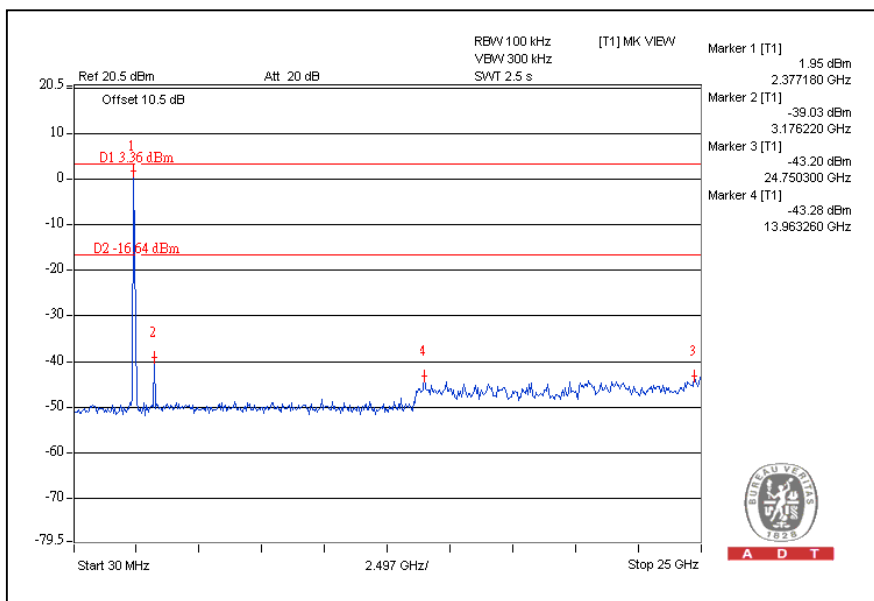
CH1



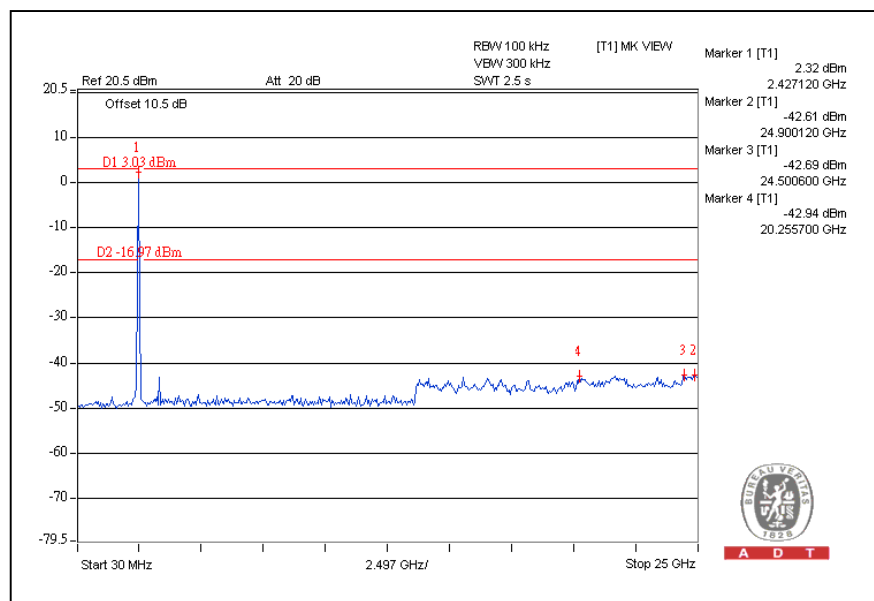
CH11



CH1

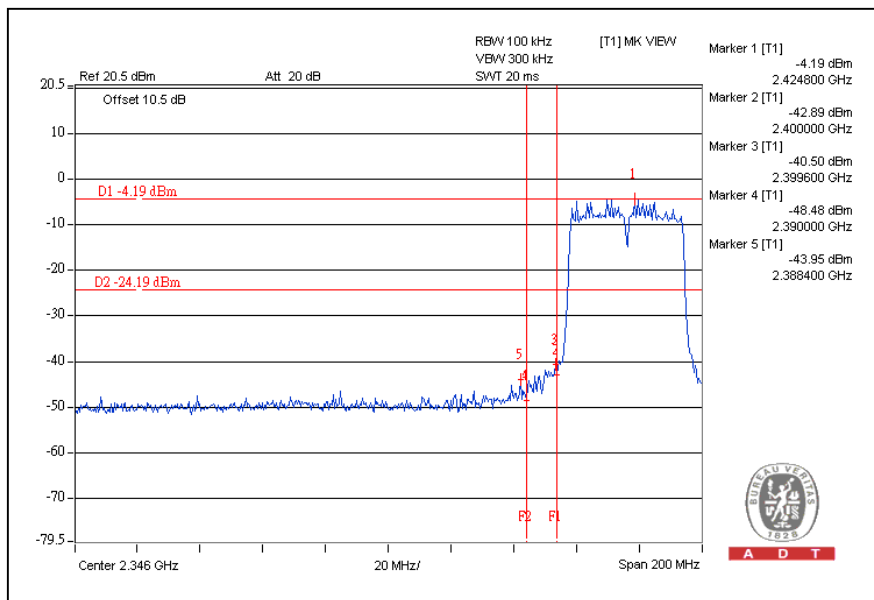


CH11

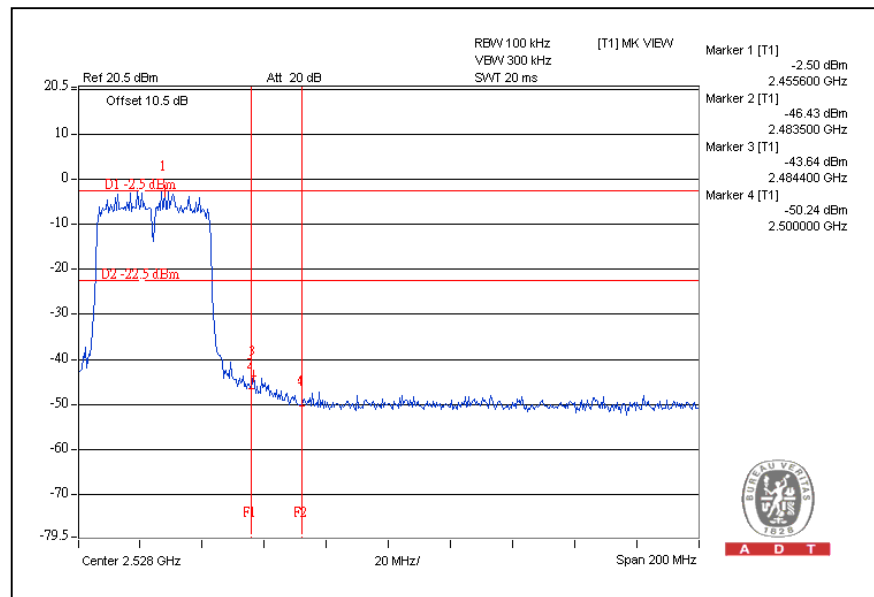


802.11n (40MHz) OFDM MODULATION:

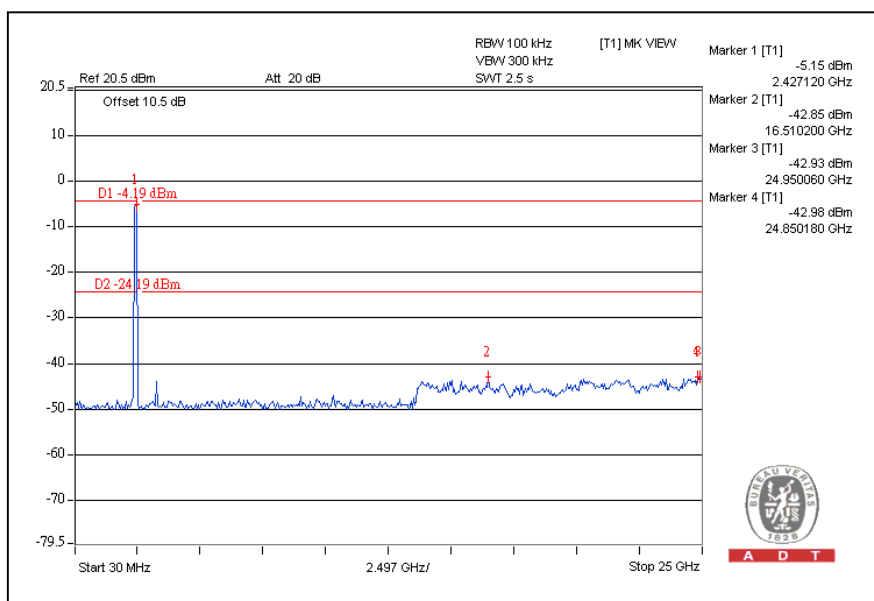
CH1



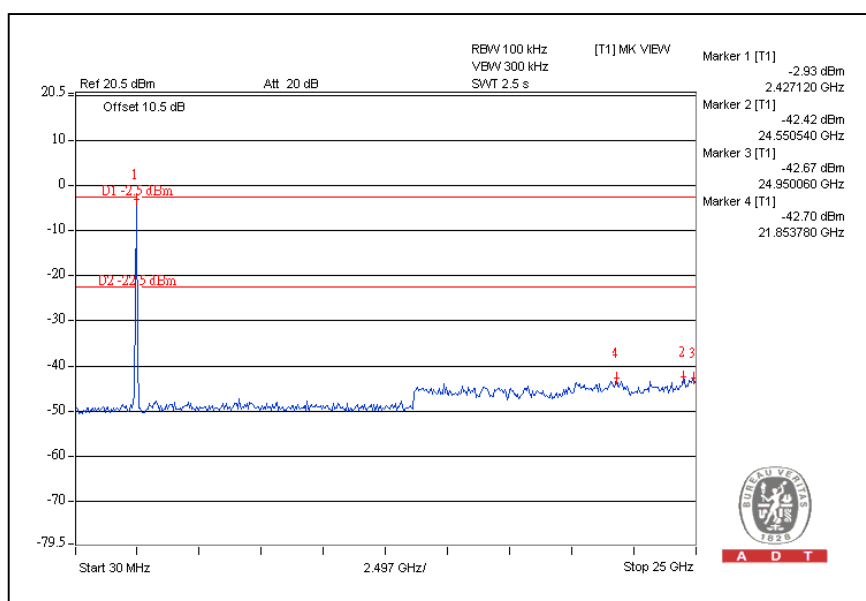
CH7



CH1



CH7



5. TEST TYPES AND RESULTS (802.11a, 5725~5850MHz Band)

5.1 CONDUCTED EMISSION MEASUREMENT

5.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

5.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver	ESCS 30	100375	Mar. 09, 2010	Mar. 08, 2011
Line-Impedance Stabilization Network (for EUT)	NSLK 8127	8127-522	Sep. 08, 2010	Sep. 07, 2011
Line-Impedance Stabilization Network (for Peripheral)	ESH3-Z5	848773/004	Nov. 03, 2010	Nov. 02, 2011
RF Cable (JYEBAO)	5DFB	COCCAB-002	Aug. 30, 2010	Aug. 29, 2011
50 ohms Terminator	50	3	Nov. 03, 2010	Nov. 02, 2011
Software	BV ADT_Cond_V7.3.7	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. C.
- 3 The VCCI Con C Registration No. is C-3611.

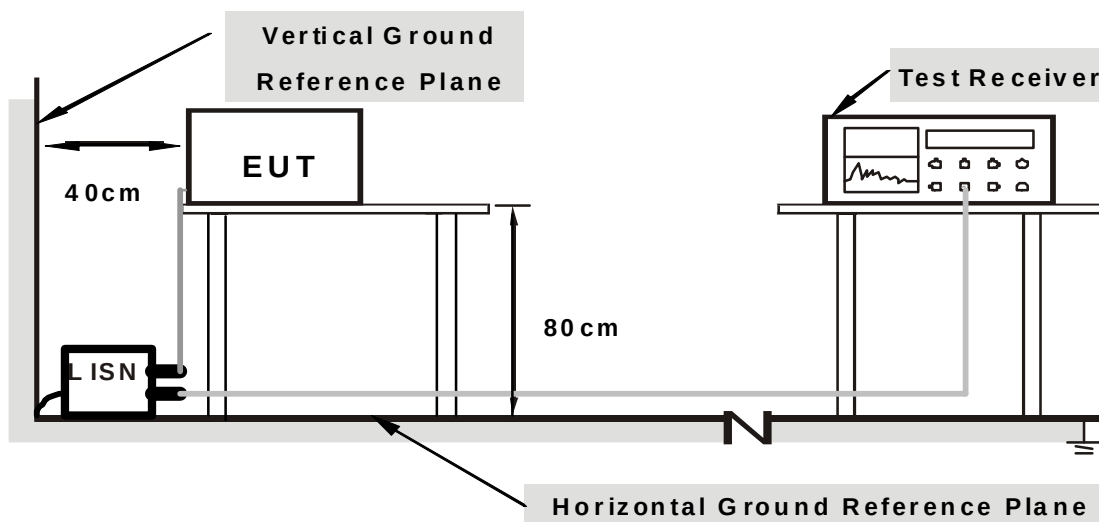
5.1.3 TEST PROCEDURES

- 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.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit – 20dB) were not recorded.

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

5.1.5 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.

5.1.6 EUT OPERATING CONDITIONS

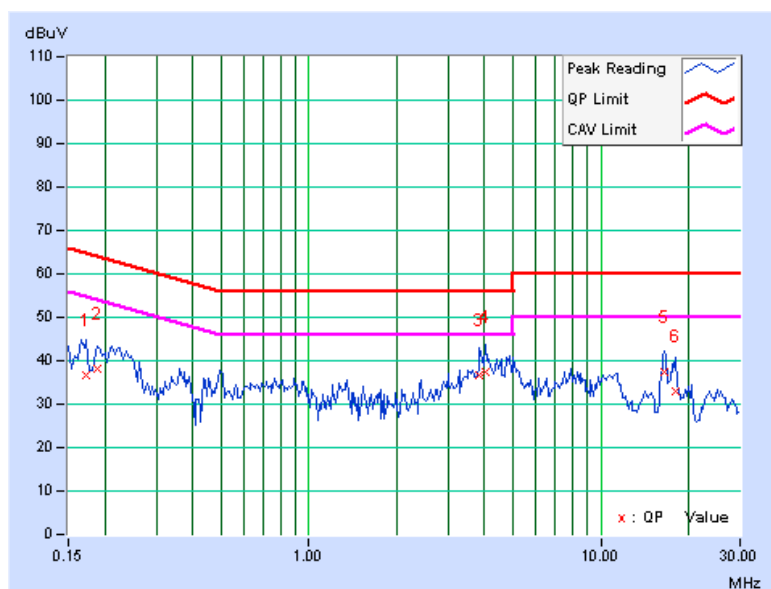
Same as the 4.1.6

5.1.7 TEST RESULTS

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.12	36.73	-	36.85	-	64.79	54.79	-27.95	-
2	0.189	0.12	37.91	-	38.03	-	64.08	54.08	-26.04	-
3	3.852	0.20	36.32	-	36.52	-	56.00	46.00	-19.48	-
4	4.047	0.20	37.25	-	37.45	-	56.00	46.00	-18.55	-
5	16.531	0.59	36.73	-	37.32	-	60.00	50.00	-22.68	-
6	17.973	0.62	32.31	-	32.93	-	60.00	50.00	-27.07	-

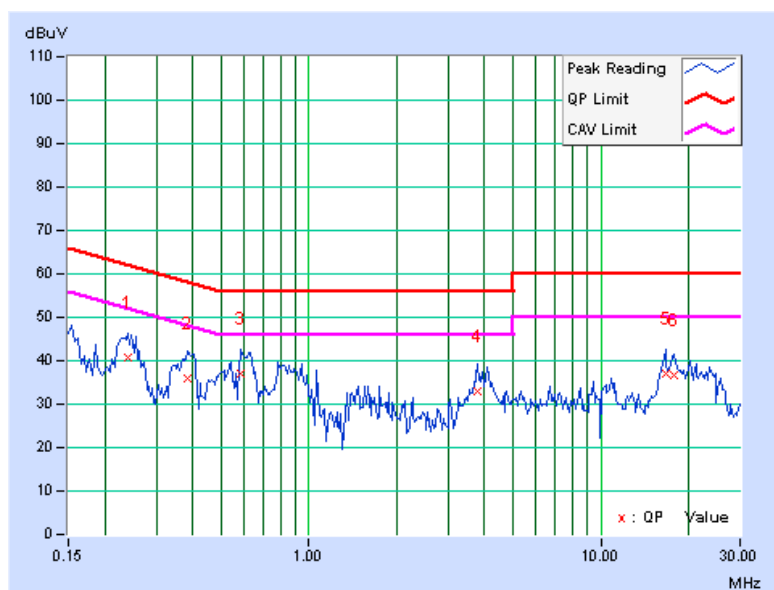
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
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	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.240	0.14	40.54	-	40.68	-	62.10	52.10	-21.42	-
2	0.384	0.15	35.73	-	35.88	-	58.18	48.18	-22.31	-
3	0.588	0.15	36.88	-	37.03	-	56.00	46.00	-18.97	-
4	3.766	0.27	32.62	-	32.89	-	56.00	46.00	-23.11	-
5	16.641	1.22	35.74	-	36.96	-	60.00	50.00	-23.04	-
6	17.742	1.28	35.42	-	36.70	-	60.00	50.00	-23.30	-

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



5.2 RADIATED EMISSION MEASUREMENT

5.2.1 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.
5. Section 15.205 restricted bands of operation shall compliance with the limits in Section 15.209.

5.2.2 TEST INSTRUMENTS

Below 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250254	July 14, 2010	July 13, 2011
Agilent Pre-Selector	N9039A	MY46520311	July 14, 2010	July 13, 2011
Agilent Signal Generator	N5181A	MY49060517	July 14, 2010	July 13, 2011
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-03	Nov. 16, 2010	Nov. 15, 2011
Agilent Pre-Amplifier	8449B	3008A02578	July 05, 2010	July 04, 2011
Miteq Pre-Amplifier	AFS33-1800265 0-30-8P-44	881786	NA	NA
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-360	Apr. 29, 2010	Apr. 28, 2011
AISI Horn Antenna	AIH.8018	0000320091110	Nov. 12, 2010	Nov. 11, 2011
SCHWARZBECK Horn Antenna	BBHA 9170	9170-424	Oct. 08, 2010	Oct. 07, 2011
RF CABLE	NA	RF104-201 RF104-203 RF104-204	Dec. 27, 2010	Dec. 26, 2011
RF Cable	NA	CHGCAB_001	NA	NA
Software	ADT_Radiated_V8.7.05	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 3. The test was performed in 966 Chamber No. G.
 4. The FCC Site Registration No. is 966073.
 5. The VCCI Site Registration No. is G-137.
 6. The CANADA Site Registration No. is IC 7450H-2.

**A D T****Above 1GHz test:**

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 08, 2010	Dec. 07, 2011
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	May 12 , 2010	May 11 , 2011
HP Pre_Amplifier	8449B	300801923	Nov. 01, 2010	Oct. 31, 2011
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 03, 2010	Sep. 02, 2011
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 28, 2010	Apr. 27, 2011
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 17, 2010	Dec. 16, 2011
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2010	Jan. 21, 2011
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.

5.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room for below 1GHz and 10 meter open area test site for above 1GHz. 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:

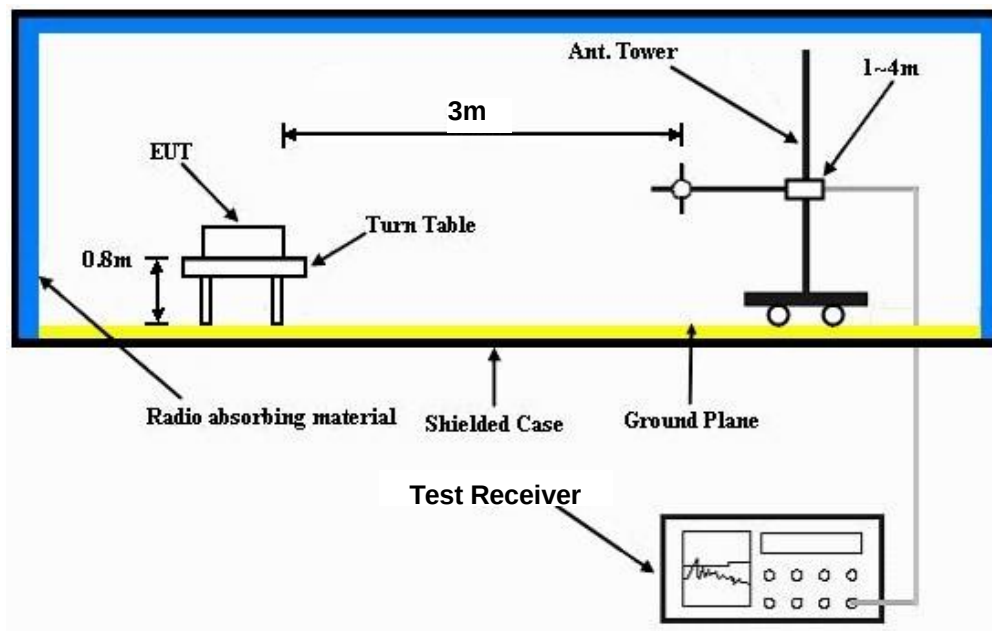
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

5.2.4 DEVIATION FROM TEST STANDARD

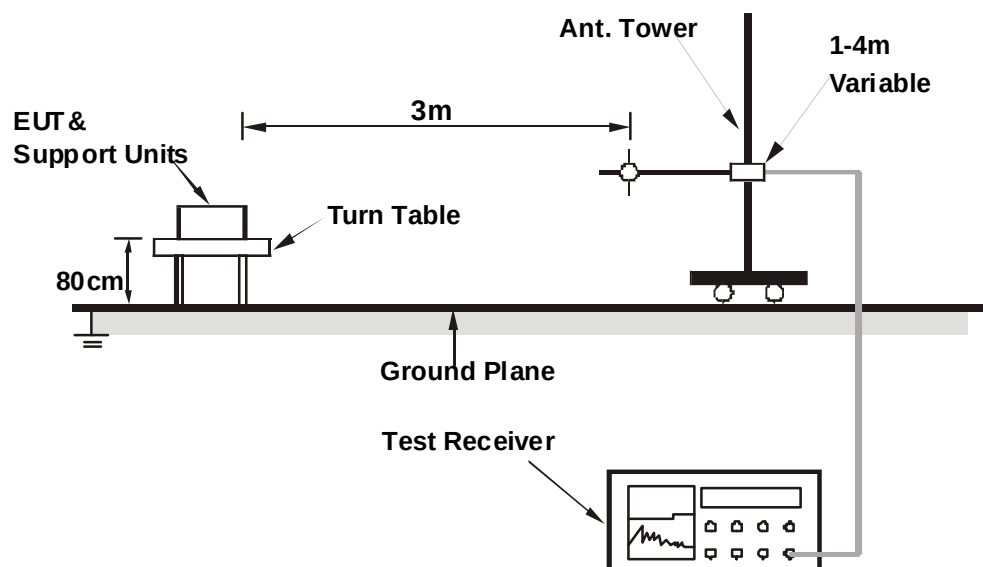
No deviation

5.2.5 TEST SETUP

Below 1GHz test:



Above 1GHz test:



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

5.2.6 EUT OPERATING CONDITIONS

Same as the 4.1.6

5.2.7 TEST RESULTS (DIPOLE ANTENNA)

BELOW 1GHz WORST-CASE DATA : 802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	14deg. C, 66%RH 1013 hPa	TESTED BY	Eric Lee
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	279.23	37.4 QP	46.0	-8.6	1.25 H	10	22.80	14.61
2	285.54	37.9 QP	46.0	-8.2	1.00 H	323	22.98	14.87
3	300.00	40.2 QP	46.0	-5.8	1.00 H	42	24.75	15.46
4	309.15	39.9 QP	46.0	-6.2	1.00 H	25	24.19	15.66
5	320.23	39.6 QP	46.0	-6.4	2.00 H	23	23.68	15.90
6	326.70	36.6 QP	46.0	-9.4	1.50 H	109	20.54	16.04
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	145.66	28.9 QP	43.5	-14.6	1.00 V	163	14.88	14.00
2	299.98	35.7 QP	46.0	-10.3	1.50 V	340	20.21	15.46
3	311.21	34.3 QP	46.0	-11.8	1.50 V	360	18.54	15.71
4	320.47	35.6 QP	46.0	-10.4	1.50 V	360	19.68	15.91
5	699.87	32.6 QP	46.0	-13.4	1.00 V	160	8.91	23.67
6	899.20	33.9 QP	46.0	-12.1	1.25 V	171	7.10	26.79

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

ABOVE 1GHz DATA

802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 62%RH 1013 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	*5745.00	112.7 PK			1.25 H	240	75.49	37.21
2	*5745.00	101.1 AV			1.25 H	240	63.89	37.21
3	11490.00	58.8 PK	74.0	-15.2	1.54 H	221	11.67	47.13
4	11490.00	47.3 AV	54.0	-6.7	1.54 H	221	0.17	47.13
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5745.00	110.1 PK			1.26 V	114	72.89	37.21
2	*5745.00	99.3 AV			1.26 V	114	62.09	37.21
3	11490.00	57.2 PK	74.0	-16.8	1.58 V	209	10.07	47.13
4	11490.00	46.1 AV	54.0	-7.9	1.58 V	209	-1.03	47.13

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ”: Fundamental frequency.
 6. The limit value is defined as per 15.247.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 62%RH 1013 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	*5785.00	112.0 PK			1.35 H	242	74.69	37.31
2	*5785.00	99.9 AV			1.35 H	242	62.59	37.31
3	11570.00	59.1 PK	74.0	-14.9	1.00 H	225	12.03	47.07
4	11570.00	47.5 AV	54.0	-6.5	1.00 H	225	0.43	47.07
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	*5785.00	109.3 PK			1.30 V	158	71.99	37.31
2	*5785.00	98.2 AV			1.30 V	158	60.89	37.31
3	11570.00	57.3 PK	74.0	-16.7	1.30 V	176	10.23	47.07
4	11570.00	46.1 AV	54.0	-7.9	1.30 V	176	-0.97	47.07

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.
6. The limit value is defined as per 15.247.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 62%RH 1013 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	*5825.00	109.9 PK			1.29 H	240	72.48	37.42
2	*5825.00	98.4 AV			1.29 H	240	60.98	37.42
3	11650.00	61.2 PK	74.0	-12.8	1.37 H	217	14.20	47.00
4	11650.00	48.8 AV	54.0	-5.2	1.37 H	217	1.80	47.00
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	*5825.00	107.8 PK			1.26 V	167	70.38	37.42
2	*5825.00	96.9 AV			1.26 V	167	59.48	37.42
3	11650.00	59.8 PK	74.0	-14.2	1.33 V	258	12.80	47.00
4	11650.00	47.3 AV	54.0	-6.7	1.33 V	258	0.30	47.00

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.
6. The limit value is defined as per 15.247.



A D T

802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 62%RH 1013 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	*5745.00	111.8 PK			1.26 H	241	74.59	37.21
2	*5745.00	100.2 AV			1.26 H	241	62.99	37.21
3	11490.00	59.1 PK	74.0	-14.9	1.00 H	220	11.97	47.13
4	11490.00	47.3 AV	54.0	-6.7	1.00 H	220	0.17	47.13
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5745.00	109.3 PK			1.26 V	146	72.09	37.21
2	*5745.00	98.1 AV			1.26 V	146	60.89	37.21
3	11490.00	58.3 PK	74.0	-15.7	1.40 V	256	11.17	47.13
4	11490.00	46.5 AV	54.0	-7.5	1.40 V	256	-0.63	47.13

- REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.
6. The limit value is defined as per 15.247.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 62%RH 1013 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	*5785.00	111.2 PK			1.34 H	241	73.89	37.31
2	*5785.00	99.7 AV			1.34 H	241	62.39	37.31
3	11570.00	58.8 PK	74.0	-15.2	1.04 H	215	11.73	47.07
4	11570.00	47.2 AV	54.0	-6.8	1.04 H	215	0.13	47.07
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	*5785.00	108.9 PK			1.30 V	311	71.59	37.31
2	*5785.00	97.2 AV			1.30 V	311	59.89	37.31
3	11570.00	57.2 PK	74.0	-16.8	1.14 V	211	10.13	47.07
4	11570.00	46.3 AV	54.0	-7.7	1.14 V	211	-0.77	47.07

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.
6. The limit value is defined as per 15.247.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 62%RH 1013 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	*5825.00	111.0 PK			1.28 H	244	73.58	37.42
2	*5825.00	99.2 AV			1.28 H	244	61.78	37.42
3	11650.00	60.3 PK	74.0	-13.7	1.46 H	235	13.30	47.00
4	11650.00	48.4 AV	54.0	-5.6	1.46 H	235	1.40	47.00
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	*5825.00	109.4 PK			1.26 V	308	71.98	37.42
2	*5825.00	97.3 AV			1.26 V	308	59.88	37.42
3	11650.00	59.2 PK	74.0	-14.8	1.13 V	208	12.20	47.00
4	11650.00	47.3 AV	54.0	-6.7	1.13 V	208	0.30	47.00

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.
6. The limit value is defined as per 15.247.



A D T

802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 62%RH 1013 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	*5755.00	108.2 PK			1.37 H	244	70.97	37.23
2	*5755.00	96.2 AV			1.37 H	244	58.97	37.23
3	11510.00	60.7 PK	74.0	-13.3	1.50 H	50	13.58	47.12
4	11510.00	46.9 AV	54.0	-7.1	1.50 H	50	-0.22	47.12
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	*5755.00	105.8 PK			1.10 V	198	68.57	37.23
2	*5755.00	94.9 AV			1.10 V	198	57.67	37.23
3	11510.00	58.3 PK	74.0	-15.7	1.14 V	100	11.18	47.12
4	11510.00	46.1 AV	54.0	-7.9	1.14 V	100	-1.02	47.12

- 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.
6. The limit value is defined as per 15.247.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 62%RH 1013 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	*5795.00	107.5 PK			1.38 H	243	70.16	37.34
2	*5795.00	95.5 AV			1.38 H	243	58.16	37.34
3	11590.00	59.6 PK	74.0	-14.4	1.23 H	301	12.55	47.05
4	11590.00	46.2 AV	54.0	-7.8	1.23 H	301	-0.85	47.05
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	*5795.00	104.8 PK			1.04 V	132	67.46	37.34
2	*5795.00	93.2 AV			1.04 V	132	55.86	37.34
3	11590.00	58.3 PK	74.0	-15.7	1.20 V	5	11.25	47.05
4	11590.00	46.0 AV	54.0	-8.0	1.20 V	5	-1.05	47.05

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.
6. The limit value is defined as per 15.247.

5.2.8 TEST RESULTS (PIFA ANTENNA)

BELOW 1GHz WORST-CASE DATA : 802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 156	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	14deg. C, 66%RH 1013 hPa	TESTED BY	Eric Lee
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	279.63	36.6 QP	46.0	-9.4	1.00 H	350	21.95	14.63
2	285.20	38.2 QP	46.0	-7.8	1.00 H	233	23.35	14.85
3	296.69	40.1 QP	46.0	-5.9	1.00 H	231	24.77	15.32
4	309.12	39.4 QP	46.0	-6.6	1.00 H	220	23.73	15.66
5	320.37	38.9 QP	46.0	-7.1	1.00 H	227	23.03	15.91
6	331.74	34.5 QP	46.0	-11.5	1.00 H	222	18.32	16.16
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	45.90	30.5 QP	40.0	-9.5	1.50 V	256	16.17	14.33
2	299.98	35.8 QP	46.0	-10.2	1.00 V	356	20.34	15.46
3	312.25	35.6 QP	46.0	-10.4	2.00 V	153	19.87	15.73
4	320.21	36.3 QP	46.0	-9.7	1.25 V	123	20.40	15.90
5	698.83	33.2 QP	46.0	-12.9	1.25 V	45	9.49	23.66
6	897.99	34.2 QP	46.0	-11.8	1.30 V	236	7.43	26.77

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

ABOVE 1GHz DATA

802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 62%RH 1013 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	*5745.00	111.4 PK			1.13 H	274	74.19	37.21
2	*5745.00	101.4 AV			1.13 H	274	64.19	37.21
3	11490.00	62.0 PK	74.0	-12.0	1.00 H	250	14.87	47.13
4	11490.00	51.0 AV	54.0	-3.0	1.00 H	250	3.87	47.13
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5745.00	110.6 PK			1.50 V	284	73.39	37.21
2	*5745.00	100.3 AV			1.50 V	284	63.09	37.21
3	11490.00	59.1 PK	74.0	-14.9	1.00 V	281	11.97	47.13
4	11490.00	49.0 AV	54.0	-5.0	1.00 V	281	1.87	47.13

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ”: Fundamental frequency.
 6. The limit value is defined as per 15.247.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 62%RH 1013 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	*5785.00	110.4 PK			1.51 H	281	73.09	37.31
2	*5785.00	100.4 AV			1.51 H	281	63.09	37.31
3	11570.00	58.3 PK	74.0	-15.7	1.01 H	292	11.23	47.07
4	11570.00	49.2 AV	54.0	-4.8	1.01 H	292	2.13	47.07
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	*5785.00	111.7 PK			1.12 V	269	74.39	37.31
2	*5785.00	101.1 AV			1.12 V	269	63.79	37.31
3	11570.00	62.4 PK	74.0	-11.6	1.00 V	284	15.33	47.07
4	11570.00	50.7 AV	54.0	-3.3	1.00 V	284	3.63	47.07

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.
6. The limit value is defined as per 15.247.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 62%RH 1013 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	*5825.00	110.7 PK			1.54 H	279	73.28	37.42
2	*5825.00	100.1 AV			1.54 H	279	62.68	37.42
3	11650.00	58.1 PK	74.0	-15.9	1.02 H	300	11.10	47.00
4	11650.00	49.3 AV	54.0	-4.7	1.02 H	300	2.30	47.00
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	*5825.00	111.3 PK			1.13 V	253	73.88	37.42
2	*5825.00	101.2 AV			1.13 V	253	63.78	37.42
3	11650.00	62.1 PK	74.0	-11.9	1.00 V	284	15.10	47.00
4	11650.00	50.5 AV	54.0	-3.5	1.00 V	284	3.50	47.00

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.
6. The limit value is defined as per 15.247.



A D T

802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 62%RH 1013 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	*5745.00	110.7 PK			1.14 H	263	73.49	37.21
2	*5745.00	100.2 AV			1.14 H	263	62.99	37.21
3	11490.00	62.2 PK	74.0	-11.8	1.00 H	274	15.07	47.13
4	11490.00	50.9 AV	54.0	-3.1	1.00 H	274	3.77	47.13
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5745.00	108.9 PK			1.54 V	273	71.69	37.21
2	*5745.00	99.3 AV			1.54 V	273	62.09	37.21
3	11490.00	61.3 PK	74.0	-12.7	1.48 V	36	14.17	47.13
4	11490.00	50.3 AV	54.0	-3.7	1.48 V	36	3.17	47.13

- REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.
6. The limit value is defined as per 15.247.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 62%RH 1013 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	*5785.00	110.8 PK			1.13 H	274	73.49	37.31
2	*5785.00	100.4 AV			1.13 H	274	63.09	37.31
3	11570.00	62.9 PK	74.0	-11.1	1.00 H	272	15.83	47.07
4	11570.00	50.3 AV	54.0	-3.7	1.00 H	272	3.23	47.07
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	*5785.00	108.7 PK			1.51 V	269	71.39	37.31
2	*5785.00	99.4 AV			1.51 V	269	62.09	37.31
3	11570.00	61.2 PK	74.0	-12.8	1.32 V	65	14.13	47.07
4	11570.00	49.6 AV	54.0	-4.4	1.32 V	65	2.53	47.07

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.
6. The limit value is defined as per 15.247.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 62%RH 1013 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	3883.30	53.7 PK	74.0	-20.3	1.38 H	295	20.51	33.19
2	3883.30	47.6 AV	54.0	-6.4	1.38 H	295	14.41	33.19
3	*5825.00	110.4 PK			1.12 H	284	72.98	37.42
4	*5825.00	100.2 AV			1.12 H	284	62.78	37.42
5	11650.00	62.4 PK	74.0	-11.6	1.40 H	284	15.40	47.00
6	11650.00	50.7 AV	54.0	-3.3	1.40 H	284	3.70	47.00
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	*5825.00	108.3 PK			1.49 V	259	70.88	37.42
2	*5825.00	99.2 AV			1.49 V	259	61.78	37.42
3	11650.00	61.1 PK	74.0	-12.9	1.33 V	271	14.10	47.00
4	11650.00	50.4 AV	54.0	-3.6	1.33 V	271	3.40	47.00

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.
6. The limit value is defined as per 15.247.



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802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 62%RH 1013 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	*5755.00	111.2 PK			1.21 H	273	73.97	37.23
2	*5755.00	98.4 AV			1.21 H	273	61.17	37.23
3	11510.00	60.4 PK	74.0	-13.6	1.00 H	264	13.28	47.12
4	11510.00	48.3 AV	54.0	-5.7	1.00 H	264	1.18	47.12
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	*5755.00	111.4 PK			1.40 V	309	74.17	37.23
2	*5755.00	97.4 AV			1.40 V	309	60.17	37.23
3	11510.00	59.8 PK	74.0	-14.2	1.26 V	305	12.68	47.12
4	11510.00	47.6 AV	54.0	-6.4	1.26 V	305	0.48	47.12

- 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.
6. The limit value is defined as per 15.247.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 62%RH 1013 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	*5795.00	112.4 PK			1.24 H	259	75.06	37.34
2	*5795.00	98.6 AV			1.24 H	259	61.26	37.34
3	11590.00	60.9 PK	74.0	-13.1	1.00 H	259	13.85	47.05
4	11590.00	48.8 AV	54.0	-5.2	1.00 H	259	1.75	47.05
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	*5795.00	111.2 PK			1.43 V	321	73.86	37.34
2	*5795.00	97.2 AV			1.43 V	321	59.86	37.34
3	11590.00	59.2 PK	74.0	-14.8	1.38 V	66	12.15	47.05
4	11590.00	47.2 AV	54.0	-6.8	1.38 V	66	0.15	47.05

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.
6. The limit value is defined as per 15.247.

5.3 6dB BANDWIDTH MEASUREMENT

5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

5.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100036	Apr. 27, 2010	Apr. 26, 2011

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

5.3.3 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 300kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

5.3.4 DEVIATION FROM TEST STANDARD

No deviation

5.3.5 TEST SETUP



5.3.6 EUT OPERATING CONDITIONS

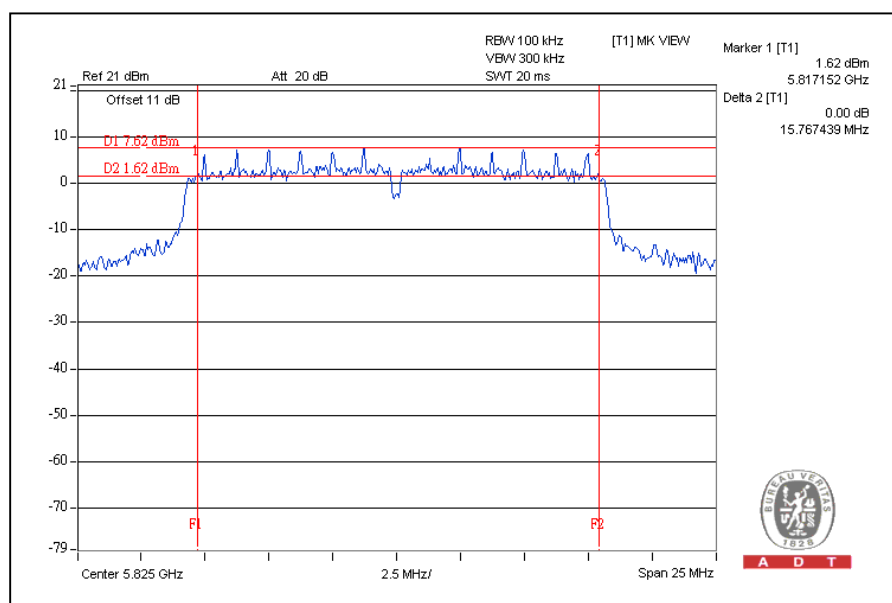
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

5.3.7 TEST RESULTS

802.11a OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	15.39	0.5	PASS
157	5785	15.41	0.5	PASS
165	5825	15.76	0.5	PASS

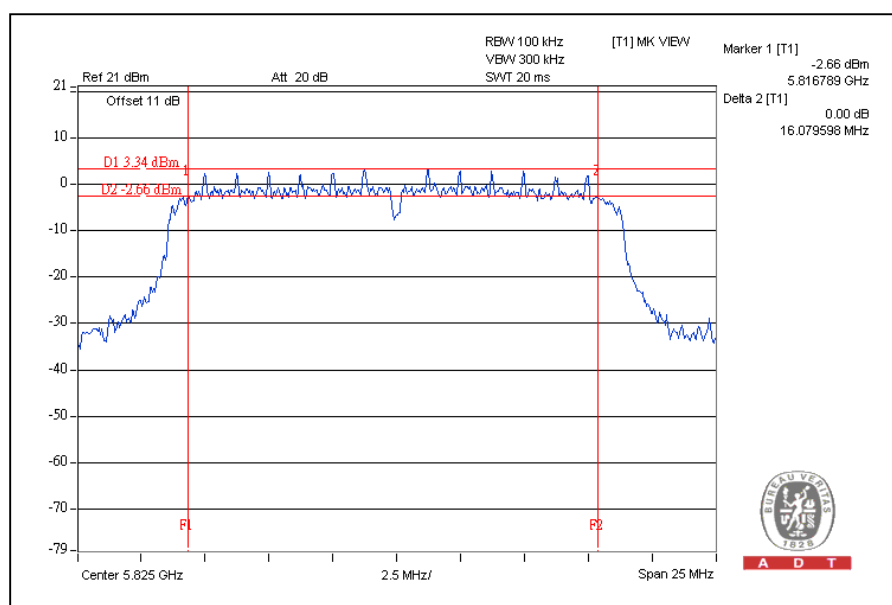
CH165



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	15.84	0.5	PASS
157	5785	15.83	0.5	PASS
165	5825	16.07	0.5	PASS

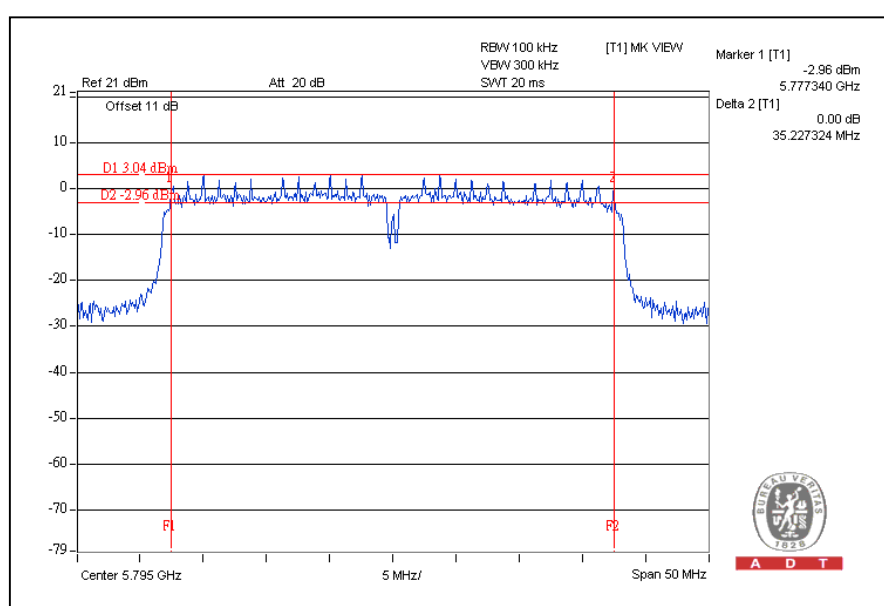
CH165



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
151	5755	35.21	0.5	PASS
159	5795	35.22	0.5	PASS

CH159





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5.4 MAXIMUM PEAK OUTPUT POWER

5.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

5.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Peak Power Meter	ML2495A	0824006	May 04, 2010	May 03, 2011
Power Sensor	MA2411B	0738172	May 04, 2010	May 03, 2011

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

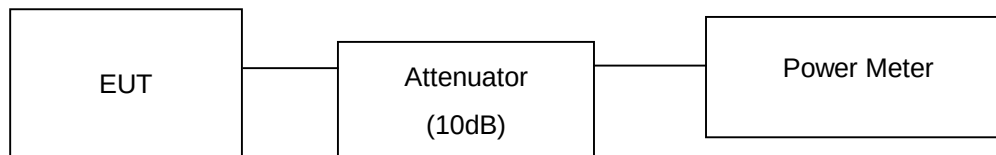
5.4.3 TEST PROCEDURES

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.

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 TEST SETUP



5.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

5.4.7 TEST RESULTS

802.11a OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
149	5745	169.8	22.3	30	PASS
157	5785	158.5	22.0	30	PASS
165	5825	162.2	22.1	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)				
149	5745	21.7	21.7	295.8	24.7	30	PASS
157	5785	21.6	21.7	292.5	24.7	30	PASS
165	5825	21.9	21.7	302.8	24.8	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)				
151	5755	21.5	21.4	279.3	24.5	30	PASS
159	5795	21.3	21.2	266.7	24.3	30	PASS



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5.5 POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100036	Apr. 27, 2010	Apr. 26, 2011

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

5.5.3 TEST PROCEDURE

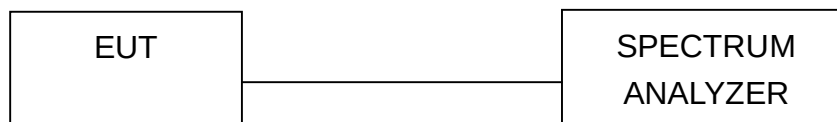
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3 kHz RBW and 30 kHz VBW, set sweep time = span/3 kHz. The power spectral density was measured and recorded.

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

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP



5.5.6 EUT OPERATING CONDITION

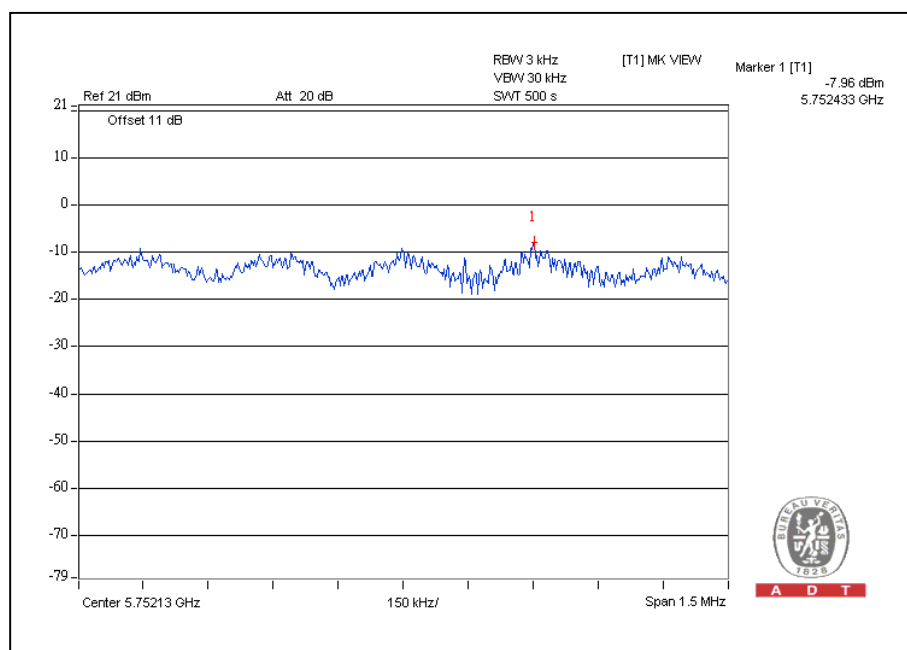
Same as Item 4.3.6

5.5.7 TEST RESULTS

802.11a OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
149	5745	-8.0	8	PASS
157	5785	-8.5	8	PASS
165	5825	-8.2	8	PASS

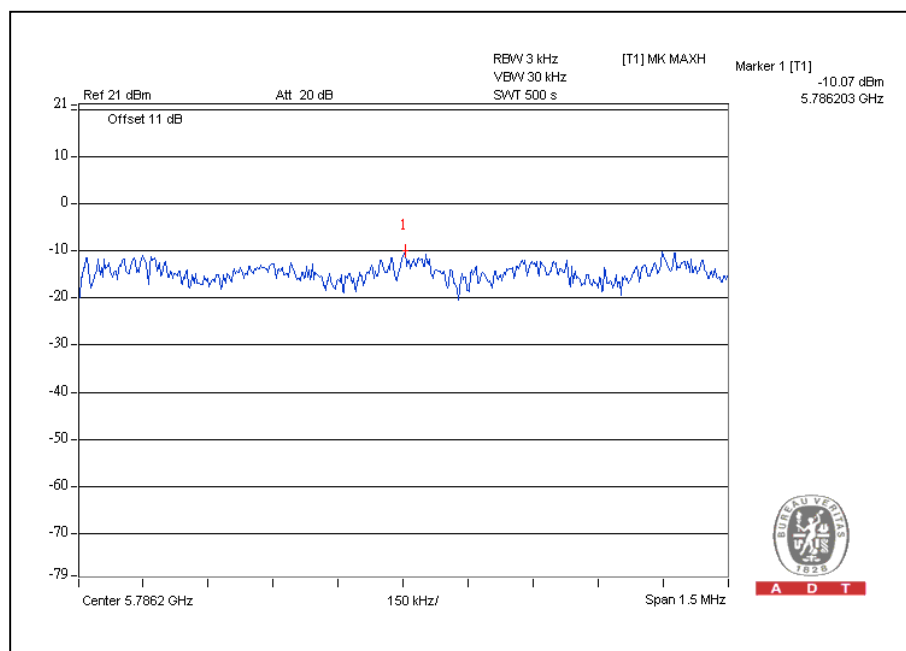
CH149



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)			
149	5745	-10.2	-13.5	-8.5	8	PASS
157	5785	-10.1	-13.6	-8.5	8	PASS
165	5825	-12.9	-14.0	-10.4	8	PASS

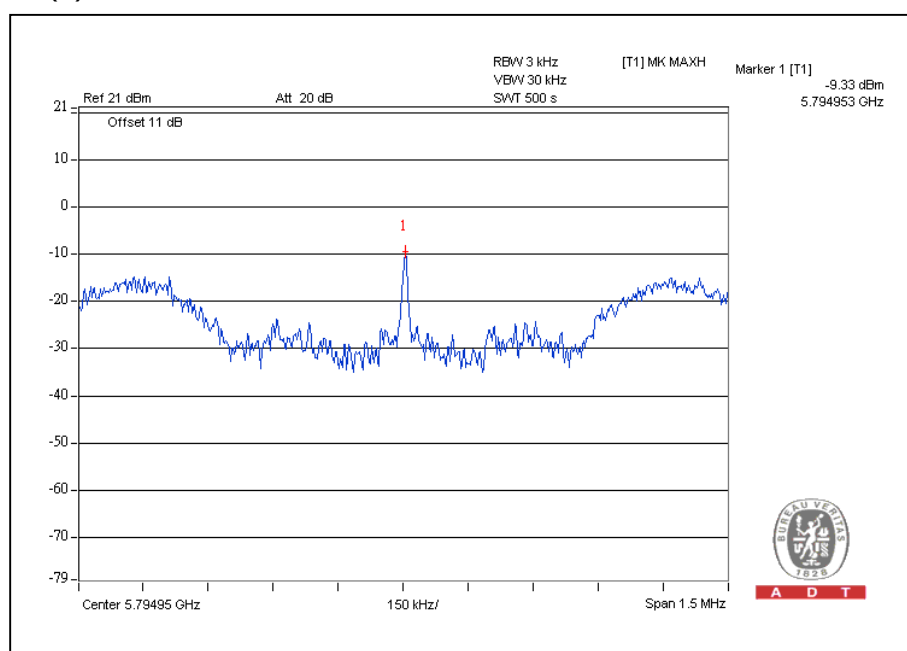
For Chain(0): CH157



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)			
151	5755	-11.3	-11.4	-8.3	8	PASS
159	5795	-9.8	-9.3	-6.5	8	PASS

For Chain(1): CH159



5.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

5.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

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

5.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100036	Apr. 27, 2010	Apr. 26, 2011

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

5.6.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low loss cable. Set RBW of spectrum analyzer to 100 kHz with suitable frequency span including 100MHz or 200MHz bandwidth from band edge. The band edges was measured and recorded.

5.6.4 DEVIATION FROM TEST STANDARD

No deviation

5.6.5 EUT OPERATING CONDITION

Same as Item 4.3.6

5.6.6 TEST RESULTS

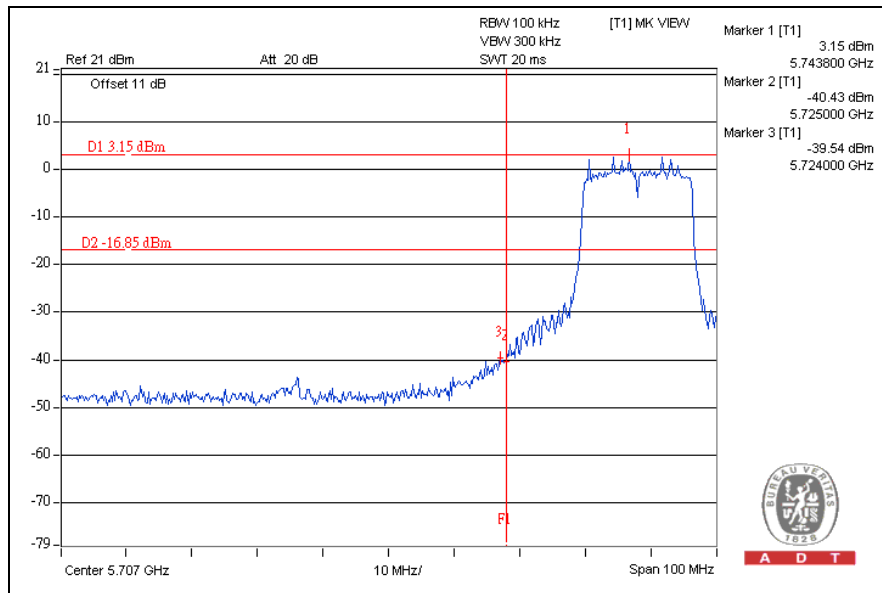
The spectrum plots are attached on the following pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(d).



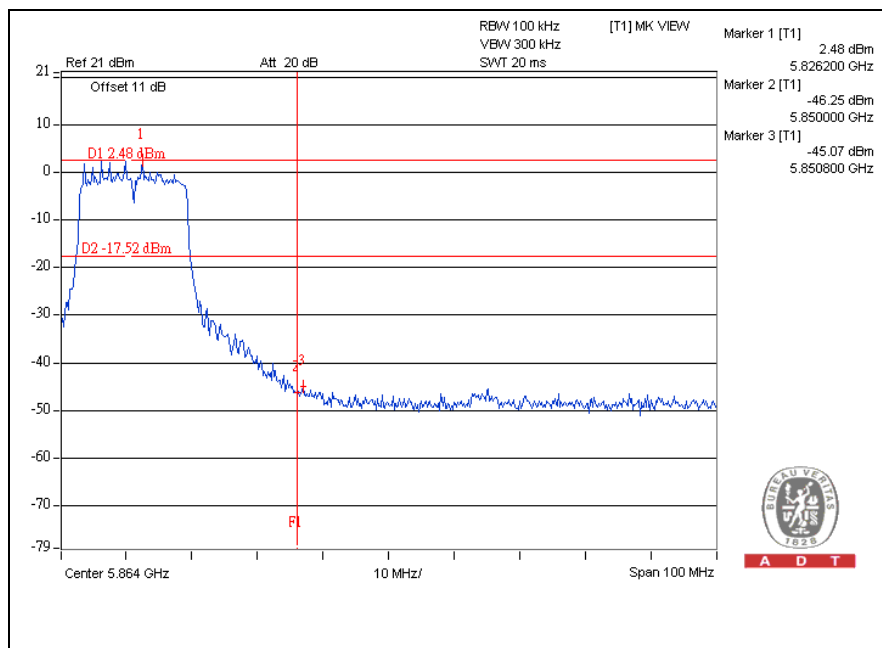
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802.11a OFDM modulation

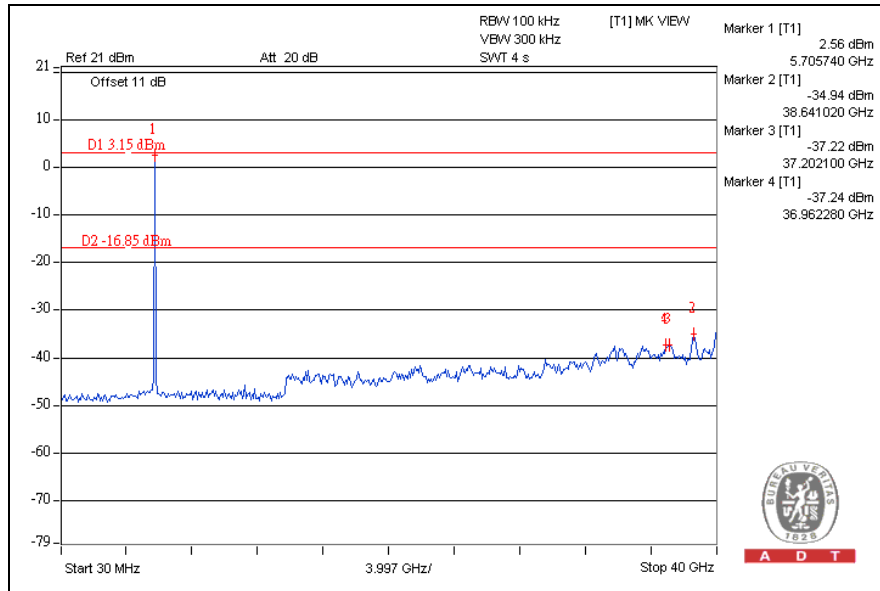
CH149



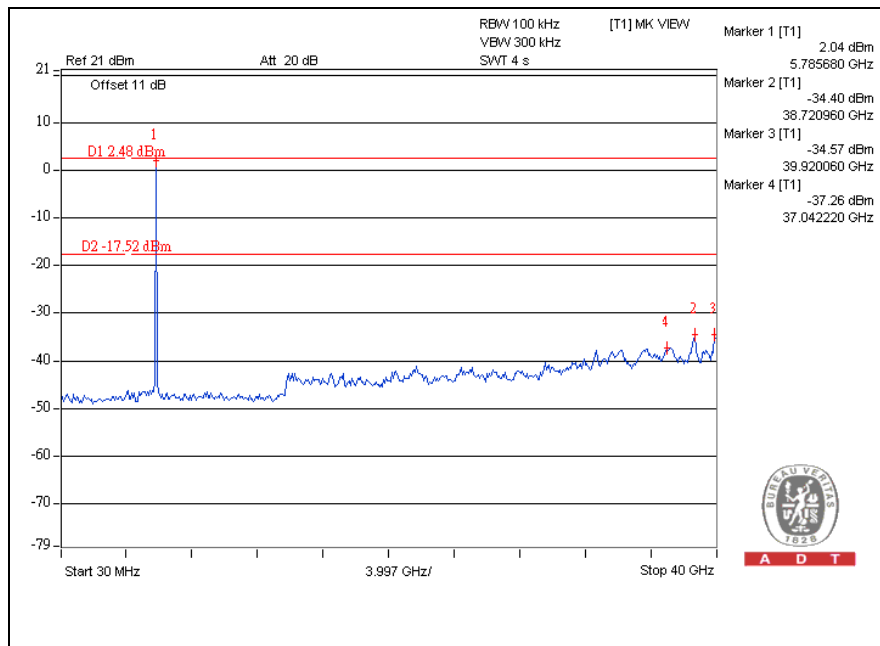
CH165



CH149

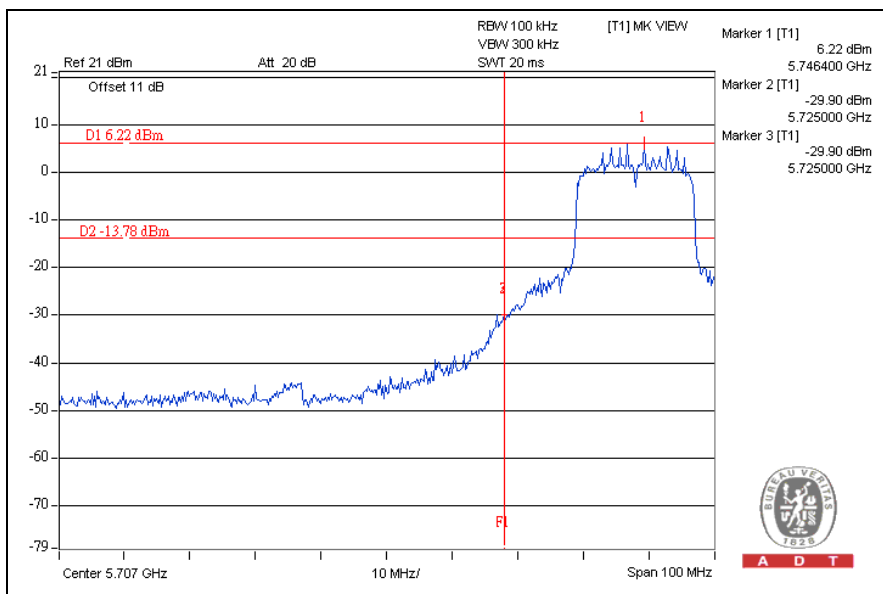


CH165

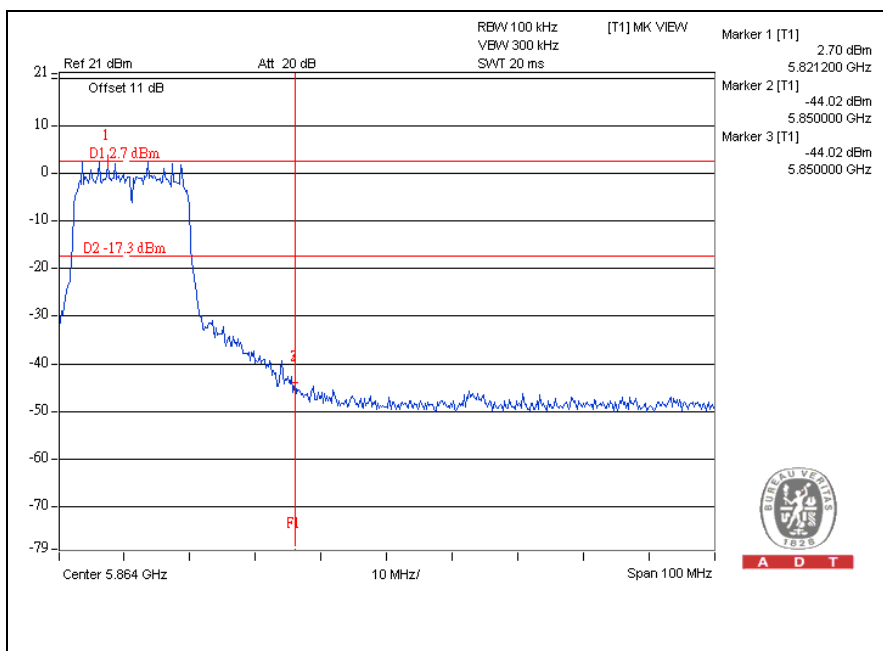


802.11n (20MHz) OFDM MODULATION:

CH149



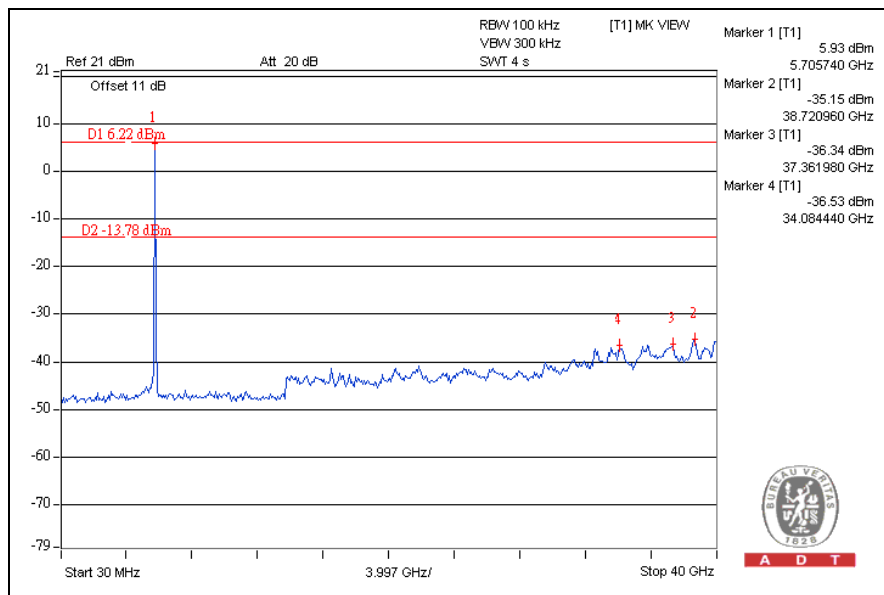
CH165



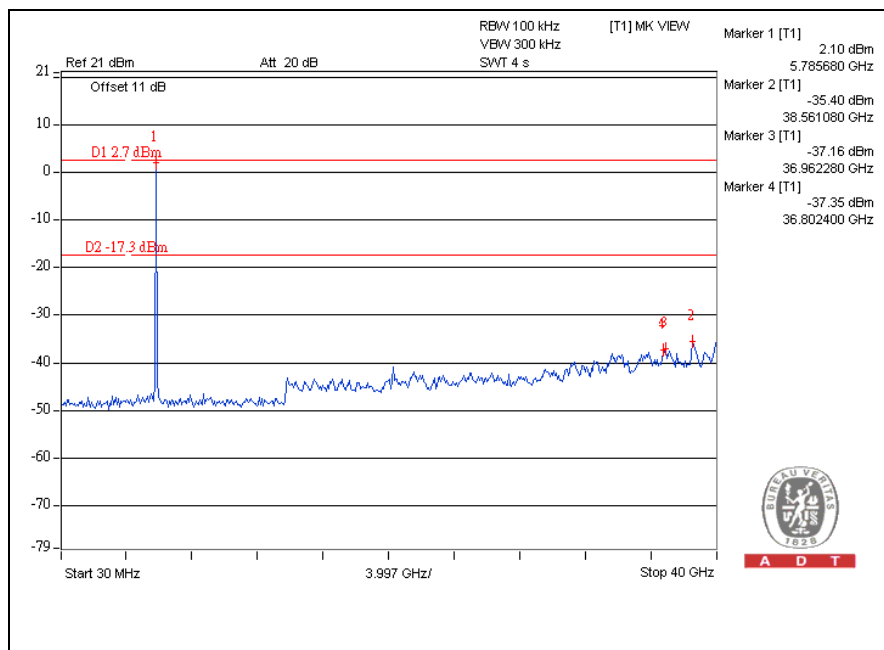


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CH165

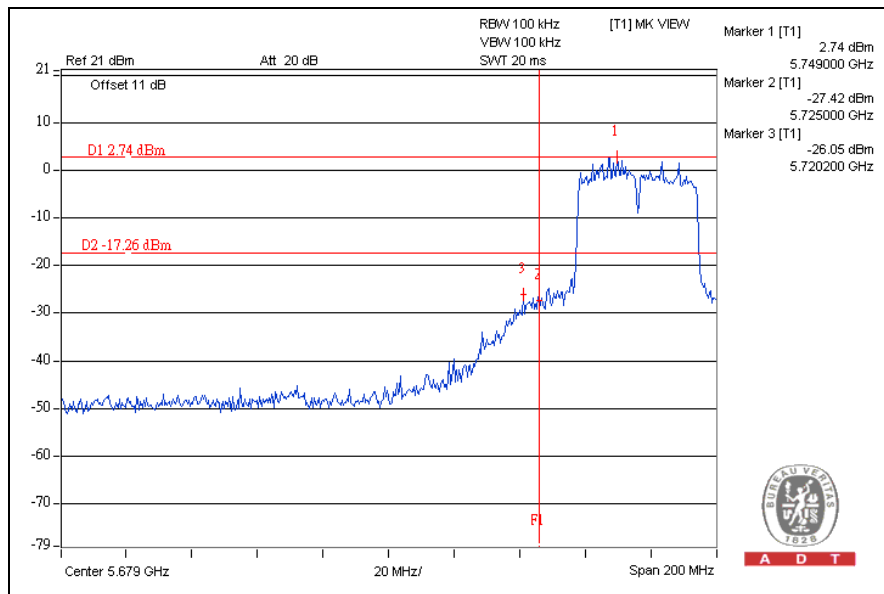




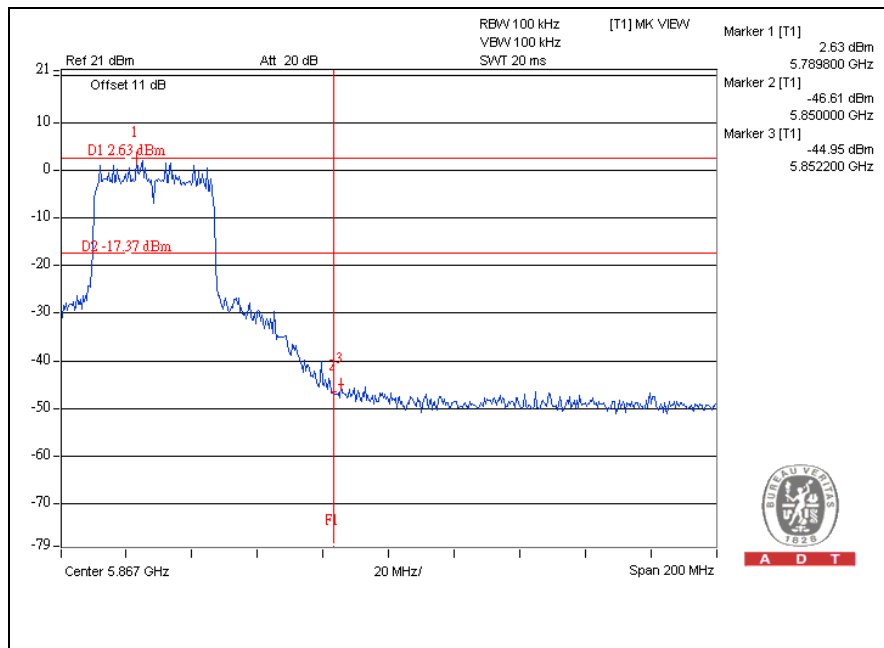
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802.11n (40MHz) OFDM MODULATION:

CH151



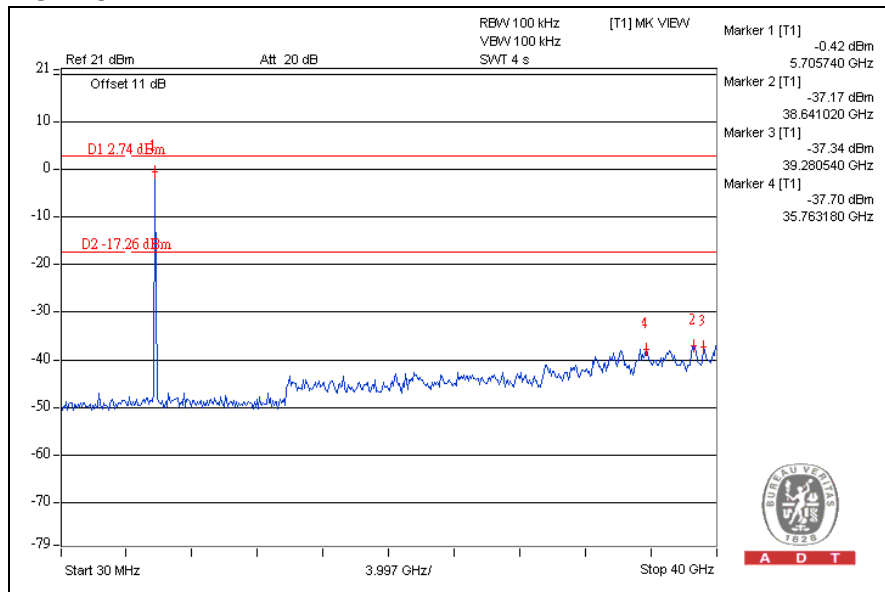
CH159



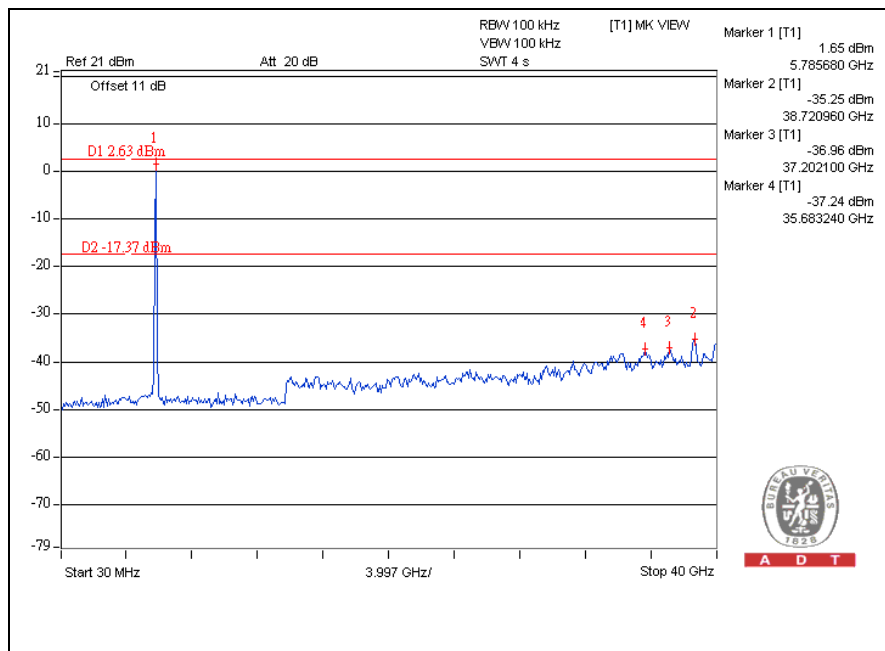


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CH151



CH159



6. INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5.phtml.
If you have any comments, please feel free to contact us at the following:

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

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

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

Web Site: www.adt.com.tw

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



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7.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 ---