

FCC TEST REPORT (15.247)

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MODEL NO.: RT3593

FCC ID: VQF-RT3593

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APPLICANT: Ralink Technology Corporation

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1. CERTIFICATION

PRODUCT: 802.11a/b/g/n 3T3R WLAN Mini Card
BRAND NAME: Ralink
MODEL NO.: RT3593
TEST SAMPLE: MASS-PRODUCTION
TESTED: Aug. 30 to Sep. 08, 2010
APPLICANT: Ralink Technology Corporation
STANDARDS: FCC Part 15, Subpart C (Section 15.247)
ANSI C63.4-2003

The above equipment (Model: RT3593) 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 : Midoli Peng , **DATE:** Sep. 17, 2010
(Midoli Peng, Specialist)

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

APPROVED BY : May Chen , **DATE:** Sep. 17, 2010
(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 -8.25dB at 0.193MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -0.5dB at 2385.33MHz & 2389.73MHz
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 IPEX or Reverse SMA not a standard 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 -8.25dB at 0.193MHz
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 -6.8dB at 600.32MHz & 799.89MHz
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 IPEX or Reverse SMA not a standard connector.

NOTE:

1. The EUT was operating in 2400 ~ 2483.5MHz, 5.15~5.35GHz, 5.47~5.725GHz 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 5.15~5.35GHz and 5.47~5.725GHz 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)	3.3 dB
Radiated emissions (1GHz -18GHz)	2.19 dB
Radiated emissions (18GHz -40GHz)	2.55 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	802.11a/b/g/n 3T3R WLAN Mini Card
MODEL NO.	RT3593
FCC ID	VQF-RT3593
POWER SUPPLY	DC 3.3V±10% from host equipment
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11/5.5/2/1Mbps 802.11a/g: 54/48/36/24/18/12/9/6Mbps HT20 MCS0~7(800ns GI): 6.5Mbps, 13Mbps, 19.5Mbps, 26Mbps, 39Mbps, 52Mbps, 58.5Mbps, 65Mbps HT20 MCS8~15(800ns GI): 13Mbps, 26Mbps, 39Mbps, 52Mbps, 78Mbps, 104Mbps, 117Mbps, 130Mbps HT40 MCS0~7(800ns GI): 13.5Mbps, 27Mbps, 40.5Mbps, 54Mbps, 81Mbps, 108Mbps, 121.5Mbps, 135Mbps HT40 MCS8~15(800ns GI): 27Mbps, 54Mbps, 81Mbps, 108Mbps, 162Mbps, 216Mbps, 243Mbps, 270Mbps HT20 MCS0~7 (400ns GI): 7.2Mbps, 14.4Mbps, 21.7Mbps, 28.9Mbps, 43.3Mbps, 57.8Mbps, 65.0Mbps, 72.2Mbps HT20 MCS8~15 (400ns GI): 14.444Mbps, 28.889Mbps, 43.333Mbps, 57.778Mbps, 86.667Mbps, 115.556Mbps, 130.000Mbps, 144.444Mbps HT40 MCS0~7 (400ns GI): 15.0Mbps, 30.0Mbps, 45.0Mbps, 60.0Mbps, 90.0Mbps, 120.0Mbps, 135.0Mbps, 150.0Mbps HT40 MCS8~15 (400ns GI): 30.0Mbps, 60.0Mbps, 90.0Mbps, 120.0Mbps, 180.0Mbps, 240.0Mbps, 270.0Mbps, 300.0Mbps
OPERATING FREQUENCY	For 15.407 802.11a: 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.50 ~ 5.70GHz
	For 15.247 802.11b & 802.11g: 2.412 ~ 2.462GHz
	802.11a: 5.745 ~ 5.825GHz

NUMBER OF CHANNEL	For 15.407 19 for 802.11a, 802.11n (20MHz) 9 for 802.11n (40MHz)
	For 15.247(2.4GHz) 11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz) For 15.247(5GHz) 5 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)
MAXIMUM OUTPUT POWER	For 15.407 802.11a: 87.1mW 802.11n (20MHz): 153.9mW 802.11n (40MHz): 151.6mW For 15.247(2.4GHz) 802.11b: 162.2mW 802.11g: 281.8mW 802.11n (20MHz): 616.7mW 802.11n (40MHz): 572.9mW For 15.247(5GHz) 802.11a: 239.9mW 802.11n (20MHz): 405.2mW 802.11n (40MHz): 437.9mW
ANTENNA TYPE	Please see note 1
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

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

Set 1						
Chain	Brand name	Model name	Antenna Gain (dBi)	Antenna Cable Length(mm)	Antenna Type	Connector
Chain (0)	JOYMAX	TWX-614XRSXX-999	3 (For 2.4GHz) 5 (For 5GHz)	320	Dipole	Reverse SMA
Chain (1)	JOYMAX	TWX-614XRSXX-999	3 (For 2.4GHz) 5 (For 5GHz)	320	Dipole	Reverse SMA
Chain (2)	JOYMAX	TWX-614XRSXX-999	3 (For 2.4GHz) 5 (For 5GHz)	320	Dipole	Reverse SMA
Set 2						
Chain	Brand name	Model name	Antenna Gain (dBi)	Antenna Cable Length(mm)	Antenna Type	Connector
Chain (0)	ACON	APP6P-700119	3.25 (For 2.4GHz) 5.01 (For 5GHz)	225	PIFA	IPEX
Chain (1)	ACON	APP6P-700119	3.25 (For 2.4GHz) 5.01 (For 5GHz)	225	PIFA	IPEX
Chain (2)	ACON	APP6P-700119	3.25 (For 2.4GHz) 5.01 (For 5GHz)	225	PIFA	IPEX

2. The PIFA antenna was pre-tested under the following test modes for three different axes placements:

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

From the above modes, the radiated emission worst case was found in Mode C. Therefore only the test data of the mode was recorded in this report.

3. The EUT incorporates a MIMO function with 802.11n. Physically, the EUT provides three completed transmitters and three completed receivers.
4. The EUT is 3 * 3 spatial MIMO (3Tx & 3Rx) without beam forming function. The antenna configurations are three transmitter antennas and three receiver antennas, as there are 3 Dipole antennas or 3 PIFA antennas. Spatial multiplexing modes for simultaneous transmission using 3 antennas, and for simultaneous receiver using 3 antennas. The 11a/b/g legacy mode is limited to single transmitter only.
5. The EUT complies with 802.11n standards and backwards compatible with 802. 11a, 802.11b, 802.11g products.
6. 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 Dipole Antenna
2		√	√	√	With PIFA Antenna

Where **PLC**: Power Line Conducted Emission

RE < 1G: Radiated Emission below 1GHz

RE ≥ 1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

ANTENNA COMBINATION MODE:

COMBINATION MODE	OPERATION MODE	TX CHAIN(0)	TX CHAIN(1)	TX CHAIN(2)
A	802.11 a	√		
B	802.11 b	√		
C	802.11 g	√		
D	802.11n (20MHz) for MCS 0~15	√	√	√
E	802.11n (40MHz) for MCS 0~15	√	√	√

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

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 2.4GHz 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	6.5	D
For 5 GHz 802.11n (20MHz)	151 to 159	157	OFDM	BPSK	6.5	D

RADIATED EMISSION TEST (ABOVE 1 GHz):

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

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

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	B
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	D
For 2.4 GHz 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	13.5	E
802.11a	149 to 165	149, 165	OFDM	BPSK	6	A
For 5 GHz 802.11n (20MHz)	149 to 165	149, 165	OFDM	BPSK	6.5	D
For 5 GHz 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	13.5	E

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

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

- ※ After verification, bandwidth as show worst chain in report by investigations.

※ TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE³1G	26deg. C, 67%RH, 1013 hPa	120Vac, 60Hz	Duke Tseng
RE<1G	27deg. C, 71%RH, 1013 hPa	120Vac, 60Hz	Rex Huang
PLC	25deg. C, 67%RH, 1013 hPa	120Vac, 60Hz	Wen Yu
APCM	25deg. C, 60%RH, 1013 hPa	120Vac, 60Hz	Rex Huang

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

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

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

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

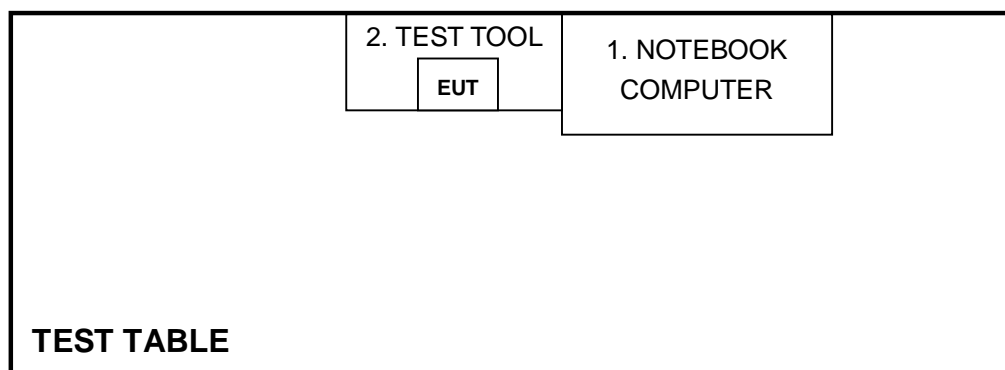
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP19L	CN-OHC416-70166-5C A-0448	PIW632500516610
2	TEST TOOL	Ralink	NA	NA	NA

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

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

3.5 CONFIGURATION OF SYSTEM UNDER TEST



4. TEST TYPES AND RESULTS (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	Quasi-peak	Average
0.5-5	66 to 56	56 to 46
5-30	56	46
	60	50

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Mar. 01, 2010	Feb. 28, 2011
Line-Impedance Stabilization Network (for EUT)	NSLK 8127	8127-523	Sep. 23, 2009	Sep. 22, 2010
Line-Impedance Stabilization Network (for Peripheral)	ENV-216	100072	June 11, 2010	June 10, 2011
RF Cable (JYEBAO)	5DFB	COACAB-001	Dec. 14, 2009	Dec. 13, 2010
50 ohms Terminator	50	3	Oct. 28, 2009	Oct. 27, 2010
Software	BV ADT_Cond_V7.3.7	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. A.
3. The VCCI Con A Registration No. is C-817.

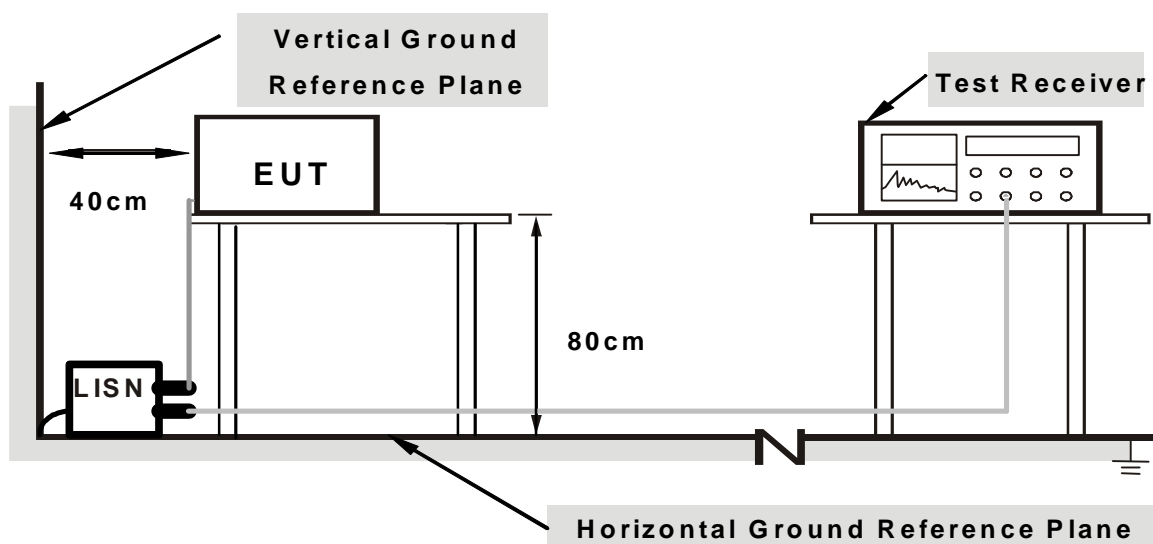
4.1.3 TEST PROCEDURES

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

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



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

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

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

4.1.6 EUT OPERATING CONDITIONS

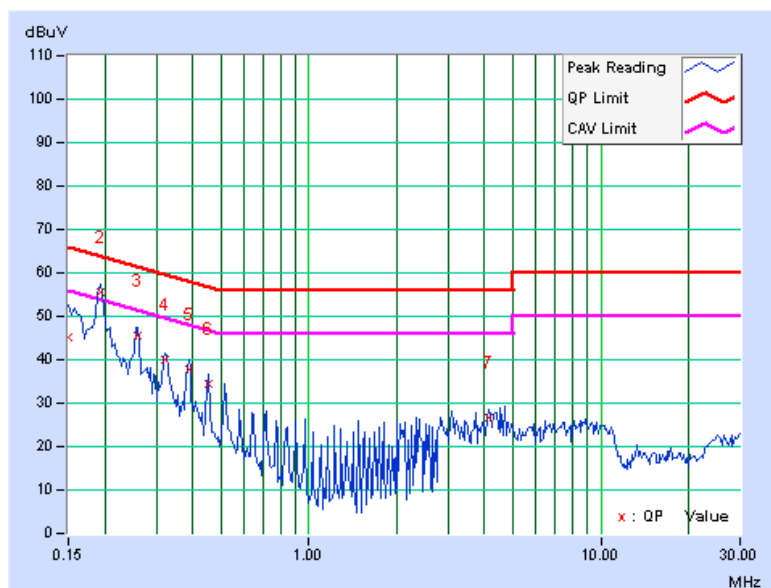
1. Connect the EUT with the support unit 1 (Notebook Computer) which is placed on a testing table via support unit 2 (Test Tool).
2. The support unit 1 (Notebook Computer) runs test program “RT5390_QA Tool” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.1.7 TEST RESULTS

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
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No	Freq. [MHz]	Corr. Factor [dB]	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.03	45.10	-	45.13	-	66.00	56.00	-20.87	-
2	0.193	0.03	55.63	44.11	55.66	44.14	63.91	53.91	-8.25	-9.77
3	0.259	0.03	45.69	-	45.72	-	61.45	51.45	-15.73	-
4	0.322	0.04	40.02	-	40.06	-	59.66	49.66	-19.60	-
5	0.388	0.04	37.81	-	37.85	-	58.10	48.10	-20.25	-
6	0.451	0.05	34.43	-	34.48	-	56.86	46.86	-22.39	-
7	4.125	0.12	26.73	-	26.85	-	56.00	46.00	-29.15	-

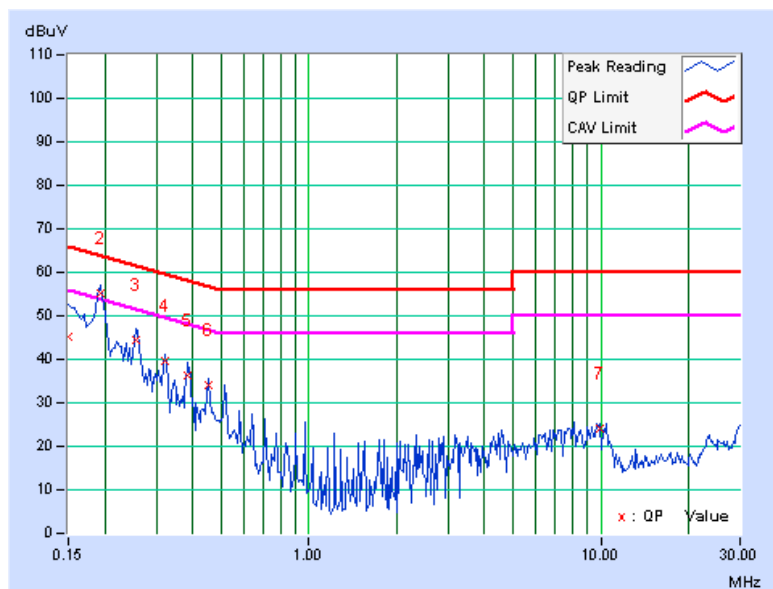
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.04	45.12	-	45.16	-	66.00	56.00	-20.84	-
2	0.193	0.04	55.09	43.63	55.13	43.67	63.91	53.91	-8.78	-10.24
3	0.255	0.04	44.48	-	44.52	-	61.58	51.58	-17.05	-
4	0.322	0.05	39.43	-	39.48	-	59.66	49.66	-20.18	-
5	0.384	0.05	36.19	-	36.24	-	58.18	48.18	-21.95	-
6	0.451	0.06	33.95	-	34.01	-	56.86	46.86	-22.86	-
7	9.930	0.26	23.98	-	24.24	-	60.00	50.00	-35.76	-

- 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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250253	Aug. 02, 2010	Aug. 01, 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. 18, 2009	Nov. 17, 2010
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	Sep. 30, 2009	Sep. 29, 2010
AISI Horn_Antenna	AIH.8018	0000320091110	Nov. 16, 2009	Nov. 15, 2010
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Sep. 30, 2009	Sep. 29, 2010
RF CABLE	NA	RF104-201 RF104-203 RF104-204	Dec. 24, 2009	Dec. 23, 2010
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.

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. 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.

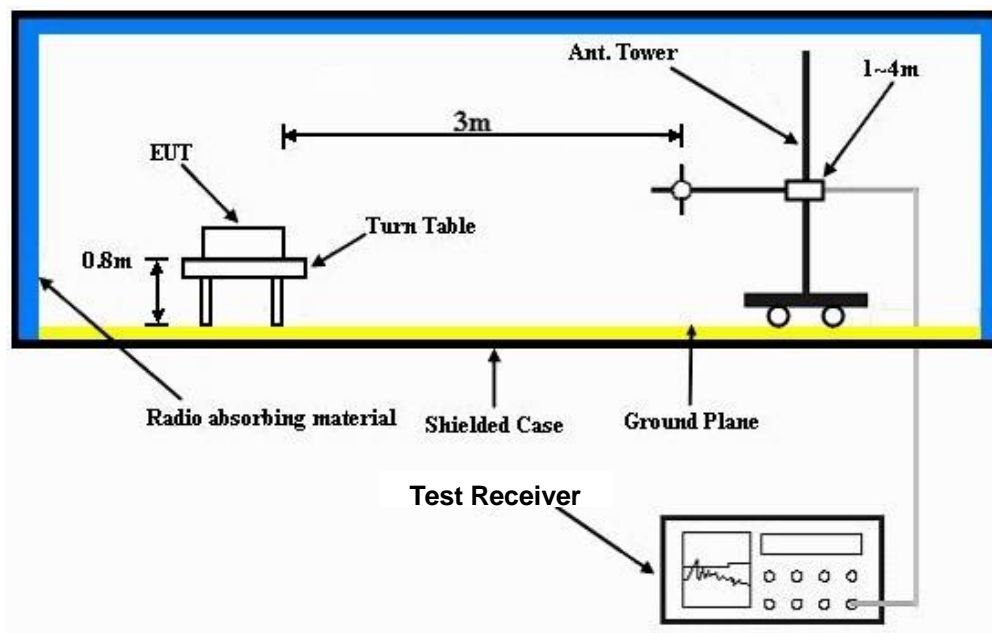
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and 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



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 (With Dipole Antenna)

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	27deg. C, 71%RH 1013 hPa	TESTED BY	Rex Huang
TEST MODE	With Dipole		

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	99.95	37.0 QP	43.5	-6.5	1.75 H	11	27.77	9.23
2	299.89	38.8 QP	46.0	-7.2	1.25 H	171	23.57	15.19
3	497.53	37.8 QP	46.0	-8.2	2.25 H	314	18.15	19.65
4	600.44	39.5 QP	46.0	-6.5	1.50 H	252	17.49	21.98
5	799.87	38.7 QP	46.0	-7.3	1.25 H	360	14.26	24.48
6	900.52	37.9 QP	46.0	-8.1	2.25 H	360	11.61	26.25
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	99.99	32.9 QP	43.5	-10.6	1.50 V	214	23.65	9.24
2	299.89	35.9 QP	46.0	-10.1	1.75 V	277	20.73	15.19
3	500.02	36.6 QP	46.0	-9.4	1.25 V	77	16.85	19.71
4	600.32	37.5 QP	46.0	-8.6	1.50 V	169	15.48	21.97
5	796.08	38.3 QP	46.0	-7.7	1.75 V	64	13.86	24.43
6	900.52	36.5 QP	46.0	-9.5	1.25 V	17	10.28	26.25

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

ABOVE 1GHz WORST-CASE DATA

802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With Dipole		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2389.07	57.3 PK	74.0	-16.7	1.00 H	259	25.65	31.65
2	2389.07	45.3 AV	54.0	-8.7	1.00 H	259	13.65	31.65
3	*2412.00	96.0 PK			1.00 H	210	64.27	31.73
4	*2412.00	92.9 AV			1.00 H	210	61.17	31.73
5	4824.00	50.3 PK	74.0	-23.7	1.00 H	110	11.33	38.97
6	4824.00	42.8 AV	54.0	-11.2	1.00 H	110	3.83	38.97
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	2389.87	59.4 PK	74.0	-14.6	1.60 V	106	27.74	31.66
2	2389.87	50.8 AV	54.0	-3.2	1.60 V	106	19.14	31.66
3	*2412.00	106.3 PK			1.60 V	264	74.57	31.73
4	*2412.00	103.3 AV			1.60 V	264	71.57	31.73
5	4824.00	52.5 PK	74.0	-21.5	1.03 V	258	13.53	38.97
6	4824.00	47.4 AV	54.0	-6.6	1.03 V	258	8.43	38.97

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With Dipole		

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	99.4 PK			1.00 H	333	67.59	31.81
2	*2437.00	96.2 AV			1.00 H	333	64.39	31.81
3	4874.00	49.5 PK	74.0	-24.5	1.52 H	114	10.36	39.14
4	4874.00	41.8 AV	54.0	-12.2	1.52 H	114	2.66	39.14
5	7311.00	53.7 PK	74.0	-20.3	1.00 H	25	7.07	46.63
6	7311.00	41.6 AV	54.0	-12.4	1.00 H	25	-5.03	46.63
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	2381.73	60.9 PK	74.0	-13.1	1.60 V	265	29.27	31.63
2	2381.73	51.1 AV	54.0	-2.9	1.60 V	265	19.47	31.63
3	*2437.00	107.6 PK			1.60 V	151	75.79	31.81
4	*2437.00	104.6 AV			1.60 V	151	72.79	31.81
5	4874.00	54.5 PK	74.0	-19.5	1.04 V	252	15.36	39.14
6	4874.00	50.6 AV	54.0	-3.4	1.04 V	252	11.46	39.14
7	7311.00	55.0 PK	74.0	-19.0	1.38 V	160	8.37	46.63
8	7311.00	46.1 AV	54.0	-7.9	1.38 V	160	-0.53	46.63

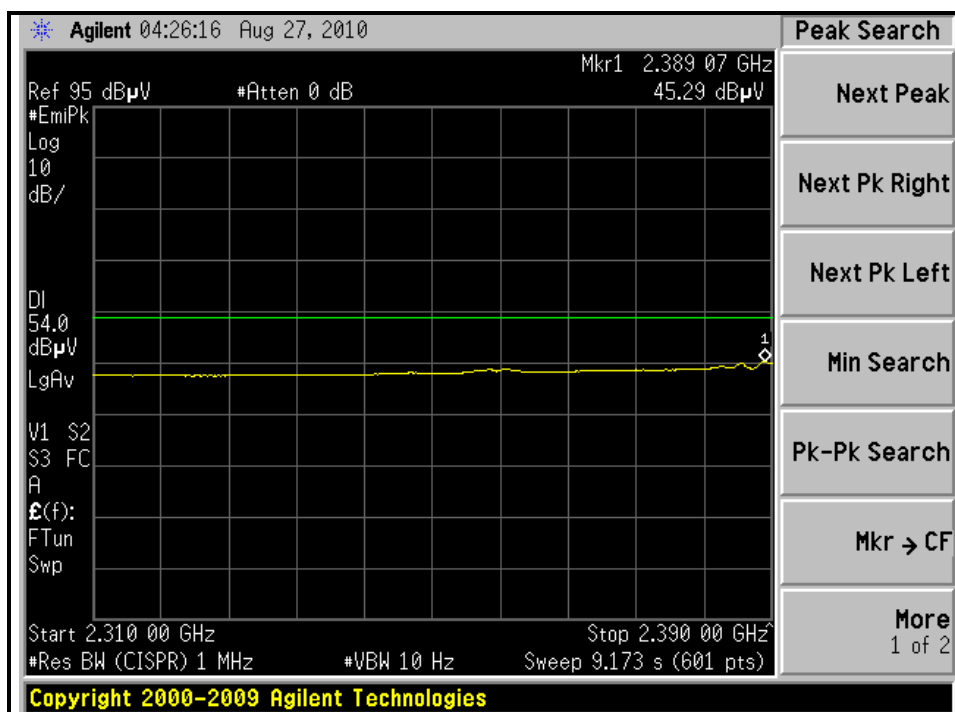
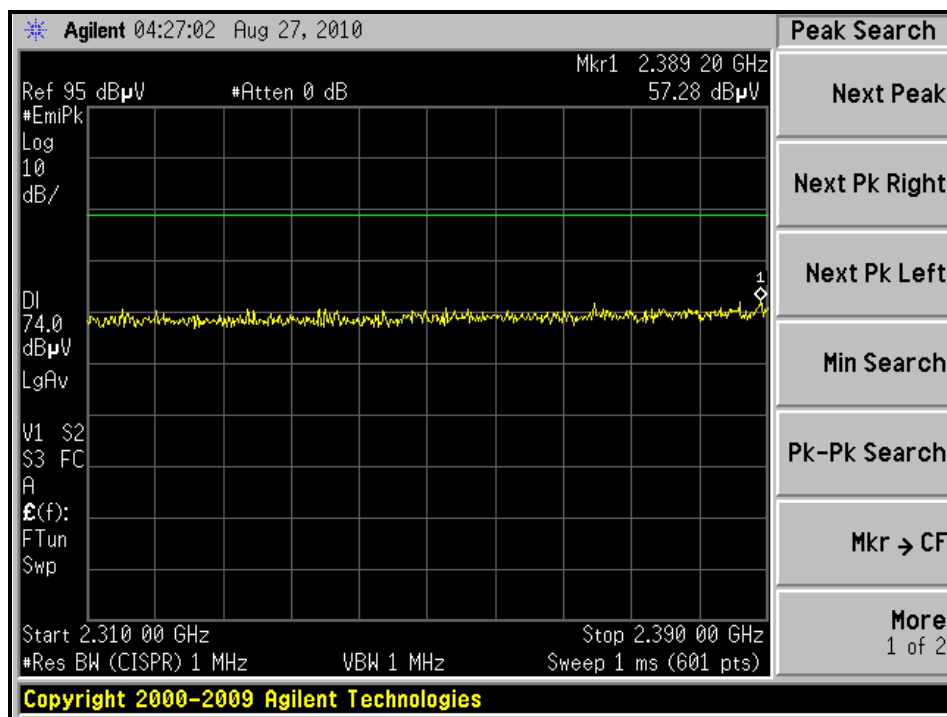
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With Dipole		

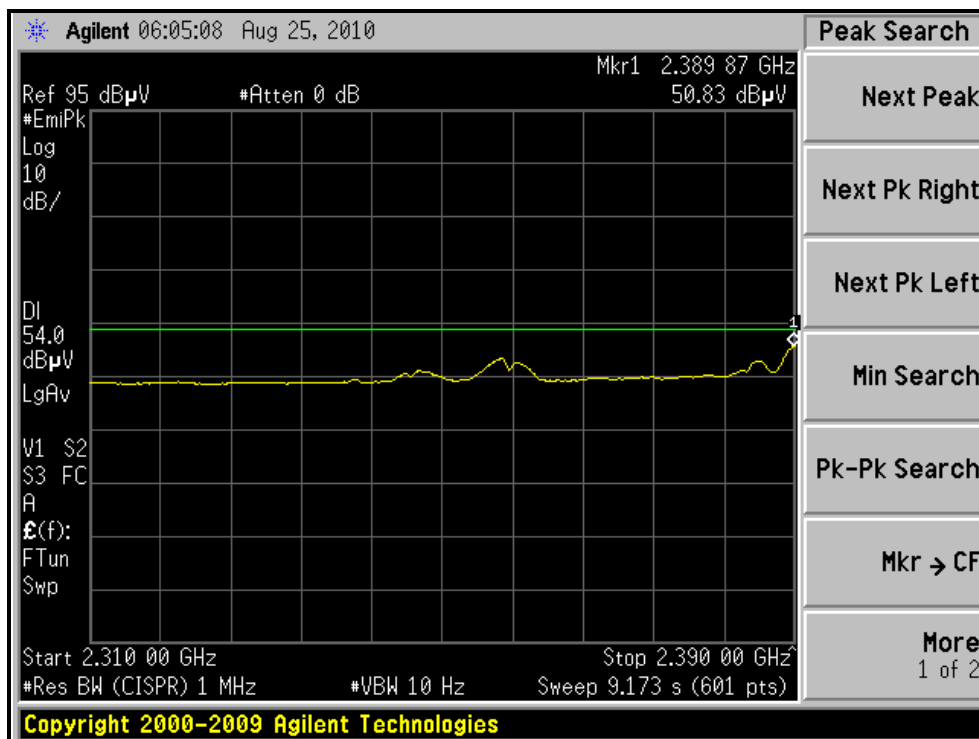
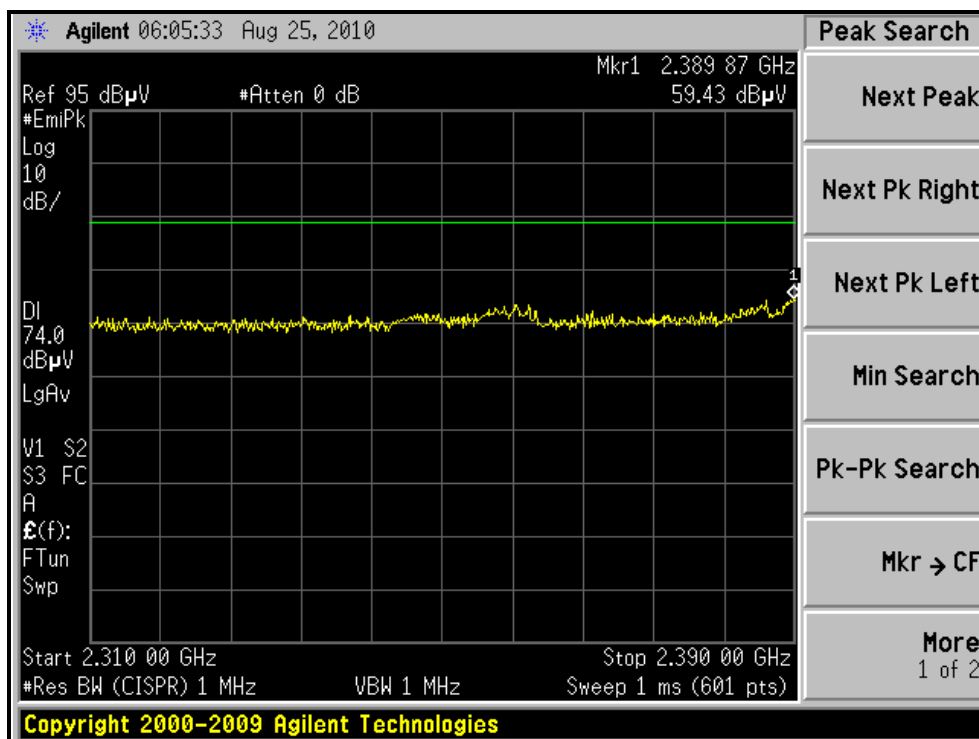
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	95.9 PK			1.00 H	332	64.01	31.89
2	*2462.00	92.8 AV			1.00 H	332	60.91	31.89
3	2483.67	57.1 PK	74.0	-16.9	1.00 H	330	25.13	31.97
4	2483.67	44.0 AV	54.0	-10.0	1.00 H	330	12.03	31.97
5	4924.00	49.7 PK	74.0	-24.3	1.00 H	109	10.39	39.31
6	4924.00	42.2 AV	54.0	-11.8	1.00 H	109	2.89	39.31
7	7386.00	54.2 PK	74.0	-19.8	1.00 H	30	7.60	46.60
8	7386.00	41.8 AV	54.0	-12.2	1.00 H	30	-4.80	46.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.8 PK			1.59 V	166	73.91	31.89
2	*2462.00	102.8 AV			1.59 V	166	70.91	31.89
3	2483.72	59.8 PK	74.0	-14.2	1.59 V	168	27.83	31.97
4	2483.72	50.1 AV	54.0	-3.9	1.59 V	168	18.13	31.97
5	4924.00	52.2 PK	74.0	-21.8	1.03 V	250	12.89	39.31
6	4924.00	47.6 AV	54.0	-6.4	1.03 V	250	8.29	39.31
7	7386.00	54.6 PK	74.0	-19.4	1.39 V	161	8.00	46.60
8	7386.00	45.4 AV	54.0	-8.6	1.39 V	161	-1.20	46.60

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

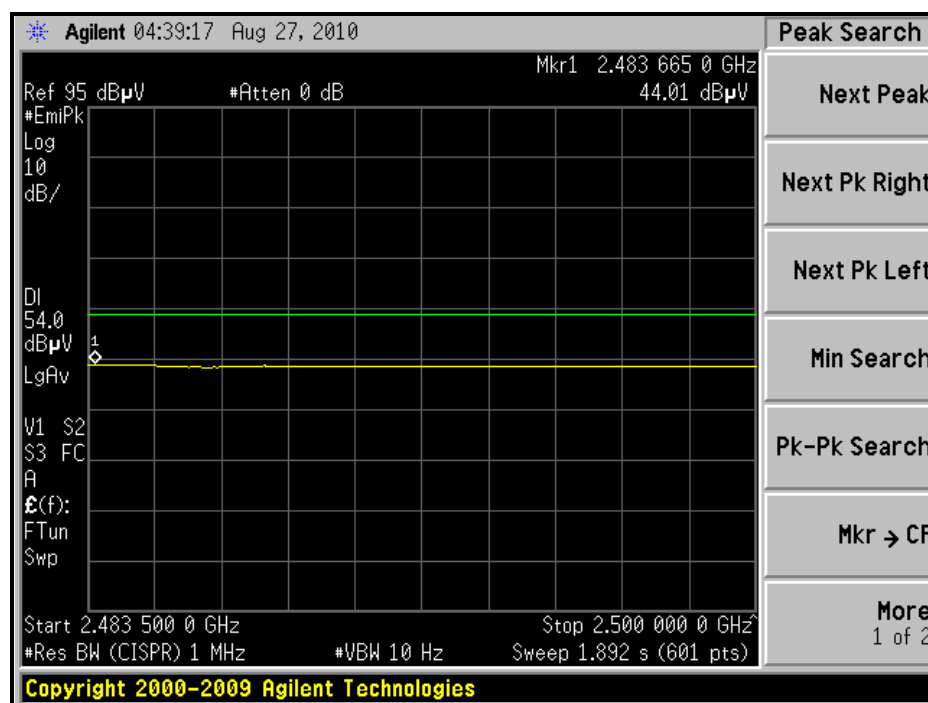
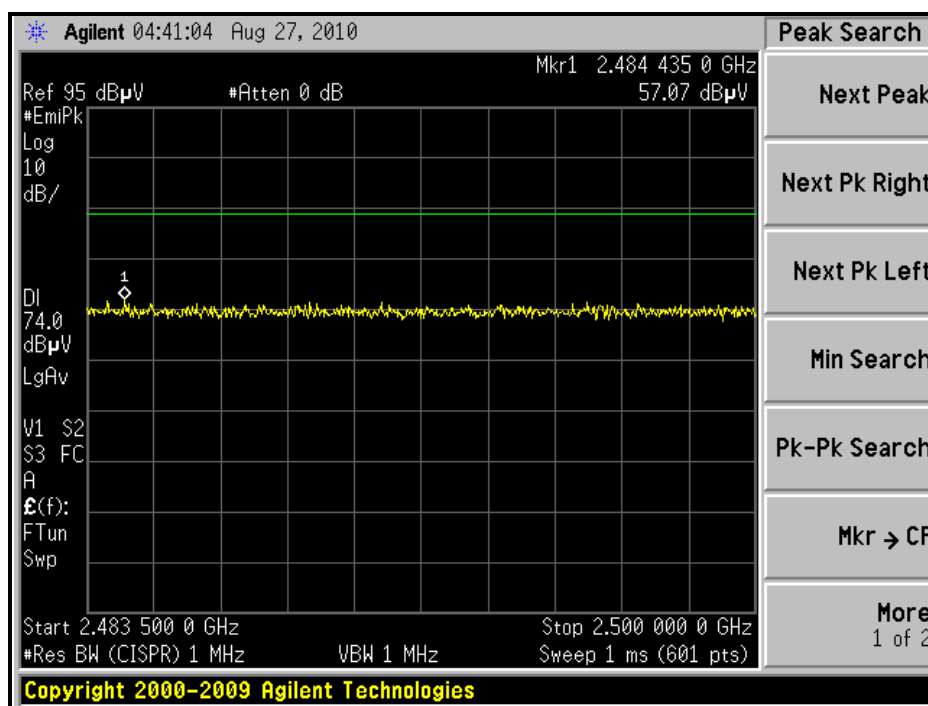
RESTRICTED BANDEDGE (802.11b MODE, CH1, HORIZONTAL)



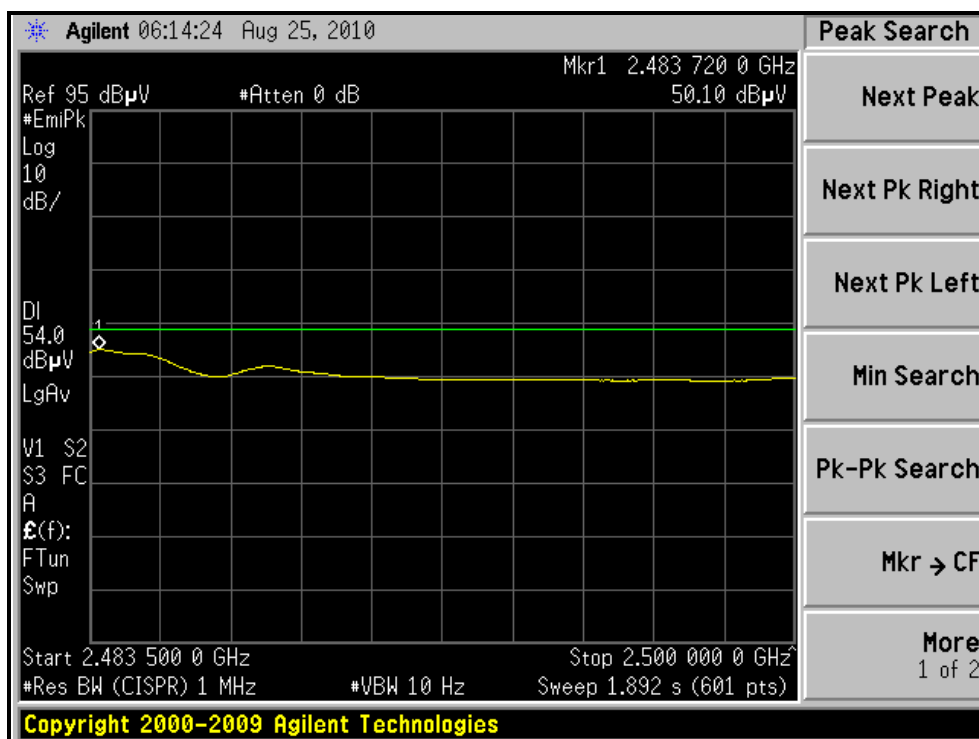
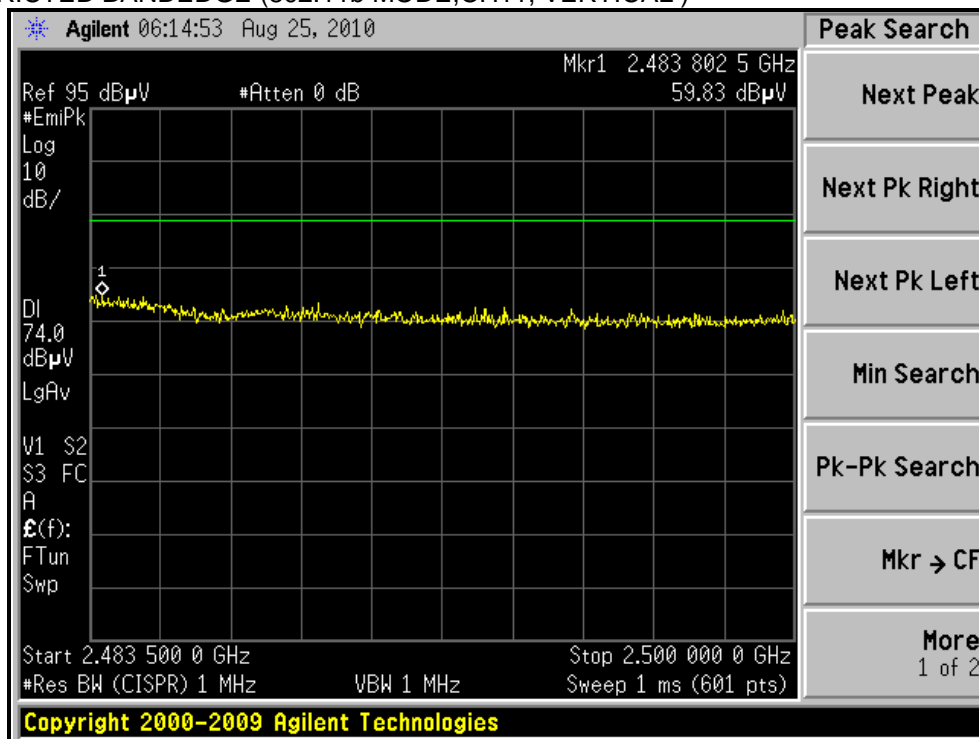
RESTRICTED BANDEDGE (802.11b MODE,CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL)



RESTRICTED BANDEDGE (802.11b MODE,CH11, VERTICAL)



802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With Dipole		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2389.73	61.6 PK	74.0	-12.4	1.00 H	256	29.94	31.66
2	2389.73	45.6 AV	54.0	-8.4	1.00 H	256	13.94	31.66
3	*2412.00	98.6 PK			1.00 H	257	66.87	31.73
4	*2412.00	86.0 AV			1.00 H	257	54.27	31.73
5	4824.00	45.7 PK	74.0	-28.3	1.00 H	108	6.73	38.97
6	4824.00	34.3 AV	54.0	-19.7	1.00 H	108	-4.67	38.97
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.3 PK	74.0	-5.7	1.59 V	262	36.64	31.66
2	2390.00	51.5 AV	54.0	-2.5	1.59 V	262	19.84	31.66
3	*2412.00	108.5 PK			1.59 V	262	76.77	31.73
4	*2412.00	94.4 AV			1.59 V	262	62.67	31.73
5	4824.00	48.7 PK	74.0	-25.3	1.00 V	243	9.73	38.97
6	4824.00	35.5 AV	54.0	-18.5	1.00 V	243	-3.47	38.97

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With Dipole		

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	100.6 PK			1.00 H	332	68.79	31.81
2	*2437.00	87.8 AV			1.00 H	332	55.99	31.81
3	4874.00	47.0 PK	74.0	-27.0	1.00 H	106	7.86	39.14
4	4874.00	34.9 AV	54.0	-19.1	1.00 H	106	-4.24	39.14
5	7311.00	54.3 PK	74.0	-19.7	1.00 H	31	7.67	46.63
6	7311.00	41.6 AV	54.0	-12.4	1.00 H	31	-5.03	46.63
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	2384.77	63.9 PK	74.0	-10.1	1.59 V	267	32.26	31.64
2	2384.77	52.1 AV	54.0	-1.9	1.59 V	267	20.46	31.64
3	*2437.00	109.7 PK			1.59 V	103	77.89	31.81
4	*2437.00	95.3 AV			1.59 V	103	63.49	31.81
5	4874.00	51.2 PK	74.0	-22.8	1.04 V	251	12.06	39.14
6	4874.00	37.3 AV	54.0	-16.7	1.04 V	251	-1.84	39.14
7	7311.00	56.4 PK	74.0	-17.6	1.26 V	24	9.77	46.63
8	7311.00	43.8 AV	54.0	-10.2	1.26 V	24	-2.83	46.63

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With Dipole		

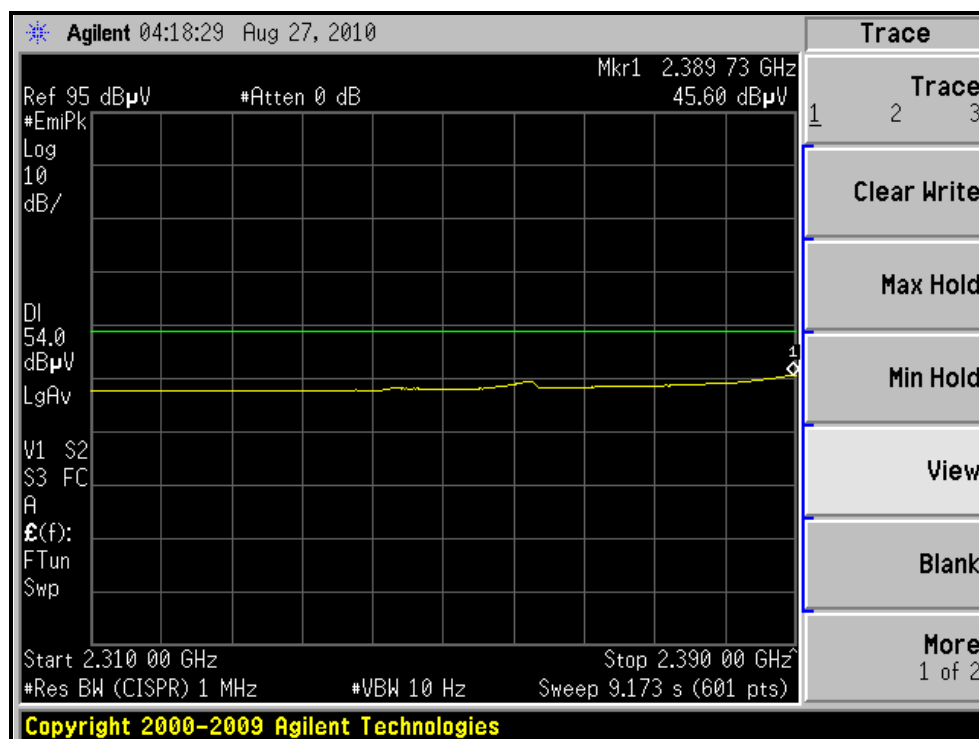
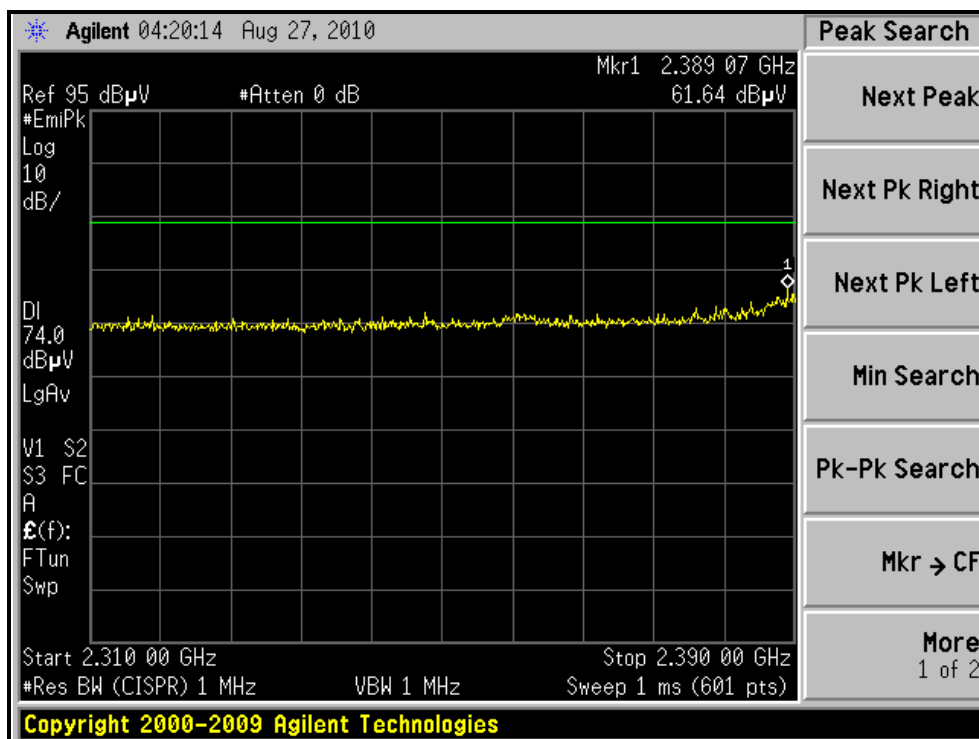
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NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	96.3 PK			1.00 H	330	64.41	31.89
2	*2462.00	84.0 AV			1.00 H	330	52.11	31.89
3	2483.69	59.9 PK	74.0	-14.1	1.00 H	350	27.93	31.97
4	2483.69	44.2 AV	54.0	-9.8	1.00 H	350	12.23	31.97
5	7386.00	54.5 PK	74.0	-19.5	1.00 H	27	7.90	46.60
6	7386.00	41.7 AV	54.0	-12.3	1.00 H	27	-4.90	46.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	107.8 PK			1.56 V	172	75.91	31.89
2	*2462.00	93.6 AV			1.56 V	172	61.71	31.89
3	2483.50	68.5 PK	74.0	-5.5	1.59 V	170	36.53	31.97
4	2483.50	50.1 AV	54.0	-3.9	1.59 V	170	18.13	31.97
5	4924.00	50.0 PK	74.0	-24.0	1.00 V	239	10.69	39.31
6	4924.00	36.7 AV	54.0	-17.3	1.00 V	239	-2.61	39.31
7	7386.00	55.0 PK	74.0	-19.0	1.25 V	27	8.40	46.60
8	7386.00	42.3 AV	54.0	-11.7	1.25 V	27	-4.30	46.60

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

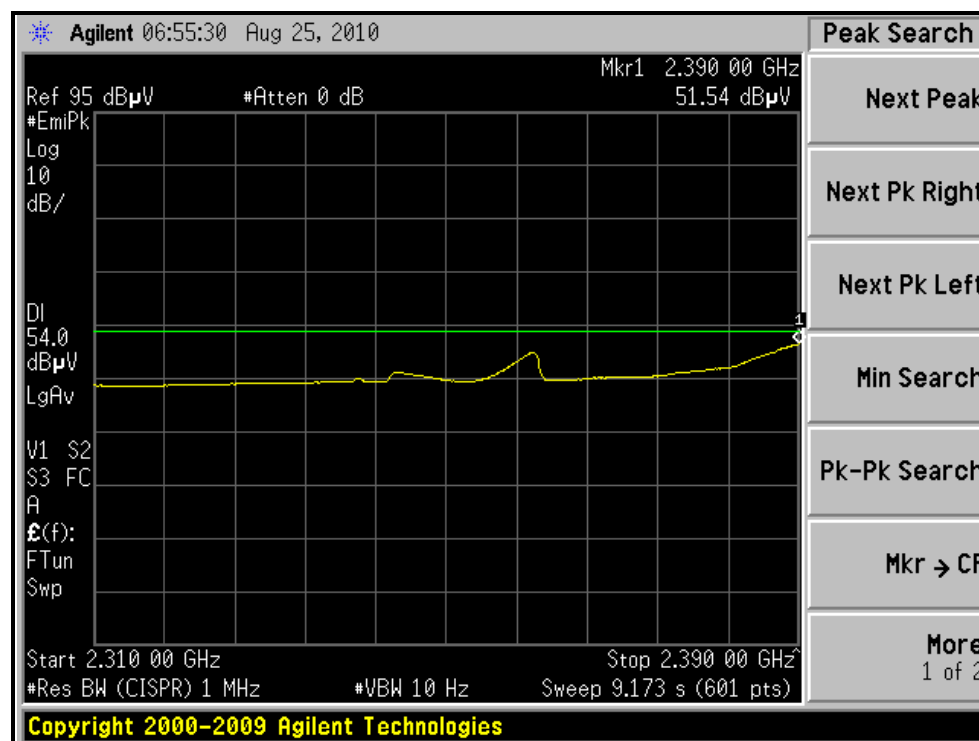
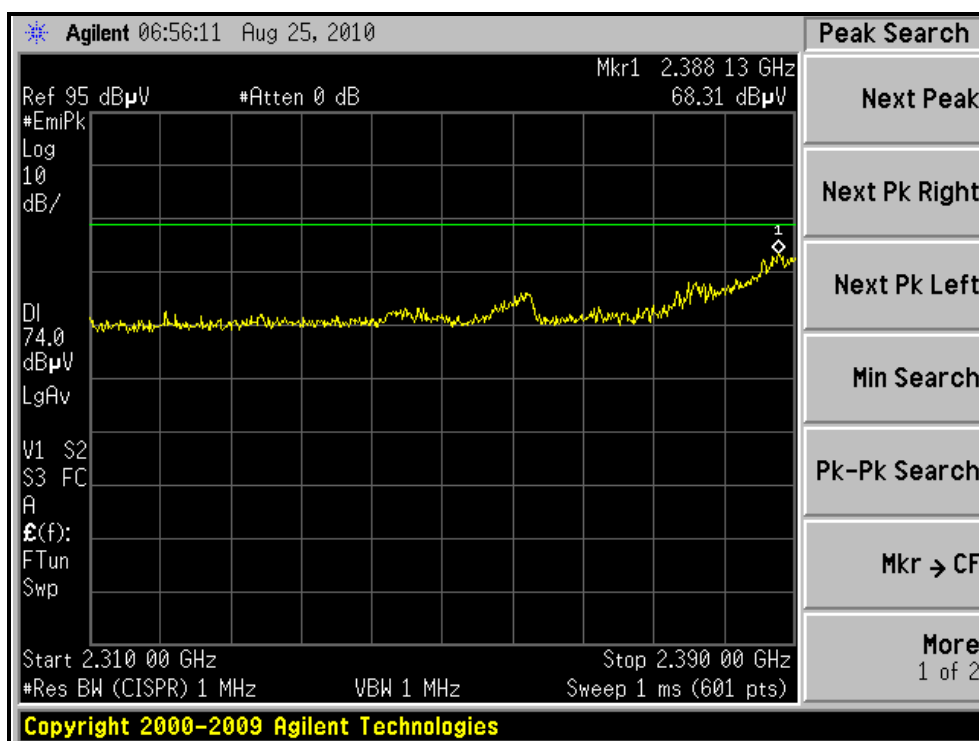


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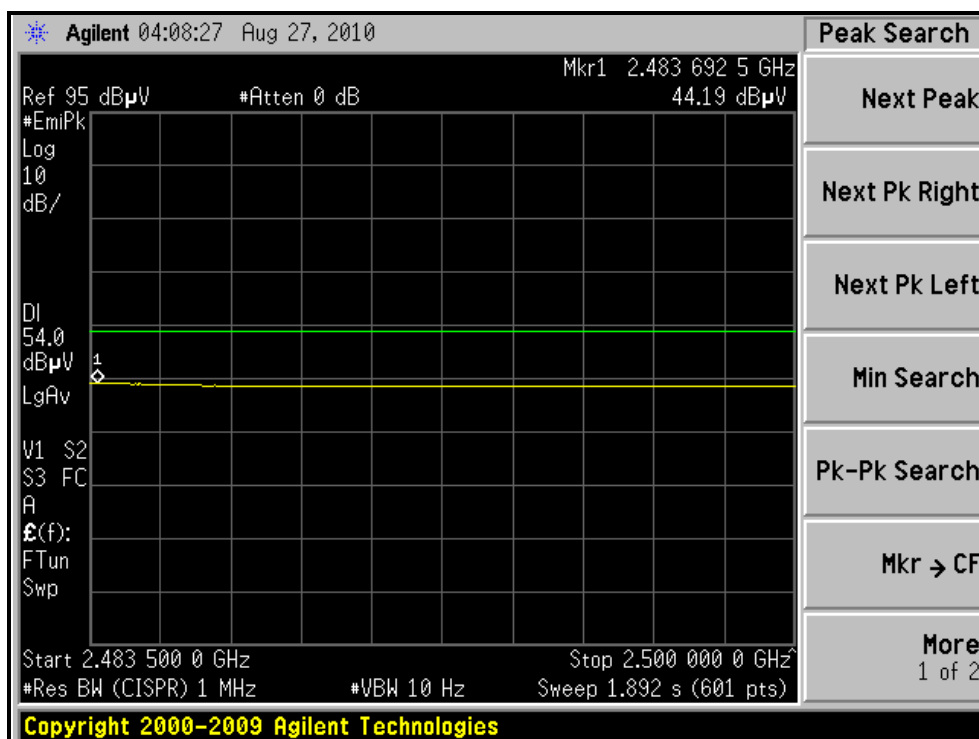
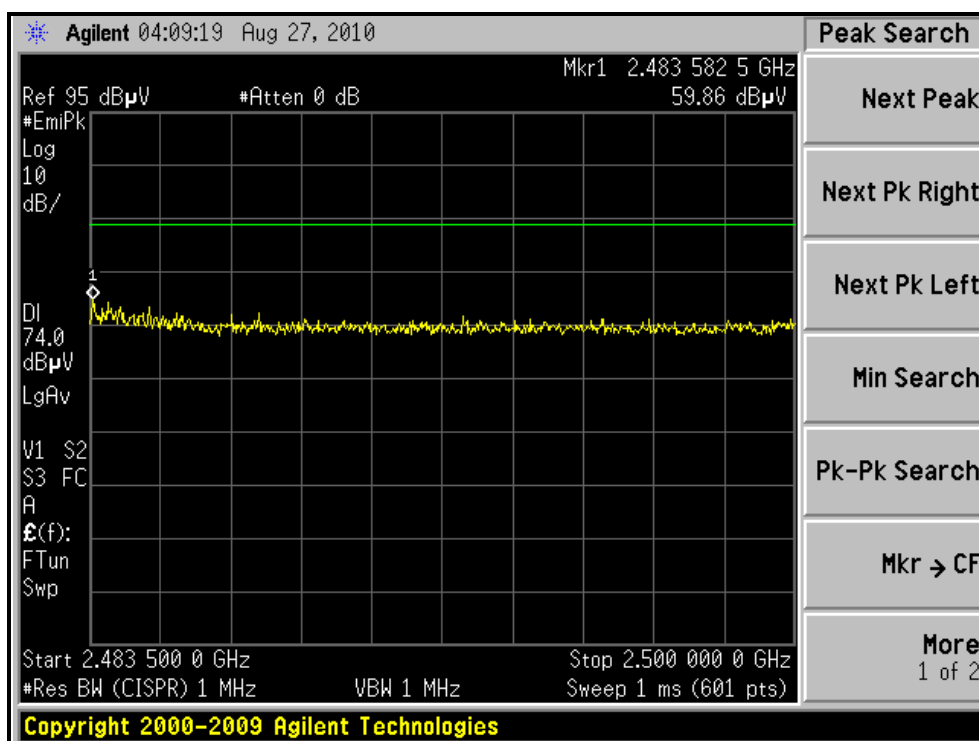
RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL)



RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)



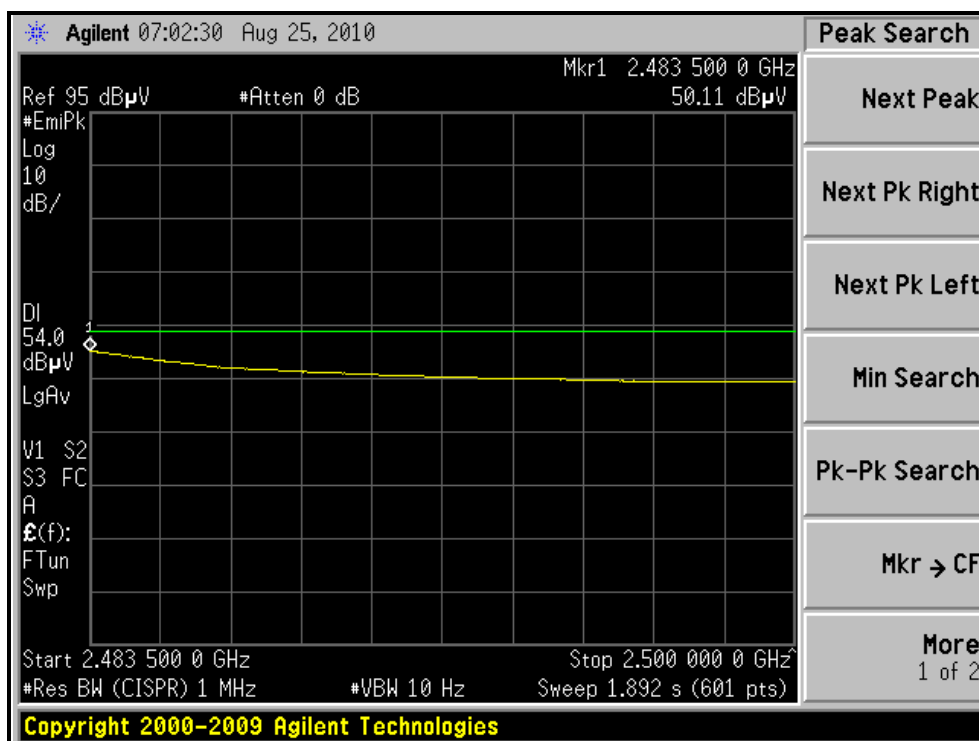
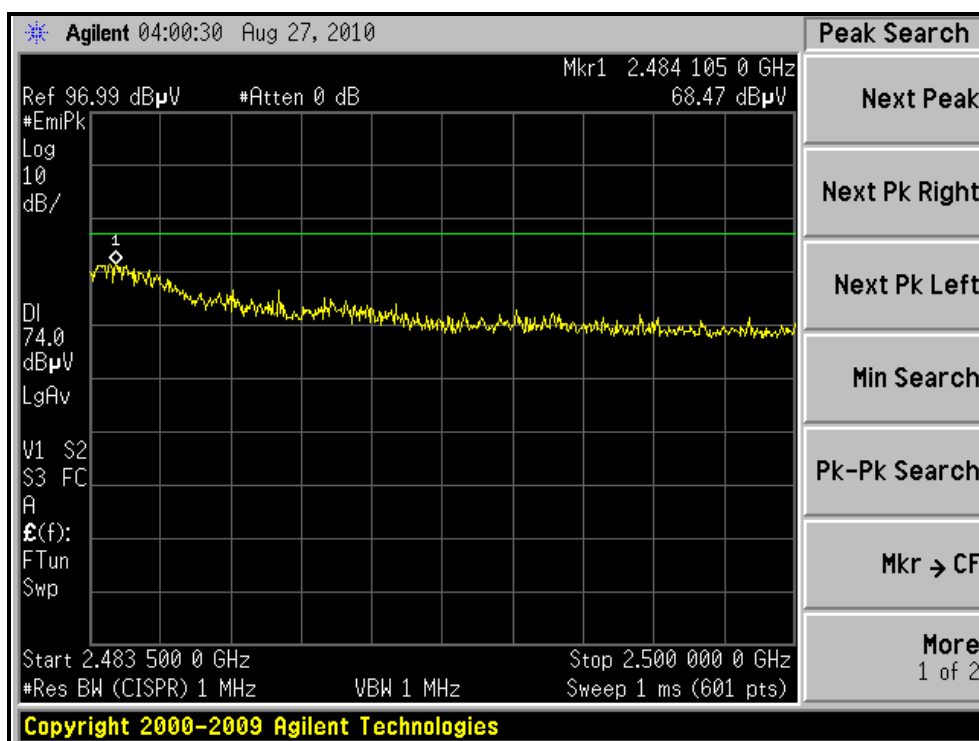
RESTRICTED BANDEDGE (802.11g MODE,CH11, HORIZONTAL)





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RESTRICTED BANDEDGE (802.11g MODE,CH11, VERTICAL)



802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With Dipole		

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	2360.13	58.1 PK	74.0	-15.9	1.00 H	247	26.54	31.56
2	2360.13	45.6 AV	54.0	-8.4	1.00 H	247	14.04	31.56
3	2390.00	63.0 PK	74.0	-11.0	1.00 H	247	31.34	31.66
4	2390.00	44.9 AV	54.0	-9.1	1.00 H	247	13.24	31.66
5	*2412.00	103.2 PK			1.00 H	342	71.47	31.73
6	*2412.00	88.0 AV			1.00 H	342	56.27	31.73
7	4824.00	48.2 PK	74.0	-25.8	1.01 H	111	9.23	38.97
8	4824.00	35.0 AV	54.0	-19.0	1.01 H	111	-3.97	38.97
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	2360.00	65.7 PK	74.0	-8.3	1.67 V	191	34.14	31.56
2	2360.00	52.8 AV	54.0	-1.2	1.67 V	191	21.24	31.56
3	2390.00	71.7 PK	74.0	-2.3	1.67 V	191	40.04	31.66
4	2390.00	49.0 AV	54.0	-5.0	1.67 V	191	17.34	31.66
5	*2412.00	112.3 PK			1.67 V	200	80.57	31.73
6	*2412.00	95.9 AV			1.67 V	200	64.17	31.73
7	4824.00	50.0 PK	74.0	-24.0	1.14 V	106	11.03	38.97
8	4824.00	37.6 AV	54.0	-16.4	1.14 V	106	-1.37	38.97

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With Dipole		

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	105.3 PK			1.00 H	342	73.49	31.81
2	*2437.00	89.2 AV			1.00 H	342	57.39	31.81
3	4874.00	50.3 PK	74.0	-23.7	1.00 H	113	11.16	39.14
4	4874.00	36.0 AV	54.0	-18.0	1.00 H	113	-3.14	39.14
5	7311.00	54.4 PK	74.0	-19.6	1.00 H	21	7.77	46.63
6	7311.00	41.6 AV	54.0	-12.4	1.00 H	21	-5.03	46.63
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2385.33	68.0 PK	74.0	-6.0	1.58 V	244	36.36	31.64
2	2385.33	53.5 AV	54.0	-0.5	1.58 V	244	21.86	31.64
3	*2437.00	113.8 PK			1.58 V	95	81.97	31.81
4	*2437.00	97.6 AV			1.58 V	95	65.79	31.81
5	4874.00	54.9 PK	74.0	-19.1	1.12 V	110	15.76	39.14
6	4874.00	39.4 AV	54.0	-14.6	1.12 V	110	0.26	39.14
7	7311.00	56.9 PK	74.0	-17.1	1.28 V	25	10.27	46.63
8	7311.00	42.5 AV	54.0	-11.5	1.28 V	25	-4.13	46.63

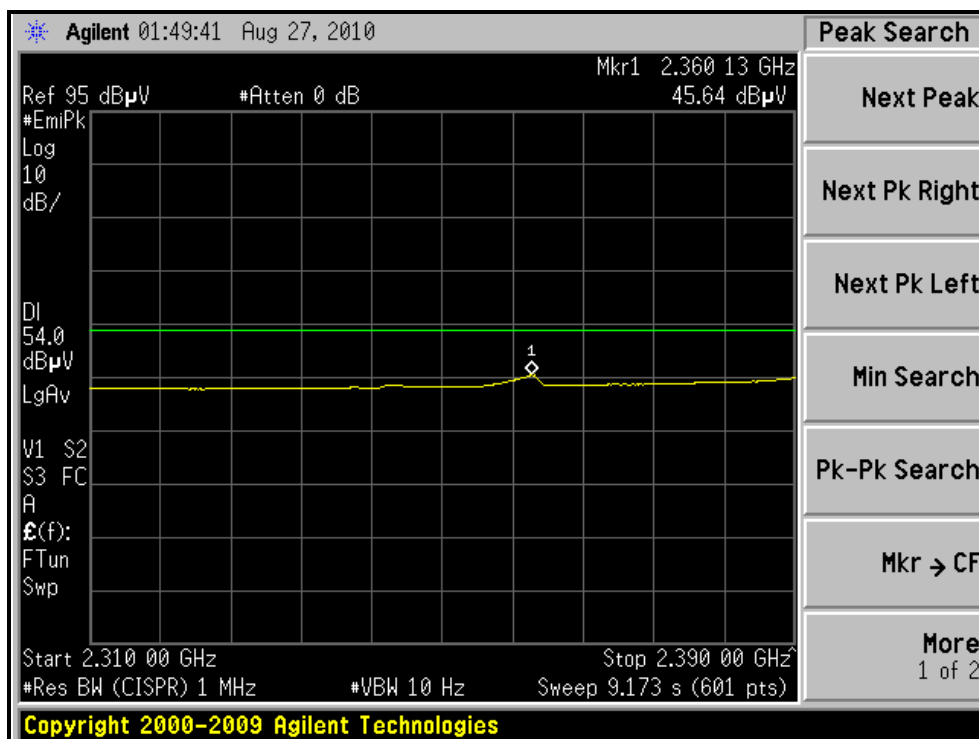
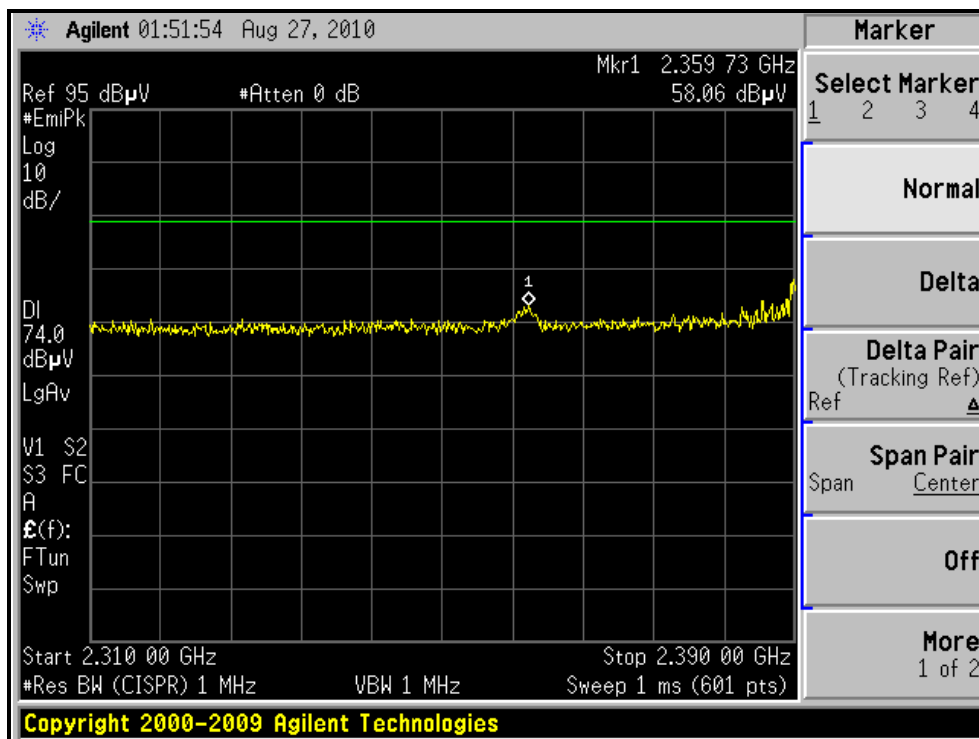
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With Dipole		

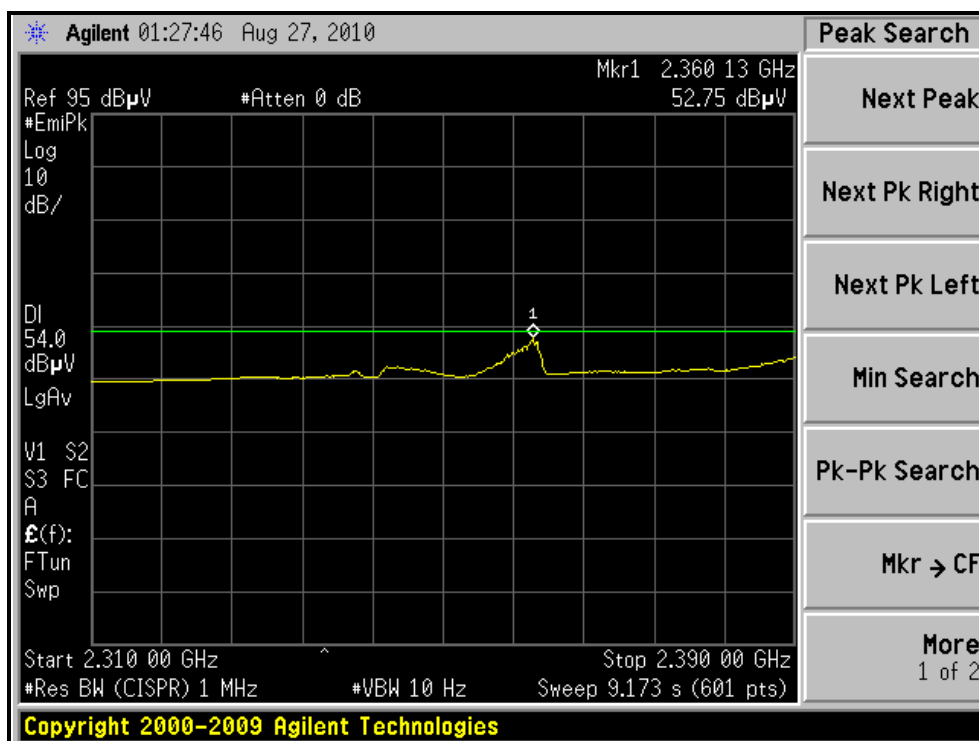
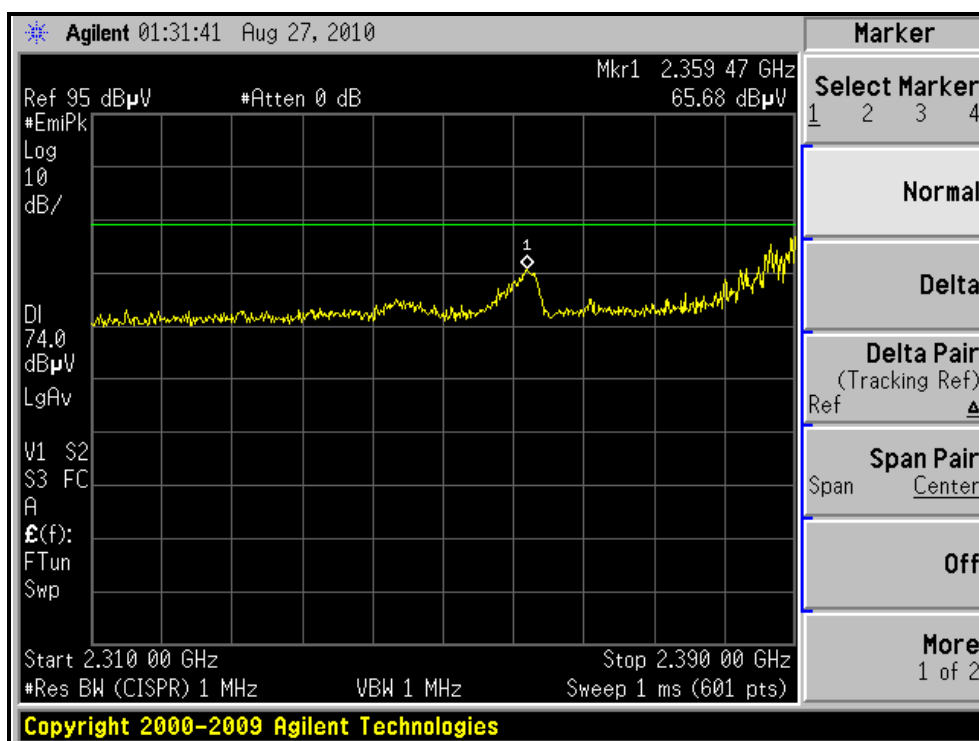
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	102.0 PK			1.00 H	345	70.11	31.89
2	*2462.00	86.5 AV			1.00 H	345	54.61	31.89
3	2483.60	60.2 PK	74.0	-13.8	1.00 H	346	28.23	31.97
4	2483.60	44.0 AV	54.0	-10.0	1.00 H	346	12.03	31.97
5	4924.00	48.3 PK	74.0	-25.7	1.00 H	115	8.99	39.31
6	4924.00	35.1 AV	54.0	-18.9	1.00 H	115	-4.21	39.31
7	7386.00	54.5 PK	74.0	-19.5	1.00 H	28	7.90	46.60
8	7386.00	41.6 AV	54.0	-12.4	1.00 H	28	-5.00	46.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	111.6 PK			1.60 V	184	79.71	31.89
2	*2462.00	95.0 AV			1.60 V	184	63.11	31.89
3	2484.22	70.4 PK	74.0	-3.6	1.33 V	204	38.43	31.97
4	2484.22	47.8 AV	54.0	-6.2	1.33 V	204	15.83	31.97
5	4924.00	52.4 PK	74.0	-21.6	1.11 V	112	13.09	39.31
6	4924.00	37.3 AV	54.0	-16.7	1.11 V	112	-2.01	39.31
7	7386.00	55.1 PK	74.0	-18.9	1.25 V	29	8.50	46.60
8	7386.00	41.9 AV	54.0	-12.1	1.25 V	29	-4.70	46.60

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

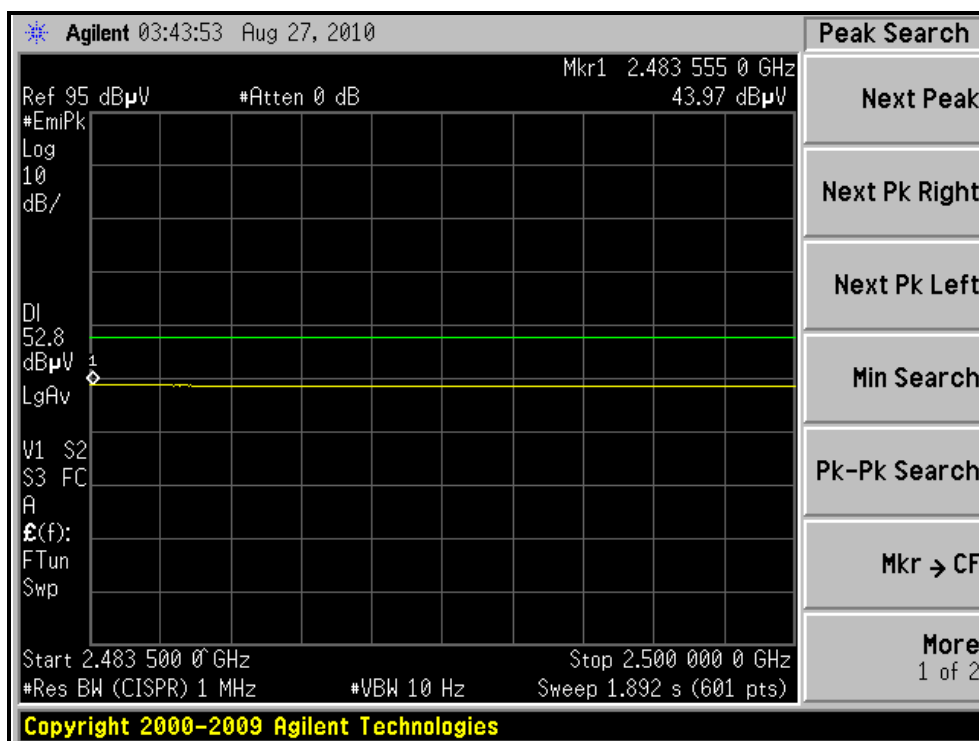
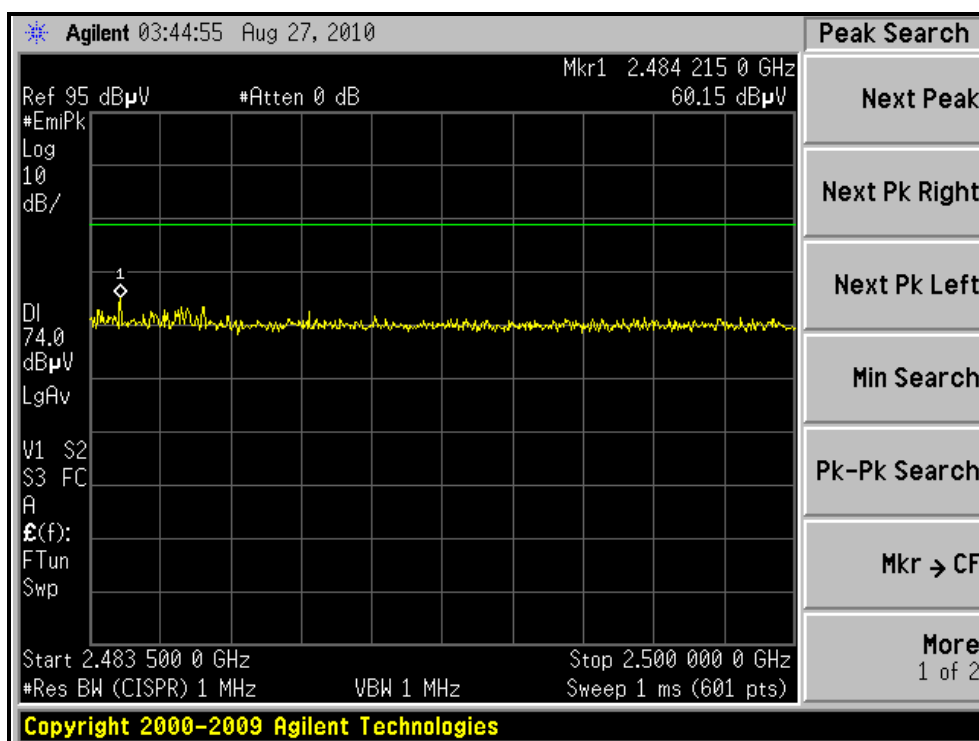
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, HORIZONTAL)



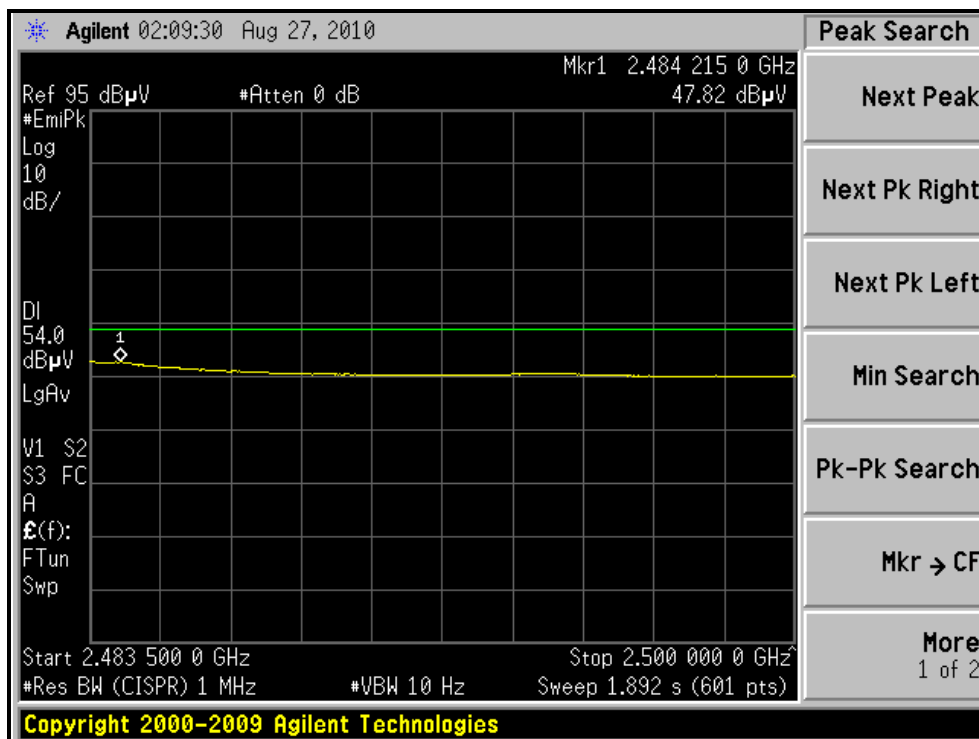
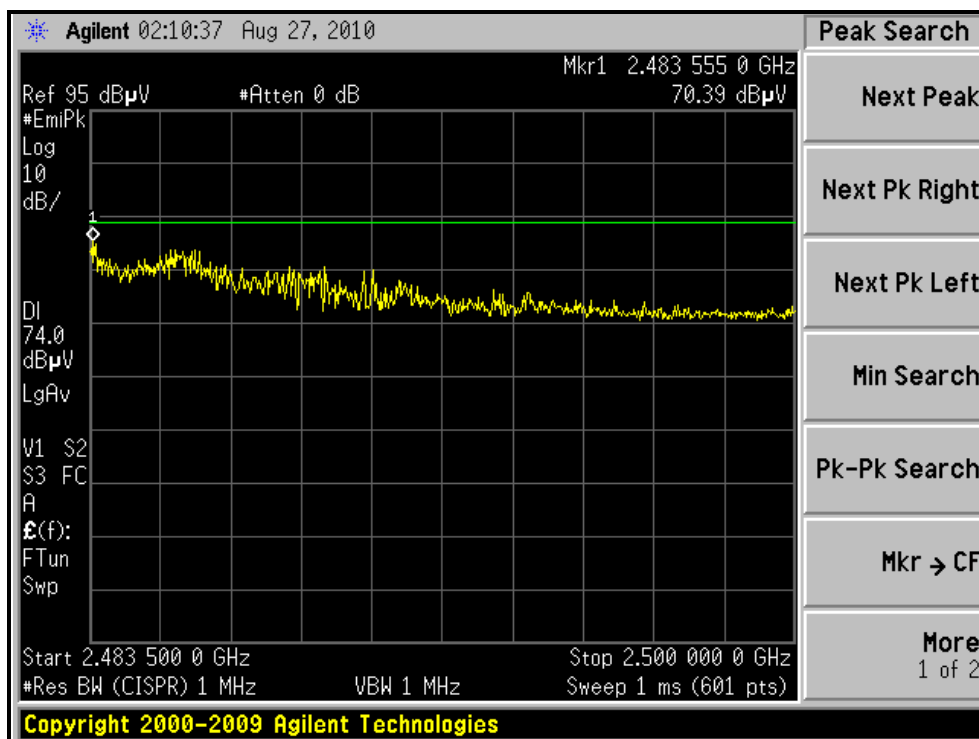
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, VERTICAL)



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



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



802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With Dipole		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2389.60	62.1 PK	74.0	-11.9	1.00 H	245	30.44	31.66
2	2389.60	46.2 AV	54.0	-7.8	1.00 H	245	14.54	31.66
3	*2422.00	100.8 PK			1.00 H	340	69.04	31.76
4	*2422.00	82.7 AV			1.00 H	340	50.94	31.76
5	4844.00	46.8 PK	74.0	-27.2	1.02 H	110	7.76	39.04
6	4844.00	34.6 AV	54.0	-19.4	1.02 H	110	-4.44	39.04
7	7266.00	54.2 PK	74.0	-19.8	1.00 H	18	7.53	46.67
8	7266.00	41.5 AV	54.0	-12.5	1.00 H	18	-5.17	46.67
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	2389.87	72.6 PK	74.0	-1.4	1.59 V	252	40.94	31.66
2	2389.87	51.2 AV	54.0	-2.8	1.59 V	252	19.54	31.66
3	*2422.00	110.5 PK			1.60 V	250	78.74	31.76
4	*2422.00	89.6 AV			1.60 V	250	57.84	31.76
5	4844.00	49.8 PK	74.0	-24.2	1.15 V	113	10.76	39.04
6	4844.00	36.0 AV	54.0	-18.0	1.15 V	113	-3.04	39.04
7	7266.00	53.6 PK	74.0	-20.4	1.26 V	28	6.93	46.67
8	7266.00	41.5 AV	54.0	-12.5	1.26 V	28	-5.17	46.67

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With Dipole		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	102.0 PK			1.00 H	339	70.19	31.81
2	*2437.00	84.0 AV			1.00 H	339	52.19	31.81
3	4874.00	47.3 PK	74.0	-26.7	1.00 H	113	8.16	39.14
4	4874.00	35.5 AV	54.0	-18.5	1.00 H	113	-3.64	39.14
5	7311.00	53.6 PK	74.0	-20.4	1.00 H	26	6.97	46.63
6	7311.00	41.4 AV	54.0	-12.6	1.00 H	26	-5.23	46.63
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	70.0 PK	74.0	-4.0	1.59 V	245	38.34	31.66
2	2390.00	49.8 AV	54.0	-4.2	1.59 V	245	18.14	31.66
3	*2437.00	111.0 PK			1.59 V	245	79.19	31.81
4	*2437.00	91.0 AV			1.59 V	245	59.19	31.81
5	2483.50	72.1 PK	74.0	-1.9	1.59 V	87	40.13	31.97
6	2483.50	50.0 AV	54.0	-4.0	1.59 V	87	18.03	31.97
7	4874.00	53.8 PK	74.0	-20.2	1.12 V	108	14.66	39.14
8	4874.00	38.5 AV	54.0	-15.5	1.12 V	108	-0.64	39.14
9	7311.00	55.7 PK	74.0	-18.3	1.27 V	24	9.07	46.63
10	7311.00	42.3 AV	54.0	-11.7	1.27 V	24	-4.33	46.63

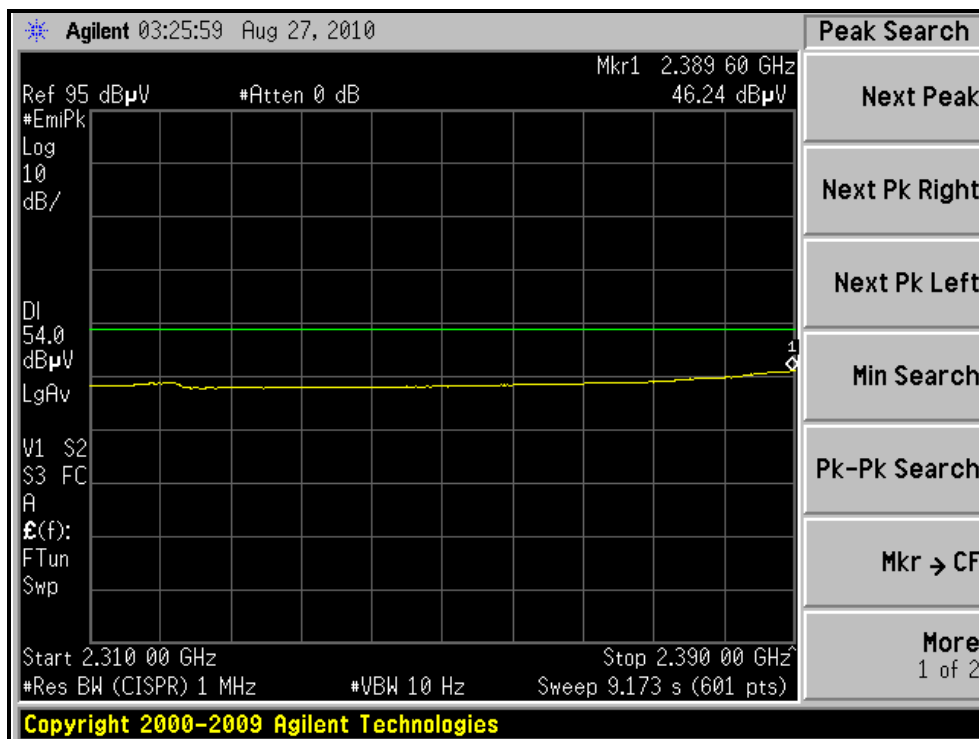
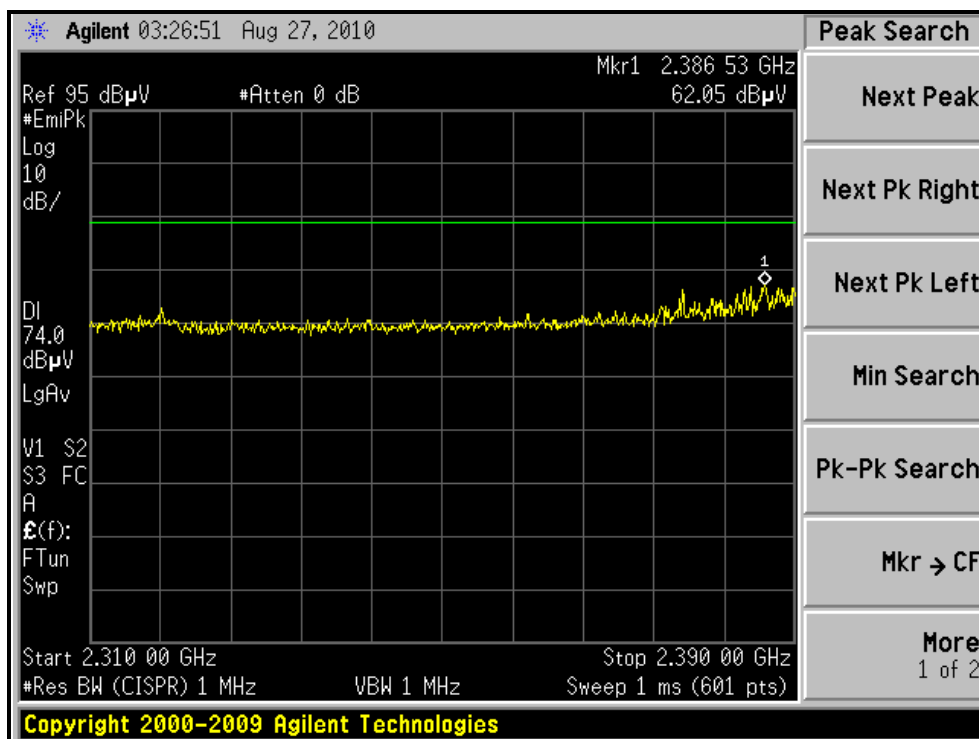
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With Dipole		

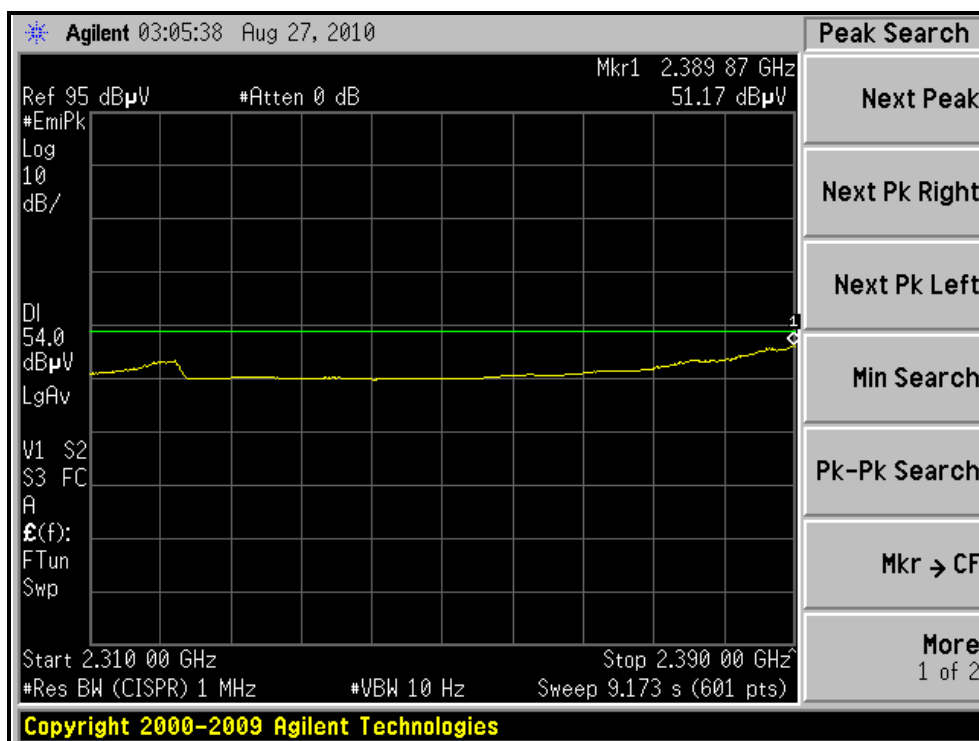
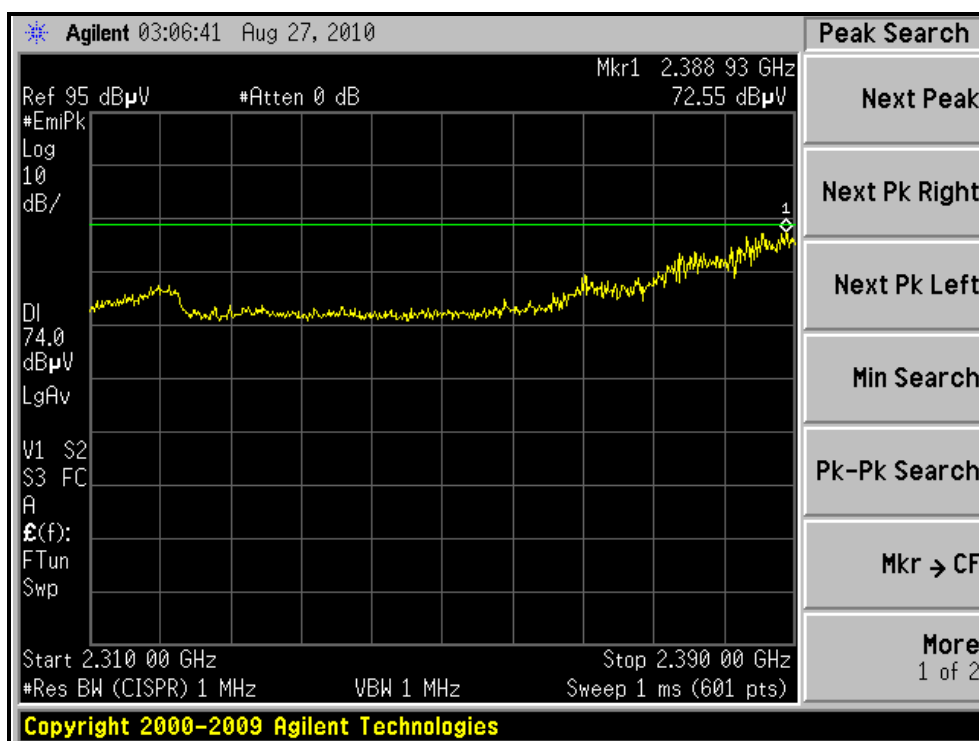
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	98.7 PK			1.00 H	342	66.84	31.86
2	*2452.00	80.9 AV			1.00 H	342	49.04	31.86
3	2483.56	58.0 PK	74.0	-16.0	1.00 H	345	26.03	31.97
4	2483.56	44.2 AV	54.0	-9.8	1.00 H	345	12.23	31.97
5	4904.00	46.2 PK	74.0	-27.8	1.00 H	109	6.96	39.24
6	4904.00	34.0 AV	54.0	-20.0	1.00 H	109	-5.24	39.24
7	7356.00	54.1 PK	74.0	-19.9	1.00 H	20	7.49	46.61
8	7356.00	41.4 AV	54.0	-12.6	1.00 H	20	-5.21	46.61
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	108.0 PK			1.60 V	150	76.14	31.86
2	*2452.00	87.5 AV			1.60 V	150	55.64	31.86
3	2483.92	70.0 PK	74.0	-4.0	1.61 V	148	38.03	31.97
4	2483.92	48.8 AV	54.0	-5.2	1.61 V	148	16.83	31.97
5	4904.00	49.5 PK	74.0	-24.5	1.10 V	109	10.26	39.24
6	4904.00	35.7 AV	54.0	-18.3	1.10 V	109	-3.54	39.24
7	7356.00	54.1 PK	74.0	-19.9	1.28 V	27	7.49	46.61
8	7356.00	41.6 AV	54.0	-12.4	1.28 V	27	-5.01	46.61

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)



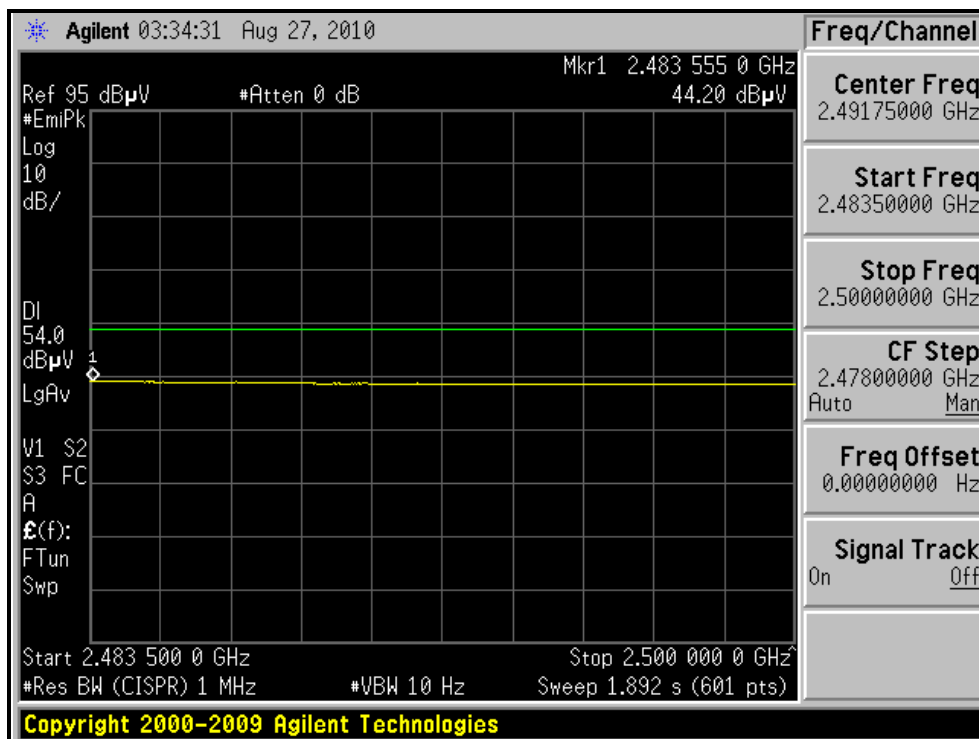
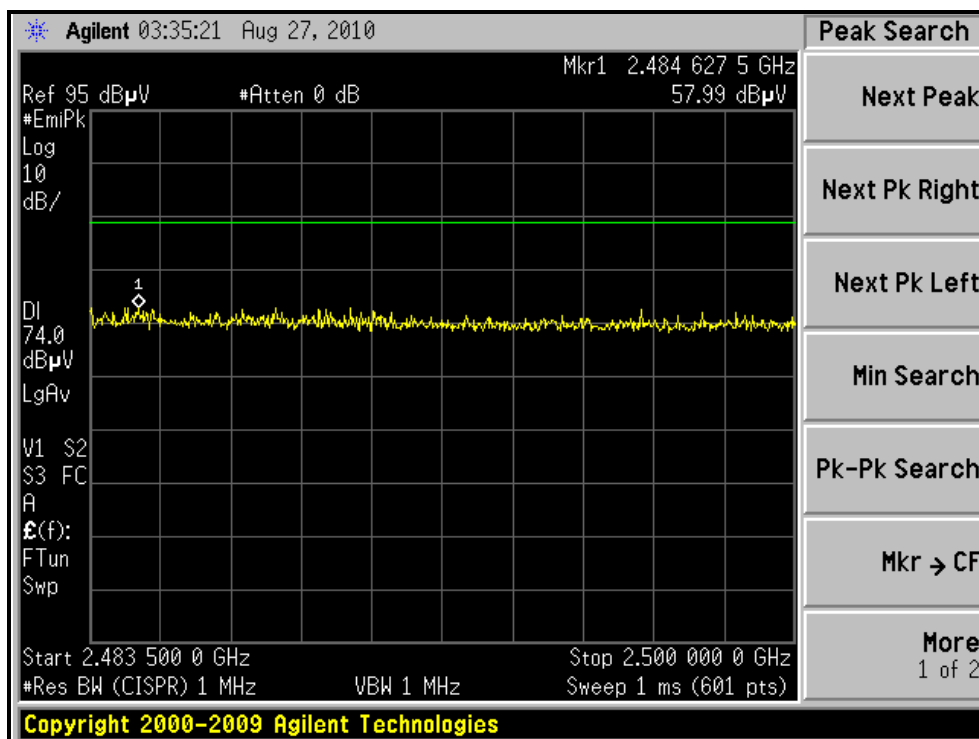
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, VERTICAL)



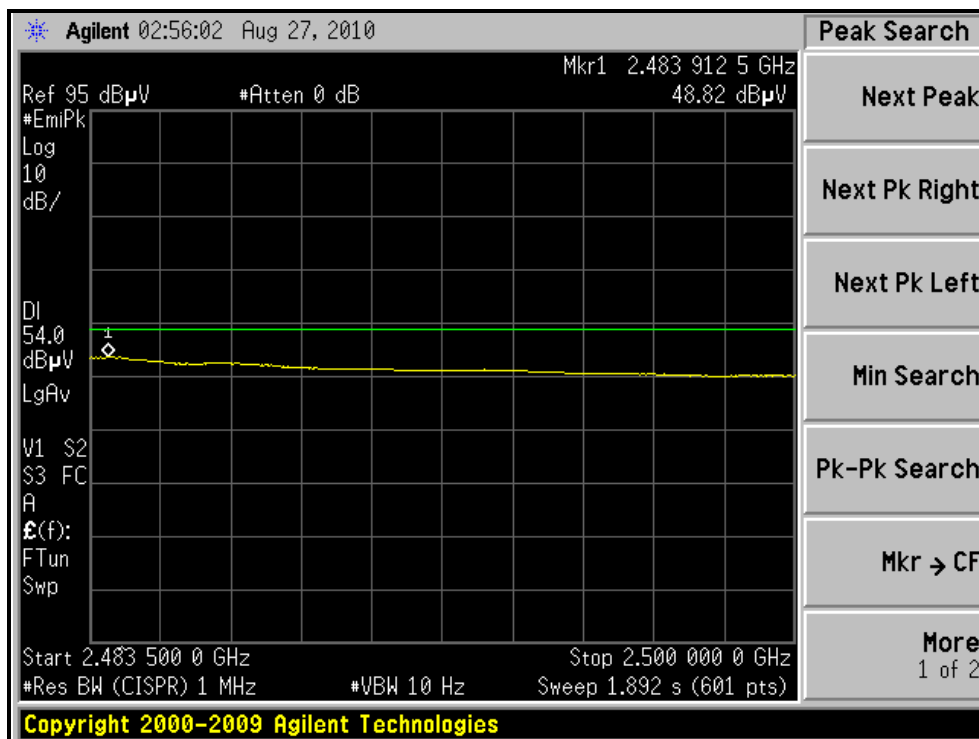
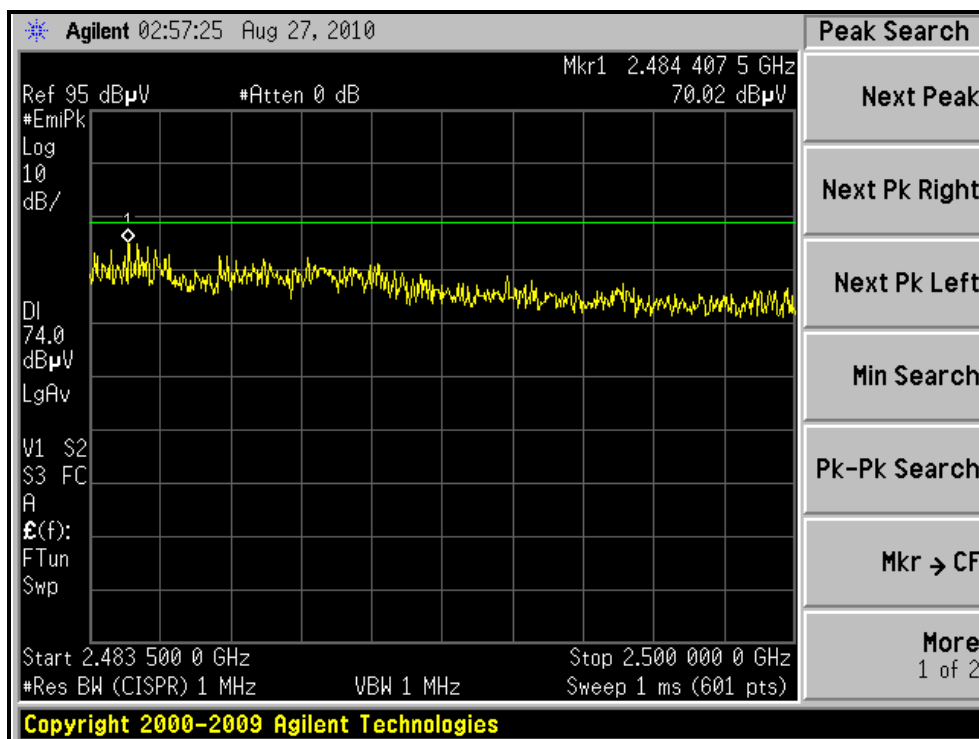


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RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH7, HORIZONTAL)



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



4.2.8 TEST RESULTS (With PIFA Antenna)

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	27deg. C, 71%RH 1013 hPa	TESTED BY	Rex Huang
TEST MODE	With PIFA		

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	99.99	31.4 QP	43.5	-12.1	2.00 H	360	22.14	9.24
2	166.66	28.8 QP	43.5	-14.7	1.75 H	0	15.14	13.62
3	233.21	31.1 QP	46.0	-14.9	1.75 H	0	18.77	12.31
4	400.07	31.6 QP	46.0	-14.4	2.25 H	198	14.23	17.34
5	600.32	32.4 QP	46.0	-13.6	2.25 H	0	10.43	21.97
6	799.75	37.4 QP	46.0	-8.6	1.00 H	78	12.95	24.47
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	36.16	26.8 QP	40.0	-13.2	1.00 V	223	13.40	13.43
2	299.89	35.8 QP	46.0	-10.2	1.25 V	269	20.58	15.19
3	450.05	30.3 QP	46.0	-15.7	1.50 V	244	11.75	18.51
4	600.32	36.5 QP	46.0	-9.5	1.00 V	232	14.56	21.97
5	799.75	37.1 QP	46.0	-8.9	1.75 V	197	12.64	24.47
6	900.41	36.1 QP	46.0	-9.9	1.75 V	204	9.85	26.25

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

ABOVE 1GHz WORST-CASE DATA

802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With PIFA		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2389.73	61.2 PK	74.0	-12.8	1.51 H	349	29.54	31.66
2	2389.73	53.1 AV	54.0	-0.9	1.51 H	349	21.44	31.66
3	*2412.00	107.4 PK			1.52 H	337	75.67	31.73
4	*2412.00	104.3 AV			1.52 H	337	72.57	31.73
5	4824.00	52.0 PK	74.0	-22.0	1.00 H	203	13.03	38.97
6	4824.00	45.9 AV	54.0	-8.1	1.00 H	203	6.93	38.97
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	2389.87	58.8 PK	74.0	-15.2	1.70 V	91	27.14	31.66
2	2389.87	49.3 AV	54.0	-4.7	1.70 V	91	17.64	31.66
3	*2412.00	103.4 PK			1.71 V	102	71.67	31.73
4	*2412.00	100.5 AV			1.71 V	102	68.77	31.73
5	4824.00	54.2 PK	74.0	-19.8	1.26 V	116	15.23	38.97
6	4824.00	51.3 AV	54.0	-2.7	1.26 V	116	12.33	38.97

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With PIFA		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2381.73	60.6 PK	74.0	-13.4	1.53 H	346	28.97	31.63
2	2381.73	52.1 AV	54.0	-1.9	1.53 H	346	20.47	31.63
3	*2437.00	107.4 PK			1.49 H	354	75.59	31.81
4	*2437.00	104.5 AV			1.49 H	354	72.69	31.81
5	4874.00	50.6 PK	74.0	-23.4	1.15 H	232	11.46	39.14
6	4874.00	45.4 AV	54.0	-8.6	1.15 H	232	6.26	39.14
7	7311.00	54.0 PK	74.0	-20.0	1.12 H	22	7.37	46.63
8	7311.00	41.8 AV	54.0	-12.2	1.12 H	22	-4.83	46.63
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	104.0 PK			1.63 V	98	72.19	31.81
2	*2437.00	101.3 AV			1.63 V	98	69.49	31.81
3	4874.00	54.6 PK	74.0	-19.4	1.23 V	117	15.46	39.14
4	4874.00	51.8 AV	54.0	-2.2	1.23 V	117	12.66	39.14
5	7311.00	55.2 PK	74.0	-18.8	1.24 V	8	8.57	46.63
6	7311.00	44.0 AV	54.0	-10.0	1.24 V	8	-2.63	46.63

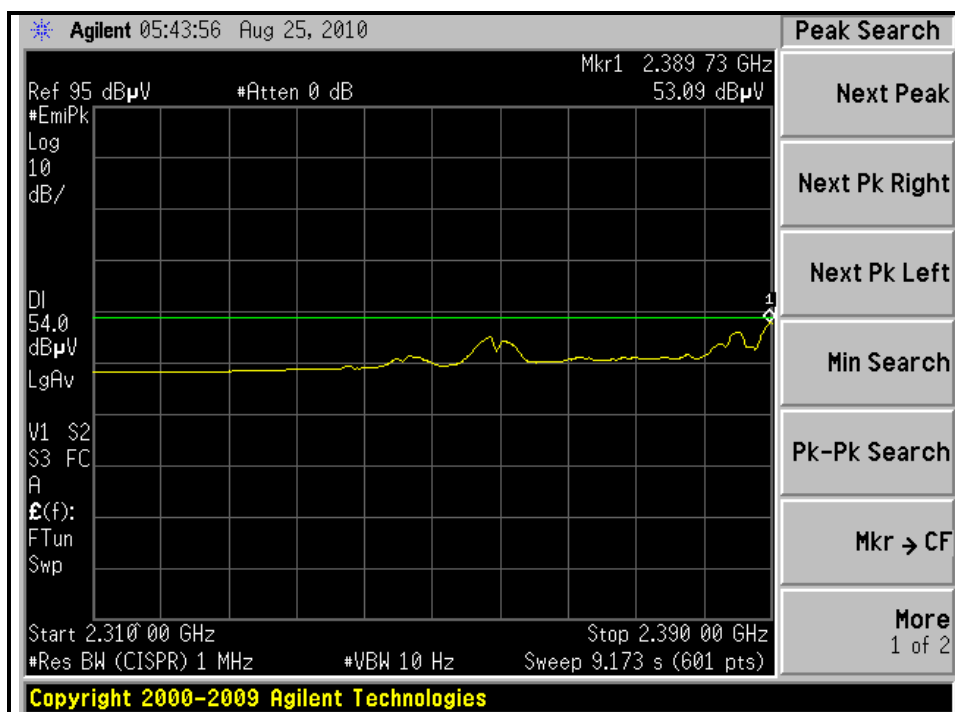
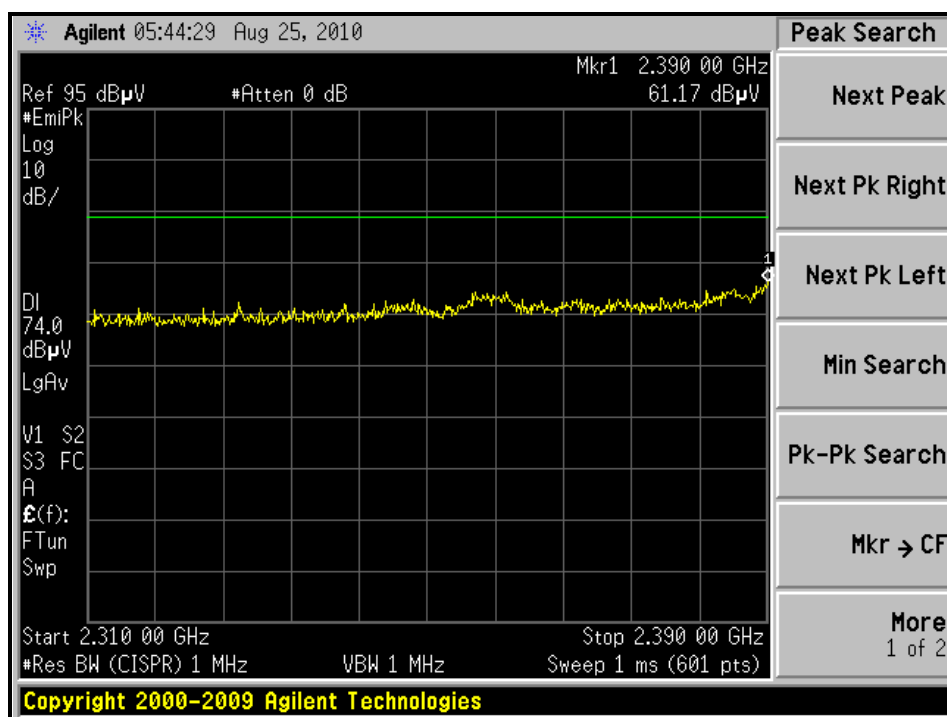
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With PIFA		

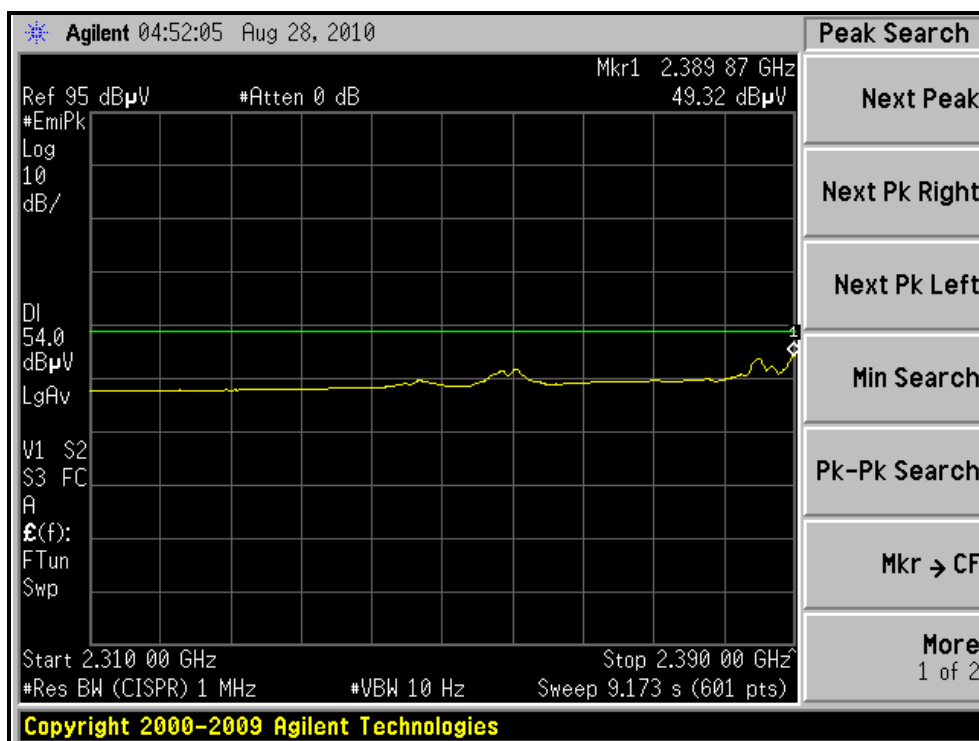
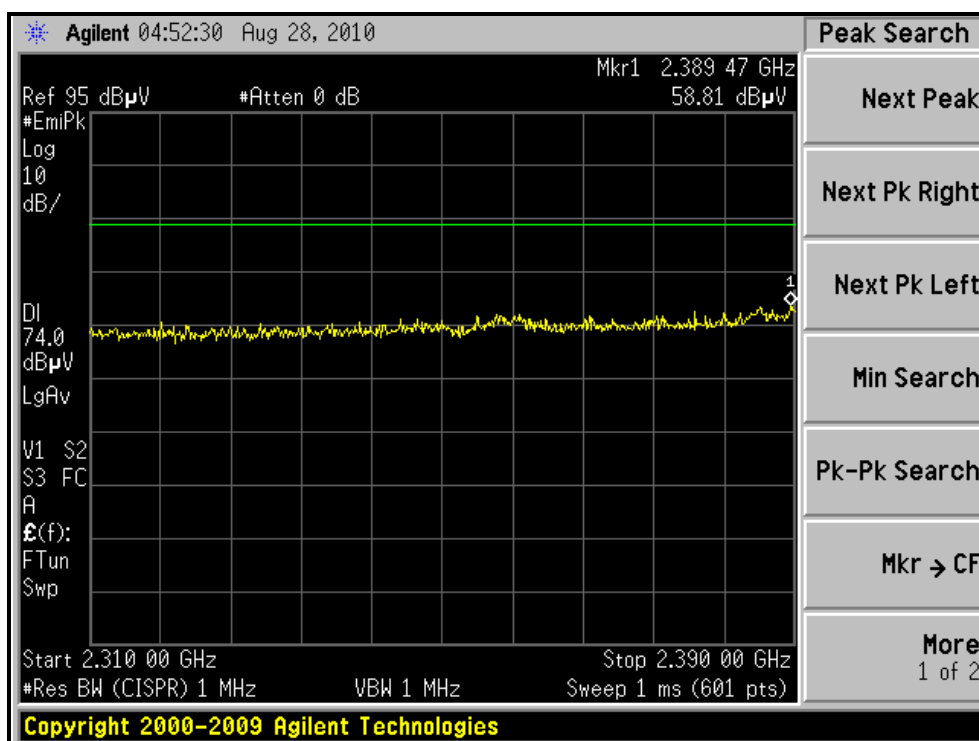
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.9 PK			1.47 H	336	74.01	31.89
2	*2462.00	102.8 AV			1.47 H	336	70.91	31.89
3	2483.69	61.2 PK	74.0	-12.8	1.46 H	338	29.23	31.97
4	2483.69	52.7 AV	54.0	-1.3	1.46 H	338	20.73	31.97
5	4924.00	51.2 PK	74.0	-22.8	1.00 H	137	11.89	39.31
6	4924.00	45.5 AV	54.0	-8.5	1.00 H	137	6.19	39.31
7	7386.00	55.8 PK	74.0	-18.2	1.15 H	239	9.20	46.60
8	7386.00	43.3 AV	54.0	-10.7	1.15 H	239	-3.30	46.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	102.0 PK			1.68 V	102	70.11	31.89
2	*2462.00	99.0 AV			1.68 V	102	67.11	31.89
3	2483.56	59.1 PK	74.0	-14.9	1.67 V	103	27.13	31.97
4	2483.56	49.5 AV	54.0	-4.5	1.67 V	103	17.53	31.97
5	4924.00	54.9 PK	74.0	-19.1	1.23 V	116	15.59	39.31
6	4924.00	52.0 AV	54.0	-2.0	1.23 V	116	12.69	39.31
7	7386.00	56.2 PK	74.0	-17.8	1.25 V	9	9.60	46.60
8	7386.00	44.3 AV	54.0	-9.7	1.25 V	9	-2.30	46.60

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

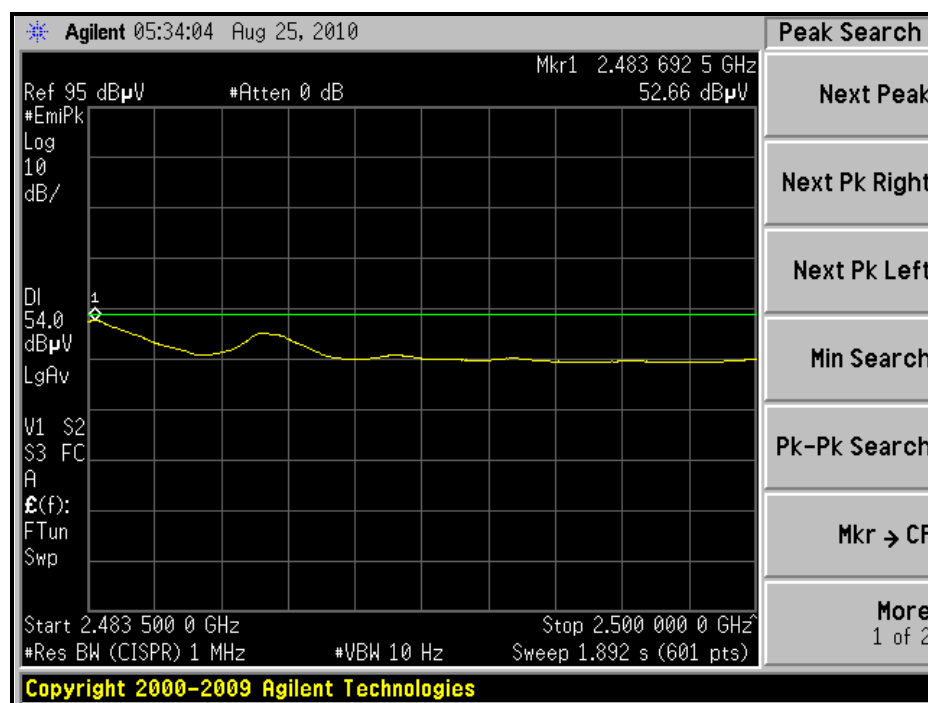
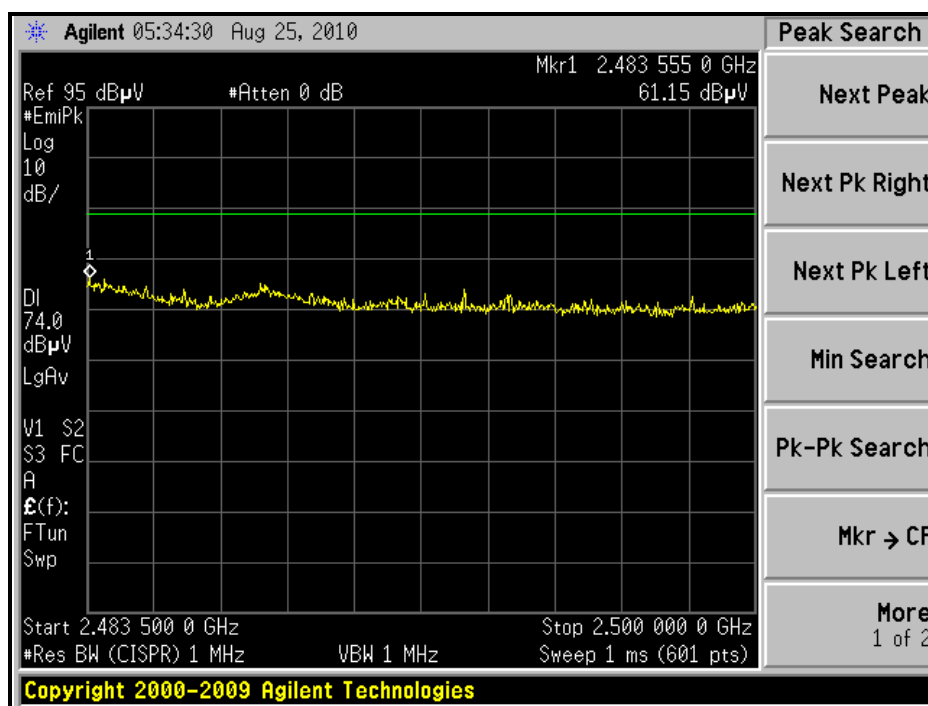
RESTRICTED BANDEDGE (802.11b MODE,CH1, HORIZONTAL)



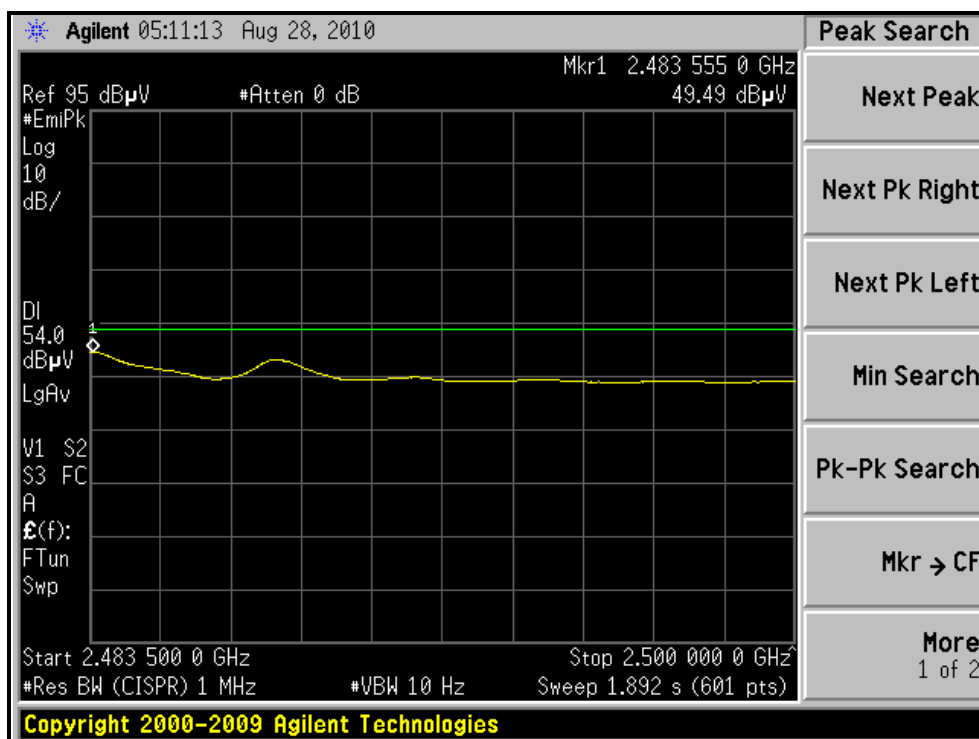
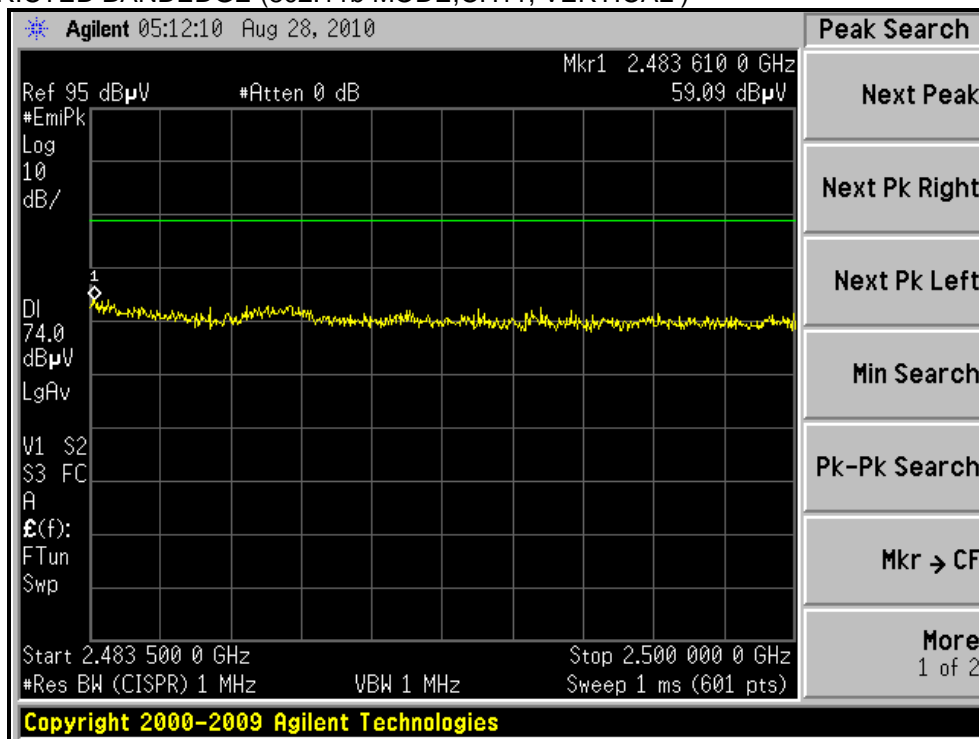
RESTRICTED BANDEDGE (802.11b MODE,CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL)



RESTRICTED BANDEDGE (802.11b MODE,CH11, VERTICAL)



802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With PIFA		

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	70.9 PK	74.0	-3.1	1.52 H	350	39.24	31.66
2	2390.00	53.0 AV	54.0	-1.0	1.52 H	350	21.34	31.66
3	*2412.00	109.5 PK			1.52 H	338	77.77	31.73
4	*2412.00	94.9 AV			1.52 H	338	63.17	31.73
5	4824.00	49.7 PK	74.0	-24.3	1.00 H	138	10.73	38.97
6	4824.00	36.0 AV	54.0	-18.0	1.00 H	138	-2.97	38.97
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	1.70 V	91	34.54	31.66
2	2390.00	50.0 AV	54.0	-4.0	1.70 V	91	18.34	31.66
3	*2412.00	105.0 PK			1.71 V	100	73.27	31.73
4	*2412.00	91.7 AV			1.71 V	100	59.97	31.73
5	4824.00	52.0 PK	74.0	-22.0	1.21 V	119	13.03	38.97
6	4824.00	37.6 AV	54.0	-16.4	1.21 V	119	-1.37	38.97

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With PIFA		

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	63.4 PK	74.0	-10.6	1.49 H	348	31.76	31.64
2	2384.80	52.4 AV	54.0	-1.6	1.49 H	348	20.76	31.64
3	*2437.00	109.6 PK			1.48 H	339	77.79	31.81
4	*2437.00	95.6 AV			1.48 H	339	63.79	31.81
5	4874.00	46.7 PK	74.0	-27.3	1.14 H	231	7.56	39.14
6	4874.00	35.2 AV	54.0	-18.8	1.14 H	231	-3.94	39.14
7	7311.00	53.9 PK	74.0	-20.1	1.14 H	20	7.27	46.63
8	7311.00	41.5 AV	54.0	-12.5	1.14 H	20	-5.13	46.63
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	106.0 PK			1.71 V	103	74.19	31.81
2	*2437.00	92.4 AV			1.71 V	103	60.59	31.81
3	4874.00	52.9 PK	74.0	-21.1	1.23 V	117	13.76	39.14
4	4874.00	38.4 AV	54.0	-15.6	1.23 V	117	-0.74	39.14
5	7311.00	55.6 PK	74.0	-18.4	1.21 V	9	8.97	46.63
6	7311.00	42.7 AV	54.0	-11.3	1.21 V	9	-3.93	46.63

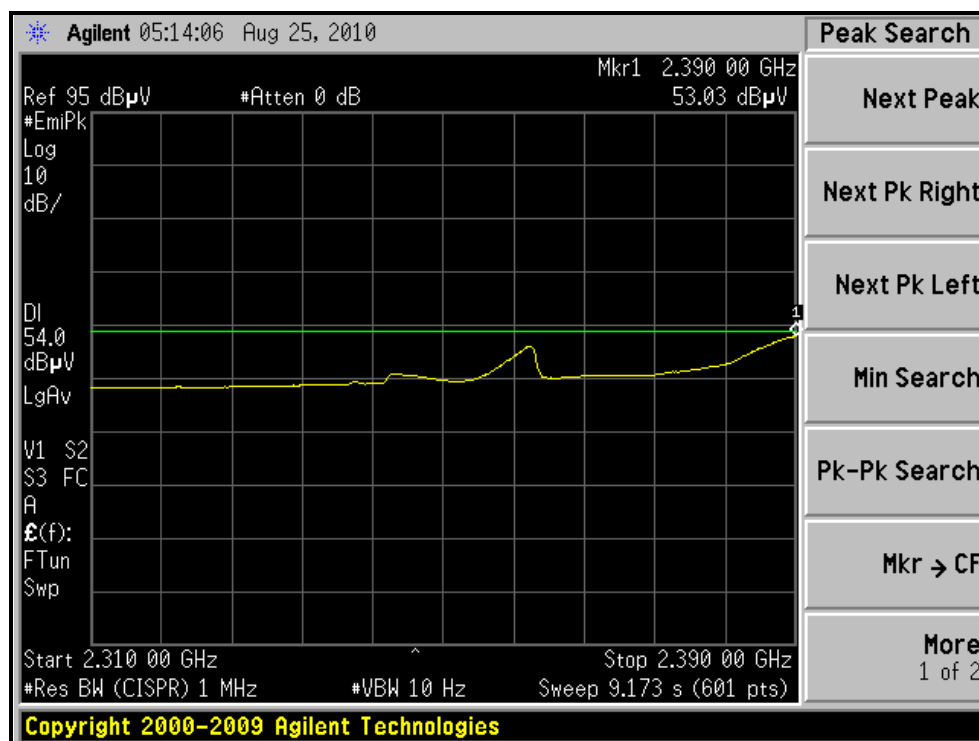
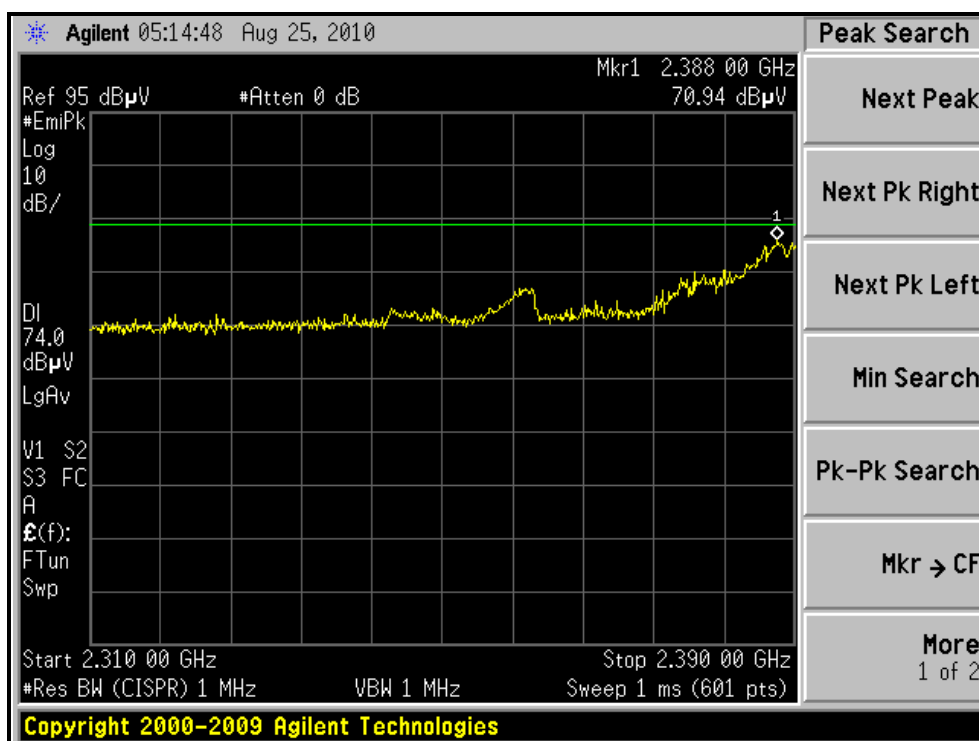
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With PIFA		

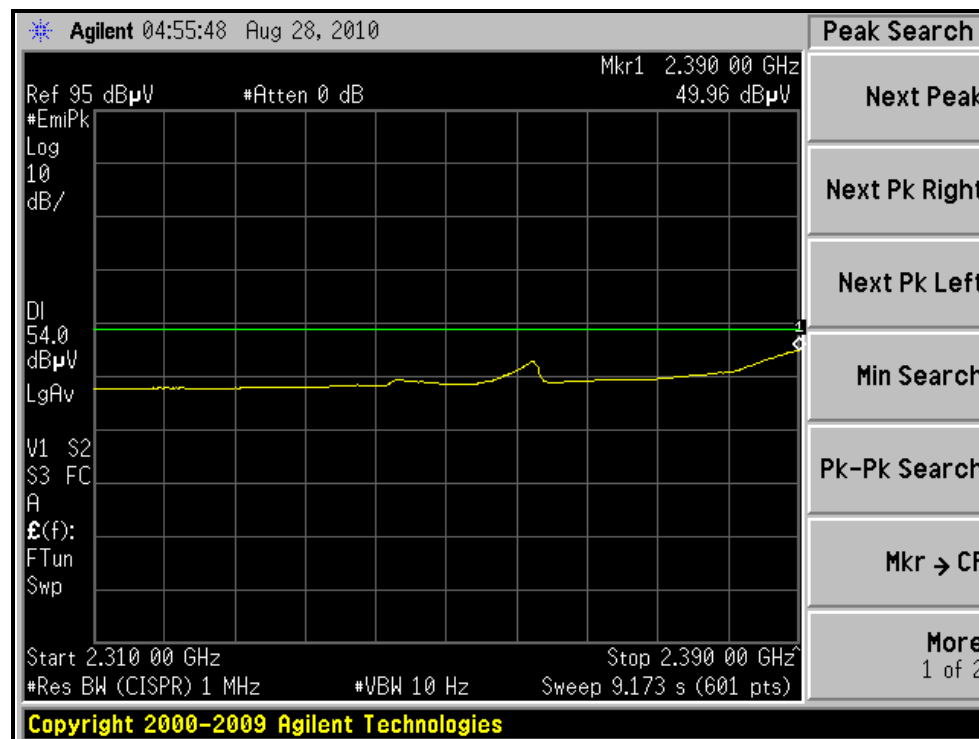
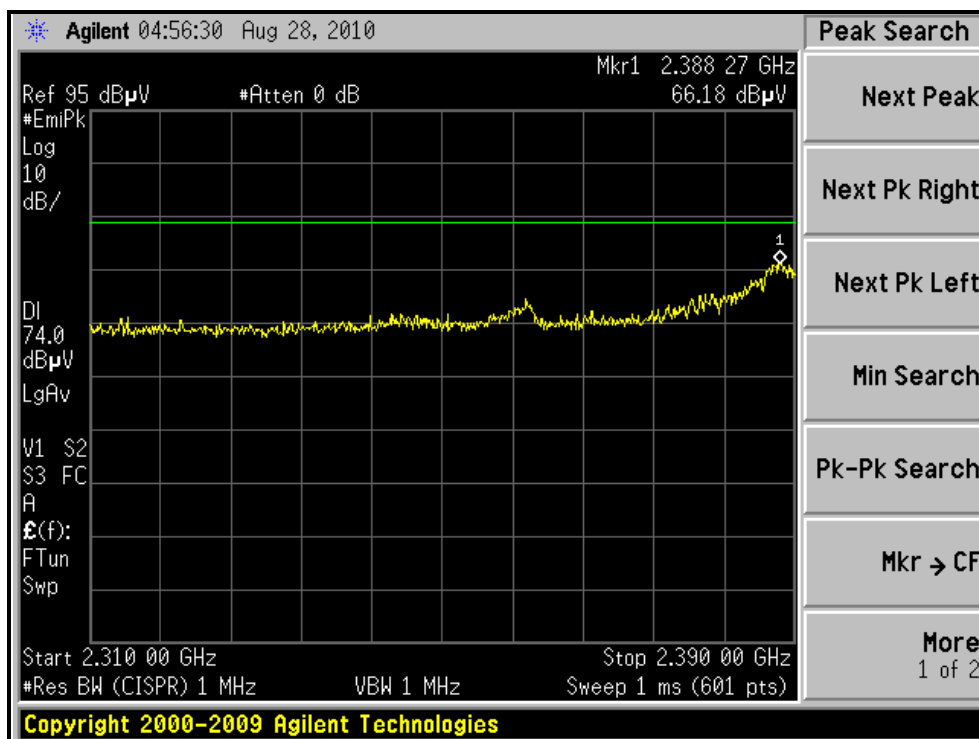
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	107.7 PK			1.48 H	338	75.81	31.89
2	*2462.00	93.8 AV			1.48 H	338	61.91	31.89
3	2483.53	71.0 PK	74.0	-3.0	1.51 H	357	39.03	31.97
4	2483.53	52.5 AV	54.0	-1.5	1.51 H	357	20.53	31.97
5	4924.00	47.0 PK	74.0	-27.0	1.00 H	136	7.69	39.31
6	4924.00	35.3 AV	54.0	-18.7	1.00 H	136	-4.01	39.31
7	7386.00	54.4 PK	74.0	-19.6	1.13 H	22	7.80	46.60
8	7386.00	41.7 AV	54.0	-12.3	1.13 H	22	-4.90	46.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	102.5 PK			1.69 V	101	70.61	31.89
2	*2462.00	90.0 AV			1.69 V	101	58.11	31.89
3	2483.50	67.7 PK	74.0	-6.3	1.70 V	100	35.73	31.97
4	2483.50	49.6 AV	54.0	-4.4	1.70 V	100	17.63	31.97
5	4924.00	51.5 PK	74.0	-22.5	1.23 V	136	12.19	39.31
6	4924.00	37.0 AV	54.0	-17.0	1.23 V	136	-2.31	39.31
7	7386.00	55.1 PK	74.0	-18.9	1.23 V	10	8.50	46.60
8	7386.00	42.3 AV	54.0	-11.7	1.23 V	10	-4.30	46.60

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

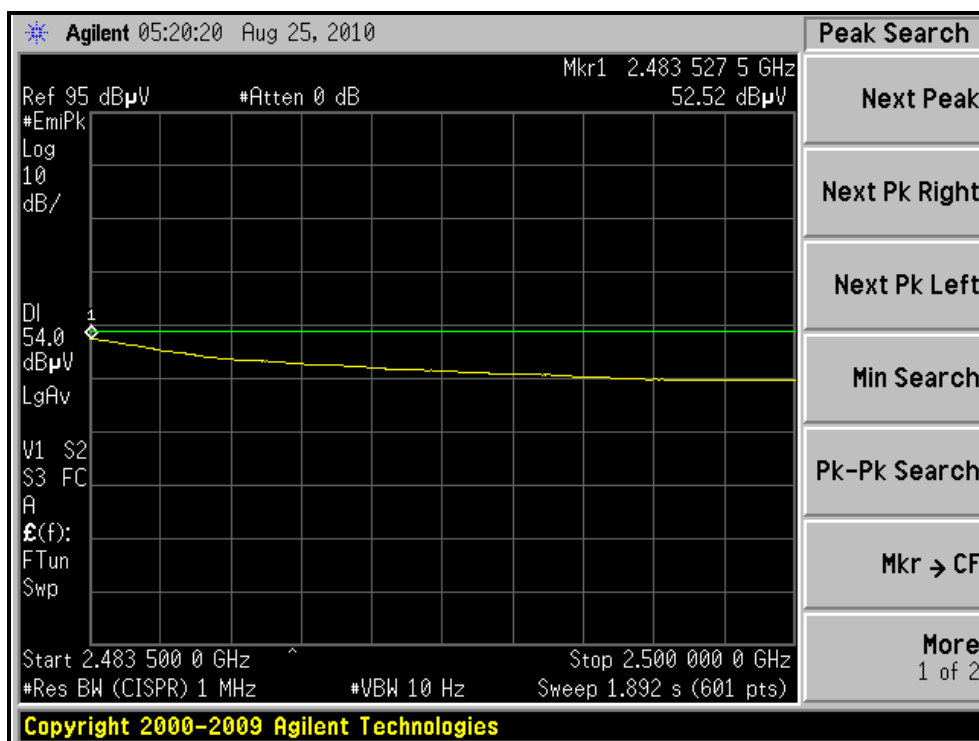
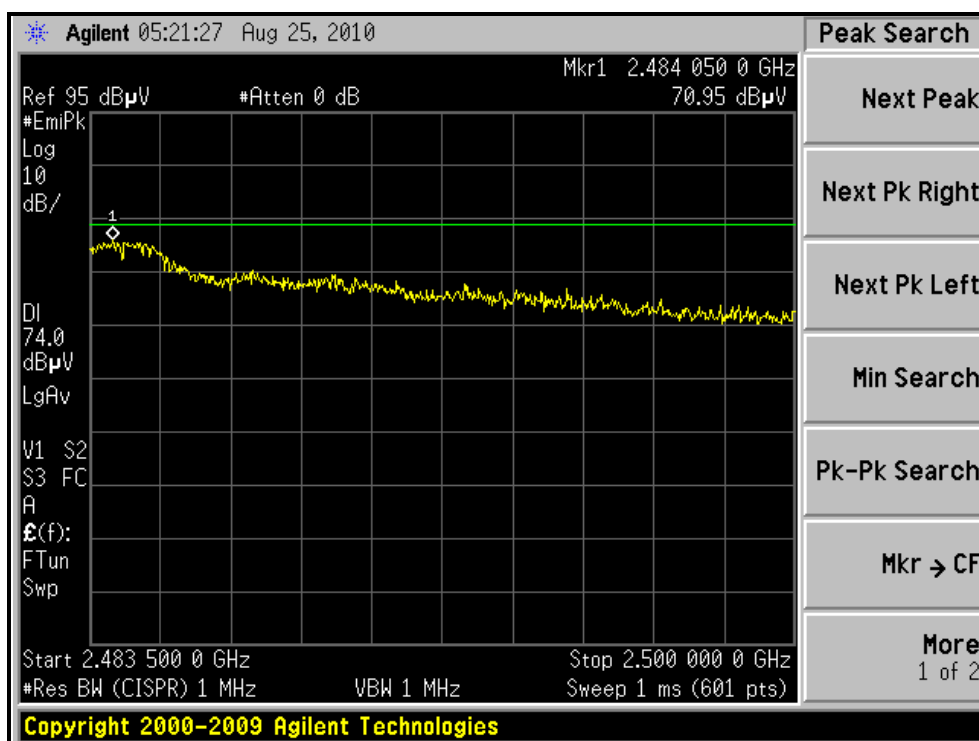
RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL)



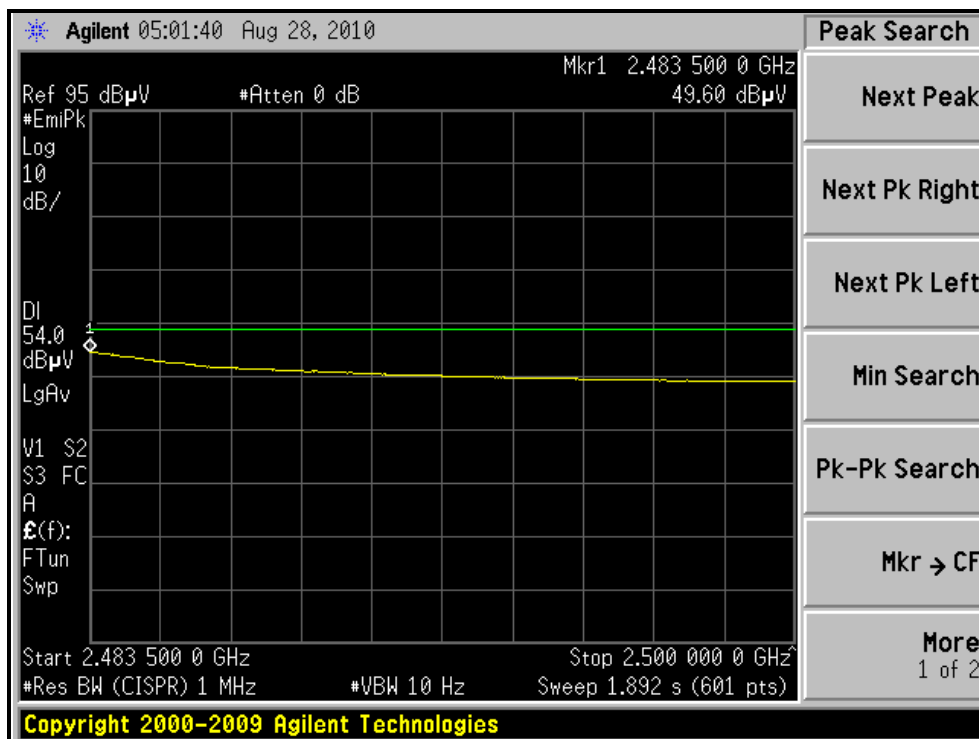
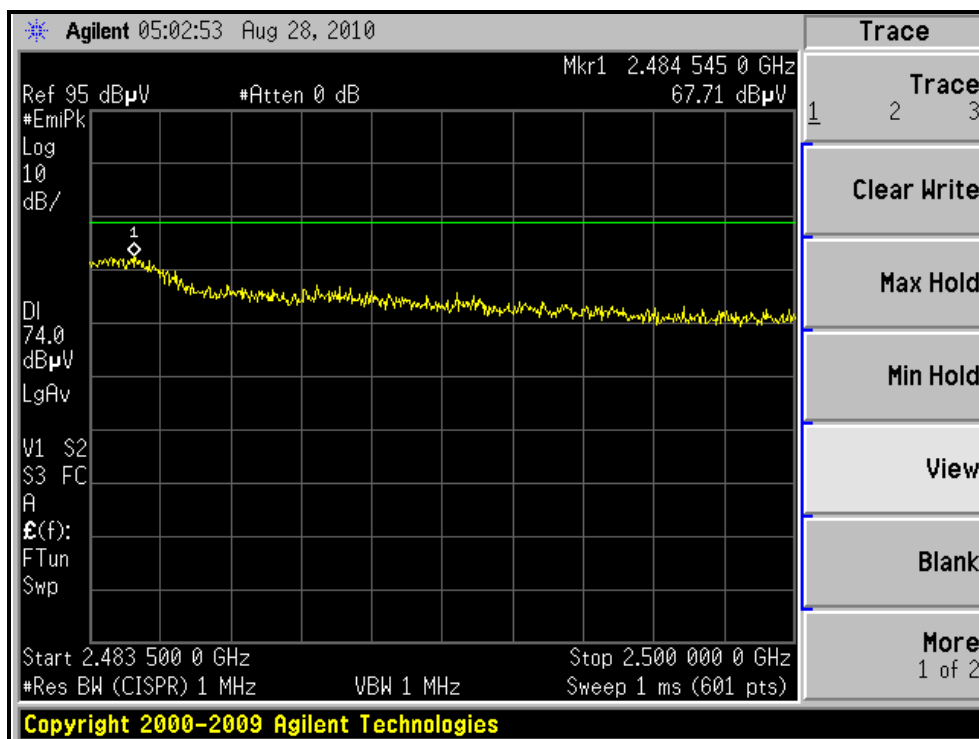
RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11g MODE,CH11, HORIZONTAL)



RESTRICTED BANDEDGE (802.11g MODE,CH11, VERTICAL)



802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With PIFA		

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	64.9 PK	74.0	-9.1	1.49 H	330	33.34	31.56
2	2360.27	51.6 AV	54.0	-2.4	1.49 H	330	20.04	31.56
3	2389.73	73.5 PK	74.0	-0.5	1.49 H	330	41.84	31.66
4	2389.73	49.3 AV	54.0	-4.7	1.49 H	330	17.64	31.66
5	*2412.00	112.2 PK			1.49 H	357	80.47	31.73
6	*2412.00	95.1 AV			1.49 H	357	63.37	31.73
7	4824.00	50.4 PK	74.0	-23.6	1.00 H	140	11.43	38.97
8	4824.00	36.3 AV	54.0	-17.7	1.00 H	140	-2.67	38.97
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	60.8 PK	74.0	-13.2	1.74 V	95	29.24	31.56
2	2360.27	48.5 AV	54.0	-5.5	1.74 V	95	16.94	31.56
3	2389.87	69.2 PK	74.0	-4.8	1.74 V	95	37.54	31.66
4	2389.87	46.7 AV	54.0	-7.3	1.74 V	95	15.04	31.66
5	*2412.00	108.8 PK			1.67 V	95	77.07	31.73
6	*2412.00	91.3 AV			1.67 V	95	59.57	31.73
7	4824.00	54.3 PK	74.0	-19.7	1.23 V	238	15.33	38.97
8	4824.00	37.8 AV	54.0	-16.2	1.23 V	238	-1.17	38.97

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With PIFA		

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	2385.20	66.6 PK	74.0	-7.4	1.87 H	358	34.96	31.64
2	2385.20	53.2 AV	54.0	-0.8	1.87 H	358	21.56	31.64
3	*2437.00	113.7 PK			1.49 H	359	81.89	31.81
4	*2437.00	96.4 AV			1.49 H	359	64.59	31.81
5	2488.53	64.3 PK	74.0	-9.7	1.49 H	358	32.32	31.98
6	2488.53	51.1 AV	54.0	-2.9	1.49 H	358	19.12	31.98
7	4874.00	51.8 PK	74.0	-22.2	1.00 H	116	12.66	39.14
8	4874.00	36.7 AV	54.0	-17.3	1.00 H	116	-2.44	39.14
9	7311.00	54.2 PK	74.0	-19.8	1.00 H	18	7.57	46.63
10	7311.00	41.6 AV	54.0	-12.4	1.00 H	18	-5.03	46.63
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	110.1 PK			1.69 V	92	78.29	31.81
2	*2437.00	93.6 AV			1.69 V	92	61.79	31.81
3	4874.00	55.7 PK	74.0	-18.3	1.29 V	231	16.56	39.14
4	4874.00	38.6 AV	54.0	-15.4	1.29 V	231	-0.54	39.14
5	7311.00	57.6 PK	74.0	-16.4	1.39 V	154	10.97	46.63
6	7311.00	42.7 AV	54.0	-11.3	1.39 V	154	-3.93	46.63

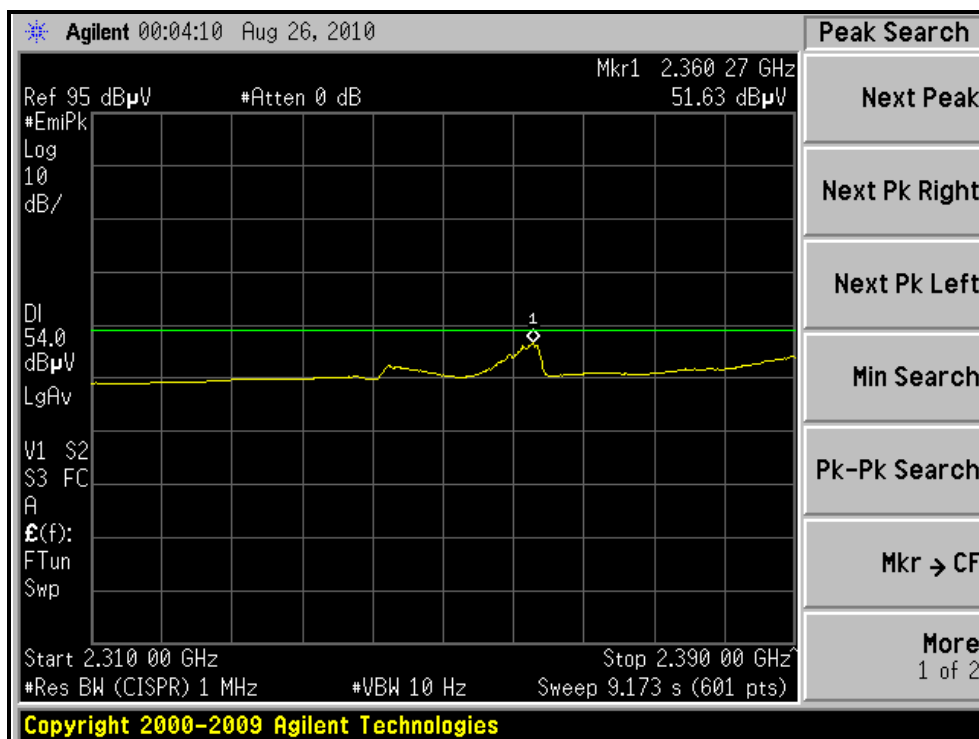
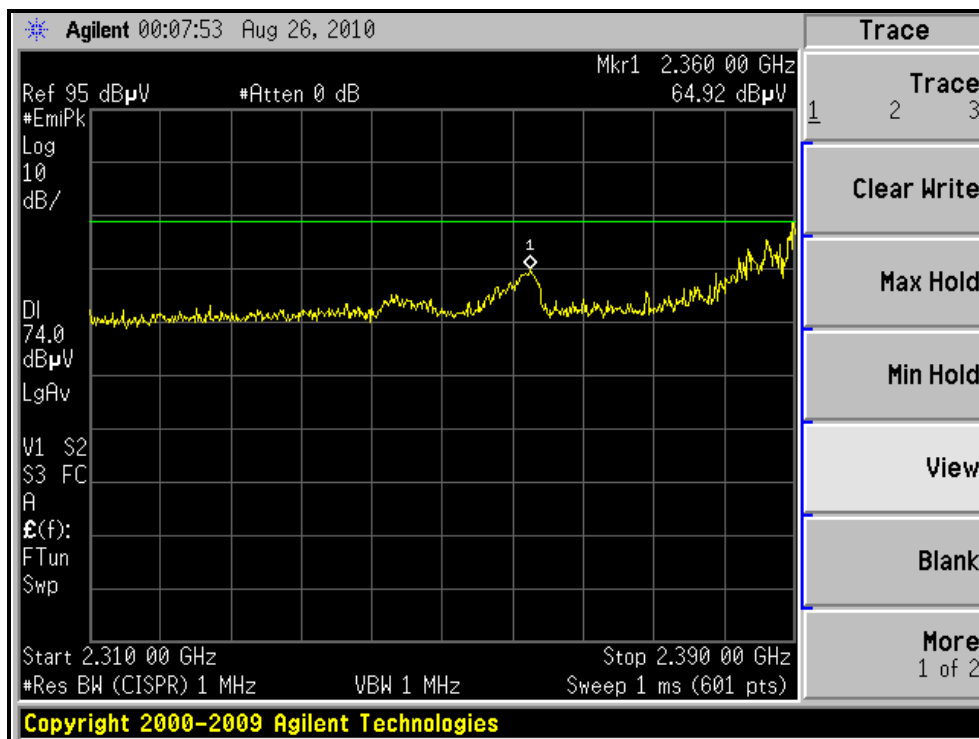
- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ”: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With PIFA		

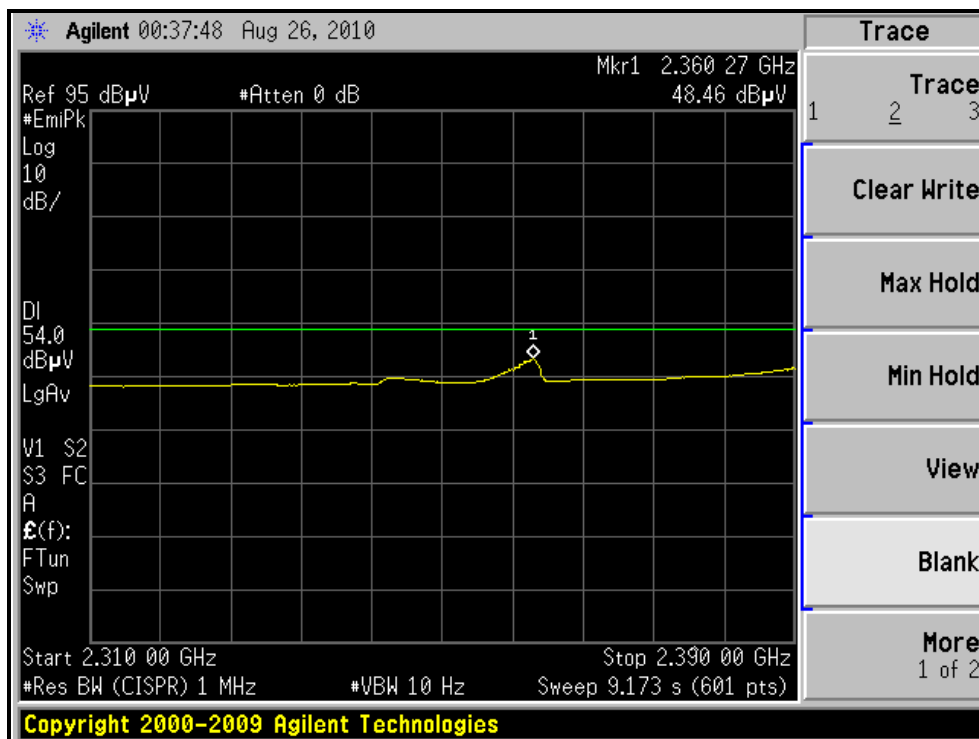
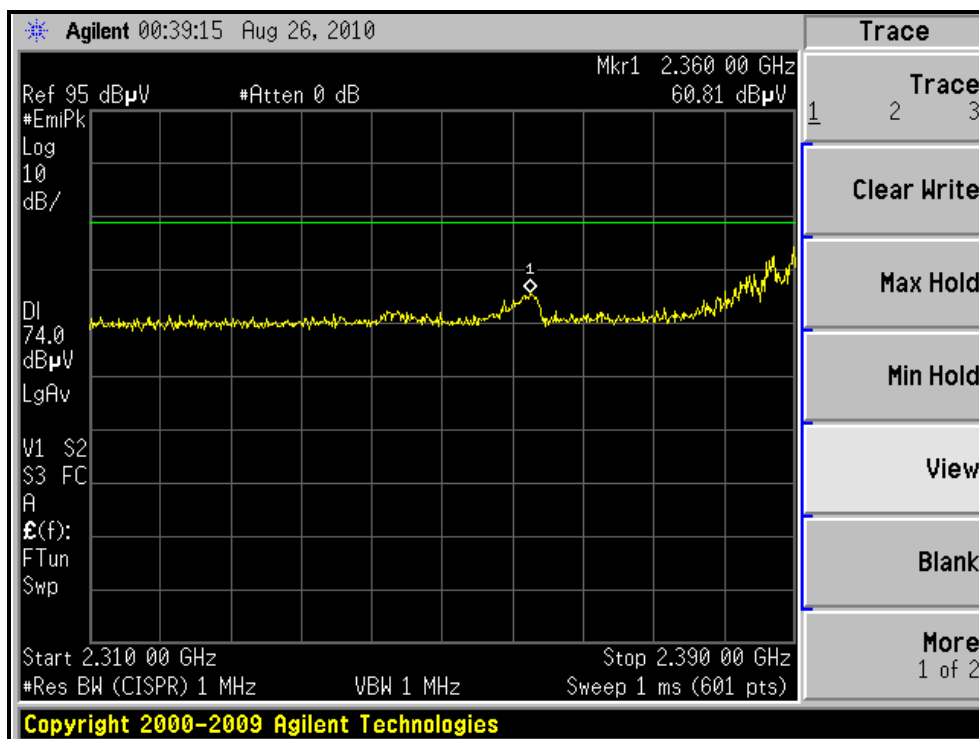
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	112.9 PK			1.49 H	358	81.01	31.89
2	*2462.00	95.0 AV			1.49 H	358	63.11	31.89
3	2483.67	72.3 PK	74.0	-1.7	1.49 H	359	40.33	31.97
4	2483.67	49.1 AV	54.0	-4.9	1.49 H	359	17.13	31.97
5	4924.00	49.0 PK	74.0	-25.0	1.00 H	131	9.69	39.31
6	4924.00	35.9 AV	54.0	-18.1	1.00 H	131	-3.41	39.31
7	7386.00	54.5 PK	74.0	-19.5	1.00 H	20	7.90	46.60
8	7386.00	41.7 AV	54.0	-12.3	1.00 H	20	-4.90	46.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.9 PK			1.63 V	91	77.01	31.89
2	*2462.00	91.4 AV			1.63 V	91	59.51	31.89
3	2483.64	71.6 PK	74.0	-2.4	1.62 V	93	39.63	31.97
4	2483.64	48.1 AV	54.0	-5.9	1.62 V	93	16.13	31.97
5	4924.00	52.8 PK	74.0	-21.2	1.25 V	233	13.49	39.31
6	4924.00	37.0 AV	54.0	-17.0	1.25 V	233	-2.31	39.31
7	7386.00	54.7 PK	74.0	-19.3	1.37 V	153	8.10	46.60
8	7386.00	41.8 AV	54.0	-12.2	1.37 V	153	-4.80	46.60

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

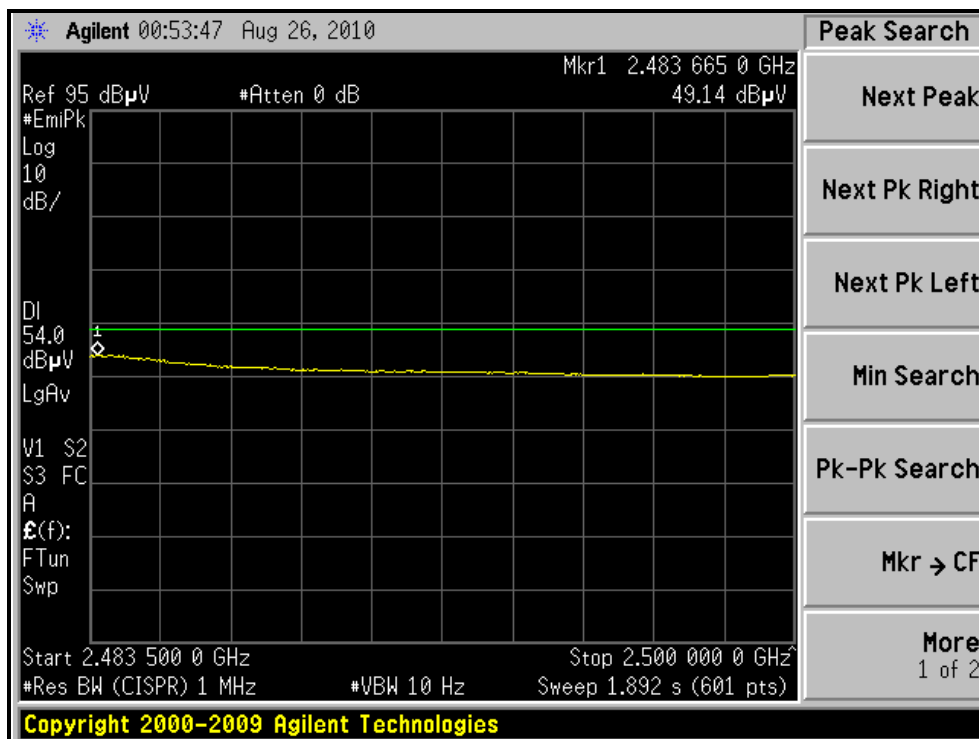
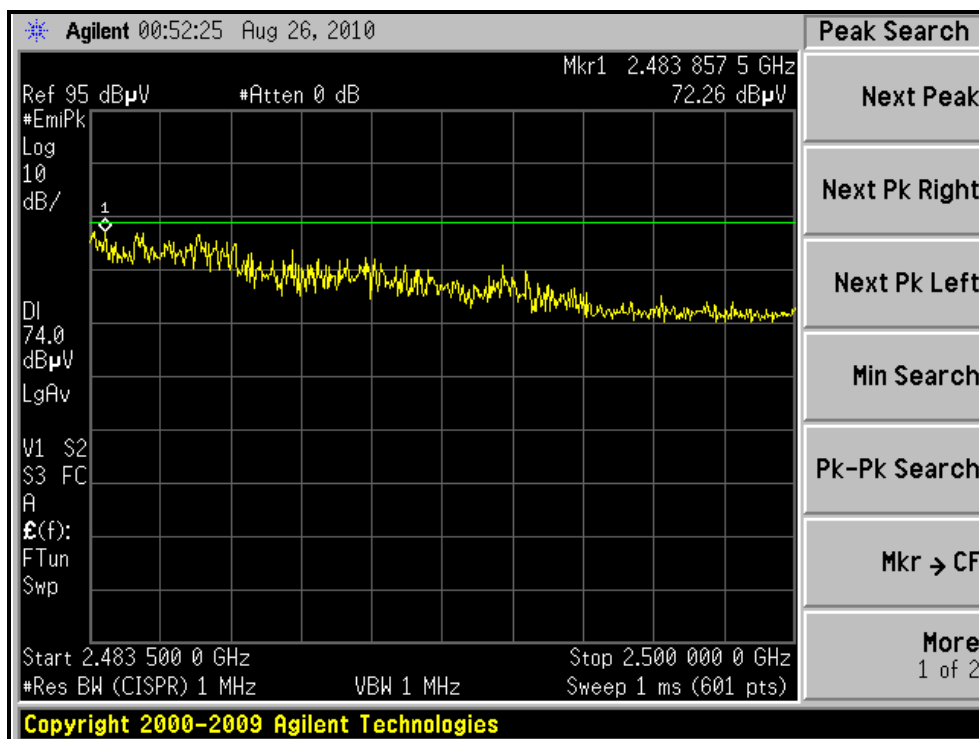
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, HORIZONTAL)



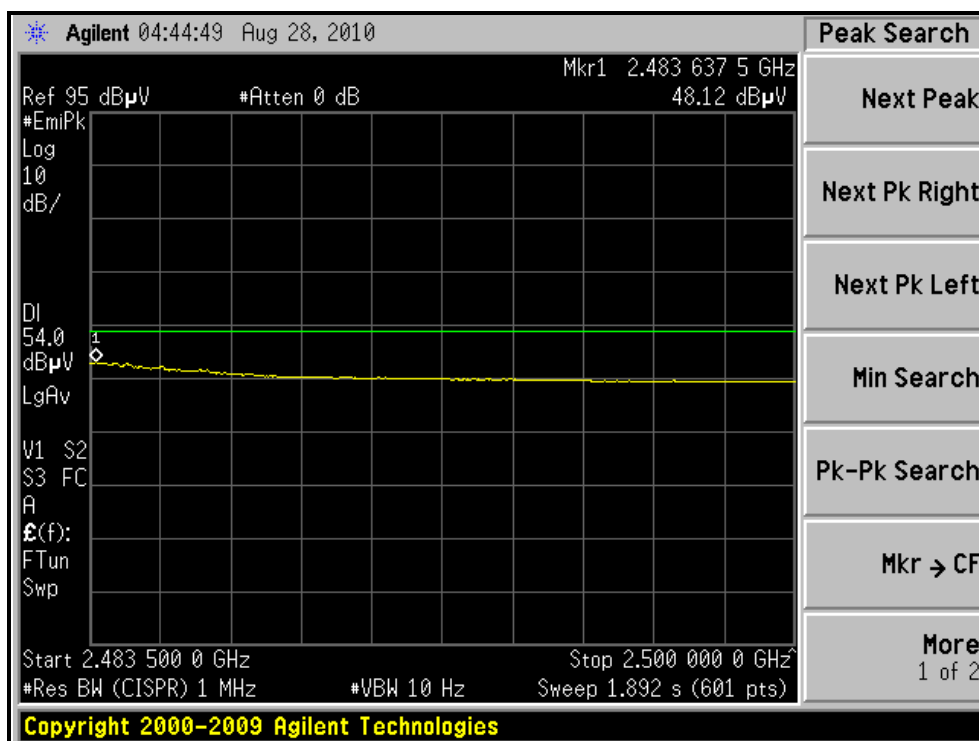
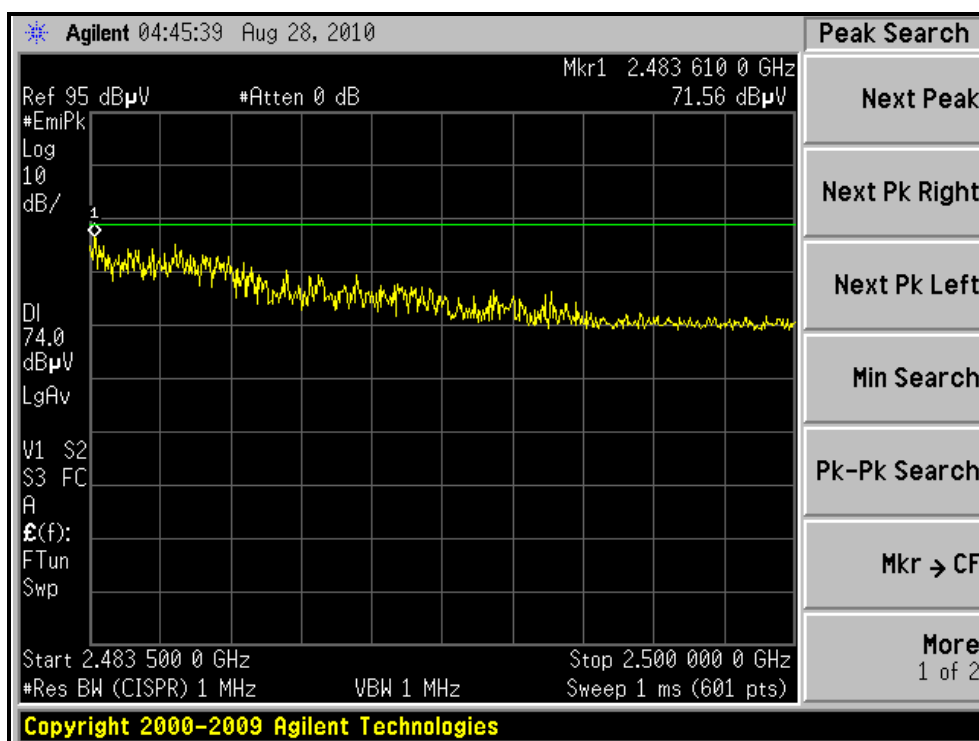
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, VERTICAL)



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



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



802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With PIFA		

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	72.7 PK	74.0	-1.3	1.50 H	339	41.05	31.65
2	2386.80	51.3 AV	54.0	-2.7	1.50 H	339	19.65	31.65
3	*2422.00	109.2 PK			1.49 H	355	77.44	31.76
4	*2422.00	89.5 AV			1.49 H	355	57.74	31.76
5	4844.00	47.6 PK	74.0	-26.4	1.00 H	145	8.56	39.04
6	4844.00	34.5 AV	54.0	-19.5	1.00 H	145	-4.54	39.04
7	7266.00	54.3 PK	74.0	-19.7	1.00 H	25	7.63	46.67
8	7266.00	41.8 AV	54.0	-12.2	1.00 H	25	-4.87	46.67
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	2387.20	69.9 PK	74.0	-4.1	1.68 V	95	38.25	31.65
2	2387.20	49.1 AV	54.0	-4.9	1.68 V	95	17.45	31.65
3	*2422.00	106.0 PK			1.68 V	94	74.24	31.76
4	*2422.00	86.0 AV			1.68 V	94	54.24	31.76
5	4844.00	49.2 PK	74.0	-24.8	1.26 V	236	10.16	39.04
6	4844.00	34.6 AV	54.0	-19.4	1.26 V	236	-4.44	39.04
7	7266.00	54.8 PK	74.0	-19.2	1.36 V	149	8.13	46.67
8	7266.00	42.0 AV	54.0	-12.0	1.36 V	149	-4.67	46.67

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With PIFA		

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	2388.67	70.4 PK	74.0	-3.6	1.85 H	357	38.75	31.65
2	2388.67	50.6 AV	54.0	-3.4	1.85 H	357	18.95	31.65
3	*2437.00	110.6 PK			1.48 H	356	78.79	31.81
4	*2437.00	90.4 AV			1.48 H	356	58.59	31.81
5	2483.67	73.2 PK	74.0	-0.8	1.49 H	359	41.23	31.97
6	2483.67	51.8 AV	54.0	-2.2	1.49 H	359	19.83	31.97
7	4874.00	49.8 PK	74.0	-24.2	1.00 H	139	10.66	39.14
8	4874.00	35.4 AV	54.0	-18.6	1.00 H	139	-3.74	39.14
9	7311.00	54.5 PK	74.0	-19.5	1.00 H	21	7.87	46.63
10	7311.00	41.6 AV	54.0	-12.4	1.00 H	21	-5.03	46.63
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	107.3 PK			1.69 V	96	75.49	31.81
2	*2437.00	87.5 AV			1.69 V	96	55.69	31.81
3	4874.00	50.2 PK	74.0	-23.8	1.29 V	237	11.06	39.14
4	4874.00	36.5 AV	54.0	-17.5	1.29 V	237	-2.64	39.14
5	7311.00	55.7 PK	74.0	-18.3	1.35 V	151	9.07	46.63
6	7311.00	42.4 AV	54.0	-11.6	1.35 V	151	-4.23	46.63

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With PIFA		

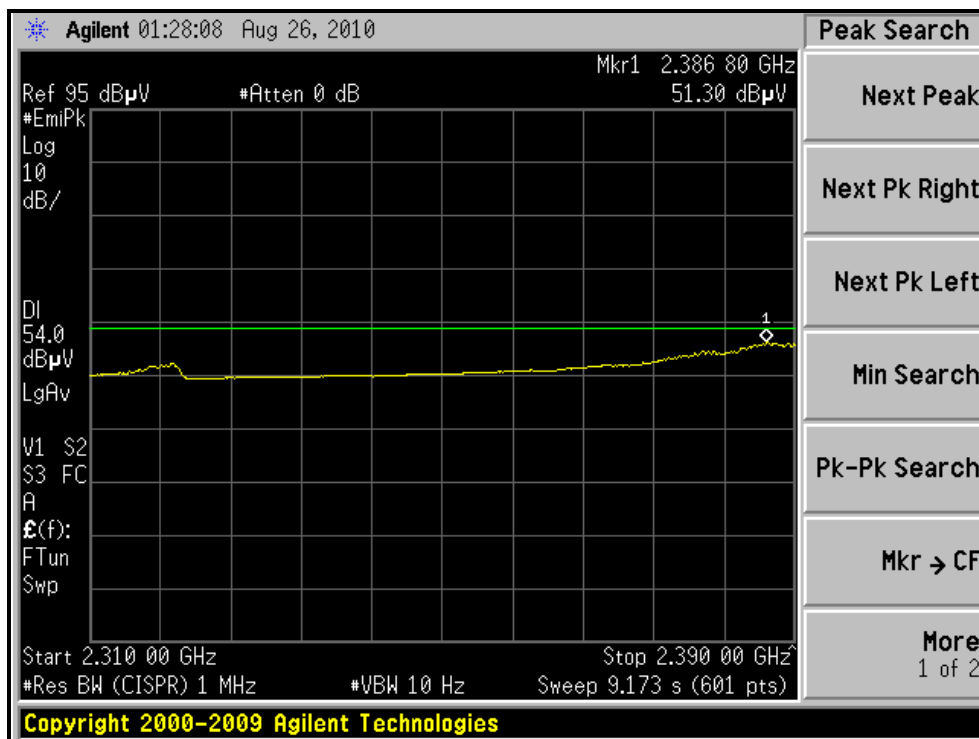
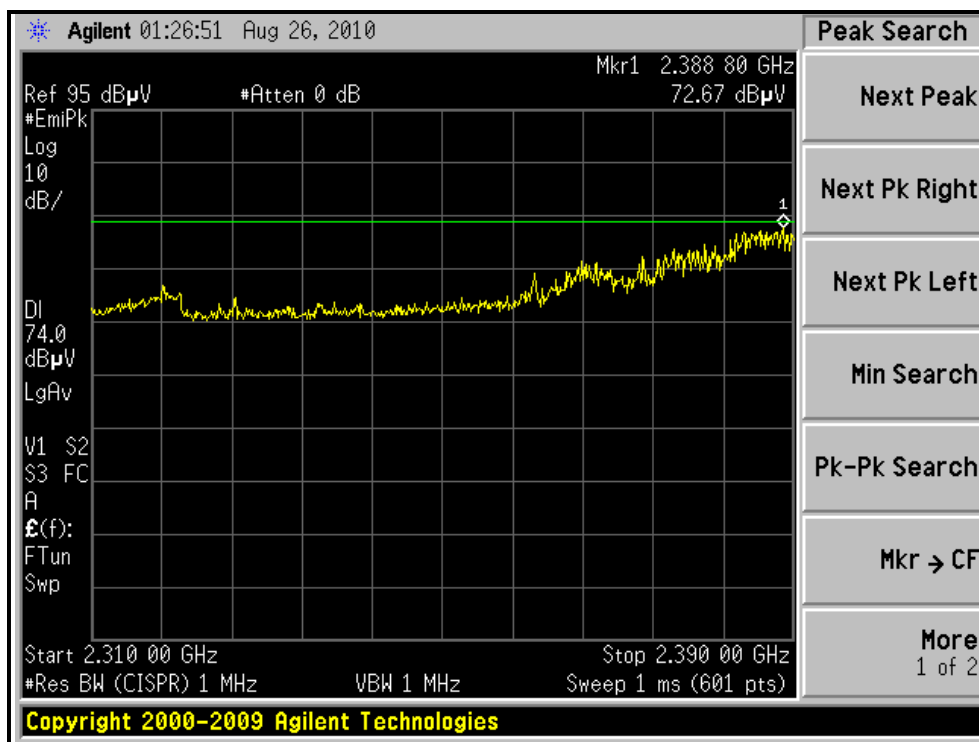
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	107.5 PK			1.49 H	358	75.64	31.86
2	*2452.00	87.7 AV			1.49 H	358	55.84	31.86
3	2483.72	73.1 PK	74.0	-0.9	1.49 H	356	41.13	31.97
4	2483.72	49.3 AV	54.0	-4.7	1.49 H	356	17.33	31.97
5	4904.00	46.5 PK	74.0	-27.5	1.00 H	142	7.26	39.24
6	4904.00	34.2 AV	54.0	-19.8	1.00 H	142	-5.04	39.24
7	7356.00	54.0 PK	74.0	-20.0	1.00 H	18	7.39	46.61
8	7356.00	41.5 AV	54.0	-12.5	1.00 H	18	-5.11	46.61
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	103.7 PK			1.68 V	92	71.84	31.86
2	*2452.00	84.7 AV			1.68 V	92	52.84	31.86
3	2483.72	68.9 PK	74.0	-5.1	1.68 V	91	36.93	31.97
4	2483.72	47.1 AV	54.0	-6.9	1.68 V	91	15.13	31.97
5	4904.00	49.0 PK	74.0	-25.0	1.28 V	240	9.76	39.24
6	4904.00	34.6 AV	54.0	-19.4	1.28 V	240	-4.64	39.24
7	7356.00	54.3 PK	74.0	-19.7	1.37 V	155	7.69	46.61
8	7356.00	41.6 AV	54.0	-12.4	1.37 V	155	-5.01	46.61

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

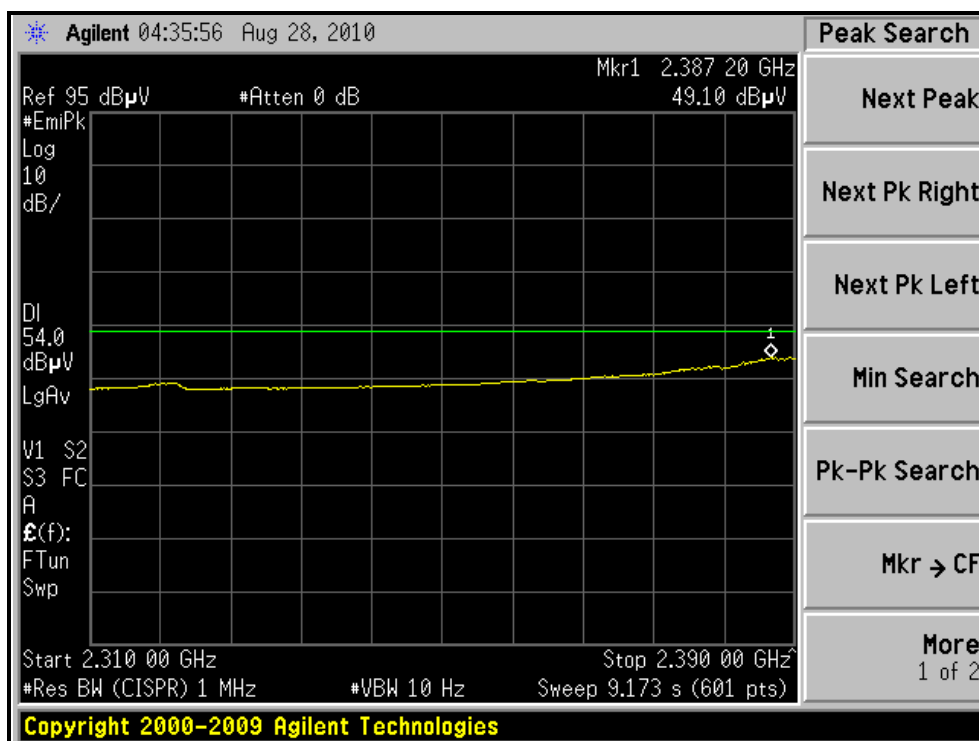
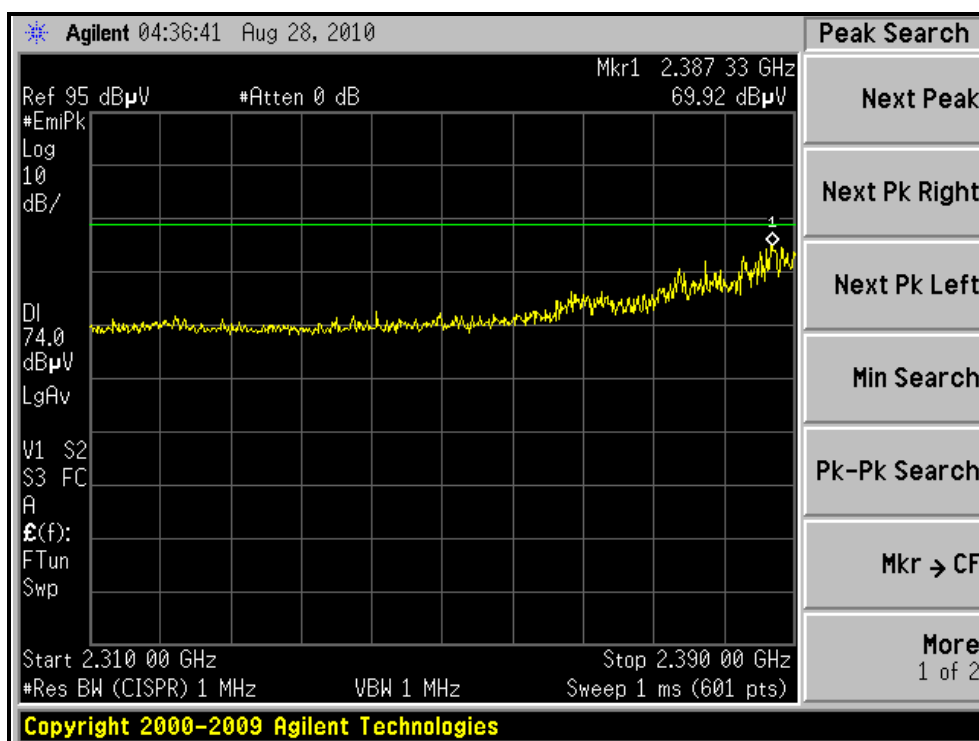
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, HORIZONTAL)



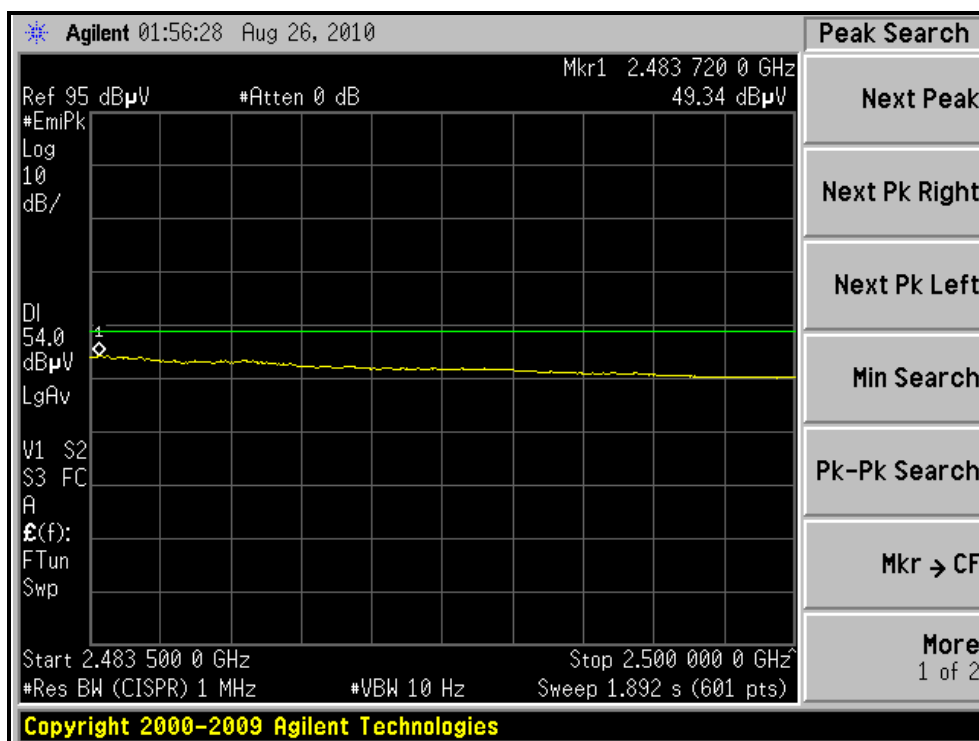
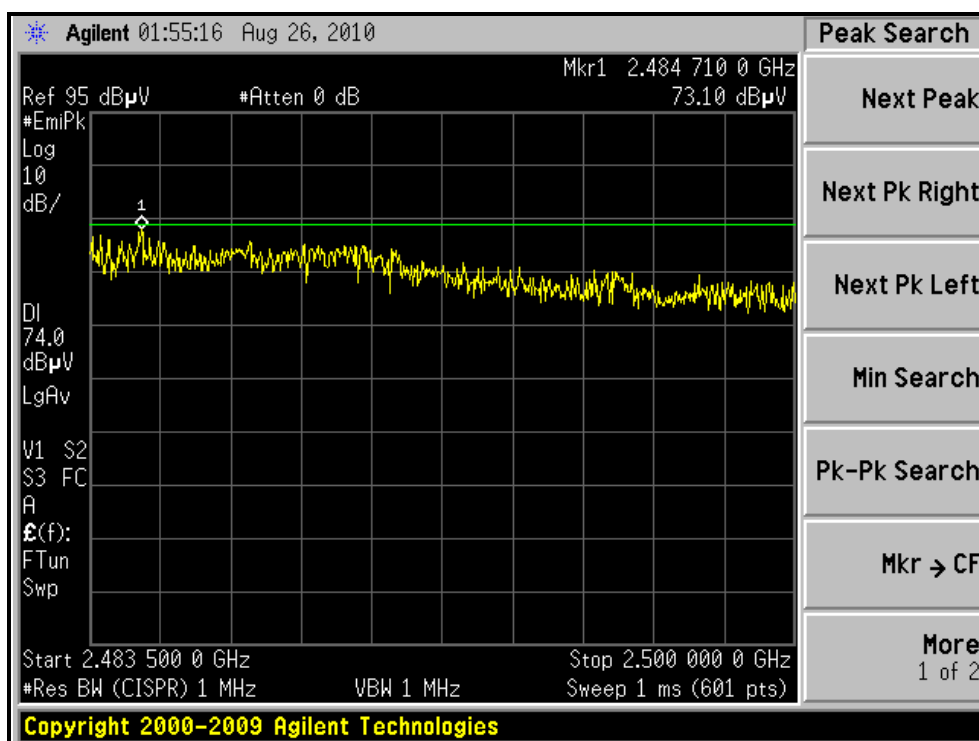


A D T

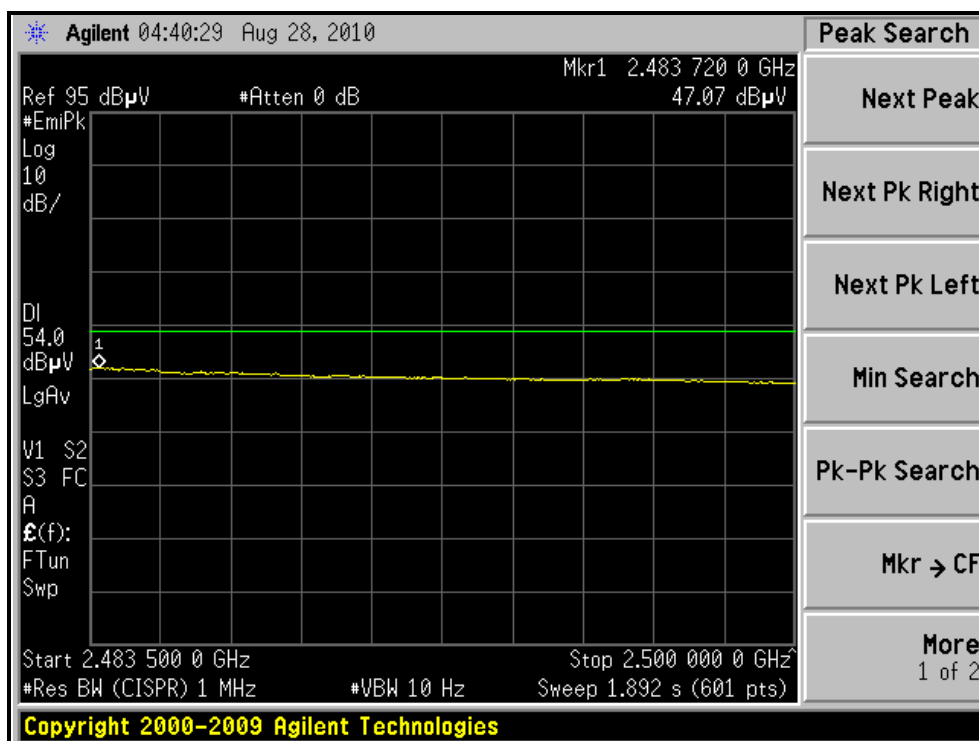
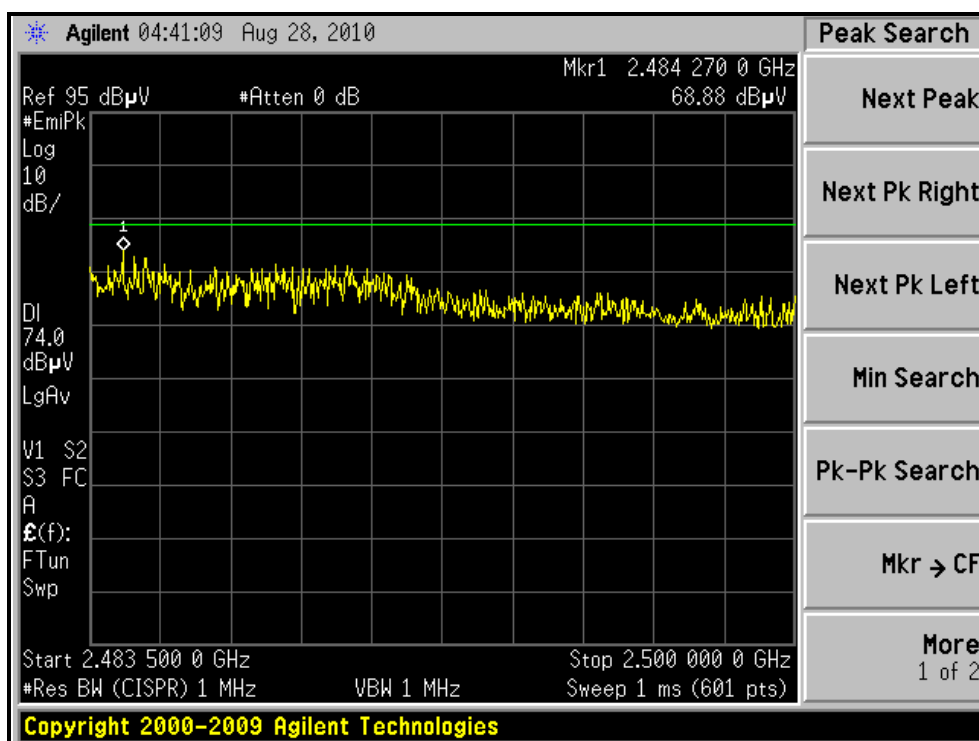
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, VERTICAL)



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	Dec. 18, 2009	Dec. 17, 2010

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

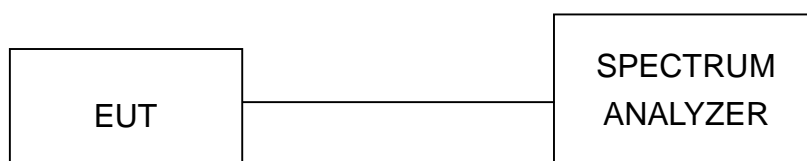
4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 100kHz 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

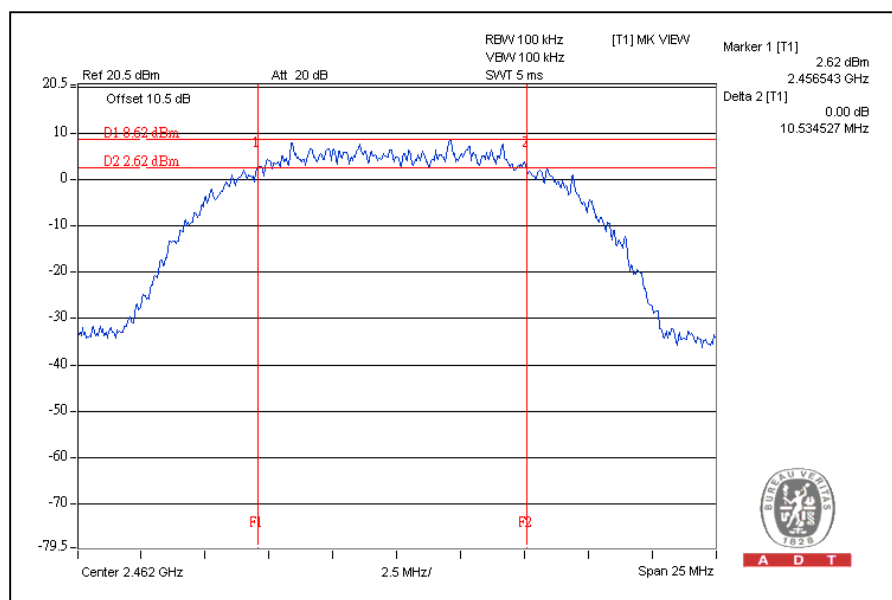
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.48	0.5	PASS
6	2437	10.23	0.5	PASS
11	2462	10.53	0.5	PASS

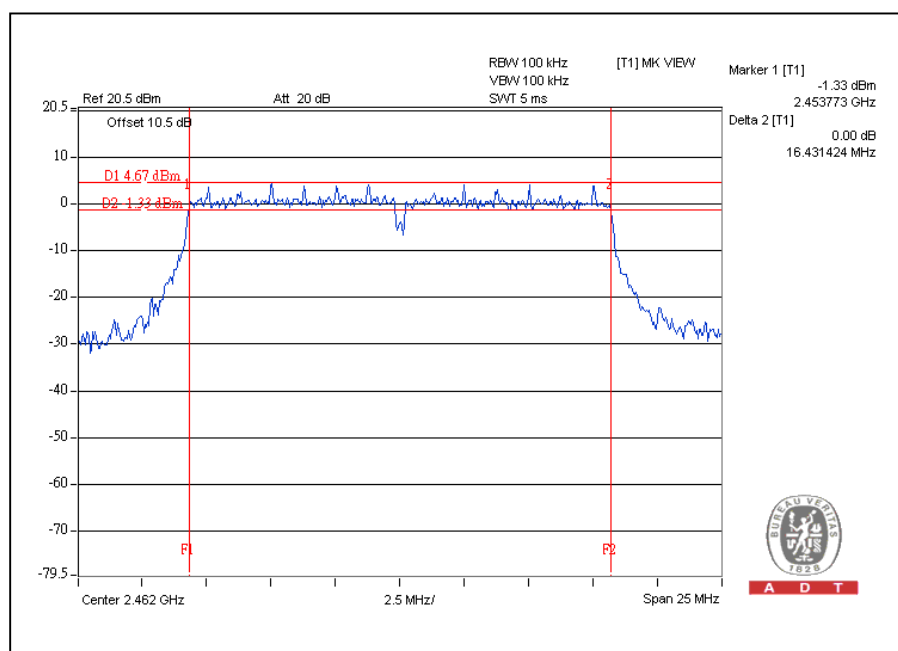
CH11



802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.39	0.5	PASS
6	2437	16.41	0.5	PASS
11	2462	16.43	0.5	PASS

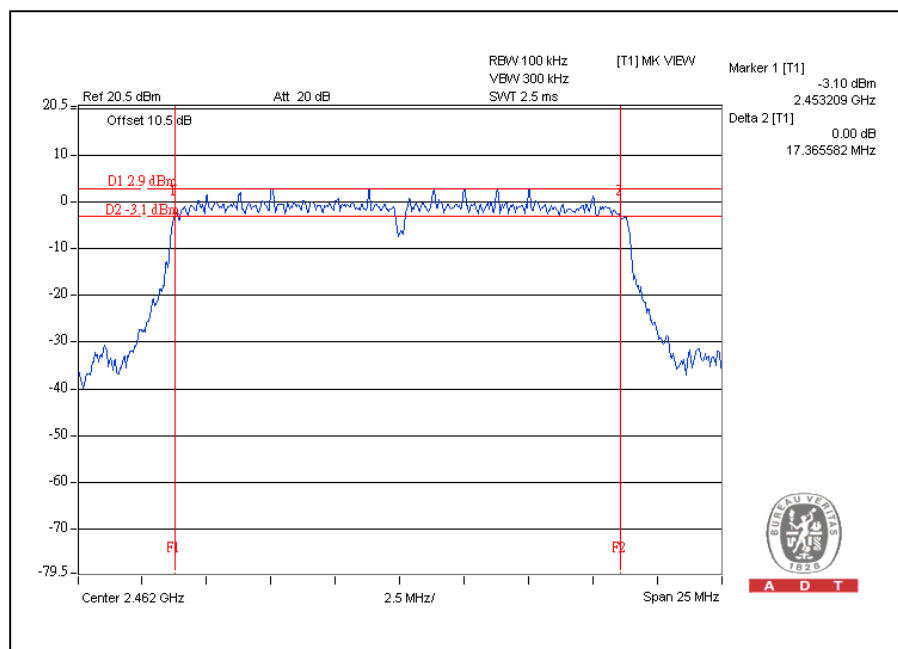
CH11



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.33	0.5	PASS
6	2437	17.13	0.5	PASS
11	2462	17.36	0.5	PASS

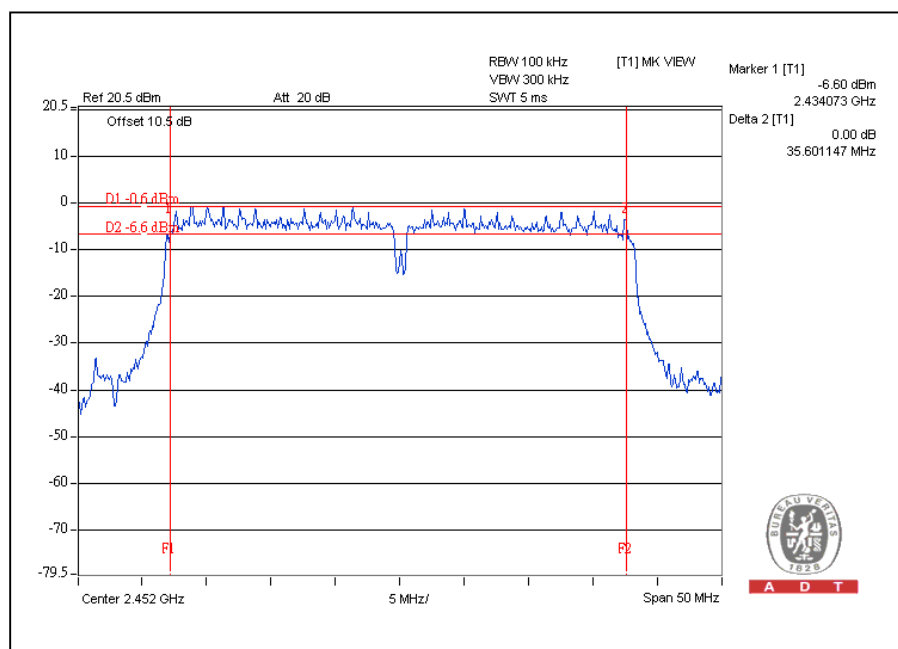
CH11



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2422	35.53	0.5	PASS
4	2437	35.27	0.5	PASS
7	2452	35.60	0.5	PASS

CH7



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.

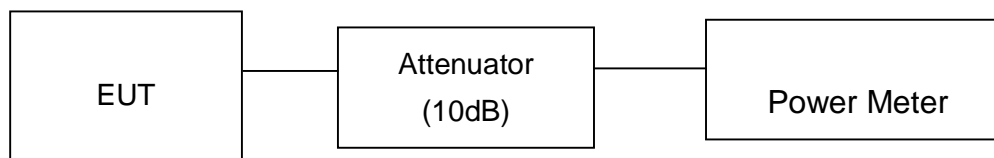
4.4.3 TEST PROCEDURES

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	134.9	21.3	30	PASS
6	2437	162.2	22.1	30	PASS
11	2462	107.2	20.3	30	PASS

802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	245.5	23.9	30	PASS
6	2437	281.8	24.5	30	PASS
11	2462	218.8	23.4	30	PASS

802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)			TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(2)				
1	2412	22.1	22.5	22.4	513.8	27.1	30	PASS
6	2437	23.6	23.6	22.0	616.7	27.9	30	PASS
11	2462	21.7	21.4	21.3	420.8	26.2	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)	CHAIN(2)				
1	2422	22.6	22.5	22.0	518.3	27.1	30	PASS
4	2437	23.3	23.1	21.9	572.9	27.6	30	PASS
7	2452	20.5	20.1	19.2	297.7	24.7	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	Dec. 18, 2009	Dec. 17, 2010

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

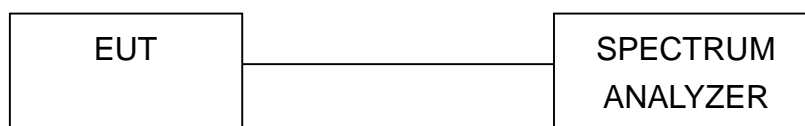
4.5.3 TEST PROCEDURE

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

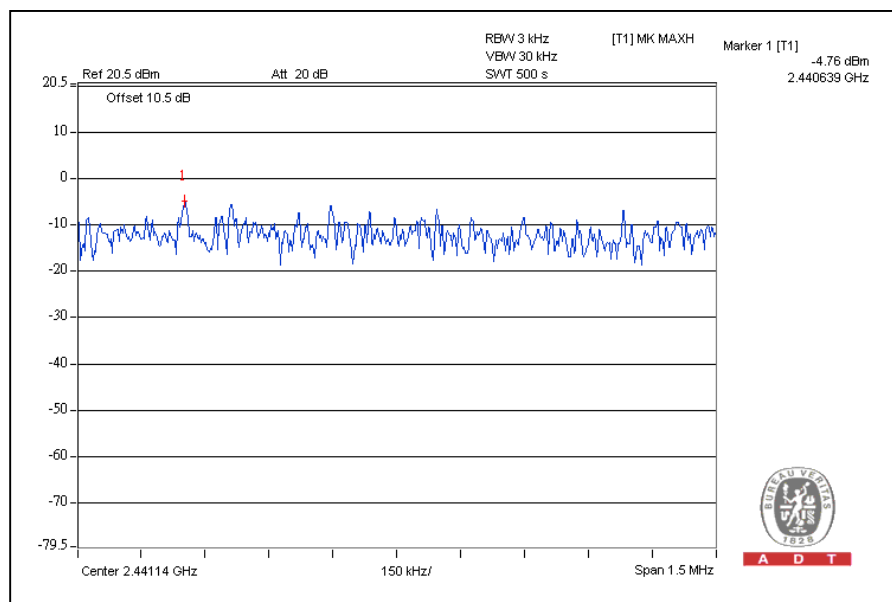
Same as Item 4.3.6

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	-5.7	8	PASS
6	2437	-4.8	8	PASS
11	2462	-5.2	8	PASS

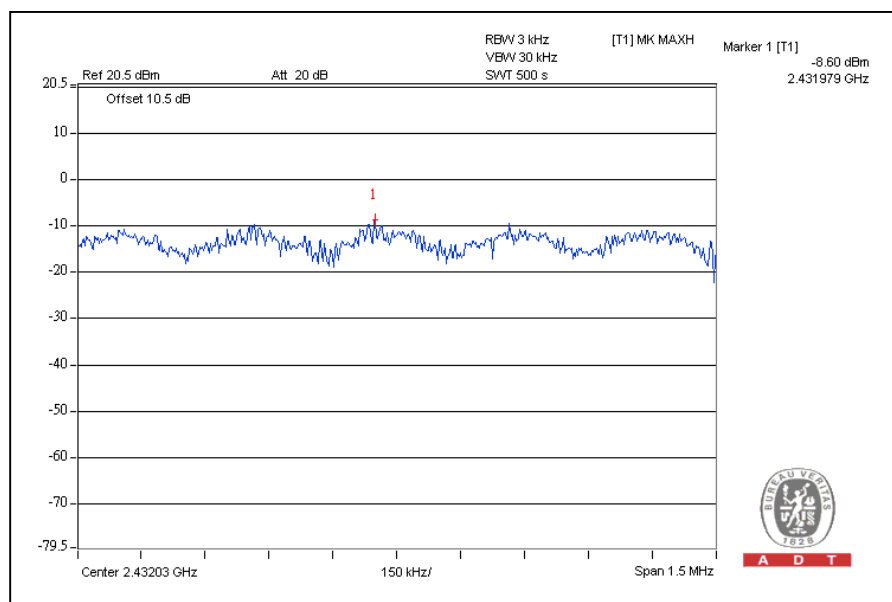
CH6



802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-10.0	8	PASS
6	2437	-8.6	8	PASS
11	2462	-11.4	8	PASS

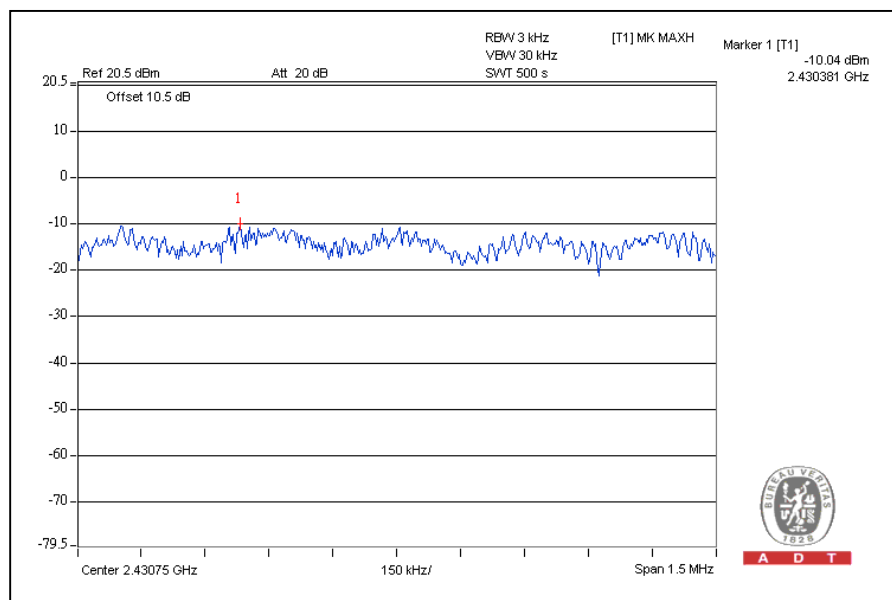
CH6



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)	CHAIN(2)			
1	2412	-11.6	-12.1	-11.2	-6.8	8	PASS
6	2437	-10.0	-11.0	-12.5	-6.3	8	PASS
11	2462	-12.5	-13.7	-13.5	-8.4	8	PASS

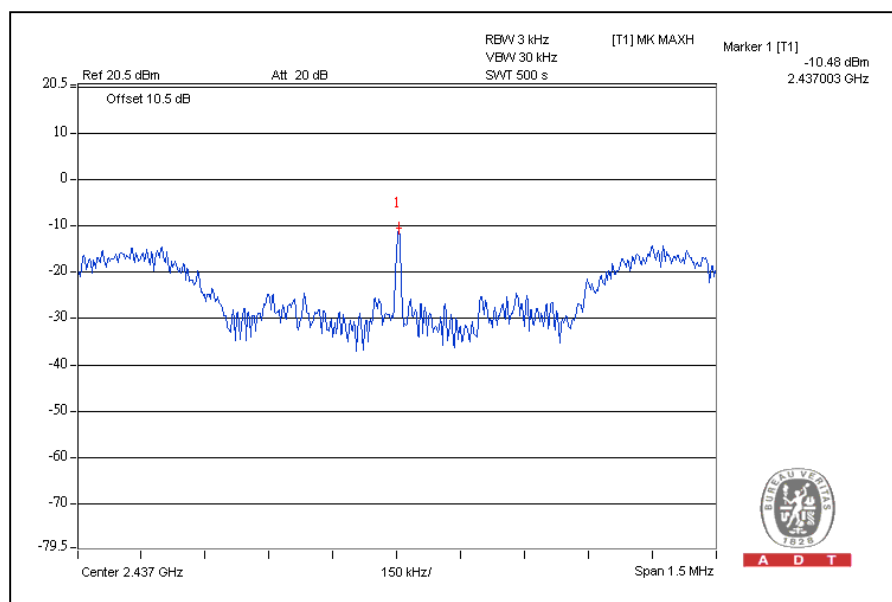
For Chain(0): CH6



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)	CHAIN(2)			
1	2422	-13.8	-14.3	-12.0	-8.5	8	PASS
4	2437	-10.5	-13.7	-15.5	-8.0	8	PASS
7	2452	-14.9	-15.3	-15.2	-10.4	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	Dec. 18, 2009	Dec. 17, 2010

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

4.6.3 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 were measured and recorded.

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

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

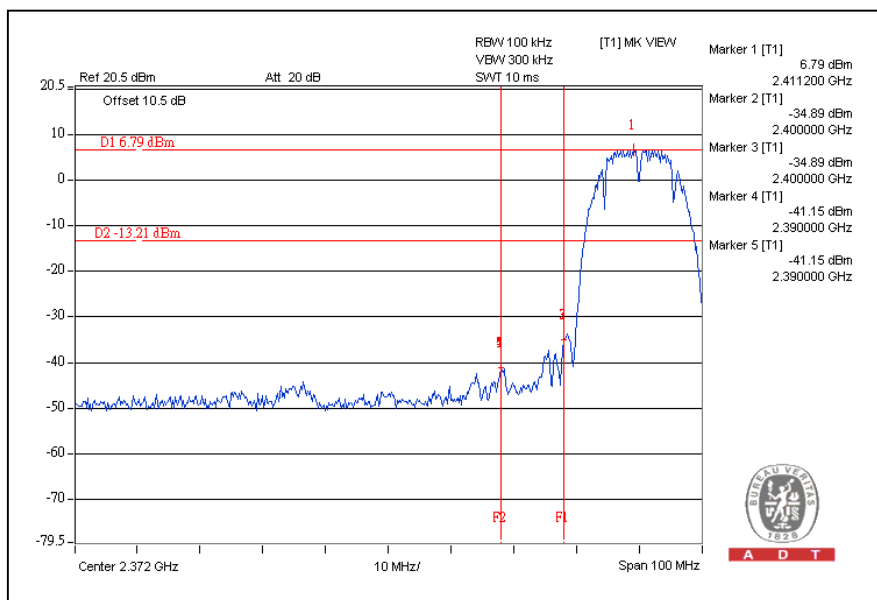
Same as Item 4.3.6

4.6.6 TEST RESULTS

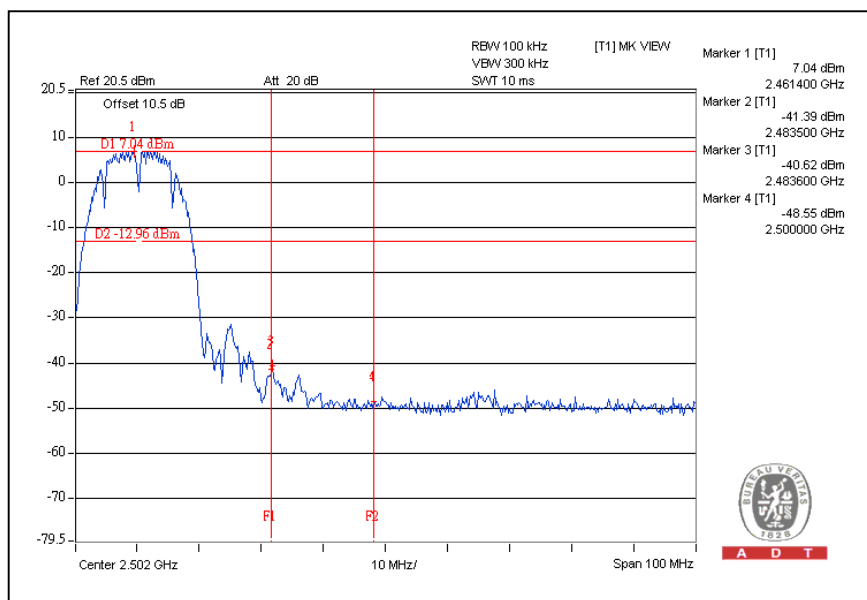
The spectrum plots are attached on the following images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11b DSSS MODULATION:

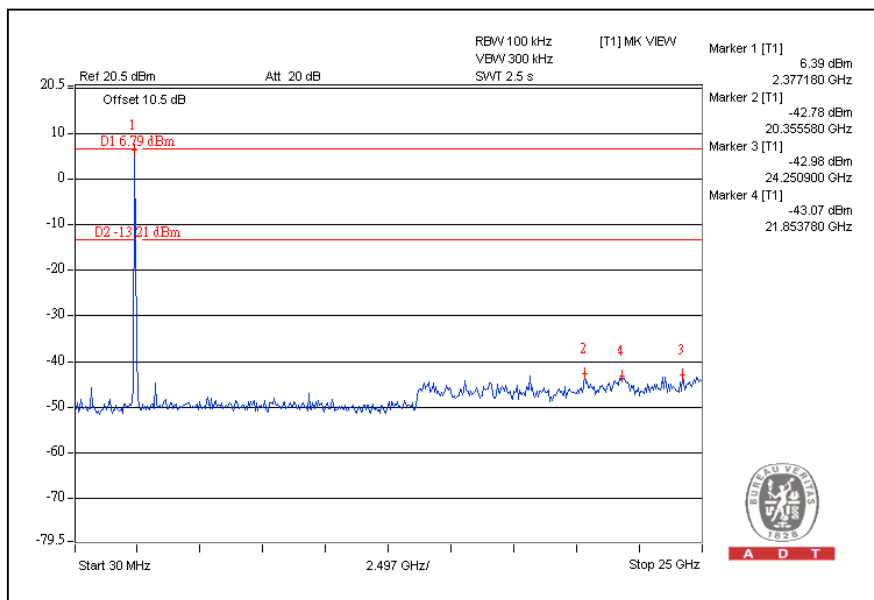
CH1



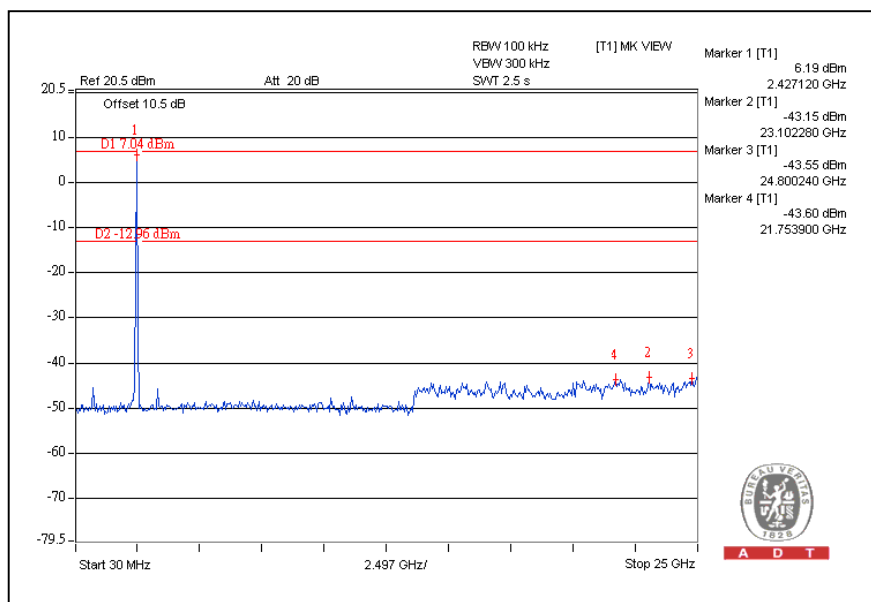
CH11



CH1

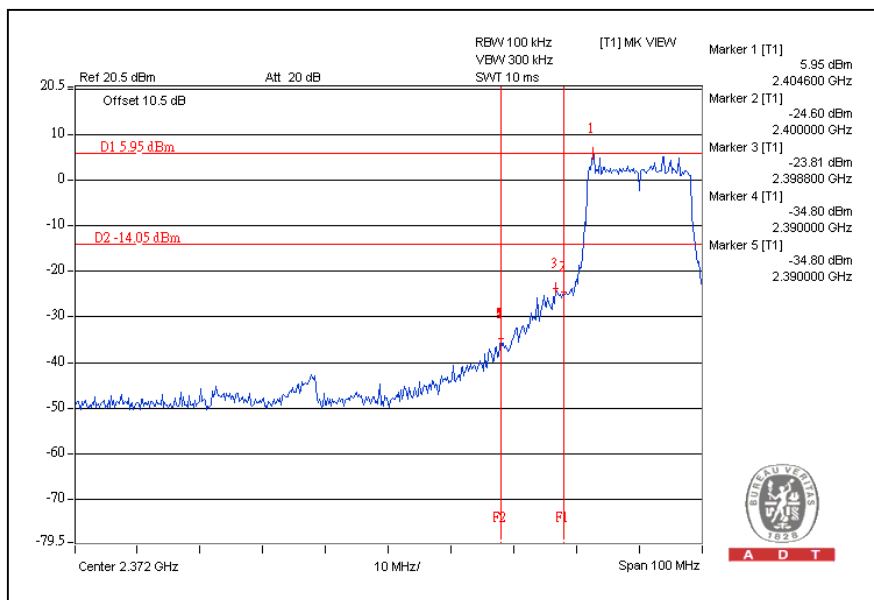


CH11

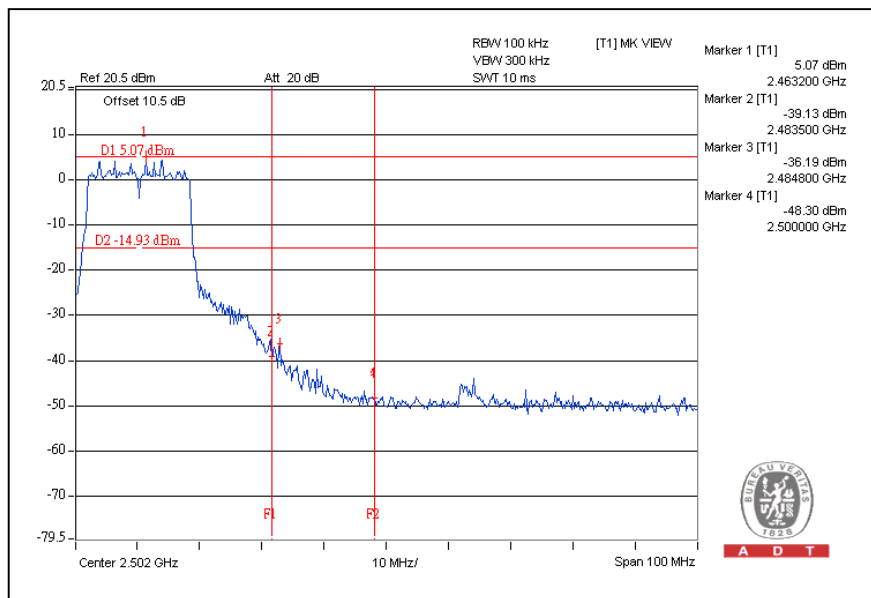


802.11g OFDM MODULATION:

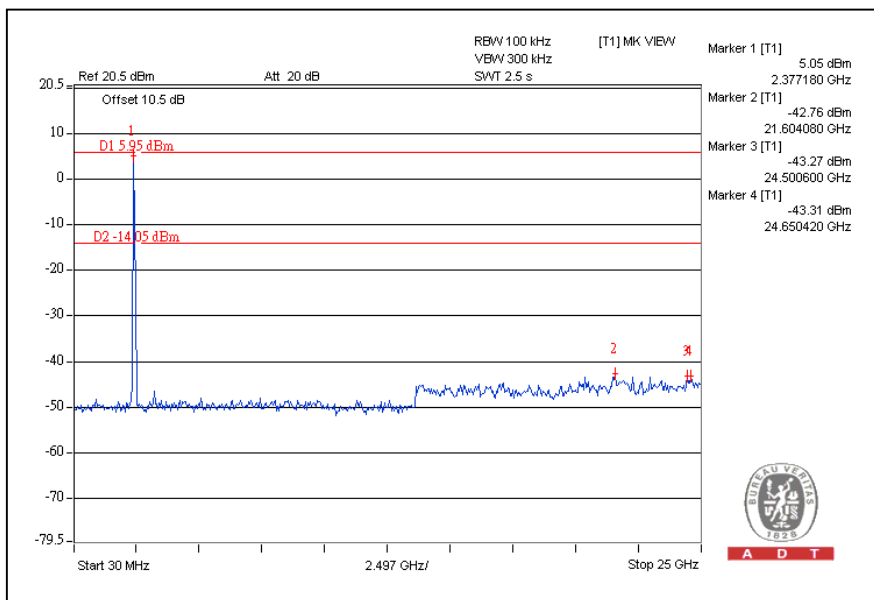
CH1



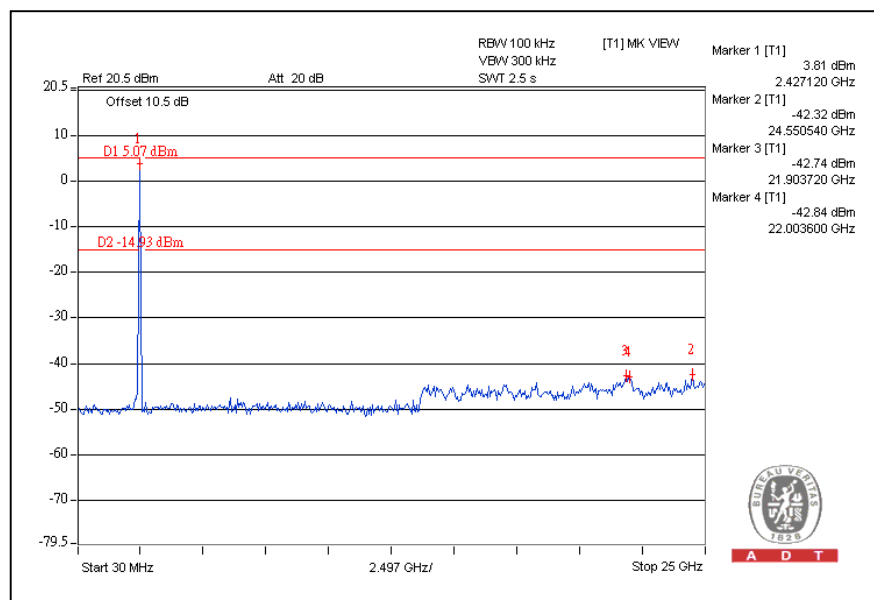
CH11



CH1

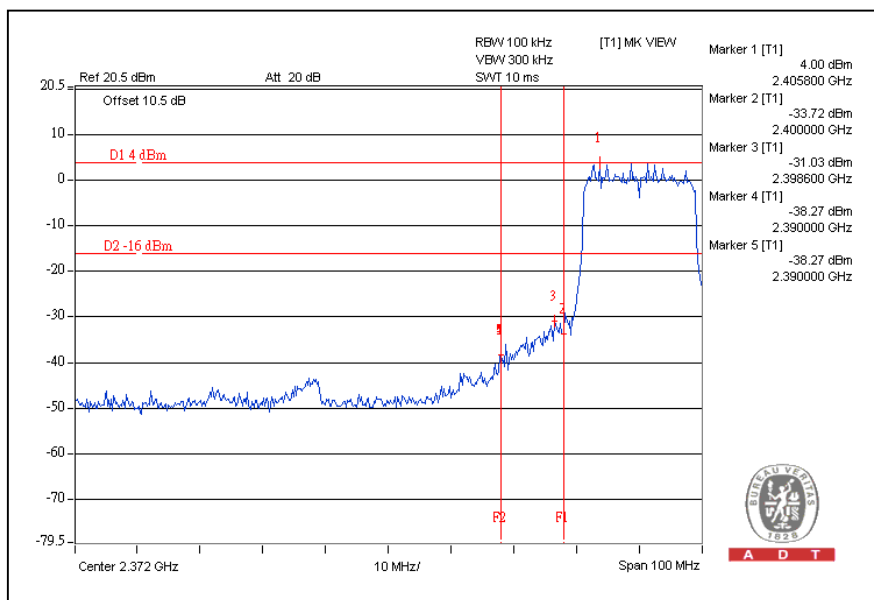


CH11

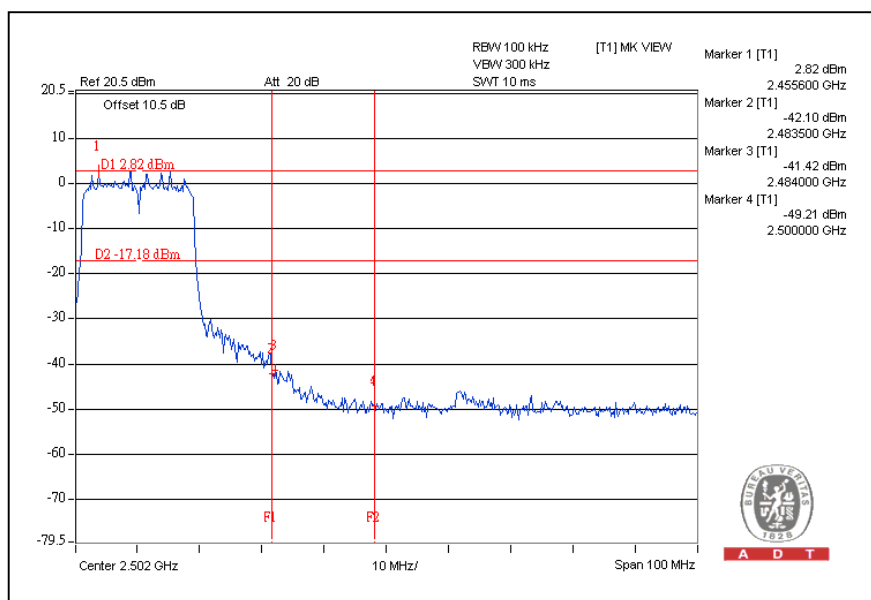


802.11n (20MHz) OFDM MODULATION:

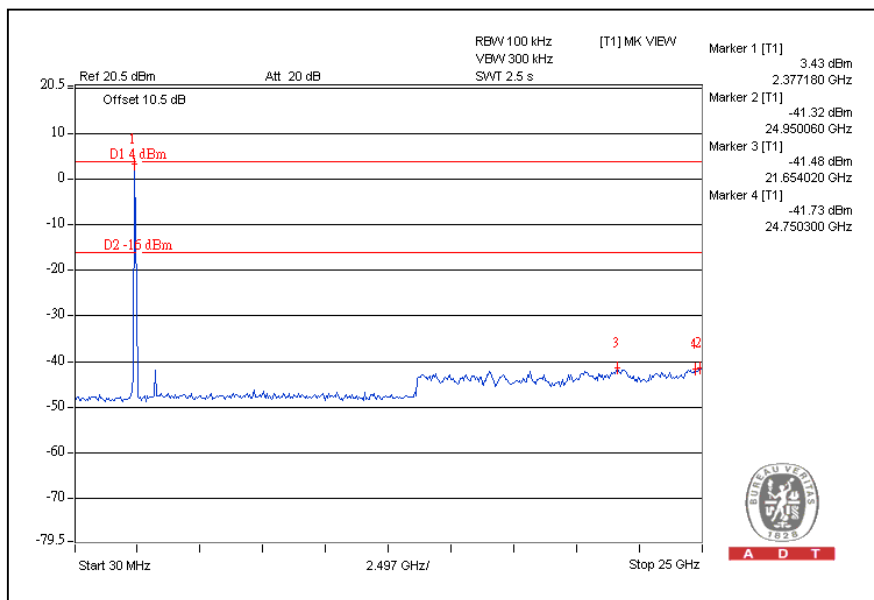
CH1



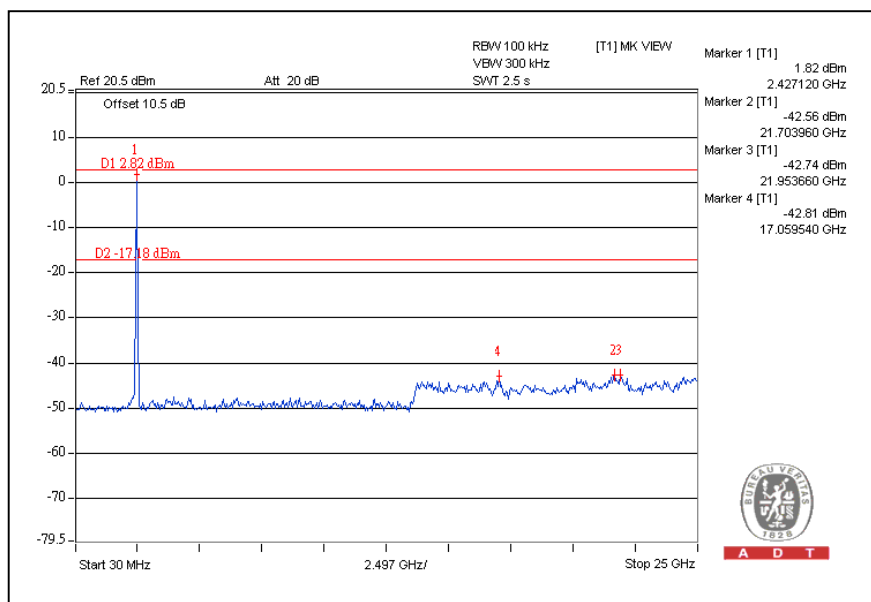
CH11



CH1

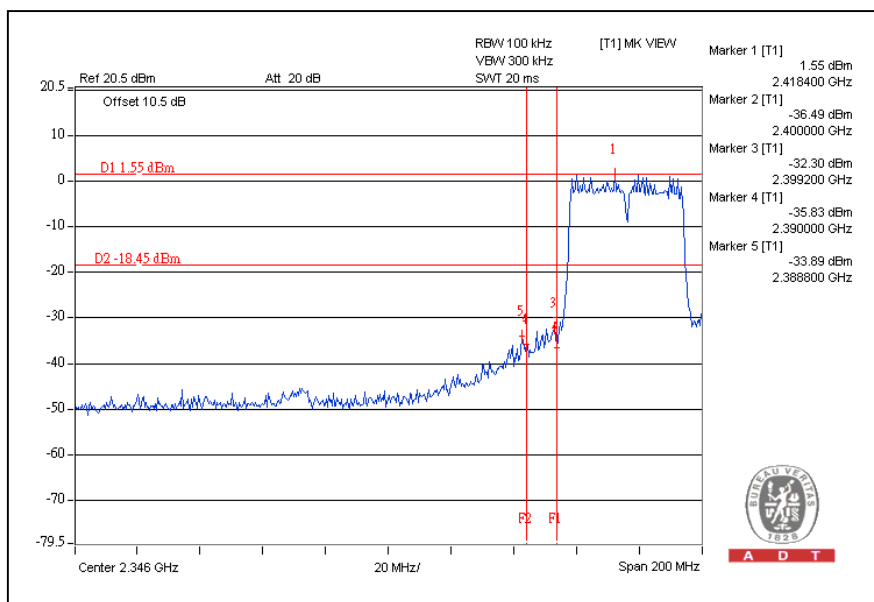


CH11

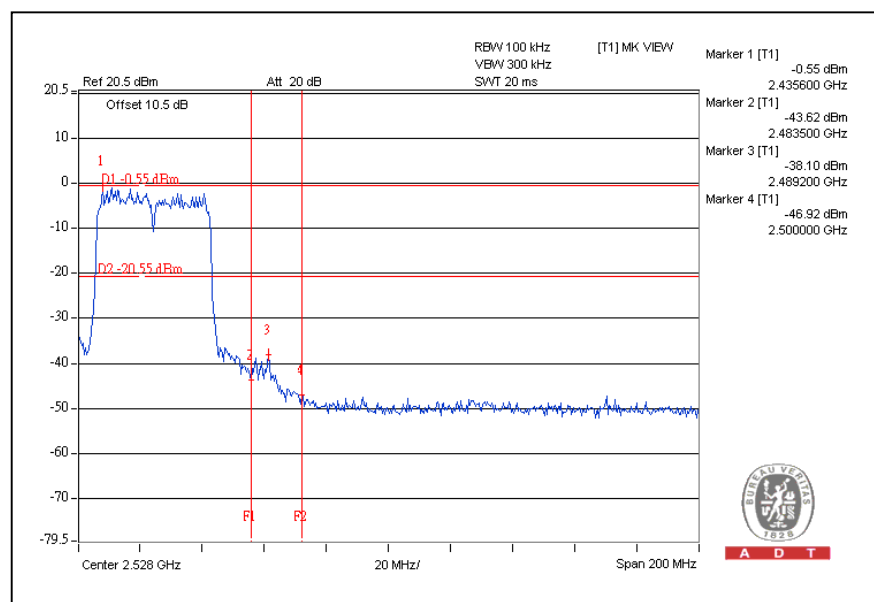


802.11n (40MHz) OFDM MODULATION:

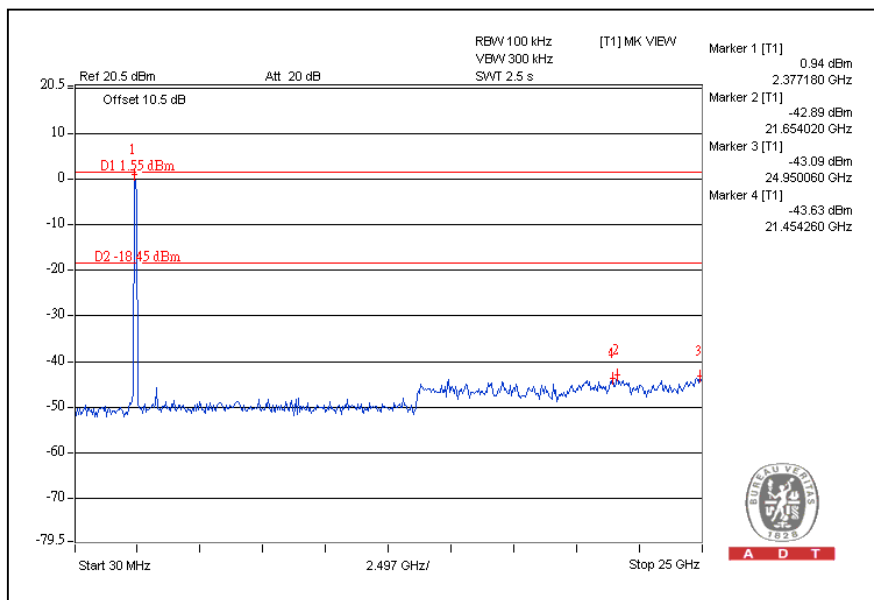
CH1



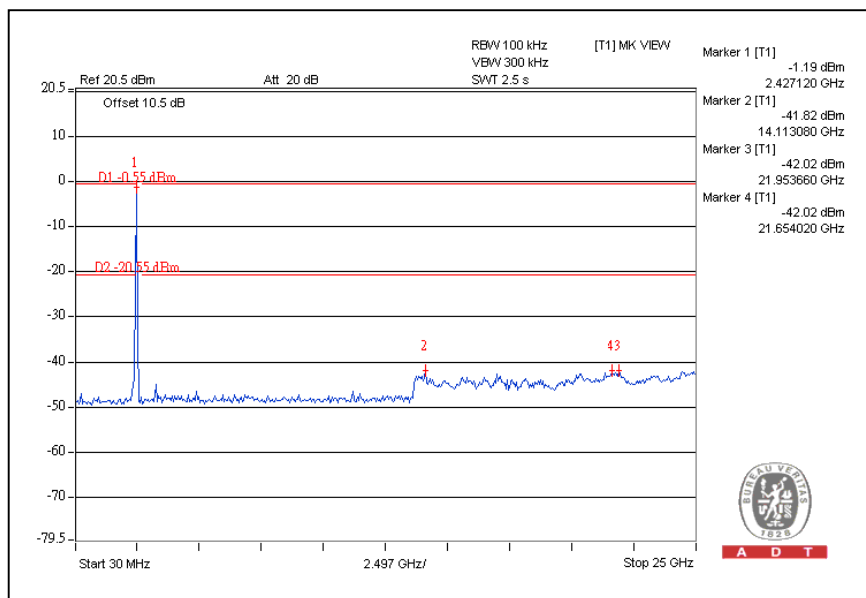
CH7



CH1



CH7



5. 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 (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

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

5.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Mar. 01, 2010	Feb. 28, 2011
Line-Impedance Stabilization Network (for EUT)	NSLK 8127	8127-523	Sep. 23, 2009	Sep. 22, 2010
Line-Impedance Stabilization Network (for Peripheral)	ENV-216	100072	June 11, 2010	June 10, 2011
RF Cable (JYEBAO)	5DFB	COACAB-001	Dec. 14, 2009	Dec. 13, 2010
50 ohms Terminator	50	3	Oct. 28, 2009	Oct. 27, 2010
Software	BV ADT_Cond_V7.3.7	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. A.
3. The VCCI Con A Registration No. is C-817.

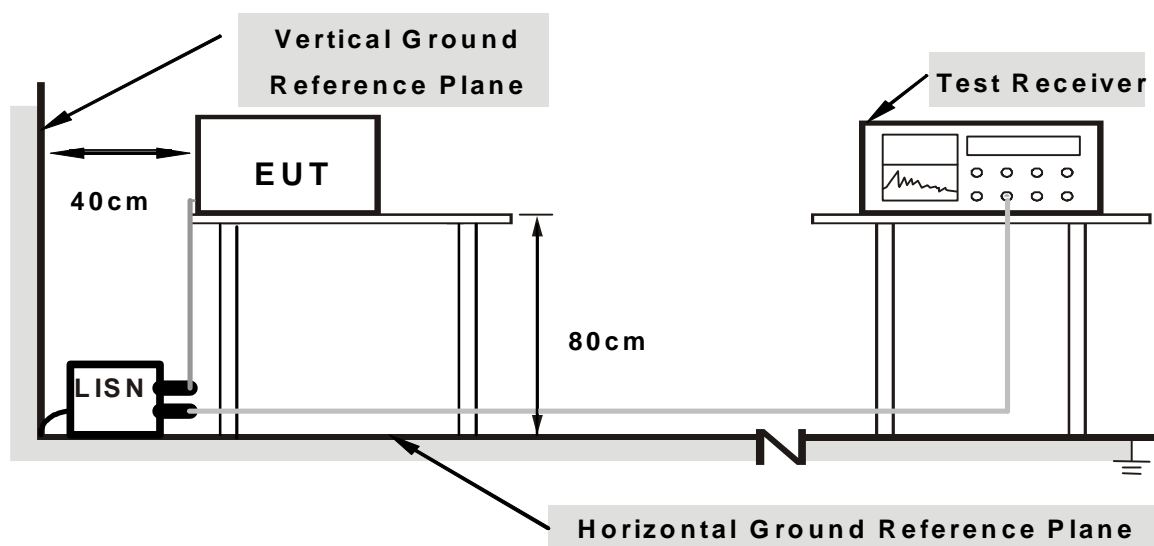
5.1.3 TEST PROCEDURES

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

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 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

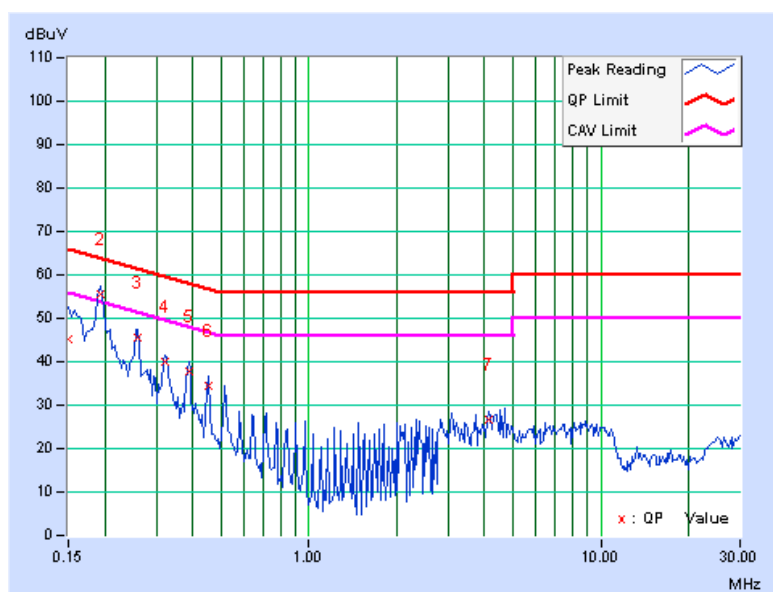
Same as the 4.1.6

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	
	[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.03	45.10	-	45.13	-	66.00	56.00	-20.87	-
2	0.193	0.03	55.63	44.11	55.66	44.14	63.91	53.91	-8.25	-9.77
3	0.259	0.03	45.69	-	45.72	-	61.45	51.45	-15.73	-
4	0.322	0.04	40.02	-	40.06	-	59.66	49.66	-19.60	-
5	0.388	0.04	37.81	-	37.85	-	58.10	48.10	-20.25	-
6	0.451	0.05	34.43	-	34.48	-	56.86	46.86	-22.39	-
7	4.125	0.12	26.73	-	26.85	-	56.00	46.00	-29.15	-

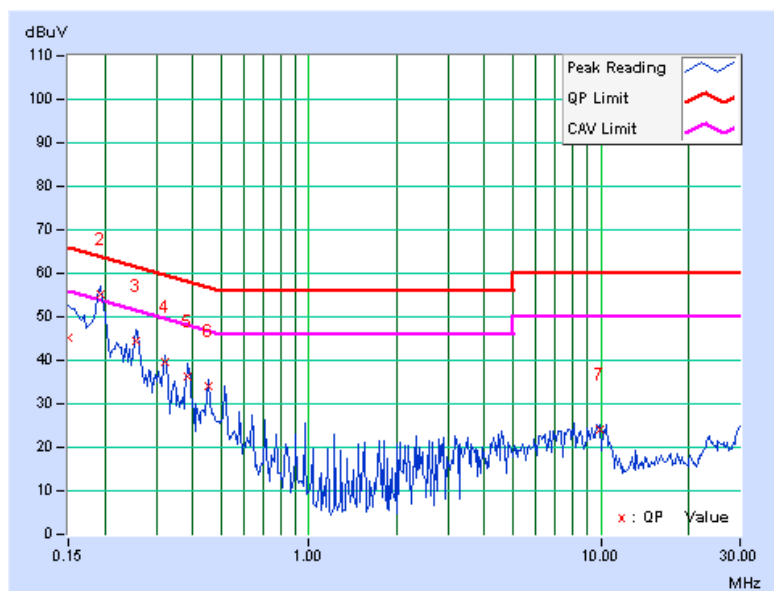
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
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	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.04	45.12	-	45.16	-	66.00	56.00	-20.84	-
2	0.193	0.04	55.09	43.63	55.13	43.67	63.91	53.91	-8.78	-10.24
3	0.255	0.04	44.48	-	44.52	-	61.58	51.58	-17.05	-
4	0.322	0.05	39.43	-	39.48	-	59.66	49.66	-20.18	-
5	0.384	0.05	36.19	-	36.24	-	58.18	48.18	-21.95	-
6	0.451	0.06	33.95	-	34.01	-	56.86	46.86	-22.86	-
7	9.930	0.26	23.98	-	24.24	-	60.00	50.00	-35.76	-

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

5.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250253	Aug. 02, 2010	Aug. 01, 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. 18, 2009	Nov. 17, 2010
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	Sep. 30, 2009	Sep. 29, 2010
AISI Horn_Antenna	AIH.8018	0000320091110	Nov. 16, 2009	Nov. 15, 2010
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Sep. 30, 2009	Sep. 29, 2010
RF CABLE	NA	RF104-201 RF104-203 RF104-204	Dec. 24, 2009	Dec. 23, 2010
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.

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. 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.

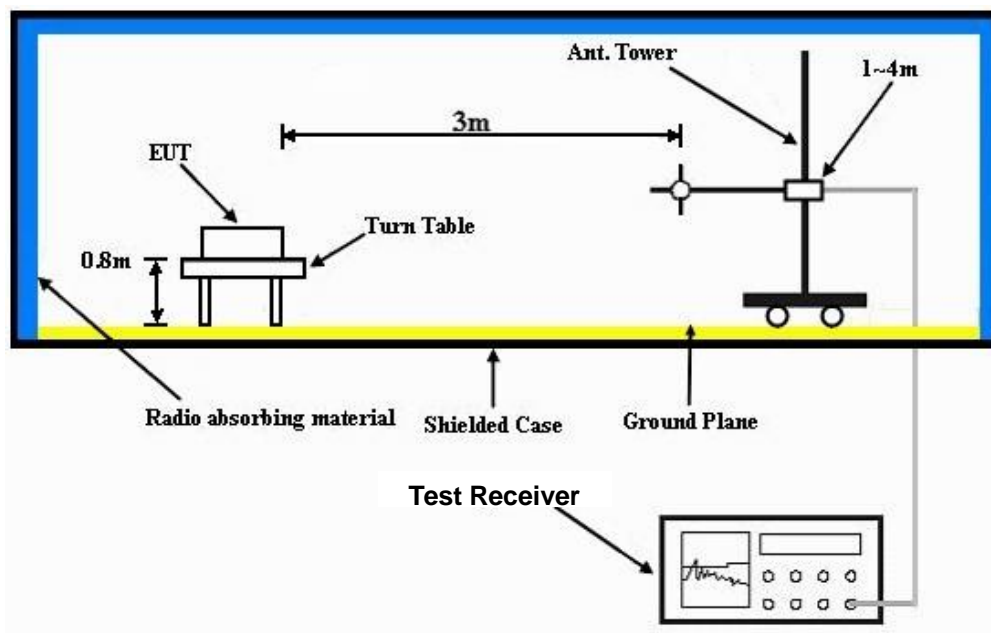
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and 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



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 (WITH DIPOLE ANTENNA)

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	27deg. C, 71%RH 1013 hPa	TESTED BY	Rex Huang
TEST MODE	With Dipole		

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	99.99	31.0 QP	43.5	-12.5	1.75 H	11	21.77	9.24
2	300.00	36.5 QP	46.0	-9.5	1.25 H	186	21.27	15.20
3	420.08	34.7 QP	46.0	-11.3	1.00 H	172	16.88	17.81
4	499.90	37.7 QP	46.0	-8.3	2.00 H	234	18.03	19.70
5	600.32	39.2 QP	46.0	-6.8	1.25 H	268	17.27	21.97
6	799.51	37.4 QP	46.0	-8.6	1.25 H	360	12.93	24.47
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	99.67	33.9 QP	43.5	-9.6	1.00 V	254	24.71	9.21
2	300.00	33.4 QP	46.0	-12.6	1.75 V	325	18.23	15.20
3	420.06	33.5 QP	46.0	-12.5	1.50 V	262	15.73	17.81
4	499.78	35.9 QP	46.0	-10.1	2.00 V	306	16.24	19.70
5	600.34	38.9 QP	46.0	-7.1	1.00 V	159	16.96	21.97
6	799.89	39.2 QP	46.0	-6.8	1.75 V	10	14.72	24.48

- 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.

ABOVE 1GHz DATA

802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With Dipole		

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	97.8 PK			1.25 H	241	56.25	41.55
2	*5745.00	83.5 AV			1.25 H	241	41.95	41.55
3	11490.00	53.3 PK	74.0	-20.7	1.00 H	176	5.59	47.71
4	11490.00	41.3 AV	54.0	-12.7	1.00 H	176	-6.41	47.71
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	107.1 PK			1.24 V	134	65.55	41.55
2	*5745.00	91.3 AV			1.24 V	134	49.75	41.55
3	11490.00	54.3 PK	74.0	-19.7	1.24 V	74	6.59	47.71
4	11490.00	42.5 AV	54.0	-11.5	1.24 V	74	-5.21	47.71

- 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, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With Dipole		

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	97.6 PK			1.24 H	238	55.92	41.68
2	*5785.00	83.5 AV			1.24 H	238	41.82	41.68
3	11570.00	53.8 PK	74.0	-20.2	1.00 H	180	6.05	47.75
4	11570.00	41.7 AV	54.0	-12.3	1.00 H	180	-6.05	47.75
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	106.5 PK			1.26 V	134	64.82	41.68
2	*5785.00	91.1 AV			1.26 V	134	49.42	41.68
3	11570.00	55.1 PK	74.0	-18.9	1.20 V	75	7.35	47.75
4	11570.00	43.0 AV	54.0	-11.0	1.20 V	75	-4.75	47.75

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, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With Dipole		

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	96.8 PK			1.29 H	245	55.02	41.78
2	*5825.00	82.9 AV			1.29 H	245	41.12	41.78
3	11650.00	53.7 PK	74.0	-20.3	1.00 H	178	5.87	47.83
4	11650.00	41.7 AV	54.0	-12.3	1.00 H	178	-6.13	47.83
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	107.0 PK			1.20 V	130	65.22	41.78
2	*5825.00	91.4 AV			1.20 V	130	49.62	41.78
3	11650.00	55.9 PK	74.0	-18.1	1.21 V	74	8.07	47.83
4	11650.00	43.5 AV	54.0	-10.5	1.21 V	74	-4.33	47.83

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.

802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With Dipole		

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	100.4 PK			1.60 H	262	58.85	41.55
2	*5745.00	84.0 AV			1.60 H	262	42.45	41.55
3	11490.00	53.6 PK	74.0	-20.4	1.28 H	20	5.89	47.71
4	11490.00	41.7 AV	54.0	-12.3	1.28 H	20	-6.01	47.71
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	114.7 PK			1.12 V	128	73.15	41.55
2	*5745.00	96.1 AV			1.12 V	128	54.55	41.55
3	11490.00	54.0 PK	74.0	-20.0	1.32 V	19	6.29	47.71
4	11490.00	42.3 AV	54.0	-11.7	1.32 V	19	-5.41	47.71

- 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, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With Dipole		

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	99.4 PK			1.61 H	265	57.72	41.68
2	*5785.00	83.2 AV			1.61 H	265	41.52	41.68
3	11570.00	53.7 PK	74.0	-20.3	1.30 H	22	5.95	47.75
4	11570.00	41.8 AV	54.0	-12.2	1.30 H	22	-5.95	47.75
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	114.3 PK			1.26 V	127	72.62	41.68
2	*5785.00	95.4 AV			1.26 V	127	53.72	41.68
3	11570.00	53.9 PK	74.0	-20.1	1.31 V	15	6.15	47.75
4	11570.00	42.2 AV	54.0	-11.8	1.31 V	15	-5.55	47.75

- 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, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With Dipole		

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	98.6 PK			1.65 H	262	56.82	41.78
2	*5825.00	82.3 AV			1.65 H	262	40.52	41.78
3	11650.00	53.7 PK	74.0	-20.3	1.31 H	23	5.87	47.83
4	11650.00	41.7 AV	54.0	-12.3	1.31 H	23	-6.13	47.83
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	112.8 PK			1.22 V	124	71.02	41.78
2	*5825.00	94.0 AV			1.22 V	124	52.22	41.78
3	11650.00	54.3 PK	74.0	-19.7	1.32 V	16	6.47	47.83
4	11650.00	42.4 AV	54.0	-11.6	1.32 V	16	-5.43	47.83

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.

802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With Dipole		

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	99.3 PK			1.65 H	259	57.71	41.59
2	*5755.00	78.8 AV			1.65 H	259	37.21	41.59
3	11510.00	53.2 PK	74.0	-20.8	1.35 H	24	5.48	47.72
4	11510.00	41.4 AV	54.0	-12.6	1.35 H	24	-6.32	47.72
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	111.3 PK			1.26 V	125	69.71	41.59
2	*5755.00	87.3 AV			1.26 V	125	45.71	41.59
3	11510.00	53.9 PK	74.0	-20.1	1.32 V	17	6.18	47.72
4	11510.00	42.2 AV	54.0	-11.8	1.32 V	17	-5.52	47.72

- 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, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With Dipole		

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	98.2 PK			1.66 H	262	56.50	41.70
2	*5795.00	77.8 AV			1.66 H	262	36.10	41.70
3	11590.00	53.8 PK	74.0	-20.2	1.34 H	21	6.04	47.76
4	11590.00	42.0 AV	54.0	-12.0	1.34 H	21	-5.76	47.76
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	111.3 PK			1.22 V	131	69.60	41.70
2	*5795.00	88.1 AV			1.22 V	131	46.40	41.70
3	11590.00	54.6 PK	74.0	-19.4	1.33 V	15	6.84	47.76
4	11590.00	43.1 AV	54.0	-10.9	1.33 V	15	-4.66	47.76

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.
5. “ * ”: Fundamental frequency.
6. The limit value is defined as per 15.247.

5.2.8 TEST RESULTS (WITH PIFA ANTENNA)

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	27deg. C, 71%RH 1013 hPa	TESTED BY	Rex Huang
TEST MODE	With PIFA		

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	99.99	31.9 QP	43.5	-11.6	2.25 H	346	22.63	9.24
2	233.21	31.6 QP	46.0	-14.4	1.75 H	43	19.28	12.31
3	374.97	34.7 QP	46.0	-11.3	2.25 H	201	17.88	16.81
4	499.90	33.3 QP	46.0	-12.7	2.25 H	57	13.59	19.70
5	600.33	34.3 QP	46.0	-11.7	2.00 H	342	12.30	21.97
6	799.79	37.2 QP	46.0	-8.8	1.00 H	287	12.77	24.47
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	36.12	26.8 QP	40.0	-13.2	1.00 V	265	13.39	13.43
2	299.94	35.8 QP	46.0	-10.2	1.25 V	281	20.63	15.20
3	450.03	30.4 QP	46.0	-15.6	1.50 V	360	11.92	18.51
4	600.34	36.7 QP	46.0	-9.3	1.00 V	259	14.77	21.97
5	799.77	37.9 QP	46.0	-8.1	1.75 V	272	13.46	24.47
6	900.36	36.2 QP	46.0	-9.8	1.75 V	264	10.00	26.24

- 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, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With PIFA		

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	108.9 PK			1.00 H	174	67.35	41.55
2	*5745.00	94.4 AV			1.00 H	174	52.85	41.55
3	11490.00	56.8 PK	74.0	-17.2	1.49 H	229	9.09	47.71
4	11490.00	44.1 AV	54.0	-9.9	1.49 H	229	-3.61	47.71
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	108.3 PK			1.12 V	124	66.75	41.55
2	*5745.00	93.6 AV			1.12 V	124	52.05	41.55
3	11490.00	57.4 PK	74.0	-16.6	1.35 V	155	9.69	47.71
4	11490.00	45.2 AV	54.0	-8.8	1.35 V	155	-2.51	47.71

- 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, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With PIFA		

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	109.5 PK			1.00 H	172	67.82	41.68
2	*5785.00	94.6 AV			1.00 H	172	52.92	41.68
3	11570.00	57.2 PK	74.0	-16.8	1.48 H	231	9.45	47.75
4	11570.00	44.6 AV	54.0	-9.4	1.48 H	231	-3.15	47.75
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	107.0 PK			1.13 V	124	65.32	41.68
2	*5785.00	92.5 AV			1.13 V	124	50.82	41.68
3	11570.00	58.0 PK	74.0	-16.0	1.31 V	161	10.25	47.75
4	11570.00	45.6 AV	54.0	-8.4	1.31 V	161	-2.15	47.75

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, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With PIFA		

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	108.0 PK			1.01 H	175	66.22	41.78
2	*5825.00	93.2 AV			1.01 H	175	51.42	41.78
3	11650.00	57.7 PK	74.0	-16.3	1.47 H	232	9.87	47.83
4	11650.00	45.0 AV	54.0	-9.0	1.47 H	232	-2.83	47.83
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	107.0 PK			1.04 V	98	65.22	41.78
2	*5825.00	92.2 AV			1.04 V	98	50.42	41.78
3	11650.00	57.8 PK	74.0	-16.2	1.32 V	152	9.97	47.83
4	11650.00	45.3 AV	54.0	-8.7	1.32 V	152	-2.53	47.83

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.

802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With PIFA		

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	115.3 PK			1.00 H	178	73.75	41.55
2	*5745.00	96.7 AV			1.00 H	178	55.15	41.55
3	11490.00	57.1 PK	74.0	-16.9	1.58 H	240	9.39	47.71
4	11490.00	44.2 AV	54.0	-9.8	1.58 H	240	-3.51	47.71
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	111.3 PK			1.16 V	114	69.75	41.55
2	*5745.00	93.8 AV			1.16 V	114	52.25	41.55
3	11490.00	58.8 PK	74.0	-15.2	1.39 V	170	11.09	47.71
4	11490.00	45.6 AV	54.0	-8.4	1.39 V	170	-2.11	47.71

- 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, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With PIFA		

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	114.5 PK			1.01 H	180	72.82	41.68
2	*5785.00	95.6 AV			1.01 H	180	53.92	41.68
3	11570.00	57.7 PK	74.0	-16.3	1.48 H	249	9.95	47.75
4	11570.00	44.9 AV	54.0	-9.1	1.48 H	249	-2.85	47.75
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	111.1 PK			1.18 V	120	69.42	41.68
2	*5785.00	93.5 AV			1.18 V	120	51.82	41.68
3	11570.00	60.0 PK	74.0	-14.0	1.38 V	168	12.25	47.75
4	11570.00	46.8 AV	54.0	-7.2	1.38 V	168	-0.95	47.75

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, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With PIFA		

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	114.0 PK			1.00 H	177	72.22	41.78
2	*5825.00	95.5 AV			1.00 H	177	53.72	41.78
3	11650.00	58.0 PK	74.0	-16.0	1.47 H	232	10.17	47.83
4	11650.00	45.6 AV	54.0	-8.4	1.47 H	232	-2.23	47.83
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	110.9 PK			1.17 V	119	69.12	41.78
2	*5825.00	93.4 AV			1.17 V	119	51.62	41.78
3	11650.00	59.3 PK	74.0	-14.7	1.37 V	167	11.47	47.83
4	11650.00	46.2 AV	54.0	-7.8	1.37 V	167	-1.63	47.83

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.

802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With PIFA		

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	113.7 PK			1.00 H	176	72.11	41.59
2	*5755.00	89.0 AV			1.00 H	176	47.41	41.59
3	11510.00	55.4 PK	74.0	-18.6	1.46 H	242	7.68	47.72
4	11510.00	43.9 AV	54.0	-10.1	1.46 H	242	-3.82	47.72
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	109.7 PK			1.20 V	115	68.11	41.59
2	*5755.00	87.4 AV			1.20 V	115	45.81	41.59
3	11510.00	57.8 PK	74.0	-16.2	1.42 V	147	10.08	47.72
4	11510.00	44.8 AV	54.0	-9.2	1.42 V	147	-2.92	47.72

- 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, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 1013 hPa	TESTED BY	Duke Tseng
TEST MODE	With PIFA		

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	113.6 PK			1.00 H	178	71.90	41.70
2	*5795.00	89.1 AV			1.00 H	178	47.40	41.70
3	11590.00	56.9 PK	74.0	-17.1	1.45 H	244	9.14	47.76
4	11590.00	45.1 AV	54.0	-8.9	1.45 H	244	-2.66	47.76
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	109.2 PK			1.19 V	111	67.50	41.70
2	*5795.00	86.5 AV			1.19 V	111	44.80	41.70
3	11590.00	58.4 PK	74.0	-15.6	1.52 V	154	10.64	47.76
4	11590.00	45.8 AV	54.0	-8.2	1.52 V	154	-1.96	47.76

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.
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	Dec. 18, 2009	Dec. 17, 2010

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

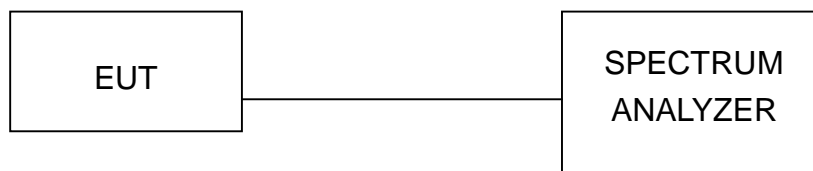
5.3.3 TEST PROCEDURE

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 100kHz 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

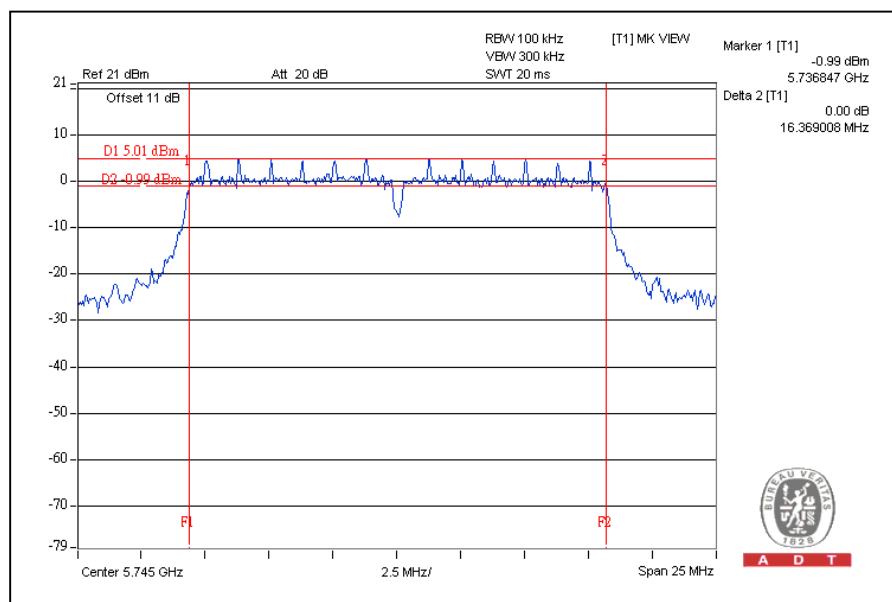
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

5.3.7 TEST RESULTS

802.11a OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	16.36	0.5	PASS
157	5785	16.36	0.5	PASS
165	5825	16.35	0.5	PASS

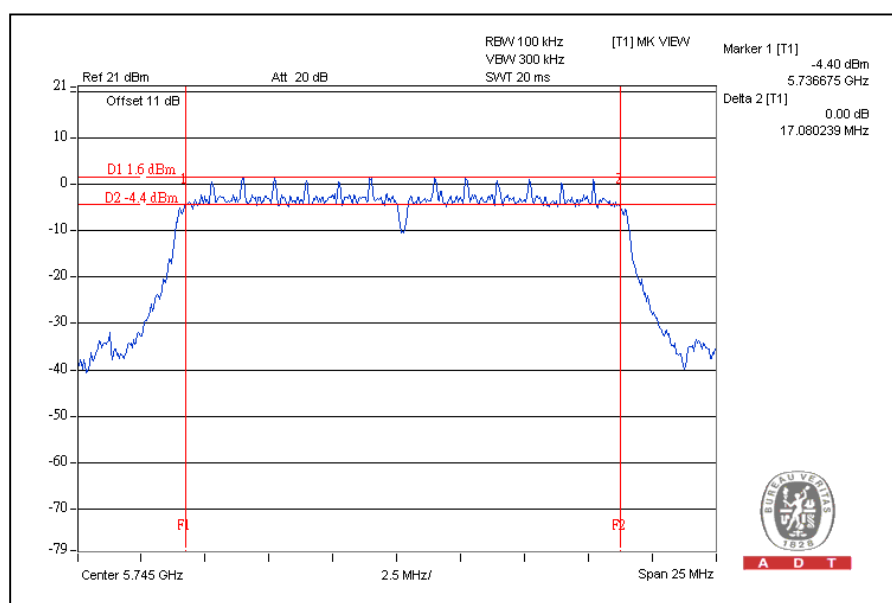
CH149



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	17.08	0.5	PASS
157	5785	16.92	0.5	PASS
165	5825	17.06	0.5	PASS

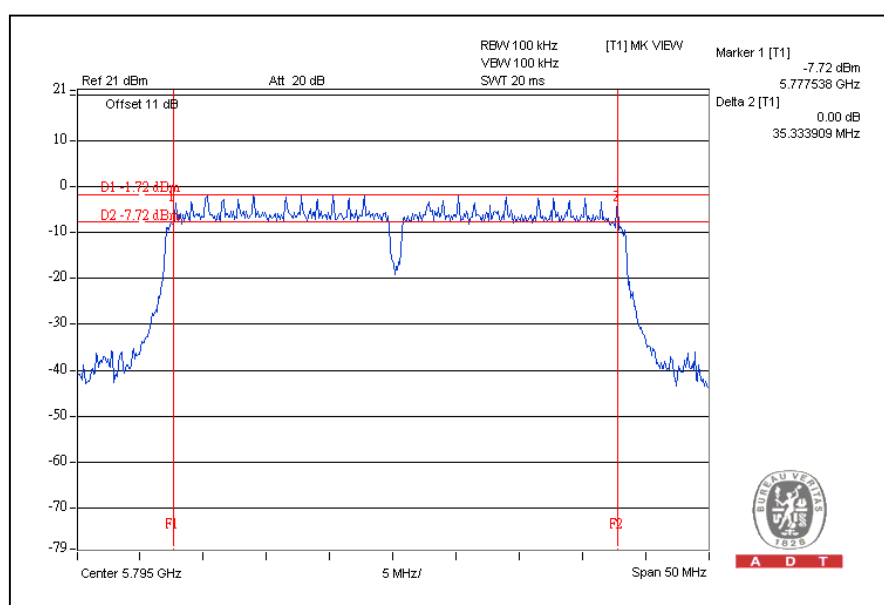
CH149



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
151	5755	35.30	0.5	PASS
159	5795	35.33	0.5	PASS

CH159



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.

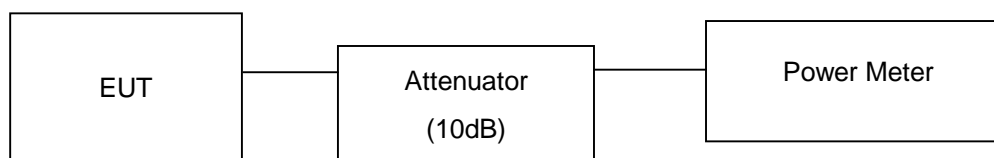
5.4.3 TEST PROCEDURES

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



A D T

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	239.9	23.8	30	PASS
157	5785	208.9	23.2	30	PASS
165	5825	186.2	22.7	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)	CHAIN(2)				
149	5745	21.1	21.6	21.2	405.2	26.1	30	PASS
157	5785	20.6	21.2	20.5	358.8	25.5	30	PASS
165	5825	20.2	20.7	19.8	317.7	25.0	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)	CHAIN(2)				
151	5755	21.6	22.0	21.3	437.900	26.4	30	PASS
159	5795	21.2	21.5	20.7	390.600	25.9	30	PASS

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	Dec. 18, 2009	Dec. 17, 2010

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

5.5.3 TEST PROCEDURE

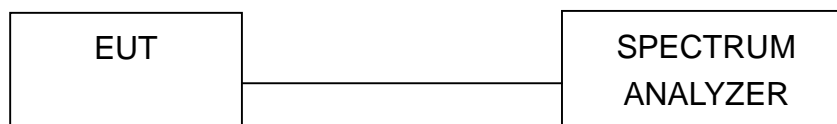
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3 kHz RBW and 30 kHz VBW, set sweep time = span/3 kHz. The power spectral density was measured and recorded.

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

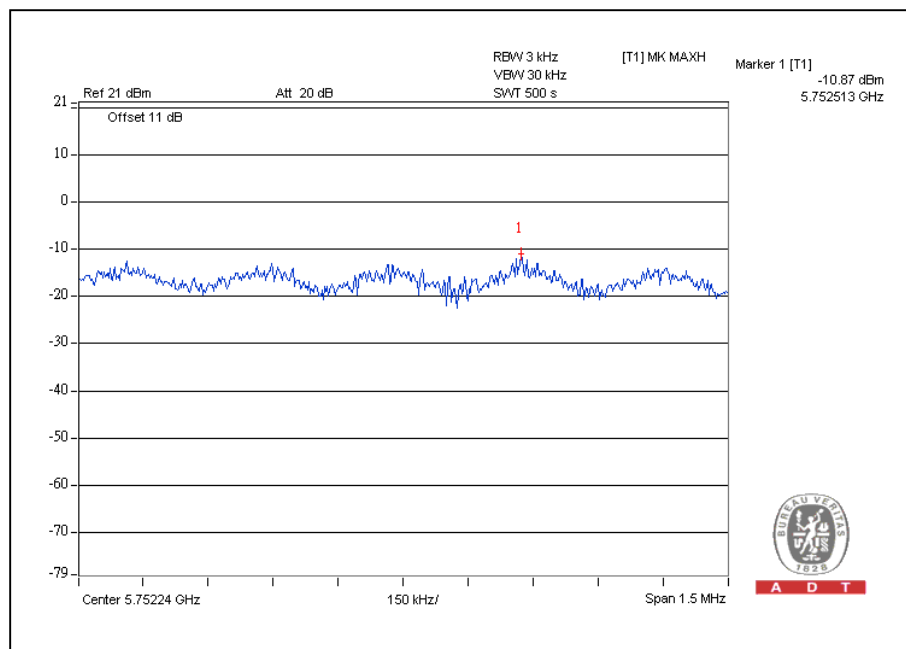
Same as Item 4.3.6

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	-10.9	8	PASS
157	5785	-13.3	8	PASS
165	5825	-13.3	8	PASS

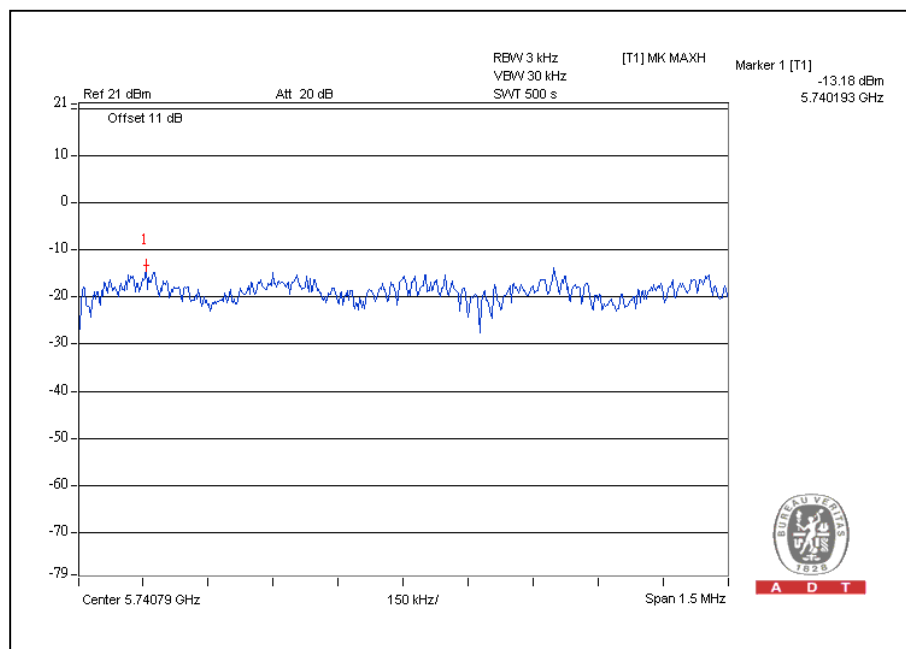
CH149



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)	CHAIN(2)			
149	5745	-15.2	-13.4	-13.2	-9.1	8	PASS
157	5785	-16.3	-14.2	-14.9	-10.3	8	PASS
165	5825	-16.8	-15.1	-17.4	-11.5	8	PASS

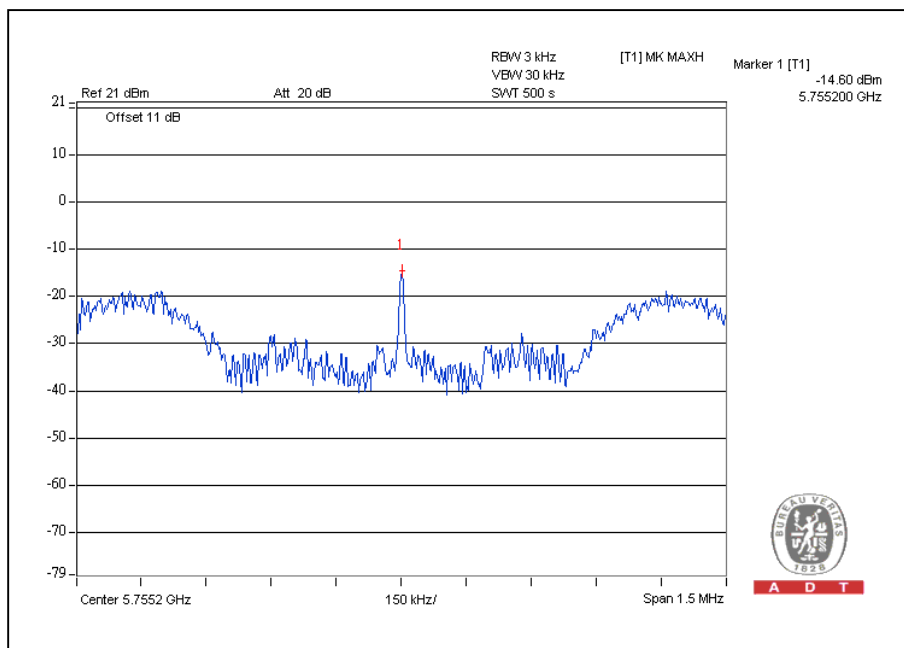
For Chain(2): CH149



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)	CHAIN(2)			
151	5755	-16.3	-16.2	-14.6	-10.9	8	PASS
159	5795	-17.9	-16.9	-17.4	-12.6	8	PASS

For Chain(2): CH151



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	Dec. 18, 2009	Dec. 17, 2010

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

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 100kHz 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

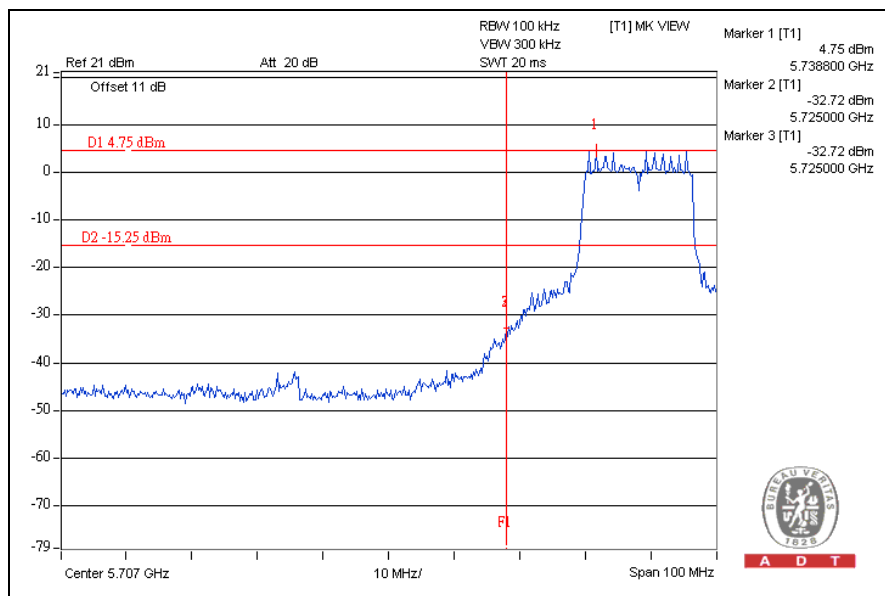
Same as Item 4.3.6

5.6.6 TEST RESULTS

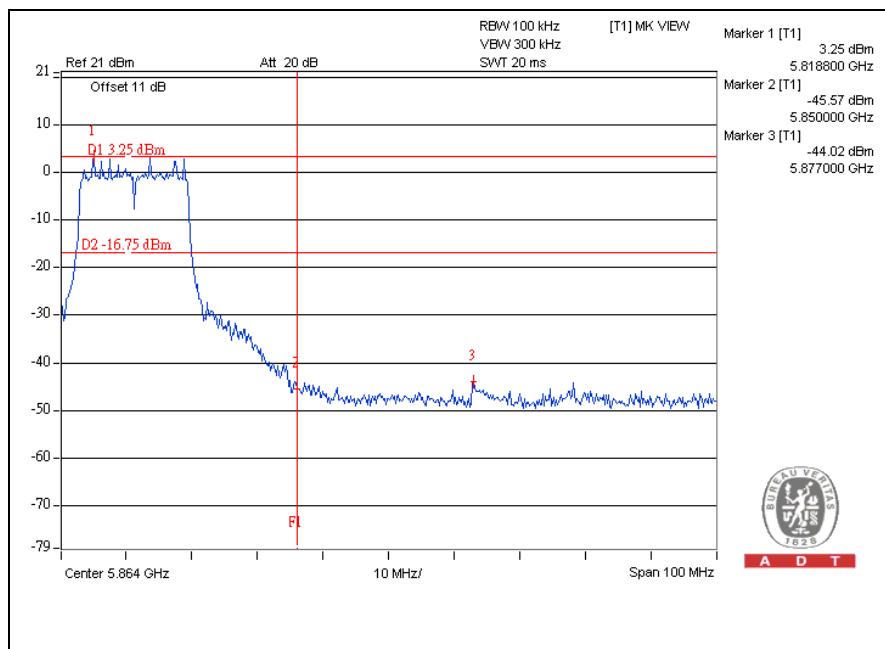
The spectrum plots are attached on the following pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(d).

802.11a OFDM modulation

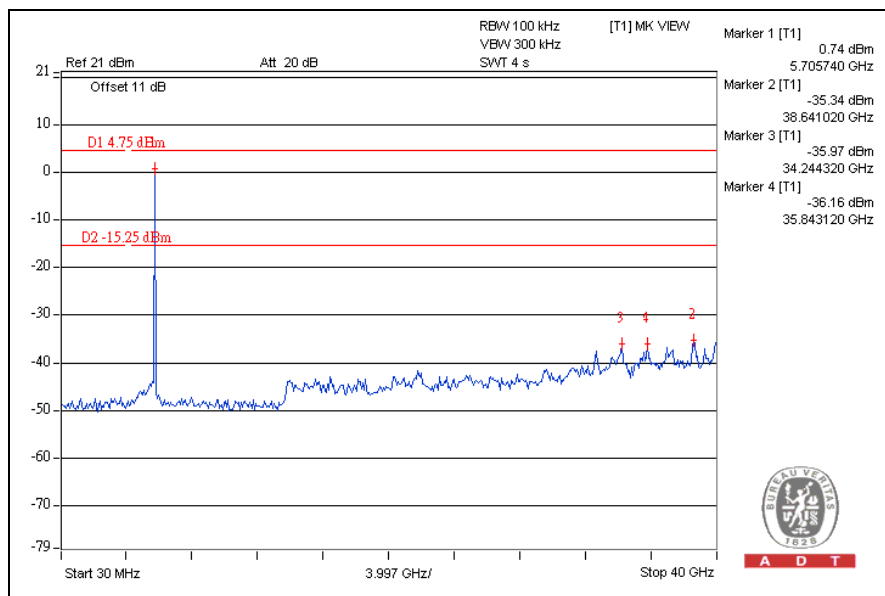
CH149



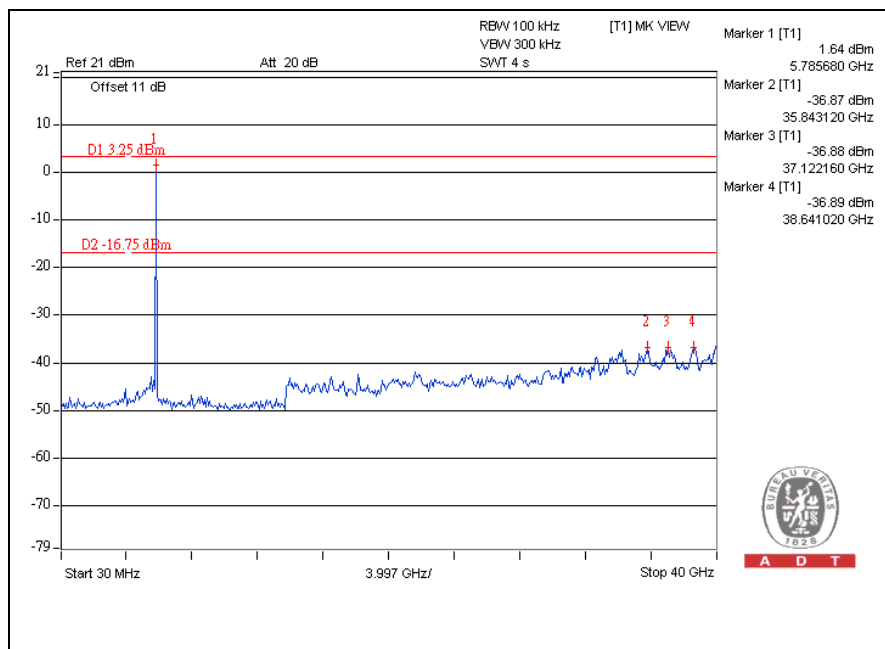
CH165



CH149

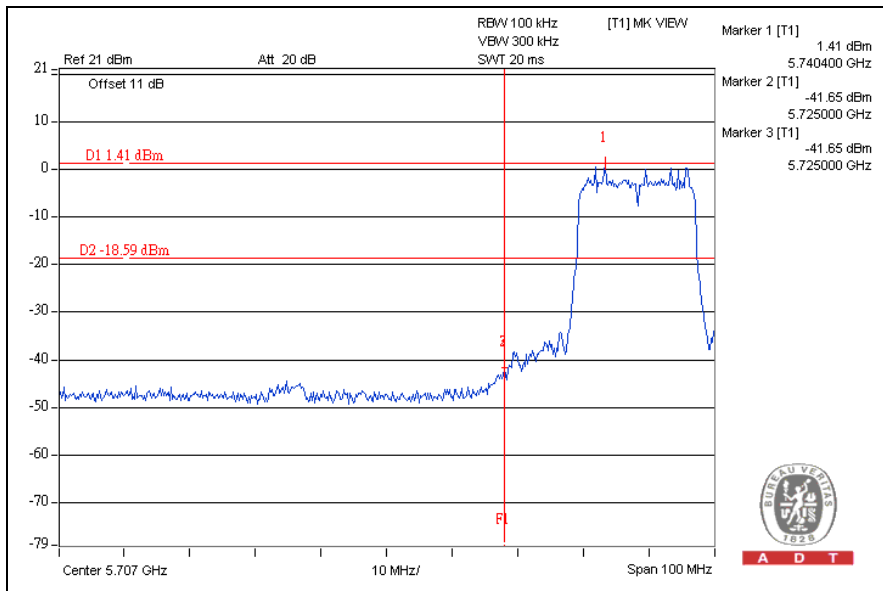


CH165

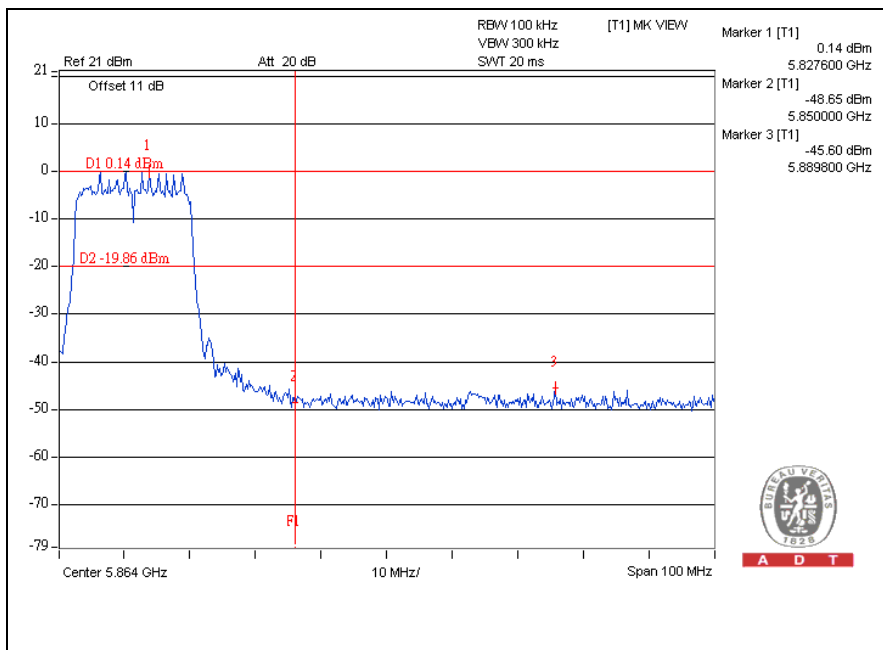


802.11n (20MHz) OFDM MODULATION:

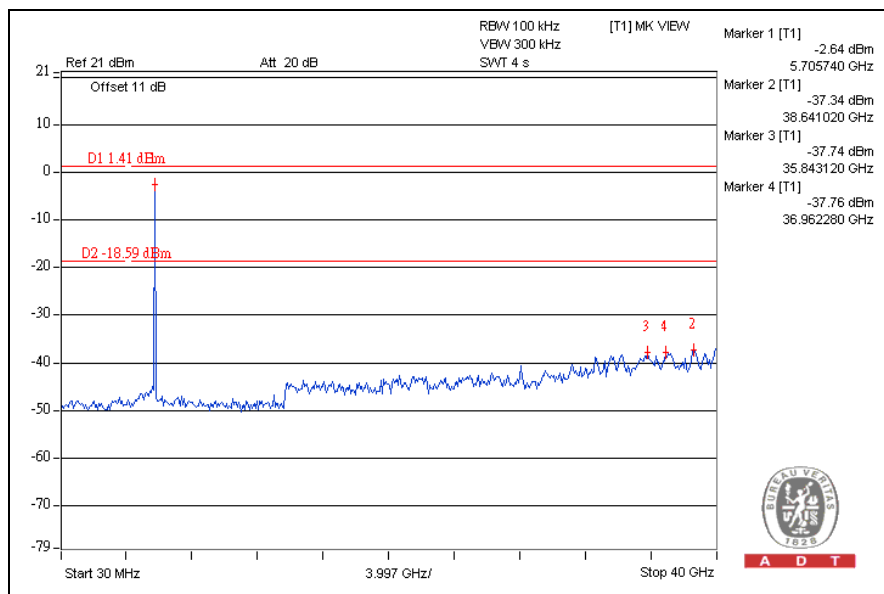
CH149



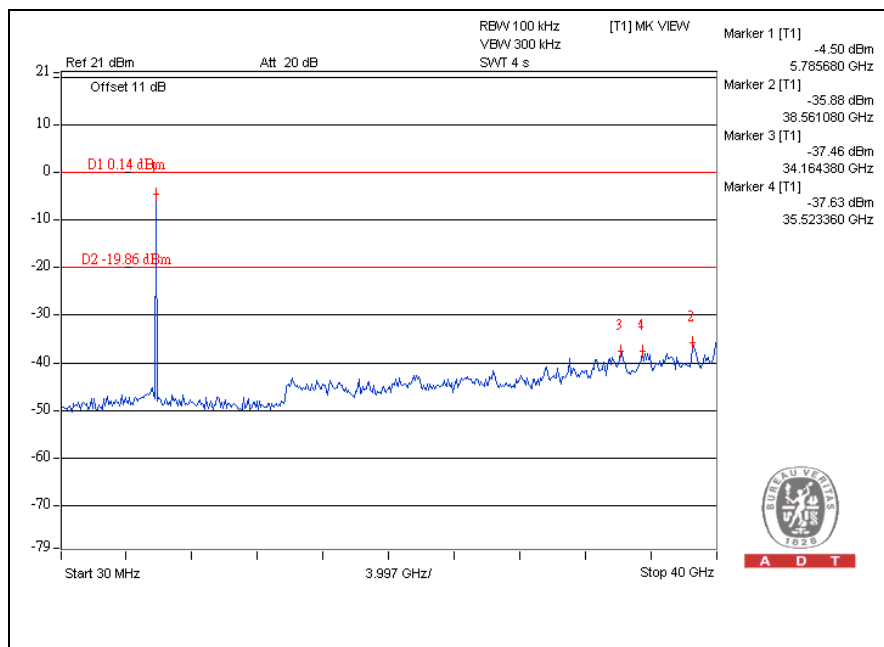
CH165



CH149

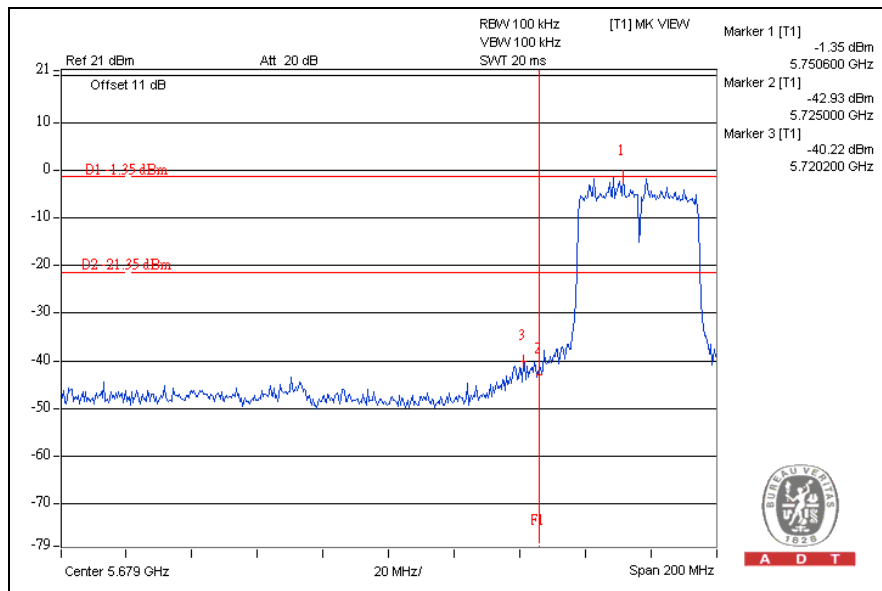


CH165

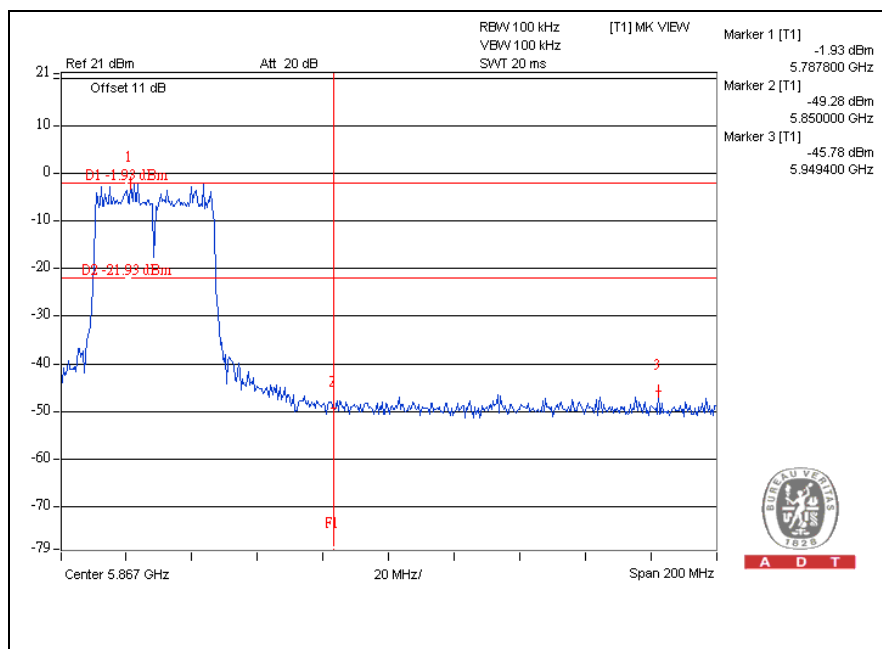


802.11n (40MHz) OFDM MODULATION:

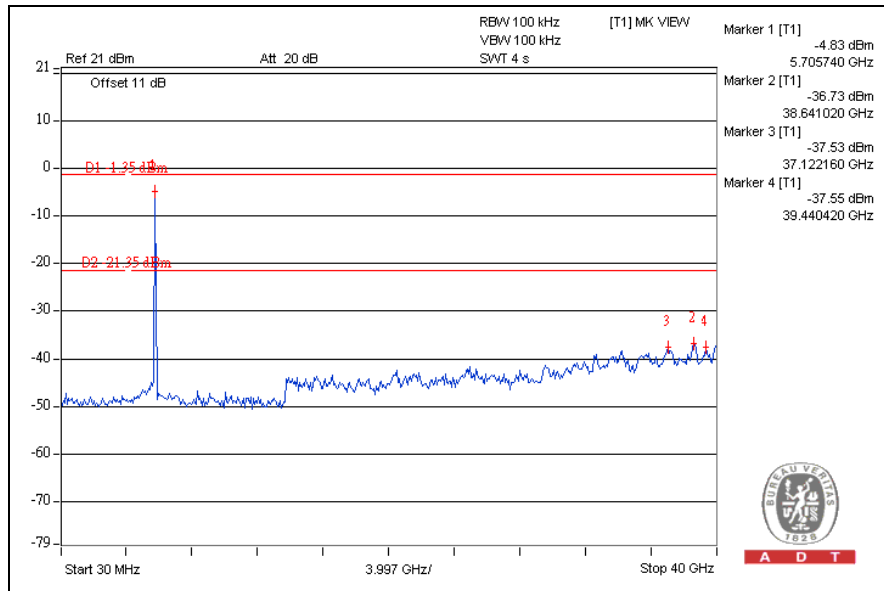
CH151



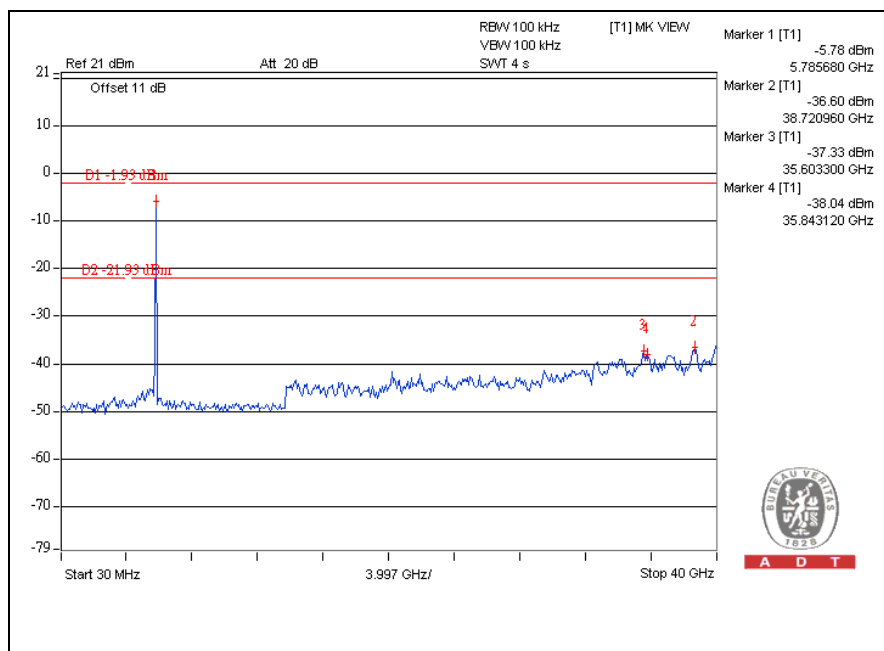
CH159



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 ---