

FCC TEST REPORT (15.247)

REPORT NO.: RF981002H05

MODEL NO.: UWA-BR100

RECEIVED: Oct. 05, 2009

TESTED: Oct. 09 to 19, 2009

ISSUED: Nov. 17, 2009

APPLICANT: Sony Corporation

ADDRESS: 1-7-1 Konan Minato-ku, Tokyo, 108-0075,
JAPAN

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

ADDRESS: No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen,
Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

This test report consists of 122 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product endorsement by TAF or any government agencies. The test results in the report only apply to the tested sample.



Table of Contents

1.	CERTIFICATION	5
2.	SUMMARY OF TEST RESULTS	6
2.1	MEASUREMENT UNCERTAINTY	8
3.	GENERAL INFORMATION	9
3.1	GENERAL DESCRIPTION OF EUT	9
3.2	DESCRIPTION OF TEST MODES	12
3.2.1	TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	13
3.3	GENERAL DESCRIPTION OF APPLIED STANDARDS	16
3.4	DESCRIPTION OF SUPPORT UNITS	17
3.5	CONFIGURATION OF SYSTEM UNDER TEST	17
4.	TEST TYPES AND RESULTS (802.11b & g, 2400 ~ 2483.5MHz Band)	18
4.1	CONDUCTED EMISSION MEASUREMENT	18
4.1.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT	18
4.1.2	TEST INSTRUMENTS	18
4.1.3	TEST PROCEDURES	19
4.1.4	DEVIATION FROM TEST STANDARD	19
4.1.5	TEST SETUP	20
4.1.6	EUT OPERATING CONDITIONS	20
4.1.7	TEST RESULTS	21
4.2	RADIATED EMISSION MEASUREMENT	23
4.2.1	LIMITS OF RADIATED EMISSION MEASUREMENT	23
4.2.2	TEST INSTRUMENTS	24
4.2.3	TEST PROCEDURES	25
4.2.4	DEVIATION FROM TEST STANDARD	25
4.2.5	TEST SETUP	26
4.2.6	EUT OPERATING CONDITIONS	26
4.2.7	TEST RESULTS	27
4.3	6dB BANDWIDTH MEASUREMENT	56
4.3.1	LIMITS OF 6dB BANDWIDTH MEASUREMENT	56
4.3.2	TEST INSTRUMENTS	56
4.3.3	TEST PROCEDURE	57
4.3.4	DEVIATION FROM TEST STANDARD	57
4.3.5	TEST SETUP	57
4.3.6	EUT OPERATING CONDITIONS	57
4.3.7	TEST RESULTS	58
4.4	MAXIMUM PEAK OUTPUT POWER	62
4.4.1	LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT	62



A D T

4.4.2	INSTRUMENTS	62
4.4.3	TEST PROCEDURES	62
4.4.4	DEVIATION FROM TEST STANDARD	62
4.4.5	TEST SETUP	62
4.4.6	EUT OPERATING CONDITIONS	63
4.4.7	TEST RESULTS	64
4.5	POWER SPECTRAL DENSITY MEASUREMENT	66
4.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	66
4.5.2	TEST INSTRUMENTS	66
4.5.3	TEST PROCEDURE	67
4.5.4	DEVIATION FROM TEST STANDARD	67
4.5.5	TEST SETUP	67
4.5.6	EUT OPERATING CONDITION	67
4.5.7	TEST RESULTS	68
4.6	CONDUCTED OUT-BAND EMISSION MEASUREMENT	72
4.6.1	LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT	72
4.6.2	TEST INSTRUMENTS	72
4.6.3	TEST PROCEDURE	72
4.6.4	DEVIATION FROM TEST STANDARD	73
4.6.5	EUT OPERATING CONDITION	73
4.6.6	TEST RESULTS	73
5.	TEST TYPES AND RESULTS (802.11a, 5725~5850MHz Band)	82
5.1	CONDUCTED EMISSION MEASUREMENT	82
5.1.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT	82
5.1.2	TEST INSTRUMENTS	82
5.1.3	TEST PROCEDURES	83
5.1.4	DEVIATION FROM TEST STANDARD	83
5.1.5	TEST SETUP	84
5.1.6	EUT OPERATING CONDITIONS	84
5.1.7	TEST RESULTS	85
5.2	RADIATED EMISSION MEASUREMENT	87
5.2.1	LIMITS OF RADIATED EMISSION MEASUREMENT	87
5.2.2	TEST INSTRUMENTS	88
5.2.3	TEST PROCEDURES	89
5.2.4	DEVIATION FROM TEST STANDARD	89
5.2.5	TEST SETUP	90
5.2.6	EUT OPERATING CONDITIONS	90
5.2.7	TEST RESULTS	91

ABOVE 1GHz DATA	92
5.3 6dB BANDWIDTH MEASUREMENT	100
5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT	100
5.3.2 TEST INSTRUMENTS	100
5.3.3 TEST PROCEDURE	101
5.3.4 DEVIATION FROM TEST STANDARD	101
5.3.5 TEST SETUP	101
5.3.6 EUT OPERATING CONDITIONS	101
5.3.7 TEST RESULTS	102
5.4 MAXIMUM PEAK OUTPUT POWER	105
5.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT	105
5.4.2 INSTRUMENTS	105
5.4.3 TEST PROCEDURES	105
5.4.4 DEVIATION FROM TEST STANDARD	105
5.4.5 TEST SETUP	105
5.4.6 EUT OPERATING CONDITIONS	105
5.4.7 TEST RESULTS	106
5.5 POWER SPECTRAL DENSITY MEASUREMENT	107
5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	107
5.5.2 TEST INSTRUMENTS	107
5.5.3 TEST PROCEDURE	108
5.5.4 DEVIATION FROM TEST STANDARD	108
5.5.5 TEST SETUP	108
5.5.6 EUT OPERATING CONDITION	108
5.5.7 TEST RESULTS	109
5.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT	112
5.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT	112
5.6.2 TEST INSTRUMENTS	112
5.6.3 TEST PROCEDURE	113
5.6.4 DEVIATION FROM TEST STANDARD	113
5.6.5 EUT OPERATING CONDITION	113
5.6.6 TEST RESULTS	114
6. INFORMATION ON THE TESTING LABORATORIES	121
7. APPENDIX-A- MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	122



A D T

1. CERTIFICATION

PRODUCT: USB Wireless LAN Adapter
BRAND NAME: SONY
MODEL NO.: UWA-BR100
TEST SAMPLE: MASS-PRODUCTION
TESTED: Oct. 09 to 19, 2009
APPLICANT: Sony Corporation
STANDARDS: FCC Part 15, Subpart C (Section 15.247),
ANSI C63.4-2003

The above equipment (Model: UWA-BR100) 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:** Nov. 17, 2009
(Midoli Peng, Specialist)

TECHNICAL ACCEPTANCE : Hank Chung , **DATE:** Nov. 17, 2009
(Hank Chung, Deputy Manager)

APPROVED BY : May Chen , **DATE:** Nov. 17, 2009
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

For 802.11b & g, 2412~2462MHz Band

APPLIED STANDARD: FCC Part 15, Subpart C (Section 15.247)			
Standard Section	Test Type and Limit	Result	Remark
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is –11.21dB at 3.613MHz
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 –1.6dB at 2483.5MHz
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Conducted Out-Band Emission Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used.

For 802.11a, 5725~5850MHz Band

APPLIED STANDARD: FCC Part 15, Subpart C (Section 15.247)			
Standard Section	Test Type and Limit	Result	Remark
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -11.15dB at 3.613MHz
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 -6.1dB at 800.03MHz
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Conducted Out-Band Emission Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used.

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	USB Wireless LAN Adapter
MODEL NO.	UWA-BR100
FCC ID	AK8UWABR100
POWER SUPPLY	DC 5V±5% from host equipment
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11a/g: 54/48/36/24/18/12/9/6Mbps 802.11b: 11/5.5/2/1Mbps 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.
FREQUENCY RANGE	For 15.407 802.11a: 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.50 ~ 5.70GHz
	For 15.247 802.11b & 802.11g: 2412 ~ 2462MHz 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: 13.5mW 802.11n (20MHz): 21.7mW 802.11n (40MHz): 16.4mW For 15.247(2.4GHz) 802.11b: 59.9mW 802.11g: 368.2mW 802.11n (20MHz): 386.1mW 802.11n (40MHz): 413.1mW For 15.247(5GHz) 802.11a: 100.0mW 802.11n (20MHz): 200.2mW 802.11n (40MHz): 187.4mW
ANTENNA TYPE	Please see note 1
ANTENNA CONNECTOR	Please see note 1
DATA CABLE	USB Cable (Shielded, 1.5m) for USB Cradle
I/O PORTS	NA
ASSOCIATED DEVICES	USB Cradle

NOTE:

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

Chain	Manufacture	Model name	Antenna Gain		Antenna Type	Connector
			For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)		
Chain (0) Antenna (1)	Alpha	NA	1.11	Band1:4.4 Band2: 4.57 Band3: 5.52 Band4: 4.08	Printed	NA
Chain (1) Antenna (2)	Alpha	NA	0.05	Band1: 5.75 Band2: 5.32 Band3: 5.17 Band4: 5.03	Printed	NA

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

Test Mode	Description
Mode A	Without USB Cradle
Mode B	With USB Cradle

From the above modes, worse case was found in **Mode B**. Therefore only the test data of the mode was recorded in this report.

- The EUT incorporates a MIMO function with 802.11n. Physically, the EUT provides two completed transmit and two completed receivers.
- The EUT is 2 * 2 spatial MIMO (2Tx & 2Rx) without beam forming function. The antenna configurations are two transmitter antennas and two receiver antennas, as there are 2 Printed antennas. Spatial multiplexing modes for simultaneous transmission using 2 antennas, and for simultaneous receiver using 2 antennas. The 11a legacy mode is limited to single transmitter only.
- The EUT complies with 802.11n standards and backwards compatible with 802. 11a, 802.11b, 802.11g products.
- 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	
-	√	√	√	√	-

Where **PLC**: Power Line Conducted Emission

RE < 1G: Radiated Emission below 1GHz

RE ≥ 1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

ANTENNA COMBINATION MODE:

COMBINATION MODE	OPERATION MODE	TX CHAIN(0)	TX CHAIN(1)
A	802.11 a	√	
B	802.11 b	√	√
C	802.11 g	√	√
D	802.11n(20MHz) for MCS0~7, 800nsGI	√	√
E	802.11n(20MHz) for MCS8~15, 800nsG	√	√
F	802.11n(40MHz) for MCS0~7, 800nsG	√	√
G	802.11n(40MHz) for MCS8~15, 800nsG	√	√
H	802.11n(20MHz) for MCS0~7, 400nsGI	√	√
I	802.11n(20MHz) for MCS8~15, 400nsG	√	√
J	802.11n(40MHz) for MCS0~7, 400nsG	√	√
K	802.11n(40MHz) for MCS8~15, 400nsG	√	√

Note:

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

POWER LINE CONDUCTED EMISSION TEST:

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX COMBINATION
For 2.4 GHz 802.11n (40MHz)	1 to 7	4	OFDM	BPSK	13.5	G
For 5 GHz 802.11n (20MHz)	149 to 165	165	OFDM	BPSK	6.5	D

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)	TX COMBINATION
For 2.4 GHz 802.11n (40MHz)	1 to 7	4	OFDM	BPSK	13.5	G
For 5 GHz 802.11n (20MHz)	149 to 165	165	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)	TX COMBINATION
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	G
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	G

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)	TX COMBINATION
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	14, 7	OFDM	BPSK	13.5	G
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	G

※ 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)	TX COMBINATION
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	G
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	G

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

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE $\geq$ 1G	25deg. C, 60%RH, 965 hPa	120Vac, 60Hz	Rex Huang
RE<1G	23deg. C, 65%RH, 965 hPa	120Vac, 60Hz	Phoenix Huang
PLC	25deg. C, 66%RH, 965 hPa	120Vac, 60Hz	Frank Liu
APCM	25deg. C, 60%RH, 965 hPa	120Vac, 60Hz	Rex Huang

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is an USB Wireless LAN Adapter. 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

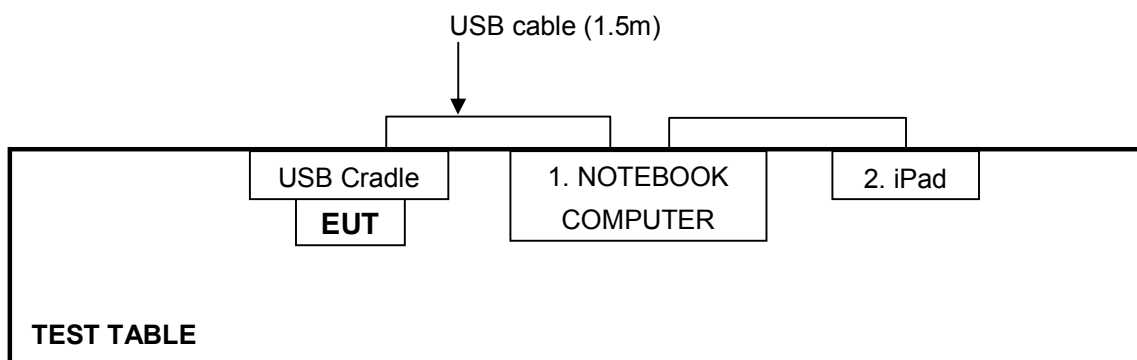
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP19L	CN-OHC416-70166-5CA-0448	PIW632500516610
2	iPod	Apple	A1137	5K7170JBUPR	FCC DoC

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	USB cable (1.5 m shielded)

NOTE: 1. All power cords of the above support units are non shielded (1.8m).
2. EUT-PC connection is through a proprietary software supplied by the applicant for test only and is not available to the end-user.

3.5 CONFIGURATION OF SYSTEM UNDER TEST



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

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver	ESCS 30	100375	Mar. 23, 2009	Mar. 22, 2010
Line-Impedance Stabilization Network (for Peripheral)	ENV-216	100071	Nov. 26, 2008	Nov. 25, 2009
Line-Impedance Stabilization Network (for EUT)	ESH3-Z5	848773/004	Nov. 05, 2008	Nov. 04, 2009
RF Cable (JYEBAO)	5DFB	COBCAB-001	Aug. 14, 2009	Aug. 13, 2010
50 ohms Terminator	50	3	Nov. 05, 2008	Nov. 04, 2009
Software	BV ADT_Cond_V7.3.7	NA	NA	NA

Note:

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

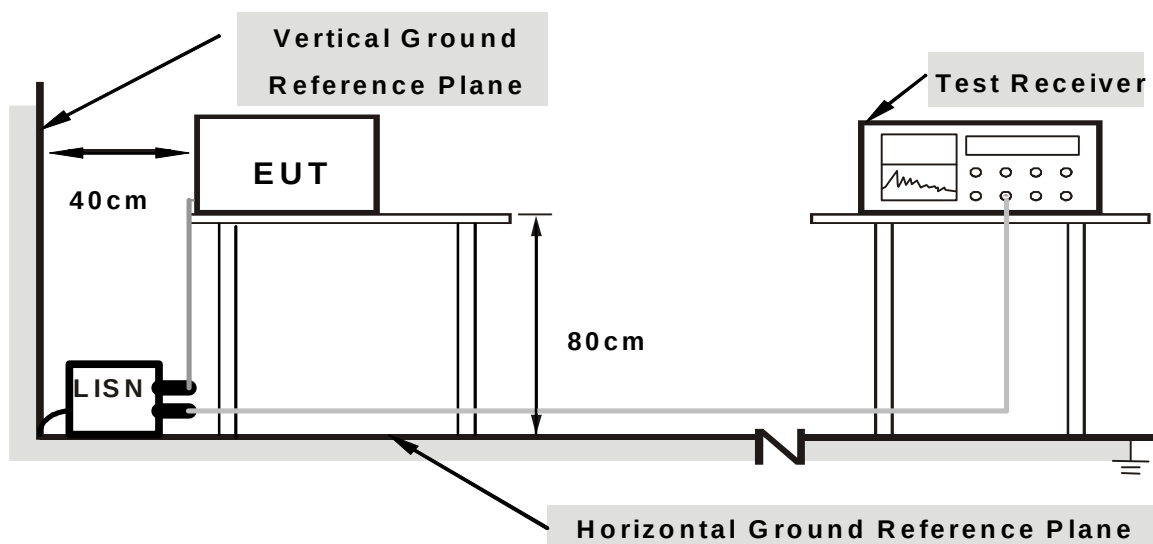
4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) 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

- Connect the EUT with the support unit 1 (Notebook Computer) which placed on a testing table.
- The communication partner run test program “ARTM B08 V119” to enable EUT under transmission/receiving condition continuously at specific channel frequency via one USB cable.

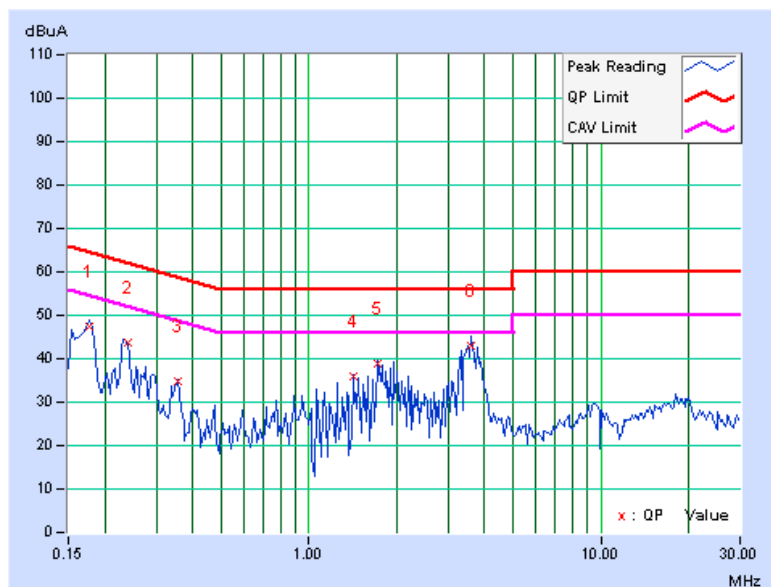
4.1.7 TEST RESULTS

802.11b DSSS MODULATION:

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

	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	0.177	0.18	47.16	-	47.34	-	64.61	54.61	-17.27	-
2	0.239	0.18	43.38	-	43.56	-	62.15	52.15	-18.59	-
3	0.357	0.19	34.52	-	34.71	-	58.80	48.80	-24.09	-
4	1.422	0.48	35.54	-	36.02	-	56.00	46.00	-19.98	-
+5	1.719	0.50	38.52	-	39.02	-	56.00	46.00	-16.98	-
6	3.613	0.60	42.54	-	43.14	-	56.00	46.00	-12.86	-

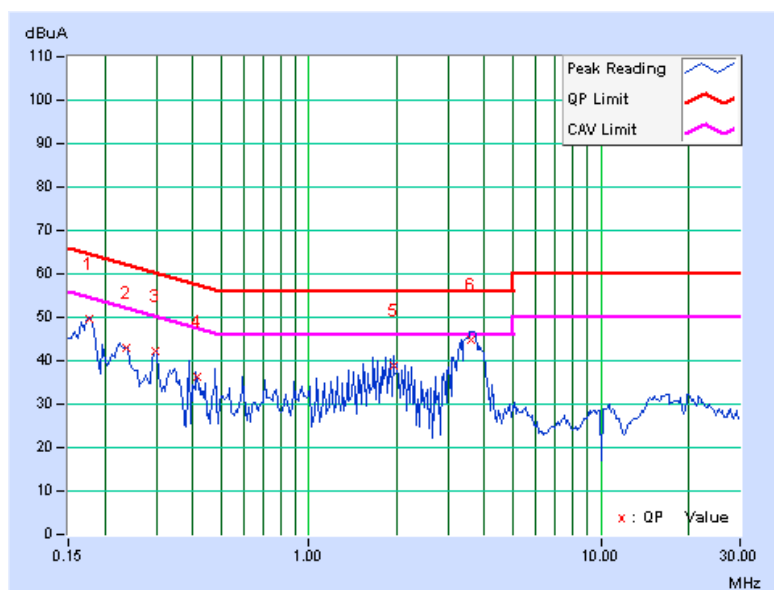
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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
-------	-------------	---------------	-------

	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	0.177	0.11	49.70	-	49.81	-	64.61	54.61	-14.80	-
2	0.236	0.11	42.78	-	42.89	-	62.22	52.22	-19.33	-
3	0.298	0.12	42.12	-	42.24	-	60.29	50.29	-18.05	-
4	0.413	0.13	36.08	-	36.21	-	57.58	47.58	-21.37	-
5	1.957	0.45	38.52	-	38.97	-	56.00	46.00	-17.03	-
+6	3.613	0.53	44.26	-	44.79	-	56.00	46.00	-11.21	-

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



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

NOTE:

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



A D T

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 9, 2008	Dec. 8, 2009
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	Apr. 24, 2009	Apr. 23, 2010
HP Pre_Amplifier	8449B	3008A01923	Nov. 10, 2008	Nov. 9, 2009
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Aug. 28, 2009	Aug. 28, 2010
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 29, 2009	Apr. 28, 2010
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 09, 2008	Dec. 08, 2009
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2009	Jan. 21, 2010
RF Switches	EMH-011	08009	Sep. 26, 2009	Sep. 25, 2010
RF CABLE (Chaintek)	Sucoflex 106	28077	Aug. 14, 2009	Aug. 13, 2010
RF Cable	8D	STCCAB-001	Sep. 26, 2009	Sep. 25, 2010
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

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

2. The horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: FSP40) are used only for the measurement of emission frequency above 1GHz if tested.

3. The test was performed in Open Site No. C.

4. The FCC Site Registration No. is 656396.

5. The VCCI Site Registration No. is R-1626.

6. The CANADA Site Registration No. is IC 7450G-3.

4.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

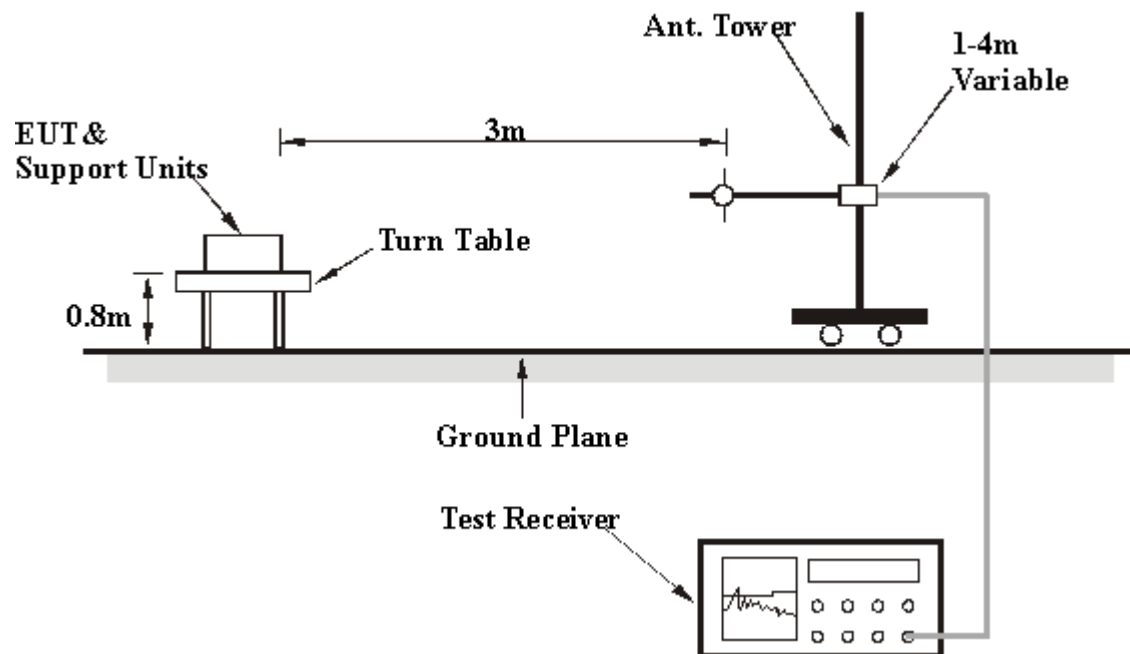
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth 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 the 4.1.6

4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA : 802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	28.0deg. C, 67.0%RH 965hPa	TESTED BY	Phoenix Huang

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	71.30	27.5 QP	40.0	-12.5	3.13 H	137	14.94	12.54
2	112.19	28.6 QP	43.5	-14.9	3.05 H	253	17.47	11.15
3	182.93	29.4 QP	43.5	-14.2	3.45 H	251	16.45	12.90
4	300.04	23.0 QP	46.0	-23.0	2.77 H	309	7.02	16.01
5	480.06	27.2 QP	46.0	-18.8	2.01 H	355	6.45	20.74
6	629.98	30.6 QP	46.0	-15.4	1.16 H	62	6.39	24.17
7	720.00	28.6 QP	46.0	-17.4	1.32 H	46	3.36	25.22
8	800.10	39.6 QP	46.0	-6.4	1.00 H	240	12.98	26.63
9	960.00	34.6 QP	46.0	-11.4	1.00 H	49	5.91	28.68
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	56.75	28.3 QP	40.0	-11.7	1.00 V	20	15.04	13.28
2	111.82	33.5 QP	43.5	-10.1	1.00 V	207	22.33	11.12
3	182.37	35.4 QP	43.5	-8.1	1.00 V	127	22.50	12.94
4	398.35	30.6 QP	46.0	-15.4	1.00 V	241	12.06	18.50
5	719.95	29.9 QP	46.0	-16.1	1.27 V	0	4.67	25.22
6	800.10	38.6 QP	46.0	-7.4	1.33 V	227	11.96	26.63
7	960.00	34.3 QP	46.0	-11.7	1.28 V	200	5.61	28.68

- 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	28deg. C, 62%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.00	54.8 PK	74.0	-19.2	1.57 H	165	24.54	30.27
2	2386.00	43.2 AV	54.0	-10.8	1.57 H	165	12.95	30.27
3	*2412.00	103.3 PK			1.57 H	155	72.96	30.36
4	*2412.00	100.5 AV			1.57 H	155	70.16	30.36
5	4824.00	46.9 PK	74.0	-27.1	1.36 H	185	10.08	36.79
6	4824.00	37.8 AV	54.0	-16.2	1.36 H	185	0.98	36.79
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.3 PK	74.0	-19.7	1.39 V	280	24.01	30.28
2	2390.00	42.2 AV	54.0	-11.8	1.39 V	280	11.90	30.28
3	*2412.00	101.6 PK			1.39 V	280	71.26	30.36
4	*2412.00	99.4 AV			1.39 V	280	69.04	30.36
5	4824.00	45.9 PK	74.0	-28.1	1.11 V	358	9.15	36.79
6	4824.00	38.7 AV	54.0	-15.3	1.11 V	358	1.88	36.79

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 62%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	103.3 PK			1.44 H	4	72.85	30.46
2	*2437.00	100.8 AV			1.44 H	4	70.34	30.46
3	4874.00	46.2 PK	74.0	-27.8	1.36 H	186	9.24	36.92
4	4874.00	36.5 AV	54.0	-17.5	1.36 H	186	-0.40	36.92
5	7311.00	50.1 PK	74.0	-23.9	1.00 H	52	7.00	43.14
6	7311.00	37.5 AV	54.0	-16.6	1.00 H	52	-5.69	43.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	101.5 PK			1.39 V	279	71.06	30.46
2	*2437.00	99.2 AV			1.39 V	279	68.74	30.46
3	4874.00	45.9 PK	74.0	-28.1	1.11 V	20	8.96	36.92
4	4874.00	38.4 AV	54.0	-15.6	1.11 V	20	1.51	36.92
5	7311.00	51.1 PK	74.0	-22.9	1.00 V	86	7.96	43.14
6	7311.00	37.4 AV	54.0	-16.6	1.00 V	86	-5.72	43.14

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



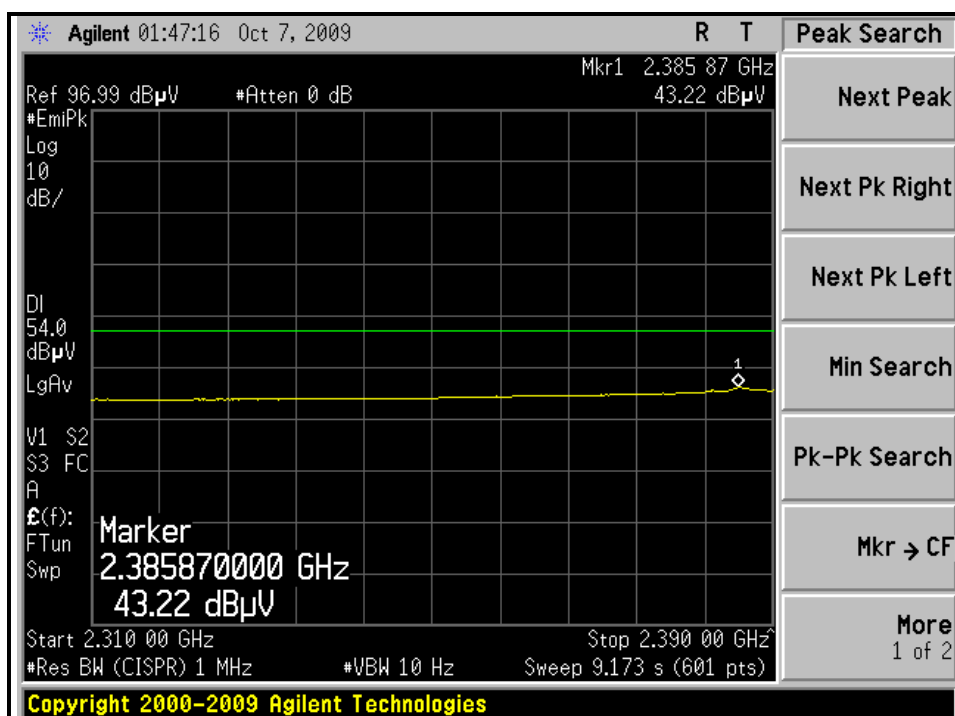
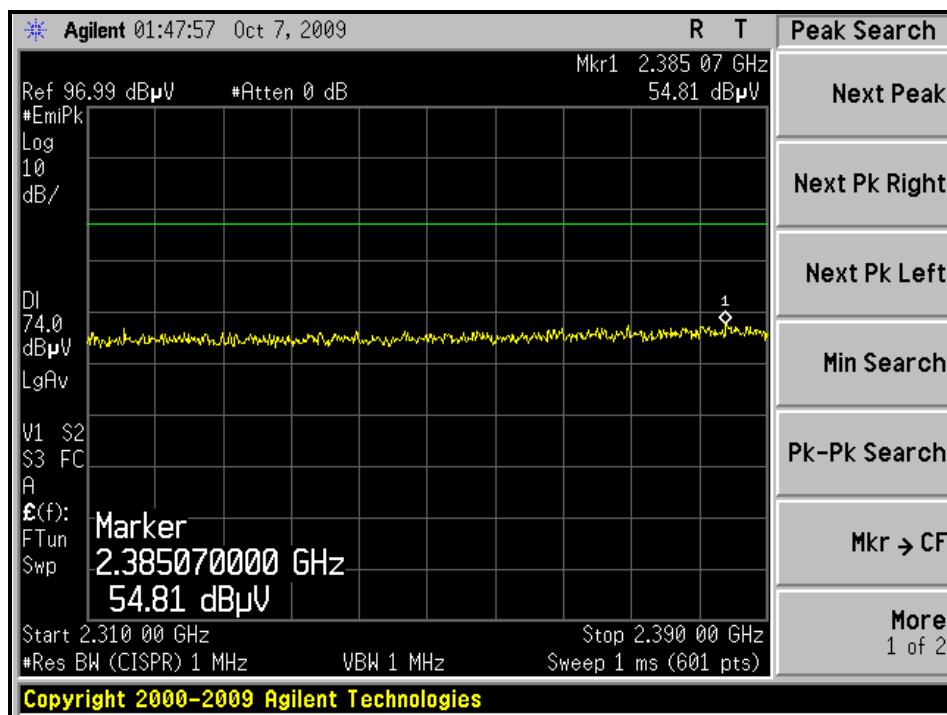
A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 62%RH 1012 hPa	TESTED BY	Rex Huang

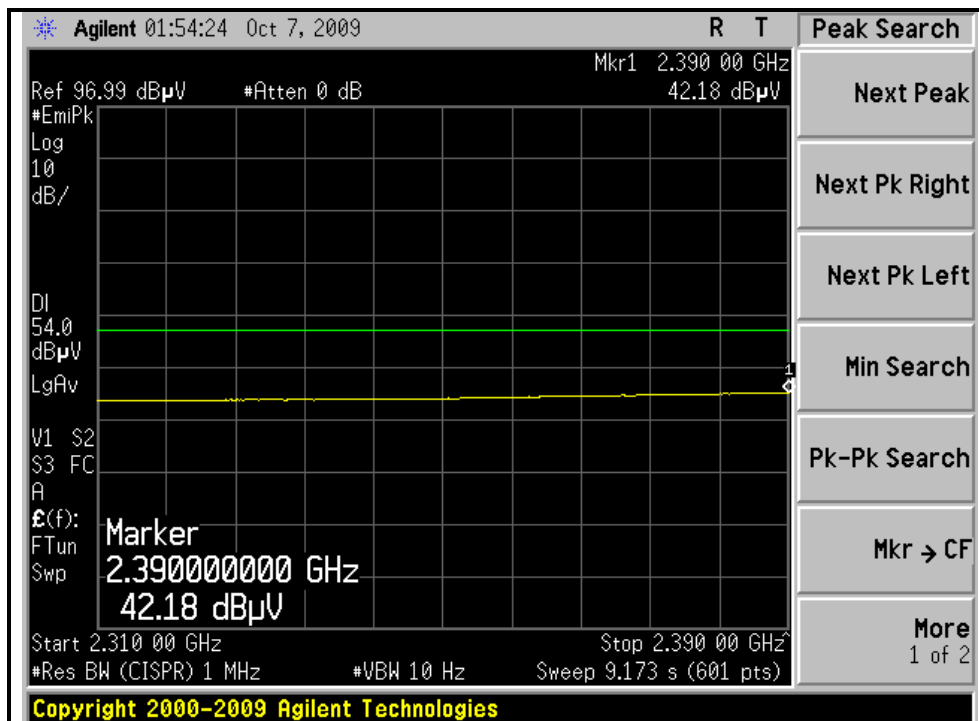
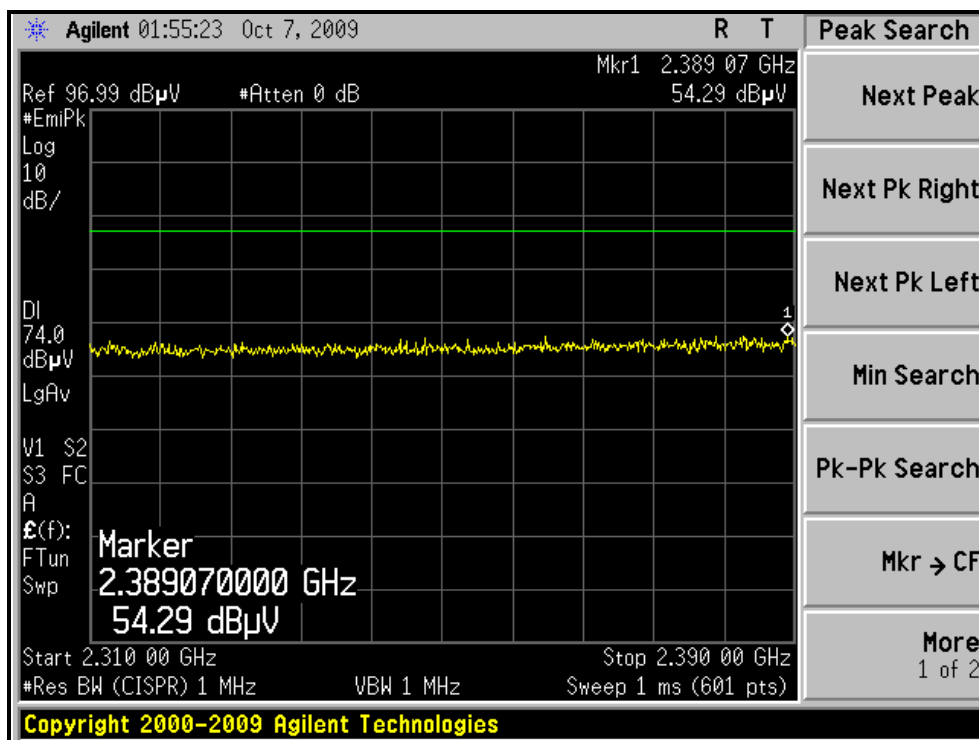
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	101.3 PK			1.47 H	13	70.77	30.55
2	*2462.00	98.9 AV			1.47 H	13	68.30	30.55
3	2483.50	54.7 PK	74.0	-19.3	1.47 H	13	24.04	30.63
4	2483.50	41.8 AV	54.0	-12.2	1.47 H	13	11.19	30.63
5	4924.00	46.5 PK	74.0	-27.5	1.36 H	186	9.41	37.06
6	4924.00	37.2 AV	54.0	-16.8	1.36 H	186	0.10	37.06
7	7386.00	50.8 PK	74.0	-23.2	1.00 H	64	7.65	43.13
8	7386.00	38.3 AV	54.0	-15.7	1.00 H	64	-4.87	43.13
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	100.9 PK			1.39 V	281	70.37	30.55
2	*2462.00	98.4 AV			1.39 V	281	67.82	30.55
3	2483.50	54.2 PK	74.0	-19.8	1.39 V	281	23.57	30.63
4	2483.50	41.8 AV	54.0	-12.2	1.39 V	281	11.17	30.63
5	4924.00	46.9 PK	74.0	-27.1	1.11 V	324	9.82	37.06
6	4924.00	40.0 AV	54.0	-14.0	1.11 V	324	2.96	37.06
7	7386.00	50.6 PK	74.0	-23.4	1.00 V	97	7.49	43.13
8	7386.00	38.1 AV	54.0	-15.9	1.00 V	97	-5.07	43.13

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

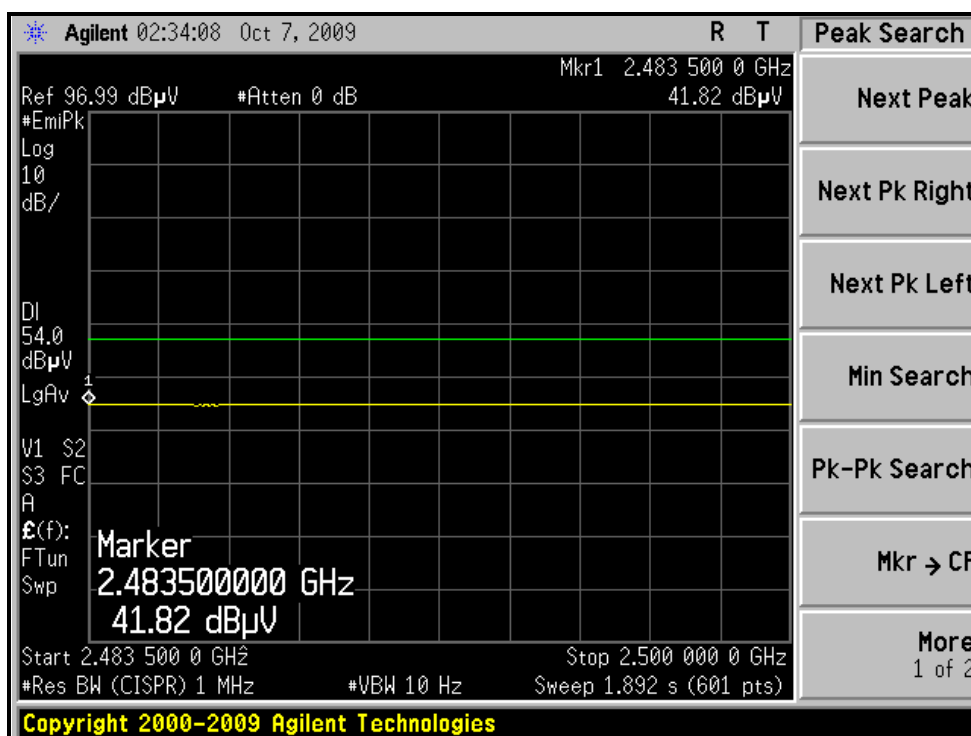
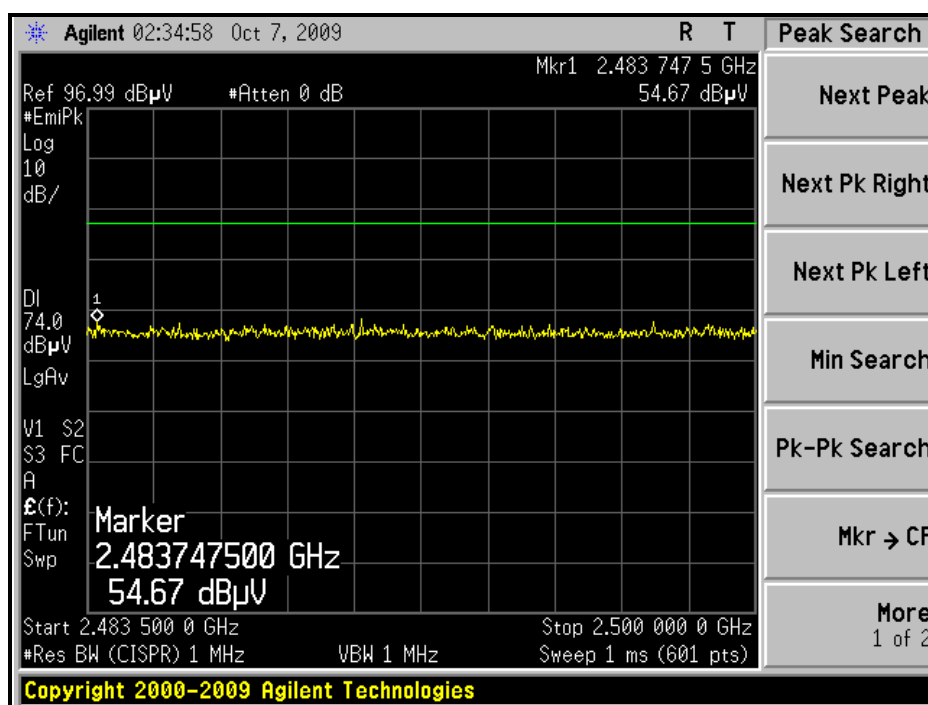
RESTRICTED BANDEDGE (802.11b MODE,CH1, HORIZONTAL)



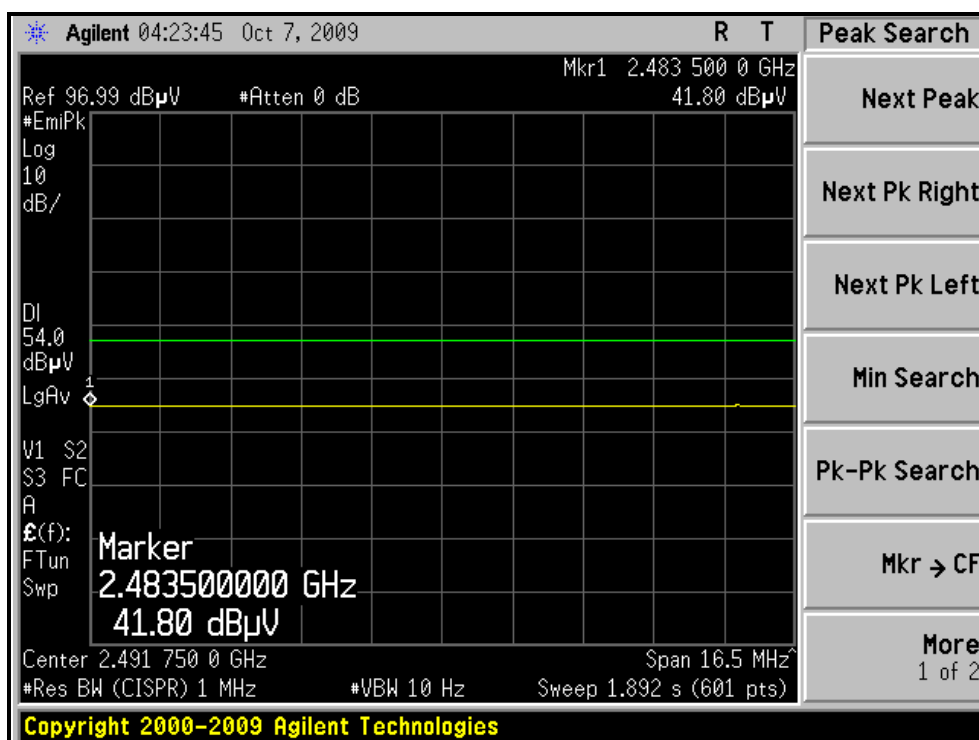
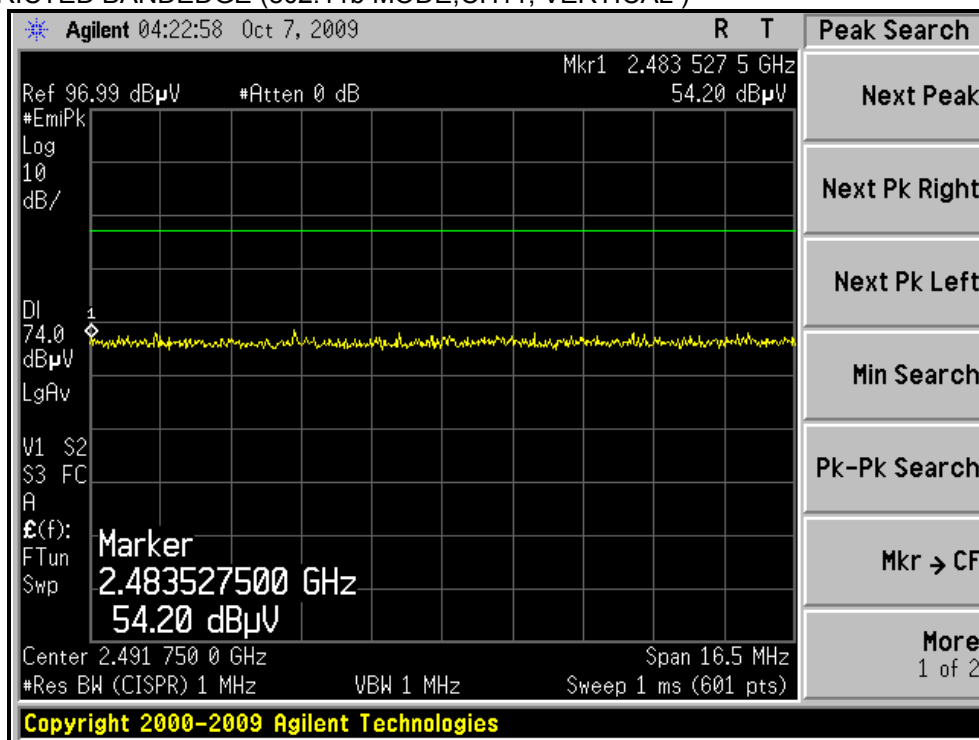
RESTRICTED BANDEDGE (802.11b MODE,CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL)



RESTRICTED BANDEDGE (802.11b MODE,CH11, VERTICAL)





A D T

802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 62%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.0 PK	74.0	-6.0	1.57 H	349	37.75	30.28
2	2390.00	50.2 AV	54.0	-3.8	1.57 H	349	19.93	30.28
3	*2412.00	106.1 PK			1.57 H	156	75.69	30.36
4	*2412.00	95.9 AV			1.57 H	156	65.51	30.36
5	4824.00	45.2 PK	74.0	-28.9	1.38 H	186	8.36	36.79
6	4824.00	32.6 AV	54.0	-21.4	1.38 H	186	-4.20	36.79
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.3 PK	74.0	-9.7	1.38 V	259	33.98	30.28
2	2390.00	47.7 AV	54.0	-6.3	1.38 V	259	17.38	30.28
3	*2412.00	105.2 PK			1.39 V	279	74.88	30.36
4	*2412.00	95.2 AV			1.39 V	279	64.85	30.36
5	4824.00	44.6 PK	74.0	-29.4	1.12 V	359	7.84	36.79
6	4824.00	32.4 AV	54.0	-21.6	1.12 V	359	-4.37	36.79

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 62%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.0 PK			1.44 H	3	75.55	30.46
2	*2437.00	95.7 AV			1.44 H	3	65.26	30.46
3	4874.00	44.4 PK	74.0	-29.6	1.36 H	188	7.49	36.92
4	4874.00	31.9 AV	54.0	-22.1	1.36 H	188	-5.02	36.92
5	7311.00	50.2 PK	74.0	-23.9	1.00 H	28	7.01	43.14
6	7311.00	37.5 AV	54.0	-16.5	1.00 H	28	-5.62	43.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	105.2 PK			1.39 V	280	74.77	30.46
2	*2437.00	94.6 AV			1.39 V	280	64.17	30.46
3	4874.00	44.4 PK	74.0	-29.6	1.09 V	21	7.44	36.92
4	4874.00	31.8 AV	54.0	-22.2	1.09 V	21	-5.09	36.92
5	7311.00	50.1 PK	74.0	-23.9	1.00 V	89	6.92	43.14
6	7311.00	37.3 AV	54.0	-16.7	1.00 V	89	-5.88	43.14

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



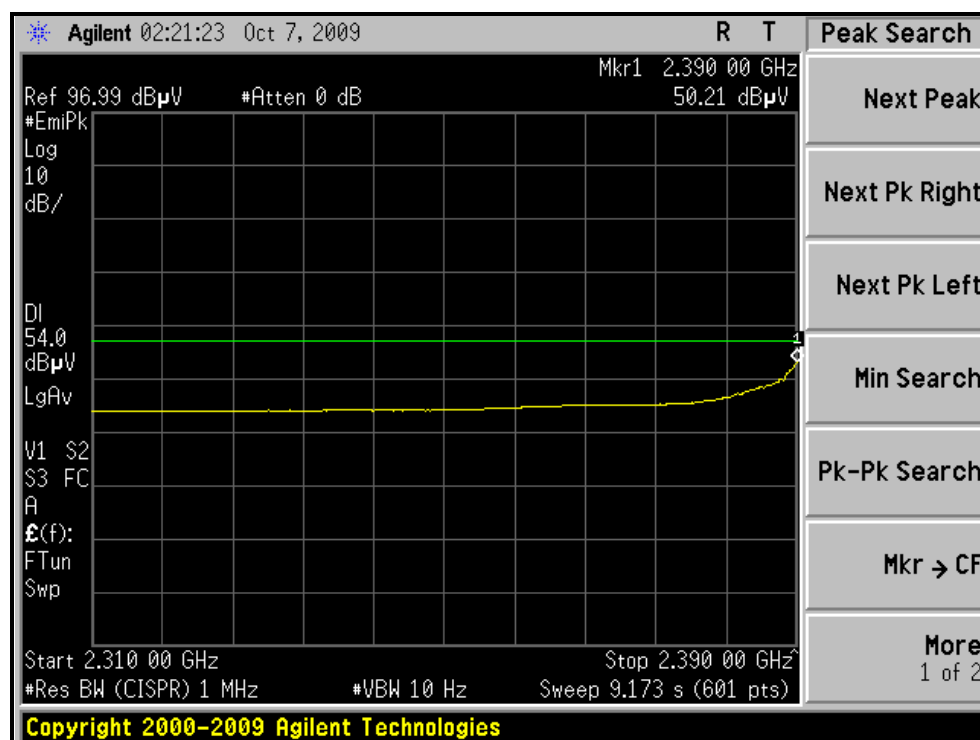
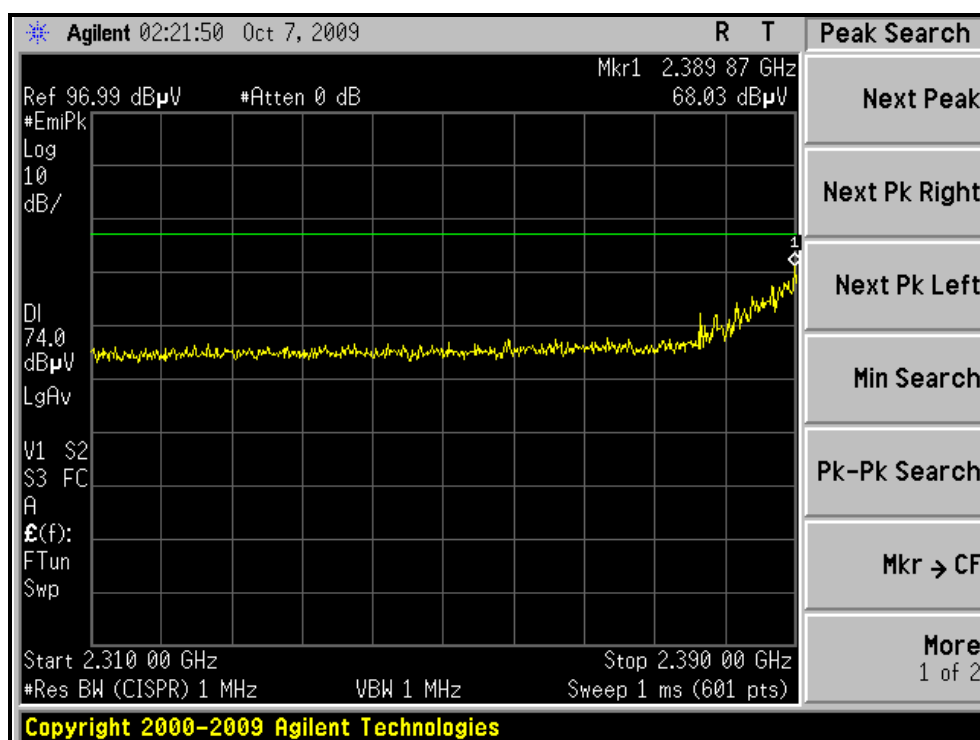
A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 62%RH 1012 hPa	TESTED BY	Rex Huang

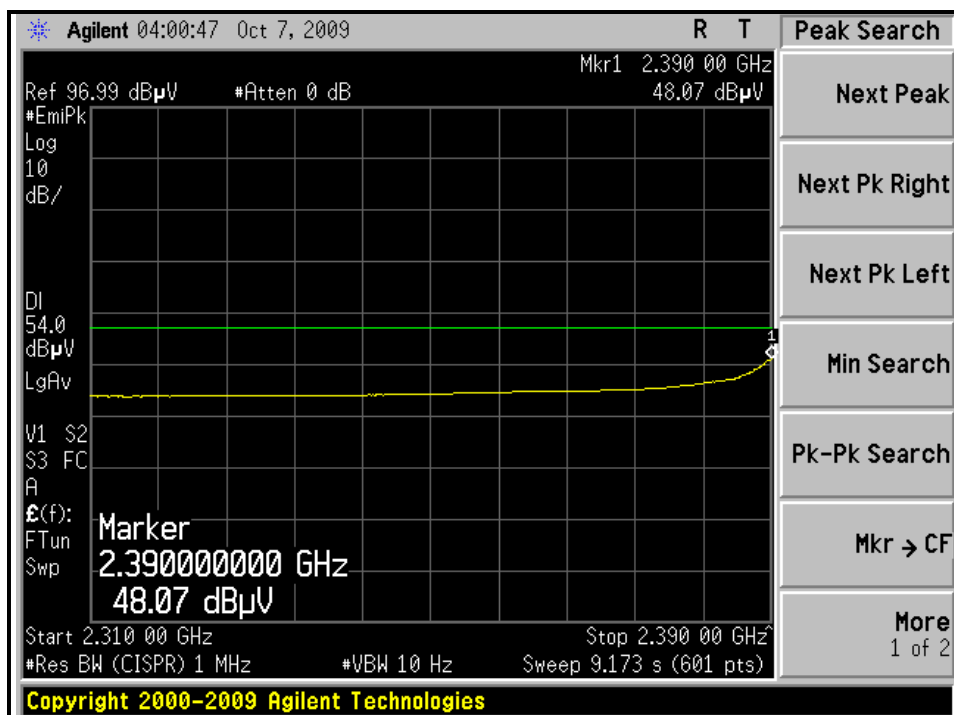
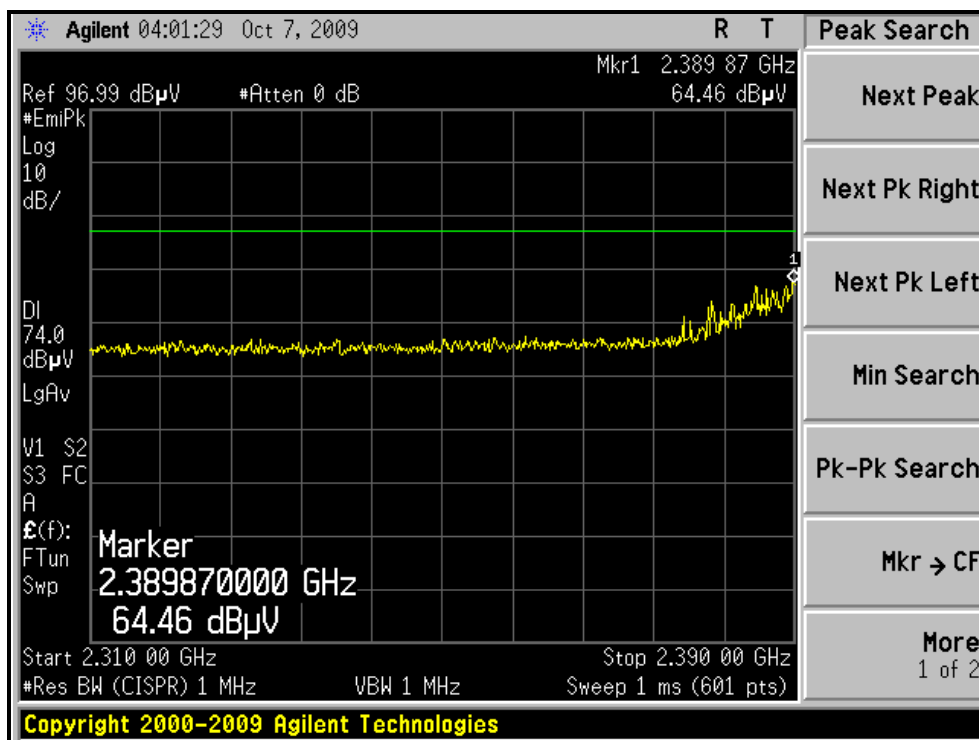
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.2 PK			1.46 H	13	75.66	30.55
2	*2462.00	94.5 AV			1.46 H	13	63.94	30.55
3	2483.50	62.1 PK	74.0	-12.0	1.46 H	13	31.42	30.63
4	2483.50	45.0 AV	54.0	-9.0	1.46 H	13	14.39	30.63
5	4924.00	44.5 PK	74.0	-29.5	1.34 H	187	7.40	37.06
6	4924.00	32.3 AV	54.0	-21.7	1.34 H	187	-4.79	37.06
7	7386.00	50.7 PK	74.0	-23.3	1.00 H	46	7.61	43.13
8	7386.00	38.2 AV	54.0	-15.8	1.00 H	46	-4.91	43.13
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.0 PK			1.38 V	279	73.45	30.55
2	*2462.00	94.2 AV			1.38 V	279	63.64	30.55
3	2483.50	63.0 PK	74.0	-11.0	1.39 V	246	32.39	30.63
4	2483.50	46.0 AV	54.0	-8.0	1.39 V	246	15.41	30.63
5	4924.00	44.9 PK	74.0	-29.1	1.10 V	334	7.85	37.06
6	4924.00	32.3 AV	54.0	-21.7	1.10 V	334	-4.73	37.06
7	7386.00	50.5 PK	74.0	-23.5	1.00 V	63	7.34	43.13
8	7386.00	38.1 AV	54.0	-15.9	1.00 V	63	-5.01	43.13

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

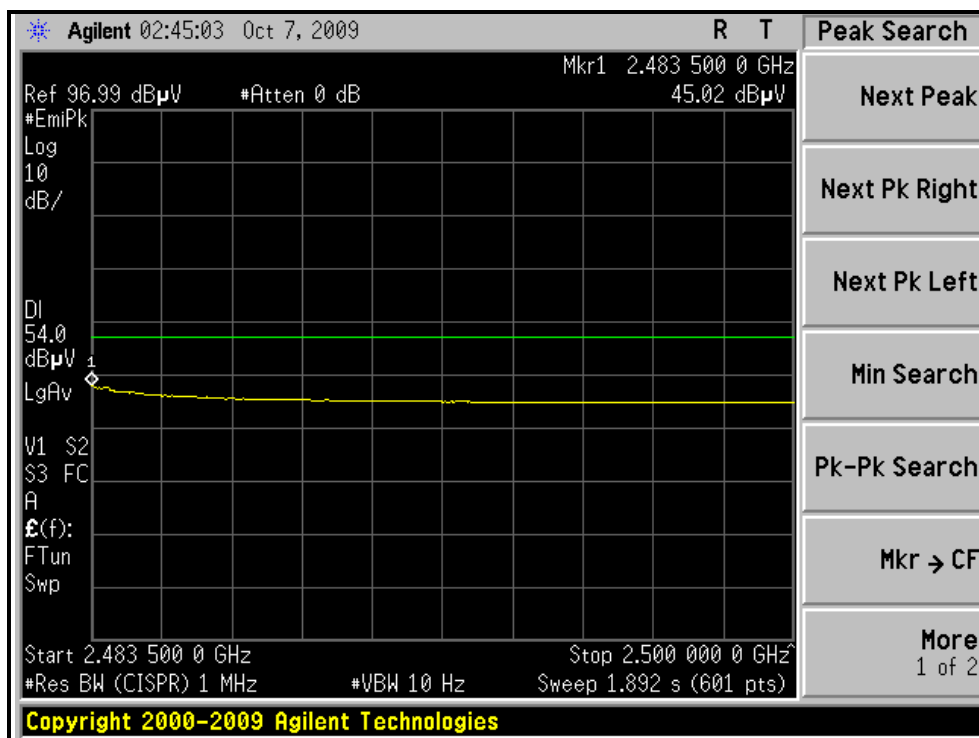
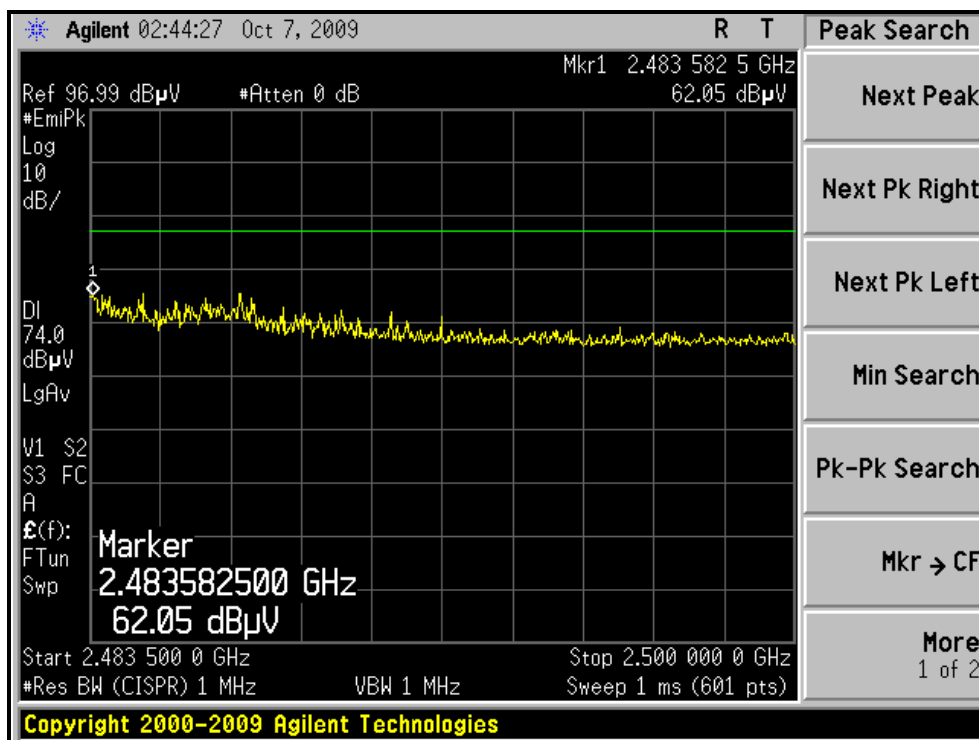
RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL)



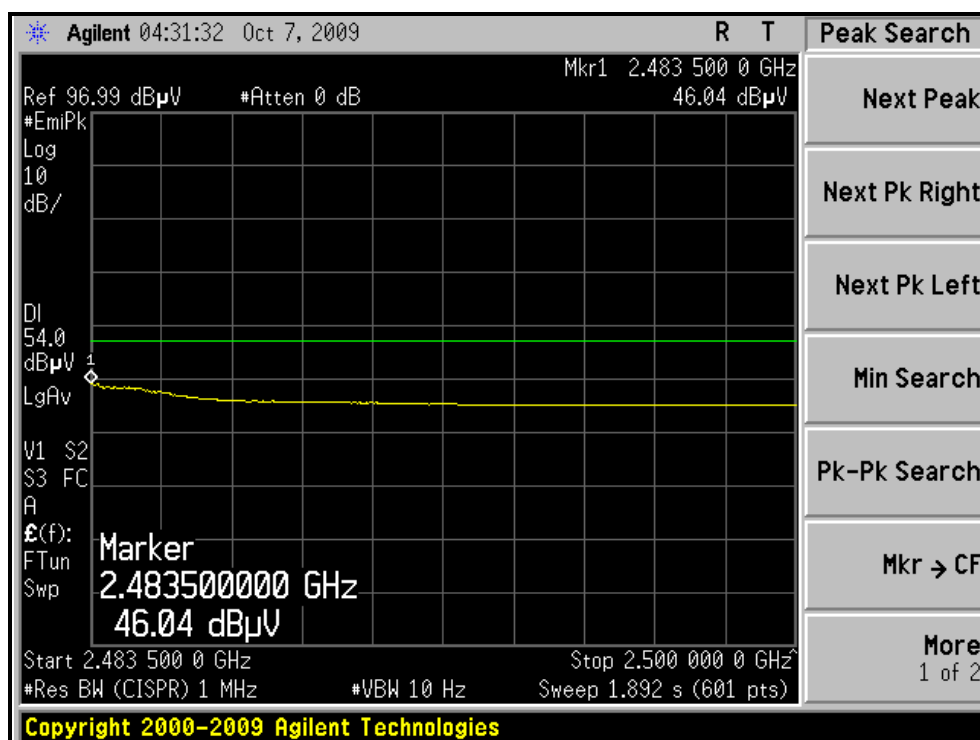
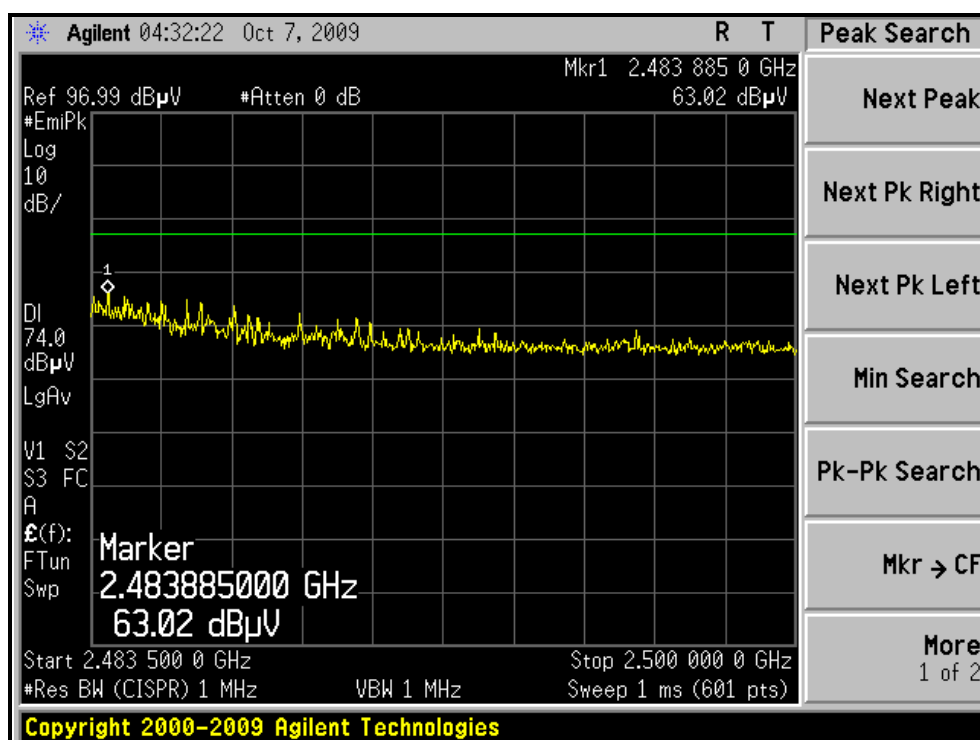
RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11g MODE,CH11, HORIZONTAL)



RESTRICTED BANDEDGE (802.11g MODE,CH11, VERTICAL)



DRAFT 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	28deg. C, 62%RH 1012 hPa	TESTED BY	Rex Huang

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	2389.87	71.4 PK	74.0	-2.6	1.57 H	346	41.15	30.28
2	2389.87	52.0 AV	54.0	-2.0	1.57 H	346	21.73	30.28
3	*2412.00	106.6 PK			1.57 H	157	76.26	30.36
4	*2412.00	94.8 AV			1.57 H	157	64.47	30.36
5	4824.00	44.2 PK	74.0	-29.8	1.37 H	185	7.41	36.79
6	4824.00	32.4 AV	54.0	-21.6	1.37 H	185	-4.41	36.79
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.5 PK	74.0	-9.5	1.39 V	260	34.18	30.28
2	2390.00	48.1 AV	54.0	-5.9	1.39 V	260	17.79	30.28
3	*2412.00	104.8 PK			1.39 V	281	74.44	30.36
4	*2412.00	94.3 AV			1.39 V	281	63.90	30.36
5	4824.00	44.0 PK	74.0	-30.0	1.11 V	356	7.17	36.79
6	4824.00	32.1 AV	54.0	-21.9	1.11 V	356	-4.65	36.79

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 62%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	107.3 PK			1.44 H	3	76.87	30.46
2	*2437.00	95.5 AV			1.44 H	3	65.08	30.46
3	4874.00	44.3 PK	74.0	-29.8	1.39 H	184	7.33	36.92
4	4874.00	31.9 AV	54.0	-22.1	1.39 H	184	-5.06	36.92
5	7311.00	50.4 PK	74.0	-23.6	1.00 H	73	7.26	43.14
6	7311.00	37.6 AV	54.0	-16.4	1.00 H	73	-5.53	43.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	104.6 PK			1.39 V	280	74.12	30.46
2	*2437.00	94.3 AV			1.39 V	280	63.79	30.46
3	4874.00	44.6 PK	74.0	-29.4	1.08 V	24	7.72	36.92
4	4874.00	32.0 AV	54.0	-22.0	1.08 V	24	-4.90	36.92
5	7311.00	50.5 PK	74.0	-23.5	1.00 V	73	7.32	43.14
6	7311.00	37.3 AV	54.0	-16.7	1.00 V	73	-5.87	43.14

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



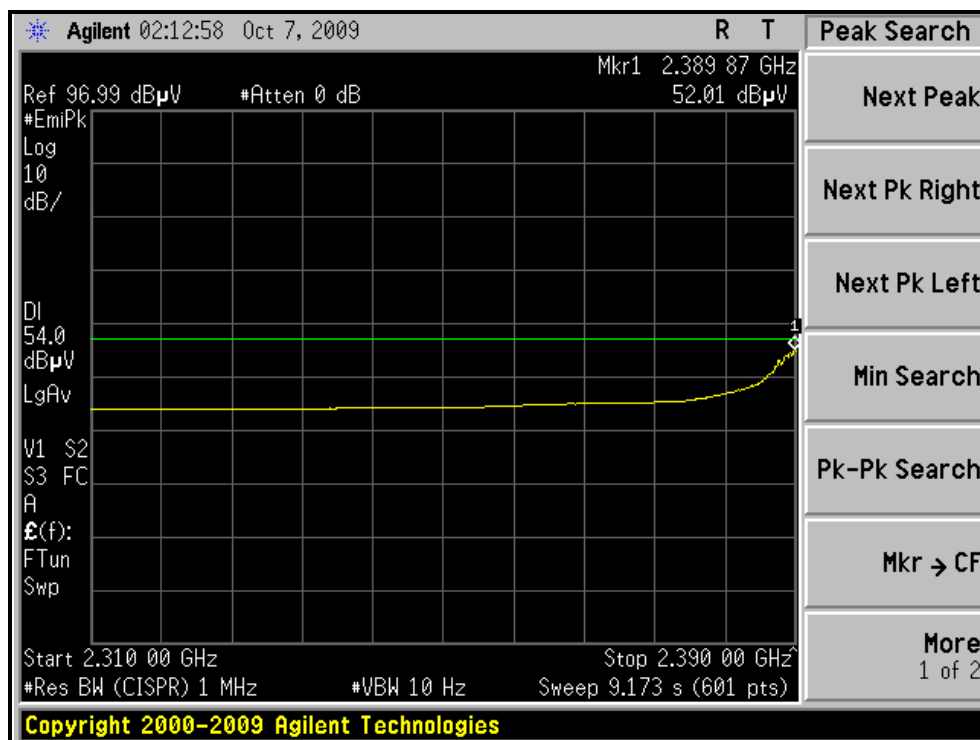
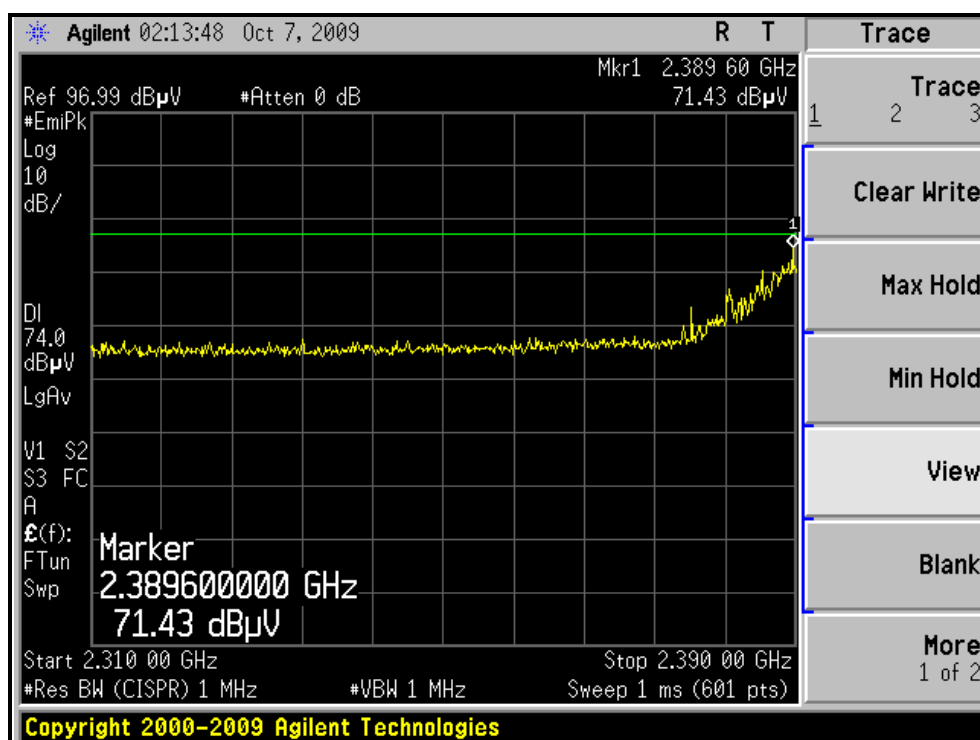
A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 62%RH 1012 hPa	TESTED BY	Rex Huang

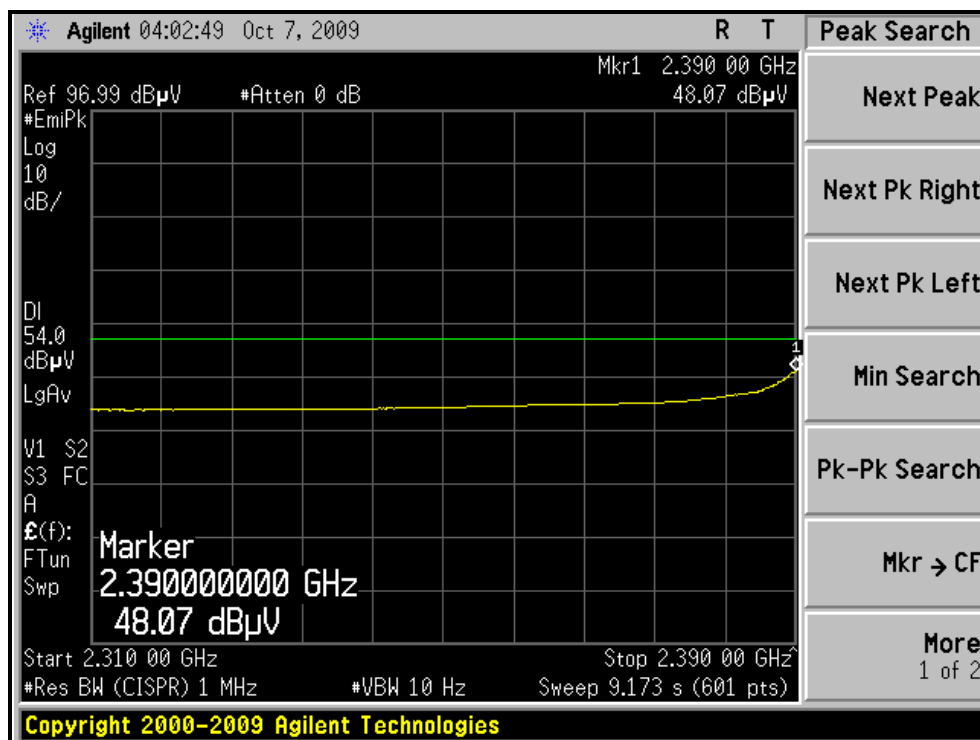
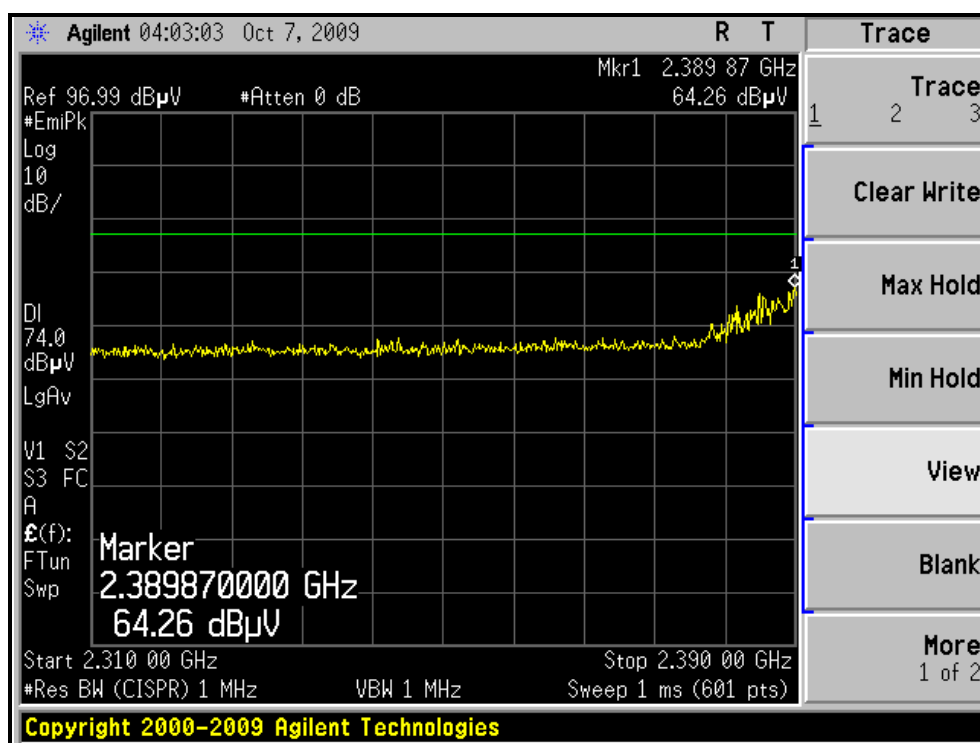
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.0 PK			1.46 H	14	74.40	30.55
2	*2462.00	93.7 AV			1.46 H	14	63.16	30.55
3	2483.50	62.6 PK	74.0	-11.4	1.46 H	13	31.96	30.63
4	2483.50	45.9 AV	54.0	-8.1	1.46 H	13	15.24	30.63
5	4924.00	44.7 PK	74.0	-29.3	1.37 H	183	7.63	37.06
6	4924.00	32.3 AV	54.0	-21.7	1.37 H	183	-4.75	37.06
7	7386.00	50.5 PK	74.0	-23.5	1.00 H	75	7.41	43.13
8	7386.00	38.0 AV	54.0	-16.0	1.00 H	75	-5.09	43.13
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.5 PK			1.38 V	280	73.95	30.55
2	*2462.00	94.1 AV			1.38 V	280	63.55	30.55
3	2483.50	65.5 PK	74.0	-8.5	1.39 V	245	34.89	30.63
4	2483.50	47.0 AV	54.0	-7.0	1.39 V	245	16.34	30.63
5	4924.00	45.1 PK	74.0	-29.0	1.12 V	323	7.99	37.06
6	4924.00	32.5 AV	54.0	-21.5	1.12 V	323	-4.60	37.06
7	7386.00	50.1 PK	74.0	-23.9	1.00 V	85	7.00	43.13
8	7386.00	37.9 AV	54.0	-16.1	1.00 V	85	-5.22	43.13

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

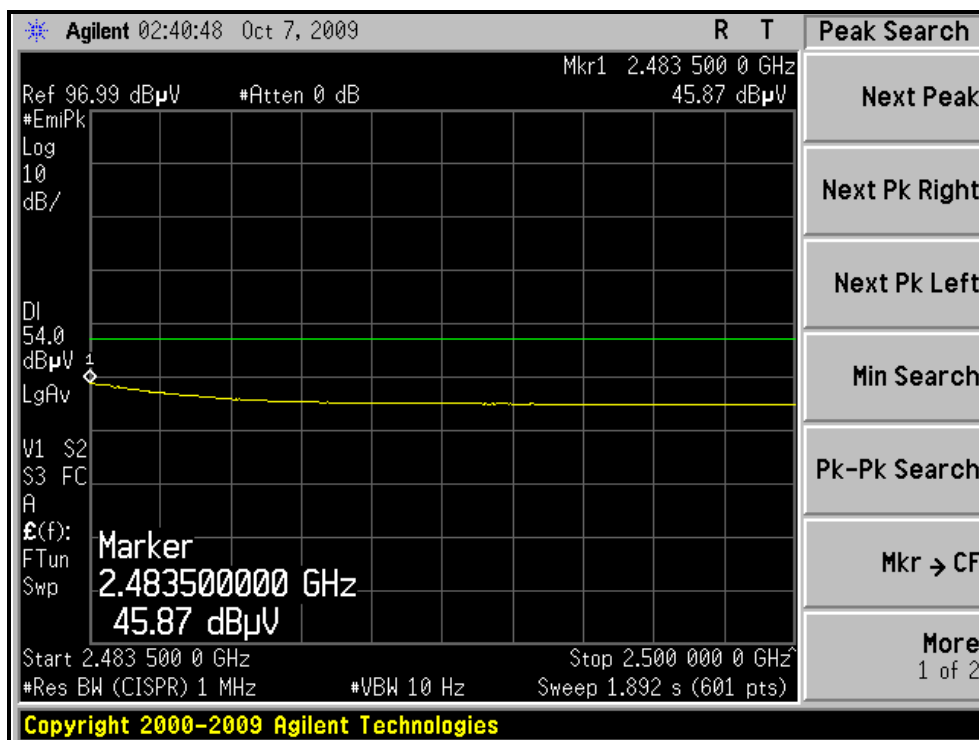
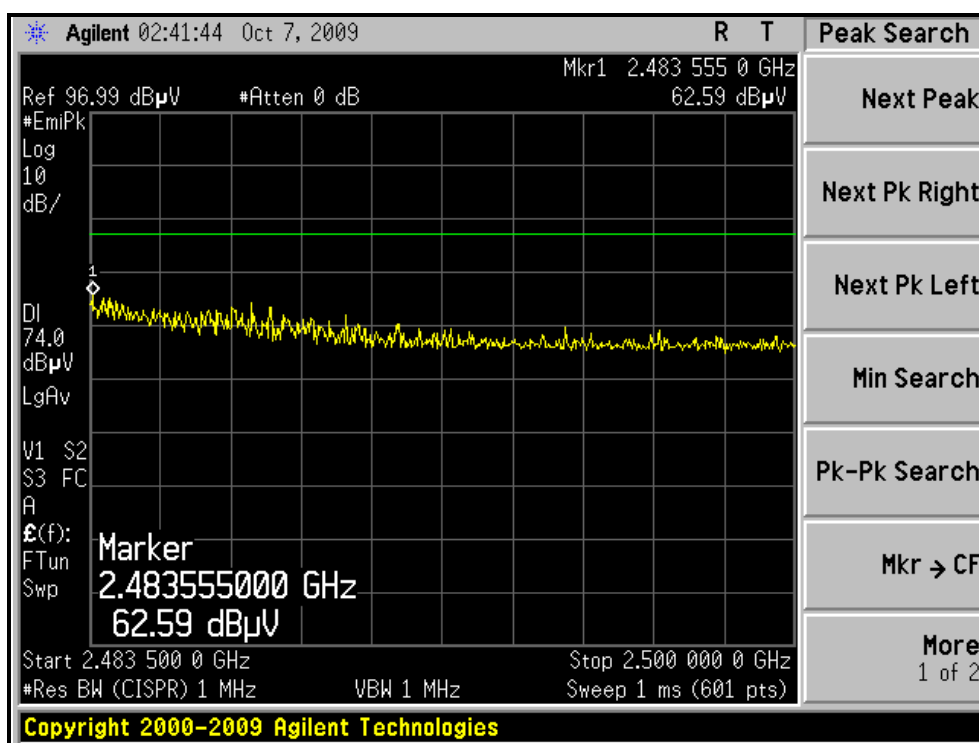
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, HORIZONTAL)



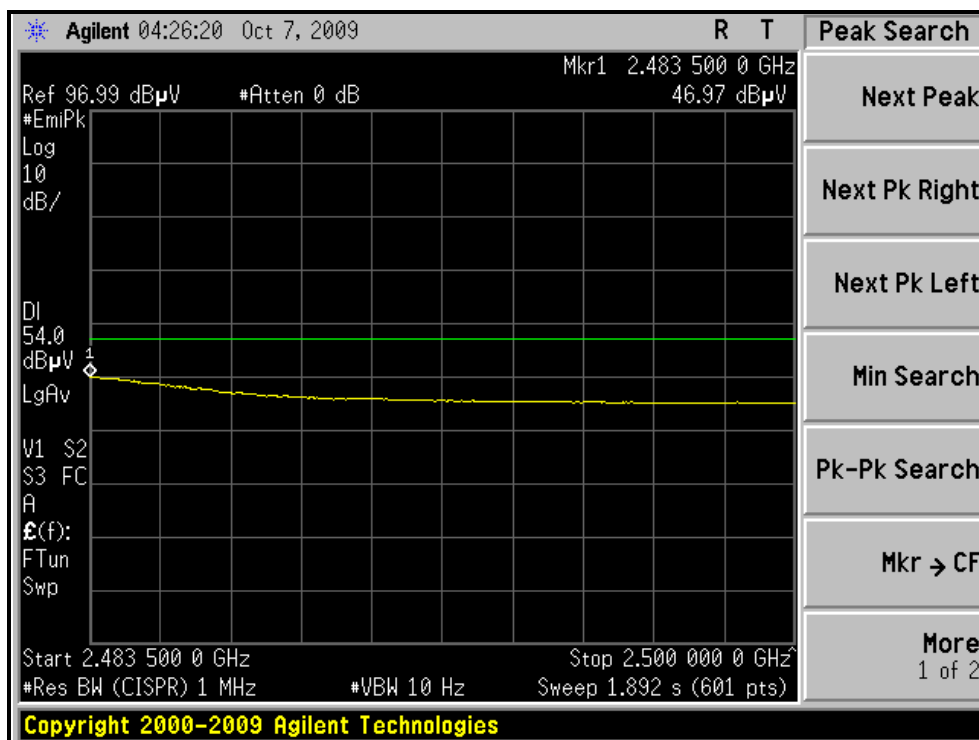
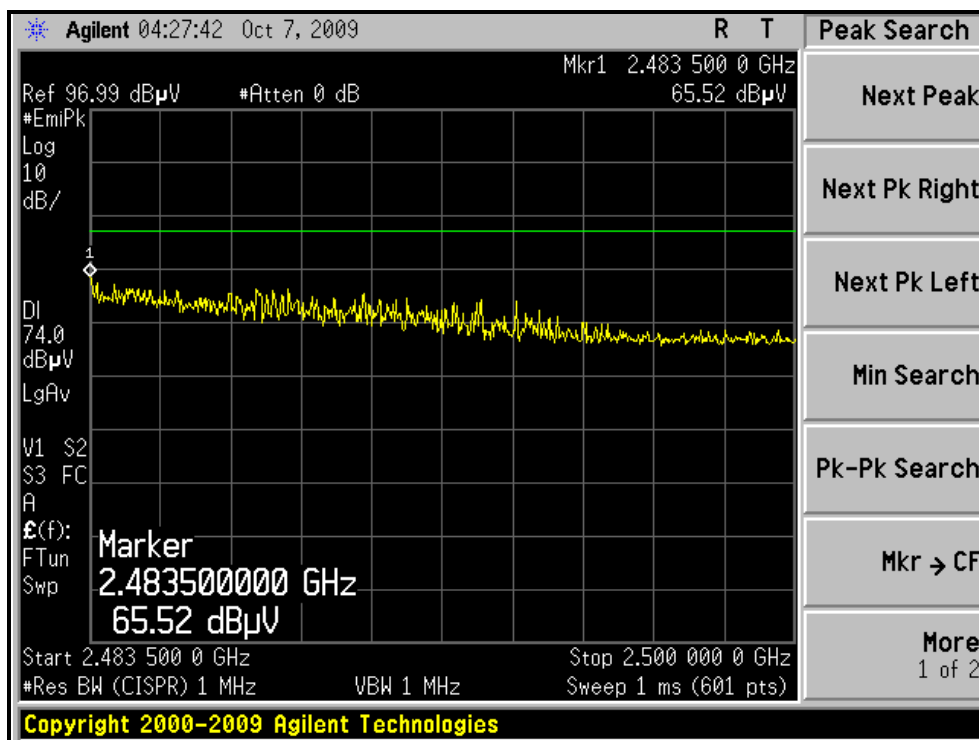
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, VERTICAL)



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



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



DRAFT 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	28deg. C, 62%RH 1012 hPa	TESTED BY	Rex Huang

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	68.4 PK	74.0	-5.6	1.57 H	349	38.12	30.28
2	2389.73	52.2 AV	54.0	-1.8	1.57 H	349	21.92	30.28
3	*2422.00	100.1 PK			1.57 H	348	69.74	30.40
4	*2422.00	88.9 AV			1.57 H	348	58.46	30.40
5	4844.00	45.2 PK	74.0	-28.8	1.36 H	186	8.38	36.84
6	4844.00	32.2 AV	54.0	-21.8	1.36 H	186	-4.65	36.84
7	7266.00	50.6 PK	74.0	-23.4	1.00 H	49	7.47	43.14
8	7266.00	37.6 AV	54.0	-16.4	1.00 H	49	-5.57	43.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2389.60	66.9 PK	74.0	-7.1	1.39 V	260	36.64	30.28
2	2389.60	50.3 AV	54.0	-3.7	1.39 V	260	20.00	30.28
3	*2422.00	99.8 PK			1.39 V	280	69.40	30.40
4	*2422.00	88.8 AV			1.39 V	280	58.38	30.40
5	4844.00	45.0 PK	74.0	-29.0	1.10 V	354	8.13	36.84
6	4844.00	32.3 AV	54.0	-21.7	1.10 V	354	-4.58	36.84
7	7266.00	50.4 PK	74.0	-23.6	1.00 V	64	7.30	43.14
8	7266.00	37.3 AV	54.0	-16.7	1.00 V	64	-5.86	43.14

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 62%RH 1012 hPa	TESTED BY	Rex Huang

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	101.1 PK			1.44 H	3	70.61	30.46
2	*2437.00	89.1 AV			1.44 H	3	58.67	30.46
3	4874.00	43.9 PK	74.0	-30.1	1.37 H	185	7.01	36.92
4	4874.00	31.5 AV	54.0	-22.5	1.37 H	185	-5.43	36.92
5	7311.00	50.2 PK	74.0	-23.8	1.00 H	39	7.08	43.14
6	7311.00	37.6 AV	54.0	-16.4	1.00 H	39	-5.53	43.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	99.8 PK			1.38 V	279	69.29	30.46
2	*2437.00	88.5 AV			1.38 V	279	57.99	30.46
3	4874.00	44.1 PK	74.0	-29.9	1.12 V	22	7.20	36.92
4	4874.00	31.6 AV	54.0	-22.4	1.12 V	22	-5.31	36.92
5	7311.00	49.9 PK	74.0	-24.1	1.00 V	65	6.75	43.14
6	7311.00	37.3 AV	54.0	-16.7	1.00 V	65	-5.83	43.14

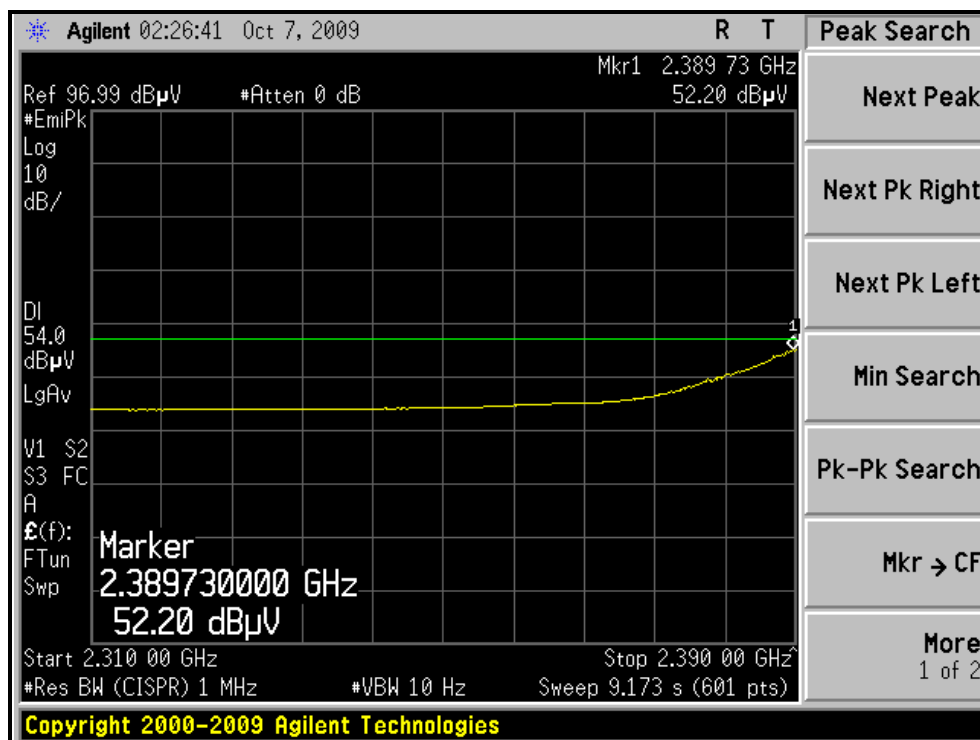
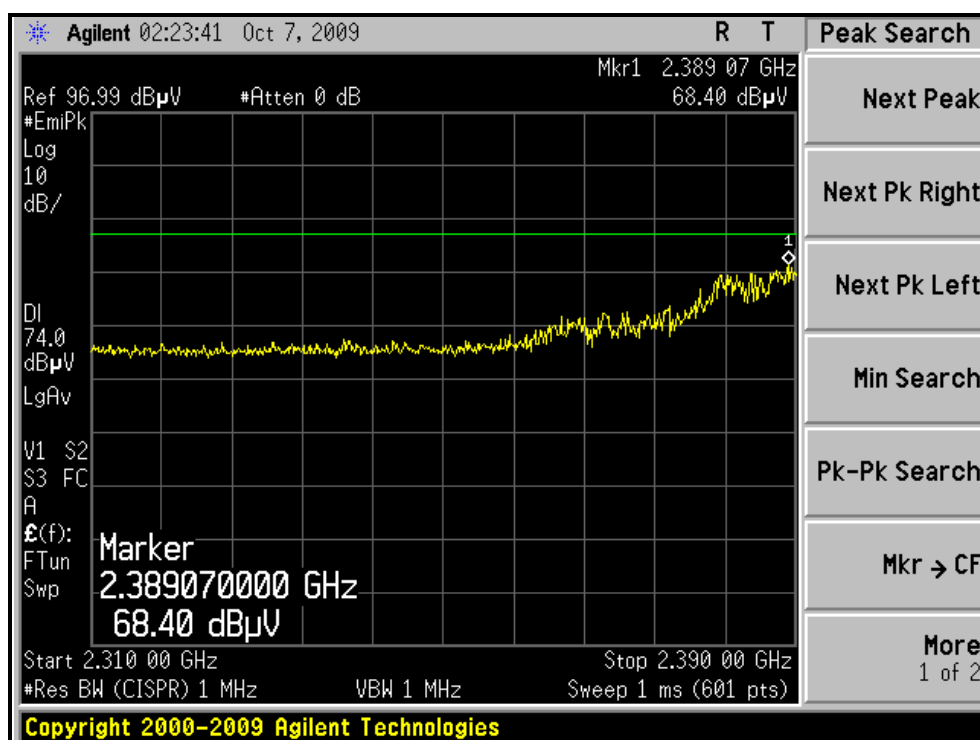
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 62%RH 1012 hPa	TESTED BY	Rex Huang

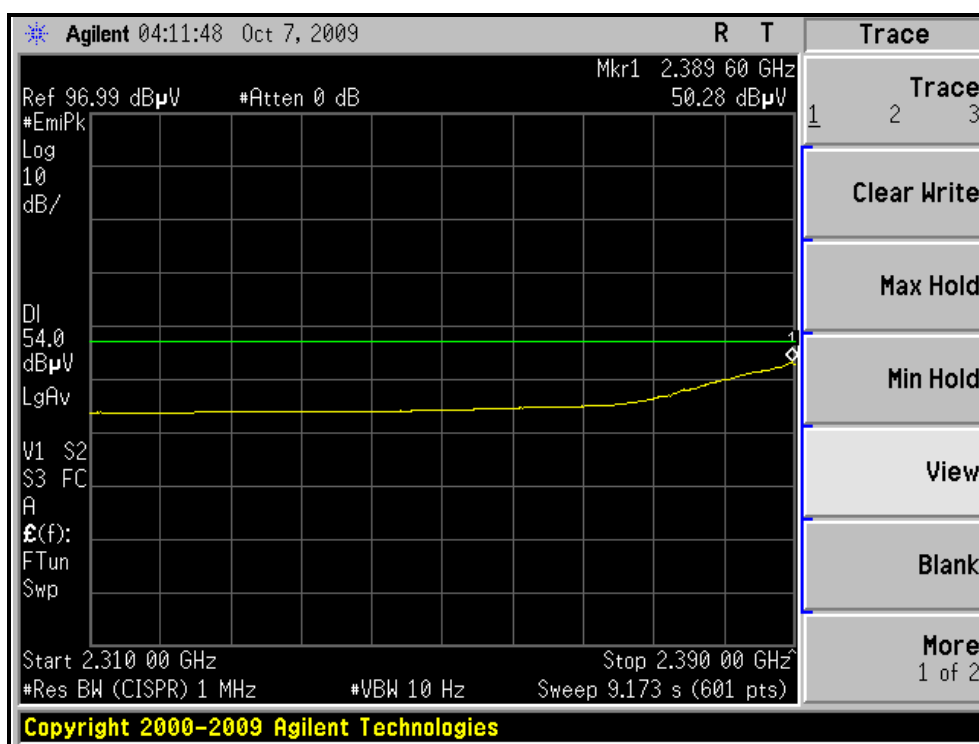
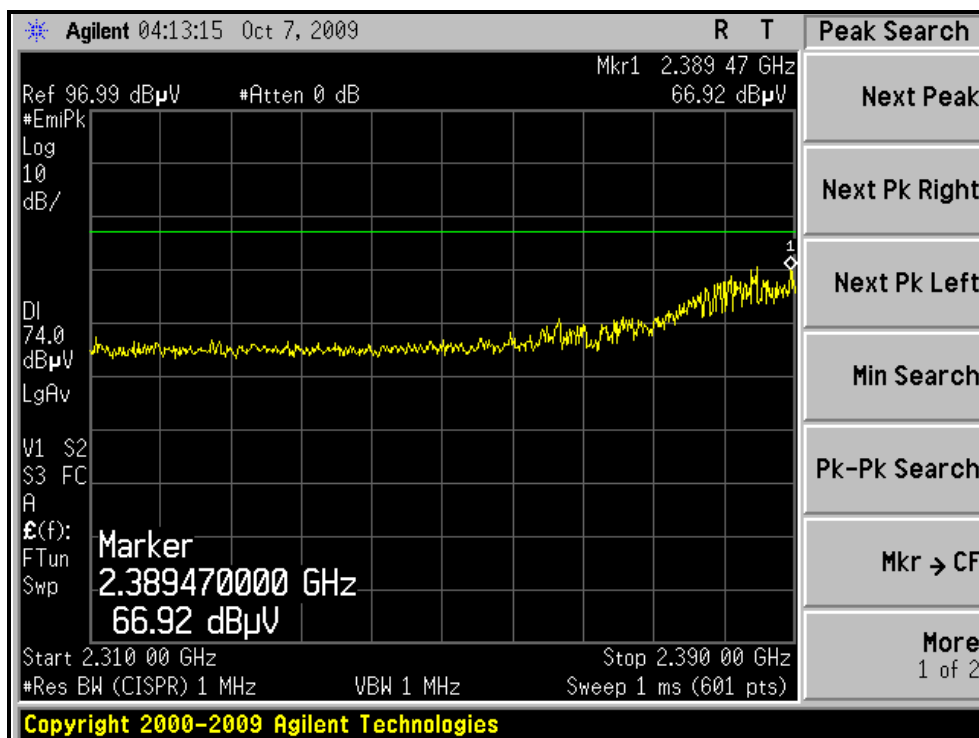
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	100.7 PK			1.44 H	18	70.14	30.51
2	*2452.00	88.4 AV			1.44 H	18	57.85	30.51
3	2483.50	72.4 PK	74.0	-1.6	1.44 H	11	41.77	30.63
4	2483.50	51.0 AV	54.0	-3.0	1.44 H	11	20.37	30.63
5	4904.00	44.0 PK	74.0	-30.0	1.35 H	186	7.03	37.00
6	4904.00	32.1 AV	54.0	-21.9	1.35 H	186	-4.94	37.00
7	7356.00	50.2 PK	74.0	-23.8	1.00 H	23	7.06	43.13
8	7356.00	38.0 AV	54.0	-16.0	1.00 H	23	-5.09	43.13
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	99.8 PK			1.38 V	280	69.24	30.51
2	*2452.00	88.6 AV			1.38 V	280	58.10	30.51
3	2483.50	65.4 PK	74.0	-8.6	1.39 V	246	34.74	30.63
4	2483.50	46.7 AV	54.0	-7.3	1.39 V	246	16.09	30.63
5	4904.00	44.3 PK	74.0	-29.8	1.13 V	327	7.25	37.00
6	4904.00	32.2 AV	54.0	-21.8	1.13 V	327	-4.79	37.00
7	7356.00	50.0 PK	74.0	-24.1	1.00 V	76	6.82	43.13
8	7356.00	37.9 AV	54.0	-16.1	1.00 V	76	-5.20	43.13

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

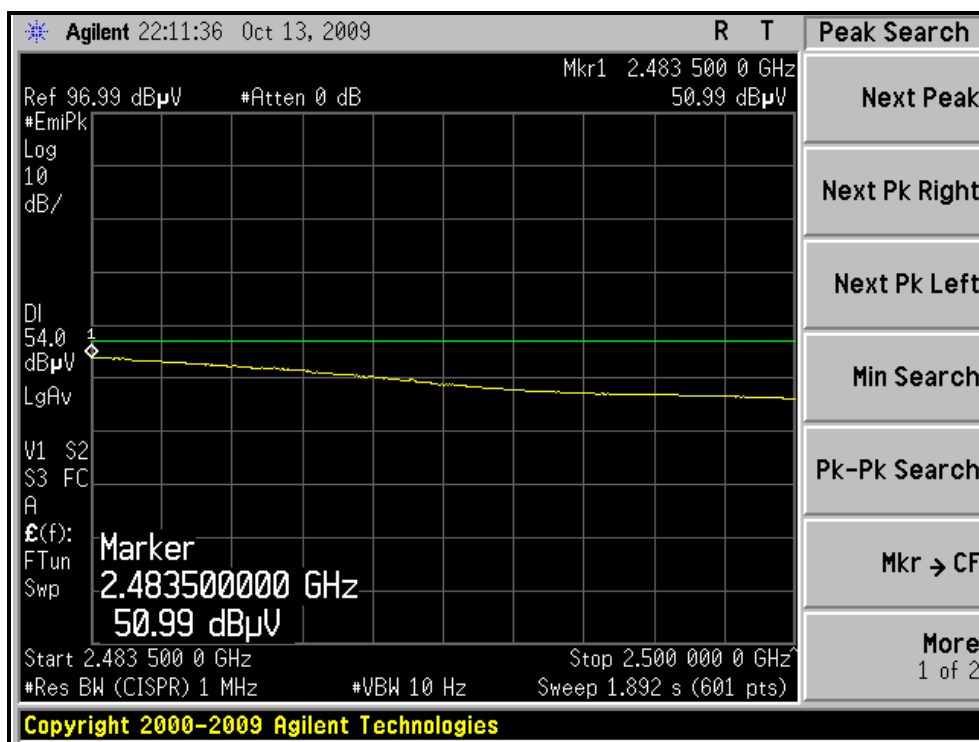
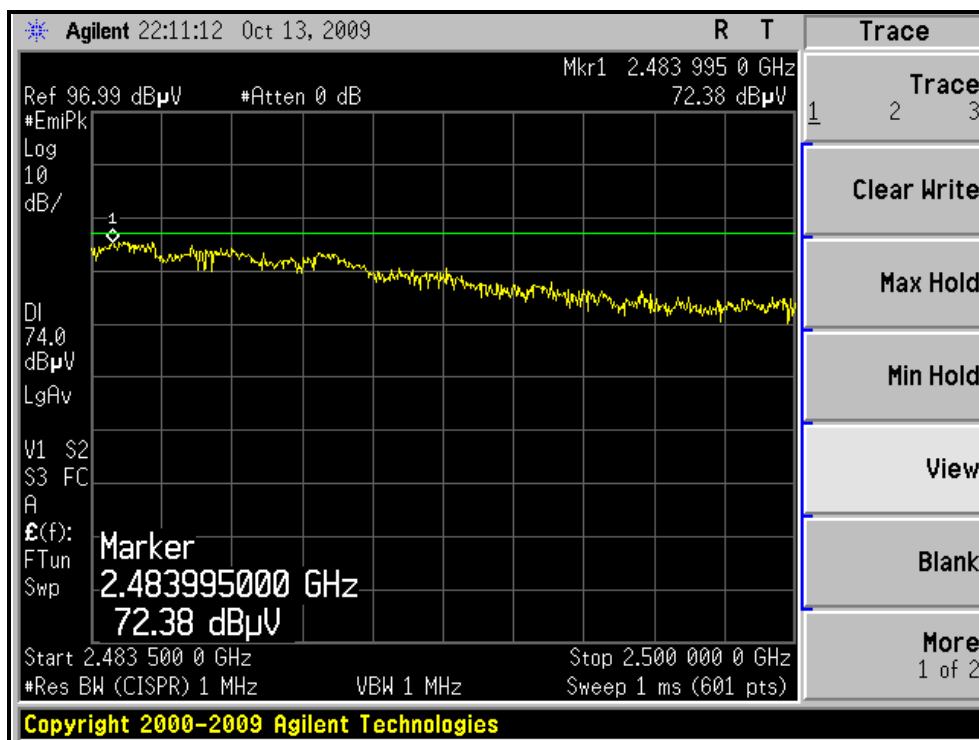
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, HORIZONTAL)



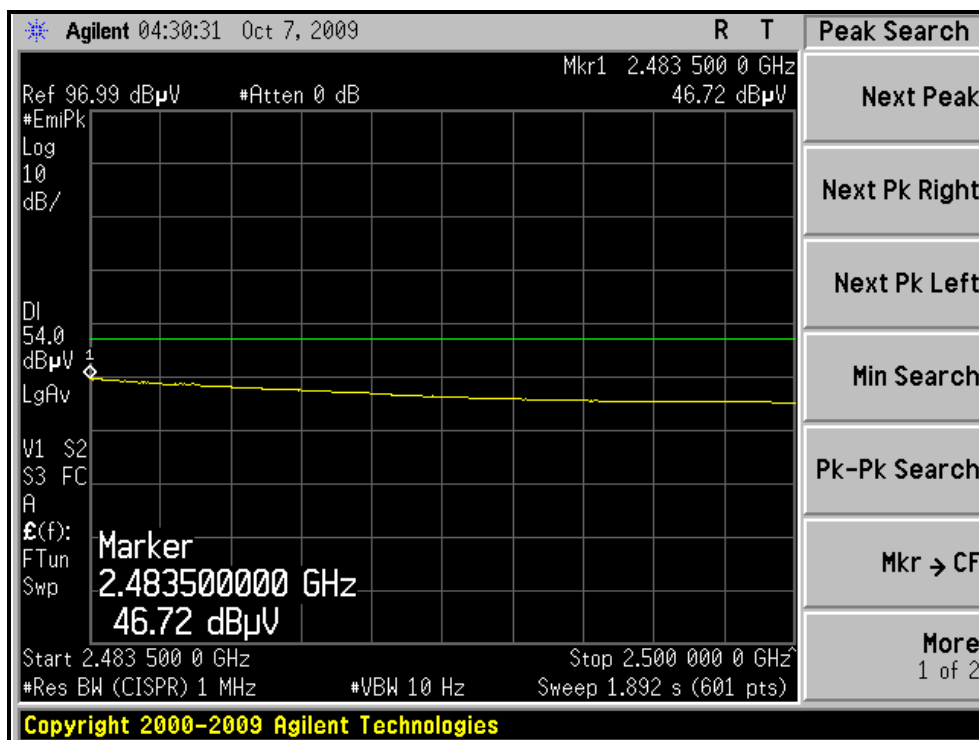
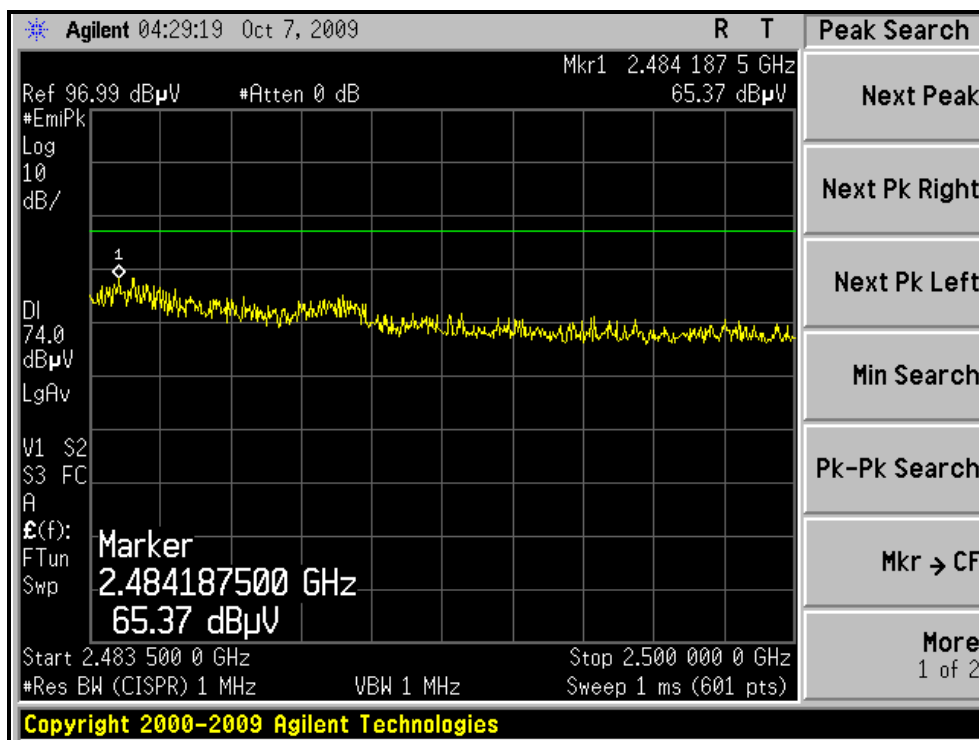
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, VERTICAL)



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



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



4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

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

NOTE:

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

4.3.3 TEST PROCEDURE

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

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

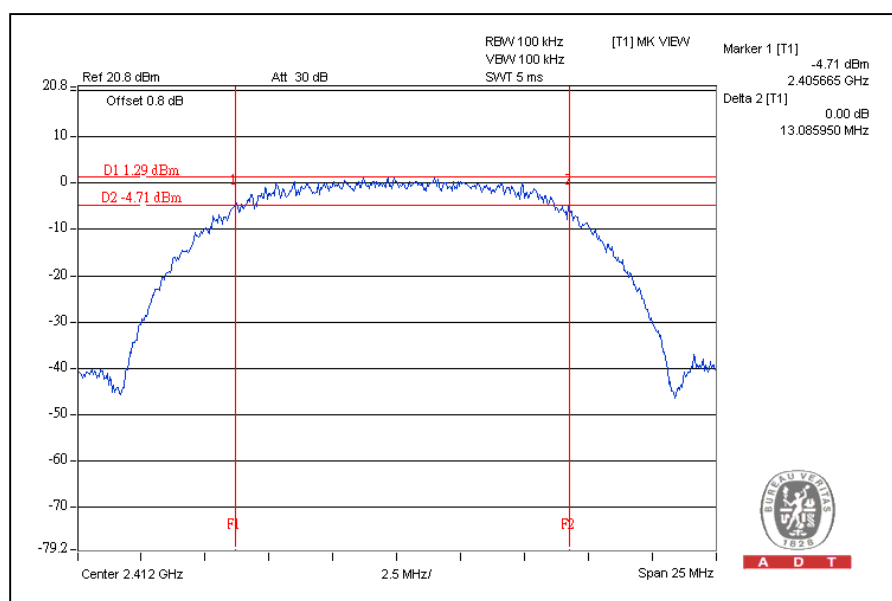
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	13.09	0.5	PASS
6	2437	12.02	0.5	PASS
11	2462	11.21	0.5	PASS

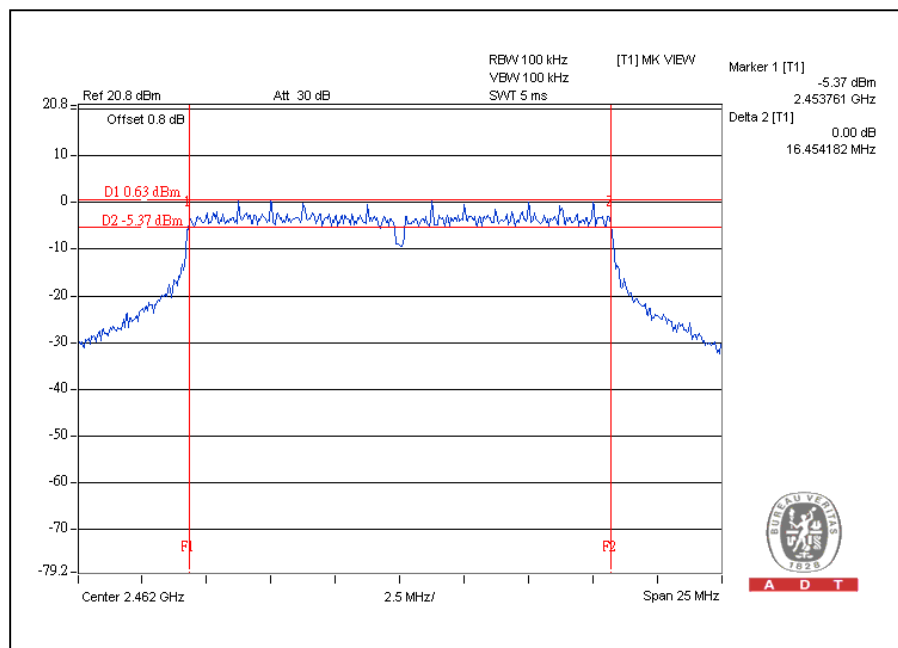
CH1



802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.42	0.5	PASS
6	2437	16.45	0.5	PASS
11	2462	16.45	0.5	PASS

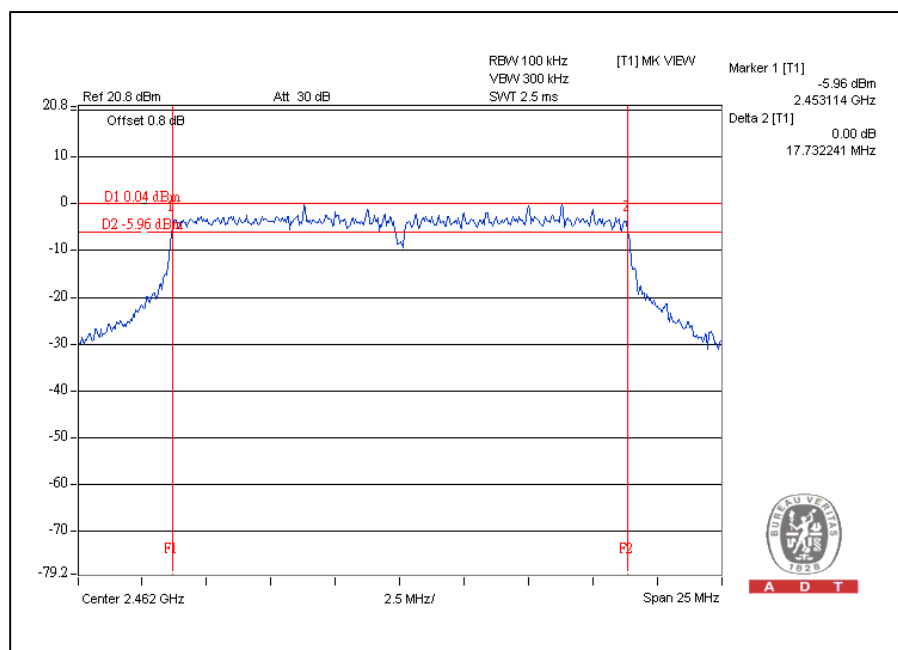
CH11



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.69	0.5	PASS
6	2437	17.68	0.5	PASS
11	2462	17.73	0.5	PASS

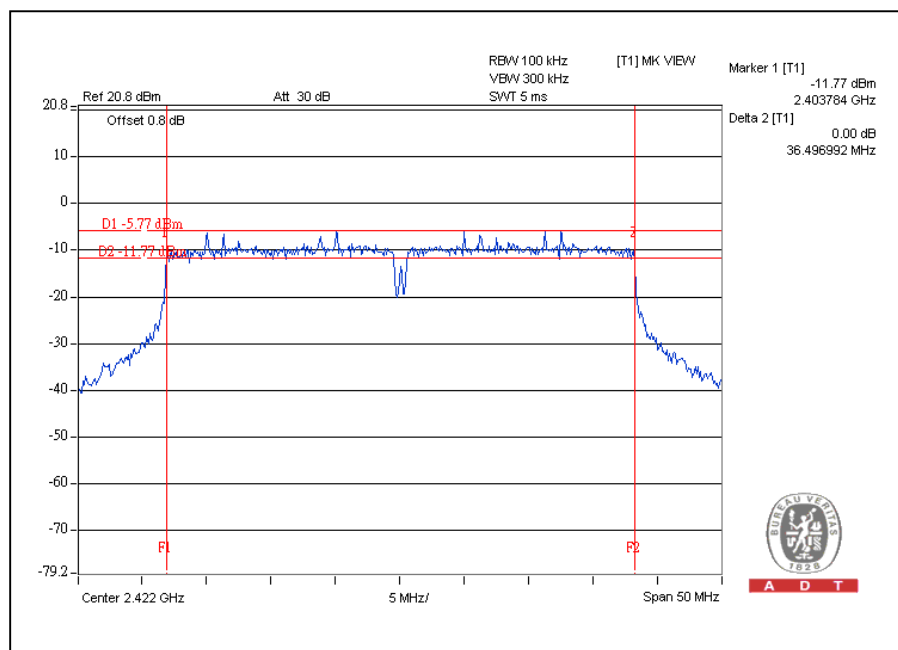
CH11



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2422	36.50	0.5	PASS
4	2437	36.48	0.5	PASS
7	2452	36.46	0.5	PASS

CH1





A D T

4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Anritsu Power Meter	ML2495A	0824006	April 25, 2009	April 24, 2010
Pulse Power Sensor	MA2411B	0738172	April 25, 2009	April 24, 2010

NOTE:

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

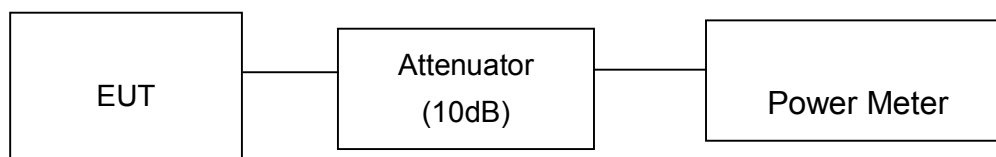
4.4.3 TEST PROCEDURES

1. The transmitter output was connected to the power meter through an attenuator; the bandwidth of the fundamental frequency was measured with the power meter.
2. Record the power level.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

4.4.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
1	2412	15.3	14.1	59.6	17.8	30	PASS
6	2437	15.1	14.0	57.5	17.6	30	PASS
11	2462	15.1	14.4	59.9	17.8	30	PASS

802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
1	2412	22.3	22.0	328.3	25.2	30	PASS
6	2437	22.6	22.1	344.2	25.4	30	PASS
11	2462	22.7	22.6	368.2	25.7	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)				
1	2412	22.4	21.8	325.1	25.1	30	PASS
6	2437	22.8	22.6	372.5	25.7	30	PASS
11	2462	22.6	23.1	386.1	25.9	30	PASS

802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
1	2422	17.9	17.0	111.8	20.5	30	PASS
4	2437	23.2	23.1	413.1	26.2	30	PASS
7	2452	21.5	21.6	285.8	24.6	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

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

NOTE:

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

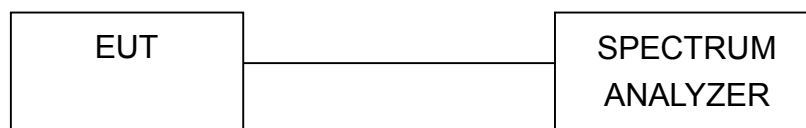
4.5.3 TEST PROCEDURE

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

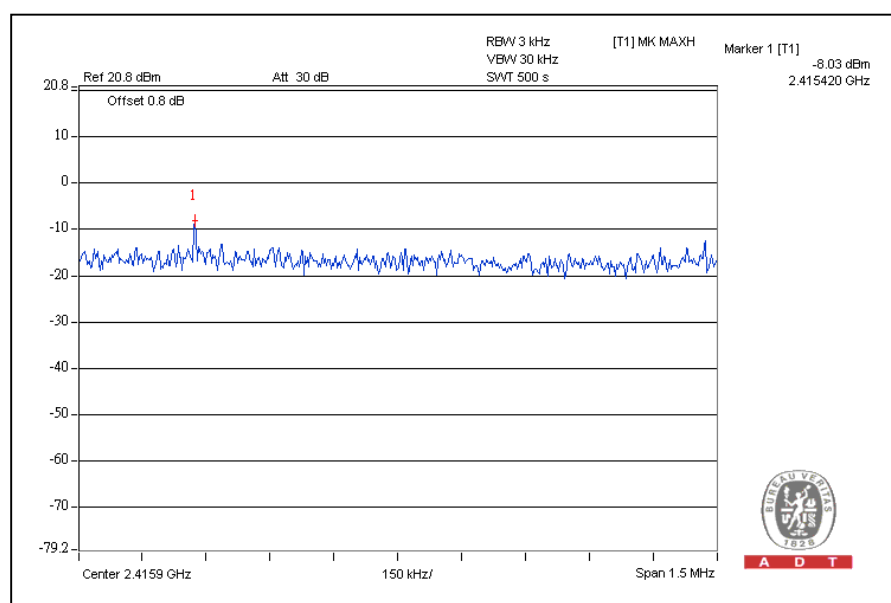
Same as Item 4.3.6

4.5.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
1	2412	-11.1	-8.0	0.2	-7.0	8	PASS
6	2437	-10.2	-12.3	0.2	-7.0	8	PASS
11	2462	-10.5	-12.8	0.1	-10.0	8	PASS

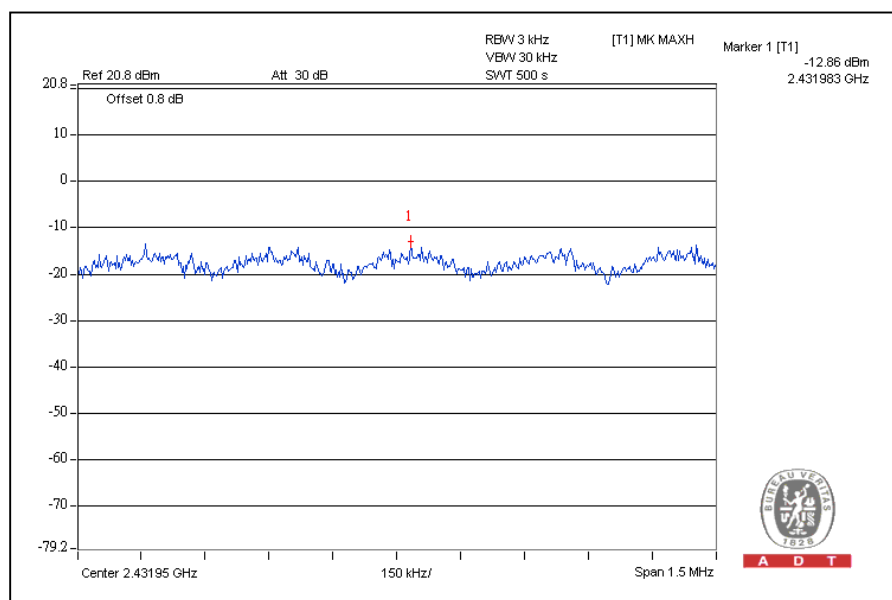
CHAIN(1) : CH1



802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
1	2412	-13.0	-13.2	0.1	-10.0	8	PASS
6	2437	-12.9	-13.0	0.1	-10.0	8	PASS
11	2462	-13.5	-12.9	0.1	-10.0	8	PASS

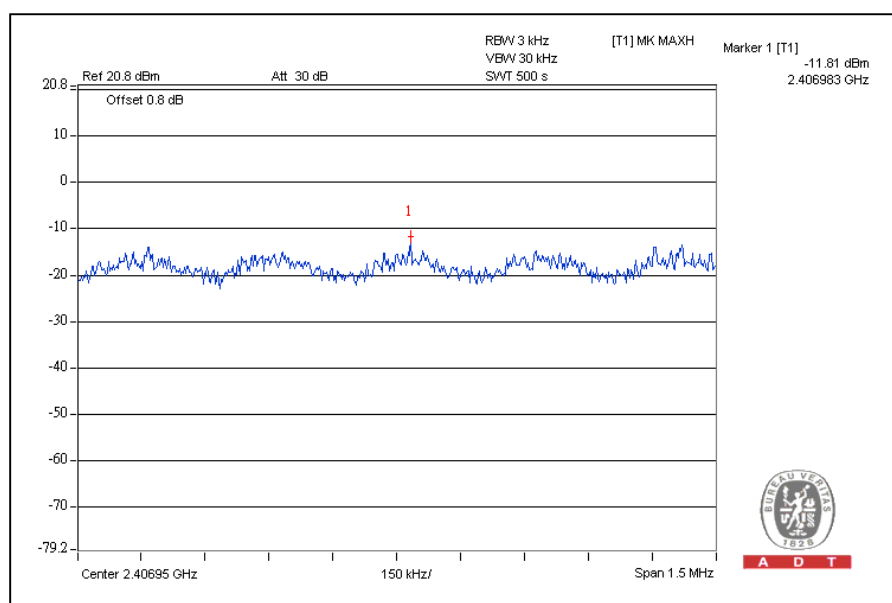
CHAIN(0) : CH6



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
1	2412	-14.6	-11.8	0.1	-10.0	8	PASS
6	2437	-13.2	-12.8	0.1	-10.0	8	PASS
11	2462	-14.1	-13.3	0.1	-10.0	8	PASS

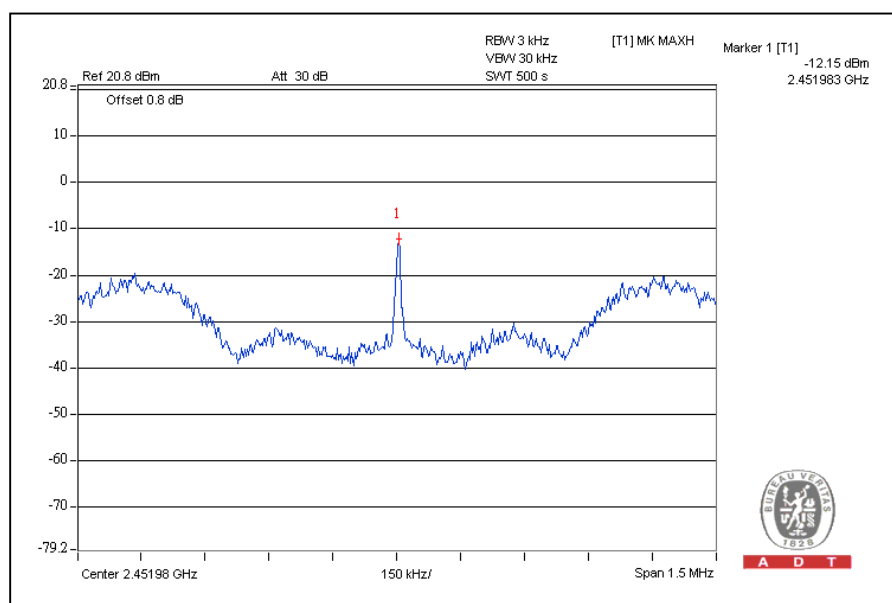
For Chain(1): CH1



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
1	2422	-16.8	-16.2	0.1	-13.0	8	PASS
4	2437	-16.0	-14.1	0.1	-10.0	8	PASS
7	2452	-13.1	-12.2	0.1	-10.0	8	PASS

For Chain (1): CH7





A D T

4.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

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

4.6.2 TEST INSTRUMENTS

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

NOTE:

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

4.6.3 TEST PROCEDURE

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

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

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

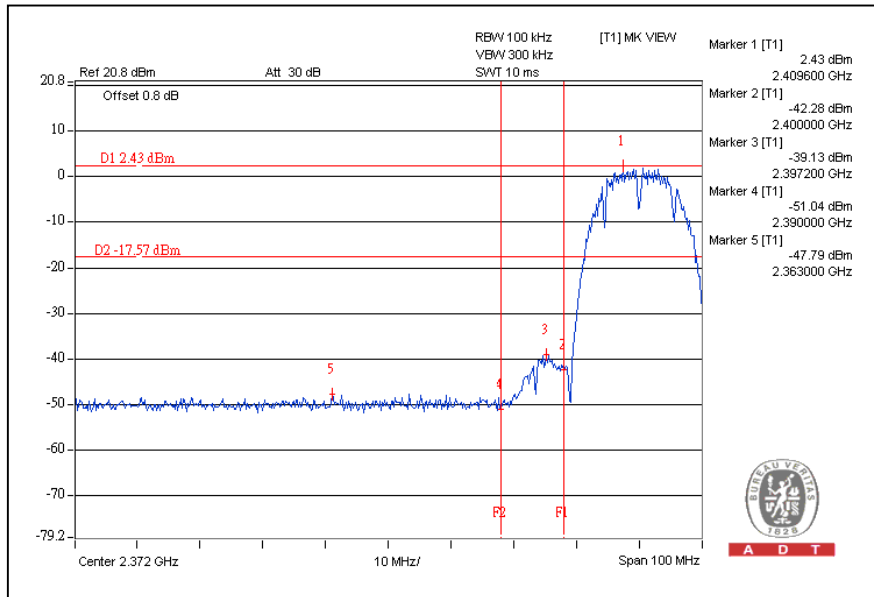
Same as Item 4.3.6

4.6.6 TEST RESULTS

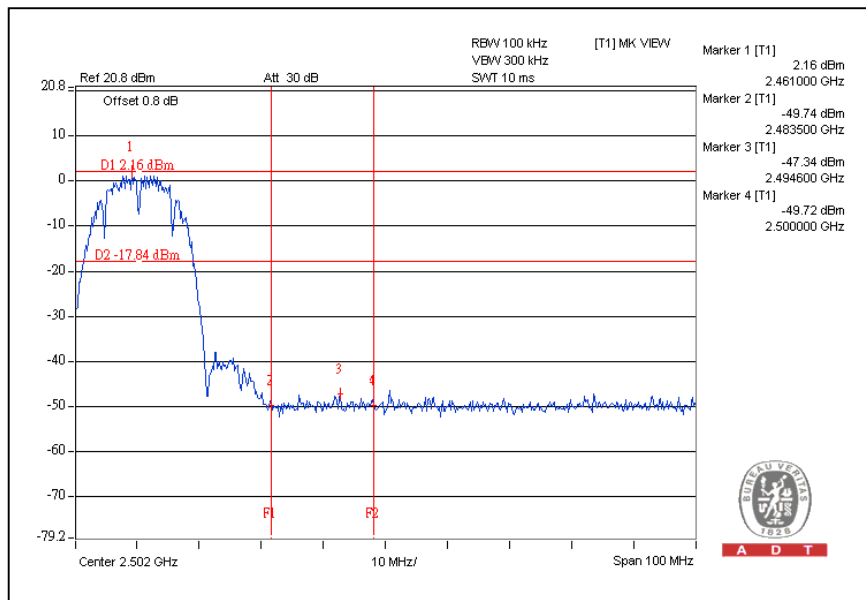
The spectrum plots are attached on the following images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11b DSSS MODULATION:

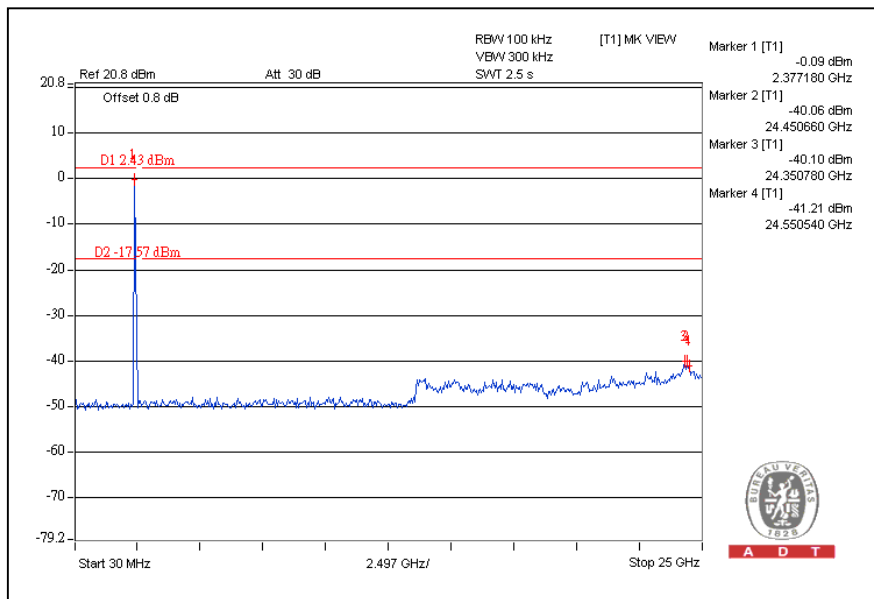
CH1



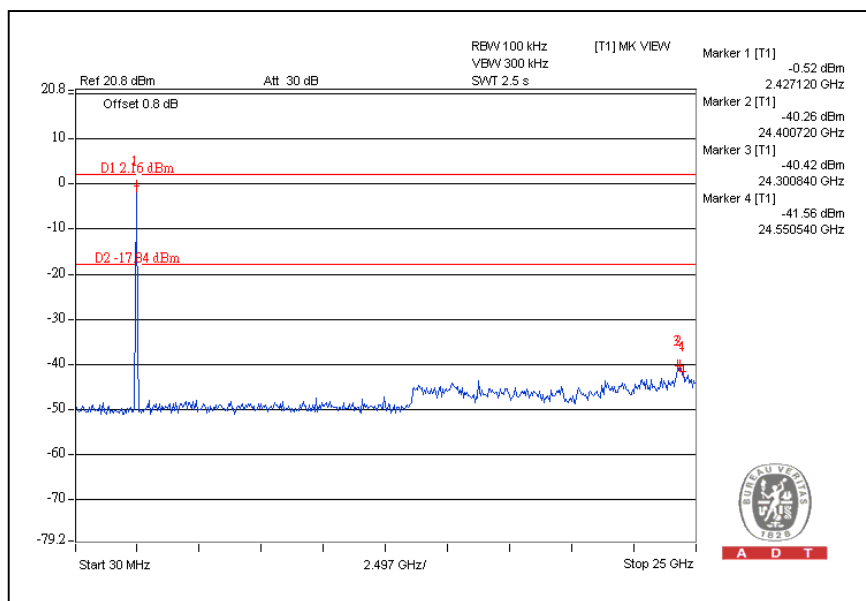
CH11



CH1

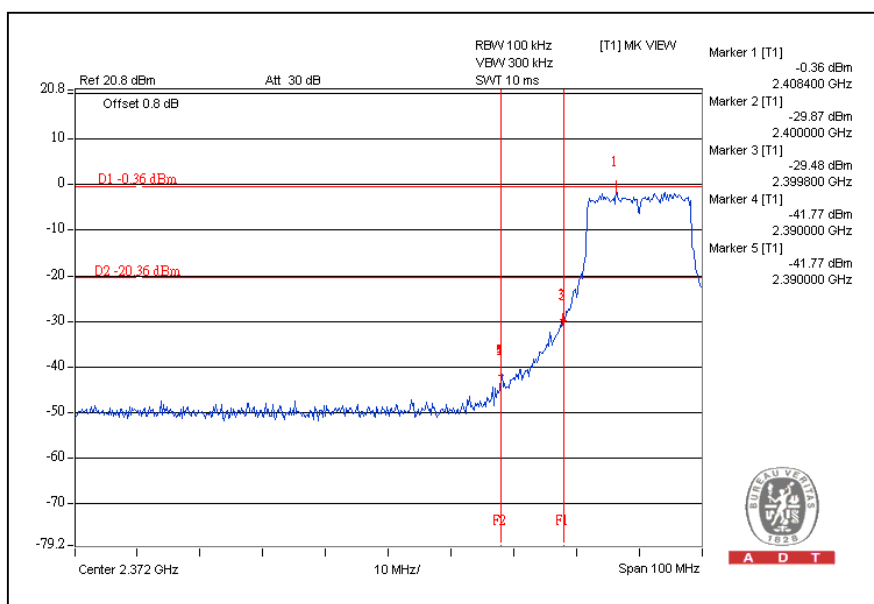


CH11

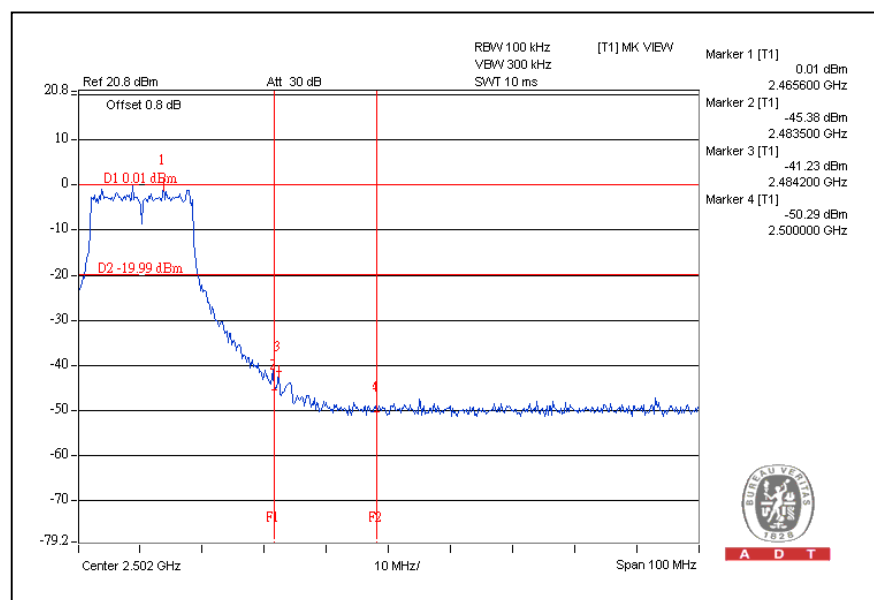


802.11g OFDM MODULATION::

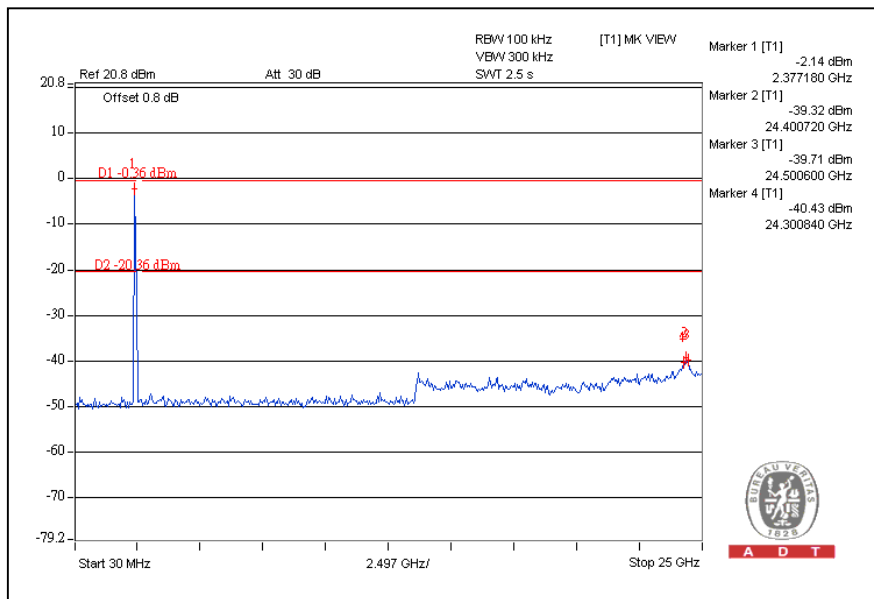
CH1



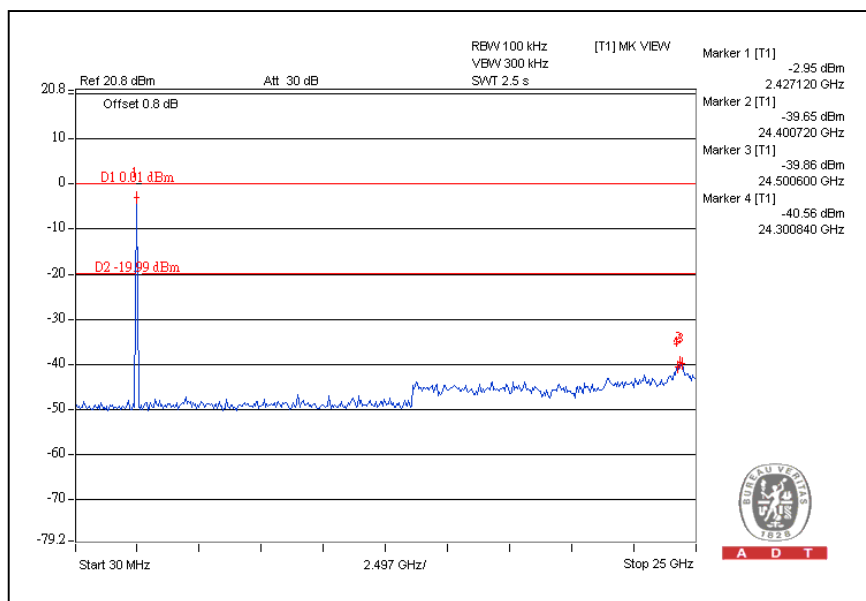
CH11



CH1

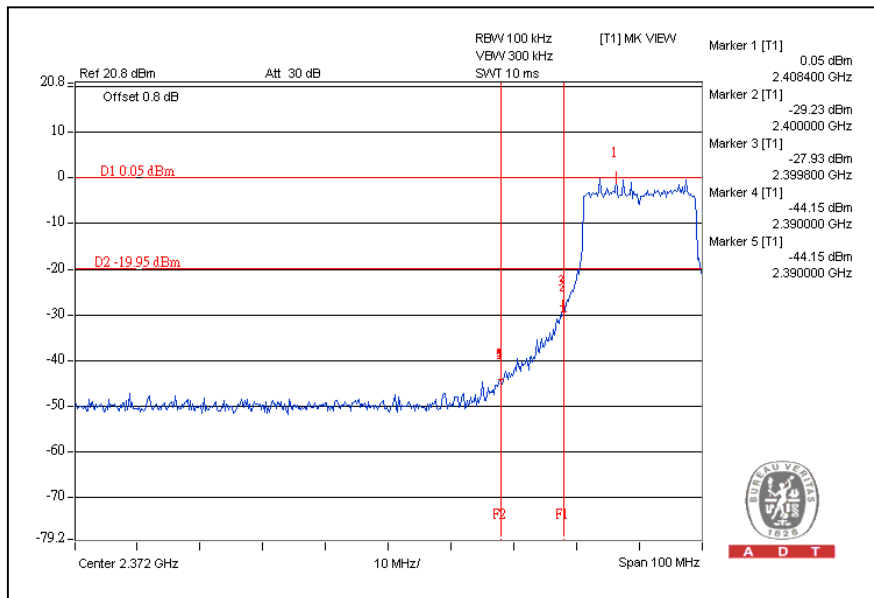


CH11

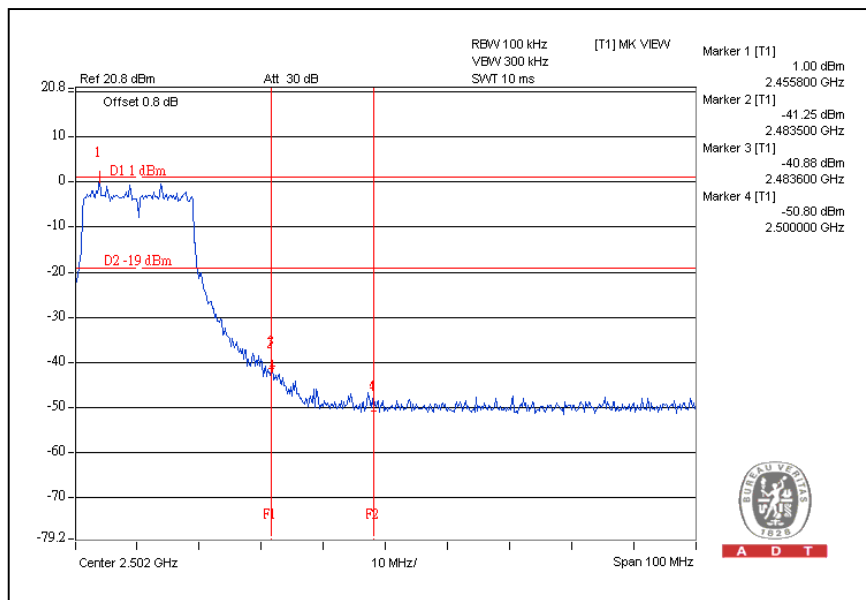


802.11n (20MHz) OFDM MODULATION:

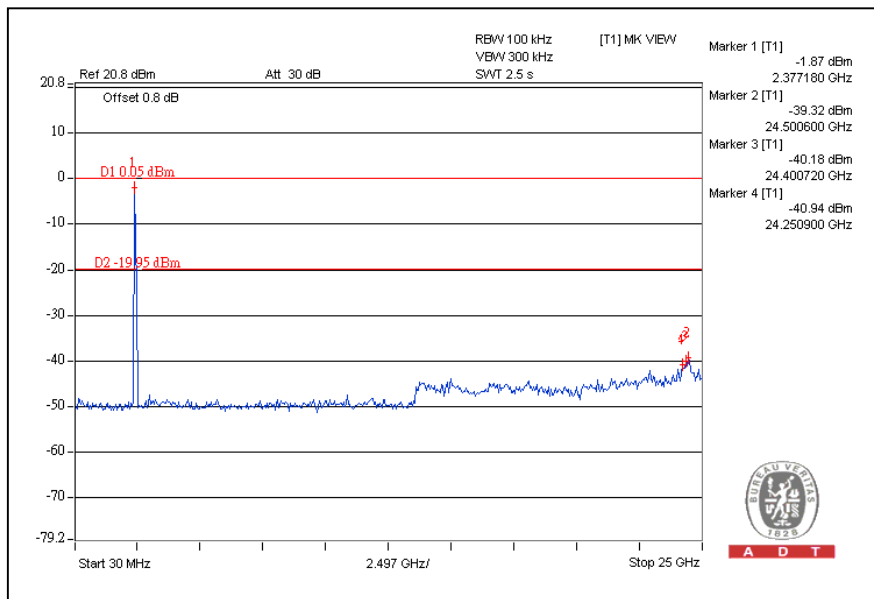
CH1



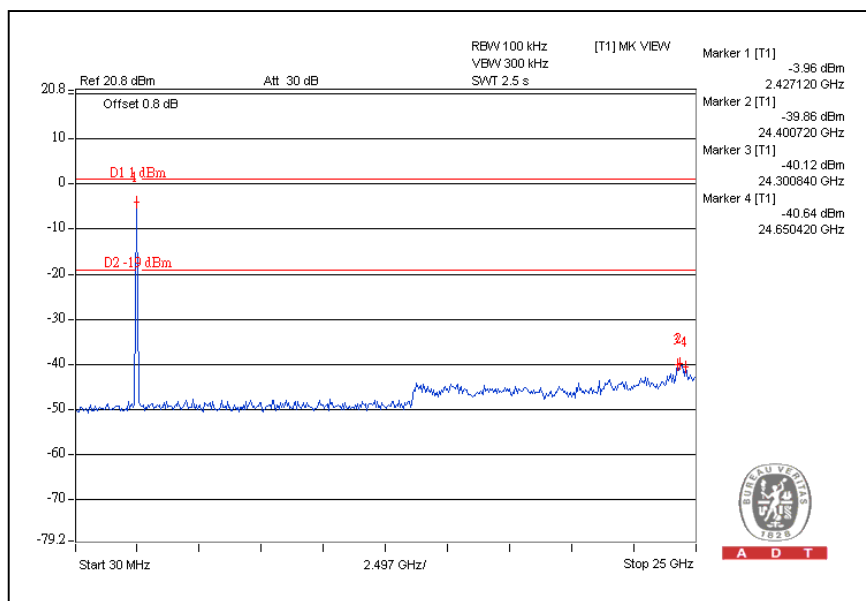
CH11



CH1

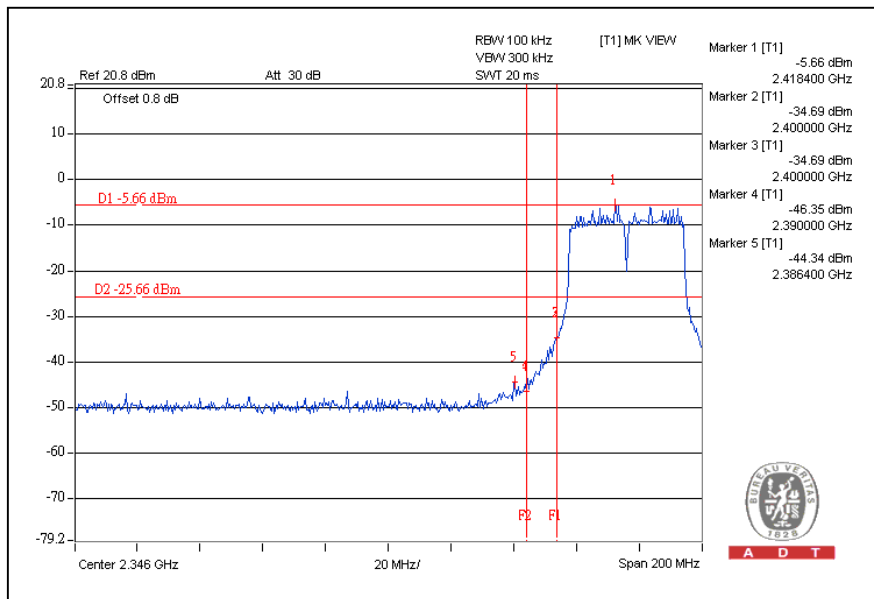


CH11

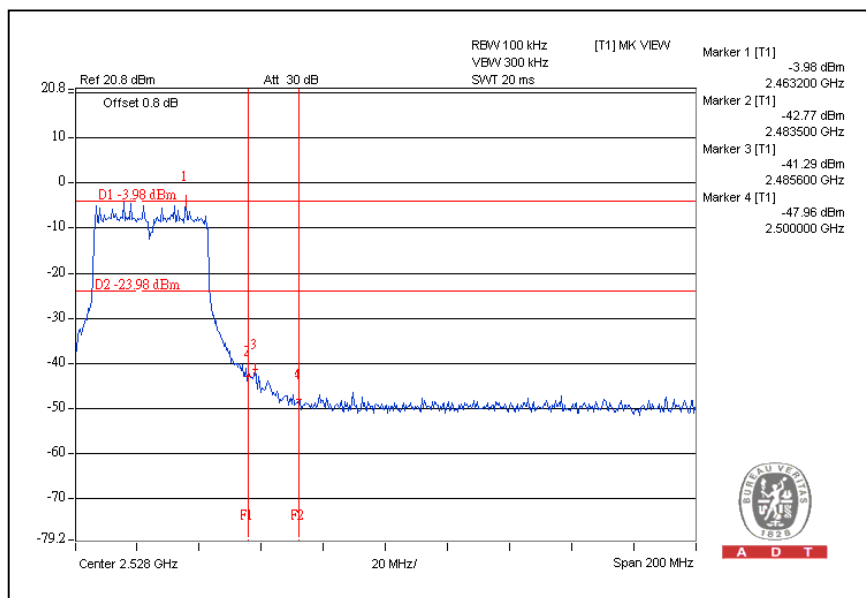


802.11n (40MHz) OFDM MODULATION:

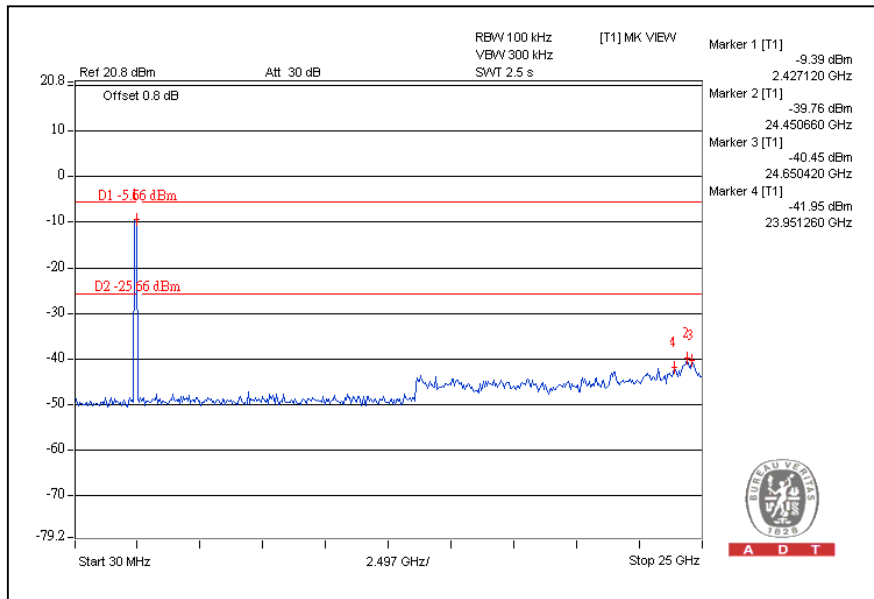
CH1



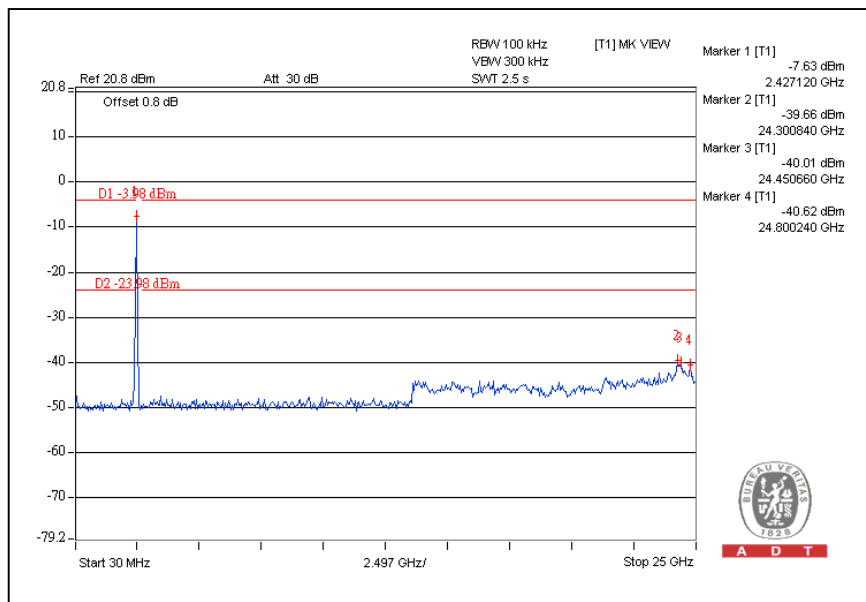
CH7



CH1



CH7



5. 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
Test Receiver	ESCS 30	100375	Mar. 23, 2009	Mar. 22, 2010
Line-Impedance Stabilization Network (for Peripheral)	ENV-216	100071	Nov. 26, 2008	Nov. 25, 2009
Line-Impedance Stabilization Network (for EUT)	ESH3-Z5	848773/004	Nov. 05, 2008	Nov. 04, 2009
RF Cable (JYEBAO)	5DFB	COBCAB-001	Aug. 14, 2009	Aug. 13, 2010
50 ohms Terminator	50	3	Nov. 05, 2008	Nov. 04, 2009
Software	BV ADT_Cond_V7.3.7	NA	NA	NA

Note:

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

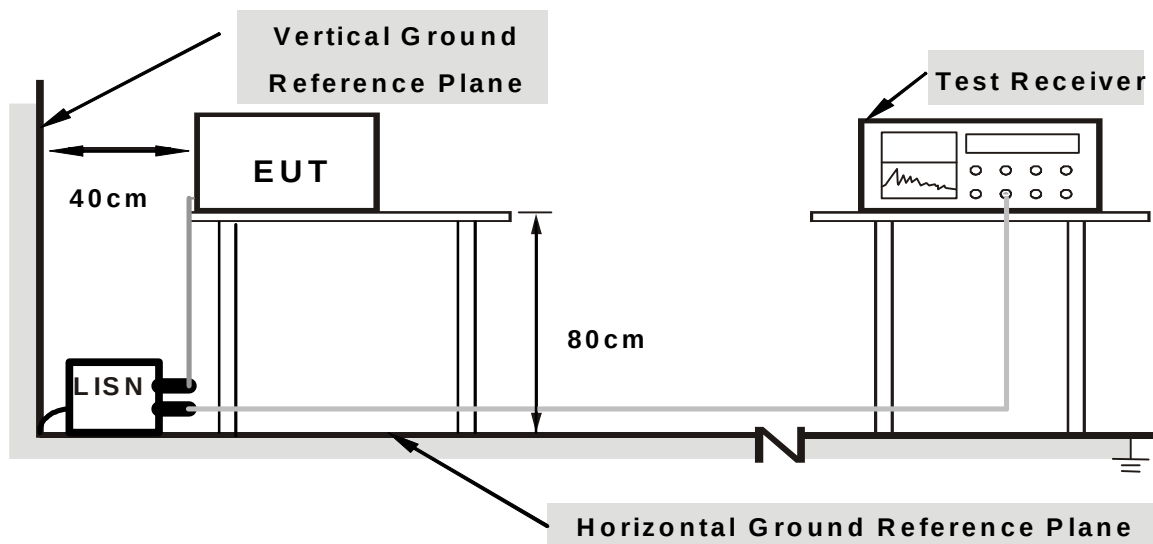
5.1.3 TEST PROCEDURES

- 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

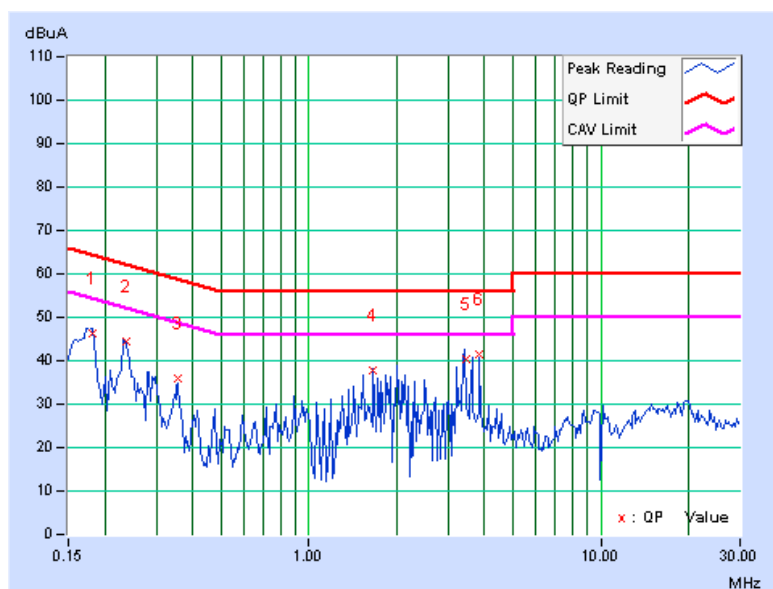
5.1.7 TEST RESULTS

802.11a OFDM MODULATION:

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

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.181	0.18	45.96	-	46.14	-	64.43	54.43	-18.29	-
+2	0.237	0.18	44.26	-	44.44	-	62.20	52.20	-17.76	-
3	0.357	0.19	35.90	-	36.09	-	58.80	48.80	-22.71	-
4	1.659	0.50	37.20	-	37.70	-	56.00	46.00	-18.30	-
5	3.439	0.59	39.76	-	40.35	-	56.00	46.00	-15.65	-
6	3.852	0.61	40.94	-	41.55	-	56.00	46.00	-14.45	-

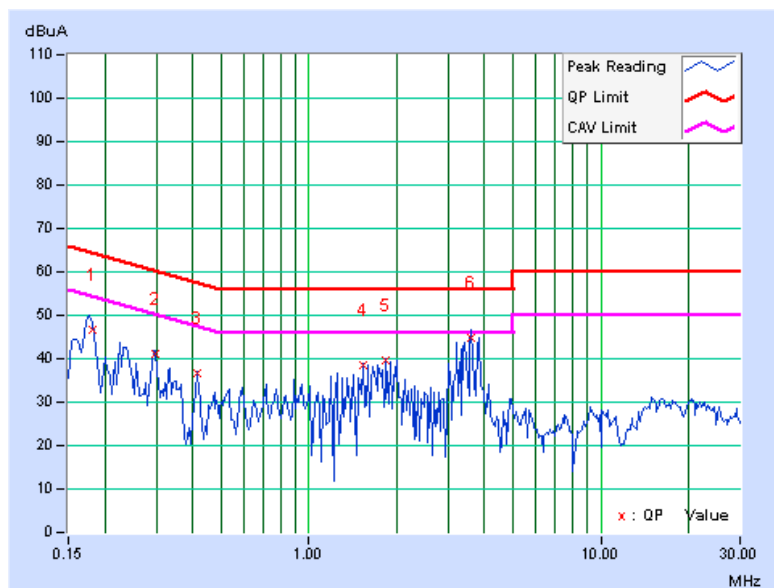
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
-------	-------------	---------------	-------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.181	0.11	46.60	-	46.71	-	64.44	54.44	-17.73	-
2	0.298	0.12	40.92	-	41.04	-	60.29	50.29	-19.25	-
3	0.416	0.14	36.36	-	36.50	-	57.54	47.54	-21.04	-
4	1.543	0.40	38.16	-	38.56	-	56.00	46.00	-17.44	-
5	1.834	0.43	39.20	-	39.63	-	56.00	46.00	-16.37	-
+6	3.613	0.53	44.32	-	44.85	-	56.00	46.00	-11.15	-

- 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.



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.

**A D T**

5.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 9, 2008	Dec. 8, 2009
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	Apr. 24 , 2009	Apr. 23 , 2010
HP Pre_Amplifier	8449B	3008A01923	Nov. 10, 2008	Nov. 9, 2009
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Aug. 28, 2009	Aug. 28, 2010
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 29, 2009	Apr. 28, 2010
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 09, 2008	Dec. 08, 2009
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2009	Jan. 21, 2010
RF Switches	EMH-011	08009	Sep. 26, 2009	Sep. 25, 2010
RF CABLE (Chaintek)	Sucoflex 106	28077	Aug. 14, 2009	Aug. 13, 2010
RF Cable	8D	STCCAB-001	Sep. 26, 2009	Sep. 25, 2010
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

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

2. The horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: FSP40) are used only for the measurement of emission frequency above 1GHz if tested.

3. The test was performed in Open Site No. C.

4. The FCC Site Registration No. is 656396.

5. The VCCI Site Registration No. is R-1626.

6. The CANADA Site Registration No. is IC 7450G-3.

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 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

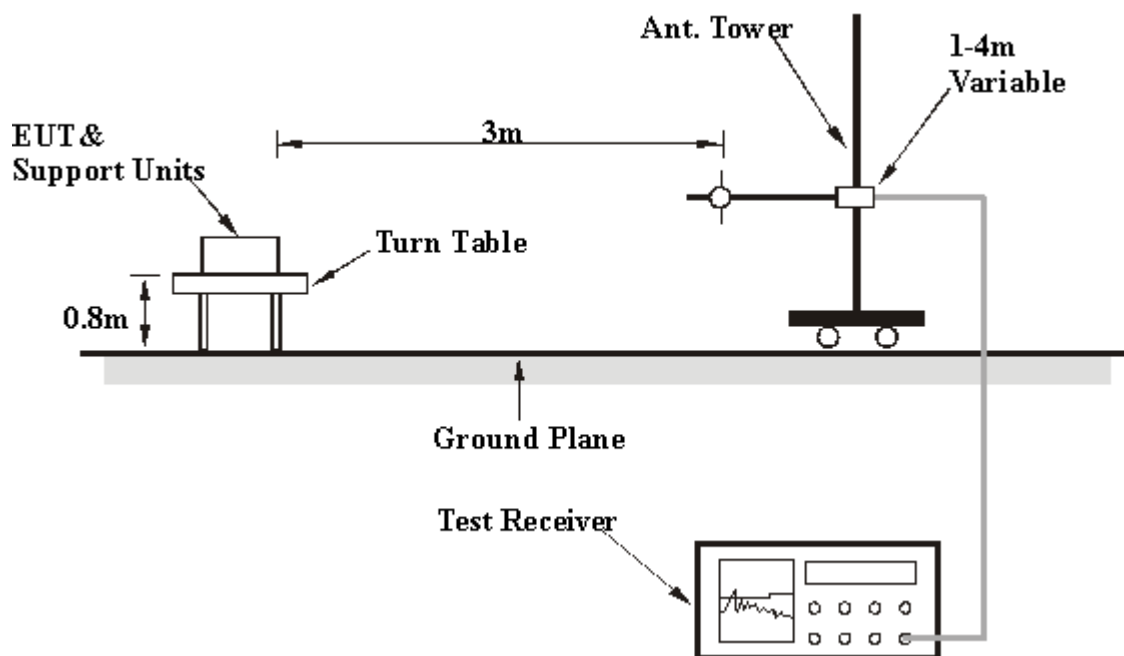
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth 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

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23.0deg. C, 65.0%RH 965hPa	TESTED BY	Phoenix Huang

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	72.13	28.3 QP	40.0	-11.8	3.08 H	130	15.44	12.81
2	112.23	29.0 QP	43.5	-14.5	2.95 H	268	17.22	11.74
3	182.86	30.3 QP	43.5	-13.3	3.41 H	236	16.80	13.45
4	480.04	28.4 QP	46.0	-17.6	2.03 H	351	6.52	21.89
5	630.01	30.9 QP	46.0	-15.1	1.11 H	15	5.54	25.33
6	719.97	28.8 QP	46.0	-17.2	1.26 H	58	2.42	26.37
7	800.03	39.9 QP	46.0	-6.1	1.00 H	211	12.07	27.87
8	960.04	35.3 QP	54.0	-18.7	1.00 H	56	5.01	30.31
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	57.12	28.8 QP	40.0	-11.2	1.00 V	18	15.14	13.69
2	111.78	33.6 QP	43.5	-9.9	1.00 V	208	21.91	11.70
3	182.42	35.6 QP	43.5	-7.9	1.00 V	121	22.08	13.48
4	398.50	31.0 QP	46.0	-15.0	1.00 V	244	11.50	19.46
5	719.96	30.1 QP	46.0	-15.9	1.24 V	2	3.69	26.37
6	800.05	38.9 QP	46.0	-7.1	1.30 V	229	11.04	27.87
7	960.02	34.5 QP	54.0	-19.5	1.22 V	208	4.20	30.31

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	25deg. C, 60%RH 1012 hPa	TESTED BY	Rex Huang

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	108.0 PK			1.11 H	177	70.07	37.96
2	*5745.00	97.3 AV			1.11 H	177	59.34	37.96
3	11490.00	53.7 PK	74.0	-20.3	1.06 H	204	6.47	47.23
4	11490.00	41.6 AV	54.0	-12.4	1.06 H	204	-5.67	47.23
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5745.00	102.6 PK			1.65 V	180	64.60	37.96
2	*5745.00	91.4 AV			1.65 V	180	53.44	37.96
3	11490.00	54.1 PK	74.0	-19.9	1.12 V	127	6.83	47.23
4	11490.00	41.4 AV	54.0	-12.6	1.12 V	127	-5.81	47.23

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH 1012 hPa	TESTED BY	Rex Huang

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	108.8 PK			1.07 H	176	70.70	38.07
2	*5785.00	99.1 AV			1.07 H	176	61.06	38.07
3	11570.00	54.8 PK	74.0	-19.2	1.07 H	244	7.60	47.22
4	11570.00	42.4 AV	54.0	-11.6	1.07 H	244	-4.83	47.22
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	103.3 PK			1.67 V	184	65.24	38.07
2	*5785.00	92.4 AV			1.67 V	184	54.29	38.07
3	11570.00	54.3 PK	74.0	-19.7	1.15 V	131	7.04	47.22
4	11570.00	42.1 AV	54.0	-12.0	1.15 V	131	-5.17	47.22

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	109.2 PK			1.07 H	176	71.02	38.18
2	*5825.00	98.7 AV			1.07 H	176	60.53	38.18
3	11650.00	54.9 PK	74.0	-19.1	1.10 H	257	7.70	47.22
4	11650.00	43.0 AV	54.0	-11.0	1.10 H	257	-4.24	47.22
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	103.0 PK			1.65 V	181	64.84	38.18
2	*5825.00	92.1 AV			1.65 V	181	53.96	38.18
3	11650.00	54.6 PK	74.0	-19.4	1.16 V	134	7.35	47.22
4	11650.00	42.4 AV	54.0	-11.6	1.16 V	134	-4.86	47.22

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

DRAFT 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	25deg. C, 60%RH 1012 hPa	TESTED BY	Rex Huang

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	109.1 PK			1.11 H	176	71.15	37.96
2	*5745.00	97.5 AV			1.11 H	176	59.56	37.96
3	11490.00	54.0 PK	74.0	-20.0	1.00 H	247	6.79	47.23
4	11490.00	41.6 AV	54.0	-12.4	1.00 H	247	-5.61	47.23
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5745.00	101.6 PK			1.64 V	180	63.68	37.96
2	*5745.00	91.0 AV			1.64 V	180	53.05	37.96
3	11490.00	53.1 PK	74.0	-20.9	1.14 V	129	5.85	47.23
4	11490.00	41.3 AV	54.0	-12.7	1.14 V	129	-5.89	47.23

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH 1012 hPa	TESTED BY	Rex Huang

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	108.3 PK			1.07 H	177	70.19	38.07
2	*5785.00	97.9 AV			1.07 H	177	59.78	38.07
3	11570.00	54.7 PK	74.0	-19.3	1.00 H	252	7.45	47.22
4	11570.00	42.5 AV	54.0	-11.5	1.00 H	252	-4.75	47.22
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	102.3 PK			1.68 V	182	64.18	38.07
2	*5785.00	91.9 AV			1.68 V	182	53.85	38.07
3	11570.00	54.3 PK	74.0	-19.7	1.11 V	125	7.09	47.22
4	11570.00	41.8 AV	54.0	-12.2	1.11 V	125	-5.44	47.22

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ”: Fundamental frequency.
 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	25deg. C, 60%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	109.2 PK			1.06 H	176	71.02	38.18
2	*5825.00	98.5 AV			1.06 H	176	60.30	38.18
3	11650.00	54.9 PK	74.0	-19.1	1.00 H	257	7.72	47.22
4	11650.00	42.4 AV	54.0	-11.6	1.00 H	257	-4.79	47.22
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	102.1 PK			1.67 V	183	63.93	38.18
2	*5825.00	91.8 AV			1.67 V	183	53.58	38.18
3	11650.00	54.6 PK	74.0	-19.4	1.16 V	128	7.40	47.22
4	11650.00	42.1 AV	54.0	-11.9	1.16 V	128	-5.13	47.22

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

DRAFT 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	25deg. C, 60%RH 1012 hPa	TESTED BY	Rex Huang

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	103.8 PK			1.07 H	175	65.78	37.98
2	*5755.00	92.6 AV			1.07 H	175	54.62	37.98
3	11510.00	54.3 PK	74.0	-19.7	1.00 H	254	7.05	47.23
4	11510.00	41.8 AV	54.0	-12.2	1.00 H	254	-5.46	47.23
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5755.00	97.4 PK			1.64 V	179	59.46	37.98
2	*5755.00	85.5 AV			1.64 V	179	47.56	37.98
3	11510.00	54.1 PK	74.0	-19.9	1.15 V	130	6.88	47.23
4	11510.00	41.5 AV	54.0	-12.6	1.15 V	130	-5.78	47.23

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ”: Fundamental frequency.
 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	25deg. C, 60%RH 1012 hPa	TESTED BY	Rex Huang

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	104.7 PK			1.06 H	174	66.56	38.10
2	*5795.00	92.2 AV			1.06 H	174	54.10	38.10
3	11590.00	54.6 PK	74.0	-19.4	1.00 H	262	7.42	47.22
4	11590.00	42.2 AV	54.0	-11.8	1.00 H	262	-5.06	47.22
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5795.00	97.7 PK			1.65 V	181	59.63	38.10
2	*5795.00	85.7 AV			1.65 V	181	47.56	38.10
3	11590.00	54.4 PK	74.0	-19.6	1.14 V	129	7.14	47.22
4	11590.00	41.9 AV	54.0	-12.2	1.14 V	129	-5.37	47.22

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.
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	100037	Aug. 03, 2009	Aug. 02, 2010

NOTE:

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

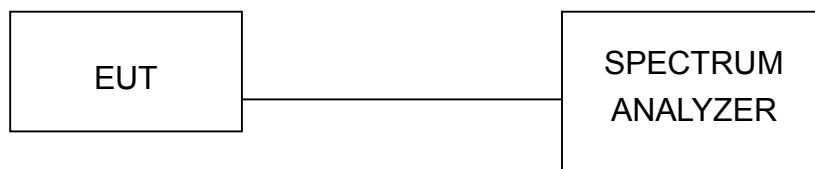
5.3.3 TEST PROCEDURE

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

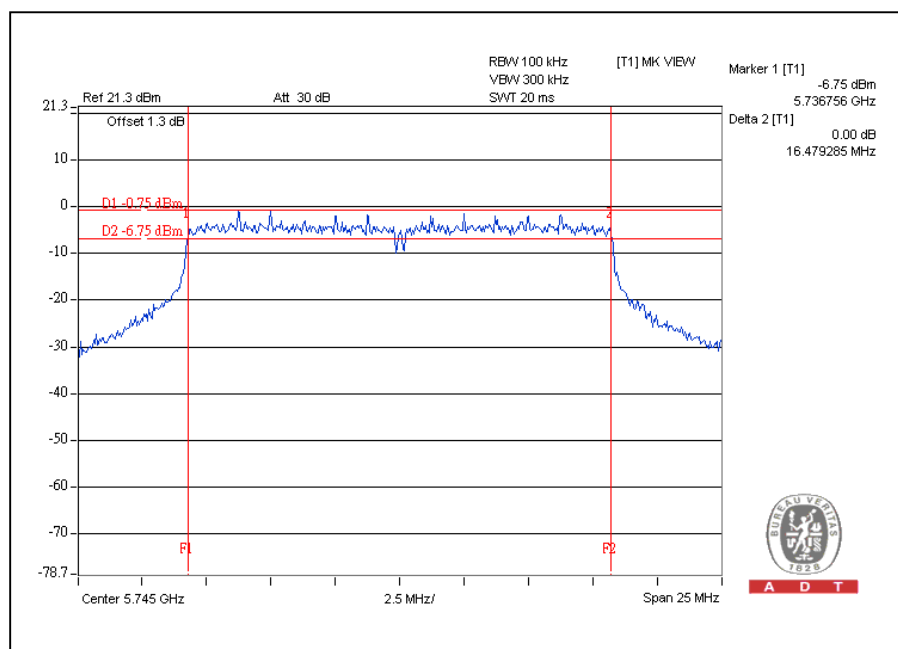
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

5.3.7 TEST RESULTS

802.11a OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	16.48	0.5	PASS
157	5785	16.47	0.5	PASS
165	5825	16.46	0.5	PASS

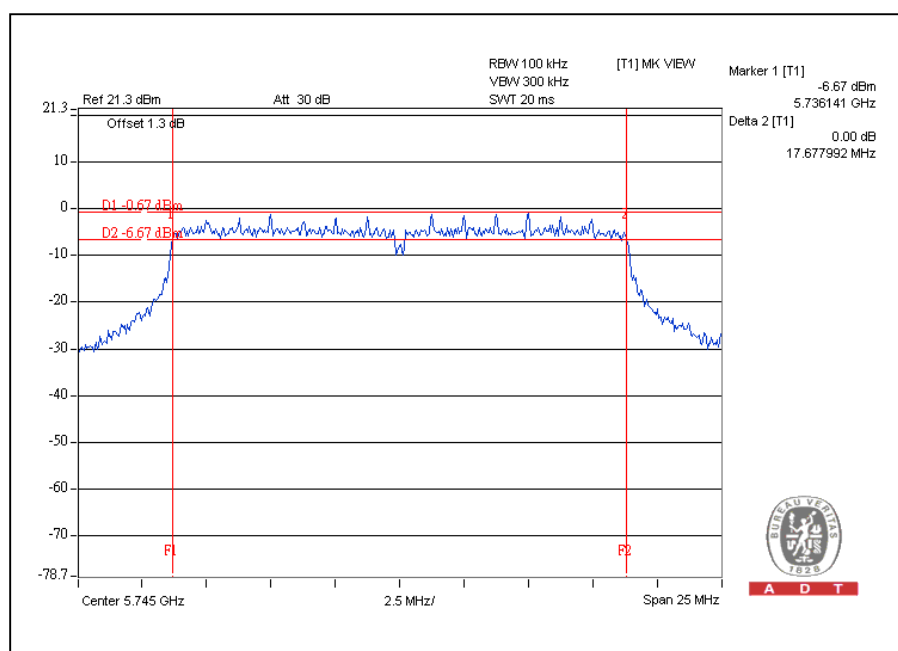
CH149



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	17.68	0.5	PASS
157	5785	17.67	0.5	PASS
165	5825	17.63	0.5	PASS

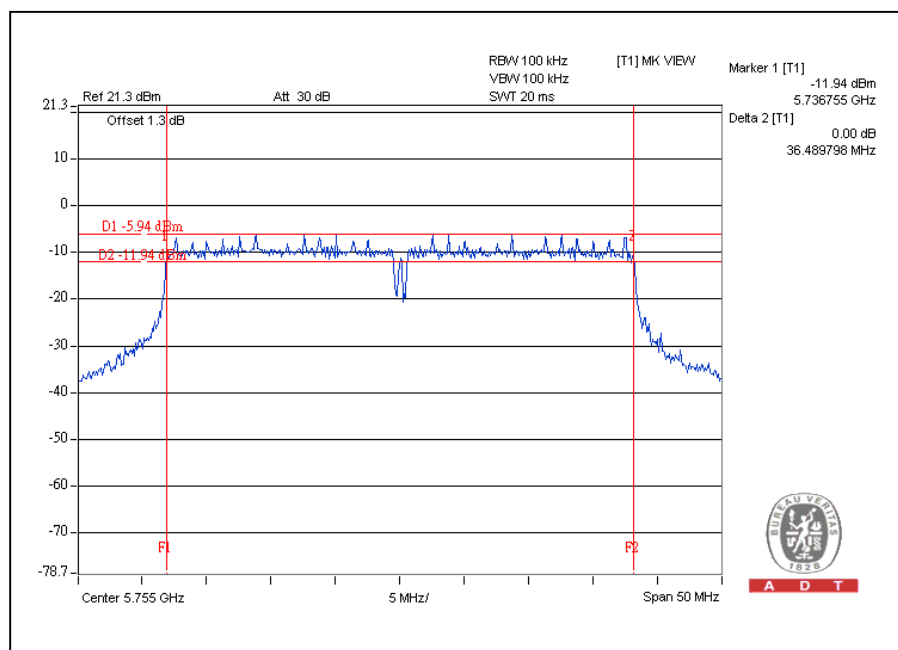
CH149



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
151	5755	36.49	0.5	PASS
159	5795	36.47	0.5	PASS

CH151



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
Anritsu Power Meter	ML2495A	0824006	April 25, 2009	April 24, 2010
Pulse Power Sensor	MA2411B	0738172	April 25, 2009	April 24, 2010

NOTE:

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

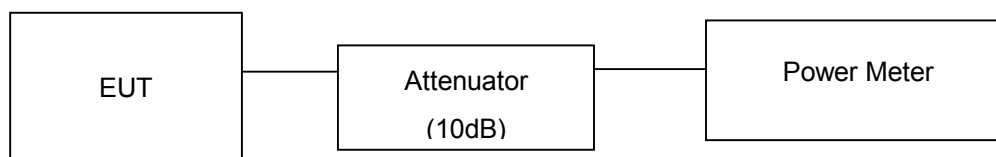
5.4.3 TEST PROCEDURES

1. The transmitter output was connected to the power meter through an attenuator; the bandwidth of the fundamental frequency was measured with the power meter.
2. Record the power level.

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 TEST SETUP



5.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

5.4.7 TEST RESULTS

802.11a OFDM modulation

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER OUTPUT (mW)	PEAK POWER LIMIT (dBm)	PASS / FAIL
149	5745	19.7	93.3	30	PASS
157	5785	19.8	95.5	30	PASS
165	5825	20.0	100.0	30	PASS

802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
149	5745	19.8	19.9	193.2	22.9	30	PASS
157	5785	19.8	19.9	193.2	22.9	30	PASS
165	5825	19.8	20.2	200.2	23.0	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)				
151	5755	20.1	19.3	187.4	22.7	30	PASS
159	5795	19.3	19.2	168.3	22.3	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	100037	Aug. 03, 2009	Aug. 02, 2010

NOTE:

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

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

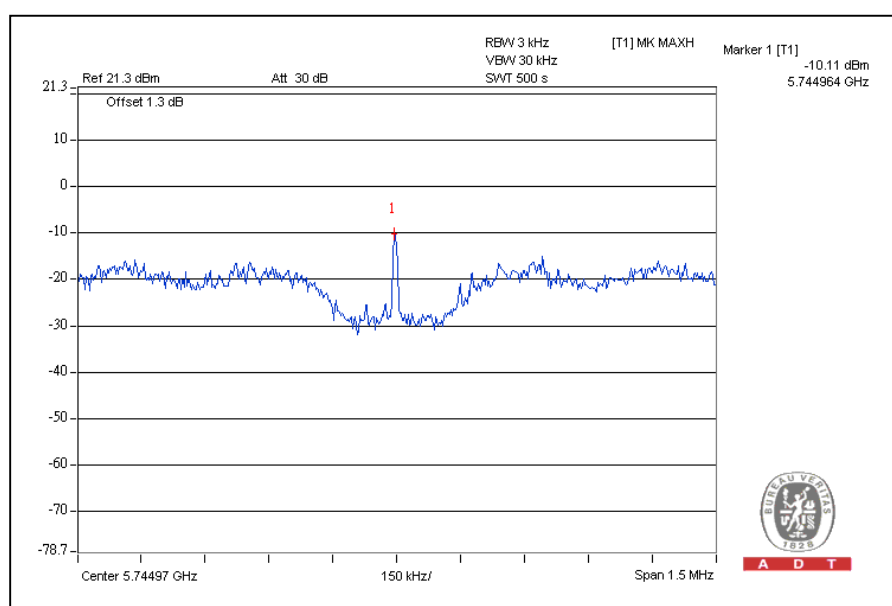
Same as Item 4.3.6

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	-10.1	8	PASS
157	5785	-12.7	8	PASS
165	5825	-12.2	8	PASS

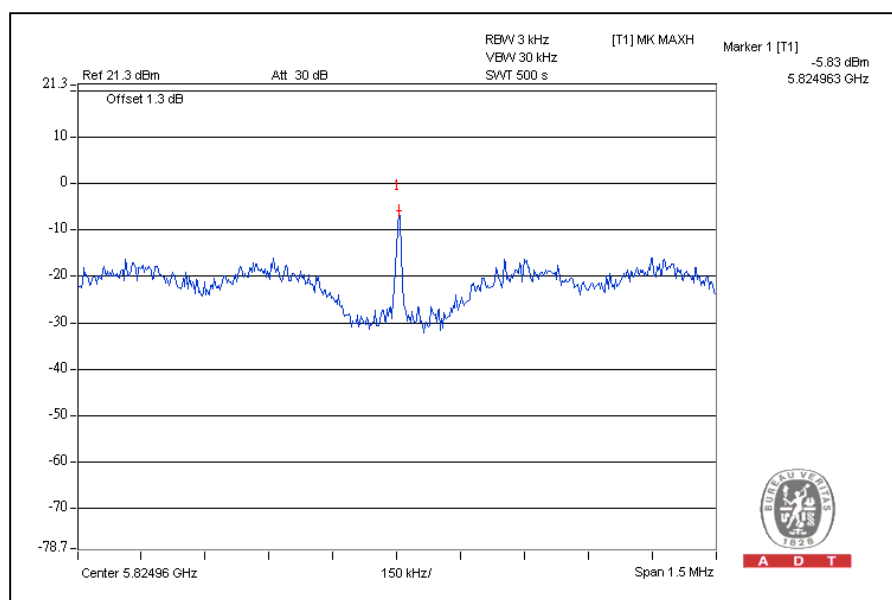
CH149



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
149	5745	-12.9	-16.4	0.1	-10.0	8	PASS
157	5785	-10.1	-15.7	0.1	-10.0	8	PASS
165	5825	-5.8	-8.8	0.4	-4.0	8	PASS

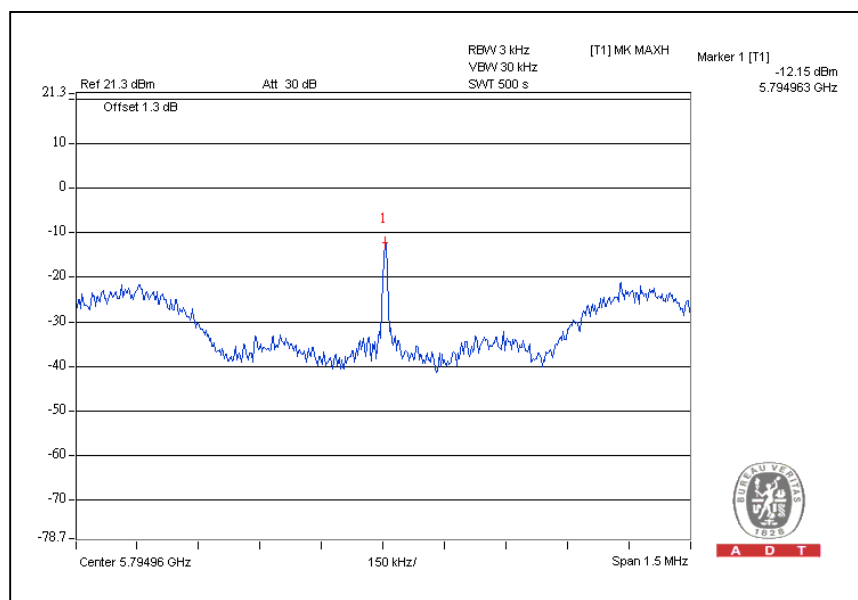
For Chain(0): CH165



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
151	5755	-12.6	-20.5	0.1	-10.0	8	PASS
159	5795	-12.2	-15.1	0.1	-10.0	8	PASS

For Chain(0): CH159



5.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

5.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

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

5.6.2 TEST INSTRUMENTS

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

NOTE:

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

5.6.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low loss cable. Set RBW of spectrum analyzer to 100 kHz with suitable frequency span including 100 MHz 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

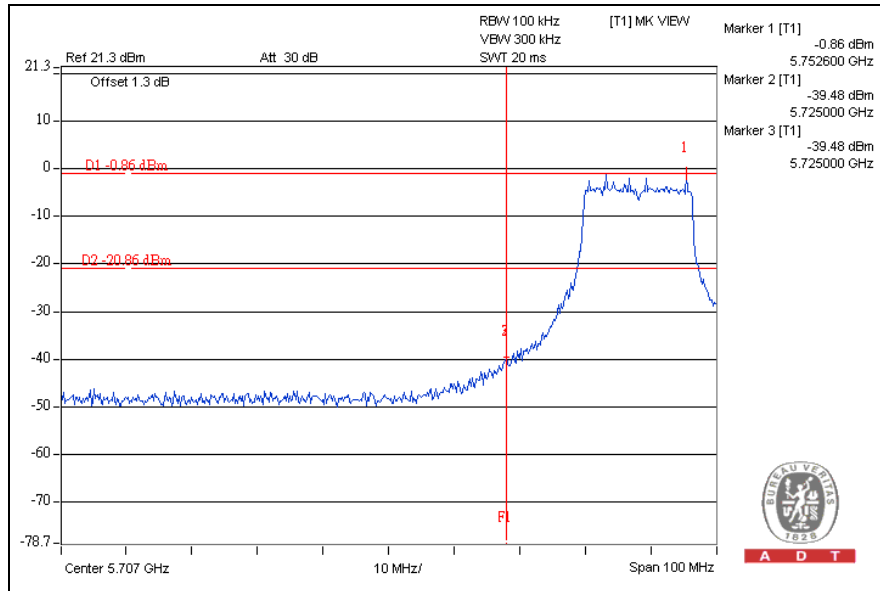
Same as Item 4.3.6

5.6.6 TEST RESULTS

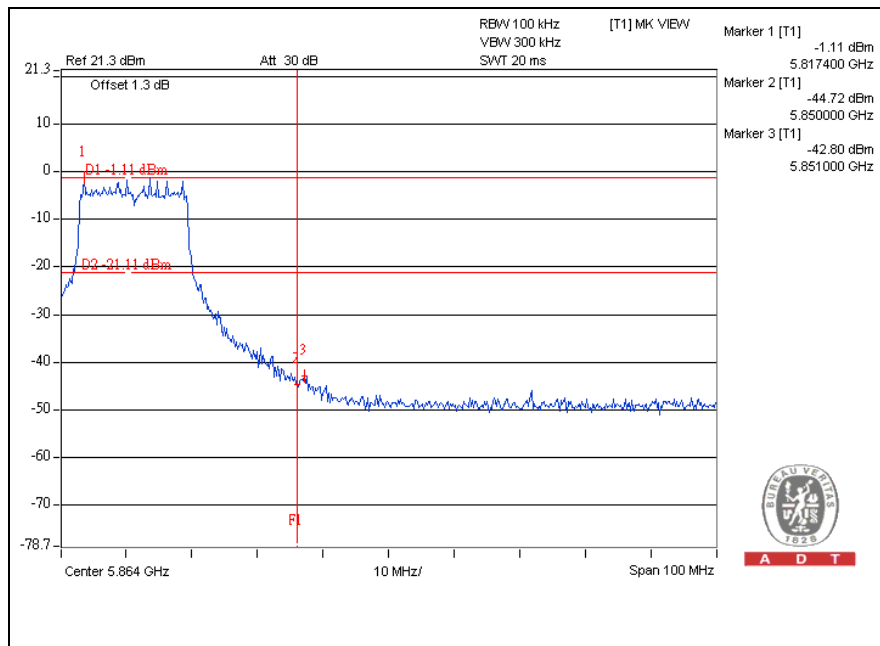
The spectrum plots are attached on the following pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(d).

802.11a OFDM modulation

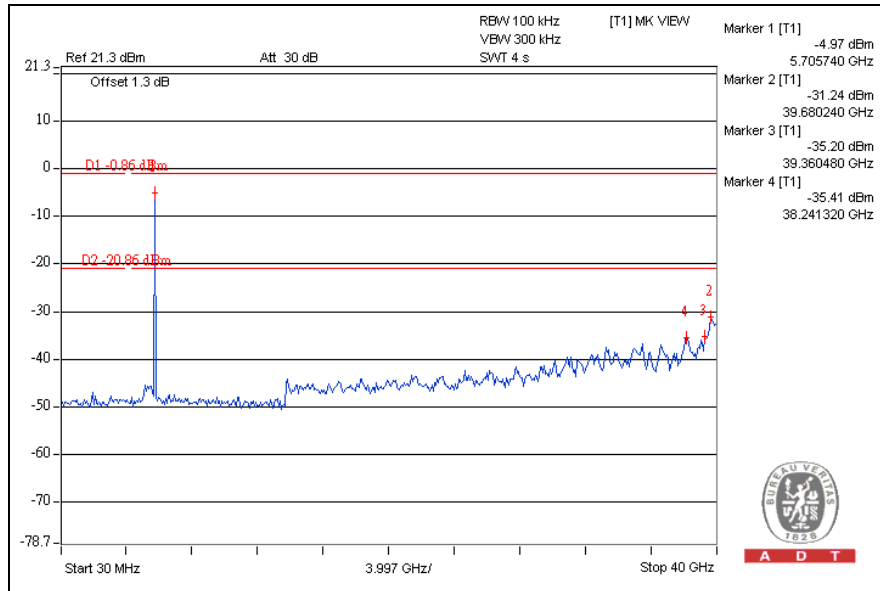
CH149



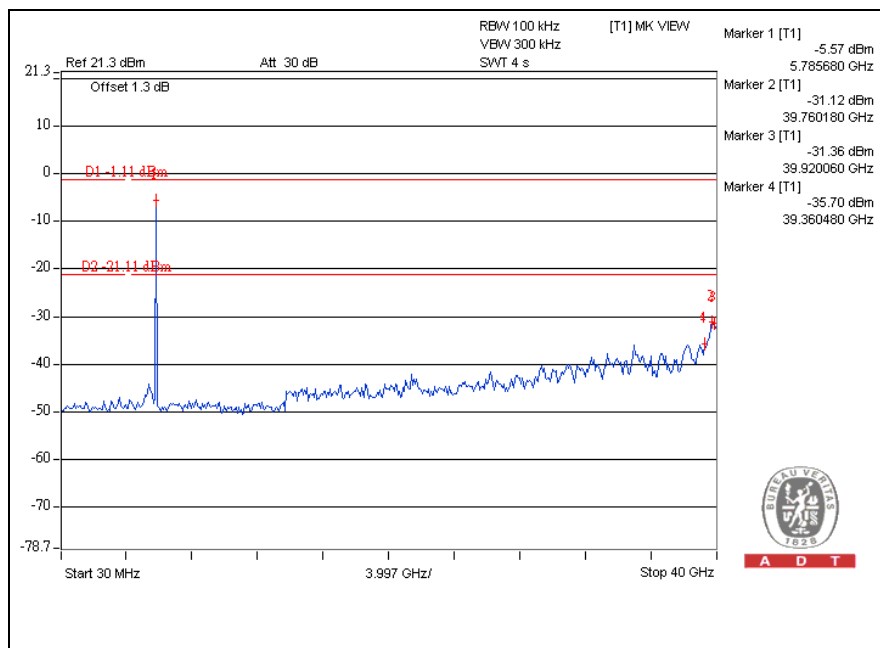
CH165



CH149

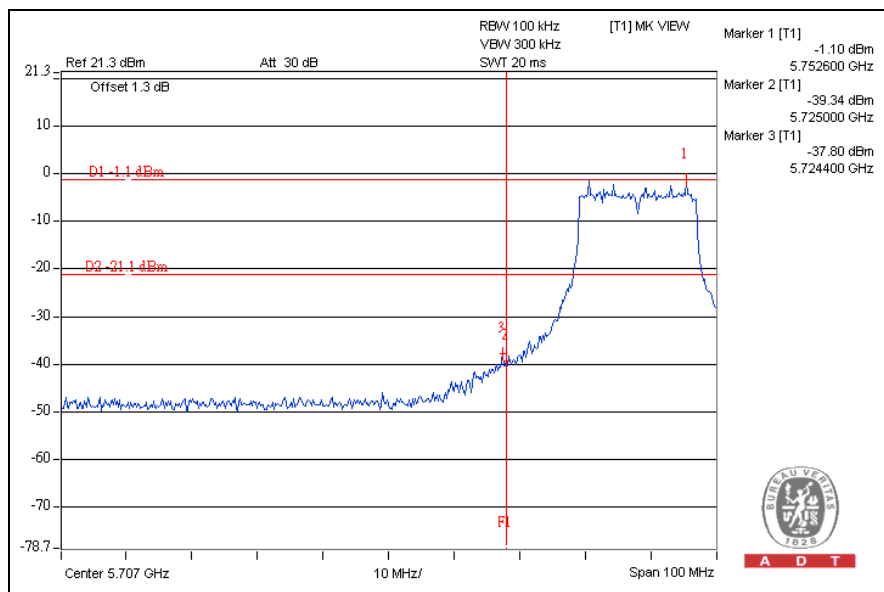


CH165

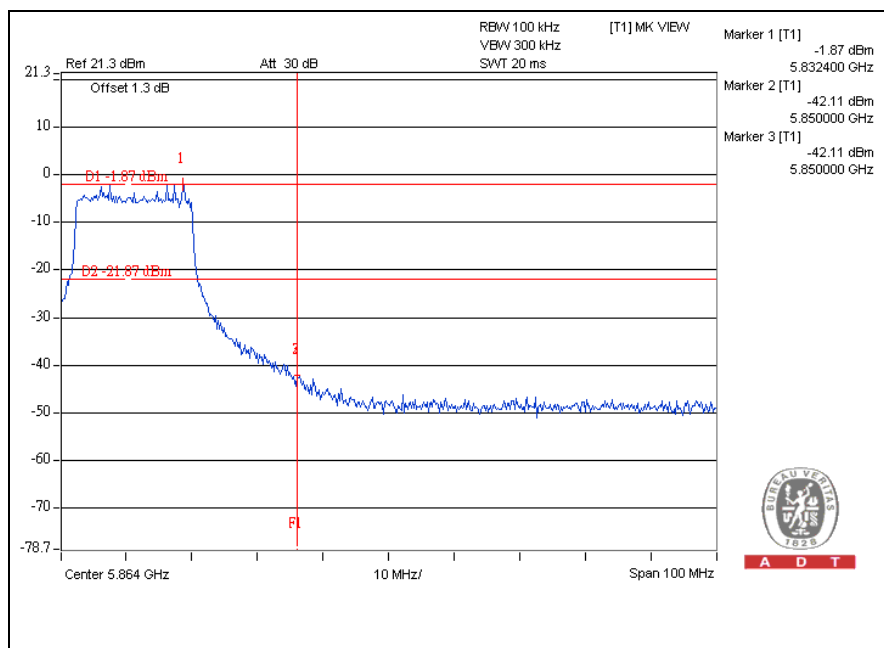


802.11n (20MHz) OFDM MODULATION:

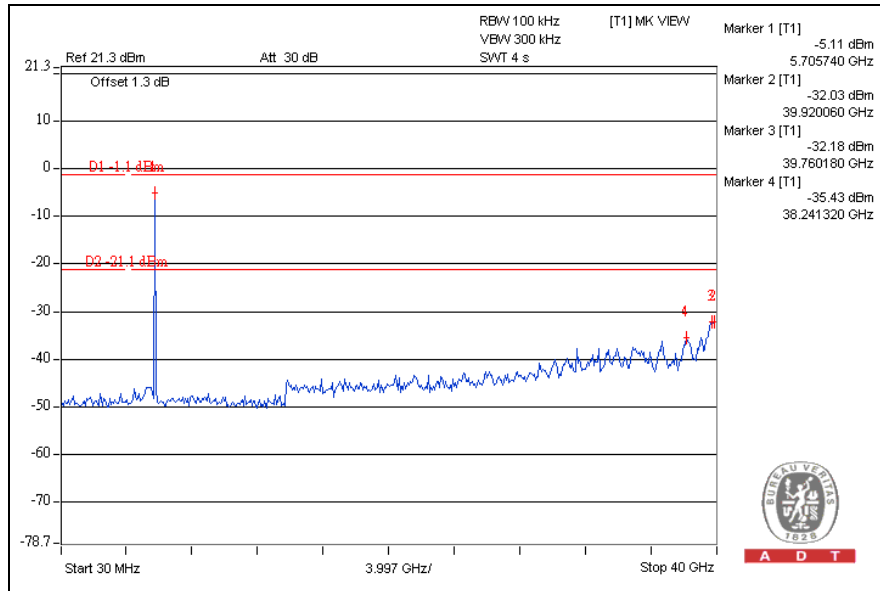
CH149



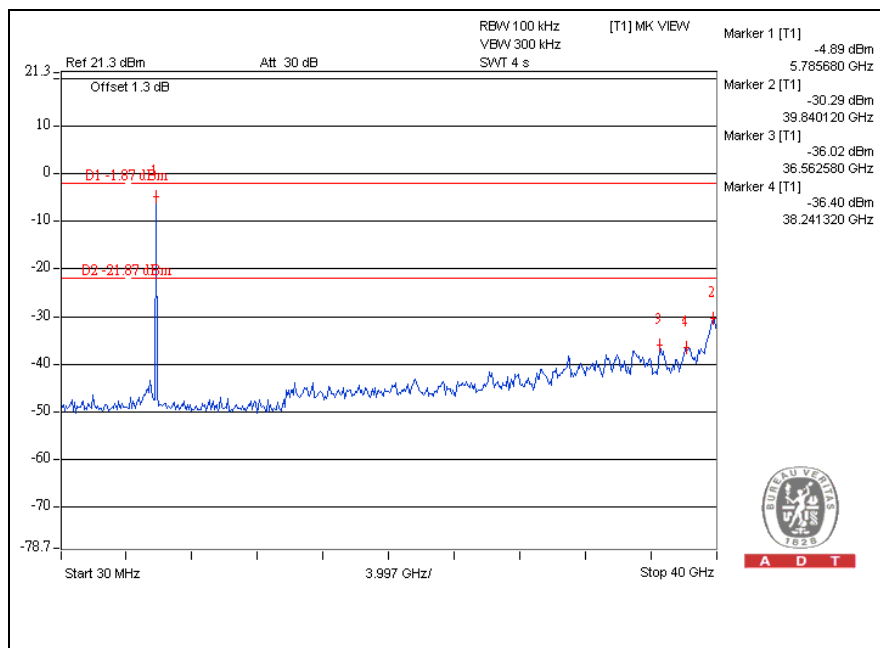
CH165



CH149

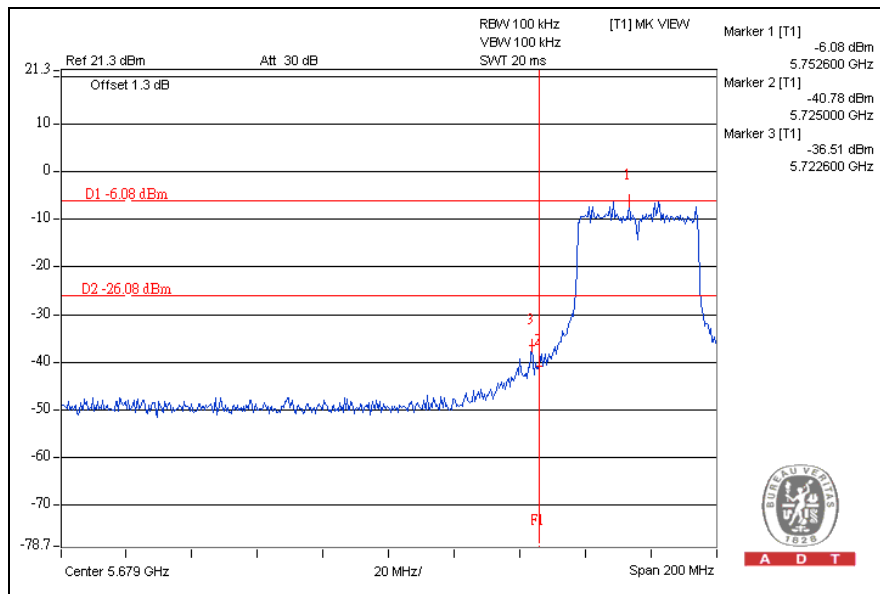


CH165

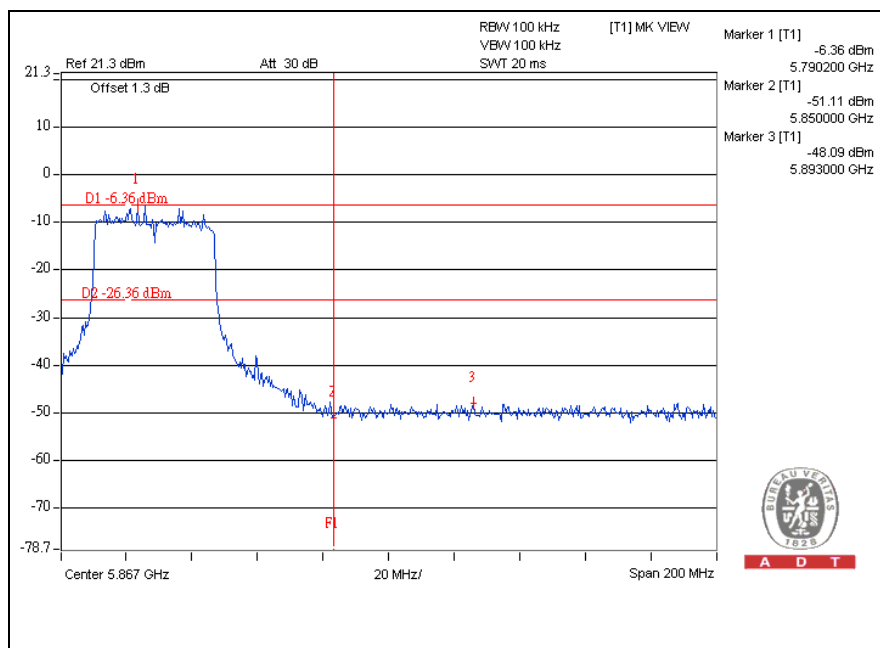


802.11n (40MHz) OFDM MODULATION:

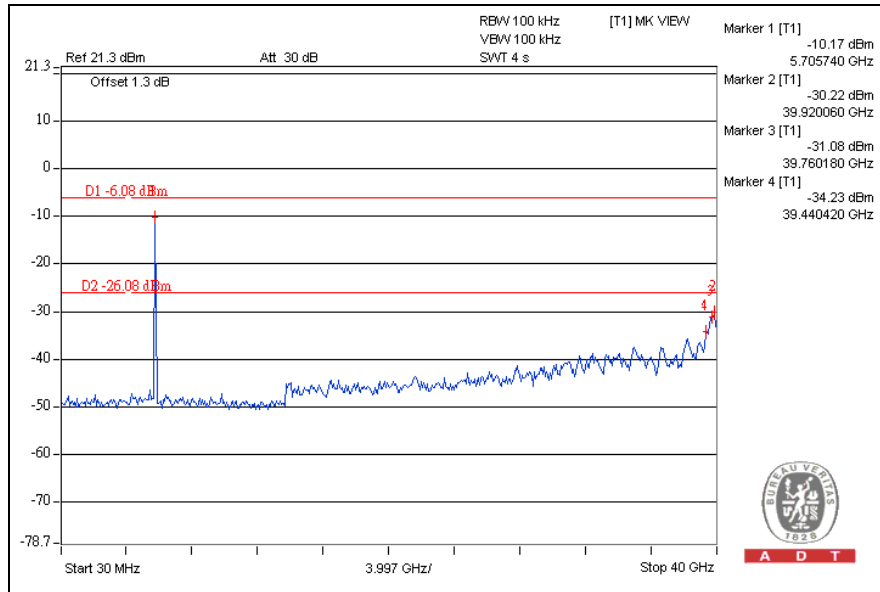
CH151



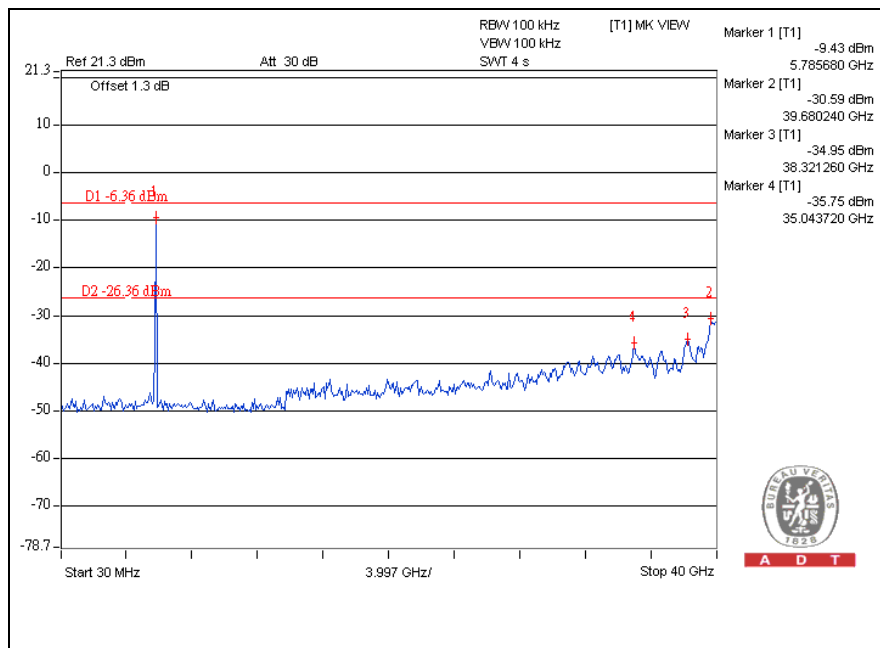
CH159



CH151



CH159





A D T

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 by the following approval agencies according to ISO/IEC 17025:

USA	FCC, NVLAP
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA, CSA
R.O.C.	TAF, BSMI, NCC
Netherlands	Telefication
Singapore	GOST-ASIA (MOU)
Russia	CERTIS (MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site:

www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Telecom Lab:

Tel: 886-3-3183232

Fax: 886-3-3185050

Web Site: www.adt.com.tw

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



A D T

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---