

FCC TEST REPORT (15.247)

REPORT NO.: RF960524H05A

MODEL NO.: U98H038

RECEIVED: June 05, 2007

TESTED: June 22 to 27, 2007

ISSUED: June 28, 2007

APPLICANT: Hon Hai PRECISION IND.CO.,LTD

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Science-Based Industrial Park Taiwan,
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ISSUED BY: Advance Data Technology Corporation

TEST LOCATION: No. 81-1, Lu Liao Keng, 9 Ling, Wu Lung
Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien,
Taiwan, R.O.C.

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No. 2177-01

Table of Contents

1.	CERTIFICATION	4
2.	SUMMARY OF TEST RESULTS	5
2.1	MEASUREMENT UNCERTAINTY	7
3.	GENERAL INFORMATION	8
3.1	GENERAL DESCRIPTION OF EUT	8
3.2	DESCRIPTION OF TEST MODES	11
3.2.1	TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:	12
3.3	GENERAL DESCRIPTION OF APPLIED STANDARDS	15
3.4	DESCRIPTION OF SUPPORT UNITS	16
3.5	CONFIGURATION OF SYSTEM UNDER TEST	16
4.	TEST TYPES AND RESULTS (802.11b & g, 2400 ~ 2483.5MHz Band).....	17
4.1	RADIATED EMISSION MEASUREMENT	17
4.1.1	LIMITS OF RADIATED EMISSION MEASUREMENT	17
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
	Below 1GHz Test Data	21
4.1.7	TEST RESULTS	21
	Above 1GHz Test Data	22
4.1.8	TEST RESULTS	22
4.2	MAXIMUM PEAK OUTPUT POWER.....	50
4.2.1	LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT	50
4.2.2	INSTRUMENTS	50
4.2.3	TEST PROCEDURES.....	51
4.2.4	DEVIATION FROM TEST STANDARD	51
4.2.5	TEST SETUP	51
4.2.6	EUT OPERATING CONDITIONS	51
4.2.7	TEST RESULTS	52
4.3	BAND EDGES MEASUREMENT	54
4.3.1	LIMITS OF BAND EDGES MEASUREMENT	54
4.3.2	TEST INSTRUMENTS	54
4.3.3	TEST PROCEDURE	54
4.3.4	DEVIATION FROM TEST STANDARD	55
4.3.5	EUT OPERATING CONDITION.....	55
4.3.6	TEST RESULTS	55
4.4	ANTENNA REQUIREMENT.....	68

4.4.1	STANDARD APPLICABLE.....	68
4.4.2	ANTENNA CONNECTED CONSTRUCTION.....	68
5.	TEST TYPES AND RESULTS (802.11a, 5725~5850MHz Band)	69
5.1	RADIATED EMISSION MEASUREMENT	69
5.1.1	LIMITS OF RADIATED EMISSION MEASUREMENT	69
5.1.2	TEST INSTRUMENTS	70
5.1.3	TEST PROCEDURES.....	71
5.1.4	DEVIATION FROM TEST STANDARD	71
5.1.5	TEST SETUP	72
5.1.6	EUT OPERATING CONDITIONS	72
	Below 1GHz Test Data	73
5.1.7	TEST RESULTS	73
	Above 1GHz Test Data.....	74
5.1.8	TEST RESULTS	74
5.2	MAXIMUM PEAK OUTPUT POWER.....	82
5.2.1	LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT	82
5.2.2	INSTRUMENTS	82
5.2.3	TEST PROCEDURES.....	83
5.2.4	DEVIATION FROM TEST STANDARD	83
5.2.5	TEST SETUP	83
5.2.6	EUT OPERATING CONDITIONS	83
5.2.7	TEST RESULTS	84
5.3	BAND EDGES MEASUREMENT	86
5.3.1	LIMITS OF BAND EDGES MEASUREMENT	86
5.3.2	TEST INSTRUMENTS	86
5.3.3	TEST PROCEDURE	87
5.3.4	DEVIATION FROM TEST STANDARD	87
5.3.5	EUT OPERATING CONDITION.....	87
5.3.6	TEST RESULTS.....	88
5.4	ANTENNA REQUIREMENT.....	99
5.4.1	STANDARD APPLICABLE.....	99
5.4.2	ANTENNA CONNECTED CONSTRUCTION.....	99
6.	INFORMATION ON THE TESTING LABORATORIES.....	100
	APPENDIX-A.....	A-1

1. CERTIFICATION

PRODUCT: Wireless LAN 802.11a/b/g/n Device
BRAND NAME: Foxconn
MODEL NO.: U98H038
TEST SAMPLE: R&D SAMPLE
TESTED: June 22 to 27, 2007
APPLICANT: Hon Hai PRECISION IND.CO.,LTD
STANDARDS: FCC Part 15, Subpart C (Section 15.247),
ANSI C63.4-2003

The above equipment (Model: U98H038) has been tested by **Advance Data Technology Corporation**, 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 :  , **DATE:** June 28, 2007
(Midoli Peng, Specialist)

TECHNICAL ACCEPTANCE :  , **DATE:** June 28, 2007
Responsible for RF (Hank Chung, Deputy Manager)

APPROVED BY :  , **DATE:** June 28, 2007
(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
15.247(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 -1.22dB at 7311.00MHz
15.247(d)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.

For 802.11a, 5725~5850MHz Band

APPLIED STANDARD: FCC Part 15, Subpart C (Section 15.247)			
Standard Section	Test Type and Limit	Result	Remark
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -3.78dB at 7766.00MHz
15.247(d)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.

NOTE:

1. The EUT was operating in 2.412 ~ 2.462GHz, 5.15~5.25GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 2.412 ~ 2.462GHz and 5.725 ~ 5.850GHz. For the 5.15~5.25GHz RF parameters was recorded in another test report.
2. This report is prepared for FCC class II permissive change. Only radiated emission, Maximum Peak Output Power and Band Edge Measurement were presented in this 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:

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

Measurement	Value
Conducted emissions	2.41 dB
Radiated emissions (30MHz-1GHz)	3.89 dB
Radiated emissions (1GHz -18GHz)	2.21 dB
Radiated emissions (18GHz -40GHz)	1.88 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wireless LAN 802.11a/b/g/n Device
MODEL NO.	U98H038
FCC ID	MCLU98H038
POWER SUPPLY	DC 3.3V from host equipment
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11 / 5.5 / 2 / 1Mbps 802.11g: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6Mbps 802.11a: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6Mbps Draft 802.11n (20MHz): 130 / 117 / 104 / 78 / 65 / 58.5 / 52 / 39 / 26 / 19.5 / 13 / 6.5Mbps Draft 802.11n (40MHz): 270 / 243 / 216 / 162 / 135 / 121.5 / 108 / 81 / 54 / 40.5 / 27 / 13.5Mbps
FREQUENCY RANGE	For 15.407 802.11a: 5.18 ~ 5.24GHz
	For 15.247 802.11b & 802.11g: 2412 ~ 2462MHz 802.11a: 5.745 ~ 5.825GHz
NUMBER OF CHANNEL	For 15.407 4 for 802.11a (5.18 ~ 5.24GHz) , draft 802.11n (20MHz) 3 for draft 802.11n (40MHz)
	For 15.247(2.4GHz) 11 for 802.11b, 802.11g, draft 802.11n (20MHz) 7 for draft 802.11n (40MHz) For 15.247(5GHz) 5 for 802.11a(5.725~5.825GHz), draft 802.11n (20MHz) 3 for draft 802.11n (40MHz)

MAXIMUM OUTPUT POWER	For 15.407 802.11a: 23.823mW draft 802.11n (20MHz): 27.081mW draft 802.11n (40MHz): 50.761mW For 15.247(2.4GHz) 802.11b: 83.368mW 802.11g: 133.045mW draft 802.11n (20MHz): 175.338mW draft 802.11n (40MHz): 55.404mW For 15.247(5GHz) 802.11a: 97.724mW draft 802.11n (20MHz): 167.943mW draft 802.11n (40MHz): 197.724mW
ANTENNA TYPE	Please see note 1
DATA CABLE	NA
I/O PORT	NA

NOTE:

1. This report is prepared for FCC class II permissive change. The difference compared with the Report No.:RF960524H05 design is as the following:

◆ Change the antenna from external to Internal as below:

Original					
Transmitter Circuit	Antenna Type	Antenna Connector	Gain(dBi)		
			2412~2462 (MHz)	5150~5250 (MHz)	5725~5850 (MHz)
Chain(0)	Printed	Reverse SMA	1.5	0.5	-0.86
Chain(1)			-2.5	-11.4	-7.31
Chain(2)			1.28	1.09	-0.43
Newly					
Transmitter Circuit	Antenna Type	Antenna Connector	Gain(dBi)		
			2412~2462 (MHz)	5150~5250 (MHz)	5725~5850 (MHz)
Chain(0)	Printed	UFL	2.4	3.12	1.91
Chain(1)			0.46	3.72	2.32
Chain(2)			3.67	1.86	1.44

2. The EUT incorporates a MIMO function with 802.11a, 802.11b, 802.11g, draft 802.11n. Physically, the card provides two completed transmit and three completed receivers.
3. The EUT is 2 * 3 spatial MIMO (2Tx & 3Rx) without beam forming function. The antenna configurations are two transmitter antennas and three receiver antennas, as there are 3 printed antennas. Spatial multiplexing modes for simultaneous transmission using 2 antennas, and for simultaneous receiver using 3 antennas.
4. When the EUT operating in draft 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 15.
5. The EUT complies with draft 802.11n standards and backwards compatible with 802.11a, 802.11b, 802.11g products.
6. For radiated test (Below 1 GHz) the EUT was pre-tested under following test mode, and the test data was recorded in this report:

For 2.4GHz	
Pre-test Mode	Description
Mode A	802.11b
Mode B	802.11g
Mode C	Draft 802.11n (20MHz)
Mode D	Draft 802.11n (40MHz)
For 5GHz	
Pre-test Mode	Description
Mode E	802.11a
Mode F	Draft 802.11n (20MHz)
Mode G	Draft 802.11n (40MHz)

The worst emission level was found in Mode C & Mode F. The final test was executed under test mode with highest emission and recorded in this report individually.

7. 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, draft 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 draft 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, draft 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	5745 MHz	4	5805 MHz
2	5765 MHz	5	5825 MHz
3	5785 MHz		

Three channels are provided for 802.11a, draft 802.11n (40MHz):

CHANNEL	FREQUENCY
1	5755 MHz
2	5775 MHz
3	5795 MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE < 1G	RE ≥ 1G	APCM	
-	X	√	√	√	-

Where **PLC**: Power Line Conducted Emission

RE < 1G: Radiated Emission below 1GHz

RE ≥ 1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

COMBINATION MODE:

COMBINATION MODE	OPERATION MODE	TX CHAIN(0)	TX CHAIN(1)	TX CHAIN(2)
A	802.11 a, b ,g	√		
B	802.11 a, b ,g			√
C	DRAFT 802.11n(20MHz)	√		√
D	DRAFT 802.11n(40MHz)	√		√

COMBINATION MODE	OPERATION MODE	RX CHAIN(0)	RX CHAIN(1)	RX CHAIN(2)
E	802.11 a, b ,g	√		
F	802.11 a, b ,g			√
G	802.11 a, b ,g		√	
H	DRAFT 802.11n(20MHz)	√	√	√
i	DRAFT 802.11n(40MHz)	√	√	√

Note:

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

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 Draft 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	6.5	C
For 5 GHz Draft 802.11n (20MHz)	1 to 5	3	OFDM	BPSK	6.5	C

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	CCK	1	A
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	A
For 2.4 GHz Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	C
For 2.4 GHz Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5	D
802.11a	1 to 5	1, 3, 5	OFDM	BPSK	6	A
For 5 GHz Draft 802.11n (20MHz)	1 to 5	1, 3, 5	OFDM	BPSK	6.5	C
For 5 GHz Draft 802.11n (40MHz)	1 to 3	1, 3	OFDM	BPSK	13.5	D

BANDEDGE 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	CCK	1	A
802.11g	1 to 11	1, 11	OFDM	BPSK	6	A
For 2.4 GHz Draft 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	6.5	C
For 2.4 GHz Draft 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	13.5	D
802.11a	1 to 5	1, 5	OFDM	BPSK	6	A
For 5 GHz Draft 802.11n (20MHz)	1 to 5	1, 5	OFDM	BPSK	6.5	C
For 5 GHz Draft 802.11n (40MHz)	1 to 3	1, 3	OFDM	BPSK	13.5	D

ANTENNA PORT CONDUCTED 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, 6, 11	DSSS	CCK	1	A
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	A
For 2.4 GHz Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	C
For 2.4 GHz Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5	D
802.11a	1 to 5	1, 3, 5	OFDM	BPSK	6	A
For 2.4 GHz Draft 802.11n (20MHz)	1 to 5	1, 3, 5	OFDM	BPSK	6.5	C
For 2.4 GHz Draft 802.11n (40MHz)	1 to 3	1, 3	OFDM	BPSK	13.5	D

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Wireless LAN 802.11a/b/g/n Device. 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 is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It 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

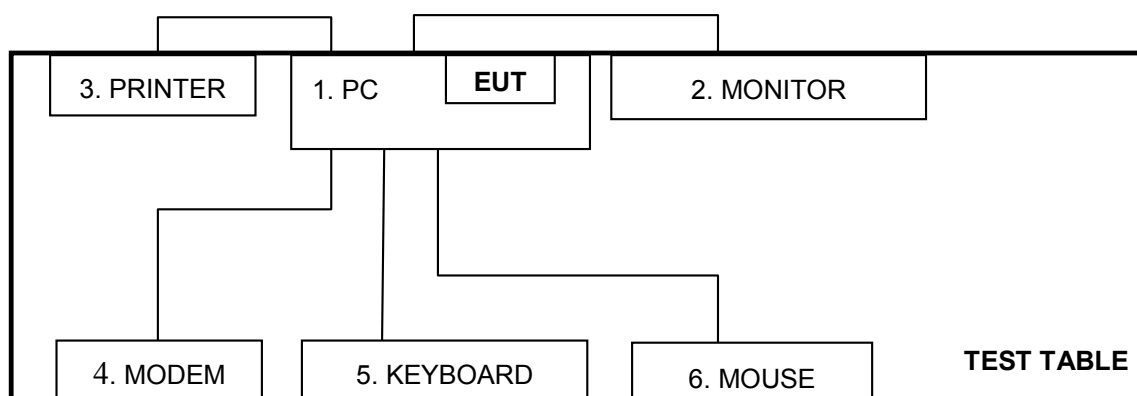
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	PC	Lenovo	8010	NA	FCC DoC
2	MONITOR	ADI	G1000	240058T00100081	NA
3	PRINTER	EPSON	LQ-300+	DCGY046777	FCC DoC
4	MODEM	ACEEX	1414	0206026775	IFAXDM1414
5	Keyboard	DELL	SK-8115	CN-OJ4635-71616-62I-01M9	NA
6	Mouse	DELL	M056UOA	FOROOSWW	FCC DoC

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	1.8 m braid shielded wire, terminated with VGA connector via metallic frame, w/o cores
3	1.8m braid shielded wire, terminated with DB25 and Centronics connector via metallic frame, w/o core.
4	1.2 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core.
5	1.8m foil shielded wire, terminated with PS/2 connector via metallic frame, w/o core.
6	1.8m foil shielded wire, terminated with PS/2 connector via drain wire, w/o core.

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

3.5 CONFIGURATION OF SYSTEM UNDER TEST



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

4.1 RADIATED EMISSION MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

NOTE:

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ADVANTEST Spectrum Analyzer	R3271A	85060311	July 03, 2007
HP Pre_Amplifier	8449B	3008A01922	Sep. 18, 2007
ROHDE & SCHWARZ Test Receiver	ESCS30	100375	Sep. 20, 2007
CHASE Broadband Antenna	VULB 9168	138	July 17, 2007
Schwarzbeck Horn_Antenna	BBHA9120	D124	Jan. 01, 2008
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 05, 2008
SCHWARZBECK Biconical Antenna	VHBA9123	459	Jun. 08, 2009
SCHWARZBECK Periodic Antenna	UPA6108	1148	Jun. 08, 2009
RF Switches (ARNITSU)	CS-201	1565157	NA
RF CABLE (Chaintek)	SF102	22054-2	Nov. 14, 2007
RF Cable(RICHTEC)	9913-30M N-N Cable	STCCAB-30M-1 GHz	Jul. 15, 2007
Software	ADT_Radiated_V 7.6.15.7	NA	NA
CHANCE MOST Antenna Tower	AT-100	0203	NA
CHANCE MOST Turn Table	TT-100	0203	NA

- Note: 1. The calibration interval of the above test instruments is 12 months (36 months for Biconical and Periodic Antenna) and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: R3271A) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in ADT 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 4824A-3.

4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi- anechoic. 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 10 dB 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 10 dB margin would be re-tested one by one using the quasi-peak method or average method as specified and then reported in Data sheet peak mode and QP mode.

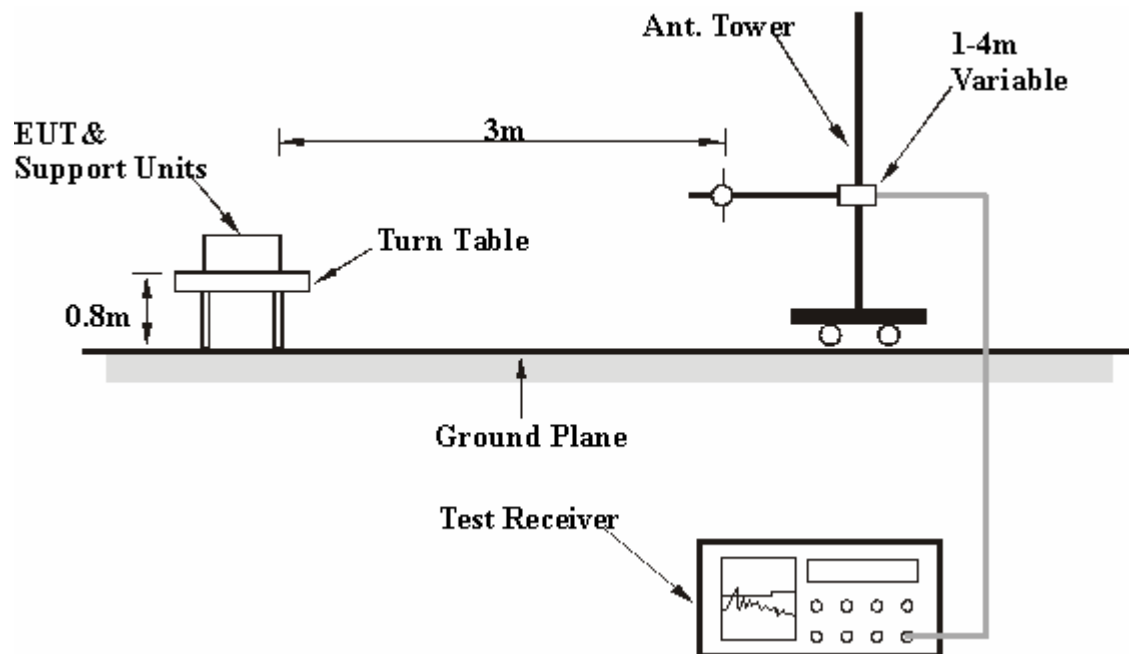
NOTE:

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.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



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

4.1.6 EUT OPERATING CONDITIONS

- a. Plug the EUT into the support unit 1 (Personal computer) which placed on a testing table.
- b. The support unit 1 (Personal computer) ran a test program “ART V0_5_B6_01_ALL” to enable EUT under transmission condition continuously.

Below 1GHz Test Data

4.1.7 TEST RESULTS

802.11n (20MHz) OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK for draft 802.11n (20MHz)	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	6.5Mbps	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	31deg. C, 59%RH, 971hPa	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	48.71	21.19 QP	40.00	-18.81	1.39 H	126	6.22	14.97
2	266.67	26.49 QP	46.00	-19.51	1.10 H	306	11.60	14.89
3	399.75	29.05 QP	46.00	-16.95	1.00 H	262	10.04	19.01
4	500.03	37.35 QP	46.00	-8.65	1.10 H	82	15.59	21.76
5	528.03	31.31 QP	46.00	-14.69	1.12 H	270	8.72	22.59
6	666.72	33.94 QP	46.00	-12.06	1.52 H	205	8.65	25.29
7	800.03	35.68 QP	46.00	-10.32	1.19 H	59	8.12	27.56

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	48.71	23.08 QP	40.00	-16.92	1.00 V	1	8.11	14.97
2	266.69	25.92 QP	46.00	-20.08	1.00 V	358	11.03	14.89
3	400.01	28.37 QP	46.00	-17.63	1.00 V	26	9.35	19.02
4	500.01	33.90 QP	46.00	-12.10	1.00 V	7	12.14	21.76
5	527.98	37.82 QP	46.00	-8.18	1.00 V	342	15.23	22.59
6	666.70	33.96 QP	46.00	-12.04	1.46 V	285	8.67	25.29
7	799.80	35.23 QP	46.00	-10.77	1.34 V	242	7.67	27.56

- 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 Test Data

4.1.8 TEST RESULTS

802.11b DSSS MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	CCK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	1Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 62%RH, 971hPa	TESTED BY	Wen Yu

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	57.70 PK	74.00	-16.30	1.85 H	20	27.32	30.38
2	2386.00	47.03 AV	54.00	-6.97	1.85 H	20	16.65	30.38
3	*2412.00	103.08 PK			1.59 H	15	72.59	30.49
4	*2412.00	98.59 AV			1.59 H	15	68.10	30.49
5	4824.00	47.97 PK	74.00	-26.03	1.00 H	2	12.28	35.69
6	4824.00	36.45 AV	54.00	-17.55	1.00 H	2	0.76	35.69
7	7236.00	51.97 PK	74.00	-22.03	1.54 H	25	9.73	42.24
8	7236.00	38.85 AV	54.00	-15.15	1.54 H	25	-3.39	42.24

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.00	59.19 PK	74.00	-14.81	1.08 V	298	28.81	30.38
2	2386.00	47.86 AV	54.00	-6.14	1.08 V	298	17.48	30.38
3	*2412.00	104.03 PK			1.08 V	299	73.54	30.49
4	*2412.00	99.36 AV			1.08 V	299	68.87	30.49
5	4824.00	47.04 PK	74.00	-26.96	1.28 V	351	11.35	35.69
6	4824.00	34.26 AV	54.00	-19.74	1.28 V	351	-1.43	35.69
7	7236.00	52.74 PK	74.00	-21.26	1.13 V	21	10.50	42.24
8	7236.00	39.40 AV	54.00	-14.60	1.13 V	21	-2.84	42.24

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	CCK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	1Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 62%RH, 971hPa	TESTED BY	Wen Yu

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	103.19 PK			2.00 H	44	72.58	30.61
2	*2437.00	98.40 AV			2.00 H	44	67.79	30.61
3	4874.00	49.07 PK	74.00	-24.93	1.18 H	2	13.27	35.80
4	4874.00	40.36 AV	54.00	-13.64	1.18 H	2	4.56	35.80
5	7311.00	54.23 PK	74.00	-19.77	1.30 H	35	11.71	42.52
6	7311.00	40.37 AV	54.00	-13.63	1.30 H	35	-2.15	42.52

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	105.61 PK			1.33 V	298	75.00	30.61
2	*2437.00	100.83 AV			1.33 V	298	70.22	30.61
3	4874.00	48.73 PK	74.00	-25.27	1.32 V	0	12.93	35.80
4	4874.00	38.72 AV	54.00	-15.28	1.32 V	0	2.92	35.80
5	7311.00	54.52 PK	74.00	-19.48	1.23 V	351	12.00	42.52
6	7311.00	40.59 AV	54.00	-13.41	1.23 V	351	-1.93	42.52

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

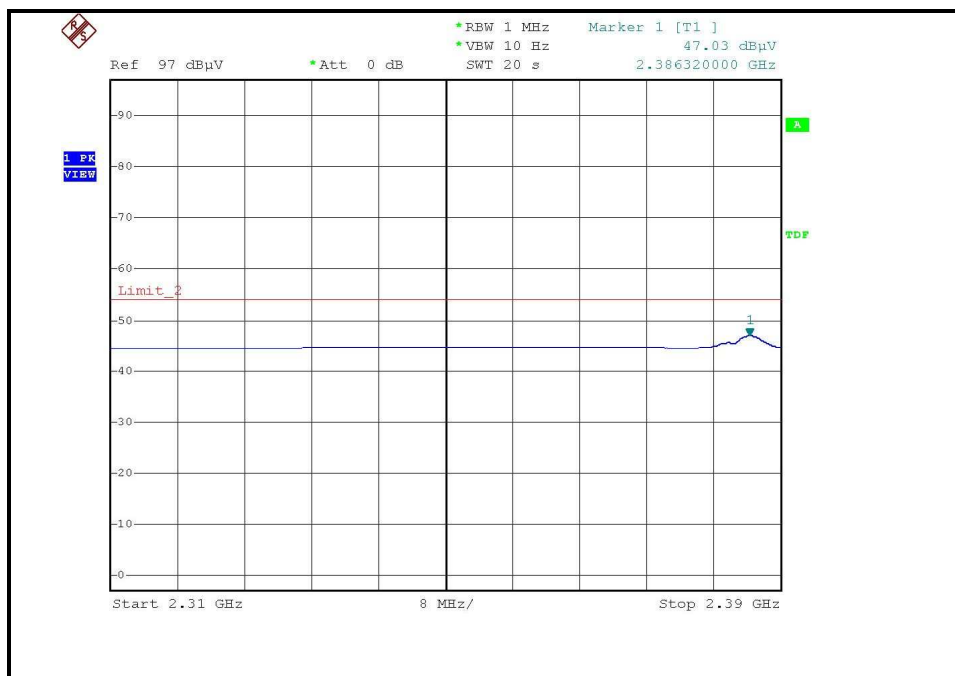
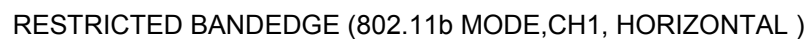
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	CCK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	1Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 62%RH, 971hPa	TESTED BY	Wen Yu

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	104.86 PK			2.01 H	44	74.14	30.72
2	*2462.00	100.22 AV			2.01 H	44	69.50	30.72
3	2487.00	59.73 PK	74.00	-14.27	1.90 H	45	28.90	30.83
4	2487.00	50.02 AV	54.00	-3.98	1.90 H	45	19.19	30.83
5	4924.00	49.42 PK	74.00	-24.58	1.07 H	1	13.52	35.90
6	4924.00	41.03 AV	54.00	-12.97	1.07 H	1	5.13	35.90
7	7386.00	54.43 PK	74.00	-19.57	1.47 H	28	11.63	42.80
8	7386.00	40.57 AV	54.00	-13.43	1.47 H	28	-2.23	42.80

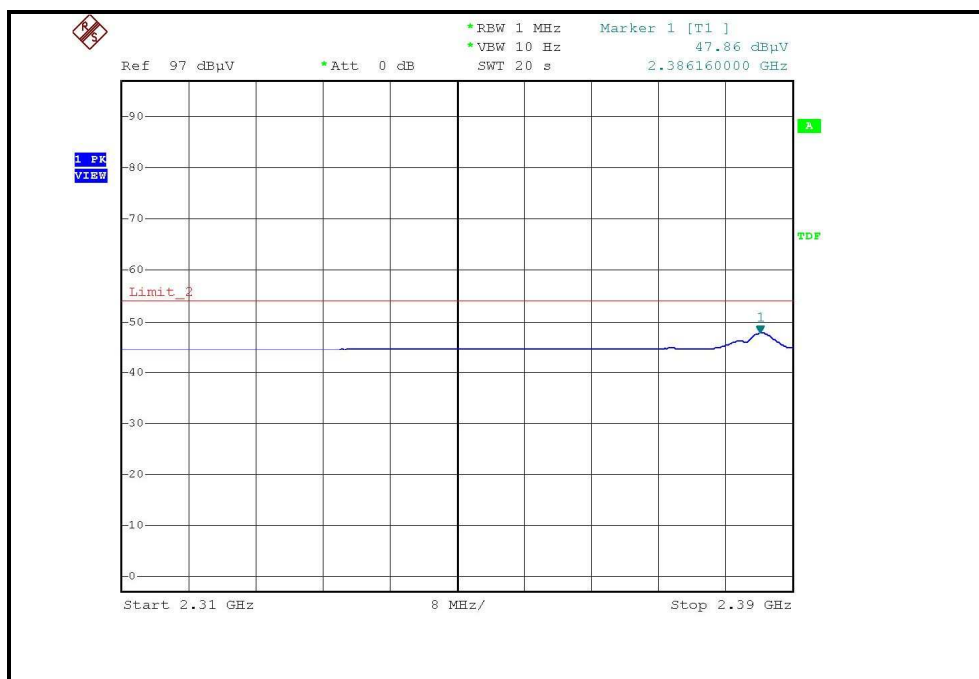
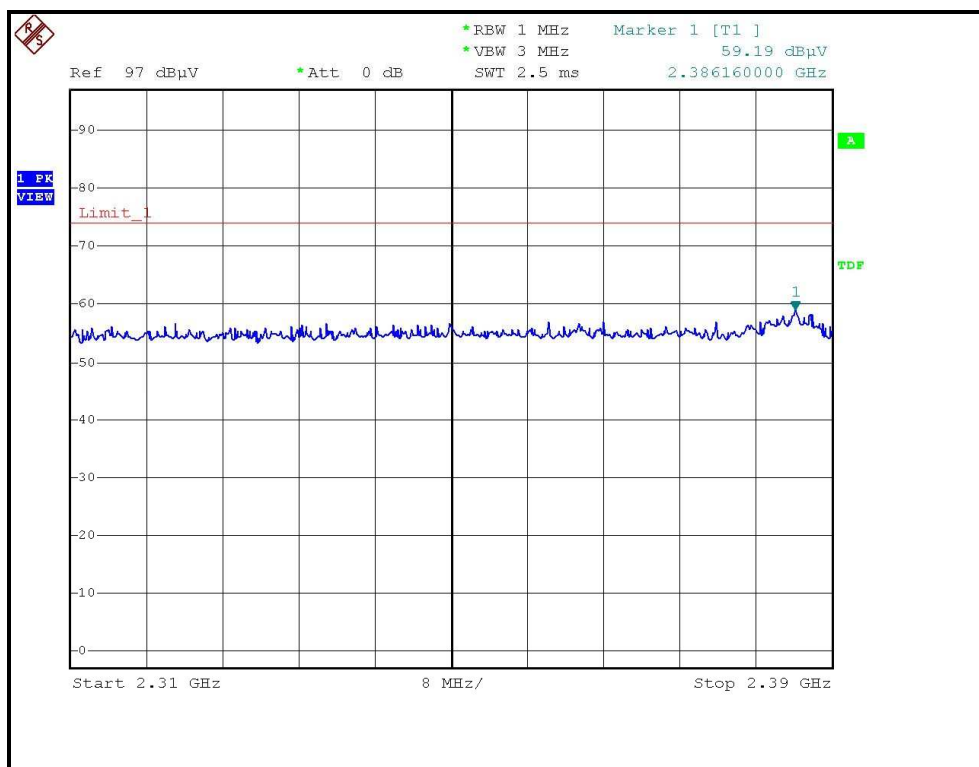
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.95 PK			1.29 V	304	75.23	30.72
2	*2462.00	101.15 AV			1.29 V	304	70.43	30.72
3	2487.00	59.56 PK	74.00	-14.44	1.30 V	304	28.73	30.83
4	2487.00	51.47 AV	54.00	-2.53	1.30 V	304	20.64	30.83
5	4924.00	49.09 PK	74.00	-24.91	1.36 V	1	13.19	35.90
6	4924.00	39.67 AV	54.00	-14.33	1.36 V	1	3.77	35.90
7	7386.00	54.58 PK	74.00	-19.42	1.16 V	19	11.78	42.80
8	7386.00	40.65 AV	54.00	-13.35	1.16 V	19	-2.15	42.80

REMARKS:

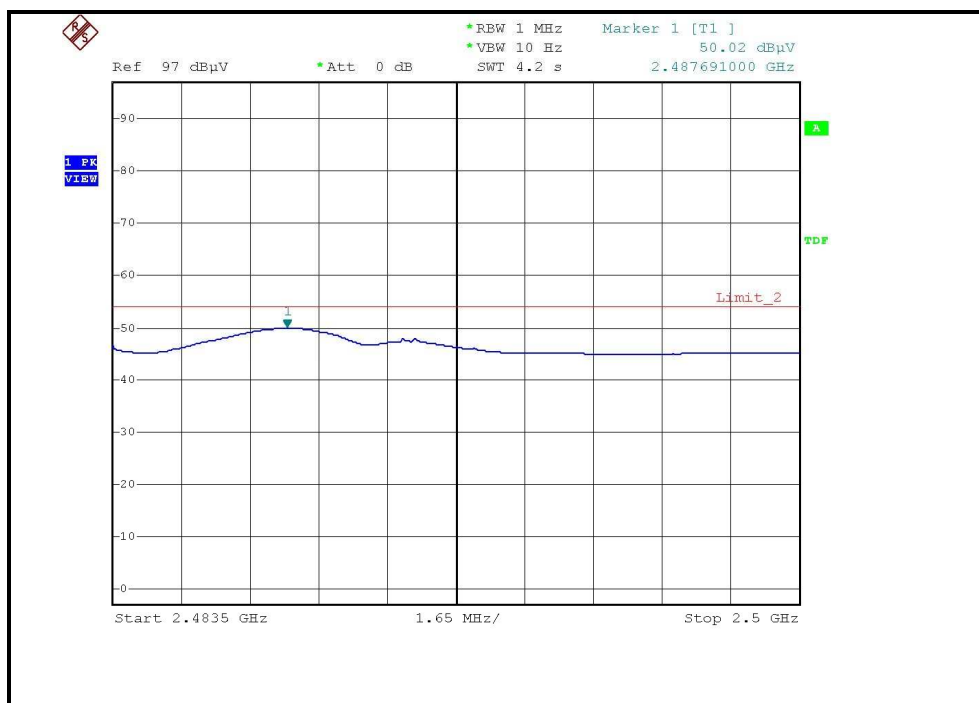
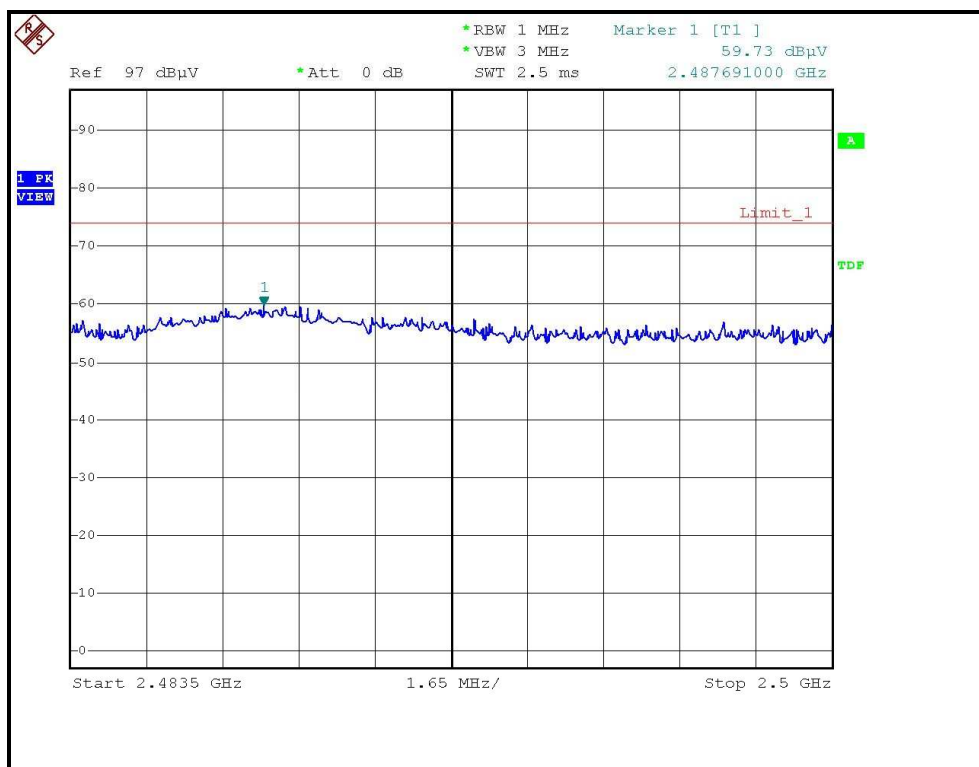
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247.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



RESTRICTED BANDEDGE (802.11b MODE,CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11b MODE, CH11, HORIZONTAL)



802.11g OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	6Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 62%RH, 971hPa	TESTED BY	Wen Yu

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	58.42 PK	74.00	-15.58	1.59 H	11	28.02	30.40
2	2390.00	45.48 AV	54.00	-8.52	1.59 H	11	15.08	30.40
3	*2412.00	102.69 PK			1.92 H	140	72.20	30.49
4	*2412.00	92.75 AV			1.92 H	140	62.26	30.49
5	4824.00	47.35 PK	74.00	-26.65	1.28 H	46	11.66	35.69
6	4824.00	33.46 AV	54.00	-20.54	1.28 H	46	-2.23	35.69
7	7236.00	54.27 PK	74.00	-19.73	1.39 H	263	12.03	42.24
8	7236.00	40.52 AV	54.00	-13.48	1.39 H	263	-1.72	42.24

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.63 PK	74.00	-15.37	1.40 V	278	28.23	30.40
2	2390.00	45.45 AV	54.00	-8.55	1.40 V	278	15.05	30.40
3	*2412.00	101.60 PK			1.41 V	277	71.11	30.49
4	*2412.00	91.36 AV			1.41 V	277	60.87	30.49
5	4824.00	47.62 PK	74.00	-26.38	1.36 V	162	11.93	35.69
6	4824.00	33.51 AV	54.00	-20.49	1.36 V	162	-2.18	35.69
7	7236.00	54.56 PK	74.00	-19.44	1.15 V	277	12.32	42.24
8	7236.00	40.65 AV	54.00	-13.35	1.15 V	277	-1.59	42.24

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	6Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 62%RH, 971hPa	TESTED BY	Wen Yu

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	107.19 PK			1.94 H	137	76.58	30.61
2	*2437.00	96.25 AV			1.94 H	137	65.64	30.61
3	4874.00	48.45 PK	74.00	-25.55	1.22 H	43	12.65	35.80
4	4874.00	34.58 AV	54.00	-19.42	1.22 H	43	-1.22	35.80
5	7311.00	54.53 PK	74.00	-19.47	1.38 H	247	12.01	42.52
6	7311.00	40.66 AV	54.00	-13.34	1.38 H	247	-1.86	42.52

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.59 PK			1.40 V	245	75.98	30.61
2	*2437.00	95.94 AV			1.40 V	245	65.33	30.61
3	4874.00	48.23 PK	74.00	-25.77	1.30 V	147	12.43	35.80
4	4874.00	34.38 AV	54.00	-19.62	1.30 V	147	-1.42	35.80
5	7311.00	54.67 PK	74.00	-19.33	1.17 V	269	12.15	42.52
6	7311.00	40.73 AV	54.00	-13.27	1.17 V	269	-1.79	42.52

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

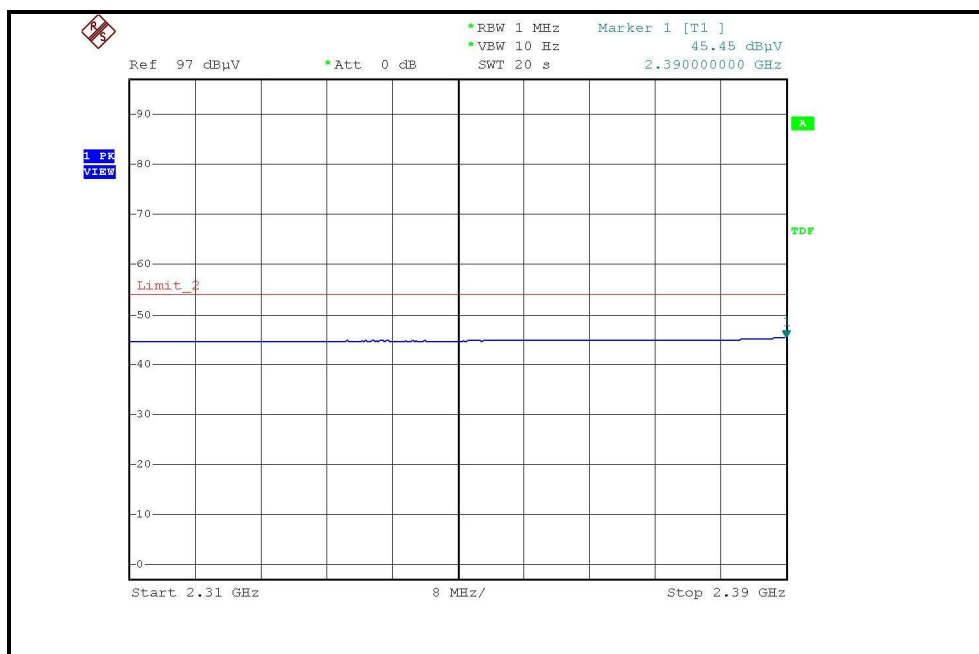
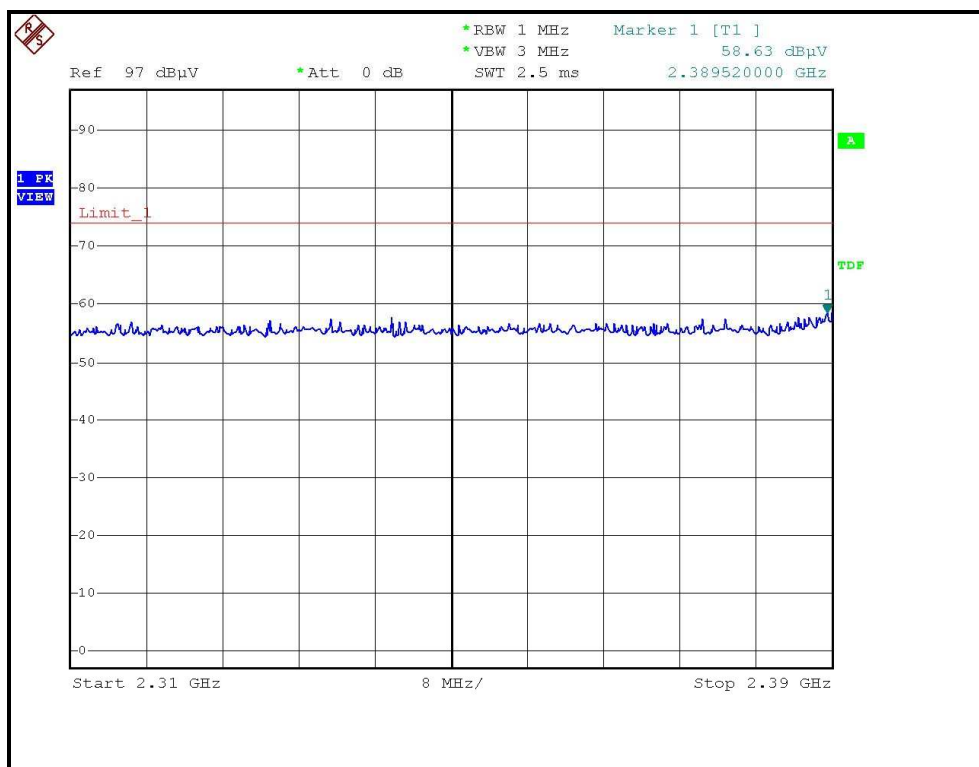
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	6Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 62%RH, 971hPa	TESTED BY	Wen Yu

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	105.23 PK			1.82 H	222	74.51	30.72
2	*2462.00	93.81 AV			1.82 H	222	63.09	30.72
3	2483.50	69.03 PK	74.00	-4.97	1.84 H	213	38.21	30.82
4	2483.50	50.40 AV	54.00	-3.60	1.84 H	213	19.58	30.82
5	4924.00	47.26 PK	74.00	-26.74	1.26 H	35	11.36	35.90
6	4924.00	33.38 AV	54.00	-20.62	1.26 H	35	-2.52	35.90
7	7386.00	54.38 PK	74.00	-19.62	1.36 H	251	11.58	42.80
8	7386.00	40.43 AV	54.00	-13.57	1.36 H	251	-2.37	42.80

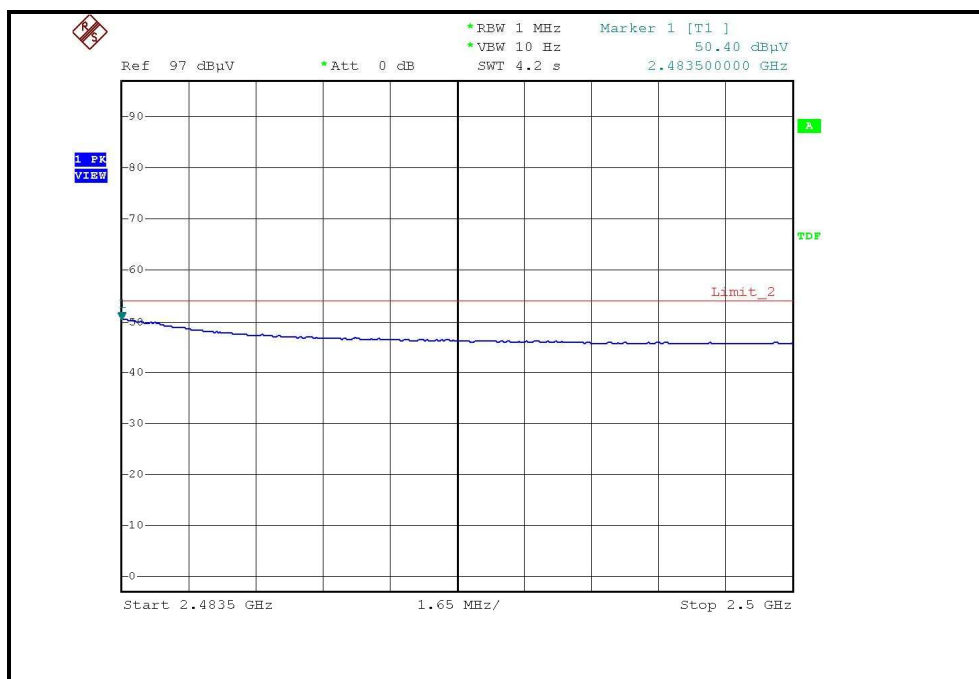
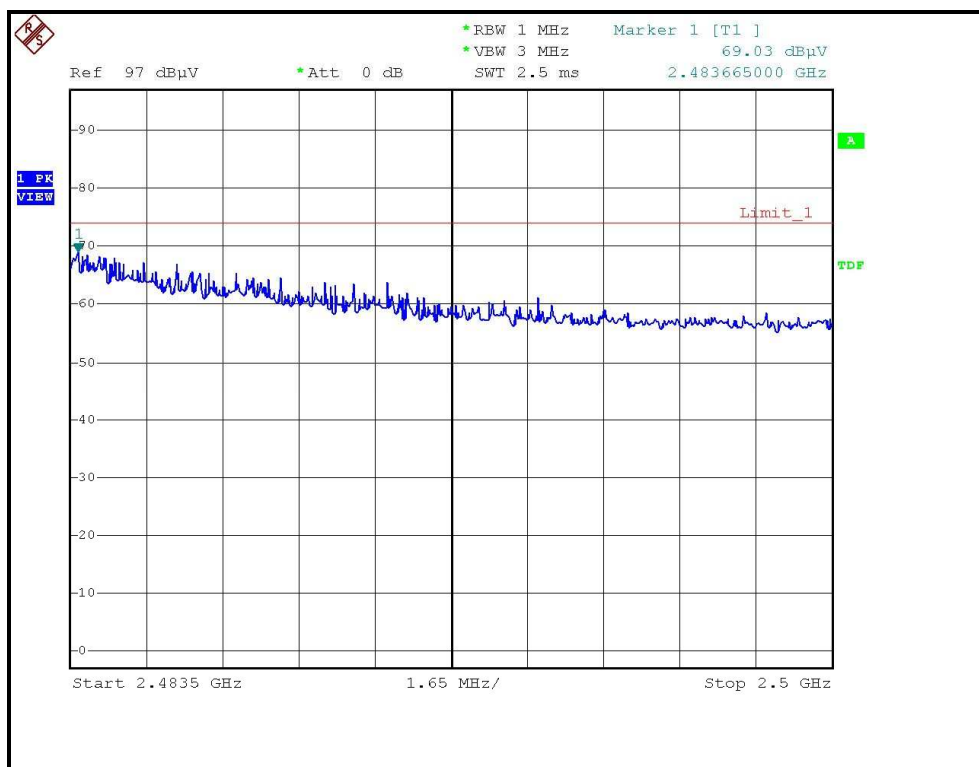
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.31 PK			1.62 V	1	73.59	30.72
2	*2462.00	93.46 AV			1.62 V	1	62.74	30.72
3	2483.50	68.06 PK	74.00	-5.94	1.61 V	359	37.24	30.82
4	2483.50	49.75 AV	54.00	-4.25	1.61 V	359	18.93	30.82
5	4924.00	47.15 PK	74.00	-26.85	1.36 V	158	11.25	35.90
6	4924.00	33.35 AV	54.00	-20.65	1.36 V	158	-2.55	35.90
7	7386.00	54.41 PK	74.00	-19.59	1.19 V	258	11.61	42.80
8	7386.00	40.56 AV	54.00	-13.44	1.19 V	258	-2.24	42.80

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

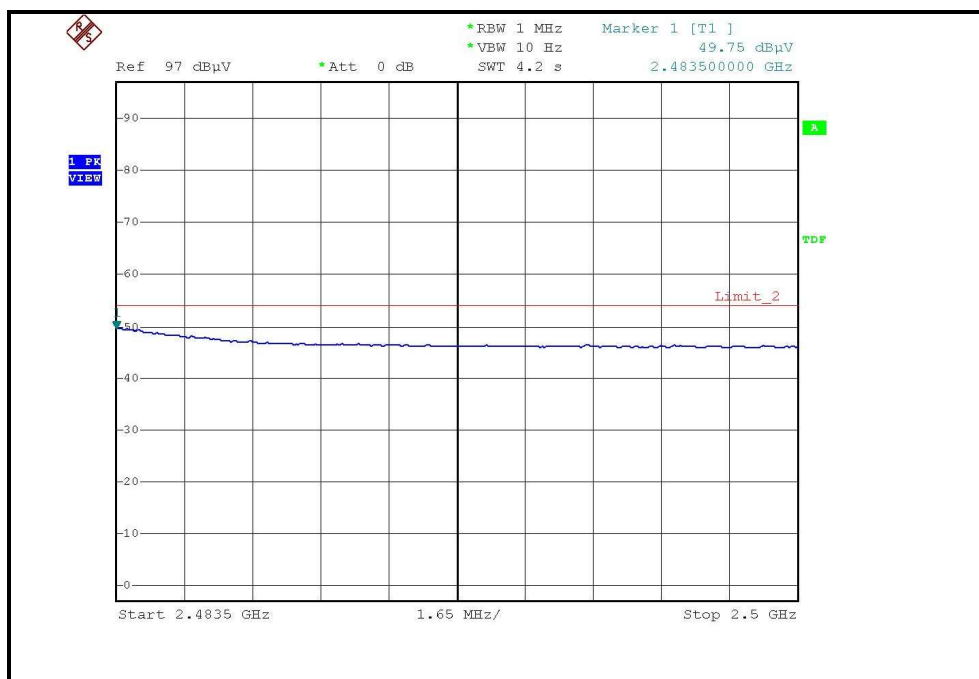
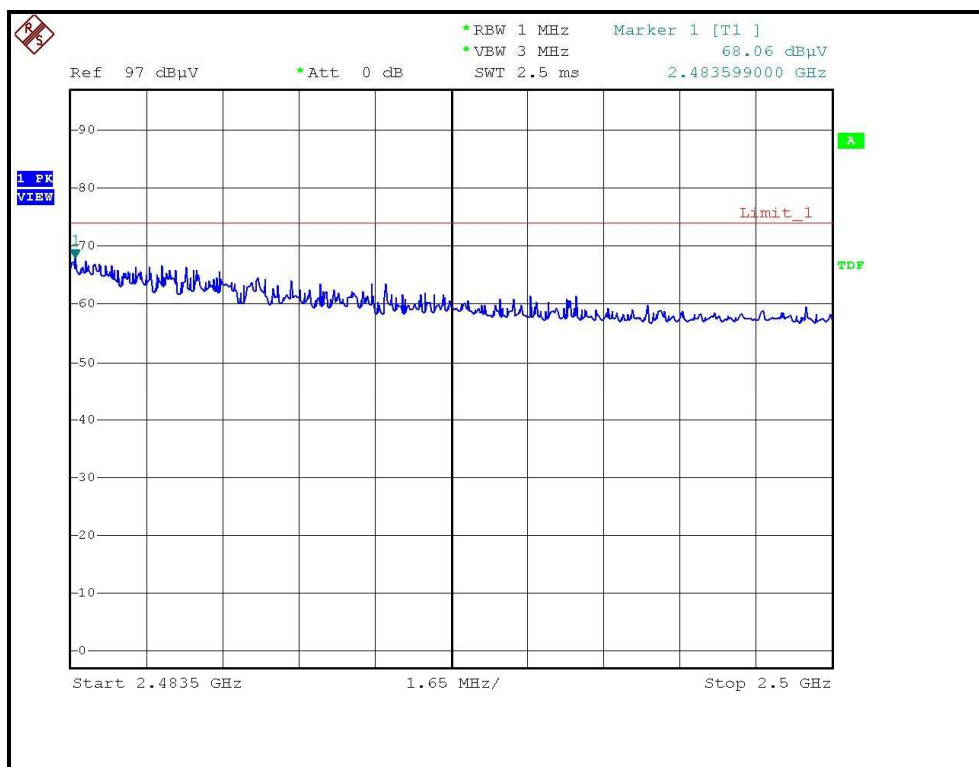
RESTRICTED BANDEDGE (802.11g MODE, CH1, VERTICAL)



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
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	6.5Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 62%RH, 971hPa	TESTED BY	Wen Yu

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	58.53 PK	74.00	-15.47	1.67 H	211	28.13	30.40
2	2390.00	46.13 AV	54.00	-7.87	1.67 H	211	15.73	30.40
3	*2412.00	105.92 PK			2.06 H	235	75.43	30.49
4	*2412.00	95.26 AV			2.06 H	235	64.77	30.49
5	4824.00	50.17 PK	74.00	-23.83	1.00 H	2	14.48	35.69
6	4824.00	32.48 AV	54.00	-21.52	1.00 H	2	-3.21	35.69
7	7236.00	69.54 PK	74.00	-4.46	1.30 H	14	27.30	42.24
8	7236.00	40.13 AV	54.00	-13.87	1.30 H	14	-2.11	42.24

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	62.06 PK	74.00	-11.94	1.37 V	306	31.66	30.40
2	2390.00	46.77 AV	54.00	-7.23	1.37 V	306	16.37	30.40
3	*2412.00	109.07 PK			1.34 V	306	78.58	30.49
4	*2412.00	97.91 AV			1.34 V	306	67.42	30.49
5	4824.00	50.67 PK	74.00	-23.33	1.27 V	355	14.98	35.69
6	4824.00	32.49 AV	54.00	-21.51	1.27 V	355	-3.20	35.69
7	7236.00	70.63 PK	74.00	-3.37	1.00 V	356	28.39	42.24
8	7236.00	41.28 AV	54.00	-12.72	1.00 V	356	-0.96	42.24

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	6.5Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 62%RH, 971hPa	TESTED BY	Wen Yu

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	111.44 PK			1.93 H	207	80.83	30.61
2	*2437.00	100.28 AV			1.93 H	207	69.67	30.61
3	4874.00	53.55 PK	74.00	-20.45	1.00 H	1	17.75	35.80
4	4874.00	34.35 AV	54.00	-19.65	1.00 H	1	-1.45	35.80
5	7311.00	71.26 PK	74.00	-2.74	1.29 H	13	28.74	42.52
6	7311.00	41.96 AV	54.00	-12.04	1.29 H	13	-0.56	42.52

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	112.21 PK			1.38 V	306	81.60	30.61
2	*2437.00	101.91 AV			1.38 V	306	71.30	30.61
3	4874.00	53.47 PK	74.00	-20.53	1.27 V	356	17.67	35.80
4	4874.00	34.10 AV	54.00	-19.90	1.27 V	356	-1.70	35.80
5	7311.00	72.78 PK	74.00	-1.22	1.00 V	356	30.26	42.52
6	7311.00	43.14 AV	54.00	-10.86	1.00 V	356	0.62	42.52

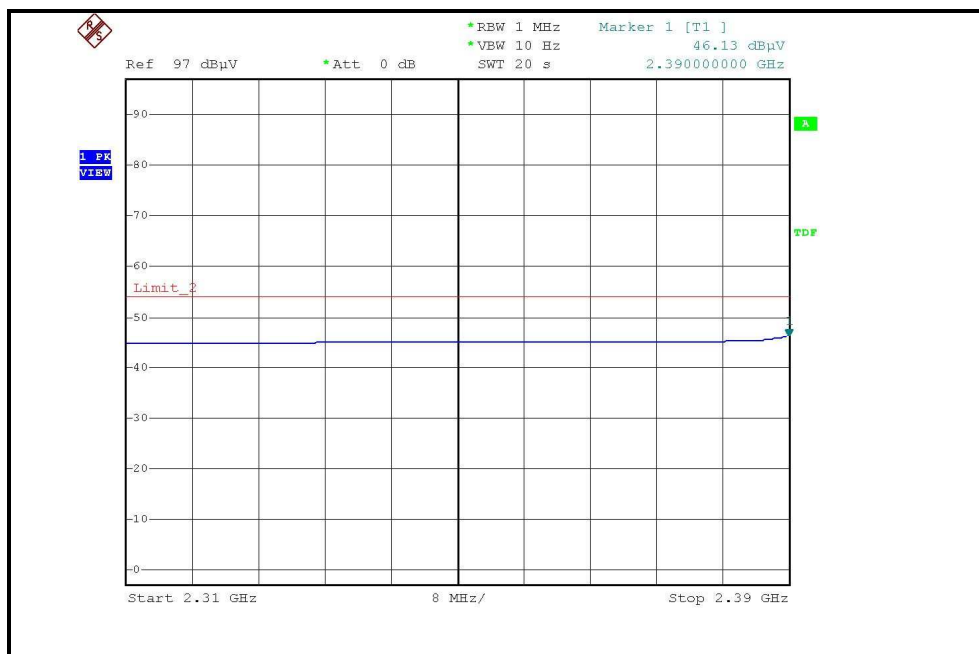
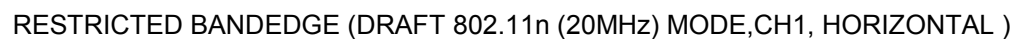
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	6.5Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 62%RH, 971hPa	TESTED BY	Wen Yu

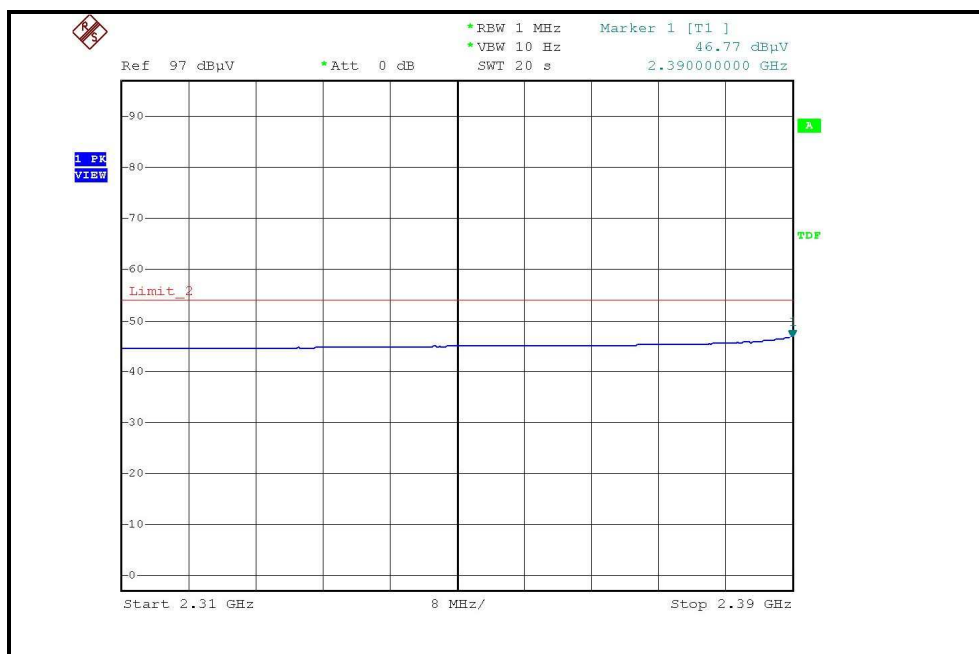
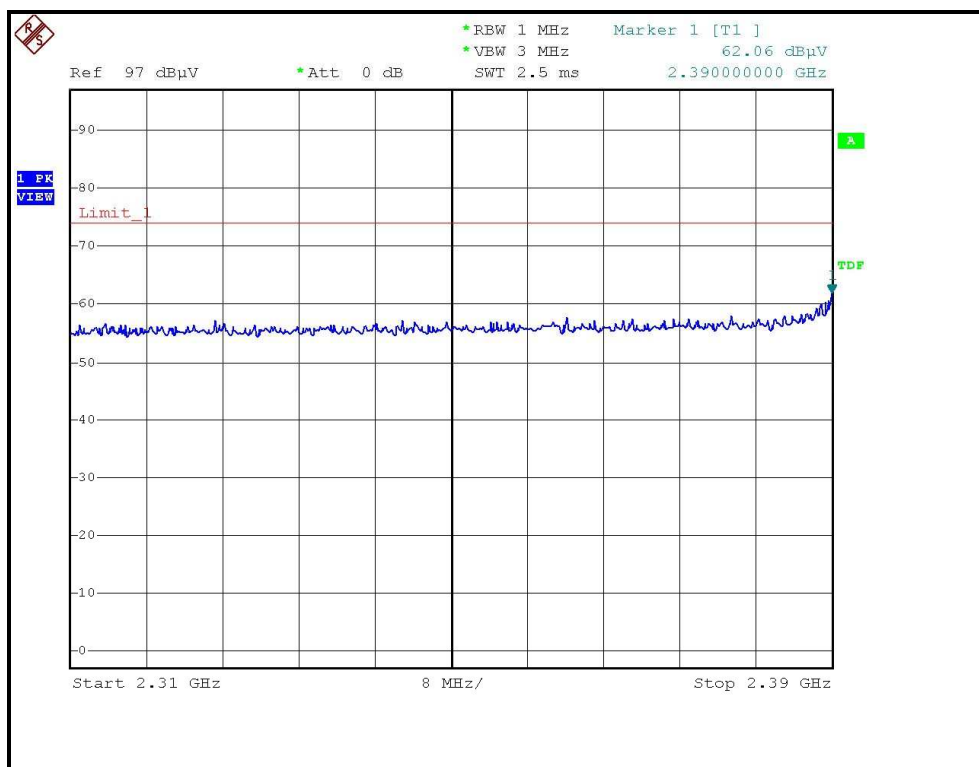
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	107.52 PK			1.97 H	238	76.80	30.72
2	*2462.00	97.03 AV			1.97 H	238	66.31	30.72
3	2483.50	70.39 PK	74.00	-3.61	1.99 H	169	39.57	30.82
4	2483.50	50.33 AV	54.00	-3.67	1.99 H	169	19.51	30.82
5	4924.00	50.28 PK	74.00	-23.72	1.00 H	0	14.38	35.90
6	4924.00	32.31 AV	54.00	-21.69	1.00 H	0	-3.59	35.90
7	7386.00	69.83 PK	74.00	-4.17	1.28 H	15	27.03	42.80
8	7386.00	40.28 AV	54.00	-13.72	1.28 H	15	-2.52	42.80

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.91 PK			1.32 V	306	78.19	30.72
2	*2462.00	98.54 AV			1.32 V	306	67.82	30.72
3	2483.50	72.74 PK	74.00	-1.26	1.63 V	0	41.92	30.82
4	2483.50	52.36 AV	54.00	-1.64	1.63 V	0	21.54	30.82
5	4924.00	50.43 PK	74.00	-23.57	1.28 V	357	14.53	35.90
6	4924.00	32.65 AV	54.00	-21.35	1.28 V	357	-3.25	35.90
7	7386.00	70.95 PK	74.00	-3.05	1.00 V	358	28.15	42.80
8	7386.00	41.05 AV	54.00	-12.95	1.00 V	358	-1.75	42.80

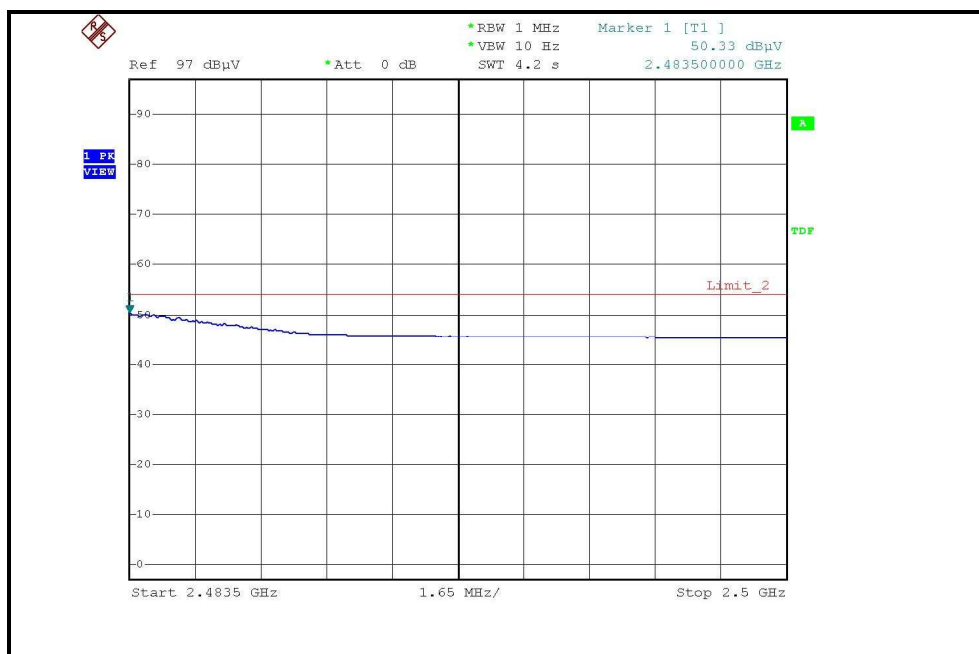
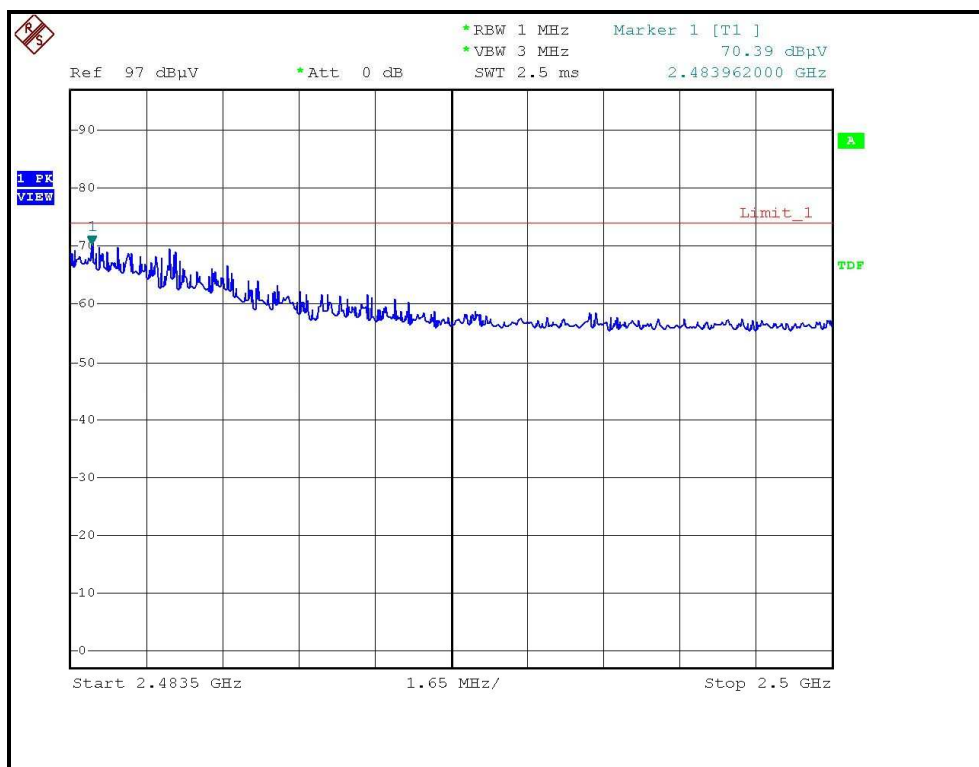
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. The limit value is defined as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



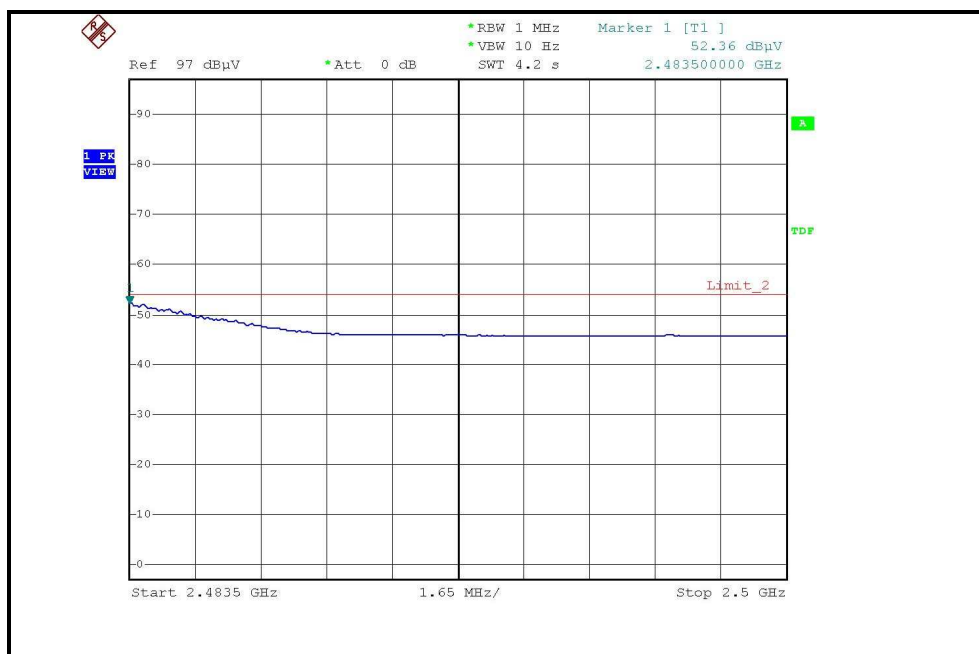
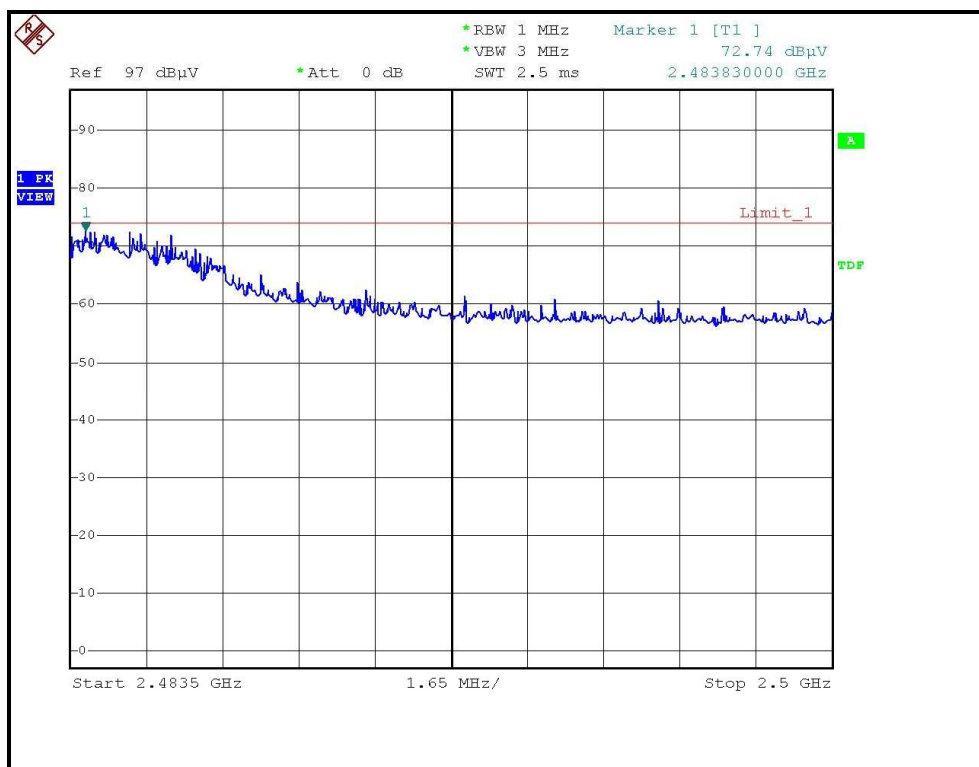
RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH1, VERTICAL)



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



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



DRAFT 802.11n (40MHz) OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	13.5Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 62%RH, 971hPa	TESTED BY	Wen Yu

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	60.43 PK	74.00	-13.57	1.90 H	21	30.03	30.40
2	2390.00	45.80 AV	54.00	-8.20	1.90 H	21	15.40	30.40
3	*2422.00	99.93 PK			1.93 H	207	69.39	30.54
4	*2422.00	88.82 AV			1.93 H	207	58.28	30.54
5	4844.00	45.83 PK	74.00	-28.17	1.01 H	329	10.09	35.74
6	4844.00	32.35 AV	54.00	-21.65	1.01 H	329	-3.39	35.74
7	7266.00	53.23 PK	74.00	-20.77	2.03 H	4	10.88	42.35
8	7266.00	39.11 AV	54.00	-14.89	2.03 H	4	-3.24	42.35

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.77 PK	74.00	-12.23	1.38 V	305	31.37	30.40
2	2390.00	46.74 AV	54.00	-7.26	1.38 V	305	16.34	30.40
3	*2422.00	101.94 PK			1.36 V	306	71.40	30.54
4	*2422.00	90.99 AV			1.36 V	306	60.45	30.54
5	4844.00	45.73 PK	74.00	-28.27	1.56 V	63	9.99	35.74
6	4844.00	32.28 AV	54.00	-21.72	1.56 V	63	-3.46	35.74
7	7266.00	53.17 PK	74.00	-20.83	1.45 V	245	10.82	42.35
8	7266.00	39.06 AV	54.00	-14.94	1.45 V	245	-3.29	42.35

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	13.5Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 62%RH, 971hPa	TESTED BY	Wen Yu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	102.87 PK			1.91 H	205	72.26	30.61
2	*2437.00	92.22 AV			1.91 H	205	61.61	30.61
3	4874.00	46.04 PK	74.00	-27.96	1.00 H	335	10.24	35.80
4	4874.00	32.27 AV	54.00	-21.73	1.00 H	335	-3.53	35.80
5	7311.00	53.25 PK	74.00	-20.75	2.01 H	1	10.73	42.52
6	7311.00	39.15 AV	54.00	-14.85	2.01 H	1	-3.37	42.52

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	104.63 PK			1.37 V	307	74.02	30.61
2	*2437.00	94.03 AV			1.37 V	307	63.42	30.61
3	4874.00	45.86 PK	74.00	-28.14	1.49 V	57	10.06	35.80
4	4874.00	32.32 AV	54.00	-21.68	1.49 V	57	-3.48	35.80
5	7311.00	53.27 PK	74.00	-20.73	1.44 V	249	10.75	42.52
6	7311.00	39.18 AV	54.00	-14.82	1.44 V	249	-3.34	42.52

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

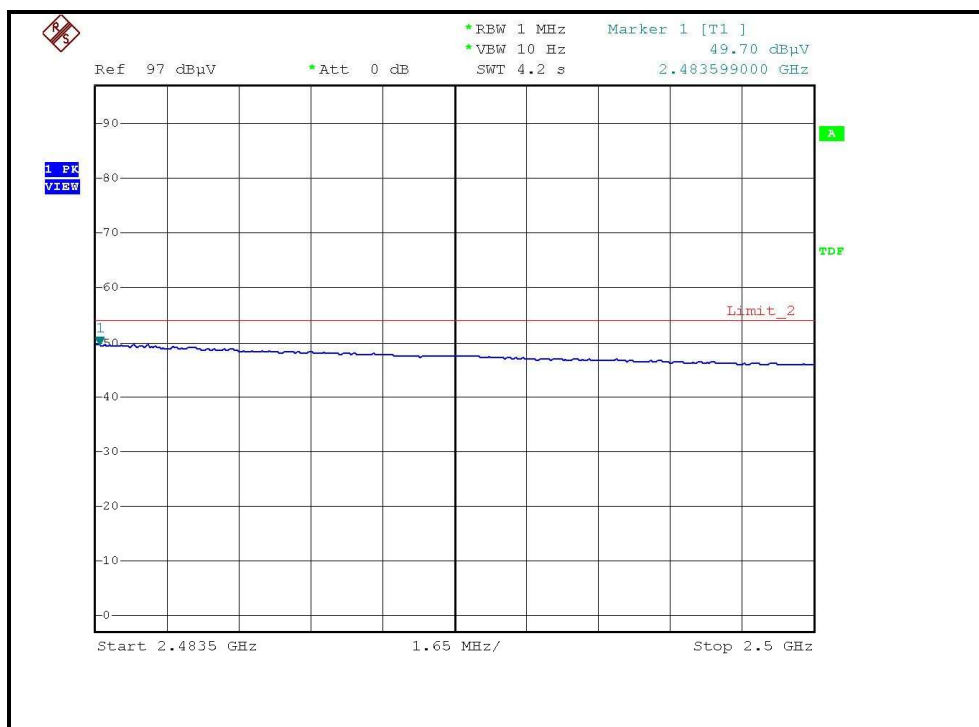
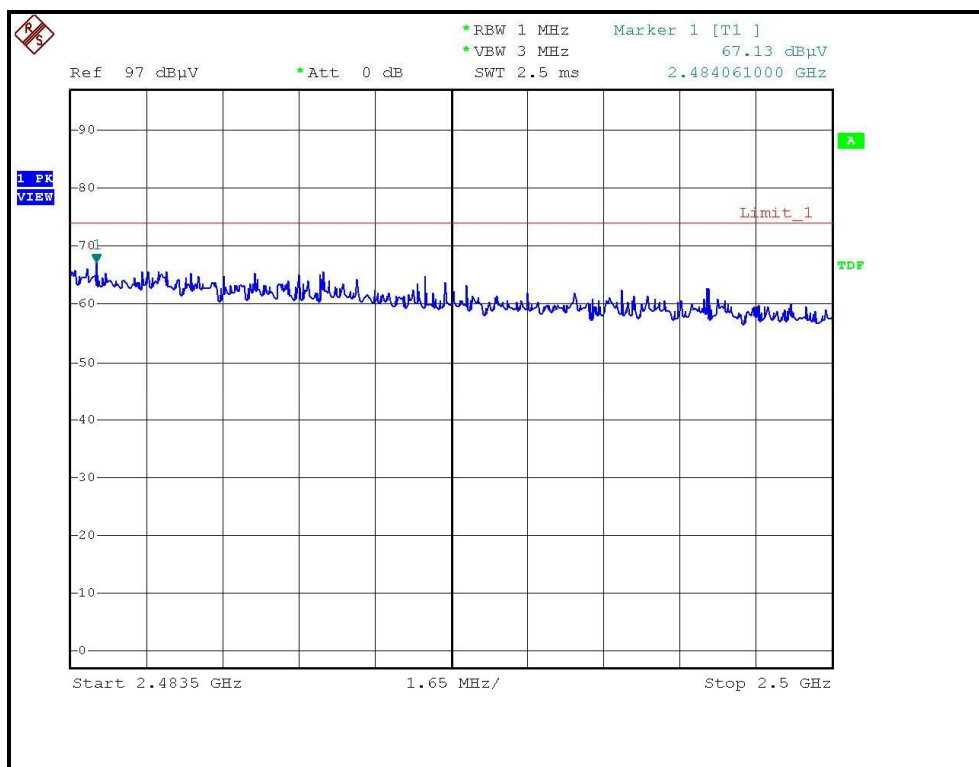
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	13.5Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 62%RH, 971hPa	TESTED BY	Wen Yu

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	101.16 PK			1.84 H	218	70.49	30.67
2	*2452.00	90.12 AV			1.84 H	218	59.45	30.67
3	2483.50	67.13 PK	74.00	-6.87	1.87 H	215	36.31	30.82
4	2483.50	49.70 AV	54.00	-4.30	1.87 H	215	18.88	30.82
5	4904.00	45.96 PK	74.00	-28.04	1.00 H	331	10.10	35.86
6	4904.00	32.25 AV	54.00	-21.75	1.00 H	331	-3.61	35.86
7	7356.00	53.38 PK	74.00	-20.62	2.00 H	0	10.70	42.68
8	7356.00	39.26 AV	54.00	-14.74	2.00 H	0	-3.42	42.68

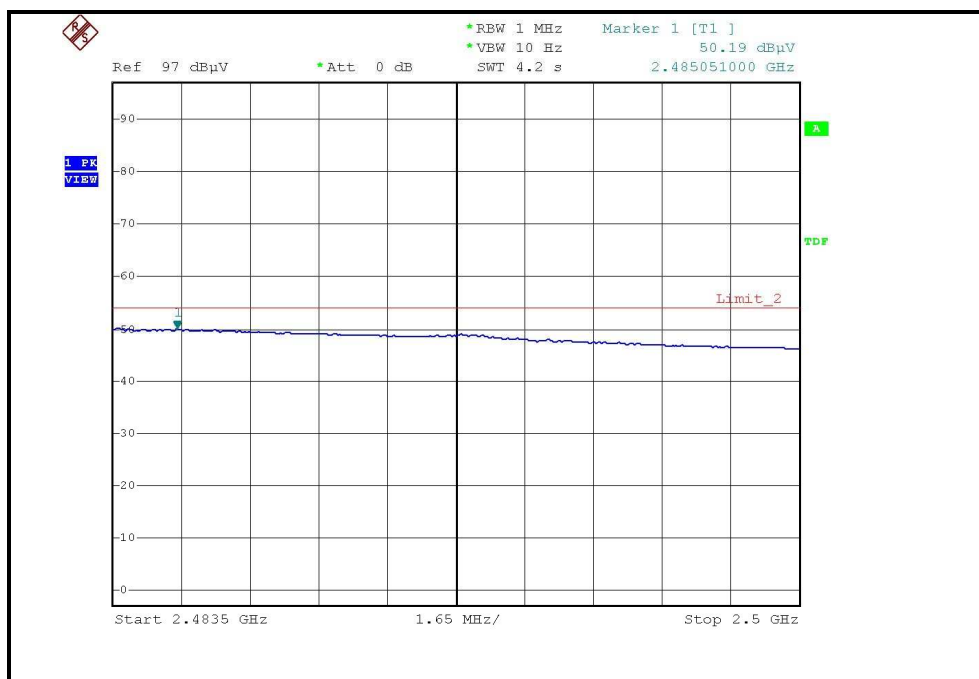
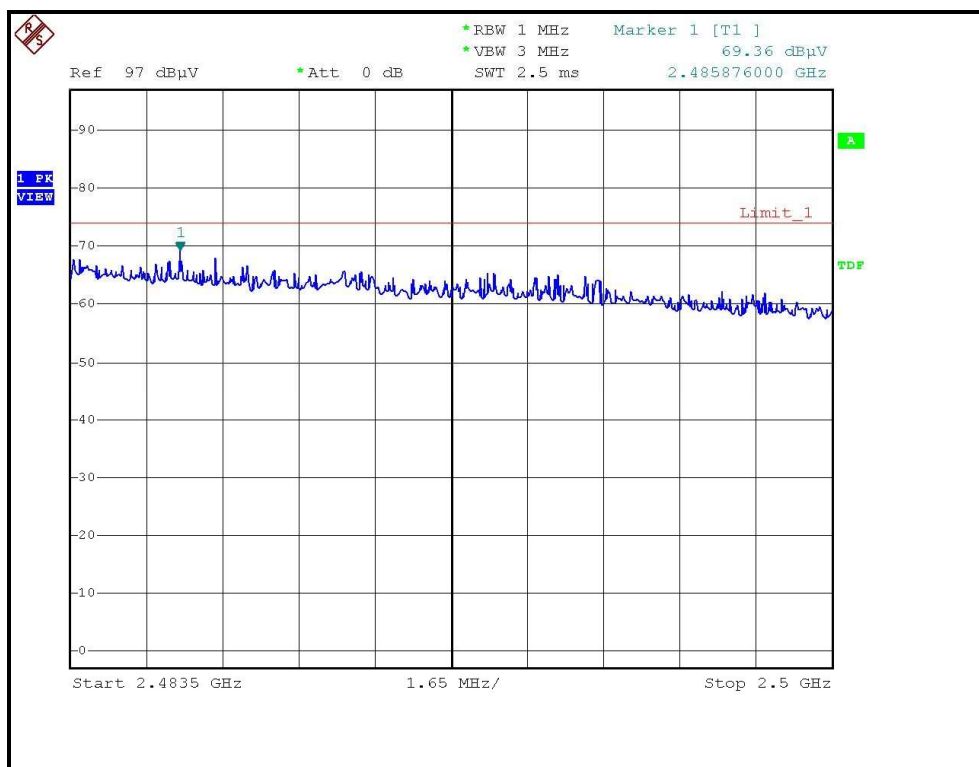
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	102.25 PK			1.31 V	305	71.58	30.67
2	*2452.00	91.64 AV			1.31 V	305	60.97	30.67
3	2483.25	69.36 PK	74.00	-4.64	1.33 V	305	38.55	30.81
4	2483.25	50.19 AV	54.00	-3.81	1.33 V	305	19.38	30.81
5	4904.00	45.97 PK	74.00	-28.03	1.51 V	58	10.11	35.86
6	4904.00	32.42 AV	54.00	-21.58	1.51 V	58	-3.44	35.86
7	7356.00	53.31 PK	74.00	-20.69	1.43 V	253	10.63	42.68
8	7356.00	39.23 AV	54.00	-14.77	1.43 V	253	-3.45	42.68

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

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



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



4.2 MAXIMUM PEAK OUTPUT POWER

4.2.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.2.2 INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 15, 2007
Agilent SIGNAL GENERATOR	E8257C	MY43320668	Dec. 07, 2007
TEKTRONIX OSCILLOSCOPE	TDS380	B016335	Jul. 04, 2007
NARDA DETECTOR	4503A	FSCM99899	NA

NOTE:

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

4.2.3 TEST PROCEDURES

1. A detector was used on the output port of the EUT. An oscilloscope was used to read the response of the detector.
2. Replaced the EUT by the signal generator. The center frequency of the S.G was adjusted to the center frequency of the measured channel.
3. Adjusted the power to have the same reading on oscilloscope. Record the power level.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



4.2.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

4.2.7 TEST RESULTS

802.11b DSSS MODULATION:

MODULATION TYPE	CCK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	22deg.C, 65%RH, 971hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	65.917	18.19	30	PASS
6	2437	83.368	19.21	30	PASS
11	2462	66.527	18.23	30	PASS

802.11g OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	22deg.C, 65%RH, 971hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	56.494	17.52	30	PASS
6	2437	133.045	21.24	30	PASS
11	2462	72.946	18.63	30	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	6.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	22deg.C, 65%RH, 971hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(2)				
1	2412	32.51	33.42	15.12	15.240	65.928	18.2	30	PASS
6	2437	74.64	100.69	18.73	20.030	175.338	22.4	30	PASS
11	2462	40.93	46.56	16.12	16.680	87.485	19.4	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	13.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	22deg.C, 65%RH, 971hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(2)				
1	2422	15.28	13.34	11.84	11.250	28.611	14.6	30	PASS
4	2437	26.36	29.04	14.21	14.630	55.404	17.4	30	PASS
7	2452	16.52	17.58	12.18	12.450	34.099	15.3	30	PASS