

# **FCC TEST REPORT**

**REPORT NO.:** RF120627C02

MODEL NO.: OM2P-LC

FCC ID: WT8OM2PLC

**RECEIVED:** Jun. 27, 2012

**TESTED:** Aug. 04 ~ Aug. 14, 2012

**ISSUED:** Aug. 15, 2012

APPLICANT: Open Mesh, Inc.

ADDRESS: 7327 SW Barnes Rd #422, Portland, OR 97225

ISSUED BY: Bureau Veritas Consumer Products Services

(H.K.) Ltd., Taoyuan Branch

LAB ADDRESS: No. 47, 14th Ling, Chia Pau Vil., Lin Kou Dist.,

New Taipei City, Taiwan, R.O.C.

**TEST LOCATION:** No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei

Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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# **RELEASE CONTROL RECORD**

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF120627C02	Original release	Aug. 15, 2012

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## 1. CERTIFICATION

PRODUCT: Wireless 802.11b/g/n Mesh Router

MODEL NO.: OM2P-LC

**BRAND:** Open Mesh

APPLICANT: Open Mesh, Inc.

**TESTED:** Aug. 04 ~ Aug. 14, 2012

**TEST SAMPLE:** ENGINEERING SAMPLE

STANDARDS: FCC Part 15, Subpart C (Section 15.247)

ANSI C63.10-2009

The above equipment (model: OM2P-LC) 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 :\_\_\_\_\_\_, DATE : \_\_\_\_\_ Aug. 15, 2012

Jemma Yang / Specialist

**APPROVED BY** : ( , DATE : Aug. 15, 2012

Gary Chang / Technical Manager



## 2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)					
STANDARD SECTION	TEST TYPE	RESULT	REMARK		
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -18.95dB at 0.28672MHz.		
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.1dB at 2376.00MHz and 2390.00MHz.		
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.		
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.		
15.247(b)	Conducted power	PASS	Meet the requirement of limit.		
15.247(e)	15.247(e) Power Spectral Density		Meet the requirement of limit.		
15.203	Antenna Requirement	PASS	No antenna connector is used.		

## 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:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	150kHz~30MHz	2.44dB
Dedicted emissions	30MHz ~ 200MHz	2.93 dB
	200MHz ~1000MHz	2.95 dB
Radiated emissions	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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

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## 3. GENERAL INFORMATION

## 3.1 GENERAL DESCRIPTION OF EUT

EUT	Wireless 802.11b/g/n Mesh Router	
MODEL NO.	OM2P-LC	
POWER SUPPLY	12Vdc (adapter)	
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS	
	64QAM, 16QAM, QPSK, BPSK for OFDM	
MODULATION TECHNOLOGY	DSSS, OFDM	
	802.11b:11.0/ 5.5/ 2.0/ 1.0Mbps	
TRANSFER RATE	802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps	
	802.11n: up to 150.0Mbps	
OPERATING FREQUENCY	2412 ~ 2462MHz	
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, 802.11n (20MHz)	
NUMBER OF CHANNEL	7 for 802.11n (40MHz)	
OUTPUT POWER	127.35mW	
ANTENNA TYPE	printing antenna with 2.0dBi gain	
ANTENNA CONNECTOR	N/A	
DATA CABLE	N/A	
I/O PORTS	RJ45 Port	
ACCESSORY DEVICES	Adapter	

## NOTE:

1. The EUT provides one completed transmitter and one receiver.

MODULATION MODE	TX FUNCTION
802.11b	1TX
802.11g	1TX
802.11n (20MHz)	1TX
802.11n (40MHz)	1TX

2. The EUT consumes power from the following adapter and POE.

ADAPTER			
BRAND:	DVE		
MODEL:	DSA-12G-12 FUS		
INPUT:	100-240Vac, 50/60Hz, 0.3A		
	12Vdc, 1.0A		
POWER LINE:	1.5m non-shielded cable without core		

POE	
BRAND:	EnGenius
MODEL:	EPE-1212
OUTPUT:	12Vdc, 0.6A

<sup>\*</sup>All as above are provided as support unit only.

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

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## 3.2 DESCRIPTION OF TEST MODES

11 channels are provided for 802.11b, 802.11g and 802.11n (20MHz):

CHANNEL	CHANNEL FREQUENCY		FREQUENCY
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

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## 3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE	APPLICABLE TO			DESCRIPTION	
MODE	RE≥1G	RE<1G	PLC		DESCRIPTION
Α	<b>V</b>	<b>√</b>	<b>√</b>	<b>√</b>	Adapter Mode
В	-	$\checkmark$	$\checkmark$	-	POE Mode

Where

**RE≥1G:** Radiated Emission above 1GHz

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission APCM: Antenna Port Conducted Measurement

#### NOTE:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on Y-plane.

2. "-"means no effect.

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

- 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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
Α	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
Α	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
Α	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
Α	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

#### RADIATED EMISSION TEST (BELOW 1GHz):

- 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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A. B	802.11b	1 to 11	6	DSSS	DBPSK	1.0

## **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.

EUT CONFIG MOD	URE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, E	3	802.11b	1 to 11	6	DSSS	DBPSK	1.0

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## **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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
Α	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
А	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
Α	802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	6.5
А	802.11n (40MHz)	3 to 9	3, 9	OFDM	BPSK	13.5

## **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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
А	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
Α	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
Α	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
Α	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

## **TEST CONDITION:**

APPLICABLE TO ENVIRONMENTAL CONDITIONS		INPUT POWER	TESTED BY	
<b>RE≥1G</b> 25deg. C, 68%RH		120Vac, 60Hz	Sun Lin	
<b>RE&lt;1G</b> 25deg. C, 68%RH		120Vac, 60Hz	Sun Lin	
<b>PLC</b> 25deg. C, 65%RH		120Vac, 60Hz	Anderson Hong	
<b>APCM</b> 22deg. C, 61%RH		120Vac, 60Hz	Felix Soong	

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## 3.3 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.	D. PRODUCT BRAND		PRODUCT BRAND MODEL NO. SERIAL		SERIAL NO.	FCC ID
1	NOTEBOOK	DELL	D531	CN-0XM006-48643-81U-2973	QDS-BRCM1020	
2	POE	EnGenius	EPE-1212	NA	NA	

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m RJ45 UTP cable
2	10m RJ45 UTP cable

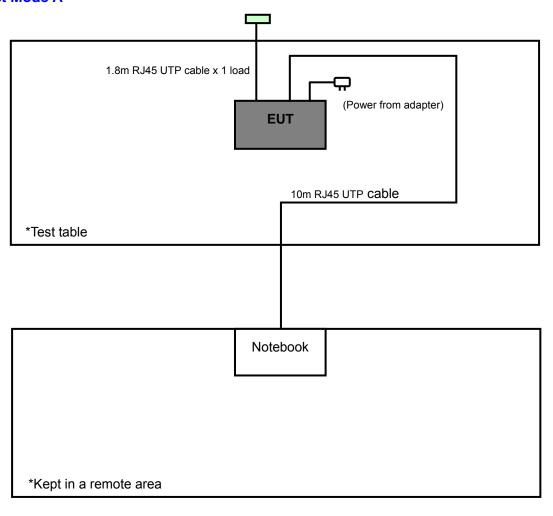
## NOTE:

- 1. All power cords of the above support units are non shielded (1.8m).
- 2. Items 1, 2 acted as communication partners to transfer data.
- 3. Item 2 was provided by the client.



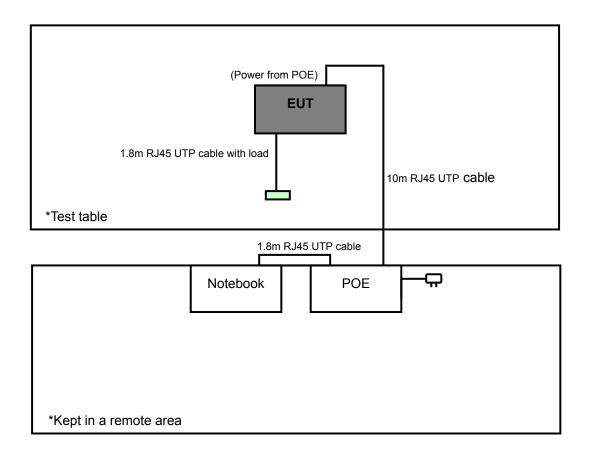
## 3.3.1 CONFIGURATION OF SYSTEM UNDER TEST

## **Test Mode A**





## **Test Mode B**





## 3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C (15.247) 558074 D01 DTS Meas Guidance v01 ANSI C63.10-2009

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.

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## 4. TEST TYPES AND RESULTS

## 4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

## 4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 30dB below the highest level of the desired power:

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. 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.

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## 4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100744	Apr. 19, 2012	Apr. 18, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jan. 30, 2012	Jan. 29, 2013
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 03, 2012	Apr. 02, 2013
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Sep. 06, 2011	Sep. 05, 2012
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 11, 2012	Jul. 10, 2013
Preamplifier Agilent	8449B	3008A01911	Oct. 29, 2011	Oct. 28, 2012
Preamplifier Agilent	8447D	2944A10638	Oct. 29, 2011	Oct. 28, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295013/4 283403/4	Aug. 19, 2011	Aug. 18, 2012
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 13, 2011	Aug. 12, 2012
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower &Turn Table Controller EMCO	2090	NA	NA	NA
High Speed Peak Power Meter	ML2495A	0842014	Apr. 28, 2012	Apr. 27, 2013
Power Sensor	MA2411B	0738404	Apr. 28, 2012	Apr. 27, 2013

**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 HwaYa Chamber 9.
- 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
- 4. The FCC Site Registration No. is 460141.
- 5. The IC Site Registration No. is IC 7450F-4.



#### 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 meters semi-anechoic chamber. 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. Height of receiving antenna 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 lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

#### NOTE:

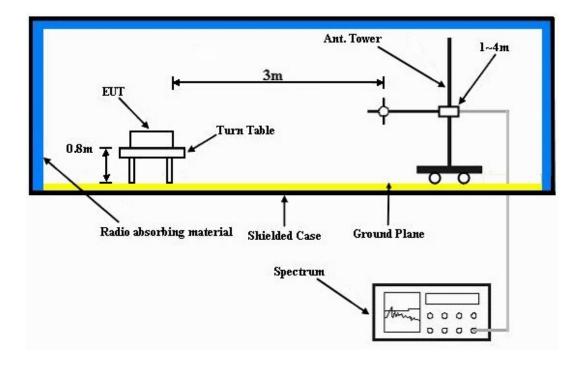
- 1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
- 2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.
- 4. All modes of operation were investigated and the worst-case emissions are reported.

## 4.1.4 DEVIATION FROM TEST STANDARD

No deviation.



## 4.1.5 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

## 4.1.6 EUT OPERATING CONDITIONS

- a. Placed the EUT on the testing table.
- b. Prepared notebooks to act as communication partner and placed it outside of testing area.
- c. The communication partner connected with EUT via a RJ45 cable and run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.



## 4.1.7 TEST RESULTS

#### 802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin	

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (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	62.3 PK	74.0	-11.7	1.06 H	20	30.90	31.40
2	2390.00	50.3 AV	54.0	-3.7	1.06 H	20	18.90	31.40
3	#2400.00	66.0 PK	89.2	-23.2	1.30 H	71	34.60	31.40
4	#2400.00	62.1 AV	85.3	-23.2	1.30 H	71	30.70	31.40
5	*2412.00	109.2 PK			1.06 H	24	77.80	31.40
6	*2412.00	105.3 AV			1.06 H	24	73.90	31.40
7	4824.00	59.4 PK	74.0	-14.6	1.28 H	90	21.90	37.50
8	4824.00	52.5 AV	54.0	-1.5	1.28 H	90	15.00	37.50
		ANTENNA	POLARITY	Y & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.7 PK	74.0	-17.3	1.24 V	343	25.30	31.40
2	2390.00	45.6 AV	54.0	-8.4	1.24 V	343	14.20	31.40
3	#2400.00	63.0 PK	81.3	-18.3	1.24 V	343	31.60	31.40
4	#2400.00	59.2 AV	77.5	-18.3	1.24 V	343	27.80	31.40
5	*2412.00	101.3 PK			1.24 V	343	69.90	31.40
6	*2412.00	97.5 AV			1.24 V	343	66.10	31.40
7	4824.00	53.2 PK	74.0	-20.8	1.08 V	37	15.70	37.50
8	4824.00	48.9 AV	54.0	-5.1	1.08 V	37	11.40	37.50

## **REMARKS:**

- 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. "#":The radiated frequency is out the restricted band.

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EUT TEST CONDITION		MEASUREMENT DETAI	L		
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz		
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)		
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin		

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.2 PK	74.0	-8.8	1.07 H	44	33.80	31.40
2	2390.00	51.7 AV	54.0	-2.3	1.07 H	44	20.30	31.40
3	*2437.00	111.5 PK			1.04 H	20	80.00	31.50
4	*2437.00	107.2 AV			1.04 H	20	75.70	31.50
5	4874.00	58.9 PK	74.0	-15.1	1.25 H	90	21.30	37.60
6	4874.00	52.4 AV	54.0	-1.6	1.25 H	90	14.80	37.60
7	7311.00	53.1 PK	74.0	-20.9	1.62 H	47	9.40	43.70
8	7311.00	41.5 AV	54.0	-12.5	1.62 H	47	-2.20	43.70
		ANTENNA	POLARIT	Y & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION	LIMIT		ANTENNA	TABLE	RAW VALUE	CORRECTION
		LEVEL (dBuV/m)	(dBuV/m)	MARGIN (dB)	HEIGHT (m)	ANGLE (Degree)	(dBuV)	FACTOR (dB/m)
1	2390.00		(dBuV/m) 74.0	-15.4			(dBuV) 27.20	
1 2	2390.00 2390.00	(dBuV/m)	,	, ,	HEIGHT (m)	(Degree)	` ,	(dB/m)
<u> </u>		(dBuV/m) 58.6 PK	74.0	-15.4	<b>HEIGHT (m)</b> 1.18 V	( <b>Degree</b> ) 342	27.20	(dB/m) 31.40
2	2390.00	(dBuV/m) 58.6 PK 47.2 AV	74.0	-15.4	1.18 V 1.18 V	(Degree) 342 342	27.20 15.80	(dB/m) 31.40 31.40
2	2390.00 *2437.00	(dBuV/m) 58.6 PK 47.2 AV 102.6 PK	74.0	-15.4	1.18 V 1.18 V 1.20 V	(Degree) 342 342 345	27.20 15.80 71.10	(dB/m) 31.40 31.40 31.50
3 4	2390.00 *2437.00 *2437.00	(dBuV/m) 58.6 PK 47.2 AV 102.6 PK 98.7 AV	74.0 54.0	-15.4 -6.8	1.18 V 1.18 V 1.20 V 1.20 V	(Degree) 342 342 345 345	27.20 15.80 71.10 67.20	(dB/m) 31.40 31.40 31.50 31.50
2 3 4 5	2390.00 *2437.00 *2437.00 4874.00	(dBuV/m) 58.6 PK 47.2 AV 102.6 PK 98.7 AV 55.9 PK	74.0 54.0 74.0	-15.4 -6.8 -18.1	1.18 V 1.18 V 1.20 V 1.20 V 1.01 V	342 342 345 345 345 32	27.20 15.80 71.10 67.20 18.30	(dB/m) 31.40 31.40 31.50 31.50 37.60

- 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 DETAI	L		
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz		
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)		
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin		

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2376.00	63.8 PK	74.0	-10.2	1.62 H	18	32.50	31.30
2	2376.00	52.9 AV	54.0	-1.1	1.62 H	18	21.60	31.30
3	*2462.00	107.8 PK			1.03 H	21	76.20	31.60
4	*2462.00	104.1 AV			1.03 H	21	72.50	31.60
5	2483.50	62.8 PK	74.0	-11.2	1.03 H	21	31.10	31.70
6	2483.50	51.0 AV	54.0	-3.0	1.03 H	21	19.30	31.70
7	4924.00	53.9 PK	74.0	-20.1	1.25 H	88	16.20	37.70
8	4924.00	47.2 AV	54.0	-6.8	1.25 H	88	9.50	37.70
		ANTENNA	POLARIT	Y & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2376.00	58.2 PK	74.0	-15.8	1.22 V	337	26.90	31.30
2	2376.00	46.7 AV	54.0	-7.3	1.22 V	337	15.40	31.30
3	*2462.00	98.7 PK			1.22 V	337	67.10	31.60
4	*2462.00	95.6 AV			1.22 V	337	64.00	31.60
5	2483.50	58.6 PK	74.0	-15.4	1.22 V	337	26.90	31.70
6	2483.50	47.0 AV	54.0	-7.0	1.22 V	337	15.30	31.70
7	4924.00	55.7 PK	74.0	-18.3	1.07 V	31	18.00	37.70
8	4924.00	45.2 AV	54.0	-8.8	1.07 V	31	7.50	37.70

- 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.



## 802.11g

EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin	

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.3 PK	74.0	-8.7	1.05 H	46	33.90	31.40
2	2390.00	52.7 AV	54.0	-1.3	1.05 H	46	21.30	31.40
3	#2400.00	76.7 PK	88.9	-12.2	1.05 H	45	45.30	31.40
4	#2400.00	66.0 AV	78.2	-12.2	1.05 H	45	34.60	31.40
5	*2412.00	108.9 PK			1.06 H	44	77.50	31.40
6	*2412.00	98.2 AV			1.06 H	44	66.80	31.40
7	4824.00	53.3 PK	74.0	-20.7	1.59 H	88	15.80	37.50
8	4824.00	37.2 AV	54.0	-16.8	1.59 H	88	-0.30	37.50
		ANTENNA	POLARIT	Y & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (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	60.0 PK	74.0	-14.0	1.00 V	337	28.60	31.40
2	2390.00	47.9 AV	54.0	-6.1	1.00 V	337	16.50	31.40
3	#2400.00	70.7 PK	81.7	-11.0	1.00 V	337	39.30	31.40
4	#2400.00	60.0 AV	71.7	-11.7	1.00 V	337	28.60	31.40
5	*2412.00	101.7 PK			1.00 V	337	70.30	31.40
6	*2412.00	91.7 AV			1.00 V	337	60.30	31.40
7	4824.00	48.9 PK	74.0	-25.1	1.07 V	51	11.40	37.50
8	4824.00	34.1 AV	54.0	-19.9	1.07 V	51	-3.40	37.50

- 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 radiated frequency is out the restricted band.



EUT TEST CONDITION		MEASUREMENT DETAI	L		
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz		
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)		
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin		

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.1 PK	74.0	-8.9	1.06 H	21	33.70	31.40
2	2390.00	52.6 AV	54.0	-1.4	1.06 H	21	21.20	31.40
3	*2437.00	111.2 PK			1.06 H	21	79.70	31.50
4	*2437.00	101.3 AV			1.06 H	21	69.80	31.50
5	4874.00	51.4 PK	74.0	-22.6	1.26 H	91	13.80	37.60
6	4874.00	37.6 AV	54.0	-16.4	1.26 H	91	0.00	37.60
		ANTENNA	A POLARIT	Y & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.8 PK	74.0	-17.2	1.21 V	342	25.40	31.40
2	2390.00	46.9 AV	54.0	-7.1	1.21 V	342	15.50	31.40
	2000.00	46.9 AV	34.0	-7.1	1.2 1 V	572	15.50	01.40
3	*2437.00	103.5 PK	54.0	-7.1	1.21 V	342	72.00	31.50
			54.0	-7.1				
3	*2437.00	103.5 PK	74.0	-24.2	1.21 V	342	72.00	31.50

- 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 DETAI	AIL		
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz		
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)		
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin		

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2380.00	63.3 PK	74.0	-10.7	1.62 H	19	32.00	31.30
2	2380.00	52.6 AV	54.0	-1.4	1.62 H	19	21.30	31.30
3	*2462.00	107.6 PK			1.62 H	18	76.00	31.60
4	*2462.00	97.5 AV			1.62 H	18	65.90	31.60
5	2483.50	61.6 PK	74.0	-12.4	1.03 H	17	29.90	31.70
6	2483.50	50.7 AV	54.0	-3.3	1.03 H	17	19.00	31.70
7	4924.00	52.1 PK	74.0	-21.9	1.61 H	72	14.40	37.70
8	4924.00	36.7 AV	54.0	-17.3	1.61 H	72	-1.00	37.70
		ANTENNA	POLARIT	Y & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2380.00	58.7 PK	74.0	-15.3	1.04 V	327	27.40	31.30
2	2380.00	47.7 AV	54.0	-6.3	1.04 V	327	16.40	31.30
3	*2462.00	100.4 PK			1.04 V	327	68.80	31.60
4	*2462.00	90.5 AV			1.04 V	327	58.90	31.60
5	2483.50	58.2 PK	74.0	-15.8	1.04 V	327	26.50	31.70
6	2483.50	47.5 AV	54.0	-6.5	1.04 V	327	15.80	31.70
7	4924.00	48.2 PK	74.0	-25.8	1.08 V	47	10.50	37.70
8	4924.00	33.4 AV	54.0	-20.6	1.08 V	47	-4.30	37.70

- 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.



## 802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin	

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.5 PK	74.0	-8.5	1.08 H	20	34.10	31.40
2	2390.00	52.9 AV	54.0	-1.1	1.08 H	20	21.50	31.40
3	#2400.00	77.1 PK	88.4	-11.3	1.06 H	20	45.70	31.40
4	#2400.00	65.8 AV	77.1	-11.3	1.06 H	20	34.40	31.40
5	*2412.00	108.4 PK			1.05 H	20	77.00	31.40
6	*2412.00	97.1 AV			1.05 H	20	65.70	31.40
7	4824.00	53.7 PK	74.0	-20.3	1.57 H	82	16.20	37.50
8	4824.00	37.0 AV	54.0	-17.0	1.57 H	82	-0.50	37.50
		ANTENNA	POLARIT	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA	TABLE ANGLE	RAW VALUE	CORRECTION
		(dBuV/m)	(ubuv/iii)		HEIGHT (m)	(Degree)	(dBuV)	(dB/m)
1	2390.00	(dBuV/m) 60.1 PK	74.0	-13.9	1.27 V	(Degree) 328	(dBuV) 28.70	
1	2390.00 2390.00	,	,	-13.9 -6.3	` '	, ,	` ,	(dB/m)
		60.1 PK	74.0		1.27 V	328	28.70	(dB/m) 31.40
2	2390.00	60.1 PK 47.7 AV	74.0 54.0	-6.3	1.27 V 1.27 V	328 328	28.70 16.30	(dB/m) 31.40 31.40
3	2390.00 #2400.00	60.1 PK 47.7 AV 70.5 PK	74.0 54.0 81.4	-6.3 -10.9	1.27 V 1.27 V 1.27 V	328 328 328	28.70 16.30 39.10	(dB/m) 31.40 31.40 31.40
3 4	2390.00 #2400.00 #2400.00	60.1 PK 47.7 AV 70.5 PK 60.2 AV	74.0 54.0 81.4	-6.3 -10.9	1.27 V 1.27 V 1.27 V 1.27 V	328 328 328 328 328	28.70 16.30 39.10 28.80	(dB/m) 31.40 31.40 31.40 31.40
2 3 4 5	2390.00 #2400.00 #2400.00 *2412.00	60.1 PK 47.7 AV 70.5 PK 60.2 AV 101.4 PK	74.0 54.0 81.4	-6.3 -10.9	1.27 V 1.27 V 1.27 V 1.27 V 1.27 V	328 328 328 328 328 328	28.70 16.30 39.10 28.80 70.00	(dB/m) 31.40 31.40 31.40 31.40 31.40

- 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 radiated frequency is out the restricted band.



EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin	

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (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	62.2 PK	74.0	-11.8	1.08 H	21	30.80	31.40
2	2390.00	52.4 AV	54.0	-1.6	1.08 H	21	21.00	31.40
3	*2437.00	110.7 PK			1.05 H	21	79.20	31.50
4	*2437.00	99.7 AV			1.05 H	21	68.20	31.50
5	4874.00	51.8 PK	74.0	-22.2	1.34 H	101	14.20	37.60
6	4874.00	37.8 AV	54.0	-16.2	1.34 H	101	0.20	37.60
		ANTENNA	A POLARIT	Y & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)		LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE	RAW VALUE (dBuV)	CORRECTION
		(dBuV/m)	,		,	(Degree)	` ,	(dB/m)
1	2390.00	56.2 PK	74.0	-17.8	1.17 V	(Degree)	24.80	(dB/m) 31.40
1	2390.00 2390.00	,	74.0 54.0	-17.8 -7.6	` ,	, ,	24.80 15.00	, ,
<u> </u>		56.2 PK			1.17 V	348		31.40
2	2390.00	56.2 PK 46.4 AV			1.17 V 1.17 V	348 348	15.00	31.40 31.40
3	2390.00	56.2 PK 46.4 AV 102.3 PK			1.17 V 1.17 V 1.17 V	348 348 348	15.00 70.80	31.40 31.40 31.50

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



EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin	

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2380.00	63.0 PK	74.0	-11.0	1.65 H	21	31.70	31.30
2	2380.00	52.7 AV	54.0	-1.3	1.65 H	21	21.40	31.30
3	*2462.00	107.5 PK			1.03 H	18	75.90	31.60
4	*2462.00	97.2 AV			1.03 H	18	65.60	31.60
5	2483.50	62.3 PK	74.0	-11.7	1.03 H	18	30.60	31.70
6	2483.50	50.8 AV	54.0	-3.2	1.03 H	18	19.10	31.70
7	4924.00	52.4 PK	74.0	-21.6	1.52 H	67	14.70	37.70
8	4924.00	36.5 AV	54.0	-17.5	1.52 H	67	-1.20	37.70
		ANTENNA	POLARIT	Y & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
<b>NO.</b>	FREQ. (MHz) 2380.00	LEVEL		MARGIN (dB) -15.8		ANGLE		FACTOR
	,	LEVEL (dBuV/m)	(dBuV/m)	, ,	HEIGHT (m)	ANGLE (Degree)	(dBuV)	FACTOR (dB/m)
1	2380.00	LEVEL (dBuV/m) 58.2 PK	(dBuV/m) 74.0	-15.8	<b>HEIGHT (m)</b> 1.07 V	ANGLE (Degree)	(dBuV) 26.90	FACTOR (dB/m) 31.30
1 2	2380.00 2380.00	LEVEL (dBuV/m) 58.2 PK 47.1 AV	(dBuV/m) 74.0	-15.8	1.07 V 1.07 V	ANGLE (Degree) 322 322	(dBuV) 26.90 15.80	FACTOR (dB/m) 31.30 31.30
1 2 3	2380.00 2380.00 *2462.00	LEVEL (dBuV/m) 58.2 PK 47.1 AV 100.1 PK	(dBuV/m) 74.0	-15.8	1.07 V 1.07 V 1.07 V	ANGLE (Degree) 322 322 322	(dBuV) 26.90 15.80 68.50	FACTOR (dB/m) 31.30 31.30 31.60
1 2 3 4	2380.00 2380.00 *2462.00 *2462.00	LEVEL (dBuV/m) 58.2 PK 47.1 AV 100.1 PK 90.3 AV	(dBuV/m) 74.0 54.0	-15.8 -6.9	1.07 V 1.07 V 1.07 V 1.07 V	ANGLE (Degree)  322  322  322  322  322	(dBuV)  26.90  15.80  68.50  58.70	FACTOR (dB/m)  31.30  31.30  31.60  31.60
1 2 3 4 5	2380.00 2380.00 *2462.00 *2462.00 2483.50	LEVEL (dBuV/m) 58.2 PK 47.1 AV 100.1 PK 90.3 AV 57.9 PK	(dBuV/m)  74.0  54.0  74.0	-15.8 -6.9 -16.1	1.07 V 1.07 V 1.07 V 1.07 V 1.07 V	ANGLE (Degree)  322  322  322  322  322  322	(dBuV)  26.90  15.80  68.50  58.70  26.20	FACTOR (dB/m)  31.30  31.30  31.60  31.60  31.70

- 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.



## 802.11n (40MHz)

<b>EUT TEST CONDITION</b>	EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	Channel 3	FREQUENCY RANGE	1 ~ 25GHz		
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)		
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin		

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	63.8 PK	74.0	-10.2	1.06 H	44	32.40	31.40
2	2390.00	52.6 AV	54.0	-1.4	1.06 H	44	21.20	31.40
3	#2400.00	71.5 PK	82.6	-11.1	1.06 H	44	40.10	31.40
4	#2400.00	60.9 AV	72.0	-11.1	1.06 H	44	29.50	31.40
5	*2422.00	102.6 PK			1.06 H	44	71.10	31.50
6	*2422.00	92.0 AV			1.06 H	44	60.50	31.50
7	4844.00	50.7 PK	74.0	-23.3	1.42 H	98	13.20	37.50
8	4844.00	35.0 AV	54.0	-19.0	1.42 H	98	-2.50	37.50
		ANTENNA	POLARIT	Y & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (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	60.4 PK	74.0	-13.6	1.00 V	321	29.00	31.40
2	2390.00	48.1 AV	54.0	-5.9	1.00 V	321	16.70	31.40
3	#2400.00	70.5 PK	75.6	-5.1	1.00 V	321	39.10	31.40
4	#2400.00	60.1 AV	65.2	-5.1	1.00 V	321	28.70	31.40
5	*2422.00	95.6 PK			1.00 V	321	64.10	31.50
6	*2422.00	85.2 AV			1.00 V	321	53.70	31.50
7	4844.00	46.8 PK	74.0	-27.2	1.05 V	57	9.30	37.50
8	4844.00	33.2 AV	54.0	-20.8	1.05 V	57	-4.30	37.50

- 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 radiated frequency is out the restricted band.



EUT TEST CONDITION	EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz		
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)		
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin		

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	63.9 PK	74.0	-10.1	1.05 H	20	32.50	31.40
2	2390.00	52.4 AV	54.0	-1.6	1.05 H	20	21.00	31.40
3	*2437.00	106.9 PK			1.05 H	21	75.40	31.50
4	*2437.00	96.5 AV			1.05 H	21	65.00	31.50
5	4874.00	52.8 PK	74.0	-21.2	1.52 H	107	15.20	37.60
6	4874.00	36.1 AV	54.0	-17.9	1.52 H	107	-1.50	37.60
		ANTENNA	POLARIT	Y & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
<b>NO</b> .	FREQ. (MHz) 2390.00	LEVEL		MARGIN (dB) -17.3	7	ANGLE		FACTOR
	` ,	LEVEL (dBuV/m)	(dBuV/m)	. ,	HEIGHT (m)	ANGLE (Degree)	(dBuV)	FACTOR (dB/m)
1	2390.00	LEVEL (dBuV/m) 56.7 PK	(dBuV/m) 74.0	-17.3	<b>HEIGHT (m)</b>	ANGLE (Degree)	(dBuV) 25.30	FACTOR (dB/m) 31.40
1 2	2390.00 2390.00	<b>LEVEL</b> (dBuV/m) 56.7 PK 46.5 AV	(dBuV/m) 74.0	-17.3	1.22 V 1.22 V	ANGLE (Degree) 352 352	(dBuV) 25.30 15.10	FACTOR (dB/m) 31.40 31.40
1 2 3	2390.00 2390.00 *2437.00	LEVEL (dBuV/m) 56.7 PK 46.5 AV 99.1 PK	(dBuV/m) 74.0	-17.3	1.22 V 1.22 V 1.22 V	ANGLE (Degree) 352 352 352	(dBuV) 25.30 15.10 67.60	FACTOR (dB/m) 31.40 31.40 31.50

- 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	EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	Channel 9	FREQUENCY RANGE	1 ~ 25GHz		
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)		
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin		

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	105.7 PK			1.03 H	18	74.10	31.60
2	*2452.00	95.0 AV			1.03 H	18	63.40	31.60
3	2483.50	65.2 PK	74.0	-8.8	1.03 H	18	33.50	31.70
4	2483.50	52.8 AV	54.0	-1.2	1.03 H	18	21.10	31.70
5	4904.00	52.2 PK	74.0	-21.8	1.48 H	102	14.60	37.60
6	4904.00	35.4 AV	54.0	-18.6	1.48 H	102	-2.20	37.60
		ANTENNA	POLARIT	Y & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
<b>NO</b> .	FREQ. (MHz) *2452.00	LEVEL		MARGIN (dB)	7	ANGLE		FACTOR
	` ,	LEVEL (dBuV/m)		MARGIN (dB)	HEIGHT (m)	ANGLE (Degree)	(dBuV)	FACTOR (dB/m)
1	*2452.00	LEVEL (dBuV/m) 98.0 PK		MARGIN (dB) -16.9	<b>HEIGHT (m)</b>	ANGLE (Degree)	(dBuV) 66.40	FACTOR (dB/m) 31.60
1 2	*2452.00 *2452.00	<b>LEVEL</b> (dBuV/m)  98.0 PK  88.2 AV	(dBuV/m)		1.24 V 1.24 V	ANGLE (Degree)  358  358	(dBuV) 66.40 56.60	FACTOR (dB/m) 31.60 31.60
1 2 3	*2452.00 *2452.00 2483.50	LEVEL (dBuV/m) 98.0 PK 88.2 AV 57.1 PK	(dBuV/m)	-16.9	1.24 V 1.24 V 1.24 V	ANGLE (Degree) 358 358 358	(dBuV) 66.40 56.60 25.40	FACTOR (dB/m) 31.60 31.70

- 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.



## **BELOW 1GHz WORST-CASE DATA: 802.11b**

<b>EUT TEST CONDITION</b>		MEASUREMENT DETAIL		
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz	
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin	
TEST MODE	Α			

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	101.78	28.9 QP	43.5	-14.6	2.00 H	74	19.20	9.70
2	189.08	28.0 QP	43.5	-15.5	1.25 H	17	16.00	12.00
3	249.22	29.8 QP	46.0	-16.2	1.00 H	132	16.80	13.00
4	375.32	29.1 QP	46.0	-16.9	1.00 H	260	12.30	16.80
5	499.48	30.9 QP	46.0	-15.1	1.50 H	5	10.80	20.10
6	600.36	34.2 QP	46.0	-11.8	1.25 H	17	11.80	22.40
		ANTENNA	POLARIT	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION	LIMIT		ANTENNA	TABLE	RAW VALUE	CORRECTION
	,	LEVEL (dBuV/m)	(dBuV/m)	MARGIN (dB)	HEIGHT (m)	ANGLE (Degree)	(dBuV)	FACTOR (dB/m)
1	55.22		(dBuV/m) 40.0	MARGIN (dB) -6.8	7			
1 2	` ,	(dBuV/m)	,	,	HEIGHT (m)	(Degree)	(dBuV)	(dB/m)
	55.22	(dBuV/m) 33.2 QP	40.0	-6.8	<b>HEIGHT (m)</b>	( <b>Degree</b> ) 238	(dBuV)	(dB/m) 13.70
2	55.22 103.72	(dBuV/m) 33.2 QP 32.4 QP	40.0 43.5	-6.8 -11.1	1.00 V 1.00 V	(Degree) 238 124	(dBuV) 19.50 22.50	(dB/m) 13.70 9.90
2	55.22 103.72 189.08	(dBuV/m) 33.2 QP 32.4 QP 28.4 QP	40.0 43.5 43.5	-6.8 -11.1 -15.1	1.00 V 1.00 V 1.50 V	(Degree) 238 124 181	(dBuV) 19.50 22.50 16.40	(dB/m) 13.70 9.90 12.00

- 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.



EUT TEST CONDITION		MEASUREMENT DETAIL			
CHANNEL	Channel 6		Below 1000MHz		
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak		
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin		
TEST MODE	Α				

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ARGIN (dB) ANTENNA HEIGHT (m)		RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	249.22	33.4 QP	46.0	-12.6	1.25 H	340	20.40	13.00		
2	375.32	33.8 QP	46.0	-12.2	1.00 H	259	17.00	16.80		
3	499.48	34.7 QP	46.0	-11.3	1.50 H	48	14.60	20.10		
4	600.36	35.5 QP	46.0	-10.5	1.25 H	28	13.10	22.40		
5	749.74	33.0 QP	46.0	-13.0	1.00 H	15	9.00	24.00		
6	875.84	38.5 QP	46.0	-7.5	2.00 H	17	12.50	26.00		
		ANTENNA	POLARIT	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M			
NO.	NO. FREQ. (MHz) EMISSION LEVEL (dBuV/m) MARGIN (dB) ANTENNA HEIGHT (m) TABLE ANGLE (dBuV)						CORRECTION			
		(dBuV/m)	(dBuV/m)	,	HEIGHT (m)	(Degree)	(dBuV)	(dB/m)		
1	30.00	(dBuV/m) 33.3 QP	(dBuV/m) 40.0	-6.7	1.00 V	(Degree)	(dBuV) 21.40	(dB/m) 11.90		
1 2	30.00 189.08	,	, ,	, ,	HEIGHT (m)	, ,	, ,	, ,		
		33.3 QP	40.0	-6.7	1.00 V	6	21.40	11.90		
2	189.08	33.3 QP 29.3 QP	40.0 43.5	-6.7 -14.2	1.00 V 1.00 V	6 52	21.40 17.30	11.90 12.00		
2	189.08 249.22	33.3 QP 29.3 QP 32.9 QP	40.0 43.5 46.0	-6.7 -14.2 -13.1	1.00 V 1.00 V 1.50 V	6 52 57	21.40 17.30 19.90	11.90 12.00 13.00		

- 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.



### 4.2 CONDUCTED EMISSION MEASUREMENT

## 4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBµV)  Quasi-peak Average			
0.15 - 0.5	Quasi-peak	Average		
0.15 ~ 0.5 0.5 ~ 5	66 to 56	56 to 46		
5 ~ 30	56	46		
3 - 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 0.50MHz.
- 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.

## 4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Nov. 19, 2011	Nov. 18, 2012
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 29, 2011	Dec. 28, 2012
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 30, 2011	Dec. 29, 2012
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 06, 2012	Jul. 05, 2013
Software ADT	BV ADT_Cond_ V7.3.7.3	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 HwaYa Shielded Room 2.
- 3. The VCCI Site Registration No. is C-2047.



## 4.2.3 TEST PROCEDURES

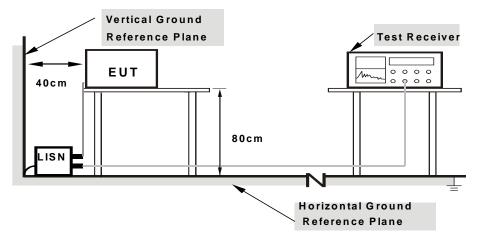
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling 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) was not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

#### 4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

## 4.2.5 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 attached file (Test Setup Photo).

## 4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.



## 4.2.7 TEST RESULTS

## **CONDUCTED WORST-CASE DATA: 802.11b**

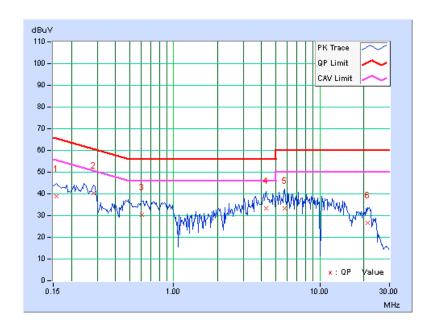
PHASEC	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	A		

	Freq.	Corr.	Reading Value		<b>Emission Level</b>		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	0.15781	0.17	38.68	21.69	38.85	21.86	65.58	55.58	-26.73	-33.72
2	0.28281	0.18	40.16	27.03	40.34	27.21	60.73	50.73	-20.39	-23.52
3	0.60313	0.21	30.15	14.88	30.36	15.09	56.00	46.00	-25.64	-30.91
4	4.30078	0.39	32.95	16.28	33.34	16.67	56.00	46.00	-22.66	-29.33
5	5.73047	0.42	33.05	15.72	33.47	16.14	60.00	50.00	-26.53	-33.86
6	21.20313	0.72	25.98	8.37	26.70	9.09	60.00	50.00	-33.30	-40.91

## **REMARKS:**

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
   3. Margin value = Emission level Limit value
   4. Correction factor = Insertion loss + Cable loss

- 5. Emission Level = Correction Factor + Reading Value.



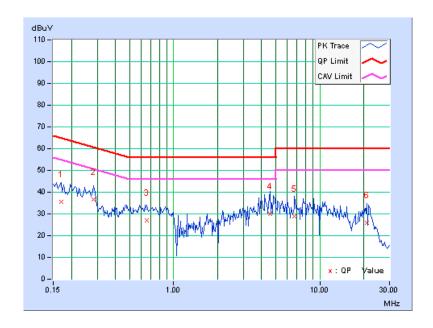
Report No.: RF120627C02 35 of 55 Report Format Version 5.0.0



PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	A		

	Freq.	Corr.	Reading Value		<b>Emission Level</b>		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	0.16953	0.16	35.50	18.15	35.66	18.31	64.98	54.98	-29.32	-36.67
2	0.28281	0.16	36.60	23.22	36.76	23.38	60.73	50.73	-23.97	-27.35
3	0.65391	0.18	26.91	11.11	27.09	11.29	56.00	46.00	-28.91	-34.71
4	4.55078	0.40	29.70	12.01	30.10	12.41	56.00	46.00	-25.90	-33.59
5	6.73047	0.47	28.51	10.70	28.98	11.17	60.00	50.00	-31.02	-38.83
6	21.13281	0.81	25.10	4.32	25.91	5.13	60.00	50.00	-34.09	-44.87

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value.



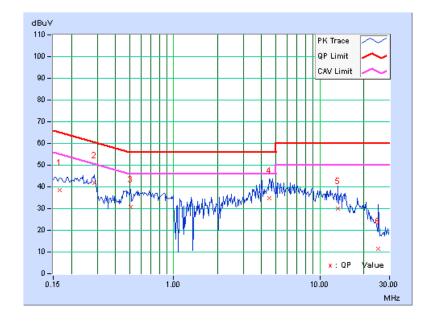


PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	В		

	Freq.	Corr.	Reading Value		Emissio	n Level	Limit		Margin	
No		Factor	[dB	(uV)]	[dB	(uV)]	[dB	(uV)]	(d	B)
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16562	0.17	38.20	22.48	38.37	22.65	65.18	55.18	-26.81	-32.53
2	0.28672	0.18	41.49	29.35	41.67	29.53	60.62	50.62	-18.95	-21.09
3	0.50547	0.21	30.36	15.11	30.57	15.32	56.00	46.00	-25.43	-30.68
4	4.54297	0.40	34.40	17.51	34.80	17.91	56.00	46.00	-21.20	-28.09
5	13.31641	0.56	29.59	11.80	30.15	12.36	60.00	50.00	-29.85	-37.64
6	25.04688	0.68	10.70	-2.32	11.38	-1.64	60.00	50.00	-48.62	-51.64

#### **REMARKS:**

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value.



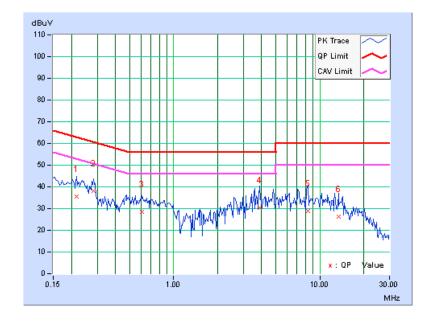


PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	В		

	Freq.	Corr.	Reading Value		Emissio	n Level	Limit		Margin	
No		Factor	[dB	(uV)]	[dB	(uV)]	[dB	(uV)]	(d	B)
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.21641	0.15	35.47	20.06	35.62	20.21	62.96	52.96	-27.33	-32.74
2	0.28281	0.16	38.15	25.23	38.31	25.39	60.73	50.73	-22.42	-25.34
3	0.60703	0.18	28.28	13.13	28.46	13.31	56.00	46.00	-27.54	-32.69
4	3.87500	0.37	30.05	13.22	30.42	13.59	56.00	46.00	-25.58	-32.41
5	8.28516	0.52	28.32	10.45	28.84	10.97	60.00	50.00	-31.16	-39.03
6	13.41797	0.66	25.55	7.55	26.21	8.21	60.00	50.00	-33.79	-41.79

#### **REMARKS:**

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value.



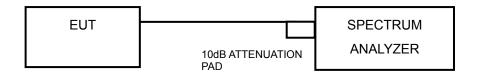


#### 4.3 6dB BANDWIDTH MEASUREMENT

#### 4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

#### 4.3.2 TEST SETUP



#### 4.3.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

#### 4.3.4 TEST PROCEDURE

- a. Set resolution bandwidth (RBW) = approximately 1% of the emission bandwidth
- b. Set the video bandwidth (VBW)  $\geq$  3 x RBW, Detector = Peak.
- c. Trace mode = max hold.
- d. Sweep = auto couple.
- e. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

#### 4.3.5 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.3.6 EUT OPERATING CONDITIONS

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

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# 4.3.7 TEST RESULTS

## 802.11b

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.28	0.5	PASS
6	2437	10.27	0.5	PASS
11	2462	10.29	0.5	PASS

# 802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL	
1	2412	16.58	0.5	PASS	
6	2437	16.57	0.5	PASS	
11	2462	16.57	0.5	PASS	

# 802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.74	0.5	PASS
6	2437	17.73	0.5	PASS
11	2462	17.74	0.5	PASS

## 802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	36.67	0.5	PASS
6	2437	36.85	0.5	PASS
9	2452	36.59	0.5	PASS

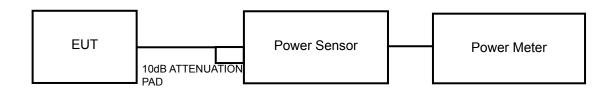


#### 4.4 CONDUCTED OUTPUT POWER

## 4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

### 4.4.2 TEST SETUP



## 4.4.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

## 4.4.4 TEST PROCEDURES

An average power sensor was used on the output port of the EUT. A power meter was used to read the response of the average power sensor. Record the average power level.

#### 4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6.



# 4.4.7 TEST RESULTS

## 802.11b

CHANNEL	FREQUENCY (MHz)	AVG. POWER (mW)	AVG. POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	63.39	18.02	30	PASS
6	2437	127.35	21.05	30	PASS
11	2462	79.62	19.01	30	PASS

# 802.11g

CHANNEL	FREQUENCY (MHz)	AVG. POWER (mW)	AVG. POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	32.96	15.18	30	PASS
6	2437	104.23	20.18	30	PASS
11	2462	63.39	18.02	30	PASS

# 802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	AVG. POWER (mW)	AVG. POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	32.14	15.07	30	PASS
6	2437	81.66	19.12	30	PASS
11	2462	63.24	18.01	30	PASS

## 802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	AVG. POWER (mW)	AVG. POWER (dBm)	LIMIT (dBm)	PASS/FAIL
3	2422	20.23	13.06	30	PASS
6	2437	66.83	18.25	30	PASS
9	2452	66.22	18.21	30	PASS

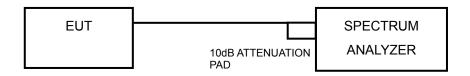


#### 4.5 POWER SPECTRAL DENSITY MEASUREMENT

#### 4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

#### 4.5.2 TEST SETUP



#### 4.5.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

#### 4.5.4 TEST PROCEDURE

- a. Set the RBW = 100 kHz, VBW =300 kHz, Detector = average.
- b. Sweep time = 26s, Trace mode = max hold, allow trace to fully stabilize.
- c. Use the average marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
- d. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log(3 kHz/100kHz)

#### 4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

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# 4.5.7 TEST RESULTS

## 802.11b

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-0.04	-15.27	8	PASS
6	2437	3.17	-12.06	8	PASS
11	2462	1.05	-14.18	8	PASS

# 802.11g

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-5.02	-20.25	8	PASS
6	2437	0.04	-15.19	8	PASS
11	2462	-2.27	-17.50	8	PASS

## 802.11n (20MHz)

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-5.35	-20.58	8	PASS
6	2437	-1.51	-16.74	8	PASS
11	2462	-2.49	-17.72	8	PASS

# 802.11n (40MHz)

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
3	2422	-10.80	-26.03	8	PASS
6	2437	-5.55	-20.78	8	PASS
9	2452	-5.42	-20.65	8	PASS

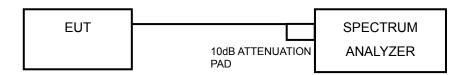


#### 4.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

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

Below –30dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

#### 4.6.2 TEST SETUP



#### 4.6.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

#### 4.6.4 TEST PROCEDURE

#### **MEASUREMENT PROCEDURE REF**

- 1. Set the RBW = 100 kHz.
- 2. Set the VBW ≥ 300 kHz.
- 3. Detector = average.
- 4. Sweep time = auto couple.
- 5. Trace mode = max hold.
- 6. Allow trace to fully stabilize.
- 7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

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#### **MEASUREMENT PROCEDURE OOBE**

- 1. Set RBW = 100 kHz.
- 2. Set VBW ≥ 300 kHz.
- 3. Set span to encompass the spectrum to be examined.
- 4. Detector = average.
- 5. Trace Mode = max hold.
- 6. Sweep = auto couple.

## 4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.6.6 EUT OPERATING CONDITION

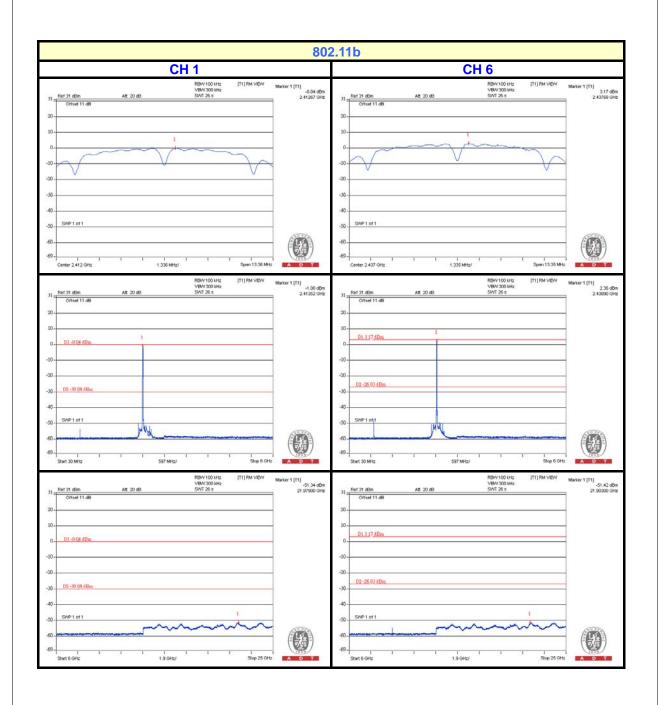
Same as Item 4.3.6

#### 4.6.7 TEST RESULTS

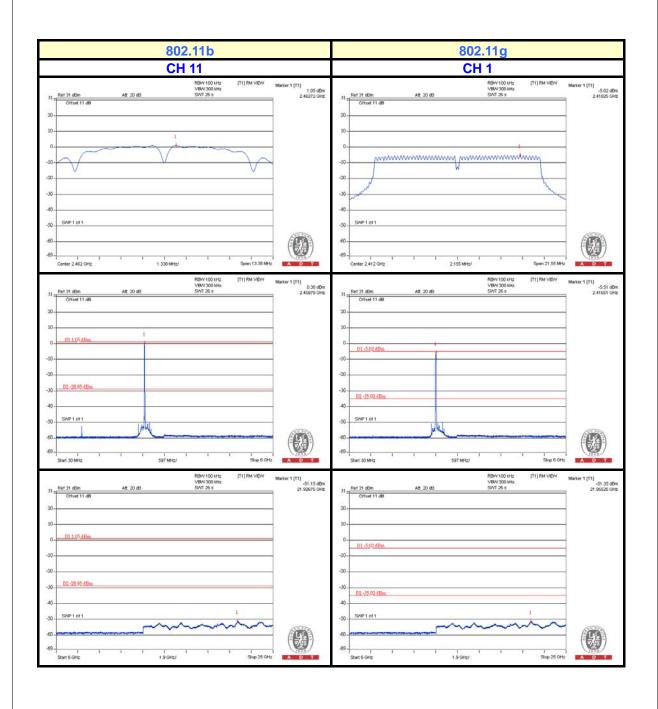
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

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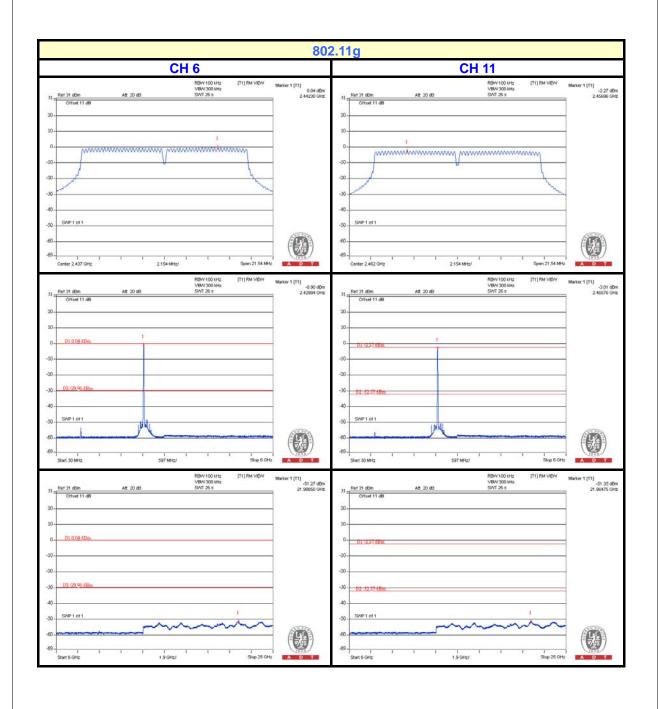




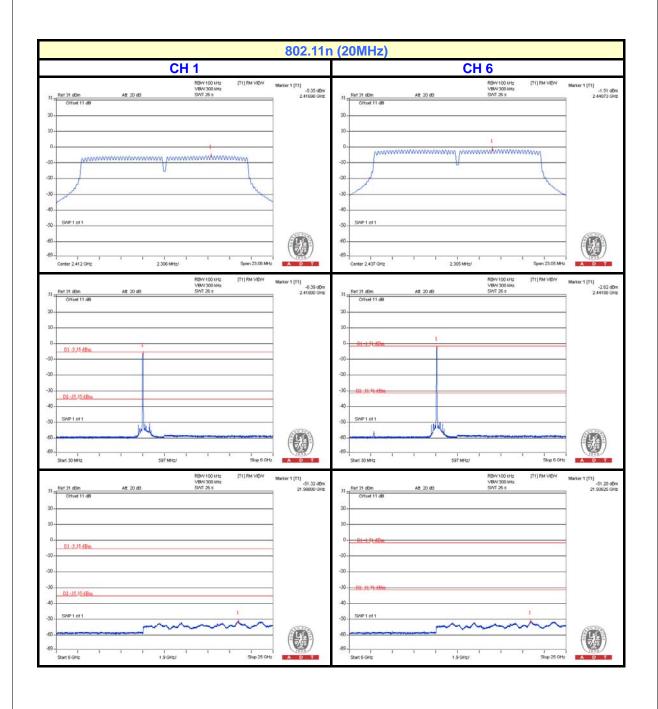




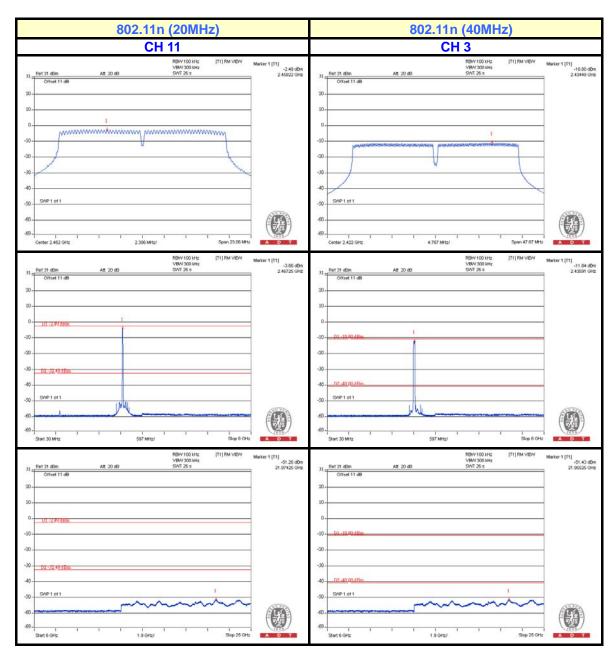




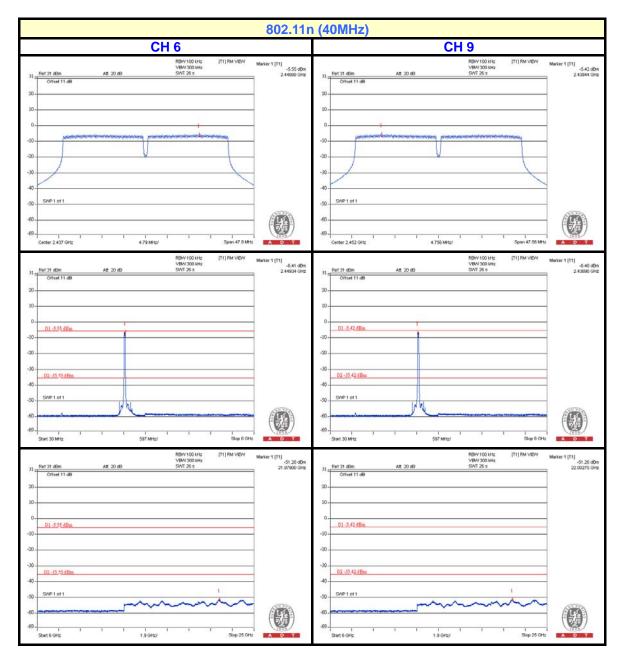














5. PHOTOGRAPHS OF THE TEST CONFIGURATION
Please refer to the attached file (Test Setup Photo).

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# 6. INFORMATION ON THE TESTING LABORATORIES

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

If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:Hsin Chu EMC/RF Lab:Tel: 886-2-26052180Tel: 886-3-5935343Fax: 886-2-26051924Fax: 886-3-5935342

## Hwa Ya EMC/RF/Safety Telecom Lab:

Tel: 886-3-3183232 Fax: 886-3-3270892

Email: <a href="mailto:service.adt@tw.bureauveritas.com">service.adt@tw.bureauveritas.com</a>

Web Site: www.adt.com.tw

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

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# 7. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications were made to the EUT by the lab during the test.
END

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