

FCC TEST REPORT (15.407)

REPORT NO.: RF120926C25A-1

MODEL NO.: WAP561

FCC ID: PD5-WAP561

RECEIVED: Mar. 25, 2013

TESTED: Mar. 26 ~ Mar. 27, 2013

ISSUED: Mar. 28, 2013

APPLICANT: Delta Networks, Inc.

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A D T

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF120926C25A-1	Original release	Mar. 28, 2013

1. CERTIFICATION

PRODUCT: Wireless AP with PoE

MODEL: WAP561

BRAND: CISCO

APPLICANT: Delta Networks, Inc.

TESTED: Mar. 26 ~ Mar. 27, 2013

TEST SAMPLE: ENGINEERING SAMPLE

STANDARDS: FCC Part 15, Subpart E (Section 15.407)

ANSI C63.10-2009

This report is issued as a supplementary report of **RF120926C25-1**. This report shall be used combined together with its original report.

PREPARED BY : Maggie Wu , **DATE** : Mar. 28, 2013
Maggie Wu / Specialist

APPROVED BY : Ken Liu , **DATE** : Mar. 28, 2013
Ken Liu / Senior Manager

NOTE: Test item for radiated emission test was performed for this addendum. Other testing data refer to original report.

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407)			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
15.407(b)(6)	AC Power Conducted Emission	NA	Refer to NOTE below
15.407(b)(1/2/3) (b)(6)	Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -6.1dB at 5150.00MHz.
15.407(a)(1/2)	Max Average Transmit Power	NA	Refer to NOTE below
15.407(a)(6)	Peak Power Excursion	NA	Refer to NOTE below
15.407(a)(1/2)	Peak Power Spectral Density	NA	Refer to NOTE below
15.407(g)	Frequency Stability	NA	Refer to NOTE below
15.203	Antenna Requirement	PASS	Antenna connector is IPEX not a standard connector.

NOTE: Test item for radiated emission test was performed for this addendum. Other testing data refer to original report.

2.1 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.19 dB
	200MHz ~1000MHz	3.21 dB
	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 $k = 2$.

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Wireless AP with PoE
MODEL NO.	WAP561
POWER SUPPLY	48Vdc (from POE)
MODULATION TYPE	64QAM, 16QAM, QPSK, BPSK
MODULATION TECHNOLOGY	OFDM
TRANSFER RATE	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 450.0Mbps
OPERATING FREQUENCY	5150.0 ~ 5250.0MHz
NUMBER OF CHANNEL	4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)
OUTPUT POWER	18.70mW
ANTENNA TYPE	Refer to note for more details
ANTENNA CONNECTOR	Refer to note for more details
DATA CABLE	N/A
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	N/A

NOTE:

1. This is a supplementary report of RF120926C25-1. This report shall be combined together with its original report.
2. This report is prepared for FCC class II permissive change. The difference compared with the original report is changing the antenna type. Therefore, test item for radiated emission test had been re-tested in this report.
3. The EUT incorporates a MIMO function. Physically, the EUT provides three completed transmitters and three receivers.

MODULATION MODE	TX FUNCTION
802.11b	1TX
802.11g	3TX
802.11a	3TX
802.11n (20MHz)	3TX
802.11n (40MHz)	3TX

4. The built-in sensor of the EUT selects which antenna to be used when the EUT is placed on X-plane or Z-plane. The available configurations are list as below:

Antenna item	Antenna type	Connector	Gain (dBi)		X-plane		Z-plane	
			2.4GHz	5GHz	WLAN 0	WLAN 1	WLAN 0	WLAN 1
1	PIFA	IPEX	5.0	5.6	√		√	
2	PIFA		4.5	5.8		√		√
3	PIFA		3.3	4.5	√			
4	PIFA		4.3	4.8			√	
5	PIFA		3.7	5.2	√			
6	PIFA		5.0	5.8			√	
7	PIFA		4.2	4.5		√		
8	PIFA		4.9	5.4				√
9	PIFA		4.4	5.0		√		
10	PIFA		5.5	5.5				√

*For EUT position on X-plane, chosen highest antenna gain **WLAN 1** for final test.

*For EUT position on Z-plane, chosen highest antenna gain **WLAN 1** for final test.

5. The EUT consumes power from the following POE. (for support unit only)

POE	
BRAND:	PowerDsine
MODEL:	PD-9001G
INPUT:	100-250Vac, 50/60Hz, 0.8A
OUTPUT:	55Vdc, 0.6A

6. 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.

3.2 DESCRIPTION OF TEST MODES

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180MHz	44	5220MHz
40	5200MHz	48	5240MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190MHz	46	5230MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO		DESCRIPTION
	RE $\geq$ 1G	RE<1G	
A	√	√	positioned on X-plane
B	√	√	positioned on Z-plane

Where **RE $\geq$ 1G**: Radiated Emission above 1GHz **RE<1G**: Radiated Emission below 1GHz

NOTE: “-” 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)
A, B	802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6.0
A, B	802.11n (20MHz)	36 to 48	36, 40, 48	OFDM	BPSK	7.2
A, B	802.11n (40MHz)	38 to 46	38, 46	OFDM	BPSK	15.0

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	802.11n (20MHz)	36 to 48	40	OFDM	BPSK	7.2

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	25deg. C, 65%RH	120Vac, 60Hz	Chris Lin
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Chris Lin

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.

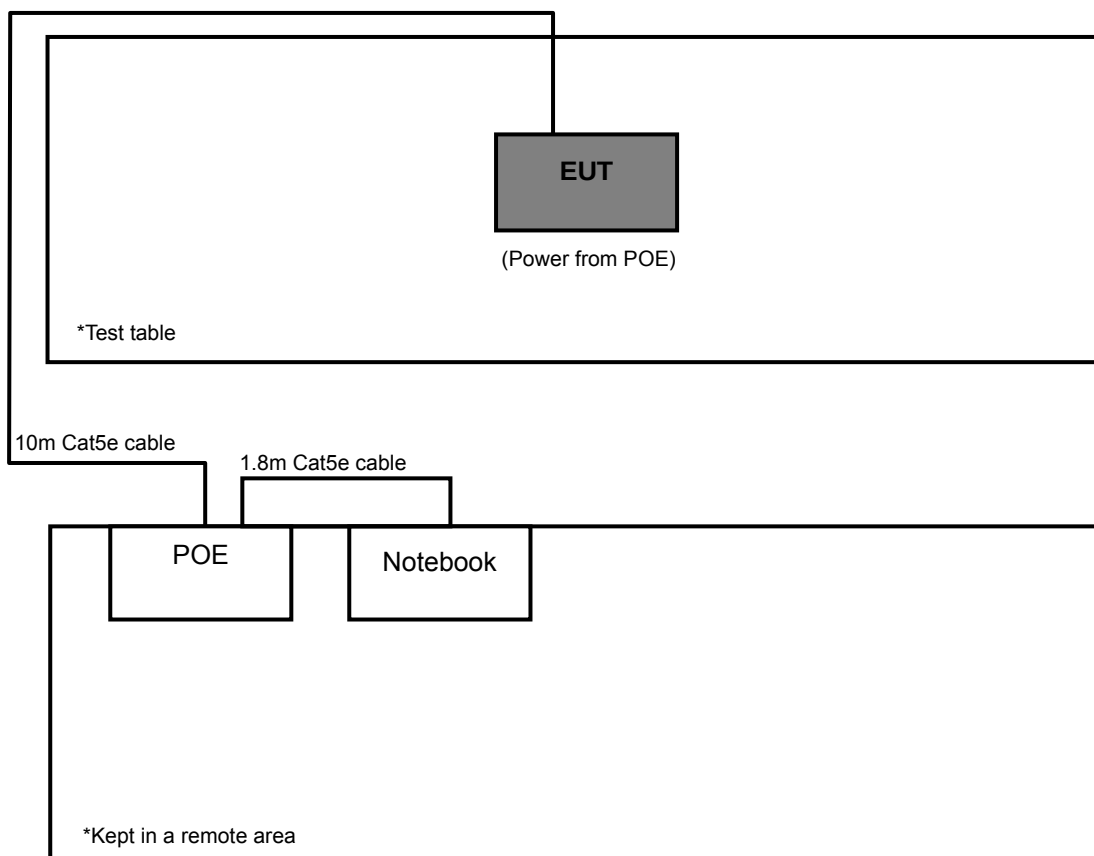
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved
2	POE	PowerDsine	PD-9001G	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m non-shielded Cat5e cable.
2	1.8m non-shielded Cat5e cable

NOTE:

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

3.3.1 CONFIGURATION OF SYSTEM UNDER TEST



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 E (15.407)

789033 D01 General UNII Test Procedures v01 r02

662911 D01 Multiple Transmitter Output v01 r02

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.

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:

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.

4.1.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

APPLICABLE TO	LIMIT	
	FIELD STRENGTH AT 3m (dBuV/m)	
	PK	AV
	74	54
√	EIRP LIMIT (dBm)	EQUIVALENT FIELD STRENGTH AT 3m (dBuV/m)
	PK	PK
	-27	68.3

NOTE: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where P is the eirp (Watts).}$$

4.1.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
HORN Antenna SCHWARZBECK	9120D	209	Sep. 03, 2012	Sep. 02, 2013
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 11, 2012	Jul. 10, 2013
Preamplifier Agilent	8447D	2944A10633	Oct. 25, 2012	Oct. 24, 2013
Preamplifier Agilent	8449B	3008A01964	Oct. 25, 2012	Oct. 24, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250723/4	Aug. 28, 2012	Aug. 27, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 106	12738/6+309224/ 4	Aug. 28, 2012	Aug. 27, 2013
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA	NA
Turn Table ADT.	TT100	TT93021703	NA	NA
Turn Table Controller ADT.	SC100	SC93021703	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 25, 2012	Oct. 24, 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 3.
 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 988962.
 5. The IC Site Registration No. is IC 7450F-3.

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

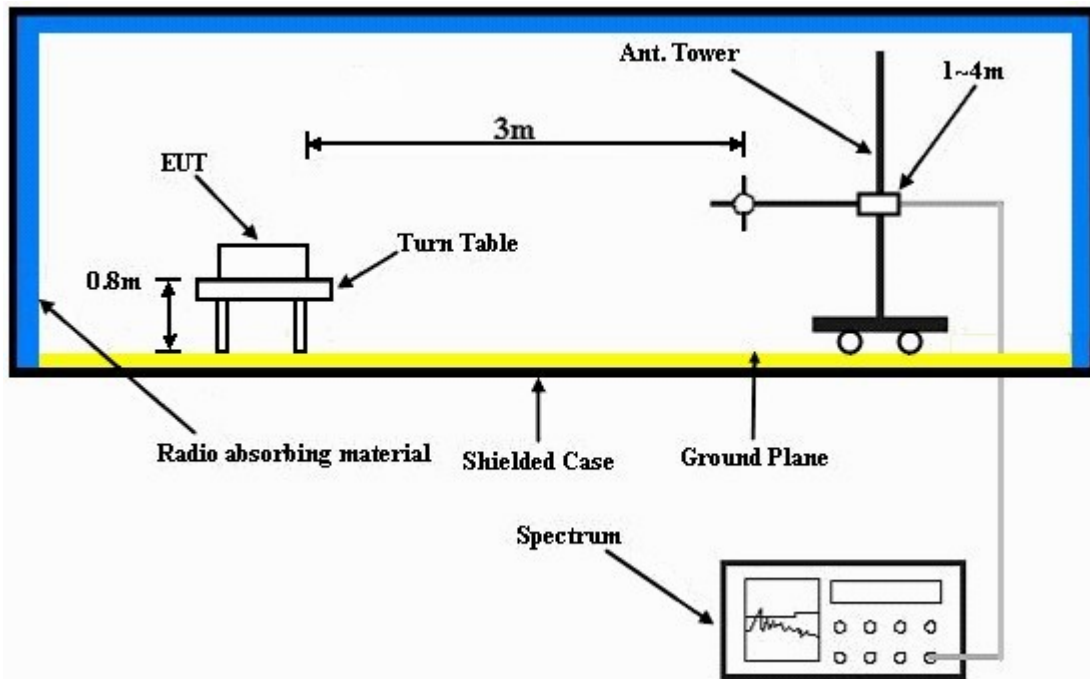
NOTE:

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

4.1.5 DEVIATION FROM TEST STANDARD

No deviation.

4.1.6 TEST SETUP



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

4.1.7 EUT OPERATING CONDITION

- Placed the EUT on the testing table.
- Prepared notebook to act as communication partner and placed it outside of testing area.
- The communication partner connected with EUT via a Cat5e cable and run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.

4.1.8 TEST RESULTS (A)

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	5150.00	55.7 PK	74.0	-18.3	1.10 H	207	18.00	37.70
2	5150.00	44.0 AV	54.0	-10.0	1.10 H	207	6.30	37.70
3	*5180.00	101.0 PK			1.00 H	190	63.30	37.70
4	*5180.00	91.7 AV			1.00 H	190	54.00	37.70
5	#10360.00	56.7 PK	68.3	-11.6	1.00 H	108	7.90	48.80
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	5150.00	55.7 PK	74.0	-18.3	1.09 V	27	18.00	37.70
2	5150.00	43.1 AV	54.0	-10.9	1.09 V	27	5.40	37.70
3	*5180.00	102.8 PK			1.00 V	35	65.10	37.70
4	*5180.00	93.5 AV			1.00 V	35	55.80	37.70
5	#10360.00	57.4 PK	68.3	-10.9	1.00 V	138	8.60	48.80

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. “ * ”: Fundamental frequency.
6. “#”: The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	*5200.00	100.5 PK			1.00 H	205	62.70	37.80
2	*5200.00	90.7 AV			1.00 H	205	52.90	37.80
3	#10400.00	57.2 PK	68.3	-11.1	1.14 H	152	8.30	48.90
4	15600.00	60.0 PK	74.0	-14.0	1.07 H	114	11.30	48.70
5	15600.00	46.9 AV	54.0	-7.1	1.07 H	114	-1.80	48.70
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	*5200.00	102.5 PK			1.00 V	175	64.70	37.80
2	*5200.00	93.1 AV			1.00 V	175	55.30	37.80
3	#10400.00	57.5 PK	68.3	-10.8	1.00 V	107	8.60	48.90
4	15600.00	60.2 PK	74.0	-13.8	1.00 V	124	11.50	48.70
5	15600.00	47.0 AV	54.0	-7.0	1.00 V	124	-1.70	48.70

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	*5240.00	101.0 PK			1.25 H	199	63.20	37.80
2	*5240.00	91.0 AV			1.25 H	199	53.20	37.80
3	5350.00	56.0 PK	74.0	-18.0	1.08 H	335	18.00	38.00
4	5350.00	44.0 AV	54.0	-10.0	1.08 H	335	6.00	38.00
5	#10480.00	56.4 PK	68.3	-11.9	1.18 H	100	7.20	49.20
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	*5240.00	101.8 PK			1.00 V	55	64.00	37.80
2	*5240.00	92.5 AV			1.00 V	55	54.70	37.80
3	5350.00	56.0 PK	74.0	-18.0	1.00 V	46	18.00	38.00
4	5350.00	43.1 AV	54.0	-10.9	1.00 V	46	5.10	38.00
5	#10480.00	57.4 PK	68.3	-10.9	1.03 V	125	8.20	49.20

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.

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	5150.00	55.4 PK	74.0	-18.6	1.00 H	124	17.70	37.70
2	5150.00	43.3 AV	54.0	-10.7	1.00 H	124	5.60	37.70
3	*5180.00	101.7 PK			1.07 H	205	64.00	37.70
4	*5180.00	90.6 AV			1.07 H	205	52.90	37.70
5	#10360.00	57.8 PK	68.3	-10.5	1.10 H	152	9.00	48.80
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	5150.00	56.5 PK	74.0	-17.5	1.19 V	194	18.80	37.70
2	5150.00	43.4 AV	54.0	-10.6	1.19 V	194	5.70	37.70
3	*5180.00	102.6 PK			1.00 V	155	64.90	37.70
4	*5180.00	92.8 AV			1.00 V	155	55.10	37.70
5	#10360.00	57.5 PK	68.3	-10.8	1.04 V	155	8.70	48.80

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. “ * “: Fundamental frequency.
6. “#”:The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	*5200.00	101.3 PK			1.25 H	170	63.50	37.80
2	*5200.00	90.0 AV			1.25 H	170	52.20	37.80
3	#10400.00	56.4 PK	68.3	-11.9	1.22 H	140	7.50	48.90
4	15600.00	59.9 PK	74.0	-14.1	1.32 H	80	11.20	48.70
5	15600.00	46.1 AV	54.0	-7.9	1.32 H	80	-2.60	48.70
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	*5200.00	101.8 PK			1.00 V	164	64.00	37.80
2	*5200.00	92.4 AV			1.00 V	164	54.60	37.80
3	#10400.00	57.0 PK	68.3	-11.3	1.10 V	165	8.10	48.90
4	15600.00	59.1 PK	74.0	-14.9	1.24 V	100	10.40	48.70
5	15600.00	46.8 AV	54.0	-7.2	1.24 V	100	-1.90	48.70

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	*5240.00	101.5 PK			1.05 H	189	63.70	37.80
2	*5240.00	90.5 AV			1.05 H	189	52.70	37.80
3	5350.00	56.5 PK	74.0	-17.5	1.04 H	116	18.50	38.00
4	5350.00	43.8 AV	54.0	-10.2	1.04 H	116	5.80	38.00
5	#10480.00	58.3 PK	68.3	-10.0	1.05 H	115	9.10	49.20
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	*5240.00	102.7 PK			1.00 V	155	64.90	37.80
2	*5240.00	92.4 AV			1.00 V	155	54.60	37.80
3	5350.00	55.3 PK	74.0	-18.7	1.19 V	61	17.30	38.00
4	5350.00	43.3 AV	54.0	-10.7	1.19 V	61	5.30	38.00
5	#10480.00	57.2 PK	68.3	-11.1	1.14 V	152	8.00	49.20

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.

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	5150.00	56.9 PK	74.0	-17.1	1.24 H	200	19.20	37.70
2	5150.00	45.7 AV	54.0	-8.3	1.24 H	200	8.00	37.70
3	*5190.00	101.0 PK			1.24 H	200	63.30	37.70
4	*5190.00	90.9 AV			1.24 H	100	53.20	37.70
5	#10380.00	57.2 PK	68.3	-11.1	1.11 H	130	8.30	48.90
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	5150.00	58.0 PK	74.0	-16.0	1.15 V	102	20.30	37.70
2	5150.00	47.9 AV	54.0	-6.1	1.15 V	102	10.20	37.70
3	*5190.00	102.3 PK			1.00 V	143	64.60	37.70
4	*5190.00	92.1 AV			1.00 V	143	54.40	37.70
5	#10380.00	56.8 PK	68.3	-11.5	1.00 V	122	7.90	48.90

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	*5230.00	101.5 PK			1.18 H	194	63.70	37.80
2	*5230.00	91.9 AV			1.18 H	194	54.10	37.80
3	5350.00	54.1 PK	74.0	-19.9	1.28 H	204	16.10	38.00
4	5350.00	43.1 AV	54.0	-10.9	1.28 H	204	5.10	38.00
5	#10460.00	56.8 PK	68.3	-11.5	1.04 H	115	7.70	49.10
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	*5230.00	102.4 PK			1.00 V	154	64.60	37.80
2	*5230.00	92.5 AV			1.00 V	154	54.70	37.80
3	5350.00	56.0 PK	74.0	-18.0	1.14 V	164	18.00	38.00
4	5350.00	43.0 AV	54.0	-11.0	1.14 V	164	5.00	38.00
5	#10460.00	57.3 PK	68.3	-11.0	1.00 V	145	8.20	49.10

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.

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	94.06	27.20 QP	43.50	-16.30	2.00 H	118	18.50	8.70
2	208.77	33.30 QP	43.50	-10.20	1.50 H	116	22.00	11.30
3	243.77	31.40 QP	46.00	-14.60	1.50 H	79	18.60	12.80
4	374.04	27.20 QP	46.00	-18.80	1.00 H	108	10.30	16.90
5	500.42	31.20 QP	46.00	-14.80	1.50 H	140	11.20	20.00
6	624.85	36.60 QP	46.00	-9.40	1.24 H	330	14.30	22.30
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	64.90	32.30 QP	40.00	-7.70	1.25 V	27	19.40	12.90
2	202.94	32.80 QP	43.50	-10.70	1.25 V	211	21.70	11.10
3	500.42	31.30 QP	46.00	-14.70	1.00 V	170	11.30	20.00
4	624.85	31.30 QP	46.00	-14.70	1.50 V	15	9.00	22.30
5	751.23	30.10 QP	46.00	-15.90	1.50 V	15	5.70	24.40
6	875.67	27.50 QP	46.00	-18.50	1.25 V	8	1.00	26.50

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.

4.1.9 TEST RESULTS (B)

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	5150.00	55.4 PK	74.0	-18.6	1.07 H	114	17.70	37.70
2	5150.00	42.3 AV	54.0	-11.7	1.07 H	114	4.60	37.70
3	*5180.00	103.2 PK			1.08 H	182	65.50	37.70
4	*5180.00	92.6 AV			1.08 H	182	54.90	37.70
5	#10360.00	56.2 PK	68.3	-12.1	1.15 H	145	7.40	48.80
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	5150.00	56.0 PK	74.0	-18.0	1.08 V	172	18.30	37.70
2	5150.00	44.2 AV	54.0	-9.8	1.08 V	172	6.50	37.70
3	*5180.00	104.7 PK			1.10 V	161	67.00	37.70
4	*5180.00	95.1 AV			1.10 V	161	57.40	37.70
5	#10360.00	56.8 PK	68.3	-11.5	1.10 V	132	8.00	48.80

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. " * ": Fundamental frequency.
6. "#": The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	*5200.00	101.7 PK			1.00 H	154	63.90	37.80
2	*5200.00	91.9 AV			1.00 H	154	54.10	37.80
3	#10400.00	56.0 PK	68.3	-12.3	1.08 H	124	7.10	48.90
4	15600.00	59.2 PK	74.0	-14.8	1.07 H	130	10.50	48.70
5	15600.00	46.5 AV	54.0	-7.5	1.07 H	130	-2.20	48.70
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	*5200.00	103.0 PK			1.00 V	20	65.20	37.80
2	*5200.00	94.0 AV			1.00 V	20	56.20	37.80
3	#10400.00	56.2 PK	68.3	-12.1	1.10 V	166	7.30	48.90
4	15600.00	59.1 PK	74.0	-14.9	1.10 V	153	10.40	48.70
5	15600.00	47.0 AV	54.0	-7.0	1.10 V	153	-1.70	48.70

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	*5240.00	102.8 PK			1.07 H	178	65.00	37.80
2	*5240.00	92.8 AV			1.07 H	178	55.00	37.80
3	5350.00	56.2 PK	74.0	-17.8	1.18 H	147	18.20	38.00
4	5350.00	43.1 AV	54.0	-10.9	1.18 H	147	5.10	38.00
5	#10480.00	58.4 PK	68.3	-9.9	1.24 H	98	9.20	49.20
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	*5240.00	104.1 PK			1.00 V	250	66.30	37.80
2	*5240.00	94.4 AV			1.00 V	250	56.60	37.80
3	5350.00	55.9 PK	74.0	-18.1	1.10 V	220	17.90	38.00
4	5350.00	44.1 AV	54.0	-9.9	1.10 V	220	6.10	38.00
5	#10480.00	57.9 PK	68.3	-10.4	1.14 V	152	8.70	49.20

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.

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	5150.00	55.8 PK	74.0	-18.2	1.27 H	136	18.10	37.70
2	5150.00	43.4 AV	54.0	-10.6	1.27 H	136	5.70	37.70
3	*5180.00	102.4 PK			1.00 H	181	64.70	37.70
4	*5180.00	91.8 AV			1.00 H	181	54.10	37.70
5	#10360.00	57.1 PK	68.3	-11.2	1.17 H	142	8.30	48.80
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	5150.00	55.8 PK	74.0	-18.2	1.08 V	115	18.10	37.70
2	5150.00	43.7 AV	54.0	-10.3	1.08 V	115	6.00	37.70
3	*5180.00	104.2 PK			1.09 V	163	66.50	37.70
4	*5180.00	94.0 AV			1.09 V	163	56.30	37.70
5	#10360.00	56.3 PK	68.3	-12.0	1.11 V	88	7.50	48.80

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. “ * “: Fundamental frequency.
6. “#”: The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	*5200.00	102.0 PK			1.07 H	180	64.20	37.80
2	*5200.00	91.6 AV			1.07 H	180	53.80	37.80
3	#10400.00	58.0 PK	68.3	-10.3	1.13 H	166	9.10	48.90
4	15600.00	54.0 PK	74.0	-20.0	1.24 H	155	5.30	48.70
5	15600.00	41.0 AV	54.0	-13.0	1.24 H	155	-7.70	48.70
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	*5200.00	104.0 PK			1.00 V	10	66.20	37.80
2	*5200.00	94.0 AV			1.00 V	10	56.20	37.80
3	#10400.00	56.3 PK	68.3	-12.0	1.10 V	160	7.40	48.90
4	15600.00	59.2 PK	74.0	-14.8	1.30 V	112	10.50	48.70
5	15600.00	46.3 AV	54.0	-7.7	1.30 V	112	-2.40	48.70

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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	*5240.00	102.2 PK			1.02 H	213	64.40	37.80
2	*5240.00	92.2 AV			1.02 H	213	54.40	37.80
3	5350.00	51.2 PK	74.0	-22.8	1.14 H	139	13.20	38.00
4	5350.00	39.2 AV	54.0	-14.8	1.14 H	139	1.20	38.00
5	#10480.00	57.9 PK	68.3	-10.4	1.14 H	152	8.70	49.20
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	*5240.00	104.1 PK			1.01 V	106	66.30	37.80
2	*5240.00	94.3 AV			1.01 V	106	56.50	37.80
3	5350.00	57.3 PK	74.0	-16.7	1.17 V	136	19.30	38.00
4	5350.00	44.0 AV	54.0	-10.0	1.17 V	136	6.00	38.00
5	#10480.00	57.2 PK	68.3	-11.1	1.14 V	152	8.00	49.20

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.

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	5150.00	58.2 PK	74.0	-15.8	1.12 H	130	20.50	37.70
2	5150.00	46.2 AV	54.0	-7.8	1.12 H	130	8.50	37.70
3	*5190.00	101.6 PK			1.24 H	180	63.90	37.70
4	*5190.00	92.3 AV			1.24 H	180	54.60	37.70
5	#10380.00	56.5 PK	68.3	-11.8	1.09 H	150	7.60	48.90
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	5150.00	57.0 PK	74.0	-17.0	1.20 V	12	19.30	37.70
2	5150.00	45.5 AV	54.0	-8.5	1.20 V	12	7.80	37.70
3	*5190.00	104.0 PK			1.00 V	130	66.30	37.70
4	*5190.00	94.2 AV			1.00 V	130	56.50	37.70
5	#10380.00	56.0 PK	68.3	-12.3	1.10 V	166	7.10	48.90

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	*5230.00	102.6 PK			1.05 H	181	64.80	37.80
2	*5230.00	92.8 AV			1.05 H	181	55.00	37.80
3	5350.00	56.4 PK	74.0	-17.6	1.08 H	145	18.40	38.00
4	5350.00	43.0 AV	54.0	-11.0	1.08 H	145	5.00	38.00
5	#10460.00	56.6 PK	68.3	-11.7	1.17 H	146	7.50	49.10
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	*5230.00	104.3 PK			1.07 V	151	66.50	37.80
2	*5230.00	94.5 AV			1.07 V	151	56.70	37.80
3	5350.00	55.5 PK	74.0	-18.5	1.10 V	161	17.50	38.00
4	5350.00	43.0 AV	54.0	-11.0	1.10 V	161	5.00	38.00
5	#10460.00	56.7 PK	68.3	-11.6	1.14 V	156	7.60	49.10

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.

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	156.57	30.1 QP	43.5	-13.4	1.25 H	132	16.00	14.10
2	250.01	35.3 QP	46.0	-10.7	1.00 H	155	22.30	13.00
3	375.02	26.8 QP	46.0	-19.2	1.50 H	44	9.90	16.90
4	500.11	34.7 QP	46.0	-11.3	1.50 H	100	14.70	20.00
5	625.01	34.6 QP	46.0	-11.4	2.00 H	177	12.20	22.40
6	750.35	31.1 QP	46.0	-14.9	1.00 H	130	6.80	24.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	56.54	31.8 QP	40.0	-8.2	1.50 V	57	18.10	13.70
2	148.26	32.1 QP	43.5	-11.4	1.50 V	72	18.00	14.10
3	200.17	31.7 QP	43.5	-11.8	1.00 V	140	20.70	11.00
4	374.98	23.9 QP	46.0	-22.1	1.25 V	322	7.00	16.90
5	500.58	31.0 QP	46.0	-15.0	1.00 V	136	11.00	20.00
6	625.14	30.0 QP	46.0	-16.0	1.25 V	105	7.60	22.40

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. PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).

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:

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

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

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

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