

FCC TEST REPORT (15.407)

REPORT NO.: RF120920C28A-1

MODEL NO.: WAP551

FCC ID: PD5-WAP551

RECEIVED: Sep. 20, 2012

TESTED: Mar. 26 ~ Mar. 27, 2013

ISSUED: Mar. 28, 2013

APPLICANT: Delta Networks, Inc.

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TABLE OF CONTENTS

RELEASE CONTROL RECORD	3
1. CERTIFICATION.....	4
2. SUMMARY OF TEST RESULTS	5
2.1 MEASUREMENT uncertainty	5
3. GENERAL INFORMATION	6
3.1 GENERAL DESCRIPTION OF EUT	6
3.2 DESCRIPTION OF TEST MODES	8
3.2.1 Test Mode Applicability and tested channel detail	8
3.3 DESCRIPTION OF SUPPORT UNITS	10
3.3.1 CONFIGURATION OF SYSTEM UNDER TEST	10
3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS	11
4. TEST TYPES AND RESULTS	12
4.1 Radiated Emission AND BANDEDGE Measurement.....	12
4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT.....	12
4.1.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS	12
4.1.3 TEST INSTRUMENTS.....	13
4.1.4 TEST PROCEDURES	14
4.1.5 DEVIATION FROM TEST STANDARD	14
4.1.6 TEST SETUP	15
4.1.7 EUT OPERATING CONDITION	15
4.1.8 TEST RESULTS (A).....	16
4.1.9 TEST RESULTS (B).....	25
5. PHOTOGRAPHS OF THE TEST CONFIGURATION	34
6. INFORMATION ON THE TESTING LABORATORIES	35
7. APPENDIX A - Modifications recorders for engineering changes to the eut BY THE LAB...	36



RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF120920C28A-1	Original release	Mar. 28, 2013

1. CERTIFICATION

PRODUCT: Wireless AP with PoE

MODEL: WAP551

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 **RF120920C28-1**. This report shall be used combined together with its original report.

PREPARED BY : Jemma Yang , **DATE** : Mar. 28, 2013
Jemma Yang / 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
15.407(b/1/2/3) (b)(6)	Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -3.6dB at 10480.00MHz.
15.407(a/1/2)	Max Average Transmit Power	PASS	Refer to Note
15.407(a)(6)	Peak Power Excursion	PASS	Refer to Note
15.407(a/1/2)	Peak Power Spectral Density	PASS	Refer to Note
15.407(g)	Frequency Stability	PASS	Refer to Note
15.203	Antenna Requirement	PASS	Antenna connector is IPEX not a standard connector.

NOTE: The radiated emission test was performed for the addendum. Refer to original report for the other test data.

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
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.	WAP551
POWER SUPPLY	55Vdc (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	5125.0 ~ 5250.0MHz
NUMBER OF CHANNEL	4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)
OUTPUT POWER	20.28mW
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 report is issued as a supplementary report to the original BV ADT report no.: RF120920C28-1. This report shall be combined together with its original report.
2. This report is prepared for FCC class II permissive change. Difference compared with the original report is changing Antenna type. Therefore, radiated emission test had been reappraised.
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 EUT with follow antennas gain is listed as table below.

Antenna Item	Antenna Type	Connector	Gain(dBi)		X-plane	Z-plane
			2.4GHz	5GHz		
1	PIFA	IPEX	5.2dBi	5.5dBi	√	√
2	PIFA		3.2dBi	4.6dBi	√	
3	PIFA		4.4dBi	4.6dBi		√
4	PIFA		3.9dBi	5.6dBi	√	
5	PIFA		4.5dBi	5.8dBi		√

**For EUT position on X-plane, chosen antenna item 1, 2, 4 for final test.

**For EUT position on Z-plane, chosen antenna item 1, 3, 5 for final test.

5. The EUT consumes power from the following POE.

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

* POE was supplied for optional accessory.

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	√	√	Lying flat
B	√	√	Standing

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

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	802.11a	36 to 48	36	OFDM	BPSK	6.0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	23deg. C, 75%RH	120Vac, 60Hz	Antony Lee
RE<1G	23deg. C, 66%RH	120Vac, 60Hz	Cedric Wu

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.

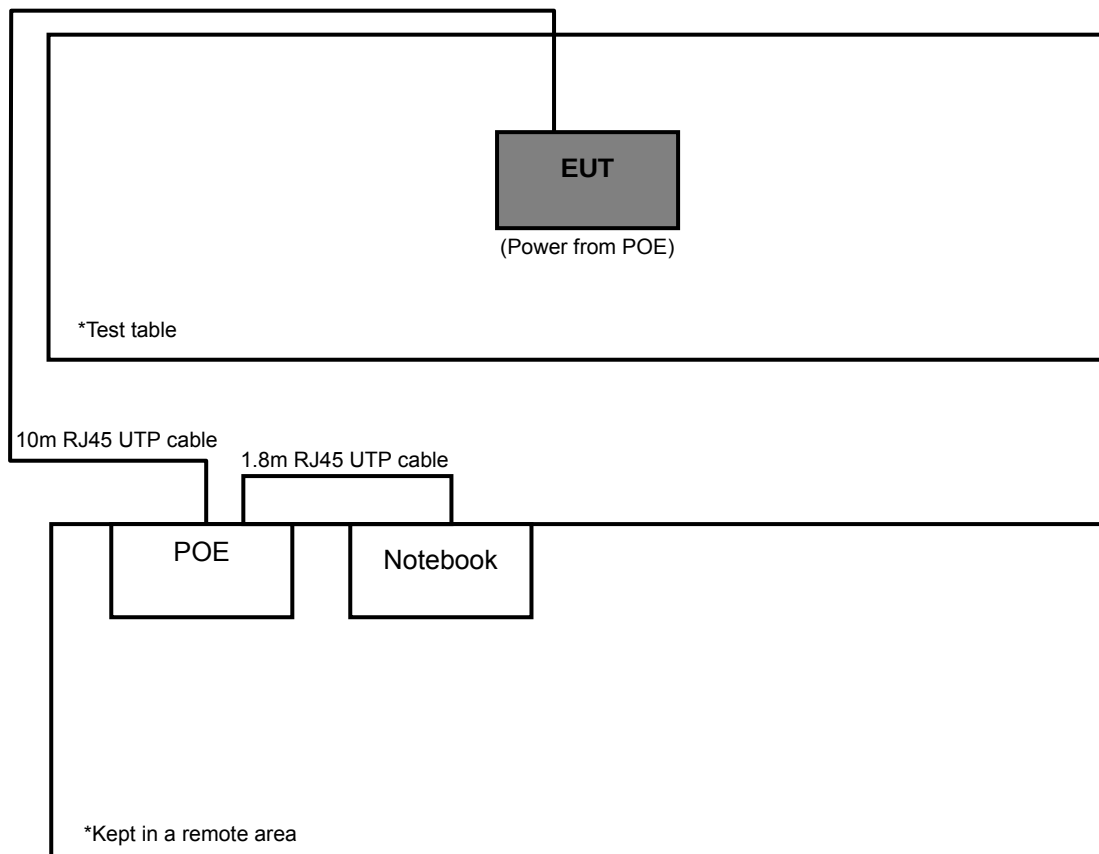
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook	DELL	D531	CN-0XM006-48643-81U-2610	QDS-BRCM1020

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m non-shielded RJ45 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.

3.3.1 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
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Aug. 21, 2012	Aug. 20, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSU 43	100115	Oct. 25, 2012	Oct. 24, 2013
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Mar. 25, 2013	Mar. 24, 2014
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-404	Dec. 22, 2012	Dec. 21, 2013
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 11, 2012	Jul. 10, 2013
Loop Antenna	HFH2-Z2	100070	Jan. 31, 2012	Jan. 30, 2014
Preamplifier Agilent	8449B	3008A01961	Oct. 25, 2012	Oct. 24, 2013
Preamplifier Agilent	8447D	2944A10738	Oct. 23, 2012	Oct. 22, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309220/4	Aug. 28, 2012	Aug. 27, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250724/4	Aug. 28, 2012	Aug. 27, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295012/4	Aug. 28, 2012	Aug. 27, 2013
Software BV ADT	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA	NA
Turn Table BV ADT	TT100.	TT93021704	NA	NA
Turn Table Controller BV ADT	SC100.	SC93021704	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 25, 2012	Oct. 24, 2013
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Aug. 21, 2012	Aug. 20, 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.
3. The test was performed in HwaYa Chamber 4.
4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
5. The FCC Site Registration No. is 460141.
6. The IC Site Registration No. is IC7450F-4.

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.

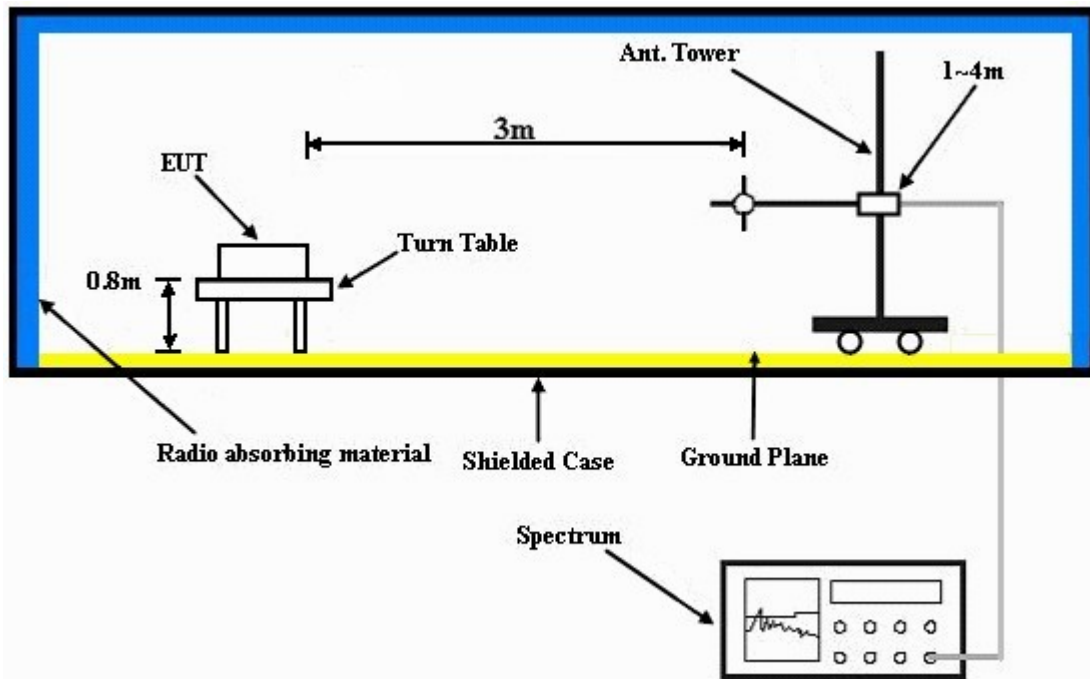
NOTE:

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 RJ45 cable and run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- The communication partner sent data to EUT by command "PING".

4.1.8 TEST RESULTS (A)

ABOVE 1GHz DATA :

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	54.9 PK	74.0	-19.1	1.06 H	200	16.30	38.60
2	5150.00	41.5 AV	54.0	-12.5	1.06 H	200	2.90	38.60
3	*5180.00	107.5 PK			1.06 H	200	68.90	38.60
4	*5180.00	95.8 AV			1.04 H	197	57.20	38.60
5	#10360.00	59.9 PK	68.3	-8.4	1.00 H	255	10.40	49.50
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	50.8 PK	74.0	-23.2	1.32 V	92	12.20	38.60
2	5150.00	37.6 AV	54.0	-16.4	1.32 V	92	-1.00	38.60
3	*5180.00	103.5 PK			1.32 V	92	64.90	38.60
4	*5180.00	94.2 AV			1.32 V	92	55.60	38.60
5	#10360.00	62.3 PK	68.3	-6.0	1.00 V	360	12.80	49.50

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	104.6 PK			1.17 H	196	66.00	38.60
2	*5200.00	94.1 AV			1.17 H	196	55.50	38.60
3	#10400.00	59.3 PK	68.3	-9.0	1.00 H	36	9.80	49.50
4	15600.00	60.4 PK	74.0	-13.6	1.00 H	155	9.70	50.70
5	15600.00	48.0 AV	54.0	-6.0	1.00 H	155	-2.70	50.70
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	103.2 PK			1.00 V	198	64.60	38.60
2	*5200.00	92.7 AV			1.00 V	198	54.10	38.60
3	#10400.00	59.3 PK	68.3	-9.0	1.00 V	32	9.80	49.50
4	15600.00	61.7 PK	74.0	-12.3	1.00 V	35	11.00	50.70
5	15600.00	47.5 AV	54.0	-6.5	1.00 V	2	-3.20	50.70

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	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	105.6 PK			1.02 H	195	66.90	38.70
2	*5240.00	94.9 AV			1.02 H	195	56.20	38.70
3	5350.00	47.3 PK	74.0	-26.7	1.02 H	195	8.50	38.80
4	5350.00	37.0 AV	54.0	-17.0	1.02 H	195	-1.80	38.80
5	#10480.00	62.8 PK	68.3	-5.5	1.66 H	54	13.10	49.70
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	*5240.00	103.9 PK			1.25 V	44	65.20	38.70
2	*5240.00	93.6 AV			1.25 V	44	54.90	38.70
3	5350.00	48.5 PK	74.0	-25.5	1.25 V	44	9.70	38.80
4	5350.00	35.6 AV	54.0	-18.4	1.25 V	44	-3.20	38.80
5	#10480.00	58.6 PK	68.3	-9.7	1.00 V	225	8.90	49.70

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.

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	49.0 PK	74.0	-25.0	1.05 H	210	10.40	38.60
2	5150.00	37.2 AV	54.0	-16.8	1.05 H	210	-1.40	38.60
3	*5180.00	107.3 PK			1.05 H	196	68.70	38.60
4	*5180.00	94.6 AV			1.05 H	196	56.00	38.60
5	#10360.00	62.0 PK	68.3	-6.3	1.00 H	258	12.50	49.50
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	50.8 PK	74.0	-23.2	1.02 V	55	12.20	38.60
2	5150.00	37.8 AV	54.0	-16.2	1.02 V	55	-0.80	38.60
3	*5180.00	103.0 PK			1.02 V	55	64.40	38.60
4	*5180.00	93.2 AV			1.02 V	55	54.60	38.60
5	#10360.00	63.3 PK	68.3	-5.0	1.00 V	236	13.80	49.50

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	104.9 PK			1.00 H	199	66.30	38.60
2	*5200.00	93.1 AV			1.00 H	199	54.50	38.60
3	#10400.00	61.8 PK	68.3	-6.5	1.00 H	57	12.30	49.50
4	15600.00	62.8 PK	74.0	-11.2	1.33 H	22	12.10	50.70
5	15600.00	49.6 AV	54.0	-4.4	1.33 H	22	-1.10	50.70
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	102.3 PK			1.07 V	7	63.70	38.60
2	*5200.00	92.6 AV			1.07 V	7	54.00	38.60
3	#10400.00	61.8 PK	68.3	-6.5	1.00 V	5	12.30	49.50
4	15600.00	63.6 PK	74.0	-10.4	1.00 V	225	12.90	50.70
5	15600.00	49.6 AV	54.0	-4.4	1.00 V	225	-1.10	50.70

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	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	105.6 PK			1.12 H	44	66.90	38.70
2	*5240.00	94.6 AV			1.12 H	44	55.90	38.70
3	5350.00	47.2 PK	74.0	-26.8	1.01 H	33	8.40	38.80
4	5350.00	36.5 AV	54.0	-17.5	1.01 H	33	-2.30	38.80
5	#10480.00	63.3 PK	68.3	-5.0	1.00 H	66	13.60	49.70
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	*5240.00	103.8 PK			1.00 V	158	65.10	38.70
2	*5240.00	93.2 AV			1.00 V	158	54.50	38.70
3	5350.00	48.5 PK	74.0	-25.5	1.00 V	158	9.70	38.80
4	5350.00	35.2 AV	54.0	-18.8	1.00 V	158	-3.60	38.80
5	#10480.00	58.1 PK	68.3	-10.2	1.00 V	333	8.40	49.70

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.

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	56.2 PK	74.0	-17.8	1.04 H	195	17.60	38.60
2	5150.00	44.6 AV	54.0	-9.4	1.04 H	195	6.00	38.60
3	*5190.00	101.8 PK			1.04 H	195	63.20	38.60
4	*5190.00	90.6 AV			1.04 H	195	52.00	38.60
5	#10380.00	58.6 PK	68.3	-9.7	1.00 H	321	9.10	49.50
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	54.7 PK	74.0	-19.3	1.07 V	98	16.10	38.60
2	5150.00	42.6 AV	54.0	-11.4	1.07 V	98	4.00	38.60
3	*5190.00	99.6 PK			1.07 V	98	61.00	38.60
4	*5190.00	89.5 AV			1.07 V	98	50.90	38.60
5	#10380.00	59.2 PK	68.3	-9.1	1.00 V	144	9.70	49.50

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	101.6 PK			1.65 H	5	63.00	38.60
2	*5230.00	91.2 AV			1.65 H	5	52.60	38.60
3	5350.00	48.2 PK	74.0	-25.8	1.65 H	5	9.40	38.80
4	5350.00	35.0 AV	54.0	-19.0	1.65 H	5	-3.80	38.80
5	#10460.00	60.2 PK	68.3	-8.1	1.44 H	85	10.60	49.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	100.8 PK			1.20 V	0	62.20	38.60
2	*5230.00	90.3 AV			1.20 V	0	51.70	38.60
3	5350.00	51.6 PK	74.0	-22.4	1.00 V	25	12.80	38.80
4	5350.00	35.9 AV	54.0	-18.1	1.00 V	25	-2.90	38.80
5	#10460.00	61.5 PK	68.3	-6.8	1.00 V	333	11.90	49.60

REMARKS:

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

BELOW 1GHz WORST-CASE DATA : 802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 66%RH	TESTED BY	Antony Lee

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	101.69	23.0 QP	43.5	-20.5	1.55 H	88	13.40	9.60
2	198.71	28.2 QP	43.5	-15.3	1.36 H	14	17.30	10.90
3	495.60	26.4 QP	46.0	-19.6	1.47 H	273	7.00	19.40
4	654.71	31.5 QP	46.0	-14.5	1.58 H	332	9.60	21.90
5	712.92	29.0 QP	46.0	-17.0	1.66 H	322	6.50	22.50
6	1000.10	35.2 QP	54.0	-18.8	2.14 H	83	8.50	26.70
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	48.66	29.6 QP	40.0	-10.4	1.45 V	335	15.60	14.00
2	157.00	24.5 QP	43.5	-19.0	1.23 V	33	10.50	14.00
3	250.11	23.5 QP	46.0	-22.5	1.67 V	124	10.60	12.90
4	500.36	24.3 QP	46.0	-21.7	1.24 V	222	4.80	19.50
5	666.32	28.1 QP	46.0	-17.9	1.24 V	325	6.10	22.00
6	800.56	31.6 QP	46.0	-14.4	1.55 V	325	7.00	24.60

REMARKS:

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

4.1.9 TEST RESULTS (B)

ABOVE 1GHz DATA :

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	48.5 PK	74.0	-25.5	1.00 H	193	9.90	38.60
2	5150.00	35.6 AV	54.0	-18.4	1.00 H	193	-3.00	38.60
3	*5180.00	102.8 PK			1.00 H	193	64.20	38.60
4	*5180.00	91.6 AV			1.00 H	193	53.00	38.60
5	#10360.00	57.7 PK	68.3	-10.6	1.00 H	36	8.20	49.50
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	49.6 PK	74.0	-24.4	1.20 V	33	11.00	38.60
2	5150.00	36.6 AV	54.0	-17.4	1.20 V	33	-2.00	38.60
3	*5180.00	106.5 PK			1.20 V	33	67.90	38.60
4	*5180.00	96.1 AV			1.20 V	33	57.50	38.60
5	#10360.00	58.8 PK	68.3	-9.5	1.00 V	155	9.30	49.50

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	102.5 PK			1.37 H	197	63.90	38.60
2	*5200.00	92.7 AV			1.37 H	197	54.10	38.60
3	#10400.00	58.5 PK	68.3	-9.8	1.00 H	125	9.00	49.50
4	15600.00	59.6 PK	74.0	-14.4	1.00 H	23	8.90	50.70
5	15600.00	47.8 AV	54.0	-6.2	1.00 H	23	-2.90	50.70
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	106.0 PK			1.01 V	231	67.40	38.60
2	*5200.00	95.5 AV			1.01 V	231	56.90	38.60
3	#10400.00	58.1 PK	68.3	-10.2	1.14 V	69	8.60	49.50
4	15600.00	61.2 PK	74.0	-12.8	1.00 V	255	10.50	50.70
5	15600.00	48.0 AV	54.0	-6.0	1.00 V	255	-2.70	50.70

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	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	101.7 PK			1.00 H	196	63.00	38.70
2	*5240.00	90.6 AV			1.00 H	196	51.90	38.70
3	5350.00	49.1 PK	74.0	-24.9	1.00 H	12	10.30	38.80
4	5350.00	35.4 AV	54.0	-18.6	1.00 H	12	-3.40	38.80
5	#10480.00	62.8 PK	68.3	-5.5	1.00 H	132	13.10	49.70
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	*5240.00	104.6 PK			1.02 V	6	65.90	38.70
2	*5240.00	94.0 AV			1.02 V	6	55.30	38.70
3	5350.00	48.6 PK	74.0	-25.4	1.00 V	20	9.80	38.80
4	5350.00	35.6 AV	54.0	-18.4	1.00 V	20	-3.20	38.80
5	#10480.00	59.6 PK	68.3	-8.7	1.00 V	254	9.90	49.70

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.

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	47.8 PK	74.0	-26.2	1.14 H	0	9.20	38.60
2	5150.00	36.2 AV	54.0	-17.8	1.14 H	0	-2.40	38.60
3	*5180.00	100.8 PK			1.02 H	197	62.20	38.60
4	*5180.00	90.0 AV			1.02 H	197	51.40	38.60
5	#10360.00	57.8 PK	68.3	-10.5	1.00 H	169	8.30	49.50
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	50.4 PK	74.0	-23.6	1.00 V	23	11.80	38.60
2	5150.00	36.0 AV	54.0	-18.0	1.00 V	23	-2.60	38.60
3	*5180.00	104.8 PK			1.00 V	20	66.20	38.60
4	*5180.00	93.8 AV			1.00 V	20	55.20	38.60
5	#10360.00	60.0 PK	68.3	-8.3	1.00 V	128	10.50	49.50

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	102.8 PK			1.21 H	175	64.20	38.60
2	*5200.00	92.0 AV			1.21 H	175	53.40	38.60
3	#10400.00	58.9 PK	68.3	-9.4	1.00 H	39	9.40	49.50
4	15600.00	60.0 PK	74.0	-14.0	1.00 H	225	9.30	50.70
5	15600.00	49.3 AV	54.0	-4.7	1.00 H	225	-1.40	50.70
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	106.8 PK			1.05 V	175	68.20	38.60
2	*5200.00	95.8 AV			1.05 V	175	57.20	38.60
3	#10400.00	59.2 PK	68.3	-9.1	1.00 V	241	9.70	49.50
4	15600.00	61.8 PK	74.0	-12.2	1.00 V	236	11.10	50.70
5	15600.00	49.5 AV	54.0	-4.5	1.00 V	236	-1.20	50.70

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	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	99.8 PK			1.01 H	197	61.10	38.70
2	*5240.00	89.0 AV			1.01 H	197	50.30	38.70
3	5350.00	49.6 PK	74.0	-24.4	1.00 H	114	10.80	38.80
4	5350.00	36.1 AV	54.0	-17.9	1.00 H	114	-2.70	38.80
5	#10480.00	64.7 PK	68.3	-3.6	1.00 H	133	15.00	49.70
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	*5240.00	104.0 PK			1.00 V	2	65.30	38.70
2	*5240.00	93.5 AV			1.00 V	2	54.80	38.70
3	5350.00	48.8 PK	74.0	-25.2	1.00 V	24	10.00	38.80
4	5350.00	36.5 AV	54.0	-17.5	1.00 V	24	-2.30	38.80
5	#10480.00	61.2 PK	68.3	-7.1	1.00 V	325	11.50	49.70

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.

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	53.8 PK	74.0	-20.2	1.07 H	175	15.20	38.60
2	5150.00	42.8 AV	54.0	-11.2	1.07 H	175	4.20	38.60
3	*5190.00	100.6 PK			1.07 H	175	62.00	38.60
4	*5190.00	90.3 AV			1.07 H	175	51.70	38.60
5	#10380.00	60.3 PK	68.3	-8.0	1.00 H	144	10.80	49.50
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	57.5 PK	74.0	-16.5	1.00 V	255	18.90	38.60
2	5150.00	45.6 AV	54.0	-8.4	1.00 V	255	7.00	38.60
3	*5190.00	101.6 PK			1.00 V	16	63.00	38.60
4	*5190.00	92.0 AV			1.00 V	16	53.40	38.60
5	#10380.00	58.8 PK	68.3	-9.5	1.00 V	147	9.30	49.50

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	99.8 PK			1.21 H	176	61.20	38.60
2	*5230.00	89.5 AV			1.21 H	176	50.90	38.60
3	5350.00	48.5 PK	74.0	-25.5	1.00 H	179	9.70	38.80
4	5350.00	35.6 AV	54.0	-18.4	1.00 H	179	-3.20	38.80
5	#10460.00	61.8 PK	68.3	-6.5	1.00 H	144	12.20	49.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	101.6 PK			1.00 V	130	63.00	38.60
2	*5230.00	91.6 AV			1.00 V	130	53.00	38.60
3	5350.00	48.5 PK	74.0	-25.5	1.00 V	130	9.70	38.80
4	5350.00	35.6 AV	54.0	-18.4	1.00 V	130	-3.20	38.80
5	#10460.00	61.0 PK	68.3	-7.3	1.00 V	255	11.40	49.60

REMARKS:

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

BELOW 1GHz WORST-CASE DATA : 802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 66%RH	TESTED BY	Cedric Wu

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	30.30	29.3 QP	40.0	-10.7	1.24 H	52	16.80	12.50
2	101.69	23.9 QP	43.5	-19.6	1.77 H	95	14.30	9.60
3	245.28	27.5 QP	46.0	-18.5	1.63 H	212	14.80	12.70
4	421.86	32.0 QP	46.0	-14.0	1.02 H	345	14.40	17.60
5	650.83	38.1 QP	46.0	-7.9	2.41 H	168	16.20	21.90
6	926.36	33.8 QP	46.0	-12.2	1.63 H	195	7.80	26.00
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	101.69	26.1 QP	43.5	-17.4	1.36 V	234	16.50	9.60
2	196.77	30.7 QP	43.5	-12.8	1.55 V	70	19.60	11.10
3	400.52	33.5 QP	46.0	-12.5	1.28 V	101	16.40	17.10
4	507.24	28.5 QP	46.0	-17.5	1.77 V	246	8.90	19.60
5	600.38	33.8 QP	46.0	-12.2	1.20 V	47	12.20	21.60
6	920.54	34.5 QP	46.0	-11.5	1.96 V	207	8.60	25.90

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. 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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