



# FCC TEST REPORT (15.407)

**REPORT NO.:** RF130321C09-1

**MODEL NO.:** DNUR-S2

**FCC ID:** VPQ-DNURS2

**RECEIVED:** Mar. 21, 2013

**TESTED:** Mar. 29 ~ Mar. 31, 2013

**ISSUED:** Apr. 08, 2013

**APPLICANT:** Trixell

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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF130321C09-1	Original release	Apr. 08, 2013



## 1. CERTIFICATION

**PRODUCT:** 802.11 abgn 2x2 USB Wifi Module

**MODEL:** DNUR-S2

**BRAND:** Unex

**APPLICANT:** Trixell

**TESTED:** Mar. 29 ~ Mar. 31, 2013

**TEST SAMPLE:** ENGINEERING SAMPLE

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

ANSI C63.10-2009

The above equipment (model: DNUR-S2) 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** : Apr. 08, 2013  
Pettie Chen / Senior Specialist

**APPROVED BY** :  , **DATE** : Apr. 08, 2013  
Ken Liu / Senior Manager

## 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	Without AC power port of the EUT.
15.407(b/1/2/3) (b)(6)	Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.1dB at 10520.00MHz.
15.407(a/1/2)	Max Average Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(6)	Peak Power Excursion	PASS	Meet the requirement of limit.
15.407(a/1/2)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is IPEX MHF Connector (U.FL compatible) not a standard connector.

### 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	3.34 dB
	200MHz ~ 1000MHz	3.35 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

<b>EUT</b>	802.11 abgn 2x2 USB Wifi Module
<b>MODEL NO.</b>	DNUR-S2
<b>POWER SUPPLY</b>	12Vdc (host equipment)
<b>MODULATION TYPE</b>	64QAM, 16QAM, QPSK, BPSK
<b>MODULATION TECHNOLOGY</b>	OFDM
<b>TRANSFER RATE</b>	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300.0Mbps
<b>OPERATING FREQUENCY</b>	5180 ~ 5240MHz, 5260 ~ 5320MHz & 5500 ~ 5700MHz
<b>NUMBER OF CHANNEL</b>	5180 ~ 5240MHz: 4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz) 5260 ~ 5320MHz: 4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz) 5500 ~ 5700MHz: 8 for 802.11a, 802.11n (20MHz) 3 for 802.11n (40MHz)
<b>OUTPUT POWER</b>	1.746mW for 5180 ~ 5240MHz 1.747mW for 5260 ~ 5320MHz 1.746mW for 5500 ~ 5700MHz
<b>ANTENNA TYPE</b>	Dipole antenna with 5.5dBi gain
<b>ANTENNA CONNECTOR</b>	IPEX MHF Connector (U.FL compatible)
<b>DATA CABLE</b>	NA
<b>I/O PORTS</b>	Refer to user's manual
<b>ACCESSORY DEVICES</b>	NA

**NOTE:**

- The EUT provides two completed transmitters and two receivers.

MODULATION MODE	TX FUNCTION
802.11a	1TX
802.11n (20MHz)	2TX
802.11n (40MHz)	2TX

- The EUT is only used in the following end product. All models are listed as below. The EUT install to end product are material, electrically identical, different model names and size are for different appearance.

Product	Brand	Model	Difference
X-ray detector	Trixell	Pixium 3543EZ	35*43 cm <sup>2</sup> Cassette sized
		Pixium 3543EZh	35*43 cm <sup>2</sup> Handle version
		Pixium 2430EZ	24*30 cm <sup>2</sup> Cassette sized

\* After pre-testing each model, the model: Pixium 2430EZ is the worst for the final test.

- 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

#### FOR 5180 ~ 5240MHz

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

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

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	46	5230 MHz

#### FOR 5260 ~ 5320MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
54	5270 MHz	62	5310 MHz

#### FOR 5500 ~ 5700MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
100	5500 MHz	116	5580 MHz
104	5520 MHz	132	5660 MHz
108	5540 MHz	136	5680 MHz
112	5560 MHz	140	5700 MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
102	5510 MHz	134	5670 MHz
110	5550 MHz		



### 3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE $\geq$ 1G	RE<1G	PLC	APCM	
-	√	√	NOTE 2	√	-

Where **RE $\geq$ 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 **X-plane**.  
**NOTE 2:** No need to concern of Conducted Emission due to the EUT is powered by power supply.

#### 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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.0
-	802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	BPSK	7.2
-	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	15.0
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0
-	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	BPSK	7.2
-	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	15.0
-	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0
-	802.11n (20MHz)		100 to 140	100, 116, 140	OFDM	BPSK	7.2
-	802.11n (40MHz)		102 to 134	102, 110, 134	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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5180-5320	36 to 64	48	OFDM	BPSK	6.0
-	802.11n (20MHz)	5500-5700	100 to 140	140	OFDM	BPSK	6.0

**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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.0
-	802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	BPSK	7.2
-	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	15.0
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0
-	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	BPSK	7.2
-	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	15.0
-	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0
-	802.11n (20MHz)		100 to 140	100, 116, 140	OFDM	BPSK	7.2
-	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	15.0

**TEST CONDITION:**

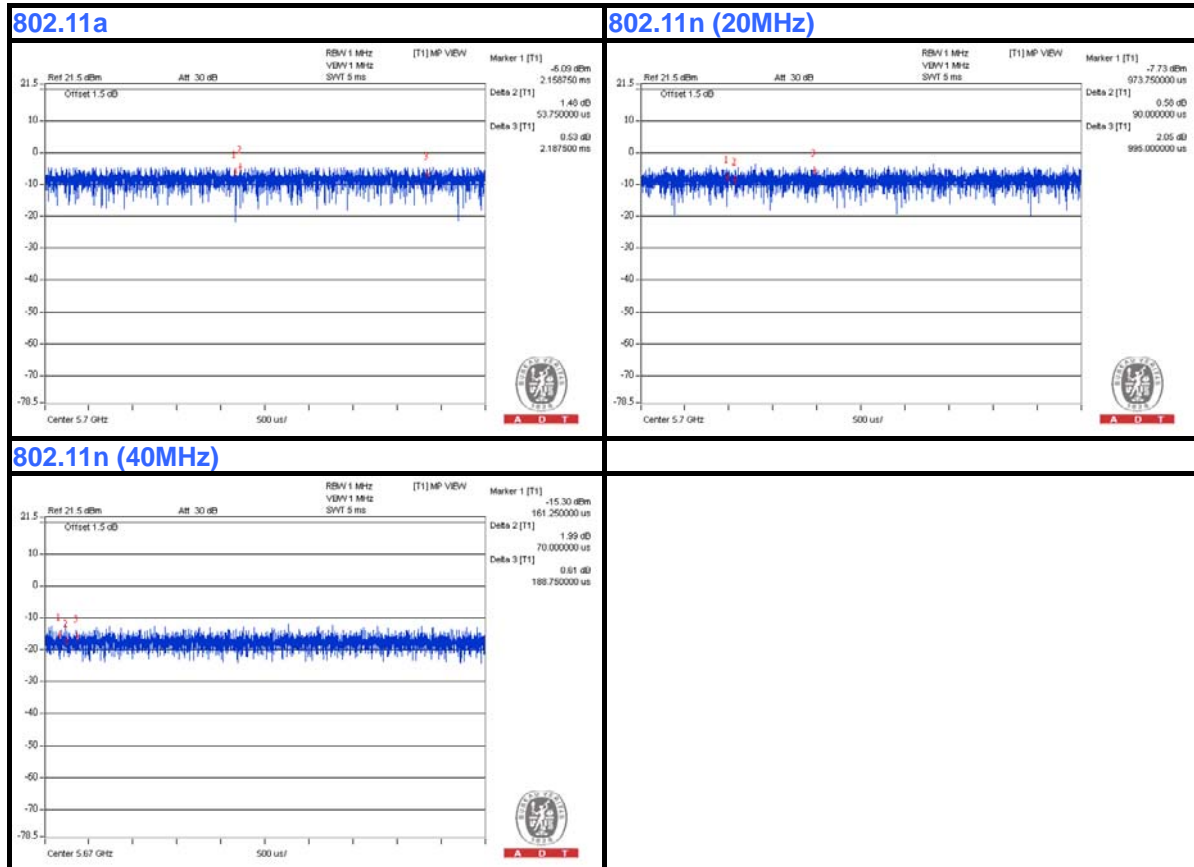
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 65%RH	120Vac, 60Hz	Sun Lin
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Brad Tung
APCM	25deg. C, 60%RH	120Vac, 60Hz	Nick Chen



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### 3.3 DUTY CYCLE OF TEST SIGNAL

Duty cycle of test signal is > 98 %, duty factor is not required.



### 3.4 DESCRIPTION OF SUPPORT UNITS

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

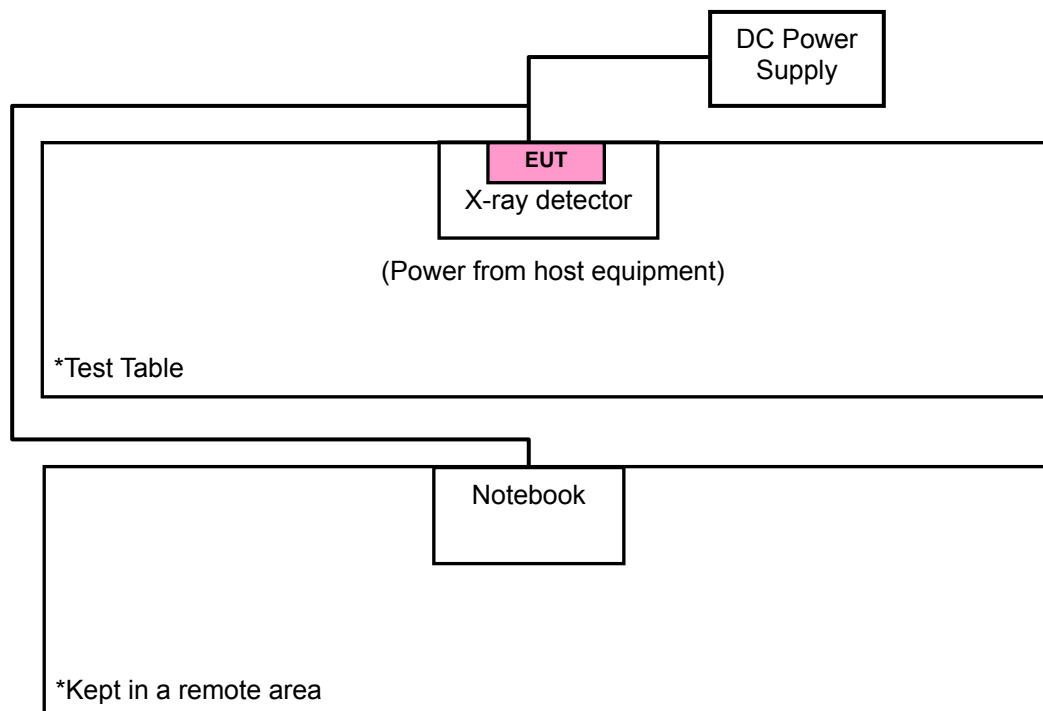
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook	DELL	E5420	33MKMQ1	FCC DoC Approved
2	X-ray detector	Trixell	Pixium 2430EZ	NA	NA
3	DC Power supply	TOPWARD	6603D	802001	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	NA
3	NA

#### NOTE:

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

### 3.4.1 CONFIGURATION OF SYSTEM UNDER TEST



### 3.5 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 (dBμV/m)	
	PK	AV
	74	54
	EIRP LIMIT (dBm)	EQUIVALENT FIELD STRENGTH AT 3m (dBμV/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	ESIB7	100212	Aug. 06, 2012	Aug. 05, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jan. 31, 2013	Jan. 30, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Apr. 06, 2012	Apr. 05, 2013
HORN Antenna SCHWARZBECK	9120D	209	Sep. 03, 2012	Sep. 02, 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	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
High Speed Peak Power Meter	ML2495A	0842014	Apr. 28, 2012	Apr. 27, 2013
Power Sensor	MA2411B	0738404	Apr. 28, 2012	Apr. 27, 2013
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 25, 2012	Oct. 24, 2013
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 13, 2012	Jun. 12, 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 calibration interval of the loop antenna is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in HwaYa Chamber 3.
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 988962.
6. 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.

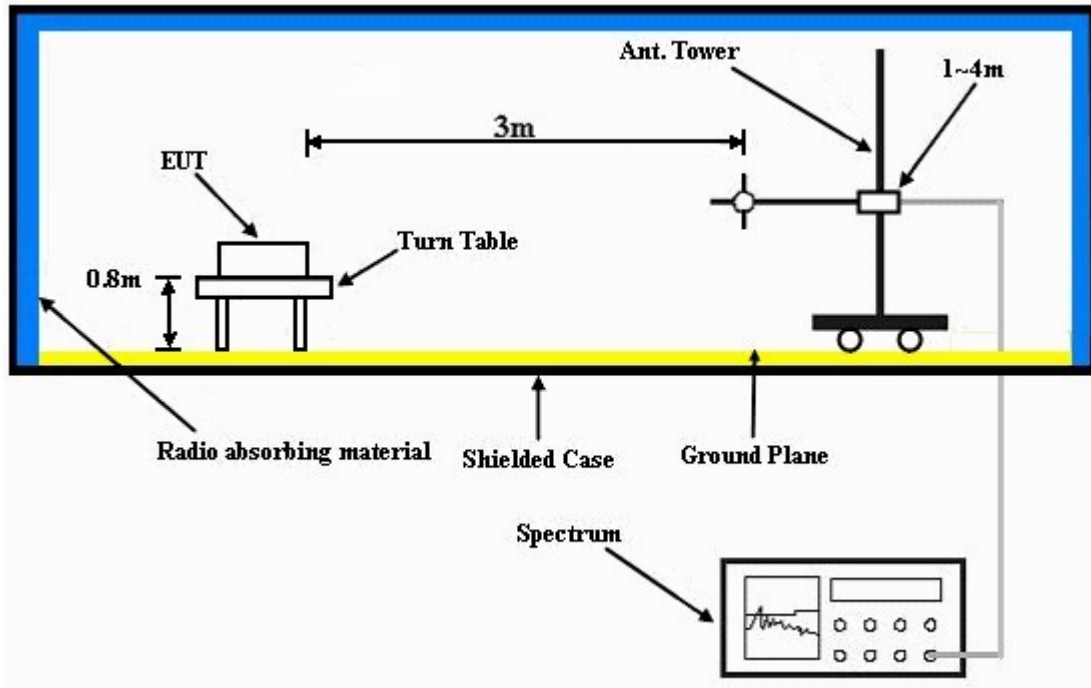
**NOTE:**

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

- a. Installed the EUT into the X-ray detector and placed them on the testing table.
- b. Prepared notebook to act as a communication partner and placed it outside of testing area.
- c. The communication partner connected with EUT and run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.



#### 4.1.8 TEST RESULTS

##### ABOVE 1GHz DATA :

##### 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	Sun 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	53.0 PK	74.0	-21.0	1.00 H	58	15.30	37.70
2	5150.00	42.2 AV	54.0	-11.8	1.00 H	58	4.50	37.70
3	*5180.00	83.6 PK			1.00 H	58	45.90	37.70
4	*5180.00	73.7 AV			1.00 H	58	36.00	37.70
5	#10360.00	56.4 PK	74.0	-17.6	1.12 H	33	7.60	48.80
6	#10360.00	43.1 AV	54.0	-10.9	1.12 H	33	-5.70	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	54.7 PK	74.0	-19.3	1.00 V	355	17.00	37.70
2	5150.00	43.5 AV	54.0	-10.5	1.00 V	355	5.80	37.70
3	*5180.00	84.1 PK			1.00 V	355	46.40	37.70
4	*5180.00	74.7 AV			1.00 V	355	37.00	37.70
5	#10360.00	57.5 PK	74.0	-16.5	1.05 V	256	8.70	48.80
6	#10360.00	44.6 AV	54.0	-9.4	1.05 V	256	-4.20	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.



A D T

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	Sun 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	84.1 PK			1.00 H	55	46.30	37.80
2	*5200.00	74.4 AV			1.00 H	55	36.60	37.80
3	#10400.00	56.9 PK	74.0	-17.1	1.18 H	60	8.00	48.90
4	#10400.00	44.0 AV	54.0	-10.0	1.18 H	60	-4.90	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	*5200.00	84.7 PK			1.00 V	358	46.90	37.80
2	*5200.00	75.3 AV			1.00 V	358	37.50	37.80
3	#10400.00	57.4 PK	74.0	-16.6	1.06 V	248	8.50	48.90
4	#10400.00	44.8 AV	54.0	-9.2	1.06 V	248	-4.10	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.



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	Sun 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	83.6 PK			1.00 H	53	45.80	37.80
2	*5240.00	74.0 AV			1.00 H	53	36.20	37.80
3	#10480.00	56.3 PK	74.0	-17.7	1.07 H	48	7.10	49.20
4	#10480.00	43.2 AV	54.0	-10.8	1.07 H	48	-6.00	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	84.2 PK			1.00 V	340	46.40	37.80
2	*5240.00	75.0 AV			1.00 V	340	37.20	37.80
3	#10480.00	56.9 PK	74.0	-17.1	1.24 V	300	7.70	49.20
4	#10480.00	44.0 AV	54.0	-10.0	1.24 V	300	-5.20	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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun 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	*5260.00	83.6 PK			1.00 H	60	45.70	37.90
2	*5260.00	74.6 AV			1.00 H	60	36.70	37.90
3	#10520.00	71.9 PK	74.0	-2.1	1.09 H	30	22.70	49.20
4	#10520.00	52.7 AV	54.0	-1.3	1.09 H	30	3.50	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	*5260.00	84.2 PK			1.00 V	348	46.30	37.90
2	*5260.00	75.2 AV			1.00 V	348	37.30	37.90
3	#10520.00	72.4 PK	74.0	-1.6	1.06 V	249	23.20	49.20
4	#10520.00	52.9 AV	54.0	-1.1	1.06 V	249	3.70	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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun 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	*5300.00	83.9 PK			1.00 H	57	46.00	37.90
2	*5300.00	74.9 AV			1.00 H	57	37.00	37.90
3	10600.00	57.8 PK	74.0	-16.2	1.11 H	28	8.60	49.20
4	10600.00	43.2 AV	54.0	-10.8	1.11 H	28	-6.00	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	*5300.00	84.3 PK			1.00 V	326	46.40	37.90
2	*5300.00	75.4 AV			1.00 V	326	37.50	37.90
3	10600.00	58.2 PK	74.0	-15.8	1.20 V	286	9.00	49.20
4	10600.00	44.0 AV	54.0	-10.0	1.20 V	286	-5.20	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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun 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	*5320.00	84.0 PK			1.00 H	24	46.00	38.00
2	*5320.00	74.9 AV			1.00 H	24	36.90	38.00
3	5350.00	55.2 PK	74.0	-18.8	1.00 H	24	17.20	38.00
4	5350.00	43.0 AV	54.0	-11.0	1.00 H	24	5.00	38.00
5	10640.00	56.4 PK	74.0	-17.6	1.24 H	20	7.10	49.30
6	10640.00	43.0 AV	54.0	-11.0	1.24 H	20	-6.30	49.30
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	*5320.00	84.5 PK			1.00 V	329	46.50	38.00
2	*5320.00	75.3 AV			1.00 V	329	37.30	38.00
3	5350.00	55.9 PK	74.0	-18.1	1.00 V	329	17.90	38.00
4	5350.00	43.7 AV	54.0	-10.3	1.00 V	329	5.70	38.00
5	10640.00	57.4 PK	74.0	-16.6	1.08 V	279	8.10	49.30
6	10640.00	44.0 AV	54.0	-10.0	1.08 V	279	-5.30	49.30

**REMARKS:**

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun 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	5460.00	56.6 PK	74.0	-17.4	1.00 H	355	18.40	38.20
2	5460.00	43.5 AV	54.0	-10.5	1.00 H	355	5.30	38.20
3	#5470.00	57.0 PK	74.0	-17.0	1.00 H	355	18.80	38.20
4	#5470.00	44.4 AV	54.0	-9.6	1.00 H	355	6.20	38.20
5	*5500.00	86.0 PK			1.00 H	355	47.80	38.20
6	*5500.00	76.3 AV			1.00 H	355	38.10	38.20
7	11000.00	58.2 PK	74.0	-15.8	1.03 H	24	8.50	49.70
8	11000.00	44.9 AV	54.0	-9.1	1.03 H	24	-4.80	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	5460.00	56.8 PK	74.0	-17.2	1.53 V	250	18.60	38.20
2	5460.00	43.7 AV	54.0	-10.3	1.53 V	250	5.50	38.20
3	#5470.00	57.1 PK	74.0	-16.9	1.53 V	250	18.90	38.20
4	#5470.00	44.7 AV	54.0	-9.3	1.53 V	250	6.50	38.20
5	*5500.00	85.1 PK			1.65 V	243	46.90	38.20
6	*5500.00	75.5 AV			1.65 V	243	37.30	38.20
7	11000.00	58.7 PK	74.0	-15.3	1.25 V	236	9.00	49.70
8	11000.00	44.5 AV	54.0	-9.5	1.25 V	236	-5.20	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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun 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	*5580.00	86.4 PK			1.00 H	357	48.00	38.40
2	*5580.00	76.9 AV			1.00 H	357	38.50	38.40
3	11160.00	58.3 PK	74.0	-15.7	1.06 H	18	8.60	49.70
4	11160.00	44.6 AV	54.0	-9.4	1.06 H	18	-5.10	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	*5580.00	85.2 PK			1.48 V	240	46.80	38.40
2	*5580.00	75.8 AV			1.48 V	240	37.40	38.40
3	11160.00	58.4 PK	74.0	-15.6	1.21 V	200	8.70	49.70
4	11160.00	44.9 AV	54.0	-9.1	1.21 V	200	-4.80	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.





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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun 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	*5700.00	85.9 PK			1.00 H	333	47.20	38.70
2	*5700.00	77.0 AV			1.00 H	333	38.30	38.70
3	#5725.00	57.4 PK	74.0	-16.6	1.00 H	333	18.70	38.70
4	#5725.00	44.2 AV	54.0	-9.8	1.00 H	333	5.50	38.70
5	11400.00	58.9 PK	74.0	-15.1	1.03 H	14	9.40	49.50
6	11400.00	44.1 AV	54.0	-9.9	1.03 H	14	-5.40	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	*5700.00	85.6 PK			1.55 V	265	46.90	38.70
2	*5700.00	76.5 AV			1.55 V	265	37.80	38.70
3	#5725.00	57.0 PK	74.0	-17.0	1.55 V	265	18.30	38.70
4	#5725.00	43.9 AV	54.0	-10.1	1.55 V	265	5.20	38.70
5	11400.00	58.7 PK	74.0	-15.3	1.17 V	216	9.20	49.50
6	11400.00	44.8 AV	54.0	-9.2	1.17 V	216	-4.70	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.



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, 68%RH	TESTED BY	Sun 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	47.1 PK	74.0	-26.9	1.04 H	44	9.40	37.70
2	5150.00	32.6 AV	54.0	-21.4	1.04 H	44	-5.10	37.70
3	*5180.00	86.5 PK			1.04 H	44	48.80	37.70
4	*5180.00	76.7 AV			1.04 H	44	39.00	37.70
5	#10360.00	60.5 PK	74.0	-13.5	1.38 H	107	11.70	48.80
6	#10360.00	46.7 AV	54.0	-7.3	1.38 H	107	-2.10	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	46.7 PK	74.0	-27.3	1.14 V	357	9.00	37.70
2	5150.00	35.4 AV	54.0	-18.6	1.14 V	357	-2.30	37.70
3	*5180.00	84.7 PK			1.14 V	35	47.00	37.70
4	*5180.00	75.2 AV			1.14 V	357	37.50	37.70
5	#10360.00	58.1 PK	74.0	-15.9	1.07 V	168	9.30	48.80
6	#10360.00	47.3 AV	54.0	-6.7	1.07 V	168	-1.50	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.



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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, 68%RH	TESTED BY	Sun 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	86.8 PK			1.08 H	41	49.00	37.80
2	*5200.00	76.9 AV			1.08 H	41	39.10	37.80
3	#10400.00	60.8 PK	74.0	-13.2	1.41 H	108	11.90	48.90
4	#10400.00	47.2 AV	54.0	-6.8	1.41 H	108	-1.70	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	*5200.00	85.2 PK			1.18 V	341	47.40	37.80
2	*5200.00	75.4 AV			1.18 V	341	37.60	37.80
3	#10400.00	57.8 PK	74.0	-16.2	1.08 V	177	8.90	48.90
4	#10400.00	46.8 AV	54.0	-7.2	1.08 V	177	-2.10	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.



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, 68%RH	TESTED BY	Sun 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	86.8 PK			1.12 H	52	49.00	37.80
2	*5240.00	76.9 AV			1.12 H	52	39.10	37.80
3	5350.00	46.5 PK	74.0	-27.5	1.12 H	52	8.50	38.00
4	5350.00	35.1 AV	54.0	-18.9	1.12 H	52	-2.90	38.00
5	#10480.00	60.4 PK	74.0	-13.6	1.41 H	108	11.20	49.20
6	#10480.00	46.2 AV	54.0	-7.8	1.41 H	108	-3.00	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	85.2 PK			1.21 V	341	47.40	37.80
2	*5240.00	75.4 AV			1.21 V	341	37.60	37.80
3	5350.00	47.0 PK	74.0	-27.0	1.21 V	341	9.00	38.00
4	5350.00	35.8 AV	54.0	-18.2	1.21 V	341	-2.20	38.00
5	#10480.00	57.6 PK	74.0	-16.4	1.02 V	158	8.40	49.20
6	#10480.00	46.8 AV	54.0	-7.2	1.02 V	158	-2.40	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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	*5260.00	86.2 PK			1.02 H	37	48.30	37.90
2	*5260.00	76.4 AV			1.02 H	37	38.50	37.90
3	#10520.00	59.5 PK	74.0	-14.5	1.41 H	99	10.30	49.20
4	#10520.00	46.4 AV	54.0	-7.6	1.41 H	99	-2.80	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	*5260.00	84.2 PK			1.21 V	359	46.30	37.90
2	*5260.00	74.8 AV			1.21 V	359	36.90	37.90
3	#10520.00	57.6 PK	74.0	-16.4	1.12 V	164	8.40	49.20
4	#10520.00	46.8 AV	54.0	-7.2	1.12 V	164	-2.40	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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	*5300.00	86.8 PK			1.08 H	51	48.90	37.90
2	*5300.00	76.7 AV			1.08 H	51	38.80	37.90
3	10600.00	60.1 PK	74.0	-13.9	1.32 H	115	10.90	49.20
4	10600.00	46.2 AV	54.0	-7.8	1.32 H	115	-3.00	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	*5300.00	84.5 PK			1.12 V	345	46.60	37.90
2	*5300.00	74.8 AV			1.12 V	345	36.90	37.90
3	10600.00	57.5 PK	74.0	-16.5	1.12 V	152	8.30	49.20
4	10600.00	46.7 AV	54.0	-7.3	1.12 V	152	-2.50	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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	*5320.00	86.4 PK			1.02 H	48	48.40	38.00
2	*5320.00	76.2 AV			1.02 H	48	38.20	38.00
3	5350.00	47.5 PK	74.0	-26.5	1.12 H	63	9.50	38.00
4	5350.00	33.2 AV	54.0	-20.8	1.12 H	63	-4.80	38.00
5	10640.00	59.6 PK	74.0	-14.4	1.32 H	96	10.30	49.30
6	10640.00	46.4 AV	54.0	-7.6	1.32 H	96	-2.90	49.30
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	*5320.00	84.9 PK			1.21 V	335	46.90	38.00
2	*5320.00	75.6 AV			1.21 V	335	37.60	38.00
3	5350.00	46.8 PK	74.0	-27.2	1.21 V	335	8.80	38.00
4	5350.00	35.6 AV	54.0	-18.4	1.21 V	335	-2.40	38.00
5	10640.00	57.6 PK	74.0	-16.4	1.12 V	152	8.30	49.30
6	10640.00	46.8 AV	54.0	-7.2	1.12 V	152	-2.50	49.30

**REMARKS:**

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	5460.00	46.1 PK	74.0	-27.9	1.14 H	1	7.90	38.20
2	5460.00	36.0 AV	54.0	-18.0	1.14 H	1	-2.20	38.20
3	#5470.00	47.0 PK	74.0	-27.0	1.14 H	1	8.80	38.20
4	#5470.00	36.6 AV	54.0	-17.4	1.14 H	1	-1.60	38.20
5	*5500.00	86.5 PK			1.09 H	46	48.30	38.20
6	*5500.00	76.1 AV			1.09 H	46	37.90	38.20
7	11000.00	58.8 PK	74.0	-15.2	1.39 H	115	9.10	49.70
8	11000.00	46.0 AV	54.0	-8.0	1.39 H	115	-3.70	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	5460.00	45.2 PK	74.0	-28.8	1.21 V	342	7.00	38.20
2	5460.00	34.6 AV	54.0	-19.4	1.21 V	342	-3.60	38.20
3	#5470.00	45.8 PK	74.0	-28.2	1.21 V	342	7.60	38.20
4	#5470.00	35.1 AV	54.0	-18.9	1.21 V	342	-3.10	38.20
5	*5500.00	84.1 PK			1.21 V	342	45.90	38.20
6	*5500.00	74.6 AV			1.21 V	342	36.40	38.20
7	11000.00	57.5 PK	74.0	-16.5	1.08 V	179	7.80	49.70
8	11000.00	46.5 AV	54.0	-7.5	1.08 V	179	-3.20	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.





EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	*5580.00	85.8 PK			1.02 H	52	47.40	38.40
2	*5580.00	76.2 AV			1.02 H	52	37.80	38.40
3	11160.00	59.8 PK	74.0	-14.2	1.45 H	112	10.10	49.70
4	11160.00	46.2 AV	54.0	-7.8	1.45 H	112	-3.50	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	*5580.00	84.0 PK			1.12 V	352	45.60	38.40
2	*5580.00	74.2 AV			1.12 V	352	35.80	38.40
3	11160.00	57.2 PK	74.0	-16.8	1.12 V	164	7.50	49.70
4	11160.00	46.5 AV	54.0	-7.5	1.12 V	164	-3.20	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.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	*5700.00	85.2 PK			1.12 H	64	46.50	38.70
2	*5700.00	75.5 AV			1.12 H	64	36.80	38.70
3	#5725.00	47.5 PK	74.0	-26.5	1.12 H	64	8.80	38.70
4	#5725.00	36.3 AV	54.0	-17.7	1.12 H	64	-2.40	38.70
5	11400.00	58.6 PK	74.0	-15.4	1.29 H	112	9.10	49.50
6	11400.00	45.8 AV	54.0	-8.2	1.29 H	112	-3.70	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	*5700.00	83.2 PK			1.12 V	358	44.50	38.70
2	*5700.00	73.8 AV			1.12 V	358	35.10	38.70
3	#5725.00	46.2 PK	74.0	-27.8	1.12 V	357	7.50	38.70
4	#5725.00	34.8 AV	54.0	-19.2	1.12 V	357	-3.90	38.70
5	11400.00	57.2 PK	74.0	-16.8	1.12 V	169	7.70	49.50
6	11400.00	46.5 AV	54.0	-7.5	1.12 V	169	-3.00	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.



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, 68%RH	TESTED BY	Sun 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	42.9 PK	74.0	-31.1	1.04 H	43	5.20	37.70
2	5150.00	36.6 AV	54.0	-17.4	1.04 H	43	-1.10	37.70
3	*5190.00	83.8 PK			1.04 H	43	46.10	37.70
4	*5190.00	74.5 AV			1.04 H	43	36.80	37.70
5	#10380.00	57.2 PK	74.0	-16.8	1.28 H	96	8.30	48.90
6	#10380.00	46.8 AV	54.0	-7.2	1.28 H	96	-2.10	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	46.0 PK	74.0	-28.0	1.21 V	352	8.30	37.70
2	5150.00	35.4 AV	54.0	-18.6	1.21 V	352	-2.30	37.70
3	*5190.00	81.7 PK			1.21 V	352	44.00	37.70
4	*5190.00	72.1 AV			1.21 V	352	34.40	37.70
5	#10380.00	57.1 PK	74.0	-16.9	1.07 V	165	8.20	48.90
6	#10380.00	46.3 AV	54.0	-7.7	1.07 V	165	-2.60	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, 68%RH	TESTED BY	Sun 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	84.2 PK			1.05 H	52	46.40	37.80
2	*5230.00	74.8 AV			1.05 H	52	37.00	37.80
3	#10460.00	58.1 PK	74.0	-15.9	1.32 H	104	9.00	49.10
4	#10460.00	47.5 AV	54.0	-6.5	1.32 H	104	-1.60	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	82.0 PK			1.18 V	345	44.20	37.80
2	*5230.00	72.3 AV			1.18 V	345	34.50	37.80
3	#10460.00	56.7 PK	74.0	-17.3	1.16 V	157	7.60	49.10
4	#10460.00	45.6 AV	54.0	-8.4	1.16 V	157	-3.50	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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 54	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	*5270.00	84.2 PK			1.09 H	52	46.30	37.90
2	*5270.00	74.7 AV			1.09 H	52	36.80	37.90
3	#10540.00	56.4 PK	74.0	-17.6	1.36 H	104	7.20	49.20
4	#10540.00	46.2 AV	54.0	-7.8	1.36 H	104	-3.00	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	*5270.00	82.2 PK			1.24 V	356	44.30	37.90
2	*5270.00	72.5 AV			1.24 V	356	34.60	37.90
3	#10540.00	56.4 PK	74.0	-17.6	1.06 V	157	7.20	49.20
4	#10540.00	45.8 AV	54.0	-8.2	1.06 V	157	-3.40	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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 62	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	*5310.00	81.3 PK			1.41 H	64	43.30	38.00
2	*5310.00	72.2 AV			1.41 H	64	34.20	38.00
3	5350.00	46.9 PK	74.0	-27.1	1.18 H	64	8.90	38.00
4	5350.00	36.7 AV	54.0	-17.3	1.18 H	64	-1.30	38.00
5	10620.00	56.8 PK	74.0	-17.2	1.24 H	106	7.50	49.30
6	10620.00	46.4 AV	54.0	-7.6	1.24 H	106	-2.90	49.30
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	*5310.00	81.2 PK			1.15 V	347	43.20	38.00
2	*5310.00	71.7 AV			1.15 V	347	33.70	38.00
3	5350.00	45.5 PK	74.0	-28.5	1.15 V	347	7.50	38.00
4	5350.00	34.8 AV	54.0	-19.2	1.15 V	347	-3.20	38.00
5	10620.00	56.5 PK	74.0	-17.5	1.06 V	157	7.20	49.30
6	10620.00	45.6 AV	54.0	-8.4	1.06 V	157	-3.70	49.30

**REMARKS:**

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 102	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	5460.00	43.8 PK	74.0	-30.2	1.13 H	4	5.60	38.20
2	5460.00	35.8 AV	54.0	-18.2	1.13 H	4	-2.40	38.20
3	#5470.00	43.5 PK	74.0	-30.5	1.13 H	4	5.30	38.20
4	#5470.00	36.1 AV	54.0	-17.9	1.13 H	4	-2.10	38.20
5	*5510.00	81.9 PK			1.13 H	4	43.60	38.30
6	*5510.00	72.4 AV			1.13 H	4	34.10	38.30
7	11020.00	56.4 PK	74.0	-17.6	1.26 H	104	6.70	49.70
8	11020.00	46.2 AV	54.0	-7.8	1.26 H	104	-3.50	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	5460.00	44.7 PK	74.0	-29.3	1.15 V	329	6.50	38.20
2	5460.00	33.2 AV	54.0	-20.8	1.15 V	329	-5.00	38.20
3	#5470.00	45.1 PK	74.0	-28.9	1.15 V	329	6.90	38.20
4	#5470.00	33.7 AV	54.0	-20.3	1.15 V	329	-4.50	38.20
5	*5510.00	79.4 PK			1.15 V	329	41.10	38.30
6	*5510.00	70.1 AV			1.15 V	329	31.80	38.30
7	11020.00	56.2 PK	74.0	-17.8	1.12 V	157	6.50	49.70
8	11020.00	45.8 AV	54.0	-8.2	1.12 V	157	-3.90	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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 110	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	*5550.00	82.1 PK			1.08 H	52	43.80	38.30
2	*5550.00	71.8 AV			1.08 H	52	33.50	38.30
3	11100.00	56.4 PK	74.0	-17.6	1.25 H	108	6.70	49.70
4	11100.00	46.2 AV	54.0	-7.8	1.25 H	108	-3.50	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	*5550.00	79.6 PK			1.12 V	326	41.30	38.30
2	*5550.00	70.0 AV			1.12 V	326	31.70	38.30
3	11100.00	56.2 PK	74.0	-17.8	1.02 V	138	6.50	49.70
4	11100.00	45.8 AV	54.0	-8.2	1.02 V	138	-3.90	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.





EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 134	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	*5670.00	80.7 PK			1.09 H	61	42.10	38.60
2	*5670.00	71.0 AV			1.09 H	61	32.40	38.60
3	#5725.00	47.7 PK	74.0	-26.3	1.09 H	61	9.00	38.70
4	#5725.00	37.5 AV	54.0	-16.5	1.09 H	61	-1.20	38.70
5	11340.00	56.2 PK	74.0	-17.8	1.22 H	57	6.60	49.60
6	11340.00	46.3 AV	54.0	-7.7	1.22 H	57	-3.30	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	*5670.00	78.5 PK			1.16 V	321	39.90	38.60
2	*5670.00	69.2 AV			1.16 V	321	30.60	38.60
3	#5725.00	45.2 PK	74.0	-28.8	1.16 V	321	6.50	38.70
4	#5725.00	34.6 AV	54.0	-19.4	1.16 V	321	-4.10	38.70
5	11340.00	56.4 PK	74.0	-17.6	1.08 V	174	6.80	49.60
6	11340.00	45.8 AV	54.0	-8.2	1.08 V	174	-3.80	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 48	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Brad Tung

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	57.12	27.7 QP	40.0	-12.3	1.50 H	156	14.10	13.60
2	107.67	26.9 QP	43.5	-16.6	2.00 H	83	16.70	10.20
3	140.72	30.0 QP	43.5	-13.5	1.00 H	105	16.60	13.40
4	187.39	27.0 QP	43.5	-16.5	1.00 H	18	14.90	12.10
5	249.60	23.4 QP	46.0	-22.6	1.25 H	196	10.20	13.20
6	352.65	25.0 QP	46.0	-21.0	1.00 H	255	8.60	16.40
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	49.34	32.9 QP	40.0	-7.1	1.50 V	316	19.10	13.80
2	72.67	33.4 QP	40.0	-6.6	1.00 V	263	21.70	11.70
3	125.17	32.8 QP	43.5	-10.7	1.00 V	52	20.70	12.10
4	249.60	28.2 QP	46.0	-17.8	1.25 V	238	15.00	13.20
5	294.32	25.4 QP	46.0	-20.6	2.00 V	0	10.50	14.90
6	500.42	32.7 QP	46.0	-13.3	1.00 V	84	12.60	20.10

**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.



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802.11n(20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Brad Tung

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	57.12	26.5 QP	40.0	-13.5	1.50 H	23	12.90	13.60
2	109.62	26.5 QP	43.5	-17.0	1.25 H	84	16.10	10.40
3	169.89	25.0 QP	43.5	-18.5	1.50 H	108	11.60	13.40
4	286.55	22.8 QP	46.0	-23.2	1.00 H	213	8.20	14.60
5	352.65	24.1 QP	46.0	-21.9	1.25 H	253	7.70	16.40
6	420.70	22.9 QP	46.0	-23.1	1.00 H	268	4.80	18.10

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	41.57	33.3 QP	40.0	-6.7	1.25 V	89	19.70	13.60
2	84.34	33.2 QP	40.0	-6.8	1.50 V	201	24.20	9.00
3	107.67	35.6 QP	43.5	-7.9	1.00 V	87	25.40	10.20
4	164.06	30.1 QP	43.5	-13.4	1.50 V	284	16.30	13.80
5	249.60	28.3 QP	46.0	-17.7	2.00 V	241	15.10	13.20
6	500.42	32.0 QP	46.0	-14.0	1.00 V	84	11.90	20.10

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.

## 4.2 TRANSMIT POWER MEASUREMENT

### 4.2.1 LIMITS OF TRANSMIT POWER MEASUREMENT

FREQUENCY BAND	LIMIT
5.150 ~ 5.250GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.250 ~ 5.350GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.470 ~ 5.725GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB

**NOTE:** Where B is the 26dB emission bandwidth in MHz.

Per KDB 662911 D01 Multiple Transmitter Output v01r02 Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for  $NANT \leq 4$ ;

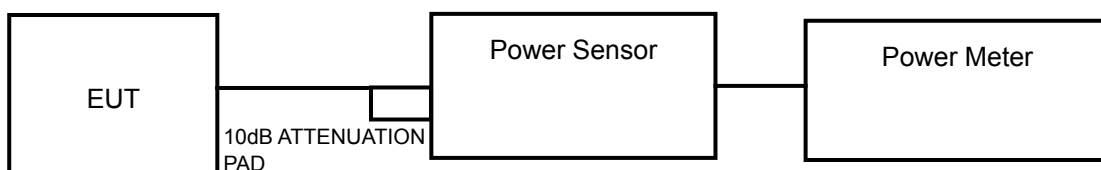
Array Gain = 0 dB (i.e., no array gain) for channel widths  $\geq 40$  MHz for any NANT;

Array Gain =  $5 \log(NANT/NSS)$  dB or 3 dB, whichever is less for 20-MHz channel widths with  $NANT \geq 5$ .

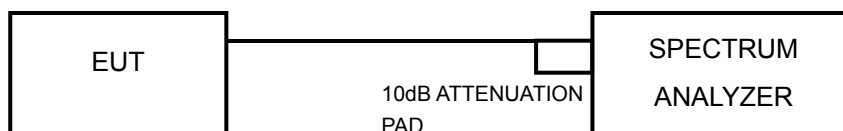
For power measurements on all other devices: Array Gain =  $10 \log(NANT/NSS)$  dB.

### 4.2.2 TEST SETUP

#### FOR POWER OUTPUT MEASUREMENT



#### FOR 26dB BANDWIDTH



#### 4.2.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

#### 4.2.4 TEST PROCEDURE

##### **FOR AVERAGE POWER MEASUREMENT**

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

##### **FOR 26dB BANDWIDTH**

- 1) Set RBW = approximately 1% of the emission bandwidth.
- 2) Set the VBW > RBW.
- 3) Detector = Peak.
- 4) Trace mode = max hold.
- 5) Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

#### 4.2.5 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.2.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

## 4.2.7 TEST RESULTS

### POWER OUTPUT:

#### 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	1.633	2.13	17	PASS
40	5200	1.738	2.40	17	PASS
48	5240	1.683	2.26	17	PASS
52	5260	1.600	2.04	24	PASS
60	5300	1.626	2.11	24	PASS
64	5320	1.734	2.39	24	PASS
100	5500	1.660	2.20	24	PASS
116	5580	1.718	2.35	24	PASS
140	5700	1.742	2.41	24	PASS

#### 802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	-0.79	-0.69	1.687	2.27	17	PASS
40	5200	-0.81	-0.59	1.703	2.31	17	PASS
48	5240	-0.56	-0.62	1.746	2.42	17	PASS
52	5260	-0.83	-0.63	1.691	2.28	24	PASS
60	5300	-0.79	-0.61	1.703	2.31	24	PASS
64	5320	-0.56	-0.93	1.686	2.27	24	PASS
100	5500	-0.63	-0.88	1.682	2.26	24	PASS
116	5580	-0.48	-0.76	1.734	2.39	24	PASS
140	5700	-0.60	-0.58	1.746	2.42	24	PASS

**802.11n (40MHz)**

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	-0.61	-0.83	1.695	2.29	17	PASS
46	5230	-0.51	-0.81	1.719	2.35	17	PASS
54	5270	-0.42	-0.76	1.747	2.42	24	PASS
62	5310	-0.78	-0.62	1.703	2.31	24	PASS
102	5510	-0.77	-0.56	1.717	2.35	24	PASS
110	5550	-0.62	-0.68	1.722	2.36	24	PASS
134	5670	-0.47	-0.73	1.742	2.41	24	PASS

**26dB BANDWIDTH:****802.11a**

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
36	5180	19.22	PASS
40	5200	18.81	PASS
48	5240	19.01	PASS
52	5260	19.41	PASS
60	5300	19.42	PASS
64	5320	19.46	PASS
100	5500	19.41	PASS
116	5580	19.08	PASS
140	5700	19.46	PASS



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### 802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
36	5180	19.71	19.47	PASS
40	5200	19.49	19.48	PASS
48	5240	19.46	19.60	PASS
52	5260	19.46	19.37	PASS
60	5300	19.45	19.34	PASS
64	5320	19.46	19.40	PASS
100	5500	19.63	19.56	PASS
116	5580	19.66	19.54	PASS
140	5700	19.64	19.29	PASS

### 802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
38	5190	41.07	41.09	PASS
46	5230	41.34	41.26	PASS
54	5270	41.22	41.23	PASS
62	5310	41.02	41.24	PASS
102	5510	41.19	40.84	PASS
110	5550	41.24	41.27	PASS
134	5670	41.51	40.87	PASS



## EUT MAXIMUM CONDUCTED POWER

### 802.11a

FREQUENCY BAND (MHz)	MAX. POWER		MIN. POWER	
	OUTPUT POWER (mW)	OUTPUT POWER (dBm)	OUTPUT POWER (mW)	OUTPUT POWER (dBm)
5250~5350	1.734	2.39	0.436	-3.61
5470~5725	1.742	2.41	0.438	-3.59

**NOTE:** Manufacturer provides Transmit Power Control description to meet this requirement.

### 802.11n (20MHz)

FREQUENCY BAND (MHz)	MAX. POWER		MIN. POWER	
	OUTPUT POWER (mW)	OUTPUT POWER (dBm)	OUTPUT POWER (mW)	OUTPUT POWER (dBm)
5250~5350	1.703	2.31	0.428	-3.69
5470~5725	1.746	2.42	0.439	-3.58

**NOTE:** Manufacturer provides Transmit Power Control description to meet this requirement.

### 802.11n (40MHz)

FREQUENCY BAND (MHz)	MAX. POWER		MIN. POWER	
	OUTPUT POWER (mW)	OUTPUT POWER (dBm)	OUTPUT POWER (mW)	OUTPUT POWER (dBm)
5250~5350	1.747	2.42	0.439	-3.58
5470~5725	1.742	2.41	0.438	-3.59

**NOTE:** Manufacturer provides Transmit Power Control description to meet this requirement.

### 4.3 PEAK POWER SPECTRAL DENSITY MEASUREMENT

#### 4.3.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

FREQUENCY BAND	LIMIT
5.150 ~ 5.250GHz	4dBm
5.250 ~ 5.350GHz	11dBm
5.470 ~ 5.725GHz	11dBm

#### 4.3.2 TEST SETUP



#### 4.3.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

#### 4.3.4 TEST PROCEDURES

Using method SA-1

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 30 KHz, Set VBW  $\geq$  1 MHz, Detector = RMS
- 3) Set Channel power measure = 1MHz
- 4) Sweep time = auto, trigger set to "free run".
- 5) Trace average at least 100 traces in power averaging mode.
- 6) Record the max value

#### 4.3.5 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.3.6 EUT OPERATING CONDITIONS

Same as 4.2.6.

#### 4.3.7 TEST RESULTS

##### 802.11a

CHANNEL	FREQUENCY (MHz)	PSD (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	-11.29	4	PASS
40	5200	-10.58	4	PASS
48	5240	-10.83	4	PASS
52	5260	-9.43	11	PASS
60	5300	-9.92	11	PASS
64	5320	-11.01	11	PASS
100	5500	-8.12	11	PASS
116	5580	-10.14	11	PASS
140	5700	-10.44	11	PASS

##### 802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
36	5180	-9.96	-11.54	-7.67	1.49	PASS
40	5200	-10.83	-12.61	-8.62	1.49	PASS
48	5240	-10.97	-11.96	-8.43	1.49	PASS
52	5260	-10.72	-11.65	-8.15	8.49	PASS
60	5300	-11.49	-12.24	-8.84	8.49	PASS
64	5320	-12.13	-13.09	-9.57	8.49	PASS
100	5500	-10.17	-10.69	-7.41	8.49	PASS
116	5580	-11.75	-10.74	-8.21	8.49	PASS
140	5700	-10.83	-13.34	-8.90	8.49	PASS

**NOTE:** 1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

**2. For 5180~5240MHz:**

Directional gain = 5.5dBi + 10log(2) = 8.51dBi > 6dBi , so the power density limit shall be reduced to 4-(8.51-6) = 1.49dBm.

**For 5260~5700MHz:**

Directional gain = 5.5dBi + 10log(2) = 8.51dBi > 6dBi , so the power density limit shall be reduced to 11-(8.51-6) = 8.49dBm.

**802.11n (40MHz)**

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
38	5190	-16.90	-15.67	-13.23	1.49	PASS
46	5230	-15.83	-16.40	-13.10	1.49	PASS
54	5270	-15.29	-14.86	-12.06	8.49	PASS
62	5310	-16.04	-15.78	-12.90	8.49	PASS
102	5510	-13.02	-13.59	-10.29	8.49	PASS
110	5550	-14.60	-14.30	-11.44	8.49	PASS
134	5670	-16.96	-16.21	-13.56	8.49	PASS

**NOTE:** 1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

**2. For 5190~5230MHz:**

Directional gain =  $5.5\text{dBi} + 10\log(2) = 8.51\text{dBi} > 6\text{dBi}$  , so the power density limit shall be reduced to  $4-(8.51-6) = 1.49\text{dBm}$ .

**For 5270~5670MHz:**

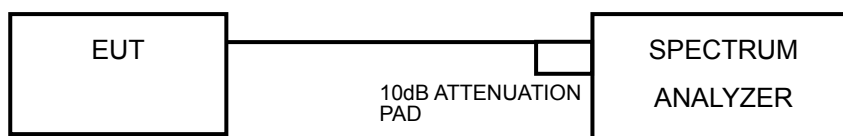
Directional gain =  $5.5\text{dBi} + 10\log(2) = 8.51\text{dBi} > 6\text{dBi}$  , so the power density limit shall be reduced to  $11-(8.51-6) = 8.49\text{dBm}$ .

## 4.4 PEAK POWER EXCURSION MEASUREMENT

### 4.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

Shall not exceed 13 dB.

### 4.4.2 TEST SETUP



### 4.4.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

### 4.4.4 TEST PROCEDURE

- 1) Set RBW = 1 MHz, VBW  $\geq$  3 MHz, Detector = peak.
- 2) Trace mode = max-hold. Allow the sweeps to continue until the trace stabilizes.
- 3) Use the peak search function to find the peak of the spectrum.
- 4) Measure the PPSD.
- 5) Compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD.

### 4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

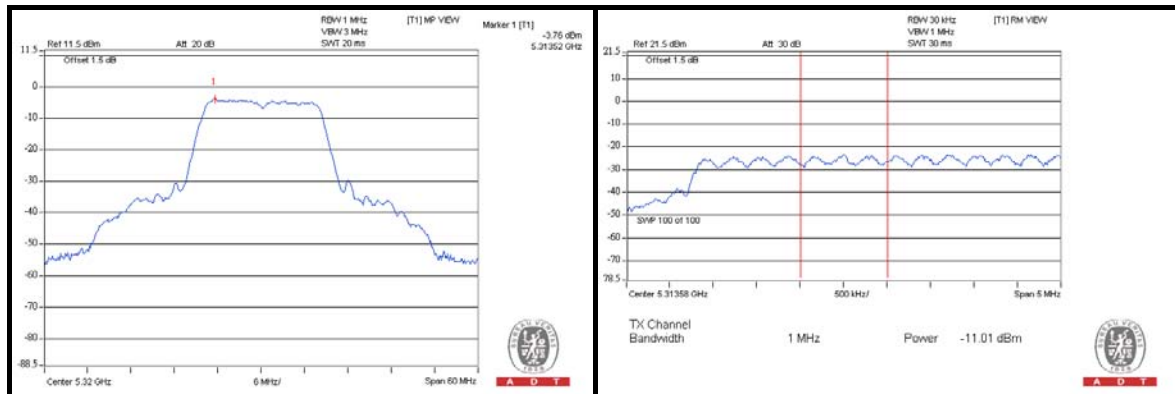
### 4.4.6 EUT OPERATING CONDITIONS

Same as 4.2.6

#### 4.4.7 TEST RESULTS

##### 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK VALUE (dBm)	PPSD (dBm)	PEAK EXCURSION (dB)	LIMIT (dB)	PASS/FAIL
36	5180	-4.43	-11.29	6.86	13	PASS
40	5200	-3.77	-10.58	6.81	13	PASS
48	5240	-3.71	-10.83	7.12	13	PASS
52	5260	-2.43	-9.43	7.00	13	PASS
60	5300	-3.20	-9.92	6.72	13	PASS
64	5320	-3.76	-11.01	7.25	13	PASS
100	5500	-1.40	-8.12	6.72	13	PASS
116	5580	-3.09	-10.14	7.05	13	PASS
140	5700	-3.20	-10.44	7.24	13	PASS

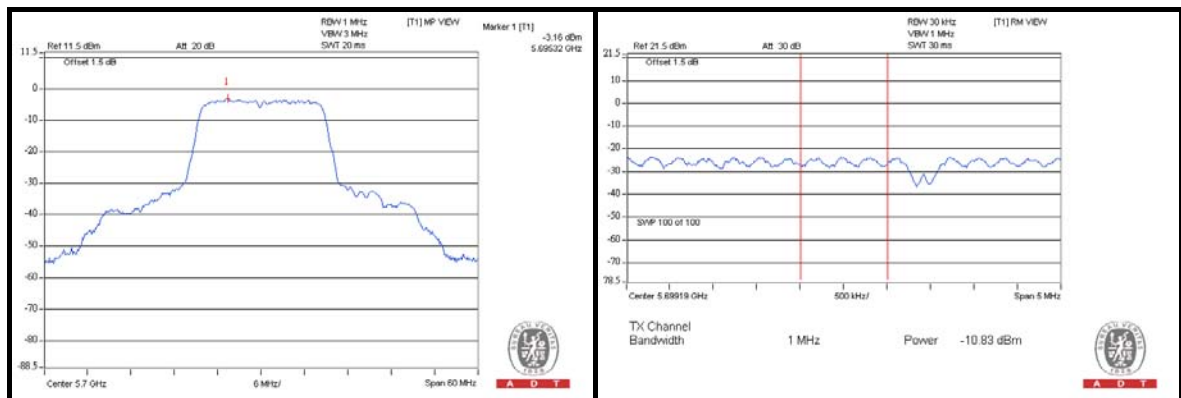




A D T

802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	PEAK VALUE (dBm)		PPSD (dBm)		PEAK EXCURSION (dB)		LIMIT (dB)	PASS/ FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1		
36	5180	-3.10	-4.45	-9.96	-11.54	6.86	7.09	13	PASS
40	5200	-3.82	-5.45	-10.83	-12.61	7.01	7.16	13	PASS
48	5240	-3.63	-4.80	-10.97	-11.96	7.34	7.16	13	PASS
52	5260	-3.67	-4.71	-10.72	-11.65	7.05	6.94	13	PASS
60	5300	-4.13	-5.15	-11.49	-12.24	7.36	7.09	13	PASS
64	5320	-5.01	-5.66	-12.13	-13.09	7.12	7.43	13	PASS
100	5500	-3.34	-3.66	-10.17	-10.69	6.83	7.03	13	PASS
116	5580	-4.61	-3.62	-11.75	-10.74	7.14	7.12	13	PASS
140	5700	-3.16	-6.11	-10.83	-13.34	7.67	7.23	13	PASS

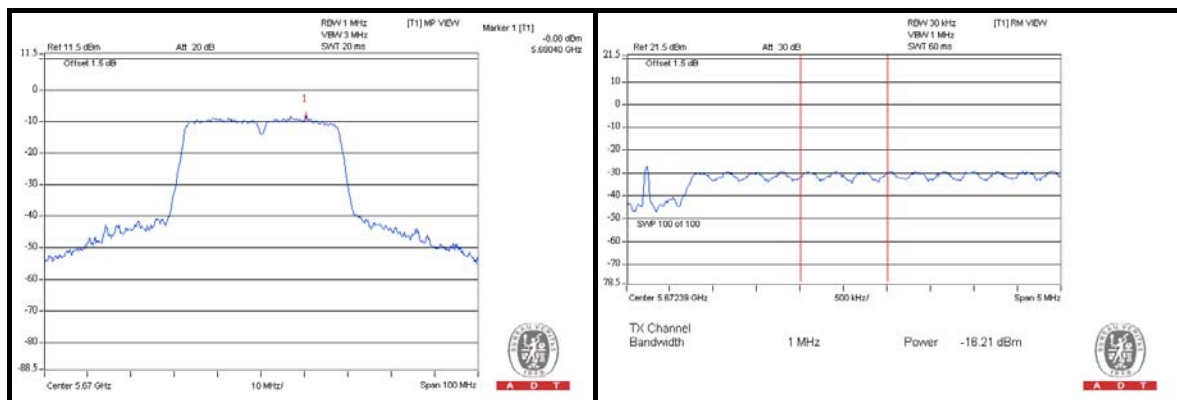




A D T

802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	PEAK VALUE (dBm)		PPSD (dBm)		PEAK EXCURSION (dB)		LIMIT (dB)	PASS/ FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1		
38	5190	-9.53	-8.03	-16.90	-15.67	7.37	7.64	13	PASS
46	5230	-8.55	-8.91	-15.83	-16.40	7.28	7.49	13	PASS
54	5270	-7.97	-7.50	-15.29	-14.86	7.32	7.36	13	PASS
62	5310	-8.71	-8.55	-16.04	-15.78	7.33	7.23	13	PASS
102	5510	-5.68	-6.18	-13.02	-13.59	7.34	7.41	13	PASS
110	5550	-7.19	-6.62	-14.60	-14.30	7.41	7.68	13	PASS
134	5670	-9.70	-8.08	-16.96	-16.21	7.26	8.13	13	PASS



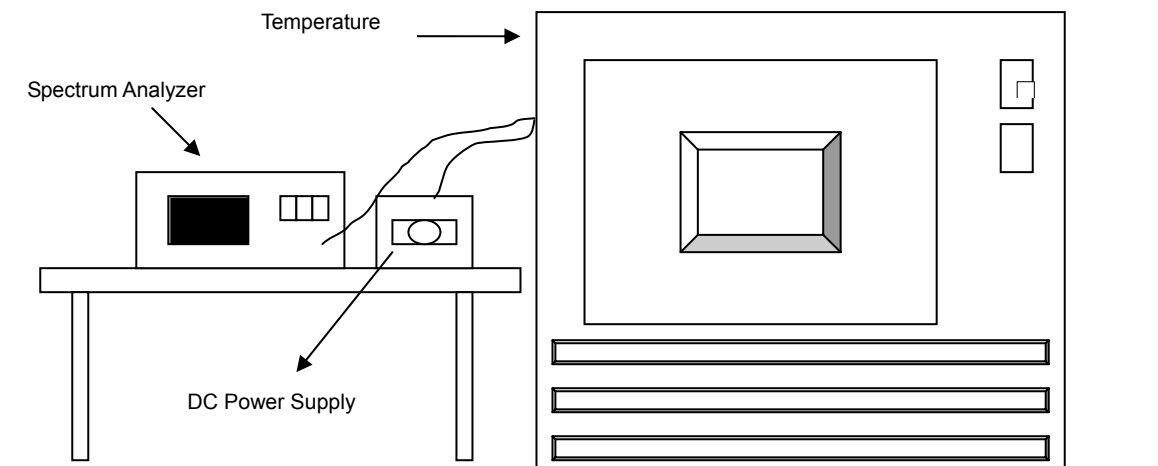


## 4.5 FREQUENCY STABILITY

### 4.5.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency of the carrier signal shall be maintained within band of operation

### 4.5.2 TEST SETUP



### 4.5.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

#### 4.5.4 TEST PROCEDURE

- a. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
- b. Turn the EUT on and couple its output to a spectrum analyzer.
- c. Turn the EUT off and set the chamber to the highest temperature specified.
- d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
- e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
- f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

#### 4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.5.6 EUT OPERATING CONDITION

Set the EUT transmit at un-modulation mode to test frequency stability.



### 4.5.7 TEST RESULTS

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5180MHz									
TEMP. (°C)	POWER SUPPLY (Vdc)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
55	12	5180.0048	0.00009	5180.018	0.00035	5180.0121	0.00023	5180.0198	0.00038
50	12	5180.0192	0.00037	5180.0195	0.00038	5180.0172	0.00033	5180.0201	0.00039
40	12	5179.9959	-0.00008	5180.005	0.00010	5180.0057	0.00011	5179.9987	-0.00003
30	12	5179.9943	-0.00011	5179.9905	-0.00018	5179.9957	-0.00008	5179.9937	-0.00012
20	12	5180.0244	0.00047	5180.0218	0.00042	5180.0247	0.00048	5180.0213	0.00041
10	12	5179.9977	-0.00004	5179.9996	-0.00001	5180.0052	0.00010	5180.0026	0.00005
0	12	5180.0109	0.00021	5180.0176	0.00034	5180.0116	0.00022	5180.0148	0.00029
-10	12	5179.9966	-0.00007	5179.993	-0.00014	5179.9932	-0.00013	5179.9948	-0.00010
-20	12	5180.0201	0.00039	5180.0243	0.00047	5180.0191	0.00037	5180.0209	0.00040
-30	12	5179.9954	-0.00009	5179.9939	-0.00012	5180.0026	0.00005	5179.9951	-0.00009

FREQUENCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5180MHz									
TEMP. (°C)	POWER SUPPLY (Vdc)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	13.8	5180.0231	0.00045	5180.0229	0.00044	5180.0258	0.00050	5180.0213	0.00041
	12.0	5180.0244	0.00047	5180.0218	0.00042	5180.0247	0.00048	5180.0213	0.00041
	10.2	5180.0226	0.00044	5180.0232	0.00045	5180.0260	0.00050	5180.0202	0.00039

## 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:

**Linko EMC/RF Lab:**

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Fax: 886-2-26051924

**Hsin Chu EMC/RF Lab:**

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Fax: 886-3-5935342

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

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**Web Site:** [www.bureauveritas-adt.com](http://www.bureauveritas-adt.com)

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.

---END---