



# FCC TEST REPORT (15.407)

**REPORT NO.:** RF131204C31-1  
**MODEL NO.:** 0P6B160  
**FCC ID:** NM80P6B160  
**RECEIVED:** Dec. 04, 2013  
**TESTED:** Dec. 31, 2013 ~ Jan. 16, 2014  
**ISSUED:** Jan. 21, 2014

**APPLICANT:** HTC Corporation

**ADDRESS:** No. 23,Xinghua Rd.,Taoyuan 330,Taiwan,R.O.C.

**ISSUED BY:** Bureau Veritas Consumer Products Services  
(H.K.) Ltd., Taoyuan Branch

**LAB ADDRESS:** No. 47, 14th Ling, Chia Pau Vil., Lin Kou Dist.,  
New Taipei City, Taiwan ( R.O.C )

**TEST LOCATION:** No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei  
Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF131204C31-1	Original release	Jan. 21, 2014



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## 1. CERTIFICATION

**PRODUCT:** Smartphone  
**MODEL NO.:** 0P6B160  
**BRAND:** HTC  
**APPLICANT:** HTC Corporation  
**TESTED:** Dec. 31, 2013 ~ Jan. 16, 2014  
**TEST SAMPLE:** PRODUCTION UNIT  
**STANDARDS:** **FCC Part 15, Subpart E (Section 15.407)**  
ANSI C63.10-2009

The above equipment (model: 0P6B160) 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** : Ivonne Wu , **DATE** : Jan. 21, 2014  
Ivonne Wu / Supervisor

**APPROVED BY** : Sam Chen , **DATE** : Jan. 21, 2014  
Sam Chen / Senior Project Engineer

## 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	PASS	Meet the requirement of limit. Minimum passing margin is -8.59dB at 13.55859MHz.
15.407(b/1/2/3) (b)(6)	Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -4.93dB at 5725.00MHz.
15.407(a/1/2)	Peak 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	No antenna connector is used.

### 2.1 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	2.93 dB
	200MHz ~1000MHz	2.95 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>	Smartphone
<b>MODEL NO.</b>	0P6B160
<b>POWER SUPPLY</b>	5.0Vdc (adapter or host equipment) 3.8Vdc (Li-ion battery)
<b>MODULATION TYPE</b>	256QAM, 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 135Mbps 802.11ac: up to V9
<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) 1 for 802.11ac (80MHz) 5260 ~ 5320MHz: 4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz) 1 for 802.11ac (80MHz) 5500 ~ 5700MHz: 8 for 802.11a, 802.11n (20MHz) 3 for 802.11n (40MHz) 1 for 802.11ac (80MHz)
<b>OUTPUT POWER</b>	49.204mW for 5180 ~ 5240MHz 49.317mW for 5260 ~ 5320MHz 52.360mW for 5500 ~ 5700MHz
<b>ANTENNA TYPE</b>	PIFA antenna with -2dBi gain (5180 ~ 5240MHz) PIFA antenna with -2dBi gain (5260 ~ 5320MHz) PIFA antenna with -2.5dBi gain (5500 ~ 5700MHz)
<b>ANTENNA CONNECTOR</b>	NA
<b>DATA CABLE</b>	Refer to Note as below
<b>I/O PORTS</b>	Refer to user's manual
<b>ACCESSORY DEVICES</b>	Refer to Note as below

**NOTE:**

- The EUT's accessories list refers to Ext. Pho.
- There're 2 configurations for the EUT listed as below.  
Main Sample (A): Battery 1 + LCD Panel 1  
2<sup>nd</sup> Sample (B): Battery 2 + LCD Panel 2  
◇ Only the worst test data was presented in the report.
- The above EUT information is declared by the 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

1 channel is provided for 802.11ac (80MHz):

CHANNEL	FREQUENCY
42	5210 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

1 channel is provided for 802.11ac (80MHz):

CHANNEL	FREQUENCY
58	5290MHz





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### FOR 5500 ~ 5700MHz

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

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

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

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

1 channel is provided for 802.11ac (80MHz):

CHANNEL	FREQUENCY
106	5530MHz

### 3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	Main sample
B	√	√	-	-	2 <sup>nd</sup> sample

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

**RE<1G**: Radiated Emission below 1GHz

**PLC**: Power Line Conducted Emission

**APCM**: Antenna Port Conducted Measurement

**NOTE:** The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on Z-plane.

#### 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)
A	802.11a	5180-5240	36 to 48	36, 44, 48	OFDM	BPSK	6.0
	802.11n (20MHz)		36 to 48	36, 44, 48	OFDM	BPSK	6.5
	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	13.5
	802.11ac (80MHz)		42	42	OFDM	BPSK	V0
	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	6.5
	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	13.5
	802.11ac (80MHz)		58	58	OFDM	BPSK	V0
	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	6.5
	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	13.5
	802.11ac (80MHz)		106	106	OFDM	BPSK	V0
B	802.11n (20MHz)	5500-5700	100 to 140	140	OFDM	BPSK	6.5

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

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11n (20MHz)	5180-5240	36 to 48	36	OFDM	BPSK	6.5
	802.11ac (80MHz)	5260-5320	58	58	OFDM	BPSK	V0
	802.11n (20MHz)	5500-5700	100 to 140	140	OFDM	BPSK	6.5
B	802.11n (20MHz)	5500-5700	100 to 140	140	OFDM	BPSK	6.5

**POWER LINE CONDUCTED EMISSION TEST:**

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11n (20MHz)	5500-5700	100 to 140	140	OFDM	BPSK	6.5

**BANDEDGE MEASUREMENT:**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	5180-5240	36 to 48	36, 48	OFDM	BPSK	6.0
	802.11n (20MHz)		36 to 48	36, 48	OFDM	BPSK	6.5
	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	13.5
	802.11ac (80MHz)		42	42	OFDM	BPSK	V0
	802.11a	5260-5320	52 to 64	52, 64	OFDM	BPSK	6.0
	802.11n (20MHz)		52 to 64	52, 64	OFDM	BPSK	6.5
	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	13.5
	802.11ac (80MHz)		58	58	OFDM	BPSK	V0
	802.11a	5500-5700	100 to 140	100, 140	OFDM	BPSK	6.0
	802.11n (20MHz)		100 to 140	100, 140	OFDM	BPSK	6.5
	802.11n (40MHz)		102 to 134	102, 134	OFDM	BPSK	13.5
	802.11ac (80MHz)		106	106	OFDM	BPSK	V0



**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)
A	802.11a	5180-5240	36 to 48	36, 44, 48	OFDM	BPSK	6.0
	802.11n (20MHz)		36 to 48	36, 44, 48	OFDM	BPSK	6.5
	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	13.5
	802.11ac (80MHz)		42	42	OFDM	BPSK	V0
	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	6.5
	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	13.5
	802.11ac (80MHz)		58	58	OFDM	BPSK	V0
	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	6.5
	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	13.5
	802.11ac (80MHz)		106	106	OFDM	BPSK	V0

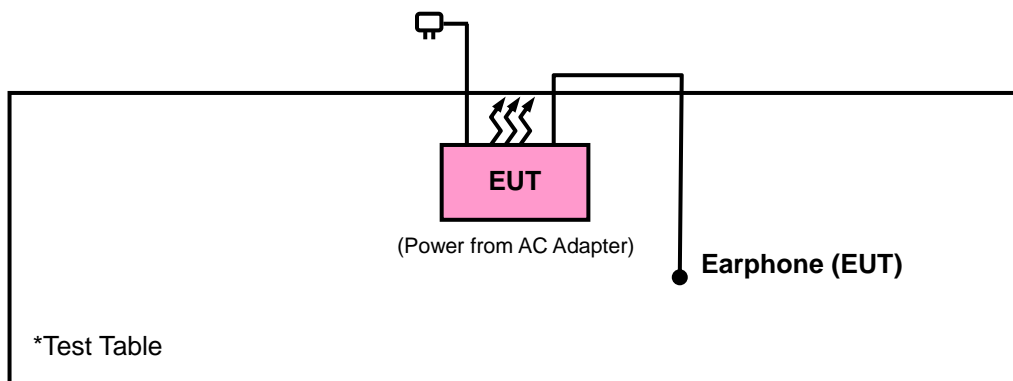
**TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 65%RH	120Vac, 60Hz	Kay Wu
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Kay Wu
PLC	25deg. C, 65%RH	120Vac, 60Hz	Johnson Liao
APCM	25deg. C, 65%RH	120Vac, 60Hz	Demon Lin

### 3.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units.

#### 3.3.1 CONFIGURATION OF SYSTEM UNDER TEST





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### 3.4 DUTY CYCLE TEST SIGNAL

#### MODULATION TYPE: BPSK

If duty cycle is < 98%, duty factor shall be considered.

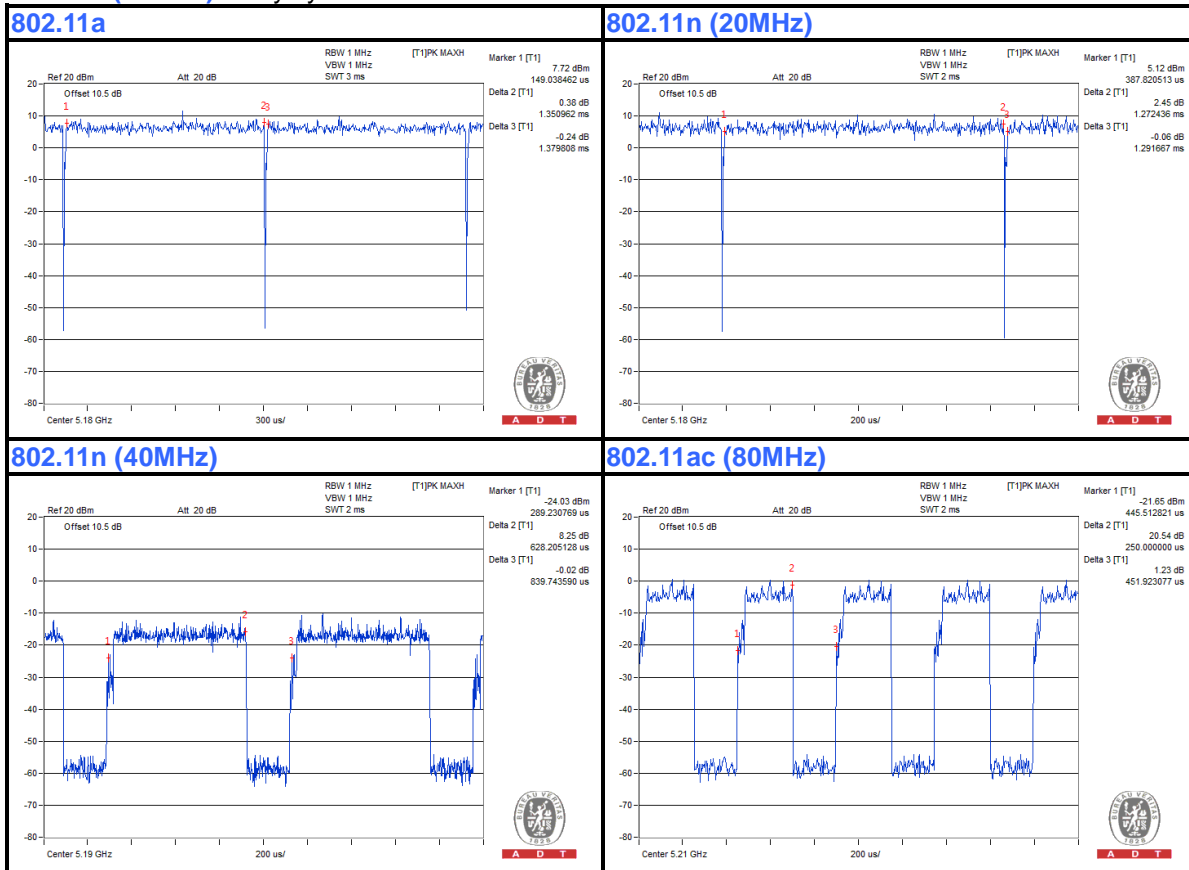
**802.11a:** Duty cycle =  $1.351/1.380 = 0.979$ , Duty factor =  $10 * \log(1/0.979) = 0.09$

**802.11n (40MHz):** Duty cycle =  $628.21/839.74 = 0.748$ , Duty factor =  $10 * \log(1/0.748) = 1.26$

**802.11ac (80MHz):** Duty cycle =  $250.00/451.92 = 0.553$ , Duty factor =  $10 * \log(1/0.553) = 2.57$

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

**802.11n (20MHz):** Duty cycle =  $1.272/1.292 = 0.985$





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### MODULATION TYPE: QPSK

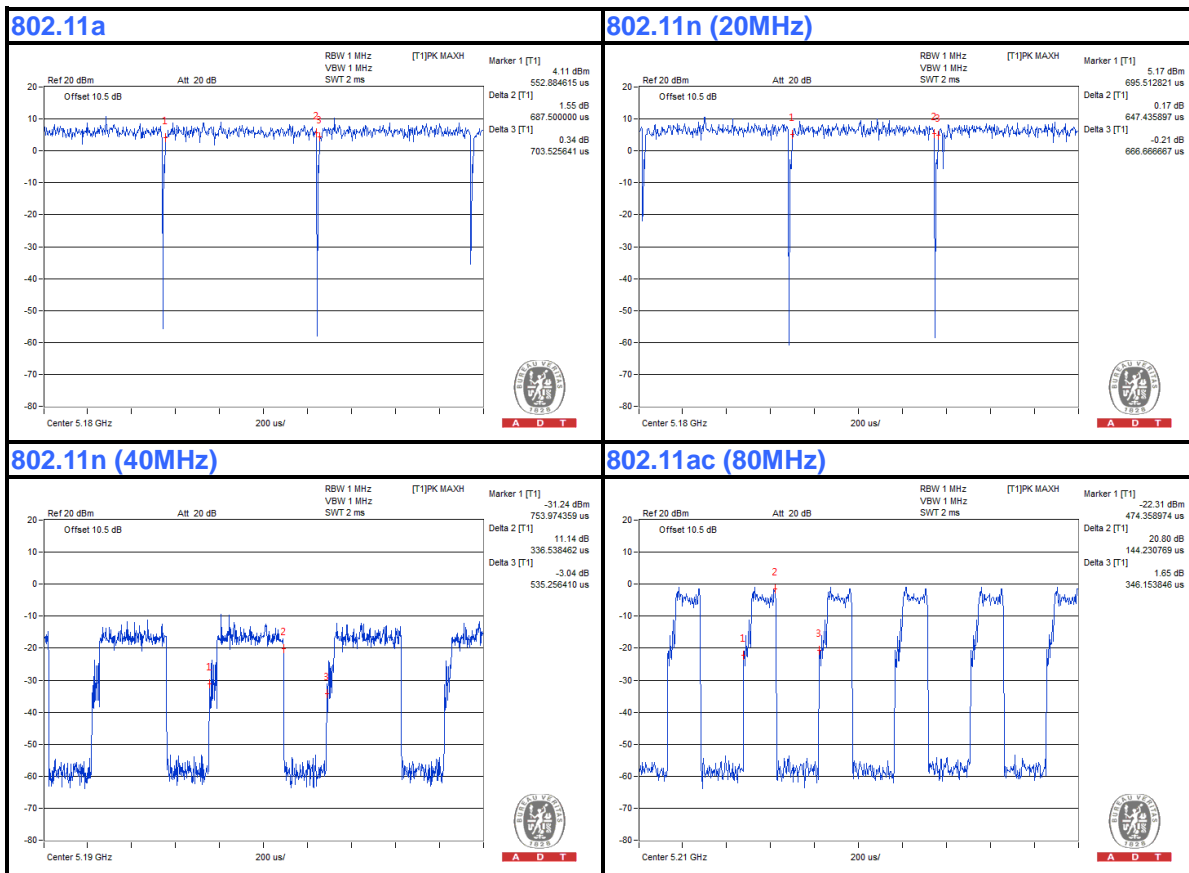
If duty cycle is < 98%, duty factor shall be considered.

**802.11a:** Duty cycle =  $687.50/703.53 = 0.977$ , Duty factor =  $10 * \log(1/0.977) = 0.10$

**802.11n (20MHz):** Duty cycle =  $647.44/666.67 = 0.971$ , Duty factor =  $10 * \log(1/0.971) = 0.13$

**802.11n (40MHz):** Duty cycle =  $336.54/535.26 = 0.629$ , Duty factor =  $10 * \log(1/0.629) = 2.02$

**802.11ac (80MHz):** Duty cycle =  $144.23/346.15 = 0.417$ , Duty factor =  $10 * \log(1/0.417) = 3.80$





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### MODULATION TYPE: 16QAM

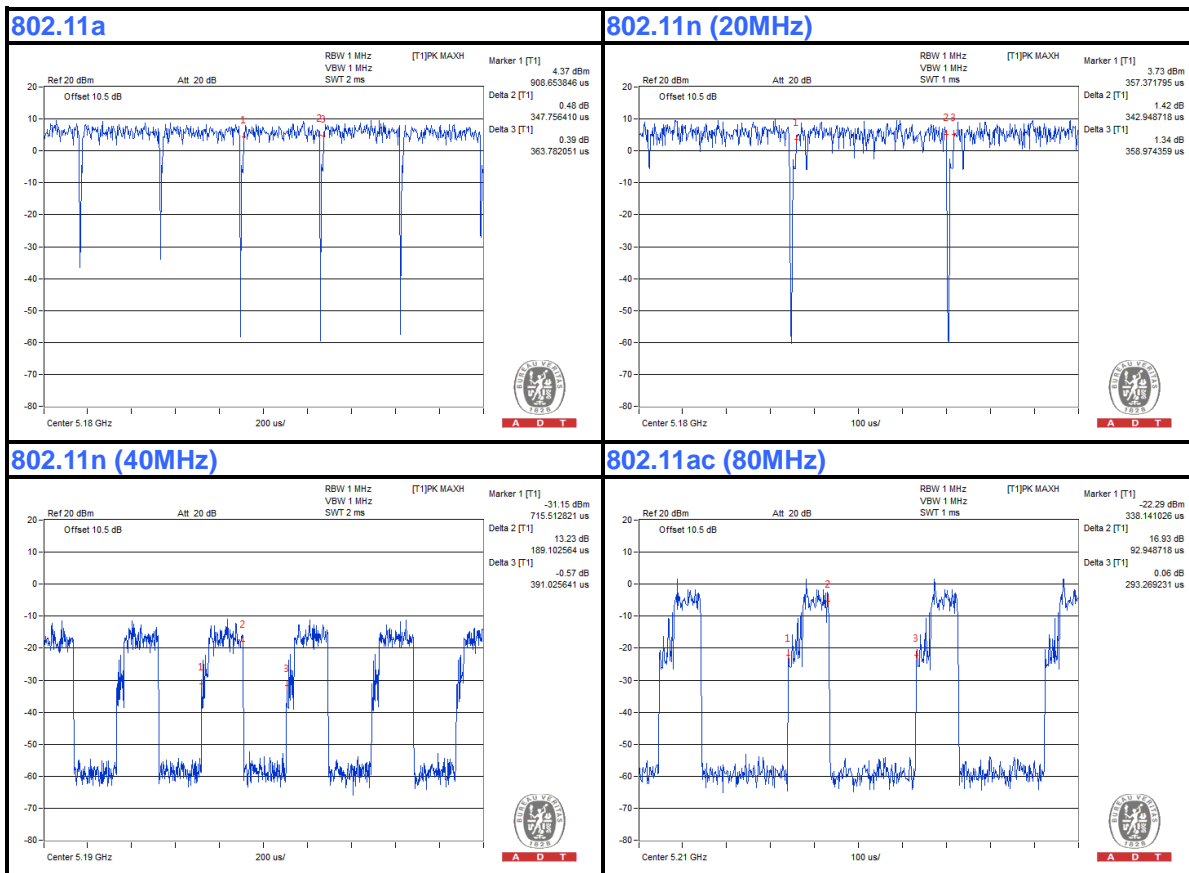
If duty cycle is < 98%, duty factor shall be considered.

**802.11a:** Duty cycle = 347.76/363.78 = 0.956, Duty factor =  $10 * \log(1/0.956) = 0.20$

**802.11n (20MHz):** Duty cycle = 342.95/358.97 = 0.955, Duty factor =  $10 * \log(1/0.955) = 0.20$

**802.11n (40MHz):** Duty cycle = 189.10/391.03 = 0.484, Duty factor =  $10 * \log(1/0.484) = 3.16$

**802.11ac (80MHz):** Duty cycle = 92.95/293.27 = 0.317, Duty factor =  $10 * \log(1/0.317) = 4.99$







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### MODULATION TYPE: 64QAM

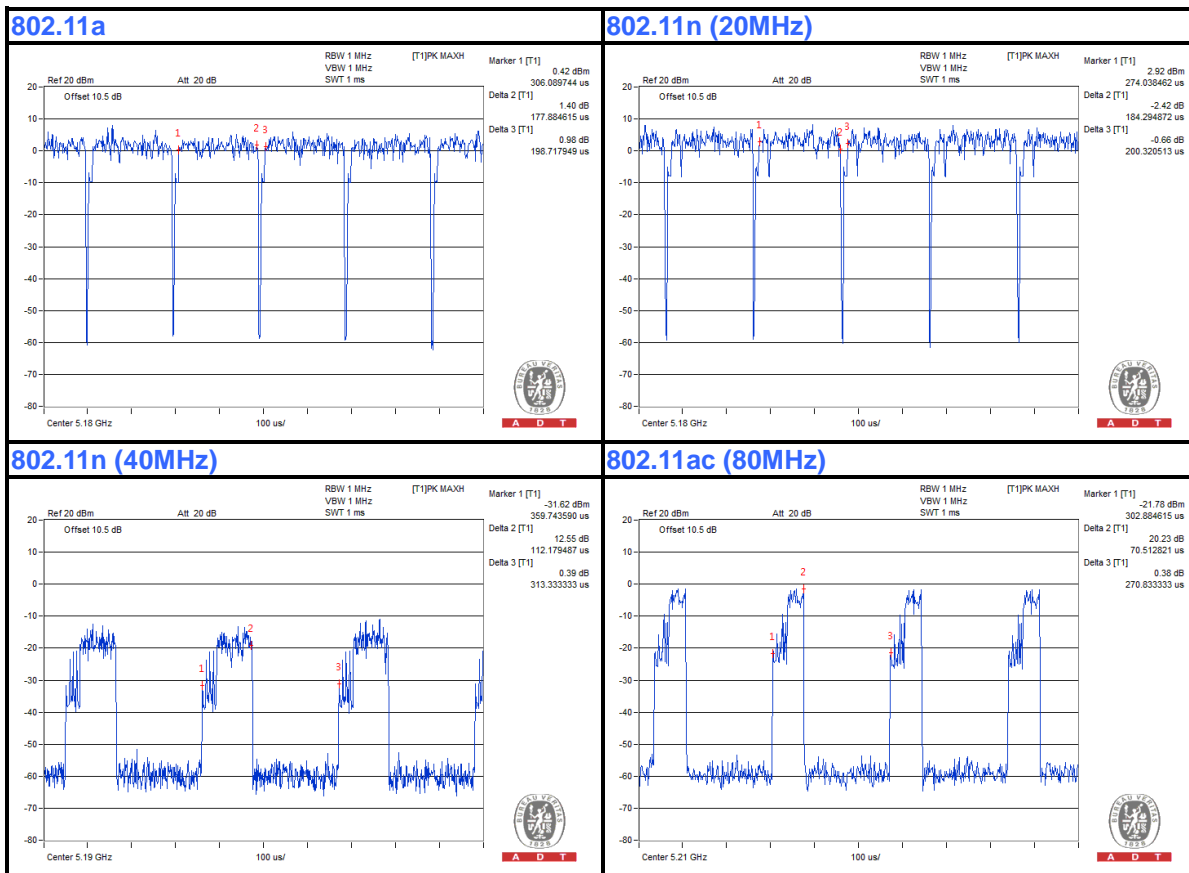
If duty cycle is < 98%, duty factor shall be considered.

**802.11a:** Duty cycle = 177.88/198.72 = 0.895, Duty factor =  $10 * \log(1/0.895) = 0.48$

**802.11n (20MHz):** Duty cycle = 184.29/200.32 = 0.920, Duty factor =  $10 * \log(1/0.920) = 0.36$

**802.11n (40MHz):** Duty cycle = 112.18/313.33 = 0.358, Duty factor =  $10 * \log(1/0.358) = 4.46$

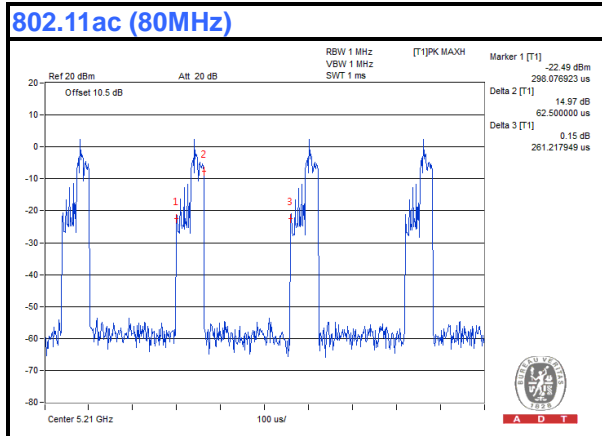
**802.11ac (80MHz):** Duty cycle = 70.51/270.83 = 0.260, Duty factor =  $10 * \log(1/0.260) = 5.84$



### MODULATION TYPE: 256QAM

If duty cycle is < 98%, duty factor shall be considered.

**802.11ac (80MHz):** Duty cycle =  $62.50/261.22 = 0.239$ , Duty factor =  $10 * \log(1/0.239) = 6.21$



### 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)

ANSI C63.10-2009

KDB 789033 D01 General UNII Test Procedures v01r03

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:

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



#### 4.1.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100744	Apr. 15, 2013	Apr. 14, 2014
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 21, 2013	Dec. 20, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Mar. 25, 2013	Mar. 24, 2014
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Jan. 07, 2013	Jan. 06, 2014
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 18, 2013	Dec. 17, 2014
Loop Antenna	HFH2-Z2	100070	Jan. 31, 2012	Jan. 30, 2014
Preamplifier EMCI	EMC0126545	980076	Feb. 27, 2013	Feb. 26, 2014
Preamplifier EMCI	EMC184045B	980175	Nov. 08, 2013	Nov. 07, 2014
Preamplifier EMCI	EMC 330H	980112	Dec. 27, 2013	Dec. 26, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4 2950114	Oct. 18, 2013	Oct. 17, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Oct. 18, 2013	Oct. 17, 2014
RF signal cable Worken	RG-213	NA	Nov. 07, 2013	Nov. 06, 2014
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA
Power Meter	ML2495A	1232002	Aug. 23, 2013	Aug. 22, 2014
Power Sensor	MA2411B	1207325	Aug. 23, 2013	Aug. 22, 2014

- 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 10.
  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 690701.
  6. The IC Site Registration No. is IC 7450F-10.

#### 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 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. 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:**

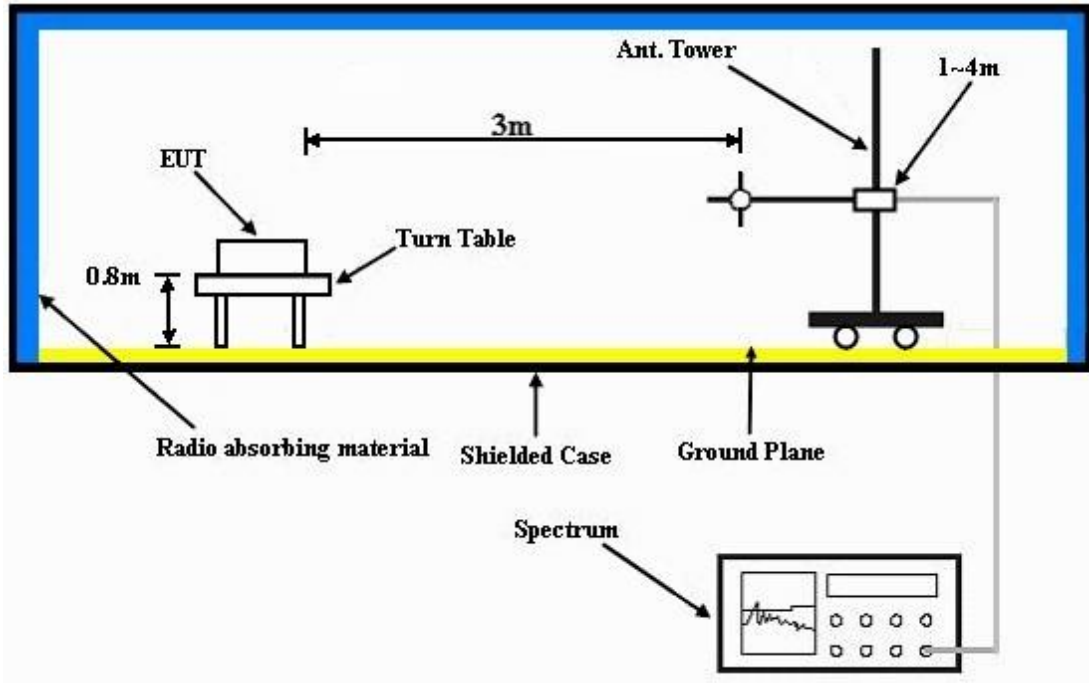
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 1kHz (Duty cycle < 98%) or 10Hz (Duty cycle > 98%) 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

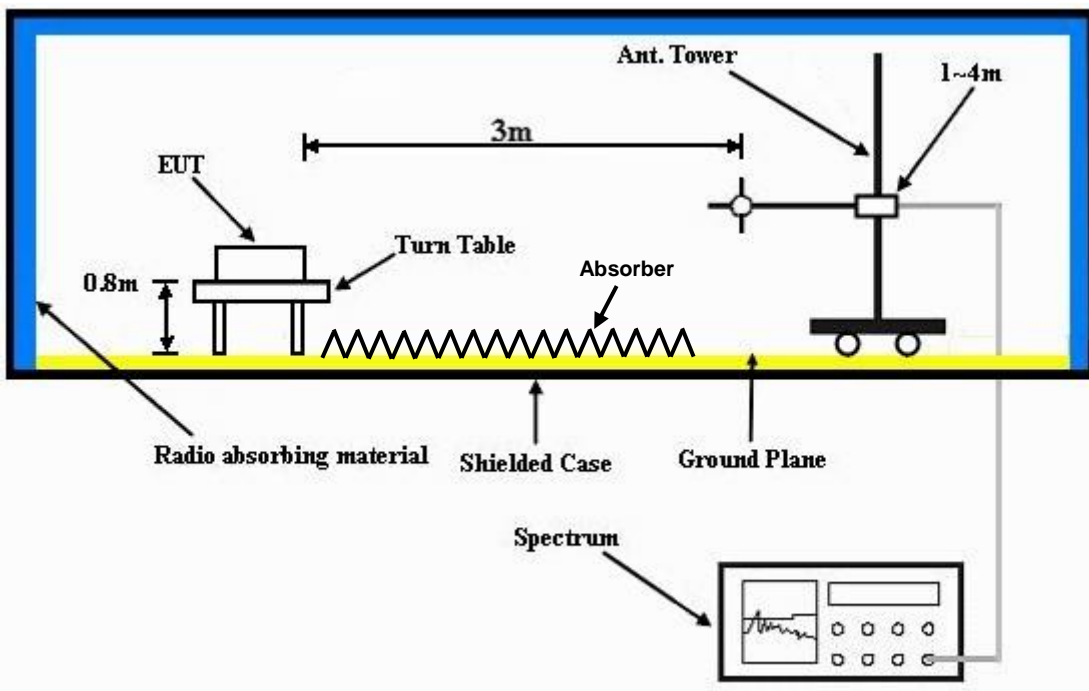
No deviation.

#### 4.1.6 TEST SETUP

Frequency Range 30MHz ~ 1GHz



Frequency Range above 1GHz



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



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#### 4.1.7 EUT OPERATING CONDITIONS

- a. Placed the EUT on a testing table.
- b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.



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### 4.1.8 TEST RESULTS

#### ABOVE 1GHz WORST-CASE DATA

#### TEST MODE A

#### 802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	44.13	35.54	54	-9.87	34.46	8.13	34	100	308	Average
5150	54.13	45.54	74	-19.87	34.46	8.13	34	100	308	Peak
5180	92.27	83.64			34.47	8.16	34	100	308	Average
5180	99.74	91.11			34.47	8.16	34	100	308	Peak
5448	42.98	34.01	54	-11.02	34.5	8.51	34.04	100	308	Average
5448	53.86	44.89	74	-20.14	34.5	8.51	34.04	100	308	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	45.36	36.77	54	-8.64	34.46	8.13	34	100	90	Average
5150	53.71	45.12	74	-20.29	34.46	8.13	34	100	90	Peak
5180	95.53	86.9			34.47	8.16	34	100	90	Average
5180	102.41	93.78			34.47	8.16	34	100	90	Peak
5438	42.58	33.64	54	-11.42	34.5	8.48	34.04	100	90	Average
5438	52.93	43.99	74	-21.07	34.5	8.48	34.04	100	90	Peak

#### REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5180MHz: Fundamental frequency.





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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 44	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5114	42.86	34.3	54	-11.14	34.45	8.1	33.99	100	324	Average
5114	53.1	44.54	74	-20.9	34.45	8.1	33.99	100	324	Peak
5220	91.91	83.2			34.49	8.22	34	100	324	Average
5220	97.81	89.1			34.49	8.22	34	100	324	Peak
5434	43.14	34.2	54	-10.86	34.5	8.48	34.04	100	324	Average
5434	52.87	43.93	74	-21.13	34.5	8.48	34.04	100	324	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5084	42.78	34.26	54	-11.22	34.43	8.07	33.98	106	40	Average
5084	53	44.48	74	-21	34.43	8.07	33.98	106	40	Peak
5220	96.04	87.33			34.49	8.22	34	106	40	Average
5220	102.68	93.97			34.49	8.22	34	106	40	Peak
5408	42.85	33.95	54	-11.15	34.5	8.44	34.04	106	40	Average
5408	52.95	44.05	74	-21.05	34.5	8.44	34.04	106	40	Peak

**REMARKS:**

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
2. 5220MHz: Fundamental frequency.



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5070	42.82	34.34	54	-11.18	34.43	8.03	33.98	100	323	Average
5070	52.59	44.11	74	-21.41	34.43	8.03	33.98	100	323	Peak
5240	91.62	82.88			34.49	8.26	34.01	100	323	Average
5240	99.57	90.83			34.49	8.26	34.01	100	323	Peak
5434	43.11	34.17	54	-10.89	34.5	8.48	34.04	100	323	Average
5434	54.09	45.15	74	-19.91	34.5	8.48	34.04	100	323	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5102	42.9	34.38	54	-11.1	34.44	8.07	33.99	100	45	Average
5102	52.74	44.22	74	-21.26	34.44	8.07	33.99	100	45	Peak
5240	95.53	86.79			34.49	8.26	34.01	100	45	Average
5240	102	93.26			34.49	8.26	34.01	100	45	Peak
5394	43.65	34.75	54	-10.35	34.5	8.44	34.04	100	45	Average
5394	53.69	44.79	74	-20.31	34.5	8.44	34.04	100	45	Peak

**REMARKS:**

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5240MHz: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5110	42.95	34.39	54	-11.05	34.45	8.1	33.99	100	322	Average
5110	52.86	44.3	74	-21.14	34.45	8.1	33.99	100	322	Peak
5260	93.11	84.36			34.5	8.26	34.01	100	322	Average
5260	100.36	91.61			34.5	8.26	34.01	100	322	Peak
5448	43.14	34.17	54	-10.86	34.5	8.51	34.04	100	322	Average
5448	53.61	44.64	74	-20.39	34.5	8.51	34.04	100	322	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5062	42.93	34.45	54	-11.07	34.43	8.03	33.98	100	48	Average
5062	53.5	45.02	74	-20.5	34.43	8.03	33.98	100	48	Peak
5260	96.4	87.65			34.5	8.26	34.01	100	48	Average
5260	103.33	94.58			34.5	8.26	34.01	100	48	Peak
5450	43.16	34.2	54	-10.84	34.5	8.51	34.05	100	48	Average
5450	54.04	45.08	74	-19.96	34.5	8.51	34.05	100	48	Peak

**REMARKS:**

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5260MHz: Fundamental frequency.



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5104	42.87	34.35	54	-11.13	34.44	8.07	33.99	100	323	Average
5104	53.24	44.72	74	-20.76	34.44	8.07	33.99	100	323	Peak
5300	93.45	84.65			34.5	8.32	34.02	100	323	Average
5300	101.2	92.4			34.5	8.32	34.02	100	323	Peak
5446	43.55	34.58	54	-10.45	34.5	8.51	34.04	100	323	Average
5446	53.8	44.83	74	-20.2	34.5	8.51	34.04	100	323	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5114	43.06	34.5	54	-10.94	34.45	8.1	33.99	100	47	Average
5114	53.21	44.65	74	-20.79	34.45	8.1	33.99	100	47	Peak
5300	96.28	87.48			34.5	8.32	34.02	100	47	Average
5300	104.2	95.4			34.5	8.32	34.02	100	47	Peak
5356	45.08	36.23	54	-8.92	34.5	8.38	34.03	100	47	Average
5356	54.46	45.61	74	-19.54	34.5	8.38	34.03	100	47	Peak

**REMARKS:**

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5300MHz: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5120	42.95	34.39	54	-11.05	34.45	8.1	33.99	100	323	Average
5120	53.33	44.77	74	-20.67	34.45	8.1	33.99	100	323	Peak
5320	92.22	83.39			34.5	8.35	34.02	100	323	Average
5320	99.69	90.86			34.5	8.35	34.02	100	323	Peak
5350	43.3	34.45	54	-10.7	34.5	8.38	34.03	100	323	Average
5350	54.54	45.69	74	-19.46	34.5	8.38	34.03	100	323	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5124	43.02	34.46	54	-10.98	34.45	8.1	33.99	100	46	Average
5124	53.35	44.79	74	-20.65	34.45	8.1	33.99	100	46	Peak
5320	96.06	87.23			34.5	8.35	34.02	100	46	Average
5320	103.36	94.53			34.5	8.35	34.02	100	46	Peak
5350	45.12	36.27	54	-8.88	34.5	8.38	34.03	100	46	Average
5350	59.02	50.17	74	-14.98	34.5	8.38	34.03	100	46	Peak

**REMARKS:**

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5320MHz: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5460	45.01	36.05	54	-8.99	34.5	8.51	34.05	100	53	Average
5460	57.01	48.05	74	-16.99	34.5	8.51	34.05	100	53	Peak
5470	56.24	47.28	68.3	-12.06	34.5	8.51	34.05	100	53	Peak
5500	93.98	84.96			34.5	8.57	34.05	100	53	Average
5500	101.01	91.99			34.5	8.57	34.05	100	53	Peak
5725	55.68	46.47	68.3	-12.62	34.67	8.65	34.11	100	53	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5448	46.49	37.52	54	-7.51	34.5	8.51	34.04	100	37	Average
5448	57.07	48.1	74	-16.93	34.5	8.51	34.04	100	37	Peak
5470	58.24	49.28	68.3	-10.06	34.5	8.51	34.05	100	37	Peak
5500	97.14	88.12			34.5	8.57	34.05	100	37	Average
5500	104.21	95.19			34.5	8.57	34.05	100	37	Peak
5725	55.14	45.93	68.3	-13.16	34.67	8.65	34.11	100	37	Peak

**REMARKS:**

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5500MHz: Fundamental frequency.
- 5470MHz & 5725MHz: Out of restricted band



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5388	43.06	34.19	54	-10.94	34.5	8.41	34.04	100	55	Average
5388	56.87	48	74	-17.13	34.5	8.41	34.04	100	55	Peak
5470	55.9	46.94	68.3	-12.4	34.5	8.51	34.05	100	55	Peak
5580	92.38	83.29			34.57	8.6	34.08	100	55	Average
5580	99.81	90.72			34.57	8.6	34.08	100	55	Peak
5725	54.72	45.51	68.3	-13.58	34.67	8.65	34.11	100	55	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5460	43.2	34.24	54	-10.8	34.5	8.51	34.05	100	37	Average
5460	56.79	47.83	74	-17.21	34.5	8.51	34.05	100	37	Peak
5470	55.8	46.84	68.3	-12.5	34.5	8.51	34.05	100	37	Peak
5580	94.36	85.27			34.57	8.6	34.08	100	37	Average
5580	101.53	92.44			34.57	8.6	34.08	100	37	Peak
5725	55.36	46.15	68.3	-12.94	34.67	8.65	34.11	100	37	Peak

**REMARKS:**

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5580MHz: Fundamental frequency.
- 5470MHz & 5725MHz: Out of restricted band



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5438	43.13	34.19	54	-10.87	34.5	8.48	34.04	100	48	Average
5438	57.8	48.86	74	-16.2	34.5	8.48	34.04	100	48	Peak
5470	56.41	47.45	68.3	-11.89	34.5	8.51	34.05	100	48	Peak
5700	91.75	82.55			34.66	8.64	34.1	100	48	Average
5700	100.01	90.81			34.66	8.64	34.1	100	48	Peak
5725	60.03	50.82	68.3	-8.27	34.67	8.65	34.11	100	48	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5430	43.01	34.07	54	-10.99	34.5	8.48	34.04	100	89	Average
5430	57.73	48.79	74	-16.27	34.5	8.48	34.04	100	89	Peak
5470	55.61	46.65	68.3	-12.69	34.5	8.51	34.05	100	89	Peak
5700	93.78	84.58			34.66	8.64	34.1	100	89	Average
5700	102.81	93.61			34.66	8.64	34.1	100	89	Peak
5725	57.8	48.59	68.3	-10.5	34.67	8.65	34.11	100	89	Peak

**REMARKS:**

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5700MHz: Fundamental frequency.
- 5470MHz & 5725MHz: Out of restricted band





A D T

802.11n (20MHz)

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

**ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M**

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5148	45.44	36.85	54	-8.56	34.46	8.13	34	102	324	Average
5148	56.83	48.24	74	-17.17	34.46	8.13	34	102	324	Peak
5180	92.56	83.93			34.47	8.16	34	102	324	Average
5180	99.42	90.79			34.47	8.16	34	102	324	Peak
5436	43.06	34.12	54	-10.94	34.5	8.48	34.04	102	324	Average
5436	53.22	44.28	74	-20.78	34.5	8.48	34.04	102	324	Peak

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	46.83	38.24	54	-7.17	34.46	8.13	34	100	49	Average
5150	58.02	49.43	74	-15.98	34.46	8.13	34	100	49	Peak
5180	95.81	87.18			34.47	8.16	34	100	49	Average
5180	102.01	93.38			34.47	8.16	34	100	49	Peak
5352	42.91	34.06	54	-11.09	34.5	8.38	34.03	100	49	Average
5352	53.38	44.53	74	-20.62	34.5	8.38	34.03	100	49	Peak

**REMARKS:**

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5180MHz: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 44	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5038	42.77	34.32	54	-11.23	34.42	8	33.97	102	323	Average
5038	54.21	45.76	74	-19.79	34.42	8	33.97	102	323	Peak
5220	93.2	84.49			34.49	8.22	34	102	323	Average
5220	100.23	91.52			34.49	8.22	34	102	323	Peak
5446	42.83	33.86	54	-11.17	34.5	8.51	34.04	102	323	Average
5446	53.02	44.05	74	-20.98	34.5	8.51	34.04	102	323	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5112	42.86	34.3	54	-11.14	34.45	8.1	33.99	103	46	Average
5112	52.98	44.42	74	-21.02	34.45	8.1	33.99	103	46	Peak
5220	96.29	87.58			34.49	8.22	34	103	46	Average
5220	103.04	94.33			34.49	8.22	34	103	46	Peak
5432	43.01	34.07	54	-10.99	34.5	8.48	34.04	103	46	Average
5432	53.11	44.17	74	-20.89	34.5	8.48	34.04	103	46	Peak

**REMARKS:**

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5220MHz: Fundamental frequency.



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5100	42.81	34.29	54	-11.19	34.44	8.07	33.99	100	322	Average
5100	52.64	44.12	74	-21.36	34.44	8.07	33.99	100	322	Peak
5240	92.14	83.4			34.49	8.26	34.01	100	322	Average
5240	99	90.26			34.49	8.26	34.01	100	322	Peak
5454	42.96	34	54	-11.04	34.5	8.51	34.05	100	322	Average
5454	53.04	44.08	74	-20.96	34.5	8.51	34.05	100	322	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5070	42.84	34.36	54	-11.16	34.43	8.03	33.98	100	91	Average
5070	52.49	44.01	74	-21.51	34.43	8.03	33.98	100	91	Peak
5240	95.91	87.17			34.49	8.26	34.01	100	91	Average
5240	102.99	94.25			34.49	8.26	34.01	100	91	Peak
5376	42.77	33.9	54	-11.23	34.5	8.41	34.04	100	91	Average
5376	53.05	44.18	74	-20.95	34.5	8.41	34.04	100	91	Peak

**REMARKS:**

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5240MHz: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5030	42.74	34.3	54	-11.26	34.41	8	33.97	100	322	Average
5030	53.45	45.01	74	-20.55	34.41	8	33.97	100	322	Peak
5260	93.79	85.04			34.5	8.26	34.01	100	322	Average
5260	101.43	92.68			34.5	8.26	34.01	100	322	Peak
5426	43.04	34.1	54	-10.96	34.5	8.48	34.04	100	322	Average
5426	53.79	44.85	74	-20.21	34.5	8.48	34.04	100	322	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5130	43.09	34.53	54	-10.91	34.45	8.1	33.99	100	47	Average
5130	54.29	45.73	74	-19.71	34.45	8.1	33.99	100	47	Peak
5260	96.67	87.92			34.5	8.26	34.01	100	47	Average
5260	104.48	95.73			34.5	8.26	34.01	100	47	Peak
5434	43.27	34.33	54	-10.73	34.5	8.48	34.04	100	47	Average
5434	55.25	46.31	74	-18.75	34.5	8.48	34.04	100	47	Peak

**REMARKS:**

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5260MHz: Fundamental frequency.



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5118	42.86	34.3	54	-11.14	34.45	8.1	33.99	100	322	Average
5118	53.85	45.29	74	-20.15	34.45	8.1	33.99	100	322	Peak
5300	93.41	84.61			34.5	8.32	34.02	100	322	Average
5300	101	92.2			34.5	8.32	34.02	100	322	Peak
5352	43.54	34.69	54	-10.46	34.5	8.38	34.03	100	322	Average
5352	54.37	45.52	74	-19.63	34.5	8.38	34.03	100	322	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5130	43.08	34.52	54	-10.92	34.45	8.1	33.99	100	47	Average
5130	53.73	45.17	74	-20.27	34.45	8.1	33.99	100	47	Peak
5300	96.7	87.9			34.5	8.32	34.02	100	47	Average
5300	104.04	95.24			34.5	8.32	34.02	100	47	Peak
5352	45.58	36.73	54	-8.42	34.5	8.38	34.03	100	47	Average
5352	55.29	46.44	74	-18.71	34.5	8.38	34.03	100	47	Peak

**REMARKS:**

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5300MHz: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5136	43.02	34.43	54	-10.98	34.45	8.13	33.99	100	323	Average
5136	53.89	45.3	74	-20.11	34.45	8.13	33.99	100	323	Peak
5320	92.72	83.89			34.5	8.35	34.02	100	323	Average
5320	99.88	91.05			34.5	8.35	34.02	100	323	Peak
5350	44.47	35.62	54	-9.53	34.5	8.38	34.03	100	323	Average
5350	55.75	46.9	74	-18.25	34.5	8.38	34.03	100	323	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5084	42.97	34.45	54	-11.03	34.43	8.07	33.98	100	47	Average
5084	53.7	45.18	74	-20.3	34.43	8.07	33.98	100	47	Peak
5320	96.78	87.95			34.5	8.35	34.02	100	47	Average
5320	103.78	94.95			34.5	8.35	34.02	100	47	Peak
5350	46.9	38.05	54	-7.1	34.5	8.38	34.03	100	47	Average
5350	60.28	51.43	74	-13.72	34.5	8.38	34.03	100	47	Peak

**REMARKS:**

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5320MHz: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5430	45.67	36.73	54	-8.33	34.5	8.48	34.04	100	56	Average
5430	57.7	48.76	74	-16.3	34.5	8.48	34.04	100	56	Peak
5470	60.51	51.55	68.3	-7.79	34.5	8.51	34.05	100	56	Peak
5500	94.21	85.19			34.5	8.57	34.05	100	56	Average
5500	100.92	91.9			34.5	8.57	34.05	100	56	Peak
5725	56.03	46.82	68.3	-12.27	34.67	8.65	34.11	100	56	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5448	48.1	39.13	54	-5.9	34.5	8.51	34.04	100	36	Average
5448	59.04	50.07	74	-14.96	34.5	8.51	34.04	100	36	Peak
5470	62.36	53.4	68.3	-5.94	34.5	8.51	34.05	100	36	Peak
5500	97.97	88.95			34.5	8.57	34.05	100	36	Average
5500	105.53	96.51			34.5	8.57	34.05	100	36	Peak
5725	56.68	47.47	68.3	-11.62	34.67	8.65	34.11	100	36	Peak

**REMARKS:**

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5500MHz: Fundamental frequency.
- 5470MHz & 5725MHz: Out of restricted band



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5434	43.05	34.11	54	-10.95	34.5	8.48	34.04	100	55	Average
5434	56.95	48.01	74	-17.05	34.5	8.48	34.04	100	55	Peak
5470	54.96	46	68.3	-13.34	34.5	8.51	34.05	100	55	Peak
5580	93.97	84.88			34.57	8.6	34.08	100	55	Average
5580	101.37	92.28			34.57	8.6	34.08	100	55	Peak
5725	56.09	46.88	68.3	-12.21	34.67	8.65	34.11	100	55	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5350	43.79	34.94	54	-10.21	34.5	8.38	34.03	100	38	Average
5350	56.86	48.01	74	-17.14	34.5	8.38	34.03	100	38	Peak
5470	55.26	46.3	68.3	-13.04	34.5	8.51	34.05	100	38	Peak
5580	95.19	86.1			34.57	8.6	34.08	100	38	Average
5580	102.36	93.27			34.57	8.6	34.08	100	38	Peak
5725	55.4	46.19	68.3	-12.9	34.67	8.65	34.11	100	38	Peak

**REMARKS:**

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5580MHz: Fundamental frequency.
- 5470MHz & 5725MHz: Out of restricted band





A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5460	43.05	34.09	54	-10.95	34.5	8.51	34.05	100	47	Average
5460	57.58	48.62	74	-16.42	34.5	8.51	34.05	100	47	Peak
5470	56.25	47.29	68.3	-12.05	34.5	8.51	34.05	100	47	Peak
5700	92.65	83.45			34.66	8.64	34.1	100	47	Average
5700	99.84	90.64			34.66	8.64	34.1	100	47	Peak
5725	63.37	54.16	68.3	-4.93	34.67	8.65	34.11	100	47	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5376	43.16	34.29	54	-10.84	34.5	8.41	34.04	100	95	Average
5376	57.41	48.54	74	-16.59	34.5	8.41	34.04	100	95	Peak
5470	55.49	46.53	68.3	-12.81	34.5	8.51	34.05	100	95	Peak
5700	94.57	85.37			34.66	8.64	34.1	100	95	Average
5700	102.7	93.5			34.66	8.64	34.1	100	95	Peak
5725	59.82	50.61	68.3	-8.48	34.67	8.65	34.11	100	95	Peak

**REMARKS:**

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5700MHz: Fundamental frequency.
- 5470MHz & 5725MHz: Out of restricted band



A D T

802.11n (40MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5080	43.63	35.15	54	-10.37	34.43	8.03	33.98	100	306	Average
5080	53.47	44.99	74	-20.53	34.43	8.03	33.98	100	306	Peak
5190	87.71	79.05			34.47	8.19	34	100	306	Average
5190	95.47	86.81			34.47	8.19	34	100	306	Peak
5448	43.53	34.56	54	-10.47	34.5	8.51	34.04	100	306	Average
5448	53.7	44.73	74	-20.3	34.5	8.51	34.04	100	306	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5144	44.6	36.01	54	-9.4	34.46	8.13	34	100	89	Average
5144	53.55	44.96	74	-20.45	34.46	8.13	34	100	89	Peak
5190	90.19	81.53			34.47	8.19	34	100	89	Average
5190	97.26	88.6			34.47	8.19	34	100	89	Peak
5428	43.47	34.53	54	-10.53	34.5	8.48	34.04	100	89	Average
5428	53.85	44.91	74	-20.15	34.5	8.48	34.04	100	89	Peak

**REMARKS:**

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5190MHz: Fundamental frequency.



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5042	43.54	35.1	54	-10.46	34.42	8	33.98	100	308	Average
5042	53.1	44.66	74	-20.9	34.42	8	33.98	100	308	Peak
5230	86.18	77.48			34.49	8.22	34.01	100	308	Average
5230	93.2	84.5			34.49	8.22	34.01	100	308	Peak
5428	43.5	34.56	54	-10.5	34.5	8.48	34.04	100	308	Average
5428	53.2	44.26	74	-20.8	34.5	8.48	34.04	100	308	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5076	43.81	35.33	54	-10.19	34.43	8.03	33.98	100	90	Average
5076	53.08	44.6	74	-20.92	34.43	8.03	33.98	100	90	Peak
5230	90.08	81.38			34.49	8.22	34.01	100	90	Average
5230	97.11	88.41			34.49	8.22	34.01	100	90	Peak
5448	43.45	34.48	54	-10.55	34.5	8.51	34.04	100	90	Average
5448	53.97	45	74	-20.03	34.5	8.51	34.04	100	90	Peak

**REMARKS:**

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
2. 5230MHz: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 54	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5032	43.06	34.62	54	-10.94	34.41	8	33.97	100	320	Average
5032	52.62	44.18	74	-21.38	34.41	8	33.97	100	320	Peak
5270	86.26	77.48			34.5	8.29	34.01	100	320	Average
5270	93.01	84.23			34.5	8.29	34.01	100	320	Peak
5454	43.34	34.38	54	-10.66	34.5	8.51	34.05	100	320	Average
5454	53.8	44.84	74	-20.2	34.5	8.51	34.05	100	320	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5130	43.45	34.89	54	-10.55	34.45	8.1	33.99	100	47	Average
5130	53.28	44.72	74	-20.72	34.45	8.1	33.99	100	47	Peak
5270	90.4	81.62			34.5	8.29	34.01	100	47	Average
5270	97.09	88.31			34.5	8.29	34.01	100	47	Peak
5442	43.85	34.91	54	-10.15	34.5	8.48	34.04	100	47	Average
5442	54.28	45.34	74	-19.72	34.5	8.48	34.04	100	47	Peak

**REMARKS:**

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5270MHz: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 62	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5096	43.12	34.6	54	-10.88	34.44	8.07	33.99	100	321	Average
5096	52.55	44.03	74	-21.45	34.44	8.07	33.99	100	321	Peak
5310	86.33	77.53			34.5	8.32	34.02	100	321	Average
5310	93.12	84.32			34.5	8.32	34.02	100	321	Peak
5378	43.36	34.49	54	-10.64	34.5	8.41	34.04	100	321	Average
5378	55	46.13	74	-19	34.5	8.41	34.04	100	321	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5120	43.24	34.68	54	-10.76	34.45	8.1	33.99	100	49	Average
5120	52.54	43.98	74	-21.46	34.45	8.1	33.99	100	49	Peak
5310	90.71	81.91			34.5	8.32	34.02	100	49	Average
5310	96.8	88			34.5	8.32	34.02	100	49	Peak
5350	44.9	36.05	54	-9.1	34.5	8.38	34.03	100	49	Average
5350	57.2	48.35	74	-16.8	34.5	8.38	34.03	100	49	Peak

**REMARKS:**

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
2. 5310MHz: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 102	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5376	43.35	34.48	54	-10.65	34.5	8.41	34.04	100	56	Average
5376	57.57	48.7	74	-16.43	34.5	8.41	34.04	100	56	Peak
5470	57.28	48.32	68.3	-11.02	34.5	8.51	34.05	100	56	Peak
5510	87.8	78.78			34.51	8.57	34.06	100	56	Average
5510	95.16	86.14			34.51	8.57	34.06	100	56	Peak
5725	56.8	47.59	68.3	-11.5	34.67	8.65	34.11	100	56	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5458	43.97	35.01	54	-10.03	34.5	8.51	34.05	100	38	Average
5458	57.25	48.29	74	-16.75	34.5	8.51	34.05	100	38	Peak
5470	58.19	49.23	68.3	-10.11	34.5	8.51	34.05	100	38	Peak
5510	91.28	82.26			34.51	8.57	34.06	100	38	Average
5510	98.81	89.79			34.51	8.57	34.06	100	38	Peak
5725	55.73	46.52	68.3	-12.57	34.67	8.65	34.11	100	38	Peak

**REMARKS:**

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
2. 5510MHz: Fundamental frequency.
3. 5470MHz & 5725MHz: Out of restricted band



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 110	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5440	43.49	34.55	54	-10.51	34.5	8.48	34.04	100	55	Average
5440	57.98	49.04	74	-16.02	34.5	8.48	34.04	100	55	Peak
5470	56.48	47.52	68.3	-11.82	34.5	8.51	34.05	100	55	Peak
5550	87.29	78.23			34.54	8.59	34.07	100	55	Average
5550	95.1	86.04			34.54	8.59	34.07	100	55	Peak
5725	55.7	46.49	68.3	-12.6	34.67	8.65	34.11	100	55	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5444	44.2	35.26	54	-9.8	34.5	8.48	34.04	100	36	Average
5444	57.82	48.88	74	-16.18	34.5	8.48	34.04	100	36	Peak
5470	55.45	46.49	68.3	-12.85	34.5	8.51	34.05	100	36	Peak
5550	90.35	81.29			34.54	8.59	34.07	100	36	Average
5550	97.97	88.91			34.54	8.59	34.07	100	36	Peak
5725	55.81	46.6	68.3	-12.49	34.67	8.65	34.11	100	36	Peak

**REMARKS:**

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
2. 5550MHz: Fundamental frequency.
3. 5470MHz & 5725MHz: Out of restricted band



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 134	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5424	43.55	34.61	54	-10.45	34.5	8.48	34.04	100	44	Average
5424	58.49	49.55	74	-15.51	34.5	8.48	34.04	100	44	Peak
5470	56.39	47.43	68.3	-11.91	34.5	8.51	34.05	100	44	Peak
5670	85.53	76.37			34.63	8.63	34.1	100	44	Average
5670	93.92	84.76			34.63	8.63	34.1	100	44	Peak
5725	55.88	46.67	68.3	-12.42	34.67	8.65	34.11	100	44	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5350	43.25	34.4	54	-10.75	34.5	8.38	34.03	100	91	Average
5350	57.72	48.87	74	-16.28	34.5	8.38	34.03	100	91	Peak
5470	56.61	47.65	68.3	-11.69	34.5	8.51	34.05	100	91	Peak
5670	88.2	79.04			34.63	8.63	34.1	100	91	Average
5670	95.54	86.38			34.63	8.63	34.1	100	91	Peak
5725	57.72	48.51	68.3	-10.58	34.67	8.65	34.11	100	91	Peak

**REMARKS:**

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5670MHz: Fundamental frequency.
- 5470MHz & 5725MHz: Out of restricted band





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802.11ac (80MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 42	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

**ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M**

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5148	44.7	36.11	54	-9.3	34.46	8.13	34	100	307	Average
5148	54.63	46.04	74	-19.37	34.46	8.13	34	100	307	Peak
5210	85.04	76.36			34.49	8.19	34	100	307	Average
5210	92.75	84.07			34.49	8.19	34	100	307	Peak
5446	44.04	35.07	54	-9.96	34.5	8.51	34.04	100	307	Average
5446	53.47	44.5	74	-20.53	34.5	8.51	34.04	100	307	Peak

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	45.57	36.98	54	-8.43	34.46	8.13	34	100	89	Average
5150	56.27	47.68	74	-17.73	34.46	8.13	34	100	89	Peak
5210	87.72	79.04			34.49	8.19	34	100	89	Average
5210	95.25	86.57			34.49	8.19	34	100	89	Peak
5424	44.6	35.66	54	-9.4	34.5	8.48	34.04	100	89	Average
5424	53.53	44.59	74	-20.47	34.5	8.48	34.04	100	89	Peak

**REMARKS:**

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5210MHz: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 58	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5060	43.98	35.5	54	-10.02	34.43	8.03	33.98	100	320	Average
5060	52.72	44.24	74	-21.28	34.43	8.03	33.98	100	320	Peak
5290	84.85	76.05			34.5	8.32	34.02	100	320	Average
5290	91.39	82.59			34.5	8.32	34.02	100	320	Peak
5362	46.18	37.33	54	-7.82	34.5	8.38	34.03	100	320	Average
5362	55.24	46.39	74	-18.76	34.5	8.38	34.03	100	320	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5094	44.14	35.62	54	-9.86	34.44	8.07	33.99	100	15	Average
5094	53.56	45.04	74	-20.44	34.44	8.07	33.99	100	15	Peak
5290	88.45	79.65			34.5	8.32	34.02	100	15	Average
5290	96.17	87.37			34.5	8.32	34.02	100	15	Peak
5350	47.78	38.93	54	-6.22	34.5	8.38	34.03	100	15	Average
5350	58.79	49.94	74	-15.21	34.5	8.38	34.03	100	15	Peak

**REMARKS:**

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5290MHz: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 106	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5350	44.22	35.37	54	-9.78	34.5	8.38	34.03	100	56	Average
5350	55.14	46.29	74	-18.86	34.5	8.38	34.03	100	56	Peak
5470	56.32	47.36	68.3	-11.98	34.5	8.51	34.05	100	56	Peak
5530	85.62	76.58			34.53	8.58	34.07	100	56	Average
5530	92.37	83.33			34.53	8.58	34.07	100	56	Peak
5725	55.91	46.7	68.3	-12.39	34.67	8.65	34.11	100	56	Peak

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5358	44.95	36.1	54	-9.05	34.5	8.38	34.03	100	34	Average
5358	57.39	48.54	74	-16.61	34.5	8.38	34.03	100	34	Peak
5470	55.63	46.67	68.3	-12.67	34.5	8.51	34.05	100	34	Peak
5530	88.14	79.1			34.53	8.58	34.07	100	34	Average
5530	96.04	87			34.53	8.58	34.07	100	34	Peak
5725	55.98	46.77	68.3	-12.32	34.67	8.65	34.11	100	34	Peak

**REMARKS:**

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
2. 5530MHz: Fundamental frequency.
3. 5470MHz & 5725MHz: Out of restricted band



A D T

**TEST MODE B**

**802.11n (20MHz)**

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5460	39.1	39.18	54	-14.9	31.56	5.44	37.08	100	305	Average
5460	56.34	56.42	74	-17.66	31.56	5.44	37.08	100	305	Peak
5470	53.58	53.64	68.3	-14.72	31.57	5.45	37.08	100	305	Peak
5700	90.48	90.41			31.9	5.57	37.4	100	305	Average
5700	99.33	99.26			31.9	5.57	37.4	100	305	Peak
5725	61.85	61.73	68.3	-6.45	31.96	5.59	37.43	100	305	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5426	38.67	38.85	54	-15.33	31.53	5.42	37.13	100	40	Average
5426	52.77	52.95	74	-21.23	31.53	5.42	37.13	100	40	Peak
5470	54.72	54.78	68.3	-13.58	31.57	5.45	37.08	100	40	Peak
5700	92.12	92.05			31.9	5.57	37.4	100	40	Average
5700	101.68	101.61			31.9	5.57	37.4	100	40	Peak
5725	58.63	58.51	68.3	-9.67	31.96	5.59	37.43	100	40	Peak

**REMARKS:**

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
2. 5700MHz: Fundamental frequency.
3. 5470MHz & 5725MHz: Out of restricted band



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**BELOW 1GHz WORST-CASE DATA:**

**TEST MODE A**

**802.11n (20MHz)**

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
97.23	29.27	50.63	43.5	-14.23	9.46	1.28	32.1	133	255	Peak
141.78	27.27	48.68	43.5	-16.23	9.48	1.38	32.27	185	66	Peak
165.54	23.4	43.77	43.5	-20.1	10.36	1.52	32.25	210	75	Peak
303.5	22.06	37.92	46	-23.94	14.16	2.11	32.13	125	75	Peak
504.4	20.48	30.57	46	-25.52	19.38	2.63	32.1	108	97	Peak
685	25.02	30.81	46	-20.98	23.27	3.05	32.11	185	62	Peak

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
30.81	27.67	42	40	-12.33	17.19	0.74	32.26	312	85	Peak
48.63	26.5	49.59	40	-13.5	8.23	0.9	32.22	400	0	Peak
89.4	25.31	47.08	43.5	-18.19	8.88	1.11	31.76	125	14	Peak
530.3	21.66	30.51	46	-24.34	20.61	2.7	32.16	199	67	Peak
659.8	23.43	30.05	46	-22.57	22.53	2.99	32.14	100	133	Peak
806.8	26.89	31.21	46	-19.11	24.38	3.32	32.02	122	58	Peak

**REMARKS:** Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value



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802.11ac (80MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 58	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
95.07	30.88	52.29	43.5	-12.62	9.3	1.28	31.99	100	255	Peak
142.05	27.37	48.78	43.5	-16.13	9.48	1.38	32.27	400	0	Peak
178.23	24.28	44.58	43.5	-19.22	10.33	1.61	32.24	185	75	Peak
326.6	19.35	34.05	46	-26.65	15.29	2.11	32.1	100	98	Peak
541.5	21.71	30.7	46	-24.29	20.43	2.76	32.18	100	31	Peak
787.2	26.17	30.93	46	-19.83	24.05	3.27	32.08	100	188	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
32.16	27.57	42.88	40	-12.43	16.21	0.74	32.26	100	66	Peak
48.63	25.83	48.92	40	-14.17	8.23	0.9	32.22	178	0	Peak
94.26	24.47	46.03	43.5	-19.03	9.26	1.11	31.93	122	185	Peak
405.7	17.91	29.8	46	-28.09	17.99	2.34	32.22	100	155	Peak
519.1	21.81	30.92	46	-24.19	20.32	2.7	32.13	100	135	Peak
704.6	25.28	31.12	46	-20.72	23.14	3.11	32.09	100	0	Peak

**REMARKS:** Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
 Margin value = Emission level – Limit value



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802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
96.96	30.69	52.05	43.5	-12.81	9.46	1.28	32.1	400	251	Peak
142.05	26.04	47.45	43.5	-17.46	9.48	1.38	32.27	105	77	Peak
168.24	23.9	44.47	43.5	-19.6	10.15	1.52	32.24	138	88	Peak
311.2	21.8	37.3	46	-24.2	14.51	2.11	32.12	100	175	Peak
622	22.99	30.27	46	-23.01	21.96	2.93	32.17	100	188	Peak
719.3	25.42	31.06	46	-20.58	23.31	3.16	32.11	189	64	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
32.43	26.13	41.68	40	-13.87	15.96	0.74	32.25	100	55	Peak
48.9	26.61	49.79	40	-13.39	8.14	0.9	32.22	214	135	Peak
95.07	24.46	45.87	43.5	-19.04	9.3	1.28	31.99	205	44	Peak
512.8	20.35	29.83	46	-25.65	19.94	2.7	32.12	100	198	Peak
629	22.79	29.93	46	-23.21	22.1	2.93	32.17	100	0	Peak
778.8	25.41	30.55	46	-20.59	23.68	3.27	32.09	100	120	Peak

**REMARKS:** Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value



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**TEST MODE B**

**802.11n (20MHz)**

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
55.65	23.51	41.59	40	-16.49	12.45	0.8	31.33	100	115	Peak
104.52	23.23	44.51	43.5	-20.27	9.53	1.09	31.9	100	132	Peak
177.96	32.33	51.74	43.5	-11.17	10.92	1.49	31.82	100	127	Peak
472.9	20.09	32.49	46	-25.91	16.79	2.69	31.88	100	162	Peak
769.7	26.94	32.81	46	-19.06	21.81	3.62	31.3	100	187	Peak
887.3	28.2	32.91	46	-17.8	23.35	3.93	31.99	100	194	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
33.51	28.35	46.21	40	-11.65	12.63	0.59	31.08	100	128	Peak
40.26	28.45	45.25	40	-11.55	13.55	0.67	31.02	100	139	Peak
59.16	31.19	49.68	40	-8.81	12.04	0.82	31.35	100	107	Peak
436.5	19.72	33.1	46	-26.28	16.06	2.56	32	100	141	Peak
561.8	22.47	32.83	46	-23.53	18.72	2.98	32.06	100	134	Peak
960.1	28.8	32.79	54	-25.2	23.85	4.09	31.93	100	185	Peak

**REMARKS:** Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
 Margin value = Emission level – Limit value





## 4.2 CONDUCTED EMISSION MEASUREMENT

### 4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB $\mu$ V)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

- NOTE:** 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

### 4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Nov. 17, 2013	Nov. 16, 2014
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 27, 2013	Dec. 26, 2014
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 23, 2013	Dec. 22, 2014
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Jul. 08, 2013	Jul. 07, 2014
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 2.
3. The VCCI Site Registration No. is C-2047.

#### 4.2.3 TEST PROCEDURES

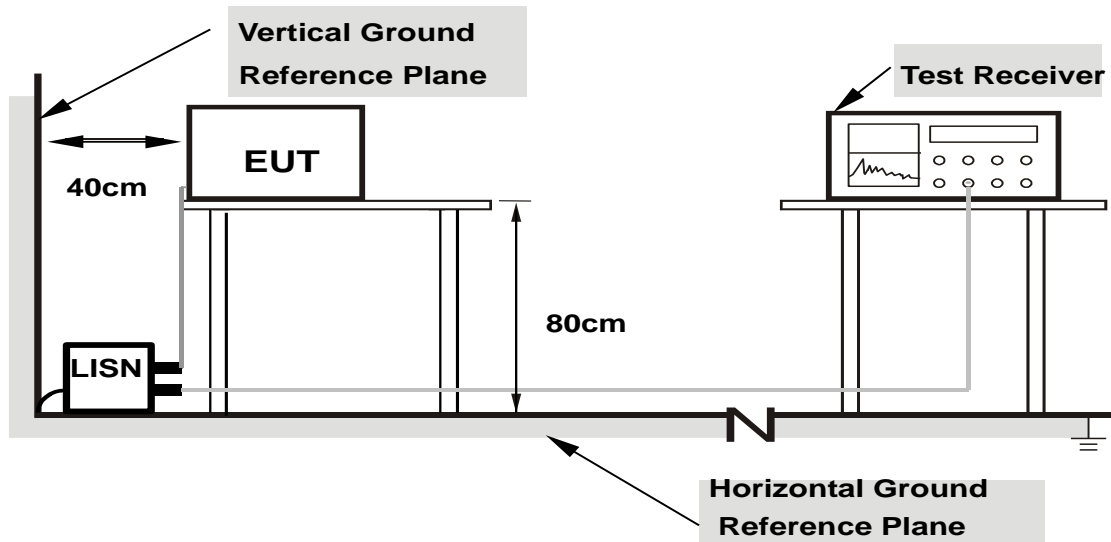
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

#### 4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.2.5 TEST SETUP



- Note:**
- 1.Support units were connected to second LISN.
  - 2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

#### 4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

### 4.2.7 TEST RESULTS

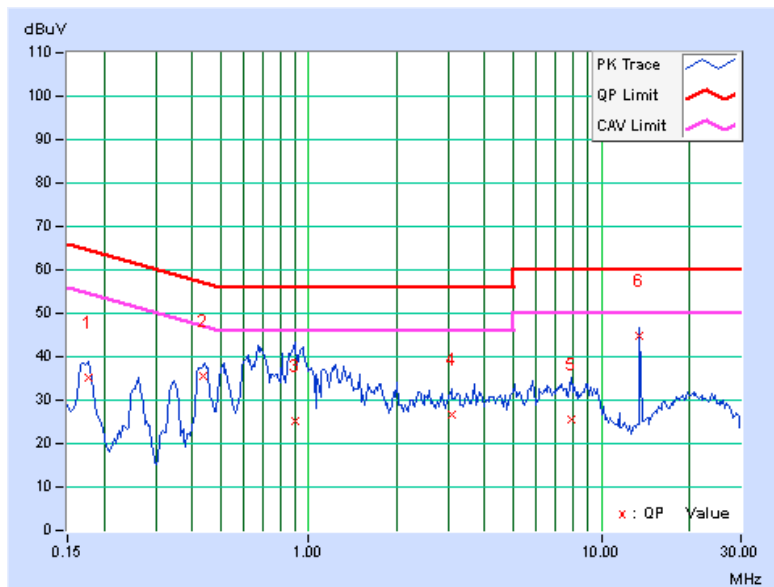
**CONDUCTED WORST-CASE DATA :**

<b>PHASE</b>	Line 1	<b>6dB BANDWIDTH</b>	9kHz
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No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
	[MHz]		[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17734	0.27	34.99	25.16	35.26	25.43	64.61	54.61	-29.35	-29.18
2	0.43516	0.30	35.11	24.27	35.41	24.57	57.15	47.15	-21.74	-22.58
3	0.90391	0.33	24.96	15.99	25.29	16.32	56.00	46.00	-30.71	-29.68
4	3.07031	0.40	26.33	16.75	26.73	17.15	56.00	46.00	-29.27	-28.85
5	7.88672	0.48	25.23	16.11	25.71	16.59	60.00	50.00	-34.29	-33.41
6	13.55859	0.52	44.46	40.89	44.98	41.41	60.00	50.00	-15.02	-8.59

**REMARKS:**

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

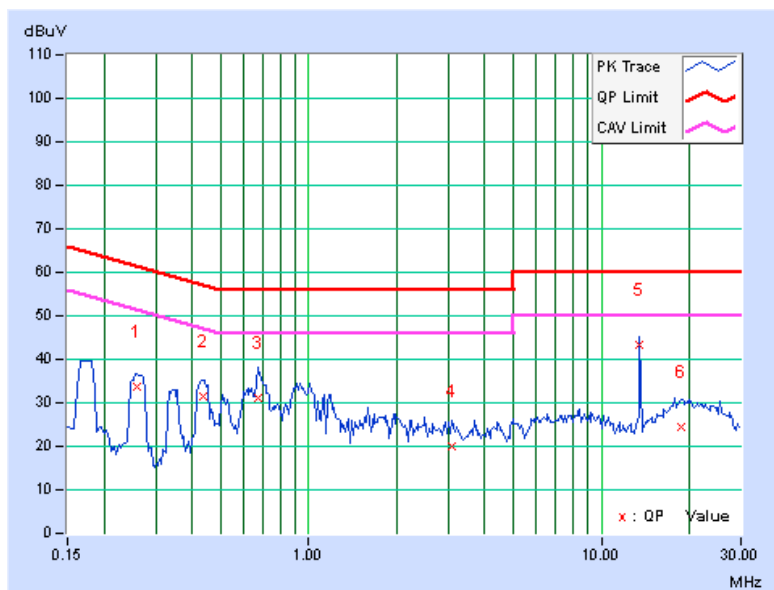


PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.25938	0.29	33.42	21.81	33.71	22.10	61.45
2	0.43516	0.30	31.35	19.92	31.65	20.22	57.15	47.15	-25.50	-26.93
3	0.66953	0.32	30.66	19.09	30.98	19.41	56.00	46.00	-25.02	-26.59
4	3.08594	0.41	19.68	10.37	20.09	10.78	56.00	46.00	-35.91	-35.22
5	13.55859	0.55	42.76	37.57	43.31	38.12	60.00	50.00	-16.69	-11.88
6	18.69922	0.62	23.98	9.63	24.60	10.25	60.00	50.00	-35.40	-39.75

**REMARKS:**

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



### 4.3 PEAK TRANSMIT POWER MEASUREMENT

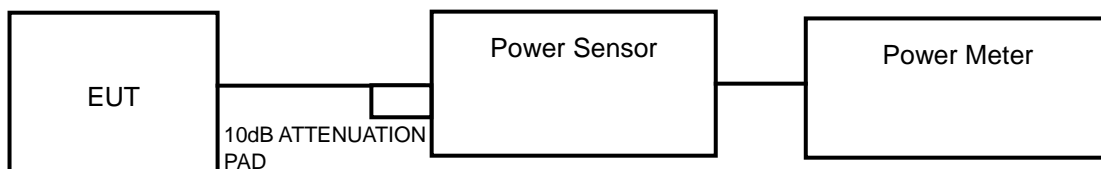
#### 4.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT

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

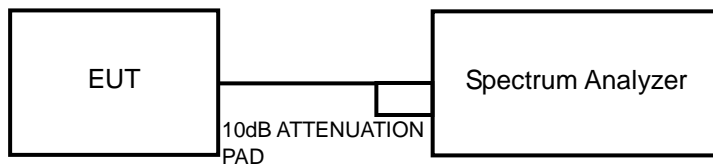
**NOTE:** Where B is the 26dB emission bandwidth in MHz.

#### 4.3.2 TEST SETUP

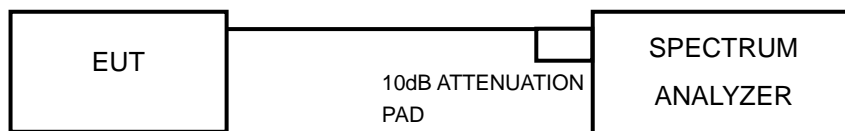
##### FOR POWER OUTPUT MEASUREMENT



or



##### FOR 26dB BANDWIDTH



#### 4.3.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

#### 4.3.4 TEST PROCEDURE

<802.11a, 802.11n (20MHz), 802.11n (40MHz)>

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.

<802.11ac (80MHz)>

Method SA-1 is used to perform output power measurement, trigger and gating function of spectrum analyzer 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%.

#### 4.3.5 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.3.6 EUT OPERATING CONDITIONS

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



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### 4.3.7 TEST RESULTS

#### POWER OUTPUT:

##### 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	39.719	15.99	17	PASS
44	5220	41.210	16.15	17	PASS
48	5240	41.687	16.20	17	PASS
52	5260	41.591	16.19	24	PASS
60	5300	40.365	16.06	24	PASS
64	5320	39.355	15.95	24	PASS
100	5500	40.087	16.03	24	PASS
116	5580	39.994	16.02	24	PASS
140	5700	40.365	16.06	24	PASS

##### 802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	49.204	16.92	17	PASS
44	5220	48.865	16.89	17	PASS
48	5240	48.978	16.90	17	PASS
52	5260	49.317	16.93	24	PASS
60	5300	48.417	16.85	24	PASS
64	5320	48.865	16.89	24	PASS
100	5500	48.753	16.88	24	PASS
116	5580	52.240	17.18	24	PASS
140	5700	52.360	17.19	24	PASS





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### 802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
38	5190	20.893	13.20	17	PASS
46	5230	20.464	13.11	17	PASS
54	5270	19.999	13.01	24	PASS
62	5310	21.232	13.27	24	PASS
102	5510	19.907	12.99	24	PASS
110	5550	19.724	12.95	24	PASS
134	5670	20.989	13.22	24	PASS

### 802.11ac (80MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
42	5210	20.230	13.06	17	PASS
58	5290	19.275	12.85	24	PASS
106	5530	20.277	13.07	24	PASS

**26dB BANDWIDTH: 802.11a**

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
36	5180	22.61	PASS
44	5220	23.10	PASS
48	5240	22.74	PASS
52	5260	23.23	PASS
60	5300	22.72	PASS
64	5320	22.46	PASS
100	5500	22.71	PASS
116	5580	22.68	PASS
140	5700	22.97	PASS

**802.11n (20MHz)**

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
36	5180	26.83	PASS
44	5220	26.98	PASS
48	5240	25.85	PASS
52	5260	23.60	PASS
60	5300	28.68	PASS
64	5320	27.40	PASS
100	5500	25.13	PASS
116	5580	38.39	PASS
140	5700	25.16	PASS

**802.11n (40MHz)**

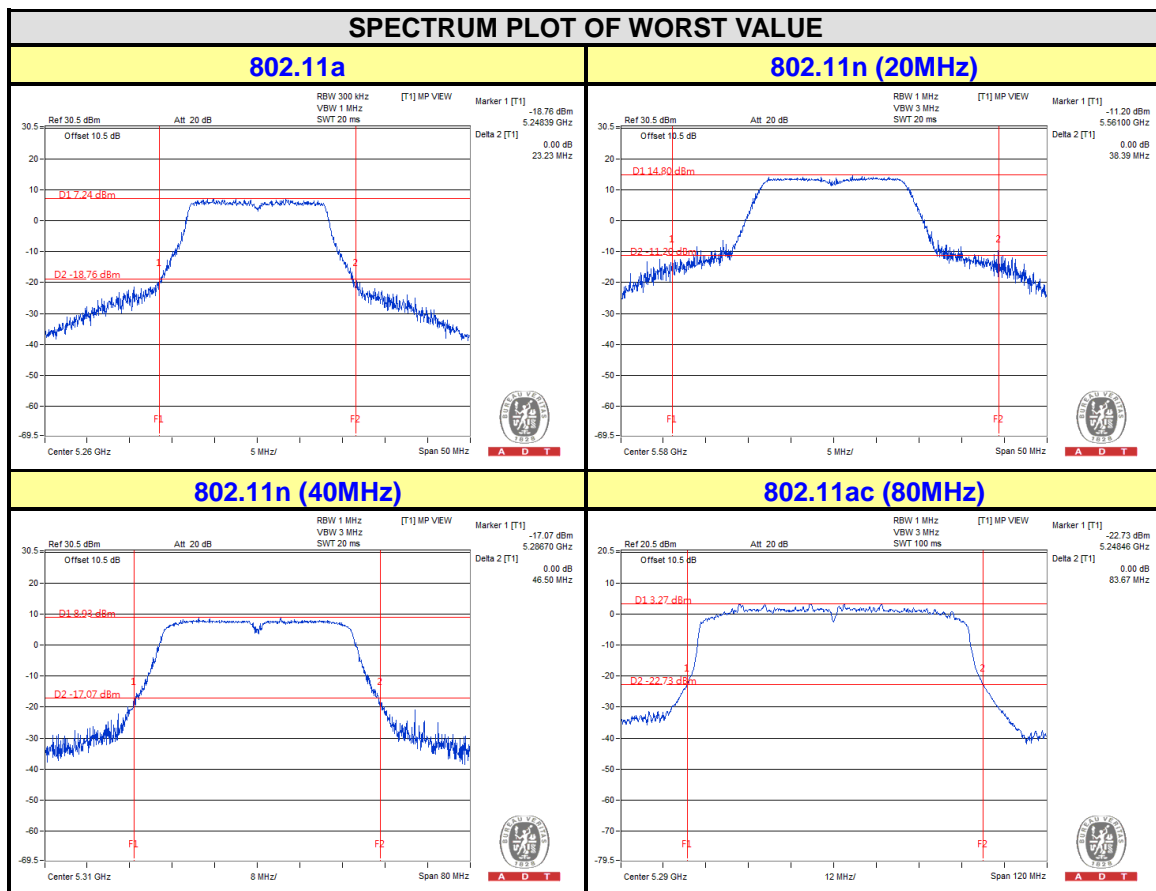
CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
38	5190	45.94	PASS
46	5230	45.60	PASS
54	5270	46.14	PASS
62	5310	46.50	PASS
102	5510	45.68	PASS
110	5550	45.65	PASS
134	5670	45.91	PASS



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802.11ac (80MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
42	5210	83.13	PASS
58	5290	83.67	PASS
106	5530	83.59	PASS

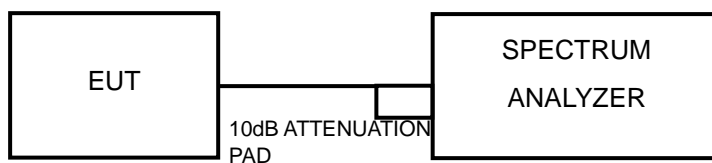


## 4.4 PEAK POWER SPECTRAL DENSITY MEASUREMENT

### 4.4.1 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

### 4.4.2 TEST SETUP



### 4.4.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

### 4.4.4 TEST PROCEDURES

<802.11a, 802.11n (40MHz), 802.11ac (80MHz)>

Using method SA-2 alternative

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 1 MHz, Set VBW  $\geq$  3 MHz, Detector = RMS
- 3) Sweep time = 4second.
- 4) Perform a single sweep.
- 5) Record the max value and add 10 log (1/duty cycle)

<802.11n (20MHz) >

Using method SA-1

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 1 MHz, Set VBW  $\geq$  3 MHz, Detector = RMS
- 3) Sweep time = 4second.
- 4) Perform a single sweep.

#### 4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6.

#### 4.4.7 TEST RESULTS

##### 802.11a

CHANNEL	FREQUENCY (MHz)	PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	PSD WITH DUTY FACTOR (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	3.90	0.09	3.99	4	PASS
44	5220	3.78	0.09	3.87	4	PASS
48	5240	3.59	0.09	3.68	4	PASS
52	5260	3.35	0.09	3.44	11	PASS
60	5300	3.48	0.09	3.57	11	PASS
64	5320	3.40	0.09	3.49	11	PASS
100	5500	3.27	0.09	3.36	11	PASS
116	5580	3.64	0.09	3.73	11	PASS
140	5700	3.26	0.09	3.35	11	PASS

##### 802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	PSD (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	3.74	4	PASS
44	5220	3.99	4	PASS
48	5240	3.78	4	PASS
52	5260	3.85	11	PASS
60	5300	4.00	11	PASS
64	5320	3.96	11	PASS
100	5500	3.92	11	PASS
116	5580	4.70	11	PASS
140	5700	4.47	11	PASS



### 802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	PSD WITH DUTY FACTOR (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
38	5190	-0.71	1.26	0.55	4	PASS
46	5230	-1.05	1.26	0.21	4	PASS
54	5270	-1.64	1.26	-0.38	11	PASS
62	5310	-1.49	1.26	-0.23	11	PASS
102	5510	-2.28	1.26	-1.02	11	PASS
110	5550	-2.14	1.26	-0.88	11	PASS
134	5670	-1.62	1.26	-0.36	11	PASS

**NOTE:** Refer to section 3.3 for duty cycle spectrum plot.

### 802.11ac (80MHz)

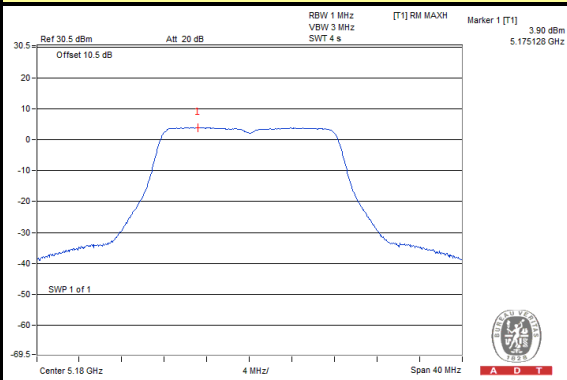
CHANNEL	FREQUENCY (MHz)	PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	PSD WITH DUTY FACTOR (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
42	5210	-4.37	2.57	-1.80	4	PASS
58	5290	-5.14	2.57	-2.57	11	PASS
106	5530	-5.19	2.57	-2.62	11	PASS



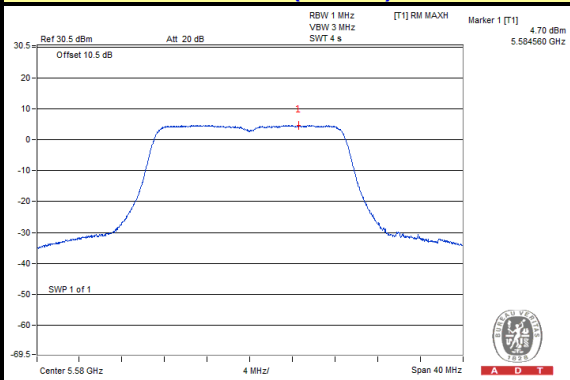
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### SPECTRUM PLOT OF WORST VALUE

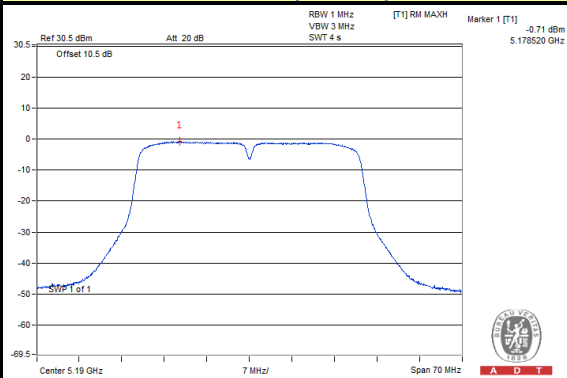
#### 802.11a



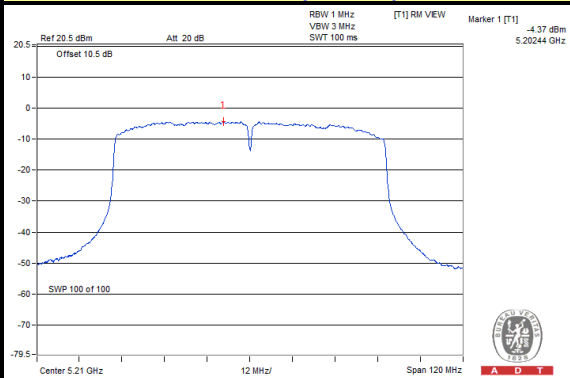
#### 802.11n (20MHz)



#### 802.11n (40MHz)



#### 802.11ac (80MHz)

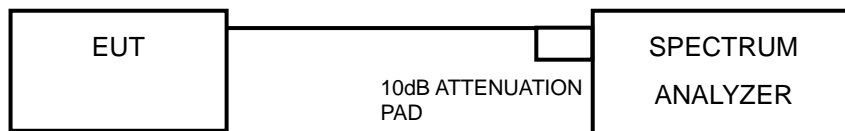


## 4.5 PEAK POWER EXCURSION MEASUREMENT

### 4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

Shall not exceed 13 dB.

### 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. Set the RBW = 1 kHz, VBW  $\geq$  3 MHz, Detector = peak.
- b. Trace mode = max-hold. Allow the sweeps to continue until the trace stabilizes.
- c. Use the peak search function to find the peak of the spectrum.
- d. Measure the PPSD.
- e. Compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD.

Find the worst channel and modulation mode as above test procedure, and follow KDB 789033 D01 General UNII Test Procedures v01r03 and repeat step 1 to 5 for final testing of each modulation mode on a single channel (all modulation types) in a single operating band to compliance with the peak excursion requirement.

### 4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

### 4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6





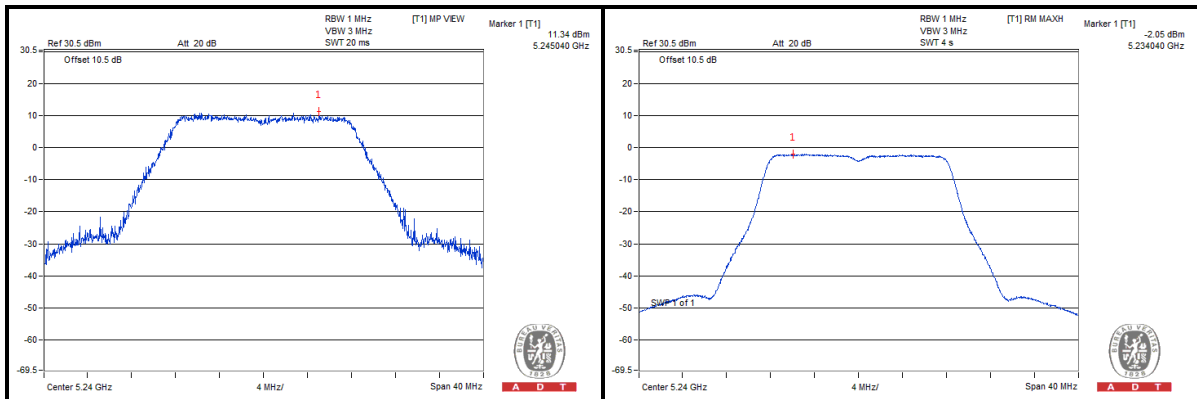
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### 4.5.7 TEST RESULTS

MODULATION MODE	MODULATION TYPE	CHAN. FREQ. (MHz)	PEAK VALUE (dBm)	PPSD WITHOUT DUTY FACTOR (dBm)	PPSD WITH DUTY FACTOR (dBm)	PEAK EXCURSION (dB)	LIMIT (dB)	PASS /FAIL
802.11a	BPSK	5240	13.41	3.59	3.68	9.73	13	PASS
	QPSK		13.86	3.07	3.17	10.69	13	PASS
	16QAM		14.55	2.18	2.38	12.17	13	PASS
	64QAM		11.34	-2.05	-1.57	12.91	13	PASS
802.11n (40MHz)	BPSK	5310	8.82	-1.49	-0.23	9.05	13	PASS
	QPSK		9.78	-2.33	-0.31	10.09	13	PASS
	16QAM		10.34	-3.32	-0.16	10.50	13	PASS
	64QAM		8.87	-4.52	-0.06	8.93	13	PASS
802.11ac (80MHz)	BPSK	5530	3.59	-5.19	-2.62	6.21	13	PASS
	QPSK		3.18	-5.22	-1.42	4.60	13	PASS
	16QAM		2.81	-5.21	-0.22	3.03	13	PASS
	64QAM		3.15	-4.92	0.92	2.23	13	PASS
	256QAM		3.43	-5.10	1.11	2.32	13	PASS

MODULATION MODE	MODULATION TYPE	CHANNEL FREQUENCY (MHz)	PEAK VALUE (dBm)	PPSD (dBm)	PEAK EXCURSION (dB)	LIMIT (dB)	PASS/ FAIL
802.11n (20MHz)	BPSK	5700	14.23	4.47	9.76	13	PASS
	QPSK		15.18	3.87	11.31	13	PASS
	16QAM		15.14	3.05	12.09	13	PASS
	64QAM		12.41	-0.30	12.71	13	PASS

**NOTE:** Refer to section 3.3 for duty cycle spectrum plot.

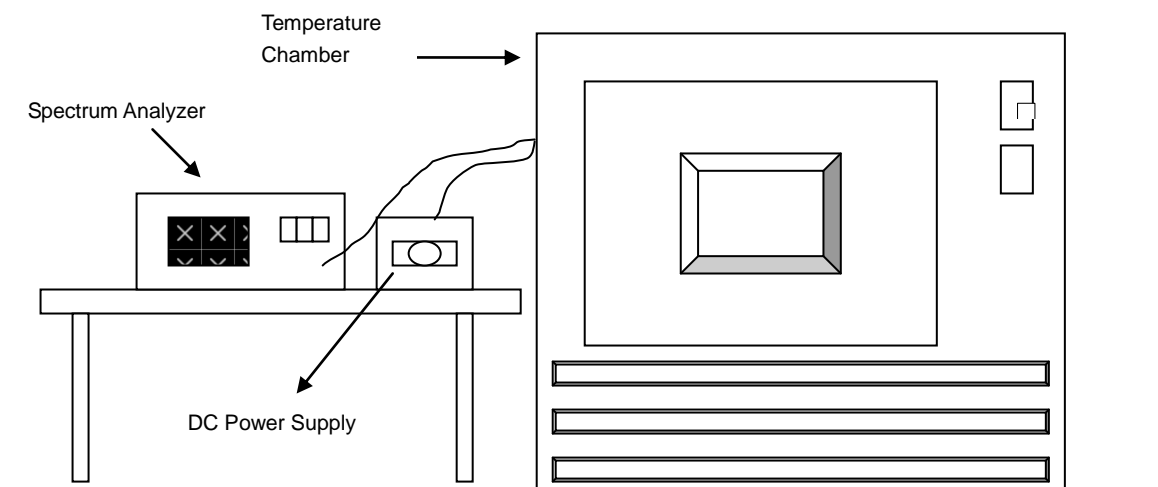


## 4.6 FREQUENCY STABILITY

### 4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

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

### 4.6.2 TEST SETUP



### 4.6.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

#### 4.6.4 TEST PROCEDURE

- a. To ensure emission at the band edge is maintained within the authorized band, those values shall be measured by radiation emissions at upper and lower frequency points, and finally compensated by frequency deviation as procedures below.
- b. The EUT was operated at the maximum output power, and connected to the spectrum analyzer, which is set to maximum hold function and peak detector. The peak value of the power envelope was measured and noted. The upper and lower frequency points were respectively measured relatively 10dB lower than the measured peak value.
- c. The frequency deviation was calculated by adding the upper frequency point and the lower frequency point divided by two. Those detailed values of frequency deviation are provided in table below.

#### 4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.6.6 EUT OPERATING CONDITION

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



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#### 4.6.7 TEST RESULTS

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5320MHz									
TEMP. (°C)	POWER SUPPLY (Vdc)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
50	3.8	5320.015122	2.842	5320.015242	2.865	5320.014849	2.791	5320.014924	2.805
40	3.8	5320.015773	2.965	5320.015413	2.897	5320.015280	2.872	5320.015875	2.984
30	3.8	5320.016994	3.194	5320.016858	3.169	5320.017027	3.201	5320.016728	3.144
20	3.8	5320.017948	3.374	5320.017999	3.383	5320.018255	3.431	5320.017966	3.377
10	3.8	5320.019440	3.654	5320.019585	3.681	5320.019498	3.665	5320.019599	3.684
0	3.8	5320.017966	3.377	5320.017674	3.322	5320.018339	3.447	5320.017710	3.329
-10	3.8	5320.016426	3.088	5320.016769	3.152	5320.016735	3.146	5320.017013	3.198
-20	3.8	5320.015926	2.994	5320.015701	2.951	5320.015733	2.957	5320.016073	3.021
-30	3.8	5320.014835	2.789	5320.014935	2.807	5320.015103	2.839	5320.014932	2.807

FREQUENCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5320MHz									
TEMP. (°C)	POWER SUPPLY (Vdc)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
20	3.6	5320.017570	3.303	5320.017273	3.247	5320.017510	3.291	5320.017310	3.254
	3.8	5320.017948	3.374	5320.017999	3.383	5320.018255	3.431	5320.017966	3.377
	4.35	5320.019210	3.611	5320.019205	3.610	5320.019408	3.648	5320.019331	3.634



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## 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:**

Tel: 886-2-26052180

Fax: 886-2-26051924

**Hsin Chu EMC/RF Lab:**

Tel: 886-3-5935343

Fax: 886-3-5935342

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

Tel: 886-3-3183232

Fax: 886-3-3270892

**Email:** [service.adt@tw.bureauveritas.com](mailto:service.adt@tw.bureauveritas.com)

**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.



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

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

**---END---**