



# FCC TEST REPORT (15.407)

**REPORT NO.:** RF130207C03-5  
**MODEL NO.:** HTL22  
**FCC ID:** NM8HTL22  
**RECEIVED:** Feb. 07, 2013  
**TESTED:** Mar. 16, 2013 ~ Mar. 21, 2013  
**ISSUED:** Apr. 17, 2013

**APPLICANT:** HTC Corporation

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

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**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
RF130207C03-5	Original release	Apr. 17, 2013



# 1. CERTIFICATION

**PRODUCT:** Smartphone  
**MODEL NO.:** HTL22  
**BRAND:** HTC  
**APPLICANT:** HTC Corporation  
**TESTED:** Mar. 16, 2013 ~ Mar. 21, 2013  
**TEST SAMPLE:** Production Unit  
**STANDARDS:** **FCC Part 15, Subpart E (Section 15.407)**  
ANSI C63.10-2009

The above equipment (model: HTL22) 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** : Apr. 17, 2013  
Ivonne Wu / Senior Specialist

**APPROVED BY** : Anderson Chiu , **DATE** : Apr. 17, 2013  
Anderson Chiu / Senior 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 -13.08dB at 0.20078MHz.
15.407(b/1/2/3) (b)(6)	Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -7.61dB at 30MHz.
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>	HTL22
<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 MCS7 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>	40.738mW for 5180 ~ 5240MHz 38.282mW for 5260 ~ 5320MHz 36.728mW for 5500 ~ 5700MHz
<b>ANTENNA TYPE</b>	PIFA antenna with -1dBi gain (5180 ~ 5240MHz) PIFA antenna with -1dBi gain (5260 ~ 5320MHz) PIFA antenna with -1dBi 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:**

1. The device has 2 configurations as below.  
 Main sample (A): EUT with Battery 1 + Duplexer 1  
 2<sup>nd</sup> sample (B): EUT with Battery 2 + Duplexer 2  
 \* Only main sample was used for the testing.
2. The EUT's accessories list refers to Ext. Pho.
3. The EUT provides one completed transmitter and one receiver.

MODULATION MODE	TX FUNCTION
802.11b	1TX
802.11g	1TX
802.11a	1TX
802.11n (20MHz)	1TX
802.11n (40MHz)	1TX
802.11ac (80MHz)	1TX

4. 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	5210MHz

### 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

### 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 $\geq$ 1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

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

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

**PLC**: Power Line Conducted Emission

**APCM**: Antenna Port Conducted Measurement

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

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
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	MCS0
802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	MCS0
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	MCS0
802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	MCS0
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	MCS0
802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	MCS0
802.11ac (80MHz)		106	106	OFDM	BPSK	V0

#### **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.

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11n (20MHz)	5180-5240	36 to 48	48	OFDM	BPSK	MCS0

**POWER LINE CONDUCTED EMISSION TEST:**

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

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11n (20MHz)	5180-5240	36 to 48	48	OFDM	BPSK	MCS0

**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.

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	5180-5240	36 to 48	36, 48	OFDM	BPSK	6.0
802.11n (20MHz)		36 to 48	36, 48	OFDM	BPSK	MCS0
802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	MCS0
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	MCS0
802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	MCS0
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	MCS0
802.11n (40MHz)		102 to 134	102, 134	OFDM	BPSK	MCS0
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.

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
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	MCS0
802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	MCS0
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	MCS0
802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	MCS0
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	MCS0
802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	MCS0
802.11ac (80MHz)		106	106	OFDM	BPSK	V0

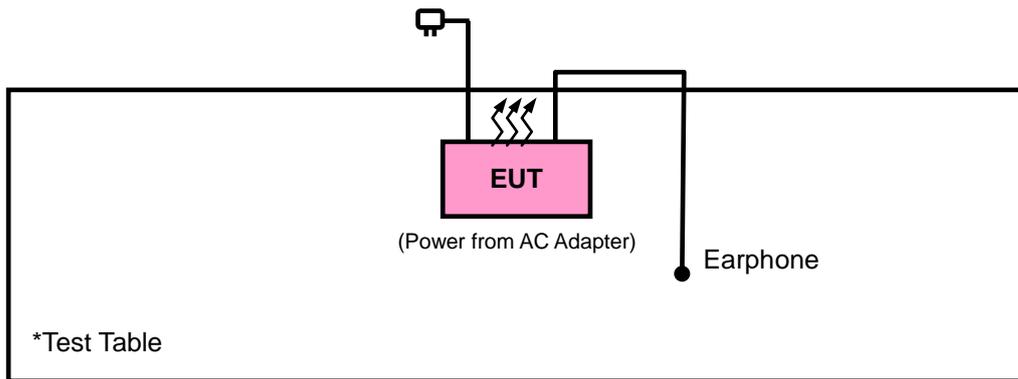
**TEST CONDITION:**

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	David Huang
APCM	25deg. C, 65%RH	120Vac, 60Hz	Phoenix Chen

### 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



### 3.4 DUTY CYCLE OF TEST SIGNAL

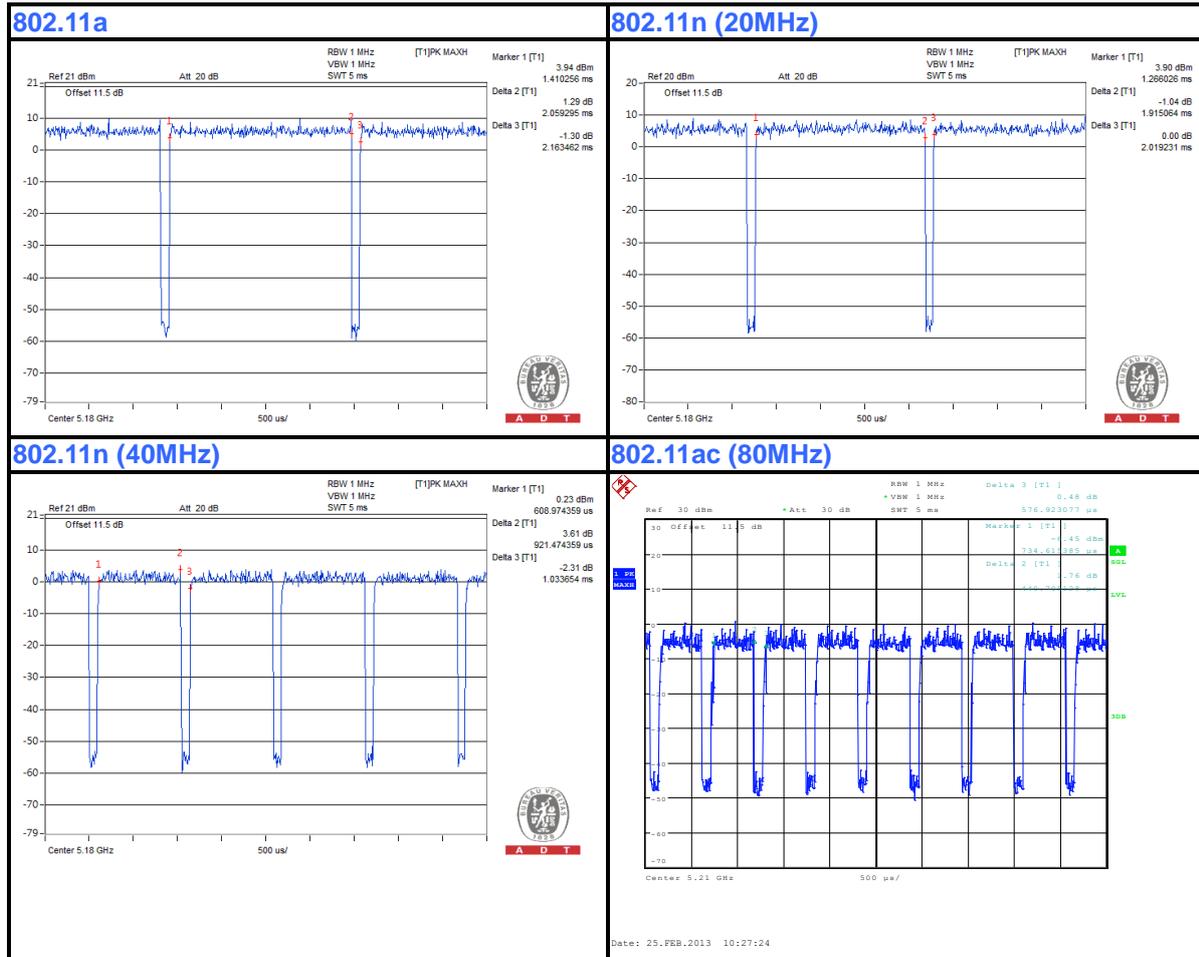
If duty cycle is < 98%, duty factor shall be considered.

**802.11a:** Duty cycle = 2.059/2.163 = 0.952, Duty factor =  $10 * \log(1/0.952) = 0.21$

**802.11n (20MHz):** Duty cycle = 1.915/2.019 = 0.948, Duty factor =  $10 * \log(1/0.948) = 0.23$

**802.11n (40MHz):** Duty cycle = 921/1034 = 0.891, Duty factor =  $10 * \log(1/0.891) = 0.50$

**802.11ac (80MHz):** Duty cycle = 441/577 = 0.764, Duty factor =  $10 * \log(1/0.764) = 1.17$



### 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.

## 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

EIRP LIMIT (dBm)	EQUIVALENT FIELD STRENGTH AT 3m (dBμV/m)
<b>PK</b>	<b>PK</b>
-27	68.3

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

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

#### 4.1.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100744	Apr. 19, 2012	Apr. 18, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 17, 2012	Dec. 16, 2013
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Apr. 03, 2012	Apr. 02, 2013
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Jan. 07, 2013	Jan. 06, 2014
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 25, 2012	Dec. 24, 2013
Loop Antenna	HFH2-Z2	100070	Jan. 31, 2012	Jan. 30, 2014
Preamplifier EMCI	EMC 012645	980115	Dec. 28, 2012	Dec. 27, 2013
Preamplifier EMCI	EMC 184045	980116	Dec. 28, 2012	Dec. 27, 2013
Preamplifier EMCI	EMC 330H	980112	Dec. 28, 2012	Dec. 27, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4	Oct. 19, 2012	Oct. 18, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Oct. 19, 2012	Oct. 18, 2013
RF signal cable Worken	RG-213	NA	Dec. 29, 2012	Dec. 28, 2013
Software	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. 10, 2012	Aug. 09, 2013
Power Sensor	MA2411B	1207325	Aug. 15, 2012	Aug. 14, 2013

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The calibration interval of the loop antenna is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in HwaYa Chamber 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 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

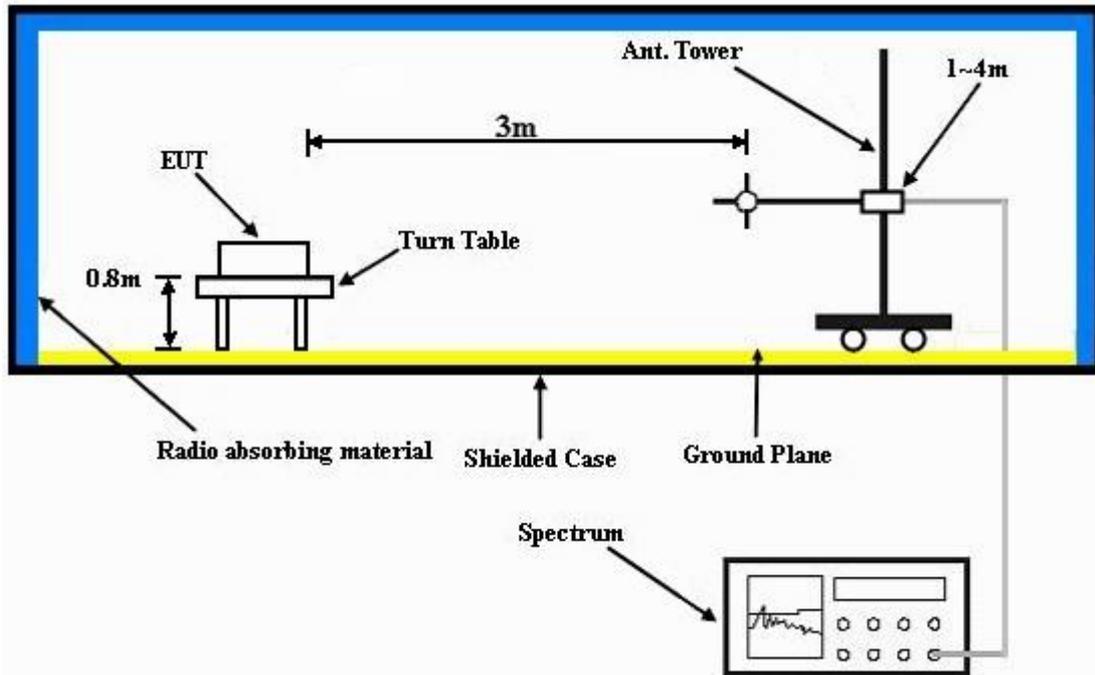
**NOTE:**

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

#### 4.1.5 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.1.6 TEST SETUP



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

#### 4.1.7 EUT OPERATING CONDITION

- a. 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 DATA: 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
5144	40.62	39.29	54	-13.38	31.32	7.33	37.32	103	43	Average
5144	52.19	50.86	74	-21.81	31.32	7.33	37.32	103	43	Peak
5180	90.64	89.31			31.35	7.32	37.34	103	43	Average
5180	100.07	98.74			31.35	7.32	37.34	103	43	Peak
5390	40.11	38.38	54	-13.89	31.51	7.40	37.18	103	43	Average
5390	51.56	49.83	74	-22.44	31.51	7.40	37.18	103	43	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
5098	39.81	38.46	54	-14.19	31.28	7.35	37.28	100	12	Average
5098	52.28	50.93	74	-21.72	31.28	7.35	37.28	100	12	Peak
5180	84.92	83.59			31.35	7.32	37.34	100	12	Average
5180	94.52	93.19			31.35	7.32	37.34	100	12	Peak
5424	39.81	38.06	54	-14.19	31.53	7.40	37.18	100	12	Average
5424	51.85	50.10	74	-22.15	31.53	7.40	37.18	100	12	Peak

REMARKS: 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
5146	40.96	39.63	54	-13.04	31.32	7.33	37.32	101	43	Average
5146	52.95	51.62	74	-21.05	31.32	7.33	37.32	101	43	Peak
5220	90.92	89.59			31.37	7.32	37.36	101	43	Average
5220	99.82	98.49			31.37	7.32	37.36	101	43	Peak
5434	40.16	38.27	54	-13.84	31.55	7.47	37.13	101	43	Average
5434	51.79	49.90	74	-22.21	31.55	7.47	37.13	101	43	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
5014	39.17	38.05	54	-14.83	31.21	7.14	37.23	103	308	Average
5014	52.34	51.22	74	-21.66	31.21	7.14	37.23	103	308	Peak
5220	82.81	81.48			31.37	7.32	37.36	103	308	Average
5220	92.50	91.17			31.37	7.32	37.36	103	308	Peak
5428	39.76	37.89	54	-14.24	31.53	7.47	37.13	103	308	Average
5428	52.91	51.04	74	-21.09	31.53	7.47	37.13	103	308	Peak

REMARKS: 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
5108	39.70	38.34	54	-14.30	31.29	7.35	37.28	100	44	Average
5108	52.00	50.64	74	-22.00	31.29	7.35	37.28	100	44	Peak
5240	91.68	90.27			31.39	7.34	37.32	100	44	Average
5240	101.11	99.70			31.39	7.34	37.32	100	44	Peak
5436	40.22	38.33	54	-13.78	31.55	7.47	37.13	100	44	Average
5436	52.28	50.39	74	-21.72	31.55	7.47	37.13	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
5090	39.36	38.05	54	-14.64	31.28	7.30	37.27	100	307	Average
5090	51.63	50.32	74	-22.37	31.28	7.30	37.27	100	307	Peak
5240	83.68	82.27			31.39	7.34	37.32	100	307	Average
5240	93.06	91.65			31.39	7.34	37.32	100	307	Peak
5460	39.85	37.84	54	-14.15	31.56	7.53	37.08	100	307	Average
5460	52.01	50.00	74	-21.99	31.56	7.53	37.08	100	307	Peak

REMARKS: 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
5138	39.51	38.16	54	-14.49	31.31	7.34	37.3	101	74	Average
5138	52.39	51.04	74	-21.61	31.31	7.34	37.3	101	74	Peak
5260	90.23	88.73			31.41	7.36	37.27	101	74	Average
5260	100.54	99.04			31.41	7.36	37.27	101	74	Peak
5392	40.34	38.61	54	-13.66	31.51	7.40	37.18	101	74	Average
5392	52.62	50.89	74	-21.38	31.51	7.40	37.18	101	74	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
5082	39.37	38.07	54	-14.63	31.27	7.30	37.27	100	106	Average
5082	51.61	50.31	74	-22.39	31.27	7.30	37.27	100	106	Peak
5260	84.85	83.35			31.41	7.36	37.27	100	106	Average
5260	94.24	92.74			31.41	7.36	37.27	100	106	Peak
5440	39.86	37.97	54	-14.14	31.55	7.47	37.13	100	106	Average
5440	51.94	50.05	74	-22.06	31.55	7.47	37.13	100	106	Peak

**REMARKS:** 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
5064	39.54	38.29	54	-14.46	31.25	7.25	37.25	100	122	Average
5064	55.35	54.10	74	-18.65	31.25	7.25	37.25	100	122	Peak
5300	89.70	88.05			31.44	7.40	37.19	100	122	Average
5300	99.16	97.51			31.44	7.40	37.19	100	122	Peak
5380	41.63	39.90	54	-12.37	31.51	7.40	37.18	100	122	Average
5380	55.90	54.17	74	-18.10	31.51	7.40	37.18	100	122	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
5100	39.70	38.35	54	-14.30	31.28	7.35	37.28	100	112	Average
5100	55.07	53.72	74	-18.93	31.28	7.35	37.28	100	112	Peak
5300	86.49	84.84			31.44	7.40	37.19	100	112	Average
5300	95.88	94.23			31.44	7.40	37.19	100	112	Peak
5432	40.41	38.52	54	-13.59	31.55	7.47	37.13	100	112	Average
5432	55.43	53.54	74	-18.57	31.55	7.47	37.13	100	112	Peak

REMARKS: 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
5132	39.92	38.57	54	-14.08	31.31	7.34	37.3	100	122	Average
5132	54.94	53.59	74	-19.06	31.31	7.34	37.3	100	122	Peak
5320	89.98	88.32			31.45	7.40	37.19	100	122	Average
5320	99.36	97.70			31.45	7.40	37.19	100	122	Peak
5446	41.95	40.05	54	-12.05	31.56	7.47	37.13	100	122	Average
5446	56.09	54.19	74	-17.91	31.56	7.47	37.13	100	122	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
5066	39.72	38.47	54	-14.28	31.25	7.25	37.25	100	42	Average
5066	51.76	50.51	74	-22.24	31.25	7.25	37.25	100	42	Peak
5320	85.78	84.12			31.45	7.40	37.19	100	42	Average
5320	95.16	93.50			31.45	7.40	37.19	100	42	Peak
5440	40.88	38.99	54	-13.12	31.55	7.47	37.13	100	42	Average
5440	51.92	50.03	74	-22.08	31.55	7.47	37.13	100	42	Peak

REMARKS: 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
5426	40.62	38.75	54.0	-13.38	31.53	7.47	37.13	100	71	Average
5426	52.43	50.56	74.0	-21.57	31.53	7.47	37.13	100	71	Peak
5470	53.07	51.05	68.3	-15.23	31.57	7.53	37.08	100	71	Peak
5500	86.37	84.21			31.60	7.59	37.03	100	71	Average
5500	96.48	94.32			31.60	7.59	37.03	100	71	Peak
5725	51.55	49.31	68.3	-16.75	31.96	7.71	37.43	100	71	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
5414	40.14	38.39	54.0	-13.86	31.53	7.40	37.18	100	95	Average
5414	52.25	50.50	74.0	-21.75	31.53	7.40	37.18	100	95	Peak
5470	50.18	48.16	68.3	-18.12	31.57	7.53	37.08	100	95	Peak
5500	84.15	81.99			31.60	7.59	37.03	100	95	Average
5500	94.35	92.19			31.60	7.59	37.03	100	95	Peak
5725	51.22	48.98	68.3	-17.08	31.96	7.71	37.43	100	95	Peak

**REMARKS:**

1. 5500MHz: Fundamental frequency.
2. 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
5460	39.92	37.91	54.0	-14.08	31.56	7.53	37.08	100	70	Average
5460	52.38	50.37	74.0	-21.62	31.56	7.53	37.08	100	70	Peak
5470	51.12	49.10	68.3	-17.18	31.57	7.53	37.08	100	70	Peak
5580	88.01	85.89			31.71	7.57	37.16	100	70	Average
5580	97.83	95.71			31.71	7.57	37.16	100	70	Peak
5725	52.25	50.01	68.3	-16.05	31.96	7.71	37.43	100	70	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
5438	39.78	37.89	54.0	-14.22	31.55	7.47	37.13	100	358	Average
5438	52.07	50.18	74.0	-21.93	31.55	7.47	37.13	100	358	Peak
5470	51.23	49.21	68.3	-17.07	31.57	7.53	37.08	100	358	Peak
5580	84.23	82.11			31.71	7.57	37.16	100	358	Average
5580	94.19	92.07			31.71	7.57	37.16	100	358	Peak
5725	51.41	49.17	68.3	-16.89	31.96	7.71	37.43	100	358	Peak

**REMARKS:**

1. 5580MHz: Fundamental frequency.
2. 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
5440	39.93	38.04	54.0	-14.07	31.55	7.47	37.13	100	79	Average
5440	51.48	49.59	74.0	-22.52	31.55	7.47	37.13	100	79	Peak
5470	50.37	48.35	68.3	-17.93	31.57	7.53	37.08	100	79	Peak
5700	88.17	85.98			31.90	7.69	37.4	100	79	Average
5700	97.84	95.65			31.90	7.69	37.4	100	79	Peak
5725	55.55	53.31	68.3	-12.75	31.96	7.71	37.43	100	79	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
5418	39.64	37.89	54.0	-14.36	31.53	7.4	37.18	100	357	Average
5418	51.95	50.20	74.0	-22.05	31.53	7.4	37.18	100	357	Peak
5470	49.46	47.44	68.3	-18.84	31.57	7.53	37.08	100	357	Peak
5700	84.11	81.92			31.90	7.69	37.4	100	357	Average
5700	93.82	91.63			31.90	7.69	37.4	100	357	Peak
5725	50.63	48.39	68.3	-17.67	31.96	7.71	37.43	100	357	Peak

**REMARKS:**

1. 5700MHz: Fundamental frequency.
2. 5470MHz & 5725MHz: Out of restricted band

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
5150	40.70	39.37	54	-13.30	31.32	7.33	37.32	100	67	Average
5150	52.17	50.84	74	-21.83	31.32	7.33	37.32	100	67	Peak
5180	89.56	88.23			31.35	7.32	37.34	100	67	Average
5180	98.93	97.60			31.35	7.32	37.34	100	67	Peak
5400	39.96	38.22	54	-14.04	31.52	7.40	37.18	100	67	Average
5400	51.99	50.25	74	-22.01	31.52	7.40	37.18	100	67	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	39.63	38.28	54	-14.37	31.28	7.35	37.28	100	55	Average
5102	52.08	50.73	74	-21.92	31.28	7.35	37.28	100	55	Peak
5180	81.93	80.60			31.35	7.32	37.34	100	55	Average
5180	91.22	89.89			31.35	7.32	37.34	100	55	Peak
5458	39.81	37.80	54	-14.19	31.56	7.53	37.08	100	55	Average
5458	52.73	50.72	74	-21.27	31.56	7.53	37.08	100	55	Peak

REMARKS: 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
5134	40.93	39.58	54	-13.07	31.31	7.34	37.30	100	66	Average
5134	52.31	50.96	74	-21.69	31.31	7.34	37.30	100	66	Peak
5220	90.69	89.36			31.37	7.32	37.36	100	66	Average
5220	99.92	98.59			31.37	7.32	37.36	100	66	Peak
5432	39.92	38.03	54	-14.08	31.55	7.47	37.13	100	66	Average
5432	51.79	49.90	74	-22.21	31.55	7.47	37.13	100	66	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	39.64	38.29	54	-14.36	31.31	7.34	37.30	101	88	Average
5130	52.43	51.08	74	-21.57	31.31	7.34	37.30	101	88	Peak
5220	85.09	83.76			31.37	7.32	37.36	101	88	Average
5220	94.39	93.06			31.37	7.32	37.36	101	88	Peak
5444	39.70	37.81	54	-14.30	31.55	7.47	37.13	101	88	Average
5444	51.91	50.02	74	-22.09	31.55	7.47	37.13	101	88	Peak

REMARKS: 5220MHz: Fundamental frequency.



A D T

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
5042	39.50	38.26	54	-14.50	31.24	7.25	37.25	100	66	Average
5042	52.28	51.04	74	-21.72	31.24	7.25	37.25	100	66	Peak
5240	91.31	89.90			31.39	7.34	37.32	100	66	Average
5240	100.67	99.26			31.39	7.34	37.32	100	66	Peak
5374	40.16	38.45	54	-13.84	31.49	7.40	37.18	100	66	Average
5374	52.75	51.04	74	-21.25	31.49	7.40	37.18	100	66	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	39.40	38.12	54	-14.60	31.25	7.30	37.27	102	87	Average
5070	51.66	50.38	74	-22.34	31.25	7.30	37.27	102	87	Peak
5240	86.42	85.01			31.39	7.34	37.32	102	87	Average
5240	95.71	94.30			31.39	7.34	37.32	102	87	Peak
5420	39.70	37.95	54	-14.3	31.53	7.40	37.18	102	87	Average
5420	52.02	50.27	74	-21.98	31.53	7.40	37.18	102	87	Peak

**REMARKS:** 5240MHz: Fundamental frequency.



A D T

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
5132	39.66	38.31	54	-14.34	31.31	7.34	37.3	100	73	Average
5132	51.77	50.42	74	-22.23	31.31	7.34	37.3	100	73	Peak
5260	91.86	90.36			31.41	7.36	37.27	100	73	Average
5260	100.72	99.22			31.41	7.36	37.27	100	73	Peak
5350	40.31	38.61	54	-13.69	31.48	7.40	37.18	100	73	Average
5350	53.18	51.48	74	-20.82	31.48	7.40	37.18	100	73	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
5052	39.44	38.2	54	-14.56	31.24	7.25	37.25	100	87	Average
5052	52.22	50.98	74	-21.78	31.24	7.25	37.25	100	87	Peak
5260	85.70	84.20			31.41	7.36	37.27	100	87	Average
5260	95.24	93.74			31.41	7.36	37.27	100	87	Peak
5428	39.78	37.91	54	-14.22	31.53	7.47	37.13	100	87	Average
5428	52.46	50.59	74	-21.54	31.53	7.47	37.13	100	87	Peak

**REMARKS:** 5260MHz: Fundamental frequency.



A D T

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
5106	39.55	38.19	54	-14.45	31.29	7.35	37.28	100	78	Average
5106	51.78	50.42	74	-22.22	31.29	7.35	37.28	100	78	Peak
5300	89.87	88.22			31.44	7.40	37.19	100	78	Average
5300	99.12	97.47			31.44	7.40	37.19	100	78	Peak
5382	42.75	41.02	54	-11.25	31.51	7.40	37.18	100	78	Average
5382	53.33	51.60	74	-20.67	31.51	7.40	37.18	100	78	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
5110	39.56	38.20	54	-14.44	31.29	7.35	37.28	103	187	Average
5110	52.31	50.95	74	-21.69	31.29	7.35	37.28	103	187	Peak
5300	88.04	86.39			31.44	7.40	37.19	103	187	Average
5300	98.48	96.83			31.44	7.40	37.19	103	187	Peak
5382	41.20	39.47	54	-12.80	31.51	7.40	37.18	103	187	Average
5382	52.26	50.53	74	-21.74	31.51	7.40	37.18	103	187	Peak

REMARKS: 5300MHz: Fundamental frequency.



A D T

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
5148	39.65	38.32	54	-14.35	31.32	7.33	37.32	100	39	Average
5148	51.25	49.92	74	-22.75	31.32	7.33	37.32	100	39	Peak
5320	90.46	88.8			31.45	7.40	37.19	100	39	Average
5320	99.55	97.89			31.45	7.40	37.19	100	39	Peak
5402	43.34	41.60	54	-10.66	31.52	7.40	37.18	100	39	Average
5402	55.92	54.18	74	-18.08	31.52	7.40	37.18	100	39	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
5074	39.47	38.17	54	-14.53	31.27	7.30	37.27	102	186	Average
5074	51.28	49.98	74	-22.72	31.27	7.30	37.27	102	186	Peak
5320	87.26	85.60			31.45	7.40	37.19	102	186	Average
5320	96.98	95.32			31.45	7.40	37.19	102	186	Peak
5392	40.72	38.99	54	-13.28	31.51	7.40	37.18	102	186	Average
5392	52.54	50.81	74	-21.46	31.51	7.40	37.18	102	186	Peak

**REMARKS:** 5320MHz: Fundamental frequency.



A D T

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
5426	41.18	39.31	54.0	-12.82	31.53	7.47	37.13	100	71	Average
5426	52.66	50.79	74.0	-21.34	31.53	7.47	37.13	100	71	Peak
5470	50.88	48.86	68.3	-17.42	31.57	7.53	37.08	100	71	Peak
5500	88.19	86.03			31.60	7.59	37.03	100	71	Average
5500	97.37	95.21			31.60	7.59	37.03	100	71	Peak
5725	50.50	48.26	68.3	-17.80	31.96	7.71	37.43	100	71	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
5424	40.33	38.58	54.0	-13.67	31.53	7.40	37.18	100	94	Average
5424	53.65	51.90	74.0	-20.35	31.53	7.40	37.18	100	94	Peak
5470	51.83	49.81	68.3	-16.47	31.57	7.53	37.08	100	94	Peak
5500	84.85	82.69			31.60	7.59	37.03	100	94	Average
5500	94.44	92.28			31.60	7.59	37.03	100	94	Peak
5725	52.96	50.72	68.3	-15.34	31.96	7.71	37.43	100	94	Peak

**REMARKS:**

1. 5500MHz: Fundamental frequency.
2. 5470MHz & 5725MHz: Out of restricted band



A D T

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
5460	40.11	38.10	54.0	-13.89	31.56	7.53	37.08	105	27	Average
5460	51.17	49.16	74.0	-22.83	31.56	7.53	37.08	105	27	Peak
5470	50.87	48.85	68.3	-17.43	31.57	7.53	37.08	105	27	Peak
5580	88.12	86.00			31.71	7.57	37.16	105	27	Average
5580	98.11	95.99			31.71	7.57	37.16	105	27	Peak
5725	50.85	48.61	68.3	-17.45	31.96	7.71	37.43	105	27	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	39.63	37.62	54.0	-14.37	31.56	7.53	37.08	112	41	Average
5460	49.23	47.22	74.0	-24.77	31.56	7.53	37.08	112	41	Peak
5470	49.56	47.54	68.3	-18.74	31.57	7.53	37.08	112	41	Peak
5580	86.02	83.9			31.71	7.57	37.16	112	41	Average
5580	95.50	93.38			31.71	7.57	37.16	112	41	Peak
5725	52.16	49.92	68.3	-16.14	31.96	7.71	37.43	112	41	Peak

**REMARKS:**

1. 5580MHz: Fundamental frequency.
2. 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	40.05	38.04	54.0	-13.95	31.56	7.53	37.08	100	27	Average
5460	49.33	47.32	74.0	-24.67	31.56	7.53	37.08	100	27	Peak
5470	48.82	46.80	68.3	-19.48	31.57	7.53	37.08	100	27	Peak
5700	89.31	87.12			31.90	7.69	37.40	100	27	Average
5700	98.74	96.55			31.90	7.69	37.40	100	27	Peak
5725	53.91	51.67	68.3	-14.39	31.96	7.71	37.43	100	27	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	39.65	37.64	54.0	-14.35	31.56	7.53	37.08	100	44	Average
5460	49.41	47.4	74.0	-24.59	31.56	7.53	37.08	100	44	Peak
5470	48.87	46.85	68.3	-19.43	31.57	7.53	37.08	100	44	Peak
5700	85.55	83.36			31.90	7.69	37.40	100	44	Average
5700	95.19	93.00			31.90	7.69	37.40	100	44	Peak
5725	52.72	50.48	68.3	-15.58	31.96	7.71	37.43	100	44	Peak

**REMARKS:**

1. 5700MHz: Fundamental frequency.
2. 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
5150	42.28	40.95	54	-11.72	31.32	7.33	37.32	100	111	Average
5150	51.63	50.30	74	-22.37	31.32	7.33	37.32	100	111	Peak
5190	85.95	84.62			31.35	7.32	37.34	100	111	Average
5190	94.55	93.22			31.35	7.32	37.34	100	111	Peak
5350	39.47	37.77	54	-14.53	31.48	7.4	37.18	100	111	Average
5350	49.09	47.39	74	-24.91	31.48	7.4	37.18	100	111	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	40.07	38.74	54	-13.93	31.32	7.33	37.32	100	183	Average
5150	49.35	48.02	74	-24.65	31.32	7.33	37.32	100	183	Peak
5190	77.49	76.16			31.35	7.32	37.34	100	183	Average
5190	86.93	85.60			31.35	7.32	37.34	100	183	Peak
5350	39.34	37.64	54	-14.66	31.48	7.4	37.18	100	183	Average
5350	49.35	47.65	74	-24.65	31.48	7.4	37.18	100	183	Peak

REMARKS: 5190MHz: Fundamental frequency.



A D T

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
5150	41.74	40.41	54	-12.26	31.32	7.33	37.32	113	121	Average
5150	50.94	49.61	74	-23.06	31.32	7.33	37.32	113	121	Peak
5230	85.22	83.81			31.39	7.34	37.32	113	121	Average
5230	93.12	91.71			31.39	7.34	37.32	113	121	Peak
5450	39.85	37.84	54	-14.15	31.56	7.53	37.08	113	121	Average
5450	51.40	49.39	74	-22.60	31.56	7.53	37.08	113	121	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	39.44	38.11	54	-14.56	31.32	7.33	37.32	100	21	Average
5150	49.14	47.81	74	-24.86	31.32	7.33	37.32	100	21	Peak
5230	76.66	75.25			31.39	7.34	37.32	100	21	Average
5230	85.75	84.34			31.39	7.34	37.32	100	21	Peak
5350	39.55	37.85	54	-14.45	31.48	7.4	37.18	100	21	Average
5350	49.37	47.67	74	-24.63	31.48	7.4	37.18	100	21	Peak

REMARKS: 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
5090	39.73	38.42	54	-14.27	31.28	7.3	37.27	123	120	Average
5090	51.31	50	74	-22.69	31.28	7.3	37.27	123	120	Peak
5270	85.33	83.83			31.41	7.36	37.27	123	120	Average
5270	94.79	93.29			31.41	7.36	37.27	123	120	Peak
5440	40.03	38.14	54	-13.97	31.55	7.47	37.13	123	120	Average
5440	51.61	49.72	74	-22.39	31.55	7.47	37.13	123	120	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
5052	39.70	38.46	54	-14.30	31.24	7.25	37.25	102	92	Average
5052	51.49	50.25	74	-22.51	31.24	7.25	37.25	102	92	Peak
5270	80.92	79.42			31.41	7.36	37.27	102	92	Average
5270	90.37	88.87			31.41	7.36	37.27	102	92	Peak
5456	40.03	38.02	54	-13.97	31.56	7.53	37.08	102	92	Average
5456	51.08	49.07	74	-22.92	31.56	7.53	37.08	102	92	Peak

**REMARKS:** 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
5018	39.53	38.37	54	-14.47	31.21	7.19	37.24	112	58	Average
5018	50.92	49.76	74	-23.08	31.21	7.19	37.24	112	58	Peak
5310	85.24	83.58			31.45	7.4	37.19	112	58	Average
5310	94.60	92.94			31.45	7.4	37.19	112	58	Peak
5438	40.44	38.55	54	-13.56	31.55	7.47	37.13	112	58	Average
5438	52.35	50.46	74	-21.65	31.55	7.47	37.13	112	58	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
5032	39.67	38.49	54	-14.33	31.23	7.19	37.24	101	92	Average
5032	50.97	49.79	74	-23.03	31.23	7.19	37.24	101	92	Peak
5310	81.00	79.34			31.45	7.4	37.19	101	92	Average
5310	90.38	88.72			31.45	7.4	37.19	101	92	Peak
5368	39.91	38.20	54	-14.09	31.49	7.4	37.18	101	92	Average
5368	51.10	49.39	74	-22.90	31.49	7.4	37.18	101	92	Peak

**REMARKS:** 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
5430	40.13	38.24	54.0	-13.87	31.55	7.47	37.13	100	22	Average
5430	52.10	50.21	74.0	-21.90	31.55	7.47	37.13	100	22	Peak
5470	52.02	50.00	68.3	-16.28	31.57	7.53	37.08	100	22	Peak
5510	81.77	79.64			31.60	7.59	37.06	100	22	Average
5510	91.25	89.12			31.60	7.59	37.06	100	22	Peak
5725	49.69	47.45	68.3	-18.61	31.96	7.71	37.43	100	22	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	40.12	38.11	54.0	-13.88	31.56	7.53	37.08	109	90	Average
5460	51.76	49.75	74.0	-22.24	31.56	7.53	37.08	109	90	Peak
5470	50.83	48.81	68.3	-17.47	31.57	7.53	37.08	109	90	Peak
5510	79.04	76.91			31.60	7.59	37.06	109	90	Average
5510	88.79	86.66			31.60	7.59	37.06	109	90	Peak
5725	50.29	48.05	68.3	-18.01	31.96	7.71	37.43	109	90	Peak

**REMARKS:**

1. 5510MHz: Fundamental frequency.
2. 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
5392	40.04	38.31	54.0	-13.96	31.51	7.4	37.18	107	57	Average
5392	52.01	50.28	74.0	-21.99	31.51	7.4	37.18	107	57	Peak
5470	50.76	48.74	68.3	-17.54	31.57	7.53	37.08	107	57	Peak
5550	83.31	81.14			31.68	7.58	37.09	107	57	Average
5550	93.36	91.19			31.68	7.58	37.09	107	57	Peak
5725	51.4	49.16	68.3	-16.90	31.96	7.71	37.43	107	57	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
5442	39.95	38.06	54.0	-14.05	31.55	7.47	37.13	110	96	Average
5442	51.21	49.32	74.0	-22.79	31.55	7.47	37.13	110	96	Peak
5470	49.84	47.82	68.3	-18.46	31.57	7.53	37.08	110	96	Peak
5550	79.95	77.78			31.68	7.58	37.09	110	96	Average
5550	89.88	87.71			31.68	7.58	37.09	110	96	Peak
5725	51.52	49.28	68.3	-16.78	31.96	7.71	37.43	110	96	Peak

**REMARKS:**

1. 5550MHz: Fundamental frequency.
2. 5470MHz & 5725MHz: Out of restricted band



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
5394	39.86	38.13	54.0	-14.14	31.51	7.4	37.18	102	34	Average
5394	52.73	51.00	74.0	-21.27	31.51	7.4	37.18	102	34	Peak
5470	50.13	48.11	68.3	-18.17	31.57	7.53	37.08	102	34	Peak
5670	83.18	80.98			31.88	7.66	37.34	102	34	Average
5670	92.49	90.29			31.88	7.66	37.34	102	34	Peak
5725	50.46	48.22	68.3	-17.84	31.96	7.71	37.43	102	34	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	39.80	37.91	54.0	-14.20	31.55	7.47	37.13	100	12	Average
5444	51.93	50.04	74.0	-22.07	31.55	7.47	37.13	100	12	Peak
5470	51.70	49.68	68.3	-16.60	31.57	7.53	37.08	100	12	Peak
5670	80.47	78.27			31.88	7.66	37.34	100	12	Average
5670	90.00	87.80			31.88	7.66	37.34	100	12	Peak
5725	50.84	48.60	68.3	-17.46	31.96	7.71	37.43	100	12	Peak

**REMARKS:**

1. 5670MHz: Fundamental frequency.
2. 5470MHz & 5725MHz: Out of restricted band

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
5140	43.97	42.61	54	-10.03	31.32	7.34	37.3	100	44	Average
5140	54.52	53.16	74	-19.48	31.32	7.34	37.3	100	44	Peak
5210	87.99	86.66			31.37	7.32	37.36	100	44	Average
5210	92.26	90.93			31.37	7.32	37.36	100	44	Peak
5440	40.58	38.69	54	-13.42	31.55	7.47	37.13	100	44	Average
5440	51.5	49.61	74	-22.50	31.55	7.47	37.13	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
5026	40.9	39.72	54	-13.10	31.23	7.19	37.24	101	57	Average
5026	51.53	50.35	74	-22.47	31.23	7.19	37.24	101	57	Peak
5210	79.18	77.85			31.37	7.32	37.36	101	57	Average
5210	83.55	82.22			31.37	7.32	37.36	101	57	Peak
5428	40.6	38.73	54	-13.40	31.53	7.47	37.13	101	57	Average
5428	52.58	50.71	74	-21.42	31.53	7.47	37.13	101	57	Peak

REMARKS: 5210MHz: Fundamental frequency.



A D T

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
5146	40.58	39.25	54	-13.42	31.32	7.33	37.32	100	44	Average
5146	51.42	50.09	74	-22.58	31.32	7.33	37.32	100	44	Peak
5290	90.89	89.31			31.43	7.38	37.23	100	44	Average
5290	95.03	93.45			31.43	7.38	37.23	100	44	Peak
5354	41.34	39.64	54	-12.66	31.48	7.4	37.18	100	44	Average
5354	56.46	54.76	74	-17.54	31.48	7.4	37.18	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
5096	40.42	39.07	54	-13.58	31.28	7.35	37.28	114	91	Average
5096	51.54	50.19	74	-22.46	31.28	7.35	37.28	114	91	Peak
5290	86.88	85.30			31.43	7.38	37.23	114	91	Average
5290	90.11	88.53			31.43	7.38	37.23	114	91	Peak
5362	40.72	39.01	54	-13.28	31.49	7.4	37.18	114	91	Average
5362	55.45	53.74	74	-18.55	31.49	7.4	37.18	114	91	Peak

REMARKS: 5290MHz: Fundamental frequency.



A D T

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
5460	41.54	39.53	54.0	-12.46	31.56	7.53	37.08	100	23	Average
5460	55.16	53.15	74.0	-18.84	31.56	7.53	37.08	100	23	Peak
5470	56.15	54.13	68.3	-12.15	31.57	7.53	37.08	100	23	Peak
5530	86.33	84.21			31.63	7.58	37.09	100	23	Average
5530	87.54	85.42			31.63	7.58	37.09	100	23	Peak
5725	51.14	48.90	68.3	-17.16	31.96	7.71	37.43	100	23	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
5442	41.49	39.60	54.0	-12.51	31.55	7.47	37.13	111	94	Average
5442	53.35	51.46	74.0	-20.65	31.55	7.47	37.13	111	94	Peak
5470	52.95	50.93	68.3	-15.35	31.57	7.53	37.08	111	94	Peak
5530	85.98	83.86			31.63	7.58	37.09	111	94	Average
5530	90.24	88.12			31.63	7.58	37.09	111	94	Peak
5725	52.72	50.48	68.3	-15.58	31.96	7.71	37.43	111	94	Peak

REMARKS: 5530MHz: Fundamental frequency.



**A D T**

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	30MHz ~ 1GHz
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
133.68	23.08	41.66	43.5	-20.42	11.94	1.26	31.78	113	127	Peak
170.67	19.26	37.88	43.5	-24.24	11.67	1.45	31.74	102	159	Peak
170.67	19.26	37.88	43.5	-24.24	11.67	1.45	31.74	104	95	Peak
378.4	21.11	35.89	46.0	-24.89	14.82	2.34	31.94	103	237	Peak
741.7	26.12	32.60	46.0	-19.88	21.41	3.55	31.44	105	164	Peak
908.3	28.80	33.31	46.0	-17.2	23.55	3.98	32.04	111	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
30	32.39	50.98	40.0	-7.61	11.98	0.57	31.14	101	96	Peak
41.88	30.29	47.10	40.0	-9.71	13.56	0.68	31.05	104	128	Peak
204.42	23.17	43.68	43.5	-20.33	9.56	1.62	31.69	112	129	Peak
458.9	20.56	33.40	46.0	-25.44	16.50	2.65	31.99	105	151	Peak
633.2	24.68	33.60	46.0	-21.32	20.01	3.19	32.12	107	176	Peak
826.4	27.59	32.94	46.0	-18.41	22.57	3.76	31.68	112	165	Peak

## 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. 09, 2012	Nov. 08, 2013
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 28, 2012	Dec. 27, 2013
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 21, 2012	Dec. 20, 2013
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 06, 2012	Jul. 05, 2013
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

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

### 4.2.3 TEST PROCEDURES

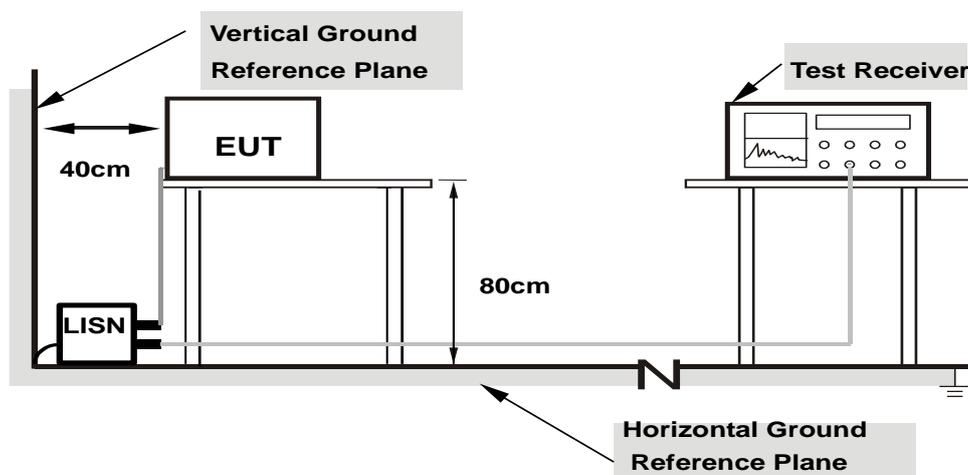
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

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

### 4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

### 4.2.5 TEST SETUP



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

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

### 4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

## 4.2.7 TEST RESULTS

### CONDUCTED WORST-CASE DATA :

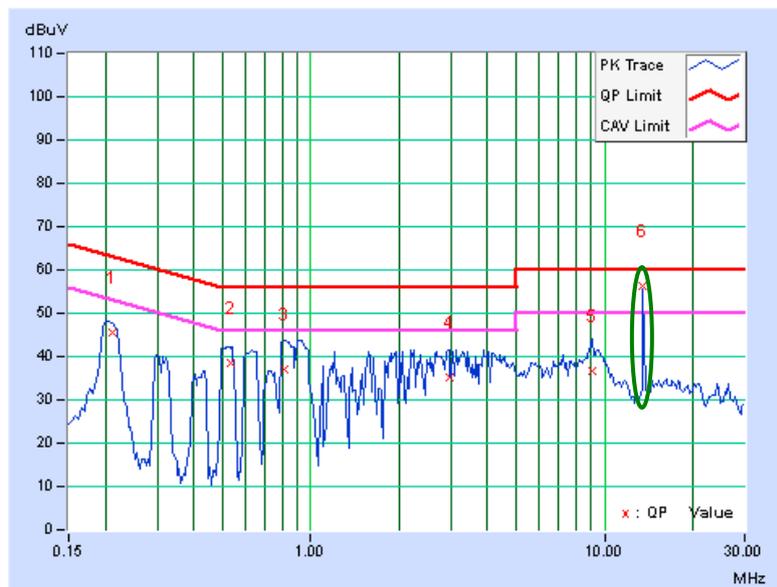
802.11n (20MHz)

PHASE	Line 1	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	0.21250	0.12	45.52	37.43	45.64	37.55	63.11
2	0.53281	0.16	38.18	25.59	38.34	25.75	56.00	46.00	-17.66	-20.25
3	0.81406	0.19	36.90	19.44	37.09	19.63	56.00	46.00	-18.91	-26.37
4	2.95313	0.29	35.07	19.68	35.36	19.97	56.00	46.00	-20.64	-26.03
5	9.05078	0.60	36.03	28.94	36.63	29.54	60.00	50.00	-23.37	-20.46
6	13.55859	0.86	55.29	54.78	56.15	55.64	60.00	50.00	-3.85	5.64

### REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.
6. No. 6 is NFC signal inductive with measurement system. Please check the test result for EUT with a suitable dummy load.

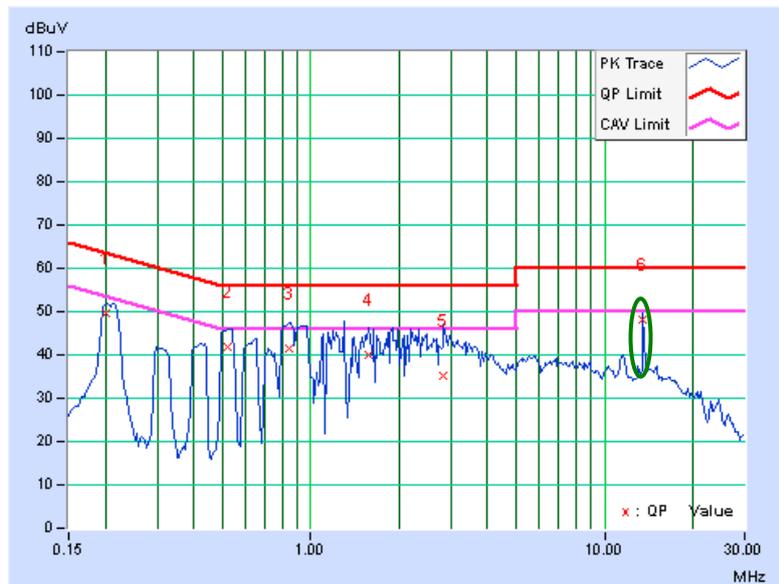


<b>PHASE</b>	Line 2	<b>6dB BANDWIDTH</b>	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			<b>1</b>	<b>0.20078</b>	<b>0.17</b>	<b>49.49</b>	<b>40.33</b>	<b>49.66</b>	<b>40.50</b>	<b>63.58</b>
2	0.52109	0.22	41.77	28.59	41.99	28.81	56.00	46.00	-14.01	-17.19
3	0.84922	0.24	41.35	25.80	41.59	26.04	56.00	46.00	-14.41	-19.96
4	1.58203	0.27	39.59	22.76	39.86	23.03	56.00	46.00	-16.14	-22.97
5	2.83984	0.32	34.91	21.73	35.23	22.05	56.00	46.00	-20.77	-23.95
6	13.55859	0.71	47.62	46.66	48.33	47.37	60.00	50.00	-11.67	-2.63

**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.
6. No. 6 is NFC signal inductive with measurement system. Please check the test result for EUT with a suitable dummy load.



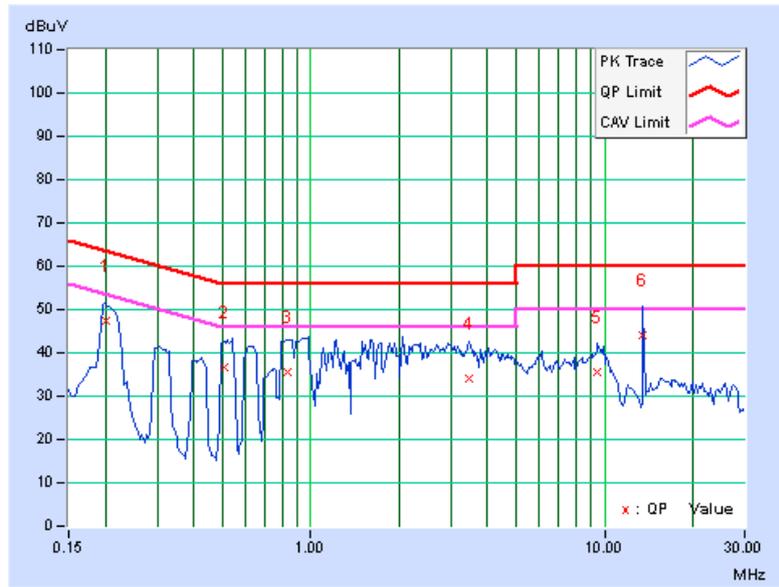
**Test with suitable dummy load**

<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	0.20078	0.12	47.47	33.82	47.59	33.94	63.58	53.58	-15.99	-19.64
2	0.50938	0.16	36.51	21.61	36.67	21.77	56.00	46.00	-19.33	-24.23
3	0.83359	0.19	35.25	16.90	35.44	17.09	56.00	46.00	-20.56	-28.91
4	3.47266	0.32	33.69	20.76	34.01	21.08	56.00	46.00	-21.99	-24.92
5	9.49609	0.62	34.99	28.76	35.61	29.38	60.00	50.00	-24.39	-20.62
6	13.55859	0.86	43.07	42.37	43.93	43.23	60.00	50.00	-16.07	-6.77

**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.

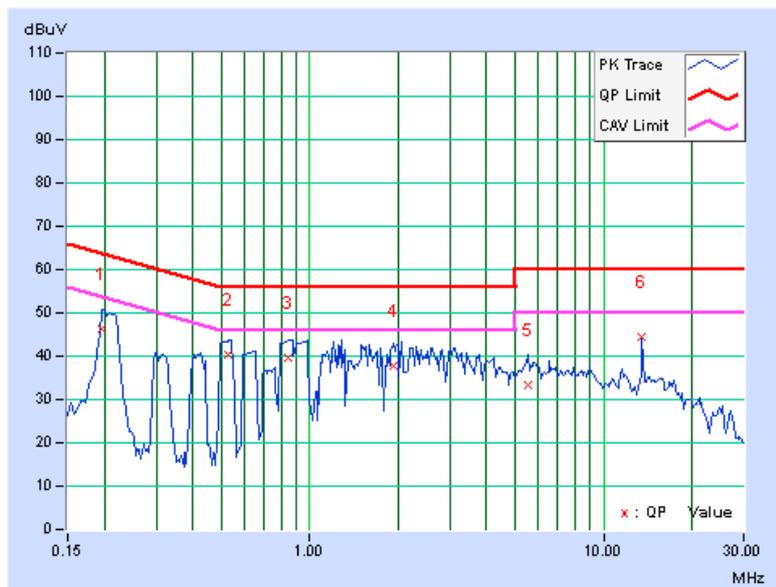


PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.19687	0.17	46.31	32.63	46.48	32.80	63.74
2	0.52500	0.22	40.32	26.77	40.54	26.99	56.00	46.00	-15.46	-19.01
3	0.84922	0.24	39.42	23.19	39.66	23.43	56.00	46.00	-16.34	-22.57
4	1.91797	0.28	37.62	22.41	37.90	22.69	56.00	46.00	-18.10	-23.31
5	5.56250	0.43	32.98	22.27	33.41	22.70	60.00	50.00	-26.59	-27.30
6	13.55859	0.71	43.55	42.55	44.26	43.26	60.00	50.00	-15.74	-6.74

**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

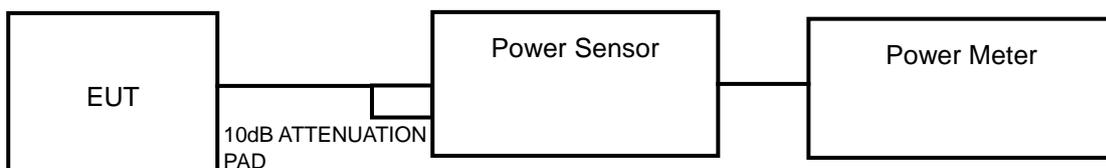
#### 4.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT

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

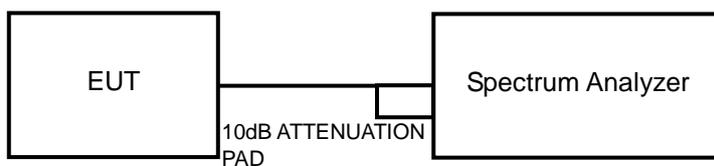
**NOTE:** Where B is the 26dB emission bandwidth in MHz.

#### 4.3.2 TEST SETUP

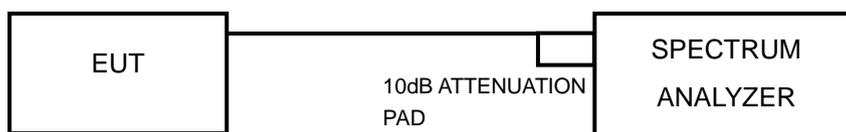
##### FOR POWER OUTPUT MEASUREMENT



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

##### FOR AVERAGE POWER MEASUREMENT

<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.

<802.11 ac (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.

#### 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	36.644	15.64	17	PASS
44	5220	37.931	15.79	17	PASS
48	5240	40.087	16.03	17	PASS
52	5260	35.645	15.52	24	PASS
60	5300	37.068	15.69	24	PASS
64	5320	37.154	15.70	24	PASS
100	5500	34.834	15.42	24	PASS
116	5580	36.728	15.65	24	PASS
140	5700	35.645	15.52	24	PASS

##### 802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	35.237	15.47	17	PASS
44	5220	38.994	15.91	17	PASS
48	5240	40.738	16.10	17	PASS
52	5260	35.481	15.50	24	PASS
60	5300	37.068	15.69	24	PASS
64	5320	38.282	15.83	24	PASS
100	5500	34.594	15.39	24	PASS
116	5580	36.392	15.61	24	PASS
140	5700	36.559	15.63	24	PASS

##### 802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
38	5190	21.429	13.31	17	PASS
46	5230	23.442	13.70	17	PASS
54	5270	22.233	13.47	24	PASS
62	5310	23.659	13.74	24	PASS
102	5510	21.677	13.36	24	PASS
110	5550	21.627	13.35	24	PASS
134	5670	22.646	13.55	24	PASS



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### 802.11ac (80MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
42	5210	21.979	13.42	17	PASS
58	5290	23.714	13.75	24	PASS
106	5530	19.409	12.88	24	PASS



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### 26dB BANDWIDTH: 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
36	5180	20.96	PASS
44	5220	20.95	PASS
48	5240	21.00	PASS
52	5260	21.04	PASS
60	5300	20.96	PASS
64	5320	21.03	PASS
100	5500	20.89	PASS
116	5580	20.83	PASS
140	5700	20.86	PASS

### 802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
36	5180	21.04	PASS
44	5220	21.36	PASS
48	5240	21.20	PASS
52	5260	21.35	PASS
60	5300	21.24	PASS
64	5320	21.17	PASS
100	5500	21.21	PASS
116	5580	21.18	PASS
140	5700	21.33	PASS

### 802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
38	5190	41.32	PASS
46	5230	41.32	PASS
54	5270	41.67	PASS
62	5310	41.31	PASS
102	5510	41.18	PASS
110	5550	41.46	PASS
134	5670	41.31	PASS



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802.11ac (80MHz)

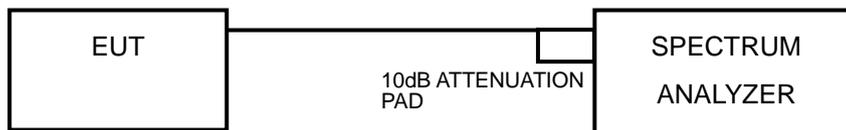
CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
42	5210	83.60	PASS
58	5290	83.60	PASS
106	5530	84.60	PASS

## 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 (20MHz), 802.11n (40MHz)>

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)

<802.11ac (80MHz)>

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 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	3.08	0.21	3.29	4	PASS
44	5220	3.42	0.21	3.63	4	PASS
48	5240	3.74	0.21	3.95	4	PASS
52	5260	3.51	0.21	3.72	11	PASS
60	5300	3.69	0.21	3.90	11	PASS
64	5320	3.86	0.21	4.07	11	PASS
100	5500	3.66	0.21	3.87	11	PASS
116	5580	3.85	0.21	4.06	11	PASS
140	5700	3.29	0.21	3.50	11	PASS

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

##### 802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	PSD WITH DUTY FACTOR (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	2.92	0.23	3.15	4	PASS
44	5220	3.29	0.23	3.52	4	PASS
48	5240	3.40	0.23	3.63	4	PASS
52	5260	3.33	0.23	3.56	11	PASS
60	5300	3.45	0.23	3.68	11	PASS
64	5320	3.53	0.23	3.76	11	PASS
100	5500	3.43	0.23	3.66	11	PASS
116	5580	3.48	0.23	3.71	11	PASS
140	5700	2.96	0.23	3.19	11	PASS

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



**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	-2.12	0.50	-1.62	4	PASS
46	5230	-1.49	0.50	-0.99	4	PASS
54	5270	-1.85	0.50	-1.35	11	PASS
62	5310	-1.46	0.50	-0.96	11	PASS
102	5510	-1.62	0.50	-1.12	11	PASS
110	5550	-1.18	0.50	-0.68	11	PASS
134	5670	-1.82	0.50	-1.32	11	PASS

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

**802.11ac (80MHz)**

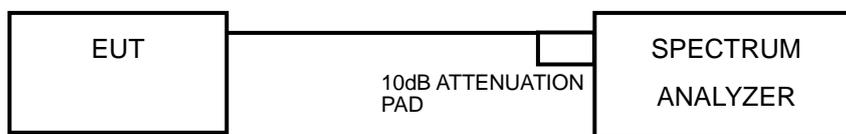
CHANNEL	FREQUENCY (MHz)	PSD (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
42	5210	-3.50	4	PASS
58	5290	-3.42	11	PASS
106	5530	-4.38	11	PASS

## 4.5 PEAK POWER EXCURSION MEASUREMENT

### 4.5.1 LIMITS OF PEAK POWER EXCURSION 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

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

### 4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

### 4.5.6 EUT OPERATING CONDITIONS

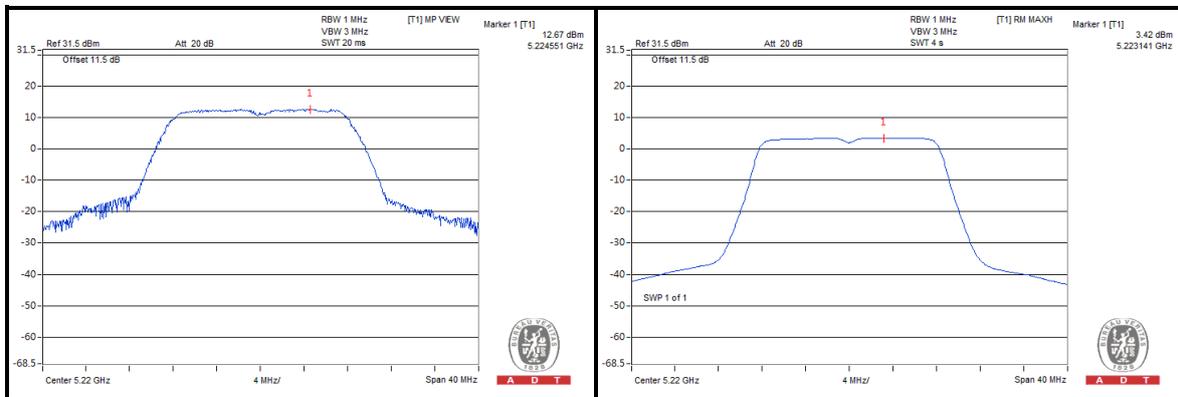
Same as 4.2.6

### 4.5.7 TEST RESULTS

#### 802.11a

CHAN.	CHANNEL FREQUENCY (MHz)	PEAK VALUE (dBm)	PPSD WITHOUT DUTY FACTOR (dBm)	PPSD WITH DUTY FACTOR (dBm)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS /FAIL
36	5180	11.91	3.08	3.29	8.62	13	PASS
44	5220	12.67	3.42	3.63	9.04	13	PASS
48	5240	12.59	3.74	3.95	8.64	13	PASS
52	5260	12.04	3.51	3.72	8.32	13	PASS
60	5300	12.51	3.69	3.90	8.61	13	PASS
64	5320	12.64	3.86	4.07	8.57	13	PASS
100	5500	12.46	3.66	3.87	8.59	13	PASS
116	5580	12.62	3.85	4.06	8.56	13	PASS
140	5700	12.03	3.29	3.50	8.53	13	PASS

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

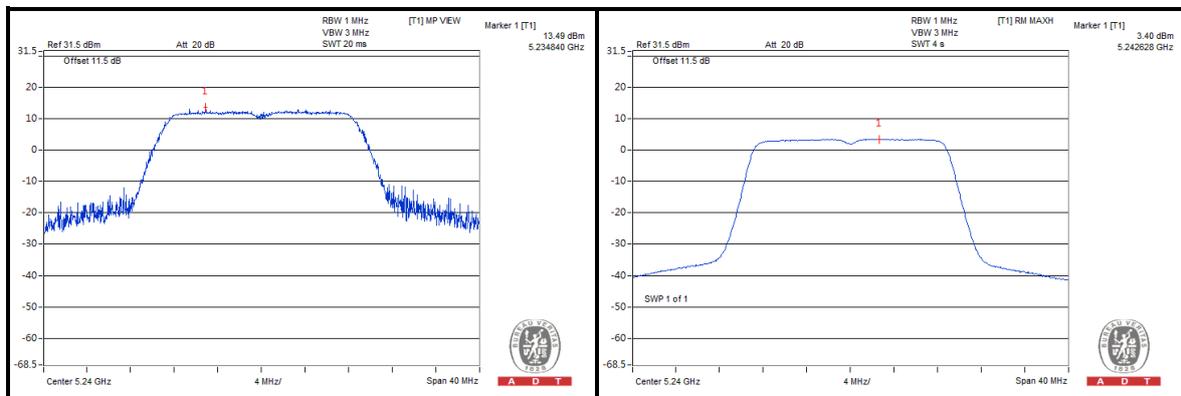




### 802.11n (20MHz)

CHAN.	CHANNEL FREQUENCY (MHz)	PEAK VALUE (dBm)	PPSD WITHOUT DUTY FACTOR (dBm)	PPSD WITH DUTY FACTOR (dBm)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS /FAIL
36	5180	12.71	2.92	3.15	9.56	13	PASS
44	5220	13.13	3.29	3.52	9.61	13	PASS
48	5240	13.49	3.40	3.63	9.86	13	PASS
52	5260	13.41	3.33	3.56	9.85	13	PASS
60	5300	12.85	3.45	3.68	9.17	13	PASS
64	5320	13.50	3.53	3.76	9.74	13	PASS
100	5500	12.80	3.43	3.66	9.14	13	PASS
116	5580	13.49	3.48	3.71	9.78	13	PASS
140	5700	12.12	2.96	3.19	8.93	13	PASS

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

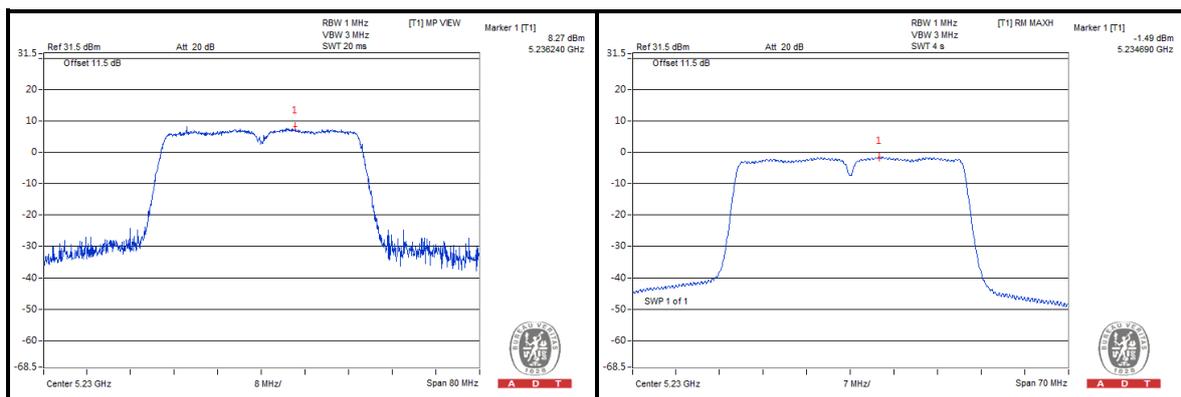




### 802.11n (40MHz)

CHAN.	CHANNEL FREQUENCY (MHz)	PEAK VALUE (dBm)	PPSD WITHOUT DUTY FACTOR (dBm)	PPSD WITH DUTY FACTOR (dBm)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS /FAIL
38	5190	7.57	-2.12	-1.62	9.19	13	PASS
46	5230	8.27	-1.49	-0.99	9.26	13	PASS
54	5270	7.58	-1.85	-1.35	8.93	13	PASS
62	5310	7.85	-1.46	-0.96	8.81	13	PASS
102	5510	7.61	-1.62	-1.12	8.73	13	PASS
110	5550	8.03	-1.18	-0.68	8.71	13	PASS
134	5670	7.83	-1.82	-1.32	9.15	13	PASS

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

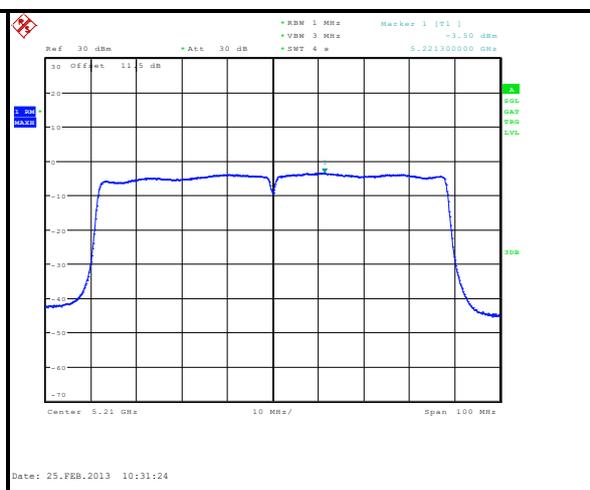
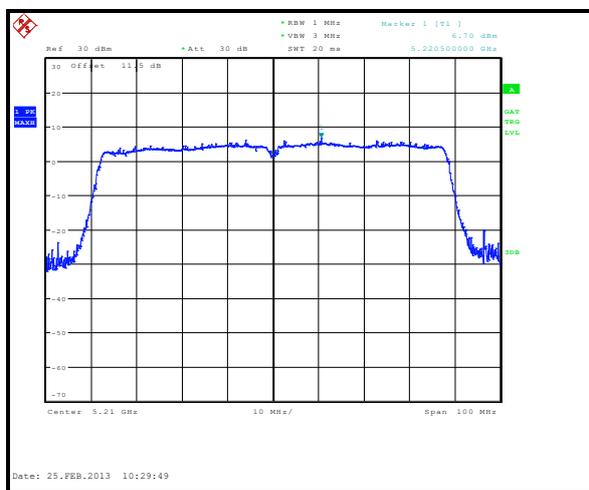




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### 802.11ac (80MHz)

CHAN.	CHANNEL FREQUENCY (MHz)	PEAK VALUE (dBm)	PPSD (dBm)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS /FAIL
42	5210	6.70	-3.50	10.20	13	PASS
58	5290	6.73	-3.42	10.15	13	PASS
106	5530	5.82	-4.38	10.20	13	PASS

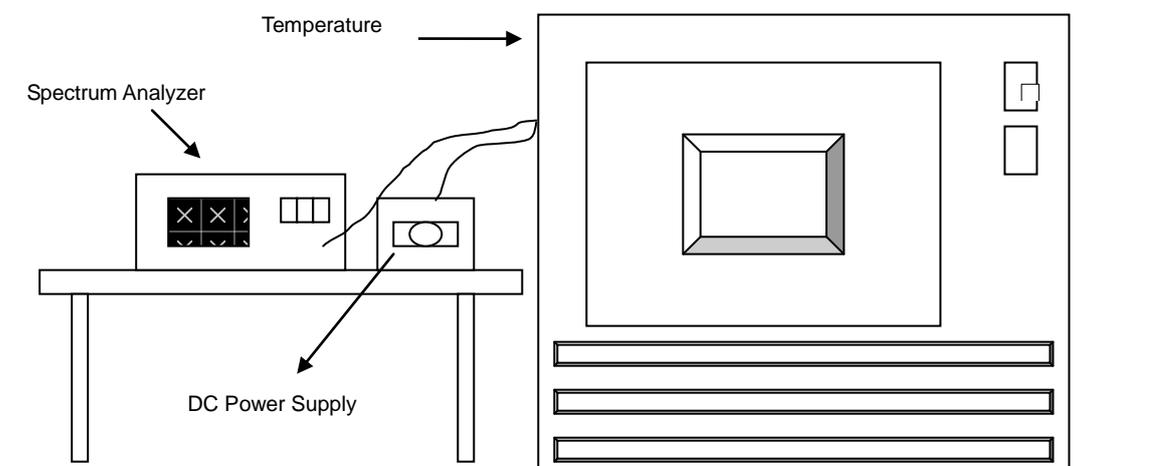


## 4.6 FREQUENCY STABILITY

### 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.

#### 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)
60	3.8	5320.015372	2.889	5320.015311	2.878	5320.014954	2.811	5320.014907	2.802
50	3.8	5320.015056	2.830	5320.015707	2.952	5320.015203	2.858	5320.015504	2.914
40	3.8	5320.016664	3.132	5320.017005	3.196	5320.016931	3.183	5320.016641	3.128
30	3.8	5320.018004	3.384	5320.018059	3.395	5320.018209	3.423	5320.018078	3.398
20	3.8	5320.018217	3.424	5320.018275	3.435	5320.018189	3.419	5320.018559	3.489
10	3.8	5320.018013	3.386	5320.018400	3.459	5320.017973	3.378	5320.018059	3.395
0	3.8	5320.016716	3.142	5320.016443	3.091	5320.016268	3.058	5320.016618	3.124
-10	3.8	5320.015696	2.950	5320.016075	3.022	5320.015673	2.946	5320.016096	3.026
-20	3.8	5320.014858	2.793	5320.015218	2.861	5320.014861	2.793	5320.014865	2.794

FREQUENCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5320MHz									
TEMP. (°C)	POWER SUPPLY (Vac)	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	5320.017260	3.244	5320.017577	3.304	5320.017025	3.200	5320.016889	3.175
	3.8	5320.018217	3.424	5320.018275	3.435	5320.018189	3.419	5320.018559	3.489
	4.35	5320.019614	3.687	5320.019948	3.750	5320.019501	3.666	5320.020042	3.767

## 5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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



## 6. INFORMATION ON THE TESTING LABORATORIES

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

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

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

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

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

**---END---**