



FCC TEST REPORT (15.407)

REPORT NO.: RF130325C08-1

MODEL NO.: WI-U2-300D

FCC ID: FDI000000016

RECEIVED: Mar. 25, 2013

TESTED: Jun. 28 ~ Jul. 11, 2013

ISSUED: Jul. 25, 2013

APPLICANT: BUFFALO INC.

ADDRESS: Akamondori Bldg., 30-20, Ohsu 3-chome,
Naka-ku, Nagoya 460-8315, Japan

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
RF130325C08-1	Original release	Jul. 25, 2013



1. CERTIFICATION

PRODUCT: AirStation

MODEL: WI-U2-300D

BRAND: BUFFALO INC.

TRADE MARK: BUFFALO

APPLICANT: BUFFALO INC.

TESTED: Jun. 28 ~ Jul. 11, 2013

TEST SAMPLE: ENGINEERING SAMPLE

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

ANSI C63.10-2009

The above equipment (model: WI-U2-300D) 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 : Celine Chou , **DATE :** Jul. 25, 2013
Celine Chou / Specialist

APPROVED BY : Ken Liu , **DATE :** Jul. 25, 2013
Ken Liu / Senior Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407)			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
15.407(b)(6)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -11.27dB at 0.20631MHz.
15.407(b/1/2/3) (b)(6)	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -4.5dB at 5470.00, 11340.00MHz.
15.407(a/1/2)	Max Average Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(6)	Peak Power Excursion	PASS	Meet the requirement of limit.
15.407(a/1/2)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	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	3.19 dB
	200MHz ~ 1000MHz	3.21 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	AirStation
MODEL NO.	WI-U2-300D
POWER SUPPLY	5Vdc (host equipment)
MODULATION TYPE	64QAM, 16QAM, QPSK, BPSK
MODULATION TECHNOLOGY	OFDM
TRANSFER RATE	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300Mbps
OPERATING FREQUENCY	5150 ~ 5250MHz, 5250 ~ 5350MHz & 5470 ~ 5725MHz
NUMBER OF CHANNEL	5150 ~ 5250MHz: 4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz) 5250 ~ 5350MHz: 4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz) 5470 ~ 5725MHz: 8 for 802.11a, 802.11n (20MHz) 3 for 802.11n (40MHz)
OUTPUT POWER	44.683mW for 5150 ~ 5250MHz 58.890mW for 5250 ~ 5350MHz 53.595mW for 5470 ~ 5725MHz
ANTENNA TYPE	Refer to note as below
ANTENNA CONNECTOR	Refer to note as below
DATA CABLE	0.6m non-shielded USB Cable without core
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	NA

NOTE:

1. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

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

2. The antenna used in this EUT is listed as below table:

ANT_1				
TYPE	CONNECTOR	GAIN (dBi)		
		2400MHz	2450MHz	2500MHz
PIFA	N/A	0.36	0.53	0.36
		5150MHz	5250MHz	5350MHz
		3.96	3.86	3.59
		5450MHz	5550MHz	5725MHz
		4.06	4.50	2.96
		5775MHz	5825MHz	
		2.50	2.08	

ANT_2				
TYPE	CONNECTOR	GAIN (dBi)		
		2400MHz	2450MHz	2500MHz
PIFA	N/A	0.58	0.23	0.18
		5150MHz	5250MHz	5350MHz
		2.39	2.80	2.40
		5450MHz	5550MHz	5725MHz
		2.89	2.50	3.07
		5775MHz	5825MHz	
		2.76	2.89	

3. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 DESCRIPTION OF TEST MODES

FOR 5150 ~ 5250MHz

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

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

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	46	5230 MHz

FOR 5250 ~ 5350MHz

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

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

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
54	5270 MHz	62	5310 MHz

FOR 5470 ~ 5725MHz

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

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

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

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

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

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.

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

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11n (40MHz)	5180-5320	54 to 62	54	OFDM	BPSK	15.0
-	802.11a	5500-5700	100 to 140	140	OFDM	BPSK	6.0

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.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11n (40MHz)	5180-5320	54 to 62	54	OFDM	BPSK	15.0
-	802.11a	5500-5700	100 to 140	140	OFDM	BPSK	6.0

ANTENNA PORT CONDUCTED MEASUREMENT:

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

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

TEST CONDITION:

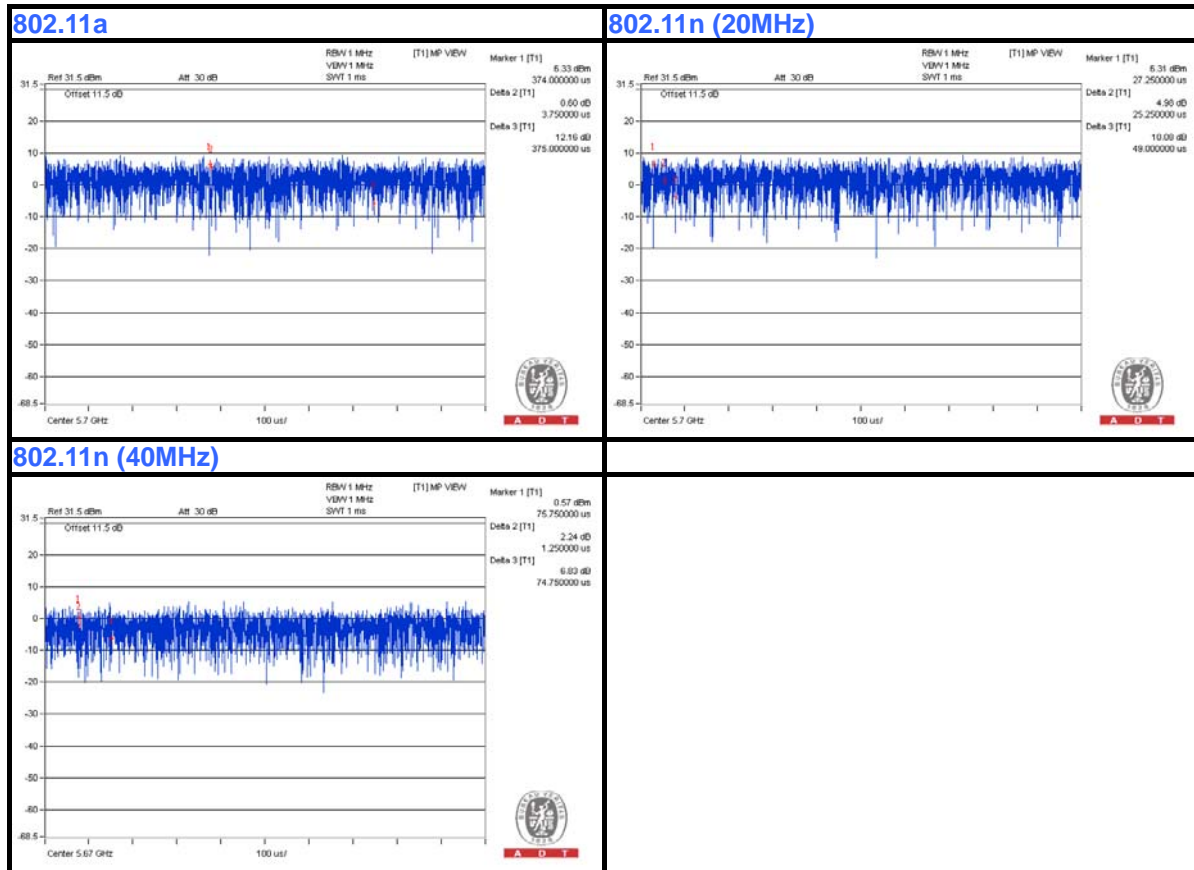
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE≥1G	25deg. C, 65%RH	120Vac, 60Hz	Martin Lee
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Martin Lee
PLC	25deg. C, 65%RH	120Vac, 60Hz	Chris Lin
APCM	25deg. C, 65%RH	120Vac, 60Hz	Nick Chen



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3.3 DUTY CYCLE OF TEST SIGNAL

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



3.4 DESCRIPTION OF SUPPORT UNITS

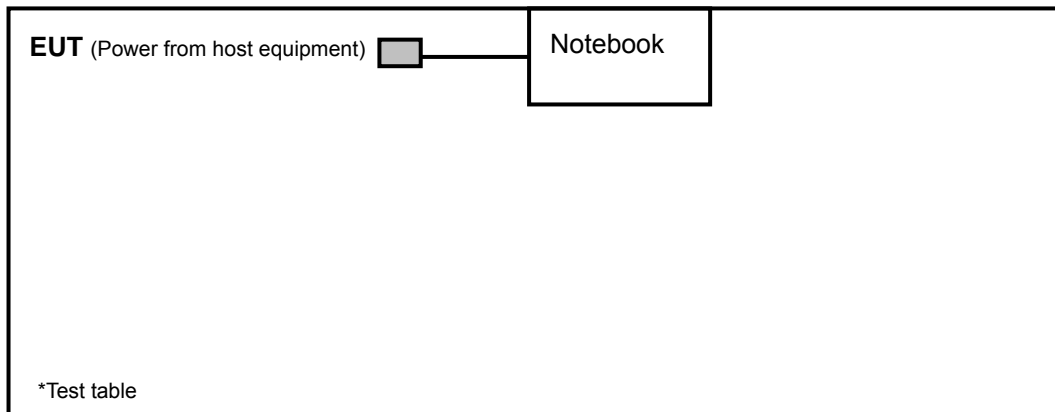
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	DELL	E5420	33MJMQ1	FCC Doc Approved

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

NOTE: All power cords of the above support units are non-shielded (1.8m).

3.4.1 CONFIGURATION OF SYSTEM UNDER TEST



3.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart E (15.407)

789033 D01 General UNII Test Procedures v01 r03

662911 D02 Multiple Transmitter Output v01

ANSI C63.10-2009

All test items have been performed and recorded as per the above standards.

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

4. TEST TYPES AND RESULTS

4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table:

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.1.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

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

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

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



4.1.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Aug. 21, 2012	Aug. 20, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSU 43	100115	Oct. 25, 2012	Oct. 24, 2013
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Mar. 25, 2013	Mar. 24, 2014
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-404	Dec. 22, 2012	Dec. 21, 2013
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 15, 2012	Jul. 14, 2013
Preamplifier Agilent	8449B	3008A01961	Oct. 25, 2012	Oct. 24, 2013
Preamplifier Agilent	8447D	2944A10738	Oct. 23, 2012	Oct. 22, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309220/4	Aug. 28, 2012	Aug. 27, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250724/4	Aug. 28, 2012	Aug. 27, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295012/4	Aug. 28, 2012	Aug. 27, 2013
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA	NA
Turn Table BV ADT	TT100.	TT93021704	NA	NA
Turn Table Controller BV ADT	SC100.	SC93021704	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 25, 2012	Oct. 24, 2013
High Speed Peak Power Meter	ML2495A	0824011	Jul. 30, 2012	Jul. 29, 2013
Power Sensor	MA2411B	0738171	Jul. 30, 2012	Jul. 29, 2013
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 13, 2013	Jun. 12, 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 test was performed in HwaYa Chamber 4.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Site Registration No. is 460141.
 5. The IC Site Registration No. is IC7450F-4.

4.1.4 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

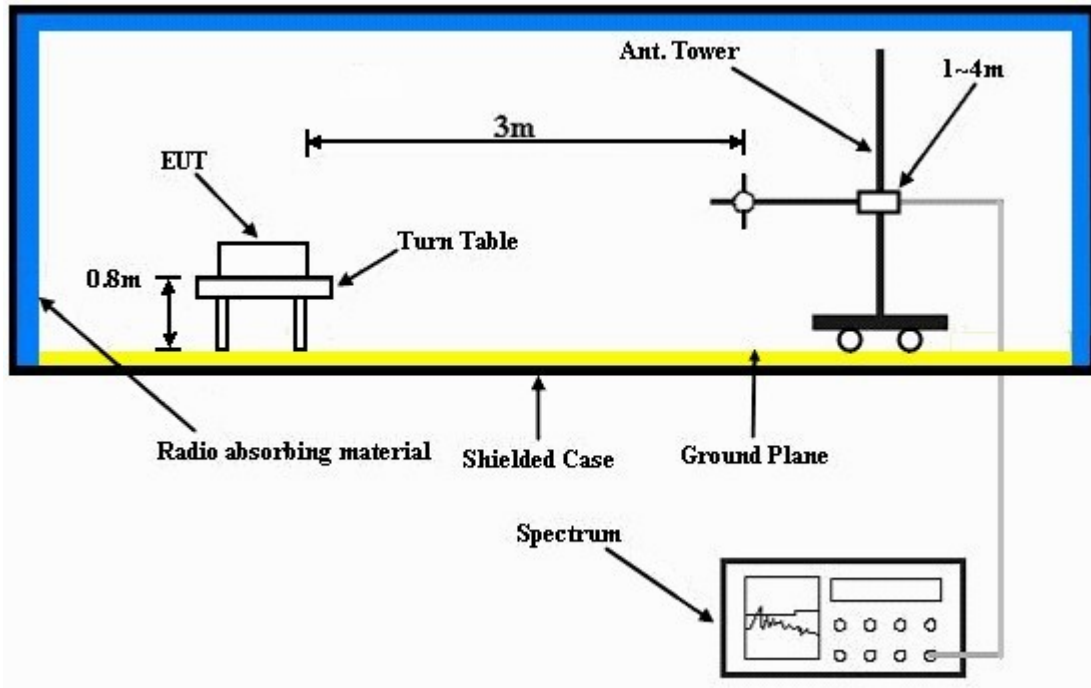
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection 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



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

4.1.7 EUT OPERATING CONDITION

- a. The EUT was connected to the notebook with USB cable and placed them on the testing table.
- b. The notebook system ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.

4.1.8 TEST RESULTS

ABOVE 1GHz DATA :

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	45.7 PK	74.0	-28.3	1.48 H	342	40.40	5.30
2	5150.00	34.3 AV	54.0	-19.7	1.48 H	342	29.00	5.30
3	*5180.00	101.7 PK			1.48 H	342	62.40	39.30
4	*5180.00	91.9 AV			1.48 H	342	52.60	39.30
5	#10360.00	57.5 PK	74.0	-16.5	1.00 H	9	40.40	17.10
6	#10360.00	44.9 AV	54.0	-9.1	1.00 H	9	27.80	17.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	45.4 PK	74.0	-28.6	1.64 V	190	40.10	5.30
2	5150.00	34.1 AV	54.0	-19.9	1.64 V	190	28.80	5.30
3	*5180.00	100.7 PK			1.64 V	190	61.40	39.30
4	*5180.00	90.5 AV			1.64 V	190	51.20	39.30
5	#10360.00	57.7 PK	74.0	-16.3	1.36 V	25	40.60	17.10
6	#10360.00	45.2 AV	54.0	-8.8	1.36 V	25	28.10	17.10

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	101.4 PK			1.47 H	96	62.10	39.30
2	*5200.00	90.9 AV			1.47 H	96	51.60	39.30
3	#10400.00	58.0 PK	74.0	-16.0	1.54 H	52	40.80	17.20
4	#10400.00	45.4 AV	54.0	-8.6	1.54 H	52	28.20	17.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	102.5 PK			1.65 V	174	63.20	39.30
2	*5200.00	92.0 AV			1.65 V	174	52.70	39.30
3	#10400.00	58.4 PK	74.0	-15.6	1.33 V	360	41.20	17.20
4	#10400.00	45.8 AV	54.0	-8.2	1.33 V	360	28.60	17.20

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	102.8 PK			1.48 H	98	63.50	39.30
2	*5240.00	92.2 AV			1.48 H	98	52.90	39.30
3	5350.00	46.2 PK	74.0	-27.8	1.48 H	98	40.60	5.60
4	5350.00	33.7 AV	54.0	-20.3	1.48 H	98	28.10	5.60
5	#10480.00	57.6 PK	74.0	-16.4	1.20 H	0	40.10	17.50
6	#10480.00	45.3 AV	54.0	-8.7	1.20 H	0	27.80	17.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	103.3 PK			1.62 V	174	64.00	39.30
2	*5240.00	92.5 AV			1.62 V	174	53.20	39.30
3	5350.00	46.9 PK	74.0	-27.1	1.62 V	174	41.30	5.60
4	5350.00	34.4 AV	54.0	-19.6	1.62 V	174	28.80	5.60
5	#10480.00	58.8 PK	74.0	-15.2	1.36 V	52	41.30	17.50
6	#10480.00	46.2 AV	54.0	-7.8	1.36 V	52	28.70	17.50

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	46.7 PK	74.0	-27.3	1.08 H	179	41.40	5.30
2	5150.00	34.6 AV	54.0	-19.4	1.08 H	179	29.30	5.30
3	*5260.00	103.7 PK			1.08 H	179	64.40	39.30
4	*5260.00	93.3 AV			1.08 H	179	54.00	39.30
5	#10520.00	58.2 PK	74.0	-15.8	1.32 H	25	40.60	17.60
6	#10520.00	45.9 AV	54.0	-8.1	1.32 H	25	28.30	17.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	46.7 PK	74.0	-27.3	1.20 V	190	41.40	5.30
2	5150.00	34.5 AV	54.0	-19.5	1.20 V	190	29.20	5.30
3	*5260.00	103.3 PK			1.20 V	190	64.00	39.30
4	*5260.00	92.4 AV			1.20 V	190	53.10	39.30
5	#10520.00	57.6 PK	74.0	-16.4	1.47 V	78	40.00	17.60
6	#10520.00	45.6 AV	54.0	-8.4	1.47 V	78	28.00	17.60

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	104.7 PK			1.10 H	180	65.30	39.40
2	*5300.00	94.2 AV			1.10 H	180	54.80	39.40
3	10600.00	59.2 PK	74.0	-14.8	1.00 H	25	41.20	18.00
4	10600.00	46.5 AV	54.0	-7.5	1.00 H	25	28.50	18.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	104.7 PK			1.19 V	190	65.30	39.40
2	*5300.00	93.4 AV			1.19 V	190	54.00	39.40
3	10600.00	59.4 PK	74.0	-14.6	1.47 V	7	41.40	18.00
4	10600.00	46.9 AV	54.0	-7.1	1.47 V	7	28.90	18.00

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	104.5 PK			1.03 H	157	65.10	39.40
2	*5320.00	94.9 AV			1.03 H	157	55.50	39.40
3	5350.00	50.4 PK	74.0	-23.6	1.03 H	157	44.80	5.60
4	5350.00	40.5 AV	54.0	-13.5	1.03 H	157	34.90	5.60
5	10640.00	59.0 PK	74.0	-15.0	1.12 H	258	40.80	18.20
6	10640.00	47.5 AV	54.0	-6.5	1.12 H	258	29.30	18.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	104.9 PK			1.44 V	189	65.50	39.40
2	*5320.00	93.9 AV			1.44 V	189	54.50	39.40
3	5350.00	50.9 PK	74.0	-23.1	1.44 V	189	45.30	5.60
4	5350.00	40.9 AV	54.0	-13.1	1.44 V	189	35.30	5.60
5	10640.00	60.8 PK	74.0	-13.2	1.25 V	5	42.60	18.20
6	10640.00	47.5 AV	54.0	-6.5	1.25 V	5	29.30	18.20

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	48.3 PK	74.0	-25.7	1.26 H	175	42.50	5.80
2	5460.00	37.0 AV	54.0	-17.0	1.26 H	175	31.20	5.80
3	#5470.00	50.0 PK	74.0	-24.0	1.26 H	175	44.20	5.80
4	#5470.00	39.0 AV	54.0	-15.0	1.26 H	175	33.20	5.80
5	*5500.00	105.5 PK			1.26 H	175	65.80	39.70
6	*5500.00	95.2 AV			1.26 H	175	55.50	39.70
7	11000.00	62.7 PK	74.0	-11.3	1.25 H	8	42.60	20.10
8	11000.00	49.4 AV	54.0	-4.6	1.25 H	8	29.30	20.10

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	47.4 PK	74.0	-26.6	1.69 V	172	41.60	5.80
2	5460.00	36.0 AV	54.0	-18.0	1.69 V	172	30.20	5.80
3	#5470.00	49.4 PK	74.0	-24.6	1.69 V	172	43.60	5.80
4	#5470.00	38.2 AV	54.0	-15.8	1.69 V	172	32.40	5.80
5	*5500.00	104.7 PK			1.69 V	172	65.00	39.70
6	*5500.00	94.0 AV			1.69 V	172	54.30	39.70
7	11000.00	61.7 PK	74.0	-12.3	1.32 V	258	41.60	20.10
8	11000.00	48.6 AV	54.0	-5.4	1.32 V	258	28.50	20.10

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	104.8 PK			1.38 H	178	65.00	39.80
2	*5580.00	94.5 AV			1.38 H	178	54.70	39.80
3	11160.00	61.5 PK	74.0	-12.5	1.20 H	20	41.70	19.80
4	11160.00	48.7 AV	54.0	-5.3	1.20 H	20	28.90	19.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	103.9 PK			1.65 V	170	64.10	39.80
2	*5580.00	93.6 AV			1.65 V	170	53.80	39.80
3	11160.00	60.8 PK	74.0	-13.2	1.87 V	78	41.00	19.80
4	11160.00	48.1 AV	54.0	-5.9	1.87 V	78	28.30	19.80

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	104.8 PK			1.72 H	169	64.80	40.00
2	*5700.00	94.0 AV			1.72 H	169	54.00	40.00
3	#5725.00	48.9 PK	74.0	-25.1	1.72 H	169	42.60	6.30
4	#5725.00	38.2 AV	54.0	-15.8	1.72 H	169	31.90	6.30
5	11400.00	60.4 PK	74.0	-13.6	1.24 H	25	40.80	19.60
6	11400.00	48.3 AV	54.0	-5.7	1.24 H	25	28.70	19.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	104.1 PK			1.70 V	170	64.10	40.00
2	*5700.00	93.5 AV			1.70 V	170	53.50	40.00
3	#5725.00	48.1 PK	74.0	-25.9	1.70 V	170	41.80	6.30
4	#5725.00	37.3 AV	54.0	-16.7	1.70 V	170	31.00	6.30
5	11400.00	60.2 PK	74.0	-13.8	1.24 V	58	40.60	19.60
6	11400.00	48.0 AV	54.0	-6.0	1.24 V	58	28.40	19.60

REMARKS:

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



802.11n (20MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	47.6 PK	74.0	-26.4	1.50 H	97	42.30	5.30
2	5150.00	34.9 AV	54.0	-19.1	1.50 H	97	29.60	5.30
3	*5180.00	101.9 PK			1.50 H	97	62.60	39.30
4	*5180.00	92.2 AV			1.50 H	97	52.90	39.30
5	#10360.00	58.5 PK	74.0	-15.5	1.24 H	52	41.40	17.10
6	#10360.00	46.0 AV	54.0	-8.0	1.24 H	52	28.90	17.10

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	46.6 PK	74.0	-27.4	1.48 V	189	41.30	5.30
2	5150.00	33.4 AV	54.0	-20.6	1.48 V	189	28.10	5.30
3	*5180.00	101.0 PK			1.48 V	189	61.70	39.30
4	*5180.00	91.2 AV			1.48 V	189	51.90	39.30
5	#10360.00	58.7 PK	74.0	-15.3	1.32 V	65	41.60	17.10
6	#10360.00	46.1 AV	54.0	-7.9	1.32 V	65	29.00	17.10

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	102.1 PK			1.44 H	98	62.80	39.30
2	*5200.00	91.5 AV			1.44 H	98	52.20	39.30
3	#10400.00	57.4 PK	74.0	-16.6	1.47 H	7	40.20	17.20
4	#10400.00	45.2 AV	54.0	-8.8	1.47 H	7	28.00	17.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	102.9 PK			1.66 V	185	63.60	39.30
2	*5200.00	92.2 AV			1.66 V	185	52.90	39.30
3	#10400.00	58.8 PK	74.0	-15.2	1.22 V	258	41.60	17.20
4	#10400.00	46.3 AV	54.0	-7.7	1.22 V	258	29.10	17.20

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	102.4 PK			1.45 H	99	63.10	39.30
2	*5240.00	91.8 AV			1.45 H	99	52.50	39.30
3	5350.00	47.1 PK	74.0	-26.9	1.45 H	99	41.50	5.60
4	5350.00	34.4 AV	54.0	-19.6	1.45 H	99	28.80	5.60
5	#10480.00	59.0 PK	74.0	-15.0	1.35 H	66	41.50	17.50
6	#10480.00	46.5 AV	54.0	-7.5	1.35 H	66	29.00	17.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	102.8 PK			1.48 V	182	63.50	39.30
2	*5240.00	92.2 AV			1.48 V	182	52.90	39.30
3	5350.00	46.0 PK	74.0	-28.0	1.48 V	182	40.40	5.60
4	5350.00	34.4 AV	54.0	-19.6	1.48 V	182	28.80	5.60
5	#10480.00	58.9 PK	74.0	-15.1	1.25 V	25	41.40	17.50
6	#10480.00	46.1 AV	54.0	-7.9	1.25 V	25	28.60	17.50

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	47.1 PK	74.0	-26.9	1.10 H	180	41.80	5.30
2	5150.00	34.9 AV	54.0	-19.1	1.10 H	180	29.60	5.30
3	*5260.00	103.8 PK			1.10 H	180	64.50	39.30
4	*5260.00	93.6 AV			1.10 H	180	54.30	39.30
5	#10520.00	59.2 PK	74.0	-14.8	1.47 H	78	41.60	17.60
6	#10520.00	46.9 AV	54.0	-7.1	1.47 H	78	29.30	17.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	46.3 PK	74.0	-27.7	1.44 V	180	41.00	5.30
2	5150.00	34.9 AV	54.0	-19.1	1.44 V	180	29.60	5.30
3	*5260.00	102.8 PK			1.44 V	180	63.50	39.30
4	*5260.00	92.8 AV			1.44 V	180	53.50	39.30
5	#10520.00	58.2 PK	74.0	-15.8	1.33 V	258	40.60	17.60
6	#10520.00	45.6 AV	54.0	-8.4	1.33 V	258	28.00	17.60

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	105.0 PK			1.12 H	178	65.60	39.40
2	*5300.00	93.9 AV			1.12 H	178	54.50	39.40
3	10600.00	60.5 PK	74.0	-13.5	1.25 H	28	42.50	18.00
4	10600.00	47.7 AV	54.0	-6.3	1.25 H	28	29.70	18.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	104.6 PK			1.20 V	187	65.20	39.40
2	*5300.00	93.7 AV			1.20 V	187	54.30	39.40
3	10600.00	59.1 PK	74.0	-14.9	1.88 V	258	41.10	18.00
4	10600.00	47.6 AV	54.0	-6.4	1.88 V	258	29.60	18.00

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	105.1 PK			1.10 H	160	65.70	39.40
2	*5320.00	95.0 AV			1.10 H	160	55.60	39.40
3	5350.00	51.1 PK	74.0	-22.9	1.10 H	160	45.50	5.60
4	5350.00	41.2 AV	54.0	-12.8	1.10 H	160	35.60	5.60
5	10640.00	59.1 PK	74.0	-14.9	1.52 H	222	40.90	18.20
6	10640.00	47.5 AV	54.0	-6.5	1.52 H	222	29.30	18.20

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	105.0 PK			1.45 V	190	65.60	39.40
2	*5320.00	93.6 AV			1.45 V	190	54.20	39.40
3	5350.00	51.8 PK	74.0	-22.2	1.45 V	190	46.20	5.60
4	5350.00	41.5 AV	54.0	-12.5	1.45 V	190	35.90	5.60
5	10640.00	59.8 PK	74.0	-14.2	1.20 V	258	41.60	18.20
6	10640.00	47.4 AV	54.0	-6.6	1.20 V	258	29.20	18.20

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	48.1 PK	74.0	-25.9	1.25 H	175	42.30	5.80
2	5460.00	37.6 AV	54.0	-16.4	1.25 H	175	31.80	5.80
3	#5470.00	51.0 PK	74.0	-23.0	1.25 H	175	45.20	5.80
4	#5470.00	40.4 AV	54.0	-13.6	1.25 H	175	34.60	5.80
5	*5500.00	105.9 PK			1.25 H	175	66.20	39.70
6	*5500.00	95.6 AV			1.25 H	175	55.90	39.70
7	11000.00	61.9 PK	74.0	-12.1	1.02 H	258	41.80	20.10
8	11000.00	49.1 AV	54.0	-4.9	1.02 H	258	29.00	20.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	47.6 PK	74.0	-26.4	1.70 V	170	41.80	5.80
2	5460.00	36.3 AV	54.0	-17.7	1.70 V	170	30.50	5.80
3	#5470.00	50.3 PK	74.0	-23.7	1.70 V	170	44.50	5.80
4	#5470.00	39.3 AV	54.0	-14.7	1.70 V	170	33.50	5.80
5	*5500.00	105.3 PK			1.70 V	170	65.60	39.70
6	*5500.00	94.8 AV			1.70 V	170	55.10	39.70
7	11000.00	61.1 PK	74.0	-12.9	1.52 V	268	41.00	20.10
8	11000.00	49.1 AV	54.0	-4.9	1.52 V	268	29.00	20.10

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	105.3 PK			1.40 H	258	65.50	39.80
2	*5580.00	94.7 AV			1.40 H	258	54.90	39.80
3	11160.00	60.5 PK	74.0	-13.5	1.32 H	25	40.70	19.80
4	11160.00	48.5 AV	54.0	-5.5	1.32 H	25	28.70	19.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	104.4 PK			1.66 V	169	64.60	39.80
2	*5580.00	94.1 AV			1.66 V	169	54.30	39.80
3	11160.00	60.8 PK	74.0	-13.2	1.78 V	258	41.00	19.80
4	11160.00	48.3 AV	54.0	-5.7	1.78 V	258	28.50	19.80

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	105.3 PK			1.71 H	170	65.30	40.00
2	*5700.00	94.5 AV			1.71 H	170	54.50	40.00
3	#5725.00	49.6 PK	74.0	-24.4	1.71 H	170	43.30	6.30
4	#5725.00	38.6 AV	54.0	-15.4	1.71 H	170	32.30	6.30
5	11400.00	61.2 PK	74.0	-12.8	1.00 H	0	41.60	19.60
6	11400.00	48.8 AV	54.0	-5.2	1.00 H	0	29.20	19.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	104.8 PK			1.46 V	183	64.80	40.00
2	*5700.00	94.4 AV			1.46 V	183	54.40	40.00
3	#5725.00	48.5 PK	74.0	-25.5	1.46 V	183	42.20	6.30
4	#5725.00	37.5 AV	54.0	-16.5	1.46 V	183	31.20	6.30
5	11400.00	61.2 PK	74.0	-12.8	1.36 V	258	41.60	19.60
6	11400.00	47.8 AV	54.0	-6.2	1.36 V	258	28.20	19.60

REMARKS:

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



802.11n (40MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	54.0 PK	74.0	-20.0	1.48 H	174	48.70	5.30
2	5150.00	40.0 AV	54.0	-14.0	1.48 H	174	34.70	5.30
3	*5190.00	98.2 PK			1.48 H	174	58.90	39.30
4	*5190.00	89.1 AV			1.48 H	174	49.80	39.30
5	#10380.00	58.2 PK	74.0	-15.8	1.25 H	66	41.10	17.10
6	#10380.00	45.1 AV	54.0	-8.9	1.25 H	66	28.00	17.10

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	52.4 PK	74.0	-21.6	1.48 V	180	47.10	5.30
2	5150.00	39.3 AV	54.0	-14.7	1.48 V	180	34.00	5.30
3	*5190.00	98.0 PK			1.48 V	180	58.70	39.30
4	*5190.00	88.0 AV			1.48 V	180	48.70	39.30
5	#10380.00	58.6 PK	74.0	-15.4	1.20 V	0	41.50	17.10
6	#10380.00	45.6 AV	54.0	-8.4	1.20 V	0	28.50	17.10

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	100.2 PK			1.44 H	168	60.90	39.30
2	*5230.00	90.5 AV			1.44 H	168	51.20	39.30
3	5350.00	47.9 PK	74.0	-26.1	1.44 H	168	42.30	5.60
4	5350.00	35.6 AV	54.0	-18.4	1.44 H	168	30.00	5.60
5	#10460.00	58.5 PK	74.0	-15.5	1.02 H	254	41.10	17.40
6	#10460.00	46.6 AV	54.0	-7.4	1.02 H	254	29.20	17.40

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	99.3 PK			1.32 V	182	60.00	39.30
2	*5230.00	89.0 AV			1.32 V	182	49.70	39.30
3	5350.00	47.2 PK	74.0	-26.8	1.32 V	182	41.60	5.60
4	5350.00	34.9 AV	54.0	-19.1	1.32 V	182	29.30	5.60
5	#10460.00	59.0 PK	74.0	-15.0	1.11 V	25	41.60	17.40
6	#10460.00	46.3 AV	54.0	-7.7	1.11 V	25	28.90	17.40

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	47.5 PK	74.0	-26.5	1.45 H	88	42.20	5.30
2	5150.00	34.0 AV	54.0	-20.0	1.45 H	88	28.70	5.30
3	*5270.00	101.6 PK			1.45 H	88	62.30	39.30
4	*5270.00	92.0 AV			1.45 H	88	52.70	39.30
5	#10540.00	58.9 PK	74.0	-15.1	1.32 H	63	41.10	17.80
6	#10540.00	46.9 AV	54.0	-7.1	1.32 H	63	29.10	17.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	46.6 PK	74.0	-27.4	1.44 V	258	41.30	5.30
2	5150.00	34.6 AV	54.0	-19.4	1.44 V	258	29.30	5.30
3	*5270.00	101.1 PK			1.44 V	258	61.80	39.30
4	*5270.00	91.9 AV			1.44 V	258	52.60	39.30
5	#10540.00	58.5 PK	74.0	-15.5	1.36 V	287	40.70	17.80
6	#10540.00	46.4 AV	54.0	-7.6	1.36 V	287	28.60	17.80

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	101.2 PK			1.44 H	87	61.80	39.40
2	*5310.00	91.2 AV			1.44 H	87	51.80	39.40
3	5350.00	57.0 PK	74.0	-17.0	1.44 H	87	51.40	5.60
4	5350.00	44.6 AV	54.0	-9.4	1.44 H	87	39.00	5.60
5	10620.00	58.8 PK	74.0	-15.2	1.32 H	256	40.70	18.10
6	10620.00	46.4 AV	54.0	-7.6	1.32 H	256	28.30	18.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	100.2 PK			1.45 V	188	60.80	39.40
2	*5310.00	90.6 AV			1.45 V	188	51.20	39.40
3	5350.00	56.6 PK	74.0	-17.4	1.45 V	188	51.00	5.60
4	5350.00	44.1 AV	54.0	-9.9	1.45 V	188	38.50	5.60
5	10620.00	58.7 PK	74.0	-15.3	1.62 V	225	40.60	18.10
6	10620.00	46.2 AV	54.0	-7.8	1.62 V	225	28.10	18.10

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	53.8 PK	74.0	-20.2	1.04 H	0	48.00	5.80
2	5460.00	39.8 AV	54.0	-14.2	1.04 H	0	34.00	5.80
3	#5470.00	59.8 PK	74.0	-14.2	1.04 H	0	54.00	5.80
4	#5470.00	49.5 AV	54.0	-4.5	1.04 H	0	43.70	5.80
5	*5510.00	101.7 PK			1.04 H	0	62.00	39.70
6	*5510.00	92.3 AV			1.04 H	0	52.60	39.70
7	11020.00	60.8 PK	74.0	-13.2	1.20 H	258	40.70	20.10
8	11020.00	49.4 AV	54.0	-4.6	1.20 H	258	29.30	20.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	53.8 PK	74.0	-20.2	1.69 V	174	48.00	5.80
2	5460.00	41.0 AV	54.0	-13.0	1.69 V	174	35.20	5.80
3	#5470.00	59.2 PK	74.0	-14.8	1.69 V	174	53.40	5.80
4	#5470.00	47.5 AV	54.0	-6.5	1.69 V	174	41.70	5.80
5	*5510.00	100.8 PK			1.69 V	174	61.10	39.70
6	*5510.00	91.3 AV			1.69 V	174	51.60	39.70
7	11020.00	61.5 PK	74.0	-12.5	1.36 V	6	41.40	20.10
8	11020.00	48.6 AV	54.0	-5.4	1.36 V	6	28.50	20.10

REMARKS:

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



A D T

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	102.4 PK			1.05 H	25	62.60	39.80
2	*5550.00	92.6 AV			1.05 H	25	52.80	39.80
3	11100.00	61.6 PK	74.0	-12.4	1.77 H	52	41.80	19.80
4	11100.00	49.4 AV	54.0	-4.6	1.77 H	52	29.60	19.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	101.5 PK			1.70 V	177	61.70	39.80
2	*5550.00	92.3 AV			1.70 V	177	52.50	39.80
3	11100.00	60.0 PK	74.0	-14.0	1.36 V	25	40.20	19.80
4	11100.00	48.6 AV	54.0	-5.4	1.36 V	25	28.80	19.80

REMARKS:

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



A D T

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	102.1 PK			1.00 H	175	62.10	40.00
2	*5670.00	92.1 AV			1.00 H	175	52.10	40.00
3	#5725.00	50.3 PK	74.0	-23.7	1.00 H	175	44.00	6.30
4	#5725.00	38.7 AV	54.0	-15.3	1.00 H	175	32.40	6.30
5	11340.00	61.4 PK	74.0	-12.6	1.05 H	25	41.60	19.80
6	11340.00	49.0 AV	54.0	-5.0	1.05 H	25	29.20	19.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	101.6 PK			1.77 V	171	61.60	40.00
2	*5670.00	91.2 AV			1.77 V	171	51.20	40.00
3	#5725.00	49.9 PK	74.0	-24.1	1.77 V	171	43.60	6.30
4	#5725.00	37.0 AV	54.0	-17.0	1.77 V	171	30.70	6.30
5	11340.00	61.0 PK	74.0	-13.0	1.32 V	258	41.20	19.80
6	11340.00	49.5 AV	54.0	-4.5	1.32 V	258	29.70	19.80

REMARKS:

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

BELOW 1GHz WORST-CASE DATA :

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 54	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Martin Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	109.46	33.0 QP	43.5	-10.5	1.55 H	184	50.30	-17.30
2	165.73	34.0 QP	43.5	-9.5	1.63 H	97	48.60	-14.60
3	239.46	33.0 QP	46.0	-13.0	1.77 H	81	48.20	-15.20
4	359.77	38.3 QP	46.0	-7.7	1.65 H	201	50.00	-11.70
5	720.68	37.9 QP	46.0	-8.1	2.00 H	186	43.20	-5.30
6	808.00	34.4 QP	46.0	-11.6	1.00 H	202	37.80	-3.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	60.95	30.7 QP	40.0	-9.3	1.65 V	99	45.50	-14.80
2	231.70	30.8 QP	46.0	-15.2	1.85 V	140	46.90	-16.10
3	359.77	33.8 QP	46.0	-12.2	1.00 V	116	45.50	-11.70
4	462.61	30.3 QP	46.0	-15.7	1.44 V	143	40.10	-9.80
5	600.38	32.4 QP	46.0	-13.6	1.77 V	181	39.70	-7.30
6	854.57	36.2 QP	46.0	-9.8	1.00 V	116	39.00	-2.80
7	998.16	34.2 QP	54.0	-19.8	1.65 V	346	35.10	-0.90

REMARKS:

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

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	109.46	33.3 QP	43.5	-10.2	1.65 H	199	50.60	-17.30
2	165.73	34.5 QP	43.5	-9.0	1.11 H	107	49.10	-14.60
3	293.79	33.1 QP	46.0	-12.9	1.88 H	166	46.00	-12.90
4	462.61	29.1 QP	46.0	-16.9	1.66 H	308	38.90	-9.80
5	600.38	31.6 QP	46.0	-14.4	1.88 H	263	38.90	-7.30
6	815.76	37.2 QP	46.0	-8.8	1.64 H	65	40.40	-3.20

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	59.01	31.3 QP	40.0	-8.7	1.35 V	158	46.30	-15.00
2	233.64	29.7 QP	46.0	-16.3	1.00 V	174	45.60	-15.90
3	462.61	29.9 QP	46.0	-16.1	1.88 V	42	39.70	-9.80
4	664.41	32.1 QP	46.0	-13.9	1.34 V	234	38.20	-6.10
5	815.76	38.5 QP	46.0	-7.5	1.44 V	108	41.70	-3.20
6	916.66	39.2 QP	46.0	-6.8	2.25 V	147	40.80	-1.60

REMARKS:

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

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ 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	100289	Nov. 16, 2012	Nov. 15, 2013
RF signal cable Woken	5D-FB	Cable-HYC01-01	Dec. 28, 2012	Dec. 27, 2013
SCHWARZBECK (Peripheral)	NNBL 8226-2	8226-142	Jun. 27, 2013	Jun. 26, 2014
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Feb. 04, 2013	Feb. 03, 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 1.
3. The VCCI Site Registration No. is C-2040.

4.2.3 TEST PROCEDURES

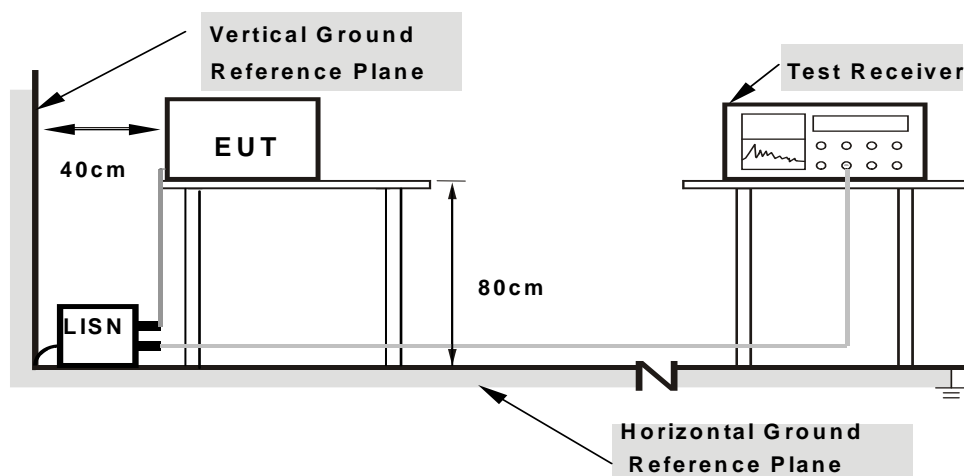
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling 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 :

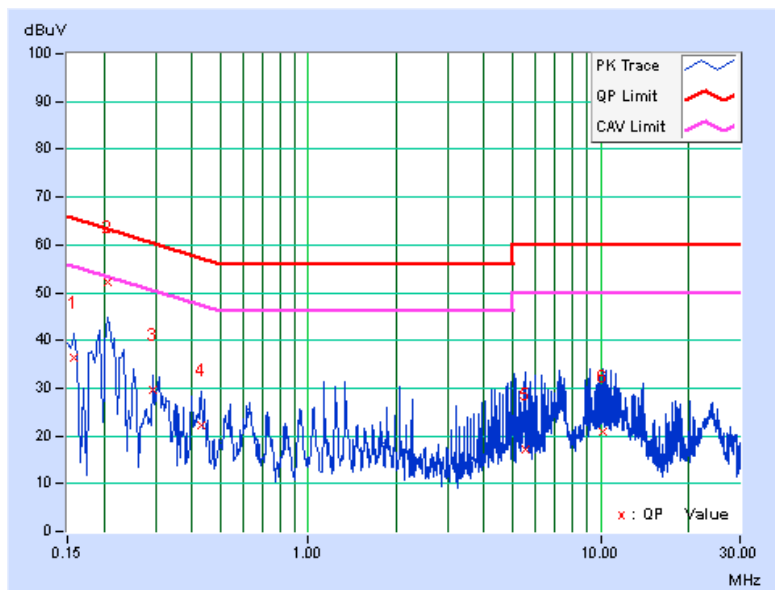
802.11n (40MHz)

PHASE	Line 1	6dB BANDWIDTH	9kHz
CHANNEL	Channel 54		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15800	0.16	36.24	23.35	36.40	23.51	65.57	55.57	-29.17	-32.06
2	0.20631	0.16	51.92	40.67	52.08	40.83	63.35	53.35	-11.27	-12.52
3	0.29400	0.19	29.31	21.31	29.50	21.50	60.41	50.41	-30.91	-28.91
4	0.43000	0.23	22.11	18.24	22.34	18.47	57.25	47.25	-34.91	-28.78
5	5.56200	0.48	16.69	9.37	17.17	9.85	60.00	50.00	-42.83	-40.15
6	10.19400	0.73	20.31	14.28	21.04	15.01	60.00	50.00	-38.96	-34.99

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





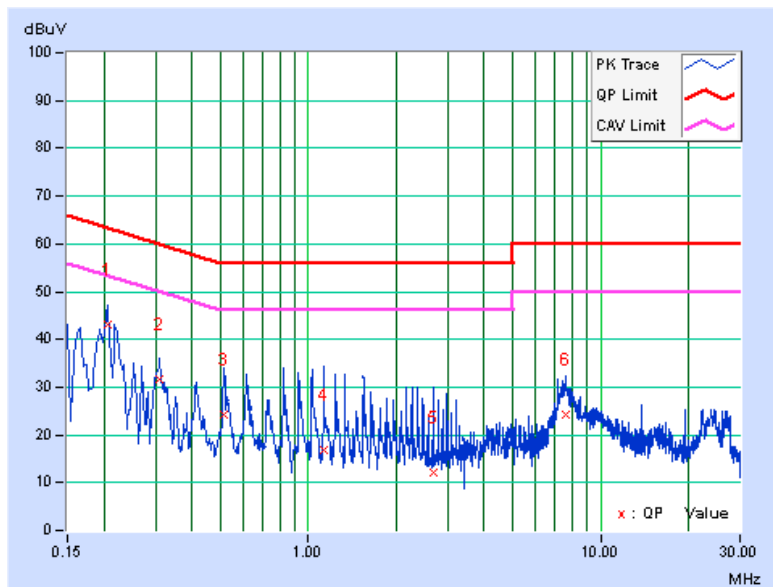
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PHASE	Line 2	6dB BANDWIDTH	9kHz
CHANNEL	Channel 54		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.20600	0.17	42.91	32.37	43.08	32.54	63.37	53.37	-20.28	-20.82
2	0.31000	0.21	31.57	25.10	31.78	25.31	59.97	49.97	-28.19	-24.66
3	0.51400	0.24	24.15	21.34	24.39	21.58	56.00	46.00	-31.61	-24.42
4	1.13400	0.25	16.75	12.83	17.00	13.08	56.00	46.00	-39.00	-32.92
5	2.67804	0.31	11.96	3.52	12.27	3.83	56.00	46.00	-43.73	-42.17
6	7.62600	0.51	23.72	19.62	24.23	20.13	60.00	50.00	-35.77	-29.87

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





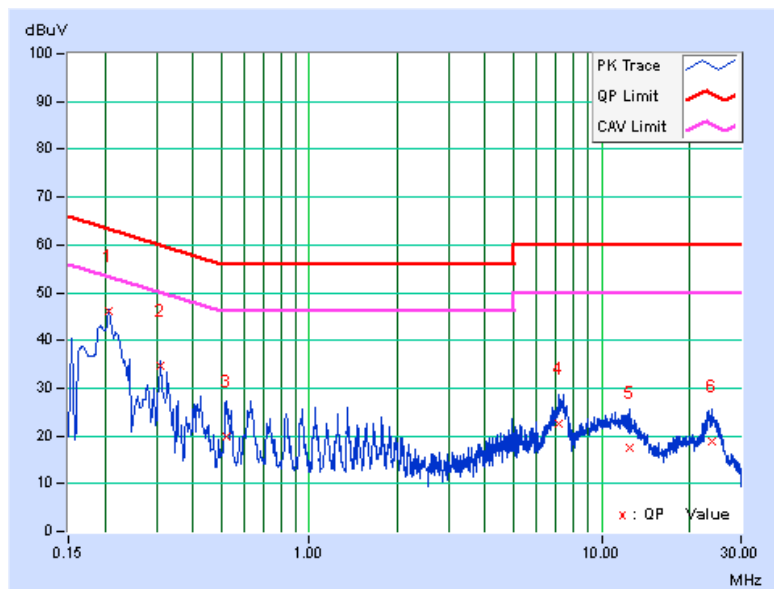
802.11a

PHASE	Line 1	6dB BANDWIDTH	9kHz
CHANNEL	Channel 140		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.20658	0.16	45.96	33.54	46.12	33.70	63.34	53.34	-17.22	-19.64
2	0.31067	0.20	34.58	26.97	34.78	27.17	59.95	49.95	-25.17	-22.78
3	0.51800	0.23	19.75	17.14	19.98	17.37	56.00	46.00	-36.02	-28.63
4	7.13811	0.57	22.04	17.25	22.61	17.82	60.00	50.00	-37.39	-32.18
5	12.46200	0.84	16.58	12.12	17.42	12.96	60.00	50.00	-42.58	-37.04
6	23.86650	1.42	17.52	11.36	18.94	12.78	60.00	50.00	-41.06	-37.22

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

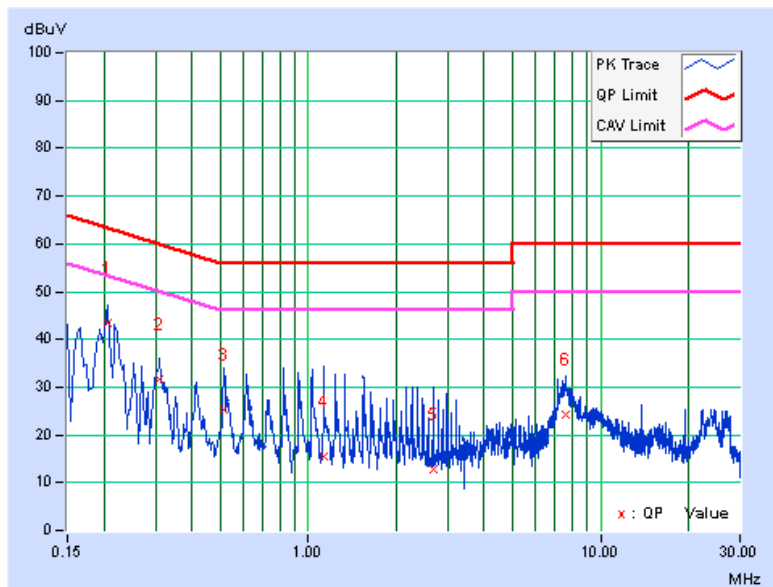


PHASE	Line 2	6dB BANDWIDTH	9kHz
CHANNEL	Channel 140		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.20610	0.17	43.14	32.37	43.31	32.54	63.36	53.36	-20.05	-20.82
2	0.31020	0.21	31.51	26.54	31.72	26.75	59.97	49.97	-28.25	-23.22
3	0.51400	0.24	25.04	20.31	25.28	20.55	56.00	46.00	-30.72	-25.45
4	1.13460	0.25	15.17	11.83	15.42	12.08	56.00	46.00	-40.58	-33.92
5	2.67804	0.31	12.54	10.36	12.85	10.67	56.00	46.00	-43.15	-35.33
6	7.62640	0.51	23.72	20.20	24.23	20.71	60.00	50.00	-35.77	-29.29

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.

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

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

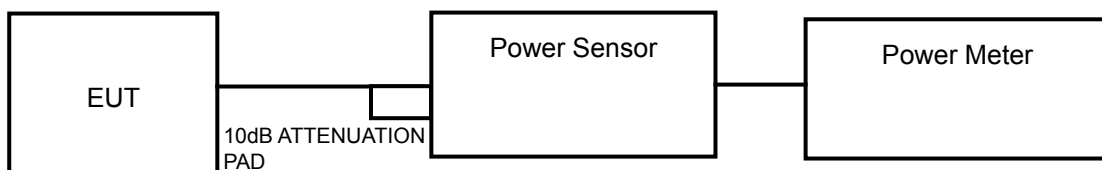
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;

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

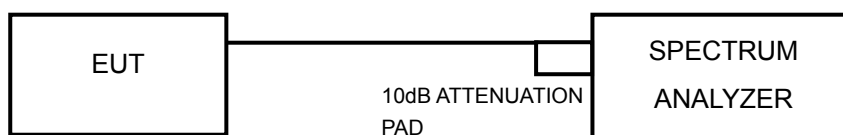
For power measurements on all other devices: Array Gain = 10 log(NANT/NSS) dB.

4.3.2 TEST SETUP

FOR POWER OUTPUT MEASUREMENT



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

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

FOR 26dB BANDWIDTH

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

4.3.5 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

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	13.55	12.59	40.801	16.11	17	PASS
40	5200	13.34	12.69	40.155	16.04	17	PASS
48	5240	13.11	13.06	40.694	16.10	17	PASS
52	5260	14.47	14.63	57.030	17.56	24	PASS
60	5300	14.41	14.68	56.982	17.56	24	PASS
64	5320	14.51	14.53	56.628	17.53	24	PASS
100	5500	14.26	14.23	53.154	17.26	24	PASS
116	5580	14.18	14.26	52.851	17.23	24	PASS
140	5700	14.37	14.19	53.595	17.29	24	PASS

802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	13.20	12.97	40.708	16.10	17	PASS
40	5200	13.14	13.06	40.836	16.11	17	PASS
48	5240	12.54	13.47	40.180	16.04	17	PASS
52	5260	14.55	14.49	56.629	17.53	24	PASS
60	5300	14.67	14.53	57.688	17.61	24	PASS
64	5320	14.52	14.45	56.175	17.50	24	PASS
100	5500	14.11	14.14	51.705	17.14	24	PASS
116	5580	14.02	14.09	50.880	17.07	24	PASS
140	5700	14.20	14.03	51.596	17.13	24	PASS



A D T

802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	13.59	13.39	44.683	16.50	17	PASS
46	5230	13.31	13.38	43.206	16.36	17	PASS
54	5270	14.72	14.66	58.890	17.70	24	PASS
62	5310	14.42	14.60	56.509	17.52	24	PASS
102	5510	14.01	14.00	50.296	17.02	24	PASS
110	5550	14.08	14.01	50.763	17.06	24	PASS
134	5670	14.20	14.03	51.596	17.13	24	PASS

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

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
36	5180	18.45	18.66	PASS
40	5200	18.25	18.48	PASS
48	5240	18.35	18.65	PASS
52	5260	18.72	18.53	PASS
60	5300	18.74	18.48	PASS
64	5320	18.65	18.55	PASS
100	5500	18.36	18.63	PASS
116	5580	18.39	19.15	PASS
140	5700	18.46	18.40	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
36	5180	19.13	18.44	PASS
40	5200	19.06	18.36	PASS
48	5240	18.98	18.46	PASS
52	5260	19.37	18.43	PASS
60	5300	19.12	18.60	PASS
64	5320	19.08	18.58	PASS
100	5500	19.14	19.74	PASS
116	5580	19.01	19.28	PASS
140	5700	19.19	18.98	PASS

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
38	5190	41.18	40.30	PASS
46	5230	40.91	40.29	PASS
54	5270	41.11	40.18	PASS
62	5310	46.97	40.53	PASS
102	5510	41.41	40.25	PASS
110	5550	41.06	40.39	PASS
134	5670	41.14	40.70	PASS

EUT HIGHEST CONDUCTED POWER

802.11a

FREQUENCY BAND (MHz)	MAX. POWER	
	OUTPUT POWER (mW)	OUTPUT POWER (dBm)
5250~5350	57.030	17.56
5470~5725	53.595	17.29

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

802.11n (20MHz)

FREQUENCY BAND (MHz)	MAX. POWER	
	OUTPUT POWER (mW)	OUTPUT POWER (dBm)
5250~5350	57.688	17.61
5470~5725	51.705	17.14

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

802.11n (40MHz)

FREQUENCY BAND (MHz)	MAX. POWER	
	OUTPUT POWER (mW)	OUTPUT POWER (dBm)
5250~5350	58.890	17.70
5470~5725	51.596	17.13

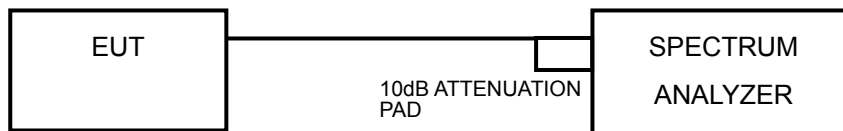
NOTE: Manufacturer provides Transmit Power Control description to meet this requirement.

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

Using method SA-1

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

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITIONS

Same as 4.3.6.

4.4.7 TEST RESULTS

802.11a

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
36	5180	0.43	0.28	3.37	3.59	PASS
40	5200	0.51	0.24	3.39	3.59	PASS
48	5240	0.61	0.27	3.45	3.59	PASS
52	5260	3.21	3.16	6.20	10.64	PASS
60	5300	2.94	2.63	5.80	10.64	PASS
64	5320	2.94	2.68	5.82	10.64	PASS
100	5500	2.24	2.13	5.20	10.18	PASS
116	5580	2.03	2.41	5.23	10.18	PASS
140	5700	2.22	2.85	5.56	10.18	PASS

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

2. For 5150 ~ 5250MHz:

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.41 > 6\text{dBi}$, so the power density limit shall be reduced to $4 - (6.41 - 6) = 3.59\text{dBm}$.

For 5250 ~ 5350MHz

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.36 > 6\text{dBi}$, so the power density limit shall be reduced to $11 - (6.36 - 6) = 10.64\text{dBm}$.

For 5470 ~ 5725MHz

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.82 > 6\text{dBi}$, so the power density limit shall be reduced to $11 - (6.82 - 6) = 10.18\text{dBm}$.



802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
36	5180	0.44	0.63	3.55	3.59	PASS
40	5200	0.63	0.38	3.52	3.59	PASS
48	5240	0.41	0.64	3.54	3.59	PASS
52	5260	2.83	2.57	5.71	10.64	PASS
60	5300	2.68	2.94	5.82	10.64	PASS
64	5320	2.34	2.68	5.52	10.64	PASS
100	5500	2.04	4.39	6.38	10.18	PASS
116	5580	2.06	2.08	5.08	10.18	PASS
140	5700	2.21	2.40	5.32	10.18	PASS

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

2. For 5150 ~ 5250MHz:

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.41 > 6\text{dBi}$, so the power density limit shall be reduced to $4 - (6.41 - 6) = 3.59\text{dBm}$.

For 5250 ~ 5350MHz

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.36 > 6\text{dBi}$, so the power density limit shall be reduced to $11 - (6.36 - 6) = 10.64\text{dBm}$.

For 5470 ~ 5725MHz

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.82 > 6\text{dBi}$, so the power density limit shall be reduced to $11 - (6.82 - 6) = 10.18\text{dBm}$.

802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
38	5190	-0.67	-0.80	2.28	3.59	PASS
46	5230	-0.91	-0.05	2.55	3.59	PASS
54	5270	0.22	0.11	3.18	10.64	PASS
62	5310	-0.56	-0.91	2.28	10.64	PASS
102	5510	-1.39	-1.12	1.76	10.18	PASS
110	5550	-1.39	-1.04	1.80	10.18	PASS
134	5670	-0.23	-1.01	2.41	10.18	PASS

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

2. For 5150 ~ 5250MHz:

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.41 > 6\text{dBi}$, so the power density limit shall be reduced to $4 - (6.41 - 6) = 3.59\text{dBm}$.

For 5250 ~ 5350MHz

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.36 > 6\text{dBi}$, so the power density limit shall be reduced to $11 - (6.36 - 6) = 10.64\text{dBm}$.

For 5470 ~ 5725MHz

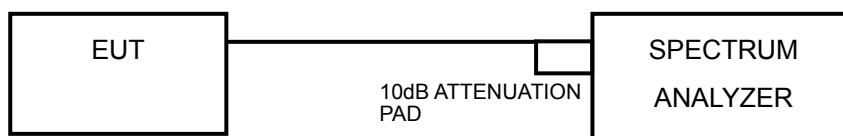
Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.82 > 6\text{dBi}$, so the power density limit shall be reduced to $11 - (6.82 - 6) = 10.18\text{dBm}$.

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.

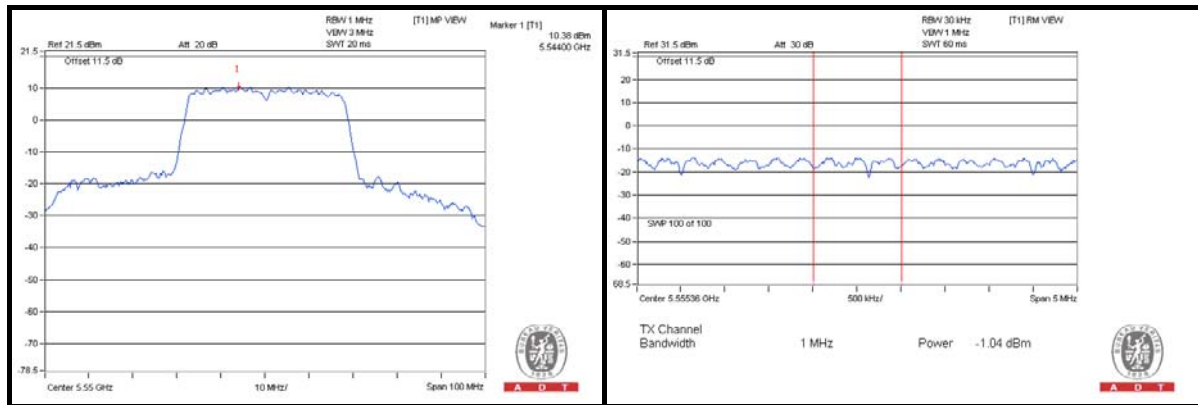
4.5.6 EUT OPERATING CONDITIONS

Same as 4.2.6



4.5.7 TEST RESULTS

MODULATION MODE	MODULATION TYPE	CHANNEL FREQUENCY (MHz)	PEAK VALUE (dBm)	PPSD (dBm)	PEAK EXCURSION (dB)	LIMIT (dB)	PASS/ FAIL
802.11a	BPSK	5300	12.82	2.63	10.19	13	PASS
	QPSK		14.34	3.25	11.09	13	PASS
	16QAM		12.85	3.25	9.60	13	PASS
	64QAM		13.50	2.91	10.59	13	PASS
802.11n (20MHz)	BPSK	5300	13.43	2.68	10.75	13	PASS
	QPSK		13.71	2.33	11.38	13	PASS
	16QAM		13.46	3.13	10.33	13	PASS
	64QAM		14.30	3.49	10.81	13	PASS
802.11n (40MHz)	BPSK	5550	10.38	-1.04	11.42	13	PASS
	QPSK		9.66	-1.11	10.77	13	PASS
	16QAM		9.96	-1.19	11.15	13	PASS
	64QAM		10.30	-1.03	11.33	13	PASS

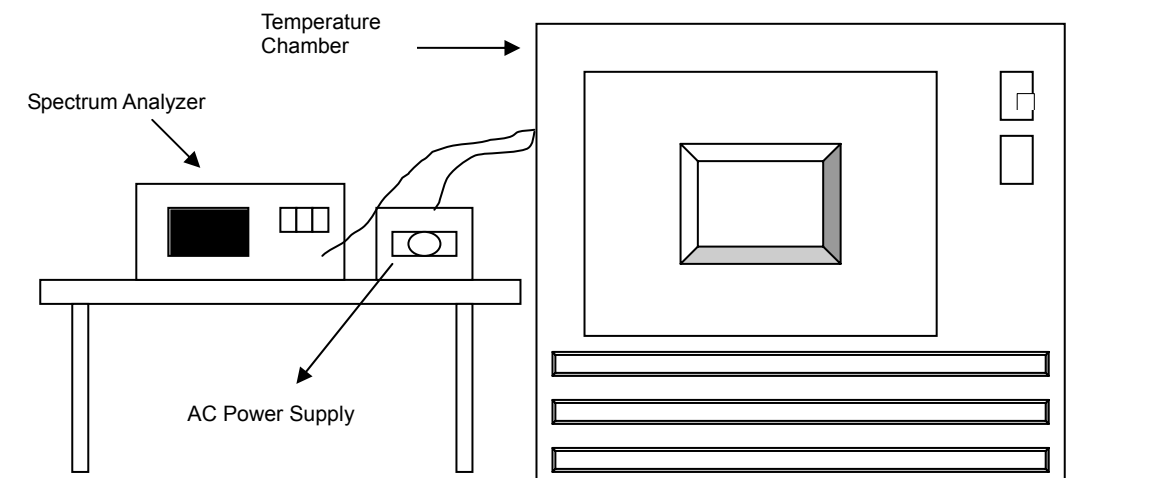


4.6 FREQUENCY STABILITY

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

4.6.5 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 (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
50	120	5319.9908	-0.00017	5319.9872	-0.00024	5319.9886	-0.00021	5319.9893	-0.00020
40	120	5320.0163	0.00031	5320.0122	0.00023	5320.0119	0.00022	5320.0123	0.00023
30	120	5320.0232	0.00044	5320.0191	0.00036	5320.0157	0.00030	5320.0211	0.00040
20	120	5320.0078	0.00015	5320.0066	0.00012	5320.0081	0.00015	5320.0064	0.00012
10	120	5319.9954	-0.00009	5319.9949	-0.00010	5319.9955	-0.00008	5320.003	0.00006
0	120	5319.9794	-0.00039	5319.9793	-0.00039	5319.9776	-0.00042	5319.9809	-0.00036
-10	120	5320.0177	0.00033	5320.019	0.00036	5320.0189	0.00036	5320.0211	0.00040
-20	120	5319.9718	-0.00053	5319.9788	-0.00040	5319.9787	-0.00040	5319.9798	-0.00038
-30	120	5319.9997	-0.00001	5319.9978	-0.00004	5319.9984	-0.00003	5319.9975	-0.00005

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 (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138	5320.0088	0.00017	5320.0074	0.00014	5320.0087	0.00016	5320.0054	0.00010
	120	5320.0078	0.00015	5320.0066	0.00012	5320.0081	0.00015	5320.0064	0.00012
	102	5320.0067	0.00013	5320.0058	0.00011	5320.0084	0.00016	5320.0065	0.00012

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

Web Site: www.bureauveritas-adt.com

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

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

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

---END---