

FCC TEST REPORT (15.407)

REPORT NO.: RF130315C01-1

MODEL NO.: AR5B22

FCC ID: PPD-AR5B22

RECEIVED: Mar. 15, 2013

TESTED: Apr. 17 ~ May 11, 2013

ISSUED: May 13, 2013

APPLICANT: Qualcomm Atheros, Inc.

ADDRESS: 1700 Technology Drive, San Jose, CA 95110

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
RF130315C01-1	Original release	May 13, 2013

1. CERTIFICATION

PRODUCT: PCIE 802.11a/b/g/n 2.4GHz/5GHz + USB BT 4.0 card

MODEL: AR5B22

BRAND: Atheros

APPLICANT: Qualcomm Atheros, Inc.

TESTED: Apr. 17 ~ May 11, 2013

TEST SAMPLE: R&D SAMPLE

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

ANSI C63.10-2009

The above equipment (model: AR5B22) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY :  , **DATE :** May 13, 2013
Pettie Chen / Senior Specialist

APPROVED BY :  , **DATE :** May 13, 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 -22.26dB at 0.48235MHz.
15.407(b)(1/2/3) (b)(6)	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 10520.0, 11160.0, 11400.0MHz.
15.407(a)(1/2)	Max Average Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(6)	Peak Power Excursion	PASS	Meet the requirement of limit.
15.407(a)(1/2)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is RSMA, MMCX, SMA RP Plug not a standard connector.

2.1 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
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	PCIE 802.11a/b/g/n 2.4GHz/5GHz + USB BT 4.0 card
MODEL NO.	AR5B22
POWER SUPPLY	3.3Vdc (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 300.0Mbps
OPERATING FREQUENCY	5180 ~ 5240MHz, 5260 ~ 5320MHz & 5500 ~ 5700MHz
NUMBER OF CHANNEL	5180 ~ 5240MHz: 4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz) 5260 ~ 5320MHz: 4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz) 5500 ~ 5700MHz: 8 for 802.11a, 802.11n (20MHz) 3 for 802.11n (40MHz)
OUTPUT POWER	44.008mW for 5180 ~ 5240MHz 97.347mW for 5260 ~ 5320MHz 69.944mW for 5500 ~ 5700MHz
ANTENNA TYPE	Refer to Note
ANTENNA CONNECTOR	Refer to Note
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	NA

NOTE:

1. This report is prepared for FCC class II permissive change. This report is issued as a supplementary report to the original BVADT report no.: RF110907E02-1 R1. The difference compared with original design is adding second source of antenna. Therefore, all test data had been re-tested.
2. The EUT provides two completed transmitters and two receivers.

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



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3. There are 4 antennas for the EUT.

Type	Model	SPEC	Peak Gain (dBi)					Connector Type
			2.4GHz Band	5GHz Band (GHz)				
				5.15~5.25	5.25~5.35	5.47~5.725	5.725~5.85	
Dipole	DAMF1HM28001000	2.4G+5G	1.58	2.15	1.38	1.62	1.56	RSMA
	DAMF1HM28001400	2.4G+5G	1.58	2.15	1.38	1.62	1.56	MMCX
	DAM-I6-H-DB-800-10-17	2.4G+5G	1.29	-0.58	0.87	1.94	-0.74	SMA RP PLUG

*Model: DAMF1HM28001000 was for the final test.

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

3.2 DESCRIPTION OF TEST MODES

FOR 5180 ~ 5240MHz

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

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

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	46	5230 MHz

FOR 5260 ~ 5320MHz

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

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

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
54	5270 MHz	62	5310 MHz

FOR 5500 ~ 5700MHz

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

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

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

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

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

Where **RE $\geq$ 1G**: Radiated Emission above 1GHz
PLC: Power Line Conducted Emission

RE<1G: Radiated Emission below 1GHz
APCM: Antenna Port Conducted Measurement

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)	TX FUNCTION
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.0	1TX/2TX
-	802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	BPSK	6.5	2TX
-	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	13.5	2TX
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0	1TX/2TX
-	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	BPSK	6.5	2TX
-	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	13.5	2TX
-	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0	1TX/2TX
-	802.11n (20MHz)		100 to 140	100, 116, 140	OFDM	BPSK	6.5	2TX
-	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	13.5	2TX

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)	TX FUNCTION
-	802.11a	5180-5320	36 to 64	60	OFDM	BPSK	6.0	2TX
-	802.11n (20MHz)	5500-5700	100 to 140	116	OFDM	BPSK	6.5	2TX

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)	TX FUNCTION
-	802.11a	5180-5320	36 to 64	60	OFDM	BPSK	6.0	2TX
-	802.11n (20MHz)	5500-5700	100 to 140	116	OFDM	BPSK	6.5	2TX

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)	TX FUNCTION
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.0	1TX/2TX
-	802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	BPSK	6.5	2TX
-	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	13.5	2TX
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0	1TX/2TX
-	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	BPSK	6.5	2TX
-	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	13.5	2TX
-	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0	1TX/2TX
-	802.11n (20MHz)		100 to 140	100, 116, 140	OFDM	BPSK	6.5	2TX
-	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	13.5	2TX

TEST CONDITION:

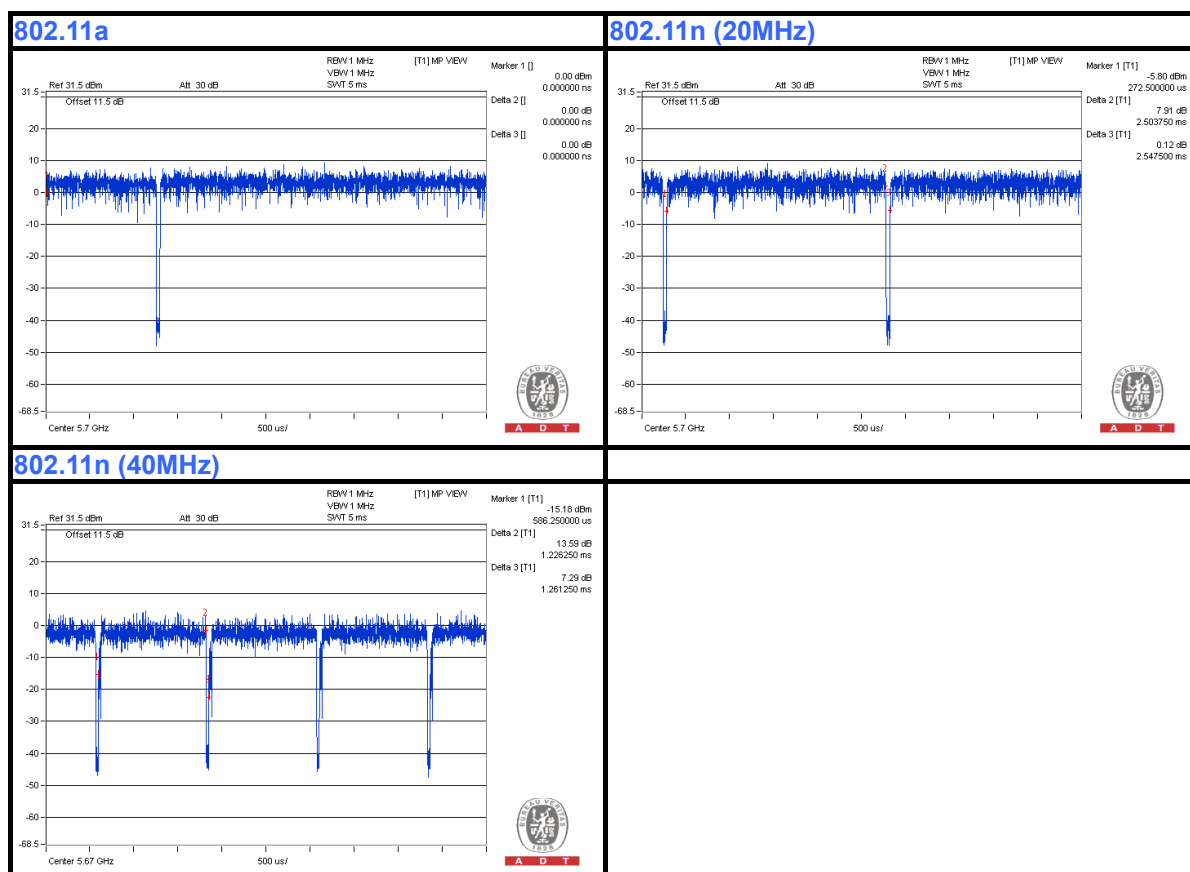
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	24deg. C, 69%RH 23deg. C, 67%RH	120Vac, 60Hz	Ted Chang Cedric Wu
RE<1G	24deg. C, 69%RH	120Vac, 60Hz	Ted Chang
PLC	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
APCM	24deg. C, 69%RH	120Vac, 60Hz	Nick Chen

3.3 DUTY CYCLE OF TEST SIGNAL

802.11a, 802.11n (20MHz): Duty cycle of test signal is > 98 %, duty factor is not required.

802.11n (40MHz): If duty cycle is < 98%, duty factor shall be considered.

Duty cycle = $1.226/1.261 = 0.972$, Duty factor = $10 * \log(1/0.972) = 0.12$



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	BPQ7MQ1	FCC DoC Approved
2	USB 3.0 Hard Disk	BUFFALO	HD-HXUS	15564800200845	FCC DoC Approved
3	Printer	EPSON	LQ-300+	DCGY054105	FCC DoC Approved
4	Extension Card	Atheros	NA	NA	NA

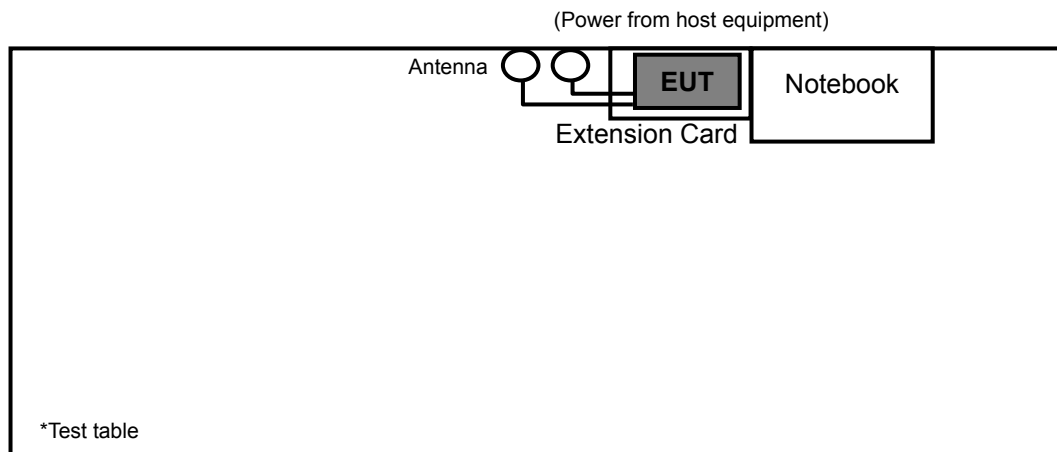
NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	1.0m USB cable with one core.
3	1.8m braid shielded wire, DB25 connector, w/o core.
4	NA

NOTE:

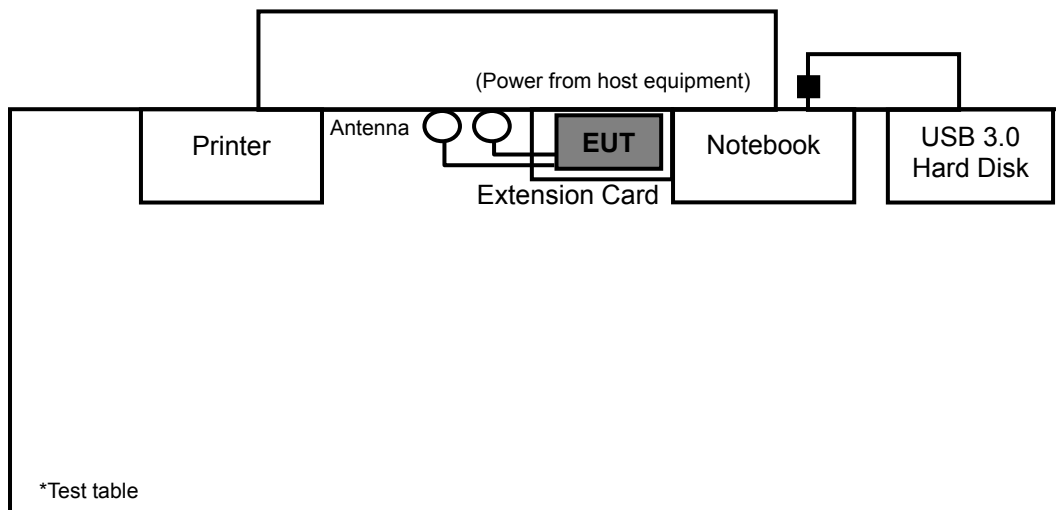
1. All power cords of the above support units are non-shielded (1.8m).
2. Item 4 was provided by client.

3.4.1 CONFIGURATION OF SYSTEM UNDER TEST

For Conducted Emission Test



For other tests



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 D01 Multiple Transmitter Output v01 r02

ANSI C63.10-2009

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

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

4. TEST TYPES AND RESULTS

4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

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

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

NOTE:

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

4.1.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

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

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

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

4.1.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Aug. 21, 2012	Aug. 20, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSU 43	100115	Oct. 25, 2012	Oct. 24, 2013
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Mar. 25, 2013	Mar. 24, 2014
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-404	Dec. 22, 2012	Dec. 21, 2013
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 11, 2012	Jul. 10, 2013
Loop Antenna	HFH2-Z2	100070	Jan. 31, 2012	Jan. 30, 2014
Preamplifier Agilent	8449B	3008A01961	Oct. 25, 2012	Oct. 24, 2013
Preamplifier Agilent	8447D	2944A10738	Oct. 23, 2012	Oct. 22, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309220/4	Aug. 28, 2012	Aug. 27, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250724/4	Aug. 28, 2012	Aug. 27, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295012/4	Aug. 28, 2012	Aug. 27, 2013
Software BV ADT	ADT_Radiated _ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA	NA
Turn Table BV ADT	TT100.	TT93021704	NA	NA
Turn Table Controller BV ADT	SC100.	SC93021704	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 25, 2012	Oct. 24, 2013
High Speed Peak Power Meter	ML2495A	0824012	Aug. 22, 2012	Aug. 21, 2013
Power Sensor	MA2411B	0738171	Jul. 30, 2012	Jul. 29, 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 4.
4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
5. The FCC Site Registration No. is 460141.
6. The IC Site Registration No. is IC7450F-4.

4.1.4 TEST PROCEDURES

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

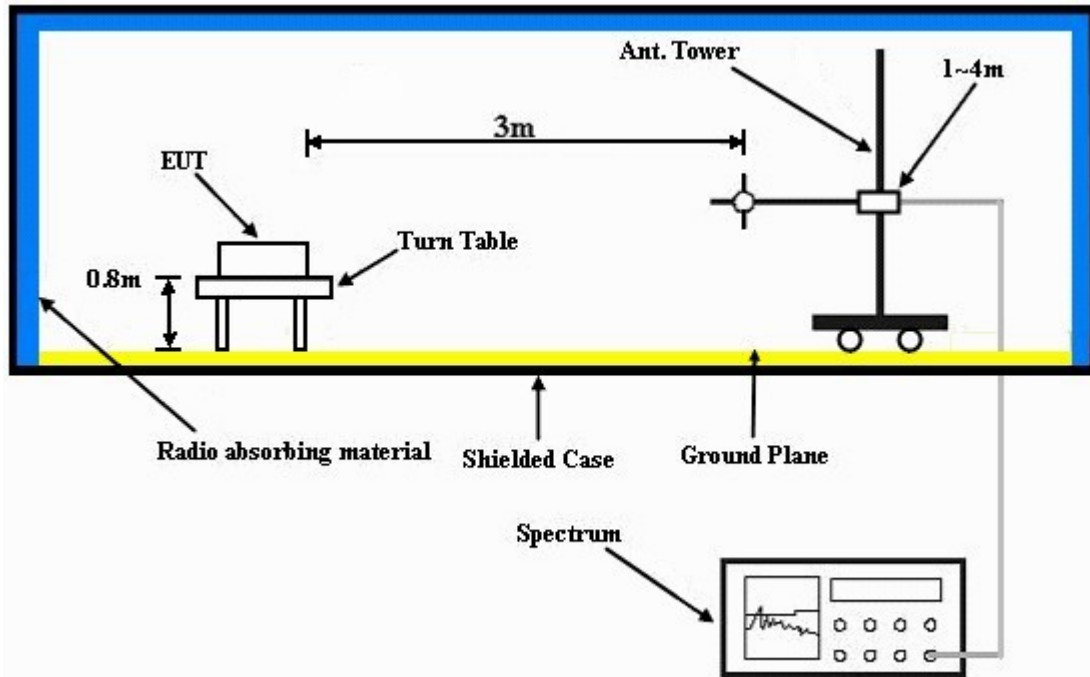
NOTE:

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

4.1.5 DEVIATION FROM TEST STANDARD

No deviation.

4.1.6 TEST SETUP



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

4.1.7 EUT OPERATING CONDITION

- Connected EUT to notebook system via the extension Card and placed on the testing table.
- The notebook system ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- The notebook system sent "H" patterns to its screen.
- The notebook system sent "H" patterns to the printer and the printer printed "H" patterns.
- The notebook system read/write data with the hard disk.
- Steps c ~ e were repeated.



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4.1.8 TEST RESULTS

ABOVE 1GHz DATA :

802.11a: 1TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang
TX FUNCTION	1TX		

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	55.1 PK	74.0	-18.9	1.00 H	193	15.90	39.20
2	5150.00	42.4 AV	54.0	-11.6	1.00 H	193	3.20	39.20
3	*5180.00	101.5 PK			1.00 H	193	62.30	39.20
4	*5180.00	90.9 AV			1.00 H	193	51.70	39.20
5	#10380.00	60.7 PK	74.0	-13.3	1.00 H	224	9.90	50.80
6	#10380.00	47.4 AV	54.0	-6.6	1.00 H	224	-3.40	50.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	54.9 PK	74.0	-19.1	1.00 V	221	15.70	39.20
2	5150.00	42.1 AV	54.0	-11.9	1.00 V	221	2.90	39.20
3	*5180.00	95.7 PK			1.00 V	221	56.50	39.20
4	*5180.00	85.0 AV			1.00 V	221	45.80	39.20
5	#10380.00	57.3 PK	74.0	-16.7	1.04 V	224	6.50	50.80
6	#10380.00	45.4 AV	54.0	-8.6	1.04 V	224	-5.40	50.80

REMARKS:

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang
TX FUNCTION	1TX		

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	100.4 PK			1.00 H	20	61.20	39.20
2	*5200.00	90.4 AV			1.00 H	20	51.20	39.20
3	#10400.00	60.1 PK	74.0	-13.9	1.00 H	124	9.30	50.80
4	#10400.00	47.3 AV	54.0	-6.7	1.00 H	124	-3.50	50.80
5	15600.00	61.5 PK	74.0	-12.5	1.04 H	246	9.80	51.70
6	15600.00	48.2 AV	54.0	-5.8	1.04 H	246	-3.50	51.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	96.3 PK			1.02 V	227	57.10	39.20
2	*5200.00	86.1 AV			1.02 V	227	46.90	39.20
3	#10400.00	58.0 PK	74.0	-16.0	1.20 V	122	7.20	50.80
4	#10400.00	45.1 AV	54.0	-8.9	1.20 V	122	-5.70	50.80
5	15600.00	58.5 PK	74.0	-15.5	1.32 V	308	6.80	51.70
6	15600.00	45.3 AV	54.0	-8.7	1.32 V	308	-6.40	51.70

REMARKS:

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang
TX FUNCTION	1TX		

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	102.7 PK			1.00 H	195	63.40	39.30
2	*5240.00	92.5 AV			1.00 H	195	53.20	39.30
3	5350.00	56.5 PK	74.0	-17.5	1.00 H	195	17.10	39.40
4	5350.00	43.3 AV	54.0	-10.7	1.00 H	195	3.90	39.40
5	#10480.00	60.6 PK	74.0	-13.4	1.00 H	152	9.50	51.10
6	#10480.00	47.9 AV	54.0	-6.1	1.00 H	152	-3.20	51.10
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	*5240.00	96.9 PK			1.00 V	221	57.60	39.30
2	*5240.00	85.8 AV			1.00 V	221	46.50	39.30
3	5350.00	56.4 PK	74.0	-17.6	1.00 V	221	17.00	39.40
4	5350.00	43.2 AV	54.0	-10.8	1.00 V	221	3.80	39.40
5	#10480.00	58.8 PK	74.0	-15.2	1.00 V	154	7.70	51.10
6	#10480.00	45.1 AV	54.0	-8.9	1.00 V	154	-6.00	51.10

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 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang
TX FUNCTION	1TX		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	56.7 PK	74.0	-17.3	1.05 H	130	17.50	39.20
2	5150.00	42.3 AV	54.0	-11.7	1.05 H	130	3.10	39.20
3	*5260.00	106.1 PK			1.00 H	20	66.80	39.30
4	*5260.00	95.3 AV			1.00 H	20	56.00	39.30
5	#10520.00	61.8 PK	74.0	-12.2	1.24 H	132	10.60	51.20
6	#10520.00	48.1 AV	54.0	-5.9	1.24 H	132	-3.10	51.20
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	5150.00	54.8 PK	74.0	-19.2	1.00 V	239	15.60	39.20
2	5150.00	42.1 AV	54.0	-11.9	1.00 V	239	2.90	39.20
3	*5260.00	100.9 PK			1.00 V	239	61.60	39.30
4	*5260.00	90.2 AV			1.00 V	239	50.90	39.30
5	#10520.00	67.9 PK	74.0	-6.1	1.66 V	0	16.70	51.20
6	#10520.00	53.0 AV	54.0	-1.0	1.66 V	0	1.80	51.20

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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang
TX FUNCTION	1TX		

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	107.5 PK			1.00 H	23	68.10	39.40
2	*5300.00	96.8 AV			1.00 H	23	57.40	39.40
3	10600.00	65.7 PK	74.0	-8.3	1.50 H	212	14.20	51.50
4	10600.00	51.0 AV	54.0	-3.0	1.50 H	212	-0.50	51.50
5	15900.00	58.2 PK	74.0	-15.8	1.00 H	200	7.10	51.10
6	15900.00	45.6 AV	54.0	-8.4	1.00 H	200	-5.50	51.10
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	*5300.00	102.2 PK			1.00 V	224	62.80	39.40
2	*5300.00	91.6 AV			1.00 V	224	52.20	39.40
3	10600.00	67.6 PK	74.0	-6.4	1.63 V	177	16.10	51.50
4	10600.00	52.5 AV	54.0	-1.5	1.63 V	177	1.00	51.50
5	15900.00	61.2 PK	74.0	-12.8	1.25 V	176	10.10	51.10
6	15900.00	48.4 AV	54.0	-5.6	1.25 V	176	-2.70	51.10

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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang
TX FUNCTION	1TX		

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	104.8 PK			1.00 H	22	65.40	39.40
2	*5320.00	94.8 AV			1.00 H	22	55.40	39.40
3	5350.00	64.7 PK	74.0	-9.3	1.00 H	22	25.30	39.40
4	5350.00	46.3 AV	54.0	-7.7	1.00 H	22	6.90	39.40
5	10640.00	58.4 PK	74.0	-15.6	1.00 H	124	6.90	51.50
6	10640.00	46.5 AV	54.0	-7.5	1.00 H	124	-5.00	51.50
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	*5320.00	101.4 PK			1.32 V	229	62.00	39.40
2	*5320.00	91.1 AV			1.32 V	229	51.70	39.40
3	5350.00	58.1 PK	74.0	-15.9	1.32 V	229	18.70	39.40
4	5350.00	43.9 AV	54.0	-10.1	1.32 V	229	4.50	39.40
5	10640.00	64.8 PK	74.0	-9.2	1.45 V	185	13.30	51.50
6	10640.00	50.8 AV	54.0	-3.2	1.45 V	185	-0.70	51.50

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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang
TX FUNCTION	1TX		

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	57.0 PK	74.0	-17.0	1.00 H	56	17.40	39.60
2	5460.00	43.2 AV	54.0	-10.8	1.00 H	56	3.60	39.60
3	#5470.00	60.3 PK	74.0	-13.7	1.00 H	56	20.70	39.60
4	#5470.00	44.5 AV	54.0	-9.5	1.00 H	56	4.90	39.60
5	*5500.00	103.4 PK			1.00 H	56	63.70	39.70
6	*5500.00	93.2 AV			1.00 H	56	53.50	39.70
7	11000.00	61.7 PK	74.0	-12.3	1.00 H	122	8.50	53.20
8	11000.00	48.5 AV	54.0	-5.5	1.00 H	122	-4.70	53.20
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	5460.00	56.7 PK	74.0	-17.3	1.00 V	139	17.10	39.60
2	5460.00	43.3 AV	54.0	-10.7	1.00 V	139	3.70	39.60
3	#5470.00	57.1 PK	74.0	-16.9	1.00 V	139	17.50	39.60
4	#5470.00	43.7 AV	54.0	-10.3	1.00 V	139	4.10	39.60
5	*5500.00	96.2 PK			1.00 V	139	56.50	39.70
6	*5500.00	85.6 AV			1.00 V	139	45.90	39.70
7	11000.00	65.9 PK	74.0	-8.1	1.54 V	189	12.70	53.20
8	11000.00	51.7 AV	54.0	-2.3	1.54 V	189	-1.50	53.20

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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang
TX FUNCTION	1TX		

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	104.3 PK			1.18 H	56	64.50	39.80
2	*5580.00	93.3 AV			1.18 H	56	53.50	39.80
3	11160.00	65.0 PK	74.0	-9.0	1.47 H	287	12.10	52.90
4	11160.00	50.6 AV	54.0	-3.4	1.47 H	287	-2.30	52.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	99.3 PK			1.63 V	20	59.50	39.80
2	*5580.00	88.6 AV			1.63 V	20	48.80	39.80
3	11160.00	68.9 PK	74.0	-5.1	1.51 V	187	16.00	52.90
4	11160.00	53.0 AV	54.0	-1.0	1.51 V	187	0.10	52.90

REMARKS:

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang
TX FUNCTION	1TX		

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	100.9 PK			1.00 H	44	60.80	40.10
2	*5700.00	90.8 AV			1.00 H	44	50.70	40.10
3	#5725.00	57.0 PK	74.0	-17.0	1.00 H	44	16.90	40.10
4	#5725.00	43.9 AV	54.0	-10.1	1.00 H	44	3.80	40.10
5	11400.00	63.1 PK	74.0	-10.9	1.05 H	124	10.30	52.80
6	11400.00	50.1 AV	54.0	-3.9	1.05 H	124	-2.70	52.80
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	*5700.00	96.7 PK			1.01 V	230	56.60	40.10
2	*5700.00	86.3 AV			1.01 V	230	46.20	40.10
3	#5725.00	56.2 PK	74.0	-17.8	1.01 V	230	16.10	40.10
4	#5725.00	43.1 AV	54.0	-10.9	1.01 V	230	3.00	40.10
5	11400.00	69.2 PK	74.0	-4.8	1.54 V	188	16.40	52.80
6	11400.00	53.0 AV	54.0	-1.0	1.54 V	188	0.20	52.80

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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802.11a: 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH	TESTED BY	Credic Wu
TX FUNCTION	2TX		

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	55.7 PK	74.0	-18.3	1.00 H	260	23.90	31.80
2	5150.00	43.0 AV	54.0	-11.0	1.00 H	260	11.20	31.80
3	*5180.00	102.7 PK			1.00 H	262	70.90	31.80
4	*5180.00	90.8 AV			1.00 H	262	59.00	31.80
5	#10360.00	58.8 PK	74.0	-15.2	1.10 H	50	19.50	39.30
6	#10360.00	45.8 AV	54.0	-8.2	1.10 H	50	6.50	39.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	55.9 PK	74.0	-18.1	1.00 V	90	24.10	31.80
2	5150.00	43.6 AV	54.0	-10.4	1.00 V	90	11.80	31.80
3	*5180.00	96.4 PK			1.00 V	92	64.60	31.80
4	*5180.00	84.7 AV			1.00 V	92	52.90	31.80
5	#10360.00	63.5 PK	74.0	-10.5	1.00 V	340	24.20	39.30
6	#10360.00	48.7 AV	54.0	-5.3	1.00 V	340	9.40	39.30

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH	TESTED BY	Credic Wu
TX FUNCTION	2TX		

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	103.6 PK			1.00 H	266	71.80	31.80
2	*5200.00	90.9 AV			1.00 H	266	59.10	31.80
3	#10400.00	58.0 PK	74.0	-16.0	1.05 H	60	18.60	39.40
4	#10400.00	46.7 AV	54.0	-7.3	1.05 H	60	7.30	39.40
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	*5200.00	96.1 PK			1.00 V	99	64.30	31.80
2	*5200.00	84.4 AV			1.00 V	99	52.60	31.80
3	#10400.00	65.0 PK	74.0	-9.0	1.00 V	99	25.60	39.40
4	#10400.00	49.0 AV	54.0	-5.0	1.00 V	99	9.60	39.40

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 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH	TESTED BY	Credic Wu
TX FUNCTION	2TX		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	101.5 PK			1.00 H	248	69.70	31.80
2	*5240.00	89.4 AV			1.00 H	248	57.60	31.80
3	5350.00	57.3 PK	74.0	-16.7	1.00 H	247	25.50	31.80
4	5350.00	44.2 AV	54.0	-9.8	1.00 H	247	12.40	31.80
5	#10480.00	59.0 PK	74.0	-15.0	1.15 H	66	19.40	39.60
6	#10480.00	47.1 AV	54.0	-6.9	1.15 H	66	7.50	39.60
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	*5240.00	98.9 PK			1.00 V	77	67.10	31.80
2	*5240.00	86.8 AV			1.00 V	77	55.00	31.80
3	5350.00	57.3 PK	74.0	-16.7	1.00 V	79	25.50	31.80
4	5350.00	44.1 AV	54.0	-9.9	1.00 V	79	12.30	31.80
5	#10480.00	66.4 PK	74.0	-7.6	1.00 V	333	26.80	39.60
6	#10480.00	50.0 AV	54.0	-4.0	1.00 V	333	10.40	39.60

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 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH	TESTED BY	Credic Wu
TX FUNCTION	2TX		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	56.0 PK	74.0	-18.0	1.00 H	248	24.20	31.80
2	5150.00	44.4 AV	54.0	-9.6	1.00 H	248	12.60	31.80
3	*5260.00	107.3 PK			1.00 H	250	75.50	31.80
4	*5260.00	95.4 AV			1.00 H	250	63.60	31.80
5	#10520.00	60.3 PK	74.0	-13.7	1.20 H	80	20.70	39.60
6	#10520.00	47.4 AV	54.0	-6.6	1.20 H	80	7.80	39.60
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	57.0 PK	74.0	-17.0	1.00 V	80	25.20	31.80
2	5150.00	44.2 AV	54.0	-9.8	1.00 V	80	12.40	31.80
3	*5260.00	104.1 PK			1.00 V	83	72.30	31.80
4	*5260.00	91.9 AV			1.00 V	83	60.10	31.80
5	#10520.00	63.0 PK	74.0	-11.0	1.00 V	350	23.40	39.60
6	#10520.00	50.0 AV	54.0	-4.0	1.00 V	350	10.40	39.60

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, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH	TESTED BY	Credic Wu
TX FUNCTION	2TX		

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	109.2 PK			1.00 H	250	77.40	31.80
2	*5300.00	97.2 AV			1.00 H	250	65.40	31.80
3	10600.00	62.0 PK	74.0	-12.0	1.22 H	83	22.20	39.80
4	10600.00	47.8 AV	54.0	-6.2	1.22 H	83	8.00	39.80
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	*5300.00	103.2 PK			1.00 V	86	71.40	31.80
2	*5300.00	91.2 AV			1.00 V	86	59.40	31.80
3	10600.00	67.1 PK	74.0	-6.9	1.00 V	356	27.30	39.80
4	10600.00	52.6 AV	54.0	-1.4	1.00 V	356	12.80	39.80

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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH	TESTED BY	Credic Wu
TX FUNCTION	2TX		

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	106.5 PK			1.00 H	241	74.70	31.80
2	*5320.00	94.5 AV			1.00 H	241	62.70	31.80
3	5350.00	56.4 PK	74.0	-17.6	1.00 H	240	24.60	31.80
4	5350.00	43.7 AV	54.0	-10.3	1.00 H	240	11.90	31.80
5	10640.00	58.3 PK	74.0	-15.7	1.17 H	78	18.40	39.90
6	10640.00	45.9 AV	54.0	-8.1	1.17 H	78	6.00	39.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	99.1 PK			1.00 V	77	67.30	31.80
2	*5320.00	87.7 AV			1.00 V	77	55.90	31.80
3	5350.00	56.3 PK	74.0	-17.7	1.00 V	74	24.50	31.80
4	5350.00	43.1 AV	54.0	-10.9	1.00 V	74	11.30	31.80
5	10640.00	65.0 PK	74.0	-9.0	1.00 V	342	25.10	39.90
6	10640.00	49.7 AV	54.0	-4.3	1.00 V	342	9.80	39.90

REMARKS:

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH	TESTED BY	Credic Wu
TX FUNCTION	2TX		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	56.8 PK	74.0	-17.2	1.00 H	230	24.90	31.90
2	5460.00	42.9 AV	54.0	-11.1	1.00 H	230	11.00	31.90
3	#5470.00	57.0 PK	74.0	-17.0	1.00 H	232	25.10	31.90
4	#5470.00	43.8 AV	54.0	-10.2	1.00 H	232	11.90	31.90
5	*5500.00	104.5 PK			1.00 H	235	72.60	31.90
6	*5500.00	92.8 AV			1.00 H	235	60.90	31.90
7	11000.00	60.2 PK	74.0	-13.8	1.22 H	90	19.40	40.80
8	11000.00	47.3 AV	54.0	-6.7	1.22 H	90	6.50	40.80
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	5460.00	56.8 PK	74.0	-17.2	1.00 V	75	24.90	31.90
2	5460.00	42.7 AV	54.0	-11.3	1.00 V	75	10.80	31.90
3	#5470.00	56.1 PK	74.0	-17.9	1.00 V	77	24.20	31.90
4	#5470.00	43.1 AV	54.0	-10.9	1.00 V	77	11.20	31.90
5	*5500.00	96.1 PK			1.00 V	70	64.20	31.90
6	*5500.00	84.7 AV			1.00 V	70	52.80	31.90
7	10640.00	64.8 PK	74.0	-9.2	1.00 V	356	24.90	39.90
8	10640.00	48.9 AV	54.0	-5.1	1.00 V	356	9.00	39.90

REMARKS:

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH	TESTED BY	Credic Wu
TX FUNCTION	2TX		

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	107.8 PK			1.00 H	233	75.80	32.00
2	*5580.00	95.3 AV			1.00 H	233	63.30	32.00
3	11160.00	63.5 PK	74.0	-10.5	1.20 H	88	22.90	40.60
4	11160.00	49.1 AV	54.0	-4.9	1.20 H	88	8.50	40.60
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	*5580.00	102.5 PK			1.00 V	73	70.50	32.00
2	*5580.00	90.7 AV			1.00 V	73	58.70	32.00
3	11160.00	69.0 PK	74.0	-5.0	1.00 V	1	28.40	40.60
4	11160.00	51.9 AV	54.0	-2.1	1.00 V	1	11.30	40.60

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 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH	TESTED BY	Credic Wu
TX FUNCTION	2TX		

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	104.0 PK			1.00 H	222	71.80	32.20
2	*5700.00	93.2 AV			1.00 H	222	61.00	32.20
3	#5725.00	61.0 PK	74.0	-13.0	1.00 H	225	28.70	32.30
4	#5725.00	47.3 AV	54.0	-6.7	1.00 H	225	15.00	32.30
5	11400.00	58.5 PK	74.0	-15.5	1.15 H	95	18.10	40.40
6	11400.00	45.6 AV	54.0	-8.4	1.15 H	95	5.20	40.40
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	*5700.00	97.9 PK			1.00 V	59	65.70	32.20
2	*5700.00	55.6 AV			1.00 V	59	23.40	32.20
3	#5725.00	55.2 PK	74.0	-18.8	1.00 V	61	22.90	32.30
4	#5725.00	43.0 AV	54.0	-11.0	1.00 V	61	10.70	32.30
5	11400.00	68.0 PK	74.0	-6.0	1.00 V	352	27.60	40.40
6	11400.00	51.7 AV	54.0	-2.3	1.00 V	352	11.30	40.40

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.



A D T

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang

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	54.6 PK	74.0	-19.4	1.00 H	203	15.40	39.20
2	5150.00	42.2 AV	54.0	-11.8	1.00 H	203	3.00	39.20
3	*5180.00	101.7 PK			1.00 H	203	62.50	39.20
4	*5180.00	89.8 AV			1.00 H	203	50.60	39.20
5	#10360.00	57.7 PK	74.0	-16.3	1.24 H	225	6.90	50.80
6	#10360.00	44.7 AV	54.0	-9.3	1.24 H	225	-6.10	50.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	54.7 PK	74.0	-19.3	1.00 V	169	15.50	39.20
2	5150.00	42.3 AV	54.0	-11.7	1.00 V	169	3.10	39.20
3	*5180.00	95.1 PK			1.00 V	169	55.90	39.20
4	*5180.00	83.4 AV			1.00 V	169	44.20	39.20
5	#10360.00	62.2 PK	74.0	-11.8	1.05 V	156	11.40	50.80
6	#10360.00	47.5 AV	54.0	-6.5	1.05 V	156	-3.30	50.80

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	102.5 PK			1.00 H	208	63.30	39.20
2	*5200.00	89.7 AV			1.00 H	208	50.50	39.20
3	#10400.00	57.8 PK	74.0	-16.2	1.00 H	125	7.00	50.80
4	#10400.00	45.5 AV	54.0	-8.5	1.00 H	125	-5.30	50.80
5	15600.00	60.1 PK	74.0	-13.9	1.21 H	155	8.40	51.70
6	15600.00	45.8 AV	54.0	-8.2	1.21 H	155	-5.90	51.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	94.9 PK			1.00 V	181	55.70	39.20
2	*5200.00	83.3 AV			1.00 V	181	44.10	39.20
3	#10400.00	63.8 PK	74.0	-10.2	1.84 V	198	13.00	50.80
4	#10400.00	47.7 AV	54.0	-6.3	1.84 V	198	-3.10	50.80
5	15600.00	65.4 PK	74.0	-8.6	1.03 V	166	13.70	51.70
6	15600.00	49.8 AV	54.0	-4.2	1.03 V	166	-1.90	51.70

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang

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	100.5 PK			1.00 H	202	61.20	39.30
2	*5240.00	88.7 AV			1.00 H	202	49.40	39.30
3	5350.00	56.3 PK	74.0	-17.7	1.00 H	202	16.90	39.40
4	5350.00	43.3 AV	54.0	-10.7	1.00 H	202	3.90	39.40
5	#10480.00	58.1 PK	74.0	-15.9	1.33 H	212	7.00	51.10
6	#10480.00	46.1 AV	54.0	-7.9	1.33 H	212	-5.00	51.10
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	*5240.00	98.2 PK			1.47 V	172	58.90	39.30
2	*5240.00	86.0 AV			1.47 V	172	46.70	39.30
3	5350.00	56.5 PK	74.0	-17.5	1.47 V	172	17.10	39.40
4	5350.00	43.4 AV	54.0	-10.6	1.47 V	172	4.00	39.40
5	#10480.00	64.4 PK	74.0	-9.6	1.23 V	128	13.30	51.10
6	#10480.00	49.0 AV	54.0	-5.0	1.23 V	128	-2.10	51.10

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 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang

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	54.6 PK	74.0	-19.4	1.00 H	24	15.40	39.20
2	5150.00	42.4 AV	54.0	-11.6	1.00 H	24	3.20	39.20
3	*5260.00	105.2 PK			1.00 H	24	65.90	39.30
4	*5260.00	93.5 AV			1.00 H	24	54.20	39.30
5	#10520.00	58.2 PK	74.0	-15.8	1.36 H	226	7.00	51.20
6	#10520.00	45.2 AV	54.0	-8.8	1.36 H	226	-6.00	51.20
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	5150.00	55.1 PK	74.0	-18.9	1.62 V	172	15.90	39.20
2	5150.00	42.2 AV	54.0	-11.8	1.62 V	172	3.00	39.20
3	*5260.00	102.0 PK			1.62 V	172	62.70	39.30
4	*5260.00	89.9 AV			1.62 V	172	50.60	39.30
5	#10520.00	60.9 PK	74.0	-13.1	1.00 V	152	9.70	51.20
6	#10520.00	48.1 AV	54.0	-5.9	1.00 V	152	-3.10	51.20

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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang

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	106.6 PK			1.00 H	21	67.20	39.40
2	*5300.00	94.5 AV			1.00 H	21	55.10	39.40
3	10600.00	59.3 PK	74.0	-14.7	1.05 H	15	7.80	51.50
4	10600.00	45.2 AV	54.0	-8.8	1.05 H	15	-6.30	51.50
5	15900.00	59.0 PK	74.0	-15.0	1.63 H	221	7.90	51.10
6	15900.00	46.1 AV	54.0	-7.9	1.63 H	221	-5.00	51.10
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	*5300.00	100.3 PK			1.04 V	233	60.90	39.40
2	*5300.00	88.2 AV			1.04 V	233	48.80	39.40
3	10600.00	64.0 PK	74.0	-10.0	1.06 V	136	12.50	51.50
4	10600.00	49.6 AV	54.0	-4.4	1.06 V	136	-1.90	51.50
5	15900.00	63.5 PK	74.0	-10.5	1.47 V	142	12.40	51.10
6	15900.00	48.9 AV	54.0	-5.1	1.47 V	142	-2.20	51.10

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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang

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	106.3 PK			1.00 H	21	66.90	39.40
2	*5320.00	94.4 AV			1.00 H	21	55.00	39.40
3	5350.00	56.5 PK	74.0	-17.5	1.00 H	21	17.10	39.40
4	5350.00	43.9 AV	54.0	-10.1	1.00 H	21	4.50	39.40
5	10640.00	58.3 PK	74.0	-15.7	1.55 H	129	6.80	51.50
6	10640.00	45.8 AV	54.0	-8.2	1.55 H	129	-5.70	51.50
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	*5320.00	99.2 PK			1.04 V	232	59.80	39.40
2	*5320.00	87.7 AV			1.04 V	232	48.30	39.40
3	5350.00	56.5 PK	74.0	-17.5	1.04 V	232	17.10	39.40
4	5350.00	43.3 AV	54.0	-10.7	1.04 V	232	3.90	39.40
5	10640.00	65.1 PK	74.0	-8.9	1.08 V	69	13.60	51.50
6	10640.00	49.7 AV	54.0	-4.3	1.08 V	69	-1.80	51.50

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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang

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	57.3 PK	74.0	-16.7	1.02 H	56	17.70	39.60
2	5460.00	43.4 AV	54.0	-10.6	1.02 H	56	3.80	39.60
3	#5470.00	57.6 PK	74.0	-16.4	1.02 H	56	18.00	39.60
4	#5470.00	44.4 AV	54.0	-9.6	1.02 H	56	4.80	39.60
5	*5500.00	104.9 PK			1.02 H	56	65.20	39.70
6	*5500.00	93.2 AV			1.02 H	56	53.50	39.70
7	11000.00	60.6 PK	74.0	-13.4	1.42 H	247	7.40	53.20
8	11000.00	47.7 AV	54.0	-6.3	1.42 H	247	-5.50	53.20
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	5460.00	57.4 PK	74.0	-16.6	1.00 V	200	17.80	39.60
2	5460.00	43.4 AV	54.0	-10.6	1.00 V	200	3.80	39.60
3	#5470.00	56.5 PK	74.0	-17.5	1.00 V	200	16.90	39.60
4	#5470.00	43.6 AV	54.0	-10.4	1.00 V	200	4.00	39.60
5	*5500.00	96.7 PK			1.00 V	200	57.00	39.70
6	*5500.00	85.1 AV			1.00 V	200	45.40	39.70
7	10640.00	65.2 PK	74.0	-8.8	1.06 V	325	13.70	51.50
8	10640.00	49.3 AV	54.0	-4.7	1.06 V	325	-2.20	51.50

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 116	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang

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	108.6 PK			1.12 H	42	68.80	39.80
2	*5580.00	96.2 AV			1.12 H	42	56.40	39.80
3	11160.00	64.6 PK	74.0	-9.4	1.46 H	286	11.70	52.90
4	11160.00	50.0 AV	54.0	-4.0	1.46 H	286	-2.90	52.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	103.6 PK			1.48 V	181	63.80	39.80
2	*5580.00	91.6 AV			1.48 V	181	51.80	39.80
3	11160.00	70.2 PK	74.0	-3.8	1.42 V	185	17.30	52.90
4	11160.00	53.0 AV	54.0	-1.0	1.42 V	185	0.10	52.90

REMARKS:

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang

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	105.1 PK			1.11 H	43	65.00	40.10
2	*5700.00	94.0 AV			1.11 H	43	53.90	40.10
3	#5725.00	61.9 PK	74.0	-12.1	1.11 H	43	21.80	40.10
4	#5725.00	48.0 AV	54.0	-6.0	1.11 H	43	7.90	40.10
5	11400.00	59.7 PK	74.0	-14.3	1.00 H	360	6.90	52.80
6	11400.00	46.7 AV	54.0	-7.3	1.00 H	360	-6.10	52.80
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	*5700.00	99.1 PK			1.31 V	178	59.00	40.10
2	*5700.00	86.7 AV			1.31 V	178	46.60	40.10
3	#5725.00	56.0 PK	74.0	-18.0	1.31 V	178	15.90	40.10
4	#5725.00	44.1 AV	54.0	-9.9	1.31 V	178	4.00	40.10
5	11400.00	68.9 PK	74.0	-5.1	1.57 V	190	16.10	52.80
6	11400.00	53.0 AV	54.0	-1.0	1.57 V	190	0.20	52.80

REMARKS:

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



A D T

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang

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	55.6 PK	74.0	-18.4	1.23 H	43	16.40	39.20
2	5150.00	43.3 AV	54.0	-10.7	1.23 H	43	4.10	39.20
3	*5190.00	96.5 PK			1.23 H	43	57.30	39.20
4	*5190.00	84.7 AV			1.23 H	43	45.50	39.20
5	#10380.00	57.6 PK	74.0	-16.4	1.21 H	305	6.80	50.80
6	#10380.00	44.6 AV	54.0	-9.4	1.21 H	305	-6.20	50.80
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	55.1 PK	74.0	-18.9	1.00 V	167	15.90	39.20
2	5150.00	42.3 AV	54.0	-11.7	1.00 V	167	3.10	39.20
3	*5190.00	90.0 PK			1.00 V	167	50.80	39.20
4	*5190.00	79.1 AV			1.00 V	167	39.90	39.20
5	#10380.00	62.2 PK	74.0	-11.8	1.04 V	51	11.40	50.80
6	#10380.00	47.0 AV	54.0	-7.0	1.04 V	51	-3.80	50.80

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 46	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	101.3 PK			1.00 H	205	62.00	39.30
2	*5230.00	90.1 AV			1.00 H	205	50.80	39.30
3	5350.00	56.1 PK	74.0	-17.9	1.00 H	205	16.70	39.40
4	5350.00	43.4 AV	54.0	-10.6	1.00 H	205	4.00	39.40
5	#10460.00	58.8 PK	74.0	-15.2	1.24 H	228	7.80	51.00
6	#10460.00	44.8 AV	54.0	-9.2	1.24 H	228	-6.20	51.00
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	*5230.00	97.1 PK			1.48 V	172	57.80	39.30
2	*5230.00	85.0 AV			1.48 V	172	45.70	39.30
3	5350.00	56.8 PK	74.0	-17.2	1.48 V	172	17.40	39.40
4	5350.00	43.3 AV	54.0	-10.7	1.48 V	172	3.90	39.40
5	#10460.00	63.9 PK	74.0	-10.1	1.00 V	42	12.90	51.00
6	#10460.00	47.3 AV	54.0	-6.7	1.00 V	42	-3.70	51.00

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.
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, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	54.9 PK	74.0	-19.1	1.00 H	204	15.70	39.20
2	5150.00	42.5 AV	54.0	-11.5	1.00 H	204	3.30	39.20
3	*5270.00	104.3 PK			1.00 H	204	65.00	39.30
4	*5270.00	93.0 AV			1.00 H	204	53.70	39.30
5	#10540.00	58.5 PK	74.0	-15.5	1.03 H	245	7.20	51.30
6	#10540.00	45.6 AV	54.0	-8.4	1.03 H	245	-5.70	51.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	54.8 PK	74.0	-19.2	1.03 V	234	15.60	39.20
2	5150.00	42.3 AV	54.0	-11.7	1.03 V	234	3.10	39.20
3	*5270.00	97.8 PK			1.03 V	234	58.50	39.30
4	*5270.00	86.0 AV			1.03 V	234	46.70	39.30
5	#10540.00	64.4 PK	74.0	-9.6	1.05 V	169	13.10	51.30
6	#10540.00	47.0 AV	54.0	-7.0	1.05 V	169	-4.30	51.30

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 62	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang

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	99.3 PK			1.00 H	22	59.90	39.40
2	*5310.00	87.3 AV			1.00 H	22	47.90	39.40
3	5350.00	57.4 PK	74.0	-16.6	1.00 H	22	18.00	39.40
4	5350.00	44.1 AV	54.0	-9.9	1.00 H	22	4.70	39.40
5	10620.00	61.0 PK	74.0	-13.0	1.06 H	159	9.50	51.50
6	10620.00	46.7 AV	54.0	-7.3	1.06 H	159	-4.80	51.50
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	*5310.00	92.6 PK			1.02 V	235	53.20	39.40
2	*5310.00	80.3 AV			1.02 V	235	40.90	39.40
3	5350.00	57.0 PK	74.0	-17.0	1.02 V	235	17.60	39.40
4	5350.00	43.3 AV	54.0	-10.7	1.02 V	235	3.90	39.40
5	10620.00	65.4 PK	74.0	-8.6	1.00 V	137	13.90	51.50
6	10620.00	49.6 AV	54.0	-4.4	1.00 V	137	-1.90	51.50

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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 102	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang

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	54.2 PK	74.0	-19.8	1.00 H	216	14.60	39.60
2	5460.00	41.6 AV	54.0	-12.4	1.00 H	216	2.00	39.60
3	#5470.00	55.4 PK	74.0	-18.6	1.00 H	216	15.80	39.60
4	#5470.00	41.7 AV	54.0	-12.3	1.00 H	216	2.10	39.60
5	*5510.00	95.4 PK			1.00 H	216	55.70	39.70
6	*5510.00	84.7 AV			1.00 H	216	45.00	39.70
7	11020.00	61.6 PK	74.0	-12.4	1.68 H	285	8.40	53.20
8	11020.00	48.2 AV	54.0	-5.8	1.68 H	285	-5.00	53.20
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	5460.00	56.6 PK	74.0	-17.4	1.00 V	199	17.00	39.60
2	5460.00	43.4 AV	54.0	-10.6	1.00 V	199	3.80	39.60
3	#5470.00	56.8 PK	74.0	-17.2	1.00 V	199	17.20	39.60
4	#5470.00	43.5 AV	54.0	-10.5	1.00 V	199	3.90	39.60
5	*5510.00	90.3 PK			1.00 V	199	50.60	39.70
6	*5510.00	79.2 AV			1.00 V	199	39.50	39.70
7	11020.00	67.6 PK	74.0	-6.4	1.32 V	246	14.40	53.20
8	11020.00	50.5 AV	54.0	-3.5	1.32 V	246	-2.70	53.20

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 110	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang

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	105.8 PK			1.03 H	42	66.00	39.80
2	*5550.00	93.4 AV			1.03 H	42	53.60	39.80
3	11100.00	62.9 PK	74.0	-11.1	1.45 H	354	10.00	52.90
4	11100.00	48.5 AV	54.0	-5.5	1.45 H	354	-4.40	52.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	96.6 PK			1.00 V	202	56.80	39.80
2	*5550.00	85.7 AV			1.00 V	202	45.90	39.80
3	11100.00	67.9 PK	74.0	-6.1	1.44 V	185	15.00	52.90
4	11100.00	50.9 AV	54.0	-3.1	1.44 V	185	-2.00	52.90

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 134	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang

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	103.2 PK			1.00 H	43	63.20	40.00
2	*5670.00	91.5 AV			1.00 H	43	51.50	40.00
3	#5725.00	57.1 PK	74.0	-16.9	1.00 H	43	17.00	40.10
4	#5725.00	44.0 AV	54.0	-10.0	1.00 H	43	3.90	40.10
5	11340.00	61.5 PK	74.0	-12.5	1.45 H	237	8.60	52.90
6	11340.00	48.3 AV	54.0	-5.7	1.45 H	237	-4.60	52.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	98.1 PK			1.75 V	12	58.10	40.00
2	*5670.00	86.2 AV			1.75 V	12	46.20	40.00
3	#5725.00	54.4 PK	74.0	-19.6	1.75 V	12	14.30	40.10
4	#5725.00	41.3 AV	54.0	-12.7	1.75 V	12	1.20	40.10
5	11340.00	67.5 PK	74.0	-6.5	1.57 V	189	14.60	52.90
6	11340.00	51.5 AV	54.0	-2.5	1.57 V	189	-1.40	52.90

REMARKS:

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

BELOW 1GHz WORST-CASE DATA :

802.11a: 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang

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	82.29	33.7 QP	40.0	-6.3	1.00 H	181	24.80	8.90
2	169.61	36.8 QP	43.5	-6.7	1.24 H	259	23.70	13.10
3	210.36	35.4 QP	43.5	-8.1	1.24 H	239	24.40	11.00
4	299.62	36.2 QP	46.0	-9.8	1.00 H	285	21.90	14.30
5	664.41	36.0 QP	46.0	-10.0	1.00 H	63	13.40	22.60
6	720.68	32.9 QP	46.0	-13.1	1.99 H	142	9.50	23.40
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	82.29	26.8 QP	40.0	-13.2	1.99 V	31	17.90	8.90
2	165.73	28.4 QP	43.5	-15.1	1.24 V	123	15.00	13.40
3	336.48	32.4 QP	46.0	-13.6	1.99 V	55	17.10	15.30
4	431.56	31.3 QP	46.0	-14.7	1.00 V	190	13.60	17.70
5	499.48	30.3 QP	46.0	-15.7	1.50 V	6	11.10	19.20
6	697.40	31.1 QP	46.0	-14.9	1.00 V	96	8.10	23.00

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.



A D T

802.11n(20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH	TESTED BY	Ted Chang

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	82.29	33.2 QP	40.0	-6.8	1.00 H	201	24.30	8.90
2	169.61	35.4 QP	43.5	-8.1	1.24 H	151	22.30	13.10
3	299.62	36.4 QP	46.0	-9.6	1.50 H	278	22.10	14.30
4	344.24	33.3 QP	46.0	-12.7	1.00 H	168	17.80	15.50
5	625.60	32.5 QP	46.0	-13.5	1.24 H	147	10.50	22.00
6	697.40	34.1 QP	46.0	-11.9	1.99 H	57	11.10	23.00
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	82.29	28.3 QP	40.0	-11.7	1.50 V	245	19.40	8.90
2	165.73	28.6 QP	43.5	-14.9	1.24 V	110	15.20	13.40
3	336.48	32.3 QP	46.0	-13.7	1.00 V	61	17.00	15.30
4	431.56	31.8 QP	46.0	-14.2	1.00 V	175	14.10	17.70
5	511.12	28.1 QP	46.0	-17.9	1.50 V	123	8.70	19.40
6	697.40	29.4 QP	46.0	-16.6	1.24 V	76	6.40	23.00

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.

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
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Jul. 02, 2012	Jul. 01, 2013
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

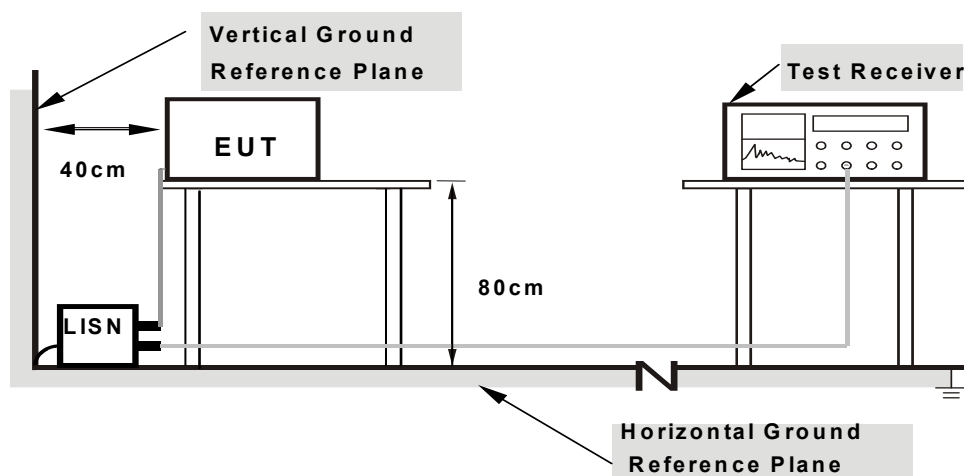
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- 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:**
- Support units were connected to second LISN.
 - 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

- a. Connected EUT to notebook system via the extension Card and placed 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.
- c. The notebook system sent “H” patterns to its screen.

4.2.7 TEST RESULTS

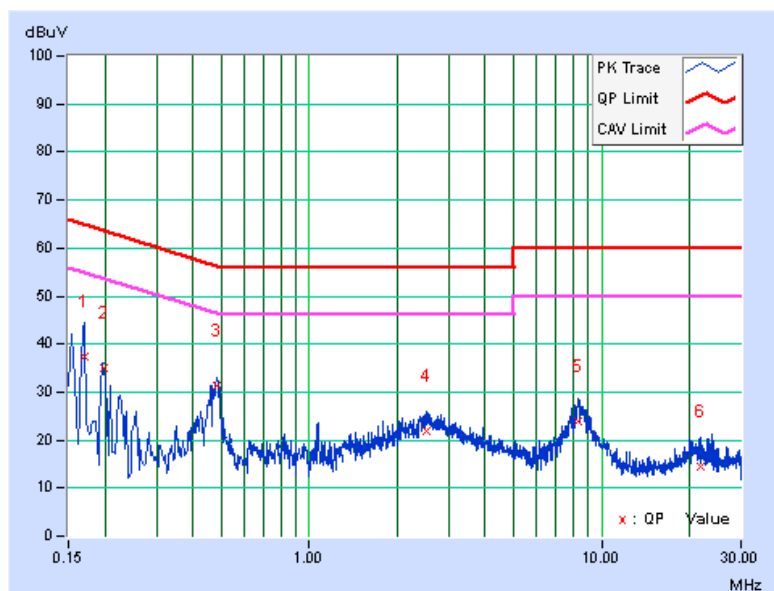
CONDUCTED WORST-CASE DATA :

802.11a

PHASE	Line 1	6dB BANDWIDTH	9kHz
CHANNEL	Channel 52		

No	Freq.	Corr. Factor	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	0.16955	0.15	37.09	25.91	37.24	26.06	64.98	54.98	-27.75	-28.93
2	0.19717	0.15	34.93	20.65	35.08	20.80	63.73	53.73	-28.65	-32.93
3	0.48235	0.20	31.27	23.83	31.47	24.03	56.30	46.30	-24.82	-22.26
4	2.53119	0.29	21.69	16.27	21.98	16.56	56.00	46.00	-34.02	-29.44
5	8.28671	0.60	23.15	16.07	23.75	16.67	60.00	50.00	-36.25	-33.33
6	21.95607	1.35	13.19	6.93	14.54	8.28	60.00	50.00	-45.46	-41.72

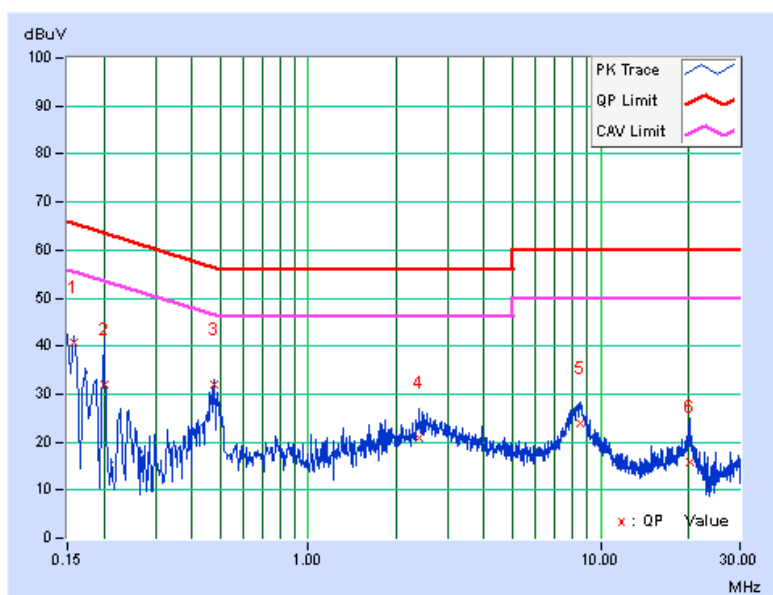
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. The emission levels of other frequencies were very low against the limit.
 3. Margin value = Emission level - Limit value
 4. Correction factor = Insertion loss + Cable loss
 5. Emission Level = Correction Factor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



PHASE	Line 2	6dB BANDWIDTH	9kHz
CHANNEL	Channel 52		

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	0.15802	0.20	40.70	25.30	40.90	25.50	65.57	55.57	-24.67	-30.07
2	0.20084	0.20	31.84	19.73	32.04	19.93	63.58	53.58	-31.54	-33.65
3	0.47844	0.26	31.64	23.19	31.90	23.45	56.37	46.37	-24.46	-22.91
4	2.39825	0.33	20.69	14.91	21.02	15.24	56.00	46.00	-34.98	-30.76
5	8.48221	0.57	23.33	16.49	23.90	17.06	60.00	50.00	-36.10	-32.94
6	20.31778	0.99	14.96	8.10	15.95	9.09	60.00	50.00	-44.05	-40.91

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.

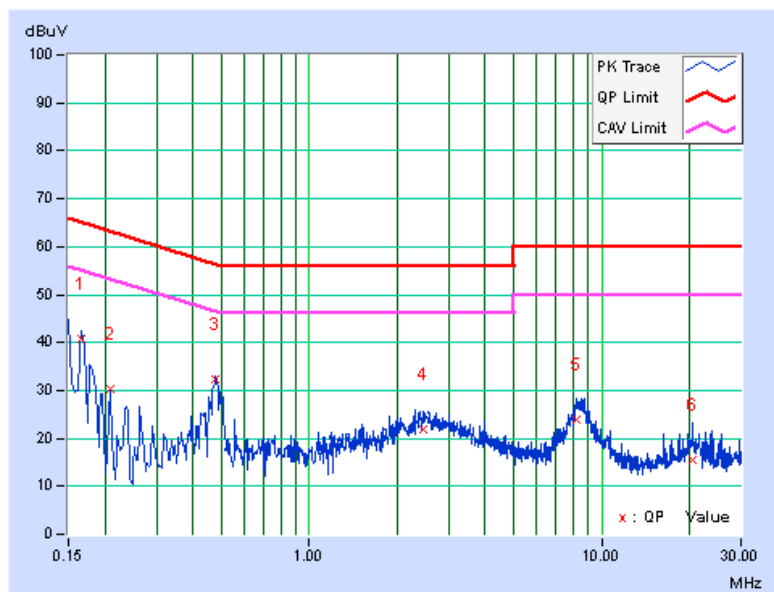


802.11n(20MHz)

PHASE	Line 1	6dB BANDWIDTH	9kHz
CHANNEL	Channel 116		

No	Freq.	Corr. Factor	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	0.16564	0.15	40.61	26.92	40.76	27.07	65.18	55.18	-24.42	-28.11
2	0.20865	0.15	30.30	10.56	30.45	10.71	63.26	53.26	-32.81	-42.55
3	0.47844	0.20	32.14	23.86	32.34	24.06	56.37	46.37	-24.02	-22.30
4	2.45690	0.29	21.46	15.73	21.75	16.02	56.00	46.00	-34.25	-29.98
5	8.25152	0.60	23.19	15.97	23.79	16.57	60.00	50.00	-36.21	-33.43
6	20.50937	1.31	14.01	8.08	15.32	9.39	60.00	50.00	-44.68	-40.61

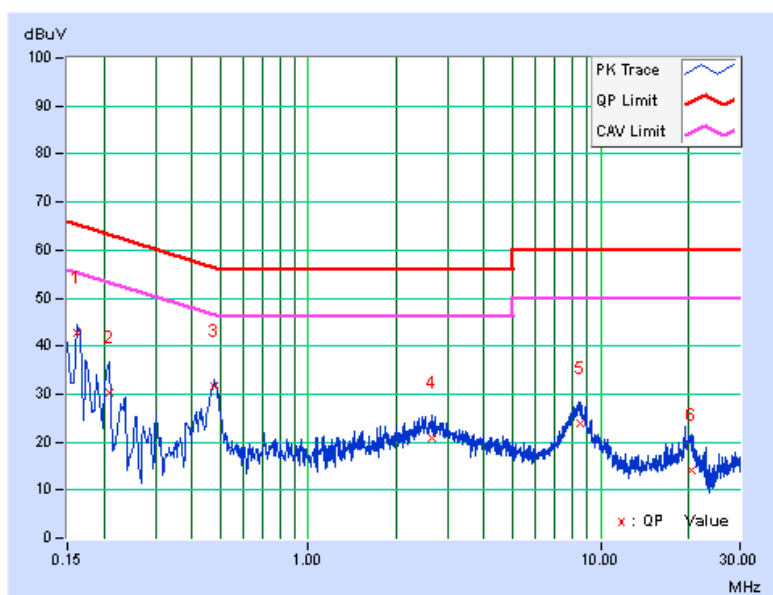
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor +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



PHASE	Line 2	6dB BANDWIDTH	9kHz
CHANNEL	Channel 116		

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	0.16181	0.20	42.52	27.90	42.72	28.10	65.37	55.37	-22.65	-27.27
2	0.20838	0.20	30.00	10.38	30.20	10.58	63.27	53.27	-33.07	-42.69
3	0.47844	0.26	31.53	23.06	31.79	23.32	56.37	46.37	-24.57	-23.04
4	2.66413	0.34	20.48	14.72	20.82	15.06	56.00	46.00	-35.18	-30.94
5	8.52522	0.58	23.20	16.24	23.78	16.82	60.00	50.00	-36.22	-33.18
6	20.57975	1.00	13.10	6.60	14.10	7.60	60.00	50.00	-45.90	-42.40

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;

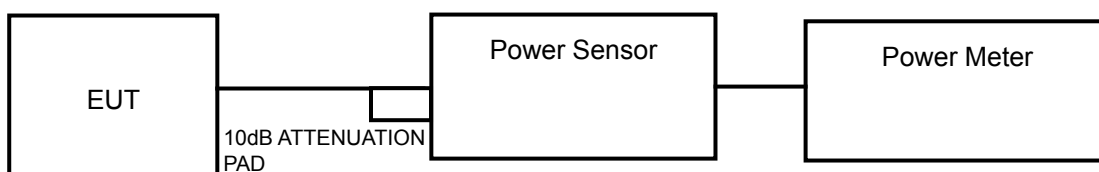
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;

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

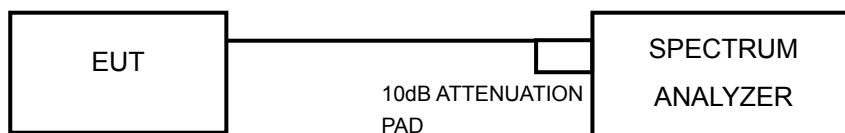
For power measurements on all other devices: Array Gain = 10 log(NANT/NSS) dB.

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.

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: 1TX

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	29.309	14.67	17	PASS
40	5200	27.669	14.42	17	PASS
48	5240	27.861	14.45	17	PASS
52	5260	95.719	19.81	24	PASS
60	5300	93.111	19.69	24	PASS
64	5320	53.951	17.32	24	PASS
100	5500	27.227	14.35	24	PASS
116	5580	50.933	17.07	24	PASS
140	5700	21.232	13.27	24	PASS

802.11a: 2TX

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	11.52	11.43	28.091	14.49	17	PASS
40	5200	11.47	11.37	27.737	14.43	17	PASS
48	5240	11.72	11.38	28.599	14.56	17	PASS
52	5260	17.06	15.82	89.010	19.49	24	PASS
60	5300	17.03	16.71	97.347	19.88	24	PASS
64	5320	14.53	14.24	54.925	17.40	24	PASS
100	5500	11.17	11.93	28.688	14.58	24	PASS
116	5580	14.24	14.82	56.885	17.55	24	PASS
140	5700	10.23	11.13	23.516	13.71	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	10.97	10.31	23.243	13.66	17	PASS
40	5200	11.01	10.42	23.633	13.74	17	PASS
48	5240	10.86	10.27	22.831	13.59	17	PASS
52	5260	14.50	14.05	53.594	17.29	24	PASS
60	5300	14.51	13.93	52.966	17.24	24	PASS
64	5320	14.33	13.67	50.383	17.02	24	PASS
100	5500	12.41	11.69	32.175	15.08	24	PASS
116	5580	15.68	15.18	69.944	18.45	24	PASS
140	5700	12.07	12.06	32.175	15.08	24	PASS

802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	9.52	8.75	16.453	12.16	17	PASS
46	5230	13.71	13.12	44.008	16.44	17	PASS
54	5270	15.25	14.69	62.941	17.99	24	PASS
62	5310	9.62	9.09	17.272	12.37	24	PASS
102	5510	8.63	8.11	13.766	11.39	24	PASS
110	5550	14.85	13.82	54.648	17.38	24	PASS
134	5670	12.25	11.80	31.924	15.04	24	PASS

*The total power level has added the duty factor in the power meter offset.

26dB BANDWIDTH:

802.11a: 1TX

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
36	5180	30.39	PASS
40	5200	30.39	PASS
48	5240	30.46	PASS
52	5260	44.99	PASS
60	5300	47.00	PASS
64	5320	40.57	PASS
100	5500	27.27	PASS
116	5580	38.19	PASS
140	5700	25.73	PASS

802.11a: 2TX

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
36	5180	26.82	24.82	PASS
40	5200	25.46	25.86	PASS
48	5240	25.30	24.39	PASS
52	5260	38.75	38.73	PASS
60	5300	38.74	38.79	PASS
64	5320	29.37	28.73	PASS
100	5500	24.81	24.51	PASS
116	5580	27.17	30.70	PASS
140	5700	25.14	24.83	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
36	5180	25.20	24.92	PASS
40	5200	25.56	24.64	PASS
48	5240	25.97	25.08	PASS
52	5260	30.19	27.95	PASS
60	5300	29.92	28.95	PASS
64	5320	27.17	28.69	PASS
100	5500	25.83	25.60	PASS
116	5580	38.18	33.42	PASS
140	5700	25.93	24.51	PASS

802.11n (40MHz)

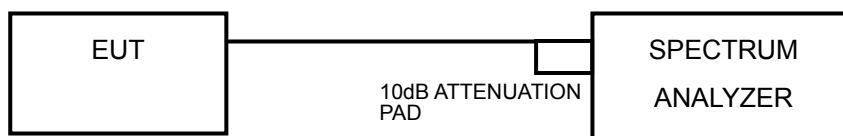
CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
38	5190	44.01	44.05	PASS
46	5230	51.79	51.76	PASS
54	5270	73.56	71.86	PASS
62	5310	44.04	43.64	PASS
102	5510	44.16	43.20	PASS
110	5550	71.42	54.18	PASS
134	5670	49.14	44.57	PASS

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)

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

802.11n(40MHz)

Using method SA-2 alternative

- 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 = 60 ms.
- 5) Perform a single sweep.
- 6) Record the max value and add 10 log (1/duty cycle)

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: 1TX

CHANNEL	FREQUENCY (MHz)	PSD (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	2.53	4	PASS
40	5200	1.73	4	PASS
48	5240	2.42	4	PASS
52	5260	7.63	11	PASS
60	5300	8.12	11	PASS
64	5320	5.68	11	PASS
100	5500	2.67	11	PASS
116	5580	5.49	11	PASS
140	5700	1.38	11	PASS

802.11a: 2TX

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
36	5180	-2.06	-2.56	0.71	4	PASS
40	5200	-2.05	-2.27	0.85	4	PASS
48	5240	-0.99	-1.82	1.63	4	PASS
52	5260	3.88	2.71	6.34	11	PASS
60	5300	4.91	3.43	7.24	11	PASS
64	5320	1.85	0.69	4.32	11	PASS
100	5500	-1.62	-1.34	1.53	11	PASS
116	5580	1.42	2.48	4.99	11	PASS
140	5700	-2.41	-1.43	1.12	11	PASS

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

2. For 5180~5240MHz:

Directional gain = 2.15dBi + 10log(2) = 5.16dBi < 6dBi , so the limit no need to reduced.

For 5260~5320MHz:

Directional gain = 1.38dBi + 10log(2) = 4.39dBi < 6dBi , so the limit no need to reduced.

For 5500~5700MHz:

Directional gain = 1.62dBi + 10log(2) = 4.63dBi < 6dBi , so the limit no need to reduced.

802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
36	5180	-1.53	-2.66	0.95	4	PASS
40	5200	-1.74	-2.76	0.79	4	PASS
48	5240	-1.29	-1.98	1.39	4	PASS
52	5260	2.59	2.13	5.38	11	PASS
60	5300	2.90	2.31	5.63	11	PASS
64	5320	2.91	1.96	5.47	11	PASS
100	5500	0.29	-0.24	3.04	11	PASS
116	5580	4.30	3.34	6.86	11	PASS
140	5700	1.44	0.60	4.05	11	PASS

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

2. For 5180~5240MHz:

Directional gain = 2.15dBi + 10log(2) = 5.16dBi < 6dBi , so the limit no need to reduced.

For 5260~5320MHz:

Directional gain = 1.38dBi + 10log(2) = 4.39dBi < 6dBi , so the limit no need to reduced.

For 5500~5700MHz:

Directional gain = 1.62dBi + 10log(2) = 4.63dBi < 6dBi , so the limit no need to reduced.

802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)		TOTAL PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	TOTAL PSD WITH DUTY FACTOR (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1					
38	5190	-6.12	-6.79	-3.31	0.12	-3.19	4	PASS
46	5230	-0.63	-1.22	2.22	0.12	2.34	4	PASS
54	5270	1.05	1.23	4.27	0.12	4.39	11	PASS
62	5310	-4.62	-5.29	-1.81	0.12	-1.69	11	PASS
102	5510	-5.95	-6.63	-3.15	0.12	-3.03	11	PASS
110	5550	0.74	-0.24	3.41	0.12	3.53	11	PASS
134	5670	-0.86	-1.94	1.76	0.12	1.88	11	PASS

NOTE:

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

2. For 5190~5230MHz:

Directional gain = 2.15dBi + 10log(2) = 5.16dBi < 6dBi , so the limit no need to reduced.

For 5270~5310MHz:

Directional gain = 1.38dBi + 10log(2) = 4.39dBi < 6dBi , so the limit no need to reduced.

For 5510~5670MHz:

Directional gain = 1.62dBi + 10log(2) = 4.63dBi < 6dBi , so the limit no need to reduced.

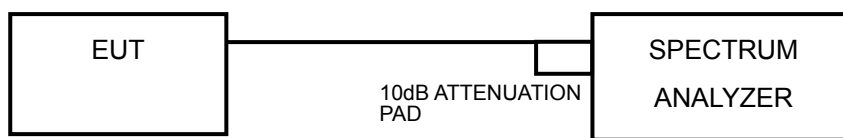
3. Refer to section 3.3 for duty cycle spectrum plot.

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.

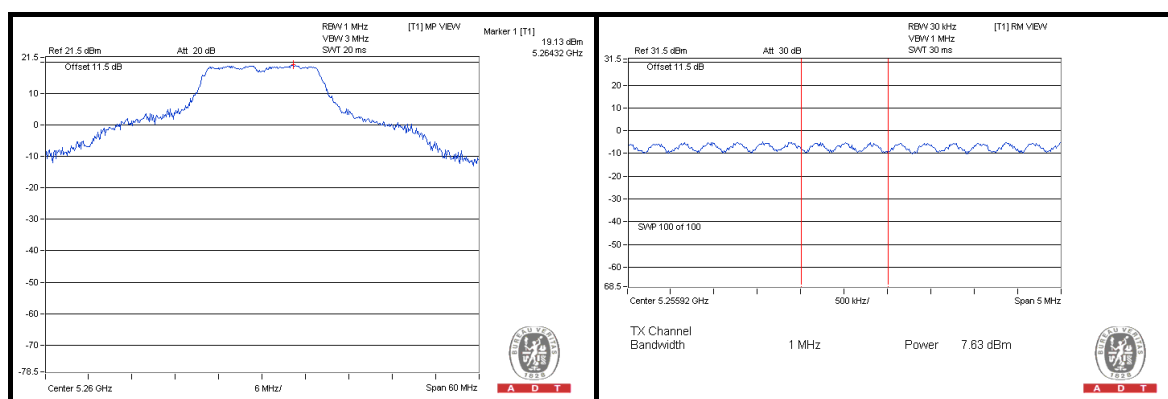
4.5.6 EUT OPERATING CONDITIONS

Same as 4.2.6

4.5.7 TEST RESULTS

802.11a: 1TX

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK VALUE (dBm)	PPSD (dBm)	PEAK EXCURSION (dB)	LIMIT (dB)	PASS/FAIL
36	5180	13.05	2.53	10.52	13	PASS
40	5200	12.86	1.73	11.13	13	PASS
48	5240	13.46	2.42	11.04	13	PASS
52	5260	19.13	7.63	11.50	13	PASS
60	5300	19.19	8.12	11.07	13	PASS
64	5320	16.60	5.68	10.92	13	PASS
100	5500	13.59	2.67	10.92	13	PASS
116	5580	15.90	5.49	10.41	13	PASS
140	5700	12.21	1.38	10.83	13	PASS

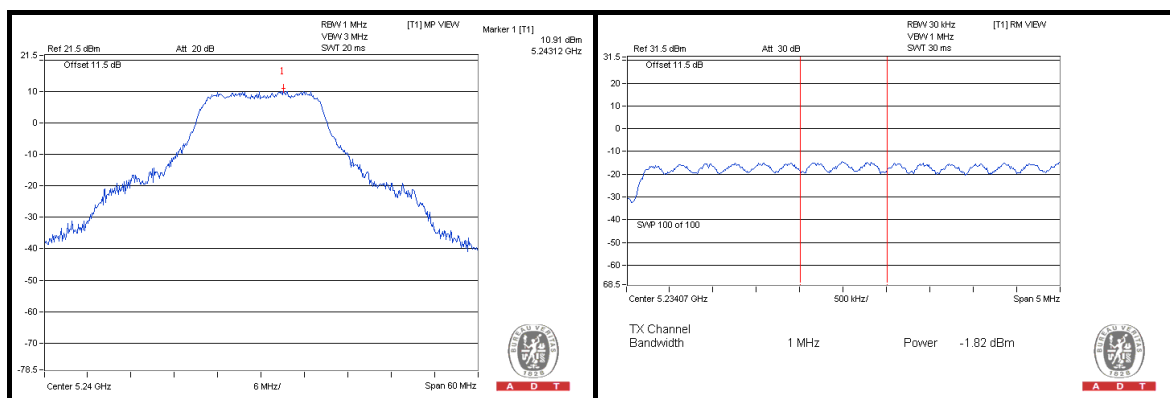




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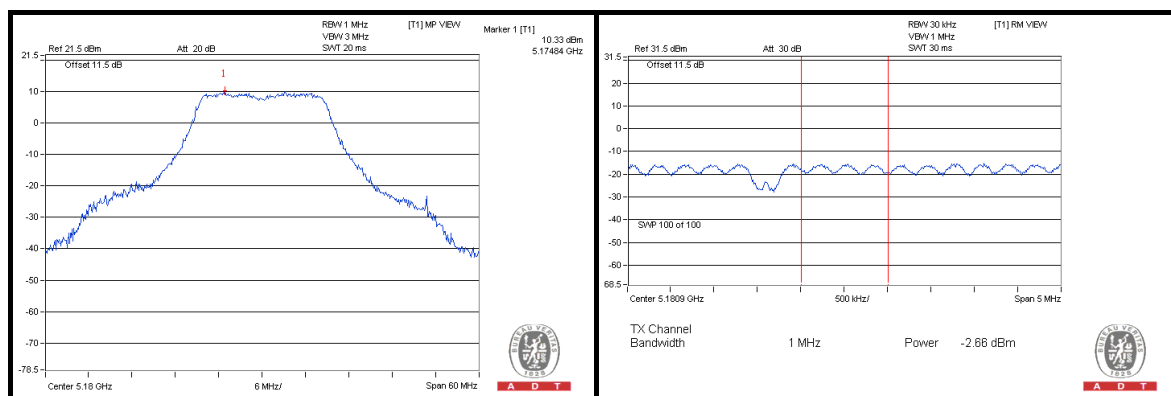
802.11a: 2TX

CHAN.	CHAN. FREQ. (MHz)	PEAK VALUE (dBm)		PPSD (dBm)		PEAK EXCURSION (dB)		LIMIT (dB)	PASS/ FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1		
36	5180	9.38	9.59	-2.06	-2.56	11.44	12.15	13	PASS
40	5200	9.29	9.67	-2.05	-2.27	11.34	11.94	13	PASS
48	5240	9.57	10.91	-0.99	-1.82	10.56	12.73	13	PASS
52	5260	15.09	14.98	3.88	2.71	11.21	12.27	13	PASS
60	5300	15.28	15.31	4.91	3.43	10.37	11.88	13	PASS
64	5320	12.63	12.86	1.85	0.69	10.78	12.17	13	PASS
100	5500	9.53	10.64	-1.62	-1.34	11.15	11.98	13	PASS
116	5580	12.72	14.46	1.42	2.48	11.30	11.98	13	PASS
140	5700	8.55	10.55	-2.41	-1.43	10.96	11.98	13	PASS



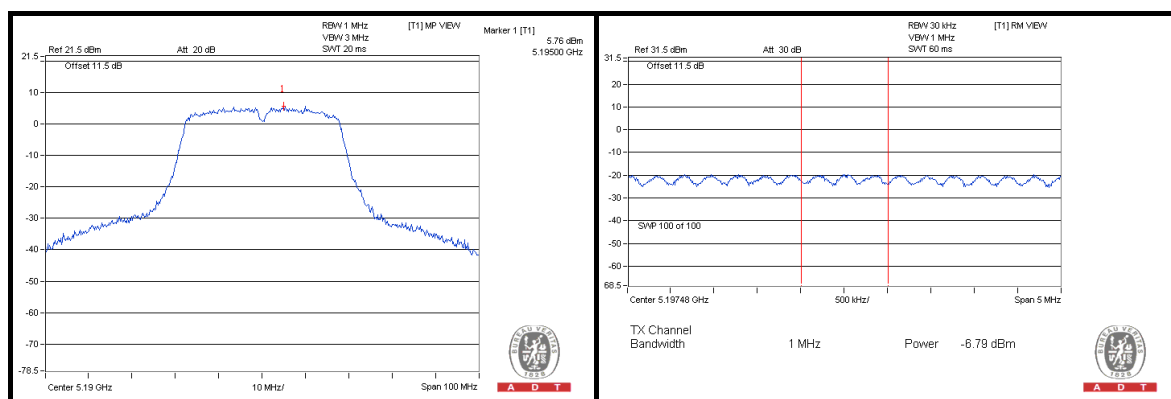
802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	PEAK VALUE (dBm)		PPSD (dBm)		PEAK EXCURSION (dB)		LIMIT (dB)	PASS/ FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1		
36	5180	10.50	10.33	-1.53	-2.66	12.03	12.99	13	PASS
40	5200	9.83	9.79	-1.74	-2.76	11.57	12.55	13	PASS
48	5240	10.54	10.66	-1.29	-1.98	11.83	12.64	13	PASS
52	5260	14.70	14.33	2.59	2.13	12.11	12.20	13	PASS
60	5300	14.57	14.51	2.90	2.31	11.67	12.20	13	PASS
64	5320	14.40	14.53	2.91	1.96	11.49	12.57	13	PASS
100	5500	12.21	11.55	0.29	-0.24	11.92	11.79	13	PASS
116	5580	16.03	15.51	4.30	3.34	11.73	12.17	13	PASS
140	5700	12.92	12.40	1.44	0.60	11.48	11.80	13	PASS



802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	PEAK VALUE (dBm)		PPSD WITHOUT DUTY FACTOR (dBm)		PPSD WITH DUTY FACTOR (dBm)		PEAK EXCURSION (dB)		LIMIT (dB)	PASS /FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1		
38	5190	6.41	5.76	-6.12	-6.79	-6.00	-6.67	12.41	12.43	13	PASS
46	5230	11.10	11.16	-0.63	-1.22	-0.51	-1.10	11.61	12.26	13	PASS
54	5270	13.38	13.72	1.05	1.23	1.17	1.35	12.21	12.37	13	PASS
62	5310	7.56	6.57	-4.62	-5.29	-4.50	-5.17	12.06	11.74	13	PASS
102	5510	6.29	5.44	-5.95	-6.63	-5.83	-6.51	12.12	11.95	13	PASS
110	5550	12.98	11.98	0.74	-0.24	0.86	-0.12	12.12	12.10	13	PASS
134	5670	11.00	10.39	-0.86	-1.94	-0.74	-1.82	11.74	12.21	13	PASS

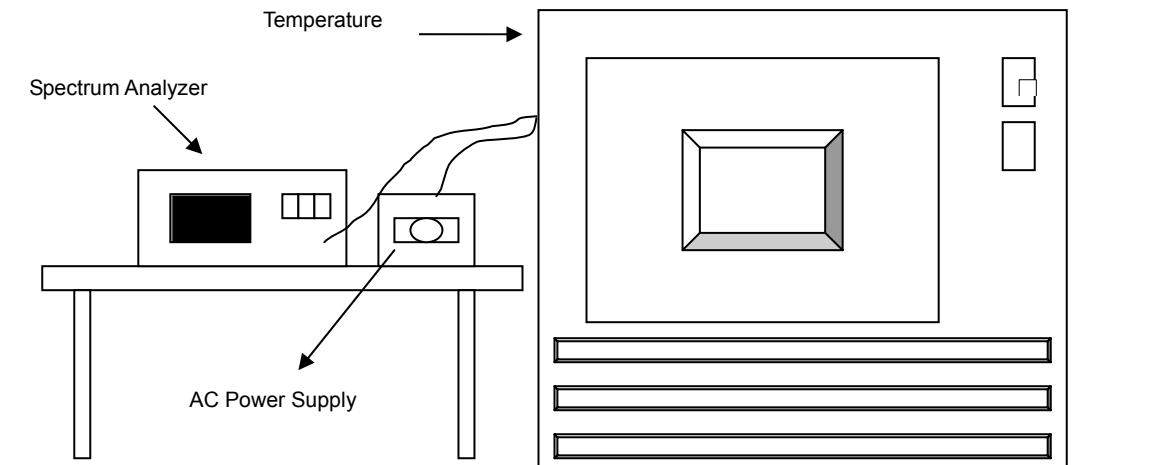


4.6 FREQUENCY STABILITY

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.



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4.6.7 TEST RESULTS

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5180MHz									
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 (%)
60	120	5179.9994	-0.00001	5179.9937	-0.00012	5180.0040	0.00008	5179.9905	-0.00018
50	120	5179.9910	-0.00017	5179.9955	-0.00009	5179.9969	-0.00006	5179.9908	-0.00018
40	120	5180.0041	0.00008	5180.0009	0.00002	5180.0010	0.00002	5179.9945	-0.00011
30	120	5180.0020	0.00004	5179.9978	-0.00004	5180.0057	0.00011	5180.0002	0.00000
20	120	5180.0059	0.00011	5180.0027	0.00005	5180.0107	0.00021	5180.0059	0.00011
10	120	5179.9966	-0.00007	5179.9936	-0.00012	5179.9900	-0.00019	5179.9873	-0.00025
0	120	5179.9920	-0.00015	5179.9865	-0.00026	5179.9899	-0.00019	5179.9953	-0.00009
-10	120	5180.0161	0.00031	5180.0212	0.00041	5180.0239	0.00046	5180.0180	0.00035
-20	120	5180.0167	0.00032	5180.0083	0.00016	5180.0064	0.00012	5180.0170	0.00033
-30	120	5180.0193	0.00037	5180.0209	0.00040	5180.0167	0.00032	5180.0125	0.00024

FREQUENCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5180MHz									
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 (%)
20	138	5180.0064	0.00012	5180.0044	0.00008	5180.0116	0.00022	5180.0056	0.00011
	120	5180.0059	0.00011	5180.0027	0.00005	5180.0107	0.00021	5180.0059	0.00011
	102	5180.0053	0.00010	5180.0038	0.00007	5180.0112	0.00022	5180.0057	0.00011

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.

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