

FCC TEST REPORT (15.407)

REPORT NO.: RF130318C03-1

MODEL NO.: AT-TQ2450

FCC ID: RSL-TQ2450

RECEIVED: Mar. 18, 2013

TESTED: Mar. 21 ~ Oct. 02, 2013

ISSUED: Oct. 17, 2013

APPLICANT: Allied Telesis R&D Center K.K.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF130318C03-1	Original release	Oct. 17, 2013

1. CERTIFICATION

PRODUCT: IEEE 802.11a/b/g/n WIRELESS LAN ACCESS POINT

MODEL: AT-TQ2450

BRAND:  **Allied Telesis™**

APPLICANT: Allied Telesis R&D Center K.K.

TESTED: Mar. 21 ~ Oct. 02, 2013

TEST SAMPLE: ENGINEERING SAMPLE

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

ANSI C63.10-2009

The above equipment (model: AT-TQ2450) 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 :** Oct. 17, 2013
Suntee Liu / Specialist

APPROVED BY :  , **DATE :** Oct. 17, 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 -14.67dB at 19.91406MHz.
15.407(b)(1/2/3) (b)(6)	Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 5725.00MHz.
15.407(a)(1/2)	Max Average Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(6)	Peak Power Excursion	PASS	Meet the requirement of limit.
15.407(a)(1/2)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is SMA Plug Reverse 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	2.93 dB
	200MHz ~1000MHz	2.95 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	IEEE 802.11a/b/g/n WIRELESS LAN ACCESS POINT
MODEL NO.	AT-TQ2450
POWER SUPPLY	12Vdc (Adapter) 55Vdc (POE)
MODULATION TYPE	64QAM, 16QAM, QPSK, BPSK
MODULATION TECHNOLOGY	OFDM
TRANSFER RATE	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 300Mbps
OPERATING FREQUENCY	5150 ~ 5250MHz, 5250 ~ 5350MHz, 5470 ~ 5725MHz
NUMBER OF CHANNEL	5150 ~ 5250MHz: 802.11a, 802.11n (20MHz): 4 802.11n (40MHz): 2 5250 ~ 5350MHz: 802.11a, 802.11n (20MHz): 4 802.11n (40MHz): 2 5470 ~ 5725MHz: 802.11a, 802.11n (20MHz): 8 802.11n (40MHz): 3
OUTPUT POWER	5150 ~ 5250MHz: 46.494mW 5250 ~ 5350MHz: 86.132mW 5470 ~ 5725MHz: 82.469mW
ANTENNA TYPE	Dipole antenna with 2dBi gain
ANTENNA CONNECTOR	SMA Plug Reverse
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Adapter

NOTE:

1. The EUT incorporates a MIMO function. The EUT provides 2 completed transmitters and 2 receivers.

MODULATION MODE	TX FUNCTION	DESCRIPTION
802.11b	1TX	Chain 0
802.11g	2TX	Chain 0 / 1
802.11a	2TX	Chain 0 / 1
802.11n (20MHz)	2TX	Chain 0 / 1
802.11n (40MHz)	2TX	Chain 0 / 1

2. The EUT consumes power from the following adapter.

Brand	CWT
Model	KPL-040F
Input Power	100-240Vac, 50/60Hz, 1.7A
Output Power	12Vdc, 3.33A
Power Line	1.25m cable with 1 core attached on adapter 1.8m AC cable without core

3. The EUT consumes power from the following POE (support unit only).

Brand	PowerDsine™
Model	9001G-40/SP
Input Power	100-240Vac, 50-60Hz, 1.5A
Output Power	55Vdc, 0.73A

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 5150 ~ 5250MHz

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

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

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	46	5230 MHz

FOR 5250 ~ 5350MHz

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

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

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
54	5270 MHz	62	5310 MHz

FOR 5470 ~ 5725MHz

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

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

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

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

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	Power from adapter
B	-	√	√	-	Power from POE

Where **RE≥1G**: Radiated Emission above 1GHz **RE<1G**: Radiated Emission below 1GHz
PLC: Power Line Conducted Emission **APCM**: Antenna Port Conducted Measurement

NOTE 1: "-" means no effect.

NOTE 2: The EUT had been pre-tested on the positioned of X-plane and Z-plane. The worst case was found when positioned on **Z-plane**.

RADIATED EMISSION TEST (ABOVE 1GHz):

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	5150-5250	36 to 48	36, 40, 48	OFDM	BPSK	6.0
A	802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	BPSK	7.2
A	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	15.0
A	802.11a	5250-5350	52 to 64	52, 60, 64	OFDM	BPSK	6.0
A	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	BPSK	7.2
A	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	15.0
A	802.11a	5470-5725	100 to 140	100, 116, 140	OFDM	BPSK	6.0
A	802.11n (20MHz)		100 to 140	100, 116, 140	OFDM	BPSK	7.2
A	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	15.0

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B	802.11n (20MHz)	5150-5350	36 to 64	52	OFDM	BPSK	7.2
A, B	802.11n (20MHz)	5470-5725	100 to 140	116	OFDM	BPSK	7.2

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)
A, B	802.11n (20MHz)	5150-5350	36 to 64	52	OFDM	BPSK	7.2
A, B	802.11n (20MHz)	5470-5725	100 to 140	116	OFDM	BPSK	7.2

ANTENNA PORT CONDUCTED MEASUREMENT:

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	5150-5250	36 to 48	36, 40, 48	OFDM	BPSK	6.0
A	802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	BPSK	7.2
A	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	15.0
A	802.11a	5250-5350	52 to 64	52, 60, 64	OFDM	BPSK	6.0
A	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	BPSK	7.2
A	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	15.0
A	802.11a	5470-5725	100 to 140	100, 116, 140	OFDM	BPSK	6.0
A	802.11n (20MHz)		100 to 140	100, 116, 140	OFDM	BPSK	7.2
A	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	15.0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	24deg. C, 67%RH	120Vac, 60Hz	Alan Wu
RE<1G	24deg. C, 67%RH	120Vac, 60Hz	Alan Wu
PLC	20deg. C, 70%RH	120Vac, 60Hz	Alan Wu
APCM	25deg. C, 60%RH	120Vac, 60Hz	Frank Liu

3.3 DUTY CYCLE OF TEST SIGNAL

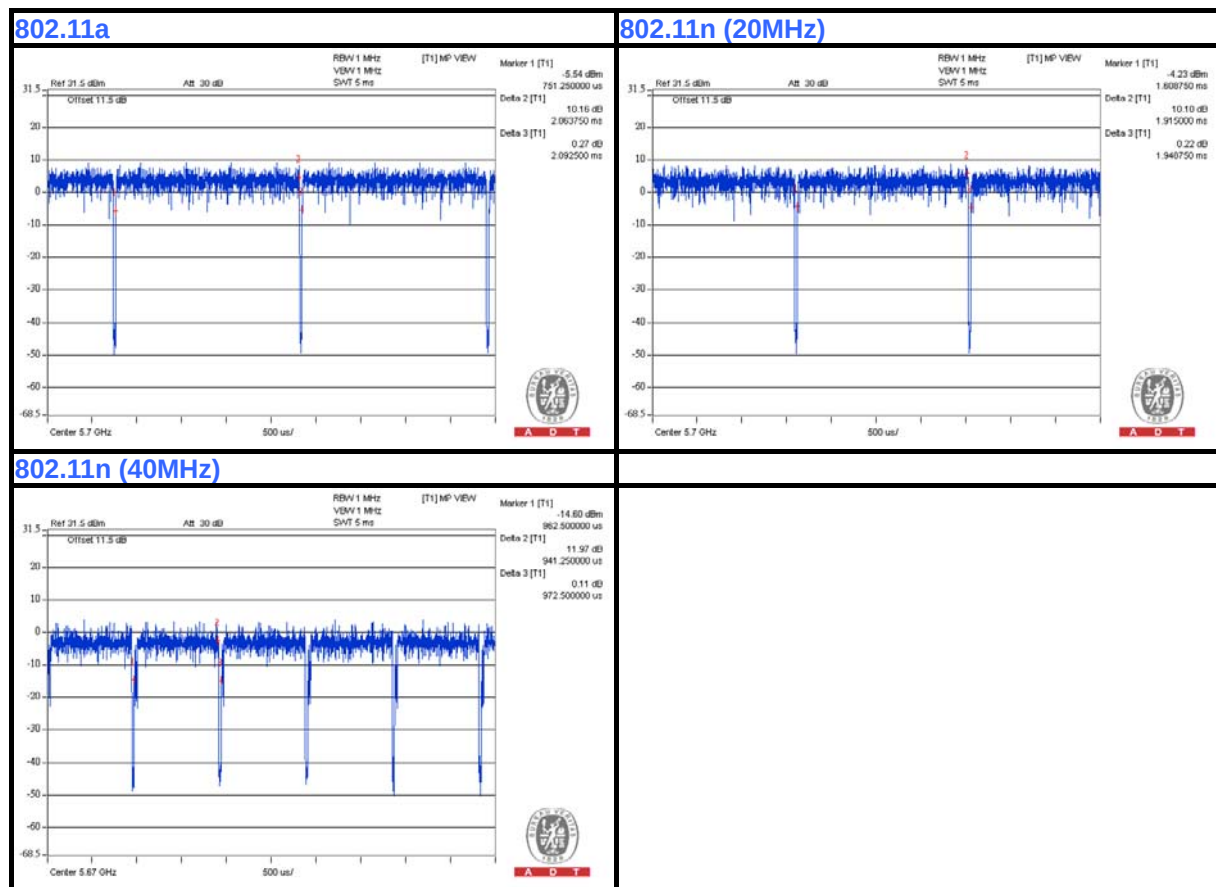
MODULATION TYPE: BPSK

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

802.11a: Duty cycle of test signal is > 98 %, duty factor is not required.

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

802.11n (40MHz): Duty cycle = $0.941/0.972 = 0.968$, Duty factor = $10 * \log(1/0.968) = 0.14$



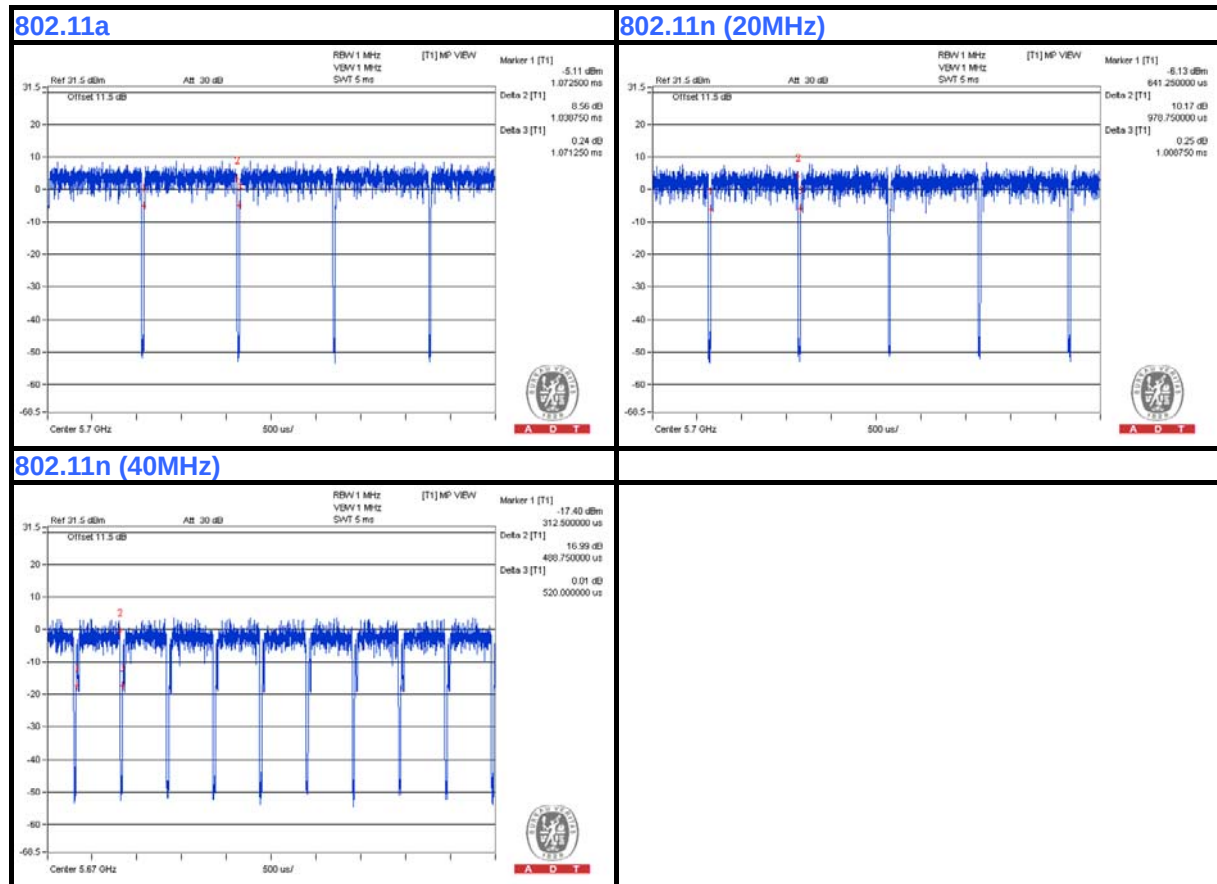
MODULATION TYPE: QPSK

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

802.11a: Duty cycle = $1.039/1.071 = 0.970$, Duty factor = $10 * \log(1/0.970) = 0.13$

802.11n (20MHz): Duty cycle = $0.979/13009 = 0.970$, Duty factor = $10 * \log(1/0.970) = 0.13$

802.11n (40MHz): Duty cycle = $0.489/0.520 = 0.940$, Duty factor = $10 * \log(1/0.940) = 0.27$



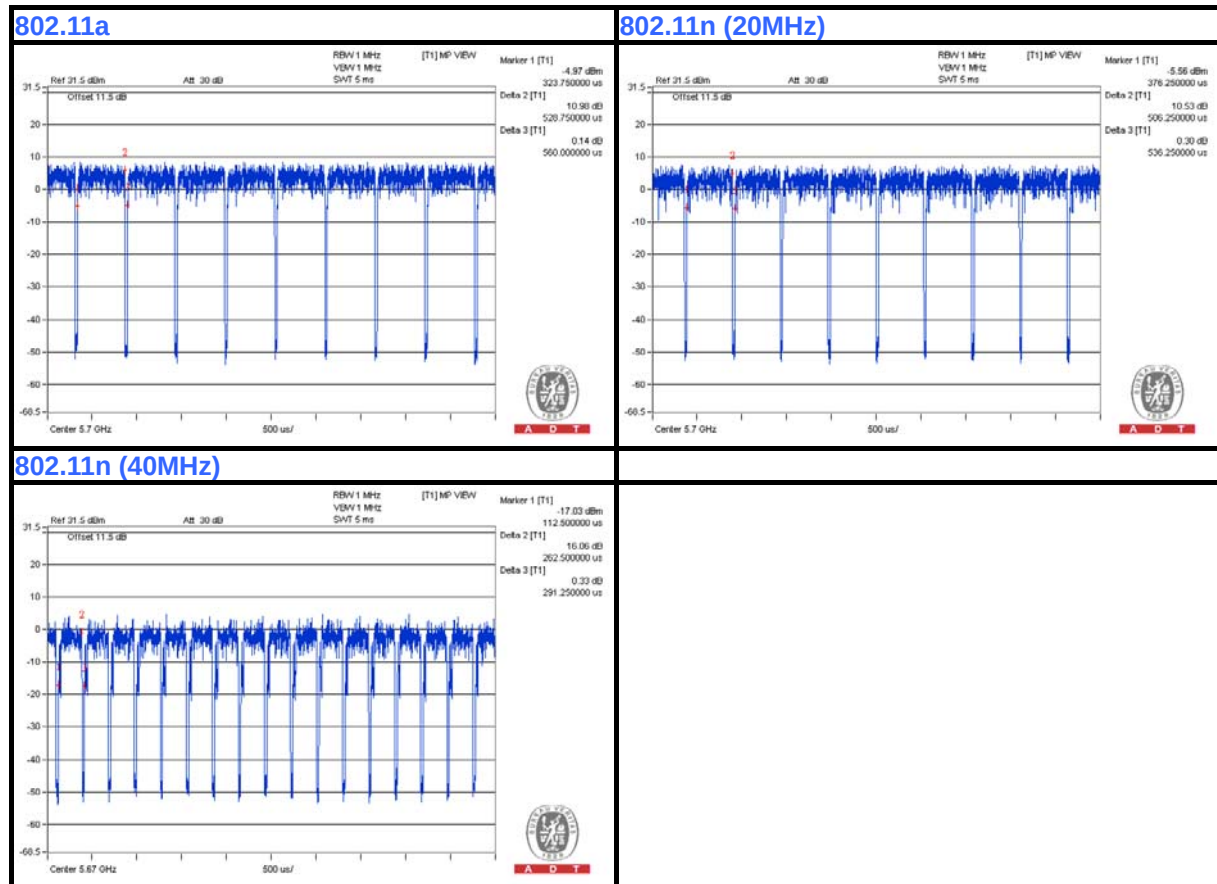
MODULATION TYPE: 16QAM

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

802.11a: Duty cycle = $0.529/0.560 = 0.945$, Duty factor = $10 * \log(1/0.945) = 0.25$

802.11n (20MHz): Duty cycle = $0.506/0.536 = 0.944$, Duty factor = $10 * \log(1/0.944) = 0.25$

802.11n (40MHz): Duty cycle = $0.263/0.291 = 0.904$, Duty factor = $10 * \log(1/0.904) = 0.44$



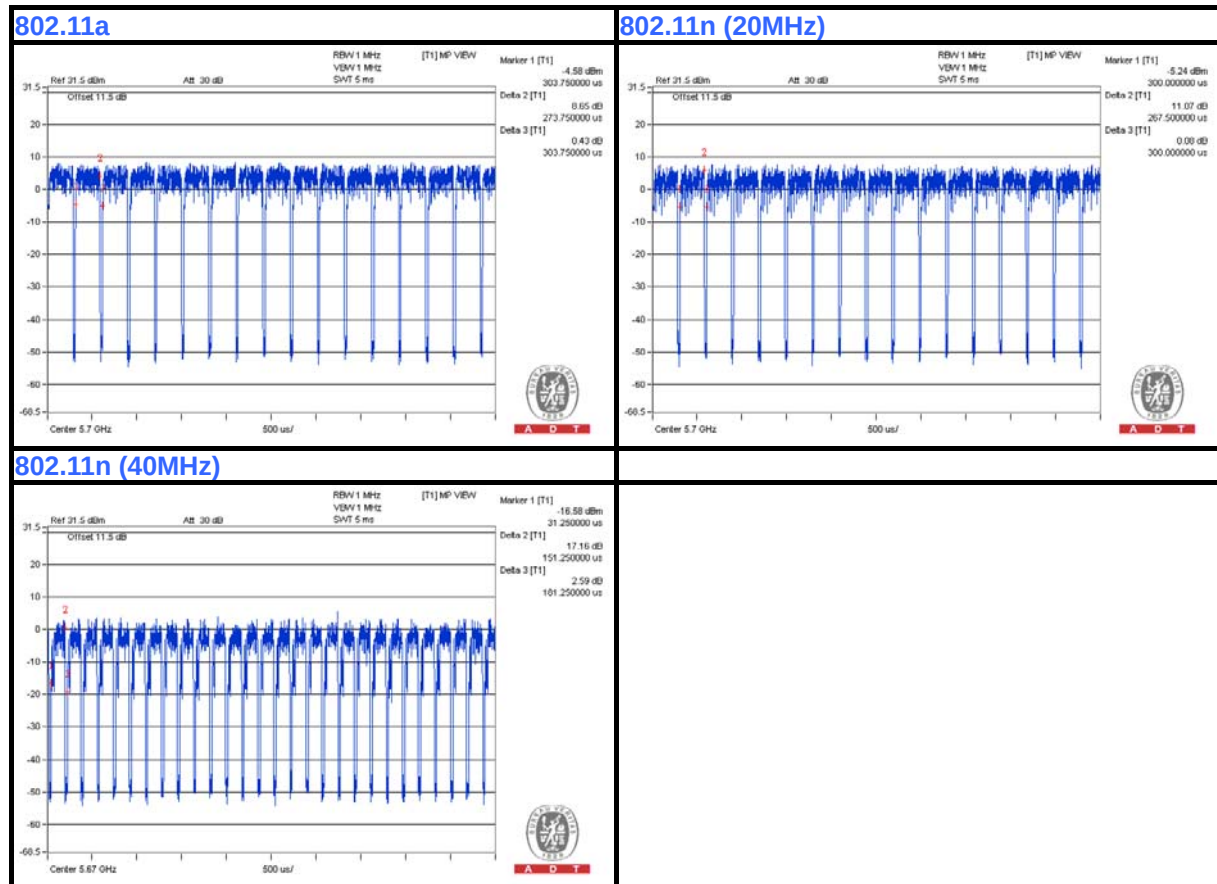
MODULATION TYPE: 64QAM

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

802.11a: Duty cycle = $0.274/0.304 = 0.901$, Duty factor = $10 * \log(1/0.901) = 0.45$

802.11n (20MHz): Duty cycle = $0.267/0.300 = 0.890$, Duty factor = $10 * \log(1/0.890) = 0.51$

802.11n (40MHz): Duty cycle = $0.151/0.181 = 0.834$, Duty factor = $10 * \log(1/0.834) = 0.79$



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	D820	21498926752	FCC DoC Approved
2	POE	NA	AIR-PWRINJ1 500-2	NA	NA

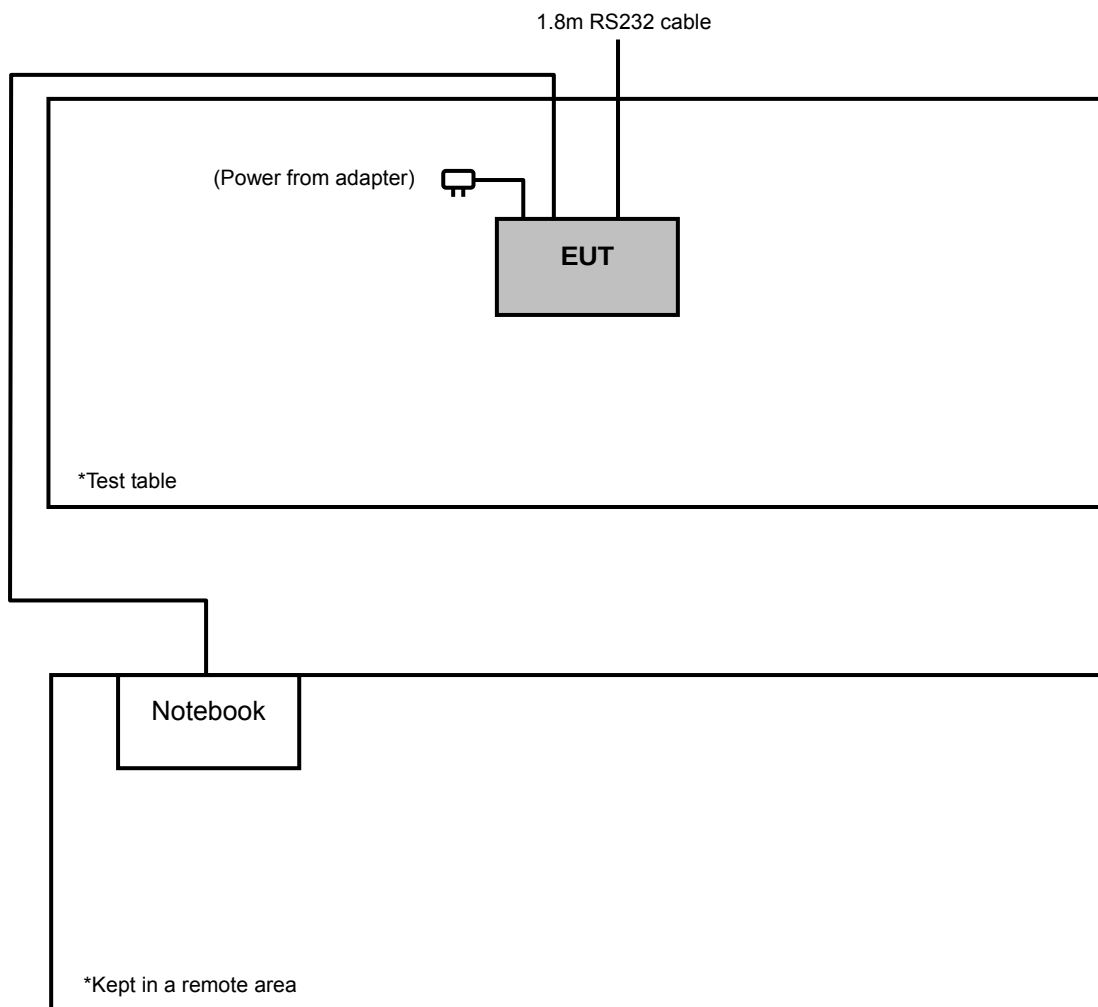
NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m RJ45 UTP cable
2	10m RJ45 UTP cable

NOTE:

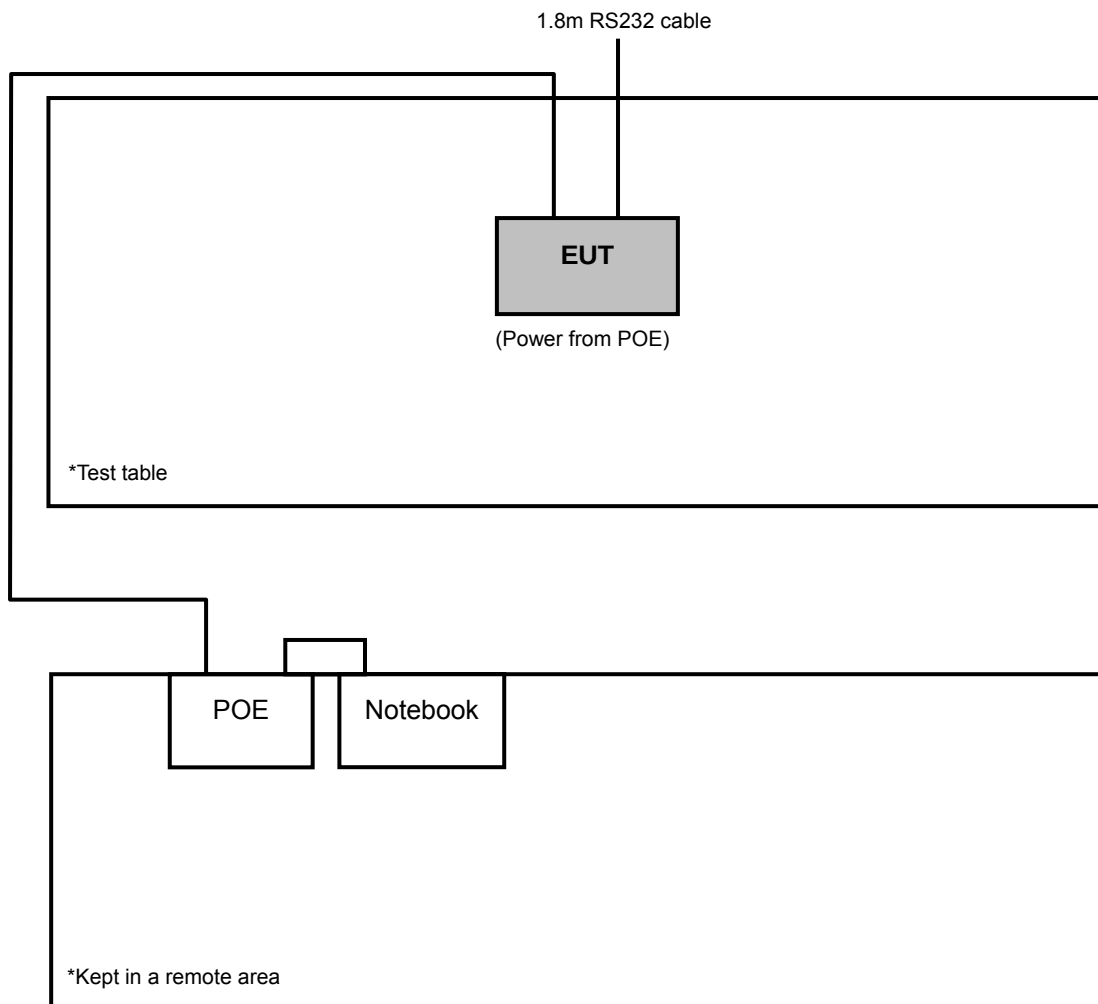
1. All power cords of the above support units are non-shielded (1.8m).
2. Items 1-2 acted as communication partners to transfer data.

3.4.1 CONFIGURATION OF SYSTEM UNDER TEST

Test mode A



Test mode B



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 v02

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	ESCS30	100289	Nov. 16, 2012	Nov. 15, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jan. 28, 2013	Jan. 27, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 03, 2012 Mar. 22, 2013	Apr. 02, 2013 Mar. 21, 2014
HORN Antenna SCHWARZBECK	BBHA 9120 D	209	Sep. 13, 2012 Sep. 12, 2013	Sep. 12, 2013 Sep. 11, 2014
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 16, 2012 Jul. 15, 2013	Jul. 15, 2013 Jul. 14, 2014
Loop Antenna	HFH2-Z2	100070	Jan. 31, 2012	Jan. 30, 2014
Preamplifier Agilent	8449B	3008A01911	Oct. 25, 2012	Oct. 24, 2013
Preamplifier Agilent	8447D	2944A10638	Oct. 25, 2012	Oct. 24, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309222/4 248780/4 274392/4	Aug. 23, 2012 Aug. 22, 2013	Aug. 22, 2013 Aug. 21, 2014
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 12, 2012 Aug. 11, 2013	Aug. 11, 2013 Aug. 10, 2014
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 25, 2012	Oct. 24, 2013
High Speed Peak Power Meter	ML2495A	0824011	Jul. 30, 2012 Jul. 29, 2013	Jul. 29, 2013 Jul. 28, 2014
Power Sensor	MA2411B	0738171	Jul. 30, 2012 Jul. 29, 2013	Jul. 29, 2013 Jul. 28, 2014
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 13, 2012 Jun. 10, 2013	Jun. 12, 2013 Jun. 09, 2014

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The calibration interval of the loop antenna is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in HwaYa Chamber 9.
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 215374.
6. The IC Site Registration No. is IC 7450F-9.

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:

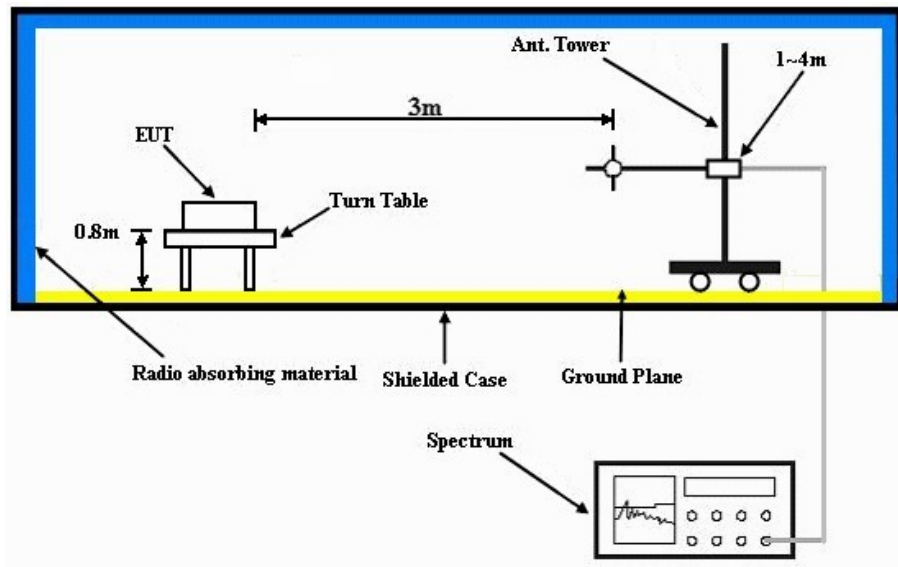
1. Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 1kHz (Duty cycle < 98%) or 10Hz (Duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.5 DEVIATION FROM TEST STANDARD

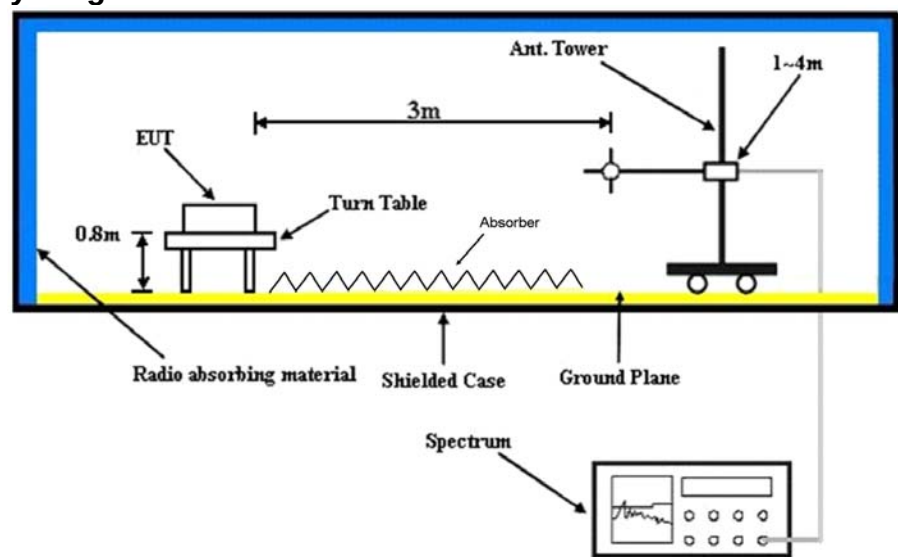
No deviation.

4.1.6 TEST SETUP

Frequency range 30MHz~1GHz



Frequency range above 1GHz



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

4.1.7 EUT OPERATING CONDITION

- a. Placed the EUT on the testing table.
- b. Prepared a notebook to act as a communication partner and placed it outside of testing area.
- c. The communication partner connected with EUT via a RJ45 cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- d. The communication partners sent data to EUT by command "PING".
- e. The necessary accessories enabled the system in full functions.

4.1.8 TEST RESULTS

ABOVE 1GHz WORST-CASE DATA :

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

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	62.6 PK	74.0	-11.4	1.36 H	88	23.10	39.50
2	5150.00	48.3 AV	54.0	-5.7	1.36 H	88	8.80	39.50
3	*5180.00	110.6 PK			1.65 H	88	71.10	39.50
4	*5180.00	100.3 AV			1.65 H	88	60.80	39.50
5	#10360.00	55.9 PK	74.0	-18.1	1.56 H	115	9.20	46.70
6	#10360.00	42.9 AV	54.0	-11.1	1.56 H	115	-3.80	46.70
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	5150.00	60.8 PK	74.0	-13.2	1.00 V	84	21.30	39.50
2	5150.00	47.1 AV	54.0	-6.9	1.00 V	84	7.60	39.50
3	*5180.00	101.3 PK			1.00 V	86	61.80	39.50
4	*5180.00	91.0 AV			1.00 V	86	51.50	39.50
5	#10360.00	55.4 PK	74.0	-18.6	1.54 V	199	8.70	46.70
6	#10360.00	42.1 AV	54.0	-11.9	1.54 V	199	-4.60	46.70

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 of the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

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	110.6 PK			1.32 H	88	71.10	39.50
2	*5200.00	100.2 AV			1.32 H	88	60.70	39.50
3	#10400.00	56.7 PK	74.0	-17.3	1.54 H	117	10.00	46.70
4	#10400.00	43.3 AV	54.0	-10.7	1.54 H	117	-3.40	46.70
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	101.0 PK			1.02 V	166	61.50	39.50
2	*5200.00	90.5 AV			1.02 V	166	51.00	39.50
3	#10400.00	56.3 PK	74.0	-17.7	1.51 V	203	9.60	46.70
4	#10400.00	42.6 AV	54.0	-11.4	1.51 V	203	-4.10	46.70

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 of the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

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	59.8 PK	74.0	-14.2	1.42 H	86	20.30	39.50
2	5150.00	46.8 AV	54.0	-7.2	1.42 H	86	7.30	39.50
3	*5240.00	110.5 PK			1.40 H	89	70.90	39.60
4	*5240.00	100.2 AV			1.40 H	89	60.60	39.60
5	#10480.00	56.6 PK	74.0	-17.4	1.56 H	112	9.80	46.80
6	#10480.00	43.5 AV	54.0	-10.5	1.56 H	112	-3.30	46.80
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	58.7 PK	74.0	-15.3	1.00 V	85	19.20	39.50
2	5150.00	45.4 AV	54.0	-8.6	1.00 V	85	5.90	39.50
3	*5240.00	100.5 PK			1.00 V	87	60.90	39.60
4	*5240.00	90.5 AV			1.00 V	87	50.90	39.60
5	#10480.00	56.2 PK	74.0	-17.8	1.55 V	190	9.40	46.80
6	#10480.00	42.8 AV	54.0	-11.2	1.55 V	190	-4.00	46.80

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 of the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5260.00	112.9 PK			1.30 H	88	73.30	39.60
2	*5260.00	102.7 AV			1.30 H	88	63.10	39.60
3	5350.00	59.6 PK	74.0	-14.4	1.34 H	87	19.80	39.80
4	5350.00	46.3 AV	54.0	-7.7	1.34 H	87	6.50	39.80
5	#10520.00	58.8 PK	74.0	-15.2	1.23 H	75	12.00	46.80
6	#10520.00	44.0 AV	54.0	-10.0	1.23 H	75	-2.80	46.80
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	*5260.00	104.3 PK			1.02 V	167	64.70	39.60
2	*5260.00	93.8 AV			1.02 V	167	54.20	39.60
3	5350.00	59.5 PK	74.0	-14.5	1.05 V	169	19.70	39.80
4	5350.00	45.8 AV	54.0	-8.2	1.05 V	169	6.00	39.80
5	#10520.00	58.6 PK	74.0	-15.4	1.59 V	195	11.80	46.80
6	#10520.00	42.5 AV	54.0	-11.5	1.59 V	195	-4.30	46.80

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 of the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

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	112.6 PK			1.40 H	88	72.90	39.70
2	*5300.00	102.4 AV			1.40 H	88	62.70	39.70
3	10600.00	59.4 PK	74.0	-14.6	1.24 H	76	12.60	46.80
4	10600.00	44.7 AV	54.0	-9.3	1.24 H	76	-2.10	46.80
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	102.9 PK			1.00 V	178	63.20	39.70
2	*5300.00	92.7 AV			1.00 V	178	53.00	39.70
3	10600.00	59.3 PK	74.0	-14.7	1.50 V	196	12.50	46.80
4	10600.00	44.1 AV	54.0	-9.9	1.50 V	196	-2.70	46.80

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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

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	112.5 PK			1.40 H	89	72.80	39.70
2	*5320.00	102.2 AV			1.40 H	89	62.50	39.70
3	5350.00	68.3 PK	74.0	-5.7	1.38 H	90	28.50	39.80
4	5350.00	50.5 AV	54.0	-3.5	1.38 H	90	10.70	39.80
5	10640.00	59.2 PK	74.0	-14.8	1.25 H	70	12.30	46.90
6	10640.00	44.5 AV	54.0	-9.5	1.25 H	70	-2.40	46.90
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	102.7 PK			1.00 V	178	63.00	39.70
2	*5320.00	92.2 AV			1.00 V	178	52.50	39.70
3	5350.00	67.1 PK	74.0	-6.9	1.00 V	172	27.30	39.80
4	5350.00	48.5 AV	54.0	-5.5	1.00 V	172	8.70	39.80
5	10640.00	58.1 PK	74.0	-15.9	1.52 V	190	11.20	46.90
6	10640.00	43.9 AV	54.0	-10.1	1.52 V	190	-3.00	46.90

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

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	63.8 PK	74.0	-10.2	1.38 H	86	23.80	40.00
2	5460.00	48.5 AV	54.0	-5.5	1.38 H	86	8.50	40.00
3	#5470.00	67.2 PK	74.0	-6.8	1.38 H	86	27.20	40.00
4	#5470.00	51.9 AV	54.0	-2.1	1.38 H	86	11.90	40.00
5	*5500.00	111.9 PK			1.35 H	86	71.90	40.00
6	*5500.00	102.0 AV			1.35 H	86	62.00	40.00
7	11000.00	69.4 PK	74.0	-4.6	1.15 H	291	21.70	47.70
8	11000.00	52.7 AV	54.0	-1.3	1.15 H	291	5.00	47.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	62.4 PK	74.0	-11.6	1.00 V	187	22.40	40.00
2	5460.00	47.1 AV	54.0	-6.9	1.00 V	187	7.10	40.00
3	#5470.00	63.1 PK	74.0	-10.9	1.00 V	187	23.10	40.00
4	#5470.00	48.3 AV	54.0	-5.7	1.00 V	187	8.30	40.00
5	*5500.00	104.0 PK			1.00 V	184	64.00	40.00
6	*5500.00	93.7 AV			1.00 V	184	53.70	40.00
7	11000.00	65.3 PK	74.0	-8.7	1.00 V	17	17.60	47.70
8	11000.00	48.9 AV	54.0	-5.1	1.00 V	17	1.20	47.70

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 of the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

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	112.5 PK			1.31 H	90	72.40	40.10
2	*5580.00	102.1 AV			1.31 H	90	62.00	40.10
3	11160.00	68.3 PK	74.0	-5.7	1.00 H	296	20.50	47.80
4	11160.00	52.6 AV	54.0	-1.4	1.00 H	296	4.80	47.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	105.0 PK			1.00 V	183	64.90	40.10
2	*5580.00	94.6 AV			1.00 V	183	54.50	40.10
3	11160.00	62.9 PK	74.0	-11.1	1.00 V	15	15.10	47.80
4	11160.00	48.2 AV	54.0	-5.8	1.00 V	15	0.40	47.80

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

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	111.4 PK			1.29 H	88	71.20	40.20
2	*5700.00	101.0 AV			1.29 H	88	60.80	40.20
3	#5725.00	72.8 PK	74.0	-1.2	1.25 H	82	32.50	40.30
4	#5725.00	53.0 AV	54.0	-1.0	1.25 H	82	12.70	40.30
5	11400.00	66.4 PK	74.0	-7.6	1.25 H	290	18.20	48.20
6	11400.00	52.8 AV	54.0	-1.2	1.25 H	290	4.60	48.20
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	*5700.00	103.3 PK			1.30 V	159	63.10	40.20
2	*5700.00	92.5 AV			1.30 V	159	52.30	40.20
3	#5725.00	69.0 PK	74.0	-5.0	1.32 V	150	28.70	40.30
4	#5725.00	50.0 AV	54.0	-4.0	1.32 V	150	9.70	40.30
5	11400.00	62.0 PK	74.0	-12.0	1.00 V	12	13.80	48.20
6	11400.00	48.0 AV	54.0	-6.0	1.00 V	12	-0.20	48.20

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 of the restricted band.

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

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	61.0 PK	74.0	-13.0	1.60 H	81	21.50	39.50
2	5150.00	46.5 AV	54.0	-7.5	1.60 H	81	7.00	39.50
3	*5180.00	108.7 PK			1.65 H	89	69.20	39.50
4	*5180.00	98.3 AV			1.65 H	89	58.80	39.50
5	#10360.00	55.8 PK	74.0	-18.2	1.51 H	110	9.10	46.70
6	#10360.00	42.2 AV	54.0	-11.8	1.51 H	110	-4.50	46.70
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	5150.00	60.5 PK	74.0	-13.5	1.09 V	215	21.00	39.50
2	5150.00	46.1 AV	54.0	-7.9	1.09 V	215	6.60	39.50
3	*5180.00	99.5 PK			1.03 V	215	60.00	39.50
4	*5180.00	89.2 AV			1.03 V	215	49.70	39.50
5	#10360.00	55.3 PK	74.0	-18.7	1.55 V	199	8.60	46.70
6	#10360.00	41.4 AV	54.0	-12.6	1.55 V	199	-5.30	46.70

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 of the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

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	108.6 PK			1.33 H	87	69.10	39.50
2	*5200.00	98.8 AV			1.33 H	87	59.30	39.50
3	#10400.00	56.1 PK	74.0	-17.9	1.58 H	114	9.40	46.70
4	#10400.00	42.8 AV	54.0	-11.2	1.58 H	114	-3.90	46.70
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	99.0 PK			1.00 V	87	59.50	39.50
2	*5200.00	89.3 AV			1.00 V	87	49.80	39.50
3	#10400.00	55.7 PK	74.0	-18.3	1.53 V	206	9.00	46.70
4	#10400.00	42.5 AV	54.0	-11.5	1.53 V	206	-4.20	46.70

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 of the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

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	59.5 PK	74.0	-14.5	1.46 H	87	20.00	39.50
2	5150.00	45.7 AV	54.0	-8.3	1.46 H	87	6.20	39.50
3	*5240.00	108.4 PK			1.41 H	88	68.80	39.60
4	*5240.00	98.5 AV			1.41 H	88	58.90	39.60
5	#10480.00	56.0 PK	74.0	-18.0	1.57 H	116	9.20	46.80
6	#10480.00	42.7 AV	54.0	-11.3	1.57 H	116	-4.10	46.80
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	59.4 PK	74.0	-14.6	1.00 V	84	19.90	39.50
2	5150.00	45.2 AV	54.0	-8.8	1.00 V	84	5.70	39.50
3	*5240.00	99.5 PK			1.00 V	86	59.90	39.60
4	*5240.00	89.4 AV			1.00 V	86	49.80	39.60
5	#10480.00	54.5 PK	74.0	-19.5	1.54 V	200	7.70	46.80
6	#10480.00	41.9 AV	54.0	-12.1	1.54 V	200	-4.90	46.80

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 of the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5260.00	112.2 PK			1.30 H	90	72.60	39.60
2	*5260.00	102.4 AV			1.30 H	90	62.80	39.60
3	5350.00	59.4 PK	74.0	-14.6	1.26 H	85	19.60	39.80
4	5350.00	45.9 AV	54.0	-8.1	1.26 H	85	6.10	39.80
5	#10520.00	59.9 PK	74.0	-14.1	1.25 H	76	13.10	46.80
6	#10520.00	44.2 AV	54.0	-9.8	1.25 H	76	-2.60	46.80
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	*5260.00	103.8 PK			1.02 V	167	64.20	39.60
2	*5260.00	93.8 AV			1.02 V	167	54.20	39.60
3	5350.00	58.3 PK	74.0	-15.7	1.02 V	161	18.50	39.80
4	5350.00	45.4 AV	54.0	-8.6	1.02 V	161	5.60	39.80
5	#10520.00	58.8 PK	74.0	-15.2	1.51 V	192	12.00	46.80
6	#10520.00	43.6 AV	54.0	-10.4	1.51 V	192	-3.20	46.80

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 of the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

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	111.7 PK			1.42 H	88	72.00	39.70
2	*5300.00	102.0 AV			1.42 H	88	62.30	39.70
3	10600.00	60.6 PK	74.0	-13.4	1.21 H	79	13.80	46.80
4	10600.00	44.9 AV	54.0	-9.1	1.21 H	79	-1.90	46.80
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	102.3 PK			1.00 V	166	62.60	39.70
2	*5300.00	92.8 AV			1.00 V	166	53.10	39.70
3	10600.00	59.6 PK	74.0	-14.4	1.59 V	199	12.80	46.80
4	10600.00	44.3 AV	54.0	-9.7	1.59 V	199	-2.50	46.80

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

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	112.2 PK			1.41 H	83	72.50	39.70
2	*5320.00	102.4 AV			1.41 H	83	62.70	39.70
3	5350.00	68.5 PK	74.0	-5.5	1.44 H	84	28.70	39.80
4	5350.00	51.4 AV	54.0	-2.6	1.44 H	84	11.60	39.80
5	10640.00	60.5 PK	74.0	-13.5	1.24 H	74	13.60	46.90
6	10640.00	44.7 AV	54.0	-9.3	1.24 H	74	-2.20	46.90
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	102.4 PK			1.13 V	167	62.70	39.70
2	*5320.00	92.3 AV			1.13 V	167	52.60	39.70
3	5350.00	66.3 PK	74.0	-7.7	1.18 V	162	26.50	39.80
4	5350.00	47.5 AV	54.0	-6.5	1.18 V	162	7.70	39.80
5	10640.00	58.5 PK	74.0	-15.5	1.52 V	198	11.60	46.90
6	10640.00	43.1 AV	54.0	-10.9	1.52 V	198	-3.80	46.90

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

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	65.5 PK	74.0	-8.5	1.39 H	87	25.50	40.00
2	5460.00	49.0 AV	54.0	-5.0	1.39 H	87	9.00	40.00
3	#5470.00	69.8 PK	74.0	-4.2	1.39 H	87	29.80	40.00
4	#5470.00	52.5 AV	54.0	-1.5	1.39 H	87	12.50	40.00
5	*5500.00	111.4 PK			1.34 H	90	71.40	40.00
6	*5500.00	101.7 AV			1.34 H	90	61.70	40.00
7	11000.00	69.5 PK	74.0	-4.5	1.14 H	290	21.80	47.70
8	11000.00	52.9 AV	54.0	-1.1	1.14 H	290	5.20	47.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	64.2 PK	74.0	-9.8	1.09 V	229	24.20	40.00
2	5460.00	47.5 AV	54.0	-6.5	1.09 V	229	7.50	40.00
3	#5470.00	65.7 PK	74.0	-8.3	1.09 V	229	25.70	40.00
4	#5470.00	48.7 AV	54.0	-5.3	1.09 V	229	8.70	40.00
5	*5500.00	103.2 PK			1.03 V	227	63.20	40.00
6	*5500.00	92.9 AV			1.03 V	227	52.90	40.00
7	11000.00	65.4 PK	74.0	-8.6	1.00 V	19	17.70	47.70
8	11000.00	48.1 AV	54.0	-5.9	1.00 V	19	0.40	47.70

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 of the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

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	111.8 PK			1.31 H	90	71.70	40.10
2	*5580.00	102.0 AV			1.31 H	90	61.90	40.10
3	11160.00	67.1 PK	74.0	-6.9	1.42 H	296	19.30	47.80
4	11160.00	52.9 AV	54.0	-1.1	1.42 H	296	5.10	47.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	104.1 PK			1.00 V	183	64.00	40.10
2	*5580.00	94.4 AV			1.00 V	183	54.30	40.10
3	11160.00	63.8 PK	74.0	-10.2	1.00 V	12	16.00	47.80
4	11160.00	48.1 AV	54.0	-5.9	1.00 V	12	0.30	47.80

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

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	108.8 PK			1.30 H	90	68.60	40.20
2	*5700.00	98.8 AV			1.30 H	90	58.60	40.20
3	#5725.00	70.7 PK	74.0	-3.3	1.26 H	87	30.40	40.30
4	#5725.00	52.6 AV	54.0	-1.4	1.26 H	87	12.30	40.30
5	11400.00	66.5 PK	74.0	-7.5	1.14 H	295	18.30	48.20
6	11400.00	50.9 AV	54.0	-3.1	1.14 H	295	2.70	48.20
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	*5700.00	100.1 PK			1.13 V	158	59.90	40.20
2	*5700.00	89.8 AV			1.13 V	158	49.60	40.20
3	#5725.00	67.7 PK	74.0	-6.3	1.17 V	156	27.40	40.30
4	#5725.00	49.8 AV	54.0	-4.2	1.17 V	156	9.50	40.30
5	11400.00	61.1 PK	74.0	-12.9	1.00 V	13	12.90	48.20
6	11400.00	45.9 AV	54.0	-8.1	1.00 V	13	-2.30	48.20

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 of the restricted band.

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

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	66.8 PK	74.0	-7.2	1.47 H	89	27.30	39.50
2	5150.00	52.8 AV	54.0	-1.2	1.47 H	89	13.30	39.50
3	*5190.00	105.7 PK			1.42 H	82	66.20	39.50
4	*5190.00	96.0 AV			1.42 H	82	56.50	39.50
5	#10380.00	55.3 PK	74.0	-18.7	1.50 H	115	8.60	46.70
6	#10380.00	41.2 AV	54.0	-12.8	1.50 H	115	-5.50	46.70
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	5150.00	61.4 PK	74.0	-12.6	1.00 V	84	21.90	39.50
2	5150.00	47.0 AV	54.0	-7.0	1.00 V	84	7.50	39.50
3	*5190.00	95.6 PK			1.00 V	87	56.10	39.50
4	*5190.00	85.9 AV			1.00 V	87	46.40	39.50
5	#10380.00	54.8 PK	74.0	-19.2	1.54 V	190	8.10	46.70
6	#10380.00	40.3 AV	54.0	-13.7	1.54 V	190	-6.40	46.70

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 of the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

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	60.5 PK	74.0	-13.5	1.38 H	89	21.00	39.50
2	5150.00	46.5 AV	54.0	-7.5	1.38 H	89	7.00	39.50
3	*5230.00	105.7 PK			1.33 H	83	66.10	39.60
4	*5230.00	95.9 AV			1.33 H	83	56.30	39.60
5	#10460.00	55.1 PK	74.0	-18.9	1.59 H	118	8.40	46.70
6	#10460.00	41.6 AV	54.0	-12.4	1.59 H	118	-5.10	46.70
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	5150.00	59.5 PK	74.0	-14.5	1.00 V	80	20.00	39.50
2	5150.00	46.1 AV	54.0	-7.9	1.00 V	80	6.60	39.50
3	*5230.00	95.9 PK			1.00 V	88	56.30	39.60
4	*5230.00	86.3 AV			1.00 V	88	46.70	39.60
5	#10460.00	54.6 PK	74.0	-19.4	1.50 V	190	7.90	46.70
6	#10460.00	40.7 AV	54.0	-13.3	1.50 V	190	-6.00	46.70

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 of the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 54	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5270.00	107.7 PK			1.32 H	89	68.00	39.70
2	*5270.00	97.9 AV			1.32 H	89	58.20	39.70
3	5350.00	60.1 PK	74.0	-13.9	1.35 H	89	20.30	39.80
4	5350.00	46.9 AV	54.0	-7.1	1.35 H	89	7.10	39.80
5	#10540.00	58.3 PK	74.0	-15.7	1.29 H	75	11.50	46.80
6	#10540.00	42.4 AV	54.0	-11.6	1.29 H	75	-4.40	46.80
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	*5270.00	100.3 PK			1.02 V	166	60.60	39.70
2	*5270.00	90.1 AV			1.02 V	166	50.40	39.70
3	5350.00	59.1 PK	74.0	-14.9	1.02 V	163	19.30	39.80
4	5350.00	45.5 AV	54.0	-8.5	1.02 V	163	5.70	39.80
5	#10540.00	58.1 PK	74.0	-15.9	1.53 V	192	11.30	46.80
6	#10540.00	41.6 AV	54.0	-12.4	1.53 V	192	-5.20	46.80

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 of the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 62	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

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	106.0 PK			1.42 H	87	66.30	39.70
2	*5310.00	96.3 AV			1.42 H	87	56.60	39.70
3	5350.00	71.6 PK	74.0	-2.4	1.47 H	81	31.80	39.80
4	5350.00	52.9 AV	54.0	-1.1	1.47 H	81	13.10	39.80
5	10620.00	57.9 PK	74.0	-16.1	1.21 H	77	11.00	46.90
6	10620.00	40.7 AV	54.0	-13.3	1.21 H	77	-6.20	46.90
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	*5310.00	99.0 PK			1.13 V	166	59.30	39.70
2	*5310.00	88.7 AV			1.13 V	166	49.00	39.70
3	5350.00	61.0 PK	74.0	-13.0	1.19 V	167	21.20	39.80
4	5350.00	47.5 AV	54.0	-6.5	1.19 V	167	7.70	39.80
5	10620.00	57.6 PK	74.0	-16.4	1.57 V	199	10.70	46.90
6	10620.00	40.5 AV	54.0	-13.5	1.57 V	199	-6.40	46.90

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 102	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

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	65.2 PK	74.0	-8.8	1.34 H	89	25.20	40.00
2	5460.00	50.7 AV	54.0	-3.3	1.34 H	89	10.70	40.00
3	#5470.00	67.7 PK	74.0	-6.3	1.34 H	88	27.70	40.00
4	#5470.00	52.9 AV	54.0	-1.1	1.34 H	88	12.90	40.00
5	*5510.00	105.7 PK			1.34 H	89	65.70	40.00
6	*5510.00	95.6 AV			1.34 H	89	55.60	40.00
7	11020.00	62.0 PK	74.0	-12.0	1.00 H	295	14.30	47.70
8	11020.00	50.1 AV	54.0	-3.9	1.00 H	295	2.40	47.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	62.7 PK	74.0	-11.3	1.04 V	228	22.70	40.00
2	5460.00	46.9 AV	54.0	-7.1	1.04 V	228	6.90	40.00
3	#5470.00	63.4 PK	74.0	-10.6	1.04 V	228	23.40	40.00
4	#5470.00	48.1 AV	54.0	-5.9	1.04 V	228	8.10	40.00
5	*5510.00	97.2 PK			1.01 V	227	57.20	40.00
6	*5510.00	87.3 AV			1.01 V	227	47.30	40.00
7	11020.00	58.0 PK	74.0	-16.0	1.00 V	14	10.30	47.70
8	11020.00	46.1 AV	54.0	-7.9	1.00 V	14	-1.60	47.70

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 of the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 110	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

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	107.8 PK			1.32 H	90	67.70	40.10
2	*5550.00	97.9 AV			1.32 H	90	57.80	40.10
3	11100.00	64.6 PK	74.0	-9.4	1.00 H	299	16.80	47.80
4	11100.00	52.1 AV	54.0	-1.9	1.00 H	299	4.30	47.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	99.4 PK			1.00 V	227	59.30	40.10
2	*5550.00	89.8 AV			1.00 V	227	49.70	40.10
3	11100.00	60.0 PK	74.0	-14.0	1.00 V	17	12.20	47.80
4	11100.00	48.3 AV	54.0	-5.7	1.00 V	17	0.50	47.80

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 134	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Alan Wu

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	106.5 PK			1.29 H	89	66.30	40.20
2	*5670.00	97.0 AV			1.29 H	89	56.80	40.20
3	#5725.00	65.8 PK	74.0	-8.2	1.29 H	88	25.50	40.30
4	#5725.00	52.5 AV	54.0	-1.5	1.29 H	88	12.20	40.30
5	11340.00	65.6 PK	74.0	-8.4	1.21 H	79	17.40	48.20
6	11340.00	51.8 AV	54.0	-2.2	1.21 H	79	3.60	48.20
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	*5670.00	99.2 PK			1.07 V	219	59.00	40.20
2	*5670.00	89.8 AV			1.07 V	219	49.60	40.20
3	#5725.00	60.1 PK	74.0	-13.9	1.07 V	216	19.80	40.30
4	#5725.00	46.5 AV	54.0	-7.5	1.07 V	216	6.20	40.30
5	11340.00	57.7 PK	74.0	-16.3	1.18 V	60	9.50	48.20
6	11340.00	45.8 AV	54.0	-8.2	1.18 V	60	-2.40	48.20

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 of the restricted band.

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Martin Lee
TEST MODE	A		

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	68.80	35.6 QP	40.0	-4.4	1.55 H	196	23.30	12.30
2	262.80	36.4 QP	46.0	-9.6	1.00 H	212	22.90	13.50
3	355.92	39.7 QP	46.0	-6.3	1.63 H	184	23.40	16.30
4	714.82	41.1 QP	46.0	-4.9	1.78 H	59	17.50	23.60
5	749.74	42.1 QP	46.0	-3.9	1.96 H	336	17.90	24.20
6	875.84	41.1 QP	46.0	-4.9	1.00 H	252	15.00	26.10
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	61.04	37.9 QP	40.0	-2.1	1.00 V	62	24.80	13.10
2	62.98	37.8 QP	40.0	-2.2	1.65 V	313	24.90	12.90
3	336.52	40.1 QP	46.0	-5.9	1.14 V	29	24.30	15.80
4	524.70	38.2 QP	46.0	-7.8	1.69 V	178	17.60	20.60
5	709.00	41.9 QP	46.0	-4.1	2.23 V	202	18.40	23.50
6	749.74	42.6 QP	46.0	-3.4	1.78 V	282	18.40	24.20
7	875.84	42.6 QP	46.0	-3.4	1.00 V	18	16.50	26.10

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Martin Lee
TEST MODE	B		

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	94.02	39.9 QP	43.5	-3.6	1.35 H	222	31.60	8.30
2	152.22	36.3 QP	43.5	-7.2	1.74 H	187	22.70	13.60
3	249.22	39.9 QP	46.0	-6.1	1.69 H	148	27.00	12.90
4	625.58	43.0 QP	46.0	-3.0	1.20 H	42	20.40	22.60
5	710.94	41.4 QP	46.0	-4.6	2.14 H	34	17.90	23.50
6	875.84	36.4 QP	46.0	-9.6	2.36 H	2	10.30	26.10
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	30.00	38.2 QP	40.0	-1.8	1.00 V	211	26.00	12.20
2	86.26	38.1 QP	40.0	-1.9	1.35 V	116	29.70	8.40
3	99.84	39.3 QP	43.5	-4.2	1.77 V	123	30.40	8.90
4	299.66	39.5 QP	46.0	-6.5	1.25 V	121	24.60	14.90
5	336.52	41.6 QP	46.0	-4.4	2.26 V	97	25.80	15.80
6	875.84	39.8 QP	46.0	-6.2	1.39 V	109	13.70	26.10

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Martin Lee
TEST MODE	A		

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	70.74	36.5 QP	40.0	-3.5	1.65 H	250	24.50	12.00
2	140.58	33.2 QP	43.5	-10.3	1.00 H	274	20.10	13.10
3	355.92	39.8 QP	46.0	-6.2	1.44 H	196	23.50	16.30
4	707.06	41.2 QP	46.0	-4.8	1.68 H	74	17.70	23.50
5	749.74	41.9 QP	46.0	-4.1	1.50 H	301	17.70	24.20
6	875.84	39.6 QP	46.0	-6.4	2.25 H	262	13.50	26.10
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	61.04	37.7 QP	40.0	-2.3	1.36 V	102	24.60	13.10
2	373.38	39.0 QP	46.0	-7.0	1.00 V	167	22.30	16.70
3	524.70	38.8 QP	46.0	-7.2	1.55 V	172	18.20	20.60
4	707.06	40.6 QP	46.0	-5.4	1.77 V	6	17.10	23.50
5	749.74	42.7 QP	46.0	-3.3	2.14 V	273	18.50	24.20
6	875.84	42.3 QP	46.0	-3.7	1.69 V	18	16.20	26.10

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH	TESTED BY	Martin Lee
TEST MODE	B		

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	97.90	34.9 QP	43.5	-8.6	1.36 H	245	26.20	8.70
2	152.22	36.8 QP	43.5	-6.7	2.14 H	198	23.20	13.60
3	299.66	37.5 QP	46.0	-8.5	1.88 H	222	22.60	14.90
4	625.58	42.9 QP	46.0	-3.1	1.96 H	37	20.30	22.60
5	714.82	40.3 QP	46.0	-5.7	1.20 H	69	16.70	23.60
6	749.74	40.4 QP	46.0	-5.6	2.15 H	330	16.20	24.20
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	30.00	38.5 QP	40.0	-1.5	1.35 V	275	26.30	12.20
2	95.96	40.2 QP	43.5	-3.3	1.78 V	211	31.70	8.50
3	299.66	40.1 QP	46.0	-5.9	2.52 V	114	25.20	14.90
4	524.70	34.5 QP	46.0	-11.5	1.44 V	10	13.90	20.60
5	625.58	40.6 QP	46.0	-5.4	1.69 V	111	18.00	22.60
6	749.74	40.0 QP	46.0	-6.0	2.13 V	255	15.80	24.20

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.

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

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

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Nov. 09, 2012	Nov. 08, 2013
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 28, 2012	Dec. 27, 2013
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 21, 2012	Dec. 20, 2013
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 18, 2012	Jul. 17, 2013
			Jul. 17, 2013	Jul. 16, 2014
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

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

4.2.3 TEST PROCEDURES

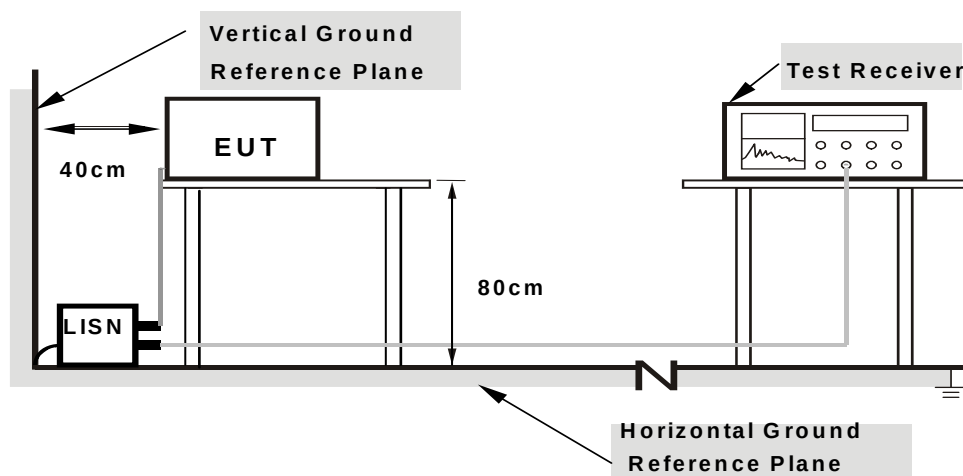
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

Same as 4.1.6.

4.2.7 TEST RESULTS

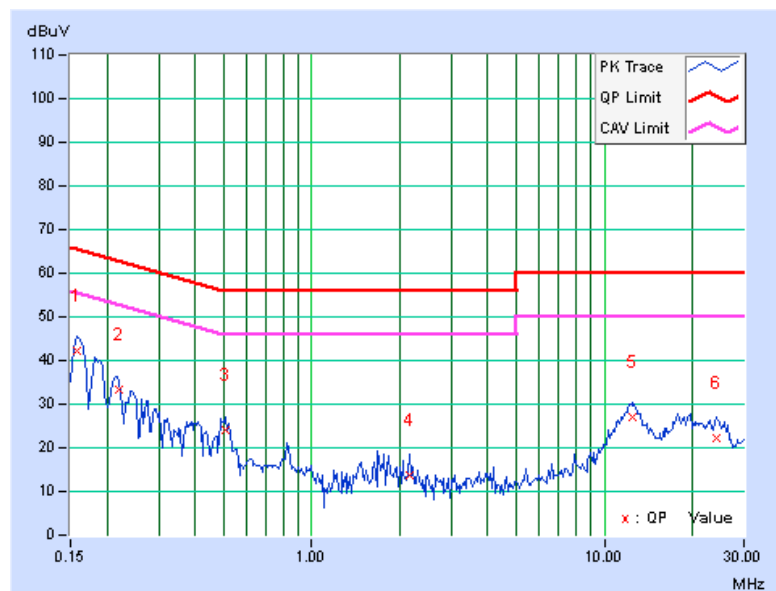
CONDUCTED WORST-CASE DATA : 802.11n (20MHz)

PHASE	Line 1	6dB BANDWIDTH	9kHz
CHANNEL	Channel 52	TEST MODE	A

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	0.15781	0.13	42.24	27.10	42.37	27.23	65.58	55.58	-23.21	-28.35
2	0.22031	0.14	33.16	18.91	33.30	19.05	62.81	52.81	-29.50	-33.75
3	0.50938	0.19	23.81	14.25	24.00	14.44	56.00	46.00	-32.00	-31.56
4	2.15234	0.26	13.31	6.06	13.57	6.32	56.00	46.00	-42.43	-39.68
5	12.56250	0.77	26.28	21.95	27.05	22.72	60.00	50.00	-32.95	-27.28
6	24.25391	1.24	21.01	15.58	22.25	16.82	60.00	50.00	-37.75	-33.18

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.

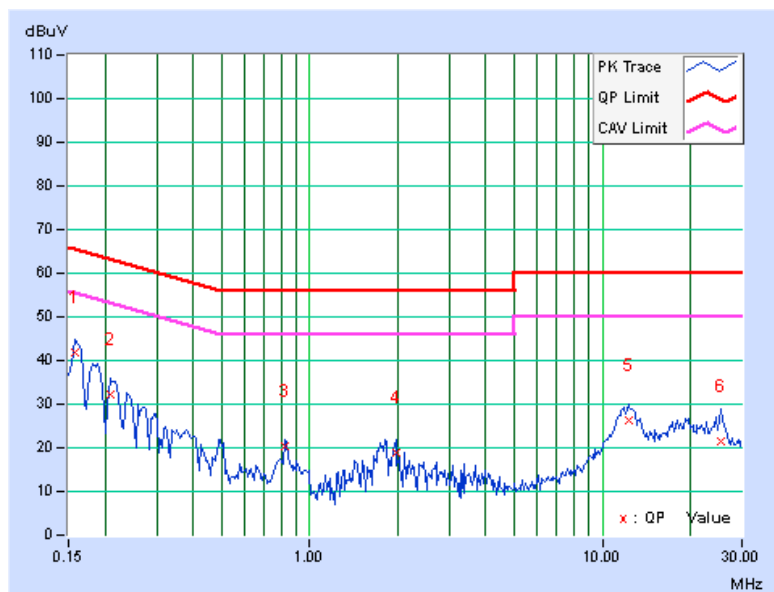


PHASE	Line 2	6dB BANDWIDTH	9kHz
CHANNEL	Channel 52	TEST MODE	A

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	0.15781	0.15	41.56	26.64	41.71	26.79	65.58	55.58	-23.87	-28.79
2	0.20859	0.15	32.02	13.41	32.17	13.56	63.26	53.26	-31.09	-39.70
3	0.82578	0.22	20.06	18.88	20.28	19.10	56.00	46.00	-35.72	-26.90
4	1.96875	0.26	18.69	10.75	18.95	11.01	56.00	46.00	-37.05	-34.99
5	12.33984	0.63	25.64	20.99	26.27	21.62	60.00	50.00	-33.73	-28.38
6	25.53906	0.96	20.64	15.28	21.60	16.24	60.00	50.00	-38.40	-33.76

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.

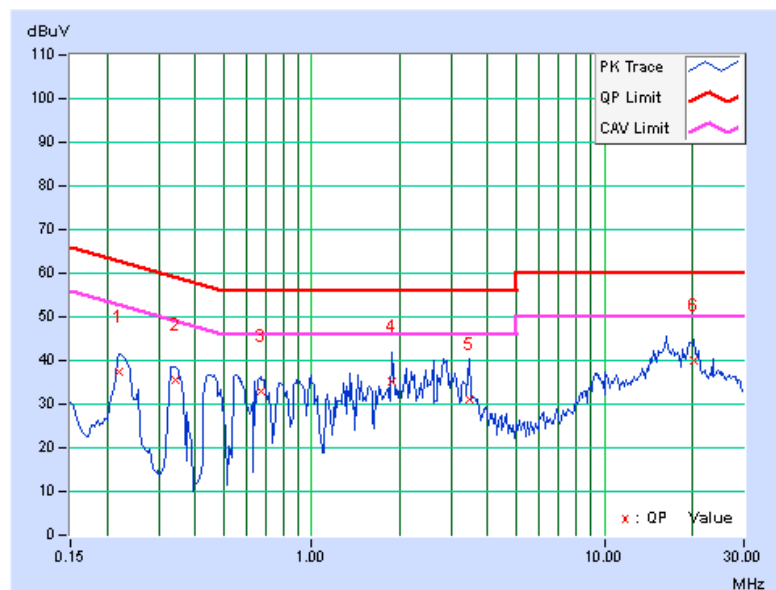


PHASE	Line 1	6dB BANDWIDTH	9kHz
CHANNEL	Channel 52	TEST MODE	B

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	0.22031	0.14	37.19	26.56	37.33	26.70	62.81	52.81	-25.47	-26.10
2	0.34141	0.17	35.40	30.82	35.57	30.99	59.17	49.17	-23.60	-18.18
3	0.66953	0.20	32.64	24.59	32.84	24.79	56.00	46.00	-23.16	-21.21
4	1.89063	0.25	34.89	24.42	35.14	24.67	56.00	46.00	-20.86	-21.33
5	3.46094	0.34	30.80	23.63	31.14	23.97	56.00	46.00	-24.86	-22.03
6	20.25391	1.15	38.70	33.72	39.85	34.87	60.00	50.00	-20.15	-15.13

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.

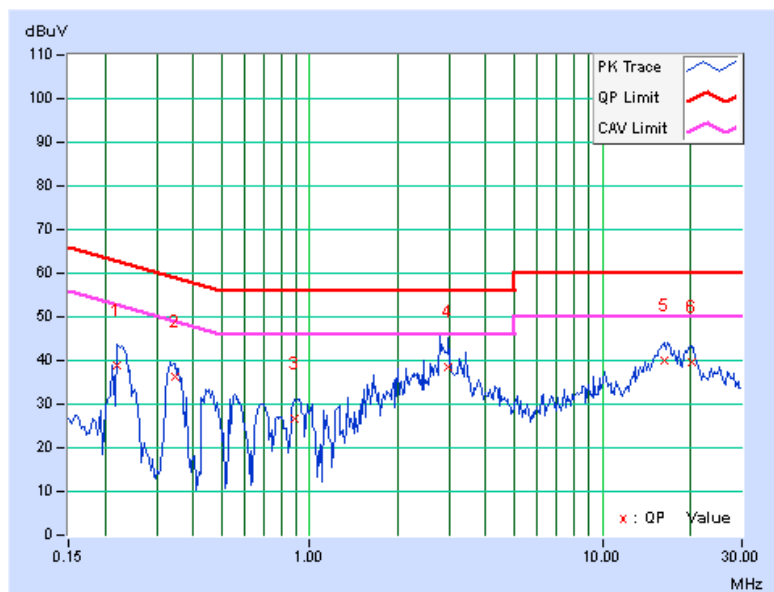


PHASE	Line 2	6dB BANDWIDTH	9kHz
CHANNEL	Channel 52	TEST MODE	B

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	0.22031	0.15	38.86	23.33	39.01	23.48	62.81	52.81	-23.79	-29.32
2	0.34531	0.18	36.01	30.78	36.19	30.96	59.07	49.07	-22.89	-18.12
3	0.89219	0.22	26.60	15.71	26.82	15.93	56.00	46.00	-29.18	-30.07
4	2.95703	0.30	38.19	28.62	38.49	28.92	56.00	46.00	-17.51	-17.08
5	16.20703	0.75	39.38	34.36	40.13	35.11	60.00	50.00	-19.87	-14.89
6	20.13672	0.88	38.76	33.64	39.64	34.52	60.00	50.00	-20.36	-15.48

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.

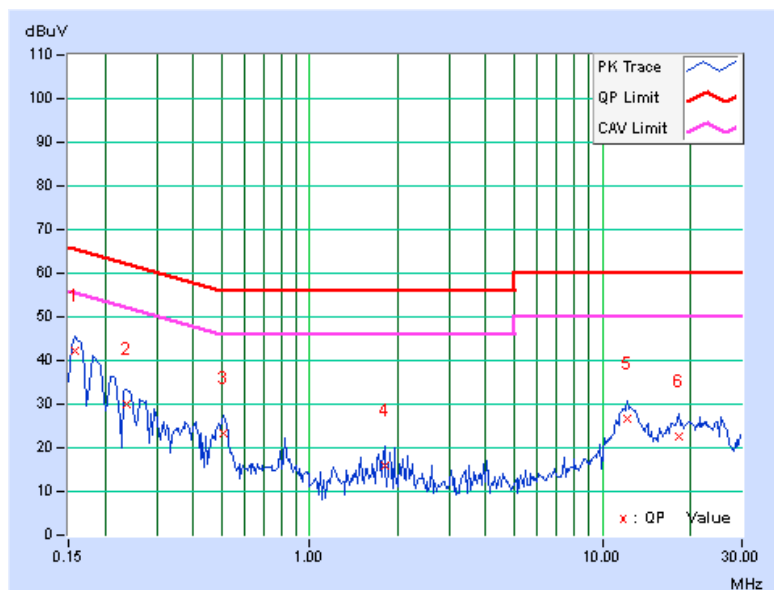


PHASE	Line 1	6dB BANDWIDTH	9kHz
CHANNEL	Channel 116	TEST MODE	A

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	0.15781	0.13	42.07	27.14	42.20	27.27	65.58	55.58	-23.38	-28.31
2	0.23594	0.15	29.93	11.96	30.08	12.11	62.24	52.24	-32.16	-40.13
3	0.50547	0.19	23.19	12.41	23.38	12.60	56.00	46.00	-32.62	-33.40
4	1.80469	0.24	15.63	8.08	15.87	8.32	56.00	46.00	-40.13	-37.68
5	12.12500	0.75	25.96	20.95	26.71	21.70	60.00	50.00	-33.29	-28.30
6	18.35547	1.06	21.54	15.81	22.60	16.87	60.00	50.00	-37.40	-33.13

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.

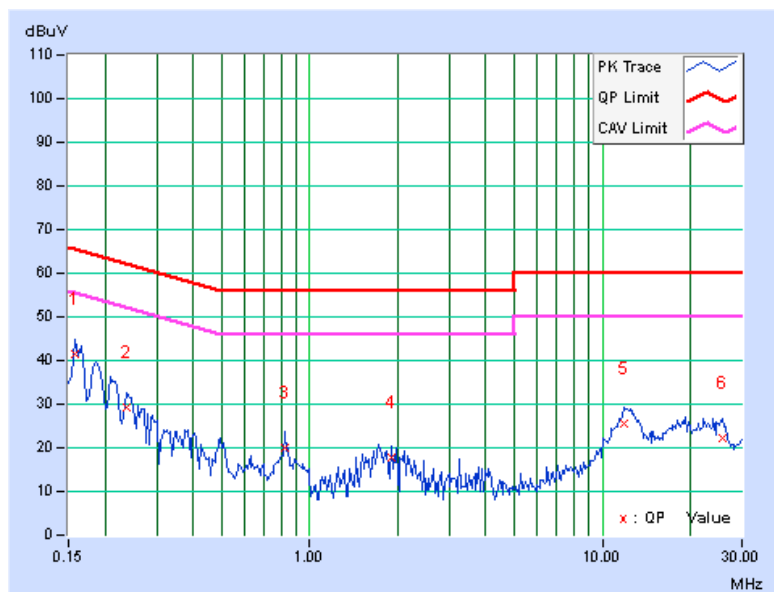


PHASE	Line 2	6dB BANDWIDTH	9kHz
CHANNEL	Channel 116	TEST MODE	A

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	0.15781	0.15	41.43	26.56	41.58	26.71	65.58	55.58	-24.00	-28.87
2	0.23594	0.16	28.98	11.17	29.14	11.33	62.24	52.24	-33.10	-40.91
3	0.82578	0.22	19.84	18.98	20.06	19.20	56.00	46.00	-35.94	-26.80
4	1.90234	0.26	17.68	9.64	17.94	9.90	56.00	46.00	-38.06	-36.10
5	11.89063	0.61	25.07	19.62	25.68	20.23	60.00	50.00	-34.32	-29.77
6	25.82422	0.96	21.23	15.97	22.19	16.93	60.00	50.00	-37.81	-33.07

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.

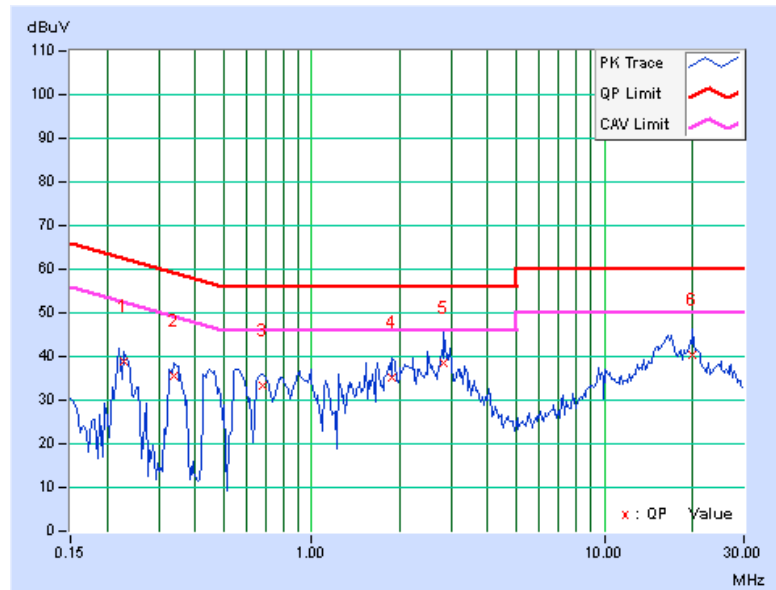


PHASE	Line 1	6dB BANDWIDTH	9kHz
CHANNEL	Channel 116	TEST MODE	B

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	0.22681	0.15	38.58	32.17	38.73	32.32	62.57	52.57	-23.84	-20.25
2	0.33750	0.17	35.36	30.50	35.53	30.67	59.26	49.26	-23.74	-18.60
3	0.68125	0.20	33.00	27.17	33.20	27.37	56.00	46.00	-22.80	-18.63
4	1.89063	0.25	34.81	24.40	35.06	24.65	56.00	46.00	-20.94	-21.35
5	2.83984	0.30	38.32	28.41	38.62	28.71	56.00	46.00	-17.38	-17.29
6	19.91406	1.14	39.36	34.19	40.50	35.33	60.00	50.00	-19.50	-14.67

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.

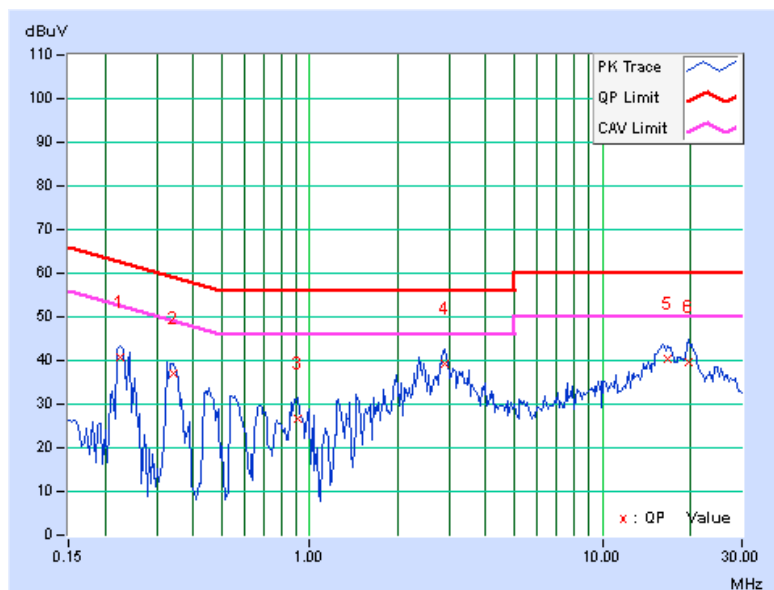


PHASE	Line 2	6dB BANDWIDTH	9kHz
CHANNEL	Channel 116	TEST MODE	B

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	0.22422	0.15	40.69	27.95	40.84	28.10	62.66	52.66	-21.82	-24.56
2	0.34141	0.18	36.73	32.65	36.91	32.83	59.17	49.17	-22.26	-16.34
3	0.91172	0.22	26.50	18.21	26.72	18.43	56.00	46.00	-29.28	-27.57
4	2.89844	0.30	38.86	28.63	39.16	28.93	56.00	46.00	-16.84	-17.07
5	16.64453	0.77	39.49	34.41	40.26	35.18	60.00	50.00	-19.74	-14.82
6	19.64063	0.87	38.79	33.75	39.66	34.62	60.00	50.00	-20.34	-15.38

REMARKS:

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



4.3 PEAK TRANSMIT POWER MEASUREMENT

4.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT

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

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

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

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

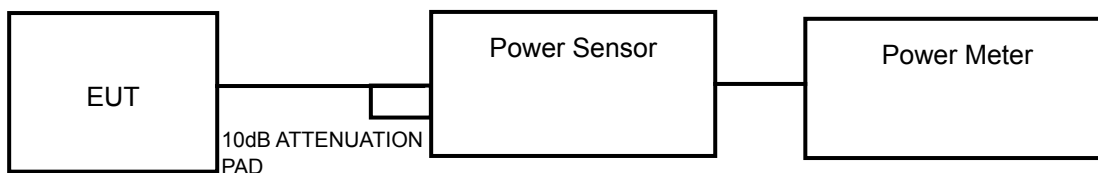
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;

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

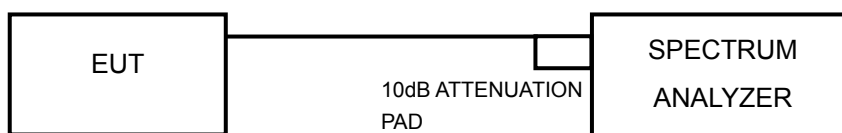
For power measurements on all other devices: Array Gain = 10 log(NANT/NSS) dB.

4.3.2 TEST SETUP

FOR POWER OUTPUT MEASUREMENT



FOR 26dB BANDWIDTH



4.3.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

4.3.4 TEST PROCEDURE

FOR AVERAGE POWER MEASUREMENT

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

FOR 26dB BANDWIDTH

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

4.3.5 DEVIATION FROM TEST STANDARD

No deviation.

4.3.6 EUT OPERATING CONDITIONS

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

4.3.7 TEST RESULTS

POWER OUTPUT:

802.11a

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	13.30	12.20	37.976	15.80	17	PASS
40	5200	13.30	12.40	38.758	15.88	17	PASS
48	5240	13.40	12.70	40.499	16.07	17	PASS
52	5260	16.40	15.60	79.960	19.03	24	PASS
60	5300	15.70	15.00	68.777	18.37	24	PASS
64	5320	15.70	15.10	69.513	18.42	24	PASS
100	5500	15.10	15.40	67.033	18.26	24	PASS
116	5580	15.20	15.10	65.472	18.16	23.99	PASS
140	5700	14.89	14.20	57.135	17.57	24	PASS

CHAIN 0

1. $4\text{dBm} + 10\log(22.45) = 17.51\text{dBm} > 17\text{dBm}$.
2. $4\text{dBm} + 10\log(25.12) = 18.00\text{dBm} > 17\text{dBm}$.
3. $4\text{dBm} + 10\log(25.27) = 18.03\text{dBm} > 17\text{dBm}$.
4. $11\text{dBm} + 10\log(26.36) = 25.21\text{dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(25.91) = 25.13\text{dBm} > 24\text{dBm}$.
6. $11\text{dBm} + 10\log(25.82) = 25.12\text{dBm} > 24\text{dBm}$.
7. $11\text{dBm} + 10\log(25.92) = 25.14\text{dBm} > 24\text{dBm}$.
8. $11\text{dBm} + 10\log(26.40) = 25.22\text{dBm} > 24\text{dBm}$.
9. $11\text{dBm} + 10\log(28.83) = 25.60\text{dBm} > 24\text{dBm}$.

CHAIN 1

1. $4\text{dBm} + 10\log(22.41) = 17.50\text{dBm} > 17\text{dBm}$.
2. $4\text{dBm} + 10\log(22.58) = 17.54\text{dBm} > 17\text{dBm}$.
3. $4\text{dBm} + 10\log(22.57) = 17.54\text{dBm} > 17\text{dBm}$.
4. $11\text{dBm} + 10\log(21.40) = 24.30\text{dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(20.02) = 24.01\text{dBm} > 24\text{dBm}$.
6. $11\text{dBm} + 10\log(20.00) = 24.01\text{dBm} > 24\text{dBm}$.
7. $11\text{dBm} + 10\log(21.29) = 24.28\text{dBm} > 24\text{dBm}$.
8. $11\text{dBm} + 10\log(19.92) = 23.99\text{dBm} < 24\text{dBm}$.
9. $11\text{dBm} + 10\log(19.99) = 24.01\text{dBm} > 24\text{dBm}$.

802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	13.30	12.20	37.976	15.80	16.97	PASS
40	5200	13.30	12.40	38.758	15.88	17	PASS
48	5240	13.20	12.10	37.111	15.70	16.96	PASS
52	5260	16.90	15.70	86.132	19.35	24	PASS
60	5300	16.10	15.10	73.097	18.64	24	PASS
64	5320	16.10	15.20	73.851	18.68	24	PASS
100	5500	15.00	15.30	65.507	18.16	24	PASS
116	5580	15.20	15.20	66.226	18.21	24	PASS
140	5700	14.12	13.25	46.958	16.72	24	PASS

CHAIN 0

1. $4\text{dBm} + 10\log(25.12) = 18.00\text{dBm} > 17\text{dBm}$.
2. $4\text{dBm} + 10\log(25.25) = 18.02\text{dBm} > 17\text{dBm}$.
3. $4\text{dBm} + 10\log(25.27) = 18.03\text{dBm} > 17\text{dBm}$.
4. $11\text{dBm} + 10\log(28.12) = 25.49\text{dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(26.95) = 25.31\text{dBm} > 24\text{dBm}$.
6. $11\text{dBm} + 10\log(26.37) = 25.21\text{dBm} > 24\text{dBm}$.
7. $11\text{dBm} + 10\log(26.34) = 25.21\text{dBm} > 24\text{dBm}$.
8. $11\text{dBm} + 10\log(26.02) = 25.15\text{dBm} > 24\text{dBm}$.
9. $11\text{dBm} + 10\log(25.57) = 25.08\text{dBm} > 24\text{dBm}$.

CHAIN 1

1. $4\text{dBm} + 10\log(19.83) = 16.97\text{dBm} < 17\text{dBm}$.
2. $4\text{dBm} + 10\log(20.04) = 17.02\text{dBm} > 17\text{dBm}$.
3. $4\text{dBm} + 10\log(19.77) = 16.96\text{dBm} < 17\text{dBm}$.
4. $11\text{dBm} + 10\log(20.75) = 24.17\text{dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(22.41) = 24.50\text{dBm} > 24\text{dBm}$.
6. $11\text{dBm} + 10\log(20.38) = 24.09\text{dBm} > 24\text{dBm}$.
7. $11\text{dBm} + 10\log(22.41) = 24.50\text{dBm} > 24\text{dBm}$.
8. $11\text{dBm} + 10\log(20.36) = 24.09\text{dBm} > 24\text{dBm}$.
9. $11\text{dBm} + 10\log(20.03) = 24.02\text{dBm} > 24\text{dBm}$.

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	14.70	12.30	46.494	16.67	17	PASS
46	5230	14.00	12.10	41.337	16.16	17	PASS
54	5270	16.70	15.10	79.133	18.98	24	PASS
62	5310	15.14	13.54	55.253	17.42	24	PASS
102	5510	13.98	13.26	46.187	16.65	24	PASS
110	5550	16.30	16.00	82.469	19.16	24	PASS
134	5670	15.00	15.30	65.507	18.16	24	PASS

CHAIN 0

1. $4\text{dBm} + 10\log(45.87) = 20.62\text{dBm} > 17\text{dBm}$.
2. $4\text{dBm} + 10\log(44.21) = 20.46\text{dBm} > 17\text{dBm}$.
3. $11\text{dBm} + 10\log(68.31) = 29.34\text{dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(49.03) = 27.90\text{dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(44.31) = 27.47\text{dBm} > 24\text{dBm}$.
6. $11\text{dBm} + 10\log(46.24) = 27.65\text{dBm} > 24\text{dBm}$.
7. $11\text{dBm} + 10\log(46.22) = 27.65\text{dBm} > 24\text{dBm}$.

CHAIN 1

1. $4\text{dBm} + 10\log(40.72) = 20.10\text{dBm} > 17\text{dBm}$.
2. $4\text{dBm} + 10\log(42.01) = 20.23\text{dBm} > 17\text{dBm}$.
3. $11\text{dBm} + 10\log(55.43) = 28.44\text{dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(42.82) = 27.32\text{dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(42.51) = 27.28\text{dBm} > 24\text{dBm}$.
6. $11\text{dBm} + 10\log(51.52) = 28.12\text{dBm} > 24\text{dBm}$.
7. $11\text{dBm} + 10\log(46.28) = 27.65\text{dBm} > 24\text{dBm}$.

26dB BANDWIDTH:

802.11a

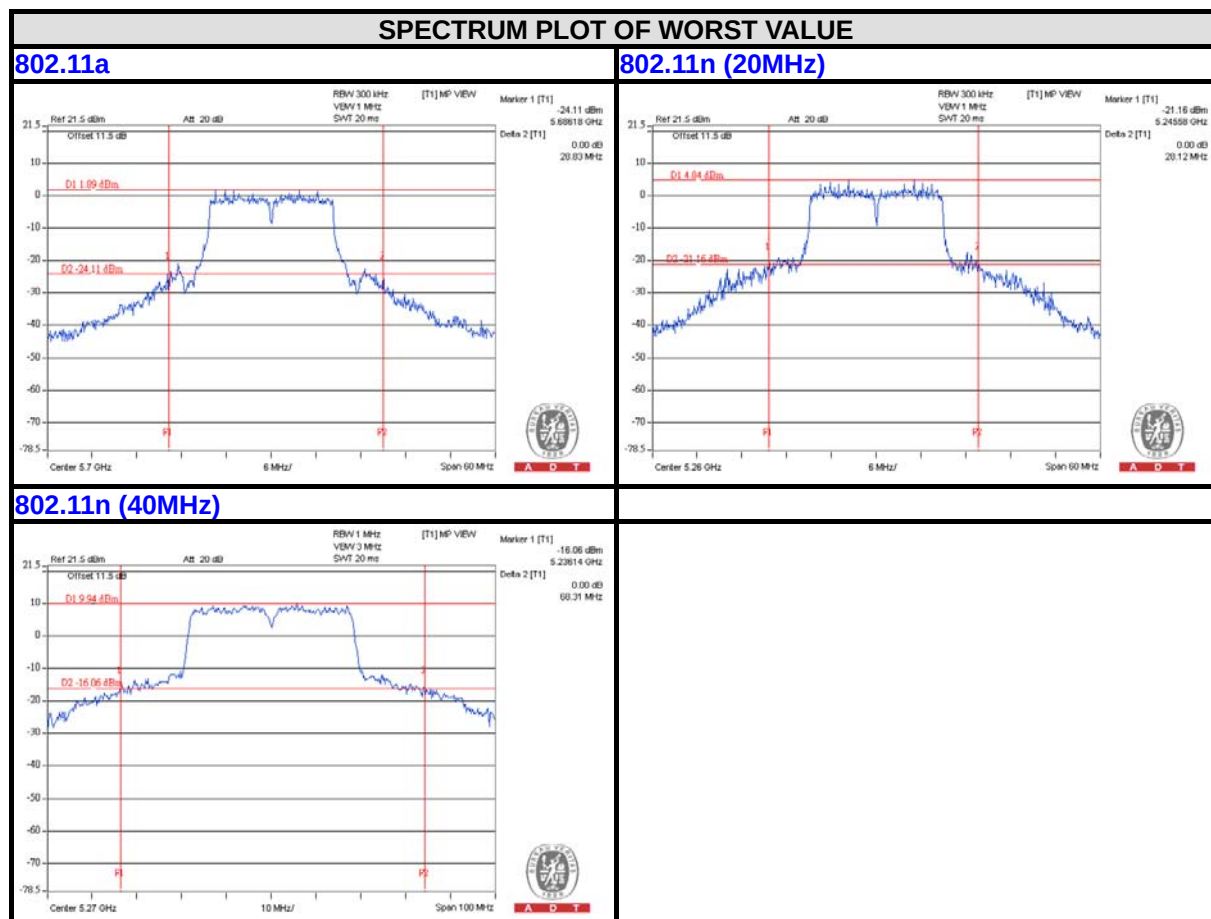
CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
36	5180	22.45	22.41	PASS
40	5200	25.12	22.58	PASS
48	5240	25.27	22.57	PASS
52	5260	26.36	21.40	PASS
60	5300	25.91	20.02	PASS
64	5320	25.82	20.00	PASS
100	5500	25.92	21.29	PASS
116	5580	26.40	19.92	PASS
140	5700	28.83	19.99	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
36	5180	25.12	19.83	PASS
40	5200	25.25	20.04	PASS
48	5240	25.27	19.77	PASS
52	5260	28.12	20.75	PASS
60	5300	26.95	22.41	PASS
64	5320	26.37	20.38	PASS
100	5500	26.34	22.41	PASS
116	5580	26.02	20.36	PASS
140	5700	25.57	20.03	PASS

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
38	5190	45.87	40.72	PASS
46	5230	44.21	42.01	PASS
54	5270	68.31	55.43	PASS
62	5310	49.03	42.82	PASS
102	5510	44.31	42.51	PASS
110	5550	46.24	51.52	PASS
134	5670	46.22	46.28	PASS



EUT MAXIMUM CONDUCTED POWER

802.11a

FREQUENCY BAND (MHz)	MAX. POWER	
	OUTPUT POWER (mW)	OUTPUT POWER (dBm)
5250~5350	79.960	19.03
5470~5725	67.033	18.26

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

802.11n (20MHz)

FREQUENCY BAND (MHz)	MAX. POWER	
	OUTPUT POWER (mW)	OUTPUT POWER (dBm)
5250~5350	86.132	19.35
5470~5725	66.226	18.21

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

802.11n (40MHz)

FREQUENCY BAND (MHz)	MAX. POWER	
	OUTPUT POWER (mW)	OUTPUT POWER (dBm)
5250~5350	79.133	18.98
5470~5725	82.469	19.16

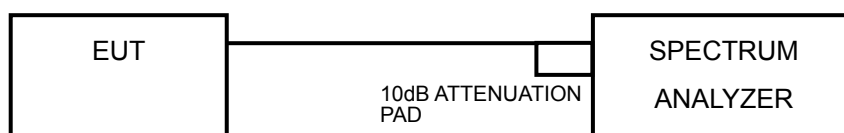
NOTE: Manufacturer provides Transmit Power Control description to meet this requirement.

4.4 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.4.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

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

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

4.4.4 TEST PROCEDURES

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

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITIONS

Same as 4.3.6.

4.4.7 TEST RESULTS

802.11a

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
36	5180	0.79	0.03	3.44	4	PASS
40	5200	0.83	0.12	3.50	4	PASS
48	5240	0.82	0.34	3.60	4	PASS
52	5260	3.39	3.10	6.26	11	PASS
60	5300	3.62	2.50	6.11	11	PASS
64	5320	3.85	2.42	6.20	11	PASS
100	5500	3.10	2.68	5.91	11	PASS
116	5580	3.14	2.47	5.83	11	PASS
140	5700	2.13	1.72	4.94	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. Directional gain = 2dBi + 10log(2) = 5.01dBi < 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	0.92	-0.37	3.33	4	PASS
40	5200	0.88	-0.06	3.45	4	PASS
48	5240	0.76	-0.21	3.31	4	PASS
52	5260	3.62	2.59	6.15	11	PASS
60	5300	2.98	1.69	5.39	11	PASS
64	5320	3.02	1.95	5.53	11	PASS
100	5500	2.90	1.85	5.42	11	PASS
116	5580	3.22	2.33	5.81	11	PASS
140	5700	1.56	1.36	4.47	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. Directional gain = 2dBi + 10log(2) = 5.01dBi < 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	-1.76	-5.42	-0.21	0.14	-0.07	4	PASS
46	5230	-2.24	-5.09	-0.42	0.14	-0.28	4	PASS
54	5270	0.58	-1.35	2.73	0.14	2.87	11	PASS
62	5310	-1.44	-2.43	1.10	0.14	1.24	11	PASS
102	5510	-2.85	-2.39	0.40	0.14	0.54	11	PASS
110	5550	-0.93	-1.77	1.68	0.14	1.82	11	PASS
134	5670	-1.23	-1.85	1.48	0.14	1.62	11	PASS

NOTE:

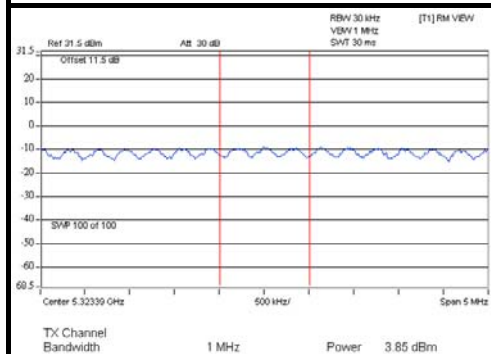
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 2dBi + 10log(2) = 5.01dBi < 6dBi, so the limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.



A D T

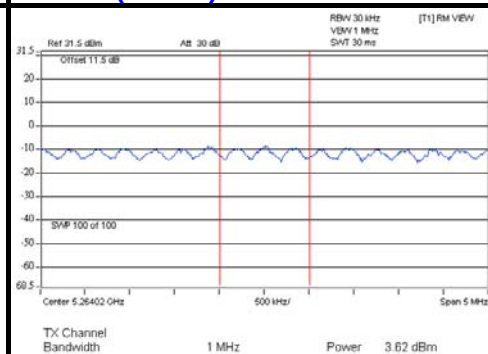
SPECTRUM PLOT OF WORST VALUE

802.11a



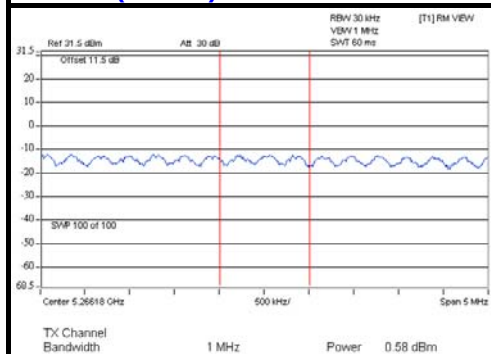
A D T

802.11n (20MHz)



A D T

802.11n (40MHz)



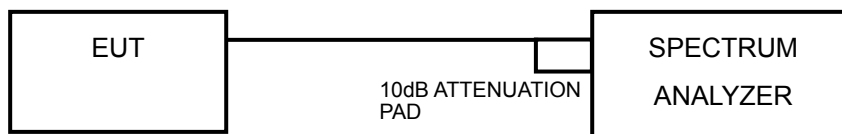
A D T

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

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

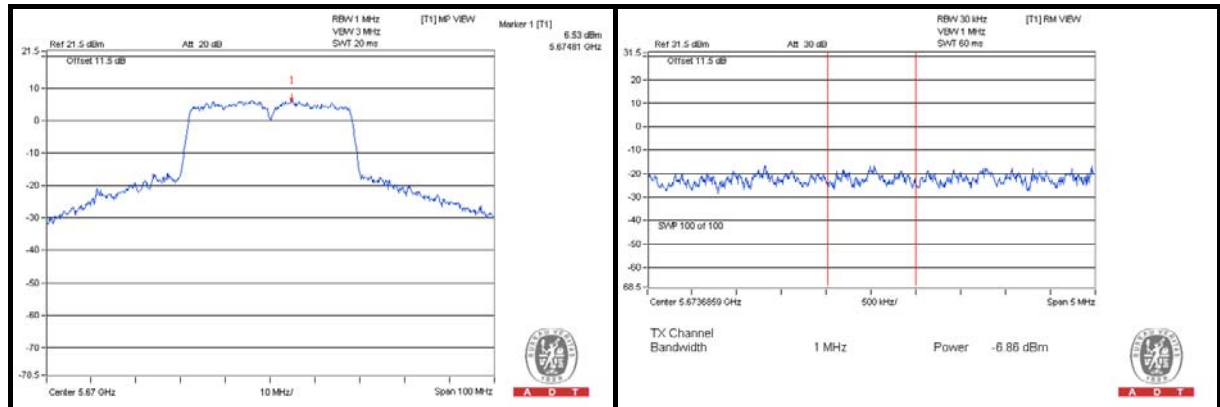
4.5.6 EUT OPERATING CONDITIONS

Same as 4.2.6

4.5.7 TEST RESULTS

MODULATION MODE	MODULATION TYPE	CHAN. FREQ. (MHz)	PEAK VALUE (dBm)	PPSD WITHOUT DUTY FACTOR (dBm)	PPSD WITH DUTY FACTOR (dBm)	PEAK EXCURSION (dB)	LIMIT (dB)	PASS /FAIL
802.11a	BPSK	5700	10.66	2.13	2.13	8.53	13	PASS
	QPSK		10.42	1.86	1.99	8.43	13	PASS
	16QAM		11.81	1.93	2.18	9.63	13	PASS
	64QAM		11.33	1.36	1.81	9.52	13	PASS
802.11n (20MHz)	BPSK	5700	11.16	1.56	1.56	9.60	13	PASS
	QPSK		8.64	0.47	0.60	8.04	13	PASS
	16QAM		9.66	0.64	0.89	8.77	13	PASS
	64QAM		10.38	0.65	1.16	9.22	13	PASS
802.11n (40MHz)	BPSK	5670	8.04	-1.23	-1.09	9.13	13	PASS
	QPSK		7.51	-4.41	-4.14	11.65	13	PASS
	16QAM		6.53	-6.86	-6.42	12.95	13	PASS
	64QAM		4.79	-7.71	-6.92	11.71	13	PASS

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

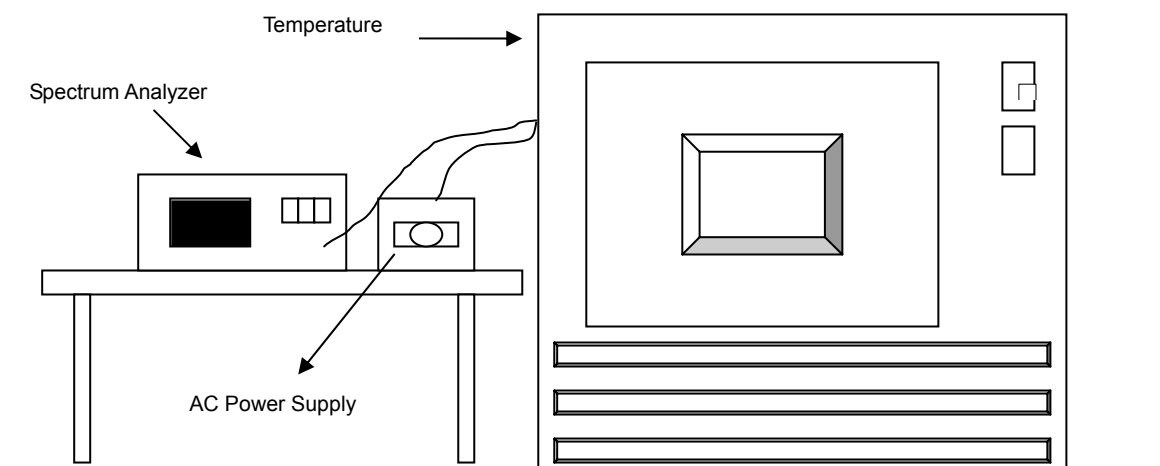


4.6 FREQUENCY STABILITY

4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

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

4.6.2 TEST SETUP



4.6.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

4.6.4 TEST PROCEDURE

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

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 EUT OPERATING CONDITION

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

4.6.7 TEST RESULTS

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 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 (%)
50	120	5179.9911	-0.00017	5179.9828	-0.00033	5179.9901	-0.00019	5179.9873	-0.00025
40	120	5180.0087	0.00017	5180.0156	0.00030	5180.0054	0.00010	5180.0079	0.00015
30	120	5179.9744	-0.00049	5179.9802	-0.00038	5179.9816	-0.00036	5179.9831	-0.00033
20	120	5179.9775	-0.00043	5179.9756	-0.00047	5179.9779	-0.00043	5179.9788	-0.00041
10	120	5180.0088	0.00017	5180.0045	0.00009	5180.0052	0.00010	5180.0131	0.00025
0	120	5180.0172	0.00033	5180.0127	0.00025	5180.0184	0.00036	5180.0116	0.00022
-10	120	5180.0003	0.00001	5180.0055	0.00011	5179.9976	-0.00005	5179.9974	-0.00005
-20	120	5180.0128	0.00025	5180.0114	0.00022	5180.0166	0.00032	5180.0115	0.00022
-30	120	5180.0147	0.00028	5180.0151	0.00029	5180.0193	0.00037	5180.0221	0.00043

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	5179.9771	-0.00044	5179.976	-0.00046	5179.9773	-0.00044	5179.9795	-0.00040
	120	5179.9775	-0.00043	5179.9756	-0.00047	5179.9779	-0.00043	5179.9788	-0.00041
	102	5179.9772	-0.00044	5179.9765	-0.00045	5179.9782	-0.00042	5179.9787	-0.00041

5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

6. INFORMATION ON THE TESTING LABORATORIES

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

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

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Web Site: www.bureauveritas-adt.com

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

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

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

---END---