FCC TEST REPORT (15.407)

REPORT NO.:	RF131125C08-1
MODEL NO.:	AT-TQ3600, AT-TQ3600-01 (Refer to item 3.1 for more details)
FCC ID:	RSL-TQ3600
RECEIVED:	Nov. 25, 2013
TESTED:	Dec. 02 ~ Dec. 06, 2013
ISSUED:	Dec. 13, 2013

APPLICANT:	Allied Telesis R&D Center K.K.
ADDRESS:	2nd. TOC Bldg. 7-21-11 Nishi-Gotanda, Shinagawa-ku, Tokyo Japan, 141-0031

ISSUED BY:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
LAB ADDRESS:	No. 47, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.
TEST LOCATION:	No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

This report should not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF131125C08-1	Original release	Dec. 13, 2013

1. CERTIFICATION

PRODUCT: Wireless access point with PoE powered device function

MODEL: AT-TQ3600, AT-TQ3600-01 (Refer to item 3.1 for more details)

BRAND: Allied Telesis

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

TESTED: Dec. 02 ~ Dec. 06, 2013

TEST SAMPLE: ENGINEERING SAMPLE

STANDARDS: **FCC Part 15, Subpart E (Section 15.407)**
ANSI C63.10-2009

The above equipment (model: AT-TQ3600) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch,** and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Celine Chou **, DATE :** Dec. 13, 2013
Celine Chou / Specialist

APPROVED BY : Ken Liu **, DATE :** Dec. 13, 2013
Ken Liu / Senior Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407)			
STANDARD SECTION	**TEST TYPE**	**RESULT**	**REMARK**
15.407(b)(6)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -10.16dB at 17.70319MHz.
15.407(b/1/2/3) (b)(6)	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 5350.00MHz and 5470.00MHz.
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 I-PEX (MHF) 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	Wireless access point with PoE powered device function
MODEL NO.	AT-TQ3600, AT-TQ3600-01 (Refer to note for more details)
POWER SUPPLY	12Vdc (Adapter) 48Vdc (PoE)
MODULATION TYPE	64QAM, 16QAM, QPSK, BPSK
MODULATION TECHNOLOGY	OFDM
TRANSFER RATE	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 450.0Mbps
OPERATING FREQUENCY	5180 ~ 5240MHz, 5260 ~ 5320MHz & 5500 ~ 5700MHz
NUMBER OF CHANNEL	5180 ~ 5240MHz: 4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz) 5260 ~ 5320MHz: 4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz) 5500 ~ 5700MHz: 8 for 802.11a, 802.11n (20MHz) 3 for 802.11n (40MHz)
OUTPUT POWER	34.998mW for 5180 ~ 5240MHz 90.026mW for 5260 ~ 5320MHz 91.658mW for 5500 ~ 5700MHz
ANTENNA TYPE	Refer to note
ANTENNA CONNECTOR	Refer to note
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Adapter

NOTE:

1. The following models are provided to this EUT.

Brand	Model	Description
Allied Telesis	AT-TQ3600	All models are electrically identical, except appearance of EUT, please refer to external photo for more details.
	AT-TQ3600-01	

* The model of the AT-TQ3600 was chosen for final test.

2. The EUT incorporates a MIMO function. Physically, the EUT provides three completed transmitters and three receivers.

MODULATION MODE	TX FUNCTION
802.11b	1TX
802.11g	3TX
802.11a	3TX
802.11n (20MHz) (MCS 16 ~ 23)	3TX
802.11n (40MHz) (MCS 16 ~ 23)	3TX

3. The EUT consumes power from the following adapter.

ADAPTER	
BRAND:	Elementech International Co., Ltd.
MODEL:	AU12412030
INPUT:	100-240Vac, 50/60Hz, 0.6A
OUTPUT:	12Vdc, 2A
POWER LINE:	1.8m non-shielded cable with one core

4. The EUT with follow antennas gain is listed as table below.

Antenna Item	Antenna Type	Connector	Gain(dBi)	
			2.4GHz	5GHz
1	PIFA	I-PEX (MHF)	4.75	7.34
2			4.50	5.61
3			3.85	6.09

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

3.2 DESCRIPTION OF TEST MODES

FOR 5180 ~ 5240MHz

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

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

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	46	5230 MHz

FOR 5260 ~ 5320MHz

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

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

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
54	5270 MHz	62	5310 MHz

FOR 5500 ~ 5700MHz

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

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

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

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

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	Powered by adapter
B	-	√	√	-	Powered by 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. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane.**
2. "-"means no effect.

RADIATED EMISSION TEST (ABOVE 1GHz):

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.0
A	802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	BPSK	21.7
A	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	45.0
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0
A	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	BPSK	21.7
A	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	45.0
A	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0
A	802.11n (20MHz)		100 to 140	100, 116, 140	OFDM	BPSK	21.7
A	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	45.0

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 (40MHz)	5500-5700	102 to 134	110	OFDM	BPSK	45.0

POWER LINE CONDUCTED EMISSION TEST:

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A & B	802.11n (40MHz)	5500-5700	102 to 134	110	OFDM	BPSK	45.0

ANTENNA PORT CONDUCTED MEASUREMENT:

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.0
A	802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	BPSK	21.7
A	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	45.0
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0
A	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	BPSK	21.7
A	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	45.0
A	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0
A	802.11n (20MHz)		100 to 140	100, 116, 140	OFDM	BPSK	21.7
A	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	45.0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	24deg. C, 66%RH	120Vac, 60Hz	Alan Wu
RE<1G	25deg. C, 67%RH	120Vac, 60Hz 48Vdc	Alan Wu
PLC	26deg. C, 67%RH	120Vac, 60Hz 48Vdc	Cedric Wu
APCM	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui

3.3 DUTY CYCLE OF TEST SIGNAL

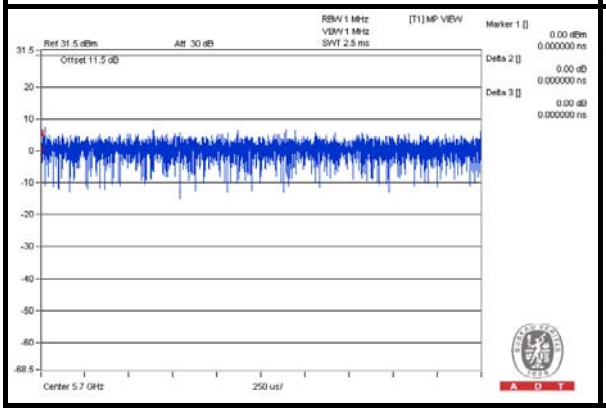
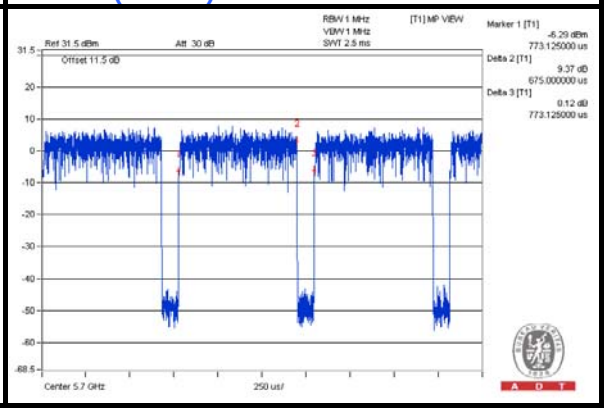
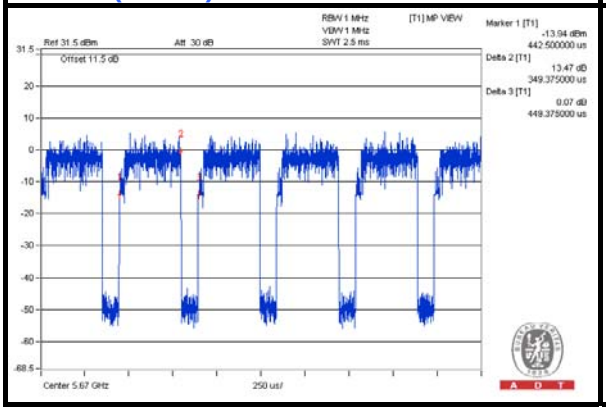
MODULATION TYPE: BPSK

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

802.11n (20MHz), 802.11n (40MHz): Duty cycle of test signal is < 98 %, duty factor is required

802.11n (20MHz): Duty cycle = 0.675/0.773 = 0.873, Duty factor = 10 * log(1/0.873) = 0.59

802.11n (40MHz): Duty cycle = 0.349/0.449 = 0.777, Duty factor = 10 * log(1/0.777) = 1.09

802.11a	802.11n (20MHz)
	
802.11n (40MHz)	
	

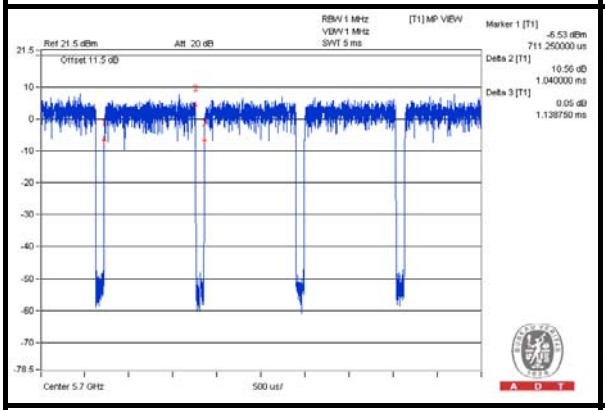
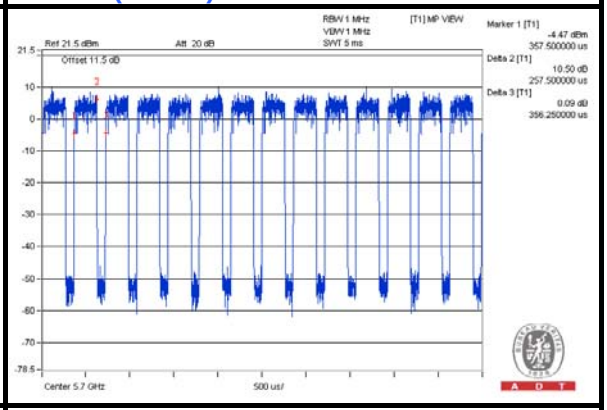
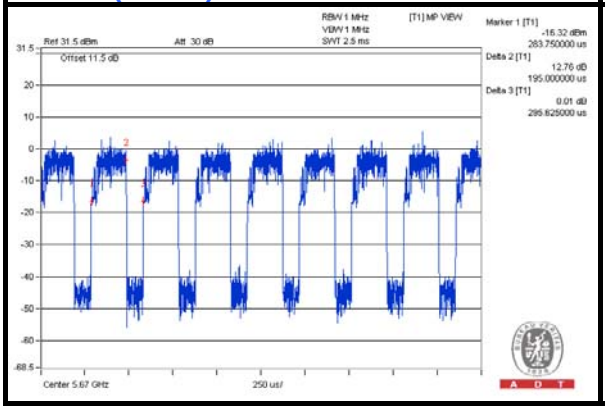
MODULATION TYPE: QPSK

Duty cycle of test signal is < 98 %, duty factor is required

802.11a: Duty cycle = 1.040/1.139 = 0.913, Duty factor = 10 * log(1/0.913) = 0.39

802.11n (20MHz): Duty cycle = 0.257/0.356 = 0.722, Duty factor = 10 * log(1/0.722) = 1.42

802.11n (40MHz): Duty cycle = 0.195/0.296 = 0.659, Duty factor = 10 * log(1/0.659) = 1.81

802.11a	802.11n (20MHz)
	
802.11n (40MHz)	
	

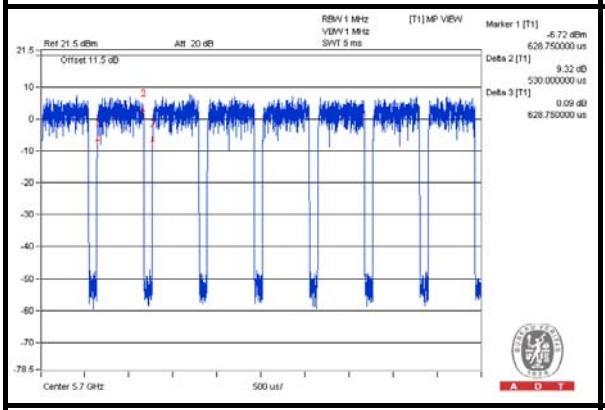
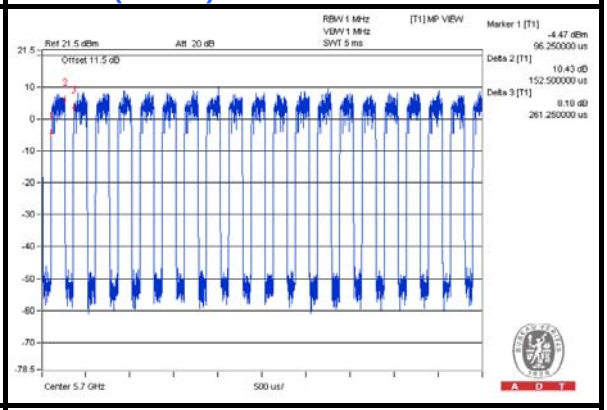
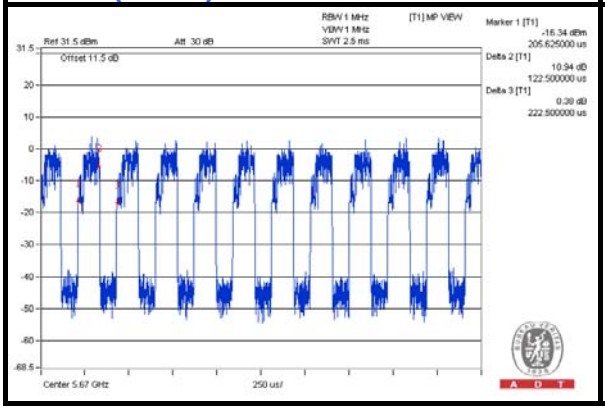
MODULATION TYPE: 16QAM

Duty cycle of test signal is < 98 %, duty factor is required

802.11a: Duty cycle = 0.530/0.629 = 0.843, Duty factor = 10 * log(1/0.843) = 0.74

802.11n (20MHz): Duty cycle = 0.153/0.261 = 0.586, Duty factor = 10 * log(1/0.586) = 2.32

802.11n (40MHz): Duty cycle = 0.122/0.222 = 0.550, Duty factor = 10 * log(1/0.550) = 2.60

802.11a	802.11n (20MHz)
	
802.11n (40MHz)	
	

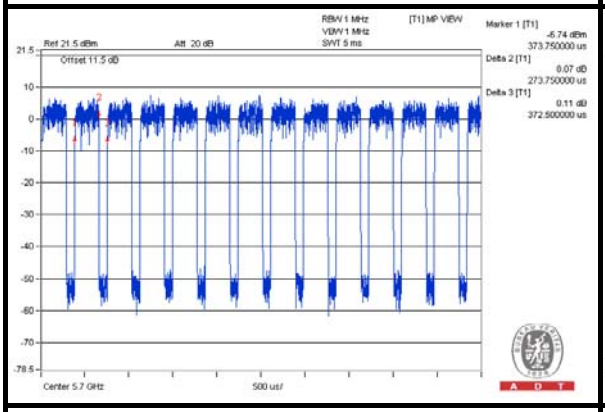
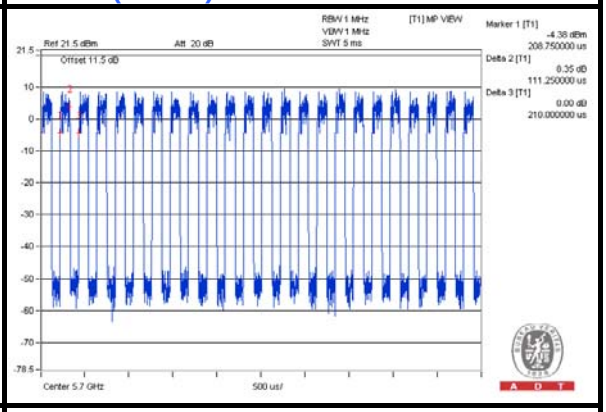
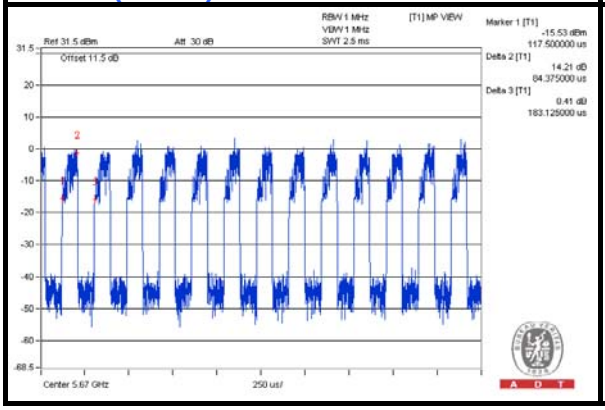
MODULATION TYPE: 64QAM

Duty cycle of test signal is < 98 %, duty factor is required

802.11a: Duty cycle = 0.274/0.372 = 0.737, Duty factor = 10 * log(1/0.737) = 1.33

802.11n (20MHz): Duty cycle = 0.111/0.210 = 0.529, Duty factor = 10 * log(1/0.529) = 2.77

802.11n (40MHz): Duty cycle = 0.084/0.183 = 0.459, Duty factor = 10 * log(1/0.459) = 3.38

802.11a	802.11n (20MHz)
	
802.11n (40MHz)	
	

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.

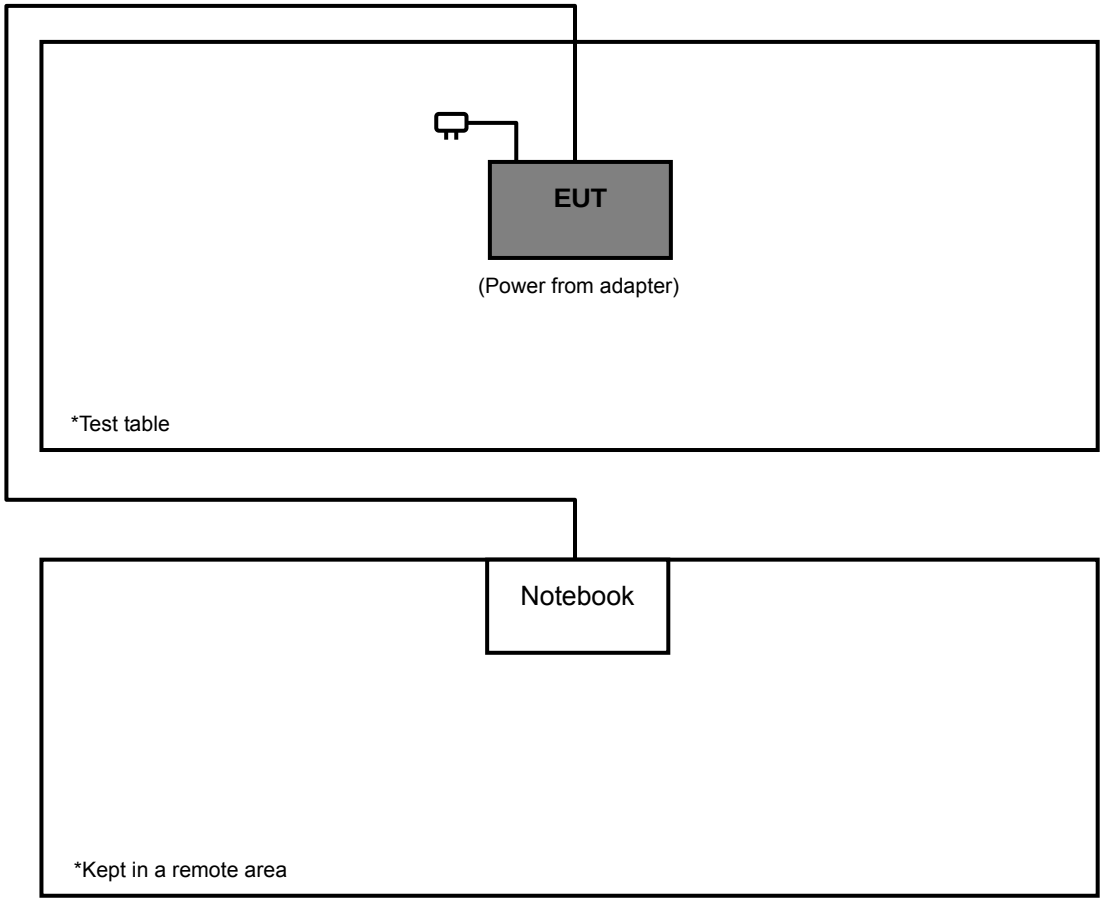
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	DELL	D531	CN-0XM006-48643-81U-2610	QDS-BRCM1020
2	POE	Allied Telesis	AT-GS950/10PS	NA	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	3m RJ45 Cable for test mode A, 1.8m RJ45 Cable for test mode B
2	3m RJ45 Cable

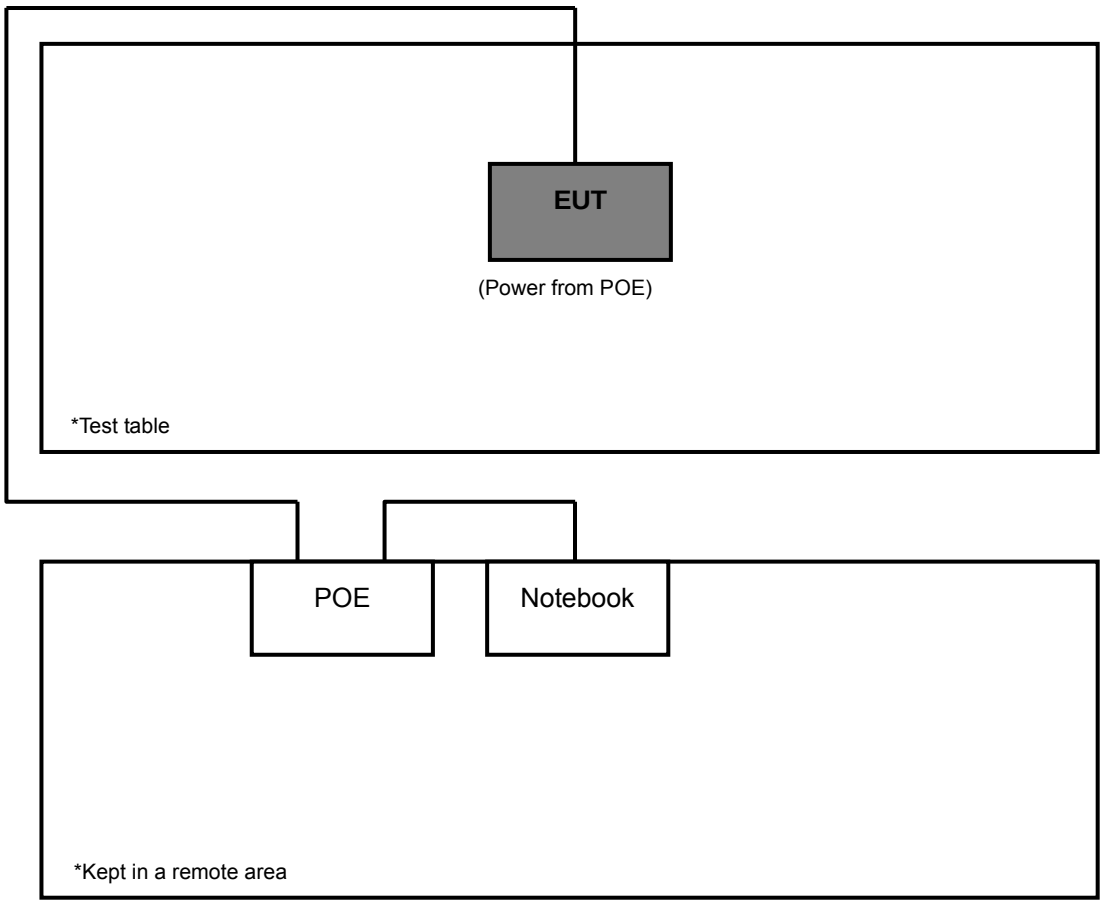
NOTE:
1. All power cords of the above support units are non-shielded (1.8m).
2. Item 1 acted as a communication partner to transfer data.
3. Item 2 for mode B tested only.

3.4.1 CONFIGURATION OF SYSTEM UNDER TEST

TEST MODE A



TEST MODE B


EUT
(Power from POE)
*Test table
POE
Notebook
*Kept in a remote area

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:

$$E = \frac{1000000\sqrt{30P}}{3}$$ μV/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, 2013	Nov. 15, 2014
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jan. 28, 2013	Jan. 27, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Mar. 22, 2013	Mar. 21, 2014
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-209	Sep. 12, 2013	Sep. 11, 2014
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 15, 2013	Jul. 14, 2014
Preamplifier Agilent	8449B	3008A01911	Aug. 22, 2013	Aug. 21, 2014
Preamplifier Agilent	8447D	2944A10638	Oct. 18, 2013	Oct. 17, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	248780/4 309222/4 274092/4	Aug. 26, 2013	Aug. 25, 2014
RF signal cable Worken	5D-FB	Cable-HYCH9-01	Aug. 11, 2013	Aug. 10, 2014
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	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. 18, 2013	Oct. 17, 2014
High Speed Peak Power Meter	ML2495A	0824011	Jul. 30, 2013	Jul. 29, 2014
Power Sensor	MA2411B	0738171	Jul. 30, 2013	Jul. 29, 2014
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 13, 2013	Jun. 12, 2014

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Chamber 9.

3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

4. The FCC Site Registration No. is 215374.

5. 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 camber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

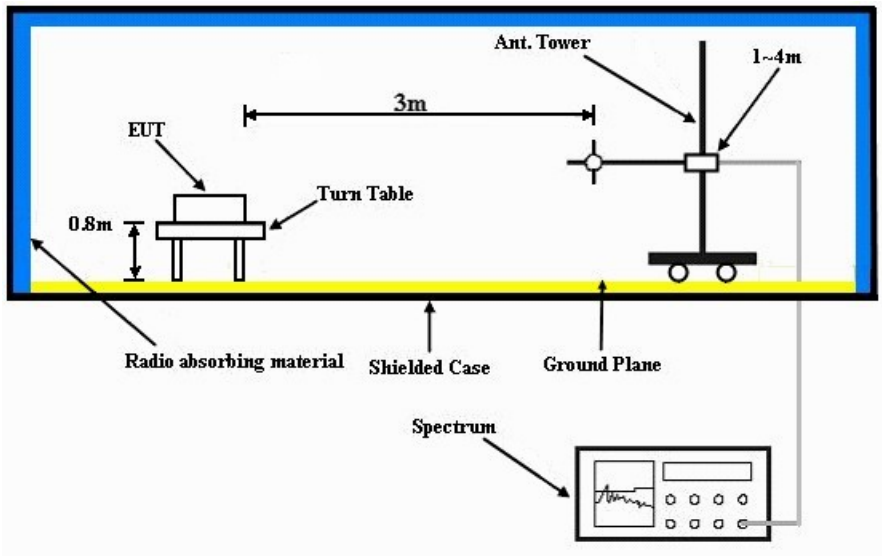
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T(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

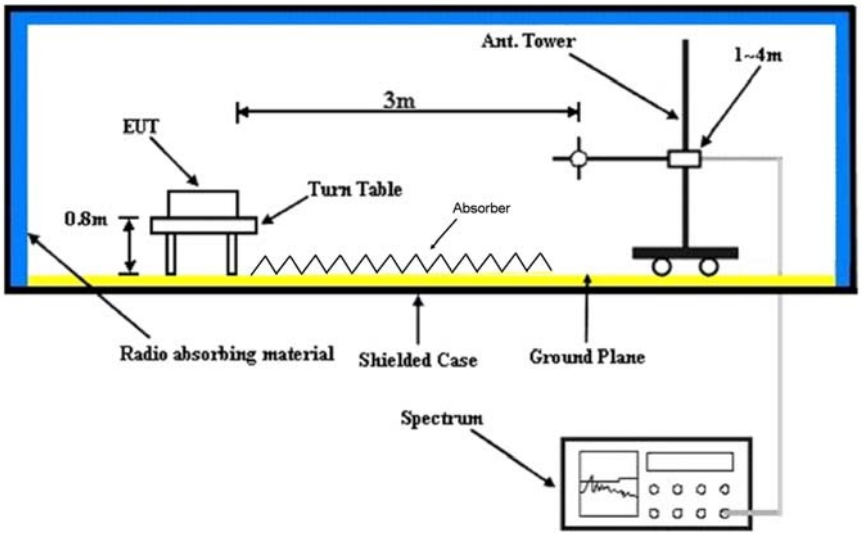
No deviation.

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 notebook to act as 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 partner sent data to EUT by command "PING".

4.1.8 TEST RESULTS

ABOVE 1GHz DATA：

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	58.9 PK	74.0	-15.1	1.00 H	277	54.50	4.40
2	5150.00	46.4 AV	54.0	-7.6	1.00 H	277	42.00	4.40
3	*5180.00	106.4 PK			1.00 H	269	64.90	41.50
4	*5180.00	96.1 AV			1.00 H	269	54.60	41.50
5	#10360.00	57.5 PK	74.0	-16.5	1.00 H	190	46.00	11.50
6	#10360.00	43.3 AV	54.0	-10.7	1.00 H	190	31.80	11.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	59.6 PK	74.0	-14.4	1.00 V	191	55.20	4.40
2	5150.00	47.0 AV	54.0	-7.0	1.00 V	191	42.60	4.40
3	*5180.00	107.5 PK			1.00 V	194	66.00	41.50
4	*5180.00	98.3 AV			1.00 V	194	56.80	41.50
5	#10360.00	58.2 PK	74.0	-15.8	1.00 V	181	46.70	11.50
6	#10360.00	43.6 AV	54.0	-10.4	1.00 V	181	32.10	11.50

REMARKS:

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	106.4 PK			1.00 H	270	64.90	41.50
2	*5200.00	96.4 AV			1.00 H	270	54.90	41.50
3	#10400.00	57.6 PK	74.0	-16.4	1.00 H	193	46.00	11.60
4	#10400.00	43.8 AV	54.0	-10.2	1.00 H	193	32.20	11.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	108.7 PK			1.00 V	194	67.20	41.50
2	*5200.00	99.4 AV			1.00 V	194	57.90	41.50
3	#10400.00	57.9 PK	74.0	-16.1	1.00 V	188	46.30	11.60
4	#10400.00	44.4 AV	54.0	-9.6	1.00 V	188	32.80	11.60

REMARKS:

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	*5240.00	106.1 PK			1.00 H	280	64.50	41.60
2	*5240.00	96.3 AV			1.00 H	280	54.70	41.60
3	5350.00	58.5 PK	74.0	-15.5	1.00 H	276	53.90	4.60
4	5350.00	45.7 AV	54.0	-8.3	1.00 H	276	41.10	4.60
5	#10480.00	57.2 PK	74.0	-16.8	1.00 H	195	45.10	12.10
6	#10480.00	44.3 AV	54.0	-9.7	1.00 H	195	32.20	12.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	108.5 PK			1.00 V	193	66.90	41.60
2	*5240.00	98.9 AV			1.00 V	193	57.30	41.60
3	5350.00	58.7 PK	74.0	-15.3	1.00 V	199	54.10	4.60
4	5350.00	46.1 AV	54.0	-7.9	1.00 V	199	41.50	4.60
5	#10480.00	57.5 PK	74.0	-16.5	1.00 V	189	45.40	12.10
6	#10480.00	44.9 AV	54.0	-9.1	1.00 V	189	32.80	12.10

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	59.3 PK	74.0	-14.7	1.00 H	214	54.90	4.40
2	5150.00	47.4 AV	54.0	-6.6	1.00 H	214	43.00	4.40
3	*5260.00	110.7 PK			1.00 H	219	69.00	41.70
4	*5260.00	100.9 AV			1.00 H	219	59.20	41.70
5	#10520.00	58.0 PK	74.0	-16.0	1.00 H	194	45.80	12.20
6	#10520.00	45.9 AV	54.0	-8.1	1.00 H	194	33.70	12.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	60.3 PK	74.0	-13.7	1.00 V	201	55.90	4.40
2	5150.00	47.7 AV	54.0	-6.3	1.00 V	201	43.30	4.40
3	*5260.00	113.4 PK			1.00 V	195	71.70	41.70
4	*5260.00	103.1 AV			1.00 V	195	61.40	41.70
5	#10520.00	58.2 PK	74.0	-15.8	1.00 V	186	46.00	12.20
6	#10520.00	46.3 AV	54.0	-7.7	1.00 V	186	34.10	12.20

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	110.5 PK			1.02 H	213	68.80	41.70
2	*5300.00	100.9 AV			1.02 H	213	59.20	41.70
3	10600.00	58.1 PK	74.0	-15.9	1.00 H	191	45.80	12.30
4	10600.00	45.8 AV	54.0	-8.2	1.00 H	191	33.50	12.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	113.4 PK			1.00 V	205	71.70	41.70
2	*5300.00	103.8 AV			1.00 V	205	62.10	41.70
3	10600.00	59.2 PK	74.0	-14.8	1.00 V	180	46.90	12.30
4	10600.00	46.3 AV	54.0	-7.7	1.00 V	180	34.00	12.30

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier 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	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	110.4 PK			1.04 H	207	68.70	41.70
2	*5320.00	101.0 AV			1.04 H	207	59.30	41.70
3	5350.00	62.6 PK	74.0	-11.4	1.06 H	216	58.00	4.60
4	5350.00	48.3 AV	54.0	-5.7	1.06 H	216	43.70	4.60
5	10640.00	57.8 PK	74.0	-16.2	1.00 H	196	45.40	12.40
6	10640.00	45.5 AV	54.0	-8.5	1.00 H	196	33.10	12.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	113.9 PK			1.10 V	193	72.20	41.70
2	*5320.00	104.0 AV			1.10 V	193	62.30	41.70
3	5350.00	61.2 PK	74.0	-12.8	1.09 V	206	56.60	4.60
4	5350.00	48.4 AV	54.0	-5.6	1.09 V	206	43.80	4.60
5	10640.00	58.8 PK	74.0	-15.2	1.00 V	187	46.40	12.40
6	10640.00	45.7 AV	54.0	-8.3	1.00 V	187	33.30	12.40

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier 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	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	59.3 PK	74.0	-14.7	1.01 H	32	54.40	4.90
2	5460.00	48.6 AV	54.0	-5.4	1.01 H	32	43.70	4.90
3	#5470.00	66.8 PK	74.0	-7.2	1.01 H	32	61.80	5.00
4	#5470.00	50.1 AV	54.0	-3.9	1.01 H	32	45.10	5.00
5	*5500.00	112.6 PK			1.00 H	7	70.60	42.00
6	*5500.00	102.8 AV			1.00 H	7	60.80	42.00
7	11000.00	57.8 PK	74.0	-16.2	1.00 H	191	44.70	13.10
8	11000.00	45.1 AV	54.0	-8.9	1.00 H	191	32.00	13.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	59.8 PK	74.0	-14.2	1.00 V	79	54.90	4.90
2	5460.00	48.7 AV	54.0	-5.3	1.00 V	79	43.80	4.90
3	#5470.00	65.6 PK	74.0	-8.4	1.00 V	79	60.60	5.00
4	#5470.00	50.4 AV	54.0	-3.6	1.00 V	79	45.40	5.00
5	*5500.00	112.8 PK			1.00 V	76	70.80	42.00
6	*5500.00	103.0 AV			1.00 V	76	61.00	42.00
7	11000.00	58.5 PK	74.0	-15.5	1.00 V	187	45.40	13.10
8	11000.00	45.6 AV	54.0	-8.4	1.00 V	187	32.50	13.10

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	112.4 PK			1.00 H	29	70.40	42.00
2	*5580.00	102.7 AV			1.00 H	29	60.70	42.00
3	11160.00	57.4 PK	74.0	-16.6	1.00 H	197	44.20	13.20
4	11160.00	45.3 AV	54.0	-8.7	1.00 H	197	32.10	13.20
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	*5580.00	112.8 PK			1.00 V	72	70.80	42.00
2	*5580.00	102.9 AV			1.00 V	72	60.90	42.00
3	11160.00	58.1 PK	74.0	-15.9	1.00 V	189	44.90	13.20
4	11160.00	45.8 AV	54.0	-8.2	1.00 V	189	32.60	13.20

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	113.0 PK			1.00 H	29	70.80	42.20
2	*5700.00	103.1 AV			1.00 H	29	60.90	42.20
3	#5725.00	69.2 PK	74.0	-4.8	1.00 H	21	64.00	5.20
4	#5725.00	52.0 AV	54.0	-2.0	1.00 H	21	46.80	5.20
5	11400.00	57.3 PK	74.0	-16.7	1.00 H	199	43.90	13.40
6	11400.00	44.9 AV	54.0	-9.1	1.00 H	199	31.50	13.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	113.8 PK			1.00 V	73	71.60	42.20
2	*5700.00	103.7 AV			1.00 V	73	61.50	42.20
3	#5725.00	69.5 PK	74.0	-4.5	1.00 V	74	64.30	5.20
4	#5725.00	52.8 AV	54.0	-1.2	1.00 V	74	47.60	5.20
5	11400.00	58.7 PK	74.0	-15.3	1.00 V	184	45.30	13.40
6	11400.00	46.2 AV	54.0	-7.8	1.00 V	184	32.80	13.40

REMARKS:

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

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	58.8 PK	74.0	-15.2	1.15 H	276	54.40	4.40
2	5150.00	46.6 AV	54.0	-7.4	1.15 H	276	42.20	4.40
3	*5180.00	107.5 PK			1.12 H	272	66.00	41.50
4	*5180.00	94.8 AV			1.12 H	272	53.30	41.50
5	#10360.00	58.0 PK	74.0	-16.0	1.00 H	191	46.50	11.50
6	#10360.00	43.7 AV	54.0	-10.3	1.00 H	191	32.20	11.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	59.9 PK	74.0	-14.1	1.00 V	197	55.50	4.40
2	5150.00	47.9 AV	54.0	-6.1	1.00 V	197	43.50	4.40
3	*5180.00	109.4 PK			1.00 V	193	67.90	41.50
4	*5180.00	96.8 AV			1.00 V	193	55.30	41.50
5	#10360.00	58.2 PK	74.0	-15.8	1.00 V	186	46.70	11.50
6	#10360.00	44.3 AV	54.0	-9.7	1.00 V	186	32.80	11.50

REMARKS:

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	108.1 PK			1.18 H	273	66.60	41.50
2	*5200.00	95.0 AV			1.18 H	273	53.50	41.50
3	#10400.00	58.4 PK	74.0	-15.6	1.00 H	197	46.80	11.60
4	#10400.00	44.2 AV	54.0	-9.8	1.00 H	197	32.60	11.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	110.0 PK			1.00 V	194	68.50	41.50
2	*5200.00	97.7 AV			1.00 V	194	56.20	41.50
3	#10400.00	58.6 PK	74.0	-15.4	1.00 V	186	47.00	11.60
4	#10400.00	44.8 AV	54.0	-9.2	1.00 V	186	33.20	11.60

REMARKS:

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	*5240.00	107.5 PK			1.13 H	274	65.90	41.60
2	*5240.00	95.1 AV			1.13 H	274	53.50	41.60
3	5350.00	58.3 PK	74.0	-15.7	1.06 H	278	53.70	4.60
4	5350.00	46.1 AV	54.0	-7.9	1.06 H	278	41.50	4.60
5	#10480.00	57.3 PK	74.0	-16.7	1.00 H	193	45.20	12.10
6	#10480.00	43.5 AV	54.0	-10.5	1.00 H	193	31.40	12.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	109.4 PK			1.00 V	195	67.80	41.60
2	*5240.00	97.5 AV			1.00 V	195	55.90	41.60
3	5350.00	58.5 PK	74.0	-15.5	1.00 V	186	53.90	4.60
4	5350.00	46.5 AV	54.0	-7.5	1.00 V	186	41.90	4.60
5	#10480.00	57.6 PK	74.0	-16.4	1.00 V	189	45.50	12.10
6	#10480.00	44.1 AV	54.0	-9.9	1.00 V	189	32.00	12.10

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	57.6 PK	74.0	-16.4	1.04 H	212	53.20	4.40
2	5150.00	46.3 AV	54.0	-7.7	1.04 H	212	41.90	4.40
3	*5260.00	109.6 PK			1.07 H	217	67.90	41.70
4	*5260.00	97.6 AV			1.07 H	217	55.90	41.70
5	#10520.00	57.4 PK	74.0	-16.6	1.00 H	193	45.20	12.20
6	#10520.00	45.2 AV	54.0	-8.8	1.00 H	193	33.00	12.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	58.4 PK	74.0	-15.6	1.00 V	199	54.00	4.40
2	5150.00	46.8 AV	54.0	-7.2	1.00 V	199	42.40	4.40
3	*5260.00	111.5 PK			1.00 V	199	69.80	41.70
4	*5260.00	99.8 AV			1.00 V	199	58.10	41.70
5	#10520.00	58.6 PK	74.0	-15.4	1.00 V	188	46.40	12.20
6	#10520.00	45.6 AV	54.0	-8.4	1.00 V	188	33.40	12.20

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	109.9 PK			1.03 H	211	68.20	41.70
2	*5300.00	97.7 AV			1.03 H	211	56.00	41.70
3	10600.00	57.5 PK	74.0	-16.5	1.00 H	197	45.20	12.30
4	10600.00	46.8 AV	54.0	-7.2	1.00 H	197	34.50	12.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	111.9 PK			1.19 V	194	70.20	41.70
2	*5300.00	99.6 AV			1.19 V	194	57.90	41.70
3	10600.00	59.0 PK	74.0	-15.0	1.00 V	187	46.70	12.30
4	10600.00	46.1 AV	54.0	-7.9	1.00 V	187	33.80	12.30

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier 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	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	109.7 PK			1.03 H	218	68.00	41.70
2	*5320.00	97.4 AV			1.03 H	218	55.70	41.70
3	5350.00	59.5 PK	74.0	-14.5	1.01 H	216	54.90	4.60
4	5350.00	48.2 AV	54.0	-5.8	1.01 H	216	43.60	4.60
5	10640.00	57.6 PK	74.0	-16.4	1.00 H	195	45.20	12.40
6	10640.00	44.9 AV	54.0	-9.1	1.00 H	195	32.50	12.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	111.4 PK			1.22 V	190	69.70	41.70
2	*5320.00	99.0 AV			1.22 V	190	57.30	41.70
3	5350.00	60.5 PK	74.0	-13.5	1.20 V	193	55.90	4.60
4	5350.00	48.4 AV	54.0	-5.6	1.20 V	193	43.80	4.60
5	10640.00	58.8 PK	74.0	-15.2	1.00 V	184	46.40	12.40
6	10640.00	45.5 AV	54.0	-8.5	1.00 V	184	33.10	12.40

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier 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	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	59.2 PK	74.0	-14.8	1.04 H	33	54.30	4.90
2	5460.00	47.9 AV	54.0	-6.1	1.04 H	33	43.00	4.90
3	#5470.00	66.1 PK	74.0	-7.9	1.04 H	33	61.10	5.00
4	#5470.00	49.6 AV	54.0	-4.4	1.04 H	33	44.60	5.00
5	*5500.00	112.3 PK			1.04 H	34	70.30	42.00
6	*5500.00	100.0 AV			1.04 H	34	58.00	42.00
7	11000.00	57.8 PK	74.0	-16.2	1.00 H	197	44.70	13.10
8	11000.00	45.5 AV	54.0	-8.5	1.00 H	197	32.40	13.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	60.5 PK	74.0	-13.5	1.00 V	78	55.60	4.90
2	5460.00	48.6 AV	54.0	-5.4	1.00 V	78	43.70	4.90
3	#5470.00	65.4 PK	74.0	-8.6	1.00 V	78	60.40	5.00
4	#5470.00	50.9 AV	54.0	-3.1	1.00 V	78	45.90	5.00
5	*5500.00	112.4 PK			1.00 V	80	70.40	42.00
6	*5500.00	100.8 AV			1.00 V	80	58.80	42.00
7	11000.00	58.6 PK	74.0	-15.4	1.00 V	181	45.50	13.10
8	11000.00	46.0 AV	54.0	-8.0	1.00 V	181	32.90	13.10

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	112.0 PK			1.02 H	34	70.00	42.00
2	*5580.00	99.4 AV			1.02 H	34	57.40	42.00
3	11160.00	58.3 PK	74.0	-15.7	1.00 H	194	45.10	13.20
4	11160.00	45.8 AV	54.0	-8.2	1.00 H	194	32.60	13.20
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	*5580.00	112.2 PK			1.00 V	79	70.20	42.00
2	*5580.00	100.2 AV			1.00 V	79	58.20	42.00
3	11160.00	59.1 PK	74.0	-14.9	1.00 V	183	45.90	13.20
4	11160.00	46.3 AV	54.0	-7.7	1.00 V	183	33.10	13.20

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) – Pre-Amplifier 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	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	112.3 PK			1.07 H	24	70.10	42.20
2	*5700.00	101.2 AV			1.07 H	24	59.00	42.20
3	#5725.00	68.4 PK	74.0	-5.6	1.00 H	30	63.20	5.20
4	#5725.00	51.8 AV	54.0	-2.2	1.00 H	30	46.60	5.20
5	11400.00	57.5 PK	74.0	-16.5	1.00 H	196	44.10	13.40
6	11400.00	45.6 AV	54.0	-8.4	1.00 H	196	32.20	13.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	112.9 PK			1.00 V	75	70.70	42.20
2	*5700.00	102.4 AV			1.00 V	75	60.20	42.20
3	#5725.00	66.4 PK	74.0	-7.6	1.00 V	74	61.20	5.20
4	#5725.00	52.8 AV	54.0	-1.2	1.00 V	74	47.60	5.20
5	11400.00	58.2 PK	74.0	-15.8	1.00 V	187	44.80	13.40
6	11400.00	46.1 AV	54.0	-7.9	1.00 V	187	32.70	13.40

REMARKS:

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

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	62.7 PK	74.0	-11.3	1.11 H	279	58.30	4.40
2	5150.00	51.1 AV	54.0	-2.9	1.11 H	279	46.70	4.40
3	*5190.00	104.7 PK			1.12 H	272	63.20	41.50
4	*5190.00	93.3 AV			1.12 H	272	51.80	41.50
5	#10380.00	56.5 PK	74.0	-17.5	1.00 H	190	44.90	11.60
6	#10380.00	42.6 AV	54.0	-11.4	1.00 H	190	31.00	11.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	65.2 PK	74.0	-8.8	1.14 V	189	60.80	4.40
2	5150.00	52.9 AV	54.0	-1.1	1.14 V	189	48.50	4.40
3	*5190.00	105.9 PK			1.00 V	194	64.40	41.50
4	*5190.00	95.0 AV			1.00 V	194	53.50	41.50
5	#10380.00	57.0 PK	74.0	-17.0	1.00 V	189	45.40	11.60
6	#10380.00	43.3 AV	54.0	-10.7	1.00 V	189	31.70	11.60

REMARKS:

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	*5230.00	104.2 PK			1.09 H	274	62.60	41.60
2	*5230.00	92.9 AV			1.09 H	274	51.30	41.60
3	5350.00	58.7 PK	74.0	-15.3	1.07 H	270	54.10	4.60
4	5350.00	46.9 AV	54.0	-7.1	1.07 H	270	42.30	4.60
5	#10460.00	56.4 PK	74.0	-17.6	1.00 H	192	44.50	11.90
6	#10460.00	42.8 AV	54.0	-11.2	1.00 H	192	30.90	11.90
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	*5230.00	106.0 PK			1.00 V	192	64.40	41.60
2	*5230.00	94.9 AV			1.00 V	192	53.30	41.60
3	5350.00	58.9 PK	74.0	-15.1	1.00 V	194	54.30	4.60
4	5350.00	47.2 AV	54.0	-6.8	1.00 V	194	42.60	4.60
5	#10460.00	56.8 PK	74.0	-17.2	1.00 V	186	44.90	11.90
6	#10460.00	43.5 AV	54.0	-10.5	1.00 V	186	31.60	11.90

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 54	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	58.2 PK	74.0	-15.8	1.25 H	212	53.80	4.40
2	5150.00	46.8 AV	54.0	-7.2	1.25 H	212	42.40	4.40
3	*5270.00	108.5 PK			1.05 H	214	66.80	41.70
4	*5270.00	96.8 AV			1.05 H	214	55.10	41.70
5	#10540.00	57.3 PK	74.0	-16.7	1.00 H	194	45.00	12.30
6	#10540.00	45.0 AV	54.0	-9.0	1.00 H	194	32.70	12.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	58.7 PK	74.0	-15.3	1.00 V	195	54.30	4.40
2	5150.00	47.3 AV	54.0	-6.7	1.00 V	195	42.90	4.40
3	*5270.00	110.6 PK			1.00 V	193	68.90	41.70
4	*5270.00	99.1 AV			1.00 V	193	57.40	41.70
5	#10540.00	58.5 PK	74.0	-15.5	1.00 V	186	46.20	12.30
6	#10540.00	45.5 AV	54.0	-8.5	1.00 V	186	33.20	12.30

REMARKS:

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 62	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	105.9 PK			1.05 H	216	64.20	41.70
2	*5310.00	94.2 AV			1.05 H	216	52.50	41.70
3	5350.00	62.5 PK	74.0	-11.5	1.07 H	210	57.90	4.60
4	5350.00	50.9 AV	54.0	-3.1	1.07 H	210	46.30	4.60
5	10620.00	56.9 PK	74.0	-17.1	1.00 H	196	44.50	12.40
6	10620.00	44.2 AV	54.0	-9.8	1.00 H	196	31.80	12.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	109.1 PK			1.00 V	192	67.40	41.70
2	*5310.00	97.9 AV			1.00 V	192	56.20	41.70
3	5350.00	64.9 PK	74.0	-9.1	1.00 V	196	60.30	4.60
4	**5350.00**	**53.0 AV**	**54.0**	**-1.0**	**1.00 V**	**196**	**48.40**	**4.60**
5	10620.00	58.1 PK	74.0	-15.9	1.00 V	185	45.70	12.40
6	10620.00	44.8 AV	54.0	-9.2	1.00 V	185	32.40	12.40

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier 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	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	59.5 PK	74.0	-14.5	1.00 H	34	54.60	4.90
2	5460.00	47.5 AV	54.0	-6.5	1.00 H	34	42.60	4.90
3	#5470.00	65.8 PK	74.0	-8.2	1.00 H	34	60.80	5.00
4	#5470.00	50.0 AV	54.0	-4.0	1.00 H	34	45.00	5.00
5	*5510.00	104.2 PK			1.01 H	30	62.20	42.00
6	*5510.00	92.4 AV			1.01 H	30	50.40	42.00
7	11020.00	56.3 PK	74.0	-17.7	1.00 H	192	43.20	13.10
8	11020.00	43.6 AV	54.0	-10.4	1.00 H	192	30.50	13.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	61.5 PK	74.0	-12.5	1.00 V	77	56.60	4.90
2	5460.00	49.2 AV	54.0	-4.8	1.00 V	77	44.30	4.90
3	#5470.00	66.3 PK	74.0	-7.7	1.00 V	77	61.30	5.00
4	**#5470.00**	**53.0 AV**	**54.0**	**-1.0**	**1.00 V**	**77**	**48.00**	**5.00**
5	*5510.00	104.8 PK			1.00 V	75	62.80	42.00
6	*5510.00	93.6 AV			1.00 V	75	51.60	42.00
7	11020.00	56.9 PK	74.0	-17.1	1.00 V	183	43.80	13.10
8	11020.00	43.9 AV	54.0	-10.1	1.00 V	183	30.80	13.10

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 110	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	#5220.00	59.5 PK	74.0	-14.5	1.00 H	55	54.90	4.60
2	#5220.00	48.7 AV	54.0	-5.3	1.00 H	55	44.10	4.60
3	*5550.00	108.6 PK			1.00 H	30	66.60	42.00
4	*5550.00	97.5 AV			1.00 H	30	55.50	42.00
5	11100.00	57.1 PK	74.0	-16.9	1.00 H	198	44.00	13.10
6	11100.00	44.6 AV	54.0	-9.4	1.00 H	198	31.50	13.10
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	#5220.00	63.2 PK	74.0	-10.8	1.00 V	70	58.60	4.60
2	#5220.00	52.7 AV	54.0	-1.3	1.00 V	70	48.10	4.60
3	*5550.00	100.7 PK			1.00 V	74	58.70	42.00
4	*5550.00	99.2 AV			1.00 V	74	57.20	42.00
5	11100.00	57.8 PK	74.0	-16.2	1.00 V	179	44.70	13.10
6	11100.00	45.0 AV	54.0	-9.0	1.00 V	179	31.90	13.10

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 134	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%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	#5220.00	59.8 PK	74.0	-14.2	1.00 H	48	55.20	4.60
2	#5220.00	48.8 AV	54.0	-5.2	1.00 H	48	44.20	4.60
3	*5670.00	108.4 PK			1.00 H	27	66.20	42.20
4	*5670.00	97.1 AV			1.00 H	27	54.90	42.20
5	#5725.00	63.6 PK	74.0	-10.4	1.00 H	28	58.40	5.20
6	#5725.00	49.7 AV	54.0	-4.3	1.00 H	28	44.50	5.20
7	11340.00	56.7 PK	74.0	-17.3	1.00 H	192	43.40	13.30
8	11340.00	44.5 AV	54.0	-9.5	1.00 H	192	31.20	13.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5220.00	63.4 PK	74.0	-10.6	1.00 V	81	58.80	4.60
2	#5220.00	52.2 AV	54.0	-1.8	1.00 V	81	47.60	4.60
3	*5670.00	111.1 PK			1.00 V	79	68.90	42.20
4	*5670.00	98.8 AV			1.00 V	79	56.60	42.20
5	#5725.00	63.4 PK	74.0	-10.6	1.00 V	79	58.20	5.20
6	#5725.00	51.1 AV	54.0	-2.9	1.00 V	79	45.90	5.20
7	11340.00	57.3 PK	74.0	-16.7	1.00 V	182	44.00	13.30
8	11340.00	44.9 AV	54.0	-9.1	1.00 V	182	31.60	13.30

REMARKS:

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

BELOW 1GHz WORST-CASE DATA：802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 110	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH	TESTED BY	Alan Wu
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	97.90	24.8 QP	43.5	-18.7	1.99 H	243	43.90	-19.10
2	159.98	40.4 QP	43.5	-3.1	1.24 H	245	54.10	-13.70
3	216.24	35.0 QP	46.0	-11.0	1.24 H	90	51.50	-16.50
4	375.32	27.2 QP	46.0	-18.8	1.99 H	229	38.10	-10.90
5	625.58	34.6 QP	46.0	-11.4	1.99 H	219	40.40	-5.80
6	662.44	31.3 QP	46.0	-14.7	1.00 H	208	36.70	-5.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	49.40	31.5 QP	40.0	-8.5	1.24 V	227	46.20	-14.70
2	70.74	26.8 QP	40.0	-13.2	1.00 V	277	42.70	-15.90
3	154.16	35.2 QP	43.5	-8.3	1.00 V	46	49.00	-13.80
4	375.32	24.9 QP	46.0	-21.1	1.49 V	14	35.80	-10.90
5	625.58	32.7 QP	46.0	-13.3	1.99 V	175	38.50	-5.80
6	662.44	31.9 QP	46.0	-14.1	1.49 V	7	37.30	-5.40

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier 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 110	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	48Vdc	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH	TESTED BY	Alan Wu
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	34.3 QP	43.5	-9.2	1.99 H	128	53.40	-19.10
2	156.10	42.2 QP	43.5	-1.3	1.00 H	111	56.40	-14.20
3	375.32	33.8 QP	46.0	-12.2	1.00 H	9	44.70	-10.90
4	625.58	32.1 QP	46.0	-13.9	1.00 H	206	37.90	-5.80
5	662.44	34.2 QP	46.0	-11.8	1.00 H	171	39.60	-5.40
6	875.84	34.7 QP	46.0	-11.3	1.24 H	137	36.20	-1.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	43.58	35.9 QP	40.0	-4.1	1.24 V	36	50.30	-14.40
2	140.58	35.7 QP	43.5	-7.8	1.00 V	67	50.20	-14.50
3	154.16	39.6 QP	43.5	-3.9	1.24 V	45	53.40	-13.80
4	625.58	28.6 QP	46.0	-17.4	1.49 V	110	34.40	-5.80
5	662.44	30.5 QP	46.0	-15.5	1.49 V	146	35.90	-5.40
6	875.84	37.1 QP	46.0	-8.9	1.00 V	88	38.60	-1.50

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier 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. 17, 2013	Nov. 16, 2014
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. 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

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

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

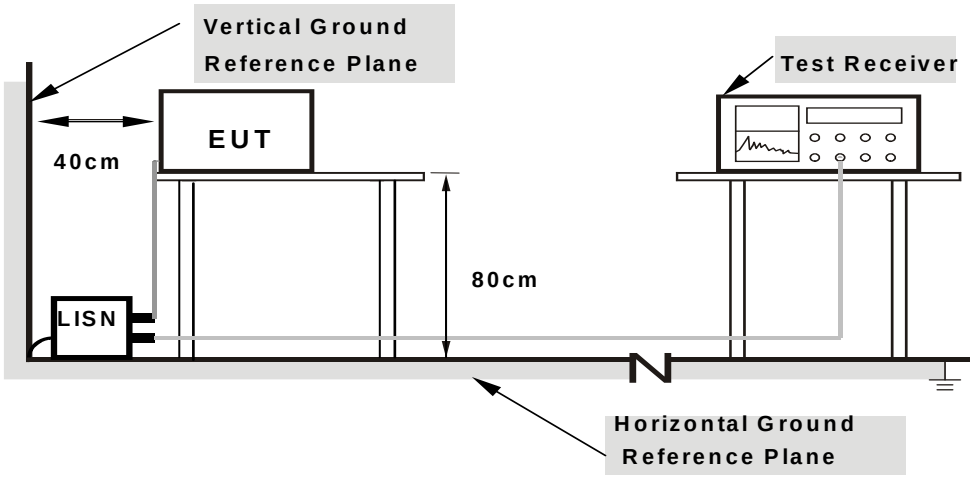
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



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

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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

4.2.7 TEST RESULTS

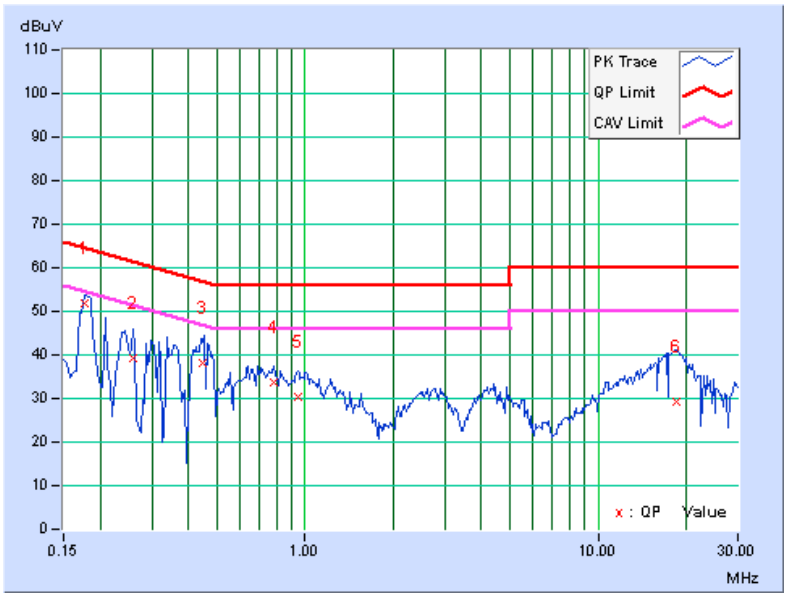
CONDUCTED WORST-CASE DATA：802.11n (40MHz)

PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	A		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17732	0.19	51.75	43.12	51.94	43.31	64.61	54.61	-12.67	-11.30
2	0.25938	0.21	39.09	21.76	39.30	21.97	61.45	51.45	-22.16	-29.49
3	0.44688	0.23	37.97	18.67	38.20	18.90	56.93	46.93	-18.74	-28.04
4	0.77891	0.26	33.52	26.69	33.78	26.95	56.00	46.00	-22.22	-19.05
5	0.94297	0.28	30.05	22.05	30.33	22.33	56.00	46.00	-25.67	-23.67
6	18.48047	0.69	28.71	23.15	29.40	23.84	60.00	50.00	-30.60	-26.16

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

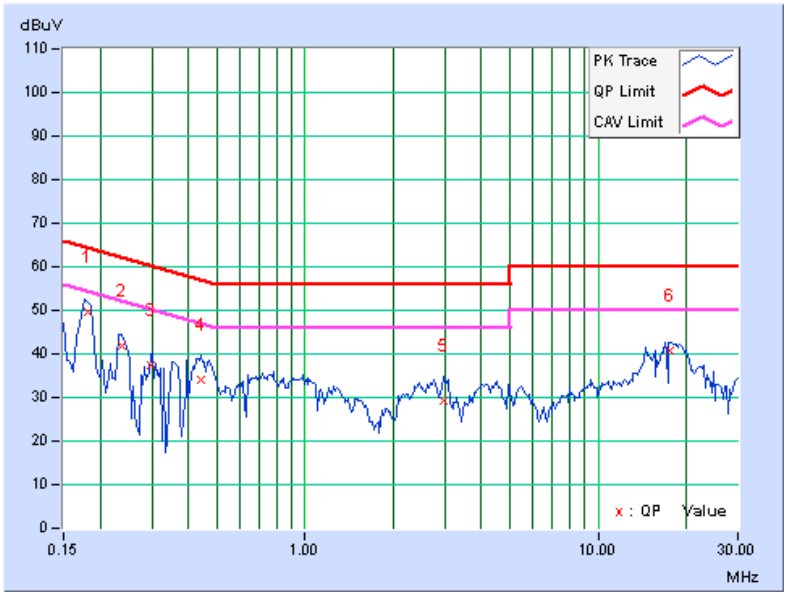


PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	A		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18125	0.19	49.30	39.73	49.49	39.92	64.43	54.43	-14.94	-14.51
2	0.23594	0.20	41.79	34.34	41.99	34.54	62.24	52.24	-20.24	-17.69
3	0.29844	0.23	37.18	31.14	37.41	31.37	60.29	50.29	-22.88	-18.92
4	0.43906	0.27	33.94	11.85	34.21	12.12	57.08	47.08	-22.87	-34.96
5	2.95703	0.38	28.72	19.84	29.10	20.22	56.00	46.00	-26.90	-25.78
6	**17.70319**	**0.76**	**40.10**	**39.08**	**40.86**	**39.84**	**60.00**	**50.00**	**-19.14**	**-10.16**

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

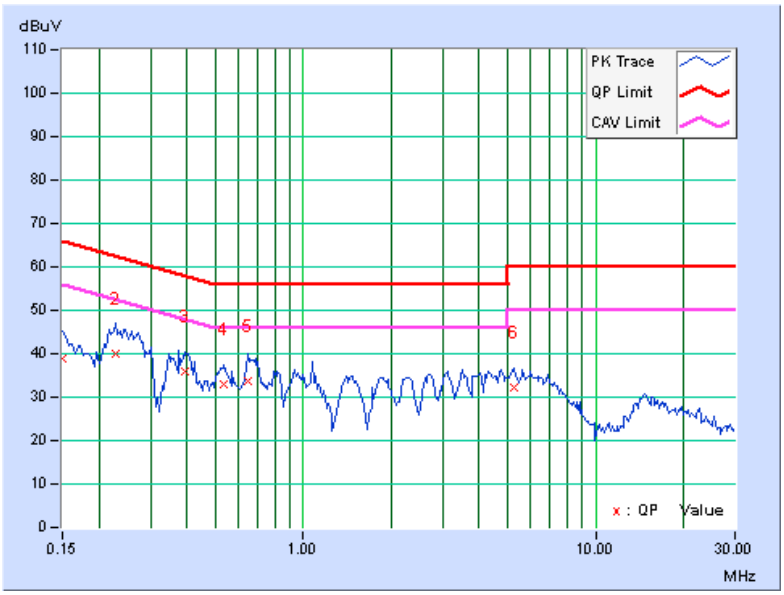


PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	0.21	38.84	31.39	39.05	31.60	66.00	56.00	-26.95	-24.40
2	0.22812	0.24	39.92	30.02	40.16	30.26	62.52	52.52	-22.36	-22.26
3	0.39219	0.22	35.78	26.91	36.00	27.13	58.02	48.02	-22.02	-20.89
4	0.53672	0.24	32.87	25.40	33.11	25.64	56.00	46.00	-22.89	-20.36
5	0.65000	0.25	33.62	27.31	33.87	27.56	56.00	46.00	-22.13	-18.44
6	5.28125	0.45	31.59	25.50	32.04	25.95	60.00	50.00	-27.96	-24.05

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

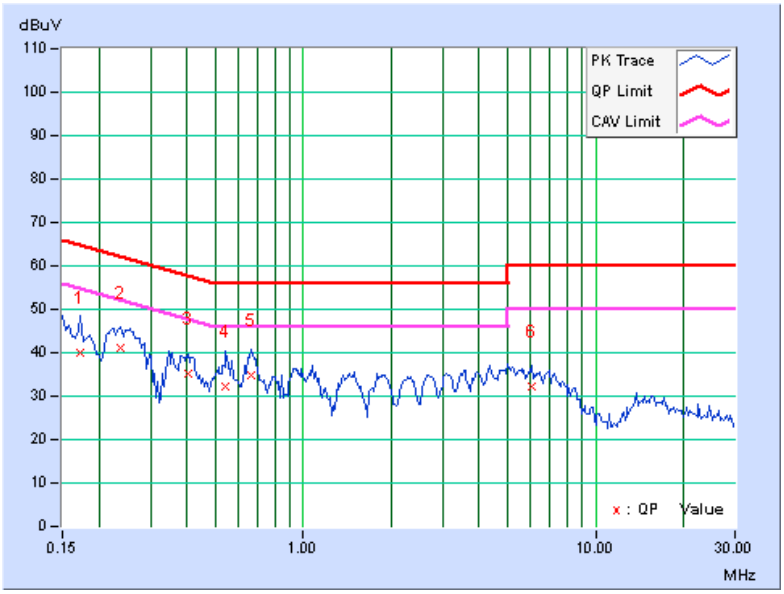


PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17344	0.23	39.76	32.82	39.99	33.05	64.79	54.79	-24.80	-21.74
2	0.23594	0.25	40.80	30.83	41.05	31.08	62.24	52.24	-21.19	-21.16
3	0.40391	0.30	34.94	25.78	35.24	26.08	57.77	47.77	-22.53	-21.69
4	0.54453	0.30	31.88	24.15	32.18	24.45	56.00	46.00	-23.82	-21.55
5	0.66563	0.30	34.51	27.76	34.81	28.06	56.00	46.00	-21.19	-17.94
6	6.04297	0.52	31.58	25.65	32.10	26.17	60.00	50.00	-27.90	-23.83

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.

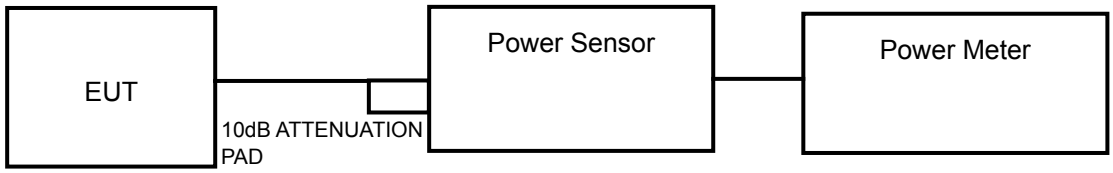
Per KDB 662911 D01 Multiple Transmitter Output v02 Method of conducted output power measurement on IEEE 802.11 devices,

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.

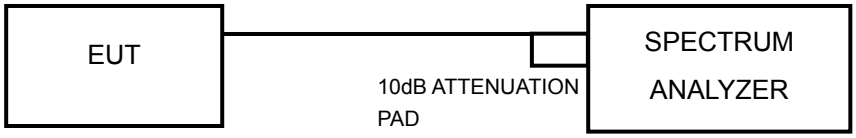
For power measurements on all other devices: Array Gain = 10 log(NANT/NSS) dB.

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	CHAIN 2				
36	5180	6.75	6.33	5.94	12.953	11.12	15.66	PASS
40	5200	6.55	6.74	6.03	13.249	11.22	15.66	PASS
48	5240	6.48	6.23	5.84	12.481	10.96	15.66	PASS
52	5260	13.21	13.25	13.58	64.879	18.12	22.66	PASS
60	5300	12.52	12.58	13.36	57.655	17.61	22.66	PASS
64	5320	12.63	12.66	13.16	57.474	17.59	22.66	PASS
100	5500	13.52	13.06	12.58	60.834	17.84	22.66	PASS
116	5580	13.25	13.41	13.51	65.502	18.16	22.66	PASS
140	5700	13.06	13.30	13.14	62.216	17.94	22.66	PASS

NOTE:

For 5180~5240MHz:

CHAIN 0

1. 4dBm + 10log(23.84) = 17.77dBm > 17dBm.
2. 4dBm + 10log(23.91) = 17.79dBm > 17dBm.
3. 4dBm + 10log(26.12) = 18.17dBm > 17dBm.

CHAIN 1

1. 4dBm + 10log(26.62) = 18.25dBm > 17dBm.
2. 4dBm + 10log(26.84) = 18.29dBm > 17dBm.
3. 4dBm + 10log(26.74) = 18.27dBm > 17dBm.

CHAIN 2

1. 4dBm + 10log(26.04) = 18.16dBm > 17dBm.
2. 4dBm + 10log(26.62) = 18.25dBm > 17dBm.
3. 4dBm + 10log(27.11) = 18.33dBm > 17dBm.

* Directional gain = 7.34 > 6dBi, so the power limit shall be reduced to 17-(7.34-6) = 15.66dBm.

For 5260~5700MHz:

CHAIN 0

1. 11dBm + 10log(23.15) = 24.65dBm > 24dBm.
2. 11dBm + 10log(26.94) = 25.30dBm > 24dBm.
3. 11dBm + 10log(26.57) = 25.24dBm > 24dBm.
4. 11dBm + 10log(26.88) = 25.29dBm > 24dBm.
5. 11dBm + 10log(26.32) = 25.20dBm > 24dBm.
6. 11dBm + 10log(23.80) = 24.77dBm > 24dBm.

CHAIN 1

1. 11dBm + 10log(23.69) = 24.75dBm > 24dBm.
2. 11dBm + 10log(26.20) = 25.18dBm > 24dBm.
3. 11dBm + 10log(23.87) = 24.78dBm > 24dBm.
4. 11dBm + 10log(27.02) = 25.32dBm > 24dBm.
5. 11dBm + 10log(27.28) = 25.36dBm > 24dBm.
6. 11dBm + 10log(26.44) = 25.22dBm > 24dBm.

CHAIN 2

1. 11dBm + 10log(26.99) = 25.31dBm > 24dBm.
2. 11dBm + 10log(26.24) = 25.19dBm > 24dBm.
3. 11dBm + 10log(26.54) = 25.24dBm > 24dBm.
4. 11dBm + 10log(26.52) = 25.24dBm > 24dBm.
5. 11dBm + 10log(26.52) = 25.24dBm > 24dBm.
6. 11dBm + 10log(26.51) = 25.23dBm > 24dBm.

* Directional gain = 7.34 > 6dBi, so the power limit shall be reduced to 24-(7.34-6) = 22.66dBm.

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	CHAIN 2				
36	5180	9.59	10.04	10.06	29.331	14.67	15.66	PASS
40	5200	9.67	10.01	10.01	29.314	14.67	15.66	PASS
48	5240	10.25	9.64	10.28	30.463	14.84	15.66	PASS
52	5260	14.43	14.62	14.85	87.255	19.41	22.66	PASS
60	5300	14.38	14.66	14.58	85.366	19.31	22.66	PASS
64	5320	14.51	14.62	14.52	85.536	19.32	22.66	PASS
100	5500	14.71	14.76	14.35	86.730	19.38	22.66	PASS
116	5580	14.59	14.47	14.49	84.883	19.29	22.66	PASS
140	5700	14.58	14.33	14.46	83.735	19.23	22.66	PASS

NOTE:

For 5180~5240MHz:

CHAIN 0

1. 4dBm + 10log(25.23) = 18.02dBm > 17dBm.
2. 4dBm + 10log(26.36) = 18.21dBm > 17dBm.
3. 4dBm + 10log(22.48) = 17.52dBm > 17dBm.

CHAIN 1

1. 4dBm + 10log(26.38) = 18.21dBm > 17dBm.
2. 4dBm + 10log(26.39) = 18.21dBm > 17dBm.
3. 4dBm + 10log(22.58) = 17.54dBm > 17dBm.

CHAIN 2

1. 4dBm + 10log(25.24) = 18.02dBm > 17dBm.
2. 4dBm + 10log(25.16) = 18.01dBm > 17dBm.
3. 4dBm + 10log(22.58) = 17.54dBm > 17dBm.

* Directional gain = 7.34 > 6dBi, so the power limit shall be reduced to 17-(7.34-6) = 15.66dBm.

For 5260~5700MHz:

CHAIN 0

1. 11dBm + 10log(25.14) = 25.00dBm > 24dBm.
2. 11dBm + 10log(25.15) = 25.01dBm > 24dBm.
3. 11dBm + 10log(22.51) = 24.52dBm > 24dBm.
4. 11dBm + 10log(25.17) = 25.01dBm > 24dBm.
5. 11dBm + 10log(26.40) = 25.22dBm > 24dBm.
6. 11dBm + 10log(26.41) = 25.22dBm > 24dBm.

CHAIN 1

1. 11dBm + 10log(23.96) = 24.79dBm > 24dBm.
2. 11dBm + 10log(22.82) = 24.58dBm > 24dBm.
3. 11dBm + 10log(22.84) = 24.59dBm > 24dBm.
4. 11dBm + 10log(26.66) = 25.26dBm > 24dBm.
5. 11dBm + 10log(26.34) = 25.21dBm > 24dBm.
6. 11dBm + 10log(25.31) = 25.03dBm > 24dBm.

CHAIN 2

1. 11dBm + 10log(25.19) = 25.01dBm > 24dBm.
2. 11dBm + 10log(25.22) = 25.02dBm > 24dBm.
3. 11dBm + 10log(26.39) = 25.21dBm > 24dBm.
4. 11dBm + 10log(25.26) = 25.02dBm > 24dBm.
5. 11dBm + 10log(25.21) = 25.02dBm > 24dBm.
6. 11dBm + 10log(25.16) = 25.01dBm > 24dBm.

* Directional gain = 7.34 > 6dBi, so the power limit shall be reduced to 24-(7.34-6) = 22.66dBm.

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	CHAIN 2				
38	5190	10.64	10.92	10.43	**34.988**	15.44	15.66	PASS
46	5230	10.58	10.77	10.53	34.667	15.40	15.66	PASS
54	5270	14.54	14.69	15.07	**90.026**	19.54	22.66	PASS
62	5310	12.66	12.87	13.11	58.278	17.66	22.66	PASS
102	5510	8.66	9.00	9.32	23.839	13.77	22.66	PASS
110	5550	14.76	14.88	14.91	**91.658**	19.62	22.66	PASS
134	5670	14.71	14.62	14.83	88.962	19.49	22.66	PASS

NOTE:

For 5180~5240MHz:

CHAIN 0

1. 4dBm + 10log(40.67) = 20.09dBm > 17dBm.
2. 4dBm + 10log(40.51) = 20.08dBm > 17dBm.

CHAIN 1

1. 4dBm + 10log(39.85) = 20.00dBm > 17dBm.
2. 4dBm + 10log(39.84) = 20.00dBm > 17dBm.

CHAIN 2

1. 4dBm + 10log(40.05) = 20.03dBm > 17dBm.
2. 4dBm + 10log(40.07) = 20.03dBm > 17dBm.

* Directional gain = 7.34 > 6dBi, so the power limit shall be reduced to 17-(7.34-6) = 15.66dBm.

For 5260~5700MHz:

CHAIN 0

1. 11dBm + 10log(40.36) = 27.06dBm > 24dBm.
2. 11dBm + 10log(40.58) = 27.08dBm > 24dBm.
3. 11dBm + 10log(40.34) = 27.06dBm > 24dBm.
4. 11dBm + 10log(40.51) = 27.08dBm > 24dBm.
5. 11dBm + 10log(40.75) = 27.10dBm > 24dBm.

CHAIN 1

1. 11dBm + 10log(40.32) = 27.06dBm > 24dBm.
2. 11dBm + 10log(39.96) = 27.02dBm > 24dBm.
3. 11dBm + 10log(40.21) = 27.04dBm > 24dBm.
4. 11dBm + 10log(40.35) = 27.06dBm > 24dBm.
5. 11dBm + 10log(39.86) = 27.01dBm > 24dBm.

CHAIN 2

1. 11dBm + 10log(40.40) = 27.06dBm > 24dBm.
2. 11dBm + 10log(40.12) = 27.03dBm > 24dBm.
3. 11dBm + 10log(40.19) = 27.04dBm > 24dBm.
4. 11dBm + 10log(40.28) = 27.05dBm > 24dBm.
5. 11dBm + 10log(40.15) = 27.04dBm > 24dBm.

* Directional gain = 7.34 > 6dBi, so the power limit shall be reduced to 24-(7.34-6) = 22.66dBm.

26dB BANDWIDTH:

802.11a

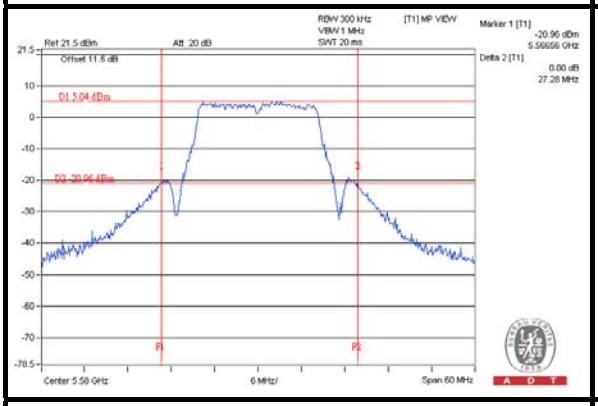
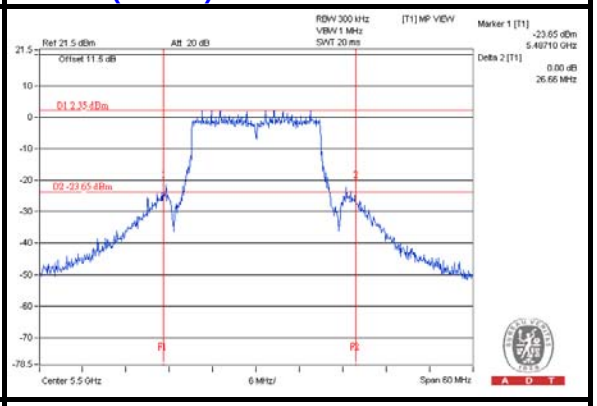
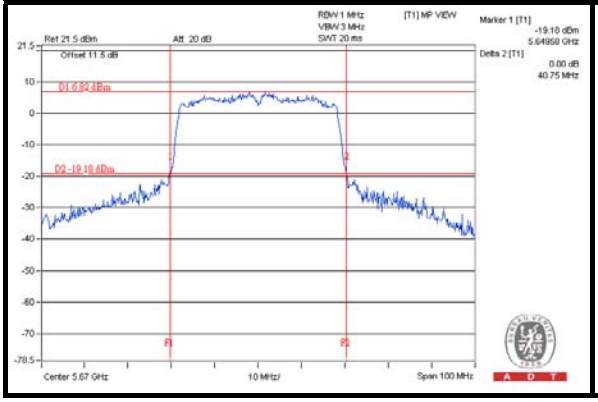
CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)			PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	
36	5180	23.84	26.62	26.04	PASS
40	5200	23.91	26.84	26.62	PASS
48	5240	26.12	26.74	27.11	PASS
52	5260	23.15	23.69	26.99	PASS
60	5300	26.94	26.20	26.24	PASS
64	5320	26.57	23.87	26.54	PASS
100	5500	26.88	27.02	26.52	PASS
116	5580	26.32	27.28	26.52	PASS
140	5700	23.80	26.44	26.51	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)			PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	
36	5180	25.23	26.38	25.24	PASS
40	5200	26.36	26.39	25.16	PASS
48	5240	22.48	22.58	22.58	PASS
52	5260	25.14	23.96	25.19	PASS
60	5300	25.15	22.82	25.22	PASS
64	5320	22.51	22.84	26.39	PASS
100	5500	25.17	26.66	25.26	PASS
116	5580	26.40	26.34	25.21	PASS
140	5700	26.41	25.31	25.16	PASS

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)			PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	
38	5190	40.67	39.85	40.05	PASS
46	5230	40.51	39.84	40.07	PASS
54	5270	40.36	40.32	40.40	PASS
62	5310	40.58	39.96	40.12	PASS
102	5510	40.34	40.21	40.19	PASS
110	5550	40.51	40.35	40.28	PASS
134	5670	40.75	39.86	40.15	PASS

SPECTRUM PLOT OF WORST VALUE	
802.11a	**802.11n (20MHz)**
	
802.11n (40MHz)	
	

EUT MAXIMUM CONDUCTED POWER

802.11a

FREQUENCY BAND (MHz)	MAX. POWER	
	OUTPUT POWER (mW)	OUTPUT POWER (dBm)
5250~5350	64.879	18.12
5470~5725	65.502	18.16

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	87.255	19.41
5470~5725	86.730	19.38

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	90.026	19.54
5470~5725	91.658	19.62

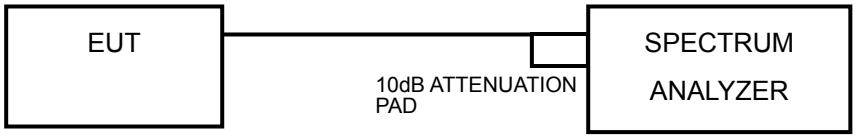
NOTE: Manufacturer provides Transmit Power Control description to meet this requirement.

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

For 802.11a

Using method SA-1 alternative

1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 30 KHz, Set VBW ≥ 1 MHz, Detector = RMS
3) Set Channel power measure = 1MHz
4) Sweep time = 30ms.
5) Perform a single sweep.
6) Record the max value

For 802.11n (20MHz) & 802.11n (40MHz)

Using method SA-2 alternative

1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 30 KHz, Set VBW ≥ 1 MHz, Detector = RMS
3) Set Channel power measure = 1MHz
4) Sweep time = 30ms.
5) Perform a single sweep.
6) Record the max value and add 10 log (1/duty cycle)

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITIONS

Same as 4.3.6.

4.4.7 TEST RESULTS

802.11a

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)			TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2			
36	5180	-5.49	-5.83	-6.76	-1.22	-1.14	PASS
40	5200	-5.45	-5.85	-6.63	-1.18	-1.14	PASS
48	5240	-5.68	-5.57	-6.63	-1.16	-1.14	PASS
52	5260	0.50	0.65	0.55	5.34	5.86	PASS
60	5300	0.55	0.27	0.48	5.21	5.86	PASS
64	5320	0.68	0.71	0.09	5.27	5.86	PASS
100	5500	0.08	0.23	0.56	5.07	5.86	PASS
116	5580	-0.40	0.55	0.83	5.13	5.86	PASS
140	5700	-0.72	1.50	0.87	5.42	5.86	PASS

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

2. **For 5180~5240MHz:**

Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2 / N_{ANT}$]= 11.14 > 6dBi, so the power density limit shall be reduced to 4-(11.14-6) = -1.14dBm.

For 5260~5700MHz:

Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2 / N_{ANT}$]= 11.14 > 6dBi, so the power density limit shall be reduced to 11-(11.14-6) = 5.86dBm.

802.11n (20MHz)

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	CHAIN 2					
36	5180	-4.67	-3.95	-3.84	0.63	0.59	1.22	3.59	PASS
40	5200	-5.16	-4.09	-3.86	0.44	0.59	1.03	3.59	PASS
48	5240	-5.15	-2.98	-4.32	0.71	0.59	1.30	3.59	PASS
52	5260	-0.83	-1.14	-0.60	3.92	0.59	4.51	10.59	PASS
60	5300	-1.69	-1.04	-0.90	3.57	0.59	4.16	10.59	PASS
64	5320	-0.86	-1.08	-0.87	3.84	0.59	4.43	10.59	PASS
100	5500	-0.11	-1.11	-0.89	4.09	0.59	4.68	10.59	PASS
116	5580	-1.09	-1.10	-0.60	3.85	0.59	4.44	10.59	PASS
140	5700	-1.68	-1.60	-1.56	3.16	0.59	3.75	10.59	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. 802.11n transmit signals are completely uncorrelated.

3. **For 5180~5240MHz:**

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

For 5260~5700MHz:

Directional gain = 10 log[($10^{G1/10}$ + $10^{G2/10}$ + ... + $10^{GN/10}$) /N_{ANT}]= 6.41 > 6dBi, so the power density limit shall be reduced to 11-(6.41 -6) = 10.59dBm.

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

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	CHAIN 2					
38	5190	-9.28	-8.83	-7.93	-3.87	1.09	-2.78	3.59	PASS
46	5230	-9.44	-9.18	-8.24	-4.15	1.09	-3.06	3.59	PASS
54	5270	-5.33	-5.34	-4.34	-0.21	1.09	0.88	10.59	PASS
62	5310	-6.81	-6.97	-6.21	-1.88	1.09	-0.79	10.59	PASS
102	5510	-10.37	-12.06	-10.39	-6.10	1.09	-5.01	10.59	PASS
110	5550	-5.55	-6.79	-5.58	-1.17	1.09	-0.08	10.59	PASS
134	5670	-5.11	-5.30	-4.42	-0.16	1.09	0.93	10.59	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. 802.11n transmit signals are completely uncorrelated.

3. **For 5190~5230MHz:**

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

For 5270~5670MHz:

Directional gain = 10 log[($10^{G1/10}$ + $10^{G2/10}$ + ... + $10^{GN/10}$) /N_{ANT}]= 6.41 > 6dBi, so the power density limit shall be reduced to 11-(6.41 -6) = 10.59dBm.

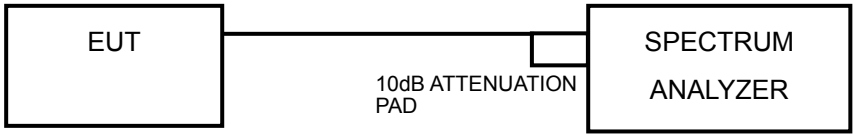
4. Refer to section 3.3 for duty cycle spectrum plot.

4.5 PEAK POWER EXCURSION MEASUREMENT

4.5.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

Shall not exceed 13 dB.

4.5.2 TEST SETUP



4.5.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

4.5.4 TEST PROCEDURE

1) Set RBW = 1 MHz, VBW ≥ 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

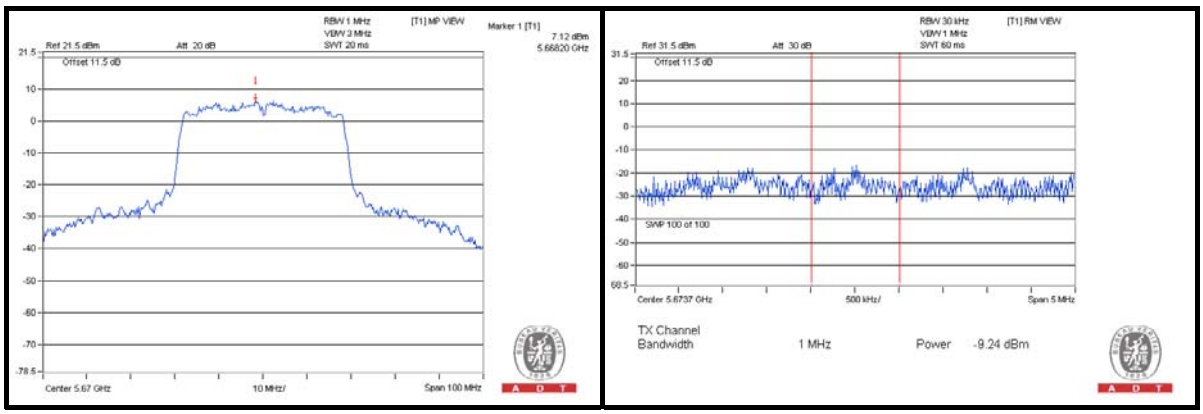
No deviation.

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	8.10	-0.72	-0.72	8.82	13	PASS
	QPSK		8.51	-1.13	-0.74	9.25	13	PASS
	16QAM		7.79	-3.25	-2.51	10.30	13	PASS
	64QAM		8.25	-4.18	-2.85	11.10	13	PASS
802.11n (20MHz)	BPSK	5700	9.35	-1.68	-1.09	10.44	13	PASS
	QPSK		8.59	-2.28	-0.86	9.45	13	PASS
	16QAM		8.30	-5.59	-3.27	11.57	13	PASS
	64QAM		9.10	-6.57	-3.80	12.90	13	PASS
802.11n (40MHz)	BPSK	5670	7.06	-5.11	-4.02	11.08	13	PASS
	QPSK		6.48	-7.95	-6.14	12.62	13	PASS
	16QAM		6.40	-9.17	-6.57	12.97	13	PASS
	64QAM		7.12	-9.24	-5.86	12.98	13	PASS

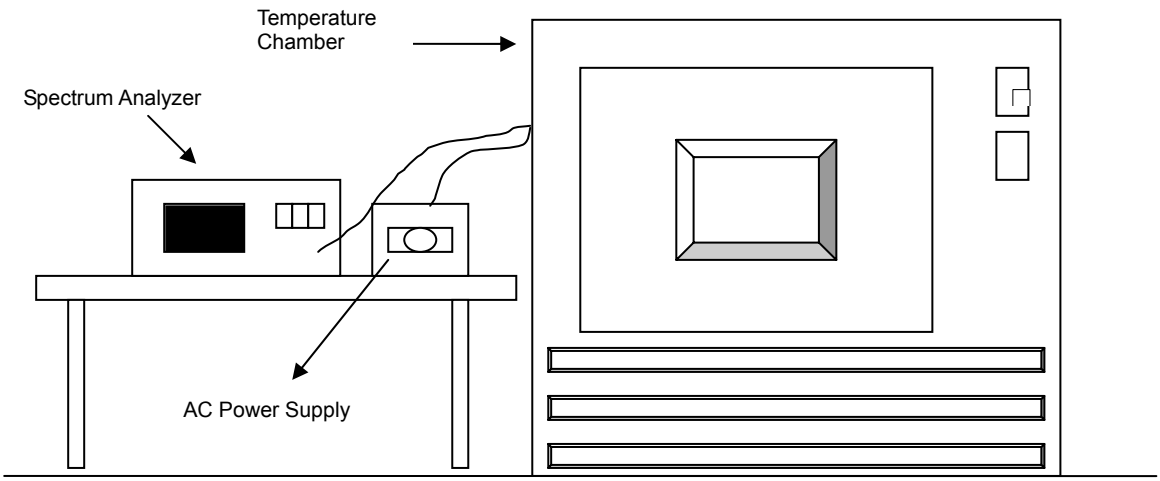


4.6 FREQUENCY STABILITY

4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

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

4.6.2 TEST SETUP



4.6.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

4.6.4 TEST PROCEDURE

a. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.

b. Turn the EUT on and couple its output to a spectrum analyzer.

c. Turn the EUT off and set the chamber to the highest temperature specified.

d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.

e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.

f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 EUT OPERATING CONDITION

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

4.6.7 TEST RESULTS

FREQUEMCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5320MHz									
TEMP. (℃)	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	5320.009	0.00017	5320.0114	0.00021	5320.0092	0.00017	5320.0142	0.00027
40	120	5320.0144	0.00027	5320.0188	0.00035	5320.023	0.00043	5320.0161	0.00030
30	120	5319.9772	-0.00043	5319.9818	-0.00034	5319.9764	-0.00044	5319.9784	-0.00041
20	120	5320.0192	0.00036	5320.0174	0.00033	5320.0179	0.00034	5320.0167	0.00031
10	120	5319.9824	-0.00033	5319.9864	-0.00026	5319.9905	-0.00018	5319.9892	-0.00020
0	120	5320.0005	0.00001	5320.0015	0.00003	5320.0048	0.00009	5320.0044	0.00008
-10	120	5319.9789	-0.00040	5319.978	-0.00041	5319.9788	-0.00040	5319.9828	-0.00032
-20	120	5320.0163	0.00031	5320.0224	0.00042	5320.0195	0.00037	5320.0187	0.00035
-30	120	5319.9896	-0.00020	5319.9876	-0.00023	5319.9894	-0.00020	5319.9894	-0.00020

FREQUEMCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5320MHz									
TEMP. (℃)	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	5320.0202	0.00038	5320.0184	0.00035	5320.0176	0.00033	5320.0169	0.00032
	120	5320.0192	0.00036	5320.0174	0.00033	5320.0179	0.00034	5320.0167	0.00031
	102	5320.0195	0.00037	5320.0178	0.00033	5320.0189	0.00036	5320.0161	0.00030

5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

6. INFORMATION ON THE TESTING LABORATORIES

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

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

Linko EMC/RF Lab:
Tel: 886-2-26052180
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Hsin Chu EMC/RF Lab:
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Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

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

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

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

---END---