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FCC TEST REPORT (15.247)

REPORT NO.: RF120831C35

MODEL NO.: ENS200

(Refer to item 3.1 for the more details)

FCC ID: A8J-ENS200

RECEIVED: Sep. 02, 2012

TESTED: Sep. 05 ~ Sep. 19, 2012

ISSUED: Sep. 21, 2012

APPLICANT: EnGenius Technologies

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

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF120831C35	Original release	Sep. 21, 2012



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1. CERTIFICATION

PRODUCT: Secured Wireless Access Point

(Refer to item 3.1 for the more details)

MODEL NO.: ENS200 (Refer to item 3.1 for the more details)

BRAND: EnGenius (Refer to item 3.1 for the more details)

APPLICANT: EnGenius Technologies

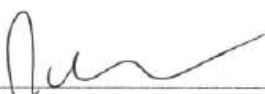
TESTED: Sep. 05 ~ Sep. 19, 2012

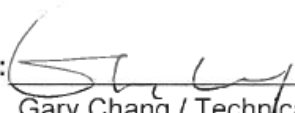
TEST SAMPLE: ENGINEERING SAMPLE

STANDARDS: FCC Part 15, Subpart C (Section 15.247)

ANSI C63.10-2009

The above equipment (model: ENS200, ERA150) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY :  , DATE : Sep. 21, 2012
Pettie Chen / Senior Specialist

APPROVED BY :  , DATE : Sep. 21, 2012
Gary Chang / Technical Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -3.25dB at 16.22656MHz.
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 2386.00, 2390.00, 2483.50, 4824.00, 4874.00MHz.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is RSMA (For external antenna) & IPEX (For internal antenna) not a standard connector.

2.1 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.34 dB
	200MHz ~1000MHz	3.35 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	Secured Wireless Access Point (Refer to NOTE for the more details)
MODEL NO.	ENS200 (Refer to NOTE for the more details)
EUT DESCRIPTION	Network Security Gateway
POWER SUPPLY	5Vdc (adapter) (For Model: ERA150) 48Vdc (PoE) (For Model: ERA150) 12Vdc (PoE) (For Model: ENS200 & FAP-112B)
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 150.0Mbps
OPERATING FREQUENCY	2412 ~ 2462MHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz)
OUTPUT POWER	244.91mW
ANTENNA TYPE	External: Dipole antenna with 5dBi gain Internal: Patch antenna with 8dBi gain
ANTENNA CONNECTOR	External: RSMA Internal: IPEX
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Adapter, PoE

NOTE:

- All models are listed as below. All models are hardware, software, electrically identical, different model names are for different antenna. (refer to as below for more detail)

PRODUCT NAME	BRAND	MODEL	REMARK
Secured Wireless Access Point	EnGenius	ERA150	With External Antenna only
	EnGenius	ENS200	With Internal Antenna only
	Fortinet	FAP-112B	With Internal Antenna only

- The EUT provides one completed transmitter and one receiver.

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

3. The EUT consumes power from the following adapters & PoE.

Adapter (For Model: ERA150)	
BRAND	DVE
MODEL	DSA-12G-12 FUS 120120
INPUT POWER	100-240Vac, 50/60Hz, 0.3A
OUTPUT POWER	12Vdc, 1.0A
POEWR LINE	1.5m non-shielded cable without core

PoE (For Model: ENS200 & FAP-112B)	
BRAND	Fortinet / EnGenius
MODEL	EPE-1212
INPUT POWER	12V/24Vdc
OUTPUT POWER	12Vdc

Adapter 1 for PoE (For Model: ENS200 & FAP-112B)	
BRAND	Powertron Electronics Corp.
MODEL	PA1024-2HUB
INPUT POWER	100-240V~50-60Hz 0.6A
OUTPUT POWER	12Vdc, 2.0A, 24W Max
POEWR LINE	1.5m non-shielded cable with one core

Adapter 2 for PoE (For Model: ENS200 & FAP-112B)	
BRAND	DVE
MODEL	DSA-12G-12 FUS 120120
INPUT POWER	100-240V~50/60Hz 0.3A
OUTPUT POWER	+12Vdc, 1A
POEWR LINE	1.8m non-shielded cable without core

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

3.2 DESCRIPTION OF TEST MODES

11 channels are provided for 802.11b, 802.11g and 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION	
	RE $\geq$ 1G	RE<1G	PLC	APCM	Antenna	Power
A	√	√	√	-	External	Adapter
B	-	√	√	-		PoE
C	√	√	√	√	Internal	PoE+Adapter 1
D	-	√	√	-		PoE+Adapter 2

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

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

NOTE:

The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane (For Test Mode A & B), Y-plane (For Test Mode C & D).**

NOTE: "-" 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	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, C	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A, C	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A, C	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
A, C	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	15.0

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B	802.11n (20MHz)	1 to 11	11	OFDM	BPSK	7.2
C, D	802.11g	1 to 11	6	OFDM	BPSK	6.0

POWER LINE CONDUCTED EMISSION TEST:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B	802.11n (20MHz)	1 to 11	11	OFDM	BPSK	7.2
C, D	802.11g	1 to 11	6	OFDM	BPSK	6.0

BANDEDGE MEASUREMENT:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, C	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
A, C	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
A, C	802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	7.2
A, C	802.11n (40MHz)	3 to 9	3, 9	OFDM	BPSK	15.0

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	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
C	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
C	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
C	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
C	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	15.0

**TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	25deg. C, 65%RH	120Vac, 60Hz	Chris Lin
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Haru Yang Antony Lee
PLC	25deg. C, 68%RH	120Vac, 60Hz	Sun Lin
APCM	24deg. C, 63%RH	120Vac, 60Hz	Brad Wu

3.3 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook	DELL	E5420	33MLMQ1	FCC DoC Approved
2	POE	NA	PD-6083G300	NA	NA

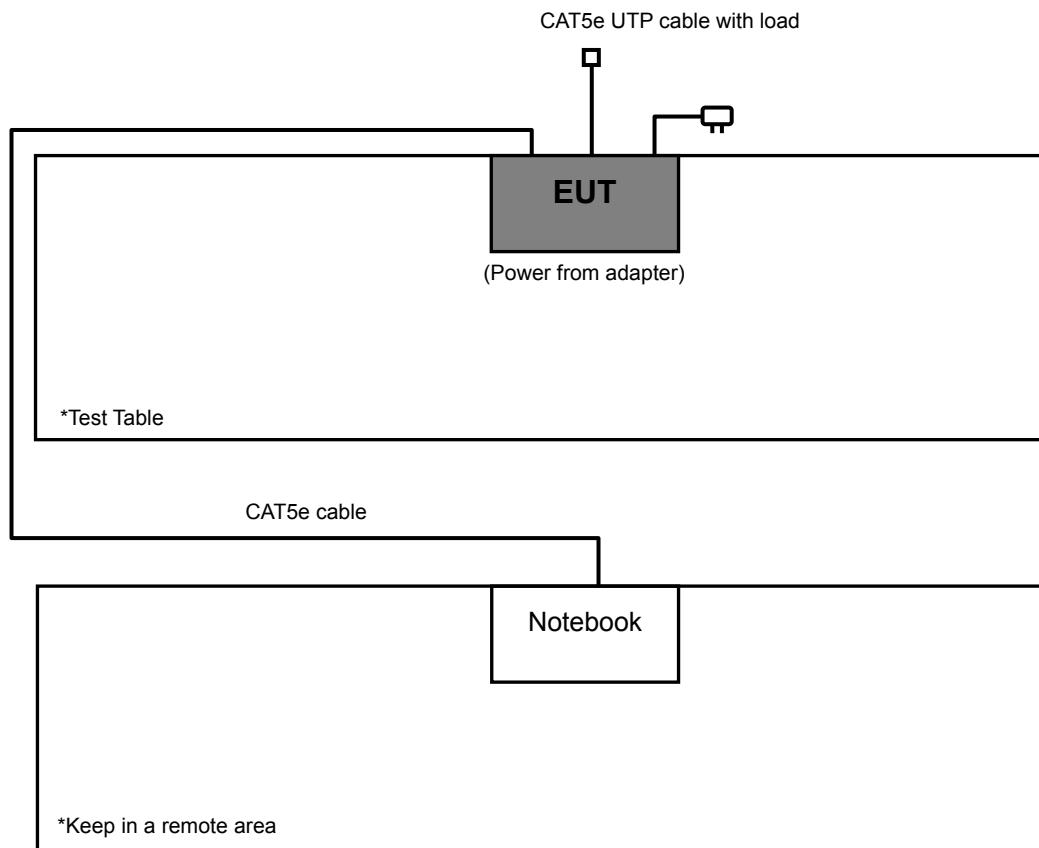
NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m cat.5e UTP cable (For test mode A, C, D); 3m cat.5e UTP cable (For test mode B)
2	10m cat.5e UTP cable (For test mode B)

NOTE:

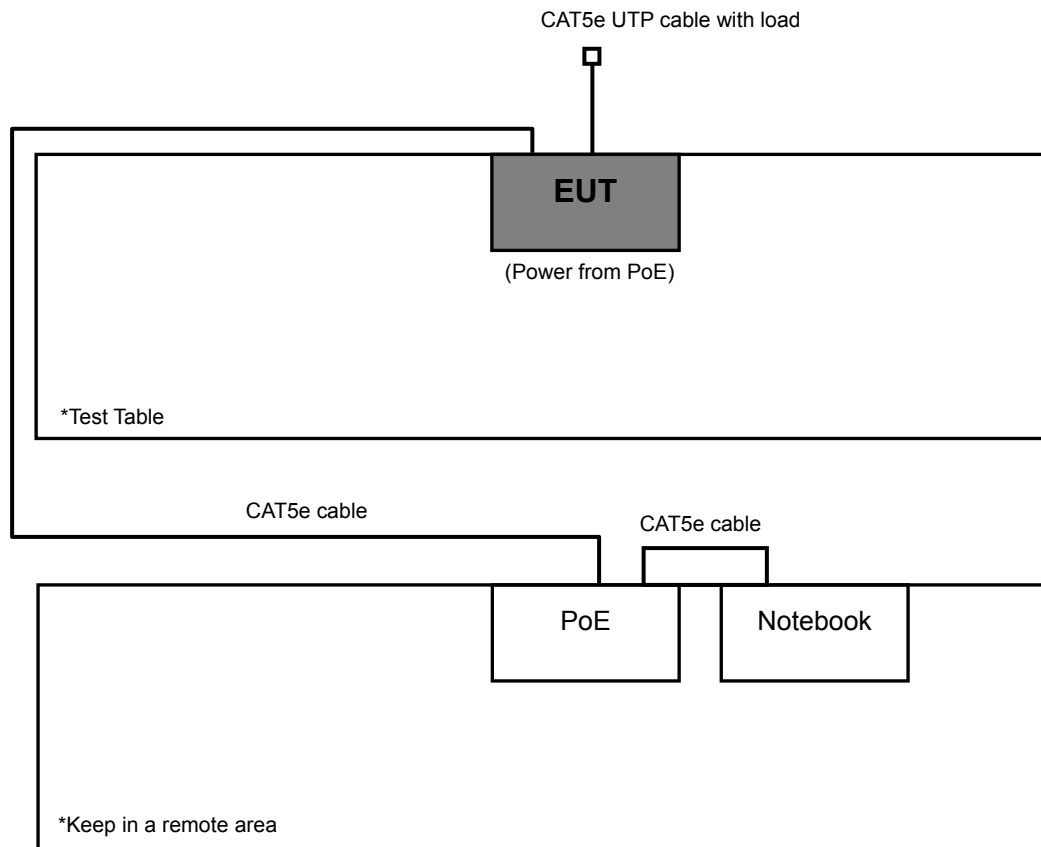
1. All power cords of the above support units are non shielded (1.8m).
2. Item 1, 2 acted as communication partner to transfer data.

3.3.1 CONFIGURATION OF SYSTEM UNDER TEST

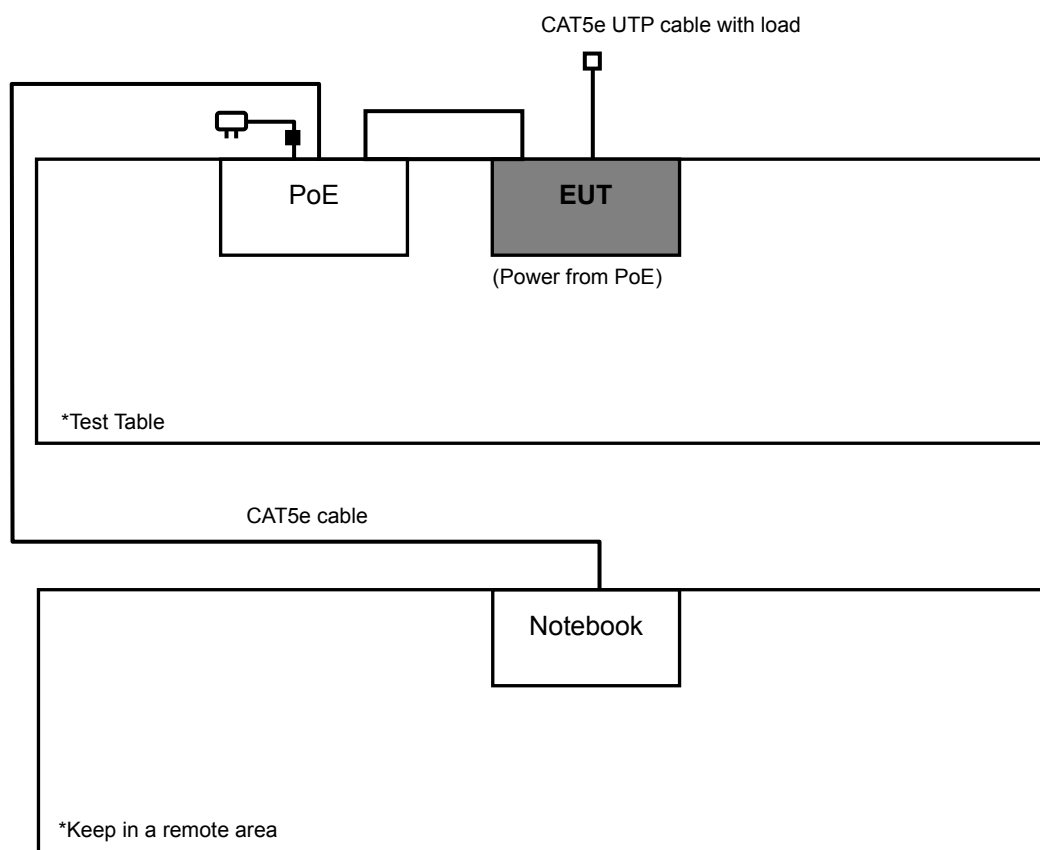
Test Mode A



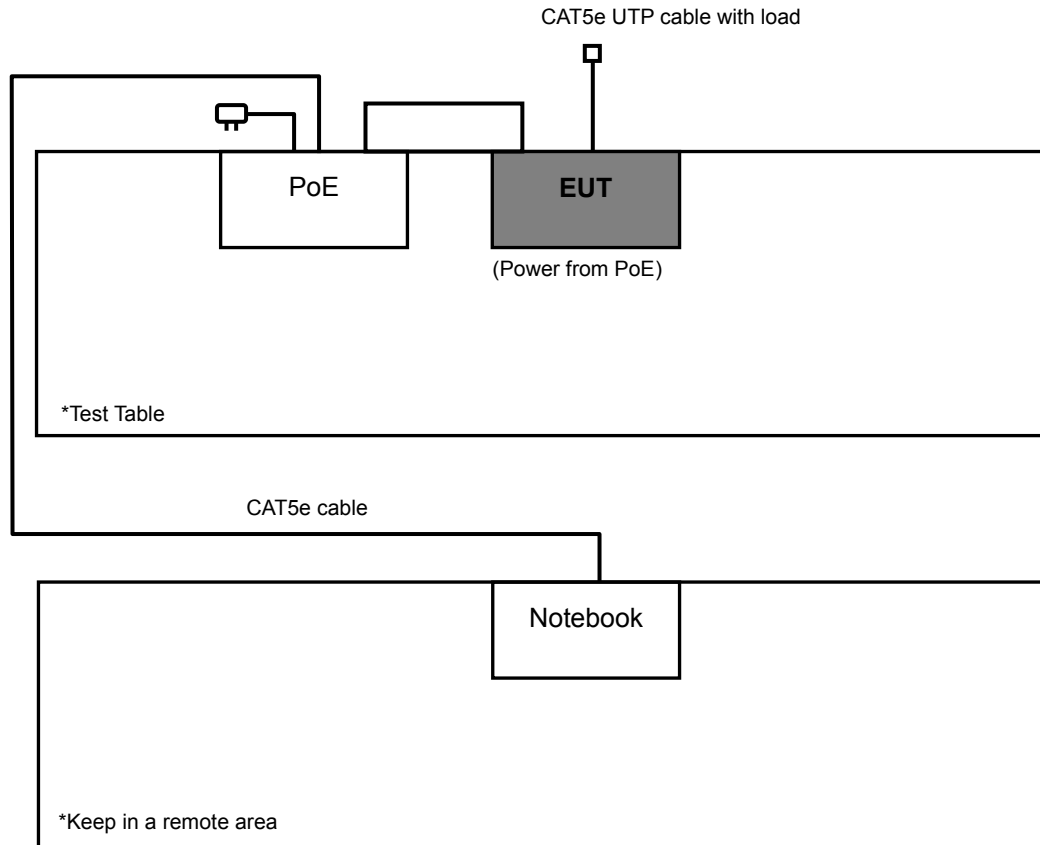
Test Mode B



Test Mode C



Test Mode D



3.4 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 C (15.247)

558074 D01 DTS Meas Guidance v01

ANSI C63.10-2009

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

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

4. TEST TYPES AND RESULTS

4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

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.



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4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESIB7	100212	Aug. 06, 2012	Aug. 05, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Feb. 03, 2012	Feb. 02, 2013
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Apr. 06, 2012	Apr. 05, 2013
HORN Antenna SCHWARZBECK	9120D	209	Sep. 03, 2012	Sep. 02, 2013
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 11, 2012	Jul. 10, 2013
Loop Antenna	HFH2-Z2	100070	Jan. 31, 2012	Jan. 30, 2014
Preamplifier Agilent	8447D	2944A10633	Oct. 29, 2011	Oct. 28, 2012
Preamplifier Agilent	8449B	3008A01964	Oct. 29, 2011	Oct. 28, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250723/4	Aug. 28, 2012	Aug. 27, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 106	12738/6+309224/4	Aug. 28, 2012	Aug. 27, 2013
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA	NA
Turn Table ADT.	TT100	TT93021703	NA	NA
Turn Table Controller ADT.	SC100	SC93021703	NA	NA
High Speed Peak Power Meter	ML2495A	0842014	Apr. 28, 2012	Apr. 27, 2013
Power Sensor	MA2411B	0738404	Apr. 28, 2012	Apr. 27, 2013

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The calibration interval of the loop antenna is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in HwaYa Chamber 3.
4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
5. The FCC Site Registration No. is 988962.
6. The IC Site Registration No. is IC 7450F-3.

4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

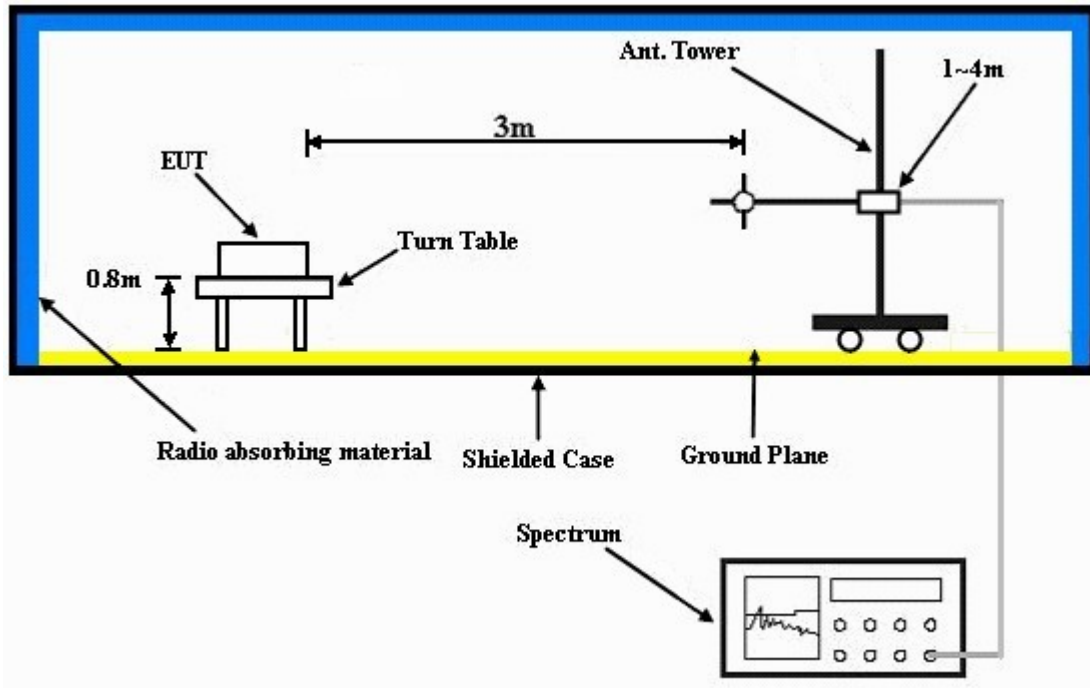
NOTE:

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 100kHz and video bandwidth is 300kHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 1kHz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

4.1.5 TEST SETUP



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

4.1.6 EUT OPERATING CONDITIONS

- Placed the EUT on the testing table.
- Prepared notebook to act as communication partner and placed it outside of testing area.
- The communication partner connected with EUT via a RJ45 cable and run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- The communication partner sent data to EUT by command "PING".



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4.1.7 TEST RESULTS

ABOVE 1GHz DATA :

802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin
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	2390.00	55.9 PK	74.0	-18.1	1.02 H	198	24.70	31.20
2	2390.00	44.5 AV	54.0	-9.5	1.02 H	198	13.30	31.20
3	*2412.00	95.4 PK			1.00 H	200	64.10	31.30
4	*2412.00	91.9 AV			1.00 H	200	60.60	31.30
5	4824.00	52.1 PK	74.0	-21.9	1.00 H	25	14.90	37.20
6	4824.00	48.3 AV	54.0	-5.7	1.00 H	25	11.10	37.20
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	2386.00	61.5 PK	74.0	-12.5	1.00 V	297	30.30	31.20
2	2386.00	52.4 AV	54.0	-1.6	1.00 V	297	21.20	31.20
3	2390.00	59.7 PK	74.0	-14.3	1.00 V	297	28.50	31.20
4	2390.00	49.0 AV	54.0	-5.0	1.00 V	297	17.80	31.20
5	*2412.00	109.9 PK			1.22 V	360	78.60	31.30
6	*2412.00	106.3 AV			1.22 V	360	75.00	31.30
7	4824.00	55.6 PK	74.0	-18.4	1.45 V	360	18.40	37.20
8	4824.00	53.0 AV	54.0	-1.0	1.45 V	360	15.80	37.20

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin
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	*2437.00	97.8 PK			1.00 H	202	66.40	31.40
2	*2437.00	94.3 AV			1.00 H	202	62.90	31.40
3	4874.00	50.7 PK	74.0	-23.3	1.00 H	307	13.40	37.30
4	4874.00	46.1 AV	54.0	-7.9	1.00 H	307	8.80	37.30
5	7311.00	50.4 PK	74.0	-23.6	1.00 H	152	6.80	43.60
6	7311.00	37.9 AV	54.0	-16.1	1.00 H	152	-5.70	43.60
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	*2437.00	112.9 PK			1.03 V	360	81.50	31.40
2	*2437.00	109.1 AV			1.03 V	360	77.70	31.40
3	4874.00	55.6 PK	74.0	-18.4	1.20 V	360	18.30	37.30
4	4874.00	53.0 AV	54.0	-1.0	1.20 V	360	15.70	37.30
5	7311.00	52.7 PK	74.0	-21.3	1.00 V	130	9.10	43.60
6	7311.00	41.9 AV	54.0	-12.1	1.00 V	130	-1.70	43.60

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin
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	*2462.00	98.6 PK			1.00 H	200	67.10	31.50
2	*2462.00	95.1 AV			1.00 H	200	63.60	31.50
3	2483.50	55.3 PK	74.0	-18.7	1.05 H	198	23.80	31.50
4	2483.50	44.7 AV	54.0	-9.3	1.05 H	198	13.20	31.50
5	4924.00	49.4 PK	74.0	-24.6	1.00 H	351	12.00	37.40
6	4924.00	43.6 AV	54.0	-10.4	1.00 H	351	6.20	37.40
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	*2462.00	113.1 PK			1.00 V	80	81.60	31.50
2	*2462.00	109.4 AV			1.00 V	80	77.90	31.50
3	2483.50	63.3 PK	74.0	-10.7	1.19 V	10	31.80	31.50
4	2483.50	50.6 AV	54.0	-3.4	1.19 V	10	19.10	31.50
5	2487.00	63.6 PK	74.0	-10.4	1.19 V	10	32.00	31.60
6	2487.00	52.3 AV	54.0	-1.7	1.19 V	10	20.70	31.60
7	4924.00	53.3 PK	74.0	-20.7	1.17 V	360	15.90	37.40
8	4924.00	50.2 AV	54.0	-3.8	1.17 V	360	12.80	37.40

REMARKS:

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



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

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	2386.00	62.2 PK	74.0	-11.8	1.30 H	258	31.00	31.20
2	2386.00	53.0 AV	54.0	-1.0	1.30 H	258	21.80	31.20
3	2390.00	59.8 PK	74.0	-14.2	1.30 H	258	28.60	31.20
4	2390.00	49.4 AV	54.0	-4.6	1.30 H	258	18.20	31.20
5	*2412.00	113.4 PK			1.30 H	258	82.10	31.30
6	*2412.00	109.7 AV			1.30 H	258	78.40	31.30
7	4824.00	48.3 PK	74.0	-25.7	1.07 H	229	11.10	37.20
8	4824.00	41.0 AV	54.0	-13.0	1.07 H	229	3.80	37.20
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	2390.00	54.8 PK	74.0	-19.2	1.04 V	211	23.60	31.20
2	2390.00	44.2 AV	54.0	-9.8	1.04 V	211	13.00	31.20
3	*2412.00	100.1 PK			1.04 V	211	68.80	31.30
4	*2412.00	95.3 AV			1.04 V	211	64.00	31.30
5	4824.00	51.3 PK	74.0	-22.7	1.24 V	218	14.10	37.20
6	4824.00	48.7 AV	54.0	-5.3	1.24 V	218	11.50	37.20

REMARKS:

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin
TEST MODE	C		

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	*2437.00	115.8 PK			1.29 H	257	84.40	31.40
2	*2437.00	112.1 AV			1.29 H	257	80.70	31.40
3	4874.00	50.1 PK	74.0	-23.9	1.00 H	295	12.80	37.30
4	4874.00	44.6 AV	54.0	-9.4	1.00 H	295	7.30	37.30
5	7311.00	51.2 PK	74.0	-22.8	1.16 H	105	7.60	43.60
6	7311.00	37.9 AV	54.0	-16.1	1.16 H	105	-5.70	43.60
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	*2437.00	100.8 PK			1.26 V	210	69.40	31.40
2	*2437.00	97.0 AV			1.26 V	210	65.60	31.40
3	4874.00	55.2 PK	74.0	-18.8	1.10 V	217	17.90	37.30
4	4874.00	52.8 AV	54.0	-1.2	1.10 V	217	15.50	37.30
5	7311.00	50.3 PK	74.0	-23.7	1.04 V	152	6.70	43.60
6	7311.00	37.7 AV	54.0	-16.3	1.04 V	152	-5.90	43.60

REMARKS:

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin
TEST MODE	C		

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	*2462.00	112.4 PK			1.24 H	257	80.90	31.50
2	*2462.00	108.7 AV			1.24 H	257	77.20	31.50
3	2483.50	62.7 PK	74.0	-11.3	1.25 H	260	31.20	31.50
4	2483.50	50.7 AV	54.0	-3.3	1.25 H	260	19.20	31.50
5	2487.00	62.6 PK	74.0	-11.4	1.24 H	257	31.00	31.60
6	2487.00	51.9 AV	54.0	-2.1	1.24 H	257	20.30	31.60
7	4924.00	49.0 PK	74.0	-25.0	1.00 H	247	11.60	37.40
8	4924.00	42.1 AV	54.0	-11.9	1.00 H	247	4.70	37.40
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	*2462.00	98.5 PK			1.25 V	211	67.00	31.50
2	*2462.00	94.7 AV			1.25 V	211	63.20	31.50
3	2483.50	55.8 PK	74.0	-18.2	1.25 V	211	24.30	31.50
4	2483.50	43.9 AV	54.0	-10.1	1.25 V	211	12.40	31.50
5	4924.00	51.2 PK	74.0	-22.8	1.22 V	220	13.80	37.40
6	4924.00	46.4 AV	54.0	-7.6	1.22 V	220	9.00	37.40

REMARKS:

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



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802.11g

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin
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	2390.00	56.8 PK	74.0	-17.2	1.50 H	177	25.60	31.20
2	2390.00	42.8 AV	54.0	-11.2	1.50 H	177	11.60	31.20
3	*2412.00	98.2 PK			1.50 H	177	66.90	31.30
4	*2412.00	87.2 AV			1.50 H	177	55.90	31.30
5	4824.00	48.4 PK	74.0	-25.6	1.36 H	14	11.20	37.20
6	4824.00	35.4 AV	54.0	-18.6	1.36 H	14	-1.80	37.20
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	2390.00	68.8 PK	74.0	-5.2	1.00 V	20	37.60	31.20
2	2390.00	52.5 AV	54.0	-1.5	1.00 V	20	21.30	31.20
3	*2412.00	112.8 PK			1.16 V	88	81.50	31.30
4	*2412.00	101.2 AV			1.16 V	88	69.90	31.30
5	4824.00	53.4 PK	74.0	-20.6	1.54 V	359	16.20	37.20
6	4824.00	39.0 AV	54.0	-15.0	1.54 V	359	1.80	37.20

REMARKS:

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin
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	*2437.00	99.3 PK			1.50 H	221	67.90	31.40
2	*2437.00	88.9 AV			1.50 H	221	57.50	31.40
3	2483.50	55.6 PK	74.0	-18.4	1.50 H	221	24.10	31.50
4	2483.50	43.1 AV	54.0	-10.9	1.50 H	221	11.60	31.50
5	4874.00	47.2 PK	74.0	-26.8	1.00 H	7	9.90	37.30
6	4874.00	34.5 AV	54.0	-19.5	1.00 H	7	-2.80	37.30
7	7311.00	51.8 PK	74.0	-22.2	1.23 H	54	8.20	43.60
8	7311.00	38.6 AV	54.0	-15.4	1.23 H	54	-5.00	43.60
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	*2437.00	114.5 PK			1.44 V	264	83.10	31.40
2	*2437.00	103.5 AV			1.44 V	264	72.10	31.40
3	2487.50	66.0 PK	74.0	-8.0	1.61 V	321	34.40	31.60
4	2487.50	52.8 AV	54.0	-1.2	1.61 V	321	21.20	31.60
5	4874.00	50.0 PK	74.0	-24.0	1.29 V	12	12.70	37.30
6	4874.00	36.8 AV	54.0	-17.2	1.29 V	12	-0.50	37.30
7	7311.00	51.5 PK	74.0	-22.5	1.00 V	345	7.90	43.60
8	7311.00	38.9 AV	54.0	-15.1	1.00 V	345	-4.70	43.60

REMARKS:

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin
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	*2462.00	100.2 PK			1.66 H	198	68.70	31.50
2	*2462.00	88.8 AV			1.66 H	198	57.30	31.50
3	2483.50	57.9 PK	74.0	-16.1	1.66 H	198	26.40	31.50
4	2483.50	42.7 AV	54.0	-11.3	1.66 H	198	11.20	31.50
5	2499.20	56.0 PK	74.0	-18.0	1.66 H	198	24.40	31.60
6	2499.20	43.2 AV	54.0	-10.8	1.66 H	198	11.60	31.60
7	4924.00	46.4 PK	74.0	-27.6	1.10 H	9	9.00	37.40
8	4924.00	33.3 AV	54.0	-20.7	1.10 H	9	-4.10	37.40
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	*2462.00	114.8 PK			1.21 V	1	83.30	31.50
2	*2462.00	103.7 AV			1.21 V	1	72.20	31.50
3	2483.50	68.5 PK	74.0	-5.5	1.12 V	107	37.00	31.50
4	2483.50	50.7 AV	54.0	-3.3	1.12 V	107	19.20	31.50
5	2499.20	65.7 PK	74.0	-8.3	1.10 V	100	34.10	31.60
6	2499.20	52.7 AV	54.0	-1.3	1.10 V	100	21.10	31.60
7	4924.00	47.8 PK	74.0	-26.2	1.28 V	22	10.40	37.40
8	4924.00	35.2 AV	54.0	-18.8	1.28 V	22	-2.20	37.40

REMARKS:

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



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

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	2390.00	66.1 PK	74.0	-7.9	1.30 H	259	34.90	31.20
2	2390.00	52.4 AV	54.0	-1.6	1.30 H	259	21.20	31.20
3	*2412.00	113.3 PK			1.30 H	259	82.00	31.30
4	*2412.00	103.7 AV			1.30 H	259	72.40	31.30
5	4824.00	45.7 PK	74.0	-28.3	1.00 H	115	8.50	37.20
6	4824.00	32.2 AV	54.0	-21.8	1.00 H	115	-5.00	37.20
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	2390.00	56.7 PK	74.0	-17.3	1.04 V	211	25.50	31.20
2	2390.00	44.4 AV	54.0	-9.6	1.04 V	211	13.20	31.20
3	*2412.00	98.8 PK			1.04 V	211	67.50	31.30
4	*2412.00	89.5 AV			1.04 V	211	58.20	31.30
5	4824.00	46.1 PK	74.0	-27.9	1.17 V	152	8.90	37.20
6	4824.00	32.5 AV	54.0	-21.5	1.17 V	152	-4.70	37.20

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin
TEST MODE	C		

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	*2437.00	114.6 PK			1.00 H	258	83.20	31.40
2	*2437.00	104.7 AV			1.00 H	258	73.30	31.40
3	2483.50	65.5 PK	74.0	-8.5	1.00 H	258	34.00	31.50
4	2483.50	53.0 AV	54.0	-1.0	1.00 H	258	21.50	31.50
5	4874.00	46.0 PK	74.0	-28.0	1.07 H	152	8.70	37.30
6	4874.00	33.4 AV	54.0	-20.6	1.07 H	152	-3.90	37.30
7	7311.00	51.0 PK	74.0	-23.0	1.04 H	152	7.40	43.60
8	7311.00	38.2 AV	54.0	-15.8	1.04 H	152	-5.40	43.60
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	*2437.00	101.9 PK			1.58 V	211	70.50	31.40
2	*2437.00	91.6 AV			1.58 V	211	60.20	31.40
3	4874.00	46.1 PK	74.0	-27.9	1.07 V	143	8.80	37.30
4	4874.00	33.0 AV	54.0	-21.0	1.07 V	143	-4.30	37.30
5	7311.00	50.3 PK	74.0	-23.7	1.11 V	145	6.70	43.60
6	7311.00	38.4 AV	54.0	-15.6	1.11 V	145	-5.20	43.60

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin
TEST MODE	C		

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	*2462.00	110.7 PK			1.00 H	256	79.20	31.50
2	*2462.00	101.1 AV			1.00 H	256	69.60	31.50
3	2483.50	65.8 PK	74.0	-8.2	1.00 H	256	34.30	31.50
4	2483.50	52.7 AV	54.0	-1.3	1.00 H	256	21.20	31.50
5	4924.00	45.2 PK	74.0	-28.8	1.10 H	145	7.80	37.40
6	4924.00	32.6 AV	54.0	-21.4	1.10 H	145	-4.80	37.40
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	*2462.00	98.9 PK			1.27 V	211	67.40	31.50
2	*2462.00	89.4 AV			1.27 V	211	57.90	31.50
3	2483.50	55.4 PK	74.0	-18.6	1.27 V	211	23.90	31.50
4	2483.50	44.4 AV	54.0	-9.6	1.27 V	211	12.90	31.50
5	4924.00	45.8 PK	74.0	-28.2	1.10 V	152	8.40	37.40
6	4924.00	32.6 AV	54.0	-21.4	1.10 V	152	-4.80	37.40

REMARKS:

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



A D T

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin
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	2390.00	55.8 PK	74.0	-18.2	1.00 H	197	24.60	31.20
2	2390.00	44.9 AV	54.0	-9.1	1.00 H	197	13.70	31.20
3	*2412.00	95.2 PK			1.00 H	197	63.90	31.30
4	*2412.00	85.2 AV			1.00 H	197	53.90	31.30
5	4824.00	47.3 PK	74.0	-26.7	1.20 H	226	10.10	37.20
6	4824.00	34.8 AV	54.0	-19.2	1.20 H	226	-2.40	37.20
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	2390.00	66.3 PK	74.0	-7.7	1.01 V	286	35.10	31.20
2	2390.00	52.6 AV	54.0	-1.4	1.01 V	286	21.40	31.20
3	*2412.00	110.4 PK			1.25 V	354	79.10	31.30
4	*2412.00	100.4 AV			1.25 V	354	69.10	31.30
5	4824.00	48.3 PK	74.0	-25.7	1.00 V	125	11.10	37.20
6	4824.00	36.3 AV	54.0	-17.7	1.00 V	125	-0.90	37.20

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin
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	*2437.00	98.6 PK			1.20 H	360	67.20	31.40
2	*2437.00	88.4 AV			1.20 H	360	57.00	31.40
3	4874.00	45.5 PK	74.0	-28.5	1.09 H	135	8.20	37.30
4	4874.00	34.2 AV	54.0	-19.8	1.09 H	135	-3.10	37.30
5	7311.00	51.3 PK	74.0	-22.7	1.05 H	114	7.70	43.60
6	7311.00	38.5 AV	54.0	-15.5	1.05 H	114	-5.10	43.60
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	*2437.00	113.2 PK			1.47 V	41	81.80	31.40
2	*2437.00	103.9 AV			1.47 V	41	72.50	31.40
3	2486.00	64.9 PK	74.0	-9.1	1.57 V	10	33.40	31.50
4	2486.00	52.5 AV	54.0	-1.5	1.57 V	10	21.00	31.50
5	4874.00	50.4 PK	74.0	-23.6	1.31 V	360	13.10	37.30
6	4874.00	37.7 AV	54.0	-16.3	1.31 V	360	0.40	37.30
7	7311.00	50.8 PK	74.0	-23.2	1.06 V	260	7.20	43.60
8	7311.00	38.9 AV	54.0	-15.1	1.06 V	260	-4.70	43.60

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin
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	*2462.00	97.9 PK			1.00 H	198	66.40	31.50
2	*2462.00	88.4 AV			1.00 H	198	56.90	31.50
3	2483.50	56.4 PK	74.0	-17.6	1.05 H	190	24.90	31.50
4	2483.50	45.1 AV	54.0	-8.9	1.05 H	190	13.60	31.50
5	4924.00	46.0 PK	74.0	-28.0	1.04 H	136	8.60	37.40
6	4924.00	33.6 AV	54.0	-20.4	1.04 H	136	-3.80	37.40
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	*2462.00	112.6 PK			1.18 V	360	81.10	31.50
2	*2462.00	103.4 AV			1.18 V	360	71.90	31.50
3	2483.50	70.1 PK	74.0	-3.9	1.45 V	0	38.60	31.50
4	2483.50	52.2 AV	54.0	-1.8	1.45 V	0	20.70	31.50
5	4924.00	45.6 PK	74.0	-28.4	1.04 V	322	8.20	37.40
6	4924.00	34.0 AV	54.0	-20.0	1.04 V	322	-3.40	37.40

REMARKS:

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



A D T

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

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	2390.00	66.7 PK	74.0	-7.3	1.29 H	262	35.50	31.20
2	2390.00	53.0 AV	54.0	-1.0	1.29 H	262	21.80	31.20
3	*2412.00	112.5 PK			1.29 H	262	81.20	31.30
4	*2412.00	102.8 AV			1.29 H	262	71.50	31.30
5	4824.00	45.5 PK	74.0	-28.5	1.10 H	145	8.30	37.20
6	4824.00	32.2 AV	54.0	-21.8	1.10 H	145	-5.00	37.20
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	2390.00	54.6 PK	74.0	-19.4	1.02 V	210	23.40	31.20
2	2390.00	44.6 AV	54.0	-9.4	1.02 V	210	13.40	31.20
3	*2412.00	97.9 PK			1.02 V	210	66.60	31.30
4	*2412.00	88.7 AV			1.02 V	210	57.40	31.30
5	4824.00	45.2 PK	74.0	-28.8	1.17 V	152	8.00	37.20
6	4824.00	32.3 AV	54.0	-21.7	1.17 V	152	-4.90	37.20

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin
TEST MODE	C		

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	*2437.00	115.2 PK			1.30 H	258	83.80	31.40
2	*2437.00	104.4 AV			1.30 H	258	73.00	31.40
3	2487.00	65.0 PK	74.0	-9.0	1.30 H	258	33.40	31.60
4	2487.00	52.5 AV	54.0	-1.5	1.30 H	258	20.90	31.60
5	4874.00	45.8 PK	74.0	-28.2	1.00 H	152	8.50	37.30
6	4874.00	32.8 AV	54.0	-21.2	1.00 H	152	-4.50	37.30
7	7311.00	49.7 PK	74.0	-24.3	1.17 H	152	6.10	43.60
8	7311.00	37.7 AV	54.0	-16.3	1.17 H	152	-5.90	43.60
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	*2437.00	97.4 PK			1.00 V	235	66.00	31.40
2	*2437.00	88.0 AV			1.00 V	235	56.60	31.40
3	4874.00	45.8 PK	74.0	-28.2	1.07 V	126	8.50	37.30
4	4874.00	32.6 AV	54.0	-21.4	1.07 V	126	-4.70	37.30
5	7311.00	50.7 PK	74.0	-23.3	1.10 V	134	7.10	43.60
6	7311.00	38.3 AV	54.0	-15.7	1.10 V	134	-5.30	43.60

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin
TEST MODE	C		

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	*2462.00	111.9 PK			1.27 H	256	80.40	31.50
2	*2462.00	102.3 AV			1.27 H	256	70.80	31.50
3	2483.50	69.4 PK	74.0	-4.6	1.27 H	256	37.90	31.50
4	2483.50	53.0 AV	54.0	-1.0	1.27 H	256	21.50	31.50
5	4924.00	45.5 PK	74.0	-28.5	1.10 H	152	8.10	37.40
6	4924.00	32.5 AV	54.0	-21.5	1.10 H	152	-4.90	37.40
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	*2462.00	98.2 PK			1.27 V	211	66.70	31.50
2	*2462.00	87.9 AV			1.27 V	211	56.40	31.50
3	2483.50	55.8 PK	74.0	-18.2	1.27 V	211	24.30	31.50
4	2483.50	44.3 AV	54.0	-9.7	1.27 V	211	12.80	31.50
5	4924.00	45.4 PK	74.0	-28.6	1.42 V	156	8.00	37.40
6	4924.00	32.4 AV	54.0	-21.6	1.42 V	156	-5.00	37.40

REMARKS:

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



A D T

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 3	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin
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	2390.00	55.8 PK	74.0	-18.2	1.04 H	153	24.60	31.20
2	2390.00	44.9 AV	54.0	-9.1	1.04 H	153	13.70	31.20
3	*2422.00	89.1 PK			1.00 H	198	57.80	31.30
4	*2422.00	80.0 AV			1.00 H	198	48.70	31.30
5	4844.00	45.5 PK	74.0	-28.5	1.10 H	126	8.20	37.30
6	4844.00	32.7 AV	54.0	-21.3	1.10 H	126	-4.60	37.30
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	2390.00	66.7 PK	74.0	-7.3	1.00 V	308	35.50	31.20
2	2390.00	52.8 AV	54.0	-1.2	1.00 V	308	21.60	31.20
3	*2422.00	104.1 PK			1.07 V	337	72.80	31.30
4	*2422.00	95.1 AV			1.07 V	337	63.80	31.30
5	4844.00	45.6 PK	74.0	-28.4	1.04 V	116	8.30	37.30
6	4844.00	33.2 AV	54.0	-20.8	1.04 V	116	-4.10	37.30

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin
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	2390.00	56.3 PK	74.0	-17.7	1.40 H	32	25.10	31.20
2	2390.00	45.1 AV	54.0	-8.9	1.40 H	32	13.90	31.20
3	*2437.00	95.1 PK			1.40 H	32	63.70	31.40
4	*2437.00	85.8 AV			1.40 H	32	54.40	31.40
5	4874.00	46.3 PK	74.0	-27.7	1.17 H	152	9.00	37.30
6	4874.00	33.8 AV	54.0	-20.2	1.17 H	152	-3.50	37.30
7	7311.00	50.6 PK	74.0	-23.4	1.07 H	119	7.00	43.60
8	7311.00	38.3 AV	54.0	-15.7	1.07 H	119	-5.30	43.60
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	2390.00	66.9 PK	74.0	-7.1	1.01 V	311	35.70	31.20
2	2390.00	52.4 AV	54.0	-1.6	1.01 V	311	21.20	31.20
3	*2437.00	108.8 PK			1.00 V	40	77.40	31.40
4	*2437.00	99.2 AV			1.00 V	40	67.80	31.40
5	4874.00	46.2 PK	74.0	-27.8	1.17 V	152	8.90	37.30
6	4874.00	34.2 AV	54.0	-19.8	1.17 V	152	-3.10	37.30
7	7311.00	51.0 PK	74.0	-23.0	1.08 V	135	7.40	43.60
8	7311.00	38.4 AV	54.0	-15.6	1.08 V	135	-5.20	43.60

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 9	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin
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	*2452.00	91.4 PK			1.00 H	198	60.00	31.40
2	*2452.00	81.2 AV			1.00 H	198	49.80	31.40
3	2483.50	58.3 PK	74.0	-15.7	1.04 H	152	26.80	31.50
4	2483.50	44.8 AV	54.0	-9.2	1.04 H	152	13.30	31.50
5	4904.00	45.3 PK	74.0	-28.7	1.10 H	136	7.90	37.40
6	4904.00	33.2 AV	54.0	-20.8	1.10 H	136	-4.20	37.40
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	*2452.00	106.1 PK			1.23 V	332	74.70	31.40
2	*2452.00	96.5 AV			1.23 V	332	65.10	31.40
3	2483.50	72.9 PK	74.0	-1.1	1.65 V	349	41.40	31.50
4	2483.50	52.8 AV	54.0	-1.2	1.65 V	349	21.30	31.50
5	4904.00	45.4 PK	74.0	-28.6	1.07 V	116	8.00	37.40
6	4904.00	33.2 AV	54.0	-20.8	1.07 V	116	-4.20	37.40

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 3	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin
TEST MODE	C		

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	2390.00	65.2 PK	74.0	-8.8	1.02 H	258	34.00	31.20
2	2390.00	52.8 AV	54.0	-1.2	1.02 H	258	21.60	31.20
3	*2422.00	105.4 PK			1.02 H	258	74.10	31.30
4	*2422.00	95.3 AV			1.02 H	258	64.00	31.30
5	4844.00	45.1 PK	74.0	-28.9	1.16 H	124	7.80	37.30
6	4844.00	32.1 AV	54.0	-21.9	1.16 H	124	-5.20	37.30
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	2390.00	55.1 PK	74.0	-18.9	1.03 V	209	23.90	31.20
2	2390.00	45.1 AV	54.0	-8.9	1.03 V	209	13.90	31.20
3	*2422.00	91.4 PK			1.03 V	209	60.10	31.30
4	*2422.00	81.9 AV			1.03 V	209	50.60	31.30
5	4844.00	45.5 PK	74.0	-28.5	1.07 V	145	8.20	37.30
6	4844.00	32.9 AV	54.0	-21.1	1.07 V	145	-4.40	37.30

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin
TEST MODE	C		

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	2390.00	65.1 PK	74.0	-8.9	1.31 H	259	33.90	31.20
2	2390.00	52.5 AV	54.0	-1.5	1.31 H	259	21.30	31.20
3	*2437.00	110.6 PK			1.31 H	259	79.20	31.40
4	*2437.00	101.4 AV			1.31 H	259	70.00	31.40
5	4874.00	44.8 PK	74.0	-29.2	1.00 H	145	7.50	37.30
6	4874.00	32.8 AV	54.0	-21.2	1.00 H	145	-4.50	37.30
7	7311.00	51.4 PK	74.0	-22.6	1.31 H	259	7.80	43.60
8	7311.00	38.3 AV	54.0	-15.7	1.31 H	259	-5.30	43.60
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	*2437.00	95.7 PK			1.04 V	211	64.30	31.40
2	*2437.00	86.5 AV			1.04 V	211	55.10	31.40
3	4874.00	45.4 PK	74.0	-28.6	1.04 V	157	8.10	37.30
4	4874.00	32.8 AV	54.0	-21.2	1.04 V	157	-4.50	37.30
5	7311.00	51.1 PK	74.0	-22.9	1.14 V	152	7.50	43.60
6	7311.00	38.2 AV	54.0	-15.8	1.14 V	152	-5.40	43.60

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 9	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin
TEST MODE	C		

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	*2452.00	105.3 PK			1.25 H	261	73.90	31.40
2	*2452.00	95.4 AV			1.25 H	261	64.00	31.40
3	2483.50	70.7 PK	74.0	-3.3	1.25 H	261	39.20	31.50
4	2483.50	52.8 AV	54.0	-1.2	1.25 H	261	21.30	31.50
5	4904.00	45.0 PK	74.0	-29.0	1.04 H	126	7.60	37.40
6	4904.00	32.4 AV	54.0	-21.6	1.04 H	126	-5.00	37.40
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	*2452.00	91.0 PK			1.25 V	210	59.60	31.40
2	*2452.00	81.2 AV			1.25 V	210	49.80	31.40
3	2483.50	57.7 PK	74.0	-16.3	1.60 V	209	26.20	31.50
4	2483.50	44.9 AV	54.0	-9.1	1.60 V	209	13.40	31.50
5	4904.00	44.9 PK	74.0	-29.1	1.40 V	162	7.50	37.40
6	4904.00	32.7 AV	54.0	-21.3	1.40 V	162	-4.70	37.40

REMARKS:

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



A D T

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Haru Yang
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	105.73	34.5 QP	43.5	-9.0	2.99 H	251	24.40	10.10
2	146.56	29.2 QP	43.5	-14.3	2.00 H	254	15.20	14.00
3	249.60	34.1 QP	46.0	-11.9	1.00 H	269	21.10	13.00
4	399.31	32.9 QP	46.0	-13.1	1.00 H	131	15.40	17.50
5	799.84	31.8 QP	46.0	-14.2	1.00 H	155	6.20	25.60
6	860.11	32.2 QP	46.0	-13.8	1.50 H	151	5.90	26.30
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	53.23	38.4 QP	40.0	-1.6	1.00 V	6	24.60	13.80
2	105.73	37.2 QP	43.5	-6.3	1.00 V	53	27.10	10.10
3	146.56	30.6 QP	43.5	-12.9	1.00 V	354	16.60	14.00
4	249.60	34.8 QP	46.0	-11.2	1.00 V	73	21.80	13.00
5	399.31	36.1 QP	46.0	-9.9	1.00 V	120	18.60	17.50
6	858.17	32.2 QP	46.0	-13.8	1.00 V	181	5.90	26.30

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Haru Yang
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	37.68	26.7 QP	40.0	-13.3	1.25 H	195	13.40	13.30
2	94.06	32.0 QP	43.5	-11.5	2.00 H	266	23.30	8.70
3	249.60	34.8 QP	46.0	-11.2	1.00 H	108	21.80	13.00
4	399.31	29.7 QP	46.0	-16.3	1.00 H	123	12.20	17.50
5	500.42	25.2 QP	46.0	-20.8	1.50 H	142	5.20	20.00
6	799.84	34.4 QP	46.0	-11.6	1.50 H	216	8.80	25.60
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	103.78	35.1 QP	43.5	-8.4	1.24 V	84	25.20	9.90
2	249.60	36.2 QP	46.0	-9.8	1.00 V	57	23.20	13.00
3	399.31	33.4 QP	46.0	-12.6	1.24 V	251	15.90	17.50
4	500.42	25.3 QP	46.0	-20.7	1.24 V	82	5.30	20.00
5	593.74	29.5 QP	46.0	-16.5	1.24 V	211	7.50	22.00
6	799.84	27.7 QP	46.0	-18.3	1.24 V	202	2.10	25.60

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Antony Lee
TEST MODE	C		

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	125.17	31.4 QP	43.5	-12.1	1.00 H	13	19.10	12.30
2	177.67	35.7 QP	43.5	-7.8	1.50 H	60	22.80	12.90
3	249.60	31.6 QP	46.0	-14.4	1.25 H	81	18.60	13.00
4	401.26	36.9 QP	46.0	-9.1	1.00 H	100	19.30	17.60
5	426.53	34.8 QP	46.0	-11.2	1.99 H	18	16.60	18.20
6	799.84	38.1 QP	46.0	-7.9	1.25 H	7	12.50	25.60
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	39.62	35.7 QP	40.0	-4.3	1.50 V	78	22.10	13.60
2	66.84	35.2 QP	40.0	-4.8	1.00 V	64	22.50	12.70
3	125.17	36.8 QP	43.5	-6.7	1.75 V	342	24.50	12.30
4	401.26	34.4 QP	46.0	-11.6	1.00 V	175	16.80	17.60
5	624.85	30.9 QP	46.0	-15.1	1.00 V	301	8.60	22.30
6	799.84	36.1 QP	46.0	-9.9	1.99 V	179	10.50	25.60

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Haru Yang
TEST MODE	D		

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	138.78	39.4 QP	43.5	-4.1	2.00 H	82	25.90	13.50
2	181.55	38.1 QP	43.5	-5.4	1.50 H	91	25.60	12.50
3	249.60	41.3 QP	46.0	-4.7	1.00 H	55	28.30	13.00
4	374.04	27.7 QP	46.0	-18.3	1.00 H	111	10.80	16.90
5	500.42	30.3 QP	46.0	-15.7	2.00 H	45	10.30	20.00
6	799.84	39.4 QP	46.0	-6.6	1.00 H	298	13.80	25.60
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	64.90	38.6 QP	40.0	-1.4	1.00 V	342	25.70	12.90
2	79.25	37.7 QP	40.0	-2.3	1.70 V	167	27.60	10.10
3	138.78	37.6 QP	43.5	-5.9	1.00 V	328	24.10	13.50
4	249.60	37.3 QP	46.0	-8.7	1.00 V	72	24.30	13.00
5	500.42	31.2 QP	46.0	-14.8	1.00 V	123	11.20	20.00
6	799.84	37.8 QP	46.0	-8.2	1.25 V	108	12.20	25.60

REMARKS:

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

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Nov. 19, 2011	Nov. 18, 2012
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 29, 2011	Dec. 28, 2012
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 30, 2011	Dec. 29, 2012
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 06, 2012	Jul. 05, 2013
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

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

4.2.3 TEST PROCEDURES

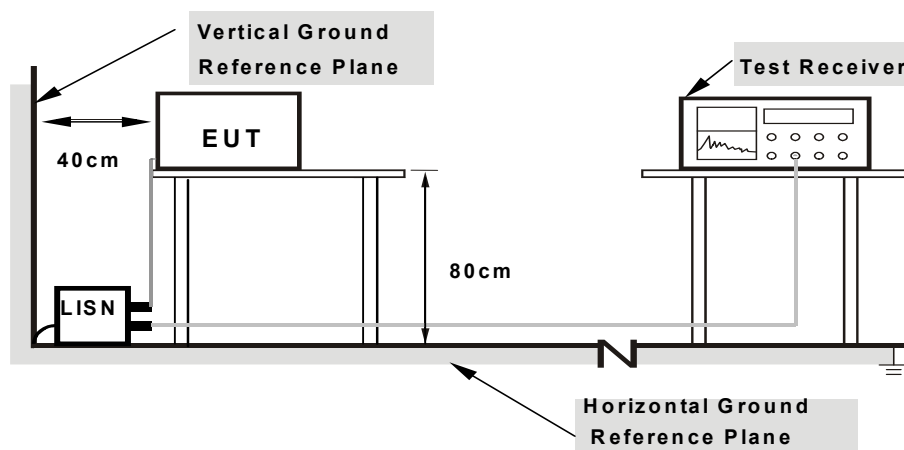
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



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

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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

4.2.7 TEST RESULTS

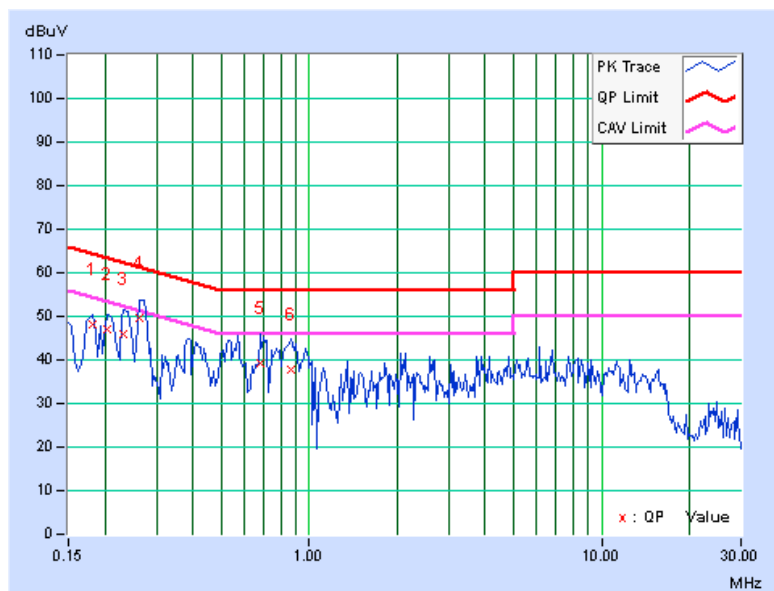
CONDUCTED WORST-CASE DATA : 802.11n(20MHz)

PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18125	0.15	47.88	37.86	48.03	38.01	64.43	54.43	-16.40	-16.42
2	0.20469	0.15	46.72	38.88	46.87	39.03	63.42	53.42	-16.55	-14.39
3	0.23203	0.15	45.84	36.14	45.99	36.29	62.38	52.38	-16.38	-16.08
4	0.26328	0.16	49.31	40.43	49.47	40.59	61.33	51.33	-11.86	-10.74
5	0.68125	0.18	39.15	27.35	39.33	27.53	56.00	46.00	-16.67	-18.47
6	0.86875	0.19	37.48	26.12	37.67	26.31	56.00	46.00	-18.33	-19.69

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.

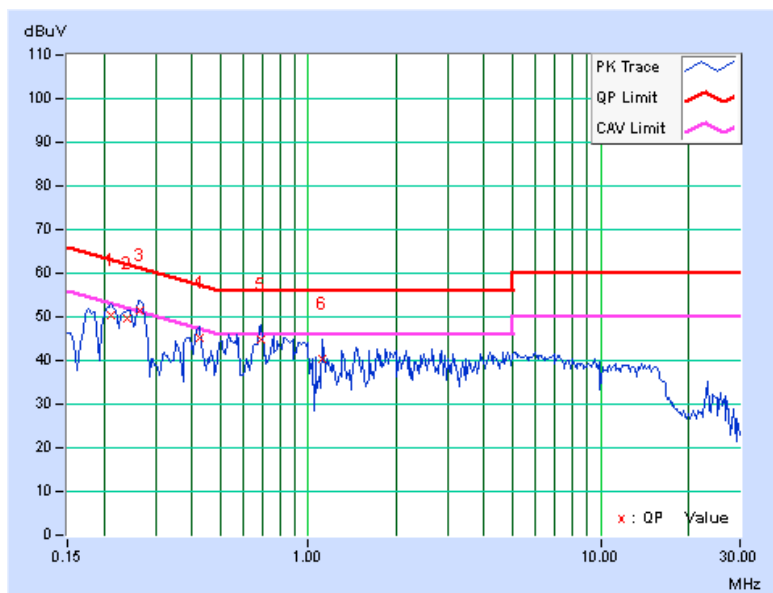


PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.21250	0.14	50.36	42.03	50.50	42.17	63.11	53.11	-12.61	-10.94
2	0.23984	0.14	49.42	42.84	49.56	42.98	62.10	52.10	-12.54	-9.12
3	0.26719	0.15	51.41	44.34	51.56	44.49	61.20	51.20	-9.65	-6.72
4	0.42344	0.16	44.91	33.12	45.07	33.28	57.38	47.38	-12.31	-14.10
5	0.68516	0.17	44.46	32.60	44.63	32.77	56.00	46.00	-11.37	-13.23
6	1.12109	0.20	40.25	27.40	40.45	27.60	56.00	46.00	-15.55	-18.40

REMARKS:

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



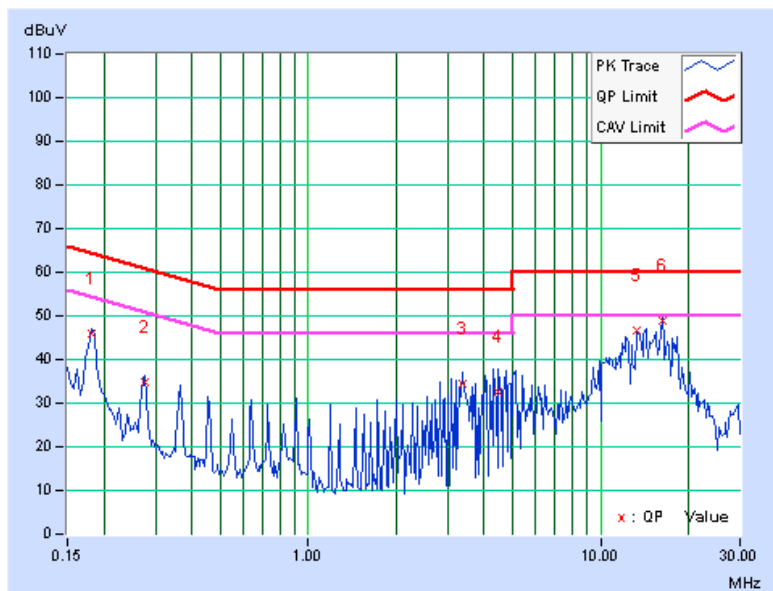
CONDUCTED WORST-CASE DATA : 802.11n(20MHz)

PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18125	0.15	45.82	36.52	45.97	36.67	64.43	54.43	-18.46	-17.76
2	0.27500	0.16	34.51	27.63	34.67	27.79	60.97	50.97	-26.30	-23.18
3	3.37109	0.31	34.26	31.65	34.57	31.96	56.00	46.00	-21.43	-14.04
4	4.46484	0.35	32.25	26.36	32.60	26.71	56.00	46.00	-23.40	-19.29
5	13.35884	0.50	46.01	43.47	46.51	43.97	60.00	50.00	-13.49	-6.03
6	16.22656	0.55	48.47	46.20	49.02	46.75	60.00	50.00	-10.98	-3.25

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.

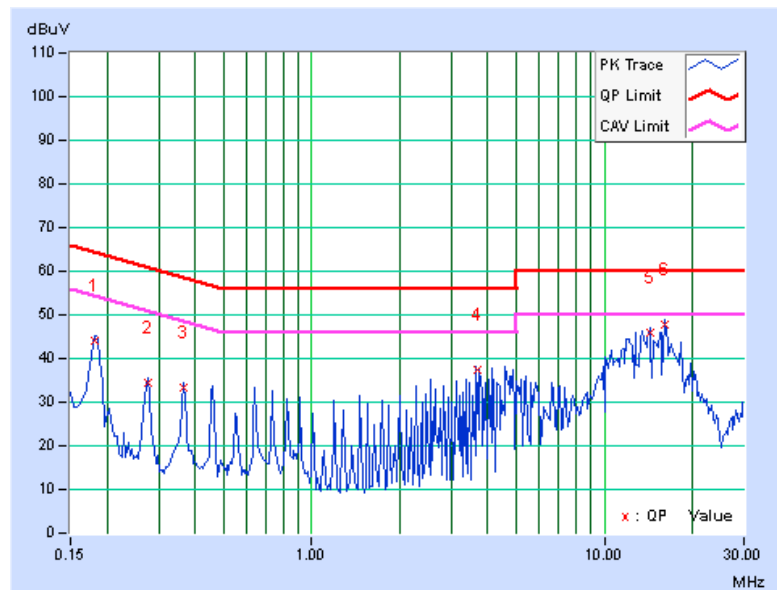


PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18125	0.14	43.81	35.62	43.95	35.76	64.43	54.43	-20.48	-18.67
2	0.27500	0.15	34.11	28.95	34.26	29.10	60.97	50.97	-26.71	-21.87
3	0.36484	0.16	33.10	32.05	33.26	32.21	58.62	48.62	-25.36	-16.41
4	3.66666	0.33	37.00	33.93	37.33	34.26	56.00	46.00	-18.67	-11.74
5	14.27344	0.58	45.39	42.95	45.97	43.53	60.00	50.00	-14.03	-6.47
6	16.16797	0.63	47.32	45.12	47.95	45.75	60.00	50.00	-12.05	-4.25

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.



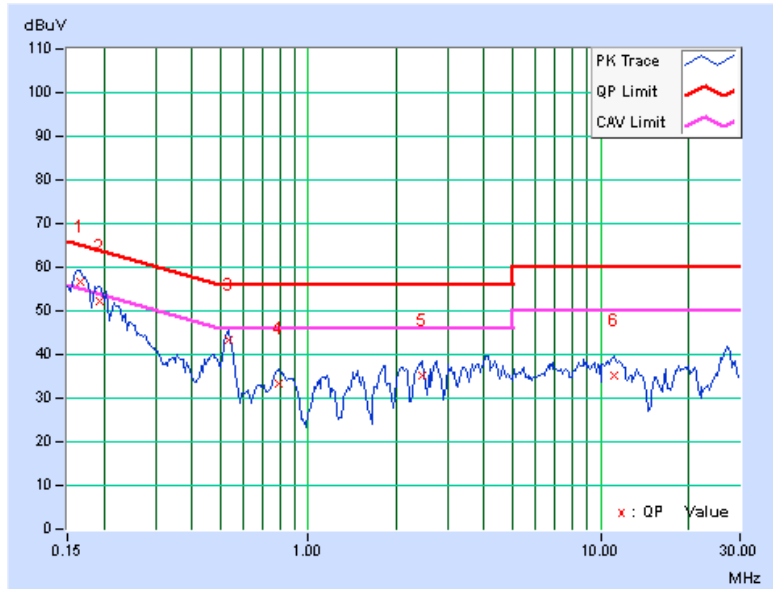
CONDUCTED WORST-CASE DATA : 802.11g

PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	C		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16562	0.15	56.55	43.56	56.70	43.71	65.18	55.18	-8.48	-11.47
2	0.19297	0.15	52.15	39.54	52.30	39.69	63.91	53.91	-11.61	-14.22
3	0.53281	0.17	43.23	37.77	43.40	37.94	56.00	46.00	-12.60	-8.06
4	0.79453	0.18	33.09	27.98	33.27	28.16	56.00	46.00	-22.73	-17.84
5	2.45703	0.28	34.93	30.21	35.21	30.49	56.00	46.00	-20.79	-15.51
6	11.16406	0.45	34.91	30.17	35.36	30.62	60.00	50.00	-24.64	-19.38

REMARKS:

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

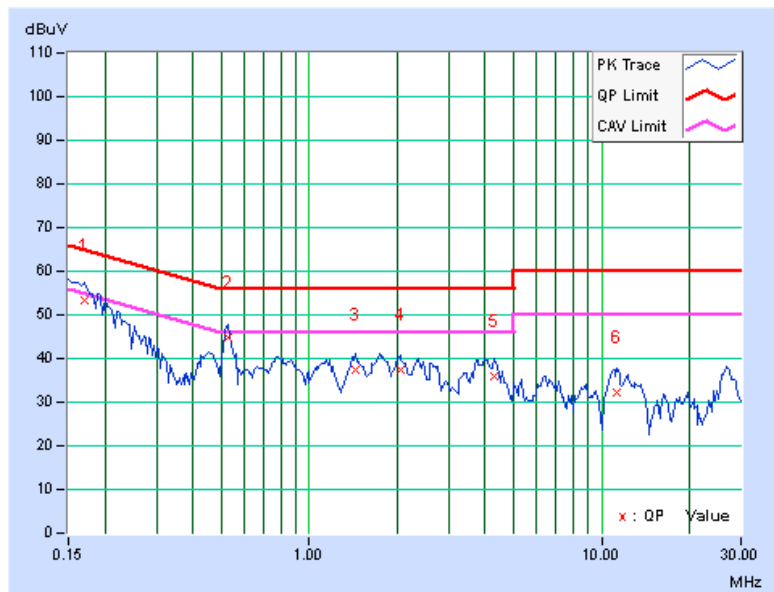


PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	C		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16953	0.13	53.33	38.49	53.46	38.62	64.98	54.98	-11.52	-16.36
2	0.52500	0.17	44.59	39.29	44.76	39.46	56.00	46.00	-11.24	-6.54
3	1.43359	0.22	37.22	33.05	37.44	33.27	56.00	46.00	-18.56	-12.73
4	2.05469	0.26	37.29	33.28	37.55	33.54	56.00	46.00	-18.45	-12.46
5	4.30859	0.36	35.48	30.55	35.84	30.91	56.00	46.00	-20.16	-15.09
6	11.30859	0.51	31.73	26.62	32.24	27.13	60.00	50.00	-27.76	-22.87

REMARKS:

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



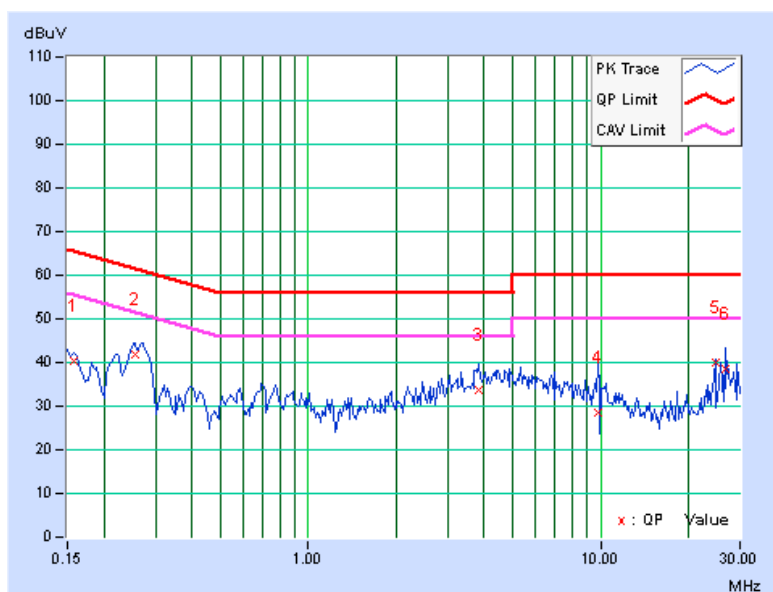
CONDUCTED WORST-CASE DATA : 802.11g

PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	D		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	0.15	40.17	27.79	40.32	27.94	65.58	55.58	-25.26	-27.64
2	0.25547	0.16	41.87	36.49	42.03	36.65	61.58	51.58	-19.55	-14.93
3	3.84766	0.33	33.51	25.17	33.84	25.50	56.00	46.00	-22.16	-20.50
4	9.80469	0.43	28.10	19.60	28.53	20.03	60.00	50.00	-31.47	-29.97
5	24.89844	0.58	39.29	31.12	39.87	31.70	60.00	50.00	-20.13	-18.30
6	26.61328	0.56	38.11	32.18	38.67	32.74	60.00	50.00	-21.33	-17.26

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.

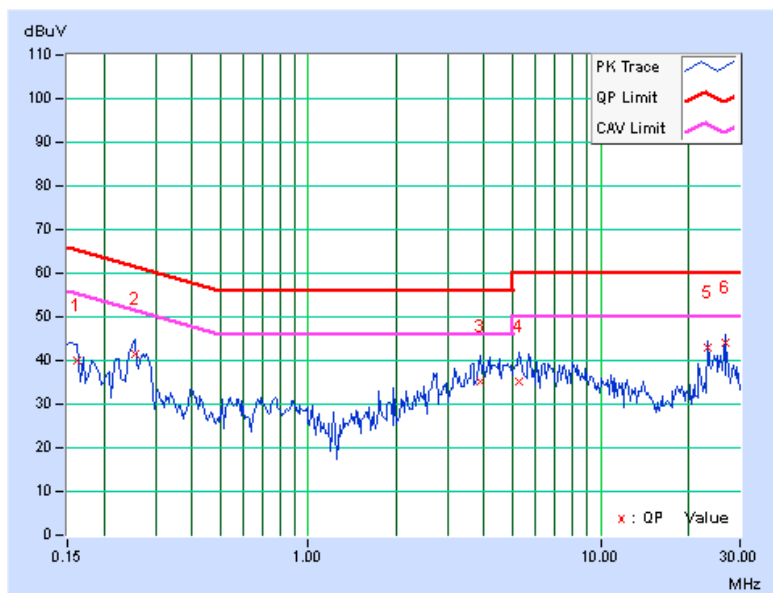


PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	D		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16172	0.13	39.72	26.26	39.85	26.39	65.38	55.38	-25.52	-28.98
2	0.25547	0.15	41.41	32.85	41.56	33.00	61.58	51.58	-20.02	-18.58
3	3.86719	0.34	34.85	25.53	35.19	25.87	56.00	46.00	-20.81	-20.13
4	5.27734	0.38	34.78	26.12	35.16	26.50	60.00	50.00	-24.84	-23.50
5	23.12891	0.67	42.23	36.21	42.90	36.88	60.00	50.00	-17.10	-13.12
6	26.60938	0.60	43.58	37.63	44.18	38.23	60.00	50.00	-15.82	-11.77

REMARKS:

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

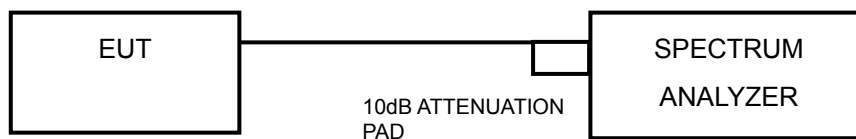


4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST SETUP



4.3.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.3.4 TEST PROCEDURE

- Set resolution bandwidth (RBW) = approximately 1% of the emission bandwidth
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

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 lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	12.28	0.5	PASS
6	2437	12.28	0.5	PASS
11	2462	12.29	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.58	0.5	PASS
6	2437	16.63	0.5	PASS
11	2462	16.63	0.5	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.82	0.5	PASS
6	2437	17.86	0.5	PASS
11	2462	17.84	0.5	PASS

802.11n (40MHz)

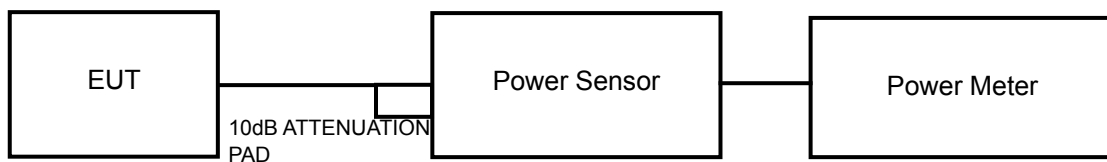
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	37.25	0.5	PASS
6	2437	36.86	0.5	PASS
9	2452	36.86	0.5	PASS

4.4 CONDUCTED OUTPUT POWER

4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.4.4 TEST PROCEDURES

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the peak power level.

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6.

4.4.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	58.88	17.70	28	PASS
6	2437	168.27	22.26	28	PASS
11	2462	110.41	20.43	28	PASS

NOTE: Directional gain = 8dBi > 6dBi, so the conducted power limit shall be reduced to $30-(8-6) = 28\text{dBm}$.

802.11g

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	109.90	20.41	28	PASS
6	2437	244.91	23.89	28	PASS
11	2462	241.55	23.83	28	PASS

NOTE: Directional gain = 8dBi > 6dBi, so the conducted power limit shall be reduced to $30-(8-6) = 28\text{dBm}$.

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	108.39	20.35	28	PASS
6	2437	186.21	22.70	28	PASS
11	2462	155.96	21.93	28	PASS

NOTE: Directional gain = 8dBi > 6dBi, so the conducted power limit shall be reduced to $30-(8-6) = 28\text{dBm}$.

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
3	2422	53.83	17.31	28	PASS
6	2437	213.80	23.30	28	PASS
9	2452	59.98	17.78	28	PASS

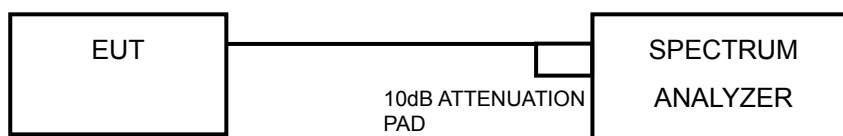
NOTE: Directional gain = 8dBi > 6dBi, so the conducted power limit shall be reduced to $30-(8-6) = 28\text{dBm}$.

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST SETUP



4.5.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.5.4 TEST PROCEDURE

- Set the RBW = 100 kHz, VBW = 300 kHz, Detector = peak.
- Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
- Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
- Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(3 \text{ kHz}/100\text{kHz})$

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

4.5.7 TEST RESULTS

802.11b

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	5.18	-10.05	6	PASS
6	2437	9.63	-5.60	6	PASS
11	2462	8.01	-7.22	6	PASS

NOTE: Directional gain = 8dBi > 6dBi, so the power density limit shall be reduced to 8-(8-6) = 6dBm.

802.11g

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	0.45	-14.78	6	PASS
6	2437	4.02	-11.21	6	PASS
11	2462	4.07	-11.16	6	PASS

NOTE: Directional gain = 8dBi > 6dBi, so the power density limit shall be reduced to 8-(8-6) = 6dBm.

802.11n (20MHz)

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	0.69	-14.54	6	PASS
6	2437	2.88	-12.35	6	PASS
11	2462	2.13	-13.10	6	PASS

NOTE: Directional gain = 8dBi > 6dBi, so the power density limit shall be reduced to 8-(8-6) = 6dBm.

802.11n (40MHz)

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
3	2422	-5.01	-20.24	6	PASS
6	2437	1.05	-14.18	6	PASS
9	2452	-4.41	-19.64	6	PASS

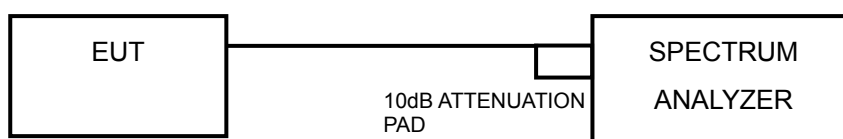
NOTE: Directional gain = 8dBi > 6dBi, so the power density limit shall be reduced to 8-(8-6) = 6dBm.

4.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 TEST SETUP



4.6.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.6.4 TEST PROCEDURE

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW $\geq$ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOB

1. Set RBW = 100 kHz.
2. Set VBW $\geq$ 300 kHz.
3. Set span to encompass the spectrum to be examined.
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 EUT OPERATING CONDITION

Same as Item 4.3.6

4.6.7 TEST RESULTS

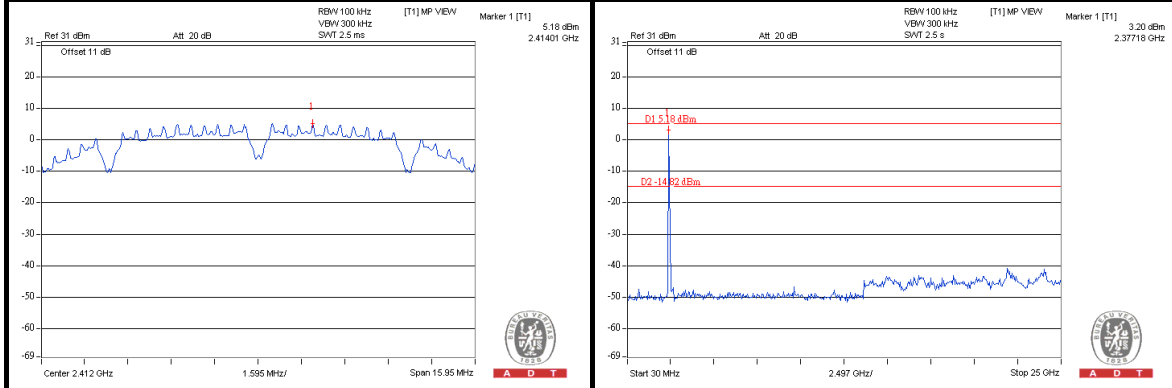
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.



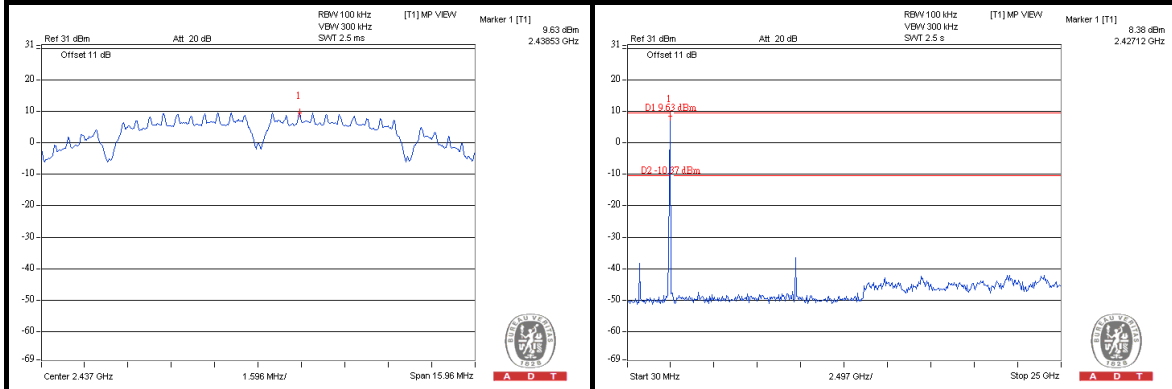
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802.11b

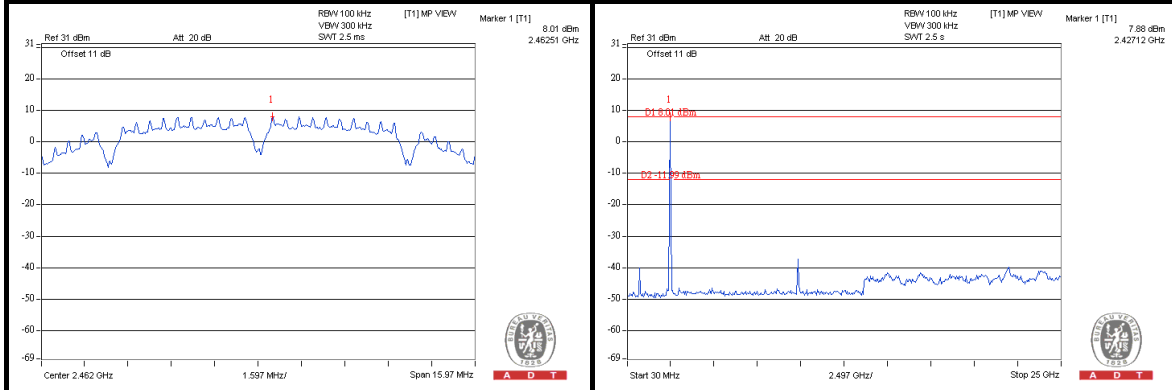
CH 1



CH 6

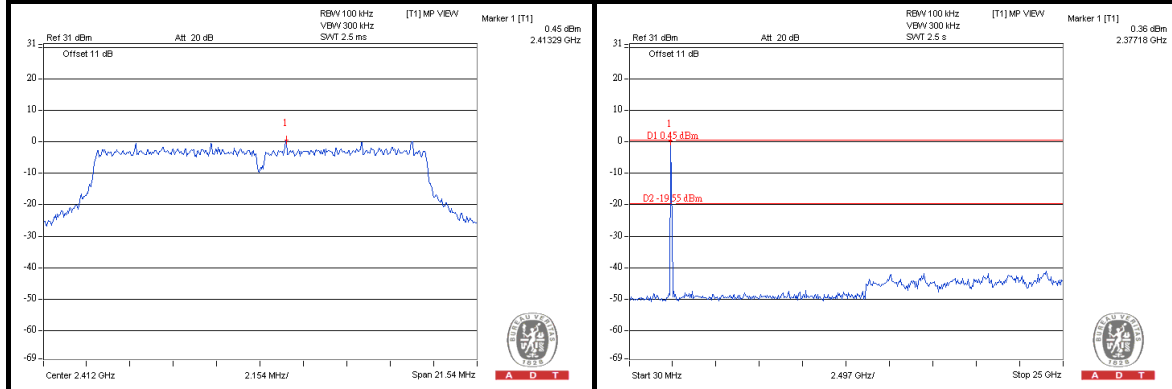


CH 11

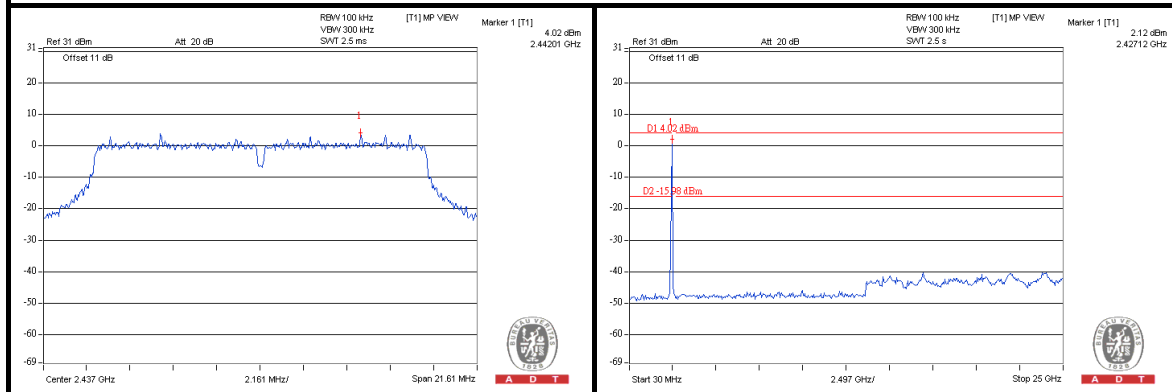


802.11g

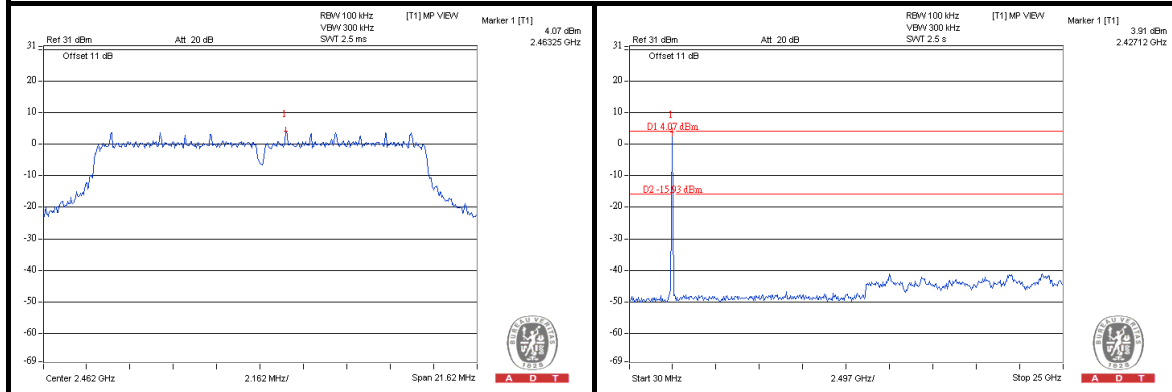
CH 1



CH 6



CH 11

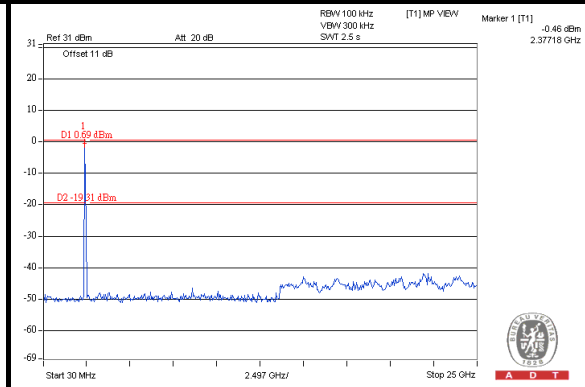
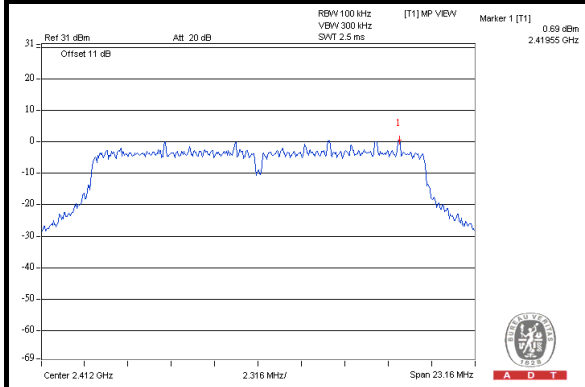




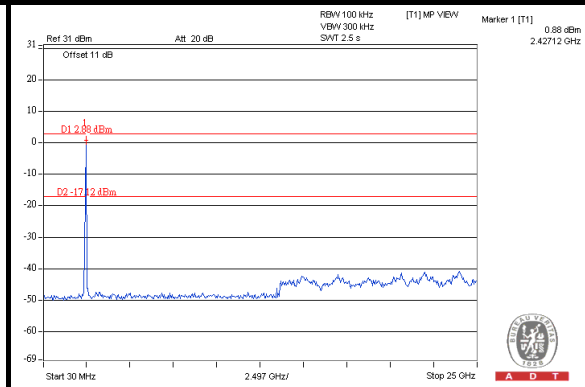
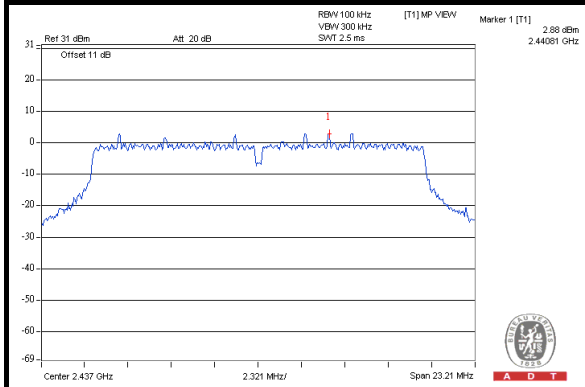
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802.11n (20MHz)

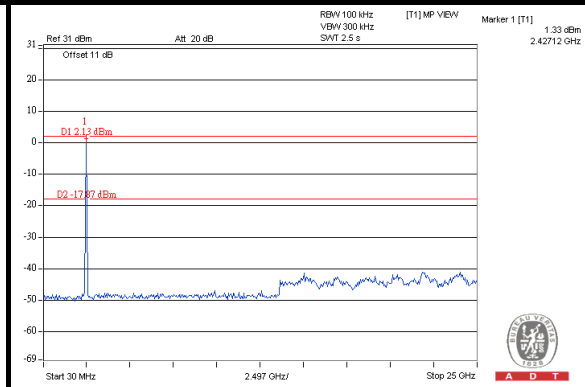
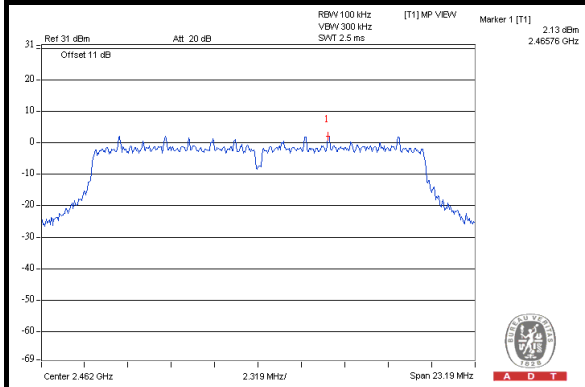
CH 1



CH 6



CH 11

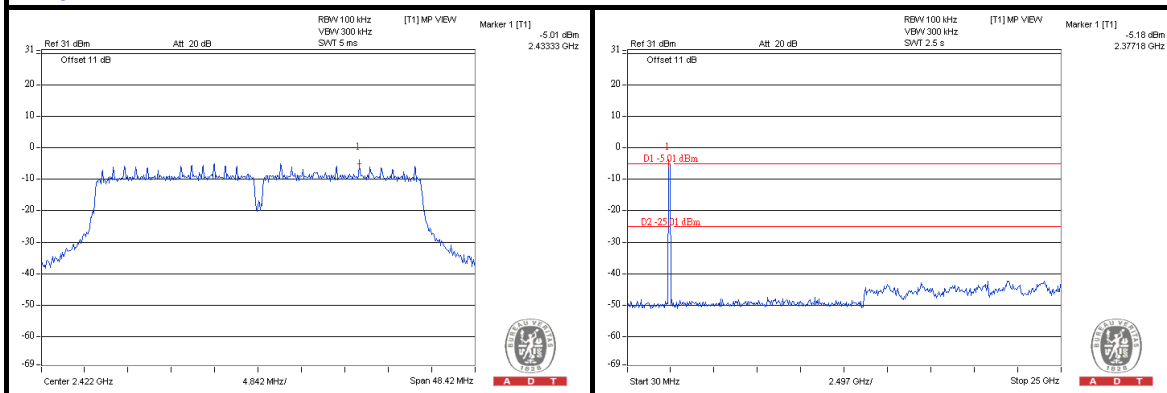




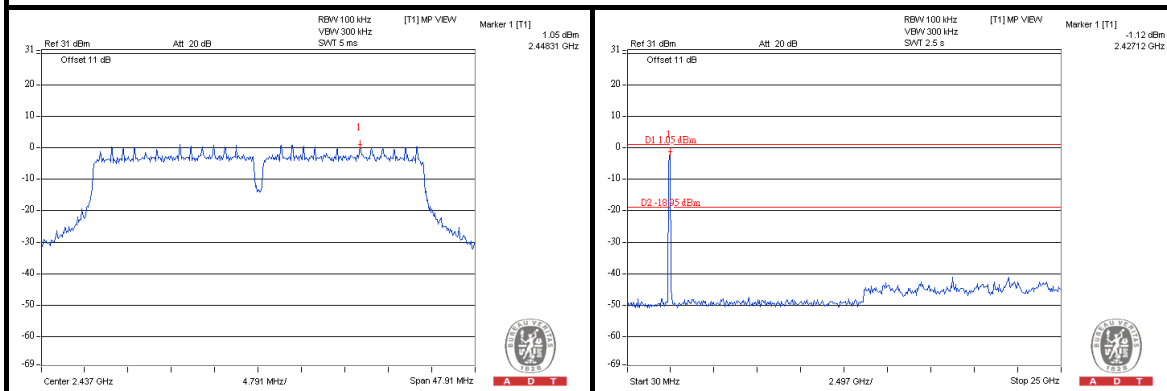
A D T

802.11n (40MHz)

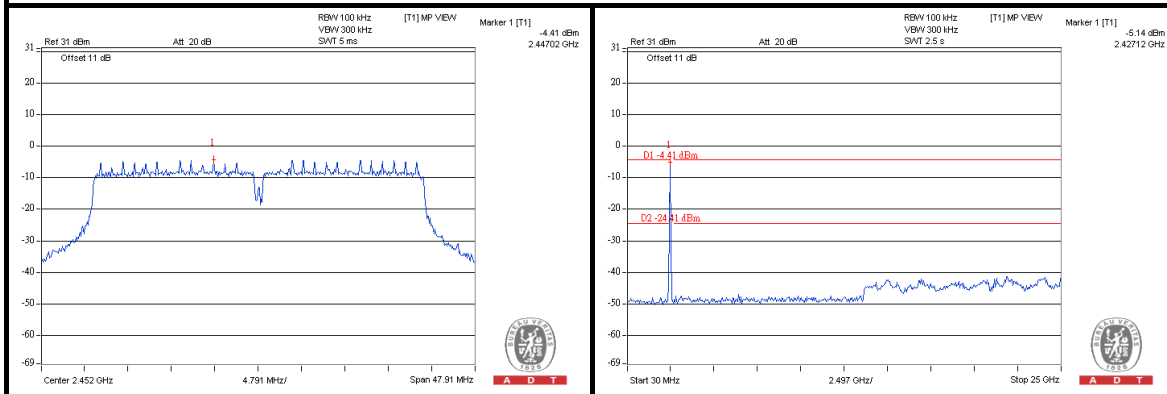
CH 3



CH 6



CH 9





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5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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



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6. INFORMATION ON THE TESTING LABORATORIES

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

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

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Web Site: www.bureauveritas-adt.com

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



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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---