



A D T

FCC TEST REPORT (15.247)

REPORT NO.: RF120531C10

MODEL NO.: EAP600

FCC ID: A8J-EAP600

RECEIVED: May 09, 2012

TESTED: May 09 ~ Jun. 27, 2012

ISSUED: Jul. 16, 2012

APPLICANT: EnGenius Technologies

ADDRESS: 1580 Scenic Avenue, Costa Mesa, CA92626

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.



This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification.



TABLE OF CONTENTS

RELEASE CONTROL RECORD	5
1. CERTIFICATION	6
2. SUMMARY OF TEST RESULTS	7
2.1 MEASUREMENT UNCERTAINTY	7
3. GENERAL INFORMATION	8
3.1 GENERAL DESCRIPTION OF EUT	8
3.2 DESCRIPTION OF TEST MODES	10
3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	11
3.3 DESCRIPTION OF SUPPORT UNITS	16
3.3.1 CONFIGURATION OF SYSTEM UNDER TEST	17
3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS	18
4. TEST TYPES AND RESULTS (FOR 2.4GHz BAND)	19
4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT	19
4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT	19
4.1.2 TEST INSTRUMENTS	20
4.1.3 TEST PROCEDURES	21
4.1.4 DEVIATION FROM TEST STANDARD	21
4.1.5 TEST SETUP	22
4.1.6 EUT OPERATING CONDITIONS	22
4.1.7 TEST RESULTS	23
4.2 CONDUCTED EMISSION MEASUREMENT	37
4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT	37
4.2.2 TEST INSTRUMENTS	37
4.2.3 TEST PROCEDURES	38
4.2.4 DEVIATION FROM TEST STANDARD	38
4.2.5 TEST SETUP	38
4.2.6 EUT OPERATING CONDITIONS	38
4.2.7 TEST RESULTS	39
4.3 6dB BANDWIDTH MEASUREMENT	43
4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT	43
4.3.2 TEST SETUP	43
4.3.3 TEST INSTRUMENTS	43
4.3.4 TEST PROCEDURE	43
4.3.5 DEVIATION FROM TEST STANDARD	43
4.3.6 EUT OPERATING CONDITIONS	43
4.3.7 TEST RESULTS	44
4.4 CONDUCTED OUTPUT POWER	46
4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT	46
4.4.2 TEST SETUP	46
4.4.3 TEST INSTRUMENTS	46
4.4.4 TEST PROCEDURES	46
4.4.5 DEVIATION FROM TEST STANDARD	46
4.4.6 EUT OPERATING CONDITIONS	46
4.4.7 TEST RESULTS	47
4.5 POWER SPECTRAL DENSITY MEASUREMENT	48
4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	48
4.5.2 TEST SETUP	48
4.5.3 TEST INSTRUMENTS	48
4.5.4 TEST PROCEDURE	48



4.5.5	DEVIATION FROM TEST STANDARD	48
4.5.6	EUT OPERATING CONDITION	48
4.5.7	TEST RESULTS	49
4.6	CONDUCTED OUT OF BAND EMISSION MEASUREMENT	50
4.6.1	LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT	50
4.6.2	TEST SETUP	50
4.6.3	TEST INSTRUMENTS	50
4.6.4	TEST PROCEDURE	50
4.6.5	DEVIATION FROM TEST STANDARD	51
4.6.6	EUT OPERATING CONDITION	51
4.6.7	TEST RESULTS	51
5.	TEST TYPES AND RESULTS (FOR 5.0GHz BAND)	58
5.1	RADIATED EMISSION MEASUREMENT	58
5.1.1	LIMITS OF RADIATED EMISSION MEASUREMENT	58
5.1.2	TEST INSTRUMENTS	59
5.1.3	TEST PROCEDURES	59
5.1.4	DEVIATION FROM TEST STANDARD	59
5.1.5	TEST SETUP	59
5.1.6	EUT OPERATING CONDITIONS	59
5.1.7	TEST RESULTS	60
5.2	CONDUCTED EMISSION MEASUREMENT	70
5.2.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT	70
5.2.2	TEST INSTRUMENTS	70
5.2.3	TEST PROCEDURES	70
5.2.4	DEVIATION FROM TEST STANDARD	70
5.2.5	TEST SETUP	70
5.2.6	EUT OPERATING CONDITIONS	70
5.2.7	TEST RESULTS	71
5.3	6dB BANDWIDTH MEASUREMENT	75
5.3.1	LIMITS OF 6dB BANDWIDTH MEASUREMENT	75
5.3.2	TEST SETUP	75
5.3.3	TEST INSTRUMENTS	75
5.3.4	TEST PROCEDURE	75
5.3.5	DEVIATION FROM TEST STANDARD	75
5.3.6	EUT OPERATING CONDITIONS	75
5.3.7	TEST RESULTS	76
5.4	CONDUCTED OUTPUT POWER	77
5.4.1	LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT	77
5.4.2	TEST SETUP	77
5.4.3	INSTRUMENTS	77
5.4.4	TEST PROCEDURES	77
5.4.5	DEVIATION FROM TEST STANDARD	77
5.4.6	EUT OPERATING CONDITIONS	77
5.4.7	TEST RESULTS	78
5.5	POWER SPECTRAL DENSITY MEASUREMENT	79
5.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	79
5.5.2	TEST SETUP	79
5.5.3	TEST INSTRUMENTS	79
5.5.4	TEST PROCEDURE	79
5.5.5	DEVIATION FROM TEST STANDARD	79
5.5.6	EUT OPERATING CONDITION	79
5.5.7	TEST RESULTS	80
5.6	CONDUCTED OUT OF BAND EMISSION MEASUREMENT	81



A D T

5.6.1	LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT	81
5.6.2	TEST SETUP	81
5.6.3	TEST INSTRUMENTS	81
5.6.4	TEST PROCEDURE	81
5.6.5	DEVIATION FROM TEST STANDARD	81
5.6.6	EUT OPERATING CONDITION	81
5.6.7	TEST RESULTS	81
6.	PHOTOGRAPHS OF THE TEST CONFIGURATION.....	86
7.	INFORMATION ON THE TESTING LABORATORIES	87
8.	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	88



A D T

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF120531C10	Original release	Jul. 16, 2012



A D T

1. CERTIFICATION

PRODUCT: Wireless-N 300Mbps+300Mbps Ceiling Mount Dual Band
Concurrent AP

MODEL NO.: EAP600

BRAND: EnGenius

APPLICANT: EnGenius Technologies

TESTED: May 09 ~ Jun. 27, 2012

TEST SAMPLE: ENGINEERING SAMPLE

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

ANSI C63.10-2009

The above equipment (model: EAP600) 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 :** Jul. 16, 2012
Pettie Chen / Specialist

APPROVED BY :  , **DATE :** Jul. 16, 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 -10.83dB at 3.34375MHz.
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 2483.50, 5725.00MHz.
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 IPEX 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	Wireless-N 300Mbps+300Mbps Ceiling Mount Dual Band Concurrent AP
MODEL NO.	EAP600
POWER SUPPLY	12Vdc (Adapter) 48Vdc (PoE)
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 802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300.0Mbps
OPERATING FREQUENCY	2.4GHz: 2412 ~ 2462MHz 5.0GHz: 5745 ~ 5825MHz
NUMBER OF CHANNEL	2.4GHz: 11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz) 5.0GHz: 5 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)
OUTPUT POWER	980.30mW for 2412 ~ 2462MHz 737.35mW for 5745 ~ 5825MHz
ANTENNA TYPE	PIFA antenna with 2dBi gain
ANTENNA CONNECTOR	IPEX
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Adapter

NOTE:

- The frequency bands used in this EUT are listed as follows:

Frequency Band (MHz)	2412~2462	5180~5240	5745~5825
802.11b	√		
802.11g	√		
802.11a		√	√
802.11n (20MHz)	√	√	√
802.11n (40MHz)	√	√	√

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

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

3. The EUT uses following adapter and POE.

ADAPTER	
BRAND:	Powertron
MODEL:	PA1024-2HUB
INPUT:	100-240Vac, 50-60Hz, 0.6A
OUTPUT:	12Vdc, 2.0A, 24.0W
POWER LINE:	1.5m non-shielded cable with one core

POE	
MODEL:	PD-6083G300
INPUT:	100-250Vac, 50/60Hz, 0.5A
OUTPUT:	48Vdc, 0.35A

*POE as above is provided as support unit only.

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

3.2 DESCRIPTION OF TEST MODES

FOR 2.4GHz:

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		

FOR 5.0GHz (5745 ~ 5825MHz):

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
151	5755MHz	159	5795MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

FOR 2.4GHz:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE $\geq$ 1G	RE<1G	PLC	APCM	
A	√	√	√	√	Power from adapter
B	-	√	√	-	Power from PoE

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

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

NOTE:

The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.

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	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
A	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	802.11g	1 to 7	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	802.11g	1 to 7	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	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
A	802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	7.2
A	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)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
A	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	15.0



A D T

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	Chris Lin
PLC	23deg. C, 66%RH	120Vac, 60Hz	Ben Huang
APCM	25deg. C, 65%RH	120Vac, 60Hz	Mark Liao

FOR 5.0GHz (5745 ~ 5825MHz):

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

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

NOTE:

The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.

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	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
A	802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	7.2
A	802.11n (40MHz)	151 to 159	151, 159	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)	149 to 165	165	OFDM	BPSK	7.2

POWER LINE CONDUCTED EMISSION TEST:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B	802.11n (20MHz)	149 to 165	165	OFDM	BPSK	7.2

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	802.11a	149 to 165	149, 165	OFDM	BPSK	6.0
A	802.11n (20MHz)	149 to 165	149, 165	OFDM	BPSK	7.2
A	802.11n (40MHz)	151 to 159	151, 159	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)
A	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
A	802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	7.2
A	802.11n (40MHz)	151 to 159	151, 159	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	Chris Lin
PLC	23deg. C, 66%RH	120Vac, 60Hz	Ben Huang
APCM	25deg. C, 65%RH	120Vac, 60Hz	Mark Liao

**A D T**

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	E5410	1HC2XM1	FCC DoC Approved

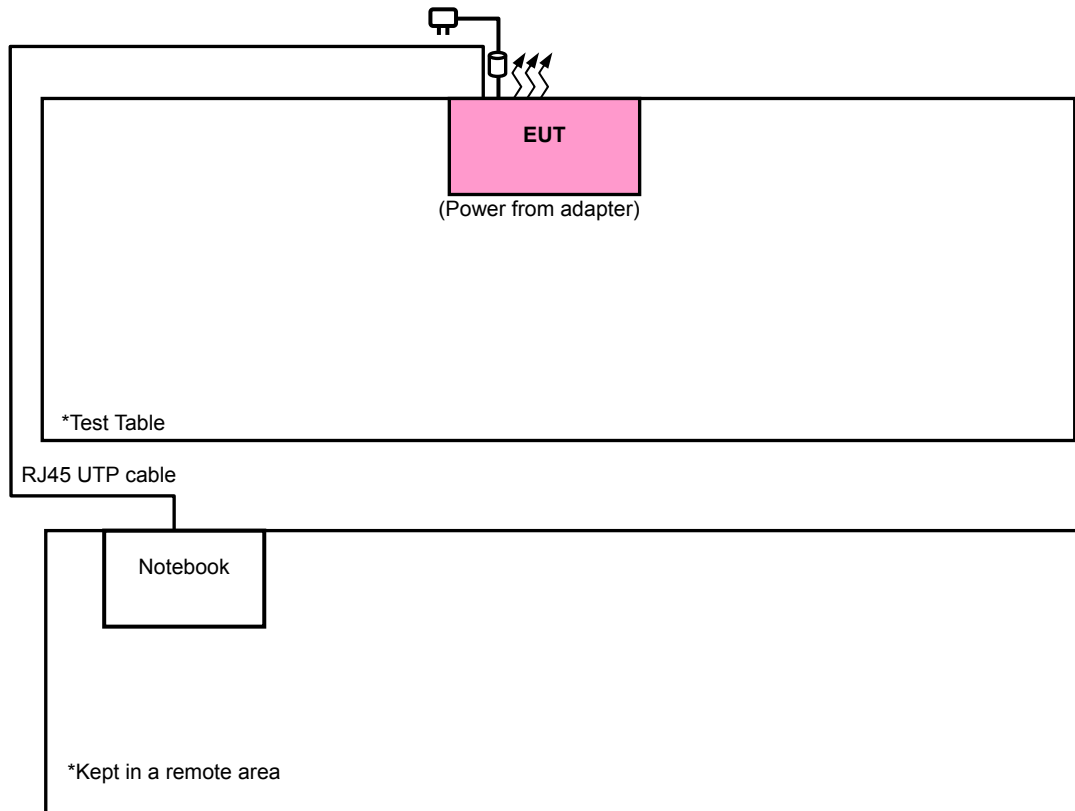
NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m RJ45 UTP cable

NOTE:

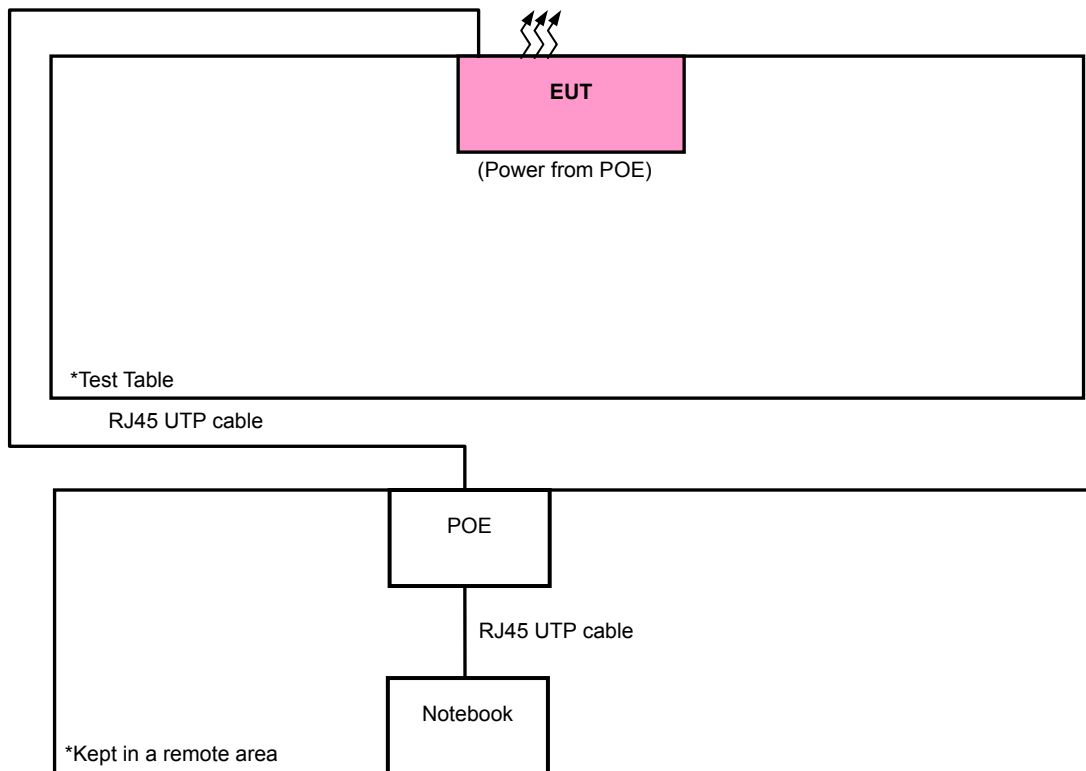
1. All power cords of the above support units are non shielded (1.8m).
2. Item 1 acted as communication partner to transfer data.

3.3.1 CONFIGURATION OF SYSTEM UNDER TEST

Test Mode A



Test Mode B



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 (FOR 2.4GHz BAND)

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 30dB 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.

**A D T**

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. 02, 2011	Aug. 01, 2012
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Jul. 21, 2011	Jul. 20, 2012
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Apr. 06, 2012	Apr. 05, 2013
HORN Antenna SCHWARZBECK	9120D	209	Aug. 25, 2011	Aug. 24, 2012
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 20, 2011	Jul. 19, 2012
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. 30, 2011	Aug. 29, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 106	12738/6+309224/4	Aug. 30, 2011	Aug. 29, 2012
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.

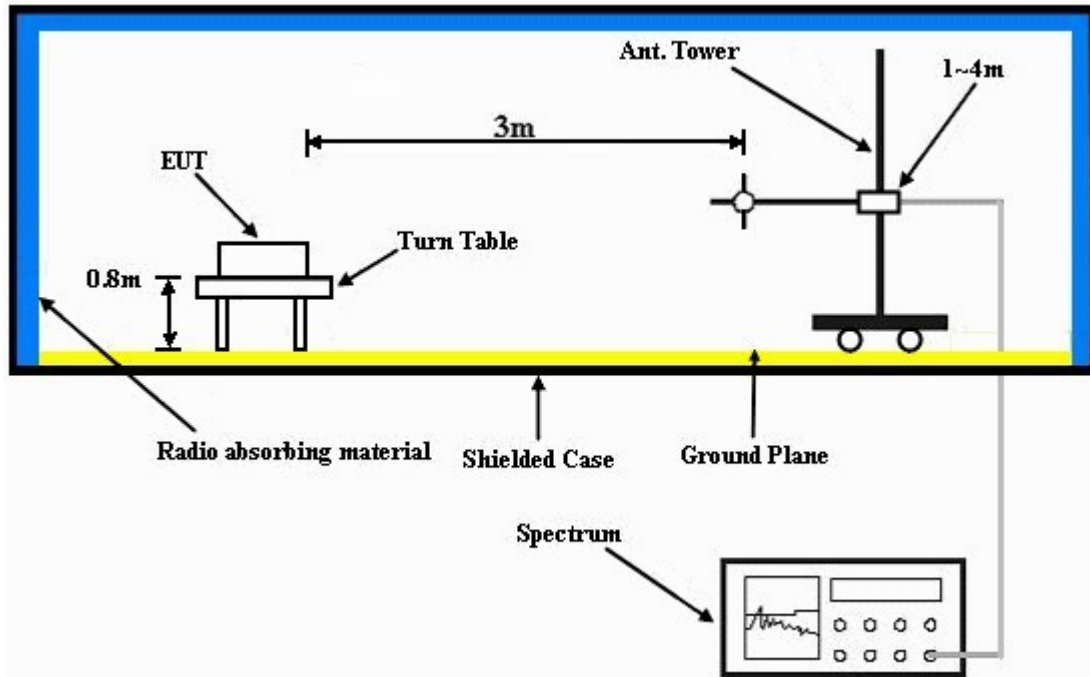
NOTE:

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".



A D T

4.1.7 TEST RESULTS

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

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	71.5 PK	74.0	-2.5	1.29 H	103	40.20	31.30
2	2390.00	47.3 AV	54.0	-6.7	1.29 H	103	16.00	31.30
3	*2412.00	108.9 PK			1.33 H	288	77.50	31.40
4	*2412.00	107.0 AV			1.33 H	288	75.60	31.40
5	4824.00	45.2 PK	74.0	-28.8	1.00 H	128	8.00	37.20
6	4824.00	34.3 AV	54.0	-19.7	1.00 H	128	-2.90	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	72.6 PK	74.0	-1.4	1.20 V	0	41.30	31.30
2	2390.00	46.2 AV	54.0	-7.8	1.20 V	0	14.90	31.30
3	*2412.00	110.3 PK			1.00 V	351	78.90	31.40
4	*2412.00	106.3 AV			1.00 V	351	74.90	31.40
5	4824.00	48.6 PK	74.0	-25.4	1.00 V	351	11.40	37.20
6	4824.00	42.0 AV	54.0	-12.0	1.00 V	351	4.80	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

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	116.4 PK			1.05 H	20	84.90	31.50
2	*2437.00	112.1 AV			1.05 H	20	80.60	31.50
3	4874.00	48.9 PK	74.0	-25.1	1.00 H	197	11.60	37.30
4	4874.00	42.5 AV	54.0	-11.5	1.00 H	197	5.20	37.30
5	7311.00	52.4 PK	74.0	-21.6	1.03 H	360	8.90	43.50
6	7311.00	40.5 AV	54.0	-13.5	1.03 H	360	-3.00	43.50
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	*2437.00	118.5 PK			1.00 V	0	87.00	31.50
2	*2437.00	114.6 AV			1.00 V	0	83.10	31.50
3	4874.00	53.1 PK	74.0	-20.9	1.00 V	353	15.80	37.30
4	4874.00	50.1 AV	54.0	-3.9	1.00 V	353	12.80	37.30
5	7311.00	54.0 PK	74.0	-20.0	1.00 V	360	10.50	43.50
6	7311.00	43.4 AV	54.0	-10.6	1.00 V	360	-0.10	43.50

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 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

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	114.5 PK			1.04 H	15	82.90	31.60
2	*2462.00	110.3 AV			1.04 H	15	78.70	31.60
3	2483.50	72.9 PK	74.0	-1.1	1.02 H	14	41.30	31.60
4	2483.50	49.0 AV	54.0	-5.0	1.02 H	14	17.40	31.60
5	4924.00	46.7 PK	74.0	-27.3	1.00 H	185	9.30	37.40
6	4924.00	34.5 AV	54.0	-19.5	1.00 H	185	-2.90	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	114.7 PK			1.18 V	350	83.10	31.60
2	*2462.00	110.7 AV			1.18 V	350	79.10	31.60
3	2483.50	67.1 PK	74.0	-6.9	1.18 V	353	35.50	31.60
4	2483.50	52.4 AV	54.0	-1.6	1.18 V	353	20.80	31.60
5	4924.00	47.9 PK	74.0	-26.1	1.00 V	337	10.50	37.40
6	4924.00	41.1 AV	54.0	-12.9	1.00 V	337	3.70	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

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

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	68.5 PK	74.0	-5.5	1.33 H	155	37.20	31.30
2	2390.00	50.8 AV	54.0	-3.2	1.33 H	155	19.50	31.30
3	*2412.00	108.6 PK			1.07 H	158	77.20	31.40
4	*2412.00	99.3 AV			1.07 H	158	67.90	31.40
5	4824.00	45.3 PK	74.0	-28.7	1.03 H	67	8.10	37.20
6	4824.00	32.2 AV	54.0	-21.8	1.03 H	67	-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	69.5 PK	74.0	-4.5	1.24 V	21	38.20	31.30
2	2390.00	52.8 AV	54.0	-1.2	1.24 V	21	21.50	31.30
3	*2412.00	109.8 PK			1.21 V	18	78.40	31.40
4	*2412.00	100.4 AV			1.21 V	18	69.00	31.40
5	4824.00	45.4 PK	74.0	-28.6	1.00 V	62	8.20	37.20
6	4824.00	32.3 AV	54.0	-21.7	1.00 V	62	-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

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	70.5 PK	74.0	-3.5	1.07 H	126	39.20	31.30
2	2390.00	51.5 AV	54.0	-2.5	1.07 H	126	20.20	31.30
3	*2437.00	117.1 PK			1.35 H	158	85.60	31.50
4	*2437.00	107.9 AV			1.35 H	158	76.40	31.50
5	4874.00	45.4 PK	74.0	-28.6	1.00 H	125	8.10	37.30
6	4874.00	32.9 AV	54.0	-21.1	1.00 H	125	-4.40	37.30
7	7311.00	50.9 PK	74.0	-23.1	1.00 H	224	7.40	43.50
8	7311.00	39.0 AV	54.0	-15.0	1.00 H	224	-4.50	43.50
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	2390.00	72.3 PK	74.0	-1.7	1.53 V	134	41.00	31.30
2	2390.00	52.6 AV	54.0	-1.4	1.53 V	134	21.30	31.30
3	*2437.00	120.4 PK			1.52 V	0	88.90	31.50
4	*2437.00	110.1 AV			1.52 V	0	78.60	31.50
5	4874.00	42.7 PK	74.0	-31.3	1.00 V	148	5.40	37.30
6	4874.00	29.2 AV	54.0	-24.8	1.00 V	148	-8.10	37.30
7	7311.00	51.5 PK	74.0	-22.5	1.03 V	139	8.00	43.50
8	7311.00	40.0 AV	54.0	-14.0	1.03 V	139	-3.50	43.50

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 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

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	109.1 PK			1.31 H	338	77.50	31.60
2	*2462.00	103.4 AV			1.31 H	338	71.80	31.60
3	2483.50	71.9 PK	74.0	-2.1	1.08 H	360	40.30	31.60
4	2483.50	52.7 AV	54.0	-1.3	1.08 H	360	21.10	31.60
5	4924.00	51.6 PK	74.0	-22.4	1.02 H	120	14.20	37.40
6	4924.00	38.6 AV	54.0	-15.4	1.02 H	120	1.20	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	111.6 PK			1.41 V	234	80.00	31.60
2	*2462.00	102.3 AV			1.41 V	234	70.70	31.60
3	2483.50	71.3 PK	74.0	-2.7	1.36 V	258	39.70	31.60
4	2483.50	52.9 AV	54.0	-1.1	1.36 V	258	21.30	31.60
5	4924.00	51.3 PK	74.0	-22.7	1.12 V	148	13.90	37.40
6	4924.00	38.8 AV	54.0	-15.2	1.12 V	148	1.40	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

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

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	1.34 H	52	34.80	31.30
2	2390.00	52.7 AV	54.0	-1.3	1.34 H	52	21.40	31.30
3	*2412.00	106.4 PK			1.00 H	159	75.00	31.40
4	*2412.00	96.0 AV			1.00 H	159	64.60	31.40
5	4824.00	45.1 PK	74.0	-28.9	1.25 H	102	7.90	37.20
6	4824.00	32.4 AV	54.0	-21.6	1.25 H	102	-4.80	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	70.5 PK	74.0	-3.5	1.59 V	2	39.20	31.30
2	2390.00	51.8 AV	54.0	-2.2	1.59 V	2	20.50	31.30
3	*2412.00	109.2 PK			1.25 V	10	77.80	31.40
4	*2412.00	100.0 AV			1.25 V	10	68.60	31.40
5	4824.00	45.2 PK	74.0	-28.8	1.07 V	320	8.00	37.20
6	4824.00	32.0 AV	54.0	-22.0	1.07 V	320	-5.20	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

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	70.7 PK	74.0	-3.3	1.14 H	121	39.40	31.30
2	2390.00	52.0 AV	54.0	-2.0	1.14 H	121	20.70	31.30
3	*2437.00	116.9 PK			1.32 H	158	85.40	31.50
4	*2437.00	107.9 AV			1.32 H	158	76.40	31.50
5	4874.00	45.0 PK	74.0	-29.0	1.00 H	98	7.70	37.30
6	4874.00	32.7 AV	54.0	-21.3	1.00 H	98	-4.60	37.30
7	7311.00	51.6 PK	74.0	-22.4	1.05 H	101	8.10	43.50
8	7311.00	38.3 AV	54.0	-15.7	1.05 H	101	-5.20	43.50
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	2390.00	72.6 PK	74.0	-1.4	1.25 V	140	41.30	31.30
2	2390.00	52.8 AV	54.0	-1.2	1.25 V	140	21.50	31.30
3	*2437.00	120.5 PK			1.49 V	0	89.00	31.50
4	*2437.00	110.7 AV			1.49 V	0	79.20	31.50
5	4874.00	47.8 PK	74.0	-26.2	1.00 V	0	10.50	37.30
6	4874.00	35.9 AV	54.0	-18.1	1.00 V	0	-1.40	37.30
7	7311.00	51.1 PK	74.0	-22.9	1.25 V	144	7.60	43.50
8	7311.00	39.9 AV	54.0	-14.1	1.25 V	144	-3.60	43.50

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 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

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			1.05 H	161	79.10	31.60
2	*2462.00	101.1 AV			1.05 H	161	69.50	31.60
3	2483.50	70.7 PK	74.0	-3.3	1.00 H	160	39.10	31.60
4	2483.50	52.7 AV	54.0	-1.3	1.00 H	160	21.10	31.60
5	4924.00	44.8 PK	74.0	-29.2	1.05 H	244	7.40	37.40
6	4924.00	32.5 AV	54.0	-21.5	1.05 H	244	-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	112.5 PK			1.22 V	360	80.90	31.60
2	*2462.00	103.1 AV			1.22 V	360	71.50	31.60
3	2483.50	68.0 PK	74.0	-6.0	1.00 V	176	36.40	31.60
4	2483.50	52.3 AV	54.0	-1.7	1.00 V	176	20.70	31.60
5	4924.00	45.9 PK	74.0	-28.1	1.24 V	233	8.50	37.40
6	4924.00	32.2 AV	54.0	-21.8	1.24 V	233	-5.20	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

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

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	68.1 PK	74.0	-5.9	1.13 H	350	36.80	31.30
2	2390.00	52.3 AV	54.0	-1.7	1.13 H	350	21.00	31.30
3	*2422.00	105.4 PK			1.32 H	53	74.00	31.40
4	*2422.00	96.1 AV			1.32 H	53	64.70	31.40
5	4844.00	45.4 PK	74.0	-28.6	1.00 H	101	8.10	37.30
6	4844.00	32.6 AV	54.0	-21.4	1.00 H	101	-4.70	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	68.7 PK	74.0	-5.3	1.00 V	79	37.40	31.30
2	2390.00	52.8 AV	54.0	-1.2	1.00 V	79	21.50	31.30
3	*2422.00	106.9 PK			1.52 V	31	75.50	31.40
4	*2422.00	97.0 AV			1.52 V	31	65.60	31.40
5	4844.00	45.8 PK	74.0	-28.2	1.10 V	49	8.50	37.30
6	4844.00	34.0 AV	54.0	-20.0	1.10 V	49	-3.30	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

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	69.4 PK	74.0	-4.6	1.33 H	139	38.10	31.30
2	2390.00	52.7 AV	54.0	-1.3	1.33 H	139	21.40	31.30
3	*2437.00	107.6 PK			1.33 H	139	76.10	31.50
4	*2437.00	98.3 AV			1.33 H	139	66.80	31.50
5	4874.00	45.2 PK	74.0	-28.8	1.25 H	321	7.90	37.30
6	4874.00	33.0 AV	54.0	-21.0	1.25 H	321	-4.30	37.30
7	7311.00	51.3 PK	74.0	-22.7	1.00 H	124	7.80	43.50
8	7311.00	38.5 AV	54.0	-15.5	1.00 H	124	-5.00	43.50
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	2390.00	69.0 PK	74.0	-5.0	1.25 V	164	37.70	31.30
2	2390.00	52.9 AV	54.0	-1.1	1.25 V	164	21.60	31.30
3	*2437.00	108.0 PK			1.20 V	163	76.50	31.50
4	*2437.00	98.6 AV			1.20 V	163	67.10	31.50
5	4874.00	46.0 PK	74.0	-28.0	1.06 V	88	8.70	37.30
6	4874.00	34.9 AV	54.0	-19.1	1.06 V	88	-2.40	37.30
7	7311.00	51.1 PK	74.0	-22.9	1.10 V	241	7.60	43.50
8	7311.00	38.6 AV	54.0	-15.4	1.10 V	241	-4.90	43.50

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 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

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	103.7 PK			1.31 H	56	72.20	31.50
2	*2452.00	94.8 AV			1.31 H	56	63.30	31.50
3	2483.50	69.1 PK	74.0	-4.9	1.27 H	56	37.50	31.60
4	2483.50	53.0 AV	54.0	-1.0	1.27 H	56	21.40	31.60
5	4904.00	44.8 PK	74.0	-29.2	1.05 H	156	7.40	37.40
6	4904.00	32.8 AV	54.0	-21.2	1.05 H	156	-4.60	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	105.6 PK			1.21 V	16	74.10	31.50
2	*2452.00	96.5 AV			1.21 V	16	65.00	31.50
3	2483.50	71.1 PK	74.0	-2.9	1.21 V	15	39.50	31.60
4	2483.50	52.9 AV	54.0	-1.1	1.21 V	15	21.30	31.60
5	4904.00	45.3 PK	74.0	-28.7	1.05 V	56	7.90	37.40
6	4904.00	32.9 AV	54.0	-21.1	1.05 V	56	-4.50	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 : 802.11g

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, 68%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	90.17	36.5 QP	43.5	-7.0	1.99 H	130	28.30	8.20
2	179.61	34.4 QP	43.5	-9.1	1.50 H	250	21.80	12.60
3	255.44	35.3 QP	46.0	-10.7	1.00 H	90	22.10	13.20
4	374.04	31.9 QP	46.0	-14.1	1.99 H	250	15.00	16.90
5	675.40	33.2 QP	46.0	-12.8	1.24 H	128	10.40	22.80
6	902.89	35.8 QP	46.0	-10.2	1.00 H	266	9.00	26.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.00	37.5 QP	40.0	-2.5	1.24 V	163	25.70	11.80
2	88.23	38.2 QP	43.5	-5.3	1.00 V	89	29.70	8.50
3	148.50	33.6 QP	43.5	-9.9	1.00 V	302	19.50	14.10
4	224.33	32.3 QP	46.0	-13.7	1.00 V	132	20.30	12.00
5	274.88	27.9 QP	46.0	-18.1	1.24 V	217	13.90	14.00
6	374.04	34.5 QP	46.0	-11.5	1.00 V	211	17.60	16.90

REMARKS:

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



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, 68%RH	TESTED BY	Chris Lin
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	191.28	34.6 QP	43.5	-8.9	1.25 H	235	22.90	11.70
2	255.44	34.7 QP	46.0	-11.3	1.25 H	107	21.50	13.20
3	374.04	38.0 QP	46.0	-8.0	1.00 H	220	21.10	16.90
4	500.42	35.8 QP	46.0	-10.2	2.00 H	202	15.80	20.00
5	624.85	35.9 QP	46.0	-10.1	1.25 H	193	13.60	22.30
6	875.67	33.9 QP	46.0	-12.1	1.50 H	201	7.40	26.50
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	55.18	36.9 QP	40.0	-3.1	1.50 V	26	23.20	13.70
2	255.44	35.1 QP	46.0	-10.9	1.00 V	258	21.90	13.20
3	374.04	35.8 QP	46.0	-10.2	1.24 V	192	18.90	16.90
4	500.42	36.3 QP	46.0	-9.7	1.00 V	207	16.30	20.00
5	624.85	33.2 QP	46.0	-12.8	1.00 V	102	10.90	22.30
6	875.67	32.8 QP	46.0	-13.2	1.24 V	106	6.30	26.50

REMARKS:

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

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	100291	Nov. 23, 2011	Nov. 22, 2012
RF signal cable Woken	5D-FB	Cable-HYC01-01	Dec. 29, 2011	Dec. 28, 2012
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Jul. 02, 2012	Jul. 01, 2013
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Feb. 07, 2012	Feb. 06, 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 1.
3. The VCCI Site Registration No. is C-2040.

4.2.3 TEST PROCEDURES

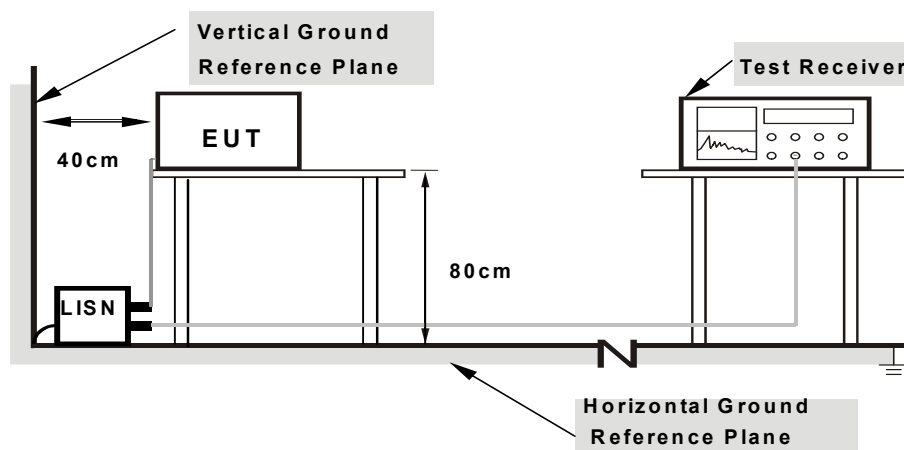
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



Note: 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

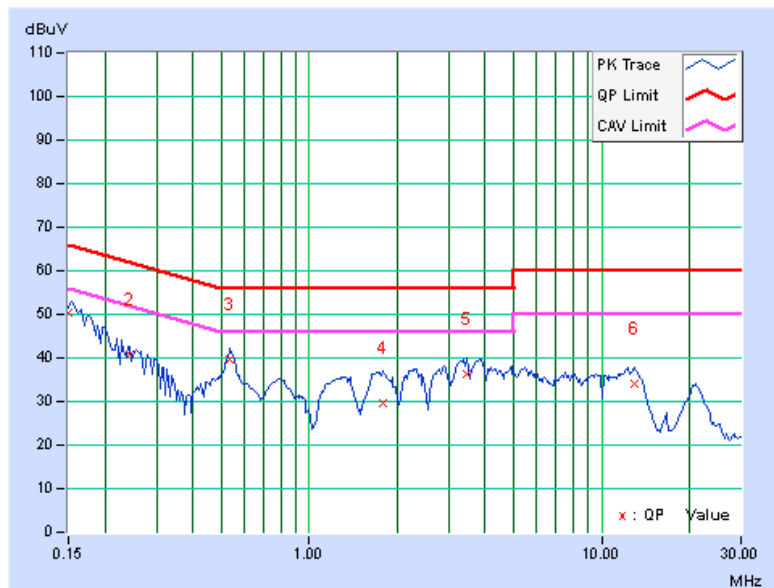
CONDUCTED WORST-CASE DATA : 802.11g

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	0.15000	0.14	50.15	33.43	50.29	33.57	66.00	56.00	-15.71	-22.43
2	0.24375	0.21	40.47	27.88	40.68	28.09	61.97	51.97	-21.28	-23.87
3	0.53672	0.17	39.31	32.96	39.48	33.13	56.00	46.00	-16.52	-12.87
4	1.79688	0.23	29.37	21.67	29.60	21.90	56.00	46.00	-26.40	-24.10
5	3.45703	0.31	36.01	29.68	36.32	29.99	56.00	46.00	-19.68	-16.01
6	12.89453	0.66	33.40	27.45	34.06	28.11	60.00	50.00	-25.94	-21.89

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.

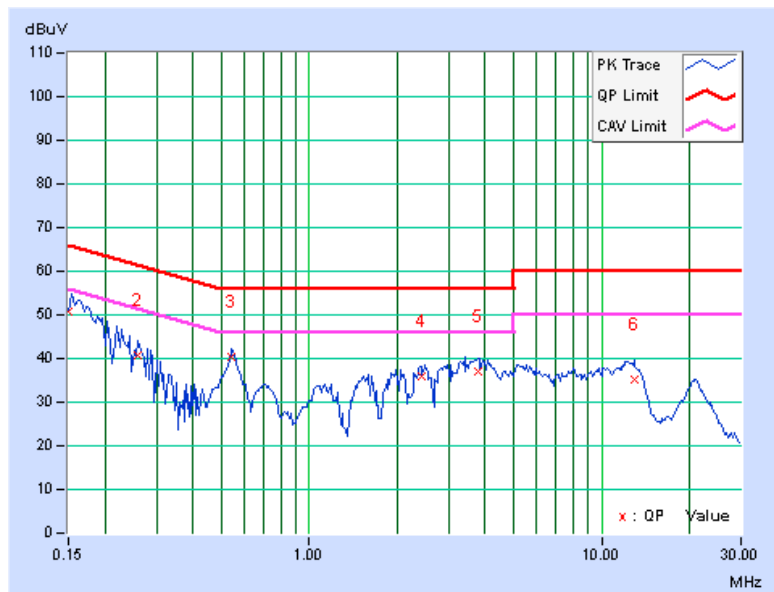


PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	A		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	0.23	50.35	34.08	50.58	34.31	66.00	56.00	-15.42	-21.69
2	0.25938	0.29	40.56	28.39	40.85	28.68	61.45	51.45	-20.60	-22.77
3	0.54453	0.26	40.08	34.26	40.34	34.52	56.00	46.00	-15.66	-11.48
4	2.41797	0.36	35.39	30.21	35.75	30.57	56.00	46.00	-20.25	-15.43
5	3.77344	0.44	36.66	31.45	37.10	31.89	56.00	46.00	-18.90	-14.11
6	12.91406	0.75	34.48	29.25	35.23	30.00	60.00	50.00	-24.77	-20.00

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.

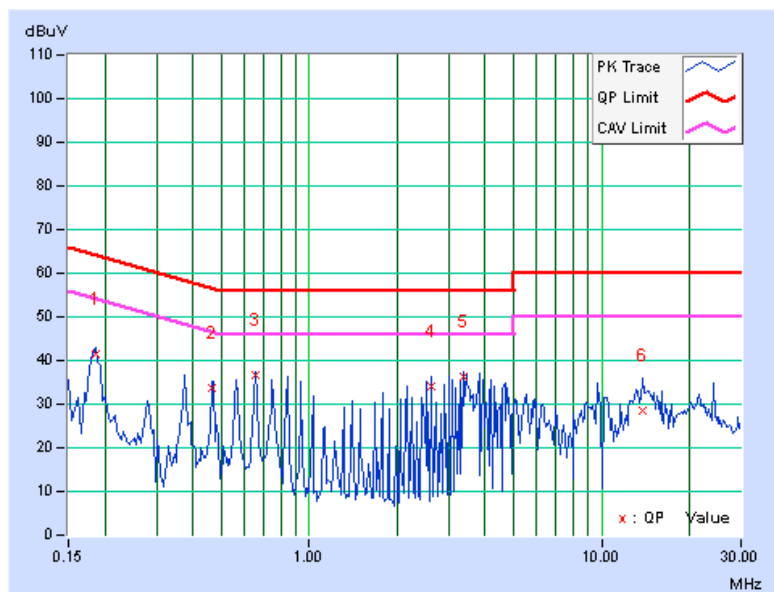


PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq. [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	0.18516	0.13	41.45	34.41	41.58	34.54	64.25	54.25	-22.68	-19.72
2	0.46641	0.14	33.65	32.38	33.79	32.52	56.58	46.58	-22.79	-14.06
3	0.65391	0.16	36.34	33.88	36.50	34.04	56.00	46.00	-19.50	-11.96
4	2.62109	0.26	33.73	32.87	33.99	33.13	56.00	46.00	-22.01	-12.87
5	3.37109	0.30	36.12	34.55	36.42	34.85	56.00	46.00	-19.58	-11.15
6	13.85938	0.84	27.79	27.21	28.63	28.05	60.00	50.00	-31.37	-21.95

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.

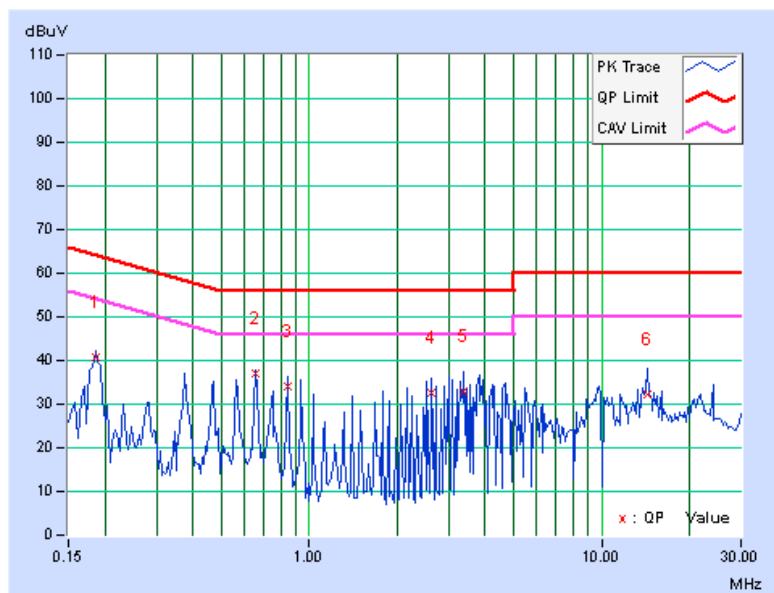


PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18516	0.14	40.73	33.95	40.87	34.09	64.25	54.25	-23.39	-20.17
2	0.65781	0.18	36.77	34.30	36.95	34.48	56.00	46.00	-19.05	-11.52
3	0.84531	0.19	33.80	28.92	33.99	29.11	56.00	46.00	-22.01	-16.89
4	2.62500	0.27	32.41	31.43	32.68	31.70	56.00	46.00	-23.32	-14.30
5	3.37500	0.31	32.57	30.73	32.88	31.04	56.00	46.00	-23.12	-14.96
6	14.35156	0.76	31.50	31.24	32.26	32.00	60.00	50.00	-27.74	-18.00

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.

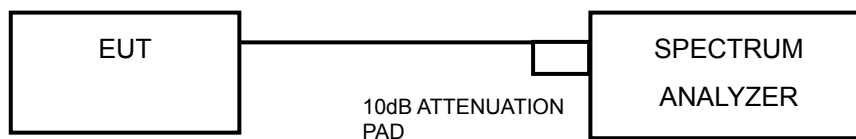


4.3 6dB BANDWIDTH MEASUREMENT

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
		CHAIN 0	CHAIN 1		
1	2412	10.29	10.29	0.5	PASS
6	2437	10.30	10.31	0.5	PASS
11	2462	10.27	10.29	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	16.49	16.53	0.5	PASS
6	2437	16.59	16.59	0.5	PASS
11	2462	16.50	16.55	0.5	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	17.66	17.82	0.5	PASS
6	2437	17.77	17.76	0.5	PASS
11	2462	17.78	17.79	0.5	PASS



A D T

802.11n (40MHz)

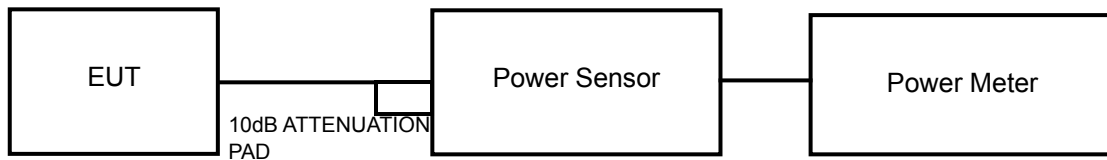
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
3	2422	37.00	36.97	0.5	PASS
6	2437	37.06	36.92	0.5	PASS
9	2452	37.17	37.22	0.5	PASS

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

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

CHAN.	FREQUENCY (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	23.40	23.50	442.65	26.46	30	PASS
6	2437	26.54	26.93	943.99	29.75	30	PASS
11	2462	26.60	26.70	924.82	29.66	30	PASS

NOTE: Directional gain = $2\text{dBi} + 10\log(2) = 5.01\text{dBi} < 6\text{dBi}$, therefore the limit no need to reduced.

802.11g

CHAN.	FREQUENCY (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	15.27	15.42	68.48	18.36	30	PASS
6	2437	26.55	27.23	980.30	29.91	30	PASS
11	2462	19.41	20.22	192.49	22.84	30	PASS

NOTE: Directional gain = $2\text{dBi} + 10\log(2) = 5.01\text{dBi} < 6\text{dBi}$, therefore the limit no need to reduced.

802.11n (20MHz)

CHAN.	FREQUENCY (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	15.47	15.54	71.05	18.52	30	PASS
6	2437	26.58	27.12	970.22	29.87	30	PASS
11	2462	18.46	19.02	149.94	21.76	30	PASS

802.11n (40MHz)

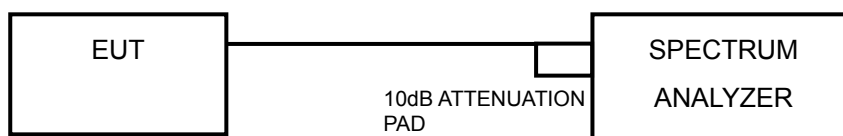
CHAN.	FREQUENCY (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
3	2422	15.00	15.40	66.30	18.21	30	PASS
6	2437	15.53	15.96	75.17	18.76	30	PASS
9	2452	14.01	14.36	52.47	17.20	30	PASS

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

TX chain	Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	5.75	-9.48	3.01	-6.47	8	PASS
	6	2437	8.66	-6.57	3.01	-3.56	8	PASS
	11	2462	8.75	-6.48	3.01	-3.47	8	PASS
1	1	2412	6.18	-9.05	3.01	-6.04	8	PASS
	6	2437	9.57	-5.66	3.01	-2.65	8	PASS
	11	2462	9.27	-5.96	3.01	-2.95	8	PASS

NOTE: Directional gain = 2dBi + 10log(2) = 5.01dBi < 6dBi , therefore the limit no need to reduced.

802.11g

TX chain	Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-4.20	-19.43	3.01	-16.42	8	PASS
	6	2437	6.86	-8.37	3.01	-5.36	8	PASS
	11	2462	-0.29	-15.52	3.01	-12.51	8	PASS
1	1	2412	-4.82	-20.05	3.01	-17.04	8	PASS
	6	2437	7.15	-8.08	3.01	-5.07	8	PASS
	11	2462	-0.22	-15.45	3.01	-12.44	8	PASS

NOTE: Directional gain = 2dBi + 10log(2) = 5.01dBi < 6dBi , therefore the limit no need to reduced.

802.11n (20MHz)

TX chain	Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-5.05	-20.28	3.01	-17.27	8	PASS
	6	2437	6.04	-9.19	3.01	-6.18	8	PASS
	11	2462	-2.00	-17.23	3.01	-14.22	8	PASS
1	1	2412	-4.77	-20.00	3.01	-16.99	8	PASS
	6	2437	6.96	-8.27	3.01	-5.26	8	PASS
	11	2462	-1.38	-16.61	3.01	-13.60	8	PASS

802.11n (40MHz)

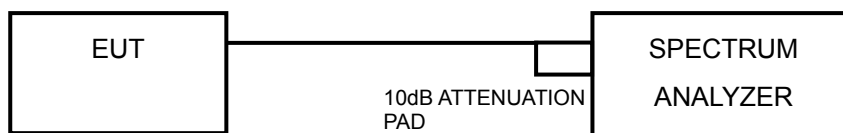
TX chain	Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	3	2422	-6.67	-21.90	3.01	-18.89	8	PASS
	6	2437	-6.90	-22.13	3.01	-19.12	8	PASS
	9	2452	-8.40	-23.63	3.01	-20.62	8	PASS
1	3	2422	-5.53	-20.76	3.01	-17.75	8	PASS
	6	2437	-6.51	-21.74	3.01	-18.73	8	PASS
	9	2452	-8.29	-23.52	3.01	-20.51	8	PASS

4.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT

Below -30dB 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 = rms.
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 = rms.
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

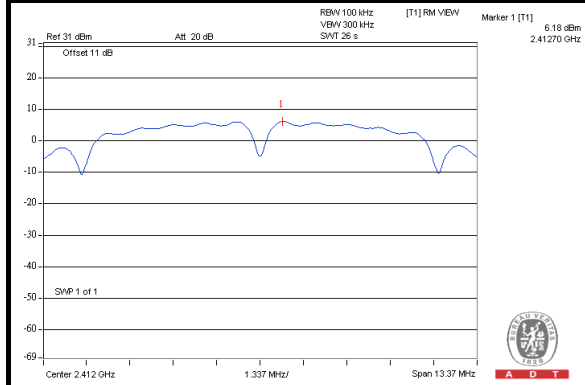
The conducted emission test is performed on each TX port of operating mode without summing or adding $10\log(N)$ since the limit is relative emission limit. Only worst data of each operating mode is presented.

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.

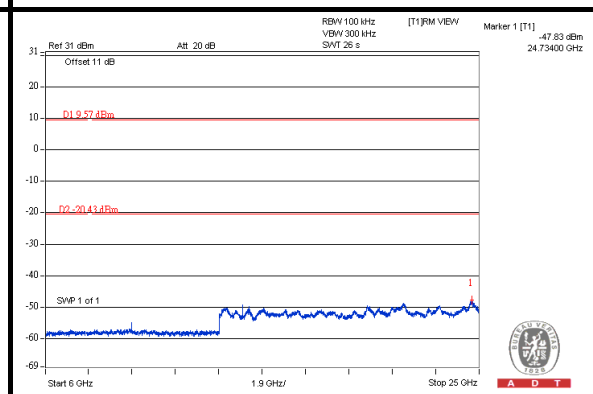
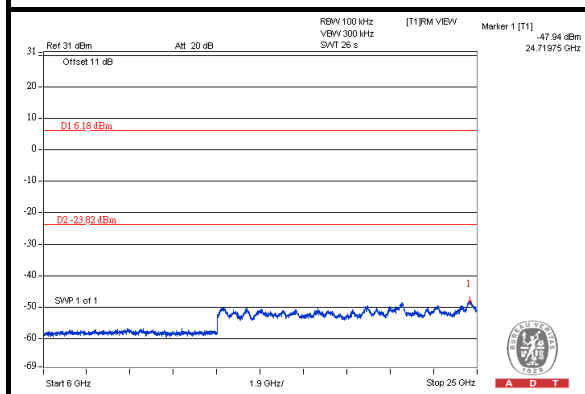
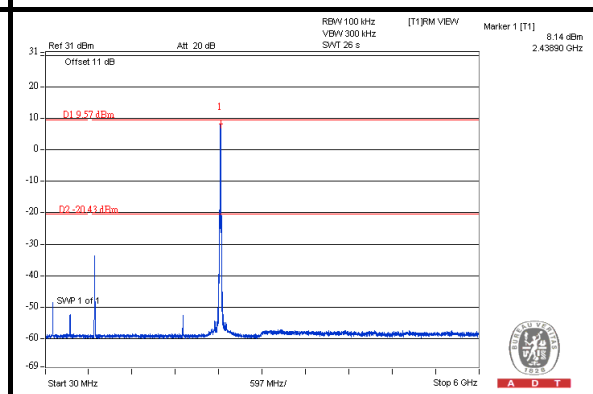
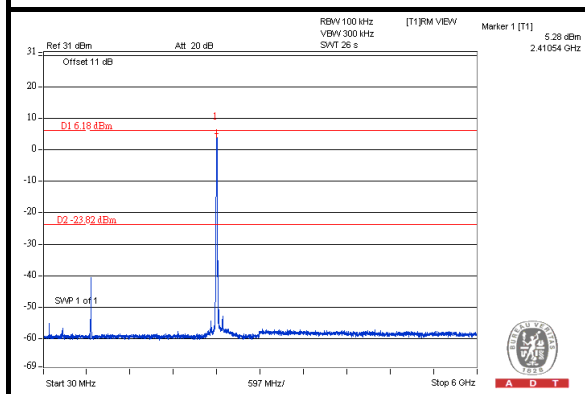
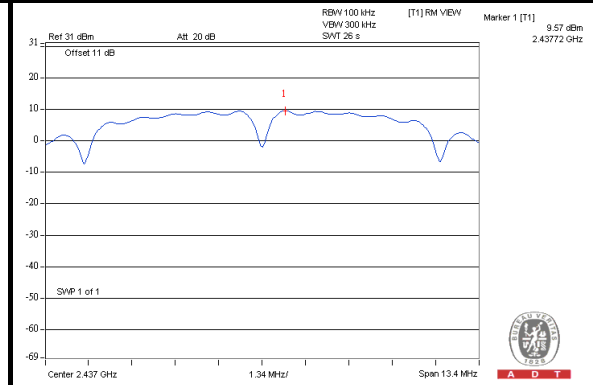


A D T

802.11b CH 1



802.11b CH 6

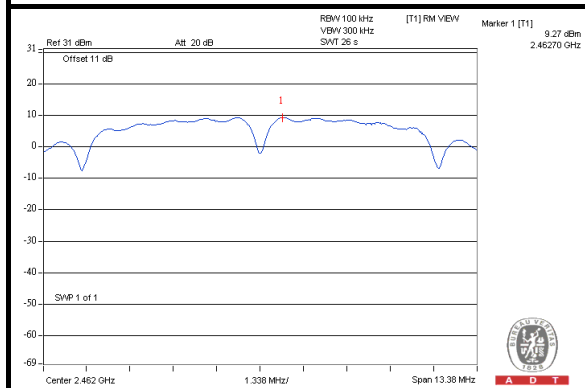




A D T

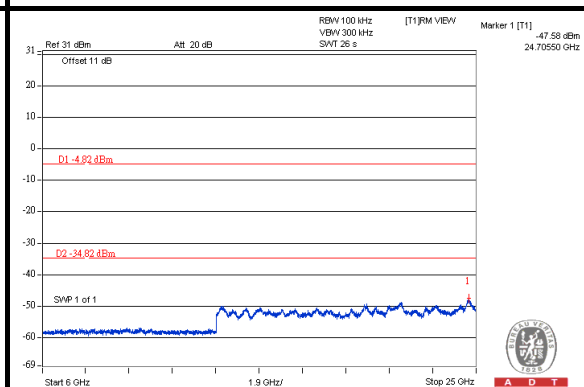
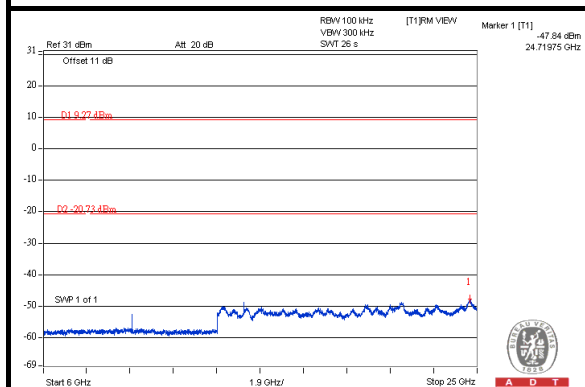
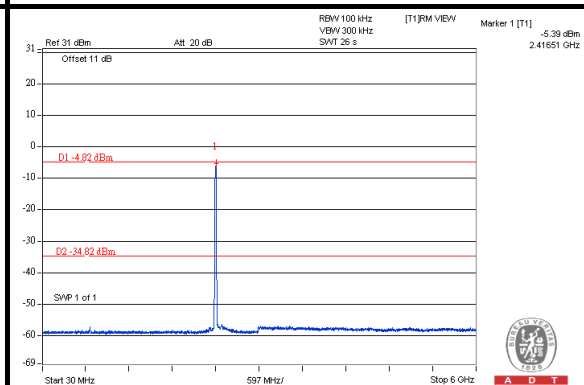
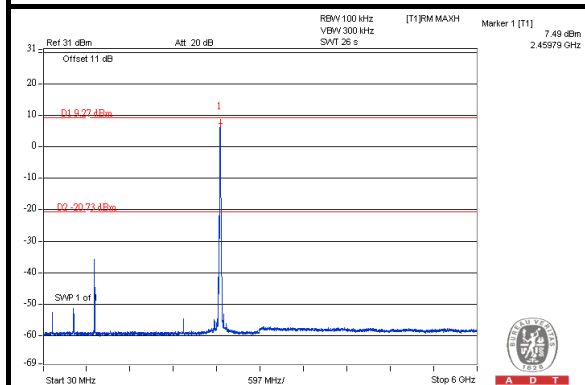
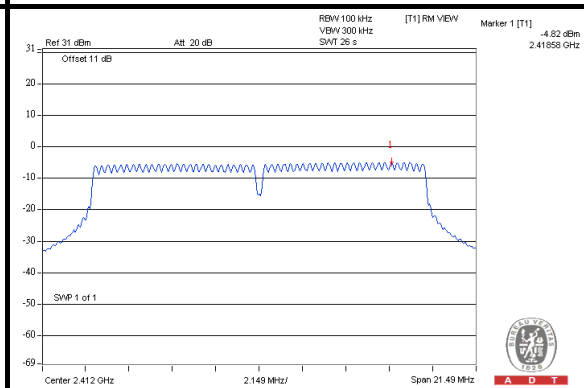
802.11b

CH 11



802.11g

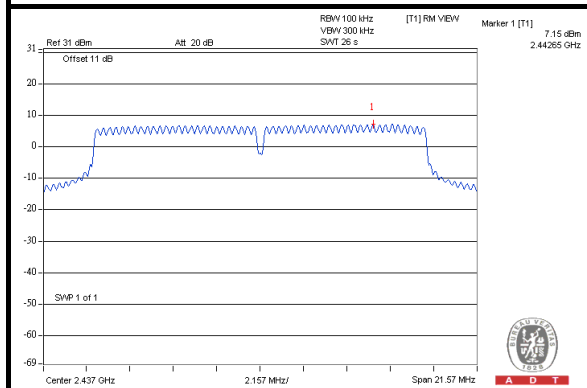
CH 1



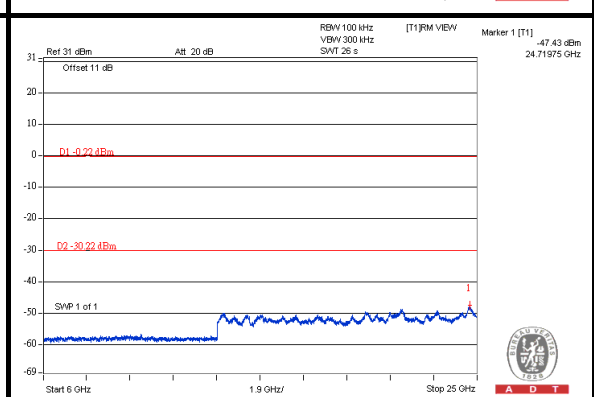
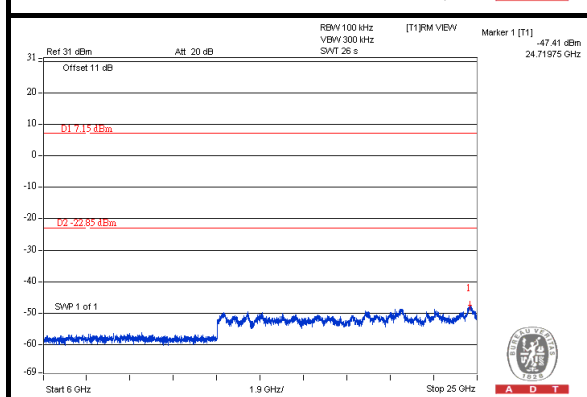
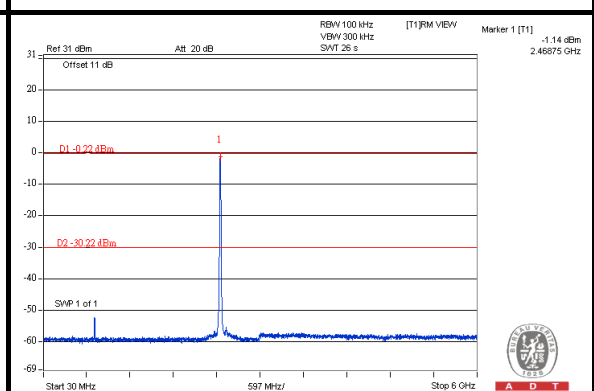
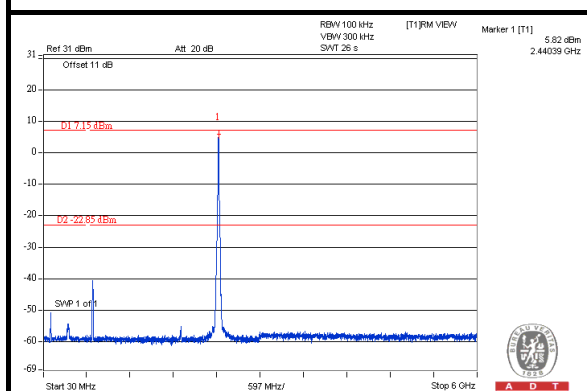
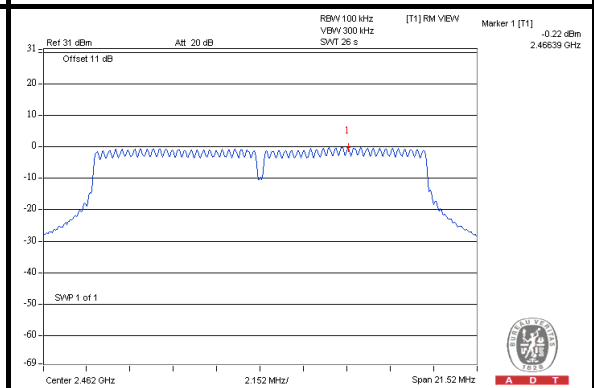


A D T

802.11g
CH 6

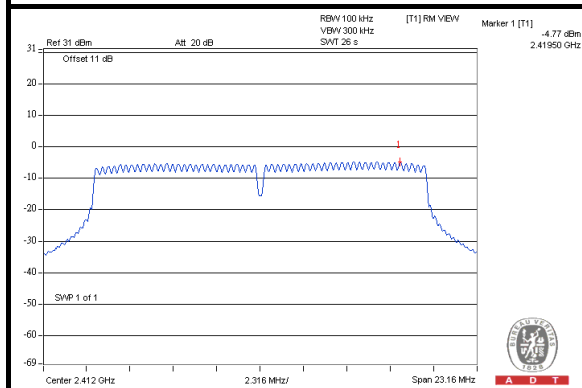


802.11g
CH 11



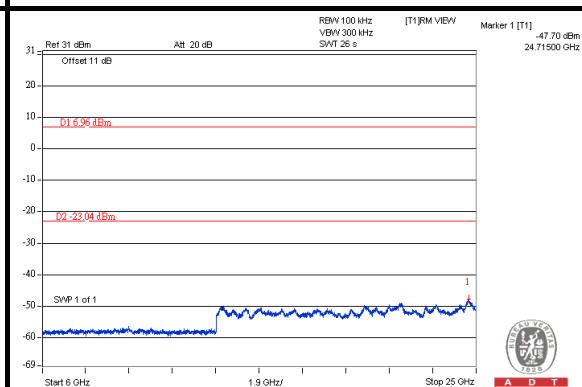
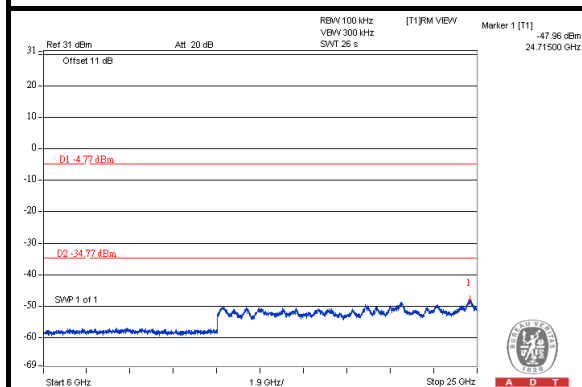
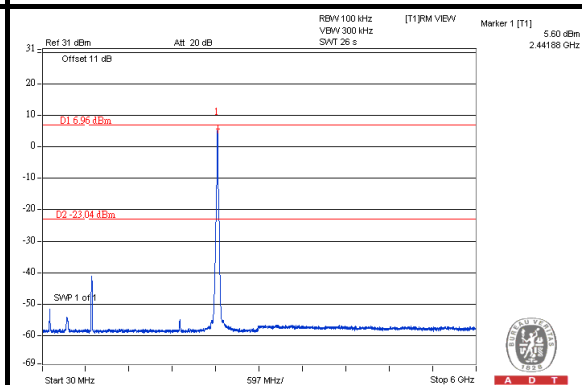
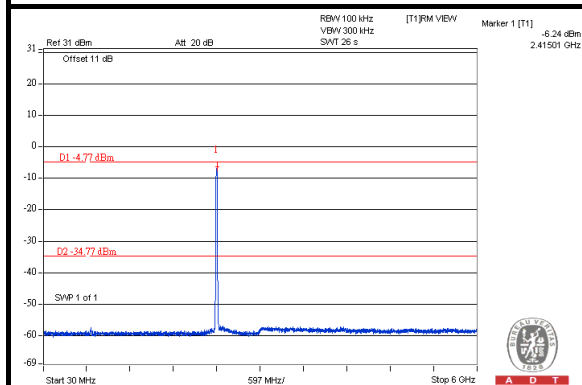
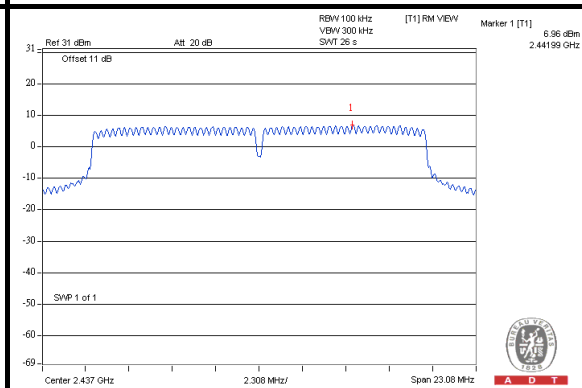
802.11n(20MHz)

CH 1



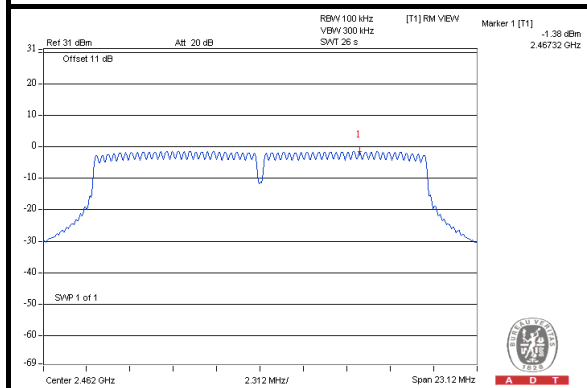
802.11n(20MHz)

CH 6



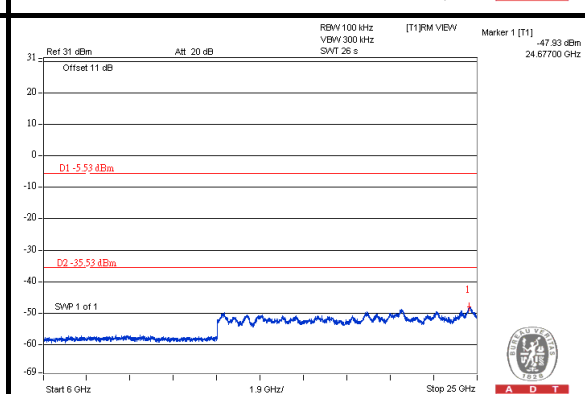
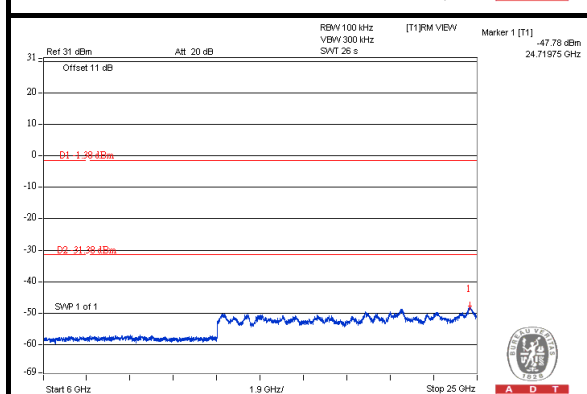
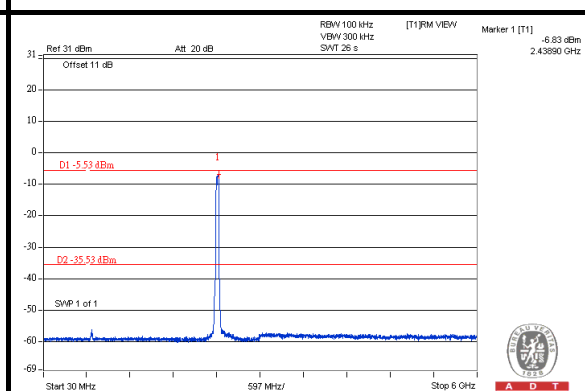
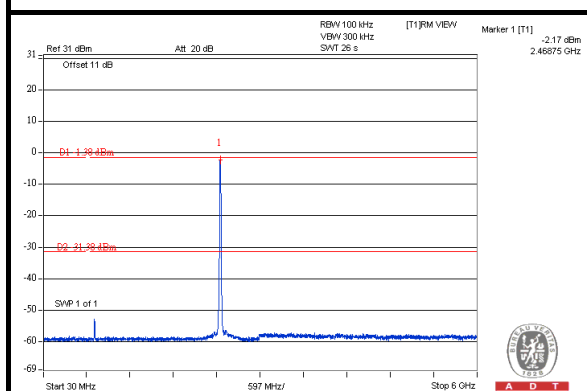
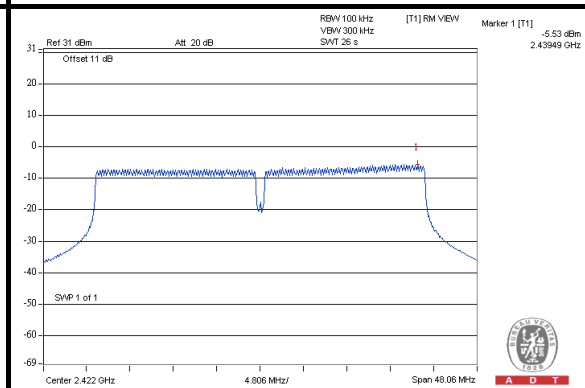
802.11n(20MHz)

CH 11



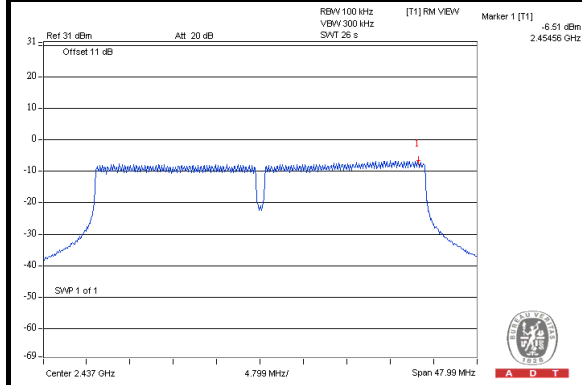
802.11n(40MHz)

CH 3



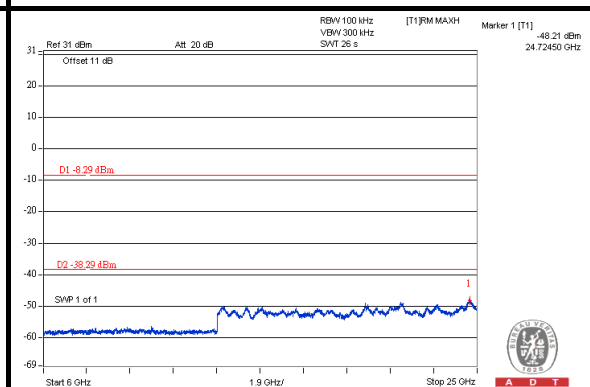
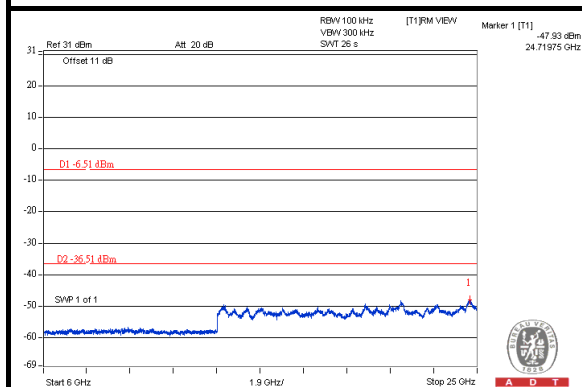
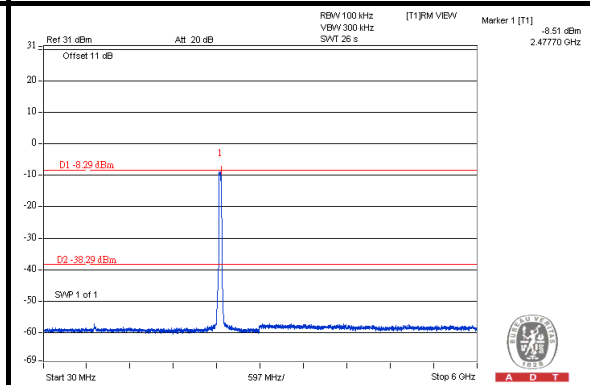
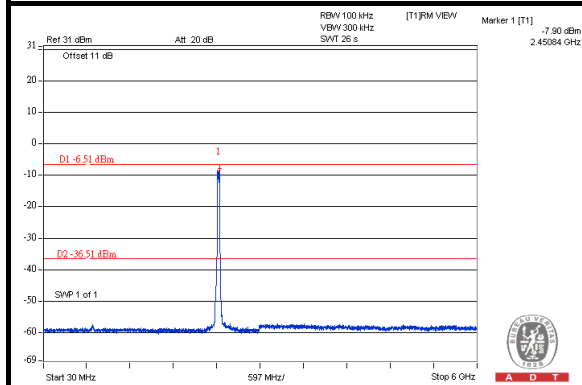
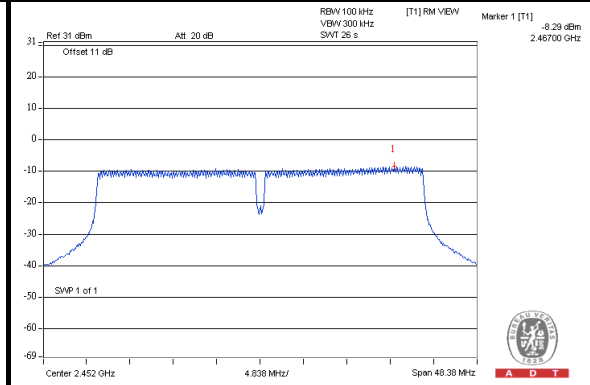
802.11n(40MHz)

CH 6



802.11n(40MHz)

CH 9



5. TEST TYPES AND RESULTS (FOR 5.0GHz BAND)

5.1 RADIATED EMISSION MEASUREMENT

5.1.1 LIMITS OF RADIATED EMISSION 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 30dB 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.

5.1.2 TEST INSTRUMENTS

Same as item 4.1.2.

5.1.3 TEST PROCEDURES

Same as item 4.1.3.

5.1.4 DEVIATION FROM TEST STANDARD

No deviation.

5.1.5 TEST SETUP

Same as item 4.1.5.

5.1.6 EUT OPERATING CONDITIONS

Same as 4.1.6.



A D T

5.1.7 TEST RESULTS

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	#5725.00	80.5 PK	83.5	-3.0	1.64 H	56	41.70	38.80
2	#5725.00	71.2 AV	74.2	-3.0	1.64 H	56	32.40	38.80
3	*5745.00	113.5 PK			1.64 H	56	74.70	38.80
4	*5745.00	104.2 AV			1.64 H	56	65.40	38.80
5	11490.00	57.9 PK	74.0	-16.1	1.15 H	193	7.80	50.10
6	11490.00	45.1 AV	54.0	-8.9	1.15 H	193	-5.00	50.10
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	#5725.00	84.3 PK	87.4	-3.1	1.15 V	213	45.50	38.80
2	#5725.00	75.9 AV	78.9	-3.0	1.15 V	213	37.10	38.80
3	*5745.00	117.4 PK			1.21 V	203	78.60	38.80
4	*5745.00	108.9 AV			1.21 V	203	70.10	38.80
5	11490.00	66.2 PK	74.0	-7.8	1.48 V	349	16.10	50.10
6	11490.00	52.9 AV	54.0	-1.1	1.48 V	349	2.80	50.10

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.
6. The limit value is defined as per 15.247.
7. “#”: The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	*5785.00	111.5 PK			1.00 H	335	72.60	38.90
2	*5785.00	102.1 AV			1.00 H	335	63.20	38.90
3	11570.00	60.7 PK	74.0	-13.3	1.30 H	220	10.70	50.00
4	11570.00	47.3 AV	54.0	-6.7	1.30 H	220	-2.70	50.00
5	#17355.00	65.0 PK	81.5	-16.5	1.25 H	185	11.90	53.10
6	#17355.00	52.1 AV	72.1	-20.0	1.25 H	185	-1.00	53.10
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	*5785.00	118.5 PK			1.12 V	186	79.60	38.90
2	*5785.00	108.6 AV			1.12 V	186	69.70	38.90
3	11570.00	66.5 PK	74.0	-7.5	1.73 V	360	16.50	50.00
4	11570.00	52.6 AV	54.0	-1.4	1.73 V	360	2.60	50.00
5	#17355.00	64.9 PK	88.5	-23.6	1.03 V	23	11.80	53.10
6	#17355.00	52.5 AV	78.6	-26.1	1.03 V	23	-0.60	53.10

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. The limit value is defined as per 15.247.
7. “#”: The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	*5825.00	111.3 PK			1.61 H	360	72.40	38.90
2	*5825.00	102.3 AV			1.61 H	360	63.40	38.90
3	#5850.00	77.3 PK	81.3	-4.0	1.55 H	13	38.30	39.00
4	#5850.00	68.3 AV	72.3	-4.0	1.55 H	13	29.30	39.00
5	11650.00	57.7 PK	74.0	-16.3	1.16 H	158	7.70	50.00
6	11650.00	44.9 AV	54.0	-9.1	1.16 H	158	-5.10	50.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	118.1 PK			1.10 V	185	79.20	38.90
2	*5825.00	108.8 AV			1.10 V	185	69.90	38.90
3	#5850.00	84.1 PK	88.1	-4.0	1.05 V	175	45.10	39.00
4	#5850.00	74.8 AV	78.8	-4.0	1.05 V	175	35.80	39.00
5	11650.00	63.1 PK	74.0	-10.9	1.30 V	13	13.10	50.00
6	11650.00	51.2 AV	54.0	-2.8	1.30 V	13	1.20	50.00

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. The limit value is defined as per 15.247.
7. “#”: The radiated frequency is out the restricted band.



A D T

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	#5725.00	78.0 PK	80.6	-2.6	1.25 H	326	39.20	38.80
2	#5725.00	69.4 AV	71.4	-2.0	1.25 H	326	30.60	38.80
3	*5745.00	110.6 PK			1.35 H	336	71.80	38.80
4	*5745.00	101.4 AV			1.35 H	336	62.60	38.80
5	11490.00	57.6 PK	74.0	-16.4	1.00 H	168	7.50	50.10
6	11490.00	45.5 AV	54.0	-8.5	1.00 H	168	-4.60	50.10
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	#5725.00	87.0 PK	89.1	-2.1	1.10 V	171	48.20	38.80
2	#5725.00	77.5 AV	79.5	-2.0	1.10 V	171	38.70	38.80
3	*5745.00	119.1 PK			1.12 V	181	80.30	38.80
4	*5745.00	109.5 AV			1.12 V	181	70.70	38.80
5	11490.00	66.6 PK	74.0	-7.4	1.61 V	353	16.50	50.10
6	11490.00	52.4 AV	54.0	-1.6	1.61 V	353	2.30	50.10

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.
6. The limit value is defined as per 15.247.
7. “#”:The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	*5785.00	110.6 PK			1.55 H	334	71.70	38.90
2	*5785.00	101.1 AV			1.55 H	334	62.20	38.90
3	11570.00	57.8 PK	74.0	-16.2	1.24 H	145	7.80	50.00
4	11570.00	45.3 AV	54.0	-8.7	1.24 H	145	-4.70	50.00
5	#17355.00	65.5 PK	80.6	-15.1	1.12 H	80	12.40	53.10
6	#17355.00	51.9 AV	71.1	-19.2	1.12 H	80	-1.20	53.10
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	*5785.00	117.2 PK			1.11 V	202	78.30	38.90
2	*5785.00	108.1 AV			1.11 V	202	69.20	38.90
3	11570.00	66.0 PK	74.0	-8.0	1.84 V	348	16.00	50.00
4	11570.00	52.7 AV	54.0	-1.3	1.84 V	348	2.70	50.00
5	#17355.00	65.3 PK	87.2	-21.9	1.47 V	314	12.20	53.10
6	#17355.00	52.4 AV	78.1	-25.7	1.47 V	314	-0.70	53.10

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. The limit value is defined as per 15.247.
7. "#": The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	*5825.00	111.8 PK			1.36 H	10	72.90	38.90
2	*5825.00	101.9 AV			1.36 H	10	63.00	38.90
3	#5850.00	79.8 PK	81.8	-2.0	1.26 H	355	40.80	39.00
4	#5850.00	67.9 AV	71.9	-4.0	1.26 H	355	28.90	39.00
5	11650.00	57.2 PK	74.0	-16.8	1.22 H	214	7.20	50.00
6	11650.00	44.5 AV	54.0	-9.5	1.22 H	214	-5.50	50.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	117.8 PK			1.68 V	201	78.90	38.90
2	*5825.00	108.3 AV			1.68 V	201	69.40	38.90
3	#5850.00	83.8 PK	87.8	-4.0	1.58 V	188	44.80	39.00
4	#5850.00	74.3 AV	78.3	-4.0	1.58 V	188	35.30	39.00
5	11650.00	62.9 PK	74.0	-11.1	1.00 V	12	12.90	50.00
6	11650.00	50.7 AV	54.0	-3.3	1.00 V	12	0.70	50.00

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. The limit value is defined as per 15.247.
7. “#”: The radiated frequency is out the restricted band.



A D T

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	#5725.00	76.6 PK	77.6	-1.0	1.10 H	328	37.80	38.80
2	#5725.00	66.8 AV	67.8	-1.0	1.10 H	328	28.00	38.80
3	*5755.00	107.6 PK			1.19 H	338	68.80	38.80
4	*5755.00	97.8 AV			1.19 H	338	59.00	38.80
5	11510.00	57.1 PK	74.0	-16.9	1.07 H	276	7.00	50.10
6	11510.00	44.5 AV	54.0	-9.5	1.07 H	276	-5.60	50.10
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	#5725.00	82.3 PK	83.3	-1.0	1.10 V	157	43.50	38.80
2	#5725.00	72.8 AV	73.8	-1.0	1.10 V	157	34.00	38.80
3	*5755.00	113.3 PK			1.15 V	177	74.50	38.80
4	*5755.00	103.8 AV			1.15 V	177	65.00	38.80
5	11510.00	58.6 PK	74.0	-15.4	1.09 V	347	8.50	50.10
6	11510.00	45.6 AV	54.0	-8.4	1.09 V	347	-4.50	50.10

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.
6. The limit value is defined as per 15.247.
7. “#”:The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

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	*5795.00	108.2 PK			1.06 H	174	69.30	38.90
2	*5795.00	99.6 AV			1.06 H	174	60.70	38.90
3	#5850.00	70.2 PK	78.2	-8.0	1.00 H	154	31.20	39.00
4	#5850.00	61.6 AV	69.6	-8.0	1.00 H	154	22.60	39.00
5	11590.00	57.0 PK	74.0	-17.0	1.12 H	184	7.00	50.00
6	11590.00	44.4 AV	54.0	-9.6	1.12 H	184	-5.60	50.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5795.00	115.8 PK			1.00 V	200	76.90	38.90
2	*5795.00	106.0 AV			1.00 V	200	67.10	38.90
3	#5850.00	77.8 PK	85.8	-8.0	1.05 V	168	38.80	39.00
4	#5850.00	68.0 AV	76.0	-8.0	1.05 V	168	29.00	39.00
5	11590.00	65.6 PK	74.0	-8.4	1.49 V	303	15.60	50.00
6	11590.00	52.9 AV	54.0	-1.1	1.49 V	303	2.90	50.00

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. The limit value is defined as per 15.247.
7. “#”: The radiated frequency is out the restricted band.



A D T

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%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	94.06	35.6 QP	43.5	-7.9	1.99 H	156	26.90	8.70
2	148.50	33.6 QP	43.5	-9.9	1.99 H	246	19.50	14.10
3	224.33	34.3 QP	46.0	-11.7	1.00 H	120	22.30	12.00
4	274.88	34.7 QP	46.0	-11.3	1.00 H	258	20.70	14.00
5	374.04	31.4 QP	46.0	-14.6	1.99 H	249	14.50	16.90
6	675.40	32.2 QP	46.0	-13.8	1.24 H	120	9.40	22.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.00	36.0 QP	40.0	-4.0	1.00 V	171	24.20	11.80
2	78.51	36.8 QP	40.0	-3.2	1.25 V	112	26.50	10.30
3	146.56	32.8 QP	43.5	-10.7	1.00 V	256	18.80	14.00
4	224.33	32.7 QP	46.0	-13.3	1.00 V	108	20.70	12.00
5	374.04	29.9 QP	46.0	-16.1	1.00 V	193	13.00	16.90
6	675.40	29.4 QP	46.0	-16.6	1.49 V	261	6.60	22.80

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Chris Lin
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	105.73	29.1 QP	43.5	-14.4	1.50 H	85	19.00	10.10
2	191.28	34.7 QP	43.5	-8.8	1.24 H	223	23.00	11.70
3	253.49	33.2 QP	46.0	-12.8	1.24 H	220	20.00	13.20
4	374.04	37.9 QP	46.0	-8.1	1.00 H	204	21.00	16.90
5	624.85	36.4 QP	46.0	-9.6	1.24 H	198	14.10	22.30
6	899.00	38.8 QP	46.0	-7.2	1.24 H	15	12.00	26.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	55.18	37.6 QP	40.0	-2.4	1.50 V	310	23.90	13.70
2	191.28	29.5 QP	43.5	-14.0	1.00 V	198	17.80	11.70
3	253.49	33.5 QP	46.0	-12.5	1.00 V	268	20.30	13.20
4	374.04	35.4 QP	46.0	-10.6	1.24 V	177	18.50	16.90
5	500.42	35.8 QP	46.0	-10.2	1.00 V	207	15.80	20.00
6	624.85	33.6 QP	46.0	-12.4	1.00 V	102	11.30	22.30

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.

5.2 CONDUCTED EMISSION MEASUREMENT

5.2.1 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.

5.2.2 TEST INSTRUMENTS

Same as item 4.2.2.

5.2.3 TEST PROCEDURES

Same as item 4.2.3.

5.2.4 DEVIATION FROM TEST STANDARD

No deviation.

5.2.5 TEST SETUP

Same as item 4.2.5.

5.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

5.2.7 TEST RESULTS

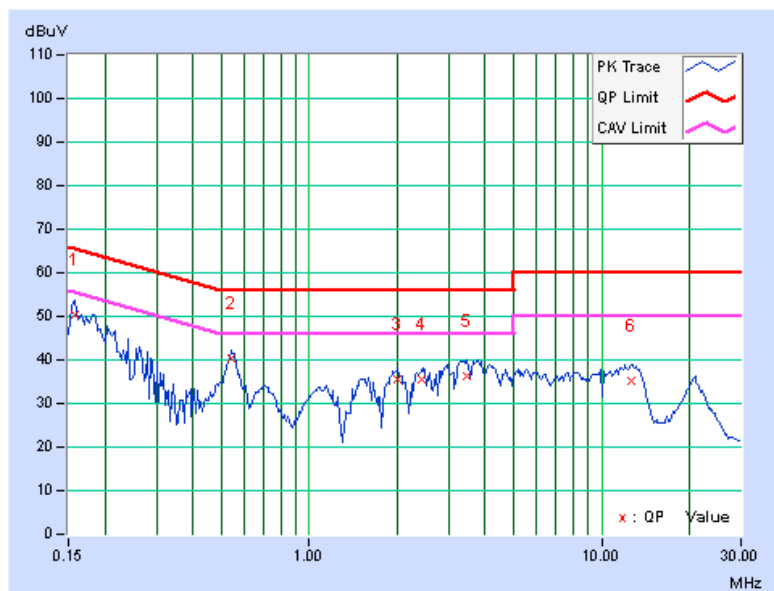
CONDUCTED WORST-CASE DATA : 802.11n(20MHz)

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	0.15781	0.15	50.08	34.68	50.23	34.83	65.58	55.58	-15.35	-20.75
2	0.54063	0.17	40.16	34.10	40.33	34.27	56.00	46.00	-15.67	-11.73
3	2.01563	0.24	35.40	29.78	35.64	30.02	56.00	46.00	-20.36	-15.98
4	2.41016	0.26	35.37	29.59	35.63	29.85	56.00	46.00	-20.37	-16.15
5	3.48047	0.31	36.00	27.97	36.31	28.28	56.00	46.00	-19.69	-17.72
6	12.66406	0.65	34.41	29.19	35.06	29.84	60.00	50.00	-24.94	-20.16

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.

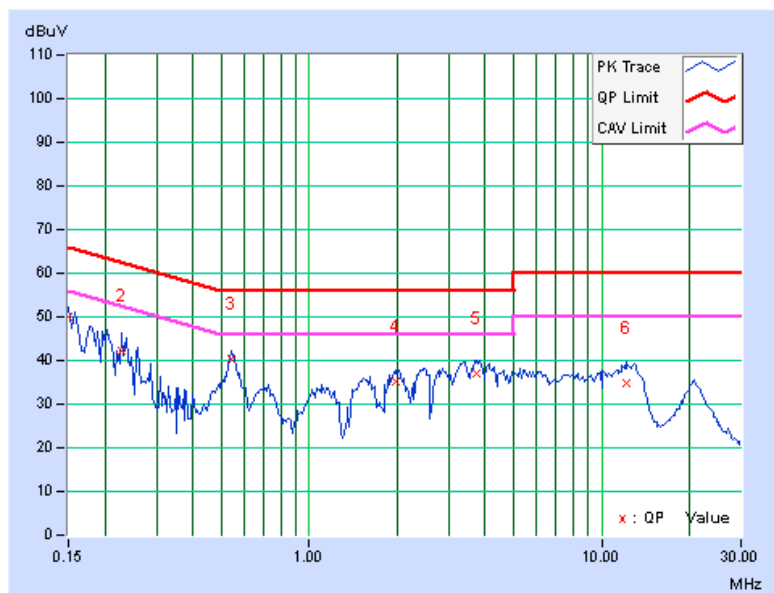


PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	A		

No	Freq. [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	0.15000	0.23	49.74	33.67	49.97	33.90	66.00	56.00	-16.03	-22.10
2	0.22812	0.30	41.84	27.39	42.14	27.69	62.52	52.52	-20.38	-24.83
3	0.54063	0.26	40.22	34.12	40.48	34.38	56.00	46.00	-15.52	-11.62
4	1.97266	0.34	34.92	29.63	35.26	29.97	56.00	46.00	-20.74	-16.03
5	3.71484	0.43	36.46	30.92	36.89	31.35	56.00	46.00	-19.11	-14.65
6	12.09766	0.72	34.14	28.94	34.86	29.66	60.00	50.00	-25.14	-20.34

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.

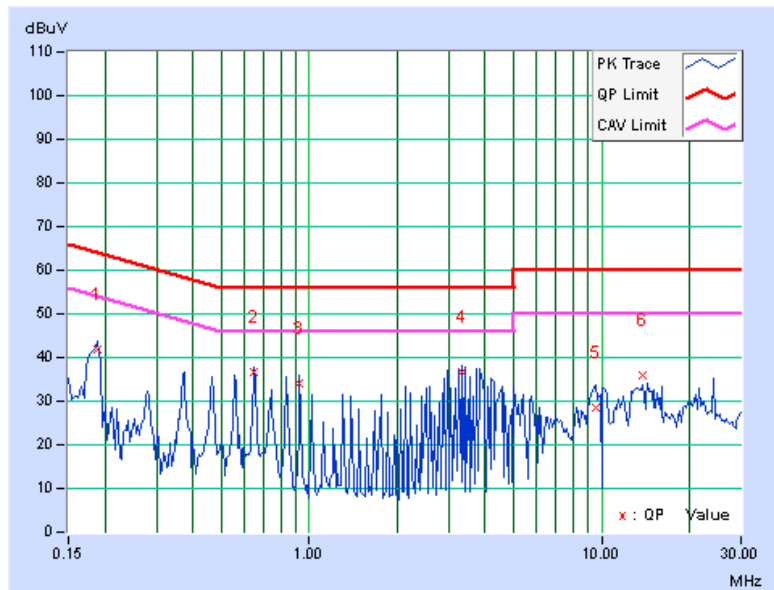


PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq. [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	0.18906	0.13	41.75	34.07	41.88	34.20	64.08	54.08	-22.20	-19.88
2	0.65000	0.16	36.47	34.04	36.63	34.20	56.00	46.00	-19.37	-11.80
3	0.92734	0.18	33.80	31.56	33.98	31.74	56.00	46.00	-22.02	-14.26
4	3.34375	0.30	36.20	34.87	36.50	35.17	56.00	46.00	-19.50	-10.83
5	9.57293	0.62	27.97	22.39	28.59	23.01	60.00	50.00	-31.41	-26.99
6	13.85547	0.84	34.98	33.02	35.82	33.86	60.00	50.00	-24.18	-16.14

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.

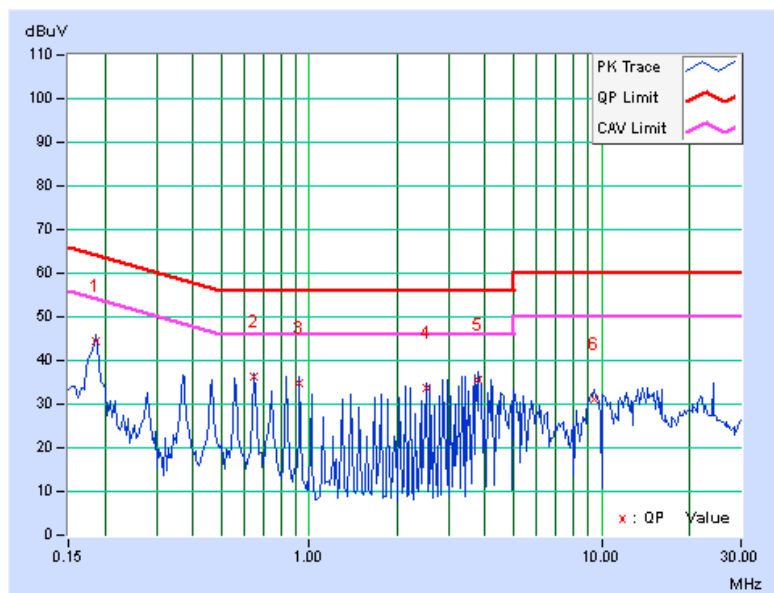


PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	B		

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	0.18516	0.14	44.13	36.41	44.27	36.55	64.25	54.25	-19.99	-17.71
2	0.65000	0.18	36.16	33.75	36.34	33.93	56.00	46.00	-19.66	-12.07
3	0.92734	0.20	34.64	32.41	34.84	32.61	56.00	46.00	-21.16	-13.39
4	2.50391	0.26	33.55	32.79	33.81	33.05	56.00	46.00	-22.19	-12.95
5	3.80078	0.34	35.06	33.06	35.40	33.40	56.00	46.00	-20.60	-12.60
6	9.46807	0.57	30.40	26.08	30.97	26.65	60.00	50.00	-29.03	-23.35

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.



5.3 6dB BANDWIDTH MEASUREMENT

5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

5.3.2 TEST SETUP

Same as item 4.3.2.

5.3.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.3.4 TEST PROCEDURE

Same as item 4.3.4.

5.3.5 DEVIATION FROM TEST STANDARD

No deviation.

5.3.6 EUT OPERATING CONDITIONS

Same as item 4.3.6.

5.3.7 TEST RESULTS

802.11a

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
149	5745	16.25	16.60	0.5	PASS
157	5785	16.53	16.54	0.5	PASS
165	5825	16.45	16.56	0.5	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
149	5745	17.45	17.76	0.5	PASS
157	5785	17.76	17.85	0.5	PASS
165	5825	17.62	17.71	0.5	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
151	5755	37.05	36.90	0.5	PASS
159	5795	36.83	36.88	0.5	PASS

5.4 CONDUCTED OUTPUT POWER

5.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

For systems using digital modulation in the 5725 –5850 MHz bands: 1 Watt (30dBm)

5.4.2 TEST SETUP

Same as Item 4.4.2.

5.4.3 INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.4.4 TEST PROCEDURES

Same as Item 4.4.4.

5.4.5 DEVIATION FROM TEST STANDARD

No deviation.

5.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6.

5.4.7 TEST RESULTS

802.11a

CHAN.	FREQUENCY (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
149	5745	22.92	21.46	335.84	25.26	30	PASS
157	5785	23.43	21.48	360.90	25.57	30	PASS
165	5825	25.58	25.54	719.51	28.57	30	PASS

NOTE: Directional gain = $2\text{dBi} + 10\log(2) = 5.01\text{dBi} < 6\text{dBi}$, therefore the limit no need to reduced.

802.11n (20MHz)

CHAN.	FREQUENCY (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
149	5745	23.09	21.39	341.43	25.33	30	PASS
157	5785	23.10	20.39	313.57	24.96	30	PASS
165	5825	25.73	25.56	733.86	28.66	30	PASS

802.11n (40MHz)

CHAN.	FREQUENCY (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
151	5755	21.11	20.55	242.62	23.85	30	PASS
159	5795	25.34	25.97	737.35	28.68	30	PASS

5.5 POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.5.2 TEST SETUP

Same as item 4.5.2.

5.5.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.5.4 TEST PROCEDURE.

Same as item 4.5.4.

5.5.5 DEVIATION FROM TEST STANDARD

No deviation.

5.5.6 EUT OPERATING CONDITION

Same as item 4.3.6.

5.5.7 TEST RESULTS

802.11a

TX chain	Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	149	5745	4.25	-10.98	3.01	-7.97	8	PASS
	157	5785	4.65	-10.58	3.01	-7.57	8	PASS
	165	5825	5.95	-9.28	3.01	-6.27	8	PASS
1	149	5745	1.55	-13.68	3.01	-10.67	8	PASS
	157	5785	1.47	-13.76	3.01	-10.75	8	PASS
	165	5825	5.46	-9.77	3.01	-6.76	8	PASS

NOTE: Directional gain = 2dBi + 10log(2) = 5.01dBi < 6dBi , therefore the limit no need to reduced.

802.11n (20MHz)

TX chain	Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	149	5745	3.54	-11.69	3.01	-8.68	8	PASS
	157	5785	3.79	-11.44	3.01	-8.43	8	PASS
	165	5825	5.95	-9.28	3.01	-6.27	8	PASS
1	149	5745	1.69	-13.54	3.01	-10.53	8	PASS
	157	5785	0.77	-14.46	3.01	-11.45	8	PASS
	165	5825	5.70	-9.53	3.01	-6.52	8	PASS

802.11n (40MHz)

TX chain	Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	151	5755	-0.86	-16.09	3.01	-13.08	8	PASS
	159	5795	3.38	-11.85	3.01	-8.84	8	PASS
1	151	5755	-2.18	-17.41	3.01	-14.40	8	PASS
	159	5795	3.16	-12.07	3.01	-9.06	8	PASS

5.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

5.6.1 LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT

Below -30dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

5.6.2 TEST SETUP

Same as Item 4.6.2

5.6.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.6.4 TEST PROCEDURE

Same as Item 4.6.4

5.6.5 DEVIATION FROM TEST STANDARD

No deviation.

5.6.6 EUT OPERATING CONDITION

Same as Item 4.3.6

5.6.7 TEST RESULTS

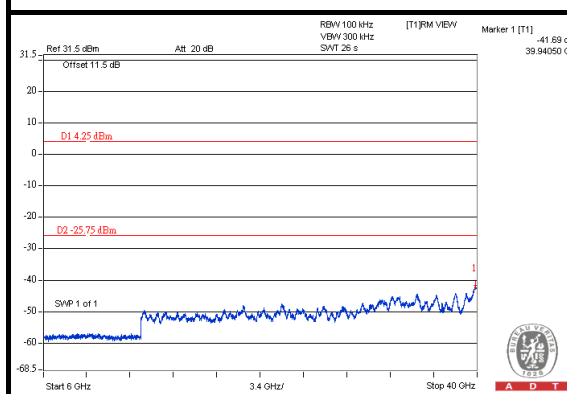
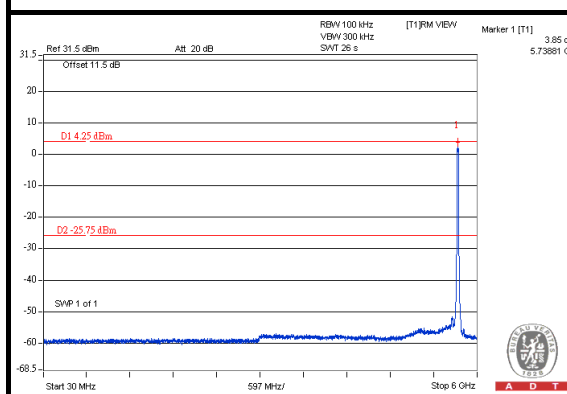
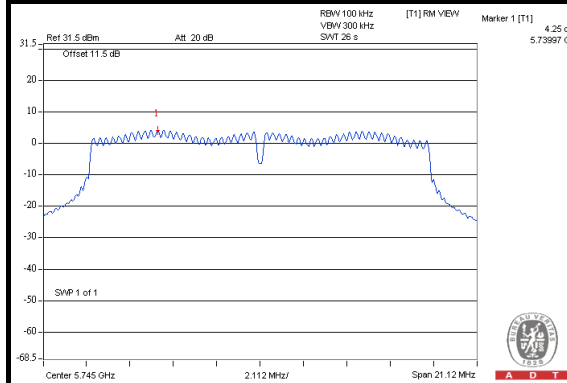
The conducted emission test is performed on each TX port of operating mode without summing or adding $10\log(N)$ since the limit is relative emission limit. Only worst data of each operating mode is presented.

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.

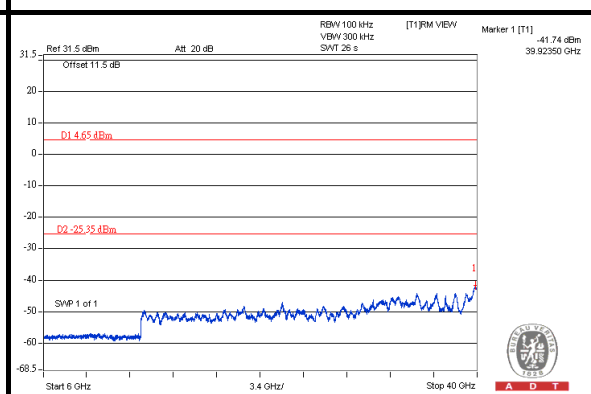
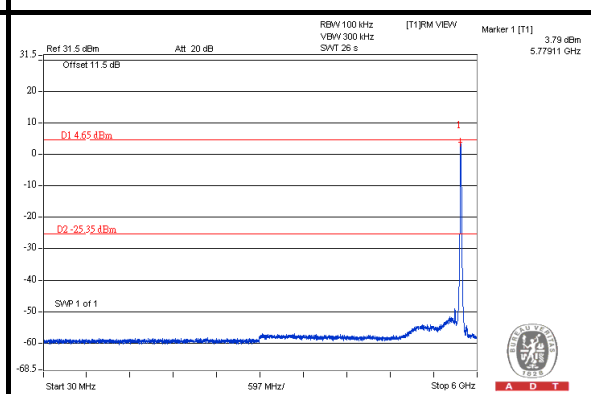
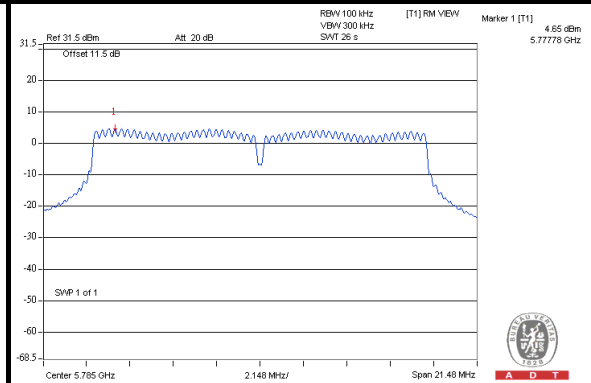


A D T

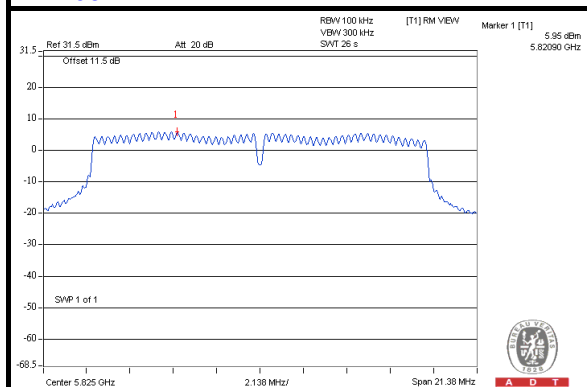
802.11a
CH 149



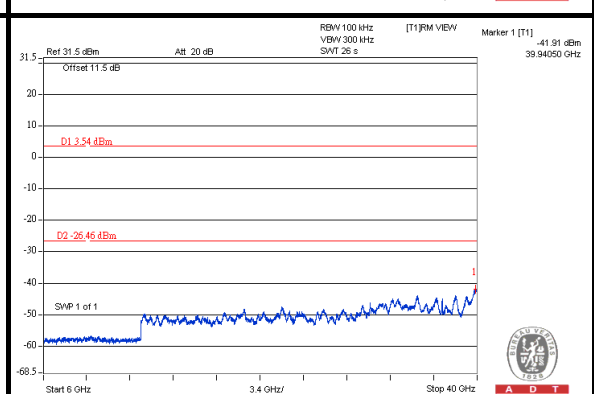
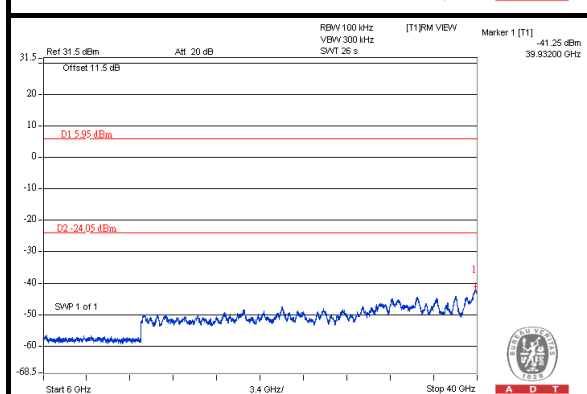
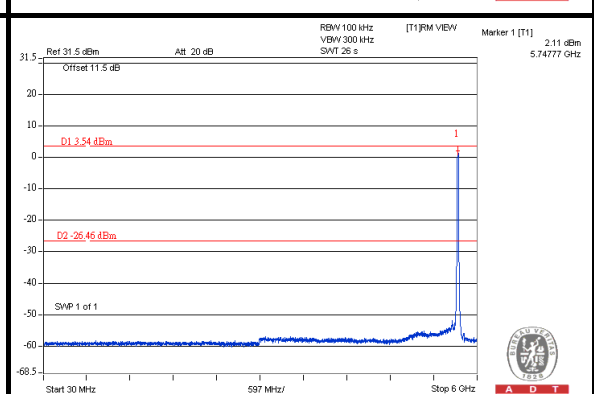
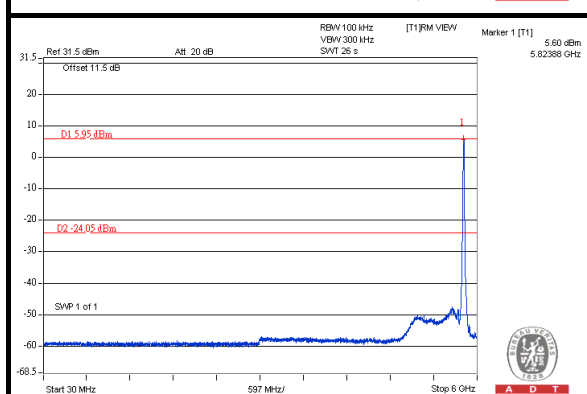
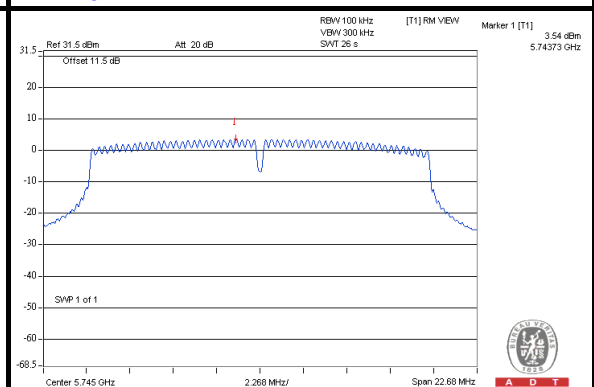
802.11a
CH 157



802.11a CH 165

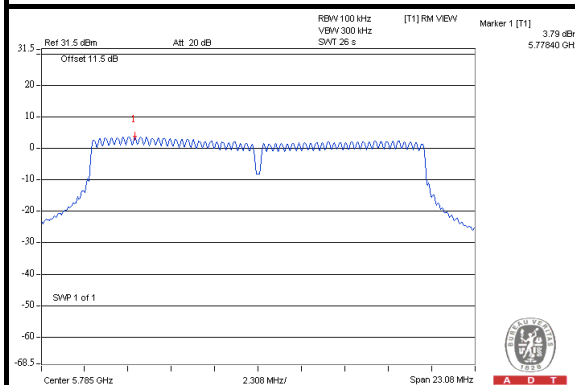


802.11n(20MHz) CH 149



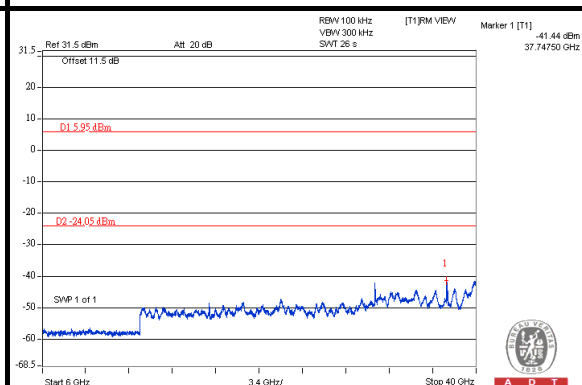
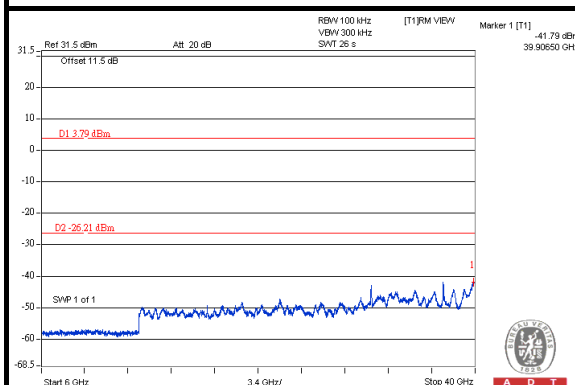
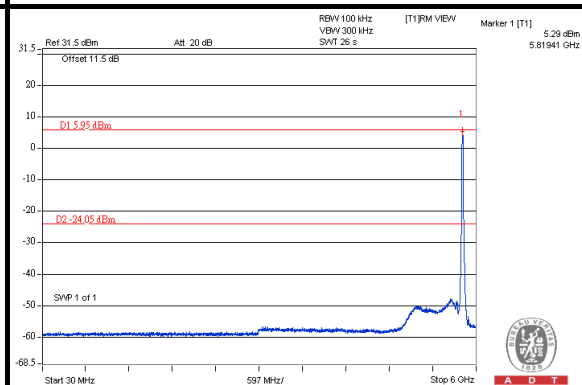
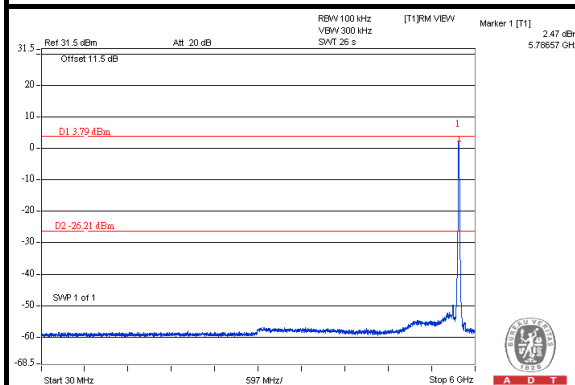
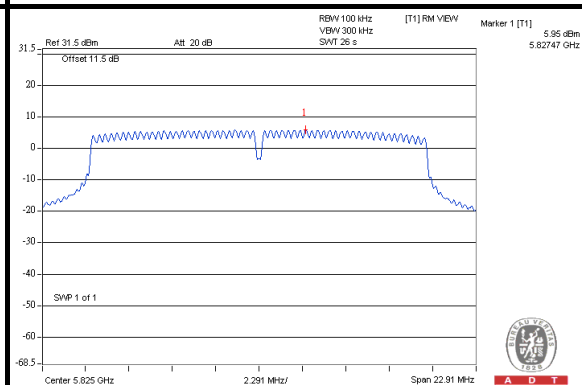
802.11n(20MHz)

CH 157



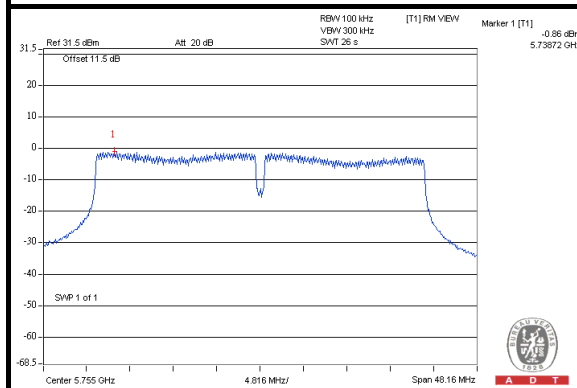
802.11n(20MHz)

CH 165



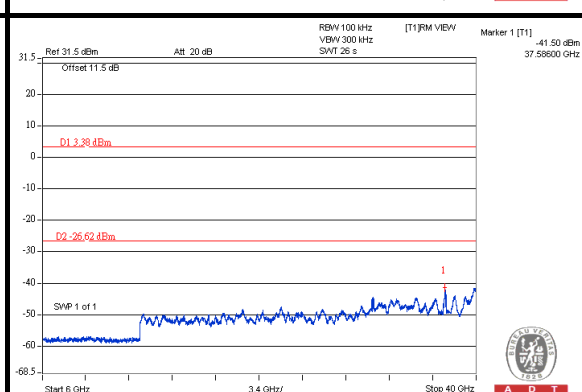
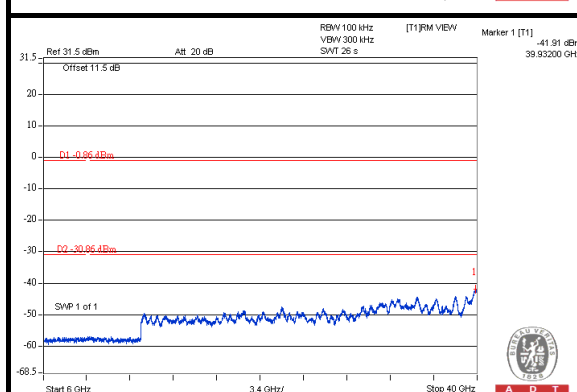
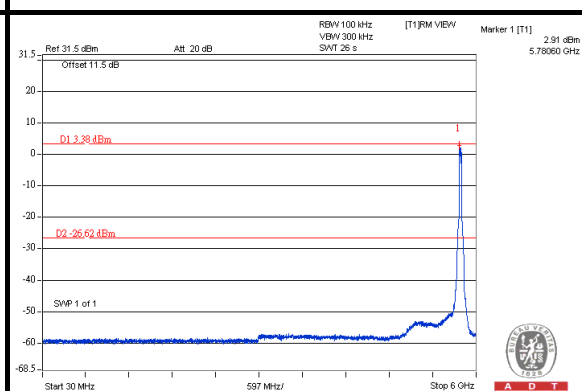
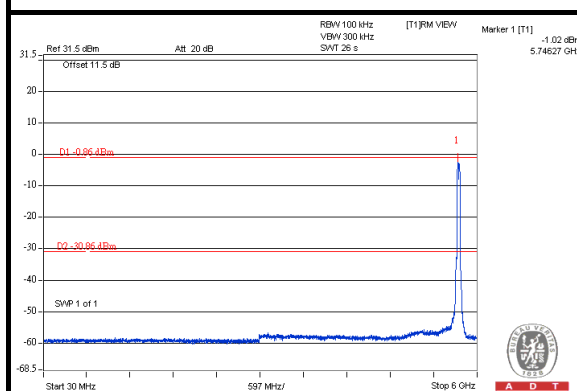
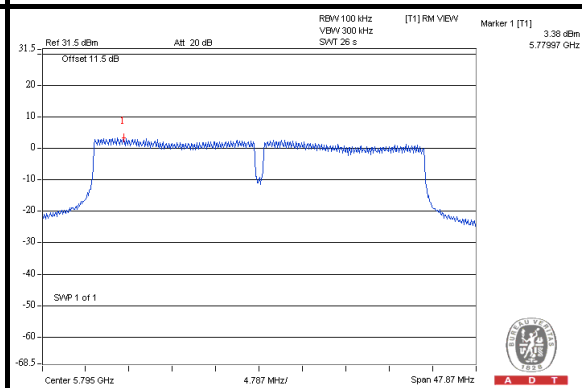
802.11n(40MHz)

CH 151



802.11n(40MHz)

CH 159





A D T

6. PHOTOGRAPHS OF THE TEST CONFIGURATION

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



A D T

7. INFORMATION ON THE TESTING LABORATORIES

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

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

Linko EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF Lab

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.adt.com.tw

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



A D T

8. 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---