



A D T

# FCC TEST REPORT (15.247: WLAN)

**REPORT NO.:** RF120904C23A R2

**MODEL NO.:** MK3190

**FCC ID:** UZ7MK3190

**RECEIVED:** Aug. 31, 2012

**TESTED:** Aug. 31 ~ Oct. 03, 2012

**ISSUED:** Oct. 11, 2012

**APPLICANT:** Motorola Solutions, Inc.

**ADDRESS:** One Motorola Plaza, Holtsville, NY 11742-1300  
USA

**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 .....	19
4. TEST TYPES AND RESULTS (FOR 2.4GHz BAND).....	20
4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT .....	20
4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT.....	20
4.1.2 TEST INSTRUMENTS.....	21
4.1.3 TEST PROCEDURES .....	22
4.1.4 DEVIATION FROM TEST STANDARD .....	22
4.1.5 TEST SETUP.....	23
4.1.6 EUT OPERATING CONDITIONS .....	23
4.1.7 TEST RESULTS .....	24
4.2 CONDUCTED EMISSION MEASUREMENT .....	58
4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT .....	58
4.2.2 TEST INSTRUMENTS.....	58
4.2.3 TEST PROCEDURES .....	59
4.2.4 DEVIATION FROM TEST STANDARD .....	59
4.2.5 TEST SETUP.....	60
4.2.6 EUT OPERATING CONDITIONS .....	60
4.2.7 TEST RESULTS .....	61
4.3 6dB BANDWIDTH MEASUREMENT .....	65
4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT .....	65
4.3.2 TEST SETUP.....	65
4.3.3 TEST INSTRUMENTS.....	65
4.3.4 TEST PROCEDURE.....	65
4.3.5 DEVIATION FROM TEST STANDARD .....	65
4.3.6 EUT OPERATING CONDITIONS .....	65
4.3.7 TEST RESULTS .....	66
4.4 CONDUCTED OUTPUT POWER .....	68
4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT .....	68
4.4.2 TEST SETUP.....	68
4.4.3 TEST INSTRUMENTS.....	68
4.4.4 TEST PROCEDURES .....	68
4.4.5 DEVIATION FROM TEST STANDARD .....	68
4.4.6 EUT OPERATING CONDITIONS .....	68
4.4.7 TEST RESULTS .....	69
4.5 AVERAGE OUTPUT POWER .....	71
4.5.1 TEST SETUP.....	71
4.5.2 TEST INSTRUMENTS.....	71
4.5.3 TEST PROCEDURES .....	71
4.5.4 EUT OPERATING CONDITIONS .....	71
4.5.5 TEST RESULTS .....	72
4.6 POWER SPECTRAL DENSITY MEASUREMENT.....	74
4.6.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT .....	74
4.6.2 TEST SETUP.....	74
4.6.3 TEST INSTRUMENTS.....	74



A D T

4.6.4	TEST PROCEDURE.....	74
4.6.5	DEVIATION FROM TEST STANDARD .....	74
4.6.6	EUT OPERATING CONDITION .....	74
4.6.7	TEST RESULTS .....	75
4.7	CONDUCTED OUT OF BAND EMISSION MEASUREMENT .....	77
4.7.1	LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT.....	77
4.7.2	TEST SETUP.....	77
4.7.3	TEST INSTRUMENTS.....	77
4.7.4	TEST PROCEDURE.....	77
4.7.5	DEVIATION FROM TEST STANDARD .....	78
4.7.6	EUT OPERATING CONDITION .....	78
4.7.7	TEST RESULTS .....	78
5.	TEST TYPES AND RESULTS (FOR 5.0GHz BAND).....	91
5.1	RADIATED EMISSION AND BANDEDGE MEASUREMENT .....	91
5.1.1	LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT.....	91
5.1.2	TEST INSTRUMENTS.....	92
5.1.3	TEST PROCEDURES .....	93
5.1.4	DEVIATION FROM TEST STANDARD .....	93
5.1.5	TEST SETUP.....	93
5.1.6	EUT OPERATING CONDITIONS .....	93
5.1.7	TEST RESULTS .....	94
5.2	CONDUCTED EMISSION MEASUREMENT.....	110
5.2.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT .....	110
5.2.2	TEST INSTRUMENTS.....	110
5.2.3	TEST PROCEDURES .....	110
5.2.4	DEVIATION FROM TEST STANDARD .....	110
5.2.5	TEST SETUP.....	110
5.2.6	EUT OPERATING CONDITIONS .....	110
5.2.7	TEST RESULTS .....	111
5.3	6dB BANDWIDTH MEASUREMENT .....	115
5.3.1	LIMITS OF 6dB BANDWIDTH MEASUREMENT .....	115
5.3.2	TEST SETUP.....	115
5.3.3	TEST INSTRUMENTS.....	115
5.3.4	TEST PROCEDURE.....	115
5.3.5	DEVIATION FROM TEST STANDARD .....	115
5.3.6	EUT OPERATING CONDITIONS .....	115
5.3.7	TEST RESULTS .....	116
5.4	CONDUCTED OUTPUT POWER .....	118
5.4.1	LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT .....	118
5.4.2	TEST SETUP.....	118
5.4.3	INSTRUMENTS.....	118
5.4.4	TEST PROCEDURES .....	118
5.4.5	DEVIATION FROM TEST STANDARD .....	118
5.4.6	EUT OPERATING CONDITIONS .....	118
5.4.7	TEST RESULTS .....	119
5.5	AVERAGE OUTPUT POWER .....	120
5.5.1	TEST SETUP.....	120
5.5.2	TEST INSTRUMENTS.....	120
5.5.3	TEST PROCEDURES .....	120
5.5.4	EUT OPERATING CONDITIONS .....	120
5.5.5	TEST RESULTS .....	121
5.6	POWER SPECTRAL DENSITY MEASUREMENT.....	122
5.6.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT .....	122
5.6.2	TEST SETUP.....	122
5.6.3	TEST INSTRUMENTS.....	122
5.6.4	TEST PROCEDURE.....	122
5.6.5	DEVIATION FROM TEST STANDARD .....	122



A D T

5.6.6	EUT OPERATING CONDITION .....	122
5.6.7	TEST RESULTS .....	123
5.7	CONDUCTED OUT OF BAND EMISSION MEASUREMENT .....	124
5.7.1	LIMITS OF OUT OF BAND EMISSION MEASUREMENT .....	124
5.7.2	TEST SETUP .....	124
5.7.3	TEST INSTRUMENTS .....	124
5.7.4	TEST PROCEDURE .....	124
5.7.5	DEVIATION FROM TEST STANDARD .....	124
5.7.6	EUT OPERATING CONDITION .....	124
5.7.7	TEST RESULTS .....	124
6.	PHOTOGRAPHS OF THE TEST CONFIGURATION .....	129
7.	INFORMATION ON THE TESTING LABORATORIES .....	130
8.	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB .....	131



A D T

## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF120904C23A	Original release	Sep. 27, 2012
RF120904C23A R1	<ol style="list-style-type: none"><li>1. Added model on page 1, 6, 8 and 9.</li><li>2. Revised the worst margin of AC Power Conducted Emission on page 7.</li><li>3. Revised Radiated emission test data on page 39 ~ 53, page 55 ~ 57. (2.4GHz Band)</li><li>4. Revised AC Power Conducted Emission test data on page 63 ~ 64. (2.4GHz Band)</li><li>5. Revised Radiated emission test data on page 107 ~ 109. (5.0GHz Band)</li><li>6. Revised AC Power Conducted Emission test data on page 114. (5GHz Band)</li></ol>	Oct. 06, 2012
RF120904C23A R2	Revised model	Oct. 11, 2012

## 1. CERTIFICATION

**PRODUCT:** Micro Kiosk  
**MODEL NO.:** MK3190  
**BRAND:** Motorola  
**APPLICANT:** Motorola Solutions, Inc.  
**TESTED:** Aug. 31 ~ Oct. 03, 2012  
**TEST SAMPLE:** ENGINEERING SAMPLE  
**STANDARDS:** FCC Part 15, Subpart C (Section 15.247)  
ANSI C63.10-2009

The above equipment (model: MK3190) 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 :** Ivy Lin , **DATE :** Oct. 11, 2012  
Ivy Lin / Specialist

**APPROVED BY :** Ken Liu , **DATE :** Oct. 11, 2012  
Ken Liu / Manager

## 2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -3.01dB at 0.92734MHz.
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 2390.00MHz, 2483.50MHz
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	No antenna connector is used.

### 2.1 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	2.93 dB
	200MHz ~1000MHz	2.95 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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

### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>EUT</b>	Micro Kiosk
<b>MODEL NO.</b>	MK3190
<b>POWER SUPPLY</b>	12Vdc (adapter) 48Vdc (POE)
<b>MODULATION TYPE</b>	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
<b>MODULATION TECHNOLOGY</b>	DSSS, OFDM
<b>TRANSFER RATE</b>	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 72.2Mbps
<b>OPERATING FREQUENCY</b>	<b>2.4GHz:</b> 2412 ~ 2472MHz <b>5.0GHz:</b> 5745 ~ 5825MHz
<b>NUMBER OF CHANNEL</b>	<b>2.4GHz:</b> 13 for 802.11b, 802.11g, 802.11n (20MHz) <b>5.0GHz:</b> 5 for 802.11a, 802.11n (20MHz)
<b>OUTPUT POWER</b>	288.40mW for 2412 ~ 2472MHz 229.09mW for 5745 ~ 5825MHz
<b>ANTENNA TYPE</b>	Refer to Note as below
<b>ANTENNA CONNECTOR</b>	NA
<b>DATA CABLE</b>	Refer to Note as below
<b>I/O PORTS</b>	Refer to user's manual
<b>ACCESSORY DEVICES</b>	NA



**NOTE:**

1. Antenna gain is listed as table below.

Antenna type	WLAN Main antenna gain (dBi)					WLAN AUX antenna gain (dBi)				
	2.4GHz	5.18 ~ 5.24GHz	5.26 ~ 5.32GHz	5.50 ~ 5.70GHz	5745 ~ 5825MHz	2.4GHz	5.18 ~ 5.24GHz	5.26 ~ 5.32GHz	5.50 ~ 5.70GHz	5745 ~ 5825MHz
PCB	1.146	4.203	4.67	4.237	4.275	1.816	2.229	2.508	3.347	3.315

2. The EUT provides one completed transmitter and two receivers.

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

3. EUT software and firmware version are as below.

OEM NAME	MK3100
OEM VERSION	99.24.0011
Wireless Part Number	31-FUSION-X2.00
Wireless Fusion	X_2.00.0.0.059R

4. The EUT consumes power from the following adapter and POE, which are support units.

Item	Brand	Model	Specification
Adapter	HIPRO	HP-A0502R3D	I/P: 100-240Vac, 50/60Hz, 0.2A O/P: 12Vdc, 4.16A Power cable: 2.2m non-shielded AC cable without core 1.8m shielded DC cable with one core
POE	Symbol	PD-3001	I/P: 100-250Vac, 50/60Hz, 0.5A O/P: 48Vdc, 0.35A

5. The above EUT information is declared by the 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:

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412MHz	8	2447MHz
2	2417MHz	9	2452MHz
3	2422MHz	10	2457MHz
4	2427MHz	11	2462MHz
5	2432MHz	12	2467MHz
6	2437MHz	13	2472MHz
7	2442MHz		

#### 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		

### 3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

#### FOR 2.4GHz:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTIO	
	RE $\geq$ 1G	RE<1G	PLC	APCM	ANT.	Power Source
A1	√	√	√	√	Main Ant.	Power from adapter
A2	-	√	√	-		Power from POE
B1	√	√	-	√	Aux Ant.	Power from adapter
B2	-	√	-	-		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:

"-" 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 1, B 1	802.11b	1 to 13	1, 6, 11, 12, 13	DSSS	DBPSK	1.0
A 1, B 1	802.11g	1 to 13	1, 6, 11, 12, 13	OFDM	BPSK	6.0
A 1, B 1	802.11n (20MHz)	1 to 13	1, 6, 11, 12, 13	OFDM	BPSK	6.5

#### 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 1, A 2	802.11n (20MHz)	1 to 13	11	OFDM	BPSK	6.5
B 1, B 2	802.11g	1 to 13	11	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 1, A 2	802.11n (20MHz)	1 to 13	11	OFDM	BPSK	6.5

### **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)
A1, B1	802.11b	1 to 13	1, 11, 12, 13	DSSS	DBPSK	1.0
A1, B1	802.11g	1 to 13	1, 11, 12, 13	OFDM	BPSK	6.0
A1, B1	802.11n (20MHz)	1 to 13	1, 11, 12, 13	OFDM	BPSK	6.5

### **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)
A1, B1	802.11b	1 to 13	1, 6, 11, 12, 13	DSSS	DBPSK	1.0
A1, B1	802.11g	1 to 13	1, 6, 11, 12, 13	OFDM	BPSK	6.0
A1, B1	802.11n (20MHz)	1 to 13	1, 6, 11, 12, 13	OFDM	BPSK	6.5

**TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	25deg. C, 65%RH	120Vac, 60Hz	Sun Lin, Anderson Hong
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Nick Chen, Anderson Hong
PLC	25deg. C, 68%RH	120Vac, 60Hz	Sun Lin
APCM	25deg. C, 67%RH	120Vac, 60Hz	Mark Liao

### FOR 5.0GHz (5745 ~ 5825MHz):

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTIO	
	RE≥1G	RE<1G	PLC	APCM	ANT.	Power Source
A1	√	√	√	√	Main Ant.	Power from adapter
A2	-	√	√	-		Power from POE
B1	√	√	-	√	Aux Ant.	Power from adapter
B2	-	√	-	-		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**: "-" 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)
A1, B1	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
A1, B1	802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	6.5

### 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)
A1, A2,	802.11n (20MHz)	149 to 165	165	OFDM	BPSK	6.5
B1, B2	802.11a	149 to 165	165	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)
A1, A2	802.11n (20MHz)	149 to 165	165	OFDM	BPSK	6.5

### **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)
A1, B1	802.11a	149 to 165	149, 165	OFDM	BPSK	6.0
A1, B1	802.11n (20MHz)	149 to 165	149, 165	OFDM	BPSK	6.5

### **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)
A1, B1	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
A1, B1	802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	6.5

### **TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	25deg. C, 65%RH	120Vac, 60Hz	Sun Lin, Anderson Hong
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Nick Chen, Anderson Hong
PLC	25deg. C, 68%RH	120Vac, 60Hz	Sun Lin
APCM	25deg. C, 67%RH	120Vac, 60Hz	Mark Liao

### 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
2	KEYBOARD	DELL	SK-8115	MY-0DJ325-71619-8 57-1198	FCC DoC Approved
3	MOUSE	DELL	MO56UO	510026062	FCC DoC Approved
4	EXTERNAL USB 1.1 FLOPPY	SONY	MPF82E	50010254	FCC DoC Approved
5	PRINTER	EPSON	B241A	FAPY139300	FCC DoC Approved
6	NOTEBOOK	DELL	E5420	76WNBT1	FCC DoC Approved
7	EARPHONE	Motoral	NA	NA	NA
8	POE	Symbol	PD-3001	NA	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	0.4m USB cable with one core.
2	0.4m USB cable with one core., 2m foil shielded wire, USB Connector, with 1 core.
3	1.8m foil shielded wire, USB Connector, w/o core.
4	1.5 m shielded cable, terminated with USB connector, with 1 core.
5	1.8 m shielded cable, terminated with USB connector, w/o core.
6	10m RJ45 UTP cable
7	1.2m audio cable without core
8	10m RJ45 UTP cable

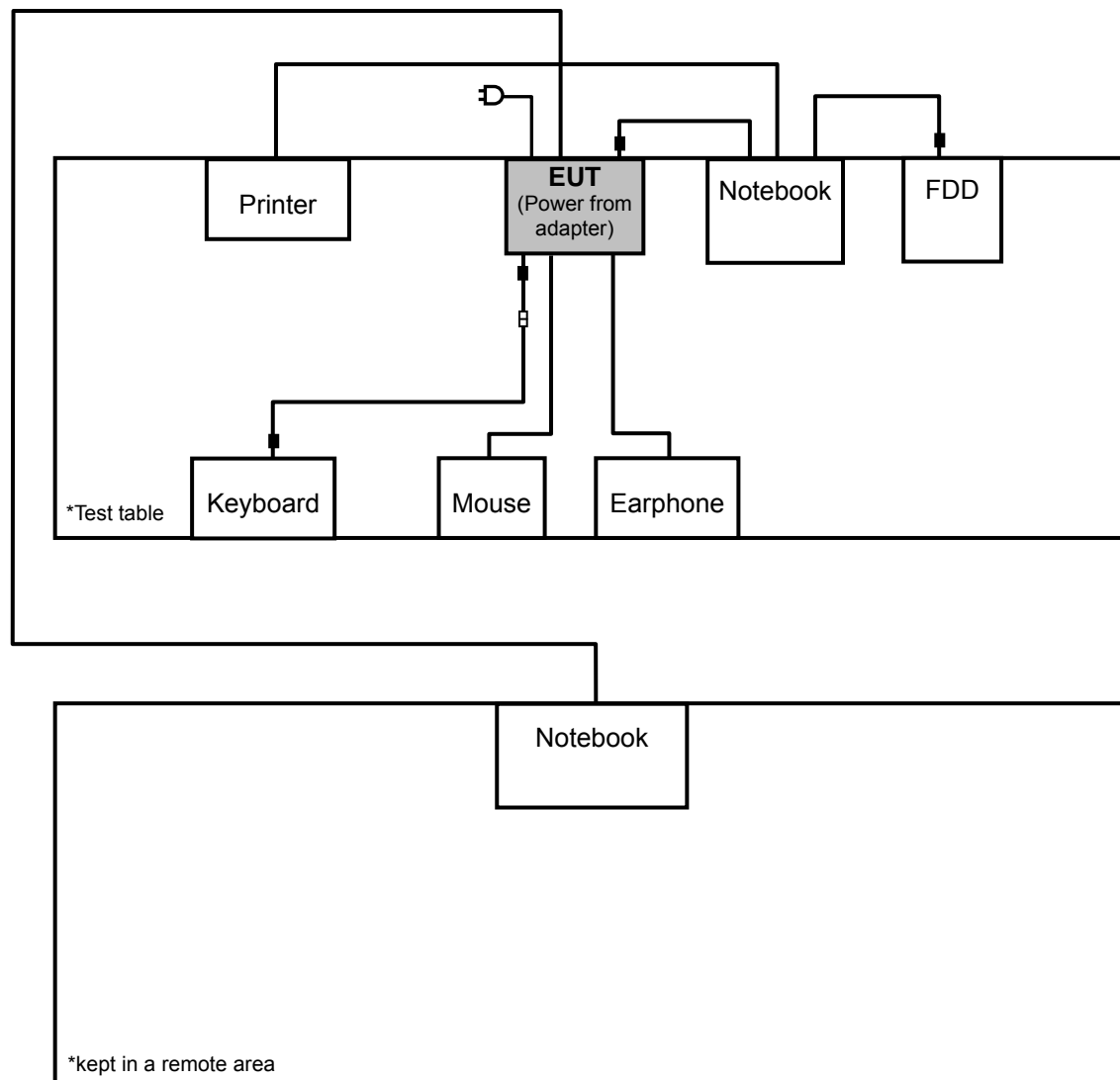
#### NOTE:

1. All power cords of the above support units are non shielded (1.8m).
2. Item 7, 8 and 0.4m USB cable with one core were provided by the client.
3. Items 6 & 8 acted as communication partners to transfer data.

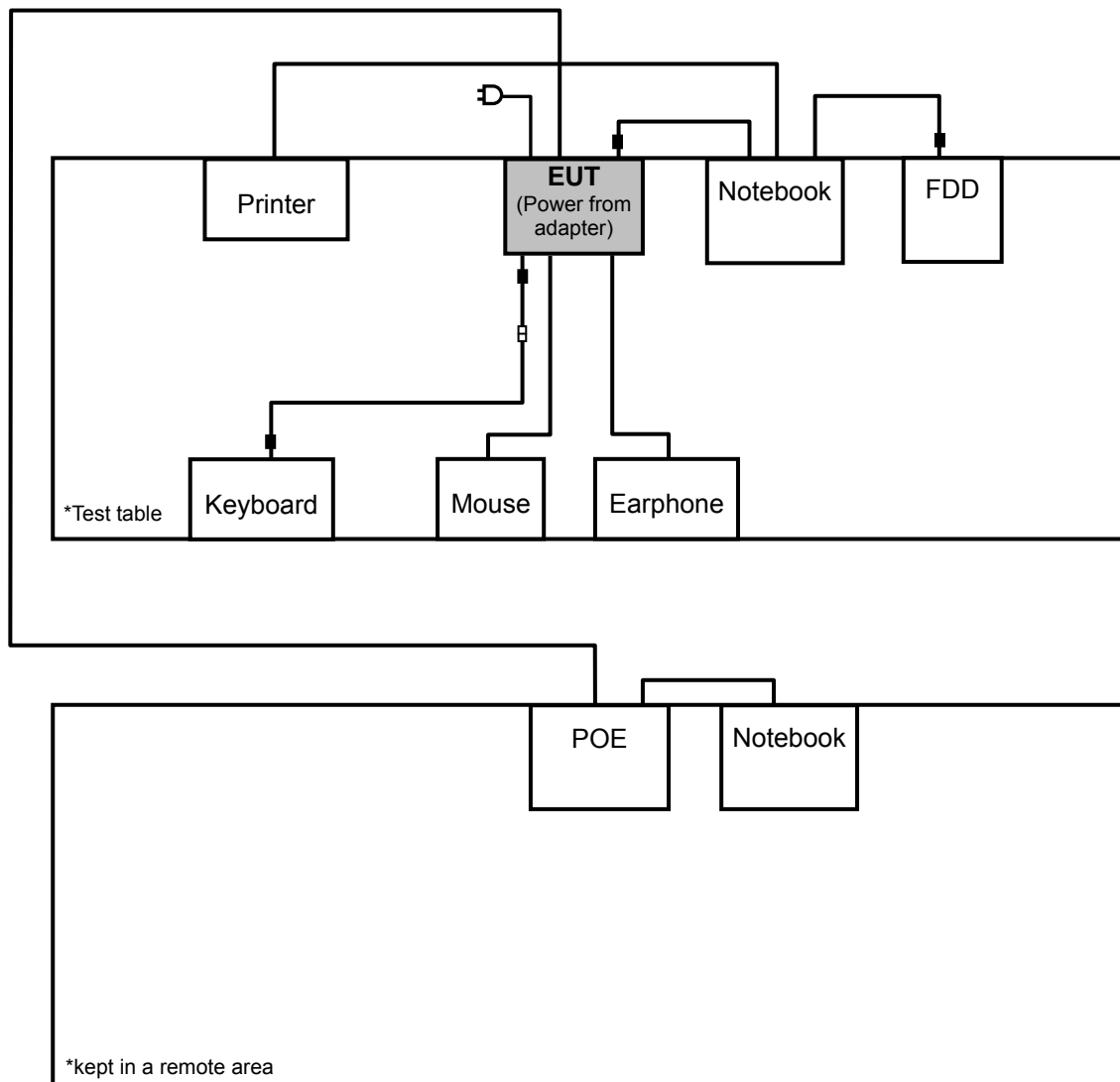


### 3.3.1 CONFIGURATION OF SYSTEM UNDER TEST

#### Test Mode A1(With Main Ant. & Adapter), B1 (With AUX Ant. & Adapter)



## Test Mode A2 (With Main Ant. & POE), B2 (Without AUX Ant. & POE)



\*Test table

### 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)**

ANSI C63.10-2009

KDB 558074 D01 DTS Meas Guidance v01

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 20dB below the highest level of the desired power:

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

**NOTE:**

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

#### 4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100744	Apr. 19, 2012	Apr. 18, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jan. 30, 2012	Jan. 29, 2013
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 03, 2012	Apr. 02, 2013
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Sep. 12, 2012	Sep. 11, 2013
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 11, 2012	Jul. 10, 2013
Loop Antenna	HFH2-Z2	100070	Jan. 31, 2012	Jan. 30, 2014
Preamplifier Agilent	8449B	3008A01911	Oct. 29, 2011	Oct. 28, 2012
Preamplifier Agilent	8447D	2944A10638	Oct. 29, 2011	Oct. 28, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295013/4 283403/4	Aug. 28, 2012	Aug. 27, 2013
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 11, 2012	Aug. 10, 2013
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	NA	NA

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 9.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 460141.
5. The IC Site Registration No. is IC 7450F-4.

#### 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. Height of receiving antenna 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.

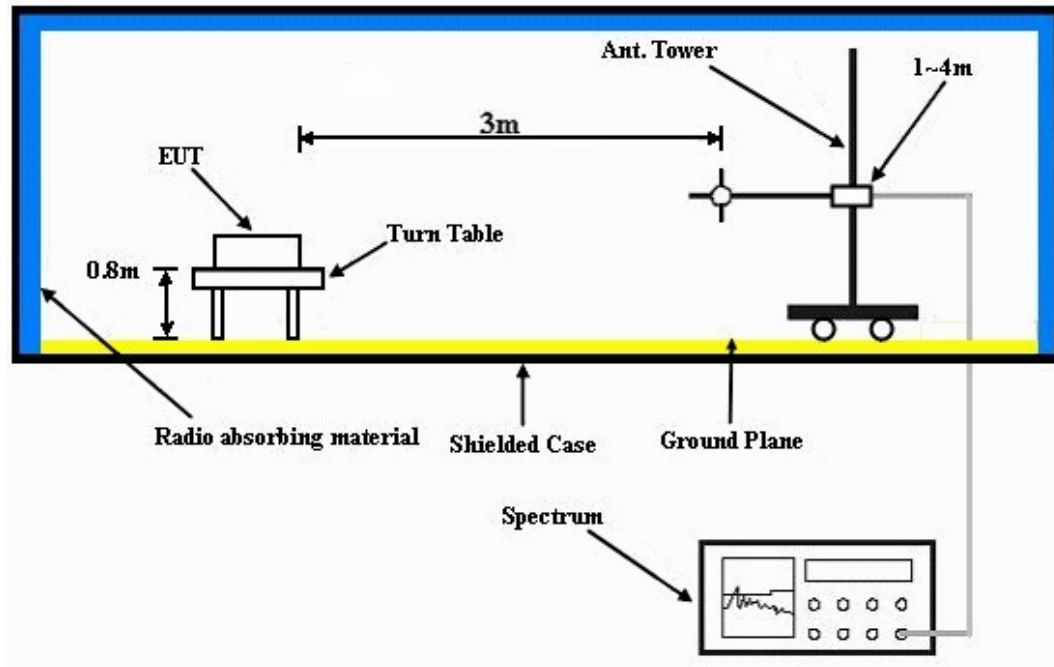
**NOTE:**

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 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz 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 testing table.
- Set the EUT under transmission condition continuously at specific channel frequency.
- The necessary accessories enable the system in full functions.

#### 4.1.7 TEST RESULTS

##### ABOVE 1GHz WORST-CASE DATA:

##### Test Mode A1 (Main Ant. & Adapter)

##### 802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	2389.00	55.1 PK	74.0	-18.9	1.28 H	180	23.70	31.40
2	2389.00	45.6 AV	54.0	-8.4	1.28 H	180	14.20	31.40
3	*2412.00	103.1 PK			1.28 H	180	71.70	31.40
4	*2412.00	98.7 AV			1.28 H	180	67.30	31.40
5	4824.00	53.2 PK	74.0	-20.8	1.01 H	308	15.70	37.50
6	4824.00	49.5 AV	54.0	-4.5	1.01 H	308	12.00	37.50
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	2389.00	56.9 PK	74.0	-17.1	1.00 V	17	25.50	31.40
2	2389.00	47.8 AV	54.0	-6.2	1.00 V	17	16.40	31.40
3	*2412.00	106.7 PK			1.00 V	18	75.30	31.40
4	*2412.00	102.8 AV			1.00 V	18	71.40	31.40
5	4824.00	52.7 PK	74.0	-21.3	1.00 V	356	15.20	37.50
6	4824.00	49.0 AV	54.0	-5.0	1.00 V	356	11.50	37.50

##### 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.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	103.7 PK			1.22 H	204	72.20	31.50
2	*2437.00	99.2 AV			1.22 H	204	67.70	31.50
3	4874.00	52.5 PK	74.0	-21.5	1.38 H	316	14.90	37.60
4	4874.00	49.2 AV	54.0	-4.8	1.38 H	316	11.60	37.60
5	7311.00	50.4 PK	74.0	-23.6	1.67 H	71	6.70	43.70
6	7311.00	38.1 AV	54.0	-15.9	1.67 H	71	-5.60	43.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	107.6 PK			1.00 V	7	76.10	31.50
2	*2437.00	103.4 AV			1.00 V	7	71.90	31.50
3	4874.00	52.8 PK	74.0	-21.2	1.00 V	347	15.20	37.60
4	4874.00	47.7 AV	54.0	-6.3	1.00 V	347	10.10	37.60
5	7311.00	49.5 PK	74.0	-24.5	1.28 V	341	5.80	43.70
6	7311.00	38.6 AV	54.0	-15.4	1.28 V	341	-5.10	43.70

**REMARKS:**

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	102.3 PK			1.36 H	204	70.70	31.60
2	*2462.00	97.4 AV			1.36 H	204	65.80	31.60
3	2483.50	56.2 PK	74.0	-17.8	1.36 H	204	24.50	31.70
4	2483.50	45.8 AV	54.0	-8.2	1.36 H	204	14.10	31.70
5	4924.00	51.8 PK	74.0	-22.2	1.27 H	318	14.10	37.70
6	4924.00	47.8 AV	54.0	-6.2	1.27 H	318	10.10	37.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.9 PK			1.00 V	2	74.30	31.60
2	*2462.00	101.8 AV			1.00 V	2	70.20	31.60
3	2483.50	57.1 PK	74.0	-16.9	1.00 V	2	25.40	31.70
4	2483.50	46.9 AV	54.0	-7.1	1.00 V	2	15.20	31.70
5	4924.00	49.1 PK	74.0	-24.9	1.00 V	357	11.40	37.70
6	4924.00	44.7 AV	54.0	-9.3	1.00 V	357	7.00	37.70

**REMARKS:**

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 12	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Anderson Hong

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	*2467.00	92.2 PK			1.22 H	212	60.50	31.70
2	*2467.00	86.8 AV			1.22 H	212	55.10	31.70
3	2483.50	53.7 PK	74.0	-20.3	1.22 H	212	22.00	31.70
4	2483.50	42.2 AV	54.0	-11.8	1.22 H	212	10.50	31.70
5	4934.00	45.7 PK	74.0	-28.3	1.17 H	296	8.00	37.70
6	4934.00	35.2 AV	54.0	-18.8	1.17 H	296	-2.50	37.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2467.00	85.3 PK			1.00 V	7	53.60	31.70
2	*2467.00	81.4 AV			1.00 V	7	49.70	31.70
3	2483.50	55.5 PK	74.0	-18.5	1.00 V	7	23.80	31.70
4	2483.50	44.1 AV	54.0	-9.9	1.00 V	7	12.40	31.70
5	4934.00	43.1 PK	74.0	-30.9	1.04 V	347	5.40	37.70
6	4934.00	33.6 AV	54.0	-20.4	1.04 V	347	-4.10	37.70

**REMARKS:**

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 13	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Anderson Hong

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	*2472.00	91.5 PK			1.14 H	227	59.80	31.70
2	*2472.00	86.2 AV			1.14 H	227	54.50	31.70
3	2483.50	53.2 PK	74.0	-20.8	1.14 H	227	21.50	31.70
4	2483.50	43.8 AV	54.0	-10.2	1.14 H	227	12.10	31.70
5	4944.00	45.9 PK	74.0	-28.1	1.27 H	305	8.20	37.70
6	4944.00	35.6 AV	54.0	-18.4	1.27 H	305	-2.10	37.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2472.00	84.3 PK			1.00 V	3	52.60	31.70
2	*2472.00	80.1 AV			1.00 V	3	48.40	31.70
3	2483.50	55.5 PK	74.0	-18.5	1.00 V	3	23.80	31.70
4	2483.50	44.2 AV	54.0	-9.8	1.00 V	3	12.50	31.70
5	4944.00	43.4 PK	74.0	-30.6	1.12 V	358	5.70	37.70
6	4944.00	33.8 AV	54.0	-20.2	1.12 V	358	-3.90	37.70

**REMARKS:**

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

## 802.11g

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	66.2 PK	74.0	-7.8	1.07 H	204	34.80	31.40
2	2390.00	48.0 AV	54.0	-6.0	1.07 H	204	16.60	31.40
3	*2412.00	105.1 PK			1.07 H	204	73.70	31.40
4	*2412.00	95.2 AV			1.07 H	204	63.80	31.40
5	4824.00	46.7 PK	74.0	-27.3	1.24 H	28	9.20	37.50
6	4824.00	33.3 AV	54.0	-20.7	1.24 H	28	-4.20	37.50
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	70.7 PK	74.0	-3.3	1.00 V	7	39.30	31.40
2	2390.00	53.0 AV	54.0	-1.0	1.00 V	7	21.60	31.40
3	*2412.00	105.6 PK			1.00 V	7	74.20	31.40
4	*2412.00	95.9 AV			1.00 V	7	64.50	31.40
5	4824.00	45.8 PK	74.0	-28.2	1.13 V	352	8.30	37.50
6	4824.00	33.4 AV	54.0	-20.6	1.13 V	352	-4.10	37.50

## 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 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	106.8 PK			1.16 H	221	75.30	31.50
2	*2437.00	96.2 AV			1.16 H	221	64.70	31.50
3	4874.00	45.2 PK	74.0	-28.8	1.46 H	289	7.60	37.60
4	4874.00	33.8 AV	54.0	-20.2	1.46 H	289	-3.80	37.60
5	7311.00	48.9 PK	74.0	-25.1	1.54 H	69	5.20	43.70
6	7311.00	38.6 AV	54.0	-15.4	1.54 H	69	-5.10	43.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	108.2 PK			1.00 V	8	76.70	31.50
2	*2437.00	99.6 AV			1.00 V	8	68.10	31.50
3	4874.00	48.9 PK	74.0	-25.1	1.14 V	342	11.30	37.60
4	4874.00	35.6 AV	54.0	-18.4	1.14 V	342	-2.00	37.60
5	7311.00	50.9 PK	74.0	-23.1	1.39 V	301	7.20	43.70
6	7311.00	40.9 AV	54.0	-13.1	1.39 V	301	-2.80	43.70

**REMARKS:**

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	104.1 PK			1.17 H	212	72.50	31.60
2	*2462.00	93.4 AV			1.17 H	212	61.80	31.60
3	2483.50	60.3 PK	74.0	-13.7	1.17 H	212	28.60	31.70
4	2483.50	46.9 AV	54.0	-7.1	1.17 H	212	15.20	31.70
5	4924.00	44.3 PK	74.0	-29.7	1.28 H	247	6.60	37.70
6	4924.00	33.2 AV	54.0	-20.8	1.28 H	247	-4.50	37.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.2 PK			1.00 V	3	74.60	31.60
2	*2462.00	96.2 AV			1.00 V	3	64.60	31.60
3	2483.50	70.8 PK	74.0	-3.2	1.00 V	3	39.10	31.70
4	<b>2483.50</b>	<b>53.0 AV</b>	<b>54.0</b>	<b>-1.0</b>	<b>1.00 V</b>	<b>3</b>	<b>21.30</b>	<b>31.70</b>
5	4924.00	45.6 PK	74.0	-28.4	1.25 V	351	7.90	37.70
6	4924.00	33.4 AV	54.0	-20.6	1.25 V	351	-4.30	37.70

**REMARKS:**

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 12	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Anderson Hong

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	*2467.00	85.4 PK			1.22 H	241	53.70	31.70
2	*2467.00	75.2 AV			1.22 H	241	43.50	31.70
3	2483.50	56.7 PK	74.0	-17.3	1.22 H	241	25.00	31.70
4	2483.50	43.2 AV	54.0	-10.8	1.22 H	241	11.50	31.70
5	4934.00	48.4 PK	74.0	-25.6	1.57 H	82	10.70	37.70
6	4934.00	38.2 AV	54.0	-15.8	1.57 H	82	0.50	37.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2467.00	87.0 PK			1.04 V	8	55.30	31.70
2	*2467.00	78.3 AV			1.04 V	8	46.60	31.70
3	2483.50	58.6 PK	74.0	-15.4	1.04 V	7	26.90	31.70
4	2483.50	44.7 AV	54.0	-9.3	1.04 V	7	13.00	31.70
5	4934.00	43.7 PK	74.0	-30.3	1.22 V	352	6.00	37.70
6	4934.00	32.9 AV	54.0	-21.1	1.22 V	352	-4.80	37.70

**REMARKS:**

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





A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 13	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Anderson Hong

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	*2472.00	84.4 PK			1.32 H	218	52.70	31.70
2	*2472.00	74.2 AV			1.32 H	218	42.50	31.70
3	2483.50	62.4 PK	74.0	-11.6	1.32 H	218	30.70	31.70
4	2483.50	45.0 AV	54.0	-9.0	1.32 H	218	13.30	31.70
5	4944.00	48.6 PK	74.0	-25.4	1.51 H	95	10.90	37.70
6	4944.00	38.5 AV	54.0	-15.5	1.51 H	95	0.80	37.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2472.00	86.2 PK			1.02 V	8	54.50	31.70
2	*2472.00	76.7 AV			1.02 V	8	45.00	31.70
3	2483.50	64.2 PK	74.0	-9.8	1.02 V	8	32.50	31.70
4	2483.50	46.7 AV	54.0	-7.3	1.02 V	8	15.00	31.70
5	4944.00	44.2 PK	74.0	-29.8	1.23 V	342	6.50	37.70
6	4944.00	33.6 AV	54.0	-20.4	1.23 V	342	-4.10	37.70

**REMARKS:**

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

# 802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	66.7 PK	74.0	-7.3	1.06 H	194	35.30	31.40
2	2390.00	48.7 AV	54.0	-5.3	1.06 H	194	17.30	31.40
3	*2412.00	104.6 PK			1.06 H	194	73.20	31.40
4	*2412.00	94.8 AV			1.06 H	194	63.40	31.40
5	4824.00	46.4 PK	74.0	-27.6	1.45 H	321	8.90	37.50
6	4824.00	34.0 AV	54.0	-20.0	1.45 H	321	-3.50	37.50
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	68.1 PK	74.0	-5.9	1.00 V	2	36.70	31.40
2	2390.00	52.1 AV	54.0	-1.9	1.00 V	2	20.70	31.40
3	*2412.00	104.9 PK			1.00 V	7	73.50	31.40
4	*2412.00	95.1 AV			1.00 V	7	63.70	31.40
5	4824.00	45.4 PK	74.0	-28.6	1.17 V	352	7.90	37.50
6	4824.00	32.7 AV	54.0	-21.3	1.17 V	352	-4.80	37.50

## 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 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	106.4 PK			1.07 H	207	74.90	31.50
2	*2437.00	96.0 AV			1.07 H	207	64.50	31.50
3	4874.00	45.8 PK	74.0	-28.2	1.51 H	302	8.20	37.60
4	4874.00	34.1 AV	54.0	-19.9	1.51 H	302	-3.50	37.60
5	7311.00	49.2 PK	74.0	-24.8	1.47 H	52	5.50	43.70
6	7311.00	39.0 AV	54.0	-15.0	1.47 H	52	-4.70	43.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	108.0 PK			1.02 V	3	76.50	31.50
2	*2437.00	99.5 AV			1.02 V	3	68.00	31.50
3	4874.00	48.6 PK	74.0	-25.4	1.13 V	356	11.00	37.60
4	4874.00	35.3 AV	54.0	-18.7	1.13 V	356	-2.30	37.60
5	7311.00	51.6 PK	74.0	-22.4	1.35 V	331	7.90	43.70
6	7311.00	40.5 AV	54.0	-13.5	1.35 V	331	-3.20	43.70

**REMARKS:**

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	103.7 PK			1.15 H	205	72.10	31.60
2	*2462.00	93.2 AV			1.15 H	205	61.60	31.60
3	2483.50	60.1 PK	74.0	-13.9	1.15 H	205	28.40	31.70
4	2483.50	46.8 AV	54.0	-7.2	1.15 H	205	15.10	31.70
5	4924.00	44.7 PK	74.0	-29.3	1.36 H	252	7.00	37.70
6	4924.00	33.4 AV	54.0	-20.6	1.36 H	252	-4.30	37.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.0 PK			1.02 V	1	74.40	31.60
2	*2462.00	95.9 AV			1.02 V	1	64.30	31.60
3	2483.50	70.2 PK	74.0	-3.8	1.02 V	1	38.50	31.70
4	2483.50	52.7 AV	54.0	-1.3	1.02 V	1	21.00	31.70
5	4924.00	45.8 PK	74.0	-28.2	1.24 V	347	8.10	37.70
6	4924.00	33.8 AV	54.0	-20.2	1.24 V	347	-3.90	37.70

**REMARKS:**

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 12	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Anderson Hong

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	*2467.00	85.2 PK			1.18 H	231	53.50	31.70
2	*2467.00	75.1 AV			1.18 H	231	43.40	31.70
3	2483.50	56.2 PK	74.0	-17.8	1.18 H	231	24.50	31.70
4	2483.50	42.8 AV	54.0	-11.2	1.18 H	231	11.10	31.70
5	4934.00	48.6 PK	74.0	-25.4	1.52 H	77	10.90	37.70
6	4934.00	38.5 AV	54.0	-15.5	1.52 H	77	0.80	37.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2467.00	86.8 PK			1.00 V	7	55.10	31.70
2	*2467.00	78.2 AV			1.00 V	7	46.50	31.70
3	2483.50	58.4 PK	74.0	-15.6	1.00 V	2	26.70	31.70
4	2483.50	44.4 AV	54.0	-9.6	1.00 V	2	12.70	31.70
5	4934.00	43.2 PK	74.0	-30.8	1.21 V	347	5.50	37.70
6	4934.00	32.7 AV	54.0	-21.3	1.21 V	347	-5.00	37.70

**REMARKS:**

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 13	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Anderson Hong

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	*2472.00	84.7 PK			1.27 H	228	53.00	31.70
2	*2472.00	74.7 AV			1.27 H	228	43.00	31.70
3	2483.50	62.7 PK	74.0	-11.3	1.27 H	228	31.00	31.70
4	2483.50	45.2 AV	54.0	-8.8	1.27 H	228	13.50	31.70
5	4944.00	48.2 PK	74.0	-25.8	1.48 H	82	10.50	37.70
6	4944.00	38.2 AV	54.0	-15.8	1.48 H	82	0.50	37.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2472.00	86.4 PK			1.00 V	2	54.70	31.70
2	*2472.00	77.1 AV			1.00 V	2	45.40	31.70
3	2483.50	64.4 PK	74.0	-9.6	1.00 V	2	32.70	31.70
4	2483.50	47.0 AV	54.0	-7.0	1.00 V	2	15.30	31.70
5	4944.00	43.8 PK	74.0	-30.2	1.16 V	352	6.10	37.70
6	4944.00	33.4 AV	54.0	-20.6	1.16 V	352	-4.30	37.70

**REMARKS:**

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

## Test Mode B1 (AUX Ant. & Adapter)

### 802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	56.8 PK	74.0	-17.2	1.12 H	188	25.40	31.40
2	2390.00	47.2 AV	54.0	-6.8	1.12 H	188	15.80	31.40
3	*2412.00	107.3 PK			1.12 H	188	75.90	31.40
4	*2412.00	103.3 AV			1.12 H	188	71.90	31.40
5	4824.00	49.8 PK	74.0	-24.2	1.18 H	7	12.30	37.50
6	4824.00	44.3 AV	54.0	-9.7	1.18 H	7	6.80	37.50
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	57.2 PK	74.0	-16.8	1.14 V	99	25.80	31.40
2	2390.00	45.9 AV	54.0	-8.1	1.14 V	99	14.50	31.40
3	*2412.00	105.5 PK			1.15 V	99	74.10	31.40
4	*2412.00	101.3 AV			1.15 V	99	69.90	31.40
5	4824.00	48.4 PK	74.0	-25.6	1.12 V	350	10.90	37.50
6	4824.00	42.6 AV	54.0	-11.4	1.12 V	350	5.10	37.50

#### 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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	107.4 PK			1.07 H	196	75.90	31.50
2	*2437.00	103.2 AV			1.07 H	196	71.70	31.50
3	4874.00	50.1 PK	74.0	-23.9	1.14 H	0	12.50	37.60
4	4874.00	45.4 AV	54.0	-8.6	1.14 H	0	7.80	37.60
5	7311.00	50.9 PK	74.0	-23.1	1.00 H	332	7.20	43.70
6	7311.00	38.4 AV	54.0	-15.6	1.00 H	332	-5.30	43.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	105.4 PK			1.18 V	104	73.90	31.50
2	*2437.00	101.1 AV			1.18 V	104	69.60	31.50
3	4874.00	48.8 PK	74.0	-25.2	1.08 V	347	11.20	37.60
4	4874.00	42.7 AV	54.0	-11.3	1.08 V	347	5.10	37.60
5	7311.00	49.4 PK	74.0	-24.6	1.28 V	1	5.70	43.70
6	7311.00	37.9 AV	54.0	-16.1	1.28 V	1	-5.80	43.70

**REMARKS:**

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	105.3 PK			1.06 H	188	73.70	31.60
2	*2462.00	101.2 AV			1.06 H	188	69.60	31.60
3	2483.50	57.7 PK	74.0	-16.3	1.06 H	188	26.00	31.70
4	2483.50	51.7 AV	54.0	-2.3	1.06 H	188	20.00	31.70
5	4924.00	50.6 PK	74.0	-23.4	1.14 H	7	12.90	37.70
6	4924.00	46.4 AV	54.0	-7.6	1.14 H	7	8.70	37.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	103.7 PK			1.18 V	106	72.10	31.60
2	*2462.00	99.4 AV			1.18 V	106	67.80	31.60
3	2483.50	56.4 PK	74.0	-17.6	1.18 V	106	24.70	31.70
4	2483.50	45.2 AV	54.0	-8.8	1.18 V	106	13.50	31.70
5	4924.00	48.2 PK	74.0	-25.8	1.07 V	343	10.50	37.70
6	4924.00	42.2 AV	54.0	-11.8	1.07 V	343	4.50	37.70

**REMARKS:**

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 12	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Anderson Hong

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	*2467.00	86.1 PK			1.06 H	189	54.40	31.70
2	*2467.00	82.0 AV			1.06 H	189	50.30	31.70
3	2483.50	54.4 PK	74.0	-19.6	1.06 H	189	22.70	31.70
4	2483.50	44.4 AV	54.0	-9.6	1.06 H	189	12.70	31.70
5	4934.00	45.4 PK	74.0	-28.6	1.03 H	4	7.70	37.70
6	4934.00	32.7 AV	54.0	-21.3	1.03 H	4	-5.00	37.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2467.00	84.7 PK			1.18 V	108	53.00	31.70
2	*2467.00	80.2 AV			1.18 V	108	48.50	31.70
3	2483.50	53.1 PK	74.0	-20.9	1.18 V	108	21.40	31.70
4	2483.50	42.2 AV	54.0	-11.8	1.18 V	108	10.50	31.70
5	4934.00	43.8 PK	74.0	-30.2	1.21 V	352	6.10	37.70
6	4934.00	32.1 AV	54.0	-21.9	1.21 V	352	-5.60	37.70

**REMARKS:**

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 13	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Anderson Hong

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	*2472.00	85.8 PK			1.07 H	189	54.10	31.70
2	*2472.00	81.7 AV			1.07 H	189	50.00	31.70
3	2483.50	54.9 PK	74.0	-19.1	1.07 H	189	23.20	31.70
4	2483.50	45.1 AV	54.0	-8.9	1.07 H	189	13.40	31.70
5	4944.00	45.1 PK	74.0	-28.9	1.08 H	3	7.40	37.70
6	4944.00	32.2 AV	54.0	-21.8	1.08 H	3	-5.50	37.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2472.00	84.6 PK			1.24 V	98	52.90	31.70
2	*2472.00	80.0 AV			1.24 V	98	48.30	31.70
3	2483.50	54.1 PK	74.0	-19.9	1.24 V	98	22.40	31.70
4	2483.50	44.7 AV	54.0	-9.3	1.24 V	98	13.00	31.70
5	4944.00	43.4 PK	74.0	-30.6	1.12 V	347	5.70	37.70
6	4944.00	32.6 AV	54.0	-21.4	1.12 V	347	-5.10	37.70

**REMARKS:**

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

# 802.11g

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	68.4 PK	74.0	-5.6	1.07 H	189	37.50	30.90
2	2390.00	52.9 AV	54.0	-1.1	1.07 H	189	22.00	30.90
3	*2412.00	105.3 PK			1.08 H	190	74.30	31.00
4	*2412.00	95.7 AV			1.08 H	190	64.70	31.00
5	4824.00	45.2 PK	74.0	-28.8	1.07 H	93	8.10	37.10
6	4824.00	34.6 AV	54.0	-19.4	1.07 H	93	-2.50	37.10
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	2390.00	66.4 PK	74.0	-7.6	1.04 V	165	35.50	30.90
2	2390.00	51.2 AV	54.0	-2.8	1.04 V	165	20.30	30.90
3	*2412.00	103.2 PK			1.00 V	165	72.20	31.00
4	*2412.00	94.0 AV			1.00 V	165	63.00	31.00
5	4824.00	43.7 PK	74.0	-30.3	1.22 V	258	6.60	37.10
6	4824.00	33.2 AV	54.0	-20.8	1.22 V	258	-3.90	37.10

## 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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	109.0 PK			1.10 H	7	77.90	31.10
2	*2437.00	99.1 AV			1.10 H	7	68.00	31.10
3	4874.00	46.6 PK	74.0	-27.4	1.00 H	78	9.40	37.20
4	4874.00	33.5 AV	54.0	-20.5	1.00 H	78	-3.70	37.20
5	7311.00	50.5 PK	74.0	-23.5	1.18 H	324	7.00	43.50
6	7311.00	38.0 AV	54.0	-16.0	1.18 H	324	-5.50	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	*2437.00	106.5 PK			1.00 V	173	75.40	31.10
2	*2437.00	97.1 AV			1.00 V	173	66.00	31.10
3	4874.00	44.7 PK	74.0	-29.3	1.20 V	231	7.50	37.20
4	4874.00	33.3 AV	54.0	-20.7	1.20 V	231	-3.90	37.20
5	7311.00	51.4 PK	74.0	-22.6	1.40 V	280	7.90	43.50
6	7311.00	38.5 AV	54.0	-15.5	1.40 V	280	-5.00	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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	105.8 PK			1.05 H	9	74.60	31.20
2	*2462.00	96.1 AV			1.05 H	9	64.90	31.20
3	2483.50	67.4 PK	74.0	-6.6	1.05 H	9	36.10	31.30
4	2483.50	53.0 AV	54.0	-1.0	1.05 H	9	21.70	31.30
5	4924.00	46.0 PK	74.0	-28.0	1.00 H	83	8.70	37.30
6	4924.00	32.8 AV	54.0	-21.2	1.00 H	83	-4.50	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	*2462.00	103.8 PK			1.00 V	171	72.60	31.20
2	*2462.00	94.4 AV			1.00 V	171	63.20	31.20
3	2483.50	66.9 PK	74.0	-7.1	1.00 V	171	35.60	31.30
4	2483.50	51.8 AV	54.0	-2.2	1.00 V	171	20.50	31.30
5	4924.00	44.0 PK	74.0	-30.0	1.23 V	236	6.70	37.30
6	4924.00	32.7 AV	54.0	-21.3	1.23 V	236	-4.60	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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 12	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Anderson Hong

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	*2467.00	88.2 PK			1.05 H	8	57.00	31.20
2	*2467.00	78.8 AV			1.05 H	8	47.60	31.20
3	2483.50	54.5 PK	74.0	-19.5	1.05 H	8	23.20	31.30
4	2483.50	44.2 AV	54.0	-9.8	1.05 H	8	12.90	31.30
5	4934.00	45.5 PK	74.0	-28.5	1.00 H	86	8.20	37.30
6	4934.00	32.3 AV	54.0	-21.7	1.00 H	86	-5.00	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	*2467.00	86.6 PK			1.00 V	168	55.40	31.20
2	*2467.00	77.0 AV			1.00 V	168	45.80	31.20
3	2483.50	54.6 PK	74.0	-19.4	1.00 V	168	23.30	31.30
4	2483.50	43.8 AV	54.0	-10.2	1.00 V	168	12.50	31.30
5	4934.00	43.7 PK	74.0	-30.3	1.23 V	237	6.40	37.30
6	4934.00	32.5 AV	54.0	-21.5	1.23 V	237	-4.80	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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 13	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Anderson Hong

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	*2472.00	88.3 PK			1.04 H	7	57.00	31.30
2	*2472.00	78.8 AV			1.04 H	7	47.50	31.30
3	2483.50	61.5 PK	74.0	-12.5	1.04 H	7	30.20	31.30
4	2483.50	45.9 AV	54.0	-8.1	1.04 H	7	14.60	31.30
5	4944.00	45.8 PK	74.0	-28.2	1.00 H	83	8.50	37.30
6	4944.00	32.5 AV	54.0	-21.5	1.00 H	83	-4.80	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	*2472.00	86.1 PK			1.00 V	165	54.80	31.30
2	*2472.00	76.8 AV			1.00 V	165	45.50	31.30
3	2483.50	61.1 PK	74.0	-12.9	1.00 V	165	29.80	31.30
4	2483.50	45.6 AV	54.0	-8.4	1.00 V	165	14.30	31.30
5	4944.00	43.9 PK	74.0	-30.1	1.25 V	231	6.60	37.30
6	4944.00	32.7 AV	54.0	-21.3	1.25 V	231	-4.60	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.



# 802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	67.4 PK	74.0	-6.6	1.07 H	194	36.50	30.90
2	2390.00	52.4 AV	54.0	-1.6	1.07 H	194	21.50	30.90
3	*2412.00	104.7 PK			1.07 H	194	73.70	31.00
4	*2412.00	95.0 AV			1.07 H	194	64.00	31.00
5	4824.00	45.1 PK	74.0	-28.9	1.35 H	325	8.00	37.10
6	4824.00	34.1 AV	54.0	-19.9	1.35 H	325	-3.00	37.10
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	2390.00	65.7 PK	74.0	-8.3	1.08 V	177	34.80	30.90
2	2390.00	50.7 AV	54.0	-3.3	1.08 V	177	19.80	30.90
3	*2412.00	102.6 PK			1.08 V	177	71.60	31.00
4	*2412.00	93.4 AV			1.08 V	177	62.40	31.00
5	4824.00	43.4 PK	74.0	-30.6	1.28 V	269	6.30	37.10
6	4824.00	32.9 AV	54.0	-21.1	1.28 V	269	-4.20	37.10

## 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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	107.1 PK			1.06 H	195	76.00	31.10
2	*2437.00	97.2 AV			1.06 H	195	66.10	31.10
3	4874.00	45.1 PK	74.0	-28.9	1.32 H	347	7.90	37.20
4	4874.00	34.1 AV	54.0	-19.9	1.32 H	347	-3.10	37.20
5	7311.00	50.9 PK	74.0	-23.1	1.01 H	221	7.40	43.50
6	7311.00	39.8 AV	54.0	-14.2	1.01 H	221	-3.70	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	105.8 PK			1.02 V	173	74.70	31.10
2	*2437.00	95.7 AV			1.02 V	173	64.60	31.10
3	4874.00	44.1 PK	74.0	-29.9	1.18 V	264	6.90	37.20
4	4874.00	33.8 AV	54.0	-20.2	1.18 V	264	-3.40	37.20
5	7311.00	49.7 PK	74.0	-24.3	1.57 V	22	6.20	43.50
6	7311.00	39.3 AV	54.0	-14.7	1.57 V	22	-4.20	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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	103.2 PK			1.27 H	244	72.00	31.20
2	*2462.00	93.1 AV			1.27 H	244	61.90	31.20
3	2483.50	67.1 PK	74.0	-6.9	1.27 H	244	35.80	31.30
4	2483.50	52.4 AV	54.0	-1.6	1.27 H	244	21.10	31.30
5	4924.00	44.6 PK	74.0	-29.4	1.39 H	332	7.30	37.30
6	4924.00	34.2 AV	54.0	-19.8	1.39 H	332	-3.10	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	*2462.00	101.0 PK			1.12 V	151	69.80	31.20
2	*2462.00	91.8 AV			1.12 V	151	60.60	31.20
3	2483.50	64.8 PK	74.0	-9.2	1.12 V	151	33.50	31.30
4	2483.50	48.9 AV	54.0	-5.1	1.12 V	151	17.60	31.30
5	4924.00	43.1 PK	74.0	-30.9	1.22 V	247	5.80	37.30
6	4924.00	33.2 AV	54.0	-20.8	1.22 V	247	-4.10	37.30

**REMARKS:**

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 12	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Anderson Hong

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	*2467.00	87.1 PK			1.28 H	243	55.90	31.20
2	*2467.00	77.2 AV			1.28 H	243	46.00	31.20
3	2483.50	55.0 PK	74.0	-19.0	1.28 H	243	23.70	31.30
4	2483.50	44.1 AV	54.0	-9.9	1.28 H	243	12.80	31.30
5	4934.00	42.8 PK	74.0	-31.2	1.31 H	348	5.50	37.30
6	4934.00	33.5 AV	54.0	-20.5	1.31 H	348	-3.80	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	*2467.00	85.2 PK			1.04 V	152	54.00	31.20
2	*2467.00	75.4 AV			1.04 V	152	44.20	31.20
3	2483.50	54.5 PK	74.0	-19.5	1.04 V	152	23.20	31.30
4	2483.50	43.8 AV	54.0	-10.2	1.04 V	152	12.50	31.30
5	4934.00	42.2 PK	74.0	-31.8	1.22 V	252	4.90	37.30
6	4934.00	33.1 AV	54.0	-20.9	1.22 V	252	-4.20	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 13	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Anderson Hong

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	*2472.00	87.5 PK			1.22 H	221	56.20	31.30
2	*2472.00	77.3 AV			1.22 H	221	46.00	31.30
3	2483.50	60.2 PK	74.0	-13.8	1.22 H	221	28.90	31.30
4	2483.50	45.3 AV	54.0	-8.7	1.22 H	221	14.00	31.30
5	4944.00	43.2 PK	74.0	-30.8	1.27 H	352	5.90	37.30
6	4944.00	33.4 AV	54.0	-20.6	1.27 H	352	-3.90	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	*2472.00	85.6 PK			1.09 V	121	54.30	31.30
2	*2472.00	75.6 AV			1.09 V	121	44.30	31.30
3	2483.50	59.2 PK	74.0	-14.8	1.09 V	121	27.90	31.30
4	2483.50	44.0 AV	54.0	-10.0	1.09 V	121	12.70	31.30
5	4944.00	41.8 PK	74.0	-32.2	1.28 V	241	4.50	37.30
6	4944.00	32.6 AV	54.0	-21.4	1.28 V	241	-4.70	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.

# BELOW 1GHz WORST-CASE DATA :

## 802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Nick Chen
TEST MODE	A1 (With Main Ant. & Adapter)		

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	191.02	26.4 QP	43.5	-17.1	1.50 H	142	14.55	11.81
2	218.18	26.0 QP	46.0	-20.0	1.00 H	151	14.24	11.79
3	293.84	26.2 QP	46.0	-19.8	1.00 H	70	11.51	14.66
4	357.86	27.5 QP	46.0	-18.5	1.00 H	24	11.06	16.41
5	829.28	26.6 QP	46.0	-19.5	1.00 H	258	0.93	25.62
6	862.26	27.3 QP	46.0	-18.7	1.50 H	349	1.28	26.01
7	889.42	27.0 QP	46.0	-19.0	1.50 H	63	0.67	26.32
8	959.26	28.3 QP	46.0	-17.7	1.50 H	39	1.36	26.97
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	37.76	28.4 QP	40.0	-11.6	1.00 V	314	15.59	12.81
2	62.98	24.7 QP	40.0	-15.4	1.00 V	315	11.59	13.06
3	107.60	25.5 QP	43.5	-18.0	1.50 V	341	15.27	10.23
4	340.40	26.4 QP	46.0	-19.6	1.50 V	4	10.47	15.95
5	780.78	26.1 QP	46.0	-19.9	1.50 V	4	1.32	24.82
6	850.62	27.0 QP	46.0	-19.1	1.50 V	358	1.07	25.88
7	897.18	27.4 QP	46.0	-18.6	1.50 V	4	0.95	26.41
8	945.68	28.0 QP	46.0	-18.0	1.50 V	84	1.13	26.86

### REMARKS:

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Anderson Hong
TEST MODE	A 2 (With Main Ant. & POE)		

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	95.41	37.1 QP	43.5	-6.4	1.25 H	305	28.30	8.80
2	115.95	38.7 QP	43.5	-4.8	1.75 H	305	27.50	11.20
3	152.41	37.2 QP	43.5	-6.3	1.50 H	223	23.40	13.80
4	191.34	40.1 QP	43.5	-3.4	1.51 H	152	28.30	11.80
5	216.82	36.8 QP	46.0	-9.2	1.50 H	169	25.10	11.70
6	288.67	38.2 QP	46.0	-7.8	1.25 H	251	23.70	14.50
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	35.43	35.1 QP	40.0	-4.9	1.25 V	108	22.70	12.40
2	63.05	35.7 QP	40.0	-4.3	1.75 V	107	22.60	13.10
3	89.02	34.6 QP	43.5	-8.9	1.25 V	117	26.30	8.30
4	140.08	34.1 QP	43.5	-9.4	1.25 V	163	20.60	13.50
5	179.85	35.7 QP	43.5	-7.8	1.25 V	312	23.00	12.70
6	191.57	34.1 QP	43.5	-9.4	1.25 V	299	22.30	11.80

**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.

## 802.11g

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Anderson Hong
TEST MODE	B1 (With AUX Ant. & Adapter)		

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	96.48	36.7 QP	43.5	-6.8	1.75 H	105	27.80	8.90
2	115.28	39.2 QP	43.5	-4.3	1.50 H	61	28.00	11.20
3	156.07	36.8 QP	43.5	-6.7	1.75 H	158	22.90	13.90
4	193.22	40.3 QP	43.5	-3.2	1.25 H	14	28.70	11.60
5	216.01	36.2 QP	46.0	-9.8	1.50 H	89	24.50	11.70
6	240.22	33.2 QP	46.0	-12.8	1.75 H	107	20.60	12.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	36.18	35.6 QP	40.0	-4.4	1.25 V	25	23.00	12.60
2	66.29	36.1 QP	40.0	-3.9	1.50 V	61	23.40	12.70
3	126.98	35.6 QP	43.5	-7.9	1.25 V	147	23.30	12.30
4	181.06	35.2 QP	43.5	-8.3	1.50 V	104	22.60	12.60
5	243.62	31.8 QP	46.0	-14.2	1.50 V	96	19.10	12.70
6	618.41	27.0 QP	46.0	-19.0	1.50 V	205	4.50	22.50

## 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.





A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Anderson Hong
TEST MODE	B2 (With AUX Ant. & POE)		

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	76.69	35.0 QP	40.0	-5.0	1.50 H	86	24.40	10.60
2	96.01	36.9 QP	43.5	-6.6	1.25 H	198	28.00	8.90
3	114.53	38.4 QP	43.5	-5.1	1.50 H	58	27.30	11.10
4	152.36	37.4 QP	43.5	-6.1	1.75 H	189	23.60	13.80
5	191.09	40.1 QP	43.5	-3.4	1.47 H	98	28.30	11.80
6	216.07	35.7 QP	46.0	-10.3	1.50 H	189	24.00	11.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	35.47	35.0 QP	40.0	-5.0	1.50 V	225	22.60	12.40
2	62.47	34.6 QP	40.0	-5.4	1.25 V	186	21.50	13.10
3	115.39	34.1 QP	43.5	-9.4	1.25 V	47	22.90	11.20
4	126.96	35.6 QP	43.5	-7.9	1.25 V	186	23.30	12.30
5	179.81	35.0 QP	43.5	-8.5	1.50 V	296	22.30	12.70
6	244.98	30.5 QP	46.0	-15.5	1.25 V	77	17.70	12.80

**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.

## 4.2 CONDUCTED EMISSION MEASUREMENT

### 4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB $\mu$ 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_Conc_ 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

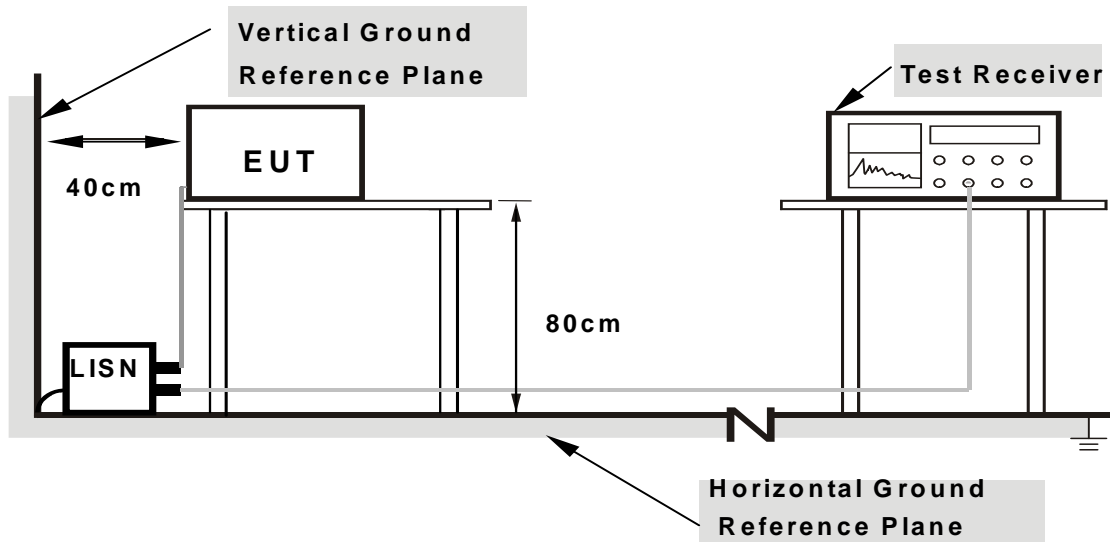
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

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

#### 4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.2.5 TEST SETUP



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

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

#### 4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

## 4.2.7 TEST RESULTS

### CONDUCTED WORST-CASE DATA :

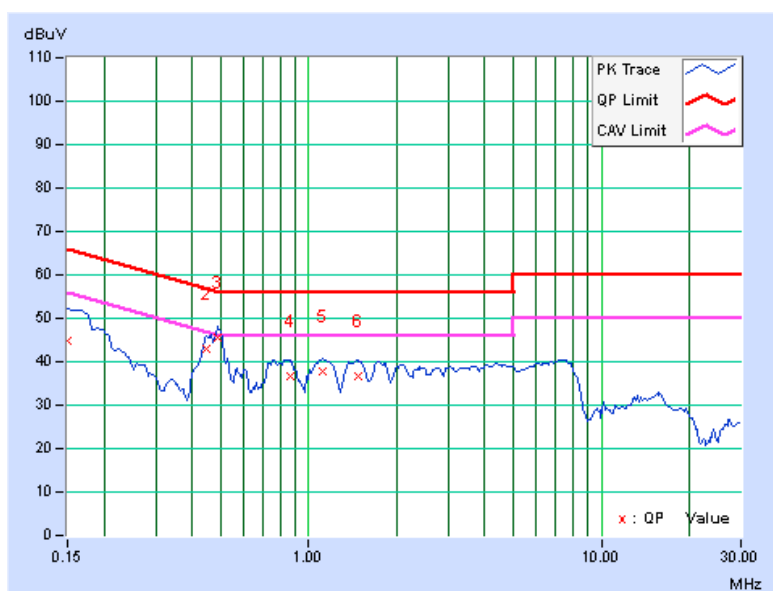
802.11n (20MHz)

PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	A1 (With Main Ant. & Adapter)		

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	0.11	44.88	27.25	44.99	27.36	66.00	56.00	-21.01	-28.64
2	0.44688	0.13	42.65	33.06	42.78	33.19	56.93	46.93	-14.15	-13.74
3	0.48984	0.14	45.30	35.79	45.44	35.93	56.17	46.17	-10.73	-10.24
4	0.86484	0.18	36.62	29.03	36.80	29.21	56.00	46.00	-19.20	-16.79
5	1.11719	0.19	37.73	31.58	37.92	31.77	56.00	46.00	-18.08	-14.23
6	1.46875	0.20	36.65	30.14	36.85	30.34	56.00	46.00	-19.15	-15.66

### 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.

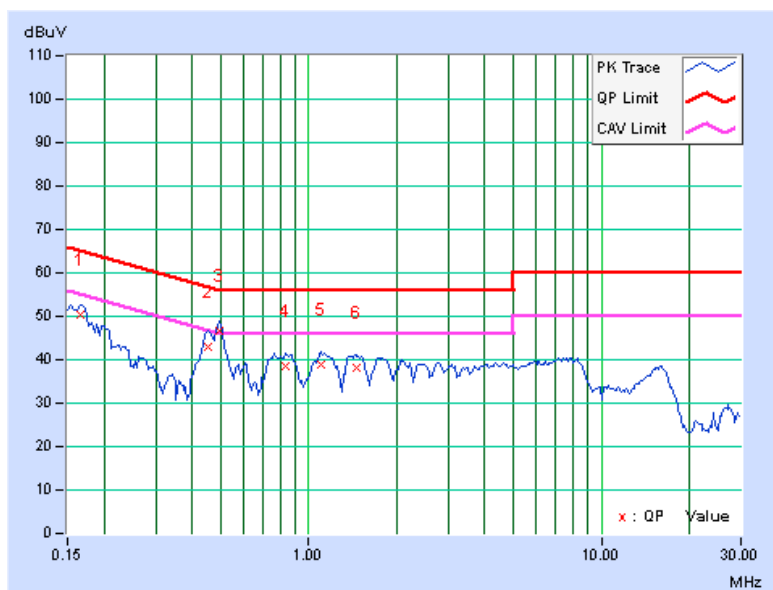


PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	A1 (With Main Ant. & Adapter)		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16562	0.13	50.11	43.49	50.24	43.62	65.18	55.18	-14.94	-11.56
2	0.45469	0.16	42.62	32.34	42.78	32.50	56.79	46.79	-14.01	-14.29
3	0.49375	0.16	46.69	38.41	46.85	38.57	56.10	46.10	-9.26	-7.54
4	0.83750	0.19	38.42	30.97	38.61	31.16	56.00	46.00	-17.39	-14.84
5	1.09766	0.21	38.62	31.50	38.83	31.71	56.00	46.00	-17.17	-14.29
6	1.46484	0.22	37.77	31.56	37.99	31.78	56.00	46.00	-18.01	-14.22

#### REMARKS:

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



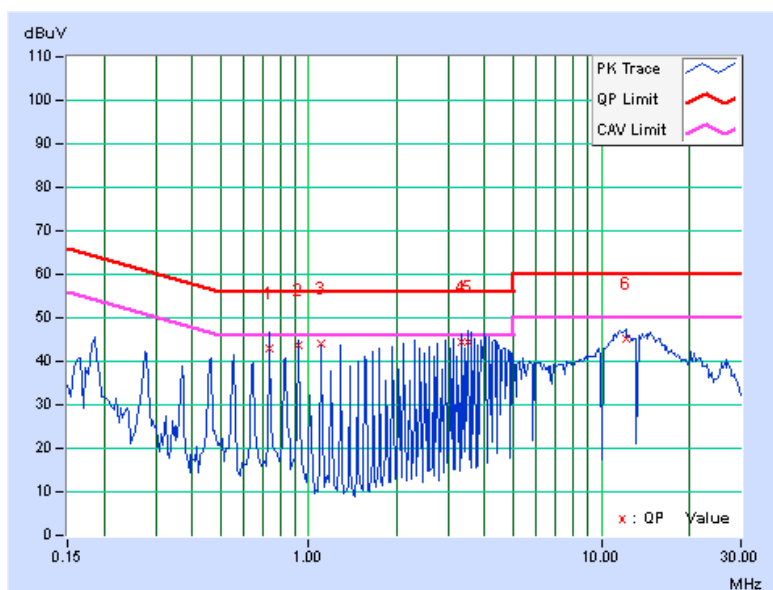
# 802.11g

PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	A2 (With Main Ant. & POE)		

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	0.73594	0.16	42.80	42.23	42.96	42.39	56.00	46.00	-13.04	-3.61
2	0.91953	0.18	43.64	42.13	43.82	42.31	56.00	46.00	-12.18	-3.69
3	1.10547	0.19	44.05	42.31	44.24	42.50	56.00	46.00	-11.76	-3.50
4	3.31641	0.30	44.09	40.57	44.39	40.87	56.00	46.00	-11.61	-5.13
5	3.49609	0.31	44.16	39.81	44.47	40.12	56.00	46.00	-11.53	-5.88
6	12.15081	0.75	44.43	41.75	45.18	42.50	60.00	50.00	-14.82	-7.50

## 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.

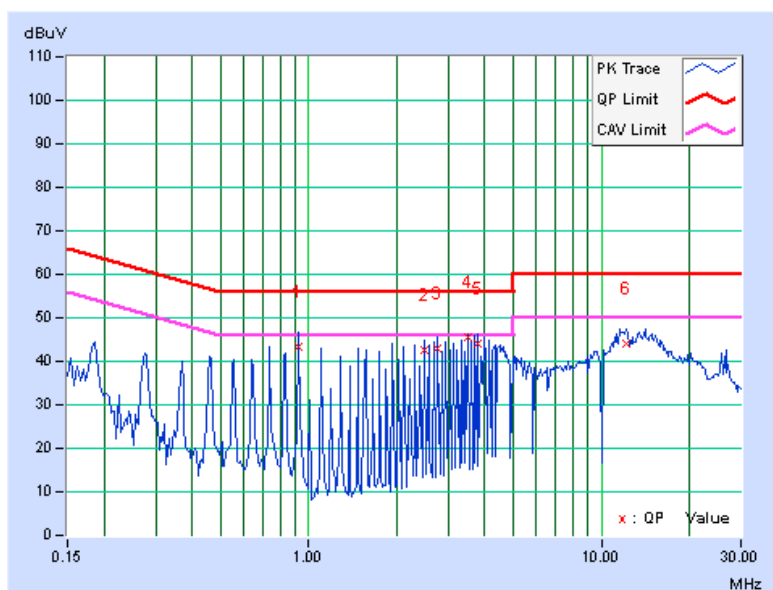


PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	A2 (With Main Ant. & POE)		

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	0.91953	0.20	43.29	42.52	43.49	42.72	56.00	46.00	-12.51	-3.28
2	2.48438	0.26	42.16	38.44	42.42	38.70	56.00	46.00	-13.58	-7.30
3	2.76172	0.28	42.71	42.25	42.99	42.53	56.00	46.00	-13.01	-3.47
4	3.50000	0.32	45.20	40.26	45.52	40.58	56.00	46.00	-10.48	-5.42
5	3.77734	0.34	43.85	42.34	44.19	42.68	56.00	46.00	-11.81	-3.32
6	12.15234	0.67	43.26	38.26	43.93	38.93	60.00	50.00	-16.07	-11.07

#### REMARKS:

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



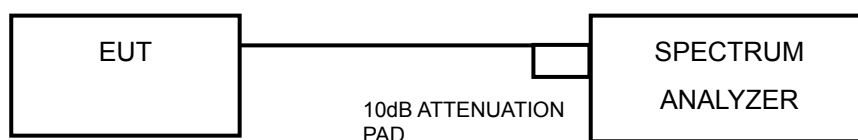


### 4.3 6dB BANDWIDTH MEASUREMENT

#### 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

##### Test Mode A1 (With Main Ant. & Adapter)

###### 802.11b

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	9.60	0.5	PASS
6	2437	9.60	0.5	PASS
11	2462	9.11	0.5	PASS

###### 802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	15.74	0.5	PASS
6	2437	16.15	0.5	PASS
11	2462	15.95	0.5	PASS

###### 802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.18	0.5	PASS
6	2437	17.28	0.5	PASS
11	2462	17.20	0.5	PASS

## Test Mode B1 (With AUX Ant. & Adapter)

### 802.11b

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.30	0.5	PASS
6	2437	10.29	0.5	PASS
11	2462	10.28	0.5	PASS

### 802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.01	0.5	PASS
6	2437	16.09	0.5	PASS
11	2462	16.21	0.5	PASS

### 802.11n (20MHz)

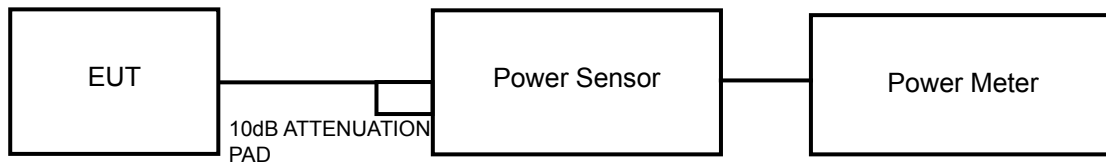
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.22	0.5	PASS
6	2437	17.22	0.5	PASS
11	2462	17.34	0.5	PASS

## 4.4 CONDUCTED OUTPUT POWER

### 4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

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

### 4.4.2 TEST SETUP



### 4.4.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

### 4.4.4 TEST PROCEDURES

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

### 4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

### 4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6.

## 4.4.7 TEST RESULTS

### Test Mode A1 (With Main Ant. & Adapter)

#### 802.11b

Channel	Frequency (MHz)	Power Setting	Chain	Data Rate			
				1Mbps	2Mbps	5.5Mbps	11Mbps
CH 1	2412 MHz	23000	MAIN	22.80	22.70	22.60	22.70
CH 6	2437 MHz	24000	MAIN	23.40	23.30	23.20	23.20
CH 11	2462 MHz	24000	MAIN	23.40	23.20	23.20	23.30
CH 12	2467 MHz	2000	MAIN	4.10	4.00	3.98	4.03
CH 13	2472 MHz	2000	MAIN	4.70	4.59	4.66	4.50

#### 802.11g

Channel	Frequency (MHz)	Power Setting	Chain	Data Rate							
				6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
CH 1	2412 MHz	20000	MAIN	24.10	23.90	23.91	23.99	24.06	23.86	23.88	23.90
CH 6	2437 MHz	24000	MAIN	24.40	24.30	24.37	24.22	24.16	24.31	24.33	24.26
CH 11	2462 MHz	22000	MAIN	24.30	24.26	24.29	24.21	24.19	24.22	24.29	24.11
CH 12	2467 MHz	2000	MAIN	9.40	9.29	9.26	9.33	9.27	9.16	9.10	9.30
CH 13	2472 MHz	2000	MAIN	10.60	10.50	10.52	10.57	10.55	10.43	10.22	10.49

#### 802.11n (20MHz)

Channel	Frequency (MHz)	Power Setting	Chain	Data Rate							
				MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 1	2412 MHz	19000	MAIN	23.80	23.60	23.70	23.69	23.66	23.74	23.71	23.76
CH 6	2437 MHz	24000	MAIN	24.40	24.30	24.20	24.26	24.33	24.39	24.34	24.36
CH 11	2462 MHz	21000	MAIN	24.60	24.56	24.37	24.59	24.52	24.39	24.41	24.53
CH 12	2467 MHz	2000	MAIN	10.40	10.37	10.36	10.33	10.39	10.31	10.33	10.26
CH 13	2472 MHz	2000	MAIN	10.80	10.72	10.53	10.66	10.72	10.70	10.73	10.76

## Test Mode B1 (With AUX Ant. & Adapter)

### 802.11b

Channel	Frequency (MHz)	Power Setting	Chain	Data Rate			
				1Mbps	2Mbps	5.5Mbps	11Mbps
CH 1	2412 MHz	23000	AUX	23.20	23.16	23.1	23.06
CH 6	2437 MHz	24000	AUX	23.50	23.43	23.46	23.39
CH 11	2462 MHz	24000	AUX	23.90	23.86	23.77	23.84
CH 12	2467 MHz	2000	AUX	4.20	4.16	4.11	4.13
CH 13	2472 MHz	2000	AUX	3.60	3.55	3.59	3.58

### 802.11g

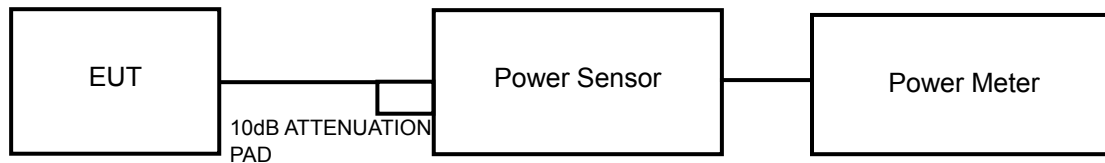
Channel	Frequency (MHz)	Power Setting	Chain	Data Rate							
				6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
CH 1	2412 MHz	20000	AUX	23.80	23.7	23.69	23.71	23.69	23.73	23.66	23.72
CH 6	2437 MHz	24000	AUX	23.80	23.76	23.71	23.74	23.73	23.69	23.77	23.69
CH 11	2462 MHz	22000	AUX	24.10	24.09	24.06	24.02	23.09	24	23.98	24.02
CH 12	2467 MHz	2000	AUX	10.20	10.13	10.07	10.1	10.11	10.13	10.16	10.19
CH 13	2472 MHz	2000	AUX	9.60	9.50	9.53	9.56	9.56	9.59	9.56	9.57

### 802.11n (20MHz)

Channel	Frequency (MHz)	Power Setting	Chain	Data Rate							
				MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 1	2412 MHz	19000	AUX	23.70	23.63	23.66	23.59	23.69	23.59	23.59	23.68
CH 6	2437 MHz	24000	AUX	23.80	23.74	23.71	23.7	23.73	23.69	23.73	23.64
CH 11	2462 MHz	21000	AUX	23.70	23.59	23.64	23.69	23.6	23.62	23.68	23.6
CH 12	2467 MHz	2000	AUX	10.30	10.23	10.13	10.19	10.27	10.20	10.24	10.27
CH 13	2472 MHz	2000	AUX	9.20	9.16	9.10	9.14	9.13	9.13	9.16	9.15

## 4.5 AVERAGE OUTPUT POWER

### 4.5.1 TEST SETUP



### 4.5.2 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

### 4.5.3 TEST PROCEDURES

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

### 4.5.4 EUT OPERATING CONDITIONS

Same as Item 4.3.6.

## 4.5.5 TEST RESULTS

### Test Mode A1 (With Main Ant. & Adapter)

#### 802.11b

Channel	Frequency (MHz)	Power Setting	Chain	Data Rate
				1Mbps
CH 1	2412 MHz	23000	MAIN	20.90
CH 6	2437 MHz	24000	MAIN	21.70
CH 11	2462 MHz	24000	MAIN	21.70
CH 12	2467 MHz	2000	MAIN	1.70
CH 13	2472 MHz	2000	MAIN	2.20

#### 802.11g

Channel	Frequency (MHz)	Power Setting	Chain	Data Rate
				6Mbps
CH 1	2412 MHz	20000	MAIN	16.50
CH 6	2437 MHz	24000	MAIN	20.90
CH 11	2462 MHz	22000	MAIN	18.00
CH 12	2467 MHz	2000	MAIN	0.60
CH 13	2472 MHz	2000	MAIN	1.90

#### 802.11n (20MHz)

Channel	Frequency (MHz)	Power Setting	Chain	Data Rate
				MCS0
CH 1	2412 MHz	19000	MAIN	16.60
CH 6	2437 MHz	24000	MAIN	21.00
CH 11	2462 MHz	21000	MAIN	18.70
CH 12	2467 MHz	2000	MAIN	1.50
CH 13	2472 MHz	2000	MAIN	2.00





A D T

## Test Mode B1 (With AUX Ant. & Adapter)

### 802.11b

Channel	Frequency (MHz)	Power Setting	Chain	Data Rate
				1Mbps
CH 1	2412 MHz	23000	AUX	21.50
CH 6	2437 MHz	24000	AUX	21.80
CH 11	2462 MHz	24000	AUX	22.20
CH 12	2467 MHz	2000	AUX	1.60
CH 13	2472 MHz	2000	AUX	1.00

### 802.11g

Channel	Frequency (MHz)	Power Setting	Chain	Data Rate
				6Mbps
CH 1	2412 MHz	20000	AUX	18.00
CH 6	2437 MHz	24000	AUX	20.40
CH 11	2462 MHz	22000	AUX	18.70
CH 12	2467 MHz	2000	AUX	1.30
CH 13	2472 MHz	2000	AUX	0.70

### 802.11n (20MHz)

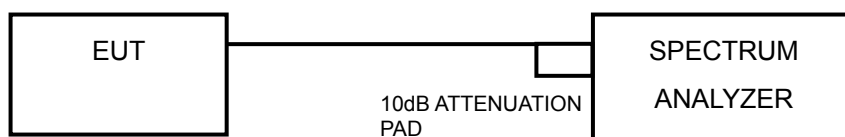
Channel	Frequency (MHz)	Power Setting	Chain	Data Rate
				MCS0
CH 1	2412 MHz	19000	AUX	16.40
CH 6	2437 MHz	24000	AUX	20.20
CH 11	2462 MHz	21000	AUX	17.10
CH 12	2467 MHz	2000	AUX	1.00
CH 13	2472 MHz	2000	AUX	0.80

## 4.6 POWER SPECTRAL DENSITY MEASUREMENT

### 4.6.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

### 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

- 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  $BWCF = 10\log(3 \text{ kHz}/100\text{kHz})$

### 4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

### 4.6.6 EUT OPERATING CONDITION

Same as Item 4.3.6

#### 4.6.7 TEST RESULTS

##### Test Mode A1 (With Main Ant. & Adapter)

###### 802.11b

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	12.74	-2.49	8	PASS
6	2437	12.30	-2.93	8	PASS
11	2462	12.54	-2.69	8	PASS

###### 802.11g

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	5.58	-9.65	8	PASS
6	2437	10.27	-4.96	8	PASS
11	2462	8.30	-6.93	8	PASS

###### 802.11n (20MHz)

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	5.41	-9.82	8	PASS
6	2437	10.11	-5.12	8	PASS
11	2462	8.34	-6.89	8	PASS

## Test Mode B1 (With AUX Ant. & Adapter)

### 802.11b

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	12.34	-2.89	8	PASS
6	2437	12.65	-2.58	8	PASS
11	2462	12.98	-2.25	8	PASS

### 802.11g

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	5.98	-9.25	8	PASS
6	2437	10.40	-4.83	8	PASS
11	2462	9.71	-5.52	8	PASS

### 802.11n (20MHz)

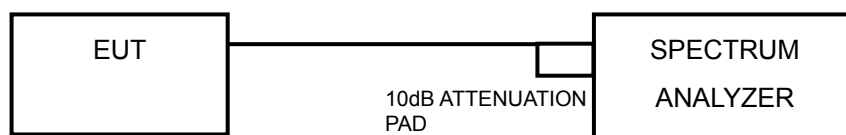
Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	6.68	-8.55	8	PASS
6	2437	10.91	-4.32	8	PASS
11	2462	9.54	-5.69	8	PASS

## 4.7 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

### 4.7.1 LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT

Below  $-20\text{dB}$  of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

### 4.7.2 TEST SETUP



### 4.7.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

### 4.7.4 TEST PROCEDURE

#### MEASUREMENT PROCEDURE REF

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



A D T

## MEASUREMENT PROCEDURE OOB

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

### 4.7.5 DEVIATION FROM TEST STANDARD

No deviation.

### 4.7.6 EUT OPERATING CONDITION

Same as Item 4.3.6

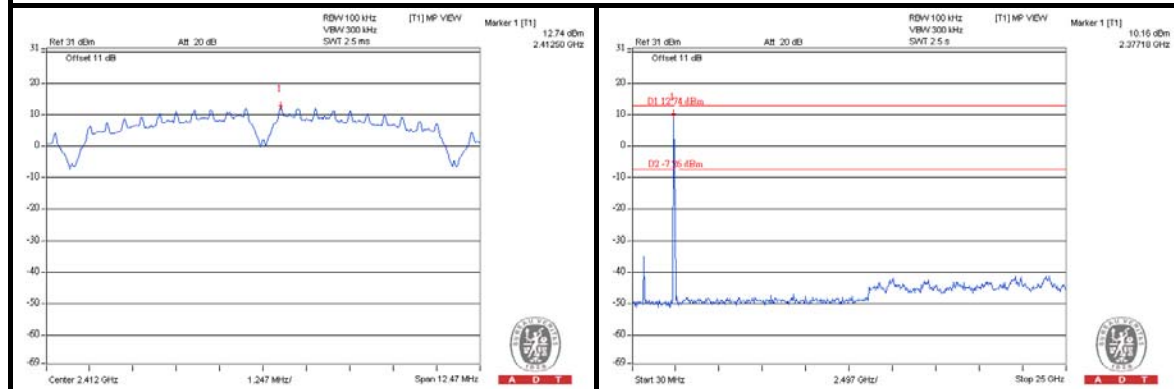
### 4.7.7 TEST RESULTS

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

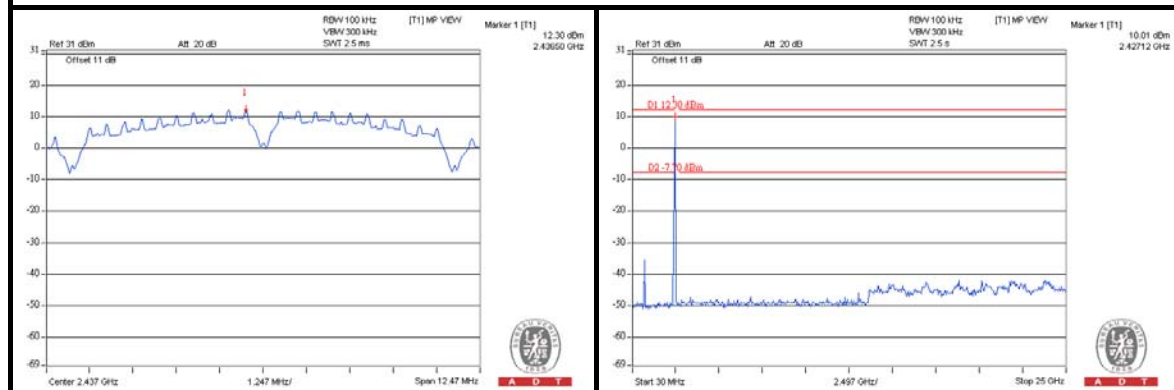
# Test Mode A1 (With Main Ant. & Adapter)

802.11b

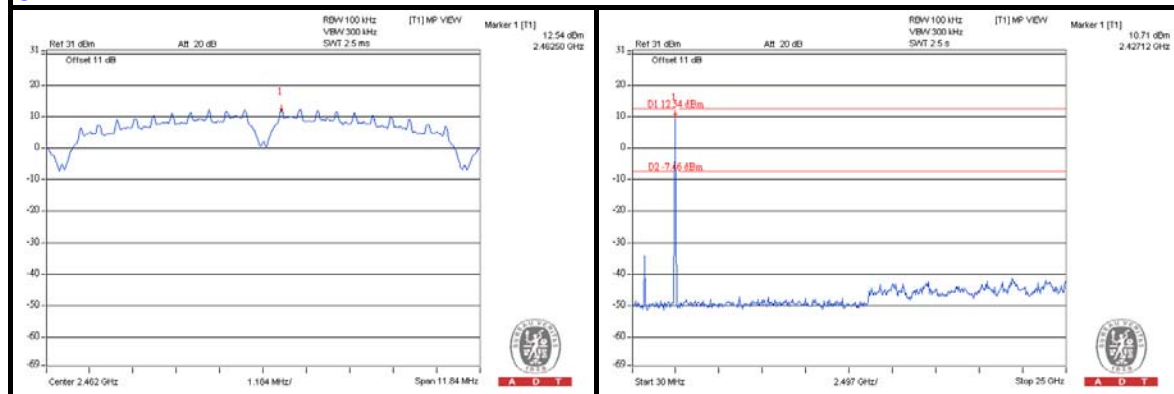
## CH 1



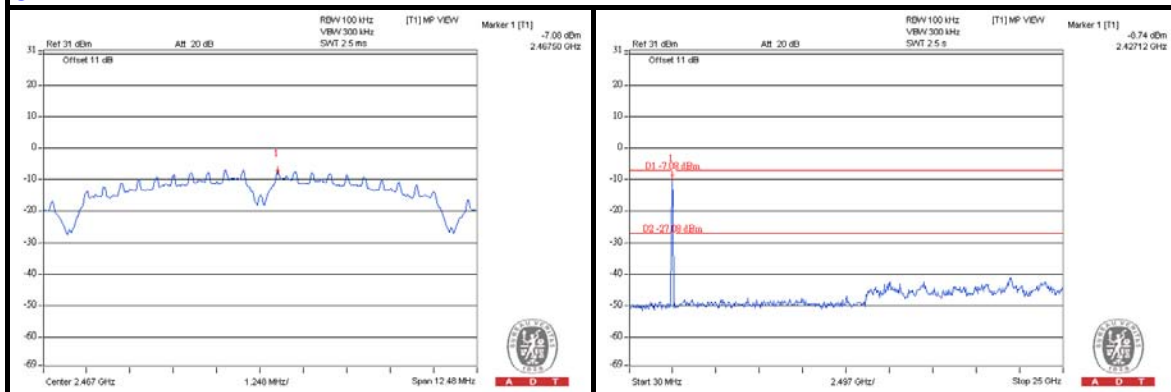
## CH 6



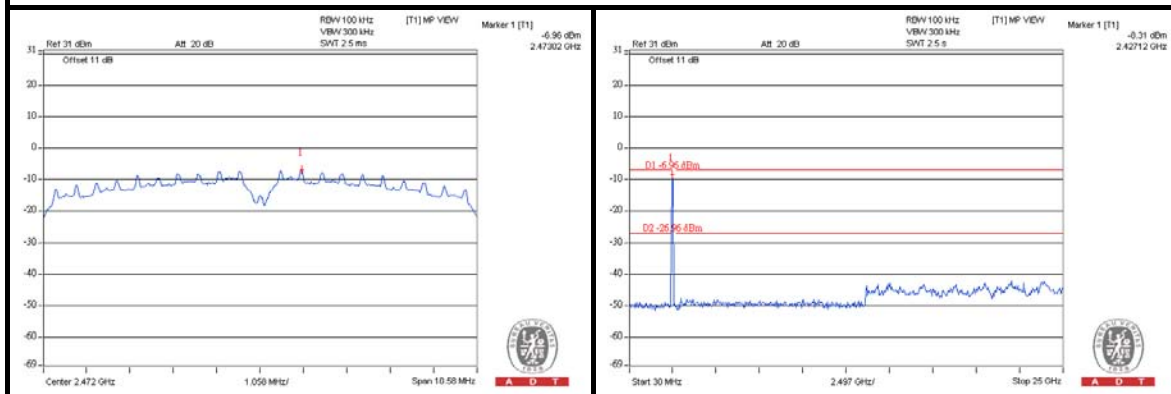
## CH 11



## CH 12



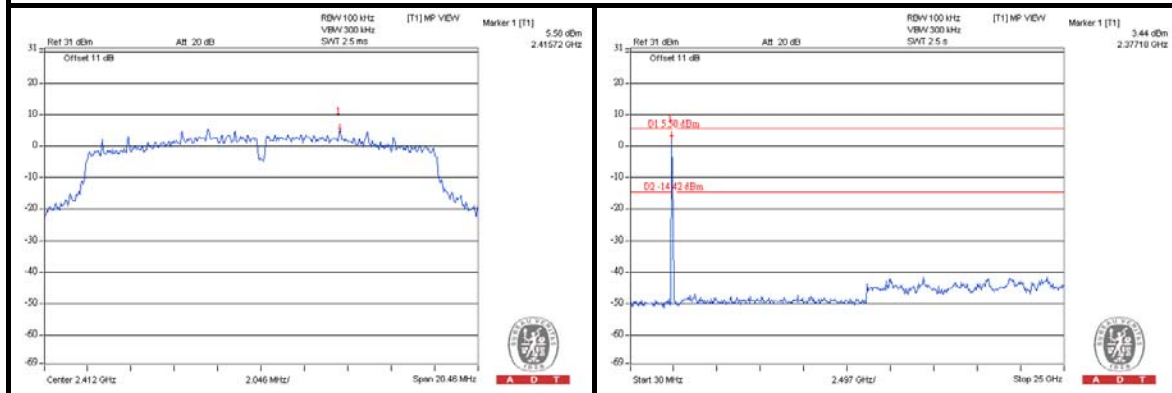
## CH 13



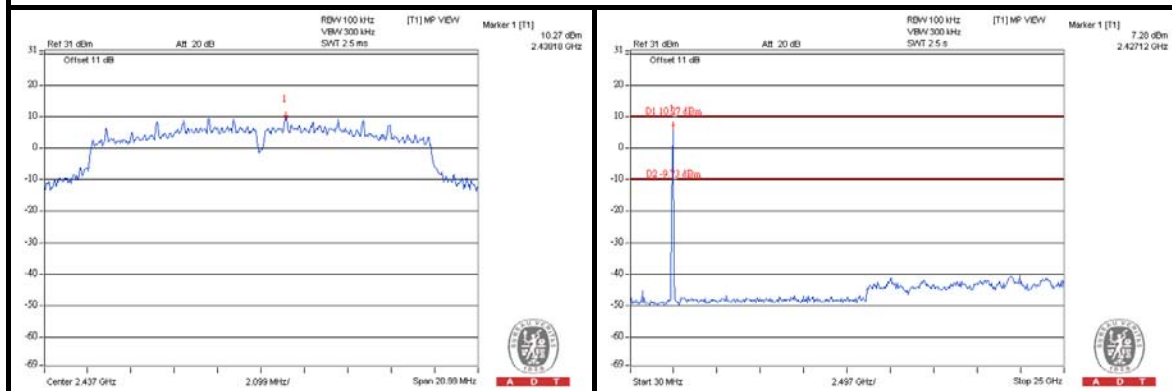


802.11g

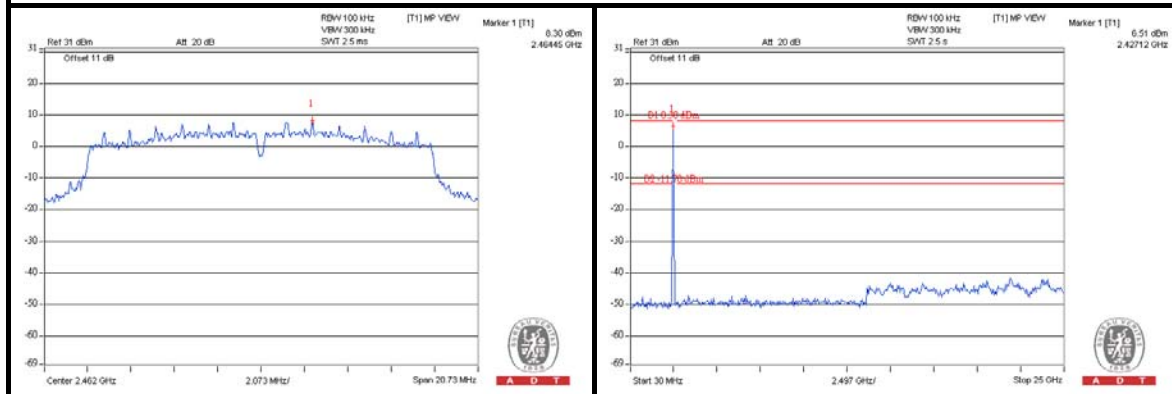
## CH 1



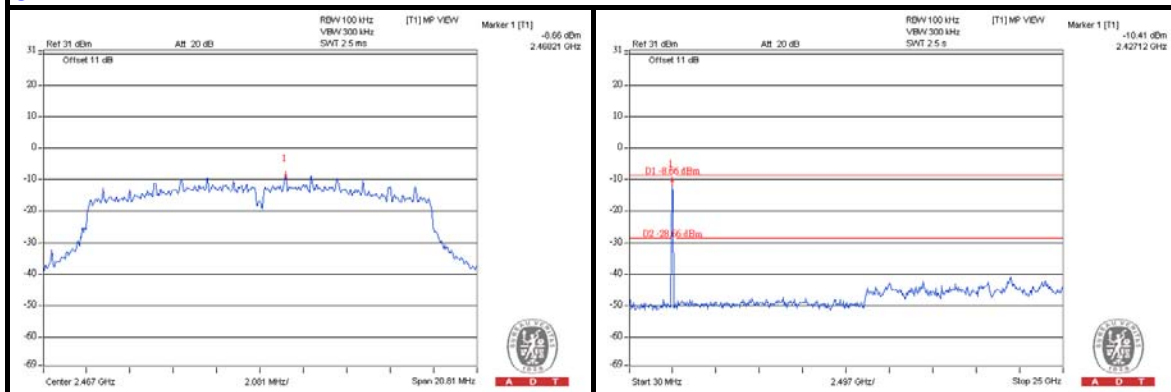
## CH 6



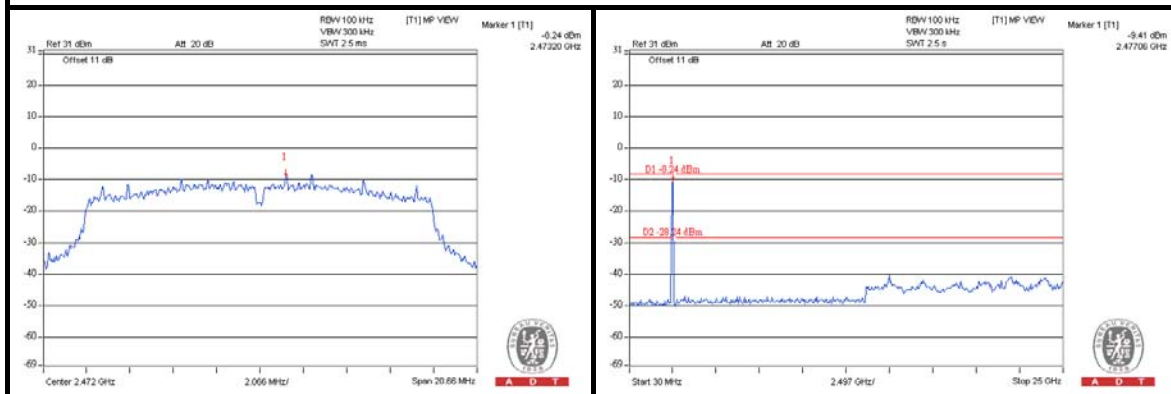
## CH 11



## CH 12

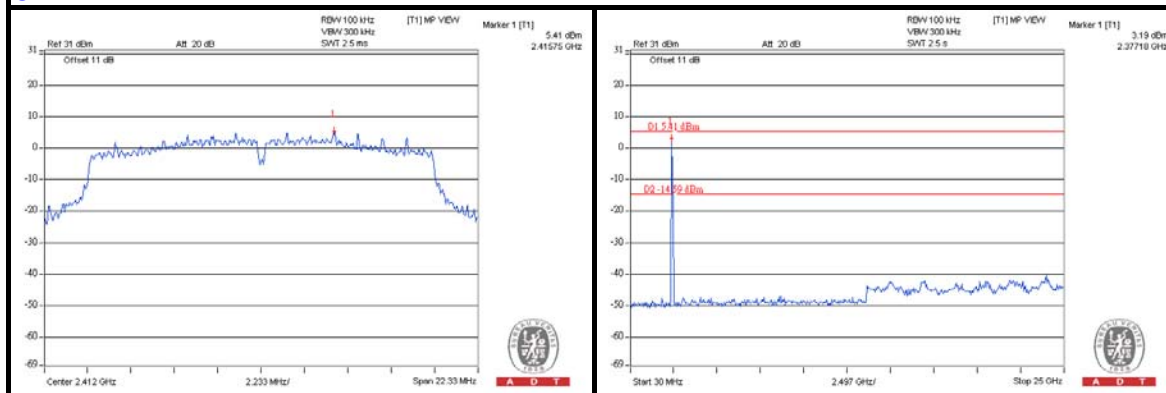


## CH 13

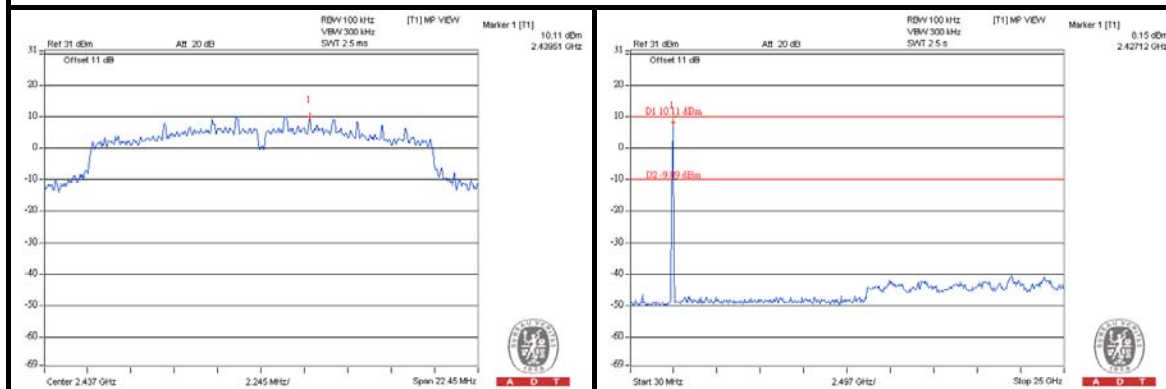


# 802.11n (20MHz)

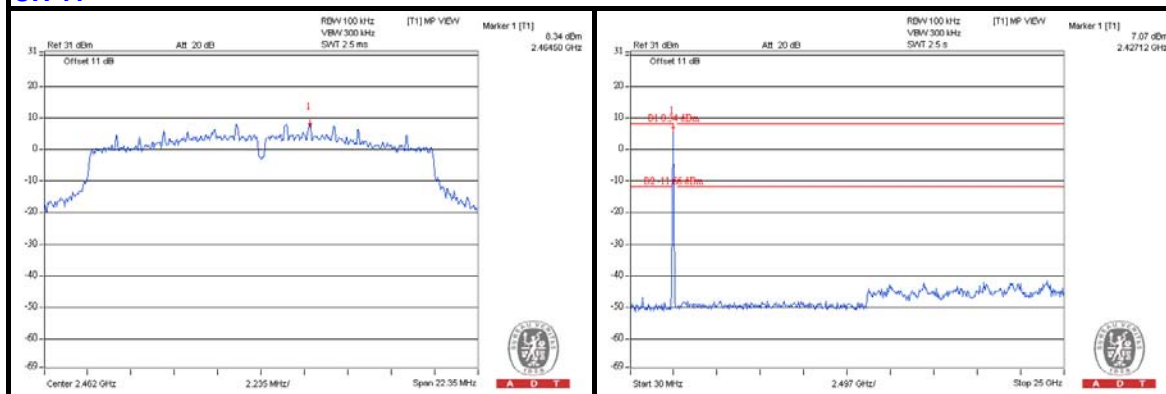
## CH 1



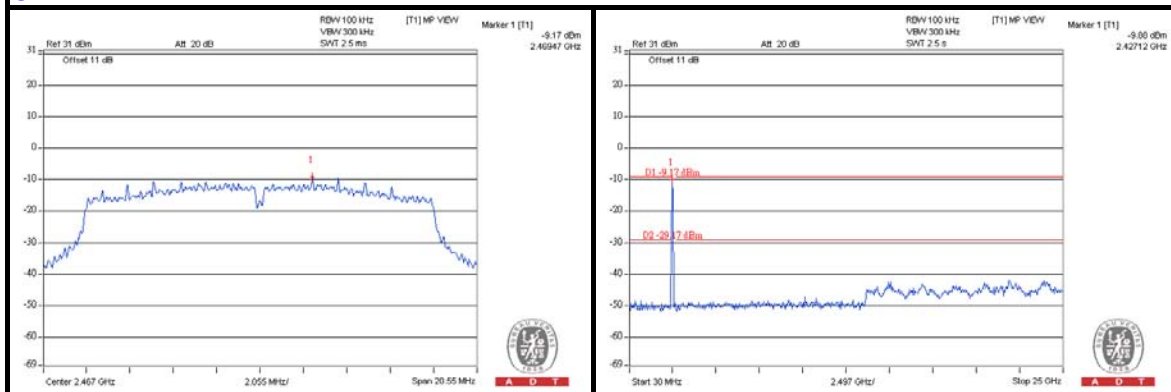
## CH 6



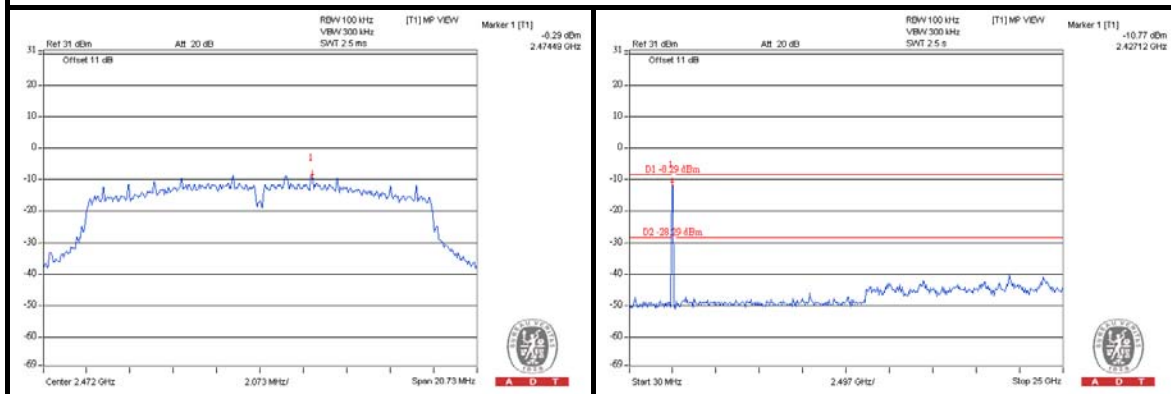
## CH 11



## CH 12



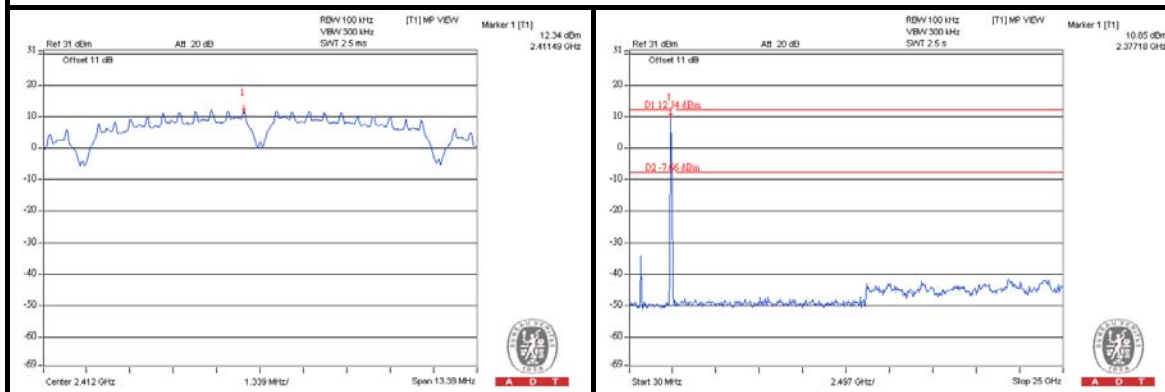
## CH 13



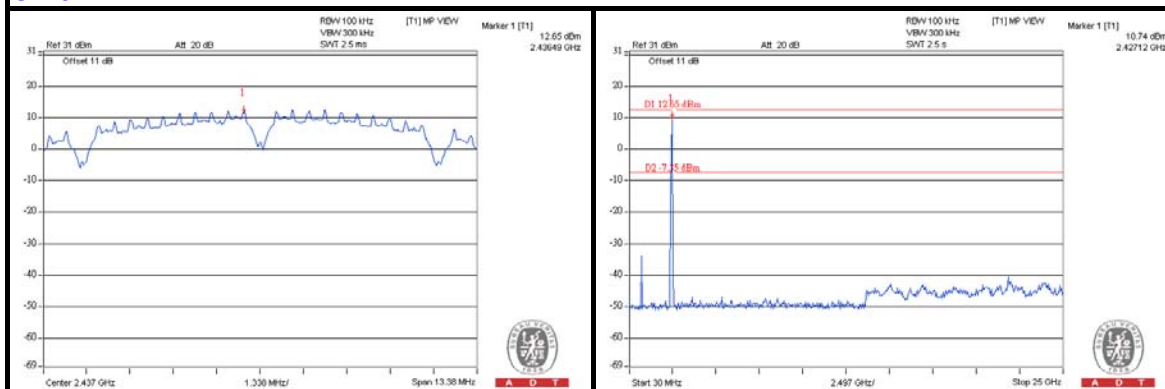
# Test Mode B1 (With AUX Ant. & Adapter)

802.11b

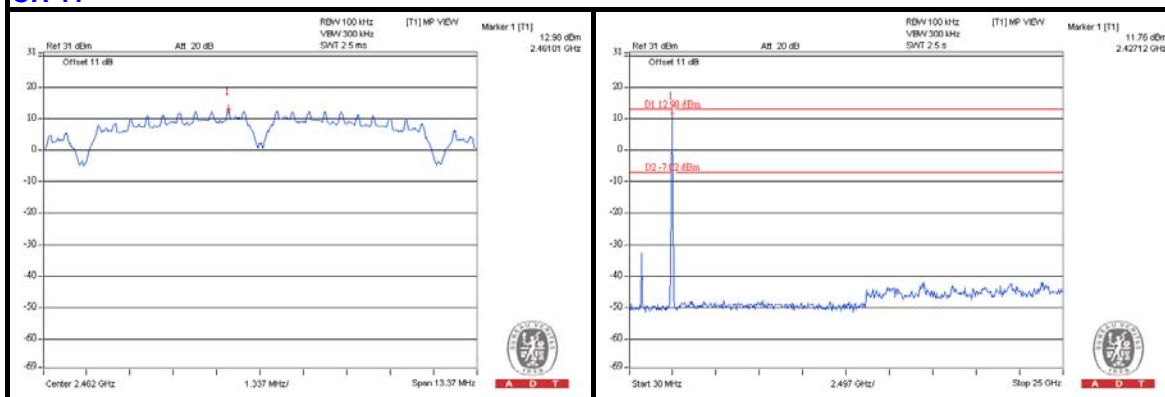
CH 1



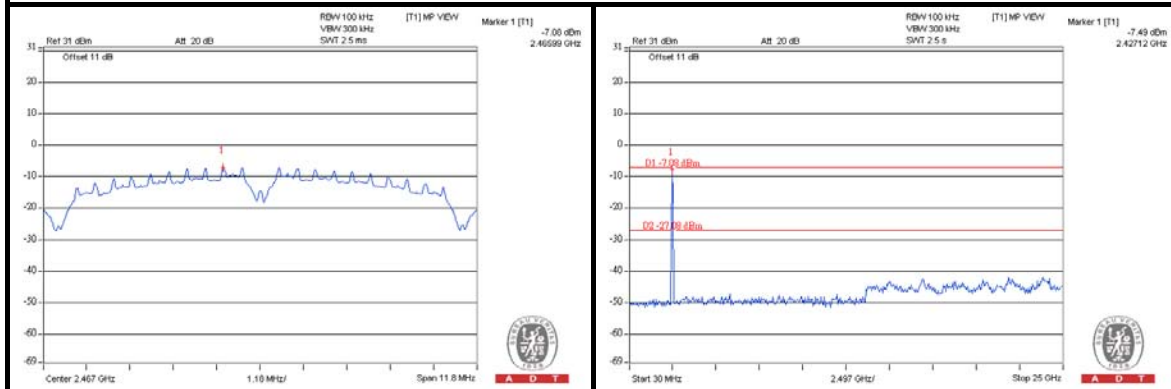
CH 6



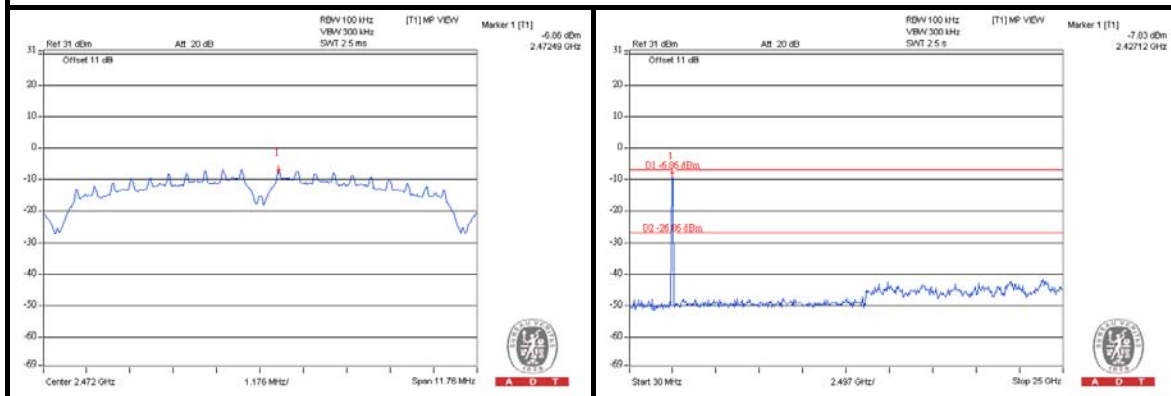
CH 11



## CH 12

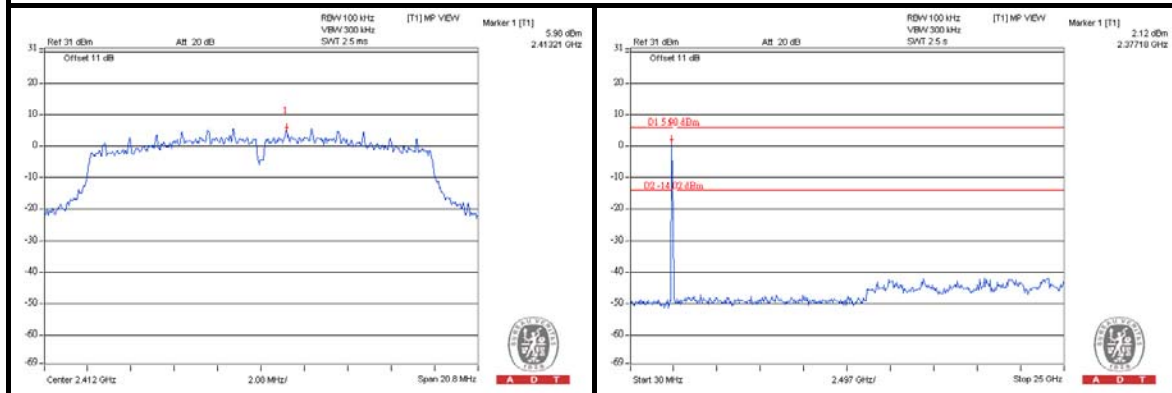


## CH 13

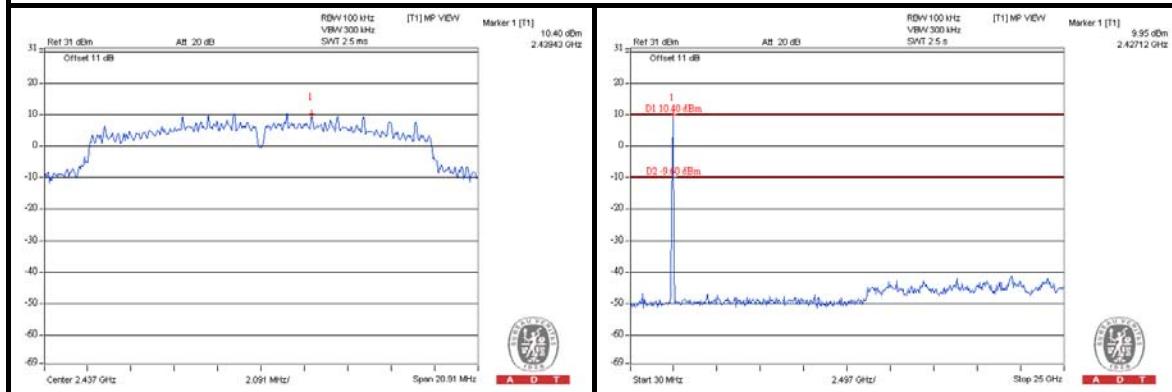


802.11g

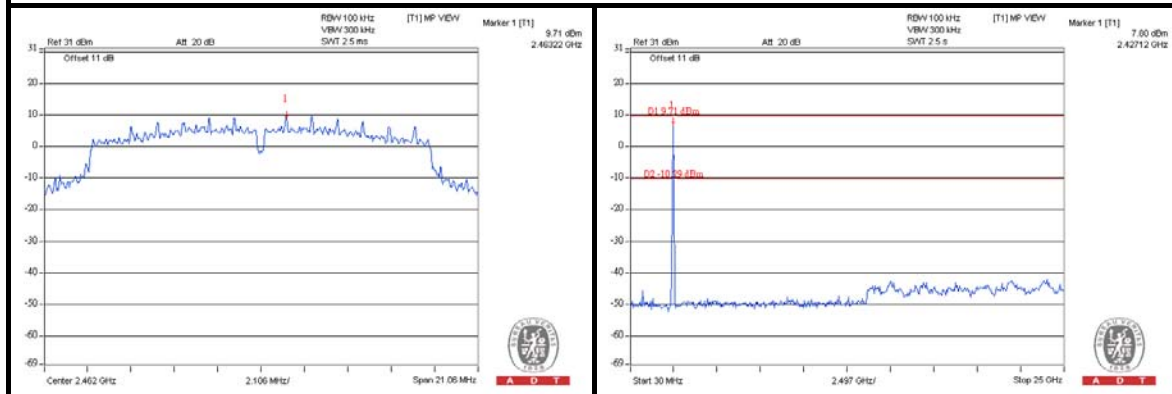
## CH 1



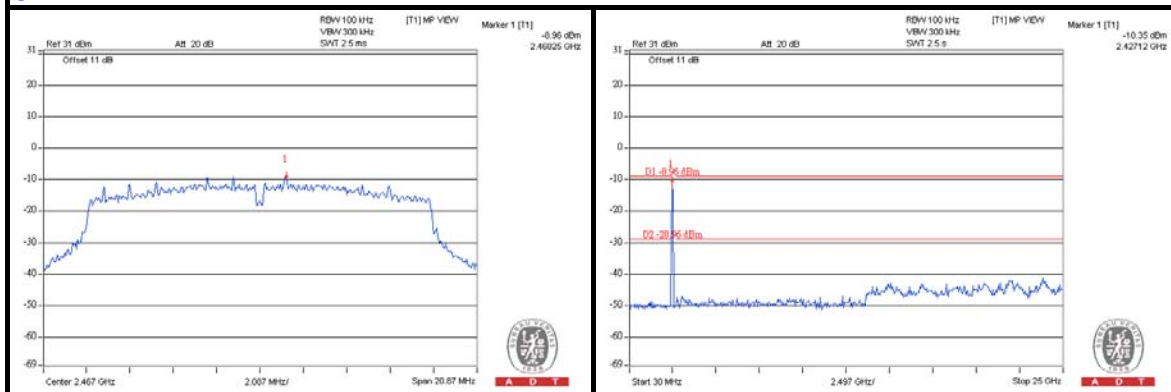
## CH 6



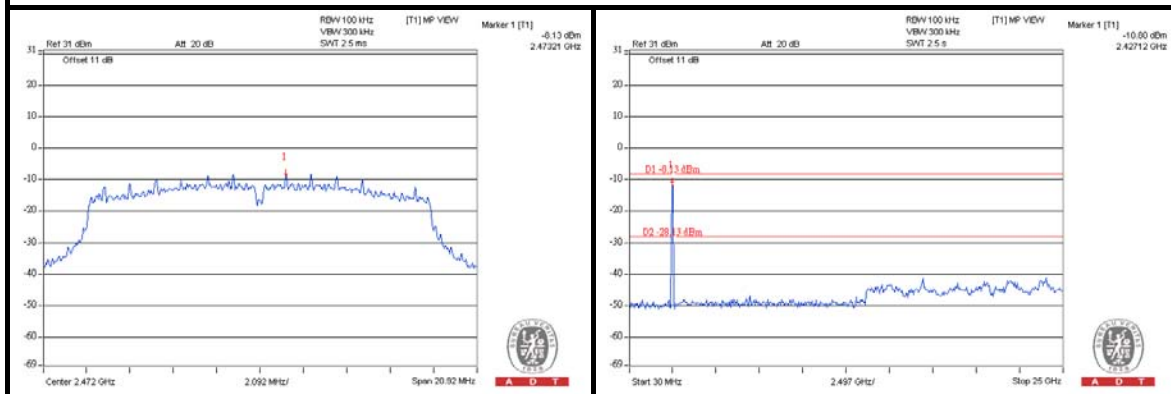
## CH 11



## CH 12



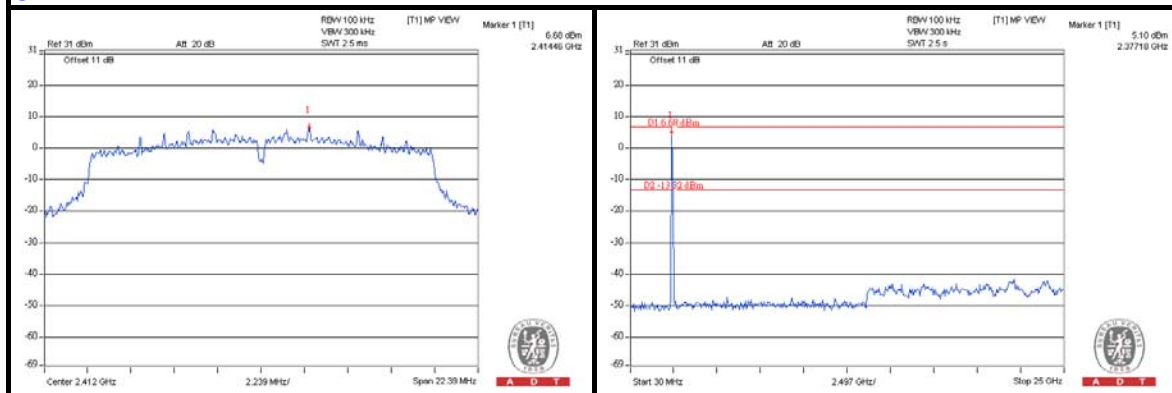
## CH 13



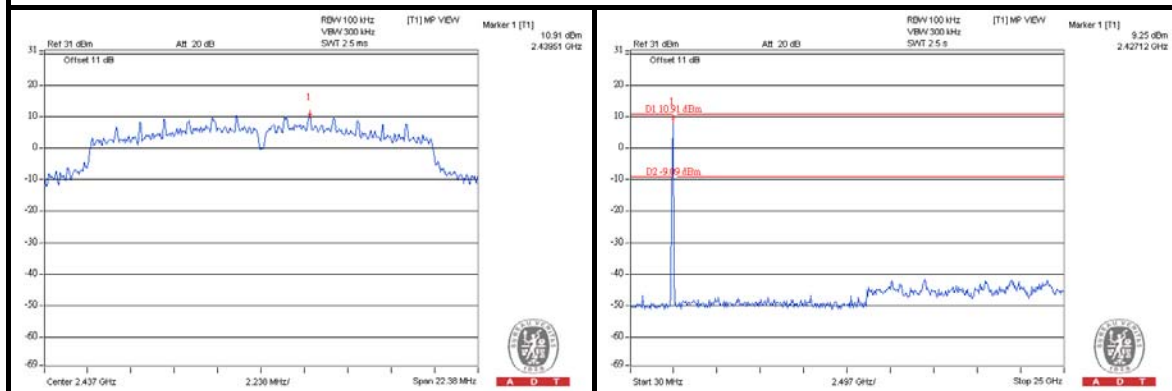


# 802.11n (20MHz)

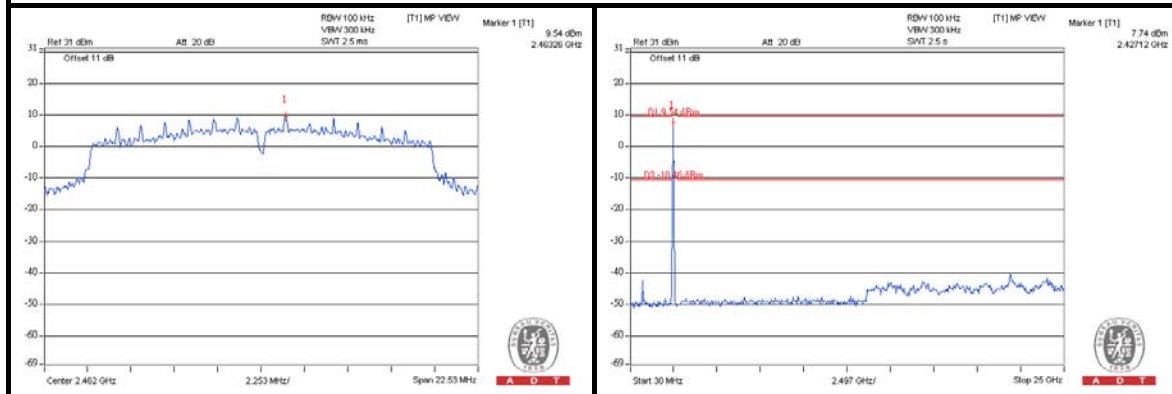
## CH 1



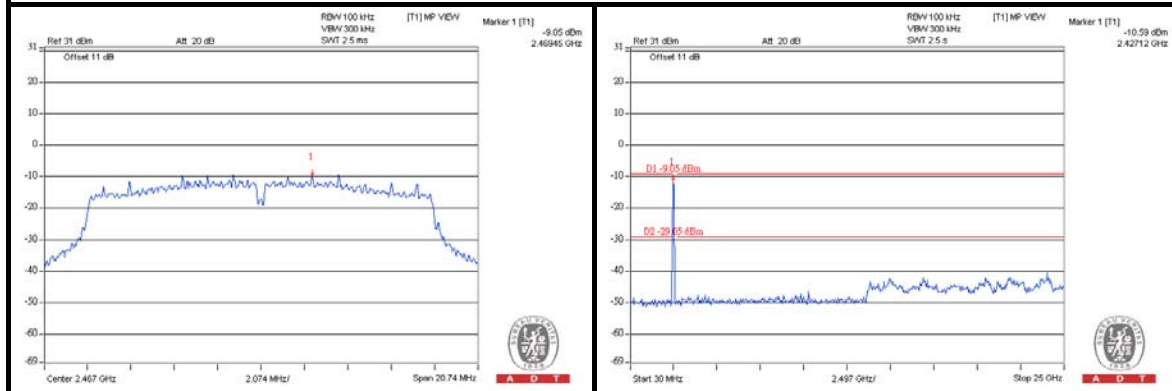
## CH 6



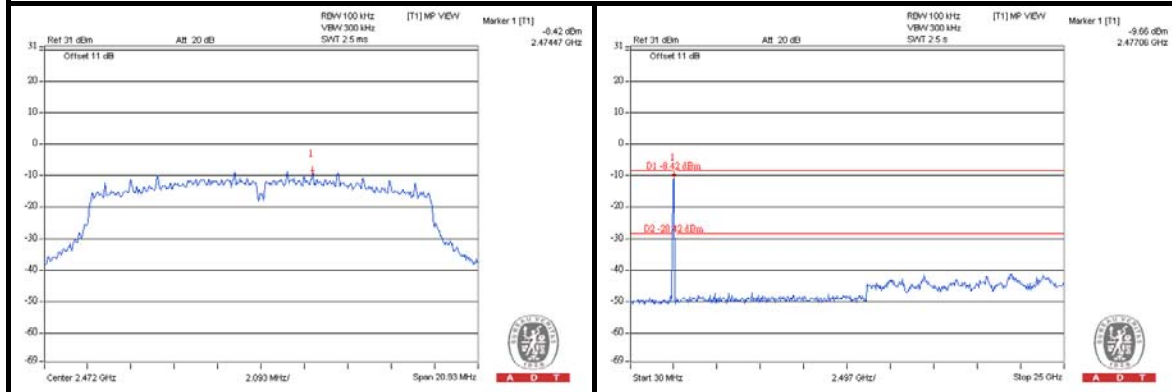
## CH 11



## CH 12



## CH 13



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

### 5.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

#### 5.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

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

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

**NOTE:**

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

## 5.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100744	Apr. 19, 2012	Apr. 18, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jan. 30, 2012	Jan. 29, 2013
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 03, 2012	Apr. 02, 2013
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Sep. 12, 2012	Sep. 11, 2013
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 11, 2012	Jul. 10, 2013
Preamplifier Agilent	8449B	3008A01911	Oct. 29, 2011	Oct. 28, 2012
Preamplifier Agilent	8447D	2944A10638	Oct. 29, 2011	Oct. 28, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295013/4 283403/4	Aug. 28, 2012	Aug. 27, 2013
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 11, 2012	Aug. 10, 2013
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 29, 2011	Oct. 28, 2012

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.  
2. The test was performed in HwaYa Chamber 9.  
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.  
4. The FCC Site Registration No. is 460141.  
5. The IC Site Registration No. is IC 7450F-4.



A D T

### 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 item 4.1.6.

## 5.1.7 TEST RESULTS

### ABOVE 1GHz WORST-CASE DATA:

#### Test Mode A1 (With Main Ant. & Adapter)

#### 802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	82.6 PK	89.0	-6.4	1.12 H	158	43.40	39.20
2	#5725.00	65.5 AV	79.2	-13.7	1.12 H	158	26.30	39.20
3	*5745.00	109.0 PK			1.22 H	158	69.70	39.30
4	*5745.00	99.2 AV			1.22 H	158	59.90	39.30
5	11490.00	55.2 PK	74.0	-18.8	1.08 H	104	5.80	49.40
6	11490.00	44.1 AV	54.0	-9.9	1.08 H	104	-5.30	49.40
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	#5725.00	78.8 PK	85.2	-6.4	1.33 V	125	39.60	39.20
2	#5725.00	61.5 AV	75.5	-14.0	1.33 V	125	22.30	39.20
3	*5745.00	105.2 PK			1.24 V	149	65.90	39.30
4	*5745.00	95.5 AV			1.24 V	149	56.20	39.30
5	11490.00	55.8 PK	74.0	-18.2	1.27 V	352	6.40	49.40
6	11490.00	44.7 AV	54.0	-9.3	1.27 V	352	-4.70	49.40

#### REMARKS:

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	108.7 PK			1.07 H	169	69.30	39.40
2	*5785.00	98.6 AV			1.07 H	169	59.20	39.40
3	7711.00	53.8 PK	74.0	-20.2	1.47 H	161	9.30	44.50
4	7711.00	42.2 AV	54.0	-11.8	1.47 H	161	-2.30	44.50
5	11570.00	54.8 PK	74.0	-19.2	1.17 H	108	5.60	49.20
6	11570.00	43.9 AV	54.0	-10.1	1.17 H	108	-5.30	49.20
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	*5785.00	104.8 PK			1.37 V	135	65.40	39.40
2	*5785.00	95.1 AV			1.37 V	135	55.70	39.40
3	7711.00	51.2 PK	74.0	-22.8	1.28 V	47	6.70	44.50
4	7711.00	39.9 AV	54.0	-14.1	1.28 V	47	-4.60	44.50
5	11570.00	55.2 PK	74.0	-18.8	1.36 V	347	6.00	49.20
6	11570.00	44.5 AV	54.0	-9.5	1.36 V	347	-4.70	49.20

**REMARKS:**

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	106.3 PK			1.09 H	162	66.80	39.50
2	*5825.00	96.1 AV			1.09 H	162	56.60	39.50
3	#5850.00	65.4 PK	86.3	-20.9	1.00 H	158	25.90	39.50
4	#5850.00	48.4 AV	76.1	-27.7	1.00 H	158	8.90	39.50
5	11650.00	55.7 PK	74.0	-18.3	1.06 H	112	6.60	49.10
6	11650.00	44.7 AV	54.0	-9.3	1.06 H	112	-4.40	49.10
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	*5825.00	101.7 PK			1.21 V	127	62.20	39.50
2	*5825.00	91.6 AV			1.21 V	127	52.10	39.50
3	#5850.00	63.2 PK	81.7	-18.5	1.21 V	123	23.70	39.50
4	#5850.00	44.3 AV	71.6	-27.3	1.21 V	123	4.80	39.50
5	11650.00	55.3 PK	74.0	-18.7	1.34 V	348	6.20	49.10
6	11650.00	44.1 AV	54.0	-9.9	1.34 V	348	-5.00	49.10

**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.



### 802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	82.8 PK	88.8	-6.0	1.18 H	192	43.60	39.20
2	#5725.00	65.8 AV	78.8	-13.0	1.18 H	192	26.60	39.20
3	*5745.00	108.8 PK			1.18 H	192	69.50	39.30
4	*5745.00	98.8 AV			1.18 H	192	59.50	39.30
5	11490.00	55.7 PK	74.0	-18.3	1.07 H	112	6.30	49.40
6	11490.00	44.7 AV	54.0	-9.3	1.07 H	112	-4.70	49.40
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	#5725.00	78.4 PK	85.0	-6.6	1.27 V	152	39.20	39.20
2	#5725.00	61.2 AV	75.1	-13.9	1.27 V	152	22.00	39.20
3	*5745.00	105.0 PK			1.22 V	154	65.70	39.30
4	*5745.00	95.1 AV			1.22 V	154	55.80	39.30
5	11490.00	55.2 PK	74.0	-18.8	1.22 V	347	5.80	49.40
6	11490.00	44.2 AV	54.0	-9.8	1.22 V	347	-5.20	49.40

#### REMARKS:

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	108.6 PK			1.08 H	177	69.20	39.40
2	*5785.00	98.4 AV			1.08 H	177	59.00	39.40
3	7711.00	53.4 PK	74.0	-20.6	1.52 H	151	8.90	44.50
4	7711.00	41.8 AV	54.0	-12.2	1.52 H	151	-2.70	44.50
5	11570.00	54.8 PK	74.0	-19.2	1.32 H	77	5.60	49.20
6	11570.00	45.2 AV	54.0	-8.8	1.32 H	77	-4.00	49.20
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	*5785.00	104.6 PK			1.35 V	147	65.20	39.40
2	*5785.00	94.7 AV			1.35 V	147	55.30	39.40
3	7711.00	50.8 PK	74.0	-23.2	1.22 V	54	6.30	44.50
4	7711.00	39.8 AV	54.0	-14.2	1.22 V	54	-4.70	44.50
5	11570.00	54.8 PK	74.0	-19.2	1.35 V	322	5.60	49.20
6	11570.00	44.2 AV	54.0	-9.8	1.35 V	322	-5.00	49.20

**REMARKS:**

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun 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	106.7 PK			1.17 H	183	67.20	39.50
2	*5825.00	96.5 AV			1.17 H	183	57.00	39.50
3	#5850.00	65.7 PK	86.7	-21.0	1.17 H	183	26.20	39.50
4	#5850.00	48.8 AV	76.5	-27.7	1.17 H	183	9.30	39.50
5	11650.00	55.2 PK	74.0	-18.8	1.07 H	102	6.10	49.10
6	11650.00	44.2 AV	54.0	-9.8	1.07 H	102	-4.90	49.10
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	*5825.00	102.0 PK			1.22 V	138	62.50	39.50
2	*5825.00	91.7 AV			1.22 V	138	52.20	39.50
3	#5850.00	63.5 PK	82.0	-18.5	1.22 V	138	24.00	39.50
4	#5850.00	44.7 AV	71.7	-27.0	1.22 V	138	5.20	39.50
5	11650.00	54.8 PK	74.0	-19.2	1.28 V	338	5.70	49.10
6	11650.00	43.8 AV	54.0	-10.2	1.28 V	338	-5.30	49.10

**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.

## Test Mode B1 (With AUX Ant. & Adapter)

### 802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun 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	82.5 PK	89.4	-6.9	1.03 H	225	43.80	38.70
2	#5725.00	64.5 AV	79.4	-14.9	1.03 H	225	25.80	38.70
3	*5745.00	109.4 PK			1.03 H	225	70.60	38.80
4	*5745.00	99.4 AV			1.03 H	225	60.60	38.80
5	11490.00	55.9 PK	74.0	-18.1	1.23 H	331	6.50	49.40
6	11490.00	43.1 AV	54.0	-10.9	1.23 H	331	-6.30	49.40
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	#5725.00	80.5 PK	86.1	-5.6	1.15 V	216	41.80	38.70
2	#5725.00	62.4 AV	76.4	-14.0	1.15 V	216	23.70	38.70
3	*5745.00	106.1 PK			1.15 V	216	67.30	38.80
4	*5745.00	96.4 AV			1.15 V	216	57.60	38.80
5	11490.00	56.7 PK	74.0	-17.3	1.00 V	85	7.30	49.40
6	11490.00	43.4 AV	54.0	-10.6	1.00 V	85	-6.00	49.40

#### REMARKS:

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun 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	108.9 PK			1.01 H	221	70.00	38.90
2	*5785.00	99.0 AV			1.01 H	221	60.10	38.90
3	11570.00	55.6 PK	74.0	-18.4	1.22 H	336	6.40	49.20
4	11570.00	42.9 AV	54.0	-11.1	1.22 H	336	-6.30	49.20
5	#17355.00	63.1 PK	88.9	-25.8	1.40 H	183	10.40	52.70
6	#17355.00	50.4 AV	79.0	-28.6	1.40 H	183	-2.30	52.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	105.8 PK			1.12 V	213	66.90	38.90
2	*5785.00	96.0 AV			1.12 V	213	57.10	38.90
3	11570.00	56.4 PK	74.0	-17.6	1.00 V	80	7.20	49.20
4	11570.00	43.1 AV	54.0	-10.9	1.00 V	80	-6.10	49.20
5	#17355.00	61.8 PK	85.8	-24.0	1.11 V	228	9.10	52.70
6	#17355.00	48.9 AV	76.0	-27.1	1.11 V	228	-3.80	52.70

**REMARKS:**

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun 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	108.7 PK			1.02 H	227	69.80	38.90
2	*5825.00	98.6 AV			1.02 H	227	59.70	38.90
3	#5850.00	73.0 PK	88.7	-15.7	1.02 H	227	34.00	39.00
4	#5850.00	54.8 AV	78.6	-23.8	1.02 H	227	15.80	39.00
5	11650.00	55.7 PK	74.0	-18.3	1.20 H	328	6.60	49.10
6	11650.00	42.9 AV	54.0	-11.1	1.20 H	328	-6.20	49.10
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	*5825.00	106.0 PK			1.05 V	215	67.10	38.90
2	*5825.00	96.1 AV			1.05 V	215	57.20	38.90
3	#5850.00	69.3 PK	86.0	-16.7	1.05 V	215	30.30	39.00
4	#5850.00	51.5 AV	76.1	-24.6	1.05 V	215	12.50	39.00
5	11650.00	56.5 PK	74.0	-17.5	1.00 V	89	7.40	49.10
6	11650.00	43.2 AV	54.0	-10.8	1.00 V	89	-5.90	49.10

**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.

# 802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun 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	83.7 PK	88.9	-5.2	1.02 H	220	45.00	38.70
2	#5725.00	65.8 AV	78.8	-13.0	1.02 H	220	27.10	38.70
3	*5745.00	108.9 PK			1.02 H	220	70.10	38.80
4	*5745.00	98.8 AV			1.02 H	220	60.00	38.80
5	11490.00	55.4 PK	74.0	-18.6	1.20 H	238	6.00	49.40
6	11490.00	42.8 AV	54.0	-11.2	1.20 H	238	-6.60	49.40
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	#5725.00	80.9 PK	85.8	-4.9	1.12 V	219	42.20	38.70
2	#5725.00	63.0 AV	76.0	-13.0	1.12 V	219	24.30	38.70
3	*5745.00	105.8 PK			1.12 V	219	67.00	38.80
4	*5745.00	96.0 AV			1.12 V	219	57.20	38.80
5	11490.00	56.3 PK	74.0	-17.7	1.00 V	82	6.90	49.40
6	11490.00	43.1 AV	54.0	-10.9	1.00 V	82	-6.30	49.40

## REMARKS:

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun 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	108.4 PK			1.00 H	224	69.50	38.90
2	*5785.00	98.3 AV			1.00 H	224	59.40	38.90
3	11570.00	55.2 PK	74.0	-18.8	1.23 H	235	6.00	49.20
4	11570.00	42.6 AV	54.0	-11.4	1.23 H	235	-6.60	49.20
5	#17355.00	62.8 PK	88.4	-25.6	1.43 H	188	10.10	52.70
6	#17355.00	50.2 AV	78.3	-28.1	1.43 H	188	-2.50	52.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	105.4 PK			1.08 V	211	66.50	38.90
2	*5785.00	95.5 AV			1.08 V	211	56.60	38.90
3	11570.00	56.0 PK	74.0	-18.0	1.00 V	83	6.80	49.20
4	11570.00	42.9 AV	54.0	-11.1	1.00 V	83	-6.30	49.20
5	#17355.00	61.5 PK	85.4	-23.9	1.08 V	220	8.80	52.70
6	#17355.00	48.6 AV	75.5	-26.9	1.08 V	220	-4.10	52.70

**REMARKS:**

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun 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	108.4 PK			1.01 H	222	69.50	38.90
2	*5825.00	98.3 AV			1.01 H	222	59.40	38.90
3	#5850.00	74.0 PK	88.4	-14.4	1.01 H	222	35.00	39.00
4	#5850.00	56.1 AV	78.3	-22.2	1.01 H	222	17.10	39.00
5	11650.00	55.1 PK	74.0	-18.9	1.23 H	230	6.00	49.10
6	11650.00	42.5 AV	54.0	-11.5	1.23 H	230	-6.60	49.10
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	*5825.00	105.4 PK			1.24 V	197	66.50	38.90
2	*5825.00	95.4 AV			1.24 V	197	56.50	38.90
3	#5850.00	70.0 PK	85.4	-15.4	1.24 V	197	31.00	39.00
4	#5850.00	53.0 AV	75.4	-22.4	1.24 V	197	14.00	39.00
5	11650.00	56.0 PK	74.0	-18.0	1.00 V	80	6.90	49.10
6	11650.00	42.9 AV	54.0	-11.1	1.00 V	80	-6.20	49.10

**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.

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Nick Chen
TEST MODE	A 1 (With Main Ant. & Adapter)		

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	191.02	26.3 QP	43.5	-17.2	1.50 H	26	14.50	11.81
2	319.06	27.5 QP	46.0	-18.5	1.00 H	7	12.15	15.39
3	357.86	27.8 QP	46.0	-18.2	1.00 H	7	11.39	16.41
4	837.04	27.1 QP	46.0	-18.9	1.50 H	156	1.37	25.71
5	875.84	27.6 QP	46.0	-18.4	1.00 H	267	1.41	26.16
6	881.66	27.2 QP	46.0	-18.8	1.00 H	226	0.93	26.23
7	914.64	27.8 QP	46.0	-18.2	1.50 H	107	1.20	26.57
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	37.76	28.2 QP	40.0	-11.8	1.00 V	36	15.35	12.81
2	62.98	25.7 QP	40.0	-14.3	1.00 V	302	12.63	13.06
3	107.60	26.6 QP	43.5	-17.0	1.00 V	310	16.32	10.23
4	140.58	25.8 QP	43.5	-17.7	1.00 V	229	12.30	13.48
5	179.38	27.0 QP	43.5	-16.6	1.00 V	211	14.23	12.72
6	807.94	27.1 QP	46.0	-18.9	1.50 V	310	1.74	25.37
7	844.80	27.1 QP	46.0	-18.9	1.00 V	2	1.32	25.81
8	854.50	28.1 QP	46.0	-17.9	1.00 V	59	2.17	25.92
9	893.30	27.5 QP	46.0	-18.5	1.50 V	290	1.10	26.36
10	910.76	27.5 QP	46.0	-18.5	1.00 V	326	0.95	26.54
11	955.38	27.7 QP	46.0	-18.3	1.00 V	127	0.78	26.94

## REMARKS:

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Anderson Hong
TEST MODE	A 2 (With Main Ant. & POE)		

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	88.58	39.5 QP	43.5	-4.0	1.75 H	145	31.10	8.40
2	115.41	40.1 QP	43.5	-3.4	1.75 H	347	28.90	11.20
3	152.34	39.1 QP	43.5	-4.4	1.75 H	47	25.30	13.80
4	191.41	40.3 QP	43.5	-3.2	1.57 H	83	28.50	11.80
5	216.17	38.2 QP	46.0	-7.8	1.75 H	22	26.50	11.70
6	904.62	39.0 QP	46.0	-7.0	1.75 H	47	12.50	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	45.67	35.1 QP	40.0	-4.9	1.50 V	107	21.80	13.30
2	62.41	36.5 QP	40.0	-3.5	1.25 V	269	23.40	13.10
3	88.80	34.8 QP	43.5	-8.7	1.50 V	61	26.40	8.40
4	127.28	37.5 QP	43.5	-6.0	1.50 V	41	25.10	12.40
5	140.69	35.0 QP	43.5	-8.5	1.50 V	47	21.50	13.50
6	191.41	35.7 QP	43.5	-7.8	1.50 V	132	23.90	11.80

**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.

## 802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Anderson Hong
TEST MODE	B 1 (With AUX Ant. & Adapter)		

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	88.41	38.7 QP	43.5	-4.8	1.25 H	228	30.30	8.40
2	118.02	40.1 QP	43.5	-3.4	1.50 H	325	28.60	11.50
3	154.67	38.2 QP	43.5	-5.3	1.75 H	100	24.30	13.90
4	194.18	40.4 QP	43.5	-3.1	1.05 H	267	28.80	11.60
5	216.05	37.0 QP	46.0	-9.0	1.25 H	41	25.30	11.70
6	285.47	36.8 QP	46.0	-9.2	2.00 H	52	22.50	14.30
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	47.07	35.0 QP	40.0	-5.0	1.25 V	115	21.60	13.40
2	65.08	35.9 QP	40.0	-4.1	1.50 V	107	23.10	12.80
3	88.20	36.5 QP	43.5	-7.0	1.25 V	57	28.00	8.50
4	115.02	36.3 QP	43.5	-7.2	1.25 V	277	25.20	11.10
5	125.98	37.1 QP	43.5	-6.4	1.75 V	142	24.90	12.20
6	191.12	36.1 QP	43.5	-7.4	1.25 V	47	24.30	11.80

## 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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Anderson Hong
TEST MODE	B 2 (With AUX Ant. & POE)		

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	88.64	39.8 QP	43.5	-3.7	1.25 H	107	31.40	8.40
2	115.72	39.4 QP	43.5	-4.1	1.75 H	204	28.20	11.20
3	152.93	37.1 QP	43.5	-6.4	1.75 H	105	23.30	13.80
4	165.41	36.6 QP	43.5	-6.9	1.75 H	85	22.90	13.70
5	191.07	40.4 QP	43.5	-3.1	1.05 H	241	28.60	11.80
6	216.67	39.2 QP	46.0	-6.8	1.25 H	299	27.50	11.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	35.17	35.0 QP	40.0	-5.0	1.50 V	269	22.60	12.40
2	63.01	36.0 QP	40.0	-4.0	1.25 V	285	22.90	13.10
3	88.34	36.4 QP	43.5	-7.1	1.25 V	22	28.00	8.40
4	115.95	35.1 QP	43.5	-8.4	1.25 V	347	23.90	11.20
5	126.09	36.2 QP	43.5	-7.3	1.25 V	107	24.00	12.20
6	191.34	35.7 QP	43.5	-7.8	1.50 V	261	23.90	11.80

**REMARKS:**

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

## 5.2 CONDUCTED EMISSION MEASUREMENT

### 5.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB $\mu$ 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.

### 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 item 4.1.6

## 5.2.7 TEST RESULTS

### CONDUCTED WORST-CASE DATA :

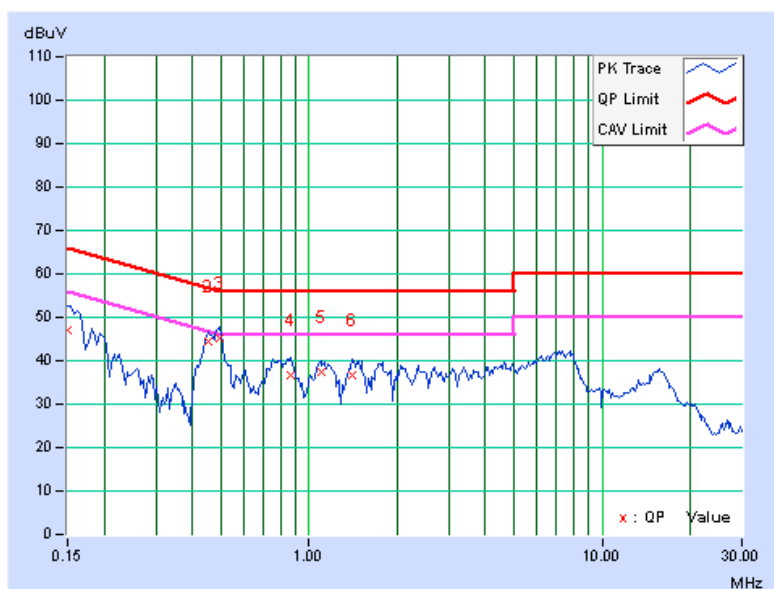
802.11n (20MHz)

PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	A1 (With Main Ant. & Adapter)		

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	0.11	47.05	32.31	47.16	32.42	66.00	56.00	-18.84	-23.58
2	0.45078	0.14	44.45	39.66	44.59	39.80	56.86	46.86	-12.28	-7.07
3	0.49375	0.14	45.04	35.89	45.18	36.03	56.10	46.10	-10.93	-10.08
4	0.86875	0.18	36.34	29.35	36.52	29.53	56.00	46.00	-19.48	-16.47
5	1.10156	0.19	37.38	31.28	37.57	31.47	56.00	46.00	-18.43	-14.53
6	1.41016	0.20	36.34	29.87	36.54	30.07	56.00	46.00	-19.46	-15.93

### 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.

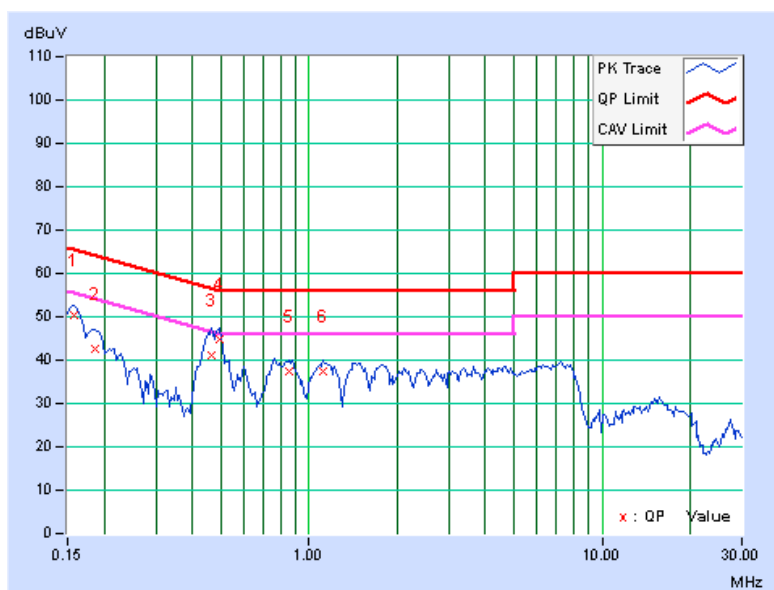


PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	A1 (With Main Ant. & Adapter)		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	0.13	50.16	44.02	50.29	44.15	65.58	55.58	-15.29	-11.43
2	0.18516	0.14	42.41	32.25	42.55	32.39	64.25	54.25	-21.71	-21.87
3	0.46641	0.16	40.80	38.36	40.96	38.52	56.58	46.58	-15.62	-8.06
4	0.49375	0.16	44.58	35.28	44.74	35.44	56.10	46.10	-11.37	-10.67
5	0.85313	0.20	37.17	30.76	37.37	30.96	56.00	46.00	-18.63	-15.04
6	1.11719	0.21	37.12	30.60	37.33	30.81	56.00	46.00	-18.67	-15.19

#### 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.



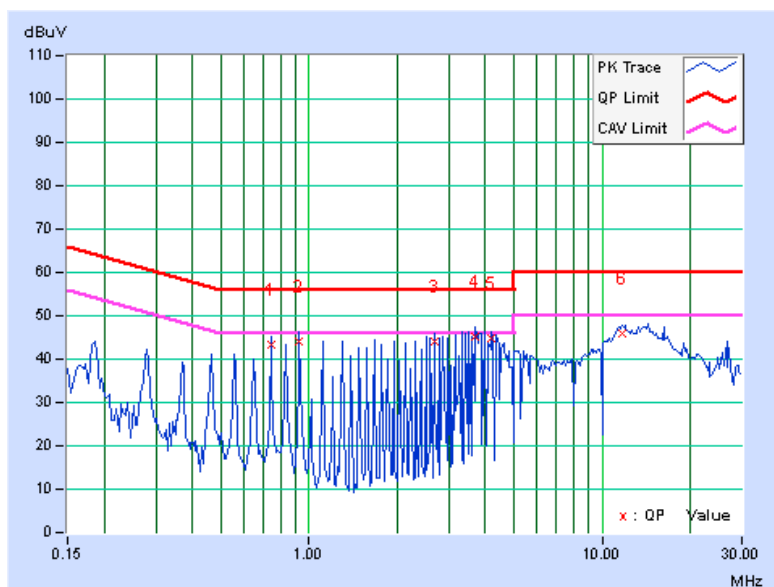


PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	A2 (With Main Ant. & POE)		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.73984	0.16	43.21	42.54	43.37	42.70	56.00	46.00	-12.63	-3.30
2	0.92734	0.18	43.88	42.55	44.06	42.73	56.00	46.00	-11.94	-3.27
3	2.68750	0.26	43.64	38.68	43.90	38.94	56.00	46.00	-12.10	-7.06
4	3.70703	0.32	44.96	39.49	45.28	39.81	56.00	46.00	-10.72	-6.19
5	4.17188	0.35	44.49	41.81	44.84	42.16	56.00	46.00	-11.16	-3.84
6	11.68216	0.73	45.37	41.91	46.10	42.64	60.00	50.00	-13.90	-7.36

#### 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.

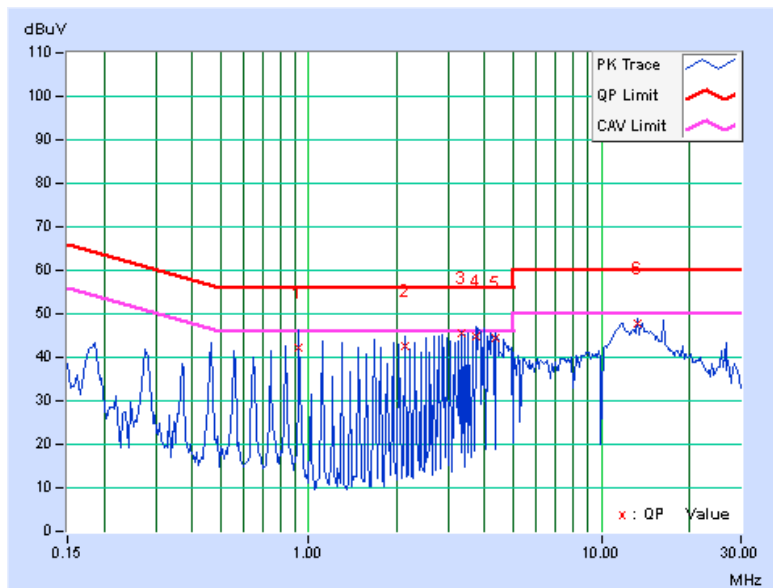


PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	A2 (With Main Ant. & POE)		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.92734	0.20	42.14	42.79	42.34	42.99	56.00	46.00	-13.66	-3.01
2	2.13281	0.24	42.39	42.05	42.63	42.29	56.00	46.00	-13.37	-3.71
3	3.33984	0.31	45.26	42.58	45.57	42.89	56.00	46.00	-10.43	-3.11
4	3.71094	0.33	44.58	39.63	44.91	39.96	56.00	46.00	-11.09	-6.04
5	4.35938	0.36	43.92	40.27	44.28	40.63	56.00	46.00	-11.72	-5.37
6	13.35547	0.72	46.92	43.56	47.64	44.28	60.00	50.00	-12.36	-5.72

#### REMARKS:

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





A D T

### **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

#### Test Mode A1 (With Main Ant. & Adapter)

##### 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	16.28	0.5	PASS
157	5785	16.18	0.5	PASS
161	5805	16.22	0.5	PASS

##### 802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	17.50	0.5	PASS
157	5785	17.56	0.5	PASS
161	5805	17.22	0.5	PASS



A D T

**Test Mode B1 (With AUX Ant. & Adapter)****802.11a**

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	16.03	0.5	PASS
157	5785	16.19	0.5	PASS
161	5805	16.10	0.5	PASS

**802.11n (20MHz)**

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	17.33	0.5	PASS
157	5785	17.44	0.5	PASS
161	5805	17.25	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

### Test Mode A1 (With Main Ant. & Adapter)

#### 802.11a

Channel	Frequency (MHz)	Chain	Data Rate							
			6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
CH 149	5745 MHz	MAIN	23.20	23.16	23.14	23.19	23.11	23.14	23.12	23.16
CH 157	5785 MHz	MAIN	23.30	23.22	23.26	23.24	23.19	23.26	23.22	23.24
CH 165	5825 MHz	MAIN	23.50	23.47	23.41	23.47	23.43	23.43	23.49	23.46

#### 802.11n (20MHz)

Channel	Frequency (MHz)	Chain	Data Rate							
			MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 149	5745 MHz	MAIN	23.30	23.26	23.28	23.21	23.2	23.27	23.13	23.19
CH 157	5785 MHz	MAIN	23.30	23.17	23.29	23.24	23.19	23.26	23.29	23.21
CH 165	5825 MHz	MAIN	23.60	23.59	23.57	23.55	23.49	23.54	23.57	23.59

### Test Mode B1 (With AUX Ant. & Adapter)

#### 802.11a

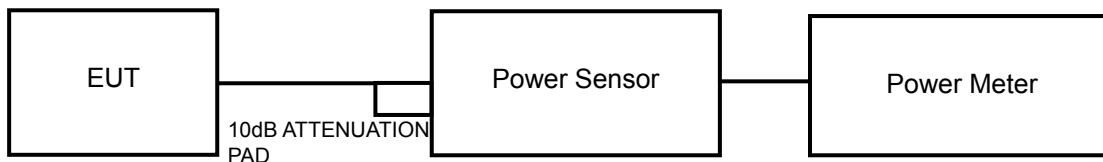
Channel	Frequency (MHz)	Chain	Data Rate							
			6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
CH 149	5745 MHz	AUX	19.00	18.98	18.96	18.88	18.83	18.87	18.85	18.93
CH 157	5785 MHz	AUX	18.40	18.37	18.34	18.36	18.27	18.26	18.23	18.22
CH 165	5825 MHz	AUX	19.20	19.17	19.14	19.15	19.1	19.13	19.16	19.10

#### 802.11n (20MHz)

Channel	Frequency (MHz)	Chain	Data Rate							
			MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 149	5745 MHz	AUX	18.90	18.86	18.82	18.81	18.76	18.77	18.72	18.77
CH 157	5785 MHz	AUX	18.90	18.84	18.86	18.85	18.76	18.73	18.77	18.75
CH 165	5825 MHz	AUX	19.00	18.88	18.79	18.77	18.75	18.82	18.83	18.86

## 5.5 AVERAGE OUTPUT POWER

### 5.5.1 TEST SETUP



### 5.5.2 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

### 5.5.3 TEST PROCEDURES

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

### 5.5.4 EUT OPERATING CONDITIONS

Same as Item 4.3.6.



## 5.5.5 TEST RESULTS

### Test Mode A1 (With Main Ant. & Adapter)

#### 802.11a

Channel	Frequency (MHz)	Chain	Data Rate
			6Mbps
CH 149	5745 MHz	MAIN	18.90
CH 157	5785 MHz	MAIN	18.90
CH 165	5825 MHz	MAIN	19.00

#### 802.11n (20MHz)

Channel	Frequency (MHz)	Chain	Data Rate
			MCS0
CH 149	5745 MHz	MAIN	18.90
CH 157	5785 MHz	MAIN	18.80
CH 165	5825 MHz	MAIN	18.90

### Test Mode B1 (With AUX Ant. & Adapter)

Channel	Frequency (MHz)	Chain	Data Rate
			6Mbps
CH 149	5745 MHz	AUX	17.90
CH 157	5785 MHz	AUX	18.30
CH 165	5825 MHz	AUX	16.70

#### 802.11n (20MHz)

Channel	Frequency (MHz)	Chain	Data Rate
			MCS0
CH 149	5745 MHz	AUX	18.20
CH 157	5785 MHz	AUX	18.60
CH 165	5825 MHz	AUX	17.40



A D T

## **5.6 POWER SPECTRAL DENSITY MEASUREMENT**

### **5.6.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT**

The Maximum of Power Spectral Density Measurement is 8dBm.

### **5.6.2 TEST SETUP**

Same as item 4.5.2.

### **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 4.5.4.

### **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

### Test Mode A1 (With Main Ant. & Adapter)

#### 802.11a

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
149	5745	9.54	-5.69	8	PASS
157	5785	9.57	-5.66	8	PASS
161	5805	9.50	-5.73	8	PASS

#### 802.11n (20MHz)

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
149	5745	9.44	-5.79	8	PASS
157	5785	9.48	-5.75	8	PASS
161	5805	9.46	-5.77	8	PASS

### Test Mode B1 (With AUX Ant. & Adapter)

#### 802.11a

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
149	5745	9.26	-5.97	8	PASS
157	5785	9.31	-5.92	8	PASS
161	5805	9.49	-5.74	8	PASS

#### 802.11n (20MHz)

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
149	5745	9.48	-5.75	8	PASS
157	5785	9.33	-5.90	8	PASS
161	5805	9.77	-5.46	8	PASS

## **5.7 CONDUCTED OUT OF BAND EMISSION MEASUREMENT**

### **5.7.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT**

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

### **5.7.2 TEST SETUP**

Same as Item 4.6.2

### **5.7.3 TEST INSTRUMENTS**

Refer to section 4.1.2 to get information of above instrument.

### **5.7.4 TEST PROCEDURE**

Same as Item 4.6.4

### **5.7.5 DEVIATION FROM TEST STANDARD**

No deviation.

### **5.7.6 EUT OPERATING CONDITION**

Same as Item 4.3.6

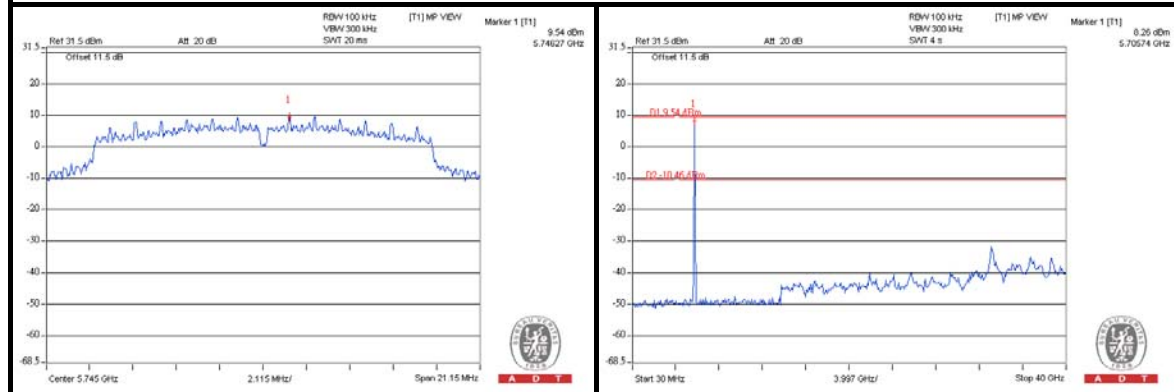
### **5.7.7 TEST RESULTS**

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

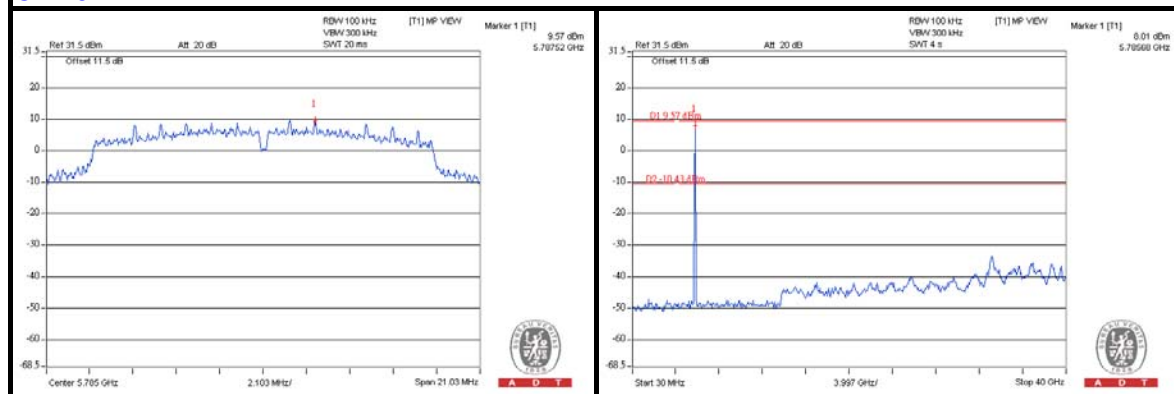
# Test Mode A1 (With Main Ant. & Adapter)

802.11a

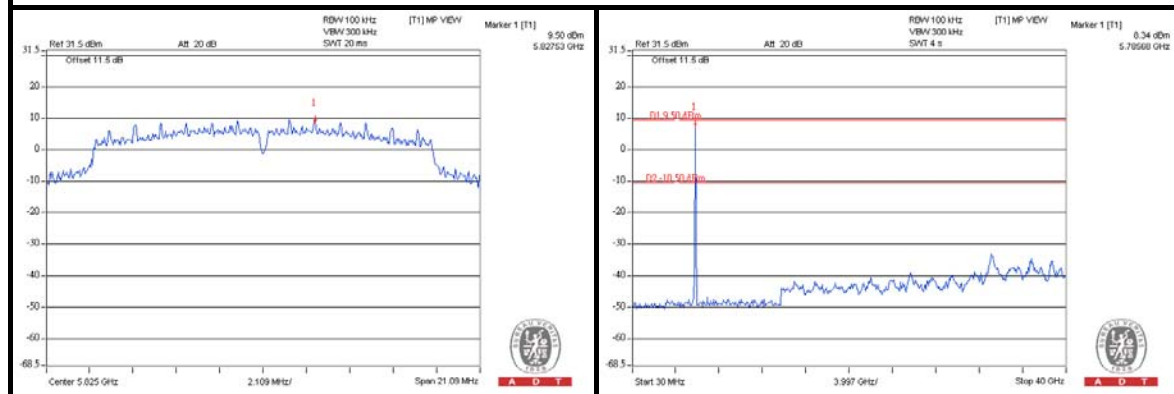
CH 149



CH 157

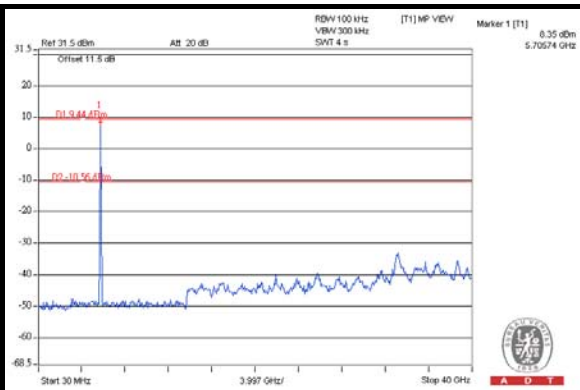
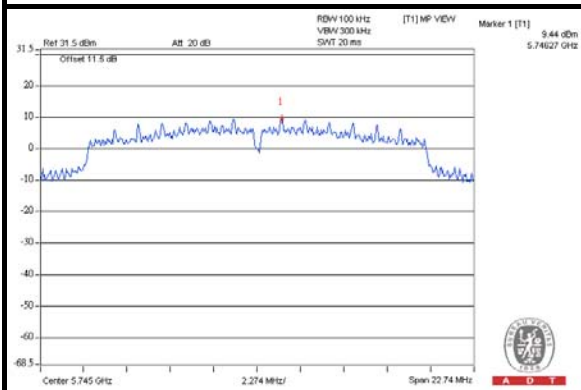


CH 161

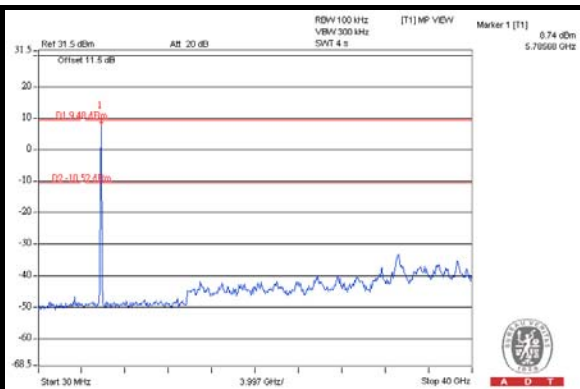
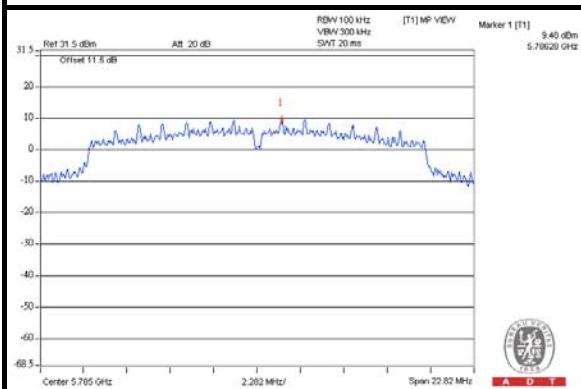


# 802.11n (20MHz)

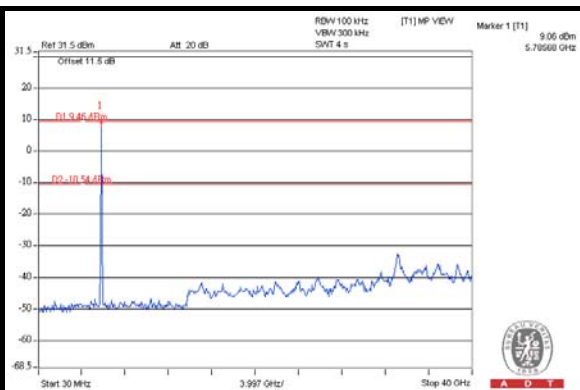
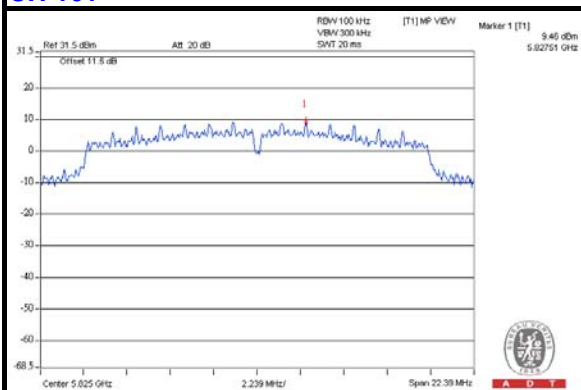
## CH 149



## CH 157



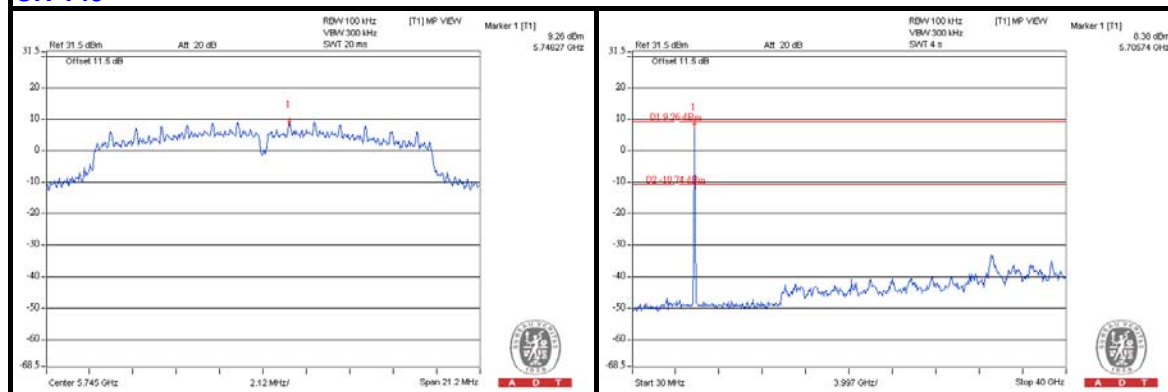
## CH 161



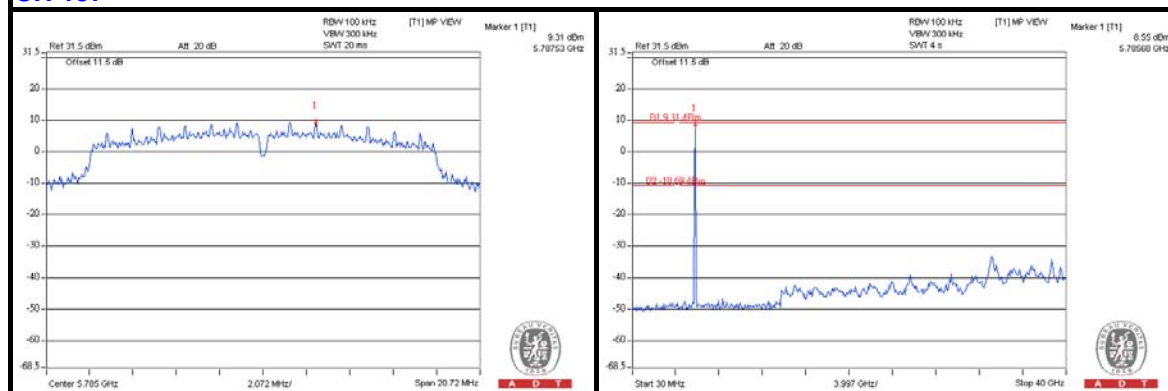
# Test Mode B1 (With AUX Ant. & Adapter)

802.11a

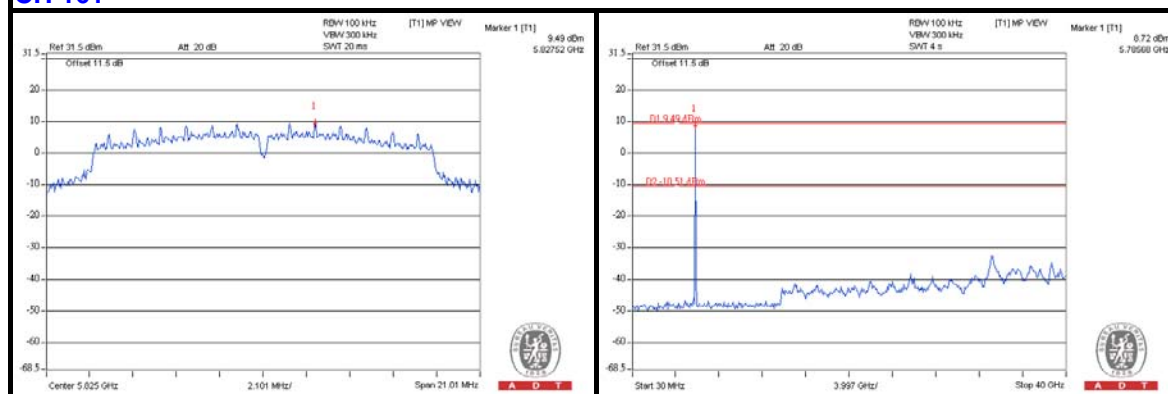
## CH 149



## CH 157



## CH 161

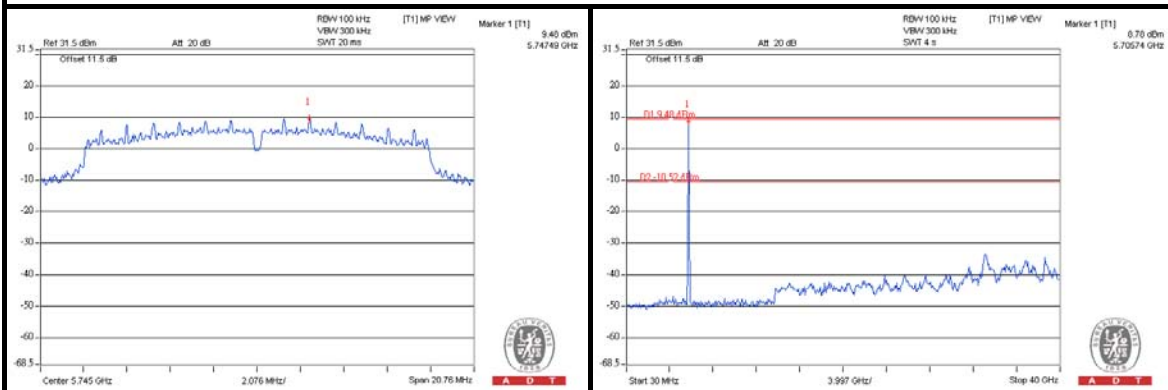




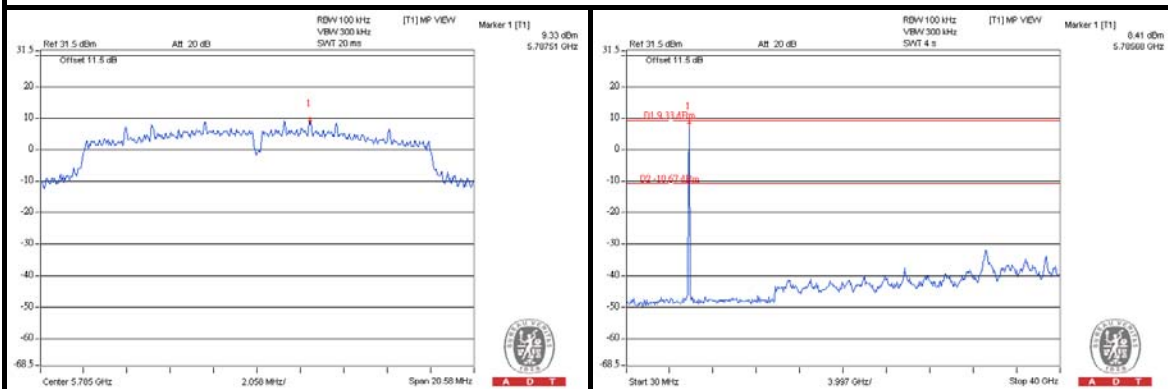
A D T

## 802.11n (20MHz)

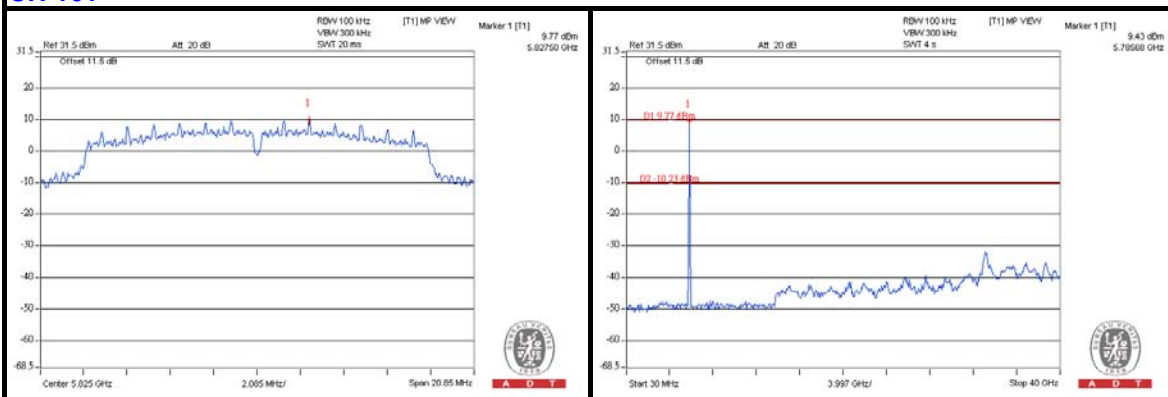
### CH 149



### CH 157



### CH 161





## 6. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

## 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](mailto:service.adt@tw.bureauveritas.com)

**Web Site:** [www.bureauveritas-adt.com](http://www.bureauveritas-adt.com)

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 any modifications are made to the EUT by the lab during the test.

**---END---**