

FCC TEST REPORT (15.247)

REPORT NO.: RF140425C18-4
MODEL NO.: T00S
FCC ID: MSQT00S
RECEIVED: Apr. 25, 2014
TESTED: May 16, 2014 ~ May 30, 2014
ISSUED: Jun. 06, 2014

APPLICANT: ASUSTeK COMPUTER INC.

ADDRESS: 4F, No. 150, LI-TE Rd., PEITOU, TAIPEI 112,
TAIWAN

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	4
1. CERTIFICATION	5
2. SUMMARY OF TEST RESULTS	6
2.1 MEASUREMENT UNCERTAINTY	6
3. GENERAL INFORMATION	7
3.1 GENERAL DESCRIPTION OF EUT	7
3.2 DESCRIPTION OF TEST MODES	8
3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	9
3.3 DESCRIPTION OF SUPPORT UNITS	11
3.3.1 CONFIGURATION OF SYSTEM UNDER TEST	11
3.4 DUTY CYCLE TEST SIGNAL	12
3.5 GENERAL DESCRIPTION OF APPLIED STANDARDS	13
4. TEST TYPES AND RESULTS (FOR 2.4GHz BAND)	14
4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT	14
4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT	14
4.1.2 TEST INSTRUMENTS	15
4.1.3 TEST PROCEDURES	16
4.1.4 DEVIATION FROM TEST STANDARD	16
4.1.5 TEST SETUP	17
4.1.6 EUT OPERATING CONDITIONS	18
4.1.7 TEST RESULTS	19
4.2 CONDUCTED EMISSION MEASUREMENT	39
4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT	39
4.2.2 TEST INSTRUMENTS	39
4.2.3 TEST PROCEDURES	40
4.2.4 DEVIATION FROM TEST STANDARD	40
4.2.5 TEST SETUP	41
4.2.6 EUT OPERATING CONDITIONS	41
4.2.7 TEST RESULTS	42
4.3 6dB BANDWIDTH MEASUREMENT	44
4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT	44
4.3.2 TEST SETUP	44
4.3.3 TEST INSTRUMENTS	44
4.3.4 TEST PROCEDURE	44
4.3.5 DEVIATION FROM TEST STANDARD	44
4.3.6 EUT OPERATING CONDITIONS	44
4.3.7 TEST RESULTS	45
4.4 CONDUCTED OUTPUT POWER	47
4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT	47
4.4.2 TEST SETUP	47
4.4.3 TEST INSTRUMENTS	47
4.4.4 TEST PROCEDURES	47
4.4.5 DEVIATION FROM TEST STANDARD	47
4.4.6 EUT OPERATING CONDITIONS	47
4.4.7 TEST RESULTS	48
4.5 POWER SPECTRAL DENSITY MEASUREMENT	49
4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	49
4.5.2 TEST SETUP	49
4.5.3 TEST INSTRUMENTS	49
4.5.4 TEST PROCEDURE	49
4.5.5 DEVIATION FROM TEST STANDARD	49
4.5.6 EUT OPERATING CONDITION	49



A D T

4.5.7	TEST RESULTS.....	50
4.6	CONDUCTED OUT OF BAND EMISSION MEASUREMENT	52
4.6.1	LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT	52
4.6.2	TEST SETUP	52
4.6.3	TEST INSTRUMENTS	52
4.6.4	TEST PROCEDURE	52
4.6.5	DEVIATION FROM TEST STANDARD	52
4.6.6	EUT OPERATING CONDITION.....	52
4.6.7	TEST RESULTS.....	53
5.	PHOTOGRAPHS OF THE TEST CONFIGURATION.....	56
6.	INFORMATION ON THE TESTING LABORATORIES	57
7.	APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	58



A D T

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF140425C18-4	Original release	Jun. 06, 2014

1. CERTIFICATION

PRODUCT: PadFone X mini

MODEL NO.: T00S

BRAND: ASUS

APPLICANT: ASUSTeK COMPUTER INC.

TESTED: May 16, 2014 ~ May 30, 2014

TEST SAMPLE: Identical Prototype

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

ANSI C63.10-2009

The above equipment (model: T00S) 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 : Evonne Liu , **DATE** : Jun. 06, 2014
Evonne Liu / Specialist

APPROVED BY : Sam Chen , **DATE** : Jun. 06, 2014
Sam Chen / Senior Project Engineer

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 -12.89dB at 0.47422MHz.
15.205 & 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -0.97dB at 7311MHz.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(d)	Antenna Port Emission	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

EUT	PadFone X mini
MODEL NO.	T00S
POWER SUPPLY	5.0Vdc (adapter or host equipment) 3.8Vdc (Li-ion battery)
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11.0 / 5.5 / 2.0 / 1.0 Mbps 802.11g: 54.0 / 48.0 / 36.0 / 24.0 / 18.0 / 12.0 / 9.0 / 6.0 Mbps 802.11n: up to MCS7
OPERATING FREQUENCY	2412 ~ 2462MHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, 802.11n (20MHz)
OUTPUT POWER	250.61mW
ANTENNA TYPE	PIFA antenna with -0.06dBi gain
ANTENNA CONNECTOR	NA
DATA CABLE	Refer to Note as below
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Refer to Note as below

NOTE:

1. The EUT contains following accessory devices.

ITEM	BRAND	MODEL	SPECIFICATION
Adapter 1	ASUS	AD897320	I/P: 100-240Vac, 50/60Hz, 0.3A O/P: 5Vdc, 2A
Adapter 2	ASUS	W12-010N3A	I/P: 100-240Vac, 50/60Hz, 0.3A O/P: 5Vdc, 2A
Battery	ASUS	B11P1406	3.8Vdc, 7.8Wh
Earphone 1	ASUS	OBOPRO2	1.27m cable
Earphone 2	ASUS	WW	1.25m cable
Earphone 3	ASUS	CHM-125STS02001	1.15m cable
USB Cable 1	ASUS	AA780300	0.85m cable
USB Cable 2	ASUS	L65U2008-CS-B	0.95m cable
USB Cable 3	ASUS	CHUD003B-Y05-EF	0.95m cable

ITEM	BRAND	MODEL	SPECIFICATION
LCD Panel	WTK	WD-FP045V4	--
Front Camera	AZWAVE	AM-2F031	--
Rear Camera	Chicony	CBAE5122000387	--
WLAN/BT Module	Broadcom	BCM4330	--
WWAN Module	Intel	PMB5740(Transceiver)+ PMB9923 (modem)	--
PadFone X mini Station	ASUS	T00SP	--
Battery for PadFone X mini Station	ASUS	C11P1407	3.8Vdc, 8.3Wh

2. The EUT provides one completed transmitter and one receiver.

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

3. 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

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

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

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

WLAN 2.4GHz:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE $\geq$ 1G	RE<1G	PLC	APCM	
A	√	√	√	√	Phone only
B	√	√	-	-	Phone + PadFone X mini Station

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

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

NOTE: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane** for Mode A and **Y-plane** for Mode B.

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, B	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	MCS0

RADIATED EMISSION TEST (BELOW 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B	802.11b	1 to 11	6	DSSS	DBPSK	1.0

POWER LINE CONDUCTED EMISSION TEST:

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	6	DSSS	DBPSK	1.0

BANDEDGE MEASUREMENT:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	MCS0

ANTENNA PORT CONDUCTED MEASUREMENT:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	MCS0

Test CONDITION:

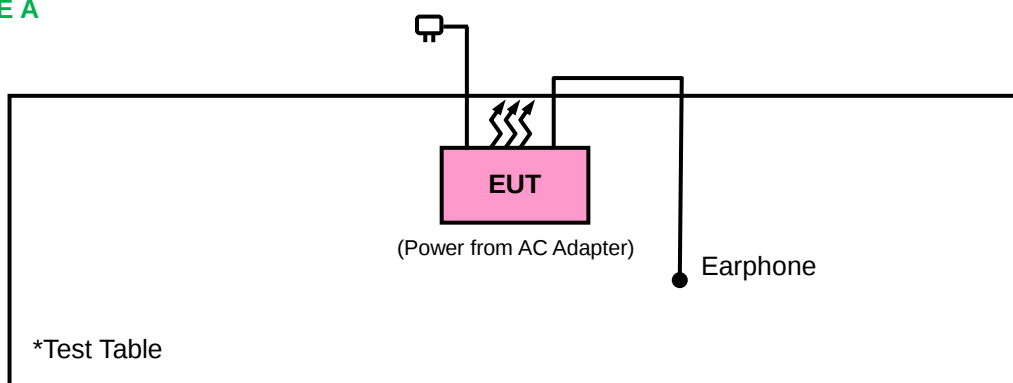
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 65%RH	120Vac, 60Hz	Harry Hsueh
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Harry Hsueh
PLC	25deg. C, 65%RH	120Vac, 60Hz	Peter Weng
APCM	25deg. C, 65%RH	120Vac, 60Hz	David Huang

3.3 DESCRIPTION OF SUPPORT UNITS

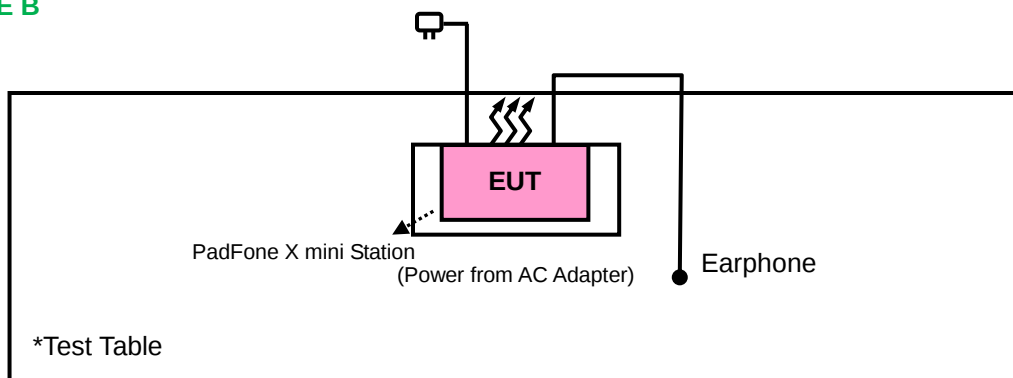
The EUT has been tested as an independent unit together with other necessary accessories or support units.

3.3.1 CONFIGURATION OF SYSTEM UNDER TEST

MODE A



MODE B



3.4 DUTY CYCLE TEST SIGNAL

WLAN 2.4GHz

802.11b: Duty cycle of test signal is 100 %

802.11g: Duty cycle = $1.386/1.706 = 0.812$, Duty factor = $10 * \log(1/0.812) = 0.90$

802.11n (20MHz): Duty cycle = $1.302/1.607 = 0.810$, Duty factor = $10 * \log(1/0.810) = 0.91$



3.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.247)

558074 D01 DTS Meas Guidance v03r01

ANSI C63.10-2009

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

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

4. TEST TYPES AND RESULTS (FOR 2.4GHz BAND)

4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 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 Agilent	N9038A	MY51210203	Jan. 17, 2014	Jan. 16, 2015
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 21, 2013	Dec. 20, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Feb. 27, 2014	Feb. 26, 2015
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Feb. 19, 2014	Feb. 18, 2015
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 18, 2013	Dec. 17, 2014
Preamplifier EMCI	EMC 012645	980115	Dec. 26, 2013	Dec. 25, 2014
Preamplifier EMCI	EMC 184045	980116	Jan. 13, 2014	Jan. 12, 2015
Preamplifier EMCI	EMC 330H	980112	Dec. 27, 2013	Dec. 26, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4 2950114	Oct. 18, 2013	Oct. 17, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Oct. 18, 2013	Oct. 17, 2014
RF signal cable Worken	RG-213	NA	Nov. 07, 2013	Nov. 06, 2014
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA
Power Meter	ML2495A	1232002	Aug. 23, 2013	Aug. 22, 2014
Power Sensor	MA2411B	1207325	Aug. 23, 2013	Aug. 22, 2014

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The calibration interval of the loop antenna is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in HwaYa Chamber 10.
4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
5. The FCC Site Registration No. is 690701.
6. The IC Site Registration No. is IC 7450F-10.

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:

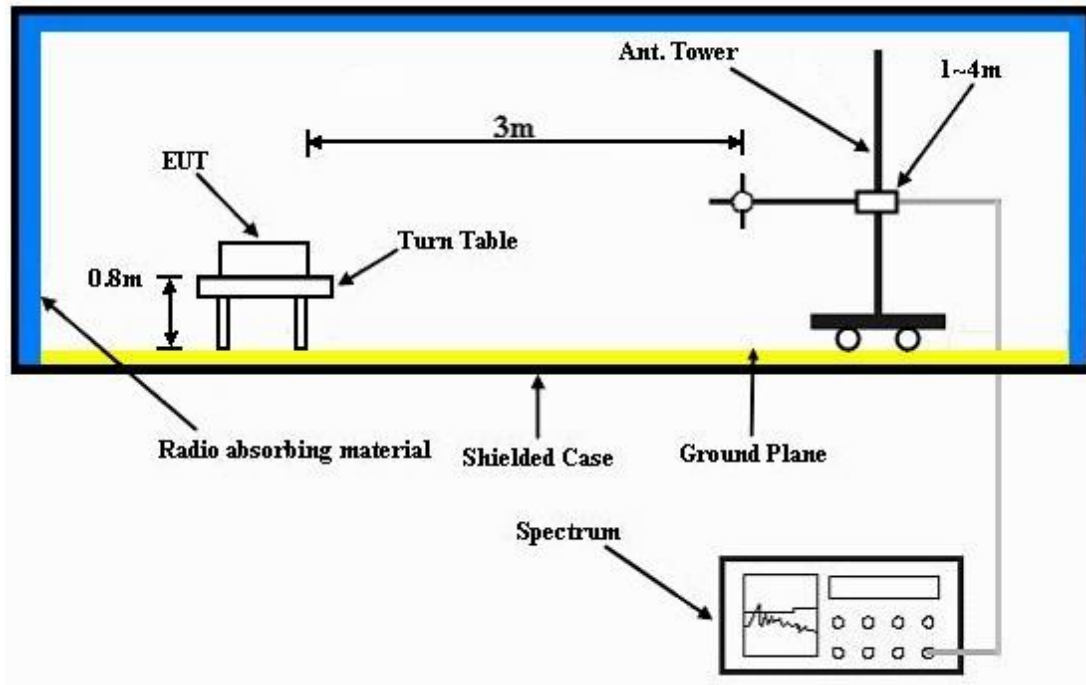
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 1kHz (Duty cycle < 98%) or 10Hz (Duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 DEVIATION FROM TEST STANDARD

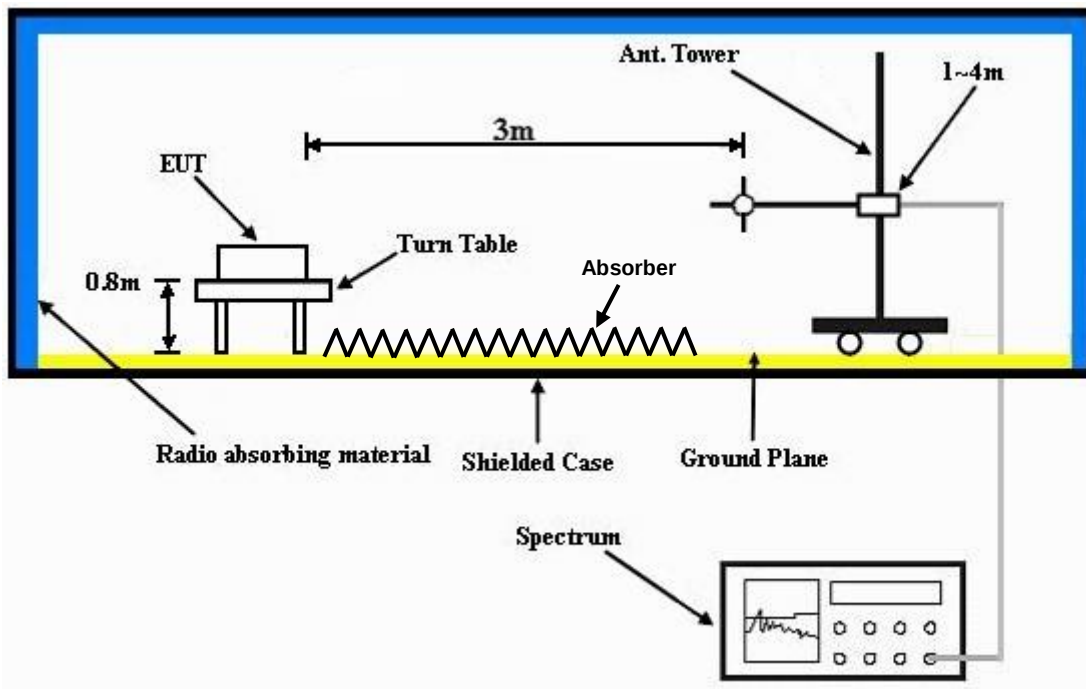
No deviation.

4.1.5 TEST SETUP

Frequency Range 30MHz ~ 1GHz



Frequency Range above 1GHz



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



A D T

4.1.6 EUT OPERATING CONDITIONS

- a. Placed the EUT on a testing table.
- b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.

4.1.7 TEST RESULTS

MODE A

ABOVE 1GHz WORST-CASE DATA

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	41.72	39.99	54	-12.28	31.8	5.4	35.47	189	340	Average
2390	56.87	55.14	74	-17.13	31.8	5.4	35.47	189	340	Peak
2412	103.81	102.04			31.81	5.43	35.47	189	340	Average
2412	107.6	105.83			31.81	5.43	35.47	189	340	Peak
2486	43.98	41.99	54	-10.02	31.88	5.53	35.42	189	340	Average
2486	58.47	56.48	74	-15.53	31.88	5.53	35.42	189	340	Peak
7236	51.8	41.27	54	-2.2	35.55	9.94	34.96	113	335	Average
7236	58.5	47.97	74	-15.5	35.55	9.94	34.96	113	335	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2384	41.3	39.61	54	-12.7	31.78	5.4	35.49	108	110	Average
2384	56.98	55.29	74	-17.02	31.78	5.4	35.49	108	110	Peak
2412	101.7	99.93			31.81	5.43	35.47	108	110	Average
2412	104.92	103.15			31.81	5.43	35.47	108	110	Peak
2498	42.99	40.97	54	-11.01	31.9	5.53	35.41	108	110	Average
2498	57.04	55.02	74	-16.96	31.9	5.53	35.41	108	110	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2412MHz: Fundamental frequency.



A D T

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2388	41.72	40.01	54	-12.28	31.8	5.4	35.49	189	340	Average
2388	57.4	55.69	74	-16.6	31.8	5.4	35.49	189	340	Peak
2437	107.88	106.03			31.85	5.46	35.46	189	340	Average
2437	110.62	108.77			31.85	5.46	35.46	189	340	Peak
2484	43.91	41.95	54	-10.09	31.88	5.5	35.42	189	340	Average
2484	59.36	57.4	74	-14.64	31.88	5.5	35.42	189	340	Peak
7311	53.03	42.54	54	-0.97	35.54	9.95	35	139	342	Average
7311	59.23	48.74	74	-14.77	35.54	9.95	35	139	342	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2360	41.65	40.02	54	-12.35	31.76	5.37	35.5	108	110	Average
2360	57.07	55.44	74	-16.93	31.76	5.37	35.5	108	110	Peak
2437	103.46	101.61			31.85	5.46	35.46	108	110	Average
2437	107.11	105.26			31.85	5.46	35.46	108	110	Peak
2486	42.98	40.99	54	-11.02	31.88	5.53	35.42	108	110	Average
2486	57.19	55.2	74	-16.81	31.88	5.53	35.42	108	110	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437MHz: Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2374	40.67	39.01	54	-13.33	31.78	5.37	35.49	189	340	Average
2374	56.08	54.42	74	-17.92	31.78	5.37	35.49	189	340	Peak
2462	103.93	102			31.87	5.5	35.44	189	340	Average
2462	107.65	105.72			31.87	5.5	35.44	189	340	Peak
2488	45.33	43.32	54	-8.67	31.9	5.53	35.42	189	340	Average
2488	60.01	58	74	-13.99	31.9	5.53	35.42	189	340	Peak
4920	52.79	44.54	54	-1.21	33.99	8.28	34.02	151	286	Average
4920	56.93	48.68	74	-17.07	33.99	8.28	34.02	151	286	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2370	40.67	39.01	54	-13.33	31.78	5.37	35.49	108	111	Average
2370	55.97	54.31	74	-18.03	31.78	5.37	35.49	108	111	Peak
2462	99.92	97.99			31.87	5.5	35.44	108	111	Average
2462	103.22	101.29			31.87	5.5	35.44	108	111	Peak
2488	42.99	40.98	54	-11.01	31.9	5.53	35.42	108	111	Average
2488	56.77	54.76	74	-17.23	31.9	5.53	35.42	108	111	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2462MHz: Fundamental frequency.

802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.22	50.49	54	-1.78	31.8	5.4	35.47	189	340	Average
2390	69.91	68.18	74	-4.09	31.8	5.4	35.47	189	340	Peak
2412	102.6	100.83			31.81	5.43	35.47	189	340	Average
2412	111.11	109.34			31.81	5.43	35.47	189	340	Peak
2488	45.99	43.98	54	-8.01	31.9	5.53	35.42	189	340	Average
2488	59.92	57.91	74	-14.08	31.9	5.53	35.42	189	340	Peak
7236	47.29	36.76	54	-6.71	35.55	9.94	34.96	105	355	Average
7236	58.25	47.72	74	-15.75	35.55	9.94	34.96	105	355	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	48.76	47.03	54	-5.24	31.8	5.4	35.47	108	111	Average
2390	64.25	62.52	74	-9.75	31.8	5.4	35.47	108	111	Peak
2412	100.48	98.71			31.81	5.43	35.47	108	111	Average
2412	109.51	107.74			31.81	5.43	35.47	108	111	Peak
2490	46.4	44.39	54	-7.6	31.9	5.53	35.42	108	111	Average
2490	59.43	57.42	74	-14.57	31.9	5.53	35.42	108	111	Peak
7236	46.18	35.65	54	-7.82	35.55	9.94	34.96	109	133	Average
7236	56.9	46.37	74	-17.1	35.55	9.94	34.96	109	133	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2412MHz: Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2388	45.72	44.01	54	-8.28	31.8	5.4	35.49	189	336	Average
2388	59.16	57.45	74	-14.84	31.8	5.4	35.49	189	336	Peak
2437	104.67	102.82			31.85	5.46	35.46	189	336	Average
2437	113.57	111.72			31.85	5.46	35.46	189	336	Peak
2490	49	46.99	54	-5	31.9	5.53	35.42	189	336	Average
2490	62.68	60.67	74	-11.32	31.9	5.53	35.42	189	336	Peak
7311	48.01	37.52	54	-5.99	35.54	9.95	35	104	355	Average
7311	58.98	48.49	74	-15.02	35.54	9.95	35	104	355	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2386	43.76	42.05	54	-10.24	31.8	5.4	35.49	107	111	Average
2386	58.27	56.56	74	-15.73	31.8	5.4	35.49	107	111	Peak
2437	103.67	101.82			31.85	5.46	35.46	107	111	Average
2437	112	110.15			31.85	5.46	35.46	107	111	Peak
2492	47.96	45.94	54	-6.04	31.9	5.53	35.41	107	111	Average
2492	60.09	58.07	74	-13.91	31.9	5.53	35.41	107	111	Peak
7311	47.72	37.23	54	-6.28	35.54	9.95	35	109	133	Average
7311	57.04	46.55	74	-16.96	35.54	9.95	35	109	133	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437MHz: Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2366	39.23	37.59	54	-14.77	31.76	5.37	35.49	189	316	Average
2366	55.9	54.26	74	-18.1	31.76	5.37	35.49	189	316	Peak
2462	102.39	100.46			31.87	5.5	35.44	189	316	Average
2462	111.63	109.7			31.87	5.5	35.44	189	316	Peak
2483.5	51.94	49.98	54	-2.06	31.88	5.5	35.42	189	316	Average
2483.5	72.83	70.87	74	-1.17	31.88	5.5	35.42	189	316	Peak
7386	43.98	33.56	54	-10.02	35.52	9.95	35.05	104	355	Average
7386	54.85	44.43	74	-19.15	35.52	9.95	35.05	104	355	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	39.72	37.99	54	-14.28	31.8	5.4	35.47	107	111	Average
2390	56.5	54.77	74	-17.5	31.8	5.4	35.47	107	111	Peak
2462	100.76	98.83			31.87	5.5	35.44	107	111	Average
2462	110.23	108.3			31.87	5.5	35.44	107	111	Peak
2483.5	50.24	48.28	54	-3.76	31.88	5.5	35.42	107	111	Average
2483.5	63.81	61.85	74	-10.19	31.88	5.5	35.42	107	111	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2462MHz: Fundamental frequency.

802.11n (20MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.06	50.33	54	-1.94	31.8	5.4	35.47	189	336	Average
2390	71.08	69.35	74	-2.92	31.8	5.4	35.47	189	336	Peak
2412	101.81	100.04			31.81	5.43	35.47	189	336	Average
2412	110.79	109.02			31.81	5.43	35.47	189	336	Peak
2492	46.54	44.52	54	-7.46	31.9	5.53	35.41	189	336	Average
2492	59.63	57.61	74	-14.37	31.9	5.53	35.41	189	336	Peak
4824	45.02	36.89	54	-8.98	33.97	8.26	34.1	154	286	Average
4824	54.85	46.72	74	-19.15	33.97	8.26	34.1	154	286	Peak
7236	46.79	36.26	54	-7.21	35.55	9.94	34.96	104	355	Average
7236	57.18	46.65	74	-16.82	35.55	9.94	34.96	104	355	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	48.43	46.7	54	-5.57	31.8	5.4	35.47	106	111	Average
2390	63.84	62.11	74	-10.16	31.8	5.4	35.47	106	111	Peak
2412	99.9	98.13			31.81	5.43	35.47	106	111	Average
2412	108.45	106.68			31.81	5.43	35.47	106	111	Peak
2484	43.95	41.99	54	-10.05	31.88	5.5	35.42	106	111	Average
2484	58.41	56.45	74	-15.59	31.88	5.5	35.42	106	111	Peak
7236	47.1	36.57	54	-6.9	35.55	9.94	34.96	109	133	Average
7236	54.62	44.09	74	-19.38	35.55	9.94	34.96	109	133	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2412MHz: Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2388	44.86	43.15	54	-9.14	31.8	5.4	35.49	189	336	Average
2388	57.79	56.08	74	-16.21	31.8	5.4	35.49	189	336	Peak
2437	104.05	102.2			31.85	5.46	35.46	189	336	Average
2437	112.78	110.93			31.85	5.46	35.46	189	336	Peak
2486	48.1	46.11	54	-5.9	31.88	5.53	35.42	189	336	Average
2486	60.92	58.93	74	-13.08	31.88	5.53	35.42	189	336	Peak
7311	46.06	35.57	54	-7.94	35.54	9.95	35	100	360	Average
7311	56.24	45.75	74	-17.76	35.54	9.95	35	355	104	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2388	43.88	42.17	54	-10.12	31.8	5.4	35.49	106	111	Average
2388	56.39	54.68	74	-17.61	31.8	5.4	35.49	106	111	Peak
2437	101.88	100.03			31.85	5.46	35.46	106	111	Average
2437	110.12	108.27			31.85	5.46	35.46	106	111	Peak
2483.5	46.05	44.09	54	-7.95	31.88	5.5	35.42	106	111	Average
2483.5	58.28	56.32	74	-15.72	31.88	5.5	35.42	106	111	Peak
7311	45.05	34.56	54	-8.95	35.54	9.95	35	106	133	Average
7311	56.78	46.29	74	-17.22	35.54	9.95	35	106	133	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437MHz: Fundamental frequency.



A D T

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2388	42.76	41.05	54	-11.24	31.8	5.4	35.49	189	338	Average
2388	57.5	55.79	74	-16.5	31.8	5.4	35.49	189	338	Peak
2462	101.75	99.82			31.87	5.5	35.44	189	338	Average
2462	110.38	108.45			31.87	5.5	35.44	189	338	Peak
2483.5	52.73	50.77	54	-1.27	31.88	5.5	35.42	189	338	Average
2483.5	72.46	70.5	74	-1.54	31.88	5.5	35.42	189	338	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2346	40.61	39.04	54	-13.39	31.74	5.33	35.5	106	111	Average
2346	56.56	54.99	74	-17.44	31.74	5.33	35.5	106	111	Peak
2462	98.93	97			31.87	5.5	35.44	106	111	Average
2462	108.61	106.68			31.87	5.5	35.44	106	111	Peak
2483.5	47.62	45.66	54	-6.38	31.88	5.5	35.42	106	111	Average
2483.5	60.22	58.26	74	-13.78	31.88	5.5	35.42	106	111	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2462MHz: Fundamental frequency.

BELOW 1GHz WORST-CASE DATA:

802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Harry Hsueh

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
58.08	23.1	47.45	40	-16.9	6.98	0.9	32.23	156	154	Peak
104.52	38.16	59.58	43.5	-5.34	9.56	1.28	32.26	112	115	Peak
166.62	30.41	50.85	43.5	-13.09	10.29	1.52	32.25	135	165	Peak
332.9	34.52	48.79	46	-11.48	15.63	2.19	32.09	159	165	Peak
535.2	24.18	33.13	46	-21.82	20.52	2.7	32.17	105	145	Peak
787.2	27.05	31.81	46	-18.95	24.05	3.27	32.08	114	115	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
36.75	35.37	53.72	40	-4.63	13.14	0.74	32.23	166	154	Peak
64.02	31.08	55.05	40	-8.92	7.36	0.9	32.23	132	156	Peak
86.43	32.69	54.76	40	-7.31	8.73	1.11	31.91	116	112	Peak
349	34.26	47.83	46	-11.74	16.31	2.19	32.07	256	210	Peak
479.9	26.49	37.13	46	-19.51	18.92	2.56	32.12	114	154	Peak
875.4	35.25	38.59	46	-10.75	24.8	3.49	31.63	132	145	Peak

REMARKS: Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

Margin value = Emission level – Limit value

MODE B

ABOVE 1GHz WORST-CASE DATA

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	45.17	43.44	54	-8.83	31.8	5.4	35.47	121	242	Average
2390	57.09	55.36	74	-16.91	31.8	5.4	35.47	121	242	Peak
2412	103.26	101.49			31.81	5.43	35.47	121	242	Average
2412	106.23	104.46			31.81	5.43	35.47	121	242	Peak
2490	44.59	42.58	54	-9.41	31.9	5.53	35.42	121	242	Average
2490	58.86	56.85	74	-15.14	31.9	5.53	35.42	121	242	Peak
4824	52.65	44.52	54	-1.35	33.97	8.26	34.1	113	186	Average
4824	54.37	46.24	74	-19.63	33.97	8.26	34.1	113	186	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	41.91	40.18	54	-12.09	31.8	5.4	35.47	102	119	Average
2390	55.74	54.01	74	-18.26	31.8	5.4	35.47	102	119	Peak
2412	99.93	98.16			31.81	5.43	35.47	102	119	Average
2412	103.03	101.26			31.81	5.43	35.47	102	119	Peak
2492	42.93	40.91	54	-11.07	31.9	5.53	35.41	102	119	Average
2492	56.75	54.73	74	-17.25	31.9	5.53	35.41	102	119	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2412MHz: Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2380	42.39	40.73	54	-11.61	31.78	5.37	35.49	122	241	Average
2380	55.77	54.11	74	-18.23	31.78	5.37	35.49	122	241	Peak
2437	102.89	101.04			31.85	5.46	35.46	122	241	Average
2437	105.93	104.08			31.85	5.46	35.46	122	241	Peak
2494	43.97	41.95	54	-10.03	31.9	5.53	35.41	122	241	Average
2494	57.09	55.07	74	-16.91	31.9	5.53	35.41	122	241	Peak
4874	52.82	44.63	54	-1.18	33.98	8.27	34.06	113	186	Average
4874	54.22	46.03	74	-19.78	33.98	8.27	34.06	113	186	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2386	40.67	38.96	54	-13.33	31.8	5.4	35.49	102	120	Average
2386	56.04	54.33	74	-17.96	31.8	5.4	35.49	102	120	Peak
2437	100.75	98.9			31.85	5.46	35.46	102	120	Average
2437	103.86	102.01			31.85	5.46	35.46	102	120	Peak
2496	42.6	40.58	54	-11.4	31.9	5.53	35.41	102	120	Average
2496	57.58	55.56	74	-16.42	31.9	5.53	35.41	102	120	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437MHz: Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	41.34	39.61	54	-12.66	31.8	5.4	35.47	120	242	Average
2390	57.4	55.67	74	-16.6	31.8	5.4	35.47	120	242	Peak
2462	102.94	101.01			31.87	5.5	35.44	120	242	Average
2462	106	104.07			31.87	5.5	35.44	120	242	Peak
2486	46.21	44.22	54	-7.79	31.88	5.53	35.42	120	242	Average
2486	58.28	56.29	74	-15.72	31.88	5.53	35.42	120	242	Peak
4924	52.18	43.93	54	-1.82	33.99	8.28	34.02	113	189	Average
4924	54.18	45.93	74	-19.82	33.99	8.28	34.02	113	189	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2378	40.03	38.37	54	-13.97	31.78	5.37	35.49	101	119	Average
2378	55.23	53.57	74	-18.77	31.78	5.37	35.49	101	119	Peak
2462	99.84	97.91			31.87	5.5	35.44	101	119	Average
2462	102.89	100.96			31.87	5.5	35.44	101	119	Peak
2484	44.34	42.38	54	-9.66	31.88	5.5	35.42	101	119	Average
2484	57.22	55.26	74	-16.78	31.88	5.5	35.42	101	119	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2462MHz: Fundamental frequency.

802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2389.84	51.73	50	54	-2.27	31.8	5.4	35.47	124	240	Average
2389.84	67.71	65.98	74	-6.29	31.8	5.4	35.47	124	240	Peak
2412	101.59	99.82			31.81	5.43	35.47	124	240	Average
2412	109.68	107.91			31.81	5.43	35.47	124	240	Peak
2490	44.7	42.69	54	-9.3	31.9	5.53	35.42	124	240	Average
2490	58.23	56.22	74	-15.77	31.9	5.53	35.42	124	240	Peak
4824	46.38	38.25	54	-7.62	33.97	8.26	34.1	113	189	Average
4824	53.02	44.89	74	-20.98	33.97	8.26	34.1	113	189	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	47.74	46.01	54	-6.26	31.8	5.4	35.47	104	119	Average
2390	61.66	59.93	74	-12.34	31.8	5.4	35.47	104	119	Peak
2412	97.88	96.11			31.81	5.43	35.47	104	119	Average
2412	105.96	104.19			31.81	5.43	35.47	104	119	Peak
2486	43.68	41.69	54	-10.32	31.88	5.53	35.42	104	119	Average
2486	56.8	54.81	74	-17.2	31.88	5.53	35.42	104	119	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2412MHz: Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	44.6	42.87	54	-9.4	31.8	5.4	35.47	123	242	Average
2390	57.28	55.55	74	-16.72	31.8	5.4	35.47	123	242	Peak
2437	102.33	100.48			31.85	5.46	35.46	123	242	Average
2437	112.7	110.85			31.85	5.46	35.46	123	242	Peak
2486	46.09	44.1	54	-7.91	31.88	5.53	35.42	123	242	Average
2486	59.11	57.12	74	-14.89	31.88	5.53	35.42	123	242	Peak
4874	46.75	38.56	54	-7.25	33.98	8.27	34.06	113	189	Average
4874	54.02	45.83	74	-19.98	33.98	8.27	34.06	113	189	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2356	42.31	40.68	54	-11.69	31.76	5.37	35.5	103	121	Average
2356	57.12	55.49	74	-16.88	31.76	5.37	35.5	103	121	Peak
2437	99.91	98.06			31.85	5.46	35.46	103	121	Average
2437	108.13	106.28			31.85	5.46	35.46	103	121	Peak
2494	44.42	42.4	54	-9.58	31.9	5.53	35.41	103	121	Average
2494	57.18	55.16	74	-16.82	31.9	5.53	35.41	103	121	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437MHz: Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	42.66	40.93	54	-11.34	31.8	5.4	35.47	121	242	Average
2390	56.43	54.7	74	-17.57	31.8	5.4	35.47	121	242	Peak
2462	101	99.07			31.87	5.5	35.44	121	242	Average
2462	109.07	107.14			31.87	5.5	35.44	121	242	Peak
2483.599	51.75	49.79	54	-2.25	31.88	5.5	35.42	121	242	Average
2483.599	71.12	69.16	74	-2.88	31.88	5.5	35.42	121	242	Peak
4924	46.86	38.61	54	-7.14	33.99	8.28	34.02	113	168	Average
4924	57.13	48.88	74	-16.87	33.99	8.28	34.02	113	168	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2372	41.25	39.59	54	-12.75	31.78	5.37	35.49	102	119	Average
2372	56.49	54.83	74	-17.51	31.78	5.37	35.49	102	119	Peak
2462	97.88	95.95			31.87	5.5	35.44	102	119	Average
2462	106.31	104.38			31.87	5.5	35.44	102	119	Peak
2484	48.58	46.62	54	-5.42	31.88	5.5	35.42	102	119	Average
2484	64.41	62.45	74	-9.59	31.88	5.5	35.42	102	119	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2462MHz: Fundamental frequency.

802.11n (20MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.67	50.94	54	-1.33	31.8	5.4	35.47	123	240	Average
2390	70.9	69.17	74	-3.1	31.8	5.4	35.47	123	240	Peak
2412	100.96	99.19			31.81	5.43	35.47	123	240	Average
2412	108.92	107.15			31.81	5.43	35.47	123	240	Peak
2488	44.93	42.92	54	-9.07	31.9	5.53	35.42	123	240	Average
2488	58.08	56.07	74	-15.92	31.9	5.53	35.42	123	240	Peak
4824	46.65	38.52	54	-7.35	33.97	8.26	34.1	113	189	Average
4824	52.15	44.02	74	-21.85	33.97	8.26	34.1	113	189	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	49.09	47.36	54	-4.91	31.8	5.4	35.47	104	120	Average
2390	64.82	63.09	74	-9.18	31.8	5.4	35.47	104	120	Peak
2412	97.51	95.74			31.81	5.43	35.47	104	120	Average
2412	105.71	103.94			31.81	5.43	35.47	104	120	Peak
2492	43.79	41.77	54	-10.21	31.9	5.53	35.41	104	120	Average
2492	56.84	54.82	74	-17.16	31.9	5.53	35.41	104	120	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2412MHz: Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2386	43.64	41.93	54	-10.36	31.8	5.4	35.49	122	240	Average
2386	56.92	55.21	74	-17.08	31.8	5.4	35.49	122	240	Peak
2437	100.72	98.87			31.85	5.46	35.46	122	240	Average
2437	109.58	107.73			31.85	5.46	35.46	122	240	Peak
2492	44.95	42.93	54	-9.05	31.9	5.53	35.41	122	240	Average
2492	58.33	56.31	74	-15.67	31.9	5.53	35.41	122	240	Peak
4874	47.75	39.56	54	-6.25	33.98	8.27	34.06	113	189	Average
4874	53.2	45.01	74	-20.8	33.98	8.27	34.06	113	189	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2384	42.17	40.48	54	-11.83	31.78	5.4	35.49	104	120	Average
2384	56.14	54.45	74	-17.86	31.78	5.4	35.49	104	120	Peak
2437	98.5	96.65			31.85	5.46	35.46	104	120	Average
2437	107.34	105.49			31.85	5.46	35.46	104	120	Peak
2486	43.86	41.87	54	-10.14	31.88	5.53	35.42	104	120	Average
2486	57.29	55.3	74	-16.71	31.88	5.53	35.42	104	120	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437MHz: Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2362	42.21	40.58	54	-11.79	31.76	5.37	35.5	121	243	Average
2362	56.28	54.65	74	-17.72	31.76	5.37	35.5	121	243	Peak
2462	99.94	98.01			31.87	5.5	35.44	121	243	Average
2462	108.21	106.28			31.87	5.5	35.44	121	243	Peak
2484	51.59	49.63	54	-2.41	31.88	5.5	35.42	121	243	Average
2484	70.28	68.32	74	-3.72	31.88	5.5	35.42	121	243	Peak
4924	44.77	36.52	54	-9.23	33.99	8.28	34.02	113	189	Average
4924	51.13	42.88	74	-22.87	33.99	8.28	34.02	113	189	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	40.86	39.13	54	-13.14	31.8	5.4	35.47	102	120	Average
2390	55.41	53.68	74	-18.59	31.8	5.4	35.47	102	120	Peak
2462	97	95.07			31.87	5.5	35.44	102	120	Average
2462	104.66	102.73			31.87	5.5	35.44	102	120	Peak
2486	48.26	46.27	54	-5.74	31.88	5.53	35.42	102	120	Average
2486	63.13	61.14	74	-10.87	31.88	5.53	35.42	102	120	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2462MHz: Fundamental frequency.

BELOW 1GHz WORST-CASE DATA:
802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Harry Hsueh

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
98.31	37.05	58.38	43.5	-6.45	9.54	1.28	32.15	132	124	Peak
161.76	27.48	47.57	43.5	-16.02	10.65	1.52	32.26	155	142	Peak
209.55	31.33	50.63	43.5	-12.17	11.31	1.65	32.26	102	132	Peak
419	40.93	52.94	46	-5.07	17.77	2.41	32.19	122	152	Peak
613.6	34.54	42.18	46	-11.46	21.67	2.87	32.18	132	165	Peak
671.7	35.74	41.41	46	-10.26	23.4	3.05	32.12	156	220	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
95.61	30.65	52.07	43.5	-12.85	9.34	1.28	32.04	111	210	Peak
162.3	22.94	43.1	43.5	-20.56	10.58	1.52	32.26	163	201	Peak
209.55	25	44.3	43.5	-18.5	11.31	1.65	32.26	155	221	Peak
419	38.43	50.44	46	-7.57	17.77	2.41	32.19	132	145	Peak
561.8	33.77	43.01	46	-12.23	20.2	2.76	32.2	155	145	Peak
784.4	32.29	37.23	46	-13.71	23.87	3.27	32.08	102	165	Peak

REMARKS: Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

Margin value = Emission level – Limit value

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Nov. 17, 2013	Nov. 16, 2014
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 27, 2013	Dec. 26, 2014
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 23, 2013	Dec. 22, 2014
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Jul. 08, 2013	Jul. 07, 2014
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

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

4.2.3 TEST PROCEDURES

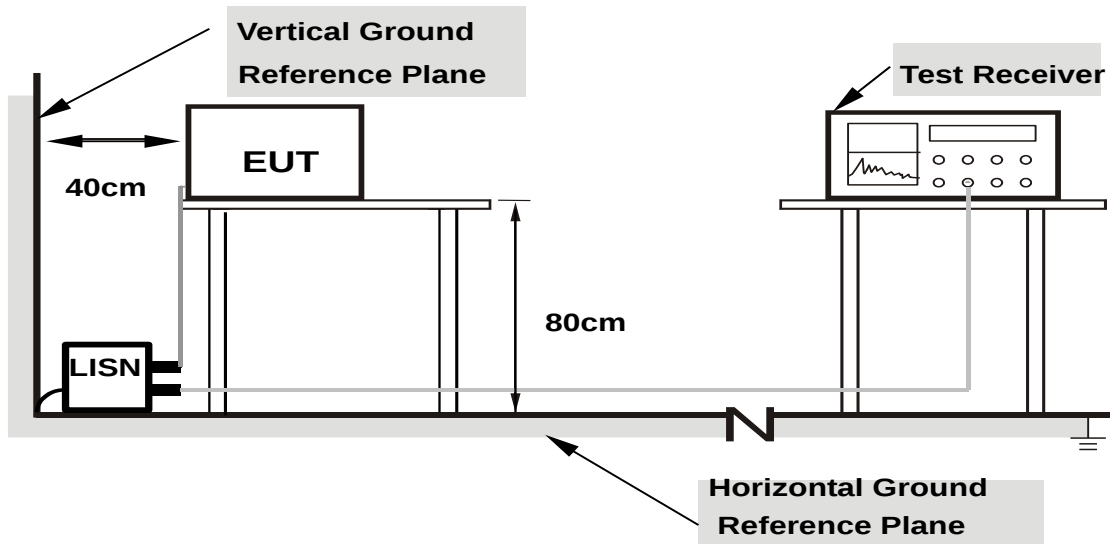
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



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

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

4.2.6 EUT OPERATING CONDITIONS

Same as section 4.1.6.

4.2.7 TEST RESULTS

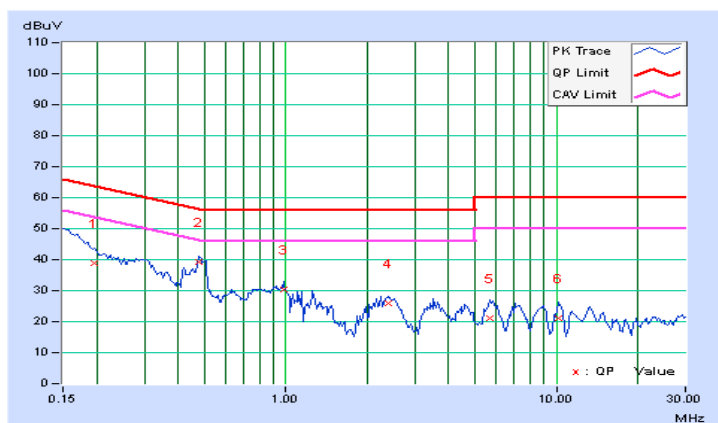
CONDUCTED WORST-CASE DATA :

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 9kHz Average (AV), 9kHz
-----------------	----------------	--	---

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19687	0.28	38.68	27.00	38.96	27.28	63.74	53.74	-24.78	-26.46
2	0.47422	0.30	38.94	33.24	39.24	33.54	56.44	46.44	-17.19	-12.89
3	0.97813	0.34	29.97	17.86	30.31	18.20	56.00	46.00	-25.69	-27.80
4	2.39453	0.37	25.51	14.38	25.88	14.75	56.00	46.00	-30.12	-31.25
5	5.69531	0.45	20.71	9.45	21.16	9.90	60.00	50.00	-38.84	-40.10
6	10.20313	0.50	20.43	9.55	20.93	10.05	60.00	50.00	-39.07	-39.95

Remarks:

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

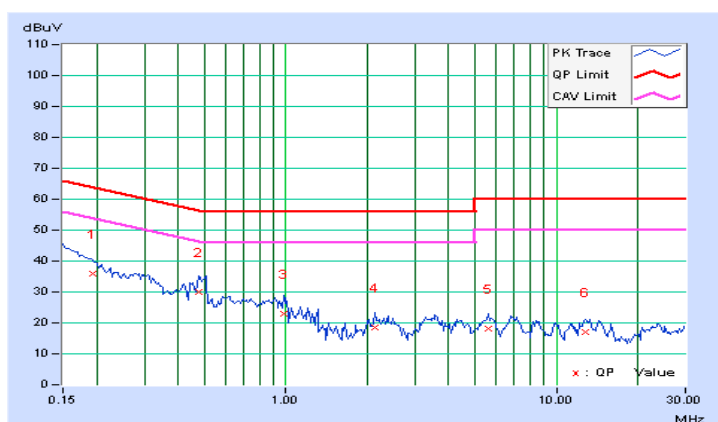


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 9kHz Average (AV), 9kHz
-----------------	----------------	--	---

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19297	0.28	35.67	23.54	35.95	23.82	63.91	53.91	-27.96	-30.09
2	0.47422	0.30	29.85	27.56	30.15	27.86	56.44	46.44	-26.28	-18.57
3	0.98203	0.34	22.58	16.01	22.92	16.35	56.00	46.00	-33.08	-29.65
4	2.13672	0.37	18.26	11.41	18.63	11.78	56.00	46.00	-37.37	-34.22
5	5.62891	0.46	17.77	9.01	18.23	9.47	60.00	50.00	-41.77	-40.53
6	12.87500	0.55	16.38	8.26	16.93	8.81	60.00	50.00	-43.07	-41.19

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

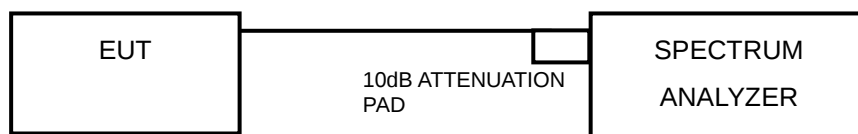


4.3 6dB BANDWIDTH MEASUREMENT

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) = 100kHz
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.3.5 DEVIATION FROM TEST STANDARD

No deviation.

4.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	7.55	0.5	PASS
6	2437	7.10	0.5	PASS
11	2462	7.09	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	15.17	0.5	PASS
6	2437	15.16	0.5	PASS
11	2462	15.16	0.5	PASS

802.11n (20MHz)

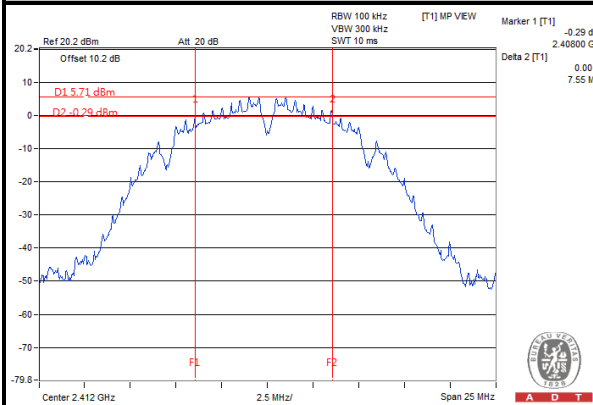
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	15.15	0.5	PASS
6	2437	15.13	0.5	PASS
11	2462	15.07	0.5	PASS



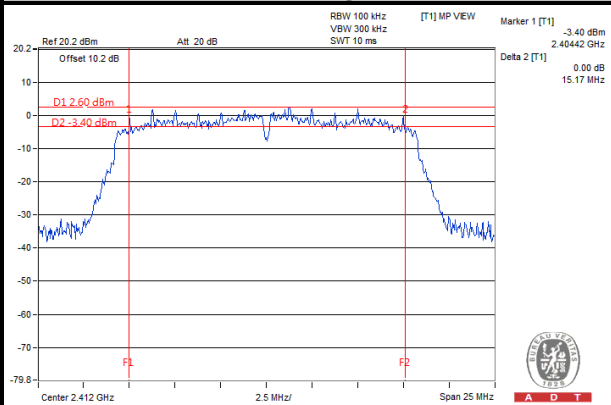
A D T

SPECTRUM PLOT OF WORST VALUE

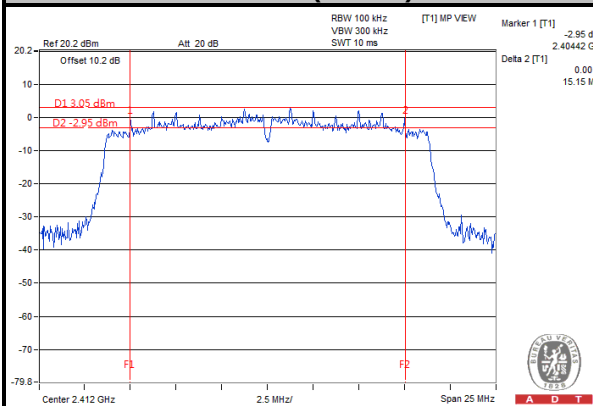
802.11b



802.11g



802.11n (20MHz)

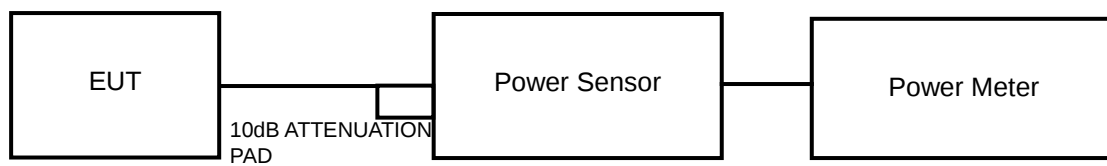


4.4 CONDUCTED OUTPUT POWER

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 section 4.3.6.

4.4.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS / FAIL
1	2412	45.08	16.54	30	PASS
6	2437	82.04	19.14	30	PASS
11	2462	49.09	16.91	30	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS / FAIL
1	2412	181.97	22.6	30	PASS
6	2437	250.61	23.99	30	PASS
11	2462	241.55	23.83	30	PASS

802.11n (20MHz)

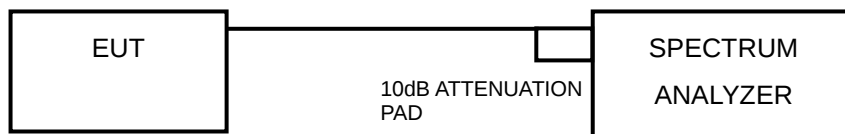
CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS / FAIL
1	2412	177.42	22.49	30	PASS
6	2437	227.51	23.57	30	PASS
11	2462	200.45	23.02	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST SETUP



4.5.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.5.4 TEST PROCEDURE

- Set the RBW = 3 kHz, VBW = 10 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.

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

4.5.6 EUT OPERATING CONDITION

Same as section 4.3.6.

4.5.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	PSD (dBm/3kHz)	LIMIT (dBm/3kHz)	PASS / FAIL
1	2412	-8.28	8	PASS
6	2437	-5.72	8	PASS
11	2462	-7.88	8	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	PSD (dBm/3kHz)	LIMIT (dBm/3kHz)	PASS / FAIL
1	2412	-10.70	8	PASS
6	2437	-8.21	8	PASS
11	2462	-9.33	8	PASS

802.11n (20MHz)

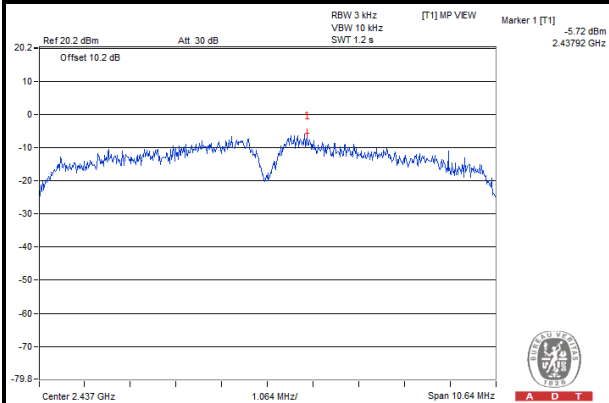
CHANNEL	FREQUENCY (MHz)	PSD (dBm/3kHz)	LIMIT (dBm/3kHz)	PASS / FAIL
1	2412	-8.63	8	PASS
6	2437	-9.20	8	PASS
11	2462	-12.12	8	PASS



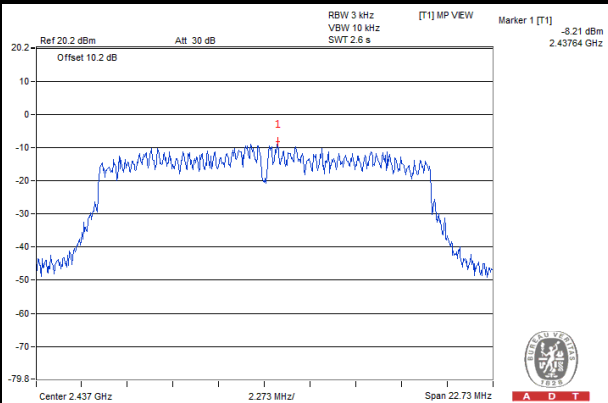
A D T

SPECTRUM PLOT OF WORST VALUE

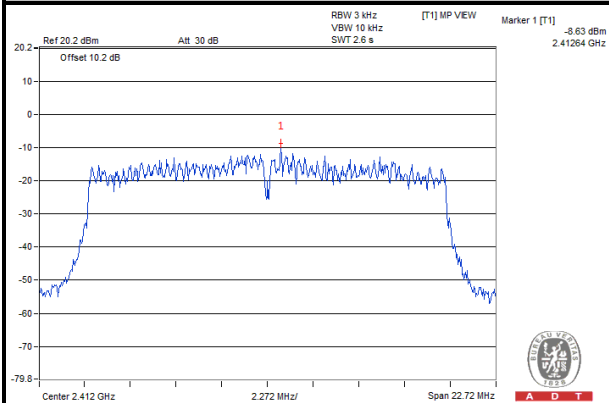
802.11b



802.11g



802.11n (20MHz)

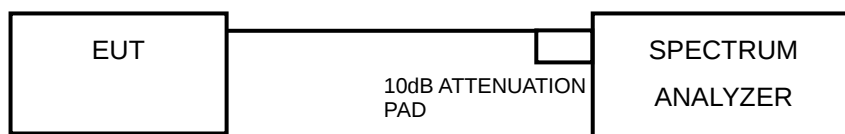


4.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT

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

4.6.2 TEST SETUP



4.6.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.6.4 TEST PROCEDURE

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOB

1. Set RBW = 100 kHz.
2. Set VBW ≥ 300 kHz.
3. Ensure that the number of measurement points $\geq \text{span}/\text{RBW}$
4. According to measurement points to set differ measurement span.
5. Detector = peak.
6. Trace Mode = max hold.
7. Sweep = auto couple.

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

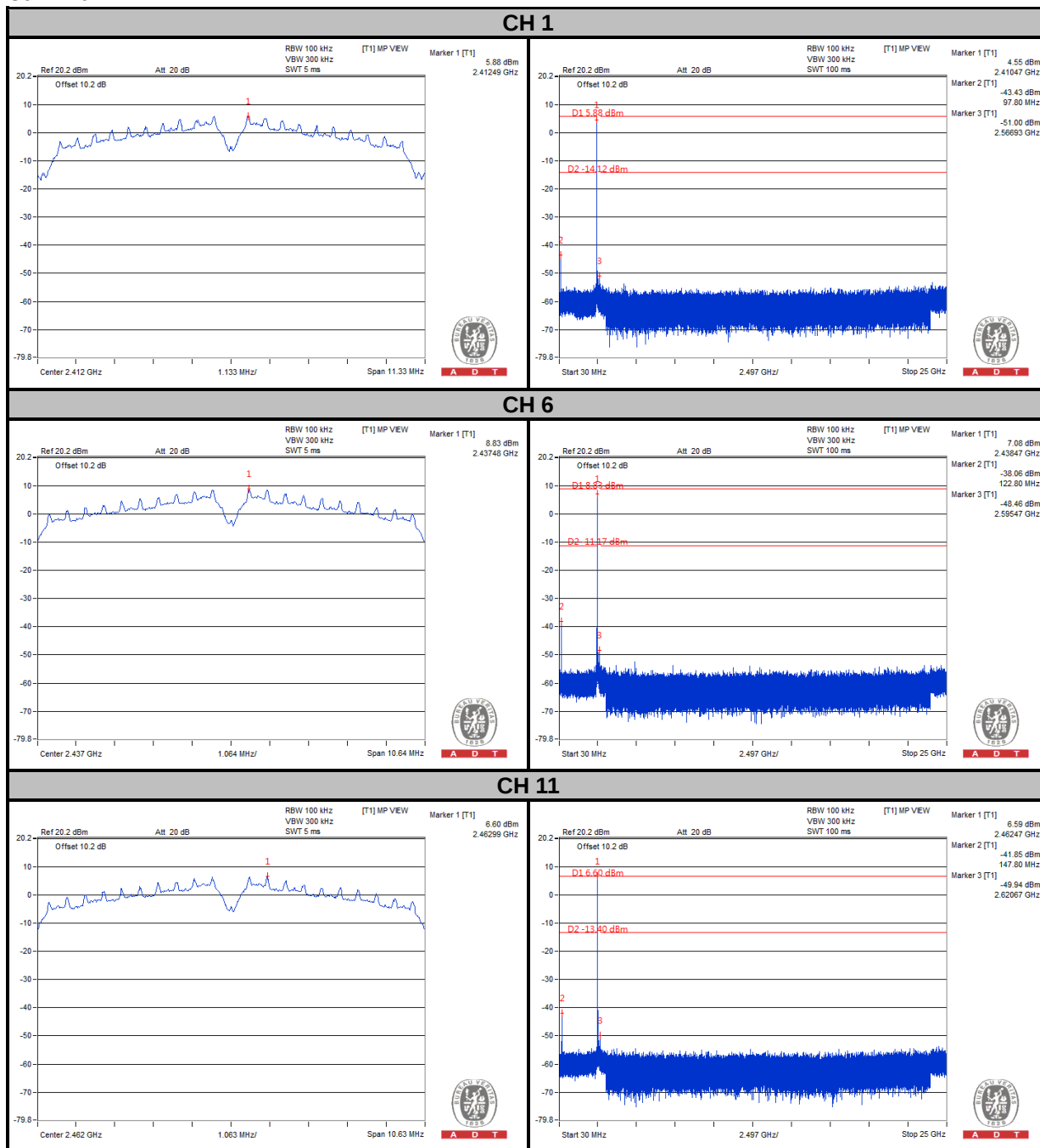
4.6.6 EUT OPERATING CONDITION

Same as section 4.3.6.

4.6.7 TEST RESULTS

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

802.11b

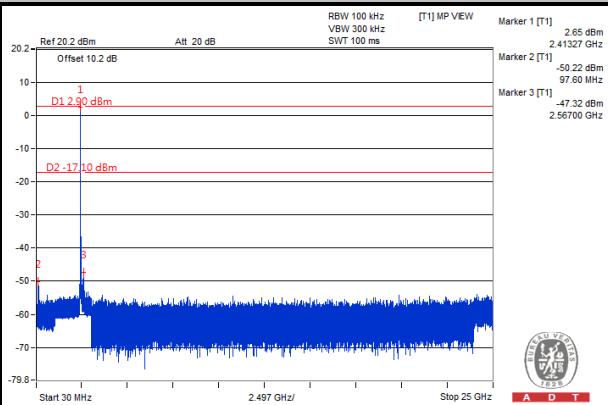
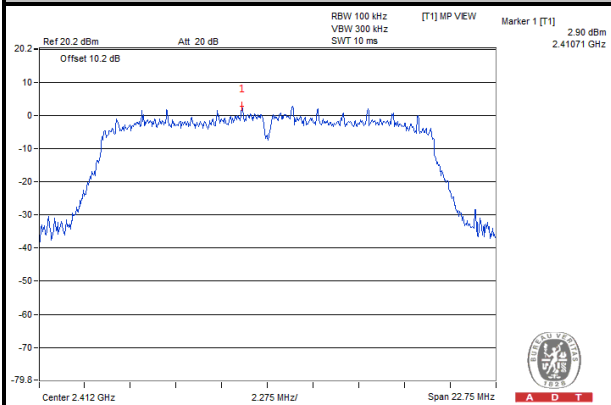




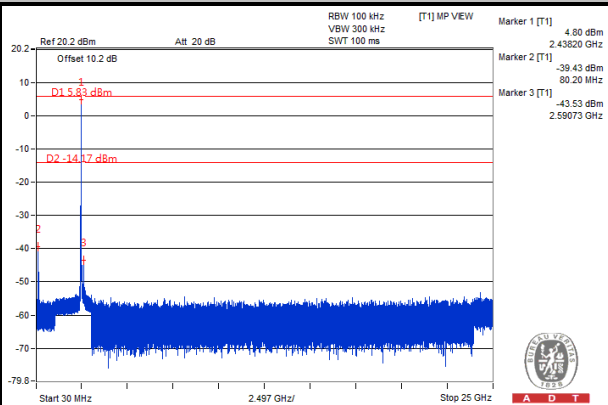
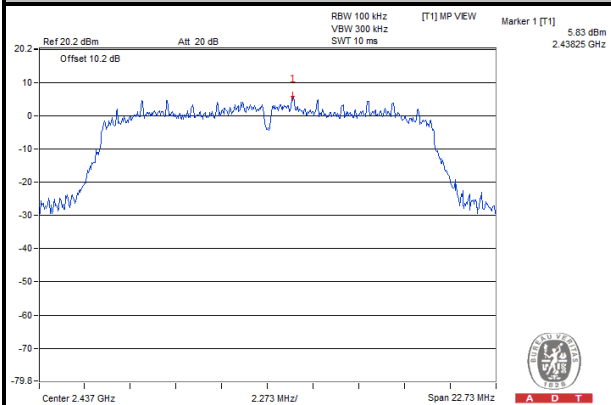
A D T

802.11g

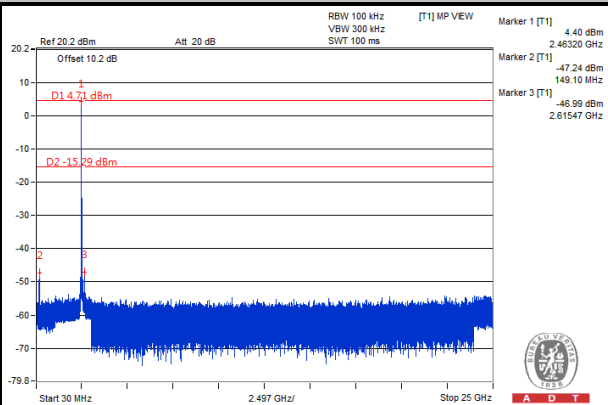
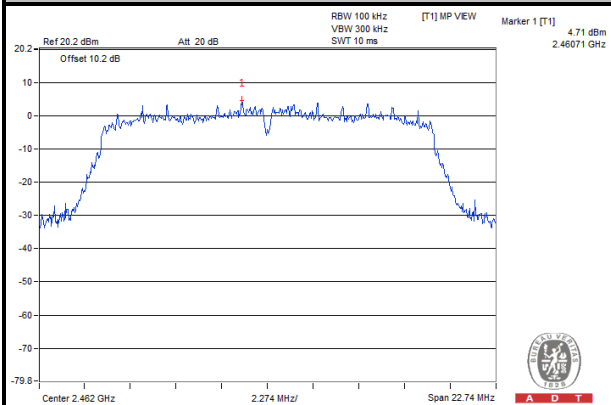
CH 1



CH 6



CH 11

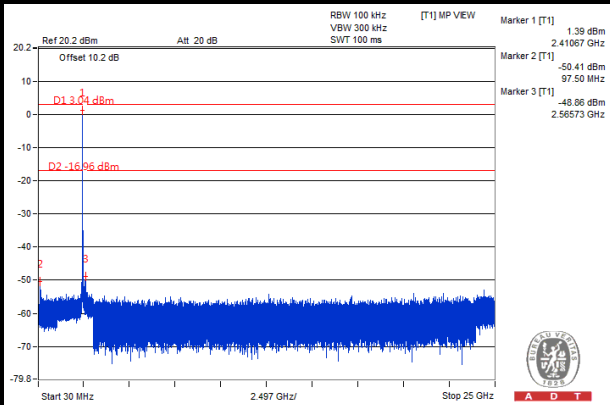
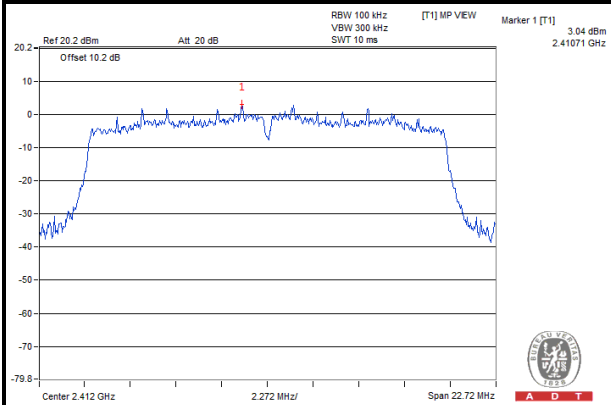




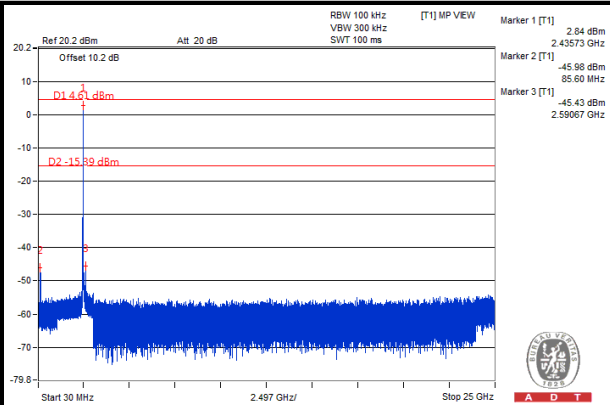
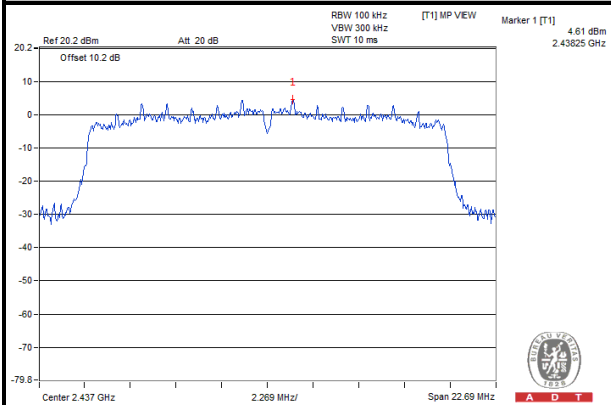
A D T

802.11n (20MHz)

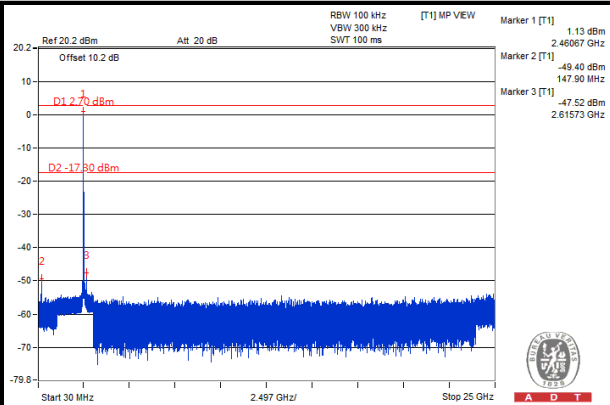
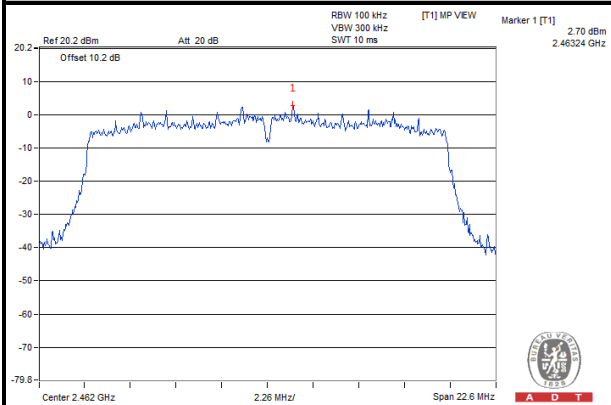
CH 1



CH 6



CH 11



5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

6. INFORMATION ON THE TESTING LABORATORIES

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

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

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Telecom Lab:

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

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

No any modifications are made to the EUT by the lab during the test.

---END---