FCC TEST REPORT

REPORT NO.: RF130130C27B

MODEL NO.: TCSEGWB13FA0

FCC ID: X8RTCSEGWB13FA

RECEIVED: Jan. 30, 2013

TESTED: Feb. 22, 2013 ~ Oct. 28, 2014

ISSUED: Oct. 29, 2014

APPLICANT: Schneider Electric USA

ADDRESS: 1 High Street, North Andover, MA, United States

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

LAB ADDRESS: No. 47-2, 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.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF130130C27B	Original release	Oct. 29, 2014

1. CERTIFICATION

PRODUCT:	Protable Battery Powered WiFi Access Point
MODEL NO.:	TCSEGWB13FA0
BRAND:	Schneider
APPLICANT:	Schneider Electric USA
TESTED:	Feb. 22, 2013 ~ Oct. 28, 2014
TEST SAMPLE:	Prototype
STANDARDS:	**FCC Part 15, Subpart C (Section 15.247)** ANSI C63.10-2009

The above equipment (model: TCSEGWB13FA0) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch,** and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : _____ **, DATE :** Oct. 29, 2014
Suntee Liu / Specialist

APPROVED BY : _____ **, DATE :** Oct. 29, 2014
Ken Liu / Senior Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART 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 -12.58dB at 0.18319MHz.
15.205 & 209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -0.4dB at 2390.00MHz.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -1.1dB at 2483.50MHz.
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	3.19 dB
	200MHz ~1000MHz	3.21 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	Protable Battery Powered WiFi Access Point
MODEL NO.	TCSEGWB13FA0
POWER SUPPLY	5Vdc (adapter / host equipment) 3.7Vdc (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/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 150.0Mbps
OPERATING FREQUENCY	2412 ~ 2462MHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz)
OUTPUT POWER	88.512mW
ANTENNA TYPE	PCB antenna with 2.41dBi gain
ANTENNA CONNECTOR	N/A
DATA CABLE	1.2m shielded USB cable without core
I/O PORTS	Refer to user's manual
ACCESSORY DEVICE	Adapter, Battery

NOTE:

1. The EUT provides 1 completed transmitter and 1 receiver.

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

2. The EUT consumes power from following adapter.

Brand	HuntKey
Model	HKA00605010-2B
Input Power	100-240Vac, 50/60Hz, 0.2A
Output Power	5.0Vdc, 1.0A

3. The EUT consumes power from following battery.

Brand	TP-LINK
Model	TBL-68A2000
Rating	3.7Vdc, 2000mAh

4. 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		

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

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

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

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

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

RADIATED EMISSION TEST (ABOVE 1GHz):

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
A	802.11n (40MHz)	3 to 9	3, 4, 6, 9	OFDM	BPSK	13.5

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, B	802.11g	1 to 11	6	OFDM	BPSK	6.0

POWER LINE CONDUCTED EMISSION TEST:

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

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

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

BANDEDGE MEASUREMENT:

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
A	802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	6.5
A	802.11n (40MHz)	3 to 9	3, 9	OFDM	BPSK	13.5

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)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
A	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE≥1G	25deg. C, 65%RH 21deg. C, 71%RH	120Vac, 60Hz	Chris Lin Nick Hsu
RE<1G	25deg. C, 65%RH 20deg. C, 71%RH	120Vac, 60Hz	Chris Lin Nick Hsu
PLC	25deg. C, 65%RH 24deg. C, 64%RH	120Vac, 60Hz	Chris Lin Match Tsui
APCM	25deg. C, 60%RH 24deg. C, 64%RH	120Vac, 60Hz	Antony Lee Match Tsui

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.

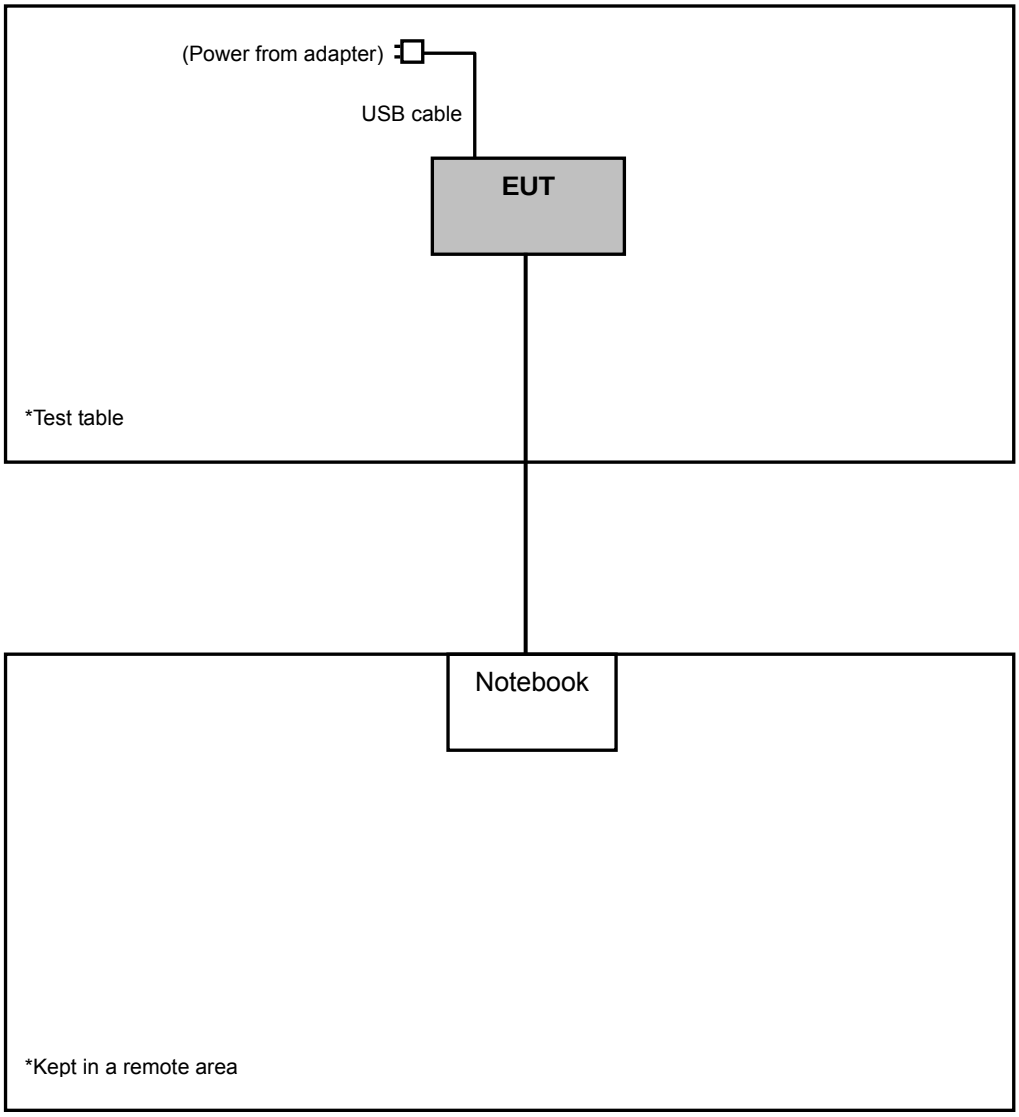
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook	DELL	D531	CN-0XM006-48643-81U-2973	QDS-BRCM1020
2	Notebook	DELL	D531	CN-0XM006-48643-81U-2610	QDS-BRCM1020

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	10m RJ45 UTP cable

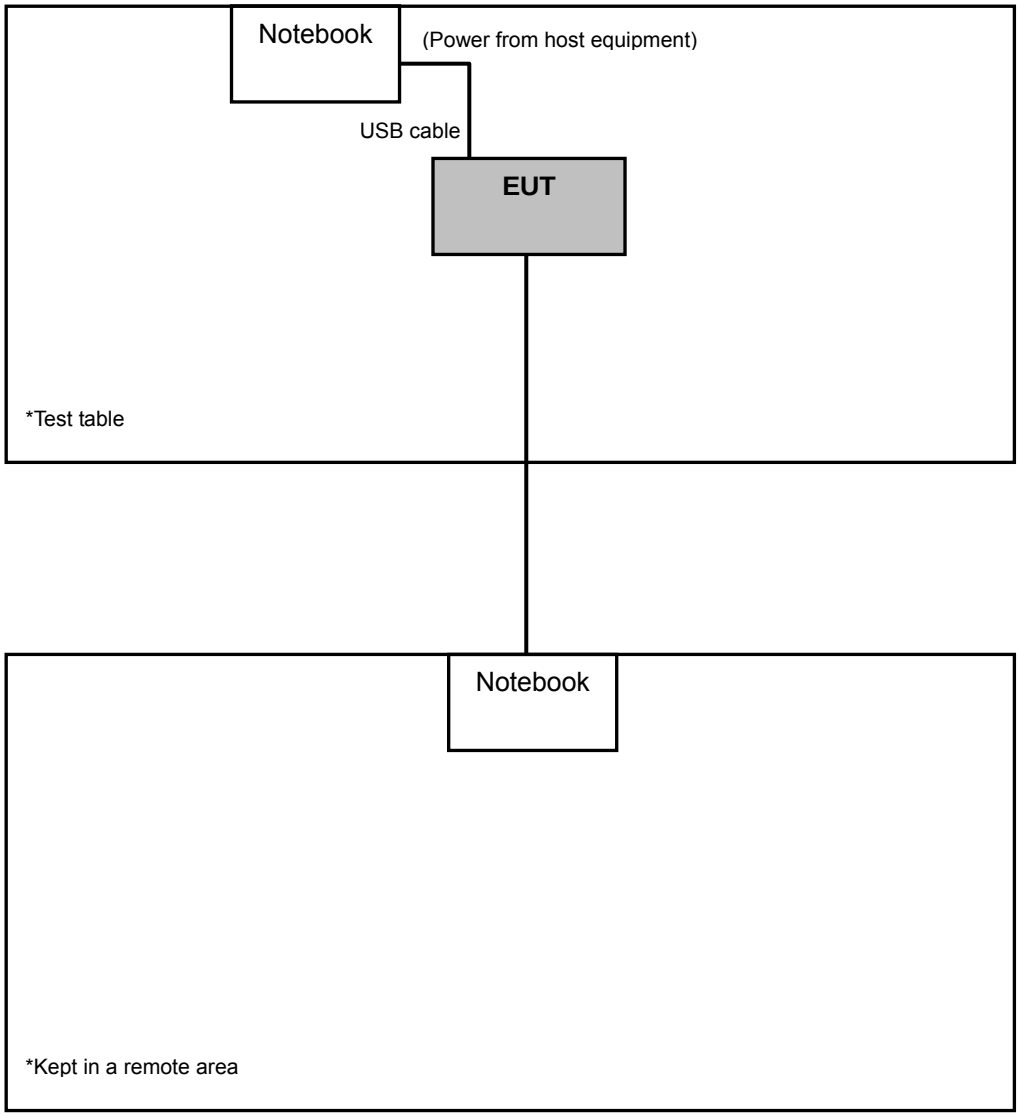
NOTE:
1. All power cords of the above support units are non-shielded (1.8m).
2. Item 2 acted as a communication partner to transfer data.

3.3.1 CONFIGURATION OF SYSTEM UNDER TEST

Test Mode A



Test Mode B

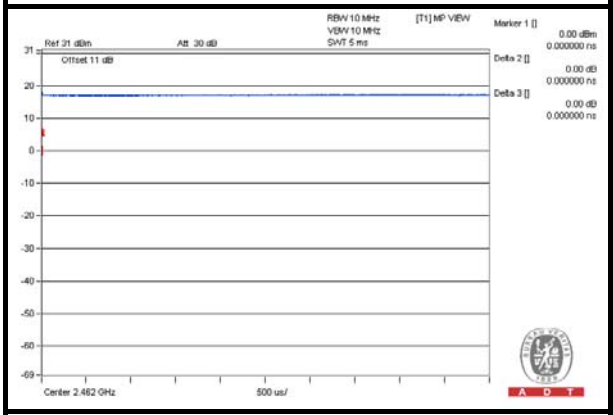

Notebook
(Power from host equipment)
USB cable
EUT
*Test table
Notebook
*Kept in a remote area

3.4 DUTY CYCLE OF TEST SIGNAL

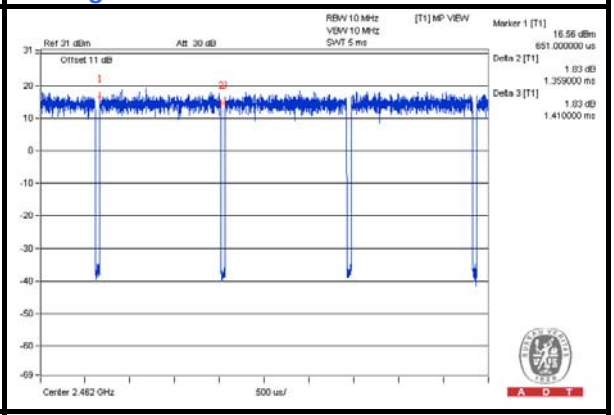
If duty cycle is < 98%, duty factor shall be considered.

802.11b: Duty cycle of test signal is 100 %
802.11g: Duty cycle = 1.359/1.410 = 0.964, Duty factor = 10 * log(1/0.964) = 0.16
802.11n (HT20): Duty cycle = 1.272/1.323 = 0.961, Duty factor = 10 * log(1/0.961) = 0.17
802.11n (HT40): Duty cycle = 0.631/0.686 = 0.920, Duty factor = 10 * log(1/0.920) = 0.36

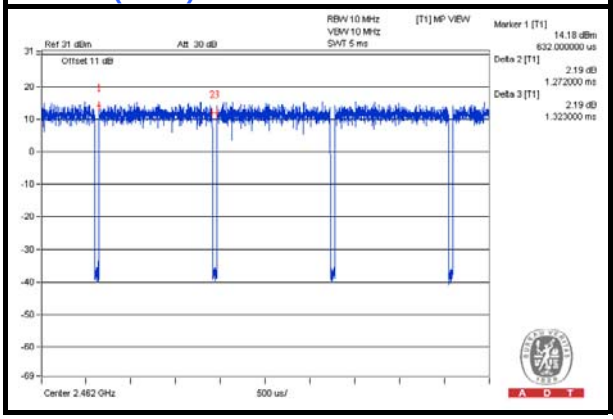
802.11b



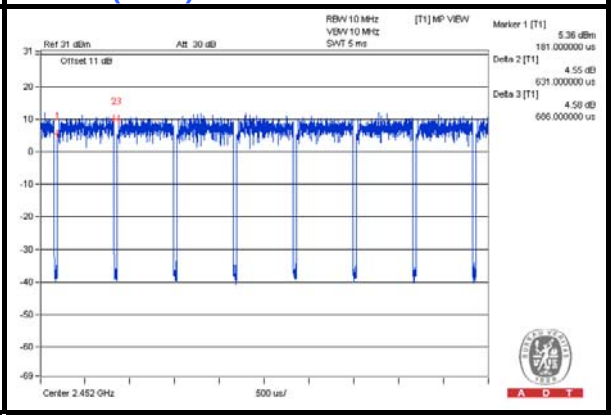
802.11g



802.11n (HT20)



802.11n (HT40)



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 v03r02
ANSI C63.10-2009

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

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

4. TEST TYPES AND RESULTS

4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

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

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

NOTE:

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESIB7	100187	Jan. 03, 2013	Jan. 02, 2014
			Jan. 02, 2014	Jan. 01, 2015
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Mar. 04, 2013	Mar. 03, 2014
			Mar. 03, 2014	Mar. 02, 2015
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Feb. 27, 2013	Feb. 26, 2014
			Feb. 26, 2014	Feb. 25, 2015
HORN Antenna SCHWARZBECK	9120D	209	Sep. 13, 2012	Sep. 12, 2013
			Sep. 12, 2013	Sep. 11, 2014
			Sep. 11, 2014	Sep. 10, 2015
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Feb. 18, 2013	Feb. 17, 2014
			Feb. 17, 2014	Feb. 16, 2015
Preamplifier Agilent	8447D	2944A10633	Oct. 25, 2012	Oct. 24, 2013
			Oct. 07, 2013	Oct. 06, 2014
			Oct. 07, 2014	Oct. 06, 2015
Preamplifier Agilent	8449B	3008A01964	Oct. 25, 2012	Oct. 24, 2013
			Aug. 26, 2013	Aug. 25, 2014
			Aug. 22, 2014	Aug. 21, 2015
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250723/4	Aug. 28, 2012	Aug. 27, 2013
			Aug. 26, 2013	Aug. 25, 2014
			Aug. 22, 2014	Aug. 21, 2015
RF signal cable HUBER+SUHNNER	SUCOFLEX 106	12738/6+309224/4	Aug. 28, 2012	Aug. 27, 2013
			Aug. 26, 2013	Aug. 25, 2014
			Aug. 22, 2014	Aug. 21, 2015
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA	NA
Turn Table ADT.	TT100	TT93021703	NA	NA
Turn Table Controller ADT.	SC100	SC93021703	NA	NA
High Speed Peak Power Meter	ML2495A	0824011	Jul. 28, 2012	Jul. 27, 2013
			Jul. 27, 2013	Jul. 26, 2014
			Jul. 26, 2014	Jul. 25, 2015
Power Sensor	MA2411B	0738171	Jul. 28, 2012	Jul. 27, 2013
			Jul. 27, 2013	Jul. 26, 2014
			Jul. 26, 2014	Jul. 25, 2015

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

4.1.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

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

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

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

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

f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

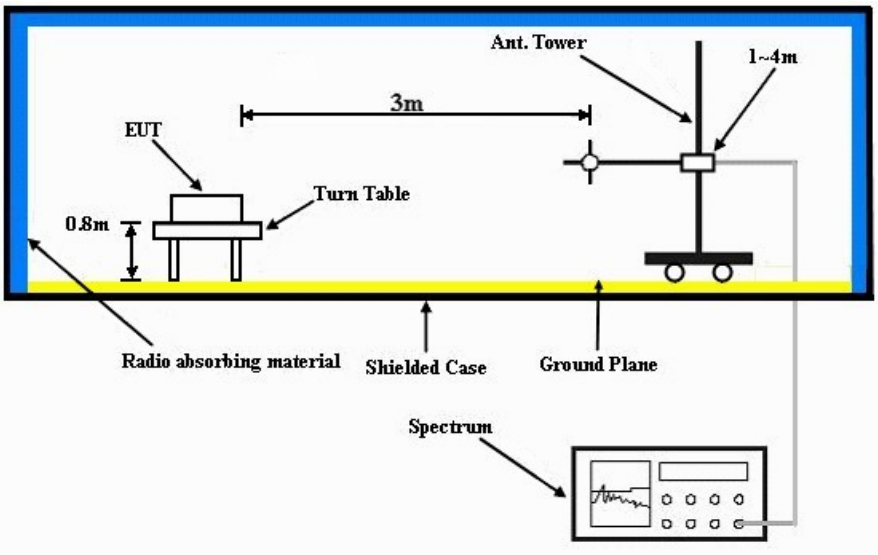
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

4.1.4 DEVIATION FROM TEST STANDARD

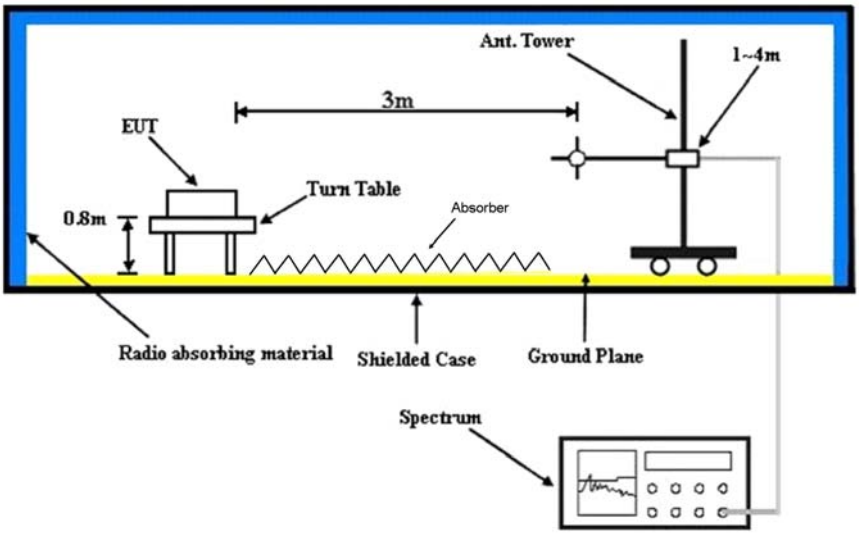
No deviation.

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).

4.1.6 EUT OPERATING CONDITIONS

Test Mode A

a. Placed the EUT on the testing table.
b. Prepared a notebook to act as communication partner and placed it outside of testing area.
c. The communication partner connected with EUT via a RJ45 cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
d. The communication partner sent data to EUT by command "PING".
e. The necessary accessories enabled the system in full functions.

Test Mode B

a. Connected the EUT with a notebook via a USB cable placed on a testing table.
b. Prepared a notebook to act as communication partner and placed it outside of testing area.
c. The communication partner connected with EUT via a RJ45 cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
d. The communication partner sent data to EUT by command "PING".
e. The necessary accessories enabled the system in full functions.

4.1.7 TEST RESULT

ABOVE 1GHz DATA：

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	56.7 PK	74.0	-17.3	1.38 H	360	25.20	31.50
2	2390.00	48.9 AV	54.0	-5.1	1.38 H	360	17.40	31.50
3	*2412.00	107.1 PK			1.37 H	360	75.60	31.50
4	*2412.00	103.8 AV			1.37 H	360	72.30	31.50
5	4824.00	54.3 PK	74.0	-19.7	1.50 H	201	17.10	37.20
6	4824.00	51.6 AV	54.0	-2.4	1.50 H	201	14.40	37.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	21.0 PK	74.0	-53.0	1.15 V	109	-10.50	31.50
2	2390.00	10.3 AV	54.0	-43.7	1.15 V	109	-21.20	31.50
3	*2412.00	102.3 PK			1.05 V	106	70.80	31.50
4	*2412.00	98.6 AV			1.05 V	106	67.10	31.50
5	4824.00	56.1 PK	74.0	-17.9	1.09 V	360	18.90	37.20
6	4824.00	53.0 AV	54.0	-1.0	1.09 V	360	15.80	37.20

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.6 PK			1.33 H	291	75.00	31.60
2	*2437.00	103.0 AV			1.33 H	291	71.40	31.60
3	4874.00	55.4 PK	74.0	-18.6	1.06 H	161	18.10	37.30
4	4874.00	53.0 AV	54.0	-1.0	1.06 H	161	15.70	37.30
5	7311.00	53.2 PK	74.0	-20.8	1.52 H	136	9.60	43.60
6	7311.00	40.1 AV	54.0	-13.9	1.52 H	136	-3.50	43.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	102.7 PK			1.04 V	107	71.10	31.60
2	*2437.00	98.9 AV			1.04 V	107	67.30	31.60
3	4874.00	56.2 PK	74.0	-17.8	1.08 V	360	18.90	37.30
4	4874.00	52.9 AV	54.0	-1.1	1.08 V	360	15.60	37.30
5	7311.00	51.1 PK	74.0	-22.9	1.16 V	74	7.50	43.60
6	7311.00	38.0 AV	54.0	-16.0	1.16 V	74	-5.60	43.60

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.9 PK			1.32 H	307	75.20	31.70
2	*2462.00	103.1 AV			1.32 H	307	71.40	31.70
3	2483.50	54.8 PK	74.0	-19.2	1.35 H	269	23.00	31.80
4	2483.50	45.4 AV	54.0	-8.6	1.35 H	269	13.60	31.80
5	4924.00	55.9 PK	74.0	-18.1	1.06 H	162	18.50	37.40
6	**4924.00**	**53.0 AV**	**54.0**	**-1.0**	**1.06 H**	**162**	**15.60**	**37.40**
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	100.8 PK			1.62 V	125	69.10	31.70
2	*2462.00	97.2 AV			1.62 V	125	65.50	31.70
3	2483.50	55.7 PK	74.0	-18.3	1.10 V	133	23.90	31.80
4	2483.50	44.3 AV	54.0	-9.7	1.10 V	133	12.50	31.80
5	4924.00	55.7 PK	74.0	-18.3	1.13 V	123	18.30	37.40
6	4924.00	52.8 AV	54.0	-1.2	1.13 V	123	15.40	37.40

REMARKS:

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

802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.4 PK	74.0	-9.6	1.10 H	217	32.90	31.50
2	2390.00	52.5 AV	54.0	-1.5	1.10 H	217	21.00	31.50
3	*2412.00	107.4 PK			1.35 H	148	75.90	31.50
4	*2412.00	98.2 AV			1.35 H	148	66.70	31.50
5	4824.00	47.0 PK	74.0	-27.0	1.25 H	47	9.80	37.20
6	4824.00	37.3 AV	54.0	-16.7	1.25 H	47	0.10	37.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.9 PK	74.0	-7.1	1.10 V	142	35.40	31.50
2	2390.00	50.6 AV	54.0	-3.4	1.10 V	142	19.10	31.50
3	*2412.00	101.5 PK			1.05 V	122	70.00	31.50
4	*2412.00	92.0 AV			1.05 V	122	60.50	31.50
5	4824.00	50.2 PK	74.0	-23.8	1.52 V	136	13.00	37.20
6	4824.00	36.4 AV	54.0	-17.6	1.52 V	136	-0.80	37.20

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.3 PK			1.38 H	215	74.70	31.60
2	*2437.00	63.3 AV			1.38 H	215	31.70	31.60
3	4874.00	56.4 PK	74.0	-17.6	1.00 H	36	19.10	37.30
4	4874.00	43.7 AV	54.0	-10.3	1.00 H	36	6.40	37.30
5	7311.00	51.1 PK	74.0	-22.9	1.10 H	125	7.50	43.60
6	7311.00	38.0 AV	54.0	-16.0	1.10 H	125	-5.60	43.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	101.0 PK			1.05 V	108	69.40	31.60
2	*2437.00	90.9 AV			1.05 V	108	59.30	31.60
3	4874.00	59.7 PK	74.0	-14.3	1.23 V	109	22.40	37.30
4	4874.00	46.1 AV	54.0	-7.9	1.23 V	109	8.80	37.30
5	7311.00	51.6 PK	74.0	-22.4	1.10 V	42	8.00	43.60
6	7311.00	40.2 AV	54.0	-13.8	1.10 V	42	-3.40	43.60

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.0 PK			1.36 H	360	73.30	31.70
2	*2462.00	95.8 AV			1.36 H	360	64.10	31.70
3	2483.50	72.7 PK	74.0	-1.3	1.30 H	360	40.90	31.80
4	2483.50	52.9 AV	54.0	-1.1	1.30 H	360	21.10	31.80
5	4924.00	47.2 PK	74.0	-26.8	1.52 H	148	9.80	37.40
6	4924.00	37.1 AV	54.0	-16.9	1.52 H	148	-0.30	37.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	100.7 PK			1.02 V	105	69.00	31.70
2	*2462.00	90.5 AV			1.02 V	105	58.80	31.70
3	2483.50	64.4 PK	74.0	-9.6	1.00 V	123	32.60	31.80
4	2483.50	49.3 AV	54.0	-4.7	1.00 V	123	17.50	31.80
5	4924.00	44.1 PK	74.0	-29.9	1.16 V	129	6.70	37.40
6	4924.00	33.7 AV	54.0	-20.3	1.16 V	129	-3.70	37.40

REMARKS:

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

802.11n (20MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	71.6 PK	74.0	-2.4	1.07 H	360	40.10	31.50
2	2390.00	52.7 AV	54.0	-1.3	1.07 H	360	21.20	31.50
3	*2412.00	105.8 PK			1.34 H	311	74.30	31.50
4	*2412.00	95.3 AV			1.34 H	311	63.80	31.50
5	4824.00	46.2 PK	74.0	-27.8	1.09 H	62	9.00	37.20
6	4824.00	34.3 AV	54.0	-19.7	1.09 H	62	-2.90	37.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.3 PK	74.0	-14.7	1.05 V	121	27.80	31.50
2	2390.00	48.7 AV	54.0	-5.3	1.05 V	121	17.20	31.50
3	*2412.00	100.2 PK			1.07 V	122	68.70	31.50
4	*2412.00	89.6 AV			1.07 V	122	58.10	31.50
5	4924.00	48.6 PK	74.0	-25.4	1.29 V	126	11.20	37.40
6	4924.00	37.0 AV	54.0	-17.0	1.29 V	126	-0.40	37.40

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	104.7 PK			1.39 H	213	73.10	31.60
2	*2437.00	94.7 AV			1.39 H	213	63.10	31.60
3	4874.00	46.5 PK	74.0	-27.5	1.25 H	96	9.20	37.30
4	4874.00	35.9 AV	54.0	-18.1	1.25 H	96	-1.40	37.30
5	7311.00	53.1 PK	74.0	-20.9	1.09 H	125	9.50	43.60
6	7311.00	43.5 AV	54.0	-10.5	1.09 H	125	-0.10	43.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	100.4 PK			1.07 V	106	68.80	31.60
2	*2437.00	90.1 AV			1.07 V	106	58.50	31.60
3	4874.00	45.4 PK	74.0	-28.6	1.15 V	127	8.10	37.30
4	4874.00	35.1 AV	54.0	-18.9	1.15 V	127	-2.20	37.30
5	7311.00	52.5 PK	74.0	-21.5	1.02 V	126	8.90	43.60
6	7311.00	44.2 AV	54.0	-9.8	1.02 V	126	0.60	43.60

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	103.7 PK			1.32 H	19	72.00	31.70
2	*2462.00	93.2 AV			1.32 H	19	61.50	31.70
3	2483.50	70.3 PK	74.0	-3.7	1.05 H	352	38.50	31.80
4	2483.50	52.5 AV	54.0	-1.5	1.05 H	352	20.70	31.80
5	4924.00	47.1 PK	74.0	-26.9	1.06 H	147	9.70	37.40
6	4924.00	37.2 AV	54.0	-16.8	1.06 H	147	-0.20	37.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	100.2 PK			1.60 V	125	68.50	31.70
2	*2462.00	90.8 AV			1.60 V	125	59.10	31.70
3	2483.50	66.5 PK	74.0	-7.5	1.63 V	131	34.70	31.80
4	2483.50	48.8 AV	54.0	-5.2	1.63 V	131	17.00	31.80
5	4924.00	51.3 PK	74.0	-22.7	1.26 V	128	13.90	37.40
6	4924.00	39.6 AV	54.0	-14.4	1.26 V	128	2.20	37.40

REMARKS:

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

802.11n (40MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	71.4 PK	74.0	-2.6	1.07 H	13	39.90	31.50
2	2390.00	52.5 AV	54.0	-1.5	1.07 H	13	21.00	31.50
3	*2422.00	102.3 PK			1.36 H	307	70.70	31.60
4	*2422.00	90.4 AV			1.36 H	307	58.80	31.60
5	4844.00	47.3 PK	74.0	-26.7	1.29 H	107	10.10	37.20
6	4844.00	36.4 AV	54.0	-17.6	1.29 H	107	-0.80	37.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.2 PK	74.0	-8.8	1.08 V	123	33.70	31.50
2	2390.00	48.3 AV	54.0	-5.7	1.08 V	123	16.80	31.50
3	*2422.00	95.9 PK			1.05 V	107	64.30	31.60
4	*2422.00	85.9 AV			1.05 V	107	54.30	31.60
5	4844.00	49.0 PK	74.0	-25.0	1.12 V	139	11.80	37.20
6	4844.00	38.0 AV	54.0	-16.0	1.12 V	139	0.80	37.20

REMARKS:

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 71%RH	TESTED BY	Nick Hsu

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	66.3 PK	74.0	-7.7	1.39 H	311	33.10	33.20
2	**2390.00**	**53.6 AV**	**54.0**	**-0.4**	**1.39 H**	**311**	**20.40**	**33.20**
3	*2427.00	100.2 PK			1.41 H	179	66.90	33.30
4	*2427.00	91.1 AV			1.41 H	179	57.80	33.30
5	4854.00	47.5 PK	74.0	-26.5	1.32 H	201	41.40	6.10
6	4854.00	34.8 AV	54.0	-19.2	1.32 H	201	28.70	6.10
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	63.1 PK	74.0	-10.9	1.00 V	214	29.90	33.20
2	2390.00	50.0 AV	54.0	-4.0	1.00 V	214	16.80	33.20
3	*2427.00	95.4 PK			1.00 V	214	62.10	33.30
4	*2427.00	85.9 AV			1.00 V	214	52.60	33.30
5	4854.00	48.2 PK	74.0	-25.8	1.02 V	233	42.10	6.10
6	4854.00	35.4 AV	54.0	-18.6	1.02 V	233	29.30	6.10

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.2 PK	74.0	-5.8	1.38 H	360	36.70	31.50
2	2390.00	52.9 AV	54.0	-1.1	1.38 H	360	21.40	31.50
3	*2437.00	102.3 PK			1.34 H	360	70.70	31.60
4	*2437.00	92.8 AV			1.34 H	360	61.20	31.60
5	4874.00	49.1 PK	74.0	-24.9	1.12 H	136	11.80	37.30
6	4874.00	35.9 AV	54.0	-18.1	1.12 H	136	-1.40	37.30
7	7311.00	53.1 PK	74.0	-20.9	1.15 H	108	9.50	43.60
8	7311.00	42.7 AV	54.0	-11.3	1.15 H	108	-0.90	43.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	63.0 PK	74.0	-11.0	1.06 V	121	31.50	31.50
2	2390.00	49.0 AV	54.0	-5.0	1.06 V	121	17.50	31.50
3	*2437.00	97.7 PK			1.07 V	123	66.10	31.60
4	*2437.00	87.9 AV			1.07 V	123	56.30	31.60
5	4874.00	46.5 PK	74.0	-27.5	1.13 V	147	9.20	37.30
6	4874.00	36.1 AV	54.0	-17.9	1.13 V	147	-1.20	37.30
7	7311.00	52.5 PK	74.0	-21.5	1.06 V	115	8.90	43.60
8	7311.00	43.1 AV	54.0	-10.9	1.06 V	115	-0.50	43.60

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	101.3 PK			1.05 H	307	69.60	31.70
2	*2452.00	91.7 AV			1.05 H	307	60.00	31.70
3	2483.50	70.8 PK	74.0	-3.2	1.04 H	360	39.00	31.80
4	2483.50	52.3 AV	54.0	-1.7	1.04 H	360	20.50	31.80
5	4904.00	49.2 PK	74.0	-24.8	1.15 H	26	11.80	37.40
6	4904.00	38.1 AV	54.0	-15.9	1.15 H	26	0.70	37.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	96.7 PK			1.06 V	107	65.00	31.70
2	*2452.00	86.7 AV			1.06 V	107	55.00	31.70
3	2483.50	67.2 PK	74.0	-6.8	1.10 V	110	35.40	31.80
4	2483.50	49.7 AV	54.0	-4.3	1.10 V	110	17.90	31.80
5	4904.00	47.4 PK	74.0	-26.6	1.15 V	62	10.00	37.40
6	4904.00	38.2 AV	54.0	-15.8	1.15 V	62	0.80	37.40

REMARKS:

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

BELOW 1GHz WORST-CASE DATA：

802.11g

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	20deg. C, 71%RH	TESTED BY	Nick Hsu
TEST MODE	A		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	57.12	31.80 QP	40.00	-8.20	1.99 H	92	46.40	-14.60
2	282.66	37.80 QP	46.00	-8.20	1.00 H	258	50.40	-12.60
3	299.88	42.10 QP	46.00	-3.90	1.00 H	250	54.30	-12.20
4	401.26	38.70 QP	46.00	-7.30	1.00 H	296	49.00	-10.30
5	500.42	30.30 QP	46.00	-15.70	1.99 H	115	38.60	-8.30
6	599.58	34.30 QP	46.00	-11.70	1.49 H	213	40.40	-6.10
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	59.06	32.70 QP	40.00	-7.30	1.00 V	16	47.40	-14.70
2	109.62	28.90 QP	43.50	-14.60	1.00 V	92	46.10	-17.20
3	267.10	27.60 QP	46.00	-18.40	2.00 V	209	41.00	-13.40
4	302.10	36.40 QP	46.00	-9.60	1.51 V	122	48.60	-12.20
5	401.26	35.90 QP	46.00	-10.10	1.00 V	186	46.20	-10.30
6	599.58	33.20 QP	46.00	-12.80	1.51 V	168	39.30	-6.10

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	70.73	34.30 QP	40.00	-5.70	1.50 H	191	50.50	-16.20
2	166.00	41.00 QP	43.50	-2.50	1.50 H	250	55.00	-14.00
3	232.11	33.70 QP	46.00	-12.30	1.50 H	175	49.40	-15.70
4	265.16	34.50 QP	46.00	-11.50	1.50 H	133	48.00	-13.50
5	449.87	29.00 QP	46.00	-17.00	1.01 H	8	38.20	-9.20
6	527.64	30.50 QP	46.00	-15.50	2.00 H	204	38.30	-7.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	29.90	34.80 QP	40.00	-5.20	1.00 V	262	50.70	-15.90
2	70.73	35.50 QP	40.00	-4.50	1.49 V	145	51.70	-16.20
3	92.12	33.20 QP	43.50	-10.30	1.49 V	154	52.90	-19.70
4	166.00	33.40 QP	43.50	-10.10	1.49 V	222	47.40	-14.00
5	232.11	31.00 QP	46.00	-15.00	1.00 V	16	46.70	-15.70
6	265.16	32.40 QP	46.00	-13.60	1.99 V	175	45.90	-13.50

REMARKS:

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

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

NOTE: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Apr. 26, 2012	Apr. 25, 2013
			Apr. 25, 2013	Apr. 24, 2014
			Apr. 24, 2014	Apr. 23, 2015
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 29, 2011	Dec. 28, 2012
			Dec. 27, 2013	Dec. 26, 2014
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 24, 2012	Dec. 23, 2013
			Dec. 23, 2013	Dec. 22, 2014
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 12, 2012	Jul. 11, 2013
			Jul. 11, 2013	Jul. 10, 2014
			Jul. 10, 2014	Jul. 09, 2015
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

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

2. The test was performed in HwaYa Shielded Room 2.

3. The VCCI Site Registration No. is C-2047.

4.2.3 TEST PROCEDURES

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

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

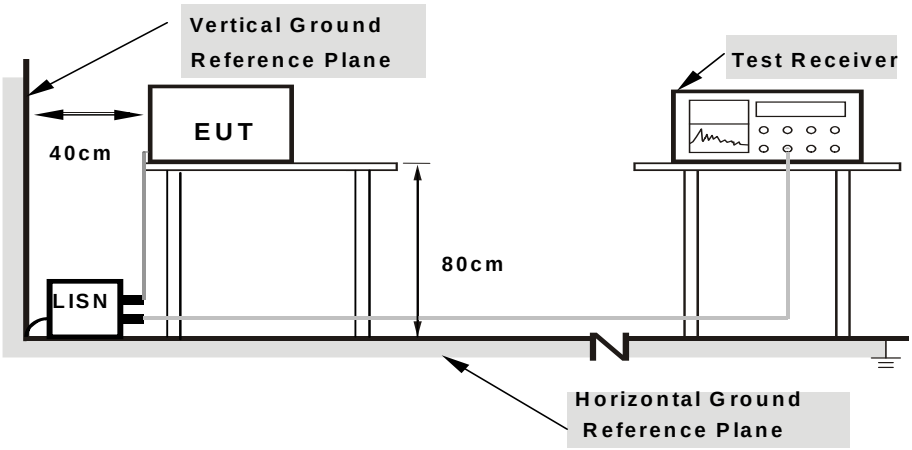
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



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

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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

4.2.7 TEST RESULTS

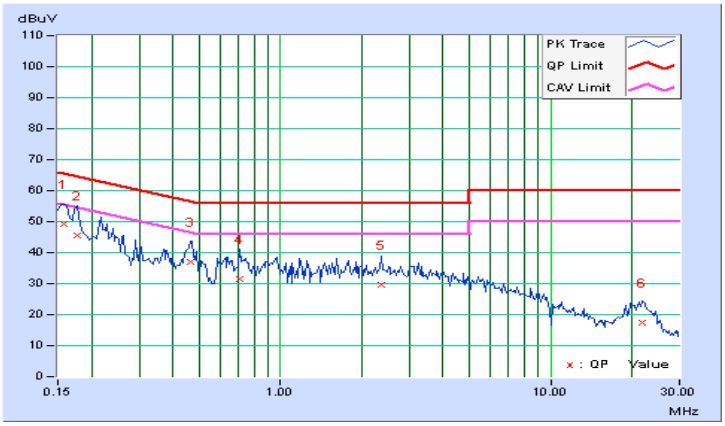
CONDUCTED WORST-CASE DATA：802.11g

PHASE	Line 1	**6dB BANDWIDTH**	9kHz
TEST MODE	A		

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	0.27	48.94	32.98	49.21	33.25	65.58	55.58	-16.37	-22.33
2	0.17734	0.27	45.41	28.70	45.68	28.97	64.61	54.61	-18.93	-25.64
3	0.46250	0.30	36.56	27.20	36.86	27.50	56.65	46.65	-19.78	-19.14
4	0.70859	0.32	31.04	20.38	31.36	20.70	56.00	46.00	-24.64	-25.30
5	2.36719	0.37	29.21	17.27	29.58	17.64	56.00	46.00	-26.42	-28.36
6	21.83984	0.57	16.81	8.42	17.38	8.99	60.00	50.00	-42.62	-41.01

REMARKS:

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

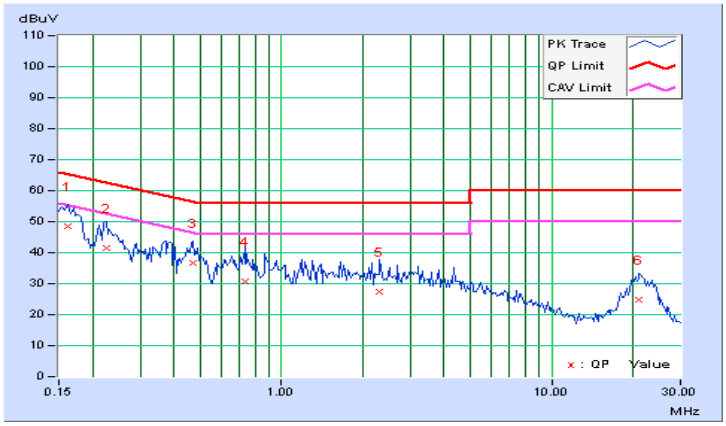


PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	A		

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16172	0.27	48.08	31.15	48.35	31.42	65.38	55.38	-17.03	-23.96
2	0.22422	0.28	41.04	25.33	41.32	25.61	62.66	52.66	-21.34	-27.05
3	0.47031	0.30	36.55	28.47	36.85	28.77	56.51	46.51	-19.65	-17.73
4	0.73594	0.32	30.55	20.02	30.87	20.34	56.00	46.00	-25.13	-25.66
5	2.29688	0.38	27.11	18.17	27.49	18.55	56.00	46.00	-28.51	-27.45
6	21.03906	0.62	24.06	14.58	24.68	15.20	60.00	50.00	-35.32	-34.80

REMARKS:

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

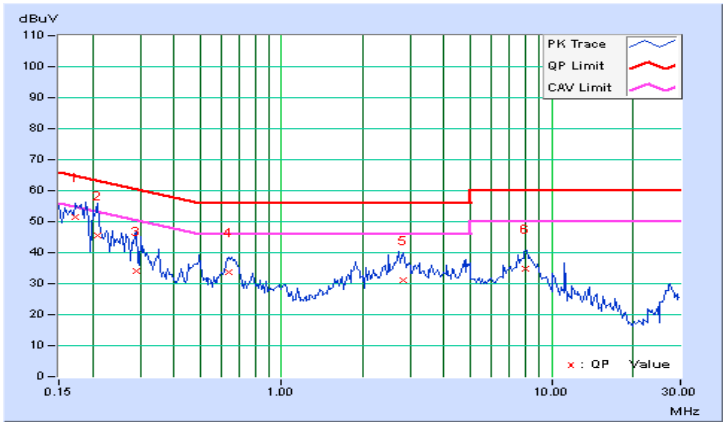


PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17344	0.27	51.16	34.57	51.43	34.84	64.79	54.79	-13.36	-19.95
2	0.20859	0.28	45.22	27.51	45.50	27.79	63.26	53.26	-17.76	-25.47
3	0.29063	0.29	33.83	20.46	34.12	20.75	60.51	50.51	-26.39	-29.76
4	0.63828	0.32	33.48	20.53	33.80	20.85	56.00	46.00	-22.20	-25.15
5	2.83984	0.39	30.73	25.69	31.12	26.08	56.00	46.00	-24.88	-19.92
6	8.01953	0.48	34.16	28.08	34.64	28.56	60.00	50.00	-25.36	-21.44

REMARKS:

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

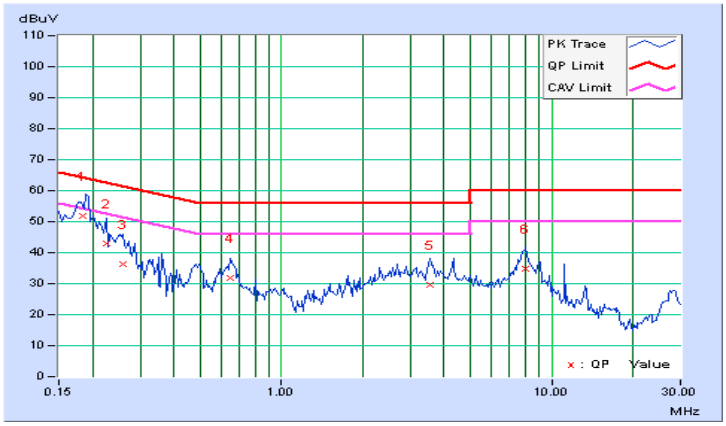


PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.18319**	**0.27**	**51.48**	**33.05**	**51.75**	**33.32**	**64.34**	**54.34**	**-12.58**	**-21.01**
2	0.22422	0.28	42.63	25.36	42.91	25.64	62.66	52.66	-19.75	-27.02
3	0.25938	0.29	35.98	21.00	36.27	21.29	61.45	51.45	-25.19	-30.17
4	0.65000	0.32	31.69	18.16	32.01	18.48	56.00	46.00	-23.99	-27.52
5	3.55859	0.42	29.29	24.85	29.71	25.27	56.00	46.00	-26.29	-20.73
6	8.00000	0.49	34.26	28.24	34.75	28.73	60.00	50.00	-25.25	-21.27

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.

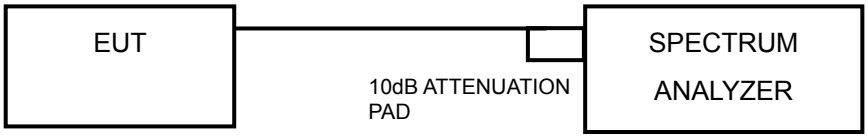


4.3 6dB BANDWIDTH MEASUREMENT

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

558074 D01 DTS Meas Guidance v03r02 section 8.1

a. Set RBW = 100 kHz.
b. Set the video bandwidth (VBW) ≥ 3 × RBW.
c. Detector = Peak.
d. Trace mode = max hold.
e. Sweep = auto couple.
f. Allow the trace to stabilize.
g. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) 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	10.14	0.5	PASS
6	2437	10.12	0.5	PASS
11	2462	10.12	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.40	0.5	PASS
6	2437	16.38	0.5	PASS
11	2462	16.38	0.5	PASS

802.11n (20MHz)

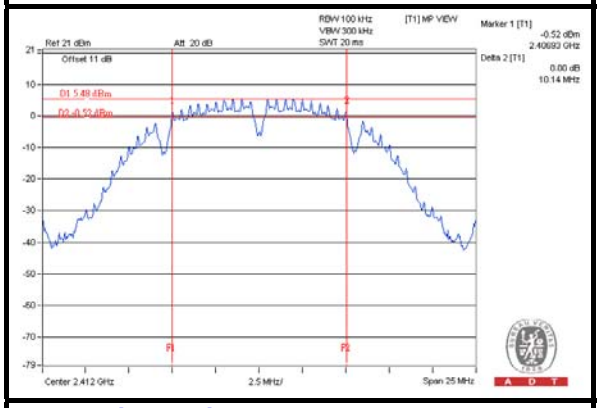
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.61	0.5	PASS
6	2437	17.60	0.5	PASS
11	2462	17.59	0.5	PASS

802.11n (40MHz)

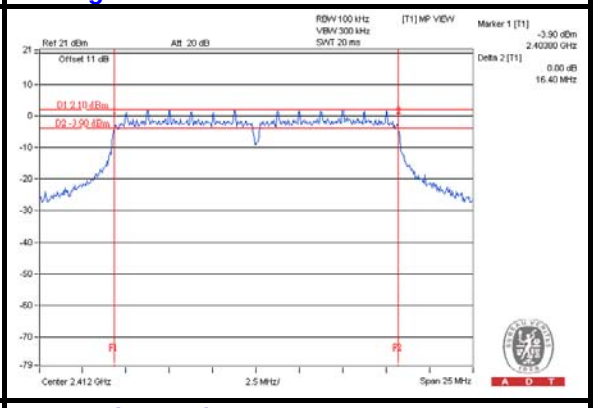
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	36.45	0.5	PASS
6	2437	36.42	0.5	PASS
9	2452	36.45	0.5	PASS

SPECTRUM PLOT OF WORST VALUE

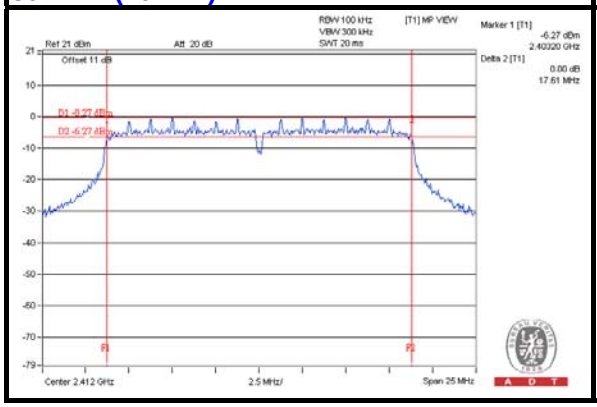
802.11b



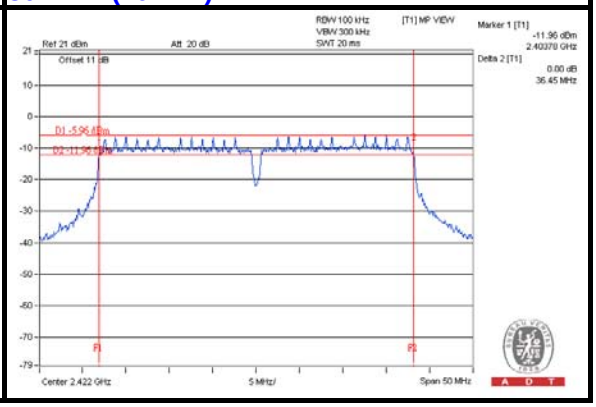
802.11g



802.11n (20MHz)



802.11n (40MHz)



4.4 CONDUCTED OUTPUT POWER

4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

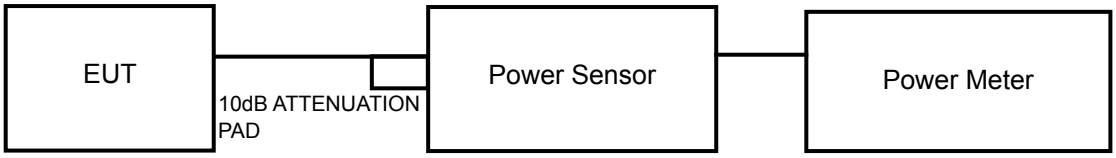
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

Per KDB 662911 D01 Multiple Transmitter Output v01r02 Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;
Array Gain = 5 log(NANT/NSS) dB or 3 dB, whichever is less for 20-MHz channel widths with NANT ≥ 5.

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

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.4.4 TEST PROCEDURES

558074 D01 DTS Meas Guidance v03r02 section 9.2.3.2

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

FOR PEAK POWER

802.11b

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	50.466	17.03	30	PASS
6	2437	52.240	17.18	30	PASS
11	2462	54.954	17.40	30	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	85.901	19.34	30	PASS
6	2437	**88.512**	19.47	30	PASS
11	2462	84.723	19.28	30	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	56.624	17.53	30	PASS
6	2437	72.444	18.60	30	PASS
11	2462	63.241	18.01	30	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
3	2422	43.752	16.41	30	PASS
4	2427	66.834	18.25	30	PASS
6	2437	74.645	18.73	30	PASS
9	2452	72.946	18.63	30	PASS

FOR AVERAGE POWER

802.11b

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	31.117	14.93
6	2437	32.659	15.14
11	2462	33.651	15.27

802.11g

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	16.255	12.11
6	2437	18.323	12.63
11	2462	15.776	11.98

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	8.570	9.33
6	2437	10.789	10.33
11	2462	10.257	10.11

802.11n (40MHz)

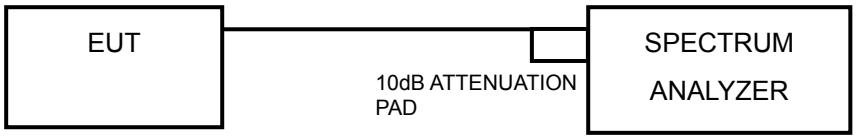
CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
3	2422	5.662	7.53
4	2427	8.072	9.07
6	2437	8.974	9.53
9	2452	8.204	9.14

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

558074 D01 DTS Meas Guidance v03r02 section 10.3

a. Set instrument center frequency to DTS channel center frequency.
b. Set span to at least 1.5 times the OBW.
c. Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d. Set VBW ≥3 x RBW.
e. Detector = power averaging (RMS) or sample detector (when RMS not available).
f. Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
g. Sweep time = auto couple.
h. Employ trace averaging (RMS) mode over a minimum of 100 traces.
i. Use the peak marker function to determine the maximum amplitude level.

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

4.5.7 TEST RESULTS

802.11b

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-9.89	8	PASS
6	2437	-10.01	8	PASS
11	2462	-9.34	8	PASS

802.11g

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-12.36	8	PASS
6	2437	-13.31	8	PASS
11	2462	-12.28	8	PASS

802.11n (20MHz)

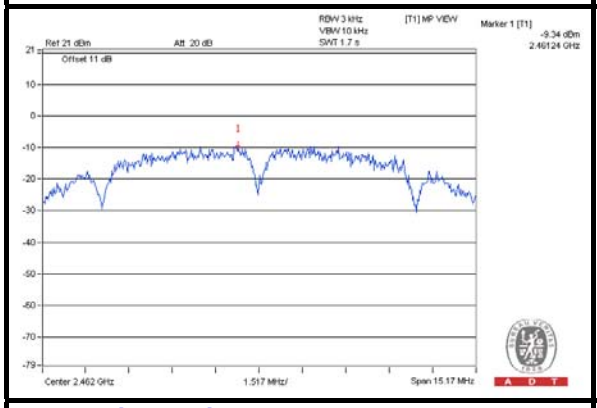
Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-15.08	8	PASS
6	2437	-14.92	8	PASS
11	2462	-15.85	8	PASS

802.11n (40MHz)

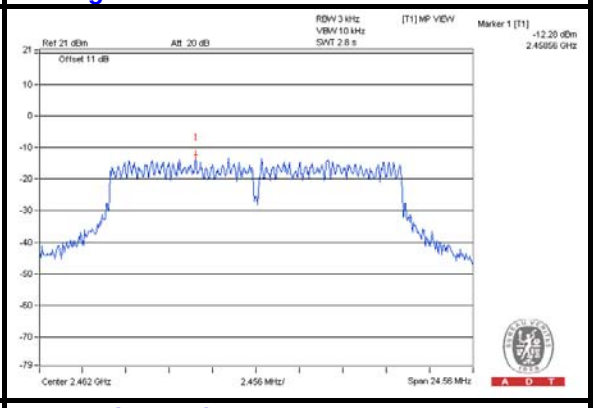
Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
3	2422	-20.38	8	PASS
6	2437	-19.39	8	PASS
9	2452	-19.55	8	PASS

SPECTRUM PLOT OF WORST VALUE

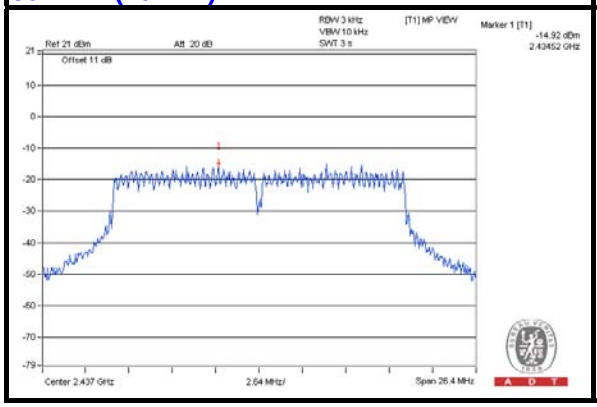
802.11b



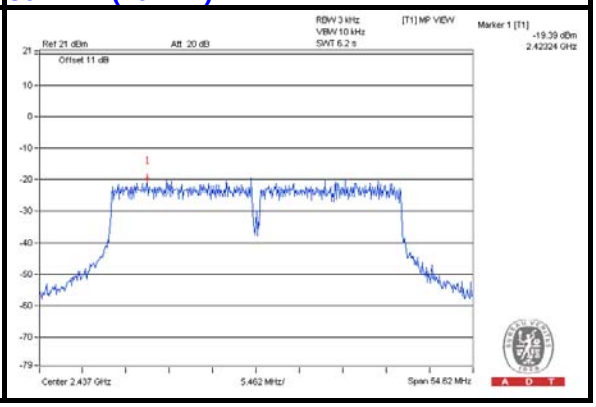
802.11g



802.11n (20MHz)



802.11n (40MHz)

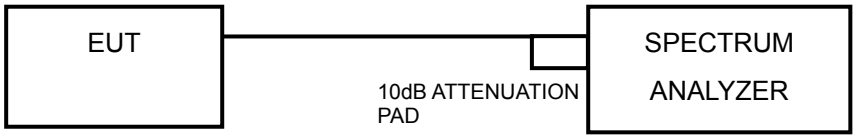


4.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

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

558074 D01 DTS Meas Guidance v03r02 section 11.2

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 OOBE

558074 D01 DTS Meas Guidance v03r02 section 11.3

1. Set RBW = 100 kHz.
2. Set VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 EUT OPERATING CONDITION

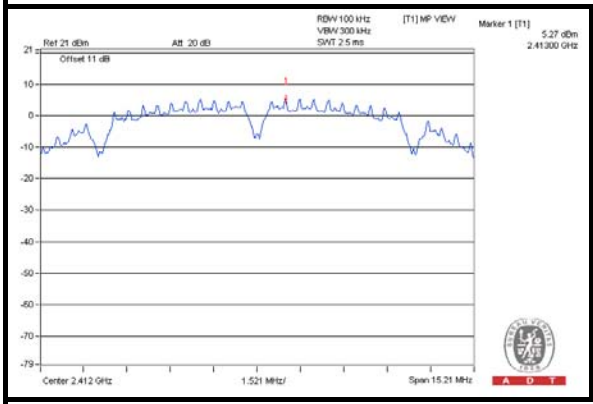
Same as Item 4.3.6

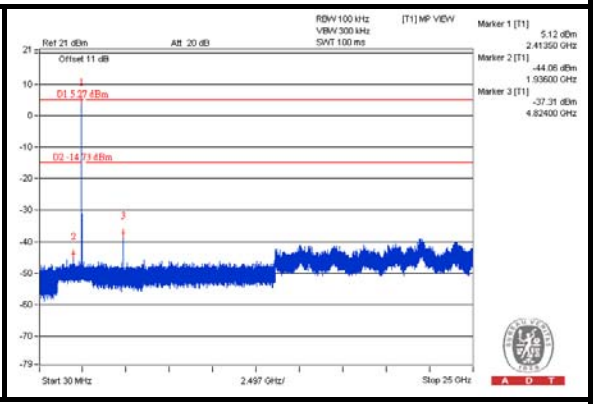
4.6.7 TEST RESULTS

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

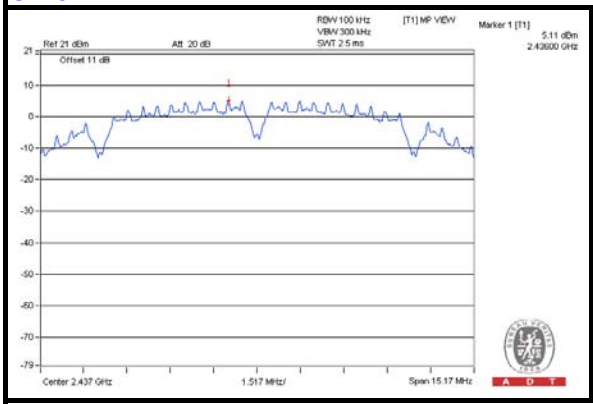
802.11b

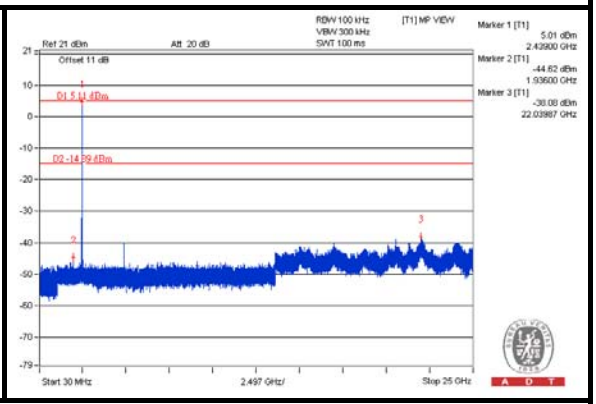
CH 1



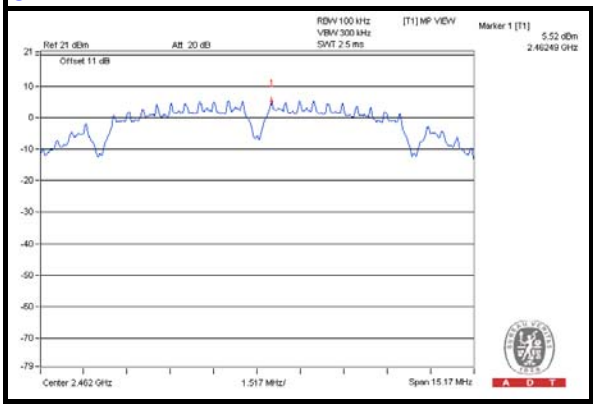


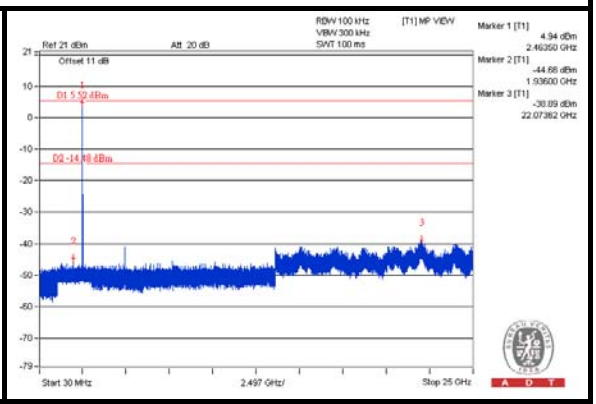
CH 6



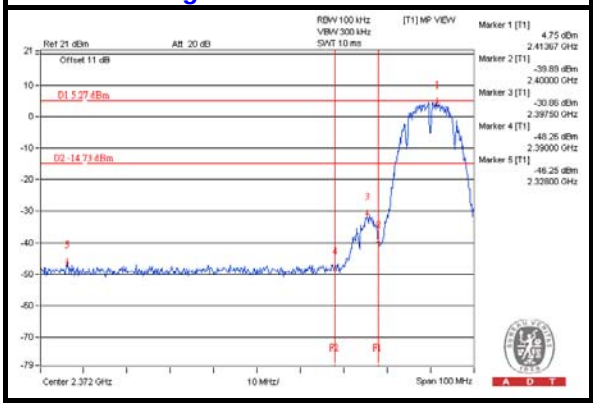


CH 11

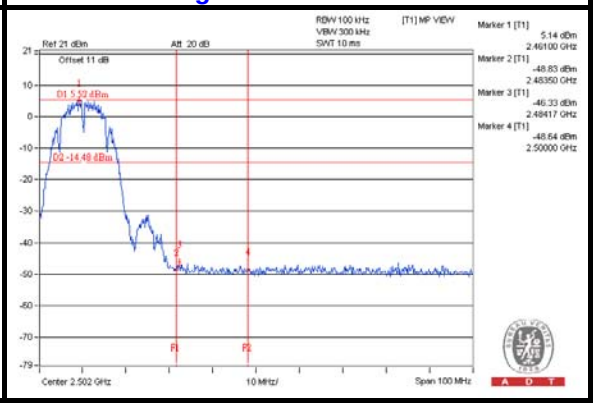




CH 1 Band edge

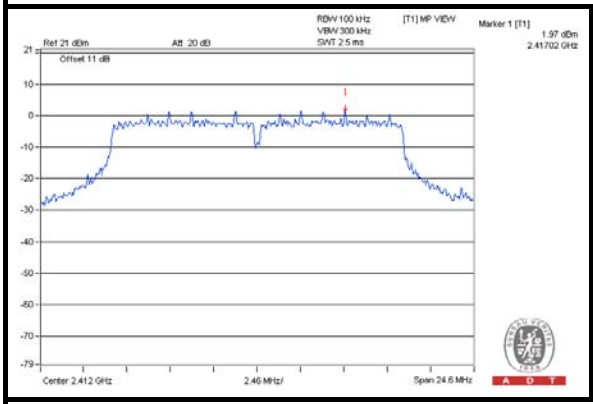


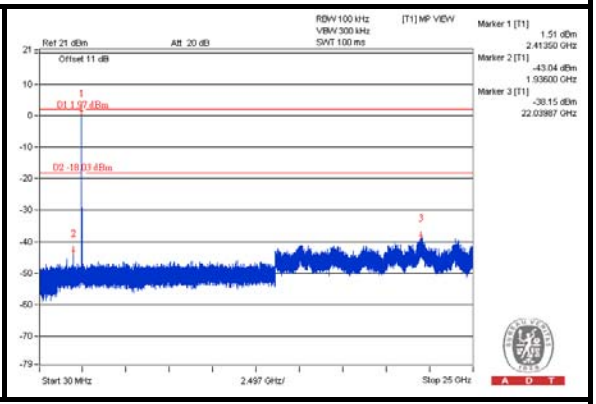
CH 11 Band edge



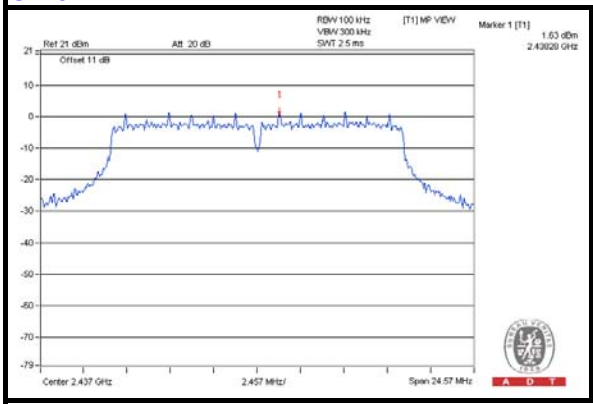
802.11g

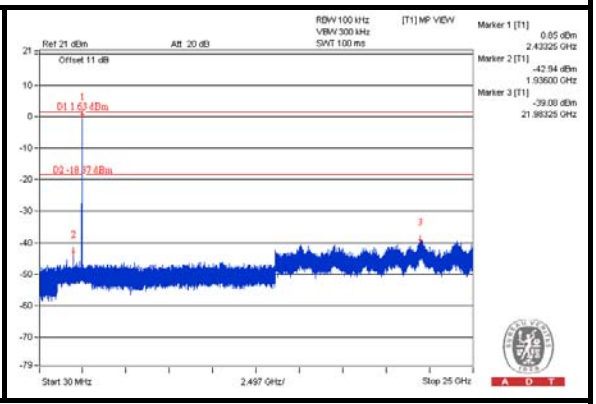
CH 1



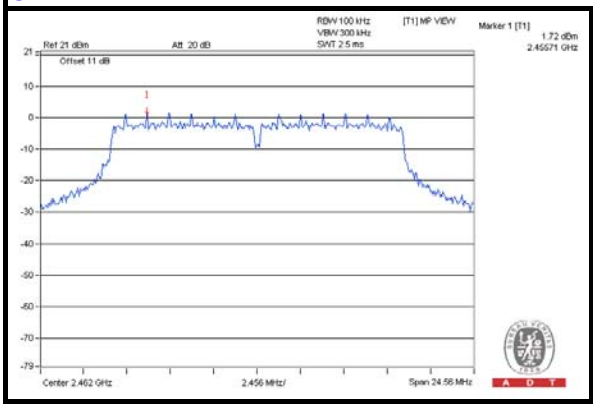


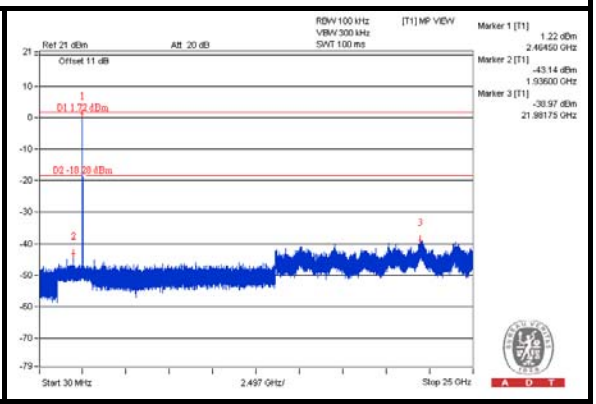
CH 6



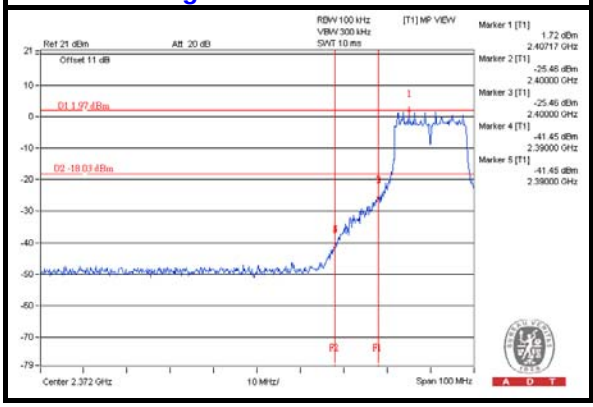


CH 11

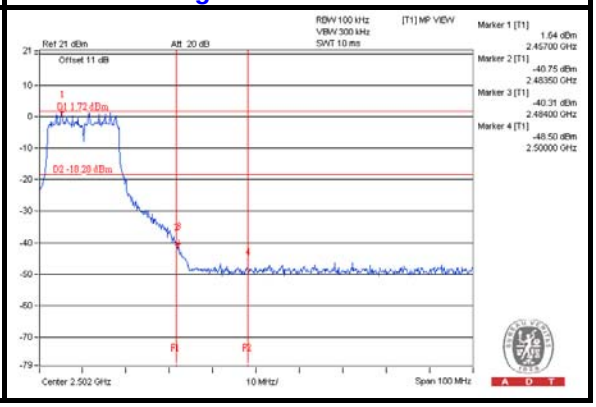




CH 1 Band edge

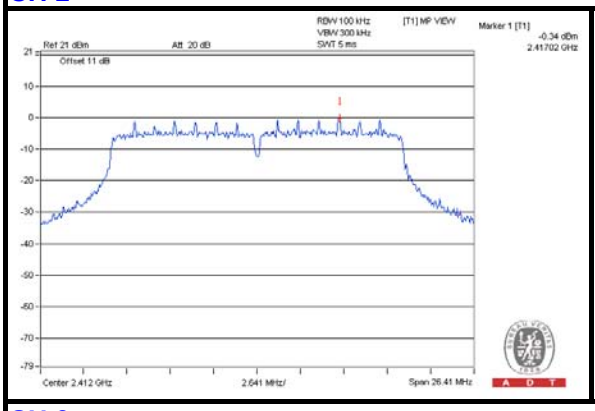


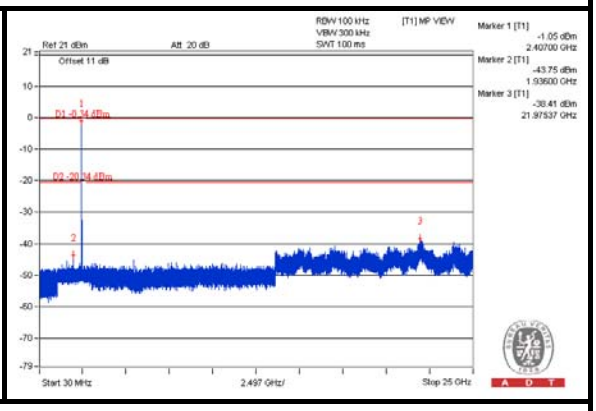
CH 11 Band edge



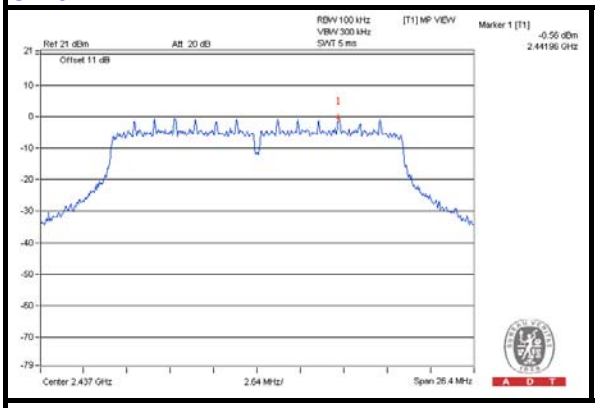
802.11n (20MHz)

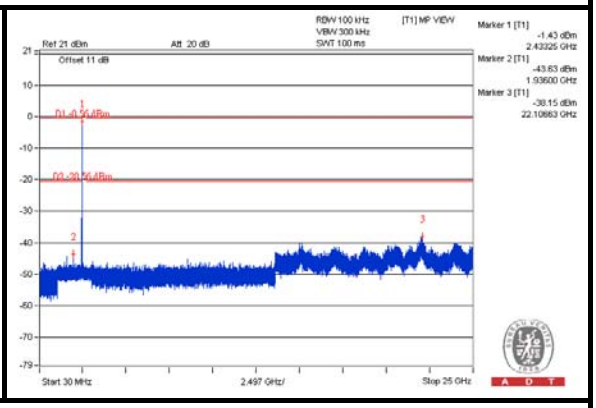
CH 1



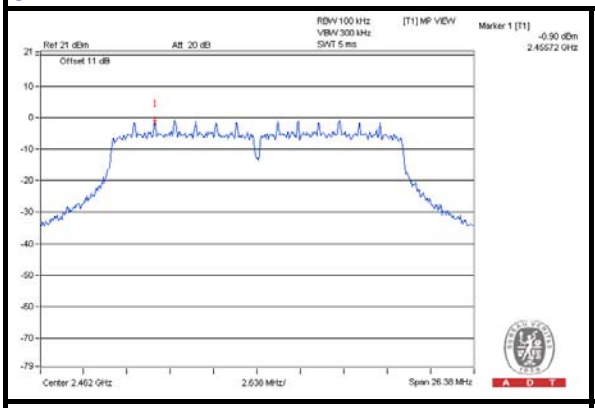


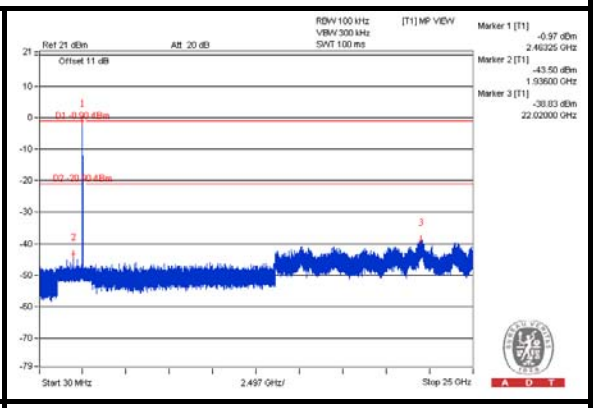
CH 6



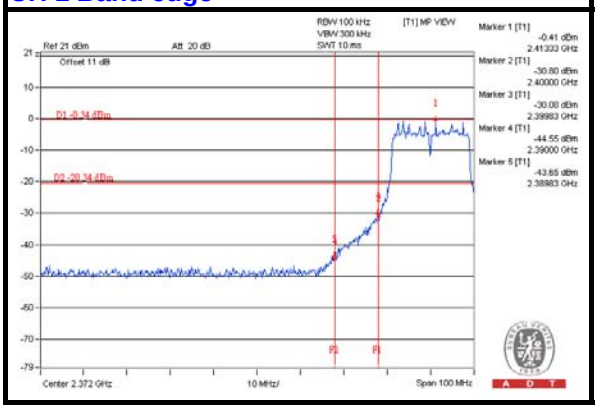


CH 11

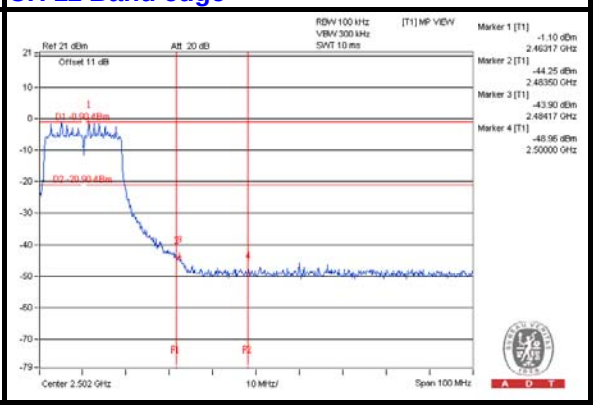




CH 1 Band edge

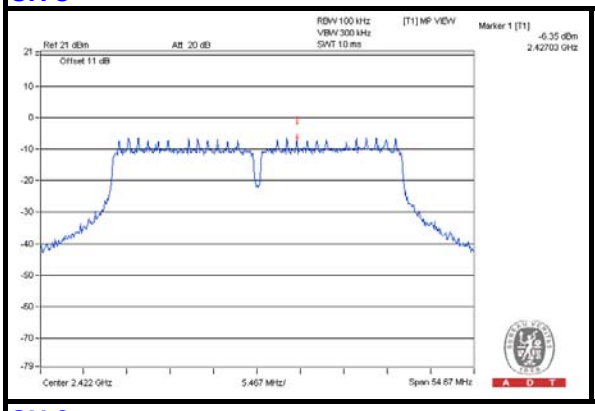


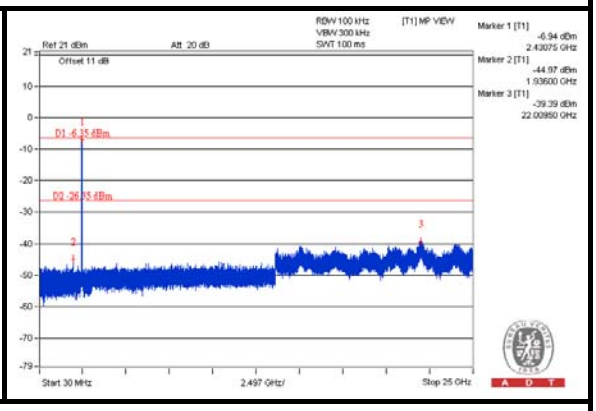
CH 11 Band edge



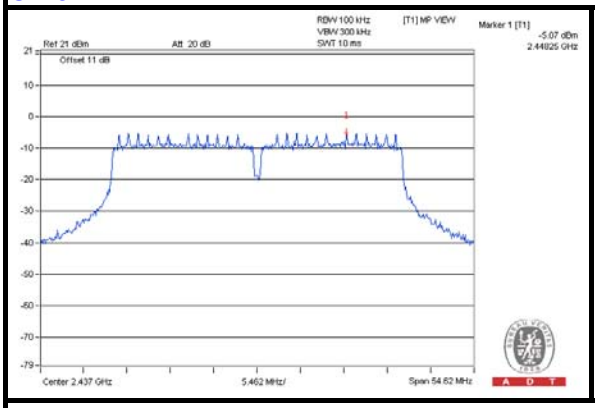
802.11n (40MHz)

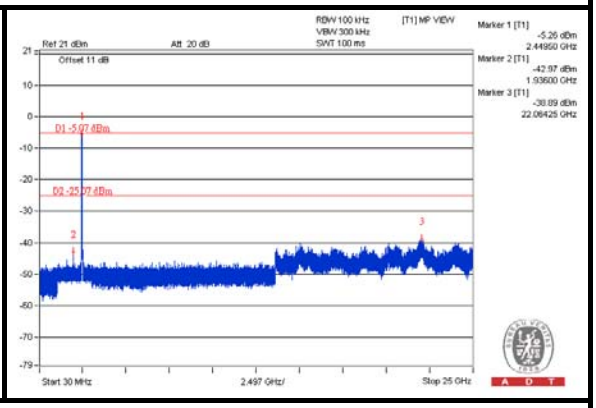
CH 3



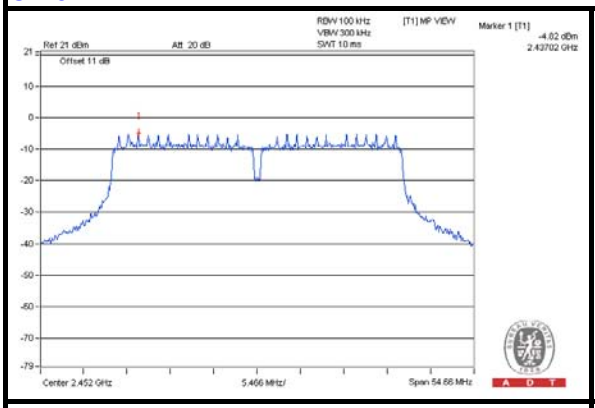


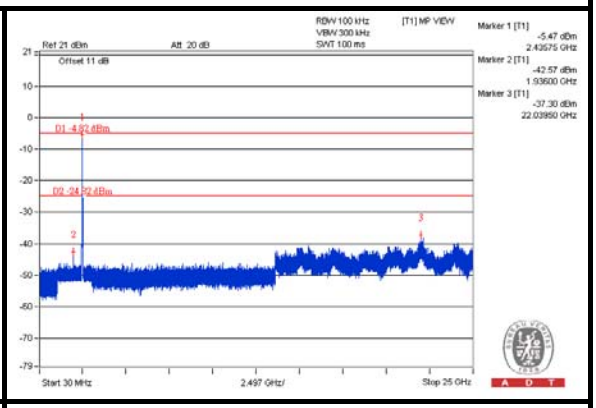
CH 6



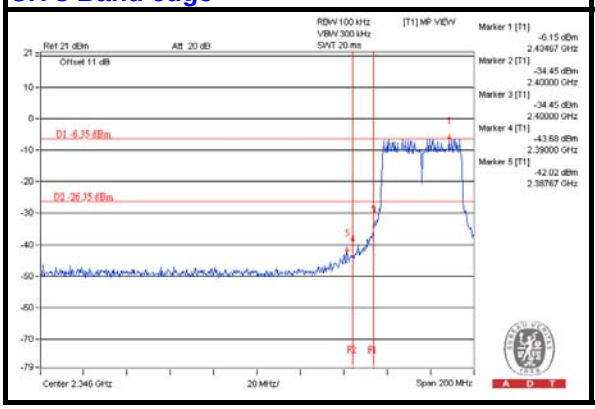


CH 9

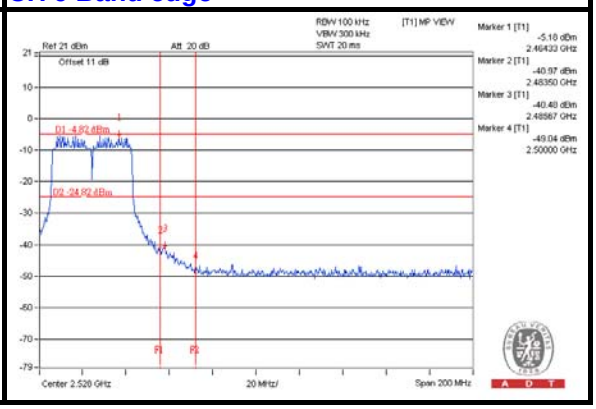




CH 3 Band edge



CH 9 Band edge



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:

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Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

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

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

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

---END---