



A D T

# FCC TEST REPORT (15.247)

**REPORT NO.:** RF110705C18C

**MODEL NO.:** PH98100

**FCC ID:** NM8PH98100

**RECEIVED:** Aug. 23, 2011

**TESTED:** Sep. 06 ~ Sep. 13, 2011

**ISSUED:** Sep. 15, 2011

**APPLICANT:** HTC Corporation

**ADDRESS:** 23, Xinghua Rd., Taoyuan 330, Taiwan, R.O.C.

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

**LAB ADDRESS:** No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou Hsiang,  
Taipei Hsien 244, 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 test report consists of 45 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product, certification, approval or endorsement by TAF or any government agency. The test results in the report only apply to the tested sample.





# 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.....                           | 9  |
| 3.2.1 CONFIGURATION OF SYSTEM UNDER TEST.....                | 10 |
| 3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL..... | 11 |
| 3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS.....            | 14 |
| 3.4 DESCRIPTION OF SUPPORT UNITS.....                        | 14 |
| 4. TEST TYPES AND RESULTS (FOR 2.4GHz BAND).....             | 15 |
| 4.1 RADIATED EMISSION MEASUREMENT.....                       | 15 |
| 4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT.....           | 15 |
| 4.1.2 TEST INSTRUMENTS.....                                  | 16 |
| 4.1.3 TEST PROCEDURES.....                                   | 17 |
| 4.1.4 DEVIATION FROM TEST STANDARD.....                      | 17 |
| 4.1.5 TEST SETUP.....  | 18 |
| 4.1.6 EUT OPERATING CONDITIONS.....                          | 18 |
| 4.1.7 TEST RESULTS.....                                      | 19 |
| 4.2 CONDUCTED EMISSION MEASUREMENT.....                      | 22 |
| 4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT.....          | 22 |
| 4.2.2 TEST INSTRUMENTS.....                                  | 22 |
| 4.2.3 TEST PROCEDURES.....                                   | 23 |
| 4.2.4 DEVIATION FROM TEST STANDARD.....                      | 23 |
| 4.2.5 TEST SETUP.....  | 24 |
| 4.2.6 EUT OPERATING CONDITIONS.....                          | 24 |
| 4.2.7 TEST RESULTS.....                                      | 25 |
| 5. TEST TYPES AND RESULTS (FOR 5.0GHz BAND).....             | 29 |
| 5.1 RADIATED EMISSION MEASUREMENT.....                       | 29 |
| 5.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT.....           | 29 |
| 5.1.2 TEST INSTRUMENTS.....                                  | 30 |
| 5.1.3 TEST PROCEDURES.....                                   | 31 |
| 5.1.4 DEVIATION FROM TEST STANDARD.....                      | 31 |
| 5.1.5 TEST SETUP.....  | 32 |



A D T

|       |   |    |
|-------|---|----|
| 5.1.6 | EUT OPERATING CONDITIONS .....  | 32 |
| 5.1.7 | TEST RESULTS .....  | 33 |
| 5.2   | CONDUCTED EMISSION MEASUREMENT .....  | 36 |
| 5.2.1 | LIMITS OF CONDUCTED EMISSION MEASUREMENT .....  | 36 |
| 5.2.2 | TEST INSTRUMENTS .....  | 36 |
| 5.2.3 | TEST PROCEDURES .....   | 37 |
| 5.2.4 | DEVIATION FROM TEST STANDARD .....  | 37 |
| 5.2.5 | TEST SETUP .....  | 38 |
| 5.2.6 | EUT OPERATING CONDITIONS .....  | 38 |
| 5.2.7 | TEST RESULTS .....  | 39 |
| 6.    | PHOTOGRAPHS OF THE TEST CONFIGURATION.....  | 43 |
| 7.    | INFORMATION ON THE TESTING LABORATORIES .....   | 44 |
| 8.    | APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE<br>EUT BY THE LAB ..... | 45 |



A D T

## RELEASE CONTROL RECORD

| ISSUE NO.        | REASON FOR CHANGE | DATE ISSUED   |
|------------------|-------------------|---------------|
| Original release | NA                | Sep. 15, 2011 |



A D T

## 1. CERTIFICATION

**PRODUCT:** Smartphone  
**MODEL NO.:** PH98100  
**BRAND:** HTC  
**APPLICANT:** HTC Corporation  
**TEST SAMPLE:** Production Unit  
**TESTED:** Sep. 06 ~ Sep. 13, 2011  
**STANDARDS:** **FCC Part 15, Subpart C (Section 15.247)**  
ANSI C63.4-2003  
ANSI C63.10-2009

This report is issued as a supplementary report of **RF110705C18** for a new inductive cover. This report shall be used combining with its original report.

**PREPARED BY :**  , **DATE:** Sep. 15, 2011  
Pettie Chen / Specialist

**APPROVED BY :**  , **DATE:** Sep. 15, 2011  
Gary Chang / Technical Manager

**NOTE:** The emission tests were performed for the addendum. Refer to original report for the other test data.



A D T

## 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 AND LIMIT  | RESULT | REMARK  |
| 15.207  | AC Power Conducted Emission  | PASS   | Meet the requirement of limit. Minimum passing margin is -9.07dB at 0.181MHz. |
| 15.247(a)(2)  | Spectrum Bandwidth of a Direct Sequence Spread Spectrum System<br>Limit: min. 500kHz   | NA     | Refer to Note   |
| 15.247(b)   | Maximum Output Power<br>Limit: max. 30dBm  | NA     | Refer to Note   |
| 15.247(d)   | Radiated Emissions<br>Limit: Table 15.209  | PASS   | Meet the requirement of limit. Minimum passing margin is -1.9dB at 114.94MHz. |
| 15.247(e)   | Power Spectral Density<br>Limit: max. 8dBm   | NA     | Refer to Note   |
| 15.247(d)   | Band Edge Measurement<br>Limit: 20dB less than the peak value of fundamental frequency | NA     | Refer to Note   |
| 15.203  | Antenna Requirement  | NA     | Refer to Note   |

**NOTE:** The emission tests were performed for the addendum. Refer to original report for the other test data.

### 2.1 MEASUREMENT UNCERTAINTY

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

| MEASUREMENT         | FREQUENCY       | UNCERTAINTY |
|---------------------|-----------------|-------------|
| Conducted emissions | 9kHz~30MHz      | 2.44 dB     |
| Radiated emissions  | 30MHz ~ 200MHz  | 3.34 dB     |
|                     | 200MHz ~1000MHz | 3.35 dB     |
|                     | 1GHz ~ 18GHz    | 2.26 dB     |
|                     | 18GHz ~ 40GHz   | 1.94 dB     |

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



A D T

### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

|                              |  |
|------------------------------|--|
| <b>PRODUCT</b>               | Smartphone   |
| <b>MODEL NO.</b>             | PH98100  |
| <b>FCC ID</b>                | NM8PH98100   |
| <b>NOMINAL VOLTAGE</b>       | 3.8Vdc (Li-ion battery)<br>3.7Vdc (Li-ion battery)<br>5Vdc (Adapter & host equipment)  |
| <b>MODULATION TYPE</b>       | CCK, DQPSK, DBPSK for DSSS<br>64QAM, 16QAM, QPSK, BPSK for OFDM  |
| <b>MODULATION TECHNOLOGY</b> | DSSS, OFDM   |
| <b>TRANSFER RATE</b>         | 802.11b: 11.0/ 5.5/ 2.0/ 1.0Mbps<br>802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps<br>802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps<br>802.11n: up to 150.0Mbps |
| <b>OPERATING FREQUENCY</b>   | <b>2.4GHz:</b> 2412.0 ~ 2462.0MHz<br><b>5.0GHz:</b> 5745.0 ~ 5805.0MHz   |
| <b>NUMBER OF CHANNEL</b>     | <b>2.4GHz:</b> 11<br><b>5.0GHz:</b> 4  |
| <b>OUTPUT POWER</b>          | 169.8mW for 2412.0 ~ 2462.0MHz<br>109.6mW for 5745.0 ~ 5825.0MHz   |
| <b>ANTENNA TYPE</b>          | <b>2.4GHz:</b> PIFA antenna with -2dBi gain<br><b>5.0GHz:</b> PIFA antenna with -3dBi gain   |
| <b>ANTENNA CONNECTER</b>     | NA   |
| <b>DATA CABLE</b>            | Refer to Note as below   |
| <b>I/O PORTS</b>             | Refer to user's manual   |
| <b>ACCESSORY DEVICES</b>     | Refer to Note as below   |



**NOTE:**

1. This is a supplementary report of RF110705C18. This report shall be combined together with its original report.
2. This report is prepared for FCC class II permissive change. Difference compared with the original report is adding inductive cover. Therefore, re-tested emission tests and presented in the test report.
3. The EUT's accessories list refers to Ext Pho\_NM8PH98100.pdf.

\*Item 1, 3, 5, 6, 8 were used for the test.

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

| Frequency Band (MHz) | 2412~2462 | 5180~5320 | 5500~5700 | 5745~5805 |
|----------------------|-----------|-----------|-----------|-----------|
| 802.11b              | √         | -         | -         | -         |
| 802.11g              | √         | -         | -         | -         |
| 802.11a              | -         | √         | √         | √         |
| 802.11n (20MHz)      | √         | √         | √         | √         |

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

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

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



### 3.2 DESCRIPTION OF TEST MODES

#### FOR 2.4GHz:

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

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

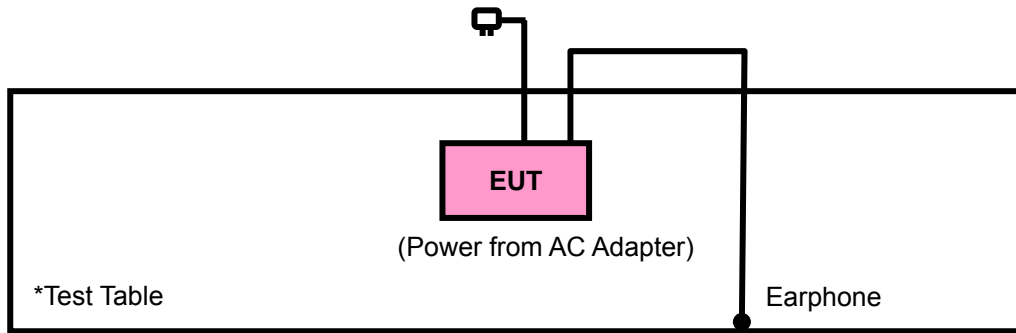
#### FOR 5.0GHz (5745 ~ 5825MHz):

4 channels are provided for 802.11a and 802.11n (20MHz):

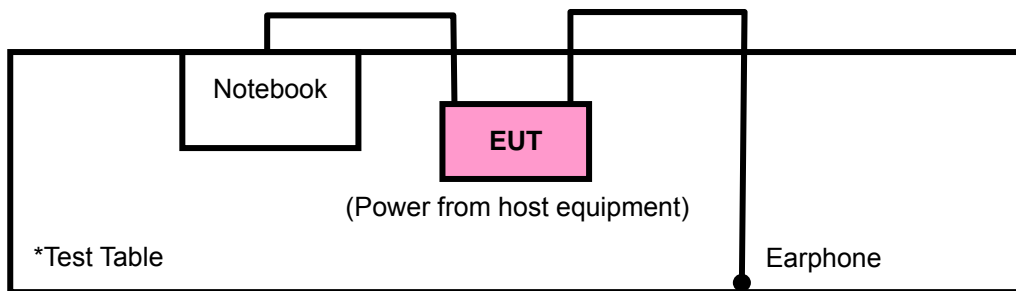
| CHANNEL | FREQUENCY | CHANNEL | FREQUENCY |
|---------|-----------|---------|-----------|
| 149     | 5745MHz   | 157     | 5785MHz   |
| 153     | 5765MHz   | 161     | 5805MHz   |

### 3.2.1 CONFIGURATION OF SYSTEM UNDER TEST

#### TEST MODE A



#### TEST MODE B





### 3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

#### FOR 2.4GHz:

| EUT CONFIGURE MODE | APPLICABLE TO |       |     | DESCRIPTION               |
|--------------------|---------------|-------|-----|---------------------------|
|                    | RE≥1G         | RE<1G | PLC |                           |
| 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

**NOTE**: “-”: Means no effect.

#### **RADIATED EMISSION TEST (ABOVE 1GHz):**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis 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) | AXIS |
|--------------------|---------|-------------------|----------------|-----------------------|-----------------|------------------|------|
| A                  | 802.11g | 1 to 11           | 11             | OFDM                  | BPSK            | 6.0              | Z    |

#### **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, XYZ axis 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) | AXIS |
|--------------------|---------|-------------------|----------------|-----------------------|-----------------|------------------|------|
| A & B              | 802.11g | 1 to 11           | 11             | OFDM                  | BPSK            | 6.0              | Z    |

#### **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           | 11             | OFDM                  | BPSK            | 6.0              |



A D T

**TEST CONDITION:**

| APPLICABLE TO | ENVIRONMENTAL CONDITIONS | INPUT POWER (SYSTEM) | TESTED BY  |
|---------------|--------------------------|----------------------|------------|
| RE $\geq$ 1G  | 25deg. C, 65%RH          | 120Vac, 60Hz         | Sam Chen   |
| RE<1G         | 25deg. C, 65%RH          | 120Vac, 60Hz         | Sam Chen   |
| PLC           | 25deg. C, 68%RH          | 120Vac, 60Hz         | Daniel Lin |



A D T

**FOR 5.745 ~ 5.825GHz:**

| EUT CONFIGURE MODE | APPLICABLE TO |       |     | DESCRIPTION               |
|--------------------|---------------|-------|-----|---------------------------|
|                    | RE≥1G         | RE<1G | PLC |                           |
| 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

**NOTE**: "-": Means no effect.

**RADIATED EMISSION TEST (ABOVE 1GHz):**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis 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) | AXIS |
|--------------------|-----------------|-------------------|----------------|-----------------------|-----------------|------------------|------|
| A                  | 802.11n (20MHz) | 149 to 161        | 161            | OFDM                  | BPSK            | 7.2              | Z    |

**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) | AXIS |
|--------------------|-----------------|-------------------|----------------|-----------------------|-----------------|------------------|------|
| A & B              | 802.11n (20MHz) | 149 to 161        | 161            | OFDM                  | BPSK            | 7.2              | Z    |

**POWER LINE CONDUCTED EMISSION TEST:**

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

| EUT CONFIGURE MODE | MODE            | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | DATA RATE (Mbps) |
|--------------------|-----------------|-------------------|----------------|-----------------------|-----------------|------------------|
| A & B              | 802.11n (20MHz) | 149 to 161        | 161            | OFDM                  | BPSK            | 7.2              |



A D T

**TEST CONDITION:**

| APPLICABLE TO | ENVIRONMENTAL CONDITIONS | INPUT POWER (SYSTEM) | TESTED BY  |
|---------------|--------------------------|----------------------|------------|
| RE≥1G         | 25deg. C, 65%RH          | 120Vac, 60Hz         | Sam Chen   |
| RE<1G         | 25deg. C, 65%RH          | 120Vac, 60Hz         | Sam Chen   |
| PLC           | 25deg. C, 68%RH          | 120Vac, 60Hz         | Daniel Lin |

**3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS**

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

**FCC Part 15, Subpart C (15.247)**

**ANSI C63.4-2003**

**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.

**3.4 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<br>-81U-2973 | FCC DoC Approved |

| NO. | SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS |
|-----|---|
| 1   | 10m RJ45 UTP cable without core                     |

**NOTE:** All power cords of the above support units are non-shielded (1.8 m).



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

### 4.1 RADIATED EMISSION MEASUREMENT

#### 4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a). 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. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



A D T

#### 4.1.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER              | MODEL NO.                    | SERIAL NO.  | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|---|------------------------------|-------------|---------------------|-------------------------|
| Test Receiver<br>ROHDE & SCHWARZ        | ESIB7                        | 100212      | Aug. 02, 2011       | Aug. 01, 2012           |
| Spectrum Analyzer<br>ROHDE & SCHWARZ    | FSP 40                       | 100041      | Jul. 21, 2011       | Jul. 20, 2012           |
| BILOG Antenna<br>SCHWARZBECK            | VULB9168                     | 9168-160    | Apr. 13, 2011       | Apr. 12, 2012           |
| HORN Antenna<br>SCHWARZBECK             | 9120D                        | 209         | Aug. 25, 2011       | Aug. 24, 2012           |
| HORN Antenna<br>SCHWARZBECK             | BBHA 9170                    | BBHA9170243 | Dec. 27, 2010       | Dec. 26, 2011           |
| Preamplifier<br>Agilent                 | 8447D                        | 2944A10633  | Nov. 02, 2010       | Nov. 01, 2011           |
| Preamplifier<br>Agilent                 | 8449B                        | 3008A01964  | Nov. 02, 2010       | Nov. 01, 2011           |
| RF signal cable<br>HUBER+SUHNNER        | SUCOFLEX 104                 | 295014/4    | Aug. 19, 2011       | Aug. 18, 2012           |
| RF signal cable<br>HUBER+SUHNNER        | SUCOFLEX 104                 | 12738/6     | Aug. 19, 2011       | Aug. 18, 2012           |
| Software<br>ADT.                        | ADT_Radiated_<br>V7.6.15.9.2 | NA          | NA                  | NA                      |
| Antenna Tower<br>inn-co GmbH            | MA 4000                      | 013303      | NA                  | NA                      |
| Antenna Tower Controller<br>inn-co GmbH | CO2000                       | 017303      | NA                  | NA                      |
| Turn Table<br>ADT.                      | TT100.                       | TT93021703  | NA                  | NA                      |
| Turn Table Controller<br>ADT.           | SC100.                       | SC93021703  | NA                  | NA                      |

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





A D T

#### 4.1.3 TEST PROCEDURES

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

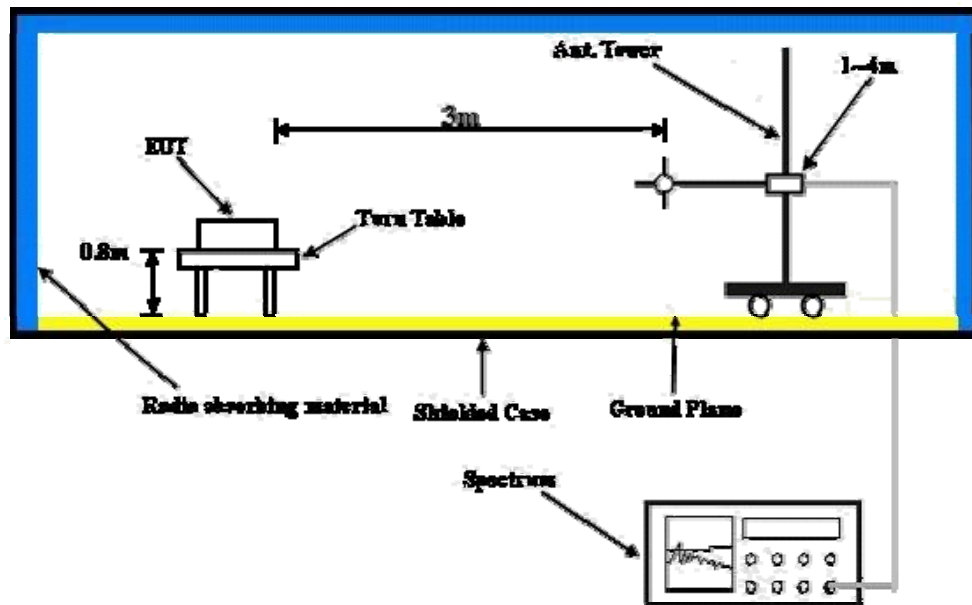
**NOTE:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 100kHz and video bandwidth is 300kHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

#### 4.1.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.1.5 TEST SETUP



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

#### 4.1.6 EUT OPERATING CONDITIONS

##### TEST MODE A

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

##### TEST MODE B

- a. Connected the EUT to notebook and placed on a testing table.
- b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.
- c. The necessary accessories enable the system in full functions.



A D T

#### 4.1.7 TEST RESULTS

##### ABOVE 1GHz WORST-CASE DATA : 802.11g

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

| 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    | 107.4 PK                |                |             | 1.03 H             | 132                  | 76.00            | 31.40                    |
| 2   | *2462.00    | 92.9 AV                 |                |             | 1.03 H             | 132                  | 61.50            | 31.40                    |
| 3   | 2483.50     | 65.0 PK                 | 74.0           | -9.0        | 1.24 H             | 118                  | 33.60            | 31.40                    |
| 4   | 2483.50     | 47.2 AV                 | 54.0           | -6.8        | 1.24 H             | 118                  | 15.80            | 31.40                    |
| 5   | 4924.00     | 44.1 PK                 | 74.0           | -29.9       | 1.00 H             | 56                   | 7.00             | 37.10                    |
| 6   | 4924.00     | 30.9 AV                 | 54.0           | -23.1       | 1.00 H             | 56                   | -6.20            | 37.10                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.   | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1   | *2462.00    | 108.4 PK                |                |             | 1.16 V             | 157                  | 77.00            | 31.40                    |
| 2   | *2462.00    | 94.9 AV                 |                |             | 1.16 V             | 157                  | 63.50            | 31.40                    |
| 3   | 2483.50     | 65.2 PK                 | 74.0           | -8.8        | 1.14 V             | 158                  | 33.80            | 31.40                    |
| 4   | 2483.50     | 49.2 AV                 | 54.0           | -4.8        | 1.14 V             | 158                  | 17.80            | 31.40                    |
| 5   | 4924.00     | 45.2 PK                 | 74.0           | -28.8       | 1.00 V             | 98                   | 8.10             | 37.10                    |
| 6   | 4924.00     | 31.8 AV                 | 54.0           | -22.2       | 1.00 V             | 98                   | -5.30            | 37.10                    |

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



A D T

**BELOW 1GHz WORST-CASE DATA : 802.11g**

| EUT TEST CONDITION       |                 | MEASUREMENT DETAIL |               |
|--------------------------|-----------------|--------------------|---------------|
| CHANNEL                  | Channel 11      | FREQUENCY RANGE    | Below 1000MHz |
| INPUT POWER (SYSTEM)     | 120Vac, 60 Hz   | DETECTOR FUNCTION  | Quasi-Peak    |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 65%RH | TESTED BY          | Sam Chen      |
| 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   | 43.51       | 29.2 QP                 | 40.0           | -10.8       | 3.00 H             | 130                  | 14.80            | 14.40                    |
| 2   | 86.28       | 29.3 QP                 | 40.0           | -10.7       | 4.00 H             | 82                   | 20.50            | 8.80                     |
| 3   | 134.89      | 31.8 QP                 | 43.5           | -11.7       | 2.00 H             | 208                  | 18.10            | 13.70                    |
| 4   | 185.44      | 29.1 QP                 | 43.5           | -14.4       | 1.50 H             | 70                   | 17.10            | 12.00                    |
| 5   | 216.55      | 28.1 QP                 | 46.0           | -17.9       | 1.00 H             | 268                  | 16.90            | 11.20                    |
| 6   | 356.54      | 21.1 QP                 | 46.0           | -24.9       | 1.00 H             | 220                  | 4.80             | 16.30                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.   | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1   | 45.45       | 36.2 QP                 | 40.0           | -3.8        | 1.00 V             | 355                  | 21.80            | 14.40                    |
| 2   | 86.28       | 24.8 QP                 | 40.0           | -15.2       | 1.00 V             | 76                   | 16.00            | 8.80                     |
| 3   | 140.72      | 24.2 QP                 | 43.5           | -19.3       | 1.00 V             | 148                  | 10.10            | 14.10                    |
| 4   | 212.66      | 20.2 QP                 | 43.5           | -23.3       | 1.50 V             | 283                  | 9.20             | 11.00                    |
| 5   | 358.48      | 21.0 QP                 | 46.0           | -25.0       | 1.50 V             | 121                  | 4.60             | 16.40                    |
| 6   | 545.14      | 20.6 QP                 | 46.0           | -25.4       | 3.00 V             | 7                    | -0.60            | 21.20                    |

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



A D T

| EUT TEST CONDITION       |                 | MEASUREMENT DETAIL |               |
|--------------------------|-----------------|--------------------|---------------|
| CHANNEL                  | Channel 11      | FREQUENCY RANGE    | Below 1000MHz |
| INPUT POWER (SYSTEM)     | 120Vac, 60 Hz   | DETECTOR FUNCTION  | Quasi-Peak    |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 65%RH | TESTED BY          | Sam Chen      |
| 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   | 80.45       | 28.9 QP                 | 40.0           | -11.1       | 4.00 H             | 220                  | 19.70            | 9.20                     |
| 2   | 134.89      | 34.4 QP                 | 43.5           | -9.1        | 2.00 H             | 94                   | 20.70            | 13.70                    |
| 3   | 201.00      | 37.9 QP                 | 43.5           | -5.6        | 1.00 H             | 112                  | 27.50            | 10.40                    |
| 4   | 261.27      | 31.0 QP                 | 46.0           | -15.0       | 1.00 H             | 91                   | 17.60            | 13.40                    |
| 5   | 282.66      | 31.5 QP                 | 46.0           | -14.5       | 2.00 H             | 22                   | 17.30            | 14.20                    |
| 6   | 333.21      | 36.5 QP                 | 46.0           | -9.5        | 2.50 H             | 172                  | 20.80            | 15.70                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.   | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1   | 64.90       | 33.4 QP                 | 40.0           | -6.6        | 1.00 V             | 109                  | 20.80            | 12.60                    |
| 2   | 114.94      | 41.6 QP                 | 43.5           | -1.9        | 1.00 V             | 152                  | 29.70            | 11.90                    |
| 3   | 166.00      | 39.0 QP                 | 43.5           | -4.5        | 1.50 V             | 115                  | 25.00            | 14.00                    |
| 4   | 202.94      | 39.6 QP                 | 43.5           | -3.9        | 1.00 V             | 46                   | 29.10            | 10.50                    |
| 5   | 337.10      | 35.4 QP                 | 46.0           | -10.6       | 1.50 V             | 58                   | 19.60            | 15.80                    |
| 6   | 521.81      | 35.2 QP                 | 46.0           | -10.8       | 1.00 V             | 73                   | 14.50            | 20.70                    |

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



## 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<br>ROHDE & SCHWARZ | ESCS30              | 100291         | Nov. 30, 2010       | Nov. 29, 2011           |
| RF signal cable<br>Woken         | 5D-FB               | Cable-HYC01-01 | Dec. 30, 2010       | Dec. 29, 2011           |
| LISN<br>ROHDE & SCHWARZ          | ESH3-Z5             | 100312         | Jul. 07, 2011       | Jul. 06, 2012           |
| LISN<br>ROHDE & SCHWARZ          | ESH3-Z5             | 835239/001     | Feb. 22, 2011       | Feb. 21, 2012           |
| LISN<br>ROHDE & SCHWARZ          | ENV216              | 100072         | Jun. 10, 2011       | Jun. 09, 2012           |
| Software<br>ADT                  | ADT_Cond_<br>V7.3.7 | NA             | NA                  | NA                      |

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 1.
3. The VCCI Site Registration No. is C-2040.



A D T

#### 4.2.3 TEST PROCEDURES

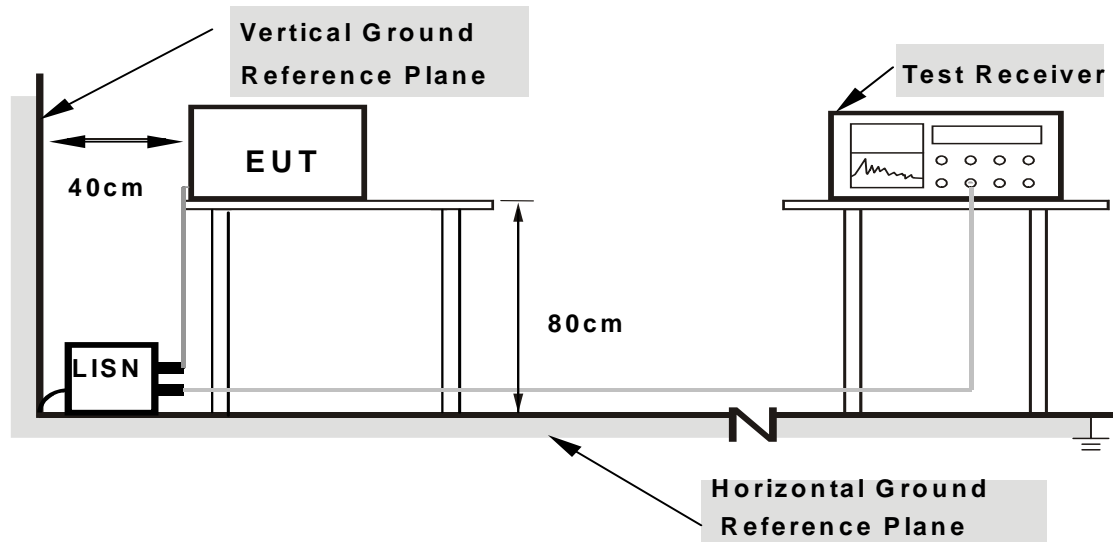
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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



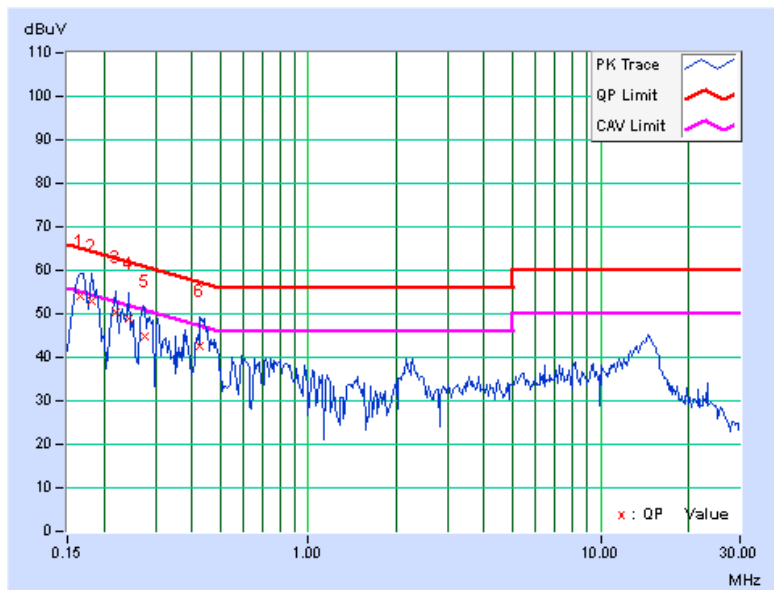
### 4.2.7 TEST RESULTS

**CONDUCTED WORST-CASE DATA : 802.11g**

|           |        |               |      |
|-----------|--------|---------------|------|
| PHASE     | Line 1 | 6dB BANDWIDTH | 9kHz |
| TEST MODE | A      |               |      |

| No | Freq.<br>[MHz] | Corr. Factor<br>(dB) | Reading Value |       | Emission Level |       | Limit     |       | Margin |        |
|----|----------------|----------------------|---------------|-------|----------------|-------|-----------|-------|--------|--------|
|    |                |                      | [dB (uV)]     |       | [dB (uV)]      |       | [dB (uV)] |       | (dB)   |        |
|    |                |                      | Q.P.          | AV.   | Q.P.           | AV.   | Q.P.      | AV.   | Q.P.   | AV.    |
| 1  | 2.059          | 0.24                 | 40.17         | 28.71 | 40.41          | 28.95 | 56.00     | 46.00 | -15.59 | -17.05 |
| 2  | 2.313          | 0.26                 | 38.21         | 25.48 | 38.47          | 25.74 | 56.00     | 46.00 | -17.53 | -20.26 |
| 3  | 3.277          | 0.34                 | 40.14         | 29.34 | 40.48          | 29.68 | 56.00     | 46.00 | -15.52 | -16.32 |
| 4  | 4.098          | 0.40                 | 37.94         | 29.27 | 38.34          | 29.67 | 56.00     | 46.00 | -17.66 | -16.33 |
| 5  | 4.773          | 0.43                 | 36.61         | 28.46 | 37.04          | 28.89 | 56.00     | 46.00 | -18.96 | -17.11 |
| 6  | 10.457         | 0.73                 | 39.57         | 31.18 | 40.30          | 31.91 | 60.00     | 50.00 | -19.70 | -18.09 |

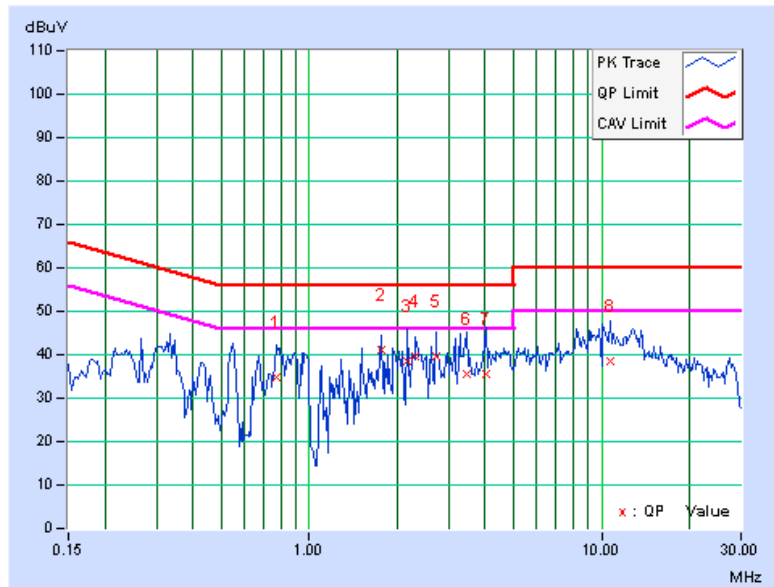
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = Emission level - Limit value
  5. Correction factor = Insertion loss + Cable loss
  6. Emission Level = Correction Factor + Reading Value.



|           |        |               |      |
|-----------|--------|---------------|------|
| PHASE     | Line 2 | 6dB BANDWIDTH | 9kHz |
| TEST MODE | A      |               |      |

| No | Freq.<br>[MHz] | Corr. Factor<br>(dB) | Reading Value |       | Emission Level |       | Limit     |       | Margin |        |
|----|----------------|----------------------|---------------|-------|----------------|-------|-----------|-------|--------|--------|
|    |                |                      | [dB (uV)]     |       | [dB (uV)]      |       | [dB (uV)] |       | (dB)   |        |
|    |                |                      | Q.P.          | AV.   | Q.P.           | AV.   | Q.P.      | AV.   | Q.P.   | AV.    |
| 1  | 0.775          | 0.26                 | 34.44         | 24.49 | 34.70          | 24.75 | 56.00     | 46.00 | -21.30 | -21.25 |
| 2  | 1.755          | 0.29                 | 40.91         | 30.08 | 41.20          | 30.37 | 56.00     | 46.00 | -14.80 | -15.63 |
| 3  | 2.170          | 0.31                 | 38.10         | 27.49 | 38.41          | 27.80 | 56.00     | 46.00 | -17.59 | -18.20 |
| 4  | 2.297          | 0.32                 | 39.36         | 28.57 | 39.68          | 28.89 | 56.00     | 46.00 | -16.32 | -17.11 |
| 5  | 2.723          | 0.35                 | 39.26         | 29.63 | 39.61          | 29.98 | 56.00     | 46.00 | -16.39 | -16.02 |
| 6  | 3.461          | 0.39                 | 35.26         | 26.89 | 35.65          | 27.28 | 56.00     | 46.00 | -20.35 | -18.72 |
| 7  | 4.055          | 0.43                 | 35.03         | 26.60 | 35.46          | 27.03 | 56.00     | 46.00 | -20.54 | -18.97 |
| 8  | 10.680         | 0.71                 | 37.97         | 30.32 | 38.68          | 31.03 | 60.00     | 50.00 | -21.32 | -18.97 |

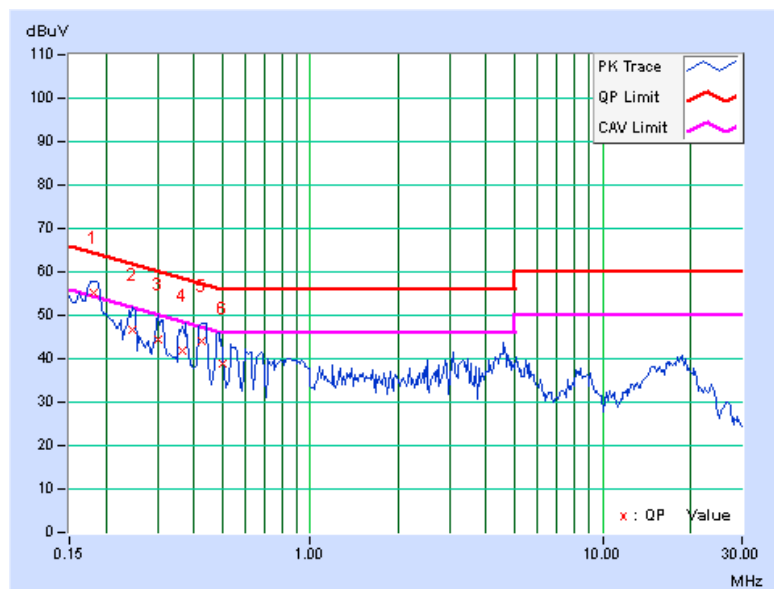
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = Emission level - Limit value
  5. Correction factor = Insertion loss + Cable loss
  6. Emission Level = Correction Factor + Reading Value.



|           |        |               |      |
|-----------|--------|---------------|------|
| PHASE     | Line 1 | 6dB BANDWIDTH | 9kHz |
| TEST MODE | B      |               |      |

| No | Freq.<br>[MHz] | Corr. Factor<br>(dB) | Reading Value |       | Emission Level |       | Limit     |       | Margin |        |
|----|----------------|----------------------|---------------|-------|----------------|-------|-----------|-------|--------|--------|
|    |                |                      | [dB (uV)]     |       | [dB (uV)]      |       | [dB (uV)] |       | (dB)   |        |
|    |                |                      | Q.P.          | AV.   | Q.P.           | AV.   | Q.P.      | AV.   | Q.P.   | AV.    |
| 1  | 0.150          | 0.11                 | 47.08         | 18.37 | 47.20          | 18.48 | 66.00     | 56.00 | -18.80 | -37.52 |
| 2  | 0.183          | 0.12                 | 53.94         | 42.80 | 54.06          | 42.92 | 64.37     | 54.37 | -10.31 | -11.45 |
| 3  | 0.244          | 0.12                 | 48.07         | 39.10 | 48.19          | 39.22 | 61.97     | 51.97 | -13.78 | -12.75 |
| 4  | 0.306          | 0.12                 | 44.37         | 34.45 | 44.49          | 34.57 | 60.07     | 50.07 | -15.58 | -15.50 |
| 5  | 0.365          | 0.12                 | 44.29         | 35.76 | 44.41          | 35.88 | 58.62     | 48.62 | -14.21 | -12.74 |
| 6  | 0.423          | 0.12                 | 41.78         | 31.41 | 41.90          | 31.53 | 57.38     | 47.38 | -15.48 | -15.85 |

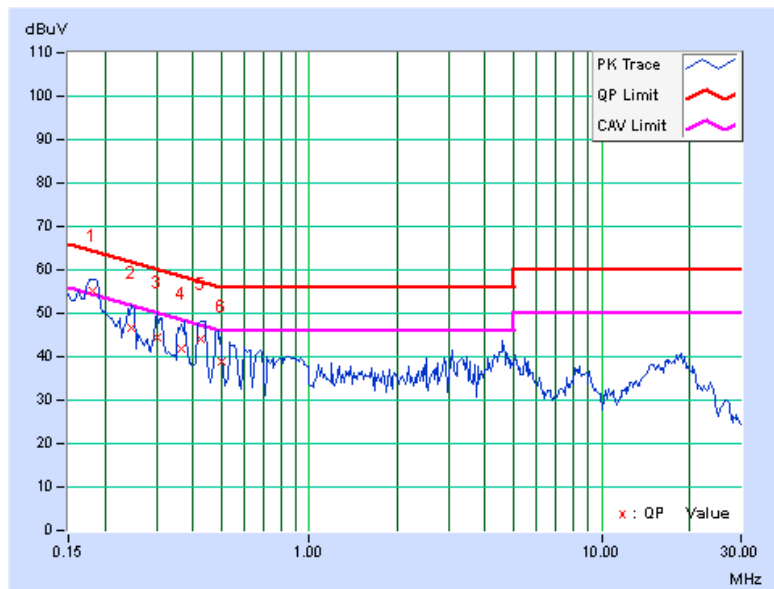
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = Emission level - Limit value
  5. Correction factor = Insertion loss + Cable loss
  6. Emission Level = Correction Factor + Reading Value.



|           |        |               |      |
|-----------|--------|---------------|------|
| PHASE     | Line 2 | 6dB BANDWIDTH | 9kHz |
| TEST MODE | B      |               |      |

| No | Freq.<br>[MHz] | Corr. Factor<br>(dB) | Reading Value |       | Emission Level |       | Limit     |       | Margin |        |
|----|----------------|----------------------|---------------|-------|----------------|-------|-----------|-------|--------|--------|
|    |                |                      | [dB (uV)]     |       | [dB (uV)]      |       | [dB (uV)] |       | (dB)   |        |
|    |                |                      | Q.P.          | AV.   | Q.P.           | AV.   | Q.P.      | AV.   | Q.P.   | AV.    |
| 1  | 0.181          | 0.13                 | 55.23         | 42.76 | 55.36          | 42.89 | 64.43     | 54.43 | -9.07  | -11.54 |
| 2  | 0.248          | 0.13                 | 46.65         | 34.68 | 46.78          | 34.81 | 61.84     | 51.84 | -15.05 | -17.02 |
| 3  | 0.302          | 0.14                 | 44.32         | 33.24 | 44.46          | 33.38 | 60.18     | 50.18 | -15.72 | -16.80 |
| 4  | 0.365          | 0.14                 | 41.74         | 31.46 | 41.88          | 31.60 | 58.62     | 48.62 | -16.74 | -17.02 |
| 5  | 0.423          | 0.14                 | 43.90         | 34.02 | 44.04          | 34.16 | 57.38     | 47.38 | -13.34 | -13.22 |
| 6  | 0.500          | 0.15                 | 38.91         | 28.26 | 39.06          | 28.41 | 56.00     | 46.00 | -16.94 | -17.59 |

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = Emission level - Limit value
  5. Correction factor = Insertion loss + Cable loss
  6. Emission Level = Correction Factor + Reading Value.





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

### 5.1 RADIATED EMISSION MEASUREMENT

#### 5.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a). 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. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



A D T

### 5.1.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER              | MODEL NO.                    | SERIAL NO.  | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|---|------------------------------|-------------|---------------------|-------------------------|
| Test Receiver<br>ROHDE & SCHWARZ        | ESIB7                        | 100212      | Aug. 02, 2011       | Aug. 01, 2012           |
| Spectrum Analyzer<br>ROHDE & SCHWARZ    | FSP 40                       | 100041      | Jul. 21, 2011       | Jul. 20, 2012           |
| BILOG Antenna<br>SCHWARZBECK            | VULB9168                     | 9168-160    | Apr. 13, 2011       | Apr. 12, 2012           |
| HORN Antenna<br>SCHWARZBECK             | 9120D                        | 209         | Aug. 25, 2011       | Aug. 24, 2012           |
| HORN Antenna<br>SCHWARZBECK             | BBHA 9170                    | BBHA9170243 | Dec. 27, 2010       | Dec. 26, 2011           |
| Preamplifier<br>Agilent                 | 8447D                        | 2944A10633  | Nov. 02, 2010       | Nov. 01, 2011           |
| Preamplifier<br>Agilent                 | 8449B                        | 3008A01964  | Nov. 02, 2010       | Nov. 01, 2011           |
| RF signal cable<br>HUBER+SUHNNER        | SUCOFLEX 104                 | 295014/4    | Aug. 19, 2011       | Aug. 18, 2012           |
| RF signal cable<br>HUBER+SUHNNER        | SUCOFLEX 104                 | 12738/6     | Aug. 19, 2011       | Aug. 18, 2012           |
| Software<br>ADT.                        | ADT_Radiated_<br>V7.6.15.9.2 | NA          | NA                  | NA                      |
| Antenna Tower<br>inn-co GmbH            | MA 4000                      | 013303      | NA                  | NA                      |
| Antenna Tower Controller<br>inn-co GmbH | CO2000                       | 017303      | NA                  | NA                      |
| Turn Table<br>ADT.                      | TT100.                       | TT93021703  | NA                  | NA                      |
| Turn Table Controller<br>ADT.           | SC100.                       | SC93021703  | NA                  | NA                      |
| 26GHz ~ 40GHz Amplifier                 | EM26400                      | 815221      | Nov. 03, 2010       | Nov. 02, 2011           |

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



A D T

### 5.1.3 TEST PROCEDURES

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

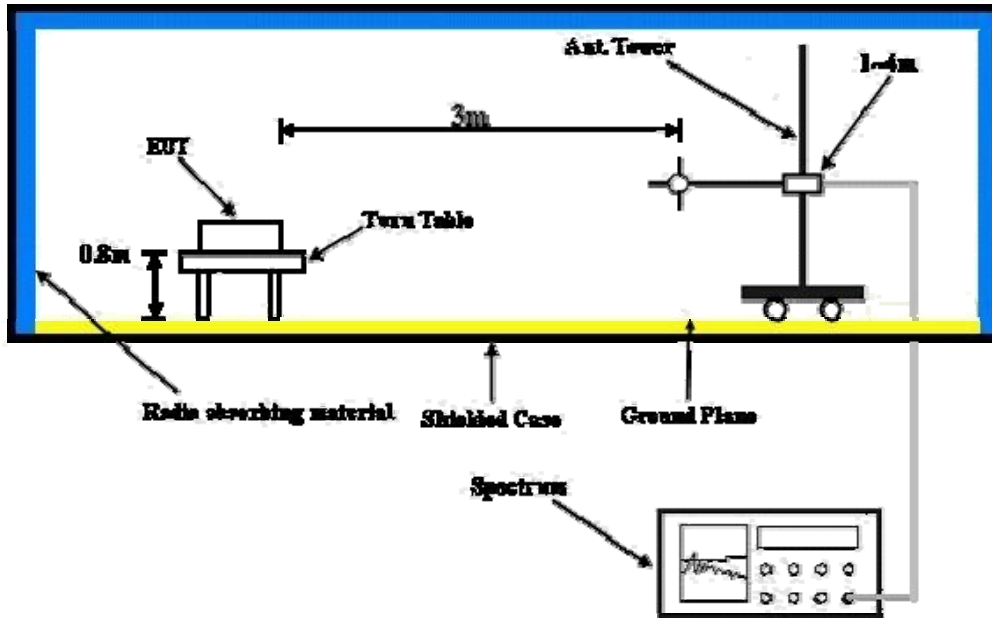
#### **NOTE:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 100kHz and video bandwidth is 300kHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

### 5.1.4 DEVIATION FROM TEST STANDARD

No deviation.

### 5.1.5 TEST SETUP



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

### 5.1.6 EUT OPERATING CONDITIONS

Same as 4.1.6





A D T

### 5.1.7 TEST RESULTS

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

| EUT TEST CONDITION       |                 | MEASUREMENT DETAIL |                           |
|--------------------------|-----------------|--------------------|---------------------------|
| CHANNEL                  | Channel 161     | FREQUENCY RANGE    | 1 ~ 40GHz                 |
| INPUT POWER (SYSTEM)     | 120Vac, 60Hz    | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 65%RH | TESTED BY          | Sam Chen                  |

| 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   | *5805.00    | 100.50 PK               |                |             | 1.00 H             | 120                  | 61.90            | 38.60                    |
| 2   | *5805.00    | 85.80 AV                |                |             | 1.00 H             | 120                  | 47.20            | 38.60                    |
| 3   | 5850.00     | 53.40 PK                | 74.00          | -20.60      | 1.00 H             | 120                  | 14.80            | 38.60                    |
| 4   | 5850.00     | 42.20 AV                | 54.00          | -11.80      | 1.00 H             | 120                  | 3.60             | 38.60                    |
| 5   | 11610.00    | 56.30 PK                | 74.00          | -17.70      | 1.00 H             | 59                   | 7.50             | 48.80                    |
| 6   | 11610.00    | 42.30 AV                | 54.00          | -11.70      | 1.00 H             | 59                   | -6.50            | 48.80                    |

| 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   | *5805.00    | 103.50 PK               |                |             | 1.00 V             | 214                  | 64.90            | 38.60                    |
| 2   | *5805.00    | 89.00 AV                |                |             | 1.00 V             | 214                  | 50.40            | 38.60                    |
| 3   | 5850.00     | 50.50 PK                | 74.00          | -23.50      | 1.00 V             | 116                  | 11.90            | 38.60                    |
| 4   | 5850.00     | 33.90 AV                | 54.00          | -20.10      | 1.00 V             | 116                  | -4.70            | 38.60                    |
| 5   | 11610.00    | 56.60 PK                | 74.00          | -17.40      | 1.00 V             | 222                  | 7.80             | 48.80                    |
| 6   | 11610.00    | 42.30 AV                | 54.00          | -11.70      | 1.00 V             | 222                  | -6.50            | 48.80                    |

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



A D T

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

| EUT TEST CONDITION       |                 | MEASUREMENT DETAIL |               |
|--------------------------|-----------------|--------------------|---------------|
| CHANNEL                  | Channel 161     | FREQUENCY RANGE    | Below 1000MHz |
| INPUT POWER (SYSTEM)     | 120Vac, 60 Hz   | DETECTOR FUNCTION  | Quasi-Peak    |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 65%RH | TESTED BY          | Sam Chen      |
| 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   | 39.62       | 28.1 QP                 | 40.0           | -11.9       | 2.00 H             | 124                  | 13.80            | 14.30                    |
| 2   | 92.12       | 26.1 QP                 | 43.5           | -17.4       | 2.50 H             | 208                  | 17.20            | 8.90                     |
| 3   | 113.50      | 24.0 QP                 | 43.5           | -19.5       | 3.00 H             | 16                   | 12.20            | 11.80                    |
| 4   | 148.50      | 29.7 QP                 | 43.5           | -13.8       | 1.50 H             | 142                  | 15.30            | 14.40                    |
| 5   | 216.55      | 29.6 QP                 | 46.0           | -16.4       | 1.00 H             | 10                   | 18.40            | 11.20                    |
| 6   | 305.99      | 20.9 QP                 | 46.0           | -25.1       | 1.00 H             | 259                  | 5.80             | 15.10                    |
| 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   | 41.57       | 35.2 QP                 | 40.0           | -4.8        | 1.50 V             | 25                   | 20.80            | 14.40                    |
| 2   | 101.84      | 24.6 QP                 | 43.5           | -18.9       | 1.00 V             | 160                  | 14.20            | 10.40                    |
| 3   | 146.56      | 29.8 QP                 | 43.5           | -13.7       | 1.00 V             | 283                  | 15.40            | 14.40                    |
| 4   | 218.50      | 21.3 QP                 | 46.0           | -24.7       | 1.00 V             | 256                  | 10.00            | 11.30                    |
| 5   | 307.93      | 18.8 QP                 | 46.0           | -27.2       | 1.50 V             | 232                  | 3.70             | 15.10                    |
| 6   | 358.48      | 19.0 QP                 | 46.0           | -27.0       | 1.00 V             | 232                  | 2.60             | 16.40                    |

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



A D T

| EUT TEST CONDITION       |                 | MEASUREMENT DETAIL |               |
|--------------------------|-----------------|--------------------|---------------|
| CHANNEL                  | Channel 161     | FREQUENCY RANGE    | Below 1000MHz |
| INPUT POWER (SYSTEM)     | 120Vac, 60 Hz   | DETECTOR FUNCTION  | Quasi-Peak    |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 65%RH | TESTED BY          | Sam Chen      |
| 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   | 80.45       | 28.9 QP                 | 40.0           | -11.1       | 4.00 H             | 220                  | 19.70            | 9.20                     |
| 2   | 134.89      | 34.4 QP                 | 43.5           | -9.1        | 2.00 H             | 94                   | 20.70            | 13.70                    |
| 3   | 177.67      | 35.6 QP                 | 43.5           | -7.9        | 3.00 H             | 103                  | 22.90            | 12.70                    |
| 4   | 201.00      | 37.9 QP                 | 43.5           | -5.6        | 1.00 H             | 112                  | 27.50            | 10.40                    |
| 5   | 333.21      | 36.5 QP                 | 46.0           | -9.5        | 2.50 H             | 172                  | 20.80            | 15.70                    |
| 6   | 463.48      | 30.5 QP                 | 46.0           | -15.5       | 1.50 H             | 199                  | 11.30            | 19.20                    |
| 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   | 80.45       | 29.4 QP                 | 40.0           | -10.6       | 1.00 V             | 178                  | 20.20            | 9.20                     |
| 2   | 109.62      | 39.8 QP                 | 43.5           | -3.7        | 1.00 V             | 187                  | 28.50            | 11.30                    |
| 3   | 202.94      | 39.6 QP                 | 43.5           | -3.9        | 1.00 V             | 46                   | 29.10            | 10.50                    |
| 4   | 319.60      | 34.7 QP                 | 46.0           | -11.3       | 1.50 V             | 58                   | 19.30            | 15.40                    |
| 5   | 366.26      | 31.0 QP                 | 46.0           | -15.0       | 1.00 V             | 106                  | 14.40            | 16.60                    |
| 6   | 500.42      | 35.1 QP                 | 46.0           | -10.9       | 1.00 V             | 55                   | 14.90            | 20.20                    |

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



## 5.2 CONDUCTED EMISSION MEASUREMENT

### 5.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

### 5.2.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER       | MODEL NO.           | SERIAL NO.     | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|----------------------------------|---------------------|----------------|---------------------|-------------------------|
| Test Receiver<br>ROHDE & SCHWARZ | ESCS30              | 100291         | Nov. 30, 2010       | Nov. 29, 2011           |
| RF signal cable<br>Woken         | 5D-FB               | Cable-HYC01-01 | Dec. 30, 2010       | Dec. 29, 2011           |
| LISN<br>ROHDE & SCHWARZ          | ESH3-Z5             | 100312         | Jul. 07, 2011       | Jul. 06, 2012           |
| LISN<br>ROHDE & SCHWARZ          | ESH3-Z5             | 835239/001     | Feb. 22, 2011       | Feb. 21, 2012           |
| LISN<br>ROHDE & SCHWARZ          | ENV216              | 100072         | Jun. 10, 2011       | Jun. 09, 2012           |
| Software<br>ADT                  | ADT_Cond_<br>V7.3.7 | NA             | NA                  | NA                      |

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
  2. The test was performed in HwaYa Shielded Room 1.
  3. The VCCI Site Registration No. is C-2040.



A D T

### 5.2.3 TEST PROCEDURES

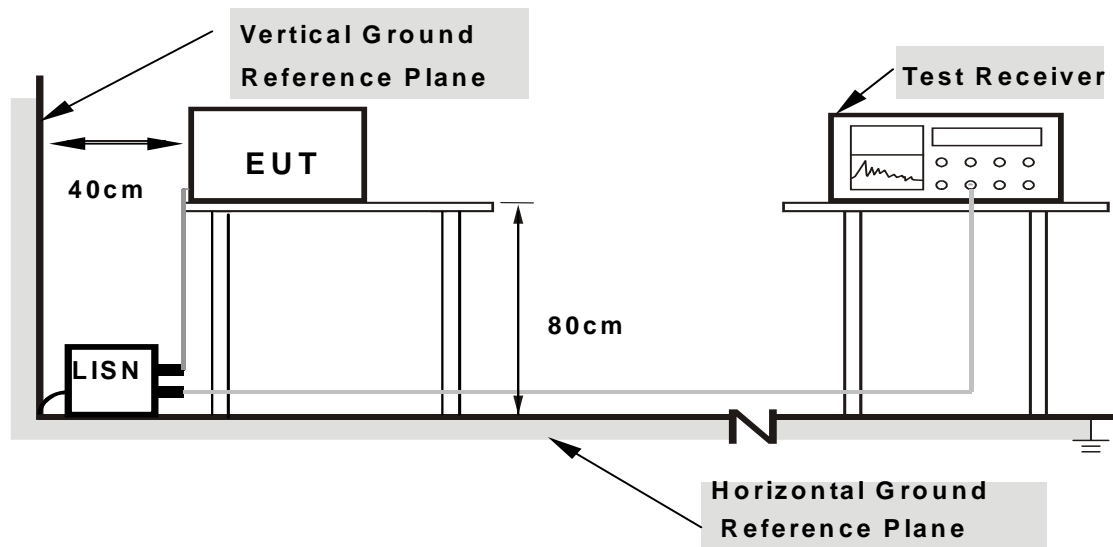
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

### 5.2.4 DEVIATION FROM TEST STANDARD

No deviation.

## 5.2.5 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).

## 5.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

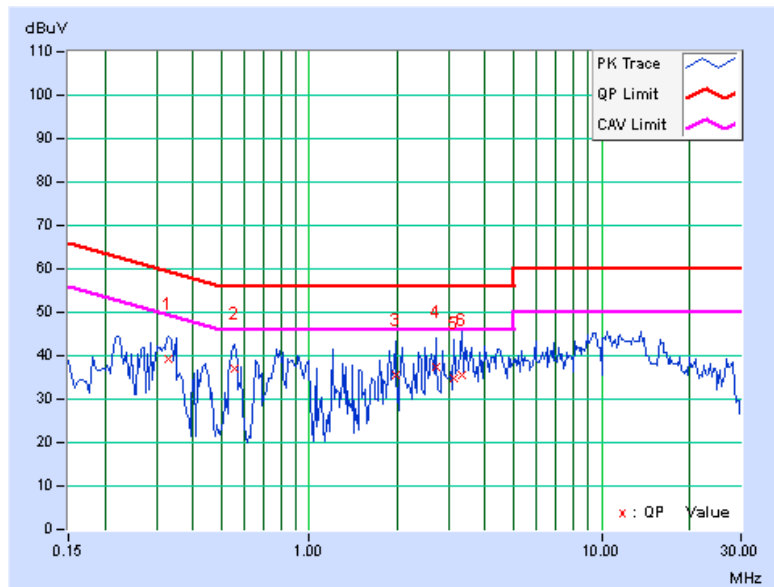
### 5.2.7 TEST RESULTS

**CONDUCTED WORST-CASE DATA : 802.11a**

|                  |        |                      |      |
|------------------|--------|----------------------|------|
| <b>PHASE</b>     | Line 1 | <b>6dB BANDWIDTH</b> | 9kHz |
| <b>TEST MODE</b> | A      |                      |      |

| No | Freq.<br>[MHz] | Corr. Factor<br>(dB) | Reading Value |       | Emission Level |       | Limit     |       | Margin |        |
|----|----------------|----------------------|---------------|-------|----------------|-------|-----------|-------|--------|--------|
|    |                |                      | [dB (uV)]     |       | [dB (uV)]      |       | [dB (uV)] |       | (dB)   |        |
|    |                |                      | Q.P.          | AV.   | Q.P.           | AV.   | Q.P.      | AV.   | Q.P.   | AV.    |
| 1  | 0.330          | 0.21                 | 39.11         | 27.02 | 39.32          | 27.23 | 59.46     | 49.46 | -20.14 | -22.23 |
| 2  | 0.552          | 0.24                 | 36.89         | 27.02 | 37.13          | 27.26 | 56.00     | 46.00 | -18.87 | -18.74 |
| 3  | 1.980          | 0.24                 | 35.22         | 22.11 | 35.46          | 22.35 | 56.00     | 46.00 | -20.54 | -23.65 |
| 4  | 2.719          | 0.29                 | 37.08         | 26.27 | 37.37          | 26.56 | 56.00     | 46.00 | -18.63 | -19.44 |
| 5  | 3.121          | 0.32                 | 34.58         | 24.63 | 34.90          | 24.95 | 56.00     | 46.00 | -21.10 | -21.05 |
| 6  | 3.316          | 0.34                 | 35.22         | 26.25 | 35.56          | 26.59 | 56.00     | 46.00 | -20.44 | -19.41 |

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = Emission level - Limit value
  5. Correction factor = Insertion loss + Cable loss
  6. Emission Level = Correction Factor + Reading Value.



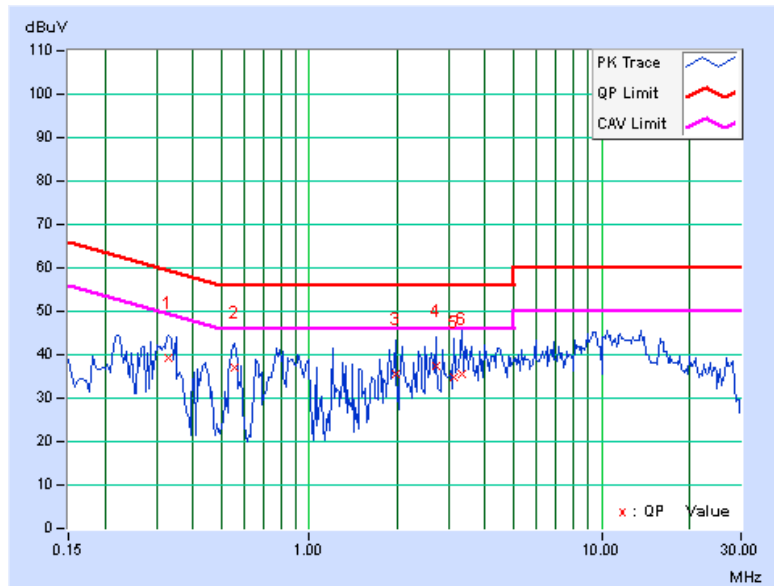


A D T

|           |        |               |      |
|-----------|--------|---------------|------|
| PHASE     | Line 2 | 6dB BANDWIDTH | 9kHz |
| TEST MODE | A      |               |      |

| No | Freq.<br>[MHz] | Corr. Factor<br>(dB) | Reading Value |       | Emission Level |       | Limit     |       | Margin |        |
|----|----------------|----------------------|---------------|-------|----------------|-------|-----------|-------|--------|--------|
|    |                |                      | [dB (uV)]     |       | [dB (uV)]      |       | [dB (uV)] |       | (dB)   |        |
|    |                |                      | Q.P.          | AV.   | Q.P.           | AV.   | Q.P.      | AV.   | Q.P.   | AV.    |
| 1  | 0.330          | 0.22                 | 39.11         | 27.02 | 39.33          | 27.24 | 59.46     | 49.46 | -20.13 | -22.22 |
| 2  | 0.552          | 0.24                 | 36.89         | 27.02 | 37.13          | 27.26 | 56.00     | 46.00 | -18.87 | -18.74 |
| 3  | 1.980          | 0.30                 | 35.22         | 22.11 | 35.52          | 22.41 | 56.00     | 46.00 | -20.48 | -23.59 |
| 4  | 2.719          | 0.35                 | 37.08         | 26.27 | 37.43          | 26.62 | 56.00     | 46.00 | -18.57 | -19.38 |
| 5  | 3.121          | 0.37                 | 34.58         | 24.63 | 34.95          | 25.00 | 56.00     | 46.00 | -21.05 | -21.00 |
| 6  | 3.316          | 0.39                 | 35.22         | 26.25 | 35.61          | 26.64 | 56.00     | 46.00 | -20.39 | -19.36 |

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = Emission level - Limit value
  5. Correction factor = Insertion loss + Cable loss
  6. Emission Level = Correction Factor + Reading Value.

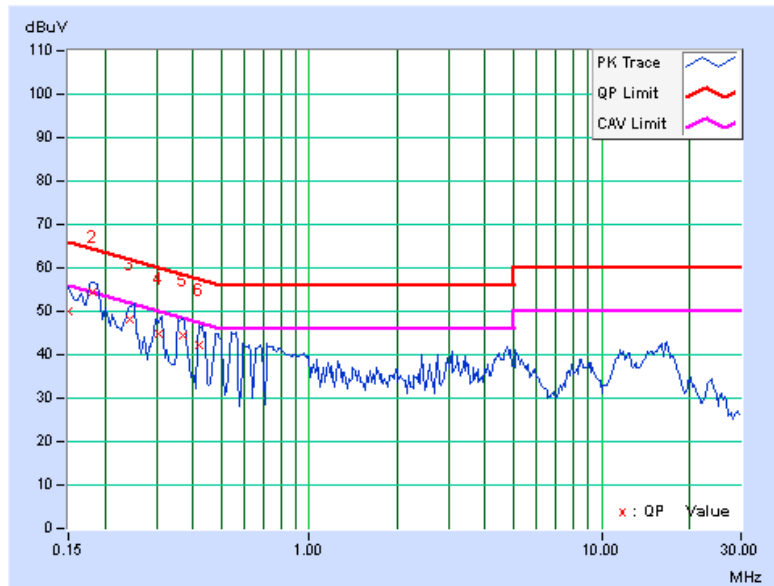




|           |        |               |      |
|-----------|--------|---------------|------|
| PHASE     | Line 1 | 6dB BANDWIDTH | 9kHz |
| TEST MODE | B      |               |      |

| No | Freq.<br>[MHz] | Corr. Factor<br>(dB) | Reading Value |       | Emission Level |       | Limit     |       | Margin |        |
|----|----------------|----------------------|---------------|-------|----------------|-------|-----------|-------|--------|--------|
|    |                |                      | [dB (uV)]     |       | [dB (uV)]      |       | [dB (uV)] |       | (dB)   |        |
|    |                |                      | Q.P.          | AV.   | Q.P.           | AV.   | Q.P.      | AV.   | Q.P.   | AV.    |
| 1  | 0.150          | 0.11                 | 49.92         | 18.47 | 50.04          | 18.58 | 66.00     | 56.00 | -15.96 | -37.42 |
| 2  | 0.181          | 0.12                 | 54.16         | 42.13 | 54.28          | 42.25 | 64.43     | 54.43 | -10.15 | -12.18 |
| 3  | 0.244          | 0.12                 | 48.09         | 38.83 | 48.21          | 38.95 | 61.96     | 51.96 | -13.75 | -13.01 |
| 4  | 0.305          | 0.12                 | 44.63         | 35.05 | 44.75          | 35.17 | 60.10     | 50.10 | -15.35 | -14.93 |
| 5  | 0.369          | 0.12                 | 44.24         | 35.99 | 44.36          | 36.11 | 58.53     | 48.53 | -14.17 | -12.42 |
| 6  | 0.420          | 0.12                 | 42.00         | 30.59 | 42.12          | 30.71 | 57.46     | 47.46 | -15.34 | -16.75 |

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = Emission level - Limit value
  5. Correction factor = Insertion loss + Cable loss
  6. Emission Level = Correction Factor + Reading Value.



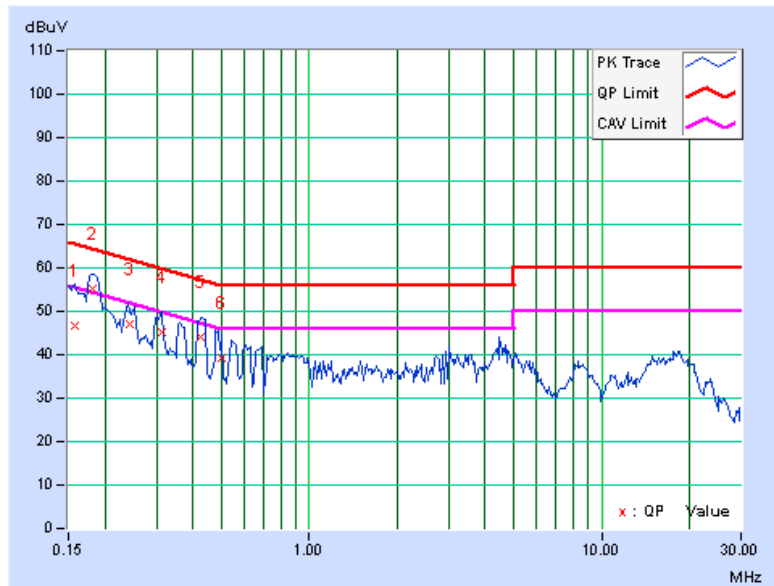


A D T

|           |        |               |      |
|-----------|--------|---------------|------|
| PHASE     | Line 2 | 6dB BANDWIDTH | 9kHz |
| TEST MODE | B      |               |      |

| No | Freq.<br>[MHz] | Corr. Factor<br>(dB) | Reading Value |       | Emission Level |       | Limit     |       | Margin |        |
|----|----------------|----------------------|---------------|-------|----------------|-------|-----------|-------|--------|--------|
|    |                |                      | [dB (uV)]     |       | [dB (uV)]      |       | [dB (uV)] |       | (dB)   |        |
|    |                |                      | Q.P.          | AV.   | Q.P.           | AV.   | Q.P.      | AV.   | Q.P.   | AV.    |
| 1  | 0.158          | 0.13                 | 46.47         | 17.96 | 46.60          | 18.09 | 65.58     | 55.58 | -18.98 | -37.49 |
| 2  | 0.183          | 0.13                 | 55.15         | 43.12 | 55.28          | 43.25 | 64.37     | 54.37 | -9.09  | -11.12 |
| 3  | 0.244          | 0.13                 | 46.89         | 35.44 | 47.02          | 35.57 | 61.97     | 51.97 | -14.95 | -16.40 |
| 4  | 0.314          | 0.14                 | 45.12         | 29.84 | 45.26          | 29.98 | 59.86     | 49.86 | -14.61 | -19.89 |
| 5  | 0.427          | 0.14                 | 43.82         | 34.39 | 43.96          | 34.53 | 57.30     | 47.30 | -13.34 | -12.77 |
| 6  | 0.500          | 0.15                 | 38.99         | 27.75 | 39.14          | 27.90 | 56.00     | 46.00 | -16.86 | -18.10 |

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = Emission level - Limit value
  5. Correction factor = Insertion loss + Cable loss
  6. Emission Level = Correction Factor + Reading Value.





A D T

## 6. PHOTOGRAPHS OF THE TEST CONFIGURATION

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



A D T

## 7. INFORMATION ON THE TESTING LABORATORIES

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

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site:

[www.adt.com.tw/index.5.phtml](http://www.adt.com.tw/index.5.phtml). 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: 886-3-3185050

**Email:** [service.adt@tw.bureauveritas.com](mailto:service.adt@tw.bureauveritas.com)

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

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



A D T

## **8. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB**

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

**---END---**