

## FCC Test Report

**Report No.:** RF160621C27V

**FCC ID:** PY316200341

**Test Model:** RBR50

**Series Mode:** RBS50, SRR60, SRS60 (refer to item 3.1 for more details)

**Received Date:** May 16, 2018

**Test Date:** May 18 ~ May 23, 2018

**Issued Date:** Jun. 04, 2018

**Applicant:** NETGEAR, INC.

**Address:** 350 East Plumeria Drive San Jose, CA 95134

**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 Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)



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### Release Control Record

| Issue No.    | Description       | Date Issued   |
|--------------|-------------------|---------------|
| RF160621C27V | Original release. | Jun. 04, 2018 |

## 1 Certificate of Conformity

**Product:** Orbi Router (refer to item 3.1 for more details)

**Brand:** NETGEAR

**Test Model:** RBR50

**Series Mode:** RBS50, SRR60, SRS60 (refer to item 3.1 for more details)

**Sample Status:** Engineering sample

**Applicant:** NETGEAR, INC.

**Test Date:** May 18 ~ May 23, 2018

**Standards:** 47 CFR FCC Part 15, Subpart C (Section 15.247)  
ANSI C63.10:2013

This report is issued as a supplementary report of RF160621C27M. This report shall be used combined together with its original report.

**Prepared by :** Polly Chien , **Date:** Jun. 04, 2018  
Polly Chien / Specialist

**Approved by :** Bruce Chen , **Date:** Jun. 04, 2018  
Bruce Chen / Project Engineer

Note: Radiated emission and conducted emission items are performed for the addendum. Refer to original report for the other test data.

## 2 Summary of Test Results

| 47 CFR FCC Part 15, Subpart C (Section 15.247) |                                              |        |                                                                                             |
|------------------------------------------------|----------------------------------------------|--------|---------------------------------------------------------------------------------------------|
| FCC Clause                                     | Test Item                                    | Result | Remarks                                                                                     |
| 15.207                                         | AC Power Conducted Emission                  | PASS   | Meet the requirement of limit. Minimum passing margin is -13.99dB at 0.35782MHz.            |
| 15.205 / 15.209 / 15.247(d)                    | Radiated Emissions and Band Edge Measurement | PASS   | Meet the requirement of limit. Minimum passing margin is -0.1dB at 2390.00MHz & 2483.50MHz. |
| 15.247(d)                                      | Antenna Port Emission                        | PASS   | Refer to Note                                                                               |
| 15.247(a)(2)                                   | 6dB bandwidth                                | PASS   | Refer to Note                                                                               |
| 15.247(b)                                      | Conducted power                              | PASS   | Refer to Note                                                                               |
| 15.247(e)                                      | Power Spectral Density                       | PASS   | Refer to Note                                                                               |
| 15.203                                         | Antenna Requirement                          | PASS   | Antenna connector is I-PEX not a standard connector.                                        |

Note: Radiated emission and conducted emission items are 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        | Expanded Uncertainty (k=2) (±) |
|------------------------------------|------------------|--------------------------------|
| Conducted Emissions at mains ports | 150kHz ~ 30MHz   | 2.94 dB                        |
| Radiated Emissions up to 1 GHz     | 30MHz ~ 200MHz   | 3.59 dB                        |
|                                    | 200MHz ~ 1000MHz | 3.60 dB                        |
| Radiated Emissions above 1 GHz     | 1GHz ~ 18GHz     | 2.29 dB                        |
|                                    | 18GHz ~ 40GHz    | 2.29 dB                        |

### 2.2 Modification Record

There were no modifications required for compliance.

### 3 General Information

#### 3.1 General Description of EUT

|                        |                                                                                         |
|------------------------|-----------------------------------------------------------------------------------------|
| Product                | Orbi Router (Refer to note for more details)                                            |
| Brand                  | NETGEAR                                                                                 |
| Test Model             | RBR50                                                                                   |
| Series Model/Code Name | RBS50, SRR60, SRS60                                                                     |
| Model Difference       | Refer to note for more details                                                          |
| Sample Status          | Engineering sample                                                                      |
| Power Supply Rating    | 12Vdc from adapter                                                                      |
| Modulation Type        | CCK, DQPSK, DBPSK for DSSS<br>64QAM, 16QAM, QPSK, BPSK for OFDM                         |
| Modulation Technology  | DSSS, OFDM                                                                              |
| Transfer Rate          | 802.11b: 11/5.5/2/1Mbps<br>802.11g: 54/48/36/24/18/12/9/6Mbps<br>802.11n: up to 400Mbps |
| Operating Frequency    | 2412 ~ 2462MHz                                                                          |
| Number of Channel      | 11 for 802.11b, 802.11g, 802.11n (HT20)<br>7 for 802.11n (HT40)                         |
| Output Power           | CDD Mode: 907.156mW<br>Beamforming NSS1 Mode: 891.322mW                                 |
| Antenna Type           | Refer to Note                                                                           |
| Antenna Connector      | Refer to Note                                                                           |
| Accessory Device       | Adapter                                                                                 |
| Cable Supplied         | 1.95m RJ45 non-shielded cable w/o core                                                  |

Note:

1. This report is prepared for FCC class II permissive change.
2. This report is issued as a supplementary report to BV CPS report no.: RF160621C27M. Please refer to the Operational Description for difference compared to the original report. After evaluation, receiver parameter and the RF portion of the EUT remain unchanged, therefore original conducted emission report data was kept. Radiated emission and AC power conducted emission items were retested in this report. Other test data was referenced from the original test report (Report No.: RF160621C27M).

4. All models are electrically identical except the firmware. Model: RBR50 is the representative for final test. (Updated names are marked in boldface.)

| Brand   | Model        | Product Name              | RF Module | Difference                                                                                                                                                        |
|---------|--------------|---------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NETGEAR | RBR50        | Orbi Router               | Module 1  | software firmware: RBR50_V1.1.0.16<br>Master mode only                                                                                                            |
|         | <b>SRR60</b> | <b>Orbi Pro Router</b>    | Module 2  | <b>The housings SRR60 is different with RBR50, and SRR60 has no USB port.</b><br><b>The housings of SRR60 is different with RBS50, and SRR60 has no USB port.</b> |
|         | RBS50        | Orbi Satellite            | Module 1  | software firmware: RBS50_V1.1.0.16<br>Master mode and Client mode for 5.50 ~ 5.70GHz and 5.745 ~ 5.825GHz band                                                    |
|         | <b>SRS60</b> | <b>Orbi Pro Satellite</b> | Module 2  | <b>The housings SRR60 is different with RBR50, and SRR60 has no USB port.</b><br><b>The housings of SRR60 is different with RBS50, and SRR60 has no USB port.</b> |

Note:

All of the RF specifications (include antenna type and location) are identical except the differences stated. RF Module 1 support WLAN 2.4GHz band, 5.18 ~ 5.24GHz and 5.26 ~ 5.32GHz band functionally. RF Module 2 WLAN 5.50 ~ 5.70GHz and 5.745 ~ 5.825GHz band functionally.

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

| Band   | Modulation Mode | Beamforming Mode        | TX Function |
|--------|-----------------|-------------------------|-------------|
| 2.4GHz | 802.11b         | Not Support             | 2TX         |
|        | 802.11g         | Not Support             | 2TX         |
|        | 802.11n (HT20)  | Support<br>(CDD / NSS1) | 2TX         |
|        | 802.11n (HT40)  | Support<br>(CDD / NSS1) | 2TX         |

\* For 802.11n, CDD mode is the worst case for final radiated emission and power line conducted emission tests after pretesting CDD mode and beamforming mode.

6. The cascade module card has type C, type D and different gaskets on the following modes. Mode C was the worst case for final test.

| Mode | Description                                                                                                    |
|------|----------------------------------------------------------------------------------------------------------------|
| A    | Type C on chain 1, 2, 3, and 4. Triangular gaskets on chain 1, 2, 3, and 4.                                    |
| B    | Type C on chain 1, 2, 3, and 4. Triangular gaskets on chain 1, 2, and 3. No gasket on chain 4.                 |
| C    | Type C on chain 1, 2, 3, and 4. Rectangular gaskets on chain 1, 2, 3, and 4.                                   |
| D    | Type C on chain 1, 2, 3, and 4. Rectangular gaskets on chain 1, 2, and 3. No gasket on chain 4.                |
| E    | Type C on chain 1, 2, and 3. Type D on chain 4. Triangular gaskets on chain 1, 2, and 3. No gasket on chain 4. |

7. The following filters are provided to this EUT.

| RF Module Brand / Model | Filter         | Position                     | Gasket                                       | Remark                                       |
|-------------------------|----------------|------------------------------|----------------------------------------------|----------------------------------------------|
| Module 1                | 1st (Filter 1) | TFL1 ,TFL2                   | With TFL1, TFL2 gasket                       | passive filter<br>(pin to pin & Same design) |
|                         | 2nd (Filter 2) | TFL1 ,TFL2                   | Without TFL1, TFL2 gasket                    | passive filter<br>(pin to pin & Same design) |
| Module 2                | 1st (Filter 3) | BHPF1 ,BHPF2<br>BHPF3 ,BHPF4 | With BHPF1, BHPF2,<br>BHPF3, BHPF4 gasket    | passive filter<br>(pin to pin & Same design) |
|                         | 2nd (Filter 4) | BHPF1 ,BHPF2<br>BHPF3 ,BHPF4 | Without BHPF1, BHPF2,<br>BHPF3, BHPF4 gasket | passive filter<br>(pin to pin & Same design) |

8. The following antennas were provided to the EUT.

|                                |      |              |           |           |           |      |
|--------------------------------|------|--------------|-----------|-----------|-----------|------|
| Ant. Type                      |      | Dipole       |           |           |           |      |
| Connector Type                 |      | I-PEX (WLAN) |           |           |           |      |
| Directional Antenna Gain (dBi) |      |              |           |           |           |      |
| Item                           | 2.4G | 5G Band 1    | 5G Band 2 | 5G Band 3 | 5G Band 4 |      |
|                                |      |              |           |           | Nss1      | Nss2 |
| -                              | 2.61 | 4.18         | 4.18      | 7.43      | 7.43      | 4.86 |

9. The EUT uses following adapters.

|              |                                                   |
|--------------|---------------------------------------------------|
| Adapter 1    |                                                   |
| Brand        | NETGEAR                                           |
| Model        | AD2080F20                                         |
| PN           | 332-10883-01                                      |
| Input Power  | 100-240Vdc, 50/60Hz 1.0A                          |
| Output Power | 12Vdc, 3.5A                                       |
| Power Line   | 1.8m power cable without core attached on adapter |

|              |                                                    |
|--------------|----------------------------------------------------|
| Adapter 2    |                                                    |
| Brand        | NETGEAR                                            |
| Model        | 2ABN042F NA                                        |
| PN           | 332-10888-01                                       |
| Input Power  | 100-240Vdc, 50/60Hz 1.3A                           |
| Output Power | 12Vdc, 3.5A                                        |
| Power Line   | 1.85m power cable without core attached on adapter |

10. Spurious emission of the simultaneous operation (2.4GHz, 5GHz and BT LE) has been evaluated and no non-compliance was found.

### 3.2 Description of Test Modes

11 channels are provided for 802.11b, 802.11g and 802.11n (HT20):

| 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 (HT40):

| 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 $\geq$ 1G  | RE<1G | PLC |                          |
| A                  | √             | √     | √   | EUT power from adapter 1 |
| B                  | -             | √     | √   | EUT power from adapter 2 |

Where RE $\geq$ 1G: Radiated Emission above 1GHz & Bandedge Measurement  
 RE<1G: Radiated Emission below 1GHz  
 PLC: Power Line Conducted Emission

Note:

1. The EUT was positioned on the Z-plane during testing.
2. "-" means no effect.

#### Radiated Emission Test (Above 1GHz):

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

| EUT Configure Mode | Mode           | Available Channel | Tested Channel | Modulation Technology | Modulation Type | Date 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 (HT20) | 1 to 11           | 1, 6, 11       | OFDM                  | BPSK            | 7.2              |
| A                  | 802.11n (HT40) | 3 to 9            | 3, 6, 9        | OFDM                  | BPSK            | 15.0             |

#### Radiated Emission Test (Below 1GHz):

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

| EUT Configure Mode | Mode    | Available Channel | Tested Channel | Modulation Technology | Modulation Type | Date 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 | Date Rate (Mbps) |
|--------------------|---------|-------------------|----------------|-----------------------|-----------------|------------------|
| A, B               | 802.11g | 1 to 11           | 6              | OFDM                  | BPSK            | 6.0              |

#### Test Condition:

| Applicable to | Environmental Conditions | Input Power  | Tested by    |
|---------------|--------------------------|--------------|--------------|
| RE $\geq$ 1G  | 25 deg. C, 70% RH        | 120Vac, 60Hz | Noah Chang   |
| RE<1G         | 25 deg. C, 70% RH        | 120Vac, 60Hz | Noah Chang   |
| PLC           | 25 deg. C, 70% RH        | 120Vac, 60Hz | Matthew Yang |

### 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.

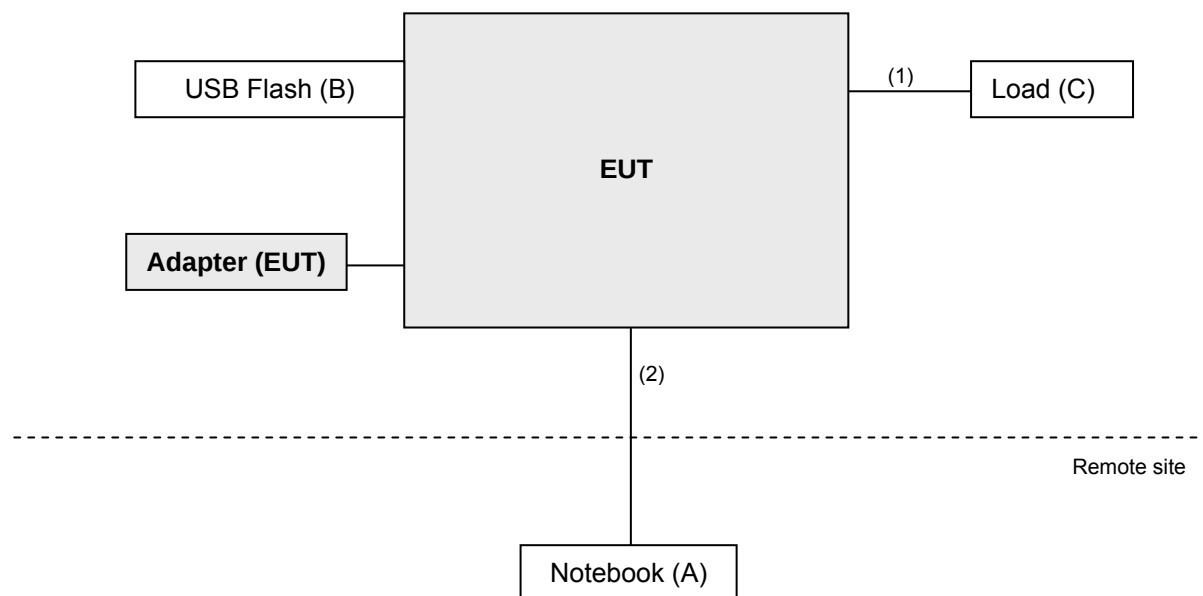
| ID | Product       | Brand | Model No. | Serial No. | FCC ID           | Remarks |
|----|---------------|-------|-----------|------------|------------------|---------|
| A. | Notebook      | DELL  | E5410     | 6RP2YM1    | FCC DoC Approved | -       |
| B. | USB 3.0 Flash | HP    | v250W     | 01         | FCC DoC Approved | -       |
| C. | Load          | N/A   | N/A       | N/A        | N/A              | -       |

Note:

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

| ID | Descriptions | Qty. | Length (m) | Shielding (Yes/No) | Cores (Qty.) | Remarks |
|----|--------------|------|------------|--------------------|--------------|---------|
| 1. | RJ45         | 3    | 1.8        | N                  | 0            | -       |
| 2. | RJ45         | 1    | 10         | N                  | 0            | -       |

#### 3.3.1 Configuration of System under Test



### 3.4 General Description of Applied Standards

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

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

**KDB 558074 D01 DTS Meas Guidance v04**

**KDB 662911 D01 Multiple Transmitter Output v02r01**

**ANSI C63.10-2013**

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

## 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 30dB below the highest level of the desired power:

| Frequencies (MHz) | Field Strength (microvolts/meter) | Measurement Distance (meters) |
|-------------------|-----------------------------------|-------------------------------|
| 0.009 ~ 0.490     | 2400/F(kHz)                       | 300                           |
| 0.490 ~ 1.705     | 24000/F(kHz)                      | 30                            |
| 1.705 ~ 30.0      | 30                                | 30                            |
| 30 ~ 88           | 100                               | 3                             |
| 88 ~ 216          | 150                               | 3                             |
| 216 ~ 960         | 200                               | 3                             |
| Above 960         | 500                               | 3                             |

**NOTE:**

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

#### 4.1.2 Test Instruments

| Description & Manufacturer              | Model No.                    | Serial No.            | Cal. Date     | Cal. Due      |
|-----------------------------------------|------------------------------|-----------------------|---------------|---------------|
| Test Receiver<br>ROHDE & SCHWARZ        | ESCI                         | 100424                | Oct. 17, 2017 | Oct. 16, 2018 |
| Spectrum Analyzer<br>ROHDE & SCHWARZ    | FSP40                        | 100040                | Aug. 18, 2017 | Aug. 17, 2018 |
| BILOG Antenna<br>SCHWARZBECK            | VULB9168                     | 9168-155              | Dec. 11, 2017 | Dec. 10, 2018 |
| HORN Antenna<br>SCHWARZBECK             | BBHA 9120D                   | 9120D-1170            | Dec. 13, 2017 | Dec. 12, 2018 |
| HORN Antenna<br>SCHWARZBECK             | BBHA 9170                    | BBHA9170241           | Dec. 01, 2017 | Nov. 30, 2018 |
| Loop Antenna<br>EMCI                    | EM-6879                      | 269                   | Aug. 11, 2017 | Aug. 10, 2018 |
| Preamplifier<br>Agilent<br>(Below 1GHz) | 8447D                        | 2944A10631            | Aug. 08, 2017 | Aug. 07, 2018 |
| Preamplifier<br>Agilent<br>(Above 1GHz) | 8449B                        | 3008A01922            | Sep. 15, 2017 | Sep. 14, 2018 |
| RF signal cable<br>HUBER+SUHNER         | SUCOFLEX 104                 | MY 13380+295012/04    | Aug. 08, 2017 | Aug. 07, 2018 |
| RF signal cable<br>HUBER+SUHNER         | SUCOFLEX 104                 | Cable-CH4-03 (250724) | Aug. 08, 2017 | Aug. 07, 2018 |
| Software<br>BV ADT                      | ADT_Radiated_<br>V7.6.15.9.4 | NA                    | NA            | NA            |
| Antenna Tower<br>inn-co GmbH            | MA 4000                      | 010303                | NA            | NA            |
| Antenna Tower Controller<br>BV ADT      | AT100                        | AT93021703            | NA            | NA            |
| Turn Table<br>BV ADT                    | TT100                        | TT93021703            | NA            | NA            |
| Turn Table Controller<br>BV ADT         | SC100                        | SC93021703            | NA            | NA            |
| Boresight Antenna Fixture               | FBA-01                       | FBA-SIP01             | 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 4.
3. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
4. The IC Site Registration No. is IC 7450F-4.

### 4.1.3 Test Procedures

#### For Radiated emission below 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. 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. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case 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 Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

#### Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

#### For Radiated emission above 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. 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 height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

#### Note:

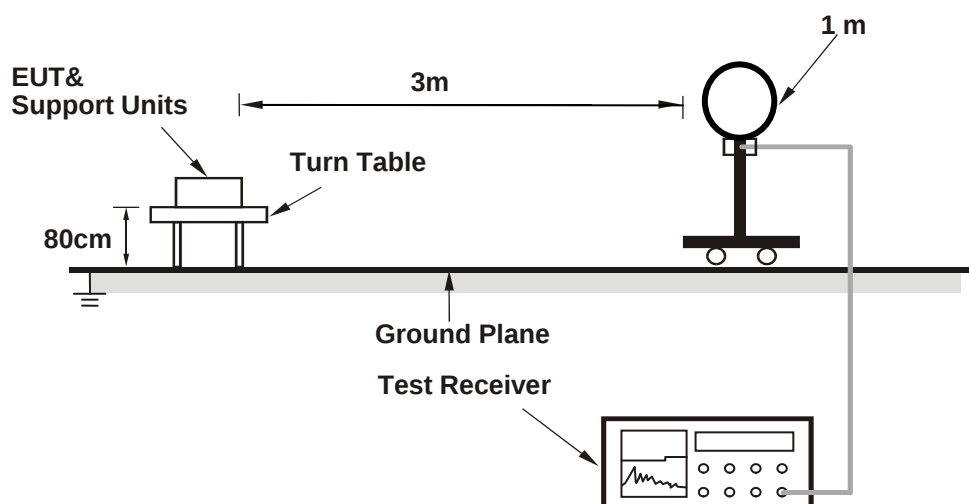
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is  $\geq 1/T$  (Duty cycle < 98%) or 10Hz (Duty cycle  $\geq 98\%$ ) 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

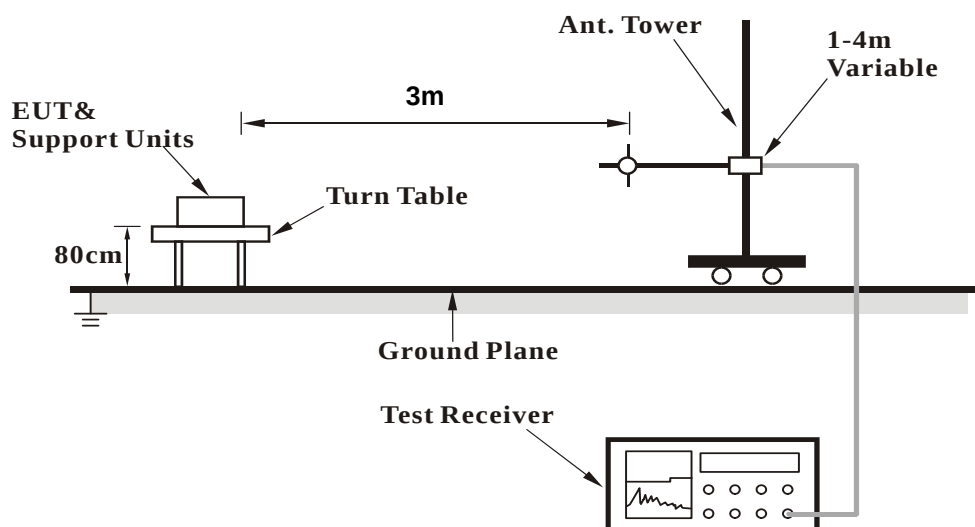
No deviation.

#### 4.1.5 Test Setup

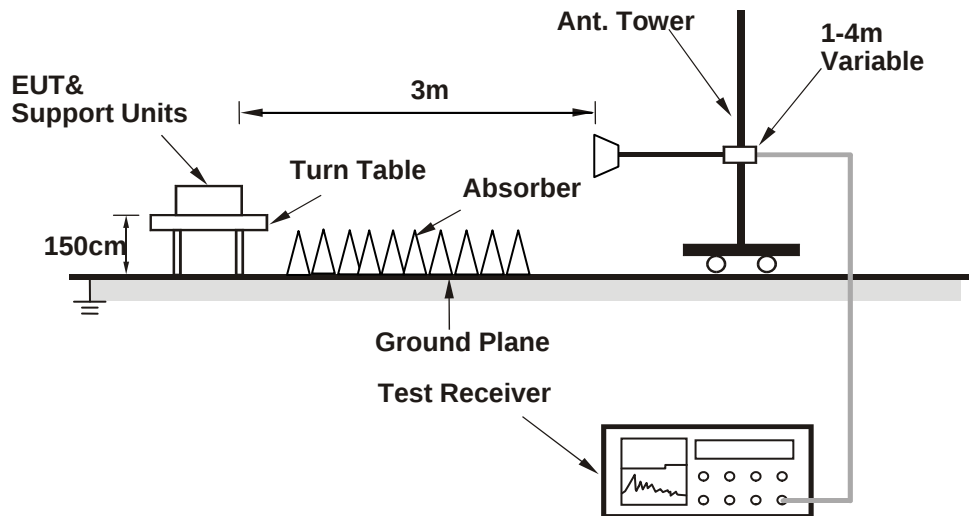
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



## For Radiated emission above 1GHz



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

### 4.1.6 EUT Operating Conditions

- Placed the EUT on the testing table.
- Prepared a notebook to act as a communication partner and placed it outside of testing area.
- 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.
- The communication partner sent data to EUT by command "PING".
- The necessary accessories enable the system in full functions.

#### 4.1.7 Test Results

Above 1GHz Worst-Case Data :

802.11b

|                 |              |                      |              |
|-----------------|--------------|----------------------|--------------|
| CHANNEL         | TX Channel 1 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 25GHz |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 2390.00        | 56.8 PK                       | 74.0              | -17.2          | 1.00 H                   | 67                         | 23.40                  | 33.40                          |
| 2                                                   | 2390.00        | 45.5 AV                       | 54.0              | -8.5           | 1.00 H                   | 67                         | 12.10                  | 33.40                          |
| 3                                                   | *2412.00       | 102.3 PK                      |                   |                | 1.00 H                   | 67                         | 68.90                  | 33.40                          |
| 4                                                   | *2412.00       | 98.2 AV                       |                   |                | 1.00 H                   | 67                         | 64.80                  | 33.40                          |
| 5                                                   | 4824.00        | 53.7 PK                       | 74.0              | -20.3          | 1.22 H                   | 207                        | 50.10                  | 3.60                           |
| 6                                                   | 4824.00        | 49.1 AV                       | 54.0              | -4.9           | 1.22 H                   | 207                        | 45.50                  | 3.60                           |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 2390.00        | 59.1 PK                       | 74.0              | -14.9          | 2.37 V                   | 106                        | 25.70                  | 33.40                          |
| 2                                                   | 2390.00        | 49.6 AV                       | 54.0              | -4.4           | 2.37 V                   | 106                        | 16.20                  | 33.40                          |
| 3                                                   | *2412.00       | 115.2 PK                      |                   |                | 2.37 V                   | 106                        | 81.80                  | 33.40                          |
| 4                                                   | *2412.00       | 113.0 AV                      |                   |                | 2.37 V                   | 106                        | 79.60                  | 33.40                          |
| 5                                                   | 4824.00        | 55.0 PK                       | 74.0              | -19.0          | 2.38 V                   | 189                        | 51.40                  | 3.60                           |
| 6                                                   | 4824.00        | 50.3 AV                       | 54.0              | -3.7           | 2.38 V                   | 189                        | 46.70                  | 3.60                           |

#### 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.

|                 |              |                      |              |
|-----------------|--------------|----------------------|--------------|
| CHANNEL         | TX Channel 6 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 25GHz |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *2437.00       | 101.7 PK                      |                   |                | 1.11 H                   | 48                         | 68.30                  | 33.40                          |
| 2                                                   | *2437.00       | 97.7 AV                       |                   |                | 1.11 H                   | 48                         | 64.30                  | 33.40                          |
| 3                                                   | 4874.00        | 53.7 PK                       | 74.0              | -20.3          | 1.00 H                   | 212                        | 50.40                  | 3.30                           |
| 4                                                   | 4874.00        | 49.4 AV                       | 54.0              | -4.6           | 1.00 H                   | 212                        | 46.10                  | 3.30                           |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *2437.00       | 116.0 PK                      |                   |                | 2.69 V                   | 153                        | 82.60                  | 33.40                          |
| 2                                                   | *2437.00       | 113.2 AV                      |                   |                | 2.69 V                   | 153                        | 79.80                  | 33.40                          |
| 3                                                   | 4874.00        | 55.0 PK                       | 74.0              | -19.0          | 1.39 V                   | 218                        | 51.70                  | 3.30                           |
| 4                                                   | 4874.00        | 51.4 AV                       | 54.0              | -2.6           | 1.39 V                   | 218                        | 48.10                  | 3.30                           |

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)  
– 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.

|                 |               |                      |              |
|-----------------|---------------|----------------------|--------------|
| CHANNEL         | TX Channel 11 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 25GHz  |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *2462.00       | 101.8 PK                      |                   |                | 1.00 H                   | 116                        | 68.30                  | 33.50                          |
| 2                                                   | *2462.00       | 97.7 AV                       |                   |                | 1.00 H                   | 116                        | 64.20                  | 33.50                          |
| 3                                                   | 2483.50        | 57.4 PK                       | 74.0              | -16.6          | 1.00 H                   | 116                        | 23.90                  | 33.50                          |
| 4                                                   | 2483.50        | 45.5 AV                       | 54.0              | -8.5           | 1.00 H                   | 116                        | 12.00                  | 33.50                          |
| 5                                                   | 4924.00        | 51.0 PK                       | 74.0              | -23.0          | 1.00 H                   | 206                        | 47.70                  | 3.30                           |
| 6                                                   | 4924.00        | 45.0 AV                       | 54.0              | -9.0           | 1.00 H                   | 206                        | 41.70                  | 3.30                           |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *2462.00       | 115.7 PK                      |                   |                | 2.97 V                   | 152                        | 82.20                  | 33.50                          |
| 2                                                   | *2462.00       | 113.0 AV                      |                   |                | 2.97 V                   | 152                        | 79.50                  | 33.50                          |
| 3                                                   | 2483.50        | 59.0 PK                       | 74.0              | -15.0          | 2.97 V                   | 152                        | 25.50                  | 33.50                          |
| 4                                                   | 2483.50        | 47.7 AV                       | 54.0              | -6.3           | 2.97 V                   | 152                        | 14.20                  | 33.50                          |
| 5                                                   | 4924.00        | 55.9 PK                       | 74.0              | -18.1          | 1.37 V                   | 215                        | 52.60                  | 3.30                           |
| 6                                                   | 4924.00        | 51.2 AV                       | 54.0              | -2.8           | 1.37 V                   | 215                        | 47.90                  | 3.30                           |

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)  
– 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

|                 |              |                   |              |
|-----------------|--------------|-------------------|--------------|
| CHANNEL         | TX Channel 1 | DETECTOR FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 25GHz |                   | Average (AV) |

| 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     | 59.0 PK                 | 74.0           | -15.0       | 1.00 H             | 67                   | 25.60            | 33.40                    |
| 2                                                   | 2390.00     | 46.6 AV                 | 54.0           | -7.4        | 1.00 H             | 67                   | 13.20            | 33.40                    |
| 3                                                   | *2412.00    | 99.6 PK                 |                |             | 1.00 H             | 67                   | 66.20            | 33.40                    |
| 4                                                   | *2412.00    | 89.1 AV                 |                |             | 1.00 H             | 67                   | 55.70            | 33.40                    |
| 5                                                   | 4824.00     | 47.7 PK                 | 74.0           | -26.3       | 2.25 H             | 310                  | 44.10            | 3.60                     |
| 6                                                   | 4824.00     | 35.1 AV                 | 54.0           | -18.9       | 2.25 H             | 310                  | 31.50            | 3.60                     |
| 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     | 67.8 PK                 | 74.0           | -6.2        | 2.35 V             | 106                  | 34.40            | 33.40                    |
| 2                                                   | 2390.00     | 53.5 AV                 | 54.0           | -0.5        | 2.35 V             | 106                  | 20.10            | 33.40                    |
| 3                                                   | *2412.00    | 112.1 PK                |                |             | 2.35 V             | 106                  | 78.70            | 33.40                    |
| 4                                                   | *2412.00    | 102.1 AV                |                |             | 2.35 V             | 106                  | 68.70            | 33.40                    |
| 5                                                   | 4824.00     | 50.5 PK                 | 74.0           | -23.5       | 1.68 V             | 221                  | 46.90            | 3.60                     |
| 6                                                   | 4824.00     | 37.9 AV                 | 54.0           | -16.1       | 1.68 V             | 221                  | 34.30            | 3.60                     |

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.

|                 |              |                      |              |
|-----------------|--------------|----------------------|--------------|
| CHANNEL         | TX Channel 6 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 25GHz |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *2437.00       | 102.4 PK                      |                   |                | 1.02 H                   | 66                         | 69.00                  | 33.40                          |
| 2                                                   | *2437.00       | 92.2 AV                       |                   |                | 1.02 H                   | 66                         | 58.80                  | 33.40                          |
| 3                                                   | 4874.00        | 48.9 PK                       | 74.0              | -25.1          | 2.59 H                   | 320                        | 45.60                  | 3.30                           |
| 4                                                   | 4874.00        | 35.6 AV                       | 54.0              | -18.4          | 2.59 H                   | 320                        | 32.30                  | 3.30                           |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *2437.00       | 116.3 PK                      |                   |                | 2.31 V                   | 126                        | 82.90                  | 33.40                          |
| 2                                                   | *2437.00       | 106.1 AV                      |                   |                | 2.31 V                   | 126                        | 72.70                  | 33.40                          |
| 3                                                   | 4874.00        | 52.8 PK                       | 74.0              | -21.2          | 1.41 V                   | 210                        | 49.50                  | 3.30                           |
| 4                                                   | 4874.00        | 40.2 AV                       | 54.0              | -13.8          | 1.41 V                   | 210                        | 36.90                  | 3.30                           |

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)  
– 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.

|                 |               |                      |              |
|-----------------|---------------|----------------------|--------------|
| CHANNEL         | TX Channel 11 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 25GHz  |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *2462.00       | 97.9 PK                       |                   |                | 1.00 H                   | 117                        | 64.40                  | 33.50                          |
| 2                                                   | *2462.00       | 87.8 AV                       |                   |                | 1.00 H                   | 117                        | 54.30                  | 33.50                          |
| 3                                                   | 2483.50        | 58.2 PK                       | 74.0              | -15.8          | 1.00 H                   | 117                        | 24.70                  | 33.50                          |
| 4                                                   | 2483.50        | 46.1 AV                       | 54.0              | -7.9           | 1.00 H                   | 117                        | 12.60                  | 33.50                          |
| 5                                                   | 4924.00        | 49.5 PK                       | 74.0              | -24.5          | 3.33 H                   | 15                         | 46.20                  | 3.30                           |
| 6                                                   | 4924.00        | 35.2 AV                       | 54.0              | -18.8          | 3.33 H                   | 15                         | 31.90                  | 3.30                           |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *2462.00       | 112.2 PK                      |                   |                | 2.35 V                   | 158                        | 78.70                  | 33.50                          |
| 2                                                   | *2462.00       | 102.2 AV                      |                   |                | 2.35 V                   | 158                        | 68.70                  | 33.50                          |
| 3                                                   | 2483.50        | 70.3 PK                       | 74.0              | -3.7           | 2.35 V                   | 158                        | 36.80                  | 33.50                          |
| 4                                                   | 2483.50        | 52.0 AV                       | 54.0              | -2.0           | 2.35 V                   | 158                        | 18.50                  | 33.50                          |
| 5                                                   | 4924.00        | 51.3 PK                       | 74.0              | -22.7          | 1.42 V                   | 212                        | 48.00                  | 3.30                           |
| 6                                                   | 4924.00        | 37.4 AV                       | 54.0              | -16.6          | 1.42 V                   | 212                        | 34.10                  | 3.30                           |

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)  
– 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 (HT20)

|                 |              |                   |              |
|-----------------|--------------|-------------------|--------------|
| CHANNEL         | TX Channel 1 | DETECTOR FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 25GHz |                   | Average (AV) |

| 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     | 58.4 PK                 | 74.0           | -15.6       | 1.40 H             | 213                  | 25.00            | 33.40                    |
| 2                                                   | 2390.00     | 46.8 AV                 | 54.0           | -7.2        | 1.40 H             | 213                  | 13.40            | 33.40                    |
| 3                                                   | *2412.00    | 99.7 PK                 |                |             | 1.40 H             | 213                  | 66.30            | 33.40                    |
| 4                                                   | *2412.00    | 89.8 AV                 |                |             | 1.40 H             | 213                  | 56.40            | 33.40                    |
| 5                                                   | 4824.00     | 48.9 PK                 | 74.0           | -25.1       | 3.35 H             | 15                   | 45.30            | 3.60                     |
| 6                                                   | 4824.00     | 36.1 AV                 | 54.0           | -17.9       | 3.35 H             | 15                   | 32.50            | 3.60                     |
| 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     | 68.9 PK                 | 74.0           | -5.1        | 2.35 V             | 91                   | 35.50            | 33.40                    |
| 2                                                   | 2390.00     | 53.6 AV                 | 54.0           | -0.4        | 2.35 V             | 91                   | 20.20            | 33.40                    |
| 3                                                   | *2412.00    | 112.4 PK                |                |             | 2.35 V             | 91                   | 79.00            | 33.40                    |
| 4                                                   | *2412.00    | 101.6 AV                |                |             | 2.35 V             | 91                   | 68.20            | 33.40                    |
| 5                                                   | 4824.00     | 49.6 PK                 | 74.0           | -24.4       | 1.66 V             | 216                  | 46.00            | 3.60                     |
| 6                                                   | 4824.00     | 37.2 AV                 | 54.0           | -16.8       | 1.66 V             | 216                  | 33.60            | 3.60                     |

## 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.

|                 |              |                      |              |
|-----------------|--------------|----------------------|--------------|
| CHANNEL         | TX Channel 6 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 25GHz |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *2437.00       | 102.9 PK                      |                   |                | 1.40 H                   | 212                        | 69.50                  | 33.40                          |
| 2                                                   | *2437.00       | 92.7 AV                       |                   |                | 1.40 H                   | 212                        | 59.30                  | 33.40                          |
| 3                                                   | 4874.00        | 47.9 PK                       | 74.0              | -26.1          | 3.88 H                   | 102                        | 44.60                  | 3.30                           |
| 4                                                   | 4874.00        | 35.4 AV                       | 54.0              | -18.6          | 3.88 H                   | 102                        | 32.10                  | 3.30                           |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *2437.00       | 116.9 PK                      |                   |                | 2.40 V                   | 142                        | 83.50                  | 33.40                          |
| 2                                                   | *2437.00       | 106.4 AV                      |                   |                | 2.40 V                   | 142                        | 73.00                  | 33.40                          |
| 3                                                   | 4874.00        | 48.8 PK                       | 74.0              | -25.2          | 1.44 V                   | 249                        | 45.50                  | 3.30                           |
| 4                                                   | 4874.00        | 36.6 AV                       | 54.0              | -17.4          | 1.44 V                   | 249                        | 33.30                  | 3.30                           |

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)  
– 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.

|                 |               |                      |              |
|-----------------|---------------|----------------------|--------------|
| CHANNEL         | TX Channel 11 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 25GHz  |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *2462.00       | 98.9 PK                       |                   |                | 1.33 H                   | 214                        | 65.40                  | 33.50                          |
| 2                                                   | *2462.00       | 88.7 AV                       |                   |                | 1.33 H                   | 214                        | 55.20                  | 33.50                          |
| 3                                                   | 2483.50        | 58.4 PK                       | 74.0              | -15.6          | 1.33 H                   | 214                        | 24.90                  | 33.50                          |
| 4                                                   | 2483.50        | 46.0 AV                       | 54.0              | -8.0           | 1.33 H                   | 214                        | 12.50                  | 33.50                          |
| 5                                                   | 4924.00        | 48.3 PK                       | 74.0              | -25.7          | 3.00 H                   | 177                        | 45.00                  | 3.30                           |
| 6                                                   | 4924.00        | 34.9 AV                       | 54.0              | -19.1          | 3.00 H                   | 177                        | 31.60                  | 3.30                           |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *2462.00       | 112.1 PK                      |                   |                | 2.45 V                   | 149                        | 78.60                  | 33.50                          |
| 2                                                   | *2462.00       | 101.9 AV                      |                   |                | 2.45 V                   | 149                        | 68.40                  | 33.50                          |
| 3                                                   | 2483.50        | 68.4 PK                       | 74.0              | -5.6           | 2.45 V                   | 149                        | 34.90                  | 33.50                          |
| 4                                                   | 2483.50        | 53.7 AV                       | 54.0              | -0.3           | 2.45 V                   | 149                        | 20.20                  | 33.50                          |
| 5                                                   | 4924.00        | 48.9 PK                       | 74.0              | -25.1          | 1.84 V                   | 190                        | 45.60                  | 3.30                           |
| 6                                                   | 4924.00        | 35.8 AV                       | 54.0              | -18.2          | 1.84 V                   | 190                        | 32.50                  | 3.30                           |

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)  
– 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 (HT40)

|                 |              |                      |              |
|-----------------|--------------|----------------------|--------------|
| CHANNEL         | TX Channel 3 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 25GHz |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 2390.00        | 58.6 PK                       | 74.0              | -15.4          | 1.46 H                   | 217                        | 25.20                  | 33.40                          |
| 2                                                   | 2390.00        | 47.1 AV                       | 54.0              | -6.9           | 1.46 H                   | 217                        | 13.70                  | 33.40                          |
| 3                                                   | *2422.00       | 92.9 PK                       |                   |                | 1.46 H                   | 217                        | 59.50                  | 33.40                          |
| 4                                                   | *2422.00       | 83.8 AV                       |                   |                | 1.46 H                   | 217                        | 50.40                  | 33.40                          |
| 5                                                   | 2483.50        | 57.9 PK                       | 74.0              | -16.1          | 1.46 H                   | 217                        | 24.40                  | 33.50                          |
| 6                                                   | 2483.50        | 45.7 AV                       | 54.0              | -8.3           | 1.46 H                   | 217                        | 12.20                  | 33.50                          |
| 7                                                   | 4844.00        | 48.1 PK                       | 74.0              | -25.9          | 2.21 H                   | 102                        | 44.60                  | 3.50                           |
| 8                                                   | 4844.00        | 35.4 AV                       | 54.0              | -18.6          | 2.21 H                   | 102                        | 31.90                  | 3.50                           |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 2390.00        | 68.3 PK                       | 74.0              | -5.7           | 2.65 V                   | 77                         | 34.90                  | 33.40                          |
| 2                                                   | <b>2390.00</b> | <b>53.9 AV</b>                | <b>54.0</b>       | <b>-0.1</b>    | <b>2.65 V</b>            | <b>77</b>                  | <b>20.50</b>           | <b>33.40</b>                   |
| 3                                                   | *2422.00       | 106.0 PK                      |                   |                | 2.65 V                   | 77                         | 72.60                  | 33.40                          |
| 4                                                   | *2422.00       | 96.7 AV                       |                   |                | 2.65 V                   | 77                         | 63.30                  | 33.40                          |
| 5                                                   | 2483.50        | 58.7 PK                       | 74.0              | -15.3          | 2.65 V                   | 77                         | 25.20                  | 33.50                          |
| 6                                                   | 2483.50        | 47.2 AV                       | 54.0              | -6.8           | 2.65 V                   | 77                         | 13.70                  | 33.50                          |
| 7                                                   | 4844.00        | 48.6 PK                       | 74.0              | -25.4          | 3.32 V                   | 102                        | 45.10                  | 3.50                           |
| 8                                                   | 4844.00        | 36.0 AV                       | 54.0              | -18.0          | 3.32 V                   | 102                        | 32.50                  | 3.50                           |

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.

|                 |              |                      |              |
|-----------------|--------------|----------------------|--------------|
| CHANNEL         | TX Channel 6 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 25GHz |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *2437.00       | 95.3 PK                       |                   |                | 1.41 H                   | 213                        | 61.90                  | 33.40                          |
| 2                                                   | *2437.00       | 86.0 AV                       |                   |                | 1.41 H                   | 213                        | 52.60                  | 33.40                          |
| 3                                                   | 4874.00        | 47.5 PK                       | 74.0              | -26.5          | 2.99 H                   | 102                        | 44.20                  | 3.30                           |
| 4                                                   | 4874.00        | 34.2 AV                       | 54.0              | -19.8          | 2.99 H                   | 102                        | 30.90                  | 3.30                           |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *2437.00       | 109.6 PK                      |                   |                | 2.59 V                   | 163                        | 76.20                  | 33.40                          |
| 2                                                   | *2437.00       | 100.1 AV                      |                   |                | 2.59 V                   | 163                        | 66.70                  | 33.40                          |
| 3                                                   | 4874.00        | 47.8 PK                       | 74.0              | -26.2          | 2.41 V                   | 332                        | 44.50                  | 3.30                           |
| 4                                                   | 4874.00        | 34.9 AV                       | 54.0              | -19.1          | 2.41 V                   | 332                        | 31.60                  | 3.30                           |

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)  
– 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.

|                 |              |                      |              |
|-----------------|--------------|----------------------|--------------|
| CHANNEL         | TX Channel 9 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 25GHz |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 2390.00        | 57.9 PK                       | 74.0              | -16.1          | 1.46 H                   | 213                        | 24.50                  | 33.40                          |
| 2                                                   | 2390.00        | 45.8 AV                       | 54.0              | -8.2           | 1.46 H                   | 213                        | 12.40                  | 33.40                          |
| 3                                                   | *2452.00       | 95.5 PK                       |                   |                | 1.46 H                   | 213                        | 62.00                  | 33.50                          |
| 4                                                   | *2452.00       | 86.2 AV                       |                   |                | 1.46 H                   | 213                        | 52.70                  | 33.50                          |
| 5                                                   | 2483.50        | 58.1 PK                       | 74.0              | -15.9          | 1.46 H                   | 213                        | 24.60                  | 33.50                          |
| 6                                                   | 2483.50        | 46.1 AV                       | 54.0              | -7.9           | 1.46 H                   | 213                        | 12.60                  | 33.50                          |
| 7                                                   | 4904.00        | 47.8 PK                       | 74.0              | -26.2          | 2.55 H                   | 198                        | 44.50                  | 3.30                           |
| 8                                                   | 4904.00        | 34.5 AV                       | 54.0              | -19.5          | 2.55 H                   | 198                        | 31.20                  | 3.30                           |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 2390.00        | 63.9 PK                       | 74.0              | -10.1          | 2.60 V                   | 154                        | 30.50                  | 33.40                          |
| 2                                                   | 2390.00        | 49.9 AV                       | 54.0              | -4.1           | 2.60 V                   | 154                        | 16.50                  | 33.40                          |
| 3                                                   | *2452.00       | 106.6 PK                      |                   |                | 2.60 V                   | 154                        | 73.10                  | 33.50                          |
| 4                                                   | *2452.00       | 97.5 AV                       |                   |                | 2.60 V                   | 154                        | 64.00                  | 33.50                          |
| 5                                                   | 2483.50        | 68.2 PK                       | 74.0              | -5.8           | 2.60 V                   | 154                        | 34.70                  | 33.50                          |
| 6                                                   | 2483.50        | 53.9 AV                       | 54.0              | -0.1           | 2.60 V                   | 154                        | 20.40                  | 33.50                          |
| 7                                                   | 4904.00        | 48.2 PK                       | 74.0              | -25.8          | 1.09 V                   | 332                        | 44.90                  | 3.30                           |
| 8                                                   | 4904.00        | 34.9 AV                       | 54.0              | -19.1          | 1.09 V                   | 332                        | 31.60                  | 3.30                           |

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)  
– 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

|                 |              |                   |                 |
|-----------------|--------------|-------------------|-----------------|
| CHANNEL         | TX Channel 6 | DETECTOR FUNCTION | Quasi-Peak (QP) |
| FREQUENCY RANGE | 9kHz ~ 1GHz  | 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                                                   | 55.13       | 25.5 QP                 | 40.0           | -14.5       | 1.50 H             | 268                  | 39.60            | -14.10                   |
| 2                                                   | 124.98      | 31.2 QP                 | 43.5           | -12.3       | 1.00 H             | 95                   | 46.90            | -15.70                   |
| 3                                                   | 181.25      | 31.5 QP                 | 43.5           | -12.0       | 1.00 H             | 254                  | 46.50            | -15.00                   |
| 4                                                   | 249.17      | 31.1 QP                 | 46.0           | -14.9       | 2.00 H             | 107                  | 45.20            | -14.10                   |
| 5                                                   | 732.32      | 36.4 QP                 | 46.0           | -9.6        | 1.00 H             | 182                  | 39.50            | -3.10                    |
| 6                                                   | 932.19      | 36.3 QP                 | 46.0           | -9.7        | 1.00 H             | 303                  | 35.80            | 0.50                     |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 105.58      | 34.3 QP                 | 43.5           | -9.2        | 2.00 V             | 184                  | 51.90            | -17.60                   |
| 2                                                   | 181.25      | 29.6 QP                 | 43.5           | -13.9       | 1.00 V             | 338                  | 44.60            | -15.00                   |
| 3                                                   | 499.48      | 32.8 QP                 | 46.0           | -13.2       | 1.50 V             | 69                   | 41.10            | -8.30                    |
| 4                                                   | 712.92      | 38.9 QP                 | 46.0           | -7.1        | 1.50 V             | 7                    | 42.80            | -3.90                    |
| 5                                                   | 745.91      | 36.3 QP                 | 46.0           | -9.7        | 1.00 V             | 7                    | 39.00            | -2.70                    |
| 6                                                   | 932.19      | 36.6 QP                 | 46.0           | -9.4        | 1.00 V             | 76                   | 36.10            | 0.50                     |

## 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

|                 |              |                   |                 |
|-----------------|--------------|-------------------|-----------------|
| CHANNEL         | TX Channel 6 | DETECTOR FUNCTION | Quasi-Peak (QP) |
| FREQUENCY RANGE | 9kHz ~ 1GHz  | 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                                                   | 35.72       | 36.1 QP                 | 40.0           | -3.9        | 2.00 H             | 242                  | 51.40            | -15.30                   |
| 2                                                   | 124.98      | 33.3 QP                 | 43.5           | -10.2       | 1.50 H             | 106                  | 49.00            | -15.70                   |
| 3                                                   | 249.17      | 32.6 QP                 | 46.0           | -13.4       | 1.50 H             | 87                   | 46.70            | -14.10                   |
| 4                                                   | 365.59      | 29.5 QP                 | 46.0           | -16.5       | 1.00 H             | 7                    | 40.40            | -10.90                   |
| 5                                                   | 747.85      | 41.5 QP                 | 46.0           | -4.5        | 1.00 H             | 125                  | 44.20            | -2.70                    |
| 6                                                   | 910.84      | 43.5 QP                 | 46.0           | -2.5        | 1.50 H             | 108                  | 43.30            | 0.20                     |
| 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                                                   | 62.89       | 35.4 QP                 | 40.0           | -4.6        | 2.00 V             | 285                  | 50.10            | -14.70                   |
| 2                                                   | 124.98      | 31.4 QP                 | 43.5           | -12.1       | 1.00 V             | 108                  | 47.10            | -15.70                   |
| 3                                                   | 249.17      | 27.8 QP                 | 46.0           | -18.2       | 1.50 V             | 150                  | 41.90            | -14.10                   |
| 4                                                   | 499.48      | 35.1 QP                 | 46.0           | -10.9       | 1.00 V             | 164                  | 43.40            | -8.30                    |
| 5                                                   | 732.32      | 37.7 QP                 | 46.0           | -8.3        | 2.00 V             | 3                    | 40.80            | -3.10                    |
| 6                                                   | 914.72      | 37.2 QP                 | 46.0           | -8.8        | 1.00 V             | 12                   | 36.80            | 0.40                     |

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

## 4.2 Conducted Emission Measurement

### 4.2.1 Limits of Conducted Emission Measurement

| Frequency (MHz) | Conducted Limit (dBuV) |         |
|-----------------|------------------------|---------|
|                 | Quasi-peak             | Average |
| 0.15 - 0.5      | 66 - 56                | 56 - 46 |
| 0.50 - 5.0      | 56                     | 46      |
| 5.0 - 30.0      | 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.

### 4.2.2 Test Instruments

Tested date: May 18, 2018

| Description & Manufacturer               | Model No.                | Serial No.     | Cal. Date     | Cal. Due      |
|------------------------------------------|--------------------------|----------------|---------------|---------------|
| Test Receiver<br>ROHDE & SCHWARZ         | ESR3                     | 102412         | Feb. 08, 2018 | Feb. 07, 2019 |
| RF signal cable (with 10dB PAD)<br>Woken | 5D-FB                    | Cable-cond2-01 | Sep. 08, 2017 | Sep. 07, 2018 |
| LISN<br>ROHDE & SCHWARZ<br>(EUT)         | ESH2-Z5                  | 100100         | Feb. 05, 2018 | Feb. 04, 2019 |
| LISN<br>ROHDE & SCHWARZ<br>(Peripheral)  | ESH3-Z5                  | 100312         | Aug. 02, 2017 | Aug. 01, 2018 |
| Software<br>ADT                          | BV ADT_Conc_<br>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

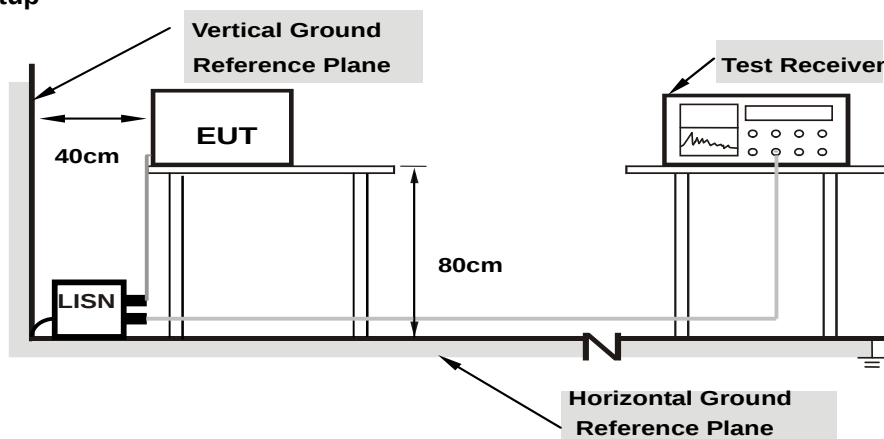
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

**NOTE:** The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

#### 4.2.4 Deviation from Test Standard

No deviation.

#### 4.2.5 Test Setup



**Note:** 1.Support units were connected to second LISN.

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.

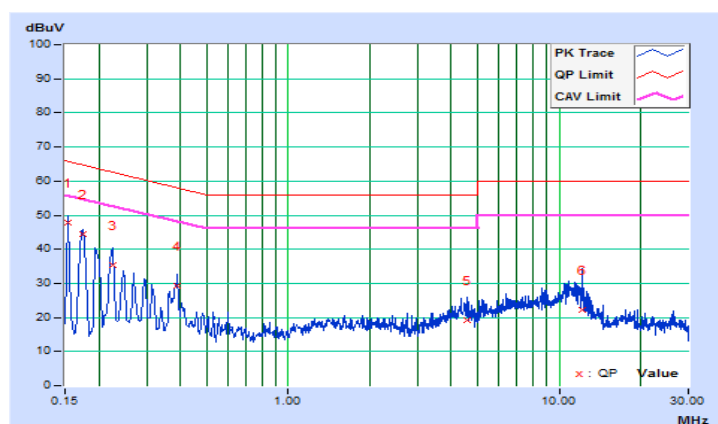
#### 4.2.7 Test Results

| Phase     | Line (L) | Detector Function | Quasi-Peak (QP) / Average (AV) |
|-----------|----------|-------------------|--------------------------------|
| Test Mode | A        |                   |                                |

| No | Freq.<br>[MHz] | Corr.<br>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  | 0.15400        | 10.16                   | 37.71         | 19.44 | 47.87          | 29.60 | 65.78     | 55.78 | -17.91 | -26.18 |
| 2  | 0.17384        | 10.16                   | 34.12         | 17.52 | 44.28          | 27.68 | 64.77     | 54.77 | -20.49 | -27.09 |
| 3  | 0.22600        | 10.16                   | 25.34         | 9.94  | 35.50          | 20.10 | 62.60     | 52.60 | -27.10 | -32.50 |
| 4  | 0.39000        | 10.20                   | 19.25         | 9.61  | 29.45          | 19.81 | 58.06     | 48.06 | -28.61 | -28.25 |
| 5  | 4.58600        | 10.38                   | 8.94          | 1.04  | 19.32          | 11.42 | 56.00     | 46.00 | -36.68 | -34.58 |
| 6  | 12.23800       | 10.78                   | 11.30         | 3.62  | 22.08          | 14.40 | 60.00     | 50.00 | -37.92 | -35.60 |

#### 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.

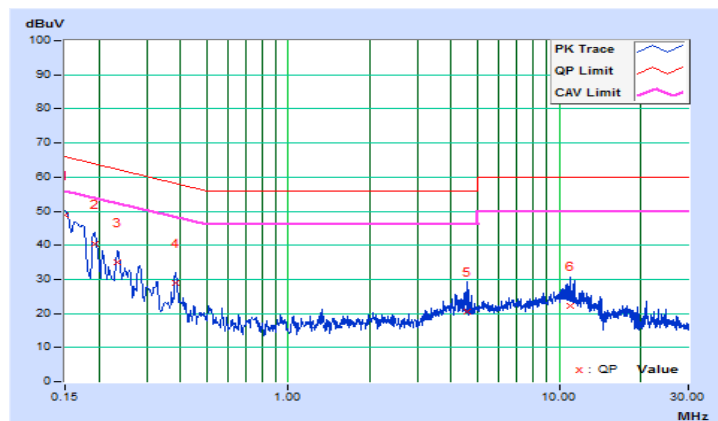


|           |             |                   |                                |
|-----------|-------------|-------------------|--------------------------------|
| Phase     | Neutral (N) | Detector Function | Quasi-Peak (QP) / Average (AV) |
| Test Mode | A           |                   |                                |

| No | Freq.<br>[MHz] | Corr.<br>Factor<br>(dB) | Reading Value<br>[dB (uV)] |       | Emission Level<br>[dB (uV)] |       | Limit<br>[dB (uV)] |       | Margin<br>(dB) |        |
|----|----------------|-------------------------|----------------------------|-------|-----------------------------|-------|--------------------|-------|----------------|--------|
|    |                |                         |                            |       |                             |       |                    |       |                |        |
|    |                |                         | Q.P.                       | AV.   | Q.P.                        | AV.   | Q.P.               | AV.   | Q.P.           | AV.    |
| 1  | 0.15000        | 10.14                   | 38.66                      | 22.21 | 48.80                       | 32.35 | 66.00              | 56.00 | -17.20         | -23.65 |
| 2  | 0.19400        | 10.16                   | 30.23                      | 14.01 | 40.39                       | 24.17 | 63.86              | 53.86 | -23.47         | -29.69 |
| 3  | 0.23412        | 10.17                   | 24.90                      | 9.49  | 35.07                       | 19.66 | 62.30              | 52.30 | -27.23         | -32.64 |
| 4  | 0.38218        | 10.19                   | 18.90                      | 7.88  | 29.09                       | 18.07 | 58.23              | 48.23 | -29.14         | -30.16 |
| 5  | 4.58600        | 10.37                   | 10.13                      | 0.61  | 20.50                       | 10.98 | 56.00              | 46.00 | -35.50         | -35.02 |
| 6  | 11.00600       | 10.61                   | 11.59                      | 5.83  | 22.20                       | 16.44 | 60.00              | 50.00 | -37.80         | -33.56 |

#### 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.

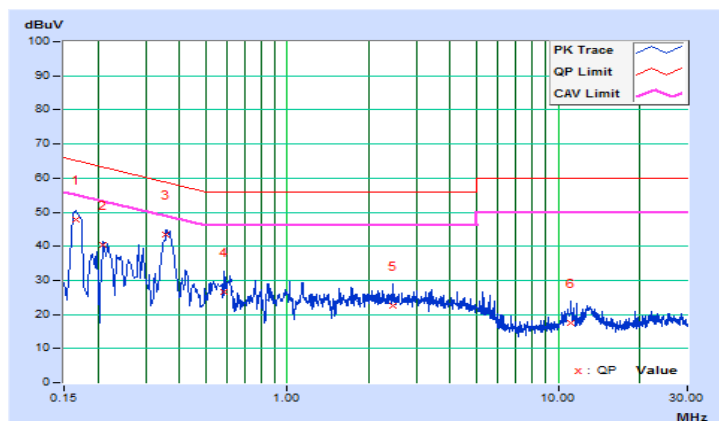


|           |          |                   |                                   |
|-----------|----------|-------------------|-----------------------------------|
| Phase     | Line (L) | Detector Function | Quasi-Peak (QP) /<br>Average (AV) |
| Test Mode | B        |                   |                                   |

| No       | Freq.<br>[MHz] | Corr.<br>Factor<br>(dB) | Reading Value<br>[dB (uV)] |              | Emission Level<br>[dB (uV)] |              | Limit<br>[dB (uV)] |              | Margin<br>(dB) |               |
|----------|----------------|-------------------------|----------------------------|--------------|-----------------------------|--------------|--------------------|--------------|----------------|---------------|
|          |                |                         |                            |              |                             |              |                    |              |                |               |
|          |                |                         | Q.P.                       | AV.          | Q.P.                        | AV.          | Q.P.               | AV.          | Q.P.           | AV.           |
| 1        | 0.16600        | 10.16                   | 37.77                      | 22.27        | 47.93                       | 32.43        | 65.16              | 55.16        | -17.23         | -22.73        |
| 2        | 0.21000        | 10.16                   | 30.23                      | 14.27        | 40.39                       | 24.43        | 63.21              | 53.21        | -22.82         | -28.78        |
| <b>3</b> | <b>0.35782</b> | <b>10.20</b>            | <b>33.11</b>               | <b>24.59</b> | <b>43.31</b>                | <b>34.79</b> | <b>58.78</b>       | <b>48.78</b> | <b>-15.47</b>  | <b>-13.99</b> |
| 4        | 0.58600        | 10.20                   | 16.47                      | 5.40         | 26.67                       | 15.60        | 56.00              | 46.00        | -29.33         | -30.40        |
| 5        | 2.47000        | 10.27                   | 12.20                      | 4.12         | 22.47                       | 14.39        | 56.00              | 46.00        | -33.53         | -31.61        |
| 6        | 11.11000       | 10.72                   | 6.87                       | 0.53         | 17.59                       | 11.25        | 60.00              | 50.00        | -42.41         | -38.75        |

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.

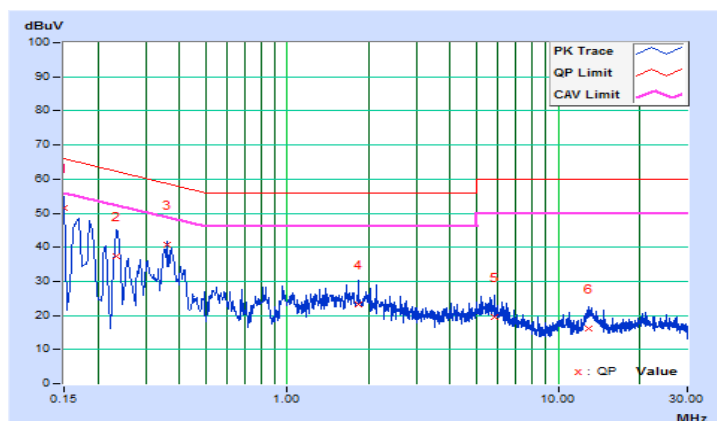


|           |             |                   |                                |
|-----------|-------------|-------------------|--------------------------------|
| Phase     | Neutral (N) | Detector Function | Quasi-Peak (QP) / Average (AV) |
| Test Mode | B           |                   |                                |

| No | Freq.<br>[MHz] | Corr.<br>Factor<br>(dB) | Reading Value<br>[dB (uV)] |       | Emission Level<br>[dB (uV)] |       | Limit<br>[dB (uV)] |       | Margin<br>(dB) |        |
|----|----------------|-------------------------|----------------------------|-------|-----------------------------|-------|--------------------|-------|----------------|--------|
|    |                |                         | Q.P.                       | AV.   | Q.P.                        | AV.   | Q.P.               | AV.   | Q.P.           | AV.    |
|    |                |                         |                            |       |                             |       |                    |       |                |        |
| 1  | 0.15000        | 10.14                   | 41.36                      | 24.37 | 51.50                       | 34.51 | 66.00              | 56.00 | -14.50         | -21.49 |
| 2  | 0.23400        | 10.17                   | 27.12                      | 11.86 | 37.29                       | 22.03 | 62.31              | 52.31 | -25.02         | -30.28 |
| 3  | 0.36200        | 10.19                   | 30.64                      | 21.86 | 40.83                       | 32.05 | 58.68              | 48.68 | -17.85         | -16.63 |
| 4  | 1.82600        | 10.22                   | 12.89                      | 4.55  | 23.11                       | 14.77 | 56.00              | 46.00 | -32.89         | -31.23 |
| 5  | 5.83000        | 10.41                   | 9.08                       | 2.13  | 19.49                       | 12.54 | 60.00              | 50.00 | -40.51         | -37.46 |
| 6  | 12.98200       | 10.70                   | 5.62                       | 0.66  | 16.32                       | 11.36 | 60.00              | 50.00 | -43.68         | -38.64 |

#### REMARKS:

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



## 5 Pictures of Test Arrangements

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

## Appendix – 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 FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

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

**Linko EMC/RF Lab**

Tel: 886-2-26052180

Fax: 886-2-26051924

**Hsin Chu EMC/RF/Telecom Lab**

Tel: 886-3-6668565

Fax: 886-3-6668323

**Hwa Ya EMC/RF/Safety Lab**

Tel: 886-3-3183232

Fax: 886-3-3270892

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

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

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

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