# FCC Test Report

# (PART 24)

| | |
|---|---|
| **Report No.:** | RF150114C11-1 |
| **FCC ID:** | 2AA5WPAMR04LN |
| **Test Model:** | PA-MR04LN |
| **Received Date:** | Jan. 14, 2015 |
| **Test Date:** | Jan. 20 ~ Mar. 13, 2015 |
| **Issued Date:** | Mar. 23, 2015 |

| | |
|---|---|
| **Applicant:** | NEC Platforms, Ltd. |
| **Address:** | 800, Shimomata, Kakegawa-shi, Shizuoka 436-8501, Japan |

| | |
|---|---|
| **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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## Table of Contents


**Release Control Record ..... 3**

**1 Certificate of Conformity ..... 4**

**2 Summary of Test Results ..... 5**

2.1 Measurement Uncertainty ..... 5
2.2 Test Site And Instruments ..... 6

**3 General Information ..... 7**

3.1 General Description of EUT ..... 7
3.2 Configuration Of System Under Test ..... 8
3.2.1 Description Of Support Units ..... 8
3.3 Test Mode Applicability and Tested Channel Detail ..... 9
3.4 EUT Operating Conditions ..... 10
3.5 General Description of Applied Standards ..... 10

**4 Test Types and Results ..... 11**

4.1 Output Power Measurement ..... 11
4.1.1 Limits of Output Power Measurement ..... 11
4.1.2 Test Procedures ..... 11
4.1.3 Test Setup ..... 12
4.1.4 Test Results ..... 13
4.2 Frequency Stability Measurement ..... 15
4.2.1 Limits of Frequency Stabiliity Measurement ..... 15
4.2.2 Test Procedure ..... 15
4.2.3 Test Setup ..... 15
4.2.4 Test Results ..... 16
4.3 Occupied Bandwidth Measurement ..... 17
4.3.1 Test Procedure ..... 17
4.3.2 Test Setup ..... 17
4.3.3 Test Result ..... 18
4.4 Band Edge Measurement ..... 19
4.4.1 Limits of Band Edge Measurement ..... 19
4.4.2 Test Setup ..... 19
4.4.3 Test Procedures ..... 19
4.4.4 Test Results ..... 19
4.5 Peak To Average Ratio ..... 20
4.5.1 Limits of Peak To Average Ratio Measurement ..... 20
4.5.2 Test Setup ..... 20
4.5.3 Test Procedures ..... 20
4.5.4 Test Results ..... 21
4.6 Conducted Spurious Emissions ..... 22
4.6.1 Limits of Conducted Spurious Emissions Measurement ..... 22
4.6.2 Test Setup ..... 22
4.6.3 Test Procedure ..... 22
4.6.4 Test Results ..... 23
4.7 Radiated Emission Measurement ..... 26
4.7.1 Limits of Radiated Emission Measurement ..... 26
4.7.2 Test Procedure ..... 26
4.7.3 Deviation from Test Standard ..... 26
4.7.4 Test Setup ..... 27
4.7.5 Test Results ..... 28

**5 Pictures of Test Arrangements ..... 32**

**Appendix – Information on the Testing Laboratories ..... 33**

## Release Control Record

| Issue No. | Description | Date Issued |
|---|---|---|
| RF150114C11-1 | Original release. | Mar. 23, 2015 |

## 1 Certificate of Conformity

| | |
|---|---|
| **Product:** | AtermMR04LN |
| **Brand:** | NEC |
| **Test Model:** | PA-MR04LN |
| **Sample Status:** | Engineering sample |
| **Applicant:** | NEC Platforms, Ltd. |
| **Test Date:** | Jan. 20 ~ Mar. 13, 2015 |
| **Standards:** | FCC Part 24, Subpart E |

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

**Prepared by :** , **Date:** Mar. 23, 2015

Ivy Lin / Specialist

**Approved by :** , **Date:** Mar. 23, 2015

Bruce Chen / Project Engineer

## 2 Summary of Test Results

| Applied Standard: FCC Part 24 & Part 2 | | | |
|---|---|---|---|
| FCC Clause | Test Item | Result | Remarks |
| 2.1046<br>24.232 | Equivalent isotropically radiated power | PASS | Meet the requirement of limit. |
| 2.1046<br>24.232(d) | Peak To Average Ratio | PASS | Meet the requirement of limit. |
| 2.1055<br>24.235 | Frequency Stability | PASS | Meet the requirement of limit. |
| 2.1049<br>24.238(b) | Occupied Bandwidth | PASS | Meet the requirement of limit. |
| 24.238(b) | Band Edge Measurements | PASS | Meet the requirement of limit. |
| 2.1051<br>24.238 | Conducted Spurious Emissions | PASS | Meet the requirement of limit. |
| 2.1053<br>24.238 | Radiated Spurious Emissions | PASS | Meet the requirement of limit.<br>Minimum passing margin is -25.58dB at 3819.60MHz. |

### 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 | Expended Uncertainty (k=2) (±) |
|---|---|---|
| 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 Test Site And Instruments

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|---|---|---|---|---|
| Test Receiver<br>ROHDE & SCHWARZ | ESCI | 100424 | Oct. 06, 2014 | Oct. 05, 2015 |
| BILOG Antenna<br>SCHWARZBECK | VULB9168 | 9168-155 | Feb. 26, 2014 | Feb. 25, 2015 |
| | | | Feb. 06, 2015 | Feb. 05, 2016 |
| HORN Antenna<br>SCHWARZBECK | BBHA 9120D | 9120D-1170 | Aug. 25, 2014 | Aug. 24, 2015 |
| HORN Antenna<br>SCHWARZBECK | BBHA 9170 | BBHA9170241 | Feb. 20, 2014 | Feb. 19, 2015 |
| | | | Feb. 09, 2015 | Feb. 08, 2016 |
| Preamplifier<br>Agilent | 8449B | 3008A01961 | Oct. 18, 2014 | Oct. 17, 2015 |
| Preamplifier<br>Agilent | 8447D | 2944A10738 | Oct. 18, 2014 | Oct. 17, 2015 |
| RF signal cable<br>HUBER+SUHNNER | SUCOFLEX 104 | 309220/4 | Aug. 09, 2014 | Aug. 08, 2015 |
| RF signal cable<br>HUBER+SUHNNER | SUCOFLEX 104 | 250724/4 | Aug. 09, 2014 | Aug. 08, 2015 |
| RF signal cable<br>HUBER+SUHNNER | SUCOFLEX 104 | 295012/4 | Aug. 09, 2014 | Aug. 08, 2015 |
| 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>inn-co GmbH | CO2000 | 019303 | NA | NA |
| Turn Table<br>BV ADT | TT100. | TT93021704 | NA | NA |
| Turn Table Controller<br>BV ADT | SC100. | SC93021704 | NA | NA |
| Mini-Circuits Power Splitter | ZN2PD-9G | NA | Apr. 25, 2014 | Apr. 24, 2015 |
| JFW 20dB attenuation | 50HF-020-SMA | NA | NA | NA |

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

2. The test was performed in HwaYa Chamber 4.

3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

4. The FCC Site Registration No. is 460141.

5. The IC Site Registration No. is IC7450F-4.

## 3 General Information

### 3.1 General Description of EUT

| | |
|---|---|
| Product | AtermMR04LN |
| Brand | NEC |
| Test Model | PA-MR04LN |
| Status of EUT | Engineering sample |
| Power Supply Rating | 5Vdc (adapter)<br>3.8Vdc (battery) |
| Modulation Type | GPRS: GMSK |
| Operating Frequency | 1850.2MHz ~ 1909.8MHz |
| Max. EIRP Power | 748.170mW (28.74dBm) |
| Multi-Slots CLASS | 12 |
| Antenna Type | Inverted F antenna with 1.11dBi gain |
| Antenna Connector | UFL |
| Accessory Device | N/A |
| Data Cable Supplied | N/A |

Note:

1. The EUT uses following adapter, battery and USB cable.

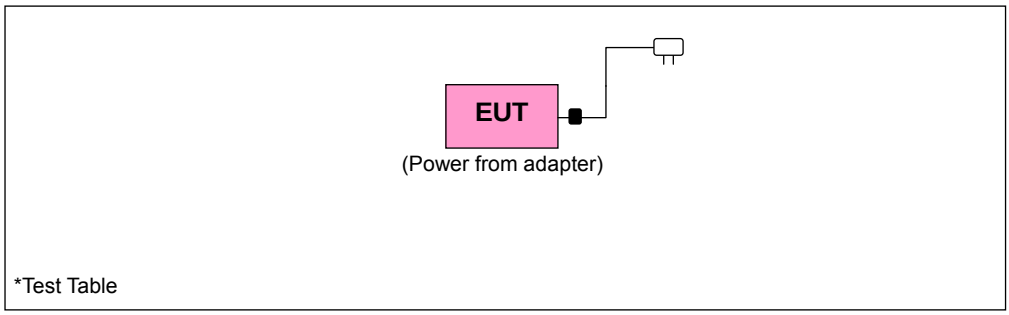
| Adapter (Support unit only) | |
|---|---|
| Brand | NEC |
| Model | AL1-004001-001 |
| Input Power | 100-240Vac, 50/60Hz, 140mA |
| Output Power | 5Vdc, 1.0A |

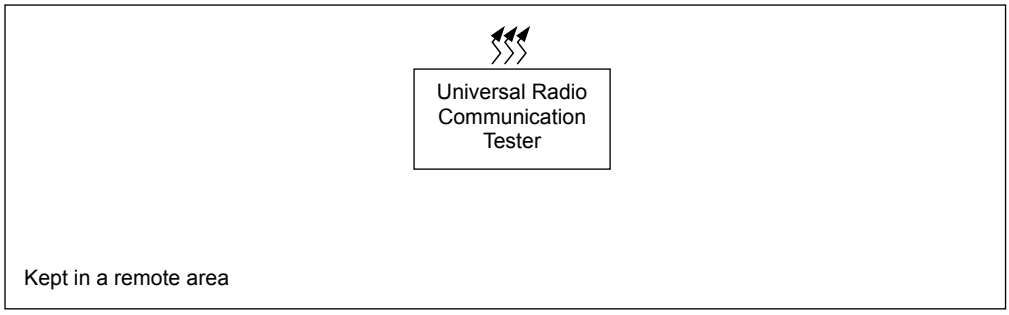
| Li-ion Battery (Support unit only) | |
|---|---|
| Brand | NEC |
| Model | AL1-003388-001 |
| Input Power | 3.8Vdc, 2300mAh |

| | |
|---|---|
| USB cable<br>(Support unit only) | 1.0m non-shielded cable with one core |

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

## 3.2 Configuration of System Under Test




### 3.2.1 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. | Universal Radio Communication Tester | R&S | CMU200 | 117260 | NA | - |

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.

### 3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports
The worst case was found when positioned on Y-plane. Following channel(s) was (were) selected for the final test as listed below:

Test modes are presented in the report as below.

| Test Mode | Test Condition |
|---|---|
| A | Power from adapter |
| B | Power from battery |

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Mode |
|---|---|---|---|---|
| A | EIRP | 512 to 810 | 512, 661, 810 | GPRS |
| B | Frequency Stability | 512 to 810 | 661 | GPRS |
| B | Occupied Bandwidth | 512 to 810 | 512, 661, 810 | GPRS |
| B | Band Edge | 512 to 810 | 512, 810 | GPRS |
| B | Peak To Average Ratio | 512 to 810 | 512, 661, 810 | GPRS |
| B | Condcudeted Emission | 512 to 810 | 512, 661, 810 | GPRS |
| B | Radiated Emission Below 1GHz | 512 to 810 | 512 | GPRS |
| A | Radiated Emission Above 1GHz | 512 to 810 | 512, 661, 810 | GPRS |

**Test Condition:**

| Test Item | Environmental Conditions | Input Power | Tested By |
|---|---|---|---|
| EIRP | 25deg. C, 65%RH | 120Vac, 60Hz | Chris Lin |
| Frequency Stability | 24deg. C, 64%RH | 3.8Vdc | Match Tsui |
| Occupied Bandwidth | 24deg. C, 64%RH | 3.8Vdc | Match Tsui |
| Band Edge | 24deg. C, 64%RH | 3.8Vdc | Match Tsui |
| Peak To Average Ratio | 24deg. C, 64%RH | 3.8Vdc | Match Tsui |
| Condcudeted Emission | 24deg. C, 64%RH | 3.8Vdc | Match Tsui |
| Radiated Emission | 25deg. C, 65%RH | 120Vac, 60Hz | Chris Lin |

### 3.4 EUT Operating Conditions

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

### 3.5 General Description of Applied Standards

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

**FCC 47 CFR Part 2**

**FCC 47 CFR Part 24**

**KDB 971168 D01 Power Meas License Digital Systems v02r01**

**ANSI/TIA/EIA-603-C 2004**

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

# 4 Test Types and Results

## 4.1 Output Power Measurement

### 4.1.1 Limits of Output Power Measurement

Mobile / Portable station are limited to 2 watts e.i.r.p.

### 4.1.2 Test Procedures

**EIRP / ERP Measurement:**

a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 1MHz for GPRS mode.

b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.

c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value“ of step b. Record the power level of S.G

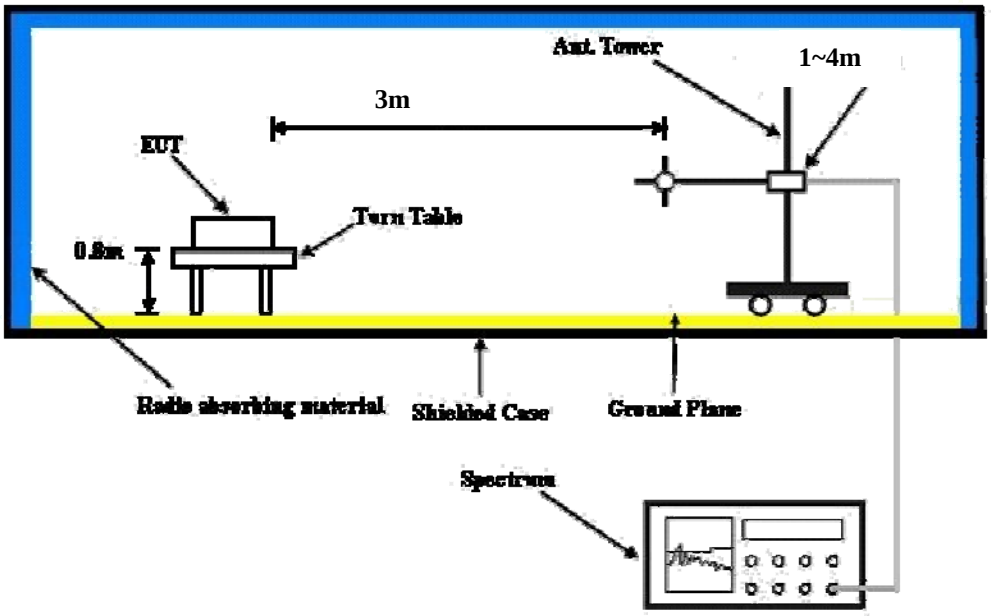
d. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.

**Conducted Power Measurement:**

The EUT was set up for the maximum power with GPRS link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

4.1.3 Test Setup

EIRP / ERP MEASUREMENT:




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

CONDUCTED POWER MEASUREMENT:

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

### 4.1.4 Test Results

**CONDUCTED OUTPUT POWER (dBm)**

| Band | GPRS1900 | | |
|---|---|---|---|
| Channel | 512 | 661 | 810 |
| Frequency (MHz) | 1850.2 | 1880.0 | 1909.8 |
| GPRS 8 | 30.46 | 30.31 | 30.40 |
| GPRS 10 | 28.61 | 28.46 | 28.55 |
| GPRS 11 | 27.02 | 26.81 | 26.90 |
| GPRS 12 | 25.47 | 25.32 | 25.41 |

EIRP Power (dBm)

| MODE | TX channel 512 | | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1850.20 | -17.01 | 22.82 | 1.07 | 23.89 | 33.00 | -9.11 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1850.20 | -11.08 | 27.67 | 1.07 | **28.74** | 33.00 | -4.26 |

| MODE | TX channel 661 | | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1880.00 | -16.76 | 23.37 | 1.12 | 24.49 | 33.00 | -8.51 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1880.00 | -12.53 | 25.95 | 1.12 | 27.07 | 33.00 | -5.93 |

| MODE | TX channel 810 | | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1909.80 | -16.89 | 23.53 | 1.11 | 24.64 | 33.00 | -8.36 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1909.80 | -12.26 | 26.16 | 1.11 | 27.27 | 33.00 | -5.73 |

NOTE: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

## 4.2 Frequency Stability Measurement

### 4.2.1 Limits of Frequency Stabiliity Measurement

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

### 4.2.2 Test Procedure

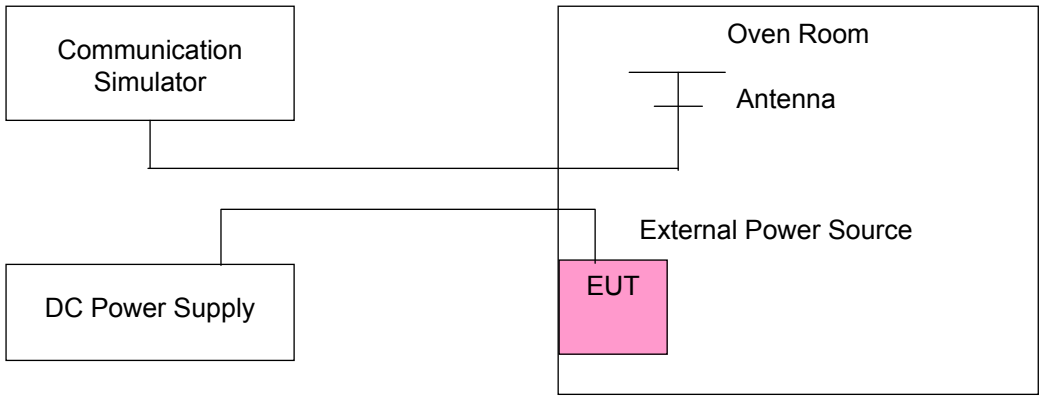
a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.

b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.

c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ±0.5 ℃ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

**NOTE:** The frequency error was recorded frequency error from the communication simulator.

### 4.2.3 Test Setup



4.2.4 Test Results

Frequency Error vs. Voltage

| Voltage (Volts) | Frequency Error (ppm) | Limit (ppm) |
|---|---|---|
| | GPRS | |
| 4.2 | -0.010 | 2.5 |
| 3.8 | -0.009 | 2.5 |
| 3.5 | -0.008 | 2.5 |

**NOTE:** The applicant defined the normal working voltage of the battery is from 3.5Vdc to 4.2Vdc.

Frequency Error vs. Temperature

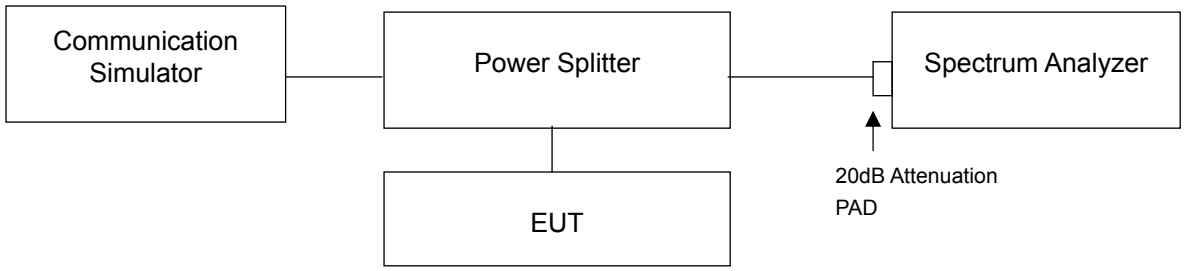
| Temp. (℃) | Frequency Error (ppm) | Limit (ppm) |
|---|---|---|
| | GPRS | |
| 60 | -0.015 | 2.5 |
| 50 | -0.015 | 2.5 |
| 40 | -0.016 | 2.5 |
| 30 | -0.013 | 2.5 |
| 20 | -0.009 | 2.5 |
| 10 | -0.010 | 2.5 |
| 0 | -0.018 | 2.5 |
| -10 | -0.016 | 2.5 |
| -20 | -0.016 | 2.5 |

## 4.3 Occupied Bandwidth Measurement

### 4.3.1 Test Procedure

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

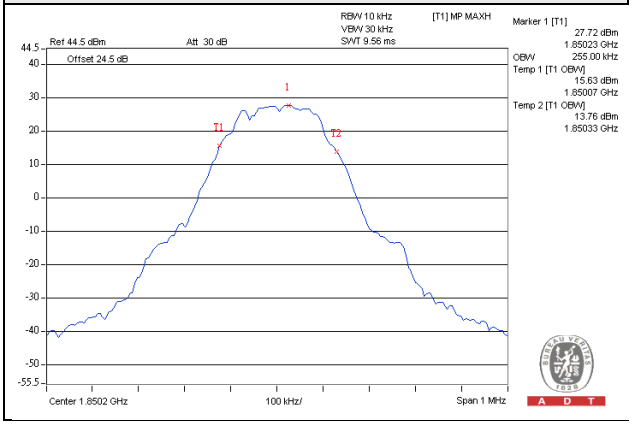
### 4.3.2 Test Setup



### 4.3.3 Test Result

| Channel | Frequency (MHz) | 99% Occupied Bandwidth (kHz) |
|---|---|---|
| | | GPRS |
| 512 | 1850.2 | 255.00 |
| 661 | 1880.0 | 250.00 |
| 810 | 1909.8 | 250.00 |

| Spectrum Plot of Worst Value |
|---|
| GPRS |

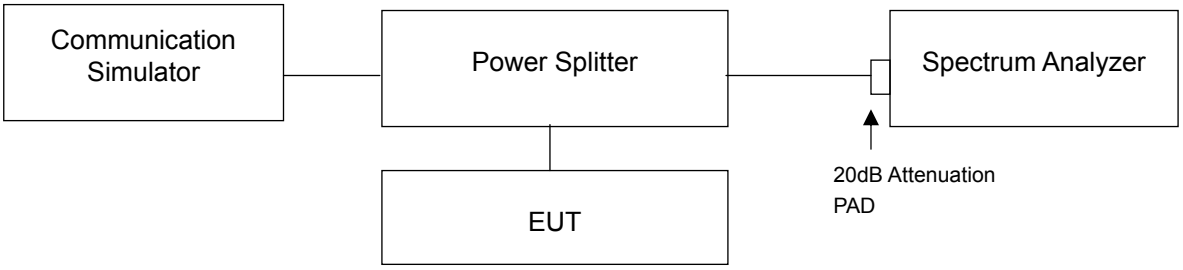


## 4.4 Band Edge Measurement

### 4.4.1 Limits of Band Edge Measurement

Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

### 4.4.2 Test Setup




### 4.4.3 Test Procedures

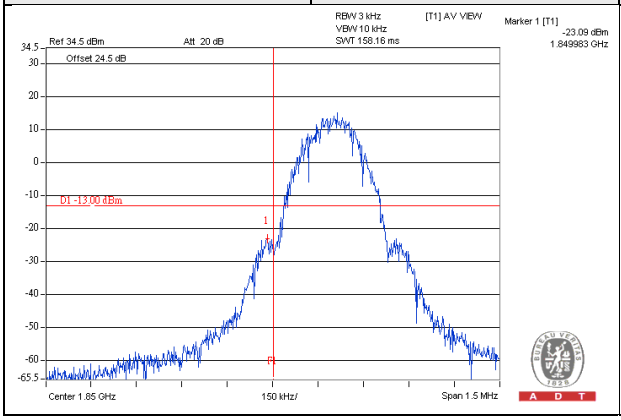
a. All measurements were done at low and high operational frequency range.

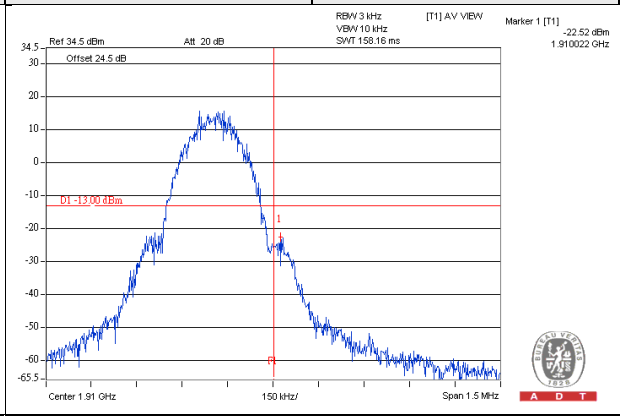
b. The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RB of the spectrum is 3kHz and VB of the spectrum is 10kHz (GPRS).

c. Record the max trace plot into the test report.

### 4.4.4 Test Results

| GPRS | | | |
|---|---|---|---|
| Channel | 512 | Channel | 810 |



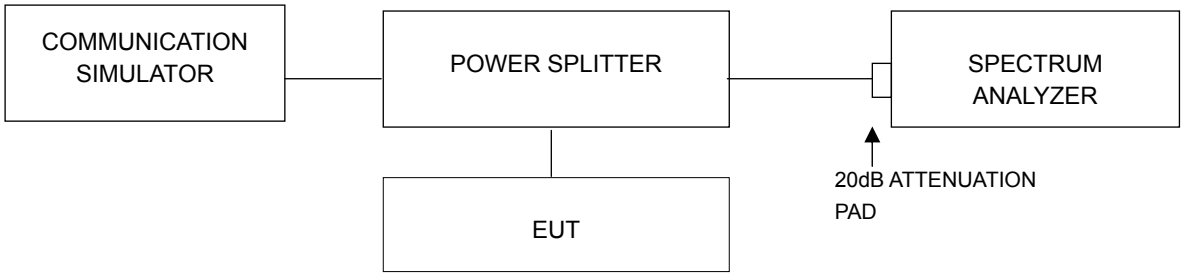



## 4.5 Peak To Average Ratio

4.5.1 Limits of Peak To Average Ratio Measurement

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

4.5.2 Test Setup



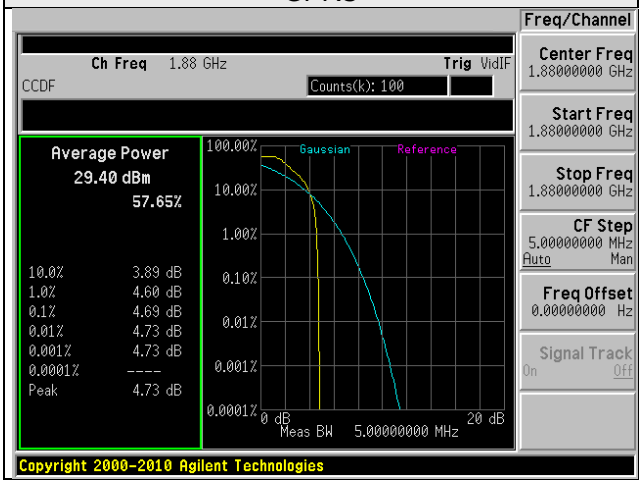

4.5.3 Test Procedures

1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1%.

### 4.5.4 Test Results

| Channel | Frequency (MHz) | Peak To Average Ratio (dB) |
|---|---|---|
| | | GPRS |
| 512 | 1850.2 | 4.28 |
| 661 | 1880.0 | 4.69 |
| 810 | 1909.8 | 3.52 |

| Spectrum Plot of Worst Value |
|---|
| GPRS |

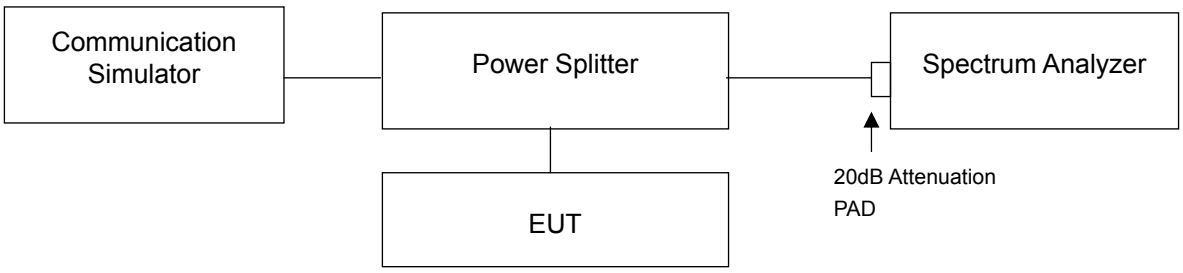


## 4.6 Conducted Spurious Emissions

### 4.6.1 Limits of Conducted Spurious Emissions Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to –13dBm.

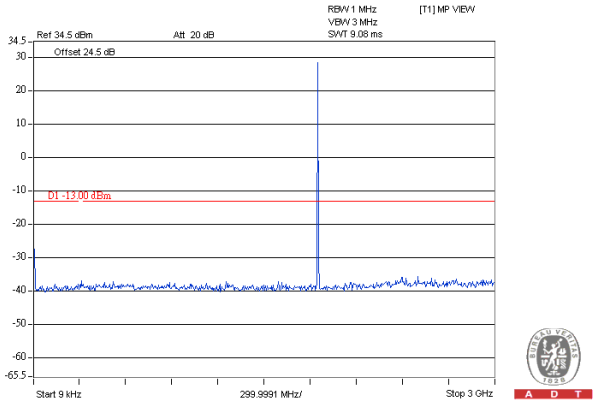
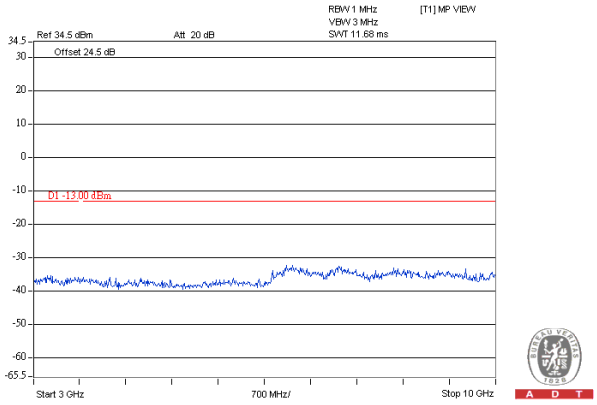
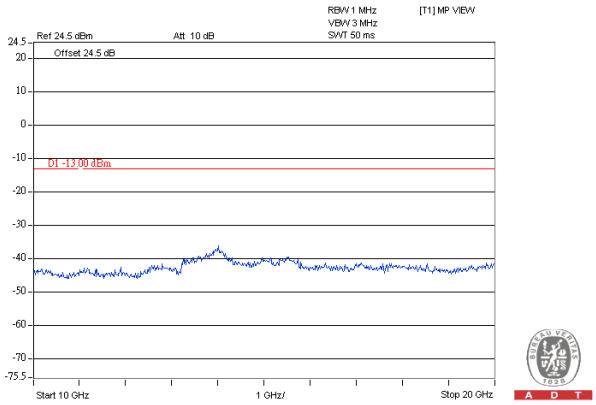
### 4.6.2 Test Setup

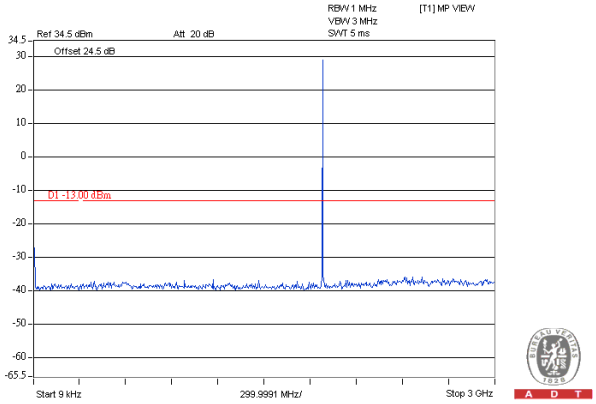
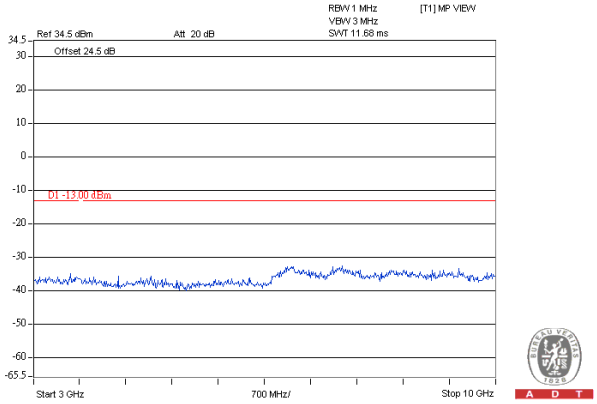
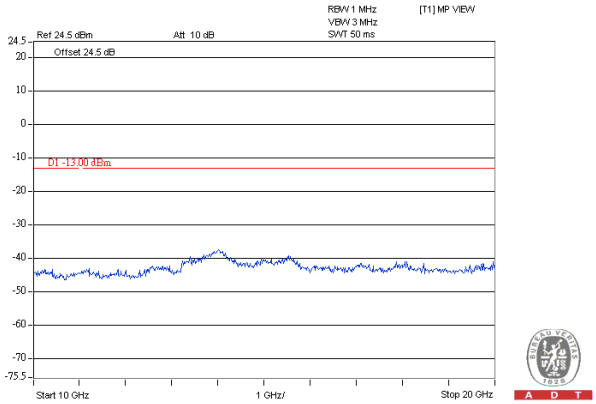


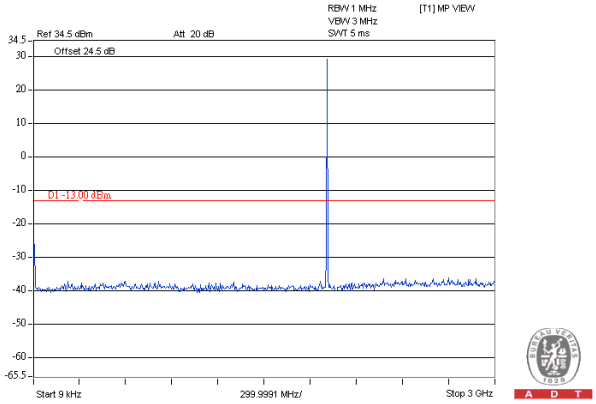
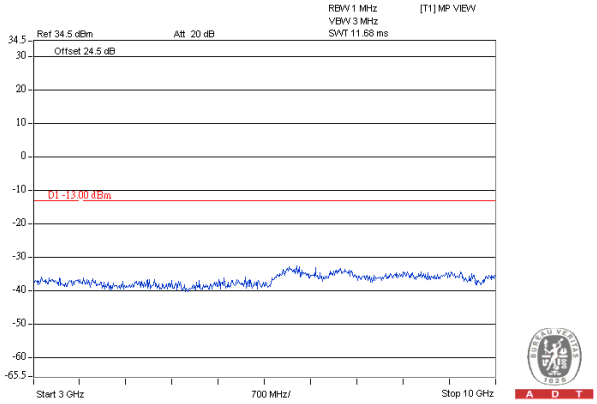
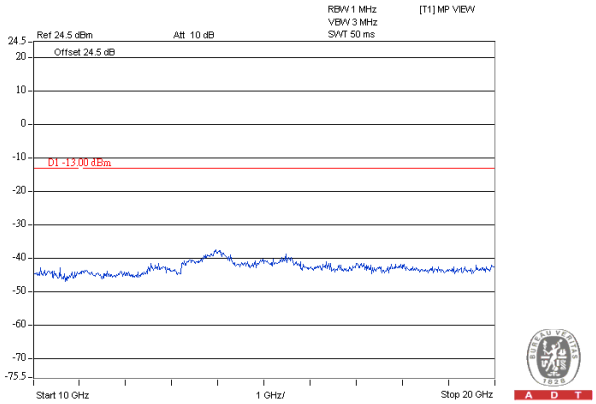

### 4.6.3 Test Procedure

a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
b. Measuring frequency range is from 9 kHz to 9GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

## 4.6.4 Test Results

| GPRS | |
|---|---|
| Channel 512 | |
| Frequency Range : 9kHz~3GHz | Frequency Range : 3GHz~10GHz |
|  |  |
| Frequency Range : 10GHz~20GHz | |
|  | |

| GPRS | |
|---|---|
| Channel 661 | |
| Frequency Range : 9kHz~3GHz | Frequency Range : 3GHz~10GHz |
|  |  |
| Frequency Range : 10GHz~20GHz | |
|  | |

| GPRS | |
|---|---|
| Channel 810 | |
| Frequency Range : 9kHz~3GHz | Frequency Range : 3GHz~10GHz |
|  |  |
| Frequency Range : 10GHz~20GHz | |
|  | |

## 4.7 Radiated Emission Measurement

### 4.7.1 Limits of Radiated Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to –13dBm.

### 4.7.2 Test Procedure

a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.

b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value “ of step a. Record the power level of S.G

c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.

d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole,

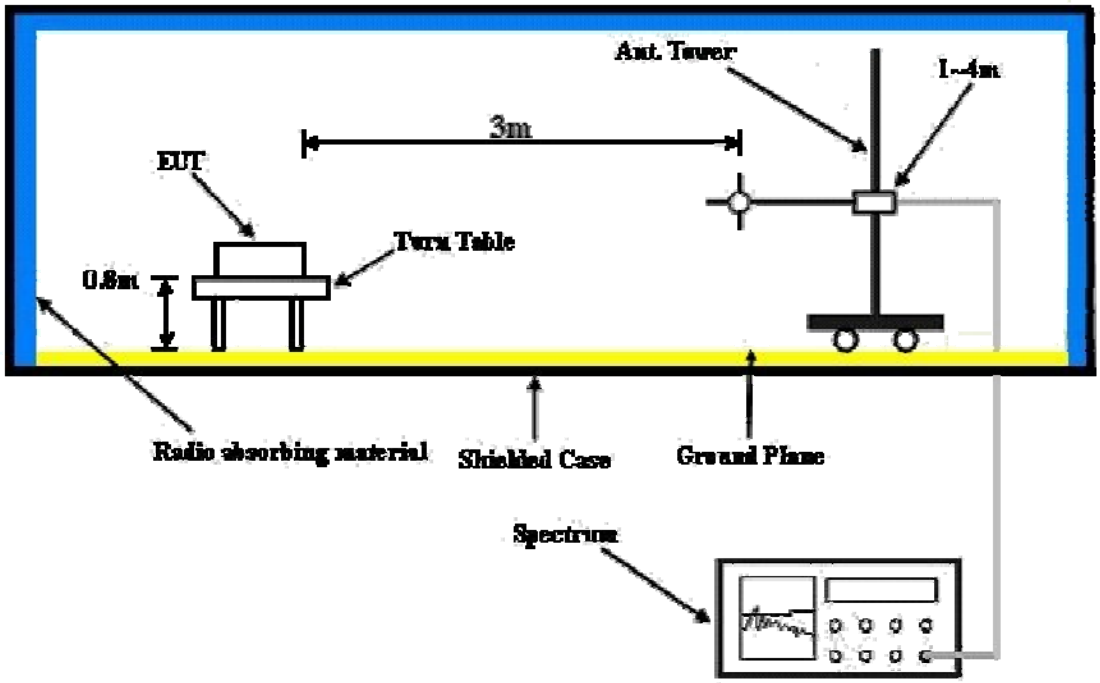
   E.R.P power = E.I.R.P power - 2.15dBi.

**NOTE:** The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

### 4.7.3 Deviation from Test Standard

No deviation.

4.7.4 Test Setup




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

4.7.5 Test Results

Below 1GHz

| Mode | TX channel 512 | Frequency Range | Below 1000 MHz |
|---|---|---|---|
| Environmental Conditions | 25deg. C, 65%RH | Input Power | 120Vac, 60Hz |
| Tested By | Chris Lin | | |

| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 41.64 | -45.45 | -31.88 | -10.62 | -42.50 | -13.00 | -29.50 |
| 2 | 107.60 | -64.36 | -72.60 | 0.58 | -72.02 | -13.00 | -59.02 |
| 3 | 297.72 | -67.43 | -76.08 | 5.14 | -70.94 | -13.00 | -57.94 |
| 4 | 505.30 | -68.29 | -74.24 | 4.86 | -69.38 | -13.00 | -56.38 |
| 5 | 782.72 | -69.21 | -68.28 | 4.25 | -64.03 | -13.00 | -51.03 |
| 6 | 990.30 | -69.78 | -66.12 | 3.90 | -62.22 | -13.00 | -49.22 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 43.58 | -32.67 | -28.60 | -10.30 | -38.90 | -13.00 | -25.90 |
| 2 | 165.80 | -66.20 | -67.55 | 1.12 | -66.43 | -13.00 | -53.43 |
| 3 | 278.32 | -67.14 | -70.58 | 5.24 | -65.34 | -13.00 | -52.34 |
| 4 | 402.48 | -62.64 | -68.78 | 5.28 | -63.50 | -13.00 | -50.50 |
| 5 | 551.86 | -61.36 | -64.72 | 4.62 | -60.10 | -13.00 | -47.10 |
| 6 | 937.92 | -64.36 | -59.48 | 3.92 | -55.56 | -13.00 | -42.56 |

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Above 1GHz

| Mode | TX channel 512 | Frequency Range | Above 1000MHz |
|---|---|---|---|
| Environmental Conditions | 25deg. C, 65%RH | Input Power | 120Vac, 60Hz |
| Tested By | Chris Lin | | |

| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 3730.20 | -60.01 | -53.78 | 7.13 | -46.65 | -13.00 | -33.65 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 3730.20 | -60.78 | -53.58 | 7.13 | -46.45 | -13.00 | -33.45 |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

| Mode | TX channel 661 | Frequency Range | Above 1000MHz |
|---|---|---|---|
| Environmental Conditions | 25deg. C, 65%RH | Input Power | 120Vac, 60Hz |
| Tested By | Chris Lin | | |

| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 3760.00 | -53.11 | -46.56 | 7.10 | -39.46 | -13.00 | -26.46 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 3760.00 | -56.56 | -49.14 | 7.10 | -42.04 | -13.00 | -29.04 |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

| Mode | TX channel 810 | Frequency Range | Above 1000MHz |
|---|---|---|---|
| Environmental Conditions | 25deg. C, 65%RH | Input Power | 120Vac, 60Hz |
| Tested By | Chris Lin | | |

| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| **1** | **3819.60** | **-52.39** | **-45.63** | **7.05** | **-38.58** | **-13.00** | **-25.58** |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 3819.60 | -56.69 | -48.92 | 7.05 | -41.87 | -13.00 | -28.87 |

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

## 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 accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following: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The address and road map of all our labs can be found in our web site also.

**--- END ---**