



# FCC REPORT

**Report Reference No.**..... : **TRE1801004502** R/C.....: 93644

**FCC ID**..... : **2ALAVA81F**

**Applicant's name**..... : **Haier International Business Corporation Limited**

**Address**.....: Room 1602,16th Floor,Tower A,No. 1 Ke Yuan Wei Yi Road,  
Lao Shan District,Qingdao,Shandong,China

**Manufacturer**.....: Haier International Business Corporation Limited

**Address**.....: Room 1602,16th Floor,Tower A,No. 1 Ke Yuan Wei Yi Road,  
Lao Shan District,Qingdao,Shandong,China

**Test item description** ..... : **Tablet PC**

**Trade Mark** .....: **IBIRAPITÁ**

**Model/Type reference**.....: A81F

**Listed Model(s)** .....: -


**Standard** ..... : **FCC Part 22: PUBLIC MOBILE SERVICES**


**Date of receipt of test sample**.....: Jan.05,2018


**Date of testing**.....: Jan.06,2018-Jan.18,2018

**Date of issue**.....: Jan.19,2018

**Result**.....: **Pass**

Compiled by  
( position+printedname+signature)....: File administrators Candy Liu 

Supervised by  
(position+printedname+signature)....: Project Engineer : Edward Pan 

Approved by  
(position+printedname+signature)....: Manager Hans Hu 

**Testing Laboratory Name** ..... : **Shenzhen Huatongwei International Inspection Co., Ltd.**

**Address**.....: 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road,  
Tianliao, Gongming, Shenzhen, China

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*The test report merely corresponds to the test sample.  
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.*

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## **1. Test standards and Report version**

### **1.1. Applicable Standards**

The tests were performed according to following standards:

[FCC Part 22](#): PRIVATE LAND MOBILE RADIO SERVICES.  
Performance Standards.

[FCC Part 2](#): FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

[ANSI C63.26-2015](#): American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

[971168 D01 Power Meas License Digital Systems v03](#): Provides a methodology for fully characterizing the fundamental power of wideband (> 1 MHz) digitally modulated RF signals acceptable to the FCC for demonstrating compliance for licensed transmitters.

### **1.2. Report version**

| Version No. | Date of issue | Description |
|-------------|---------------|-------------|
| 00          | Jan.19,2018   | Original    |
|             |               |             |
|             |               |             |
|             |               |             |
|             |               |             |

## 2. Test Description

| Test Item                           | Section in CFR 47                   | Result | Test Engineer |
|-------------------------------------|-------------------------------------|--------|---------------|
| RF Output Power                     | Part 2.1046<br>Part 22.913(a)       | Pass   | William Wang  |
| 99% & -26 dB Occupied Bandwidth     | Part 2.1049<br>Part 22.917(b)       | Pass   | William Wang  |
| Conducted Spurious Emissions        | Part 2.1051<br>Part 22.917          | Pass   | William Wang  |
| Band Edge                           | Part 2.1051<br>Part 22.917          | Pass   | William Wang  |
| ERP                                 | Part 22.913(a)                      | Pass   | William Wang  |
| Radiated Spurious Emissions         | Part 2.1053<br>Part 22.917          | Pass   | William Wang  |
| Frequency stability vs. temperature | Part 2.1055(a)(1)(b)<br>Part 22.355 | Pass   | William Wang  |
| Frequency stability vs. voltage     | Part 2.1055(d)(1)(2)<br>Part 22.355 | Pass   | William Wang  |

Note: The measurement uncertainty is not included in the test result.

### 3. SUMMARY

#### 3.1. Client Information

|               |   |
|---------------|---|
| Applicant:    | Haier International Business Corporation Limited  |
| Address:      | Room 1602,16th Floor,Tower A,No. 1 Ke Yuan Wei Yi Road,<br>Lao Shan District,Qingdao,Shandong,China |
| Manufacturer: | Haier International Business Corporation Limited  |
| Address:      | Room 1602,16th Floor,Tower A,No. 1 Ke Yuan Wei Yi Road,<br>Lao Shan District,Qingdao,Shandong,China |

#### 3.2. Product Description

|                           |   |
|---------------------------|---|
| Name of EUT:              | Tablet PC   |
| Trade Mark:               | <b>IBIRAPITÁ</b>  |
| Model No.:                | A81F  |
| Listed Model(s):          | -   |
| IMEI 1:                   | 868758030000008   |
| Power supply:             | DC 3.7V   |
| Adapter information:      | Input: 100-240Va.c., 50/60Hz, 0.5A<br>Output: 5Vd.c.,2.0A |
| Hardware version:         | L808WF_V1_20171129  |
| Software version:         | Ibirapita.PadA81F.GM20180126.SV1.0                        |
| <b>3G:</b>                |   |
| Operation Band:           | FDD Band V  |
| Power Class:              | Power Class 3   |
| Modulation Type:          | QPSK/16QAM/64QAM/HSUPA/HSDPA                              |
| DC-HSUPA Release Version: | Not Supported   |
| Antenna type:             | PIFA Antenna  |
| Antenna gain:             | Band V: 1.0dBi  |

### 3.3. Operation state

#### ➤ Test frequency list

| FDD Band V |                 |
|------------|-----------------|
| Channel    | Frequency (MHz) |
| 4132       | 826.40          |
| 4183       | 836.60          |
| 4233       | 846.60          |

#### ➤ Test mode

For RF test items

The EUT has been tested under typical operating condition. Testing was performed by configuring EUT to maximum output power status.

### 3.4. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

- - supplied by the manufacturer
- - supplied by the lab

|  |                 |
|--|-----------------|
|  | Length (m): /   |
|  | Shield: /       |
|  | Detachable: /   |
|  | Manufacturer: / |
|  | Model No.: /    |

### 3.5. Modifications

No modifications were implemented to meet testing criteria.

## **4. TEST ENVIRONMENT**

### **4.1. Address of the test laboratory**

Laboratory: Shenzhen Huatongwei International Inspection Co., Ltd.

Address: 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China

### **4.2. Test Facility**

#### **CNAS-Lab Code: L1225**

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

#### **A2LA-Lab Cert. No.: 3902.01**

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

#### **FCC-Registration No.: 762235**

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files.

#### **IC-Registration No.:5377B-1**

Two 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No.: 5377B-1.

#### **ACA**

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

### 4.3. Equipments Used during the Test

| RF Conducted |                               |                      |           |           |                      |                      |
|--------------|-------------------------------|----------------------|-----------|-----------|----------------------|----------------------|
| No.          | Equipment                     | Manufacturer         | Model No. | SerialNo. | Last Cal. (mm/dd/yy) | Next Cal. (mm/dd/yy) |
| 1            | UNIVERSAL RADIO COMMUNICATION | Rohde&Schwarz        | CMU200    | 112012    | 11/11/2017           | 11/11/2018           |
| 2            | WIDEB.RADIO COMM.TESRER       | Rohde&Schwarz        | CMW500    | 137688    | 10/26/2017           | 10/25/2018           |
| 3            | Spectrum Analyzer             | Rohde&Schwarz        | FSW26     | 103440    | 11/11/2017           | 11/10/2018           |
| 4            | MXA Signal Analyzer           | Agilent Technologies | N9020A    | MY5050187 | 11/10/2017           | 11/09/2018           |
| 5            | Splitter                      | Mini-Circuit         | ZAPD-4    | 400059    | 03/20/2017           | 03/19/2018           |
| 6            | Climate Chamber               | ESPEC                | EL-10KA   | 05107008  | 11/10/2017           | 11/09/2018           |

| RF Radiated |                               |                              |               |           |                      |                      |
|-------------|-------------------------------|------------------------------|---------------|-----------|----------------------|----------------------|
| No.         | Equipment                     | Manufacturer                 | Model No.     | SerialNo. | Last Cal. (mm/dd/yy) | Next Cal. (mm/dd/yy) |
| 1           | UNIVERSAL RADIO COMMUNICATION | Rohde&Schwarz                | CMU200        | 112012    | 11/11/2017           | 11/11/2018           |
| 2           | WIDEB.RADIO COMM.TESRER       | Rohde&Schwarz                | CMW500        | 137688    | 10/26/2017           | 10/25/2018           |
| 3           | Spectrum Analyzer             | Rohde&Schwarz                | FSW26         | 103440    | 11/11/2017           | 11/10/2018           |
| 4           | HORNANTENNA                   | ShwarzBeck                   | 9120D         | 1011      | 03/27/2017           | 03/26/2020           |
| 5           | Ultra-Broadband Antenna       | ShwarzBeck                   | VULB9163      | 538       | 04/05/2017           | 04/04/2020           |
| 6           | TURNTABLE                     | MATURO                       | TT2.0         | N/A       | N/A                  | N/A                  |
| 7           | ANTENNA MAST                  | MATURO                       | TAM-4.0-P     | N/A       | N/A                  | N/A                  |
| 8           | EMI Test Software             | Audix                        | E3            | N/A       | N/A                  | N/A                  |
| 9           | EMI Test Receiver             | R&S                          | ESCI          | 101247    | 11/11/2017           | 11/10/2018           |
| 10          | High pass filter              | Compliance Direction systems | BSU-6         | 34202     | 11/11/2017           | 11/10/2018           |
| 11          | Preamplifier                  | ShwarzBeck                   | BBV 9718      | 9718-248  | 10/18/2017           | 10/17/2018           |
| 12          | Broadband Preamplifier        | ShwarzBeck                   | BBV 9743      | 9743-0022 | 10/18/2017           | 10/17/2018           |
| 13          | Signal Generator              | Rohde&Schwarz                | SMB100A       | 114360    | 06/13/2017           | 06/12/2018           |
| 14          | Pre-amplifier                 | SCHWARZBECK                  | BBV 9742      | N/A       | 11/22/2017           | 11/21/2018           |
| 15          | Turntable                     | Maturo Germany               | TT2.0-1T      | N/A       | N/A                  | N/A                  |
| 16          | Antenna Mast                  | Maturo Germany               | CAM-4.0-P-12  | N/A       | N/A                  | N/A                  |
| 17          | Test Software                 | R&S                          | ES-K1         | N/A       | N/A                  | N/A                  |
| 18          | Loop Antenna                  | R&S                          | HFH2-Z2       | 100020    | 11/20/2017           | 11/19/2020           |
| 19          | RF Connection Cable           | HUBER+SUHNER                 | N/A           | N/A       | 11/21/2017           | 11/20/2018           |
| 20          | RF Connection Cable           | HUBER+SUHNER                 | SUCOFLEX104   | 501184/4  | 11/21/2017           | 11/20/2018           |
| 21          | RF Connection Cable           | HUBER+SUHNER                 | MULTIFLEX 141 | N/A       | 11/21/2017           | 11/20/2018           |
| 22          | Spectrum Analyzer             | R&S                          | FSP40         | 100597    | 11/11/2017           | 11/10/2018           |
| 23          | RF Connection Cable           | HUBER+SUHNER                 | RE-7-FH       | N/A       | 11/21/2017           | 11/20/2018           |
| 24          | RF Connection Cable           | HUBER+SUHNER                 | RE-7-FL       | N/A       | 11/21/2017           | 11/20/2018           |

The calibration interval was one year.



#### 4.4. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

|              |                       |          |
|--------------|-----------------------|----------|
| Voltage      | VN=Nominal Voltage    | DC 3.70V |
|              | VL=Lower Voltage      | DC 3.60V |
|              | VH=Higher Voltage     | DC 4.20V |
| Temperature  | TN=Normal Temperature | 25 °C    |
| Humidity     | 30~60 %               |          |
| Air Pressure | 950-1050 hPa          |          |

#### 4.5. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2" and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Huatongwei laboratory is reported:

| Test Items                                 | Measurement Uncertainty | Notes |
|--|-------------------------|-------|
| Frequency stability                        | 25 Hz                   | (1)   |
| Transmitter power conducted                | 0.57 dB                 | (1)   |
| Transmitter power Radiated                 | 2.20 dB                 | (1)   |
| Conducted spurious emission 9KHz-12.75 GHz | 1.60 dB                 | (1)   |
| Conducted Emission 9KHz-30MHz              | 3.39 dB                 | (1)   |
| Radiated Emission 30~1000MHz               | 4.24 dB                 | (1)   |
| Radiated Emissio 1~18GHz                   | 5.16 dB                 | (1)   |
| Radiated Emissio 18-40GHz                  | 5.54 dB                 | (1)   |
| Occupied Bandwidth                         | -----                   | (1)   |

- (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=1.96$ .

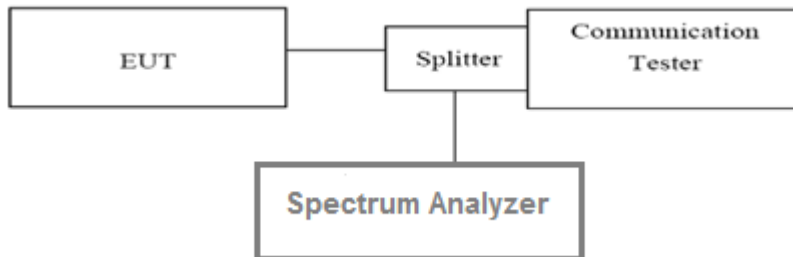
## 5. TEST CONDITIONS AND RESULTS

### 5.1. Conducted Output Power

#### LIMIT

N/A

#### TEST CONFIGURATION



#### TEST PROCEDURE

1. The transmitter output port was connected to base station.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator, the path loss was compensated to the results for each measurement.
3. Set EUT at maximum power through base station.
4. Select lowest, middle, and highest channels for each band and different modulation.
5. Measure the maximum burst average power.

#### TEST MODE:

Please refer to the clause 3.3

#### TEST RESULTS

Passed       Not Applicable

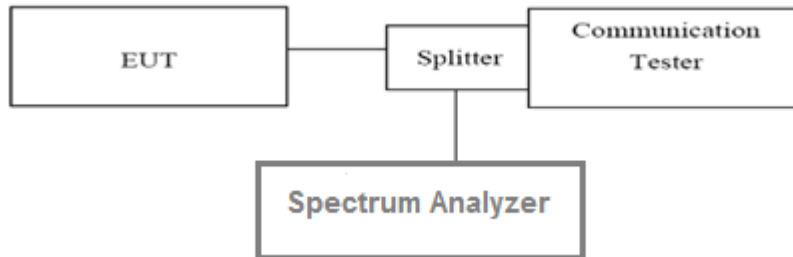
Reference Appendix A:

## 5.2. 99% & -26 dB Occupied Bandwidth

### LIMIT

N/A

### TEST CONFIGURATION



### TEST PROCEDURE

1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer
2. RBW was set to about 1% of emission BW, VBW= 3 times RBW.
3. -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

### TEST MODE:

Please refer to the clause 3.3

### TEST RESULTS

Passed       Not Applicable

Reference Appendix C:

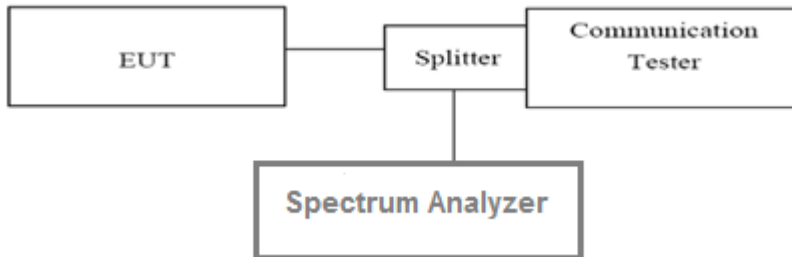
### 5.3. Conducted Spurious Emissions

#### LIMIT

Part 22.917 specify that 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 specification that emissions shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log(P)$  dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

#### TEST CONFIGURATION



#### TEST PROCEDURE

1. The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.
2. The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.
3. For the out of band: Set the RBW= 1MHz, VBW = 3MHz, Start=30MHz, Stop= 10th harmonic.

#### TEST MODE:

Please refer to the clause 3.3

#### TEST RESULTS

Passed       Not Applicable

Reference Appendix E:

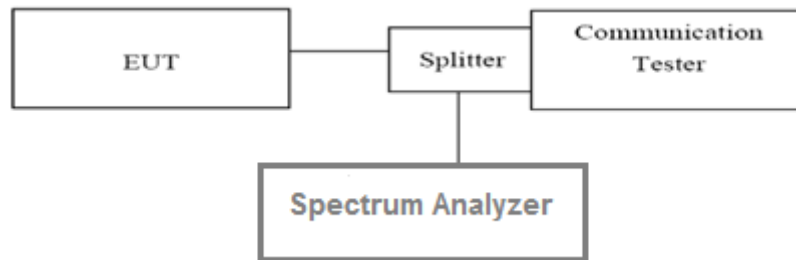
## 5.4. Band Edge

### LIMIT

Part 22.917 specifies that 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 specification that emissions shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log(P)$  dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

### TEST CONFIGURATION



### TEST PROCEDURE

1. The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.
2. For the band edge: Set the RBW=100KHz, VBW = 300KHz, Sweep time= Auto

### TEST MODE:

Please refer to the clause 3.3

### TEST RESULTS

Passed       Not Applicable

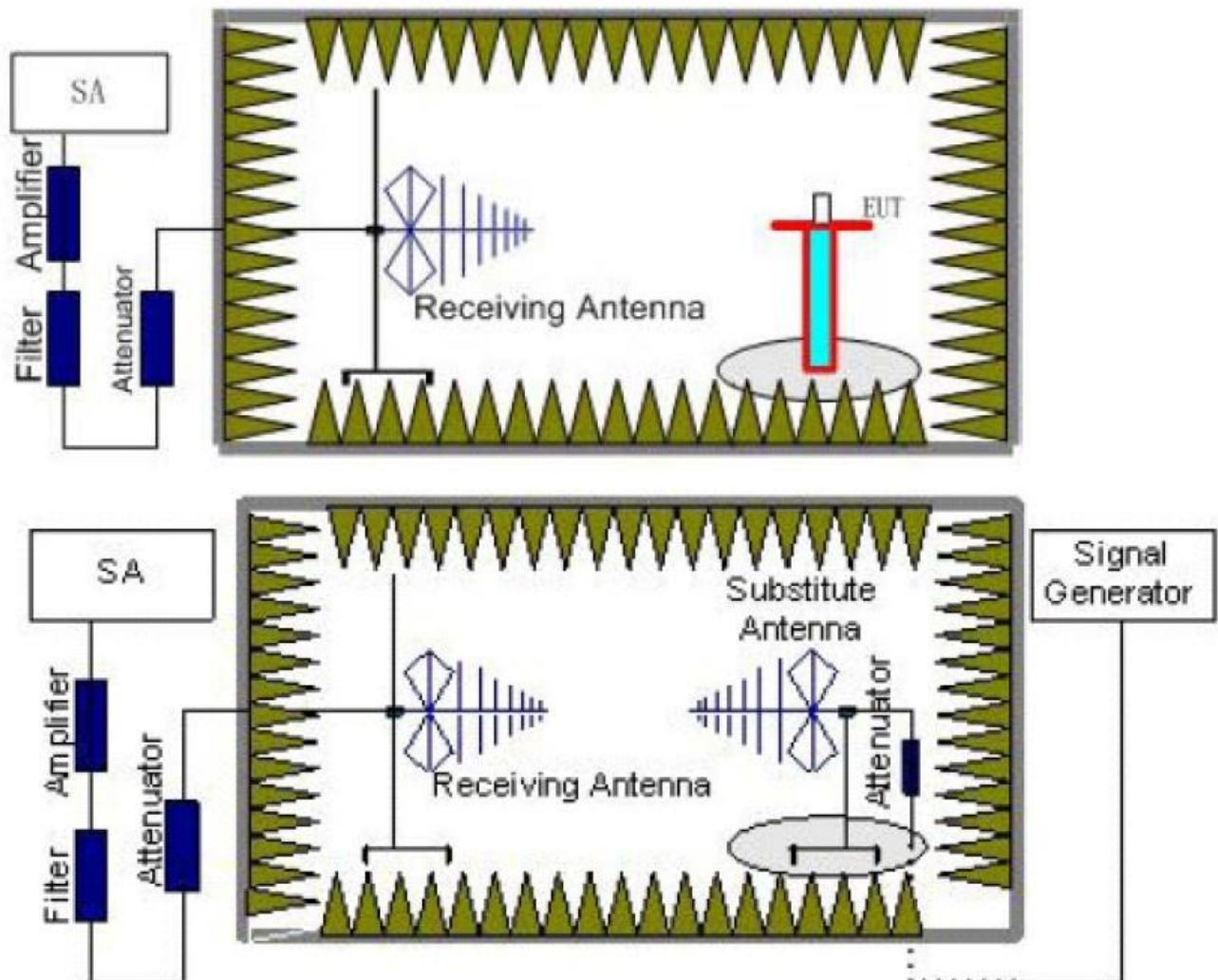
Reference Appendix D:

## 5.5. ERP

### LIMIT

WCDMA Band V: 7W ERP

### TEST CONFIGURATION



### TEST PROCEDURE

1. EUT was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.0m. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.
2. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
3. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=1MHz, VBW=3MHz for above 1GHz and RBW=100kHz, VBW=300kHz for 30MHz to 1GHz,, And the maximum value of the receiver should be recorded as (Pr).
4. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver

reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

5. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
6. The measurement results are obtained as described below:  
Power(EIRP)=PMea- PAg - Pcl + Ga  
We used SMF100A microwave signal generator which signal level can up to 33dBm,so we not used power Amplifier for substitution test; The measurement results are amend as described below:  
Power(EIRP)=PMea- Pcl + Ga
7. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.  
ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.

**TEST MODE:**

Please refer to the clause 3.3

**TEST RESULTS**

**Passed**       **Not Applicable**

| Mode         | Channel | Antenna Pol. | ERP   | Limit (dBm) | Result |
|--------------|---------|--------------|-------|-------------|--------|
| WCDMA Band V | 4132    | V            | 18.97 | 38.45       | Pass   |
|              |         | H            | 16.55 |             |        |
|              | 4183    | V            | 17.35 |             |        |
|              |         | H            | 16.10 |             |        |
|              | 4233    | V            | 17.15 |             |        |
|              |         | H            | 13.16 |             |        |

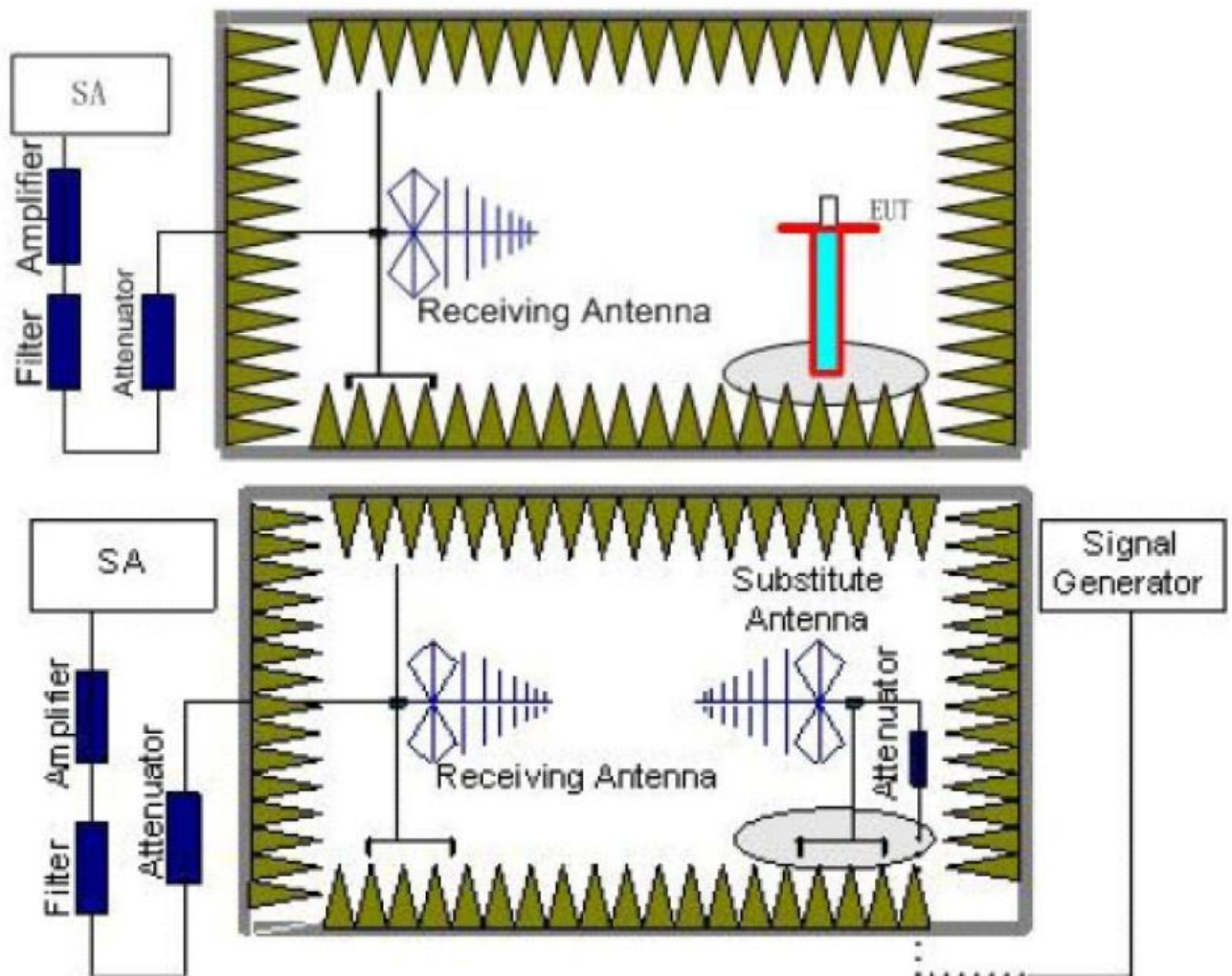


## 5.6. Radiated Spurious Emission

### LIMIT

-13dBm

### TEST CONFIGURATION



### TEST RESULTS

1. EUT was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.0m. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.
2. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
3. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=1MHz, VBW=3MHz for above 1GHz and RBW=100kHz, VBW=300kHz for 30MHz to 1GHz, And the maximum value of the receiver should be recorded as (Pr).
4. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the

substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

5. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
6. The measurement results are obtained as described below:  
Power(EIRP)=PMea- PAg - Pcl + Ga  
We used SMF100A micowave signal generator which signal level can up to 33dBm,so we not used power Amplifier for substitution test; The measurement results are amend as described below:  
Power(EIRP)=PMea- Pcl + Ga
7. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.  
ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.

**TEST MODE:**

Please refer to the clause 3.3

**TEST RESULTS**

**Passed**       **Not Applicable**

Note: Worst case at WCDMA Band V

| WCDMA Band V |                 |                   |             |             |        |
|--------------|-----------------|-------------------|-------------|-------------|--------|
| Channel      | Frequency (MHz) | Spurious Emission |             | Limit (dBm) | Result |
|              |                 | Polarization      | Level (dBm) |             |        |
| 4132         | 245.69          | Vertical          | -57.82      | -13.00      | Pass   |
|              | 266.39          | V                 | -53.50      |             |        |
|              | 1650.32         | V                 | -49.37      |             |        |
|              | 2475.28         | V                 | -39.56      |             |        |
|              | 4315.39         | V                 | -56.97      |             |        |
|              | 5792.66         | V                 | -52.25      |             |        |
|              | 266.39          | Horizontal        | -59.88      | -13.00      | Pass   |
|              | 600.20          | H                 | -58.26      |             |        |
|              | 1650.32         | H                 | -50.40      |             |        |
|              | 2475.28         | H                 | -41.53      |             |        |
|              | 5113.42         | H                 | -54.94      |             |        |
|              | 7466.20         | H                 | -49.67      |             |        |
| 4183         | 184.14          | Vertical          | -65.31      | -13.00      | Pass   |
|              | 266.39          | V                 | -57.94      |             |        |
|              | 1674.06         | V                 | -47.67      |             |        |
|              | 2580.81         | V                 | -44.28      |             |        |
|              | 4741.98         | V                 | -55.82      |             |        |
|              | 7423.01         | V                 | -50.32      |             |        |
|              | 266.39          | Horizontal        | -61.86      | -13.00      | Pass   |
|              | 598.09          | H                 | -60.22      |             |        |
|              | 1674.06         | H                 | -46.04      |             |        |
|              | 2508.13         | H                 | -46.14      |             |        |
|              | 3338.41         | H                 | -58.33      |             |        |
|              | 5309.91         | H                 | -54.65      |             |        |
| 4233         | 200.36          | Vertical          | -61.35      | -13.00      | Pass   |
|              | 266.39          | V                 | -52.89      |             |        |
|              | 1690.69         | V                 | -41.39      |             |        |
|              | 2535.84         | V                 | -44.78      |             |        |
|              | 4391.15         | V                 | -57.15      |             |        |
|              | 7358.70         | V                 | -50.04      |             |        |
|              | 266.39          | Horizontal        | -64.95      | -13.00      | Pass   |
|              | 470.89          | H                 | -61.28      |             |        |
|              | 1690.69         | H                 | -44.63      |             |        |
|              | 2538.63         | H                 | -43.32      |             |        |
|              | 3684.41         | H                 | -58.58      |             |        |
|              | 6954.05         | H                 | -51.47      |             |        |

## Remark:

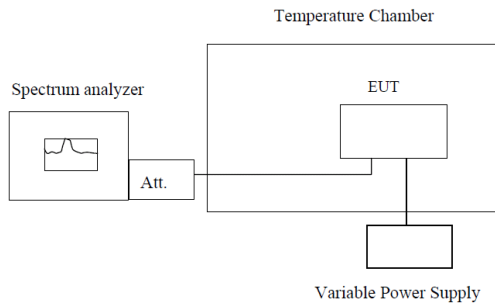
1. The emission behaviour belongs to narrowband spurious emission.
2. The emission levels of not record in the report are very lower than the limit and not show in test report.

## 5.7. Frequency stability V.S. Temperature measurement

### LIMIT

2.5ppm

### TEST CONFIGURATION



Note : Measurement setup for testing on Antenna connector

### TEST PROCEDURE

1. The equipment under test was connected to an external DC power supply and input rated voltage.
2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators.
3. The EUT was placed inside the temperature chamber.
4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency.
5. Turn EUT off and set the chamber temperature to  $-30^{\circ}\text{C}$ . After the temperature stabilized for approximately 30 minutes recorded the frequency.
6. Repeat step measure with  $10^{\circ}\text{C}$  increased per stage until the highest temperature of  $+50^{\circ}\text{C}$  reached.

### TEST MODE:

Please refer to the clause 3.3

### TEST RESULTS

Passed       Not Applicable

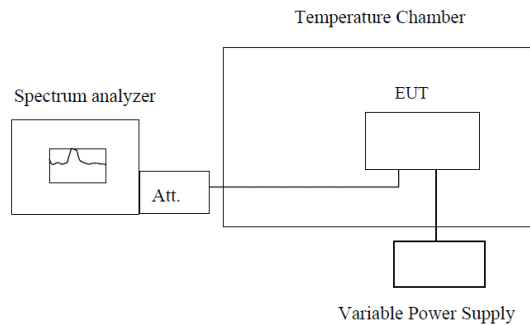
Reference Appendix F:

## 5.8. Frequency stability V.S. Voltage measurement

### LIMIT

2.5ppm

### TEST CONFIGURATION



**Note :** Measurement setup for testing on Antenna connector

### TEST PROCEDURE

1. Set chamber temperature to 25°C. Use a variable DC power source to power the EUT and set the voltage to rated voltage.
2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and record the frequency.
3. Reduce the input voltage to specified extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.

### TEST MODE:

Please refer to the clause 3.3

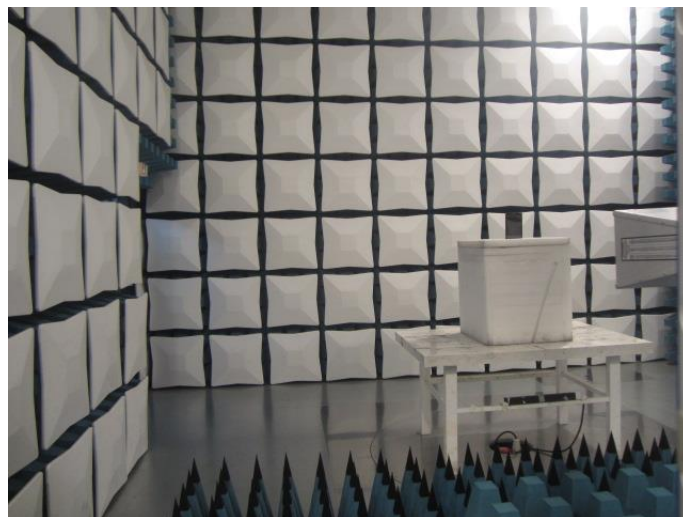
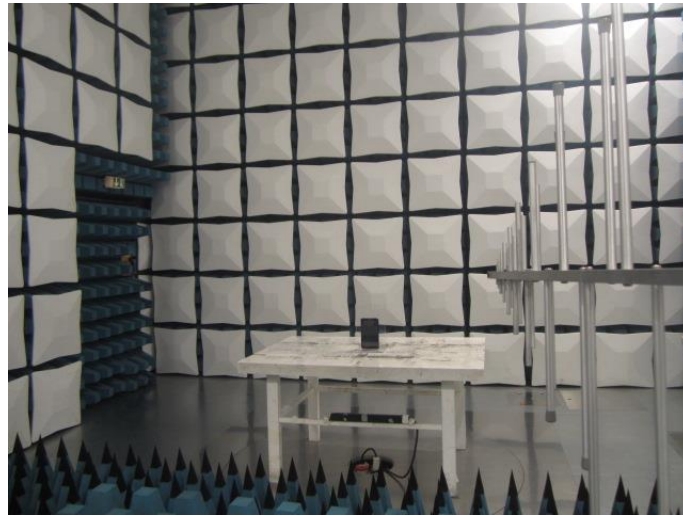
### TEST RESULTS

**Passed**       **Not Applicable**

**Reference Appendix F:**

## 6. Test Setup Photos of the EUT

Radiated emission:



## 7. External and Internal Photos of the EUT

Reference to the test report No.: TRE1801004501.

.....End of Report.....

**Appendix A: Conducted Output Power**

## Test Result

| Band   | Channel | Power(dBm) | Limit(dBm) | Verdict |
|--------|---------|------------|------------|---------|
| Band V | 4132    | 25.59      | 38.5       | PASS    |
| Band V | 4182    | 25.68      | 38.5       | PASS    |
| Band V | 4233    | 25.55      | 38.5       | PASS    |

| Band   | Channel | SubTest    | Power(dBm) | Limit(dBm) | Verdict |
|--------|---------|------------|------------|------------|---------|
| Band V | 4132    | HSDPA_Sub0 | 24.55      | 38.5       | PASS    |
| Band V | 4132    | HSDPA_Sub1 | 24.07      | 38.5       | PASS    |
| Band V | 4132    | HSDPA_Sub2 | 24.11      | 38.5       | PASS    |
| Band V | 4132    | HSDPA_Sub3 | 24.01      | 38.5       | PASS    |
| Band V | 4182    | HSDPA_Sub0 | 24.59      | 38.5       | PASS    |
| Band V | 4182    | HSDPA_Sub1 | 24.10      | 38.5       | PASS    |
| Band V | 4182    | HSDPA_Sub2 | 24.13      | 38.5       | PASS    |
| Band V | 4182    | HSDPA_Sub3 | 24.11      | 38.5       | PASS    |
| Band V | 4233    | HSDPA_Sub0 | 24.58      | 38.5       | PASS    |
| Band V | 4233    | HSDPA_Sub1 | 24.04      | 38.5       | PASS    |
| Band V | 4233    | HSDPA_Sub2 | 24.08      | 38.5       | PASS    |
| Band V | 4233    | HSDPA_Sub3 | 24.05      | 38.5       | PASS    |



| Band   | Channel | SubTest    | Power(dBm) | Limit(dBm) | Verdict |
|--------|---------|------------|------------|------------|---------|
| Band V | 4132    | HSUPA_Sub1 | 21.52      | 38.5       | PASS    |
| Band V | 4132    | HSUPA_Sub2 | 22.56      | 38.5       | PASS    |
| Band V | 4132    | HSUPA_Sub3 | 22.56      | 38.5       | PASS    |
| Band V | 4132    | HSUPA_Sub4 | 21.60      | 38.5       | PASS    |
| Band V | 4132    | HSUPA_Sub5 | 22.56      | 38.5       | PASS    |
| Band V | 4182    | HSUPA_Sub1 | 21.60      | 38.5       | PASS    |
| Band V | 4182    | HSUPA_Sub2 | 22.60      | 38.5       | PASS    |
| Band V | 4182    | HSUPA_Sub3 | 22.62      | 38.5       | PASS    |
| Band V | 4182    | HSUPA_Sub4 | 21.62      | 38.5       | PASS    |
| Band V | 4182    | HSUPA_Sub5 | 22.61      | 38.5       | PASS    |
| Band V | 4233    | HSUPA_Sub1 | 21.55      | 38.5       | PASS    |
| Band V | 4233    | HSUPA_Sub2 | 22.58      | 38.5       | PASS    |
| Band V | 4233    | HSUPA_Sub3 | 22.58      | 38.5       | PASS    |
| Band V | 4233    | HSUPA_Sub4 | 21.69      | 38.5       | PASS    |
| Band V | 4233    | HSUPA_Sub5 | 22.58      | 38.5       | PASS    |

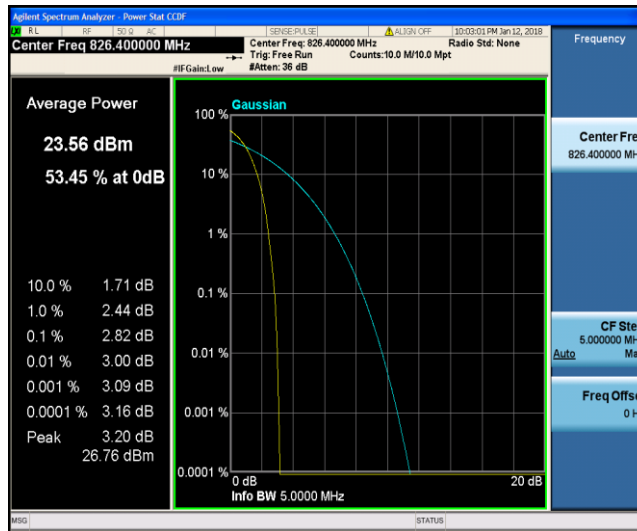
**Appendix B: Peak-to-Average Ratio**

## Test Result

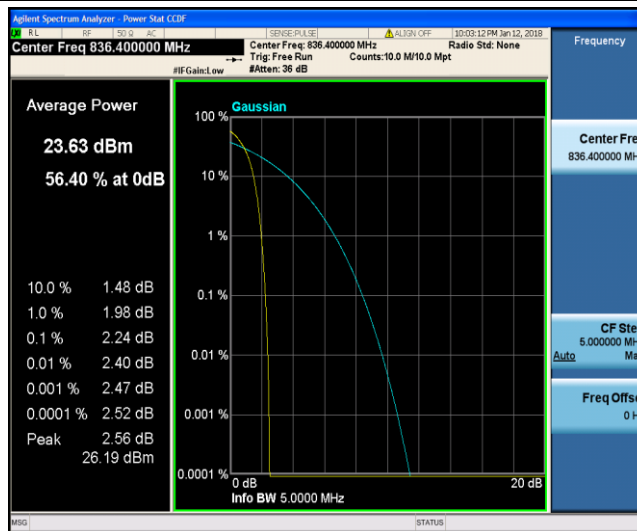
| Band   | Channel | Peak-to-Average Ratio(dB) | Limit(dBm) | Verdict |
|--------|---------|---------------------------|------------|---------|
| Band V | 4132    | 2.82                      | 13         | PASS    |
| Band V | 4182    | 2.24                      | 13         | PASS    |
| Band V | 4233    | 2.82                      | 13         | PASS    |

Test Graphs

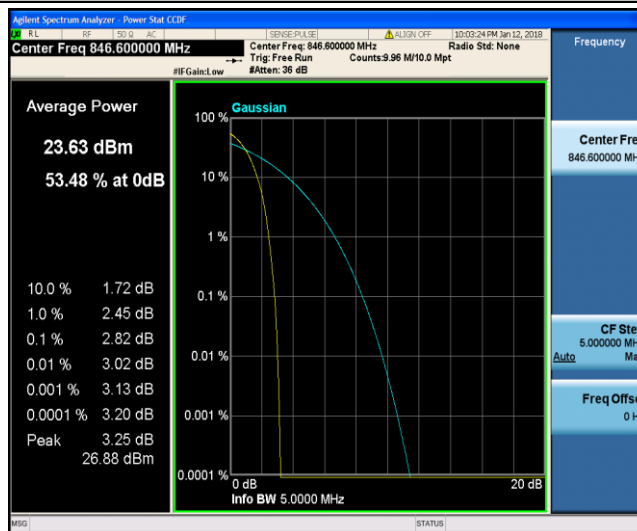
Band V\_4132



Band V\_4182



Band V\_4233

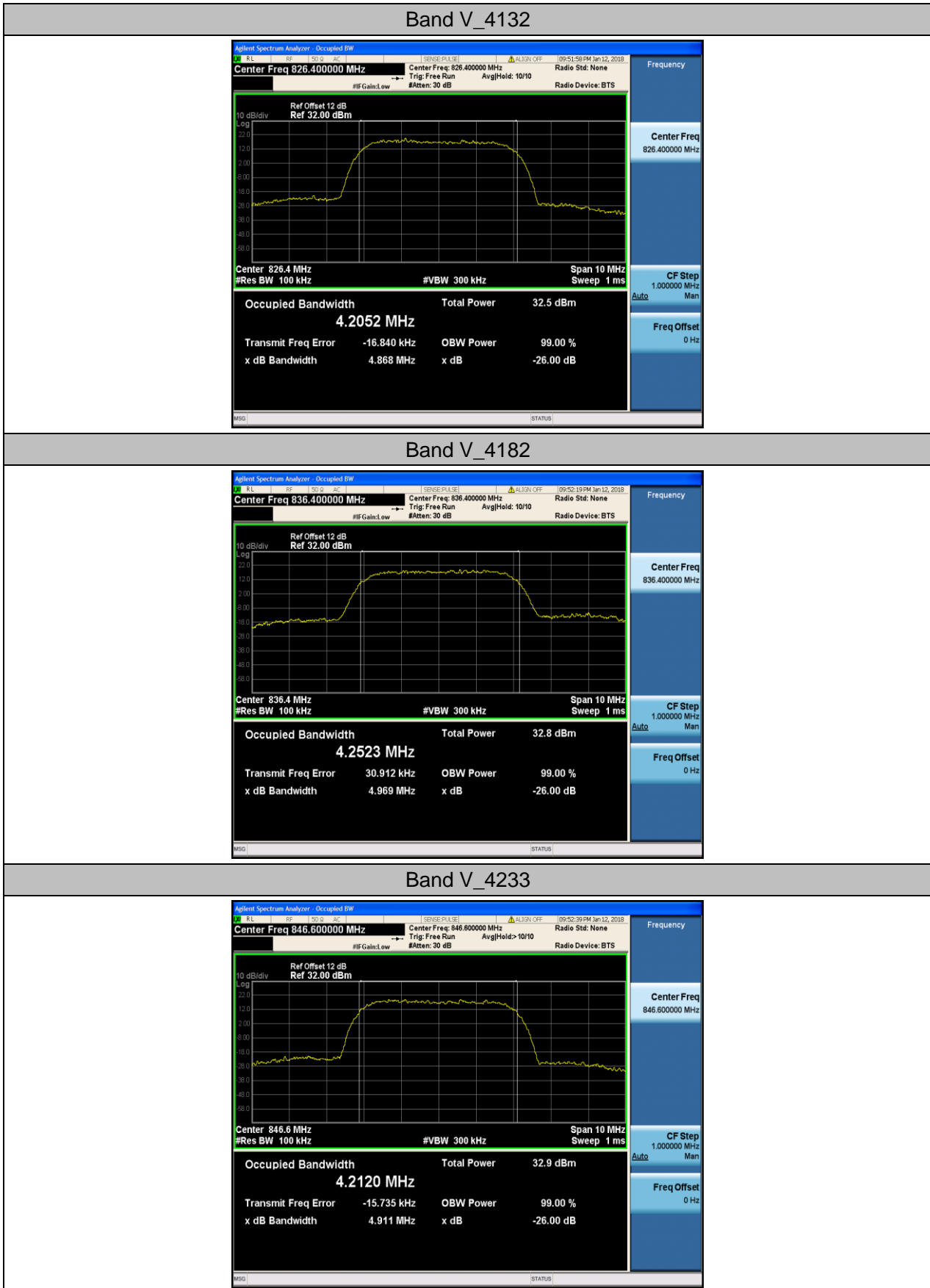


**Appendix C: 26dB Bandwidth and Occupied Bandwidth**

## Test Result

| Band   | Channel | Occupied Bandwidth<br>(kHz) | 26dB Bandwidth<br>(kHz) | Limit(kHz) | Verdict |
|--------|---------|-----------------------------|-------------------------|------------|---------|
| Band V | 4132    | 4205.2                      | 4868                    | ---        | PASS    |
| Band V | 4182    | 4252.3                      | 4969                    | ---        | PASS    |
| Band V | 4233    | 4212.0                      | 4911                    | ---        | PASS    |

Test Graphs



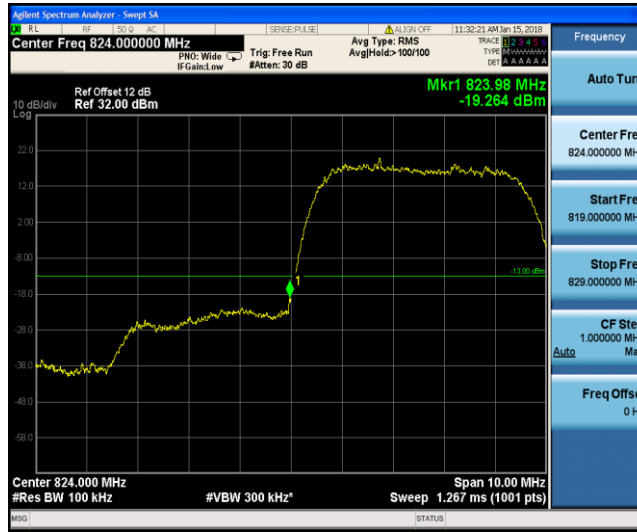
**Appendix D: Band Edge**

## Test Result

| Band   | Channel | Value(dBm) | Limit(dBm) | Verdict |
|--------|---------|------------|------------|---------|
| Band V | 4132    | -19.26     | -13        | PASS    |
| Band V | 4233    | -21.86     | -13        | PASS    |

Test Graphs

Band V\_4132



Band V\_4233



**Appendix E: Conducted Spurious Emission**

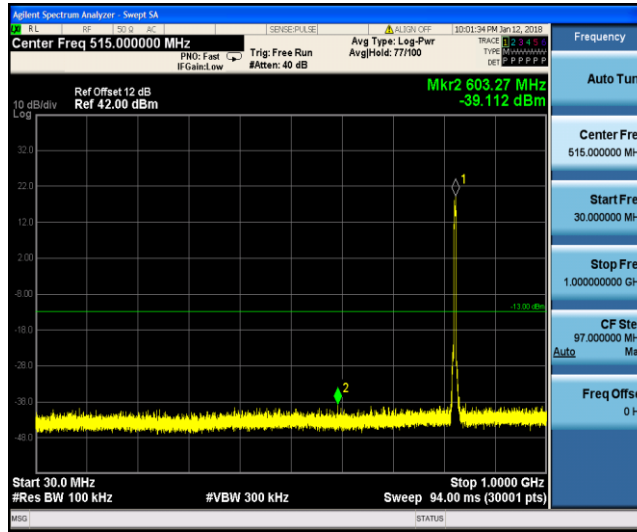
## Test Result

| Band   | Channel | Frequency Rang(Mhz) | Value(dBm) | Limit(dBm) | Verdict |
|--------|---------|---------------------|------------|------------|---------|
| Band V | 4132    | 30~1000             | -39.11     | -13        | PASS    |
| Band V | 4132    | 1000~20000          | -20.32     | -13        | PASS    |
| Band V | 4182    | 30~1000             | -38.50     | -13        | PASS    |
| Band V | 4182    | 1000~20000          | -20.20     | -13        | PASS    |
| Band V | 4233    | 30~1000             | -37.98     | -13        | PASS    |
| Band V | 4233    | 1000~20000          | -19.73     | -13        | PASS    |

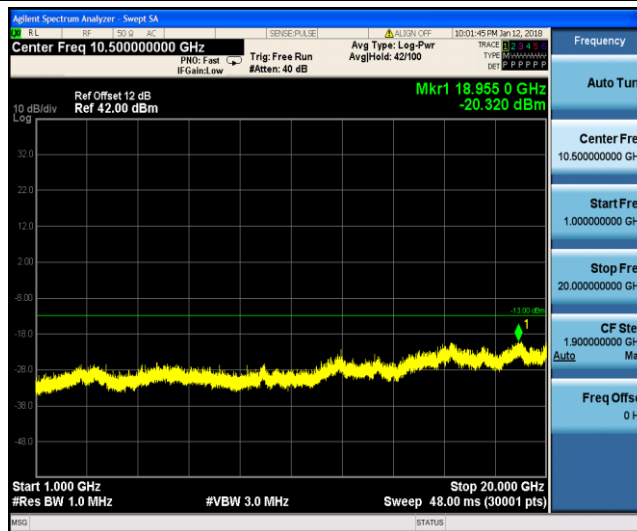


Test Graphs

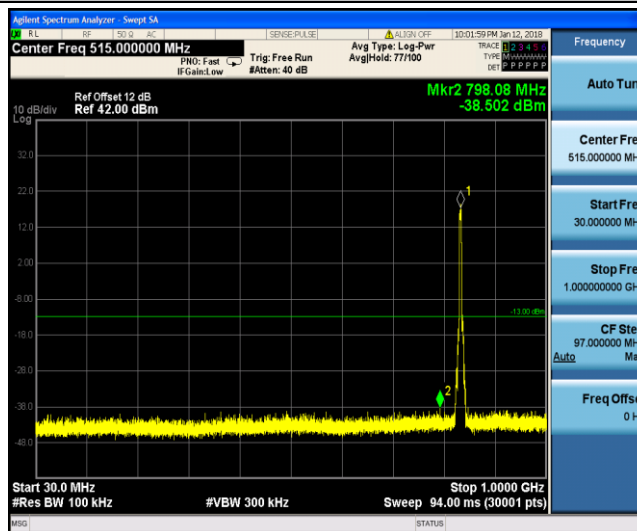
Band V\_4132



Band V\_4132



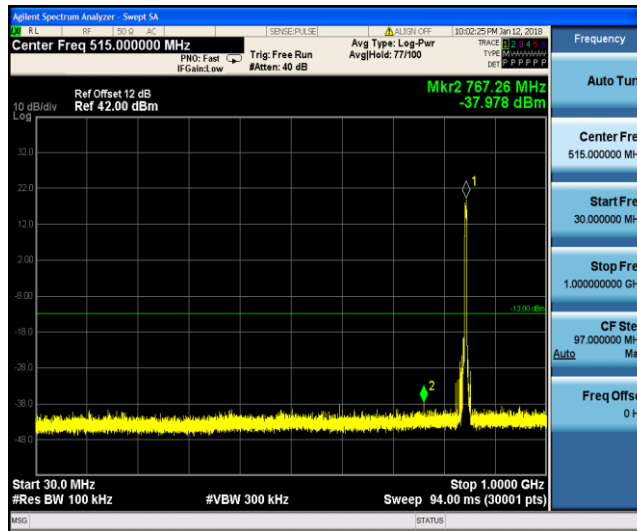
Band V\_4182



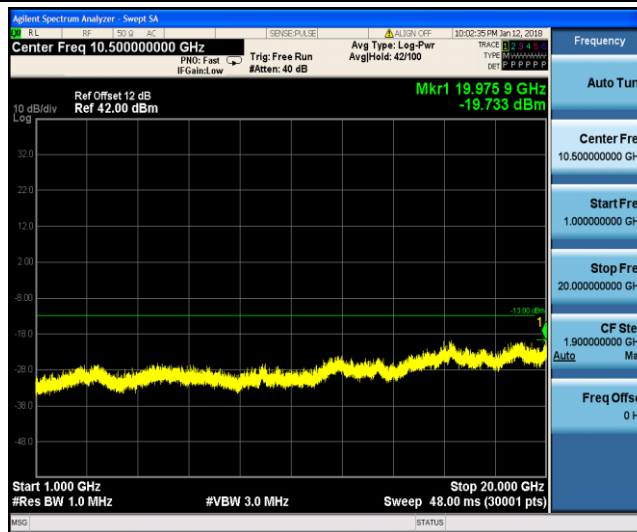
Band V\_4182



Band V\_4233



Band V\_4233



**Appendix F: Frequency Stability**

## Test Result

| Voltage |         |               |                  |                |                 |             |         |
|---------|---------|---------------|------------------|----------------|-----------------|-------------|---------|
| Band    | Channel | Voltage (Vdc) | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| Band V  | 4132    | VL            | TN               | -1.44          | -0.001748       | 2.5         | PASS    |
| Band V  | 4132    | VN            | TN               | -3.68          | -0.004457       | 2.5         | PASS    |
| Band V  | 4132    | VH            | TN               | -3.78          | -0.004579       | 2.5         | PASS    |
| Band V  | 4182    | VL            | TN               | -0.26          | -0.000316       | 2.5         | PASS    |
| Band V  | 4182    | VN            | TN               | 0.71           | 0.000847        | 2.5         | PASS    |
| Band V  | 4182    | VH            | TN               | -0.24          | -0.000291       | 2.5         | PASS    |
| Band V  | 4233    | VL            | TN               | -1.86          | -0.002197       | 2.5         | PASS    |
| Band V  | 4233    | VN            | TN               | -1.27          | -0.001495       | 2.5         | PASS    |
| Band V  | 4233    | VH            | TN               | -0.15          | -0.000177       | 2.5         | PASS    |

| Temperature |         |               |                  |                |                 |             |         |
|-------------|---------|---------------|------------------|----------------|-----------------|-------------|---------|
| Band        | Channel | Voltage (Vdc) | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| Band V      | 4132    | VN            | -30              | -3.39          | -0.004103       | 2.5         | PASS    |
| Band V      | 4132    | VN            | -20              | -1.75          | -0.002120       | 2.5         | PASS    |
| Band V      | 4132    | VN            | -10              | -0.93          | -0.001125       | 2.5         | PASS    |
| Band V      | 4132    | VN            | 0                | -2.65          | -0.003202       | 2.5         | PASS    |
| Band V      | 4132    | VN            | 10               | -0.73          | -0.000883       | 2.5         | PASS    |
| Band V      | 4132    | VN            | 20               | -3.43          | -0.004154       | 2.5         | PASS    |
| Band V      | 4132    | VN            | 30               | -0.81          | -0.000978       | 2.5         | PASS    |
| Band V      | 4132    | VN            | 40               | -2.92          | -0.003531       | 2.5         | PASS    |
| Band V      | 4132    | VN            | 50               | -2.17          | -0.002631       | 2.5         | PASS    |
| Band V      | 4182    | VN            | -30              | 1.49           | 0.001779        | 2.5         | PASS    |
| Band V      | 4182    | VN            | -20              | 1.23           | 0.001471        | 2.5         | PASS    |
| Band V      | 4182    | VN            | -10              | -0.67          | -0.000795       | 2.5         | PASS    |
| Band V      | 4182    | VN            | 0                | -2.31          | -0.002762       | 2.5         | PASS    |
| Band V      | 4182    | VN            | 10               | -0.87          | -0.001035       | 2.5         | PASS    |
| Band V      | 4182    | VN            | 20               | 0.27           | 0.000325        | 2.5         | PASS    |
| Band V      | 4182    | VN            | 30               | -0.60          | -0.000718       | 2.5         | PASS    |
| Band V      | 4182    | VN            | 40               | 1.39           | 0.001659        | 2.5         | PASS    |
| Band V      | 4182    | VN            | 50               | -0.74          | -0.000889       | 2.5         | PASS    |
| Band V      | 4233    | VN            | -30              | -0.59          | -0.000701       | 2.5         | PASS    |
| Band V      | 4233    | VN            | -20              | -0.21          | -0.000245       | 2.5         | PASS    |
| Band V      | 4233    | VN            | -10              | -1.12          | -0.001326       | 2.5         | PASS    |
| Band V      | 4233    | VN            | 0                | 0.24           | 0.000287        | 2.5         | PASS    |
| Band V      | 4233    | VN            | 10               | -0.51          | -0.000600       | 2.5         | PASS    |
| Band V      | 4233    | VN            | 20               | -0.95          | -0.001124       | 2.5         | PASS    |
| Band V      | 4233    | VN            | 30               | -0.76          | -0.000896       | 2.5         | PASS    |
| Band V      | 4233    | VN            | 40               | 0.31           | 0.000372        | 2.5         | PASS    |
| Band V      | 4233    | VN            | 50               | -1.00          | -0.001183       | 2.5         | PASS    |

-----End of Appendix-----