



REPORT No.: SZ18090145W01

# TEST REPORT

**APPLICANT** : Shenzhen Jimi IOT Co., Ltd

**PRODUCT NAME** : Container GPS Tracker

**MODEL NAME** : CT10

**BRAND NAME** : N/A

**FCC ID** : 2AMLFCT10

**STANDARD(S)** : 47 CFR Part 22 Subpart H  
47 CFR Part 24 Subpart E

**TEST DATE** : 2018-09-27 to 2018-10-17

**ISSUE DATE** : 2018-10-18

Tested by:

*Gao Mingzhou*

Gao Mingzhou (Test Engineer)

Approved by:

*Peng Huarui*

Peng Huarui ( Supervisor )

**NOTE:** This document is issued by MORLAB, the test report shall not be reproduced except in full without prior written permission of the company. The test results apply only to the particular sample(s) tested and to the specific tests carried out which is available on request for validation and information confirmed at our website.

**MORLAB**

SHENZHEN MORLAB COMMUNICATIONS TECHNOLOGY Co., Ltd.  
FL1-3, Building A, FeiYang Science Park, No.8 LongChang Road,  
Block67, BaoAn District, ShenZhen , GuangDong Province, P. R. China

Tel: 86-755-36698555

Http://www.morlab.cn

Fax: 86-755-36698525

E-mail: service@morlab.cn





## DIRECTORY

|                                                          |           |
|----------------------------------------------------------|-----------|
| <b>1. Technical Information</b>                          | <b>4</b>  |
| 1.1. Applicant and Manufacturer Information              | 4         |
| 1.2. Equipment Under Test (EUT) Description              | 4         |
| 1.3. Test Standards and Results                          | 6         |
| 1.4. Environmental Conditions                            | 6         |
| <b>2. 47 CFR Part 2, Part 22H &amp; 24E Requirements</b> | <b>7</b>  |
| 2.1. Conducted RF Output Power                           | 7         |
| 2.2. Peak to Average Ratio                               | 10        |
| 2.3. 99% Occupied Bandwidth                              | 20        |
| 2.4. Frequency Stability                                 | 26        |
| 2.5. Conducted Out of Band Emissions                     | 30        |
| 2.6. Band Edge                                           | 37        |
| 2.7. Transmitter Radiated Power (EIRP/ERP)               | 41        |
| 2.8. Radiated Out of Band Emissions                      | 48        |
| <b>Annex A Test Uncertainty</b>                          | <b>69</b> |
| <b>Annex B Testing Laboratory Information</b>            | <b>70</b> |



REPORT No.: SZ18090145W01

| Change History |            |                   |
|----------------|------------|-------------------|
| Issue          | Date       | Reason for change |
| 1.0            | 2018-10-18 | First edition     |
|                |            |                   |



# 1. Technical Information

**Note:** Provide by applicant.

## 1.1. Applicant and Manufacturer Information

|                              |                                                                                                                       |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>Applicant:</b>            | Shenzhen Jimi IOT Co., Ltd                                                                                            |
| <b>Applicant Address:</b>    | 4/F, Building C, Gaoxinqi Industrial Park, Liuxian 1st Road, No.67<br>Xin'an Street, Bao'an District, Shenzhen, China |
| <b>Manufacturer:</b>         | Shenzhen Jimi IOT Co., Ltd                                                                                            |
| <b>Manufacturer Address:</b> | 4/F, Building C, Gaoxinqi Industrial Park, Liuxian 1st Road, No.67<br>Xin'an Street, Bao'an District, Shenzhen, China |

## 1.2. Equipment Under Test (EUT) Description

|                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Name:</b>              | Container GPS Tracker                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Serial No:</b>                 | (N/A, marked #1 by test site)                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Hardware Version:</b>          | V2.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Software Version:</b>          | NFC117_V0003_20180705                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Modulation Type:</b>           | GPRS Mode with GMSK Modulation<br>EDGE Mode with 8PSK Modulation<br>WCDMA Mode with QPSK Modulation                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Operating Frequency Range:</b> | GSM 850MHz:<br>Tx: 824.20 - 848.80MHz (at intervals of 200kHz);<br>Rx: 869.20 - 893.80MHz (at intervals of 200kHz)<br>GSM 1900MHz:<br>Tx: 1850.20 - 1909.80MHz (at intervals of 200kHz);<br>Rx: 1930.20 - 1989.80MHz (at intervals of 200kHz)<br>WCDMA 850MHz<br>Tx: 826.4 - 846.6MHz (at intervals of 200kHz);<br>Rx: 871.4 - 891.6MHz (at intervals of 200kHz)<br>WCDMA 1900MHz<br>Tx: 1852.4 - 1907.6MHz (at intervals of 200kHz);<br>Rx: 1932.4 - 1987.6MHz (at intervals of 200kHz) |
| <b>Multi-slot Class:</b>          | GPRS: Multislot Class12; EGPRS: Multislot Class12                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Emission Designators:</b>      | GPRS 850:250KGXW, GPRS 1900:255KGXW<br>EGPRS850:250KG7W, EGPRS1900:248KG7W,<br>WCDMA 850:4M11F9W , WCDMA1900:4M12F9W                                                                                                                                                                                                                                                                                                                                                                     |



|                           |                  |         |
|---------------------------|------------------|---------|
| <b>Antenna Type:</b>      | Monopole Antenna |         |
| <b>Antenna Gain:</b>      | GSM/WCDMA 850    | 0.6 dBi |
|                           | GSM/WCDMA 1900   | 0 dBi   |
| <b>Operating voltage:</b> | Normal(NV)       | 5.0V    |
|                           | Lowest(LV)       | 4.8V    |
|                           | Highest(HV)      | 5.2V    |

**Note 1:** The transmitter (Tx) frequency arrangement of the Cellular 850MHz band used by the EUT can be represented with the formula  $F(n)=824.2+0.2*(n-128)$ ,  $128 \leq n \leq 251$ ; the lowest, middle, highest channel numbers (ARFCHs) used and tested in this report are separately 128 (824.2MHz), 190 (836.6MHz) and 251 (848.8MHz).

**Note 2:** The transmitter (Tx) frequency arrangement of the PCS 1900MHz band used by the EUT can be represented with the formula  $F(n)=1850.2+0.2*(n-512)$ ,  $512 \leq n \leq 810$ ; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately 512 (1850.2MHz), 661 (1880.0MHz) and 810 (1909.8MHz).

**Note 3:** The transmitter (Tx) frequency arrangement of the WCDMA 850MHz band used by the EUT can be represented with the formula  $F(n)=826.4+0.2*(n-4132)$ ,  $4132 \leq n \leq 4233$ ; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately 4132 (826.4MHz), 4175(835MHz) and 4233 (846.6MHz).

**Note 4:** The transmitter (Tx) frequency arrangement of the WCDMA 1900MHz band used by the EUT can be represented with the formula  $F(n)=1852.4+0.2*(n-9262)$ ,  $9262 \leq n \leq 9538$ ; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately 9262 (1852.4MHz), 9400 (1880MHz) and 9538 (1907.6MHz).

**Note 5:** For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.



### 1.3. Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 2, Part 22, Part 24 for the EUT FCC ID Certification:

| No | Identity                         | Document Title                                                                |
|----|----------------------------------|-------------------------------------------------------------------------------|
| 1  | 47 CFR Part 2 (10-1-12 Edition)  | Frequency Allocations and Radio Treaty Matters; General Rules and Regulations |
| 2  | 47 CFR Part 22 (10-1-12 Edition) | Public Mobile Services                                                        |
| 3  | 47 CFR Part 24 (10-1-12 Edition) | Personal Communications Services                                              |

Test detailed items/section required by FCC rules and results are as below:

| No.                                                                                                                                                   | Section                      | Description                           | Test Date                    | Test Engineer  | Result |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------------|------------------------------|----------------|--------|
| 1                                                                                                                                                     | 2.1046                       | Conducted RF Output Power             | Sep 27, 2018                 | Gao Mingzhou   | PASS   |
| 2                                                                                                                                                     | 24.232(d)                    | Peak - Average Radio                  | Sep 27, 2018                 | Gao Mingzhou   | PASS   |
| 3                                                                                                                                                     | 2.1049                       | 99% Occupied Bandwidth                | Sep 27, 2018                 | Gao Mingzhou   | PASS   |
| 4                                                                                                                                                     | 2.1055, 22.355, 24.235       | Frequency Stability                   | Oct 16, 2018                 | Gao Mingzhou   | PASS   |
| 5                                                                                                                                                     | 2.1051, 22.917(a), 24.238(a) | Conducted Out of Band Emissions       | Sep 27, 2018<br>Oct 17, 2018 | Gao Mingzhou   | PASS   |
| 6                                                                                                                                                     | 2.1051, 22.917(a), 24.238(a) | Band Edge                             | Sep 27, 2018<br>Oct 17, 2018 | Gao Mingzhou   | PASS   |
| 7                                                                                                                                                     | 22.913(a), 24.232(a)         | Transmitter Radiated Power (EIPR/ERP) | Sep 28, 2018<br>Oct 09, 2018 | Zheng Fengjian | PASS   |
| 8                                                                                                                                                     | 2.1051, 22.917(a), 24.238(a) | Radiated Out of Band Emissions        | Oct 17, 2018                 | Zheng Fengjian | PASS   |
| <b>Note:</b> The tests were performed according to the method of measurements prescribed in KDB971168 D01 v03 (Oct 27, 2017) and ANSI/TIA-603-E-2016. |                              |                                       |                              |                |        |

### 1.4. Environmental Conditions

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

|                             |         |
|-----------------------------|---------|
| Temperature (°C):           | 15 - 35 |
| Relative Humidity (%):      | 30 -60  |
| Atmospheric Pressure (kPa): | 86-106  |

## 2. 47 CFR Part 2, Part 22H & 24E Requirements

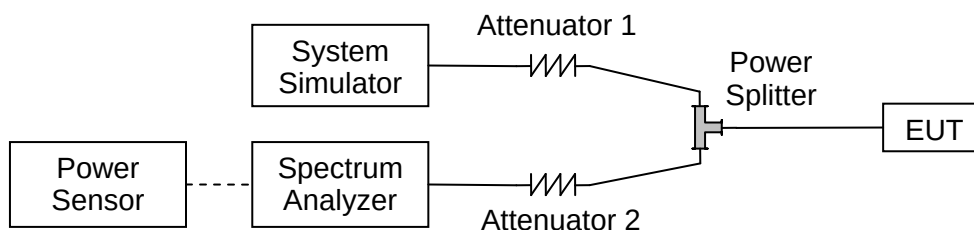
### 2.1. Conducted RF Output Power

#### 2.1.1. Requirement

According to FCC section 2.1046(a), for transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in FCC section 2.1033(c)(8).

#### 2.1.2. Test Description

Test Setup:



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS.



### 2.1.3. Test Results

The lowest, middle and highest channels are selected to perform testing to verify the conducted RF output power of the EUT.

| <b>GSM850</b>          | <b>Average Power (dBm)</b> |              |              | <b>Verdict</b> |
|------------------------|----------------------------|--------------|--------------|----------------|
| <b>TX Channel</b>      | <b>128</b>                 | <b>190</b>   | <b>251</b>   |                |
| <b>Frequency (MHz)</b> | <b>824.2</b>               | <b>836.6</b> | <b>848.8</b> |                |
| GPRS 1 Tx slot         | 31.86                      | 31.92        | 31.98        | PASS           |
| GPRS 2 Tx slots        | 29.64                      | 29.76        | 29.86        | PASS           |
| GPRS 3 Tx slots        | 27.54                      | 27.72        | 27.86        | PASS           |
| GPRS 4 Tx slots        | 25.31                      | 25.49        | 25.62        | PASS           |
| EDGE 1 Tx slot         | 25.43                      | 25.66        | 25.81        | PASS           |
| EDGE 2 Tx slots        | 25.03                      | 25.24        | 25.40        | PASS           |
| EDGE 3 Tx slots        | 23.46                      | 23.41        | 23.53        | PASS           |
| EDGE 4 Tx slots        | 20.78                      | 20.98        | 21.15        | PASS           |

| <b>GSM1900</b>         | <b>Average Power (dBm)</b> |             |               | <b>Verdict</b> |
|------------------------|----------------------------|-------------|---------------|----------------|
| <b>TX Channel</b>      | <b>512</b>                 | <b>661</b>  | <b>810</b>    |                |
| <b>Frequency (MHz)</b> | <b>1850.2</b>              | <b>1880</b> | <b>1909.8</b> |                |
| GPRS 1 Tx slot         | 29.41                      | 29.25       | 29.56         | PASS           |
| GPRS 2 Tx slots        | 27.39                      | 27.18       | 26.93         | PASS           |
| GPRS 3 Tx slots        | 25.78                      | 25.52       | 25.22         | PASS           |
| GPRS 4 Tx slots        | 23.66                      | 23.41       | 23.17         | PASS           |
| EDGE 1 Tx slot         | 24.73                      | 24.71       | 24.78         | PASS           |
| EDGE 2 Tx slots        | 24.39                      | 24.41       | 24.51         | PASS           |
| EDGE 3 Tx slots        | 22.37                      | 22.23       | 22.36         | PASS           |
| EDGE 4 Tx slots        | 19.47                      | 19.37       | 19.57         | PASS           |





| WCDMA 850       |             | Average Power (dBm) |       |       | Verdict |
|-----------------|-------------|---------------------|-------|-------|---------|
| TX Channel      |             | 4132                | 4175  | 4233  |         |
| Frequency (MHz) |             | 826.4               | 835.0 | 846.6 |         |
| 3GPP Rel 99     | RMC 2.2Kbps | 21.56               | 21.59 | 21.53 | PASS    |

| WCDMA 1900      |             | Average Power (dBm) |       |        | Verdict |
|-----------------|-------------|---------------------|-------|--------|---------|
| TX Channel      |             | 9262                | 9400  | 9538   |         |
| Frequency (MHz) |             | 1852.4              | 1880  | 1907.6 |         |
| 3GPP Rel 99     | RMC 2.2Kbps | 21.67               | 21.66 | 21.73  | PASS    |

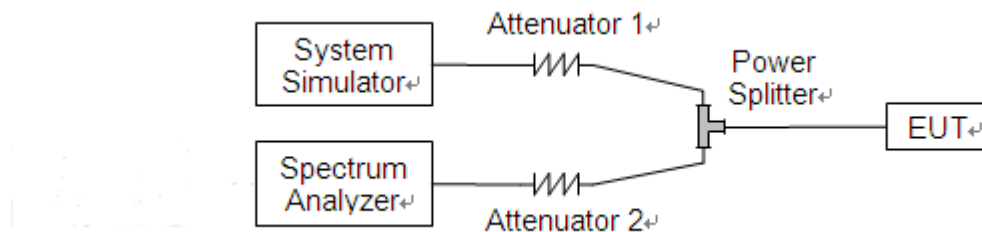
## 2.2. Peak to Average Radio

### 2.2.1. Requirement

According to FCC 24.232(d) the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

### 2.2.2. Test Description

Test Setup:



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS.

### 2.2.3. Test procedure

1. For GSM/EGPRS operating mode:

- Set RBW=1MHz, VBW=3MHz, peak detector in spectrum analyzer.
- Set EUT in maximum output power, and triggered the bust signal.
- Measured respectively the peak level and mean level, and the deviation was recorded as Peak to Average radio.

2. For UMTS operating mode:

- Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
- The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1%.



#### 2.2.4. Test Result

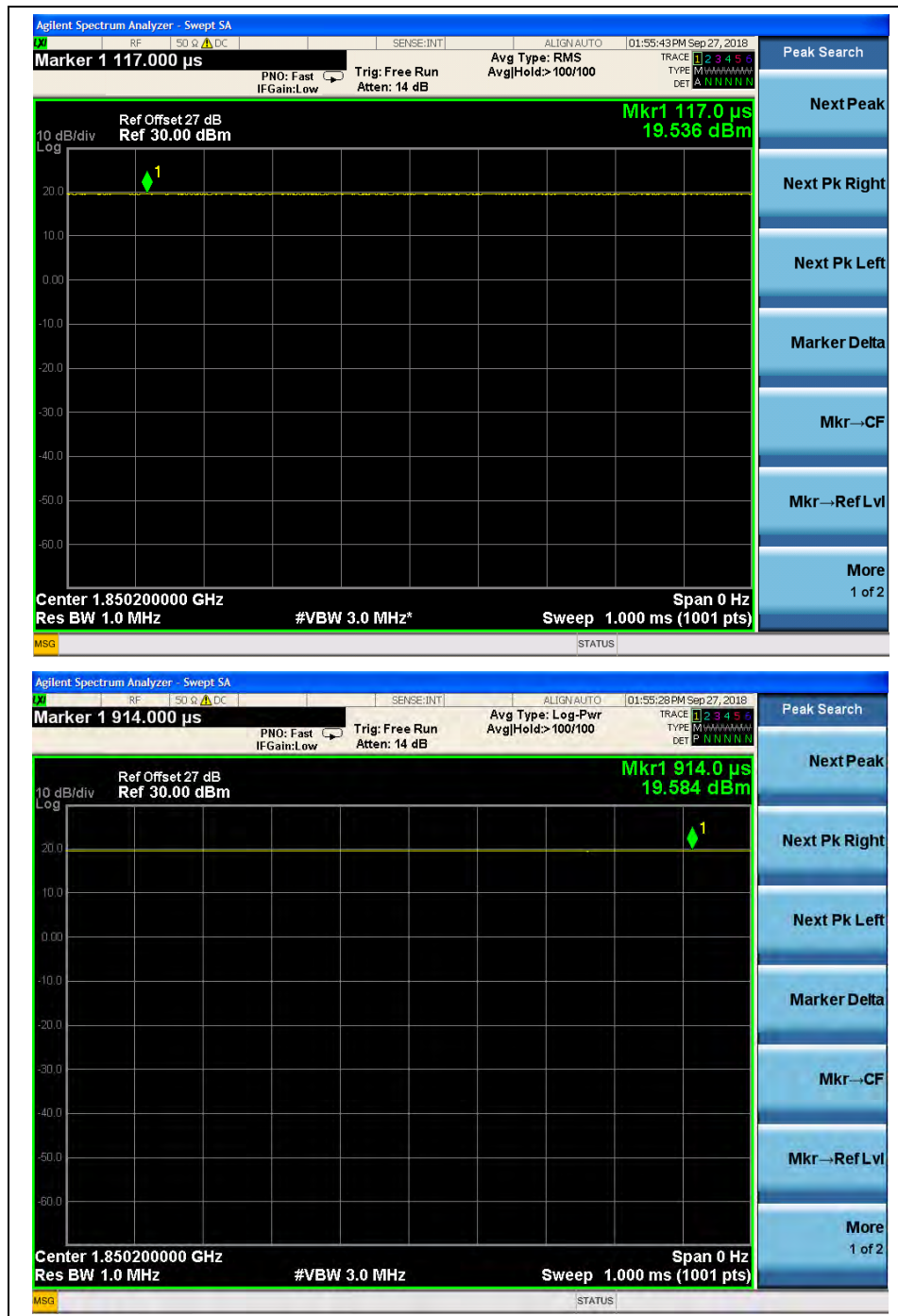
The lowest, middle and highest channels are selected to perform testing to verify the conducted RF output peak power of the Module.

##### A. Test Verdict:

| Band             | Channel | Frequency<br>(MHz) | Peak to Average radio |               | Limit | Verdict |
|------------------|---------|--------------------|-----------------------|---------------|-------|---------|
|                  |         |                    | dB                    | Refer to Plot | dB    |         |
| GPRS<br>1900MHz  | 512     | 1850.2             | 0.05                  | Plot A1 to A3 | 13    | PASS    |
|                  | 661     | 1880.0             | 0.03                  |               |       | PASS    |
|                  | 810     | 1909.8             | 0.04                  |               |       | PASS    |
| EGPRS<br>1900MHz | 512     | 1850.2             | 0.01                  | Plot B1 to B3 | 13    | PASS    |
|                  | 661     | 1880.0             | 0.01                  |               |       | PASS    |
|                  | 810     | 1909.8             | 0.01                  |               |       | PASS    |
| WCDMA<br>1900MHz | 9262    | 1852.4             | 2.55                  | Plot C1 to C3 | 13    | PASS    |
|                  | 9400    | 1880.0             | 3.01                  |               |       | PASS    |
|                  | 9538    | 1907.6             | 3.09                  |               |       | PASS    |



## B. Test Plots:



(Plot A1, GSM 1900 MHz, Channel = 512)



(Plot A2, GSM 1900 MHz, Channel = 661)



(Plot A3, GSM 1900MHz, Channel = 810)





(Plot B1, EGPRS 1900 MHz, Channel = 512)



(Plot B2, EGPRS 1900 MHz, Channel = 661)





(Plot B3, EGPRS 1900MHz, Channel = 810)



(Plot C1, WCDMA 1900MHz, Channel = 9262)



(Plot C2, WCDMA 1900MHz, Channel = 9400)



(Plot C3, WCDMA 1900MHz, Channel = 9538)

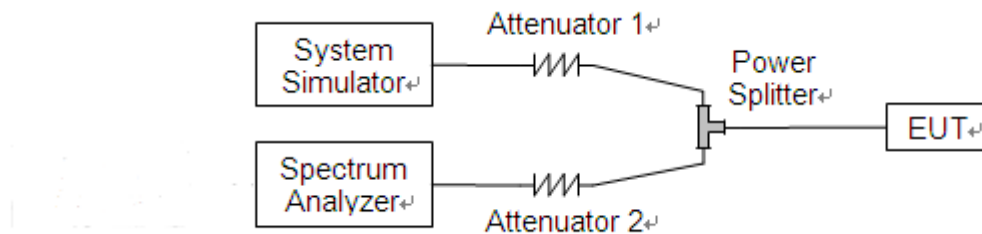
## 2.3. 99% Occupied Bandwidth

### 2.3.1. Requirement

According to FCC section 2.1049 and FCC § 22.917 & 24.238, the occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission. Occupied bandwidth is also known as the 99% emission bandwidth.

### 2.3.2. Test Description

Test Setup:



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ω; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS.



### 2.3.3. Test Result

The lowest, middle and highest channels are selected to perform testing to record the 99% occupied bandwidth.

#### GSM Test Verdict:

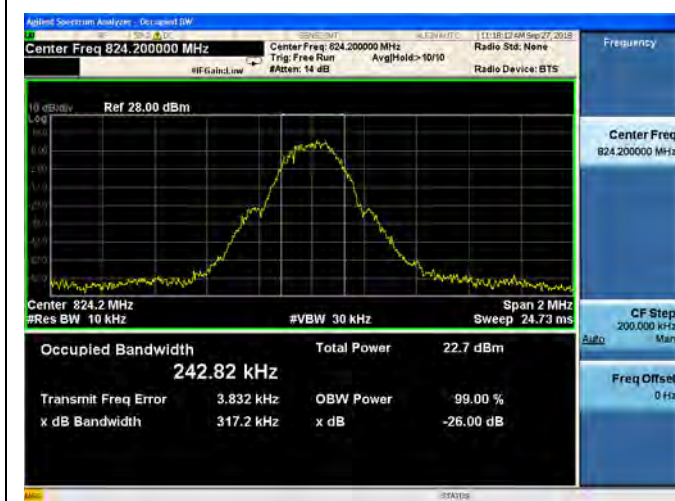
| Band             | Channel | Frequency<br>(MHz) | 99% Occupied Bandwidth<br>(kHz) | 26dB Bandwidth<br>(kHz) |
|------------------|---------|--------------------|---------------------------------|-------------------------|
| GPRS<br>850MHz   | 128     | 824.2              | 242.82                          | 317.2                   |
|                  | 190     | 836.6              | 250.13                          | 328.6                   |
|                  | 251     | 848.8              | 243.38                          | 323.9                   |
| GPRS<br>1900MHz  | 512     | 1850.2             | 240.68                          | 307.8                   |
|                  | 661     | 1880.0             | 255.49                          | 327.1                   |
|                  | 810     | 1909.8             | 246.37                          | 323.6                   |
| EGPRS<br>850MHz  | 128     | 824.2              | 247.17                          | 318.8                   |
|                  | 190     | 836.6              | 249.90                          | 320.4                   |
|                  | 251     | 848.8              | 246.37                          | 317.7                   |
| EGPRS<br>1900MHz | 512     | 1850.2             | 243.32                          | 319.3                   |
|                  | 661     | 1880.0             | 248.14                          | 316.9                   |
|                  | 810     | 1909.8             | 242.66                          | 317.9                   |



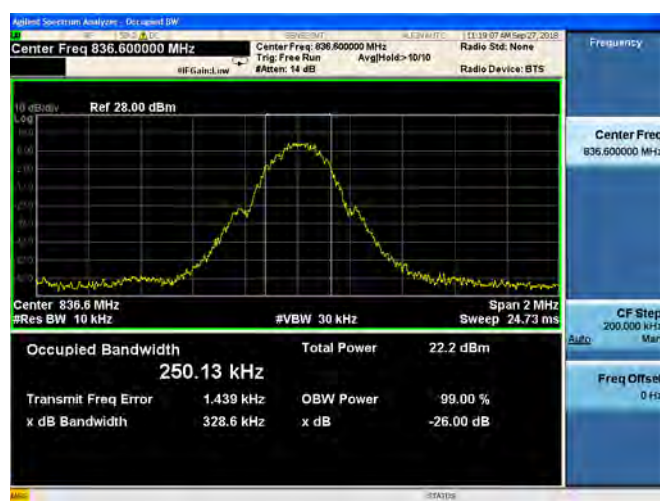


## Test Plots:

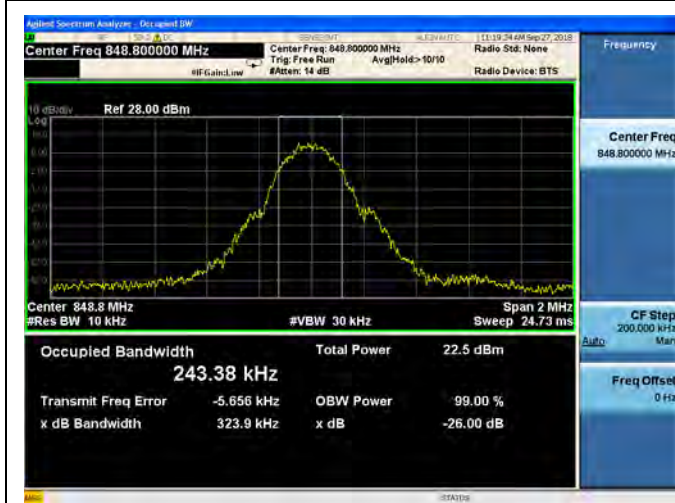
GPRS 850MHz CH128 824.2MHz



GPRS 850MHz CH190 836.6MHz

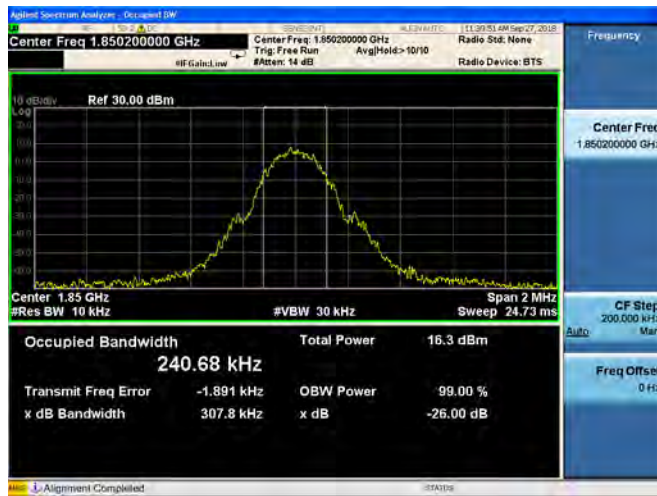


GPRS 850MHz CH251 848.8MHz

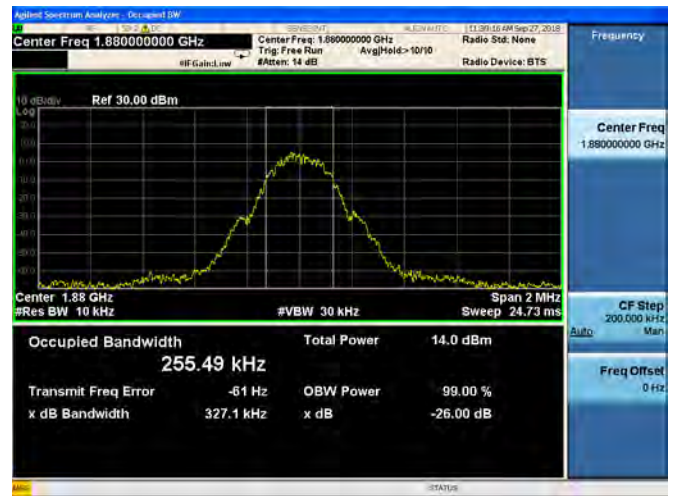




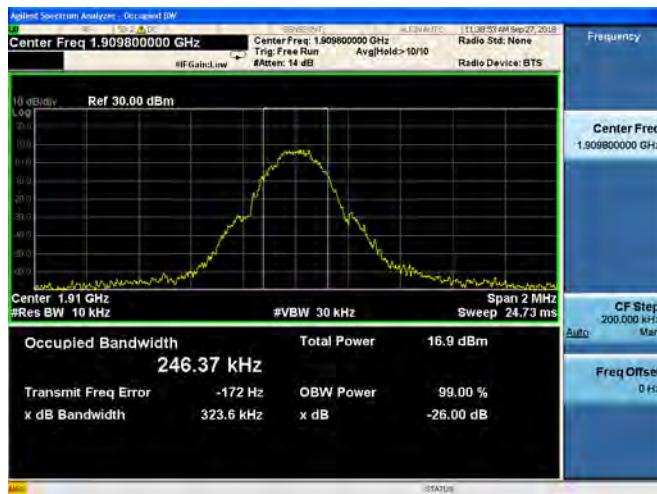
## EGPRS 850MHz CH128 824.2MHz



## EGPRS 850MHz CH190 836.6MHz



## EGPRS 850MHz CH251 848.8MHz



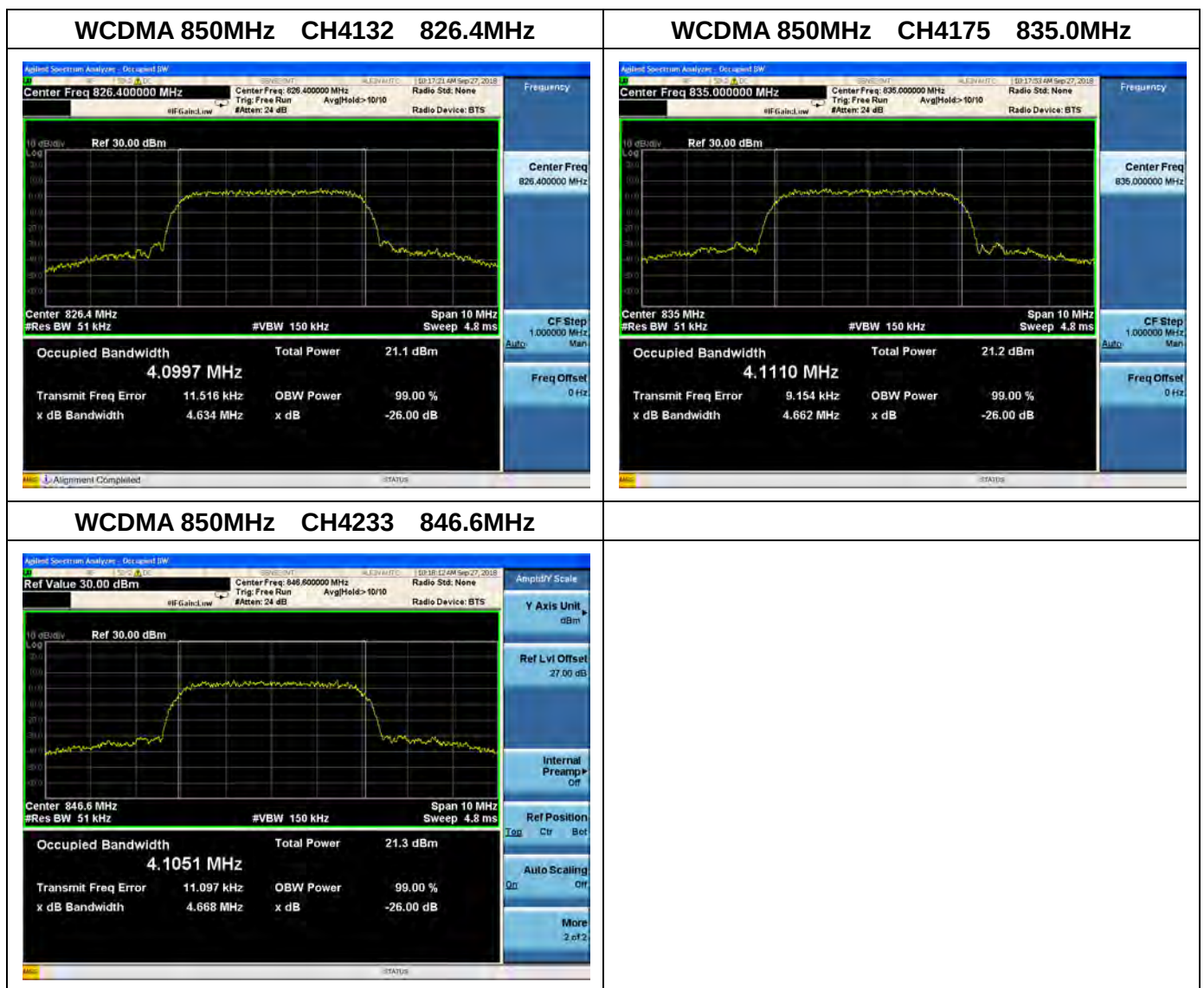




### WCDMA Test Verdict:

| Band          | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | 26dB Bandwidth (MHz) |
|---------------|---------|-----------------|------------------------------|----------------------|
| WCDMA 850MHz  | 4132    | 826.4           | 4.100                        | 4.634                |
|               | 4175    | 835.0           | 4.111                        | 4.662                |
|               | 4233    | 846.6           | 4.105                        | 4.668                |
| WCDMA 1900MHz | 9262    | 1852.4          | 4.088                        | 4.676                |
|               | 9400    | 1880.0          | 4.123                        | 4.652                |
|               | 9538    | 1907.6          | 4.100                        | 4.635                |

### Test Plots:



**WCDMA 1900MHz CH9262 1852.4MHz****WCDMA 1900MHz CH9400 1880.0MHz****WCDMA 1900MHz CH9538 1907.6MHz**

## 2.4. Frequency Stability

### 2.4.1. Requirement

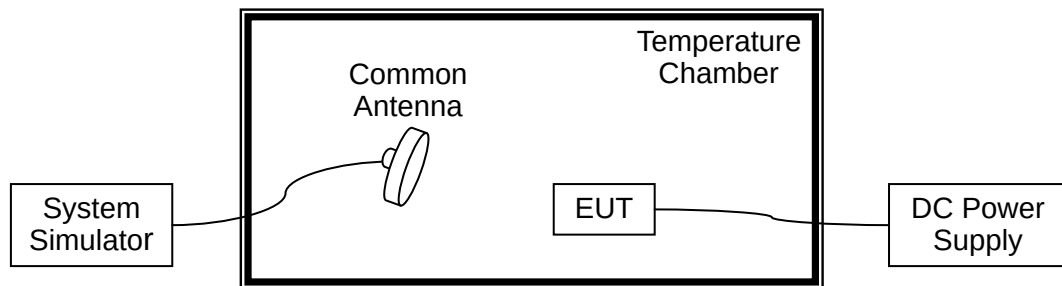
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

According to FCC section 2.1055, the test conditions are:

- (a) The temperature is varied from  $-30^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$  at intervals of not more than  $10^{\circ}\text{C}$ .
- (b) For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacture. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

### 2.4.2. Test Description

Test Setup:



The EUT, which is powered by the DC Power Supply directly, is located in the Temperature Chamber. The EUT is commanded by the System Simulator (SS) to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS via a Common Antenna.



### 2.4.3. Test Result

The nominal, highest and lowest extreme voltages are separately 5.0V, 5.2V and 4.8V which is specified by the applicant; the normal temperature here used is 25°C.

| GPRS 850MHz, Channel 190, Frequency 836.6MHz |             |           |                |                 |        |
|----------------------------------------------|-------------|-----------|----------------|-----------------|--------|
| Limit =±2.5ppm                               |             |           |                |                 |        |
| Voltage (%)                                  | Power (VDC) | Temp (°C) | Fre. Dev. (Hz) | Deviation (ppm) | Result |
| 100                                          | 5.0         | +20(Ref)  | 51             | 0.061           | PASS   |
| 100                                          |             | -30       | -28            | -0.033          |        |
| 100                                          |             | -20       | -37            | -0.044          |        |
| 100                                          |             | -10       | -43            | -0.051          |        |
| 100                                          |             | 0         | -68            | -0.081          |        |
| 100                                          |             | +10       | 33             | 0.039           |        |
| 100                                          |             | +20       | 29             | 0.035           |        |
| 100                                          |             | +30       | 27             | 0.032           |        |
| 100                                          |             | +40       | 26             | 0.031           |        |
| 100                                          |             | +50       | 51             | 0.061           |        |
| 115                                          | 5.2         | +20       | -37            | -0.044          |        |
| 85                                           | 4.8         | +20       | -43            | -0.051          |        |

| GPRS 1900MHz, Channel 661, Frequency 1880.0MHz |             |           |                |                 |        |
|------------------------------------------------|-------------|-----------|----------------|-----------------|--------|
| Limit = Within Authorized Band                 |             |           |                |                 |        |
| Voltage (%)                                    | Power (VDC) | Temp (°C) | Fre. Dev. (Hz) | Deviation (ppm) | Result |
| 100                                            | 5.0         | +20(Ref)  | 51             | 0.027           | PASS   |
| 100                                            |             | -30       | 34             | 0.018           |        |
| 100                                            |             | -20       | -73            | -0.039          |        |
| 100                                            |             | -10       | 32             | 0.017           |        |
| 100                                            |             | 0         | 41             | 0.022           |        |
| 100                                            |             | +10       | -79            | -0.042          |        |
| 100                                            |             | +20       | -77            | -0.041          |        |
| 100                                            |             | +30       | -83            | -0.044          |        |
| 100                                            |             | +40       | 31             | 0.016           |        |
| 100                                            |             | +50       | 35             | 0.019           |        |
| 115                                            | 5.2         | +20       | -84            | -0.045          |        |
| 85                                             | 4.8         | +20       | 35             | 0.019           |        |



| EGPRS 850MHz, Channel 190, Frequency 836.6MHz |             |           |                |                 |        |
|-----------------------------------------------|-------------|-----------|----------------|-----------------|--------|
| Limit = $\pm 2.5$ ppm                         |             |           |                |                 |        |
| Voltage (%)                                   | Power (VDC) | Temp (°C) | Fre. Dev. (Hz) | Deviation (ppm) | Result |
| 100                                           | 5.0         | +20(Ref)  | 19             | 0.023           | PASS   |
| 100                                           |             | -30       | -75            | -0.090          |        |
| 100                                           |             | -20       | -37            | -0.044          |        |
| 100                                           |             | -10       | -43            | -0.051          |        |
| 100                                           |             | 0         | -68            | -0.081          |        |
| 100                                           |             | +10       | 33             | 0.039           |        |
| 100                                           |             | +20       | 29             | 0.035           |        |
| 100                                           |             | +30       | 27             | 0.032           |        |
| 100                                           |             | +40       | 26             | 0.031           |        |
| 100                                           |             | +50       | 51             | 0.061           |        |
| 115                                           | 5.2         | +20       | -23            | -0.027          |        |
| 85                                            | 4.8         | +20       | -43            | -0.051          |        |

| EGPRS 1900MHz, Channel 661, Frequency 1880.0MHz |             |           |                |                 |        |
|-------------------------------------------------|-------------|-----------|----------------|-----------------|--------|
| Limit =Within Authorized Band                   |             |           |                |                 |        |
| Voltage (%)                                     | Power (VDC) | Temp (°C) | Fre. Dev. (Hz) | Deviation (ppm) | Result |
| 100                                             | 5.0         | +20(Ref)  | 47             | 0.025           | PASS   |
| 100                                             |             | -30       | 61             | 0.032           |        |
| 100                                             |             | -20       | -65            | -0.035          |        |
| 100                                             |             | -10       | 31             | 0.016           |        |
| 100                                             |             | 0         | 41             | 0.022           |        |
| 100                                             |             | +10       | -79            | -0.042          |        |
| 100                                             |             | +20       | -77            | -0.041          |        |
| 100                                             |             | +30       | -83            | -0.044          |        |
| 100                                             |             | +40       | 31             | 0.016           |        |
| 100                                             |             | +50       | 35             | 0.019           |        |
| 115                                             | 5.2         | +20       | -84            | -0.045          |        |
| 85                                              | 4.8         | +20       | 27             | 0.014           |        |



| WCDMA 850MHz, Channel 4175, Frequency 835.0MHz |             |           |                |                 |        |
|------------------------------------------------|-------------|-----------|----------------|-----------------|--------|
| Limit = $\pm 2.5$ ppm                          |             |           |                |                 |        |
| Voltage (%)                                    | Power (VDC) | Temp (°C) | Fre. Dev. (Hz) | Deviation (ppm) | Result |
| 100                                            | 5.0         | +20(Ref)  | 18             | 0.022           | PASS   |
| 100                                            |             | -30       | -81            | -0.097          |        |
| 100                                            |             | -20       | -77            | -0.092          |        |
| 100                                            |             | -10       | -43            | -0.051          |        |
| 100                                            |             | 0         | -68            | -0.081          |        |
| 100                                            |             | +10       | 33             | 0.040           |        |
| 100                                            |             | +20       | 29             | 0.035           |        |
| 100                                            |             | +30       | 27             | 0.032           |        |
| 100                                            |             | +40       | 26             | 0.031           |        |
| 100                                            |             | +50       | 51             | 0.061           |        |
| 115                                            | 5.2         | +20       | -33            | -0.040          | PASS   |
| 85                                             | 4.8         | +20       | -53            | -0.063          |        |

| WCDMA 1900MHz, Channel 9400, Frequency 1880.0MHz |             |           |                |                 |        |
|--------------------------------------------------|-------------|-----------|----------------|-----------------|--------|
| Limit =Within Authorized Band                    |             |           |                |                 |        |
| Voltage (%)                                      | Power (VDC) | Temp (°C) | Fre. Dev. (Hz) | Deviation (ppm) | Result |
| 100                                              | 5.0         | +20(Ref)  | 61             | 0.032           | PASS   |
| 100                                              |             | -30       | 55             | 0.029           |        |
| 100                                              |             | -20       | -58            | -0.031          |        |
| 100                                              |             | -10       | 29             | 0.015           |        |
| 100                                              |             | 0         | -79            | -0.042          |        |
| 100                                              |             | +10       | -79            | -0.042          |        |
| 100                                              |             | +20       | 26             | 0.014           |        |
| 100                                              |             | +30       | 19             | 0.010           |        |
| 100                                              |             | +40       | 17             | 0.009           |        |
| 100                                              |             | +50       | 35             | 0.019           |        |
| 115                                              | 5.2         | +20       | -87            | -0.046          | PASS   |
| 85                                               | 4.8         | +20       | 23             | 0.012           |        |



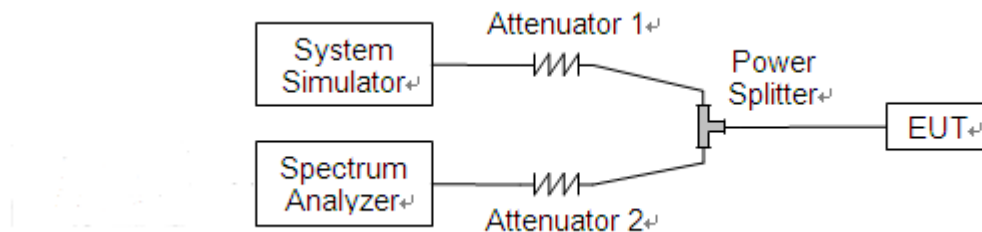
## 2.5. Conducted Out of Band Emissions

### 2.5.1. Requirement

According to FCC section 22.917(a) and FCC section 24.238(a) 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. This calculated to be -13dBm.

### 2.5.2. Test Description

Test Setup:



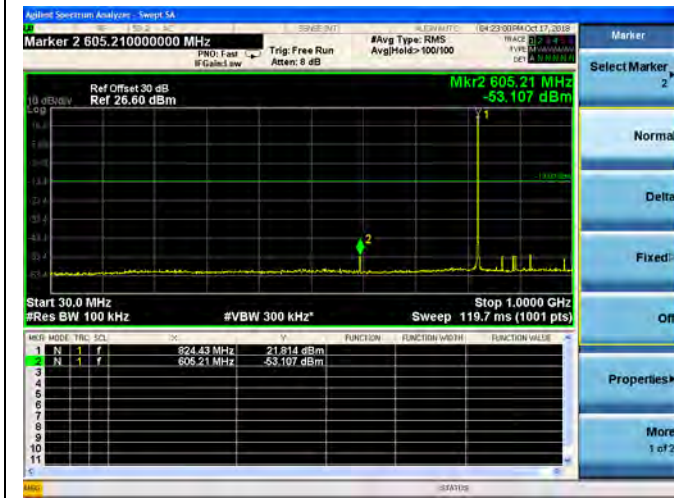
The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS.

### 2.5.3. Test Result

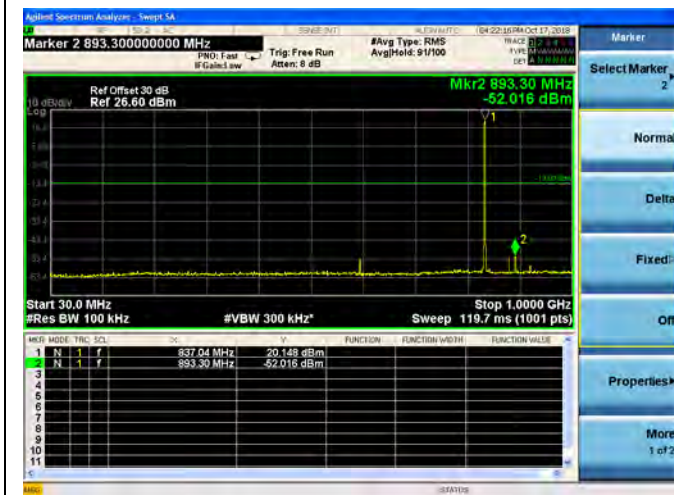
The measurement frequency range is from 30MHz to the 10<sup>th</sup> harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the out of band emissions.



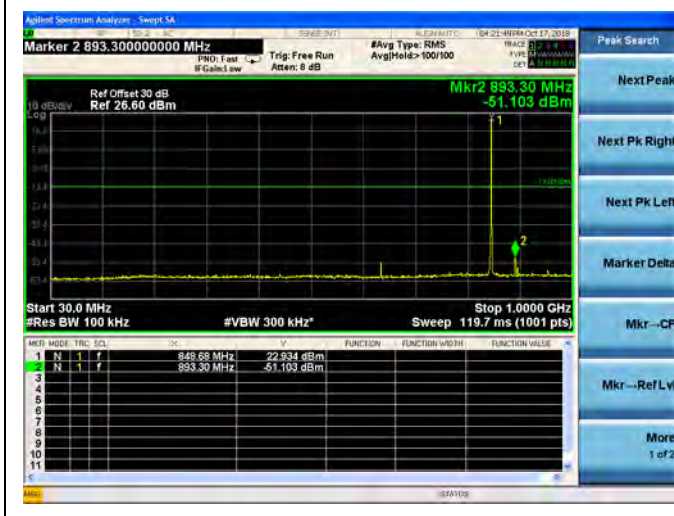
## GPRS 850MHz CH128 824.2MHz



## GPRS 850MHz CH190 836.6MHz



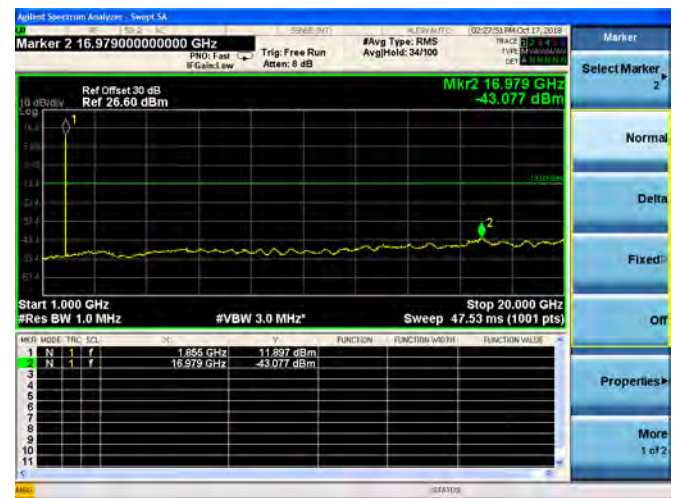
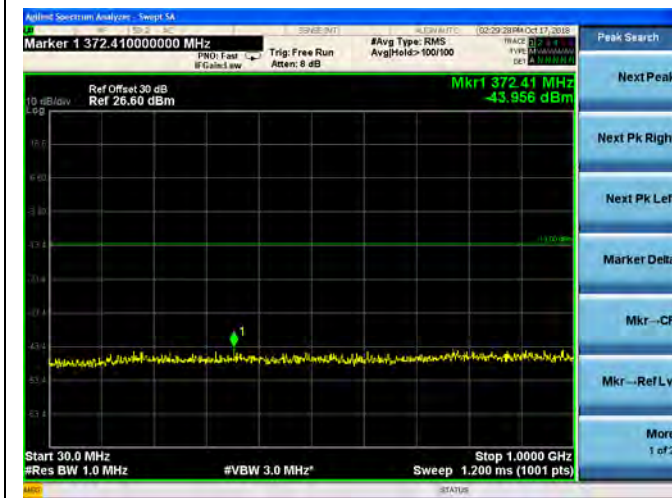
## GPRS 850MHz CH251 848.8MHz



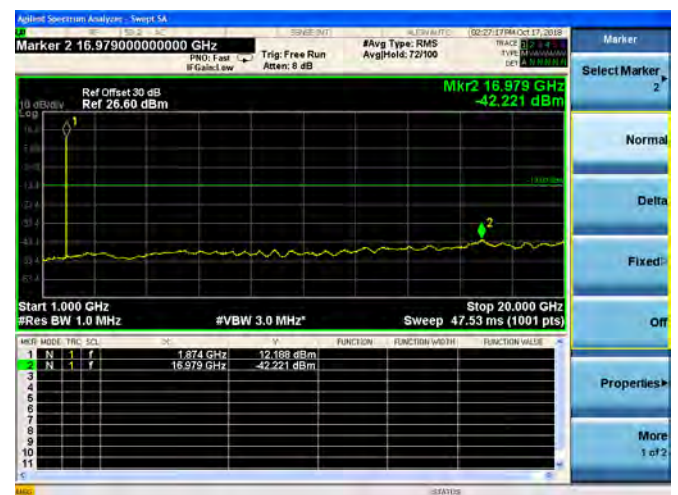
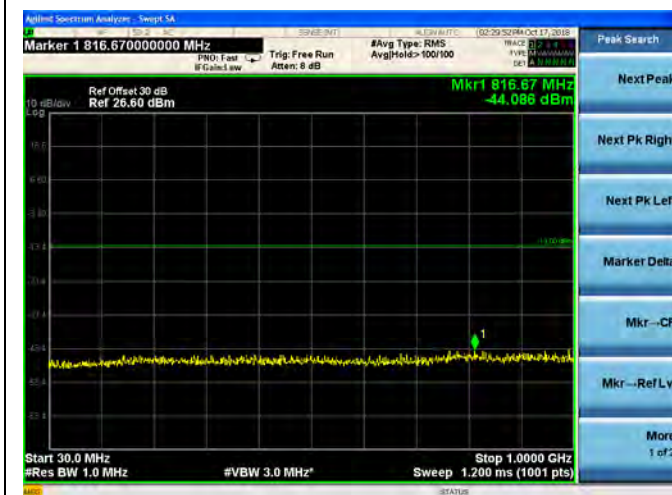




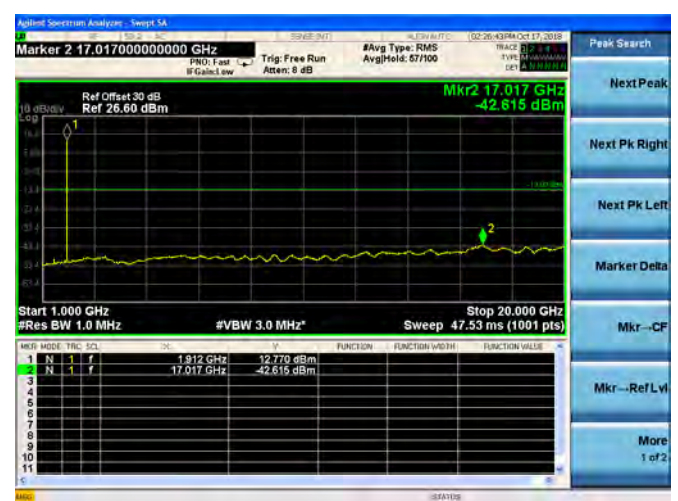
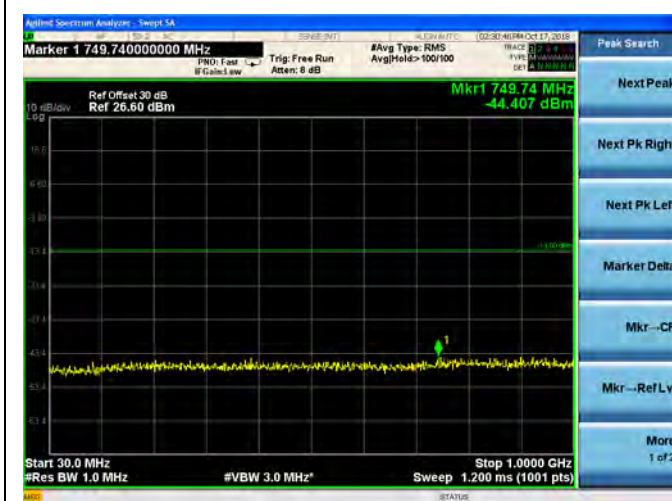
## GPRS 1900MHz CH521 1850.2MHz



## GPRS 1900MHz CH661 1880.0MHz

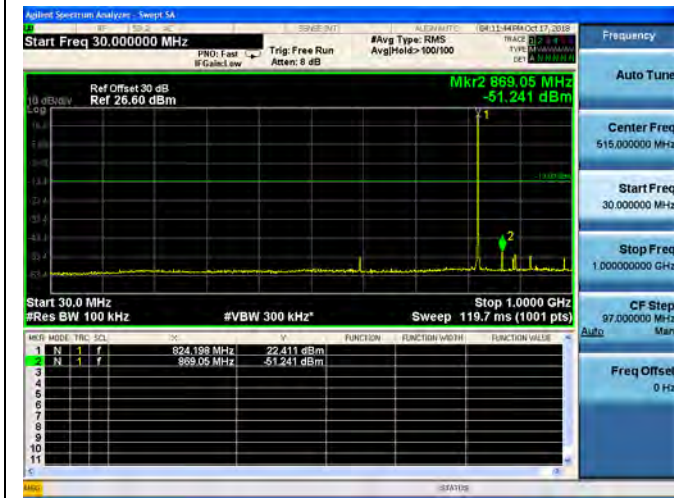


## GPRS 1900MHz CH810 1909.8MHz

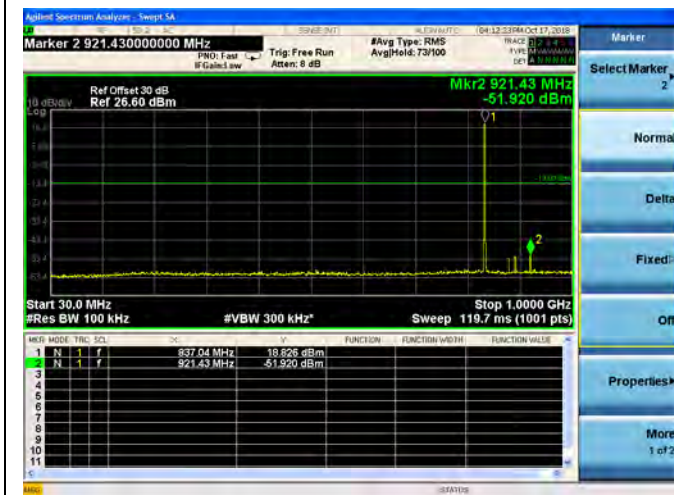




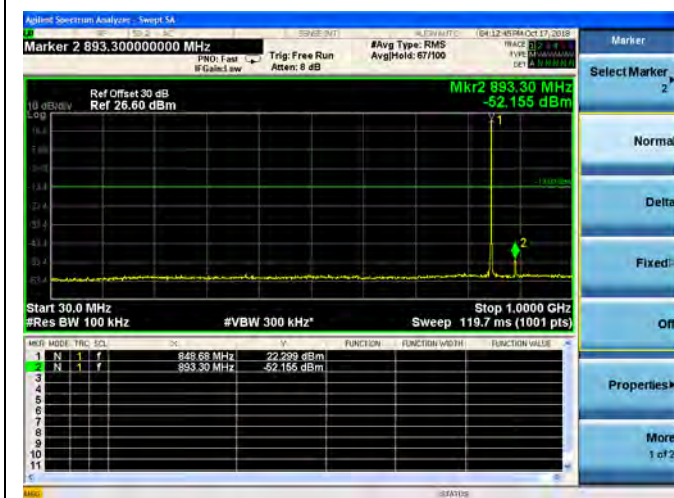
## EGPRS 850MHz CH128 824.2MHz



## EGPRS 850MHz CH190 836.6MHz



## EGPRS 850MHz CH251 848.8MHz







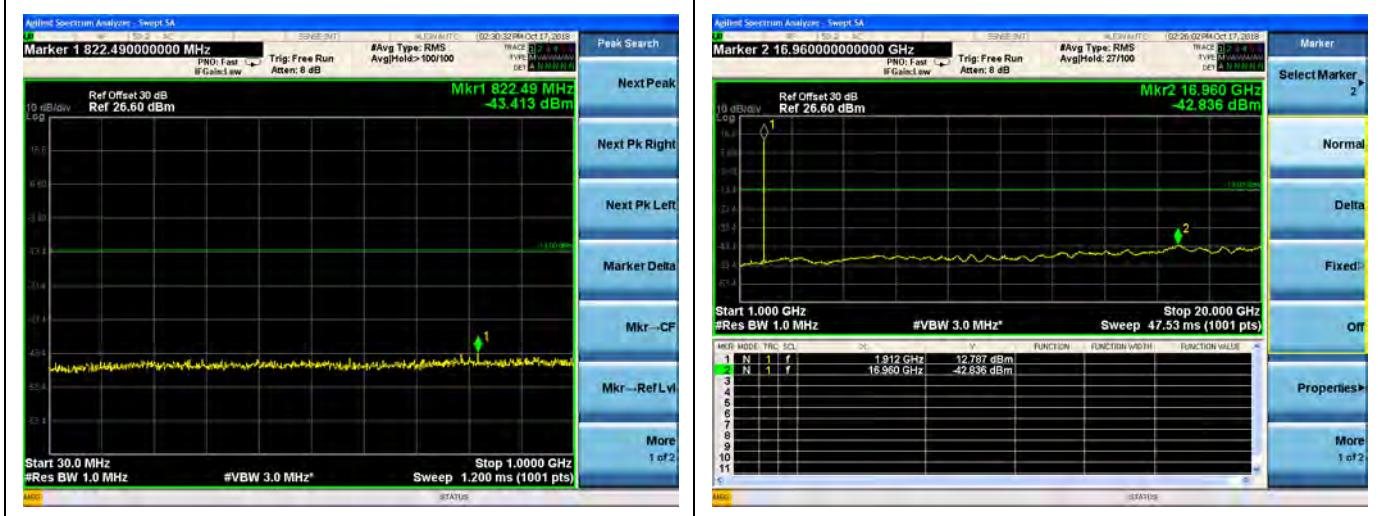
## EGPRS 1900MHz CH521 1850.2MHz



## EGPRS 1900MHz CH661 1880.0MHz

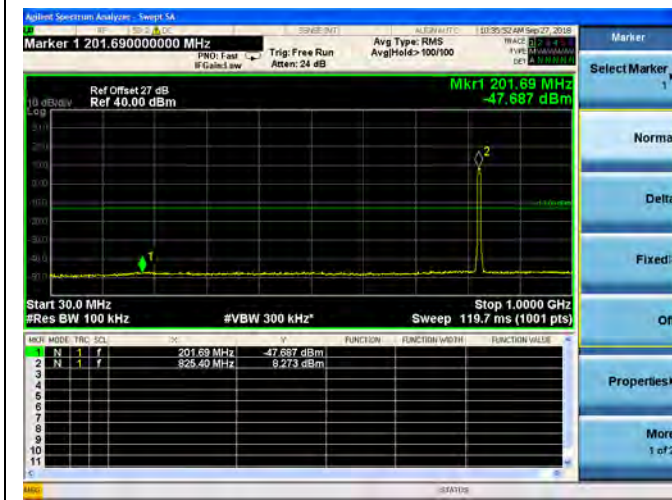


## EGPRS 1900MHz CH810 1909.8MHz

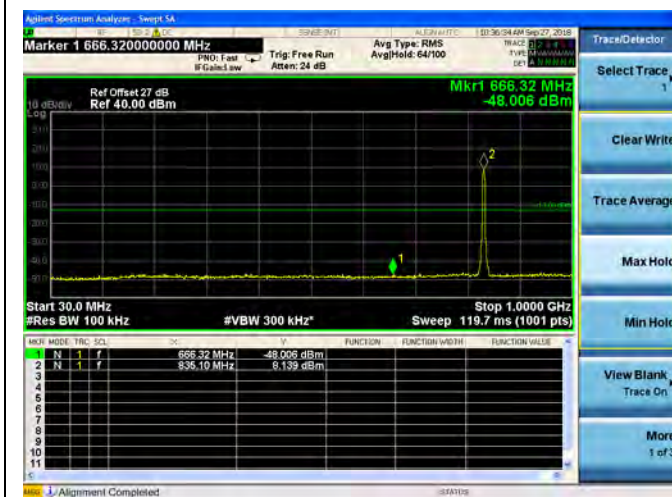




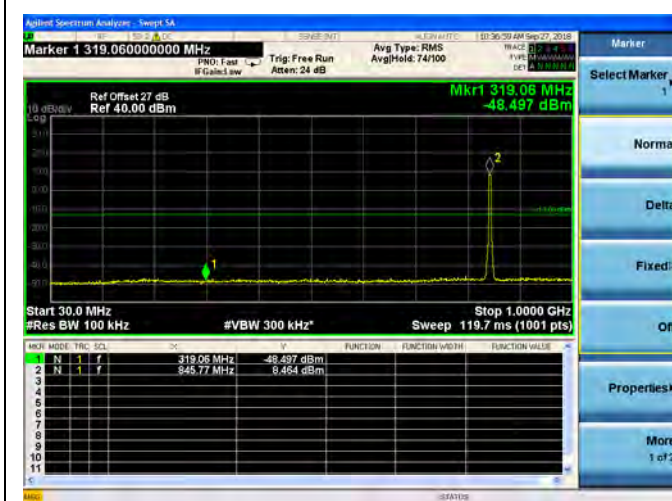
## WCDMA 850MHz CH4132 826.4MHz



## WCDMA 850MHz CH4175 835.0MHz



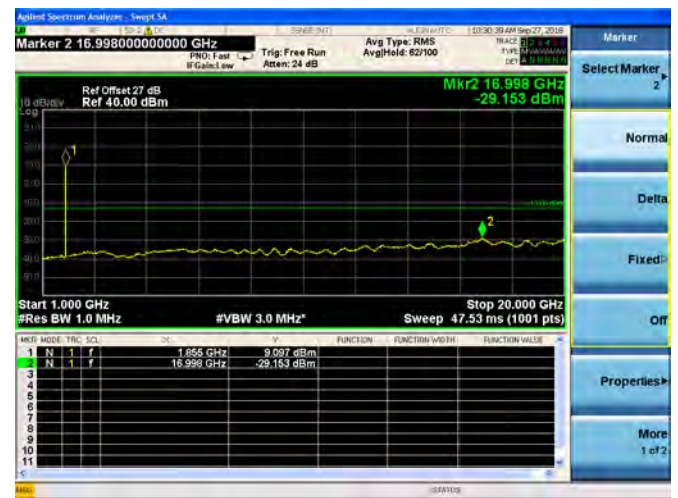
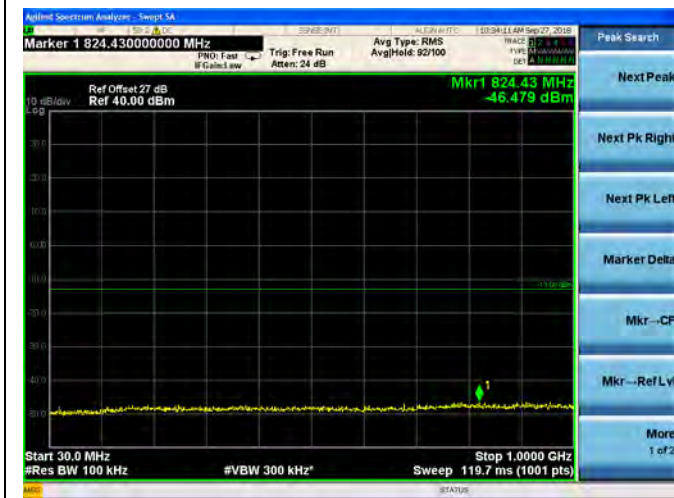
## WCDMA 850MHz CH4233 846.6MHz



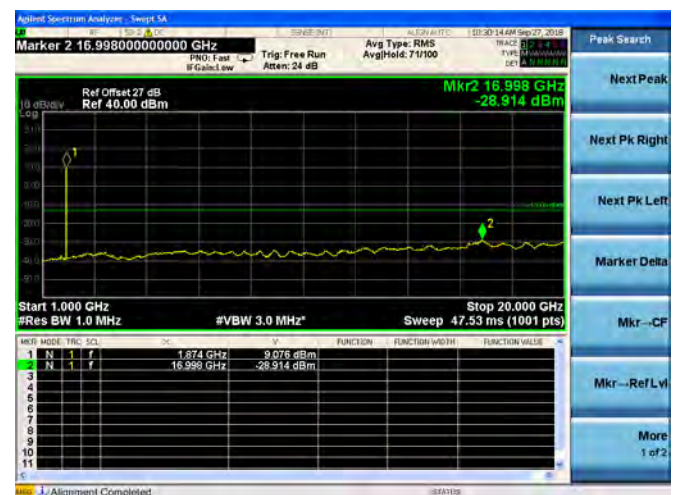
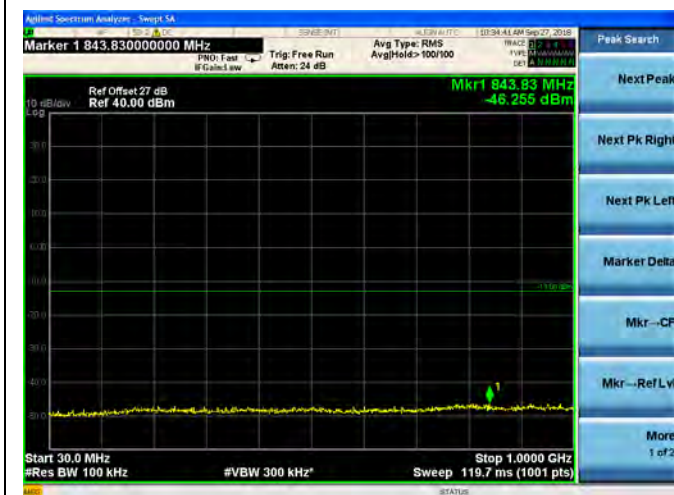




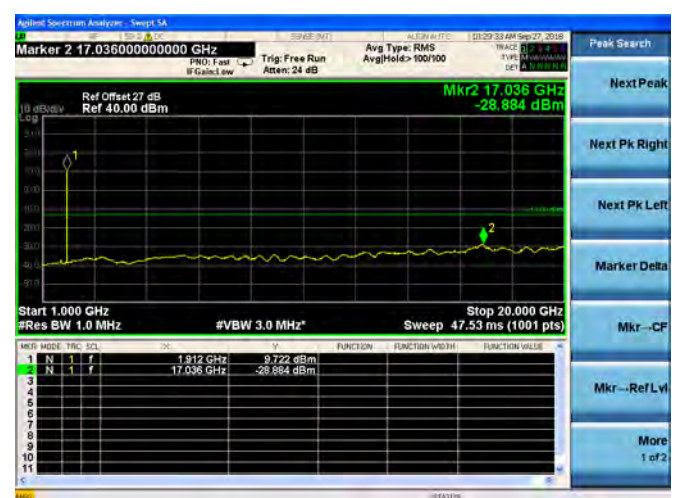
## WCDMA 1900MHz CH9262 1852.4MHz



## WCDMA 1900MHz CH9400 1880.0MHz



## WCDMA 1900MHz CH9538 1907.6MHz



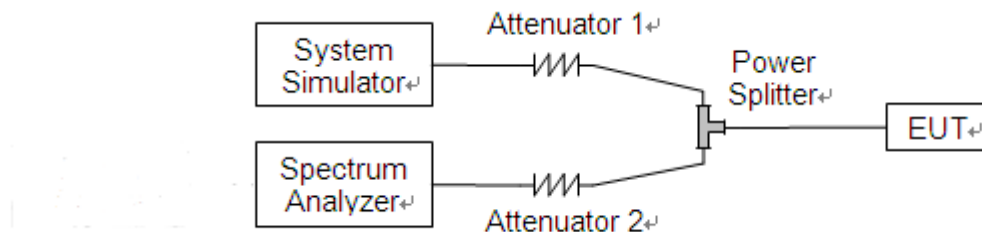
## 2.6. Band Edge

### 2.6.1. Requirement

According to FCC section 22.917(b) and FCC section 24.238(b) in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth (26dB emission bandwidth) of the fundamental emission of the transmitter may be employed.

### 2.6.2. Test Description

Test Setup:



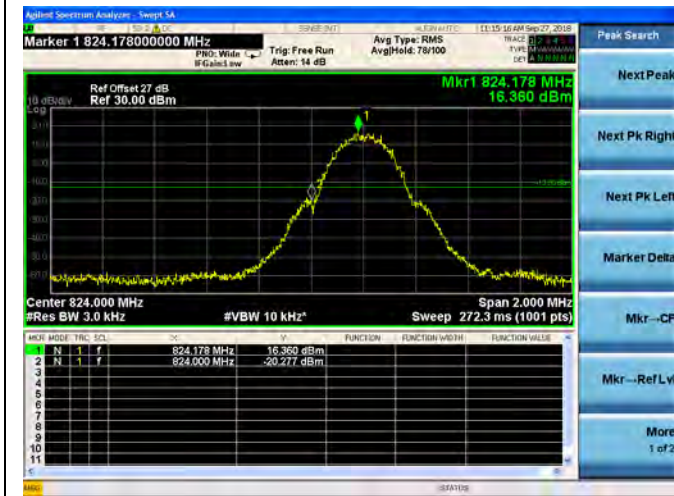
The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS.

### 2.6.3. Test Result

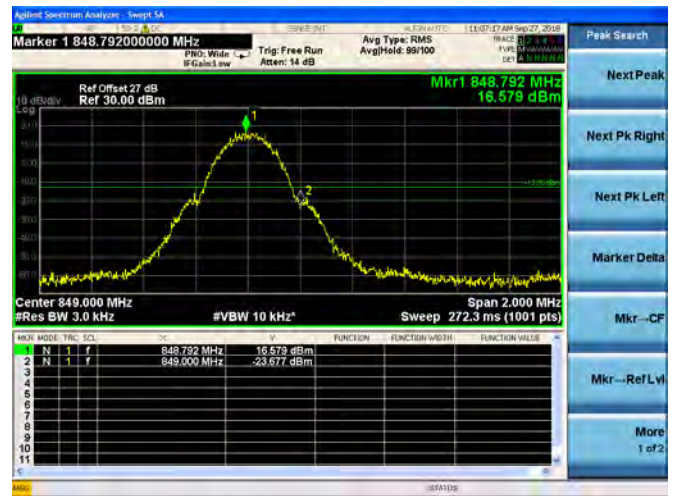
The lowest and highest channels are tested to verify the band edge emissions.



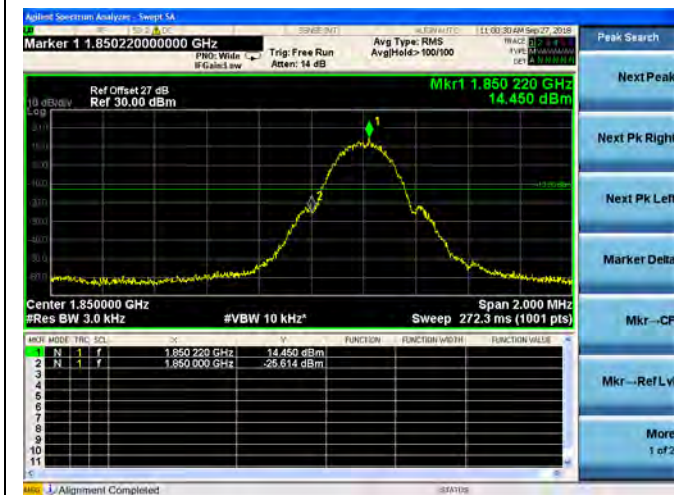
## GPRS 850MHz CH128 824.2MHz



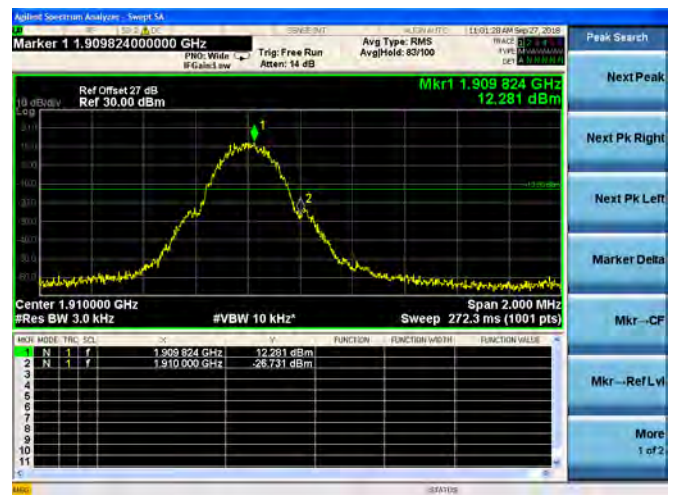
## GPRS 850MHz CH251 848.8MHz



## GPRS 1900MHz CH521 1850.2MHz



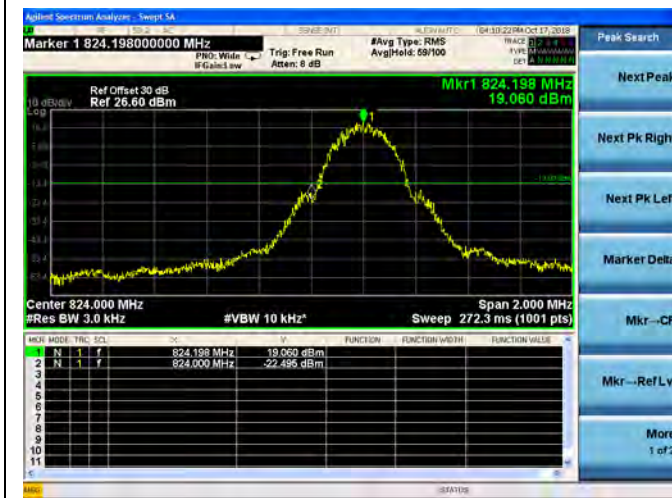
## GPRS 1900MHz CH810 1909.8MHz



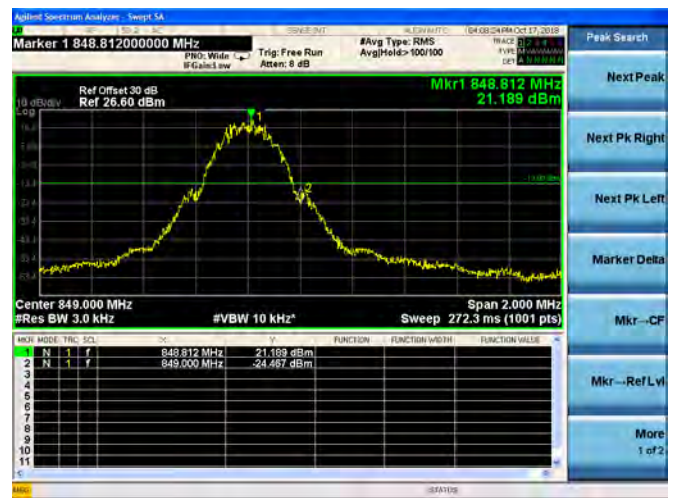




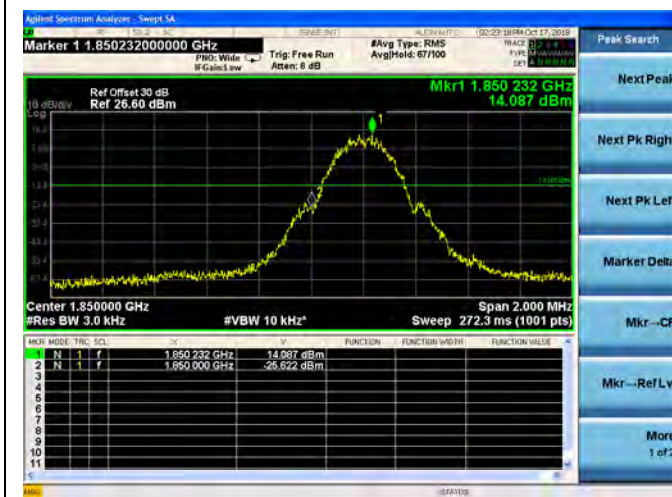
## EGPRS 850MHz CH128 824.2MHz



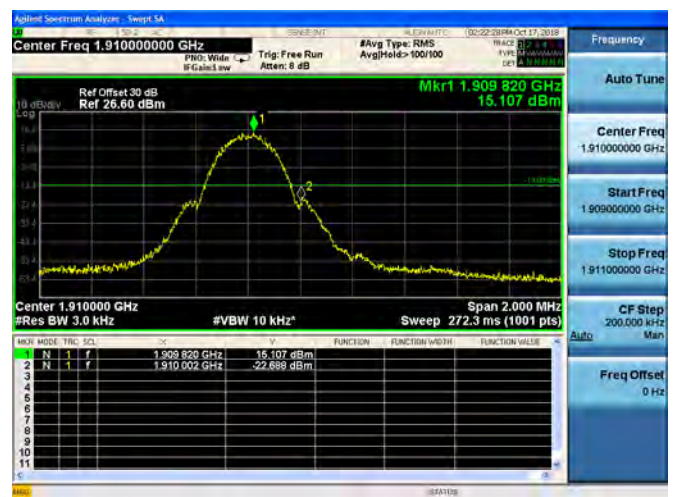
## EGPRS 850MHz CH251 848.8MHz



## EGPRS 1900MHz CH521 1850.2MHz



## EGPRS 1900MHz CH810 1909.8MHz





## WCDMA 850MHz CH4132 826.4MHz



## WCDMA 850MHz CH4233 846.6MHz



## WCDMA 1900MHz CH9262 1852.4MHz



## WCDMA 1900MHz CH9538 1907.6MHz





## 2.7. Transmitter Radiated Power (EIRP/ERP)

### 2.7.1. Requirement

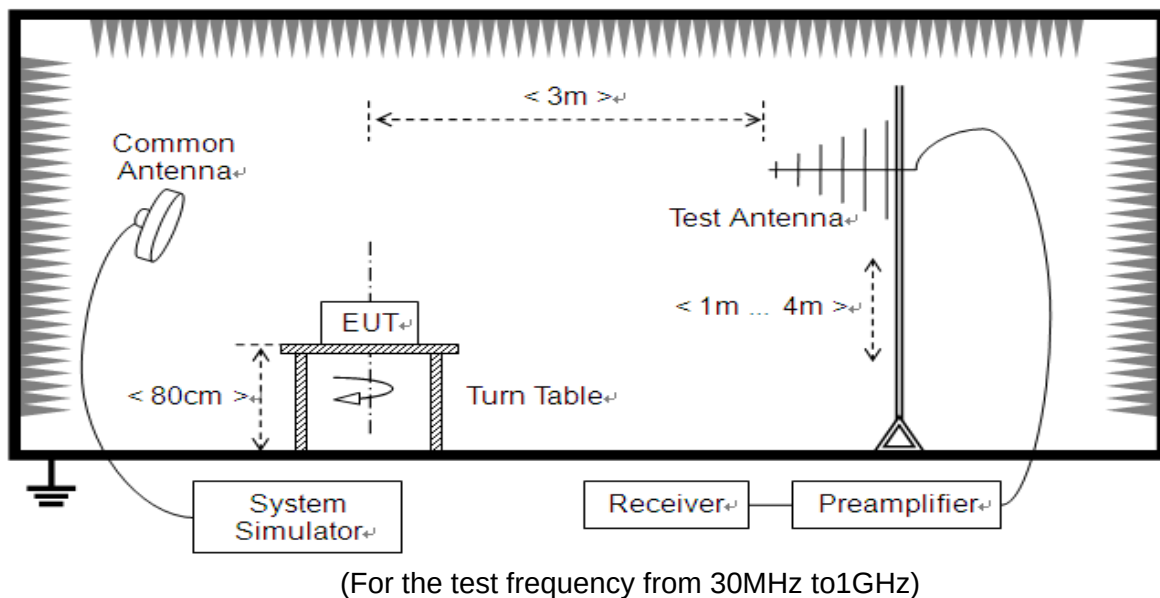
According to FCC section 22.913, the Effective Radiated Power (ERP) of mobile transmitters and auxiliary test transmitters must not exceed 7Watts.

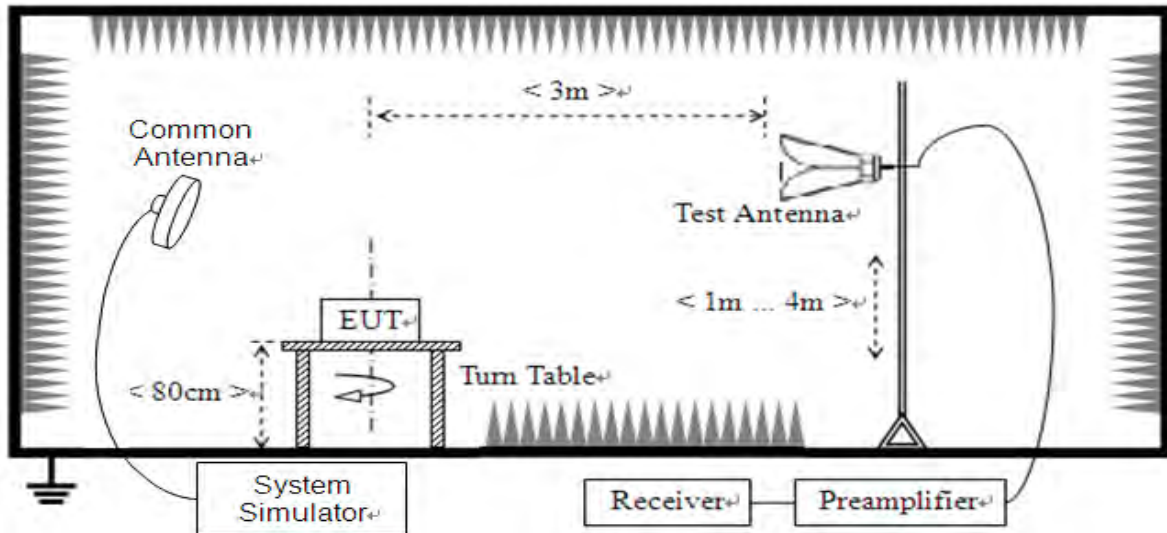
According to FCC section 24.232, the broadband PCS mobile station is limited to 2 Watts e.i.r.p. peak power.

According to FCC section 27.50, mobile, and portable (hand-held) stations is limited to 1 Watts e.i.r.p. peak power.

### 2.7.2. Test Description

Test Setup:





(For the test frequency above 1GHz)

The EUT is located in a 3m Full-Anechoic Chamber; the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and calculated to correct the reading.

A call is established between the EUT and the SS via a Common Antenna. The EUT is commanded by the SS to operate at the maximum and minimum output power (i.e. GSM850MHz band Power Control Level (PCL) = 5/19 and Power Class = 4, GSM1900MHz band Power Control Level (PCL) = 0/15 and Power Class = 1), and only the test result of the maximum output power was recorded. Please refer to section 2.1.3 of this report.

- Step size (dB): 3dB

The Test Antenna is a Bi-Log one (used for 30MHz to 1GHz) or a Horn one (used for above 3GHz), it's located at the same height as the EUT. The Filters consists of Notch Filters and High Pass Filter.



### 2.7.3. Test Result

The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. The lowest, middle and highest channels are tested.

The substitution corrections are obtained as described below:

$$A_{\text{SUBST}} = P_{\text{SUBST\_TX}} - P_{\text{SUBST\_RX}} - L_{\text{SUBST\_CABLES}} + G_{\text{SUBST\_TX\_ANT}}$$

$$A_{\text{TOT}} = L_{\text{CABLES}} + A_{\text{SUBST}}$$

Where  $A_{\text{SUBST}}$  is the final substitution correction including receive antenna gain.

$P_{\text{SUBST\_TX}}$  is signal generator level,

$P_{\text{SUBST\_RX}}$  is receiver level,

$L_{\text{SUBST\_CABLES}}$  is cable losses including TX cable,

$G_{\text{SUBST\_TX\_ANT}}$  is substitution antenna gain.

$A_{\text{TOT}}$  is total correction factor including cable loss and substitution correction

During the test, the data of  $A_{\text{TOT}}$  was added in the Test Spectrum Analyze, so Spectrum Analyze reading is the final values which contain the data of  $A_{\text{TOT}}$ .

#### GSM Test verdict:

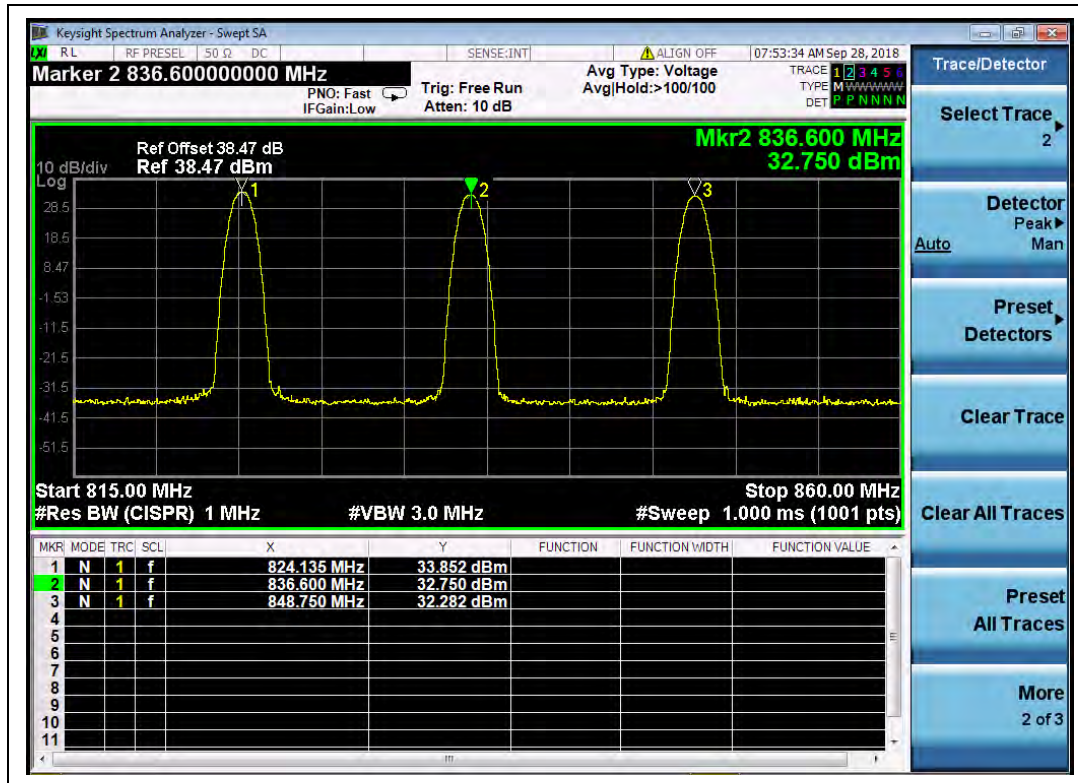
| Band             | Channel | Frequency (MHz) | PCL | Measured ERP |       |                          | Limit |   | Verdict |
|------------------|---------|-----------------|-----|--------------|-------|--------------------------|-------|---|---------|
|                  |         |                 |     | dBm          | W     | Refer to Plot            | dBm   | W |         |
| GPRS<br>850MHz   | 128     | 824.20          | 5   | 33.85        | 2.427 | Plot A                   | 38.5  | 7 | PASS    |
|                  | 190     | 836.60          | 5   | 32.75        | 1.884 |                          |       |   | PASS    |
|                  | 251     | 848.80          | 5   | 32.28        | 1.690 |                          |       |   | PASS    |
| EGPRS<br>850MHz  | 128     | 824.20          | 5   | 27.69        | 0.587 | Plot B <sup>Note 1</sup> | 38.5  | 7 | PASS    |
|                  | 190     | 836.60          | 5   | 30.11        | 1.026 |                          |       |   | PASS    |
|                  | 251     | 848.80          | 5   | 29.96        | 0.991 |                          |       |   | PASS    |
| GPRS<br>1900MHz  | 512     | 1850.2          | 5   | 21.14        | 0.130 | Plot C                   | 33    | 2 | PASS    |
|                  | 661     | 1880.0          | 5   | 25.38        | 0.345 |                          |       |   | PASS    |
|                  | 810     | 1909.8          | 5   | 27.92        | 0.619 |                          |       |   | PASS    |
| EGPRS<br>1900MHz | 512     | 1850.2          | 0   | 21.32        | 0.136 | Plot D <sup>Note 1</sup> | 33    | 2 | PASS    |
|                  | 661     | 1880.0          | 0   | 25.51        | 0.356 |                          |       |   | PASS    |
|                  | 810     | 1909.8          | 0   | 28.10        | 0.646 |                          |       |   | PASS    |

Note 1: For the GPRS and EGPRS model, all the slots were tested and just the worst data were recorded in this report.

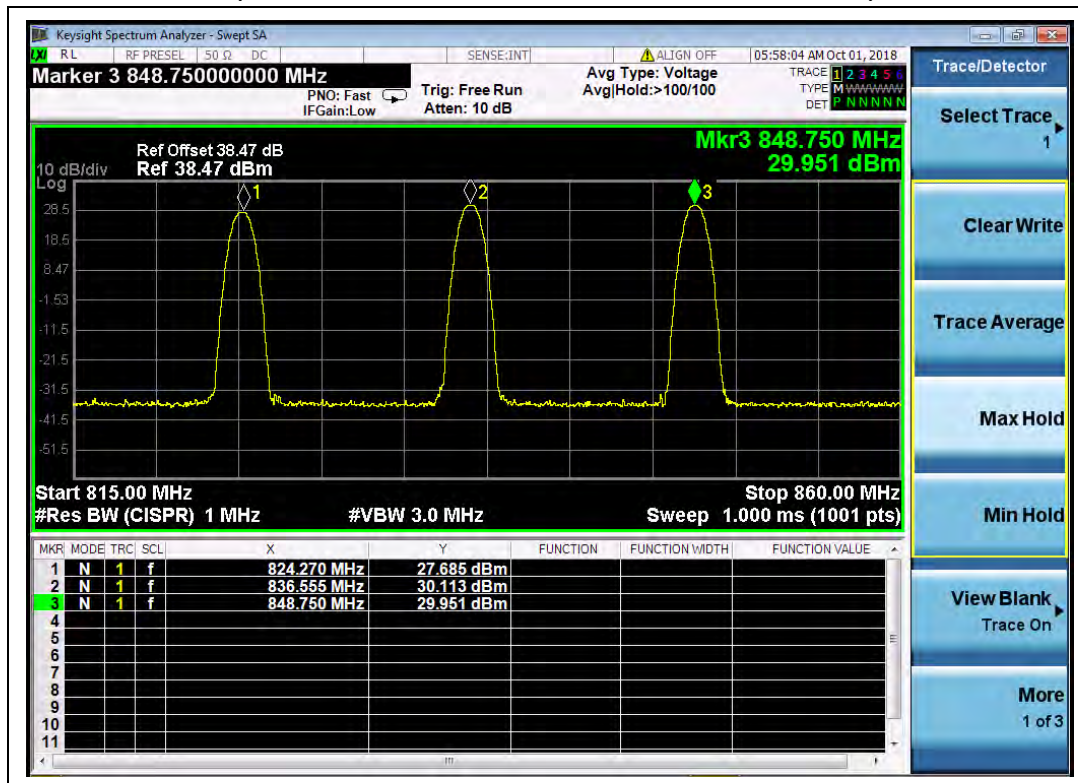
Note 2: Both horizontal and vertical polarizations of the test antenna are evaluated respectively, only the worst data (horizontal) were recorded in this report.



## Test Plots:

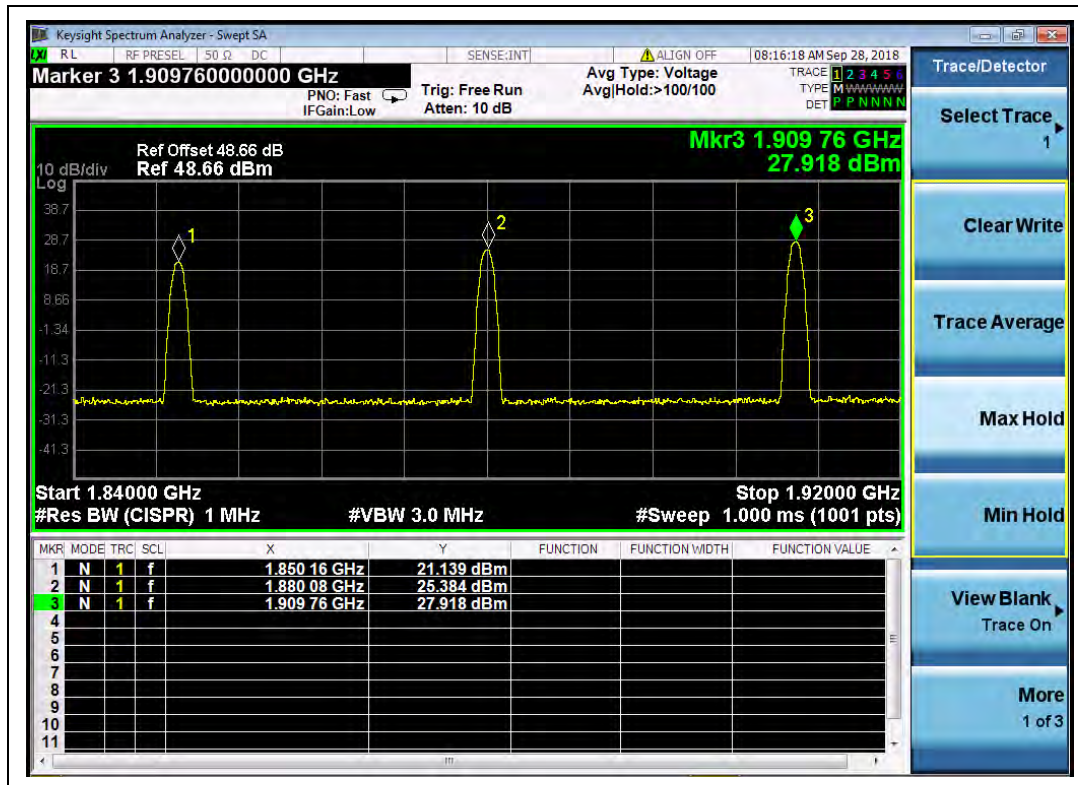


(Plot A, GPRS 850MHz, Channel = 128, 190, 251)

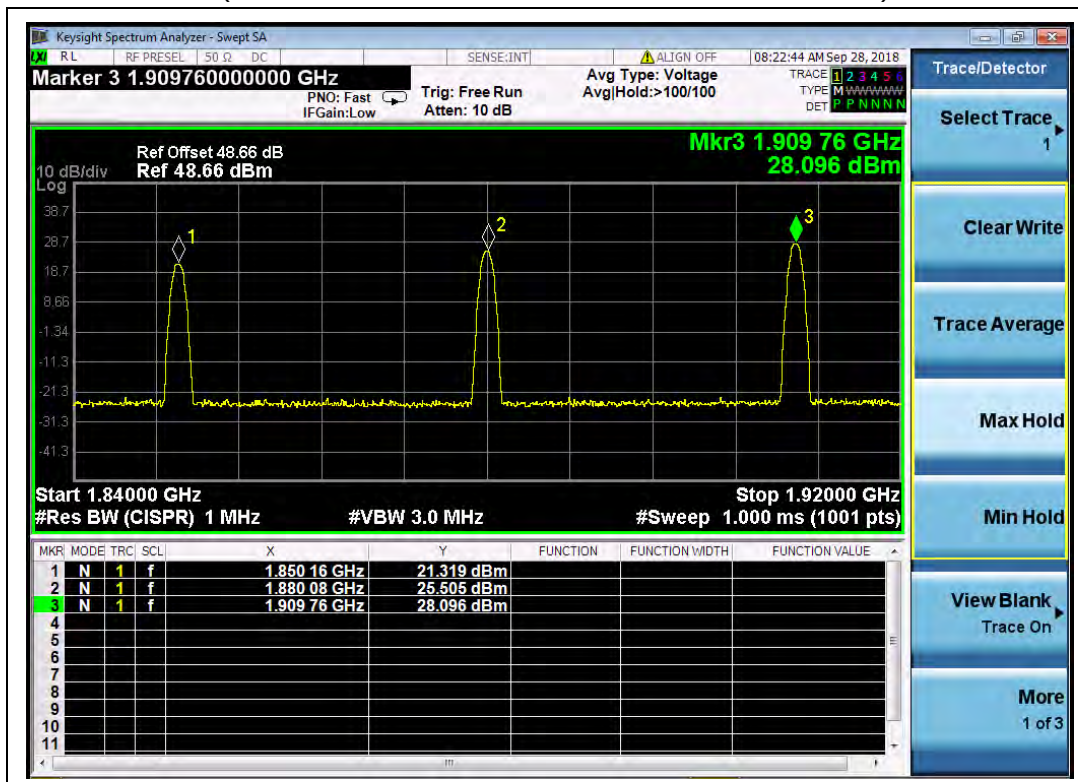


(Plot B, EGPRS 850MHz, Channel = 128, 190, 251)





(Plot C, GPRS 1900MHz, Channel = 512, 661, 810)

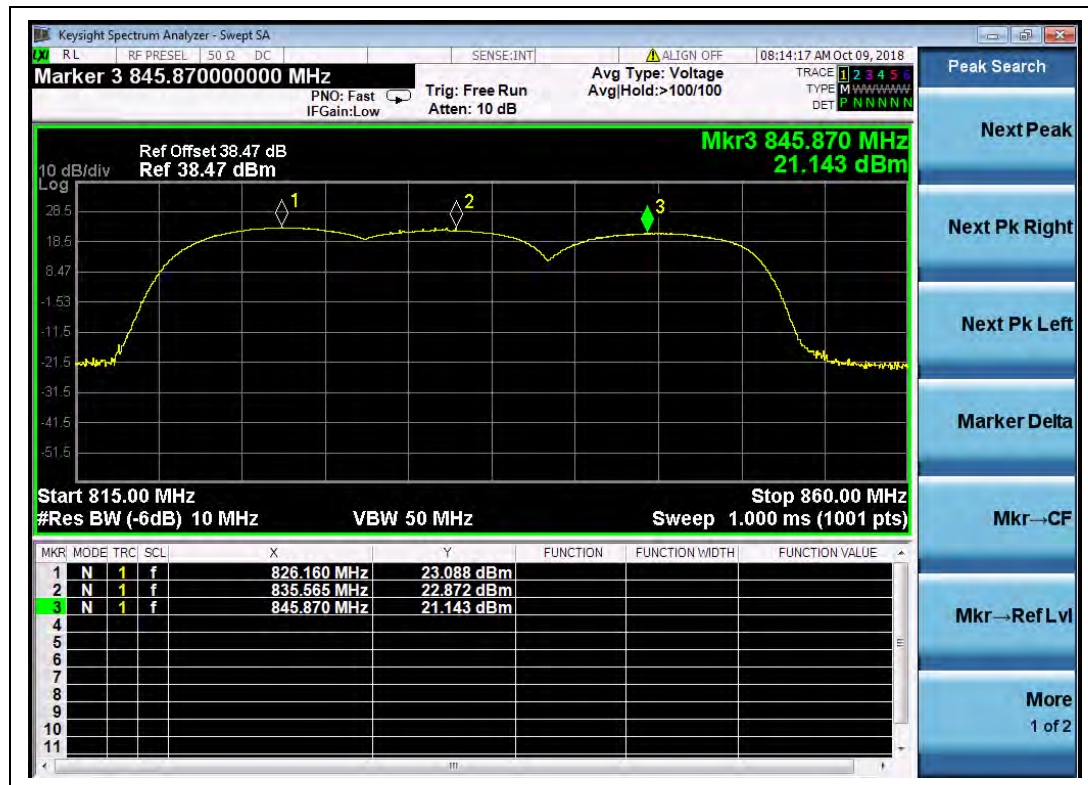


(Plot D, EGPRS 1900MHz, Channel = 512, 661, 810)

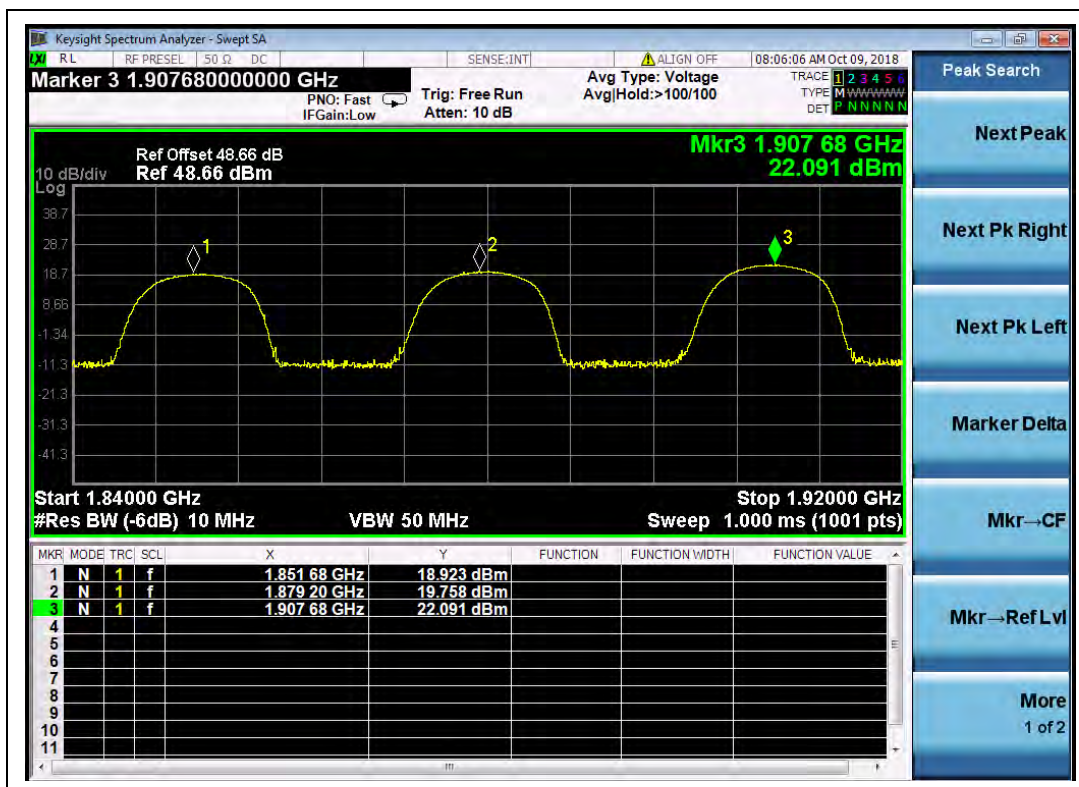
**WCDMA Test verdict:**

| Band             | Channel | Frequency<br>(MHz) | Measured ERP |       |               | Limit |   | Verdict |
|------------------|---------|--------------------|--------------|-------|---------------|-------|---|---------|
|                  |         |                    | dBm          | W     | Refer to Plot | dBm   | W |         |
| WCDMA<br>850MHz  | 4132    | 826.4              | 23.09        | 0.204 | Plot E        | 38.5  | 7 | PASS    |
|                  | 4175    | 835.0              | 22.87        | 0.194 |               |       |   | PASS    |
|                  | 4233    | 846.6              | 21.14        | 0.130 |               |       |   | PASS    |
| WCDMA<br>1900MHz | 9262    | 1852.4             | 18.92        | 0.078 | Plot F        | 33    | 2 | PASS    |
|                  | 9400    | 1880.0             | 19.76        | 0.095 |               |       |   | PASS    |
|                  | 9538    | 1907.6             | 22.09        | 0.162 |               |       |   | PASS    |

Note 1: Both horizontal and vertical polarizations of the test antenna are evaluated respectively, only the worst data (horizontal) were recorded in this report.

**Test Plot**

(Plot E, WCDMA 850 MHz, Channel = 4132, 4175, 4233)



(Plot F, WCDMA 1900 MHz, Channel = 9262, 9400, 9538)

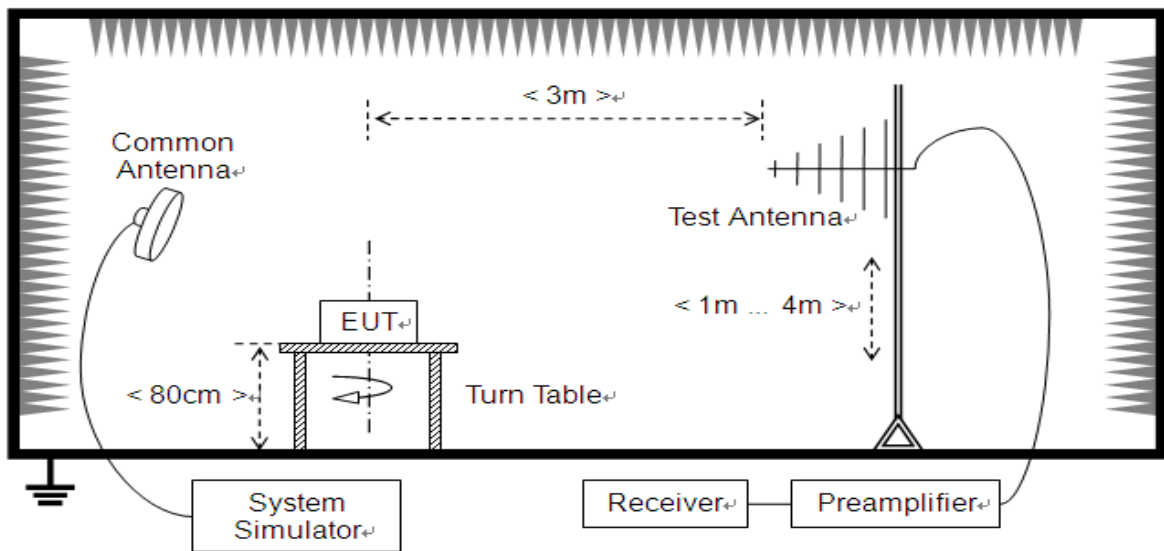
## 2.8. Radiated Out of Band Emissions

### 2.8.1. Requirement

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  $43 + 10 \cdot \log(P)$  dB. This calculated to be -13dBm.

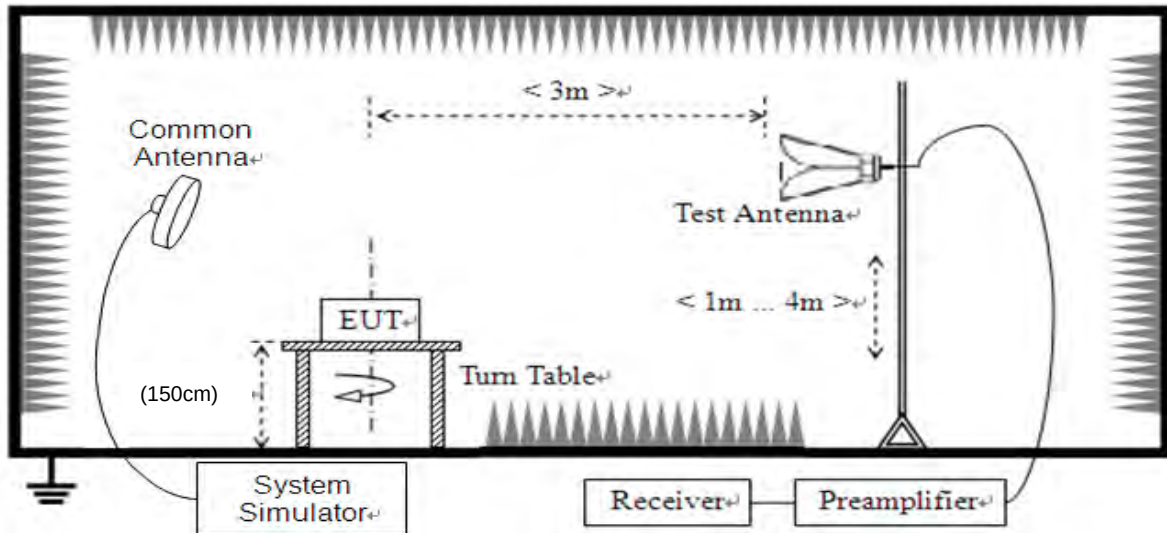
### 2.8.2. Test Description

Test Setup:



(For the test frequency from 30MHz to 1GHz)





(For the test frequency above 1GHz)

The EUT is located in a 3m Full-Anechoic Chamber, the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and calculated to correct the reading.

A call is established between the EUT and the SS via a Common Antenna. The EUT is commanded by the SS to operate at the maximum and minimum output power (i.e. GSM850MHz band Power Control Level (PCL) = 5/19 and Power Class = 4, GSM1900MHz band Power Control Level (PCL) = 0/15 and Power Class = 1), and only the test result of the maximum output power was recorded. Please refer to section 2.1.3 of this report.

- Step size (dB): 3dB

The Test Antenna is a Bi-Log one (used for 30MHz to 1GHz) and a Horn one (used for above 3 GHz), it's located at the same height as the EUT. The Filters consists of Notch Filters and High Pass Filter.

Note: when doing measurements above 1GHz, the EUT has been within the 3dB cone width of the horn antenna during horizontal antenna.

### 2.8.3. Test Result

The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. The lowest, middle and highest channels are tested to verify the out of band emissions. The power of the EUT transmitting frequency should be ignored.

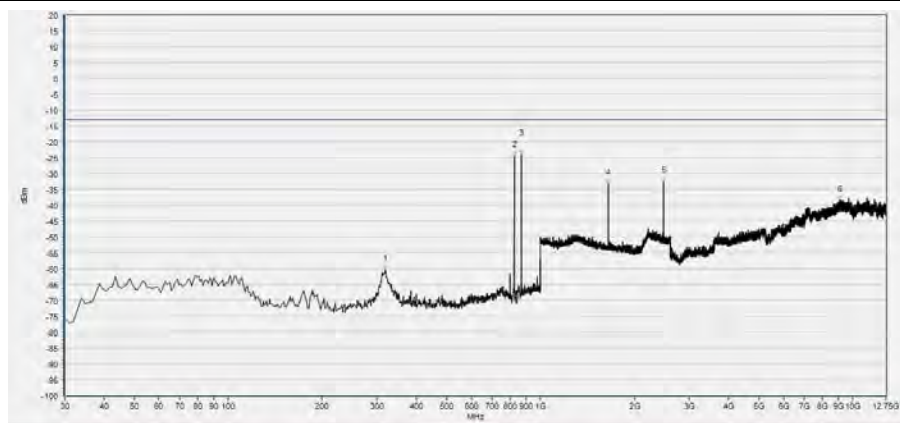
**Note 1:** All test mode and condition mentioned were considered and evaluated respectively by performing full test, only the worst data were recorded and reported.

**Note 2:** All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

**A. Test Verdict:**

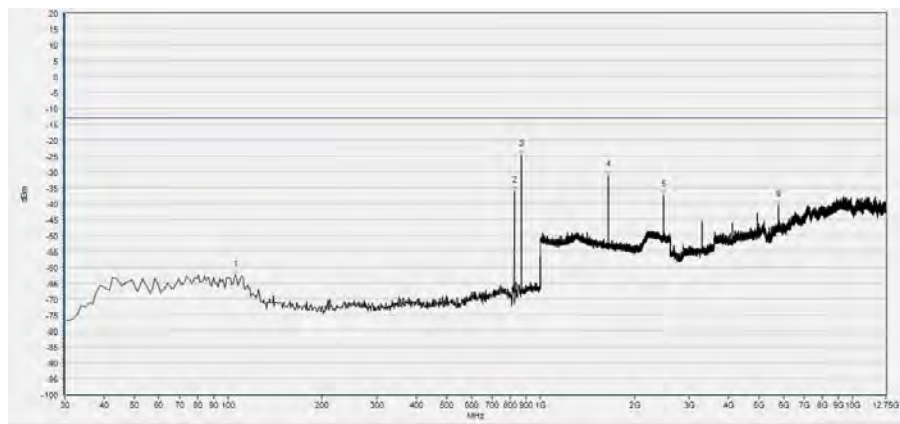
| Band             | Channel | Frequency<br>(MHz) | Measured Max. Spurious<br>Emission (dBm) |                             | Refer to Plot | Limit<br>(dBm) | Verdict |
|------------------|---------|--------------------|------------------------------------------|-----------------------------|---------------|----------------|---------|
|                  |         |                    | Test<br>Antenna<br>Horizontal            | Test<br>Antenna<br>Vertical |               |                |         |
| GPRS<br>850MHz   | 128     | 824.2              | < -25                                    | < -25                       | Plot A1/A2    | -13            | PASS    |
|                  | 190     | 836.6              | < -25                                    | < -25                       | Plot A3/A4    |                | PASS    |
|                  | 251     | 848.8              | < -25                                    | < -25                       | Plot A5/A6    |                | PASS    |
| GPRS<br>1900MHz  | 512     | 1850.2             | < -25                                    | < -25                       | Plot B1/B2    | -13            | PASS    |
|                  | 661     | 1880.0             | < -25                                    | < -25                       | Plot B3/B4    |                | PASS    |
|                  | 810     | 1909.8             | < -25                                    | < -25                       | Plot B5/B6    |                | PASS    |
| EGPRS<br>850MHz  | 128     | 824.2              | < -25                                    | < -25                       | Plot C1/C2    | -13            | PASS    |
|                  | 190     | 836.6              | < -25                                    | < -25                       | Plot C3/C4    |                | PASS    |
|                  | 251     | 848.8              | < -25                                    | < -25                       | Plot C5/C6    |                | PASS    |
| EGPRS<br>1900MHz | 512     | 1850.2             | < -25                                    | < -25                       | Plot D1/D2    | -13            | PASS    |
|                  | 661     | 1880.0             | < -25                                    | < -25                       | Plot D3/D4    |                | PASS    |
|                  | 810     | 1909.8             | < -25                                    | < -25                       | Plot D5/D6    |                | PASS    |
| WCDMA<br>850MHz  | 4132    | 826.4              | < -25                                    | < -25                       | Plot E1/E2    | -13            | PASS    |
|                  | 4175    | 835.0              | < -25                                    | < -25                       | Plot E3/E4    |                | PASS    |
|                  | 4233    | 846.6              | < -25                                    | < -25                       | Plot E5/E6    |                | PASS    |
| WCDMA<br>1900MHz | 9262    | 1852.4             | < -25                                    | < -25                       | Plot F1/G2    | -13            | PASS    |
|                  | 9400    | 1880.0             | < -25                                    | < -25                       | Plot F3/G4    |                | PASS    |
|                  | 9538    | 1907.6             | < -25                                    | < -25                       | Plot F5/G6    |                | PASS    |

## B. Test Plots



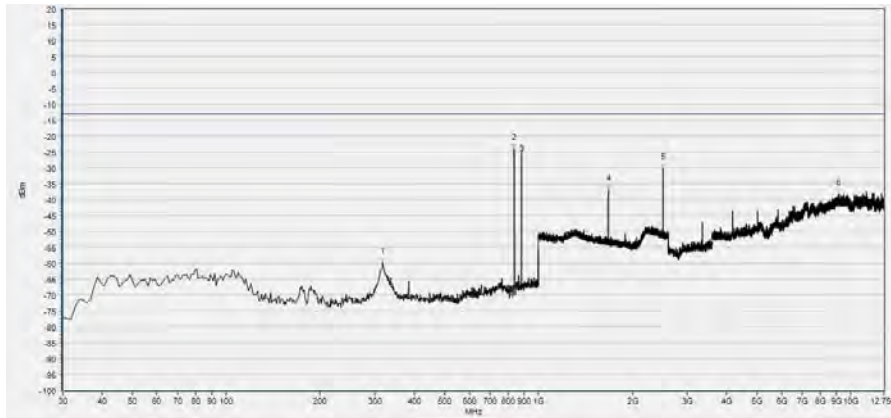
| Num | Freq(MHz) | PK     | limit PK | Antenna    | Verdict |
|-----|-----------|--------|----------|------------|---------|
| 1   | 318.090   | -60.57 | -13.00   | Horizontal | PASS    |
| 2   | 824.430   | -24.46 | -13.00   | Horizontal | N/A     |
| 3   | 869.050   | -24.00 | -13.00   | Horizontal | N/A     |
| 4   | 1647.939  | -33.40 | -13.00   | Horizontal | PASS    |
| 5   | 2471.949  | -32.70 | -13.00   | Horizontal | PASS    |
| 6   | 9054.728  | -38.65 | -13.00   | Horizontal | PASS    |

(Plot A1, GPRS 850MHz, Channel = 128, Horizontal)



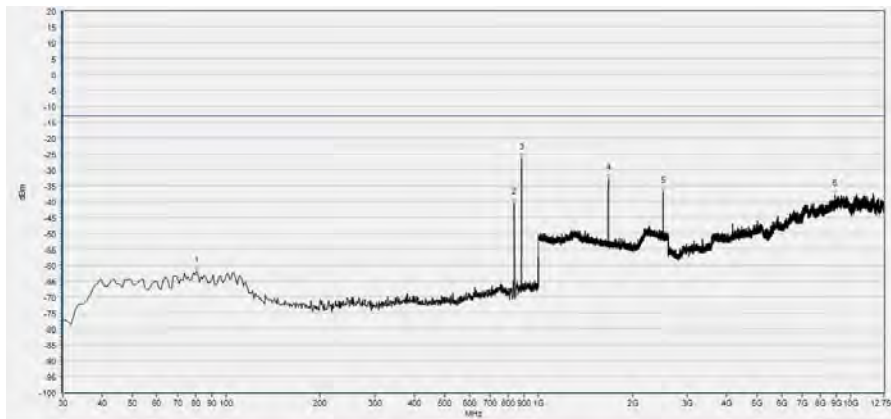
| Num | Freq(MHz) | PK     | limit PK | Antenna  | Verdict |
|-----|-----------|--------|----------|----------|---------|
| 1   | 105.660   | -62.67 | -13.00   | Vertical | PASS    |
| 2   | 824.430   | -36.23 | -13.00   | Vertical | N/A     |
| 3   | 869.050   | -24.86 | -13.00   | Vertical | N/A     |
| 4   | 1648.579  | -31.08 | -13.00   | Vertical | PASS    |
| 5   | 2472.589  | -37.44 | -13.00   | Vertical | PASS    |
| 6   | 5769.222  | -40.37 | -13.00   | Vertical | PASS    |

(Plot A2, GPRS 850MHz, Channel = 128, Vertical)



| Num | Freq(MHz) | PK     | limit PK | Antenna    | Verdict |
|-----|-----------|--------|----------|------------|---------|
| 1   | 317.120   | -59.77 | -13.00   | Horizontal | PASS    |
| 2   | 836.070   | -24.05 | -13.00   | Horizontal | N/A     |
| 3   | 881.660   | -24.44 | -13.00   | Horizontal | N/A     |
| 4   | 1672.909  | -36.92 | -13.00   | Horizontal | PASS    |
| 5   | 2509.724  | -30.22 | -13.00   | Horizontal | PASS    |
| 6   | 9137.789  | -38.30 | -13.00   | Horizontal | PASS    |

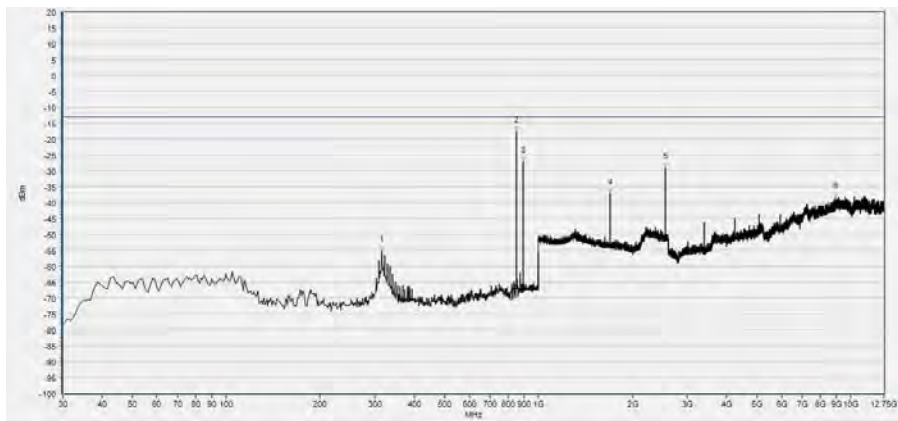
(Plot A3, GPRS850MHz, Channel = 190, Horizontal)



| Num | Freq(MHz) | PK     | limit PK | Antenna  | Verdict |
|-----|-----------|--------|----------|----------|---------|
| 1   | 80.440    | -61.89 | -13.00   | Vertical | PASS    |
| 2   | 837.040   | -40.39 | -13.00   | Vertical | N/A     |
| 3   | 881.660   | -26.54 | -13.00   | Vertical | N/A     |
| 4   | 1672.909  | -32.89 | -13.00   | Vertical | PASS    |
| 5   | 2509.724  | -36.83 | -13.00   | Vertical | PASS    |
| 6   | 8899.682  | -37.77 | -13.00   | Vertical | PASS    |

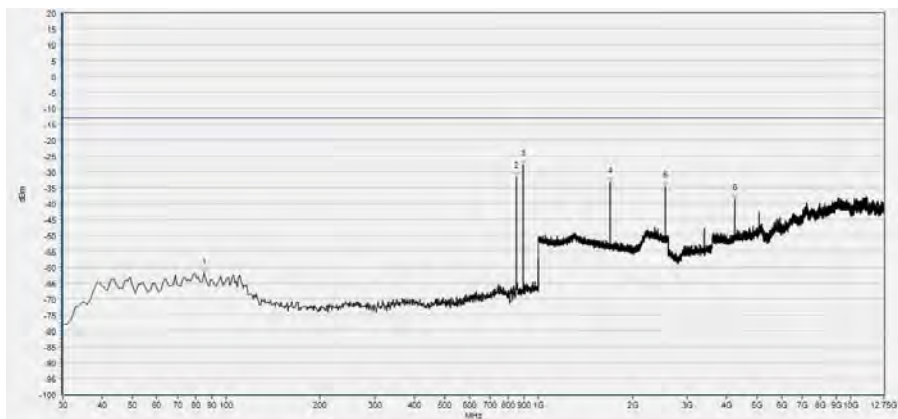
(Plot A4, GPRS 850MHz, Channel = 190, Vertical)





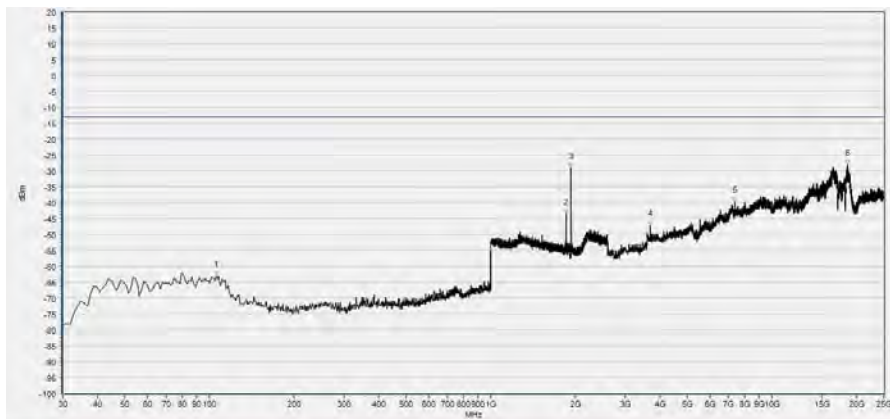
| Num | Freq(MHz) | PK     | limit PK | Antenna    | Verdict |
|-----|-----------|--------|----------|------------|---------|
| 1   | 315.180   | -55.13 | -13.00   | Horizontal | PASS    |
| 2   | 848.680   | -17.51 | -13.00   | Horizontal | N/A     |
| 3   | 894.270   | -27.20 | -13.00   | Horizontal | N/A     |
| 4   | 1697.239  | -37.10 | -13.00   | Horizontal | PASS    |
| 5   | 2546.218  | -28.98 | -13.00   | Horizontal | PASS    |
| 6   | 8921.831  | -38.26 | -13.00   | Horizontal | PASS    |

(Plot A5, GPRS 850MHz, Channel = 251, Horizontal)



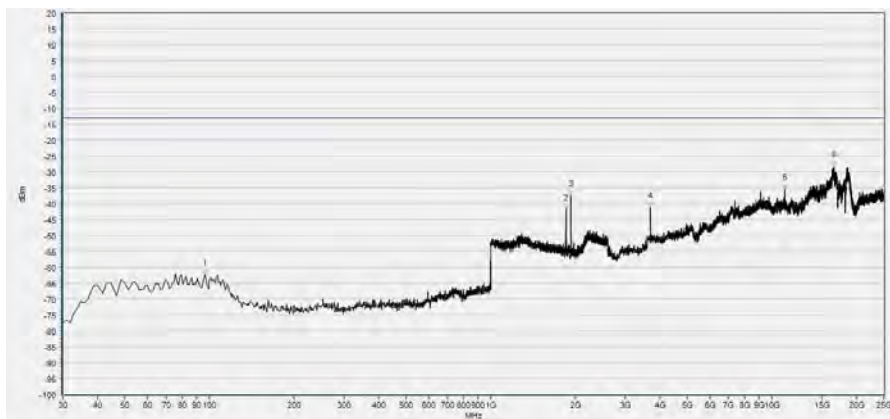
| Num | Freq(MHz) | PK     | limit PK | Antenna  | Verdict |
|-----|-----------|--------|----------|----------|---------|
| 1   | 85.290    | -61.82 | -13.00   | Vertical | PASS    |
| 2   | 848.680   | -31.75 | -13.00   | Vertical | N/A     |
| 3   | 893.300   | -27.85 | -13.00   | Vertical | N/A     |
| 4   | 1697.239  | -33.25 | -13.00   | Vertical | PASS    |
| 5   | 2546.218  | -34.79 | -13.00   | Vertical | PASS    |
| 6   | 4244.599  | -38.50 | -13.00   | Vertical | PASS    |

(Plot A6, GPRS 850MHz, Channel = 251, Vertical)



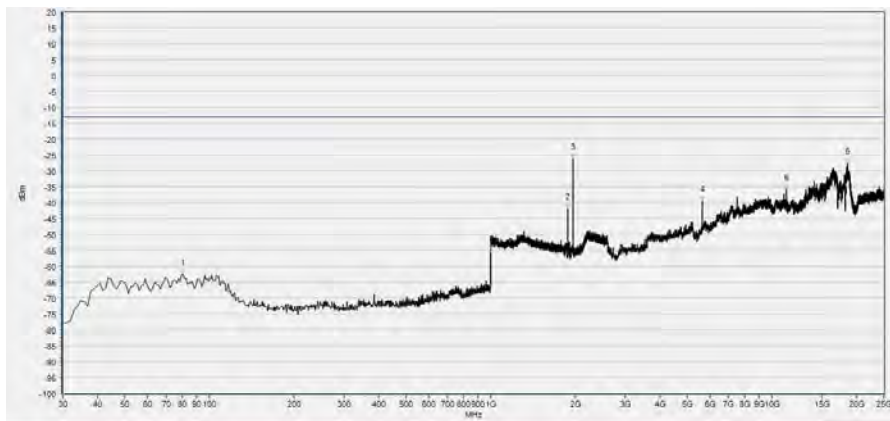
| Num | Freq(MHz) | PK     | limit PK | Antenna    | Verdict |
|-----|-----------|--------|----------|------------|---------|
| 1   | 105.660   | -63.01 | -13.00   | Horizontal | PASS    |
| 2   | 1850.260  | -43.67 | -13.00   | Horizontal | N/A     |
| 3   | 1930.292  | -29.13 | -13.00   | Horizontal | N/A     |
| 4   | 3699.836  | -47.06 | -13.00   | Horizontal | PASS    |
| 5   | 7402.619  | -39.70 | -13.00   | Horizontal | PASS    |
| 6   | 18555.774 | -28.11 | -13.00   | Horizontal | PASS    |

(Plot B1, GPRS 1900MHz, Channel = 512, Horizontal)



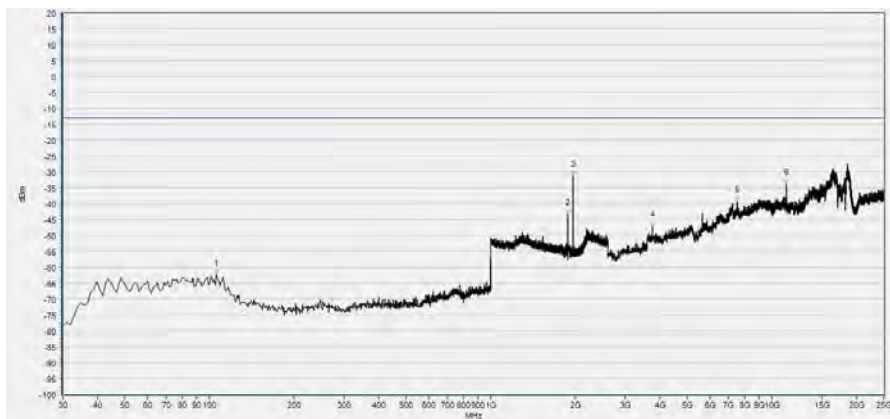
| Num | Freq(MHz) | PK     | limit PK | Antenna  | Verdict |
|-----|-----------|--------|----------|----------|---------|
| 1   | 95.960    | -62.43 | -13.00   | Vertical | PASS    |
| 2   | 1849.620  | -41.87 | -13.00   | Vertical | N/A     |
| 3   | 1929.652  | -37.35 | -13.00   | Vertical | N/A     |
| 4   | 3699.836  | -41.20 | -13.00   | Vertical | PASS    |
| 5   | 11101.328 | -35.38 | -13.00   | Vertical | PASS    |
| 6   | 16567.921 | -28.38 | -13.00   | Vertical | PASS    |

(Plot B2, GPRS 1900MHz, Channel = 512, Vertical)



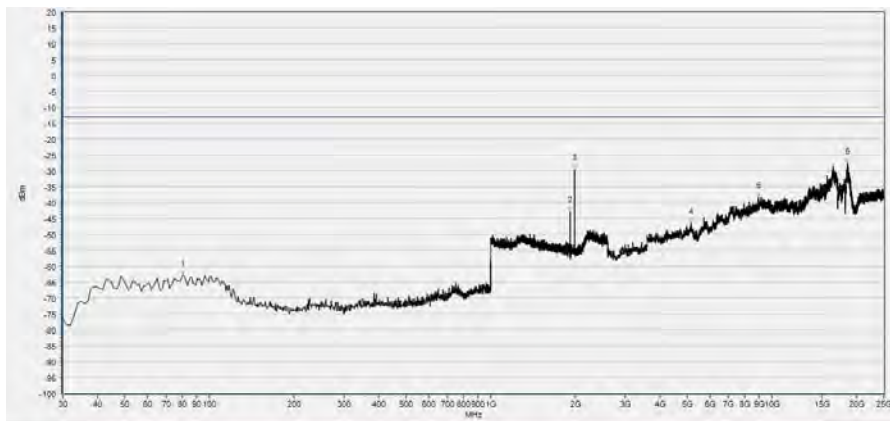
| Num | Freq(MHz) | PK     | limit PK | Antenna    | Verdict |
|-----|-----------|--------|----------|------------|---------|
| 1   | 80.440    | -62.52 | -13.00   | Horizontal | PASS    |
| 2   | 1879.712  | -41.91 | -13.00   | Horizontal | N/A     |
| 3   | 1959.744  | -26.21 | -13.00   | Horizontal | N/A     |
| 4   | 5638.807  | -39.59 | -13.00   | Horizontal | PASS    |
| 5   | 11280.560 | -36.03 | -13.00   | Horizontal | PASS    |
| 6   | 18576.141 | -27.55 | -13.00   | Horizontal | PASS    |

(Plot B3, GPRS 1900MHz, Channel = 661, Horizontal)



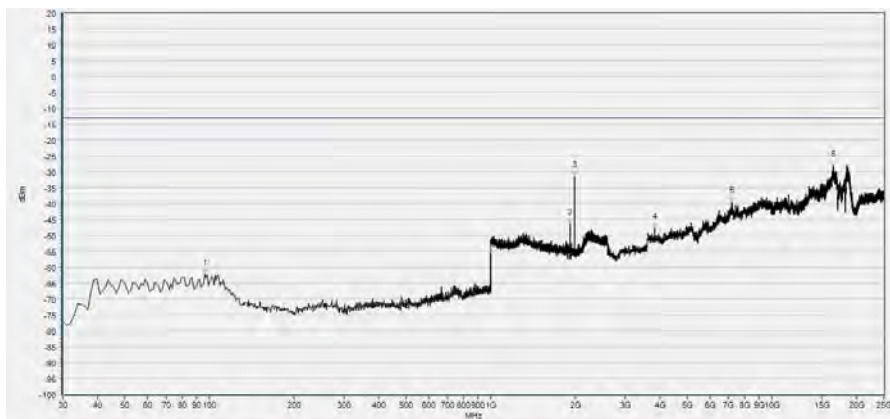
| Num | Freq(MHz) | PK     | limit PK | Antenna  | Verdict |
|-----|-----------|--------|----------|----------|---------|
| 1   | 105.660   | -62.27 | -13.00   | Vertical | PASS    |
| 2   | 1879.712  | -43.36 | -13.00   | Vertical | N/A     |
| 3   | 1959.744  | -31.29 | -13.00   | Vertical | N/A     |
| 4   | 3760.938  | -47.21 | -13.00   | Vertical | PASS    |
| 5   | 7520.749  | -39.19 | -13.00   | Vertical | PASS    |
| 6   | 11280.560 | -33.79 | -13.00   | Vertical | PASS    |

(Plot B4, GPRS 1900MHz, Channel = 661, Vertical)



| Num | Freq(MHz) | PK     | limit PK | Antenna    | Verdict |
|-----|-----------|--------|----------|------------|---------|
| 1   | 80.440    | -62.92 | -13.00   | Horizontal | PASS    |
| 2   | 1909.804  | -42.96 | -13.00   | Horizontal | N/A     |
| 3   | 1989.836  | -29.63 | -13.00   | Horizontal | N/A     |
| 4   | 5162.211  | -46.39 | -13.00   | Horizontal | PASS    |
| 5   | 8938.316  | -38.23 | -13.00   | Horizontal | PASS    |
| 6   | 18576.141 | -27.62 | -13.00   | Horizontal | PASS    |

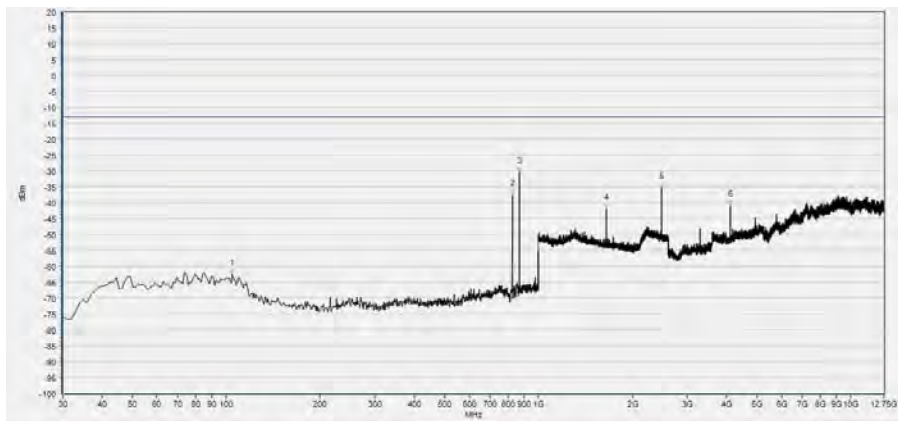
(Plot B5, GPRS 1900MHz, Channel = 810, Horizontal)



| Num | Freq(MHz) | PK     | limit PK | Antenna  | Verdict |
|-----|-----------|--------|----------|----------|---------|
| 1   | 95.960    | -62.16 | -13.00   | Vertical | PASS    |
| 2   | 1909.804  | -46.54 | -13.00   | Vertical | N/A     |
| 3   | 1989.836  | -31.52 | -13.00   | Vertical | N/A     |
| 4   | 3817.967  | -47.58 | -13.00   | Vertical | PASS    |
| 5   | 7194.872  | -39.49 | -13.00   | Vertical | PASS    |
| 6   | 16531.260 | -28.15 | -13.00   | Vertical | PASS    |

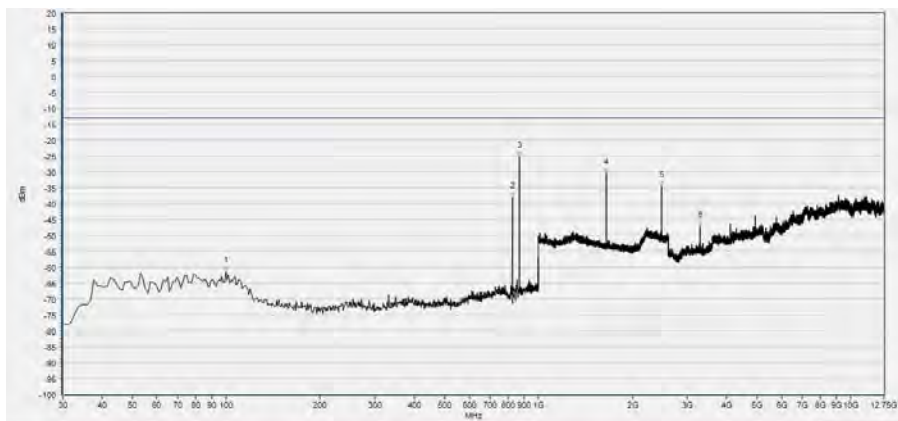
(Plot B6, GPRS 1900MHz, Channel = 810, Vertical)





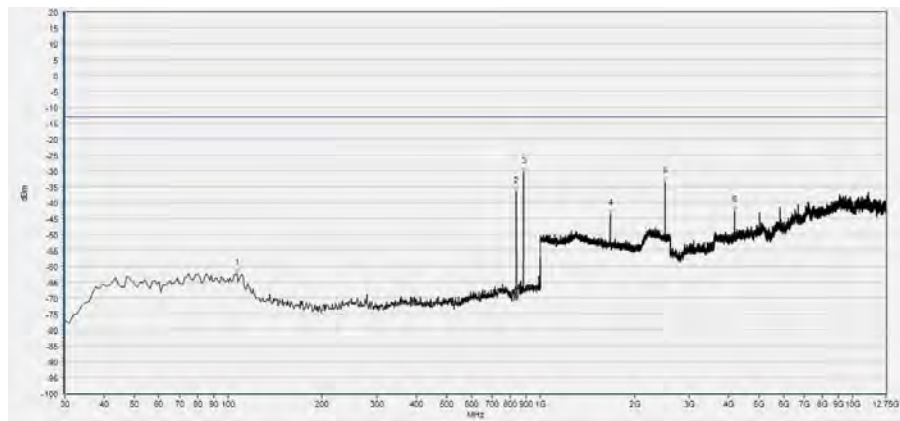
| Num | Freq(MHz) | PK     | limit PK | Antenna    | Verdict |
|-----|-----------|--------|----------|------------|---------|
| 1   | 104.690   | -62.69 | -13.00   | Horizontal | PASS    |
| 2   | 824.430   | -37.56 | -13.00   | Horizontal | N/A     |
| 3   | 869.050   | -30.37 | -13.00   | Horizontal | N/A     |
| 4   | 1648.579  | -41.98 | -13.00   | Horizontal | PASS    |
| 5   | 2471.949  | -35.35 | -13.00   | Horizontal | PASS    |
| 6   | 4120.931  | -41.03 | -13.00   | Horizontal | PASS    |

(Plot C1, EGPRS 850MHz, Channel = 128, Horizontal)



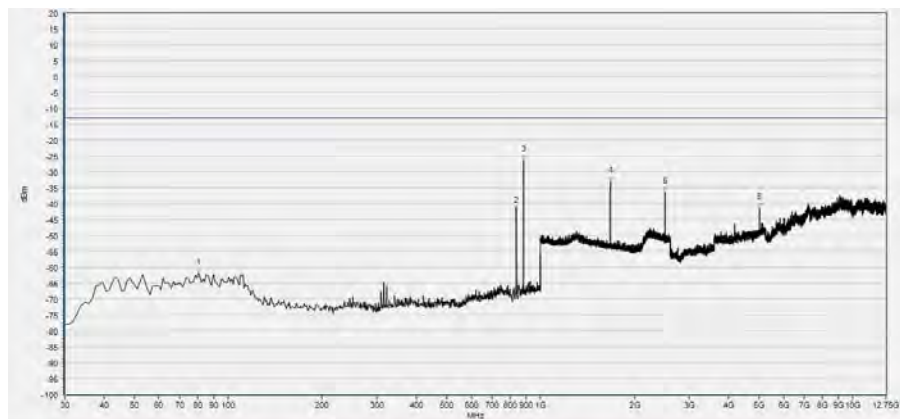
| Num | Freq(MHz) | PK     | limit PK | Antenna  | Verdict |
|-----|-----------|--------|----------|----------|---------|
| 1   | 99.840    | -61.48 | -13.00   | Vertical | PASS    |
| 2   | 824.430   | -38.20 | -13.00   | Vertical | N/A     |
| 3   | 869.050   | -25.33 | -13.00   | Vertical | N/A     |
| 4   | 1648.579  | -30.56 | -13.00   | Vertical | PASS    |
| 5   | 2472.589  | -34.64 | -13.00   | Vertical | PASS    |
| 6   | 3295.863  | -47.26 | -13.00   | Vertical | PASS    |

(Plot C2, EGPRS 850MHz, Channel = 128, Vertical)



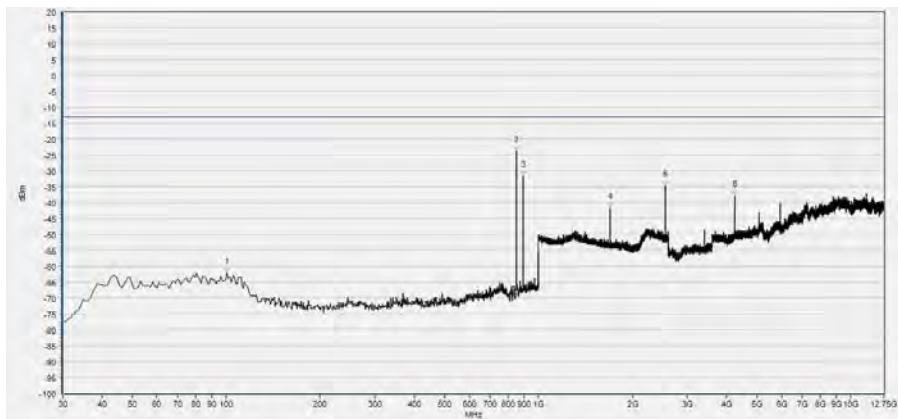
| Num | Freq(MHz) | PK     | limit PK | Antenna    | Verdict |
|-----|-----------|--------|----------|------------|---------|
| 1   | 106.630   | -62.27 | -13.00   | Horizontal | PASS    |
| 2   | 836.070   | -36.64 | -13.00   | Horizontal | N/A     |
| 3   | 881.660   | -30.47 | -13.00   | Horizontal | N/A     |
| 4   | 1672.909  | -43.54 | -13.00   | Horizontal | PASS    |
| 5   | 2509.724  | -33.51 | -13.00   | Horizontal | PASS    |
| 6   | 4183.688  | -42.65 | -13.00   | Horizontal | PASS    |

(Plot C3, EGPRS 850MHz, Channel = 190, Horizontal)



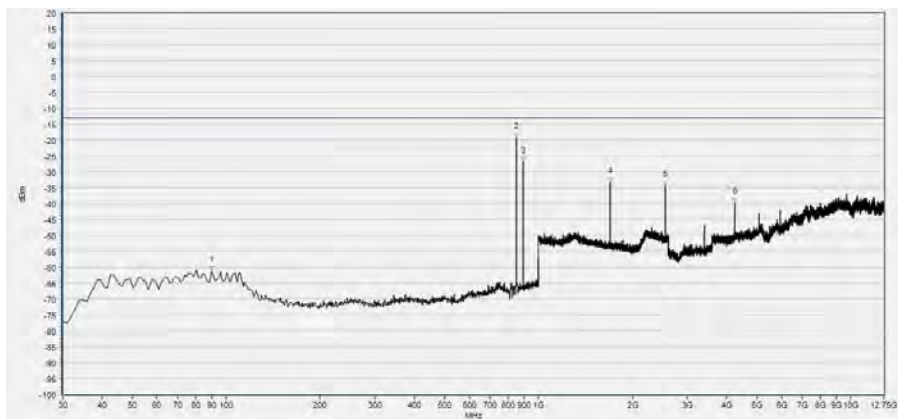
| Num | Freq(MHz) | PK     | limit PK | Antenna  | Verdict |
|-----|-----------|--------|----------|----------|---------|
| 1   | 80.440    | -61.82 | -13.00   | Vertical | PASS    |
| 2   | 836.070   | -42.62 | -13.00   | Vertical | N/A     |
| 3   | 881.660   | -26.41 | -13.00   | Vertical | N/A     |
| 4   | 1672.909  | -33.17 | -13.00   | Vertical | PASS    |
| 5   | 2509.724  | -36.34 | -13.00   | Vertical | PASS    |
| 6   | 5019.831  | -41.34 | -13.00   | Vertical | PASS    |

(Plot C4, EGPRS 850MHz, Channel = 190, Vertical)



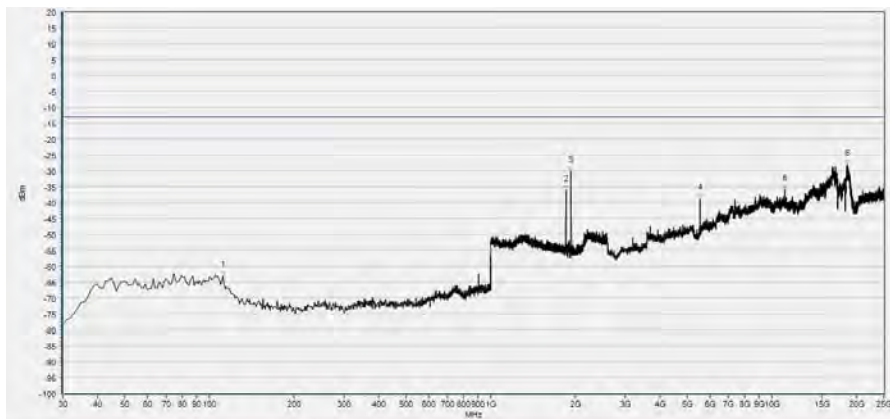
| Num | Freq(MHz) | PK     | limit PK | Antenna    | Verdict |
|-----|-----------|--------|----------|------------|---------|
| 1   | 100.810   | -62.12 | -13.00   | Horizontal | PASS    |
| 2   | 848.680   | -23.90 | -13.00   | Horizontal | N/A     |
| 3   | 893.300   | -31.71 | -13.00   | Horizontal | N/A     |
| 4   | 1697.879  | -41.69 | -13.00   | Horizontal | PASS    |
| 5   | 2546.218  | -34.83 | -13.00   | Horizontal | PASS    |
| 6   | 4244.599  | -37.74 | -13.00   | Horizontal | PASS    |

(Plot C5, EGPRS 850MHz, Channel = 251, Horizontal)



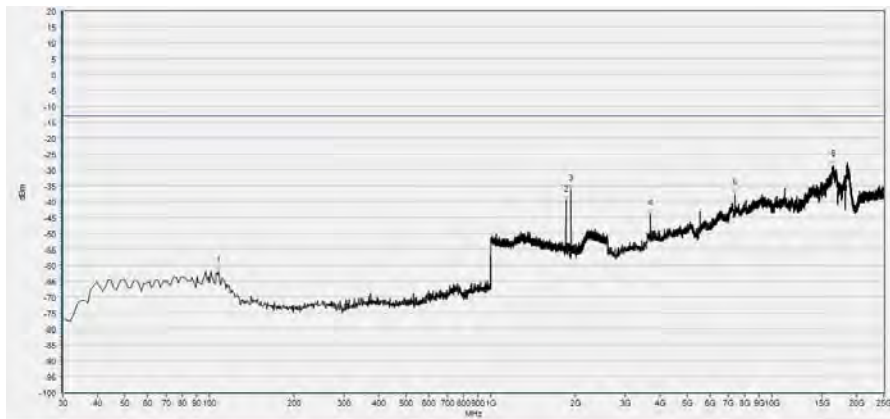
| Num | Freq(MHz) | PK     | limit PK | Antenna  | Verdict |
|-----|-----------|--------|----------|----------|---------|
| 1   | 90.140    | -61.20 | -13.00   | Vertical | PASS    |
| 2   | 848.680   | -19.29 | -13.00   | Vertical | N/A     |
| 3   | 893.300   | -26.89 | -13.00   | Vertical | N/A     |
| 4   | 1697.239  | -33.30 | -13.00   | Vertical | PASS    |
| 5   | 2546.218  | -34.23 | -13.00   | Vertical | PASS    |
| 6   | 4244.599  | -39.74 | -13.00   | Vertical | PASS    |

(Plot C6, EGPRS 850MHz, Channel = 251, Vertical)



| Num | Freq(MHz) | PK     | limit PK | Antenna    | Verdict |
|-----|-----------|--------|----------|------------|---------|
| 1   | 111.480   | -63.03 | -13.00   | Horizontal | PASS    |
| 2   | 1850.260  | -36.26 | -13.00   | Horizontal | N/A     |
| 3   | 1930.292  | -30.31 | -13.00   | Horizontal | N/A     |
| 4   | 5549.191  | -38.82 | -13.00   | Horizontal | PASS    |
| 5   | 11101.328 | -35.89 | -13.00   | Horizontal | PASS    |
| 6   | 18584.288 | -28.13 | -13.00   | Horizontal | PASS    |

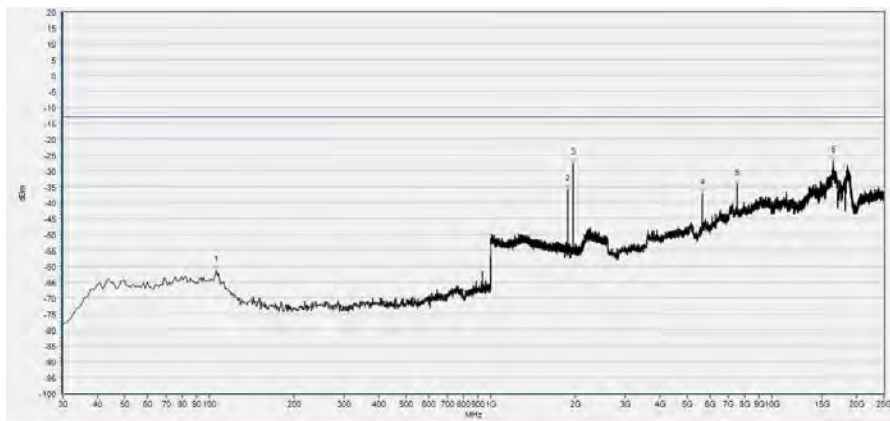
(Plot D1, EGPRS 1900MHz, Channel = 512, Horizontal)



| Num | Freq(MHz) | PK     | limit PK | Antenna  | Verdict |
|-----|-----------|--------|----------|----------|---------|
| 1   | 107.600   | -61.95 | -13.00   | Vertical | PASS    |
| 2   | 1849.620  | -39.66 | -13.00   | Vertical | N/A     |
| 3   | 1929.652  | -36.14 | -13.00   | Vertical | N/A     |
| 4   | 3699.836  | -44.03 | -13.00   | Vertical | PASS    |
| 5   | 7402.619  | -37.52 | -13.00   | Vertical | PASS    |
| 6   | 16555.701 | -28.68 | -13.00   | Vertical | PASS    |

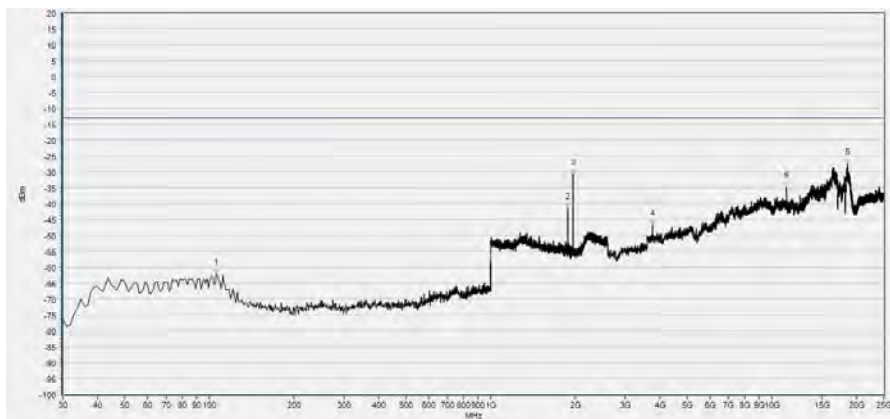
(Plot D2, EGPRS 1900MHz, Channel = 512, Vertical)





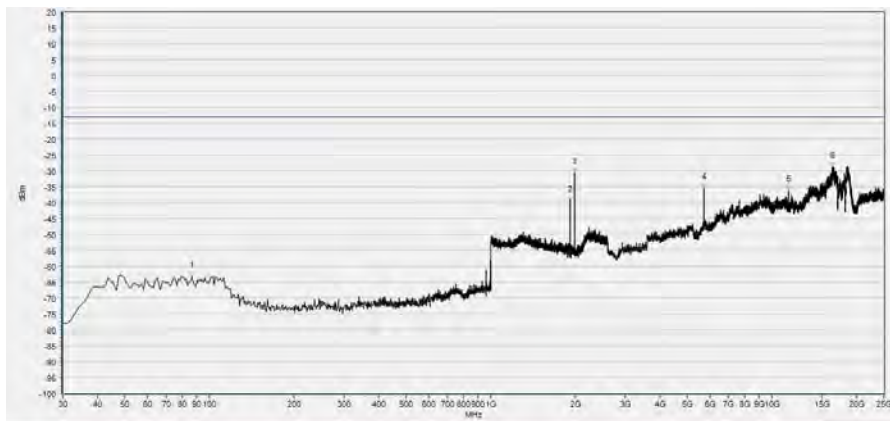
| Num | Freq(MHz) | PK     | limit PK | Antenna    | Verdict |
|-----|-----------|--------|----------|------------|---------|
| 1   | 105.660   | -61.42 | -13.00   | Horizontal | PASS    |
| 2   | 1879.712  | -35.85 | -13.00   | Horizontal | N/A     |
| 3   | 1959.744  | -27.60 | -13.00   | Horizontal | N/A     |
| 4   | 5638.807  | -37.19 | -13.00   | Horizontal | PASS    |
| 5   | 7520.749  | -34.38 | -13.00   | Horizontal | PASS    |
| 6   | 16523.113 | -26.98 | -13.00   | Horizontal | PASS    |

(Plot D3, EGPRS 1900MHz, Channel = 661, Horizontal)



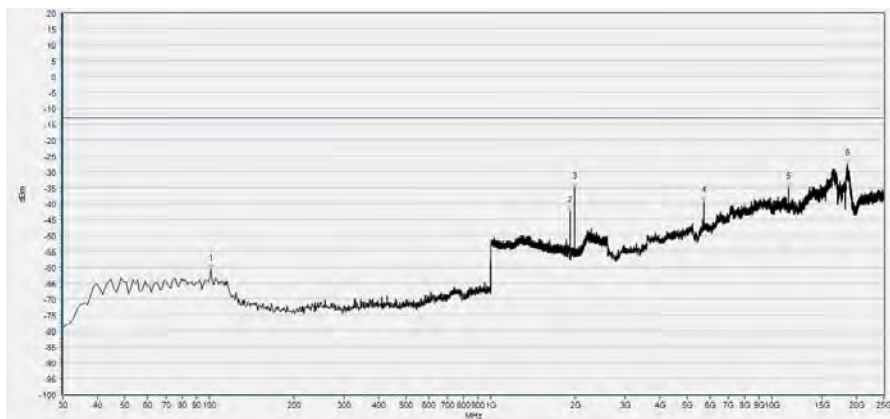
| Num | Freq(MHz) | PK     | limit PK | Antenna  | Verdict |
|-----|-----------|--------|----------|----------|---------|
| 1   | 105.660   | -62.26 | -13.00   | Vertical | PASS    |
| 2   | 1879.712  | -41.45 | -13.00   | Vertical | N/A     |
| 3   | 1959.744  | -30.72 | -13.00   | Vertical | N/A     |
| 4   | 3760.938  | -46.58 | -13.00   | Vertical | PASS    |
| 5   | 11280.560 | -34.70 | -13.00   | Vertical | PASS    |
| 6   | 18551.700 | -27.50 | -13.00   | Vertical | PASS    |

(Plot D4, EGPRS 1900MHz, Channel = 661, Vertical)



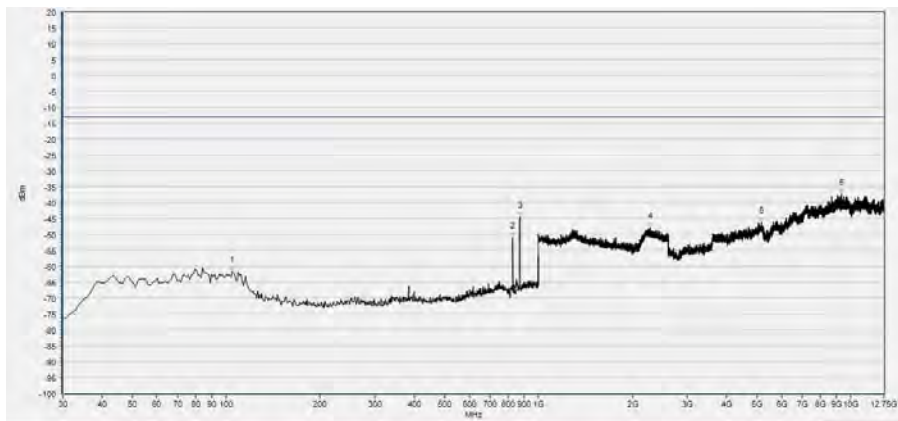
| Num | Freq(MHz) | PK     | limit PK | Antenna    | Verdict |
|-----|-----------|--------|----------|------------|---------|
| 1   | 86.260    | -63.24 | -13.00   | Horizontal | PASS    |
| 2   | 1909.164  | -39.59 | -13.00   | Horizontal | N/A     |
| 3   | 1989.836  | -30.62 | -13.00   | Horizontal | N/A     |
| 4   | 5728.423  | -35.47 | -13.00   | Horizontal | PASS    |
| 5   | 11459.793 | -36.18 | -13.00   | Horizontal | PASS    |
| 6   | 16396.836 | -28.88 | -13.00   | Horizontal | PASS    |

(Plot D5, EGPRS 1900MHz, Channel = 810, Horizontal)



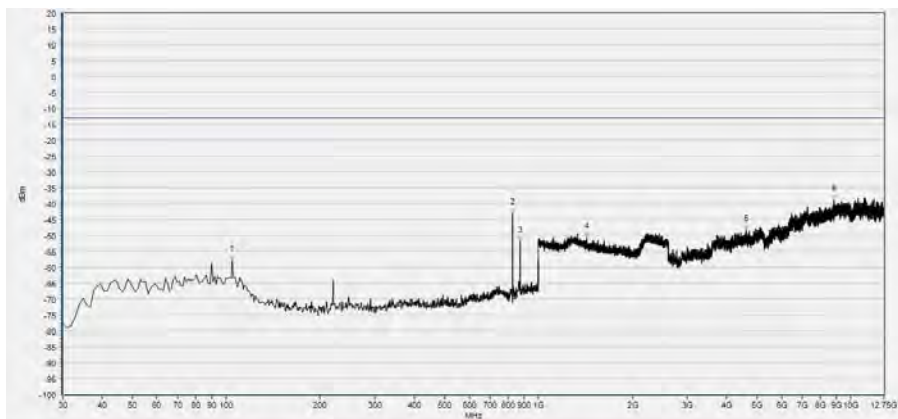
| Num | Freq(MHz) | PK     | limit PK | Antenna  | Verdict |
|-----|-----------|--------|----------|----------|---------|
| 1   | 100.810   | -60.64 | -13.00   | Vertical | PASS    |
| 2   | 1909.804  | -42.35 | -13.00   | Vertical | N/A     |
| 3   | 1989.836  | -35.05 | -13.00   | Vertical | N/A     |
| 4   | 5728.423  | -39.29 | -13.00   | Vertical | PASS    |
| 5   | 11459.793 | -34.96 | -13.00   | Vertical | PASS    |
| 6   | 18580.215 | -27.73 | -13.00   | Vertical | PASS    |

(Plot D6, EGPRS 1900MHz, Channel = 810, Vertical)



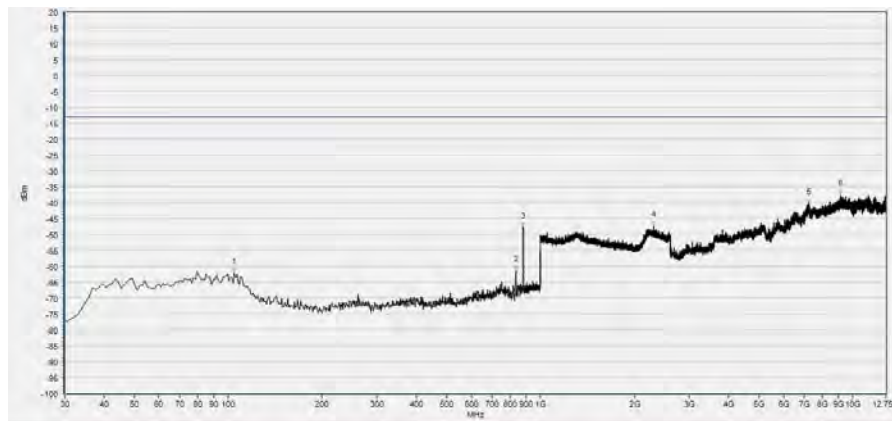
| Num | Freq(MHz) | PK     | limit PK | Antenna    | Verdict |
|-----|-----------|--------|----------|------------|---------|
| 1   | 104.690   | -61.78 | -13.00   | Horizontal | PASS    |
| 2   | 827.340   | -50.91 | -13.00   | Horizontal | N/A     |
| 3   | 872.930   | -44.61 | -13.00   | Horizontal | N/A     |
| 4   | 2282.433  | -47.86 | -13.00   | Horizontal | PASS    |
| 5   | 5182.260  | -46.23 | -13.00   | Horizontal | PASS    |
| 6   | 9322.368  | -37.35 | -13.00   | Horizontal | PASS    |

(Plot E1, WCDMA 850MHz, Channel = 4132, Horizontal)



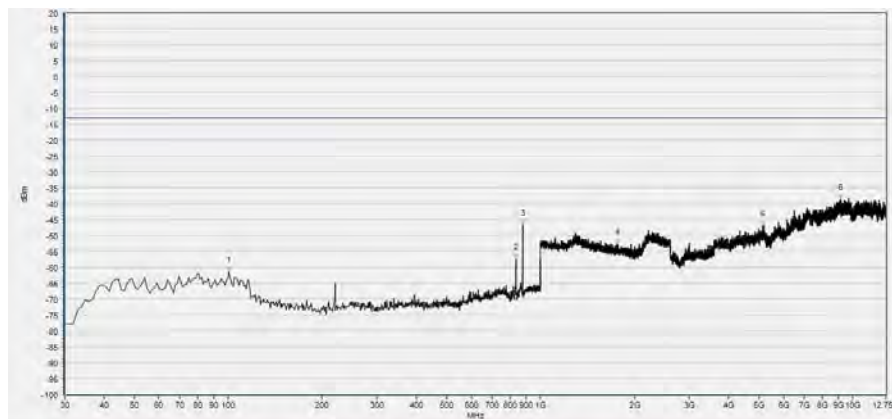
| Num | Freq(MHz) | PK     | limit PK | Antenna  | Verdict |
|-----|-----------|--------|----------|----------|---------|
| 1   | 104.690   | -57.89 | -13.00   | Vertical | PASS    |
| 2   | 827.340   | -43.20 | -13.00   | Vertical | N/A     |
| 3   | 872.930   | -52.33 | -13.00   | Vertical | N/A     |
| 4   | 1424.490  | -50.72 | -13.00   | Vertical | PASS    |
| 5   | 4624.832  | -48.22 | -13.00   | Vertical | PASS    |
| 6   | 8844.308  | -38.77 | -13.00   | Vertical | PASS    |

(Plot E2, WCDMA 850MHz, Channel = 4132, Vertical)



| Num | Freq(MHz) | PK     | limit PK | Antenna    | Verdict |
|-----|-----------|--------|----------|------------|---------|
| 1   | 104.690   | -62.15 | -13.00   | Horizontal | PASS    |
| 2   | 834.130   | -61.53 | -13.00   | Horizontal | N/A     |
| 3   | 877.780   | -47.92 | -13.00   | Horizontal | N/A     |
| 4   | 2301.641  | -47.29 | -13.00   | Horizontal | PASS    |
| 5   | 7218.167  | -40.13 | -13.00   | Horizontal | PASS    |
| 6   | 9143.326  | -37.53 | -13.00   | Horizontal | PASS    |

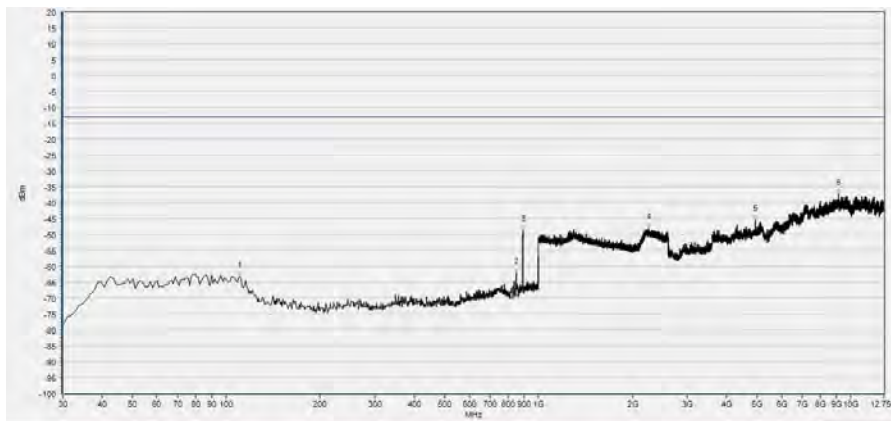
(Plot E3, WCDMA 850MHz, Channel = 4175, Horizontal)



| Num | Freq(MHz) | PK     | limit PK | Antenna  | Verdict |
|-----|-----------|--------|----------|----------|---------|
| 1   | 100.810   | -61.39 | -13.00   | Vertical | PASS    |
| 2   | 834.130   | -57.38 | -13.00   | Vertical | N/A     |
| 3   | 876.810   | -46.66 | -13.00   | Vertical | N/A     |
| 4   | 1763.826  | -52.57 | -13.00   | Vertical | PASS    |
| 5   | 5139.807  | -46.92 | -13.00   | Vertical | PASS    |
| 6   | 9104.564  | -38.58 | -13.00   | Vertical | PASS    |

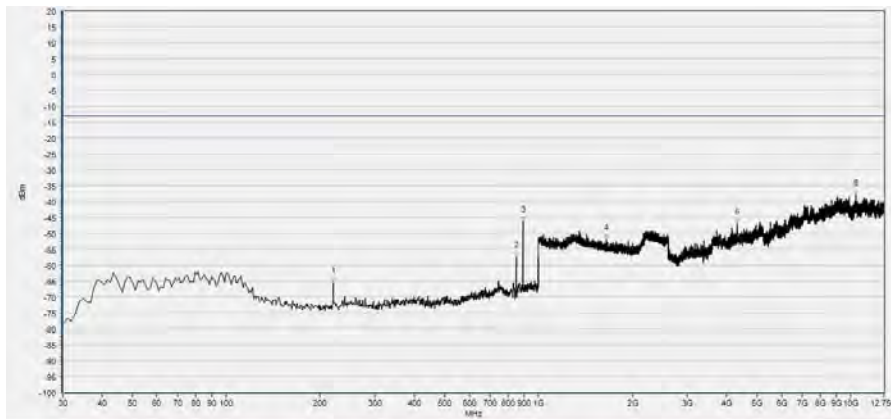
(Plot E4, WCDMA 850MHz, Channel = 4175, Vertical)





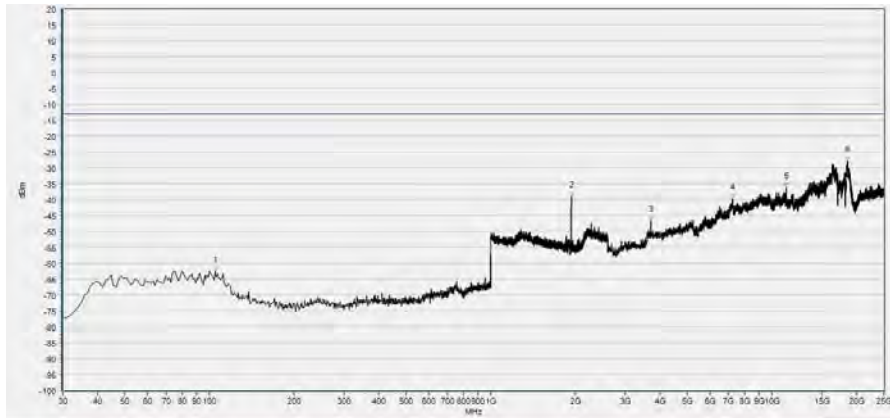
| Num | Freq(MHz) | PK     | limit PK | Antenna    | Verdict |
|-----|-----------|--------|----------|------------|---------|
| 1   | 110.510   | -63.22 | -13.00   | Horizontal | PASS    |
| 2   | 847.710   | -62.12 | -13.00   | Horizontal | N/A     |
| 3   | 891.360   | -48.88 | -13.00   | Horizontal | N/A     |
| 4   | 2247.859  | -48.00 | -13.00   | Horizontal | PASS    |
| 5   | 4955.228  | -45.53 | -13.00   | Horizontal | PASS    |
| 6   | 9128.560  | -37.48 | -13.00   | Horizontal | PASS    |

(Plot E5, WCDMA 850MHz, Channel = 4233, Horizontal)



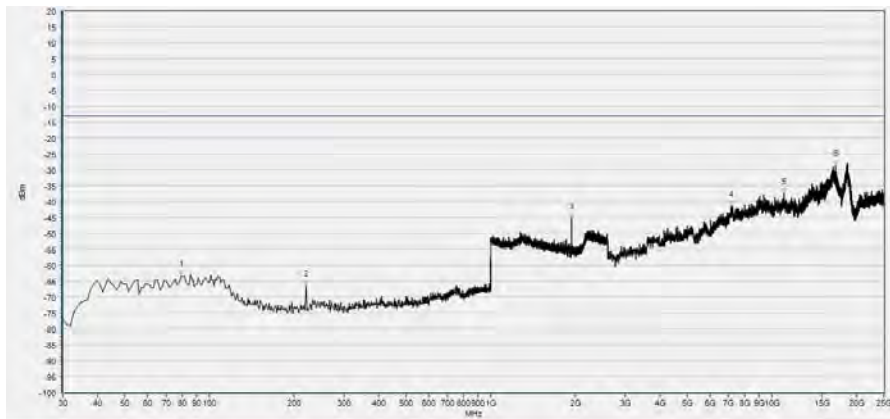
| Num | Freq(MHz) | PK     | limit PK | Antenna  | Verdict |
|-----|-----------|--------|----------|----------|---------|
| 1   | 220.120   | -65.40 | -13.00   | Vertical | PASS    |
| 2   | 847.710   | -57.46 | -13.00   | Vertical | N/A     |
| 3   | 891.360   | -46.30 | -13.00   | Vertical | N/A     |
| 4   | 1647.299  | -51.97 | -13.00   | Vertical | PASS    |
| 5   | 4325.814  | -46.96 | -13.00   | Vertical | PASS    |
| 6   | 10376.314 | -37.87 | -13.00   | Vertical | PASS    |

(Plot E6, WCDMA 850MHz, Channel = 4233, Vertical)



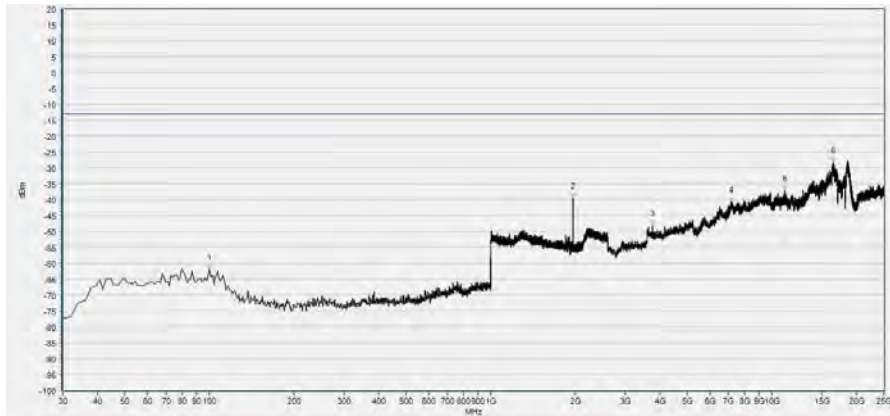
| Num | Freq(MHz) | PK     | limit PK | Antenna    | Verdict |
|-----|-----------|--------|----------|------------|---------|
| 1   | 104.690   | -62.67 | -13.00   | Horizontal | PASS    |
| 2   | 1932.853  | -39.10 | -13.00   | Horizontal | N/A     |
| 3   | 3707.983  | -46.69 | -13.00   | Horizontal | PASS    |
| 4   | 7231.533  | -39.75 | -13.00   | Horizontal | PASS    |
| 5   | 11219.458 | -36.17 | -13.00   | Horizontal | PASS    |
| 6   | 18527.260 | -27.79 | -13.00   | Horizontal | PASS    |

(Plot G1, WCDMA 1900MHz, Channel = 9262, Horizontal)



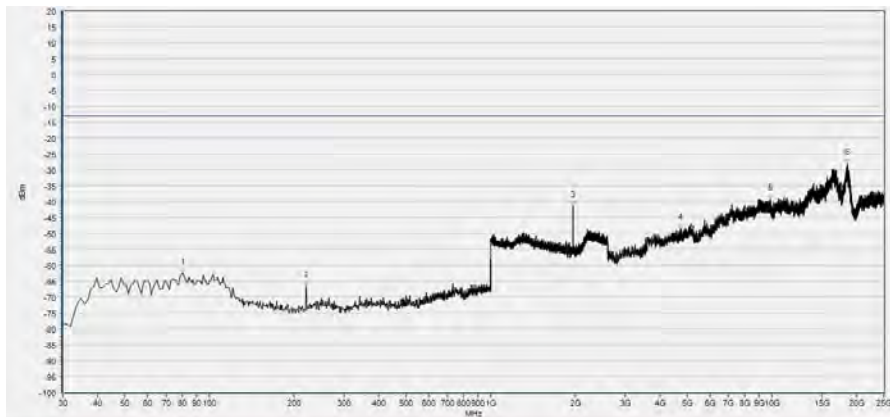
| Num | Freq(MHz) | PK     | limit PK | Antenna  | Verdict |
|-----|-----------|--------|----------|----------|---------|
| 1   | 79.470    | -63.30 | -13.00   | Vertical | PASS    |
| 2   | 220.120   | -66.48 | -13.00   | Vertical | PASS    |
| 3   | 1932.213  | -45.23 | -13.00   | Vertical | N/A     |
| 4   | 7166.358  | -41.41 | -13.00   | Vertical | PASS    |
| 5   | 11048.372 | -37.42 | -13.00   | Vertical | PASS    |
| 6   | 16808.256 | -28.64 | -13.00   | Vertical | PASS    |

(Plot G2, WCDMA 1900MHz, Channel = 9262, Vertical)



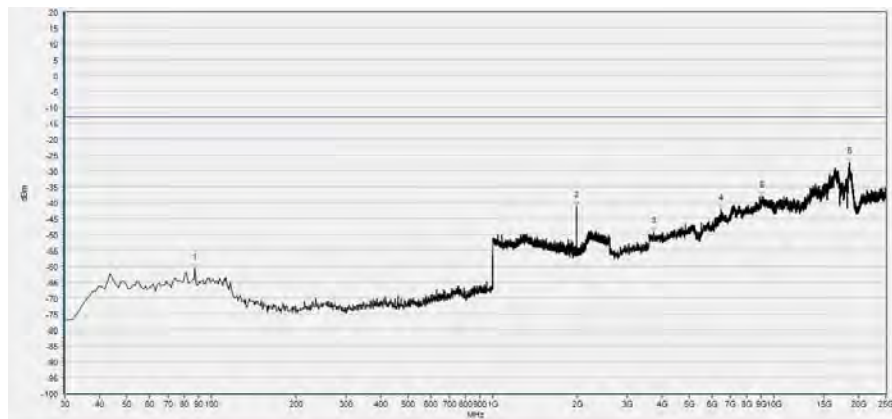
| Num | Freq(MHz) | PK     | limit PK | Antenna    | Verdict |
|-----|-----------|--------|----------|------------|---------|
| 1   | 99.840    | -61.79 | -13.00   | Horizontal | PASS    |
| 2   | 1959.744  | -39.60 | -13.00   | Horizontal | N/A     |
| 3   | 3756.865  | -48.04 | -13.00   | Horizontal | PASS    |
| 4   | 7141.917  | -40.74 | -13.00   | Horizontal | PASS    |
| 5   | 11085.034 | -37.18 | -13.00   | Horizontal | PASS    |
| 6   | 16502.746 | -28.43 | -13.00   | Horizontal | PASS    |

(Plot G3, WCDMA 1900MHz, Channel = 9400, Horizontal)



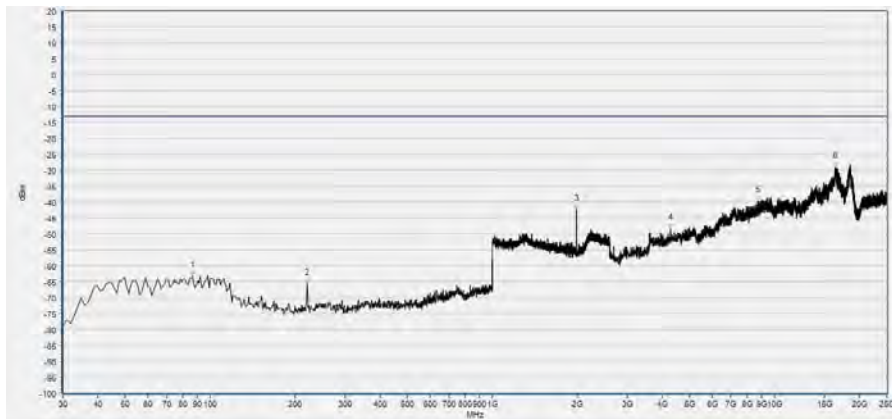
| Num | Freq(MHz) | PK     | limit PK | Antenna  | Verdict |
|-----|-----------|--------|----------|----------|---------|
| 1   | 80.440    | -62.70 | -13.00   | Vertical | PASS    |
| 2   | 220.120   | -66.69 | -13.00   | Vertical | PASS    |
| 3   | 1959.744  | -41.47 | -13.00   | Vertical | N/A     |
| 4   | 4718.203  | -48.51 | -13.00   | Vertical | PASS    |
| 5   | 9854.846  | -39.29 | -13.00   | Vertical | PASS    |
| 6   | 18559.847 | -28.03 | -13.00   | Vertical | PASS    |

(Plot G4, WCDMA 1900MHz, Channel = 9400, Vertical)



| Num | Freq(MHz) | PK     | limit PK | Antenna    | Verdict |
|-----|-----------|--------|----------|------------|---------|
| 1   | 87.230    | -60.80 | -13.00   | Horizontal | PASS    |
| 2   | 1987.275  | -41.10 | -13.00   | Horizontal | N/A     |
| 3   | 3728.351  | -49.37 | -13.00   | Horizontal | PASS    |
| 4   | 6465.721  | -42.13 | -13.00   | Horizontal | PASS    |
| 5   | 9072.740  | -38.05 | -13.00   | Horizontal | PASS    |
| 6   | 18563.921 | -27.47 | -13.00   | Horizontal | PASS    |

(Plot G5, WCDMA 1900MHz, Channel = 9538, Horizontal)



| Num | Freq(MHz) | PK     | limit PK | Antenna  | Verdict |
|-----|-----------|--------|----------|----------|---------|
| 1   | 86.260    | -63.44 | -13.00   | Vertical | PASS    |
| 2   | 220.120   | -65.82 | -13.00   | Vertical | PASS    |
| 3   | 1987.915  | -42.48 | -13.00   | Vertical | N/A     |
| 4   | 4282.342  | -48.26 | -13.00   | Vertical | PASS    |
| 5   | 8718.349  | -39.72 | -13.00   | Vertical | PASS    |
| 6   | 16425.350 | -29.13 | -13.00   | Vertical | PASS    |

(Plot G6, WCDMA 1900MHz, Channel = 9538, Vertical)



## Annex A Test Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for test performed on the EUT as specified in CISPR 16-1-2:

| Test items                  | Uncertainty          |
|-----------------------------|----------------------|
| Output Power                | $\pm 2.22\text{dB}$  |
| Bandwidth                   | $\pm 5\%$            |
| Conducted Spurious Emission | $\pm 2.77\text{ dB}$ |
| Radiated Emission           | $\pm 2.95\text{dB}$  |

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





## Annex B Testing Laboratory Information

### 1. Identification of the Responsible Testing Laboratory

|                                      |                                                                                                                                  |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>Company Name:</b>                 | Shenzhen Morlab Communications Technology Co., Ltd.                                                                              |
| <b>Department:</b>                   | Morlab Laboratory                                                                                                                |
| <b>Address:</b>                      | FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, Guangdong Province, P. R. China |
| <b>Responsible Test Lab Manager:</b> | Mr. Su Feng                                                                                                                      |
| <b>Telephone:</b>                    | +86 755 36698555                                                                                                                 |
| <b>Facsimile:</b>                    | +86 755 36698525                                                                                                                 |

### 2. Identification of the Responsible Testing Location

|                 |                                                                                                                                  |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>Name:</b>    | Shenzhen Morlab Communications Technology Co., Ltd.<br>Morlab Laboratory                                                         |
| <b>Address:</b> | FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, Guangdong Province, P. R. China |

### 3. Facilities and Accreditations

All measurement facilities used to collect the measurement data are located at FL.3, Building A, FeiYang Science Park, Block 67, BaoAn District, Shenzhen, 518101 P. R. China. The test site is constructed in conformance with the requirements of ANSI C63.10-2013 and CISPR Publication 22; the FCC designation number is CN1192, the test firm registration number is 226174.



#### 4. Test Equipments Utilized

##### 4.1 Conducted Test Equipments

| Equipment Name            | Serial No. | Type            | Manufacturer                                               | Cal. Date  | Cal. Due   |
|---------------------------|------------|-----------------|------------------------------------------------------------|------------|------------|
| Power Splitter            | NW521      | 1506A           | Weinschel                                                  | 2018.04.17 | 2019.04.16 |
| Attenuator 1              | (N/A.)     | 10dB            | Resnet                                                     | 2018.04.17 | 2019.04.16 |
| Attenuator 2              | (N/A.)     | 3dB             | Resnet                                                     | 2018.04.17 | 2019.04.16 |
| EXA Signal Analyzer       | MY53470836 | N9010A          | Agilent                                                    | 2017.12.03 | 2018.12.02 |
| Wireless synthesizer      | MY48364176 | 8960<br>-E5515C | Agilent                                                    | 2018.04.17 | 2019.04.16 |
| RF cable<br>(30MHz-26GHz) | CB01       | RF01            | Morlab                                                     | N/A        | N/A        |
| Coaxial cable             | CB02       | RF02            | Morlab                                                     | N/A        | N/A        |
| SMA connector             | CN01       | RF03            | HUBER-SUHNER                                               | N/A        | N/A        |
| Temperature Chamber       | (N/A)      | HUT705P         | CHONGQING<br>HANBA<br>EXPERIMENTAL<br>EQUIPMENT<br>CO.,LTD | 2018.04.17 | 2019.04.16 |

##### 4.2 Auxiliary Test Equipment

| Equipment Name | Model No. | Brand Name | Manufacturer | Cal.Date | Cal. Due |
|----------------|-----------|------------|--------------|----------|----------|
| Computer       | T430i     | Think Pad  | Lenovo       | N/A      | N/A      |

##### 4.3 List of Software Used

| Description      | Manufacturer | Software Version |
|------------------|--------------|------------------|
| Test system      | Tonscend     | V2.6             |
| Power Panel      | Agilent      | V3.8             |
| MORLAB EMCR V1.2 | MORLAB       | V 1.0            |

**4.4 Radiated Test Equipments**

| <b>Equipment Name</b>                | <b>Serial No.</b> | <b>Type</b> | <b>Manufacturer</b> | <b>Cal. Date</b> | <b>Cal. Due</b> |
|--------------------------------------|-------------------|-------------|---------------------|------------------|-----------------|
| System Simulator                     | 152038            | CMW500      | R&S                 | 2018.08.04       | 2019.08.03      |
| Receiver                             | MY54130016        | N9038A      | Agilent             | 2018.05.18       | 2019.05.17      |
| Test Antenna - Bi-Log                | 9163-519          | VULB 9163   | Schwarzbeck         | 2018.03.03       | 2019.03.02      |
| Test Antenna - Horn                  | 9170C-531         | BBHA9170    | Schwarzbeck         | 2018.08.06       | 2019.08.05      |
| Test Antenna - Horn                  | 01774             | BBHA 9120D  | Schwarzbeck         | 2018.08.02       | 2019.08.01      |
| Coaxial cable (N male) (9KHz-30MHz)  | CB04              | EMC04       | Morlab              | N/A              | N/A             |
| Coaxial cable (N male) (30MHz-26GHz) | CB02              | EMC02       | Morlab              | N/A              | N/A             |
| Coaxial cable (N male) (30MHz-26GHz) | CB03              | EMC03       | Morlab              | N/A              | N/A             |
| 1-18GHz pre-Amplifier                | MA02              | TS-PR18     | Rohde& Schwarz      | 2018.05.08       | 2019.05.07      |
| 18-26.5GHz pre-Amplifier             | MA03              | TS-PR18     | Rohde& Schwarz      | 2018.05.08       | 2019.05.07      |
| Anechoic Chamber                     | N/A               | 9m*6m*6m    | CRT                 | 2017.11.19       | 2020.11.18      |

\_\_\_\_\_ END OF REPORT \_\_\_\_\_