# RF TEST REPORT

| | |
|---|---|
| **Applicant** | Shanghai Smawave Technology Co. ,Ltd |
| **FCC ID** | 2AU8HSPH310 |
| **Product** | Smart communication terminal |
| **Brand** | Smawave |
| **Model** | SPH310 |
| **Report No.** | R2001A0020-R3 |
| **Issue Date** | April 22, 2020 |

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in**FCC CFR47 Part 2/FCC CFR 47 Part 90Z**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

| | |
|---|---|
| *Performed by: Peng Tao* | *Approved by: Kai Xu* |


## TA Technology (Shanghai) Co., Ltd.

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# Summary of measurement results

| No. | Test Case | Clause in FCC rules | Verdict |
|---|---|---|---|
| 1 | RF Power Output & Effective Isotropic Radiated Power | 2.1046/90.1321(a) | PASS |
| 2 | Field Strength of Spurious Radiation / Radiated Spurious Emissions | 2.1053/ 90.1323 | PASS |
| Date of Testing: February 22, 2020~ March 20, 2020 | | | |
| Note: PASS: The EUT complies with the essential requirements in the standard.<br>FAIL: The EUT does not comply with the essential requirements in the standard.<br>All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. | | | |

**Conducted items except for RF Power Output & Effective Isotropic Radiated Power please refers to MGM5607A module report(Report No.: R2001A0008-R3V1).**

# 1. Test Laboratory

## 1.1. Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **TA technology (shanghai) co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein .Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

## 1.2. Test facility

**FCC (Designation number: CN1179, Test Firm Registration Number: 446626)**

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

**A2LA (Certificate Number: 3857.01)**

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

## 1.3. Testing Location


| | |
|---|---|
| Company: | TA Technology (Shanghai) Co., Ltd. |
| Address: | No.145, Jintang Rd, Tangzhen Industry Park, Pudong |
| City: | Shanghai |
| Post code: | 201201 |
| Country: | P. R. China |
| Contact: | Xu Kai |
| Telephone: | +86-021-50791141/2/3 |
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| Website: | http://www.ta-shanghai.com |
| E-mail: | xukai@ta-shanghai.com |

# 2. General Description of Equipment under Test

## 2.3. Applicant and Manufacturer Information

| | |
|---|---|
| Applicant | Shanghai Smawave Technology Co. ,Ltd |
| Applicant address | 3/F, Building 8, 1001 North Qinzhou Road，Xuhui District, Shanghai, China |
| Manufacturer | Shanghai Smawave Technology Co. ,Ltd |
| Manufacturer address | 3/F, Building 8, 1001 North Qinzhou Road，Xuhui District, Shanghai, China |

## 2.4. General Information

| EUT Description | | | |
|---|---|---|---|
| Model | SPH310 | | |
| IMEI | 863134038082221 | | |
| Hardware Version | dt863-mb-v0.4 | | |
| Software Version | K608_DT863_SPH310_20200414_V9.0 | | |
| Power Supply | External power supply | | |
| Antenna Type | Internal Antenna | | |
| Antenna Gain | 1.8dBi | | |
| Test Mode(s) | LTE Band 43; | | |
| Test Modulation | QPSK 16QAM 64QAM; | | |
| Maximum E.I.R.P. | LTE Band 43: | 22.69dBm | |
| Rated Power Supply Voltage | 7.4V | | |
| Extreme Voltage | Minimum: 6.8V Maximum: 8.7V | | |
| Extreme Temperature | Lowest: -40°C Highest: +70°C | | |
| Operating Frequency Range(s) | Band | Tx (MHz) | Rx (MHz) |
| | LTE Band 43 | 3650 ~ 3700 | 3650 ~ 3700 |
| Note: The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant. | | | |

# 3. Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**Test standards:**
**FCC CFR 47 Part 90Z (2019)**

**ANSI C63.26 (2015)**

**Reference standard:**

**FCC CFR47 Part 2 (2019)**

**FCC KDB 971168 D01 Power Meas License Digital Systems v03r01**

**FCC KDB 552295 D01 CBP Guidance for 3650 3700 Band v03**

# 4. Test Configuration

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes. EUT stand-up position (Z axis), lie-down position (X, Y axis). Receiver antenna polarization (horizontal and vertical), the worst emission was found in position (X axis, horizontal polarization) and the worst case was recorded.

All mode and data rates and positions were investigated.
The following testing in LTE is set based on the maximum RF Output Power.

Test modes are chosen as the worst case configuration below for LTE Band 43;

| Test items | LTE Band | Bandwidth (MHz) | | | | Modulation | | | RB | | | Test Channel | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 5 | 10 | 15 | 20 | QPSK | 16QAM | 64QAM | 1 | 50% | 100% | L | M | H |
| RF power output | 43 | O | O | O | O | O | O | O | O | O | O | O | O | O |
| Field Strength of Spurious Radiation/ Radiates Spurious Emission | 43 | O | - | - | O | O | - | - | O | - | - | - | O | - |
| Note | | 1. The mark “O” means that this configuration is chosen for testing.<br>2. The mark “-” means that this configuration is not testing. | | | | | | | | | | | | |

# 5. Test Case Results

## 5.3. RF Power Output & Effective Isotropic Radiated Power& the Peak EIRP Density

**Ambient condition**

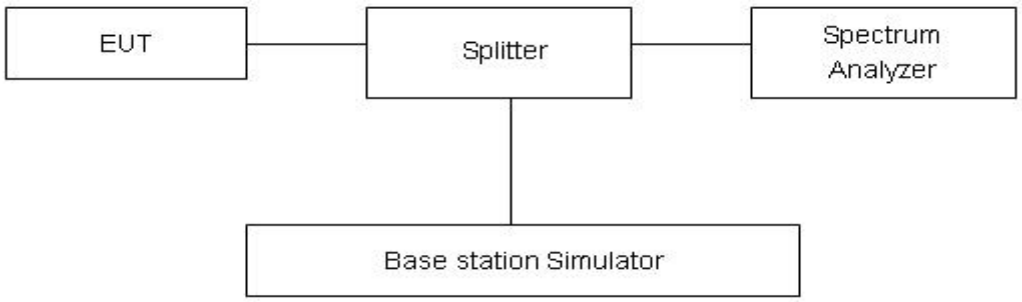
| Temperature | Relative humidity |
|---|---|
| 21°C ~25°C | 40%~60% |

**Methods of Measurement**

During the process of the testing, The EUT is controlled by the Spectrum analyzer to ensure max power transmission and proper modulation.

Since this procedure utilizes a conducted measurement it does not directly result in EIRP levels for comparison to the output power limits. In order to determine the EIRP level, the effective antenna gain must be added to the corrected (for external test set-up factors) measurement result.

**Test Setup**




The loss between RF output port of the EUT and the input port of the tester has been taken into consideration.

**Limits**

According to FCC §2.1046 & 90.1321(a) Base and fixed stations are limited to 25 watts/25 MHz equivalent isotropically radiated power (EIRP). In any event, the peak EIRP power density shall not exceed 1 Watt in any one-megahertz slice of spectrum.

(c) Mobile and portable stations are limited to 1 watt/25 MHz EIRP. In any event, the peak EIRP density shall not exceed 40 milliwatts in any one-megahertz slice of spectrum.

| Limit | Limit |
|---|---|
| Base Station/ Fixed Station | 25 watts/25 MHz |
| Mobile and portable stations | 1 watt/25 MHz |

**Measurement Uncertainty**

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 0.4 dB.

## Test Result

| LTE TDD Band 43 | | | | Conducted Power(dBm) | | | Conducted Power(dBm) | | | Verdict |
|---|---|---|---|---|---|---|---|---|---|---|
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) | | | Channel/Frequency(MHz) | | | / |
| | | | | 43615/ 3602.5 | 44590/ 3700 | 45565/ 3797.5 | 43615/ 3602.5 | 44590/ 3700 | 45565/ 3797.5 | |
| 5MHz | QPSK | 1 | 0 | 20.2 | 20.79 | 20.17 | 22 | 22.59 | 21.97 | pass |
| | | 1 | 13 | 20.04 | 19.73 | 20.01 | 21.84 | 21.53 | 21.81 | pass |
| | | 1 | 24 | 20.46 | 19.92 | 20.86 | 22.26 | 21.72 | 22.66 | pass |
| | | 12 | 0 | 18.94 | 19.09 | 18.81 | 20.74 | 20.89 | 20.61 | pass |
| | | 12 | 6 | 18.89 | 18.65 | 19.03 | 20.69 | 20.45 | 20.83 | pass |
| | | 12 | 13 | 19.05 | 18.63 | 19 | 20.85 | 20.43 | 20.8 | pass |
| | | 25 | 0 | 18.96 | 18.92 | 19.16 | 20.76 | 20.72 | 20.96 | pass |
| | 16QAM | 1 | 0 | 19.1 | 19.79 | 19.27 | 20.9 | 21.59 | 21.07 | pass |
| | | 1 | 13 | 19.08 | 18.76 | 19.23 | 20.88 | 20.56 | 21.03 | pass |
| | | 1 | 24 | 19.61 | 19.09 | 19.65 | 21.41 | 20.89 | 21.45 | pass |
| | | 12 | 0 | 17.85 | 18.02 | 17.67 | 19.65 | 19.82 | 19.47 | pass |
| | | 12 | 6 | 17.38 | 17.5 | 17.92 | 19.18 | 19.3 | 19.72 | pass |
| | | 12 | 13 | 17.95 | 17.54 | 18.19 | 19.75 | 19.34 | 19.99 | pass |
| | | 25 | 0 | 17.9 | 17.76 | 18.02 | 19.7 | 19.56 | 19.82 | pass |
| | 64QAM | 1 | 0 | 17.92 | 18.55 | 17.86 | 19.72 | 20.35 | 19.66 | pass |
| | | 1 | 13 | 17.18 | 17.41 | 17.92 | 18.98 | 19.21 | 19.72 | pass |
| | | 1 | 24 | 18.24 | 17.76 | 18.59 | 20.04 | 19.56 | 20.39 | pass |
| | | 12 | 0 | 16.27 | 16.86 | 16.77 | 18.07 | 18.66 | 18.57 | pass |
| | | 12 | 6 | 16.27 | 16.45 | 16.96 | 18.07 | 18.25 | 18.76 | pass |
| | | 12 | 13 | 16.41 | 16.49 | 17.22 | 18.21 | 18.29 | 19.02 | pass |
| | | 25 | 0 | 16.37 | 16.72 | 17.06 | 18.17 | 18.52 | 18.86 | pass |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) | | | Channel/Frequency(MHz) | | | Verdict |
| | | | | 43640/ 3605 | 44590/ 3700 | 45540/ 3795 | 43640/ 3605 | 44590/ 3700 | 45540/ 3795 | / |
| 10MHz | QPSK | 1 | 0 | 20.22 | 20.8 | 20.2 | 22.02 | 22.6 | 22 | pass |
| | | 1 | 25 | 20.07 | 19.78 | 20.05 | 21.87 | 21.58 | 21.85 | pass |
| | | 1 | 49 | 20.48 | 19.96 | 20.89 | 22.28 | 21.76 | 22.69 | pass |
| | | 25 | 0 | 18.97 | 19.14 | 18.85 | 20.77 | 20.94 | 20.65 | pass |
| | | 25 | 13 | 18.92 | 18.7 | 19.07 | 20.72 | 20.5 | 20.87 | pass |
| | | 25 | 25 | 19.07 | 18.67 | 19.05 | 20.87 | 20.47 | 20.85 | pass |
| | | 50 | 0 | 19 | 18.94 | 19.2 | 20.8 | 20.74 | 21 | pass |
| | 16QAM | 1 | 0 | 19.12 | 19.82 | 19.29 | 20.92 | 21.62 | 21.09 | pass |
| | | 1 | 25 | 19.11 | 18.8 | 19.26 | 20.91 | 20.6 | 21.06 | pass |
| | | 1 | 49 | 19.64 | 19.11 | 19.68 | 21.44 | 20.91 | 21.48 | pass |
| | | 25 | 0 | 17.88 | 18.07 | 17.71 | 19.68 | 19.87 | 19.51 | pass |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 25 | 13 | 17.4 | 17.54 | 17.95 | 19.2 | 19.34 | 19.75 | pass |
| | | 25 | 25 | 17.98 | 17.59 | 18.23 | 19.78 | 19.39 | 20.03 | pass |
| | | 50 | 0 | 17.93 | 17.81 | 18.06 | 19.73 | 19.61 | 19.86 | pass |
| | 64QAM | 1 | 0 | 17.94 | 18.54 | 17.88 | 19.74 | 20.34 | 19.68 | pass |
| | | 1 | 25 | 17.21 | 17.41 | 17.95 | 19.01 | 19.21 | 19.75 | pass |
| | | 1 | 49 | 18.23 | 17.78 | 18.62 | 20.03 | 19.58 | 20.42 | pass |
| | | 25 | 0 | 16.3 | 16.91 | 16.77 | 18.1 | 18.71 | 18.57 | pass |
| | | 25 | 13 | 16.29 | 16.49 | 16.99 | 18.09 | 18.29 | 18.79 | pass |
| | | 25 | 25 | 16.44 | 16.54 | 17.26 | 18.24 | 18.34 | 19.06 | pass |
| | | 50 | 0 | 16.4 | 16.77 | 17.1 | 18.2 | 18.57 | 18.9 | pass |
| **Bandwidth** | Modulation | RB allocation | offset | Channel/Frequency(MHz) | | | Channel/Frequency(MHz) | | | Verdict |
| | | | | 43665/ 3607.5 | 44590/ 3700 | 45515/ 3792.5 | 43665/ 3607.5 | 44590/ 3700 | 45515/ 3792.5 | / |
| **15MHz** | QPSK | 1 | 0 | 20.21 | 20.76 | 20.18 | 22.01 | 22.56 | 21.98 | pass |
| | | 1 | 38 | 20.05 | 19.77 | 20.02 | 21.85 | 21.57 | 21.82 | pass |
| | | 1 | 74 | 20.45 | 19.91 | 20.85 | 22.25 | 21.71 | 22.65 | pass |
| | | 36 | 0 | 18.95 | 19.1 | 18.82 | 20.75 | 20.9 | 20.62 | pass |
| | | 36 | 18 | 18.89 | 18.65 | 19.03 | 20.69 | 20.45 | 20.83 | pass |
| | | 36 | 39 | 19.04 | 18.64 | 19.01 | 20.84 | 20.44 | 20.81 | pass |
| | | 75 | 0 | 18.98 | 18.9 | 19.15 | 20.78 | 20.7 | 20.95 | pass |
| | 16QAM | 1 | 0 | 19.07 | 19.8 | 19.27 | 20.87 | 21.6 | 21.07 | pass |
| | | 1 | 38 | 19.09 | 18.77 | 19.24 | 20.89 | 20.57 | 21.04 | pass |
| | | 1 | 74 | 19.61 | 19.07 | 19.65 | 21.41 | 20.87 | 21.45 | pass |
| | | 36 | 0 | 17.85 | 18.05 | 17.68 | 19.65 | 19.85 | 19.48 | pass |
| | | 36 | 18 | 17.37 | 17.49 | 17.91 | 19.17 | 19.29 | 19.71 | pass |
| | | 36 | 39 | 17.96 | 17.55 | 18.2 | 19.76 | 19.35 | 20 | pass |
| | | 75 | 0 | 17.9 | 17.76 | 18.02 | 19.7 | 19.56 | 19.82 | pass |
| | 64QAM | 1 | 0 | 17.89 | 18.52 | 17.86 | 19.69 | 20.32 | 19.66 | pass |
| | | 1 | 38 | 17.19 | 17.38 | 17.93 | 18.99 | 19.18 | 19.73 | pass |
| | | 1 | 74 | 18.24 | 17.77 | 18.63 | 20.04 | 19.57 | 20.43 | pass |
| | | 36 | 0 | 16.29 | 16.93 | 16.78 | 18.09 | 18.73 | 18.58 | pass |
| | | 36 | 18 | 16.27 | 16.46 | 16.98 | 18.07 | 18.26 | 18.78 | pass |
| | | 36 | 39 | 16.42 | 16.5 | 17.23 | 18.22 | 18.3 | 19.03 | pass |
| | | 75 | 0 | 16.37 | 16.72 | 17.06 | 18.17 | 18.52 | 18.86 | pass |
| **Bandwidth** | Modulation | RB allocation | offset | Channel/Frequency(MHz) | | | Channel/Frequency(MHz) | | | Verdict |
| | | | | 43690/ 3610 | 44590/ 3700 | 45490/ 3790 | 43690/ 3610 | 44590/ 3700 | 45490/ 3790 | / |
| **20MHz** | QPSK | 1 | 0 | 20.18 | 20.72 | 20.15 | 21.98 | 22.52 | 21.95 | pass |
| | | 1 | 50 | 20.04 | 19.73 | 20 | 21.84 | 21.53 | 21.8 | pass |
| | | 1 | 99 | 20.43 | 19.9 | 20.82 | 22.23 | 21.7 | 22.62 | pass |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 50 | 0 | 18.92 | 19.05 | 18.78 | 20.72 | 20.85 | 20.58 | pass |
| | | 50 | 25 | 18.87 | 18.61 | 19 | 20.67 | 20.41 | 20.8 | pass |
| | | 50 | 50 | 19.01 | 18.59 | 18.97 | 20.81 | 20.39 | 20.77 | pass |
| | | 100 | 0 | 18.95 | 18.85 | 19.11 | 20.75 | 20.65 | 20.91 | pass |
| | 16QAM | 1 | 0 | 19.31 | 19.76 | 19.22 | 21.11 | 21.56 | 21.02 | pass |
| | | 1 | 50 | 19.05 | 18.75 | 19.2 | 20.85 | 20.55 | 21 | pass |
| | | 1 | 99 | 19.59 | 19.04 | 19.63 | 21.39 | 20.84 | 21.43 | pass |
| | | 50 | 0 | 17.82 | 18.01 | 17.65 | 19.62 | 19.81 | 19.45 | pass |
| | | 50 | 25 | 17.34 | 17.47 | 17.88 | 19.14 | 19.27 | 19.68 | pass |
| | | 50 | 50 | 17.93 | 17.5 | 18.16 | 19.73 | 19.3 | 19.96 | pass |
| | | 100 | 0 | 17.88 | 17.72 | 17.99 | 19.68 | 19.52 | 19.79 | pass |
| | 64QAM | 1 | 0 | 17.87 | 18.48 | 17.81 | 19.67 | 20.28 | 19.61 | pass |
| | | 1 | 50 | 17.15 | 17.36 | 17.89 | 18.95 | 19.16 | 19.69 | pass |
| | | 1 | 99 | 18.18 | 17.71 | 18.57 | 19.98 | 19.51 | 20.37 | pass |
| | | 50 | 0 | 16.24 | 16.85 | 16.71 | 18.04 | 18.65 | 18.51 | pass |
| | | 50 | 25 | 16.23 | 16.42 | 16.92 | 18.03 | 18.22 | 18.72 | pass |
| | | 50 | 50 | 16.39 | 16.45 | 17.19 | 18.19 | 18.25 | 18.99 | pass |
| | | 100 | 0 | 16.35 | 16.68 | 17.03 | 18.15 | 18.48 | 18.83 | pass |

## 5.4. Field Strength of Spurious Radiation/ Radiated Spurious Emissions

**Ambient condition**

| Temperature | Relative humidity |
|---|---|
| 21°C ~25°C | 40%~60% |

**Method of Measurement**

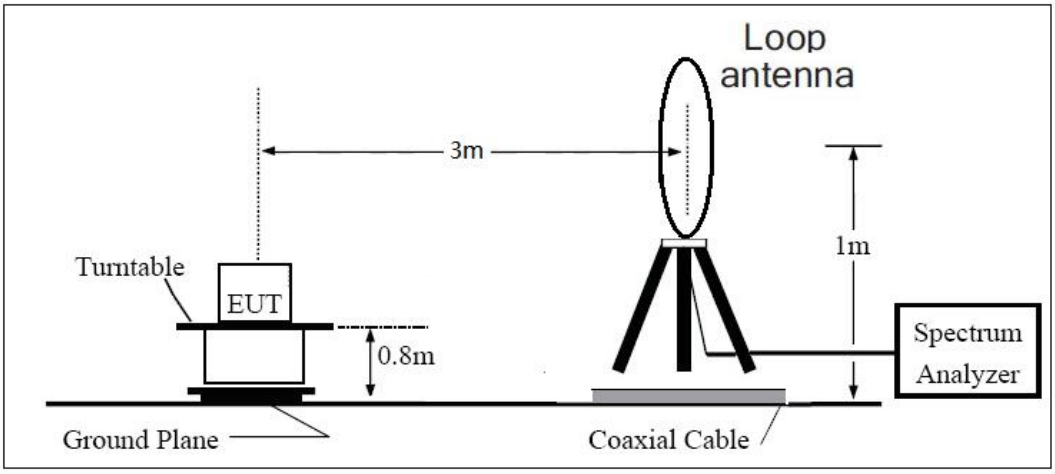
1. The testing follows FCC KDB 971168 v03r01 Section 5.8 and ANSI C63.26 (2015).
2. Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
3. A loop antenna, A log-periodic antenna or horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=200Hz,VBW=600Hz for 9kHz150kHz , RBW=10kHz, VBW=30kHz 150kHz-30MHz , RBW=100kHz,VBW=300kHz for 30MHz to 1GHz and RBW=1MHz, VBW=3MHz for above 1GHz, And the maximum value of the receiver should be recorded as (Pr).
5. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
7. The measurement results are obtained as described below:
Power(EIRP)=PMea- PAg - Pcl + Ga
The measurement results are amend as described below:
Power(EIRP)=PMea- Pcl + Ga
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP

= EIRP-2.15dBi.

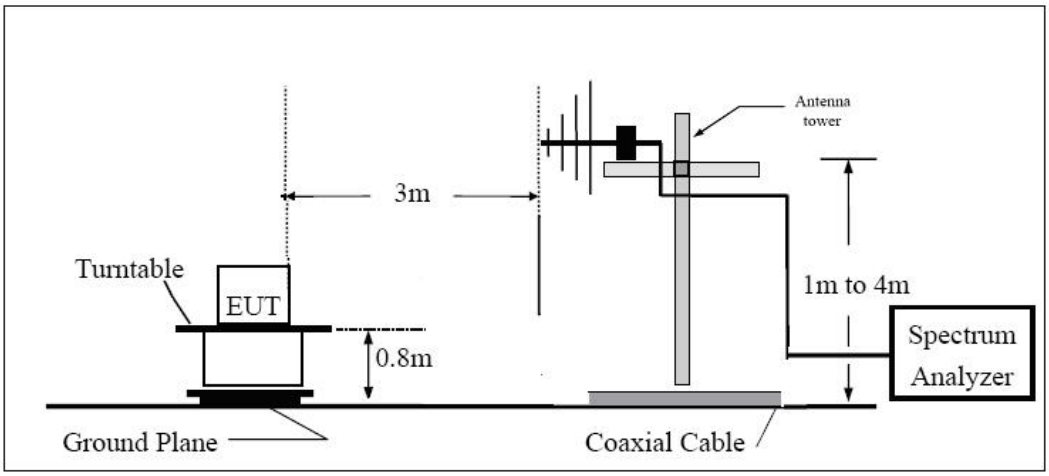
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

**Test setup**

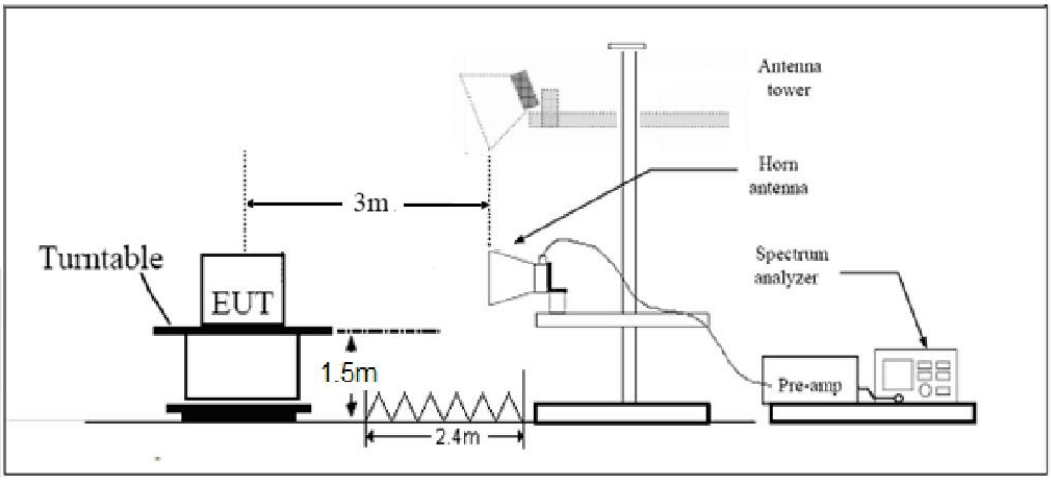
**9KHz ~ 30MHz**




**30MHz~~~ 1GHz**




**Above 1GHz**




Note: Area side: 2.4mX3.6m

**Limits**

Rule Part 90.1323 specifies that “The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.”

| | |
|---|---|
| Limit | -13 dBm |

**Measurement Uncertainty**

The assessed measurement uncertainty to ensure 95％ confidence level for thenormal distribution is with the coverage factor *k* = 1.96,*U*=3.55 dB.

**Test Result**

Sweep the whole frequency band through the range from 30MHz to the 10th harmonic of the carrier, the emissions below the noise floor will not be recorded in the report.

LTE Band 43 5MHz CH Middle

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | EIRP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 7395.8 | -44.06 | 2.50 | 11.35 | horizontal | -35.21 | -25.00 | 10.21 | 225 |
| 3 | 11093.6 | -52.21 | 4.20 | 12.05 | horizontal | -44.36 | -25.00 | 19.36 | 180 |
| 4 | 14791.5 | -51.39 | 5.50 | 14.23 | horizontal | -42.66 | -25.00 | 17.66 | 315 |
| 5 | 18489.4 | -- | -- | -- | -- | -- | -- | -- | -- |
| 6 | 22187.3 | -- | -- | -- | -- | -- | -- | -- | -- |
| 7 | 25885.1 | -- | -- | -- | -- | -- | -- | -- | -- |
| 8 | 29583.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| 9 | 33280.9 | -- | -- | -- | -- | -- | -- | -- | -- |
| 10 | 36978.8 | -- | -- | -- | -- | -- | -- | -- | -- |
| Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.<br>2. The worst emission was found in the antenna is Horizontal position. | | | | | | | | | |

LTE Band 43 20MHz CH Middle

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | EIRP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 7381.0 | -42.30 | 2.50 | 11.35 | horizontal | -33.45 | -25.00 | 8.45 | 180 |
| 3 | 11071.5 | -48.68 | 4.20 | 12.05 | horizontal | -40.83 | -25.00 | 15.83 | 315 |
| 4 | 14762.0 | -49.71 | 5.50 | 14.23 | horizontal | -40.98 | -25.00 | 15.98 | 90 |
| 5 | 18452.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 6 | 22143.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| 7 | 25833.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 8 | 29524.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| 9 | 33214.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 10 | 36905.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.<br>2. The worst emission was found in the antenna is Horizontal position. | | | | | | | | | |

# 6. Main Test Instruments

| Name | Manufacturer | Type | Serial Number | Calibration Date | Expiration Date |
|---|---|---|---|---|---|
| Base Station Simulator | R&S | CMW500 | 113824 | 2019-05-19 | 2020-05-18 |
| Power Splitter | Hua Xiang | SHX-GF2-2-13 | 10120101 | / | / |
| Spectrum Analyzer | Agilent | N9010A | MY50210259 | 2019-05-19 | 2020-05-18 |
| Signal Analyzer | R&S | FSV40 | 15195-01-00 | 2019-05-19 | 2020-05-18 |
| Trilog Antenna | SCHWARZBECK | VUBL 9163 | 9163-201 | 2017-11-18 | 2020-11-17 |
| Horn Antenna | R&S | HF907 | 100126 | 2018-07-07 | 2020-07-06 |
| Horn Antenna | ETS-Lindgren | 3160-09 | 00102643 | 2018-06-20 | 2020-06-19 |
| Horn Antenna | STEATITE | QSH-SL-26-40-K-15 | 16779 | 2017-07-20 | 2020-07-19 |
| Climatic Chamber | ESPEC | SU-242 | 93000506 | 2017-12-17 | 2020-12-16 |
| RF Cable | Agilent | SMA 15cm | 0001 | 2019-12-13 | 2020-06-12 |
| Software | R&S | EMC32 | 9.26.0 | / | / |

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