# RF TEST REPORT

| | |
|---|---|
| **Applicant** | UAB TELTONIKA TELEMATICS |
| **FCC ID** | 2A3HUFMM80A |
| **Product** | Fleet Management System |
| **Brand** | TELTONIKA TELEMATICS |
| **Model** | FMM80A-Q2IB0 |
| **Report No.** | R2303A0264-R3 |
| **Issue Date** | May 24, 2023 |

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2022)/ FCC CFR47 Part 27C (2022)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

*Prepared by: Xu Ying*

*Approved by: Xu Kai*


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# TABLE OF CONTENT

# Summary of Measurement Results

| Number | Test Case | Clause in FCC rules | Verdict |
|---|---|---|---|
| 1 | RF Power Output and Effective Isotropic Radiated Power | 2.1046<br>/27.50(d)(4)<br>/27.50(b)(10)<br>/27.50(c)(10) | PASS |
| 2 | Radiated Spurious Emission | 2.1053<br>/27.53(h)<br>/27.53(g)<br>/27.53(f) /27.53(c) | PASS |
| Date of Testing: March 20, 2023 ~ May 15, 2023<br>Date of Sample Received: March 15, 2023 | | | |
| 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. | | | |

**This report only tests Effective Radiated Power and Radiated Spurious Emission. For other test items, please refer to Module Report (Report No: R1907A0450-R3V3, FCC ID: XMR2020BG95M1).**

# 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 measurements.

**A2LA (Certificate Number: 3857.01)**

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

## 1.3 Testing Location

| | |
|---|---|
| Company: | TA Technology (Shanghai) Co., Ltd. |
| Address: | Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China |
| City: | Shanghai |
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# 2 General Description of Equipment under Test

## 2.1 Applicant and Manufacturer Information

| | |
|---|---|
| **Applicant** | UAB TELTONIKA TELEMATICS |
| **Applicant address** | Saltoniskiu st. 9B-1, LT-08105, Vilnius, Lithuania |
| **Manufacturer** | UAB TELTONIKA TELEMATICS |
| **Manufacturer address** | Saltoniskiu st. 9B-1, LT-08105, Vilnius, Lithuania |
| **Factory** | UAB TELTONIKA EMS |
| **Factory address** | Ditvos st. 6, LT-02121, Vilnius, Lithuania |

## 2.2 General information

| **EUT Description** | | | |
|---|---|---|---|
| Model | FMM80A-Q2IB0 | | |
| IMEI | 862464068700505 | | |
| Hardware Version | FMM80A-80 | | |
| Software Version | FMB.Ver.03.28.02 | | |
| Power Supply | External power supply | | |
| Antenna Type | Fixed Internal Antenna | | |
| Antenna Gain | 2.5dBi | | |
| Test Mode(s) | LTE-M Band 4/12/13/66/85; | | |
| Test Modulation | (LTE-M)QPSK, 16QAM; | | |
| LTE Category | M1 | | |
| Maximum E.I.R.P./ E.R.P. | LTE-M Band 4 | 23.29dBm | |
| | LTE-M Band 12 | 20.77dBm | |
| | LTE-M Band 13 | 20.82dBm | |
| | LTE-M Band 66 | 22.53dBm | |
| | LTE-M Band 85 | 21.61dBm | |
| Rated Power Supply Voltage | 12 V | | |
| Operating Voltage | Minimum: 10V Maximum: 30V | | |
| Operating Temperature | Lowest: -20°C Highest: +85°C | | |
| Operating Frequency Range(s) | Mode | Tx (MHz) | Rx (MHz) |
| | LTE-M Band 4 | 1710 ~ 1755 | 2110 ~ 2155 |
| | LTE-M Band 12 | 699 ~ 716 | 729 ~ 746 |
| | LTE-M Band 13 | 777 ~ 787 | 746 ~ 756 |
| | LTE-M Band 66 | 1710 ~ 1780 | 2110 ~ 2180 |
| | LTE-M Band 85 | 698 ~ 716 | 728 ~ 746 |
| Note:<br>1. 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 CFR47 Part 27C (2022)**

**FCC CFR47 Part 2 (2022)**

**Reference standard:**

**ANSI C63.26-2015**

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

# 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 (Z axis, vertical polarization) and the worst case was recorded.

All mode and data rates and positions and RB size and modulations were investigated.
Subsequently, only the worst case emissions are reported.
The following testing in LTE-M is set based on the maximum RF Output Power.
The following testing in different Bandwidth is set to detailin the following table:
Test modes are chosen to be reported as the worst case configuration below for LTE-M Band 4/12/13/66/85:

| Test items | Modes | Bandwidth (MHz) | | | | | | Modulation | | RB | | | Test Channel | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1.4 | 3 | 5 | 10 | 15 | 20 | QPSK | 16QAM | 1 | 50% | 100% | L | M | H |
| RF Power Output and Effective Isotropic Radiated Power | LTE-M Band 4 | O | O | O | O | O | O | O | O | O | O | O | O | O | O |
| | LTE-M Band 12 | O | O | O | O | - | - | O | O | O | O | O | O | O | O |
| | LTE-M Band 13 | - | - | O | O | - | - | O | - | O | O | O | O | O | O |
| | LTE-M Band 66 | O | O | O | O | O | O | O | O | O | O | O | O | O | O |
| | LTE-M Band 85 | - | - | O | O | - | - | O | O | O | O | O | O | O | O |
| Radiated Spurious Emission | LTE-M Band 4 | O | - | O | - | - | O | O | - | O | - | - | - | O | - |
| | LTE-M Band 12 | O | - | O | O | - | - | O | - | O | - | - | - | O | - |
| | LTE-M Band 13 | - | - | O | O | - | - | O | - | O | - | - | - | O | - |
| | LTE-M Band 66 | O | - | O | - | - | O | O | - | O | - | - | - | O | - |
| | LTE-M Band 85 | - | - | 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

## 5.1 RF Power Output and Effective Isotropic Radiated Power

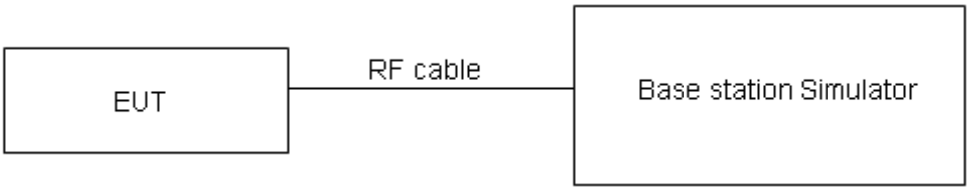
**Ambient condition**

| Temperature | Relative humidity | Pressure |
|---|---|---|
| 23°C ~25°C | 45%~50% | 101.5kPa |

**Methods of Measurement**

During the process of the testing, The EUT was connected to the Base Station Simulator with a known loss. The EUT is controlled by the Base Station Simulator test set to ensure max power transmission with proper modulation.
ERP can then be calculated as follows:
EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)
EIRP (dBm ) = ERP (dBm) + 2.15 (dB.)

**Test Setup**




**Limits**

No specific RF power output requirements in part 2.1046.

Rule Part 27.50(b) (10) specifies that “Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP”
Rule Part 27.50(c) (10) specifies that “Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP”
Rule Part 27.50(d) (4) specifies that “Fixed, mobile and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP”

| | |
|---|---|
| Part 27.50(b)(10)Limit | ≤ 3 W (34.77 dBm) |
| Part 27.50(c)(10)Limit | ≤ 3 W (34.77 dBm) |
| Part 27.50(d)(4)Limit | ≤ 1 W (30 dBm) |

**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 for RF power output, $k$ = 2, $U$= 1.19 dB for ERP/EIRP.

**Test Results**

Refer to the section 6.1 of this report for test data.

## 5.2 Radiated Spurious Emission

**Ambient condition**

| Temperature | Relative humidity | Pressure |
|---|---|---|
| 23°C ~25°C | 45%~50% | 101.5kPa |

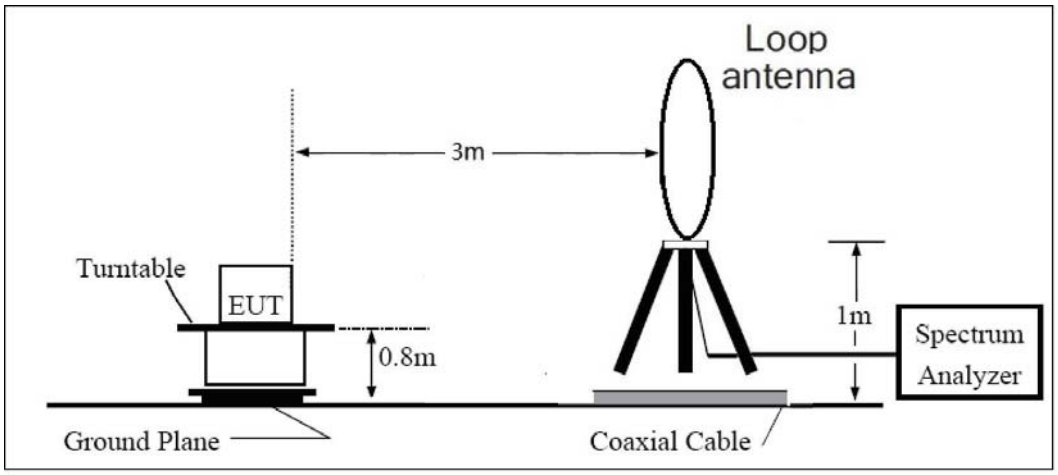
**Method of Measurement**

1. The testing follows FCC KDB 971168 D01 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=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 dB) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dB.

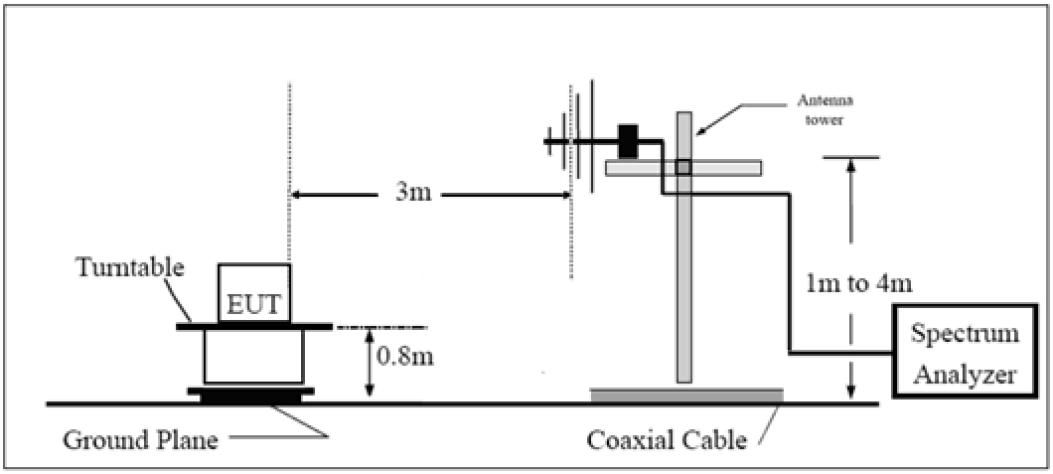
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

**Test setup**

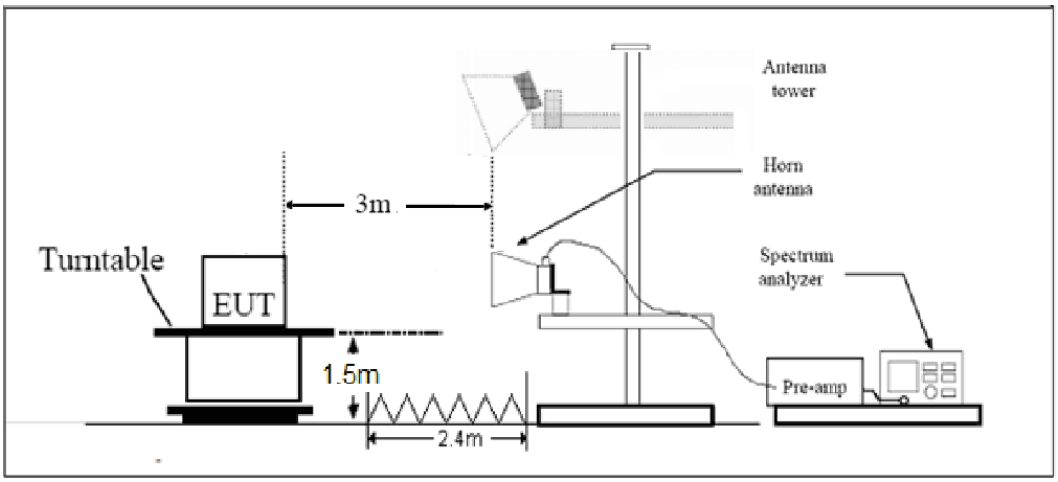
**9KHz~ 30MHz**




**30MHz~ 1GHz**




**Above 1GHz**




Note: Area side:2.4mX3.6m

**Limits**

Rule Part 27.53(h) specifies that “for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB.”
Rule Part 27.53 (g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.
Rule Part 27.53(f)For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.
Part 27.53 (c) For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:
(1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;
(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;
(3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations;
(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations;
(5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;

| | | |
|---|---|---|
| Part 27.53 (h)/(g) Limit | | -13 dBm |
| Part 27.53(f) Limit | Limit out of the band 1559-1610 MHz | -13 dBm |
| | Limit in the band 1559-1610 MHz | -40 dBm |

**Measurement Uncertainty**

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

**Test Results**

Refer to the section 6.2 of this report for test data.

# 6 Test Results

## 6.1 RF Power Output and Effective Isotropic Radiated Power

**RF Power Output refer to Module Report**

| Band4 | Channel/ Frequency(MHz) | Index | RB# RBstart | Conducted Power (dBm) | | EIRP | |
|---|---|---|---|---|---|---|---|
| | | | | QPSK | 16QAM | QPSK | 16QAM |
| 1.4MHz | 19957 1710.7 | 0 | 1#0 | 20.40 | 19.72 | 22.90 | 22.22 |
| | | 0 | 6#0 | 18.42 | 18.29 | 20.92 | 20.79 |
| | 20175/1732.5 | 0 | 1#0 | 20.79 | 19.30 | 23.29 | 21.80 |
| | | 0 | 6#0 | 18.29 | 18.66 | 20.79 | 21.16 |
| | 20393/1754.3 | 0 | 1#5 | 20.75 | 19.48 | 23.25 | 21.98 |
| | | 0 | 6#0 | 18.36 | 18.69 | 20.86 | 21.19 |
| 3MHz | 19965/1711.5 | 0 | 1#0 | 20.43 | 19.17 | 22.93 | 21.67 |
| | | 0 | 6#0 | 18.41 | 18.68 | 20.91 | 21.18 |
| | 20175/1732.5 | 0 | 1#0 | 20.41 | 19.02 | 22.91 | 21.52 |
| | | 0 | 6#0 | 18.29 | 18.54 | 20.79 | 21.04 |
| | 20385/1753.5 | 1 | 1#5 | 20.64 | 19.31 | 23.14 | 21.81 |
| | | 1 | 6#0 | 18.49 | 18.75 | 20.99 | 21.25 |
| 5MHz | 19975/1712.5 | 0 | 1#0 | 20.57 | 20.11 | 23.07 | 22.61 |
| | | 0 | 6#0 | 19.35 | 19.51 | 21.85 | 22.01 |
| | 20175/1732.5 | 0 | 1#0 | 20.34 | 20.09 | 22.84 | 22.59 |
| | | 0 | 6#0 | 19.37 | 19.42 | 21.87 | 21.92 |
| | 20375/1752.5 | 3 | 1#5 | 20.56 | 20.17 | 23.06 | 22.67 |
| | | 3 | 6#0 | 19.43 | 19.75 | 21.93 | 22.25 |
| 10MHz | 20000/1715 | 0 | 1#0 | 20.52 | 20.14 | 23.02 | 22.64 |
| | | 0 | 4#0 | 20.53 | 20.57 | 23.03 | 23.07 |
| | 20175/1732.5 | 0 | 1#0 | 20.32 | 20.08 | 22.82 | 22.58 |
| | | 0 | 4#0 | 20.38 | 20.44 | 22.88 | 22.94 |
| | 20350/1750 | 7 | 1#5 | 20.48 | 20.25 | 22.98 | 22.75 |
| | | 7 | 4#2 | 20.52 | 20.54 | 23.02 | 23.04 |
| 15MHz | 20025/1717.5 | 0 | 1#0 | 20.55 | 20.25 | 23.05 | 22.75 |
| | | 0 | 6#0 | 20.42 | 20.53 | 22.92 | 23.03 |
| | 20175/1732.5 | 0 | 1#0 | 20.51 | 20.12 | 23.01 | 22.62 |
| | | 0 | 6#0 | 20.33 | 20.46 | 22.83 | 22.96 |
| | 20325/1747.5 | 11 | 1#5 | 20.41 | 20.13 | 22.91 | 22.63 |
| | | 11 | 6#0 | 20.32 | 20.38 | 22.82 | 22.88 |
| 20MHz | 20050/1720 | 0 | 1#0 | 20.53 | 20.18 | 23.03 | 22.68 |
| | | 0 | 6#0 | 20.38 | 20.50 | 22.88 | 23.00 |
| | 20175/1732.5 | 0 | 1#0 | 20.45 | 20.18 | 22.95 | 22.68 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 0 | 6#0 | 20.32 | 20.44 | 22.82 | 22.94 |
| | 20300/1745 | 15 | 1#5 | 20.43 | 20.08 | 22.93 | 22.58 |
| | | 15 | 6#0 | 20.27 | 20.36 | 22.77 | 22.86 |

| Band12 | Channel/ Frequency(MHz) | Index | RB# RBstart | Conducted Power (dBm) | | ERP | |
|---|---|---|---|---|---|---|---|
| | | | | QPSK | 16QAM | QPSK | 16QAM |
| 1.4MHz | 23017/699.7 | 0 | 1#0 | 20.20 | 19.15 | 20.55 | 19.50 |
| | | 0 | 6#0 | 18.36 | 18.17 | 18.71 | 18.52 |
| | 23095/707.5 | 0 | 1#0 | 20.41 | 18.95 | 20.76 | 19.30 |
| | | 0 | 6#0 | 18.17 | 18.66 | 18.52 | 19.01 |
| | 23173/715.3 | 0 | 1#5 | 20.40 | 18.93 | 20.75 | 19.28 |
| | | 0 | 6#0 | 18.08 | 18.45 | 18.43 | 18.80 |
| 3MHz | 23025/700.5 | 0 | 1#0 | 20.42 | 19.27 | 20.77 | 19.62 |
| | | 0 | 6#0 | 18.26 | 18.57 | 18.61 | 18.92 |
| | 23095/707.5 | 0 | 1#0 | 20.37 | 19.15 | 20.72 | 19.50 |
| | | 0 | 6#0 | 18.10 | 18.35 | 18.45 | 18.70 |
| | 23165/714.5 | 1 | 1#5 | 20.38 | 19.16 | 20.73 | 19.51 |
| | | 1 | 6#0 | 18.13 | 18.37 | 18.48 | 18.72 |
| 5MHz | 23035/701.5 | 3 | 1#0 | 20.42 | 20.16 | 20.77 | 20.51 |
| | | 0 | 6#0 | 19.43 | 19.63 | 19.78 | 19.98 |
| | 23095/707.5 | 0 | 1#0 | 20.29 | 20.02 | 20.64 | 20.37 |
| | | 0 | 6#0 | 19.22 | 19.53 | 19.57 | 19.88 |
| | 23155/713.5 | 0 | 1#5 | 20.16 | 19.90 | 20.51 | 20.25 |
| | | 3 | 6#0 | 19.08 | 19.36 | 19.43 | 19.71 |
| 10MHz | 23060/704 | 3 | 1#0 | 20.41 | 20.19 | 20.76 | 20.54 |
| | | 0 | 4#0 | 20.33 | 20.38 | 20.68 | 20.73 |
| | 23095/707.5 | 0 | 1#0 | 20.32 | 20.01 | 20.67 | 20.36 |
| | | 0 | 4#0 | 20.38 | 20.40 | 20.73 | 20.75 |
| | 23130/711 | 4 | 1#5 | 20.03 | 19.88 | 20.38 | 20.23 |
| | | 7 | 4#2 | 20.28 | 20.25 | 20.63 | 20.60 |

| Band13 | Channel/ Frequency(MHz) | Index | RB# RBstart | Conducted Power (dBm) | | ERP | |
|---|---|---|---|---|---|---|---|
| | | | | QPSK | 16QAM | QPSK | 16QAM |
| 5MHz | 23205/779.5 | 0 | 1#0 | 20.14 | 20.21 | 20.49 | 20.56 |
| | | 0 | 6#0 | 19.24 | 19.02 | 19.59 | 19.37 |
| | 23230/782 | 0 | 1#0 | 20.22 | 20.16 | 20.57 | 20.51 |
| | | 0 | 6#0 | 19.24 | 19.38 | 19.59 | 19.73 |
| | 23255/784.5 | 3 | 1#5 | 20.05 | 19.79 | 20.40 | 20.14 |
| | | 3 | 6#0 | 19.13 | 19.19 | 19.48 | 19.54 |
| 10MHz | 23230/782 | 0 | 1#0 | 20.29 | 19.97 | 20.64 | 20.32 |
| | | 0 | 4#0 | 20.35 | 20.47 | 20.70 | 20.82 |

| Band 66 | Channel/ Frequency(MHz) | Index | RB# RBstart | Conducted Power (dBm) | | EIRP | |
|---|---|---|---|---|---|---|---|
| | | | | QPSK | 16QAM | QPSK | 16QAM |
| 1.4MHz | 131979/1710.7 | 0 | 1#0 | 19.74 | 19.02 | 22.24 | 21.52 |
| | | 0 | 6#0 | 17.65 | 17.51 | 20.15 | 20.01 |
| | 132322/1745 | 0 | 1#0 | 20.01 | 18.73 | 22.51 | 21.23 |
| | | 0 | 6#0 | 17.49 | 17.88 | 19.99 | 20.38 |
| | 132665/1779.3 | 0 | 1#5 | 19.98 | 18.23 | 22.48 | 20.73 |
| | | 0 | 6#0 | 17.73 | 18.39 | 20.23 | 20.89 |
| 3MHz | 131987/1711.5 | 0 | 1#0 | 19.89 | 18.52 | 22.39 | 21.02 |
| | | 0 | 6#0 | 17.69 | 17.96 | 20.19 | 20.46 |
| | 132322/1745 | 0 | 1#0 | 19.89 | 18.39 | 22.39 | 20.89 |
| | | 0 | 6#0 | 17.71 | 17.90 | 20.21 | 20.40 |
| | 132657/1778.5 | 1 | 1#5 | 19.77 | 18.35 | 22.27 | 20.85 |
| | | 1 | 6#0 | 17.72 | 18.11 | 20.22 | 20.61 |
| 5MHz | 131997/1712.5 | 0 | 1#0 | 19.88 | 19.48 | 22.38 | 21.98 |
| | | 0 | 6#0 | 18.77 | 18.84 | 21.27 | 21.34 |
| | 132322/1745 | 0 | 1#0 | 19.86 | 20.03 | 22.36 | 22.53 |
| | | 0 | 6#0 | 18.69 | 18.74 | 21.19 | 21.24 |
| | 132647/1777.5 | 0 | 1#5 | 19.71 | 19.33 | 22.21 | 21.83 |
| | | 3 | 6#0 | 18.71 | 18.98 | 21.21 | 21.48 |
| 10MHz | 132022/1715 | 3 | 1#0 | 19.93 | 19.65 | 22.43 | 22.15 |
| | | 0 | 4#0 | 19.86 | 19.91 | 22.36 | 22.41 |
| | 132022/1745 | 0 | 1#0 | 19.75 | 19.57 | 22.25 | 22.07 |
| | | 0 | 4#0 | 19.67 | 19.70 | 22.17 | 22.20 |
| | 132622/1775 | 4 | 1#5 | 19.23 | 18.87 | 21.73 | 21.37 |
| | | 7 | 4#2 | 19.33 | 19.45 | 21.83 | 21.95 |
| 15MHz | 132047/1717.5 | 3 | 1#0 | 19.91 | 19.55 | 22.41 | 22.05 |
| | | 0 | 6#0 | 19.78 | 19.87 | 22.28 | 22.37 |
| | 132322/1745 | 0 | 1#0 | 19.73 | 19.52 | 22.23 | 22.02 |
| | | 0 | 6#0 | 19.65 | 19.73 | 22.15 | 22.23 |
| | 132597/1772.5 | 8 | 1#5 | 19.21 | 19.31 | 21.71 | 21.81 |
| | | 11 | 6#0 | 19.39 | 19.54 | 21.89 | 22.04 |
| 20MHz | 132072/1720 | 3 | 1#0 | 19.76 | 19.99 | 22.26 | 22.49 |
| | | 0 | 6#0 | 19.84 | 19.83 | 22.34 | 22.33 |
| | 132322/1745 | 0 | 1#0 | 19.74 | 19.77 | 22.24 | 22.27 |
| | | 0 | 6#0 | 19.67 | 19.55 | 22.17 | 22.05 |
| | 132572/1770 | 12 | 1#5 | 19.31 | 18.95 | 21.81 | 21.45 |
| | | 15 | 6#0 | 19.38 | 19.52 | 21.88 | 22.02 |

| Band85 | Channel/ Frequency(MHz) | Index | RB# RBstart | Conducted Power (dBm) | | ERP | |
|---|---|---|---|---|---|---|---|
| | | | | QPSK | 16QAM | QPSK | 16QAM |
| 5MHz | 134027/700.5 | 0 | 1#0 | 20.63 | 20.54 | 20.98 | 20.89 |
| | | 0 | 6#0 | 20.37 | 20.39 | 20.72 | 20.74 |
| | 134092/707 | 0 | 1#0 | 20.91 | 20.65 | 21.26 | 21.00 |
| | | 0 | 6#0 | 20.62 | 20.53 | 20.97 | 20.88 |
| | 134157/713.5 | 3 | 1#5 | 21.03 | 20.44 | 21.38 | 20.79 |
| | | 3 | 6#0 | 20.68 | 20.55 | 21.03 | 20.90 |
| 10MHz | 134052/703 | 0 | 1#0 | 20.79 | 20.27 | 21.14 | 20.62 |
| | | 0 | 4#0 | 20.36 | 20.62 | 20.71 | 20.97 |
| | 134092/707 | 0 | 1#0 | 21.07 | 20.43 | 21.42 | 20.78 |
| | | 0 | 4#0 | 20.94 | 21.15 | 21.29 | 21.50 |
| | 134132/711 | 0 | 1#5 | 21.11 | 20.51 | 21.46 | 20.86 |
| | | 0 | 4#2 | 21.13 | 21.26 | 21.48 | 21.61 |

## 6.2 Radiated Spurious Emission

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions below the noise floor will not be recorded in the report.

LTE-M Band 4 QPSK 1.4MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | EIRP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3464.25 | -57.67 | 2.70 | 12.70 | Vertical | -47.67 | -13.00 | 34.67 | 199 |
| 3 | 5197.50 | -64.39 | 3.20 | 12.50 | Vertical | -55.09 | -13.00 | 42.09 | 250 |
| 4 | 6930.00 | -62.86 | 4.20 | 11.80 | Vertical | -55.26 | -13.00 | 42.26 | 0 |
| 5 | 8662.50 | -59.33 | 4.40 | 12.50 | Vertical | -51.23 | -13.00 | 38.23 | 315 |
| 6 | 10395.00 | -53.39 | 4.70 | 11.30 | Vertical | -46.79 | -13.00 | 33.79 | 0 |
| 7 | 12127.50 | -55.22 | 5.20 | 13.80 | Vertical | -46.62 | -13.00 | 33.62 | 45 |
| 8 | 13860.00 | -48.74 | 5.70 | 11.30 | Vertical | -43.14 | -13.00 | 30.14 | 190 |
| 9 | 15592.50 | -56.80 | 6.10 | 16.80 | Vertical | -46.10 | -13.00 | 33.10 | 240 |
| 10 | 17325.00 | -51.29 | 6.10 | 14.20 | Vertical | -43.19 | -13.00 | 30.19 | 30 |
| 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 Vertical position. | | | | | | | | | |

LTE-M Band 4 QPSK 5MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | EIRP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3460.50 | -54.69 | 2.70 | 12.70 | Vertical | -44.69 | -13.00 | 31.69 | 182 |
| 3 | 5191.50 | -63.92 | 3.20 | 12.50 | Vertical | -54.62 | -13.00 | 41.62 | 33 |
| 4 | 6930.00 | -62.51 | 4.20 | 11.80 | Vertical | -54.91 | -13.00 | 41.91 | 307 |
| 5 | 8662.50 | -59.27 | 4.40 | 12.50 | Vertical | -51.17 | -13.00 | 38.17 | 154 |
| 6 | 10395.00 | -54.85 | 4.70 | 11.30 | Vertical | -48.25 | -13.00 | 35.25 | 90 |
| 7 | 12127.50 | -54.91 | 5.20 | 13.80 | Vertical | -46.31 | -13.00 | 33.31 | 72 |
| 8 | 13860.00 | -48.01 | 5.70 | 11.30 | Vertical | -42.41 | -13.00 | 29.41 | 57 |
| 9 | 15592.50 | -57.19 | 6.10 | 16.80 | Vertical | -46.49 | -13.00 | 33.49 | 281 |
| 10 | 17325.00 | -50.13 | 6.10 | 14.20 | Vertical | -42.03 | -13.00 | 29.03 | 306 |
| 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 Vertical position. | | | | | | | | | |

LTE-M Band 4 QPSK 20MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | EIRP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3447.00 | -65.94 | 2.70 | 12.70 | Vertical | -55.94 | -13.00 | 42.94 | 188 |
| 3 | 5170.88 | -63.49 | 3.20 | 12.50 | Vertical | -54.19 | -13.00 | 41.19 | 0 |
| 4 | 6930.00 | -63.02 | 4.20 | 11.80 | Vertical | -55.42 | -13.00 | 42.42 | 225 |
| 5 | 8662.50 | -58.60 | 4.40 | 12.50 | Vertical | -50.50 | -13.00 | 37.50 | 309 |
| 6 | 10395.00 | -53.29 | 4.70 | 11.30 | Vertical | -46.69 | -13.00 | 33.69 | 255 |
| 7 | 12127.50 | -54.21 | 5.20 | 13.80 | Vertical | -45.61 | -13.00 | 32.61 | 147 |
| 8 | 13860.00 | -47.75 | 5.70 | 11.30 | Vertical | -42.15 | -13.00 | 29.15 | 75 |
| 9 | 15592.50 | -56.66 | 6.10 | 16.80 | Vertical | -45.96 | -13.00 | 32.96 | 92 |
| 10 | 17325.00 | -51.91 | 6.10 | 14.20 | Vertical | -43.81 | -13.00 | 30.81 | 138 |
| 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 Vertical position. | | | | | | | | | |

LTE-M Band 12 QPSK 1.4MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1414.20 | -67.44 | 1.70 | 8.70 | Vertical | -62.59 | -13.00 | 49.59 | 75 |
| 3 | 2121.06 | -63.57 | 2.10 | 11.10 | Vertical | -56.72 | -13.00 | 43.72 | 140 |
| 4 | 2828.33 | -64.27 | 2.30 | 13.10 | Vertical | -55.62 | -13.00 | 42.62 | 250 |
| 5 | 3534.00 | -65.56 | 2.60 | 12.70 | Vertical | -57.61 | -13.00 | 44.61 | 259 |
| 6 | 4240.80 | -63.63 | 3.30 | 12.50 | Vertical | -56.58 | -13.00 | 43.58 | 134 |
| 7 | 4947.60 | -62.06 | 3.40 | 12.50 | Vertical | -55.11 | -13.00 | 42.11 | 91 |
| 8 | 5654.40 | -60.65 | 3.30 | 12.50 | Vertical | -53.60 | -13.00 | 40.60 | 226 |
| 9 | 6361.20 | -59.22 | 3.80 | 11.50 | Vertical | -53.67 | -13.00 | 40.67 | 18 |
| 10 | 7068.00 | -57.59 | 4.20 | 11.80 | Vertical | -52.14 | -13.00 | 39.14 | 305 |
| 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 Vertical position. | | | | | | | | | |

LTE-M Band 12 QPSK 5MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1410.60 | -68.33 | 1.70 | 8.70 | Vertical | -63.48 | -13.00 | 50.48 | 145 |
| 3 | 2116.00 | -61.46 | 2.10 | 11.10 | Vertical | -54.61 | -13.00 | 41.61 | 90 |
| 4 | 2820.93 | -63.38 | 2.30 | 13.10 | Vertical | -54.73 | -13.00 | 41.73 | 135 |
| 5 | 3525.00 | -66.09 | 2.60 | 12.70 | Vertical | -58.14 | -13.00 | 45.14 | 127 |
| 6 | 4230.00 | -63.51 | 3.30 | 12.50 | Vertical | -56.46 | -13.00 | 43.46 | 61 |
| 7 | 4935.00 | -62.31 | 3.40 | 12.50 | Vertical | -55.36 | -13.00 | 42.36 | 315 |
| 8 | 5640.00 | -61.22 | 3.30 | 12.50 | Vertical | -54.17 | -13.00 | 41.17 | 227 |
| 9 | 6345.00 | -58.95 | 3.80 | 11.50 | Vertical | -53.40 | -13.00 | 40.40 | 261 |
| 10 | 7050.00 | -58.18 | 4.20 | 11.80 | Vertical | -52.73 | -13.00 | 39.73 | 111 |
| 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 Vertical position. | | | | | | | | | |

LTE-M Band 12 QPSK 10MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1406.73 | -68.52 | 1.70 | 8.70 | Vertical | -63.67 | -13.00 | 50.67 | 190 |
| 3 | 2109.80 | -62.76 | 2.10 | 11.10 | Vertical | -55.91 | -13.00 | 42.91 | 225 |
| 4 | 2813.33 | -63.35 | 2.30 | 13.10 | Vertical | -54.70 | -13.00 | 41.70 | 175 |
| 5 | 3537.50 | -66.19 | 2.60 | 12.70 | Vertical | -58.24 | -13.00 | 45.24 | 9 |
| 6 | 4245.00 | -63.09 | 3.30 | 12.50 | Vertical | -56.04 | -13.00 | 43.04 | 38 |
| 7 | 4952.50 | -61.47 | 3.40 | 12.50 | Vertical | -54.52 | -13.00 | 41.52 | 163 |
| 8 | 5660.00 | -61.24 | 3.30 | 12.50 | Vertical | -54.19 | -13.00 | 41.19 | 195 |
| 9 | 6367.50 | -59.46 | 3.80 | 11.50 | Vertical | -53.91 | -13.00 | 40.91 | 135 |
| 10 | 7075.00 | -57.76 | 4.20 | 11.80 | Vertical | -52.31 | -13.00 | 39.31 | 41 |
| 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 Vertical position. | | | | | | | | | |

LTE-M Band 13 QPSK 5MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | EIRP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1559.55 | -72.25 | 1.70 | 8.70 | Vertical | -65.25 | -40.00 | 25.25 | 45 |
| **Harmonic** | **Frequency (MHz)** | **SG (dBm)** | **Cable Loss (dB)** | **Gain (dBi)** | **Antenna Polarization** | **ERP Level (dBm)** | **Limit (dBm)** | **Margin (dB)** | **Azimuth (deg)** |
| 3 | 2338.50 | -60.77 | 2.10 | 12.00 | Vertical | -53.02 | -13.00 | 40.02 | 225 |
| 4 | 3118.00 | -59.63 | 2.30 | 13.10 | Vertical | -50.98 | -13.00 | 37.98 | 90 |
| 5 | 3897.50 | -62.85 | 2.90 | 12.50 | Vertical | -55.40 | -13.00 | 42.40 | 225 |
| 6 | 4677.00 | -59.61 | 3.10 | 12.50 | Vertical | -52.36 | -13.00 | 39.36 | 45 |
| 7 | 5456.50 | -59.83 | 3.30 | 12.50 | Vertical | -52.78 | -13.00 | 39.78 | 0 |
| 8 | 6236.00 | -60.74 | 3.50 | 12.80 | Vertical | -53.59 | -13.00 | 40.59 | 45 |
| 9 | 7015.50 | -56.19 | 4.20 | 11.80 | Vertical | -50.74 | -13.00 | 37.74 | 0 |
| 10 | 7795.00 | -55.77 | 4.40 | 12.30 | Vertical | -50.02 | -13.00 | 37.02 | 135 |
| 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 Vertical position. | | | | | | | | | |

LTE-M Band 13 QPSK 10MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1554.00 | -69.40 | 1.70 | 8.70 | Vertical | -64.55 | -13.00 | 51.55 | 0 |
| 3 | 2331.00 | -58.40 | 2.10 | 12.00 | Vertical | -50.65 | -13.00 | 37.65 | 45 |
| 4 | 3108.00 | -56.50 | 2.30 | 13.10 | Vertical | -47.85 | -13.00 | 34.85 | 0 |
| 5 | 3885.00 | -62.85 | 2.90 | 12.50 | Vertical | -55.40 | -13.00 | 42.40 | 45 |
| 6 | 4662.00 | -61.62 | 3.10 | 12.50 | Vertical | -54.37 | -13.00 | 41.37 | 0 |
| 7 | 5439.00 | -60.83 | 3.30 | 12.50 | Vertical | -53.78 | -13.00 | 40.78 | 225 |
| 8 | 6216.00 | -61.07 | 3.50 | 12.80 | Vertical | -53.92 | -13.00 | 40.92 | 45 |
| 9 | 6993.00 | -55.62 | 4.20 | 11.80 | Vertical | -50.17 | -13.00 | 37.17 | 0 |
| 10 | 7770.00 | -55.26 | 4.40 | 12.30 | Vertical | -49.51 | -13.00 | 36.51 | 135 |
| 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 Vertical position. | | | | | | | | | |

LTE-M Band 66 QPSK 1.4MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | EIRP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3489.20 | -54.85 | 2.70 | 12.70 | Vertical | -44.85 | -13.00 | 31.85 | 90 |
| 3 | 5262.50 | -72.24 | 3.20 | 12.50 | Vertical | -62.94 | -13.00 | 49.94 | 0 |
| 4 | 7018.00 | -68.59 | 4.20 | 11.80 | Vertical | -60.99 | -13.00 | 47.99 | 45 |
| 5 | 8772.50 | -65.20 | 4.40 | 12.50 | Vertical | -57.10 | -13.00 | 44.10 | 135 |
| 6 | 10527.00 | -62.20 | 4.70 | 11.80 | Vertical | -55.10 | -13.00 | 42.10 | 0 |
| 7 | 12281.50 | -64.80 | 5.20 | 13.80 | Vertical | -56.20 | -13.00 | 43.20 | 135 |
| 8 | 14036.00 | -62.02 | 5.70 | 13.20 | Vertical | -54.52 | -13.00 | 41.52 | 45 |
| 9 | 15790.50 | -64.44 | 6.10 | 16.80 | Vertical | -53.74 | -13.00 | 40.74 | 225 |
| 10 | 17545.00 | / | / | / | / | / | / | / | / |
| 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 Vertical position. | | | | | | | | | |

LTE-M Band 66 QPSK 5MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | EIRP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3486.00 | -55.56 | 2.70 | 12.70 | Vertical | -45.56 | -13.00 | 32.56 | 45 |
| 3 | 5229.00 | -72.76 | 3.20 | 12.50 | Vertical | -63.46 | -13.00 | 50.46 | 225 |
| 4 | 6972.00 | -69.21 | 4.20 | 11.80 | Vertical | -61.61 | -13.00 | 48.61 | 0 |
| 5 | 8715.00 | -65.23 | 4.40 | 12.50 | Vertical | -57.13 | -13.00 | 44.13 | 45 |
| 6 | 10458.00 | -62.01 | 4.70 | 11.80 | Vertical | -54.91 | -13.00 | 41.91 | 90 |
| 7 | 12201.00 | -65.85 | 5.20 | 13.80 | Vertical | -57.25 | -13.00 | 44.25 | 225 |
| 8 | 13944.00 | -61.45 | 5.70 | 13.20 | Vertical | -53.95 | -13.00 | 40.95 | 45 |
| 9 | 15687.00 | -63.18 | 6.10 | 16.80 | Vertical | -52.48 | -13.00 | 39.48 | 0 |
| 10 | 17430.00 | / | / | / | / | / | / | / | / |
| 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 Vertical position. | | | | | | | | | |

LTE-M Band 66 QPSK 20MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | EIRP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3472.88 | -55.69 | 2.70 | 12.70 | Vertical | -45.69 | -13.00 | 32.69 | 225 |
| 3 | 5209.00 | -72.92 | 3.20 | 12.50 | Vertical | -63.62 | -13.00 | 50.62 | 0 |
| 4 | 6945.75 | -68.85 | 4.20 | 11.80 | Vertical | -61.25 | -13.00 | 48.25 | 45 |
| 5 | 8682.00 | -65.76 | 4.40 | 12.50 | Vertical | -57.66 | -13.00 | 44.66 | 90 |
| 6 | 10418.63 | -62.65 | 4.70 | 11.80 | Vertical | -55.55 | -13.00 | 42.55 | 225 |
| 7 | 12455.00 | -65.73 | 5.20 | 13.80 | Vertical | -57.13 | -13.00 | 44.13 | 45 |
| 8 | 13891.50 | -60.96 | 5.70 | 13.20 | Vertical | -53.46 | -13.00 | 40.46 | 0 |
| 9 | 15627.00 | -62.85 | 6.10 | 16.80 | Vertical | -52.15 | -13.00 | 39.15 | 45 |
| 10 | 17364.38 | / | / | / | / | / | / | / | / |
| 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 Vertical position. | | | | | | | | | |

LTE-M Band 85 QPSK 5MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1409.00 | -67.18 | 1.70 | 8.70 | Vertical | -62.33 | -13.00 | 49.33 | 225 |
| 3 | 2113.50 | -61.46 | 2.10 | 11.10 | Vertical | -54.61 | -13.00 | 41.61 | 180 |
| 4 | 2818.00 | -58.46 | 2.30 | 13.10 | Vertical | -49.81 | -13.00 | 36.81 | 90 |
| 5 | 3522.50 | -61.96 | 2.60 | 12.70 | Vertical | -54.01 | -13.00 | 41.01 | 180 |
| 6 | 4227.00 | -61.70 | 3.30 | 12.50 | Vertical | -54.65 | -13.00 | 41.65 | 45 |
| 7 | 4931.50 | -58.79 | 3.40 | 12.50 | Vertical | -51.84 | -13.00 | 38.84 | 0 |
| 8 | 5636.00 | -59.87 | 3.30 | 12.50 | Vertical | -52.82 | -13.00 | 39.82 | 180 |
| 9 | 6340.50 | -55.96 | 3.80 | 11.50 | Vertical | -50.41 | -13.00 | 37.41 | 225 |
| 10 | 7045.00 | -55.06 | 4.20 | 11.80 | Vertical | -49.61 | -13.00 | 36.61 | 90 |
| 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 Vertical position. | | | | | | | | | |

LTE-M Band 85 QPSK 10MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1404.00 | -65.98 | 1.70 | 8.70 | Vertical | -61.13 | -13.00 | 48.13 | 45 |
| 3 | 2106.00 | -61.75 | 2.10 | 11.10 | Vertical | -54.90 | -13.00 | 41.90 | 45 |
| 4 | 2808.00 | -59.87 | 2.30 | 13.10 | Vertical | -51.22 | -13.00 | 38.22 | 90 |
| 5 | 3510.00 | -62.33 | 2.60 | 12.70 | Vertical | -54.38 | -13.00 | 41.38 | 135 |
| 6 | 4212.00 | -62.35 | 3.30 | 12.50 | Vertical | -55.30 | -13.00 | 42.30 | 90 |
| 7 | 4914.00 | -59.75 | 3.40 | 12.50 | Vertical | -52.80 | -13.00 | 39.80 | 225 |
| 8 | 5616.00 | -59.43 | 3.30 | 12.50 | Vertical | -52.38 | -13.00 | 39.38 | 45 |
| 9 | 6318.00 | -57.03 | 3.80 | 11.50 | Vertical | -51.48 | -13.00 | 38.48 | 0 |
| 10 | 7020.00 | -55.84 | 4.20 | 11.80 | Vertical | -50.39 | -13.00 | 37.39 | 45 |
| 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 Vertical position. | | | | | | | | | |

# 7 Main Test Instruments

| Name | Manufacturer | Type | Serial Number | Calibration Date | Expiration Date |
|---|---|---|---|---|---|
| Wideband Radio Communication Tester | R&S | CMW500 | 113645 | 2022-05-14 | 2023-05-13 |
| Signal Analyzer | R&S | FSV40 | 101186 | 2022-05-14 | 2023-05-13 |
| Loop Antenna | SCHWARZBECK | FMZB1519 | 1519-047 | 2023-04-16 | 2026-04-15 |
| TRILOG Broadband Antenna | Schwarzbeck | VULB 9163 | 01439 | 2021-06-30 | 2024-06-29 |
| Horn Antenna | Schwarzbeck | BBHA 9120D | 01799 | 2022-09-01 | 2025-08-31 |
| Horn Antenna | ETS-Lindgren | 3160-09 | 00102643 | 2021-10-10 | 2024-10-09 |
| Software | R&S | EMC32 | 10.35.10 | / | / |

********END OF REPORT ********

# ANNEX A: The EUT Appearance

**The EUT Appearance are submitted separately.**

# ANNEX B: Test Setup Photos

**The Test Setup Photos are submitted separately.**