



## RF Exposure Evaluation Declaration

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**FCC ID:** XMR2021EC25AFDL  
**Application:** Quectel Wireless Solutions Co., Ltd  
**Application Type:** Certification  
**Product:** LTE Module  
**Model No.:** EC25-AFDL, EC25-AFDL MINIPCIE  
**Brand Name:** Quectel  
**Test Procedure(s):** KDB 447498 D01v06  
**Test Date:** December 08 ~ 28, 2021

**Reviewed By:**

*Sunny Sun*

Sunny Sun

**Approved By:**

*Robin Wu*

Robin Wu



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

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**Revision History**

| Report No.    | Version | Description    | Issue Date | Note  |
|---------------|---------|----------------|------------|-------|
| 2112RSU017-U2 | Rev. 01 | Initial Report | 01-13-2022 | Valid |
|               |         |                |            |       |

### 1.1. Applicant

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### 1.3. Testing Facility

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**1.4. Product Information**

|                                                                                                                                                     |                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Product Name                                                                                                                                        | LTE Module                                                                      |
| Model No.                                                                                                                                           | EC25-AFDL, EC25-AFDL MINIPCIE                                                   |
| Brand Name                                                                                                                                          | Quectel                                                                         |
| IMEI                                                                                                                                                | Conducted Measurement: 863368050002846<br>Radiated Measurement: 863368050002507 |
| E-UTRA Specification                                                                                                                                |                                                                                 |
| Single Band                                                                                                                                         | Band 2, 4, 5, 12, 13, 14, 66, 71                                                |
| Modulation                                                                                                                                          | Uplink up to 16QAM                                                              |
| Note: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer. |                                                                                 |

## 2. RF Exposure Evaluation

### 2.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

| Frequency Range<br>(MHz)                                  | Electric Field<br>Strength (V/m) | Magnetic Field<br>Strength (A/m) | Power Density<br>(mW/cm <sup>2</sup> ) | Average Time<br>(Minutes) |
|-----------------------------------------------------------|----------------------------------|----------------------------------|----------------------------------------|---------------------------|
| (A) Limits for Occupational/ Control Exposures            |                                  |                                  |                                        |                           |
| 300-1500                                                  | --                               | --                               | f/300                                  | 6                         |
| 1500-100,000                                              | --                               | --                               | 5                                      | 6                         |
| (B) Limits for General Population/ Uncontrolled Exposures |                                  |                                  |                                        |                           |
| 300-1500                                                  | --                               | --                               | f/1500                                 | 6                         |
| 1500-100,000                                              | --                               | --                               | 1                                      | 30                        |

f= Frequency in MHz

Calculation Formula:  $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

G = gain of antenna in linear scale

$\pi$  = 3.1416

r = distance between observation point and center of the radiator in cm

$P_d$  is the limit of MPE, 1mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

## 2.2. Test Result of RF Exposure Evaluation

|           |                        |
|-----------|------------------------|
| Product   | LTE Module             |
| Test Item | RF Exposure Evaluation |

| Test Mode | Frequency Band (MHz) | Maximum Conducted Power (dBm) | Limit (mW/cm <sup>2</sup> ) | EIRP according to Pd (dBm) | Gain according to Pd (dBi) |
|-----------|----------------------|-------------------------------|-----------------------------|----------------------------|----------------------------|
| LTE B2    | 1850 ~ 1910          | 25.00                         | 1.0000                      | 37.01                      | 12.01                      |
| LTE B4    | 1710 ~ 1755          | 25.00                         | 1.0000                      | 37.01                      | 12.01                      |
| LTE B5    | 824 ~ 849            | 25.00                         | 0.5493                      | 34.41                      | 9.41                       |
| LTE B12   | 699 ~ 716            | 25.00                         | 0.4660                      | 33.70                      | 8.70                       |
| LTE B13   | 777 ~ 787            | 25.00                         | 0.5180                      | 34.16                      | 9.16                       |
| LTE B14   | 788 ~ 798            | 25.00                         | 0.5253                      | 34.22                      | 9.22                       |
| LTE B66   | 1710 ~ 1780          | 25.00                         | 1.0000                      | 37.01                      | 12.01                      |
| LTE B71   | 663 ~ 698            | 25.00                         | 0.4420                      | 33.47                      | 8.47                       |

Note: The compliance distance is 20cm.

## **Appendix A – EUT Photograph**

Refer to “2112RSU017-UE” file.

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The End

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