

|                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                    |                                                                                                                                   |                      |                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------------------------------------|
| <b>Prüfbericht-Nr.:</b><br>Test Report No.:                                                                                                                                                                                                                                                                                                                                                                                                         | <b>50315831 003</b>                                                                | <b>Auftrags-Nr.:</b><br>Order No.:                                                                                                | 168126583            | Seite 1 von 18<br>Page 1 of 18            |
| <b>Kunden-Referenz-Nr.:</b><br>Client Reference No.:                                                                                                                                                                                                                                                                                                                                                                                                | N/A                                                                                | <b>Auftragsdatum:</b><br>Order date:                                                                                              | 07.08.2019           |                                           |
| <b>Auftraggeber:</b><br>Client:                                                                                                                                                                                                                                                                                                                                                                                                                     | Telit Communications S.p.A., Viale Stazione di Prosecco 5/b, 34010, Trieste, Italy |                                                                                                                                   |                      |                                           |
| <b>Prüfgegenstand:</b><br>Test item:                                                                                                                                                                                                                                                                                                                                                                                                                | Data Terminal Module                                                               |                                                                                                                                   |                      |                                           |
| <b>Bezeichnung / Typ-Nr.:</b><br>Identification / Type No.:                                                                                                                                                                                                                                                                                                                                                                                         | ME310G1-W1                                                                         |                                                                                                                                   |                      |                                           |
| <b>Auftrags-Inhalt:</b><br>Order content:                                                                                                                                                                                                                                                                                                                                                                                                           | Test Report                                                                        |                                                                                                                                   |                      |                                           |
| <b>Prüfgrundlage:</b><br>Test specification:                                                                                                                                                                                                                                                                                                                                                                                                        | 47 CFR FCC Part 2.1091                                                             | RSS-102 Issue 5                                                                                                                   |                      |                                           |
| <b>Wareneingangsdatum:</b><br>Date of receipt:                                                                                                                                                                                                                                                                                                                                                                                                      | 12.11.2019                                                                         | Refer to Photo Documentation                                                                                                      |                      |                                           |
| <b>Prüfmuster-Nr.:</b><br>Test sample No.:                                                                                                                                                                                                                                                                                                                                                                                                          | A001023542-001                                                                     |                                                                                                                                   |                      |                                           |
| <b>Prüfzeitraum:</b><br>Testing period:                                                                                                                                                                                                                                                                                                                                                                                                             | 20.11.2019 - 17.01.2020                                                            |                                                                                                                                   |                      |                                           |
| <b>Ort der Prüfung:</b><br>Place of testing:                                                                                                                                                                                                                                                                                                                                                                                                        | TÜV Rheinland (Shenzhen)<br>Co., Ltd.                                              |                                                                                                                                   |                      |                                           |
| <b>Prüflaboratorium:</b><br>Testing laboratory:                                                                                                                                                                                                                                                                                                                                                                                                     | TÜV Rheinland (Shenzhen)<br>Co., Ltd.                                              |                                                                                                                                   |                      |                                           |
| <b>Prüfergebnis*:</b><br>Test result*:                                                                                                                                                                                                                                                                                                                                                                                                              | Pass                                                                               |                                                                                                                                   |                      |                                           |
| <b>geprüft von / tested by:</b>                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                    | <b>kontrolliert von / reviewed by:</b>                                                                                            |                      |                                           |
| 19.01.2020 Lin Lin / Senior Project Manager<br>                                                                                                                                                                                                                                                                                                                  |                                                                                    | 06.02.2020 Sam Lin / Technical Certifier<br> |                      |                                           |
| <b>Datum</b><br>Date                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Name / Stellung</b><br>Name / Position                                          | <b>Unterschrift</b><br>Signature                                                                                                  | <b>Datum</b><br>Date | <b>Name / Stellung</b><br>Name / Position |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                    |                                                                                                                                   |                      |                                           |
| <b>Sonstiges / Other:</b> FCC ID: R17ME310G1W1; IC: 5131A-ME310G1W1<br>This report is for RF exposure evaluation.                                                                                                                                                                                                                                                                                                                                   |                                                                                    |                                                                                                                                   |                      |                                           |
| <b>Zustand des Prüfgegenstandes bei Anlieferung:</b><br>Condition of the test item at delivery:                                                                                                                                                                                                                                                                                                                                                     |                                                                                    | Prüfmuster vollständig und unbeschädigt<br>Test item complete and undamaged                                                       |                      |                                           |
| * Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft<br>P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet<br>Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor<br>P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested                   |                                                                                    |                                                                                                                                   |                      |                                           |
| <b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b><br>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark. |                                                                                    |                                                                                                                                   |                      |                                           |

**Prüfbericht - Nr.: 50315831 003***Test Report No.***Seite 2 von 18***Page 2 of 18*

## TEST SUMMARY

### 5.1.1 RF EXPOSURE COMPLIANCE

*RESULT: Pass*

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## 1. General Remarks

### 1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Photographs of the Test Set-Up

## 2. Test Sites

### 2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

(FCC Registration No.: 694916 & IC Registration Number: 25069)

Address: No. 362 Huanguan Road Middle, Longhua District, Shenzhen 518110, P.R. China

### 2.2 List of Test and Measurement Instruments

**Table 1: List of Test and Measurement Equipment**

| Kind of Equipment                   | Manufacturer   | Type   | S/N    | Calibrated until (YYYY-MM-DD) |
|-------------------------------------|----------------|--------|--------|-------------------------------|
| <b>Radio Spectrum Test</b>          |                |        |        |                               |
| Spectrum Analyzer                   | Rohde&Schwarz  | FSV40  | 101440 | 2020-08-29                    |
| Wideband Radio Communication Tester | Rohde& Schwarz | CMW500 | 165339 | 2020-08-29                    |

## 2.3 Traceability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations.

## 2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

## 2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table,

| Items          |                    | Extended Uncertainty        |
|----------------|--------------------|-----------------------------|
| Radio Spectrum | Output Power (dBm) | U=0.5dB, k=2, $\sigma$ =95% |

## 2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) file for certification follow-up purposes.

## 2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. facility located at No. 362 Huanguan Road Middle, Longhua District, Shenzhen 518110, P.R. China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

## 3. General Product Information

### 3.1 Product Function and Intended Use

The EUT is wireless module which supports NB-IoT and eMTC wireless technology.  
 For details refer to the User Manual, Technical Description and Circuit Diagram.

### 3.2 Ratings and System Details

**Table 2: Technical Specification of EUT**

| Technical Specification    | Value                                                                         |
|----------------------------|-------------------------------------------------------------------------------|
| Kind of Equipment:         | Data Terminal Module                                                          |
| Type Designation:          | ME310G1-W1                                                                    |
| FCC ID:                    | RI7ME310G1W1                                                                  |
| IC:                        | 5131A-ME310G1W1                                                               |
| Type of Equipment:         | Single Module                                                                 |
| Equipment Class:           | PCB                                                                           |
| Wireless Technology:       | eMTC and NB-IoT                                                               |
| Operating Frequency Range: | eMTC: Band 2/4/5/12/13/25/26/66/85<br>NB-IoT: Band 2/4/5/12/13/25/26/66/71/85 |
| Rated RF Output Power:     | 20 dBm $\pm$ 2 dB                                                             |
| Power Class:               | Class 5                                                                       |
| Type of Modulation:        | eMTC: QPSK, 16QAM<br>NB-IoT: BPSK, QPSK                                       |
| Operating Voltage:         | DC 3.8V via DC power supply                                                   |
| Antenna Type:              | External Antenna                                                              |
| Number of Antenna:         | 1                                                                             |

**Table 3: Marketed Antenna List**

| Description          | Manufacturer | Model   | S/N | Rating                                                                                                                      |
|----------------------|--------------|---------|-----|-----------------------------------------------------------------------------------------------------------------------------|
| LTE Magnetic Antenna | ATEL-CAB     | T-AT305 | N/A | Frequency Range:<br>700-960 MHz / 1710-2700 MHz<br>Omnidirectional antenna<br>Gain: 2.14 dBi (Max.)<br>Cable: RG 174mm 2500 |

### 3.3 Independent Operation Modes

The basic operation modes are:

- A. Transmitting
  - 1. eMTC
    - a. Lowest channel
    - b. Middle channel
    - c. Highest channel
  - 2. NB-IoT
    - a. Lowest channel
    - b. Highest channel
    - c. Hopping mode
- B. Receiving
  - 1. eMTC
    - a. Lowest channel
    - b. Middle channel
    - c. Highest channel
  - 2. NB-IoT
    - a. Lowest channel
    - b. Highest channel
    - c. Hopping mode
  - 3. GNSS
    - a. GPS
    - b. Beidou
    - c. Galileo
    - d. GLONASS
- C. Standby
- D. Off

### 3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

### 3.5 Submitted Documents

|                    |                      |
|--------------------|----------------------|
| - Bill of Material | - Circuit Diagram    |
| - PCB Layout       | - Instruction Manual |
| - Photo Document   | - Rating Label       |

## 4. Test Set-up and Operation Modes

### 4.1 Principle of Configuration Selection

**Radio Spectrum:** The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

### 4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5.

### 4.3 Special Accessories and Auxiliary Equipment

**Table 4: List of Accessories and Auxiliary Equipment**

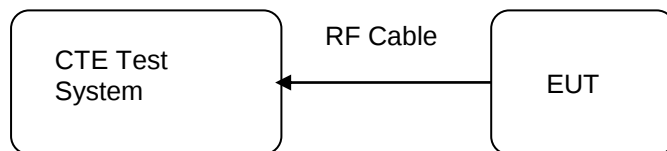
| Name           | Model | Manufacturer | S/N |
|----------------|-------|--------------|-----|
| Evaluation Kit | EVK2  | Telit        | N/A |

### 4.4 Countermeasures to achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

## 4.5 Test Setup Diagram

Diagram of Measurement Equipment Configuration for Transmitter Measurement



## 5. Test Results

### 5.1 Transmitter Requirements & Test Suites

#### 5.1.1 RF Exposure Compliance

**RESULT:**
**Pass**

|                   |   |                                                                 |
|-------------------|---|-----------------------------------------------------------------|
| Test date         | : | 20.11.2019 - 17.01.2020                                         |
| Test standard     | : | 47 CFR FCC Part 2.1091<br>RSS-102 Issue 5                       |
| Limit             | : | Table 1 of 47 CFR FCC Part 1.1310<br>Table 4 of RSS-102 Issue 5 |
| Kind of test site | : | Shielded room                                                   |

**TEST SETUP**

|                      |   |                   |
|----------------------|---|-------------------|
| Test Channel         | : | Low/ Middle/ High |
| Operation Mode       | : | A                 |
| Ambient temperature  | : | 23 °C             |
| Relative humidity    | : | 49%               |
| Atmospheric pressure | : | 101.0 kPa         |

This device is mobile device, and the applicant declares that the minimum separation distance is greater than 20cm. Therefore MPE measurement or computational modeling should be used to determine compliance.

MPE Calculation is based on the conducted power, and considering maximum power and antenna gain. The following formula is used to MPE evaluation.

$$P_d = \frac{P_{out} * G}{4R^2\pi}$$

Where

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

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

$G_{num}$  = Antenna gain in numeric

$\pi$  = 3.14159

R = Distance between observation point and the center of radiator in cm or m

**Table 5: Permissive Gain Calculations for FCC**

| Operating Mode | Band | Maximum Conducted Output Power |                                | E.I.R.P /ERP Limit (dBm) | Allowed Antenna Gain_Power (dBi) | MPE            |             | Allowed Antenna Gain_MPE (dBi) | Permissive Antenna Gain (dBi) |
|----------------|------|--------------------------------|--------------------------------|--------------------------|----------------------------------|----------------|-------------|--------------------------------|-------------------------------|
|                |      | Measured Power (dBm)           | Max. Power incl. tune-up (dBm) |                          |                                  | Limit (mW/cm²) | Limit (dBm) |                                |                               |
| NB-IoT         | 2    | 21.59                          | 22                             | 33.01                    | 11.0                             | 1.0            | 37.01       | 15.01                          | 11.00                         |
|                | 4    | 21.56                          | 22                             | 30.00                    | 8.0                              | 1.0            | 37.01       | 15.01                          | 8.00                          |
|                | 5    | 21.01                          | 22                             | 40.60                    | 18.6                             | 0.5            | 34.41       | 12.41                          | 12.40                         |
|                | 12   | 21.04                          | 22                             | 36.92                    | 14.9                             | 0.5            | 33.70       | 11.70                          | 11.60                         |
|                | 13   | 21.11                          | 22                             | 36.92                    | 14.9                             | 0.5            | 34.16       | 12.16                          | 12.10                         |
|                | 25   | 21.52                          | 22                             | 33.01                    | 11.0                             | 1.0            | 37.01       | 15.01                          | 11.00                         |
|                | 26   | 21.01                          | 22                             | 40.60                    | 18.6                             | 0.5            | 34.36       | 12.36                          | 12.30                         |
|                | 66   | 21.27                          | 22                             | 30.00                    | 8.0                              | 1.0            | 37.01       | 15.01                          | 8.00                          |
|                | 71   | 21.52                          | 22                             | 36.92                    | 14.9                             | 0.4            | 33.47       | 11.47                          | 11.40                         |
|                | 85   | 21.13                          | 22                             | 36.92                    | 14.9                             | 0.5            | 33.69       | 11.69                          | 11.60                         |
| eMTC           | 2    | 21.99                          | 22                             | 33.01                    | 11.0                             | 1.0            | 37.01       | 15.01                          | 11.00                         |
|                | 4    | 21.86                          | 22                             | 30.00                    | 8.0                              | 1.0            | 37.01       | 15.01                          | 8.00                          |
|                | 5    | 21.40                          | 22                             | 40.60                    | 18.6                             | 0.5            | 34.41       | 12.41                          | 12.40                         |
|                | 12   | 21.97                          | 22                             | 36.92                    | 14.9                             | 0.5            | 33.70       | 11.70                          | 11.60                         |
|                | 13   | 21.39                          | 22                             | 36.92                    | 14.9                             | 0.5            | 34.16       | 12.16                          | 12.10                         |
|                | 25   | 21.66                          | 22                             | 33.01                    | 11.0                             | 1.0            | 37.01       | 15.01                          | 11.00                         |
|                | 26   | 21.33                          | 22                             | 40.60                    | 18.6                             | 0.5            | 34.36       | 12.36                          | 12.30                         |
|                | 66   | 21.99                          | 22                             | 30.00                    | 8.0                              | 1.0            | 37.01       | 15.01                          | 8.00                          |
|                | 85   | 21.76                          | 22                             | 36.92                    | 14.9                             | 0.5            | 33.69       | 11.69                          | 11.60                         |

**Table 6: Permissive Gain Calculations for ISED**

| Operating Mode | Band | Maximum Conducted Output Power |                                | E.I.R.P /ERP Limit (dBm) | Allowed Antenna Gain_Power (dBi) | MPE                         |             | Allowed Antenna Gain_MPE (dBi) | Permissive Antenna Gain (dBi) |
|----------------|------|--------------------------------|--------------------------------|--------------------------|----------------------------------|-----------------------------|-------------|--------------------------------|-------------------------------|
|                |      | Measured Power (dBm)           | Max. Power incl. tune-up (dBm) |                          |                                  | Limit (mW/cm <sup>2</sup> ) | Limit (dBm) |                                |                               |
| NB-IoT         | 2    | 21.59                          | 22                             | 33.01                    | 11.01                            | 4.5                         | 33.52       | 11.52                          | 11.00                         |
|                | 4    | 21.56                          | 22                             | 30.00                    | 8.00                             | 4.2                         | 33.29       | 11.29                          | 8.00                          |
|                | 5    | 21.01                          | 22                             | 42.75                    | 20.75                            | 2.6                         | 31.12       | 9.12                           | 9.10                          |
|                | 12   | 21.04                          | 22                             | 36.92                    | 14.92                            | 2.3                         | 30.63       | 8.63                           | 8.60                          |
|                | 13   | 21.11                          | 22                             | 36.92                    | 14.92                            | 2.5                         | 30.95       | 8.95                           | 8.90                          |
|                | 25   | 21.52                          | 22                             | 33.01                    | 11.01                            | 4.5                         | 33.52       | 11.52                          | 11.00                         |
|                | 26   | 21.01                          | 22                             | 42.75                    | 20.75                            | 2.6                         | 31.09       | 9.09                           | 9.00                          |
|                | 66   | 21.27                          | 22                             | 30.00                    | 8.00                             | 4.2                         | 33.29       | 11.29                          | 8.00                          |
|                | 71   | 21.52                          | 22                             | 36.92                    | 14.92                            | 2.2                         | 30.48       | 8.48                           | 8.40                          |
|                | 85   | 21.13                          | 22                             | 36.92                    | 14.92                            | 2.3                         | 30.63       | 8.63                           | 8.60                          |
| eMTC           | 2    | 21.99                          | 22                             | 33.01                    | 11.01                            | 4.5                         | 33.52       | 11.52                          | 11.00                         |
|                | 4    | 21.86                          | 22                             | 30.00                    | 8.00                             | 4.2                         | 33.29       | 11.29                          | 8.00                          |
|                | 5    | 21.40                          | 22                             | 42.75                    | 20.75                            | 2.6                         | 31.12       | 9.12                           | 9.10                          |
|                | 12   | 21.97                          | 22                             | 36.92                    | 14.92                            | 2.3                         | 30.63       | 8.63                           | 8.60                          |
|                | 13   | 21.39                          | 22                             | 36.92                    | 14.92                            | 2.5                         | 30.95       | 8.95                           | 8.90                          |
|                | 25   | 21.66                          | 22                             | 33.01                    | 11.01                            | 4.5                         | 33.52       | 11.52                          | 11.00                         |
|                | 26   | 21.33                          | 22                             | 42.75                    | 20.75                            | 2.6                         | 31.09       | 9.09                           | 9.00                          |
|                | 66   | 21.99                          | 22                             | 30.00                    | 8.00                             | 4.2                         | 33.29       | 11.29                          | 8.00                          |
|                | 85   | 21.76                          | 22                             | 36.92                    | 14.92                            | 2.3                         | 30.63       | 8.63                           | 8.60                          |

**Table 7: Summary of Maximum Permissive Gain**

| Operating Mode | Band | Permissive Antenna Gain based on Operating Mode (dBi) |       |       |       | Max. Permissive Antenna Gain (dBi) |
|----------------|------|-------------------------------------------------------|-------|-------|-------|------------------------------------|
|                |      | NB-IoT                                                |       | eMTC  |       |                                    |
|                |      | FCC                                                   | ISED  | FCC   | ISED  |                                    |
| NB-IoT/eMTC    | 2    | 11.00                                                 | 11.00 | 11.00 | 11.00 | 11.0                               |
|                | 4    | 8.00                                                  | 8.00  | 8.00  | 8.00  | 8.0                                |
|                | 5    | 12.40                                                 | 9.10  | 12.40 | 9.10  | 9.1                                |
|                | 12   | 11.60                                                 | 8.60  | 11.60 | 8.60  | 8.6                                |
|                | 13   | 12.10                                                 | 8.90  | 12.10 | 8.90  | 8.9                                |
|                | 25   | 11.00                                                 | 11.00 | 11.00 | 11.00 | 11.0                               |
|                | 26   | 12.30                                                 | 9.00  | 12.30 | 9.00  | 9.0                                |
|                | 66   | 8.00                                                  | 8.00  | 8.00  | 8.00  | 8.0                                |
|                | 71   | 11.40                                                 | 8.40  | --    | --    | 8.4                                |
|                | 85   | 11.60                                                 | 8.60  | 11.60 | 8.60  | 8.6                                |

**Table 8: Test Results of RF Exposure Calculations based on Specific Antenna for FCC**

| Operating Mode | Band | Maximum Conducted Output Power ( $P_{out}$ ) |        | Antenna Gain (dBi) | Numeric Gain $G_{num}$ (dB) | Distance R (cm) | MPE $P_d$ (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) | Verdict |
|----------------|------|----------------------------------------------|--------|--------------------|-----------------------------|-----------------|---------------------------------|-----------------------------|---------|
|                |      | dBm                                          | mW     |                    |                             |                 |                                 |                             |         |
| NB-IoT         | 2    | 21.59                                        | 144.21 | 2.14               | 1.64                        | 20              | 0.047                           | 1.0                         | Pass    |
|                | 4    | 21.56                                        | 143.22 | 2.14               | 1.64                        | 20              | 0.047                           | 1.0                         | Pass    |
|                | 5    | 21.01                                        | 126.18 | 2.14               | 1.64                        | 20              | 0.041                           | 0.55                        | Pass    |
|                | 12   | 21.04                                        | 127.06 | 2.14               | 1.64                        | 20              | 0.041                           | 0.47                        | Pass    |
|                | 13   | 21.11                                        | 129.12 | 2.14               | 1.64                        | 20              | 0.042                           | 0.52                        | Pass    |
|                | 25   | 21.52                                        | 141.91 | 2.14               | 1.64                        | 20              | 0.046                           | 1.0                         | Pass    |
|                | 26   | 21.01                                        | 126.18 | 2.14               | 1.64                        | 20              | 0.041                           | 0.54                        | Pass    |
|                | 66   | 21.27                                        | 133.97 | 2.14               | 1.64                        | 20              | 0.044                           | 1.0                         | Pass    |
|                | 71   | 21.52                                        | 141.91 | 2.14               | 1.64                        | 20              | 0.046                           | 0.44                        | Pass    |
|                | 85   | 21.13                                        | 129.72 | 2.14               | 1.64                        | 20              | 0.042                           | 0.47                        | Pass    |
| eMTC           | 2    | 21.99                                        | 158.12 | 2.14               | 1.64                        | 20              | 0.052                           | 1.0                         | Pass    |
|                | 4    | 21.86                                        | 153.46 | 2.14               | 1.64                        | 20              | 0.050                           | 1.0                         | Pass    |
|                | 5    | 21.40                                        | 138.04 | 2.14               | 1.64                        | 20              | 0.045                           | 0.55                        | Pass    |
|                | 12   | 21.97                                        | 157.40 | 2.14               | 1.64                        | 20              | 0.051                           | 0.47                        | Pass    |
|                | 13   | 21.39                                        | 137.72 | 2.14               | 1.64                        | 20              | 0.045                           | 0.52                        | Pass    |
|                | 25   | 21.66                                        | 146.55 | 2.14               | 1.64                        | 20              | 0.048                           | 1.0                         | Pass    |
|                | 26   | 21.33                                        | 135.83 | 2.14               | 1.64                        | 20              | 0.044                           | 0.54                        | Pass    |
|                | 66   | 21.99                                        | 158.12 | 2.14               | 1.64                        | 20              | 0.052                           | 1.0                         | Pass    |
|                | 85   | 21.76                                        | 149.97 | 2.14               | 1.64                        | 20              | 0.049                           | 0.47                        | Pass    |

**Table 9: Test Results of RF Exposure Calculations based on Maximum Permissive Gain for FCC**

| Operating Mode | Band | Maximum Conducted Output Power ( $P_{out}$ ) |        | Antenna Gain (dBi) | Numeric Gain $G_{num}$ (dB) | Distance R (cm) | MPE $P_d$ (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) | Verdict |
|----------------|------|----------------------------------------------|--------|--------------------|-----------------------------|-----------------|---------------------------------|-----------------------------|---------|
|                |      | dBm                                          | mW     |                    |                             |                 |                                 |                             |         |
| NB-IoT         | 2    | 21.59                                        | 144.21 | 11.00              | 12.59                       | 20              | 0.361                           | 1.0                         | Pass    |
|                | 4    | 21.56                                        | 143.22 | 8.00               | 6.31                        | 20              | 0.180                           | 1.0                         | Pass    |
|                | 5    | 21.01                                        | 126.18 | 12.40              | 17.38                       | 20              | 0.436                           | 0.55                        | Pass    |
|                | 12   | 21.04                                        | 127.06 | 11.60              | 14.45                       | 20              | 0.366                           | 0.47                        | Pass    |
|                | 13   | 21.11                                        | 129.12 | 12.10              | 16.22                       | 20              | 0.417                           | 0.52                        | Pass    |
|                | 25   | 21.52                                        | 141.91 | 11.00              | 12.59                       | 20              | 0.356                           | 1.0                         | Pass    |
|                | 26   | 21.01                                        | 126.18 | 12.30              | 16.98                       | 20              | 0.427                           | 0.54                        | Pass    |
|                | 66   | 21.27                                        | 133.97 | 8.00               | 6.31                        | 20              | 0.168                           | 1.0                         | Pass    |
|                | 71   | 21.52                                        | 141.91 | 11.40              | 13.80                       | 20              | 0.390                           | 0.44                        | Pass    |
| eMTC           | 85   | 21.13                                        | 129.72 | 11.60              | 14.45                       | 20              | 0.373                           | 0.47                        | Pass    |
|                | 2    | 21.99                                        | 158.12 | 11.00              | 12.59                       | 20              | 0.396                           | 1.0                         | Pass    |
|                | 4    | 21.86                                        | 153.46 | 8.00               | 6.31                        | 20              | 0.193                           | 1.0                         | Pass    |
|                | 5    | 21.40                                        | 138.04 | 12.40              | 17.38                       | 20              | 0.477                           | 0.55                        | Pass    |
|                | 12   | 21.97                                        | 157.40 | 11.60              | 14.45                       | 20              | 0.453                           | 0.47                        | Pass    |
|                | 13   | 21.39                                        | 137.72 | 12.10              | 16.22                       | 20              | 0.445                           | 0.52                        | Pass    |
|                | 25   | 21.66                                        | 146.55 | 11.00              | 12.59                       | 20              | 0.367                           | 1.0                         | Pass    |
|                | 26   | 21.33                                        | 135.83 | 12.30              | 16.98                       | 20              | 0.459                           | 0.54                        | Pass    |
|                | 66   | 21.99                                        | 158.12 | 8.00               | 6.31                        | 20              | 0.199                           | 1.0                         | Pass    |
|                | 85   | 21.76                                        | 149.97 | 11.60              | 14.45                       | 20              | 0.431                           | 0.47                        | Pass    |

**Table 10: Test Results of RF Exposure Calculations based on Specific Antenna for ISCED**

| Operating Mode | Band | Maximum Conducted Output Power ( $P_{out}$ ) |       | Antenna Gain (dBi) | Numeric Gain $G_{num}$ (dB) | Distance R (m) | MPE $P_d$ (W/m <sup>2</sup> ) | Limit (W/m <sup>2</sup> ) | Verdict |
|----------------|------|----------------------------------------------|-------|--------------------|-----------------------------|----------------|-------------------------------|---------------------------|---------|
|                |      | dBm                                          | W     |                    |                             |                |                               |                           |         |
| NB-IoT         | 2    | 21.59                                        | 0.144 | 2.14               | 1.64                        | 0.2            | 0.469                         | 4.5                       | Pass    |
|                | 4    | 21.56                                        | 0.143 | 2.14               | 1.64                        | 0.2            | 0.466                         | 4.2                       | Pass    |
|                | 5    | 21.01                                        | 0.126 | 2.14               | 1.64                        | 0.2            | 0.411                         | 2.6                       | Pass    |
|                | 12   | 21.04                                        | 0.127 | 2.14               | 1.64                        | 0.2            | 0.414                         | 2.3                       | Pass    |
|                | 13   | 21.11                                        | 0.129 | 2.14               | 1.64                        | 0.2            | 0.420                         | 2.5                       | Pass    |
|                | 25   | 21.52                                        | 0.141 | 2.14               | 1.64                        | 0.2            | 0.459                         | 4.5                       | Pass    |
|                | 26   | 21.01                                        | 0.126 | 2.14               | 1.64                        | 0.2            | 0.411                         | 2.6                       | Pass    |
|                | 66   | 21.27                                        | 0.133 | 2.14               | 1.64                        | 0.2            | 0.433                         | 4.2                       | Pass    |
|                | 71   | 21.52                                        | 0.141 | 2.14               | 1.64                        | 0.2            | 0.459                         | 2.2                       | Pass    |
|                | 85   | 21.13                                        | 0.129 | 2.14               | 1.64                        | 0.2            | 0.420                         | 2.3                       | Pass    |
| eMTC           | 2    | 21.99                                        | 0.158 | 2.14               | 1.64                        | 0.2            | 0.515                         | 4.5                       | Pass    |
|                | 4    | 21.86                                        | 0.153 | 2.14               | 1.64                        | 0.2            | 0.498                         | 4.2                       | Pass    |
|                | 5    | 21.40                                        | 0.138 | 2.14               | 1.64                        | 0.2            | 0.450                         | 2.6                       | Pass    |
|                | 12   | 21.97                                        | 0.157 | 2.14               | 1.64                        | 0.2            | 0.512                         | 2.3                       | Pass    |
|                | 13   | 21.39                                        | 0.137 | 2.14               | 1.64                        | 0.2            | 0.446                         | 2.5                       | Pass    |
|                | 25   | 21.66                                        | 0.146 | 2.14               | 1.64                        | 0.2            | 0.476                         | 4.5                       | Pass    |
|                | 26   | 21.33                                        | 0.135 | 2.14               | 1.64                        | 0.2            | 0.440                         | 2.6                       | Pass    |
|                | 66   | 21.99                                        | 0.158 | 2.14               | 1.64                        | 0.2            | 0.515                         | 4.2                       | Pass    |
|                | 85   | 21.76                                        | 0.149 | 2.14               | 1.64                        | 0.2            | 0.485                         | 2.3                       | Pass    |

**Table 11: Test Results of RF Exposure Calculations based on Maximum Permissive Gain for ISSED**

| Operating Mode | Band | Maximum Conducted Output Power ( $P_{out}$ ) |       | Antenna Gain (dBi) | Numeric Gain $G_{num}$ (dB) | Distance R (m) | MPE $P_d$ (W/m <sup>2</sup> ) | Limit (W/m <sup>2</sup> ) | Verdict |
|----------------|------|----------------------------------------------|-------|--------------------|-----------------------------|----------------|-------------------------------|---------------------------|---------|
|                |      | dBm                                          | W     |                    |                             |                |                               |                           |         |
| NB-IoT         | 2    | 21.59                                        | 0.144 | 11.00              | 12.59                       | 0.2            | 3.61                          | 4.5                       | Pass    |
|                | 4    | 21.56                                        | 0.143 | 8.00               | 6.31                        | 0.2            | 1.80                          | 4.2                       | Pass    |
|                | 5    | 21.01                                        | 0.126 | 9.10               | 8.13                        | 0.2            | 2.04                          | 2.6                       | Pass    |
|                | 12   | 21.04                                        | 0.127 | 8.60               | 7.24                        | 0.2            | 1.83                          | 2.3                       | Pass    |
|                | 13   | 21.11                                        | 0.129 | 8.90               | 7.76                        | 0.2            | 1.99                          | 2.5                       | Pass    |
|                | 25   | 21.52                                        | 0.141 | 11.00              | 12.59                       | 0.2            | 3.53                          | 4.5                       | Pass    |
|                | 26   | 21.01                                        | 0.126 | 9.00               | 7.94                        | 0.2            | 1.99                          | 2.6                       | Pass    |
|                | 66   | 21.27                                        | 0.133 | 8.00               | 6.31                        | 0.2            | 1.67                          | 4.2                       | Pass    |
|                | 71   | 21.52                                        | 0.141 | 8.40               | 6.92                        | 0.2            | 1.94                          | 2.2                       | Pass    |
| eMTC           | 85   | 21.13                                        | 0.129 | 8.60               | 7.24                        | 0.2            | 1.86                          | 2.3                       | Pass    |
|                | 2    | 21.99                                        | 0.158 | 11.00              | 12.59                       | 0.2            | 3.96                          | 4.5                       | Pass    |
|                | 4    | 21.86                                        | 0.153 | 8.00               | 6.31                        | 0.2            | 1.92                          | 4.2                       | Pass    |
|                | 5    | 21.40                                        | 0.138 | 9.10               | 8.13                        | 0.2            | 2.23                          | 2.6                       | Pass    |
|                | 12   | 21.97                                        | 0.157 | 8.60               | 7.24                        | 0.2            | 2.26                          | 2.3                       | Pass    |
|                | 13   | 21.39                                        | 0.137 | 8.90               | 7.76                        | 0.2            | 2.12                          | 2.5                       | Pass    |
|                | 25   | 21.66                                        | 0.146 | 11.00              | 12.59                       | 0.2            | 3.66                          | 4.5                       | Pass    |
|                | 26   | 21.33                                        | 0.135 | 9.00               | 7.94                        | 0.2            | 2.13                          | 2.6                       | Pass    |
|                | 66   | 21.99                                        | 0.158 | 8.00               | 6.31                        | 0.2            | 1.98                          | 4.2                       | Pass    |
|                | 85   | 21.76                                        | 0.149 | 8.60               | 7.24                        | 0.2            | 2.15                          | 2.3                       | Pass    |

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