



SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.

Report No.: SUCR250500048104  
Rev.: 01  
Page: 1 of 12

TEST REPORT

Application No.: SUCR2505000481MO  
Applicant: Quectel Wireless Solutions Co., Ltd.  
Address of Applicant: Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China  
Manufacturer: Quectel Wireless Solutions Co., Ltd.  
Address of Manufacturer: Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China  
EUT Description: 5G Sub-6 GHz LGA Module  
Model No.: RG650V-NA  
Trade Mark: QUECTEL  
FCC ID: XMR2024RG650VNA  
Standards: 47 CFR Part 2.1091  
FCC KDB 447498 D01 v06  
Date of Receipt: 2025/06/25  
Date of Issue: 2025/07/14

|              |       |
|--------------|-------|
| Test Result: | PASS* |
|--------------|-------|

\* In the configuration tested, the EUT complied with the standards specified above.

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

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SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.

Report No.: SUCR250500048104  
Rev.: 01  
Page: 2 of 12

1 Version

| Revision Record |         |            |          |          |
|-----------------|---------|------------|----------|----------|
| Version         | Chapter | Date       | Modifier | Remark   |
| 01              |         | 2025/07/14 |          | Original |

|             |                                                         |
|-------------|---------------------------------------------------------|
| Prepared By | <div>Nick Hu</div> <div>(Nick Hu) / Test Engineer</div> |
| Checked By  | <div>Stone Gu</div> <div>(Stone Gu) / Reviewer</div>    |



**SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.**

Report No.: SUCR250500048104  
Rev.: 01  
Page: 3 of 12

**Contents**

**1    Version ..... 2**

**2    General Information..... 4**

**2.1    Client Information..... 4**

**2.2    Test Facility..... 4**

**2.3    General Description of EUT ..... 5**

**3    RF Exposure Evaluation..... 8**

**3.1    RF Exposure Compliance Requirement..... 8**

        3.1.1    Limits..... 8

        3.1.2    Test Procedure ..... 8

        3.1.3    EUT RF Exposure Evaluation..... 9

        3.1.4    Exposure calculations for multiple sources..... 12



## SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.

Report No.: SUCR250500048104

Rev.: 01

Page: 4 of 12

## 2 General Information

### 2.1 Client Information

|                          |                                                                                                                       |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Applicant:               | Quectel Wireless Solutions Co., Ltd.                                                                                  |
| Address of Applicant:    | Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China |
| Manufacturer:            | Quectel Wireless Solutions Co., Ltd.                                                                                  |
| Address of Manufacturer: | Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China |

### 2.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **A2LA (Certificate No. 6336.01)**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 6336.01.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0120.

IC#: 27594.

- **FCC –Designation Number: CN1312**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized as an accredited testing laboratory.

Designation Number: CN1312.

Test Firm Registration Number: 717327



## SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.

Report No.: SUCR250500048104

Rev.: 01

Page: 5 of 12

### 2.3 General Description of EUT

|                   |                                                                                                                                                                                                                                    |         |              |          |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------------|----------|
| Hardware Version: | R1.1                                                                                                                                                                                                                               |         |              |          |
| Software Version: | RG650VNA01ACR02A02G8G                                                                                                                                                                                                              |         |              |          |
| Power Supply:     | 3.8V                                                                                                                                                                                                                               |         |              |          |
| Antenna Type:     | External Antenna                                                                                                                                                                                                                   |         |              |          |
| Feature:          | UL 2*2 MIMO:<br>NR Band n2; NR Band n5; NR Band n7; NR Band n25; NR Band n38;<br>NR Band n41; NR Band n48; NR Band n66; NR Band n70; NR Band n71;<br>NR Band n77; NR Band n78;                                                     |         |              |          |
| Power Class:      | Class 2:<br>LTE Band 38; LTE Band 41; LTE Band 42; LTE Band 43;<br>NR Band n2; NR Band n5; NR Band n7; NR Band n25; NR Band n66;<br>NR Band n71;<br>Class 1.5:<br>UL 2*2 MIMO: NR Band n38; NR Band n41; NR Band n77; NR Band n78; |         |              |          |
| Antenna Gain:     | LTE Band 2:                                                                                                                                                                                                                        | 1.6dBi  | LTE Band 4:  | 1.2dBi   |
|                   | LTE Band 5:                                                                                                                                                                                                                        | 0.7dBi  | LTE Band 7:  | 2.7dBi   |
|                   | LTE Band 12:                                                                                                                                                                                                                       | 0.5dBi  | LTE Band 13: | 0.2dBi   |
|                   | LTE Band 14:                                                                                                                                                                                                                       | 0.1dBi  | LTE Band 17: | 0.5dBi   |
|                   | LTE Band 25:                                                                                                                                                                                                                       | 1.7dBi  | LTE Band 26: | 0.7dBi   |
|                   | LTE Band 30:                                                                                                                                                                                                                       | -5.7dBi | LTE Band 38: | 2.4dB    |
|                   | LTE Band 41:                                                                                                                                                                                                                       | 2.7dBi  | LTE Band 42: | -2.01dBi |
|                   | LTE Band 43:                                                                                                                                                                                                                       | -7.1dBi | LTE Band 48: | -6.12dBi |
|                   | LTE Band 66:                                                                                                                                                                                                                       | 1.4dBi  | LTE Band 71: | 1.22dBi  |
|                   | LTE CA_2C:                                                                                                                                                                                                                         | 1.6dBi  | LTE CA_7C:   | 2.7dBi   |
|                   | LTE CA_12B:                                                                                                                                                                                                                        | 0.5dBi  | LTE CA_38C:  | 2.4dBi   |
|                   | LTE CA_41C:                                                                                                                                                                                                                        | 2.7dBi  | LTE CA_42C:  | -2.01dBi |
|                   | LTE CA_43C:                                                                                                                                                                                                                        | -7.1dBi | LTE CA_48C:  | -6.12dBi |
|                   | LTE CA_66C:                                                                                                                                                                                                                        | 1.4dBi  | LTE CA_66B:  | 1.4dBi   |
|                   | LTE CA_5B:                                                                                                                                                                                                                         | 0.7dBi  | LTE CA_48B:  | -6.12dBi |
|                   | NR Band n2:                                                                                                                                                                                                                        | 1.6dBi  | NR Band n5:  | 0.7dBi   |
|                   | NR Band n7:                                                                                                                                                                                                                        | 2.7dBi  | NR Band n12: | 0.5dBi   |
|                   | NR Band n13:                                                                                                                                                                                                                       | 0.2dBi  | NR Band n14: | 0.1dBi   |
|                   | NR Band n25:                                                                                                                                                                                                                       | 1.7dBi  | NR Band n26: | 0.7dBi   |
|                   | NR Band n30:                                                                                                                                                                                                                       | -5.7dBi | NR Band n38: | 2.4dBi   |
|                   | NR Band n41:                                                                                                                                                                                                                       | 2.7dBi  | NR Band n48: | -6.12dBi |
|                   | NR Band n66:                                                                                                                                                                                                                       | 1.4dBi  | NR Band n70: | 1.3dBi   |



## SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.

Report No.: SUCR250500048104

Rev.: 01

Page: 6 of 12

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |              |          |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------|----------|
|  | NR Band n71:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.22dBi  | NR Band n77: | -0.64dBi |
|  | NR Band n78:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -0.64dBi |              |          |
|  | <p>LTE CA:</p> <p>2C; 7C; 12B; 38C; 41C; 42C; 43C; 48C; 48B; 5B; 66B; 66C;</p> <p>12A-25A; 12A-30A; 12A-66A; 13A-66A; 14A-30A; 14A-66A; 25A-26A;</p> <p>2A-12A; 2A-13A; 2A-14A; 2A-17A; 2A-30A; 2A-4A; 2A-5A; 2A-66A;</p> <p>2A-71A; 2A-7A; 30A-66A; 4A-12A; 4A-13A; 4A-17A; 4A-30A; 4A-5A;</p> <p>4A-71A; 4A-7A; 5A-25A; 5A-30A; 5A-66A; 5A-7A; 7A-12A; 7A-13A;</p> <p>7A-26A; 7A-66A; 2A-26A; 7A-71A; 25A-66A; 7A-25A;</p> <p>ENDC:</p> <p>DC_13A_n66A; DC_5A_n2A; DC_14A_n2A; DC_30A_n2A; DC_2A_n5A;</p> <p>DC_12A_n5A; DC_30A_n5A; DC_66A_n5A; DC_2A_n12A; DC_30A_n12A;</p> <p>DC_66A_n12A; DC_2A_n14A; DC_30A_n14A; DC_66A_n14A; DC_2A_n30A;</p> <p>DC_5A_n30A; DC_12A_n30A; DC_14A_n30A; DC_66A_n30A; DC_2A_n66A;</p> <p>DC_5A_n66A; DC_12A_n66A; DC_14A_n66A; DC_30A_n66A;</p> <p>DC_12A_n2A; DC_71A_n2A; DC_71A_n66A; DC_2A_n71A;</p> <p>DC_66A_n71A; DC_66A_n25A; DC_66A_n41A; DC_26A_n41A; DC_7A_n78A;</p> <p>DC_38A_n78A; DC_5A_n78A; DC_7A_n5A; DC_66A_n78A; DC_2A_n78A;</p> <p>DC_5A_n71A; DC_7A_n71A; DC_12A_n71A; DC_12A_n78A; DC_13A_n71A;</p> <p>DC_5A_n7A; DC_12A_n7A; DC_66A_n7A; DC_5A_n41A; DC_71A_n7A;</p> <p>DC_7A_n12A; DC_13A_n2A; DC_48A_n5A; DC_48A_n66A; DC_7A_n66A;</p> <p>DC_13A_n78A; DC_41A_n77A; DC_41A_n78A; DC_4A_n41A; DC_66A_n38A;</p> <p>DC_2A_n38A; DC_12A_n38A; DC_4A_n38A; DC_5A_n38A; DC_4A_n78A;</p> <p>DC_12A_n25A; DC_7A_n77A; DC_71A_n78A; DC_71A_n38A; DC_13A_n7A;</p> <p>DC_12A_n41A; DC_2A_n7A; DC_7A_n2A; DC_2A_n77A; DC_5A_n77A;</p> <p>DC_13A_n77A; DC_66A_n77A; DC_12A_n77A; DC_14A_n77A; DC_30A_n77A;</p> <p>DC_26A_n78A; DC_71A_n41A; DC_4A_n2A; DC_7A_n25A; DC_7A_n25A;</p> <p>DC_5A_n25A; DC_5A_n25A; DC_5A_n12A; DC_71A_n12A; DC_4A_n7A;</p> <p>DC_4A_n7A; DC_25A_n78A; DC_25A_n77A; DC_48A_n71A; DC_48A_n12A;</p> <p>DC_71A_n77A; DC_48A_n2A; DC_14A_n5A; DC_71A_n5A; DC_7A_n26A;</p> <p>DC_71A_n48A/DC_4A_n5A</p> <p>NR CA:</p> <p>n25A-n41A; n41A-n71A; n66A-n78A;</p> <p>n7A-n77A; n2A-n77A; n5A-n77A; n66A-n77A; n30A-n77A; n30A-n77A;</p> <p>n30A-n77A; n5A-n48A; n71A-n77A; n12A-n77A;</p> <p>n14A-n77A; n71A-n78A; n2A-n78A; n25A-n78A; n38A-n66A; n25A-n48A;</p> <p>n25A-n77A; n25A-n38A; n2A-n41A; n12A-n41A; n12A-n78A; n13A-n77A;</p> <p>n5A-n41A; n12A-n48A; n70A-n78A; n41A-n70A; n26A-n78A; n26A-n77A;</p> <p>N38A_N71A</p> |          |              |          |
|  | <p>Note:</p> <p>The antenna gain are derived from the gain information report provided by the manufacturer.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |              |          |



## **SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.**

Report No.: SUCR250500048104

Rev.: 01

Page: 7 of 12

**Remark:**

As above information is provided and confirmed by the applicant. SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.



## SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.

Report No.: SUCR250500048104

Rev.: 01

Page: 8 of 12

### 3 RF Exposure Evaluation

#### 3.1 RF Exposure Compliance Requirement

##### 3.1.1 Limits

| Frequency range<br>(MHz)                                       | Electric field strength<br>(V/m) | Magnetic field strength<br>(A/m) | Power density<br>(mW/cm <sup>2</sup> ) | Averaging time<br>(minutes) |
|----------------------------------------------------------------|----------------------------------|----------------------------------|----------------------------------------|-----------------------------|
| <b>(A) Limits for Occupational/Controlled Exposures</b>        |                                  |                                  |                                        |                             |
| 0.3-3.0                                                        | 614                              | 1.63                             | *(100)                                 | 6                           |
| 3.0-30                                                         | 1842/f                           | 4.89/f                           | *(900/f <sup>2</sup> )                 | 6                           |
| 30-300                                                         | 61.4                             | 0.163                            | 1.0                                    | 6                           |
| 300-1500                                                       | /                                | /                                | f/300                                  | 6                           |
| 1500-100,000                                                   | /                                | /                                | 5                                      | 6                           |
| <b>(B) Limits for General Population/Uncontrolled Exposure</b> |                                  |                                  |                                        |                             |
| 0.3-1.34                                                       | 614                              | 1.63                             | *(100)                                 | 30                          |
| 1.34-30                                                        | 824/f                            | 2.19/f                           | *(180/f <sup>2</sup> )                 | 30                          |
| 30-300                                                         | 27.5                             | 0.073                            | 0.2                                    | 30                          |
| 300-1500                                                       | /                                | /                                | f/1500                                 | 30                          |
| 1500-100,000                                                   | /                                | /                                | 1.0                                    | 30                          |

F=frequency in MHz  
 \*=Plane-wave equivalent power density  
 RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz:614V/m,1.63A/m).

Friis Formula

Friis transmission 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, 1 mW/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.

##### 3.1.2 Test Procedure

[illegible]



## SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.

Report No.: SUCR250500048104

Rev.: 01

Page: 10 of 12

| Operating Band                | Frequency (MHz) | Antenna Gain (dBi) | MIMO Directional gain | Max Conducted Power (dBm) | EIRP(ERP) (dBm) | EIRP(ERP) Limit (dBm) | Power Density at R = 20 cm (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) | Gain according to EIRP(ERP) (dBi) | Gain according to Pd (dBi) | Max Gain Allowed (dBi) | conclusion |
|-------------------------------|-----------------|--------------------|-----------------------|---------------------------|-----------------|-----------------------|--------------------------------------------------|-----------------------------|-----------------------------------|----------------------------|------------------------|------------|
| NR Band n2                    | 1852.5          | 1.60               | NA                    | 25.00                     | 26.60           | 33.00                 | 0.0909                                           | 1.0000                      | 8.00                              | 12.01                      | 8.00                   | Pass       |
| NR Band n2(MIMO)              | 1852.5          | 1.60               | 1.60                  | 28.00                     | 29.60           | 33.00                 | 0.1814                                           | 1.0000                      | 5.00                              | 9.01                       | 5.00                   | Pass       |
| NR Band n5                    | 826.5           | 0.70               | NA                    | 25.00                     | 23.55           | 38.45                 | 0.0739                                           | 0.5510                      | 15.60                             | 9.42                       | 9.42                   | Pass       |
| NR Band n5(MIMO)              | 826.5           | 0.70               | 0.70                  | 28.00                     | 26.55           | 38.45                 | 0.1475                                           | 0.5510                      | 12.60                             | 6.42                       | 6.42                   | Pass       |
| NR Band n7                    | 2502.5          | 2.70               | NA                    | 25.00                     | 27.70           | 33.00                 | 0.1171                                           | 1.0000                      | 8.00                              | 12.01                      | 8.00                   | Pass       |
| NR Band n7(MIMO)              | 2502.5          | 2.70               | 2.70                  | 28.00                     | 30.70           | 33.00                 | 0.2337                                           | 1.0000                      | 5.00                              | 9.01                       | 5.00                   | Pass       |
| NR Band n12                   | 701.5           | 0.50               | NA                    | 25.00                     | 23.35           | 34.77                 | 0.0706                                           | 0.4677                      | 11.92                             | 8.71                       | 8.71                   | Pass       |
| NR Band n13                   | 779.5           | 0.20               | NA                    | 25.00                     | 23.05           | 34.77                 | 0.0659                                           | 0.5197                      | 11.92                             | 9.16                       | 9.16                   | Pass       |
| NR Band n14                   | 790.5           | 0.10               | NA                    | 25.00                     | 22.95           | 34.77                 | 0.0644                                           | 0.5270                      | 11.92                             | 9.23                       | 9.23                   | Pass       |
| NR Band n25                   | 1852.5          | 1.70               | NA                    | 25.00                     | 26.70           | 33.00                 | 0.0931                                           | 1.0000                      | 8.00                              | 12.01                      | 8.00                   | Pass       |
| NR Band n25(MIMO)             | 1852.5          | 1.70               | 1.70                  | 28.00                     | 29.70           | 33.00                 | 0.1857                                           | 1.0000                      | 5.00                              | 9.01                       | 5.00                   | Pass       |
| NR Band n26(814-824)          | 816.5           | 0.70               | NA                    | 25.00                     | 23.55           | NA                    | 0.0739                                           | 0.5443                      | NA                                | 9.37                       | 9.37                   | Pass       |
| NR Band n26(824-849)          | 826.5           | 0.70               | NA                    | 25.00                     | 23.55           | 38.45                 | 0.0739                                           | 0.5510                      | 15.60                             | 9.42                       | 9.42                   | Pass       |
| NR Band n30                   | 2307.5          | -5.70              | NA                    | 24.00                     | 18.30           | 23.98                 | 0.0135                                           | 1.0000                      | -0.02                             | 13.01                      | -0.02                  | Pass       |
| NR Band n38                   | 2575.0          | 2.40               | NA                    | 28.00                     | 30.40           | 33.00                 | 0.2181                                           | 1.0000                      | 5.00                              | 9.01                       | 5.00                   | Pass       |
| NR Band n38(MIMO)             | 2575.0          | 2.40               | 2.40                  | 30.00                     | 32.40           | 33.00                 | 0.3457                                           | 1.0000                      | 3.00                              | 7.01                       | 3.00                   | Pass       |
| NR Band n41                   | 2501.0          | 2.70               | NA                    | 28.00                     | 30.70           | 33.00                 | 0.2337                                           | 1.0000                      | 5.00                              | 9.01                       | 5.00                   | Pass       |
| NR Band n41(MIMO)             | 2501.0          | 2.70               | 2.70                  | 30.00                     | 32.70           | 33.00                 | 0.3705                                           | 1.0000                      | 3.00                              | 7.01                       | 3.00                   | Pass       |
| NR Band n48                   | 3555.0          | -6.12              | NA                    | 25.00                     | 18.88           | 23.00                 | 0.0154                                           | 1.0000                      | -2.00                             | 12.01                      | -2.00                  | Pass       |
| NR Band n48(MIMO)             | 3555.0          | -6.12              | -6.12                 | 25.00                     | 18.88           | 23.00                 | 0.0154                                           | 1.0000                      | -2.00                             | 12.01                      | -2.00                  | Pass       |
| NR Band n66                   | 1712.5          | 1.40               | NA                    | 25.00                     | 26.40           | 30.00                 | 0.0868                                           | 1.0000                      | 5.00                              | 12.01                      | 5.00                   | Pass       |
| NR Band n66(MIMO)             | 1712.5          | 1.40               | 1.40                  | 28.00                     | 29.40           | 30.00                 | 0.1733                                           | 1.0000                      | 2.00                              | 9.01                       | 2.00                   | Pass       |
| NR Band n70                   | 1697.5          | 1.30               | NA                    | 25.00                     | 26.30           | 30.00                 | 0.0849                                           | 1.0000                      | 5.00                              | 12.01                      | 5.00                   | Pass       |
| NR Band n70(MIMO)             | 1697.5          | 1.30               | 1.30                  | 25.00                     | 26.30           | 30.00                 | 0.0849                                           | 1.0000                      | 5.00                              | 12.01                      | 5.00                   | Pass       |
| NR Band n71                   | 665.5           | 1.22               | NA                    | 25.00                     | 24.07           | 34.77                 | 0.0833                                           | 0.4437                      | 11.92                             | 8.48                       | 8.48                   | Pass       |
| NR Band n71(MIMO)             | 665.5           | 1.22               | 1.22                  | 28.00                     | 27.07           | 34.77                 | 0.1662                                           | 0.4437                      | 8.92                              | 5.48                       | 5.48                   | Pass       |
| NR Band n77 (3450-3550)       | 3455.0          | -0.64              | NA                    | 28.00                     | 27.36           | 30.00                 | 0.1083                                           | 1.0000                      | 2.00                              | 9.01                       | 2.00                   | Pass       |
| NR Band n77 (3450-3550)(MIMO) | 3455.0          | -0.64              | -0.64                 | 30.00                     | 29.36           | 30.00                 | 0.1717                                           | 1.0000                      | 0.00                              | 7.01                       | 0.00                   | Pass       |
| NR Band n77 (3700-3980)       | 3705.0          | -0.64              | NA                    | 28.00                     | 27.36           | 30.00                 | 0.1083                                           | 1.0000                      | 2.00                              | 9.01                       | 2.00                   | Pass       |
| NR Band n77 (3700-3980)(MIMO) | 3705.0          | -0.64              | -0.64                 | 30.00                     | 29.36           | 30.00                 | 0.1717                                           | 1.0000                      | 0.00                              | 7.01                       | 0.00                   | Pass       |
| NR Band n78 (3450-3550)       | 3455.0          | -0.64              | NA                    | 28.00                     | 27.36           | 30.00                 | 0.1083                                           | 1.0000                      | 2.00                              | 9.01                       | 2.00                   | Pass       |
| NR Band n78 (3450-3550)(MIMO) | 3455.0          | -0.64              | -0.64                 | 30.00                     | 29.36           | 30.00                 | 0.1717                                           | 1.0000                      | 0.00                              | 7.01                       | 0.00                   | Pass       |
| NR Band n78 (3700-3800)       | 3705.0          | -0.64              | NA                    | 28.00                     | 27.36           | 30.00                 | 0.1083                                           | 1.0000                      | 2.00                              | 9.01                       | 2.00                   | Pass       |
| NR Band n78 (3700-3800)(MIMO) | 3705.0          | -0.64              | -0.64                 | 30.00                     | 29.36           | 30.00                 | 0.1717                                           | 1.0000                      | 0.00                              | 7.01                       | 0.00                   | Pass       |
| Bluetooth                     | 2402.0          | 5.00               | NA                    | 23.00                     | 28.00           | NA                    | 0.1255                                           | 1.0000                      | NA                                | NA                         | NA                     | NA         |
| WLAN2.4GHz                    | 2412.0          | 5.00               | NA                    | 23.00                     | 28.00           | NA                    | 0.1255                                           | 1.0000                      | NA                                | NA                         | NA                     | NA         |
| WLAN5GHz                      | 5180.0          | 5.00               | NA                    | 23.00                     | 28.00           | NA                    | 0.1255                                           | 1.0000                      | NA                                | NA                         | NA                     | NA         |

### Note:

- 1.This MPE analysis is applicable to any collocated transmitters with transmit power for WLAN is less than or equal to 28dBm and for Bluetooth is less than or equal to 28dBm.
- 2.A maximum antenna gain of 5dBi for WLAN/BT has been assumed for all collocated antennas.



## SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.

Report No.: SUCR250500048104

Rev.: 01

Page: 11 of 12

$$\sum_{i=1}^n \frac{S_{E_i}(\text{duty factor})}{MPE_{E_i}} < 1$$

Due to the EUT support NR ENDC and CA

Both LTE and NR/LTE band can transmit simultaneously, the formula of the calculated the MPE is:

NOTE The corresponding MEs must be expressed in terms of power density in the above summation

Therefore, the worst-case (NR CA\_n41A-n71A) situation is  $0.3705+0.3746=0.7451$ , which is less than “1”, this confirmed that the device comply with MPE limit.



## SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.

Report No.: SUCR250500048104

Rev.: 01

Page: 12 of 12

### 3.1.4 Exposure calculations for multiple sources

In order to ensure compliance with the MPE for a controlled environment, the sum of the ratios of the power density to the corresponding MPE should not exceed unity. That is

$$\sum_{i=1}^n \frac{S_i}{MPE_i} \leq 1$$

The product also has multiple transmitters The Simultaneous Transmission Possibilities are as below:

| Simultaneous Tx Combination | Configuration                          |
|-----------------------------|----------------------------------------|
| 1                           | WWAN + WiFi 2.4G + WiFi 5G + Bluetooth |

| No. | Mode               | Power Density (mW/cm <sup>2</sup> ) | MPE Limit (mW/cm <sup>2</sup> ) | Result Ratio | Total Ratio | Limit  | Result |
|-----|--------------------|-------------------------------------|---------------------------------|--------------|-------------|--------|--------|
| 1   | NR Band n71(MIMO)* | 0.1662                              | 0.4437                          | 0.3746       | 0.7511      | 1.0000 | Pass   |
|     | Bluetooth          | 0.1255                              | 1.0000                          | 0.1255       |             |        |        |
|     | WiFi 2.4G          | 0.1255                              | 1.0000                          | 0.1255       |             |        |        |
|     | WiFi 5G            | 0.1255                              | 1.0000                          | 0.1255       |             |        |        |

Remark\*: This WWAN Band was recalculated on worst Band.

Note: Considering the WWAN module collocation with the WLAN and Bluetooth transmitter of the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of 3 collocated transmitters is compliant.

---End of Report---