

# Test Report

Verified code: 675979

Report No.: E202304116396-7

Customer: Flaircomm Microelectronics, Inc.

Address: 7F,Guomai Building, Guomai Science and Technology Park, 116 JiangBin East Avenue, Mawei District, Fuzhou, Fujian, China

Sample Name: Remote Monitor System

Sample Model: FLC-WNP019

Receive Sample Date: Apr.14,2023

Test Date: Apr.17,2023 ~ May.15,2023

Reference Document: CFR 47, FCC Part 22 Subpart H,  
CFR 47, FCC Part 24 Subpart E,  
CFR 47, FCC Part 27 Subpart C,  
CFR 47, FCC Part 90 Subpart S  
CFR 47, FCC Part 2

Test Result: Pass

Prepared by: *Wen. Wen*

Reviewed by: *Zhao Zetian*

Approved by: *Xiao Liang*

GRG METROLOGY & TEST GROUP CO., LTD.

Issued Date: *APPROVED* 2023-06-01

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**REPORT ISSUED HISTORY**

| Report Version | Report No.      | Description    | Compile Date |
|----------------|-----------------|----------------|--------------|
| 1.0            | E202304116396-7 | Original Issue | 2023-05-25   |

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**1. TEST RESULT SUMMARY****1.1 TEST STANDARDS**

| No. | Identity                      | Document Title                                                                                                       |
|-----|-------------------------------|----------------------------------------------------------------------------------------------------------------------|
| 1   | CFR 47, FCC Part 2            | Frequency Allocations And Radio Treaty Mattres;<br>General Rules And Regulations                                     |
| 2   | CFR 47, FCC Part 22 Subpart H | Cellular Radiotelephone Service                                                                                      |
| 3   | CFR 47, FCC Part 24 Subpart E | Broadband PCS                                                                                                        |
| 4   | CFR 47, FCC Part 27 Subpart C | Technical Standards                                                                                                  |
| 5   | CFR 47, FCC Part 90 Subpart S | Regulations Governing Licensing and Use of Frequencies<br>in the 806-824, 851-869, 896-901, and 935-940 MHz<br>Bands |

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**1.2 TEST RESULT**

| <b>LTE Band 2/25</b>                             |                           |                                  |               |
|--------------------------------------------------|---------------------------|----------------------------------|---------------|
| <b>Item</b>                                      | <b>FCC Rule No.</b>       | <b>Requirements</b>              | <b>Result</b> |
| Effective (Isotropic) Radiated Power Output Data | §2.1046,<br>§24.232(c)    | $EIRP \leq 2 \text{ W}$          | PASS          |
| Peak-Average Ratio                               | §24.232(d)                | Limit $\leq 13 \text{ dB}$       | PASS          |
| Modulation Characteristics                       | §2.1047                   | Digital modulation               | PASS          |
| Bandwidth                                        | §2.1049                   | OBW: No limit.<br>EBW: No limit. | PASS          |
| Band Edges Compliance                            | §2.1051,<br>§24.238(a)(b) | Refer to section 10.1            | PASS          |
| Spurious Emission at Antenna Terminals           | §2.1051,<br>§24.238(a)(b) | $\leq -13 \text{ dBm/1MHz}$      | PASS          |
| Field Strength of Spurious Radiation             | §2.1053,<br>§24.238(a)    | $\leq -13 \text{ dBm/1MHz.}$     | PASS          |
| Frequency Stability                              | §2.1055,<br>§24.235       | $\leq \pm 2.5 \text{ ppm.}$      | PASS          |

**Note 1:** For the verdict, the “N/A” denotes “not applicable”, the “N/T” denotes “not tested”.

----- The following blanks -----

| LTE Band 4                                       |                                             |                                  |        |
|--------------------------------------------------|---------------------------------------------|----------------------------------|--------|
| Item                                             | FCC Rule No.                                | Requirements                     | Result |
| Effective (Isotropic) Radiated Power Output Data | §2.1046,<br>§27.50(d)(4)                    | EIRP $\leq 1$ W                  | PASS   |
| Peak-Average Ratio                               | §22.913(d)(5)                               | Limit $\leq 13$ dB               | PASS   |
| Modulation Characteristics                       | §2.1047                                     | Digital modulation               | PASS   |
| Bandwidth                                        | §2.1049                                     | OBW: No limit.<br>EBW: No limit. | PASS   |
| Band Edges Compliance                            | §2.1051,<br>§27.53(h)(1)<br>§27.53(h)(3)(i) | Refer to section 10.1            | PASS   |
| Spurious Emission at Antenna Terminals           | §2.1051,<br>§27.53(h)(1)                    | $\leq -13$ dBm/1MHz              | PASS   |
| Field Strength of Spurious Radiation             | §2.1053,<br>§27.53(h)(1)                    | $\leq -13$ dBm/1MHz.             | PASS   |
| Frequency Stability                              | §2.1055,<br>§27.54                          | $\leq \pm 2.5$ ppm.              | PASS   |

**Note 1:** For the verdict, the “N/A” denotes “not applicable”, the “N/T” denotes “not tested”.

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| LTE Band 5/26(824-849)                           |                           |                                        |        |
|--------------------------------------------------|---------------------------|----------------------------------------|--------|
| Item                                             | FCC Rule No.              | Requirements                           | Result |
| Effective (Isotropic) Radiated Power Output Data | §2.1046,<br>§22.913(a)(5) | $EIRP \leq 11.5W$<br>( $ERP \leq 7W$ ) | PASS   |
| Peak-Average Ratio                               | N/A                       | N/A                                    | N/A    |
| Modulation Characteristics                       | §2.1047                   | Digital modulation                     | PASS   |
| Bandwidth                                        | §2.1049                   | OBW: No limit.<br>EBW: No limit.       | PASS   |
| Band Edges Compliance                            | §2.1051,<br>§22.917(b)(1) | Refer to section 10.1                  | PASS   |
| Spurious Emission at Antenna Terminals           | §2.1051,<br>§22.917(a)    | $\leq -13 \text{ dBm/1MHz}$            | PASS   |
| Field Strength of Spurious Radiation             | §2.1053,<br>§22.917(a)    | $\leq -13 \text{ dBm/1MHz.}$           | PASS   |
| Frequency Stability                              | §2.1055,<br>§22.355       | $\leq \pm 2.5\text{ppm.}$              | PASS   |

**Note 1:** For the verdict, the “N/A” denotes “not applicable”, the “N/T” denotes “not tested”.

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| LTE Band 7/38/41                                 |                          |                                  |        |
|--------------------------------------------------|--------------------------|----------------------------------|--------|
| Item                                             | FCC Rule No.             | Requirements                     | Result |
| Effective (Isotropic) Radiated Power Output Data | §2.1046,<br>§27.50(h)(2) | EIRP $\leq 2$ W                  | PASS   |
| Peak-Average Ratio                               | N/A                      | N/A                              | N/A    |
| Modulation Characteristics                       | §2.1047                  | Digital modulation               | PASS   |
| Bandwidth                                        | §2.1049                  | OBW: No limit.<br>EBW: No limit. | PASS   |
| Band Edges Compliance                            | §2.1051,<br>§27.53(m)(4) | Refer to section 10.1            | PASS   |
| Spurious Emission at Antenna Terminals           | §2.1051,<br>§27.53(m)(4) | $\leq -25$ dBm/1MHz              | PASS   |
| Field Strength of Spurious Radiation             | §2.1053,<br>§27.53(m)(4) | $\leq -25$ dBm/1MHz.             | PASS   |
| Frequency Stability                              | §2.1055,<br>§27.54       | $\leq \pm 2.5$ ppm.              | PASS   |

**Note 1:** For the verdict, the “N/A” denotes “not applicable”, the “N/T” denotes “not tested”.

----- The following blanks -----

| LTE Band 12/17                                   |                           |                                  |        |
|--------------------------------------------------|---------------------------|----------------------------------|--------|
| Item                                             | FCC Rule No.              | Requirements                     | Result |
| Effective (Isotropic) Radiated Power Output Data | §2.1046,<br>§27.50(c)(10) | ERP $\leq$ 3W                    | PASS   |
| Peak-Average Ratio                               | N/A                       | N/A                              | N/A    |
| Modulation Characteristics                       | §2.1047                   | Digital modulation               | PASS   |
| Bandwidth                                        | §2.1049                   | OBW: No limit.<br>EBW: No limit. | PASS   |
| Band Edges Compliance                            | §2.1051,<br>§27.53(g)     | Refer to section 10.1            | PASS   |
| Spurious Emission at Antenna Terminals           | §2.1051,<br>§27.53(g)     | $\leq$ -13 dBm/1MHz.             | PASS   |
| Field Strength of Spurious Radiation             | §2.1053,<br>§27.53(g)     | $\leq$ -13 dBm/1MHz.             | PASS   |
| Frequency Stability                              | §2.1055,<br>§27.54        | $\leq$ $\pm$ 2.5ppm.             | PASS   |

**Note 1:** For the verdict, the “N/A” denotes “not applicable”, the “N/T” denotes “not tested”.

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| LTE Band 13                                      |                                           |                                                                                        |        |
|--------------------------------------------------|-------------------------------------------|----------------------------------------------------------------------------------------|--------|
| Item                                             | FCC Rule No.                              | Requirements                                                                           | Result |
| Effective (Isotropic) Radiated Power Output Data | §2.1046,<br>§27.50(b)(10)                 | ERP ≤3W                                                                                | PASS   |
| Peak-Average Ratio                               | N/A                                       | N/A                                                                                    | N/A    |
| Modulation Characteristics                       | §2.1047                                   | Digital modulation                                                                     | PASS   |
| Bandwidth                                        | §2.1049                                   | OBW: No limit.<br>EBW: No limit.                                                       | PASS   |
| Band Edges Compliance                            | §2.1051,<br>§27.53(c)(2),<br>§27.53(c)(5) | Refer to section 9.1                                                                   | PASS   |
| Spurious Emission at Antenna Terminals           | §2.1051,<br>§27.53(c)(2)                  | ≤ -13 dBm/1MHz.                                                                        | PASS   |
| Field Strength of Spurious Radiation             | §2.1053,<br>§27.53(c)(2),<br>§27.53(f)    | ≤ -13 dBm/1MHz.<br>Emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz | PASS   |
| Frequency Stability                              | §2.1055,<br>§27.54                        | ≤ ±2.5ppm.                                                                             | PASS   |

**Note 1:** For the verdict, the “N/A” denotes “not applicable”, the “N/T” denotes “not tested”.

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| LTE Band 26(814-824)                             |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |        |
|--------------------------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Item                                             | FCC Rule No.       | Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Result |
| Effective (Isotropic) Radiated Power Output Data | §2.1046<br>§90.635 | ERP $\leq$ 100W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | PASS   |
| Peak-Average Ratio                               | N/A                | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | N/A    |
| Modulation Characteristics                       | §2.1047            | Digital modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | PASS   |
| Bandwidth                                        | §2.1049<br>§90.209 | Report Only                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | PASS   |
| Band Edges Compliance                            | §2.1051<br>§90.691 | (1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log <sub>10</sub> (f/6.1) decibels or 50 + 10 Log <sub>10</sub> (P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.<br>(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log <sub>10</sub> (P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz. | PASS   |
| Spurious Emission at Antenna Terminals           | §2.1051<br>§90.691 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | PASS   |
| Field Strength of Spurious Radiation             | §2.1053<br>§90.691 | $\leq$ -13 dBm/1MHz.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | PASS   |
| Frequency Stability                              | §2.1055<br>§90.213 | $\leq \pm 2.5$ ppm.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | PASS   |

**Note 1:** For the verdict, the "N/A" denotes "not applicable", the "N/T" denotes "not tested".

| LTE Band 40(2305-2315 MHz & 2350-2360 MHz)       |                          |                                  |        |
|--------------------------------------------------|--------------------------|----------------------------------|--------|
| Item                                             | FCC Rule No.             | Requirements                     | Result |
| Effective (Isotropic) Radiated Power Output Data | §2.1046<br>§27.50(a)(3)  | EIRP $\leq$ 250mW                | PASS   |
| Peak-Average Ratio                               | N/A                      | N/A                              | N/A    |
| Modulation Characteristics                       | §2.1047                  | Digital modulation               | PASS   |
| Bandwidth                                        | §2.1049                  | OBW: No limit.<br>EBW: No limit. | PASS   |
| Band Edges Compliance                            | §2.1051,<br>§27.53(a)(4) | Refer to section 9.1             | PASS   |
| Spurious Emission at Antenna Terminals           | §2.1051,<br>§27.53(a)(4) | $\leq$ -40 dBm/1MHz              | PASS   |
| Field Strength of Spurious Radiation             | §2.1053<br>§27.53(a)(4)  | $\leq$ -40 dBm/1MHz              | PASS   |
| Frequency Stability                              | §2.1055<br>§27.54        | $\leq$ $\pm$ 2.5ppm.             | PASS   |

**Note 1:** For the verdict, the “N/A” denotes “not applicable”, the “N/T” denotes “not tested”.

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## 2. GENERAL DESCRIPTION OF EUT

### 2.1 APPLICANT

|          |                                                                                                                         |
|----------|-------------------------------------------------------------------------------------------------------------------------|
| Name:    | Flaircomm Microelectronics, Inc.                                                                                        |
| Address: | 7F,Guomai Building, Guomai Science and Technology Park, 116 JiangBin East Avenue, Mawei District, Fuzhou, Fujian, China |

### 2.2 MANUFACTURER

|          |                                                                                                                         |
|----------|-------------------------------------------------------------------------------------------------------------------------|
| Name:    | Flaircomm Microelectronics, Inc.                                                                                        |
| Address: | 7F,Guomai Building, Guomai Science and Technology Park, 116 JiangBin East Avenue, Mawei District, Fuzhou, Fujian, China |

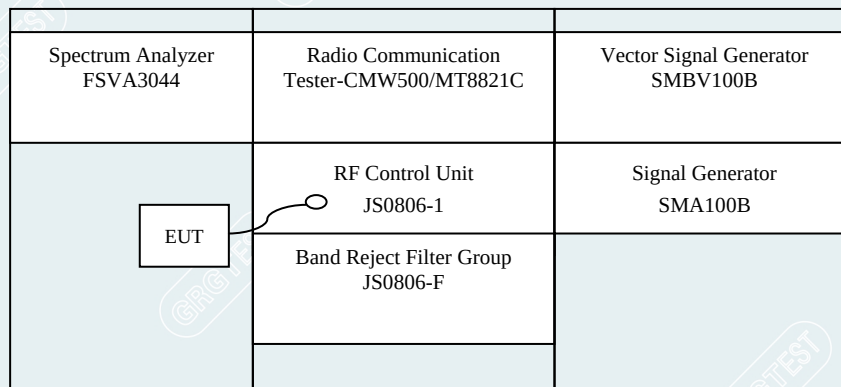
### 2.3 BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Equipment:        | Remote Monitor System                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Model No.:        | FLC-WNP019                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Trade Name:       | /                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Adding Model      | FLC-WNP019-RMS20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Model difference: | They have the same technical construction including circuit diagram, PCB LAYOUT, hardware version and software version identical, except the model name different.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| FCC ID:           | 2BBDN-WNP019                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Power supply:     | DC 3.6V by battery                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Hardware Version: | RS20 1 1 03 00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Software Version: | RMS01.01#007.006                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Frequency range:  | Band 2: Tx 1850MHz~1910MHz, Rx 1930MHz ~ 1990MHz<br>Band 4: Tx 1710MHz~1755MHz, Rx 2110MHz ~ 2155MHz<br>Band 5: Tx 824MHz~849MHz, Rx 869MHz ~ 894MHz<br>Band 7: Tx 2500MHz~2570MHz, Rx 2620MHz ~ 2690MHz<br>Band 12: Tx 699MHz~716MHz, Rx 729MHz ~ 746MHz<br>Band 13: Tx 777MHz~787MHz, Rx 746MHz ~ 756MHz<br>Band 17: Tx 704MHz~716MHz, Rx 734MHz ~ 746MHz<br>Band 25: Tx 1850MHz~1915MHz, Rx 1930MHz ~ 1995MHz<br>Band 26(814-824MHz): Tx 814MHz~824MHz, Rx 859MHz ~ 869MHz<br>Band 26(824-849MHz): Tx 824MHz~849MHz, Rx 869MHz ~ 894MHz<br>Band 38: Tx 2570MHz~2620MHz, Rx 2570MHz~2620MHz<br>Band 40(2305-2315MHz): Tx 2305~2315MHz, Rx 2305~2315MHz<br>Band 40(2350-2360MHz): Tx 2350~2360MHz, Rx 2350~2360MHz<br>Band 41: Tx 2496MHz~2690MHz, Rx 2496MHz ~ 2690MHz |
| Antenna Type:     | Internal antenna                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Antenna Gain:     | Band 2: 3.5dBi<br>Band 4: 2.8dBi<br>Band 5: -0.2dBi<br>Band 7: 2.2dBi<br>Band 12: -1.3dBi<br>Band 13: -1.4dBi<br>Band 17: -1.3dBi<br>Band 25: 3.5dBi                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         | Band 26(814-824MHz): -0.8dBi<br>Band 26(824-849MHz): -0.2dBi<br>Band 38: 2.4dBi<br>Band 40(2305-2315MHz): 0.3dBi<br>Band 40(2350-2360MHz): 0.3dBi<br>Band 41: 2.9dBi                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Power Class:            | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Bandwidth:              | Band 2: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz<br>Band 4: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz<br>Band 5: 1.4MHz, 3MHz, 5MHz, 10MHz<br>Band 7: 5MHz, 10MHz, 15MHz, 20MHz<br>Band 12: 1.4MHz, 3MHz, 5MHz, 10MHz<br>Band 13: 5MHz, 10MHz<br>Band 17: 5MHz, 10MHz<br>Band 25: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz<br>Band 26 (814-824MHz): 1.4MHz, 3MHz, 5MHz, 10MHz<br>Band 26 (824-849MHz): 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz<br>Band 38: 5MHz, 10MHz, 15MHz, 20MHz<br>Band 40(2305-2315MHz): 5MHz, 10MHz<br>Band 40(2350-2360MHz): 5MHz, 10MHz<br>Band 41: 5MHz, 10MHz, 15MHz, 20MHz |
| ERP/EIRP                | Band 2: 28.43dBm<br>Band 4: 28.64dBm<br>Band 5: 23.14dBm<br>Band 7: 25.90dBm<br>Band 12: 21.63dBm<br>Band 13: 23.02dBm<br>Band 17: 21.91dBm<br>Band 25: 28.78dBm<br>Band 26 (814-824MHz): 21.23dBm<br>Band 26 (824-849MHz): 21.83dBm<br>Band 38: 27.51dBm<br>Band 40(2305-2315MHz): 23.16dBm<br>Band 40(2350-2360MHz): 22.86dBm<br>Band 41: 25.95dBm                                                                                                                                                                                                                                        |
| Category:               | Cat 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Modulation:             | QPSK, 16QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Sample No.:             | E202304116396-0002, E202304116396-0004                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| IMEI:                   | E202304116396-0002:86546405240018<br>E202304116396-0004:86546405240087                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Temperature Range:      | -20℃~70℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Sample Submitting Way : | <input checked="" type="checkbox"/> Provided by customer <input type="checkbox"/> Sampling                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Note:                   | The EUT antenna gain is provided by the applicant.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

## 2.4 CONFIGURATION OF SYSTEM UNDER TEST

### Conduct System Setup



## 2.5 DESIGNATION OF EMISSION

| Designation Of Emission |                |          |         |
|-------------------------|----------------|----------|---------|
| Band                    | Bandwidth(MHz) | QPSK     | 16QAM   |
| Band 2                  | 1.4            | 1M10G7D  | 1M10W7D |
|                         | 3              | 2M70G7D  | 2M69W7D |
|                         | 5              | 4M52G7D  | 4M51W7D |
|                         | 10             | 8M98G7D  | /       |
|                         | 15             | 13M44G7D | /       |
|                         | 20             | 17M96G7D | /       |

| Designation Of Emission |                |          |         |
|-------------------------|----------------|----------|---------|
| Band                    | Bandwidth(MHz) | QPSK     | 16QAM   |
| Band 4                  | 1.4            | 1M10G7D  | 1M10W7D |
|                         | 3              | 2M70G7D  | 2M69W7D |
|                         | 5              | 4M52G7D  | 4M51W7D |
|                         | 10             | 8M98G7D  | /       |
|                         | 15             | 13M48G7D | /       |
|                         | 20             | 17M98G7D | /       |

| Designation Of Emission |                |         |         |
|-------------------------|----------------|---------|---------|
| Band                    | Bandwidth(MHz) | QPSK    | 16QAM   |
| Band 5                  | 1.4            | 1M10G7D | 1M10W7D |
|                         | 3              | 2M70G7D | 2M70W7D |
|                         | 5              | 4M52G7D | 4M50W7D |
|                         | 10             | 8M96G7D | /       |

| Designation Of Emission |                |          |         |
|-------------------------|----------------|----------|---------|
| Band                    | Bandwidth(MHz) | QPSK     | 16QAM   |
| Band 7                  | 5              | 4M52G7D  | 4M51W7D |
|                         | 10             | 8M98G7D  | /       |
|                         | 15             | 13M45G7D | /       |
|                         | 20             | 17M97G7D | /       |

| Designation Of Emission |                |         |         |
|-------------------------|----------------|---------|---------|
| Band                    | Bandwidth(MHz) | QPSK    | 16QAM   |
| Band 12                 | 1.4            | 1M10G7D | 1M09W7D |
|                         | 3              | 2M70G7D | 2M70W7D |
|                         | 5              | 4M50G7D | 4M52W7D |
|                         | 10             | 9M00G7D | /       |

| Designation Of Emission |                |         |         |
|-------------------------|----------------|---------|---------|
| Band                    | Bandwidth(MHz) | QPSK    | 16QAM   |
| Band 13                 | 5              | 4M49G7D | 4M49W7D |
|                         | 10             | 8M91G7D | /       |

| Designation Of Emission |                |         |         |
|-------------------------|----------------|---------|---------|
| Band                    | Bandwidth(MHz) | QPSK    | 16QAM   |
| Band 17                 | 5              | 4M52G7D | 4M51W7D |
|                         | 10             | 8M92G7D | /       |

| Designation Of Emission |                |          |         |
|-------------------------|----------------|----------|---------|
| Band                    | Bandwidth(MHz) | QPSK     | 16QAM   |
| Band 25                 | 1.4            | 1M09G7D  | 1M09W7D |
|                         | 3              | 2M70G7D  | 2M70W7D |
|                         | 5              | 4M50G7D  | 4M50W7D |
|                         | 10             | 9M00G7D  | /       |
|                         | 15             | 13M49G7D | /       |
|                         | 20             | 17M95G7D | /       |

| Designation Of Emission |                |          |         |
|-------------------------|----------------|----------|---------|
| Band                    | Bandwidth(MHz) | QPSK     | 16QAM   |
| Band 26<br>(814-824MHz) | 1.4            | 1M10G7D  | 1M09W7D |
|                         | 3              | 2M70G7D  | 2M70W7D |
|                         | 5              | 4M50G7D  | 4M50W7D |
|                         | 10             | 9M00G7D  | /       |
|                         | 15             | 13M47G7D | /       |

| Designation Of Emission  |                |          |         |
|--------------------------|----------------|----------|---------|
| Band                     | Bandwidth(MHz) | QPSK     | 16QAM   |
| Band 26<br>(824-849 MHz) | 1.4            | 1M10G7D  | 1M09W7D |
|                          | 3              | 2M70G7D  | 2M70W7D |
|                          | 5              | 4M51G7D  | 4M51W7D |
|                          | 10             | 8M97G7D  | /       |
|                          | 15             | 13M47G7D | /       |

| Designation Of Emission |                |          |         |
|-------------------------|----------------|----------|---------|
| Band                    | Bandwidth(MHz) | QPSK     | 16QAM   |
| Band 38                 | 5              | 4M50G7D  | 4M50W7D |
|                         | 10             | 8M98G7D  | /       |
|                         | 15             | 13M47G7D | /       |
|                         | 20             | 17M94G7D | /       |

| Designation Of Emission    |                |         |         |
|----------------------------|----------------|---------|---------|
| Band                       | Bandwidth(MHz) | QPSK    | 16QAM   |
| Band 40<br>(2305-2315 MHz) | 5              | 4M50G7D | 4M54W7D |
|                            | 10             | 8M98G7D | /       |

| Designation Of Emission    |                |         |         |
|----------------------------|----------------|---------|---------|
| Band                       | Bandwidth(MHz) | QPSK    | 16QAM   |
| Band 40<br>(2305-2315 MHz) | 5              | 4M51G7D | 4M50W7D |
|                            | 10             | 8M94G7D | /       |

| Designation Of Emission |                |          |         |
|-------------------------|----------------|----------|---------|
| Band                    | Bandwidth(MHz) | QPSK     | 16QAM   |
| Band 41                 | 5              | 4M50G7D  | 4M49W7D |
|                         | 10             | 8M97G7D  | /       |
|                         | 15             | 13M48G7D | /       |
|                         | 20             | 17M97G7D | /       |

## 2.6 TEST FREQUENCIES

| Test Mode  | Bandwidth | TX / RX | RF Channel    |               |               |
|------------|-----------|---------|---------------|---------------|---------------|
|            |           |         | Low (L)       | Middle (M)    | High (H)      |
| LTE Band 2 | 1.4MHz    | TX      | Channel 18607 | Channel 18900 | Channel 19193 |
|            |           |         | 1850.7 MHz    | 1880 MHz      | 1909.3 MHz    |
|            |           | RX      | Channel 607   | Channel 900   | Channel 1193  |
|            |           |         | 1930.7 MHz    | 1960 MHz      | 1989.3 MHz    |
|            | 3MHz      | TX      | Channel 18615 | Channel 18900 | Channel 19185 |
|            |           |         | 1851.5 MHz    | 1880 MHz      | 1908.5 MHz    |
|            |           | RX      | Channel 615   | Channel 900   | Channel 1185  |
|            |           |         | 1931.5 MHz    | 1880 MHz      | 1988.5 MHz    |
|            | 5MHz      | TX      | Channel 18625 | Channel 18900 | Channel 19175 |
|            |           |         | 1852.5 MHz    | 1880 MHz      | 1907.5 MHz    |
|            |           | RX      | Channel 625   | Channel 900   | Channel 1175  |
|            |           |         | 1932.5 MHz    | 1960 MHz      | 1987.5 MHz    |
|            | 10MHz     | TX      | Channel 18650 | Channel 18900 | Channel 19150 |
|            |           |         | 1855 MHz      | 1880 MHz      | 1905 MHz      |
|            |           | RX      | Channel 650   | Channel 900   | Channel 1150  |
|            |           |         | 1935 MHz      | 1960 MHz      | 1985 MHz      |
|            | 15MHz     | TX      | Channel 18675 | Channel 18900 | Channel 19125 |
|            |           |         | 1857.5 MHz    | 1880 MHz      | 1902.5 MHz    |
|            |           | RX      | Channel 675   | Channel 900   | Channel 1125  |
|            |           |         | 1937.5 MHz    | 1960 MHz      | 1982.5 MHz    |
|            | 20MHz     | TX      | Channel 18700 | Channel 18900 | Channel 19100 |
|            |           |         | 1860 MHz      | 1880 MHz      | 1900 MHz      |
|            |           | RX      | Channel 700   | Channel 900   | Channel 1100  |
|            |           |         | 1940 MHz      | 1960 MHz      | 1980 MHz      |

| Test Mode  | Bandwidth | TX / RX | RF Channel    |               |               |
|------------|-----------|---------|---------------|---------------|---------------|
|            |           |         | Low (L)       | Middle (M)    | High (H)      |
| LTE Band 4 | 1.4MHz    | TX      | Channel 19957 | Channel 20175 | Channel 20393 |
|            |           |         | 1710.7 MHz    | 1732.5 MHz    | 1754.3 MHz    |
|            |           | RX      | Channel 1975  | Channel 2175  | Channel 2375  |
|            |           |         | 2112.5 MHz    | 2132.5MHz     | 2152.5 MHz    |
|            | 3MHz      | TX      | Channel 19965 | Channel 20175 | Channel 20385 |
|            |           |         | 1711.5 MHz    | 1732.5 MHz    | 1753.5 MHz    |
|            |           | RX      | Channel 2000  | Channel 2175  | Channel 2350  |
|            |           |         | 2115 MHz      | 2132.5MHz     | 2150 MHz      |
|            | 5MHz      | TX      | Channel 19975 | Channel 20175 | Channel 20375 |
|            |           |         | 1712.5 MHz    | 1732.5 MHz    | 1752.5 MHz    |
|            |           | RX      | Channel 1975  | Channel 2175  | Channel 2375  |
|            |           |         | 2112.5 MHz    | 2132.5MHz     | 2152.5 MHz    |
|            | 10MHz     | TX      | Channel 20000 | Channel 20175 | Channel 20350 |

|  |       |    |               |               |               |
|--|-------|----|---------------|---------------|---------------|
|  |       | RX | 1715 MHz      | 1732.5 MHz    | 1750 MHz      |
|  |       |    | Channel 2000  | Channel 2175  | Channel 2350  |
|  |       |    | 2115 MHz      | 2132.5MHz     | 2150 MHz      |
|  | 15MHz | TX | Channel 20025 | Channel 20175 | Channel 20325 |
|  |       |    | 1717.5 MHz    | 1732.5 MHz    | 1747.5 MHz    |
|  |       | RX | Channel 2025  | Channel 2175  | Channel 2325  |
|  |       |    | 2117.5 MHz    | 2132.5MHz     | 2147.5 MHz    |

| Test Mode  | Bandwidth | TX / RX | RF Channel    |               |               |
|------------|-----------|---------|---------------|---------------|---------------|
|            |           |         | Low (L)       | Middle (M)    | High (H)      |
| LTE Band 5 | 1.4MHz    | TX      | Channel 20407 | Channel 20525 | Channel 20643 |
|            |           |         | 824.7 MHz     | 836.5 MHz     | 848.3 MHz     |
|            |           | RX      | Channel 2407  | Channel 2525  | Channel 2643  |
|            |           |         | 869.7 MHz     | 881.5 MHz     | 893.3 MHz     |
|            | 3MHz      | TX      | Channel 20415 | Channel 20525 | Channel 20635 |
|            |           |         | 825.5 MHz     | 836.5 MHz     | 847.5 MHz     |
|            |           | RX      | Channel 2415  | Channel 2525  | Channel 2635  |
|            |           |         | 870.5 MHz     | 881.5 MHz     | 892.5 MHz     |
|            | 5MHz      | TX      | Channel 20425 | Channel 20525 | Channel 20625 |
|            |           |         | 826.5 MHz     | 836.5 MHz     | 846.5 MHz     |
|            |           | RX      | Channel 2425  | Channel 2525  | Channel 2625  |
|            |           |         | 871.5 MHz     | 881.5 MHz     | 891.5 MHz     |
|            | 10MHz     | TX      | Channel 20450 | Channel 20525 | Channel 20600 |
|            |           |         | 829 MHz       | 836.5 MHz     | 844 MHz       |
|            |           | RX      | Channel 2450  | Channel 2525  | Channel 2600  |
|            |           |         | 874 MHz       | 881.5 MHz     | 889 MHz       |

| Test Mode  | Bandwidth | TX / RX | RF Channel    |               |               |
|------------|-----------|---------|---------------|---------------|---------------|
|            |           |         | Low (L)       | Middle (M)    | High (H)      |
| LTE Band 7 | 5MHz      | TX      | Channel 20775 | Channel 21100 | Channel 21425 |
|            |           |         | 2502.5 MHz    | 2535 MHz      | 2567.5 MHz    |
|            |           | RX      | Channel 2775  | Channel 3100  | Channel 5825  |
|            |           |         | 2622.5 MHz    | 2655 MHz      | 2687.5 MHz    |
|            | 10MHz     | TX      | Channel 20800 | Channel 21100 | Channel 21400 |
|            |           |         | 2505 MHz      | 2535 MHz      | 2565 MHz      |
|            |           | RX      | Channel 2800  | Channel 3100  | Channel 3400  |
|            |           |         | 2625 MHz      | 2655 MHz      | 2685 MHz      |
|            | 15MHz     | TX      | Channel 20825 | Channel 21100 | Channel 21375 |
|            |           |         | 2507.5 MHz    | 2535 MHz      | 2562.5 MHz    |
|            |           | RX      | Channel 2825  | Channel 3100  | Channel 3375  |
|            |           |         | 2627.5 MHz    | 2655 MHz      | 2682.5 MHz    |
|            | 20MHz     | TX      | Channel 20850 | Channel 21100 | Channel 21350 |
|            |           |         | 2510 MHz      | 2535 MHz      | 2560 MHz      |
|            |           | RX      | Channel 2850  | Channel 3100  | Channel 3350  |
|            |           |         | 2630 MHz      | 2655 MHz      | 2680 MHz      |

| Test Mode   | Bandwidth | TX / RX | RF Channel    |               |               |
|-------------|-----------|---------|---------------|---------------|---------------|
|             |           |         | Low (L)       | Middle (M)    | High (H)      |
| LTE Band 12 | 1.4MHz    | TX      | Channel 23017 | Channel 23095 | Channel 23173 |
|             |           |         | 699.7 MHz     | 707.5 MHz     | 715.3 MHz     |
|             |           | RX      | Channel 5017  | Channel 5095  | Channel 5173  |
|             |           |         | 729.7 MHz     | 737.5 MHz     | 745.3 MHz     |
|             | 3MHz      | TX      | Channel 23025 | Channel 23095 | Channel 23165 |
|             |           |         | 700.5 MHz     | 707.5 MHz     | 714.5 MHz     |
|             |           | RX      | Channel 5025  | Channel 5095  | Channel 5165  |
|             |           |         | 730.5 MHz     | 737.5 MHz     | 744.5 MHz     |
|             | 5MHz      | TX      | Channel 23035 | Channel 23095 | Channel 23155 |

|  |       |    |               |               |               |
|--|-------|----|---------------|---------------|---------------|
|  |       | RX | 701.5 MHz     | 707.5 MHz     | 713.5 MHz     |
|  |       |    | Channel 5035  | Channel 5095  | Channel 5155  |
|  |       |    | 731.5 MHz     | 737.5 MHz     | 743.5 MHz     |
|  | 10MHz | TX | Channel 23060 | Channel 23095 | Channel 23130 |
|  |       |    | 704 MHz       | 707.5 MHz     | 711 MHz       |
|  |       | RX | Channel 5060  | Channel 5095  | Channel 5130  |
|  |       |    | 734 MHz       | 737.5 MHz     | 741 MHz       |

| Test Mode   | Bandwidth | TX / RX | RF Channel    |               |               |
|-------------|-----------|---------|---------------|---------------|---------------|
|             |           |         | Low (L)       | Middle (M)    | High (H)      |
| LTE Band 13 | 5MHz      | TX      | Channel 23025 | Channel 23230 | Channel 23255 |
|             |           |         | 779.5 MHz     | 782 MHz       | 784.5 MHz     |
|             |           | RX      | Channel 5205  | Channel 5230  | Channel 5255  |
|             |           |         | 748.5 MHz     | 751 MHz       | 753.5 MHz     |
|             | 10MHz     | TX      | Channel 23230 | Channel 23230 | Channel 23230 |
|             |           |         | 782 MHz       | 782 MHz       | 782 MHz       |
|             |           | RX      | Channel 5230  | Channel 5230  | Channel 5230  |
|             |           |         | 751 MHz       | 751 MHz       | 751 MHz       |

| Test Mode   | Bandwidth | TX / RX | RF Channel    |               |               |
|-------------|-----------|---------|---------------|---------------|---------------|
|             |           |         | Low (L)       | Middle (M)    | High (H)      |
| LTE Band 17 | 5MHz      | TX      | Channel 23755 | Channel 23790 | Channel 23825 |
|             |           |         | 706.5 MHz     | 710 MHz       | 713.5 MHz     |
|             |           | RX      | Channel 5755  | Channel 5790  | Channel 5825  |
|             |           |         | 736.5 MHz     | 740 MHz       | 743.5 MHz     |
|             | 10MHz     | TX      | Channel 23780 | Channel 23790 | Channel 23800 |
|             |           |         | 709 MHz       | 710 MHz       | 711 MHz       |
|             |           | RX      | Channel 5780  | Channel 5790  | Channel 5800  |
|             |           |         | 739 MHz       | 740 MHz       | 741 MHz       |

| Test Mode   | Bandwidth | TX / RX | RF Channel    |               |               |
|-------------|-----------|---------|---------------|---------------|---------------|
|             |           |         | Low (L)       | Middle (M)    | High (H)      |
| LTE Band 25 | 1.4MHz    | TX      | Channel 26047 | Channel 26365 | Channel 26683 |
|             |           |         | 1850.7 MHz    | 1882.5 MHz    | 1914.3 MHz    |
|             |           | RX      | Channel 8047  | Channel 8365  | Channel 8683  |
|             |           |         | 1930.7 MHz    | 1962.5 MHz    | 1994.3 MHz    |
|             | 3MHz      | TX      | Channel 26055 | Channel 26365 | Channel 26675 |
|             |           |         | 1851.5 MHz    | 1882.5 MHz    | 1913.5 MHz    |
|             |           | RX      | Channel 8055  | Channel 8365  | Channel 8675  |
|             |           |         | 1931.5 MHz    | 1962.5 MHz    | 1993.5 MHz    |
|             | 5MHz      | TX      | Channel 26065 | Channel 26365 | Channel 26665 |
|             |           |         | 1852.5 MHz    | 1882.5 MHz    | 1912.5 MHz    |
|             |           | RX      | Channel 8065  | Channel 8365  | Channel 8665  |
|             |           |         | 1932.5 MHz    | 1962.5 MHz    | 1987.5 MHz    |
|             | 10MHz     | TX      | Channel 26090 | Channel 26365 | Channel 26640 |
|             |           |         | 1855 MHz      | 1882.5 MHz    | 1910 MHz      |
|             |           | RX      | Channel 8090  | Channel 8365  | Channel 8640  |
|             |           |         | 1935 MHz      | 1962.5 MHz    | 1990 MHz      |
|             | 15MHz     | TX      | Channel 26115 | Channel 26365 | Channel 26615 |
|             |           |         | 1857.5 MHz    | 1882.5 MHz    | 1907.5 MHz    |
|             |           | RX      | Channel 8115  | Channel 8365  | Channel 8615  |
|             |           |         | 1937.5 MHz    | 1962.5 MHz    | 1987.5 MHz    |
|             | 20MHz     | TX      | Channel 26140 | Channel 26365 | Channel 26590 |
|             |           |         | 1860 MHz      | 1882.5 MHz    | 1905 MHz      |
|             |           | RX      | Channel 8140  | Channel 8365  | Channel 8590  |
|             |           |         | 1940 MHz      | 1962.5 MHz    | 1985 MHz      |

| Test Mode                    | Bandwidth | TX / RX | RF Channel    |               |               |
|------------------------------|-----------|---------|---------------|---------------|---------------|
|                              |           |         | Low (L)       | Middle (M)    | High (H)      |
| LTE Band 26<br>(814-824 MHz) | 1.4MHz    | TX      | Channel 26697 | Channel 26740 | Channel 26783 |
|                              |           |         | 814.7 MHz     | 819 MHz       | 823.3 MHz     |
|                              |           | RX      | Channel 8697  | Channel 8740  | Channel 8783  |
|                              |           |         | 859.7 MHz     | 864MHz        | 868.3 MHz     |
|                              | 3MHz      | TX      | Channel 26705 | Channel 26740 | Channel 26775 |
|                              |           |         | 815.5 MHz     | 819 MHz       | 822.5 MHz     |
|                              |           | RX      | Channel 8705  | Channel 8740  | Channel 8775  |
|                              |           |         | 860.5 MHz     | 864MHz        | 867.5 MHz     |
|                              | 5MHz      | TX      | Channel 26715 | Channel 26740 | Channel 26765 |
|                              |           |         | 816.5 MHz     | 819 MHz       | 821.5 MHz     |
|                              |           | RX      | Channel 8715  | Channel 8740  | Channel 8755  |
|                              |           |         | 861.5 MHz     | 864MHz        | 866.5 MHz     |
|                              | 10MHz     | TX      | Channel 26740 | Channel 26740 | Channel 26740 |
|                              |           |         | 819 MHz       | 819 MHz       | 819 MHz       |
|                              |           | RX      | Channel 8740  | Channel 8740  | Channel 8740  |
|                              |           |         | 864MHz        | 864MHz        | 864MHz        |

| Test Mode                    | Bandwidth | TX / RX | RF Channel    |               |               |
|------------------------------|-----------|---------|---------------|---------------|---------------|
|                              |           |         | Low (L)       | Middle (M)    | High (H)      |
| LTE Band 26<br>(824-849 MHz) | 1.4MHz    | TX      | Channel 26797 | Channel 26915 | Channel 27033 |
|                              |           |         | 824.7 MHz     | 836.5 MHz     | 848.3 MHz     |
|                              |           | RX      | Channel 8697  | Channel 8915  | Channel 9033  |
|                              |           |         | 859.7 MHz     | 881.5 MHz     | 893.3 MHz     |
|                              | 3MHz      | TX      | Channel 26805 | Channel 26915 | Channel 27025 |
|                              |           |         | 825.5 MHz     | 836.5 MHz     | 847.5 MHz     |
|                              |           | RX      | Channel 8805  | Channel 8915  | Channel 9025  |
|                              |           |         | 860.5 MHz     | 881.5 MHz     | 892.5 MHz     |
|                              | 5MHz      | TX      | Channel 26815 | Channel 26915 | Channel 27015 |
|                              |           |         | 826.5 MHz     | 836.5 MHz     | 846.5 MHz     |
|                              |           | RX      | Channel 8815  | Channel 8915  | Channel 9015  |
|                              |           |         | 871.5 MHz     | 881.5 MHz     | 891.5 MHz     |
|                              | 10MHz     | TX      | Channel 26840 | Channel 26915 | Channel 26990 |
|                              |           |         | 829 MHz       | 836.5 MHz     | 844 MHz       |
|                              |           | RX      | Channel 8840  | Channel 8915  | Channel 8990  |
|                              |           |         | 874 MHz       | 881.5 MHz     | 889 MHz       |
|                              | 15MHz     | TX      | Channel 26865 | Channel 26915 | Channel 26965 |
|                              |           |         | 831.5 MHz     | 836.5 MHz     | 841.5 MHz     |
|                              |           | RX      | Channel 8865  | Channel 8915  | Channel 8965  |
|                              |           |         | 876.5 MHz     | 881.5 MHz     | 886.5 MHz     |

| Test Mode   | Bandwidth | TX / RX | RF Channel    |               |               |
|-------------|-----------|---------|---------------|---------------|---------------|
|             |           |         | Low (L)       | Middle (M)    | High (H)      |
| LTE Band 38 | 5MHz      | TX/RX   | Channel 37775 | Channel 38000 | Channel 38225 |
|             |           |         | 2572.5 MHz    | 2595 MHz      | 2617.5 MHz    |
|             | 10MHz     | TX/RX   | Channel 37800 | Channel 38000 | Channel 38200 |
|             |           |         | 2575 MHz      | 2595 MHz      | 2615 MHz      |
|             | 15MHz     | TX/RX   | Channel 37825 | Channel 38000 | Channel 38175 |
|             |           |         | 2577.5 MHz    | 2595 MHz      | 2612.5 MHz    |
|             | 20MHz     | TX/RX   | Channel 37850 | Channel 38000 | Channel 38150 |
|             |           |         | 2580 MHz      | 2595 MHz      | 2610 MHz      |

| Test Mode                     | Bandwidth | TX / RX | RF Channel    |               |               |
|-------------------------------|-----------|---------|---------------|---------------|---------------|
|                               |           |         | Low (L)       | Middle (M)    | High (H)      |
| LTE Band 40<br>(2305-2315MHz) | 5MHz      | TX/RX   | Channel 38725 | Channel 38750 | Channel 38775 |
|                               |           |         | 2307.5 MHz    | 2310 MHz      | 2312.5 MHz    |
|                               | 10MHz     | TX/RX   | Channel 38750 | Channel 38750 | Channel 38750 |
|                               |           |         | 2310 MHz      | 2310 MHz      | 2310 MHz      |

| Test Mode                     | Bandwidth | TX / RX | RF Channel    |               |               |
|-------------------------------|-----------|---------|---------------|---------------|---------------|
|                               |           |         | Low (L)       | Middle (M)    | High (H)      |
| LTE Band 40<br>(2350-2360MHz) | 5MHz      | TX/RX   | Channel 39175 | Channel 39200 | Channel 39225 |
|                               |           |         | 2352.5 MHz    | 2355 MHz      | 2357.5 MHz    |
|                               | 10MHz     | TX/RX   | Channel 38750 | Channel 39200 | Channel 38750 |
|                               |           |         | 2310 MHz      | 2355 MHz      | 2310 MHz      |

| Test Mode   | Bandwidth | TX / RX | RF Channel    |              |               |
|-------------|-----------|---------|---------------|--------------|---------------|
|             |           |         | Low (L)       | Middle (M)   | High (H)      |
| LTE Band 41 | 5MHz      | TX/RX   | Channel 39675 | Channel40620 | Channel 41565 |
|             |           |         | 2498.5 MHz    | 2593 MHz     | 2687.5 MHz    |
|             | 10MHz     | TX/RX   | Channel 39700 | Channel40620 | Channel 41540 |
|             |           |         | 2501 MHz      | 2593 MHz     | 2685 MHz      |
|             | 15MHz     | TX/RX   | Channel 39725 | Channel40620 | Channel 41515 |
|             |           |         | 2503.5 MHz    | 2593 MHz     | 2682.5 MHz    |
|             | 20MHz     | TX/RX   | Channel 39750 | Channel40620 | Channel 41490 |
|             |           |         | 2506 MHz      | 2593 MHz     | 2680 MHz      |

----- The following blanks -----

### 3. LABORATORY AND ACCREDITATIONS AND MEASUREMENT UNCERTAINTY

#### 3.1 LABORATORY

The tests & measurements refer to this report were performed by Shenzhen EMC Laboratory of GRG Metrology & Test group Co., Ltd.

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#### 3.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

|            |                            |
|------------|----------------------------|
| <b>USA</b> | A2LA(Certificate #2861.01) |
|------------|----------------------------|

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

|               |                                                              |
|---------------|--------------------------------------------------------------|
| <b>Canada</b> | ISED (Company Number: 24897, CAB identifier:CN0069)          |
| <b>USA</b>    | FCC (Registration Number: 759402, Designation Number:CN1198) |

Copies of granted accreditation certificates are available for downloading from our web site,  
<http://www.grgtest.com>

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### 3.3 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

| Measurement       |            | Frequency     | Uncertainty |
|-------------------|------------|---------------|-------------|
| Radiated Emission | Horizontal | 30MHz~1000MHz | 3.7dB       |
|                   |            | 1GHz~18GHz    | 4.5dB       |
|                   |            | 18GHz~40GHz   | 4.3dB       |
|                   | Vertical   | 30MHz~1000MHz | 3.7dB       |
|                   |            | 1GHz~18GHz    | 4.5dB       |
|                   |            | 18GHz~40GHz   | 4.3dB       |
|                   | Coaxial    | 9kHz~30MHz    | 4.5dB       |
|                   | Coplanar   | 9kHz~30MHz    | 4.5dB       |

| Measurement                  | Uncertainty          |
|------------------------------|----------------------|
| RF frequency                 | $6.0 \times 10^{-6}$ |
| RF power conducted           | 0.8dB                |
| Occupied channel bandwidth   | 0.4dB                |
| Unwanted emission, conducted | 0.7dB                |
| Humidity                     | 6%                   |
| Temperature                  | 2°C                  |

This uncertainty represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .

----- The following blanks -----

**4. LIST OF USED TEST EQUIPMENT AT GRGT**

Conducted System :

| Name of Equipment                   | Manufacturer | Model      | Serial Number | Calibration Due |
|-------------------------------------|--------------|------------|---------------|-----------------|
| Spectrum Analyzer                   | Keysight     | N9010B     | MY60680122    | 2024-03-19      |
| Wideband radio Communication Tester | R&S          | CMW500     | 144611-nc     | 2024-04-16      |
| Wideband radio Communication Tester | Anritsu      | MT8821C    | 6202155047    | 2024-03-27      |
| Temperature chamber                 | HOSON        | HS01060SDF | 201013401     | 2024-02-02      |
| RF switch box                       | Tonscend     | JS0806-1   | 20D8060250    | /               |
| Test SW                             | Tonscend     | JS1120     | /             | /               |
| Dc Source                           | LW           | PS-305DM   | 180704488     | 2024-02-16      |

RSE system:

| Name of Equipment                   | Manufacturer | Model            | Serial Number | Calibration Due |
|-------------------------------------|--------------|------------------|---------------|-----------------|
| Spectrum Analyzer                   | Keysight     | N9010B           | MY60680122    | 2024-03-19      |
| Loop Antenna                        | TESEQ        | HLA6121          | 52599         | 2024-02-03      |
| Bi-log Antenna                      | Schwarzbeck  | VULB9163         | 01279         | 2024-03-05      |
| Horn Antenna                        | Schwarzbeck  | BBHA9120D (1201) | 02143         | 2023-10-15      |
| Horn Antenna                        | Schwarzbeck  | BBHA9170         | BBHA 9170-497 | 2023-10-14      |
| Amplifier                           | tonscend     | TAP9E6343        | AP20E806065   | 2024-04-16      |
| Amplifier                           | tonscend     | TAP01018048      | AP20E8060075  | 2024-04-11      |
| Amplifier                           | tonscend     | TAP184050        | AP20E806070   | 2024-04-11      |
| Wideband radio Communication Tester | R&S          | CMW500           | 144611-nc     | 2024-04-16      |
| Wideband radio Communication Tester | Anritsu      | MT8821C          | 6202155047    | 2024-03-27      |
| Test S/W                            | tonscend     | JS36-RSE/2.5.1.5 |               |                 |

## 5. EFFECTIVE (ISOTROPIC) RADIATED POWER OUTPUT DATA

### 5.1 LIMIT

According to FCC section 22.913 (a)(5), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC section 24.232 (c) the mobile and portable stations are limited to 2 watts EIRP.

According to FCC section 27.50 (a)(3), for mobile and portable stations transmitting in the 2305–2315 MHz band or the 2350–2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, *except that* for mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth. For mobile and portable stations using time division duplexing (TDD) technology, the duty cycle must not exceed 38 percent in the 2305–2315 MHz and 2350–2360 MHz bands. Mobile and portable stations using FDD technology are restricted to transmitting in the 2305–2315 MHz band. Power averaging shall not include intervals in which the transmitter is off.

According to FCC section 27.50 (d)(4), mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

According to FCC section 27.50 (h)(2), Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

According to FCC section 27.50 (c)(10), Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

According to FCC section 27.50 (b)(10), Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

### 5.2 TEST PROCEDURES

Measurement Procedure: FCC KDB 971168 D01 V03r01

1. Connect the test system to the UE antenna connector.
2. A call is set up according to the Generic call setup procedure.
3. Set and send continuously up power control commands to the UE, until the UE output power shall be maximum level.
4. Read the conducted power in the base station.

Remark:

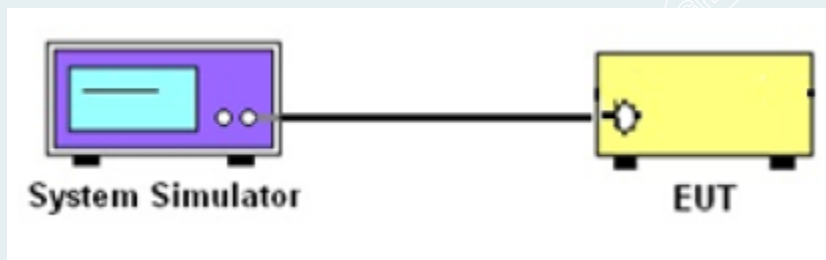
- a: For getting the EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should be taken to calculate it,

$$\text{EIRP [dBm]} = \text{Conducted output power [dBm]} + \text{Gain [dBi]}$$

$$\text{ERP [dBm]} = \text{Conducted output power [dBm]} + \text{Gain [dBi]} - 2.15\text{dB}$$

$$P [\text{dBm}] = 10 \lg(P/1\text{mw})$$

### 5.3 TEST SETUP



#### 5.4 TEST RESULTS

Please refer to the attached document E202304116396-7 ANNEX-A EFFECTIVE (ISOTROPIC) RADIATED POWER OUTPUT DATA.

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## 6. PEAK-TO-AVERAGE RATIO

### 6.1 LIMIT

According to FCC section 24.232(d), 27.50 (d)(5), the peak to average ratio (PAR) of the transmission may not exceed 13dB.

### 6.2 TEST PROCEDURES

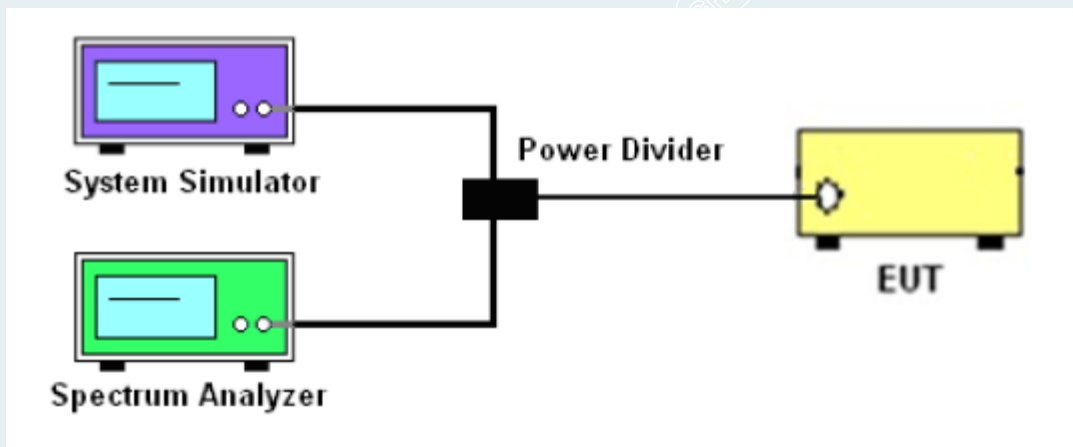
Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 5.7.1

A peak to average ratio measurement is performed at the conducted port of the EUT. For WWAN signals, the spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level.

#### Test Settings

1. The signal analyzer's CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW > Emission bandwidth of signal
4. The signal analyzer was set to collect one million samples to generate the CCDF curve
5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

### 6.3 TEST SETUP



----- The following blanks -----

#### 6.4 TEST RESULTS

Please refer to the attached document E202304116396-7 ANNEX-B PEAK-TO-AVERAGE RATIO.

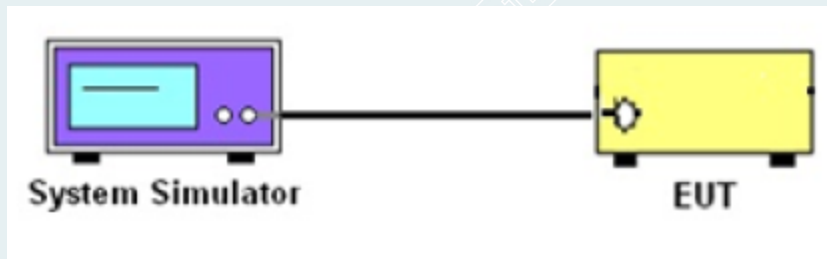
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## 7. MODULATION CHARACTERISTICS

### 7.1 TEST PROCEDURES

The devices may employ any type of modulation techniques. The type of modulation used must be reported.

### 7.2 TEST SETUP



----- The following blanks -----

### 7.3 TEST RESULTS

Please refer to the attached document E202304116396-7 ANNEX-C MODULATION CHARACTERISTICS.

----- The following blanks -----

## 8. BANDWIDTH

### 8.1 LIMIT

According to FCC section 2.1049, OBW and EBW no limit.

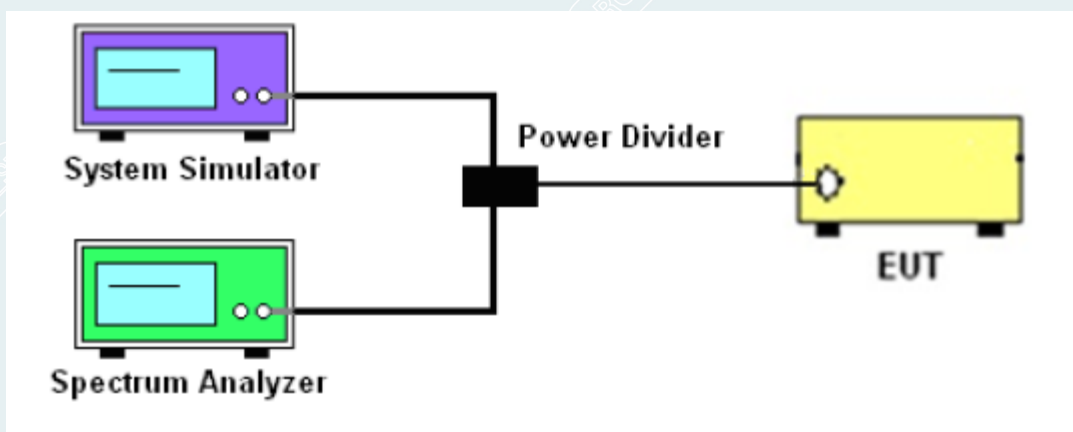
### 8.2 TEST PROCEDURES

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyser, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel, middle channel and high channel). The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1 percent of the selected span as is possible without being below 1 percent. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual. The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 percent of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth.

#### Test Settings

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2.  $RBW = 1\text{--}5\%$  of the expected OBW
3.  $VBW \geq 3 \times RBW$
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1- 5% of the 99% occupied bandwidth observed in Step 7

### 8.3 TEST SETUP



#### 8.4 TEST RESULTS

Please refer to the attached document E202304116396-7 ANNEX-D BANDWIDTH.

----- The following blanks -----

## 9. BAND EDGES COMPLIANCE

### 9.1 LIMIT

According to FCC section 22.917(a), 24.238(a)(b), 27.53(h)(1)(3)(i), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43+10\log(P)$  dB. B2/4/5

According to FCC section 27.53(a)(4) For mobile and portable stations operating in the 2305–2315 MHz and 2350–2360 MHz bands: By a factor of not less than:  $43 + 10 \log (P)$  dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than  $55 + 10 \log (P)$  dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than  $61 + 10 \log (P)$  dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than  $67 + 10 \log (P)$  dB on all frequencies between 2328 and 2337 MHz; By a factor of not less than  $43 + 10 \log (P)$  dB on all frequencies between 2300 and 2305 MHz,  $55 + 10 \log (P)$  dB on all frequencies between 2296 and 2300 MHz,  $61 + 10 \log (P)$  dB on all frequencies between 2292 and 2296 MHz,  $67 + 10 \log (P)$  dB on all frequencies between 2288 and 2292 MHz, and  $70 + 10 \log (P)$  dB below 2288 MHz; By a factor of not less than  $43 + 10 \log (P)$  dB on all frequencies between 2360 and 2365 MHz, and not less than  $70 + 10 \log (P)$  dB above 2365 MHz.

According to FCC section 27.53(m)(4), For mobile digital stations, the attenuation factor shall be not less than  $40+10\log (P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43+10\log (P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55+10\log (P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than  $43+10\log(P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55+10\log(P)$  dB at or below 2490.5 MHz.

According to FCC section 27.53(9), For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least  $43+10\log(P)$  dB. According to FCC section 27.53(c)(3), On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43+10\log(P)$  dB.

### 9.2 TEST PROCEDURES

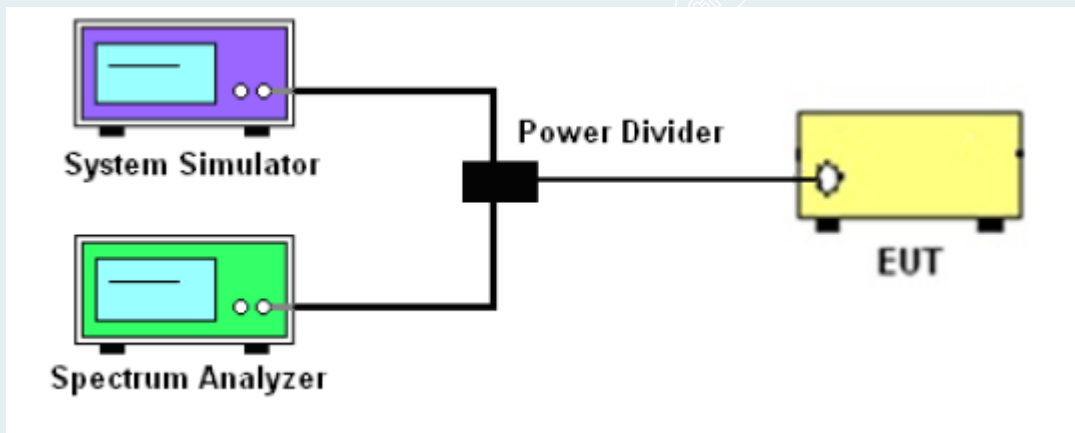
Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 6

The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyser, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at two frequencies (low channel and high channel). in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of 100kHz or 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed. The EUT emission bandwidth is measured as the width of the signal between two points, outside of which all emission are attenuated at least 26dB below the transmitter power. The video bandwidth of the spectrum analyzer was set at thrice the resolution bandwidth. Detector Mode was set to peak or peak hold power.

#### Test Settings

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW  $\geq$  1% of the emission bandwidth
4. VBW  $\geq 3 \times$  RBW
5. Detector = RMS
6. Number of sweep points  $\geq 2 \times$  Span/RBW
7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
8. Sweep time = auto couple
9. The trace was allowed to stabilize

### 9.3 TEST SETUP



#### 9.4 TEST RESULTS

Please refer to the attached document E202304116396-7 ANNEX-E BAND EDGES COMPLIANCE.

----- The following blanks -----

## 10. SPURIOUS EMISSION AT ANTENNA TERMINAL

### 10.1 LIMIT

According to FCC section 22.917(a), 24.238(a)(b), 27.53(h)(1), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43+10\log(P)$  dB.

According to FCC section 27.53(A)(4),  $70 + 10 \log (P)$  dB below 2288 MHz and above 2365 MHz.

According to FCC section 27.53(m)(4),  $55+10\log(P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. and  $55+10 \log (P)$  dB at or below 2490.5 MHz.

According to FCC section 27.53(9), For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least  $43+10\log(P)$  dB.

According to FCC section 27.53(c)(3), On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43+10\log(P)$  dB.

### 10.2 TEST PROCEDURES

Measurement Procedure: FCC KDB 971168 D01 V03r01

The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyzer, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel and high channel). The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log(P)$  dB. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

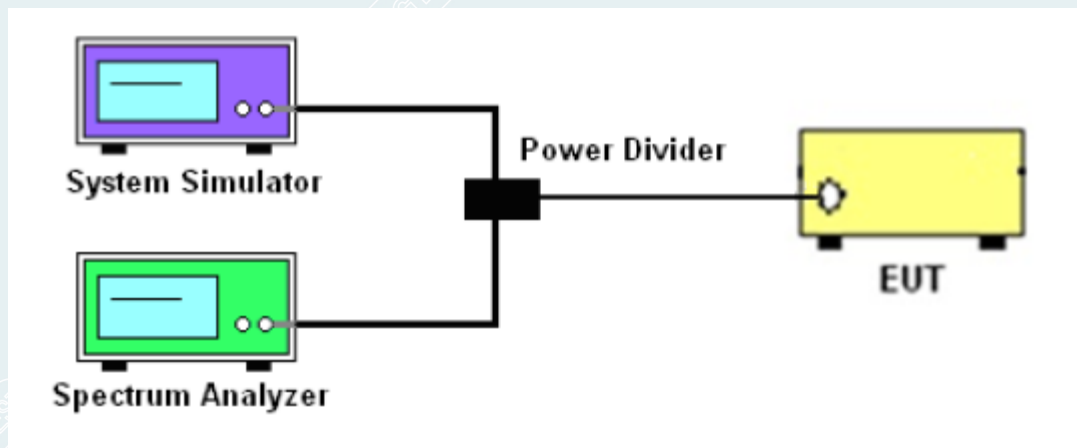
#### Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to at least 10\*the fundamental frequency (separated into at least two plots per channel)
2. Detector=RMS
3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
4. Sweep time = auto couple
5. The trace was allowed to stabilize
6. Please see test notes below for RBW and VBW settings

#### Remark:

The disturbance below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the worst case data had been displayed.

### 10.3 TEST SETUP



### 10.4 TEST RESULTS

Please refer to the attached document E202304116396-7 ANNEX-F SPURIOUS EMISSION AT ANTENNA TERMINAL.

----- The following blanks -----

## 11. FREQUENCY STABILITY

### 11.1 LIMIT

According to FCC section 22.355, frequency stability of the transmission may not exceed  $\pm 2.5\text{ppm}$ .

### 11.2 TEST PROCEDURES

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 9

#### Frequency stability over variations in temperature

1. The EUT was set up in the thermal chamber and connected with the base station.
2. With power off, temperature was decreased to  $-30\text{ }^{\circ}\text{C}$  and EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power off, the temperature was risen in  $-30\text{ }^{\circ}\text{C}$  step up to  $50\text{ }^{\circ}\text{C}$ . The EUT was stabilizes at each step for at least half an hour at. Power was applied the maximum frequency change was recorded within one minute.

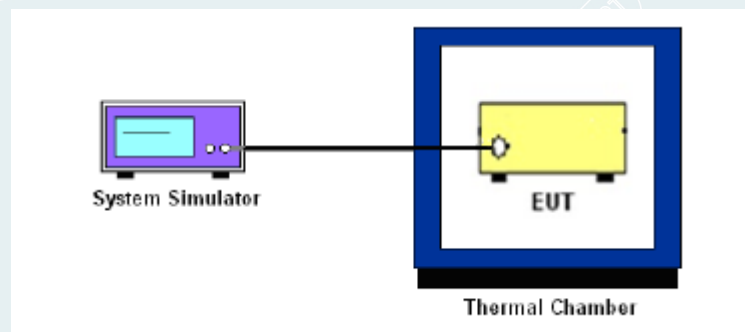
#### Frequency stability when varying supply voltage

1. The EUT was placed in a temperature chamber at  $20\pm 5\text{ }^{\circ}\text{C}$  and connected with the system simulator.
2. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value for other than hand carried battery equipment..
3. For hand carried battery powered equipment, reduce the primary AC or DC supply voltage to the battery operating end point, which shall be specified by the manufacturer.
4. In the worst case, frequency changes are measured.

#### Test Settings

N/A

### 11.3 TEST SETUP



### 11.4 TEST RESULTS

Please refer to the attached document E202304116396-15 ANNEX-G FREQUENCY STABILITY.

----- The following blanks -----

## 12. FIELD STRENGTH OF SPURIOUS RADIATION

### 12.1 LIMIT

According to FCC section 22.917(a), 24.238(a), 27.53(h)(1), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43+10\log(P)$  dB.

According to FCC section 27.53(m)(4),  $55 + 10 \log (P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. and  $55+10\log(P)$  dB at or below 2490.5 MHz.

According to FCC section 27.53(g), For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least  $43+10\log(P)$  dB.

According to FCC section 27.53(c)(3), On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43+10\log(P)$  dB.

According to FCC section 27.53(a)(4),  $70+10\log(P)$  dB below 2288 MHz and not less than  $70+10\log(P)$  dB above 2365 MHz.

According to FCC section 27.53(f), For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to  $-70$  dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals.  $-70$  dBW/MHz =  $-40$  dBm/ MHz

### 12.2 TEST PROCEDURES

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 7

#### **Below 1GHz test procedure as below:**

- 1). The EUT was powered ON and placed on a 80cm high table in the chamber. The antenna of the transmitter was extended to its maximum length.
- 2). The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) the receive antenna and by rotating through  $360^\circ$  the turntable. After the fundamental emission was maximized, a field strength measurement was made.
- 3). Steps 1) and 2) were performed with the EUT and the receive antenna in both vertical and horizontal polarization.

4). The transmitter was then removed and replaced with another antenna. The center of the antenna was approximately at the same location as the center of the transmitter.

5). A signal at the disturbance was fed to the substitution antenna by means of a non-radiating cable. With both the substitution and the receive antennas horizontally polarized, the receive antenna was raised and lowered to obtain a maximum reading at the test receiver. The level of the signal generator was adjusted until the measured field strength level in step 2) is obtained for this set of conditions.

6). The output power into the substitution antenna was then measured.

7). Steps 5) and 6) were repeated with both antennas polarized.

8) Calculate power in dBm by the following formula:

$$\text{ERP(dBm)} = \text{Pg(dBm)} - \text{cable loss (dB)} + \text{antenna gain (dBd)}$$

Where:

$P_d$  is the dipole equivalent power,  $P_g$  is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to  $P_g [\text{dBm}] - \text{cable loss [dB]}$ . The calculated  $P_d$  levels are then compared to the absolute spurious emission limit of  $-13\text{dBm}$  which is equivalent to the required minimum attenuation of  $43 + 10\log_{10}(\text{Power [Watts]})$ .

#### **Above 1GHz test procedure as below:**

1. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber

2. Calculate power in dBm by the following formula:

$$\text{EIRP(dBm)} = \text{Pg(dBm)} - \text{cable loss (dB)} + \text{antenna gain (dBi)}$$

$$\text{EIRP} = \text{ERP} + 2.15\text{dB}$$

Where:

$P_g$  is the generator output power into the substitution antenna.

3. Test the EUT in the lowest channel, the middle channel the Highest channel

4. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, Only the test worst case mode is recorded in the report.

5. Repeat above procedures until all frequencies measured was complete

### Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to at least 10\*the fundamental frequency (separated into at least two plots per channel)
2. RBW=100kHz for emission below 1GHz and 1MHz for emission above 1GHz.
3. Number of sweep point  $\geq 2 \times \text{span} / \text{RBW}$
4. Detector=RMS
5. Trace mode = trace average for continuous emissions, max hold for pulse emissions
6. The trace was allowed to stabilize

### 12.3 TEST SETUP

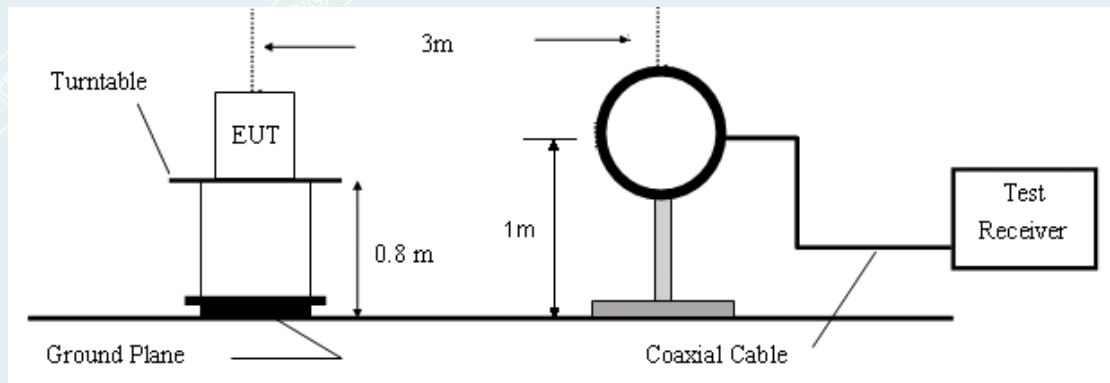


Figure 1. 9kHz to 30MHz radiated emissions test configuration

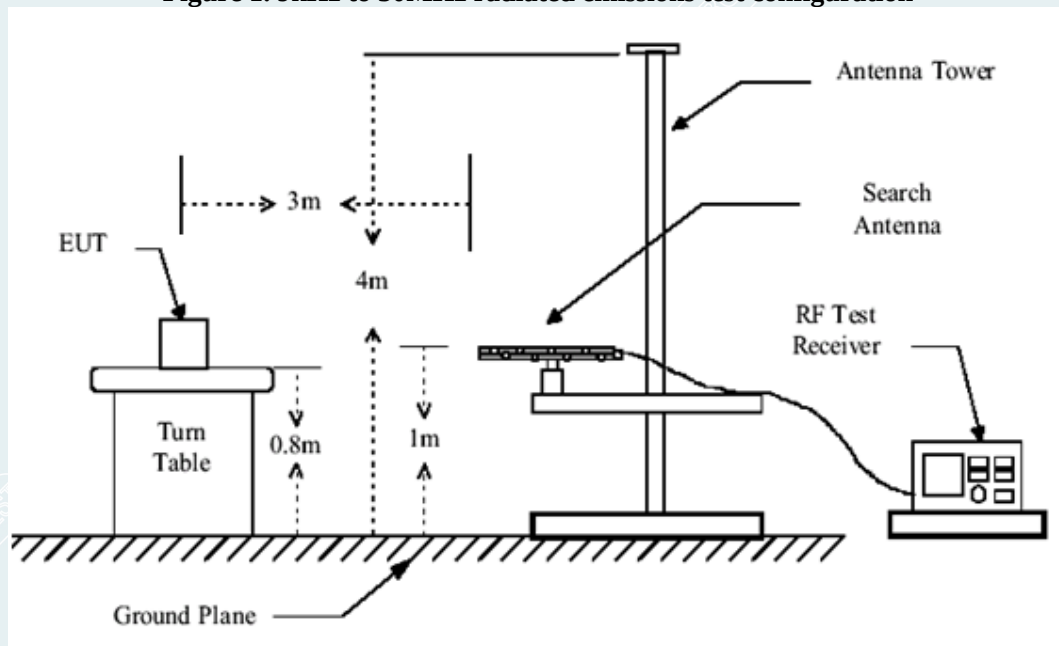
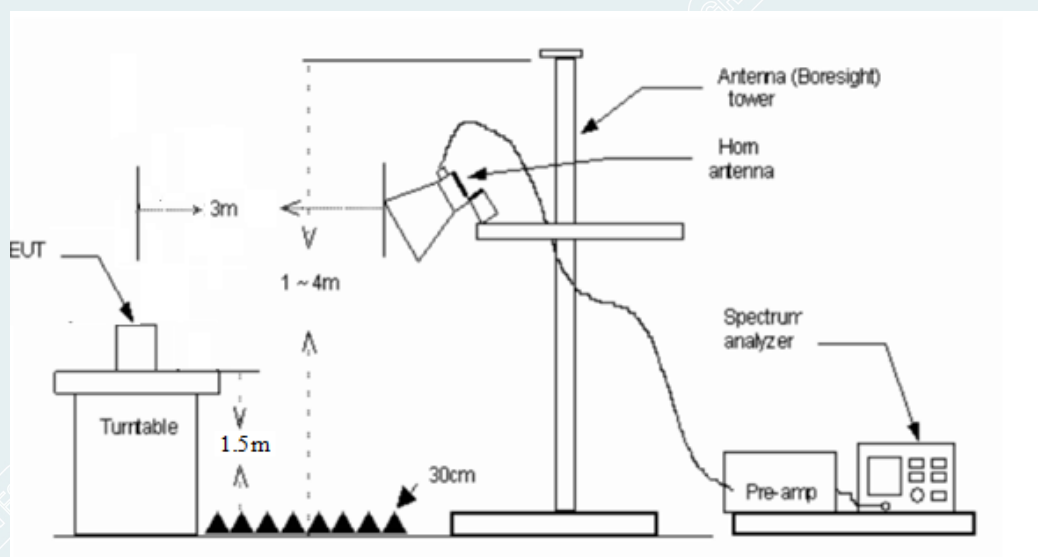
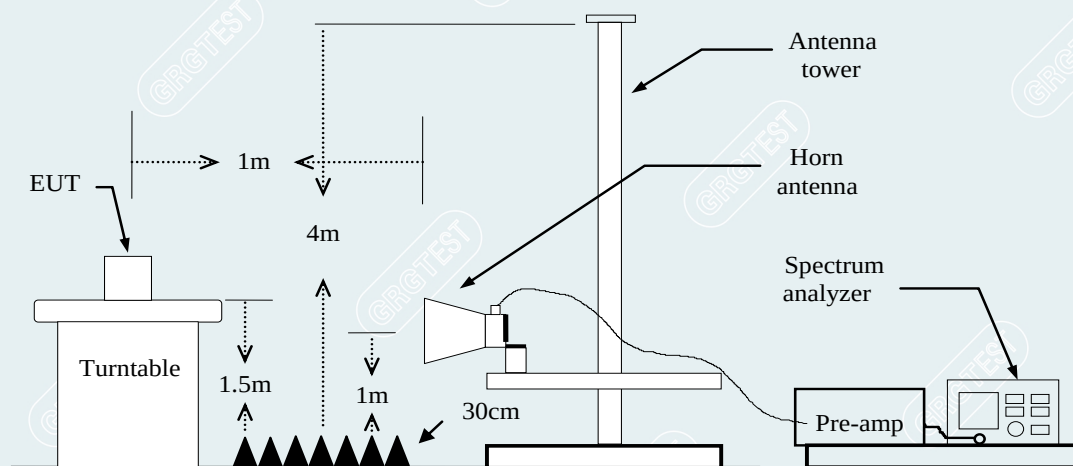


Figure 2. 30MHz to 1GHz radiated emissions test configuration



**Figure 3. 1GHz-18GHz radiated emissions test configuration**



**Figure 4. Above 18GHz radiated emissions test configuration**

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**12.4 DATA SAMPLE**

| NO. | Freq.<br>[MHz] | Reading<br>[dBm] | Level<br>[dBm] | Limit<br>[dBm] | Margin<br>[dB] | Factor<br>[dB] | Detector | Polarity   |
|-----|----------------|------------------|----------------|----------------|----------------|----------------|----------|------------|
| x   | xxxx           | -66.69           | -77.73         | -25.00         | 52.73          | -11.04         | RMS      | Horizontal |

Frequency (MHz) = Emission frequency in MHz

Ant.Pol. (H/V) = Antenna polarization

Reading (dBm) = Uncorrected Analyzer / Receiver reading

Result (dBm) = Reading (dBm) + Factor (dB)

Limit (dBm) = Limit stated in standard

Margin (dB) = Remark Result (dBm) – Limit (dBm)

Peak = Peak Reading

RMS = RMS Reading

AVG = Average Reading

## 12.5 TEST RESULTS

Please refer to the attached document E202304116396-16 ANNEX-H FIELD STRENGTH OF SPURIOUS RADIATION.

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### 13. TEST PHOTO

Please refer to the attached document E202304116396-Test Photo-FCC.

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#### 14. PHOTOGRAPH OF THE EUT

Please refer to the attached document E202304116396-EUT Photo-FCC.

----- End of Report -----