# FCC TEST REPORT

| | |
|---|---|
| **Name of Sample:** | **Mobile Cellular Phone** |
| **Model of Sample:** | **XT2429-2** |
| **Applicant:** | **Motorola Mobility LLC** |
| **Issue Date:** | **2024-03-22** |



## ADR TEST AND CERTIFICATION CENTER

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| | | | |
|---|---|---|---|
| **Name of Client** | Motorola Mobility LLC | | |
| **Address of Client** | 222 W, Merchandise Mart Plaza, Chicago IL 60654 USA | | |
| **Trademark** | Motorola | **Type Name or ID** | FCC ID: IHDT56AR5 |
| **Applicant No.** | RF175958 | **Sample No.** | 2#: NGCE240116 |
| **Delivering Date** | 2024-01-25 | **Test Date** | 2024-03-11 to 2024-03-22 |
| **Sample Illustration** | None | | |
| **Standard** | 47 CFR Part 2;<br>47 CFR Part 22;<br>47 CFR Part 24;<br>47 CFR Part 27;<br>47 CFR Part 90; | | |
| **Conclusion** | Pass | | |
| **Remarks** | N/A | | |

**Editor:** Wangzhenyu **Auditor:** Hexiaolin **Approver:** HuangshengLin

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a) The electronic report shall be valid after encryption.

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g) Context of the test report cannot be used partially or in full for publicity and/or promotional purposes without previous written approval of the lab.

# Revision History

| Report No. | Version | Description | Issued Date |
|---|---|---|---|
| TR-24ADRTCC7004 | Rev.01 | Initial issue of report | 2024-03-21 |
| TR-24ADRTCC7004 | Rev.02 | Update accessories information | 2024-03-22 |
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# Catalogue

# 1. Test Summary

## 1.1. 5G NR Band n5/n26

| Test Item | Rule No. | Requirements | Test Result | Verdict |
|---|---|---|---|---|
| Conducted Power | §2.1046 | Report Only | Section 1 of Appendix B | Pass |
| Effective Radiated Power | §22.913(a)(5) | ERP < 7W | | |

## 1.2. 5G NR Band n7/n38/n41

| Test Item | Rule No. | Requirements | Test Result | Verdict |
|---|---|---|---|---|
| Conducted Power | §2.1046 | Report Only | Section 1 of Appendix B | Pass |
| Effective Isotropic Radiated Power | §27.50(h) (2) | EIRP < 2W | | |
| Peak-Average Ratio | §27.50(a) | <13 dB | Section 2 of Appendix B | Pass |
| Modulation Characteristics | §2.1047 | Digital modulation | Section 3 of Appendix B | Pass |
| Occupied Bandwidth | §2.1049 | No limit | Section 4 of Appendix B | Pass |
| 26dB Emission Bandwidth | | No limit | | |
| Conducted Band Edges | §2.1051 §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 | Section 5 of Appendix B | Pass |
| Conducted Spurious Emission | §2.1051 §27.53(m) (4) | < -25 dBm/MHz for outside Band Edge Range | Section 6 of Appendix B | Pass |
| Frequency Stability | §27.54 | Within authorized bands | Section 7 of Appendix B | Pass |

## 1.3. 5G NR Band n26 (814-824)

| Test Item | Rule No. | Requirements | Test Result | Verdict |
|---|---|---|---|---|
| Conducted Power | §2.1046 §90.635 | Report Only | Section 1 of Appendix B | PASS |

## 1.4. 5G NR Band n71

| Test Item | Rule No | Requirements | Test Result | Verdict |
|---|---|---|---|---|
| Conducted Power | §2.1046 | Report Only | Section 1 of Appendix B | Pass |
| Effective Radiated Power | §27.50(c)(10) | ERP < 3W | | |
| Peak-Average Ratio | --- | <13 dB | Section 2 of Appendix B | Pass |
| Modulation Characteristics | §2.1047 | Digital modulation | Section 3 of Appendix B | Pass |
| Occupied Bandwidth | §2.1049 | No limit | Section 4 of Appendix B | Pass |
| 26dB Emission Bandwidth | | No limit | | |
| Conducted Band Edges | §2.1051 §27.53(g) | < -13 dBm/1%*EBW, in 1MHz bands immediately outside and adjacent to the frequency block | Section 5 of Appendix B | Pass |
| Conducted Spurious Emission | §2.1051 §27.53(g) | < -13 dBm/100kHz, from 9 kHz to 10th harmonics but outside authorized operating frequency ranges | Section 6 of Appendix B | Pass |
| Frequency Stability | §27.54 | Within authorized bands | Section 7 of Appendix B | Pass |

### 1.5. 5G NR Band n77 (3700-3980)/n78 (3700-3800)

| Test Item | Rule No. | Requirements | Test Result | Verdict |
|---|---|---|---|---|
| Conducted Power | §2.1046 | Report Only | Section 1 of Appendix B | Pass |
| Effective Isotropic Radiated Power | §27.50(j) (3) | EIRP < 1W | | |
| Peak-Average Ratio | §27.50(j) (4) | <13 dB | Section 2 of Appendix B | Pass |
| Modulation Characteristics | §2.1047 | Digital modulation | Section 3 of Appendix B | Pass |
| Occupied Bandwidth | §2.1049 | No limit | Section 4 of Appendix B | Pass |
| 26dB Emission Bandwidth | | No limit | | |
| Conducted Band Edges | §2.1051 §27.53(l) (2) | < -13 dBm/MHz | Section 5 of Appendix B | Pass |
| Conducted Spurious Emission | §2.1051 §27.53(l) (2) | < -13 dBm/MHz | Section 6 of Appendix B | Pass |
| Frequency Stability | §27.54 | Within authorized bands | Section 7 of Appendix B | Pass |

Remark:

1, Only 5G NR Bands conducted test performed and the data displayed in this report, the radiated spurious emission refer to the report (FG411904).

## 2. Summary of 5G NR Spot Check

| Test Item | Mode | Worst Mode Test Result | | Deviation (dB) | Limit (dB) |
|---|---|---|---|---|---|
| | | IHDT56AR4 | IHDT56AR5 | | |
| Conducted Power | n5 | 23.74 | 23.48 | 0.26 | 3 |
| | n7 | 23.36 | 23.27 | 0.09 | 3 |
| | n26 | 23.72 | 23.45 | 0.27 | 3 |
| | n38 | 23.69 | 23.54 | 0.15 | 3 |
| | n41 | 23.51 | 23.81 | -0.30 | 3 |

This application re-uses data collected on a similar device. The subject device of this application (Model: XT2429-2, FCC ID: IHDT56AR5) is electrically identical to the reference device (Model: XT2429-1, FCC ID: IHDT56AR4) for the portions of the circuitry corresponding to the data being re-used. Based on their similarity. The FCC Part 22, 24, 27,90(equipment class:PCE) referencing the original model's result and do spot check, following the FCC KDB484596 D01 Referencing Test Data v02r02.

Compared the device (Model: XT2429-2, FCC ID: IHDT56AR5) with the reference device (Model: XT2429-1, FCC ID: IHDT56AR4), the maximum conducted output power of band n41 increased 0.3dB, therefor, band n41 was defined as the worst band and full test the conducted item to demonstrate the compliance, and the data displayed in appendix B.1.

### Model difference information

The main difference between FCC ID: IHDT56AR4 and FCC ID: IHDT56AR5 is as below:

- Remove WCDMA Band IV, LTE B4/12/13/17/25/66 and 5G NR n2/n66.
- Add LTE B18/19/20/32/71 and 5G NR n8/n20/n71/n77.

Other difference and all the details of similarity and difference can be found in the confidential documents (XT2429-2_Operational Description of Product Equality Declaration).

# 3. Maximum Effective Radiated (Isotropic) Power and Emission Designator

## 3.1. NR System

### 3.1.1. NR Band n41 (2496-2690)

| 5G NR SA (n41A) | | Pi/2 BPSK / QPSK | | 16QAM/64QAM/256QAM | |
|---|---|---|---|---|---|
| Bandwidth | Frequency Range (MHz) | Maximum EIRP (W) | Emission Designator (99% OBW) | Maximum EIRP (W) | Emission Designator (99% OBW) |
| 10MHz | 2501.01-2685.00 | 0.102094 | 8M61G7D | 0.081283 | 8M61W7D |
| 15MHz | 2503.50-2682.48 | 0.104954 | 13M6G7D | 0.084528 | 13M6W7D |
| 20MHz | 2506.02-2679.99 | 0.103753 | 18M2G7D | 0.082985 | 18M2W7D |
| 30MHz | 2511.00-2674.98 | 0.106414 | 27M8G7D | 0.085507 | 27M9W7D |
| 40MHz | 2516.01-2670.00 | 0.106414 | 37M9G7D | 0.084723 | 38M0W7D |
| 50MHz | 2521.02-2664.99 | 0.105196 | 47M4G7D | 0.084333 | 47M6W7D |
| 60MHz | 2526.00-2659.98 | 0.120226 | 57M8G7D | 0.083368 | 57M9W7D |
| 70MHz | 2531.01-2655.00 | 0.103992 | 67M6G7D | 0.083946 | 67M6W7D |
| 80MHz | 2536.02-2649.99 | 0.119124 | 77M4G7D | 0.083753 | 77M5W7D |
| 90MHz | 2541.00-2644.98 | 0.116145 | 87M4G7D | 0.085704 | 87M6W7D |
| 100MHz | 2546.01-2640.00 | 0.112980 | 97M3G7D | 0.082414 | 97M3W7D |

### 3.1.2. NR Band n71 (663-698)

| 5G NR SA (n71A) | | Pi/2 BPSK / QPSK | | 16QAM/64QAM/256QAM | |
|---|---|---|---|---|---|
| Bandwidth | Frequency Range (MHz) | Maximum ERP (W) | Emission Designator (99% OBW) | Maximum ERP (W) | Emission Designator (99% OBW) |
| 5MHz | 665.50-695.50 | 0.038905 | 4M49G7D | 0.031046 | 4M52W7D |
| 10MHz | 668.00-693.00 | 0.038637 | 9M29G7D | 0.030339 | 9M29W7D |
| 15MHz | 670.50-690.50 | 0.038726 | 14M1G7D | 0.030832 | 13M6W7D |
| 20MHz | 673.00-688.00 | 0.039084 | 18M9G7D | 0.030974 | 18M9W7D |
| 25MHz | 675.50-685.50 | 0.042462 | 23M7G7D | 0.032961 | 23M8W7D |
| 30MHz | 678.00-683.00 | 0.040365 | 28M5G7D | 0.032137 | 28M6W7D |

### 3.1.3. NR Band n77 (3700-3980)

| 5G NR NSA (DC_7A_n77A) | | Pi/2 BPSK / QPSK | | 16QAM/64QAM/256QAM | |
|---|---|---|---|---|---|
| Bandwidth | Frequency Range (MHz) | Maximum EIRP (W) | Emission Designator (99% OBW) | Maximum EIRP (W) | Emission Designator (99% OBW) |
| 10MHz | 3705.00-3975.00 | 0.359749 | 8M61G7D | 0.314775 | 8M61W7D |
| 15MHz | 3707.52-3972.48 | 0.360579 | 13M6G7D | 0.308319 | 13M6W7D |
| 20MHz | 3710.01-3969.99 | 0.358096 | 18M2G7D | 0.309030 | 18M3W7D |
| 30MHz | 3715.02-3964.98 | 0.360579 | 27M8G7D | 0.306196 | 27M9W7D |
| 40MHz | 3720.00-3960.00 | 0.360579 | 37M9G7D | 0.308319 | 38M0W7D |
| 50MHz | 3725.01-3954.99 | 0.354813 | 47M5G7D | 0.311889 | 47M6W7D |
| 60MHz | 3730.02-3949.98 | 0.352371 | 57M8G7D | 0.314051 | 57M9W7D |
| 70MHz | 3735.00-3945.00 | 0.347536 | 67M6G7D | 0.296483 | 67M6W7D |

| | | | | | |
|---|---|---|---|---|---|
| 80MHz | 3740.01-3939.99 | 0.342768 | 77M5G7D | 0.301995 | 77M7W7D |
| 90MHz | 3745.02-3934.98 | 0.341193 | 87M4G7D | 0.305492 | 87M4W7D |
| 100MHz | 3750.00-3930.00 | 0.346737 | 97M3G7D | 0.303389 | 97M5W7D |

### 3.1.4. NR Band n78 (3700-3800)

| 5G NR SA (n78A) | | Pi/2 BPSK / QPSK | | 16QAM/64QAM/256QAM | |
|---|---|---|---|---|---|
| Bandwidth | Frequency Range (MHz) | Maximum EIRP (W) | Emission Designator (99% OBW) | Maximum EIRP (W) | Emission Designator (99% OBW) |
| 10MHz | 3705.00-3795.00 | 0.357273 | 8M61G7D | 0.301301 | 8M61W7D |
| 15MHz | 3707.52-3792.48 | 0.353183 | 13M6G7D | 0.309030 | 13M6W7D |
| 20MHz | 3710.01-3789.99 | 0.349945 | 18M2G7D | 0.304789 | 18M3W7D |
| 30MHz | 3715.02-3784.98 | 0.352371 | 27M9G7D | 0.299226 | 27M9W7D |
| 40MHz | 3720.00-3780.00 | 0.369828 | 38M0G7D | 0.303389 | 38M0W7D |
| 50MHz | 3725.01-3774.99 | 0.345144 | 47M4G7D | 0.288403 | 47M6W7D |
| 60MHz | 3730.02-3769.98 | 0.348337 | 57M9G7D | 0.293765 | 57M9W7D |
| 70MHz | 3735.00-3765.00 | 0.343558 | 67M4G7D | 0.296483 | 67M4W7D |
| 80MHz | 3740.01-3759.99 | 0.347536 | 77M5G7D | 0.296483 | 77M7W7D |
| 90MHz | 3745.02-3754.98 | 0.364754 | 87M4G7D | 0.301995 | 87M6W7D |
| 100MHz | 3750.00 | 0.355631 | 97M3G7D | 0.308319 | 97M5W7D |

# 4. General Information

## 4.1. General Description of EUT

| | |
|---|---|
| EUT Description: | Mobile Cellular Phone |
| Brand Name: | Motorola |
| Model Name: | XT2429-2 |
| FCC ID: | IHDT56AR5 |
| IMEI Code: | 2#: 353380310014153/ 353380310014161 (Conducted); |
| Hardware Version: | DVT2 |
| Software Version: | U2UU34.11 |
| NR Modulation: | DFT-s-OFDM: ☒Pi/2BPSK; ☒ QPSK; ☒ 16QAM; ☒ 64QAM; ☒ 256QAM;<br>CP-OFDM: ☒ QPSK; ☒ 16QAM; ☒ 64QAM; ☒ 256QAM; |
| Sample Type: | ☒ Portable Device, ☐Module |
| Antenna Type: | ☐External, ☒ Integrated |
| Antenna Gain: | n5: -3.00dBi (Ant0); -3.00dBi (Ant4);<br>n7: -3.00dBi (Ant1); -0.50dBi (Ant4);<br>n26: -3.00dBi (Ant0); -3.00dBi (Ant4);<br>n38: -3.00dBi (Ant1);<br>n41: -3.00dBi (Ant1);<br>n71: -5.00dBi (Ant0); -7.00dBi (Ant4);<br>n77: -1.00dBi (Ant2); 0.00dBi (Ant5); -4.00dBi (Ant7); -4.00dBi (Ant11);<br>n78: -1.00dBi (Ant2); 0.00dBi (Ant5); -4.00dBi (Ant7); -4.00dBi (Ant11); |

Remark

1, The information above was declared by manufacture. Please refer to the specifications or user manual for more detailed description.

## 4.2. Test Environment

| | | |
|---|---|---|
| Relative Humidity: | 52.0% - 62.0% | |
| Atmospheric Pressure: | 101.32 KPa | |
| Temperature: | NT (normal temperature) | 25.0 °C – 27.5 °C |
| Voltage: | LV (Low voltage) | 3.50V |
| | NV (Nominal voltage) | 3.91V |
| | HV (High voltage) | 4.50V |

## 4.3. Specification of Accessories

| Accessory | Brand Name | Model Name |
|---|---|---|
| AC Adapter 1(US) | Motorola (Chenyang) | MC-681N |
| AC Adapter 1(EU) | Motorola (Chenyang) | MC-682N |
| AC Adapter 1(UK) | Motorola (Chenyang) | MC-683N |
| AC Adapter 1(AU) | Motorola (Chenyang) | MC-685N |
| AC Adapter 1(AR) | Motorola (Chenyang) | MC-686N |
| AC Adapter 1(BR) | Motorola (Chenyang) | MC-687N |
| AC Adapter 1(CHILE) | Motorola (Chenyang) | MC-689N |
| AC Adapter 2(US) | Motorola (Acbel) | MC-681N |
| AC Adapter 2(EU) | Motorola (Acbel) | MC-682N |
| AC Adapter 2(UK) | Motorola (Acbel) | MC-683N |
| AC Adapter 2(AU) | Motorola (Acbel) | MC-685N |
| AC Adapter 2(AR) | Motorola (Acbel) | MC-686N |
| AC Adapter 2(BR) | Motorola (Acbel) | MC-687N |
| AC Adapter 2(IN) | Motorola (Acbel) | MC-684N |
| Battery 1 | Motorola (ALT) | QC50 |
| Battery 2 | Motorola (SCUD) | QC50 |
| USB Cable 1 | Motorola (Saibao) | SLQ-A248A |
| USB Cable 2 | Motorola (Juwei) | S928E3829 |
| USB Cable 3 | Motorola (Saibao) | SLQ-A248A |

# 5. Test Configuration of Equipment Under Test

## 5.1. Test Mode for NR Configuration

| Test Case | 5G NR | SCS | | Bandwidth | Modulation | | | | | Channel | | | RB | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 15KHz | 30KHz | | Pi/2BPSK | QPSK | 16QAM | 64QAM | 256QAM | LCH | MCH | HCH | 1 | Full |
| Effective Isotropic Radiated Power | N41 (2496-2690) | ○ | ● | All Supported BW | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | N71 (663-698) | ● | ○ | All Supported BW | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | N77 (3700-3980) | ○ | ● | All Supported BW | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | N78 (3700-3800) | ○ | ● | All Supported BW | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Peak-Average Ratio | N41 (2496-2690) | ○ | ● | Highest BW | ● | ● | ○ | ○ | ○ | ● | ● | ● | ○ | ● |
| | N71 (663-698) | ● | ○ | Highest BW | ● | ● | ○ | ○ | ○ | ● | ● | ● | ○ | ● |
| | N77 (3700-3980) | ○ | ● | Highest BW | ● | ● | ○ | ○ | ○ | ● | ● | ● | ○ | ● |
| | N78 (3700-3800) | ○ | ● | Highest BW | ● | ● | ○ | ○ | ○ | ● | ● | ● | ○ | ● |
| Modulation Characteristics | N41 (2496-2690) | ○ | ● | Highest BW | ● | ● | ● | ● | ● | ○ | ● | ○ | ○ | ● |
| | N71 (663-698) | ● | ○ | Highest BW | ● | ● | ● | ● | ● | ○ | ● | ○ | ○ | ● |
| | N77 (3700-3980) | ○ | ● | Highest BW | ● | ● | ● | ● | ● | ○ | ● | ○ | ○ | ● |
| | N78 (3700-3800) | ○ | ● | Highest BW | ● | ● | ● | ● | ● | ○ | ● | ○ | ○ | ● |
| Occupied Bandwidth & 26dB Emission Bandwidth | N41 (2496-2690) | ○ | ● | All Supported BW | ● | ● | ● | ● | ● | ○ | ● | ○ | ○ | ● |
| | N71 (663-698) | ● | ○ | All Supported BW | ● | ● | ● | ● | ● | ○ | ● | ○ | ○ | ● |
| | N77 (3700-3980) | ○ | ● | All Supported BW | ● | ● | ● | ● | ● | ○ | ● | ○ | ○ | ● |
| | N78 (3700-3800) | ○ | ● | All Supported BW | ● | ● | ● | ● | ● | ○ | ● | ○ | ○ | ● |
| Conducted Band Edges | N41 (2496-2690) | ○ | ● | All Supported BW | ● | ● | ○ | ○ | ○ | ● | ○ | ● | ● | ● |
| | N71 (663-698) | ● | ○ | All Supported BW | ● | ● | ○ | ○ | ○ | ● | ○ | ● | ● | ● |
| | N77 (3700-3980) | ○ | ● | All Supported BW | ● | ● | ○ | ○ | ○ | ● | ○ | ● | ● | ● |
| | N78 (3700-3800) | ○ | ● | All Supported BW | ● | ● | ○ | ○ | ○ | ● | ○ | ● | ● | ● |
| Conducted Spurious Emission | N41 (2496-2690) | ○ | ● | All Supported BW | ● | ● | ○ | ○ | ○ | ● | ● | ● | ● | ○ |
| | N71 (663-698) | ● | ○ | All Supported BW | ● | ● | ○ | ○ | ○ | ● | ● | ● | ● | ○ |
| | N77 (3700-3980) | ○ | ● | All Supported BW | ● | ● | ○ | ○ | ○ | ● | ● | ● | ● | ○ |
| | N78 (3700-3800) | ○ | ● | All Supported BW | ● | ● | ○ | ○ | ○ | ● | ● | ● | ● | ○ |
| Frequency Stability | N41 (2496-2690) | ○ | ● | Highest BW | ○ | ● | ○ | ○ | ○ | ○ | ● | ○ | ○ | ● |
| | N71 (663-698) | ● | ○ | Highest BW | ○ | ● | ○ | ○ | ○ | ○ | ● | ○ | ○ | ● |
| | N77 (3700-3980) | ○ | ● | Highest BW | ○ | ● | ○ | ○ | ○ | ○ | ● | ○ | ○ | ● |
| | N78 (3700-3800) | ○ | ● | Highest BW | ○ | ● | ○ | ○ | ○ | ○ | ● | ○ | ○ | ● |

Remark:

1, the mark "●" means this configuration was chosen for testing, mark "○" means not selected, and the mark "✘" means not applicable.

2, All Supported BW means all supported bandwidth for selected SCS configuration.

## 5.2. Test Frequencies

### 5.2.1. 5G NR System

#### 5.2.1.1. NR Band n5 (824-849)

##### 5.2.1.1.1. SCS=15KHz

| Bandwidth | LCH | | MCH | | HCH | |
|---|---|---|---|---|---|---|
| | Arfcn | Freq | Arfcn | Freq | Arfcn | Freq |
| 5MHz | 165300 | 826.5 | 167300 | 836.5 | 169300 | 846.5 |
| 10MHz | 165800 | 829.0 | 167300 | 836.5 | 168800 | 844.0 |
| 15MHZ | 166300 | 831.5 | 167300 | 836.5 | 168300 | 841.5 |
| 20MHz | 166800 | 834.0 | 167300 | 836.5 | 167800 | 839.0 |
| 25MHz | 167300 | 836.5 | 167300 | 836.5 | 167300 | 836.5 |

#### 5.2.1.2. NR Band n7 (2500-2570)

##### 5.2.1.2.1. SCS=15KHz

| Bandwidth | LCH | | MCH | | HCH | |
|---|---|---|---|---|---|---|
| | Arfcn | Freq | Arfcn | Freq | Arfcn | Freq |
| 5MHz | 500500 | 2502.5 | 507000 | 2535.0 | 513500 | 2567.5 |
| 10MHz | 501000 | 2505.0 | 507000 | 2535.0 | 513000 | 2565.0 |
| 15MHZ | 501500 | 2507.5 | 507000 | 2535.0 | 512500 | 2562.5 |
| 20MHz | 502000 | 2510.0 | 507000 | 2535.0 | 512000 | 2560.0 |
| 25MHz | 502500 | 2512.5 | 507000 | 2535.0 | 511500 | 2557.5 |
| 30MHz | 503000 | 2515.0 | 507000 | 2535.0 | 511000 | 2555.0 |
| 40MHz | 504000 | 2520.0 | 507000 | 2535.0 | 510000 | 2550.0 |

#### 5.2.1.3. NR Band n26 (814-824)

##### 5.2.1.3.1. SCS=15KHz

| Bandwidth | LCH | | MCH | | HCH | |
|---|---|---|---|---|---|---|
| | Arfcn | Freq | Arfcn | Freq | Arfcn | Freq |
| 5MHz | 163300 | 816.5 | 163800 | 819.0 | 164300 | 821.5 |
| 10MHz | 163800 | 819.0 | 163800 | 819.0 | 163800 | 819.0 |
| 15MHz | 164300 | 821.5 | 164300 | 821.5 | 164300 | 821.5 |
| 20MHz | 164800 | 824.0 | 164800 | 824.0 | 164800 | 824.0 |

#### 5.2.1.4. NR Band n26 (824-849)

##### 5.2.1.4.1. SCS=15KHz

| Bandwidth | LCH | | MCH | | HCH | |
|---|---|---|---|---|---|---|
| | Arfcn | Freq | Arfcn | Freq | Arfcn | Freq |
| 5MHz | 165300 | 826.5 | 167300 | 836.5 | 169300 | 846.5 |
| 10MHz | 165800 | 829.0 | 167300 | 836.5 | 168800 | 844.0 |
| 15MHZ | 166300 | 831.5 | 167300 | 836.5 | 168300 | 841.5 |
| 20MHz | 166800 | 834.0 | 167300 | 836.5 | 167800 | 839.0 |

### 5.2.1.5. NR Band n38 (2570-2620)

#### 5.2.1.5.1. SCS=30KHz

| Bandwidth | LCH | | MCH | | HCH | |
|---|---|---|---|---|---|---|
| | Arfcn | Freq | Arfcn | Freq | Arfcn | Freq |
| 10MHz | 515000 | 2575.0 | 519000 | 2595.0 | 523000 | 2615.0 |
| 15MHZ | 515500 | 2577.5 | 519000 | 2595.0 | 522500 | 2612.5 |
| 20MHz | 516000 | 2580.0 | 519000 | 2595.0 | 522000 | 2610.0 |
| 30MHz | 517000 | 2585.0 | 519000 | 2595.0 | 521000 | 2605.0 |
| 40MHz | 518000 | 2590.0 | 519000 | 2595.0 | 520000 | 2600.0 |

### 5.2.1.6. NR Band n41 (2496-2690)

#### 5.2.1.6.1. SCS=30KHz

| Bandwidth | LCH | | MCH | | HCH | |
|---|---|---|---|---|---|---|
| | Arfcn | Freq | Arfcn | Freq | Arfcn | Freq |
| 10MHz | 500202 | 2501.01 | 518598 | 2592.99 | 537000 | 2685.00 |
| 15MHz | 500700 | 2503.50 | 518598 | 2592.99 | 536496 | 2682.48 |
| 20MHz | 501204 | 2506.02 | 518598 | 2592.99 | 535998 | 2679.99 |
| 30MHz | 502200 | 2511.00 | 518598 | 2592.99 | 534996 | 2674.98 |
| 40MHz | 503202 | 2516.01 | 518598 | 2592.99 | 534000 | 2670.00 |
| 50MHz | 504204 | 2521.02 | 518598 | 2592.99 | 532998 | 2664.99 |
| 60MHz | 505200 | 2526.00 | 518598 | 2592.99 | 531996 | 2659.98 |
| 70MHz | 506202 | 2531.01 | 518598 | 2592.99 | 531000 | 2655.00 |
| 80MHz | 507204 | 2536.02 | 518598 | 2592.99 | 529998 | 2649.99 |
| 90MHz | 508200 | 2541.00 | 518598 | 2592.99 | 528996 | 2644.98 |
| 100MHz | 509202 | 2546.01 | 518598 | 2592.99 | 528000 | 2640.00 |

### 5.2.1.7. NR Band n71 (663-698)

#### 5.2.1.7.1. SCS=15KHz

| Bandwidth | LCH | | MCH | | HCH | |
|---|---|---|---|---|---|---|
| | Arfcn | Freq | Arfcn | Freq | Arfcn | Freq |
| 5MHz | 133100 | 665.5 | 136100 | 680.5 | 139100 | 695.5 |
| 10MHz | 133600 | 668.0 | 136100 | 680.5 | 138600 | 693.0 |
| 15MHz | 134100 | 670.5 | 136100 | 680.5 | 138100 | 690.5 |
| 20MHz | 134600 | 673.0 | 136100 | 680.5 | 137600 | 688.0 |
| 25MHz | 135100 | 675.5 | 136100 | 680.5 | 137100 | 685.5 |
| 30MHz | 135600 | 678.0 | 136100 | 680.5 | 136600 | 683.0 |

### 5.2.1.8. NR Band N77 (3700-3980)

#### 5.2.1.8.1. SCS=30KHz

| Bandwidth | LCH | | MCH | | HCH | |
|---|---|---|---|---|---|---|
| | Arfcn | Freq | Arfcn | Freq | Arfcn | Freq |
| 10MHz | 647000 | 3705.00 | 656000 | 3840.00 | 665000 | 3975.00 |
| 15MHz | 647168 | 3707.52 | 656000 | 3840.00 | 664832 | 3972.48 |
| 20MHz | 647334 | 3710.01 | 656000 | 3840.00 | 664666 | 3969.99 |
| 30MHz | 647668 | 3715.02 | 656000 | 3840.00 | 664332 | 3964.98 |
| 40MHz | 648000 | 3720.00 | 656000 | 3840.00 | 664000 | 3960.00 |
| 50MHz | 648334 | 3725.01 | 656000 | 3840.00 | 663666 | 3954.99 |
| 60MHz | 648668 | 3730.02 | 656000 | 3840.00 | 663332 | 3949.98 |
| 70MHz | 649000 | 3735.00 | 656000 | 3840.00 | 663000 | 3945.00 |
| 80MHz | 649334 | 3740.01 | 656000 | 3840.00 | 662666 | 3939.99 |
| 90MHz | 649668 | 3745.02 | 656000 | 3840.00 | 662332 | 3934.98 |
| 100MHz | 650000 | 3750.00 | 656000 | 3840.00 | 662000 | 3930.00 |

### 5.2.1.9. NR Band N78 (3700-3800)

#### 5.2.1.9.1. SCS=30KHz

| Bandwidth | LCH | | MCH | | HCH | |
|---|---|---|---|---|---|---|
| | Arfcn | Freq | Arfcn | Freq | Arfcn | Freq |
| 10MHz | 647000 | 3705.00 | 650000 | 3750.00 | 653000 | 3795.00 |
| 15MHz | 647168 | 3707.52 | 650000 | 3750.00 | 652832 | 3792.48 |
| 20MHz | 647334 | 3710.01 | 650000 | 3750.00 | 652666 | 3789.99 |
| 30MHz | 647668 | 3715.02 | 650000 | 3750.00 | 652332 | 3784.98 |
| 40MHz | 648000 | 3720.00 | 650000 | 3750.00 | 652000 | 3780.00 |
| 50MHz | 648334 | 3725.01 | 650000 | 3750.00 | 651666 | 3774.99 |
| 60MHz | 648668 | 3730.02 | 650000 | 3750.00 | 651332 | 3769.98 |
| 70MHz | 649000 | 3735.00 | 650000 | 3750.00 | 651000 | 3765.00 |
| 80MHz | 649334 | 3740.01 | 650000 | 3750.00 | 650666 | 3759.99 |
| 90MHz | 649668 | 3745.02 | 650000 | 3750.00 | 650332 | 3754.98 |
| 100MHz | 650000 | 3750.00 | 650000 | 3750.00 | 650000 | 3750.00 |

# 6. Description of Tests

## 6.1. Conducted Output Power Measurement

### 6.1.1. Description of Conducted Output Power Measurement

A base station simulator was used to establish communication with the EUT, Its parameters were set to transmit the maximum power on the EUT. The measured power in the radio frequency on the transmitter output terminals shall be reported.

### 6.1.2. Test Procedures

1，The testing follows ANSI C63.26 Section 5.2.
2，The transmitter output port was connected to the system simulator.
3，Set EUT at maximum power through the system simulator.
4，Select lowest, Middle, Highest channels for each band and each modulation.
5，Record the reading power from the system simulator.

## 6.2. Effective (Isotropic) Radiated Power

Measurement Procedure: ANSI C63.26

Calculate power in dBm by the following formula:

ERP (dBm) = Conducted Power (dBm) + antenna gain (dBd)

EIRP (dBm) = Conducted Power (dBm) + antenna gain (dBi)

EIRP=ERP+2.15dB

## 6.3. Peak-to-Average Ratio Measurement

### 6.3.1. Description of PAR Measurement

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis, A CCDF curve depicts the probability of peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13dB.

### 6.3.2. Test Procedures

1，The testing follows ANSI C63.26 Section 5.2.3.4(CCDF)
2，Refer to instrument's analyser instruction manual for details on how to use the power statistics/CCDF function.
3，Centre Frequency = Carrier centre frequency.
4，Set resolution bandwidth ≥ signal's occupied bandwidth.
5，Set the number of counts to a value that stabilizes the measured CCDF curve.
6，Set the measurement interval as follows:
1) for continuous transmissions (>98% duty cycle), set to 1ms.
2) for burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.
7，Record the maximum PAR level associated with a probability of 0.1%.

### 6.3.3. Alternate procedure for PAR

Measurement Procedure: 5.2.6 of ANSI C63.26

Some regulatory requirements specify a PAR limit when the output power limits are specified in terms of average power. If it becomes necessary to provide measurement data to demonstrate compliance to a PAR

limit, then the appropriate procedure from those provided in 5.2.3 shall be utilized to determine the peak power (or peak PSD) and the appropriate procedure from those provided in 5.2.4 shall be used to determine the average power (or average PSD). The data from these measurements is then used in Equation (2) to determine the PAR of a narrowband CW-like signal. See 5.2.3.4 for guidance on determining the PAR of a broadband noise-like signal.

PAR (dB) = $P_{Pk}$ (dBm or dBW) − $P_{Avg}$ (dBm or dBW)

where

PAR peak-to-average power ratio, in dB

$P_{Pk}$ measured peak power or peak PSD level, in dBm or dBW

$P_{Avg}$ measured average power or average PSD level, in dBm or dBW

## 6.4. 99% Occupied Bandwidth & 26dB Emission Bandwidth

### 6.4.1. Description of 99% Occupied Bandwidth & 26dB Emission Bandwidth Measurement

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 analyser 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.

### 6.4.2. Test Procedures

1, The testing follows ANSI C63.26 Section 5.4

2, The signal analyzer's automatic measurement capability was used to perform the 99% occupied bandwidth and the 26dB emission bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.

3, RBW ⩾1% - 5% of the expected OBW.

4, VBW ⩾3 * RBW

5, Detector=Peak

6, Trace Mode= Max Hold.

7, Sweep Time=Auto

8, The trace was allowed to stabilize.

9, 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.

## 6.5. Conducted Band Edge Measurement

### 6.5.1. Description of Conducted Band Edge Measurement

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 emissions are attenuated at least 26dB below the transmitter power. The video bandwidth of the spectrum analyser was set at thrice the resolution bandwidth. Detector Mode was set to peak or peak hold power.

### 6.5.2. Test Procedures

1， The testing follows ANSI C63.26 Section 5.7
2， Start and stop frequency were set such that the band edge would be placed in the centre of the spectrum analyzer screen.
3， Span was set large enough to capture all out of band emissions near the band edge.
4， RBW ≥1% of the emission bandwidth (2% of the emission bandwidth for n7/n38/n41 except when 1MHz band is 2495-2496MHz);
5， VBW ≥3 * RBW
6， Detector=RMS
7， Trace Mode=Trace Average for continuous emissions, Max Hold for pulse emissions.
8， Sweep Points ≥2 x Span/RBW
9， Sweep Time = Auto
10， The trace was allowed to stabilize.

## 6.6. Conducted Spurious Emission Measurement

### 6.6.1. Description of Conducted Spurious Emission Measurement

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 and high channel). The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyser. The spectrum is scanned from 9KHz up to a frequency including its 10th harmonic or 40GHz, which is lower.

### 6.6.2. Test Procedures

1， The testing follows ANSI C63.26 Section 5.7
2， RBW ≥100KHz for emissions below 1GHz,1MHz for emissions above 1GHz.
3， VBW ≥3 * RBW
4， Detector = RMS
5， Trace Mode = Average.
6， Sweep Points ≥2 * Span/RBW
7， Sweep Time = Auto
8， The trace was allowed to stabilize.

# 7. List of Measuring Equipment

| Equipment | Model | Manufacture | Device No. | Cal Date | Cal Due |
|---|---|---|---|---|---|
| Radio Communication Analyzer | MT8000A | Anritsu | 6272478367 | 2023-12-07 | 2024-12-06 |
| | MT8821C | Anritsu | 6272498303 | 2023-12-07 | 2024-12-06 |
| Spectrum Analyzer (50Hz-40GHz) | FSV | R&S | 101046 | 2023-12-07 | 2024-12-06 |
| Power Supply | 2036 | Keithley | 4058748 | 2023-12-07 | 2024-12-06 |
| Temperature Chamber | C/64/40/3 | Weiss | 56246017780020 | 2023-04-07 | 2024-04-06 |
| Power Divider | - | WOKEN | 0120A04051801O | NCR | |
| Power Divider | - | WOKEN | 0120A02056002D | NCR | |

Remark:

1, For equipment listed above that has a calibration date or calibration due date that falls within the test date range, and the equipment was used after calibrate date and before calibrate due date.

2, “NCR” means no calibration required.

# 8. Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.26. All the measurement uncertainties value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be directly to specified limit to determine compliance.

## 8.1. Uncertainty of Conducted Measurement

| Contribution | Expanded Uncertainty |
|---|---|
| Conducted Power | ± 0.77 |
| Conducted Emission | ± 0.76 |
| Channel Bandwidth | ± 0.08% |

# 9. Appendixes

| | |
|---|---|
| Appendix B.1 | NR Band n41A (2496-2690) |
| Appendix B.2 | NR Band n71A (663-698) |
| Appendix B.3 | NR Band DC_7A_n77A (3700-3980) |
| Appendix B.4 | NR Band n78A (3700-3800) |

The End