

# **FCC REPORT**

## **(5G NR)**

**Applicant:** SHENZHEN YUNJI INTELLIGENT TECHNOLOGY CO., LTD  
**Address of Applicant:** A2 2F BUILDING ENET NEW INDUSTRIAL PARK, DAFU INDUSTRIAL ZONE, GUANLAN, LONGHUA SHENZHEN CHINA  
**Equipment Under Test (EUT)**  
Product Name: Smart Phone  
Model No.: WP15  
Trade mark: OUKITEL  
**FCC ID:** 2ANMU-WP15  
**Applicable standards:** FCC CFR Title 47 Part 2  
FCC CFR Title 47 Part 27 Subpart M  
**Date of sample receipt:** 17 Jun., 2021  
**Date of Test:** 17 Jun., to 28 Jul., 2021  
**Date of report issued:** 25 Aug., 2021  
**Test Result:** PASS\*

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

Authorized Signature:



Bruce Zhang  
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the JYT product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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## 2. Version

| Version No. | Date          | Description   |
|-------------|---------------|---------------|
| 00          | 28 Jul., 2021 | Original      |
| 01          | 25 Aug., 2021 | Update page 5 |
|             |               |               |
|             |               |               |
|             |               |               |

Tested by:

*Mike.ou*  
Test Engineer

Date:

*25 Aug., 2021*

Reviewed by:

*Winner Zhang*  
Project Engineer

Date:

*25 Aug., 2021*

### 3. Contents

|                                                                   | Page |
|-------------------------------------------------------------------|------|
| 1. COVER PAGE .....                                               | 1    |
| 2. VERSION.....                                                   | 2    |
| 3. CONTENTS.....                                                  | 3    |
| 4. TEST SUMMARY .....                                             | 4    |
| 5. GENERAL INFORMATION .....                                      | 5    |
| 5.1 CLIENT INFORMATION.....                                       | 5    |
| 5.2 GENERAL DESCRIPTION OF E.U.T.....                             | 5    |
| 5.3 TEST ENVIRONMENT AND MODE, AND TEST SAMPLES PLANS .....       | 6    |
| 5.4 DESCRIPTION OF SUPPORT UNITS.....                             | 6    |
| 5.5 MEASUREMENT UNCERTAINTY.....                                  | 6    |
| 5.6 RELATED SUBMITTAL(S) / GRANT (S) .....                        | 6    |
| 5.7 ADDITIONS TO, DEVIATIONS, OR EXCLUSIONS FROM THE METHOD ..... | 7    |
| 5.8 LABORATORY FACILITY .....                                     | 7    |
| 5.9 LABORATORY LOCATION .....                                     | 7    |
| 5.10 TEST INSTRUMENTS LIST .....                                  | 8    |
| 6. TEST RESULTS.....                                              | 9    |
| 6.1 CONDUCTED OUTPUT POWER, ERP AND EIRP .....                    | 9    |
| 6.2 PEAK-TO-AVERAGE RATIO .....                                   | 10   |
| 6.3 OCCUPY BANDWIDTH .....                                        | 11   |
| 6.4 OUT OF BAND EMISSION AT ANTENNA TERMINALS .....               | 12   |
| 6.5 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT.....         | 13   |
| 6.6 FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT.....         | 17   |
| 6.7 FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT .....            | 18   |
| 7 TEST SETUP PHOTO.....                                           | 19   |
| 8 EUT CONSTRUCTIONAL DETAILS .....                                | 20   |

## 4. Test Summary

SA (n41), NSA EN\_DC(DC\_4A\_n41A)

| Test Items                                                                                                                                                                                                                                                                                                  | Section in CFR 47                       | Result                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|----------------------------------------|
| RF Exposure (SAR)                                                                                                                                                                                                                                                                                           | Part 1.1307<br>Part 2.1093              | Passed<br>(Please refer to SAR Report) |
| RF Output Power                                                                                                                                                                                                                                                                                             | Part 2.1046<br>Part 27.50 (h)(2)        | Section 1 of Appendix A<br>– 5G NR     |
| Peak-to-Average Ratio                                                                                                                                                                                                                                                                                       | Part 27.50(d)(5)                        | Section 3 of Appendix A<br>– 5G NR     |
| 99% & -26 dB Occupied Bandwidth                                                                                                                                                                                                                                                                             | Part 2.1049<br>Part 27.53(m)            | Section 4 of Appendix A<br>– 5G NR     |
| Out of band emission at antenna terminals                                                                                                                                                                                                                                                                   | Part 2.1053<br>Part 27.53(m)            | Section 5, 6 of Appendix A<br>– 5G NR  |
| Field strength of spurious radiation                                                                                                                                                                                                                                                                        | Part 27.53(m)                           | Pass                                   |
| Frequency stability vs. temperature                                                                                                                                                                                                                                                                         | Part 27.54<br>Part 2.1055(a)(1)(b)      | Section 2 of Appendix A<br>– 5G NR     |
| Frequency stability vs. voltage                                                                                                                                                                                                                                                                             | Part 27.54<br>Part 2.1055(d)(2)         | Section 2 of Appendix A<br>– 5G NR     |
| <b>Remark:</b><br>1. Pass: The EUT complies with the essential requirements in the standard.<br>2. The cable insertion loss used by “RF Output Power” and other conduction measurement items is 0.5dB(Fundamental Frequency below 1GHz)/1.0dB(Fundamental Frequency above 1GHz) (provided by the customer). |                                         |                                        |
| <b>Test Method:</b>                                                                                                                                                                                                                                                                                         | ANSI/TIA-603-E-2016<br>ANSI C63.26-2015 |                                        |

## 5. General Information

### 5.1 Client Information

|               |                                                                                                |
|---------------|------------------------------------------------------------------------------------------------|
| Applicant:    | SHENZHEN YUNJI INTELLIGENT TECHNOLOGY CO., LTD                                                 |
| Address:      | A2 2F BUILDING ENET NEW INDUSTRIAL PARK, DAFU INDUSTRIAL ZONE, GUANLAN, LONGHUA SHENZHEN CHINA |
| Manufacturer: | SHENZHEN YUNJI INTELLIGENT TECHNOLOGY CO., LTD                                                 |
| Address:      | A2 2F BUILDING ENET NEW INDUSTRIAL PARK, DAFU INDUSTRIAL ZONE, GUANLAN, LONGHUA SHENZHEN CHINA |

### 5.2 General Description of E.U.T.

|                            |                                                                                                                                        |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Product Name:              | Smart Phone                                                                                                                            |
| Model No.:                 | WP15                                                                                                                                   |
| Operation Frequency range: | 5G NR n41: TX: 2496MHz~2690MHz RX: 2496MHz~2690MHz                                                                                     |
| Modulation type:           | DFT_BPSK, DFT_QPSK, DFT_16-QAM, DFT_64QAM, DFT_256-QAM<br>cp_QPSK, cp_16-QAM, cp_64QAM, cp_256-QAM                                     |
| SCS support:               | 30KHz                                                                                                                                  |
| 5G NR Network mode:        | 5G Network SA: NR n41, NSA(EN-DC): DC_4A_n41A                                                                                          |
| Channel Bandwidths:        | 10MHz, 15MHz, 20MHz, 40MHz, 50MHz, 60MHz, 80MHz, 90MHz, 100MHz                                                                         |
| Antenna type:              | Internal Antenna                                                                                                                       |
| Antenna gain:              | N41: 0.86 dBi(declare by Applicant)                                                                                                    |
| Power supply:              | Rechargeable Li-ion Polymer Battery DC3.87V, 15600mAh                                                                                  |
| AC adapter:                | Model: HJ-FC017K7-US<br>Input: AC100-240V, 50/60Hz 0.6A<br>Output: DC 5.0V, 2.0A or DC 7.0V, 2.0A,<br>or DC 9.0V, 2.0A or DC 12V, 1.5A |
| Test Sample Condition:     | The applicant provided engineering samples for staying in continuously transmitting for testing.                                       |

### Operation Frequency List:

| Band | SCS   | Bandwidth | Channel Number/ Frequency |        |              |
|------|-------|-----------|---------------------------|--------|--------------|
| n41  | 30KHz | 10 MHz    | Low                       | 500202 | 2501.010 MHz |
|      |       |           | Middle                    | 518598 | 2592.990 MHz |
|      |       |           | High                      | 537000 | 2685.000 MHz |
|      |       | 15 MHz    | Low                       | 500700 | 2503.500 MHz |
|      |       |           | Middle                    | 518598 | 2592.990 MHz |
|      |       |           | High                      | 536496 | 2682.480 MHz |
|      |       | 20 MHz    | Low                       | 501204 | 2506.020 MHz |
|      |       |           | Middle                    | 518598 | 2592.990 MHz |
|      |       |           | High                      | 535998 | 2679.990 MHz |
|      |       | 40 MHz    | Low                       | 503202 | 2516.010 MHz |
|      |       |           | Middle                    | 518598 | 2592.990 MHz |
|      |       |           | High                      | 534000 | 2670.000 MHz |
|      |       | 50 MHz    | Low                       | 504204 | 2521.020 MHz |
|      |       |           | Middle                    | 518598 | 2592.990 MHz |
|      |       |           | High                      | 532998 | 2664.990 MHz |
|      |       | 60 MHz    | Low                       | 505200 | 2526.000 MHz |
|      |       |           | Middle                    | 518598 | 2592.990 MHz |
|      |       |           | High                      | 531996 | 2659.980 MHz |
|      |       | 80 MHz    | Low                       | 507204 | 2536.020 MHz |
|      |       |           | Middle                    | 518598 | 2592.990 MHz |
|      |       |           | High                      | 529998 | 2649.990 MHz |
|      |       | 90 MHz    | Low                       | 508200 | 2541.000 MHz |
|      |       |           | Middle                    | 518598 | 2592.990 MHz |
|      |       |           | High                      | 528996 | 2644.980 MHz |
|      |       | 100 MHz   | Low                       | 509202 | 2546.010 MHz |
|      |       |           | Middle                    | 518598 | 2592.990 MHz |
|      |       |           | High                      | 528000 | 2640.000 MHz |

## 5.3 Test environment and mode, and test samples plans

| Operating Environment:                                                                                                                                                                                                                                                                                                                                                           |                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Temperature:                                                                                                                                                                                                                                                                                                                                                                     | Normal: 15℃ ~ 35℃, Extreme: -30℃ ~ +50℃                                  |
| Humidity:                                                                                                                                                                                                                                                                                                                                                                        | 20 % ~ 75 % RH                                                           |
| Atmospheric Pressure:                                                                                                                                                                                                                                                                                                                                                            | 1008 mbar                                                                |
| Voltage:                                                                                                                                                                                                                                                                                                                                                                         | Nominal: 3.87Vdc, Extreme: Low 3.5Vdc, High 4.45Vdc                      |
| Test mode:                                                                                                                                                                                                                                                                                                                                                                       |                                                                          |
| Single Carrier mode                                                                                                                                                                                                                                                                                                                                                              | Keep the EUT communication with simulated station in Single carrier mode |
| Remark: The EUT has been tested under continuous transmitting mode. Channel Low, Mid and High for each type band with rated data rate were chosen for full testing. The field strength of spurious radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for these modes. Just the worst case position (H mode) shown in report. |                                                                          |

## 5.4 Description of Support Units

| Test Equipment                | Manufacturer | Model No. | Serial No. |
|-------------------------------|--------------|-----------|------------|
| UXM 5G Wireless Test Platform | KEYSIGHT     | E7515B    | MY60192444 |

## 5.5 Measurement Uncertainty

| Parameters                          | Expanded Uncertainty |
|-------------------------------------|----------------------|
| Radiated Emission (9kHz ~ 30MHz)    | ±3.12 dB (k=2)       |
| Radiated Emission (30MHz ~ 1000MHz) | ±4.32 dB (k=2)       |
| Radiated Emission (1GHz ~ 18GHz)    | ±5.16 dB (k=2)       |
| Radiated Emission (18GHz ~ 40GHz)   | ±3.20 dB (k=2)       |

## 5.6 Related Submittal(s) / Grant (s)

|                                                              |
|--------------------------------------------------------------|
| This is an original grant, no related submittals and grants. |
|--------------------------------------------------------------|

## 5.7 Additions to, deviations, or exclusions from the method

No

## 5.8 Laboratory Facility

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

- **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC (Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: <https://portal.a2la.org/scopepdf/4346-01.pdf>

## 5.9 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.

Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.

Tel: +86-755-23118282, Fax: +86-755-23116366

Email: info-JYTee@lets.com, Website: <http://www.ccis-cb.com>

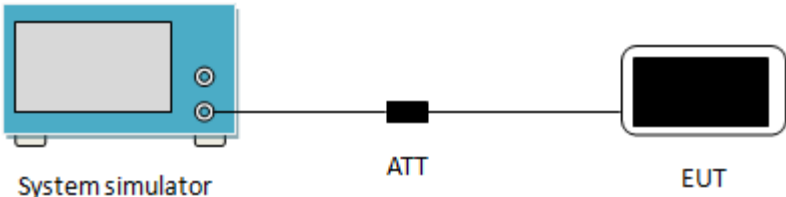
## 5.10 Test Instruments list

| Radiated Emission:            |                 |               |                  |                      |                          |
|-------------------------------|-----------------|---------------|------------------|----------------------|--------------------------|
| Test Equipment                | Manufacturer    | Model No.     | Serial No.       | Cal. Date (mm-dd-yy) | Cal. Due date (mm-dd-yy) |
| 3m SAC                        | SAEMC           | 9m*6m*6m      | 966              | 07-22-2020           | 07-21-2021               |
|                               |                 |               |                  | 07-22-2021           | 07-21-2022               |
| BiConiLog Antenna             | SCHWARZBECK     | VULB9163      | 497              | 03-07-2021           | 03-06-2022               |
| Biconical Antenna             | SCHWARZBECK     | VUBA9117      | 359              | 06-18-2021           | 06-17-2022               |
| Horn Antenna                  | SCHWARZBECK     | BBHA9120D     | 916              | 03-07-2021           | 03-06-2022               |
| Horn Antenna                  | SCHWARZBECK     | BBHA9120D     | 1805             | 06-18-2021           | 06-17-2022               |
| Test Software                 | Tonscend        | TS+           | Version: 3.0.0.1 |                      |                          |
| Pre-amplifier                 | HP              | 8447D         | 2944A09358       | 03-07-2021           | 03-06-2022               |
| Pre-amplifier                 | CD              | PAP-1G18      | 11804            | 03-07-2021           | 03-06-2022               |
| Spectrum analyzer             | Rohde & Schwarz | FSP30         | 101454           | 03-05-2021           | 03-04-2022               |
| EMI Test Receiver             | Rohde & Schwarz | ESRP7         | 101070           | 03-05-2021           | 03-04-2022               |
| Signal Generator              | Rohde & Schwarz | SMX           | 835454/016       | 03-05-2021           | 03-04-2022               |
| Signal Generator              | Rohde & Schwarz | SMR20         | 1008100050       | 03-05-2021           | 03-04-2022               |
| Cable                         | ZDECL           | Z108-NJ-NJ-81 | 1608458          | 03-07-2021           | 03-06-2022               |
| Cable                         | MICRO-COAX      | MFR64639      | K10742-5         | 03-07-2021           | 03-06-2022               |
| Cable                         | SUHNER          | SUCOFLEX100   | 58193/4PE        | 03-07-2021           | 03-06-2022               |
| UXM 5G Wireless Test Platform | KEYSIGHT        | E7515B        | MY60192444       | 11-27-2020           | 11-26-2021               |

| Conducted method:             |              |             |                  |                      |                          |
|-------------------------------|--------------|-------------|------------------|----------------------|--------------------------|
| Test Equipment                | Manufacturer | Model No.   | Serial No.       | Cal. Date (mm-dd-yy) | Cal. Due date (mm-dd-yy) |
| Spectrum Analyzer             | KEYSIGHT     | N9010B      | MY60240215       | 11-27-2020           | 11-26-2021               |
| MXG Vector Signal Generator   | KEYSIGHT     | N5182B      | MY59100991       | 11-27-2020           | 11-26-2021               |
| EXG Analog Signal Generator   | KEYSIGHT     | N5173B      | MY59100792       | 11-27-2020           | 11-26-2021               |
| UXM 5G Wireless Test Platform | KEYSIGHT     | E7515B      | MY60192444       | 11-27-2020           | 11-26-2021               |
| RF Control Box                | MWRF-test    | MW400-RFCB  | MW201015JYT      | N/A                  | N/A                      |
| Automatic Filter Box          | MWRF-test    | MW400-SFCB1 | MW201018JYT-1    | N/A                  | N/A                      |
| Automatic Filter Box          | MWRF-test    | MW400-SFCB2 | MW201018JYT-2    | N/A                  | N/A                      |
| Test Software                 | MWRFTTEST    | MTS 8200 NR | Version: 2.0.0.0 |                      |                          |
| DC Power Supply               | KEYSIGHT     | E3642A      | MY60266189       | 11-27-2020           | 11-26-2021               |
| Temperature Humidity Chamber  | Zhongzhi     | CZ-C-150D   | ZH16491          | 09-23-2020           | 09-22-2021               |

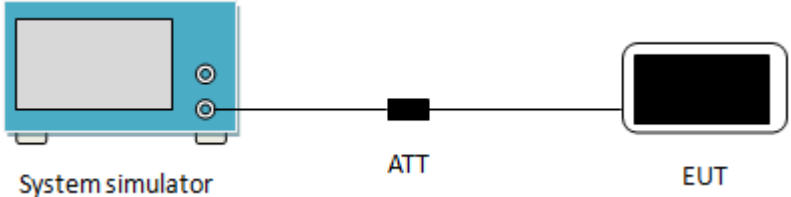
## 6. Test results

### 6.1 Conducted Output Power, ERP and EIRP

|                   |                                                                                                                                                                                                                                                                                                            |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | Part 27.50 (h)(2)                                                                                                                                                                                                                                                                                          |
| Limit:            | 5G NR n41: 2W                                                                                                                                                                                                                                                                                              |
| Test Setup:       |  <p>The diagram shows a blue rectangular box labeled 'System simulator' connected by a line to a small black square labeled 'ATT', which is then connected by another line to a black rectangular box labeled 'EUT'.</p> |
| Test Procedure:   | The transmitter output was connected to a calibrated attenuator, the other end of which was connected to the E7515B. Transmitter output power was read off in dBm.                                                                                                                                         |
| Test Instruments: | Refer to section 5.10 for details                                                                                                                                                                                                                                                                          |
| Test mode:        | Refer to section 5.3 for details                                                                                                                                                                                                                                                                           |
| Test results:     | Passed                                                                                                                                                                                                                                                                                                     |

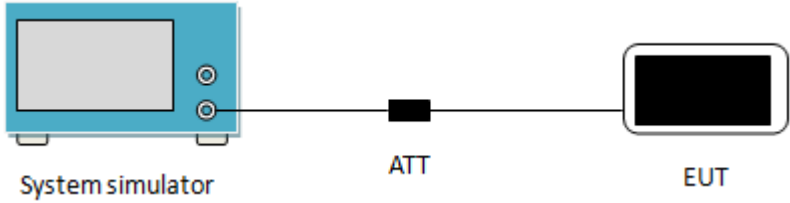
**Measurement Data:** Refer to Section 1 of Appendix A –5G NR

## 6.2 Peak-to-Average Ratio

|                   |                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | Part 27.50(d)(5)                                                                                                                                                                                                                                                                                                                                                                                    |
| Limit:            | The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.                                                                                                                                                                                                                                                                                                                           |
| Test Setup:       |  <p style="text-align: center;">System simulator                      ATT                      EUT</p>                                                                                                                                                                                                            |
| Test Procedure:   | <ol style="list-style-type: none"> <li>1 The RF output of the transceiver was connected to a E7515B through appropriate attenuation.</li> <li>2 Set the CCDF option in spectrum analyzer, <math>RBW \geq OBW</math>,</li> <li>3 Set the EUT working in highest power level, measured and recorded the 0.1% as PAPR level.</li> <li>4 Repeat step 1~3 at other frequency and modulations.</li> </ol> |
| Test Instruments: | Refer to section 5.10 for details                                                                                                                                                                                                                                                                                                                                                                   |
| Test mode:        | Refer to section 5.3 for details                                                                                                                                                                                                                                                                                                                                                                    |
| Test results:     | Passed                                                                                                                                                                                                                                                                                                                                                                                              |

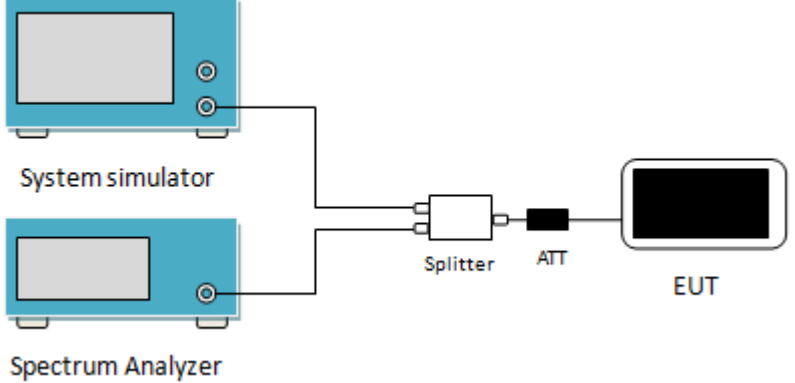
**Measurement Data:** Refer to Section 3 of Appendix A –5G NR

### 6.3 Occupy Bandwidth

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | Part 27.53(m)                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Test Setup:       |  <p style="text-align: center;">System simulator      ATT      EUT</p>                                                                                                                                                                                                                                                                      |
| Test Procedure:   | <ol style="list-style-type: none"> <li>1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer</li> <li>2. RBW was set to about 1% ~ 5% of emission BW, VBW= 3 times RBW.</li> <li>3. -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.</li> </ol> |
| Test Instruments: | Refer to section 5.10 for details                                                                                                                                                                                                                                                                                                                                                                                             |
| Test mode:        | Refer to section 5.3 for details                                                                                                                                                                                                                                                                                                                                                                                              |
| Test results:     | Passed                                                                                                                                                                                                                                                                                                                                                                                                                        |

**Measurement Data:** Refer to Section 4 of Appendix A –5G NR

## 6.4 Out of band emission at antenna terminals

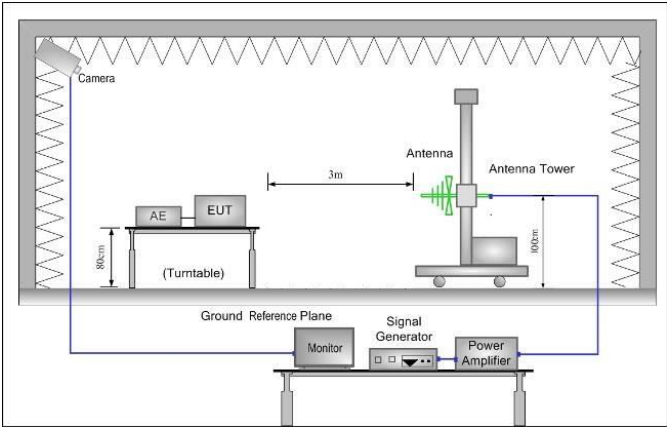
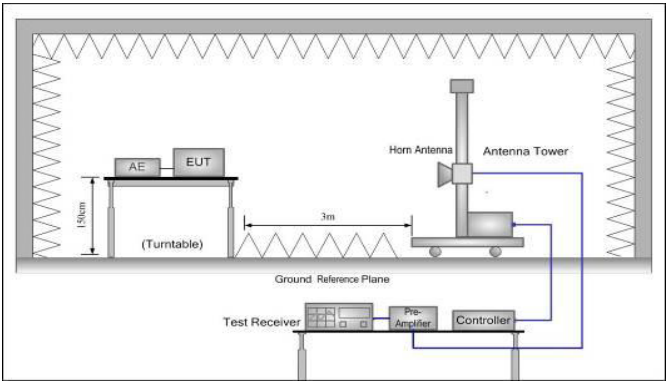
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | Part 27.53(m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Limit:            | <p>5G NR n41:</p> <p>For mobile digital stations, the attenuation factor shall be not less than <math>40 + 10 \log (P)</math> dB on all frequencies between the channel edge and 5 megahertz from the channel edge, <math>43 + 10 \log (P)</math> dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and <math>55 + 10 \log (P)</math> 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 that <math>43 + 10 \log (P)</math> dB on all frequencies between 2490.5 MHz and 2496 MHz and <math>55 + 10 \log (P)</math> dB at or below 2490.5 MHz.</p> |
| Test Setup:       |  <p>The diagram shows a test setup for out-of-band emission measurement. A System simulator is connected to a Spectrum Analyzer. The output of the System simulator is connected to a Splitter. The output of the Splitter is connected to an ATT (Attenuator). The output of the ATT is connected to the EUT (Equipment Under Test).</p>                                                                                                                                                                                                                                                                                                                                                   |
| Test Procedure:   | <ol style="list-style-type: none"> <li>1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.</li> <li>2 For the out of band: RBW =1 KHz, VBW=3 KHz, Start=9 KHz, Stop= 150 KHz; RBW =10 KHz, VBW=30 KHz, Start=150 KHz, Stop= 30 MHz; RBW =100 KHz, VBW=300 KHz, Start=30MHz, Stop= 1GHz; RBW =1 MHz, VBW=3 MHz, Start=1 GHz, Stop= 10th harmonic;.</li> <li>3 Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions.</li> </ol>                                                                   |
| Test Instruments: | Refer to section 5.10 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Test mode:        | Refer to section 5.3 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Test results:     | Passed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Remark:           | Pre-scan all RB Size and offset, and found the RB Size and offset of worst case, so the report shows only the worst case test data.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

### Measurement Data:

**Band edge emission:** Refer to Section 5 of Appendix A –5G NR

**Spurious emission:** Refer to Section 6 of Appendix A –5G NR

## 6.5 Field strength of spurious radiation measurement

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | Part 27.53(m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Limit:            | <p>5G NR n41:</p> <p>For mobile digital stations, the attenuation factor shall be not less than <math>40 + 10 \log (P)</math> dB on all frequencies between the channel edge and 5 megahertz from the channel edge, <math>43 + 10 \log (P)</math> dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and <math>55 + 10 \log (P)</math> 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 that <math>43 + 10 \log (P)</math> dB on all frequencies between 2490.5 MHz and 2496 MHz and <math>55 + 10 \log (P)</math> dB at or below 2490.5 MHz.</p>                                                                                                                                                                                                                                                                                                    |
| Test setup:       | <p>Below 1GHz</p>  <p>Above 1GHz</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Test Procedure:   | <ol style="list-style-type: none"> <li>1. The EUT was placed on the top of a rotating table 0.8m(below 1GHz)/1.5m(above 1GHz) above the ground at a 3 meter camber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.</li> <li>2. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.</li> <li>3. The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method.</li> <li>4. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.</li> </ol> <p>ERP / EIRP = S.G. output (dBm) + Antenna Gain(dB/dBi) – Cable</p> |

|                   |                                   |
|-------------------|-----------------------------------|
|                   | Loss (dB)                         |
| Test Instruments: | Refer to section 5.10 for details |
| Test mode:        | Refer to section 5.3 for details. |
| Test results:     | Passed                            |

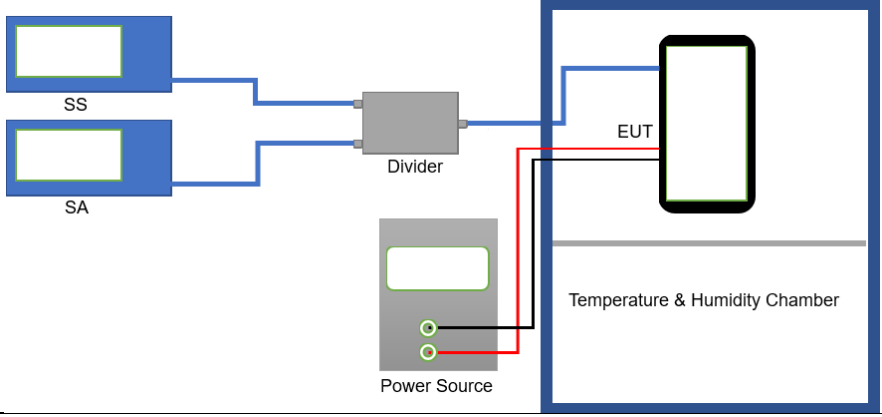
**Measurement Data:**
**5G NR SA n41:**

| n41(100MHz) (Edge_1RB_Left, DFT_BPSK)                                                                                                                                                                          |                                  |             |                               |                  |             |              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-------------|-------------------------------|------------------|-------------|--------------|
| Lowest channel                                                                                                                                                                                                 |                                  |             |                               |                  |             |              |
| Frequency (MHz)                                                                                                                                                                                                | Level at antenna terminals (dBm) | Factor (dB) | Spurious Emission level (dBm) | Limit Line (dBm) | Margin (dB) | Polarization |
| 5092.02                                                                                                                                                                                                        | -47.81                           | 4.56        | -43.25                        | -25.00           | 18.25       | Vertical     |
| 7638.03                                                                                                                                                                                                        | -49.35                           | 13.14       | -36.21                        | -25.00           | 11.21       | Vertical     |
| 10184.04                                                                                                                                                                                                       | -49.75                           | 16.93       | -32.82                        | -25.00           | 7.82        | Vertical     |
| 5092.02                                                                                                                                                                                                        | -47.58                           | 4.56        | -43.02                        | -25.00           | 18.02       | Horizontal   |
| 7638.03                                                                                                                                                                                                        | -49.64                           | 13.14       | -36.50                        | -25.00           | 11.50       | Horizontal   |
| 10184.04                                                                                                                                                                                                       | -50.31                           | 16.93       | -33.38                        | -25.00           | 8.38        | Horizontal   |
| Middle channel                                                                                                                                                                                                 |                                  |             |                               |                  |             |              |
| Frequency (MHz)                                                                                                                                                                                                | Level at antenna terminals (dBm) | Factor (dB) | Spurious Emission level (dBm) | Limit Line (dBm) | Margin (dB) | Polarization |
| 5185.98                                                                                                                                                                                                        | -47.46                           | 4.55        | -42.91                        | -25.00           | 17.91       | Vertical     |
| 7778.97                                                                                                                                                                                                        | -49.73                           | 13.58       | -36.15                        | -25.00           | 11.15       | Vertical     |
| 10371.96                                                                                                                                                                                                       | -50.13                           | 17.44       | -32.69                        | -25.00           | 7.69        | Vertical     |
| 5185.98                                                                                                                                                                                                        | -47.26                           | 4.55        | -42.71                        | -25.00           | 17.71       | Horizontal   |
| 7778.97                                                                                                                                                                                                        | -49.59                           | 13.58       | -36.01                        | -25.00           | 11.01       | Horizontal   |
| 10371.96                                                                                                                                                                                                       | -50.32                           | 17.44       | -32.88                        | -25.00           | 7.88        | Horizontal   |
| Highest channel                                                                                                                                                                                                |                                  |             |                               |                  |             |              |
| Frequency (MHz)                                                                                                                                                                                                | Level at antenna terminals (dBm) | Factor (dB) | Spurious Emission level (dBm) | Limit Line (dBm) | Margin (dB) | Polarization |
| 5280.00                                                                                                                                                                                                        | -48.14                           | 4.62        | -43.52                        | -25.00           | 18.52       | Vertical     |
| 7920.00                                                                                                                                                                                                        | -49.16                           | 13.24       | -35.92                        | -25.00           | 10.92       | Vertical     |
| 10560.00                                                                                                                                                                                                       | -49.81                           | 18.40       | -31.41                        | -25.00           | 6.41        | Vertical     |
| 5280.00                                                                                                                                                                                                        | -48.04                           | 4.62        | -43.42                        | -25.00           | 18.42       | Horizontal   |
| 7920.00                                                                                                                                                                                                        | -50.14                           | 13.24       | -36.90                        | -25.00           | 11.90       | Horizontal   |
| 10560.00                                                                                                                                                                                                       | -49.96                           | 18.40       | -31.56                        | -25.00           | 6.56        | Horizontal   |
| <b>Remark:</b><br>1. The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.<br>2. Pre-Scan al modulation and all Bandwidth, And the report only reflects the worst mode |                                  |             |                               |                  |             |              |

## 5G NR NSA EN DC (DC\_4A\_n41A):

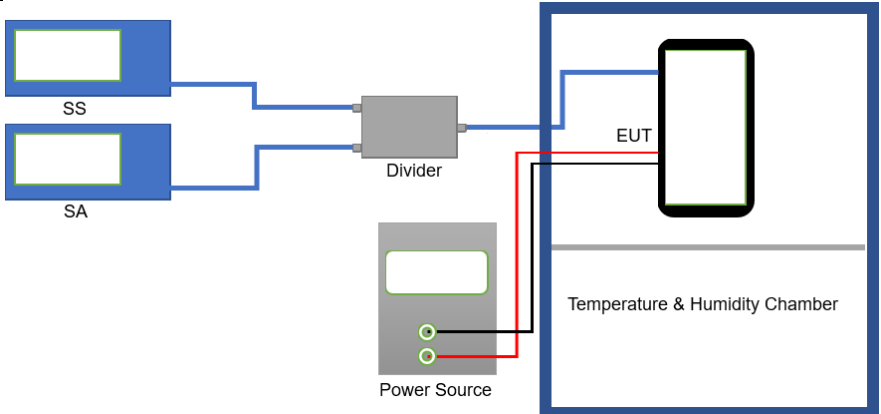
| n41(100MHz) (Edge_1RB_Left, DFT_BPSK)                                                                                                                                                                   |                                  |             |                               |                  |             |              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-------------|-------------------------------|------------------|-------------|--------------|
| Lowest channel                                                                                                                                                                                          |                                  |             |                               |                  |             |              |
| Frequency (MHz)                                                                                                                                                                                         | Level at antenna terminals (dBm) | Factor (dB) | Spurious Emission level (dBm) | Limit Line (dBm) | Margin (dB) | Polarization |
| 5092.02                                                                                                                                                                                                 | -47.65                           | 4.56        | -43.09                        | -25.00           | 18.09       | Vertical     |
| 7638.03                                                                                                                                                                                                 | -49.13                           | 13.29       | -35.84                        | -25.00           | 10.84       | Vertical     |
| 10184.04                                                                                                                                                                                                | -50.24                           | 16.98       | -33.26                        | -25.00           | 8.26        | Vertical     |
| 5092.02                                                                                                                                                                                                 | -47.99                           | 4.56        | -43.43                        | -25.00           | 18.43       | Horizontal   |
| 7638.03                                                                                                                                                                                                 | -49.40                           | 13.29       | -36.11                        | -25.00           | 11.11       | Horizontal   |
| 10184.04                                                                                                                                                                                                | -50.15                           | 16.98       | -33.17                        | -25.00           | 8.17        | Horizontal   |
| Middle channel                                                                                                                                                                                          |                                  |             |                               |                  |             |              |
| Frequency (MHz)                                                                                                                                                                                         | Level at antenna terminals (dBm) | Factor (dB) | Spurious Emission level (dBm) | Limit Line (dBm) | Margin (dB) | Polarization |
| 5185.98                                                                                                                                                                                                 | -47.85                           | 4.55        | -43.30                        | -25.00           | 18.30       | Vertical     |
| 7778.97                                                                                                                                                                                                 | -49.38                           | 13.58       | -35.80                        | -25.00           | 10.80       | Vertical     |
| 10371.96                                                                                                                                                                                                | -50.53                           | 17.44       | -33.09                        | -25.00           | 8.09        | Vertical     |
| 5185.98                                                                                                                                                                                                 | -47.19                           | 4.55        | -42.64                        | -25.00           | 17.64       | Horizontal   |
| 7778.97                                                                                                                                                                                                 | -49.99                           | 13.58       | -36.41                        | -25.00           | 11.41       | Horizontal   |
| 10371.96                                                                                                                                                                                                | -50.50                           | 17.44       | -33.06                        | -25.00           | 8.06        | Horizontal   |
| Highest channel                                                                                                                                                                                         |                                  |             |                               |                  |             |              |
| Frequency (MHz)                                                                                                                                                                                         | Level at antenna terminals (dBm) | Factor (dB) | Spurious Emission level (dBm) | Limit Line (dBm) | Margin (dB) | Polarization |
| 5280.00                                                                                                                                                                                                 | -48.02                           | 4.62        | -43.40                        | -25.00           | 18.40       | Vertical     |
| 7920.00                                                                                                                                                                                                 | -49.37                           | 13.18       | -36.19                        | -25.00           | 11.19       | Vertical     |
| 10560.00                                                                                                                                                                                                | -50.31                           | 18.27       | -32.04                        | -25.00           | 7.04        | Vertical     |
| 5280.00                                                                                                                                                                                                 | -47.59                           | 4.62        | -42.97                        | -25.00           | 17.97       | Horizontal   |
| 7920.00                                                                                                                                                                                                 | -49.78                           | 13.18       | -36.60                        | -25.00           | 11.60       | Horizontal   |
| 10560.00                                                                                                                                                                                                | -50.07                           | 18.27       | -31.80                        | -25.00           | 6.80        | Horizontal   |
| Remark:<br>1. The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.<br>2. Pre-Scan al modulation and all Bandwidth, And the report only reflects the worst mode |                                  |             |                               |                  |             |              |

## 6.6 Frequency stability V.S. Temperature measurement

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | Part 27.54, Part 2.1055(d)(2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Limit:            | Within authorized band for 5G NR n41                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Test setup:       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Test procedure:   | <ol style="list-style-type: none"> <li>1. The equipment under test was connected to an external DC power supply and input rated voltage.</li> <li>2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators.</li> <li>3. The EUT was placed inside the temperature chamber.</li> <li>4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency.</li> <li>5. Turn EUT off and set the chamber temperature to –30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency.</li> <li>6. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached</li> </ol> |
| Test Instruments: | Refer to section 5.10 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Test mode:        | Refer to section 5.3 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Test results:     | Passed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

**Measurement Data:** Refer to Section 2 of Appendix A –5G NR

## 6.7 Frequency stability V.S. Voltage measurement

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | Part 27.54, Part 2.1055(d)(2)                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Limit:            | Within authorized band for 5G NR n41                                                                                                                                                                                                                                                                                                                                                                                                           |
| Test setup:       |  <p>The diagram illustrates the test setup. A Spectrum Analyzer (SA) and a Signal Source (SS) are connected to a Divider. The Divider is connected to the EUT (Equipment Under Test) inside a Temperature &amp; Humidity Chamber. A Power Source is also connected to the EUT.</p>                                                                           |
| Test procedure:   | <ol style="list-style-type: none"> <li>1. Set chamber temperature to 25°C. Use a variable DC power source to power the EUT and set the voltage to rated voltage.</li> <li>2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.</li> <li>3. Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.</li> </ol> |
| Test Instruments: | Refer to section 5.10 for details                                                                                                                                                                                                                                                                                                                                                                                                              |
| Test mode:        | Refer to section 5.3 for details                                                                                                                                                                                                                                                                                                                                                                                                               |
| Test results:     | Passed                                                                                                                                                                                                                                                                                                                                                                                                                                         |

**Measurement Data:** Refer to Section 2 of Appendix A –5G NR

## 8 EUT Constructional Details

Reference to the test report No. JYTSZB-R12-2101118

-----End of report-----