# FCC REPORT
## (WCDMA)

| | |
|---|---|
| **Applicant:** | SWAGTEK |
| **Address of Applicant:** | 10205 NW 19th St. Suite 101, Miami, FL, 33172 |

**Equipment Under Test (EUT)**

| | |
|---|---|
| Product Name: | 6.517 inch 4G Smart Phone |
| Model No.: | L65 LITE, ULTRAx, N65 Lite |
| Trade mark: | LOGIC, iSWAG, UNONU |
| **FCC ID:** | O55653921 |
| **Applicable standards:** | FCC CFR Title 47 Part 2<br>FCC CFR Title 47 Part 22 Subpart H<br>FCC CFR Title 47 Part 24 Subpart E<br>FCC CFR Title 47 Part 27 Subpart L |
| **Date of sample receipt:** | 24 Nov., 2021 |
| **Date of Test:** | 25 Nov., to 31 Dec., 2021 |
| **Date of report issued:** | 05 Jan., 2022 |
| **Test Result:** | PASS* |

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

Authorized Signature:

Bruce Zhang
Laboratory Manager

## 2. Version

| Version No. | Date | Description |
|---|---|---|
| *00* | *05 Jan., 2022* | *Original* |
| | | |
| | | |
| | | |
| | | |

***Tested by:*** Mike.ou ***Date:*** *05 Jan., 2022*

***Test Engineer***

***Reviewed by:*** Winner Zhang ***Date:*** *05 Jan., 2022*

***Project Engineer***

# 3. Contents

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# 4. Test Summary

| Test Item | Section in CFR 47 | Result |
|---|---|---|
| RF Exposure (SAR) | Part 1.1307<br>Part 2.1093 | Pass<br>(Please refer to SAR Report) |
| RF Output Power | Part 2.1046<br>Part 22.913 (a)(5)<br>Part 24.232 (c)<br>Part 27.50 (d)(4) | Appendix A - WCDMA |
| Peak-to-Average Power Ratio | Part 24.232 (d)<br>Part 27.50(d)(5) | Appendix B - WCDMA |
| Modulation Characteristics | Part 2.1047 | Pass |
| 99% & -26 dB Occupied Bandwidth | Part 2.1049<br>Part 22.917(b)<br>Part 24.238(b)<br>Part 27.53(h) | Appendix C - WCDMA |
| Out of band emission at antenna terminals | Part 2.1051<br>Part 22.917 (a)<br>Part 24.238 (a)<br>Part 27.53 (h) | Appendix D – WCDMA<br>Appendix E - WCDMA |
| Field strength of spurious radiation | Part 2.1053<br>Part 22.917 (a)<br>Part 24.238 (a)<br>Part 27.53 (h) | Pass |
| Frequency stability vs. temperature | Part 22.355<br>Part 24.235<br>Part 27.54<br>Part 2.1055(a)(1)(b) | Appendix F - WCDMA |
| Frequency stability vs. voltage | Part 22.355<br>Part 24.235<br>Part 27.54<br>Part 2.1055(d)(2) | Appendix F - WCDMA |

***Remark:***

1. *Pass: The EUT complies with the essential requirements in the standard.*
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).*

| | |
|---|---|
| ***Test Method:*** | *ANSI/TIA-603-E-2016*<br>*ANSI C63.26-2015* |

# 5. General Information

## 5.1 Client Information

| | |
|---|---|
| Applicant: | SWAGTEK |
| Address: | 10205 NW 19th St. Suite 101, Miami, FL, 33172 |
| Manufacturer/ Factory: | SWAGTEK |
| Address: | 10205 NW 19th St. Suite 101, Miami, FL, 33172 |

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

| | |
|---|---|
| Product Name: | 6.517 inch 4G Smart Phone |
| Model No.: | L65 LITE, ULTRAx, N65 Lite |
| Operation Frequency range: | WCDMA Band V: 826.4MHz-846.6MHz<br>WCDMA Band II: 1852.4 MHz-1907.6 MHz<br>WCDMA Band IV: 1712.4 MHz-1752.6 MHz |
| Modulation type: | 3G ☒RMC(QPSK) ☒HSUPA(QPSK) ☒HSDPA(QPSK,16QAM) |
| Antenna type: | Internal Antenna |
| Antenna gain: | WCDMA Band V: 0.33 dBi(declare by Applicant)<br>WCDMA Band II: 0.75 dBi(declare by Applicant)<br>WCDMA Band IV: 0.67 dBi(declare by Applicant) |
| Power supply: | Rechargeable Li-ion Polymer Battery DC3.85V, 4000mAh |
| AC adapter: | Model: MST-0502000-FCC<br>Input: AC100-240V, 50/60Hz, 0.3A<br>Output: DC 5.0V, 2000mA |
| Test Sample Condition: | The test samples were provided in good working order with no visible defects. |
| Remark: | Model No.: L65 LITE, ULTRAx, N65 Lite were identical inside, the electrical circuit design, layout, components used and internal wiring, with only difference being trademark. LOGIC is for L65 LITE. iSWAG is for ULTRAx. UNONU is for N65 Lite. |

**Operation Frequency List:**

| WCDMA Band V | | WCDMA Band II | |
|---|---|---|---|
| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 4132 | 826.40 | 9262 | 1852.40 |
| 4133 | 826.60 | 9263 | 1852.60 |
| …. | …. | …. | …. |
| 4182 | 836.40 | 9399 | 1879.80 |
| 4183 | 836.60 | 9400 | 1880.00 |
| 4184 | 836.80 | 9401 | 1880.20 |
| … | … | … | … |
| 4232 | 846.40 | 9537 | 1907.40 |
| 4233 | 846.60 | 9538 | 1907.60 |
| WCDMA Band IV | | | |
| Channel | Frequency (MHz) | | |
| 1312 | 1712.40 | | |
| 1313 | 1712.60 | | |
| …. | …. | | |
| 1412 | 1732.40 | | |
| 1413 | 1732.60 | | |
| 1414 | 1732.80 | | |
| … | … | | |
| 1512 | 1752.40 | | |
| 1513 | 1752.60 | | |

Regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

| WCDMA Band V | | | WCDMA Band II | | |
|---|---|---|---|---|---|
| Channel | | Frequency(MHz) | Channel | | Frequency(MHz) |
| Lowest | 4132 | 826.40 | Lowest | 9262 | 1852.40 |
| Middle | 4183 | 836.60 | Middle | 9400 | 1880.00 |
| Highest | 4233 | 846.60 | Highest | 9538 | 1907.60 |
| WCDMA Band IV | | | | | |
| Channel | | Frequency(MHz) | | | |
| Lowest | 1312 | 1712.40 | | | |
| Middle | 1413 | 1732.60 | | | |
| Highest | 1513 | 1752.60 | | | |

## 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: 3.85Vdc, Extreme: Low 3.50 Vdc, High 4.40 Vdc |
| **Test mode:** | |
| RMC mode | Keep the EUT communication with simulated station in RMC mode |
| HSDPA | Keep the EUT communication with simulated station in HSDPA mode |
| HSUPA | Keep the EUT communication with simulated station in HSUPA 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. |
|---|---|---|---|
| Simulated Station | Anritsu | MT8820C | 6201026545 |

## 5.5 Measurement Uncertainty

| Parameter | Expanded Uncertainty (Confidence of 95%) |
|---|---|
| Radiated Emission (9kHz ~ 30MHz electric field) for 3m SAC | 3.13 dB |
| Radiated Emission (9kHz ~ 30MHz magnetic field) for 3m SAC | 3.13 dB |
| Radiated Emission (30MHz ~ 1GHz) for 3m SAC | 4.45 dB |
| Radiated Emission (1GHz ~ 18GHz) for 3m SAC | 5.34 dB |
| Radiated Emission (18GHz ~ 40GHz) for 3m SAC | 5.34 dB |

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

No

## 5.7 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 and 10m 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.

- **CNAS - Registration No.: CNAS L15527**

JianYan Testing Group Shenzhen Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L15527.

- **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

## 5.8 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

## 5.9 Test Instruments list

**Radiated Emission:**

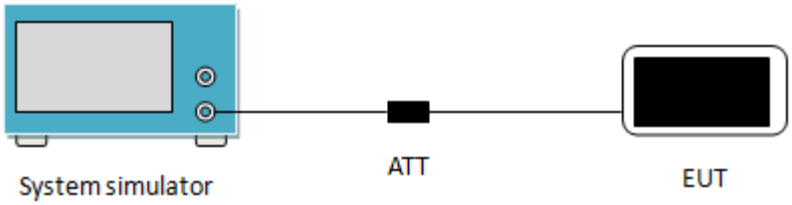
| Test Equipment | Manufacturer | Model No. | Serial No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
|---|---|---|---|---|---|
| 3m SAC | ETS | RFD-100 | Q1984 | 04-14-2021 | 04-13-2024 |
| Loop Antenna | SCHWARZBECK | FMZB 1519 B | 1519B-044 | 03-07-2021 | 03-06-2022 |
| BiConiLog Antenna | SCHWARZBECK | VULB9163 | 9163-1246 | 03-07-2021 | 03-06-2022 |
| Biconical Antenna | SCHWARZBECK | VUBA 9117 | 9117#359 | 06-17-2021 | 06-17-2022 |
| Horn Antenna | SCHWARZBECK | BBHA9120D | 912D-916 | 03-07-2021 | 03-06-2022 |
| Broad-Band Horn Antenna | SCHWARZBECK | BBHA9170 | 1067 | 04-02-2021 | 04-01-2022 |
| Broad-Band Horn Antenna | SCHWARZBECK | BBHA9170 | 1068 | 04-02-2021 | 04-01-2022 |
| EMI Test Receiver | Rohde & Schwarz | ESRP7 | 101070 | 03-03-2021 | 03-02-2022 |
| Spectrum analyzer | Rohde & Schwarz | FSP30 | 101454 | 03-03-2021 | 03-02-2022 |
| Spectrum analyzer | Keysight | N9010B | MY60240202 | 10-27-2021 | 10-26-2022 |
| Simulated Station | Anritsu | MT8820C | 6201026545 | 03-03-2021 | 03-02-2022 |
| Low Pre-amplifier | SCHWARZBECK | BBV9743B | 00305 | 03-07-2021 | 03-06-2022 |
| High Pre-amplifier | SKET | LNPA_0118G-50 | MF280208233 | 03-07-2021 | 03-06-2022 |
| Cable | Qualwave | JYT3M-1G-NN-8M | JYT3M-1 | 03-07-2021 | 03-06-2022 |
| Cable | Qualwave | JYT3M-18G-NN-8M | JYT3M-2 | 03-07-2021 | 03-06-2022 |
| Cable | Qualwave | JYT3M-1G-BB-5M | JYT3M-3 | 03-07-2021 | 03-06-2022 |
| Cable | Bost | JYT3M-40G-SS-8M | JYT3M-4 | 04-02-2021 | 04-01-2022 |
| EMI Test Software | Tonscend | TS+ | Version:3.0.0.1 | | |

**Conducted method:**

| Test Equipment | Manufacturer | Model No. | Serial No. | Cal. Date (mm-dd-yy) | Cal. Due date (mm-dd-yy) |
|---|---|---|---|---|---|
| Spectrum Analyzer | Keysight | N9020B | MY57431500 | 07-02-2021 | 07-01-2022 |
| Simulated Station | Rohde & Schwarz | CMW500 | 108209 | 07-02-2021 | 07-01-2022 |
| RF Control Unit | Tonscend | JS0806-1 | N/A | N/A | N/A |
| Band Reject Filter Group | Tonscend | JS0806-F | 21A8060360 | N/A | N/A |
| Test Software | Tonscend | TS+ | Version: 2.6.9.0526 | | |

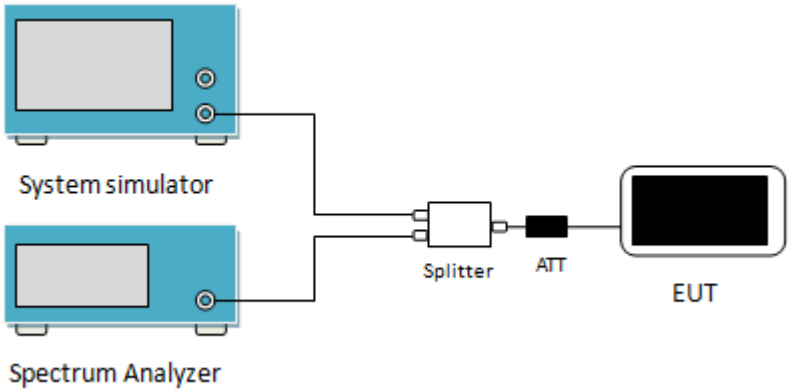
# 6. Test results

## 6.1 Conducted Output Power, ERP and EIRP

| | |
|---|---|
| Test Requirement: | FCC part 22.913(a)(5), FCC part 24.232(c), FCC part 27.50(d)(4) |
| Limit: | WCDMA Band V: 7W, WCDMA Band II: 2W, WCDMA Band IV: 1W |
| Test setup: |  |
| Test Procedure: | The transmitter output was connected to a calibrated attenuator, the other end of which was connected to the simulated station. Transmitter output power was read off in dBm. |
| Test Instruments: | Refer to section 5.9 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Passed |

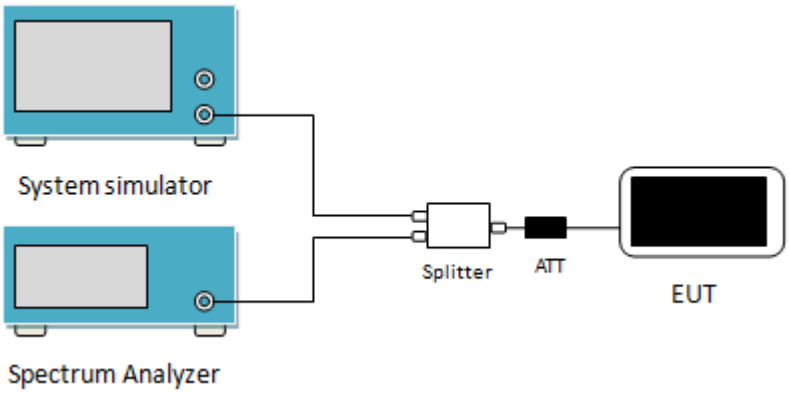
**Measurement Data:** Refer to Appendix A - WCDMA

## 6.2 Peak-to-Average Power Ratio

| | |
|---|---|
| Test Requirement: | FCC part 24.232(d), FCC part 27.50(d)(5) |
| Limit: | The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB. |
| Test setup: |  |
| Test Procedure: | 1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.<br>2 Set the CCDF option in spectrum analyzer, RBW ≥ OBW,<br>3 Set the EUT working in highest power level, measured and recorded the 0.1% as PAPR level.<br>4 Repeat step 1~3 at other frequency and modulations. |
| Test Instruments: | Refer to section 5.9 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Passed |

**Measurement Data:** Refer to Appendix B - WCDMA

## 6.3 Occupy Bandwidth

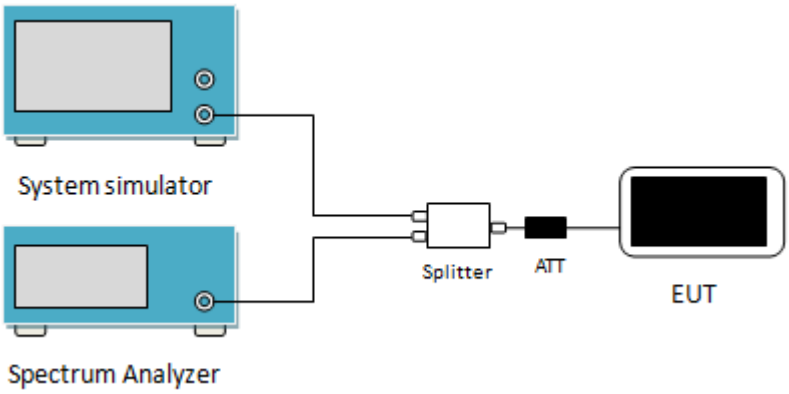
| | |
|---|---|
| Test Requirement: | FCC part 22.917(b), FCC part 24.238(b), FCC Part 27.53(h) |
| Test setup: |  |
| Test Procedure: | 1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer<br>2. RBW was set to about 1% of emission BW, VBW= 3 times RBW.<br>3. -26dBc 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. |
| Test Instruments: | Refer to section 5.9 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Passed |

**Measurement Data:** Refer to Appendix C - WCDMA

## 6.4 Modulation Characteristic

According to FCC § 2.1047(d), Part 22H & 24E & 27L there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

## 6.5 Out of band emission at antenna terminals

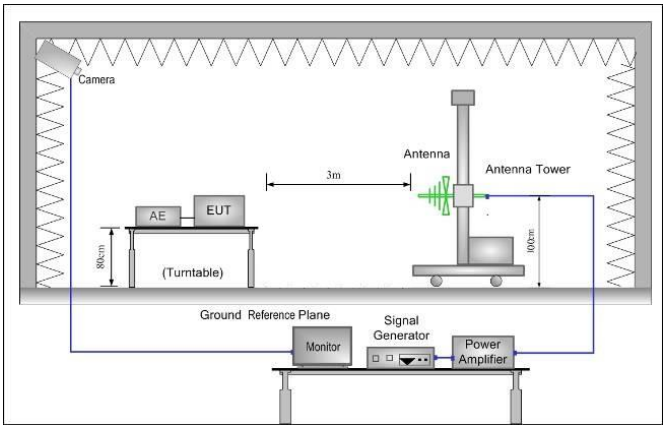
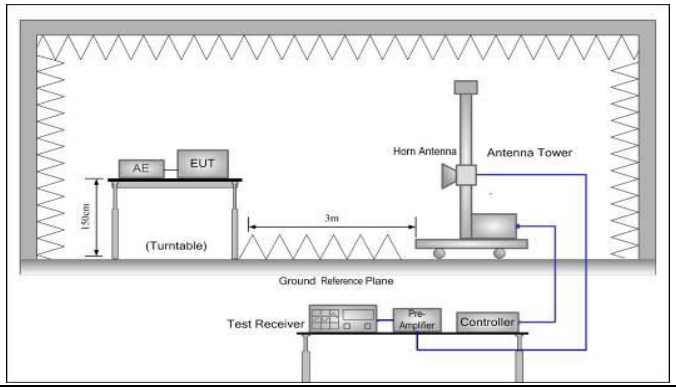
| | |
|---|---|
| Test Requirement: | FCC part 22.917(a), FCC part 24.238(a), FCC Part 27.53 (h) |
| Limit: | -13dBm |
| Test setup: |  |
| Test Procedure: | 1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.<br>2 For the out of band: For GSM850&WCDMA850 set the RBW=100 kHz, VBW=300 kHz and for PCS1900 & WCDMA1900 set the RBW=1MHz, VBW=3MHz when below 1 GHz, RBW =1 MHz, VBW=3 MHz when above 1 GHz, Start=30MHz, Stop= 10th harmonic.<br>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. |
| Test Instruments: | Refer to section 5.9 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Passed |

**Measurement Data:**

**Band edge emission:** Refer to Appendix D - WCDMA

**Spurious emission:** Refer to Appendix E - WCDMA

## 6.6 Field strength of spurious radiation measurement

| | |
|---|---|
| Test Requirement: | FCC part 22.917(a), FCC part 24.238(a), FCC part 27.53(h) |
| Limit: | -13dBm |
| Test setup: | Below 1GHz<br>  <br><br>Above 1GHz<br>  <br> |
| Test Procedure: | 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.<br>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.<br>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.<br>4. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.<br>ERP / EIRP = S.G. output (dBm) + Antenna Gain(dB/dBi) – Cable Loss (dB) |
| Test Instruments: | Refer to section 5.9 for details |
| Test mode: | Refer to section 5.3 for details. |
| Test results: | Passed |

**Measurement Data (worst case):**

| WCDMA BAND V 12.2k RMC | | | | | | |
|---|---|---|---|---|---|---|
| **Lowest channel** | | | | | | |
| Frequency (MHz) | Spurous Emission level (dBm) | Factor (dB) | Level at antenna terminals (dBm) | Limit Line (dBm) | Margin (dB) | Polarization |
| 1652.80 | -43.28 | -11.11 | -54.39 | -13.00 | 41.39 | Vertical |
| 2479.20 | -49.30 | -6.21 | -55.51 | -13.00 | 42.51 | Vertical |
| 3305.60 | -48.40 | -4.97 | -53.37 | -13.00 | 40.37 | Vertical |
| 1652.80 | -45.98 | -11.01 | -56.99 | -13.00 | 43.99 | Horizontal |
| 2479.20 | -47.42 | -6.54 | -53.96 | -13.00 | 40.96 | Horizontal |
| 3305.60 | -47.70 | -5.25 | -52.95 | -13.00 | 39.95 | Horizontal |
| **Middle channel** | | | | | | |
| Frequency (MHz) | Spurous Emission level (dBm) | Factor (dB) | Level at antenna terminals (dBm) | Limit Line (dBm) | Margin (dB) | Polarization |
| 1673.20 | -43.30 | -11.13 | -54.43 | -13.00 | 41.43 | Vertical |
| 2509.80 | -48.82 | -6.20 | -55.02 | -13.00 | 42.02 | Vertical |
| 3346.40 | -48.69 | -5.02 | -53.71 | -13.00 | 40.71 | Vertical |
| 1673.20 | -46.42 | -11.04 | -57.46 | -13.00 | 44.46 | Horizontal |
| 2509.80 | -47.86 | -6.51 | -54.37 | -13.00 | 41.37 | Horizontal |
| 3346.40 | -47.33 | -5.23 | -52.56 | -13.00 | 39.56 | Horizontal |
| **Highest channel** | | | | | | |
| Frequency (MHz) | Spurous Emission level (dBm) | Factor (dB) | Level at antenna terminals (dBm) | Limit Line (dBm) | Margin (dB) | Polarization |
| 1697.60 | -42.98 | -11.14 | -54.12 | -13.00 | 41.12 | Vertical |
| 2546.40 | -48.39 | -6.09 | -54.48 | -13.00 | 41.48 | Vertical |
| 3395.20 | -48.32 | -5.08 | -53.40 | -13.00 | 40.40 | Vertical |
| 1697.60 | -46.34 | -11.08 | -57.42 | -13.00 | 44.42 | Horizontal |
| 2546.40 | -47.72 | -6.40 | -54.12 | -13.00 | 41.12 | Horizontal |
| 3395.20 | -46.91 | -5.21 | -52.12 | -13.00 | 39.12 | Horizontal |

*Remark:*

*1. The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.*

| WCDMA Band II 12.2k RMC | | | | | | |
|---|---|---|---|---|---|---|
| **Lowest channel** | | | | | | |
| Frequency (MHz) | Spurous Emission level (dBm) | Factor (dB) | Level at antenna terminals (dBm) | Limit Line (dBm) | Margin (dB) | Polarization |
| 3704.80 | -38.90 | -1.28 | -40.18 | -13.00 | 27.18 | Vertical |
| 5557.20 | -48.15 | 5.27 | -42.88 | -13.00 | 29.88 | Vertical |
| 3704.80 | -34.49 | -1.28 | -35.77 | -13.00 | 22.77 | Horizontal |
| 5557.20 | -42.83 | 5.27 | -37.56 | -13.00 | 24.56 | Horizontal |
| **Middle channel** | | | | | | |
| Frequency (MHz) | Spurous Emission level (dBm) | Factor (dB) | Level at antenna terminals (dBm) | Limit Line (dBm) | Margin (dB) | Polarization |
| 3760.00 | -39.11 | -1.03 | -40.14 | -13.00 | 27.14 | Vertical |
| 5640.00 | -48.39 | 6.06 | -42.33 | -13.00 | 29.33 | Vertical |
| 3760.00 | -34.13 | -1.03 | -35.16 | -13.00 | 22.16 | Horizontal |
| 5640.00 | -42.66 | 6.06 | -36.60 | -13.00 | 23.60 | Horizontal |
| **Highest channel** | | | | | | |
| Frequency (MHz) | Spurous Emission level (dBm) | Factor (dB) | Level at antenna terminals (dBm) | Limit Line (dBm) | Margin (dB) | Polarization |
| 3815.20 | -38.90 | -0.83 | -39.73 | -13.00 | 26.73 | Vertical |
| 5722.80 | -48.26 | 6.72 | -41.54 | -13.00 | 28.54 | Vertical |
| 3815.20 | -33.99 | -0.83 | -34.82 | -13.00 | 21.82 | Horizontal |
| 5722.80 | -43.12 | 6.72 | -36.40 | -13.00 | 23.40 | Horizontal |

*Remark:*

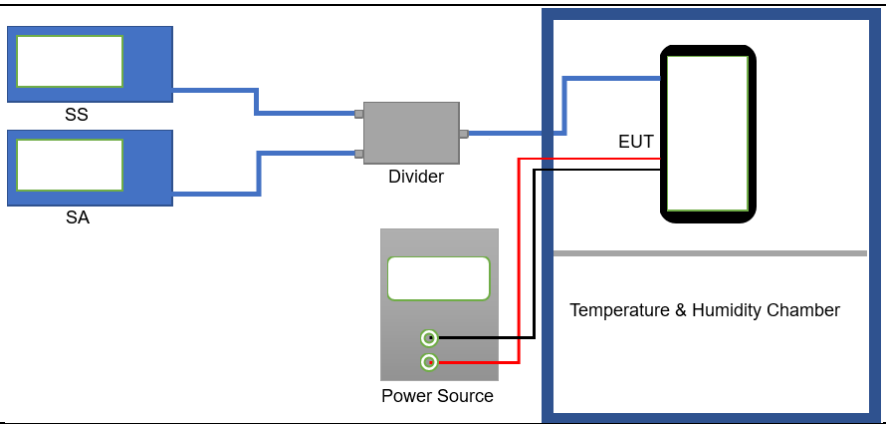
*1. The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.*

| WCDMA Band IV 12.2k RMC | | | | | | |
|---|---|---|---|---|---|---|
| **Lowest channel** | | | | | | |
| Frequency (MHz) | Spurous Emission level (dBm) | Factor (dB) | Level at antenna terminals (dBm) | Limit Line (dBm) | Margin (dB) | Polarization |
| 3424.40 | -44.12 | -4.16 | -48.28 | -13.00 | 35.28 | Vertical |
| 5136.60 | -48.56 | 4.38 | -44.18 | -13.00 | 31.18 | Vertical |
| 3424.40 | -44.52 | -4.27 | -48.79 | -13.00 | 35.79 | Horizontal |
| 5136.60 | -49.24 | 3.91 | -45.33 | -13.00 | 32.33 | Horizontal |
| **Middle channel** | | | | | | |
| Frequency (MHz) | Spurous Emission level (dBm) | Factor (dB) | Level at antenna terminals (dBm) | Limit Line (dBm) | Margin (dB) | Polarization |
| 3464.80 | -44.43 | -3.11 | -47.54 | -13.00 | 34.54 | Vertical |
| 5197.20 | -49.00 | 3.91 | -45.09 | -13.00 | 32.09 | Vertical |
| 3464.80 | -44.36 | -3.26 | -47.62 | -13.00 | 34.62 | Horizontal |
| 5197.20 | -49.12 | 3.41 | -45.71 | -13.00 | 32.71 | Horizontal |
| **Highest channel** | | | | | | |
| Frequency (MHz) | Spurous Emission level (dBm) | Factor (dB) | Level at antenna terminals (dBm) | Limit Line (dBm) | Margin (dB) | Polarization |
| 3505.20 | -44.58 | -2.24 | -46.82 | -13.00 | 33.82 | Vertical |
| 5257.80 | -49.26 | 3.59 | -45.67 | -13.00 | 32.67 | Vertical |
| 3505.20 | -44.98 | -2.36 | -47.34 | -13.00 | 34.34 | Horizontal |
| 5257.80 | -48.64 | 3.19 | -45.45 | -13.00 | 32.45 | Horizontal |

*Remark:*

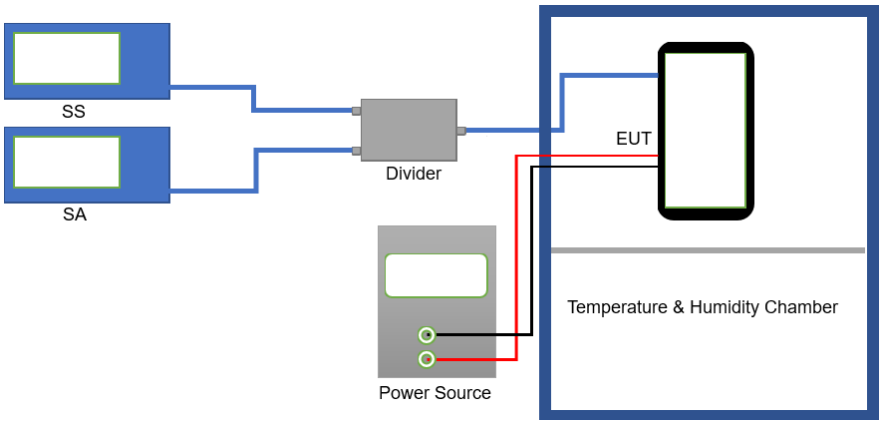
*1. The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.*

## 6.7 Frequency stability V.S. Temperature measurement

| | |
|---|---|
| Test Requirement: | FCC Part 22.355, FCC Part 24.235, FCC Part 27.54<br>FCC Part 2.1055(a)(1)(b) |
| Limit: | ±2.5 ppm for WCDMA 850<br>Within authorized band for WCDMA 1900 and WCDMA 1700 |
| Test setup: |  |
| Test procedure: | 1. The equipment under test was connected to an external DC power supply and input rated voltage.<br>2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators.<br>3. The EUT was placed inside the temperature chamber.<br>4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25℃ operating frequency as reference frequency.<br>5. Turn EUT off and set the chamber temperature to –30℃. After the temperature stabilized for approximately 30 minutes recorded the frequency.<br>6. Repeat step measure with 10℃ increased per stage until the highest temperature of +50℃ reached |
| Test Instruments: | Refer to section 5.9 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Passed |

**Measurement Data:** Refer to Appendix F - WCDMA

## 6.8 Frequency stability V.S. Voltage measurement

| | |
|---|---|
| Test Requirement: | FCC Part 22.355, FCC Part 24.235, FCC Part 27.54<br>FCC Part 2.1055(d)(2) |
| Limit: | ±2.5 ppm for WCDMA 850<br>Within authorized band for WCDMA 1900 and WCDMA 1700 |
| Test setup: |  |
| Test procedure: | 1. Set chamber temperature to 25℃. Use a variable DC power source to power the EUT and set the voltage to rated voltage.<br>2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.<br>3. Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change. |
| Test Instruments: | Refer to section 5.9 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Passed |

**Measurement Data:** Refer to Appendix F - WCDMA

# 8 EUT Constructional Details

Reference to the test report No. JYTSZB-R12-2102653.

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