# TEST REPORT

## No. 25T04Z100437-001

**for**

**Baicells Technologies Co., Ltd.**

**Product Name: Aurora454**

**Model Name: BSQ7041A454**

**FCC ID: 2AG32BSQ7041A454**

**with**

**Hardware Version: Ver.B**

**Software Version: BaiBNQ_2.7.2**

**Issued Date: 2025-04-03**

**Note:**

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

**Test Laboratory:**

**CTTL-Telecommunication Technology Labs, CAICT**

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# REPORT HISTORY

| Report Number | Revision | Description | Issue Date |
|---|---|---|---|
| 25T04Z100437-001 | Rev.0 | 1st edition | 2025-04-03 |

Note: the latest revision of the test report supersedes all previous version.

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# 1. Test Laboratory

## 1.1. Introduction & Accreditation

**Telecommunication Technology Labs, CAICT** is an ISO/IEC 17025:2017 accredited test laboratory under American Association for Laboratory Accreditation (A2LA) with lab code 7049.01, and is also an FCC accredited test laboratory (CN1349), and ISED accredited test laboratory (CAB identifier:CN0066). The detail accreditation scope can be found on A2LA website.

## 1.2. Testing Location

Location 1: CTTL(BDA)

Address: No.18A, Kangding Street, Beijing Economic-Technology Development Area, Beijing 100176, P. R. China

## 1.3. Testing Environment

Normal Temperature: 15-35° C

Relative Humidity: 20-75%

## 1.4. Project data

Testing Start Date: 2025-03-04

Testing End Date: 2025-03-06

## 1.5. Signature

**Zhang Ying**

**(Prepared this test report)**

**An Hui**

**(Reviewed this test report)**

**Zhang Xia**

**Deputy Director of the laboratory**

**(Approved this test report)**

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# 2. Client Information

## 2.1. Applicant Information

| | |
|---|---|
| Company Name: | Baicells Technologies Co., Ltd. |
| Address: | 9-10F,1stBldg.,No.81BeiqingRoad,Haidian District,Beijing,China |
| City: | Beijing |
| Postal Code: | / |
| Country: | China |
| Contact | Back Huang |
| Email | contact@baicells.com |
| Telephone: | 010 6260 7100 |
| Fax: | / |

## 2.2. Manufacturer Information

| | |
|---|---|
| Company Name: | Baicells Technologies Co., Ltd. |
| Address: | 9-10F,1stBldg.,No.81BeiqingRoad,Haidian District,Beijing,China |
| City: | Beijing |
| Postal Code: | / |
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| Email | contact@baicells.com |
| Telephone: | 010 6260 7100 |
| Fax: | / |

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# 3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

## 3.1. About EUT

| | |
|---|---|
| Description | 5G NR Base Station |
| Model Name | BSQ7041A454 |
| FCC ID | 2AG32BSQ7041A454 |

Note: The EUT functions are described in Annex A of this test report. Specifications of the EUT were provided to fulfil the test. Samples undergoing test were selected by the client. Components list, please refer to documents of the manufacturer; it is also included in the original test record of CTTL,Telecommunication Technology Labs,CAICT

## 3.2. Internal Identification of EUT

| EUT ID* | SN or IMEI | HW Version | SW Version |
|---|---|---|---|
| UT01a | 24B000010 | Ver.B | BaiBNQ_2.7.2 |

*EUT ID: is used to identify the test sample in the lab internally. The HW and SW version information were provided by the applicant.

## 3.3. EUT set-ups

| EUT set-up No. | Combination of EUT and AE | Remarks |
|---|---|---|
| Set.1 | UT01a | / |

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# 4. Reference Documents

## 4.1. Documents supplied by applicant

EUT parameters, referring to Annex A for detailed information, were supplied by the client or manufacturer, which is the basis of testing. CAICT is not responsible for the accuracy of customer supplied technical information that may affect the test results (for example, antenna gain and loss of customer supplied cable).

## 4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

| Reference | Title | Version |
|---|---|---|
| FCC Part 15, Subpart B | Radio frequency devices - Unintentional Radiators | 2023 |
| ANSI C63.4 | American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz | 2014 |

Note: The test methods have no deviation with standards.

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## 5. Test Results

| Abbreviations used in this clause: | | |
|---|---|---|
| Verdict Column | P | Pass |
| | F | Fail |
| | BR | Re-use test data from basic model report. |
| | NA | Not applicable |
| | NM | Not measured |

| Items | Test Name | Clause in FCC rules | Section in this report | Verdict | Test Location |
|---|---|---|---|---|---|
| 1 | Radiated Emission | 15.109(a) | B.1 | P | **CTTL(BDA)** |
| 2 | Conducted Emission | 15.107(a) | B.2 | P | **CTTL(BDA)** |

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## 6. Test Facilities Utilized

**Test instruments list:**

| No. | Equipment | Model | Serial Number | Manufacturer | Calibration Period | Calibration Due date |
|---|---|---|---|---|---|---|
| 1 | LISN | ENV216 | 101459 | R&S | 1 year | 2025-05-16 |
| 2 | Test Receiver | ESCI 3 | 100766 | R&S | 1 year | 2025-04-18 |
| 3 | Test Receiver | ESW44 | 103015 | R&S | 1 year | 2026/1/15 |
| 4 | Test Receiver | FSV40 | 101047 | R&S | 1 year | 2025/6/25 |
| 5 | EMI Antenna | LB-180400-25-C-KF | 2.11008E+12 | A-INFO | 1 year | 2025/5/22 |
| 6 | EMI Antenna | VULB 9163 | 1176 | SCHWARZBECK | 1 year | 2025/4/7 |
| 7 | EMI Antenna | 3117 | 58888 | ETS | 1 year | 2025/9/18 |

**Test software list:**

| Test Item | Test Software | Software Vendor |
|---|---|---|
| Conducted emission | EMC32 V8.53.0 | R&S |
| Radiated emission SAC/FAC 5 | EMC32 V10.60.20 | R&S |

**Semi-anechoic chamber utilized** did not exceed following limits along the testing:

| | |
|---|---|
| Temperature | Min. = 15 ℃, Max. = 35 ℃ |
| Relative humidity | Min. = 15 %, Max. = 75 % |
| Shielding effectiveness | 0.014MHz-1MHz, >60dB;<br>1MHz - 1000MHz, >90dB. |
| Electrical insulation | > 2 MΩ |
| Ground system resistance | < 4 Ω |
| Normalised site attenuation (NSA) | < ±4 dB, 10 m distance |
| Site voltage standing-wave ratio ($S_{VSWR}$) | Between 0 and 6 dB, from 1GHz to 6GHz |

**Shielded room utilized** did not exceed following limits along the testing:

| | |
|---|---|
| Temperature | Min. = 15 ℃, Max. = 35 ℃ |
| Relative humidity | Min. = 20 %, Max. = 75 % |
| Shielding effectiveness | 0.014MHz-1MHz, >60dB;<br>1MHz－1000MHz, >90dB. |
| Electrical insulation | > 2 MΩ |
| Ground system resistance | < 4 Ω |

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# 7. Measurement Uncertainty

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

**Location 1: CTTL(BDA)**
**SAC/FAC5**

| Test item | Frequency ranges | Measurement uncertainty |
|---|---|---|
| Radiated Emission | 30MHz-1GHz | 5.29dB(k=2) |
| | 1GHz-18GHz | 5.62dB(k=2) |
| Conducted Emission | 150kHz-30MHz | AC Power Line: 3.10dB(*k*=2) |

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# ANNEX A: EUT parameters

| | | |
|---|---|---|
| Cellular Bands | ☐GSM | Band |
| | ☐CDMA | Band |
| | ☐WCDMA | Band |
| | ☐LTE | Band |
| | √5G | Band n41<br>Modulation: QPSK, 16QAM, 64QAM, 256QAM |
| Other | √GNSS | √GPS √BDS √Gallileo √Glonass |
| | ☐FM ☐MP3 ☐MP4 ☐Camera ☐USB data ☐NFC | |
| Power Supply | -48VDC<br>AC adaptor (multi-national standards) | |

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# ANNEX B: Detailed Test Results

## B.1. Radiated Emission

**Reference:** FCC Part 15.109(a).

**Method of measurement:** The field strength of radiated emissions from the unintentional radiator at distances of 3/10 meters(for 30MHz-1GHz) and 3 meters (for above 1GHz) were tested. The test was in accordance with the procedures of ANSI C63.4 – 2014, section 8.3.
The EUT was placed on a non-conductive table. The measurement antenna was placed at the specified distance from the EUT. During the test, 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.

**EUT operating mode:** The EUT was operating in the charging mode. During the test, the EUT was connected to a charger in the case of charging mode. All equipment was placed on the test table top and arranged in a typical configuration in accordance with ANSI C63.4-2014 and manipulated to obtain worst case emissions.

**Measurement limit:**
**CLASS B**

| Frequency range (MHz) | Field strength limit (μV/m) | | |
|---|---|---|---|
| | Quasi-peak | Average | Peak |
| 30-88 | 100 | | |
| 88-216 | 150 | | |
| 216-960 | 200 | | |
| 960-1000 | 500 | | |
| >1000 | | 500 | 5000 |

Note: the above limit is for 10 meters test distance. The limits for 3 meters distance is got by converting: Limit(10m) = Limit(3m) + 20[log(3/10)], which is according to FCC 15.109(g)(2)

**Test settings:**

| Frequency range (MHz) | RBW/VBW | Sweep Time (s) | Detector |
|---|---|---|---|
| 30-1000 | 120kHz (IF Bandwidth) | 5 | Peak/Quasi-peak |
| Above 1000 | 1MHz/3MHz | 15 | Peak, Average |

**Measurement results:**
A "reference path loss" is established and the $A_{Rpl}$ is the attenuation of “reference path loss”. It includes the antenna factor of receive antenna and the path loss.
The measurement results are obtained as described below:
Result = $P_{Mea} + A_{Rpl} = P_{Mea} + G_A + G_{PL}$

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Where

$G_A$: Antenna factor of receive antenna

$G_{PL}$: Path Loss

$P_{Mea}$: Measurement result on receiver.

Note: The measurement results showed as followed are worst cases, and the combinations of different batteries, cables and headsets were considered if applicable.

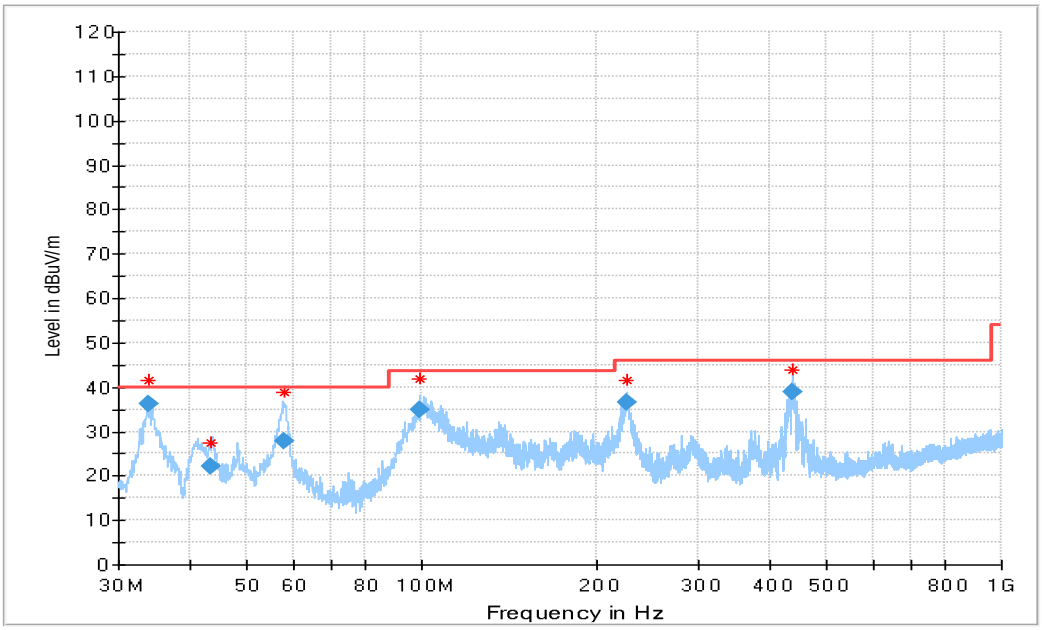


**Figure A.1 Radiated Emission from 30MHz to 1GHz (class B)**

**QP detector**

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) |
|---|---|---|---|---|---|---|
| 33.848000 | 36.21 | 40.00 | 3.79 | 100.0 | V | -30.0 |
| 43.240000 | 22.00 | 40.00 | 18.00 | 107.0 | V | 76.0 |
| 57.785000 | 27.95 | 40.00 | 12.05 | 100.0 | V | 25.0 |
| 99.526500 | 35.00 | 43.50 | 8.50 | 275.0 | H | 34.0 |
| 225.755000 | 36.56 | 46.00 | 9.44 | 131.0 | H | 72.0 |
| 435.240000 | 38.93 | 46.00 | 7.07 | 107.0 | H | 72.0 |

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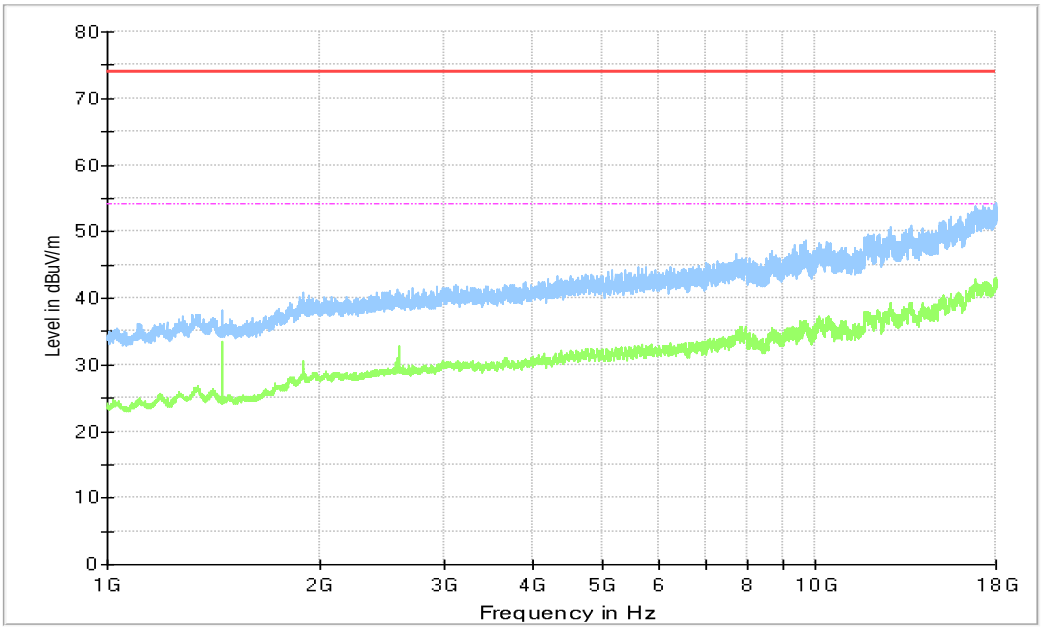


**Figure A.2 Radiated Emission from 1GHz to 3GHz (class B)**

**Average detector**

| Frequency (MHz) | Measurement Result (dBμV/m) | Cable loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBμV) | Limit (dBμV/m) | Margin (dB) | Antenna Pol. (H/V) |
|---|---|---|---|---|---|---|---|
| 17957.972 | 43.13 | -23.9 | 41.9 | 25.10 | 54.0 | 10.9 | H |
| 17960.806 | 42.92 | -25.3 | 41.9 | 26.36 | 54.0 | 11.1 | H |
| 17962.222 | 42.93 | -26.1 | 41.9 | 27.10 | 54.0 | 11.1 | H |
| 24198.861 | 32.07 | -45.7 | 33.4 | 44.38 | 54.0 | 21.9 | V |
| 24239.944 | 31.95 | -45.6 | 33.4 | 44.16 | 54.0 | 22.0 | V |
| 24252.694 | 31.94 | -45.6 | 33.4 | 44.12 | 54.0 | 22.1 | V |

**Peak detector**

| Frequency (MHz) | Measurement Result (dBμV/m) | Cable loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBμV) | Limit (dBμV/m) | Margin (dB) | Antenna Pol. (H/V) |
|---|---|---|---|---|---|---|---|
| 17927.750 | 54.1 | -20.2 | 41.9 | 32.38 | 74.0 | 19.9 | V |
| 17953.722 | 54.3 | -21.7 | 41.9 | 34.12 | 74.0 | 19.7 | V |
| 17957.028 | 54.3 | -23.4 | 41.9 | 35.81 | 74.0 | 19.7 | H |
| 20648.222 | 43.6 | -46.4 | 32.9 | 57.14 | 74.0 | 30.4 | H |
| 23667.611 | 43.4 | -46.0 | 33.3 | 56.08 | 74.0 | 30.6 | V |
| 23889.556 | 43.6 | -46.2 | 33.4 | 56.43 | 74.0 | 30.4 | V |

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## B.2. Conducted Emission

**Reference:** FCC: Part 15.107(a).

**Method of measurement:** For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits. Tested in accordance with the procedures of ANSI C63.4 – 2014, section 7.3.

**EUT operating mode:** The EUT is operating in the charging mode.

**Measurement limit:**

**CLASS B**

| Frequency of emission (MHz) | Conducted limit (dBμV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15-0.5 | 66 to 56* | 56 to 46* |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |
| *Decreases with the logarithm of the frequency | | |

**Test Settings:**

| Voltage(V) | Frequency(Hz) |
|---|---|
| 120 | 60 |

| RBW/IF bandwidth | Sweep Time(s) |
|---|---|
| 9kHz | 1 |

**Measurement results:**

The measurement results showed as followed are worst cases, and the combinations of different batteries, cables and headsets were considered if applicable.

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**Charger, Set.1**

The graphic result is the maximum of the measurements for both phase line and neutral line.

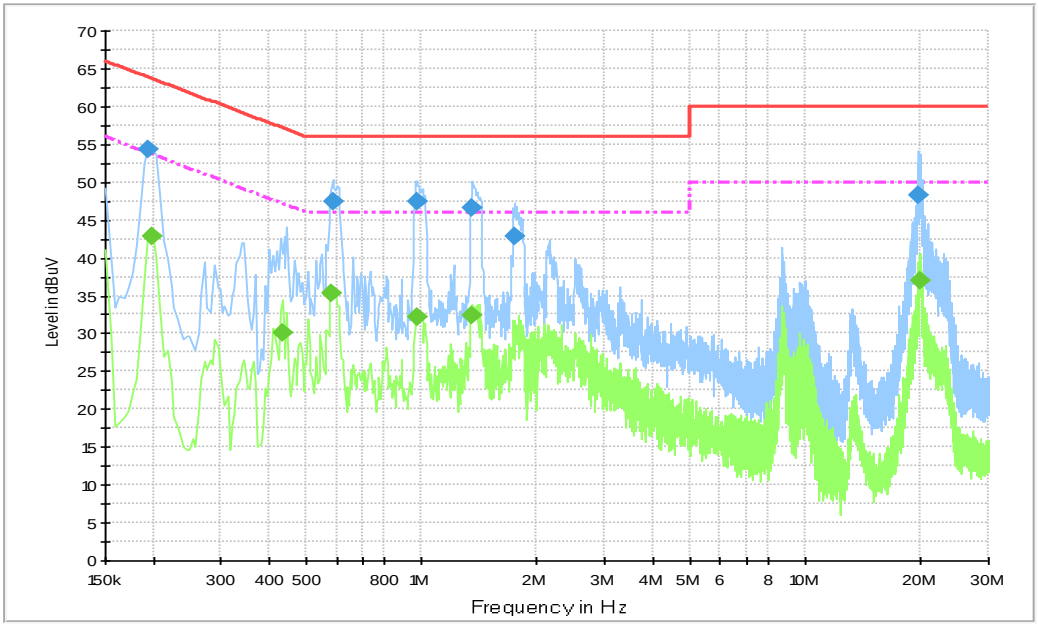


**Figure A.5 Conducted Emission (class B)**

**Final Result 1**

| Frequency (MHz) | QuasiPeak (dBµV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|---|---|---|---|---|---|---|---|---|
| 0.195000 | 54.4 | 2000.0 | 9.000 | On | N | 20.0 | 9.4 | 63.8 |
| 0.586500 | 47.4 | 2000.0 | 9.000 | On | L1 | 20.0 | 8.6 | 56.0 |
| 0.969000 | 47.5 | 2000.0 | 9.000 | On | L1 | 19.9 | 8.5 | 56.0 |
| 1.356000 | 46.5 | 2000.0 | 9.000 | On | L1 | 19.9 | 9.5 | 56.0 |
| 1.747500 | 42.9 | 2000.0 | 9.000 | On | L1 | 19.8 | 13.1 | 56.0 |
| 19.788000 | 48.2 | 2000.0 | 9.000 | On | L1 | 20.1 | 11.8 | 60.0 |

**Final Result 2**

| Frequency (MHz) | CAverage (dBµV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|---|---|---|---|---|---|---|---|---|
| 0.199500 | 42.9 | 2000.0 | 9.000 | On | N | 20.0 | 10.8 | 53.6 |
| 0.433500 | 30.1 | 2000.0 | 9.000 | On | L1 | 20.1 | 17.1 | 47.2 |
| 0.582000 | 35.4 | 2000.0 | 9.000 | On | L1 | 20.0 | 10.6 | 46.0 |
| 0.978000 | 32.1 | 2000.0 | 9.000 | On | L1 | 19.9 | 13.9 | 46.0 |
| 1.356000 | 32.3 | 2000.0 | 9.000 | On | L1 | 19.9 | 13.7 | 46.0 |
| 19.959000 | 37.1 | 2000.0 | 9.000 | On | L1 | 20.1 | 12.9 | 50.0 |

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## ANNEX C: Persons involved in this testing

| Test Item | Tester |
|---|---|
| Radiated Emission | Sun Tianyuan |
| Conducted Emission | Yin He |

*****END OF REPORT*****

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