

TEST REPORT

Application No.: SHCR2311002374EV
Applicant: CSE Energy&Technology Co.,Ltd
Address of Applicant: Building S4, No.777, Sizhuan Road, Shanghai, China
Manufacturer: CSE Energy&Technology Co.,Ltd
Address of Manufacturer: Building S4, No.777, Sizhuan Road, Shanghai, China
Equipment Under Test (EUT):
EUT Name: AC charging pile of electric vehicle
Model No.: CSE-BCG-AS32-K01-3-CE, CSE-BCG-AS32-K01-1-CE
Add Model No.: Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Trade Mark: CSE
Standard(s) : EN 301 908-13 V13.1.1
EN 301 908-1 V15.2.1
Date of Receipt: 2023-10-09
Date of Test: 2023-10-17 to 2023-10-24
Date of Issue: 2023-11-21

| | |
|---------------------|--------------|
| Test Result: | Pass* |
|---------------------|--------------|

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

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.



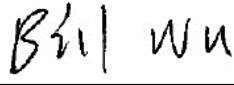
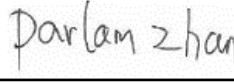
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR231100237406

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| Revision Record | | | |
|-----------------|-------------|------------|--------------------------|
| Version | Description | Date | Remark |
| 00 | Co-license | 2023-11-21 | Base on SHCR231000209006 |
| | | | |
| | | | |

| | | | |
|--------------------------|--|--|--|
| Authorized for issue by: | | | |
| Tested By |  | | |
| | Bill Wu/Project Engineer | | |
| Approved By |  | | |
| | Parlam Zhan / Reviewer | | |

2 Test Summary

| Radio Spectrum Matter Part | | | | |
|---|--------------------------|----------------------|----------------------|--------|
| Item | Standard | Method | Requirement | Result |
| Radiated Transmitter Spurious Emissions | EN 301 908-13 V13.1.1 | EN 301 908-1 § 5.3.1 | EN 301 908-1 § 4.2.2 | Pass |
| Radiated Receiver Spurious Emissions | | EN 301 908-1 § 5.3.1 | EN 301 908-1 § 4.2.2 | Pass |

Remark: The device using a wireless module EG915U-EU has been certified. We just fully retest RSE for this product, other test data reference to original module report 2203RSU066-E4.

Note1: There are series models mentioned in this report, and they are the similar in electrical and electronic characters. Only the model CSE-BCG-AS32-K01-3-CE was tested since their difference was the number of wireless modules varies.

Note2: This report was an additional report copied from the report SHCR231000209006, just changing the model name, company information and trade mark. Since the electrical circuit design, layout, components used and internal wiring for the model CSE-BCG-AS32-K01-3-CE in this report was exactly the same as the model CSG-BCG-AS32-K01-3-CE in the report SHCR231000209006.

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4 General Information

4.1 Details of E.U.T.

| | |
|---------------|----------------|
| Power Supply: | AC 230V 50 32A |
| Test Voltage: | AC 230V 50Hz |

| Frequency Band: | LTE BAND | Duplex Mode | Uplink (MHz) | Downlink (MHz) | Supported Channel Bandwidth | | | | | |
|---------------------|--|-------------|--------------|----------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| | | | | | 1.4 | 3 | 5 | 10 | 15 | 20 |
| | 1 | FDD | 1920-1980 | 2110-2170 | --- | --- | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| | 3 | FDD | 1710-1785 | 1805-1880 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| | 7 | FDD | 2500-2570 | 2620-2690 | --- | --- | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| | 8 | FDD | 880-915 | 925-960 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | --- | --- |
| | 20 | FDD | 791-821 | 832-862 | --- | --- | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| | 28 | FDD | 703-748 | 758-803 | --- | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Type of Modulation: | UL: QPSK,16QAM DL: QPSK,16QAM,64QAM | | | | | | | | | |
| Sample Type: | Module equipment | | | | | | | | | |
| Antenna Type: | External Antenna | | | | | | | | | |
| Antenna Gain: | 3dBi (Provided by manufacturer); | | | | | | | | | |

4.2 Description of Support Units

| Description | Manufacturer | Model No. | Serial No. |
|---|--------------|-----------|------------|
| -- | -- | -- | -- |
| The EUT has been tested as an independent unit. | | | |

4.3 Measurement Uncertainty

| No. | Item | Measurement Uncertainty |
|-----|---------------------------------|-------------------------|
| 1 | Radio Frequency | 8.4 x 10 ⁻⁸ |
| 2 | Timeout | 2s |
| 3 | Duty cycle | 0.4% |
| 4 | Occupied Bandwidth | 3% |
| 5 | RF conducted power | 0.6dB |
| 6 | RF power density | 2.9dB |
| 7 | Conducted Spurious emissions | 0.75dB |
| 8 | RF Radiated power | 5.2dB (Below 1GHz) |
| | | 5.9dB (Above 1GHz) |
| 9 | Radiated Spurious emission test | 4.2dB (Below 30MHz) |
| | | 4.5dB (30MHz-1GHz) |
| | | 5.1dB (1GHz-6GHz) |
| | | 5.4dB (6GHz-18GHz) |
| 10 | Temperature test | 1°C |
| 11 | Humidity test | 3% |
| 12 | Supply voltages | 1.5% |
| 13 | Time | 3% |

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Tel: +86 21 6191 5666

Fax: +86 21 6191 5678

No tests were sub-contracted.

Note:

1. SGS is not responsible for wrong test results due to incorrect information (e.g. max. clock frequency, highest internal frequency, antenna gain, cable loss, etc) is provided by the applicant. (if applicable).
2. SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (if applicable).
3. Sample source: sent by customer.

4.5 Test Facility

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

- **A2LA (Certificate No. 6332.01)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the American Association for Laboratory Accreditation(A2LA).

- **FCC (Designation Number: CN1301)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

- **ISED (CAB Identifier: CN0020)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 8617A

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

5 Equipment List

| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
|---------------------------|--------------|------------------|-----------------------|------------|--------------|
| RF Radiated Test | | | | | |
| EMI test Receiver | R&S | ESU40 | SHEM051-1 | 2022-12-20 | 2023-12-19 |
| Spectrum Analyzer | R&S | FSP-30 | SHEM002-1 | 2022-12-20 | 2023-12-19 |
| Communication Tester | R&S | CMW500 | SHEM268-1 | 2023-06-01 | 2024-05-31 |
| Loop Antenna (9kHz-30MHz) | Schwarzbeck | FMZB1519 | SHEM135-1 | 2022-12-20 | 2023-12-19 |
| Antenna (25MHz-2GHz) | Schwarzbeck | VULB9168 | SHEM048-1 | 2022-09-11 | 2024-09-10 |
| Antenna (25MHz-2GHz) | Schwarzbeck | VULB9168 | SHEM202-1 | 2022-05-07 | 2024-05-06 |
| Horn Antenna (1-18GHz) | Schwarzbeck | HF906 | SHEM009-1 | 2022-08-11 | 2024-08-10 |
| Horn Antenna (1-18GHz) | Schwarzbeck | BBHA9120D | SHEM050-1 | 2022-09-18 | 2024-09-17 |
| Horn Antenna (14-40GHz) | Schwarzbeck | BBHA 9170 | SHEM049-1 | 2022-09-18 | 2024-09-17 |
| Pre-Amplifier | HP | 8447D | SHEM236-1 | 2023-08-02 | 2024-08-01 |
| High-amplifier (14-40GHz) | Schwarzbeck | 10001 | SHEM049-2 | 2022-12-20 | 2023-12-19 |
| Band Filter | LORCH | 9BRX-875/X150 | SHEM156-1 | / | / |
| Band Filter | LORCH | 13BRX-1950/X500 | SHEM083-2 | / | / |
| Band Filter | LORCH | 5BRX-2400/X200 | SHEM155-1 | / | / |
| Band Filter | LORCH | 5BRX-5500/X1000 | SHEM157-2 | / | / |
| High pass Filter | Wainwright | WHK3.0/18G | SHEM157-1 | / | / |
| High pass Filter | Wainwright | WHKS1700 | SHEM157-3 | / | / |
| Semi/Fully Anechoic | ST | 11*6*6M | SHEM078-2 | 2021-05-25 | 2024-05-24 |
| RE test Cable | / | RE01, RE02, RE06 | / | 2023-01-07 | 2024-01-06 |
| Test software | ESE | E3 | Version: 6.111221a | / | / |

6 Radio Spectrum Matter Test Results

6.1 Radiated Transmitter Spurious Emissions

Test Requirement EN 301 908-1 § 4.2.2

Test Method: EN 301 908-1 § 5.3.1

Limit:

According to ETSI EN 301 908-1 Table 4.2.2.2-1 & EN 301 908-13 clause 4.2.4.1.2.

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 26.4 °C

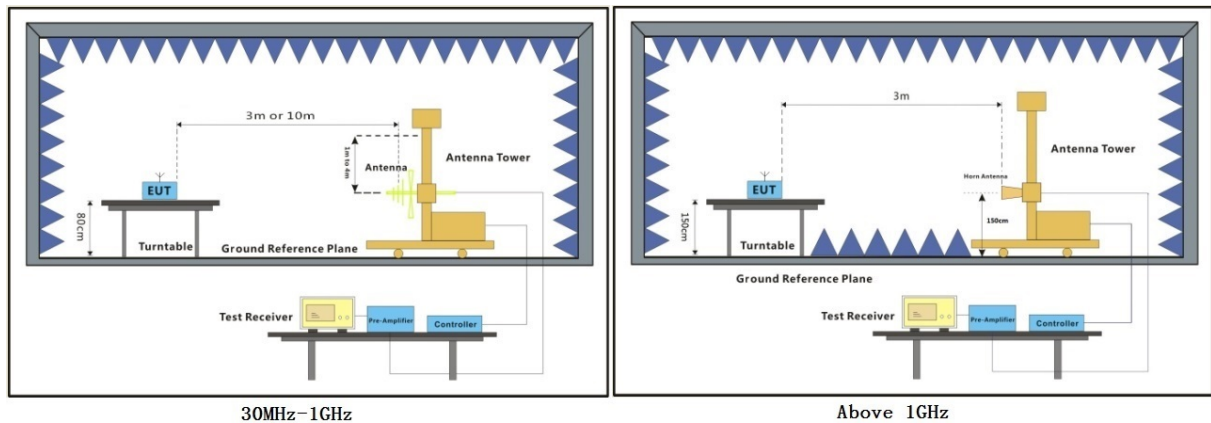
Humidity: 55.2 % RH

Atmospheric Pressure: 1010 mbar

6.1.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description |
|-----------------------|-----------|---|
| Final test | 12 | TX mode_Keep the EUT in transmitting mode |

6.1.3 Test Setup Diagram



6.1.4 Measurement Procedure and Data

- a) The equipment shall be tested under normal test conditions;
- b) The test configuration shall be as close to normal intended use as possible;
- c) If the equipment is part of a system, or can be connected to ancillary equipment, then it should be acceptable to the equipment while connected to the minimum configuration of ancillary equipment necessary to exercise the ports;
- d) If the equipment has a large number of ports, then a sufficient number shall be selected to simulate actual operation conditions and to ensure that all the different types of termination are tested;
- e) The test conditions, test configuration and mode of operation shall be recorded in the test report;
- f) Ports which in normal operation are connected shall be connected to an ancillary equipment or to a representative piece of cable correctly terminated to simulate the input/output characteristics of the ancillary equipment, RF input/output ports shall be correctly terminated;
- g) Ports that are not connected to cables during normal operation, e.g. service connectors, programming connectors; temporary connectors, etc. Shall not be connected to any cables for the purpose of this test. Where cables have to be connected to these ports, or interconnecting cables have to be extended in length in order to exercise the EUT, precautions shall be taken to ensure that the evaluation of the EUT is not affected by the addition or extension of these cables:
 - emission tests shall be performed in two modes of operation:
 - l with a communication link established (traffic mode); and
 - l in the idle mode;
- h) The traffic mode configuration which uses the UE maximum output power for testing shall be declared by the manufacturer.

Ancillary equipment shall be tested with it connected to a UE in which case compliance shall be demonstrated to the appropriate clauses of the present document.

The results obtained shall be compared to the limits in following table in order to prove compliance.

Traffic mode

| LTE Band 1 | | | | |
|------------|-------------------------|--------|-------|------------|
| Frequency | Spurious Emission Level | | Limit | Over Limit |
| (MHz) | Polaxis | (dBm) | dBm | (dB) |
| 3900.00 | H | -41.81 | -30 | -11.81 |
| 5850.00 | H | -41.84 | -30 | -11.84 |
| 7800.00 | H | -39.59 | -30 | -9.59 |
| 3900.00 | V | -42.99 | -30 | -12.99 |
| 5850.00 | V | -43.65 | -30 | -13.65 |
| 7800.00 | V | -39.05 | -30 | -9.05 |

| LTE Band 3 | | | | |
|------------|-------------------------|--------|-------|------------|
| Frequency | Spurious Emission Level | | Limit | Over Limit |
| (MHz) | Polaxis | (dBm) | dBm | (dB) |
| 3495.00 | H | -42.70 | -30 | -12.70 |
| 5242.50 | H | -40.37 | -30 | -10.37 |
| 6990.00 | H | -39.41 | -30 | -9.41 |
| 3495.00 | V | -42.24 | -30 | -12.24 |
| 5242.50 | V | -39.25 | -30 | -9.25 |
| 6990.00 | V | -40.20 | -30 | -10.20 |

| LTE Band 5 | | | | |
|------------|-------------------------|--------|-------|------------|
| Frequency | Spurious Emission Level | | Limit | Over Limit |
| (MHz) | Polaxis | (dBm) | dBm | (dB) |
| 1673.00 | H | -42.76 | -30 | -12.76 |
| 2509.50 | H | -41.21 | -30 | -11.21 |
| 3346.00 | H | -40.50 | -30 | -10.50 |
| 1673.00 | V | -43.21 | -30 | -13.21 |
| 2509.50 | V | -42.25 | -30 | -12.25 |
| 3346.00 | V | -40.75 | -30 | -10.75 |

| LTE Band 7 | | | | |
|------------|-------------------------|--------|-------|------------|
| Frequency | Spurious Emission Level | | Limit | Over Limit |
| (MHz) | Polaxis | (dBm) | dBm | (dB) |
| 5070.00 | H | -43.51 | -30 | -13.51 |
| 7605.00 | H | -42.41 | -30 | -12.41 |
| 10140.00 | H | -40.80 | -30 | -10.80 |
| 5070.00 | V | -41.59 | -30 | -11.59 |
| 7605.00 | V | -42.55 | -30 | -12.55 |
| 10140.00 | V | -39.64 | -30 | -9.64 |

| LTE Band 20 | | | | |
|-------------|-------------------------|--------|-------|------------|
| Frequency | Spurious Emission Level | | Limit | Over Limit |
| (MHz) | Polaxis | (dBm) | dBm | (dB) |
| 1694.00 | H | -42.41 | -30 | -12.41 |
| 2541.00 | H | -41.50 | -30 | -11.50 |
| 3388.00 | H | -41.37 | -30 | -11.37 |
| 1694.00 | V | -44.22 | -30 | -14.22 |
| 2541.00 | V | -40.01 | -30 | -10.01 |
| 3388.00 | V | -40.82 | -30 | -10.82 |

| LTE Band 28 | | | | |
|-------------|-------------------------|--------|-------|------------|
| Frequency | Spurious Emission Level | | Limit | Over Limit |
| (MHz) | Polaxis | (dBm) | dBm | (dB) |
| 1456.00 | H | -42.88 | -30 | -12.88 |
| 2184.00 | H | -43.46 | -30 | -13.46 |
| 2912.00 | H | -41.29 | -30 | -11.29 |
| 1456.00 | V | -41.85 | -30 | -11.85 |
| 2184.00 | V | -42.71 | -30 | -12.71 |
| 2912.00 | V | -40.15 | -30 | -10.15 |

6.2 Radiated Receiver Spurious Emissions

Test Requirement EN 301 908-1 § 4.2.2

Test Method: EN 301 908-1 § 5.3.1

Limit:

According to ETSI EN 301 908-1 Table 4.2.2.2-1 & EN 301 908-13 clause 4.2.10.1.2.

6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 26.4 °C

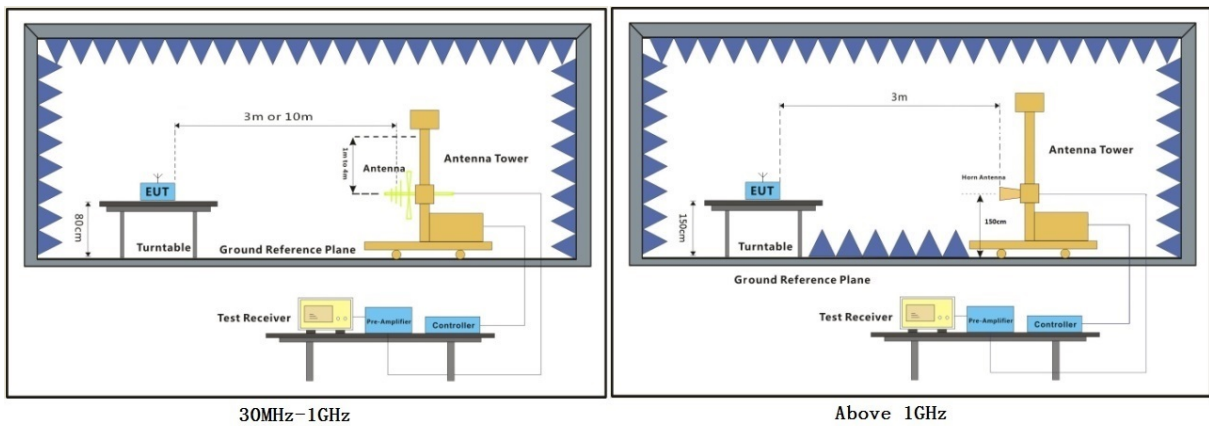
Humidity: 55.0 % RH

Atmospheric Pressure: 1010 mbar

6.2.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description |
|-----------------------|-----------|--|
| Final test | 13 | RX mode_Keep the EUT in receiving mode |

6.2.3 Test Setup Diagram



6.2.4 Measurement Procedure and Data

- a) The equipment shall be tested under normal test conditions;
- b) The test configuration shall be as close to normal intended use as possible;
- c) If the equipment is part of a system, or can be connected to ancillary equipment, then it should be acceptable to the equipment while connected to the minimum configuration of ancillary equipment necessary to exercise the ports;
- d) If the equipment has a large number of ports, then a sufficient number shall be selected to simulate actual operation conditions and to ensure that all the different types of termination are tested;
- e) The test conditions, test configuration and mode of operation shall be recorded in the test report;
- f) Ports which in normal operation are connected shall be connected to an ancillary equipment or to a representative piece of cable correctly terminated to simulate the input/output characteristics of the ancillary equipment, RF input/output ports shall be correctly terminated;
- g) Ports that are not connected to cables during normal operation, e.g. service connectors, programming connectors; temporary connectors, etc. Shall not be connected to any cables for the purpose of this test. Where cables have to be connected to these ports, or interconnecting cables have to be extended in length in order to exercise the EUT, precautions shall be taken to ensure that the evaluation of the EUT is not affected by the addition or extension of these cables:
 - emission tests shall be performed in two modes of operation:
 - I with a communication link established (traffic mode); and
 - I in the idle mode;
- h) The traffic mode configuration which uses the UE maximum output power for testing shall be declared by the manufacturer.

Ancillary equipment shall be tested with it connected to a UE in which case compliance shall be demonstrated to the appropriate clauses of the present document.

The results obtained shall be compared to the limits in following table in order to prove compliance.

Idle mode

| Frequency (MHz) | Spurious Emission Level | | Limit dBm | Over Limit (dB) |
|--------------------|-------------------------|--------|--------------|--------------------|
| | Polaxis | (dBm) | | |
| 1333.37 | H | -52.83 | -47 | -5.83 |
| 3850.42 | H | -53.88 | -47 | -6.88 |
| 7156.87 | H | -54.35 | -47 | -7.35 |
| 1871.53 | V | -53.09 | -47 | -6.09 |
| 4024.83 | V | -53.63 | -47 | -6.63 |
| 7036.83 | V | -52.02 | -47 | -5.02 |

Remark:

- 1).Pretest with normal and extreme conditions,only the worst case data was showed in the test report.
- 2.) We have tested all modulation and all Channel, but only the worst case data displayed in this report.

7 Test Setup Photo

Radiated Spurious Emissions below 1GHz



Radiated Spurious Emissions above 1GHz



The EUT Details of Zoom



8 EUT Constructional Details (EUT Photos)

Refer to Appendix - Photographs of EUT Constructional Details for SHCR2311002374EV

- End of the Report -