

TEST REPORT

Application No.: SHCR2311002378EV
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-AT32-K01-1-CE, CSG-BCG-AT32/K03-3-CE,
CSE-BCG-AT32-K01-3-CE, CSE-BCG-AT16-K01-3-CE,
CSG-BCG-AT16/K03-3-CE, CSG-BCG-AT16/K04-3-CE,
CSE-BCG-AT16-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, power4 Homeby 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 2023-11-01
Date of Issue: 2023-11-21

Test Result:	Pass*
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* 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.



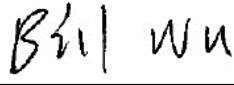
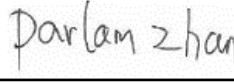
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR231100237806

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Revision Record			
Version	Description	Date	Remark
00	Co-license	2023-11-21	Base on SHCR231000209306

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-AT32-K01-3-CE was tested since their differences were the model number and appearance.

Note2: This report was an additional report copied from the report SHCR231000209306, 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-AT32-K01-3-CE in this report was exactly the same as the model CSG-BCG-AT32-K01-3-CE in the report SHCR231000209306.

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4 General Information

4.1 Details of E.U.T.

Power Supply:	AC 380V/50Hz
Test Voltage:	AC 380V/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	---	---	☒	☒	☒	☒
	3	FDD	1710-1785	1805-1880	☒	☒	☒	☒	☒	☒
	7	FDD	2500-2570	2620-2690	---	---	☒	☒	☒	☒
	8	FDD	880-915	925-960	☒	☒	☒	☒	---	---
	20	FDD	791-821	832-862	---	---	☒	☒	☒	☒
	28	FDD	703-748	758-803	---	☒	☒	☒	☒	☒
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.
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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

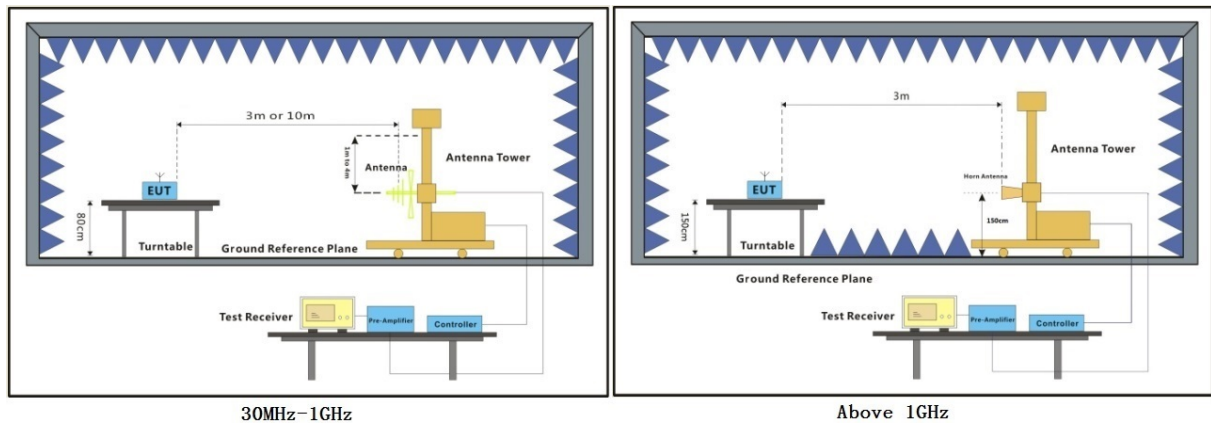
Operating Environment:

Temperature: 26.2 °C Humidity: 55.8 % 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:
 - 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.

Traffic mode

LTE Band 1				
Frequency	Spurious Emission Level		Limit	Over Limit
(MHz)	Polaxis	(dBm)	dBm	(dB)
3900.00	H	-43.35	-30	-13.35
5850.00	H	-42.62	-30	-12.62
7800.00	H	-39.61	-30	-9.61
3900.00	V	-43.73	-30	-13.73
5850.00	V	-41.51	-30	-11.51
7800.00	V	-38.68	-30	-8.68

LTE Band 3				
Frequency	Spurious Emission Level		Limit	Over Limit
(MHz)	Polaxis	(dBm)	dBm	(dB)
3495.00	H	-42.89	-30	-12.89
5242.50	H	-42.99	-30	-12.99
6990.00	H	-37.98	-30	-7.98
3495.00	V	-41.56	-30	-11.56
5242.50	V	-41.83	-30	-11.83
6990.00	V	-38.30	-30	-8.30

LTE Band 5				
Frequency	Spurious Emission Level		Limit	Over Limit
(MHz)	Polaxis	(dBm)	dBm	(dB)
1673.00	H	-42.28	-30	-12.28
2509.50	H	-40.92	-30	-10.92
3346.00	H	-38.71	-30	-8.71
1673.00	V	-42.32	-30	-12.32
2509.50	V	-40.77	-30	-10.77
3346.00	V	-37.61	-30	-7.61

LTE Band 7				
Frequency	Spurious Emission Level		Limit	Over Limit
(MHz)	Polaxis	(dBm)	dBm	(dB)
5070.00	H	-43.71	-30	-13.71
7605.00	H	-40.69	-30	-10.69
10140.00	H	-39.61	-30	-9.61
5070.00	V	-41.30	-30	-11.30
7605.00	V	-43.71	-30	-13.71
10140.00	V	-39.94	-30	-9.94

LTE Band 20				
Frequency	Spurious Emission Level		Limit	Over Limit
(MHz)	Polaxis	(dBm)	dBm	(dB)
1694.00	H	-40.92	-30	-10.92
2541.00	H	-43.86	-30	-13.86
3388.00	H	-40.70	-30	-10.70
1694.00	V	-40.33	-30	-10.33
2541.00	V	-42.38	-30	-12.38
3388.00	V	-39.40	-30	-9.40

LTE Band 28				
Frequency	Spurious Emission Level		Limit	Over Limit
(MHz)	Polaxis	(dBm)	dBm	(dB)
1456.00	H	-40.25	-30	-10.25
2184.00	H	-41.90	-30	-11.90
2912.00	H	-39.95	-30	-9.95
1456.00	V	-43.69	-30	-13.69
2184.00	V	-42.51	-30	-12.51
2912.00	V	-40.55	-30	-10.55

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: 26.2 °C

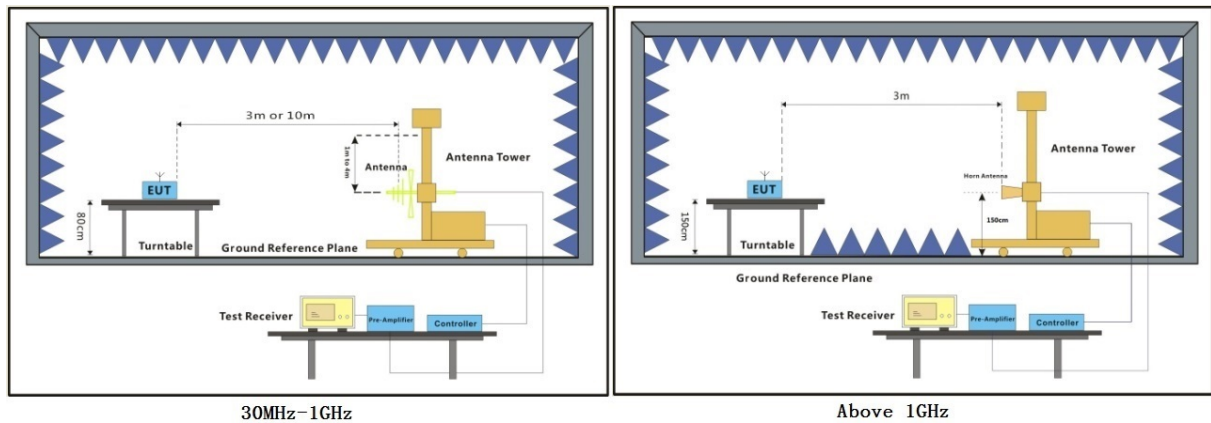
Humidity: 55.7 % RH

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	Spurious Emission Level		Limit	Over Limit
(MHz)	Polaxis	(dBm)	dBm	(dB)
1691.93	H	-52.32	-47	-5.32
4043.47	H	-52.33	-47	-5.33
7269.44	H	-54.08	-47	-7.08
2158.68	V	-52.67	-47	-5.67
4413.18	V	-54.10	-47	-7.10
6557.89	V	-53.94	-47	-6.94

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 SHCR2311002378EV

- End of the Report -