TEST REPORT

Report No.....	:	ZHT-250109111E02
Product.....	:	BATTERY MANAGEMENT SYSTEM
Trademark.....	:	JKESS
Model(s).....	:	For detailed information, please refer to the model list in Chapter 3.1
Model Difference.....	:	BDC8S200A is the test model, while other models are derivative models. These models are the same on the circuit, only with different model names. Therefore, the test data of BDC8S200A can represent the remaining models.
Applicant.....	:	JKBMS Electronic Technology Co., Ltd
Address.....	:	1204, Block A, Building 3, Yunzhi Science Park, Guangming District, Shenzhen City CHINA
Manufacturer.....	:	JKBMS Electronic Technology Co., Ltd
Address.....	:	1204, Block A, Building 3, Yunzhi Science Park, Guangming District, Shenzhen City CHINA
Prepared by.....	:	Guangdong Zhonghan Testing Technology Co., Ltd.
Address.....	:	Room 104/201, Building 1, Yibaolai Industrial Park, Qiaotou, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China.
Date of Receipt.....	:	Jan. 9, 2025
Date of Test(s).....	:	Jan. 9, 2025 - Jan. 15, 2025
Date of Issue.....	:	Jan. 15, 2025
Test Standard(s).....	:	47CFR Part 15 Subpart B ANSI C63.4:2014

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

Tested by:	Reviewed by:	Approved by:
Eric Jiang/ Engineer	Baret Wu/ Director	Levi Lee/ Manager

Note: The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report shall not be reproduced except in full, without prior written approval of ZHT. This document may be altered or revised by ZHT, personnel only, and shall be noted in the revision of the document.

Table of Contents

1. Revision History 3
2. Test Summary 4
3. General Information 5
3.1. Description of EUT 5
3.2. Block diagram of EUT configuration 6
3.3. Test Mode 6
3.4. Test Site Environment 6
4. Facilities 7
4.1. Test Facility and Test Instrument Used 7
4.2. Testing software 7
4.3. Measurement uncertainty 7
5. Emission 8
5.1. Conducted Emission 8
5.2. Radiated emissions 10
6. Photographs of EUT 14

1. Revision History

Report No.	Issue Date	Description	Approved
ZHT-250109111E02	Jan. 15, 2025	Original	Valid

2. Test Summary

Emission			
Requirement - Test	Test Method	Limit	Result
Conducted Emission	47CFR Part 15 Subpart B ANSI C63.4:2014	Class B	N/A
Radiated Emission	47CFR Part 15 Subpart B ANSI C63.4:2014	Class B	PASS

Remark: N/A is abbreviation for Not Applicable.

3. General Information

3.1. Description of EUT

Product:	BATTERY MANAGEMENT SYSTEM
Model Name:	BDC8S200A
Rated Power Supply:	Input : DC 10 -100 V
Normal Testing Voltage:	DC 100 V
DC Line	/
I/O Ports	Refer to User Manual
Highest Frequency Generated	Below 108 MHz

Model List

BDC8S200A BDC8S50A, BDC8S100A, BDC8S150A, BDC8S300A, BDC16S50A, BDC16S100A,BDC16S150A, BDC16S200A, BDC16S300A, BDC24S50A, BDC24S100A, BDC24S150A, BDC24S200A, BDC24S300A, BDC32S100A, BDC32S150A, BDC32S200A, BIU-E2-12, BIU-E2-24, BIU-E2-36, BIU-E2-48, BAU-A3, BCU-B3,BCU-B3H, BMU-H4-12, BMU-H5-16, BMU-H4-24, BMU-H5-48, BMU-H5-52,BMU-H5-104, EMS-E2, EMS-E3

Note:

1) Other Accessory Device List and Details

Description	Manufacturer	Model	Note
Battery	LINQING SHENGHUANG POWER CO., LTD	6-FM-7	AE
Battery	LINQING SHENGHUANG POWER CO., LTD	6-FM-7	AE
Battery	LINQING SHENGHUANG POWER CO., LTD	6-FM-7	AE
Battery	LINQING SHENGHUANG POWER CO., LTD	6-FM-7	AE
Battery	LINQING SHENGHUANG POWER CO., LTD	6-FM-7	AE
Battery	LINQING SHENGHUANG POWER CO., LTD	6-FM-7	AE
Battery	LINQING SHENGHUANG POWER CO., LTD	6-FM-7	AE
Battery	LINQING SHENGHUANG POWER CO., LTD	6-FM-7	AE

2) The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

3.2. Block diagram of EUT configuration

Mode 1



3.3. Test Mode

Pretest mode	Mode 1: Working mode		
Worst-case Test mode	Conducted Emission		N/A
	Radiated Emission	Below 1 GHz	Mode 1
		Above 1 GHz	N/A

* Only the Worst-case test mode is shown in the report

3.4. Test Site Environment

Test Item	Required		Actual
Radiated Emission	Temperature (°C)	15-35	24.0
	Humidity (%RH)	25-75	54
	Barometric pressure (mbar)	860-1060	1014

4. Facilities

4.1. Test Facility and Test Instrument Used

Test site : Guangdong Zhonghan Testing Technology Co., Ltd.
Room 104/201, Building 1, Yibaolai Industrial Park, Qiaotou, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China.

Radiated emissions Test (966 chamber)

Equipment	Manufacturer	Model	Last Cal.	Next Cal.
Receiver	R&S	ESCI	May 10, 2024	May 09, 2025
Amplifier	Schwarzbeck	BBV 9743 B	May 10, 2024	May 09, 2025
Amplifier	Schwarzbeck	BBV 9718 B	May 10, 2024	May 09, 2025
Bilog Antenna	Schwarzbeck	VULB9162	May 28 2024	May 27, 2025
Horn Antenna	Schwarzbeck	BBHA9120D	May 10, 2024	May 09, 2025
Spectrum Analyzer	R&S	FSV40	May 10, 2024	May 09, 2025

4.2. Testing software

Project	Software name	Edition
Radiated Emission	EZ-EMC	FA-03A2 RE+

4.3. Measurement uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Test item	Value (dB)
Conducted Emission (150kHz-30MHz)	2.60
Radiated Emission(30MHz~1GHz)	4.60
Radiated Emission(1GHz~18GHz)	4.30

Decision Rule

☒ Uncertainty is not included

☐ Uncertainty is included

5. Emission

5.1. Conducted Emission

5.1.1. Limit

For Class B devices:

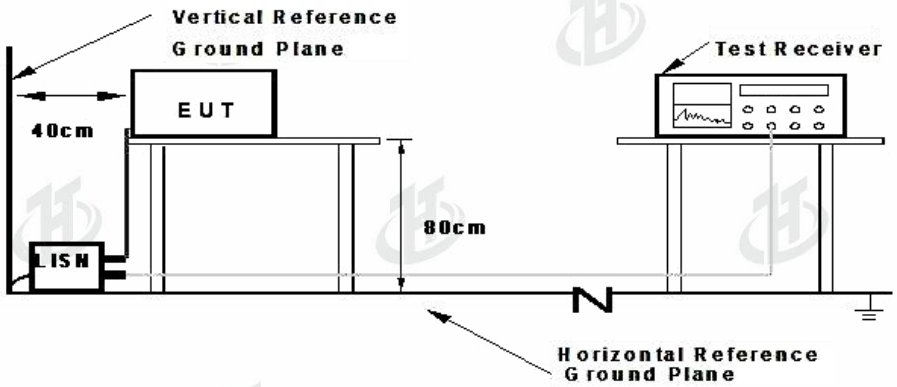
Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

For Class A devices:

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	79	66
0.5-30	73	60

5.1.2. Test setup



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

The setup of EUT is according with ANSI C63.4 measurement procedure. Specification used with 47CFR Part 15 Subpart B limits.

5.1.3. Test procedure

Measurement was performed in shielded room, and instruments used were followed clause 4 of ANSI C63.4.
Detailed test procedure was following clause 7 of ANSI C63.4.
Frequency range 150kHz – 30MHz was checked and EMI receiver measurement bandwidth was set to 9 kHz.

5.1.4. Test results

N/A

This product is powered by DC and is not applicable to this project.

5.2. Radiated emissions

5.2.1. Limit

For Class B devices (at 3m):

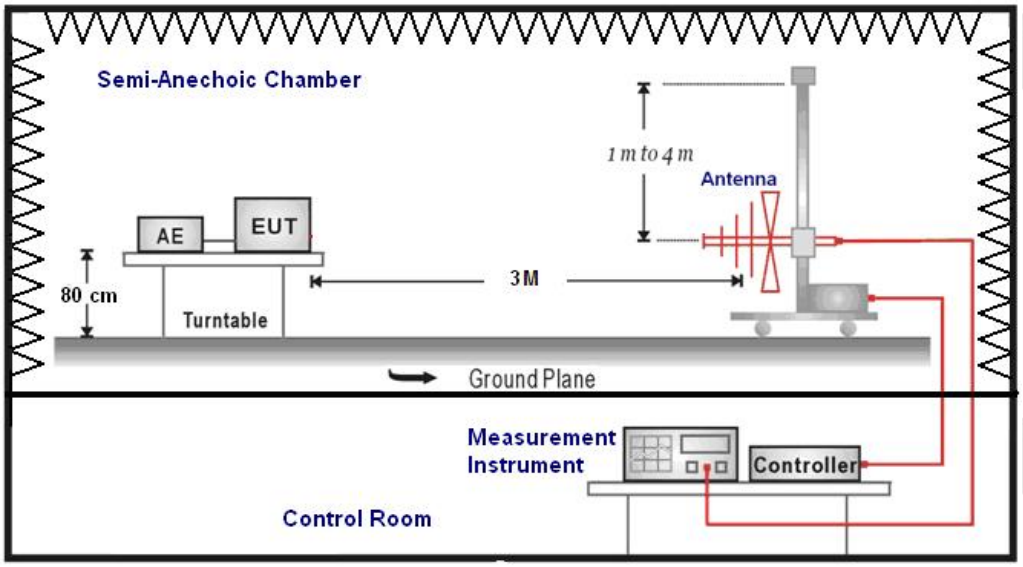
Frequency of emission (MHz)	(microvolts/meter)	(dBμV/m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

For Class A devices (at 10m):

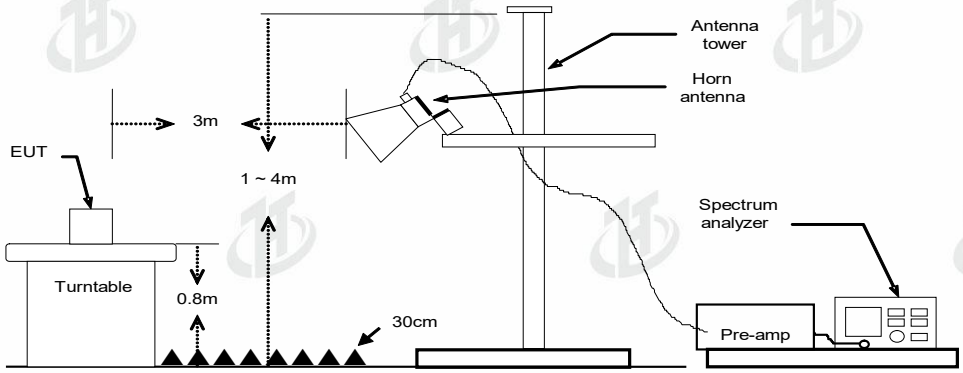
Frequency of emission (MHz)	(microvolts/meter)	(dBμV/m)
30-88	90	39
88-216	150	43.5
216-960	210	46.4
Above 960	300	49.5

5.2.2. Test setup

Radiated Emission Test Set-Up Frequency Below 1 GHz



Radiated Emission Test Set-Up Frequency Above 1GHz



The radiated tests were performed in semi-anechoic(3m) test site, using the setup accordance with the ANSI C63.4:2014.

5.2.3. EMI Test Receiver Setup and Spectrum Analyzer Setup

During the radiated emission test, the EMI test receiver and Spectrum Analyzer were set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz-1000 MHz	100 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	PK
	1 MHz	3 MHz	/	AVG

5.2.4. Test procedure

The measurement was performed in a 3m semi-anechoic chamber, and instruments used were followed clause 4 of ANSI C63.4.
Detailed test procedure was following clause 8 of ANSI C63.4.
Note: for the measurement distance other than 3m and 10m, the limit is varied according to 20dB/10 decades.

5.2.5. Corrected Amplitude & Margin Calculation

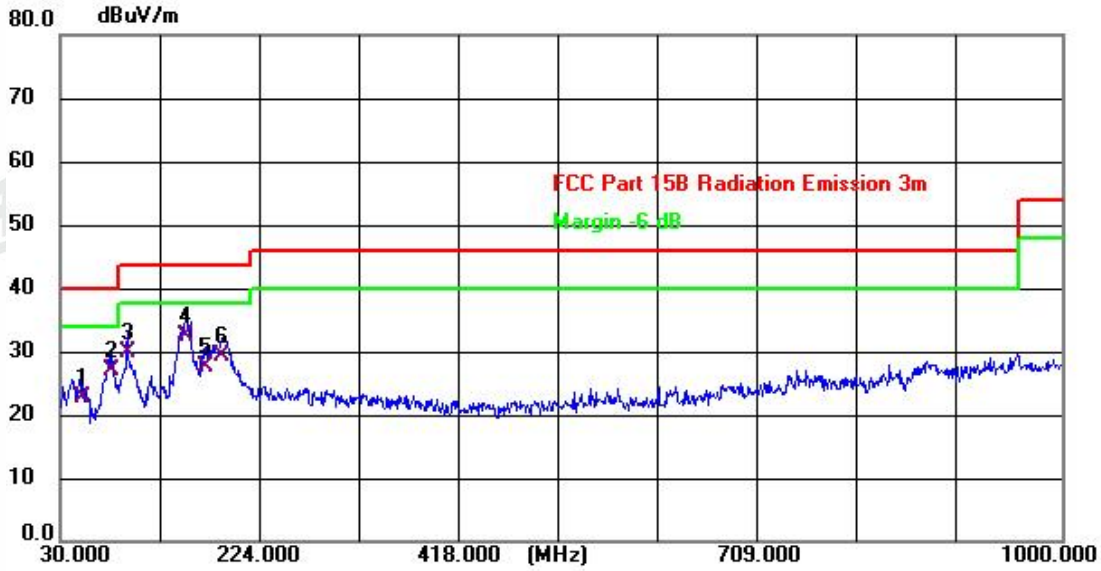
The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:
Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain
The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:
Margin = Limit – Corrected Amplitude

5.2.6. Test results

PASS

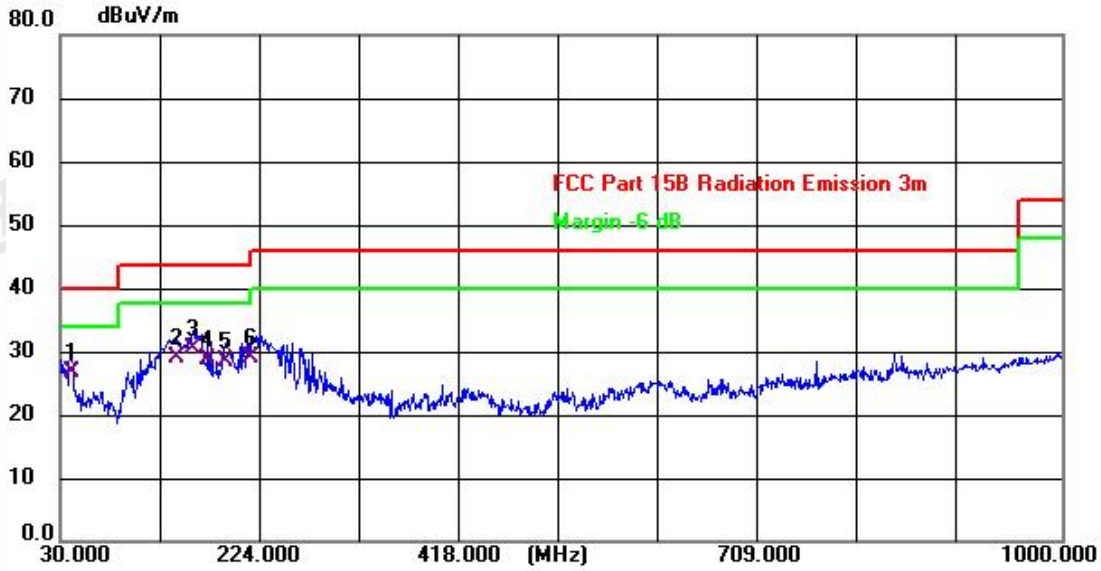
Please refer to pages 12 - 13 for data.

Polarization: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	51.340	32.27	-9.53	22.74	40.00	-17.26	QP			P	
2	80.440	41.22	-14.30	26.92	40.00	-13.08	QP			P	
3	94.990	42.03	-12.03	30.00	43.50	-13.50	QP			P	
4 *	151.250	46.41	-14.08	32.33	43.50	-11.17	QP			P	
5	171.620	40.62	-12.96	27.66	43.50	-15.84	QP			P	
6	187.140	41.20	-12.02	29.18	43.50	-14.32	QP			P	

Polarization: Vertical

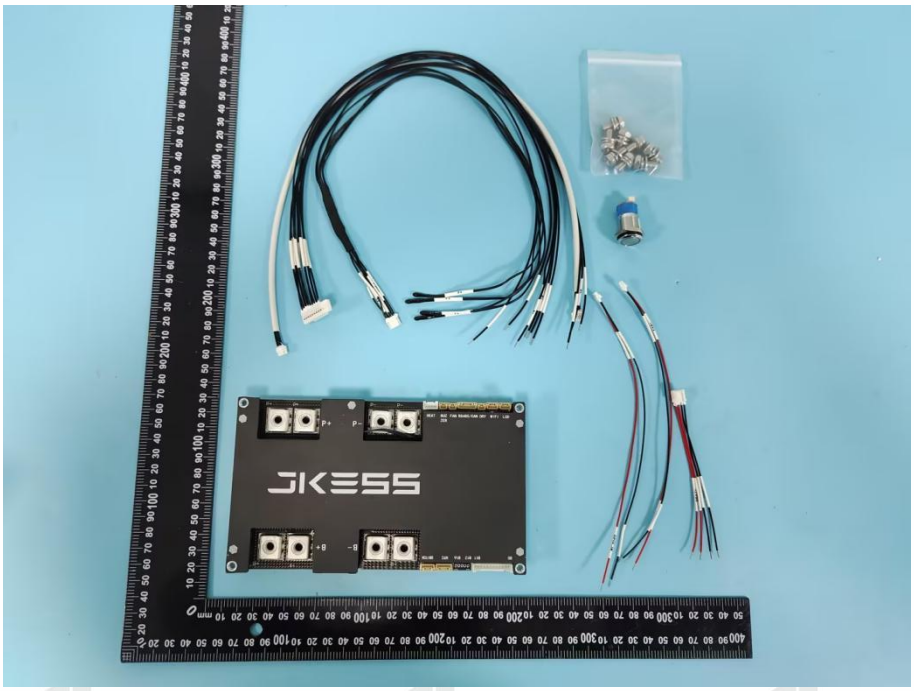


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	40.670	35.20	-8.60	26.60	40.00	-13.40	QP			P	
2	142.520	42.94	-13.85	29.09	43.50	-14.41	QP			P	
3 *	159.010	44.04	-13.65	30.39	43.50	-13.11	QP			P	
4	173.560	41.57	-12.84	28.73	43.50	-14.77	QP			P	
5	191.020	40.09	-11.75	28.34	43.50	-15.16	QP			P	
6	215.270	39.71	-10.57	29.14	43.50	-14.36	QP			P	

Note: Level=Reading + Factor
Margin=Level – Limit

6. Photographs of EUT

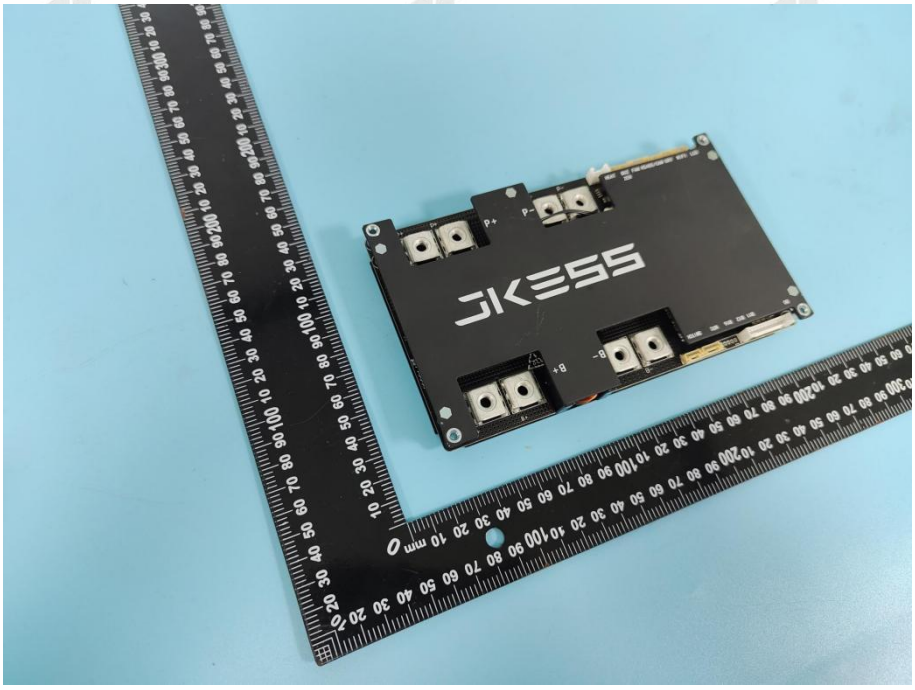
EUT Photo 1



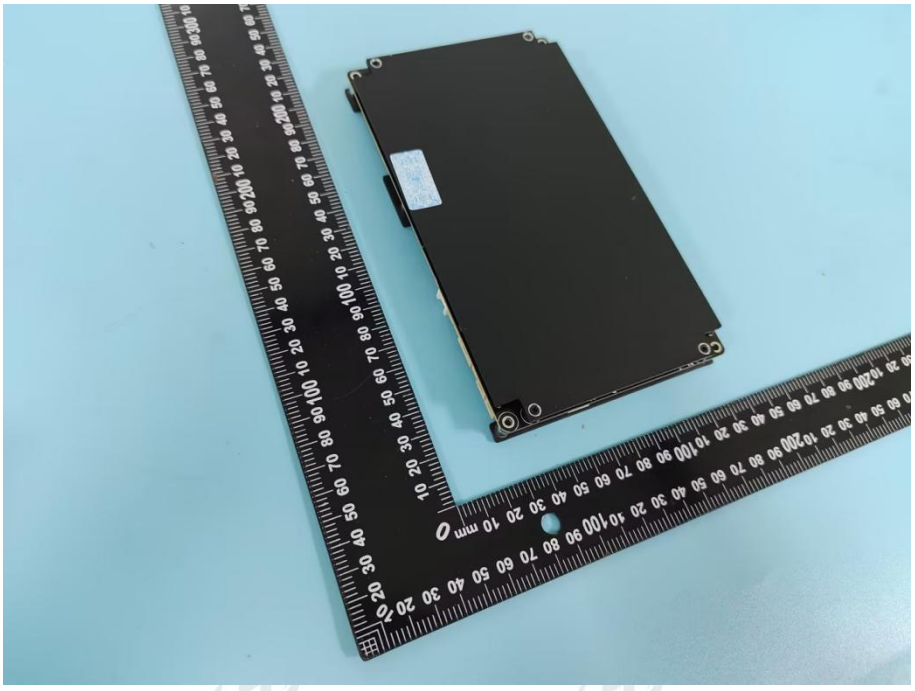
EUT Photo 2



EUT Photo 3



EUT Photo 4



End of report