# EMC Test Report

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## Applicant: Jiangsu SolarEast Energy Storage Technology Co., Ltd.

## Product: Rechargeable Li-ion Battery System

## Model: Refer to page 3

## In accordance with EN IEC 61000-6-3 and EN IEC 61000-6-1

Prepared for: Jiangsu SolarEast Energy Storage Technology Co., Ltd.
No. 199, Yingzhou South Road, Haizhou District, 222243 Lianyungang City, Jiangsu Province, PEOPLE'S REPUBLIC OF CHINA

# COMMERCIAL-IN-CONFIDENCE

Report Number: 4861923320500A

| RESPONSIBLE FOR | NAME | SIGNATURE | DATE |
|---|---|---|---|
| **Approved By** | Dingpeng Xia | Dingpeng Xia | 2023、12、20 |
| **Prepared By** | Jin Cai | Jin Cai | 2023、12、20 |

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Product Service document control rules.

**EXECUTIVE SUMMARY**
A sample of this product was tested and found to be compliant with EN IEC 61000-6-3:2021, EN IEC 61000-6-1: 2019



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ID Number: EMC_WUX_F_25.43E
Revision:04
Effective:2023-07-11

# Contents

# 1 Report Summary

## 1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

| Issue | Description of Change | Date of Issue |
|---|---|---|
| 1 | First Issue | 2023.12.20 |

## 1.2 Introduction

The information contained in this report is intended to show verification of the EMC Qualification Approval Testing of the requirements of the standards for the tests listed in Section 1.3.

| | |
|---|---|
| Applicant | Jiangsu SolarEast Energy Storage Technology Co., Ltd. |
| address | No. 199, Yingzhou South Road, Haizhou District, 222243 Lianyungang City, Jiangsu Province, PEOPLE'S REPUBLIC OF CHINA |
| Manufacturer | Jiangsu SolarEast Energy Storage Technology Co., Ltd. |
| address | No. 199, Yingzhou South Road, Haizhou District, 222243 Lianyungang City, Jiangsu Province, PEOPLE'S REPUBLIC OF CHINA |
| Model Number(s) | PowerCool-LFP-HV-10, PowerCool-LFP-HV-15,<br>PowerCool-LFP-HV-20, PowerCool-LFP-HV-25,<br>PowerCool-LFP-HV-30, PowerCool-LFP-HV-35 |
| Nominal voltage | PowerCool-LFP-HV-10: DC 102.4V,<br>PowerCool-LFP-HV-15: DC 153.6V,<br>PowerCool-LFP-HV-20: DC 204.8V,<br>PowerCool-LFP-HV-25: DC 256.0V,<br>PowerCool-LFP-HV-30: DC 307.2V,<br>PowerCool-LFP-HV-35: DC 358.4V, |
| Rated capacity | 102Ah |
| Sample(s) Tested | PowerCool-LFP-HV-10 |
| Test Specification | EN IEC 61000-6-3:2021, EN IEC 61000-6-1: 2019 |
| Date of Receipt of EUT | 2023.09.21 |
| Start of Test | 2023.09.21 |
| Finish of Test | 2023.09.25 |
| Name of Engineer(s) | Jin Cai |

## 1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with EN IEC 61000-6-3, EN IEC 61000-6-1 is shown below.

| Section | Specification | Clause | Test Description | Result | Comments/Base Standard |
|---|---|---|---|---|---|
| DC Powered, power on | | | | | |
| 2.1 | EN IEC 61000-6-3:2021 | 11 Table 1; 1.1, 1.4 | Emission - Enclosure Port | PASS | -- |
| 2.2 | EN IEC 61000-6-3:2021 | 11 Table 2; 2.1 | Emission - DC power port | PASS | -- |
| -- | EN IEC 61000-6-3:2021 | 11 Table 2, 2.1 | Emission - Harmonic current emissions | N/A | The Standards were not applicable |
| -- | EN IEC 61000-6-3:2021 | 11 Table 2, 2.1 | Emission - Voltage fluctuations and flicker | N/A | The Standards were not applicable |
| 2.3 | EN IEC 61000-6-1: 2019 | 9 Table 1; 1.1 | Immunity - Enclosure ports - Power-frequency magnetic field | PASS | IEC 61000-4-8 |
| 2.4 | EN IEC 61000-6-1: 2019 | 9 Table 1; 1.2, 1.3, | Immunity - Enclosure ports - Radio-frequency electromagnetic field. Amplitude modulated | PASS | IEC 61000-4-3 |
| 2.5 | EN IEC 61000-6-1: 2019 | 9 Table 1; 1.4 | Immunity - Enclosure Port - Electrostatic Discharge | PASS | IEC 61000-4-2 |
| 2.6 | EN IEC 61000-6-1: 2019 | 9 Table 4; 4.1 | Immunity - Radio-frequency common mode | PASS | IEC 61000-4-6 |
| 2.7 | EN IEC 61000-6-1: 2019 | 9 Table 4; 4.4 | Immunity - Surges | PASS | IEC 61000-4-5 |
| 2.8 | EN IEC 61000-6-1: 2019 | 9 Table 4; 4.5 | Immunity - Fast transients | PASS | IEC 61000-4-4 |

## 1.4 Product Information

### 1.4.1 Technical Description

The Equipment Under Test (EUT) is Rechargeable Li-ion Battery System.

The Battery system consists of one controller box and several same battery modules, Given the complexity of the equipment, according to User manual, all models have similar electric structure and different nominal voltage, Base on the analysis and evaluation for the electrical structure of the Rechargeable Li-ion Battery System, only model PowerCool-LFP-HV-10 was valuated.

### 1.4.2 EUT Port/Cable Identification

| Port | Max Cable Length specified | Usage | Type | Screened |
|---|---|---|---|---|
| DC Power line | -- | DC Power line | -- | No |
| signal line | <3m | -- | -- | -- |

### 1.4.3 Test Configuration

| Configuration | Description |
|---|---|
| 1 | charging mode: normal working with DC power supply, Keep EUT monitoring and data running continual, by notebook software. |
| 2 | discharge mode: Power on for load, Keep EUT monitoring and data running continual, by notebook software |

### 1.4.4 Modes of Operation

| Mode | Description |
|---|---|
| 1 | The EUT was power on, charging |
| 2 | The EUT was power on, discharge |

### 1.4.5 Monitoring of Performance

The EUT works normally. Keep EUT monitoring and data running continual, by notebook software

### 1.4.6 Performance Criteria

Performance criterion A: The apparatus shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonable expect from the apparatus if used as intended.

Performance criterion B: The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however no change of actual operating state or stored data is allowed to persist after test. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description

and documentation, and from what the user may reasonable expect from the apparatus if used as intended.

Performance criterion C: Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.

## 1.5 Deviations from the Standard

No deviations from the applicable test standard were made during testing.

## 1.6 Test Location

TÜV SÜD Certification and Testing (China) Co., Ltd.

Address: Floor 1-4, Building B, No.37, Tuanjie Road(Middle), Xishan Economic and Technological Development Zone, Wuxi, Jiangsu, China.

| Test Name | Name of Engineer(s) |
|---|---|
| DC Powered, power on | |
| Emission - Enclosure port | Tianshuo Yuan |
| Emission - DC power port | Tianshuo Yuan |
| Immunity - Enclosure ports - Power-frequency magnetic field | Tianshuo Yuan |
| Immunity - Enclosure ports - Radio-frequency electromagnetic field. Amplitude modulated | Tianshuo Yuan |
| Immunity - Enclosure ports - Electrostatic Discharge | Tianshuo Yuan |
| Immunity - Radio-frequency common mode | Tianshuo Yuan |
| Immunity - Surges | Tianshuo Yuan |
| Immunity - Fast transients | Tianshuo Yuan |

# 2 Test Details

## 2.1 Emission - Enclosure port

### 2.1.1 Specification Reference

EN IEC 61000-6-3:2021, Clause 11 Table 1; 1.1, 1.4

### 2.1.2 Equipment Under Test

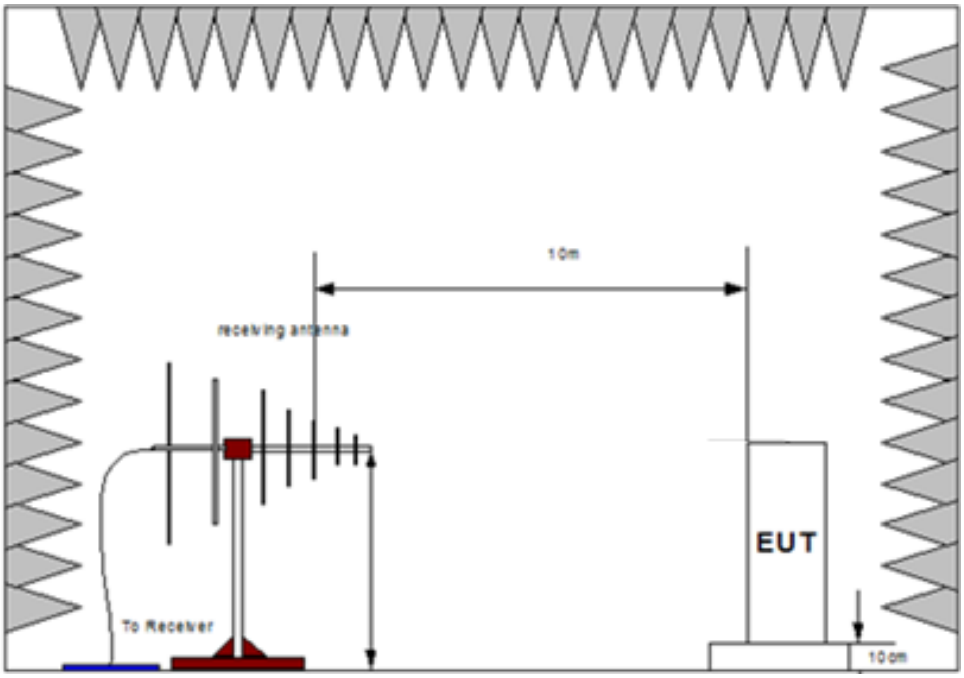
PowerCool-LFP-HV-10

### 2.1.3 Date of Test

2023.09.21

### 2.1.4 Test Method

The EUT was set up in a semi-anechoic chamber on a remotely controlled turntable and placed on a non-conductive support 0.1 m above a reference ground plane.
A prescan of the EUT emissions profile was made while varying the antenna-to-EUT azimuth and antenna-to-EUT polarization using a peak detector; measurements were taken at a 10m distance. Using the prescan list of the highest emissions detected, their bearing and associated antenna polarization, the EUT was then formally measured using Quasi-Peak and Average detectors, as appropriate. The readings were maximized by adjusting the antenna height, polarization and turntable azimuth, in accordance with the specification.




### 2.1.5 Environmental Conditions

| | |
|---|---|
| Ambient Temperature | 24°C |
| Relative Humidity | 51% |
| Atmospheric Pressure | 1010.3 mbar |

### 2.1.6 Specification Limits

| Port | Frequency range | Limits | Remarks |
|---|---|---|---|
| Enclosure<br><br>Test facility:<br>OATS or SAC | 30 MHz to 230 MHz<br>230 MHz to 1000 MHz | 30 dB(μV/m) quasi-peak at 10 m<br>37 dB(μV/m) quasi-peak at 10 m | May be measured at 3 m distance using the limits increased by 10 dB. |
| Enclosure<br><br>Test facility:<br>OATS, SAC or FAR | 1 GHz to 3 GHz | 70 dB(μV/m) peak at 3 m<br>50 dB(μV/m) average at 3 m | May be measured at greater distance with the limits decreased by 20 dB/decade (relative to distance) |
| | 3 GHz to 6 GHz | 74 dB(μV/m) peak at 3 m<br>54 dB(μV/m) average at 3 m | |
| NOTE:<br>For apparatus containing devices operating at frequencies less than 9 kHz measurements only need to be performed up to 230 MHz.<br><br>If the highest internal frequency of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz.<br>If the highest internal frequency of the EUT is between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz.<br>If the highest internal frequency of the EUT is between 500 MHz and 1 GHz, the measurement shall only be made up to 5 GHz.<br>If the highest internal frequency of the EUT is above 1 GHz, the measurement shall be made up to 6 GHz.<br><br>Where the highest internal frequency if not known, tests shall be performed up to 6 GHz.<br><br>At transitional frequencies the lower limit applies. | | | |

### 2.1.7 Test Results

**Results for Configuration and Mode:** Configuration 1, 2, Mode 1, 2**.**

Performance assessment of the EUT made during this test: Pass.

Detailed results are shown below:

The highest internal frequency of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz.

# 30-1000MHz Radiated Emission Test

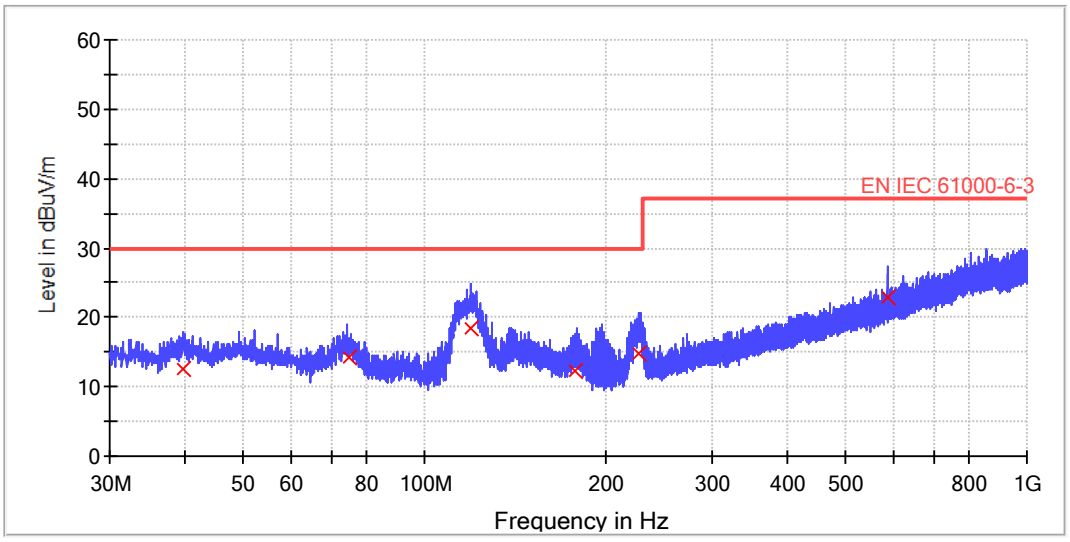
## Common Information

| | |
|---|---|
| EUT: | Rechargeable Li-ion Battery System |
| Model: | PowerCool-LFP-HV-10 |
| Client: | Jiangsu SolarEast Energy Storage Technology Co.,Ltd |
| Operating Conditions: | Power on,normal operation,Charging |
| Operator Name: | Tianshuo Yuan |
| Input: | DC input |
| Test Standard: | EN IEC 61000-6-3 |
| Comment: | Horizontal |

## Scan Setup:

| | |
|---|---|
| Hardware Setup: | Radiated E Field 30MHz-1GHz_10m |
| Receiver: | [ESW 8] |
| Level Unit: | dBuV/m |

| Subrange | Step Size | Detectors | IF BW | Meas. Time | Preamp |
|---|---|---|---|---|---|
| 30 MHz - 1 GHz | 40 kHz | PK+ | 120 kHz | 0.001 s | 0 dB |




## Limit and Margin

| Frequency (MHz) | QuasiPeak (dBuV/m) | Meas. Time (ms) | Height (cm) | Azimuth (deg) | Corr. (dB/m) | Margin - QPK (dB) | Limit - QPK (dBuV/m) |
|---|---|---|---|---|---|---|---|
| 39.800000 | 12.6 | 1000.0 | 400.0 | 120.0 | -11.3 | 17.4 | 30.0 |
| 74.840000 | 14.4 | 1000.0 | 400.0 | 11.0 | -13.7 | 15.7 | 30.0 |
| 119.160000 | 18.3 | 1000.0 | 400.0 | 183.0 | -13.5 | 11.7 | 30.0 |
| 177.840000 | 12.4 | 1000.0 | 400.0 | 338.0 | -12.8 | 17.6 | 30.0 |
| 226.760000 | 14.7 | 1000.0 | 400.0 | 55.0 | -13.0 | 15.3 | 30.0 |
| 585.600000 | 22.9 | 1000.0 | 400.0 | 323.0 | -3.3 | 14.2 | 37.0 |

# 30-1000MHz Radiated Emission Test

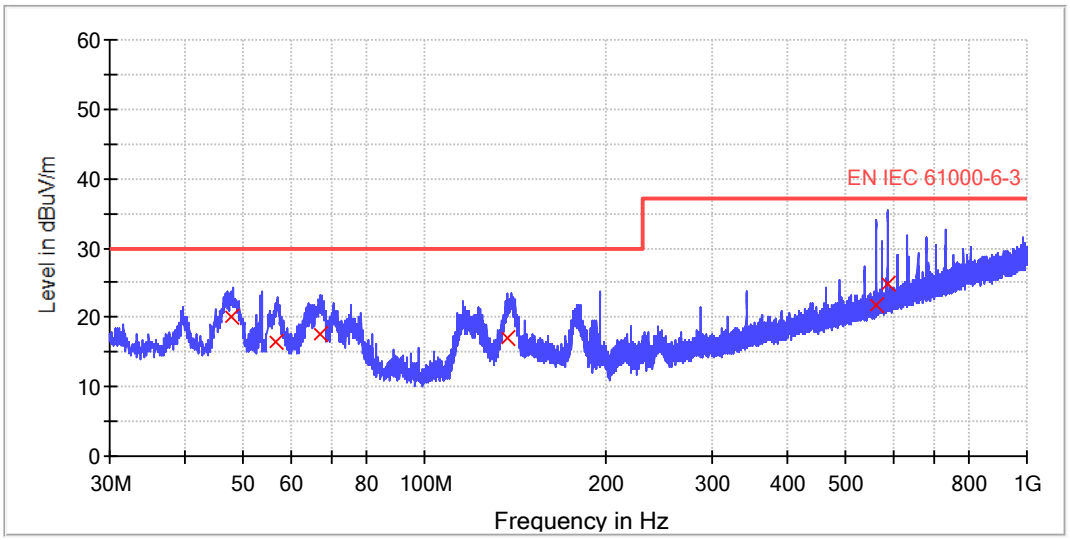
## Common Information

| | |
|---|---|
| EUT: | Rechargeable Li-ion Battery System |
| Model: | PowerCool-LFP-HV-10 |
| Client: | Jiangsu SolarEast Energy Storage Technology Co.,Ltd |
| Operating Conditions: | Power on,normal operation,Charging |
| Operator Name: | Tianshuo Yuan |
| Input: | DC input |
| Test Standard: | EN IEC 61000-6-3 |
| Comment: | Vertical |

## Scan Setup:

| | |
|---|---|
| Hardware Setup: | Radiated E Field 30MHz-1GHz_10m |
| Receiver: | [ESW 8] |
| Level Unit: | dBuV/m |

| Subrange | Step Size | Detectors | IF BW | Meas. Time | Preamp |
|---|---|---|---|---|---|
| 30 MHz - 1 GHz | 40 kHz | PK+ | 120 kHz | 0.001 s | 0 dB |




## Limit and Margin

| Frequency (MHz) | QuasiPeak (dBuV/m) | Meas. Time (ms) | Height (cm) | Azimuth (deg) | Corr. (dB/m) | Margin - QPK (dB) | Limit - QPK (dBuV/m) |
|---|---|---|---|---|---|---|---|
| 47.840000 | 20.0 | 1000.0 | 100.0 | 295.0 | -10.8 | 10.0 | 30.0 |
| 56.720000 | 16.4 | 1000.0 | 100.0 | 54.0 | -12.0 | 13.6 | 30.0 |
| 67.160000 | 17.5 | 1000.0 | 100.0 | 22.0 | -12.9 | 12.5 | 30.0 |
| 137.280000 | 17.2 | 1000.0 | 100.0 | 254.0 | -11.7 | 12.8 | 30.0 |
| 561.520000 | 21.9 | 1000.0 | 100.0 | 20.0 | -3.7 | 15.2 | 37.0 |
| 585.880000 | 24.9 | 1000.0 | 100.0 | 319.0 | -3.3 | 12.1 | 37.0 |

# 30-1000MHz Radiated Emission Test

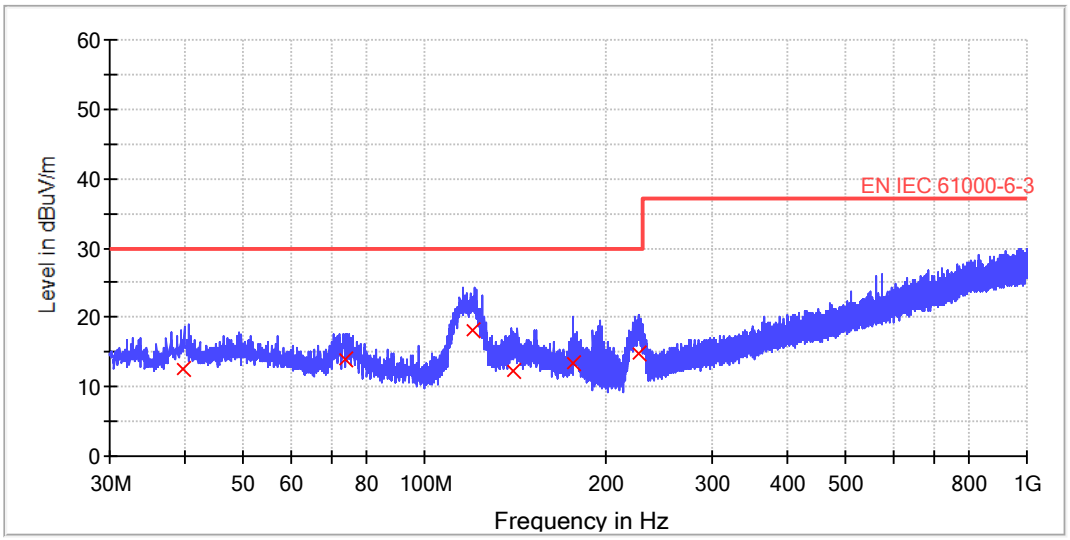
## Common Information

| | |
|---|---|
| EUT: | Rechargeable Li-ion Battery System |
| Model: | PowerCool-LFP-HV-10 |
| Client: | Jiangsu SolarEast Energy Storage Technology Co.,Ltd |
| Operating Conditions: | Power on,normal operation,Discharge |
| Operator Name: | Tianshuo Yuan |
| Input: | DC input |
| Test Standard: | EN IEC 61000-6-3 |
| Comment: | Horizontal |

## Scan Setup:

| | |
|---|---|
| Hardware Setup: | Radiated E Field 30MHz-1GHz_10m |
| Receiver: | [ESW 8] |
| Level Unit: | dBuV/m |

| Subrange | Step Size | Detectors | IF BW | Meas. Time | Preamp |
|---|---|---|---|---|---|
| 30 MHz - 1 GHz | 40 kHz | PK+ | 120 kHz | 0.001 s | 0 dB |




## Limit and Margin

| Frequency (MHz) | QuasiPeak (dBuV/m) | Meas. Time (ms) | Height (cm) | Azimuth (deg) | Corr. (dB/m) | Margin - QPK (dB) | Limit - QPK (dBuV/m) |
|---|---|---|---|---|---|---|---|
| 39.720000 | 12.5 | 1000.0 | 400.0 | 84.0 | -11.3 | 17.5 | 30.0 |
| 73.840000 | 14.1 | 1000.0 | 400.0 | 305.0 | -13.6 | 15.9 | 30.0 |
| 119.760000 | 18.3 | 1000.0 | 400.0 | 227.0 | -13.4 | 11.8 | 30.0 |
| 140.400000 | 12.2 | 1000.0 | 400.0 | 211.0 | -11.4 | 17.8 | 30.0 |
| 176.680000 | 13.4 | 1000.0 | 400.0 | 127.0 | -12.7 | 16.6 | 30.0 |
| 226.400000 | 14.7 | 1000.0 | 400.0 | 234.0 | -13.0 | 15.3 | 30.0 |

# 30-1000MHz Radiated Emission Test

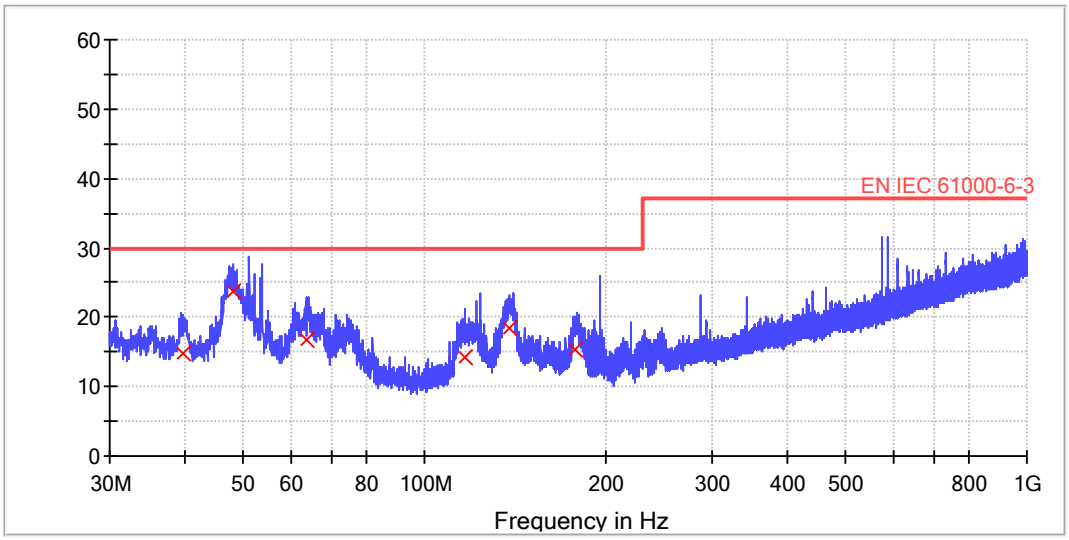
## Common Information

| | |
|---|---|
| EUT: | Rechargeable Li-ion Battery System |
| Model: | PowerCool-LFP-HV-10 |
| Client: | Jiangsu SolarEast Energy Storage Technology Co.,Ltd |
| Operating Conditions: | Power on,normal operation,Discharge |
| Operator Name: | Tianshuo Yuan |
| Input: | DC input |
| Test Standard: | EN IEC 61000-6-3 |
| Comment: | Vertical |

## Scan Setup:

| | |
|---|---|
| Hardware Setup: | Radiated E Field 30MHz-1GHz_10m |
| Receiver: | [ESW 8] |
| Level Unit: | dBuV/m |

| Subrange | Step Size | Detectors | IF BW | Meas. Time | Preamp |
|---|---|---|---|---|---|
| 30 MHz - 1 GHz | 40 kHz | PK+ | 120 kHz | 0.001 s | 0 dB |




## Limit and Margin

| Frequency (MHz) | QuasiPeak (dBuV/m) | Meas. Time (ms) | Height (cm) | Azimuth (deg) | Corr. (dB/m) | Margin - QPK (dB) | Limit - QPK (dBuV/m) |
|---|---|---|---|---|---|---|---|
| 39.720000 | 14.9 | 1000.0 | 100.0 | 82.0 | -11.3 | 15.1 | 30.0 |
| 48.080000 | 23.8 | 1000.0 | 100.0 | 68.0 | -10.8 | 6.2 | 30.0 |
| 63.680000 | 16.9 | 1000.0 | 100.0 | 190.0 | -12.7 | 13.1 | 30.0 |
| 116.440000 | 14.3 | 1000.0 | 100.0 | 323.0 | -13.7 | 15.7 | 30.0 |
| 138.720000 | 18.4 | 1000.0 | 100.0 | 190.0 | -11.6 | 11.6 | 30.0 |
| 178.000000 | 15.3 | 1000.0 | 100.0 | 301.0 | -12.8 | 14.7 | 30.0 |

**Test Setup**

### 2.1.8 Test Location

This test was carried out in 10m SAC.

## 2.2 Emission - DC power port

### 2.2.1 Specification Reference

EN IEC 61000-6-3:2021, Clause 11 Table 2; 2.1

### 2.2.2 Equipment Under Test

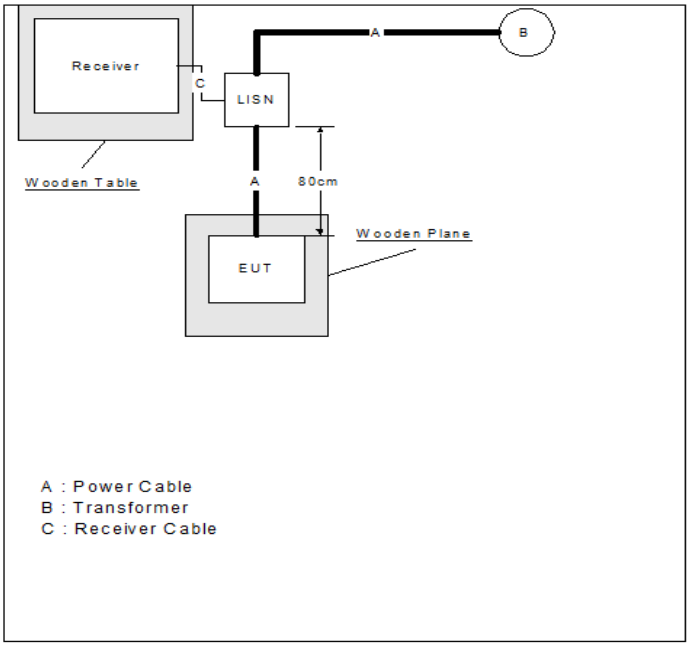
PowerCool-LFP-HV-10

### 2.2.3 Date of Test

2023.09.22

### 2.2.4 Test Method

The EUT was placed on a non-conductive support 0.1 m above a reference ground plane
All power was connected to the EUT through an Artificial Mains Network (AMN). Conducted disturbance voltage measurements on mains lines were made at the output of the AMN. The AMN was placed 0.8 m from the boundary of the EUT and bonded to the reference ground plane.




### 2.2.5 Environmental Conditions

| | |
|---|---|
| Ambient Temperature | 25°C |
| Relative Humidity | 47% |
| Atmospheric Pressure | 1012.3 mbar |

### 2.2.6 Specification Limits

| Port | Frequency range | Limits | Remarks |
|---|---|---|---|
| DC Power | 0.15 MHz to 0.5 MHz | 84 to 74 dB(μV) quasi-peak<br>74 to 64 dB(μV) average | Measurement Network: Δ-AN |
| | 0.5 MHz to 30 MHz | 74 dB(μV) quasi-peak<br>64 dB(μV) average | Measurement Network: Δ-AN |
| a*: At transitional frequencies the lower limit applies. | | | |

### 2.2.7 Test Results

**Results for Configuration and Mode:** Configuration 1, 2, Mode 1, 2**.**

Performance assessment of the EUT made during this test: Pass.

Detailed results are shown below.

# 0.15-30MHz Conducted Emission Test

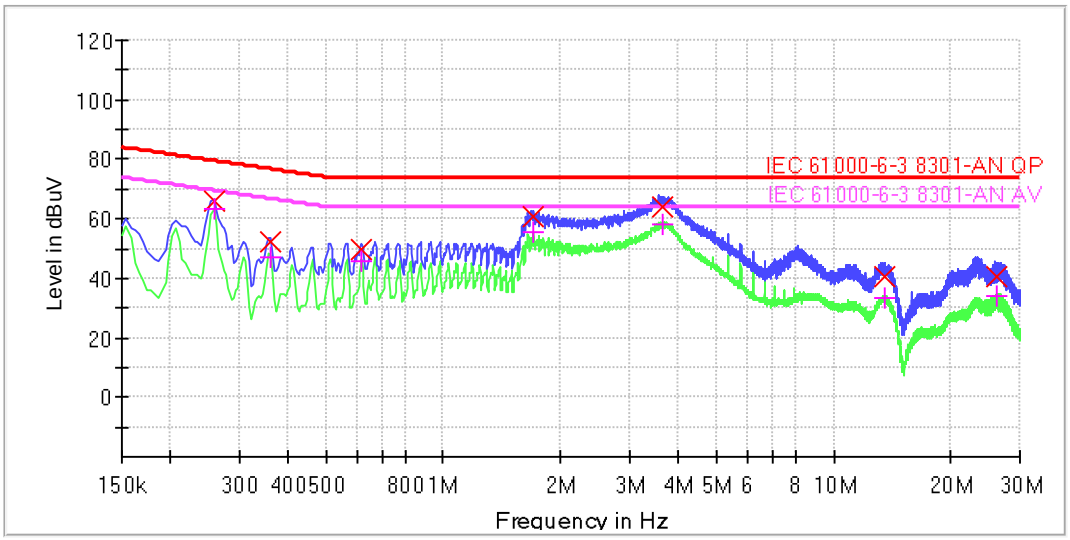
## Common Information

| | |
|---|---|
| EUT: | Rechargeable Li-ion Battery System |
| Model: | PowerCool-LFP-HV-10 |
| Client: | Jiangsu SolarEast Energy Storage Technology Co.,Ltd |
| Operating Conditions: | Power on,normal operation,Charging |
| Operator Name: | Tianshuo Yuan |
| Input: | DC input |
| Test Standard: | EN IEC 61000-6-3 |
| Comment: | CM |

## Scan Setup:

| | |
|---|---|
| Hardware Setup: | 8301 150kHz-30MHz |
| Receiver: | [ESR 3] |
| Level Unit: | dBuV |

| Subrange | Step Size | Detectors | IF BW | Meas. Time | Preamp |
|---|---|---|---|---|---|
| 150 kHz - 30 MHz | 4 kHz | PK+ ; AVG | 9 kHz | 0.01 s | 0 dB |




## Limit and Margin

| Frequency (MHz) | QuasiPeak (dBuV) | CAverage (dBuV) | Meas. Time (ms) | Bandwidth (kHz) | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBuV) | Margin - CAV (dB) | Limit - CAV (dBuV) |
|---|---|---|---|---|---|---|---|---|---|
| 0.258000 | 66.0 | 63.3 | 1000.0 | 9.000 | 19.0 | 13.5 | 79.5 | 6.2 | 69.5 |
| 0.362000 | 52.2 | 47.2 | 1000.0 | 9.000 | 18.8 | 24.4 | 76.7 | 19.4 | 66.7 |
| 0.614000 | 50.0 | 45.5 | 1000.0 | 9.000 | 18.6 | 24.1 | 74.0 | 18.5 | 64.0 |
| 1.702000 | 60.9 | 55.4 | 1000.0 | 9.000 | 18.6 | 13.1 | 74.0 | 8.6 | 64.0 |
| 3.638000 | 64.2 | 58.2 | 1000.0 | 9.000 | 18.7 | 9.8 | 74.0 | 5.8 | 64.0 |
| 13.450000 | 40.3 | 33.1 | 1000.0 | 9.000 | 19.5 | 33.7 | 74.0 | 30.9 | 64.0 |
| 26.214000 | 40.8 | 33.9 | 1000.0 | 9.000 | 21.4 | 33.2 | 74.0 | 30.1 | 64.0 |

# 0.15-30MHz Conducted Emission Test

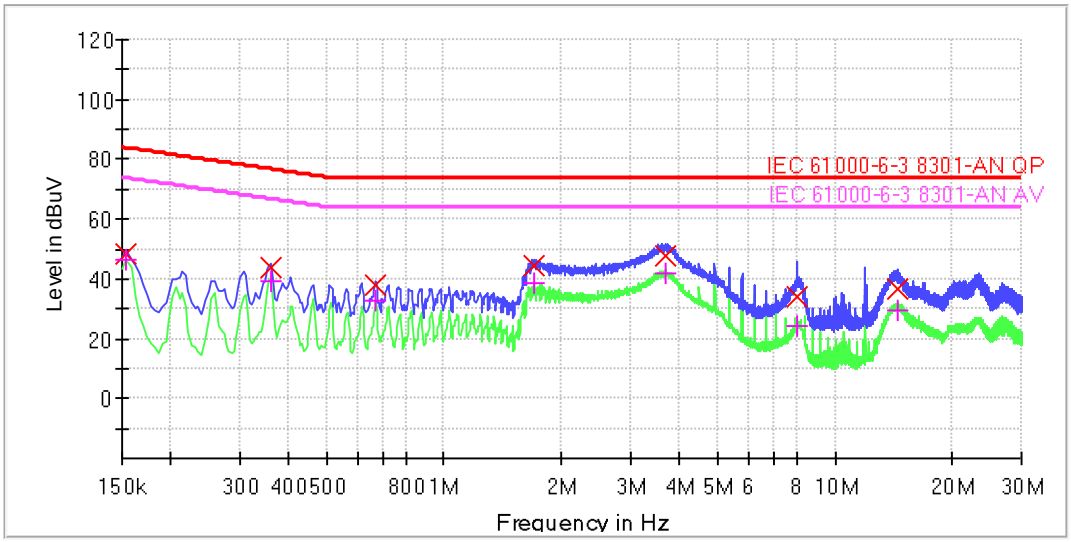
## Common Information

| | |
|---|---|
| EUT: | Rechargeable Li-ion Battery System |
| Model: | PowerCool-LFP-HV-10 |
| Client: | Jiangsu SolarEast Energy Storage Technology Co.,Ltd |
| Operating Conditions: | Power on,normal operation,Charging |
| Operator Name: | Tianshuo Yuan |
| Input: | DC input |
| Test Standard: | EN IEC 61000-6-3 |
| Comment: | DM |

## Scan Setup:

| | |
|---|---|
| Hardware Setup: | 8301 150kHz-30MHz |
| Receiver: | [ESR 3] |
| Level Unit: | dBuV |

| Subrange | Step Size | Detectors | IF BW | Meas. Time | Preamp |
|---|---|---|---|---|---|
| 150 kHz - 30 MHz | 4 kHz | PK+ ; AVG | 9 kHz | 0.01 s | 0 dB |




## Limit and Margin

| Frequency (MHz) | QuasiPeak (dBuV) | CAverage (dBuV) | Meas. Time (ms) | Bandwidth (kHz) | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBuV) | Margin - CAV (dB) | Limit - CAV (dBuV) |
|---|---|---|---|---|---|---|---|---|---|
| 0.154000 | 48.3 | 46.4 | 1000.0 | 9.000 | 19.3 | 35.5 | 83.8 | 27.4 | 73.8 |
| 0.362000 | 43.8 | 39.2 | 1000.0 | 9.000 | 18.8 | 32.9 | 76.7 | 27.5 | 66.7 |
| 0.670000 | 37.7 | 32.5 | 1000.0 | 9.000 | 18.6 | 36.3 | 74.0 | 31.5 | 64.0 |
| 1.702000 | 44.2 | 38.6 | 1000.0 | 9.000 | 18.6 | 29.8 | 74.0 | 25.4 | 64.0 |
| 3.670000 | 47.8 | 41.9 | 1000.0 | 9.000 | 18.7 | 26.2 | 74.0 | 22.1 | 64.0 |
| 8.018000 | 34.0 | 24.5 | 1000.0 | 9.000 | 19.0 | 40.1 | 74.0 | 39.5 | 64.0 |
| 14.502000 | 36.5 | 29.8 | 1000.0 | 9.000 | 19.7 | 37.5 | 74.0 | 34.3 | 64.0 |

# 0.15-30MHz Conducted Emission Test

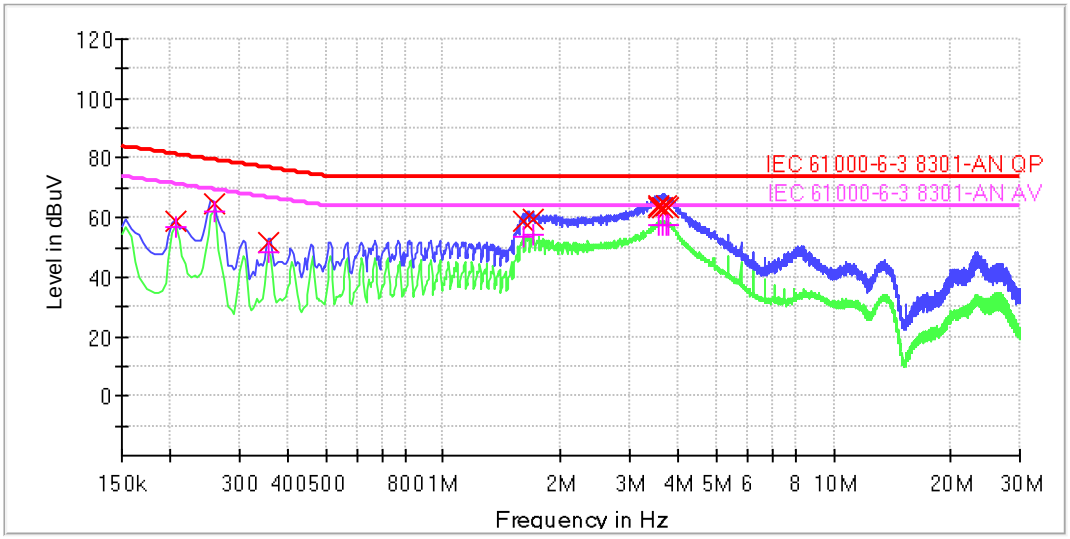
## Common Information

| | |
|---|---|
| EUT: | Rechargeable Li-ion Battery System |
| Model: | PowerCool-LFP-HV-10 |
| Client: | Jiangsu SolarEast Energy Storage Technology Co.,Ltd |
| Operating Conditions: | Power on,normal operation, Discharge |
| Operator Name: | Tianshuo Yuan |
| Input: | DC input |
| Test Standard: | EN IEC 61000-6-3 |
| Comment: | CM |

## Scan Setup:

| | |
|---|---|
| Hardware Setup: | 8301 150kHz-30MHz |
| Receiver: | [ESR 3] |
| Level Unit: | dBuV |

| Subrange | Step Size | Detectors | IF BW | Meas. Time | Preamp |
|---|---|---|---|---|---|
| 150 kHz - 30 MHz | 4 kHz | PK+ ; AVG | 9 kHz | 0.01 s | 0 dB |




## Limit and Margin

| Frequency (MHz) | QuasiPeak (dBuV) | CAverage (dBuV) | Meas. Time (ms) | Bandwidth (kHz) | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBuV) | Margin - CAV (dB) | Limit - CAV (dBuV) |
|---|---|---|---|---|---|---|---|---|---|
| 0.206000 | 58.8 | 56.9 | 1000.0 | 9.000 | 19.1 | 22.5 | 81.4 | 14.5 | 71.4 |
| 0.258000 | 64.8 | 62.2 | 1000.0 | 9.000 | 19.0 | 14.7 | 79.5 | 7.3 | 69.5 |
| 0.358000 | 51.9 | 48.2 | 1000.0 | 9.000 | 18.8 | 24.9 | 76.8 | 18.6 | 66.8 |
| 1.598000 | 59.1 | 53.7 | 1000.0 | 9.000 | 18.6 | 14.9 | 74.0 | 10.3 | 64.0 |
| 1.702000 | 59.7 | 53.9 | 1000.0 | 9.000 | 18.6 | 14.3 | 74.0 | 10.1 | 64.0 |
| 3.566000 | 63.5 | 57.5 | 1000.0 | 9.000 | 18.7 | 10.5 | 74.0 | 6.5 | 64.0 |
| 3.650000 | 63.6 | 57.4 | 1000.0 | 9.000 | 18.7 | 10.4 | 74.0 | 6.6 | 64.0 |
| 3.714000 | 64.0 | 57.7 | 1000.0 | 9.000 | 18.7 | 10.0 | 74.0 | 6.3 | 64.0 |
| 3.774000 | 63.4 | 57.4 | 1000.0 | 9.000 | 18.7 | 10.6 | 74.0 | 6.6 | 64.0 |

# 0.15-30MHz Conducted Emission Test

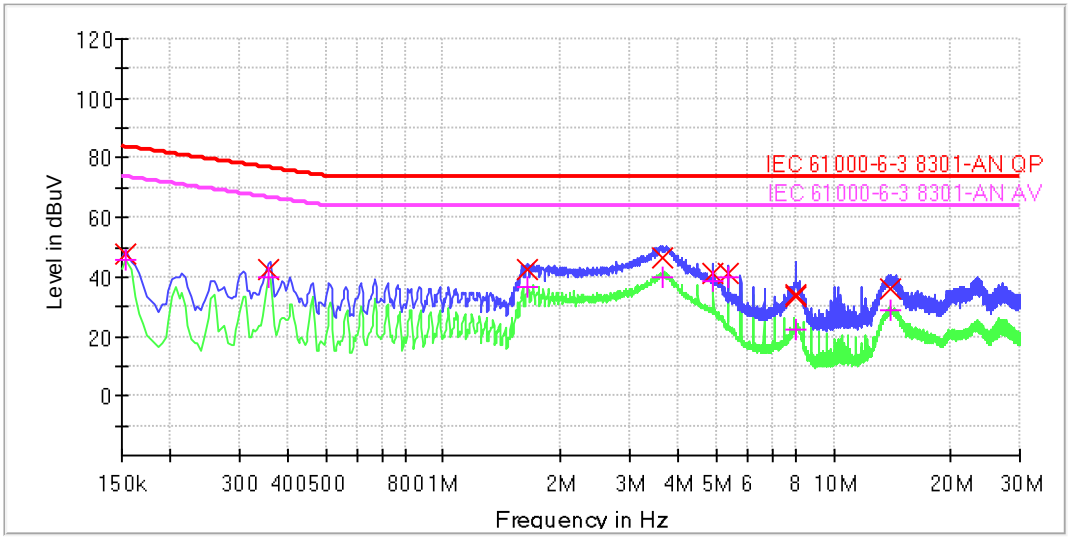
## Common Information

| | |
|---|---|
| EUT: | Rechargeable Li-ion Battery System |
| Model: | PowerCool-LFP-HV-10 |
| Client: | Jiangsu SolarEast Energy Storage Technology Co.,Ltd |
| Operating Conditions: | Power on,normal operation, Discharge |
| Operator Name: | Tianshuo Yuan |
| Input: | DC input |
| Test Standard: | EN IEC 61000-6-3 |
| Comment: | DM |

## Scan Setup:

| | |
|---|---|
| Hardware Setup: | 8301 150kHz-30MHz |
| Receiver: | [ESR 3] |
| Level Unit: | dBuV |

| Subrange | Step Size | Detectors | IF BW | Meas. Time | Preamp |
|---|---|---|---|---|---|
| 150 kHz - 30 MHz | 4 kHz | PK+ ; AVG | 9 kHz | 0.01 s | 0 dB |




## Limit and Margin

| Frequency (MHz) | QuasiPeak (dBuV) | CAverage (dBuV) | Meas. Time (ms) | Bandwidth (kHz) | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBuV) | Margin - CAV (dB) | Limit - CAV (dBuV) |
|---|---|---|---|---|---|---|---|---|---|
| 0.154000 | 47.7 | 45.6 | 1000.0 | 9.000 | 19.3 | 36.1 | 83.8 | 28.2 | 73.8 |
| 0.358000 | 42.8 | 39.7 | 1000.0 | 9.000 | 18.8 | 33.9 | 76.8 | 27.0 | 66.8 |
| 1.650000 | 42.5 | 36.8 | 1000.0 | 9.000 | 18.6 | 31.5 | 74.0 | 27.2 | 64.0 |
| 3.642000 | 46.2 | 40.1 | 1000.0 | 9.000 | 18.7 | 27.8 | 74.0 | 23.9 | 64.0 |
| 4.922000 | 41.3 | 38.7 | 1000.0 | 9.000 | 18.7 | 32.7 | 74.0 | 25.3 | 64.0 |
| 5.350000 | 41.2 | 40.2 | 1000.0 | 9.000 | 18.7 | 32.8 | 74.0 | 23.9 | 64.0 |
| 7.990000 | 33.8 | 22.4 | 1000.0 | 9.000 | 19.0 | 40.2 | 74.0 | 41.6 | 64.0 |
| 7.990000 | 33.5 | 22.3 | 1000.0 | 9.000 | 19.0 | 40.5 | 74.0 | 41.7 | 64.0 |
| 13.906000 | 36.0 | 28.8 | 1000.0 | 9.000 | 19.6 | 38.0 | 74.0 | 35.2 | 64.0 |


**Test Setup**

### 2.2.8 Test Location

This test was carried out in SR-B.

## 2.3 Immunity - Enclosure port - Power-frequency magnetic field

### 2.3.1 Specification Reference

EN IEC 61000-6-1: 2019, Clause 9 Table 1, 1.1

### 2.3.2 Equipment Under Test

PowerCool-LFP-HV-10

### 2.3.3 Date of Test

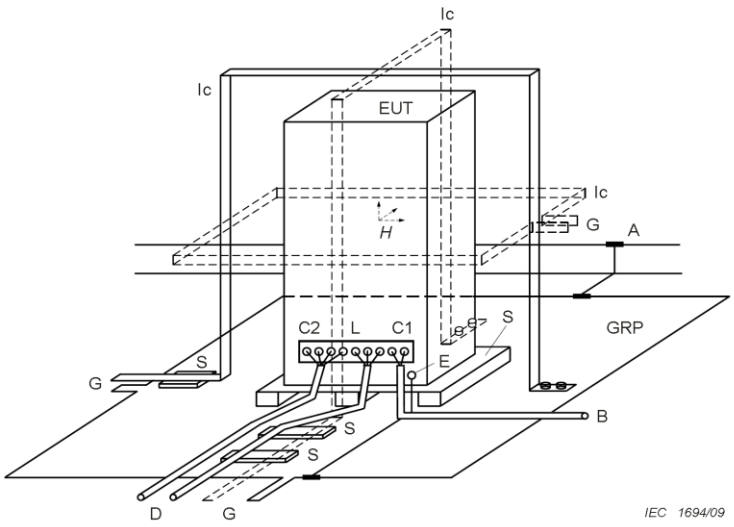
2023.09.22

### 2.3.4 Test Method

The equipment under test including associated cabling was configured on a non-conductive support at the volumetric center of the immunity coils. A pre calibrated input level was then applied to magnetic immunity coils at the detailed frequency and level for the required test period.

The EUT was retested with the magnetic field applied in all 3 orthogonal planes of the EUT.

During this testing any anomalies in the equipment under tests performance was recorded.




**Components**

| | | | |
|---|---|---|---|
| GRP | Ground plane | C1 | Power supply circuit |
| A | Safety earth | C2 | Signal circuit |
| S | Insulating support | L | Communication line |
| EUT | Equipment under test | B | To power supply source |
| Ic | Inductive coil | D | To signal source, simulator |
| E | Earth terminal | G | To the test generator |

**Figure 5 – Example of test set-up for floor-standing equipment**

### 2.3.5 Environmental Conditions

| | |
|---|---|
| Ambient Temperature | 24°C |
| Relative Humidity | 53 % |
| Atmospheric Pressure | 1009.8 mbar |

### 2.3.6 Specification Limits

| Required Test Levels | | | Performance Criteria |
|---|---|---|---|
| Application | Level (A/m) | Duration | |
| Continuous Field | 3 | 1 minutes | A |
| **Supplementary information:**<br>Note 1. EUT powered at one of the Nominal input voltages and frequencies | | | |

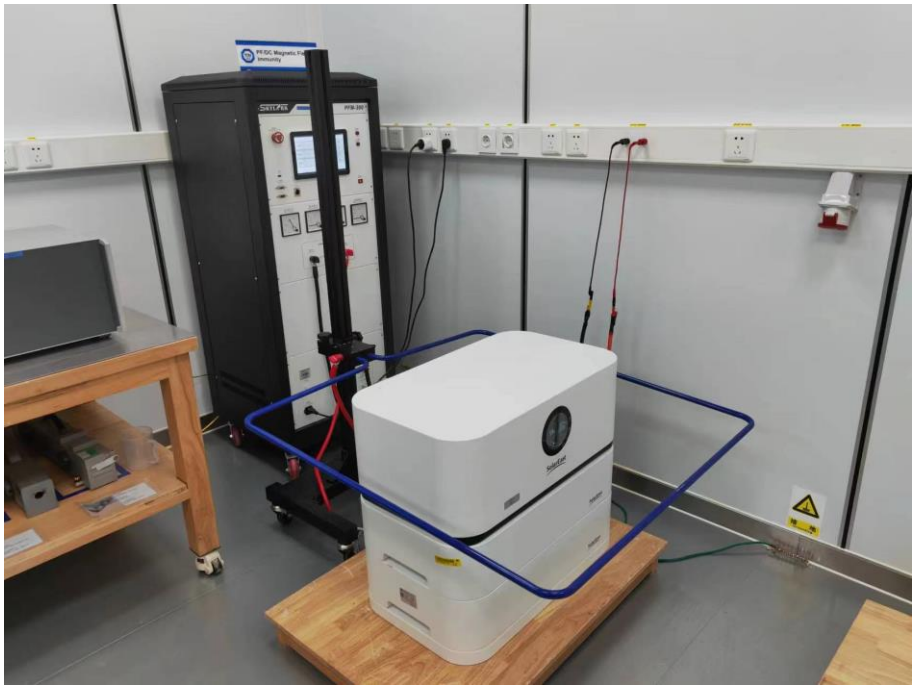
### 2.3.7 Test Results

**Results for Configuration and Mode:** Configuration 1, 2, Mode 1, 2**.**

Performance assessment of the EUT made during this test: Pass.

Detailed results are shown below.

| Tabulated Results for Power Frequency Magnetic Immunity | | | | | |
|---|---|---|---|---|---|
| Orientation | Operating Frequency | Test Frequency | Test Level | Duration | Result |
| X | -- | 50Hz,60Hz | 3A/m | 1 minutes | Pass PC A |
| Y | -- | 50Hz,60Hz | 3A/m | 1 minutes | Pass PC A |
| Z | -- | 50Hz,60Hz | 3A/m | 1 minutes | Pass PC A |



### 2.3.8 Test Location

This test was carried out in SR-C.

## 2.4 Immunity - Enclosure port - Radio-frequency electromagnetic field. Amplitude modulated

### 2.4.1 Specification Reference

EN IEC 61000-6-1: 2019, Clause 9 Table 1; 1.2, 1.3

### 2.4.2 Equipment Under Test

PowerCool-LFP-HV-10

### 2.4.3 Date of Test

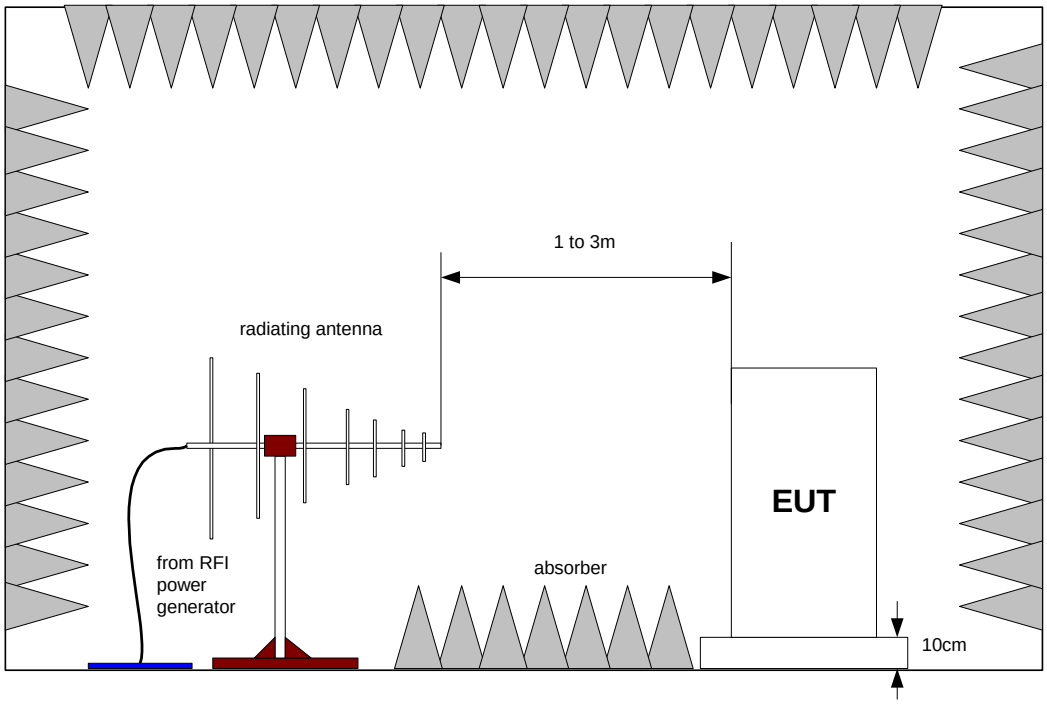
2023.09.23

### 2.4.4 Test Method

The equipment under test including associated cabling was configured on a 0.1 m insulated support, with a pre-calibrated semi anechoic chamber.

All four side of the equipment under test were subjected to the required RF field strength, modulated as described, swept over the frequency range of test with the antenna positioned in both horizontal and vertical polarizations.

During this testing any anomalies in the equipment under tests performance was recorded.




### 2.4.5 Environmental Conditions

| | |
|---|---|
| Ambient Temperature | 25°C |
| Relative Humidity | 53 % |
| Atmospheric Pressure | 1009.8 mbar |

### 2.4.6 Specification Limits

| Environmental phenomena | Test specifications | Units | Remarks | Performance criteria |
|---|---|---|---|---|
| Radio-frequency electromagnetic field. Amplitude modulated | 80 to 1000<br>3<br>80 | MHz<br>V/m<br>% AM (1 kHz) | The frequency range has been selected to cover the frequencies with the highest potential risk of disturbance. | A |
| Radio-frequency electromagnetic field. Amplitude modulated | 1.4 to 6.0<br>3<br>80 | GHz<br>V/m<br>% AM (1 kHz) | The frequency range has been selected to cover the frequencies with the highest potential risk of disturbance. | A |
| Supplementary information:<br>Note: The test level specified is the r.m.s. value of the unmodulated carrier. | | | | |

### 2.4.7 Test Results

**Results for Configuration and Mode:** Configuration 1, 2, Mode 1, 2.

Performance assessment of the EUT made during this test: *Pass*.

Detailed results are shown below.

| Tabulated Results for RF Electromagnetic Field | | | | |
|---|---|---|---|---|
| Step Size | 1% | | | |
| Dwell Time | 3 s | | | |
| Modulation | 1kHz Sine 80% AM | | | |
| Frequency Range (MHz) | Test Face | Antenna Polarization | Test Level (V/m) | Result |
| 80 MHz to 1 GHz | Front, Rear, Left, Right | Horizontal and Vertical | 3 V/m | Pass PC A |
| 1.4 GHz to 6 GHz | Front, Rear, Left, Right | Horizontal and Vertical | 3 V/m | Pass PC A |

**Test Setup**

### 2.4.8 Test Location

This test was carried out in 3m SAC.

## 2.5 Immunity - Enclosure port - Electrostatic discharge

### 2.5.1 Specification Reference

EN IEC 61000-6-1: 2019, Clause 9 Table 1; 1.4

### 2.5.2 Equipment Under Test

PowerCool-LFP-HV-10

### 2.5.3 Date of Test

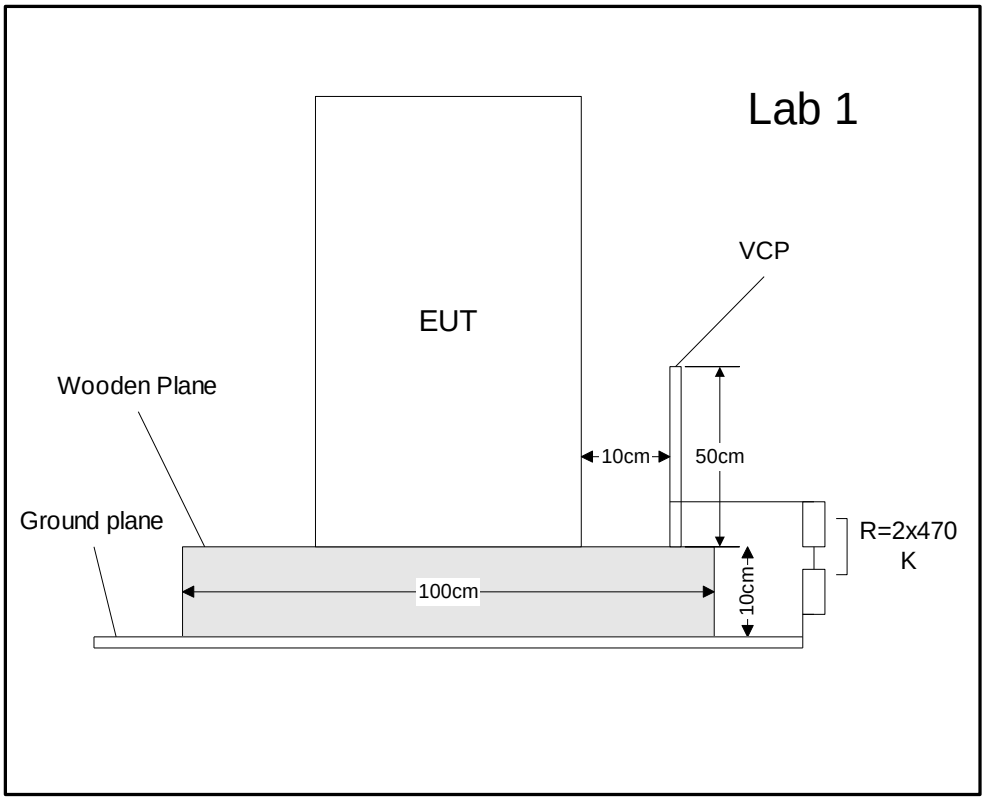
2023.09.22

### 2.5.4 Test Method

The equipment under test including associated cabling was configured on but insulted from, using a 0.5mm isolator, a horizontal coupling plane fitted to the top of a 0.8 m non-conductive table for table-top equipment; and on a 0.1 m insulated support for floor standing equipment; above a ground reference plane all within a test laboratory.

Using the air discharge method for non-metallic parts, contact discharge method for metallic parts with both vertical and horizontal couple plane discharge methods for the sides of the equipment under test, the required electrostatic discharge voltage levels in both voltage polarities were applied at the detailed pulse repartition rate.

During this testing any anomalies in the equipment under tests performance was recorded.



### 2.5.5 Environmental Conditions

| | |
|---|---|
| Ambient Temperature | 25°C |
| Relative Humidity | 52 % |
| Atmospheric Pressure | 1009.3 mbar |

### 2.5.6 Specification Limits

| Environmental phenomena | | Test specifications | Units | Remarks | Performance criteria |
|---|---|---|---|---|---|
| Electrostatic discharge | Contact discharge | ±4 (charge voltage) | kV | - | B |
| | Air discharge | ±8 (charge voltage) | kV | - | B |

### 2.5.7 Test Results

**Results for Configuration and Mode:** Configuration 1, 2, Mode 1, 2**.**

Performance assessment of the EUT made during this test: Pass.

Detailed results are shown below.

| ID | Test Point | Discharge | Results: Pass PC A | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 2kV | | 4kV | | 6kV | | 8kV | | 15kV | |
| | | | + | - | + | - | + | - | + | - | + | - |
| 1 | Metal Enclosure, Metal screws, VCP, screen | Contact | | | ✓ | ✓ | | | | | | |
| 2 | Gaps, etc | Air | | | | | | | ✓ | ✓ | | |

| Key to Results | |
|---|---|
| ✓ | The EUTs performance was not impacted when the ESD pulse was applied. |
| ✓* | No discharge occurred at this point when the ESD pulse was applied |
| O1 | Observation |
| Fx | Failed |
| N/A | Not Applicable |


**Test setup**

### 2.5.8 Test Location

This test was carried out in ESD TR.

## 2.6 Immunity –Radio-frequency common mode

### 2.6.1 Specification Reference

EN IEC 61000-6-1: 2019, Clause 9 Table 4; 4.1

### 2.6.2 Equipment Under Test

PowerCool-LFP-HV-10

### 2.6.3 Date of Test

2023.09.22

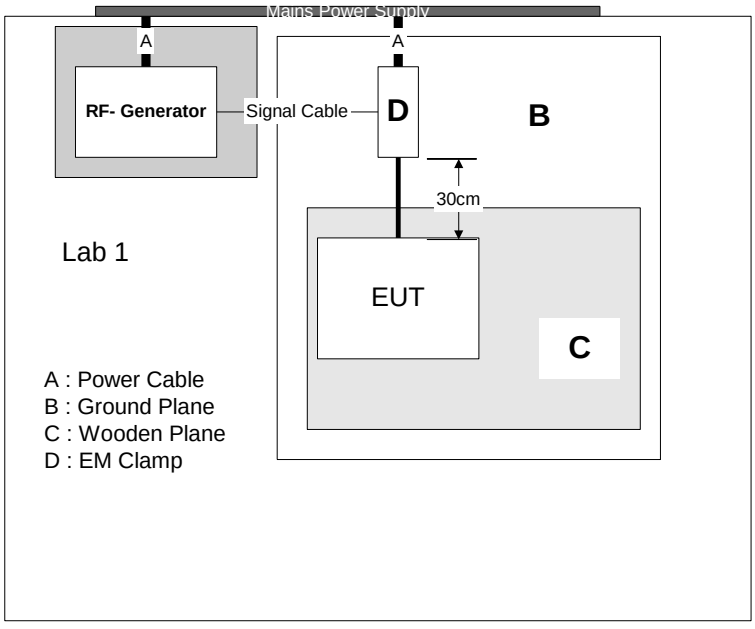
### 2.6.4 Test Method

The equipment under test was configured, on but insulted from, using a 0.1 m isolator, a horizontal coupling plane fitted to the top of a 0.8 m non-conductive table for table-top equipment; and on a 0.1 m insulated support for floor standing equipment; above a ground reference plane all within a test laboratory.

All associated cabling was configured, on but insulted from, using a 50 mm isolator, the same horizontal coupling plane as the equipment under test.

Using CDNs, EM Clamps or current clamps as appropriate, the power ports and applicable signal and control ports were subjected to the required, pre calibrated RF injected signal strength, modulated as described, swept over the frequency range of test.

During this testing any anomalies in the equipment under tests performance was recorded.



### 2.6.5 Environmental Conditions

| | |
|---|---|
| Ambient Temperature | 25°C |
| Relative Humidity | 53 % |
| Atmospheric Pressure | 1011.4 mbar |

### 2.6.6 Specification Limits

| Environmental phenomena | Test specifications | Units | Remarks | Performance criteria |
|---|---|---|---|---|
| Radio-frequency common mode | 0.15 to 80<br>3<br>80 | MHz<br>V<br>% AM (1 kHz) | The test level specified is the r.m.s. value of the unmodulated carrier.<br>A* | A |
| Supplementary information:<br>a* : The test level can also be defined as the equivalent current into a 150 Ω load. | | | | |

### 2.6.7 Test Results

**Results for Configuration and Mode:** Configuration 1, 2, Mode 1, 2**.**

Performance assessment of the EUT made during this test: Pass.

Detailed results are shown below.

| Tabulated Results for Conducted Radio Frequency Interference | | | | | |
|---|---|---|---|---|---|
| Modulation = 80 % AM (1 kHz) | | Step Size = 1 % | | Dwell = 3 s | |
| Line Under Test | Frequency Range | Test Level | Coupling Method | Interference Return Path | Result |
| DC power line | 150kHz to 80MHz | 3 V | injection probe | injection probe | Pass PC A |


**Test Setup**

### 2.6.8 Test Location

This test was carried out in SR-C.

## 2.7 Immunity - Surges

### 2.7.1 Specification Reference

EN IEC 61000-6-1: 2019, Clause 9 Table 4; 4.4

### 2.7.2 Equipment Under Test

PowerCool-LFP-HV-10

### 2.7.3 Date of Test

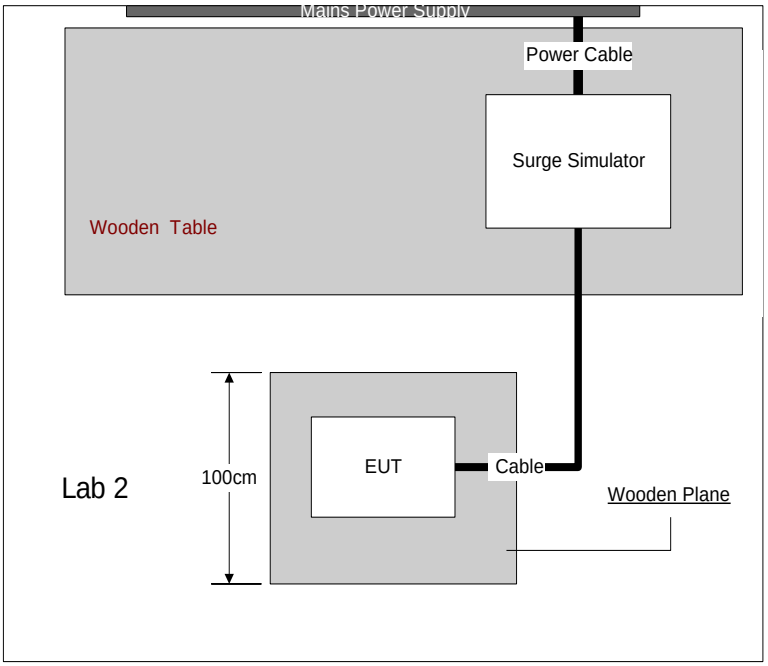
2023.09.22

### 2.7.4 Test Method

The equipment under test including associated cabling was configured, on a 0.8 m non-conductive table for table-top equipment and on a 0.1 m insulated support for floor standing equipment above a ground reference plane all within a test laboratory.

Using CDNs for power ports and appropriate coupling methods for applicable signal and control ports, the required number of surges was applied for each surge voltage level using both positive and negative surge voltage polarities. Surges were applied at the power line frequency phase angles and repartition rates detailed.

During this testing any anomalies in the equipment under tests performance was recorded.



### 2.7.5 Environmental Conditions

| | |
|---|---|
| Ambient Temperature | 24°C |
| Relative Humidity | 53 % |
| Atmospheric Pressure | 1013.2 mbar |

### 2.7.6 Specification Limits

| Environmental phenomena | Test specifications | Units | Remarks | Performance criteria |
|---|---|---|---|---|
| Surges (DC Power ports)<br>line-to-earth<br>line-to-line | 1.2/50 (8/20)<br>±1<br>±0.5 | Tr/Th µs<br>kV (open circuit test voltage)<br>kV (open circuit test voltage) | - | B |
| Supplementary information: | | | | |

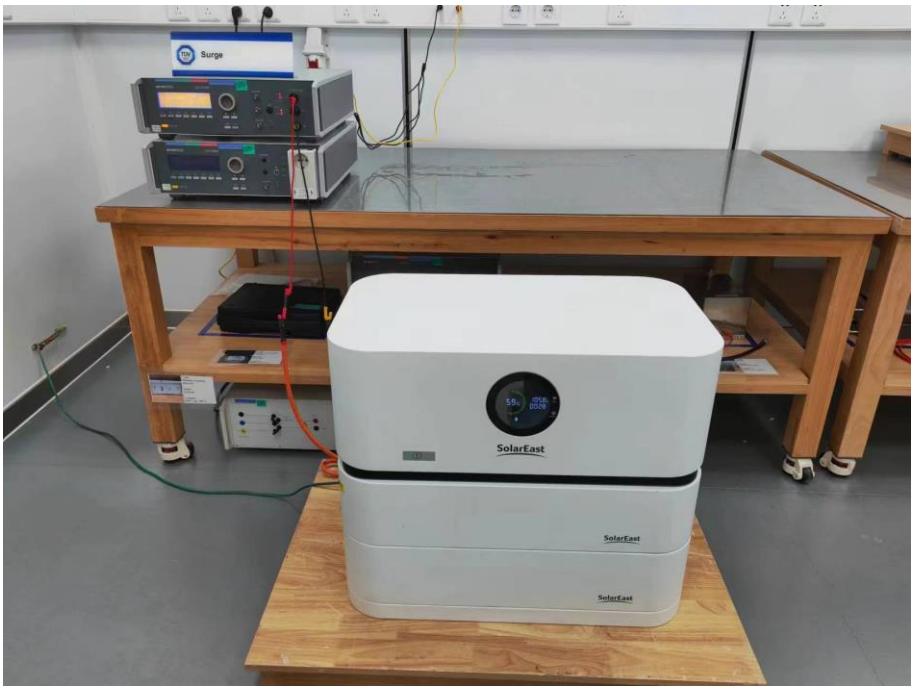
### 2.7.7 Test Results

**Results for Configuration and Mode:** Configuration 1, 2, Mode 1, 2**.**

Performance assessment of the EUT made during this test: Pass.

Detailed results are shown below.

| Tabulated Results for Surge Immunity (Power Ports) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Line under test | Coupling | Level | Polarity | Phase Angle | No of Pulses | Repetition Rate | Result |
| DC power line | DC+ - DC- | 0.5kV | NEGATIVE<br>POSITIVE | -- | 5 | 60 | Pass PC A |
| DC power line | DC+/DC- -GND | 1.0kV | NEGATIVE<br>POSITIVE | -- | 5 | 60 | Pass PC A |




**Test Setup**

### 2.7.8 Test Location

This test was carried out in SR-C.

## 2.8 Immunity - Fast transients

### 2.8.1 Specification Reference

EN IEC 61000-6-1: 2019, Clause 9 Table 4; 4.5

### 2.8.2 Equipment Under Test

PowerCool-LFP-HV-10

### 2.8.3 Date of Test

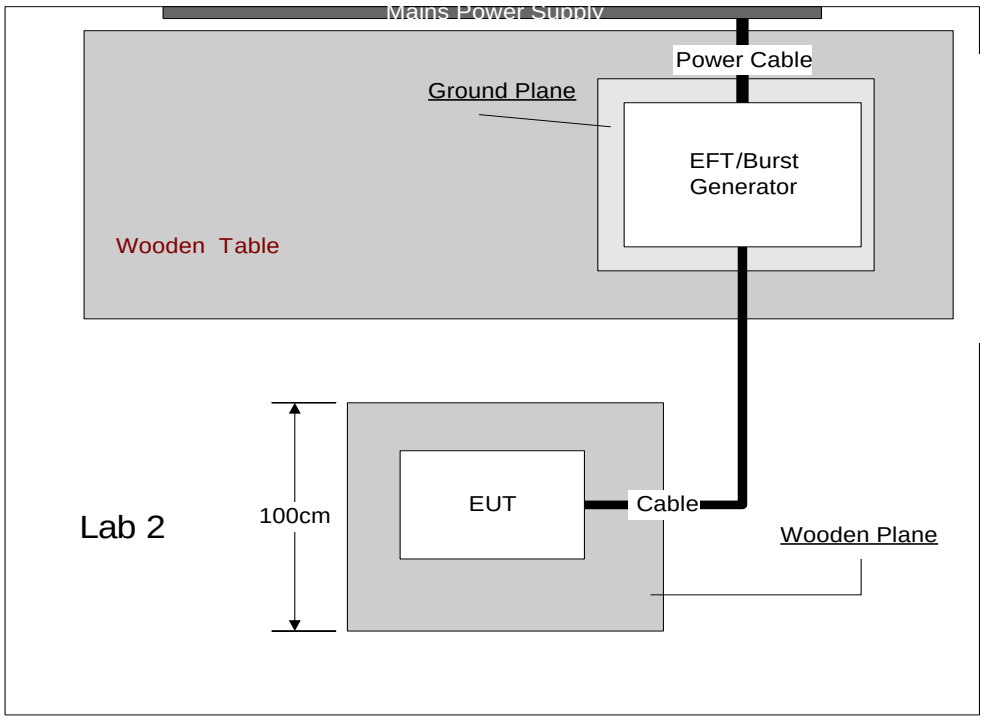
2023.09.22

### 2.8.4 Test Method

The equipment under test including associated cabling was configured on but insulted from, using a 0.1m isolator, a horizontal coupling plane fitted to the top of a 0.8 m non-conductive table for table-top equipment; and on a 0.1 m insulated support for floor standing equipment; above a ground reference plane all within a test laboratory.

Using a CDN for power ports, capacitive coupling clamp for signal and control ports and a 33 nF coupling capacitor for earth ports, the required fast transient burst voltage levels in both voltage polarities were applied at the detailed pulse repartition rate and duration of test.

During this testing any anomalies in the equipment under tests performance was recorded.



### 2.8.5 Environmental Conditions

| | |
|---|---|
| Ambient Temperature | 24°C |
| Relative Humidity | 53 % |
| Atmospheric Pressure | 1012.3 mbar |

### 2.8.6 Specification Limits

| Environmental phenomena | Test specifications | Units | Remarks | Performance criteria |
|---|---|---|---|---|
| Fast transients | ±0.5<br>5/50<br>5 | kV (open circuit test voltage)<br>Tr/Th ns<br>Repetition frequency kHz | - | B |
| Supplementary information: | | | | |

### 2.8.7 Test Results

**Results for Configuration and Mode:** Configuration 1, 2, Mode 1, 2**.**

Performance assessment of the EUT made during this test: Pass.

Detailed results are shown below.

| Tabulated Results for Fast Transient Burst Immunity | | | | | |
|---|---|---|---|---|---|
| Line under test | Test Level (kV) | Repetition Rate | Test Duration | Coupling Method | Result |
| DC power line | ±0.5 | 5 kHz | 60s | Direct | Pass PC A |


**Test Setup**

### 2.8.8 Test Location

This test was carried out in SR-C.

# 3 Test Equipment Information

## 3.1 General Test Equipment Used

| Instrument | Manufacturer | Type No | TE No | Calibration Date | Calibration Due |
|---|---|---|---|---|---|
| Conducted Emission | | | | | |
| EMI Test Receiver | Rohde & Schwarz | ESR 3 | 487/632314 | 2023.04.18 | 2024.04.17 |
| LISN | Rohde & Schwarz | PVDC 8301 | 487/602332 | 2023.04.18 | 2024.04.17 |
| Electromagnetic Radiation Disturbance | | | | | |
| EMI Test Receiver | Rohde & Schwarz | ESW 8 | 487/632317 | 2023.05.24 | 2024.05.23 |
| Antenna | Schwarzbeck | VULB 9168 | 487/622344 | 2023.02.22 | 2024.02.21 |
| 10m chamber | Beijing Yice | 10m SAC | 487/772309 | 2023.03.03 | 2026.03.02 |
| Immunity | | | | | |
| ESD Simulator | HAEFELY | ONYX 30 | 487/751520 | 2023.09.02 | 2024.09.01 |
| Burst Generator | EM test | UCS 500N5E | 487/751219 | 2023.04.27 | 2024.04.26 |
| Surge Generator | EM test | UCS 500N5V | 487/751218 | 2023.04.27 | 2024.04.26 |
| Coupling/decoupling Network | TeseQ | CDN M216S | 487/571842 | 2023.09.02 | 2024.09.01 |
| Conducted immunity test system | TeseQ | NSG 4070C-80 | 487/752227 | 2023.04.27 | 2024.04.26 |
| injection probe | TeseQ | CIP9136A | 487/431315 | 2023.04.27 | 2024.04.26 |
| Signal Generator | Rohde & Schwarz | SMB 100B | 487/392352 | 2023.04.17 | 2024.04.16 |
| Power Amplifier | Rohde & Schwarz | BBA-BC1000 | 487/400908 | 2023.04.17 | 2024.04.16 |
| Power Amplifier | Rohde & Schwarz | BBA-D110E100 | 487/402321 | 2023.04.17 | 2024.04.16 |
| Power Meter | Rohde & Schwarz | NRX | 487/741156 | 2022.11.26 | 2023.11.25 |
| Power sensor | Rohde & Schwarz | NRP6A | 487/742390-487/742391 | 2023.04.17 | 2024.04.16 |
| Antenna | AR | ALT80M6G | 487/622350 | 2023.04.17 | 2024.04.16 |
| AC PF generator | Skylark | PFM-300 | 487/752329 | 2023.05.05 | 2024.05.04 |

**EMC Testing software**

| software | version | Testing items |
|---|---|---|
| EMC32 | 10.6 | CE, RE, RS |
| ICD CONTROL | 7.1.2 | CS |

# 4 Measurement Uncertainty

For a 95% confidence level, the measurement uncertainties for defined systems are:

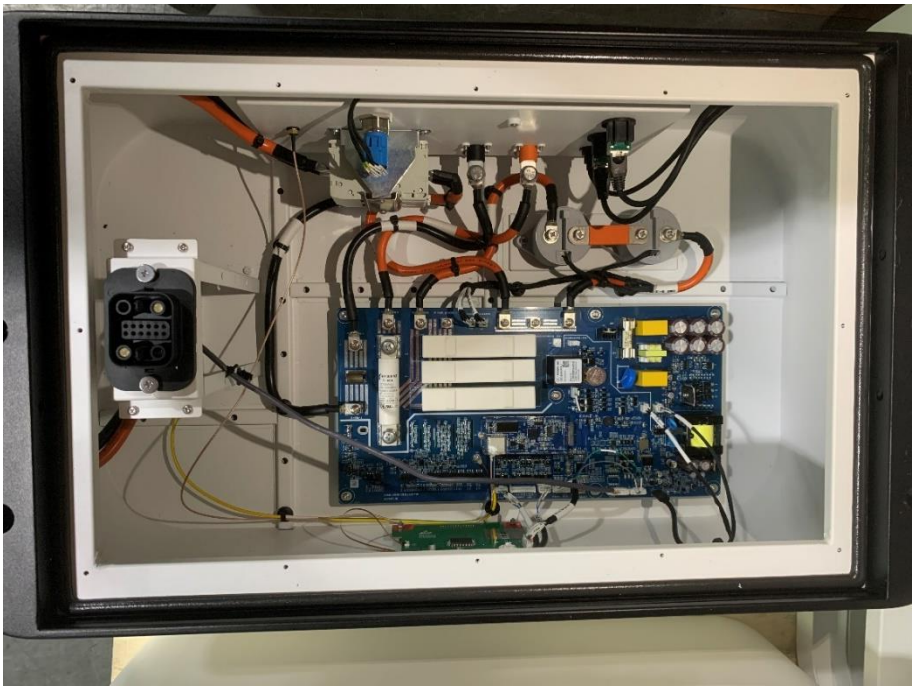
| Test Name | Measurement Uncertainty |
|---|---|
| Mains Terminal Disturbance Voltage | 150kHz to 30MHz, LISN, 3.08dB |
| Electromagnetic Radiation Disturbance | 30MHz to 1GHz, H&V: 4.47dB(10m)<br>H&V: 4.91dB(3m)<br>1GHz to 6GHz H&V: 5.15dB |
| Electrostatic Discharge | The test was applied using proprietary equipment that meets the requirements of EN 61000-4-2. |
| Electromagnetic field | The test was applied using proprietary equipment that meets the requirements of EN 61000-4-3. |
| Power frequency magnetic field | The test was applied using proprietary equipment that meets the requirements of EN 61000-4-8. |
| Voltage dip | The test was applied using proprietary equipment that meets the requirements of EN 61000-4-11 |
| Short interruptions | The test was applied using proprietary equipment that meets the requirements of EN 61000-4-11 |
| Burst | The test was applied using proprietary equipment that meets the requirements of EN 61000-4-4 |
| Surge | The test was applied using proprietary equipment that meets the requirements of EN 61000-4-5 |
| Conducted RF | The test was applied using proprietary equipment that meets the requirements of EN 61000-4-6. |

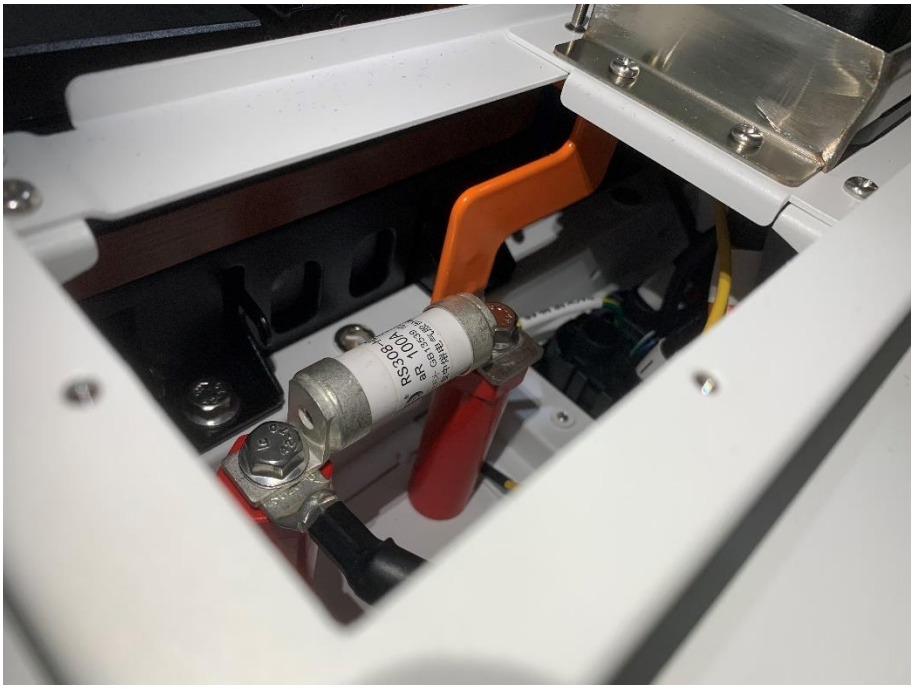
Measurement Uncertainty Decision Rule

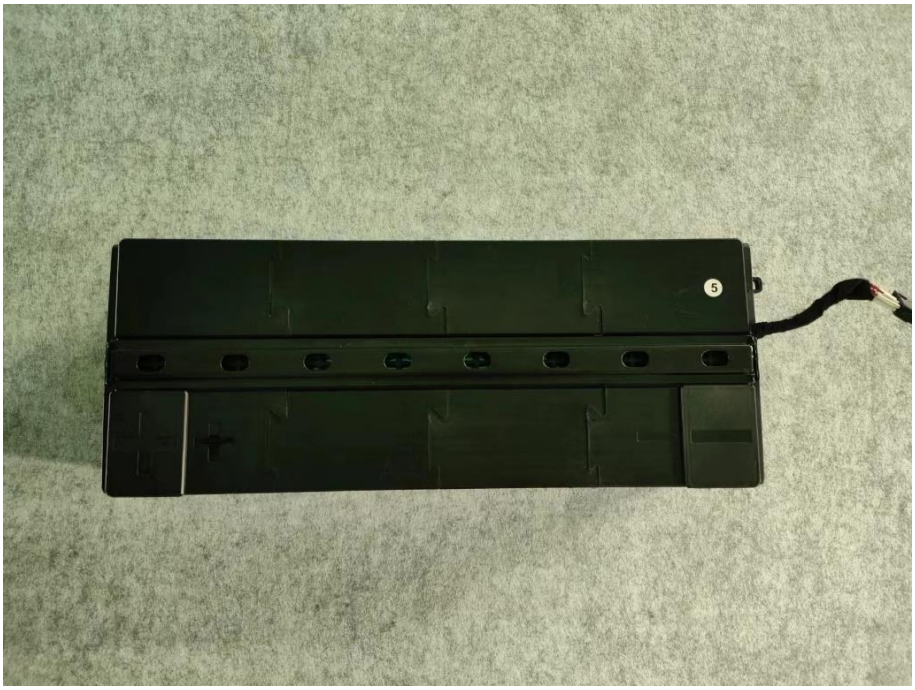
Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115: 2021, clause 4.4.3 and 4.5.1

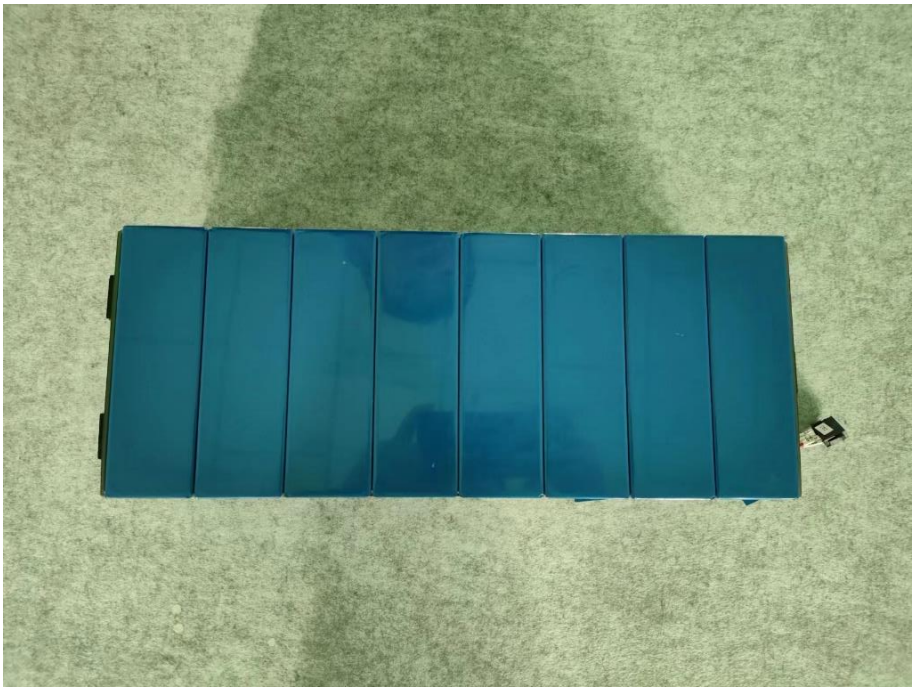
# 5 Photographs

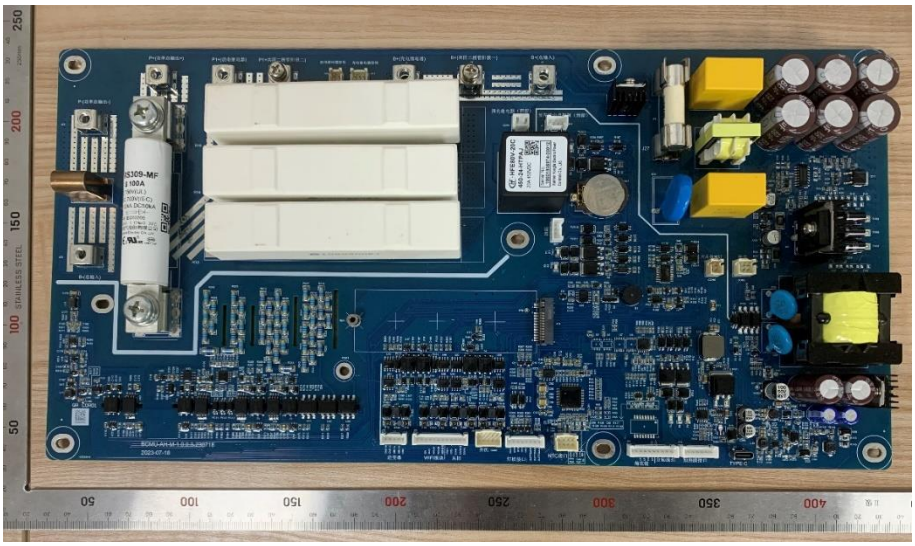
Model: PowerCool-LFP-HV-10

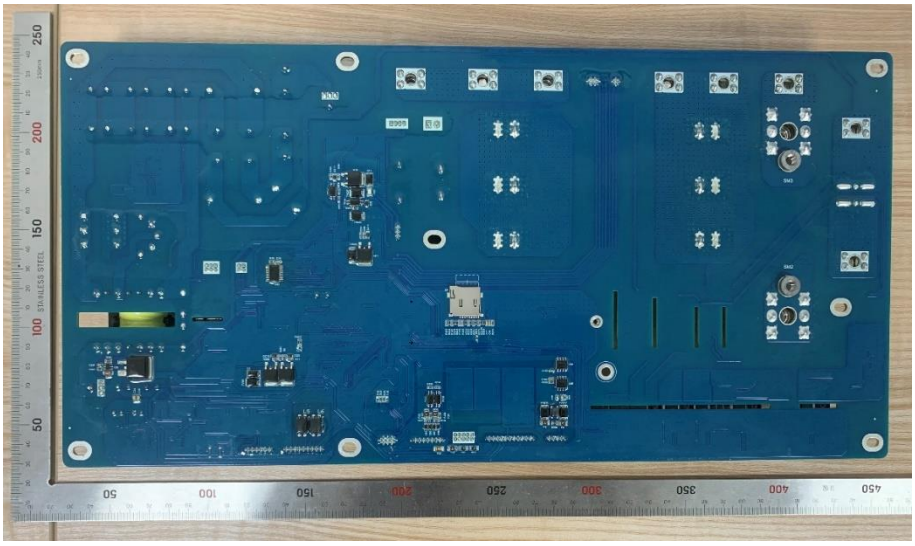



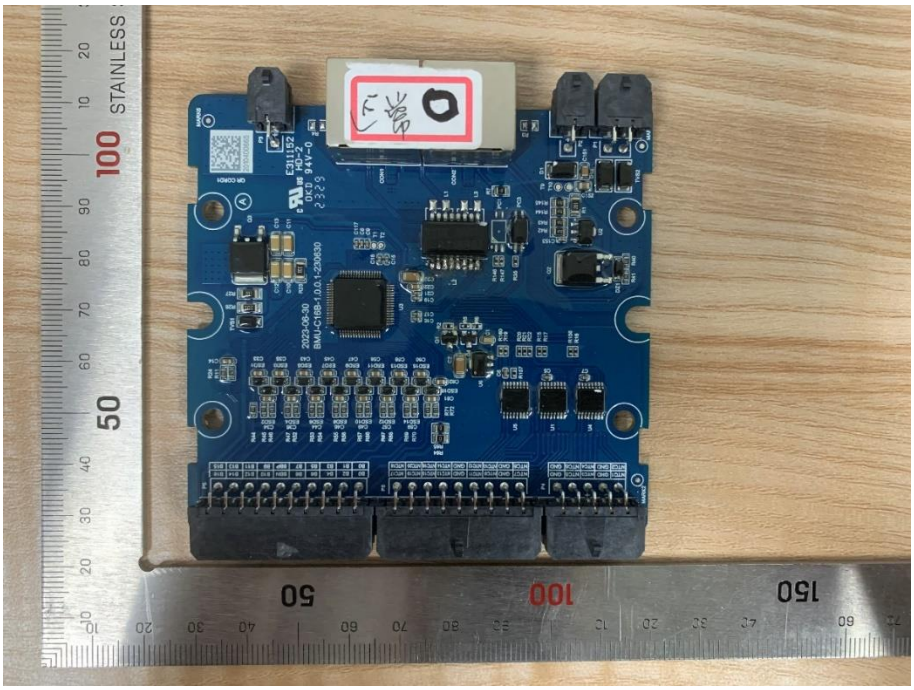


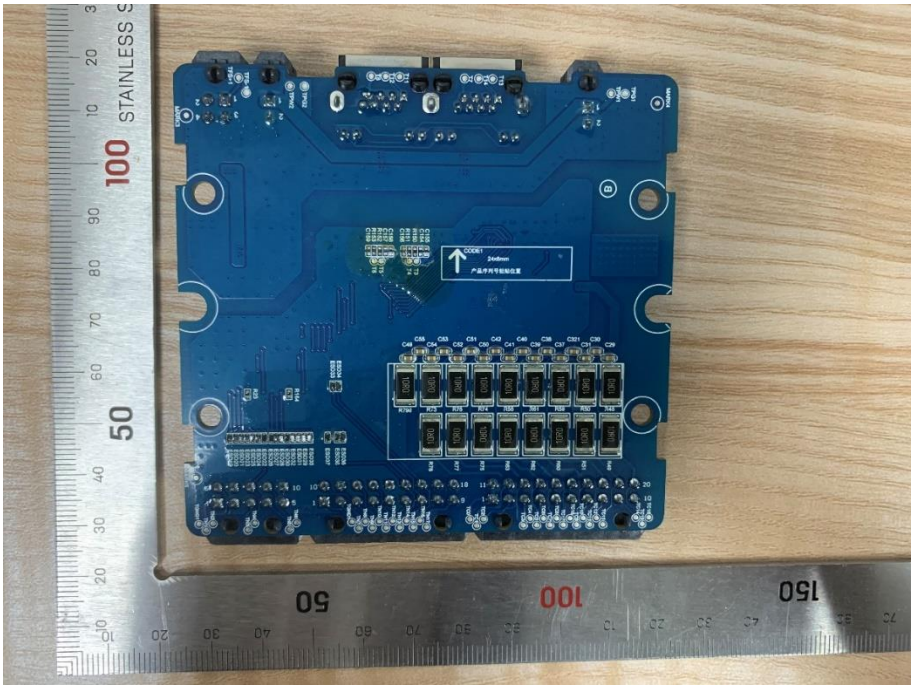


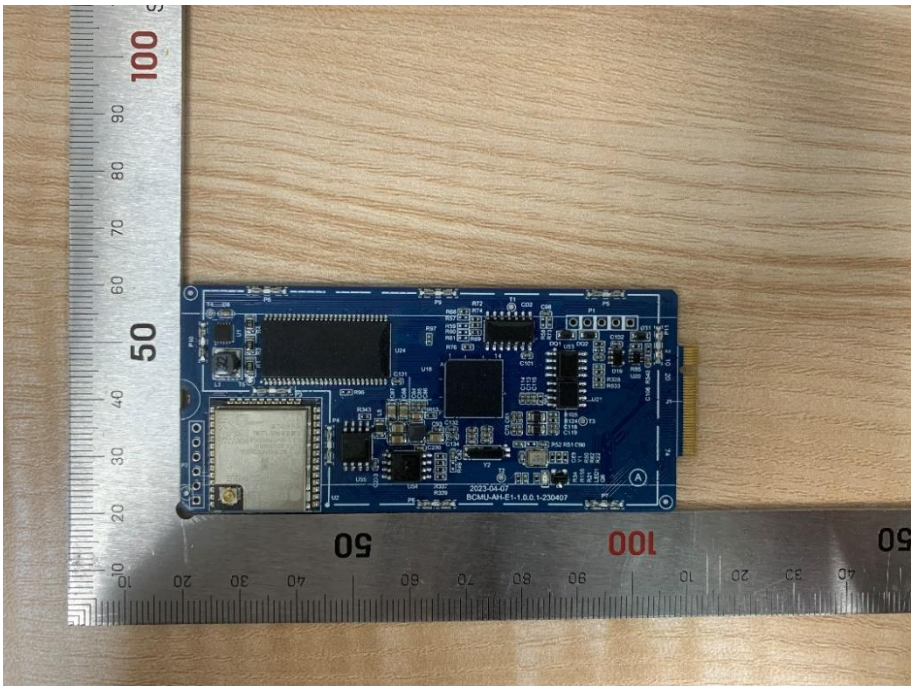


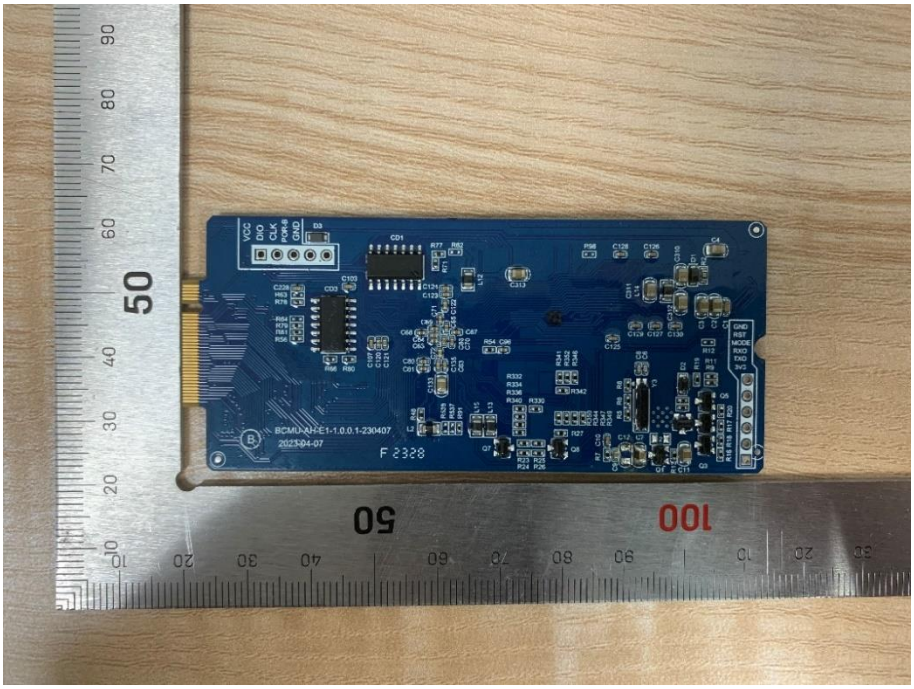












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