



## Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

Telephone: +86-755-26544737

Fax: +86-755-26648637

Website: www.cqa-cert.com

Report Template Version: V05


Report Template Revision Date: 2021-11-03

# TEST REPORT

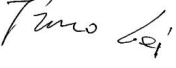
**Report No.:** CQASZ20241002290E  
**Applicant:** EVE Energy Co., Ltd.  
**Address of Applicant:** No.38, HuiFeng 7th Road, Zhongkai Hi-Tech Zone, HuiZhou, Guangdong, China.  
**Equipment Under Test (EUT):**  
**EUT Name:** Rechargeable lithium-ion Cell  
**Model No.:** MB31  
**Test Model No.:** MB31  
**Brand Name:** N/A  
**Standards:** EN IEC 61000-6-4:2019  
EN IEC 61000-6-2:2019  
**Date of Receipt:** 2024-10-28  
**Date of Test:** 2024-10-28 to 2024-11-1  
**Date of Issue:** 2024-11-6  
**Test Result:** PASS\*

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

**Tested By:**

  
( Joe Wang )

**Reviewed By:**

  
( Timo Lei )

**Approved By:**

  
( Alex Wang )



The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.

## 1 Version

### Revision History of Report

Report No.	Version	Description	Issue Date
CQASZ20241002290E	Rev. 01	Initial report	2024-11-6

## 2 Test Summary

Test Item	Standard	Test Method	Class / Severity	Result
Radiation disturbance (30MHz-1GHz)	EN IEC 61000-6-4:2019	CISPR 16-2-3	Table 1	Pass
Electrostatic discharge	EN IEC 61000-6-2:2019	EN 61000-4-2: 2009	Clause 8	Pass
Radio-frequency electromagnetic field	EN IEC 61000-6-2:2019	EN IEC 61000-4-3:2020	Clause 8	Pass

### 3 Contents

	Page
1 VERSION .....	2
2 TEST SUMMARY .....	3
3 CONTENTS .....	4
4 GENERAL INFORMATION .....	5
4.1 CLIENT INFORMATION .....	5
4.2 GENERAL DESCRIPTION OF EUT .....	5
4.3 DESCRIPTION OF SUPPORT UNITS .....	5
4.4 TEST MODE .....	5
4.5 TEST LOCATION .....	6
4.6 TEST FACILITY .....	6
4.7 DEVIATION FROM STANDARDS .....	6
4.8 ABNORMALITIES FROM STANDARD CONDITION .....	6
4.9 OTHER INFORMATION REQUESTED BY THE CUSTOMER .....	6
4.10 MEASUREMENT UNCERTAINTY (95% CONFIDENCE LEVELS, K=2) .....	7
5 EQUIPMENT LIST .....	8
6 EMISSION TEST RESULTS (EMI) .....	9
6.1 RADIATION DISTURBANCE (30MHZ-1GHZ) .....	9
6.1.1 E.U.T. Operation: .....	9
6.1.2 Test Setup Diagram: .....	9
6.1.3 Test Data: .....	10
7 IMMUNITY TEST RESULTS (EMS) .....	12
7.1 ELECTROSTATIC DISCHARGE .....	13
7.1.1 E.U.T. Operation: .....	13
7.1.2 Test Setup Diagram: .....	13
7.1.3 Test Data: .....	13
7.2 RADIO-FREQUENCY ELECTROMAGNETIC FIELD .....	15
7.2.1 E.U.T. Operation: .....	15
7.2.2 Test Setup Diagram: .....	15
7.2.3 Test Data: .....	15
8 TEST SETUP PHOTOS .....	17
9 PHOTOGRAPHS OF EUT .....	18

## 4 General Information

### 4.1 Client Information

Applicant:	EVE Energy Co., Ltd.
Address of Applicant:	No.38, HuiFeng 7th Road, Zhongkai Hi-Tech Zone, HuiZhou, Guangdong, China.
Manufacturer:	EVE Energy Co., Ltd.
Address of Manufacturer:	No.38, HuiFeng 7th Road, Zhongkai Hi-Tech Zone, HuiZhou, Guangdong, China.
Factory:	EVE Energy Co., Ltd.
Address of Factory:	No.38, HuiFeng 7th Road, Zhongkai Hi-Tech Zone, HuiZhou, Guangdong, China.

### 4.2 General Description of EUT

Product Name:	Rechargeable lithium-ion Cell
Model No.:	MB31
Test Model No.:	MB31
Trade Mark:	N/A
Difference:	/
Power Supply:	Nominal Voltage:3.2V DC
	Nominal Capacity: 314Ah

### 4.3 Description of Support Units

Title	Manufacturer	Model No.	Serial No.
Cement Resistor	/	/	/
DC	RENOGY	RNG-BATT-LFP12-50	/

### 4.4 Test Mode

Test Mode:	
Mode a:	Keep the EUT in Charging mode
Mode b:	Keep the EUT in Maximum discharge current
Mode c:	Keep the EUT in discharging 50% load mode
Mode d:	Keep the EUT in discharging 10% load mode

#### 4.5 Test Location

Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

#### 4.6 Test Facility

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

- IC Registration No.: 22984-1

The 3m Semi-anechoic chamber of Shenzhen Huaxia Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

- CNAS (No. CNAS L5785)

CNAS has accredited Shenzhen Huaxia Testing Technology Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- A2LA (Certificate No. 4742.01)

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.

- FCC Registration No.: 522263

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.:522263

#### 4.7 Deviation from Standards

None

#### 4.8 Abnormalities from Standard Condition

None

#### 4.9 Other Information Requested by the Customer

None.

#### 4.10 Measurement Uncertainty (95% confidence levels, k=2)

Test Item	Measurement Uncertainty
Radiated Emission (30M ~ 1GHz)	5.12dB
Radiated Immunity	1.61dB

## 5 Equipment List

Radiation disturbance (30MHz-1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Loop antenna	SCHWARZBEC K	FMZB 1516	CQA-060	2023/9/8	2026/9/7
Horn Antennaz	R&S	BBHA 9170	CQA-088	2023/11/01	2026/10/31
Horn Antenna	R&S	HF906	CQA-012	2023/11/01	2026/10/31
Bilog Antenna	R&S	HL562	CQA-011	2023/9/7	2026/9/6
EMI Test Receiver	R&S	ESR7	CQA-005	2024/9/2	2025/9/1
Spectrum analyzer	R&S	FSU26	CQA-038	2024/9/2	2025/9/1
Preamplifier	MITEQ	PA5001	CQA-036	2024/9/2	2025/9/1
Coaxial cable (1GHz~40GHz)	CQA	N/A	C007	2024/9/2	2025/9/1
Coaxial cable (9KHz~1GHz)	CQA	N/A	C013	2024/9/2	2025/9/1
Full anechoic chamber	Cheng Yu	966	CQA-009	2023/9/8	2026/9/7

Electrostatic discharges					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
ESD Simulator	EM TEST	DITO	CQA-001	2024/9/7	2025/9/6
DC power	KEYSIGHT	E3631A	CQA-028	2024/9/2	2025/9/1

RF electromagnetic field disturbances					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Full anechoic chamber	Cheng Yu	966	CQA-009	2023/9/8	2026/9/7
Signal Generator	ANRITSU	MG3692B	CQA-019	2024/9/2	2025/9/1
Signal Generator	R&S	SME06	CQA-024	2024/9/2	2025/9/1
Power amplifier	Micotop	MPA-80- 1000-250	CQA-085	2024/9/7	2025/9/6
Power amplifier	Micotop	MPA-1000- 6000-100	CQA-086	2024/9/7	2025/9/6
Bilog Antenna	R&S	HL562	CQA-011	2024/9/7	2025/9/6
Stacked Double Log.-Per. Antenna	Schwarzbeck	STLP9149	CQA-087	2023/9/8	2026/9/7
Power meter	R&S	NRVD	CQA-029	2024/9/2	2025/9/1
Power Sensor	R&S	URV5-Z2	CQA-031	2024/9/2	2025/9/1



## 6 Emission Test Results (EMI)

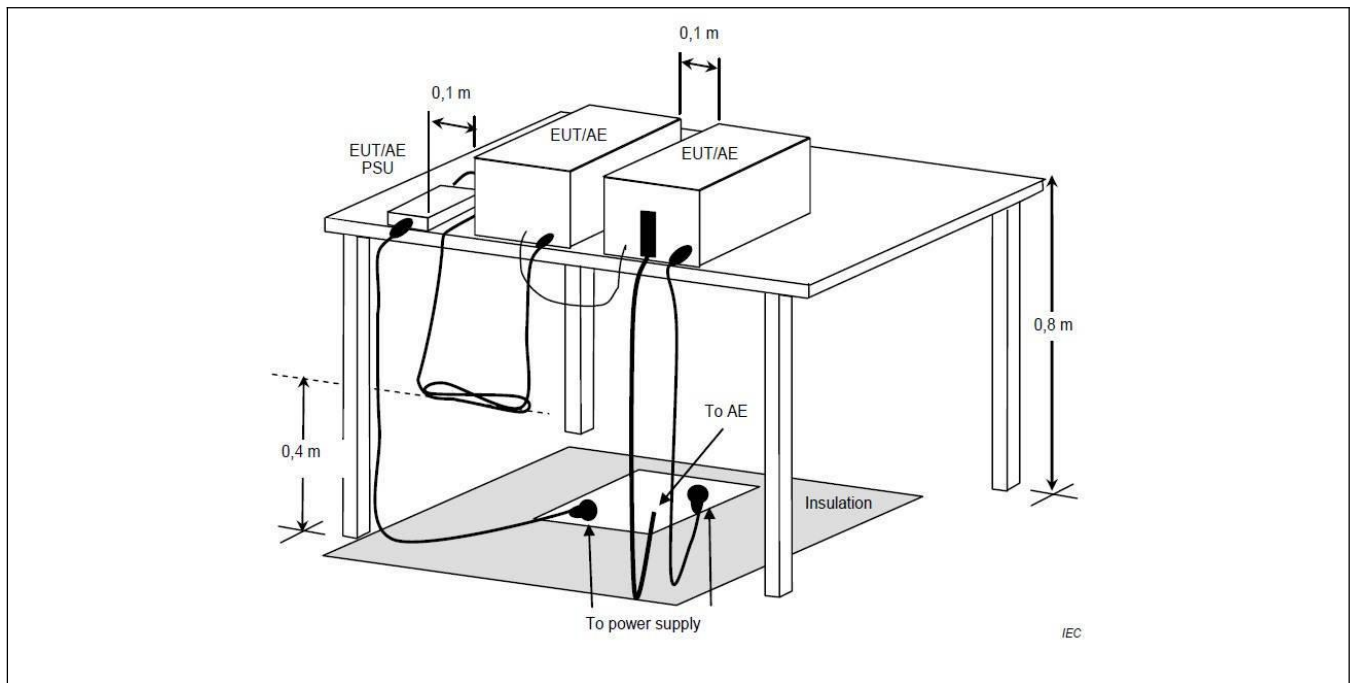
### 6.1 Radiation disturbance (30MHz-1GHz)

Test Requirement:	Table 3		
Test Method:	CISPR 16-2-3		
Test Limit:	Frequency range	Limits at 10m	Limits at 3m
	30 MHz to 230 MHz	40 dB(uV/m) quasi-peak	50 dB(uV/m) quasi-peak
	230 MHz to 1 000 MHz	47 dB(uV/m) quasi-peak	57 dB(uV/m) quasi-peak
	At transitional frequencies the lower limit applies.		
Procedure:	<p>An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.</p> <p>Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor</p>		

#### 6.1.1 E.U.T. Operation:

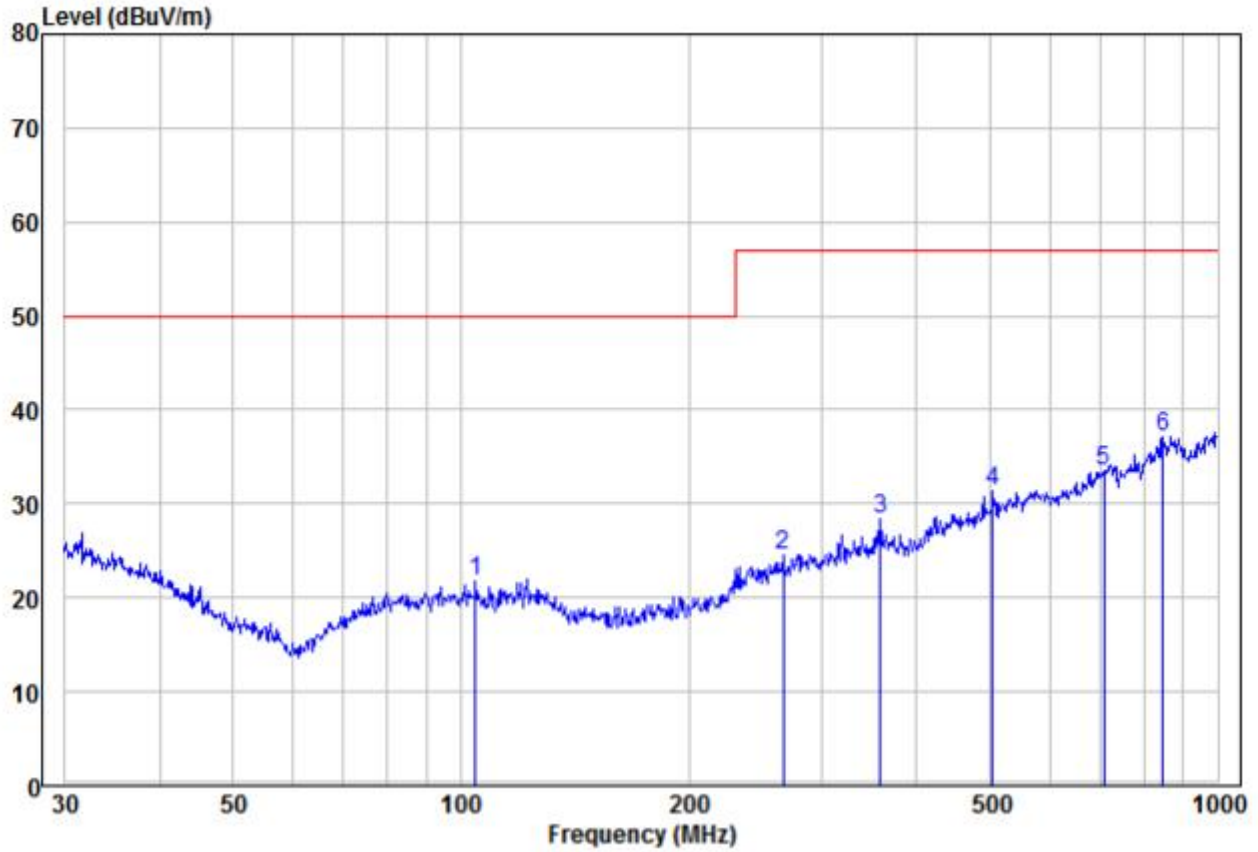
Operating Environment:	
Temperature:	25.3 °C
Humidity:	53 %
Atmospheric Pressure:	100.9 kPa
Test Mode:	Mode a, Mode b, Mode c, Mode d
Test Status:	Pretest the EUT at different test mode and found the mode b which is worst case, the test worst case mode is recorded in the report.

#### 6.1.2 Test Setup Diagram:



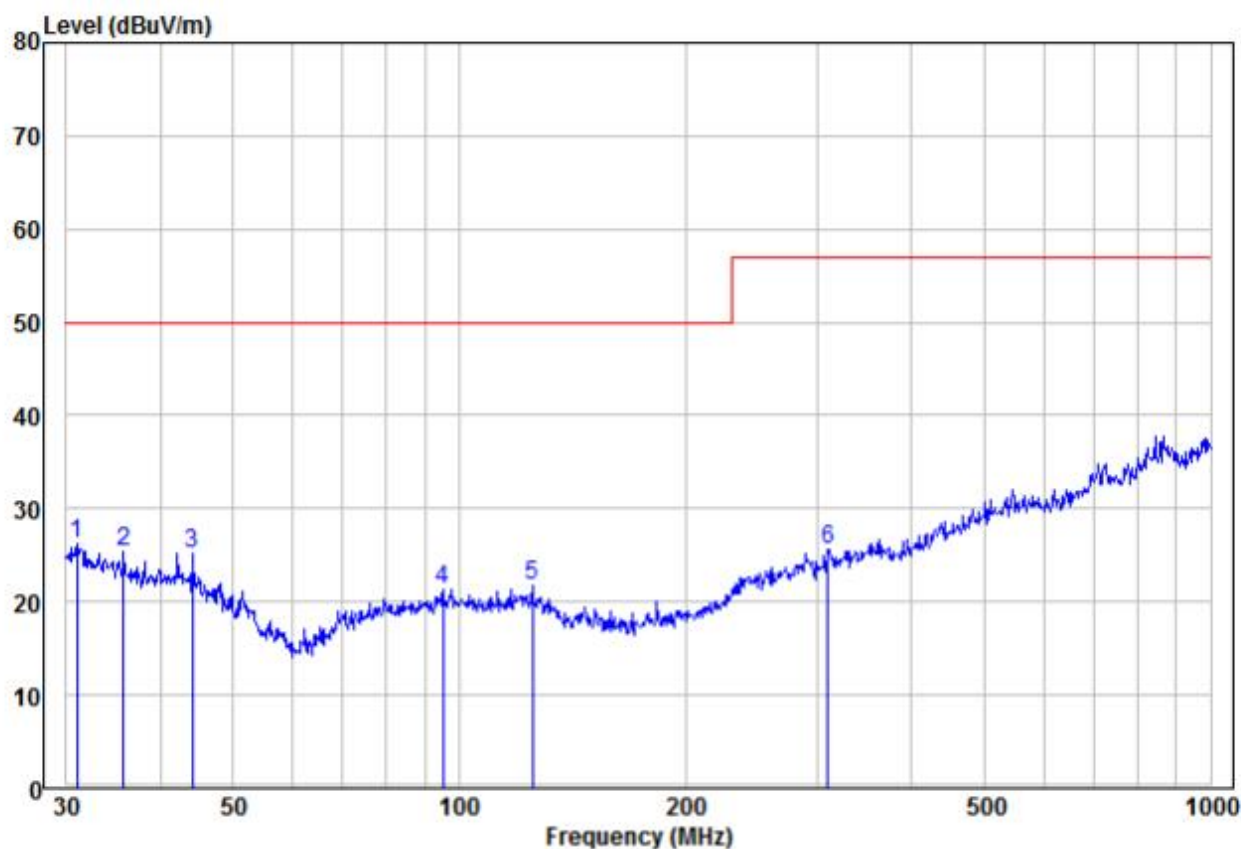
### 6.1.3 Test Data:

Polarization: Horizontal



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	104.54	10.26	11.56	21.82	50.00	-28.18	Peak	HORIZONTAL
2	266.61	10.36	14.18	24.54	57.00	-32.46	Peak	HORIZONTAL
3	357.93	11.49	16.81	28.30	57.00	-28.70	Peak	HORIZONTAL
4	504.71	11.02	20.36	31.38	57.00	-25.62	Peak	HORIZONTAL
5	706.70	10.07	23.44	33.51	57.00	-23.49	Peak	HORIZONTAL
6 pp	848.06	10.40	26.82	37.22	57.00	-19.78	Peak	HORIZONTAL

Polarization: Vertical



		Read		Limit	Over		
	Freq	Level	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Pol/Phase
1	pp	30.96	10.28	15.88	26.16	50.00	-23.84 Peak
2		35.75	10.65	14.79	25.44	50.00	-24.56 Peak
3		44.12	13.73	11.54	25.27	50.00	-24.73 Peak
4		95.09	9.88	11.39	21.27	50.00	-28.73 Peak
5		125.01	10.10	11.73	21.83	50.00	-28.17 Peak
6		310.00	9.93	15.58	25.51	57.00	-31.49 Peak

## 7 Immunity Test Results (EMS)

### Performance Criteria Description in EN IEC 61000-6-1

#### Performance Criteria

##### Performance Criterion A

The EUT 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 EUT is used as intended. If the performance level is not specified by the manufacturer, this may be derived from the product description and documentation and what the user may reasonably expect from the equipment if used as intended.

##### Performance Criterion B

The EUT 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 EUT is used as intended. The performance level may be replaced by a permissible loss of performance. However, during the test degradation of performance is allowed but no change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the equipment if used as intended.

##### Performance Criterion C

Temporary loss of function is allowed during the test, provided the function is self-recoverable or can be restored by the operation of the controls.

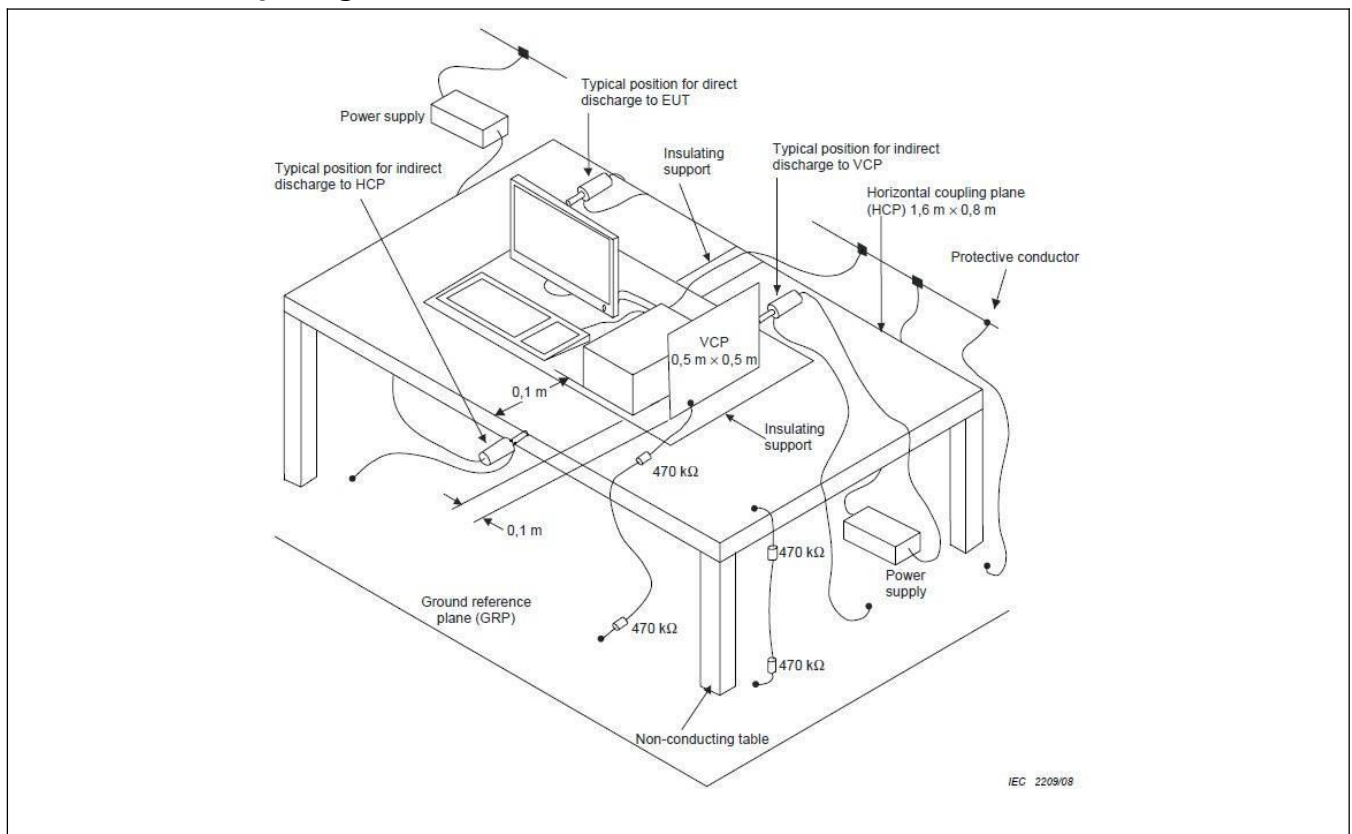
## 7.1 Electrostatic discharge

Test Requirement:	Clause 8
Test Method:	EN 61000-4-2: 2009
Test Limit:	Performance criterion B
Procedure:	Discharge Impedance: 330 $\Omega$ / 150 pF Discharge Voltage: Air Discharge: 8 kV; Contact Discharge: 4 kV; VCP/HCP: 4 kV. Polarity: Positive & Negative Number of Discharge: Minimum 10 times at each test point Discharge Mode: Single Discharge Discharge Period: 1 second minimum
Performance Criteria:	B

### 7.1.1 E.U.T. Operation:

Operating Environment:	
Temperature:	24.8 °C
Humidity:	55.7 %
Atmospheric Pressure:	100.9 kPa
Test Mode:	Mode a, Mode b, Mode c, Mode d

### 7.1.2 Test Setup Diagram:



### 7.1.3 Test Data:

Discharge type	Volt (kV)	Polarity	Test Point	Result/ Observations
Air discharge	8	+	1	A
Air discharge	8	-	1	A

Contact discharge	4	+	2	A
Contact discharge	4	-	2	A
Horizontal Coupling	4	+	3	A
Horizontal Coupling	4	-	3	A
Vertical Coupling	4	+	3	A
Vertical Coupling	4	-	3	A

Test Point: 1. All insulated enclosure and seams.

2. All accessible metal parts of the enclosure.

3. All side.

A: No degradation in the performance of the EUT was observed.

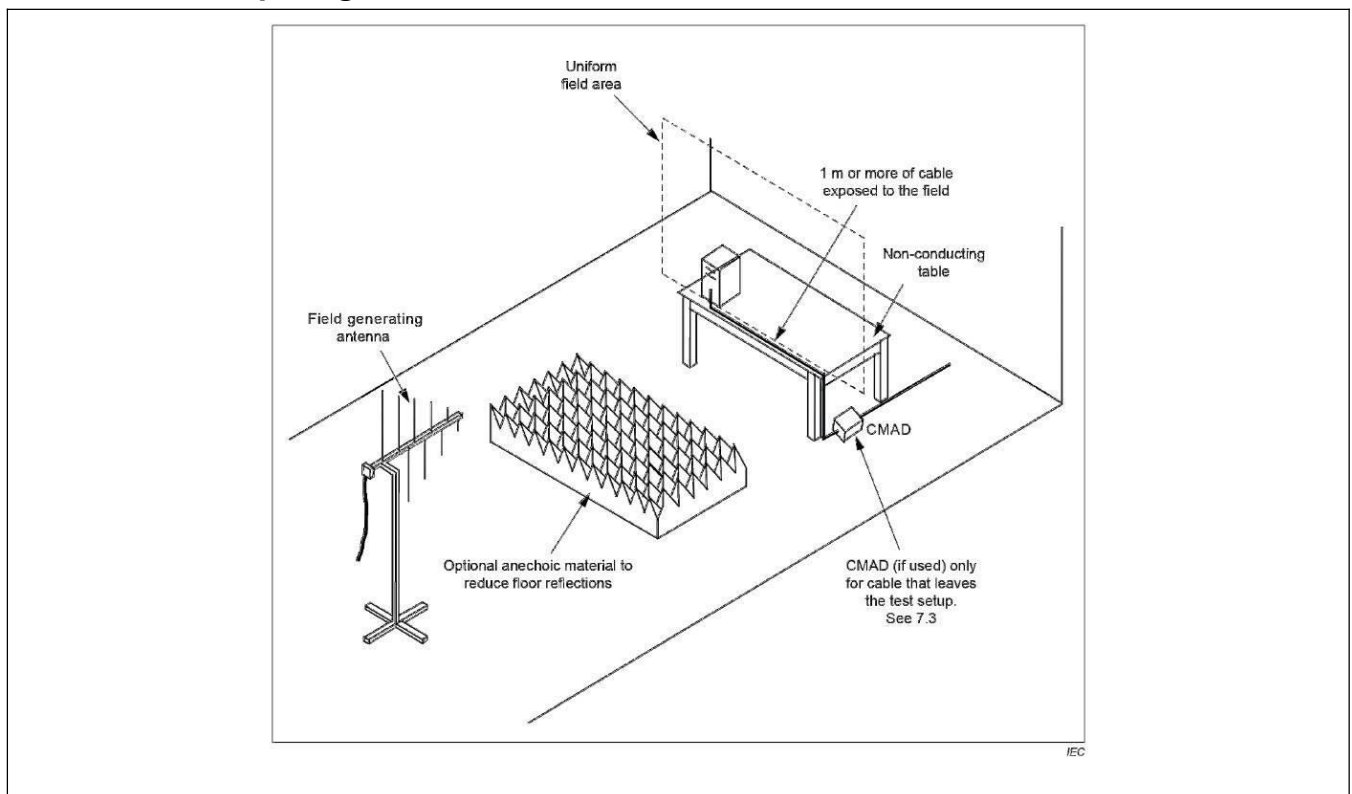
## 7.2 Radio-frequency electromagnetic field

Test Requirement:	Clause 8
Test Method:	EN IEC 61000-4-3:2020
Test Limit:	Performance criterion A
Procedure:	Antenna Polarisation: Vertical and Horizontal Modulation: 1kHz,80% Amp. Mod,1% increment Frequency Range: 80MHz to 1GHz, 1.4GHz to 6GHz
Performance Criteria:	A

### 7.2.1 E.U.T. Operation:

Operating Environment:	
Temperature:	25.5 °C
Humidity:	53 %
Atmospheric Pressure:	100.9 kPa
Test Mode:	Mode a, Mode b, Mode c, Mode d

### 7.2.2 Test Setup Diagram:



### 7.2.3 Test Data:

Frequency	Field Strength (V/m)	EUT face	Dwell time	Result/ Observations
80MHz-1GHz	3	Front	2s	A
80MHz-1GHz	3	Back	2s	A
80MHz-1GHz	3	Left	2s	A
80MHz-1GHz	3	Right	2s	A
80MHz-1GHz	3	Top	2s	A
80MHz-1GHz	3	Bottom	2s	A

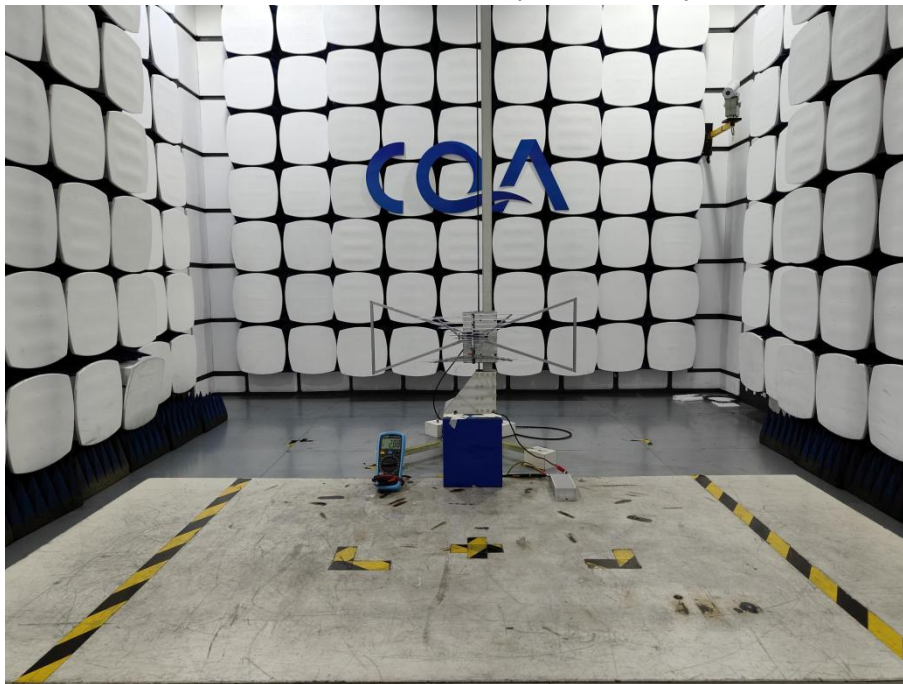
1.4GHz-6GHz	3	Front	2s	A
1.4GHz-6GHz	3	Back	2s	A
1.4GHz-6GHz	3	Left	2s	A
1.4GHz-6GHz	3	Right	2s	A
1.4GHz-6GHz	3	Top	2s	A
1.4GHz-6GHz	3	Bottom	2s	A

A: No degradation in the performance of the EUT was observed.

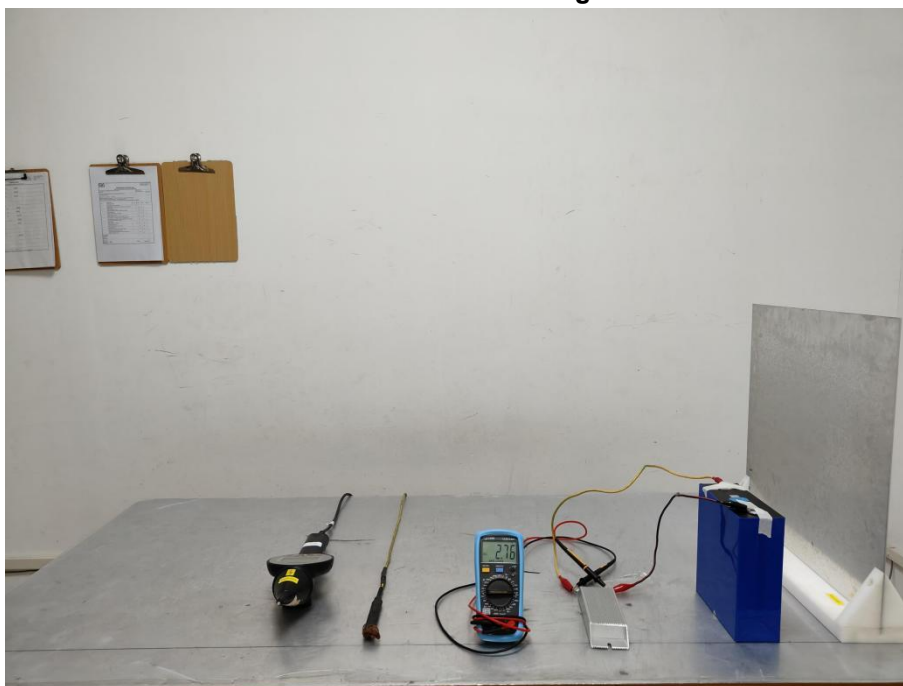


## 8 Test Setup Photos

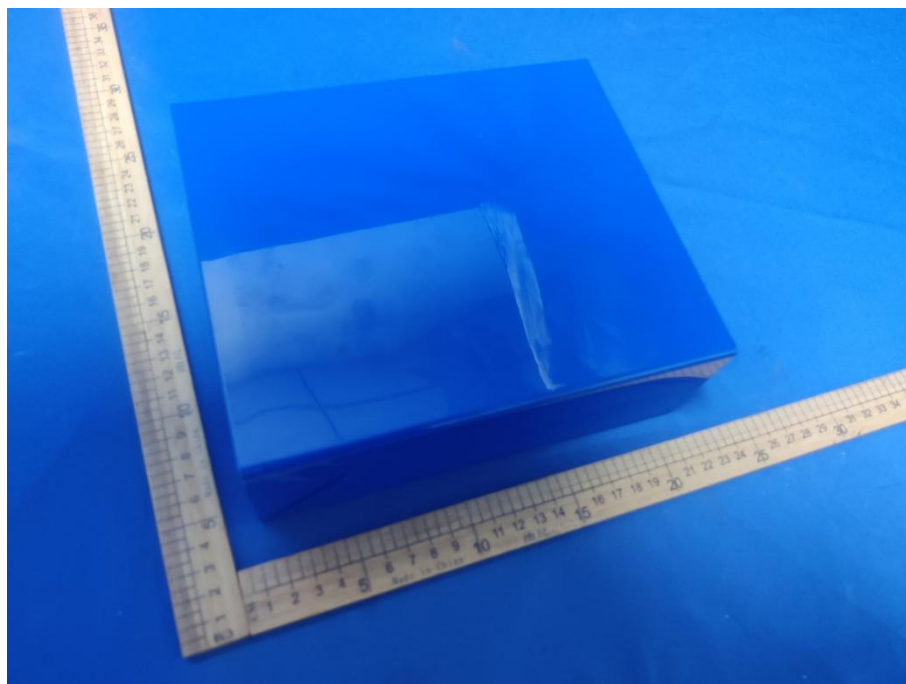
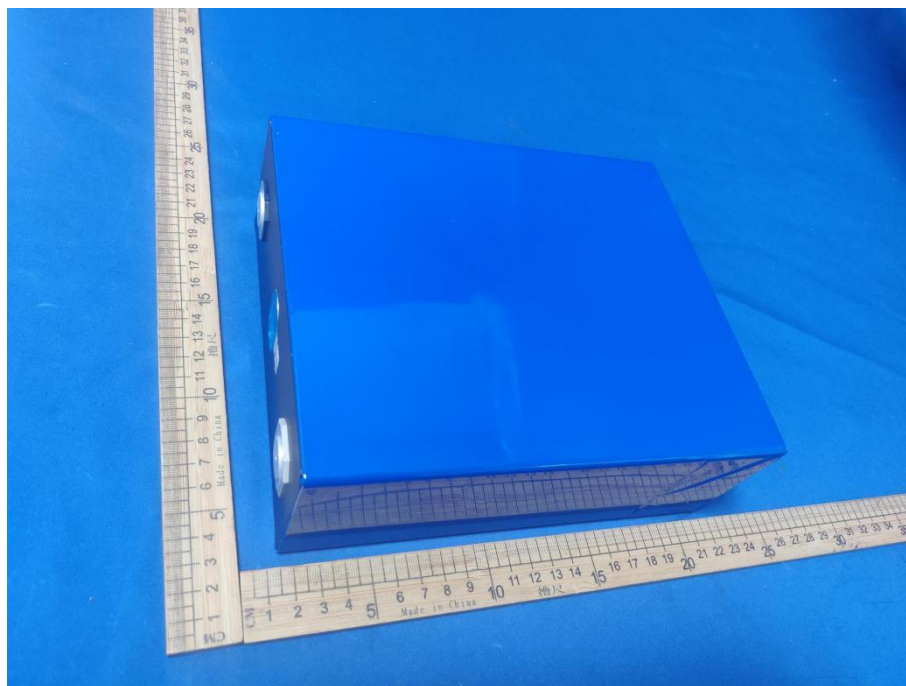
Radiation disturbance (30MHz-1GHz)

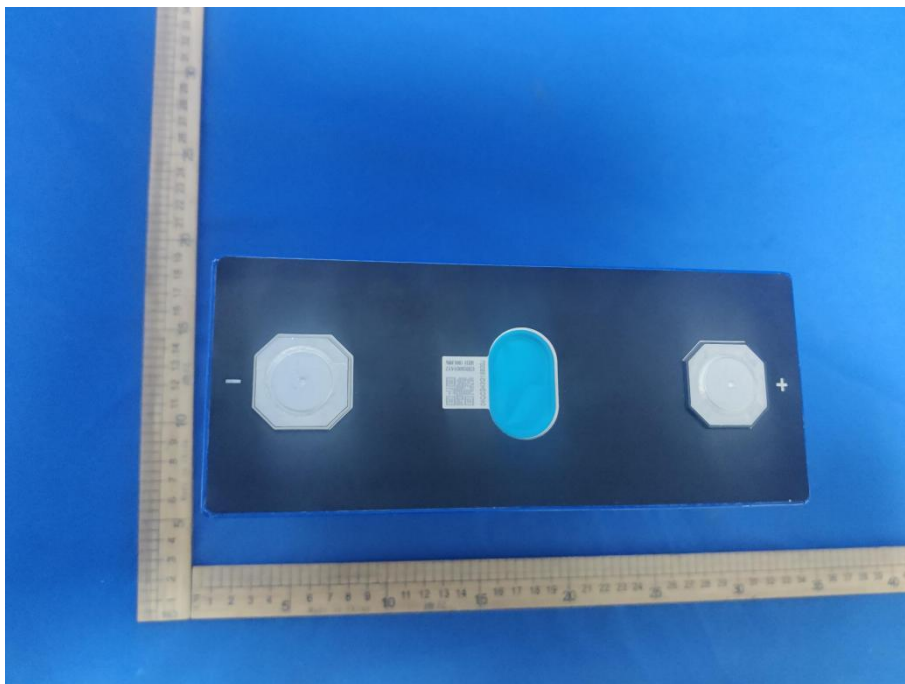


Electrostatic discharge



## 9 Photographs of EUT





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