CE

EMC REPORT

Prepared For :	**Shenzhen Auxo Technology Co., Ltd.** Add: 501, Lianxingbiaoye Factory No. 2, Hebei Industrial Zone, Hualian Community, Longhua Street, Longhua District, Shenzhen City, Guangdong Province, China
Product Name:	Solar panel
Model :	JAX550M, JAX265M, JAX270M, JAX275M, JAX280M, JAX285M, JAX290M, JAX295M, JAX300M, JAX305M, JAX310M, JAX315M, JAX320M, JAX325M, JAX330M, JAX335M, JAX340M, JAX345M, JAX350M, JAX355M, JAX360M, JAX365M, JAX370M, JAX375M, JAX380M, JAX385M, JAX390M, JAX395M, JAX400M, JAX405M, JAX410M, JAX415M, JAX420M, JAX425M, JAX430M, JAX435M, JAX440M, JAX445M, JAX450M, JAX455M, JAX460M, JAX465M, JAX470M, JAX475M, JAX480M, JAX485M, JAX490M, JAX495M, JAX500M, JAX505M, JAX510M, JAX515M, JAX520M, JAX525M, JAX530M, JAX535M, JAX540M, JAX545M, JAX555M, JAX560M, JAX565M, JAX570M, JAX575M, JAX580M, JAX585M, JAX590M, JAX595M, JAX600M, JAX605M, JAX610M, JAX615M, JAX620M, JAX625M, JAX630M, JAX635M, JAX640M, JAX645M, JAX650M, JAX655M, JAX660M, JAX665M, JAX670M, JAX675M, JAX680M, JAX685M, JAX690M, JAX695M, JAX700M, JAX705M, JAX710M, JAX715M, JAX720M
Trade Mark:	AUXO Safe Lithium Battery Expert
Prepared By :	Shenzhen SIT Testing Technology Co., Ltd. Add: Room 401, Building A2, The 2nd Industrial Zone of Zhu'ao, Gushu, Xixiang, Bao'an District, Shenzhen, Guangdong, China
Test Date:	December 26, 2023 to December 29, 2023
Date of Report :	December 29, 2023
Report No.:	SIT231226610201ER

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TABLE OF CONTENTS

1 TEST CERTIFICATION 3
2 TEST RESULT SUMMARY 3
3 EUT DESCRIPTION 5
4 TEST METHODOLOGY 5
4.1 TEST STANDARDS 5
4.2 TEST METHODOLOGY 5
4.3 EUT SETUP AND OPERATION MODE 6
4.4 PERFORMANCE CRITERIA FOR EMS 6
5 FACILITIES AND ACCREDITATIONS 7
5.1. FACILITIES 7
5.2. ACCREDITATIONS 7
5.3. MEASUREMENT UNCERTAINTY 7
6 RADIATED EMISSION MEASUREMENT 8
6.1. TEST INSTRUMENTS 8
6.2. TEST PROCEDURE 8
6.3 CORRECTED AMPLITUDE & MARGIN CALCULATION 9
6.4 ENVIRONMENTAL CONDITIONS 9
6.5 SUMMARY OF TEST RESULTS/PLOTS 10
7 ELECTROSTATIC DISCHARGE (ESD) 12
7.1. TEST SPECIFICATION 13
7.2. TEST INSTRUMENT 13
7.3. TEST PROCEDURE 14
7.4. TEST SETUP 15
7.5. TEST RESULTS 16
8 CONTINUOUS RADIATED DISTURBANCES (R/S) 17
8.1. TEST SPECIFICATION 17
8.2. TEST INSTRUMENT 17
8.3. TEST PROCEDURE 17
8.4. TEST SETUP 18
8.5. TEST RESULTS 19
9 PHOTOGRAPHS OF EUT 20

1 TEST CERTIFICATION

Product:	Solar panel
Model:	The same as page 1
Applicant:	**Shenzhen Auxo Technology Co., Ltd.** Add: 501, Lianxingbiaoye Factory No. 2, Hebei Industrial Zone, Hualian Community, Longhua Street, Longhua District, Shenzhen City, Guangdong Province, China
Manufacturer:	**Shenzhen Auxo Technology Co., Ltd.** Add: 501, Lianxingbiaoye Factory No. 2, Hebei Industrial Zone, Hualian Community, Longhua Street, Longhua District, Shenzhen City, Guangdong Province, China
Trade Mark:	AUXO Safe Lithium Battery Expert
Tested:	December 26, 2023 to December 29, 2023
Applicable Standards:	EN IEC 61000-6-1:2019 EN IEC 61000-6-3:2021

The above equipment has been tested by Shenzhen SIT Testing Technology Co., Ltd., and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Prepared by : Debe Yu

Assistant

Reviewer : Jessica

Supervisor

Approved & Authorized Signer : Kevin Sun

Manager

2 TEST RESULT SUMMARY

Standard	Item	Result
EN IEC 61000-6-3	Conducted Emission	N/A
	Radiated Emission	Compliant
	EN IEC 61000-3-2 Harmonic Current Emission	N/A
	EN 61000-3-3 Voltage Fluctuation And Flicker	N/A
EN IEC 61000-6-1	Electrostatic Discharge Immunity in accordance with IEC 61000-4-2	Compliant
	Radiated RF-Electromagnetic Field Immunity in accordance with IEC 61000-4-3	Compliant
	Electrical Fast Transient/Burst Immunity in accordance with IEC 61000-4-4	N/A
	Surge Immunity in accordance with IEC 61000-4-5	N/A
	Conducted disturbances Immunity in accordance with IEC 61000-4-6	N/A
	Power-frequency magnetic field Immunity in accordance with IEC 61000-4-8	N/A
	Voltage Dips/Interruptions Immunity in accordance with IEC 61000-4-11	N/A

Note: N/A: not applicable

3 EUT DESCRIPTION

Product	Solar panel
Model	JAX550M
Trade Mark	AUXO Safe Lithium Battery Expert
Applicant	Shenzhen Auxo Technology Co., Ltd.
Housing material	Silicon plate&Plastic
EUT Type	☒ Engineering Sample. ☐ Product Sample, ☐ Mass Product Sample.
Serial Number	N/A

4 TEST METHODOLOGY

4.1 Test Standards

The following report is prepared on behalf of the **Shenzhen Auxo Technology Co., Ltd.** in accordance with EN 61000-6-3, Electromagnetic compatibility (EMC) -- Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments and EN 61000-6-1, Electromagnetic compatibility (EMC) -- Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments.

The objective of the manufacturer is to demonstrate compliance with the standards EN61000-6-3 and EN61000-6-1 for residential, commercial and light-industrial environments.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product maybe which result in lowering the emission/immunity should be checked to ensure compliance has been maintained.

4.2 Test Methodology

All measurements contained in this report were conducted with the standards EN61000-6-3, EN IEC 61000-3-2, EN61000-3-3, and EN61000-6-1 for residential, commercial and light-industrial environments, and all related testing and measurement techniques intentional standards.

4.3 EUT Setup and Operation Mode

The equipment under test (EUT) was configured to measure its highest possible emission/immunity level. The test modes were adapted according to the operation manual for use, more detailed description as follows:

Test Mode List:

Test Mode	Charging	Remark
TM1	Normal working	/

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core /Without Core
/	/	/	/

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core /Without Core
/	/	/	/

4.4 Performance Criteria for EMS

All the test data has been collected, reduced, and analyzed within this report in accordance with Immunity requires the following as specific performance criteria:

A. The apparatus shall continue to operate as intended during and after the test. The manufacturer specifies some minimum performance level. The performance level may be specified by the manufacturer as a permissible loss of performance.

B. The apparatus shall continue to operate as intended after the test. This indicates that the EUT does not need to function at normal performance levels during the test, but must recover. Again some minimal performance is defined by the manufacture. No change in operating state or loss or data is permitted.

C. Temporary loss of function is allowed. Operation of the EUT may stop as long as it is either automatically reset or can be manually restored by operation of the controls.

5 FACILITIES AND ACCREDITATIONS

5.1. FACILITIES

All measurement facilities used to collect the measurement data are located at SIT LAB.

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, “Radio Interference Measuring Apparatus and Measurement Methods.”

5.2. ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

Copies of granted accreditation certificates are available for downloading from our web site, www.sit-cert.com

5.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency		Uncertainty
Conducted emissions	9kHz~30MHz		+/- 3.59dB
Radiated emissions	Horizontal	30MHz ~ 200MHz	+/- 4.77dB
		200MHz ~1000MHz	+/- 4.93dB
	Vertical	30MHz ~ 200MHz	+/- 5.04dB
		200MHz ~1000MHz	+/- 4.93dB

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

6 RADIATED EMISSION MEASUREMENT

6.1. TEST INSTRUMENTS

Radiated Emission Test Site (966)				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI Test Receiver	R&S	ESCI	100005	06/25/2024
Spectrum Analyzer	R&S	FSU	100114	06/25/2024
Pre Amplifier	H.P.	HP8447E	2945A02715	06/25/2024
Bilog Antenna	SUNOL Sciences	JB3	A021907	06/25/2024
Cable	TIME MICROWAVE	LMR-400	N-TYPE04	06/22/2024
System-Controller	CCS	N/A	N/A	N.C.R
Turn Table	CCS	N/A	N/A	N.C.R
Antenna Tower	CCS	N/A	N/A	N.C.R

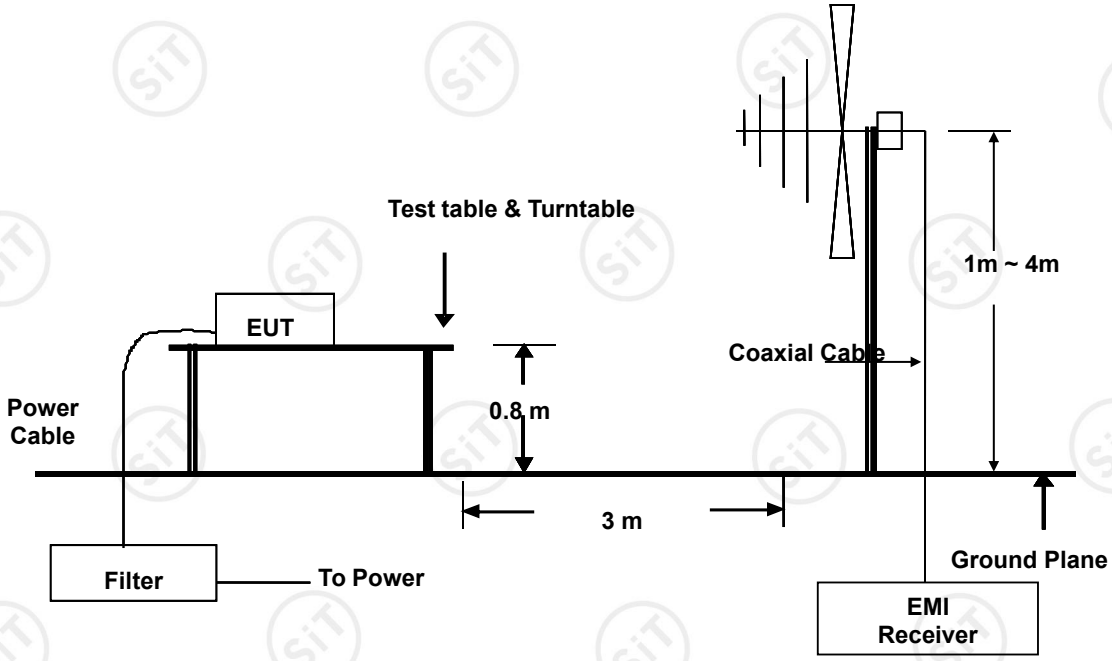
NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

2. N.C.R = No Calibration Request.

6.2. TEST PROCEDURE

Procedure of Preliminary Test

Test is conducting under the description of EN61000-6-3 or CISPR22, Radio disturbance characteristics - Limits and methods of measurement.



6.3 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit. The equation for margin calculation is as follows:

Margin = Corr. Ampl. - EN61000-6-3 Limit

6.4 Environmental Conditions

Temperature:	23° C
Relative Humidity:	53%
ATM Pressure:	1011 mbar

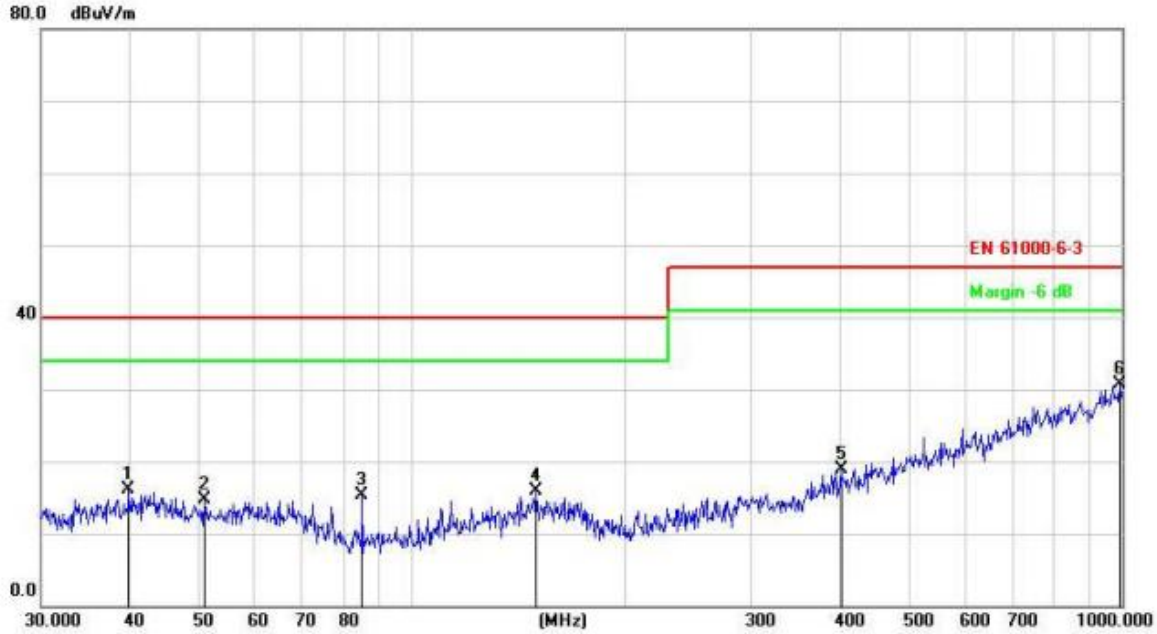
6.5 Summary of Test Results/Plots

According to the data in section 6.5, the EUT complied with the EN 61000-6-3 standards, and had the worst margin is:

-3.88 dBμV at 175.5000 MHz in the, Vertical polarization 30 MHz to 1 GHz, 3Meters

Plot of Radiated Emissions Test Data
EUT: Solar panel
Tested Model: JAX550M
Operating Condition: Normal Working

Radiated Emission Measurement



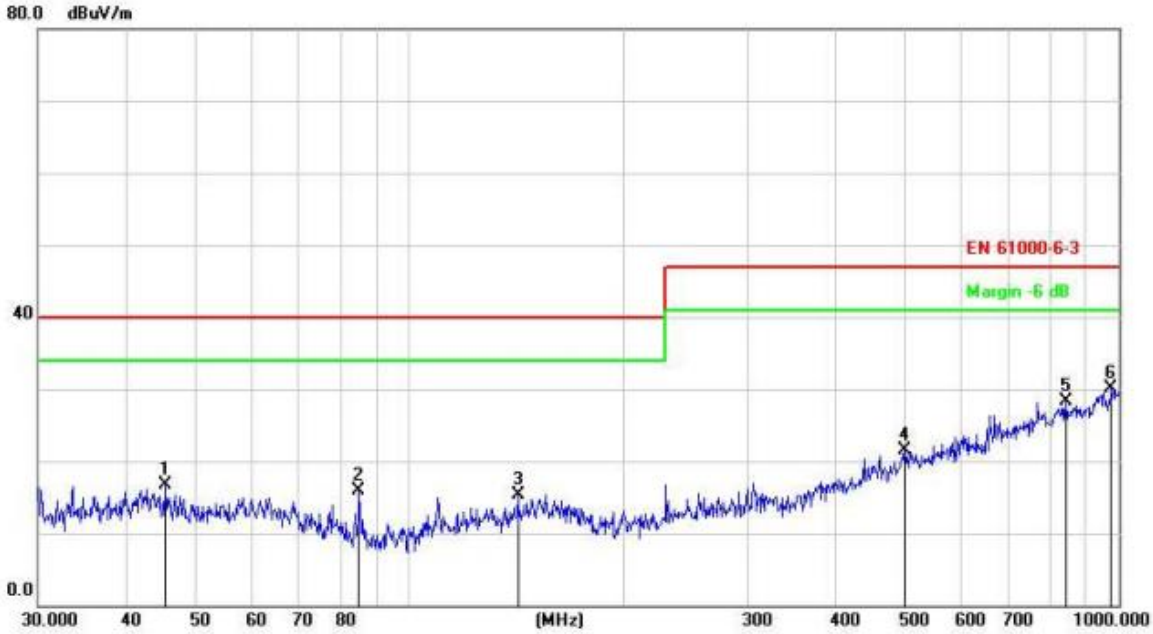
Site LAB
Limit: EN 61000-6-3
EUT: Solar panel
M/N: JAX550M
Mode:
Note:

Polarization: *Horizontal*
Power:
Distance: 3m

Temperature:
Humidity: %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		39.8542	26.25	-10.23	16.02	40.00	-23.98	peak			
2		50.9420	26.08	-11.40	14.68	40.00	-25.32	peak			
3		84.9995	30.81	-15.45	15.36	40.00	-24.64	peak			
4		149.4857	26.46	-10.63	15.83	40.00	-24.17	peak			
5		401.8385	26.86	-7.98	18.88	47.00	-28.12	peak			
6	*	993.0114	26.94	3.74	30.68	47.00	-16.32	peak			

Radiated Emission Measurement



Site LAB
Limit: EN 61000-6-3
EUT: Solar panel
M/N: JAX550M
Mode:
Note:

Polarization: *Vertical*
Power:
Distance: 3m

Temperature:
Humidity: %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		45.3755	27.14	-10.37	16.77	40.00	-23.23	peak			
2		84.9995	31.33	-15.45	15.88	40.00	-24.12	peak			
3		142.3243	26.90	-11.59	15.31	40.00	-24.69	peak			
4		499.4247	26.47	-4.99	21.48	47.00	-25.52	peak			
5		842.1296	27.20	1.03	28.23	47.00	-18.77	peak			
6	*	975.7529	26.56	3.58	30.14	47.00	-16.86	peak			

7 ELECTROSTATIC DISCHARGE (ESD)

7.1. TEST SPECIFICATION

Basic Standard:	EN 61000-4-2
Discharge Impedance:	330 ohm
Charging Capacity:	150pF
Discharge Voltage:	Air Discharge: 8 kV (Direct) Contact Discharge: 4 kV (Direct/Indirect)
Polarity:	Positive & Negative
Number of Discharge:	Minimum 25 times at each test point
Discharge Mode:	1 time/s
Performance Criterion:	B

7.2. TEST INSTRUMENT

IMMUNITY SHIELDED ROOM				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
ESD 2000	EMC PARTNER	ESD2000	182	06/25/2024

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

7.3. TEST PROCEDURE

The discharges shall be applied in two ways:

a) Contact discharges to the conductive surfaces and coupling planes:

The EUT shall be exposed to at least 200 discharges, 100 each at negative and positive polarity, at a minimum of four test points. One of the test points shall be subjected to at least 50 indirect discharges to the center of the front edge of the **H**orizontal **C**oupling **P**lane (**HCP**). The remaining three test points shall each receive at least 50 direct contact discharges. If no direct contact test points are available, then at least 200 indirect discharges shall be applied in the indirect mode. Test shall be performed at a maximum repetition rate of one discharge per second.

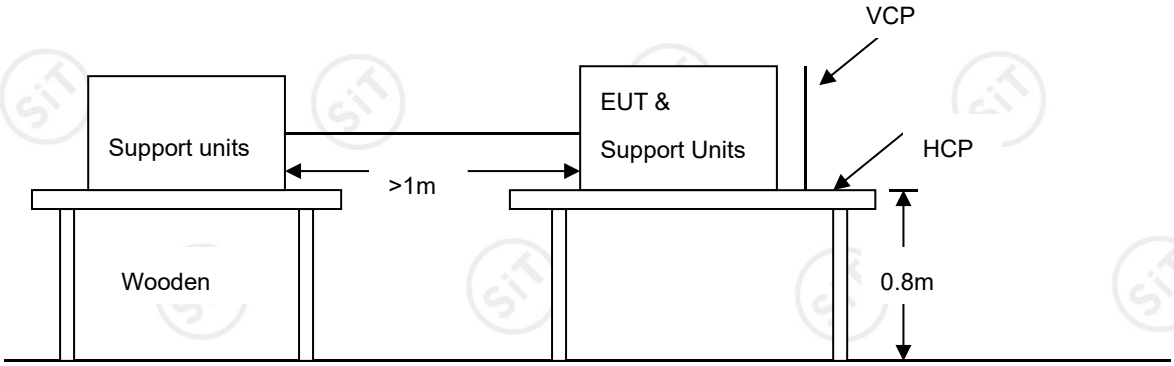
b) Air discharges at slots and apertures and insulating surfaces:

On those parts of the EUT where it is not possible to perform contact discharge testing, the equipment should be investigated to identify user accessible points where breakdown may occur. Such points are tested using the air discharge method. This investigation should be restricted to those area normally handled by the user. A minimum of 10 single air discharges shall be applied to the selected test point for each such area.

The basic test procedure was in accordance with IEC 61000-4-2:

a) The EUT was located 0.1 m minimum from all side of the **HCP** (dimensions 1.6m x 0.8m).
b) The support units were located another table 30 cm away from the EUT, but direct support unit was/were located at same location as EUT on the HCP and keep at a distance of 10 cm with EUT.
c) The time interval between two successive single discharges was at least 1 second.
d) Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.
e) Air discharges were applied with the round discharge tip of the discharge electrode approaching the EUT as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator was removed from the EUT and re-triggered for a new single discharge. The test was repeated until all discharges were complete.
f) At least ten single discharges (in the most sensitive polarity) were applied at the front edge of each **HCP** opposite the center point of each unit of the EUT and 0.1 meters from the front of the EUT. The long axis of the discharge electrode was in the plane of the **HCP** and perpendicular to its front edge during the discharge.
g) At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the **V**ertical **C**oupling **P**lane (**VCP**) in sufficiently different positions that the four faces of the EUT were completely illuminated. The **VCP** (dimensions 0.5m x 0.5m) was placed vertically to and 0.1 meters from the EUT.

7.4. TEST SETUP



Ground Reference

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

NOTE:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table 0.8 meters high standing on the **G**round **R**eference **P**lane. The **GRP** consisted of a sheet of aluminum at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system. A **H**orizontal **C**oupling **P**lane (1.6m x 0.8m) was placed on the table and attached to the **GRP** by means of a cable with 940k total impedance. The equipment under test, was installed in a representative system as described in section 7 of EN 61000-4-2, and its cables were placed on the **HCP** and isolated by an insulating support of 0.5mm thickness. A distance of 1-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

FLOOR-STANDING EQUIPMENT

The equipment under test was installed in a representative system as described in section 7 of IEC 61000-4-2, and its cables were isolated from the Ground Reference Plane by an insulating support of 0.1-meter thickness. The GRP consisted of a sheet of aluminum that is at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system and extended at least 0.5 meters from the EUT on all sides.

7.5. TEST RESULTS

Temperature:	25°C	**Humidity**	55% RH
Pressure	996mbar	**Test result**	Pass
Test mode	Normal Working	**Test By**	Debe Yu

Air Discharge						
Test locations		**Test Levels**	**Results**			
		± 8 kV	**Pass**	**Fail**	**Performance Criterion**	**Observation**
Button and Top	2Points	☒	☒	☐	**B**	**Note ☐ 1 ☒ 2**

Contact Discharge						
Test Points		**Test Levels**	**Results**			
		± 4 kV	**Pass**	**Fail**	**Performance Criterion**	**Observation**
HCP	2Points	☒	☒	☐	**B**	**Note ☐ 1 ☒ 2**
VCP	2Points	☒	☒	☐	**B**	**Note ☐ 1 ☒ 2**

NOTE: 1. There was no change compared with initial operation during the test.
2. The loss of function of the EUT during the test and it was recovered by itself operation after the test.

8 CONTINUOUS RADIATED DISTURBANCES (R/S)

8.1. TEST SPECIFICATION

Basic Standard:	EN IEC 61000-4-3
Frequency Range:	80 MHz ~1000 MHz,
Field Strength:	3 V/m
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of preceding frequency value
Polarity of Antenna:	Horizontal and Vertical
Test Distance:	3 m
Antenna Height:	1.5m
Performance Criterion:	A

-

8.2. TEST INSTRUMENT

743 RS Chamber				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Signal Generator	Maconi	2022D	119246/003	06/22/2024
Power Amplifier	M2S	A00181-1000	9801-112	06/22/2024
Power Amplifier	M2S	AC8113/ 800-250A	9801-179	06/22/2024
Power Antenna	SCHAFFNER	CBL6140A	1204	06/22/2024

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).
2. N.C.R.= No Calibration required

8.3. TEST PROCEDURE

The test procedure was in accordance with EN IEC 61000-4-3

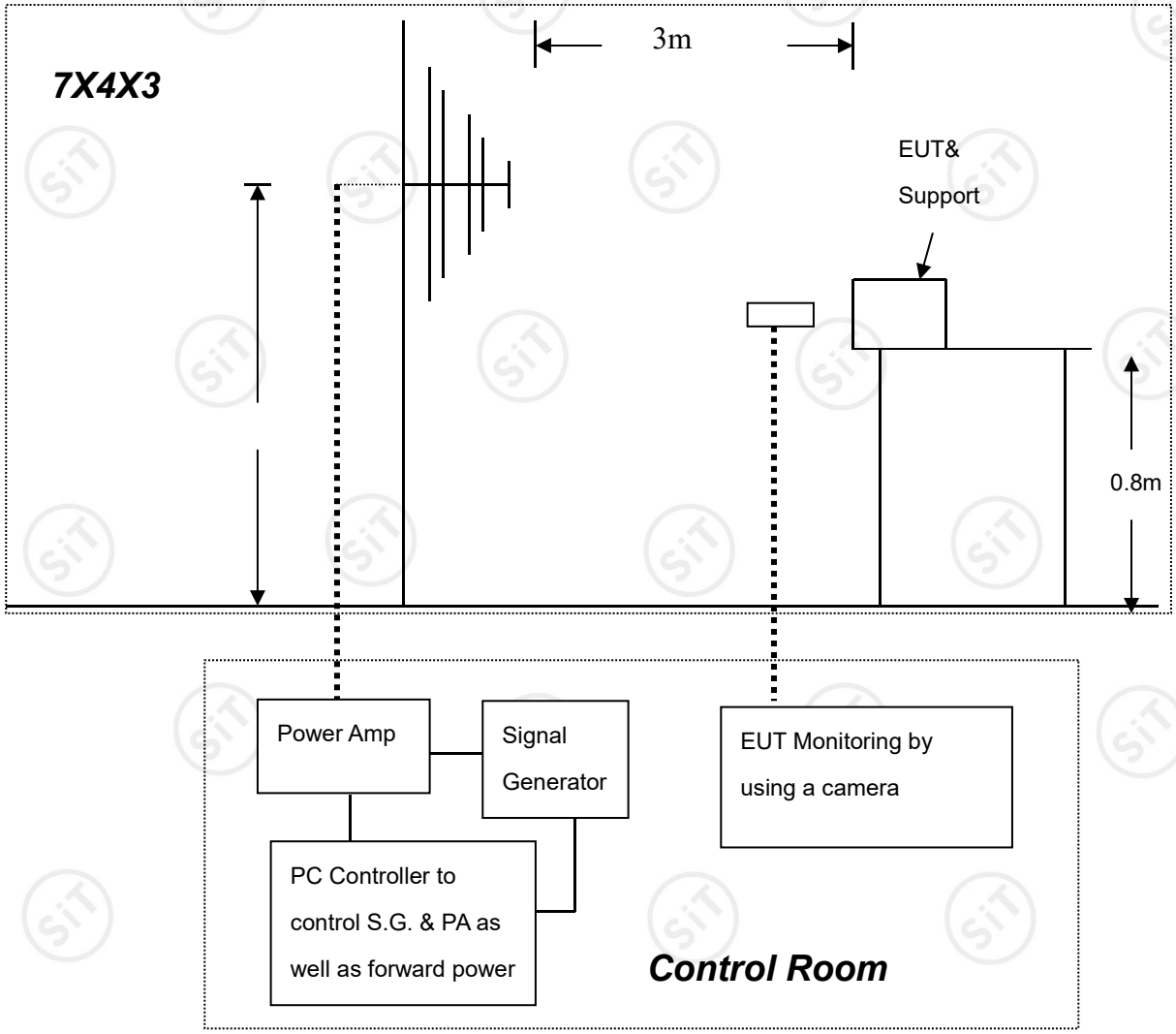
a) The testing was performed in a fully anechoic chamber. The transmit antenna was located at a distance of 3 meters from the EUT.

b) The frequency range is swept from 80 MHz to 1000 MHz, with the signal 80% amplitude modulated with a 1 kHz sine-wave. The rate of sweep did not exceed 1.5×10^{-3} decade/s, where the frequency range is swept incrementally, the step size was 1% of preceding frequency value.

c) The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.

d) The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

8.4. TEST SETUP



For the actual test configuration, please refer to the related item.

NOTE:

TABLETOP EQUIPMENT

The EUT installed in a representative system as described in section 7 of EN IEC 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

FLOOR STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

8.5. TEST RESULTS

Temperature:	25°C	Humidity	55% RH
Pressure	996mbar	Test result	Pass
Test mode	Normal Working	Test By	DebeYu

Frequency Range(MHz)	Field (V/m)	Front		Rear		Left		Right	
		VERT	HORI	VERT	HORI	VERT	HORI	VERT	HORI
80-1000	3	A	A	A	A	A	A	A	A
1400-2000	3	A	A	A	A	A	A	A	A
2000-2700	1	A	A	A	A	A	A	A	A

NOTE: 1.There was no change compared with the initial operation during the test.
2. This item is tested by Shenzhen Aacademy of Metrology & Quality Inspection

9 PHOTOGRAPHS OF EUT

Appearance photograph of EUT



Appearance photograph of EUT



******THE END******