



## EMC TEST REPORT

For

**Shanghai Yanlan Automation Technology Co., Ltd**

DC servo motor

Test Model: EC25

Serial models: EC40, EC60, EC80, EC110

**Prepared for : Shanghai Yanlan Automation Technology Co., Ltd**

Address : 5th Floor, No.1 Dongchen South Road, Minhang District, Shanghai

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Date of receipt of test sample : September 19 2025

Date of Test : September 19 2025 ~ October 16 2025

Date of Report : October 16 2025

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**EMC TEST REPORT**

EN IEC 61000-6-1: 2019  
EN IEC 61000-6-3: 2021  
EN IEC 61000-3-2: 2019+ A1: 2021  
EN 61000-3-3: 2013+ A1: 2019+ A2: 2021

Report Reference No. .... : **STE09302504E**

Date Of Issue..... : October 16 2025

Testing Laboratory Name..... : **Shenzhen STE Testing Laboratory Co., Ltd**

Testing Location/ Address..... : 3/F, Building 9, Hongde Factory, No. 63 Yuchang Road, Niuhe Community, Guanlan Street, Longhua District, Shenzhen, China, China

Applicant's Name..... : **Shanghai Yanlan Automation Technology Co., Ltd**

Address..... : 5th Floor, No.1 Dongchen South Road, Minhang District, Shanghai

Manufacturer's Name..... : **Shanghai Yanlan Automation Technology Co., Ltd**

Address..... : 5th Floor, No.1 Dongchen South Road, Minhang District, Shanghai

**Test Specification:**

Standard..... : EN IEC 61000-6-1: 2019;  
EN IEC 61000-6-3: 2021;  
EN IEC 61000-3-2: 2019+ A1: 2021;  
EN 61000-3-3: 2013+ A1: 2019+ A2: 2021

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Trade Mark..... : YANLANMC

Test Model..... : EC25

Serial Models..... : EC40, EC60, EC80, EC110

Ratings..... : 48VDC, 100W

Result ..... : **Pass**

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Fly / Manager

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# 1. SUMMARY OF STANDARDS AND RESULTS

## 1.1 Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

| EMISSION TESTS (EN IEC 61000-6-3: 2021)           |                                        |                      |         |
|---------------------------------------------------|----------------------------------------|----------------------|---------|
| Description of Test Item                          | Standard                               | Limits               | Results |
| Conducted disturbance                             | EN IEC 61000-6-3: 2021                 | Class B              | N/A     |
| Radiated disturbance                              | EN IEC 61000-6-3: 2021                 | Class B              | PASS    |
| Harmonic current emissions                        | EN IEC 61000-3-2: 2019+ A1: 2021       | Class A              | N/A     |
| Voltage fluctuations & flicker                    | EN 61000-3-3: 2013+ A1: 2019+ A2: 2021 | --                   | N/A     |
| IMMUNITY TESTS (EN IEC 61000-6-1: 2019)           |                                        |                      |         |
| Description of Test Item                          | Basic Standard                         | Performance Criteria | Results |
| Electrostatic discharge (ESD)                     | EN 61000-4-2: 2009                     | B                    | PASS    |
| Radio-frequency, Continuous radiated disturbance  | EN IEC 61000-4-3: 2020                 | A                    | PASS    |
| Electrical fast transient (EFT)                   | EN 61000-4-4: 2012                     | B                    | N/A     |
| Surge (Input a.c. power ports)                    | EN 61000-4-5: 2014+ A1: 2017           | B                    | N/A     |
| Surge (Telecommunication ports)                   |                                        | B                    | N/A     |
| Radio-frequency, Continuous conducted disturbance | EN 61000-4-6: 2018                     | A                    | N/A     |
| Power frequency magnetic field                    | EN 61000-4-8: 2010                     | A                    | PASS    |
| Voltage dips, >95% reduction                      | EN IEC 61000-4-11: 2020                | B                    | N/A     |
| Voltage dips, 30% reduction                       |                                        | C                    | N/A     |
| Voltage interruptions                             |                                        | C                    | N/A     |
| N/A is an abbreviation for Not Applicable.        |                                        |                      |         |

## 1.2 Description of Performance Criteria

### General Performance Criteria

Examples of functions defined by the manufacturer to be evaluated during testing include, but are not limited to, the following:

- essential operational modes and states;
- tests of all peripheral access (hard disks, floppy disks, printers, keyboard, mouse, etc.);
- quality of software execution;
- quality of data display and transmission;
- quality of speech transmission.

#### 1.2.1 Performance criterion A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacture when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. 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 by what the user may reasonably expect from the equipment if used as intended.

#### 1.2.2 Performance criterion B

After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacture, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.

During the test, degradation of performance is allowed. However, no change of operation state or stored data is allowed to persist after the 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 by what the user may reasonably expect from the equipment if used as intended.

#### 1.2.3 Performance criterion C

Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacture's instructions.

Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

## 2. GENERAL INFORMATION

### 2.1 Description of Device (EUT)

EUT : DC servo motor

Trade mark : YANLANMC

Test Model : EC25

Serial Model No. : EC40, EC60, EC80, EC110

Model Difference : All models are same except the appearance.  
The laboratory only tests and evaluates the main model. Adding models haven't been tested, but only based on the guarantee letter provided by the Applicant. STE takes no responsibility for any mistakes and the problems of product consistency caused by inaccurate and/or invalid information submitted by the client. The Applicant will take the responsibility of all discrepancy and risk.

Power Supply : 48VDC, 100W

| Highest internal frequency (Fx)                                                                                                                               | Highest measured frequency      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| Fx ≤ 108 MHz                                                                                                                                                  | 1 GHz                           |
| 108 MHz < Fx ≤ 500 MHz                                                                                                                                        | 2 GHz                           |
| 500 MHz < Fx ≤ 1 GHz                                                                                                                                          | 5 GHz                           |
| Fx > 1 GHz                                                                                                                                                    | 5 × Fx up to a maximum of 6 GHz |
| NOTE 1 For FM and TV broadcast receivers, Fx is determined from the highest frequency generated or used excluding the local oscillator and tuned frequencies. |                                 |

Where Fx is unknown, the radiated emission measurements shall be performed up to 6 GHz.

## 2.2 Description of Test Modes

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

| Pretest Mode | Description    |
|--------------|----------------|
| Mode 1       | Normal Working |

| For Conducted Test |                |
|--------------------|----------------|
| Final Test Mode    | Description    |
| Mode 1             | Normal Working |

| For Radiated Test |                |
|-------------------|----------------|
| Final Test Mode   | Description    |
| Mode 1            | Normal Working |

| For EMS Test    |                |
|-----------------|----------------|
| Final Test Mode | Description    |
| Mode 1          | Normal Working |

## 2.3 Description of Test Setup

Mode 1:

E-1  
EUT

## 2.4 Description Test Peripheral and EUT Peripheral

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| Item | Equipment      | Mfr/Brand | Model/Type No. | Series No. | Note |
|------|----------------|-----------|----------------|------------|------|
| E-1  | DC servo motor | N/A       | EC25           | N/A        | EUT  |
|      |                |           |                |            |      |
|      |                |           |                |            |      |
|      |                |           |                |            |      |
|      |                |           |                |            |      |
|      |                |           |                |            |      |
|      |                |           |                |            |      |
|      |                |           |                |            |      |

| Item | Shielded Type | Ferrite Core | Length | Note |
|------|---------------|--------------|--------|------|
|      |               |              |        |      |
|      |               |              |        |      |
|      |               |              |        |      |
|      |               |              |        |      |
|      |               |              |        |      |
|      |               |              |        |      |
|      |               |              |        |      |
|      |               |              |        |      |
|      |               |              |        |      |
|      |               |              |        |      |

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) “YES” means “shielded” “with core”; “NO” means “unshielded” “without core”.

## 2.5 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc.

To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the STE quality system according to ISO/ IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

## 2.6 Measurement Uncertainty

| Test Item                                  | Frequency Range                                         | Expanded uncertainty (Ulab)    | Expanded uncertainty (Ucisp) |
|--------------------------------------------|---------------------------------------------------------|--------------------------------|------------------------------|
| Conducted Emission                         | Level accuracy<br>(9kHz to 150kHz)<br>(150kHz to 30MHz) | $\pm 2.63$ dB<br>$\pm 2.35$ dB | $\pm 3.8$ dB<br>$\pm 3.4$ dB |
| Power disturbance                          | Level accuracy<br>(30MHz to 300MHz)                     | $\pm 2.90$ dB                  | $\pm 4.5$ dB                 |
| Electromagnetic Radiated Emission (3-loop) | Level accuracy<br>(9kHz to 30MHz)                       | $\pm 3.60$ dB                  | $\pm 3.3$ dB                 |
| Radiated Emission                          | Level accuracy<br>(9kHz to 30MHz)                       | $\pm 3.68$ dB                  | N/A                          |
| Radiated Emission                          | Level accuracy<br>(30MHz to 1000MHz)                    | $\pm 3.48$ dB                  | $\pm 5.3$ dB                 |
| Radiated Emission                          | Level accuracy<br>(above 1000MHz)                       | $\pm 3.90$ dB                  | $\pm 5.2$ dB                 |
| Mains Harmonic                             | Voltage                                                 | $\pm 0.510\%$                  | N/A                          |
| Voltage Fluctuations & Flicker             | Voltage                                                 | $\pm 0.510\%$                  | N/A                          |
| EMF                                        | --                                                      | $\pm 21.59\%$                  | N/A                          |

- (1) Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.
- (2) The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.

### 3. MEASURING DEVICE AND TEST EQUIPMENT

#### 3.1 Conducted Disturbance

| Item | Test equipment    | Manufacturer | Model No.   | Serial No.      | Cal Date   | Due Date   |
|------|-------------------|--------------|-------------|-----------------|------------|------------|
| 1    | EMI Test Software | EZ           | EZ-EMC      | /               | 2025-01-09 | 2026-01-08 |
| 2    | EMI Test Receiver | R&S          | ESPI        | 101840          | 2025-01-09 | 2026-01-08 |
| 3    | Artificial Mains  | R&S          | ENV216      | 101288          | 2025-01-09 | 2026-01-08 |
| 4    | 10dB Attenuator   | SCHWARZBECK  | MTS-IMP-136 | 261115-001-0032 | /          | /          |
| 5    | ISN               | TESEQ        | T800        | 45130           | 2025-01-09 | 2026-01-08 |

#### 3.2 Radiated Disturbance (Electric Field)

| Item | Test equipment           | Manufacturer   | Model No.    | Serial No.  | Cal Date   | Due Date   |
|------|--------------------------|----------------|--------------|-------------|------------|------------|
| 1    | EMI Test Software        | EZ             | EZ-EMC       | /           | 2025-01-09 | 2026-01-08 |
| 2    | 3m Semi Anechoic Chamber | SIDT FRANKONIA | SAC-3M       | 03CH03-HY   | 2025-01-09 | 2026-01-08 |
| 3    | Positioning Controller   | MF             | MF-7082      | /           | 2025-01-09 | 2026-01-08 |
| 4    | By-log Antenna           | SCHWARZBECK    | VULB9163     | 9163-470    | /          | /          |
| 5    | Horn Antenna             | SCHWARZBECK    | BBHA 9120D   | 9120D-1925  | 2025-01-09 | 2026-01-08 |
| 6    | EMI Test Receiver        | R&S            | ESR 7        | 101181      | 2025-01-09 | 2026-01-08 |
| 7    | RS SPECTRUM ANALYZER     | R&S            | FSP40        | 100503      | 2025-01-09 | 2026-01-08 |
| 8    | AMPLIFIER                | QuieTek        | QTK          | CHM/0809065 | 2025-01-09 | 2026-01-08 |
| 9    | RF Cable-R03m            | Jye Bao        | RG142        | CB021       | 2025-01-09 | 2026-01-08 |
| 10   | RF Cable-HIGH            | SUHNER         | SUCOFLEX 106 | 03CH03-HY   | 2025-01-09 | 2026-01-08 |

#### 3.3 Harmonic Current

| Item | Test equipment             | Manufacturer | Model No. | Serial No.  | Cal Date   | Due Date   |
|------|----------------------------|--------------|-----------|-------------|------------|------------|
| 1    | Power Analyzer Test System | Everfine     | HFM3000   | 20000670053 | 2025-01-09 | 2026-01-08 |

#### 3.4 Voltage fluctuation and Flicker

| Item | Test equipment             | Manufacturer | Model No. | Serial No.  | Cal Date   | Due Date   |
|------|----------------------------|--------------|-----------|-------------|------------|------------|
| 1    | Power Analyzer Test System | Voltech      | PM6000    | 20000670053 | 2025-01-09 | 2026-01-08 |

#### 3.5 Electrostatic Discharge

| Item | Test equipment | Manufacturer | Model No. | Serial No. | Cal Date   | Due Date   |
|------|----------------|--------------|-----------|------------|------------|------------|
| 1    | ESD Simulator  | TESEQ        | NSG 437   | 1615       | 2025-01-09 | 2026-01-08 |

### 3.6 RF Field Strength Susceptibility

| Item | Test equipment                         | Manufacturer    | Model No. | Serial No. | Cal Date   | Due Date   |
|------|----------------------------------------|-----------------|-----------|------------|------------|------------|
| 1    | RS Test Software                       | Tonscend        | /         | /          | 2025-01-09 | 2026-01-08 |
| 2    | ESG Vector Signal Generator            | Agilent         | E4438C    | MY42081396 | 2025-01-09 | 2026-01-08 |
| 3    | 3m Semi Anechoic Chamber               | SIDT FRANKONIA  | SAC-3M    | 03CH03-HY  | 2025-01-09 | 2026-01-08 |
| 4    | RF POWER AMPLIFIER                     | OPHIR           | 5225R     | 1052       | 2025-01-09 | 2026-01-08 |
| 5    | RF POWER AMPLIFIER                     | OPHIR           | 5273F     | 1019       | 2025-01-09 | 2026-01-08 |
| 6    | Stacked Broadband Log Periodic Antenna | SCHWARZBECK     | STLP 9128 | 9128ES-145 | 2025-01-09 | 2026-01-08 |
| 7    | Stacked Mikrowellen Log.-Per Antenna   | SCHWARZBECK     | STLP 9149 | 9149-484   | 2025-01-09 | 2026-01-08 |
| 8    | Electric field probe                   | Narda S.TS./PMM | EP601     | 611WX80208 | 2025-01-09 | 2026-01-08 |

### 3.7 Electrical Fast Transient/ Burst

| Item | Test equipment    | Manufacturer | Model No.  | Serial No. | Cal Date   | Due Date   |
|------|-------------------|--------------|------------|------------|------------|------------|
| 1    | Surge test system | EM test      | UCS 500 M4 | 0101-34    | 2025-01-09 | 2026-01-08 |

### 3.8 Surge

| Item | Test equipment    | Manufacturer | Model No.  | Serial No. | Cal Date   | Due Date   |
|------|-------------------|--------------|------------|------------|------------|------------|
| 1    | Surge test system | EM test      | UCS 500 M4 | 0101-34    | 2025-01-09 | 2026-01-08 |

### 3.9 Conducted Susceptibility

| Item | Test equipment | Manufacturer | Model No. | Serial No. | Cal Date   | Due Date   |
|------|----------------|--------------|-----------|------------|------------|------------|
| 1    | Simulator      | FRANKONIA    | CIT-10/75 | A126A1195  | 2025-01-09 | 2026-01-08 |
| 2    | CDN            | FRANKONIA    | CDN-M2+M3 | A2210177   | 2025-01-09 | 2026-01-08 |
| 3    | 6dB Attenuator | FRANKONIA    | DAM25W    | 1172040    | 2025-01-09 | 2026-01-08 |

### 3.10 Voltage Dips

| Item | Test equipment                | Manufacturer | Model No. | Serial No. | Cal Date   | Due Date   |
|------|-------------------------------|--------------|-----------|------------|------------|------------|
| 1    | Voltage dips and up generator | 3CTEST       | VDG-1105G | EC0171014  | 2025-01-09 | 2026-01-08 |

### 3.11 Voltage Short Interruptions

| Item | Test equipment                | Manufacturer | Model No. | Serial No. | Cal Date   | Due Date   |
|------|-------------------------------|--------------|-----------|------------|------------|------------|
| 1    | Voltage dips and up generator | 3CTEST       | VDG-1105G | EC0171014  | 2025-01-09 | 2026-01-08 |

## 3.12 Power Frequency Magnetic Field Susceptibility

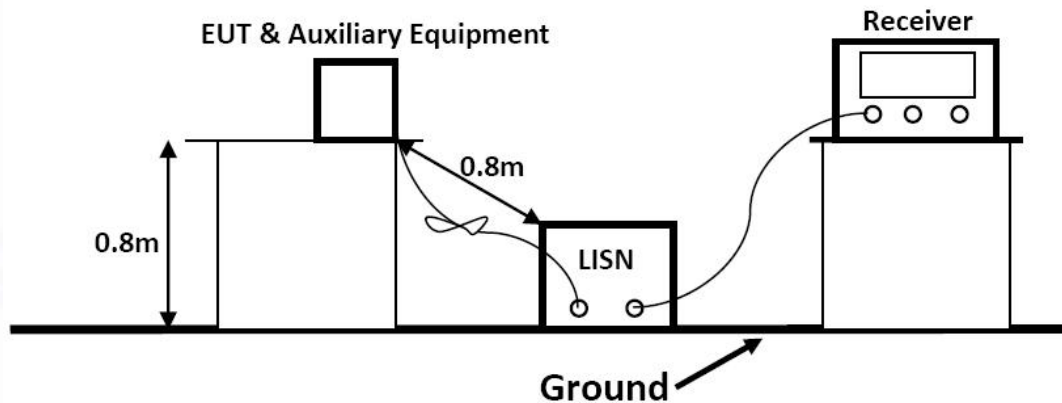
| Item | Test equipment | Manufacturer | Model No. | Serial No.  | Cal Date   | Due Date   |
|------|----------------|--------------|-----------|-------------|------------|------------|
| 1    | Simulator      | FRANKONIA    | CIT-10    | A126A1195   | 2025-01-09 | 2026-01-08 |
| 2    | CDN            | FRANKONIA    | CDN-M2    | 5100100100  | 2025-01-09 | 2026-01-08 |
| 3    | CDN            | FRANKONIA    | CDN-M3    | 0900-11     | 2025-01-09 | 2026-01-08 |
| 4    | Attenuator     | FRANKONIA    | ATT6      | 0010222A    | 2025-01-09 | 2026-01-08 |
| 5    | Infuse tongs   | EMTEST       | EM-Clamp  | 0513A031201 | 2025-01-09 | 2026-01-08 |



## 4. EMISSION TESTS

### 4.1 Conducted Emission Measurement

#### 4.1.1 Block Diagram of Test Setup



#### 4.1.2 Measuring Standard

EN IEC 61000-6-3: 2021 class B

#### 4.1.3 Conducted Emission Limits

##### 1, POWER LINE CONDUCTED EMISSION (Frequency Range 150KHz-30MHz)

| FREQUENCY (MHz) | □ Class A  |         | ☒ Class B  |           |
|-----------------|------------|---------|------------|-----------|
|                 | Quasi-peak | Average | Quasi-peak | Average   |
| 0.15 -0.5       | 79.00      | 66.00   | 66 - 56 *  | 56 - 46 * |
| 0.50 -5.0       | 73.00      | 60.00   | 56.00      | 46.00     |
| 5.0 -30.0       | 73.00      | 60.00   | 60.00      | 50.00     |

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

##### 2, TELECOMMUNICATION PORT CONDUCTED EMISSION(VOLTAGE LIMITS)

(Frequency Range 150KHz-30MHz)

| FREQUENCY (MHz) | □ Class A (at 3m) dBuV/m |           | ☒ Class B (at 3m) dBuV/m |           |
|-----------------|--------------------------|-----------|--------------------------|-----------|
|                 | Peak                     | Avg       | Peak                     | Avg       |
| 0.15 -0.5       | 97 - 87 *                | 84 - 74 * | 84 - 74 *                | 74 - 64 * |
| 0.5 -30.0       | 87.00                    | 74.00     | 74.00                    | 64.00     |

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.
- (3) When the EUT has the telecommunication terminal, this test is performed.

The following table is the setting of the receiver

| Receiver Parameters | Setting  |
|---------------------|----------|
| Attenuation         | 10 dB    |
| Start Frequency     | 0.15 MHz |
| Stop Frequency      | 30 MHz   |
| IF Bandwidth        | 9 kHz    |

#### 4.1.4 EUT Configuration on Test

The following equipments are installed on Power Line Conducted Emission Measurement to meet the EN 61000-6-4 requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

#### 4.1.5 Operating Condition of EUT

1. Setup the EUT as shown on Section 4.1.1
2. Turn on the power of all equipments.
3. Let the EUT work in measuring Mode 1 and measure it.

#### 4.1.6 Test Procedure

All the scanning waveform is in next page.

The EUT is put on the plane 0.8m high above the ground by insulating support and connected to the AC mains through Line Impedance Stability Network (L.I.S.N). This provided 50-ohm coupling impedance for the tested equipments. Both sides of AC line are investigated to find out the maximum conducted emission according to the EN 61000-6-4 regulations during conducted emission measurement.

The bandwidth of the field strength meter is set at 9kHz in 150kHz~30MHz.  
The frequency range from 150kHz to 30MHz is investigated.

#### 4.1.7 Test Results

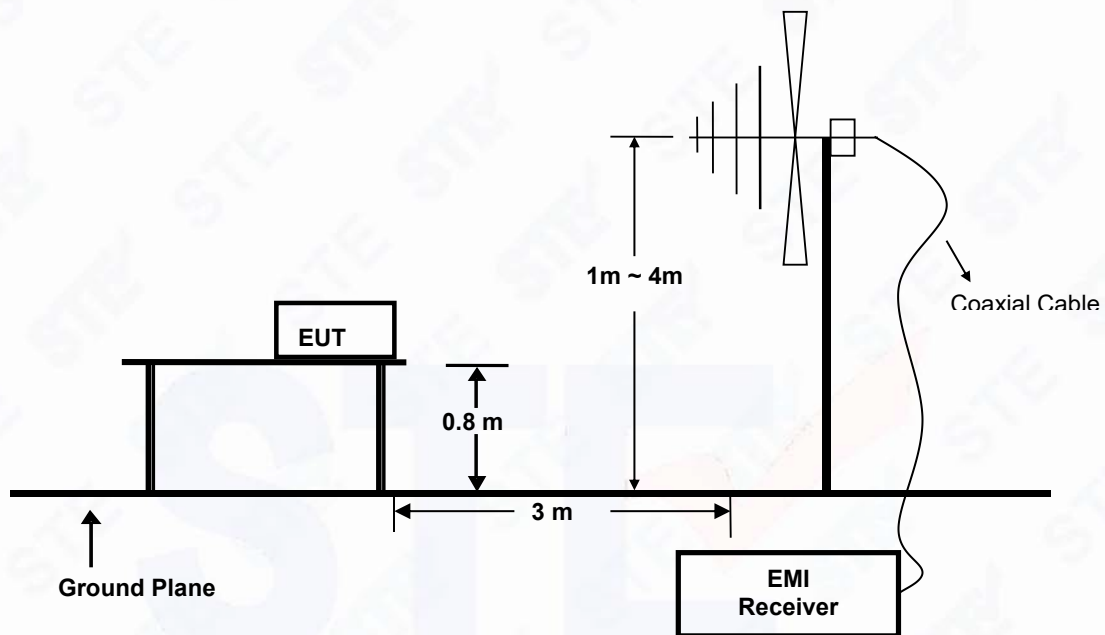
**N/A**

The product (EUT) is DC supplied. Not appliance.

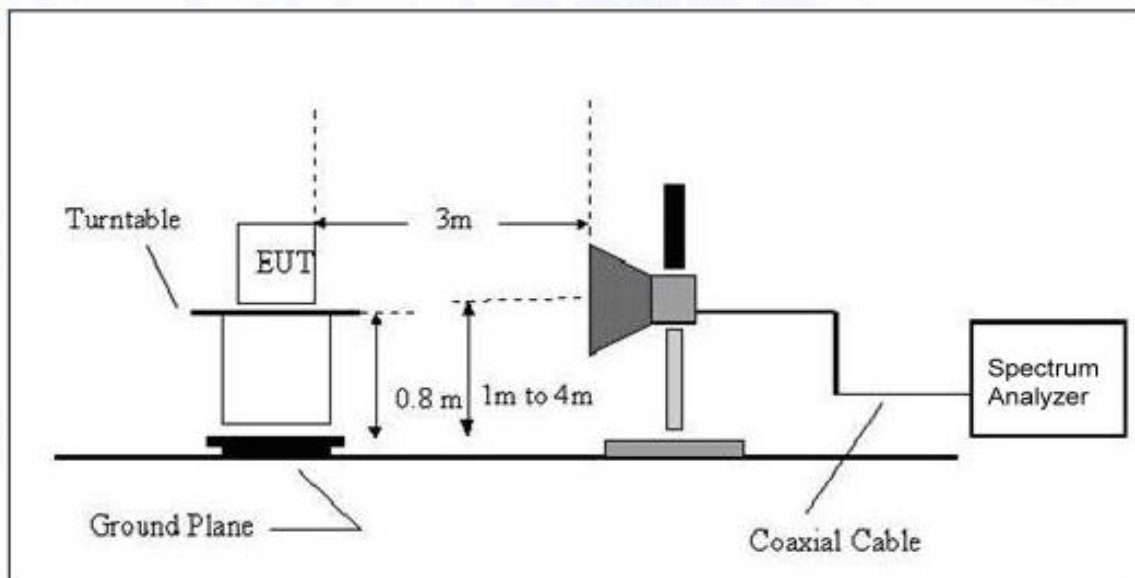
## 4.2 Radiated emission measurement

### 4.2.1 Block Diagram of Test Setup

1, Below 1 GHz



2, Above 1 GHz



#### 4.2.2 Measuring Standard

EN IEC 61000-6-3: 2021

#### 4.2.3 Radiated Emission Limits

All emanations from a class device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

##### 1, LIMITS OF RADIATED EMISSION MEASUREMENT (Below 1000MHz)

| FREQUENCY (MHz) | <input type="checkbox"/> Class A |        | <input checked="" type="checkbox"/> Class B |        |
|-----------------|----------------------------------|--------|---------------------------------------------|--------|
|                 | At 10m                           | At 3m  | At 10m                                      | At 3m  |
|                 | dBuV/m                           | dBuV/m | dBuV/m                                      | dBuV/m |
| 30 – 230        | 40                               | 50     | 30                                          | 40     |
| 230 – 1000      | 47                               | 57     | 37                                          | 47     |

##### 2, LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

| FREQUENCY (MHz) | <input type="checkbox"/> Class A (at 3m) dBuV/m |     | <input checked="" type="checkbox"/> Class B (at 3m) dBuV/m |     |
|-----------------|-------------------------------------------------|-----|------------------------------------------------------------|-----|
|                 | Peak                                            | Avg | Peak                                                       | Avg |
| 1000-3000       | 76                                              | 56  | 70                                                         | 50  |
| 3000-6000       | 80                                              | 60  | 74                                                         | 54  |

- Note: (1) The smaller limit shall apply at the combination point between two frequency bands.  
(2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT.

#### 4.2.4 EUT Configuration on Test

The EN IEC 61000-6-3: 2021 regulations test method must be used to find the maximum emission during radiated emission measurement.

#### 4.2.5 Operating Condition of EUT

- 1.Turn on the power.
- 2.Let the EUT work in test mode and measure it.

#### 4.2.6 Test Procedure

The EUT is placed on a turntable, which is 0.8 meter high above the ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. By-log antenna (calibrated by Dipole Antenna) is used as a receiving antenna. Both horizontal and vertical polarization of the

antenna is set on test.

The bandwidth of the Receiver is set at 120kHz.

All the scanning waveform is in next page.

#### 4.2.7 Test Results

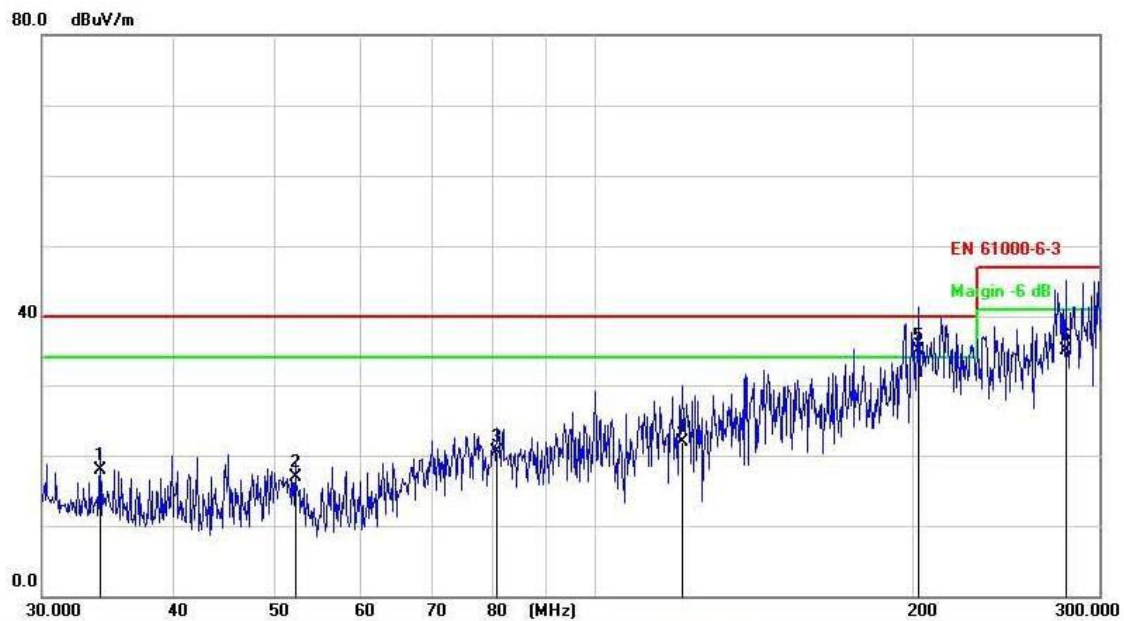
**PASS.**

The scanning waveforms are in the next page.



#### 4.2.8 TEST RESULTS (Below 300MHz)

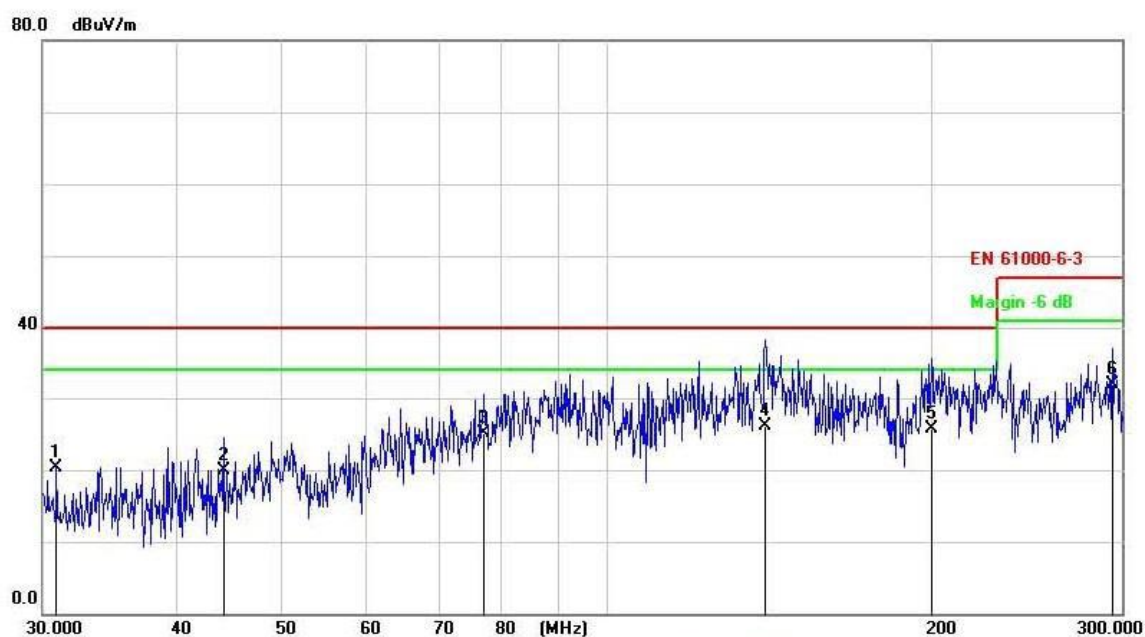
|                           |                  |                    |            |
|---------------------------|------------------|--------------------|------------|
| Model No. (M/N):          | EC25             | Test Mode:         | Mode 1     |
| Environmental Conditions: | 22.5°C, 57.5% RH | Detector Function: | Quasi-peak |
| Distance:                 | 3m               | Polarization:      | Vertical   |
| Test Engineer:            | Feng Liang       | Test Voltage:      | 48VDC      |



Site LAB Polarization: **Vertical** Temperature: 24.5  
Limit: EN 61000-6-3 Power: Humidity: 55.3 %

| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dB/m | Over<br>dB | Detector | Antenna<br>Height<br>cm | Table<br>Degree<br>degree | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|---------------|------------|----------|-------------------------|---------------------------|---------|
| 1   |     | 34.0503      | 4.26                     | 13.74                   | 18.00                      | 40.00         | -22.00     | QP       |                         |                           |         |
| 2   |     | 52.1340      | 6.38                     | 10.62                   | 17.00                      | 40.00         | -23.00     | QP       |                         |                           |         |
| 3   |     | 80.7460      | 10.65                    | 9.85                    | 20.50                      | 40.00         | -19.50     | QP       |                         |                           |         |
| 4   |     | 121.0936     | 10.37                    | 11.63                   | 22.00                      | 40.00         | -18.00     | QP       |                         |                           |         |
| 5   | *   | 202.3584     | 19.18                    | 15.82                   | 35.00                      | 40.00         | -5.00      | QP       |                         |                           |         |
| 6   |     | 278.6899     | 15.85                    | 19.15                   | 35.00                      | 47.00         | -12.00     | QP       |                         |                           |         |

|                           |                  |                    |            |
|---------------------------|------------------|--------------------|------------|
| Model No. (M/N):          | EC25             | Test Mode:         | Mode 1     |
| Environmental Conditions: | 22.5°C, 57.5% RH | Detector Function: | Quasi-peak |
| Distance:                 | 3m               | Polarization:      | Horizontal |
| Test Engineer:            | Feng Liang       | Test Voltage:      | 48VDC      |

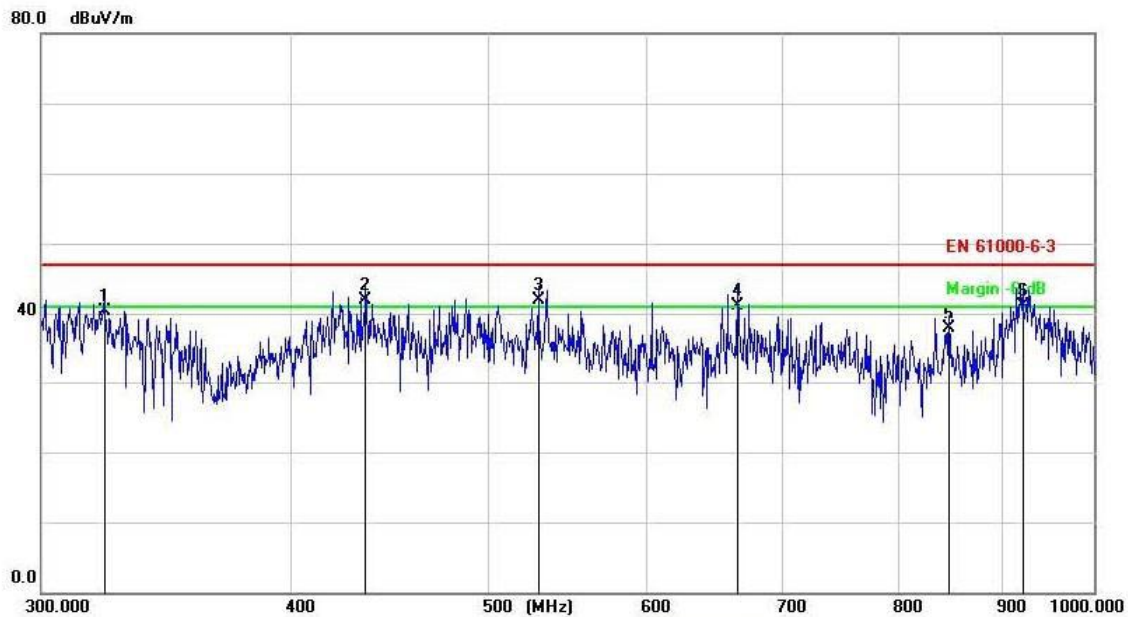


Site LAB Polarization: **Horizontal** Temperature: 24.5  
Limit: EN 61000-6-3 Power: Humidity: 55.3 %

| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dB/m | Over<br>dB | Antenna<br>Height<br>cm | Table<br>Degree<br>degree | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|---------------|------------|-------------------------|---------------------------|---------|
| 1   |     | 30.9116      | 5.62                     | 14.78                   | 20.40                      | 40.00         | -19.60     | QP                      |                           |         |
| 2   |     | 44.1693      | 8.29                     | 11.71                   | 20.00                      | 40.00         | -20.00     | QP                      |                           |         |
| 3   |     | 76.9345      | 15.24                    | 9.86                    | 25.10                      | 40.00         | -14.90     | QP                      |                           |         |
| 4   | *   | 140.3204     | 13.52                    | 12.68                   | 26.20                      | 40.00         | -13.80     | QP                      |                           |         |
| 5   |     | 199.5819     | 10.09                    | 15.71                   | 25.80                      | 40.00         | -14.20     | QP                      |                           |         |
| 6   |     | 293.8470     | 11.53                    | 20.47                   | 32.00                      | 47.00         | -15.00     | QP                      |                           |         |

#### 4.2.9 TEST RESULTS (300-1000MHz)

|                           |                  |                    |            |
|---------------------------|------------------|--------------------|------------|
| Model No. (M/N):          | EC25             | Test Mode:         | Mode 1     |
| Environmental Conditions: | 22.5°C, 57.5% RH | Detector Function: | Quasi-peak |
| Distance:                 | 3m               | Polarization:      | Vertical   |
| Test Engineer:            | Feng Liang       | Test Voltage:      | 48VDC      |



Site LAB

Polarization: **Vertical**

Temperature: 24.5

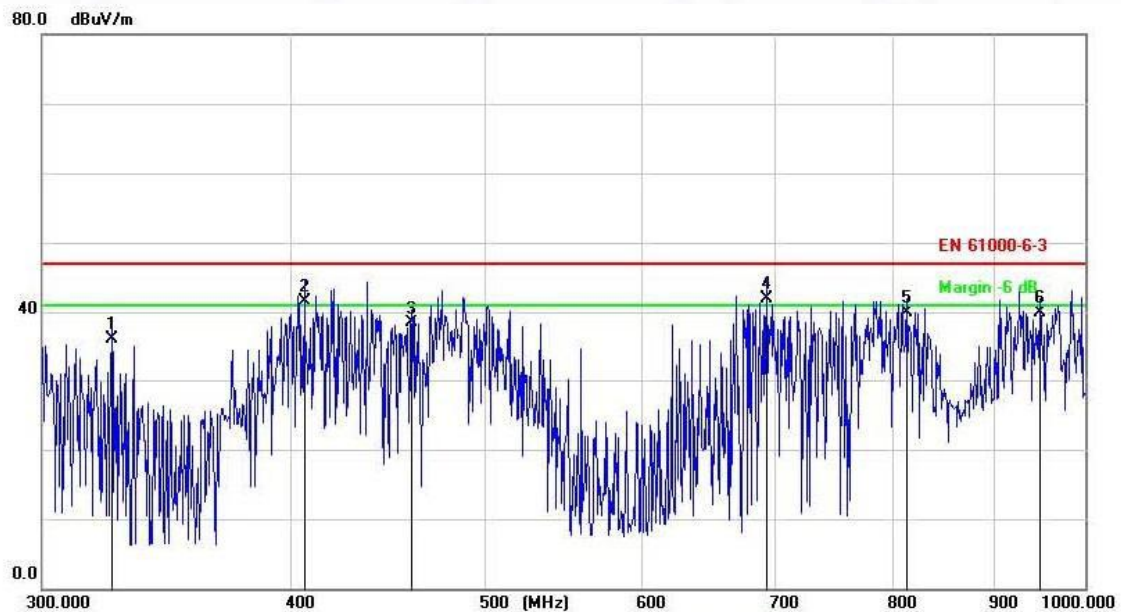
Limit: EN 61000-6-3

Power:

Humidity: 55.3 %

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit | Over  | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|-------|-------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dB/m  | dB    | cm             | degree       | Comment |
| 1   |     | 322.4735 | 20.90         | 19.50          | 40.40       | 47.00 | -6.60 | QP             |              |         |
| 2   | !   | 435.2019 | 19.95         | 21.86          | 41.81       | 47.00 | -5.19 | QP             |              |         |
| 3   | *   | 529.5659 | 18.71         | 23.13          | 41.84       | 47.00 | -5.16 | QP             |              |         |
| 4   | !   | 665.6823 | 15.88         | 25.31          | 41.19       | 47.00 | -5.81 | QP             |              |         |
| 5   |     | 846.9207 | 11.10         | 26.67          | 37.77       | 47.00 | -9.23 | QP             |              |         |
| 6   | !   | 921.3916 | 12.72         | 28.32          | 41.04       | 47.00 | -5.96 | QP             |              |         |

|                           |                  |                    |            |
|---------------------------|------------------|--------------------|------------|
| Model No. (M/N):          | EC25             | Test Mode:         | Mode 1     |
| Environmental Conditions: | 22.5°C, 57.5% RH | Detector Function: | Quasi-peak |
| Distance:                 | 3m               | Polarization:      | Horizontal |
| Test Engineer:            | Feng Liang       | Test Voltage:      | 48VDC      |



Site LAB Polarization: **Horizontal** Temperature: 24.5  
Limit: EN 61000-6-3 Power: Humidity: 55.3 %

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|-------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dB/m  | dB     | cm             | degree       | Comment |
| 1   |     | 325.2026 | 16.32         | 19.60          | 35.92       | 47.00 | -11.08 | QP             |              |         |
| 2   | !   | 406.3373 | 20.23         | 21.18          | 41.41       | 47.00 | -5.59  | QP             |              |         |
| 3   |     | 459.4309 | 16.15         | 22.13          | 38.28       | 47.00 | -8.72  | QP             |              |         |
| 4   | *   | 692.6630 | 16.40         | 25.50          | 41.90       | 47.00 | -5.10  | QP             |              |         |
| 5   |     | 812.9519 | 13.15         | 26.71          | 39.86       | 47.00 | -7.14  | QP             |              |         |
| 6   |     | 949.5461 | 11.09         | 28.81          | 39.90       | 47.00 | -7.10  | QP             |              |         |

## 4.2.10 TEST RESULTS (1000~6000MHz)

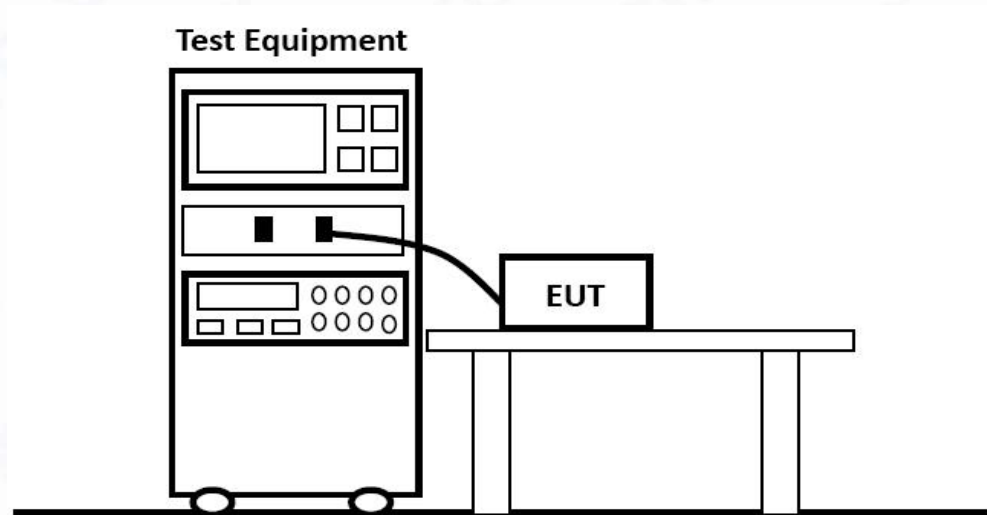
|                           |                 |                    |        |
|---------------------------|-----------------|--------------------|--------|
| Model No. (M/N):          | EC25            | Test Mode:         | Mode 1 |
| Environmental Conditions: | 22.5℃, 57.5% RH | Detector Function: | N/A    |
| Distance:                 | 3m              | Polarization:      | N/A    |
| Test Engineer:            | N/A             | Test Voltage:      | N/A    |

## Remark:

The frequency of the product is lower than 108MHz, it does not apply

### 4.3 Harmonic Current Emission Measurement

#### 4.3.1 Block Diagram of Test Setup



#### 4.3.2 Measuring Standard

EN 61000-3-2: 2014

#### 4.3.3 Operating Condition of EUT

1. Setup the EUT as shown on Section 4.3.1
2. Turn on the power of all equipments.
3. Let the EUT work in measuring Mode 1 and measure it.

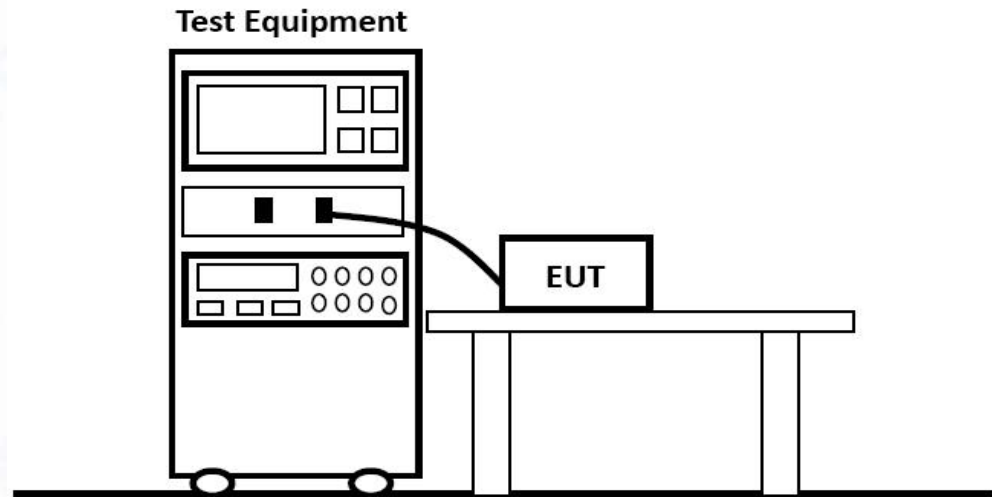
#### 4.3.4 Test Results

**N/A.**

The product (EUT) is DC supplied. Not appliance.

## 4.4 Voltage Fluctuation and Flicker Measurement

### 4.4.1 Block Diagram of Test Setup



### 4.4.2 Measuring Standard

EN 61000-3-3: 2013

### 4.4.3 Operating Condition of EUT

1. Setup the EUT as shown on Section 4.4.1
2. Turn on the power of all equipments.
3. Let the EUT work in measuring Mode 1 and measure it.

### 4.4.4 Test Results

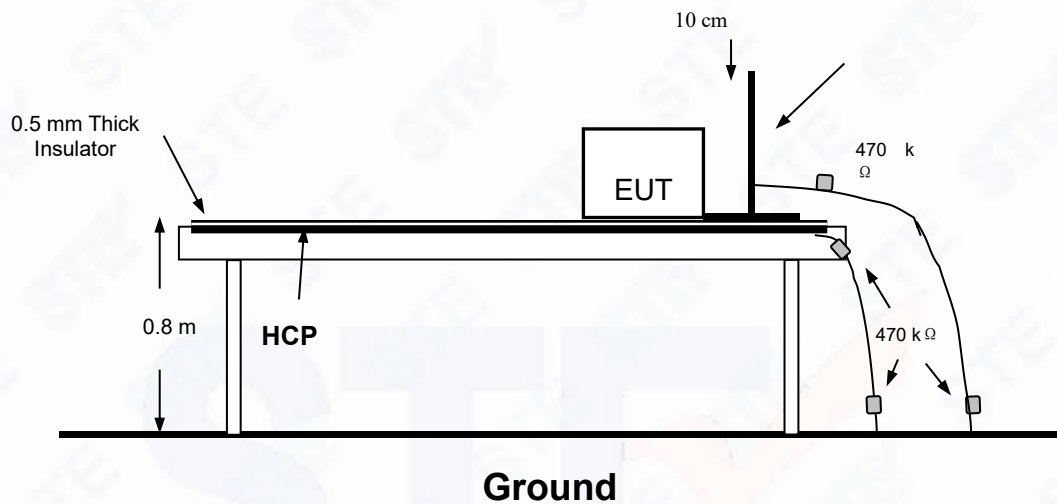
**N/A.**

The product (EUT) is DC supplied. Not appliance.

## 5. IMMUNITY TESTS

### 5.1 ELECTROSTATIC DISCHARGE IMMUNITY TEST

#### 5.1.1 Block Diagram of Test Setup



#### 5.1.2 Test Standard

EN IEC 61000-6-1: 2019 (EN 61000-4-2: 2009,  
Severity Level: 3 / Air Discharge:  $\pm 8$  kV, Level: 2 / Contact Discharge:  $\pm 4$  kV)

#### 5.1.3 Severity Levels and Performance Criterion

##### 1. Severity level

| Level | Test Voltage<br>Contact Discharge (kV) | Test Voltage<br>Air Discharge (kV) |
|-------|----------------------------------------|------------------------------------|
| 1.    | $\pm 2$                                | $\pm 2$                            |
| 2.    | $\pm 4$                                | $\pm 4$                            |
| 3.    | $\pm 6$                                | $\pm 8$                            |
| 4.    | $\pm 8$                                | $\pm 15$                           |
| X     | Special                                | Special                            |

##### 2. Performance Criterion: B

#### 5.1.4 EUT Configuration on Test

The configuration of EUT is listed in Section 3.2.

#### 5.1.5 Operating Condition of EUT

1. Setup the EUT as shown on Section 5.1.1
2. Turn on the power of all equipments.
3. Let the EUT work in measuring Mode 1 and measure it.

#### 5.1.6 Test Procedure

##### (1) Air Discharge

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

##### (2) Contact Discharge

All the procedure shall be same as Section 5.1.6(1). Except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

##### (3) Indirect Discharge For Horizontal Coupling Plane

At least 10 single discharges (in the most sensitive polarity) shall be applied at the front edge of each HCP opposite the center point of each unit (if applicable) of the EUT and 0.1m from the front of the EUT. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge.

##### (4) Indirect Discharge For Vertical Coupling Plane

At least 10 single discharge (in the most sensitive polarity) shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

#### 5.1.7 Test Results

**PASS.**

Please refer to the following pages

## ESD Test Results

|           |                                                                                         |               |            |
|-----------|-----------------------------------------------------------------------------------------|---------------|------------|
| Standard  | <input type="checkbox"/> IEC 61000-4-2 <input checked="" type="checkbox"/> EN 61000-4-2 |               |            |
| Applicant | Shanghai Yanlan Automation Technology Co., Ltd                                          |               |            |
| EUT       | DC servo motor                                                                          | Temperature   | 23.6℃      |
| M/N       | EC25                                                                                    | Humidity      | 55.9%      |
| Criterion | B                                                                                       | Pressure      | 1021mbar   |
| Test Mode | MODE 1                                                                                  | Test Engineer | Feng Liang |

### Air Discharge

| Test Points | Test Levels                         |                                     |                          | Results                             |                          |                                                                  |
|-------------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|------------------------------------------------------------------|
|             | ± 4kV                               | ± 8kV                               | ± 10kV                   | Passed                              | Fail                     | Performance Criterion                                            |
| Front       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |
| Back        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |
| Left        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |
| Right       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |
| Top         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |
| Bottom      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |

### Contact Discharge

| Test Points | Test Levels                         |                                     | Results                             |                          |                                                                  |
|-------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|------------------------------------------------------------------|
|             | ± 2 kV                              | ± 4 kV                              | Passed                              | Fail                     | Performance Criterion                                            |
| Front       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |
| Back        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |
| Left        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |
| Right       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |
| Top         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |
| Bottom      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |

### Discharge To Horizontal Coupling Plane

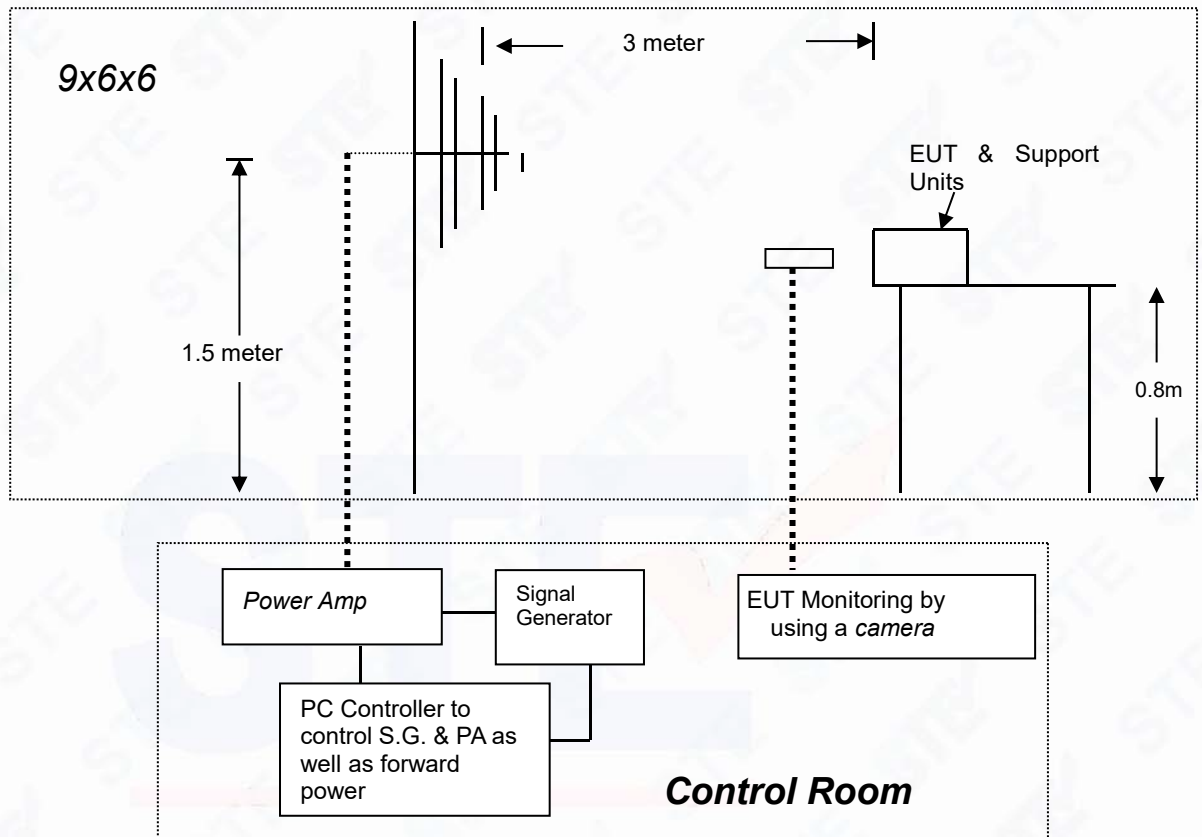
| Side of EUT | Test Levels                         |                                     | Results                             |                          |                                                                  |
|-------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|------------------------------------------------------------------|
|             | ± 2 kV                              | ± 4 kV                              | Passed                              | Fail                     | Performance Criterion                                            |
| Front       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |
| Back        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |
| Left        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |
| Right       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |

### Discharge To Vertical Coupling Plane

| Side of EUT | Test Levels                         |                                     | Results                             |                          |                                                                  |
|-------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|------------------------------------------------------------------|
|             | ± 2 kV                              | ± 4 kV                              | Passed                              | Fail                     | Performance Criterion                                            |
| Front       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |
| Back        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |
| Left        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |
| Right       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |

## 5.2 RF FIELD STRENGTH SUSCEPTIBILITY TEST

### 5.2.1 Block Diagram of Test Setup



### 5.2.2 Test Standard

EN IEC 61000-6-1: 2019

(EN IEC 61000-4-3, Severity Level: 2, 3V/ m)

### 5.2.3 Severity Levels and Performance Criterion

#### 1. Severity Levels

| Level | Field Strength (V/m) |
|-------|----------------------|
| 1.    | 1                    |
| 2.    | 3                    |
| 3.    | 10                   |
| X.    | Special              |

#### 2. Performance Criterion: A

#### 5.2.4 EUT Configuration on Test

The configuration of the EUT is same as Section 3.

#### 5.2.5 Operating Condition of EUT

1. Setup the EUT as shown on Section 5.2.1
2. Turn on the power of all equipments.
3. Let the EUT work in measuring Mode 1 and measure it.

#### 5.2.6 Test Procedure

The EUT are placed on a table, which is 0.8 meter high above the ground. The EUT is set 3 meters away from the transmitting antenna, which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna is set on test. Each of the four sides of the EUT must be faced this transmitting antenna and measured individually.

In order to judge the EUT performance, a CCD Recording is used to monitor its screen.

All the scanning conditions are as following:

| Condition of Test         | Remark                  |
|---------------------------|-------------------------|
| 1. Fielded Strength       | 3V/m (Severity Level 3) |
| 2. Radiated Signal        | Unmodulated             |
| 3. Scanning Frequency     | 80MHz-1000 MHz          |
| 4. Sweep time of radiated | 0.0015 Decade/s         |
| 5. Dwell Time             | 3 Sec.                  |
| 6. Fielded Strength       | 3V/m (Severity Level 2) |
| 7. Radiated Signal        | Unmodulated             |
| 8. Scanning Frequency     | 1.4 GHz -6.0GHz         |
| 9. Sweep time of radiated | 0.0015 Decade/s         |
| 10. Dwell Time            | 3 Sec.                  |

#### 5.2.7 Test Results

**PASS.**

Please refer to the following page.

## RF Field Strength Susceptibility Test Results

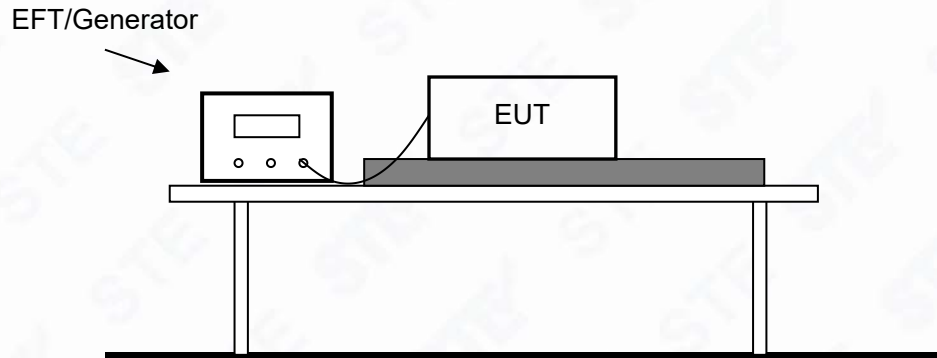
|                |                                                                                                              |                 |                |
|----------------|--------------------------------------------------------------------------------------------------------------|-----------------|----------------|
| Standard       | <input type="checkbox"/> IEC 61000-4-3 <input checked="" type="checkbox"/> EN IEC 61000-4-3                  |                 |                |
| Applicant      | Shanghai Yanlan Automation Technology Co., Ltd                                                               |                 |                |
| EUT            | DC servo motor                                                                                               | Temperature     | 23.7℃          |
| M/N            | EC25                                                                                                         | Humidity        | 59.8%          |
| Criterion      | A                                                                                                            |                 |                |
| Test Mode      | Mode 1                                                                                                       | Test Engineer   | Feng Liang     |
| Field Strength | 3V/m                                                                                                         | Frequency Range | 80MHz-1000 MHz |
|                | 3 V/m                                                                                                        |                 | 1.4GHz -6.0GHz |
|                |                                                                                                              |                 |                |
| Modulation     | <input type="checkbox"/> None <input type="checkbox"/> Pulse <input checked="" type="checkbox"/> AM 1KHz 80% |                 |                |
| Steps          | 1%                                                                                                           |                 |                |

|              | Horizontal | Vertical |
|--------------|------------|----------|
| <b>Front</b> | PASS       | PASS     |
| <b>Right</b> | PASS       | PASS     |
| <b>Rear</b>  | PASS       | PASS     |
| <b>Left</b>  | PASS       | PASS     |

Note:

### 5.3 Electrical Fast Transient/ Burst Immunity Test

#### 5.3.1 Block Diagram of Test Setup



#### 5.3.2 Test Standard

EN IEC 61000-6-1: 2019

(EN 61000-4-4: 2012, Severity Level: Level 2)

#### 5.3.3 Severity Levels and Performance Criterion

##### 1. Severity Levels

| Open Circuit Output Test Voltage $\pm 10\%$ |                       |                                                     |
|---------------------------------------------|-----------------------|-----------------------------------------------------|
| Level                                       | On Power Supply Lines | On I/O (Input/Output) Signal data and control lines |
| 1                                           | 0.5 kV                | 0.25 kV                                             |
| 2                                           | 1 kV                  | 0.5 kV                                              |
| 3                                           | 2 kV                  | 1 kV                                                |
| 4                                           | 4 kV                  | 2 kV                                                |
| X                                           | Special               | Special                                             |

##### 2. Performance Criterion: B

#### 5.3.4 EUT Configuration on Test

The configuration of the EUT is same as Section 3.

#### 5.3.5 Operating Condition of EUT

1. Setup the EUT as shown on Section 5.3.1
2. Turn on the power of all equipments.
3. Let the EUT work in measuring Mode 1 and measure it.

### 5.3.6 Test Procedure

The EUT is put on the table, which is 0.8 meter high above the ground. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

1. For input and output DC power ports:

The EUT is connected to the power mains by using a coupling device, which couples the EFT interference signal to DC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 mins.

2. For signal lines and control lines ports: No I/O ports. It's unnecessary to test.

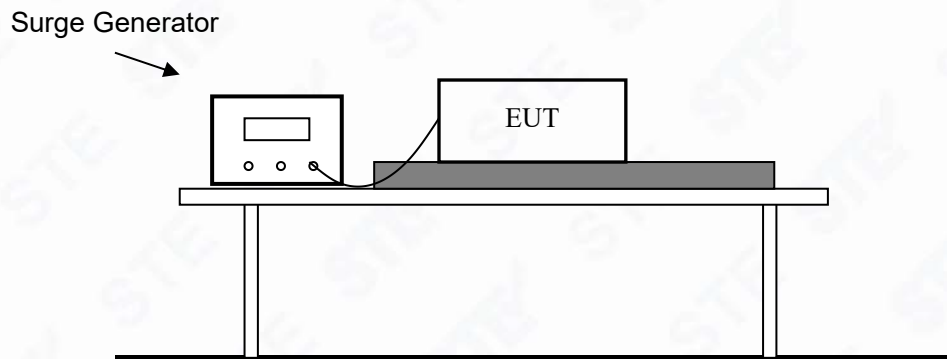
### 5.3.7 Test Results

**N/A.**

The product (EUT) is DC supplied. Not appliance.

## 5.4 Surge Immunity Test

### 5.4.1 Block Diagram of Test Setup



### 5.4.2 Test Standard

EN IEC 61000-6-1: 2019

(EN 61000-4-5: 2014+A1: 2017, Severity Level: Line to Line: Level 2, 1.0kV,  
Line to Earth: Level 3, 2.0kV)

### 5.4.3 Severity Levels and Performance Criterion

#### 1. Severity Levels

| Severity Level | Open-Circuit Test Voltage<br>(kV) |
|----------------|-----------------------------------|
| 1              | 0.5                               |
| 2              | 1.0                               |
| 3              | 2.0                               |
| 4              | 4.0                               |
| *              | Special                           |

#### 2. Performance Criterion: B

### 5.4.4 EUT Configuration on Test

The configuration of the EUT is same as Section 3.

### 5.4.5 Operating Condition of EUT

1. Setup the EUT as shown on Section 5.4.1
2. Turn on the power of all equipments.
3. Let the EUT work in measuring Mode 1 and measure it.

#### 5.4.6 Test Procedure

1. Set up the EUT and test generator as shown on Section 4.8.1.
2. For line to line coupling mode, provide a 1.0 kV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.
3. For line to line coupling mode, provide a 2.0 kV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.
4. Different phase angles are done individually.
5. Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

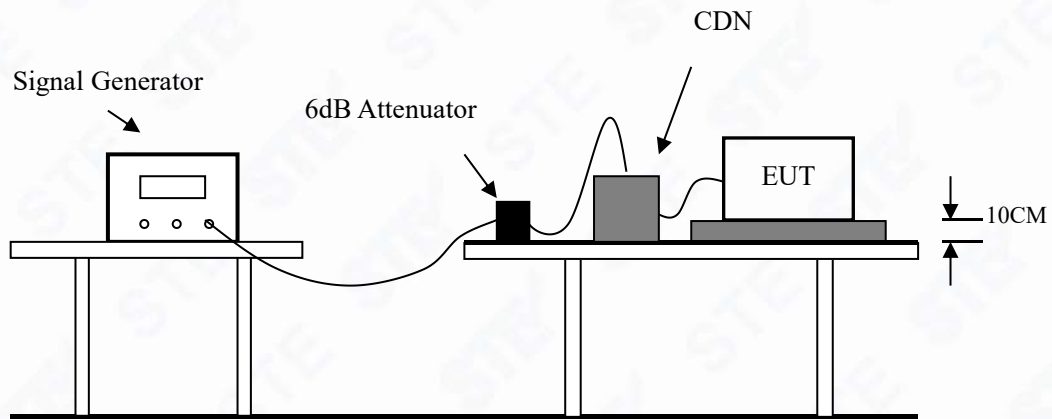
#### 5.4.7 Test Results

**N/A.**

The product (EUT) is DC supplied. Not appliance.

## 5.5 Injected Currents Susceptibility Test

### 5.5.1 Block Diagram of Test Setup



### 5.5.2 Test Standard

EN IEC 61000-6-1: 2019 (EN 61000-4-6: 2014, Severity Level: Level 2, (0.15MHz ~ 80MHz))

### 5.5.3 Severity Levels and Performance Criterion

#### 1. Severity Levels

| Level | Field Strength (V) |
|-------|--------------------|
| 1     | 1                  |
| 2     | 3                  |
| 3     | 10                 |
| X     | Special            |

#### 2. Performance Criterion: B

### 5.5.4 EUT Configuration on Test

The configuration of the EUT is same as Section 3.

### 5.5.5 Operating Condition of EUT

1. Setup the EUT as shown on Section 5.5.1
2. Turn on the power of all equipments.
3. Let the EUT work in measuring Mode 1 and measure it.

### 5.5.6 Test Procedure

1. Set up the EUT, CDN and test generators as shown on Section 5.5.1.
2. Let the EUT work in test mode and measure it.
3. The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).
4. The disturbance signal described below is injected to EUT through CDN.
5. The EUT operates within its operational mode(s) under intended climatic conditions after power on.
6. The frequency range is swept from 150kHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1kHz sine wave.
7. The rate of sweep shall not exceed  $1.5 \times 10^{-3}$  decades/s. where the frequency is swept incrementally; the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
8. Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

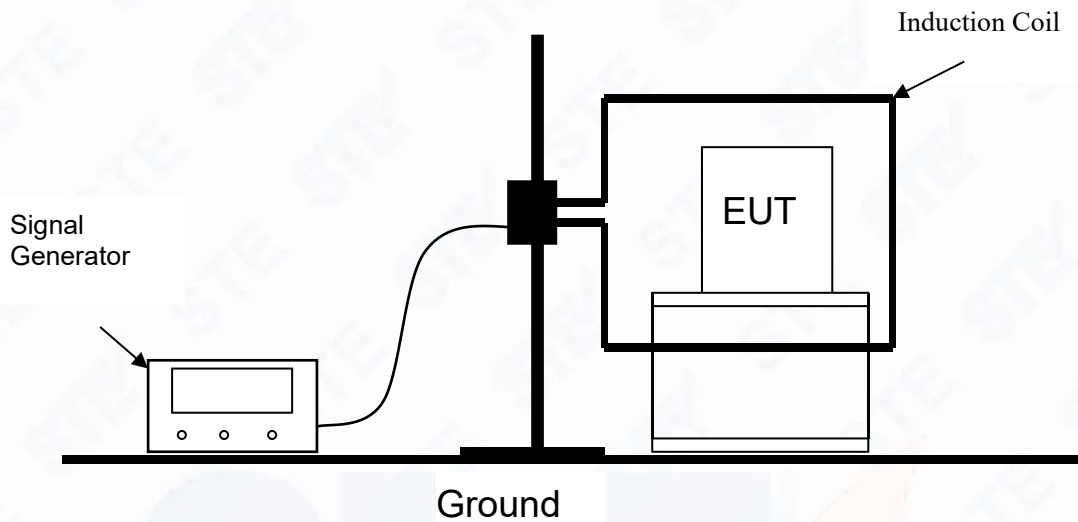
### 5.5.7 Test Results

**N/A.**

The product (EUT) is DC supplied. Not appliance.

## 5.6 MAGNETIC FIELD SUSCEPTIBILITY TEST

### 5.6.1 Block Diagram of Test Setup



### 5.6.2 Test Standard

EN 55035:2019

(EN 61000-4-8: 2010, Severity Level: Level 2, 3A/ m)

### 5.6.3 Severity Levels and Performance Criterion

#### 1. Severity Levels

| Level | Field Strength (A/m) |
|-------|----------------------|
| 1     | 1                    |
| 2     | 3                    |
| 3     | 10                   |
| 4     | 30                   |
| 5     | 100                  |
| X     | Special              |

#### 2. Performance Criterion: **A**

### 5.6.4 EUT Configuration on Test

The configuration of the EUT is same as Section 3.

#### 5.6.5 Test Procedure

The EUT is placed in the middle of a induction coil (1\*1m), under which is a 1\*1\*0.1m (high) table, this small table is also placed on a larger table, 0.8 m above the ground. Both horizontal and vertical polarization of the induction coil is set on test, so that each side of the EUT is affected by the magnetic field.

Also can reach the same aim by change the position of the EUT.

#### 5.6.6 Test Results

**PASS.**

Please refer to the following page.



## Magnetic Field Immunity Test Result

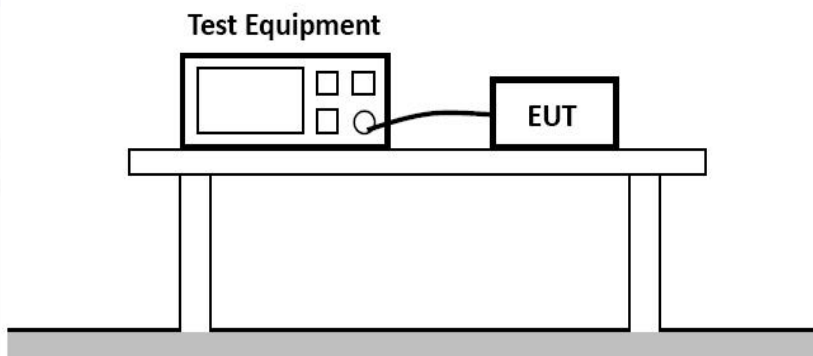
|                      |                                                                                         |                     |            |
|----------------------|-----------------------------------------------------------------------------------------|---------------------|------------|
| <b>Standard</b>      | <input type="checkbox"/> IEC 61000-4-8 <input checked="" type="checkbox"/> EN 61000-4-8 |                     |            |
| <b>Applicant</b>     | Shanghai Yanlan Automation Technology Co., Ltd                                          |                     |            |
| <b>EUT</b>           | DC servo motor                                                                          | <b>Temperature</b>  | 24.2°C     |
| <b>M/N</b>           | EC25                                                                                    | <b>Humidity</b>     | 52.1%      |
| <b>Test Mode</b>     | Mode 1                                                                                  | <b>Criterion</b>    | A          |
| <b>Test Engineer</b> | Xp Rao                                                                                  | <b>Test Voltage</b> | 230V~/50Hz |

| Test Level (A/M) | Testing Duration | Coil Orientation | Criterion | Result |
|------------------|------------------|------------------|-----------|--------|
| 3                | 5 mins           | X                | A         | PASS   |
| 3                | 5 mins           | Y                | A         | PASS   |
| 3                | 5 mins           | Z                | A         | PASS   |

Note:

## 5.7 Voltage Dips and Interruptions Test

### 5.7.1 Block Diagram of Test Setup



### 5.7.2 Test Standard

EN IEC 61000-6-1: 2019 (EN 61000-4-11: 2004+A1: 2017)

### 5.7.3 Severity Levels and Performance Criterion

#### 1. Severity Levels

| Test Level                   |                         |                         |
|------------------------------|-------------------------|-------------------------|
| Voltage Reduction<br>$\%U_T$ | Voltage Dips<br>$\%U_T$ | Duration<br>(in Period) |
| 100                          | 0                       | 0.5                     |
| 100                          | 0                       | 1                       |
| 30                           | 70                      | 5                       |
| Voltage Reduction<br>$\%U_T$ | Voltage Dips<br>$\%U_T$ | Duration<br>(in Period) |
| 100                          | 0                       | 250                     |

#### 2. Performance Criterion: B & C

### 5.7.4 EUT Configuration on Test

The configuration of the EUT is same as Section 3.

### 5.7.5 Operating Condition of EUT

1. Setup the EUT as shown on Section 5.7.1
2. Turn on the power of all equipments.
3. Let the EUT work in measuring Mode 1 and measure it.

#### 5.7.6 Test Procedure

1. Set up the EUT and test generator as shown on Section 5.7.1.
2. The interruptions are introduced at selected phase angles with specified duration.
3. Record any degradation of performance.

#### 5.7.7 Test Results

**N/A.**

The product (EUT) is DC supplied. Not appliance.



## 6. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

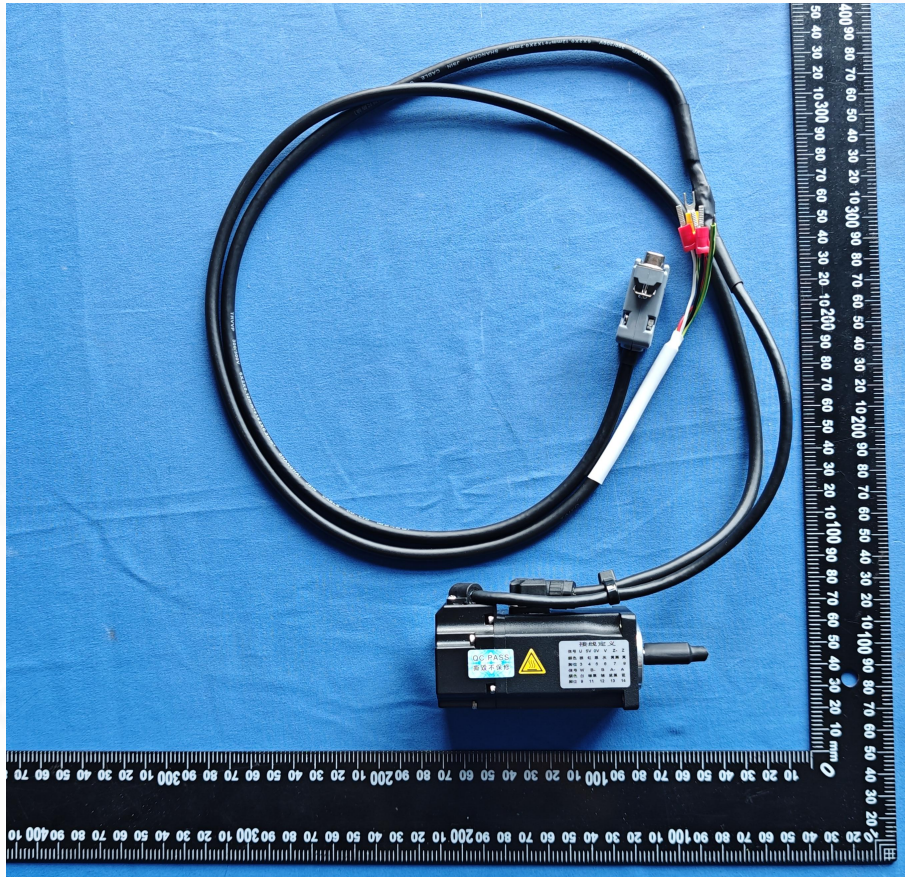


Fig. 1



Fig. 2

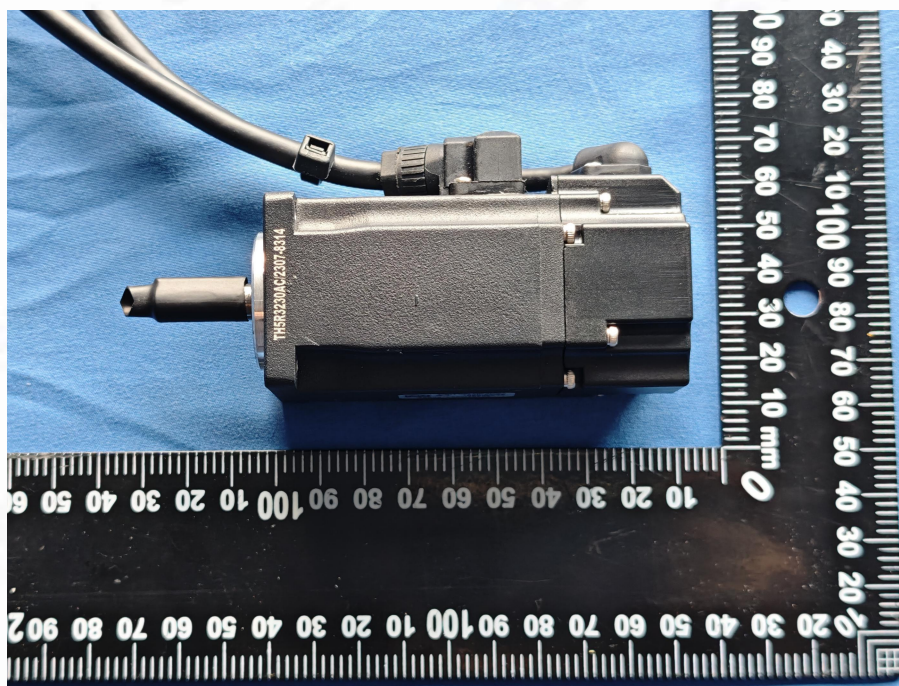


Fig. 3

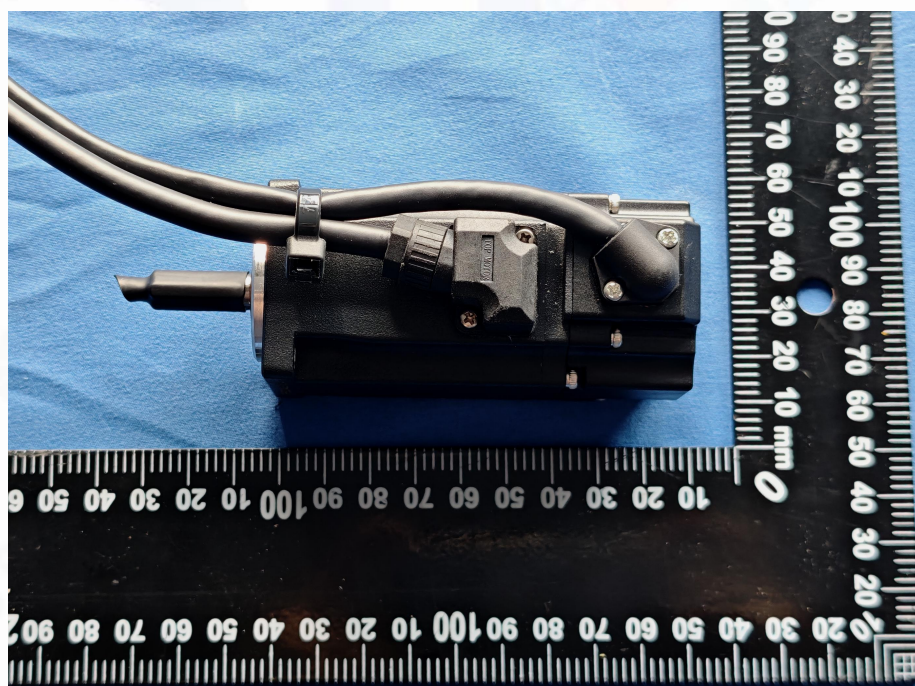


Fig. 4

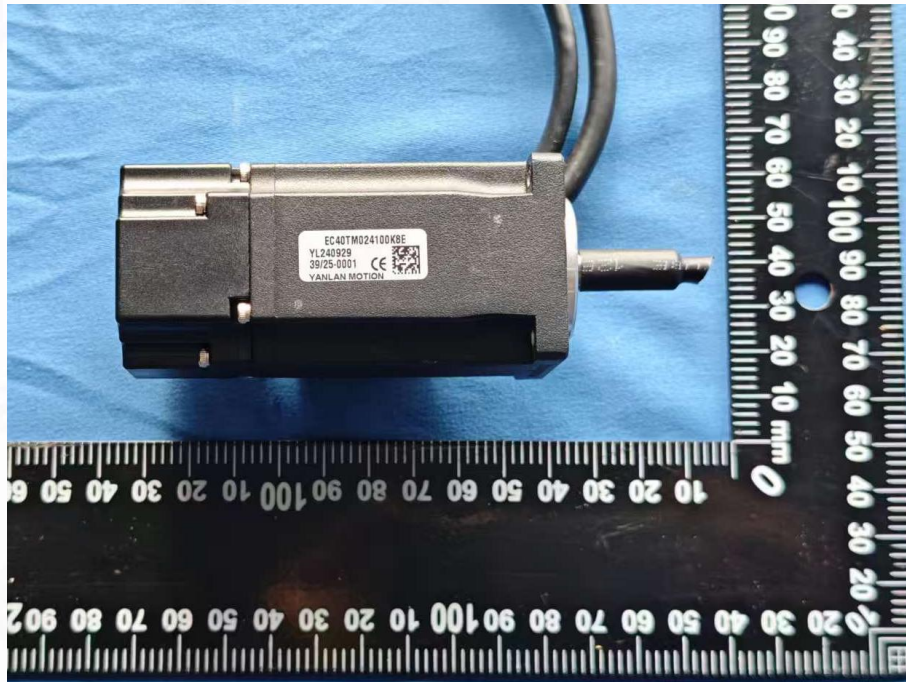


Fig. 5

----- THE END OF TEST REPORT -----