

# TEST REPORT

**Application No.:** BTEK260519011A02E01  
**Applicant:** SHENZHEN AURORA TECHNOLOGY LIMITED  
**Address of Applicant:** AURORA Industry Park, ShunSheng Road 9#, Pingdi Street, Longgang District, Shenzhen, Guangdong, China  
**Manufacturer:** SHENZHEN AURORA TECHNOLOGY LIMITED  
**Address of Manufacturer:** AURORA Industry Park, ShunSheng Road 9#, Pingdi Street, Longgang District, Shenzhen, Guangdong, China  
**Equipment Under Test (EUT):**  
**EUT Name:** Flashlight  
**Test Model.:** T1  
**Adding Model(s):** T2, T3, T4, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22, T23, T24, T25, T26, T27, T28, T29, T30  
**Trade Mark:** /  
**Standard(s) :** EN IEC 55015: 2019+A11:2020  
EN IEC 61547:2023  
**Date of Receipt Sample(s):** 2026-05-20  
**Date of Test:** 2026-05-20 to 2026-06-15  
**Date of Issue:** 2026-06-16

|                     |              |
|---------------------|--------------|
| <b>Test Result:</b> | <b>Pass*</b> |
|---------------------|--------------|

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

  
Alex Wang / Approved & Authorized  
EMC Laboratory Manager



| Revision Record |            |           |         |
|-----------------|------------|-----------|---------|
| Version         | Issue Date | Revisions | Remarks |
| V0              | 2026-06-16 | Initial   | Valid   |
|                 |            |           |         |
|                 |            |           |         |

|                          |  |                                                                                   |  |
|--------------------------|--|-----------------------------------------------------------------------------------|--|
| Authorized for issue by: |  |                                                                                   |  |
|                          |  |  |  |
|                          |  | <hr/> <b>Zheng Zheng / File Editor</b>                                            |  |
|                          |  |  |  |
|                          |  | <hr/> <b>June Li /Reviewer</b>                                                    |  |

## Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.



## 2 Test Summary

| Emission Part                                                    |                                   |                                   |              |        |
|------------------------------------------------------------------|-----------------------------------|-----------------------------------|--------------|--------|
| Item                                                             | Standard                          | Method                            | Requirement  | Result |
| Conducted Emissions at Mains Terminals (9kHz-30MHz)              | EN IEC 55015:2019+A11:2020        | EN IEC 55015:2019+A11:2020        | Clause 4.3.1 | Pass   |
| Radiated Emissions (30MHz-1GHz)                                  |                                   | EN IEC 55015:2019+A11:2020        | Clause 4.5.3 | Pass   |
| Radiated Emissions (Magnetic field Induced Current) (9kHz-30MHz) |                                   | EN IEC 55015:2019+A11:2020        | Clause 4.5.2 | Pass   |
| Voltage Fluctuations and Flicker                                 | EN 61000-3-3:2013+A1:2019+A2:2021 | EN 61000-3-3:2013+A1:2019+A2:2021 | Clause 5     | N/A    |
| Harmonic Current Emission                                        | EN IEC 61000-3-2:2019/A2:2024     | EN IEC 61000-3-2:2019/A2:2024     | Class C      | N/A    |

| Immunity Part                                            |                   |                           |                                                                 |        |
|----------------------------------------------------------|-------------------|---------------------------|-----------------------------------------------------------------|--------|
| Item                                                     | Standard          | Method                    | Requirement                                                     | Result |
| Electrostatic Discharge                                  | EN IEC 61547:2023 | EN 61000-4-2:2009         | 4kV Contact Discharge, 8kV Air Discharge                        | Pass   |
| Radiated Immunity (80MHz-1GHz)                           |                   | EN IEC 61000-4-3:2020     | 3V/m, 80%, 1kHz Amp. Mod, 1% increment                          | Pass   |
| Electrical Fast Transients Burst at AC Mains Power Port  |                   | EN 61000-4-4:2012         | 1kV, 5/50ns Tr/Td, 5kHz Repetition Frequency                    | Pass   |
| Surge at Power Port                                      |                   | EN 61000-4-5:2014+A1:2017 | 1.2/50µs Tr/Td, 1kV Line to Line                                | Pass   |
| Conducted Immunity at AC Mains Power Port (150kHz-80MHz) |                   | EN 61000-4-6:2014         | 3Vrms (emf), 80%, 1kHz Amp. Mod.                                | Pass   |
| Voltage Dips and Interruptions                           |                   | EN IEC 61000-4-11:2020    | 0 % UT for 0.5cycle, 70 % UT for 10cycles, UT is Supply Voltage | Pass   |



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## 4 General Information

### 4.1 Details of E.U.T.

|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power supply:                 | 2.8~4.2V 20W MAX 3000mAh<br>USB-C Input: 5V/2A                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Internal Source               | Less than 108MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Model(s) Difference Statement | <input type="checkbox"/> Single Model.<br><input checked="" type="checkbox"/> Multi-Models: T1, T2, T3, T4, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22, T23, T24, T25, T26, T27, T28, T29, T30<br>Only the model T1 was tested.<br>According to the declaration from the applicant, the electrical circuit design, layout, components used, internal wiring and functions of other models are identical for the above models, with only difference on sample name. |

### 4.2 Description of EUT Test Mode

| Test Mode List                                       |                                     |                                                                 |
|------------------------------------------------------|-------------------------------------|-----------------------------------------------------------------|
| Test Mode                                            | Description                         | Remark                                                          |
| 1                                                    | Charge and discharge simultaneously | Keep the EUT in the mode of charging and working simultaneously |
| 2                                                    | Operating mode                      | Keep the minimum wind speed of the EUT                          |
| Remark:1.Only show the worst case in the test report |                                     |                                                                 |

### 4.3 Description of Support Units

| Description                | Manufacturer | Model No.    | Serial No. |
|----------------------------|--------------|--------------|------------|
| Adapter                    | HUAWEI       | HW-100400C00 | /          |
| Black multifunction socket | /            | SPS1002A/93  | /          |

### 4.4 Measurement Uncertainty

| Test Item                                                                                                                                                                                                                                                                                                               | Measurement Uncertainty |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Conducted Emissions at Mains Terminals (9kHz-30MHz)                                                                                                                                                                                                                                                                     | ± 2.9dB                 |
| Radiated Emissions (30MHz-1GHz)                                                                                                                                                                                                                                                                                         | ± 5.5dB                 |
| Radiated Emissions (Magnetic field Induced Current)(9kHz-30MHz)                                                                                                                                                                                                                                                         | ± 3.26dB                |
| Electrostatic Discharge                                                                                                                                                                                                                                                                                                 | ±6 %                    |
| Radiated Immunity (80MHz-1GHz)                                                                                                                                                                                                                                                                                          | ± 1.64dB                |
| Electrical Fast Transients Burst at AC Mains Power Port                                                                                                                                                                                                                                                                 | ± 5.5 %                 |
| Surge at Power Port                                                                                                                                                                                                                                                                                                     | ± 5.5 %                 |
| Conducted Immunity at AC Mains Power Port (150kHz-80MHz)                                                                                                                                                                                                                                                                | ±1.49dB                 |
| Voltage Dips and Interruptions                                                                                                                                                                                                                                                                                          | ± 3.7 %                 |
| Remark:<br>The $U_{lab}$ (lab Uncertainty) is less than $U_{CISPR}$ (CISPR Uncertainty), so the test results<br>– compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;<br>– non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit. |                         |



#### 4.5 Test Location

All tests were performed at:

Shenzhen BANTEK Testing Co., Ltd.,

A5&A6, Building B1&B2, No.45 Gangtou Road, Bogang Community, Shajing Street, Bao'an District, Shenzhen, Guangdong, China 518104

Tel: 0755-2334 4200

Fax: 0755-2334 4200

No tests were sub-contracted.

#### 4.6 Deviation from Standards

None

#### 4.7 Abnormalities from Standard Conditions

None

#### 4.8 EMS Monitor

Visual: Power on the EUT and monitor the working status of the LED.

Audio: none



## 5 Equipment List

| Radiated Emissions (30MHz-1GHz) |                     |                     |                 |            |              |
|---------------------------------|---------------------|---------------------|-----------------|------------|--------------|
| Equipment                       | Manufacturer        | Model No            | Serial No       | Cal Date   | Cal Due Date |
| 3m Semi-Anechoic Chamber        | YIHENG ENELECTRONIC | 966                 | YH-BT-220304-01 | 2025-02-15 | 2028-02-14   |
| EMI Test Receiver               | Rohde&Schwarz       | ESCI3               | 100694          | 2025-06-18 | 2026-06-17   |
| TRILOG Broadband Antenna        | Schwarzbeck         | VULB 9168           | 01324           | 2025-03-29 | 2028-03-28   |
| Pre-Amplifier                   | Schwarzbeck         | BBV 9745            | #180            | 2025-06-19 | 2026-06-18   |
| Measurement Software            | Fara                | EZ EMC Ver. FA-03A2 | N/A             | N/A        | N/A          |

| Conducted Emissions at AC Mains Power Port (9kHz-30MHz) |                     |                     |                 |            |              |
|---------------------------------------------------------|---------------------|---------------------|-----------------|------------|--------------|
| Equipment                                               | Manufacturer        | Model No            | Serial No.      | Cal Date   | Cal Due Date |
| Shielding Room                                          | YIHENG ENELECTRONIC | 9*5*3.3             | YH-BT-220304-04 | 2025-02-15 | 2028-02-14   |
| EMI Test Receiver                                       | Rohde&Schwarz       | ESCI7               | 100503          | 2025-06-19 | 2026-06-18   |
| Pulse Limiter                                           | Schwarzbeck         | VTSD 9561 F-N       | 00890           | 2025-06-18 | 2026-06-17   |
| Measurement Software                                    | Fara                | EZ EMC Ver. FA-03A2 | N/A             | N/A        | N/A          |
| LISN                                                    | Rohde&Schwarz       | ENV216              | 101472          | 2025-06-19 | 2026-06-18   |
| LISN                                                    | Schwarzbeck         | NSLK 8128           | 05127           | 2025-06-19 | 2026-06-18   |

| Radiated Emissions (Magnetic field Induced Current) (9kHz-30MHz) |                     |                     |                 |            |              |
|------------------------------------------------------------------|---------------------|---------------------|-----------------|------------|--------------|
| Equipment                                                        | Manufacturer        | Model No            | Serial No       | Cal Date   | Cal Due Date |
| Shielding Room                                                   | YIHENG ENELECTRONIC | 9*5*3.3             | YH-BT-220304-04 | 2025-02-15 | 2028-02-14   |
| EMI Test Receiver                                                | Rohde&Schwarz       | ESCI7               | 100503          | 2025-06-19 | 2026-06-18   |
| Measurement Software                                             | Fara                | EZ EMC Ver. FA-03A2 | N/A             | N/A        | N/A          |
| 2m Loop Antenna                                                  | ZHINAN              | ZN30401             | 22070           | 2025-06-18 | 2026-06-17   |

| Voltage Fluctuations and Flicker & Harmonic Current Emission |                        |                      |           |            |              |
|--------------------------------------------------------------|------------------------|----------------------|-----------|------------|--------------|
| Equipment                                                    | Manufacturer           | Model No             | Serial No | Cal Date   | Cal Due Date |
| AC Power Source                                              | TESEQ                  | NSG1007              | 59481     | 2025-06-18 | 2026-06-17   |
| Power Analyzer                                               | CNS                    | HFa-16-11            | 202006    | 2025-06-18 | 2026-06-17   |
| Measurement Software                                         | California Instruments | CNS Version 1.0.0.59 | N/A       | N/A        | N/A          |

| Radiated Immunity           |                     |                  |                 |            |              |
|-----------------------------|---------------------|------------------|-----------------|------------|--------------|
| Equipment                   | Manufacturer        | Model No         | Serial No       | Cal Date   | Cal Due Date |
| 3m Semi-Anechoic Chamber    | YIHENG ENELECTRONIC | 966              | YH-BT-220304-01 | 2025-02-15 | 2028-02-14   |
| MXG Vector Signal Generator | Agilent             | N5182A           | US46240522      | 2025-06-18 | 2026-06-17   |
| POWER AMPLIFIER             | MICOTOP             | MPA-80-1000-250  | MPA1903081      | 2025-06-18 | 2026-06-17   |
| POWER AMPLIFIER             | MICOTOP             | MPA-1000-6000-75 | MPA1903082      | 2025-06-18 | 2026-06-17   |



|                                        |             |           |             |            |            |
|----------------------------------------|-------------|-----------|-------------|------------|------------|
| Power sensor                           | Agilent     | E9304AH18 | MY41497225  | 2025-06-18 | 2026-06-17 |
| power sensor                           | Agilent     | E9304AH18 | MY41499117  | 2025-06-18 | 2026-06-17 |
| Stacked Broadband Log Periodic Antenna | SCHWARZBECK | STLP 9129 | 00113       | 2025-06-18 | 2026-06-17 |
| EPM Series Power Meter                 | Agilent     | E4419B    | MY451028774 | 2025-06-18 | 2026-06-17 |

#### Surge at AC Mains Power Port

| Equipment                              | Manufacturer | Model No  | Serial No          | Cal Date   | Cal Due Date |
|----------------------------------------|--------------|-----------|--------------------|------------|--------------|
| Ultra Compact Simulator                | 3CTEST       | CWS600G   | ES0580011210<br>32 | 2025-06-18 | 2026-06-17   |
| High Speed Coupling/Decoupling Network | 3CTEST       | SPN 3816T | ES0710005220<br>05 | 2025-06-18 | 2026-06-17   |

#### Conducted Immunity at AC Mains Power Port (150kHz-80MHz)

| Equipment    | Manufacturer | Model No    | Serial No         | Cal Date   | Cal Due Date |
|--------------|--------------|-------------|-------------------|------------|--------------|
| RF-Generator | EMTEST       | CWS500C     | 0300-23           | 2025-06-19 | 2026-06-18   |
| CDN          | Schwarzbeck  | CDN M2/M3PE | 00118             | 2025-06-19 | 2026-06-18   |
| Attenuator   | CRENTECH     | 100W        | SGR-SJQ-6db-DC-3G | 2025-06-19 | 2026-06-18   |

#### Voltage Dips and Interruptions

| Equipment                     | Manufacturer | Model No | Serial No          | Cal Date   | Cal Due Date |
|-------------------------------|--------------|----------|--------------------|------------|--------------|
| Voltage dips and up generator | 3CTEST       | PFS2216S | ES0490013220<br>04 | 2025-06-19 | 2026-06-18   |

#### Electrostatic Discharge

| Equipment     | Manufacturer | Model No | Serial No | Cal Date   | Cal Due Date |
|---------------|--------------|----------|-----------|------------|--------------|
| ESD Generator | 3CTEST       | EDS-30V  | ES0121726 | 2025-07-01 | 2026-06-30   |

#### Electrical Fast Transients Burst at AC Mains Power Port

| Equipment                            | Manufacturer | Model No    | Serial No | Cal Date   | Cal Due Date |
|--------------------------------------|--------------|-------------|-----------|------------|--------------|
| Electrical Fast Transients generator | HAEFELY      | PEFT4010    | 153099    | 2025-06-18 | 2026-06-17   |
| Power Coupling Network               | HAEFELY      | FP-EFT 32.1 | 152940    | 2025-06-18 | 2026-06-17   |



## 6 Emission Test Results

### 6.1 Conducted Emissions at Mains Terminals (9kHz-30MHz)

Test Requirement: EN IEC 55015: 2019+A11:2020

Test Method: EN IEC 55015:2019+A11:2020

Limit:

|                    |                                                                                                                                  |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------|
| 0.009MHz – 0.05MHz | 110dB(μV) quasi-peak                                                                                                             |
| 0.05MHz – 0.15MHz  | 90dB(μV)-80dB(μV) quasi-peak                                                                                                     |
| 0.15MHz – 0.5MHz   | 66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average                                                                          |
| 0.5MHz – 5MHz      | 56dB(μV) quasi-peak, 46dB(μV) average                                                                                            |
| 5MHz – 30MHz       | 60dB(μV) quasi-peak, 50dB(μV) average                                                                                            |
| Detector:          | Peak for pre-scan (200Hz resolution bandwidth) 0.009M to 0.15MHz<br>Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz |

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

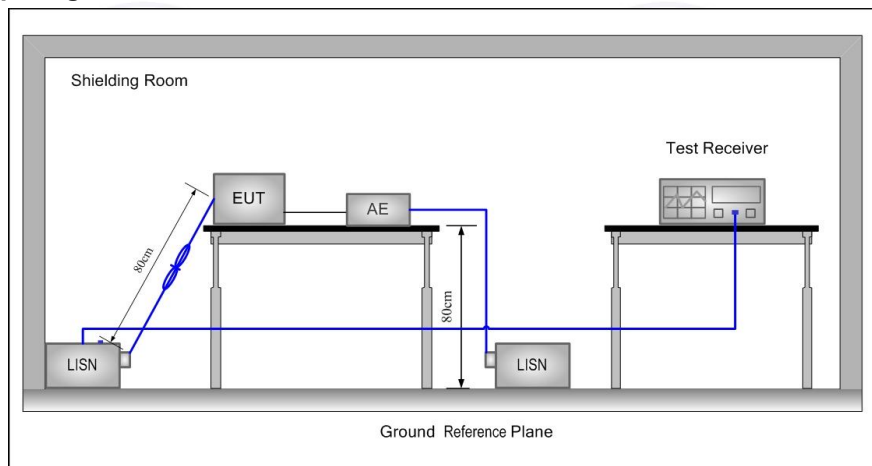
Operating Environment:

Temperature: 24 °C

Humidity: 54 % RH

Atmospheric Pressure: 1017 mbar

#### 6.1.2 Test Setup Diagram

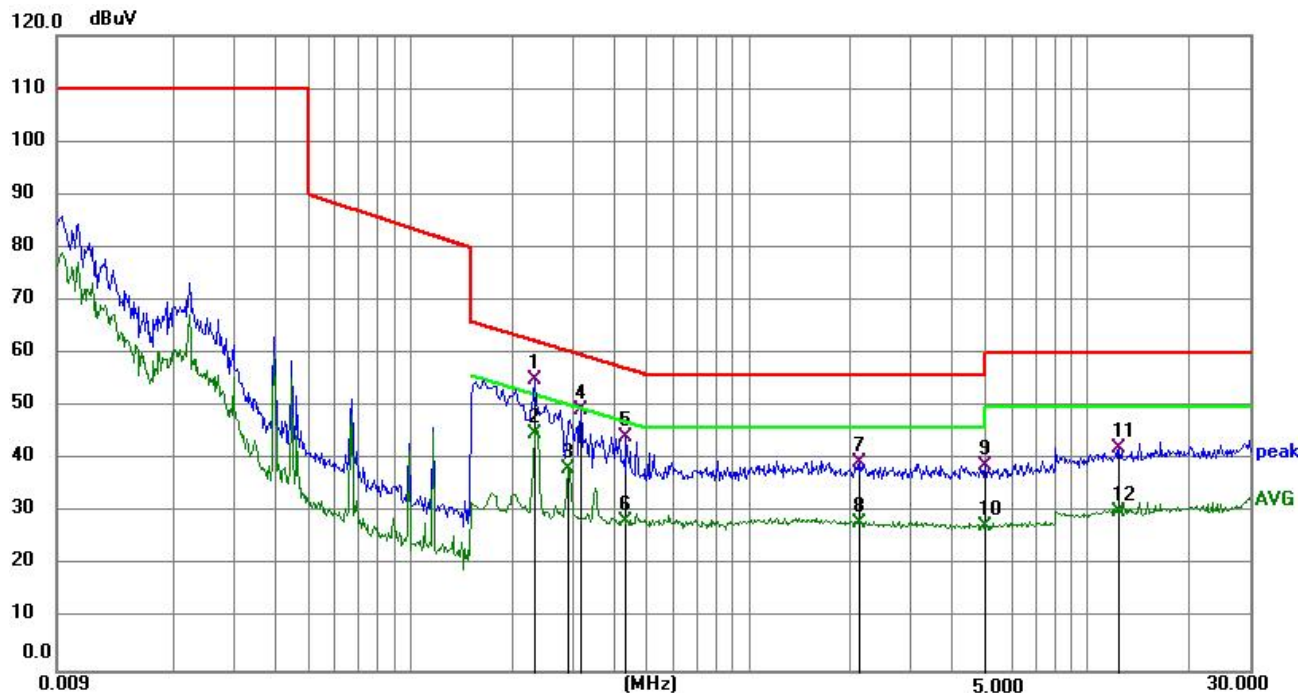


### 6.1.3 Measurement Procedure and Data

An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.

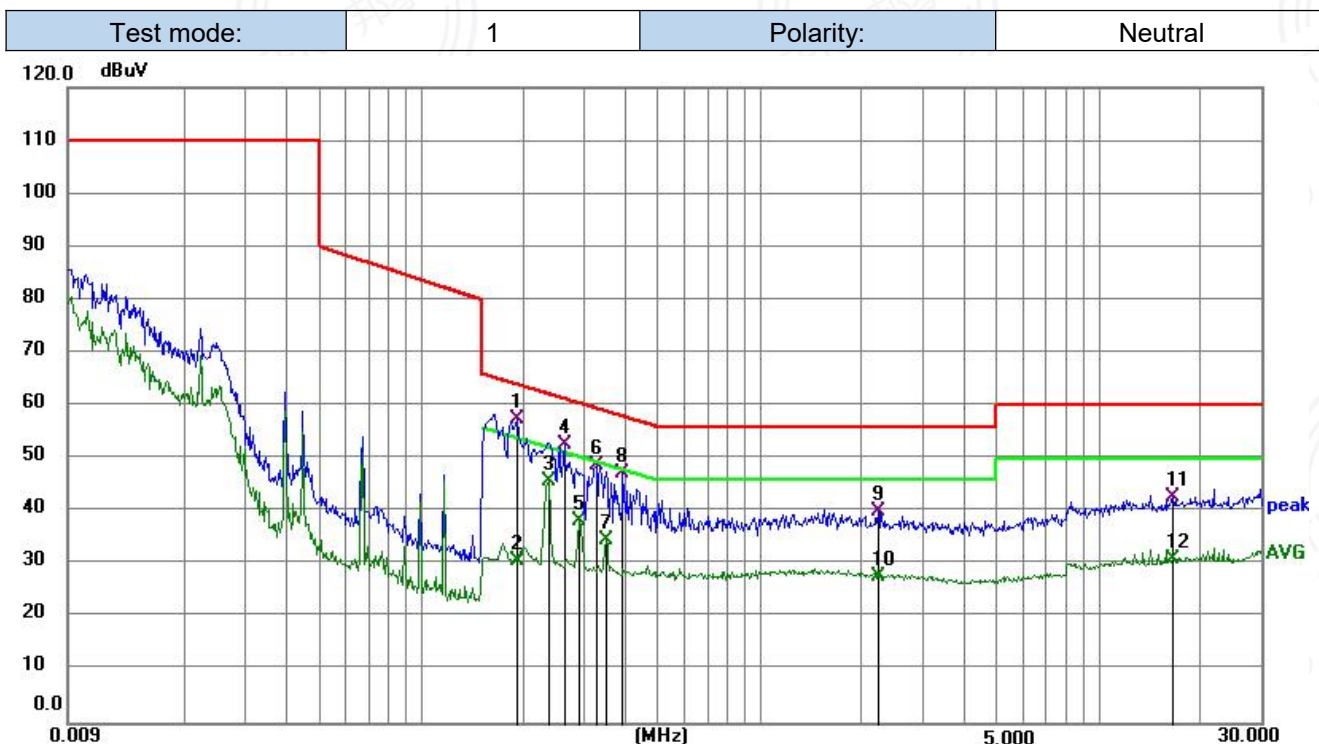
Remark: Level= Reading Level + Factor

|            |   |           |      |
|------------|---|-----------|------|
| Test mode: | 1 | Polarity: | Line |
|------------|---|-----------|------|



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F | Remark |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|----------|-----|--------|
| 1 * | 0.2310          | 35.35          | 19.63       | 54.98        | 62.41        | -7.43       | QP       | P   |        |
| 2   | 0.2310          | 25.34          | 19.63       | 44.97        | 52.41        | -7.44       | AVG      | P   |        |
| 3   | 0.2895          | 18.50          | 19.61       | 38.11        | 50.54        | -12.43      | AVG      | P   |        |
| 4   | 0.3165          | 29.84          | 19.64       | 49.48        | 59.80        | -10.32      | QP       | P   |        |
| 5   | 0.4335          | 24.63          | 19.58       | 44.21        | 57.19        | -12.98      | QP       | P   |        |
| 6   | 0.4335          | 8.89           | 19.58       | 28.47        | 47.19        | -18.72      | AVG      | P   |        |
| 7   | 2.1300          | 18.58          | 20.88       | 39.46        | 56.00        | -16.54      | QP       | P   |        |
| 8   | 2.1300          | 7.30           | 20.88       | 28.18        | 46.00        | -17.82      | AVG      | P   |        |
| 9   | 4.9560          | 17.79          | 21.11       | 38.90        | 56.00        | -17.10      | QP       | P   |        |
| 10  | 4.9560          | 6.37           | 21.11       | 27.48        | 46.00        | -18.52      | AVG      | P   |        |
| 11  | 12.3630         | 20.84          | 21.40       | 42.24        | 60.00        | -17.76      | QP       | P   |        |
| 12  | 12.3630         | 8.81           | 21.40       | 30.21        | 50.00        | -19.79      | AVG      | P   |        |





| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F | Remark |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|----------|-----|--------|
| 1   | 0.1905          | 38.00          | 19.44       | 57.44        | 64.01        | -6.57       | QP       | P   |        |
| 2   | 0.1905          | 11.44          | 19.44       | 30.88        | 54.01        | -23.13      | AVG      | P   |        |
| 3 * | 0.2355          | 26.07          | 19.61       | 45.68        | 52.25        | -6.57       | AVG      | P   |        |
| 4   | 0.2625          | 32.88          | 19.66       | 52.54        | 61.35        | -8.81       | QP       | P   |        |
| 5   | 0.2895          | 18.73          | 19.61       | 38.34        | 50.54        | -12.20      | AVG      | P   |        |
| 6   | 0.3255          | 29.06          | 19.65       | 48.71        | 59.57        | -10.86      | QP       | P   |        |
| 7   | 0.3480          | 15.00          | 19.72       | 34.72        | 49.01        | -14.29      | AVG      | P   |        |
| 8   | 0.3930          | 27.68          | 19.57       | 47.25        | 58.00        | -10.75      | QP       | P   |        |
| 9   | 2.2290          | 19.16          | 20.92       | 40.08        | 56.00        | -15.92      | QP       | P   |        |
| 10  | 2.2290          | 6.91           | 20.92       | 27.83        | 46.00        | -18.17      | AVG      | P   |        |
| 11  | 16.4625         | 20.46          | 22.19       | 42.65        | 60.00        | -17.35      | QP       | P   |        |
| 12  | 16.4625         | 8.89           | 22.19       | 31.08        | 50.00        | -18.92      | AVG      | P   |        |



## 6.2 Radiated Emissions (30MHz-1GHz)

Test Requirement: EN IEC 55015: 2019+A11:2020

Test Method: EN IEC 55015:2019+A11:2020

Measurement Distance: 3m

Limit:

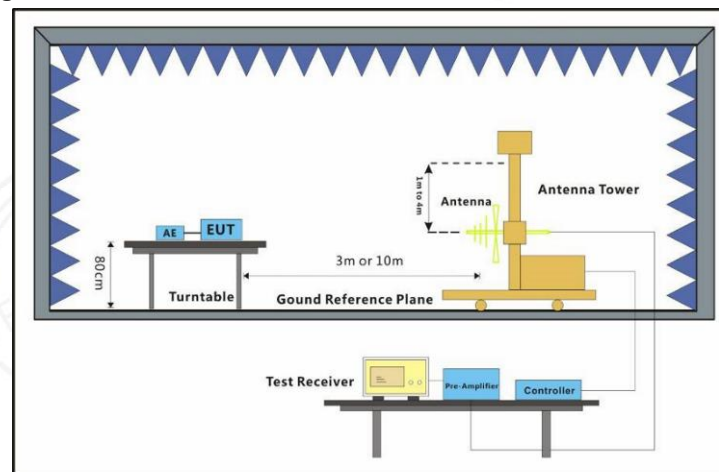
| FREQUENCY (MHz)                                                          | dB(μV/m) At 3m |
|--------------------------------------------------------------------------|----------------|
| 30MHz-230MHz                                                             | 40             |
| 230MHz-1GHz                                                              | 47             |
| Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz |                |

### 6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 55 % RH Atmospheric Pressure: 1017 mbar

### 6.2.2 Test Setup Diagram



### 6.2.3 Measurement Procedure and Data

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.

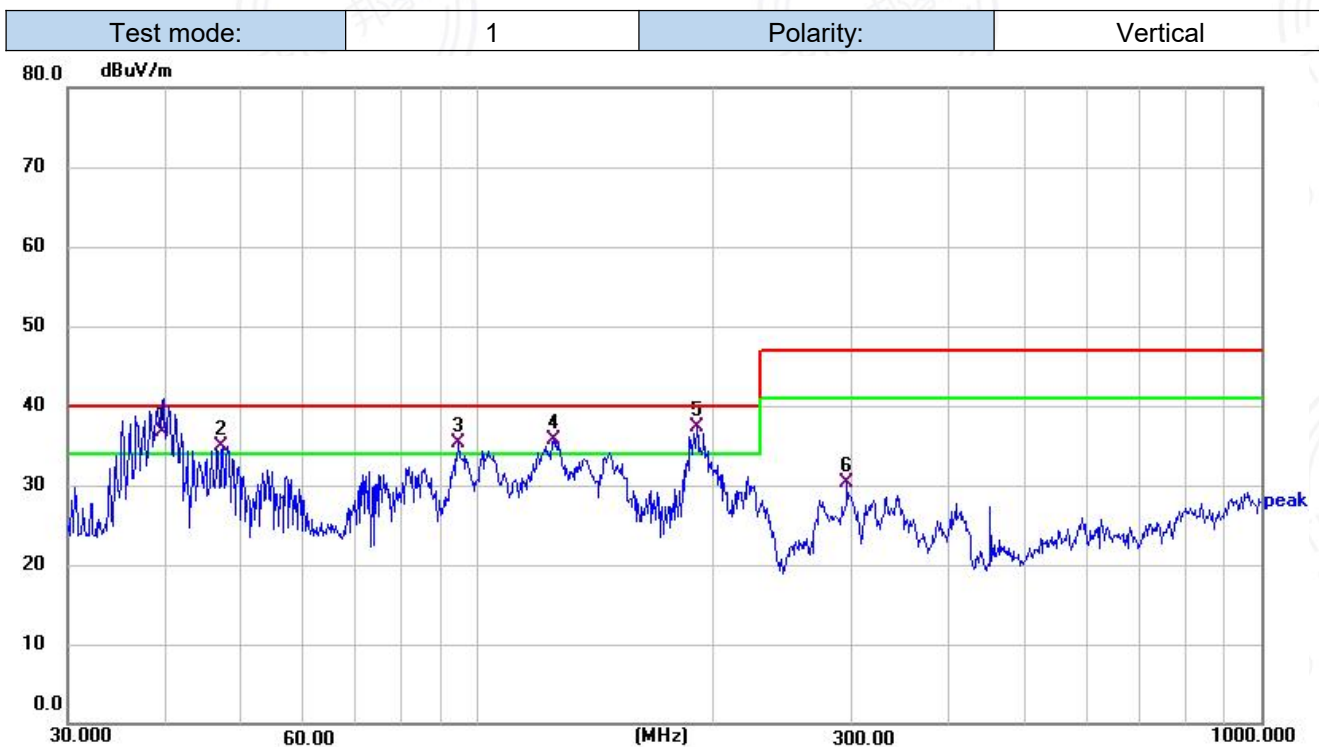
Remark: Level= Reading Level + Factor





| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-------------|----------------|-----|--------|
| 1 ! | 36.1269         | 46.38          | -11.18        | 35.20          | 40.00          | -4.80       | QP       | 100         | 0              | P   |        |
| 2 * | 123.2653        | 49.11          | -12.31        | 36.80          | 40.00          | -3.20       | QP       | 100         | 0              | P   |        |
| 3 ! | 136.9390        | 48.16          | -12.06        | 36.10          | 40.00          | -3.90       | QP       | 100         | 0              | P   |        |
| 4 ! | 189.0742        | 49.59          | -13.99        | 35.60          | 40.00          | -4.40       | QP       | 100         | 0              | P   |        |
| 5   | 341.9786        | 46.30          | -11.15        | 35.15          | 47.00          | -11.85      | QP       | 100         | 0              | P   |        |
| 6   | 447.9821        | 36.15          | -8.69         | 27.46          | 47.00          | -19.54      | QP       | 100         | 0              | P   |        |





| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-------------|----------------|-----|--------|
| 1 ! | 39.7146         | 48.19          | -11.39        | 36.80          | 40.00          | -3.20       | QP       | 100         | 360            | P   |        |
| 2 ! | 47.3253         | 46.71          | -11.87        | 34.84          | 40.00          | -5.16       | QP       | 100         | 360            | P   |        |
| 3 ! | 94.4282         | 50.03          | -14.79        | 35.24          | 40.00          | -4.76       | QP       | 100         | 360            | P   |        |
| 4 ! | 125.0065        | 47.13          | -11.51        | 35.62          | 40.00          | -4.38       | QP       | 100         | 360            | P   |        |
| 5 * | 190.4050        | 51.97          | -14.68        | 37.29          | 40.00          | -2.71       | QP       | 100         | 360            | P   |        |
| 6   | 296.1836        | 42.04          | -11.83        | 30.21          | 47.00          | -16.79      | QP       | 100         | 360            | P   |        |



### 6.3 Radiated Emissions (Magnetic field Induced Current) (9kHz-30MHz)

Test Requirement: EN IEC 55015: 2019+A11:2020

Test Method: EN IEC 55015:2019+A11:2020

Limit:

0.009MHz-0.07MHz 88dB( $\mu$ A/m) quasi-peak

0.07MHz-0.15MHz 88dB( $\mu$ A/m)-58dB( $\mu$ A/m) quasi-peak

0.15MHz-3.0MHz 58dB( $\mu$ A/m)-22dB( $\mu$ A/m) quasi-peak

3.0MHz-30MHz 3dB( $\mu$ A/m) quasi-peak

Detector: Peak for pre-scan (200Hz resolution bandwidth) 0.009M to 0.15MHz

Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

#### 6.3.1 E.U.T. Operation

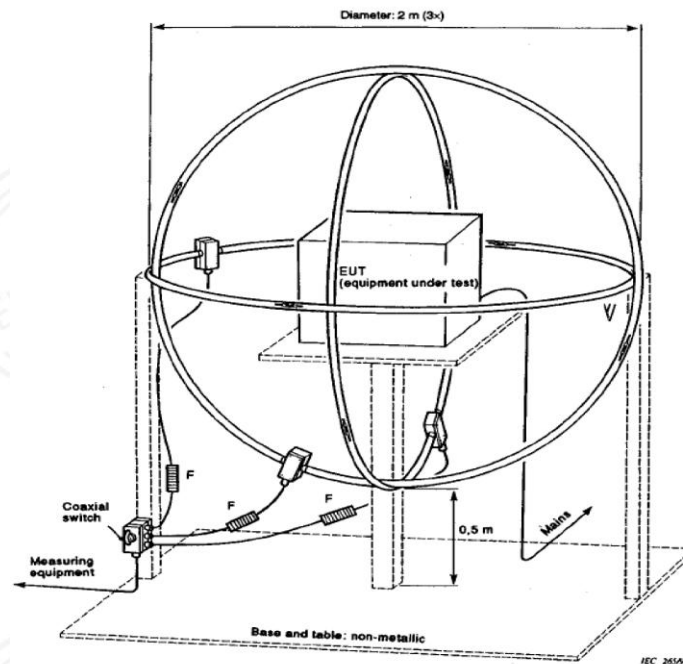
Operating Environment:

Temperature: 24 °C

Humidity: 54 % RH

Atmospheric Pressure: 1017 mbar

#### 6.3.2 Test Setup Diagram

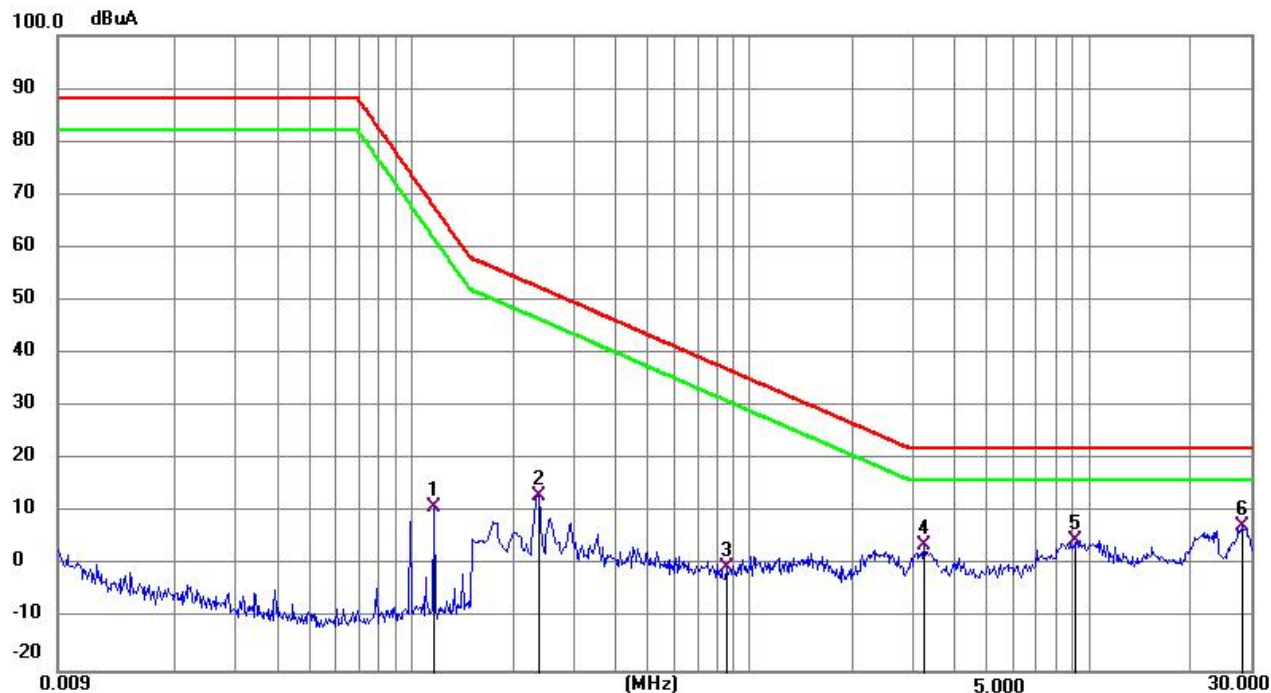


### 6.3.3 Measurement Procedure and Data

An initial pre-scan was performed in the 2m loop antenna using the spectrum analyser in peak detection mode. The EUT was measured for X(A), Y(B), Z(C) polarities.

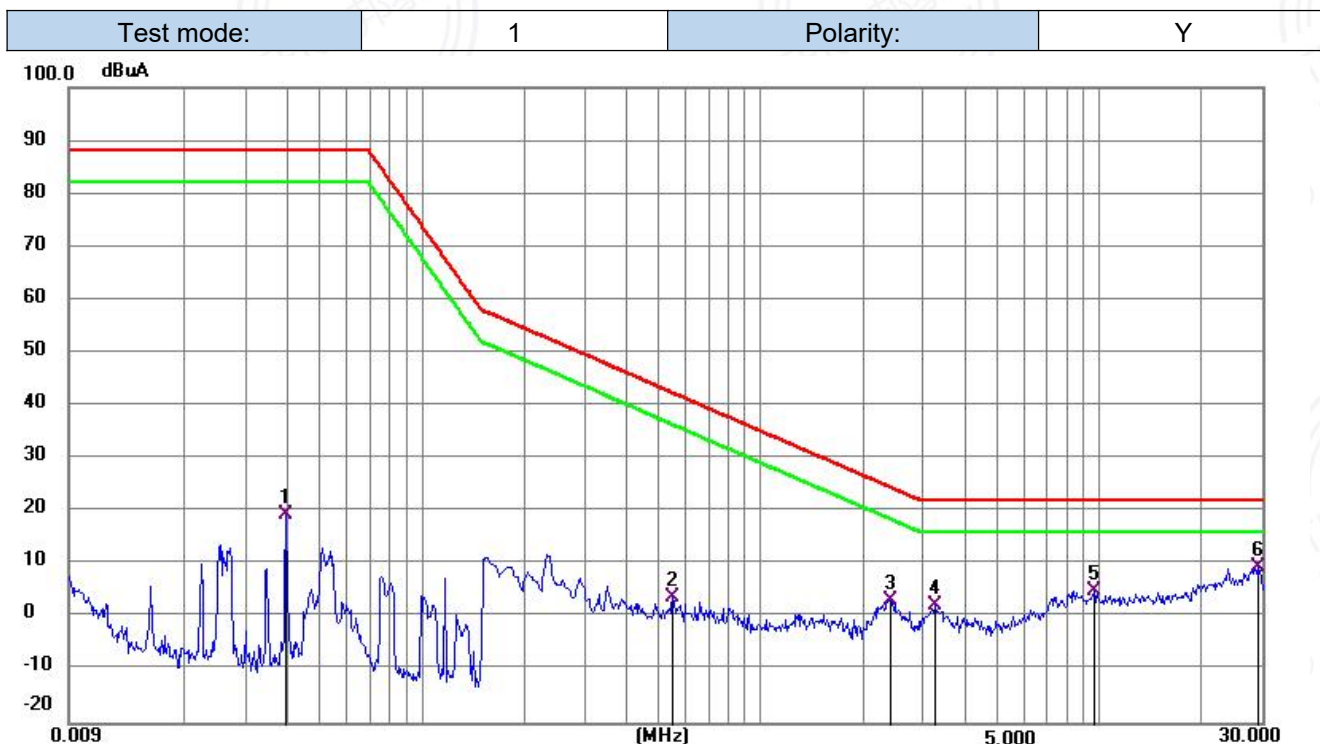
Remark: Level= Reading Level + Correct Factor

|            |   |           |   |
|------------|---|-----------|---|
| Test mode: | 1 | Polarity: | X |
|------------|---|-----------|---|



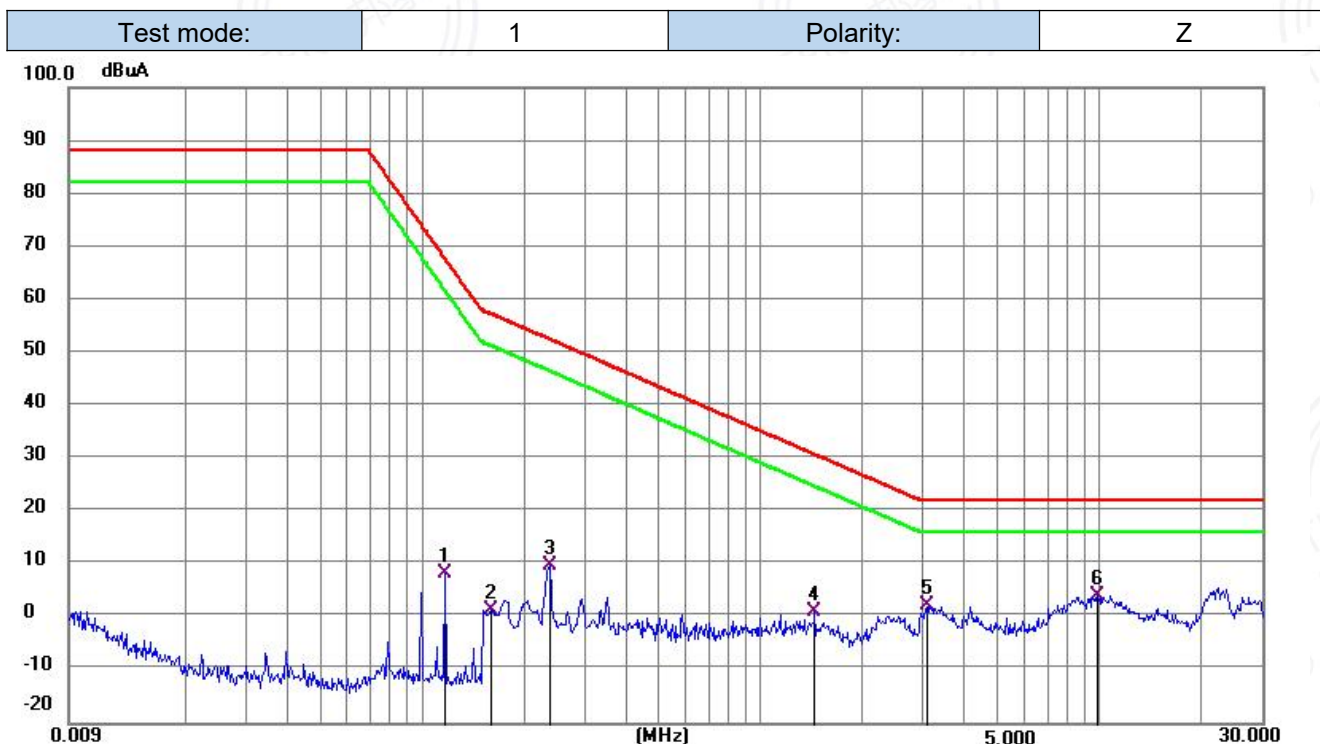
| No. Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuA | Limit<br>dBuA | Margin<br>dB | Detector | Comment |
|---------|--------------|--------------------------|-------------------------|--------------------------|---------------|--------------|----------|---------|
| 1       | 0.1166       | 5.82                     | 5.32                    | 11.14                    | 67.91         | -56.77       | QP       |         |
| 2       | 0.2355       | 8.56                     | 4.70                    | 13.26                    | 52.58         | -39.32       | QP       |         |
| 3       | 0.8475       | -2.36                    | 1.88                    | -0.48                    | 37.19         | -37.67       | QP       |         |
| 4       | 3.2685       | 2.83                     | 1.14                    | 3.97                     | 22.00         | -18.03       | QP       |         |
| 5       | 9.2309       | 1.85                     | 3.04                    | 4.89                     | 22.00         | -17.11       | QP       |         |
| 6 *     | 28.2300      | 0.61                     | 6.83                    | 7.44                     | 22.00         | -14.56       | QP       |         |





| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuA | Limit<br>dBuA | Margin<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|--------------|----------|---------|
| 1   |     | 0.0396       | 15.53                    | 3.82                    | 19.35                    | 88.00         | -68.65       | QP       |         |
| 2   |     | 0.5460       | 1.43                     | 2.32                    | 3.75                     | 42.47         | -38.72       | QP       |         |
| 3   |     | 2.4135       | 2.83                     | 0.48                    | 3.31                     | 24.61         | -21.30       | QP       |         |
| 4   |     | 3.2685       | 1.33                     | 0.90                    | 2.23                     | 22.00         | -19.77       | QP       |         |
| 5   |     | 9.6180       | 1.33                     | 3.85                    | 5.18                     | 22.00         | -16.82       | QP       |         |
| 6   | *   | 29.1345      | 0.74                     | 8.78                    | 9.52                     | 22.00         | -12.48       | QP       |         |





| No. | Mk. | Freq.  | Reading | Correct | Measure- | Limit | Margin |          |         |
|-----|-----|--------|---------|---------|----------|-------|--------|----------|---------|
|     |     | MHz    | Level   | Factor  | ment     |       |        | Detector | Comment |
|     |     |        | dBuV    | dB      | dBuA     | dBuA  | dB     |          |         |
| 1   |     | 0.1166 | 6.09    | 2.25    | 8.34     | 67.91 | -59.57 | QP       |         |
| 2   |     | 0.1590 | 0.03    | 1.34    | 1.37     | 57.30 | -55.93 | QP       |         |
| 3   |     | 0.2355 | 9.20    | 0.53    | 9.73     | 52.58 | -42.85 | QP       |         |
| 4   |     | 1.4370 | 1.58    | -0.44   | 1.14     | 30.85 | -29.71 | QP       |         |
| 5   |     | 3.1199 | 2.49    | -0.14   | 2.35     | 22.00 | -19.65 | QP       |         |
| 6   | *   | 9.8655 | 1.72    | 2.55    | 4.27     | 22.00 | -17.73 | QP       |         |



## 7 Immunity Test Results

### Performance Criteria Description in EN IEC 61547:2023

- Criterion A:** During the test, no change of the luminous intensity shall be observed and the regulating control, if any, shall operate during the test as intended.
- Criterion B:** During the test, the luminous intensity may change to any value. After the test, the luminous intensity shall be restored to its initial value within 1 min. Regulating controls need not function during the test, but after the test, the mode of the control shall be the same as before the test provided that during the test no mode changing commands were given.
- Criterion C:** During and after the test, any change of the luminous intensity is allowed and the lamp(s) may be extinguished. After the test, within 30 min, all functions shall return to normal, if necessary by temporary interruption of the mains supply and/or operating the regulating control.

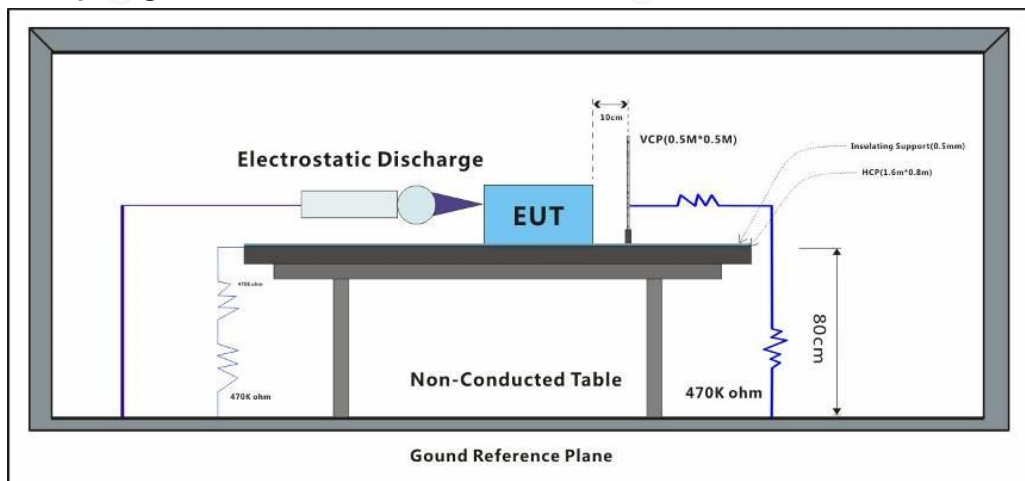


## 7.1 Electrostatic Discharge

Test Requirement: EN IEC 61547:2023

Test Method: EN 61000-4-2:2009

### 7.1.1 Test Setup Diagram



### 7.1.2 E.U.T. Operation

Operating Environment:

Temperature: 24.6 °C

Humidity: 52.6 % RH

Atmospheric Pressure: 1017 mbar

### 7.1.3 Test Condition and Results:

Performance Criterion:

B

Discharge Impedance:

330  $\Omega$  / 150 pF

Discharge Voltage:

Air Discharge:

8 kV

Contact Discharge:

4 kV

VCP/HCP:

4 kV

Polarity: Positive &amp; Negative

Number of Discharge:

Minimum 10 times at each test point

Discharge Mode:

Single Discharge

Discharge Period:

1 second minimum

| Discharge type      | Level (kV) | Polarity | Test Point | Result / Observations |
|---------------------|------------|----------|------------|-----------------------|
| Air Discharge       | 2,4,8      | +        | 1          | A                     |
| Air Discharge       | 2,4,8      | -        | 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                     |

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

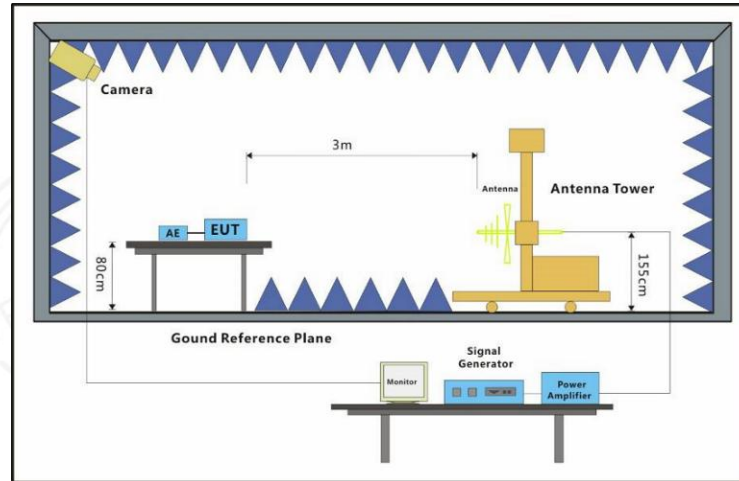


## 7.2 Radiated Immunity (80MHz-1GHz)

Test Requirement: EN IEC 61547:2023

Test Method: EN IEC 61000-4-3:2020

### 7.2.1 Test Setup Diagram



### 7.2.2 E.U.T. Operation

Operating Environment:

Temperature: 24.6 °C

Humidity: 52.7 % RH

Atmospheric Pressure: 1017 mbar

### 7.2.3 Test Condition and Results:

Performance Criterion:

A

Frequency Range:

80MHz to 1GHz

Antenna Polarisation:

Vertical and Horizontal

Modulation

1kHz,80% Amp. Mod,1% increment

| Frequency                                                    | Level (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                     |
| A: No degradation in the performance of the EUT was observed |             |          |            |                       |

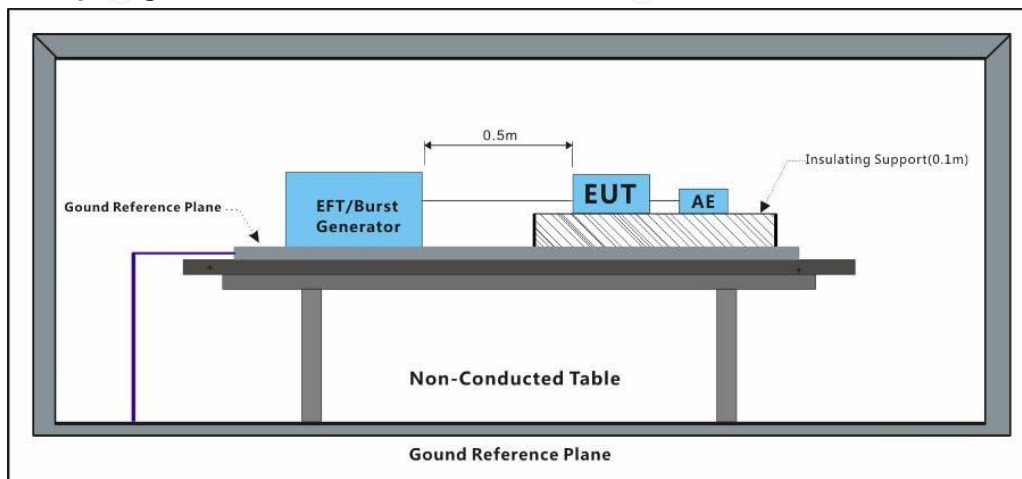


### 7.3 Electrical Fast Transients Burst at AC Mains Power Port

Test Requirement: EN IEC 61547:2023

Test Method: EN 61000-4-4:2012

#### 7.3.1 Test Setup Diagram



#### 7.3.2 E.U.T. Operation

Operating Environment:

Temperature: 24.3 °C

Humidity: 52.7 % RH

Atmospheric Pressure: 1017 mbar

#### 7.3.3 Test Condition and Results:

Performance Criterion:

B

Repetition Frequency:

5kHz

Burst Period:

300ms

Test Duration:

2 minute per level & polarity

Test Level:

1.0kV

Polarity: Positive & Negative

| Test Line                                                    | Level (kV) | Polarity | CDN/Clamp | Result / Observations |
|--------------------------------------------------------------|------------|----------|-----------|-----------------------|
| AC power port                                                | 1          | +        | CDN       | A                     |
| AC power port                                                | 1          | -        | CDN       | A                     |
| A: No degradation in the performance of the EUT was observed |            |          |           |                       |

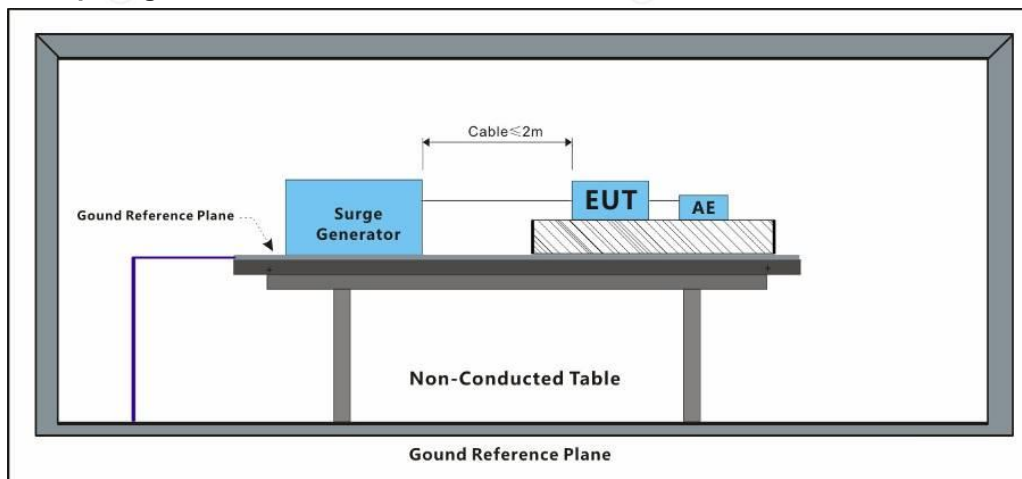


## 7.4 Surge at Power Port

Test Requirement: EN IEC 61547:2023

Test Method: EN 61000-4-5:2014+A1:2017

### 7.4.1 Test Setup Diagram



### 7.4.2 E.U.T. Operation

Operating Environment:

Temperature: 24.9 °C

Humidity: 53.6 % RH

Atmospheric Pressure: 1017 mbar

### 7.4.3 Test Condition and Results:

Performance Criterion: B

Interval: 60s between each surge

Test Level:  $\pm 1\text{kV}$  Live to Neutral,  $\pm 2\text{kV}$  Live, Neutral to Earth

Polarity: Positive &amp; Negative

Generator source impedance:  $2\Omega$ 

Trigger Mode: Internal

No. of surges: 5 positive at  $90^\circ$ , 5 negative at  $270^\circ$ .

| Test Line | Level (kV) | Polarity | Phase (deg) | Result / Observations |
|-----------|------------|----------|-------------|-----------------------|
| L-N       | 1          | +        | $90^\circ$  | A                     |
| L-N       | 1          | -        | $270^\circ$ | A                     |

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

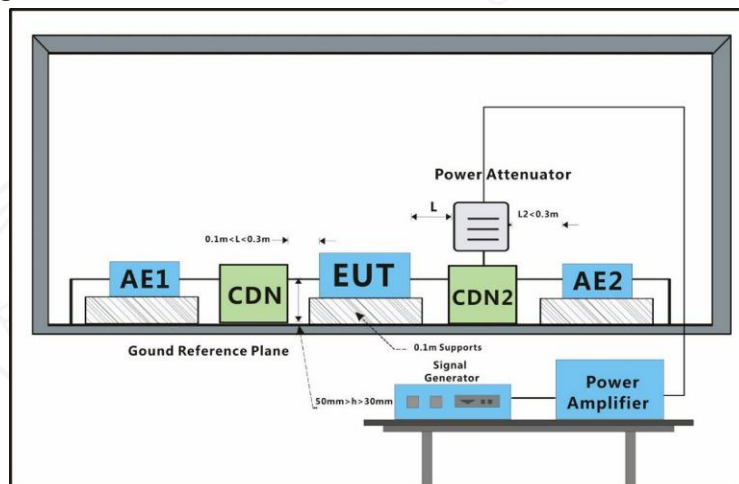


## 7.5 Conducted Immunity at AC Mains Power Port (150kHz-80MHz)

Test Requirement: EN IEC 61547:2023

Test Method: EN 61000-4-6:2014

### 7.5.1 Test Setup Diagram



### 7.5.2 E.U.T. Operation

Operating Environment:

Temperature: 24.6 °C

Humidity: 52.8 % RH

Atmospheric Pressure: 1017 mbar

### 7.5.3 Test Condition and Results:

Performance Criterion:

A

Step Size 1%

Frequency Range:

0.15MHz to 80MHz

Modulation:

80%, 1kHz Amplitude Modulation

| Cable port                                                   | Level (Vrms) | CDN/Clamp | Dwell time | Result / Observations |
|--------------------------------------------------------------|--------------|-----------|------------|-----------------------|
| AC power port                                                | 3            | CDN       | 2          | A                     |
| A: No degradation in the performance of the EUT was observed |              |           |            |                       |

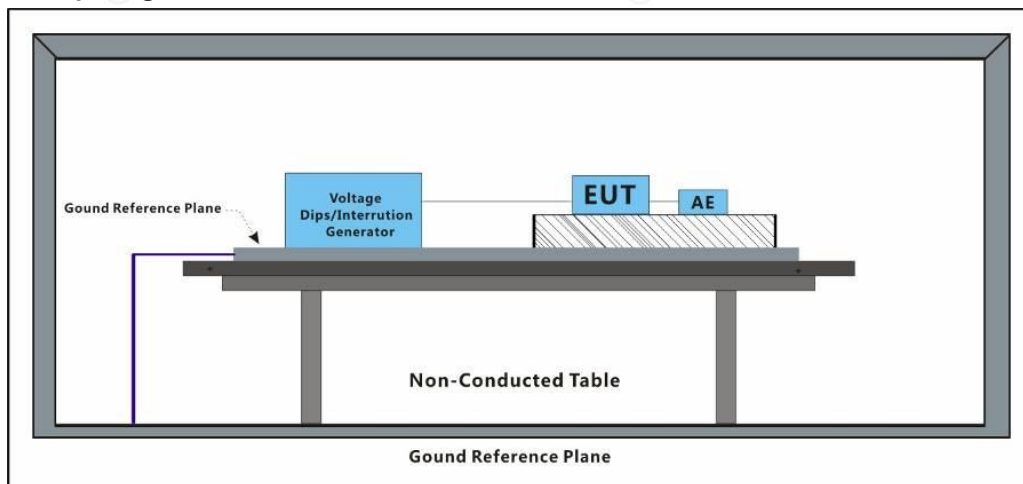


## 7.6 Voltage Dips and Interruptions

Test Requirement: EN IEC 61547:2023

Test Method: EN IEC 61000-4-11:2020

### 7.6.1 Test Setup Diagram



### 7.6.2 E.U.T. Operation

Operating Environment:

Temperature: 23.6 °C

Humidity: 52.7 % RH

Atmospheric Pressure: 1017 mbar

### 7.6.3 Test Condition and Results:

Performance Criterion: 0% of UT (Supply Voltage) for 0.5 Periods: B; 70 % of UT for 10 Periods: C

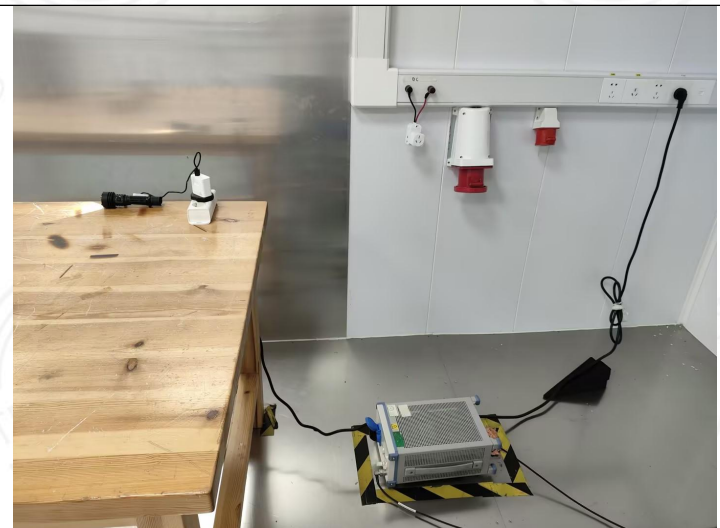
No. of Dips / Interruptions: 3 per Level

Time between dropout 10s

| Level % UT                                                   | Phase (deg) | Duration            | No. of Dips / Interruptions | Result / Observations |
|--------------------------------------------------------------|-------------|---------------------|-----------------------------|-----------------------|
| 0                                                            | 0°          | 0.5 Cycles for 50Hz | 3                           | A                     |
| 0                                                            | 180°        | 0.5 Cycles for 50Hz | 3                           | A                     |
| 40                                                           | 0°          | 10 Cycles for 50Hz  | 3                           | A                     |
| 40                                                           | 180°        | 10 Cycles for 50Hz  | 3                           | A                     |
| 70                                                           | 0°          | 25 Cycles for 50Hz  | 3                           | A                     |
| 70                                                           | 180°        | 25 Cycles for 50Hz  | 3                           | A                     |
| 0                                                            | 0°          | 0.5 Cycles for 60Hz | 3                           | A                     |
| 0                                                            | 180°        | 0.5 Cycles for 60Hz | 3                           | A                     |
| 40                                                           | 0°          | 12 Cycles for 60Hz  | 3                           | A                     |
| 40                                                           | 180°        | 12 Cycles for 60Hz  | 3                           | A                     |
| 70                                                           | 0°          | 30 Cycles for 60Hz  | 3                           | A                     |
| 70                                                           | 180°        | 30 Cycles for 60Hz  | 3                           | A                     |
| A: No degradation in the performance of the EUT was observed |             |                     |                             |                       |



## 8 Test Setup Photo

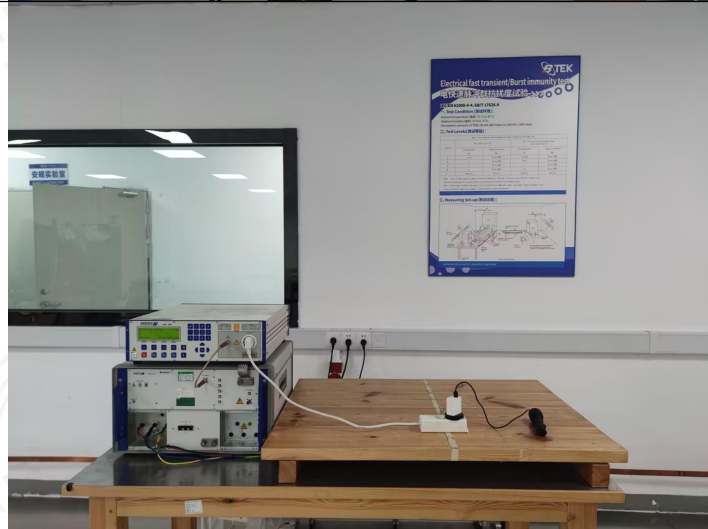
|                                                                               |                                                                                      |
|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <p><b>Conducted Emissions at Mains Terminals (9kHz-30MHz)</b></p>             |    |
| <p><b>Radiated Emissions (30MHz-1GHz)</b></p>                                 |   |
| <p><b>Radiated Emissions (Magnetic field Induced Current)(9kHz-30MHz)</b></p> |  |



### Electrostatic Discharge



### Electrical Fast Transients & Burst at AC Power Port



### Surge at AC Power Port



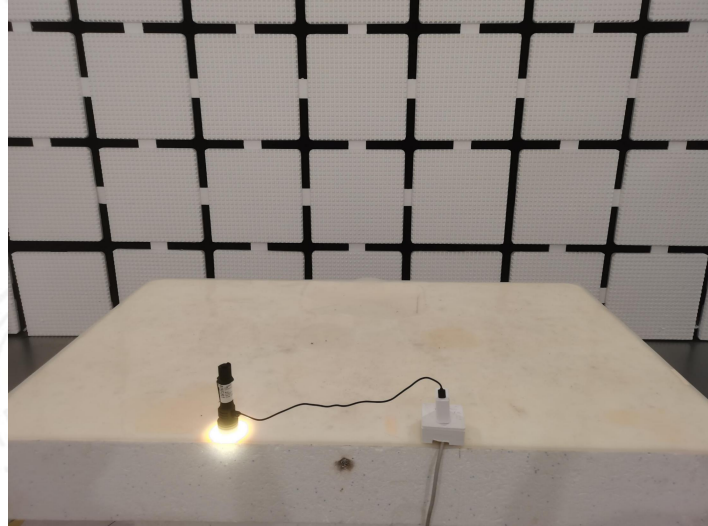
**Conducted Immunity at AC Power Port (150kHz-80MHz)**



**Voltage Dips and Interruptions**



**Radiated Immunity**



## 9 EUT Constructional Details (EUT Photos)

|                          |                                                                                      |
|--------------------------|--------------------------------------------------------------------------------------|
| <p><b>EUT View 1</b></p> |    |
| <p><b>EUT View 2</b></p> |   |
| <p><b>EUT View 3</b></p> |  |



EUT View 4



EUT View 5



EUT View 6



EUT View 7



- End of the Report -

