# EMC TEST REPORT

## For CE-RED

| | | |
|---|---|---|
| **Report No.** | : | SSP25120173-1E |
| **Applicant** | : | Zendure USA Inc. |
| **Product Name** | : | Zendure Smart Meter 3CT-S and Zendure Smart Meter 1CT-S |
| **Model Name** | : | ZDC2503 |
| **Test Standard** | : | EN 301489-1 V2.2.3 (2019-11)<br>EN 301489-17 V3.3.1 (2024-09)<br>EN 55032 :2015+A11 :2020+A1 :2020<br>EN 55035 :2017+A11 :2020<br>EN IEC 61000-3-2:2019+A2:2024<br>EN 61000-3-3:2013+A2:2021+ AC:2022-01 |
| **Date of Issue** | : | 2026-03-04 |

**Shenzhen CCUT Quality Technology Co., Ltd.**

1F, Building 35, Changxing Technology Industrial Park, Yutang Street, Guangming District, Shenzhen, Guangdong, China; (Tel.:+86-755-23406590 website: www.ccuttest.com)

This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Shenzhen CCUT Quality Technology Co., Ltd.

## Test Report Basic Information

| | |
|---|---|
| **Applicant**.....: | Zendure USA Inc. |
| Address of Applicant.....: | 1765 E BAYSHORE RD # 201 EAST PALO ALTO, CA 94303-5501 |
| **Manufacturer**.....: | ZENDURE TECHNOLOGY CO., LIMITED |
| Address of Manufacturer.....: | RM 77A 2/F BLK F TUEN MUN INDUSTRIAL CENTRE 2 SAN PING CIRCUIT TUEN MUNNT |
| **Product Name**.....: | Zendure Smart Meter 3CT-S and Zendure Smart Meter 1CT-S |
| **Brand Name**.....: | ZENDURE |
| **Main Model**.....: | ZDC2503 |
| **Series Models**.....: | ZDC2502 |
| **Test Standard**.....: | EN 301489-1 V2.2.3 (2019-11)<br>EN 301489-17 V3.3.1 (2024-09)<br>EN 55032 :2015+A11 :2020+A1 :2020<br>EN 55035 :2017+A11 :2020<br>EN IEC 61000-3-2:2019+A2:2024<br>EN 61000-3-3:2013+A2:2021+ AC:2022-01 |
| **Date of Test** .....: | 2026-01-30 to 2026-03-02 |
| **Test Result**.....: | PASS |

| | | |
|---|---|---|
| **Tested By** .....: | Colin Chen (Colin Chen) | Shenzhen CCUT Quality Technology Co., Ltd. APPROVED |
| **Reviewed By**.....: | Lorzix Luo (Lorzix Luo) | |
| **Authorized Signatory**.....: | Lahm Peng (Lahm Peng) | |

Note : This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Shenzhen CCUT Quality Technology Co., Ltd.. All test data presented in this test report is only applicable to presented test sample.

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## Revision History

| Revision | Issue Date | Description | Revised By |
|---|---|---|---|
| V1.0 | 2025-03-04 | Initial Release | Lahm Peng |
| | | | |
| | | | |
| | | | |
| | | | |

# 1. General Information

## 1.1 Product Information

| | |
|---|---|
| Product Name: | Zendure Smart Meter 3CT-S and Zendure Smart Meter 1CT-S |
| Trade Name: | ZENDURE |
| Test Model: | ZDC2503 |
| Series Models: | ZDC2502 |
| Rated Voltage: | Input: AC 230V/50Hz~, 50/60Hz<br>Rated Power: 3W Max |
| Type of Equipment: | ☒ Fixed-Use ☐ Vehicle-Use ☐ Portable-Use |
| Class of Equipment: | ☐ Class A ☒ Class B |
| Note 1: The test data is gathered from a production sample, provided by the manufacturer.<br>Note 2: The color of appearance and model name of series models listed are different from the main model, but the circuit and the electronic construction are the same, declared by the manufacturer. | |

## 1.2 Test Setup Information

| List of Test Modes | | |
|---|---|---|
| Test Mode | Description | Remark |
| TM1 | Wireless connection mode | - |

| List and Details of Auxiliary Cable | | | |
|---|---|---|---|
| Description | Length (cm) | Shielded/Unshielded | With/Without Ferrite |
| - | - | - | - |
| - | - | - | - |

| List and Details of Auxiliary Equipment | | | |
|---|---|---|---|
| Description | Manufacturer | Model | Serial Number |
| Mobile phone | iPhone | MG843CH/A | C6KDL69N0GQY |
| - | - | - | - |

The equipment under test (EUT) was configured to measure its highest possible emission and immunity level. The test modes were adapted according to the operation manual for use.

## 1.3 Compliance Standards

| Compliance Standards | |
|---|---|
| EN 301489-1 V2.2.3 (2019-11) | ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard for ElectroMagnetic Compatibility |
| EN 301489-17 V3.3.1 (2024-09) | ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband and Wideband Data Transmission Systems; Harmonised Standard for ElectroMagnetic Compatibility |
| All measurements contained in this report were conducted with all above standards | |
| According to standards for test methodology | |
| EN 55032:2015+A1/A11:2020 | Electromagnetic compatibility of multimedia equipment - Emission requirements |
| EN 55035:2017+A11:2020 | Electromagnetic compatibility of multimedia equipment - Immunity requirements |
| EN IEC 61000-3-2:2019+A2:2024 | Electromagnetic compatibility (EMC) - Part 3-2: Limits – Limits for harmonic current emissions (equipment input current ≤16 A per phase) |
| EN 61000-3-3:2013+A2:2021+ AC:2022-01 | Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤16 A per phase and not subject to conditional connection |
| IEC 61000-4-2:2025 | Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test |
| IEC 61000-4-3:2020 | Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test |
| IEC 61000-4-4:2012 | Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test |
| IEC 61000-4-5:2014+A1:2017 | Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test |
| IEC 61000-4-6:2023 | Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields |
| IEC 61000-4-11:2020 | Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests |
| Maintenance of compliance is the responsibility of the manufacturer or applicant. Any modification of the product, which result is lowering the emission, should be checked to ensure compliance has been maintained. | |

## 1.4 Performance Criteria for EMS

| Criteria | During test | After test<br>(i.e. as a result of the application of the test) |
|---|---|---|
| A | Shall operate as intended.<br>(See note).<br>Shall be no loss of function.<br>Shall be no unintentional transmissions. | Shall operate as intended.<br>Shall be no degradation of performance.<br>Shall be no loss of function.<br>Shall be no loss of critical stored data. |
| B | May be loss of function. | Functions shall be self-recoverable.<br>Shall operate as intended after recovering.<br>Shall be no loss of critical stored data. |
| C | May be loss of function. | Functions shall be recoverable by the operator.<br>Shall operate as intended after recovering.<br>Shall be no loss of critical stored data. |
| NOTE:<br>• For equipment that supports a PER or FER, the minimum performance level shall be a PER or FER less than or equal to 10 %.<br>• For equipment that does not support a PER or a FER, (e.g. audio equipment and equipment transmitting sporadic messages) the minimum performance level shall be no loss of the wireless transmission function needed for the intended use of the equipment. | Operate as intended during the test shall be considered as: | |

## 1.5 Test Facilities

| | |
|---|---|
| Laboratory Name: | **Shenzhen CCUT Quality Technology Co., Ltd.**<br>1F, Building 35, Changxing Technology Industrial Park, Yutang Street, Guangming District, Shenzhen, Guangdong, China |
| CNAS Laboratory No.: | L18863 |
| A2LA Certificate No.: | 6983.01 |
| FCC Registration No: | 583813 |
| ISED Registration No.: | CN0164 |

## 1.6 Measurement Uncertainty

| Test Item | Conditions | Uncertainty |
|---|---|---|
| Conducted Emissions | 9kHz ~ 30MHz | ±1.64 dB |
| Radiated Emissions | 30MHz ~ 1GHz | ±3.32 dB |
| | 1GHz ~ 6GHz | ±3.50 dB |

## 1.7 List of Measurement Instruments

| Description | Manufacturer | Model | Serial Number | Cal. Date | Due. Date |
|---|---|---|---|---|---|
| **Conducted Emissions** | | | | | |
| AMN | ROHDE&SCHWARZ | ENV216 | 101097 | 2025-07-15 | 2026-07-14 |
| EMI Test Receiver | ROHDE&SCHWARZ | ESPI | 100242 | 2025-07-15 | 2026-07-14 |
| EMI Test Software | FARA | EZ-EMC | EMEC-3A1+ | N/A | N/A |
| **Radiated Emissions** | | | | | |
| EMI Test Receiver | ROHDE&SCHWARZ | ESPI | 100154 | 2025-07-15 | 2026-07-14 |
| Spectrum Analyzer | KEYSIGHT | N9020A | MY48030972 | 2025-07-15 | 2026-07-14 |
| Amplifier | SCHWARZBECK | BBV 9743B | 00251 | 2025-07-15 | 2026-07-14 |
| Amplifier | HUABO | YXL0518-2.5-45 | -- | 2025-07-15 | 2026-07-14 |
| Loop Antenna | DAZE | ZN30900C | 21104 | 2025-07-12 | 2026-07-11 |
| Broadband Antenna | SCHWARZBECK | VULB 9168 | 01320 | 2025-07-12 | 2026-07-11 |
| Horn Antenna | SCHWARZBECK | BBHA 9120D | 02553 | 2025-07-12 | 2026-07-11 |
| Attenuator | QUANJUDA | 6dB | 220731 | 2025-07-15 | 2026-07-14 |
| EMI Test Software | FARA | EZ-EMC | FA-03A2 RE+ | N/A | N/A |
| **Harmonics and Flicker** | | | | | |
| Harmonics Analyzer | EMC Partner | HARMONICS 1000 | 170 | 2025-07-15 | 2026-07-14 |
| **EMS Testing** | | | | | |
| ESD Generator | Shanghai LIONCEL | ESD-202B | 0220104 | 2025-07-14 | 2026-07-13 |
| CS Generator | Shanghai LIONCEL | RIS-6091 | 6091-0220601 | 2025-07-15 | 2026-07-14 |
| Coupling Decoupling Network | Shanghai LIONCEL | CDN-M3-16 | CDN-M3-16-02112 02 | 2025-07-15 | 2026-07-14 |
| Surges Test System | Shanghai LIONCEL | LCG-5411 | 5411-0220303 | 2025-07-15 | 2026-07-14 |
| Voltage Regulator | Shanghai LIONCEL | MVR-16 | -- | 2025-07-15 | 2026-07-14 |
| Signal Generator | Aglient | N5181A | MY46240904 | 2025-07-15 | 2026-07-14 |
| Amplifier 80M-1GHz | SKET | HAP_80M01G-250W | N/A | 2025-07-15 | 2026-07-14 |
| Amplifier 1GHz-3GHz | SKET | HAP_01G03G-75W | N/A | 2025-07-15 | 2026-07-14 |
| Amplifier 3GHz-6GHz | SKET | HAP_03G06G-75W | N/A | 2025-07-15 | 2026-07-14 |
| Forward Power Meter | R&S | NRP-Z11 | 138.3004.02-11610 | 2025-07-15 | 2026-07-14 |
| Reverse Power Meter | R&S | NRP-Z11 | 138.3004.02-11694 | 2025-07-15 | 2026-07-14 |
| Log-periodic Antenna | SKET | STLP 9129 Plus | N/A | 2025-07-15 | 2026-07-14 |
| EMS Software | SKET | EZ-EMC | EEMC-3A1 | N/A | N/A |

## 2. Summary of Test Results

| Standards | Description of Test Items | Result |
|---|---|---|
| EN 301489-1 V2.2.3 (2019-11) | Conducted Emission | Passed |
| | Radiated Emission | Passed |
| | Harmonic Current Emission | Passed |
| | Voltage Fluctuation and Flicker | Passed |
| | Electrostatic Discharge | Passed |
| | Continuous Radiated Disturbances Immunity | Passed |
| | Electrical Fast Transient Immunity | Passed |
| | Surges Immunity | Passed |
| | Continuous Conducted Disturbances Immunity | Passed |
| | Voltage Dips and Interruptions Immunity | Passed |
| Passed: The EUT complies with the essential requirements in the standard<br>Failed: The EUT does not comply with the essential requirements in the standard<br>N/A: Not applicable | | |

# 3. Conducted Emission

## 3.1 Standard and Limit

According to the standard EN 301489-1 section 8.4.3.2, the limits for conducted emission for AC mains power port as below:

**Table A.9 – Requirements for conducted emissions from the AC mains power ports of Class A equipment**

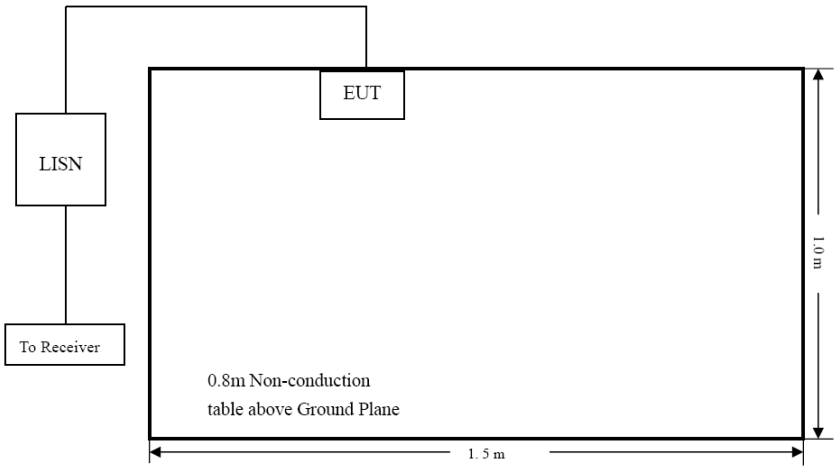
| **Applicable to**<br>1. AC mains power ports (3.1.1) | | | | |
|---|---|---|---|---|
| **Table clause** | **Frequency range** MHz | **Coupling device** (see Table A.8) | **Detector type / bandwidth** | **Class A limits dB(µV)** |
| A9.1 | 0,15 to 0,5 | AMN | Quasi Peak / 9 kHz | 79 |
| | 0,5 to 30 | | | 73 |
| A9.2 | 0,15 to 0,5 | AMN | Average / 9 kHz | 66 |
| | 0,5 to 30 | | | 60 |
| Apply A9.1 and A9.2 across the entire frequency range. | | | | |

**Table A.10 – Requirements for conducted emissions from the AC mains power ports of Class B equipment**

| **Applicable to**<br>1. AC mains power ports (3.1.1) | | | | |
|---|---|---|---|---|
| **Table clause** | **Frequency range** MHz | **Coupling device** (see Table A.8) | **Detector type / bandwidth** | **Class B limits dB(µV)** |
| A10.1 | 0,15 to 0,5 | AMN | Quasi Peak / 9 kHz | 66 to 56 |
| | 0,5 to 5 | | | 56 |
| | 5 to 30 | | | 60 |
| A10.2 | 0,15 to 0,5 | AMN | Average / 9 kHz | 56 to 46 |
| | 0,5 to 5 | | | 46 |
| | 5 to 30 | | | 50 |
| Apply A10.1 and A10.2 across the entire frequency range. | | | | |

## 3.2 Test Procedure

Test is conducting under the description of EN55032, annex C and annex D.

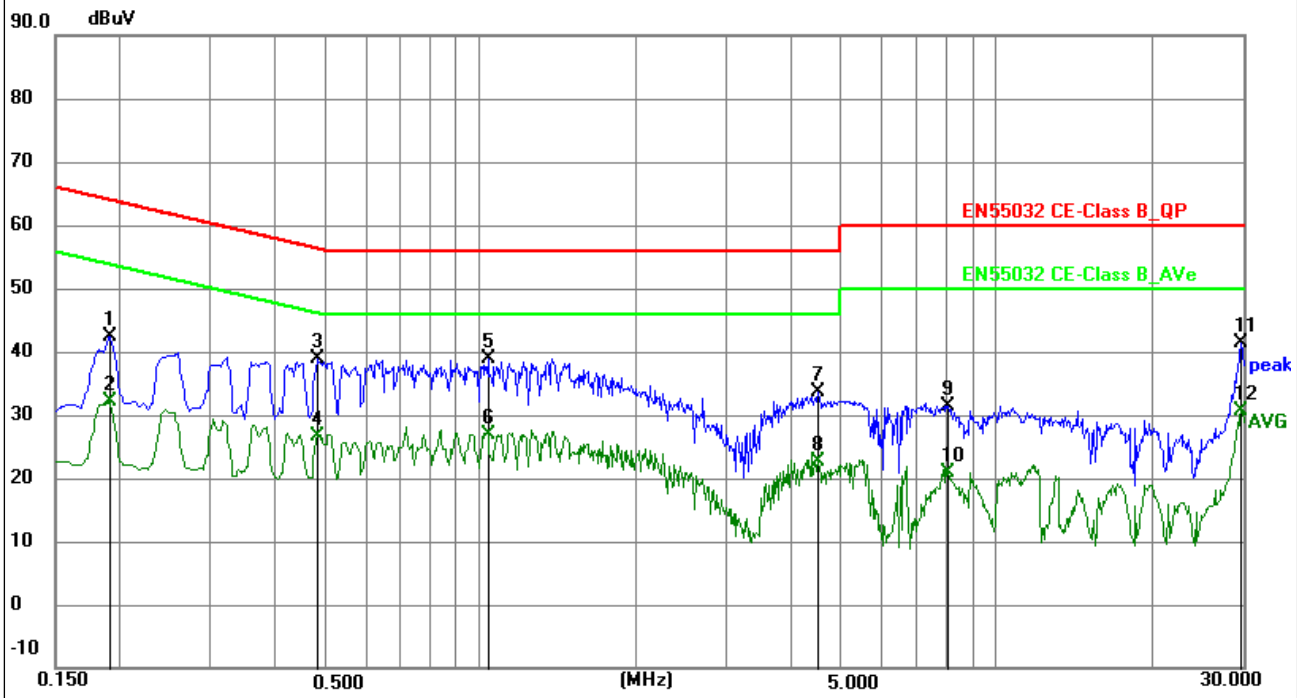



Test Setup Block Diagram

## 3.3 Test Data and Results

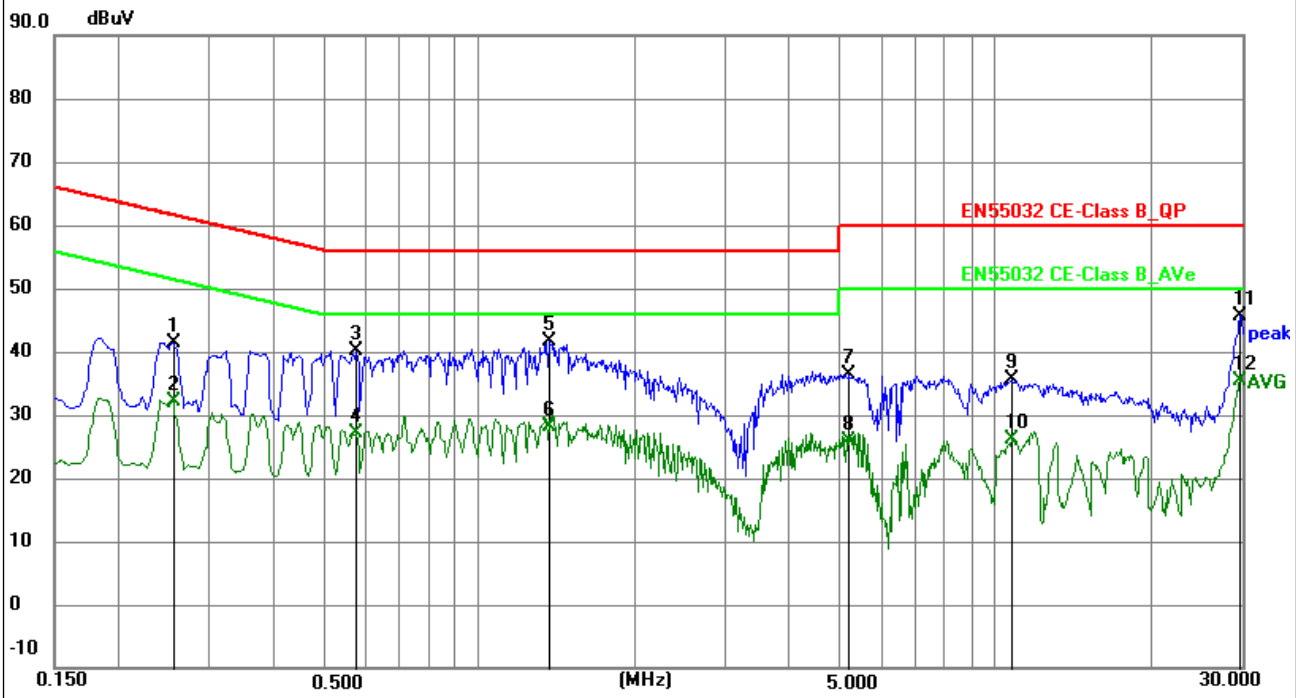
Based on all tested data, the EUT complied with the EN 55032 standard limit for a Class B device, and with the worst case as below:
Remark: Level = Reading + Factor, Margin = Level - Limit

| Test Plots and Data of Conducted Emission | |
|---|---|
| Tested Mode: | TM1 |
| Test Voltage: | AC 230V/50Hz |
| Test Power Line: | Neutral |
| Remark: | |




| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.1905 | 33.26 | 9.21 | 42.47 | 64.01 | -21.54 | peak | P | |
| 2 | 0.1905 | 22.80 | 9.21 | 32.01 | 54.01 | -22.00 | AVG | P | |
| 3 | 0.4830 | 29.55 | 9.39 | 38.94 | 56.29 | -17.35 | peak | P | |
| 4 | 0.4830 | 17.33 | 9.39 | 26.72 | 46.29 | -19.57 | AVG | P | |
| 5 * | 1.0320 | 29.39 | 9.43 | 38.82 | 56.00 | -17.18 | peak | P | |
| 6 | 1.0320 | 17.35 | 9.43 | 26.78 | 46.00 | -19.22 | AVG | P | |
| 7 | 4.5015 | 23.95 | 9.56 | 33.51 | 56.00 | -22.49 | peak | P | |
| 8 | 4.5015 | 13.02 | 9.56 | 22.58 | 46.00 | -23.42 | AVG | P | |
| 9 | 8.0430 | 21.93 | 9.57 | 31.50 | 60.00 | -28.50 | peak | P | |
| 10 | 8.0430 | 11.22 | 9.57 | 20.79 | 50.00 | -29.21 | AVG | P | |
| 11 | 29.8230 | 31.30 | 10.11 | 41.41 | 60.00 | -18.59 | peak | P | |
| 12 | 29.8230 | 20.55 | 10.11 | 30.66 | 50.00 | -19.34 | AVG | P | |

| Test Plots and Data of Conducted Emissions | |
|---|---|
| Tested Mode: | TM1 |
| Test Voltage: | AC 230V/50Hz |
| Test Power Line: | Live |
| Remark: | |




| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.2535 | 31.93 | 9.50 | 41.43 | 61.64 | -20.21 | peak | P | |
| 2 | 0.2535 | 22.56 | 9.50 | 32.06 | 51.64 | -19.58 | AVG | P | |
| 3 | 0.5775 | 30.67 | 9.57 | 40.24 | 56.00 | -15.76 | peak | P | |
| 4 | 0.5775 | 17.65 | 9.57 | 27.22 | 46.00 | -18.78 | AVG | P | |
| 5 | 1.3650 | 31.92 | 9.64 | 41.56 | 56.00 | -14.44 | peak | P | |
| 6 | 1.3650 | 18.60 | 9.64 | 28.24 | 46.00 | -17.76 | AVG | P | |
| 7 | 5.2170 | 26.67 | 9.76 | 36.43 | 60.00 | -23.57 | peak | P | |
| 8 | 5.2170 | 16.09 | 9.76 | 25.85 | 50.00 | -24.15 | AVG | P | |
| 9 | 10.7835 | 25.93 | 9.75 | 35.68 | 60.00 | -24.32 | peak | P | |
| 10 | 10.7835 | 16.30 | 9.75 | 26.05 | 50.00 | -23.95 | AVG | P | |
| 11 * | 29.8005 | 35.32 | 10.34 | 45.66 | 60.00 | -14.34 | peak | P | |
| 12 | 29.8005 | 25.05 | 10.34 | 35.39 | 50.00 | -14.61 | AVG | P | |

# 4. Radiated Emission

## 4.1 Standard and Limit

According to the standard EN 301489-1 section 8.2.3 , the limit for radiated emission as below:

**Table A.2 – Requirements for radiated emissions at frequencies up to 1 GHz for class A equipment**

| Table clause | Frequency range MHz | Measurement | | | Class A limits dB(μV/m) |
|---|---|---|---|---|---|
| | | Facility (see Table A.1) | Distance m | Detector type / bandwidth | |
| A2.1 | 30 to 230 | OATS/SAC | 10 | Quasi Peak / 120 kHz | 40 |
| | 230 to 1 000 | | | | 47 |
| A2.2 | 30 to 230 | OATS/SAC | 3 | | 50 |
| | 230 to 1 000 | | | | 57 |
| A2.3 | 30 to 230 | FAR | 10 | Quasi Peak / 120 kHz | 42 to 35 |
| | 230 to 1 000 | | | | 42 |
| A2.4 | 30 to 230 | FAR | 3 | | 52 to 45 |
| | 230 to 1 000 | | | | 52 |
| Apply only A2.1 or A2.2 or A2.3 or A2.4 across the entire frequency range. | | | | | |

**Table A.3 – Requirements for radiated emissions at frequencies above 1 GHz for class A equipment**

| Table clause | Frequency range MHz | Measurement | | | Class A limits dB(μV/m) |
|---|---|---|---|---|---|
| | | Facility (see Table A.1) | Distance m | Detector type / bandwidth | |
| A3.1 | 1 000 to 3 000 | FSOATS | 3 | Average / 1 MHz | 56 |
| | 3 000 to 6 000 | | | | 60 |
| A3.2 | 1 000 to 3 000 | | | Peak / 1 MHz | 76 |
| | 3 000 to 6 000 | | | | 80 |
| Apply A3.1 and A3.2 across the frequency range from 1 000 MHz to the highest required frequency of measurement derived from Table 1. | | | | | |

**Table A.4 – Requirements for radiated emissions at frequencies up to 1 GHz for class B equipment**

| Table clause | Frequency range MHz | Measurement | | | Class B limits dB(μV/m) |
|---|---|---|---|---|---|
| | | Facility (see Table A.1) | Distance m | Detector type / bandwidth | |
| A4.1 | 30 to 230 | OATS/SAC | 10 | Quasi Peak / 120 kHz | 30 |
| | 230 to 1 000 | | | | 37 |
| A4.2 | 30 to 230 | OATS/SAC | 3 | | 40 |
| | 230 to 1 000 | | | | 47 |
| A4.3 | 30 to 230 | FAR | 10 | Quasi Peak / 120 kHz | 32 to 25 |
| | 230 to 1 000 | | | | 32 |
| A4.4 | 30 to 230 | FAR | 3 | | 42 to 35 |
| | 230 to 1 000 | | | | 42 |
| Apply only table clause A4.1 or A4.2 or A4.3 or A4.4 across the entire frequency range.<br><br>These requirements are not applicable to the local oscillator and harmonics frequencies of equipment covered by Table A.6. | | | | | |

**Table A.5 – Requirements for radiated emissions at frequencies above 1 GHz for class B equipment**

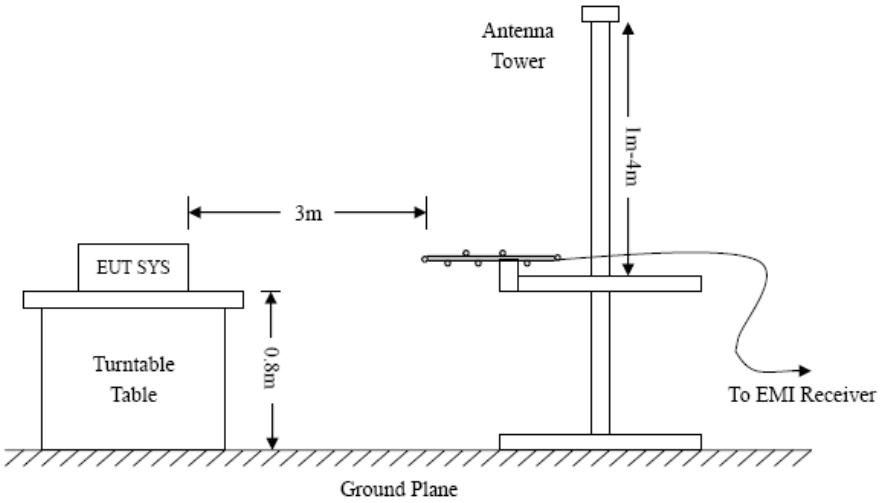
| Table clause | Frequency range MHz | Measurement | | | Class B limits dB(μV/m) |
|---|---|---|---|---|---|
| | | Facility (see Table A.1) | Distance m | Detector type/ bandwidth | |
| A5.1 | 1 000 to 3 000 | FSOATS | 3 | Average/ 1 MHz | 50 |
| | 3 000 to 6 000 | | | | 54 |
| A5.2 | 1 000 to 3 000 | | | Peak/ 1 MHz | 70 |
| | 3 000 to 6 000 | | | | 74 |
| Apply A5.1 and A5.2 across the frequency range from 1 000 MHz to the highest required frequency of measurement derived from Table 1. | | | | | |

**Table A.6 – Requirements for radiated emissions from FM receivers**

| Table Clause | Frequency Range MHz | Measurement | | | Class B Limit dB(μV/m) | |
|---|---|---|---|---|---|---|
| | | Facility (see Table A.1) | Distance m | Detector type / Bandwidth | Fundamental | Harmonics |
| A6.1 | 30 to 230 | OATS/SAC | 10 | Quasi Peak / 120 kHz | 50 | 42 |
| | 230 to 300 | | | | | 42 |
| | 300 to 1 000 | | | | | 46 |
| A6.2 | 30 to 230 | OATS/SAC | 3 | | 60 | 52 |
| | 230 to 300 | | | | | 52 |
| | 300 to 1 000 | | | | | 56 |
| A6.3 | 30 to 230 | FAR | 10 | | 52 to 45 | 44 to 37 |
| | 230 to 300 | | | | 45 | 37 |
| | 300 to 1 000 | | | | 45 | 41 |
| A6.4 | 30 to 230 | FAR | 3 | | 62 to 55 | 54 to 47 |
| | 230 to 300 | | | | 55 | 47 |
| | 300 to 1 000 | | | | 55 | 51 |
| Apply only A6.1 or A6.2 or A6.3 or A6.4 across the entire frequency range.<br>These relaxed limits apply only to emissions at the fundamental and harmonic frequencies of the LO. Signals at all other frequencies shall be compliant with the limits given in Table A.4. | | | | | | |

## 4.2 Test Procedure

Test is conducting under the description of EN 55032, annex C and annex D.



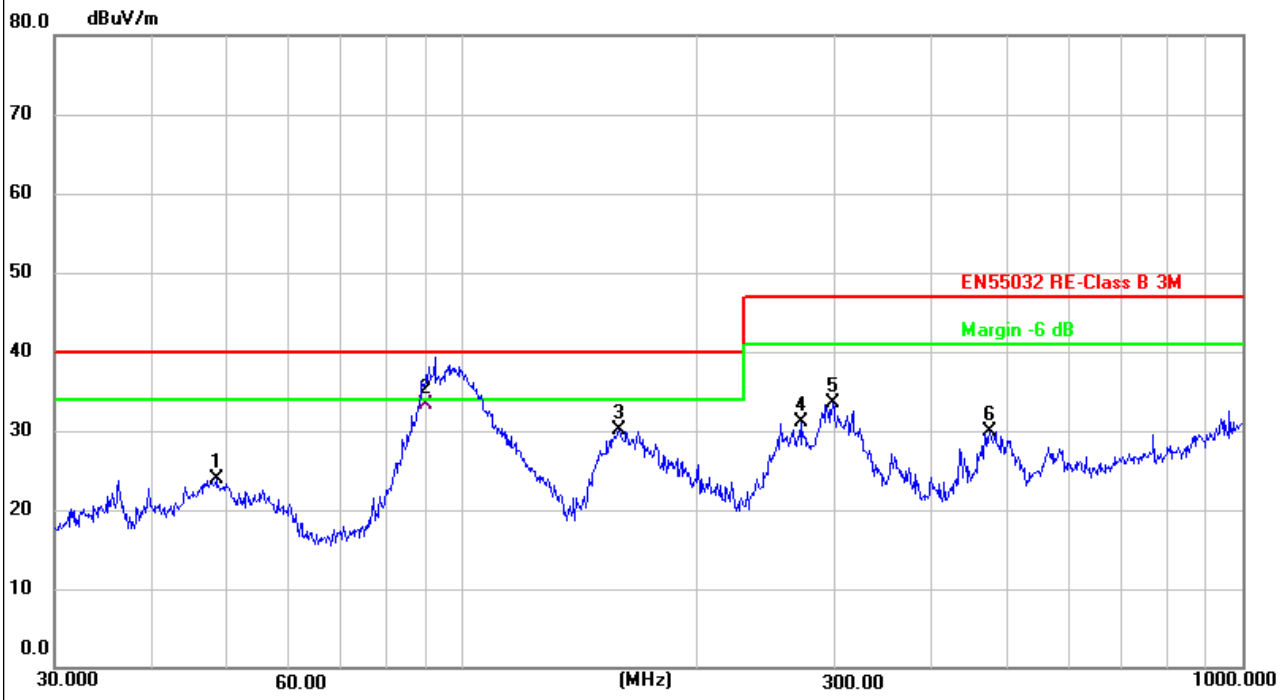

Test Setup Block Diagram

## 4.3 Test Data and Results

Based on all tested data, the EUT complied with the EN 55032 standard limit for a Class B device, and with the worst case as below:

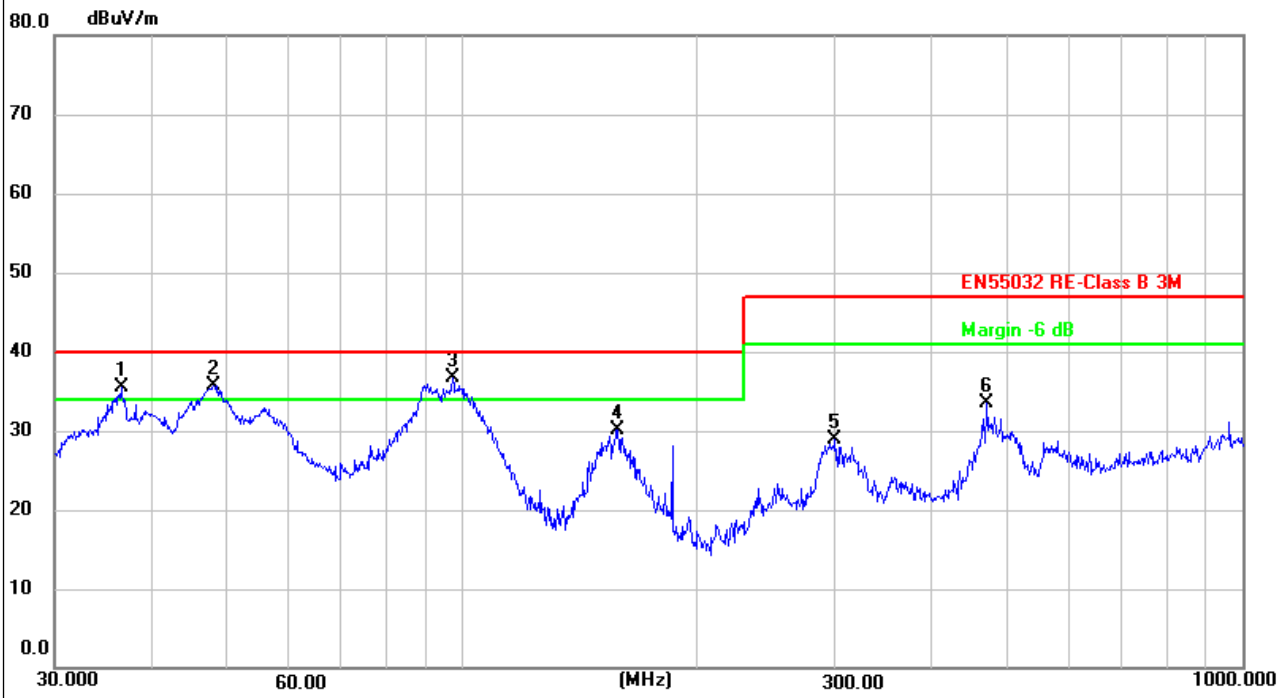
Remark: Level = Reading + Factor, Margin = Level - Limit

| Test Plots and Data of Radiated Emission | |
|---|---|
| Tested Mode: | TM1 |
| Test Voltage: | AC 230V/50Hz |
| Test Antenna Polarization: | Horizontal |
| Remark: | |




| 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 | 48.3318 | 32.26 | -8.35 | 23.91 | 40.00 | -16.09 | peak | 200 | 187 | P | |
| 2 * | 89.9838 | 46.42 | -13.07 | 33.35 | 40.00 | -6.65 | QP | 200 | 359 | P | |
| 3 | 158.6677 | 37.94 | -7.85 | 30.09 | 40.00 | -9.91 | peak | 200 | 360 | P | |
| 4 | 271.3246 | 40.44 | -9.29 | 31.15 | 47.00 | -15.85 | peak | 100 | 29 | P | |
| 5 | 298.2681 | 41.71 | -8.14 | 33.57 | 47.00 | -13.43 | peak | 100 | 146 | P | |
| 6 | 473.8347 | 33.88 | -3.91 | 29.97 | 47.00 | -17.03 | peak | 100 | 198 | P | |

| Test Plots and Data of Radiated Emission | |
|---|---|
| Tested Mode: | TM1 |
| Test Voltage: | AC 230V/50Hz |
| Test Antenna Polarization: | Vertical |
| Remark: | |




| 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 ! | 36.5092 | 44.34 | -8.87 | 35.47 | 40.00 | -4.53 | peak | 100 | 349 | P | |
| 2 ! | 47.9940 | 44.12 | -8.34 | 35.78 | 40.00 | -4.22 | peak | 100 | 116 | P | |
| 3 * | 97.1148 | 49.22 | -12.45 | 36.77 | 40.00 | -3.23 | peak | 200 | 74 | P | |
| 4 | 158.1123 | 37.98 | -7.84 | 30.14 | 40.00 | -9.86 | peak | 100 | 181 | P | |
| 5 | 300.3672 | 37.00 | -8.03 | 28.97 | 47.00 | -18.03 | peak | 200 | 95 | P | |
| 6 | 470.5232 | 37.46 | -4.00 | 33.46 | 47.00 | -13.54 | peak | 200 | 11 | P | |

# 5. Harmonic Current Emissions

## 5.1 Standard and Limit

According to the standard EN 301489-1 section 8.5 and the standard EN IEC 61000-3-2 clause 7.1, limits for class B equipment.

## 5.2 Test Procedure

Test is conducting under the description of EN IEC 61000-3-2.

## 5.3 Test Data and Results

According to Clause 7 of EN IEC 61000-3-2, the rated power of the EUT is less than 75W, belong to equipment with a rated power of 75W or less, therefore limits are not specified in this edition of the standards. It is deem to full fit the requirements of the standards.

# 6. Voltage Fluctuation and Flicker

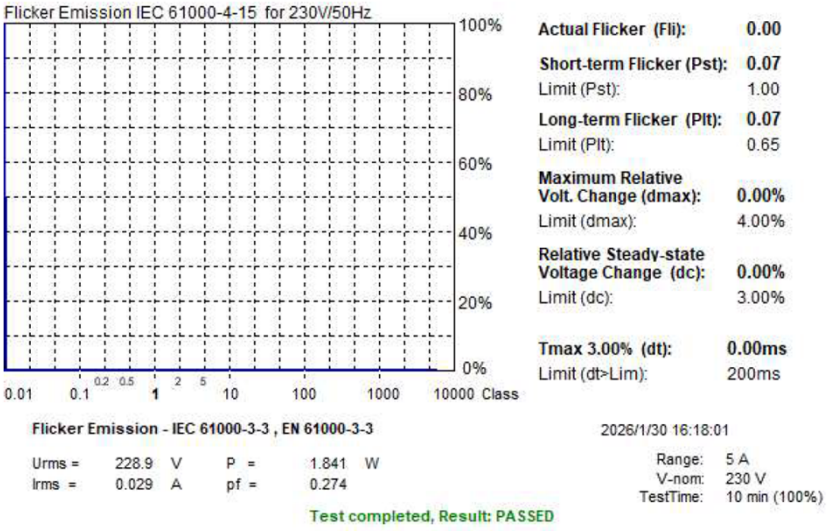
## 6.1 Standard and Limit

According to the standard EN 301489-1 section 8.6 and the standard EN 61000-3-3 clause 5.

## 6.2 Test Procedure

Test is conducting under the description of EN 61000-3-3.

## 6.3 Test Data and Results




```
Model Number
Test Mode
Product Name
Company Name

Urms =  228.9V  Freq =  50.000  Range:  5 A
Irms =  0.029A  Ipk  =  0.083A  cf    =  2.833
P    =  1.841W  S    =  6.707VA pf    =  0.274

Test - Time :   2 x 5min = 10min        ( 100 %)

LIN (Line Impedance Network) :   L: 0.24ohm +j0.15ohm N: 0.16ohm +j0.10ohm

Limits :        Plt  :  0.65    Pst   : 1.00
                dmax :  4.00 %  dc    : 3.00 %
                dtLim:  3.00 %  dt>Lim: 200ms

Test completed, Result: PASSED
```

# 7. Electrostatic Discharges (ESD)

## 7.1 Standard and Limit

According to the standard EN 301489-1 section 9.3.2 and 9.3.3 , Limit as below:

| Test Specifications | Test Level | Performance Criterion |
|---|---|---|
| Air Discharge | 8kV | B |
| Contact Discharge | 4kV | B |

## 7.2 Test Procedure

According to the standard EN 301489-1 section 9.3.2, Test is conducting under the description of IEC 61000-4-2.

## 7.3 Test Results

| Air Discharge | Test Level (kV) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Test Points | -2 | +2 | -4 | +4 | -8 | +8 | -15 | +15 |
| Buttons | A | A | A | A | A | A | - | - |
| Slots | A | A | A | A | A | A | - | - |
| LED | A | A | A | A | A | A | - | - |
| Surface | A | A | A | A | A | A | - | - |
| Contact Discharge | Test Level (kV) | | | | | | | |
| Test Points | -2 | +2 | -4 | +4 | -6 | +6 | -8 | +8 |
| HCP | A | A | A | A | - | - | - | - |
| VCP | A | A | A | A | - | - | - | - |
| Metal Part | A | A | A | A | - | - | - | - |

# 8. Continuous Radiated Disturbances (RS)

## 8.1 Standard and Limit

According to the standard EN 301489-1 section 9.2.2 and 9.2.3 , Limit as below:

| Test Specifications | Test Level | Performance Criterion |
|---|---|---|
| 80MHz-1000MHz | 3V/m | A |
| 1GHz-6GHz | 3V/m | A |

## 8.2 Test Procedure

According to the standard EN 301489-1 section 9.2.2, Test is conducting under the description of IEC 61000-4-3.

## 8.3 Test Results

Frequency step: 1% of fundamental
Dwell time: 1 second
Modulation: AM by 1kHz sine wave with 80% modulation depth

| Frequency Range | EM Field | Polarization | Front | Rear | Left | Right |
|---|---|---|---|---|---|---|
| 80MHz-1GHz | 3V/m | Horizontal | A | A | A | A |
| 80MHz-1GHz | 3V/m | Vertical | A | A | A | A |
| 1GHz-6GHz | 3V/m | Horizontal | A | A | A | A |
| 1GHz-6GHz | 3V/m | Vertical | A | A | A | A |

# 9. Electrical Fast Transients (EFT)

## 9.1 Standard and Limit

According to the standard EN 301489-1 section 9.4.2 and 9.4.3, Limit as below:

| Test Specifications | Test Level (5/50ns) | Performance Criterion |
|---|---|---|
| AC Power Port | 1kV | B |
| DC Power Port | 0.5kV | B |

## 9.2 Test Procedure

According to the standard EN 301489-1 section 9.4.2, Test is conducting under the description of IEC 61000-4-4.

## 9.3 Test Results

| Test Port | | Test Level (kV) | | | | | |
|---|---|---|---|---|---|---|---|
| | | +0.5 | -0.5 | +1.0 | -1.0 | +2.0 | -2.0 |
| Power Port (AC Power Supply) | L (Live) | A | A | A | A | - | - |
| | N (Neutral) | A | A | A | A | - | - |
| | G (Ground) | - | - | - | - | - | - |
| | L + N | A | A | A | A | - | - |
| | L + G | - | - | - | - | - | - |
| | N + G | - | - | - | - | - | - |
| | L + N + G | - | - | - | - | - | - |
| Power Port (DC Power Supply) | P (Positive) | - | - | - | - | - | - |
| | N (Negative) | - | - | - | - | - | - |
| | P + N | - | - | - | - | - | - |

# 10. Surges

## 10.1 Standard and Limit

According to the standard EN 301489-1 section 9.8.2 and 9.8.3, Limit as below:

| Test Specifications | Test Level (1.2/50us) | Performance Criterion |
|---|---|---|
| Line to Line | 1kV | B |
| Line to Ground | 2kV | B |

## 10.2 Test Procedure

According to the standard EN 301489-1 section 9.8.2, Test is conducting under the description of IEC 61000-4-5.

## 10.3 Test Results

| Surges Test Port | | Test Level (kV) | | | | | |
|---|---|---|---|---|---|---|---|
| | | +0.5 | -0.5 | +1.0 | -1.0 | +2.0 | -2.0 |
| AC Power Port | L – N | A | A | A | A | - | - |
| | L – G | - | - | - | - | - | - |
| | N – G | - | - | - | - | - | - |

# 11. Continuous Conducted Disturbances (CS)

## 11.1 Standard and Limit

According to the standard EN 301489-1 section 9.5.2 and 9.5.3, Limit as below:

| Test Port | Test Specifications | Test Level | Performance Criterion |
|---|---|---|---|
| DC Port | 0.15MHz-80MHz | 3V | A |
| AC Port | 0.15MHz-80MHz | 3V | A |

## 11.2 Test Procedure

According to the standard EN 301489-1 section 9.5.2, Test is conducting under the description of IEC 61000-4-6.

## 11.3 Test Results

Sweep frequency range: 150 kHz ~ 80 MHz
Frequency step: 1% of fundamental
Dwell time: 1 second

| Test Port | Test Level | Modulation | Result |
|---|---|---|---|
| AC Power Port | 3V | AM 80%, 1kHz sinewave | A |
| DC Power Port | 3V | AM 80%, 1kHz sinewave | - |

# 12. Voltage Dips and Interruptions

## 12.1 Standard and Limit

According to the standard EN 301489-1 section 9.7.2 and 9.7.3, Limit as below:

| Residual Voltage | Number of Cycles for 50Hz | Performance Criterion |
|---|---|---|
| 0% | 0.5 | B |
| 0% | 1 | B |
| 70% | 25 | C |
| 0% | 250 | C |

## 12.2 Test Procedure

According to the standard EN 301489-1 section 9.7.2, Test is conducting under the description of IEC 61000-4-11.

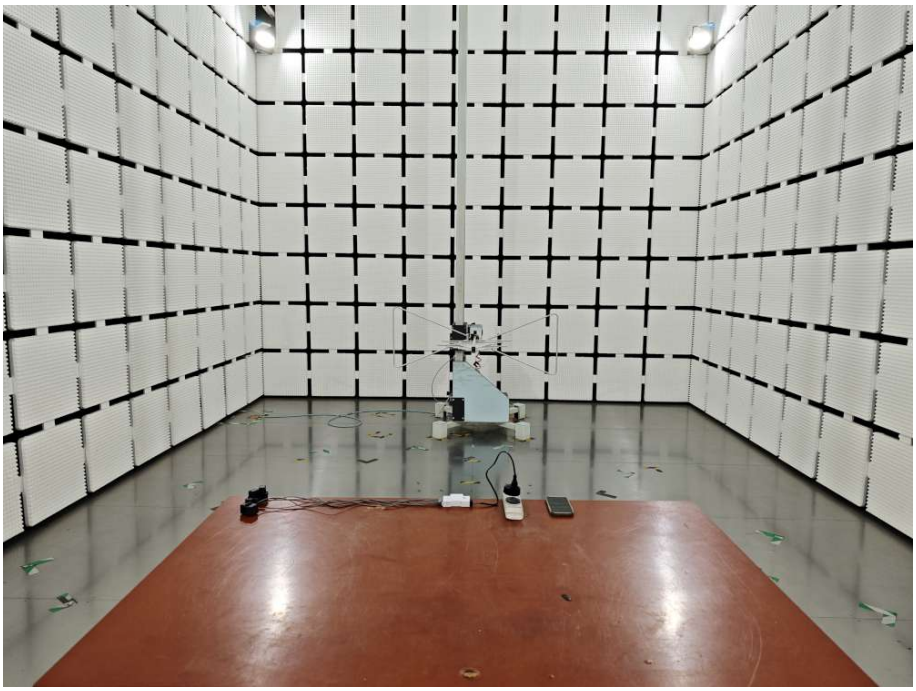
## 12.3 Test Results

U: Voltage dips in % $U_T$ ($U_T$ is rated voltage for the EUT)
T: Test duration

| Dips Test Level | U | T | Phase Angle | Result |
|---|---|---|---|---|
| 1 | 100% | 10ms | 0/90/180/270 | A |
| 2 | 100% | 20ms | 0/90/180/270 | A |
| 3 | 30% | 500ms | 0/90/180/270 | C |
| 4 | 100% | 5000ms | 0/90/180/270 | C |

# Annex A. Test Photos

**Radiated Emission Test View**





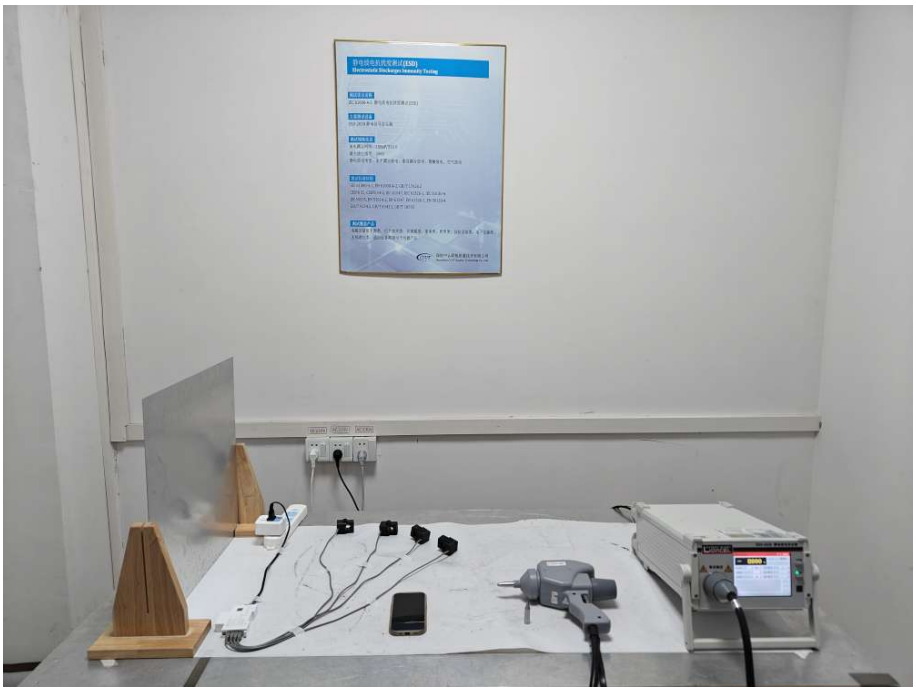
**Conducted Emission Test View**



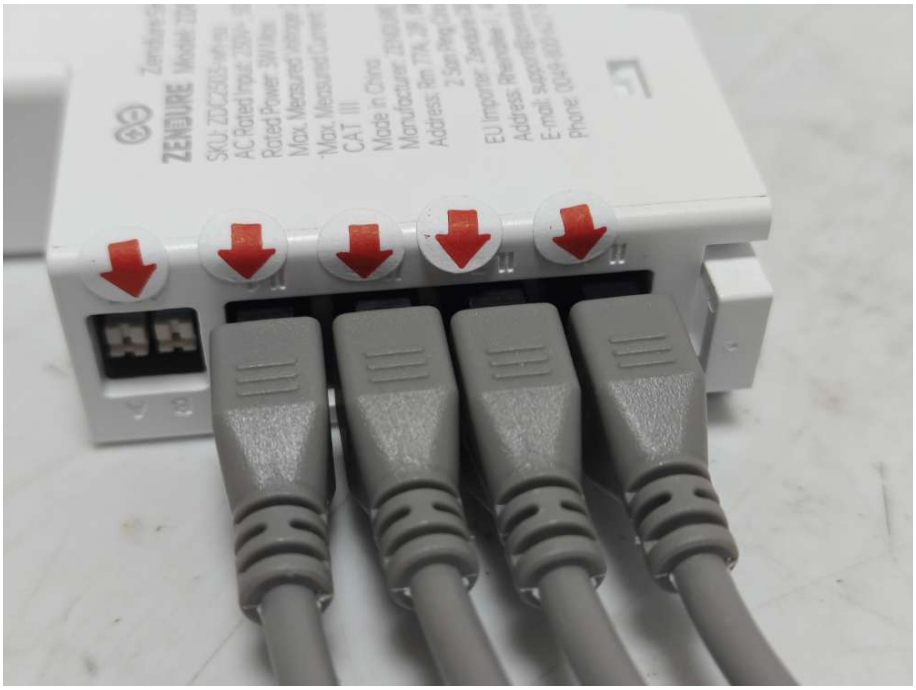
**Flicker Test View**

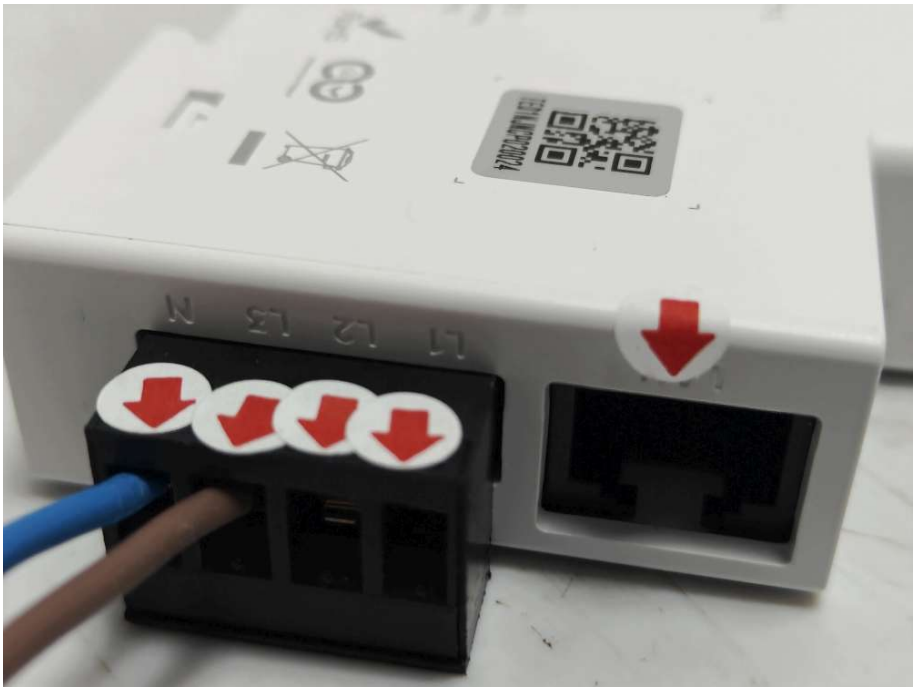


**ESD Test View**

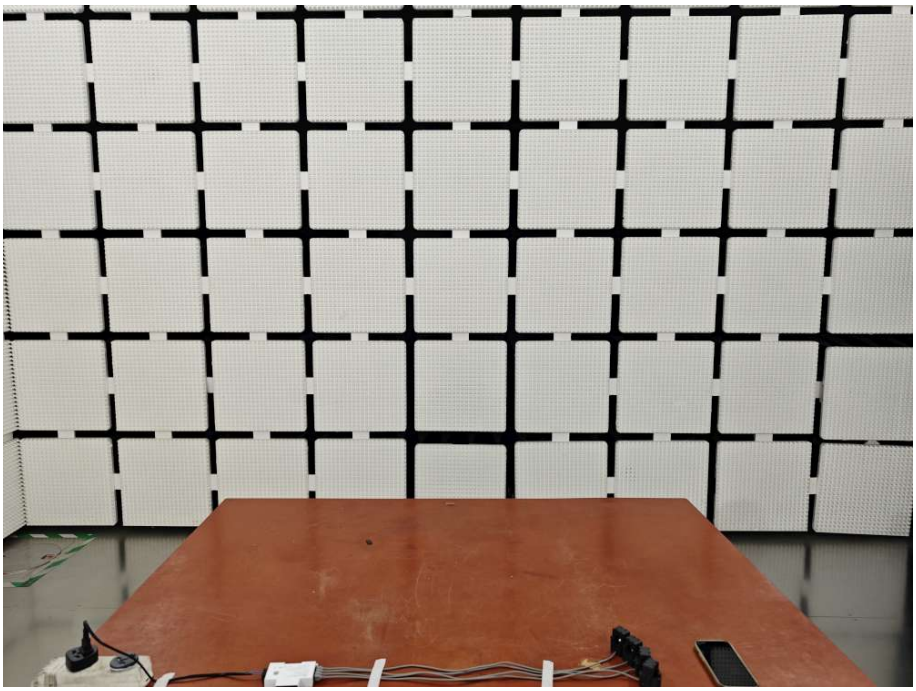





ZENDURE


N
L3
L2
L1

**RS Test View**



**CS Test View**

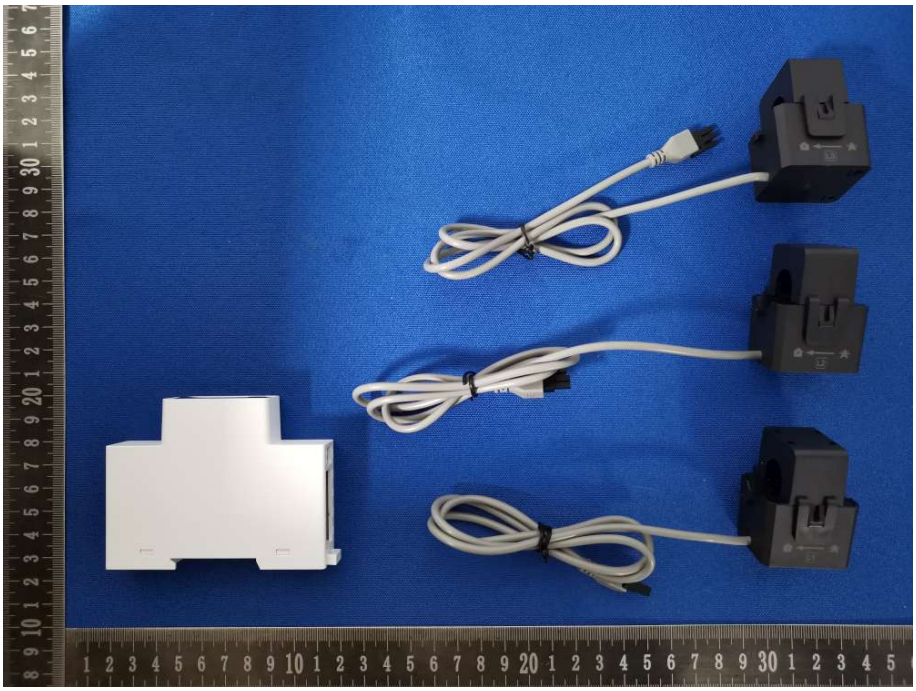


**EFT/Surge/Dips Test View**



# Annex B. EUT Photos

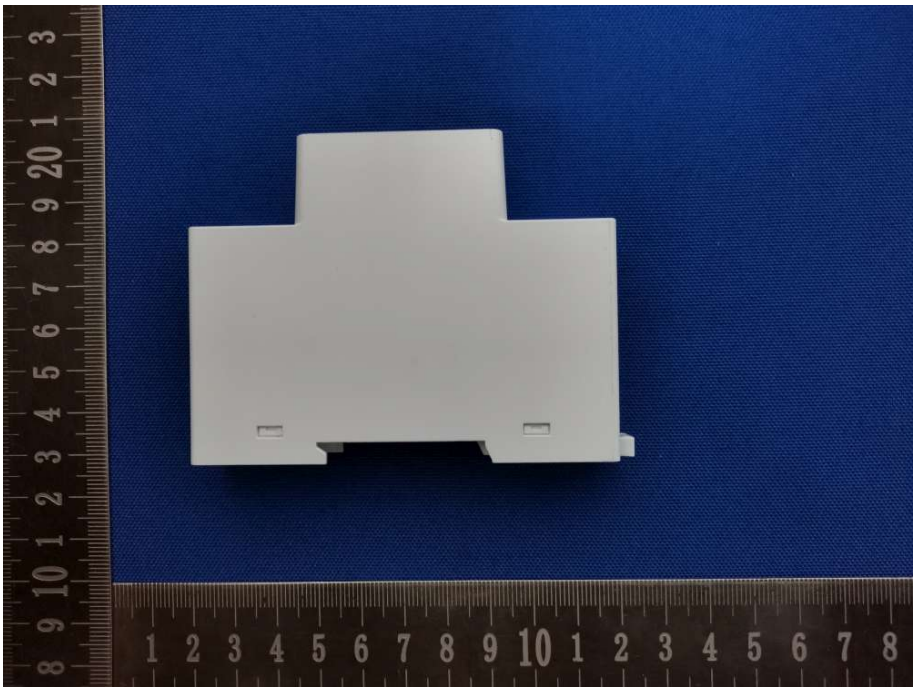
**EUT View 1**



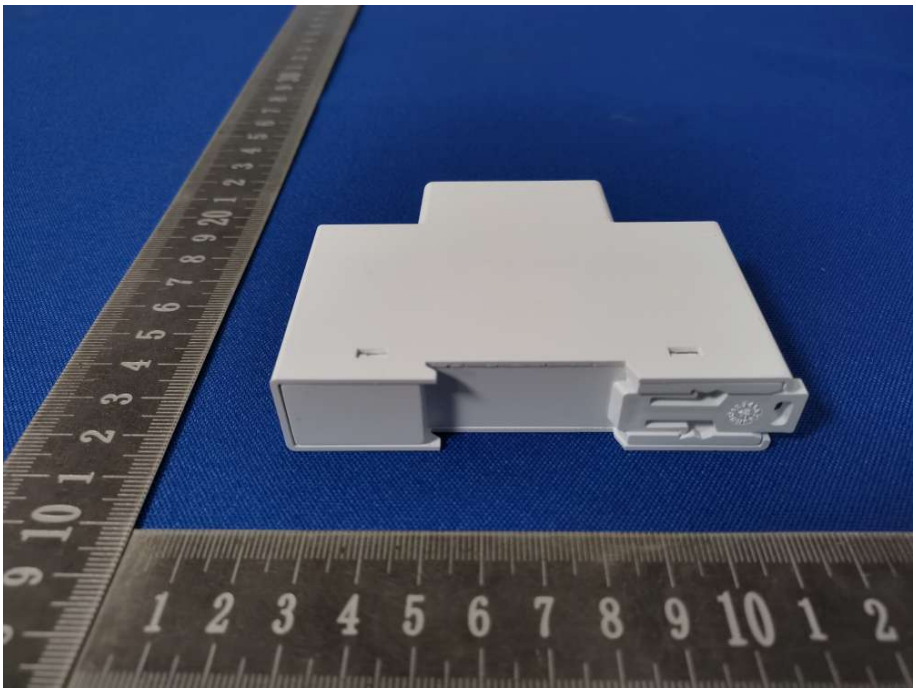
**EUT View 2**



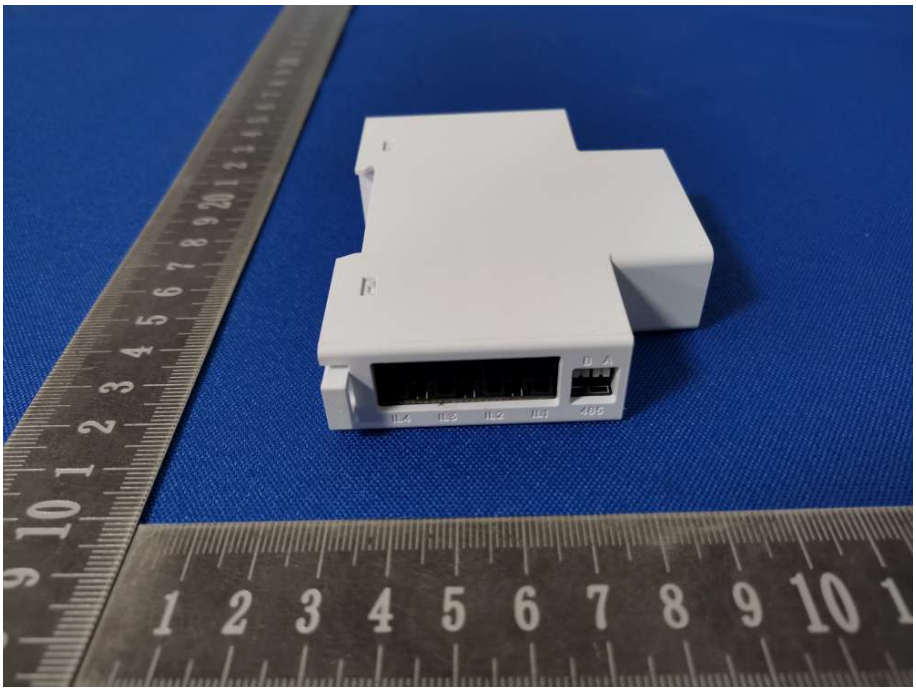
**EUT View 3**



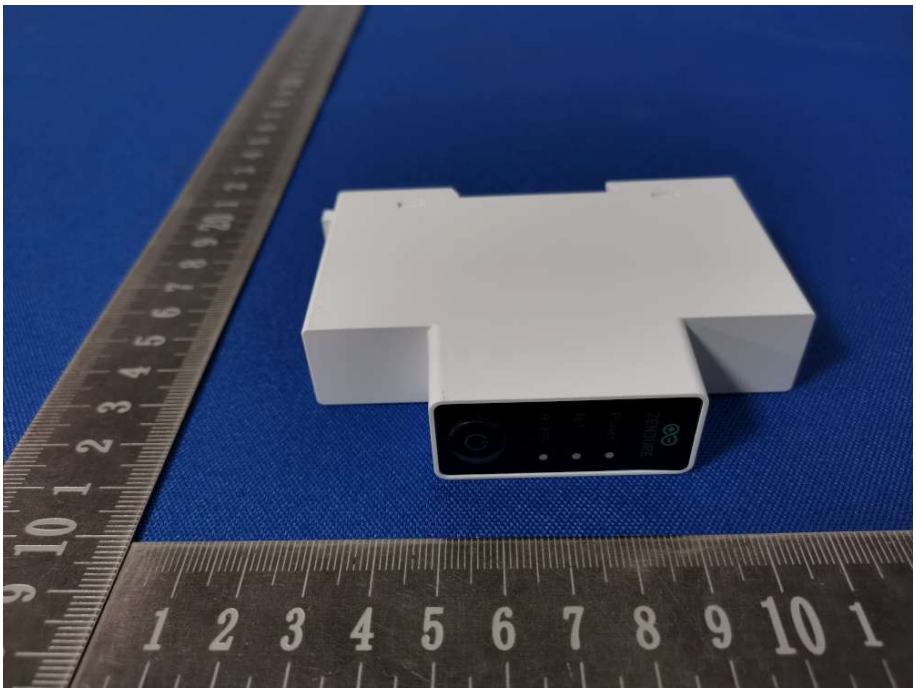
**EUT View 4**



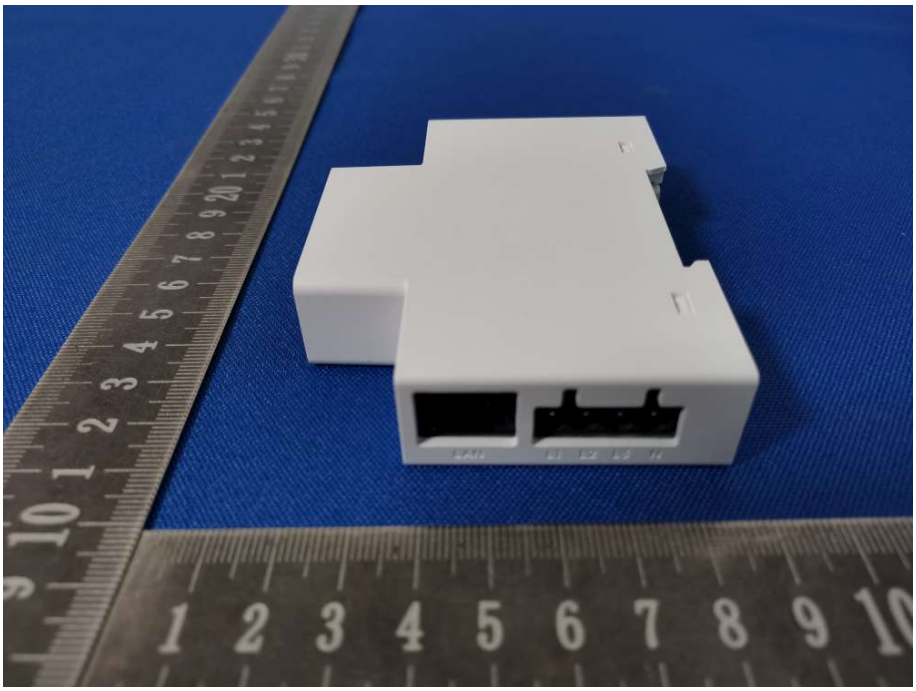
**EUT View 5**



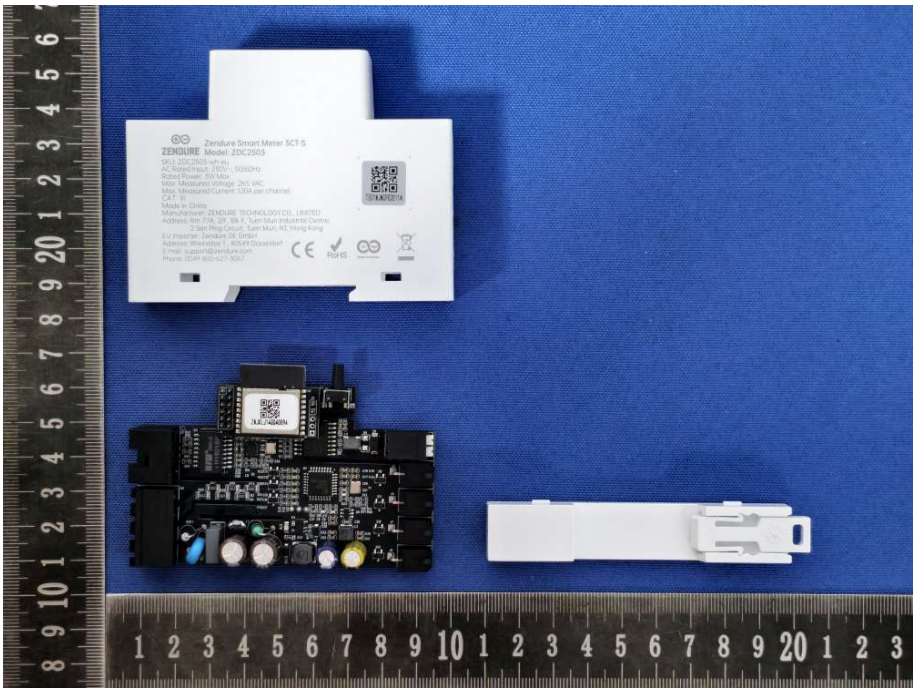
**EUT View 6**



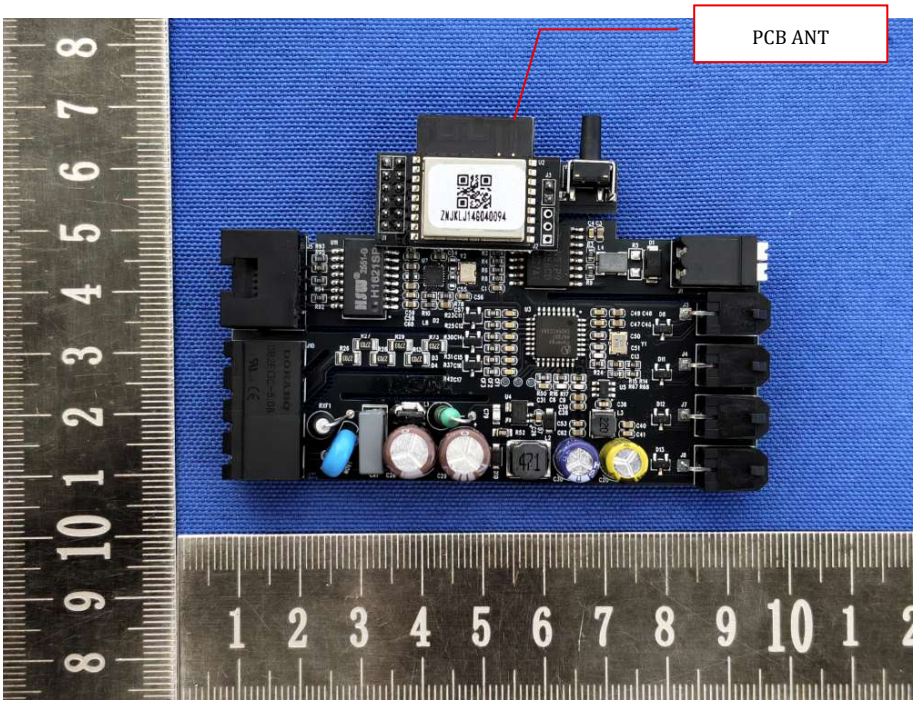
**EUT View 7**



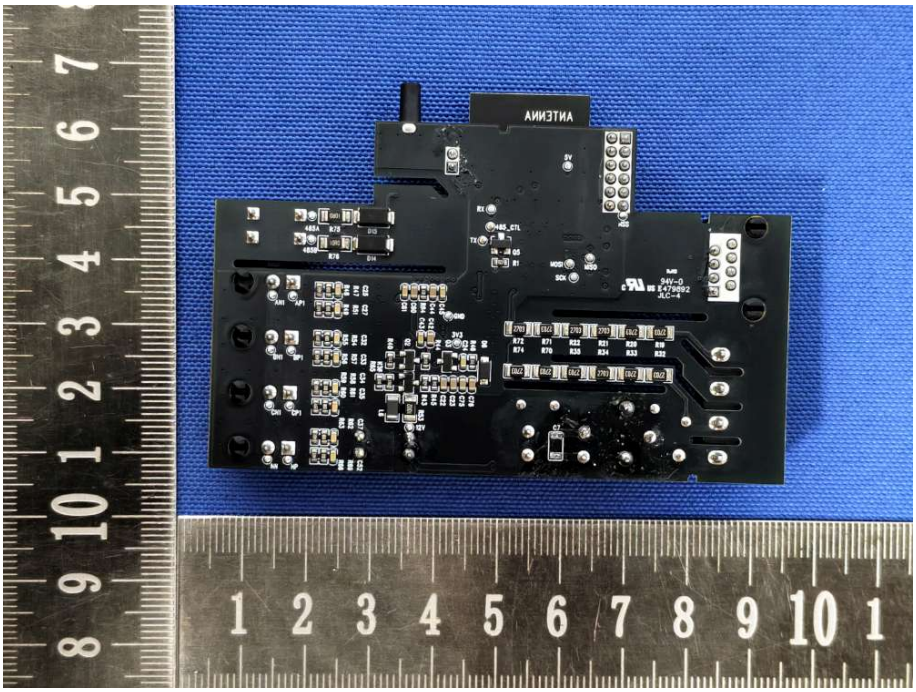
**EUT View 8**



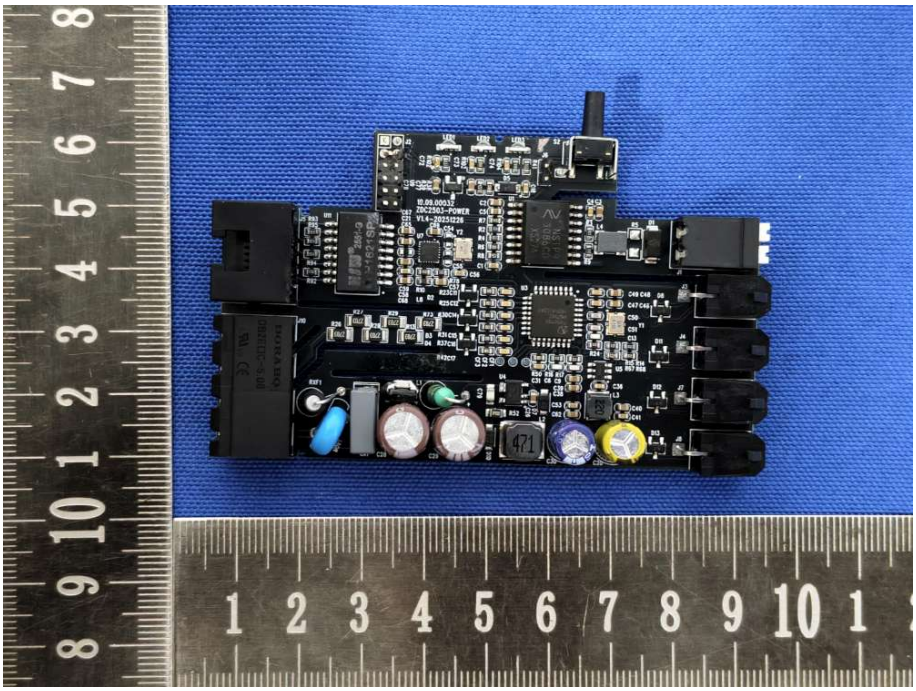
**EUT View 9**



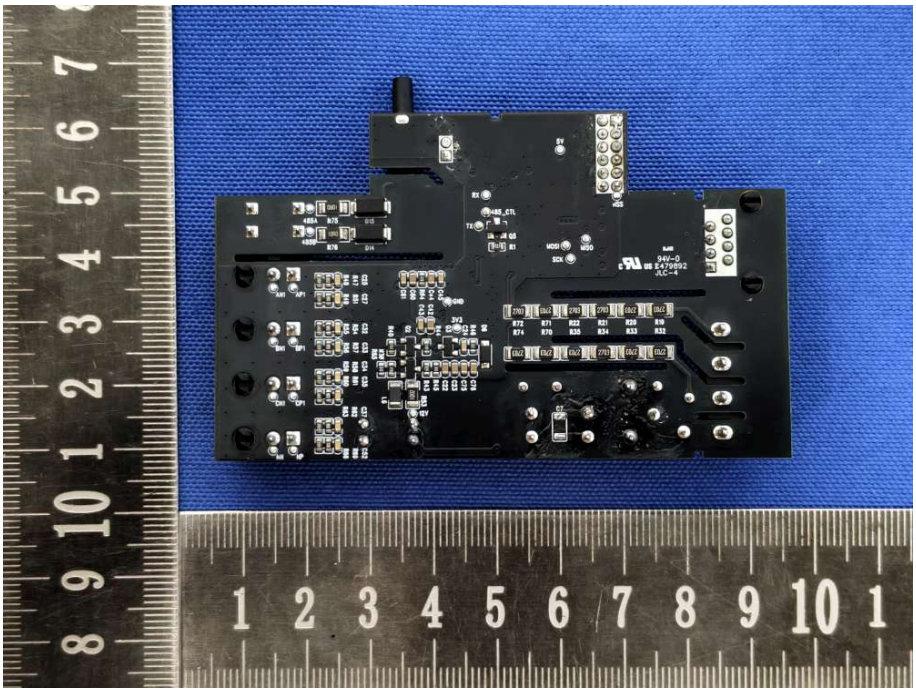

**EUT View 10**



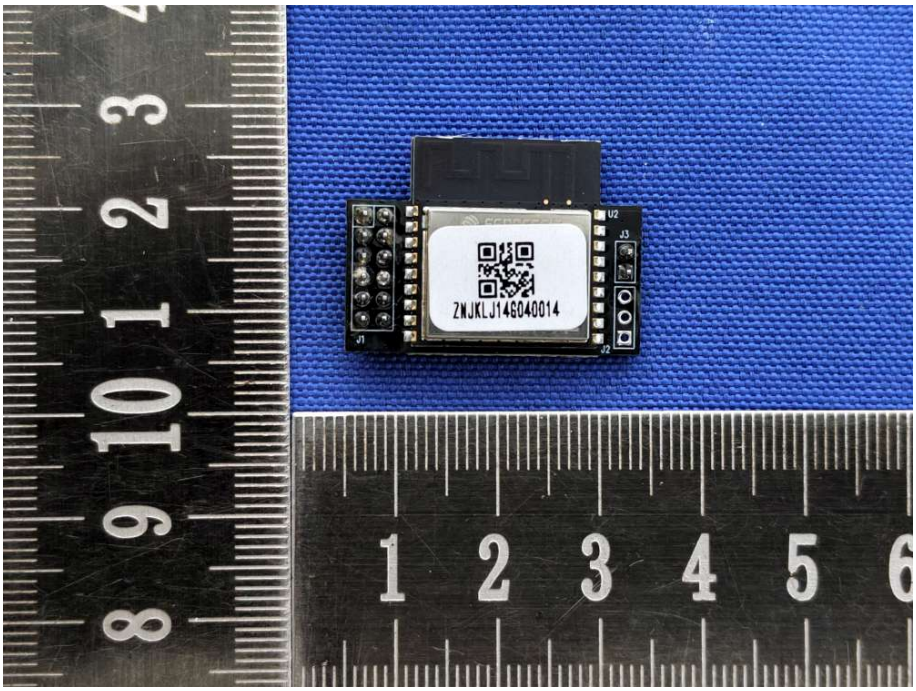
**EUT View 11**



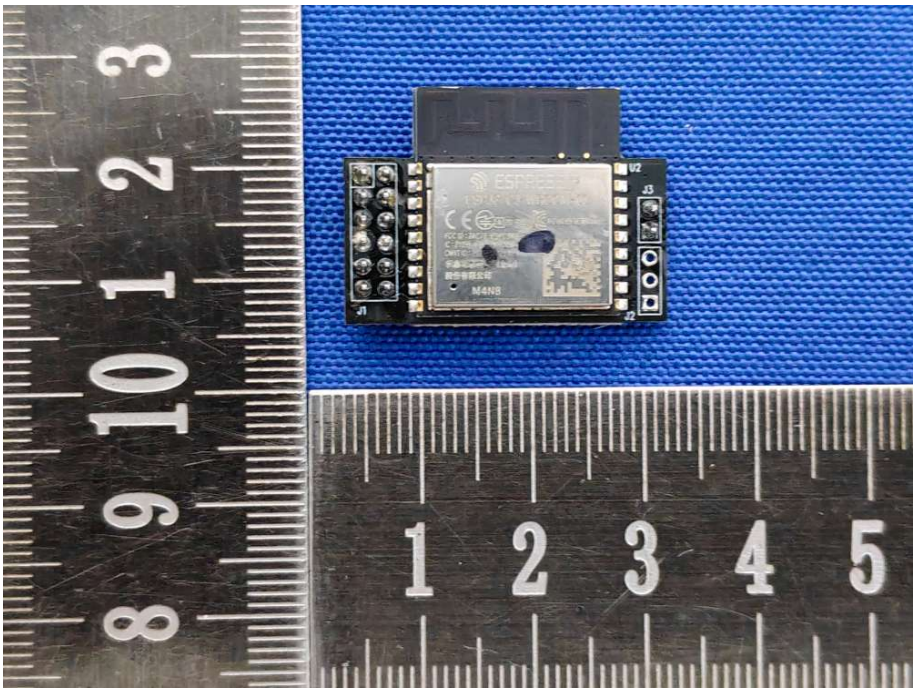
**EUT View 12**



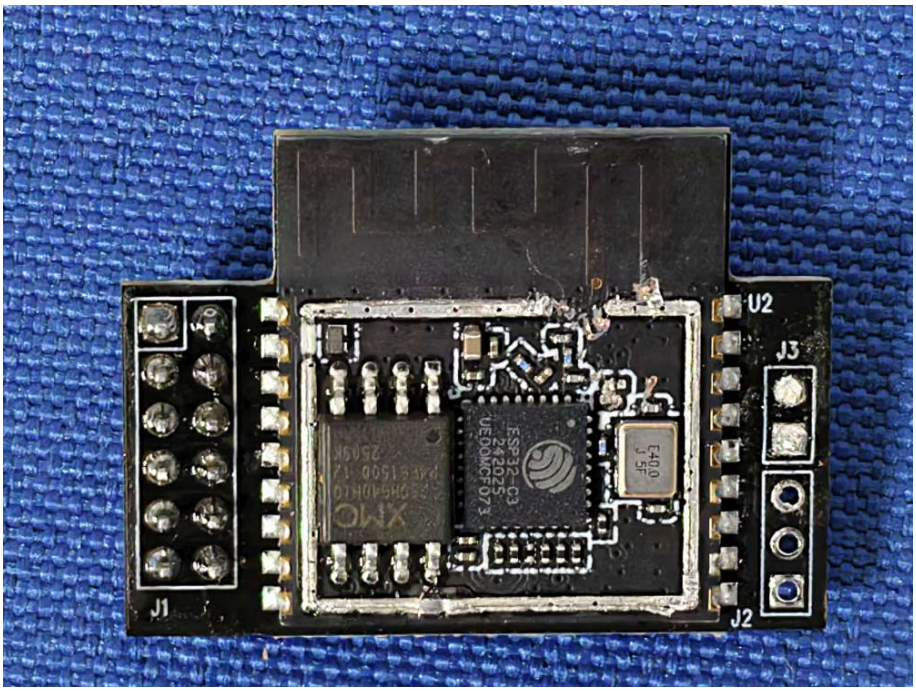
**EUT View 13**



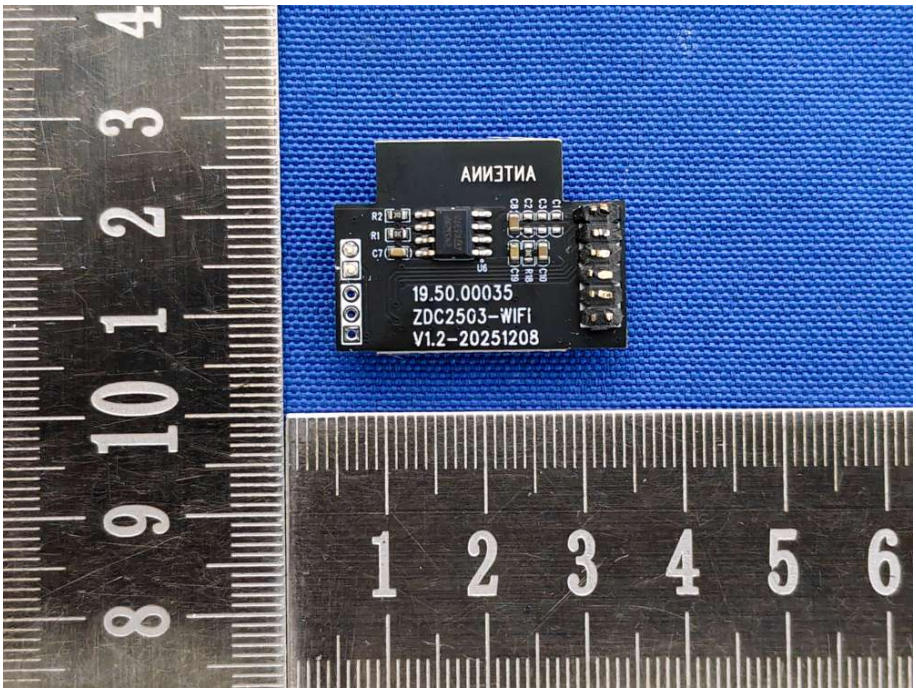

**EUT View 14**



**EUT View 15**




**EUT View 16**




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