

EMC Test Report

Report No.: AGC05443231210EE01

PRODUCT DESIGNATION: 10000 mAh power bank

BRAND NAME : N/A

MODEL NAME : MO6770

APPLICANT: MID OCEAN BRANDS B.V

DATE OF ISSUE : Dec. 14, 2023

EN 55032:2015+A1:2020

STANDARD(S) : EN 55035:2017+A11:2020

EN IEC 61000-3-2:2019+A1:2021

EN 61000-3-3:2013+A2:2021

REPORT VERSION: V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd



Page 2 of 53

Report Revise Record

| Report Version | Revise Time | Issued Date | Valid Version | Notes |
|----------------|-------------|---------------|---------------|-----------------|
| V1.0 | 1 | Dec. 14, 2023 | Valid | Initial release |

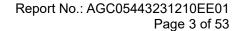




Table of contents

| 1. Genera | al information | 6 |
|------------|---|----|
| 2. Descri | ption of Test Configuration | 7 |
| 2.1. | Technical Description of Product | 7 |
| 2.2. | Description of Support Equipment | 8 |
| 2.3. | Description of Test Modes | 8 |
| 3. Summ | ary of Measurement Results and Uncertainty | g |
| 3.1. | Test Specifications | g |
| 3.2. | Description of Measurement Results | g |
| 3.3. | Description of Measurement Uncertainty | 11 |
| 4. Test Fa | acility | 12 |
| 5. Measu | rement of Conducted Emissions from the AC Mains Power Ports | 13 |
| 5.1. | Requirements | 13 |
| 5.2. | Block Diagram of Test Setup | 13 |
| 5.3. | Equipment Details | 14 |
| 5.4. | Configuration of the EUT and method of measurement | 14 |
| 5.5. | Test Summary | 15 |
| 6. Measu | rement of Radiated Emissions at Frequencies up to 1 GHz | 17 |
| 6.1. | Requirements | 17 |
| 6.2. | Block Diagram of Test Setup | 17 |
| 6.3. | Equipment Details | 18 |
| 6.4. | Configuration of the EUT and method of measurement | 18 |
| 6.5. | Test Summary | 19 |
| 7. Measu | rement of Harmonic Current Emissions | 21 |
| 7.1. | Requirements | 21 |
| 7.2. | Block Diagram of Test Setup | 22 |
| 7.3. | Equipment Details | 22 |
| 7.4. | Configuration of the EUT and method of measurement | 22 |
| 7.5. | Test Summary | 23 |
| 8. Measu | rement of Voltage Fluctuations and Flicker | 24 |
| 8.1. | Requirements | 24 |
| 8.2. | Block Diagram of Test Setup | 24 |
| 8.3. | Equipment Details | 24 |
| 8.4. | Configuration of the EUT and method of measurement | 25 |

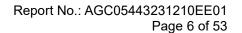


| 8.5 | . Test Summary | 25 |
|----------|---|----|
| 9. Meas | urement of Electrostatic discharge | 26 |
| 9.1 | . Requirements | 26 |
| 9.2 | . Block Diagram of Test Setup | 26 |
| 9.3 | . Equipment Details | 27 |
| 9.4 | . Configuration of the EUT and method of measurement | 27 |
| 9.5 | . Test Summary | 28 |
| 10. Mea | surement of Radio-Frequency Electromagnetic Field | 29 |
| 10. | 1. Requirements | 29 |
| 10. | 2. Block Diagram of Test Setup | 30 |
| 10. | 3. Equipment Details | 31 |
| 10. | 4. Configuration of the EUT and method of measurement | 31 |
| 10. | 5. Test Summary | 32 |
| 11. Meas | surement of Radio-frequency common mode | 33 |
| 11. | 1. Requirements | 33 |
| 11.: | 2. Block Diagram of Test Setup | 33 |
| 11.3 | 3. Equipment Details | 34 |
| 11.4 | 4. Configuration of the EUT and method of measurement | 34 |
| 11. | 5. Test Summary | 35 |
| 12. Mea | surement of Fast Transients | 36 |
| 12. | 1. Requirements | 36 |
| 12. | 2. Block Diagram of Test Setup | 36 |
| 12. | 3. Equipment Details | 37 |
| 12. | 4. Configuration of the EUT and method of measurement | 37 |
| 12. | 5. Test Summary | 38 |
| 13. Mea | surement of Surges | 39 |
| 13. | 1. Requirements | 39 |
| 13. | 2. Block Diagram of Test Setup | 40 |
| 13. | 3. Equipment Details | 40 |
| 13. | 4. Configuration of the EUT and method of measurement | 41 |
| 13. | 5. Test Summary | 41 |
| 14. Mea | surement of Voltage dips and interruptions | 42 |
| 14. | 1. Requirements | 42 |
| 14. | | |
| 14. | 3. Equipment Details | 43 |



Report No.: AGC05443231210EE01 Page 5 of 53

| 14.4. | Configuration of the EUT and method of measurement | 43 |
|------------|--|----|
| 14.5. | Test Summary | 43 |
| 15. Photog | graphs of Test Setup | 44 |
| 16. Photo | graphs of EUT | 48 |





1. General information

| i. General illiorillation | • |
|------------------------------|---|
| Applicant | MID OCEAN BRANDS B.V |
| Address | 7/F, Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong |
| Manufacturer | MID OCEAN BRANDS B.V |
| Address | 7/F, Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong |
| Factory | MID OCEAN BRANDS B.V |
| Address | 7/F, Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong |
| Product Designation | 10000 mAh power bank |
| Brand Name | N/A |
| Test Model | MO6770 |
| Series Model(s) | N/A |
| Difference Description | N/A |
| Deviation from Standard | No any deviation from the test method |
| Date of receipt of test item | Dec. 08, 2023 |
| Date of Test | Dec. 08, 2023 to Dec. 14, 2023 |
| Test Result | Pass |
| Test Report Form No | AGCER-EMC-GEN-V1 |
| Note: The test results of th | is report relate only to the tested sample identified in this report. |

| Prepared By | Jouk Gai | |
|-------------|-----------------------------------|---------------|
| | Jack Gui (Project Engineer) | Dec. 14, 2023 |
| Reviewed By | Calin Lin | |
| | Calvin Liu (Reviewer) | Dec. 14, 2023 |
| Approved By | Max Zhang | |
| | Max Zhang (Authorized Officer) | Dec. 14, 2023 |



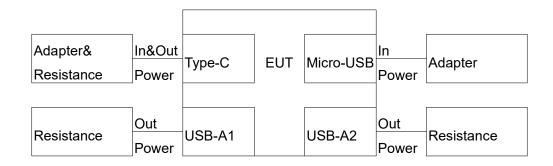
Page 7 of 53

2. Description of Test Configuration

2.1. Technical Description of Product

| Categorization of Equipment | Class B equipment |
|-----------------------------|---|
| Test arrangements of EUT | Table-top |
| Hardware Version | N/A |
| Software Version | N/A |
| Highest Internal Frequency | Less than 108MHz |
| EUT Input Rating | Type-C Input: DC 5V/2.4A 9V/2A,12V/1.5A Micro Input: DC 5V/2A 9V/2A,12V/1.5A |
| EUT Output Rating | USB-A1/A2 Output: DC 5V/3A,9V/2A,12V/1.5A Type-C Output: DC 5V/3A,9V/2.22A,12V/1.66A |

Connection Diagram of Host System



I/O Port Information (⋈ Applicable ☐ Not Applicable)

| Port Type | Input/Output | Number | Cable Description |
|------------|--------------|--------|-------------------|
| USB Type-C | In&Out | 1 | 0.3m unshielded |
| Micro-B | In | 1 | |
| USB Type-A | Out | 2 | |



Page 8 of 53

2.2. Description of Support Equipment

| Device Type | Manufacturer | Model Name | Specifications | Data Cable | Power Cable |
|--------------------|--------------|----------------|----------------|---------------|----------------|
| Adapter | Jinbaotong | K-T10E0502000E | - | 1 | |
| Digital multimeter | FLUKE | 15B+ | 1 | - | |
| Cement resistance | | | | | |
| Voltage decoy | | | | | |

2.3. Description of Test Modes

| No. | Test Mode Description | Worst |
|-----|---|-------|
| 1 | Type-C Input: DC 5V/2.4A | |
| 2 | Type-C Input: DC 12V/1.5A | |
| 3 | Micro-B Input: DC 5V/2A | |
| 4 | Micro-B Input: DC 12V/1.5A | |
| 5 | Type-C Output: DC 5V/3A | |
| 6 | Type-C Output: DC 12V/1.66A | |
| 7 | USB-A1 Output: DC 5V/3A | |
| 8 | USB-A1 Output: DC 12V/1.5A | |
| 9 | USB-A2 Output: DC 5V/3A | |
| 10 | USB-A2 Output: DC 12V/1.5A | |
| 11 | USB-A1 Output: DC 5V/1A + USB-A2 Output: DC 5V/1A | |

Note: 1. Only worst mode data recorded in the test report.



Page 9 of 53

3. Summary of Measurement Results and Uncertainty

3.1. Test Specifications

| EN 55032:2015+A1:2020 | 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+A1:2021 | 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 | 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 |

3.2. Description of Measurement Results

| Test items | Test Standard(s) | Verdict |
|---|------------------|---------|
| Conducted emissions from the AC mains power ports | EN 55032 | Pass |
| Radiated emissions at frequencies up to 1 GHz | EN 55032 | Pass |
| Harmonic current emissions | EN IEC 61000-3-2 | Pass |
| Voltage fluctuations and flicker | EN 61000-3-3 | Pass |
| Electrostatic discharge | IEC 61000-4-2° | Pass |
| Radio-frequency electromagnetic field | IEC 61000-4-3 a | Pass |
| Fast transients | IEC 61000-4-4 a | Pass |
| Surges | IEC 61000-4-5° | Pass |
| Radio-frequency common mode (Injected currents) | IEC 61000-4-6 a | Pass |
| Voltage dips and interruptions | IEC 61000-4-11 a | Pass |
| Note: | | |

The applicable versions of the basic standards are defined in the standard which listed in the test specification.



Page 10 of 53

Performance table

| | Performance Criteria for Immunity |
|----------------------------|--|
| Performance criterion A | The equipment shall continue to operate as intended without operator intervention. No degradation of performance, loss of function or change of operating state is allowed below a performance level specified by the manufacturer 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. |
| Performance criterion B | During the application of the disturbance, degradation of performance is allowed. However, no unintended change of actual operating state or stored data is allowed to persist after the test. After the test, 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 manufacturer, 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), or recovery time, 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. |
| 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 manufacturer's instructions. A reboot or re-start operation is allowed. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost. |



Page 11 of 53

3.3. Description of Measurement Uncertainty

The reported uncertainty of measurement y ±U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

| Item | Measurement Uncertainty |
|---|-------------------------|
| Conducted emissions from the AC mains power ports | Uc = ±2.9 dB |
| Radiated emissions at frequencies up to 1 GHz | Uc = ±3.9 dB |
| Radiated emissions at frequencies above 1 GHz | Uc = ±4.9 dB |



Page 12 of 53

4. Test Facility

Laboratory name: Attestation of Global Compliance (Shenzhen) Co., Ltd.

Laboratory Address: 1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai

Street, Bao'an District, Shenzhen, Guangdong, China

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

CNAS-Lab Code: L5488

Attestation of Global Compliance (Shenzhen) Co., Ltd. is accredited in accordance with the recognized Interna tional Standard ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laborat ories (CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories).

A2LA-Lab Cert. No.: 5054.02

Attestation of Global Compliance (Shenzhen) Co., Ltd. is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. This laboratory also meets the requirements of any additional program requirements in the Electrical field.

FCC-Registration No.: 975832

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files with Registration 975832.

IC-Registration No.: 24842

CAB identifier: CN0063

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Certification and Engineering Bureau of Industry Canada. The acceptance letter from the IC is maintained in our files with Registration 24842.

VCCI Membership No.: 4112

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered in accordance with VCCI Council Rules.

VCCI Registration No. C-20098 for conducted emissions at AC main power ports

VCCI Registration No. T-20102 for conducted emissions at telecommunication ports

VCCI Registration No. R-20136 for radiated emissions below 1GHz

VCCI Registration No. G-20132 for radiated emissions above 1GHz



Page 13 of 53

5. Measurement of Conducted Emissions from the AC Mains Power Ports

5.1. Requirements

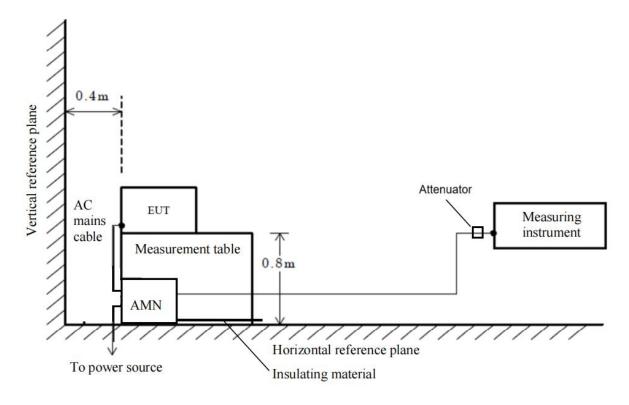
Requirements for conducted emissions, low voltage AC mains port

| Network device | Detector type/ bandwidth | Frequency Range (MHz) | Limits dB(µV) | Measurement specifications |
|----------------|-----------------------------|--------------------------|------------------|---|
| | | 0.15 to 0.5 | 66 to 56 | |
| | Quasi-peak/ 9kHz | 0.5 to 5 | 56 | Instrumentation: CISPR 16-1-1, Clauses 4, 5 |
| ANANI | | 5 to 30 | 60 | and 7 |
| AMN | _ | 0.15 to 0.5 | 56 to 46 | Networks: CISPR 16-1-2, Clause 4 |
| | Average/ 9kHz | 0.5 to 5 | 46 | Method: CISPR 16-2-1, Clause 7 |
| | OM IZ | 5 to 30 | 50 | Set-up: CISPR 16-2-1, Clause 7 |

Note:

- 1. The lower limit shall apply at the transition frequency.
- 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.5MHz.

5.2. Block Diagram of Test Setup





Page 14 of 53

5.3. Equipment Details

Measuring Instruments

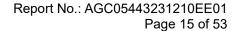
| Instruments | Manufacturer | Model | S/N | Cal. Date | Cal. Due |
|-----------------------------|--------------|------------|--------|---------------|---------------|
| Test Receiver | R&S | ESPI | 101206 | Jun. 03, 2023 | Jun. 02, 2024 |
| Artificial Mains Network | R&S | ESH2-Z5 | 100086 | Jun. 03, 2023 | Jun. 02, 2024 |
| Attenuator | East sheep | LM-XX-6-5W | N/A | Jun. 09, 2023 | Jun. 08, 2024 |

Measuring Software

| Software Name | Manufacturer | Details |
|---------------|--------------|-----------------------------------|
| ES-K1 | R&S | For EMC Measurement, Version 1.71 |

5.4. Configuration of the EUT and method of measurement

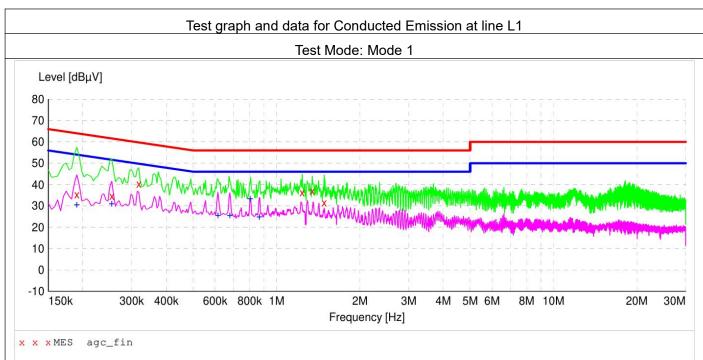
- a. The EUT was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, the EUT was placed on the top surface of a measurement table, 0.8 m high from the horizontal reference plane, and was positioned at a distance of 0.4 m away from the vertical reference plane. When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 10 cm non-conductive covering to insulate the EUT from the ground plane.
- b. Support equipment, if needed, was placed as per CISPR 16-2-1.
- c. All I/O cables were positioned to simulate typical actual usage as per CISPR 16-2-1.
- d. The EMI receiver measured the emission levels emanating from the EUT into the AC Mains through an Artificial Mains Network (AMN) and an attenuator used on the front end of the EMI receiver. Testing included measurements on all live and neutral lines.
- e. The more description of the tests, the test methods, and the test set-ups are given in the applicable test standard.
- f. Record at least six highest emissions relative to the limits at each frequency of interest unless the emission is 10 dB or greater below the limit.
- g. A conducted emission is calculated by the following equation:
 - Measurement Level (dBµV) = Receiver reading (dBµV) + Tansd (dB)
 - Transd(dB)= AMN Factor(dB)+Cable Loss(dB)+Attenuation(dB)
 - Margin= Limit-Level



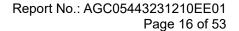


5.5. Test Summary

| Test Engineer | Jimu | Temperature | 22.4 ℃ |
|---------------|---------------|-------------------|---------------|
| Test Date | Dec. 11, 2023 | Air Pressure | 985 Mbar |
| Worst Mode | Mode 1 | Relative Humidity | 49.6 % |
| Verdict | Pass | | |



| Frequency[MHz] | Level[dBµV] | Factor[dB] | Limit[dBµV] | Margin[dB] | Detector | Line |
|----------------|-------------|------------|-------------|------------|----------|------|
| 0.190000 | 35.3 | 6.1 | 64.0 | 28.7 | QP | L1 |
| 0.254000 | 34.6 | 6.1 | 61.6 | 27.0 | QP | L1 |
| 0.318000 | 40.4 | 6.1 | 59.8 | 19.4 | QP | L1 |
| 1.238000 | 36.4 | 6.2 | 56.0 | 19.6 | QP | L1 |
| 1.346000 | 37.0 | 6.2 | 56.0 | 19.0 | QP | L1 |
| 1.486000 | 31.5 | 6.2 | 56.0 | 24.5 | QP | L1 |
| 0.190000 | 31.0 | 6.1 | 54.0 | 23.0 | AV | L1 |
| 0.254000 | 31.5 | 6.1 | 51.6 | 20.1 | AV | L1 |
| 0.614000 | 26.1 | 6.2 | 46.0 | 19.9 | AV | L1 |
| 0.678000 | 26.0 | 6.2 | 46.0 | 20.0 | AV | L1 |
| 0.802000 | 34.0 | 6.2 | 46.0 | 12.0 | AV | L1 |
| 0.866000 | 25.5 | 6.2 | 46.0 | 20.5 | AV | L1 |





Test graph and data for Conducted Emission at line N Test Mode: Mode 1 Level [dBµV] 80 70 60 50 40 30 20 10 0 150k 300k 400k 600k 800k 1M 2M ЗМ 4M 5M 6M 8M 10M 20M 30M Frequency [Hz] x x x MES agc_fin

| Frequency[MHz] | Level[dBµV] | Factor[dB] | Limit[dBµV] | Margin[dB] | Detector | Line |
|----------------|-------------|------------|-------------|------------|----------|------|
| 0.814000 | 32.7 | 6.2 | 56.0 | 23.3 | QP | N |
| 0.966000 | 33.0 | 6.2 | 56.0 | 23.0 | QP | N |
| 1.038000 | 33.4 | 6.2 | 56.0 | 22.6 | QP | N |
| 1.150000 | 33.8 | 6.2 | 56.0 | 22.2 | QP | N |
| 1.194000 | 33.9 | 6.2 | 56.0 | 22.1 | QP | N |
| 1.262000 | 35.4 | 6.2 | 56.0 | 20.6 | QP | N |
| 0.302000 | 30.0 | 6.1 | 50.2 | 20.2 | AV | N |
| 0.650000 | 31.4 | 6.2 | 46.0 | 14.6 | AV | N |
| 0.698000 | 31.1 | 6.2 | 46.0 | 14.9 | AV | N |
| 0.746000 | 25.6 | 6.2 | 46.0 | 20.4 | AV | N |
| 0.798000 | 25.2 | 6.2 | 46.0 | 20.8 | AV | N |
| 1.302000 | 27.4 | 6.2 | 46.0 | 18.6 | AV | N |



Page 17 of 53

6. Measurement of Radiated Emissions at Frequencies up to 1 GHz

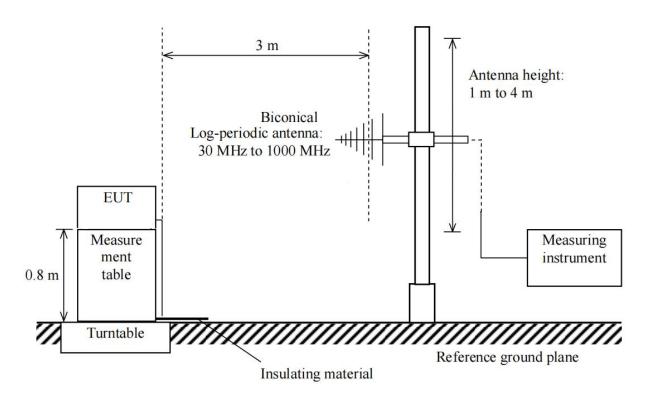
6.1. Requirements

Requirements for radiated emissions at frequencies up to 1 GHz at 3m distance

| Test facility | Detector type/ bandwidth | Frequency Range (MHz) | Limits dB(µV/m) | Measurement specifications |
|------------------|-----------------------------|--------------------------|--------------------|--|
| 0.10 | Quasi-peak/ | 30 to 230 | 40 | Instrumentation: CISPR 16-1-1, Clauses 4, 5 Antennas: CISPR 16-1-4, Clause 4.5 |
| SAC | 120kHz | 230 to 1000 | 47 | Test Site: CISPR 16-1-4, Clause 6 Method: CISPR 16-2-3, Clause 7.6 |

Note:

6.2. Block Diagram of Test Setup



^{1.} The lower limit shall apply at the transition frequency.



Page 18 of 53

6.3. Equipment Details

Measuring Instruments

| Instruments | Manufacturer | Model | S/N | Cal. Date | Cal. Due |
|---------------|--------------|------------|--------|---------------|---------------|
| Test Receiver | R&S | ESCI | 10096 | Feb. 18, 2023 | Feb. 17, 2024 |
| Antenna | SCHWARZBECK | VULB9168 | D69250 | May 11, 2023 | May 10, 2025 |
| Attenuator | East sheep | LM-XX-6-5W | N/A | Jun. 09, 2023 | Jun. 08, 2024 |

Measuring Software

| Software Name | Manufacturer | Details |
|---------------|--------------|-------------------------------------|
| EZ-EMC | FARA | For EMC Measurement, Version RA-03A |

6.4. Configuration of the EUT and method of measurement

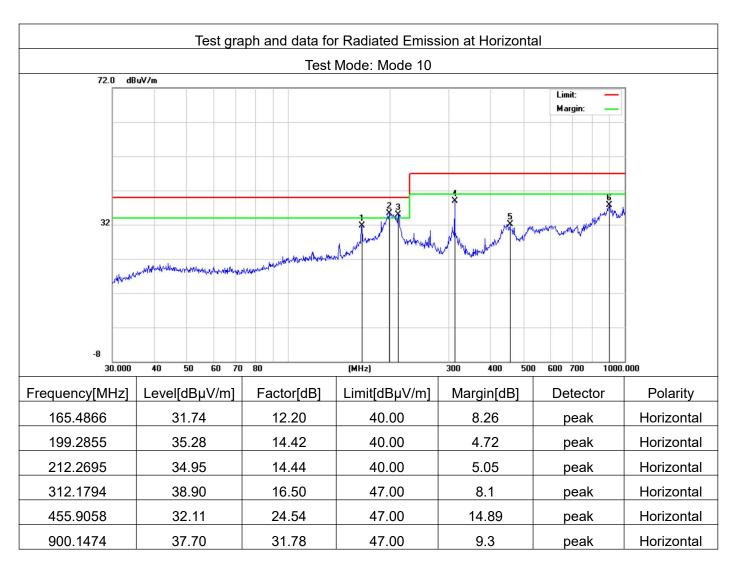
- a. The EUT was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, the EUT was placed on the top surface of a measurement table, 0.8 m high from the horizontal reference plane. When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 10 cm non-conductive covering to insulate the EUT from the ground plane.
- b. Support equipment, if needed, was placed as per CISPR 16-2-3.
- c. All I/O cables were positioned to simulate typical actual usage as per CISPR 16-2-3.
- d. The maximum receiving level of radiated emissions from the EUT was measured while the turntable was rotated from 0° to 360° and the antenna height was scanned between 1 m and 4 m. The cables were laid out to attain the maximum level of radiated emissions.
- e. The more description of the tests, the test methods, and the test set-ups are given in the applicable test standard.
- f. Record at least six highest emissions relative to the limits at each frequency of interest unless the emission is 10 dB or greater below the limit.
- g. A radiated emission is calculated by the following equation:
 - Measurement Level $dB(\mu V/m) = Receiver reading dB(\mu V) + Factor(dB/m)$
 - Factor(dB/m) = Antenna Factor(dB/m) + Cable Loss(dB)
 - Margin= Limit-Level



Report No.: AGC05443231210EE01 Page 19 of 53

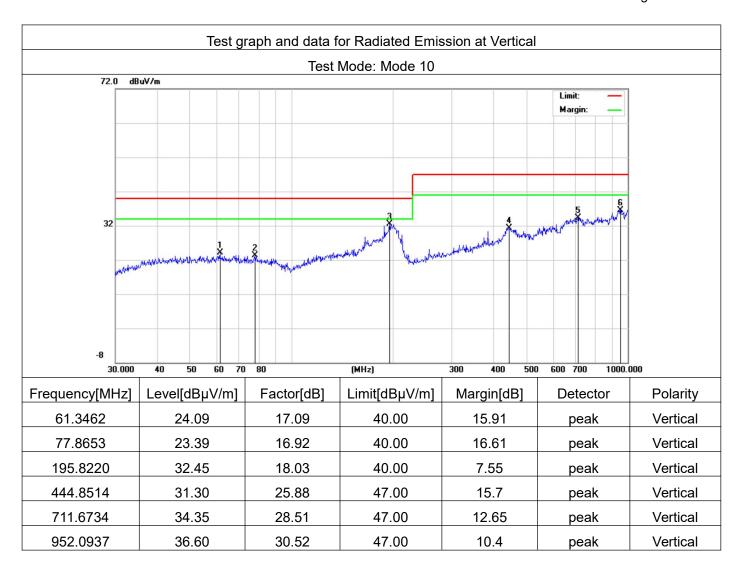
6.5. Test Summary

| Test Engineer | Alex | Temperature | 22.8 ℃ |
|---------------|---------------|-------------------|----------|
| Test Date | Dec. 12, 2023 | Air Pressure | 985 Mbar |
| Worst Mode | Mode 10 | Relative Humidity | 58.6 % |
| Verdict | Pass | | |





Page 20 of 53





Page 21 of 53

7. Measurement of Harmonic Current Emissions

7.1. Requirements

Applicable test standard(s): EN IEC 61000-3-2:2019+A1:2021

Limits of Harmonic Current Emissions

| | Limits | | | | | |
|--------------------------------------|--|---------|--|--|--|--|
| | Class A Class B | | Class C ^a | Class D | | |
| Harmonic order h | Maximum permissible harmonic current (A) | | Maximum permissible harmonic current expressed as a percentage of the input current at the fundamental frequency (%) | Maximum permissible harmonic current per watt (mA/W) | Maximum permissible harmonic current (A) | |
| 3 | 2.30 | 3.45 | 27 ^b | 3.4 | 2.30 | |
| 5 | 1.14 | 1.71 | 10 | 1.9 | 1.14 | |
| 7 | 0.77 | 1.155 | 7 | 1.0 | 0.77 | |
| 9 | 0.40 | 0.6 | 5 | 0.5 | 0.40 | |
| 11 | 0.33 | 0.495 | 3 | 0.35 | 0.33 | |
| 13 | 0.21 | 0.315 | 3 | 3.85/13 | 0.21 | |
| 15≤ <i>h</i> ≤39(odd harmonics only) | 2.25/h | 3.375/h | 3 | 3.85/h | 2.25/h | |
| 2 | 1.08 | 1.62 | 2 | | | |
| 4 | 0.43 | 0.645 | | | | |
| 6 | 0.30 | 0.45 | Not applicable | Not applicable Not a | Not applicable | |
| 8≤h≤40(even harmonics only) | 1.84/h | 2.76/h | | | | |

Note:

The application of limits had been as defined in the applicable test standard.

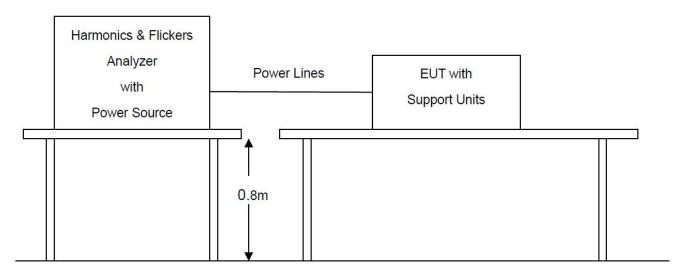
⁽a) For some Class C products, other emission limits apply.

⁽b) The limit is determined based on the assumption of modern lighting technologies having power factors of 0.90 or higher



Page 22 of 53

7.2. Block Diagram of Test Setup



7.3. Equipment Details

Measuring Instruments

| Instruments | Manufacturer | Model | S/N | Cal. Date | Cal. Due |
|-----------------------------|--------------|-----------|-------|---------------|---------------|
| Signal Conditioning Unit | Schaffner | CCN1000-1 | 72431 | Jun. 02, 2023 | Jun. 01, 2024 |
| AC Source | Schaffner | NSG 1007 | 56825 | Jun. 02, 2023 | Jun. 01, 2024 |

Measuring Software

| Software Name | Manufacturer | Details | |
|---------------|--------------|--|--|
| CTS 4 | AMETEK | For harmonics and flickers measurement, version 4.29.0 | |

7.4. Configuration of the EUT and method of measurement

- The test shall be conducted according to the general requirements given in the applicable test standard.
 The test duration had been as defined in the applicable test standard.
- b. The measurement of harmonic currents shall be performed as follows:
 - for each harmonic order, measure the 1.5 s smoothed RMS harmonic current in each discrete Fourier transform (DFT) time window;
 - calculate the arithmetic average of the measured values from the DFT time windows, over the entire observation period.
- c. The value of the active input power to be used for the calculation of limits shall be determined as follows:
 - measure the 1.5 s smoothed active input power in each DFT time window;
 - determine the maximum of the measured values of active power from the DFT time windows over the entire duration of the test.



Page 23 of 53

d. The harmonic currents and the active input power shall be measured under the same test conditions but need not be measured simultaneously.

7.5. Test Summary

Equipment with a rated power less than or equal to 75W is deemed to fulfil all relevant requirements of this standard without testing.



Page 24 of 53

8. Measurement of Voltage Fluctuations and Flicker

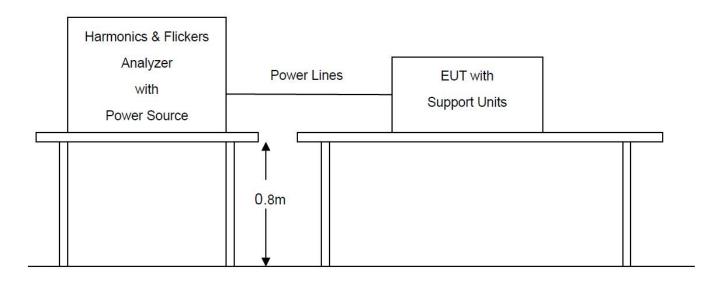
8.1. Requirements

Applicable test standard(s): EN 61000-3-3:2013+A2:2021

Limits of Voltage Fluctuations and Flicker

| Parameters | Definitions | Limits |
|-------------------|---|-------------------------|
| T _{max} | the accumulated time value of $d(t)$ with a deviation exceeding 3.3 % during a single voltage change at the EUT terminals | ≤500 ms |
| d _c | the maximum relative steady-state voltage change | ≤3.3% |
| d _{max} | the maximum relative voltage change | ⊠ ≤4% □ ≤6% □ ≤7% |
| ⊠ P _{st} | short-term flicker severity | ≤0.65 |
| $\Box P_{lt}$ | long-term flicker severity | ≤1.0 |

8.2. Block Diagram of Test Setup



8.3. Equipment Details

Measuring Instruments

| Instruments | Manufacturer | Model | S/N | Cal. Date | Cal. Due |
|-----------------------------|--------------|-----------|-------|---------------|---------------|
| Signal Conditioning Unit | Schaffner | CCN1000-1 | 72431 | Jun. 02, 2023 | Jun. 01, 2024 |
| AC Source | Schaffner | NSG 1007 | 56825 | Jun. 02, 2023 | Jun. 01, 2024 |

Measuring Software

| Software Name | Manufacturer | Details |
|---------------|--------------|--|
| CTS 4 | AMETEK | For harmonics and flickers measurement, version 4.29.0 |



Report No.: AGC05443231210EE01 Page 25 of 53

8.4. Configuration of the EUT and method of measurement

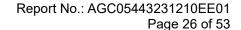
- a. The test shall be conducted according to the general requirements given in the applicable test standard.

 The test duration and test condition had been as defined in the applicable test standard.
- b. All types of voltage fluctuations would been assessed by direct measurement using a flicker meter which complies with the specification given in IEC 61000-4-15:2010.

8.5. Test Summary

| Test Engineer | Jimu | Temperature | 22.4 ℃ |
|---------------|---------------|-------------------|---------------|
| Test Date | Dec. 11, 2023 | Air Pressure | 985 Mbar |
| Worst Mode | Mode 1 | Relative Humidity | 49.6 % |
| Verdict | Pass | | |

| Parameters | Measurement Value | Limits |
|------------------|-------------------|------------|
| T _{max} | 0 | ≤500 ms |
| d _c | 0.00 | ≤3.3% |
| d _{max} | 0.00 | ≤4% |
| P _{st} | 0.114 | ≤0.65 |



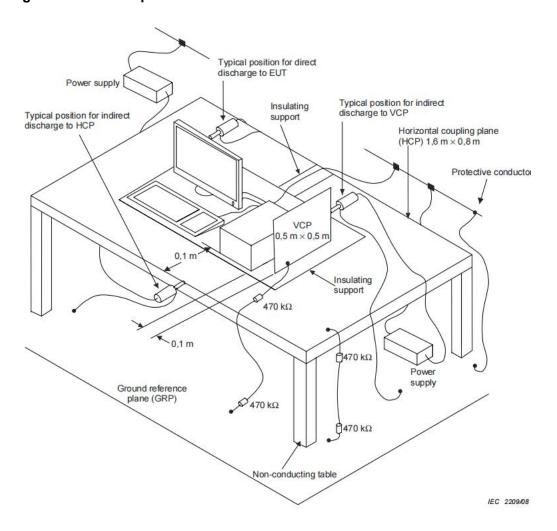


9. Measurement of Electrostatic discharge

9.1. Requirements

| Port | Enclosure |
|--------------------------------|------------------------------|
| Basic Standard | IEC 61000-4-2 |
| | ±8.0 kV (Air Discharge) |
| Test Level | ±4.0 kV (Contact Discharge) |
| | ±4.0 kV (Indirect Discharge) |
| Required Performance Criterion | В |
| Time Between Each Discharge: | 1 second |
| Number of Discharge for Each | 10 |
| Applied Voltage | 10 |

9.2. Block Diagram of Test Setup





Page 27 of 53

9.3. Equipment Details

Measuring Instruments

| Instruments | Manufacturer | Model | S/N | Cal. Date | Cal. Due |
|---------------|--------------|---------|-----|---------------|---------------|
| ESD Simulator | Schaffner | NSG 438 | 782 | Dec. 30, 2022 | Dec. 29, 2023 |

Measuring Software

| Software Name | Manufacturer | Details |
|---------------|--------------|---------|
| | | |

9.4. Configuration of the EUT and method of measurement

- a. Electrostatic discharges were applied only to those points and surfaces of the EUT that are accessible to users during normal operation.
- b. The test was performed with at least ten single discharges on the pre-selected points in the most sensitive polarity.
- c. The time interval between two successive single discharges was at least 1 second.
- d. The ESD generator was held perpendicularly to the surface to which the discharge was applied and the return cable was at least 0.2 meters from the EUT.
- e. Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.
- f. Air discharges were applied with the round discharge tip of the discharge electrode approaching the EUT as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator was removed from the EUT and re-triggered for a new single discharge. The test was repeated until all discharges were completed.
- g. At least ten single discharges (in the most sensitive polarity) were applied to the Horizontal Coupling Plane at points on each side of the EUT. The ESD generator was positioned vertically at a distance of 0.1 meters from the EUT with the discharge electrode touching the HCP.
- h. At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the Vertical Coupling Plane in sufficiently different positions that the four faces of the EUT were completely illuminated. The VCP (dimensions 0.5m×0.5m) was placed vertically to and 0.1 meters from the EUT.
- i. The test results shall be classified in terms of the loss of function or degradation of performance of the equipment under test, relative to a performance criterion defined in the report.



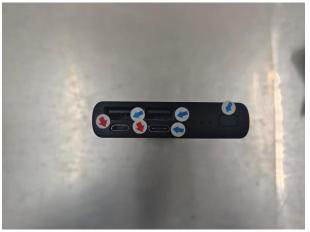
Report No.: AGC05443231210EE01 Page 28 of 53

9.5. Test Summary

| Test Engineer | Sam | Temperature | 23 °C |
|---------------|------------------------------|-------------------|--------------|
| Test Date | Dec. 12, 2023 | Air Pressure | 985 Mbar |
| Test Mode(s) | Mode 1/2/3/4/5/6/7/8/9/10/11 | Relative Humidity | 54 % |
| Verdict | Pass | | |

| Voltage | Coupling | Observation | Performance |
|------------------|------------------------|-------------------------------|-------------|
| ±4kV | Contact Discharge | No degradation of performance | А |
| ±2KV, ±4kV, ±8kV | Air Discharge | No degradation of performance | А |
| ±4kV | Indirect Discharge HCP | No degradation of performance | А |
| ±4kV | Indirect Discharge VCP | No degradation of performance | Α |

Blue line: Air discharge Red line: Contact discharge







Page 29 of 53

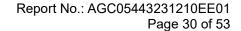
10. Measurement of Radio-Frequency Electromagnetic Field

10.1. Requirements

| Port | Enclosure |
|----------------------------------|--|
| Basic Standard | IEC 61000-4-3 |
| Test Level | Swept test: 3V/m with 80% AM. 1kHz Modulation at 80 to 1000MHz Spot test (Frequency (±1 %)): 3V/m with 80% AM. 1kHz Modulation at 1800, 2600, 3500, 5000MHz |
| Required Performance Criterion | Α |
| Antenna polarization | Vertical and Horizontal |
| Step size increment ^a | 1% |
| Dwell time ^b | ≤5 seconds |
| Test Distance | 3m |
| EUT position facing antenna | Front side, back side, left side and right side |

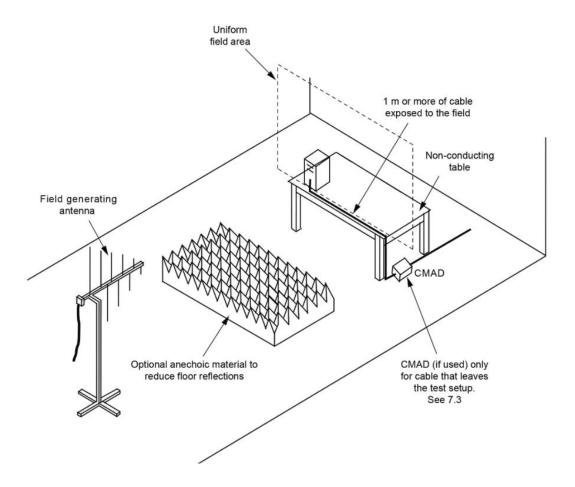
Notes:

- a. Recognizing that a 1% step size is preferred, the frequency range can be swept incrementally with a step size not exceeding 4% of the previous frequency with a test level of twice the value of the specified test level in order to reduce the testing time for equipment requiring testing in multiple configurations and/or long cycle times.
- b. The dwell time at each frequency shall not be less than the time necessary for the EUT to be exercised and to be able to respond. However, the dwell time shall not exceed 5 seconds at each of the frequencies during the scan. The time to exercise the EUT is not interpreted as a total time of a program or a cycle but related to the reaction time in case of failure of the EUT.





10.2. Block Diagram of Test Setup





Report No.: AGC05443231210EE01 Page 31 of 53

10.3. Equipment Details

Measuring Instruments

| Instruments | Manufacturer | Model | S/N | Cal. Date | Cal. Due |
|--|--------------|---------------|-----------------|---------------|---------------|
| Signal Generator | Aglient | N5182A | MY50140530 | Feb.17,2023 | Feb.16,2024 |
| Power Probe | R&S | URV5-Z4 | 100124 | Mar. 24, 2023 | Mar. 23, 2025 |
| Power Meter | R&S | NRVD | 8323781027 | Mar. 24, 2023 | Mar. 23, 2025 |
| Directional coupler | Werlatone | C5571-10 | 99463 | Mar. 10, 2022 | Mar. 09, 2024 |
| Directional coupler | Werlatone | C5571-10 | 99482 | Mar. 10, 2022 | Mar. 09, 2024 |
| Power Amplifier | KALMUS | 7100LC | 04-02/17-06-001 | Apr. 25, 2023 | Apr. 24, 2024 |
| Power Amplifier | Milmega | AS0104-55_55 | 1004793 | Apr. 25, 2023 | Apr. 24, 2024 |
| Power Amplifier | Rflight | NTWPA-2560100 | 17063183 | Apr. 25, 2023 | Apr. 24, 2024 |
| Wideband Antenna | ETS | 3142C | 00060447 | | |
| Broadband high gain horn antenna | SCHWARZBECK | BBHA 9120 J | 00073 | | |

Measuring Software

| Software Name | Manufacturer | Details |
|---------------|--------------|--------------------------------------|
| TS+[JS35-RS] | Tonscend | For EMC measurement, version 2.0.1.8 |

10.4. Configuration of the EUT and method of measurement

- a. The Equipment Under Test (EUT) was positioned within the Uniform Field Area (UFA) on a supporting table, ensuring a 3-meter separation from the transmitting antenna. This setup aligns with the calibrated square area, guaranteeing field uniformity during testing. The supporting units were strategically located outside the UFA to avoid any potential interference. Nonetheless, the cables connected to the EUT were intentionally exposed to the precisely calibrated field within the UFA.
- b. Before testing, it will verify the proper operation of the test equipment/system. This verification will involve measuring the field strength at one point within the Uniform Field Area (UFA) at various frequencies.
- c. The test shall be performed according to the above requirements and block diagram which shall specify the test setup.
- d. The test results shall be classified in terms of the loss of function or degradation of performance of the equipment under test, relative to a performance criterion defined in the report.



Page 32 of 53

10.5. Test Summary

| Test Engineer | Alex | Temperature | 22.8 ℃ |
|---------------|------------------------------|-------------------|----------|
| Test Date | Dec. 12, 2023 | Air Pressure | 985 Mbar |
| Test Mode(s) | Mode 1/2/3/4/5/6/7/8/9/10/11 | Relative Humidity | 58.6 % |
| Verdict | Pass | | |

Swept test:

| Frequency | Exposed Side | Field Strength (V/m) | Observation | Performance |
|---------------|-----------------|----------------------|-------------------------------|-------------|
| 80MHz to 6GHz | Front | 3V/m (rms) | No degradation of performance | Α |
| 80MHz to 6GHz | Left | 3V/m (rms) | No degradation of performance | A |
| 80MHz to 6GHz | Rear | 3V/m (rms) | No degradation of performance | A |
| 80MHz to 6GHz | Right | 3V/m (rms) | No degradation of performance | Α |

Spot test (Frequency (±1 %)):

| Frequency | Exposed Side | Field Strength (V/m) | Observation | Performance |
|------------------------------|--------------|----------------------|-------------------------------|-------------|
| 1800, 2600, 3500, 5000MHz | Front | 3V/m (rms) | No degradation of performance | Α |
| 1800, 2600, 3500, 5000MHz | Left | 3V/m (rms) | No degradation of performance | Α |
| 1800, 2600, 3500, 5000MHz | Rear | 3V/m (rms) | No degradation of performance | Α |
| 1800, 2600, 3500, 5000MHz | Right | 3V/m (rms) | No degradation of performance | Α |



Page 33 of 53

11. Measurement of Radio-frequency common mode

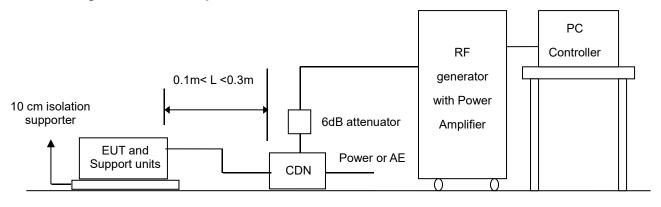
11.1. Requirements

| Port | ⊠ AC mains power ports | ☐ Analogue/digital data | | ork power |
|-------------------------|---|-------------------------|--------------------|-----------|
| | · · | ports ^a | ports ^a | |
| Basic Standard | IEC 61000-4-6 | | | |
| Required Performance | | | | |
| Criterion | A | | | |
| | 0.15 to 10 MHz, 3 V RMS (unmodulated), 80 % AM (1 kHz) | | | |
| Test Level | 10 to 30 MHz, 3 to 1 V RMS (unmodulated), 80 % AM (1 kHz) | | | |
| | 30 to 80 MHz, 1 V RMS (unmodulated), 80 % AM (1 kHz) | | | |
| Step size increment b | 1% | | | |
| Dwell time ^c | ≤5 seconds | | | |

Notes:

- Applicable only to ports which, according to the manufacturer's specification, supports cable lengths greater than 3 m.
- b. Recognizing that a 1% step size is preferred, the frequency range can be swept incrementally with a step size not exceeding 4% of the previous frequency with a test level of twice the value of the specified test level in order to reduce the testing time for equipment requiring testing in multiple configurations and/or long cycle times.
- c. The dwell time at each frequency shall not be less than the time necessary for the EUT to be exercised and to be able to respond. However, the dwell time shall not exceed 5 seconds at each of the frequencies during the scan. The time to exercise the EUT is not interpreted as a total time of a program or a cycle but related to the reaction time in case of failure of the EUT.

11.2. Block Diagram of Test Setup



Ground Reference Plane



Page 34 of 53

11.3. Equipment Details

Measuring Instruments

| Instruments | Manufacturer | Model | S/N | Cal. Date | Cal. Due |
|------------------------|--------------|----------|------------|---------------|---------------|
| Power Amplifier | AR | 75A250 | 18464 | Oct. 13, 2023 | Oct. 12, 2024 |
| CDN | ZHINAN | ZN3751 | 15004 | Aug. 03, 2022 | Aug. 02, 2024 |
| 6dB attenuator | ZHINAN | E-002 | N/A | Aug. 04, 2022 | Aug. 03, 2024 |
| Power Probe | R&S | URV5-Z4 | 100124 | Mar. 24, 2023 | Mar. 23, 2025 |
| Power Meter | R&S | NRVD | 8323781027 | Mar. 24, 2023 | Mar. 23, 2025 |
| Directional Coupler | Werlatone | C5571-10 | 99463 | Mar. 10, 2023 | Mar. 09, 2024 |
| Signal Generator | Keysight | E4421B | MY43351603 | Feb. 17, 2023 | Feb. 16, 2024 |

Measuring Software

| Software Name | Manufacturer | Details |
|---------------|--------------|--------------------------------------|
| TS+[JS35-CS] | Tonscend | For EMC measurement, version 2.0.1.7 |

11.4. Configuration of the EUT and method of measurement

- a. The Equipment Under Test (EUT) shall be tested within its intended operating and climatic conditions.
- b. The test generator and the coupling/decoupling network shall be placed directly on, and bonded to, the ground reference plane. The test shall be performed with the test generator connected to each of the coupling devices (CDN, EM clamp, current clamp) in turn. All other cables not under test shall either be disconnected (when functionally allowed) or provided with decoupling networks or unterminated CDNs only.
- c. The test shall be performed according to the above requirements and block diagram which shall specify the test setup.
- d. The test results shall be classified in terms of the loss of function or degradation of performance of the equipment under test, relative to a performance criterion defined in the report.



Page 35 of 53

11.5. Test Summary

| Test Engineer | Sam | Temperature | 23 ℃ |
|---------------|---------------|-------------------|----------|
| Test Date | Dec. 12, 2023 | Air Pressure | 985 Mbar |
| Test Mode(s) | Mode 1/2/3/4 | Relative Humidity | 54 % |
| Verdict | Pass | | |

| Test port | Test Level | Coupling method | Observation | Performance |
|-----------|------------------------|-----------------|-------------------------------|-------------|
| AC Mains | 0.15 to 10 MHz: 3 V | | | |
| Input | 10 to 30 MHz: 3 to 1 V | CDN | No degradation of performance | A |
| pat | 30 to 80 MHz, 1 V | | | |



Page 36 of 53

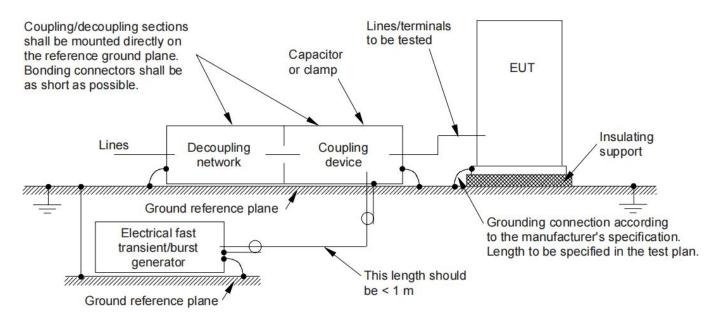
12. Measurement of Fast Transients

12.1. Requirements

| Port | ⊠AC mains power ports | ☐ Analogue/digital data ports ^a | DC network power ports ^a |
|-----------------------------------|-----------------------|--|-------------------------------------|
| Basic Standard | IEC 61000-4-4 | | |
| Required Performance Criterion | В | | |
| Test Level | 1 kV (peak) | 0.5 kV (peak) | 0.5 kV (peak) |
| Polarity | Positive/Negative | | |
| Impulse Frequency | 5kHz | | |
| Impulse wave shape | 5/50ns | | |
| Burst Duration | 15ms | | |
| Burst Period | 300ms | | |
| Notes: | | | |

a. Applicable only to ports which, according to the manufacturer's specification, supports cable lengths greater than 3 m.

12.2. Block Diagram of Test Setup





Page 37 of 53

12.3. Equipment Details

Measuring Instruments

| Instruments | Manufacturer | Model | S/N | Cal. Date | Cal. Due |
|--------------------------|--------------|-------------|-------|---------------|---------------|
| EFT/Surge/DIPS Generator | Schaffner | Modula 6150 | 34437 | Jun. 08, 2023 | Jun. 07, 2024 |

Measuring Software

| Software Name | Manufacturer | Details |
|---------------|--------------|--|
| WinModula | Schaffner | For EFT/Surge/Dips measurement, version 2.31 c |

12.4. Configuration of the EUT and method of measurement

- a. The Equipment Under Test (EUT), whether stationary floor-mounted or table top, and equipment designed to be mounted in other configurations, shall be placed on a ground reference plane and shall be insulated from it by an insulating support 0,1 m ± 0,01 m thick.
- b. The test generator and the coupling/decoupling network shall be placed directly on, and bonded to, the ground reference plane.
- c. The EUT shall be arranged and connected to satisfy its functional requirements, according to the equipment installation specifications. The minimum distance between the EUT and all other conductive structures (e.g. the walls of a shielded room), except the ground reference plane shall be more than 0,5 m. All cables to the EUT shall be placed on the insulation support 0,1 m above the ground reference plane. Cables not subject to electrical fast transients shall be routed as far as possible from the cable under test to minimize the coupling between the cables.
- d. The test voltages shall be coupled to all of the EUT ports including those between two units of equipment involved in the test, unless the length of the interconnecting cable makes it impossible to test.
- e. Either a direct coupling network or a capacitive clamp shall be used for the application of the test voltages.
- f. The test results shall be classified in terms of the loss of function or degradation of performance of the equipment under test, relative to a performance criterion defined in the report.



Page 38 of 53

12.5. Test Summary

| Test Engineer | Sam | Temperature | 23 ℃ |
|---------------|---------------|-------------------|----------|
| Test Date | Dec. 12, 2023 | Air Pressure | 985 Mbar |
| Test Mode(s) | Mode 1/2/3/4 | Relative Humidity | 56 % |
| Verdict | Pass | | |

| Inject Line | Voltage(kV) | Inject Method | Observation | Performance |
|-------------|-------------|---------------|-------------------------------|-------------|
| AC Lines | 0.5, 1 | Direct | No degradation of performance | Α |



Page 39 of 53

13. Measurement of Surges

13.1. Requirements

| | ⊠ AC mains | ☐ Analogue/digital d | ata ports ^{b, c, d and e} | ☐ DC network | |
|-----------------------------------|--|--|------------------------------------|---------------------------|--|
| Port | power ports ^a | ☐Unshielded | ☐ Coaxial or | power ports f | |
| | power ports | symmetrical | shielded | power ports | |
| Basic Standard | IEC 61000-4-5 | EC 61000-4-5 | | | |
| Required Performance Criterion | В | С | В | В | |
| Test Level | Line to line: 1 kV; Line to ground: 2 kV | primary protection is intended: 1 and 4 kV (line to ground); primary protection is not intended: 1 kV (line to ground) | shield to ground: 0.5 kV | Line to ground: 0.5 kV | |
| Tr/Th | 1.2/50 (8/20) µs | 10/700 (5/320) µs | 1.2/50 (8/20) µs | 1.2/50 (8/20) µs | |
| Number of impulses | Five positive and fi | ve negative impulses | | | |
| Time between successive | 1 min | | | | |
| impulses | 1 min | | | | |

Notes:

- The number of pulses applied shall be as follows:
 - Five positive pulses line-to-neutral at 90° phase.
 - Five negative pulses line-to-neutral at 270° phase.

The following additional pulses are required only if the EUT has an earth connection or if the EUT is earthed via any AE:

- Five positive pulses line-to-earth at 90° phase.
- Five negative pulses line-to-earth at 270° phase.
- Five negative pulses neutral-to-earth at 90° phase.
- Five positive pulses neutral-to-earth at 270° phase.
- Applicable only to ports which, according to the manufacturer's specification, supports cable lengths greater than 3 m.
- Surges are applied with primary protection fitted. Where possible, use the actual primary protector intended to be used in the installation.
- Where the surge coupling network for the 10/700 (5/320) µs waveform affects the functioning of high speed data ports, the test shall be carried out using a 1.2/50 (8/20) µs waveform and appropriate coupling network.
- Surges are applicable to ports which satisfy all of the following conditions: e.
 - May connect directly to cables that leave the building structure.
 - Defined as an antenna port, a wired network port, or a broadcast receiver tuner port.

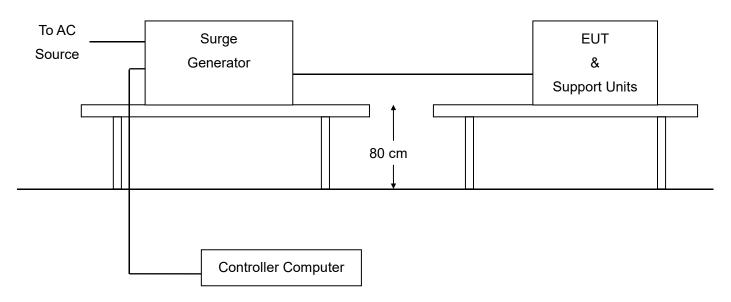
Typical ports covered include xDSL, PSTN, CATV, antenna and similar. Excluded ports are LAN and similar.

Applicable only to ports which, according to the manufacturer's specification, may connect directly to outdoor cables.



Page 40 of 53

13.2. Block Diagram of Test Setup



13.3. Equipment Details

Measuring Instruments

| Instruments | Manufacturer | Model | S/N | Cal. Date | Cal. Due |
|-----------------------------|--------------|-------------|-------|---------------|---------------|
| EFT/Surge/DIPS Generator | Schaffner | Modula 6150 | 34437 | Jun. 08, 2023 | Jun. 07, 2024 |

Measuring Software

| Software Name | Manufacturer | Details |
|---------------|--------------|--|
| WinModula | Schaffner | For EFT/Surge/Dips measurement, version 2.31 c |



Report No.: AGC05443231210EE01 Page 41 of 53

13.4. Configuration of the EUT and method of measurement

- a. Verification shall be performed. It is preferable to perform the verification prior to the test.
- b. The test shall be performed according to the above requirements and block diagram which shall specify the test setup.
- c. When testing line-to-ground, the lines are tested individually in sequence, if there is no other specification.
- d. The test procedure shall also consider the non-linear current-voltage characteristics of the equipment under test. Therefore, all lower test levels including the selected test level shall be tested.
- The test results shall be classified in terms of the loss of function or degradation of performance of the
 equipment under test, relative to a performance criterion defined in the report.

13.5. Test Summary

| Test Engineer | Sam | Temperature | 23 °C |
|---------------|---------------|-------------------|--------------|
| Test Date | Dec. 12, 2023 | Air Pressure | 985 Mbar |
| Test Mode(s) | Mode 1/2/3/4 | Relative Humidity | 56 % |
| Verdict | Pass | | |

| Test port | Coupling | Voltage(kV) | Observation | Performance |
|-------------------|-----------------|-------------|-------------------------------|-------------|
| AC Mains Input | line-to-neutral | 0.5, 1 | No degradation of performance | Α |



Page 42 of 53

14. Measurement of Voltage dips and interruptions

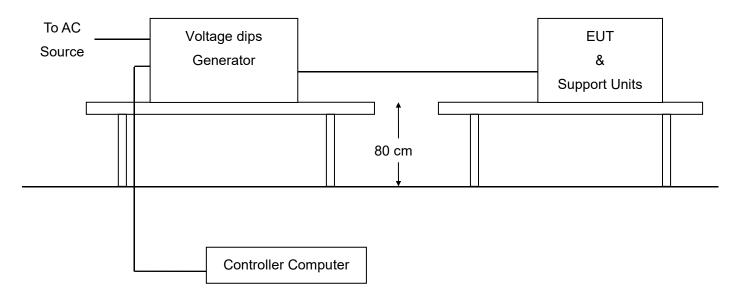
14.1. Requirements

| Port | AC mains power ports | | |
|-----------------------------------|--------------------------------|------------------------------|--------------------------------|
| Basic Standard | IEC 61000-4-11 | | |
| Required Performance Criterion | В | В | С |
| Residual voltage ^a | < 5 % | 70 % | < 5 % |
| Number of cycles ^b | 0.5 | 25 for 50 Hz 30 for 60 Hz | 250 for 50 Hz 300 for 60 Hz |
| Variation/dip repetition | Sequence of three dips/ii test | nterruptions with an interva | al of 10 seconds between each |

Notes:

- a. Changes to occur at 0 degree crossover point of the voltage waveform. If the EUT does not demonstrate compliance when tested with 0 degree switching, the test shall be repeated with the switching occurring at both 90 degrees and 270 degrees. If the EUT satisfies these alternative requirements, then it fulfils the requirements.
- b. Apply at only one supply frequency of the EUT.

14.2. Block Diagram of Test Setup





Page 43 of 53

14.3. Equipment Details

Measuring Instruments

| Instruments | Manufacturer | Model | S/N | Cal. Date | Cal. Due |
|--------------------------|--------------|-------------|-------|---------------|---------------|
| EFT/Surge/DIPS Generator | Schaffner | Modula 6150 | 34437 | Jun. 08, 2023 | Jun. 07, 2024 |

Measuring Software

| Software Name | Manufacturer | Details |
|---------------|--------------|--|
| WinModula | Schaffner | For EFT/Surge/Dips measurement, version 2.31 c |

14.4. Configuration of the EUT and method of measurement

- a. The test shall be performed according to the above requirements and block diagram which shall specify the test setup.
- b. The test results shall be classified in terms of the loss of function or degradation of performance of the equipment under test, relative to a performance criterion defined in the report.

14.5. Test Summary

| Test Engineer | Sam | Temperature | 23 °C |
|---------------|---------------|-------------------|----------|
| Test Date | Dec. 12, 2023 | Air Pressure | 985 Mbar |
| Test Mode(s) | Mode 1/2/3/4 | Relative Humidity | 56 % |
| Verdict | Pass | | |

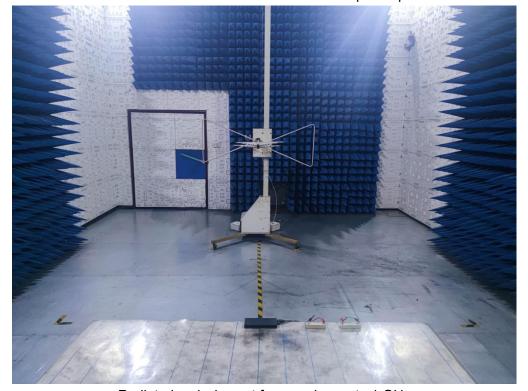
| Test port | Residual voltage (%) | Cycles | Observation | Performance |
|-------------------|----------------------|--------|-------------------------------|-------------|
| AC Mains Input | < 5 | 0.5 | No degradation of performance | Α |
| | 70 | 25 | No degradation of performance | Α |
| | < 5 | 250 | EUT power cycled | В |



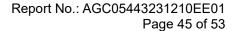
15. Photographs of Test Setup



Conducted emissions from the AC mains power ports



Radiated emissions at frequencies up to 1 GHz





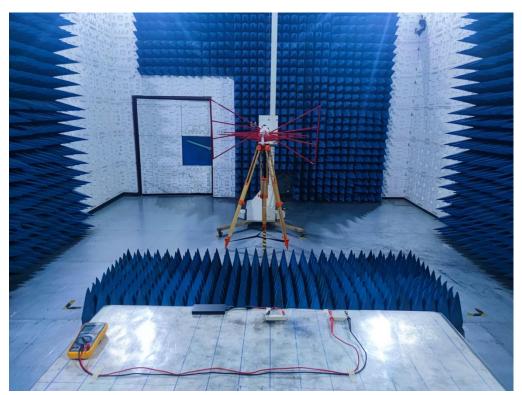


Harmonic current emissions & Voltage fluctuations and flicker

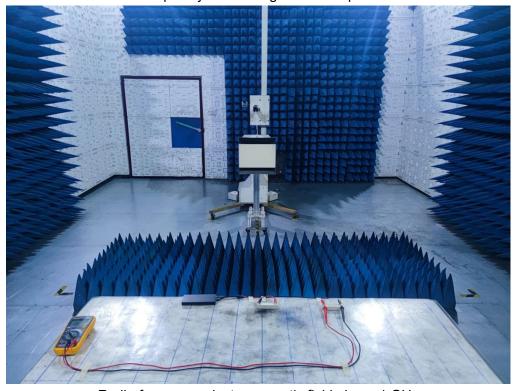


Electrostatic discharge

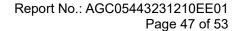




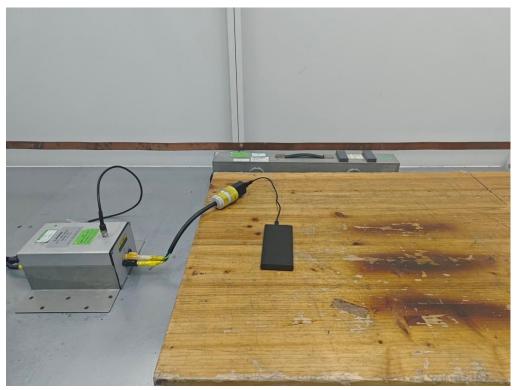
Radio-frequency electromagnetic field up to 1 GHz



Radio-frequency electromagnetic field above 1 GHz



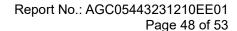




Radio-frequency common mode at the AC mains power ports



Fast transients/Surges/ Voltage dips at the AC mains power ports





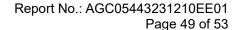
16. Photographs of EUT



All view-1 of EUT



All view-2 of EUT





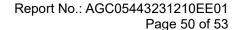


All view-3 of EUT

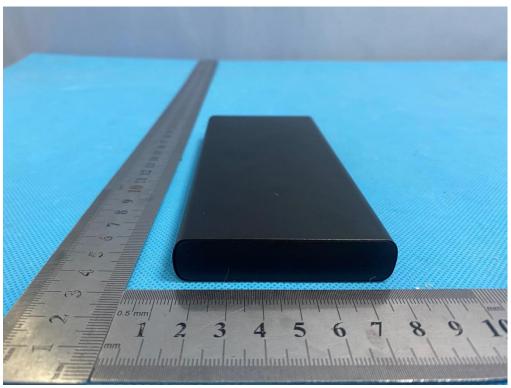


Top view of EUT

Tel: +86-755 2523 4088 E-mail: agc@agccert.com Web: http://www.agccert.com/







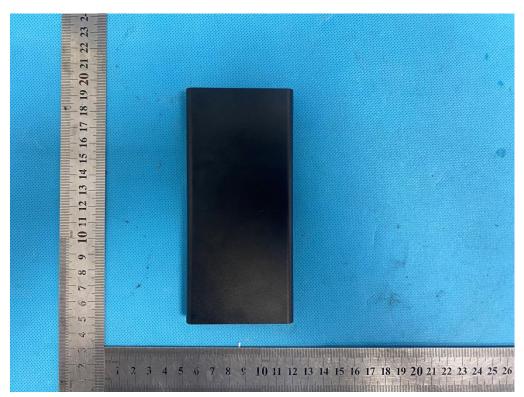
Bottom view of EUT



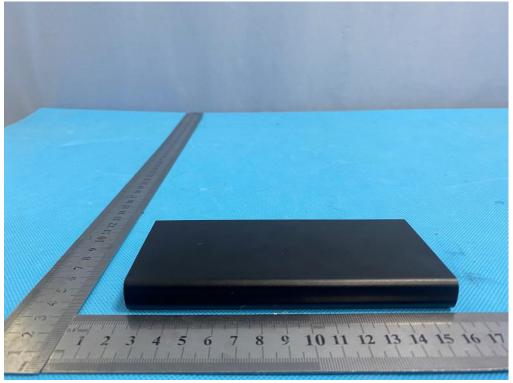
Front view of EUT





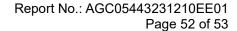


Back view of EUT

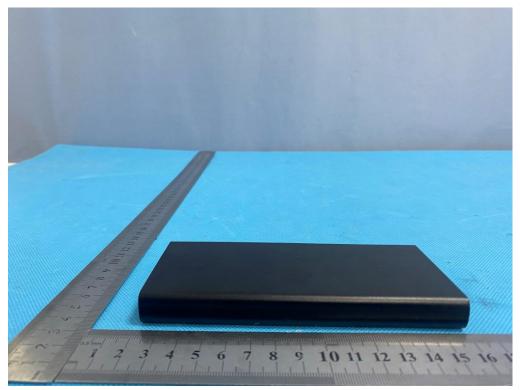


Left view of EUT

Tel: +86-755 2523 4088 E-mail: agc@agccert.com Web: http://www.agccert.com/



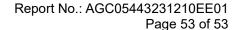




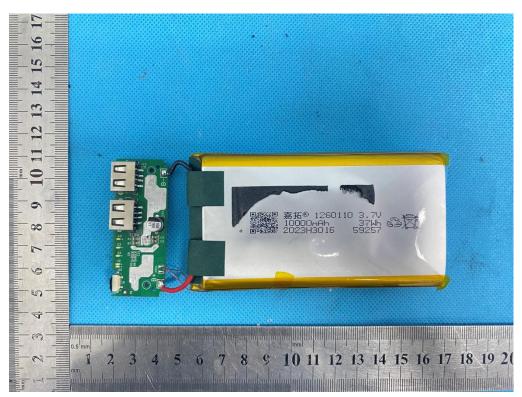
Right view of EUT



Open view of EUT







Internal view-1 of EUT



Internal view-2 of EUT

----End of Report----



Conditions of Issuance of Test Reports

- 1. All samples and goods are accepted by the Attestation of Global Compliance (Shenzhen) Co., Ltd (the "Company") solely for testing and reporting in accordance with the following terms and conditions. The company provides its services on the basis that such terms and conditions constitute express agreement between the company and any person, firm or company requesting its services (the "Clients").
- 2. Any report issued by Company as a result of this application for testing services (the "Report") shall be issued in confidence to the Clients and the Report will be strictly treated as such by the Company. It may not be reproduced either in its entirety or in part and it may not be used for advertising or other unauthorized purposes without the written consent of the Company. The Clients to whom the Report is issued may, however, show or send it, or a certified copy thereof prepared by the Company to its customer, supplier or other persons directly concerned. The Company will not, without the consent of the Clients, enter into any discussion or correspondence with any third party concerning the contents of the Report, unless required by the relevant governmental authorities, laws or court orders.
- 3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.
- 4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.
- 5. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.
- 6. The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.
- 7.Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.
- 8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.
- 9. Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.