

# TEST REPORT

**Application No.:** KSEM2506001596AT

**Applicant:** ZHEJIANG DAHUA VISION TECHNOLOGY CO.,LTD.

**Address of Applicant:** No.1399, Binxing Road, Binjiang District, Hangzhou, P.R.China

**Manufacturer:** ZHEJIANG DAHUA VISION TECHNOLOGY CO.,LTD.

**Address of Manufacturer:** No.1399, Binxing Road, Binjiang District, Hangzhou, P.R.China

**Equipment Under Test (EUT):**

**EUT Name:** Network Video Recorder

**Model No.:** DHI-NVR5208-EI2; DHI-NVR5216-EI2; DHI-NVR5232-EI2; NVR5208-EI2; NVR5216-EI2; NVR5232-EI2; DHI-NVR52XX-EI2; NVR52XX-EI2 (The "xx" can be,04,08,16 and 32 denote different software configuration) ♣

♣ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.

**Trade Mark:** 

**Standard(s) :** EN 55032: 2015+A11:2020+A1:2020  
EN 61000-3-3: 2013+A1:2019+A2:2021  
EN IEC 61000-3-2: 2019+A1:2021+A2:2024  
EN 50130-4: 2011+A1:2014  
EN 55035: 2017+A11:2020

**Date of Receipt:** 2025-06-12

**Date of Test:** 2025-06-20 to 2025-06-25

**Date of Issue:** 2025-06-30

**Test Result:**
**Pass\***

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

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

| Revision Record |             |            |        |
|-----------------|-------------|------------|--------|
| Version         | Description | Date       | Remark |
| 00              | Original    | 2025-06-30 | /      |
|                 |             |            |        |
|                 |             |            |        |

|                          |  |                          |  |  |
|--------------------------|--|--------------------------|--|--|
| Authorized for issue by: |  |                          |  |  |
| Tested By                |  | <i>Kun Gu</i>            |  |  |
|                          |  | Kun Gu /Project Engineer |  |  |
| Approved By              |  | <i>Terry Hou</i>         |  |  |
|                          |  | Terry Hou /Reviewer      |  |  |

## 2 Test Summary

| Emission Part                                          |                                         |                                        |             |        |
|--------------------------------------------------------|-----------------------------------------|----------------------------------------|-------------|--------|
| Item                                                   | Standard                                | Method                                 | Requirement | Result |
| Conducted Emissions at Mains Power Port (150kHz-30MHz) | EN 55032: 2015+A11:2020+A1:2020         | EN 55032: 2015+A11:2020+A1:2020        | Class A     | Pass   |
| Asymmetric Mode Conducted Emissions(150kHz-30MHz)      |                                         | EN 55032: 2015+A11:2020+A1:2020        | Class A     | Pass   |
| Radiated Emissions (30MHz-1GHz)                        |                                         | EN 55032: 2015+A11:2020+A1:2020        | Class A     | Pass   |
| Radiated Emissions (Above 1GHz)                        |                                         | EN 55032: 2015+A11:2020+A1:2020        | Class A     | Pass   |
| Voltage Fluctuations and Flicker                       | EN 61000-3-3: 2013+ A1:2019+A2:2021     | EN 61000-3-3: 2013+ A1:2019+A2:2021    | Clause 5    | Pass   |
| Harmonic Current Emission                              | EN IEC 61000-3-2: 2019+A1:2021+A2: 2024 | EN IEC 61000-3-2: 2019+A1:2021+A2:2024 | Class A     | Pass   |

| Immunity Part                                       |                           |                            |                                                                |        |
|-----------------------------------------------------|---------------------------|----------------------------|----------------------------------------------------------------|--------|
| Item                                                | Standard                  | Method                     | Requirement                                                    | Result |
| Electrostatic Discharge                             | EN 50130-4: 2011 +A1:2014 | EN 61000-4-2:2009          | 6kV Contact Discharge, 2,4,8kV Air Discharge                   | Pass   |
| Radiated Immunity(80MHz-2.7GHz)                     |                           | EN IEC 61000-4-3: 2020     | 10V/m, 80%, 1kHz sinusoidal Amp. Mod.                          | Pass   |
| Electrical Fast Transients & Burst at AC Power Port |                           | EN 61000-4-4:2012          | 2kV, 5/50ns Tr/Td, 100kHz Repetition Frequency                 | Pass   |
| Electrical Fast Transients & Burst at Signal Port   |                           | EN 61000-4-4:2012          | 1kV, 5/50ns Tr/Td, 100kHz Repetition Frequency                 | Pass   |
| Surge at AC Power Port                              |                           | EN 61000-4-5:2014 +A1:2017 | 1.2/50µs Tr/Td, 0.5,1kV Line to Line, 0.5,1,2kV Line to Ground | Pass   |
| Surge at Signal Port                                |                           | EN 61000-4-5:2014 +A1:2017 | 1.2/50µs Tr/Td, 0.5,1kV line-to-ground                         | Pass   |
| Conducted Immunity at Power Port (150kHz-100MHz)    |                           | EN 61000-4-6:2014          | 10Vrms (emf),80%,1kHz sinusoidal Amp. Mod.                     | Pass   |
| Conducted Immunity at Signal Port (150kHz-100MHz)   |                           | EN 61000-4-6:2014          | 10Vrms (emf),80%,1kHz sinusoidal Amp. Mod                      | Pass   |

| Immunity Part                                                        |                         |                              |                                                                                                          |        |
|----------------------------------------------------------------------|-------------------------|------------------------------|----------------------------------------------------------------------------------------------------------|--------|
| Item                                                                 | Standard                | Method                       | Requirement                                                                                              | Result |
| Mains Supply Voltage Variations                                      | EN 55035: 2017+A11:2020 | EN 50130-4:2011+A1:2014      | Unom+10%, Unom-15%                                                                                       | Pass   |
| Voltage Dips and Interruptions                                       |                         | EN IEC 61000-4-11:2020       | 80 % UT for 250per, 70 % UT for 25per, 40 % UT for 10per, 0 % UT for 250per                              | Pass   |
| Electrostatic Discharge                                              |                         | EN 61000-4-2: 2009           | ±4kV Contact Discharge; ±2kV, ±4kV, ±8kV Air Discharge                                                   | Pass   |
| Radiated Immunity (80MHz-1GHz, 1800MHz, 2600 MHz, 3500MHz, 5000 MHz) |                         | EN IEC 61000-4-3: 2020       | 3V/m, 80%, 1kHz Amp. Mod.                                                                                | Pass   |
| Electrical Fast Transients & Burst at AC Power Port                  |                         | EN 61000-4-4: 2012           | 1kV; 5/50ns Tr/Td; 5kHz Repetition Frequency                                                             | Pass   |
| Electrical Fast Transients & Burst at Signal Port                    |                         | EN 61000-4-4: 2012           | 0,5kV; 5/50ns Tr/Td; 5kHz Repetition Frequency                                                           | Pass   |
| Surge at AC Power Port                                               |                         | EN 61000-4-5: 2014 +A1: 2017 | 1,2/50µs Tr/Td; 1KV Line to Line; 2kV Line to Ground                                                     | Pass   |
| Surge at Signal Port                                                 |                         | EN 61000-4-5: 2014 +A1: 2017 | 1,2/50µs Tr/Td; 1 kV Lines to Ground, 1,2/50µs Tr/Td; 0,5 kV Shield to Ground                            | Pass   |
| Conducted Immunity at AC Power Port (150kHz-80MHz)                   |                         | EN 61000-4-6: 2014           | 0,15 to 10MHz 3Vrms (emf), 10 to 30MHz 3V to 1Vrms(emf), 30 to 80MHz 1Vrms(emf), 80%, 1kHz Amp. Mod.     | Pass   |
| Conducted Immunity at Signal Port (150kHz-80MHz)                     |                         | EN 61000-4-6: 2014           | 0,15 to 10MHz 3Vrms (emf), 10 to 30MHz 3V to 1Vrms(emf), 30 to 80MHz 1Vrms(emf), 80%, 1kHz Amp. Mod.     | Pass   |
| Power Frequency Magnetic Field                                       |                         | EN 61000-4-8: 2010           | 50 or 60Hz, 1 A/m                                                                                        | Pass   |
| Voltage Dips and Interruptions                                       |                         | EN IEC 61000-4-11:2020       | <5% residual voltage for 0,5cycle, 70% residual voltage for 25cycles, <5% residual voltage for 250cycles | Pass   |

Note: There are series models mentioned in this report, and they are the similar in electrical and electronic characters. Only the model DHI-NVR5232-EI2 was tested since their differences are the model number and appearance.

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## 4 General Information

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

|               |                                                                                                                                                                                       |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power supply: | Adapte1: GQ80-120400-E1<br>Adapter2: ADS-65HI-12N-1 12048E-003<br>Adapter3: ADS-65HI-12N-1 12048E BIS<br>Pre-test Voltage: AC 230V/50Hz&110V/60Hz<br>Final-test Voltage: AC 230V/50Hz |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 4.2 Description of Support Units

| Description    | Manufacturer | Model No. | Serial No. |
|----------------|--------------|-----------|------------|
| Displayer      | LENOVO       | T2054pC   | /          |
| Earphone       | EDIFIER      | K800      | /          |
| Earphone       | NOKIA        | WH-108    | /          |
| HDD            | SAMSUNG      | MU-PA500B | /          |
| Network Camera | Dahua        | /         | /          |

### 4.3 Measurement Uncertainty & Decision Rule

#### Measurement Uncertainty:

| No. | Item                                                      | Measurement Uncertainty<br>( $U_{LAB}$ ) * | $U_{CISPR}$             |
|-----|-----------------------------------------------------------|--------------------------------------------|-------------------------|
| 1   | Conducted Emission<br>at mains port using AMN             | 2.4dB (9kHz to 150kHz)                     | 3.8dB (9kHz to 150kHz)  |
|     |                                                           | 2.2dB (150kHz to 30MHz)                    | 3.4dB (150kHz to 30MHz) |
| 2   | Conducted Emission<br>at telecommunication port using AAN | 4.0 dB (150kHz to 30MHz)                   | 5.0dB (150kHz to 30MHz) |
| 3   | Radiated Power                                            | 3.2dB                                      | 4.5dB (30MHz to 300MHz) |
| 4   | Radiated Emission (10m)                                   | 4.1 dB                                     | 6.3dB (30MHz-1GHz)      |
| 5   | Radiated Emission (3m)                                    | 4.6 dB (30MHz-1GHz)                        | 6.3dB (30MHz-1GHz)      |
|     |                                                           | 5.0dB (1GHz-6GHz)                          | 5.2dB (1GHz-6GHz)       |
|     |                                                           | 5.2dB (6GHz-18GHz)                         | 5.5dB (6GHz-18GHz)      |
|     |                                                           | 5.3dB (18GHz-40GHz)                        | N/A                     |

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .

#### Decision Rule:

- CISPR 16-4-2 for emission measurements is as below described.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.

$U_{LAB}$  less than  $U_{CISPR}$ , therefore:

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit.
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.
- For immunity testing no decision rule is applicable.

#### 4.4 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

Note:

1.SGS is not responsible for wrong test results due to incorrect information (e.g., max. internal working frequency, antenna gain, cable loss, etc) is provided by the applicant. (If applicable).

2.SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (If applicable).

3. Sample source: sent by customer.

#### 4.5 Test Facility

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

- **A2LA**

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

- **FCC**

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

- **ISED**

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 2324E

- **VCCI**

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.

#### 4.6 Deviation from Standards

None

#### 4.7 Abnormalities from Standard Conditions

None

## 5 Equipment List

| Conducted Emissions at Mains Power Port (150kHz-30MHz) |              |           |               |            |              |
|--------------------------------------------------------|--------------|-----------|---------------|------------|--------------|
| Equipment                                              | Manufacturer | Model No. | Inventory No. | Cal Date   | Cal Due Date |
| EMI TEST RECEIVER                                      | R&S          | ESCI      | KS301195      | 03/27/2025 | 03/26/2026   |
| TWO-LINE V-NETWORK                                     | R&S          | ENV216    | KS301197      | 04/02/2025 | 04/01/2026   |
| V (V-LISN)                                             | SCHWARZBECK  | NNLK 8129 | KS301091      | 01/15/2025 | 01/14/2026   |
| Pulse LIMITER                                          | R&S          | ESH3-Z2   | KUS1902E001   | 12/05/2024 | 12/04/2025   |
| Software                                               | Faratronic   | E3 v 3A1  | N/A           | N/A        | N/A          |

| Asymmetric Mode Conducted Emissions(150kHz-30MHz) |              |                 |               |            |              |
|---------------------------------------------------|--------------|-----------------|---------------|------------|--------------|
| Equipment                                         | Manufacturer | Model No.       | Inventory No. | Cal Date   | Cal Due Date |
| EMI TEST RECEIVER                                 | R&S          | ESCI            | KS301101      | 02/19/2025 | 02/18/2026   |
| TWO-LINE V-NETWORK                                | R&S          | ENV216          | KS301197      | 04/02/2025 | 04/01/2026   |
| V (V-LISN)                                        | SCHWARZBECK  | NNLK 8129       | KS301091      | 01/15/2025 | 01/14/2026   |
| Pulse LIMITER                                     | R&S          | ESH3-Z2         | KUS1902E001   | 12/05/2024 | 12/04/2025   |
| CISPR22 FOUR BALANCED TELECOM PARIS ISN           | FCC          | FCC-TLISN-T2-02 | KS301144      | 04/03/2025 | 04/02/2026   |
| COUPLING AND DECOUPLING NETWORK                   | TESEQ        | ISN ST08        | KS301171      | 12/05/2024 | 12/04/2025   |
| IMPEDANCE STABILIZATION NETWORK                   | TESEQ        | ISN T800        | KS301185      | 09/30/2024 | 09/29/2025   |
| IMPEDANCE STABILIZATION NETWORK                   | TESEQ        | ISN T8-CAT6     | KS301285      | 09/30/2024 | 09/29/2025   |
| RF CURRENT PROBE                                  | FCC          | F-65A           | CZ301012      | 12/05/2024 | 12/04/2025   |
| Software                                          | Faratronic   | E3 v 3A1        | N/A           | N/A        | N/A          |

| Radiated Emissions (30MHz-1GHz) |              |           |               |            |              |
|---------------------------------|--------------|-----------|---------------|------------|--------------|
| Equipment                       | Manufacturer | Model No. | Inventory No. | Cal Date   | Cal Due Date |
| EMI Test Receiver               | R&S          | ESCI      | KS301196      | 08/01/2024 | 07/31/2025   |
| Antenna                         | TESEQ        | CBL 6112D | KUS1806E006   | 03/23/2025 | 03/22/2026   |
| Software                        | Faratronic   | E3 v 3A1  | N/A           | N/A        | N/A          |

| Radiated Emissions (Above 1GHz) |                    |           |               |            |              |
|---------------------------------|--------------------|-----------|---------------|------------|--------------|
| Equipment                       | Manufacturer       | Model No. | Inventory No. | Cal Date   | Cal Due Date |
| Spectrum Analyzer               | R&S                | FSU26     | KS301206      | 03/27/2025 | 03/26/2026   |
| Preamplifier                    | PANSHAN TECHNOLOGY | LNA:1~18G | KSEM010-2     | 12/06/2024 | 12/05/2025   |

|              |             |           |          |            |            |
|--------------|-------------|-----------|----------|------------|------------|
| Horn-antenna | SCHWARZBECK | BBHA9120D | KS301079 | 03/23/2025 | 03/22/2026 |
| Software     | Faratronic  | E3 v 3A1  | N/A      | N/A        | N/A        |

#### Voltage Fluctuations and Flicker

| Equipment                 | Manufacturer | Model No.                     | Inventory No. | Cal Date   | Cal Due Date |
|---------------------------|--------------|-------------------------------|---------------|------------|--------------|
| Harmonic & Flicker Tester | SCHAFFNER    | CCN 1000-1                    | KS301033      | 08/06/2024 | 08/05/2025   |
| AC Power Source           | SCHAFFNER    | NSG 1007                      | KS301087      | 08/01/2024 | 07/31/2025   |
| Software                  | TESEQ        | CTS4-v 4.24.0                 | N/A           | N/A        | N/A          |
| Harmonic/Flicker Analyzer | KIKUSUI      | KHA3000                       | KUS2009M002-1 | 02/27/2025 | 02/26/2026   |
| Line Impedance Network    | KIKUSUI      | SPEC71116                     | KUS2009M002-1 | 02/27/2025 | 02/26/2026   |
| Switcher                  | KIKUSUI      | SPEC71092                     | KUS2009M002-2 | 02/18/2025 | 02/17/2026   |
| AC Power Supply(Master)   | KIKUSUI      | PCR24000WE<br>2               | KUS2009M002-3 | 02/18/2025 | 02/17/2026   |
| AC Power Supply(Slave)    | KIKUSUI      | PCR24000WE<br>2               | KUS2009M002-4 | 02/18/2025 | 02/17/2026   |
| Software                  | KIKUSUI      | HarmoCapture<br>3-vv 2.5.2.00 | N/A           | N/A        | N/A          |

#### Harmonic Current Emission

| Equipment                 | Manufacturer | Model No.                     | Inventory No. | Cal Date   | Cal Due Date |
|---------------------------|--------------|-------------------------------|---------------|------------|--------------|
| Harmonic & Flicker Tester | SCHAFFNER    | CCN 1000-1                    | KS301033      | 08/06/2024 | 08/05/2025   |
| AC Power Source           | SCHAFFNER    | NSG 1007                      | KS301087      | 08/01/2024 | 07/31/2025   |
| Software                  | TESEQ        | CTS4-v 4.24.0                 | N/A           | N/A        | N/A          |
| Harmonic/Flicker Analyzer | KIKUSUI      | KHA3000                       | KUS2009M002-1 | 02/27/2025 | 02/26/2026   |
| Line Impedance Network    | KIKUSUI      | SPEC71116                     | KUS2009M002-1 | 02/27/2025 | 02/26/2026   |
| Switcher                  | KIKUSUI      | SPEC71092                     | KUS2009M002-2 | 02/18/2025 | 02/17/2026   |
| AC Power Supply(Master)   | KIKUSUI      | PCR24000WE<br>2               | KUS2009M002-3 | 02/18/2025 | 02/17/2026   |
| AC Power Supply(Slave)    | KIKUSUI      | PCR24000WE<br>2               | KUS2009M002-4 | 02/18/2025 | 02/17/2026   |
| Software                  | KIKUSUI      | HarmoCapture<br>3-vv 2.5.2.00 | N/A           | N/A        | N/A          |

#### Electrostatic Discharge

| Equipment     | Manufacturer | Model No.   | Inventory No. | Cal Date   | Cal Due Date |
|---------------|--------------|-------------|---------------|------------|--------------|
| ESD Simulator | EM TEST      | DITO 509030 | KS301147      | 02/06/2025 | 02/05/2026   |

| Radiated Immunity                          |              |                    |               |            |              |
|--------------------------------------------|--------------|--------------------|---------------|------------|--------------|
| Equipment                                  | Manufacturer | Model No.          | Inventory No. | Cal Date   | Cal Due Date |
| Synthesized Signal Generator               | AGILENT      | 83732B             | KS301183      | 01/15/2025 | 01/14/2026   |
| Laser probe interface                      | AR Worldwide | FI7000             | KS301193-2    | N.C.R      | N.C.R        |
| E-Field Sensor                             | AR Worldwide | FL7006 100K-6G     | KS301193-1    | 03/13/2025 | 03/12/2026   |
| Amplifier Research (80~1000MHz 150w)       | AR Worldwide | 150W1000M1         | KS301139      | 08/01/2024 | 07/31/2025   |
| Amplifier Research (1~6GHz 50w)            | AR Worldwide | 50S1G6M1           | KS301231      | N.C.R      | N.C.R        |
| Dual Directional Coupler (1-11G)           | AR Worldwide | C1-A47NFNF 35dB    | KS301193-5    | N.C.R      | N.C.R        |
| Dual Directional Coupler (80~1000MHz 400w) | AR Worldwide | DC6180             | KS301193-6    | N.C.R      | N.C.R        |
| RF POWER METER                             | BOONTON      | 4232A-01           | KS301022      | 03/18/2025 | 03/17/2026   |
| POWER SENSOR                               | BOONTON      | 51085              | H3010235-1    | 03/18/2025 | 03/17/2026   |
| POWER SENSOR                               | BOONTON      | 51085              | H3010235-2    | 03/18/2025 | 03/17/2026   |
| Antenna                                    | AR Worldwide | TP1000A            | CZ301029      | N.C.R      | N.C.R        |
| Software                                   | AR           | emc ware-v 3.2.0.4 | N/A           | N/A        | N/A          |

| Electrical Fast Transients & Burst at AC Power Port |              |               |               |            |              |
|-----------------------------------------------------|--------------|---------------|---------------|------------|--------------|
| Equipment                                           | Manufacturer | Model No.     | Inventory No. | Cal Date   | Cal Due Date |
| EMC Immunity Tester                                 | EMC PARTNER  | Transient2000 | KS301188-1    | 08/01/2024 | 07/31/2025   |
| Coupling Network                                    | EMC PARTNER  | CN-EFT1000    | KS301188-3    | 08/01/2024 | 07/31/2025   |
| Burst Generator                                     | SANKI        | EFT-0404S     | KUS2009M002-7 | 08/02/2024 | 08/01/2025   |
| Coupling and Decoupling Network                     | SANKI        | CDN-4350      | KUS2009M002-8 | 08/12/2024 | 08/11/2025   |

| Electrical Fast Transients & Burst at Signal Port |              |               |               |            |              |
|---------------------------------------------------|--------------|---------------|---------------|------------|--------------|
| Equipment                                         | Manufacturer | Model No.     | Inventory No. | Cal Date   | Cal Due Date |
| EMC Immunity Tester                               | EMC PARTNER  | Transient2000 | KS301188-1    | 08/01/2024 | 07/31/2025   |
| Coupling Network                                  | EMC PARTNER  | CN-EFT1000    | KS301188-3    | 08/01/2024 | 07/31/2025   |
| Burst Generator                                   | SANKI        | EFT-0404S     | KUS2009M002-7 | 08/02/2024 | 08/01/2025   |
| Coupling and Decoupling Network                   | SANKI        | CDN-4350      | KUS2009M002-8 | 08/12/2024 | 08/11/2025   |

| Surge at AC Power Port          |              |           |               |            |              |
|---------------------------------|--------------|-----------|---------------|------------|--------------|
| Equipment                       | Manufacturer | Model No. | Inventory No. | Cal Date   | Cal Due Date |
| EMC Immunity Tester             | EMC PARTNER  | TRA2006   | KS301188-1    | 08/01/2024 | 07/31/2025   |
| Coupling and Decoupling Network | EMC PARTNER  | CDN-UTP8  | KS301188-2    | 08/01/2024 | 07/31/2025   |
| Surge Generator                 | SANKI        | LSG-0506S | KUS2009M002-5 | 08/02/2024 | 08/01/2025   |
| Coupling and Decoupling Network | SANKI        | CDN-5350  | KUS2009M002-6 | 08/12/2024 | 08/11/2025   |

| Surge at Signal Port            |              |           |               |            |              |
|---------------------------------|--------------|-----------|---------------|------------|--------------|
| Equipment                       | Manufacturer | Model No. | Inventory No. | Cal Date   | Cal Due Date |
| EMC Immunity Tester             | EMC PARTNER  | TRA2006   | KS301188-1    | 08/01/2024 | 07/31/2025   |
| Coupling and Decoupling Network | EMC PARTNER  | CDN-UTP8  | KS301188-2    | 08/01/2024 | 07/31/2025   |
| Surge Generator                 | SANKI        | LSG-0506S | KUS2009M002-5 | 08/02/2024 | 08/01/2025   |
| Coupling and Decoupling Network | SANKI        | CDN-5350  | KUS2009M002-6 | 08/12/2024 | 08/11/2025   |

| Conducted Immunity at Power Port                |              |            |               |            |              |
|-------------------------------------------------|--------------|------------|---------------|------------|--------------|
| Equipment                                       | Manufacturer | Model No.  | Inventory No. | Cal Date   | Cal Due Date |
| Test System for Conducted and Radiated Immunity | TESEQ        | NSG 4070B  | KSZ201705E003 | 12/05/2024 | 12/04/2025   |
| Amplifier                                       | TESEQ        | SCCXE75    | KSZ201705E004 | 12/05/2024 | 12/04/2025   |
| EM-Koppelzange                                  | SCHAFFNER    | KEMZ 801   | CZ301002      | 12/05/2024 | 12/04/2025   |
| Attenuator                                      | SHHX         | TS2-6-1-A  | CZ750027      | 12/16/2024 | 12/15/2025   |
| Directional Coupler                             | HIGH POWER   | C21A8      | CZ750021      | 08/01/2024 | 07/31/2025   |
| CDN (Coupling and Decoupling Network)           | SCHAFFNER    | CDN M216   | CZ301085      | 02/18/2025 | 02/17/2026   |
| CDN (Coupling and Decoupling Network)           | SCHAFFNER    | CDN M316   | CZ301025      | 02/18/2025 | 02/17/2026   |
| CDN (Coupling and Decoupling Network)           | TESEQ        | CDN S751   | KS301184-2    | 02/18/2025 | 02/17/2026   |
| CDN (Coupling and Decoupling Network)           | TESEQ        | CDN M116   | KS301184-1    | 02/18/2025 | 02/17/2026   |
| CDN                                             | TESEQ        | CDN T2-10S | KS301286      | 02/18/2025 | 02/17/2026   |
| CDN                                             | TESEQ        | CDN T4-10S | KS301287      | 02/18/2025 | 02/17/2026   |

|               |           |                    |               |            |            |
|---------------|-----------|--------------------|---------------|------------|------------|
| CDN           | 3Ctest    | CDNRJ45            | KS301288      | 08/01/2024 | 07/31/2025 |
| Current Clamp | SCHAFFNER | KEMZ-801           | CZ301002      | 12/05/2024 | 12/04/2025 |
| CDN           | TESEQ     | CDN M432           | KUS2003M001-1 | 01/16/2025 | 01/15/2026 |
| CDN           | TESEQ     | CDN M432-3LN       | KUS2003M001-2 | 01/16/2025 | 01/15/2026 |
| CDN           | TESEQ     | CDN M232           | KSZ201706E001 | 03/27/2025 | 03/26/2026 |
| CDN           | TESEQ     | CDN M332           | KSZ201706E002 | 02/18/2025 | 02/17/2026 |
| Software      | TESEQ     | NSG 4070-v 1.3.0.1 | N/A           | N/A        | N/A        |

| Conducted Immunity at Signal Port               |              |                    |               |            |              |
|-------------------------------------------------|--------------|--------------------|---------------|------------|--------------|
| Equipment                                       | Manufacturer | Model No.          | Inventory No. | Cal Date   | Cal Due Date |
| Test System for Conducted and Radiated Immunity | TESEQ        | NSG 4070B          | KSZ201705E003 | 12/05/2024 | 12/04/2025   |
| Amplifier                                       | TESEQ        | SCCXE75            | KSZ201705E004 | 12/05/2024 | 12/04/2025   |
| EM-Koppelzange                                  | SCHAFFNER    | KEMZ 801           | CZ301002      | 12/05/2024 | 12/04/2025   |
| Attenuator                                      | SHHX         | TS2-6-1-A          | CZ750027      | 12/16/2024 | 12/15/2025   |
| Directional Coupler                             | HIGH POWER   | C21A8              | CZ750021      | 08/01/2024 | 07/31/2025   |
| CDN (Coupling and Decoupling Network)           | SCHAFFNER    | CDN M216           | CZ301085      | 02/18/2025 | 02/17/2026   |
| CDN (Coupling and Decoupling Network)           | SCHAFFNER    | CDN M316           | CZ301025      | 02/18/2025 | 02/17/2026   |
| CDN (Coupling and Decoupling Network)           | TESEQ        | CDN S751           | KS301184-2    | 02/18/2025 | 02/17/2026   |
| CDN (Coupling and Decoupling Network)           | TESEQ        | CDN M116           | KS301184-1    | 02/18/2025 | 02/17/2026   |
| CDN                                             | TESEQ        | CDN T2-10S         | KS301286      | 02/18/2025 | 02/17/2026   |
| CDN                                             | TESEQ        | CDN T4-10S         | KS301287      | 02/18/2025 | 02/17/2026   |
| CDN                                             | 3Ctest       | CDNRJ45            | KS301288      | 08/01/2024 | 07/31/2025   |
| Current Clamp                                   | SCHAFFNER    | KEMZ-801           | CZ301002      | 12/05/2024 | 12/04/2025   |
| CDN                                             | TESEQ        | CDN M432           | KUS2003M001-1 | 01/16/2025 | 01/15/2026   |
| CDN                                             | TESEQ        | CDN M432-3LN       | KUS2003M001-2 | 01/16/2025 | 01/15/2026   |
| CDN                                             | TESEQ        | CDN M232           | KSZ201706E001 | 03/27/2025 | 03/26/2026   |
| CDN                                             | TESEQ        | CDN M332           | KSZ201706E002 | 02/18/2025 | 02/17/2026   |
| Software                                        | TESEQ        | NSG 4070-v 1.3.0.1 | N/A           | N/A        | N/A          |

| Mains Supply Voltage Variations |              |                                       |               |            |              |
|---------------------------------|--------------|---------------------------------------|---------------|------------|--------------|
| Equipment                       | Manufacturer | Model No.                             | Inventory No. | Cal Date   | Cal Due Date |
| EMC Immunity Tester             | EMC PARTNER  | TRA2006                               | KS301188-1    | 08/01/2024 | 07/31/2025   |
| Switcher                        | KIKUSUI      | SPEC71092                             | KUS2009M002-2 | 02/18/2025 | 02/17/2026   |
| AC Power Supply(Master)         | KIKUSUI      | PCR24000WE2                           | KUS2009M002-3 | 02/18/2025 | 02/17/2026   |
| AC Power Supply(Slave)          | KIKUSUI      | PCR24000WE2                           | KUS2009M002-4 | 02/18/2025 | 02/17/2026   |
| Software                        | KIKUSUI      | Quick Immunity Sequencer 2-v 4.0.3.02 | N/A           | N/A        | N/A          |

| Voltage Dips and Interruptions |              |                                       |               |            |              |
|--------------------------------|--------------|---------------------------------------|---------------|------------|--------------|
| Equipment                      | Manufacturer | Model No.                             | Inventory No. | Cal Date   | Cal Due Date |
| EMC Immunity Tester            | EMC PARTNER  | TRA2006                               | KS301188-1    | 08/01/2024 | 07/31/2025   |
| Switcher                       | KIKUSUI      | SPEC71092                             | KUS2009M002-2 | 02/18/2025 | 02/17/2026   |
| AC Power Supply(Master)        | KIKUSUI      | PCR24000WE2                           | KUS2009M002-3 | 02/18/2025 | 02/17/2026   |
| AC Power Supply(Slave)         | KIKUSUI      | PCR24000WE2                           | KUS2009M002-4 | 02/18/2025 | 02/17/2026   |
| Software                       | KIKUSUI      | Quick Immunity Sequencer 2-v 4.0.3.02 | N/A           | N/A        | N/A          |

| Power Frequency Magnetic Field |              |           |               |            |              |
|--------------------------------|--------------|-----------|---------------|------------|--------------|
| Equipment                      | Manufacturer | Model No. | Inventory No. | Cal Date   | Cal Due Date |
| EMC Immunity Tester            | EMC PARTNER  | TRA2006   | KS301188-1    | 08/01/2024 | 07/31/2025   |
| Inductive Standard Coil        | EMC PARTNER  | MF1000-1  | KS301188-4    | 05/07/2024 | 05/06/2025   |

| General used equipment          |              |              |                                                                                           |            |              |
|---------------------------------|--------------|--------------|-------------------------------------------------------------------------------------------|------------|--------------|
| Equipment                       | Manufacturer | Model No.    | Inventory No.                                                                             | Cal Date   | Cal Due Date |
| Digital Pressure Meter          | Mengde       | DYM3         | CZ750023                                                                                  | 01/14/2025 | 01/13/2026   |
| Temperature & Humidity Recorder | JDRK         | RS-WS-N01-6J | KSEM024-1<br>KSEM024-2<br>KSEM024-3<br>KSEM024-6<br>KSEM024-7<br>KSEM024--8<br>KSEM024--9 | 03/18/2025 | 03/17/2026   |

## 6 Emission Test Results

### 6.1 Conducted Emissions at Mains Power Port (150kHz-30MHz)

Test Requirement: EN 55032: 2015+A11:2020+A1:2020

Test Method: EN 55032: 2015+A11:2020+A1:2020

Limit:

0.15MHz-0.5MHz 79dB(μV) quasi-peak, 66dB(μV) average

0.5MHz-30MHz 73dB(μV) quasi-peak, 60dB(μV) average

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

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

Operating Environment:

Temperature: 22 °C

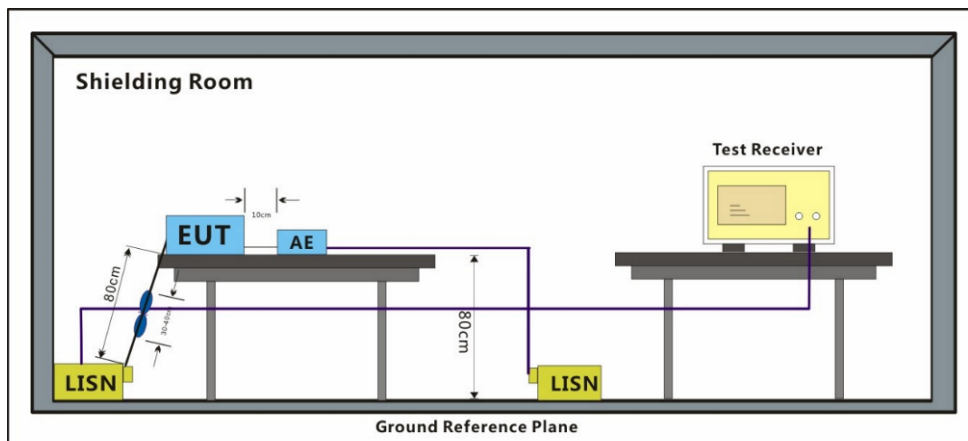
Humidity: 47 % RH

Atmospheric Pressure: 1010 mbar

#### 6.1.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                                         |
|-----------------------|-----------|---------------------------------------------------------------------|
| Final test            | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test            | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test            | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

#### 6.1.3 Test Setup Diagram

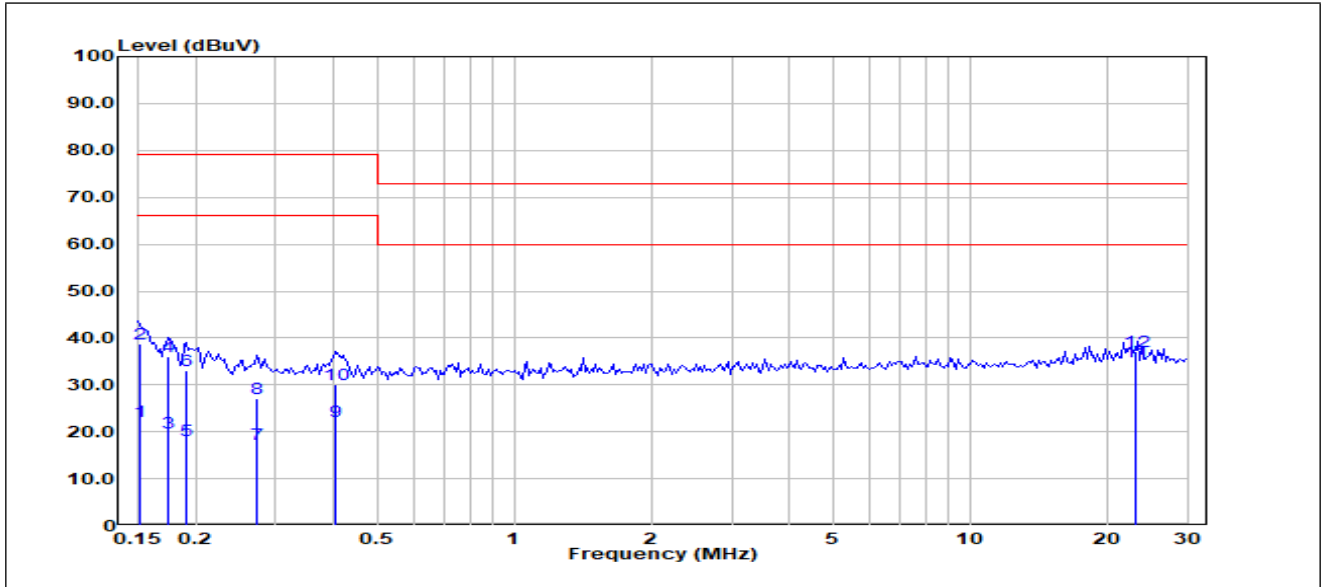


#### 6.1.4 Measurement Procedure and Data

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

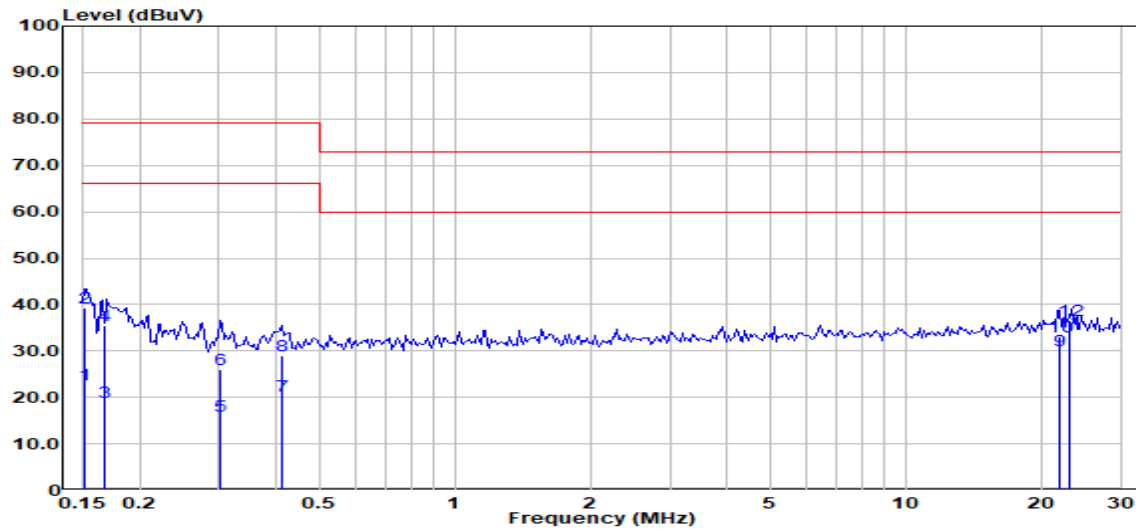
Remark: Level= Read Level+ Cable Loss+ LISN Factor

Test Mode: 00; Line: Live line



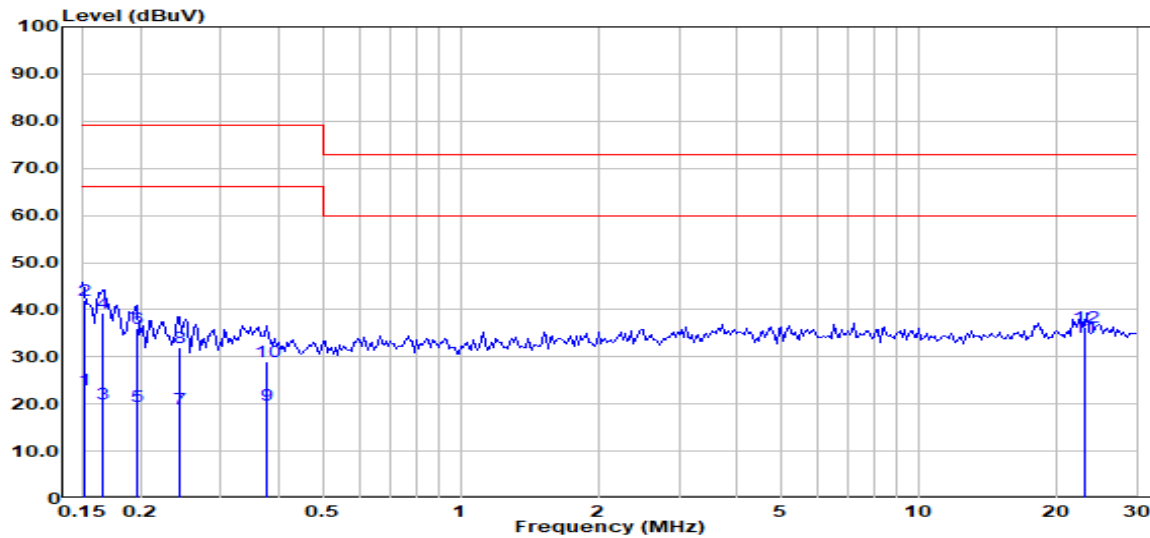
| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB) | Result<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Remark  |
|-----|--------------------|-------------------|-----------------------|------------------|-----------------|----------------|---------|
| 1   | 0.1511             | 2.48              | 19.81                 | 22.29            | 66.00           | -43.71         | Average |
| 2   | 0.1511             | 18.97             | 19.81                 | 38.78            | 79.00           | -40.22         | QP      |
| 3   | 0.1748             | 0.01              | 19.71                 | 19.72            | 66.00           | -46.28         | Average |
| 4   | 0.1748             | 16.28             | 19.71                 | 35.99            | 79.00           | -43.01         | QP      |
| 5   | 0.1909             | -1.45             | 19.65                 | 18.20            | 66.00           | -47.80         | Average |
| 6   | 0.1909             | 13.37             | 19.65                 | 33.02            | 79.00           | -45.98         | QP      |
| 7   | 0.2730             | -2.49             | 19.70                 | 17.21            | 66.00           | -48.79         | Average |
| 8   | 0.2730             | 7.38              | 19.70                 | 27.08            | 79.00           | -51.92         | QP      |
| 9   | 0.4063             | 2.49              | 19.63                 | 22.12            | 66.00           | -43.88         | Average |
| 10  | 0.4063             | 10.53             | 19.63                 | 30.16            | 79.00           | -48.84         | QP      |
| 11  | 23.1270            | 14.86             | 20.02                 | 34.88            | 60.00           | -25.12         | Average |
| 12  | 23.1270            | 17.11             | 20.02                 | 37.13            | 73.00           | -35.87         | QP      |

Test Mode: 00; Line: Neutral Line



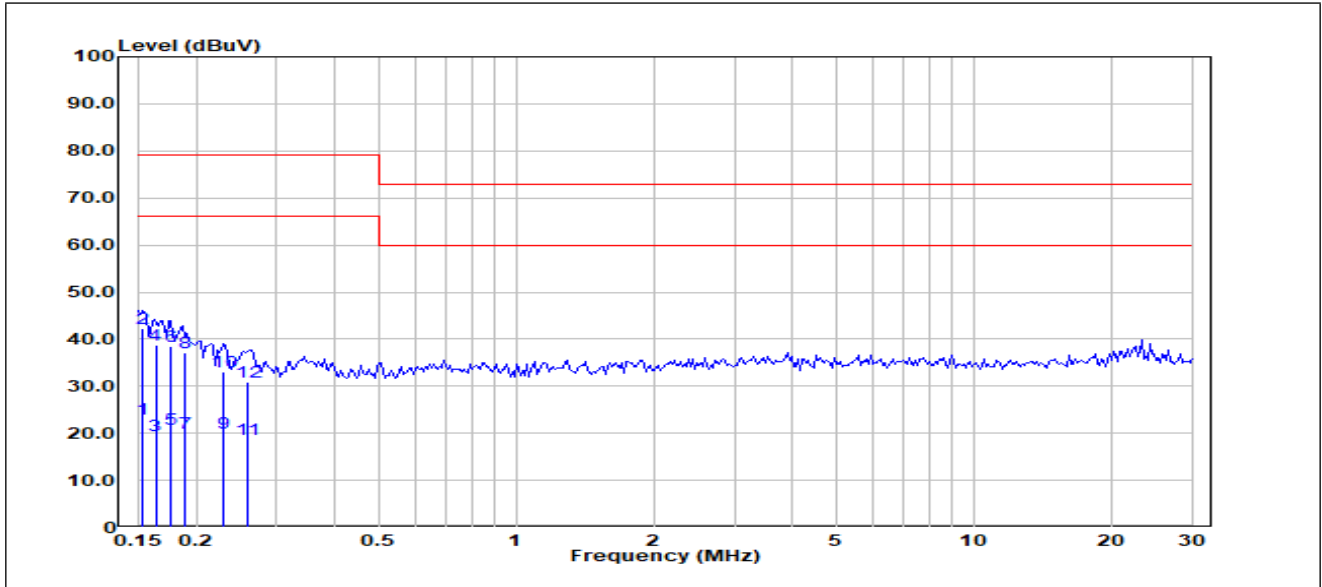
| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB) | Result<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Remark  |
|-----|--------------------|-------------------|-----------------------|------------------|-----------------|----------------|---------|
| 1   | 0.1506             | 3.04              | 19.75                 | 22.79            | 66.00           | -43.21         | Average |
| 2   | 0.1506             | 19.63             | 19.75                 | 39.38            | 79.00           | -39.62         | QP      |
| 3   | 0.1671             | -0.77             | 19.73                 | 18.96            | 66.00           | -47.04         | Average |
| 4   | 0.1671             | 15.90             | 19.73                 | 35.63            | 79.00           | -43.37         | QP      |
| 5   | 0.3014             | -3.70             | 19.63                 | 15.93            | 66.00           | -50.07         | Average |
| 6   | 0.3014             | 6.51              | 19.63                 | 26.14            | 79.00           | -52.86         | QP      |
| 7   | 0.4147             | 0.82              | 19.55                 | 20.37            | 66.00           | -45.63         | Average |
| 8   | 0.4147             | 9.37              | 19.55                 | 28.92            | 79.00           | -50.08         | QP      |
| 9   | 21.9070            | 10.14             | 20.06                 | 30.20            | 60.00           | -29.80         | Average |
| 10  | 21.9070            | 12.94             | 20.06                 | 33.00            | 73.00           | -40.00         | QP      |
| 11  | 23.1270            | 14.11             | 20.09                 | 34.20            | 60.00           | -25.80         | Average |
| 12  | 23.1270            | 16.37             | 20.09                 | 36.46            | 73.00           | -36.54         | QP      |

Test Mode: 01; Line: Live line



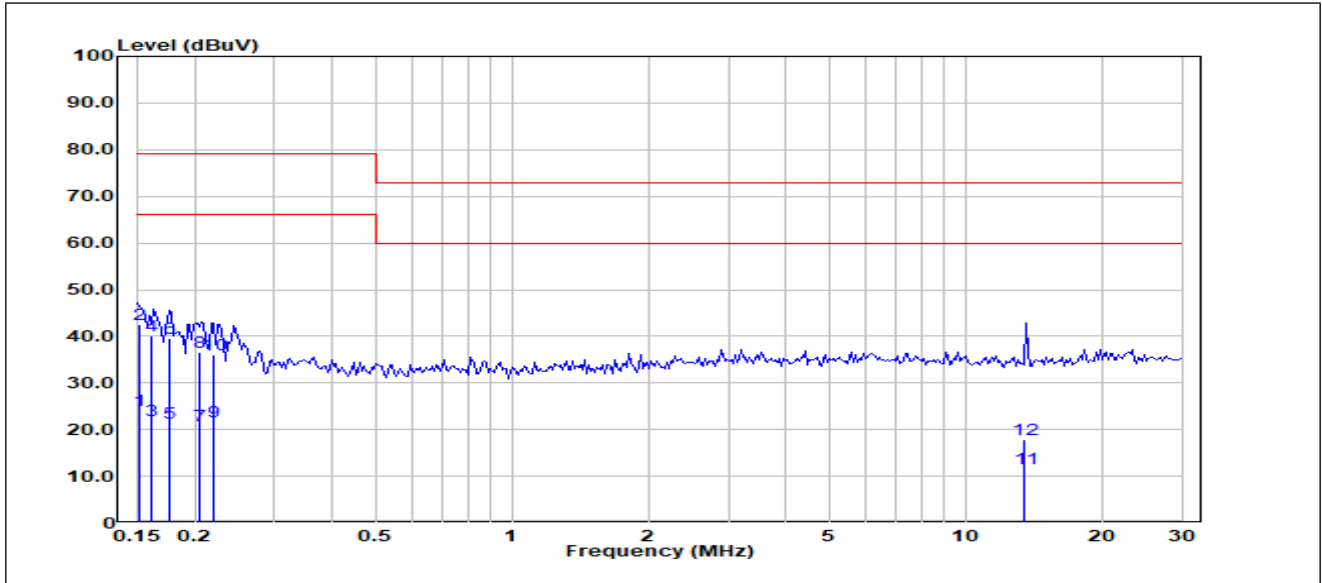
| No. | Frequency<br>(MHz) | Reading<br>(dBUV) | Correct<br>Factor(dB) | Result<br>(dBUV) | Limit<br>(dBUV) | Margin<br>(dB) | Remark  |
|-----|--------------------|-------------------|-----------------------|------------------|-----------------|----------------|---------|
| 1   | 0.1510             | 3.22              | 19.81                 | 23.03            | 66.00           | -42.97         | Average |
| 2   | 0.1510             | 22.21             | 19.81                 | 42.02            | 79.00           | -36.98         | QP      |
| 3   | 0.1653             | 0.38              | 19.74                 | 20.12            | 66.00           | -45.88         | Average |
| 4   | 0.1653             | 19.59             | 19.74                 | 39.33            | 79.00           | -39.67         | QP      |
| 5   | 0.1967             | 0.00              | 19.63                 | 19.63            | 66.00           | -46.37         | Average |
| 6   | 0.1967             | 16.39             | 19.63                 | 36.02            | 79.00           | -42.98         | QP      |
| 7   | 0.2437             | -0.64             | 19.67                 | 19.03            | 66.00           | -46.97         | Average |
| 8   | 0.2437             | 12.44             | 19.67                 | 32.11            | 79.00           | -46.89         | QP      |
| 9   | 0.3764             | 0.14              | 19.66                 | 19.80            | 66.00           | -46.20         | Average |
| 10  | 0.3764             | 9.32              | 19.66                 | 28.98            | 79.00           | -50.02         | QP      |
| 11  | 23.1270            | 14.23             | 20.02                 | 34.25            | 60.00           | -25.75         | Average |
| 12  | 23.1270            | 16.38             | 20.02                 | 36.40            | 73.00           | -36.60         | QP      |

Test Mode: 01; Line: Neutral Line



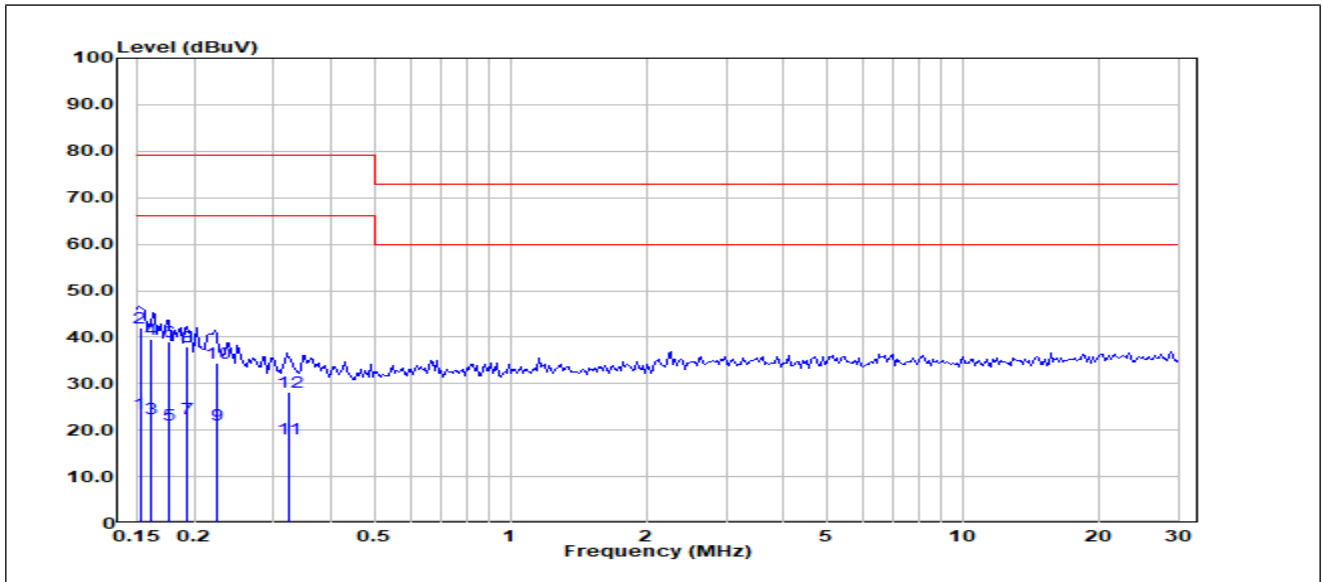
| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB) | Result<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Remark  |
|-----|--------------------|-------------------|-----------------------|------------------|-----------------|----------------|---------|
| 1   | 0.1518             | 3.33              | 19.75                 | 23.08            | 66.00           | -42.92         | Average |
| 2   | 0.1518             | 22.55             | 19.75                 | 42.30            | 79.00           | -36.70         | QP      |
| 3   | 0.1629             | -0.34             | 19.73                 | 19.39            | 66.00           | -46.61         | Average |
| 4   | 0.1629             | 19.06             | 19.73                 | 38.79            | 79.00           | -40.21         | QP      |
| 5   | 0.1757             | 1.12              | 19.71                 | 20.83            | 66.00           | -45.17         | Average |
| 6   | 0.1757             | 18.88             | 19.71                 | 38.59            | 79.00           | -40.41         | QP      |
| 7   | 0.1882             | 0.42              | 19.70                 | 20.12            | 66.00           | -45.88         | Average |
| 8   | 0.1882             | 17.32             | 19.70                 | 37.02            | 79.00           | -41.98         | QP      |
| 9   | 0.2291             | 0.43              | 19.67                 | 20.10            | 66.00           | -45.90         | Average |
| 10  | 0.2291             | 13.29             | 19.67                 | 32.96            | 79.00           | -46.04         | QP      |
| 11  | 0.2581             | -0.85             | 19.65                 | 18.80            | 66.00           | -47.20         | Average |
| 12  | 0.2581             | 11.13             | 19.65                 | 30.78            | 79.00           | -48.22         | QP      |

Test Mode: 02; Line: Live line



| No. | Frequency<br>(MHz) | Reading<br>(dBUV) | Correct<br>Factor(dB) | Result<br>(dBUV) | Limit<br>(dBUV) | Margin<br>(dB) | Remark  |
|-----|--------------------|-------------------|-----------------------|------------------|-----------------|----------------|---------|
| 1   | 0.1508             | 4.24              | 19.81                 | 24.05            | 66.00           | -41.95         | Average |
| 2   | 0.1508             | 22.79             | 19.81                 | 42.60            | 79.00           | -36.40         | QP      |
| 3   | 0.1608             | 2.06              | 19.76                 | 21.82            | 66.00           | -44.18         | Average |
| 4   | 0.1608             | 20.31             | 19.76                 | 40.07            | 79.00           | -38.93         | QP      |
| 5   | 0.1752             | 1.73              | 19.70                 | 21.43            | 66.00           | -44.57         | Average |
| 6   | 0.1752             | 20.00             | 19.70                 | 39.70            | 79.00           | -39.30         | QP      |
| 7   | 0.2051             | 1.19              | 19.62                 | 20.81            | 66.00           | -45.19         | Average |
| 8   | 0.2051             | 17.02             | 19.62                 | 36.64            | 79.00           | -42.36         | QP      |
| 9   | 0.2211             | 1.91              | 19.64                 | 21.55            | 66.00           | -44.45         | Average |
| 10  | 0.2211             | 16.33             | 19.64                 | 35.97            | 79.00           | -43.03         | QP      |
| 11  | 13.5350            | -8.10             | 19.76                 | 11.66            | 60.00           | -48.34         | Average |
| 12  | 13.5350            | -1.75             | 19.76                 | 18.01            | 73.00           | -54.99         | QP      |

Test Mode: 02; Line: Neutral Line



| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB) | Result<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Remark  |
|-----|--------------------|-------------------|-----------------------|------------------|-----------------|----------------|---------|
| 1   | 0.1517             | 3.89              | 19.75                 | 23.64            | 66.00           | -42.36         | Average |
| 2   | 0.1517             | 22.32             | 19.75                 | 42.07            | 79.00           | -36.93         | QP      |
| 3   | 0.1608             | 2.66              | 19.73                 | 22.39            | 66.00           | -43.61         | Average |
| 4   | 0.1608             | 19.95             | 19.73                 | 39.68            | 79.00           | -39.32         | QP      |
| 5   | 0.1753             | 1.55              | 19.71                 | 21.26            | 66.00           | -44.74         | Average |
| 6   | 0.1753             | 19.34             | 19.71                 | 39.05            | 79.00           | -39.95         | QP      |
| 7   | 0.1921             | 2.80              | 19.69                 | 22.49            | 66.00           | -43.51         | Average |
| 8   | 0.1921             | 18.23             | 19.69                 | 37.92            | 79.00           | -41.08         | QP      |
| 9   | 0.2239             | 1.54              | 19.67                 | 21.21            | 66.00           | -44.79         | Average |
| 10  | 0.2239             | 14.71             | 19.67                 | 34.38            | 79.00           | -44.62         | QP      |
| 11  | 0.3238             | -1.37             | 19.61                 | 18.24            | 66.00           | -47.76         | Average |
| 12  | 0.3238             | 8.57              | 19.61                 | 28.18            | 79.00           | -50.82         | QP      |

## 6.2 Asymmetric Mode Conducted Emissions(150kHz-30MHz)

Test Requirement: EN 55032: 2015+A11:2020+A1:2020

Test Method: EN 55032: 2015+A11:2020+A1:2020

Limit:

0.15MHz – 0.5MHz 97dB(μV)-87dB(μV) quasi-peak, 84(μV)-74dB(μV) average

0.5MHz – 30MHz 87dB(μV) quasi-peak, 74dB(μV) average

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

### 6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C

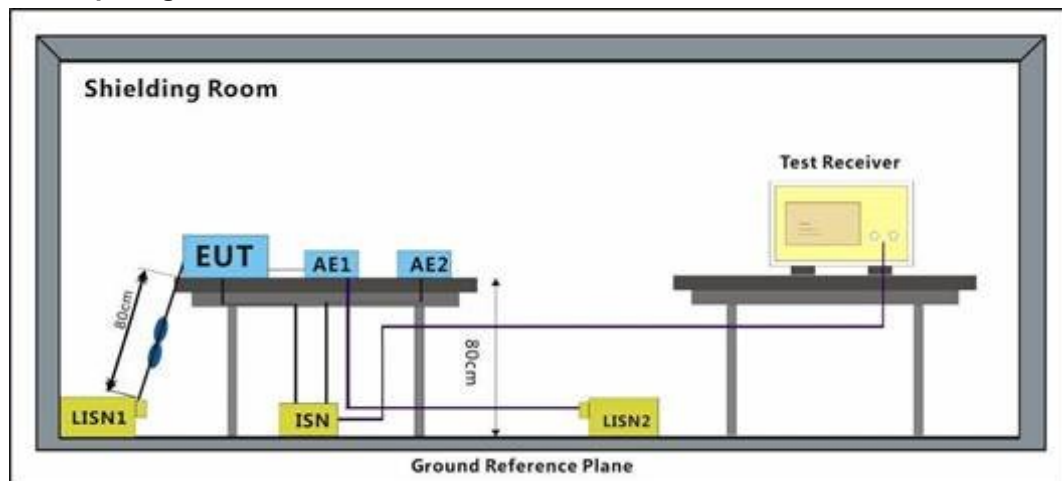
Humidity: 47 % RH

Atmospheric Pressure: 1010 mbar

### 6.2.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                                         |
|-----------------------|-----------|---------------------------------------------------------------------|
| Final test            | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test            | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test            | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

### 6.2.3 Test Setup Diagram

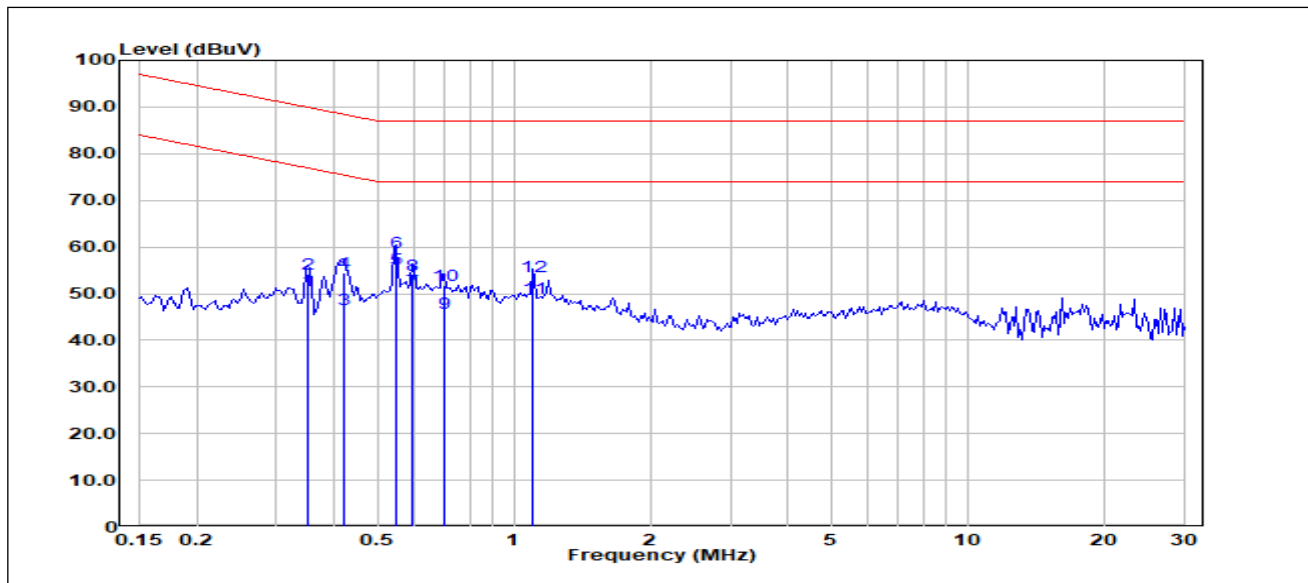


### 6.2.4 Measurement Procedure and Data

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

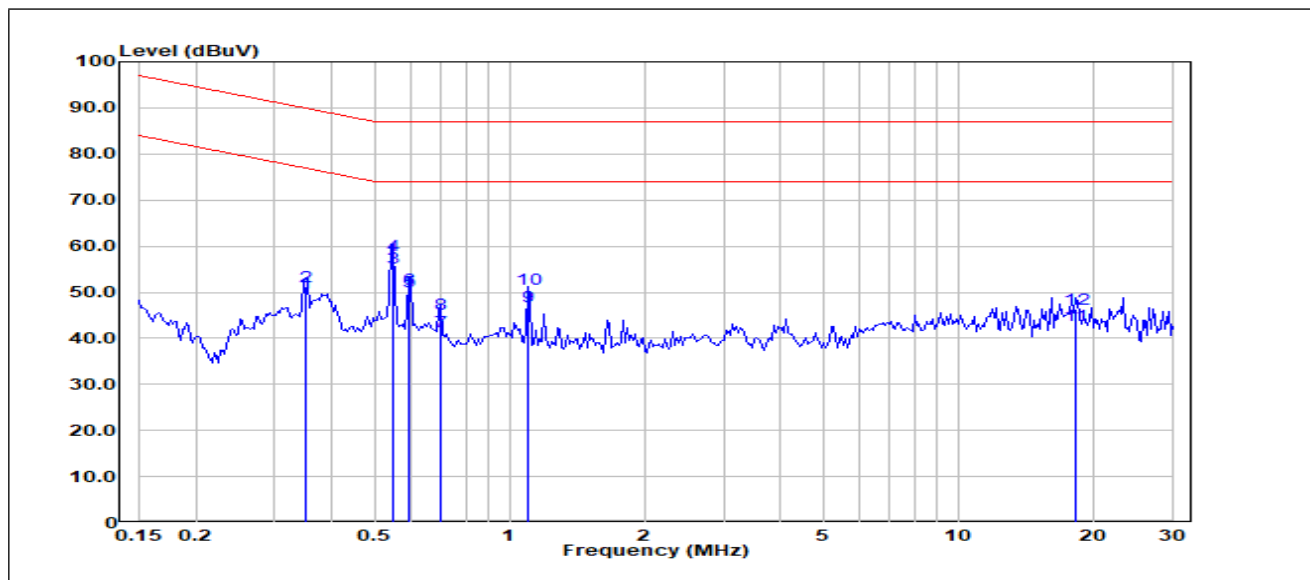
Remark: Level= Read Level+ Cable Loss+ LISN Factor

Test Mode: 00



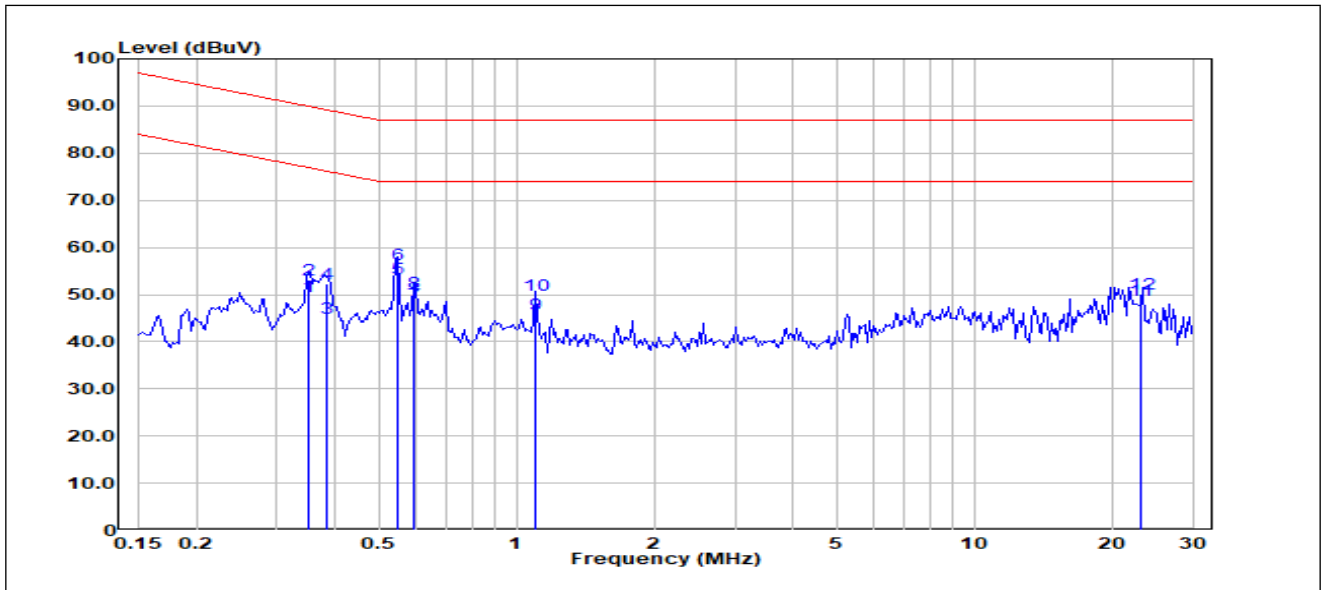
| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB) | Result<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Remark  |
|-----|--------------------|-------------------|-----------------------|------------------|-----------------|----------------|---------|
| 1   | 0.3512             | 30.62             | 19.96                 | 50.58            | 76.93           | -26.35         | Average |
| 2   | 0.3512             | 34.30             | 19.96                 | 54.26            | 89.93           | -35.67         | QP      |
| 3   | 0.4229             | 26.75             | 19.79                 | 46.54            | 75.39           | -28.85         | Average |
| 4   | 0.4229             | 34.68             | 19.79                 | 54.47            | 88.39           | -33.92         | QP      |
| 5   | 0.5507             | 35.71             | 19.63                 | 55.34            | 74.00           | -18.66         | Average |
| 6   | 0.5507             | 39.17             | 19.63                 | 58.80            | 87.00           | -28.20         | QP      |
| 7   | 0.5984             | 30.97             | 19.64                 | 50.61            | 74.00           | -23.39         | Average |
| 8   | 0.5984             | 34.42             | 19.64                 | 54.06            | 87.00           | -32.94         | QP      |
| 9   | 0.7022             | 26.05             | 19.64                 | 45.69            | 74.00           | -28.31         | Average |
| 10  | 0.7022             | 32.15             | 19.64                 | 51.79            | 87.00           | -35.21         | QP      |
| 11  | 1.1020             | 29.46             | 19.69                 | 49.15            | 74.00           | -24.85         | Average |
| 12  | 1.1020             | 34.02             | 19.69                 | 53.71            | 87.00           | -33.29         | QP      |

Test Mode: 01



| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB) | Result<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Remark  |
|-----|--------------------|-------------------|-----------------------|------------------|-----------------|----------------|---------|
| 1   | 0.3508             | 29.83             | 19.96                 | 49.79            | 76.94           | -27.15         | Average |
| 2   | 0.3508             | 31.26             | 19.96                 | 51.22            | 89.94           | -38.72         | QP      |
| 3   | 0.5501             | 35.62             | 19.63                 | 55.25            | 74.00           | -18.75         | Average |
| 4   | 0.5501             | 38.43             | 19.63                 | 58.06            | 87.00           | -28.94         | QP      |
| 5   | 0.5986             | 30.41             | 19.64                 | 50.05            | 74.00           | -23.95         | Average |
| 6   | 0.5986             | 30.99             | 19.64                 | 50.63            | 87.00           | -36.37         | QP      |
| 7   | 0.7045             | 21.76             | 19.64                 | 41.40            | 74.00           | -32.60         | Average |
| 8   | 0.7045             | 25.52             | 19.64                 | 45.16            | 87.00           | -41.84         | QP      |
| 9   | 1.1030             | 27.16             | 19.69                 | 46.85            | 74.00           | -27.15         | Average |
| 10  | 1.1030             | 30.86             | 19.69                 | 50.55            | 87.00           | -36.45         | QP      |
| 11  | 18.2430            | 22.56             | 20.15                 | 42.71            | 74.00           | -31.29         | Average |
| 12  | 18.2430            | 26.28             | 20.15                 | 46.43            | 87.00           | -40.57         | QP      |

Test Mode: 02



| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB) | Result<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Remark  |
|-----|--------------------|-------------------|-----------------------|------------------|-----------------|----------------|---------|
| 1   | 0.3521             | 29.63             | 19.96                 | 49.59            | 76.91           | -27.32         | Average |
| 2   | 0.3521             | 33.14             | 19.96                 | 53.10            | 89.91           | -36.81         | QP      |
| 3   | 0.3844             | 25.09             | 19.88                 | 44.97            | 76.18           | -31.21         | Average |
| 4   | 0.3844             | 32.44             | 19.88                 | 52.32            | 89.18           | -36.86         | QP      |
| 5   | 0.5514             | 33.73             | 19.63                 | 53.36            | 74.00           | -20.64         | Average |
| 6   | 0.5514             | 36.76             | 19.63                 | 56.39            | 87.00           | -30.61         | QP      |
| 7   | 0.5973             | 28.44             | 19.64                 | 48.08            | 74.00           | -25.92         | Average |
| 8   | 0.5973             | 30.68             | 19.64                 | 50.32            | 87.00           | -36.68         | QP      |
| 9   | 1.1010             | 26.11             | 19.69                 | 45.80            | 74.00           | -28.20         | Average |
| 10  | 1.1010             | 30.25             | 19.69                 | 49.94            | 87.00           | -37.06         | QP      |
| 11  | 23.1280            | 28.59             | 20.19                 | 48.78            | 74.00           | -25.22         | Average |
| 12  | 23.1280            | 30.06             | 20.19                 | 50.25            | 87.00           | -36.75         | QP      |

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

Test Requirement: EN 55032: 2015+A11:2020+A1:2020

Test Method: EN 55032: 2015+A11:2020+A1:2020

Limit:

Test Distance: 3m

30MHz-230MHz: 50 dB(μV/m) quasi-peak

230MHz-1GHz: 57 dB(μV/m) quasi-peak

Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz

### 6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 25.3 °C

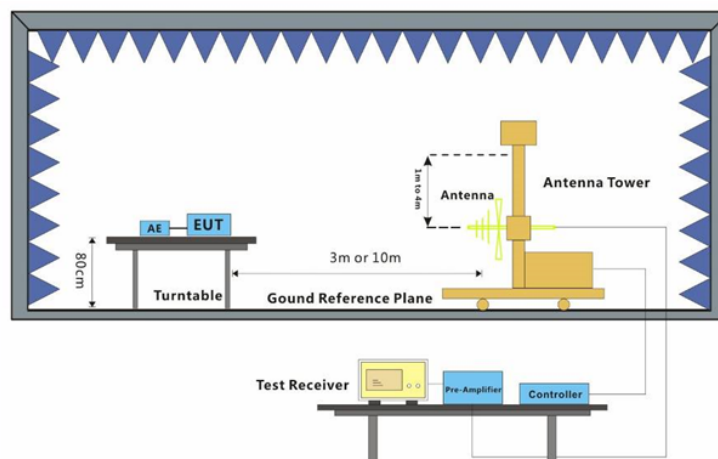
Humidity: 51.4 % RH

Atmospheric Pressure: 1010 mbar

### 6.3.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                                         |
|-----------------------|-----------|---------------------------------------------------------------------|
| Final test            | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test            | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test            | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

### 6.3.3 Test Setup Diagram



### 6.3.4 Measurement Procedure and Data

Frequency range: 30MHz-1GHz

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

The red line show in graphic is the limit in standard used in this section.

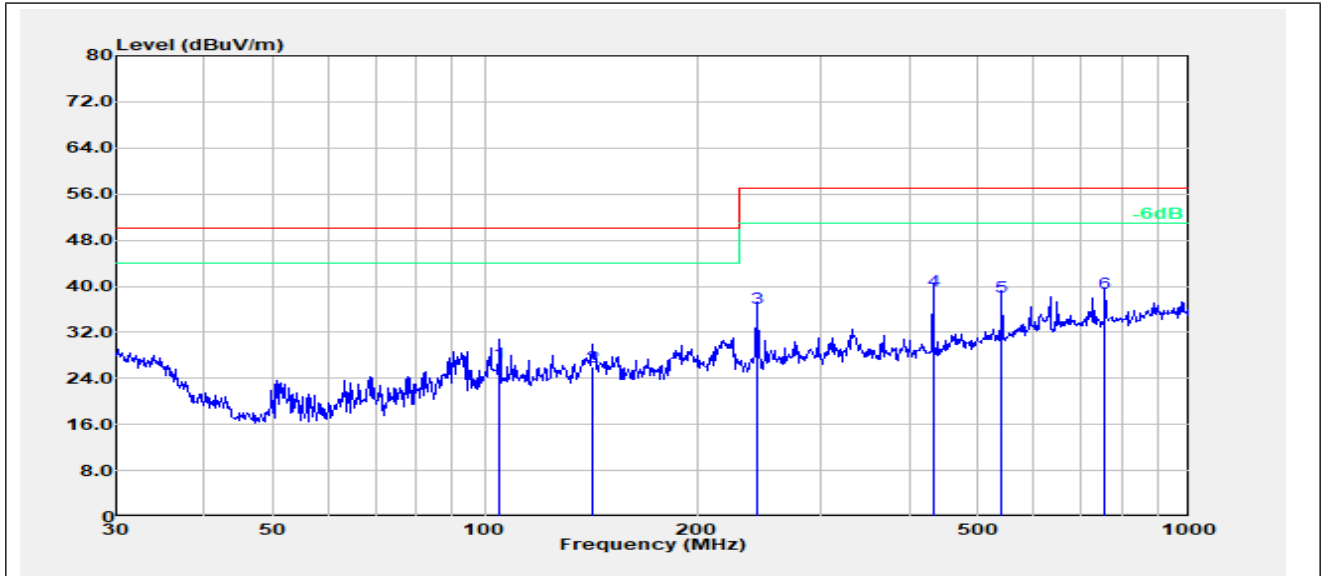
Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor



Report No.: KSEM250600159601

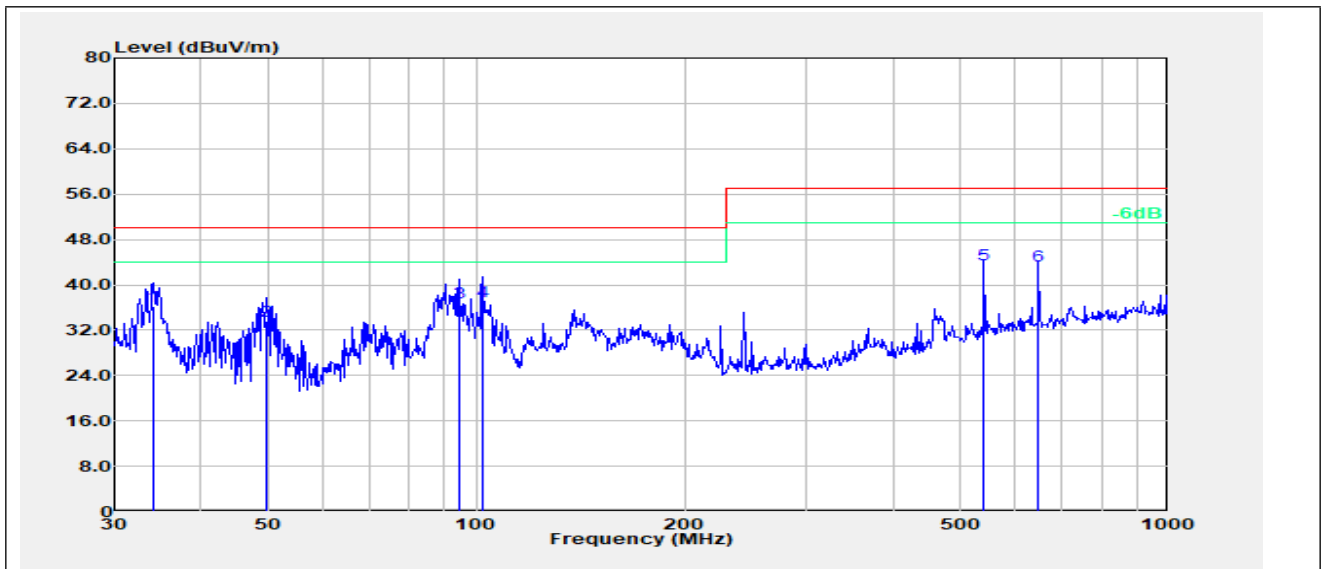
Page: 28 of 115

Test Mode: 00; Polarity: Horizontal



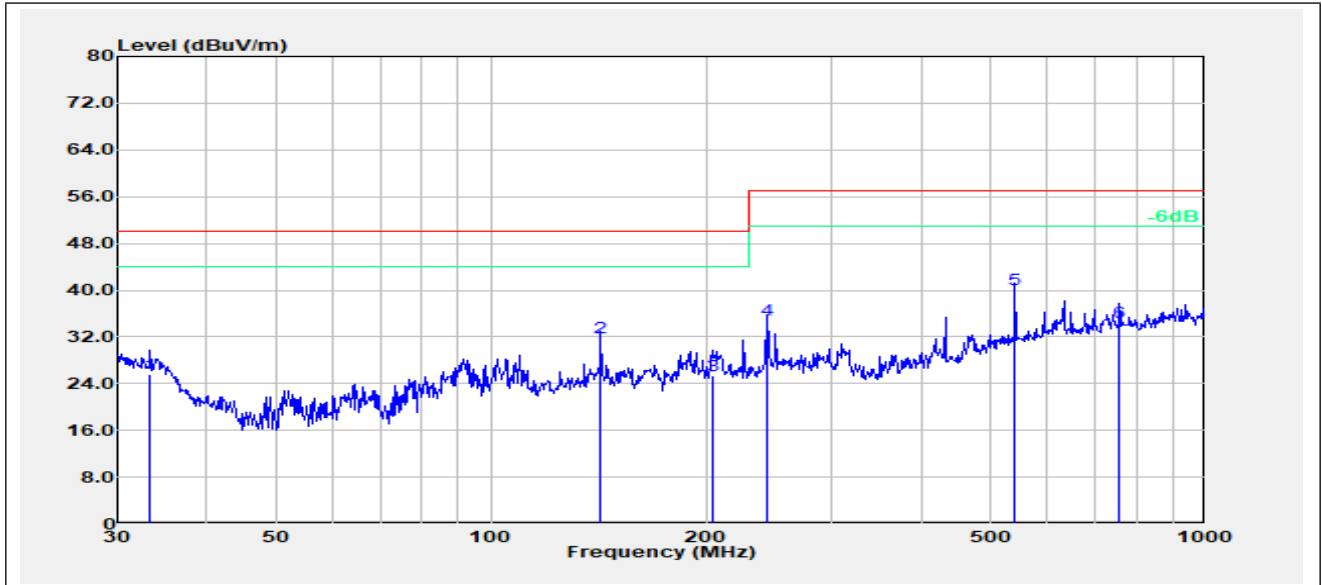
| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 104.9030           | 7.82              | 18.95                   | 26.77              | 50.00             | -23.23         | 100            | 232              | QP     |
| 2   | 142.3240           | 6.54              | 19.47                   | 26.01              | 50.00             | -23.99         | 200            | 0                | QP     |
| 3   | 243.3770           | 16.85             | 19.40                   | 36.25              | 57.00             | -20.75         | 200            | 0                | QP     |
| 4   | 432.5460           | 14.92             | 24.37                   | 39.29              | 57.00             | -17.71         | 100            | 91               | QP     |
| 5   | 541.3730           | 10.69             | 27.55                   | 38.24              | 57.00             | -18.76         | 200            | 91               | QP     |
| 6   | 758.0410           | 9.17              | 29.58                   | 38.75              | 57.00             | -18.25         | 100            | 18               | QP     |

Test Mode: 00; Polarity: Vertical



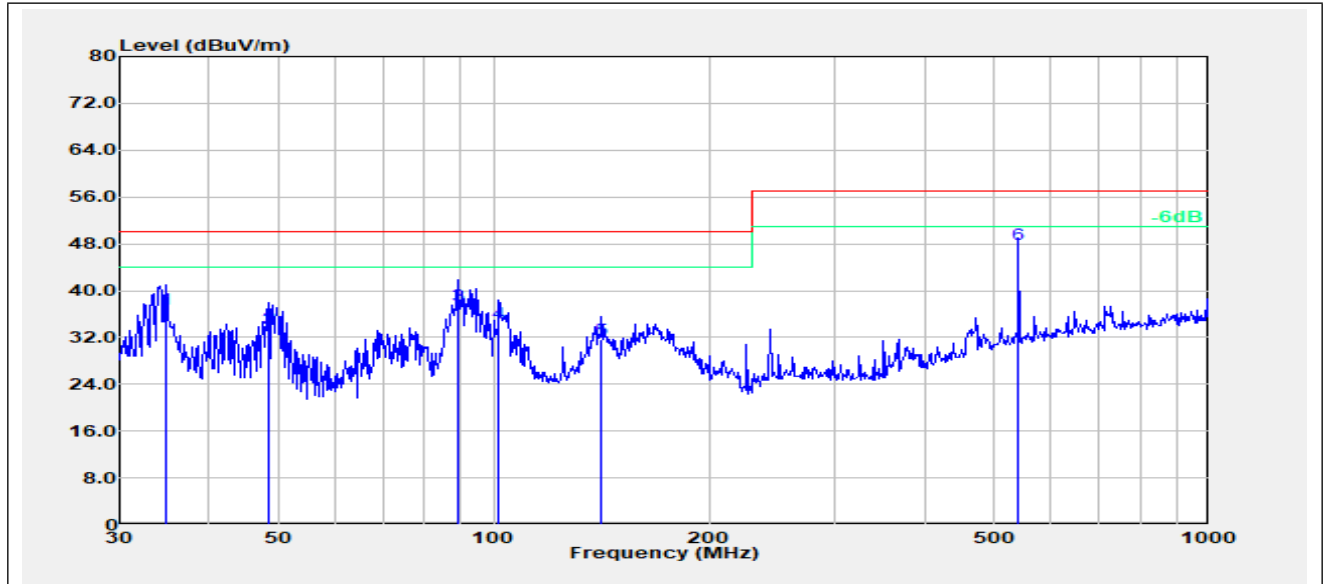
| No. | Frequency<br>(MHz) | Reading<br>(dBUV) | Correct<br>Factor(dB/m) | Result<br>(dBUV/m) | Limit<br>(dBUV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 34.1560            | 13.95             | 22.33                   | 36.28              | 50.00             | -13.72         | 100            | 51               | QP     |
| 2   | 49.7070            | 21.10             | 12.57                   | 33.67              | 50.00             | -16.33         | 100            | 86               | QP     |
| 3   | 94.4280            | 18.80             | 18.07                   | 36.87              | 50.00             | -13.13         | 200            | 38               | QP     |
| 4   | 102.0010           | 18.54             | 18.56                   | 37.10              | 50.00             | -12.90         | 100            | 45               | QP     |
| 5   | 541.3730           | 15.93             | 27.55                   | 43.48              | 57.00             | -13.52         | 100            | 302              | QP     |
| 6   | 649.6600           | 13.91             | 29.37                   | 43.28              | 57.00             | -13.72         | 100            | 58               | QP     |

Test Mode: 01; Polarity: Horizontal



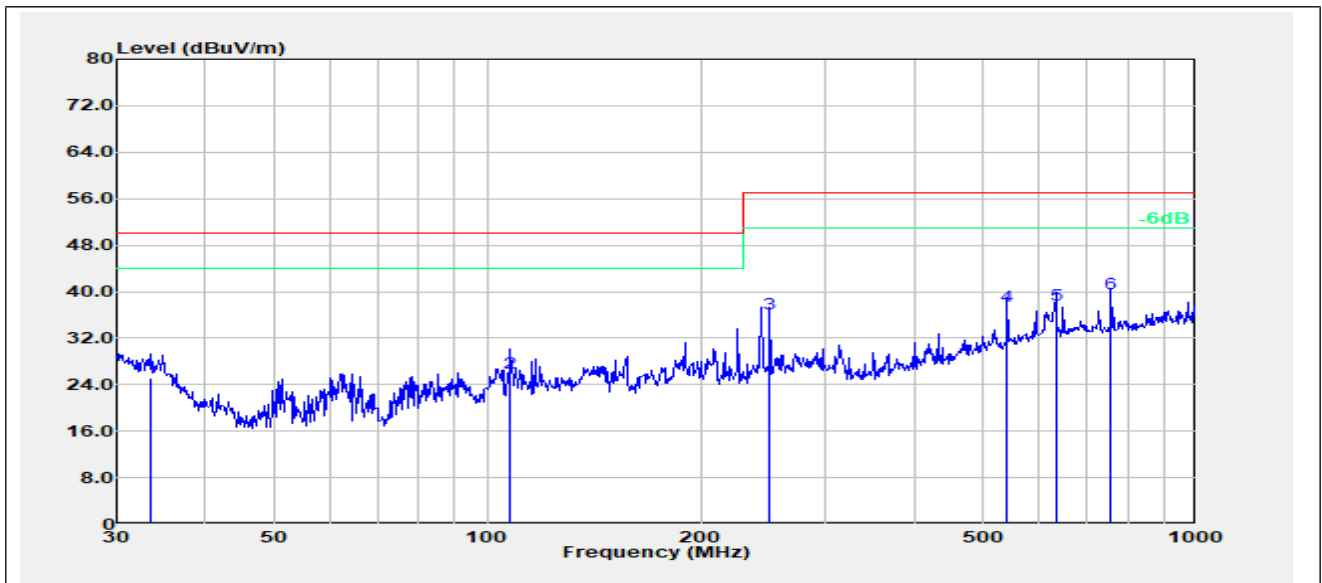
| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 33.3280            | 2.61              | 22.92                   | 25.53              | 50.00             | -24.47         | 200            | 85               | QP     |
| 2   | 142.3240           | 12.40             | 19.47                   | 31.87              | 50.00             | -18.13         | 100            | 258              | QP     |
| 3   | 204.2380           | 8.16              | 17.30                   | 25.46              | 50.00             | -24.54         | 100            | 4                | QP     |
| 4   | 243.3770           | 15.47             | 19.40                   | 34.87              | 57.00             | -22.13         | 200            | 358              | QP     |
| 5   | 541.3730           | 12.56             | 27.55                   | 40.11              | 57.00             | -16.89         | 200            | 297              | QP     |
| 6   | 758.0410           | 4.94              | 29.58                   | 34.52              | 57.00             | -22.48         | 100            | 44               | QP     |

Test Mode: 01; Polarity: Vertical



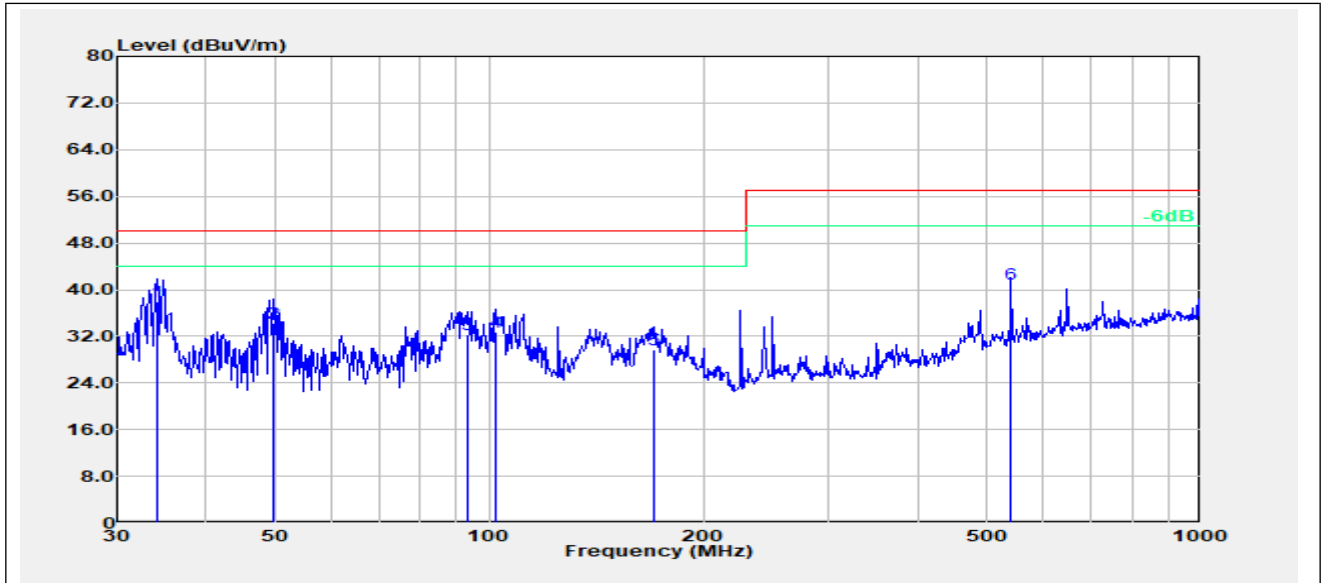
| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 34.8820            | 15.15             | 21.75                   | 36.90              | 50.00             | -13.10         | 100            | 91               | QP     |
| 2   | 48.3320            | 20.49             | 13.13                   | 33.62              | 50.00             | -16.38         | 100            | 131              | QP     |
| 3   | 88.9640            | 20.25             | 17.29                   | 37.54              | 50.00             | -12.46         | 200            | 46               | QP     |
| 4   | 101.6440           | 15.88             | 18.52                   | 34.40              | 50.00             | -15.60         | 200            | 33               | QP     |
| 5   | 141.3300           | 11.84             | 19.77                   | 31.61              | 50.00             | -18.39         | 100            | 356              | QP     |
| 6   | 541.3730           | 20.42             | 27.55                   | 47.97              | 57.00             | -9.03          | 100            | 46               | QP     |

Test Mode: 02; Polarity: Horizontal



| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 33.4450            | 2.35              | 22.84                   | 25.19              | 50.00             | -24.81         | 200            | 182              | QP     |
| 2   | 107.8880           | 6.65              | 19.47                   | 26.12              | 50.00             | -23.88         | 100            | 97               | QP     |
| 3   | 250.3010           | 16.03             | 20.24                   | 36.27              | 57.00             | -20.73         | 100            | 288              | QP     |
| 4   | 541.3730           | 10.04             | 27.55                   | 37.59              | 57.00             | -19.41         | 200            | 70               | QP     |
| 5   | 633.9070           | 8.67              | 29.15                   | 37.82              | 57.00             | -19.18         | 200            | 24               | QP     |
| 6   | 758.0410           | 10.04             | 29.58                   | 39.62              | 57.00             | -17.38         | 100            | 0                | QP     |

Test Mode: 02; Polarity: Vertical



| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 34.1560            | 15.58             | 22.33                   | 37.91              | 50.00             | -12.09         | 100            | 106              | QP     |
| 2   | 49.8810            | 21.88             | 12.48                   | 34.36              | 50.00             | -15.64         | 200            | 106              | QP     |
| 3   | 93.4400            | 14.36             | 17.95                   | 32.31              | 50.00             | -17.69         | 100            | 31               | QP     |
| 4   | 102.0010           | 14.11             | 18.56                   | 32.67              | 50.00             | -17.33         | 100            | 2                | QP     |
| 5   | 170.7930           | 12.80             | 16.84                   | 29.64              | 50.00             | -20.36         | 200            | 8                | QP     |
| 6   | 541.3730           | 13.53             | 27.55                   | 41.08              | 57.00             | -15.92         | 100            | 4                | QP     |

## 6.4 Radiated Emissions (Above 1GHz)

Test Requirement: EN 55032: 2015+A11:2020+A1:2020

Test Method: EN 55032: 2015+A11:2020+A1:2020

Limit:

1000MHz-6000MHz: 80 dB(μV/m) peak; 60 dB(μV/m) average

Detector: Peak for pre-scan (1000kHz resolution bandwidth) 1000MHz to 6000MHz

### 6.4.1 E.U.T. Operation

Operating Environment:

Temperature: 25.3 °C

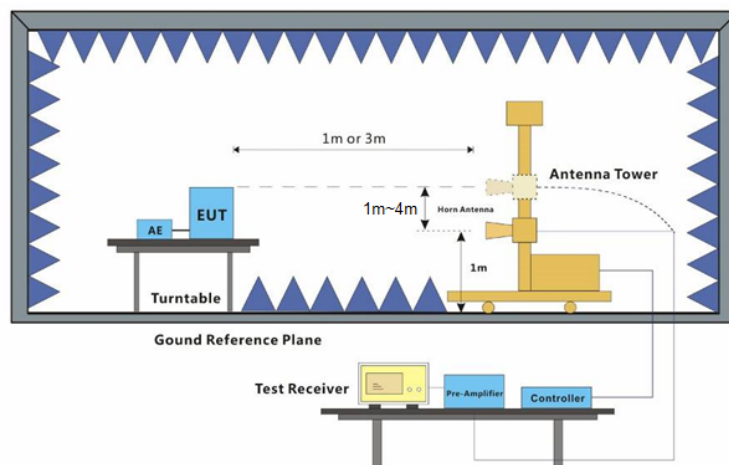
Humidity: 49.6 % RH

Atmospheric Pressure: 1010 mbar

### 6.4.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                                         |
|-----------------------|-----------|---------------------------------------------------------------------|
| Final test            | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test            | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test            | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

### 6.4.3 Test Setup Diagram



### 6.4.4 Measurement Procedure and Data

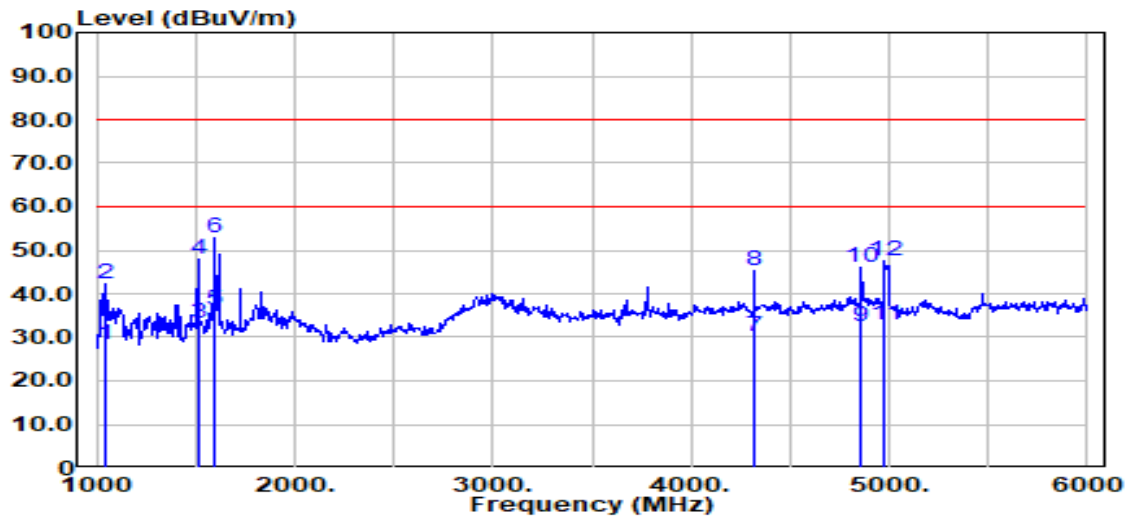
Frequency range: Above 1GHz

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Average measurements were conducted based on the peak sweep graph. The EUT was measured by Horn antenna with 2 orthogonal polarities.

The red line show in graphic is the limit in standard used in this section.

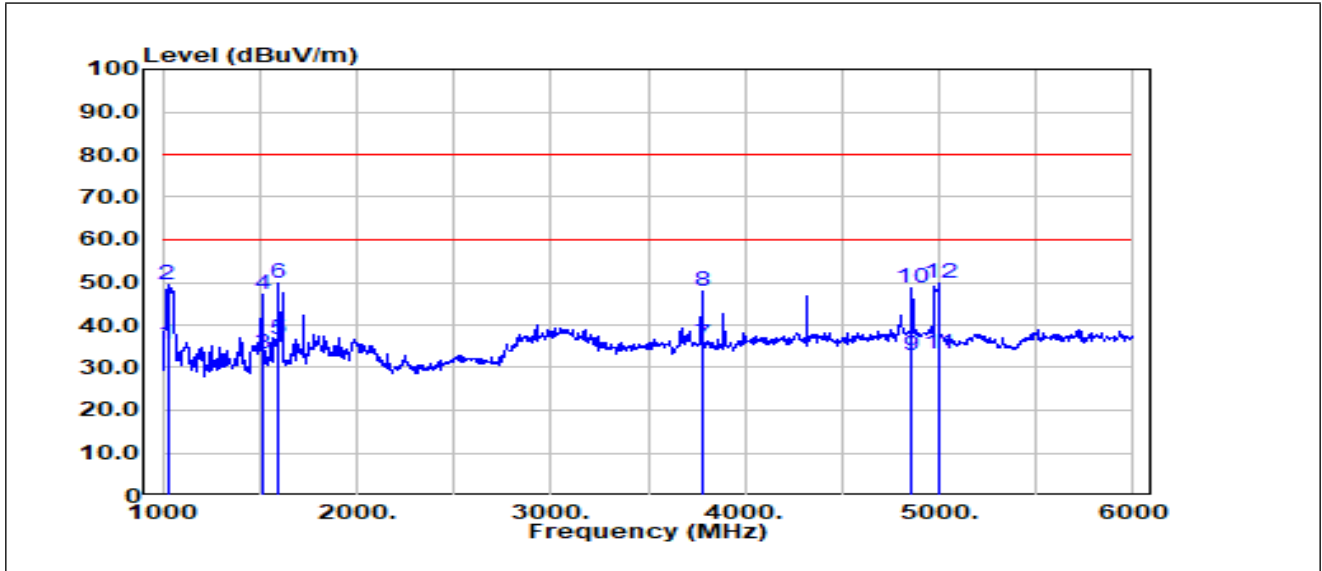
Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor

Test Mode: 00; Polarity: Horizontal



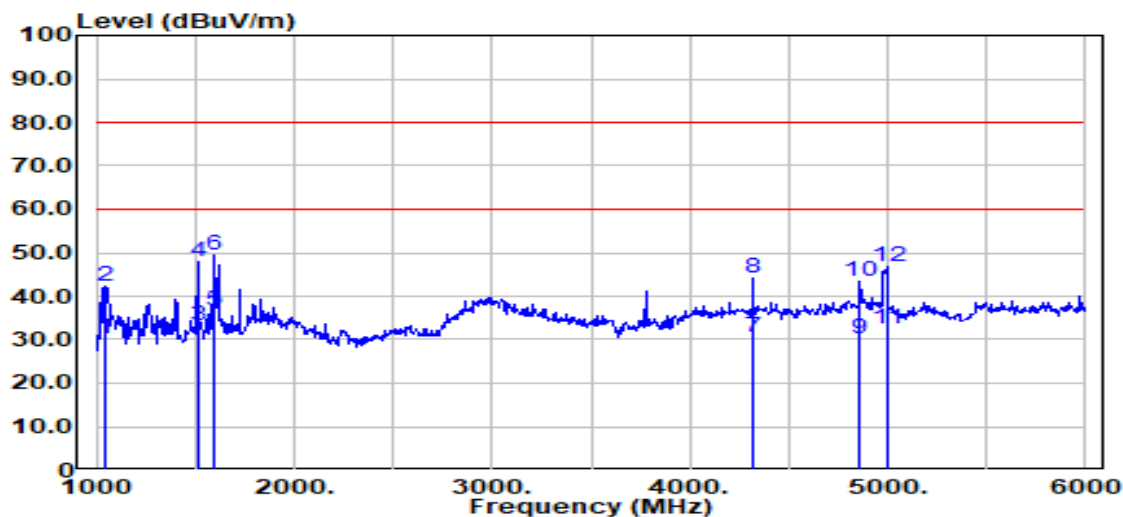
| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark  |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|---------|
| 1   | 1045.0000          | 52.63             | -24.48                  | 28.15              | 60.00             | -31.85         | 200            | 0                | Average |
| 2   | 1045.0000          | 66.92             | -24.48                  | 42.44              | 80.00             | -37.56         | 200            | 0                | Peak    |
| 3   | 1510.0000          | 56.28             | -23.03                  | 33.25              | 60.00             | -26.75         | 100            | 288              | Average |
| 4   | 1510.0000          | 70.93             | -23.03                  | 47.90              | 80.00             | -32.10         | 100            | 288              | Peak    |
| 5   | 1600.0000          | 59.60             | -23.25                  | 36.35              | 60.00             | -23.65         | 100            | 243              | Average |
| 6   | 1600.0000          | 76.19             | -23.25                  | 52.94              | 80.00             | -27.06         | 100            | 243              | Peak    |
| 7   | 4320.0000          | 44.41             | -14.16                  | 30.25              | 60.00             | -29.75         | 100            | 48               | Average |
| 8   | 4320.0000          | 59.28             | -14.16                  | 45.12              | 80.00             | -34.88         | 100            | 48               | Peak    |
| 9   | 4860.0000          | 45.47             | -13.02                  | 32.45              | 60.00             | -27.55         | 100            | 181              | Average |
| 10  | 4860.0000          | 59.15             | -13.02                  | 46.13              | 80.00             | -33.87         | 100            | 181              | Peak    |
| 11  | 4980.0000          | 45.78             | -13.13                  | 32.65              | 60.00             | -27.35         | 100            | 303              | Average |
| 12  | 4980.0000          | 60.59             | -13.13                  | 47.46              | 80.00             | -32.54         | 100            | 303              | Peak    |

Test Mode: 00; Polarity: Vertical



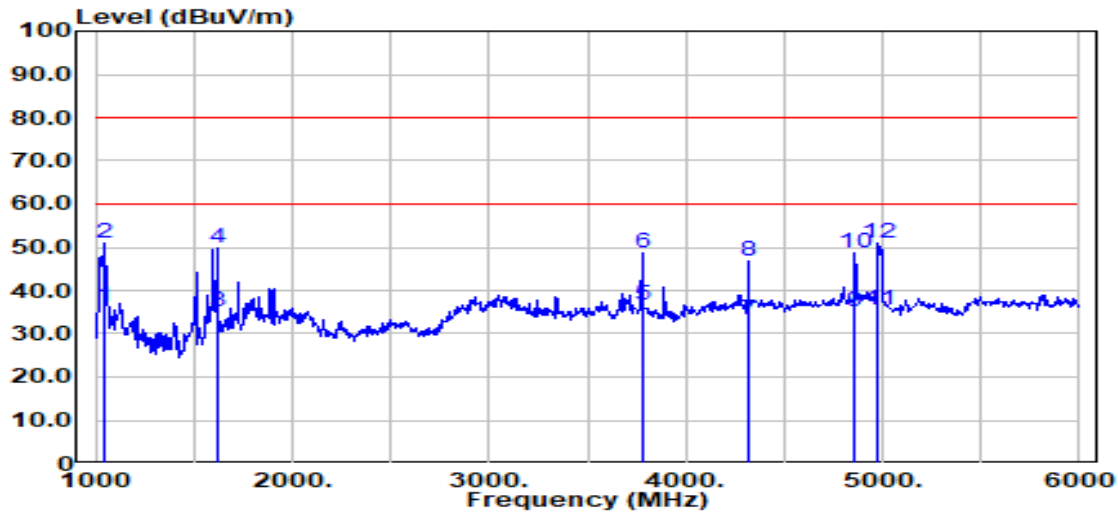
| No. | Frequency<br>(MHz) | Reading<br>(dBUV) | Correct<br>Factor(dB/m) | Result<br>(dBUV/m) | Limit<br>(dBUV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark  |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|---------|
| 1   | 1025.0000          | 60.48             | -25.16                  | 35.32              | 60.00             | -24.68         | 100            | 22               | Average |
| 2   | 1025.0000          | 74.70             | -25.16                  | 49.54              | 80.00             | -30.46         | 100            | 22               | Peak    |
| 3   | 1510.0000          | 56.05             | -23.03                  | 33.02              | 60.00             | -26.98         | 100            | 347              | Average |
| 4   | 1510.0000          | 70.29             | -23.03                  | 47.26              | 80.00             | -32.74         | 100            | 347              | Peak    |
| 5   | 1600.0000          | 59.79             | -23.25                  | 36.54              | 60.00             | -23.46         | 100            | 8                | Average |
| 6   | 1600.0000          | 72.98             | -23.25                  | 49.73              | 80.00             | -30.27         | 100            | 8                | Peak    |
| 7   | 3780.0000          | 50.80             | -15.19                  | 35.61              | 60.00             | -24.39         | 200            | 360              | Average |
| 8   | 3780.0000          | 63.08             | -15.19                  | 47.89              | 80.00             | -32.11         | 200            | 360              | Peak    |
| 9   | 4860.0000          | 45.67             | -13.02                  | 32.65              | 60.00             | -27.35         | 100            | 2                | Average |
| 10  | 4860.0000          | 61.54             | -13.02                  | 48.52              | 80.00             | -31.48         | 100            | 2                | Peak    |
| 11  | 5000.0000          | 46.48             | -13.23                  | 33.25              | 60.00             | -26.75         | 100            | 25               | Average |
| 12  | 5000.0000          | 63.13             | -13.23                  | 49.90              | 80.00             | -30.10         | 100            | 25               | Peak    |

Test Mode: 01; Polarity: Horizontal



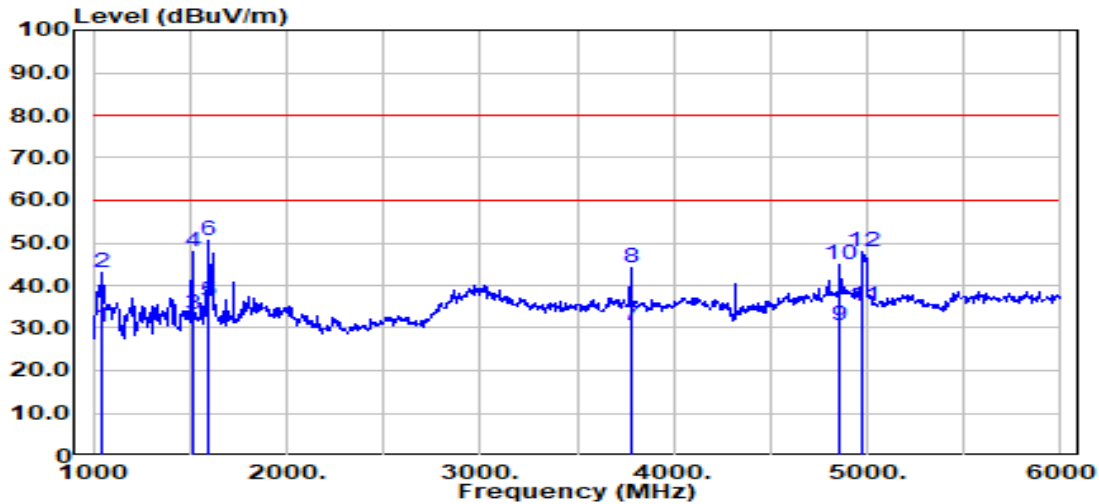
| No. | Frequency<br>(MHz) | Reading<br>(dBUV) | Correct<br>Factor(dB/m) | Result<br>(dBUV/m) | Limit<br>(dBUV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark  |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|---------|
| 1   | 1045.0000          | 54.73             | -24.48                  | 30.25              | 60.00             | -29.75         | 100            | 357              | Average |
| 2   | 1045.0000          | 66.91             | -24.48                  | 42.43              | 80.00             | -37.57         | 100            | 357              | Peak    |
| 3   | 1510.0000          | 56.28             | -23.03                  | 33.25              | 60.00             | -26.75         | 100            | 30               | Average |
| 4   | 1510.0000          | 70.86             | -23.03                  | 47.83              | 80.00             | -32.17         | 100            | 30               | Peak    |
| 5   | 1600.0000          | 59.78             | -23.25                  | 36.53              | 60.00             | -23.47         | 100            | 242              | Average |
| 6   | 1600.0000          | 72.68             | -23.25                  | 49.43              | 80.00             | -30.57         | 100            | 242              | Peak    |
| 7   | 4320.0000          | 44.81             | -14.16                  | 30.65              | 60.00             | -29.35         | 100            | 47               | Average |
| 8   | 4320.0000          | 58.22             | -14.16                  | 44.06              | 80.00             | -35.94         | 100            | 47               | Peak    |
| 9   | 4860.0000          | 43.24             | -13.02                  | 30.22              | 60.00             | -29.78         | 200            | 130              | Average |
| 10  | 4860.0000          | 56.31             | -13.02                  | 43.29              | 80.00             | -36.71         | 200            | 130              | Peak    |
| 11  | 4995.0000          | 45.65             | -13.20                  | 32.45              | 60.00             | -27.55         | 100            | 27               | Average |
| 12  | 4995.0000          | 59.84             | -13.20                  | 46.64              | 80.00             | -33.36         | 100            | 27               | Peak    |

Test Mode: 01; Polarity: Vertical



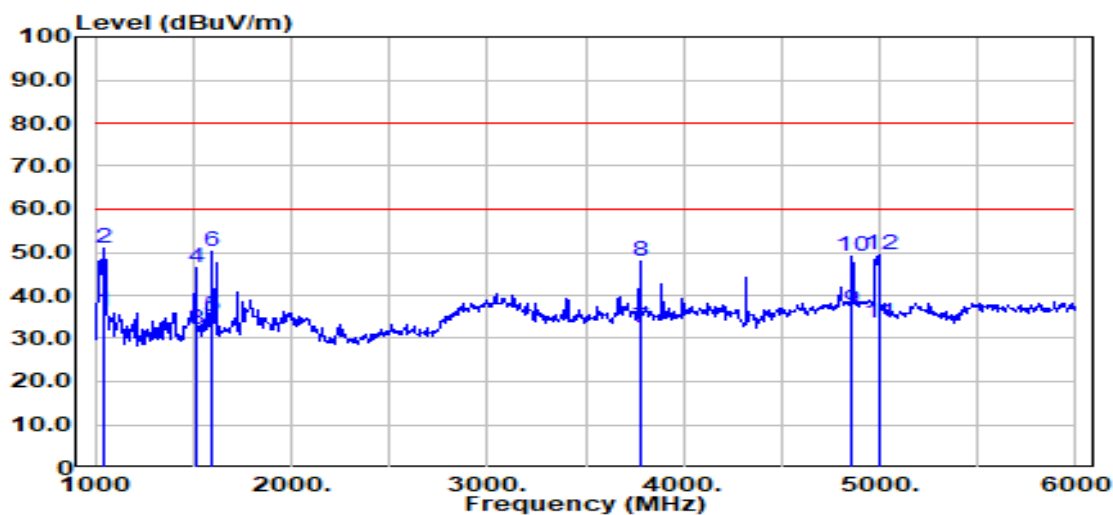
| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark  |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|---------|
| 1   | 1045.0000          | 60.83             | -24.48                  | 36.35              | 60.00             | -23.65         | 100            | 22               | Average |
| 2   | 1045.0000          | 75.37             | -24.48                  | 50.89              | 80.00             | -29.11         | 100            | 22               | Peak    |
| 3   | 1620.0000          | 58.42             | -23.20                  | 35.22              | 60.00             | -24.78         | 100            | 353              | Average |
| 4   | 1620.0000          | 72.95             | -23.20                  | 49.75              | 80.00             | -30.25         | 100            | 353              | Peak    |
| 5   | 3780.0000          | 51.81             | -15.19                  | 36.62              | 60.00             | -23.38         | 100            | 353              | Average |
| 6   | 3780.0000          | 63.72             | -15.19                  | 48.53              | 80.00             | -31.47         | 100            | 353              | Peak    |
| 7   | 4320.0000          | 47.21             | -14.16                  | 33.05              | 60.00             | -26.95         | 200            | 4                | Average |
| 8   | 4320.0000          | 60.96             | -14.16                  | 46.80              | 80.00             | -33.20         | 200            | 4                | Peak    |
| 9   | 4860.0000          | 48.17             | -13.02                  | 35.15              | 60.00             | -24.85         | 100            | 360              | Average |
| 10  | 4860.0000          | 61.78             | -13.02                  | 48.76              | 80.00             | -31.24         | 100            | 360              | Peak    |
| 11  | 4980.0000          | 48.68             | -13.13                  | 35.55              | 60.00             | -24.45         | 100            | 25               | Average |
| 12  | 4980.0000          | 64.02             | -13.13                  | 50.89              | 80.00             | -29.11         | 100            | 25               | Peak    |

Test Mode: 02; Polarity: Horizontal



| No. | Frequency<br>(MHz) | Reading<br>(dBUV) | Correct<br>Factor(dB/m) | Result<br>(dBUV/m) | Limit<br>(dBUV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark  |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|---------|
| 1   | 1045.0000          | 54.70             | -24.48                  | 30.22              | 60.00             | -29.78         | 200            | 359              | Average |
| 2   | 1045.0000          | 67.59             | -24.48                  | 43.11              | 80.00             | -36.89         | 200            | 359              | Peak    |
| 3   | 1510.0000          | 56.28             | -23.03                  | 33.25              | 60.00             | -26.75         | 100            | 287              | Average |
| 4   | 1510.0000          | 70.92             | -23.03                  | 47.89              | 80.00             | -32.11         | 100            | 287              | Peak    |
| 5   | 1600.0000          | 59.58             | -23.25                  | 36.33              | 60.00             | -23.67         | 100            | 246              | Average |
| 6   | 1600.0000          | 73.87             | -23.25                  | 50.62              | 80.00             | -29.38         | 100            | 246              | Peak    |
| 7   | 3780.0000          | 45.84             | -15.19                  | 30.65              | 60.00             | -29.35         | 100            | 98               | Average |
| 8   | 3780.0000          | 59.52             | -15.19                  | 44.33              | 80.00             | -35.67         | 100            | 98               | Peak    |
| 9   | 4860.0000          | 43.67             | -13.02                  | 30.65              | 60.00             | -29.35         | 100            | 52               | Average |
| 10  | 4860.0000          | 57.80             | -13.02                  | 44.78              | 80.00             | -35.22         | 100            | 52               | Peak    |
| 11  | 4980.0000          | 48.28             | -13.13                  | 35.15              | 60.00             | -24.85         | 100            | 55               | Average |
| 12  | 4980.0000          | 60.93             | -13.13                  | 47.80              | 80.00             | -32.20         | 100            | 55               | Peak    |

Test Mode: 02; Polarity: Vertical



| No. | Frequency<br>(MHz) | Reading<br>(dBUV) | Correct<br>Factor(dB/m) | Result<br>(dBUV/m) | Limit<br>(dBUV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark  |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|---------|
| 1   | 1045.0000          | 60.83             | -24.48                  | 36.35              | 60.00             | -23.65         | 100            | 7                | Average |
| 2   | 1045.0000          | 75.43             | -24.48                  | 50.95              | 80.00             | -29.05         | 100            | 7                | Peak    |
| 3   | 1510.0000          | 55.18             | -23.03                  | 32.15              | 60.00             | -27.85         | 100            | 348              | Average |
| 4   | 1510.0000          | 69.57             | -23.03                  | 46.54              | 80.00             | -33.46         | 100            | 348              | Peak    |
| 5   | 1600.0000          | 58.47             | -23.25                  | 35.22              | 60.00             | -24.78         | 100            | 208              | Average |
| 6   | 1600.0000          | 73.50             | -23.25                  | 50.25              | 80.00             | -29.75         | 100            | 208              | Peak    |
| 7   | 3780.0000          | 47.64             | -15.19                  | 32.45              | 60.00             | -27.55         | 200            | 31               | Average |
| 8   | 3780.0000          | 62.96             | -15.19                  | 47.77              | 80.00             | -32.23         | 200            | 31               | Peak    |
| 9   | 4860.0000          | 49.67             | -13.02                  | 36.65              | 60.00             | -23.35         | 100            | 360              | Average |
| 10  | 4860.0000          | 62.10             | -13.02                  | 49.08              | 80.00             | -30.92         | 100            | 360              | Peak    |
| 11  | 4995.0000          | 46.72             | -13.20                  | 33.52              | 60.00             | -26.48         | 100            | 24               | Average |
| 12  | 4995.0000          | 62.49             | -13.20                  | 49.29              | 80.00             | -30.71         | 100            | 24               | Peak    |

## 6.5 Voltage Fluctuations and Flicker

Test Requirement: EN 61000-3-3: 2013+A1:2019+A2:2021

Test Method: EN 61000-3-3: 2013+A1:2019+A2:2021

### 6.5.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C

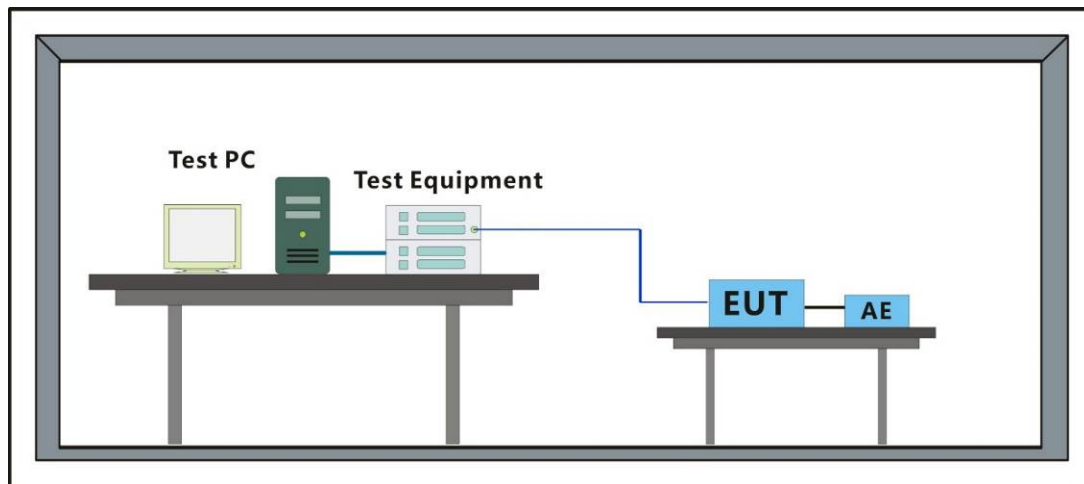
Humidity: 47 % RH

Atmospheric Pressure: 1010 mbar

### 6.5.2 Test Mode Description

| Pre-scan /<br>Final test | Mode Code | Description                                                         |
|--------------------------|-----------|---------------------------------------------------------------------|
| Final test               | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test               | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test               | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

### 6.5.3 Test Setup Diagram



### 6.5.4 Measurement Procedure and Data

Test Mode: 00

**Parameter values recorded during the test:**
**Vrms at the end of test (Volt):** 228.73

**T-max (mS):** 0

**Highest dc (%):** 0.00

**Highest dmax (%):** 0.00

**Highest Pst (10 min. period):** 0.069

**Highest Plt (2 hr. period):** 0.032

**Test limit (mS):** 500.0 **Pass**
**Test limit (%):** 3.30 **Pass**
**Test limit (%):** 4.00 **Pass**
**Test limit:** 1.000 **Pass**
**Test limit:** 0.650 **Pass**

Test Mode: 01

**Parameter values recorded during the test:**
**Vrms at the end of test (Volt):** 228.75

**T-max (mS):** 0

**Highest dc (%):** 0.00

**Highest dmax (%):** 0.00

**Highest Pst (10 min. period):** 0.068

**Highest Plt (2 hr. period):** 0.034

**Test limit (mS):** 500.0 **Pass**
**Test limit (%):** 3.30 **Pass**
**Test limit (%):** 4.00 **Pass**
**Test limit:** 1.000 **Pass**
**Test limit:** 0.650 **Pass**

Test Mode: 02

**Parameter values recorded during the test:**
**Vrms at the end of test (Volt):** 228.73

**T-max (mS):** 0

**Highest dc (%):** 0.00

**Highest dmax (%):** 0.00

**Highest Pst (10 min. period):** 0.065

**Highest Plt (2 hr. period):** 0.031

**Test limit (mS):** 500.0 **Pass**
**Test limit (%):** 3.30 **Pass**
**Test limit (%):** 4.00 **Pass**
**Test limit:** 1.000 **Pass**
**Test limit:** 0.650 **Pass**

## 6.6 Harmonic Current Emission

Test Requirement: EN IEC 61000-3-2: 2019+A1:2021+A2:2024

Test Method: EN IEC 61000-3-2: 2019+A1:2021+A2:2024

### 6.6.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C

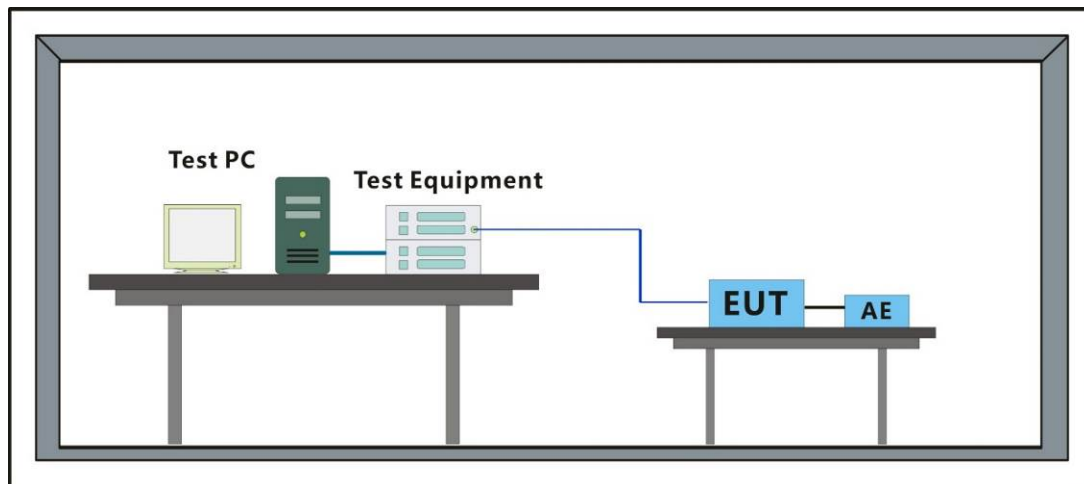
Humidity: 47 % RH

Atmospheric Pressure: 1010 mbar

### 6.6.2 Test Mode Description

| Pre-scan /<br>Final test | Mode Code | Description                                                         |
|--------------------------|-----------|---------------------------------------------------------------------|
| Final test               | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test               | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test               | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

### 6.6.3 Test Setup Diagram



### 6.6.4 Measurement Procedure and Data

Frequency Range: 100Hz to 2kHz

Test Mode: 00

**Highest parameter values during test:**

V\_RMS (Volts): 228.76  
I\_Peak (Amps): 0.495  
I\_Fund (Amps): 0.052  
Power (Watts): 4.8

Frequency(Hz): 50.00  
I\_RMS (Amps): 0.105  
Crest Factor: 4.905  
Power Factor: 0.215

| Harm# | Harms(avg) | 100%Limit | %of Limit | Harms(max) | 150%Limit | %of Limit | Status |
|-------|------------|-----------|-----------|------------|-----------|-----------|--------|
| 2     | 0.003      | 1.080     | N/A       | 0.006      | 1.620     | N/A       | Pass   |
| 3     | 0.018      | 2.300     | 0.8       | 0.023      | 3.450     | 0.7       | Pass   |
| 4     | 0.002      | 0.430     | N/A       | 0.004      | 0.645     | N/A       | Pass   |
| 5     | 0.018      | 1.140     | 1.5       | 0.020      | 1.710     | 1.2       | Pass   |
| 6     | 0.003      | 0.300     | N/A       | 0.005      | 0.450     | N/A       | Pass   |
| 7     | 0.017      | 0.770     | 2.2       | 0.020      | 1.155     | 1.8       | Pass   |
| 8     | 0.002      | 0.230     | N/A       | 0.004      | 0.345     | N/A       | Pass   |
| 9     | 0.017      | 0.400     | 4.2       | 0.020      | 0.600     | 3.3       | Pass   |
| 10    | 0.002      | 0.184     | N/A       | 0.004      | 0.276     | N/A       | Pass   |
| 11    | 0.016      | 0.330     | 4.9       | 0.019      | 0.495     | 3.9       | Pass   |
| 12    | 0.002      | 0.153     | N/A       | 0.004      | 0.230     | N/A       | Pass   |
| 13    | 0.016      | 0.210     | 7.5       | 0.018      | 0.315     | 5.8       | Pass   |
| 14    | 0.002      | 0.131     | N/A       | 0.004      | 0.197     | N/A       | Pass   |
| 15    | 0.015      | 0.150     | 10.0      | 0.017      | 0.225     | 7.7       | Pass   |
| 16    | 0.002      | 0.115     | N/A       | 0.004      | 0.173     | N/A       | Pass   |
| 17    | 0.014      | 0.132     | 10.7      | 0.016      | 0.198     | 8.3       | Pass   |
| 18    | 0.002      | 0.102     | N/A       | 0.003      | 0.153     | N/A       | Pass   |
| 19    | 0.013      | 0.118     | 11.3      | 0.015      | 0.178     | 8.7       | Pass   |
| 20    | 0.002      | 0.092     | N/A       | 0.003      | 0.138     | N/A       | Pass   |
| 21    | 0.012      | 0.107     | 11.7      | 0.014      | 0.161     | 8.9       | Pass   |
| 22    | 0.002      | 0.084     | N/A       | 0.003      | 0.125     | N/A       | Pass   |
| 23    | 0.012      | 0.098     | 11.9      | 0.013      | 0.147     | 9.0       | Pass   |
| 24    | 0.002      | 0.077     | N/A       | 0.003      | 0.115     | N/A       | Pass   |
| 25    | 0.011      | 0.090     | 11.9      | 0.012      | 0.135     | 9.0       | Pass   |
| 26    | 0.002      | 0.071     | N/A       | 0.003      | 0.107     | N/A       | Pass   |
| 27    | 0.010      | 0.083     | 11.7      | 0.011      | 0.125     | 8.8       | Pass   |
| 28    | 0.002      | 0.066     | N/A       | 0.003      | 0.099     | N/A       | Pass   |
| 29    | 0.009      | 0.078     | 11.4      | 0.010      | 0.116     | 8.7       | Pass   |
| 30    | 0.001      | 0.061     | N/A       | 0.002      | 0.092     | N/A       | Pass   |
| 31    | 0.008      | 0.073     | 10.9      | 0.009      | 0.109     | 8.3       | Pass   |
| 32    | 0.001      | 0.058     | N/A       | 0.002      | 0.086     | N/A       | Pass   |
| 33    | 0.007      | 0.068     | 10.3      | 0.008      | 0.102     | 7.7       | Pass   |
| 34    | 0.001      | 0.054     | N/A       | 0.002      | 0.081     | N/A       | Pass   |
| 35    | 0.006      | 0.064     | 9.6       | 0.007      | 0.096     | 7.0       | Pass   |
| 36    | 0.001      | 0.051     | N/A       | 0.002      | 0.077     | N/A       | Pass   |
| 37    | 0.005      | 0.061     | 8.8       | 0.006      | 0.091     | 6.3       | Pass   |
| 38    | 0.001      | 0.048     | N/A       | 0.001      | 0.073     | N/A       | Pass   |
| 39    | 0.005      | 0.058     | N/A       | 0.005      | 0.087     | N/A       | Pass   |
| 40    | 0.001      | 0.046     | N/A       | 0.001      | 0.069     | N/A       | Pass   |

Test Mode: 00

| Harm# | Harmonics V-rms | Limit V-rms | % of Limit | Status |
|-------|-----------------|-------------|------------|--------|
| 2     | 0.167           | 0.457       | 36.59      | OK     |
| 3     | 0.432           | 2.058       | 20.99      | OK     |
| 4     | 0.042           | 0.458       | 9.15       | OK     |
| 5     | 0.042           | 0.915       | 4.60       | OK     |
| 6     | 0.061           | 0.457       | 13.27      | OK     |
| 7     | 0.046           | 0.686       | 6.67       | OK     |
| 8     | 0.042           | 0.457       | 9.11       | OK     |
| 9     | 0.024           | 0.457       | 5.35       | OK     |
| 10    | 0.021           | 0.457       | 4.62       | OK     |
| 11    | 0.019           | 0.229       | 8.10       | OK     |
| 12    | 0.018           | 0.229       | 7.81       | OK     |
| 13    | 0.018           | 0.229       | 7.78       | OK     |
| 14    | 0.011           | 0.229       | 4.82       | OK     |
| 15    | 0.012           | 0.229       | 5.10       | OK     |
| 16    | 0.015           | 0.229       | 6.65       | OK     |
| 17    | 0.015           | 0.229       | 6.66       | OK     |
| 18    | 0.015           | 0.229       | 6.59       | OK     |
| 19    | 0.012           | 0.229       | 5.14       | OK     |
| 20    | 0.010           | 0.229       | 4.20       | OK     |
| 21    | 0.015           | 0.229       | 6.55       | OK     |
| 22    | 0.006           | 0.229       | 2.70       | OK     |
| 23    | 0.013           | 0.229       | 5.68       | OK     |
| 24    | 0.007           | 0.229       | 3.09       | OK     |
| 25    | 0.014           | 0.229       | 6.13       | OK     |
| 26    | 0.009           | 0.229       | 3.83       | OK     |
| 27    | 0.011           | 0.229       | 4.82       | OK     |
| 28    | 0.009           | 0.229       | 3.77       | OK     |
| 29    | 0.011           | 0.229       | 4.86       | OK     |
| 30    | 0.006           | 0.229       | 2.53       | OK     |
| 31    | 0.010           | 0.229       | 4.48       | OK     |
| 32    | 0.007           | 0.229       | 3.05       | OK     |
| 33    | 0.011           | 0.229       | 5.00       | OK     |
| 34    | 0.003           | 0.229       | 1.26       | OK     |
| 35    | 0.009           | 0.229       | 3.84       | OK     |
| 36    | 0.004           | 0.229       | 1.75       | OK     |
| 37    | 0.008           | 0.229       | 3.49       | OK     |
| 38    | 0.003           | 0.229       | 1.10       | OK     |
| 39    | 0.007           | 0.229       | 2.90       | OK     |
| 40    | 0.005           | 0.229       | 2.37       | OK     |

Test Mode: 01

**Highest parameter values during test:**

V\_RMS (Volts): 228.75

I\_Peak (Amps): 0.626

I\_Fund (Amps): 0.054

Power (Watts): 5.1

Frequency(Hz): 50.00

I\_RMS (Amps): 0.113

Crest Factor: 5.717

Power Factor: 0.218

| Harm# | Harms(avg) | 100%Limit | %of Limit | Harms(max) | 150%Limit | %of Limit | Status |
|-------|------------|-----------|-----------|------------|-----------|-----------|--------|
| 2     | 0.003      | 1.080     | N/A       | 0.006      | 1.620     | N/A       | Pass   |
| 3     | 0.019      | 2.300     | 0.8       | 0.022      | 3.450     | 0.6       | Pass   |
| 4     | 0.003      | 0.430     | N/A       | 0.004      | 0.645     | N/A       | Pass   |
| 5     | 0.018      | 1.140     | 1.6       | 0.021      | 1.710     | 1.2       | Pass   |
| 6     | 0.003      | 0.300     | N/A       | 0.005      | 0.450     | N/A       | Pass   |
| 7     | 0.018      | 0.770     | 2.3       | 0.021      | 1.155     | 1.8       | Pass   |
| 8     | 0.003      | 0.230     | N/A       | 0.005      | 0.345     | N/A       | Pass   |
| 9     | 0.017      | 0.400     | 4.3       | 0.020      | 0.600     | 3.3       | Pass   |
| 10    | 0.003      | 0.184     | N/A       | 0.005      | 0.276     | N/A       | Pass   |
| 11    | 0.017      | 0.330     | 5.1       | 0.019      | 0.495     | 3.9       | Pass   |
| 12    | 0.003      | 0.153     | N/A       | 0.005      | 0.230     | N/A       | Pass   |
| 13    | 0.016      | 0.210     | 7.8       | 0.019      | 0.315     | 6.0       | Pass   |
| 14    | 0.003      | 0.131     | N/A       | 0.004      | 0.197     | N/A       | Pass   |
| 15    | 0.016      | 0.150     | 10.5      | 0.018      | 0.225     | 8.0       | Pass   |
| 16    | 0.003      | 0.115     | N/A       | 0.004      | 0.173     | N/A       | Pass   |
| 17    | 0.015      | 0.132     | 11.4      | 0.017      | 0.198     | 8.7       | Pass   |
| 18    | 0.003      | 0.102     | N/A       | 0.004      | 0.153     | N/A       | Pass   |
| 19    | 0.014      | 0.118     | 12.1      | 0.016      | 0.178     | 9.3       | Pass   |
| 20    | 0.003      | 0.092     | N/A       | 0.004      | 0.138     | N/A       | Pass   |
| 21    | 0.014      | 0.107     | 12.7      | 0.016      | 0.161     | 9.7       | Pass   |
| 22    | 0.003      | 0.084     | N/A       | 0.004      | 0.125     | N/A       | Pass   |
| 23    | 0.013      | 0.098     | 13.1      | 0.015      | 0.147     | 10.0      | Pass   |
| 24    | 0.003      | 0.077     | N/A       | 0.004      | 0.115     | N/A       | Pass   |
| 25    | 0.012      | 0.090     | 13.3      | 0.014      | 0.135     | 10.2      | Pass   |
| 26    | 0.002      | 0.071     | N/A       | 0.003      | 0.107     | N/A       | Pass   |
| 27    | 0.011      | 0.083     | 13.4      | 0.013      | 0.125     | 10.4      | Pass   |
| 28    | 0.002      | 0.066     | N/A       | 0.004      | 0.099     | N/A       | Pass   |
| 29    | 0.010      | 0.078     | 13.3      | 0.012      | 0.116     | 10.2      | Pass   |
| 30    | 0.002      | 0.061     | N/A       | 0.003      | 0.092     | N/A       | Pass   |
| 31    | 0.010      | 0.073     | 13.1      | 0.011      | 0.109     | 10.3      | Pass   |
| 32    | 0.002      | 0.058     | N/A       | 0.003      | 0.086     | N/A       | Pass   |
| 33    | 0.009      | 0.068     | 12.7      | 0.010      | 0.102     | 9.8       | Pass   |
| 34    | 0.002      | 0.054     | N/A       | 0.003      | 0.081     | N/A       | Pass   |
| 35    | 0.008      | 0.064     | 12.2      | 0.009      | 0.096     | 9.2       | Pass   |
| 36    | 0.002      | 0.051     | N/A       | 0.002      | 0.077     | N/A       | Pass   |
| 37    | 0.007      | 0.061     | 11.6      | 0.008      | 0.091     | 8.7       | Pass   |
| 38    | 0.002      | 0.048     | N/A       | 0.002      | 0.073     | N/A       | Pass   |
| 39    | 0.006      | 0.058     | 10.9      | 0.007      | 0.087     | 8.2       | Pass   |
| 40    | 0.002      | 0.046     | N/A       | 0.002      | 0.069     | N/A       | Pass   |

Test Mode: 01

| Harm# | Harmonics V-rms | Limit V-rms | % of Limit | Status |
|-------|-----------------|-------------|------------|--------|
| 2     | 0.161           | 0.457       | 35.13      | OK     |
| 3     | 0.430           | 2.059       | 20.91      | OK     |
| 4     | 0.041           | 0.457       | 9.05       | OK     |
| 5     | 0.040           | 0.915       | 4.40       | OK     |
| 6     | 0.053           | 0.457       | 11.66      | OK     |
| 7     | 0.046           | 0.686       | 6.73       | OK     |
| 8     | 0.036           | 0.457       | 7.96       | OK     |
| 9     | 0.025           | 0.457       | 5.50       | OK     |
| 10    | 0.017           | 0.457       | 3.81       | OK     |
| 11    | 0.018           | 0.229       | 7.85       | OK     |
| 12    | 0.018           | 0.229       | 7.67       | OK     |
| 13    | 0.017           | 0.229       | 7.26       | OK     |
| 14    | 0.009           | 0.229       | 4.09       | OK     |
| 15    | 0.012           | 0.229       | 5.10       | OK     |
| 16    | 0.014           | 0.229       | 6.24       | OK     |
| 17    | 0.015           | 0.229       | 6.70       | OK     |
| 18    | 0.014           | 0.229       | 5.92       | OK     |
| 19    | 0.011           | 0.229       | 5.00       | OK     |
| 20    | 0.010           | 0.229       | 4.52       | OK     |
| 21    | 0.014           | 0.229       | 6.19       | OK     |
| 22    | 0.005           | 0.229       | 2.17       | OK     |
| 23    | 0.013           | 0.229       | 5.73       | OK     |
| 24    | 0.008           | 0.229       | 3.31       | OK     |
| 25    | 0.014           | 0.229       | 6.13       | OK     |
| 26    | 0.008           | 0.229       | 3.62       | OK     |
| 27    | 0.012           | 0.229       | 5.35       | OK     |
| 28    | 0.009           | 0.229       | 3.91       | OK     |
| 29    | 0.011           | 0.229       | 4.93       | OK     |
| 30    | 0.006           | 0.229       | 2.51       | OK     |
| 31    | 0.011           | 0.229       | 4.98       | OK     |
| 32    | 0.007           | 0.229       | 3.03       | OK     |
| 33    | 0.012           | 0.229       | 5.40       | OK     |
| 34    | 0.003           | 0.229       | 1.52       | OK     |
| 35    | 0.010           | 0.229       | 4.55       | OK     |
| 36    | 0.005           | 0.229       | 2.25       | OK     |
| 37    | 0.009           | 0.229       | 4.03       | OK     |
| 38    | 0.003           | 0.229       | 1.21       | OK     |
| 39    | 0.009           | 0.229       | 3.98       | OK     |
| 40    | 0.007           | 0.229       | 2.88       | OK     |

Test Mode: 02

**Highest parameter values during test:**

V\_RMS (Volts): 228.75

I\_Peak (Amps): 0.206

I\_Fund (Amps): 0.046

Power (Watts): 0.5

Frequency(Hz): 50.00

I\_RMS (Amps): 0.077

Crest Factor: 2.735

Power Factor: 0.030

| Harm# | Harms(avg) | 100%Limit | %of Limit | Harms(max) | 150%Limit | %of Limit | Status |
|-------|------------|-----------|-----------|------------|-----------|-----------|--------|
| 2     | 0.001      | 1.080     | N/A       | 0.001      | 1.620     | N/A       | Pass   |
| 3     | 0.002      | 2.300     | N/A       | 0.002      | 3.450     | N/A       | Pass   |
| 4     | 0.001      | 0.430     | N/A       | 0.001      | 0.645     | N/A       | Pass   |
| 5     | 0.001      | 1.140     | N/A       | 0.001      | 1.710     | N/A       | Pass   |
| 6     | 0.000      | 0.300     | N/A       | 0.000      | 0.450     | N/A       | Pass   |
| 7     | 0.001      | 0.770     | N/A       | 0.001      | 1.155     | N/A       | Pass   |
| 8     | 0.000      | 0.230     | N/A       | 0.000      | 0.345     | N/A       | Pass   |
| 9     | 0.000      | 0.400     | N/A       | 0.000      | 0.600     | N/A       | Pass   |
| 10    | 0.000      | 0.184     | N/A       | 0.000      | 0.276     | N/A       | Pass   |
| 11    | 0.000      | 0.330     | N/A       | 0.000      | 0.495     | N/A       | Pass   |
| 12    | 0.000      | 0.153     | N/A       | 0.000      | 0.230     | N/A       | Pass   |
| 13    | 0.000      | 0.210     | N/A       | 0.000      | 0.315     | N/A       | Pass   |
| 14    | 0.000      | 0.131     | N/A       | 0.000      | 0.197     | N/A       | Pass   |
| 15    | 0.000      | 0.150     | N/A       | 0.000      | 0.225     | N/A       | Pass   |
| 16    | 0.000      | 0.115     | N/A       | 0.000      | 0.173     | N/A       | Pass   |
| 17    | 0.000      | 0.132     | N/A       | 0.000      | 0.198     | N/A       | Pass   |
| 18    | 0.000      | 0.102     | N/A       | 0.000      | 0.153     | N/A       | Pass   |
| 19    | 0.000      | 0.118     | N/A       | 0.000      | 0.178     | N/A       | Pass   |
| 20    | 0.000      | 0.092     | N/A       | 0.000      | 0.138     | N/A       | Pass   |
| 21    | 0.000      | 0.107     | N/A       | 0.000      | 0.161     | N/A       | Pass   |
| 22    | 0.000      | 0.084     | N/A       | 0.000      | 0.125     | N/A       | Pass   |
| 23    | 0.000      | 0.098     | N/A       | 0.000      | 0.147     | N/A       | Pass   |
| 24    | 0.000      | 0.077     | N/A       | 0.000      | 0.115     | N/A       | Pass   |
| 25    | 0.000      | 0.090     | N/A       | 0.000      | 0.135     | N/A       | Pass   |
| 26    | 0.000      | 0.071     | N/A       | 0.000      | 0.107     | N/A       | Pass   |
| 27    | 0.001      | 0.083     | N/A       | 0.001      | 0.125     | N/A       | Pass   |
| 28    | 0.000      | 0.066     | N/A       | 0.000      | 0.099     | N/A       | Pass   |
| 29    | 0.000      | 0.078     | N/A       | 0.000      | 0.116     | N/A       | Pass   |
| 30    | 0.000      | 0.061     | N/A       | 0.000      | 0.092     | N/A       | Pass   |
| 31    | 0.001      | 0.073     | N/A       | 0.001      | 0.109     | N/A       | Pass   |
| 32    | 0.000      | 0.058     | N/A       | 0.000      | 0.086     | N/A       | Pass   |
| 33    | 0.000      | 0.068     | N/A       | 0.000      | 0.102     | N/A       | Pass   |
| 34    | 0.000      | 0.054     | N/A       | 0.000      | 0.081     | N/A       | Pass   |
| 35    | 0.000      | 0.064     | N/A       | 0.000      | 0.096     | N/A       | Pass   |
| 36    | 0.000      | 0.051     | N/A       | 0.000      | 0.077     | N/A       | Pass   |
| 37    | 0.000      | 0.061     | N/A       | 0.000      | 0.091     | N/A       | Pass   |
| 38    | 0.000      | 0.048     | N/A       | 0.000      | 0.073     | N/A       | Pass   |
| 39    | 0.000      | 0.058     | N/A       | 0.000      | 0.087     | N/A       | Pass   |
| 40    | 0.000      | 0.046     | N/A       | 0.000      | 0.069     | N/A       | Pass   |

Test Mode: 02

| Harm# | Harmonics V-rms | Limit V-rms | % of Limit | Status |
|-------|-----------------|-------------|------------|--------|
| 2     | 0.159           | 0.457       | 34.81      | OK     |
| 3     | 0.427           | 2.058       | 20.76      | OK     |
| 4     | 0.038           | 0.457       | 8.34       | OK     |
| 5     | 0.042           | 0.915       | 4.61       | OK     |
| 6     | 0.059           | 0.457       | 12.95      | OK     |
| 7     | 0.041           | 0.686       | 5.98       | OK     |
| 8     | 0.039           | 0.457       | 8.46       | OK     |
| 9     | 0.029           | 0.457       | 6.39       | OK     |
| 10    | 0.021           | 0.457       | 4.70       | OK     |
| 11    | 0.017           | 0.229       | 7.42       | OK     |
| 12    | 0.017           | 0.229       | 7.59       | OK     |
| 13    | 0.014           | 0.229       | 6.24       | OK     |
| 14    | 0.011           | 0.229       | 4.66       | OK     |
| 15    | 0.008           | 0.229       | 3.68       | OK     |
| 16    | 0.012           | 0.229       | 5.45       | OK     |
| 17    | 0.012           | 0.229       | 5.16       | OK     |
| 18    | 0.014           | 0.229       | 5.93       | OK     |
| 19    | 0.007           | 0.229       | 3.14       | OK     |
| 20    | 0.008           | 0.229       | 3.71       | OK     |
| 21    | 0.009           | 0.229       | 3.96       | OK     |
| 22    | 0.006           | 0.229       | 2.60       | OK     |
| 23    | 0.007           | 0.229       | 3.24       | OK     |
| 24    | 0.005           | 0.229       | 2.23       | OK     |
| 25    | 0.007           | 0.229       | 3.24       | OK     |
| 26    | 0.009           | 0.229       | 4.06       | OK     |
| 27    | 0.005           | 0.229       | 2.36       | OK     |
| 28    | 0.007           | 0.229       | 3.18       | OK     |
| 29    | 0.006           | 0.229       | 2.77       | OK     |
| 30    | 0.006           | 0.229       | 2.47       | OK     |
| 31    | 0.005           | 0.229       | 1.98       | OK     |
| 32    | 0.005           | 0.229       | 2.21       | OK     |
| 33    | 0.005           | 0.229       | 2.37       | OK     |
| 34    | 0.003           | 0.229       | 1.15       | OK     |
| 35    | 0.003           | 0.229       | 1.40       | OK     |
| 36    | 0.003           | 0.229       | 1.23       | OK     |
| 37    | 0.004           | 0.229       | 1.89       | OK     |
| 38    | 0.002           | 0.229       | 1.04       | OK     |
| 39    | 0.003           | 0.229       | 1.22       | OK     |
| 40    | 0.005           | 0.229       | 2.10       | OK     |

## 7 Immunity Test Results

### Performance Criteria Description in EN 50130-4:2011+A1:2014

There shall be no damage, malfunction or change of status due to the conditioning. Flickering of an indicator during the application of the discharges is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change.

For further details, please refer to Clause 7.4, 8.4, 9.4, 10.4, 11.4, 12.4 and 13.4, of EN 50130-4.

### General Performance Criteria Description in EN 55035: 2017+A11:2020

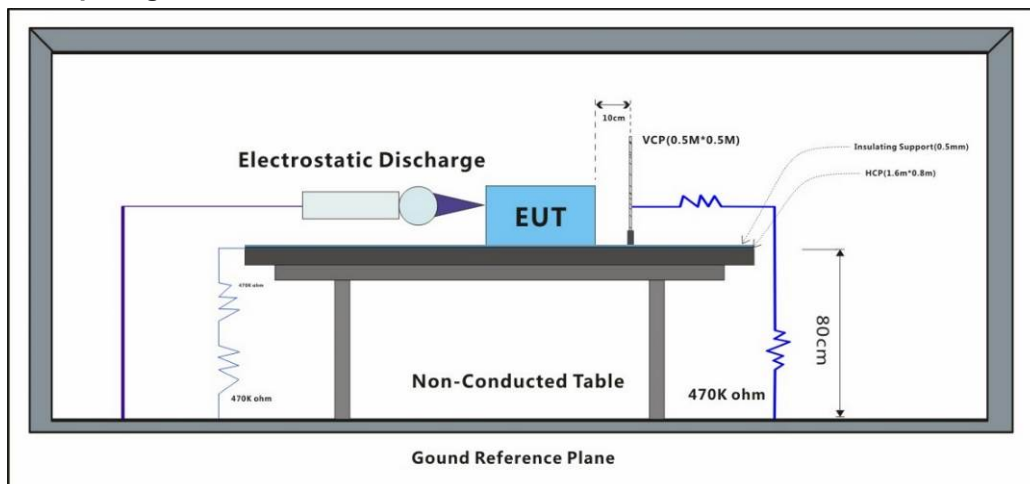
- |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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.                                                                                                                                                                                                               |
| 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.<br>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. |
| 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.<br>Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

## 7.1 Electrostatic Discharge

Test Requirement: EN 50130-4: 2011+A1:2014

Test Method: EN 61000-4-2:2009

### 7.1.1 Test Setup Diagram



### 7.1.2 E.U.T. Operation

Operating Environment:

Temperature: 25.6 °C

Humidity: 48.3 % RH

Atmospheric Pressure: 1010 mbar

### 7.1.3 Test Mode Description

| Pre-scan /<br>Final test | Mode Code | Description                                                         |
|--------------------------|-----------|---------------------------------------------------------------------|
| Final test               | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test               | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test               | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

#### 7.1.4 Test Condition and Results:

Number of Discharge: Minimum 10 times at each test point for Air Discharge; Minimum 50 times at each test point for Contact or VCP & HCP Discharge

Discharge Mode: Single Discharge

Discharge Period: 1 second minimum

Test Point 1: All insulated enclosure & seams.

Test Point 2: All accessible metal parts of the enclosure.

Test Point 3: All sides.

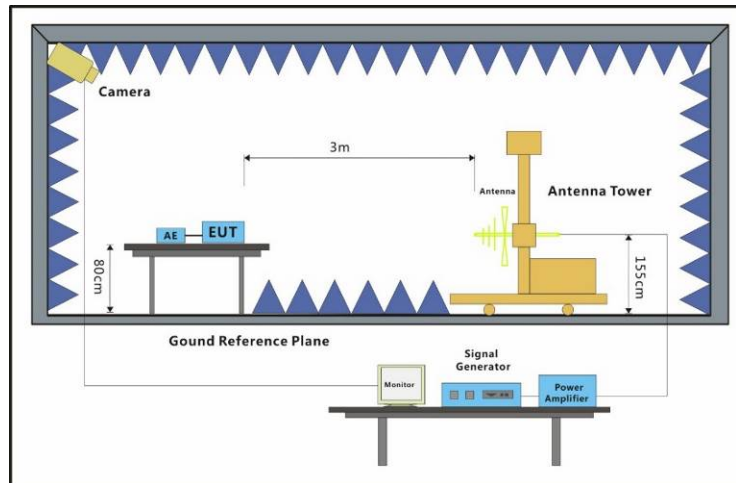
| Discharge type                                               | Level (kV) | Polarity | Test Point | Result / Observations |
|--------------------------------------------------------------|------------|----------|------------|-----------------------|
| Air Discharge                                                | 2,4,8      | +        | 1          | A                     |
| Air Discharge                                                | 2,4,8      | -        | 1          | A                     |
| Contact Discharge                                            | 6          | +        | 2          | A                     |
| Contact Discharge                                            | 6          | -        | 2          | A                     |
| Horizontal Coupling                                          | 6          | +        | 3          | A                     |
| Horizontal Coupling                                          | 6          | -        | 3          | A                     |
| Vertical Coupling                                            | 6          | +        | 3          | A                     |
| Vertical Coupling                                            | 6          | -        | 3          | A                     |
| A: No degradation in the performance of the EUT was observed |            |          |            |                       |

## 7.2 Radiated Immunity(80MHz-2.7GHz)

Test Requirement: EN 50130-4: 2011+A1:2014

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

### 7.2.1 Test Setup Diagram



### 7.2.2 E.U.T. Operation

Operating Environment:

Temperature: 25.3 °C

Humidity: 49.6 % RH

Atmospheric Pressure: 1010 mbar

### 7.2.3 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                                         |
|-----------------------|-----------|---------------------------------------------------------------------|
| Final test            | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test            | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test            | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

### 7.2.4 Test Condition and Results:

Modulation: 80%, 1 kHz Amplitude Modulation &amp; 0.5s ON 0.5s OFF Pulse Modulation

| Frequency    | Level (V/m) | EUT Face  | Dwell time | Result / Observations |
|--------------|-------------|-----------|------------|-----------------------|
| 80MHz-2.7GHz | 10          | Front     | 3s         | A                     |
| 80MHz-2.7GHz | 10          | Back      | 3s         | A                     |
| 80MHz-2.7GHz | 10          | Left      | 3s         | A                     |
| 80MHz-2.7GHz | 10          | Right     | 3s         | A                     |
| 80MHz-2.7GHz | 10          | Top       | 3s         | A                     |
| 80MHz-2.7GHz | 10          | Underside | 3s         | A                     |

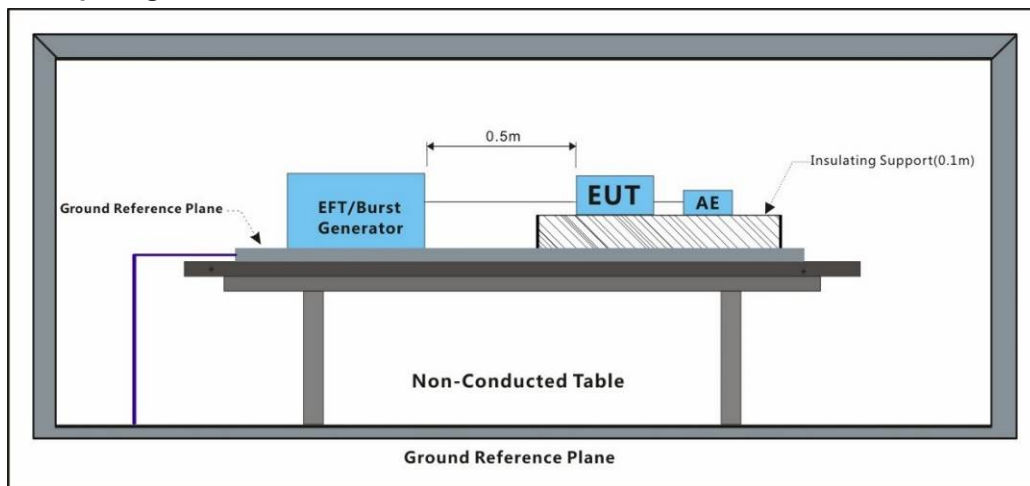
A: No degradation in the performance of the EUT was observed

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

Test Requirement: EN 50130-4: 2011+A1:2014

Test Method: EN 61000-4-4:2012

### 7.3.1 Test Setup Diagram



### 7.3.2 E.U.T. Operation

Operating Environment:

Temperature: 22.1 °C

Humidity: 47.2 % RH

Atmospheric Pressure: 1010 mbar

### 7.3.3 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                                         |
|-----------------------|-----------|---------------------------------------------------------------------|
| Final test            | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test            | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test            | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

### 7.3.4 Test Condition and Results:

Repetition Frequency: 100kHz

Burst Period: 300ms

Test Duration: 1 minute per level &amp; polarity

| Test Line     | Level (kV) | Polarity | CDN/Clamp | Result / Observations |
|---------------|------------|----------|-----------|-----------------------|
| AC power port | 2          | +        | CDN       | A                     |
| AC power port | 2          | -        | CDN       | A                     |

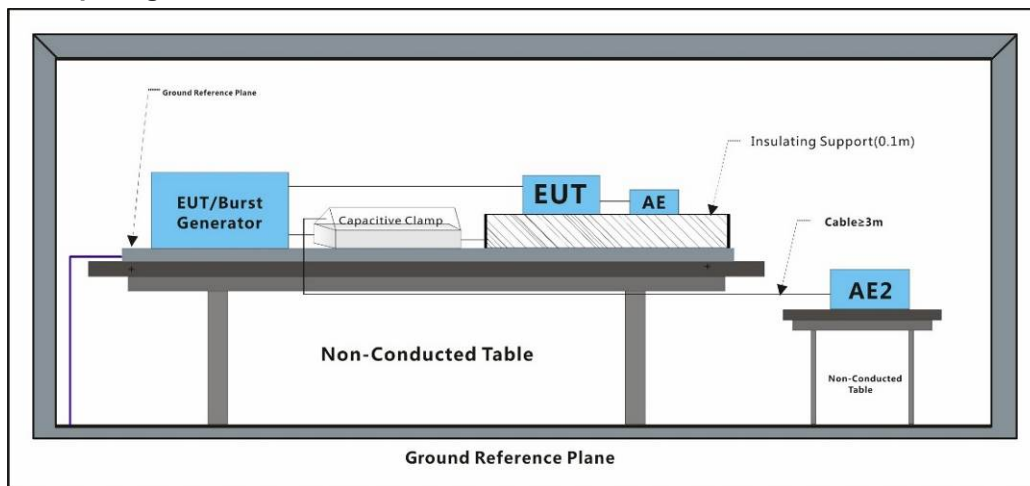
A: No degradation in the performance of the EUT was observed

## 7.4 Electrical Fast Transients & Burst at Signal Port

Test Requirement: EN 50130-4: 2011+A1:2014

Test Method: EN 61000-4-4:2012

### 7.4.1 Test Setup Diagram



### 7.4.2 E.U.T. Operation

Operating Environment:

Temperature: 23.3 °C

Humidity: 48.9 % RH

Atmospheric Pressure: 1010 mbar

### 7.4.3 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                                         |
|-----------------------|-----------|---------------------------------------------------------------------|
| Final test            | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test            | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test            | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

### 7.4.4 Test Condition and Results:

Repetition Frequency: 100kHz

Burst Period: 300ms

Test Duration: 1 minute per level &amp; polarity

| Test Line   | Level (kV) | Polarity | CDN/Clamp | Result / Observations |
|-------------|------------|----------|-----------|-----------------------|
| Signal Port | 1          | +        | Clamp     | A                     |
| Signal Port | 1          | -        | Clamp     | A                     |

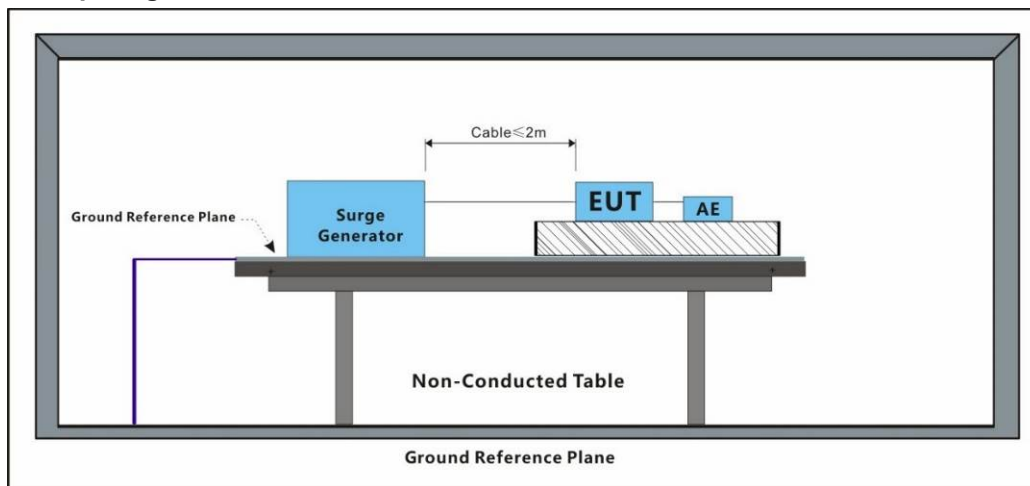
A: No degradation in the performance of the EUT was observed

## 7.5 Surge at AC Power Port

Test Requirement: EN 50130-4: 2011+A1:2014

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

### 7.5.1 Test Setup Diagram



### 7.5.2 E.U.T. Operation

Operating Environment:

Temperature: 22.8 °C

Humidity: 47.5 % RH

Atmospheric Pressure: 1010 mbar

### 7.5.3 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                                         |
|-----------------------|-----------|---------------------------------------------------------------------|
| Final test            | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test            | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test            | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

#### 7.5.4 Test Condition and Results:

Interval: 60s between each surge

No. of surges: 5 positive, 5 negative

| Test Line | Level (kV) | Polarity | Phase (deg) | Result / Observations |
|-----------|------------|----------|-------------|-----------------------|
| L-N       | 0.5,1      | +        | 0°          | A                     |
| L-N       | 0.5,1      | -        | 0°          | A                     |
| L-N       | 0.5,1      | +        | 90°         | A                     |
| L-N       | 0.5,1      | -        | 90°         | A                     |
| L-N       | 0.5,1      | +        | 180°        | A                     |
| L-N       | 0.5,1      | -        | 180°        | A                     |
| L-N       | 0.5,1      | +        | 270°        | A                     |
| L-N       | 0.5,1      | -        | 270°        | A                     |
| L-PE      | 0.5,1,2    | +        | 0°          | A                     |
| L-PE      | 0.5,1,2    | -        | 0°          | A                     |
| L-PE      | 0.5,1,2    | +        | 90°         | A                     |
| L-PE      | 0.5,1,2    | -        | 90°         | A                     |
| L-PE      | 0.5,1,2    | +        | 180°        | A                     |
| L-PE      | 0.5,1,2    | -        | 180°        | A                     |
| L-PE      | 0.5,1,2    | +        | 270°        | A                     |
| L-PE      | 0.5,1,2    | -        | 270°        | A                     |
| N-PE      | 0.5,1,2    | +        | 0°          | A                     |
| N-PE      | 0.5,1,2    | -        | 0°          | A                     |
| N-PE      | 0.5,1,2    | +        | 90°         | A                     |
| N-PE      | 0.5,1,2    | -        | 90°         | A                     |
| N-PE      | 0.5,1,2    | +        | 180°        | A                     |
| N-PE      | 0.5,1,2    | -        | 180°        | A                     |
| N-PE      | 0.5,1,2    | +        | 270°        | A                     |
| N-PE      | 0.5,1,2    | -        | 270°        | A                     |

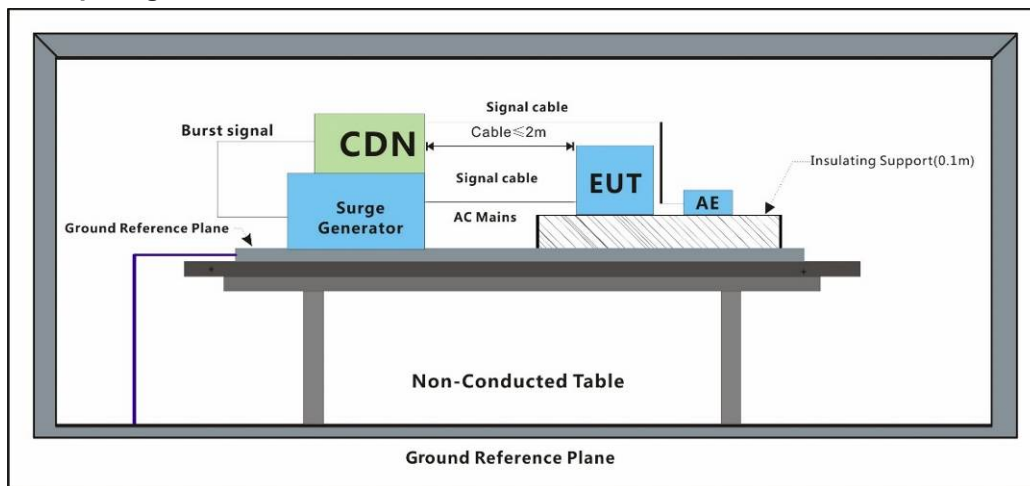
A: No degradation in the performance of the EUT was observed

## 7.6 Surge at Signal Port

Test Requirement: EN 50130-4: 2011+A1:2014

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

### 7.6.1 Test Setup Diagram



### 7.6.2 E.U.T. Operation

Operating Environment:

Temperature: 23.0 °C

Humidity: 47.4 % RH

Atmospheric Pressure: 1010 mbar

### 7.6.3 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                                         |
|-----------------------|-----------|---------------------------------------------------------------------|
| Final test            | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test            | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test            | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

### 7.6.4 Test Condition and Results:

Interval: 60s between each surge

No. of surges: 5 positive, 5 negative.

| Port        | Line        | Level (kV) | Polarity | Result / Observations |
|-------------|-------------|------------|----------|-----------------------|
| Signal port | Line-Ground | 0.5        | +        | A                     |
| Signal port | Line-Ground | 0.5        | -        | A                     |
| Signal port | Line-Ground | 1          | +        | A                     |
| Signal port | Line-Ground | 1          | -        | A                     |

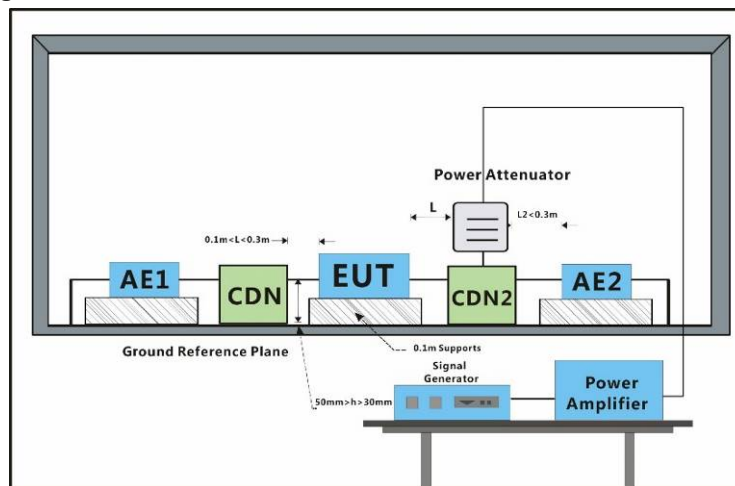
A: No degradation in the performance of the EUT was observed

## 7.7 Conducted Immunity at Power Port (150kHz-100MHz)

Test Requirement: EN 50130-4: 2011+A1:2014

Test Method: EN 61000-4-6:2014

### 7.7.1 Test Setup Diagram



### 7.7.2 E.U.T. Operation

Operating Environment:

Temperature: 23.1 °C

Humidity: 47.9 % RH

Atmospheric Pressure: 1010 mbar

### 7.7.3 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                                         |
|-----------------------|-----------|---------------------------------------------------------------------|
| Final test            | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test            | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test            | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

### 7.7.4 Test Condition and Results:

Modulation: 80%, 1 kHz Amplitude Modulation &amp; 0.5s ON 0.5s OFF Pulse Modulation

| Cable port                                                   | Level (Vrms) | CDN/Clamp | Dwell time | Result / Observations |
|--------------------------------------------------------------|--------------|-----------|------------|-----------------------|
| AC power port                                                | 10           | CDN       | 3s         | A                     |
| A: No degradation in the performance of the EUT was observed |              |           |            |                       |

Test Method: EN 61000-4-6:2014

The diagram illustrates a measurement setup for a UUT (Under Test) within a shielded environment. The setup includes a Ground Reference Plane, AE1, CDN, EUT, AE2, CDN2, a Power Attenuator, a Signal Generator, and a Power Amplifier. Dimensions are specified:  $0.1\text{m} < L < 0.3\text{m}$ ,  $L_2 < 0.3\text{m}$ ,  $0.1\text{m}$  Supports, and  $50\text{mm} > h > 30\text{mm}$ .

## Atmospheric Pressure: 1010 mbar

| Pre-scan / Final test | Mode Code | Description                                                         |
|-----------------------|-----------|---------------------------------------------------------------------|
| Final test            | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test            | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test            | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

## Modulation: 80%, 1 kHz Amplitude Modulation &amp; 0.5s ON 0.5s OFF Pulse Modulation

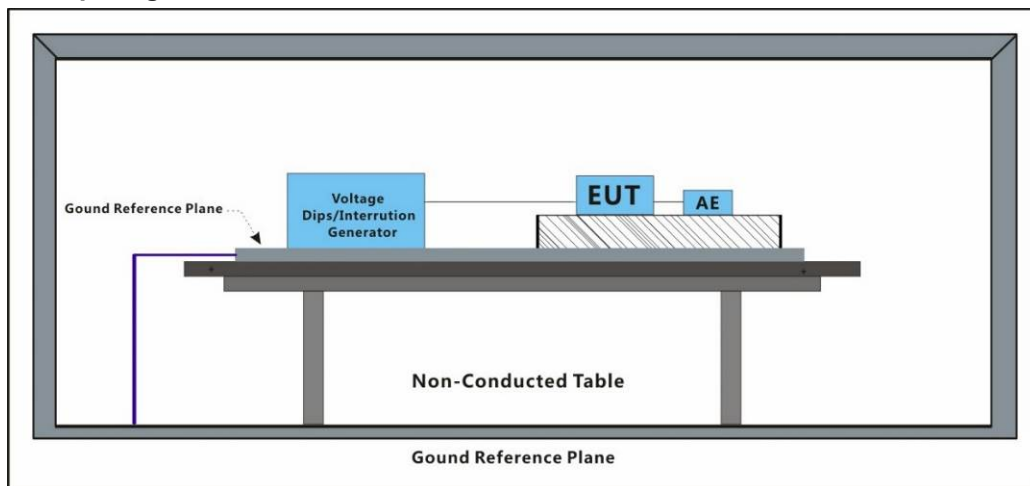
CCSEM-TRF-001 Rev. 03 Dec 18, 2024

## 7.9 Mains Supply Voltage Variations

Test Requirement: EN 50130-4: 2011+A1:2014

Test Method: EN 50130-4:2011+A1:2014

### 7.9.1 Test Setup Diagram



### 7.9.2 E.U.T. Operation

Operating Environment:

Temperature: 23.5 °C

Humidity: 48.9 % RH

Atmospheric Pressure: 1010 mbar

### 7.9.3 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                                         |
|-----------------------|-----------|---------------------------------------------------------------------|
| Final test            | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test            | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test            | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

### 7.9.4 Test Condition and Results:

Voltage max.: AC 264V (Umax: Unom + 10%)

Voltage min.: AC 85V (Umin: Unom - 15%)

Unom Voltage: AC 100-240V

Test phenomenon description for the EUT:

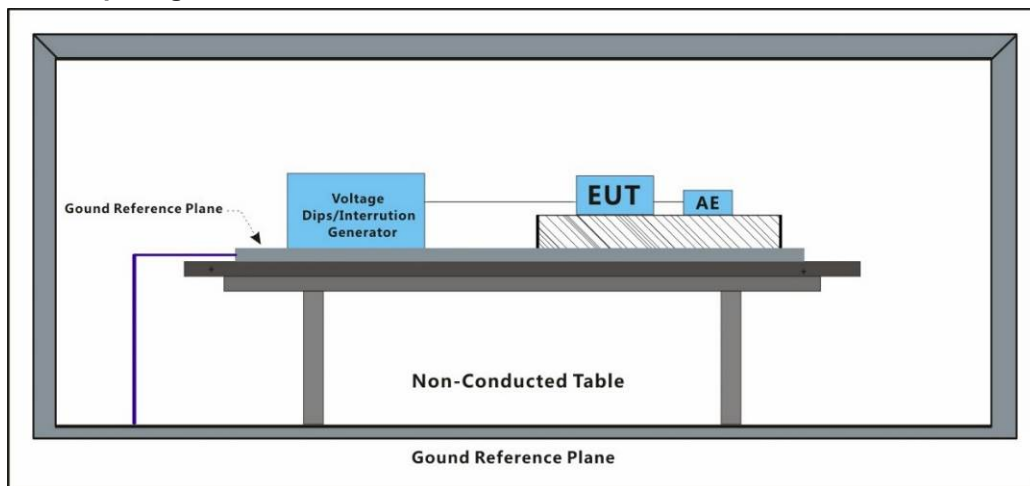
1. The EUT working normal, before the conditioning.
2. Monitor the EUT during the conditioning period and detected no any changes in states, during the conditioning.
3. No degradation in the performance of the EUT was observed, after the conditioning.

## 7.10 Voltage Dips and Interruptions

Test Requirement: EN 50130-4: 2011+A1:2014

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

### 7.10.1 Test Setup Diagram



### 7.10.2 E.U.T. Operation

Operating Environment:

Temperature: 23.2 °C

Humidity: 48.5 % RH

Atmospheric Pressure: 1010 mbar

### 7.10.3 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                                         |
|-----------------------|-----------|---------------------------------------------------------------------|
| Final test            | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test            | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test            | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

#### 7.10.4 Test Condition and Results:

Performance Criterion:

0% of UT (Supply Voltage) for 250 Periods;

40% of UT for 10 Periods;

70% of UT for 25 Periods; 80% of UT for 250 Periods;

No. of Dips / Interruptions: 3 per Level

Time between dropout 10s

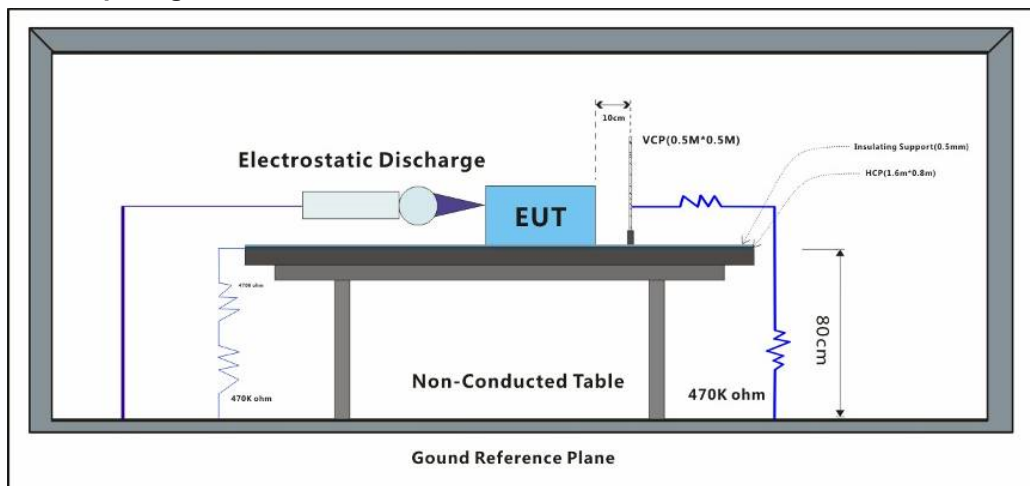
| Level % UT                                                                                                                                                                          | Phase (deg) | Duration   | No. of Dips / Interruptions | Result / Observations |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------|-----------------------------|-----------------------|
| 80                                                                                                                                                                                  | 0°          | 250 Cycles | 3                           | A                     |
| 80                                                                                                                                                                                  | 180°        | 250 Cycles | 3                           | A                     |
| 70                                                                                                                                                                                  | 0°          | 25 Cycles  | 3                           | A                     |
| 70                                                                                                                                                                                  | 180°        | 25 Cycles  | 3                           | A                     |
| 40                                                                                                                                                                                  | 0°          | 10 Cycles  | 3                           | A                     |
| 40                                                                                                                                                                                  | 180°        | 10 Cycles  | 3                           | A                     |
| 0                                                                                                                                                                                   | 0°          | 250 Cycles | 3                           | B                     |
| 0                                                                                                                                                                                   | 180°        | 250 Cycles | 3                           | B                     |
| A: No degradation in the performance of the EUT was observed<br>B: During the test,the EUT working abnormally.<br>After the test,the EUT automatically recovering working normally. |             |            |                             |                       |

## 7.11 Electrostatic Discharge

Test Requirement: EN 55035: 2017+A11:2020

Test Method: EN 61000-4-2: 2009

### 7.11.1 Test Setup Diagram



### 7.11.2 E.U.T. Operation

Operating Environment:

Temperature: 25.6 °C

Humidity: 48.2 % RH

Atmospheric Pressure: 1010 mbar

### 7.11.3 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                                         |
|-----------------------|-----------|---------------------------------------------------------------------|
| Final test            | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test            | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test            | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

#### 7.11.4 Test Condition and Results:

Performance Criterion: B

Discharge Impedance: 330Ω/150pF

Number of Discharge: Minimum 10 times at each test point

Discharge Mode: Single Discharge

Discharge Period: 1 second minimum

Test Point 1: All insulated enclosure & seams.

Test Point 2: All accessible metal parts of the enclosure.

Test Point 3: All sides.

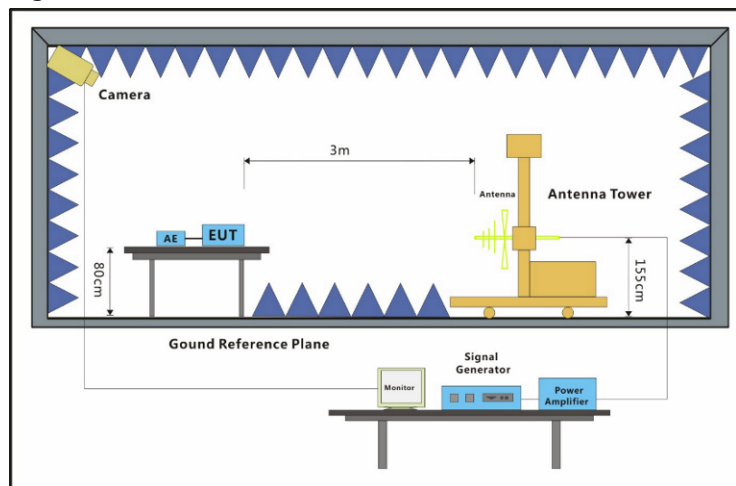
| Discharge type                                               | Level (kV) | Polarity | Test Point | Result / Observations |
|--------------------------------------------------------------|------------|----------|------------|-----------------------|
| Air Discharge                                                | 2,4,8      | +        | 1          | A                     |
| Air Discharge                                                | 2,4,8      | -        | 1          | A                     |
| Contact Discharge                                            | 4          | +        | 2          | A                     |
| Contact Discharge                                            | 4          | -        | 2          | A                     |
| Horizontal Coupling                                          | 4          | +        | 3          | A                     |
| Horizontal Coupling                                          | 4          | -        | 3          | A                     |
| Vertical Coupling                                            | 4          | +        | 3          | A                     |
| Vertical Coupling                                            | 4          | -        | 3          | A                     |
| A: No degradation in the performance of the EUT was observed |            |          |            |                       |

## 7.12 Radiated Immunity (80MHz-1GHz,1800MHz,2600MHz,3500MHz,5000MHz)

Test Requirement: EN 55035: 2017+A11:2020

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

### 7.12.1 Test Setup Diagram



### 7.12.2 E.U.T. Operation

Operating Environment:

Temperature: 25.3 °C

Humidity: 49.6 % RH

Atmospheric Pressure: 1010 mbar

### 7.12.3 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                                         |
|-----------------------|-----------|---------------------------------------------------------------------|
| Final test            | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test            | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test            | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

#### 7.12.4 Test Condition and Results:

Performance Criterion: A

Frequency Range: 80MHz to 1GHz, 1800MHz, 2600MHz, 3500MHz, 5000MHz

Antenna Polarisation: Vertical and Horizontal

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

Test Distance:3m

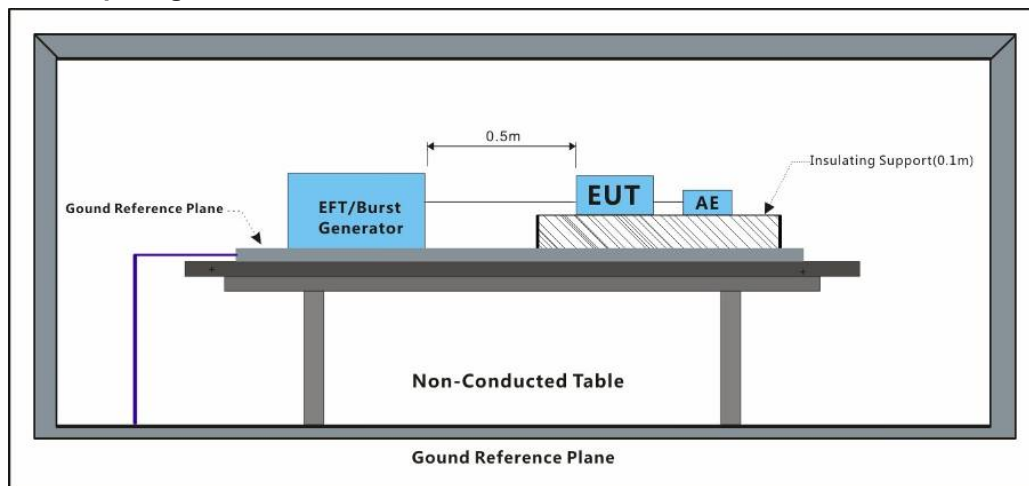
| Frequency                                                    | Level (V/m) | EUT Face  | Dwell time | Result / Observations |
|--------------------------------------------------------------|-------------|-----------|------------|-----------------------|
| 80MHz-1GHz                                                   | 3           | Front     | 3s         | A                     |
| 80MHz-1GHz                                                   | 3           | Back      | 3s         | A                     |
| 80MHz-1GHz                                                   | 3           | Left      | 3s         | A                     |
| 80MHz-1GHz                                                   | 3           | Right     | 3s         | A                     |
| 80MHz-1GHz                                                   | 3           | Top       | 3s         | A                     |
| 80MHz-1GHz                                                   | 3           | Underside | 3s         | A                     |
| 1800MHz                                                      | 3           | Front     | 3s         | A                     |
| 1800MHz                                                      | 3           | Back      | 3s         | A                     |
| 1800MHz                                                      | 3           | Left      | 3s         | A                     |
| 1800MHz                                                      | 3           | Right     | 3s         | A                     |
| 1800MHz                                                      | 3           | Top       | 3s         | A                     |
| 1800MHz                                                      | 3           | Underside | 3s         | A                     |
| 2600MHz                                                      | 3           | Front     | 3s         | A                     |
| 2600MHz                                                      | 3           | Back      | 3s         | A                     |
| 2600MHz                                                      | 3           | Left      | 3s         | A                     |
| 2600MHz                                                      | 3           | Right     | 3s         | A                     |
| 2600MHz                                                      | 3           | Top       | 3s         | A                     |
| 2600MHz                                                      | 3           | Underside | 3s         | A                     |
| 3500MHz                                                      | 3           | Front     | 3s         | A                     |
| 3500MHz                                                      | 3           | Back      | 3s         | A                     |
| 3500MHz                                                      | 3           | Left      | 3s         | A                     |
| 3500MHz                                                      | 3           | Right     | 3s         | A                     |
| 3500MHz                                                      | 3           | Top       | 3s         | A                     |
| 3500MHz                                                      | 3           | Underside | 3s         | A                     |
| 5000MHz                                                      | 3           | Front     | 3s         | A                     |
| 5000MHz                                                      | 3           | Back      | 3s         | A                     |
| 5000MHz                                                      | 3           | Left      | 3s         | A                     |
| 5000MHz                                                      | 3           | Right     | 3s         | A                     |
| 5000MHz                                                      | 3           | Top       | 3s         | A                     |
| 5000MHz                                                      | 3           | Underside | 3s         | A                     |
| A: No degradation in the performance of the EUT was observed |             |           |            |                       |

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

Test Requirement: EN 55035: 2017+A11:2020

Test Method: EN 61000-4-4: 2012

### 7.13.1 Test Setup Diagram



### 7.13.2 E.U.T. Operation

Operating Environment:

Temperature: 22.6 °C

Humidity: 48.2 % RH

Atmospheric Pressure: 1010 mbar

### 7.13.3 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                                         |
|-----------------------|-----------|---------------------------------------------------------------------|
| Final test            | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test            | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test            | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

### 7.13.4 Test Condition and Results:

Performance Criterion: B

Repetition Frequency: 5kHz

Burst Period: 300ms

Test Duration: 2 minute per level &amp; polarity

| Test Line     | Level (kV) | Polarity | CDN/Clamp | Result / Observations |
|---------------|------------|----------|-----------|-----------------------|
| AC power port | 1          | +        | CDN       | A                     |
| AC power port | 1          | -        | CDN       | A                     |

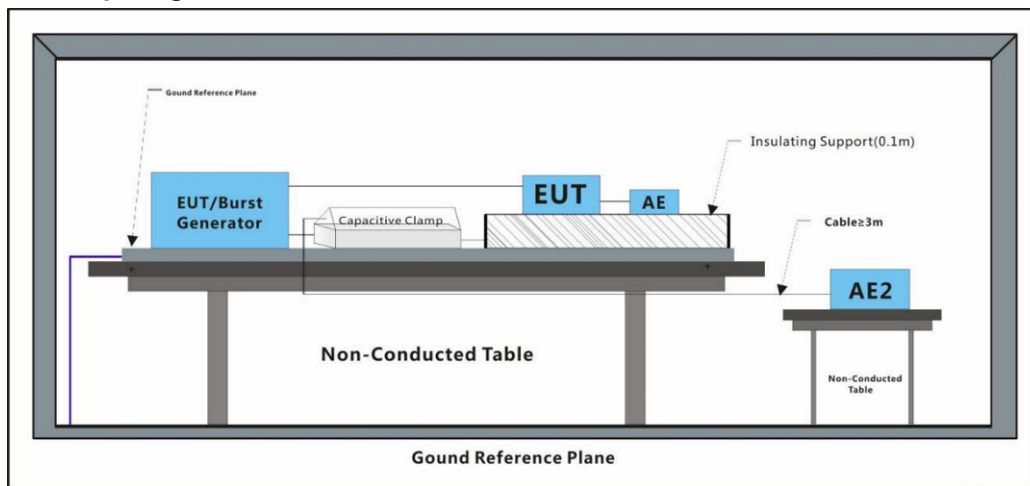
A: No degradation in the performance of the EUT was observed

## 7.14 Electrical Fast Transients & Burst at Signal Port

Test Requirement: EN 55035: 2017+A11:2020

Test Method: EN 61000-4-4: 2012

### 7.14.1 Test Setup Diagram



### 7.14.2 E.U.T. Operation

Operating Environment:

Temperature: 24.5 °C

Humidity: 48.1 % RH

Atmospheric Pressure: 1010 mbar

### 7.14.3 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                                         |
|-----------------------|-----------|---------------------------------------------------------------------|
| Final test            | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test            | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test            | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

### 7.14.4 Test Condition and Results:

Performance Criterion: B

Repetition Frequency: 5kHz

Burst Period: 300ms

Test Duration: 2 minute per level &amp; polarity

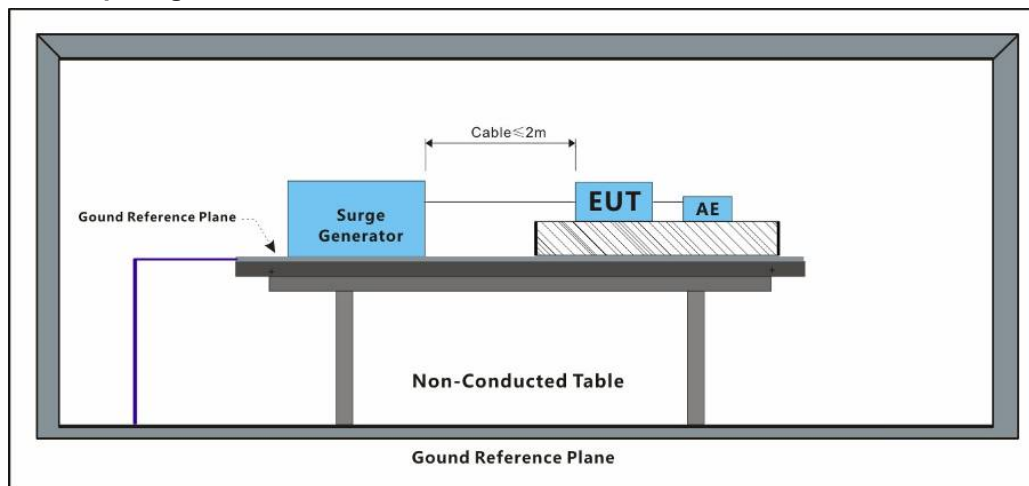
| Port                                                         | Level (kV) | Polarity | CDN/Clamp | Result / Observations |
|--------------------------------------------------------------|------------|----------|-----------|-----------------------|
| Signal port                                                  | 0.5        | +        | Clamp     | A                     |
| Signal port                                                  | 0.5        | -        | Clamp     | A                     |
| A: No degradation in the performance of the EUT was observed |            |          |           |                       |

## 7.15 Surge at AC Power Port

Test Requirement: EN 55035: 2017+A11:2020

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

### 7.15.1 Test Setup Diagram



### 7.15.2 E.U.T. Operation

Operating Environment:

Temperature: 23.1 °C

Humidity: 47.7 % RH

Atmospheric Pressure: 1010 mbar

### 7.15.3 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                                         |
|-----------------------|-----------|---------------------------------------------------------------------|
| Final test            | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test            | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test            | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

#### 7.15.4 Test Condition and Results:

Performance Criterion: B

Interval: 60s between each surge

Generator source impedance:  $2\Omega$

CDN coupling impedance(Line-to-ground):  $10\Omega$

No. of surges:

Five positive pulses line-to-neutral at  $90^\circ$  phase

Five negative pulses line-to-neutral at  $270^\circ$  phase

Five positive pulses line-to-earth at  $90^\circ$  phase

Five negative pulses line-to-earth at  $270^\circ$  phase

Five negative pulses neutral-to-earth at  $90^\circ$  phase

Five positive pulses neutral-to-earth at  $270^\circ$  phase

| Test Line | Level (kV) | Polarity | Phase (deg) | Result / Observations |
|-----------|------------|----------|-------------|-----------------------|
| L-N       | 1          | +        | $90^\circ$  | A                     |
| L-N       | 1          | -        | $270^\circ$ | A                     |
| L-PE      | 2          | +        | $90^\circ$  | A                     |
| L-PE      | 2          | -        | $270^\circ$ | A                     |
| N-PE      | 2          | -        | $90^\circ$  | A                     |
| N-PE      | 2          | +        | $270^\circ$ | A                     |

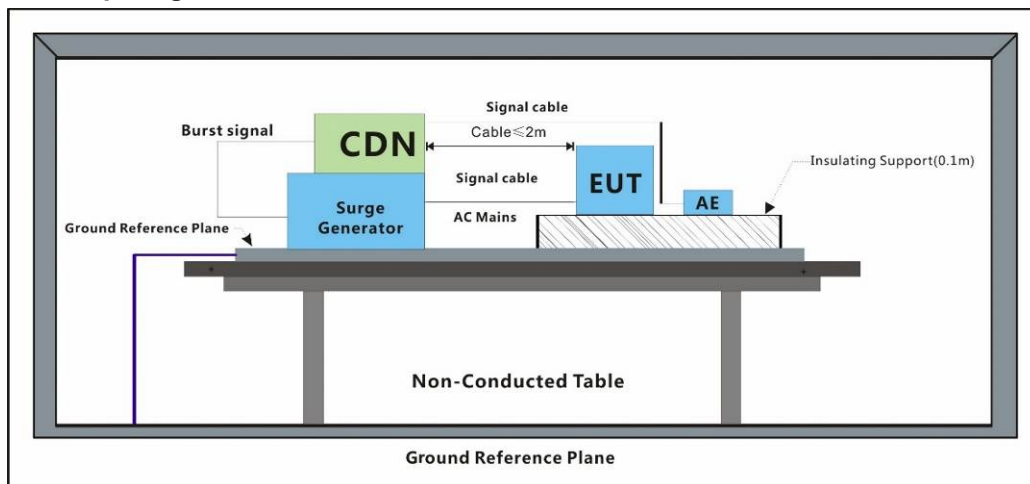
A: No degradation in the performance of the EUT was observed

## 7.16 Surge at Signal Port

Test Requirement: EN 55035: 2017+A11:2020

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

### 7.16.1 Test Setup Diagram



### 7.16.2 E.U.T. Operation

Operating Environment:

Temperature: 23.4 °C

Humidity: 47.9 % RH

Atmospheric Pressure: 1010 mbar

### 7.16.3 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                                         |
|-----------------------|-----------|---------------------------------------------------------------------|
| Final test            | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test            | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test            | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

### 7.16.4 Test Condition and Results:

Performance Criterion: B

Interval: 60s between each surge

Generator source impedance: 2Ω

| Port        | Line        | Waveform(μs)  | Level (kV) | Polarity | Result / Observations |
|-------------|-------------|---------------|------------|----------|-----------------------|
| Signal port | Line-Ground | 1,2/50 (8/20) | 0.5, 1     | +        | A                     |
| Signal port | Line-Ground | 1,2/50 (8/20) | 0.5, 1     | -        | A                     |

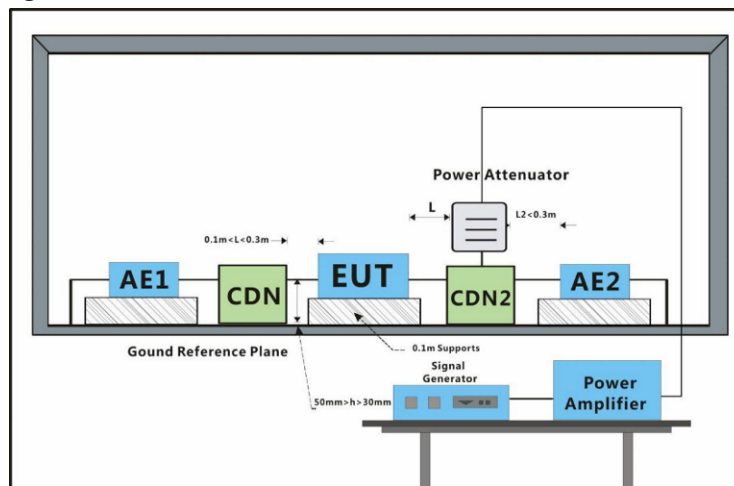
A: No degradation in the performance of the EUT was observed

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

Test Requirement: EN 55035: 2017+A11:2020

Test Method: EN 61000-4-6: 2014

### 7.17.1 Test Setup Diagram



### 7.17.2 E.U.T. Operation

Operating Environment:

Temperature: 23.3 °C

Humidity: 47.5 % RH

Atmospheric Pressure: 1010 mbar

### 7.17.3 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                                         |
|-----------------------|-----------|---------------------------------------------------------------------|
| Final test            | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test            | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test            | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

### 7.17.4 Test Condition and Results:

Performance Criterion: A

Frequency Range: 0.15MHz to 80MHz

Modulation: 80%, 1kHz Amplitude Modulation

Step Size: 1%

| Cable port    | Level (Vrms)               | CDN/Clamp | Dwell time | Result / Observations |
|---------------|----------------------------|-----------|------------|-----------------------|
| AC power port | 3(0.15MHz-10MHz)           | CDN       | 3s         | A                     |
| AC power port | 3 to 1(10MHz-30MHz, Lines) | CDN       | 3s         | A                     |
| AC power port | 1(30MHz-80MHz)             | CDN       | 3s         | A                     |

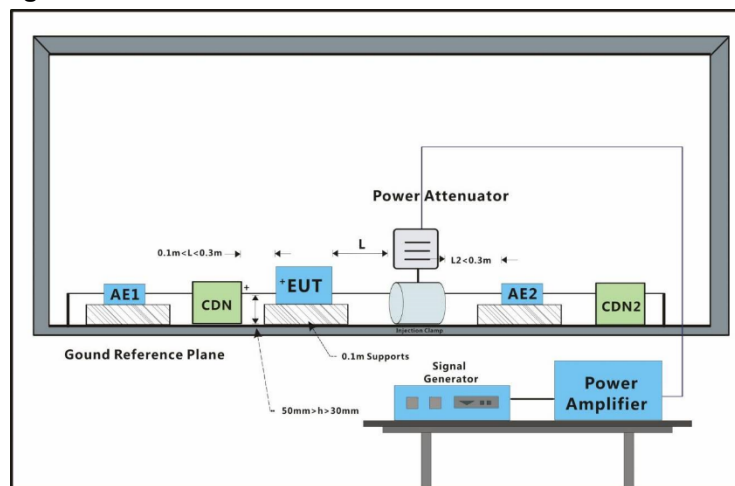
A: No degradation in the performance of the EUT was observed

## 7.18 Conducted Immunity at Signal Port (150kHz-80MHz)

Test Requirement: EN 55035: 2017+A11:2020

Test Method: EN 61000-4-6: 2014

### 7.18.1 Test Setup Diagram



### 7.18.2 E.U.T. Operation

Operating Environment:

Temperature: 23.1 °C

Humidity: 47.2 % RH

Atmospheric Pressure: 1010 mbar

### 7.18.3 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                                         |
|-----------------------|-----------|---------------------------------------------------------------------|
| Final test            | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test            | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test            | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

### 7.18.4 Test Condition and Results:

Performance Criterion: A

Frequency Range: 0.15MHz to 80MHz

Modulation: 80%, 1kHz Amplitude Modulation

Step Size: 1%

| Port        | Level (Vrms)               | CDN/Clamp | Dwell time | Result / Observations |
|-------------|----------------------------|-----------|------------|-----------------------|
| Signal port | 3(0.15MHz-10MHz)           | Clamp     | 3s         | A                     |
| Signal port | 3 to 1(10MHz-30MHz, Lines) | Clamp     | 3s         | A                     |
| Signal port | 1(30MHz-80MHz)             | Clamp     | 3s         | A                     |

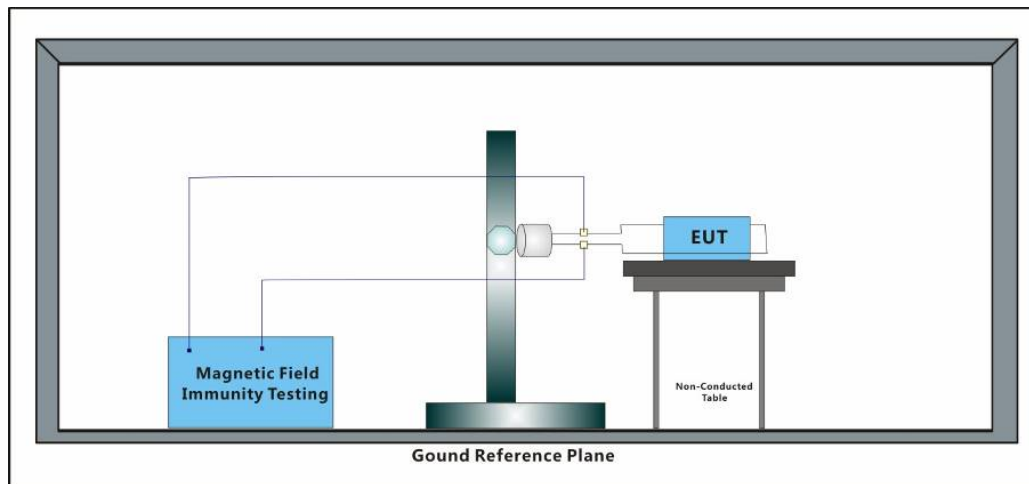
A: No degradation in the performance of the EUT was observed

## 7.19 Power Frequency Magnetic Field

Test Requirement: EN 55035: 2017+A11:2020

Test Method: EN 61000-4-8: 2010

### 7.19.1 Test Setup Diagram



### 7.19.2 E.U.T. Operation

Operating Environment:

Temperature: 22.6 °C

Humidity: 48.5 % RH

Atmospheric Pressure: 1010 mbar

### 7.19.3 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                                         |
|-----------------------|-----------|---------------------------------------------------------------------|
| Final test            | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test            | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test            | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

### 7.19.4 Test Condition and Results:

Performance Criterion: A

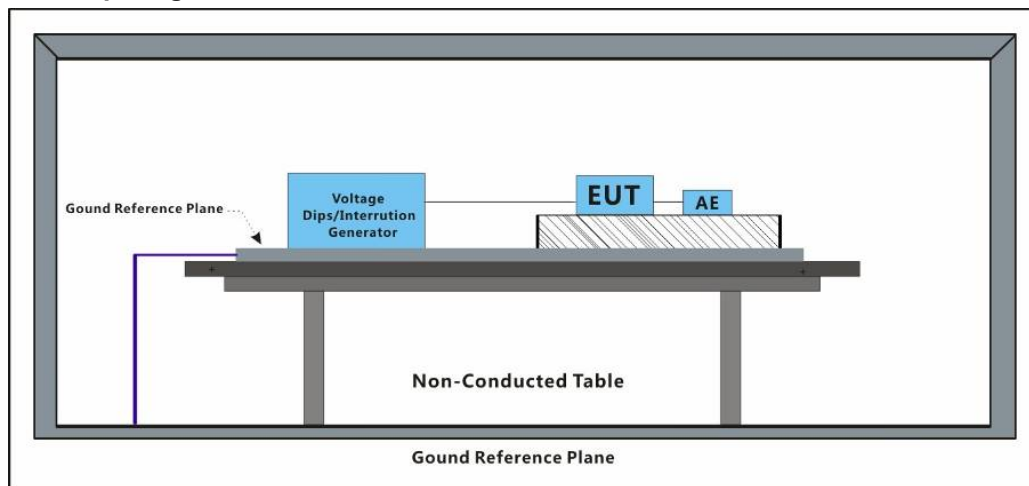
| Frequency                                                    | Level (A/m) | Axial | Magnetic Field Type | Result / Observations |
|--------------------------------------------------------------|-------------|-------|---------------------|-----------------------|
| 50Hz                                                         | 1           | X     | Continuous filed    | A                     |
| 50Hz                                                         | 1           | Y     | Continuous filed    | A                     |
| 50Hz                                                         | 1           | Z     | Continuous filed    | A                     |
| A: No degradation in the performance of the EUT was observed |             |       |                     |                       |

## 7.20 Voltage Dips and Interruptions

Test Requirement: EN 55035: 2017+A11:2020

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

### 7.20.1 Test Setup Diagram



### 7.20.2 E.U.T. Operation

Operating Environment:

Temperature: 22.6 °C

Humidity: 48.5 % RH

Atmospheric Pressure: 1010 mbar

### 7.20.3 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                                         |
|-----------------------|-----------|---------------------------------------------------------------------|
| Final test            | 00        | Keep EUT working normally with Adapter1(GQ80-120400-E1).            |
| Final test            | 01        | Keep EUT working normally with Adapter2(ADS-65HI-12N-1 12048E-003). |
| Final test            | 02        | Keep EUT working normally with Adapter3(ADS-65HI-12N-1 12048E BIS). |

#### 7.20.4 Test Condition and Results:

Performance Criterion:

<5% residual voltage for 0.5 Cycle: B

70% residual voltage for 25 Cycles: C

<5% residual voltage for 250 Cycles: C

No. of Dips / Interruptions: 3 per Level

Time between dropout: 10s

| Level % UT | Phase (deg) | Duration   | No. of Dips / Interruptions | Result / Observations |
|------------|-------------|------------|-----------------------------|-----------------------|
| 0          | 0°          | 0.5 Cycles | 3                           | A                     |
| 0          | 0°          | 250 Cycles | 3                           | B                     |
| 70         | 0°          | 25 Cycles  | 3                           | A                     |

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

B: During the test,the EUT working abnormally.

After the test,the EUT automatically recovering working normally.

## 8 Test Setup Photo

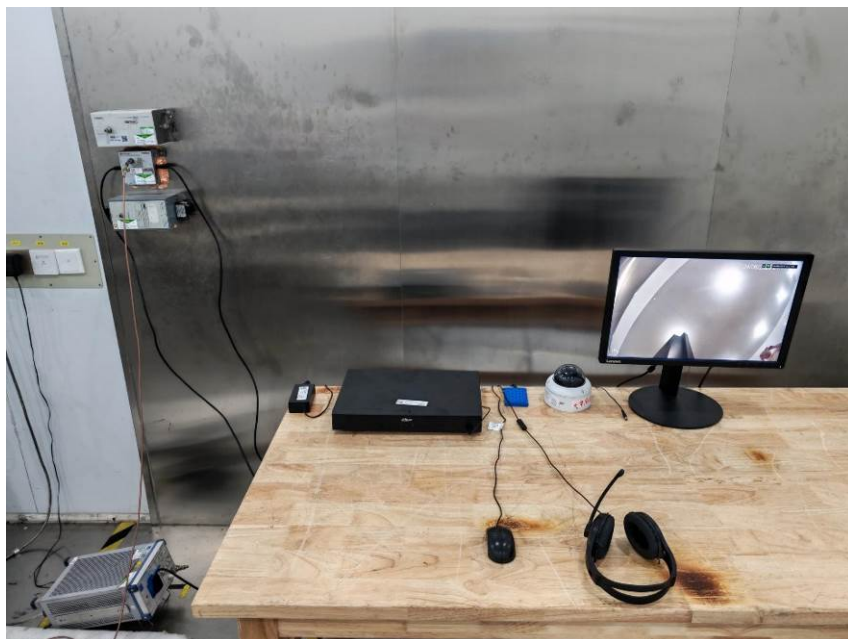
### Conducted Emissions at Mains Power Port (150kHz-30MHz)





## Asymmetric Mode Conducted Emissions(150kHz-30MHz)



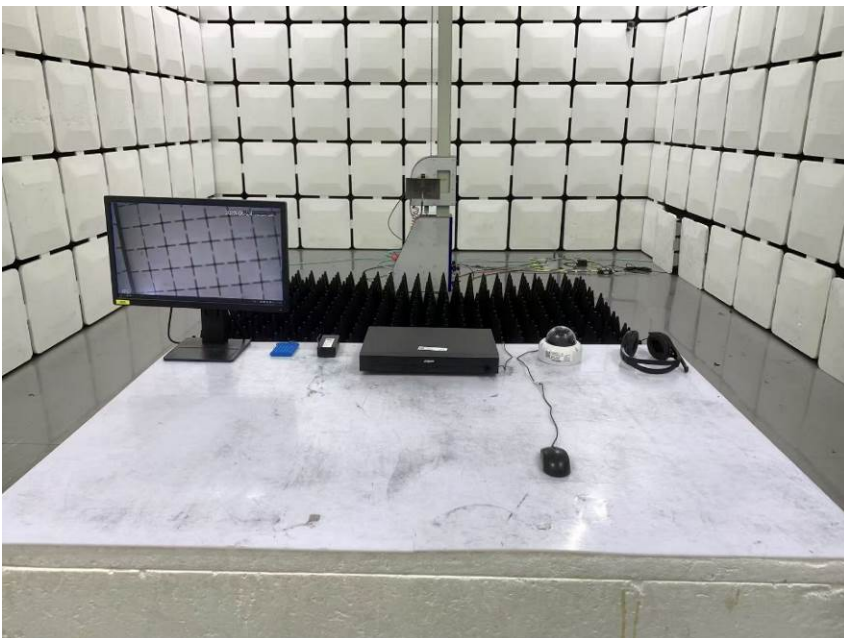


## Radiated Emissions (30MHz-1GHz)





## Radiated Emissions (Above 1GHz)



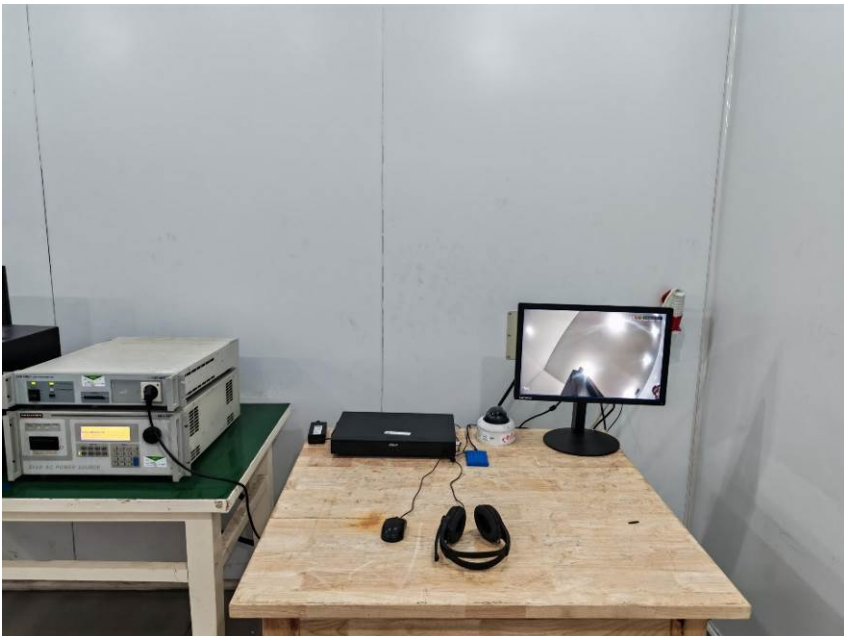


## Voltage Fluctuations and Flicker





## Harmonic Current Emission



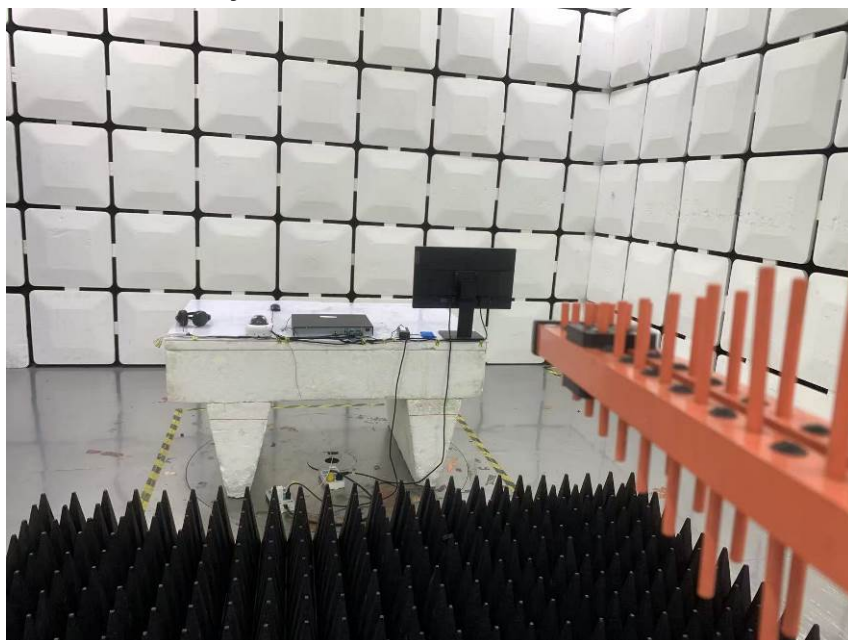


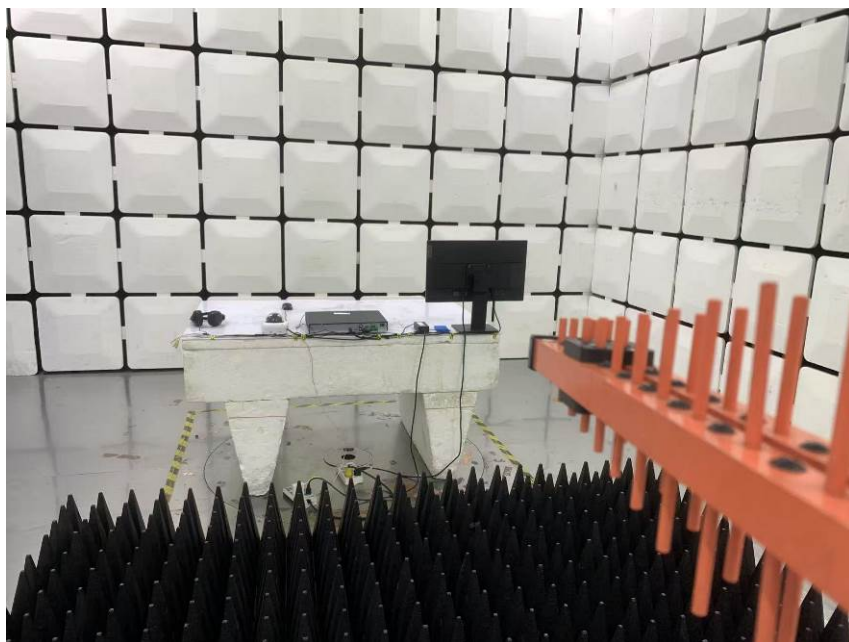
## Electrostatic Discharge





## Radiated Immunity





## Electrical Fast Transients & Burst at AC Power Port





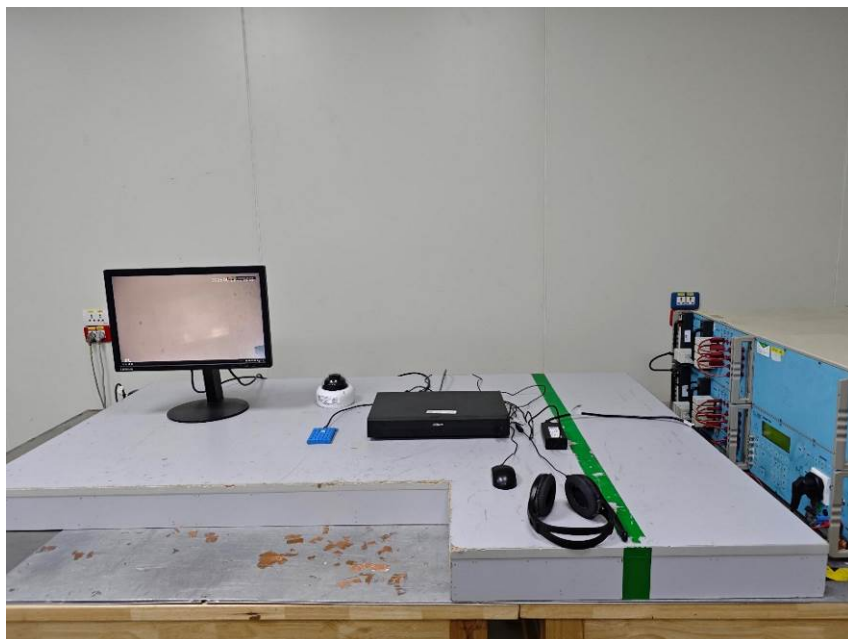
## Electrical Fast Transients & Burst at Signal Port



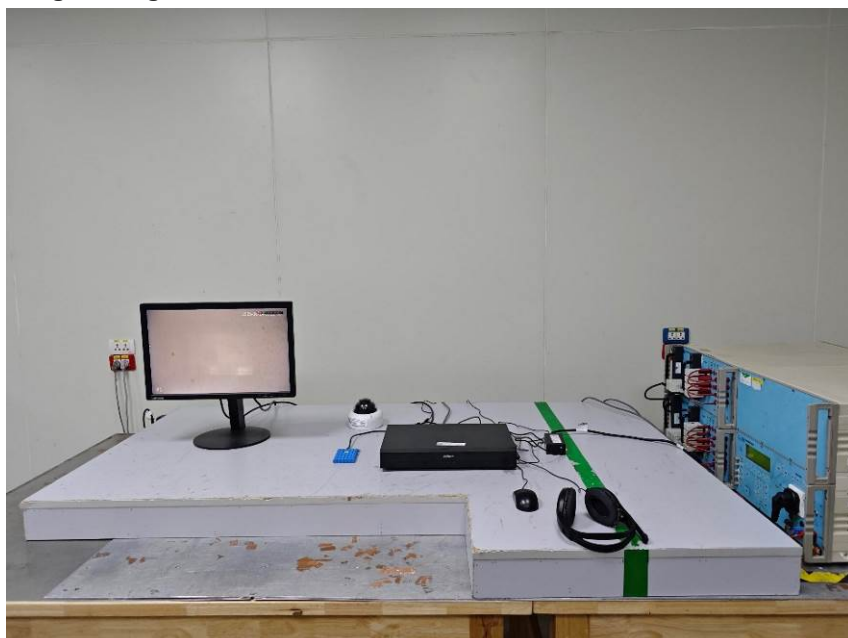


## Surge at AC Power Port





**Surge at Signal Port**





## Conducted Immunity at Power Port





## Conducted Immunity at Signal Port





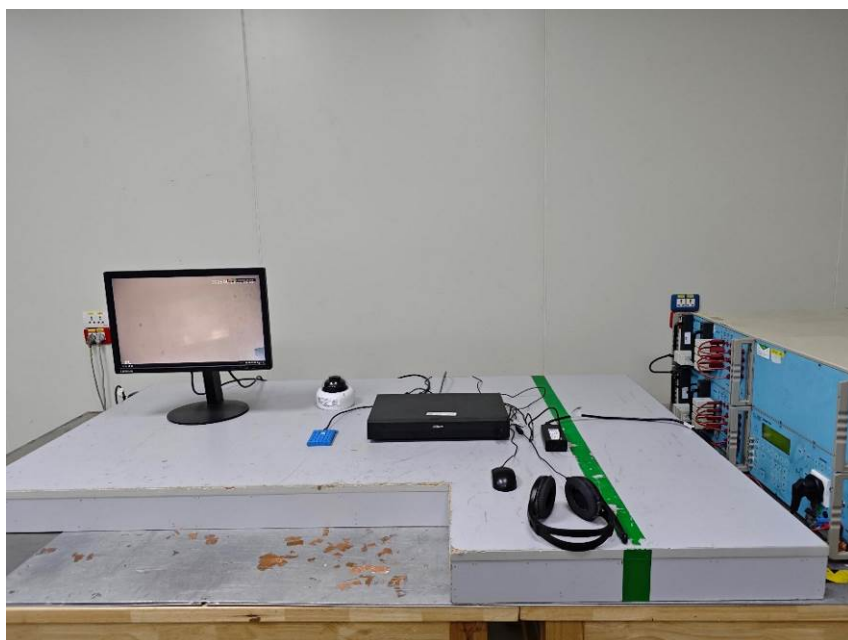
## Mains Supply Voltage Variations



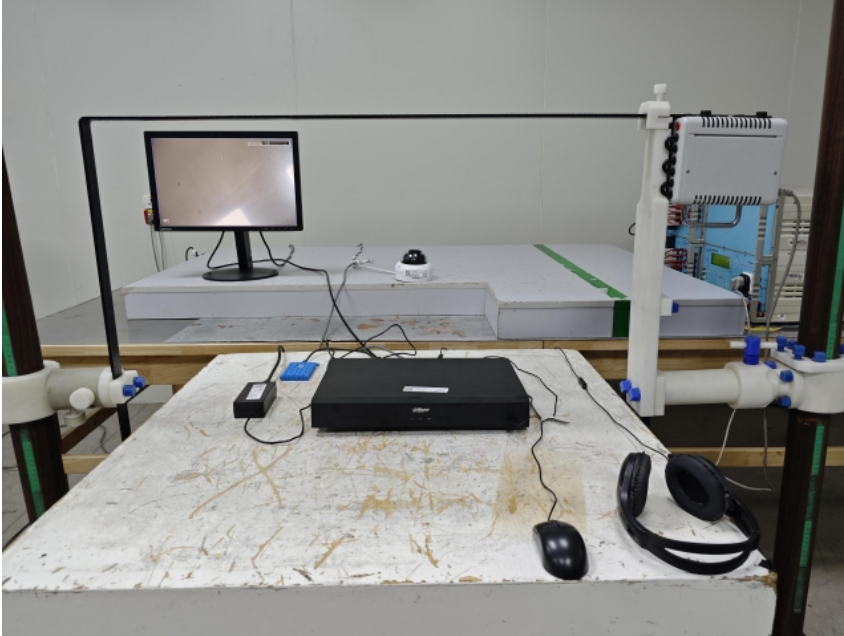


## Voltage Dips and Interruptions





## Power Frequency Magnetic Field





## 9 EUT Constructional Details (EUT Photos)



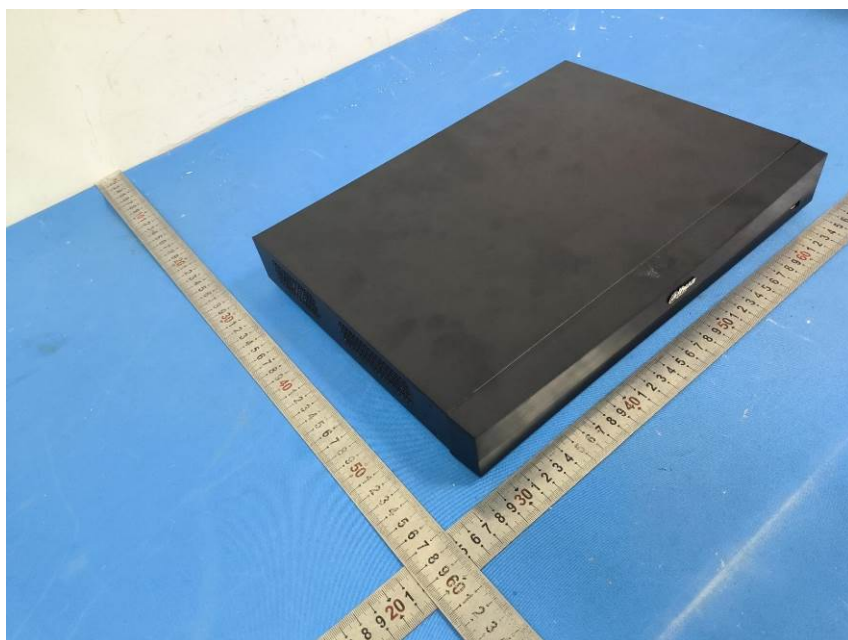






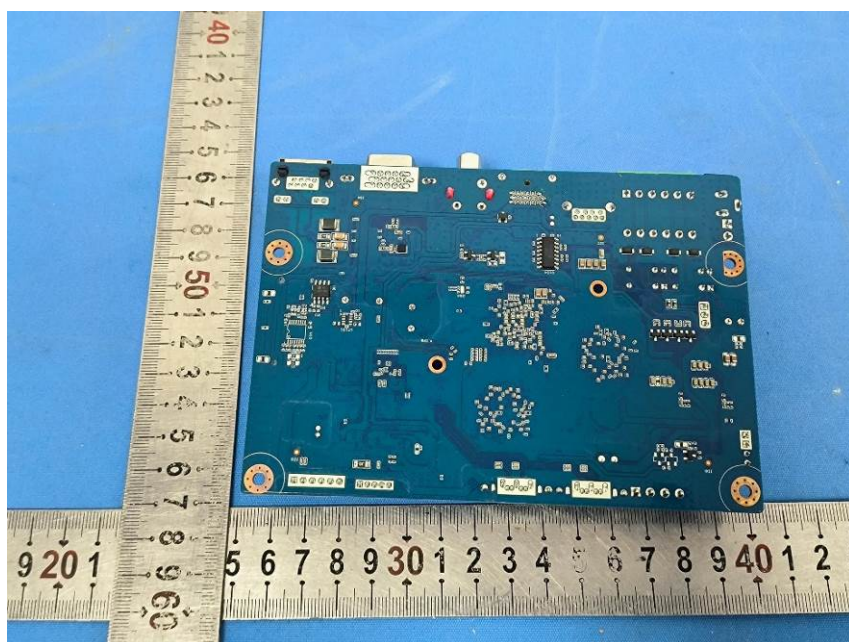
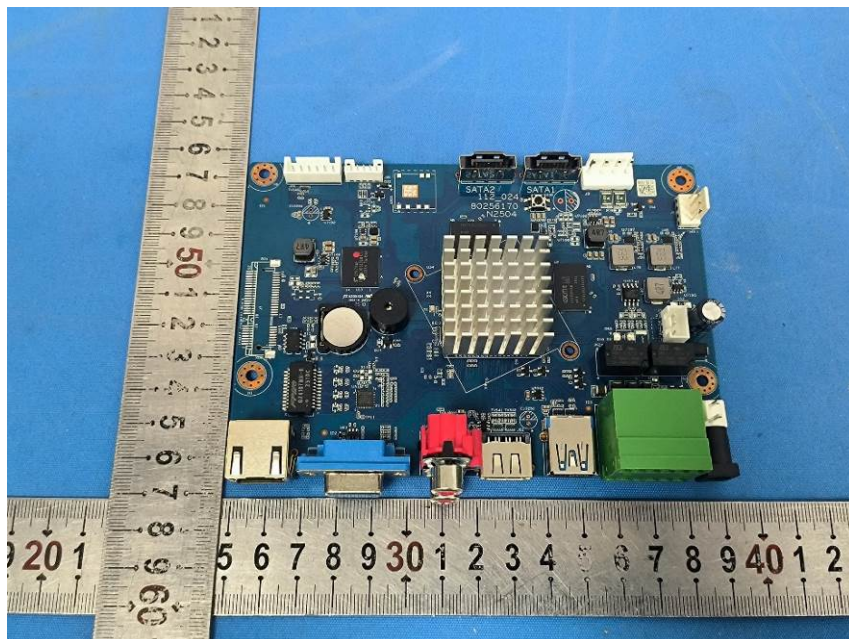


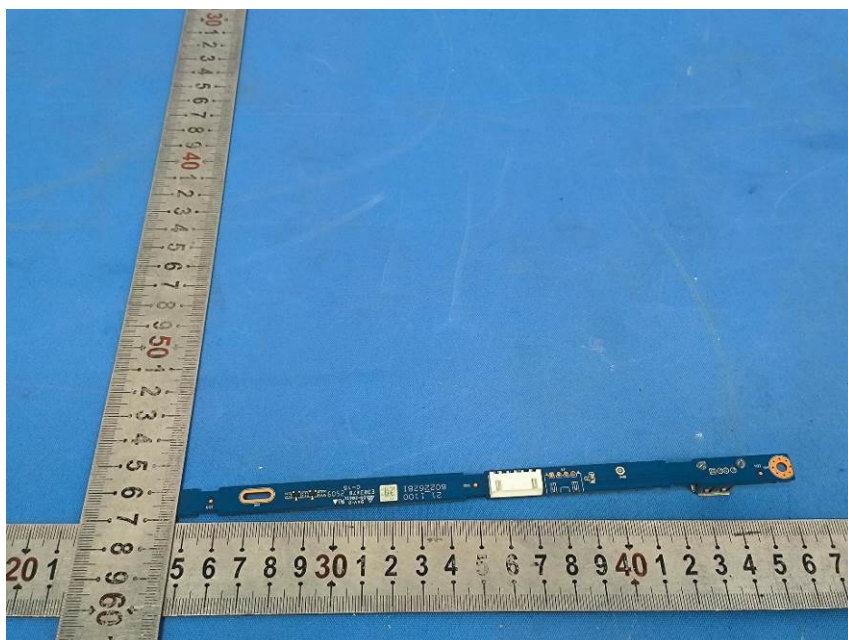












- End of the Report -