# EMC REPORT

| | |
|---|---|
| **Product Type:** | Motor Unit |
| **Model No.:** | GEX-MSS 15-40,GEX-MSS 15-50,GEX-MSS 15-60,GEX-MSS 15-65, GEX-MSS 15-70,GEX-MSS 15-75,GEX-MSS 15-80,GEX-FCI 15-50, GEX 15-50,GEX-FCI 15-60,GEX 15-60,GEX-FCI 15-65,GEX 15-65, GEX-FCI 15-70,GEX 15-70,GEX-FCI 15-75,GEX 15-75,GEX 15-40, GEX-FCI 15-80,GEX 15-80,TEX 15-50,BPE-W 15-50,TEX 15-60, BPE-W 15-60,TEX 15-65,BPE-W 15-65,TEX 15-70,BPE-W 15-70, TEX 15-75,BPE-W 15-75,TEX 15-80,BPE-W 15-80,WEX-INT 15-50, WEX-FCI 15-50,WEX 15-50,WEX-INT 15-60,WEX-FCI 15-60,WEX 15-60, WEX-INT 15-65,WEX-FCI 15-65,WEX 15-65,WEX-INT 15-70, WEX-FCI 15-70,WEX 15-70,WEX-INT 15-75,WEX-FCI 15-75,WEX 15-75, WEX-INT 15-80,WEX-FCI 15-80,WEX 15-80 |
| **Trademark:** | DUCA® |
| **Applicant:** | Worimex Iklimlendirme Sistemleri Sanayi ve Ticaret A.s.<br>Zafer Mahallesi 146.sokak No: 13A Esenyurt/istanbul |
| **Manufacturer:** | Worimex Iklimlendirme Sistemleri Sanayi ve Ticaret A.s.<br>Zafer Mahallesi 146.sokak No: 13A Esenyurt/istanbul |
| **Factory:** | Worimex Iklimlendirme Sistemleri Sanayi ve Ticaret A.s.<br>Zafer Mahallesi 146.sokak No: 13A Esenyurt/istanbul |
| **Report Number:** | OViS202405010E-R1 |
| **Testing Standard:** | EN IEC 61000-6-4:2019,EN IEC 61000-6-2:2019,<br>BS EN IEC 61000-6-4:2019,BS EN IEC 61000-6-2:2019 |
| **Date of Test:** | Apr. 26,2024 to May 16,2024 |
| **Date of Report:** | May 17,2024 |
| **Test Result:** | ☒ Positive ☐ Negative |

| Revision Record | | | |
|---|---|---|---|
| Version | Description | Date | Remark |
| Ver.0.0 | Original | May 17,2024 | OViS202405010E |
| Ver.1.0 | 1.The manufacturer and factory information was modified.<br>2.The trademark was added. | Jun. 11,2024 | OViS202405010E-R1 |

**Authorized for issue by:**

Prepared by : Caroline Chen
(Caroline Chen)

Reviewer by : Sam Jin
(Sam Jin)

Approved by : Lily LI
(Lily LI)

OVIS TESTING TECHNOLOGY (ZHEJIANG) CO. LTD. OVIS TEST SEAL

## 2 Test Summary

| Emission Part | | | | |
|---|---|---|---|---|
| **Item** | **Standard** | **Method** | **Requirement** | **Result** |
| Conducted Emissions at Mains Terminals (150kHz-30MHz) | EN IEC 61000-6-4:2019 | CISPR 16-2-1 | N/A | Pass |
| Radiated Emissions (30MHz-1GHz) | EN IEC 61000-6-2:2019 | CISPR 16-2-3 | N/A | Pass |

| Immunity Part | | | | |
|---|---|---|---|---|
| **Item** | **Standard** | **Method** | **Requirement** | **Result** |
| Electrostatic Discharge | EN IEC 61000-6-2:2019 | EN 61000-4-2:2009 | 4kV Contact Discharge 8kV Air Discharge | Pass |
| Electrical Fast Transients/Burst at Power Port | | EN 61000-4-4:2012 | 2kV 5/50ns Tr/Td 5 or 100kHz Repetition Frequency | Pass |
| Surge at Power Port | | EN 61000-4-5:2014 +A1:2017 | 1.2/50μs Tr/Td 1kV Line to Line 2kV Line to Ground | Pass |
| Conducted Immunity at Power Port (150kHz-80MHz) | | EN 61000-4-6:2014 | 10Vrms (emf),80%,1kHz Amp. Mod. | Pass |
| Voltage Dips and Interruptions | | EN 61000-4-11:2004 +A1:2017 | 0 % UT for 1per 40 % UT for 10per 70 % UT for 25per 0 % UT for 250per UT is Supply Voltage | Pass |
| Radiated Immunity (80MHz-3.6GHz) | | EN 61000-4-3:2006 +A1:2008+A2:2010 | 10V/m, 80%, 1kHz Amp. Mod. 3V/m, 80%, 1kHz Amp. Mod. | Pass |

**Declaration of EUT Family Grouping**:

Note: There are series models mentioned in this report, and they are the similar in electrical and electronic characters. Only the model GEX-MSS 15-75 was tested since their differences were the model number and appearance.

**Remark:**

For detail,see relrbant information on General product information

BS standards are identical with EN standards

## 3 Contents

## 4 General Information

4.1 Details of E.U.T.

Power supply: 60W

Test voltage: 220-240V,50/60Hz

4.2 Description of Support Units

The EUT has been tested as an independent unit

4.3 Measurement Uncertainty

| No. | Item | Measurement Uncertainty |
|---|---|---|
| 1 | Conducted Emission at mains port using AMN | 2.6dB (9kHz to 150kHz)<br>2.4dB (150kHz to 30MHz) |
| 2 | Conducted Emission at mains port using VP | 1.8 dB (9kHz to 30MHz) |
| 3 | Conducted Emission at telecommunication port using AAN | 4.2 dB (150kHz to 30MHz) |
| 4 | Radiated Power | 2.3dB |
| 5 | Radiated Emission | 4.5dB (30MHz-1GHz)<br>5.1dB (1GHz-3.6GHz) |
| 6 | Radiated Disturbance (disturbance current in a LLAS) | 2.4dB (9kHz to 30MHz) |

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

4.4 Test Location

All tests were performed at:
OViS Testing Technology (Zhejiang) Co., Ltd.
Building 31, Feiyue Park, Xiachen Street, Jiaojiang District, Taizhou City, Zhejiang Province, China
Tel: 400-8008-959

4.5 Deviation from Standards

None

4.6 Abnormalities from Standard Conditions

None

4.7 Monitoring of EUT for All Immunity Test

Visual: Monitor the work status

## 5 Equipment List

| Conducted Emissions at Mains Terminals (150kHz-30MHz) | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No** | **Inventory No** | **Cal Date Cal** | **Due Date** |
| EMI test receiver | Rohde&Schwarz | ESR3 | OViS-YQ125 | 2023-10-08 | 2024-10-07 |
| Artificial mains network | AFJ | LT32C | OViS-YQ126 | 2023-10-08 | 2024-10-07 |
| Shielding Room | Everfine | SR-500 | OViS-YQ127 | 2023-10-08 | 2024-10-07 |

| Radiated Emissions (30MHz-1GHz) | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No** | **Inventory No** | **Cal Date Cal** | **Due Date** |
| EMI test receiver | Rohde&Schwarz | ESR3 | OViS-YQ125 | 2023-10-08 | 2024-10-07 |
| CONTROLLER | Noyetec | XTJC | OViS-YQ128 | 2023-10-08 | 2024-10-07 |
| ANTENNA MAST | SCHWARZBECK | VULB9163 | OViS-YQ129 | 2023-10-08 | 2024-10-07 |
| Semi/Fully Anechoic | Noyetec | SR-500 | OViS-YQ130 | 2023-10-08 | 2024-10-07 |
| Pre-Amplifier | Noyetec | NYPA0930 | OViS-YQ131 | 2023-10-08 | 2024-10-07 |

| Electrostatic Discharge Test Setup | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No** | **Inventory No** | **Cal Date Cal** | **Due Date** |
| ESD generator | Everfine | EMS61000-2A | OViS-YQ132 | 2023-10-08 | 2024-10-07 |

| Electrical Fast Transients/Burst at Power Port | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No** | **Inventory No** | **Cal Date Cal** | **Due Date** |
| Burst generator | Everfine | EMS61000-4A | OViS-YQ133 | 2023-10-08 | 2024-10-07 |
| Coupling clamp | Everfine | EFTC-2 | OViS-YQ134 | 2023-10-08 | 2024-10-07 |

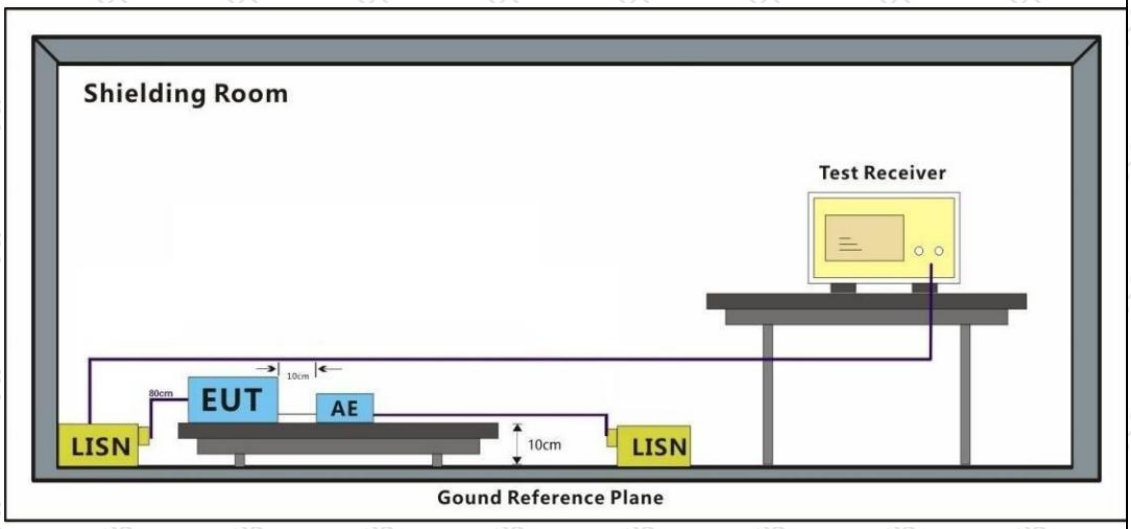
| Surge at Power Port | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No** | **Inventory No** | **Cal Date Cal** | **Due Date** |
| Lightning surge generator | Everfine | EMS61000-5A | OViS-YQ135 | 2023-10-08 | 2024-10-07 |

| Conducted Immunity at Power Port (150kHz-80MHz) | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No** | **Inventory No** | **Cal Date Cal** | **Due Date** |
| Signal generator | Rigol | DSG821 | OViS-YQ136 | 2023-10-08 | 2024-10-07 |
| Power Amplifier | Noyetec | NYPA 0123-100 | OViS-YQ137 | 2023-10-08 | 2024-10-07 |
| 6dB Attenuator | Noyetec | ATT01 | OViS-YQ138 | 2023-10-08 | 2024-10-07 |
| Coupling and Decoupling Network (CDN) | SCHWARZBECK | CDN M2/M3 | OViS-YQ139 | 2023-10-08 | 2024-10-07 |
| RF Generator | Noyetec | SR100-6W | OViS-YQ140 | 2023-10-08 | 2024-10-07 |
| Shielding Room | Everfine | SR-500 | OViS-YQ127 | 2023-10-08 | 2024-10-07 |
| Coupling and Decoupling Network (CDN) | SCHWARZBECK | CDN M4PE | OViS-YQ141 | 2023-10-08 | 2024-10-07 |

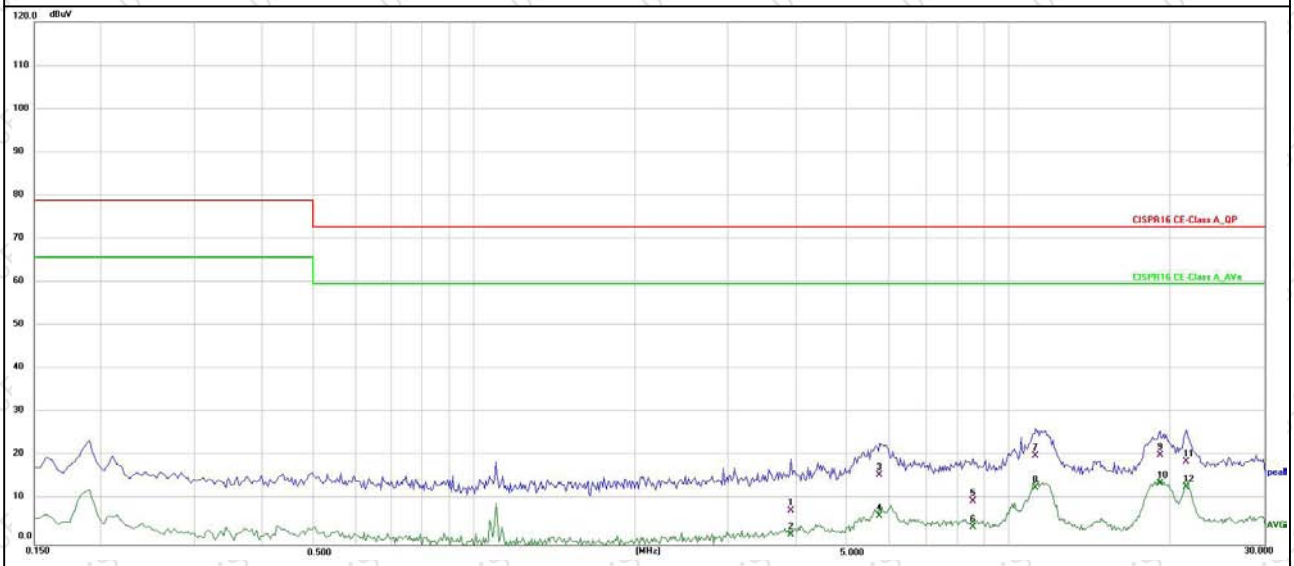
| Voltage Dips and Interruptions | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No** | **Inventory No** | **Cal Date Cal** | **Due Date** |
| Three-phase cycle drop generator | Everfine | EMS61000-11 CA | OViS-YQ142 | 2023-10-08 | 2024-10-07 |
| Coupling and Decoupling Network (CDN) | Everfine | CDNI-3A | OViS-YQ143 | 2023-10-08 | 2024-10-07 |
| Manual step transformer | Everfine | SG-15KVA | OViS-YQ144 | 2023-10-08 | 2024-10-07 |

| Radiated Immunity (80MHz-3.6GHz) | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No** | **Inventory No** | **Cal Date Cal** | **Due Date** |
| Signal generator | Rigol | DSG836 | OViS-YQ145 | 2023-10-08 | 2024-10-07 |
| Antenna | SCHWARZBECK | VUSLP9111E | OViS-YQ146 | 2023-10-08 | 2024-10-07 |
| Amplifier | Noyetec | NYPA0810-200 | OViS-YQ147 | 2023-10-08 | 2024-10-07 |
| Power meter sensor | PMM | EP601 | OViS-YQ148 | 2023-10-08 | 2024-10-07 |
| ElectroMagnetic Field Probe | Ceyear | 87230 | OViS-YQ149 | 2023-10-08 | 2024-10-07 |
| Shielding Room | Everfine | SR-500 | OViS-YQ127 | 2023-10-08 | 2024-10-07 |

| General used equipment | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No** | **Inventory No** | **Cal Date Cal** | **Due Date** |
| Digital pressure meter | YIOU | DPH-103 | OViS-YQ073 | 2023-10-08 | 2024-10-07 |
| Temperature&humidity recorder | Dongguan Jinghe Electronic Technology Co., Ltd | MC501 | OViS-YQ095 | 2023-10-08 | 2024-10-07 |
| Digital Multimeter | Fluke | 319 | OViS-YQ012 | 2023-10-08 | 2024-10-07 |

| | |
|---|---|
| **6** | **Emission Test Results** |
| 6.1 | Conducted Emissions at Mains Terminals (150kHz-30MHz) |
| | Test Requirement: EN IEC 61000-6-4:2019 |
| | Test Method: CISPR 16-2-1 |
| | Frequency Range: 150kHz to 30MHz |
| | Limit:<br>0.15M-0.5MHz 79dB(μV) quasi-peak, 66dB(μV) average<br>0.5M-30MHz 73dB(μV) quasi-peak, 60dB(μV) average<br>Detector: Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz |
| 6.1.1 | E.U.T. Operation |
| | Operating Environment: |
| | Temperature: 22℃ Humidity: 51 % RH Atmospheric Pressure: 1020 mbar |
| | Test mode:Normal Working_keep EUT running continual . |
| 6.1.2 | Test Setup Diagram |
| |  |
| 6.1.3 | Measurement 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 |

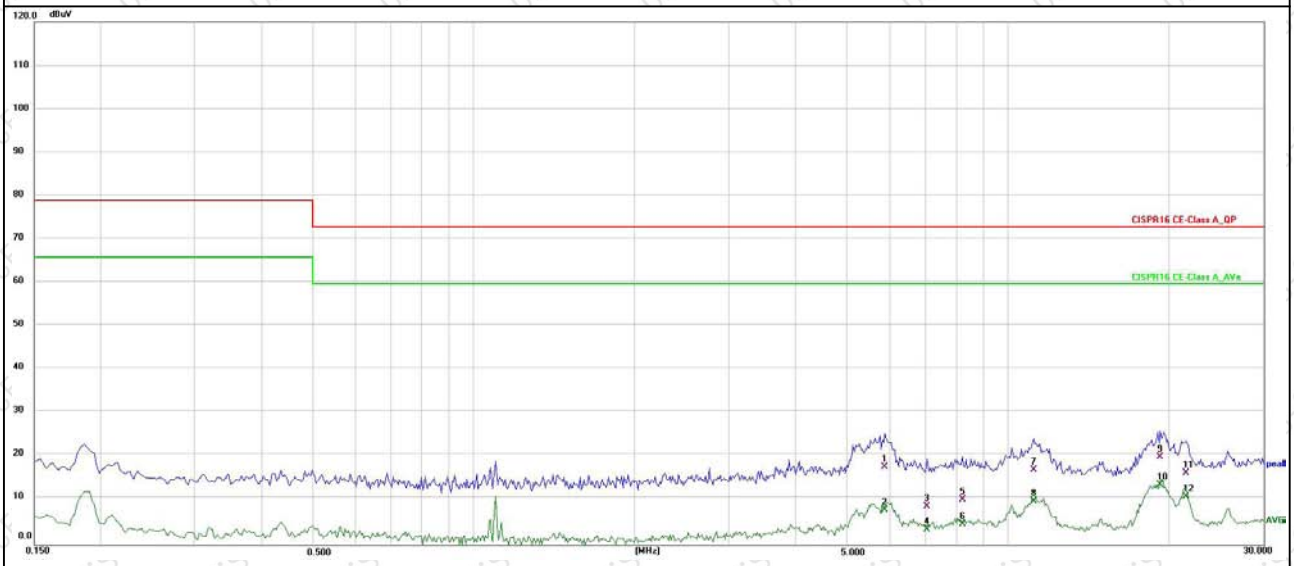
Model: GEX-MSS 15-75; Line:Live Line




| No. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB) | Measure-Ment (dBuV) | Limit (dBuV) | Margin (dB) | Detector |
|---|---|---|---|---|---|---|---|
| 1 | 3.9180 | -3.11 | 11.09 | 7.98 | 73.00 | -65.02 | QP |
| 2 | 3.9180 | -8.61 | 11.09 | 2.48 | 60.00 | -57.52 | AVG |
| 3 | 5.7140 | 4.97 | 11.14 | 16.11 | 73.00 | -56.89 | QP |
| 4 | 5.7140 | -4.34 | 11.14 | 6.80 | 60.00 | -53.20 | AVG |
| 5 | 8.5540 | -1.15 | 11.28 | 10.13 | 73.00 | -62.87 | QP |
| 6 | 8.5540 | -7.08 | 11.28 | 4.20 | 60.00 | -55.80 | AVG |
| 7 | 11.2260 | 9.18 | 11.38 | 20.56 | 73.00 | -52.44 | QP |
| 8 | 11.2260 | 1.78 | 11.38 | 13.16 | 60.00 | -46.84 | AVG |
| 9 | 19.1820 | 8.91 | 11.79 | 20.70 | 73.00 | -52.30 | QP |
| 10 | 19.1820 | 2.41 | 11.79 | 14.20 | 60.00 | -45.80 | AVG |
| 11 | 21.4540 | 7.18 | 12.04 | 19.22 | 73.00 | -53.78 | QP |
| 12 | 21.4540 | 1.35 | 12.04 | 13.39 | 60.00 | -46.61 | AVG |

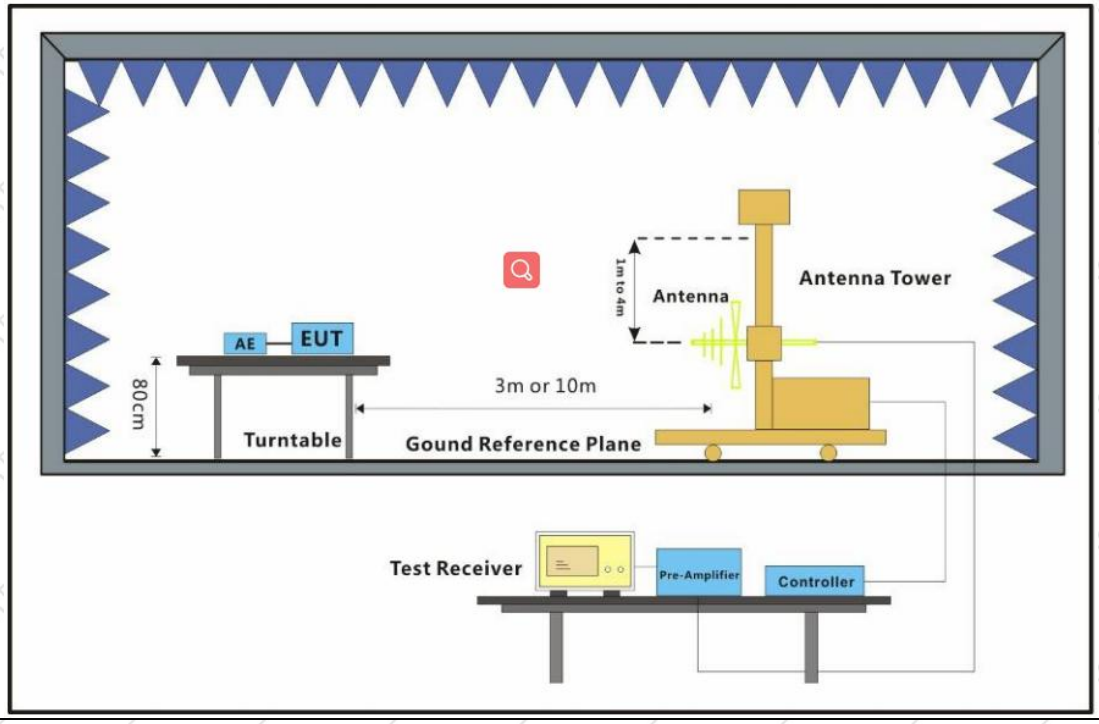
Notes:Measure-Ment=Reading Level+Factor

Model: GEX-MSS 15-75; Line:Neutral Line

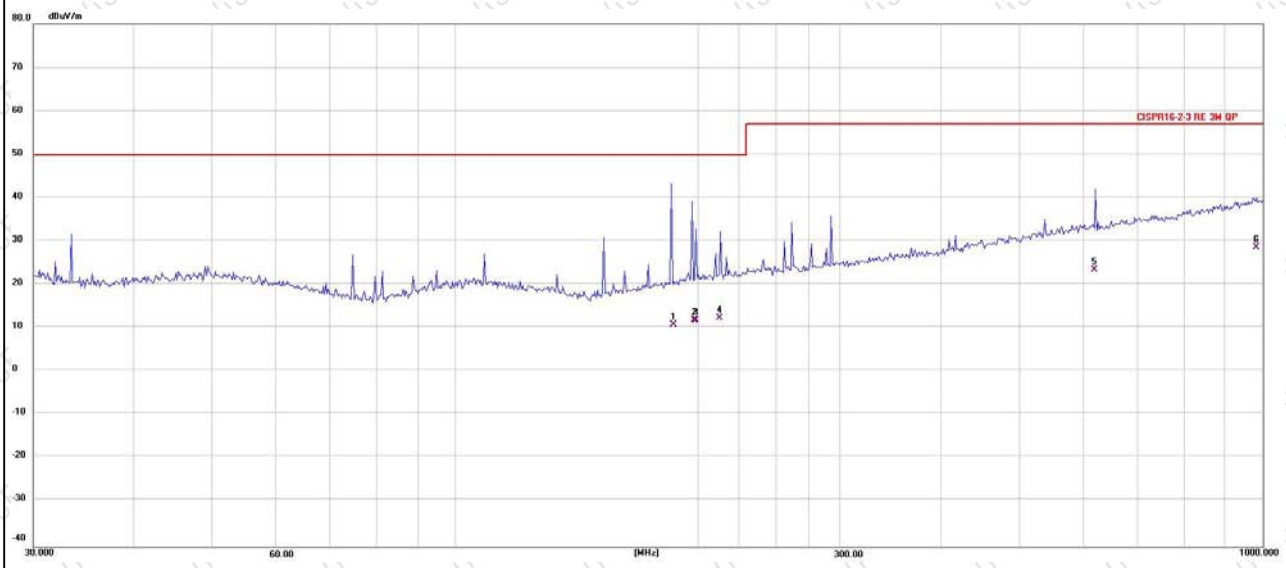



| No. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB) | Measure-Ment (dBuV) | Limit (dBuV) | Margin (dB) | Detector |
|---|---|---|---|---|---|---|---|
| 1 | 5.8780 | 6.92 | 11.01 | 17.93 | 73.00 | -55.07 | QP |
| 2 | 5.8780 | -2.94 | 11.01 | 8.07 | 60.00 | -51.93 | AVG |
| 3 | 7.0420 | -2.15 | 11.04 | 8.89 | 73.00 | -64.11 | QP |
| 4 | 7.0420 | -7.41 | 11.04 | 3.63 | 60.00 | -56.37 | AVG |
| 5 | 8.2140 | -0.67 | 11.10 | 10.43 | 73.00 | -62.57 | QP |
| 6 | 8.2140 | -6.29 | 11.10 | 4.81 | 60.00 | -55.19 | AVG |
| 7 | 11.1540 | 5.99 | 11.25 | 17.24 | 73.00 | -55.76 | QP |
| 8 | 11.1540 | -1.12 | 11.25 | 10.13 | 60.00 | -49.87 | AVG |
| 9 | 19.3060 | 8.55 | 11.70 | 20.25 | 73.00 | -52.75 | QP |
| 10 | 19.3060 | 2.24 | 11.70 | 13.94 | 60.00 | -46.06 | AVG |
| 11 | 21.5860 | 4.80 | 11.90 | 16.70 | 73.00 | -56.30 | QP |
| 12 | 21.5860 | -0.73 | 11.90 | 11.17 | 60.00 | -48.83 | AVG |

Notes:Measure-Ment=Reading Level+Factor

| | |
|---|---|
| 6.2 | Radiated Emissions (30MHz-1GHz) |
| | Test Requirement: EN IEC 61000-6-4:2019 |
| | Test Method: CISPR 16-2-3 |
| | Frequency Range: 30MHz to 1GHz |
| | Measurement Distance: 3m |
| | Limit:<br>30MHz-230MHz 50 dB(μV/m) quasi-peak<br>230MHz-1GHz 57 dB(μV/m) quasi-peak<br>Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz |
| 6.2.1 | E.U.T. Operation |
| | Operating Environment: |
| | Temperature: 22℃ Humidity: 51 % RH Atmospheric Pressure: 1020 mbar |
| | Test mode:Normal Working_keep EUT running continual . |
| 6.2.2 | Test Setup Diagram |
| |  |
| 6.2.3 | Measurement Data |
| | An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities |

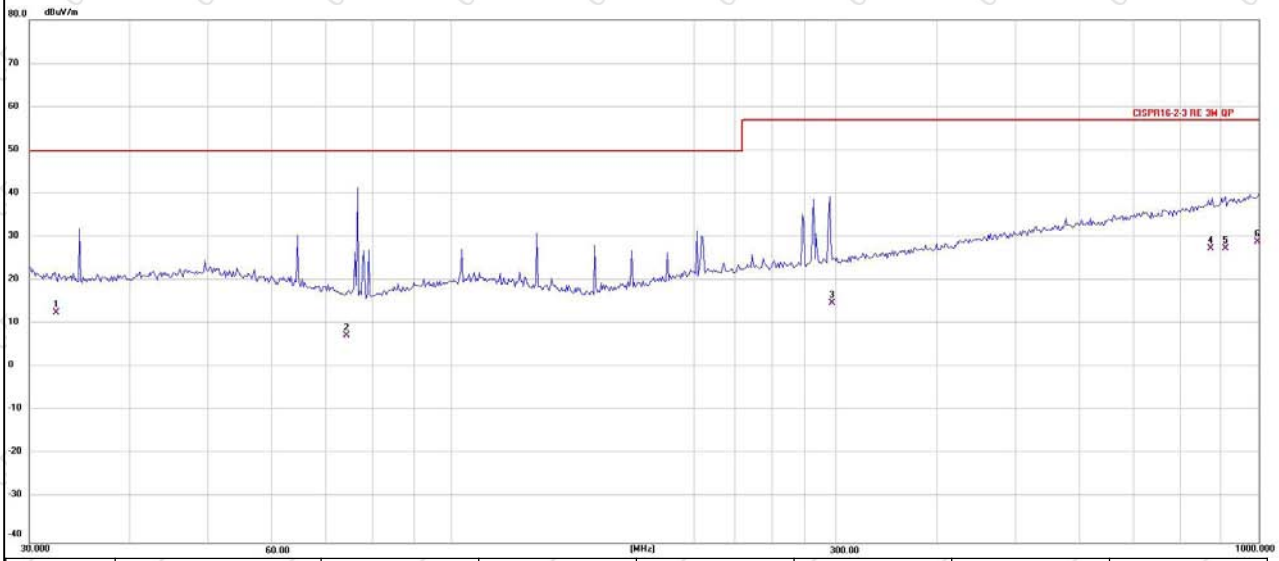
Model: GEX-MSS 15-75; Polarization:Horizontal




| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Det. |
|---|---|---|---|---|---|---|---|
| 1 | 186.7962 | -1.86 | 12.91 | 11.05 | 50.00 | -38.95 | QP |
| 2 | 198.1132 | -1.83 | 13.89 | 12.06 | 50.00 | -37.94 | QP |
| 3 | 198.9277 | -1.86 | 13.95 | 12.09 | 50.00 | -37.91 | QP |
| 4 | 212.3158 | -1.82 | 14.39 | 12.57 | 50.00 | -37.43 | QP |
| 5 | 619.1362 | -0.27 | 24.02 | 23.75 | 57.00 | -33.25 | QP |
| 6 | 983.6590 | -0.36 | 29.18 | 28.82 | 57.00 | -28.18 | QP |

Notes:Level=Reading+Factor

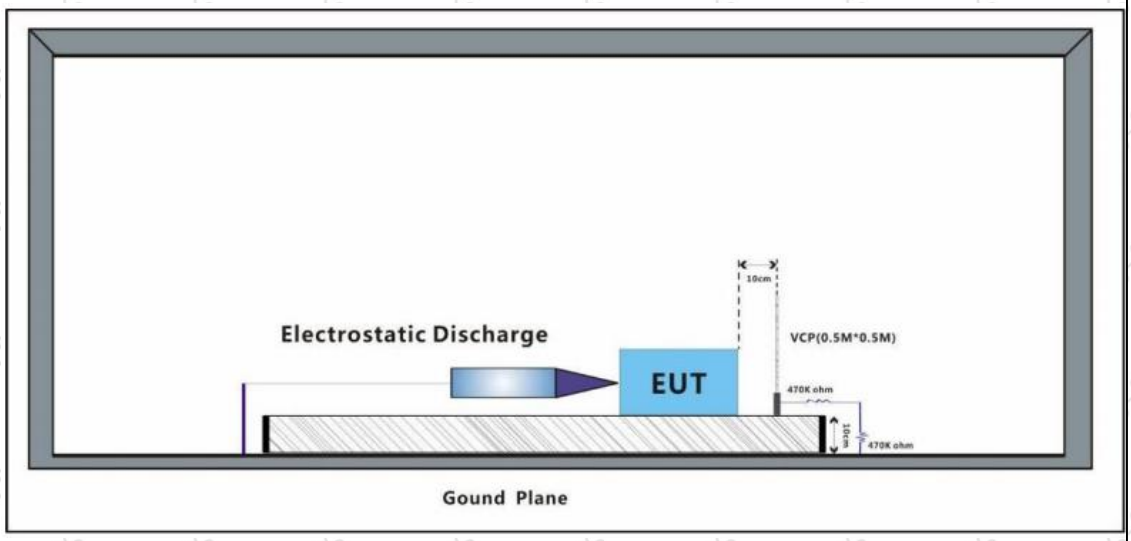
Model: GEX-MSS 15-75; Polarization:Vertical




| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Det. |
|---|---|---|---|---|---|---|---|
| 1 | 32.4906 | -0.15 | 13.00 | 12.85 | 50.00 | -37.15 | QP |
| 2 | 74.1894 | -2.09 | 9.78 | 7.69 | 50.00 | -42.31 | QP |
| 3 | 296.2366 | 2.30 | 12.87 | 15.17 | 57.00 | -41.83 | QP |
| 4 | 874.0032 | 6.32 | 21.26 | 27.58 | 57.00 | -29.42 | QP |
| 5 | 910.5608 | 5.92 | 21.67 | 27.59 | 57.00 | -29.41 | QP |
| 6 | 999.6429 | 6.52 | 22.68 | 29.20 | 57.00 | -27.80 | QP |

Notes:Level=Reading+Factor

| | | |
|---|---|---|
| **7** | **Immunity Test Results** | |
| 7.1 | Performance Criteria Description in EN IEC 61000-6-2:2019 | |
| | Criterion A | The apparatus shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus 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, either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended. |
| | Criterion B | The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended. |
| | Criterion C | Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls. |

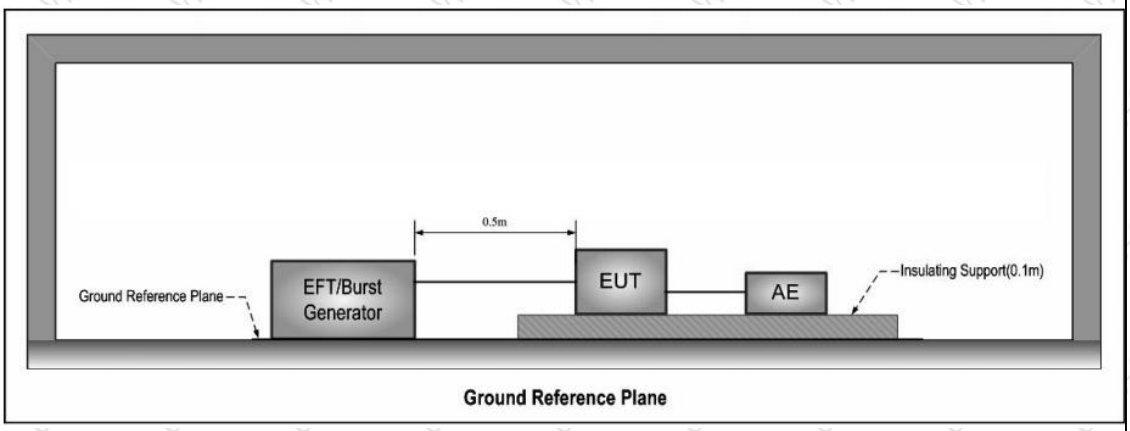
| | |
|---|---|
| 7.2 | Electrostatic Discharge |
| | Test Requirement: EN IEC 61000-6-2:2019 |
| | Test Method: EN 61000-4-2:2009 |
| | Performance Criterion: B |
| | Discharge Impedance: 330Ω/150pF |
| | Number of Discharge: Minimum 10 times at each test point |
| | Discharge Mode: Single Discharge |
| | Discharge Period: 1 second minimum |
| 7.2.1 | Test Setup Diagram |
| |  |
| 7.2.2 | E.U.T. Operation |
| | Operating Environment: |
| | Temperature: 22℃ Humidity: 51 % RH Atmospheric Pressure: 1020 mbar |
| | Test mode:Normal Working_keep EUT running continual . |
| 7.2.3 | Test Results: |
| | Observations: Test Point: |
| | 1. All insulated enclosure and seams. |
| | 2. All accessible metal parts of the enclosure. |
| | 3. All side |



| Discharge type | Level (kV) | Polarity | Test Point | Result / Observations |
|---|---|---|---|---|
| Air Discharge | 2,4,8 | +,- | 1,3 | A |
| Contact discharge | 2,4,8 | +,- | 2 | A |

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

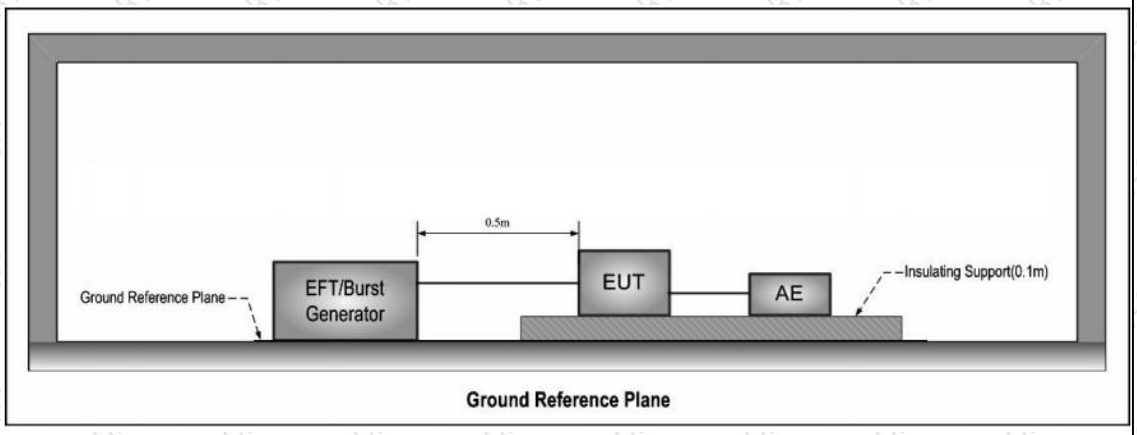
| | |
|---|---|
| 7.3 | Electrical Fast Transients/Burst at Power Port |
| | Test Requirement: EN IEC 61000-6-2:2019 |
| | Test Method: EN 61000-4-4:2012 |
| | Performance Criterion: B |
| | Repetition Frequency: 5kHz |
| | Burst Period: 300ms |
| | Test Duration: 2 minute per level & polarity |
| 7.3.1 | Test Setup Diagram |




| | |
|---|---|
| 7.3.2 | E.U.T. Operation |
| | Operating Environment: |
| | Temperature: 22℃ Humidity: 51 % RH Atmospheric Pressure: 1020 mbar |
| | Test mode:Normal Working_keep EUT running continual .. |
| 7.3.3 | Test Results: |

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

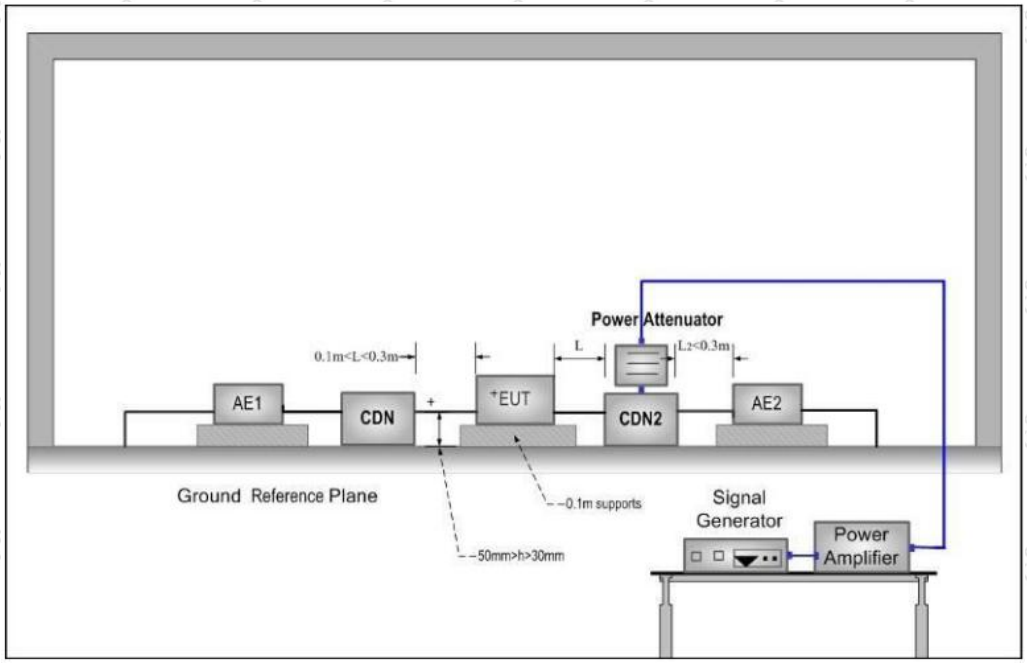
Results:
A: No degradation in the performance of the EUT was observed.

| | |
|---|---|
| 7.4 | Surge at Power Port |
| | Test Requirement: EN IEC 61000-6-2:2019 |
| | Test Method: EN 61000-4-5:2014 +A1:2017 |
| | Performance Criterion: B |
| | Interval: 60s between each surge |
| | Test level:±2 kV(AC power ports, line-to-earth);<br>±1 kV (AC power ports, line-to-line) |
| | No. of surges: 5 positive, 5 negative at 0°, 90°,180°, 270° |
| 7.4.1 | Test Setup Diagram |
| |  |
| 7.4.2 | E.U.T. Operation |
| | Operating Environment: |
| | Temperature: 22℃ Humidity: 51 % RH Atmospheric Pressure: 1020 mbar |
| | Test mode:Normal Working_keep EUT running continual . |
| 7.4.3 | Test Results: |

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

| | | | | |
|---|---|---|---|---|
| N-PE | 2 | + | 180° | A |
| N-PE | 2 | - | 180° | A |
| N-PE | 2 | + | 270° | A |
| N-PE | 2 | - | 270° | A |
| Results:<br>A: No degradation in the performance of the EUT was observed | | | | |

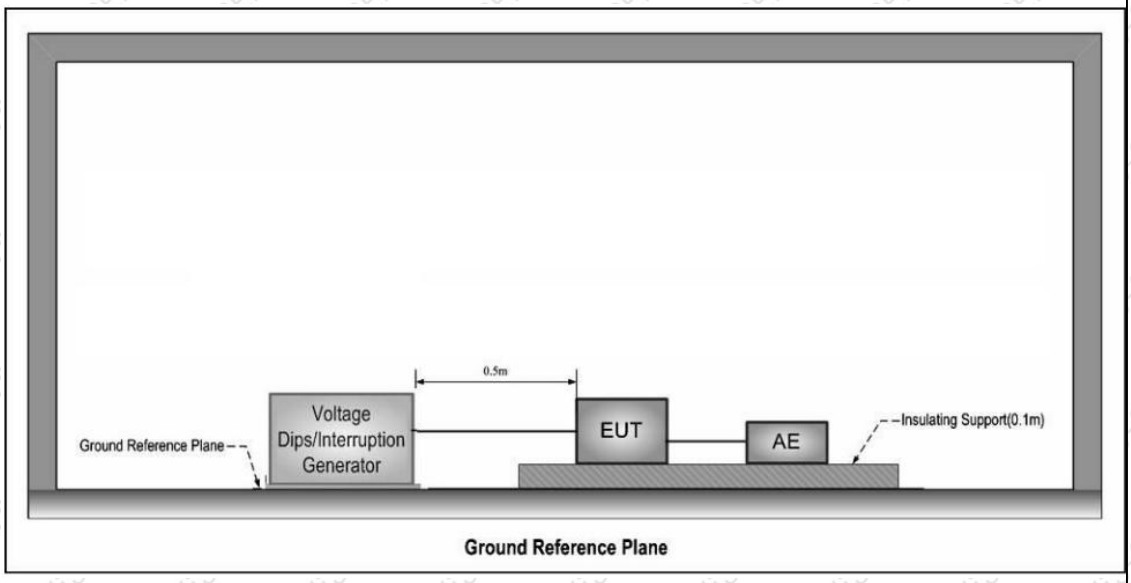
| | |
|---|---|
| 7.5 | Conducted Immunity at Power Port (150kHz-80MHz) |
| | Test Requirement: EN IEC 61000-6-2:2019 |
| | Test Method: EN 61000-4-6:2014 |
| | Performance Criterion: A |
| | Frequency Range: 0.15MHz to 80MHz |
| | Modulation: 80%, 1kHz Amplitude Modulation |
| | Step Size 1% |
| 7.5.1 | Test Setup Diagram |




| | |
|---|---|
| 7.5.2 | E.U.T. Operation |
| | Operating Environment: |
| | Temperature: 22℃ Humidity: 51 % RH Atmospheric Pressure: 1020 mbar |
| | Test mode:Normal Working_keep EUT running continual . |
| 7.5.3 | Test Results: |

| Cable port | Level (Vrms) | CDN/Clamp | Dwell time | Result / Observations |
|---|---|---|---|---|
| AC power port | 10 | CDN | 3s | A |

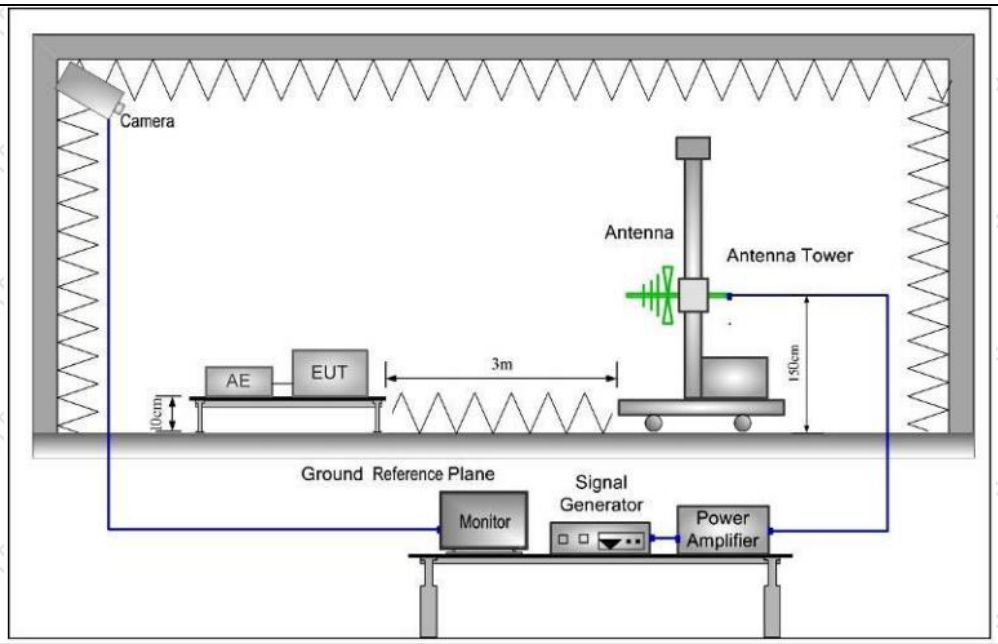
Results:
A: No degradation in the performance of the EUT was observed.

| | |
|---|---|
| 7.6 | Voltage Dips and Interruptions |
| | Test Requirement: EN IEC 61000-6-2:2019 |
| | Test Method: EN 61000-4-11:2004 +A1:2017 |
| | Performance Criterion: 0% of UT (Supply Voltage) for 250 Periods:C;<br>40% of UT for 10 Periods:C;<br>70% of UT for 25 Periods:C;<br>0% of UT for 1 Periods:B; |
| | No. of Dips / Interruptions: 3 per Level |
| | Time between dropout 10s |
| 7.6.1 | Test Setup Diagram |
| |  |
| 7.6.2 | E.U.T. Operation |
| | Operating Environment: |
| | Temperature: 22℃ Humidity: 51 % RH Atmospheric Pressure: 1020 mbar |
| | Test mode:Normal Working_keep EUT running continual . |
| 7.6.3 | Test Results: |

| Level % UT | Phase (deg) | Duration | No. of Dips / Interruptions | Result / Observations |
|---|---|---|---|---|
| 0 | 0 | 1 Cycles | 3 | A |
| 0 | 180° | 1 Cycles | 3 | A |
| 40 | 0 | 10 Cycles | 3 | A |
| 40 | 180° | 10 Cycles | 3 | A |
| 70 | 0 | 25 Cycles | 3 | A |
| 70 | 180° | 25 Cycles | 3 | A |
| 0 | 0 | 250 Cycles | 3 | B |
| 0 | 180° | 250 Cycles | 3 | B |

Results:
A: No degradation in the performance of the EUT was observed.
B: During the test, EUT stop working, after the test, EUT can restart automatic.

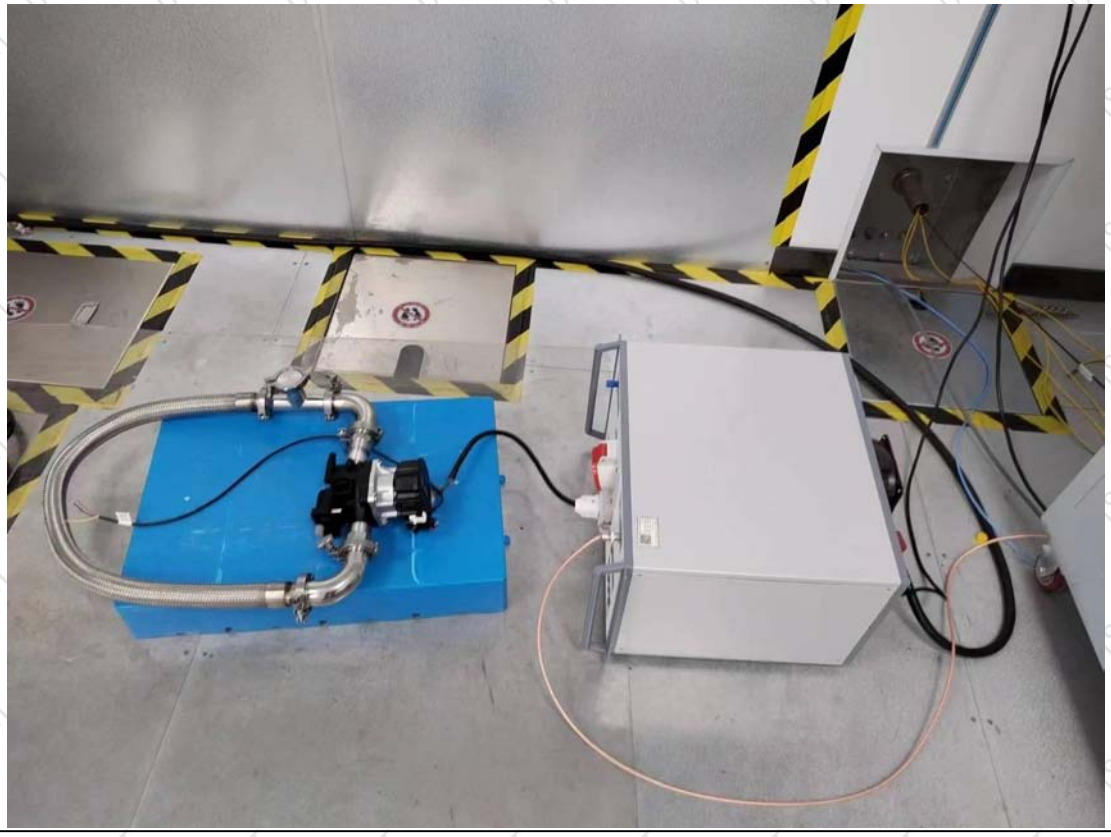
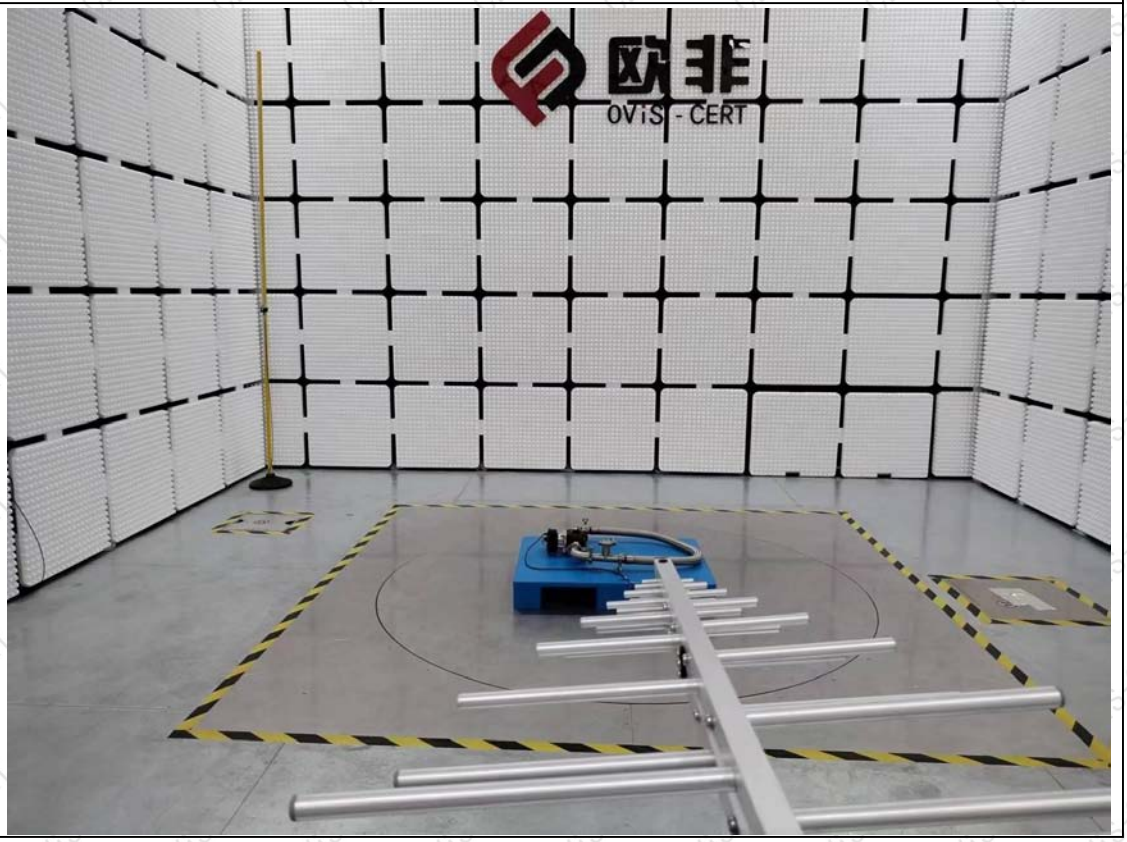
| | |
|---|---|
| 7.7 | Radiated Immunity (80MHz-3.6GHz) |
| | Test Requirement: EN IEC 61000-6-2:2019 |
| | Test Method: EN 61000-4-3:2006 +A1:2008+A2:2010 |
| | Performance Criterion: A |
| | Frequency Range: 80MHz to 3.6GHz |
| | Antenna Polarisation: Vertical and Horizontal |
| | Modulation: 1kHz,80% Amp. Mod,1% increment |
| 7.7.1 | Test Setup Diagram |

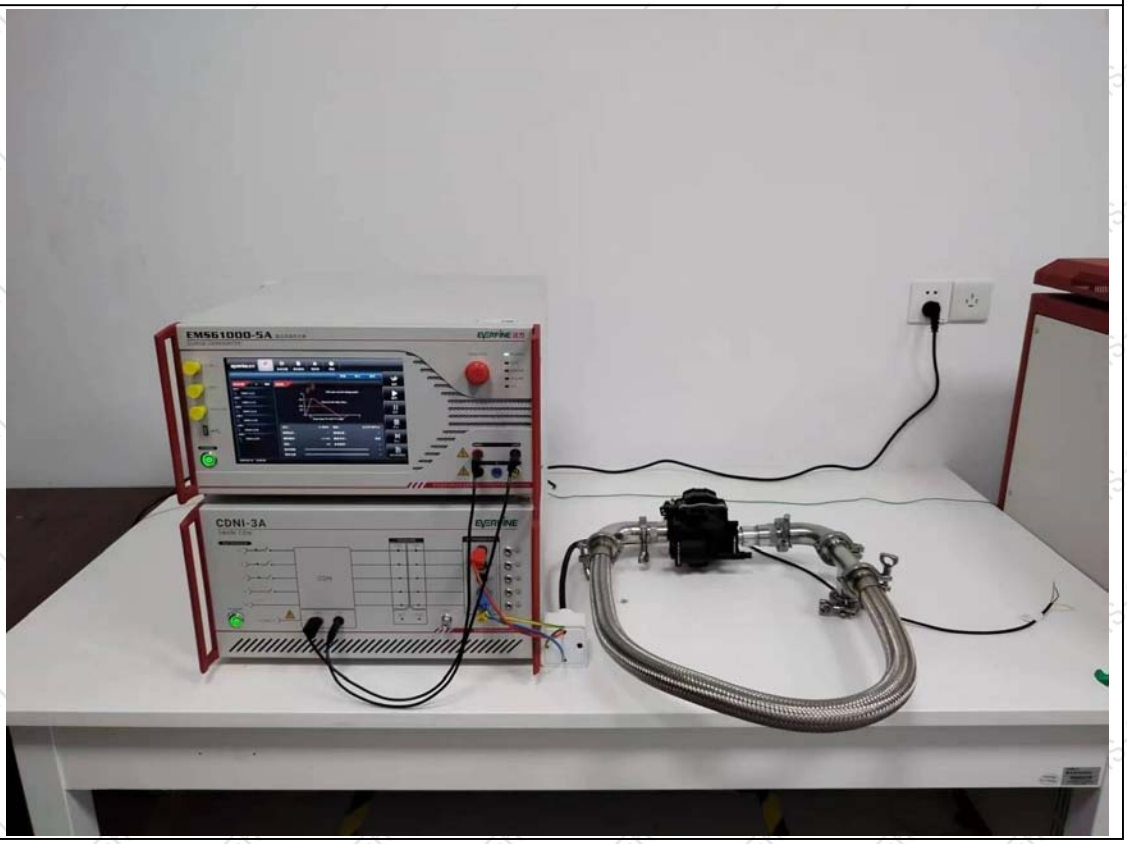


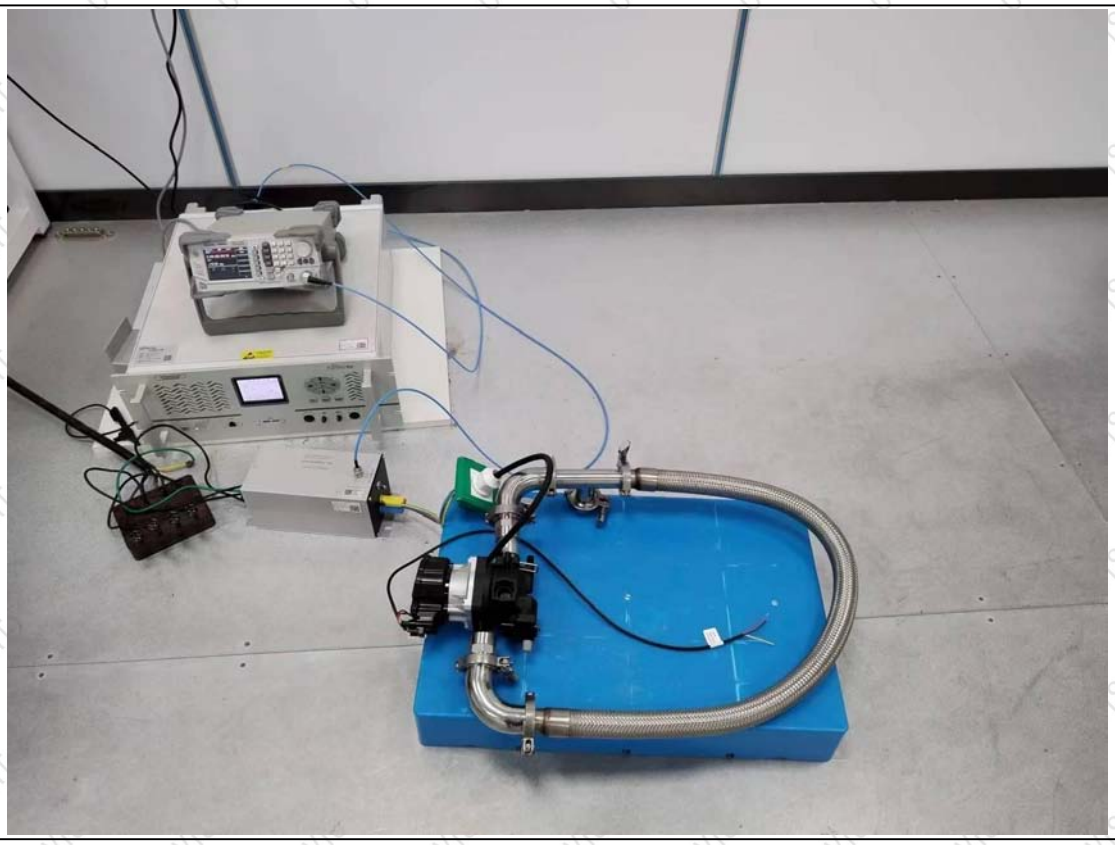

| | |
|---|---|
| 7.7.2 | E.U.T. Operation |
| | Operating Environment: |
| | Temperature: 22℃ Humidity: 51 % RH Atmospheric Pressure: 1020 mbar |
| | Test mode:Normal Working_keep EUT running continual . |
| 7.7.3 | Test Results: |

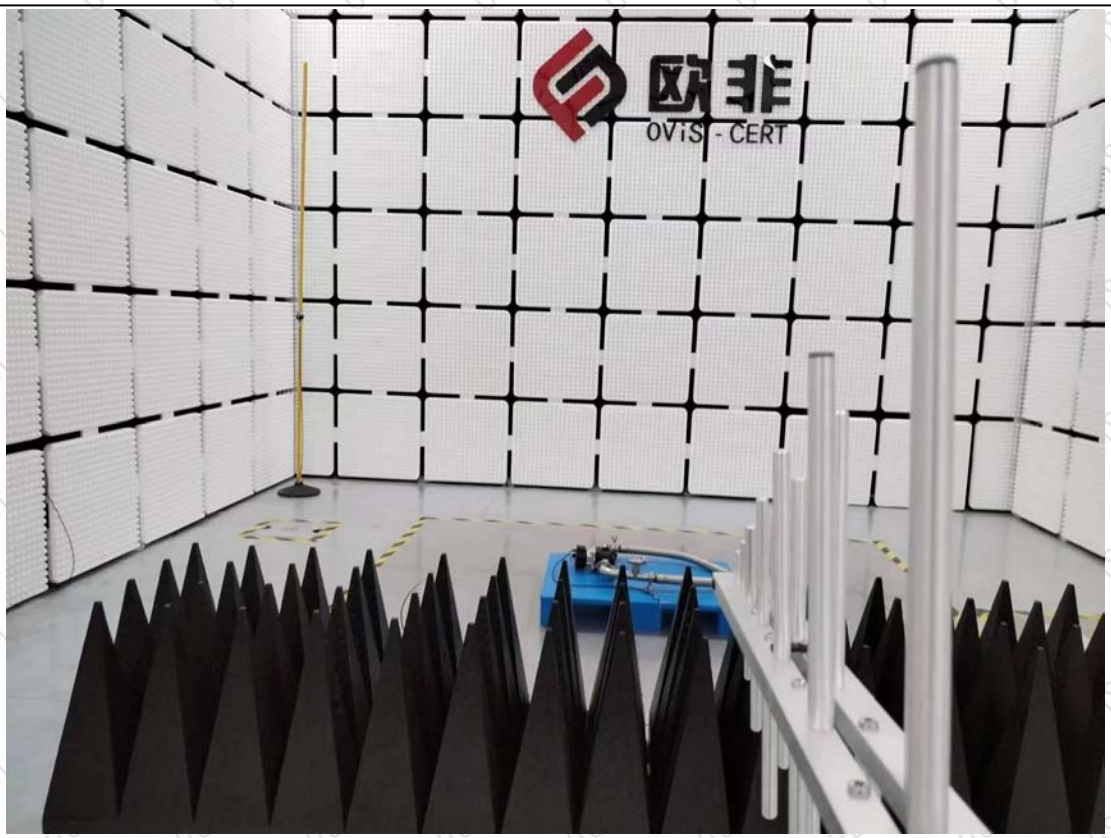
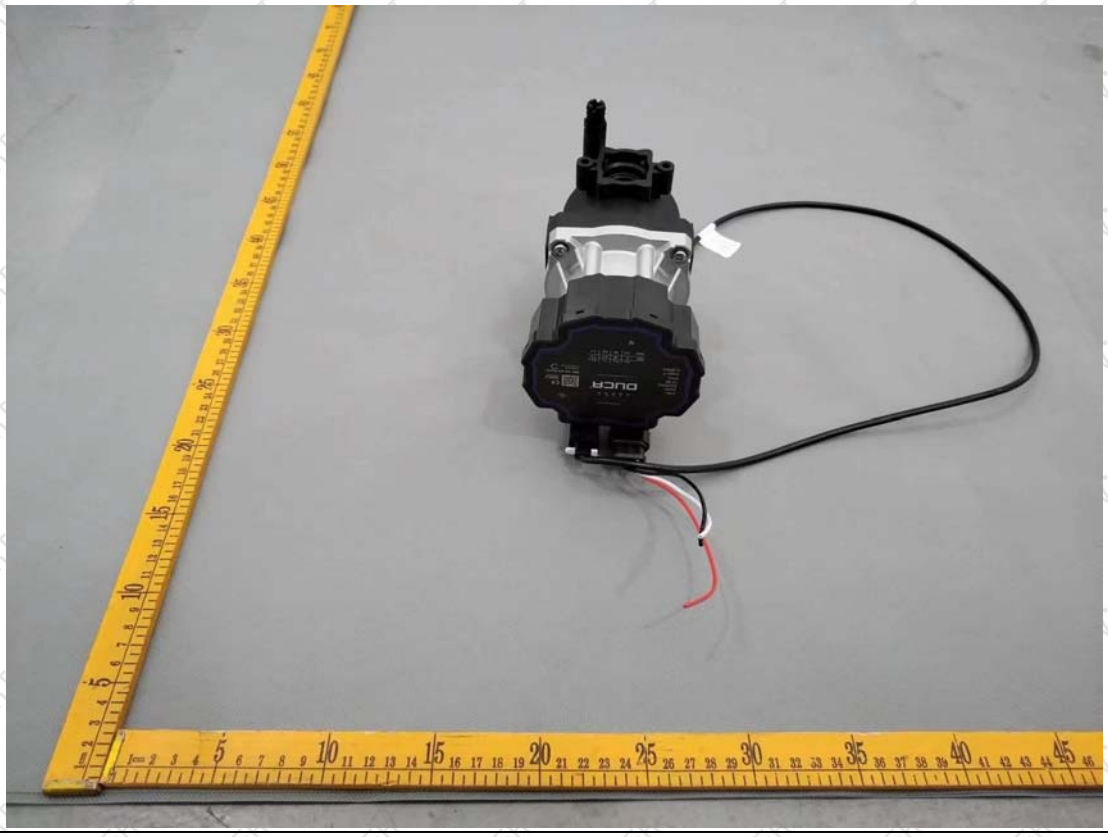
| Frequency | Level (V/m) | EUT Face | Dwell time | Result / Observations |
|---|---|---|---|---|
| 80MHz-1GHz | 10 | Front | 3s | A |
| 80MHz-1GHz | 10 | Back | 3s | A |
| 80MHz-1GHz | 10 | Left | 3s | A |
| 80MHz-1GHz | 10 | Right | 3s | A |
| 1GHz-3.6GHz | 3 | Front | 3s | A |
| 1GHz-3.6GHz | 3 | Back | 3s | A |
| 1GHz-3.6GHz | 3 | Left | 3s | A |
| 1GHz-3.6GHz | 3 | Right | 3s | A |

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

| 8 | **Photographs** |
|---|---|
| 8.1 | Conducted Emissions at Mains Terminals (150kHz-30MHz) Test Setup |
| |  |
| 8.2 | Radiated Emissions (30MHz-1GHz) Test Setup |
| |   |

| | |
|---|---|
| 8.3 | Electrical Fast Transients/Burst at Power Port Test Setup |
| |  |
| 8.4 | Surge at Power Port Test Setup |
| |  |

| | |
|---|---|
| 8.5 | Conducted Immunity at Power Port (150kHz-80MHz) Test Setup |
| |  |
| 8.6 | Voltage Dips and Interruptions Test Setup |
| |  |

| | |
|---|---|
| 8.7 | Radiated Immunity (80MHz-3.6GHz) Test Setup |
| |  |
| 8.8 | EUT Constructional Details (EUT Photos) |
| |  |

# REMARKS

1. This report is invalid without the seal of special stamp for OViS test report and invalid if altered.

2. The copy of this report is invalid without a new seal of special stamp for OViS test report and invalid if altered.

3. This report is invalid without seals or signatures of Tester,Checker and Approval.

4. If there is no special announcement in this report,the informat ion of producer and samples is not identified by OViS,the customer is responsible for truth of the samples.

5. Objections to the test report must be submitted to OViS within 15 days.

6. The test results shown in this report is only applicable for the samples supplied directly by the customer and accepted by the test organization,the customer shall not propagandize improperly without permission by OViS.

7. “P” means “pass” , “F” means “fail”, “N/A” or “—” means “not applicable” and “ / ”means “not test”.

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