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TEST REPORT

Application No.: SHEM1706004210IT
Applicant: Zhejiang Dahua Vision Technology Co., Ltd.
Address of Applicant: No.1199, Bin'an Road, Binjiang District, Hangzhou, P.R. China
Manufacturer: Zhejiang Dahua Vision Technology Co., Ltd.
Address of Manufacturer: No.1199, Bin'an Road, Binjiang District, Hangzhou, P.R. China
Factory: Zhejiang Dahua Vision Technology Co., Ltd.
Address of Factory: No.1199, Bin'an Road, Binjiang District, Hangzhou, P.R. China
Equipment Under Test (EUT):
EUT Name: IP CAMERA
Model No.: Refer to page 2
 ☐ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Standards: EN 55032:2015
 EN 61000-3-2:2014
 EN 61000-3-3:2013
 EN 55024:2010+A1:2015
 EN 50130-4:2011+A1:2014
Date of Receipt: 2017-06-30
Date of Test: 2017-06-30 to 2017-07-07
Date of Issue: 2017-07-17

| | |
|----------------------|--------------|
| Test Result : | Pass* |
|----------------------|--------------|

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

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EU Declaration of Conformity and compliance with all relevant EU Directives.



Parlam Zhan
E&E Section Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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Model No.:

DH-IPC-HFW2531TP-VFS-27135, DH-IPC-HFW2531TN-VFS-27135, DH-IPC-HFW2531TP-ZS-27135, DH-IPC-HFW2531TN-ZS-27135, H-IPC-HFW2531TP-VFAS-27135, DH-IPC-HFW2531TN-VFAS-27135, DH-IPC-HFW2531TP-ZAS-27135, DH-IPC-HFW2531TN-ZAS-27135, IPC-HFW2531TP-VFS-27135, IPC-HFW2531TN-VFS-27135, IPC-HFW2531TP-ZS-27135, IPC-HFW2531TN-ZS-27135, IPC-HFW2531TP-VFAS-27135, IPC-HFW2531TN-VFAS-27135, IPC-HFW2531TP-ZAS-27135, IPC-HFW2531TN-ZAS-27135, DH-IPC-HFW2531TP-VFS, DH-IPC-HFW2531TN-VFS, DH-IPC-HFW2531TP-ZS, DH-IPC-HFW2531TN-ZS, DH-IPC-HFW2531TP-VFAS, DH-IPC-HFW2531TN-VFAS, DH-IPC-HFW2531TP-ZAS, DH-IPC-HFW2531TN-ZAS, IPC-HFW2531TP-VFS, IPC-HFW2531TN-VFS, IPC-HFW2531TP-ZS, IPC-HFW2531TN-ZS, IPC-HFW2531TP-VFAS, IPC-HFW2531TN-VFAS, IPC-HFW2531TP-ZAS, IPC-HFW2531TN-ZAS, DH-IPC-HFW2431TP-VFS-27135, DH-IPC-HFW2431TN-VFS-27135, DH-IPC-HFW2431TP-ZS-27135, DH-IPC-HFW2431TN-ZS-27135, DH-IPC-HFW2431TP-VFAS-27135, DH-IPC-HFW2431TN-VFAS-27135, DH-IPC-HFW2431TP-ZAS-27135, DH-IPC-HFW2431TN-ZAS-27135, IPC-HFW2431TP-VFS-27135, IPC-HFW2431TN-VFS-27135, IPC-HFW2431TP-ZS-27135, IPC-HFW2431TN-ZS-27135, IPC-HFW2431TP-VFAS-27135, IPC-HFW2431TN-VFAS-27135, IPC-HFW2431TP-ZAS-27135, IPC-HFW2431TN-ZAS-27135, DH-IPC-HFW2431TP-VFS, DH-IPC-HFW2431TN-VFS, DH-IPC-HFW2431TP-ZS, DH-IPC-HFW2431TN-ZS, DH-IPC-HFW2431TP-VFAS, DH-IPC-HFW2431TN-VFAS, DH-IPC-HFW2431TP-ZAS, DH-IPC-HFW2431TN-ZAS, IPC-HFW2431TP-VFS, IPC-HFW2431TN-VFS, IPC-HFW2431TP-ZS, IPC-HFW2431TN-ZS, IPC-HFW2431TP-VFAS, IPC-HFW2431TN-VFAS, IPC-HFW2431TP-ZAS, IPC-HFW2431TN-ZAS, DH-IPC-HFW2231TP-VFS-27135, DH-IPC-HFW2231TN-VFS-27135, DH-IPC-HFW2231TP-ZS-27135, DH-IPC-HFW2231TN-ZS-27135, DH-IPC-HFW2231TP-VFAS-27135, DH-IPC-HFW2231TN-VFAS-27135, DH-IPC-HFW2231TP-ZAS-27135, DH-IPC-HFW2231TN-ZAS-27135, IPC-HFW2231TP-VFS-27135, IPC-HFW2231TN-VFS-27135, IPC-HFW2231TP-ZS-27135, IPC-HFW2231TN-ZS-27135, IPC-HFW2231TP-VFAS-27135, IPC-HFW2231TN-VFAS-27135, IPC-HFW2231TP-ZAS-27135, IPC-HFW2231TN-ZAS-27135, DH-IPC-HFW2231TP-VFS, DH-IPC-HFW2231TN-VFS, DH-IPC-HFW2231TP-ZS, DH-IPC-HFW2231TN-ZS, DH-IPC-HFW2231TP-VFAS, DH-IPC-HFW2231TN-VFAS, DH-IPC-HFW2231TP-ZAS, DH-IPC-HFW2231TN-ZAS, IPC-HFW2231TP-VFS, IPC-HFW2231TN-VFS, IPC-HFW2231TP-ZS, IPC-HFW2231TN-ZS, IPC-HFW2231TP-VFAS, IPC-HFW2231TN-VFAS, IPC-HFW2231TP-ZAS, IPC-HFW2231TN-ZAS, DH-IPC-HFW2230TP-VFS-27135, DH-IPC-HFW2230TN-VFS-27135, DH-IPC-HFW2230TP-ZS-27135, DH-IPC-HFW2230TN-ZS-27135, DH-IPC-HFW2230TP-VFAS-27135, DH-IPC-HFW2230TN-VFAS-27135, DH-IPC-HFW2230TP-ZAS-27135, DH-IPC-HFW2230TN-ZAS-27135, IPC-HFW2230TP-VFS-27135, IPC-HFW2230TN-VFS-27135, IPC-HFW2230TP-ZS-27135, IPC-HFW2230TN-ZS-27135, IPC-HFW2230TP-VFAS-27135, IPC-HFW2230TN-VFAS-27135, IPC-HFW2230TP-ZAS-27135, IPC-



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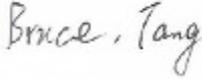
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HFW2230TN-ZAS-27135, DH-IPC-HFW2230TP-VFS, DH-IPC-HFW2230TN-VFS, DH-IPC-HFW2230TP-ZS, DH-IPC-HFW2230TN-ZS, DH-IPC-HFW2230TP-VFAS, DH-IPC-HFW2230TN-VFAS, DH-IPC-HFW2230TP-ZAS, DH-IPC-HFW2230TN-ZAS, IPC-HFW2230TP-VFS, IPC-HFW2230TN-VFS, IPC-HFW2230TP-ZS, IPC-HFW2230TN-ZS, IPC-HFW2230TP-VFAS, IPC-HFW2230TN-VFAS, IPC-HFW2230TP-ZAS, IPC-HFW2230TN-ZAS



| Revision Record | | | | |
|------------------------|----------------|-------------|-----------------|---------------|
| Version | Chapter | Date | Modifier | Remark |
| 00 | / | 2017-07-12 | / | Original |
| | | | | |
| | | | | |

| | | | |
|---------------------------------|--|--|-------------|
| Authorized for issue by: | | | |
| Tested By |  | | 2017-07-12 |
| | <hr/> | | <hr/> |
| | Bruce_tang /Project Engineer | | Date |
| Checked By |  | | 2017-07-12 |
| | <hr/> | | <hr/> |
| | Zenger_Zhang /Reviewer | | Date |



2 Test Summary

| Emission Part | | | | |
|---|-------------------|-------------------|--------------------------|--------|
| Item | Standard | Method | Requirement | Result |
| Conducted Emissions at Mains Terminals (150kHz-30MHz) | EN 55032:2015 | EN 55032:2015 | Class B | Pass |
| Asymmetric Mode Conducted Emissions (150kHz-30MHz) | EN 55032:2015 | EN 55032:2015 | Class B | Pass |
| Radiated Emissions (30MHz-1GHz) | EN 55032:2015 | EN 55032:2015 | Class B | Pass |
| Radiated Emissions (above 1GHz) | EN 55032:2015 | EN 55032:2015 | Class B | Pass |
| Harmonic Current Emission | EN 61000-3-2:2014 | EN 61000-3-2:2014 | Class A | N/A* |
| Voltage Fluctuations and Flicker | EN 61000-3-3:2013 | EN 61000-3-3:2013 | Clause 5 of EN 61000-3-3 | Pass |
| N/A*:Please refer to Section 6.5 for details | | | | |



| Immunity Part | | | | |
|--|-----------------------------|---------------------------------------|---|---------------|
| Item | Standard | Method | Requirement | Result |
| Electrostatic Discharge | EN 55024:2010 +A1:2015 | EN 61000-4-2:2009 | 4kV Contact Discharge 8kV Air Discharge | Pass |
| 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-1GHz) | EN 55024:2010 +A1:2015 | EN 61000-4-3:2006 +A1:2008+A2:2010 | 3V/m, 80%, 1kHz Amp. Mod. | Pass |
| Electrical Fast Transients/Burst at Power Port | EN 55024:2010 +A1:2015 | EN 61000-4-4:2012 | 1kV 5/50ns Tr/Td 5kHz Repetition Frequency | Pass |
| Electrical Fast Transients/Burst at Power Port | EN 50130-4:2011 +A1:2014 | EN 61000-4-4:2012 | 2kV 5/50ns Tr/Td 100kHz Repetition Frequency | Pass |
| Electrical Fast Transients/Burst at Signal Port | EN 55024:2010 +A1:2015 | EN 61000-4-4:2012 | 0.5kV 5/50ns Tr/Td 5kHz Repetition Frequency | Pass |
| Electrical Fast Transients/Burst at Signal Port | EN 50130-4:2011 +A1:2014 | EN 61000-4-4:2012 | 1kV 5/50ns Tr/Td 100kHz Repetition Frequency | Pass |
| Surge at Power Port | EN 55024:2010 +A1:2015 | EN 61000-4-5:2014 | 1.2/50µs Tr/Td 1kV Line to Line 2kV Line to Ground | Pass |
| Surge at Power Port | EN 50130-4:2011 +A1:2014 | EN 61000-4-5:2014 | 1.2/50µs Tr/Td 0.5,1kV Line to Line 0.5,1,2kV Line to Ground | Pass |
| Surge at Signal Port | EN 55024:2010 +A1:2015 | EN 61000-4-5:2014 | 1.2/50µs Tr/Td 1kV Line to Ground | Pass |
| Surge at Signal Port | EN 50130-4:2011 +A1:2014 | EN 61000-4-5:2014 | 1.2/50µs Tr/Td 0.5,1kV Line to Ground | Pass |
| Conducted Immunity at Power Port (150kHz-80MHz) | EN 55024:2010 +A1:2015 | EN 61000-4-6:2014 | 3Vrms (emf),80%,1kHz Amp. Mod. | Pass |
| Conducted Immunity at Signal Port (150kHz-80MHz) | EN 55024:2010 +A1:2015 | EN 61000-4-6:2014 | 3Vrms (emf),80%,1kHz Amp. Mod. | Pass |
| Voltage Dips and Interruptions | EN 55024:2010 +A1:2015 | EN 61000-4-11:2004 | 0 % UT for 0.5per 0 % UT for 250per 70 % UT for 25per UT is Supply Voltage | Pass |



| Immunity Part | | | | |
|---|--------------------------|------------------------------------|---|---------------|
| Item | Standard | Method | Requirement | Result |
| Voltage Dips and Interruptions | EN 50130-4:2011 +A1:2014 | EN 61000-4-11:2004 | 80 % UT for 250per 70 % UT for 25per 40 % UT for 10per 0 % UT for 250per UT is Supply Voltage | Pass |
| Mains Supply Voltage Variations-Conditioning | EN 50130-4:2011 +A1:2014 | EN 50130-4:2011+A1:2014 | Unom+10% Unom-15% | Pass |
| Radiated Immunity(80MHz-2.7GHz) | EN 50130-4:2011 +A1:2014 | EN 61000-4-3:2006 +A1:2008+A2:2010 | 10V/m, 80%, 1kHz sinusoidal Amp. Mod. | Pass |
| Conducted Immunity at Power Port (150kHz-100MHz) | EN 50130-4:2011 +A1:2014 | EN 61000-4-6:2014 | 10Vrms (emf),80%,1kHz sinusoidal Amp. Mod. | Pass |
| Conducted Immunity at Signal Port (150kHz-100MHz) | EN 50130-4:2011 +A1:2014 | EN 61000-4-6:2014 | 10Vrms (emf),80%,1kHz sinusoidal Amp. Mod. | Pass |

| InternalSource | UpperFrequency |
|-----------------------|---|
| Below 108MHz | 1GHz |
| 108MHz to 500MHz | 2GHz |
| 500MHz to 1GHz | 5GHz |
| Above 1GHz | 5 times the highest frequency or 6 GHz, whichever is less |

Declaration of EUT Family Grouping:

There are series models mentioned in this report and they are the similar in electrical and electronic characters. Only the model DH-IPC-HFW2531TP-ZAS was tested since their differences are sales area and pixel.



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4 General Information

4.1 Details of E.U.T.

Power supply: 12VDC/1.5A or POE
Cable: signal cable : about 0.4m
Internal source: 720MHz

4.2 Description of Support Units

| Description | Manufacturer | Model No. |
|-------------|--------------|-----------|
| Laptop 1 | LENOVO | R400 |

4.3 Measurement Uncertainty

| No. | Item | Measurement Uncertainty |
|-----|---|-------------------------|
| 1 | Conducted Emission at mains port using AMN | 3.2dB (9kHz to 150kHz) |
| | | 3.0dB (150kHz to 30MHz) |
| | Conducted Emission at mains port using VP | 1.9 dB(9kHz to 30MHz) |
| | Conducted Emission at telecommunication port using AAN | 2.4 dB(150kHz to 30MHz) |
| 2 | Radiated Power | 3.5dB |
| 3 | Radiated emission | 4.4dB (30MHz-1GHz) |
| | | 4.6dB (1GHz-6GHz) |
| 4 | Radiated Immunity | 1.64dB |
| 5 | Conducted Immunity | 0.96dB |
| 6 | ESD | 6 % |
| 7 | EFT (Electrical Fast Transients) | 5 % |
| 8 | Surge Immunity | 5 % |
| 9 | Voltage Dips and Interruptions | 4 % |
| 10 | 20 system | 1.5dB |
| 11 | Temperature test | 1 °C |
| 12 | Humidity test | 3% |
| 13 | DC power test | 0.5 % |



4.4 Standards Applicable for Testing

Table 1 : Tests Carried Out Under EN 55032:2015

| Item | Status |
|--|--------|
| Conducted Emissions at Mains Terminals (150kHz-30MHz) | √ |
| Conducted Differential Voltage Emissions (30MHz-1GHz) | × |
| Conducted Differential Voltage Emissions (30MHz-2.15GHz) | × |
| Asymmetric Mode Conducted Emissions (150kHz-30MHz) | √ |
| Radiated Emissions (30MHz-1GHz) | √ |
| Radiated Emissions (above 1GHz) | √ |
| Conducted Emissions at DC Terminals (150kHz-30MHz) | × |

Table 2 : Tests Carried Out Under EN 61000-3-2:2014

| Item | Status |
|---------------------------|--------|
| Harmonic Current Emission | × |

Table 3 : Tests Carried Out Under EN 61000-3-3:2013

| Item | Status |
|----------------------------------|--------|
| Voltage Fluctuations and Flicker | √ |

Table 4 : Tests Carried Out Under EN 55024:2010 +A1:2015

| Item | Status |
|--|--------|
| Electrostatic Discharge | √ |
| Radiated Immunity (80MHz-1GHz) | √ |
| Electrical Fast Transients/Burst at Power Port | √ |
| Electrical Fast Transients/Burst at Signal Port | √ |
| Surge at Power Port | √ |
| Surge at Signal Port | √ |
| Conducted Immunity at Power Port (150kHz-80MHz) | √ |
| Conducted Immunity at Signal Port (150kHz-80MHz) | √ |
| Power Frequency Magnetic Field | × |
| Voltage Dips and Interruptions | √ |



Table 5 : Tests Carried Out Under EN 50130-4:2011 +A1:2014

| Item | Status |
|---|---------------|
| Electrostatic Discharge | √ |
| Electrical Fast Transients/Burst at Power Port | √ |
| Electrical Fast Transients/Burst at Signal Port | √ |
| Surge at Power Port | √ |
| Surge at Signal Port | √ |
| Voltage Dips and Interruptions | √ |
| Mains Supply Voltage Variations-Conditioning | √ |
| Radiated Immunity(80MHz-2.7GHz) | √ |
| Conducted Immunity at Power Port (150kHz-100MHz) | √ |
| Electrical Fast Transients/Burst at DC port | × |
| Surge at DC Port | × |
| Conducted Immunity at Signal Port (150kHz-100MHz) | √ |
| Conducted Immunity at DC Port (150kHz-100MHz) | × |

- × Indicates that the test is not applicable
√ Indicates that the test is applicable



4.5 Test Location

All tests were performed at:
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab
588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China
Tel: +86 21 6191 5666 Fax: +86 21 6191 5678
No tests were sub-contracted.

4.6 Test Facility

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

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **Industry Canada (IC) – IC Assigned Code: 8617A**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A-1.

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-3868,C-4336,T-2221,G-830 respectively.

4.7 Deviation from Standards

None

4.8 Abnormalities from Standard Conditions

None

4.9 Monitoring of EUT for All Immunity Test

Visual: work status and video quality



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 | ESR7 | SHEM162-1 | 2016-12-29 | 2017-12-28 |
| Line impedance stabilization network | SCHWARZBECK | NSLK8127 | SHEM061-1 | 2016-12-29 | 2017-12-28 |
| Line impedance stabilization network | EMCO | 3816/2 | SHEM019-1 | 2016-12-29 | 2017-12-28 |
| Pulse limiter | Rohde & Schwarz | ESH3-Z2 | SHEM029-1 | 2016-08-12 | 2017-08-11 |
| Shielding Room | ZHONGYU | 8*4*3M | SHEM079-2 | 2016-08-17 | 2017-08-16 |

| Radiated Emissions (30MHz-1GHz) | | | | | |
|---------------------------------|-----------------|-------------------|--------------|------------|--------------|
| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
| EMI test receiver | Rohde & Schwarz | ESU40 | SHEM051-1 | 2016-08-12 | 2017-08-11 |
| CONTROLLER | INNCO | CO200 | SHEM047-1 | N/A | N/A |
| ANTENNA MAST | INNCO | MA400-EP | SHEM047-2 | N/A | N/A |
| TURN DEVICE | INNCO | DE 3600-RH | SHEM047-3 | N/A | N/A |
| Broadband UHF-VHF ANTENNA | SCHWARZBECK | VULB9168 | SHEM048-1 | 2016-12-29 | 2017-12-28 |
| Low Frequency Amplifier | CLAVIIO | BDLNA-0001-412010 | SHEM164-1 | 2016-08-12 | 2017-08-11 |
| Semi/Fully Anechoic | ST | 11*6*6M | SHEM078-2 | 2016-08-17 | 2017-08-16 |

| Radiated Emissions (above 1GHz) | | | | | |
|--------------------------------------|-----------------|----------------------|--------------|------------|--------------|
| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
| EMI test receiver | Rohde & Schwarz | ESU40 | SHEM051-1 | 2016-08-12 | 2017-08-11 |
| CONTROLLER | INNCO | CO200 | SHEM047-1 | N/A | N/A |
| ANTENNA MAST | INNCO | MA400-EP | SHEM047-2 | N/A | N/A |
| TURN DEVICE | INNCO | DE 3600-RH | SHEM047-3 | N/A | N/A |
| Double ridged broadband horn ANTENNA | SCHWARZBECK | BBHA9120D | SHEM050-1 | 2017-01-16 | 2018-01-15 |
| High-amplifier | SCHWARZBECK | SCU-F0118-G40-BZ4-CS | SHEM050-2 | 2017-01-14 | 2018-01-13 |
| Semi/Fully Anechoic | ST | 11*6*6M | SHEM078-2 | 2016-08-17 | 2017-08-16 |

| Voltage Fluctuations and Flicker | | | | | |
|----------------------------------|--------------|----------|--------------|------------|--------------|
| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
| Harmonic&Flicker analyzer | AMETEK | PACS-1 | SHEM024-2 | 2016-09-06 | 2017-09-05 |
| AC Power Source 5KVA | AMETEK | 5001iX | SHEM025-2 | 2016-09-06 | 2017-09-05 |



| Electrostatic Discharge | | | | | |
|-----------------------------------|--------------|----------|--------------|------------|--------------|
| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
| Electrostatic Discharge Simulator | TESEQ | NSG 437 | SHEM041-1 | 2016-08-15 | 2017-08-14 |

| Radiated Immunity (80MHz-1GHz) | | | | | |
|---------------------------------------|-----------------|--------------|--------------|------------|--------------|
| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
| Signal generator | Rohde & Schwarz | SMJ100A | SHEM141-1 | 2016-12-29 | 2017-12-28 |
| Power Meter | Rohde & Schwarz | NRP | SHEM057-1 | 2016-12-29 | 2017-12-28 |
| Power meter sensor | Rohde & Schwarz | NRP-Z91 | SHEM057-2 | 2016-12-29 | 2017-12-28 |
| Antenna | SCHWARZBECK | STLP9128D | SHEM130-1 | N/A | N/A |
| Amplifier | MILMEGA | AS0840-55-55 | SHEM133-1 | N/A | N/A |
| Power meter sensor | Rohde & Schwarz | NRP-Z22 | SHEM136-1 | 2016-08-12 | 2017-08-11 |
| ElectroMagnetic Field Probe | ETS-Lindgren | HI-6113 | SHEM134-1 | 2016-08-12 | 2017-08-11 |
| Semi/Fully Anechoic | ST | 11*6*6M | SHEM078-2 | 2016-08-17 | 2017-08-16 |

| Electrical Fast Transients/Burst at Power Port | | | | | |
|---|--------------|-----------------|--------------|------------|--------------|
| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
| Immunity Test System | EMC PARTNER | TRA3000 F-S-D-V | SHEM163-1 | 2016-12-29 | 2017-12-28 |
| Matching resistors for EFT/burst generators | EM test | KW50 | SHEM026-4 | 2016-12-29 | 2017-12-28 |
| Matching resistors for EFT/burst generators | EM test | KW1000 | SHEM026-5 | 2016-12-29 | 2017-12-28 |

| Electrical Fast Transients/Burst at Signal Port | | | | | |
|--|--------------|-----------------|--------------|------------|--------------|
| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
| Immunity Test System | EMC PARTNER | TRA3000 F-S-D-V | SHEM163-1 | 2016-12-29 | 2017-12-28 |
| Capacitive coupling clamp | EM test | HFK | SHEM026-2 | 2016-08-12 | 2017-08-11 |
| Data coupling network 4 line | EM test | CNV 504 | SHEM026-3 | 2016-08-12 | 2017-08-11 |
| Matching resistors for EFT/burst generators | EM test | KW1000 | SHEM026-5 | 2016-12-29 | 2017-12-28 |

| Surge at Power Port | | | | | |
|----------------------------|--------------|-----------------|--------------|------------|--------------|
| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
| Immunity Test System | EMC PARTNER | TRA3000 F-S-D-V | SHEM163-1 | 2016-12-29 | 2017-12-28 |



| Surge at Signal Port | | | | | |
|------------------------------|--------------|-----------------|--------------|------------|--------------|
| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
| Immunity Test System | EMC PARTNER | TRA3000 F-S-D-V | SHEM163-1 | 2016-12-29 | 2017-12-28 |
| Data coupling network 4 line | EM test | CNV 504 | SHEM026-3 | 2016-08-12 | 2017-08-11 |

| Conducted Immunity at Power Port (150kHz-80MHz) | | | | | |
|---|-----------------|-------------|--------------|------------|--------------|
| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
| Signal generator | Rohde & Schwarz | SMJ100A | SHEM141-1 | 2016-12-29 | 2017-12-28 |
| PAMP Conducted RF test system | HAEFFLY | PAMP250 | SHEM023-1 | 2016-12-29 | 2017-12-28 |
| 6dB Attenuator | HUAXIANG | TST-150-761 | SHEM151-1 | N/A | N/A |
| Coupling clamp | LIITHI | EM 101 | SHEM027-1 | 2016-12-29 | 2017-12-28 |
| CDN impedance and K-factor | LUTHI | L-801 M1 | SHEM023-5 | 2016-12-29 | 2017-12-28 |
| CDN impedance and K-factor | LUTHI | L-801 M2/M3 | SHEM023-6 | 2017-01-14 | 2018-01-13 |
| Shielding Room | ZHONGYU | 5*5*3M | SHEM079-6 | 2016-08-17 | 2017-08-16 |

| Conducted Immunity at Signal Port (150kHz-80MHz) | | | | | |
|--|-----------------|----------|--------------|------------|--------------|
| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
| Signal generator | Rohde & Schwarz | SMJ100A | SHEM141-1 | 2016-12-29 | 2017-12-28 |
| PAMP Conducted RF test system | HAEFFLY | PAMP250 | SHEM023-1 | 2016-12-29 | 2017-12-28 |
| Coupling clamp | LIITHI | EM 101 | SHEM027-1 | 2016-12-29 | 2017-12-28 |
| Shielding Room | ZHONGYU | 5*5*3M | SHEM079-6 | 2016-08-17 | 2017-08-16 |

| Voltage Dips and Interruptions | | | | | |
|--------------------------------|--------------|-----------------|--------------|------------|--------------|
| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
| Immunity Test System | EMC PARTNER | TRA3000 F-S-D-V | SHEM163-1 | 2016-12-29 | 2017-12-28 |

| Mains Supply Voltage Variations-Conditioning | | | | | |
|--|--------------|-----------------|--------------|------------|--------------|
| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
| Immunity Test System | EMC PARTNER | TRA3000 F-S-D-V | SHEM163-1 | 2016-12-29 | 2017-12-28 |



| Radiated Immunity(80MHz-2.7GHz) | | | | | |
|--|---------------------|-----------------|---------------------|-----------------|---------------------|
| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
| Signal generator | Rohde & Schwarz | SMJ100A | SHEM141-1 | 2016-12-29 | 2017-12-28 |
| Power Meter | Rohde & Schwarz | NRP | SHEM057-1 | 2016-12-29 | 2017-12-28 |
| Power meter sensor | Rohde & Schwarz | NRP-Z91 | SHEM057-2 | 2016-12-29 | 2017-12-28 |
| Antenna | SCHWARZBECK | STLP9128D | SHEM130-1 | N/A | N/A |
| Antenna | SCHWARZBECK | STLP9149 | SHEM131-1 | N/A | N/A |
| Amplifier | MILMEGA | 80RF1000-250 | SHEM132-1 | N/A | N/A |
| Amplifier | MILMEGA | AS0840-55-55 | SHEM133-1 | N/A | N/A |
| Power meter sensor | Rohde & Schwarz | NRP-Z22 | SHEM136-1 | 2016-08-12 | 2017-08-11 |
| ElectroMagnetic Field Probe | ETS-Lindgren | HI-6113 | SHEM134-1 | 2016-08-12 | 2017-08-11 |
| Semi/Fully Anechoic | ST | 11*6*6M | SHEM078-2 | 2016-08-17 | 2017-08-16 |

| Conducted Immunity at Power Port (150kHz-100MHz) | | | | | |
|---|---------------------|-----------------|---------------------|-----------------|---------------------|
| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
| Signal generator | Rohde & Schwarz | SMJ100A | SHEM141-1 | 2016-12-29 | 2017-12-28 |
| PAMP Conducted RF test system | HAEFFLY | PAMP250 | SHEM023-1 | 2016-12-29 | 2017-12-28 |
| 6dB Attenuator | HUAXIANG | TST-150-761 | SHEM151-1 | N/A | N/A |
| CDN impedance and K-factor | LUTHI | L-801 M1 | SHEM023-5 | 2016-12-29 | 2017-12-28 |
| CDN impedance and K-factor | LUTHI | L-801 M2/M3 | SHEM023-6 | 2017-01-14 | 2018-01-13 |
| Shielding Room | ZHONGYU | 5*5*3M | SHEM079-6 | 2016-08-17 | 2017-08-16 |

| General used equipment | | | | | |
|-------------------------------|-----------------------------|-----------------|---------------------|-----------------|---------------------|
| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
| Digital pressure meter | YONGZHI | DYM3-01 | SHEM082-1 | 2017-03-03 | 2018-03-02 |
| Temperature&humidity recorder | ShangHai weather meter work | ZJ 1-2B | SHEM042-1~6 | 2016-08-19 | 2017-08-18 |
| Digital Multimeter | FLUKE | 17B | SHEM043-5 | 2016-08-15 | 2017-08-14 |
| Autofomer regulator | Guangzhou bao de | TDGC2-5KVA | SHEM150-1 | N/A | N/A |
| Multi-purpose tong tester | FLUKE | 316 | SHEM001-1 | 2017-01-29 | 2018-01-28 |

6 Emission Test Results

6.1 Conducted Emissions at Mains Terminals (150kHz-30MHz)

| | |
|-------------------|--|
| Test Requirement: | EN 55032:2015 |
| Test Method: | EN 55032:2015 |
| Frequency Range: | 150kHz to 30MHz |
| Limit: | |
| 0.15M-0.5MHz | 66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average |
| 0.5M-5MHz | 56dB(μV) quasi-peak, 46dB(μV) average |
| 5M-30MHz | 60dB(μV) quasi-peak, 50dB(μV) average |
| Detector: | Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz |

6.1.1 E.U.T. Operation

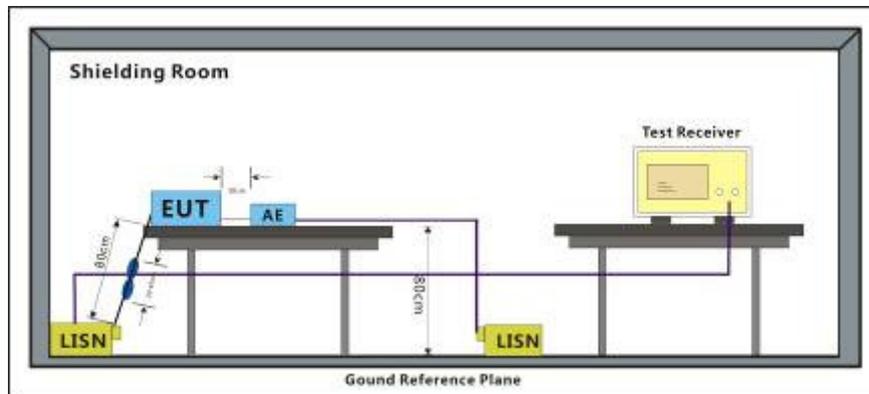
Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1001 mbar

Test mode: a:DC12V monitoring : keep EUT monitoring under DC12V supply continual .

b: PoE monitoring : keep EUT monitoring under PoE supply continual .

6.1.2 Test Setup Diagram

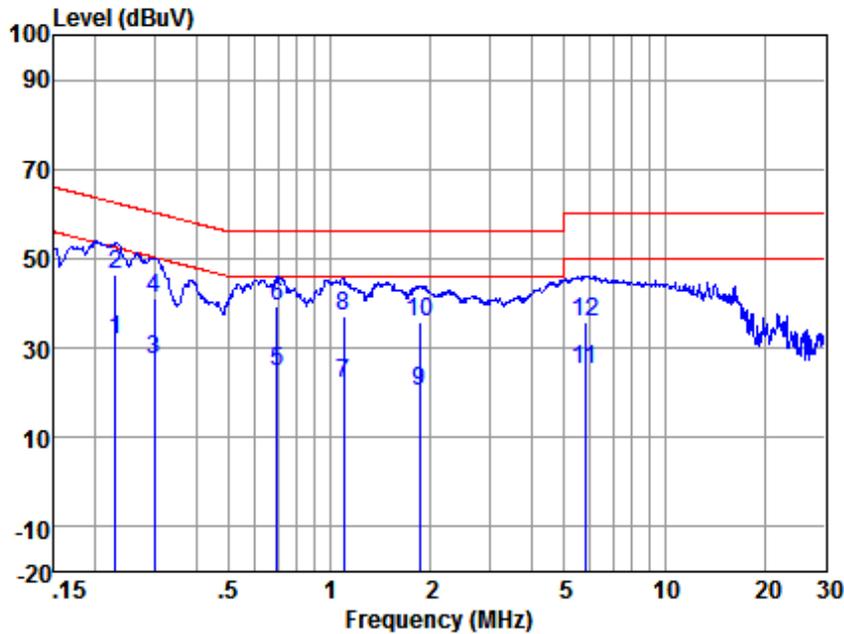


6.1.3 Measurement Data

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.



Mode:a, Line:Live Line

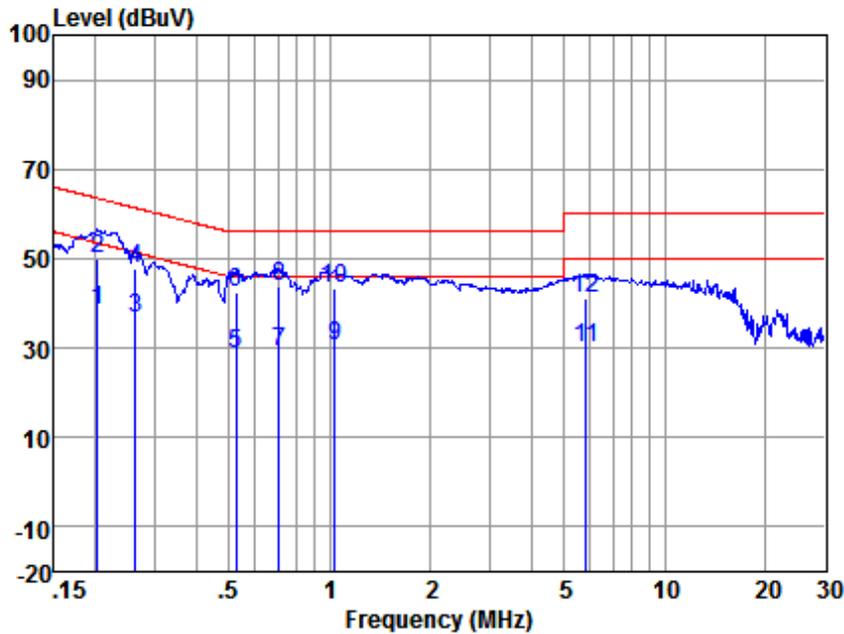


Site : chamber
Condition : LISN-L-2016
EUT/Project No: 4210IT
Test mode : a

| | Freq | Read Level | LISN Factor | Cable Loss | Level | Limit Line | Over Limit | Remark |
|----|-------|------------|-------------|------------|-------|------------|------------|---------|
| | MHz | dBuV | dB | dB | dBuV | dBuV | dB | |
| 1 | 0.229 | 21.86 | 0.09 | 9.81 | 31.76 | 52.48 | -20.72 | Average |
| 2 | 0.229 | 36.62 | 0.09 | 9.81 | 46.52 | 62.48 | -15.96 | QP |
| 3 | 0.300 | 17.58 | 0.09 | 9.81 | 27.48 | 50.24 | -22.76 | Average |
| 4 | 0.300 | 31.01 | 0.09 | 9.81 | 40.91 | 60.24 | -19.33 | QP |
| 5 | 0.697 | 14.86 | 0.10 | 9.83 | 24.79 | 46.00 | -21.21 | Average |
| 6 | 0.697 | 29.29 | 0.10 | 9.83 | 39.22 | 56.00 | -16.78 | QP |
| 7 | 1.100 | 12.30 | 0.08 | 9.84 | 22.22 | 46.00 | -23.78 | Average |
| 8 | 1.100 | 27.09 | 0.08 | 9.84 | 37.01 | 56.00 | -18.99 | QP |
| 9 | 1.858 | 10.28 | 0.08 | 9.85 | 20.21 | 46.00 | -25.79 | Average |
| 10 | 1.858 | 25.81 | 0.08 | 9.85 | 35.74 | 56.00 | -20.26 | QP |
| 11 | 5.805 | 15.12 | 0.16 | 9.86 | 25.14 | 50.00 | -24.86 | Average |
| 12 | 5.805 | 25.62 | 0.16 | 9.86 | 35.64 | 60.00 | -24.36 | QP |



Mode:a, Line:Neutral Line

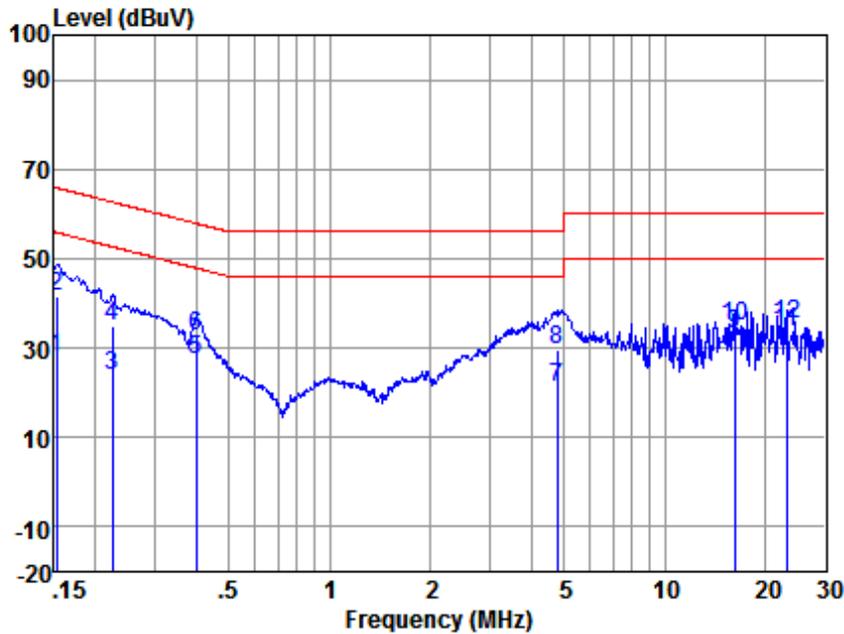


Site : chamber
Condition : LISN-N-2016
EUT/Project No: 4210IT
Test mode : a

| | Freq | Read Level | LISN Factor | Cable Loss | Level | Limit Line | Over Limit | Remark |
|----|-------|------------|-------------|------------|-------|------------|------------|---------|
| | MHz | dBuV | dB | dB | dBuV | dBuV | dB | |
| 1 | 0.202 | 28.53 | 0.05 | 9.81 | 38.39 | 53.54 | -15.15 | Average |
| 2 | 0.202 | 40.16 | 0.05 | 9.81 | 50.02 | 63.54 | -13.52 | QP |
| 3 | 0.263 | 26.66 | 0.05 | 9.81 | 36.52 | 51.34 | -14.82 | Average |
| 4 | 0.263 | 38.08 | 0.05 | 9.81 | 47.94 | 61.34 | -13.40 | QP |
| 5 | 0.524 | 18.72 | 0.04 | 9.82 | 28.58 | 46.00 | -17.42 | Average |
| 6 | 0.524 | 32.50 | 0.04 | 9.82 | 42.36 | 56.00 | -13.64 | QP |
| 7 | 0.705 | 19.29 | 0.05 | 9.83 | 29.17 | 46.00 | -16.83 | Average |
| 8 | 0.705 | 33.87 | 0.05 | 9.83 | 43.75 | 56.00 | -12.25 | QP |
| 9 | 1.037 | 20.65 | 0.05 | 9.84 | 30.54 | 46.00 | -15.46 | Average |
| 10 | 1.037 | 33.36 | 0.05 | 9.84 | 43.25 | 56.00 | -12.75 | QP |
| 11 | 5.836 | 20.02 | 0.18 | 9.86 | 30.06 | 50.00 | -19.94 | Average |
| 12 | 5.836 | 30.99 | 0.18 | 9.86 | 41.03 | 60.00 | -18.97 | QP |



Mode:b, Line:Live Line

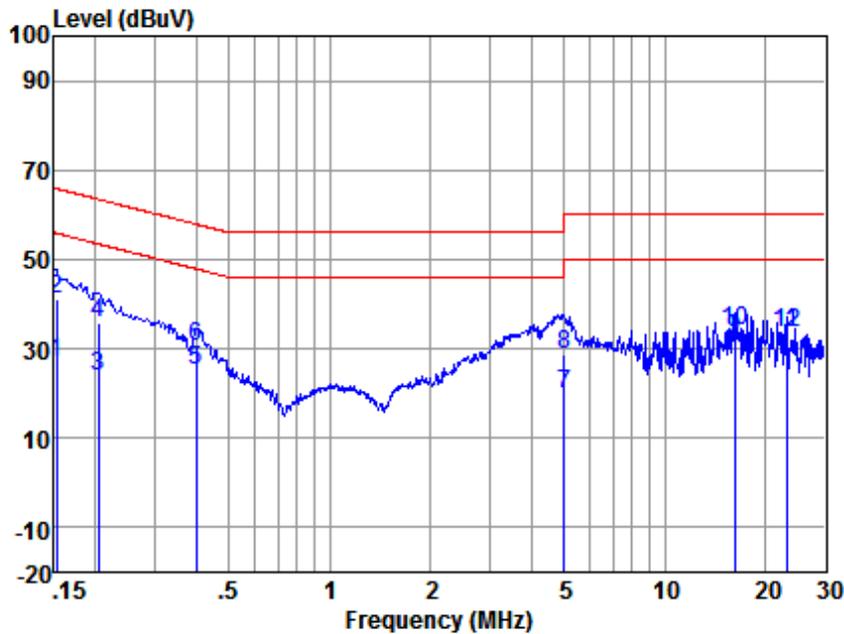


Site : chamber
Condition : LISN-L-2016
EUT/Project No: 4210IT
Test mode : b

| | Freq | Read Level | LISN Factor | Cable Loss | Level | Limit Line | Over Limit | Remark |
|----|--------|------------|-------------|------------|-------|------------|------------|---------|
| | MHz | dBuV | dB | dB | dBuV | dBuV | dB | |
| 1 | 0.152 | 17.77 | 0.05 | 9.81 | 27.63 | 55.87 | -28.24 | Average |
| 2 | 0.152 | 31.73 | 0.05 | 9.81 | 41.59 | 65.87 | -24.28 | QP |
| 3 | 0.224 | 14.07 | 0.09 | 9.81 | 23.97 | 52.66 | -28.69 | Average |
| 4 | 0.224 | 25.05 | 0.09 | 9.81 | 34.95 | 62.66 | -27.71 | QP |
| 5 | 0.400 | 17.64 | 0.10 | 9.82 | 27.56 | 47.86 | -20.30 | Average |
| 6 | 0.400 | 22.78 | 0.10 | 9.82 | 32.70 | 57.86 | -25.16 | QP |
| 7 | 4.772 | 10.99 | 0.15 | 9.86 | 21.00 | 46.00 | -25.00 | Average |
| 8 | 4.772 | 19.59 | 0.15 | 9.86 | 29.60 | 56.00 | -26.40 | QP |
| 9 | 16.226 | 22.71 | 0.23 | 10.02 | 32.96 | 50.00 | -17.04 | Average |
| 10 | 16.226 | 24.61 | 0.23 | 10.02 | 34.86 | 60.00 | -25.14 | QP |
| 11 | 23.140 | 23.07 | 0.35 | 10.04 | 33.46 | 50.00 | -16.54 | Average |
| 12 | 23.140 | 24.97 | 0.35 | 10.04 | 35.36 | 60.00 | -24.64 | QP |



Mode:b, Line:Neutral Line



Site : chamber
Condition : LISN-N-2016
EUT/Project No: 4210IT
Test mode : b

| | Freq | Read Level | LISN Factor | Cable Loss | Level | Limit Line | Over Limit | Remark |
|----|--------|------------|-------------|------------|-------|------------|------------|---------|
| | MHz | dBuV | dB | dB | dBuV | dBuV | dB | |
| 1 | 0.152 | 17.26 | 0.05 | 9.81 | 27.12 | 55.87 | -28.75 | Average |
| 2 | 0.152 | 31.05 | 0.05 | 9.81 | 40.91 | 65.87 | -24.96 | QP |
| 3 | 0.204 | 14.08 | 0.05 | 9.81 | 23.94 | 53.45 | -29.51 | Average |
| 4 | 0.204 | 26.00 | 0.05 | 9.81 | 35.86 | 63.45 | -27.59 | QP |
| 5 | 0.400 | 15.51 | 0.04 | 9.82 | 25.37 | 47.86 | -22.49 | Average |
| 6 | 0.400 | 20.67 | 0.04 | 9.82 | 30.53 | 57.86 | -27.33 | QP |
| 7 | 5.031 | 9.94 | 0.18 | 9.86 | 19.98 | 50.00 | -30.02 | Average |
| 8 | 5.031 | 18.46 | 0.18 | 9.86 | 28.50 | 60.00 | -31.50 | QP |
| 9 | 16.226 | 21.89 | 0.27 | 10.02 | 32.18 | 50.00 | -17.82 | Average |
| 10 | 16.226 | 23.81 | 0.27 | 10.02 | 34.10 | 60.00 | -25.90 | QP |
| 11 | 23.140 | 23.11 | 0.35 | 10.04 | 33.50 | 50.00 | -16.50 | Average |
| 12 | 23.140 | 23.10 | 0.35 | 10.04 | 33.49 | 60.00 | -26.51 | QP |

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

| | |
|-----------------------|---|
| Test Requirement: | EN 55032:2015 |
| Test Method: | EN 55032:2015 |
| Limit: | |
| 0.15M-0.5MHz(Voltage) | 84-74(dB μ V) quasi-peak, 74-64(dB μ V) average |
| 0.5M-30MHz(Voltage) | 74(dB μ V) quasi-peak, 64(dB μ V) average |
| 0.15M-0.5MHz(Current) | 40-30(dB μ V) quasi-peak, 30-20(dB μ V) average |
| 0.5M-30MHz(Current) | 30(dB μ V) quasi-peak, 20(dB μ V) average |
| Detector: | 9kHz resolution bandwidth 0.15M to 30MHz |
| Remark: | The voltage measured shall be corrected at each frequency of interest as follows: if the current margin with respect to the current limit is ≤ 6 dB, the actual current margin shall be subtracted from the measured voltage, if the current margin with respect to the current limit is > 6 dB, 6 dB shall be subtracted from the measured voltage. |

6.2.1 E.U.T. Operation

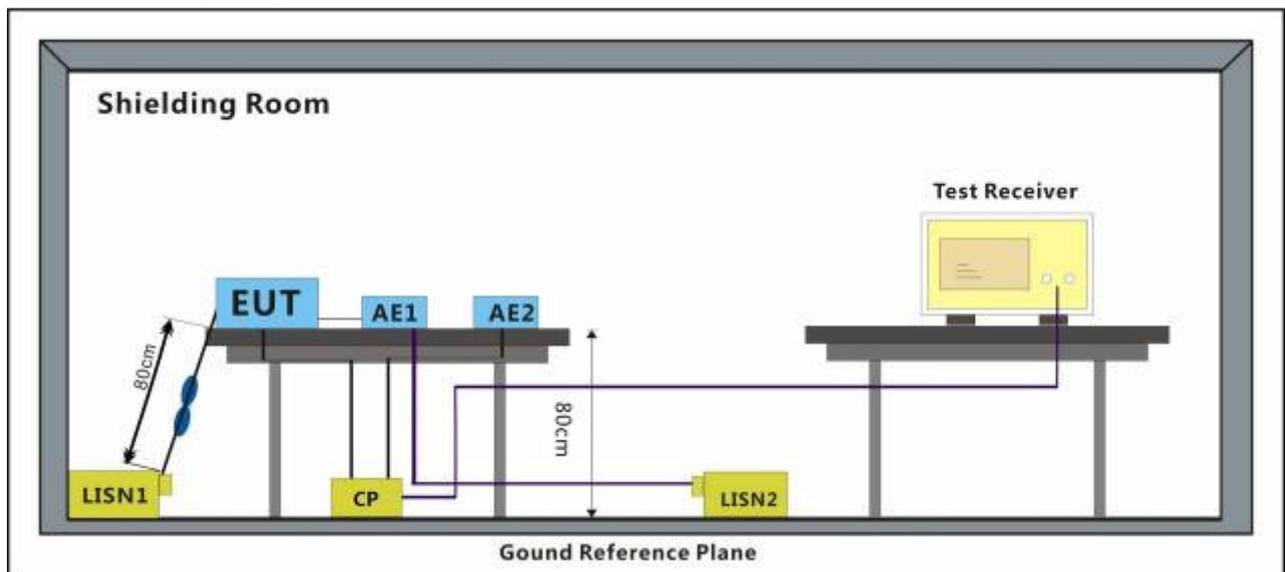
Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1001 mbar

Test mode: a:DC12V monitoring : keep EUT monitoring under DC12V supply continual .

b: PoE monitoring : keep EUT monitoring under PoE supply continual .

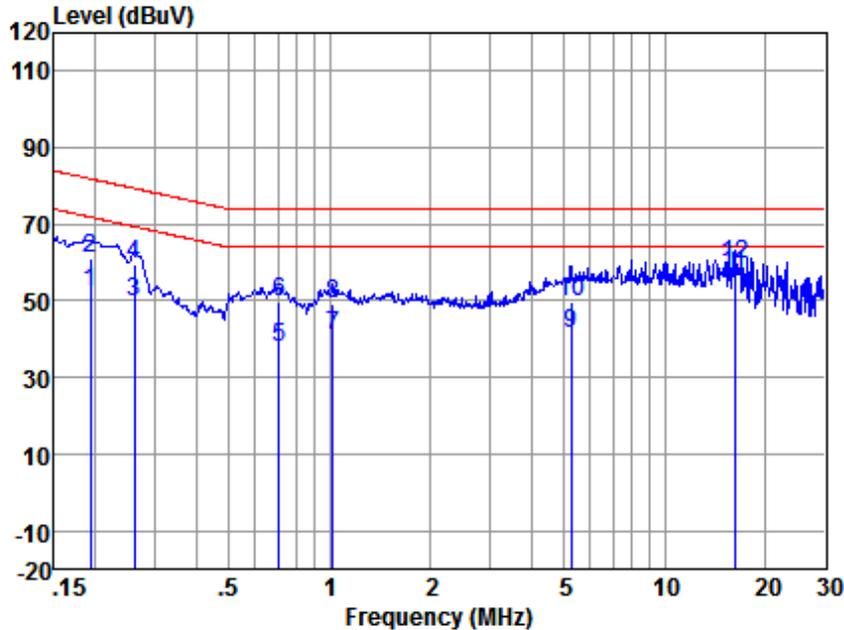
6.2.2 Test Setup Diagram





6.2.3 Measurement Data

Mode:a

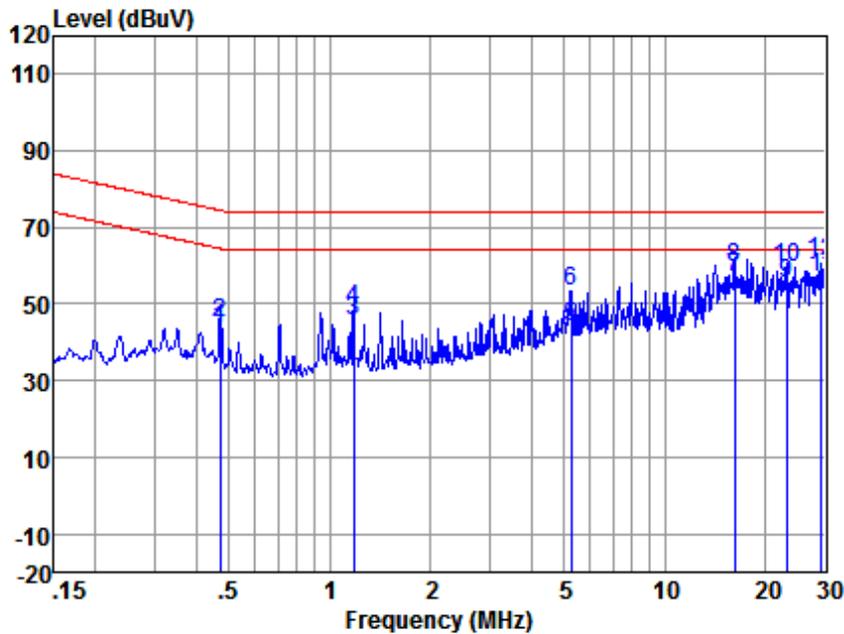


Site : chamber
Condition : ISN CAT5
Model number: 4210IT
Test mode : a

| | Read Freq | LISN Level | Cable Factor | Cable Loss | Limit Level | Over Line | Remark |
|----|-----------|------------|--------------|------------|-------------|--------------|---------|
| | MHz | dBuV | dB | dB | dBuV | dB | |
| 1 | 0.192 | 32.66 | 9.67 | 9.81 | 52.14 | 71.93 -19.79 | Average |
| 2 | 0.192 | 41.83 | 9.67 | 9.81 | 61.31 | 81.93 -20.62 | QP |
| 3 | 0.260 | 30.23 | 9.59 | 9.81 | 49.63 | 69.42 -19.79 | Average |
| 4 | 0.260 | 40.07 | 9.59 | 9.81 | 59.47 | 79.42 -19.95 | QP |
| 5 | 0.705 | 18.54 | 9.39 | 9.83 | 37.76 | 64.00 -26.24 | Average |
| 6 | 0.705 | 30.49 | 9.39 | 9.83 | 49.71 | 74.00 -24.29 | QP |
| 7 | 1.021 | 21.98 | 9.34 | 9.84 | 41.16 | 64.00 -22.84 | Average |
| 8 | 1.021 | 30.18 | 9.34 | 9.84 | 49.36 | 74.00 -24.64 | QP |
| 9 | 5.249 | 22.52 | 9.20 | 9.86 | 41.58 | 64.00 -22.42 | Average |
| 10 | 5.249 | 30.60 | 9.20 | 9.86 | 49.66 | 74.00 -24.34 | QP |
| 11 | 16.226 | 37.49 | 9.25 | 10.02 | 56.76 | 64.00 -7.24 | Average |
| 12 | 16.226 | 40.33 | 9.25 | 10.02 | 59.60 | 74.00 -14.40 | QP |



Mode:b



Site : chamber
Condition : ISN CAT5
Model number: 4210IT
Test mode : b

| | Freq | Read Level | LISN Factor | Cable Loss | Level | Limit Line | Over Limit | Remark |
|----|--------|------------|-------------|------------|-------|------------|------------|---------|
| | MHz | dBuV | dB | dB | dBuV | dBuV | dB | |
| 1 | 0.471 | 24.44 | 9.46 | 9.82 | 43.72 | 64.49 | -20.77 | Average |
| 2 | 0.471 | 25.73 | 9.46 | 9.82 | 45.01 | 74.49 | -29.48 | QP |
| 3 | 1.178 | 26.46 | 9.33 | 9.84 | 45.63 | 64.00 | -18.37 | Average |
| 4 | 1.178 | 29.57 | 9.33 | 9.84 | 48.74 | 74.00 | -25.26 | QP |
| 5 | 5.249 | 25.12 | 9.20 | 9.86 | 44.18 | 64.00 | -19.82 | Average |
| 6 | 5.249 | 34.52 | 9.20 | 9.86 | 53.58 | 74.00 | -20.42 | QP |
| 7 | 16.226 | 37.69 | 9.25 | 10.02 | 56.96 | 64.00 | -7.04 | Average |
| 8 | 16.226 | 40.04 | 9.25 | 10.02 | 59.31 | 74.00 | -14.69 | QP |
| 9 | 23.140 | 36.28 | 9.35 | 10.04 | 55.67 | 64.00 | -8.33 | Average |
| 10 | 23.140 | 40.21 | 9.35 | 10.04 | 59.60 | 74.00 | -14.40 | QP |
| 11 | 29.527 | 37.55 | 9.44 | 10.13 | 57.12 | 64.00 | -6.88 | Average |
| 12 | 29.527 | 41.77 | 9.44 | 10.13 | 61.34 | 74.00 | -12.66 | QP |

6.1 Radiated Emissions (30MHz-1GHz)

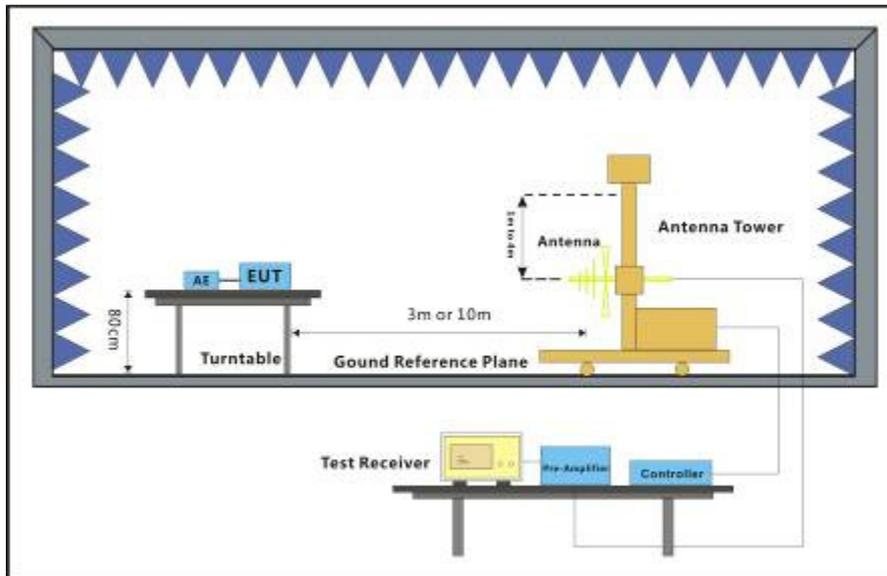
| | |
|-----------------------|--|
| Test Requirement: | EN 55032:2015 |
| Test Method: | EN 55032:2015 |
| Frequency Range: | 30MHz to 1GHz |
| Measurement Distance: | 3m |
| Limit: | |
| 30MHz-230MHz | 40 dB(μ V/m) quasi-peak |
| 230MHz-1GHz | 47 dB(μ V/m) quasi-peak |
| Detector: | Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz |

6.1.1 E.U.T. Operation

Operating Environment:

| | | | | | |
|--------------|---|-----------|---------|-----------------------|-----------|
| Temperature: | 20 °C | Humidity: | 50 % RH | Atmospheric Pressure: | 1001 mbar |
| Test mode: | a:DC12V monitoring : keep EUT monitoring under DC12V supply continual . | | | | |
| | b: PoE monitoring : keep EUT monitoring under PoE supply conitnual . | | | | |

6.1.2 Test Setup Diagram

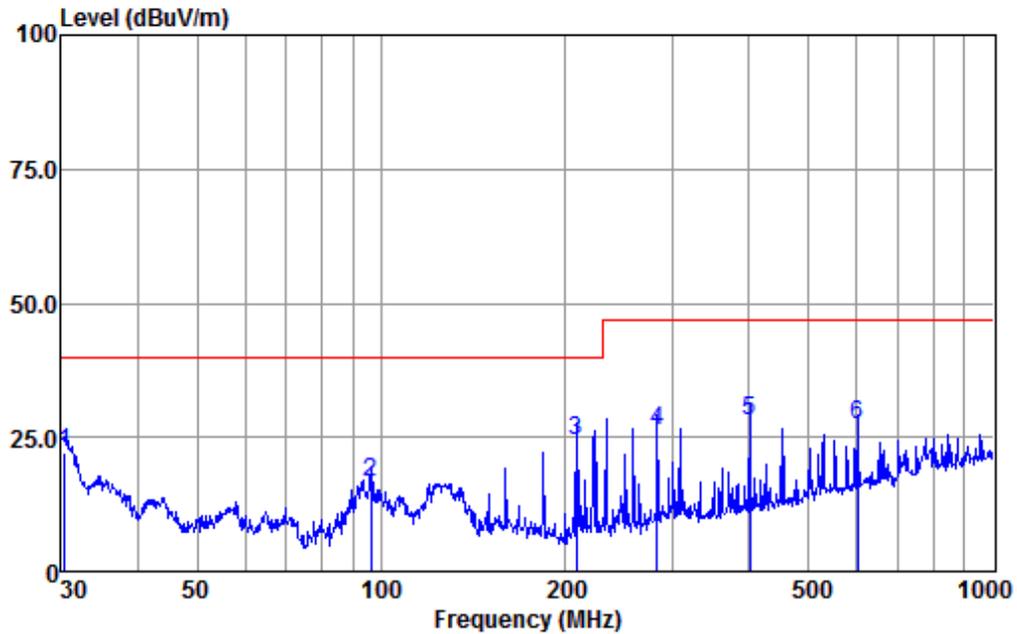


6.1.3 Measurement Data

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.



Mode:a, Polarization:Horizontal

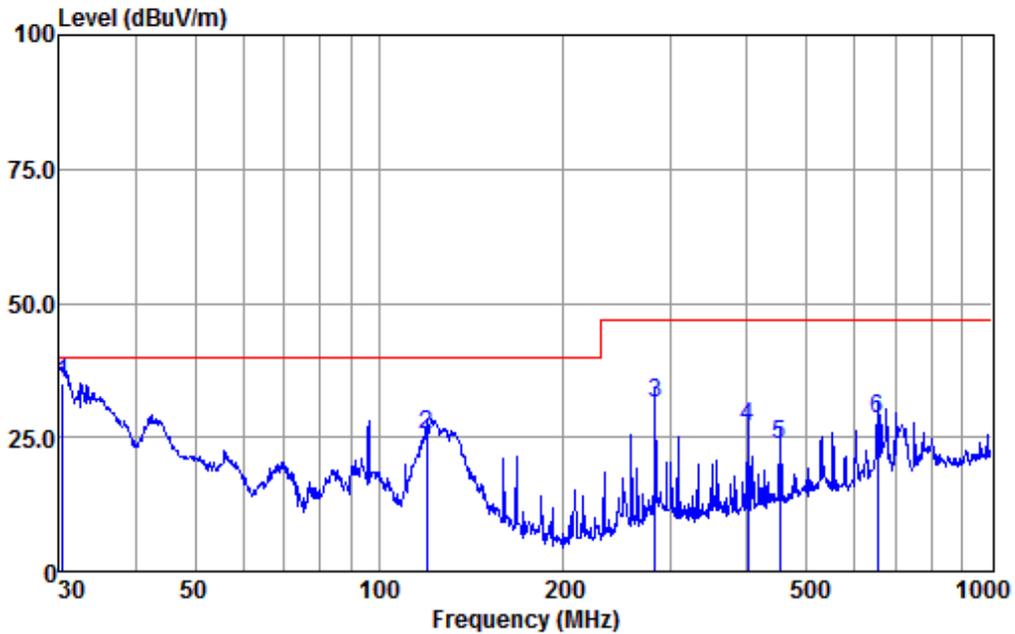


Condition : HORIZONTAL
EUT/Project: 4210IT
Test mode : a

| | ReadAntenna | Cable | Preamp | Limit | Over | | | |
|------|-------------|--------|--------|--------|--------|--------|-------|-----------|
| Freq | Level | Factor | Loss | Factor | Level | Line | Limit | Remark |
| MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 30.42 | 49.31 | 15.35 | 0.18 | 42.67 | 22.17 | 40.00 | -17.83 QP |
| 2 | 96.10 | 49.94 | 8.99 | 0.44 | 42.70 | 16.67 | 40.00 | -23.33 QP |
| 3 q | 208.58 | 56.51 | 9.79 | 0.71 | 42.48 | 24.53 | 40.00 | -15.47 QP |
| 4 | 282.99 | 55.13 | 12.64 | 0.82 | 42.37 | 26.22 | 47.00 | -20.78 QP |
| 5 | 400.43 | 54.14 | 15.10 | 1.00 | 42.09 | 28.15 | 47.00 | -18.85 QP |
| 6 | 601.43 | 48.57 | 19.42 | 1.38 | 42.19 | 27.18 | 47.00 | -19.82 QP |



Mode:a, Polarization:Vertical

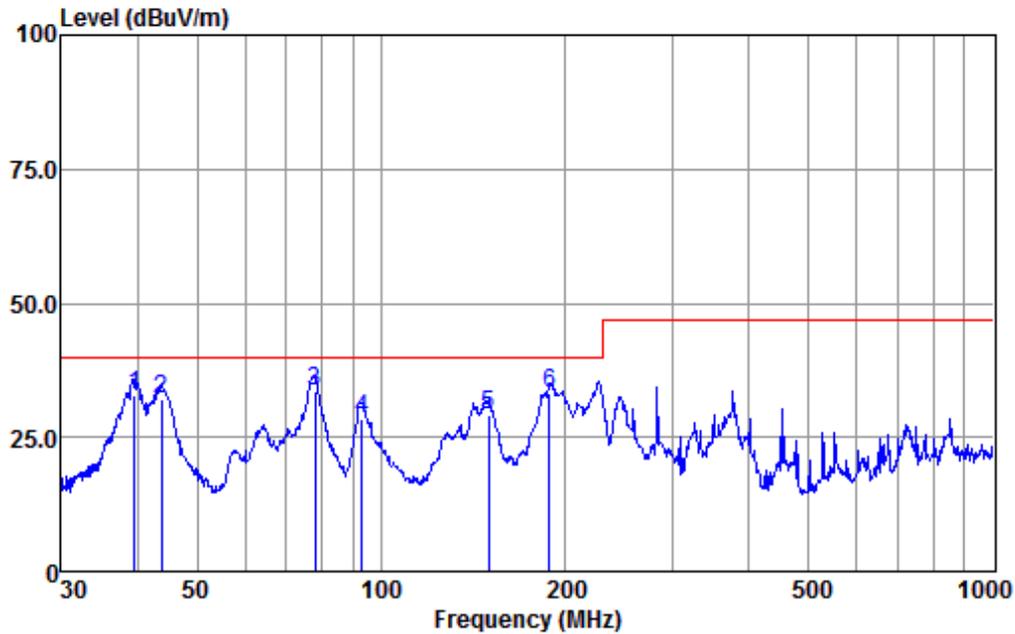


Condition : VERTICAL
EUT/Project: 4210IT
Test mode : a

| | ReadAntenna | Cable | Preamp | Limit | Over | | | |
|------|-------------|--------|--------|--------|--------|--------|-------|-----------|
| Freq | Level | Factor | Loss | Factor | Level | Line | Limit | Remark |
| MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 q | 30.42 | 62.03 | 15.35 | 0.18 | 42.67 | 34.89 | 40.00 | -5.11 QP |
| 2 | 119.86 | 57.68 | 10.00 | 0.54 | 42.67 | 25.55 | 40.00 | -14.45 QP |
| 3 | 282.99 | 60.14 | 12.64 | 0.82 | 42.37 | 31.23 | 47.00 | -15.77 QP |
| 4 | 400.43 | 52.78 | 15.10 | 1.00 | 42.09 | 26.79 | 47.00 | -20.21 QP |
| 5 | 451.14 | 48.30 | 16.23 | 1.09 | 42.07 | 23.55 | 47.00 | -23.45 QP |
| 6 | 651.94 | 49.28 | 19.84 | 1.51 | 42.22 | 28.41 | 47.00 | -18.59 QP |



Mode:b, Polarization:Horizontal

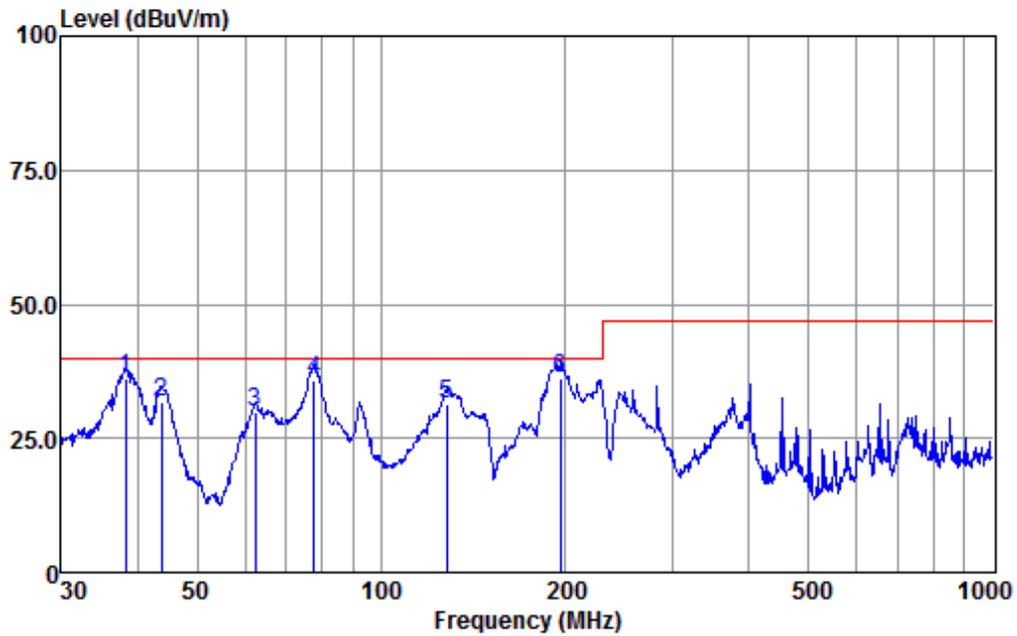


Condition : HORIZONTAL
EUT/Project: 4210IT
Test mode : b

| | ReadAntenna | Cable | Preamp | Limit | Over | | | |
|------|-------------|--------|--------|--------|--------|--------|-------|-----------|
| Freq | Level | Factor | Loss | Factor | Level | Line | Limit | Remark |
| MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 39.58 | 59.06 | 16.26 | 0.22 | 42.68 | 32.86 | 40.00 | -7.14 QP |
| 2 | 43.81 | 60.40 | 13.98 | 0.23 | 42.68 | 31.93 | 40.00 | -8.07 QP |
| 3 q | 78.14 | 67.15 | 8.63 | 0.37 | 42.69 | 33.46 | 40.00 | -6.54 QP |
| 4 | 93.11 | 62.24 | 8.57 | 0.43 | 42.70 | 28.54 | 40.00 | -11.46 QP |
| 5 | 150.01 | 59.18 | 11.90 | 0.62 | 42.58 | 29.12 | 40.00 | -10.88 QP |
| 6 | 188.41 | 64.53 | 10.51 | 0.68 | 42.51 | 33.21 | 40.00 | -6.79 QP |



Mode:b, Polarization:Vertical



Condition : VERTICAL
EUT/Project: 4210IT
Test mode : b

| | Freq | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Remark |
|-----|--------|----------------------|-------------------|---------------|------------------|--------|---------------|---------------|--------|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 38.21 | 62.30 | 16.14 | 0.22 | 42.68 | 35.98 | 40.00 | -4.02 | QP |
| 2 | 43.81 | 60.31 | 13.98 | 0.23 | 42.68 | 31.84 | 40.00 | -8.16 | QP |
| 3 | 62.21 | 59.81 | 12.33 | 0.30 | 42.69 | 29.75 | 40.00 | -10.25 | QP |
| 4 | 77.59 | 69.19 | 8.81 | 0.37 | 42.69 | 35.68 | 40.00 | -4.32 | QP |
| 5 | 128.11 | 61.02 | 12.31 | 0.57 | 42.63 | 31.27 | 40.00 | -8.73 | QP |
| 6 q | 196.51 | 68.21 | 9.70 | 0.69 | 42.50 | 36.10 | 40.00 | -3.90 | QP |

6.2 Radiated Emissions (above 1GHz)

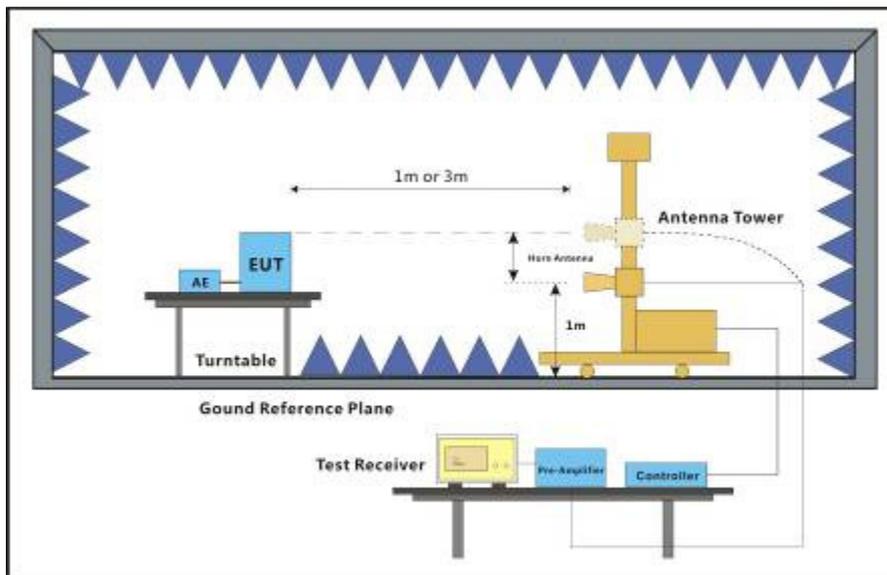
| | |
|-----------------------|---|
| Test Requirement: | EN 55032:2015 |
| Test Method: | EN 55032:2015 |
| Frequency Range: | Above 1GHz |
| Measurement Distance: | 3m |
| Limit: | |
| 1GHz-3GHz | 70 dB(μ V/m) peak, 50 dB(μ V/m) average |
| 3GHz-6GHz | 74 dB(μ V/m) peak, 54dB(μ V/m) average |
| Detector: | Peak for pre-scan (1000kHz resolution bandwidth) 1000M to 6000MHz |

6.2.1 E.U.T. Operation

Operating Environment:

| | | | | | |
|--------------|---|-----------|---------|-----------------------|-----------|
| Temperature: | 20 °C | Humidity: | 50 % RH | Atmospheric Pressure: | 1001 mbar |
| Test mode: | a:DC12V monitoring : keep EUT monitoring under DC12V supply continual . | | | | |
| | b: PoE monitoring : keep EUT monitoring under PoE supply conitnual . | | | | |

6.2.2 Test Setup Diagram

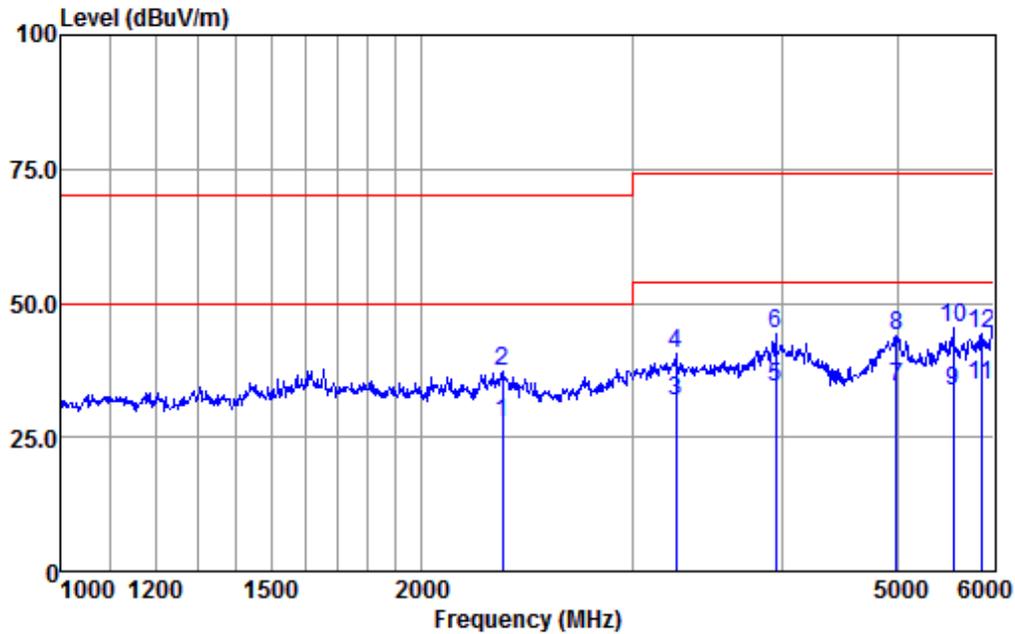


6.2.3 Measurement Data

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.



Mode:a, Polarization:Horizontal

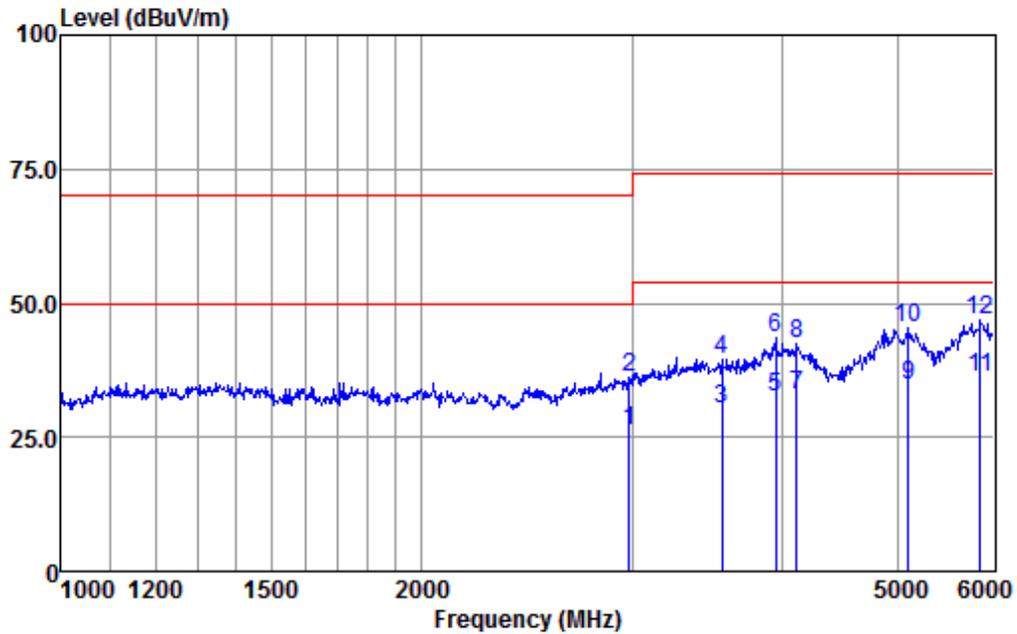


Condition : HORIZONTAL
EUT/Project: 4210IT
Test Mode : a

| | Freq | ReadAntenna Level | Antenna Factor | Cable Loss | Preamplifier Factor | Level | Limit Line | Over Limit | Remark |
|------|---------|----------------------|-------------------|---------------|------------------------|--------|---------------|---------------|---------|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 2338.00 | 37.87 | 26.98 | 5.07 | 42.18 | 27.74 | 50.00 | -22.26 | Average |
| 2 | 2338.00 | 47.28 | 26.98 | 5.07 | 42.18 | 37.15 | 70.00 | -32.85 | Peak |
| 3 | 3262.72 | 38.95 | 28.66 | 6.02 | 41.79 | 31.84 | 54.00 | -22.16 | Average |
| 4 | 3262.72 | 47.71 | 28.66 | 6.02 | 41.79 | 40.60 | 74.00 | -33.40 | Peak |
| 5 | 3952.23 | 39.84 | 29.60 | 6.99 | 41.95 | 34.48 | 54.00 | -19.52 | Average |
| 6 | 3952.23 | 49.53 | 29.60 | 6.99 | 41.95 | 44.17 | 74.00 | -29.83 | Peak |
| 7 | 4988.86 | 36.14 | 31.57 | 8.19 | 41.61 | 34.29 | 54.00 | -19.71 | Average |
| 8 | 4988.86 | 45.85 | 31.57 | 8.19 | 41.61 | 44.00 | 74.00 | -30.00 | Peak |
| 9 | 5565.05 | 35.42 | 31.99 | 8.32 | 41.99 | 33.74 | 54.00 | -20.26 | Average |
| 10 p | 5565.05 | 47.07 | 31.99 | 8.32 | 41.99 | 45.39 | 74.00 | -28.61 | Peak |
| 11 | 5872.37 | 35.69 | 32.41 | 8.40 | 41.88 | 34.62 | 54.00 | -19.38 | Average |
| 12 | 5872.37 | 45.29 | 32.41 | 8.40 | 41.88 | 44.22 | 74.00 | -29.78 | Peak |



Mode:a, Polarization:Vertical

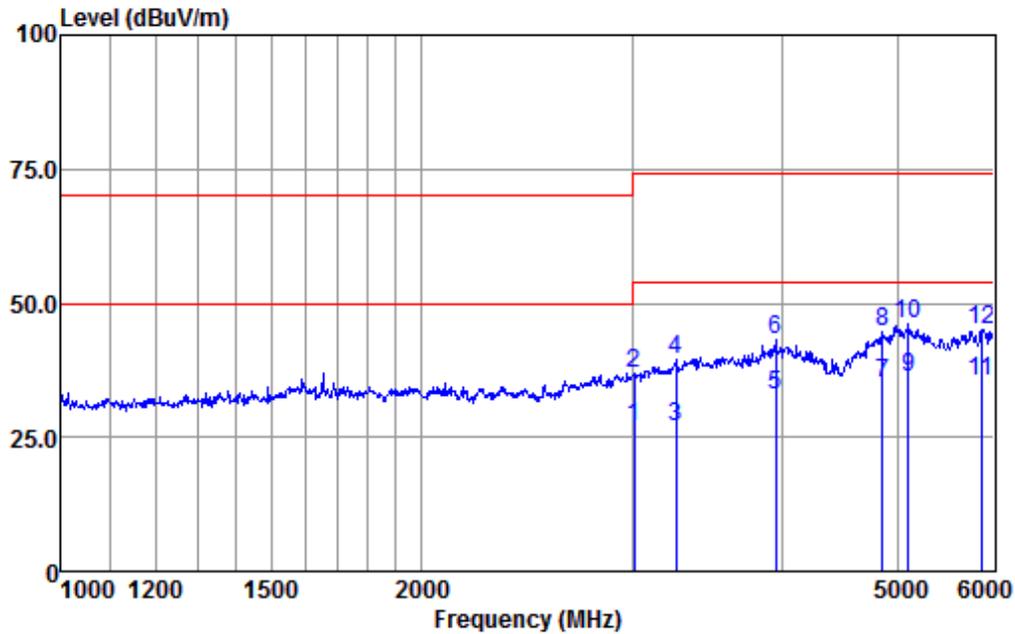


Condition : VERTICAL
EUT/Project: 4210IT
Test Mode : a

| | ReadAntenna | Cable | Preamp | Limit | Over | | | | |
|------|-------------|--------|--------|--------|--------|--------|-------|----------------|--|
| Freq | Level | Factor | Loss | Factor | Level | Line | Limit | Remark | |
| MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | | |
| 1 | 2983.13 | 33.84 | 28.47 | 5.79 | 41.72 | 26.38 | 50.00 | -23.62 Average | |
| 2 | 2983.13 | 43.53 | 28.47 | 5.79 | 41.72 | 36.07 | 70.00 | -33.93 Peak | |
| 3 | 3562.13 | 36.73 | 28.93 | 6.33 | 41.87 | 30.12 | 54.00 | -23.88 Average | |
| 4 | 3562.13 | 46.14 | 28.93 | 6.33 | 41.87 | 39.53 | 74.00 | -34.47 Peak | |
| 5 | 3952.23 | 37.76 | 29.60 | 6.99 | 41.95 | 32.40 | 54.00 | -21.60 Average | |
| 6 | 3952.23 | 48.99 | 29.60 | 6.99 | 41.95 | 43.63 | 74.00 | -30.37 Peak | |
| 7 | 4118.50 | 37.66 | 29.93 | 7.22 | 41.88 | 32.93 | 54.00 | -21.07 Average | |
| 8 | 4118.50 | 47.30 | 29.93 | 7.22 | 41.88 | 42.57 | 74.00 | -31.43 Peak | |
| 9 | 5097.29 | 36.57 | 31.65 | 8.21 | 41.68 | 34.75 | 54.00 | -19.25 Average | |
| 10 | 5097.29 | 47.18 | 31.65 | 8.21 | 41.68 | 45.36 | 74.00 | -28.64 Peak | |
| 11 | 5861.86 | 37.26 | 32.41 | 8.40 | 41.88 | 36.19 | 54.00 | -17.81 Average | |
| 12 p | 5861.86 | 47.85 | 32.41 | 8.40 | 41.88 | 46.78 | 74.00 | -27.22 Peak | |



Mode:b, Polarization:Horizontal

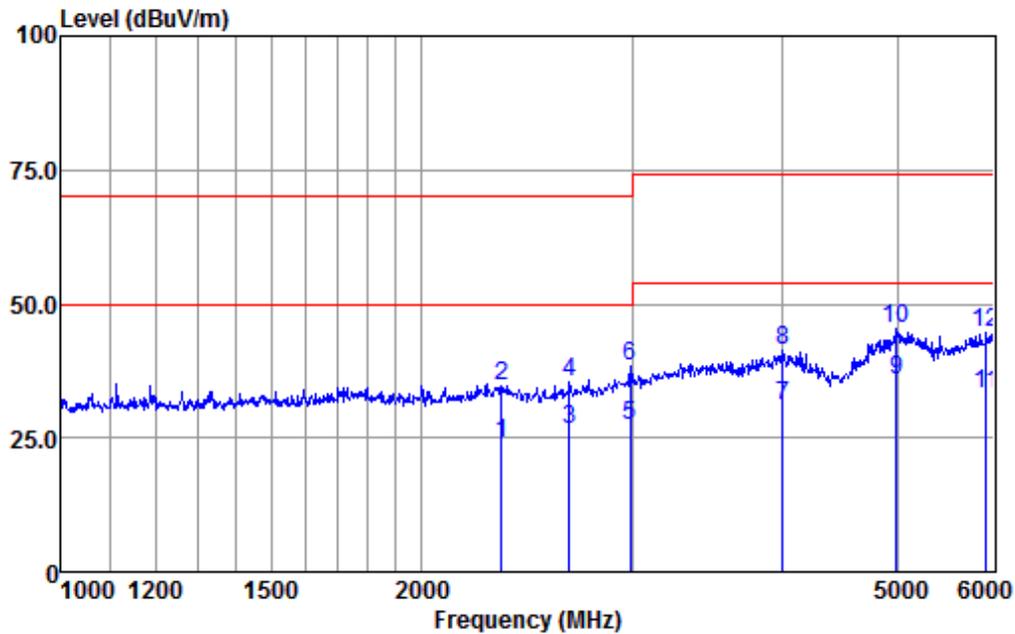


Condition : HORIZONTAL
EUT/Project: 4210IT
Test Mode : b

| | ReadAntenna | Cable | Preamp | Limit | Over | | | | |
|------|-------------|--------|--------|--------|--------|--------|-------|--------|---------|
| Freq | Level | Factor | Loss | Factor | Level | Line | Limit | Remark | |
| MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | | |
| 1 | 3009.98 | 34.34 | 28.51 | 5.83 | 41.71 | 26.97 | 54.00 | -27.03 | Average |
| 2 | 3009.98 | 44.40 | 28.51 | 5.83 | 41.71 | 37.03 | 74.00 | -36.97 | Peak |
| 3 | 3262.72 | 34.20 | 28.66 | 6.02 | 41.79 | 27.09 | 54.00 | -26.91 | Average |
| 4 | 3262.72 | 46.49 | 28.66 | 6.02 | 41.79 | 39.38 | 74.00 | -34.62 | Peak |
| 5 | 3952.23 | 38.12 | 29.60 | 6.99 | 41.95 | 32.76 | 54.00 | -21.24 | Average |
| 6 | 3952.23 | 48.48 | 29.60 | 6.99 | 41.95 | 43.12 | 74.00 | -30.88 | Peak |
| 7 | 4856.57 | 37.26 | 31.33 | 8.15 | 41.62 | 35.12 | 54.00 | -18.88 | Average |
| 8 | 4856.57 | 46.71 | 31.33 | 8.15 | 41.62 | 44.57 | 74.00 | -29.43 | Peak |
| 9 | 5097.29 | 37.94 | 31.65 | 8.21 | 41.68 | 36.12 | 54.00 | -17.88 | Average |
| 10 p | 5097.29 | 47.81 | 31.65 | 8.21 | 41.68 | 45.99 | 74.00 | -28.01 | Peak |
| 11 | 5872.37 | 36.54 | 32.41 | 8.40 | 41.88 | 35.47 | 54.00 | -18.53 | Average |
| 12 | 5872.37 | 46.22 | 32.41 | 8.40 | 41.88 | 45.15 | 74.00 | -28.85 | Peak |



Mode:b, Polarization:Vertical

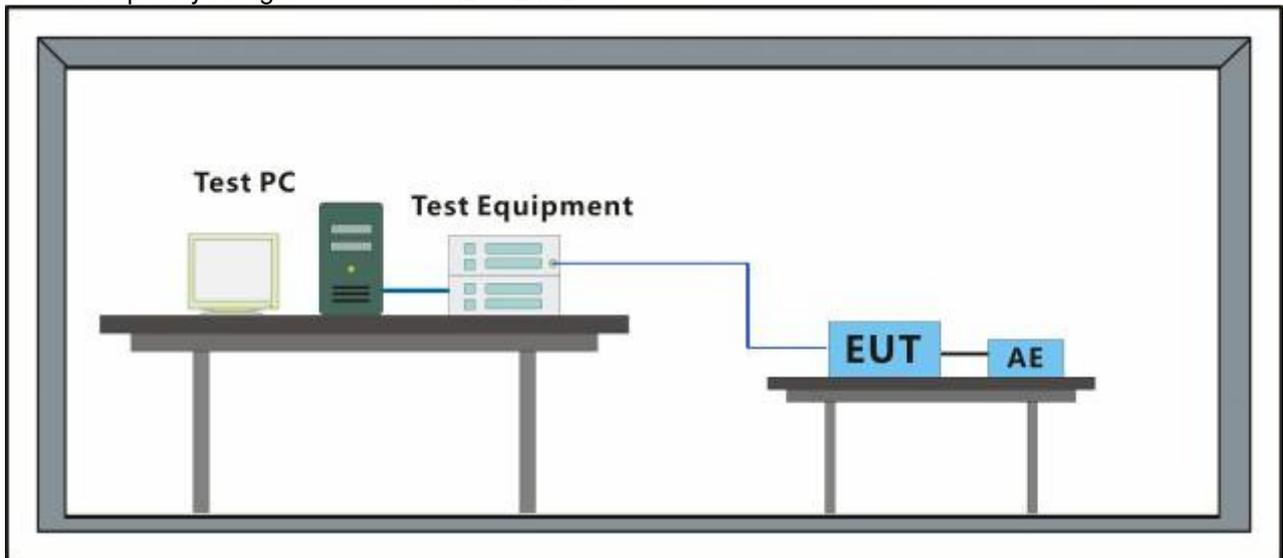


Condition : VERTICAL
EUT/Project: 4210IT
Test Mode : b

| | ReadAntenna | Cable | Preamp | Limit | Over | | | | |
|------|-------------|--------|--------|--------|--------|--------|-------|----------------|--|
| Freq | Level | Factor | Loss | Factor | Level | Line | Limit | Remark | |
| MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | | |
| 1 | 2333.81 | 34.07 | 26.96 | 5.07 | 42.19 | 23.91 | 50.00 | -26.09 Average | |
| 2 | 2333.81 | 44.95 | 26.96 | 5.07 | 42.19 | 34.79 | 70.00 | -35.21 Peak | |
| 3 | 2659.93 | 35.16 | 27.77 | 5.52 | 42.02 | 26.43 | 50.00 | -23.57 Average | |
| 4 | 2659.93 | 44.07 | 27.77 | 5.52 | 42.02 | 35.34 | 70.00 | -34.66 Peak | |
| 5 | 2988.48 | 34.75 | 28.48 | 5.79 | 41.72 | 27.30 | 50.00 | -22.70 Average | |
| 6 | 2988.48 | 45.70 | 28.48 | 5.79 | 41.72 | 38.25 | 70.00 | -31.75 Peak | |
| 7 | 4009.29 | 36.43 | 29.70 | 6.99 | 41.96 | 31.16 | 54.00 | -22.84 Average | |
| 8 | 4009.29 | 46.42 | 29.70 | 6.99 | 41.96 | 41.15 | 74.00 | -32.85 Peak | |
| 9 | 4988.86 | 37.75 | 31.57 | 8.19 | 41.61 | 35.90 | 54.00 | -18.10 Average | |
| 10 p | 4988.86 | 47.34 | 31.57 | 8.19 | 41.61 | 45.49 | 74.00 | -28.51 Peak | |
| 11 | 5925.22 | 34.04 | 32.51 | 8.40 | 41.85 | 33.10 | 54.00 | -20.90 Average | |
| 12 | 5925.22 | 45.41 | 32.51 | 8.40 | 41.85 | 44.47 | 74.00 | -29.53 Peak | |

6.3 Harmonic Current Emission

Test Requirement: EN 61000-3-2:2014
Test Method: EN 61000-3-2:2014
Frequency Range: 100Hz to 2kHz



6.3.1 Measurement Data

There is no need for Harmonics test to be performed on this product (rated power is less than 75W) in accordance with EN 61000-3-2:2014.

For further details, please refer to Clause 7 of EN 61000-3-2 which states:

"For the following categories of equipment, limits are not specified in this standard.- equipment with a rated power of 75W or less, other than lighting equipment."

6.4 Voltage Fluctuations and Flicker

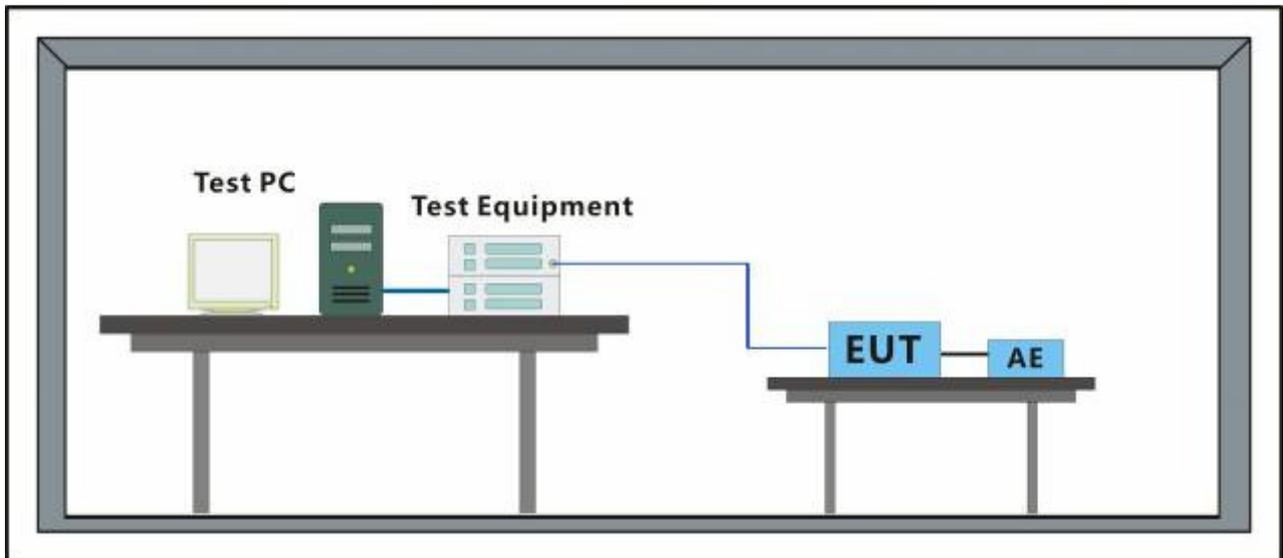
Test Requirement: EN 61000-3-3:2013
Test Method: EN 61000-3-3:2013

6.4.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar
Test mode: a:DC12V monitoring : keep EUT monitoring under DC12V supply continual .
b: PoE monitoring : keep EUT monitoring under PoE supply continual .

6.4.2 Test Setup Diagram



6.4.3 Measurement Data

Mode:a

Parameter values recorded during the test:

| | | | |
|---------------------------------|--------|------------------|------------|
| Vrms at the end of test (Volt): | 229.79 | | |
| T-max (mS): | 0 | Test limit (mS): | 500.0 Pass |
| Highest dc (%): | 0.75 | Test limit (%): | 3.30 Pass |
| Highest dmax (%): | 0.89 | Test limit (%): | 4.00 Pass |
| Highest Pst (10 min. period): | 0.381 | Test limit: | 1.000 Pass |
| Highest Plt (2 hr. period): | 0.162 | Test limit: | 0.650 Pass |

Mode:b

Parameter values recorded during the test:

| | | | |
|---------------------------------|--------|------------------|------------|
| Vrms at the end of test (Volt): | 229.79 | | |
| T-max (mS): | 0 | Test limit (mS): | 500.0 Pass |
| Highest dc (%): | 0.80 | Test limit (%): | 3.30 Pass |
| Highest dmax (%): | 0.98 | Test limit (%): | 4.00 Pass |
| Highest Pst (10 min. period): | 0.405 | Test limit: | 1.000 Pass |
| Highest Plt (2 hr. period): | 0.177 | Test limit: | 0.650 Pass |



7 Immunity Test Results

7.1 Performance Criteria Description in EN 55024:2010 +A1:2015

Criterion A

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 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

After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena 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.

During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test.

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 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.

Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

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

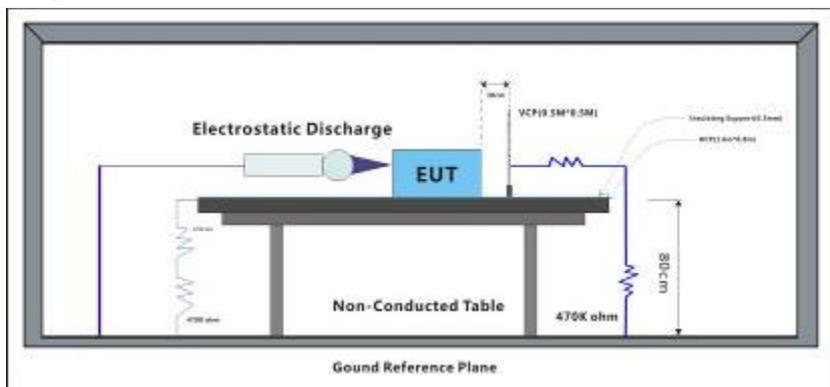
There shall be no damage, malfunction or change of status due to the conditioning. Flickering of an indicator during the application of the discharges is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as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

7.3 Electrostatic Discharge

Test Requirement: EN 55024:2010 +A1:2015
 Test Method: EN 61000-4-2:2009
 Performance Criterion: B
 Discharge Impedance: 330Ω/150pF
 Number of Discharge: Minimum of four test points (a minimum of 50 discharges at each point)
 Discharge Mode: Single Discharge
 Discharge Period: 1 second minimum

7.3.1 Test Setup Diagram



7.3.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 51 % RH Atmospheric Pressure: 1002 mbar
 Test mode:
 a: DC12V monitoring : keep EUT monitoring under DC12V supply continual .
 b: PoE monitoring : keep EUT monitoring under PoE supply continual .

7.3.3 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 | 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 |

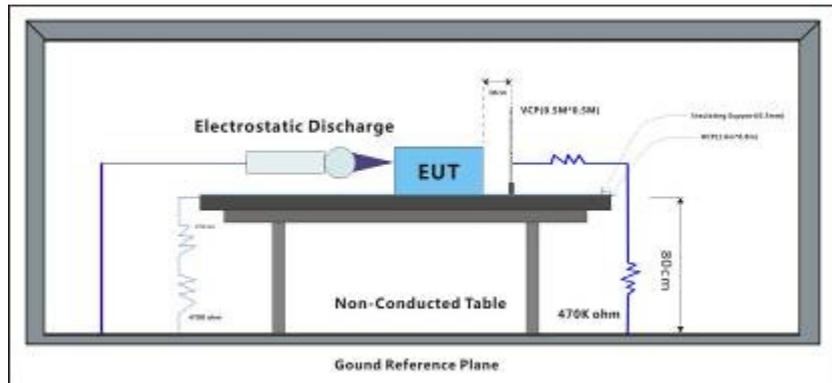
Results:

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

7.4 Electrostatic Discharge

Test Requirement: EN 50130-4:2011 +A1:2014
Test Method: EN 61000-4-2:2009

7.4.1 Test Setup Diagram



7.4.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 51 % RH Atmospheric Pressure: 1002 mbar

Test mode:
a: DC12V monitoring : keep EUT monitoring under DC12V supply continual .
b: PoE monitoring : keep EUT monitoring under PoE supply continual .

7.4.3 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 | 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 |

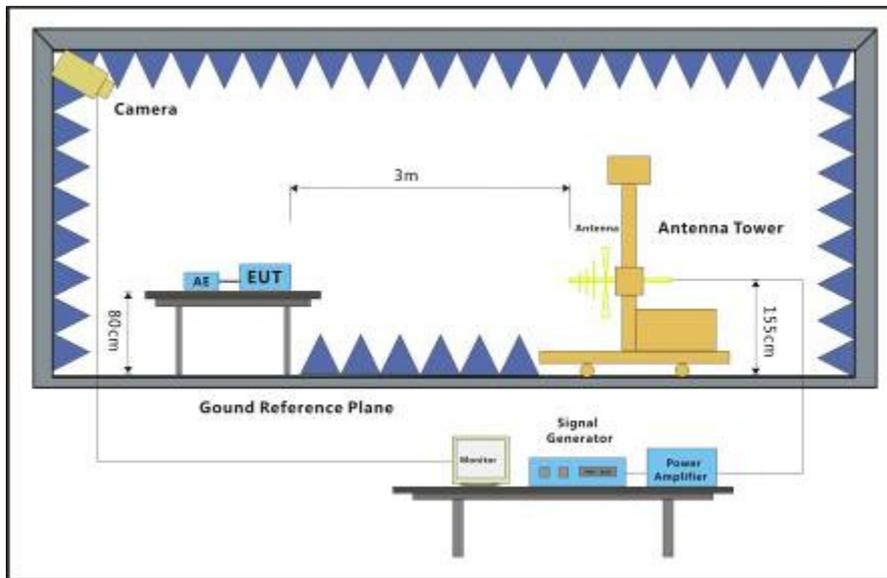
Results:

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

7.5 Radiated Immunity (80MHz-1GHz)

Test Requirement: EN 55024:2010 +A1:2015
 Test Method: EN 61000-4-3:2006 +A1:2008+A2:2010
 Performance Criterion: A
 Frequency Range: 80MHz to 1GHz
 Antenna Polarisation: Vertical and Horizontal
 Modulation: 1kHz,80% Amp. Mod,1% increment

7.5.1 Test Setup Diagram



7.5.2 E.U.T. Operation

Operating Environment:

Temperature: 20 °C Humidity: 50 % RH Atmospheric Pressure: 1001 mbar

Test mode: a:DC12V monitoring : keep EUT monitoring under DC12V supply continual .

b: PoE monitoring : keep EUT monitoring under PoE supply continual .

7.5.3 Test Results:

| Frequency | Level (V/m) | EUT Face | Dwell time | Result / Observations |
|------------|-------------|-----------|------------|-----------------------|
| 80MHz-1GHz | 3 | Front | 2s | A |
| 80MHz-1GHz | 3 | Back | 2s | A |
| 80MHz-1GHz | 3 | Left | 2s | A |
| 80MHz-1GHz | 3 | Right | 2s | A |
| 80MHz-1GHz | 3 | Top | 2s | A |
| 80MHz-1GHz | 3 | Underside | 2s | A |

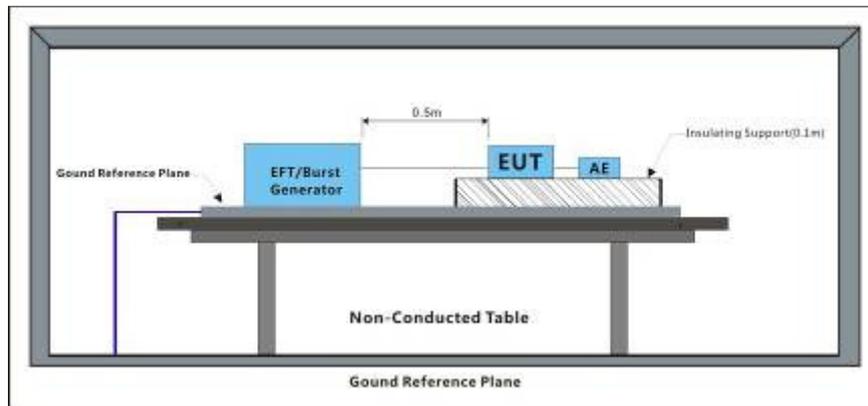
Results:

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

7.6 Electrical Fast Transients/Burst at Power Port

Test Requirement: EN 55024:2010 +A1:2015
 Test Method: EN 61000-4-4:2012
 Performance Criterion: B
 Repetition Frequency: 5kHz
 Burst Period: 300ms
 Test Duration: 2 minute per level & polarity

7.6.1 Test Setup Diagram



7.6.2 E.U.T. Operation

Operating Environment:
 Temperature: 22 °C Humidity: 51 % RH Atmospheric Pressure: 1002 mbar
 Test mode:
 a: DC12V monitoring : keep EUT monitoring under DC12V supply continual .
 b: PoE monitoring : keep EUT monitoring under PoE supply continual .

7.6.3 Test Results:

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

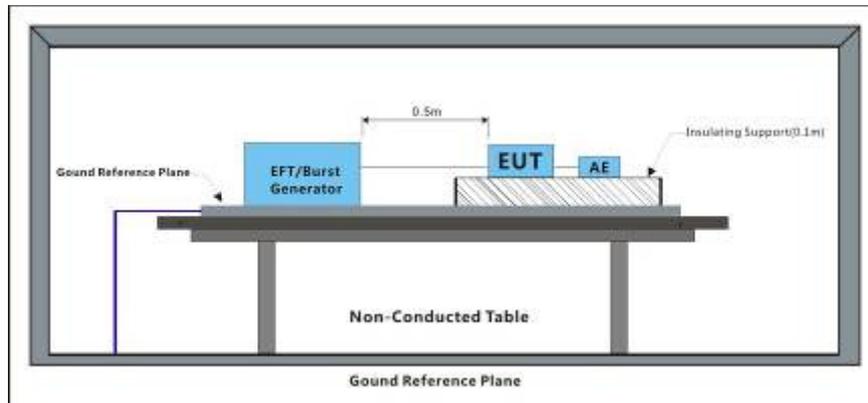
Results:

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

7.7 Electrical Fast Transients/Burst at Power Port

Test Requirement: EN 50130-4:2011 +A1:2014
 Test Method: EN 61000-4-4:2012
 Repetition Frequency: 100kHz
 Burst Period: 300ms
 Test Duration: 1 minute per level & polarity

7.7.1 Test Setup Diagram



7.7.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 51 % RH Atmospheric Pressure: 1002 mbar
 Test mode: a:DC12V monitoring : keep EUT monitoring under DC12V supply continual .
 b: PoE monitoring : keep EUT monitoring under PoE supply continual .

7.7.3 Test Results:

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

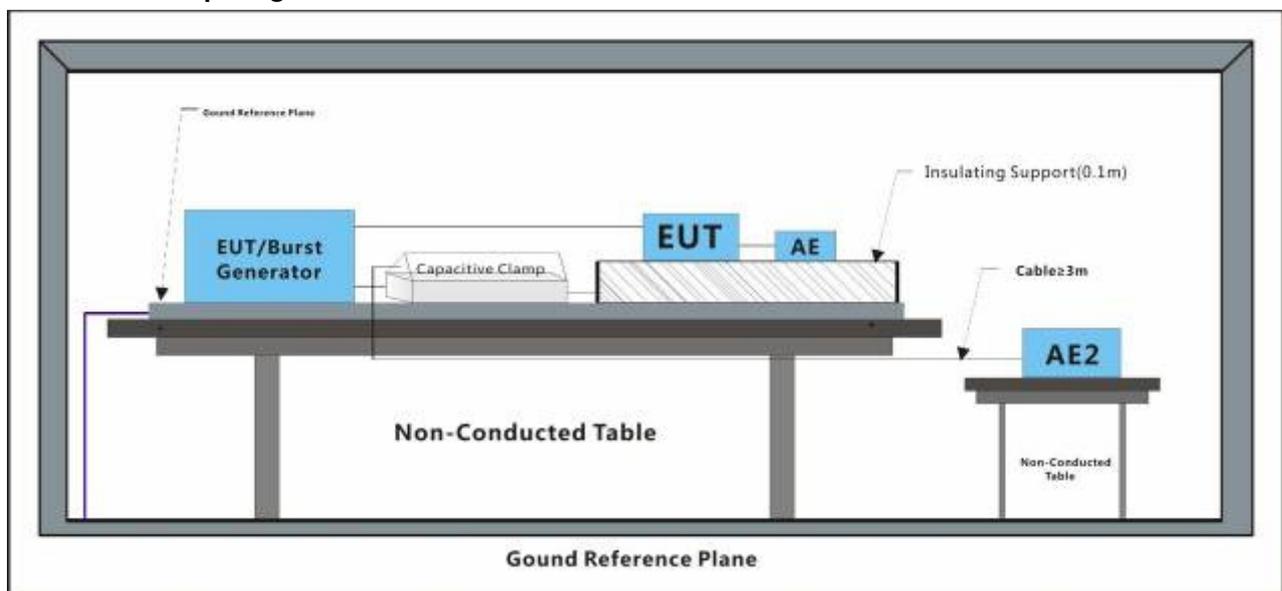
Results:

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

7.8 Electrical Fast Transients/Burst at Signal Port

Test Requirement: EN 55024:2010 +A1:2015
 Test Method: EN 61000-4-4:2012
 Performance Criterion: B
 Repetition Frequency: 5kHz
 Burst Period: 300ms
 Test Duration: 2 minute per level & polarity

7.8.1 Test Setup Diagram



7.8.2 E.U.T. Operation

Operating Environment:
 Temperature: 22 °C Humidity: 51 % RH Atmospheric Pressure: 1002 mbar
 Test mode:
 a: DC12V monitoring : keep EUT monitoring under DC12V supply continual .
 b: PoE monitoring : keep EUT monitoring under PoE supply continual .

7.8.3 Test Results:

| Port | Level (kV) | Polarity | CDN/Clamp | Result / Observations |
|-------------|------------|----------|-----------|-----------------------|
| Signal port | 0.5 | + | Clamp | A |
| Signal port | 0.5 | - | Clamp | A |

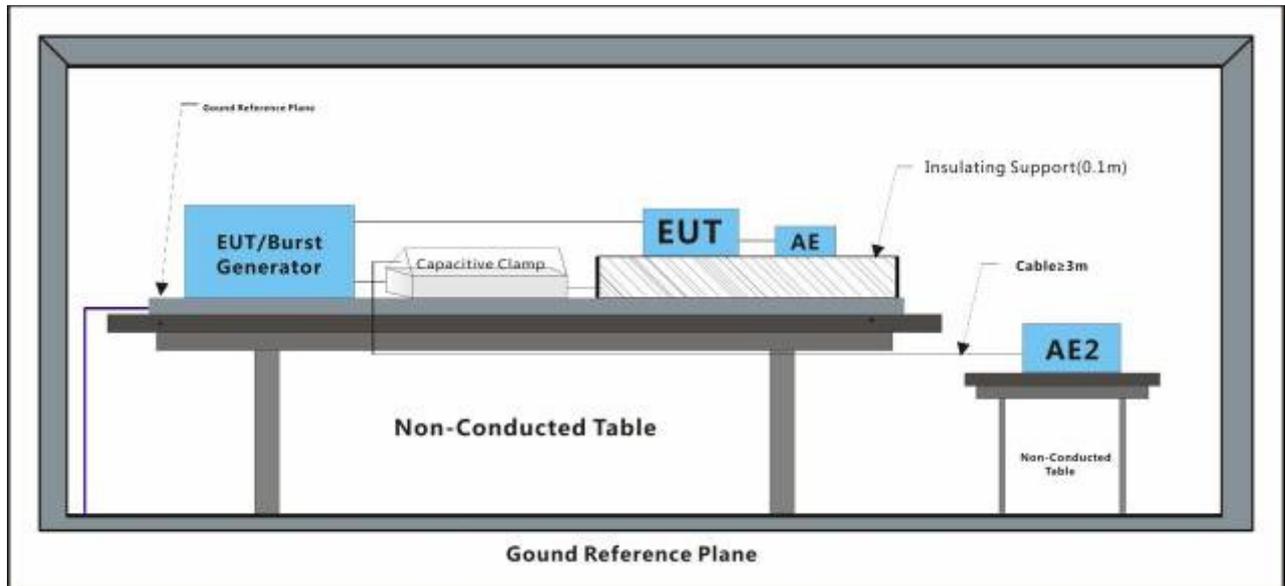
Results:

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

7.9 Electrical Fast Transients/Burst at Signal Port

Test Requirement: EN 50130-4:2011 +A1:2014
 Test Method: EN 61000-4-4:2012
 Repetition Frequency: 100kHz
 Burst Period: 300ms
 Test Duration: 1 minute per level & polarity

7.9.1 Test Setup Diagram



7.9.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 51 % RH Atmospheric Pressure: 1002 mbar

Test mode: a: DC12V monitoring : keep EUT monitoring under DC12V supply continual .

b: PoE monitoring : keep EUT monitoring under PoE supply continual .

7.9.3 Test Results:

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

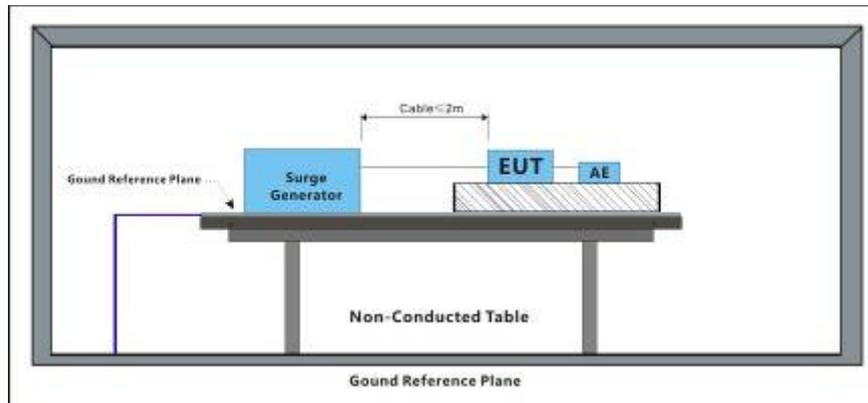
Results:

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

7.10 Surge at Power Port

Test Requirement: EN 55024:2010 +A1:2015
 Test Method: EN 61000-4-5:2014
 Performance Criterion: B
 Interval: 60s between each surge
 No. of surges: 5 positive, 5 negative at 0°, 90°, 180°, 270°.

7.10.1 Test Setup Diagram



7.10.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 51 % RH Atmospheric Pressure: 1002 mbar
 Test mode: a: DC12V monitoring : keep EUT monitoring under DC12V supply continual .
 b: PoE monitoring : keep EUT monitoring under PoE supply continual .

7.10.3 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 |

Results:

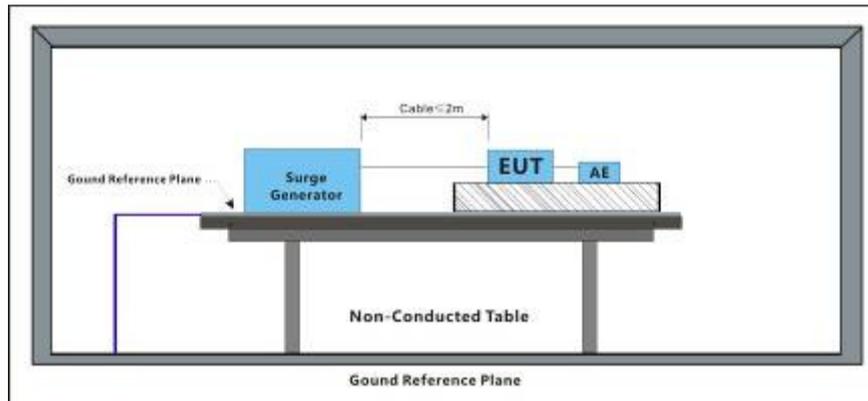
A: No degradation in the performance of the EUT was observed.

7.11 Surge at Power Port

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

Test Method: EN 61000-4-5:2014

7.11.1 Test Setup Diagram



7.11.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 51 % RH Atmospheric Pressure: 1002 mbar

Test mode: a: DC12V monitoring : keep EUT monitoring under DC12V supply continual .

b: PoE monitoring : keep EUT monitoring under PoE supply continual .

7.11.3 Test Results:

| 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 |

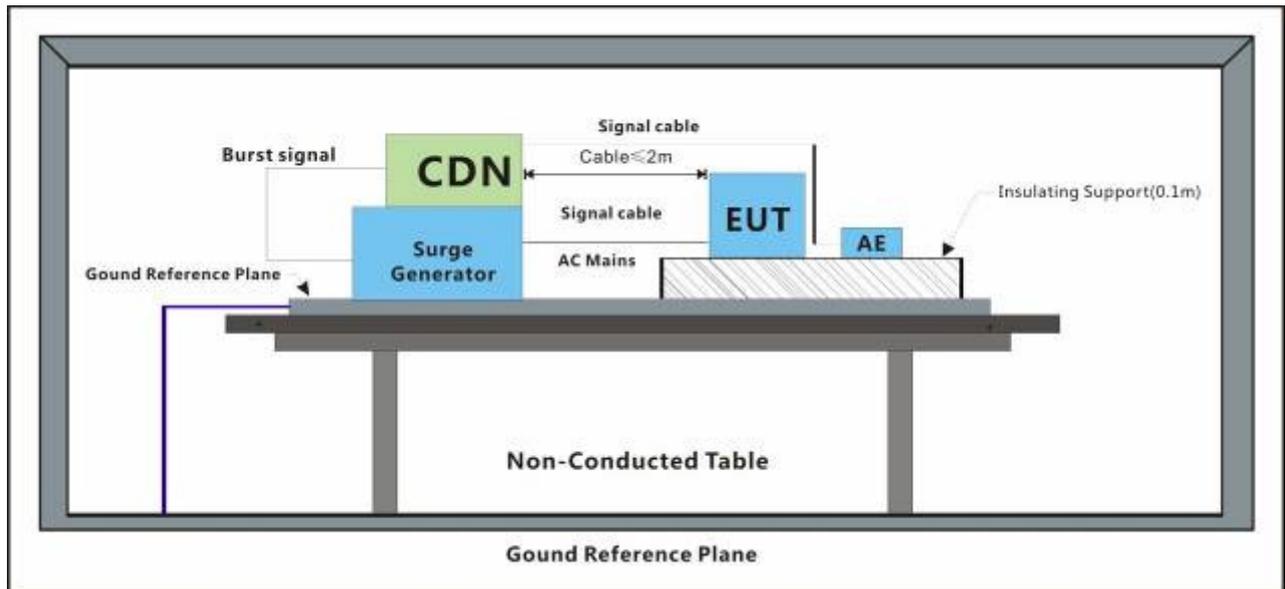
Results:

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

7.12 Surge at Signal Port

Test Requirement: EN 55024:2010 +A1:2015
 Test Method: EN 61000-4-5:2014
 Performance Criterion: B
 Interval: 60s between each surge

7.12.1 Test Setup Diagram



7.12.2 E.U.T. Operation

Operating Environment:
 Temperature: 22 °C Humidity: 51 % RH Atmospheric Pressure: 1002 mbar
 Test mode:
 a: DC12V monitoring : keep EUT monitoring under DC12V supply continual .
 b: PoE monitoring : keep EUT monitoring under PoE supply continual .

7.12.3 Test Results:

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

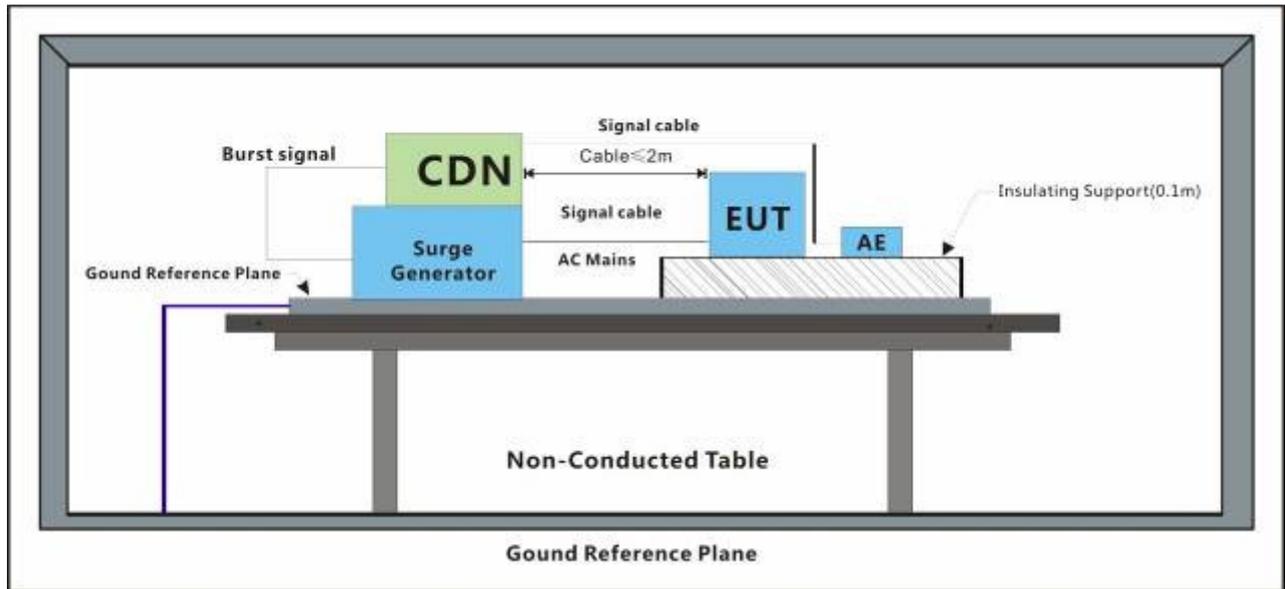
Results:

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

7.13 Surge at Signal Port

Test Requirement: EN 50130-4:2011 +A1:2014
Test Method: EN 61000-4-5:2014

7.13.1 Test Setup Diagram



7.13.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 51 % RH Atmospheric Pressure: 1002 mbar

Test mode: a: DC12V monitoring : keep EUT monitoring under DC12V supply continual .

b: PoE monitoring : keep EUT monitoring under PoE supply continual .

7.13.3 Test Results:

| 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 |

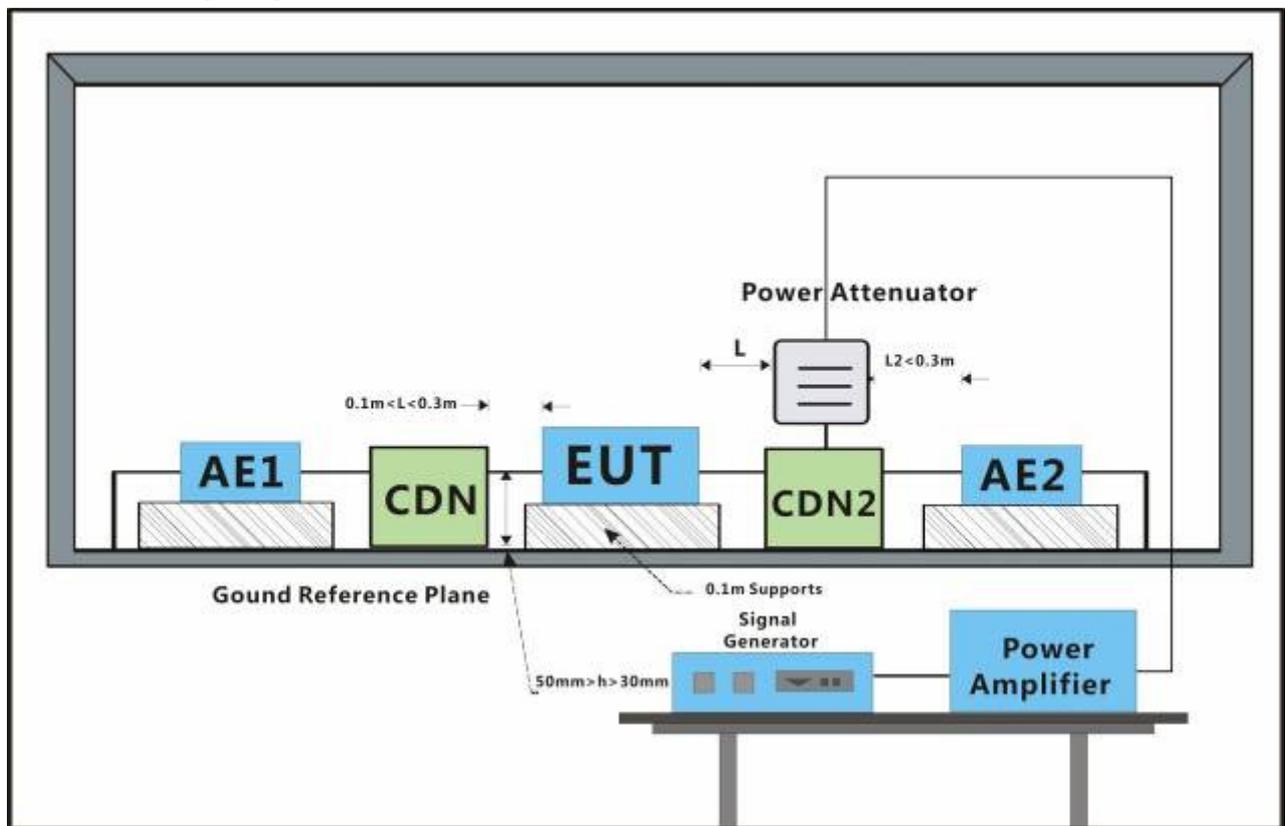
Results:

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

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

Test Requirement: EN 55024:2010 +A1:2015
 Test Method: EN 61000-4-6:2014
 Performance Criterion: A
 Frequency Range: 0.15MHz to 80MHz
 Modulation: 80%, 1kHz Amplitude Modulation
 Step Size: 1%

7.14.1 Test Setup Diagram



7.14.2 E.U.T. Operation

Operating Environment:

Temperature: 21 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test mode: a: DC12V monitoring : keep EUT monitoring under DC12V supply continual .

b: PoE monitoring : keep EUT monitoring under PoE supply continual .

7.14.3 Test Results:

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

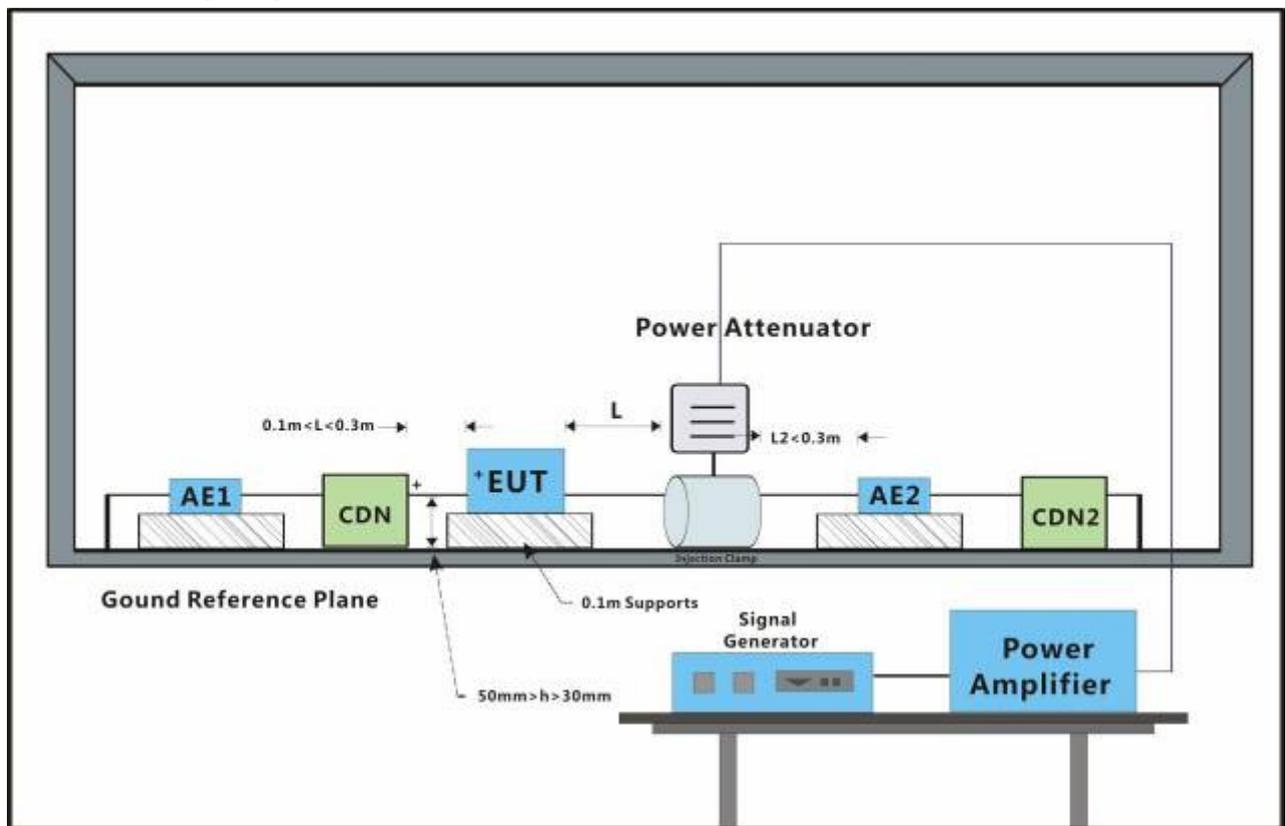
Results:

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

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

Test Requirement: EN 55024:2010 +A1:2015
 Test Method: EN 61000-4-6:2014
 Performance Criterion: A
 Frequency Range: 0.15MHz to 80MHz
 Modulation: 80%, 1kHz Amplitude Modulation
 Step Size: 1%

7.15.1 Test Setup Diagram



7.15.2 E.U.T. Operation

Operating Environment:
 Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar
 Test mode:
 a: DC12V monitoring : keep EUT monitoring under DC12V supply continual .
 b: PoE monitoring : keep EUT monitoring under PoE supply continual .

7.15.3 Test Results:

| Port | Level (Vrms) | CDN/Clamp | Dwell time | Result / Observations |
|-------------|--------------|-----------|------------|-----------------------|
| Signal port | 3 | Coupling | 3s | A |

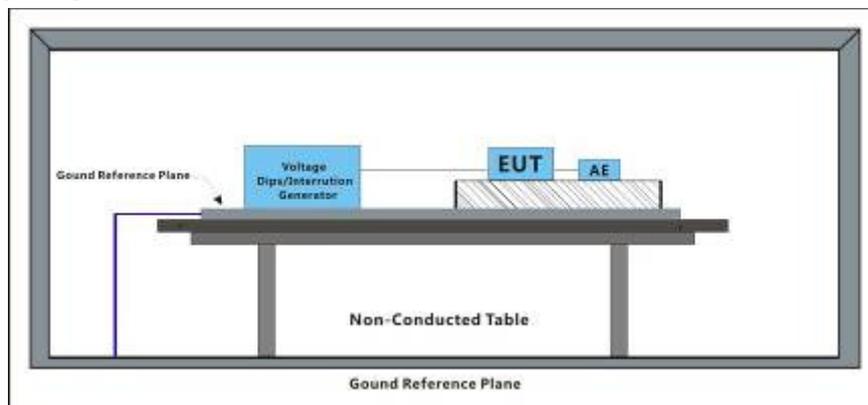
Results:

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

7.16 Voltage Dips and Interruptions

Test Requirement: EN 55024:2010 +A1:2015
 Test Method: EN 61000-4-11:2004
 Performance Criterion: 0% of UT (Supply Voltage) for 0.5 Periods:B, 0% of UT for 250 Periods:C, 70 % of UT for 25 Periods:C
 No. of Dips / Interruptions: 3 per Level
 Time between dropout 10s

7.16.1 Test Setup Diagram



7.16.2 E.U.T. Operation

Operating Environment:
 Temperature: 22 °C Humidity: 51 % RH Atmospheric Pressure: 1002 mbar
 Test mode:
 a: DC12V monitoring : keep EUT monitoring under DC12V supply continual .
 b: PoE monitoring : keep EUT monitoring under PoE supply continual .

7.16.3 Test Results:

| Level % UT | Phase (deg) | Duration | No. of Dips / Interruptions | Result / Observations |
|------------|-------------|------------|-----------------------------|-----------------------|
| 0 | 0° | 0.5 Cycles | 3 | A |
| 0 | 180° | 0.5 Cycles | 3 | A |
| 0 | 0° | 250 Cycles | 3 | B |
| 0 | 180° | 250 Cycles | 3 | B |
| 70 | 0° | 25 Cycles | 3 | A |
| 70 | 180° | 25 Cycles | 3 | A |

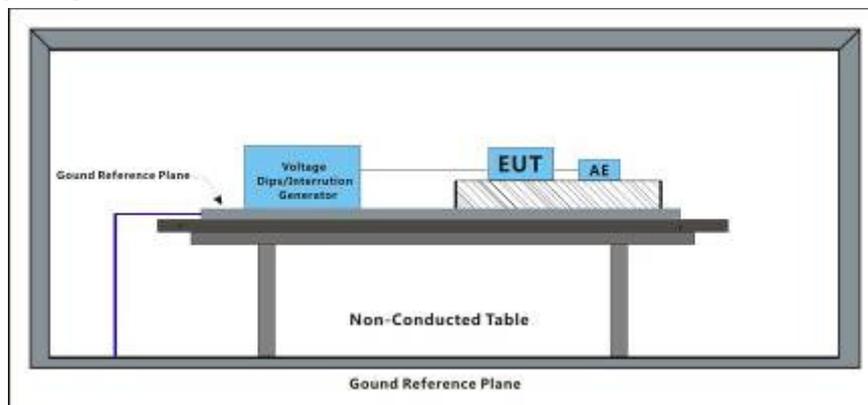
Results:

A: No degradation in the performance of the EUT was observed.
 B: During test, EUT stop work, After test ,the EUT restarted automatically

7.17 Voltage Dips and Interruptions

Test Requirement: EN 50130-4:2011 +A1:2014
 Test Method: EN 61000-4-11:2004
 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

7.17.1 Test Setup Diagram



7.17.2 E.U.T. Operation

Operating Environment:
 Temperature: 22 °C Humidity: 51 % RH Atmospheric Pressure: 1002 mbar
 Test mode:
 a: DC12V monitoring : keep EUT monitoring under DC12V supply continual .
 b: PoE monitoring : keep EUT monitoring under PoE supply continual .

7.17.3 Test Results:

| 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 |

Results:

A: No degradation in the performance of the EUT was observed.
 B: During test, EUT stop work, After test ,the EUT restarted automatically

7.18 Mains Supply Voltage Variations-Conditioning

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

7.18.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 51 % RH Atmospheric Pressure: 1002 mbar

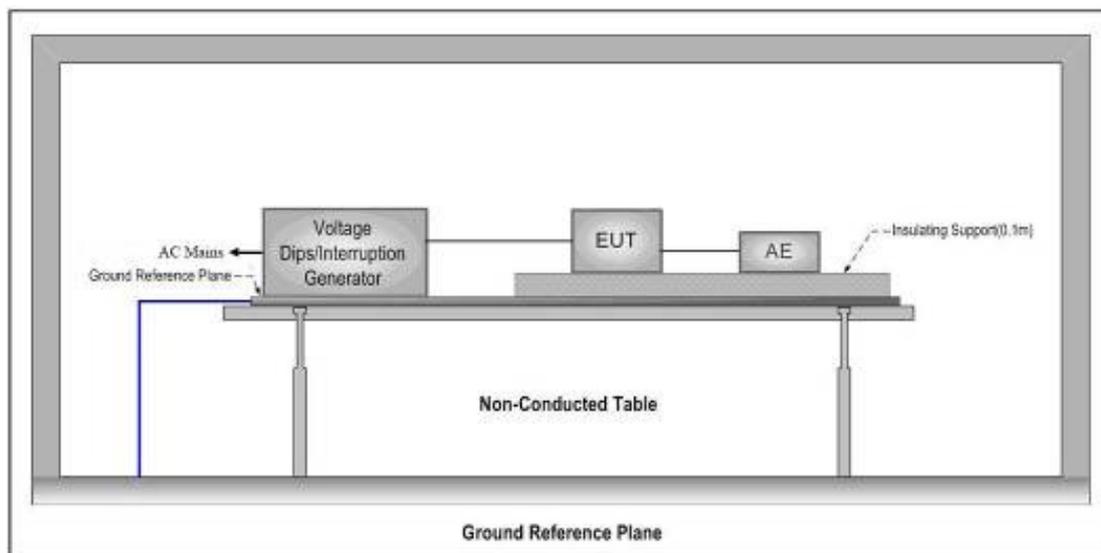
Test mode: a:DC12V monitoring : keep EUT monitoring under DC12V supply continual .
b: PoE monitoring : keep EUT monitoring under PoE supply conitnual .

7.18.2 Test Results:

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.

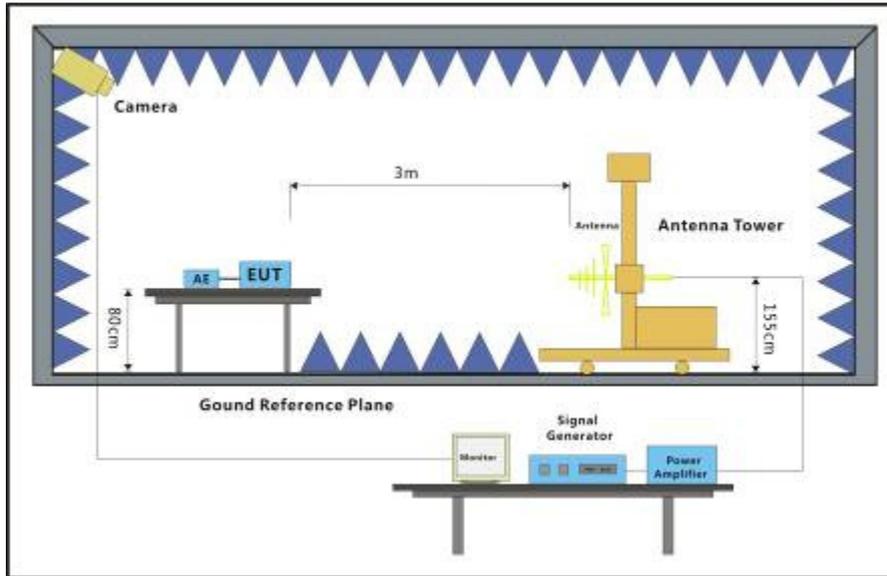
Test Setup:



7.19 Radiated Immunity(80MHz-2.7GHz)

Test Requirement: EN 50130-4:2011 +A1:2014
Test Method: EN 61000-4-3:2006 +A1:2008+A2:2010

7.19.1 Test Setup Diagram



7.19.2 E.U.T. Operation

Operating Environment:
Temperature: 20 °C Humidity: 50 % RH Atmospheric Pressure: 1001 mbar
Test mode:
a: DC12V monitoring : keep EUT monitoring under DC12V supply continual .
b: PoE monitoring : keep EUT monitoring under PoE supply continual .

7.19.3 Test Results:

| Frequency | Level (V/m) | EUT Face | Dwell time | Result / Observations |
|--------------|-------------|-----------|------------|-----------------------|
| 80MHz-2.7GHz | 10 | Front | 2s | A |
| 80MHz-2.7GHz | 10 | Back | 2s | A |
| 80MHz-2.7GHz | 10 | Left | 2s | A |
| 80MHz-2.7GHz | 10 | Right | 2s | A |
| 80MHz-2.7GHz | 10 | Top | 2s | A |
| 80MHz-2.7GHz | 10 | Underside | 2s | A |

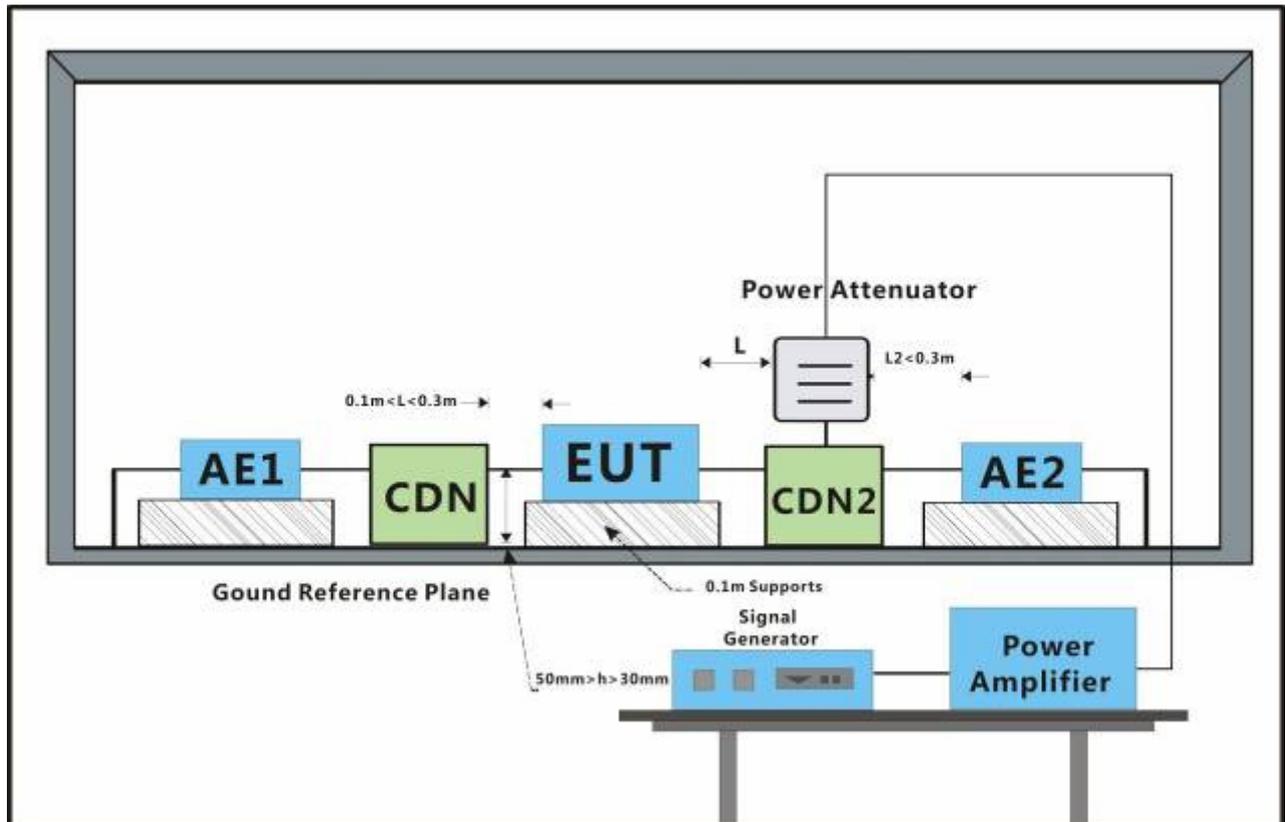
Results:

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

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

Test Requirement: EN 50130-4:2011 +A1:2014
Test Method: EN 61000-4-6:2014

7.20.1 Test Setup Diagram



7.20.2 E.U.T. Operation

Operating Environment:

Temperature: 21 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test mode: a: DC12V monitoring : keep EUT monitoring under DC12V supply continual .

b: PoE monitoring : keep EUT monitoring under PoE supply continual .

7.20.3 Test Results:

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

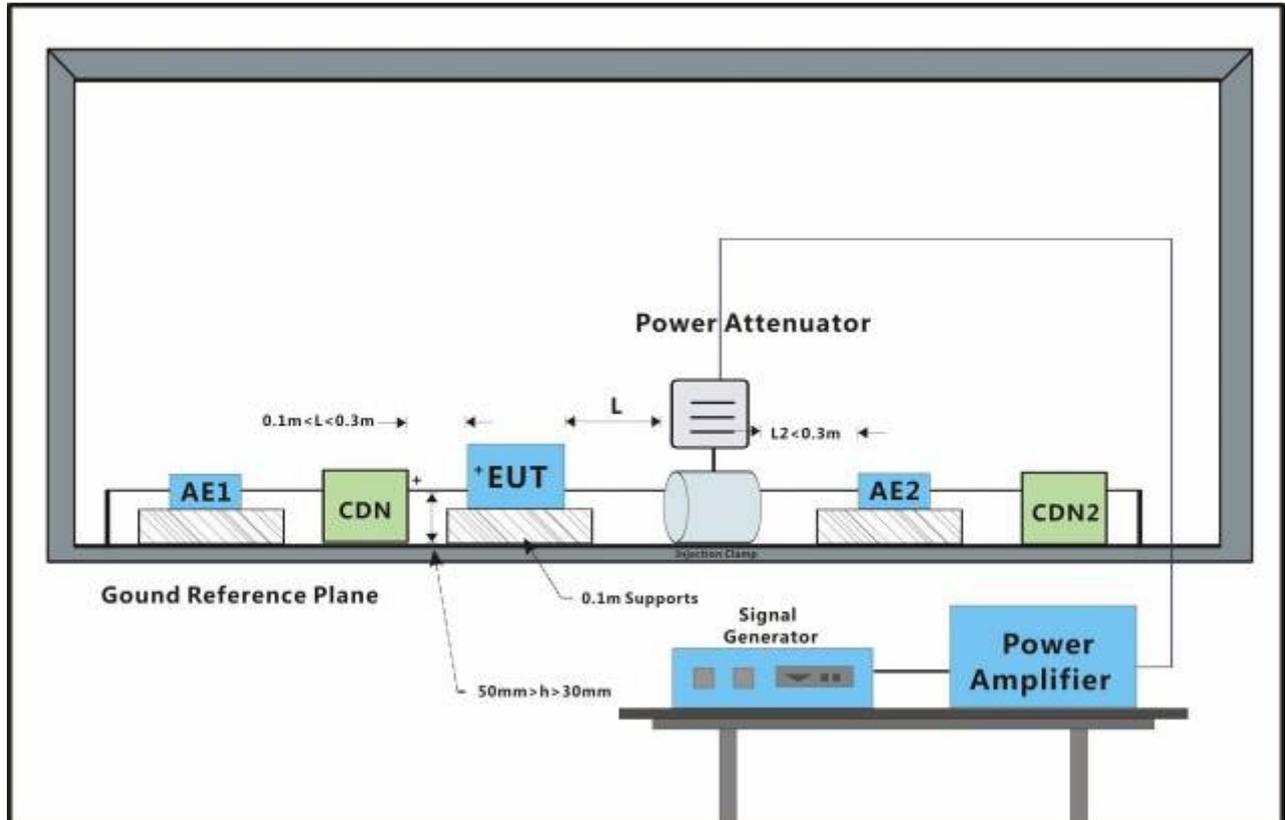
Results:

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

7.21 Conducted Immunity at Signal Port (150kHz-100MHz)

Test Requirement: EN 50130-4:2011 +A1:2014
Test Method: EN 61000-4-6:2014

7.21.1 Test Setup Diagram



7.21.2 E.U.T. Operation

Operating Environment:

Temperature: 21 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test mode: a: DC12V monitoring : keep EUT monitoring under DC12V supply continual .

b: PoE monitoring : keep EUT monitoring under PoE supply continual .

7.21.3 Test Results:

| Port | Level (Vrms) | CDN/Clamp | Dwell time | Result / Observations |
|-------------|--------------|-----------|------------|-----------------------|
| Signal port | 10 | Coupling | 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 Asymmetric Mode Conducted Emissions (150kHz-30MHz) Test Setup



8.3 Radiated Emissions (30MHz-1GHz) Test Setup



8.4 Radiated Emissions (above 1GHz) Test Setup



8.5 Voltage Fluctuations and Flicker Test Setup

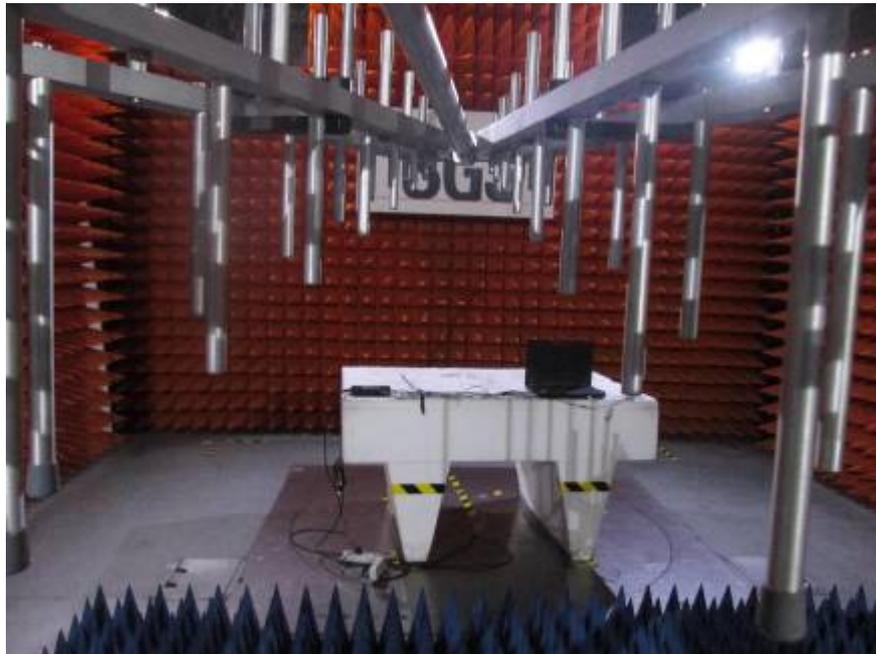


8.6 Electrostatic Discharge Test Setup





8.7 Radiated Immunity (80MHz-1GHz) Test Setup



8.8 Electrical Fast Transients/Burst at Power Port Test Setup



8.9 Electrical Fast Transients/Burst at Signal Port Test Setup



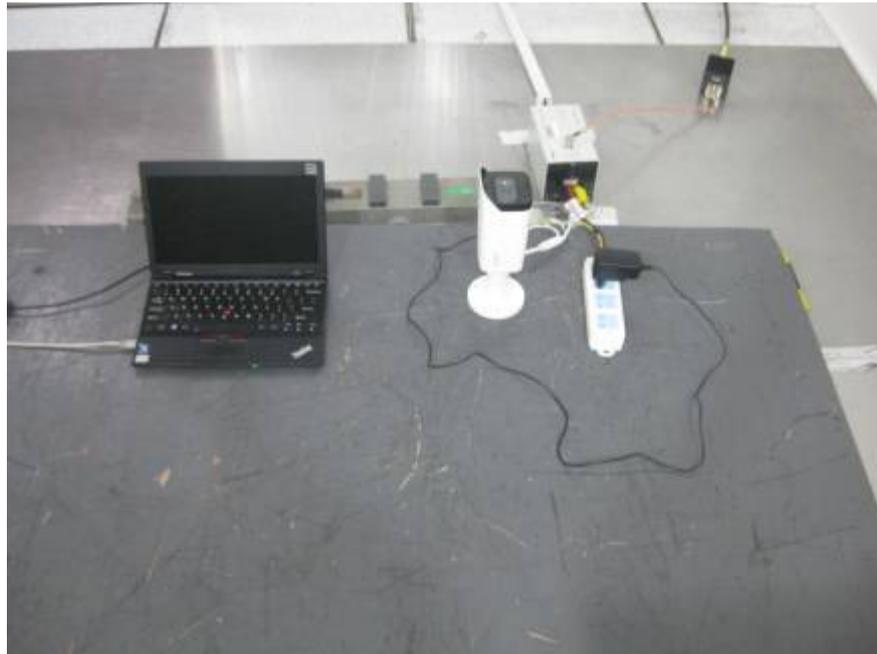
8.10 Surge at Power Port Test Setup



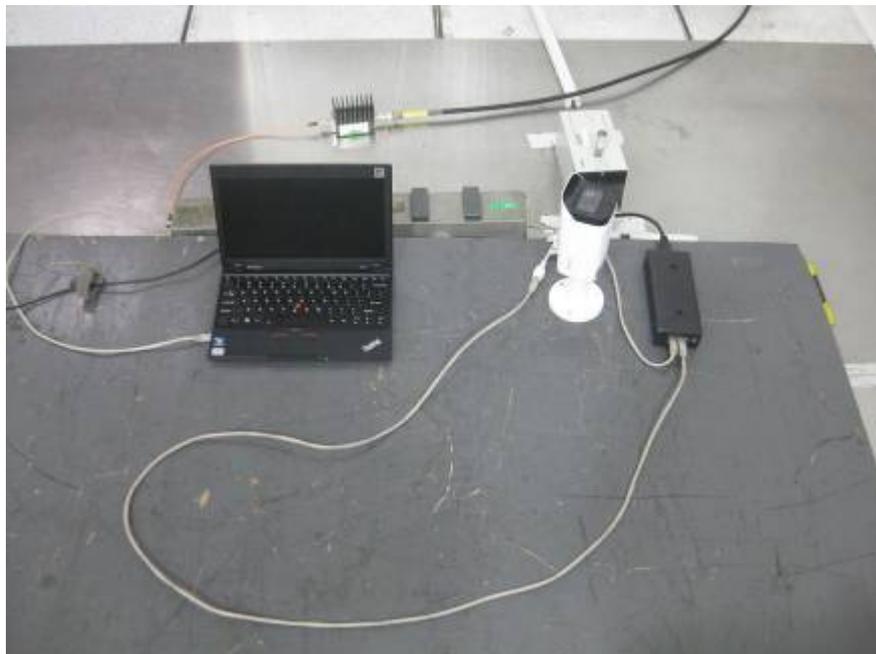
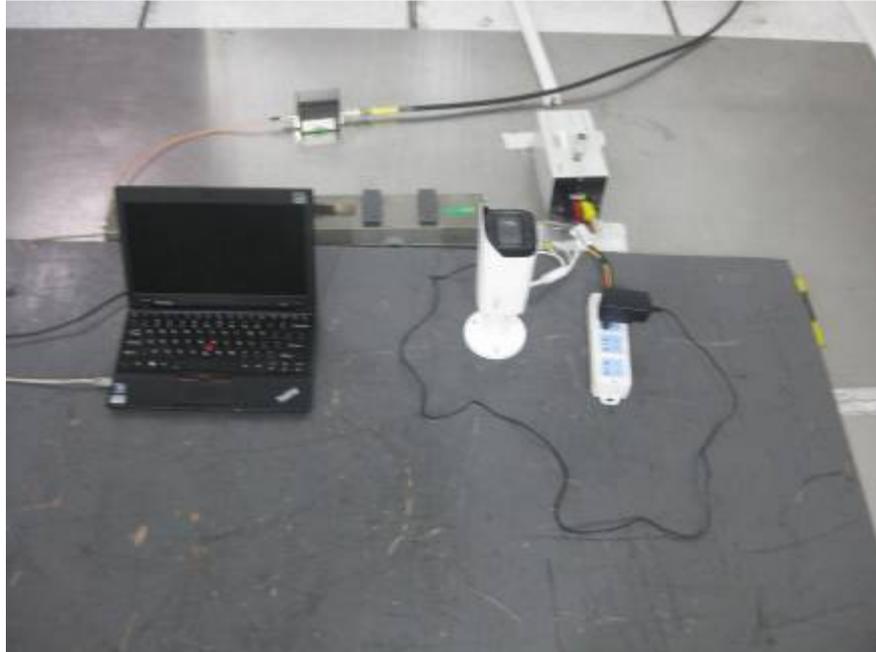
8.11 Surge at Signal Port Test Setup



8.12 Conducted Immunity at Power Port (150kHz-80MHz) Test Setup



8.13 Conducted Immunity at Signal Port (150kHz-80MHz) Test Setup



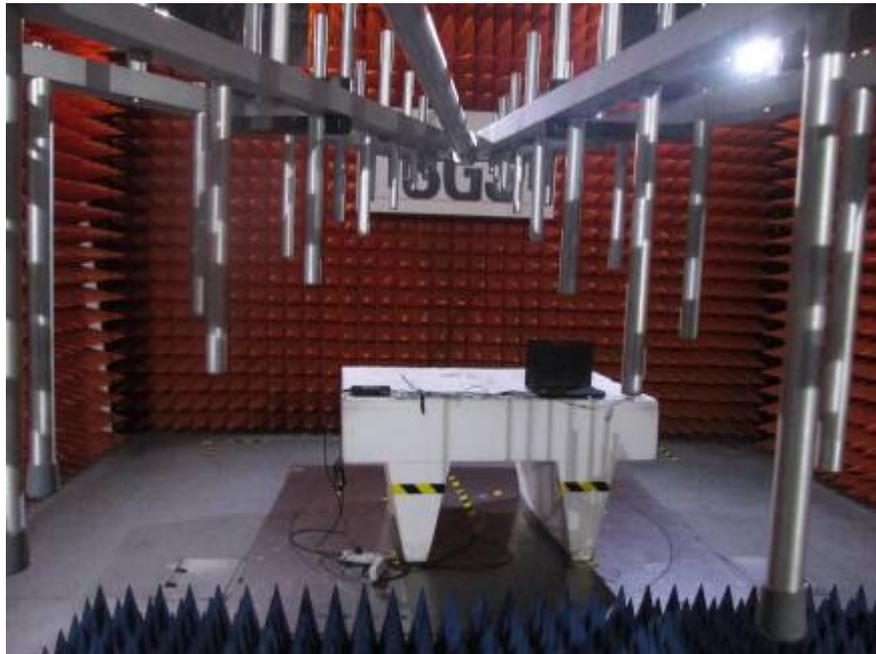
8.14 Voltage Dips and Interruptions Test Setup



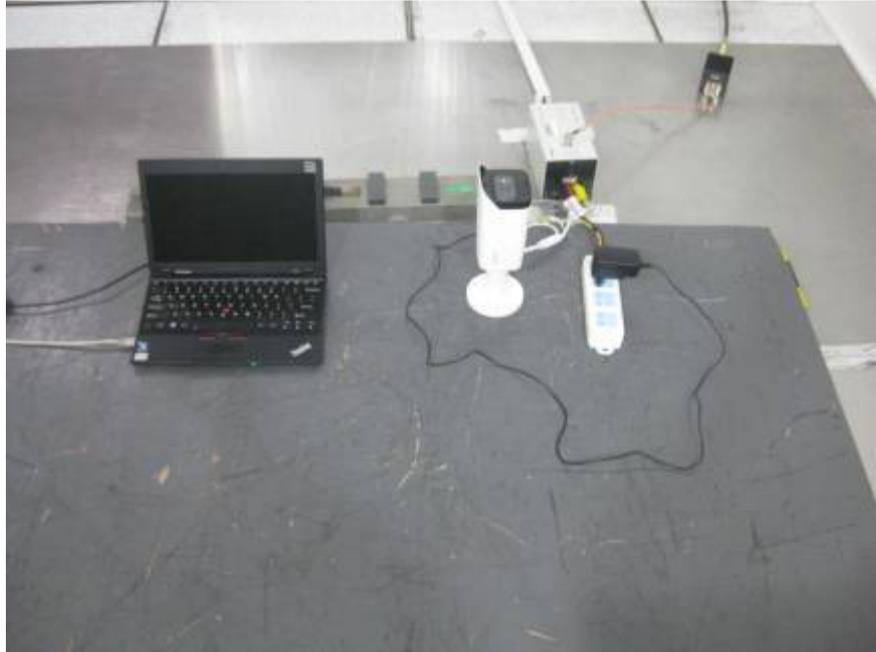
8.15 Mains Supply Voltage Variations-Conditioning Test Setup



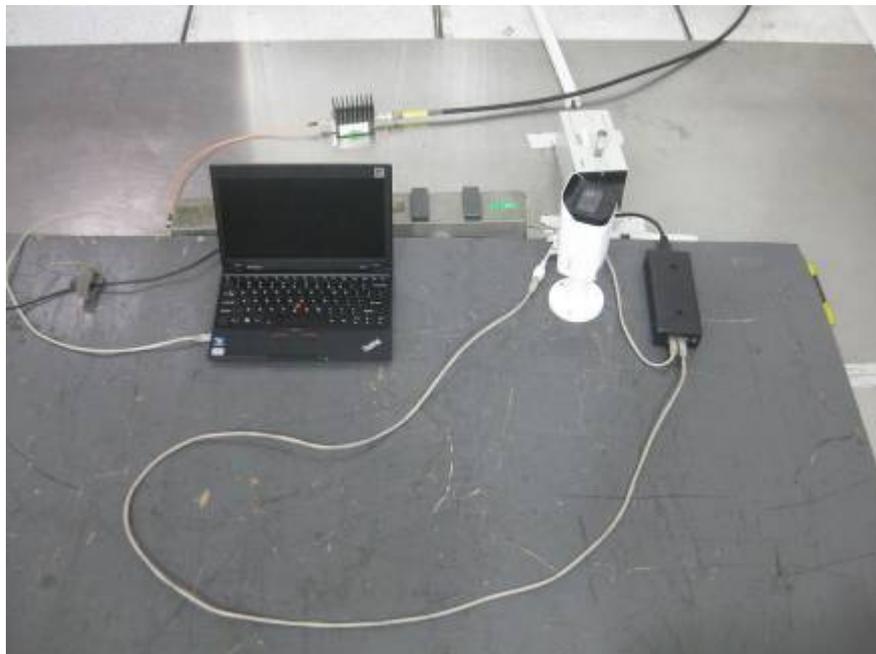
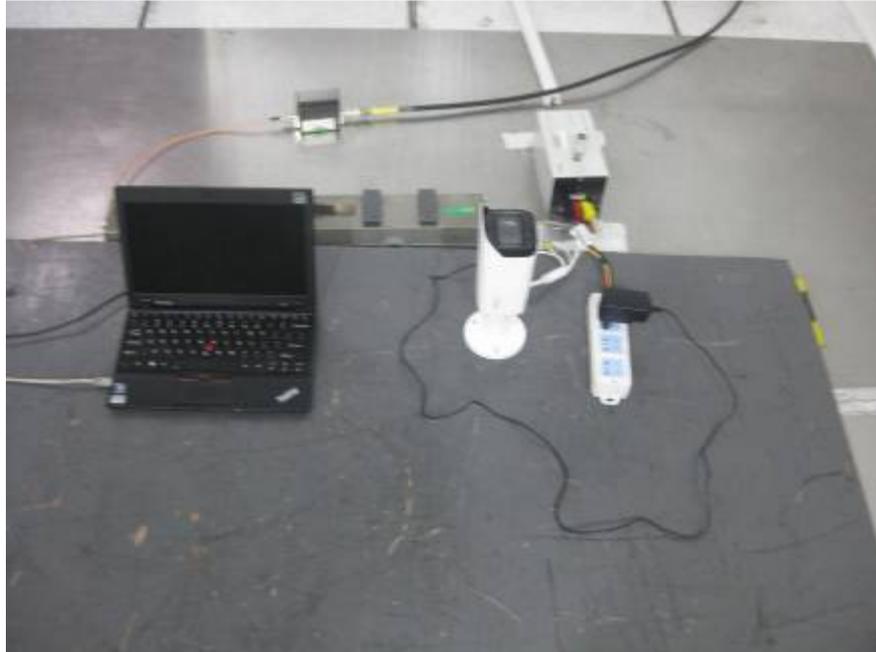
8.16 Radiated Immunity(80MHz-2.7GHz) Test Setup



8.17 Conducted Immunity at Power Port (150kHz-100MHz) Test Setup



8.18 Conducted Immunity at Signal Port (150kHz-100MHz) Test Setup

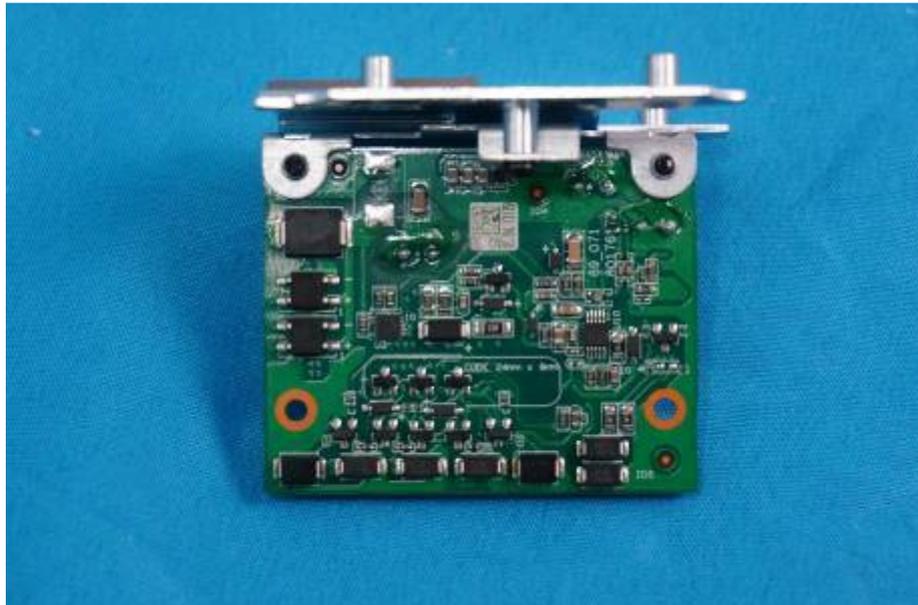


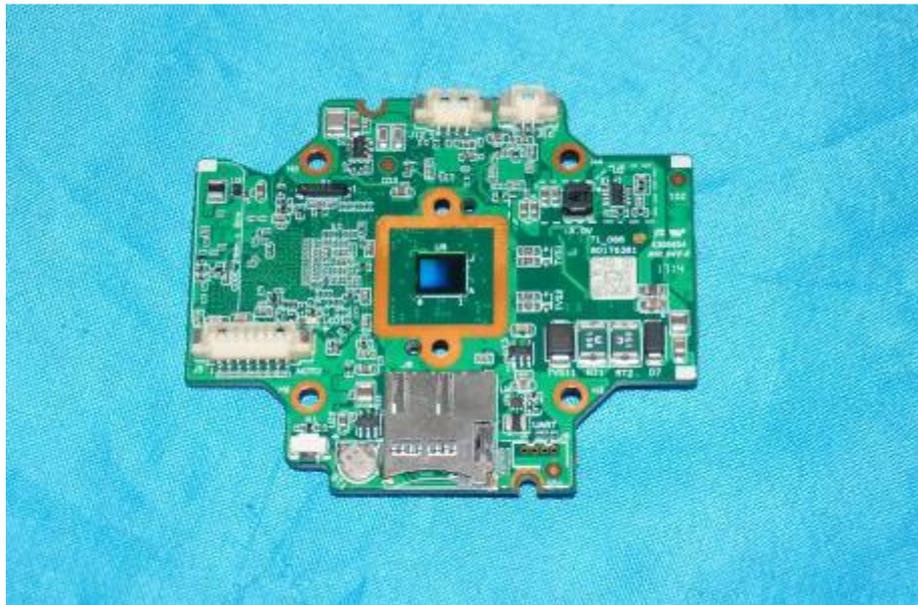
8.19 EUT Constructional Details











--End of the Report--