

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Telephone: +86 (0) 21 6191 5666

Fax: +86 (0) 21 6191 5678

ee.shanghai@sgs.com

Report No.: SHEM181000880001

Page: 1 of 110

# TEST REPORT

**Application No.:** SHEM1810008800IT  
**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  
**Equipment Under Test (EUT):**  
**EUT Name:** Digital Video Recorder  
**Model No.:** DH-XVR7816S-4KL-X-LP, XVR7816S-4KL-X-LP, DH-XVR5832S-X, XVR5832S-X, X58A5S, X58A5S4, X58A5S8, X58A5S12, DH-XVR5432L-X, XVR5432L-X, X54A5L, X54A5L2, X54A5L4, X54A5L8; □  
□ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.  
**Standard(s) :** EN 55032:2015 (Class A), EN 61000-3-2:2014, EN 61000-3-3:2013, EN 55024:2010 +A1:2015, EN 50130-4:2011 +A1:2014, EN 55035:2017  
**Date of Receipt:** 2018-10-11  
**Date of Test:** 2018-05-10 to 2018-05-15 & 2018-10-11 to 2018-10-17  
**Date of Issue:** 2018-10-19

<b>Test Result:</b>	<b>Pass*</b>
---------------------	--------------

\* 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.



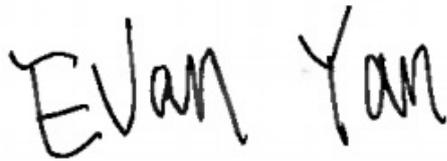
Parlam Zhan  
E&E Section Manager

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.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.



Revision Record			
Version	Description	Date	Remark
00	Original	2018-10-19	/

<b>Authorized for issue by:</b>			
			
		_____ Evan Yan / Project Engineer	
			
		_____ Bruce Tang / Reviewer	

## 2 Test Summary

Emission Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at Mains Terminals (150kHz-30MHz)	EN 55032:2015	EN 55032:2015	Class A	Pass
Asymmetric Mode Conducted Emissions (150kHz-30MHz)	EN 55032:2015	EN 55032:2015	Class A	Pass
Radiated Emissions (30MHz-1GHz)	EN 55032:2015	EN 55032:2015	Class A	Pass
Radiated Emissions (above 1GHz)	EN 55032:2015	EN 55032:2015	Class A	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 of this report 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
Electrostatic Discharge	EN 55035:2017	EN 61000-4-2:2009	4kV Contact Discharge 8kV Air Discharge	Pass
Radiated Immunity (80MHz-1GHz,1800MHz,2600MHz,3500MHz,5000MHz)	EN 55035:2017	EN 61000-4-3:2006 +A1:2008+A2:2010	3V/m, 80%, 1kHz Amp. Mod.	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
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
Electrical Fast Transients/Burst at Power Port	EN 55035:2017	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 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 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
Electrical Fast Transients/Burst at Signal Port	EN 55035:2017	EN 61000-4-4:2012	0.5kV 5/50ns Tr/Td 5kHz Repetition Frequency	Pass

Immunity Part				
Item	Standard	Method	Requirement	Result
Surge at Power Port	EN 55035:2017	EN 61000-4-5:2014 +A1:2017	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 +A1:2017	1.2/50µs Tr/Td 0.5,1kV Line to Line 0.5,1,2kV Line to Ground	Pass
Surge at Power Port	EN 55024:2010 +A1:2015	EN 61000-4-5:2014 +A1:2017	1.2/50µs Tr/Td 1kV Line to Line 2kV Line to Ground	Pass
Surge at Signal Port	EN 55024:2010 +A1:2015	EN 61000-4-5:2014 +A1:2017	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 +A1:2017	1.2/50µs Tr/Td 0.5,1kV Line to Ground	Pass
Surge at Signal Port	EN 55035:2017	EN 61000-4-5:2014 +A1:2017	1.2/50µs Tr/Td 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 Power Port (150kHz-80MHz)	EN 55035:2017	EN 61000-4-6:2014	3 Vrms: 0.15MHz - 10MHz 3 to 1 (Lines) Vrms: 10MHz - 30MHz 1 Vrms: 30MHz - 80MHz 80%,1kHz Amp. Mod.	Pass
Conducted Immunity at Signal Port (150kHz-80MHz)	EN 55035:2017	EN 61000-4-6:2014	3 Vrms: 0.15MHz - 10MHz 3 to 1 (Lines) Vrms: 10MHz - 30MHz 1 Vrms: 30MHz - 80MHz 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

Immunity Part				
Item	Standard	Method	Requirement	Result
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
Voltage Dips and Interruptions	EN 55035:2017	EN 61000-4-11:2004 +A1:2017	<5% residual voltage for 0.5 periods: B 70% residual voltage for 25 periods: C <5% residual voltage for 250 periods: C	Pass
Voltage Dips and Interruptions	EN 55024:2010 +A1:2015	EN 61000-4-11:2004 +A1:2017	0 % UT for 0.5per 0 % UT for 250per 70 % UT for 25per UT is Supply Voltage	Pass
Voltage Dips and Interruptions	EN 50130-4:2011 +A1:2014	EN 61000-4-11:2004 +A1:2017	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

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

**Note: 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-XVR7816S-4KL-X-LP, DH-XVR5832S-X was tested since their differences are model number, trade name and appearance.



### 3 Contents

	Page
<b>1 COVER PAGE.....</b>	<b>1</b>
<b>2 TEST SUMMARY .....</b>	<b>3</b>
<b>3 CONTENTS.....</b>	<b>7</b>
<b>4 GENERAL INFORMATION.....</b>	<b>9</b>
4.1 DETAILS OF E.U.T. ....	9
4.2 DESCRIPTION OF SUPPORT UNITS .....	9
4.3 MEASUREMENT UNCERTAINTY.....	9
4.4 TEST LOCATION.....	10
4.5 TEST FACILITY.....	10
4.6 DEVIATION FROM STANDARDS .....	10
4.7 ABNORMALITIES FROM STANDARD CONDITIONS.....	10
4.8 MONITORING OF EUT FOR ALL IMMUNITY TEST .....	10
<b>5 EQUIPMENT LIST .....</b>	<b>11</b>
<b>6 EMISSION TEST RESULTS .....</b>	<b>21</b>
6.1 CONDUCTED EMISSIONS AT MAINS TERMINALS (150kHz-30MHz) .....	21
6.2 ASYMMETRIC MODE CONDUCTED EMISSIONS (150kHz-30MHz) .....	26
6.3 RADIATED EMISSIONS (30MHz-1GHz) .....	29
6.4 RADIATED EMISSIONS (ABOVE 1GHz) .....	34
6.5 HARMONIC CURRENT EMISSION .....	39
6.6 VOLTAGE FLUCTUATIONS AND FLICKER .....	40
<b>7 IMMUNITY TEST RESULTS.....</b>	<b>41</b>
7.1 PERFORMANCE CRITERIA DESCRIPTION IN EN 55024:2010 +A1:2015 .....	41
7.2 PERFORMANCE CRITERIA DESCRIPTION IN EN 50130-4:2011 +A1:2014 .....	41
7.3 PERFORMANCE CRITERIA DESCRIPTION IN EN 55035:2017 .....	42
7.4 ELECTROSTATIC DISCHARGE .....	43
7.5 ELECTROSTATIC DISCHARGE .....	44
7.6 ELECTROSTATIC DISCHARGE .....	45
7.7 RADIATED IMMUNITY (80MHz-1GHz,1800MHz,2600MHz,3500MHz,5000MHz) .....	46
7.8 RADIATED IMMUNITY (80MHz-1GHz) .....	48
7.9 RADIATED IMMUNITY(80MHz-2.7GHz) .....	49
7.10 ELECTRICAL FAST TRANSIENTS/BURST AT POWER PORT .....	50
7.11 ELECTRICAL FAST TRANSIENTS/BURST AT POWER PORT .....	51
7.12 ELECTRICAL FAST TRANSIENTS/BURST AT POWER PORT .....	52
7.13 ELECTRICAL FAST TRANSIENTS/BURST AT SIGNAL PORT .....	53
7.14 ELECTRICAL FAST TRANSIENTS/BURST AT SIGNAL PORT .....	54
7.15 ELECTRICAL FAST TRANSIENTS/BURST AT SIGNAL PORT .....	55
7.16 SURGE AT POWER PORT .....	56
7.17 SURGE AT POWER PORT .....	58
7.18 SURGE AT POWER PORT .....	60
7.19 SURGE AT SIGNAL PORT.....	62
7.20 SURGE AT SIGNAL PORT.....	63
7.21 SURGE AT SIGNAL PORT.....	64
7.22 CONDUCTED IMMUNITY AT POWER PORT (150kHz-80MHz).....	65
7.23 CONDUCTED IMMUNITY AT POWER PORT (150kHz-80MHz).....	66
7.24 CONDUCTED IMMUNITY AT SIGNAL PORT (150kHz-80MHz).....	67



7.25	CONDUCTED IMMUNITY AT SIGNAL PORT (150kHz-80MHz)	68
7.26	CONDUCTED IMMUNITY AT POWER PORT (150kHz-100MHz)	69
7.27	CONDUCTED IMMUNITY AT SIGNAL PORT (150kHz-100MHz)	70
7.28	VOLTAGE DIPS AND INTERRUPTIONS	71
7.29	VOLTAGE DIPS AND INTERRUPTIONS	72
7.30	VOLTAGE DIPS AND INTERRUPTIONS	73
7.31	MAINS SUPPLY VOLTAGE VARIATIONS-CONDITIONING	74
<b>8</b>	<b>PHOTOGRAPHS</b>	<b>75</b>
8.1	CONDUCTED EMISSIONS AT MAINS TERMINALS (150kHz-30MHz) TEST SETUP	75
8.2	ASYMMETRIC MODE CONDUCTED EMISSIONS (150kHz-30MHz) TEST SETUP	76
8.3	RADIATED EMISSIONS (30MHz-1GHz) TEST SETUP	77
8.4	RADIATED EMISSIONS (ABOVE 1GHz) TEST SETUP	78
8.5	VOLTAGE FLUCTUATIONS AND FLICKER TEST SETUP	79
8.6	ELECTROSTATIC DISCHARGE TEST SETUP	80
8.7	RADIATED IMMUNITY (80MHz-1GHz, 1800MHz, 2600MHz, 3500MHz, 5000MHz) TEST SETUP	83
8.8	RADIATED IMMUNITY (80MHz-1GHz) TEST SETUP	85
8.9	RADIATED IMMUNITY(80MHz-2.7GHz) TEST SETUP	86
8.10	ELECTRICAL FAST TRANSIENTS/BURST AT POWER PORT TEST SETUP	87
8.11	ELECTRICAL FAST TRANSIENTS/BURST AT SIGNAL PORT TEST SETUP	88
8.12	SURGE AT POWER PORT TEST SETUP	90
8.13	SURGE AT SIGNAL PORT TEST SETUP	91
8.14	CONDUCTED IMMUNITY AT POWER PORT (150kHz-80MHz) TEST SETUP	93
8.15	CONDUCTED IMMUNITY AT SIGNAL PORT (150kHz-80MHz) TEST SETUP	94
8.16	CONDUCTED IMMUNITY AT POWER PORT (150kHz-100MHz) TEST SETUP	95
8.17	CONDUCTED IMMUNITY AT SIGNAL PORT (150kHz-100MHz) TEST SETUP	96
8.18	VOLTAGE DIPS AND INTERRUPTIONS TEST SETUP	97
8.19	MAINS SUPPLY VOLTAGE VARIATIONS-CONDITIONING TEST SETUP	98
8.20	EUT CONSTRUCTIONAL DETAILS (EUT PHOTOS)	99-110

## 4 General Information

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

Power supply: AC100-240V, 1.9A, 50/60Hz

### 4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
7"LCD HD DVR	/	DS-8104AHQLI-E4	/
AC Adapter	HOIOTO	ADS-25FSG-12	/
Hard disk	WD	WD30PURX	/
Headset	HYUNDAI	HY-R362	/
Laptop	LENOVO	R400	/
Monitor	DELL	ST2220Lb	/
Network Camera	/	DS-2CD893PF-E	/
USB Disk	SanDisk	Cruzer Blade 8GB	/
USB Mouse	3D Optical Mouse	--	/

### 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)
2	Conducted Emission at mains port using VP	1.9 dB(9kHz to 30MHz)
3	Conducted Emission at telecommunication port using AAN	2.4 dB(150kHz to 30MHz)
4	Radiated Power	3.5dB
5	Radiated emission	4.4dB (30MHz-1GHz )
		4.6dB (1GHz-6GHz )

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:

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.

#### 4.5 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.

- **NVLAP (Certificate No. 201034-0)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). Certificate No. 201034-0.

- **FCC –Designation Number: CN5033**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

Designation Number: CN5033. Test Firm Registration Number: 479755.

- **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-13868, C-14336, T-12221, G-10830 respectively.

#### 4.6 Deviation from Standards

None

#### 4.7 Abnormalities from Standard Conditions

None

#### 4.8 Monitoring of EUT for All Immunity Test

Visual: work status and video quality

## 5 Equipment List

Model: DH-XVR7816S-4KL-X-LP

<b>Conducted Emissions at Mains Terminals (150kHz-30MHz)</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
EMI test receiver	Rohde & Schwarz	ESR7	SHEM162-1	2017-12-20	2018-12-19
Line impedance stabilization network	SCHWARZBECK	NSLK8127	SHEM061-1	2017-12-20	2018-12-19
Line impedance stabilization network	EMCO	3816/2	SHEM019-1	2017-12-20	2018-12-19
Pulse limiter	Rohde & Schwarz	ESH3-Z2	SHEM029-1	2017-12-20	2018-12-19
Shielding Room	ZHONGYU	8*4*3M	SHEM079-2	2017-12-20	2020-12-19
CE test Cable	/	/	CE01	2017-12-26	2018-12-25

<b>Asymmetric Mode Conducted Emissions (150kHz-30MHz)</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
EMI test receiver	Rohde & Schwarz	ESR7	SHEM162-1	2017-12-20	2018-12-19
Line impedance stabilization network	SCHWARZBECK	NSLK8127	SHEM061-1	2017-12-20	2018-12-19
8-wire ISN cat 5	SCHWARZBECK	CAT5 8158	SHEM137-1	2017-12-20	2018-12-19
8-wire ISN cat 3	SCHWARZBECK	CAT3 8158	SHEM137-2	2017-12-20	2018-12-19
8-wire ISNcat 6	SCHWARZBECK	NTFM8158	SHEM137-3	2017-12-26	2018-12-25
2-Draht ISN	Schwarzbeck - Mess-Elektronik	NTFM 8131	SHEM139-1	2017-12-20	2018-12-19
CE test Cable	/	/	CE01	2017-12-26	2018-12-25

<b>Radiated Emissions (30MHz-1GHz)</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
EMI test receiver	Rohde & Schwarz	ESU40	SHEM051-1	2017-12-20	2018-12-19
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	2017-02-28	2020-02-27
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21
Low Amplifier	CLAVIIO	BDLNA-0001-412010	SHEM164-1	2018-08-13	2019-08-12



Radiated Emissions (above 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESU40	SHEM051-1	2017-12-20	2018-12-19
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	2017-01-14	2020-01-13
High-amplifier	SCHWARZBECK	SCU-F0118-G40-BZ4-CS	SHEM050-2	2017-12-20	2018-12-19
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21
High Amplifier	CLAVIIO	BDLNA-0118-352810	SHEM165-1	2018-08-13	2019-08-12

Voltage Fluctuations and Flicker					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Harmonic&Flicker analyzer	AMETEK	PACS-1	SHEM024-2	2018-08-13	2019-08-12
AC Power Source 5KVA	AMETEK	5001iX	SHEM025-2	2018-08-13	2019-08-12

Electrostatic Discharge					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Electrostatic Discharge Simulator	TESEQ	NSG 437	SHEM041-2	2018-08-13	2019-08-12

Radiated Immunity (80MHz-1GHz,1800MHz,2600MHz,3500MHz,5000MHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Signal generator	Rohde & Schwarz	SMJ100A	SHEM141-1	2018-08-13	2019-08-12
Power Meter	Rohde & Schwarz	NRP	SHEM057-1	2017-12-20	2018-12-19
Power meter sensor	Rohde & Schwarz	NRP-Z91	SHEM057-2	2017-12-20	2018-12-19
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	2017-12-19	2018-12-18
ElectroMagnetic Field Probe	ETS-Lindgren	HI-6113	SHEM134-1	2017-12-19	2018-12-18

Radiated Immunity (80MHz-1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Signal generator	Rohde & Schwarz	SMJ100A	SHEM141-1	2018-08-13	2019-08-12
Power Meter	Rohde & Schwarz	NRP	SHEM057-1	2017-12-20	2018-12-19
Power meter sensor	Rohde & Schwarz	NRP-Z91	SHEM057-2	2017-12-20	2018-12-19
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	2017-12-19	2018-12-18
ElectroMagnetic Field Probe	ETS-Lindgren	HI-6113	SHEM134-1	2017-12-19	2018-12-18



Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21
---------------------	----	---------	-----------	------------	------------

**Radiated Immunity(80MHz-2.7GHz)**

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Signal generator	Rohde & Schwarz	SMJ100A	SHEM141-1	2018-08-13	2019-08-12
Power Meter	Rohde & Schwarz	NRP	SHEM057-1	2017-12-20	2018-12-19
Power meter sensor	Rohde & Schwarz	NRP-Z91	SHEM057-2	2017-12-20	2018-12-19
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	2017-12-19	2018-12-18
ElectroMagnetic Field Probe	ETS-Lindgren	HI-6113	SHEM134-1	2017-12-19	2018-12-18
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21

**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	2017-12-20	2018-12-19

**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	2017-12-20	2018-12-19
Capacitive coupling clamp	EM test	HFK	SHEM026-2	2017-12-20	2018-12-19
Data coupling network 4 line	EM test	CNV 504	SHEM026-3	2017-12-20	2018-12-19

**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	2017-12-20	2018-12-19

**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	2017-12-20	2018-12-19
Data coupling network 4 line	EM test	CNV 504	SHEM026-3	2017-12-20	2018-12-19



<b>Conducted Immunity at Power Port (150kHz-80MHz)</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
Signal generator	Rohde & Schwarz	SMJ100A	SHEM141-1	2018-08-13	2019-08-12
PAMP Conducted RF test system	HAEFFLY	PAMP250	SHEM023-1	2017-12-20	2018-12-19
6dB Attenuator	HUAXIANG	DTS50-6dB-1G-A	SHEM123-2	2017-12-25	2018-12-24
Coupling clamp	LIITHI	EM 101	SHEM027-1	2017-12-20	2018-12-19
CDN impedance and K-factor	LUTHI	L-801 M1	SHEM023-5	2017-12-20	2018-12-19
CDN impedance and K-factor	LUTHI	L-801 M2/M3	SHEM023-6	2017-12-20	2018-12-19
Shielding Room	ZHONGYU	5*5*3M	SHEM079-6	2016-12-29	2019-12-28
Coupling and Decoupling Network	Teseq	CDN M016	SHEM168-1	2018-08-13	2019-08-12

<b>Conducted Immunity at Signal Port (150kHz-80MHz)</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
Signal generator	Rohde & Schwarz	SMJ100A	SHEM141-1	2018-08-13	2019-08-12
PAMP Conducted RF test system	HAEFFLY	PAMP250	SHEM023-1	2017-12-20	2018-12-19
6dB Attenuator	HUAXIANG	DTS50-6dB-1G-A	SHEM123-2	2017-12-25	2018-12-24
Coupling clamp	LIITHI	EM 101	SHEM027-1	2017-12-20	2018-12-19
Shielding Room	ZHONGYU	5*5*3M	SHEM079-6	2016-12-29	2019-12-28

<b>Conducted Immunity at Power Port (150kHz-100MHz)</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
Signal generator	Rohde & Schwarz	SMJ100A	SHEM141-1	2018-08-13	2019-08-12
PAMP Conducted RF test system	HAEFFLY	PAMP250	SHEM023-1	2017-12-20	2018-12-19
6dB Attenuator	HUAXIANG	DTS50-6dB-1G-A	SHEM123-2	2017-12-25	2018-12-24
CDN impedance and K-factor	LUTHI	L-801 M1	SHEM023-5	2017-12-20	2018-12-19
CDN impedance and K-factor	LUTHI	L-801 M2/M3	SHEM023-6	2017-12-20	2018-12-19
Shielding Room	ZHONGYU	5*5*3M	SHEM079-6	2016-12-29	2019-12-28
Coupling and Decoupling Network	Teseq	CDN M016	SHEM168-1	2018-08-13	2019-08-12



<b>Conducted Immunity at Signal Port (150kHz-100MHz)</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
Signal generator	Rohde & Schwarz	SMJ100A	SHEM141-1	2018-08-13	2019-08-12
PAMP Conducted RF test system	HAEFFLY	PAMP250	SHEM023-1	2017-12-20	2018-12-19
6dB Attenuator	HUAXIANG	DTS50-6dB-1G-A	SHEM123-2	2017-12-25	2018-12-24
Coupling clamp	LIITHI	EM 101	SHEM027-1	2017-12-20	2018-12-19
CDN impedance and K-factor	LUTHI	L-801 M1	SHEM023-5	2017-12-20	2018-12-19
CDN impedance and K-factor	LUTHI	L-801 M2/M3	SHEM023-6	2017-12-20	2018-12-19
Coupling and Decoupling Network	Teseq	CDN M016	SHEM168-1	2018-08-13	2019-08-12

<b>Voltage Dips and Interruptions</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2017-12-20	2018-12-19

<b>Mains Supply Voltage Variations-Conditioning</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2017-12-20	2018-12-19

<b>General used equipment</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
Digital pressure meter	YONGZHI	DYM3-01	SHEM082-1	2018-01-25	2021-01-24
Temperature&humidity recorder	ShangHai weather meter work	ZJ 1-2B	SHEM042-1~6	2018-08-31	2019-08-30
Digital Multimeter	FLUKE	17B	SHEM043-3	2018-09-03	2019-09-02
Autoformer regulator	Guangzhou bao de	TDGC2-5KVA	SHEM150-1	N/A	N/A
Multi-purpose tong tester	FLUKE	316	SHEM001-1	2017-12-20	2018-12-19



Model: DH-XVR5832S-X

<b>Conducted Emissions at Mains Terminals (150kHz-30MHz)</b>					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESR7	SHEM162-1	2017-12-20	2018-12-19
Line impedance stabilization network	SCHWARZBECK	NSLK8127	SHEM061-1	2017-12-20	2018-12-19
Line impedance stabilization network	EMCO	3816/2	SHEM019-1	2017-12-20	2018-12-19
Pulse limiter	Rohde & Schwarz	ESH3-Z2	SHEM029-1	2017-12-20	2018-12-19
Shielding Room	ZHONGYU	8*4*3M	SHEM079-2	2017-12-20	2020-12-19
CE test Cable	/	/	CE01	2017-12-26	2018-12-25

<b>Asymmetric Mode Conducted Emissions (150kHz-30MHz)</b>					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESR7	SHEM162-1	2017-12-20	2018-12-19
Line impedance stabilization network	SCHWARZBECK	NSLK8127	SHEM061-1	2017-12-20	2018-12-19
8-wire ISN cat 5	SCHWARZBECK	CAT5 8158	SHEM137-1	2017-12-20	2018-12-19
8-wire ISN cat 3	SCHWARZBECK	CAT3 8158	SHEM137-2	2017-12-20	2018-12-19
8-wire ISNcat 6	SCHWARZBECK	NTFM8158	SHEM137-3	2017-12-26	2018-12-25
2-Draht ISN	Schwarzbeck - Mess-Elektronik	NTFM 8131	SHEM139-1	2017-12-20	2018-12-19
CE test Cable	/	/	CE01	2017-12-26	2018-12-25

<b>Radiated Emissions (30MHz-1GHz)</b>					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESU40	SHEM051-1	2017-09-26	2018-09-25
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	2017-02-28	2020-02-27
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21
Low Amplifier	CLAVIIO	BDLNA-0001-412010	SHEM164-1	2017-08-22	2018-08-21

<b>Radiated Emissions (above 1GHz)</b>					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESU40	SHEM051-1	2017-09-26	2018-09-25
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	2017-01-14	2020-01-13
High-amplifier	SCHWARZBECK	SCU-F0118-G40-BZ4-CS	SHEM050-2	2017-12-20	2018-12-19
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21

**Harmonic Current Emission**

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.



Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Harmonic&Flicker analyzer	AMETEK	PACS-1	SHEM024-2	2017-08-22	2018-08-21
AC Power Source 5KVA	AMETEK	5001iX	SHEM025-2	2017-08-22	2018-08-21

Voltage Fluctuations and Flicker					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Harmonic&Flicker analyzer	AMETEK	PACS-1	SHEM024-2	2017-08-22	2018-08-21
AC Power Source 5KVA	AMETEK	5001iX	SHEM025-2	2017-08-22	2018-08-21

Electrostatic Discharge					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Electrostatic Discharge Simulator	TESEQ	NSG 437	SHEM041-1	2017-09-26	2018-09-25

Radiated Immunity (80MHz-1GHz,1800MHz,2600MHz,3500MHz,5000MHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Signal generator	Rohde & Schwarz	SMJ100A	SHEM141-1	2017-09-26	2018-09-25
Power Meter	Rohde & Schwarz	NRP	SHEM057-1	2017-12-20	2018-12-19
Power meter sensor	Rohde & Schwarz	NRP-Z91	SHEM057-2	2017-12-20	2018-12-19
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	2017-12-19	2018-12-18
ElectroMagnetic Field Probe	ETS-Lindgren	HI-6113	SHEM134-1	2017-12-19	2018-12-18

Radiated Immunity (80MHz-1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Signal generator	Rohde & Schwarz	SMJ100A	SHEM141-1	2017-09-26	2018-09-25
Power Meter	Rohde & Schwarz	NRP	SHEM057-1	2017-12-20	2018-12-19
Power meter sensor	Rohde & Schwarz	NRP-Z91	SHEM057-2	2017-12-20	2018-12-19
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	2017-12-19	2018-12-18
ElectroMagnetic Field Probe	ETS-Lindgren	HI-6113	SHEM134-1	2017-12-19	2018-12-18
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21

Radiated Immunity(80MHz-2.7GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Signal generator	Rohde & Schwarz	SMJ100A	SHEM141-1	2017-09-26	2018-09-25
Power Meter	Rohde & Schwarz	NRP	SHEM057-1	2017-12-20	2018-12-19
Power meter sensor	Rohde & Schwarz	NRP-Z91	SHEM057-2	2017-12-20	2018-12-19
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	2017-12-19	2018-12-18
ElectroMagnetic Field Probe	ETS-Lindgren	HI-6113	SHEM134-1	2017-12-19	2018-12-18
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21

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	2017-12-20	2018-12-19

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	2017-12-20	2018-12-19
Capacitive coupling clamp	EM test	HFK	SHEM026-2	2017-12-20	2018-12-19
Data coupling network 4 line	EM test	CNV 504	SHEM026-3	2017-12-20	2018-12-19

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	2017-12-20	2018-12-19

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	2017-12-20	2018-12-19
Data coupling network 4 line	EM test	CNV 504	SHEM026-3	2017-12-20	2018-12-19

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	2017-09-26	2018-09-25
PAMP Conducted RF test system	HAEFFLY	PAMP250	SHEM023-1	2017-12-20	2018-12-19
6dB Attenuator	HUAXIANG	DTS50-6dB-1G-A	SHEM123-2	2017-12-25	2018-12-24
Coupling clamp	LIITHI	EM 101	SHEM027-1	2017-12-20	2018-12-19
CDN impedance and K-factor	LUTHI	L-801 M1	SHEM023-5	2017-12-20	2018-12-19
CDN impedance and K-factor	LUTHI	L-801 M2/M3	SHEM023-6	2017-12-20	2018-12-19
Shielding Room	ZHONGYU	5*5*3M	SHEM079-6	2016-12-29	2019-12-28



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	2017-09-26	2018-09-25
PAMP Conducted RF test system	HAEFFLY	PAMP250	SHEM023-1	2017-12-20	2018-12-19
6dB Attenuator	HUAXIANG	DTS50-6dB-1G-A	SHEM123-2	2017-12-25	2018-12-24
Coupling clamp	LIITHI	EM 101	SHEM027-1	2017-12-20	2018-12-19
Shielding Room	ZHONGYU	5*5*3M	SHEM079-6	2016-12-29	2019-12-28

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	2017-09-26	2018-09-25
PAMP Conducted RF test system	HAEFFLY	PAMP250	SHEM023-1	2017-12-20	2018-12-19
6dB Attenuator	HUAXIANG	DTS50-6dB-1G-A	SHEM123-2	2017-12-25	2018-12-24
CDN impedance and K-factor	LUTHI	L-801 M1	SHEM023-5	2017-12-20	2018-12-19
CDN impedance and K-factor	LUTHI	L-801 M2/M3	SHEM023-6	2017-12-20	2018-12-19
Shielding Room	ZHONGYU	5*5*3M	SHEM079-6	2016-12-29	2019-12-28

Conducted Immunity at Signal Port (150kHz-100MHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Signal generator	Rohde & Schwarz	SMJ100A	SHEM141-1	2017-09-26	2018-09-25
PAMP Conducted RF test system	HAEFFLY	PAMP250	SHEM023-1	2017-12-20	2018-12-19
6dB Attenuator	HUAXIANG	DTS50-6dB-1G-A	SHEM123-2	2017-12-25	2018-12-24
Coupling clamp	LIITHI	EM 101	SHEM027-1	2017-12-20	2018-12-19
CDN impedance and K-factor	LUTHI	L-801 M1	SHEM023-5	2017-12-20	2018-12-19
CDN impedance and K-factor	LUTHI	L-801 M2/M3	SHEM023-6	2017-12-20	2018-12-19

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	2017-12-20	2018-12-19

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	2017-12-20	2018-12-19



<b>General used equipment</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
Digital pressure meter	YONGZHI	DYM3-01	SHEM082-1	2018-01-25	2019-01-24
Temperature&humidity recorder	ShangHai weather meter work	ZJ 1-2B	SHEM042-1~6	2017-09-13	2018-09-12
Digital Multimeter	FLUKE	17B	SHEM043-3	2017-09-11	2018-09-10
Autoformer regulator	Guangzhou bao de	TDGC2-5KVA	SHEM150-1	N/A	N/A
Multi-purpose tong tester	FLUKE	316	SHEM001-1	2017-12-20	2018-12-19

## 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	79dB( $\mu$ V) quasi-peak, 66dB( $\mu$ V) average
0.5M-30MHz	73dB( $\mu$ V) quasi-peak, 60dB( $\mu$ V) average
Detector:	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

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

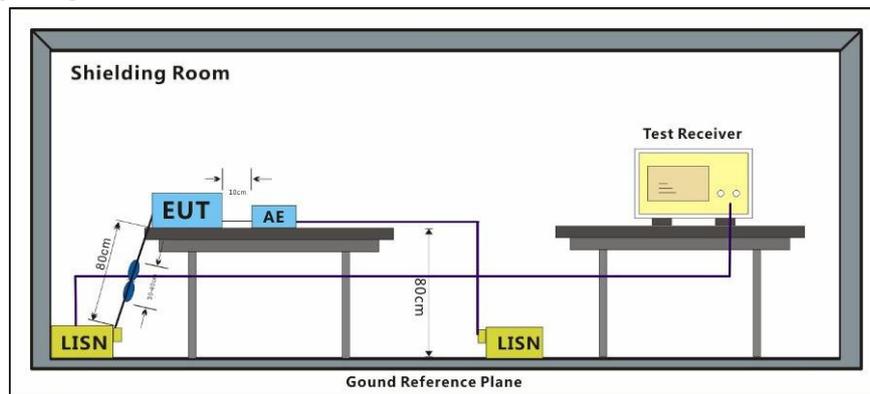
Operating Environment:

Temperature: 22 °C      Humidity: 50 % RH      Atmospheric Pressure: 1002 mbar

Test mode a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.

b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

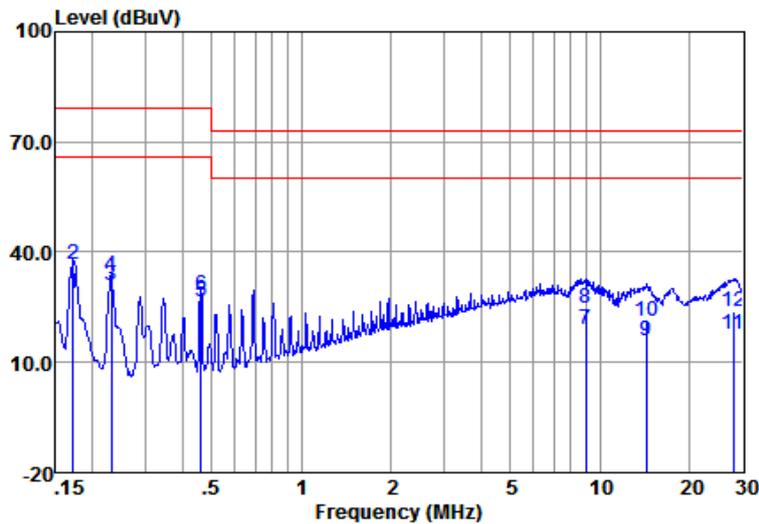
#### 6.1.2 Test Setup Diagram



#### 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

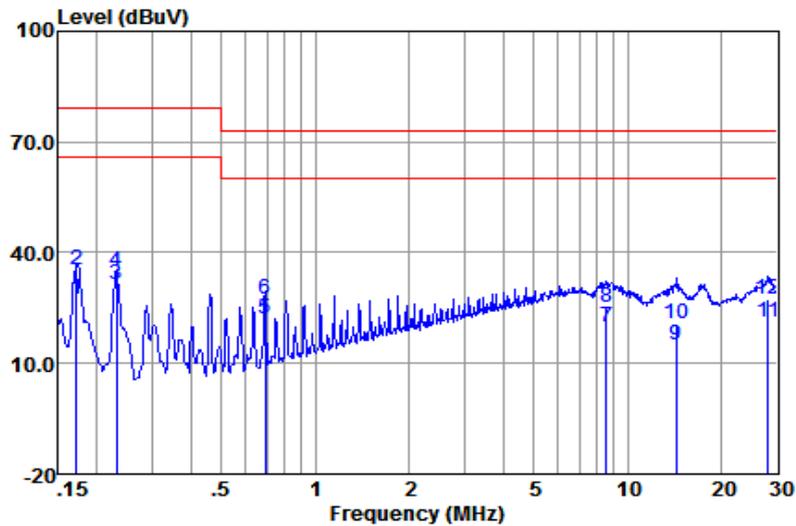


LISN : LINE  
 EUT/Project No : 8800IT  
 Test mode : a

	Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.17	18.71	0.05	9.83	28.59	66.00	-37.41	Average
2	0.17	26.65	0.05	9.83	36.53	79.00	-42.47	QP
3	0.23	21.06	0.05	9.84	30.95	66.00	-35.05	Average
4	0.23	23.55	0.05	9.84	33.44	79.00	-45.56	QP
5	0.46	16.58	0.05	9.83	26.46	66.00	-39.54	Average
6	0.46	18.59	0.05	9.83	28.47	79.00	-50.53	QP
7	8.96	9.02	0.18	9.88	19.08	60.00	-40.92	Average
8	8.96	14.48	0.18	9.88	24.54	73.00	-48.46	QP
9	14.29	5.86	0.21	9.66	15.73	60.00	-44.27	Average
10	14.29	11.38	0.21	9.66	21.25	73.00	-51.75	QP
11	28.00	7.19	0.46	10.12	17.77	60.00	-42.23	Average
12	28.00	13.32	0.46	10.12	23.90	73.00	-49.10	QP

Notes: Emission Level = Read Level + LISN Factor + Cable loss

Mode:a; Line:Neutral Line

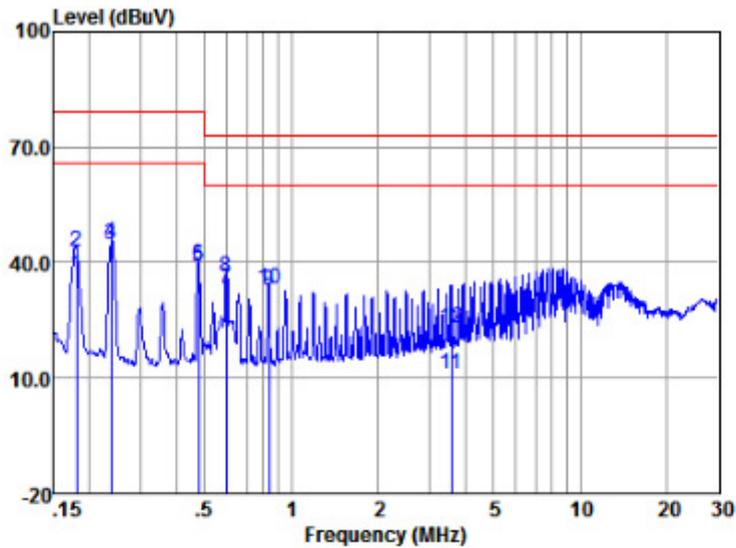


LISN : NEUTRAL  
 EUT/Project No : 8800IT  
 Test mode : a

	Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.17	17.35	0.06	9.83	27.24	66.00	-38.76	Average
2	0.17	25.66	0.06	9.83	35.55	79.00	-43.45	QP
3	0.23	21.63	0.06	9.84	31.53	66.00	-34.47	Average
4	0.23	24.86	0.06	9.84	34.76	79.00	-44.24	QP
5	0.69	12.21	0.05	9.85	22.11	60.00	-37.89	Average
6	0.69	17.61	0.05	9.85	27.51	73.00	-45.49	QP
7	8.59	9.60	0.17	9.88	19.65	60.00	-40.35	Average
8	8.59	14.95	0.17	9.88	25.00	73.00	-48.00	QP
9	14.36	5.25	0.22	9.66	15.13	60.00	-44.87	Average
10	14.36	10.97	0.22	9.66	20.85	73.00	-52.15	QP
11	28.30	10.48	0.46	10.20	21.14	60.00	-38.86	Average
12	28.30	16.87	0.46	10.20	27.53	73.00	-45.47	QP

Notes: Emission Level = Read Level + LISN Factor + Cable loss

Mode:b; Line:Live Line



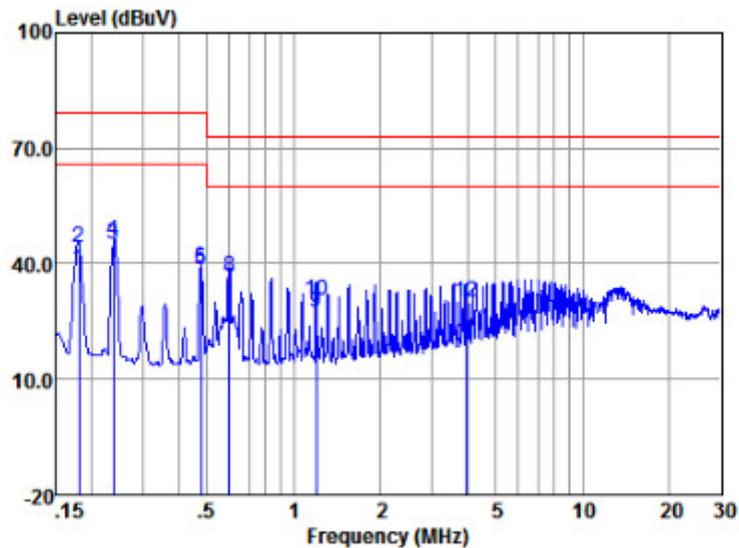
LISN : LINE

Test mode : b

	Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.18	26.93	0.11	9.81	36.85	66.00	-29.15	Average
2	0.18	32.74	0.11	9.81	42.66	79.00	-36.34	QP
3	0.24	34.68	0.11	9.81	44.60	66.00	-21.40	Average
4	0.24	35.34	0.11	9.81	45.26	79.00	-33.74	QP
5	0.48	29.11	0.11	9.82	39.04	66.00	-26.96	Average
6	0.48	29.50	0.11	9.82	39.43	79.00	-39.57	QP
7	0.59	23.26	0.11	9.82	33.19	60.00	-26.81	Average
8	0.59	26.23	0.11	9.82	36.16	73.00	-36.84	QP
9	0.83	22.91	0.11	9.83	32.85	60.00	-27.15	Average
10	0.83	23.37	0.11	9.83	33.31	73.00	-39.69	QP
11	3.58	1.15	0.12	9.85	11.12	60.00	-48.88	Average
12	3.58	12.98	0.12	9.85	22.95	73.00	-50.05	QP

Notes: Emission Level = Read Level + LISN Factor + Cable loss

Mode:b; Line:Neutral Line



LISN : NEUTRAL

Test mode : b

	Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.18	28.66	0.12	9.81	38.59	66.00	-27.41	Average
2	0.18	34.23	0.12	9.81	44.16	79.00	-34.84	QP
3	0.24	35.10	0.11	9.81	45.02	66.00	-20.98	Average
4	0.24	35.87	0.11	9.81	45.79	79.00	-33.21	QP
5	0.48	28.49	0.11	9.82	38.42	66.00	-27.58	Average
6	0.48	28.83	0.11	9.82	38.76	79.00	-40.24	QP
7	0.60	23.50	0.11	9.82	33.43	60.00	-26.57	Average
8	0.60	26.57	0.11	9.82	36.50	73.00	-36.50	QP
9	1.20	17.55	0.11	9.84	27.50	60.00	-32.50	Average
10	1.20	20.51	0.11	9.84	30.46	73.00	-42.54	QP
11	3.94	9.27	0.13	9.85	19.25	60.00	-40.75	Average
12	3.94	20.17	0.13	9.85	30.15	73.00	-42.85	QP

Notes: Emission Level = Read Level + LISN Factor + Cable loss

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

Test Requirement:	EN 55032:2015
Test Method:	EN 55032:2015
Frequency Range:	150kHz to 30MHz
Limit:	
0.15M-0.5MHz(Voltage)	97-87(dBμV) quasi-peak; 84-74(dBμV) average
0.5M-30MHz(Voltage)	87(dBμV) quasi-peak; 74(dBμV) average
0.15M-0.5MHz(Current)	53-43(dBμA) quasi-peak; 40-30(dBμA) average
0.5M-30MHz(Current)	43(dBμV) quasi-peak; 30(dBμV) 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 $\leq 6$ 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

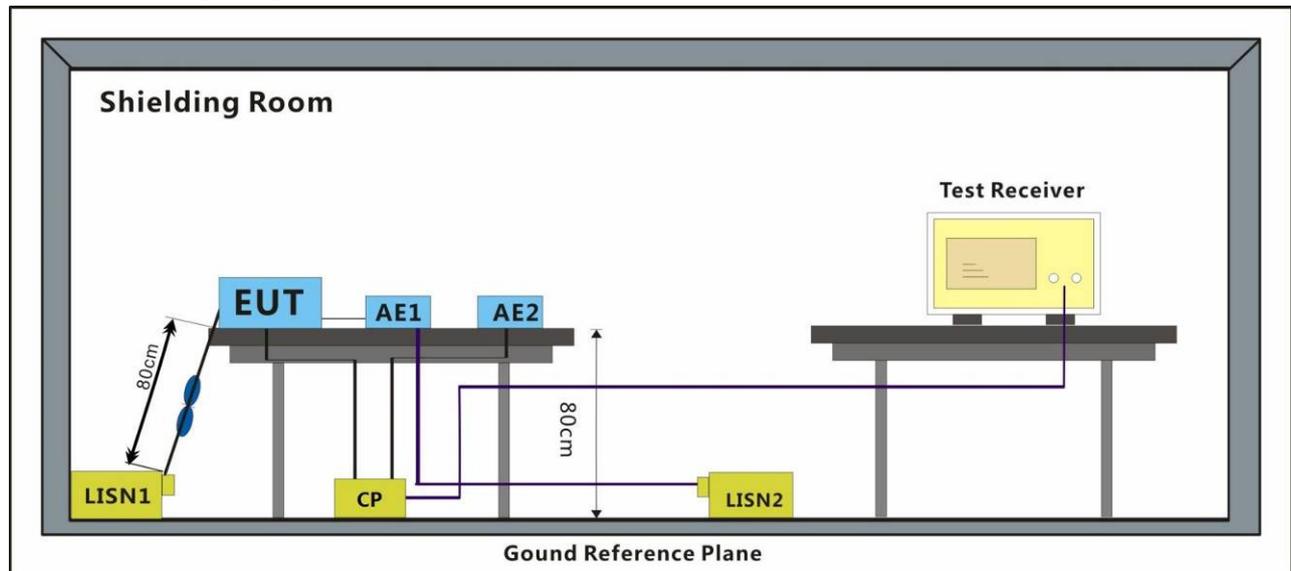
Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test mode a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.

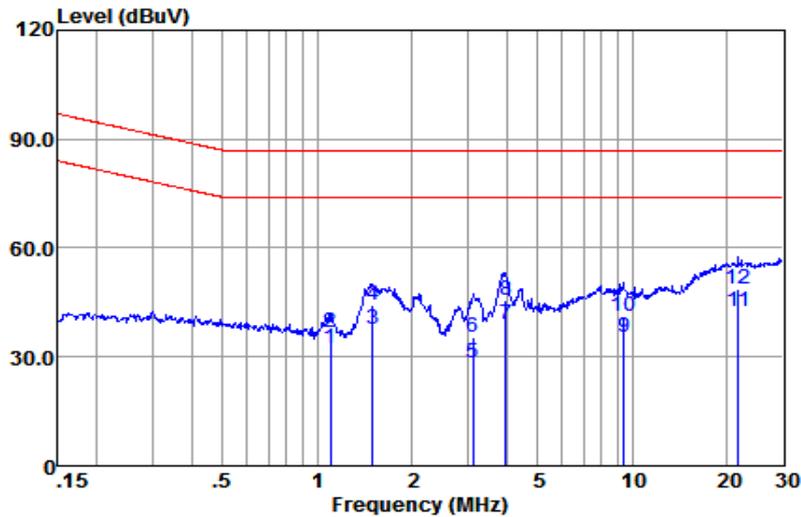
b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

### 6.2.2 Test Setup Diagram



### 6.2.3 Measurement Data

Mode:a

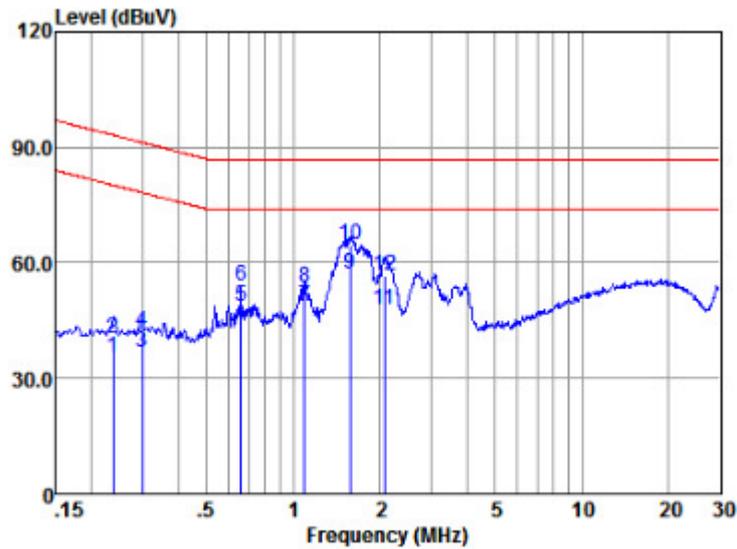


ISN : ISN CAT 5  
 EUT/Project No : 8800IT  
 Test Mode : a

	Freq (MHz)	Read level (dBuV)	ISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	1.10	13.16	9.34	9.82	32.32	74.00	-41.68	Average
2	1.10	17.75	9.34	9.82	36.91	87.00	-50.09	QP
3	1.50	18.34	9.30	9.87	37.51	74.00	-36.49	Average
4	1.50	25.19	9.30	9.87	44.36	87.00	-42.64	QP
5	3.12	9.47	9.23	9.86	28.56	74.00	-45.44	Average
6	3.12	16.17	9.23	9.86	35.26	87.00	-51.74	QP
7	3.99	20.02	9.22	9.89	39.13	74.00	-34.87	Average
8	3.99	26.57	9.22	9.89	45.68	87.00	-41.32	QP
9	9.40	16.46	9.20	9.85	35.51	74.00	-38.49	Average
10	9.40	22.32	9.20	9.85	41.37	87.00	-45.63	QP
11	21.71	23.48	9.33	9.84	42.65	74.00	-31.35	Average
12	21.71	29.59	9.33	9.84	48.76	87.00	-38.24	QP

Notes: Emission Level = Read Level + ISN Factor + Cable loss

Mode:b



ISN : ISN CAT 5  
 Test Mode : b

	Freq (MHz)	Read level (dBuV)	ISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.24	16.04	9.61	9.81	35.46	80.17	-44.71	Average
2	0.24	20.94	9.61	9.81	40.36	93.17	-52.81	QP
3	0.30	17.26	9.55	9.81	36.62	78.28	-41.66	Average
4	0.30	22.58	9.55	9.81	41.94	91.28	-49.34	QP
5	0.66	29.46	9.40	9.82	48.68	74.00	-25.32	Average
6	0.66	34.66	9.40	9.82	53.88	87.00	-33.12	QP
7	1.09	29.67	9.34	9.84	48.85	74.00	-25.15	Average
8	1.09	34.43	9.34	9.84	53.61	87.00	-33.39	QP
9	1.58	38.20	9.30	9.84	57.34	74.00	-16.66	Average
10	1.58	45.31	9.30	9.84	64.45	87.00	-22.55	QP
11	2.08	28.92	9.27	9.85	48.04	74.00	-25.96	Average
12	2.08	37.44	9.27	9.85	56.56	87.00	-30.44	QP

Notes: Emission Level = Read Level + ISN Factor + Cable loss

### 6.3 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	50 dB( $\mu$ V/m) quasi-peak
230MHz-1GHz	57 dB( $\mu$ V/m) quasi-peak
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz

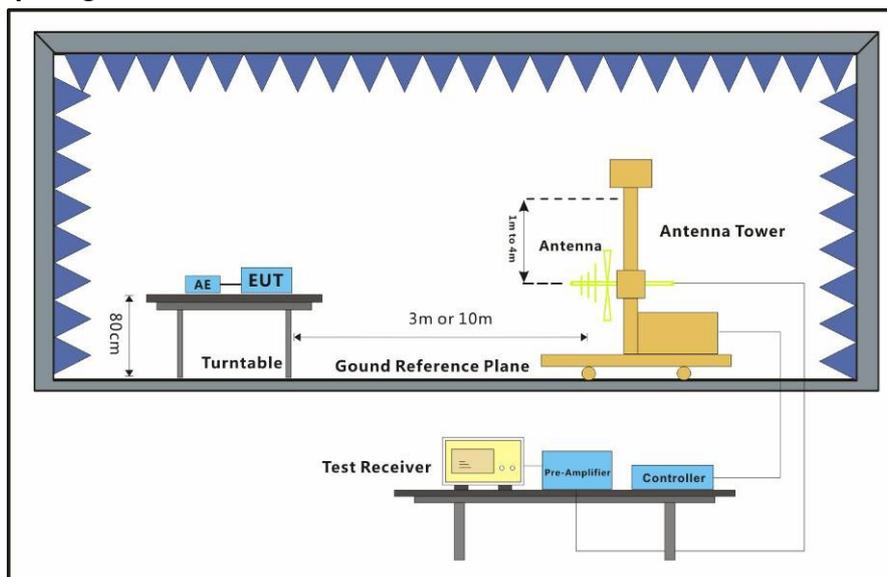
#### 6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C      Humidity: 50 % RH      Atmospheric Pressure: 1020 mbar

Test mode  
 a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.  
 b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

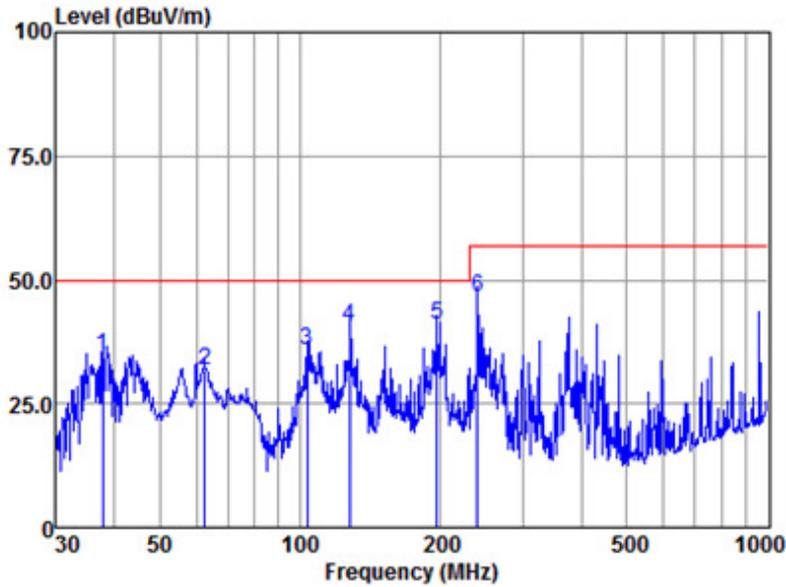
#### 6.3.2 Test Setup Diagram



#### 6.3.3 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

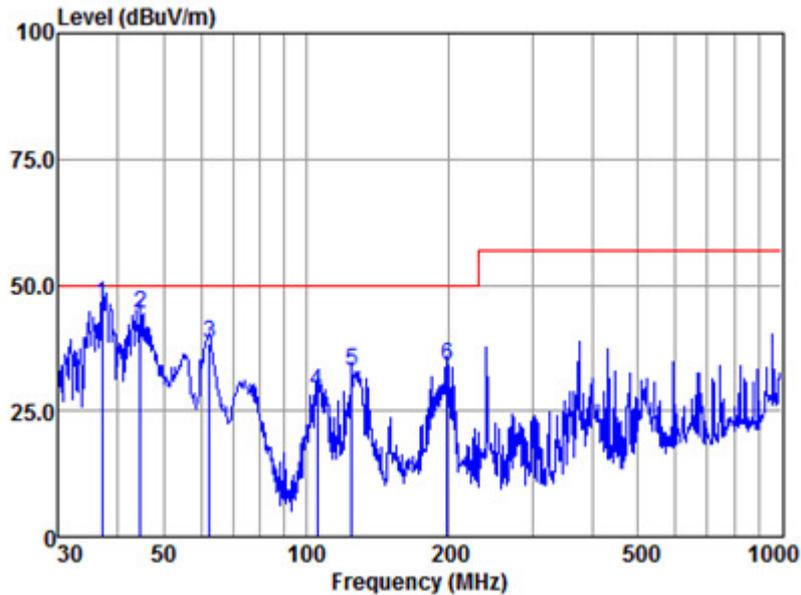


Antenna Polarity :HORIZONTAL  
 EUT/Project :8800IT  
 Test mode :a

	Read Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	37.81	61.99	16.10	0.21	43.69	34.61	50.00	-15.39	QP
2	62.43	62.91	12.30	0.31	43.75	31.77	50.00	-18.23	QP
3	103.44	69.46	9.54	0.47	43.73	35.74	50.00	-14.26	QP
4	127.66	71.49	12.19	0.57	43.74	40.51	50.00	-9.49	QP
5	196.51	74.12	9.70	0.69	43.73	40.78	50.00	-9.22	QP
6	239.99	78.39	11.10	0.75	43.66	46.58	57.00	-10.42	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

Mode:a; Polarization:Vertical

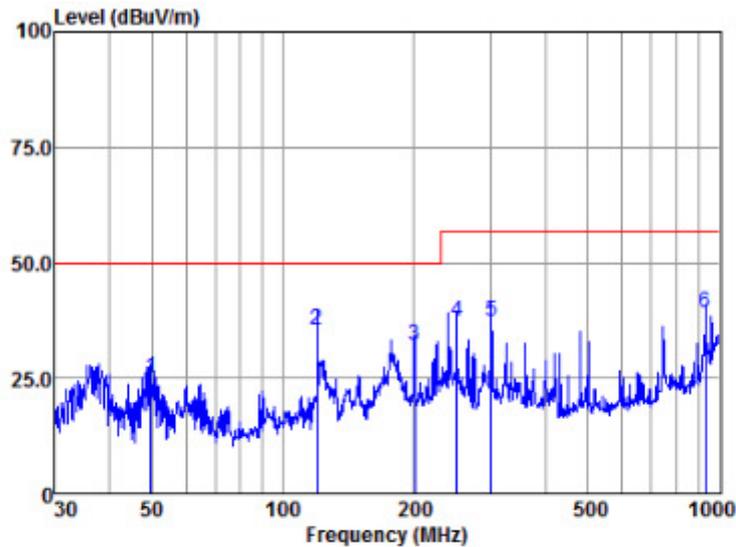


Antenna Polarity :VERTICAL  
 EUT/Project :8800IT  
 Test mode :a

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	37.15	73.55	16.04	0.21	43.69	46.11	50.00	-3.89	QP
2	44.74	74.37	13.45	0.24	43.71	44.35	50.00	-5.65	QP
3	62.43	69.64	12.30	0.31	43.75	38.50	50.00	-11.50	QP
4	105.27	62.41	9.55	0.48	43.74	28.70	50.00	-21.30	QP
5	124.57	64.68	11.34	0.55	43.74	32.83	50.00	-17.17	QP
6	197.89	67.31	9.58	0.69	43.72	33.86	50.00	-16.14	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization: Horizontal



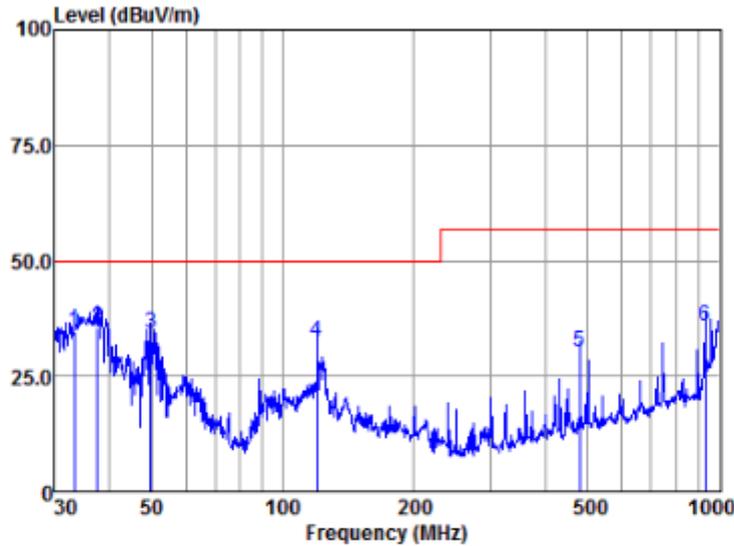
Antenna Polarity :HORIZONTAL

Test mode :b

	Read	Antenna	Cable	Preamp	Emission	Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	49.71	56.51	10.78	0.26	42.64	24.91	50.00	-25.09 QP
2	119.86	67.70	10.00	0.54	42.68	35.56	50.00	-14.44 QP
3	200.69	64.61	9.43	0.69	42.52	32.21	50.00	-17.79 QP
4	250.30	67.56	11.50	0.77	42.46	37.37	57.00	-19.63 QP
5	300.37	65.71	13.20	0.84	42.40	37.35	57.00	-19.65 QP
6	932.27	54.98	23.07	2.56	41.65	38.96	57.00	-18.04 QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Vertical



Antenna Polarity :VERTICAL  
Test mode :b

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	33.33	61.25	15.67	0.20	42.61	34.51	50.00	-15.49	QP
2	37.68	61.65	16.09	0.21	42.62	35.33	50.00	-14.67	QP
3	49.71	66.06	10.78	0.26	42.64	34.46	50.00	-15.54	QP
4	119.86	64.50	10.00	0.54	42.68	32.36	50.00	-17.64	QP
5	480.53	54.55	16.83	1.15	42.14	30.39	57.00	-26.61	QP
6	932.27	51.94	23.07	2.56	41.65	35.92	57.00	-21.08	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

## 6.4 Radiated Emissions (above 1GHz)

Test Requirement:	EN 55032:2015
Test Method:	EN 55032:2015
Frequency Range:	Above 1GHz
Measurement Distance:	3m
Limit:	
1GHz-3GHz	76 dB( $\mu$ V/m) peak, 56 dB( $\mu$ V/m) average
3GHz-6GHz	80 dB( $\mu$ V/m) peak, 60dB( $\mu$ V/m) average
Detector:	Peak for pre-scan (1000kHz resolution bandwidth) 1000M to 6000MHz

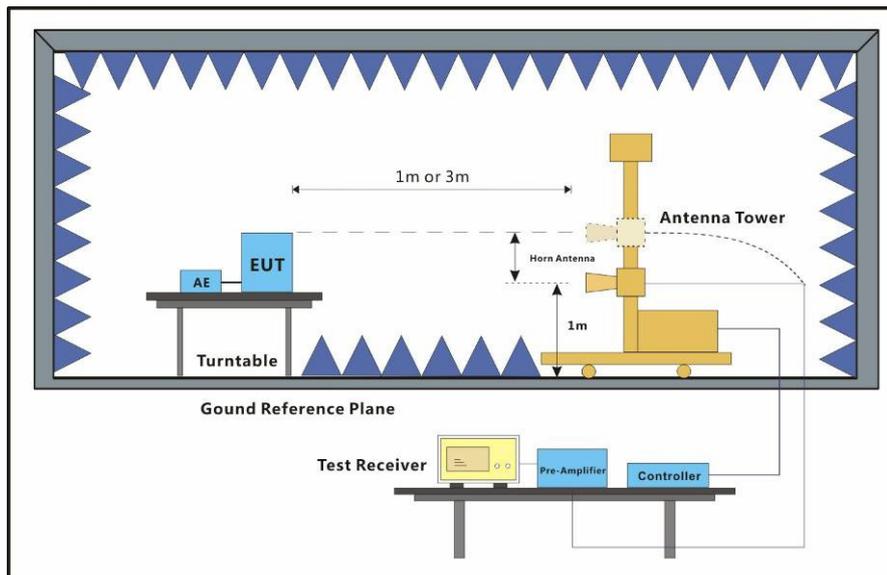
### 6.4.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C      Humidity: 50 % RH      Atmospheric Pressure: 1020 mbar

Test mode  
 a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.  
 b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

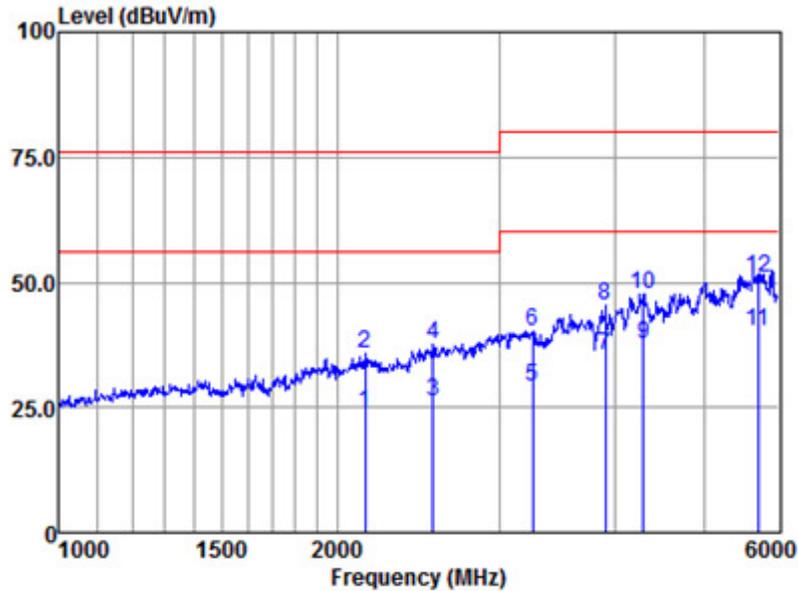
### 6.4.2 Test Setup Diagram



### 6.4.3 Measurement Data

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

Mode:a; Polarization:Horizontal

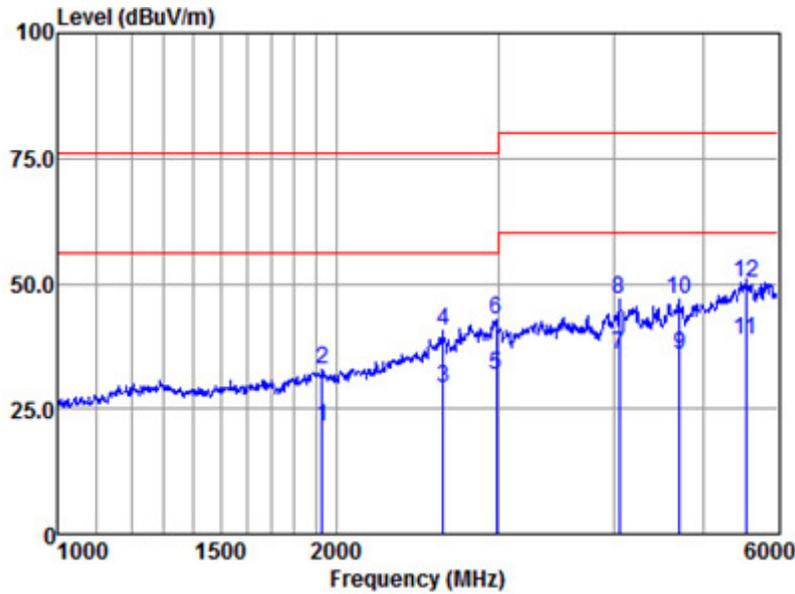


Antenna Polarity :HORIZONTAL  
 EUT/Project :8800IT  
 Test mode :a

	Read	Antenna	Cable	Preamp	Emission	Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	2145.32	35.12	26.44	4.75	42.20	24.11	56.00	-31.89 Average
2	2145.32	46.90	26.44	4.75	42.20	35.89	76.00	-40.11 Peak
3	2538.86	35.56	27.49	5.37	42.13	26.29	56.00	-29.71 Average
4	2538.86	46.87	27.49	5.37	42.13	37.60	76.00	-38.40 Peak
5	3251.05	36.27	28.66	6.02	41.79	29.16	60.00	-30.84 Average
6	3251.05	47.46	28.66	6.02	41.79	40.35	80.00	-39.65 Peak
7	3902.97	40.98	29.53	6.90	41.94	35.47	60.00	-24.53 Average
8	3902.97	51.06	29.53	6.90	41.94	45.55	80.00	-34.45 Peak
9	4291.78	41.55	30.24	7.48	41.78	37.49	60.00	-22.51 Average
10	4291.78	51.76	30.24	7.48	41.78	47.70	80.00	-32.30 Peak
11	5706.41	41.65	32.20	8.36	41.93	40.28	60.00	-19.72 Average
12	5706.41	52.21	32.20	8.36	41.93	50.84	80.00	-29.16 Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:a; Polarization:Vertical

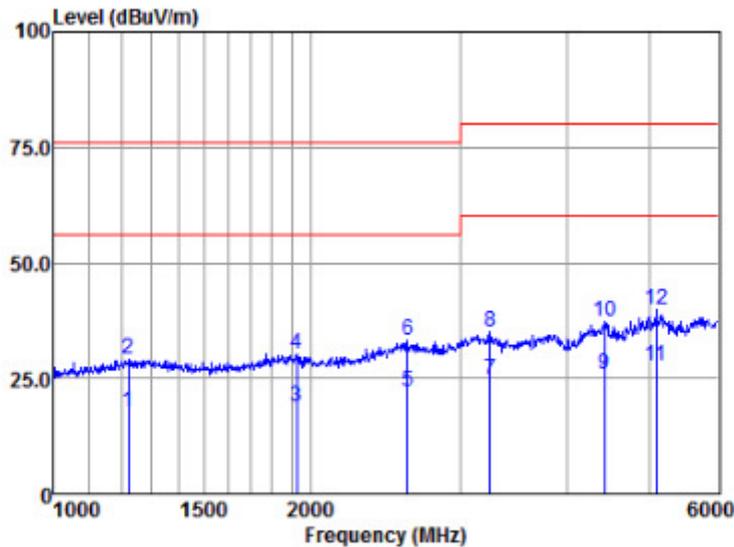


Antenna Polarity :VERTICAL  
 EUT/Project :8800IT  
 Test mode :a

	Read	Antenna	Cable	Preamp	Emission	Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark	
-----	-----	-----	-----	-----	-----	-----	-----	-----	
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB		
1	1930.11	33.36	25.90	4.35	42.19	21.42	56.00	-34.58	Average
2	1930.11	44.91	25.90	4.35	42.19	32.97	76.00	-43.03	Peak
3	2608.02	38.11	27.66	5.47	42.06	29.18	56.00	-26.82	Average
4	2608.02	49.44	27.66	5.47	42.06	40.51	76.00	-35.49	Peak
5	2977.79	39.21	28.47	5.79	41.72	31.75	56.00	-24.25	Average
6	2977.79	50.25	28.47	5.79	41.72	42.79	76.00	-33.21	Peak
7	4045.37	40.91	29.79	7.09	41.93	35.86	60.00	-24.14	Average
8	4045.37	51.76	29.79	7.09	41.93	46.71	80.00	-33.29	Peak
9	4702.43	38.29	31.03	7.95	41.64	35.63	60.00	-24.37	Average
10	4702.43	49.50	31.03	7.95	41.64	46.84	80.00	-33.16	Peak
11	5545.14	40.41	31.97	8.32	41.99	38.71	60.00	-21.29	Average
12	5545.14	51.74	31.97	8.32	41.99	50.04	80.00	-29.96	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Horizontal

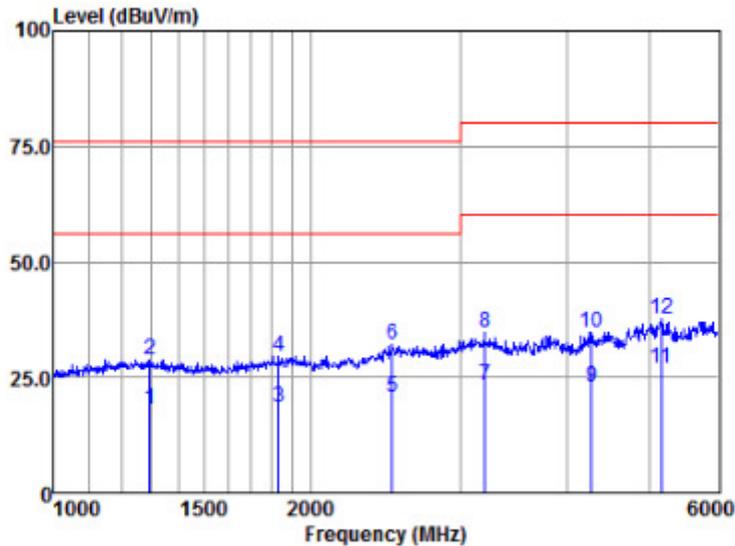


Antenna Polarity :HORIZONTAL  
Test mode : b

	Freq	Read	Antenna	Cable	Preamp	Emission	Limit	Over	Remark
	MHz	dBuv	Factor	Loss	Factor	Level	Line	Limit	
			dB/m	dB	dB	dBuv/m		dB	
1	1222.23	31.47	24.64	3.43	41.83	17.71	56.00	-38.29	Average
2	1222.23	42.79	24.64	3.43	41.83	29.03	76.00	-46.97	Peak
3	1926.65	30.76	25.90	4.35	42.18	18.83	56.00	-37.17	Average
4	1926.65	42.06	25.90	4.35	42.18	30.13	76.00	-45.87	Peak
5	2598.69	31.04	27.63	5.47	42.08	22.06	56.00	-33.94	Average
6	2598.69	42.10	27.63	5.47	42.08	33.12	76.00	-42.88	Peak
7	3245.23	31.90	28.65	6.02	41.79	24.78	60.00	-35.22	Average
8	3245.23	42.19	28.65	6.02	41.79	35.07	80.00	-44.93	Peak
9	4416.59	29.30	30.47	7.64	41.70	25.71	60.00	-34.29	Average
10	4416.59	40.95	30.47	7.64	41.70	37.36	80.00	-42.64	Peak
11	5079.06	29.47	31.65	8.21	41.67	27.66	60.00	-32.34	Average
12	5079.06	41.65	31.65	8.21	41.67	39.84	80.00	-40.16	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Vertical



Antenna Polarity :VERTICAL

Test mode :b

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	1294.36	31.62	24.80	3.54	41.86	18.10	56.00	-37.90	Average
2	1294.36	42.46	24.80	3.54	41.86	28.94	76.00	-47.06	Peak
3	1835.66	30.66	25.76	4.27	42.13	18.56	56.00	-37.44	Average
4	1835.66	41.71	25.76	4.27	42.13	29.61	76.00	-46.39	Peak
5	2493.77	30.24	27.38	5.32	42.17	20.77	56.00	-35.23	Average
6	2493.77	41.62	27.38	5.32	42.17	32.15	76.00	-43.85	Peak
7	3199.04	30.47	28.62	5.96	41.77	23.28	60.00	-36.72	Average
8	3199.04	41.81	28.62	5.96	41.77	34.62	80.00	-45.38	Peak
9	4268.77	27.11	30.19	7.48	41.79	22.99	60.00	-37.01	Average
10	4268.77	38.99	30.19	7.48	41.79	34.87	80.00	-45.13	Peak
11	5152.39	28.91	31.69	8.22	41.73	27.09	60.00	-32.91	Average
12	5152.39	39.33	31.69	8.22	41.73	37.51	80.00	-42.49	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



## 6.5 Harmonic Current Emission

Test Requirement: EN 61000-3-2:2014

Test Method: EN 61000-3-2:2014

Frequency Range: 100Hz to 2kHz

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."

## 6.6 Voltage Fluctuations and Flicker

Test Requirement: EN 61000-3-3:2013

Test Method: EN 61000-3-3:2013

### 6.6.1 E.U.T. Operation

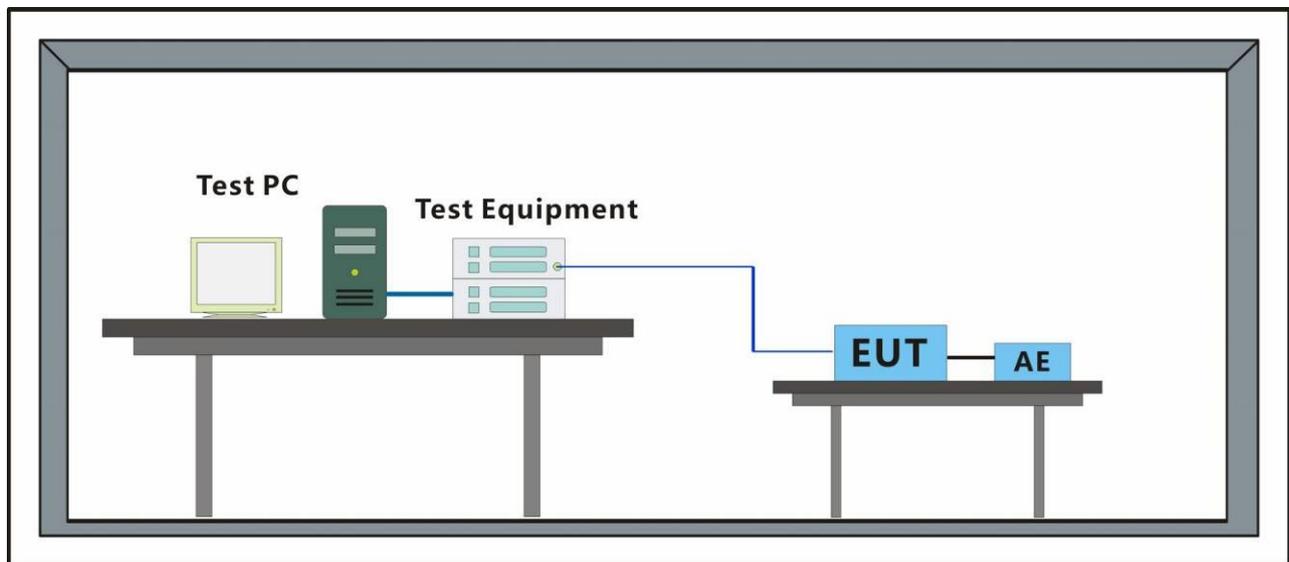
Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.

b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

### 6.6.2 Test Setup Diagram



### 6.6.3 Measurement Data

Mode:a

Vrms at the end of test (Volt):	230.10	Test limit (%):	N/A	N/A
Highest dt (%):	0.20	Test limit (mS):	500.0	Pass
T-max (mS):	0	Test limit (%):	3.30	Pass
Highest dc (%):	0.00	Test limit (%):	4.00	Pass
Highest dmax (%):	0.35	Test limit:	1.000	Pass
Highest Pst (10 min. period):	0.257	Test limit:	0.650	Pass
Highest Plt (2 hr. period):	0.102			

Mode:b

Parameter values recorded during the test:

Vrms at the end of test (Volt):	229.95	Test limit (mS):	500.0	Pass
T-max (mS):	0	Test limit (%):	3.30	Pass
Highest dc (%):	1.24	Test limit (%):	4.00	Pass
Highest dmax (%):	1.61	Test limit:	1.000	Pass
Highest Pst (10 min. period):	0.127	Test limit:	0.650	Pass
Highest Plt (2 hr. period):	0.185			

## 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 Performance Criteria Description in EN 55035:2017

#### 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

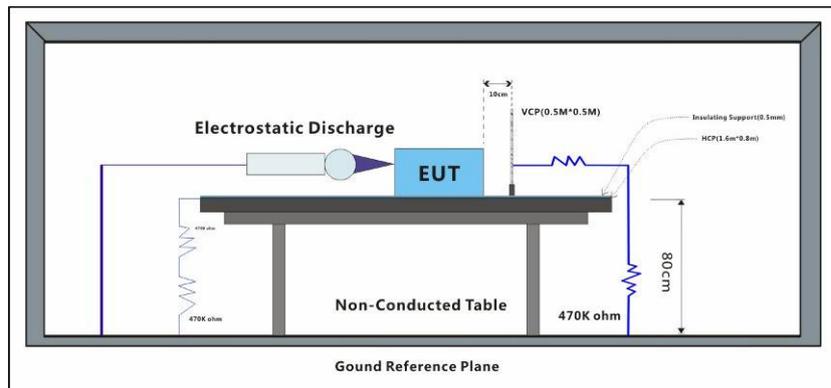
Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions.

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

## 7.4 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

### 7.4.1 Test Setup Diagram



### 7.4.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.

b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

### 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	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

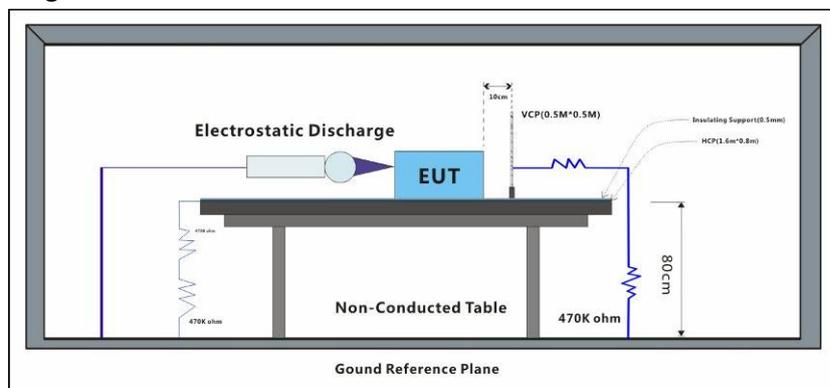
### Results:

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

## 7.5 Electrostatic Discharge

Test Requirement:	EN 50130-4:2011 +A1:2014
Test Method:	EN 61000-4-2:2009
Number of Discharge:	Minimum 10 times at each test point for Air Discharge Minimum 50 times at each test point for Contact or VCP & HCP Discharge
Discharge Mode:	Single Discharge
Discharge Period:	1 second minimum
Criteria for compliance:	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

### 7.5.1 Test Setup Diagram



### 7.5.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.

b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

### 7.5.3 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

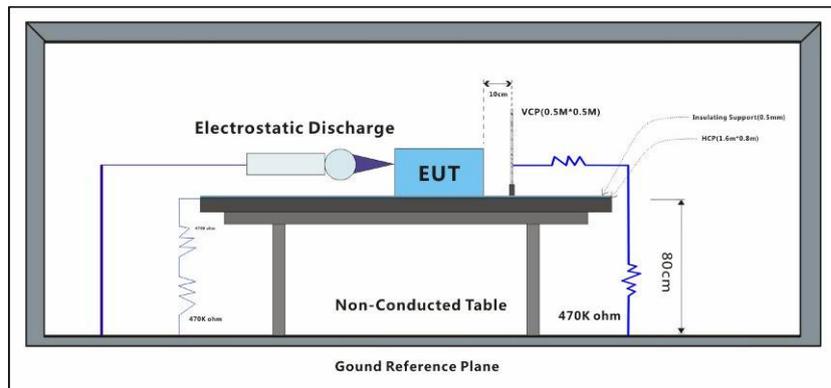
### Results:

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

## 7.6 Electrostatic Discharge

Test Requirement:	EN 55035:2017
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

### 7.6.1 Test Setup Diagram



### 7.6.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.

b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

### 7.6.3 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

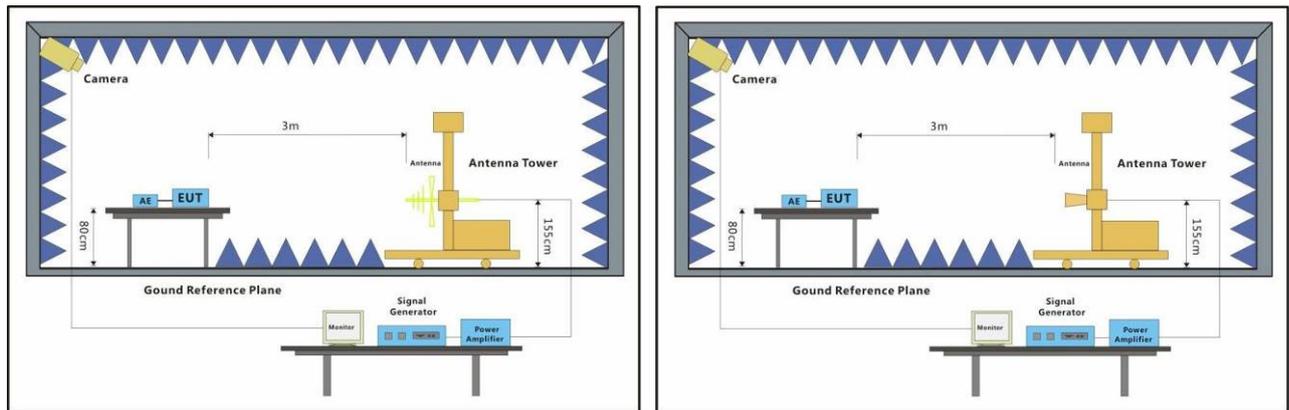
### Results:

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

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

Test Requirement: EN 55035:2017  
 Test Method: EN 61000-4-3:2006 +A1:2008+A2:2010  
 Performance Criterion: A  
 Frequency Range: 80MHz to 1GHz, 1800MHz, 2600MHz, 3500MHz, 5000MHz  
 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 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.

b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

#### 7.7.3 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
1800MHz	3	Front	2s	A
1800MHz	3	Back	2s	A
1800MHz	3	Left	2s	A
1800MHz	3	Right	2s	A
1800MHz	3	Top	2s	A
1800MHz	3	Underside	2s	A
2600MHz	3	Front	2s	A
2600MHz	3	Back	2s	A
2600MHz	3	Left	2s	A
2600MHz	3	Right	2s	A



2600MHz	3	Top	2s	A
2600MHz	3	Underside	2s	A
3500MHz	3	Front	2s	A
3500MHz	3	Back	2s	A
3500MHz	3	Left	2s	A
3500MHz	3	Right	2s	A
3500MHz	3	Top	2s	A
3500MHz	3	Underside	2s	A
5000MHz	3	Front	2s	A
5000MHz	3	Back	2s	A
5000MHz	3	Left	2s	A
5000MHz	3	Right	2s	A
5000MHz	3	Top	2s	A
5000MHz	3	Underside	2s	A

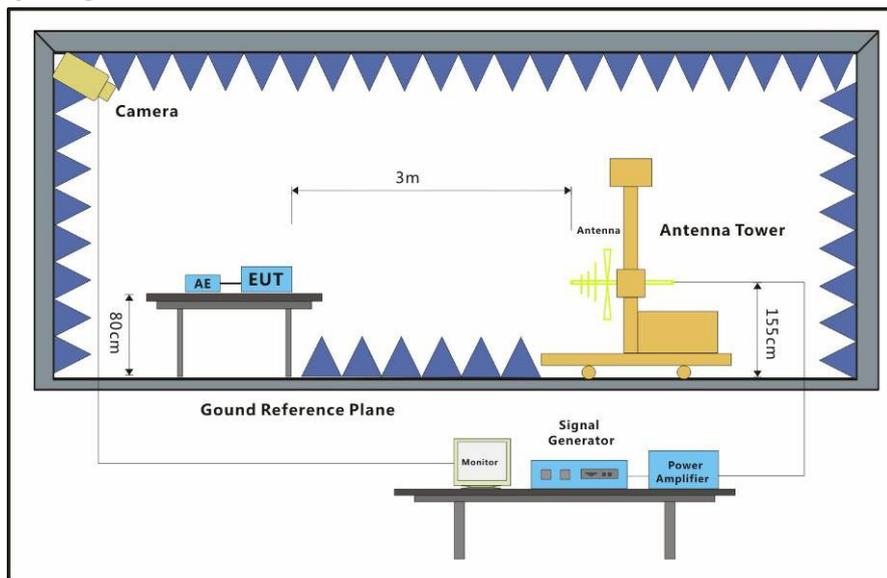
**Results:**

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

### 7.8 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

#### 7.8.1 Test Setup Diagram



#### 7.8.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C      Humidity: 50 % RH      Atmospheric Pressure: 1020 mbar

Test mode: a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.

b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

#### 7.8.3 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

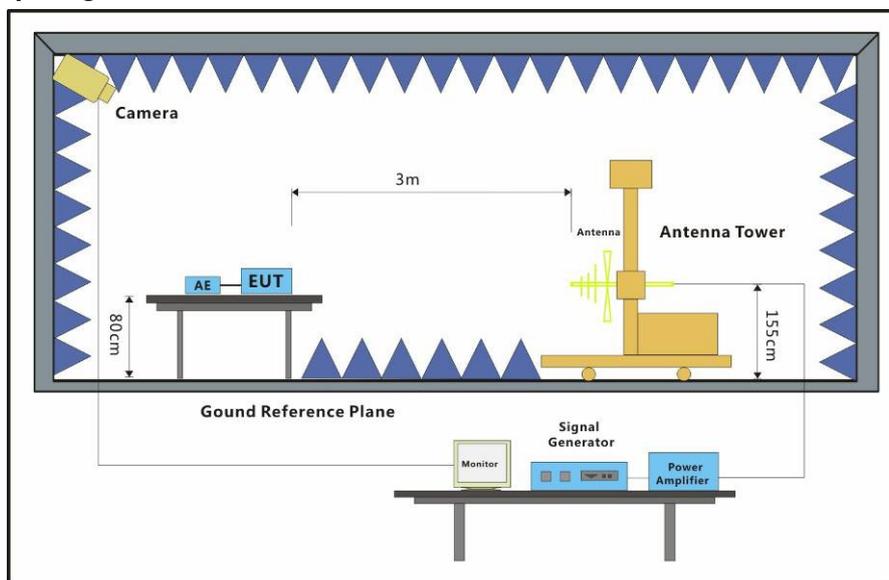
#### Results:

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

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

Test Requirement: EN 50130-4:2011 +A1:2014  
 Test Method: EN 61000-4-3:2006 +A1:2008+A2:2010  
 Modulation: 80%, 1 kHz Amplitude Modulation & 0.5s ON 0.5s OFF Pulse Modulation  
 Criteria for compliance: There shall be no damage, malfunction or change of status due to the conditioning. Flickering of an indicator during the conditioning 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, and no

#### 7.9.1 Test Setup Diagram



#### 7.9.2 E.U.T. Operation

Operating Environment:  
 Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar  
 Test mode:  
 a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.  
 b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

#### 7.9.3 Test Results:

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

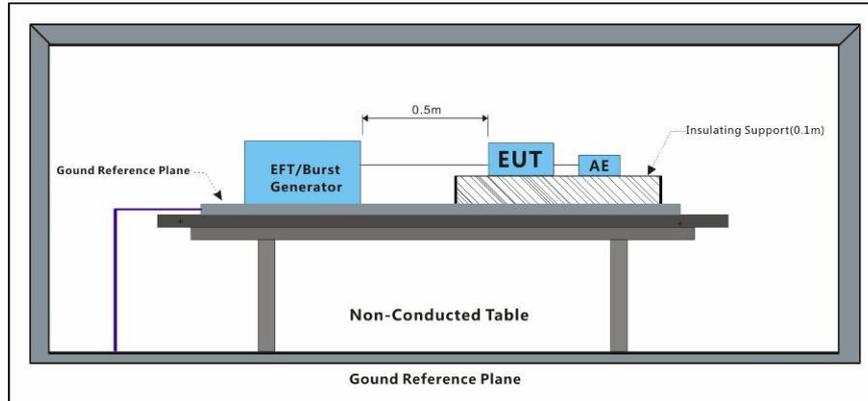
#### Results:

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

### 7.10 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

#### 7.10.1 Test Setup Diagram



#### 7.10.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.

b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

#### 7.10.3 Test Results:

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

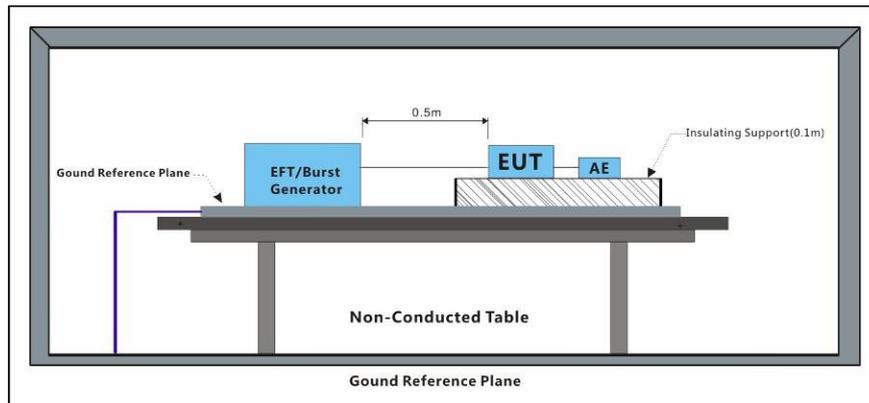
#### Results:

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

### 7.11 Electrical Fast Transients/Burst at Power Port

Test Requirement: EN 55035:2017  
 Test Method: EN 61000-4-4:2012  
 Performance Criterion: B  
 Repetition Frequency: 5kHz  
 Burst Period: 300ms  
 Test Duration: 2 minute per level & polarity

#### 7.11.1 Test Setup Diagram



#### 7.11.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.

b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

#### 7.11.3 Test Results:

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

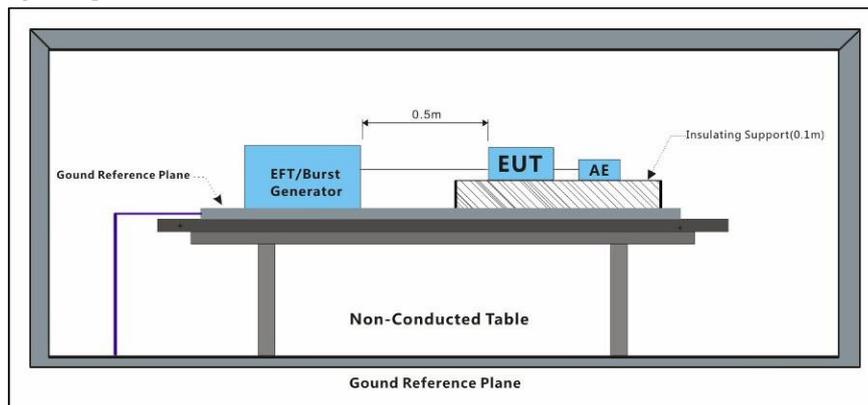
#### Results:

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

### 7.12 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

#### 7.12.1 Test Setup Diagram



#### 7.12.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.

b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

#### 7.12.3 Test Results:

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

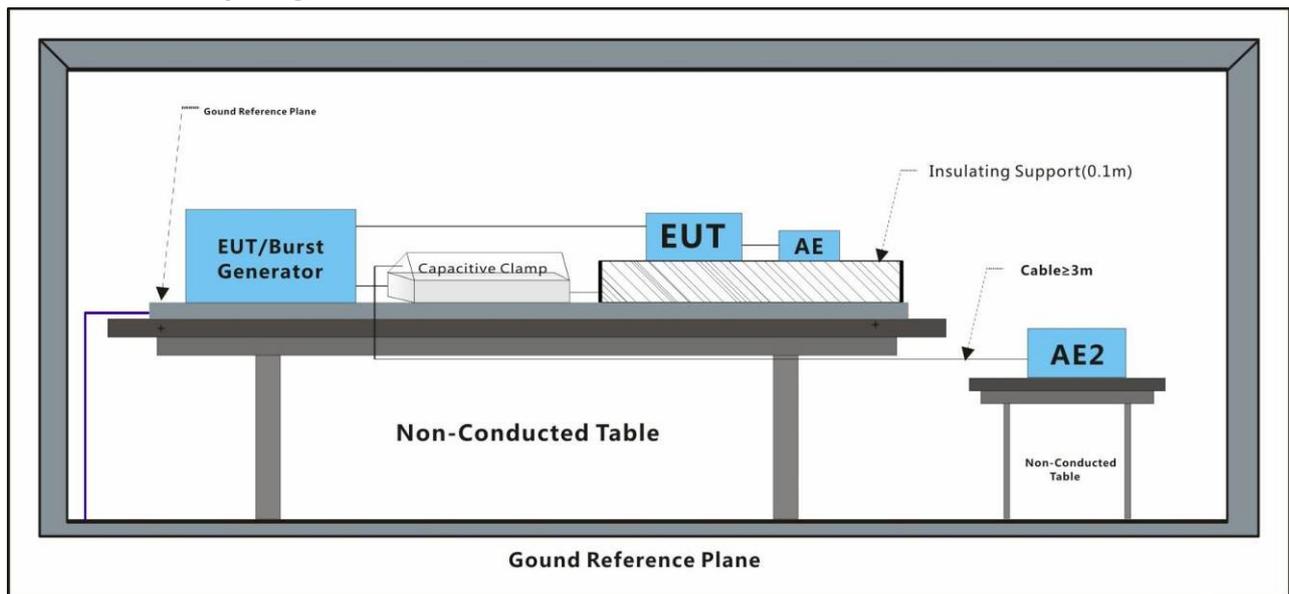
#### Results:

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

### 7.13 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

#### 7.13.1 Test Setup Diagram



#### 7.13.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.

b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

#### 7.13.3 Test Results:

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

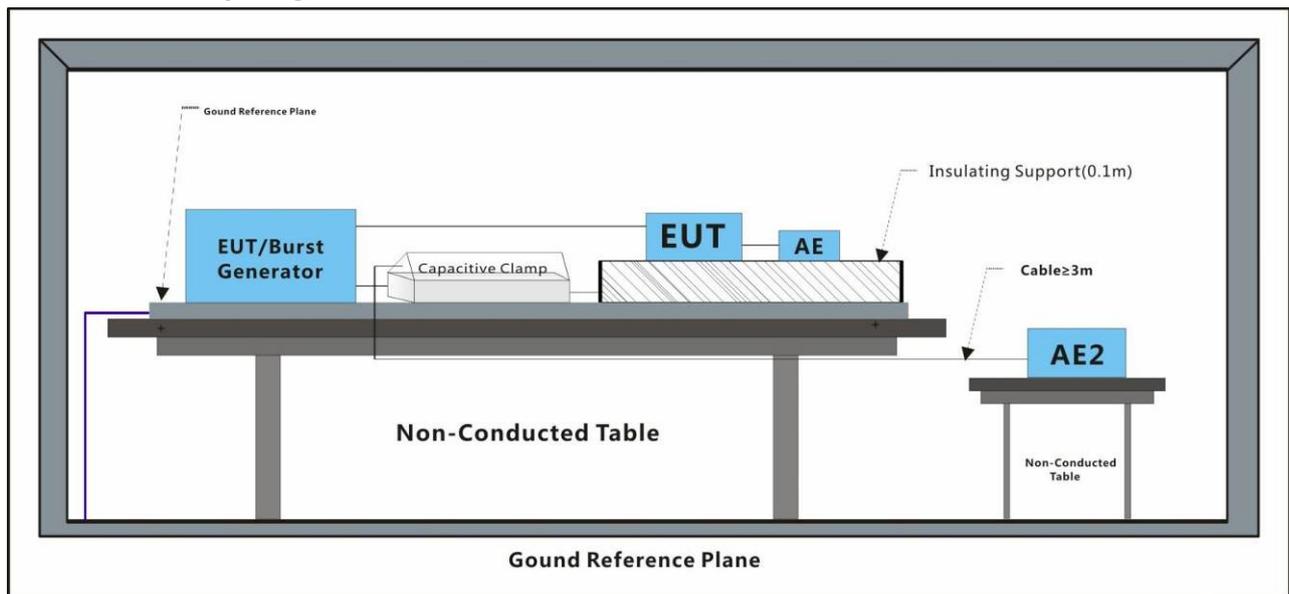
#### Results:

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

### 7.14 Electrical Fast Transients/Burst at Signal Port

Test Requirement: EN 55035:2017  
 Test Method: EN 61000-4-4:2012  
 Performance Criterion: B  
 Repetition Frequency: 5kHz  
 Burst Period: 300ms  
 Test Duration: 2 minute per level & polarity

#### 7.14.1 Test Setup Diagram



#### 7.14.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.

b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

#### 7.14.3 Test Results:

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

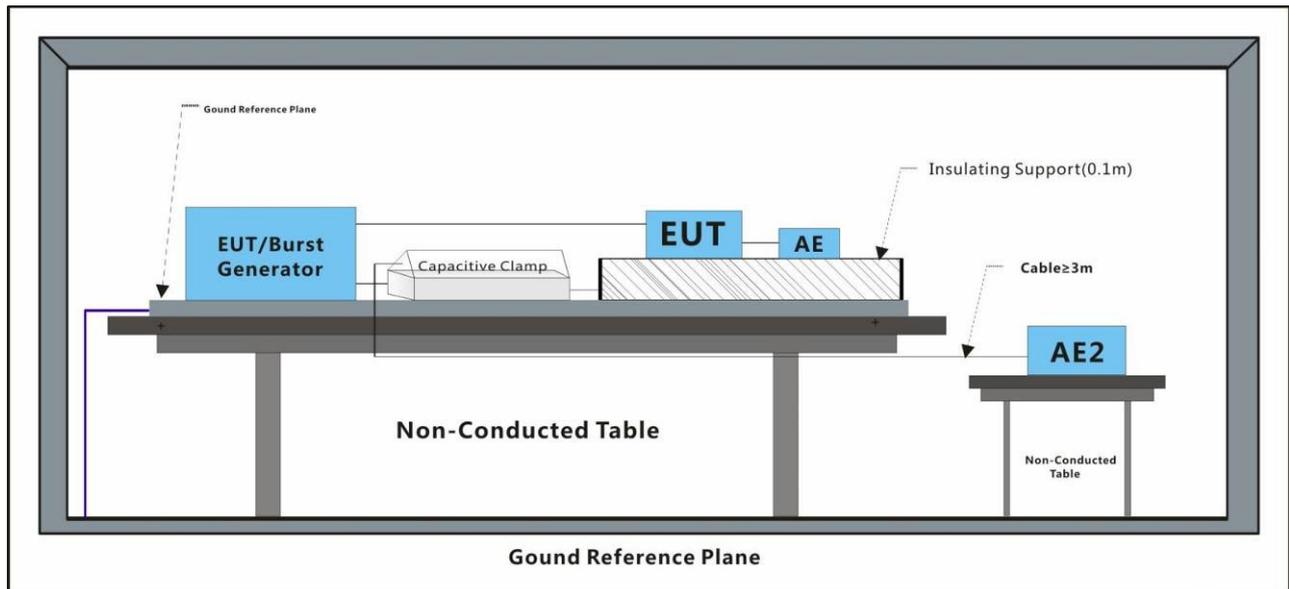
#### Results:

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

### 7.15 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

#### 7.15.1 Test Setup Diagram



#### 7.15.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.

b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

#### 7.15.3 Test Results:

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

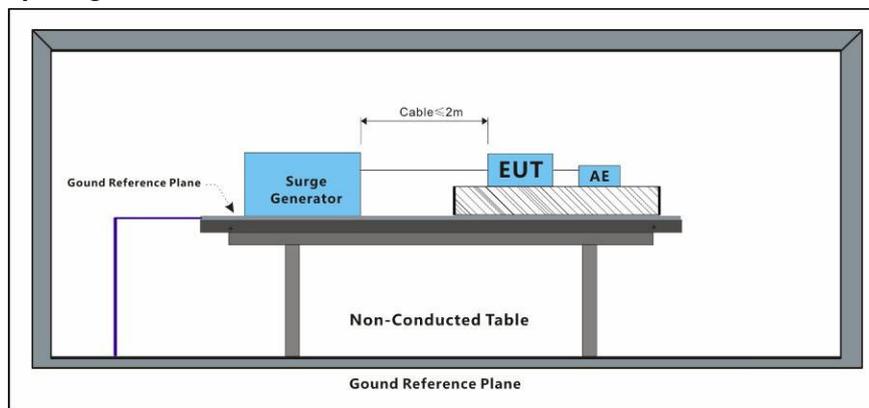
#### Results:

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

### 7.16 Surge at Power Port

Test Requirement: EN 50130-4:2011 +A1:2014  
 Test Method: EN 61000-4-5:2014 +A1:2017  
 Interval: 60s between each surge  
 No. of surges: 5 positive, 5 negative  
 Criteria for compliance: 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

#### 7.16.1 Test Setup Diagram



#### 7.16.2 E.U.T. Operation

Operating Environment:  
 Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar  
 Test mode:  
 a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.  
 b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

#### 7.16.3 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
L-PE	0.5,1,2	+	0°	A
L-PE	0.5,1,2	-	0°	A
L-PE	0.5,1,2	+	90°	A
L-PE	0.5,1,2	-	90°	A
L-PE	0.5,1,2	+	180°	A
L-PE	0.5,1,2	-	180°	A
L-PE	0.5,1,2	+	270°	A



L-PE	0.5,1,2	-	270°	A
N-PE	0.5,1,2	+	0°	A
N-PE	0.5,1,2	-	0°	A
N-PE	0.5,1,2	+	90°	A
N-PE	0.5,1,2	-	90°	A
N-PE	0.5,1,2	+	180°	A
N-PE	0.5,1,2	-	180°	A
N-PE	0.5,1,2	+	270°	A
N-PE	0.5,1,2	-	270°	A

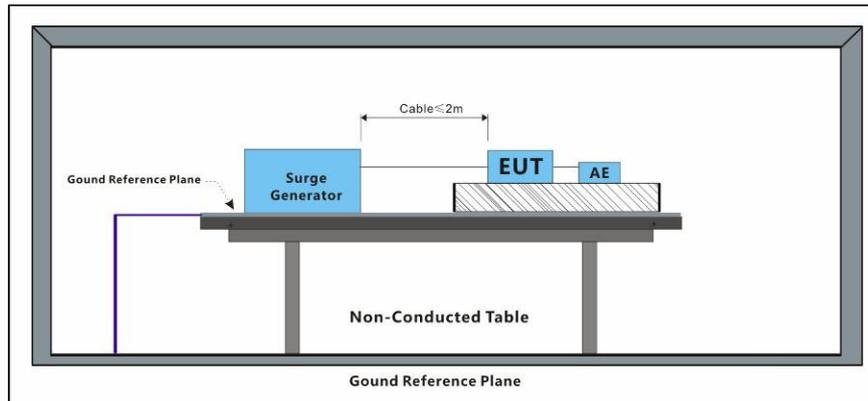
**Results:**

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

### 7.17 Surge at Power Port

Test Requirement: EN 55035:2017  
 Test Method: EN 61000-4-5:2014 +A1:2017  
 Performance Criterion: B  
 Interval: 60s between each surge  
 No. of surges: 5 positive, 5 negative at 90°, 270°

#### 7.17.1 Test Setup Diagram



#### 7.17.2 E.U.T. Operation

Operating Environment:  
 Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar  
 Test mode:  
 a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.  
 b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

#### 7.17.3 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

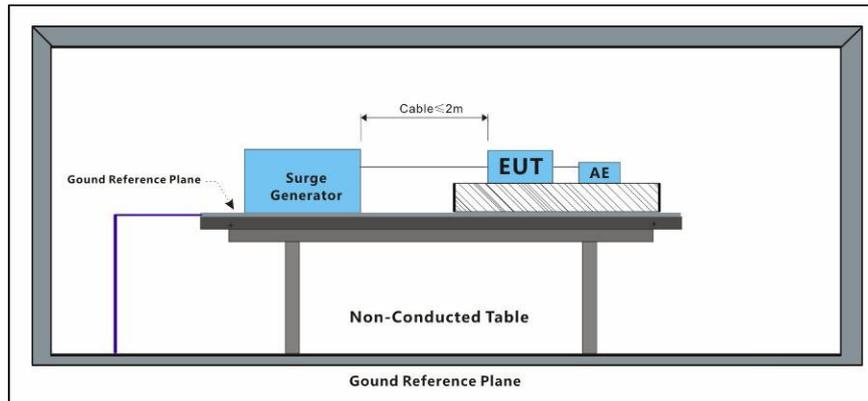
**Results:**

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

### 7.18 Surge at Power Port

Test Requirement: EN 55024:2010 +A1:2015  
 Test Method: EN 61000-4-5:2014 +A1:2017  
 Performance Criterion: B  
 Interval: 60s between each surge  
 No. of surges: 5 positive, 5 negative at 0°, 90°, 180°, 270°.

#### 7.18.1 Test Setup Diagram



#### 7.18.2 E.U.T. Operation

Operating Environment:  
 Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar  
 Test mode:  
 a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.  
 b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

#### 7.18.3 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

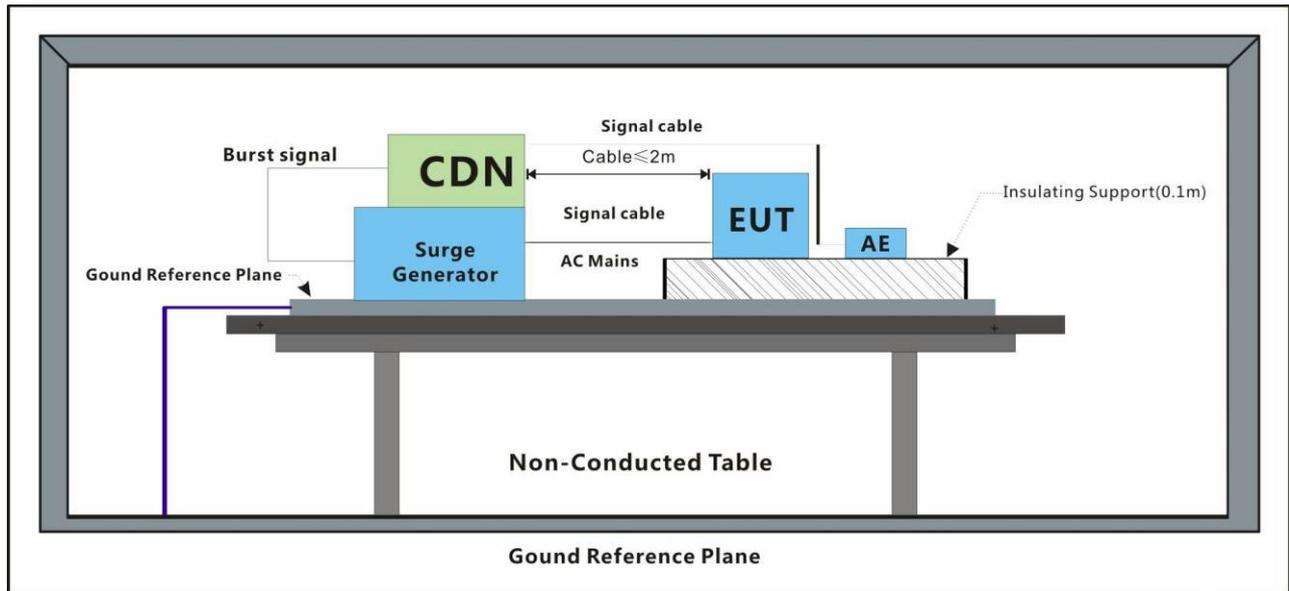
**Results:**

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

### 7.19 Surge at Signal Port

Test Requirement: EN 55024:2010 +A1:2015  
 Test Method: EN 61000-4-5:2014 +A1:2017  
 Performance Criterion: B  
 Interval: 60s between each surge

#### 7.19.1 Test Setup Diagram



#### 7.19.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.

b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

#### 7.19.3 Test Results:

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

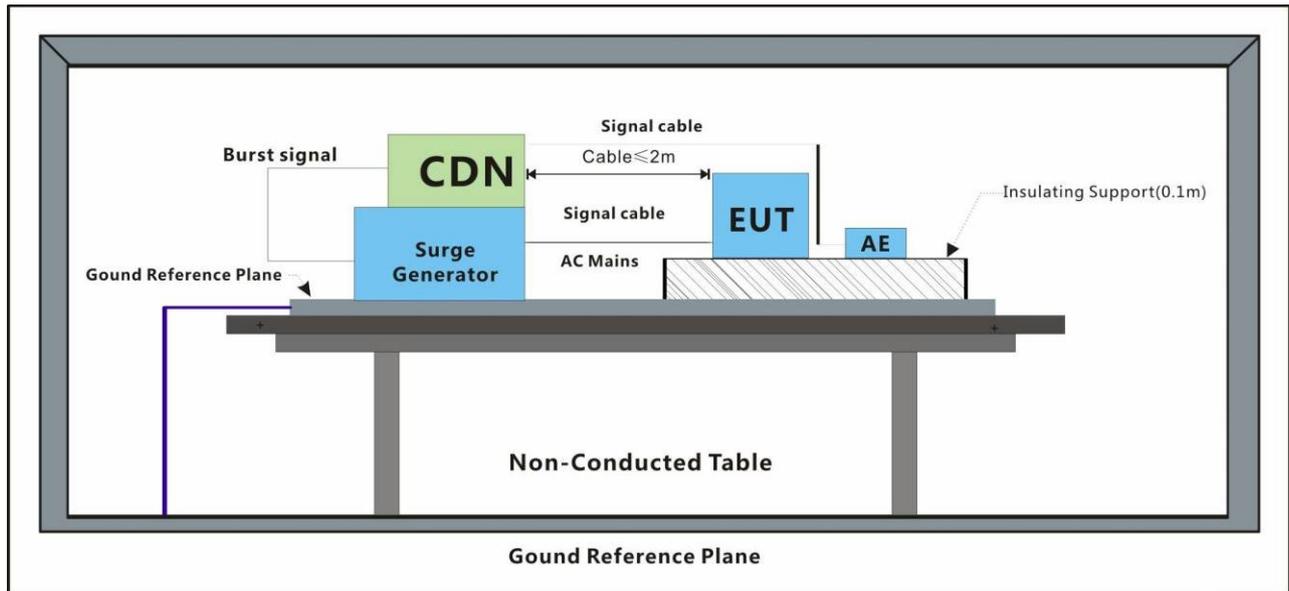
#### Results:

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

## 7.20 Surge at Signal Port

Test Requirement: EN 55035:2017  
 Test Method: EN 61000-4-5:2014 +A1:2017  
 Performance Criterion: B  
 Interval: 60s between each surge

### 7.20.1 Test Setup Diagram



### 7.20.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.

b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

### 7.20.3 Test Results:

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

### Results:

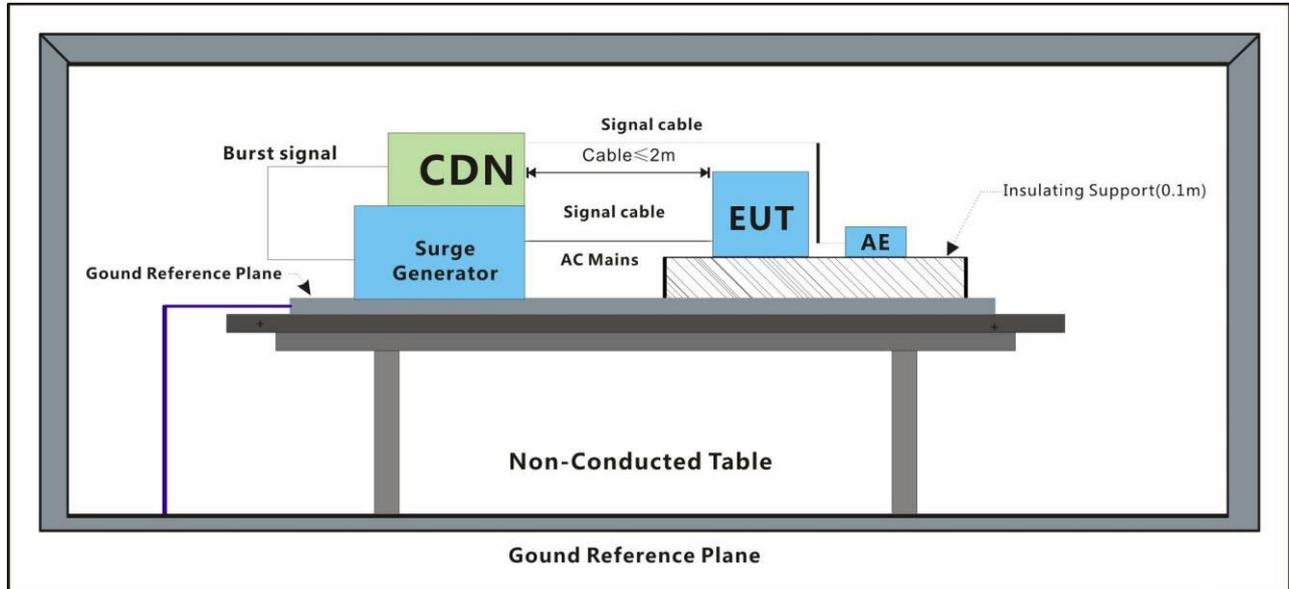
A: No degradation in the performance of the EUT was observed.

### 7.21 Surge at Signal Port

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

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

#### 7.21.1 Test Setup Diagram



#### 7.21.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.

b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

#### 7.21.3 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

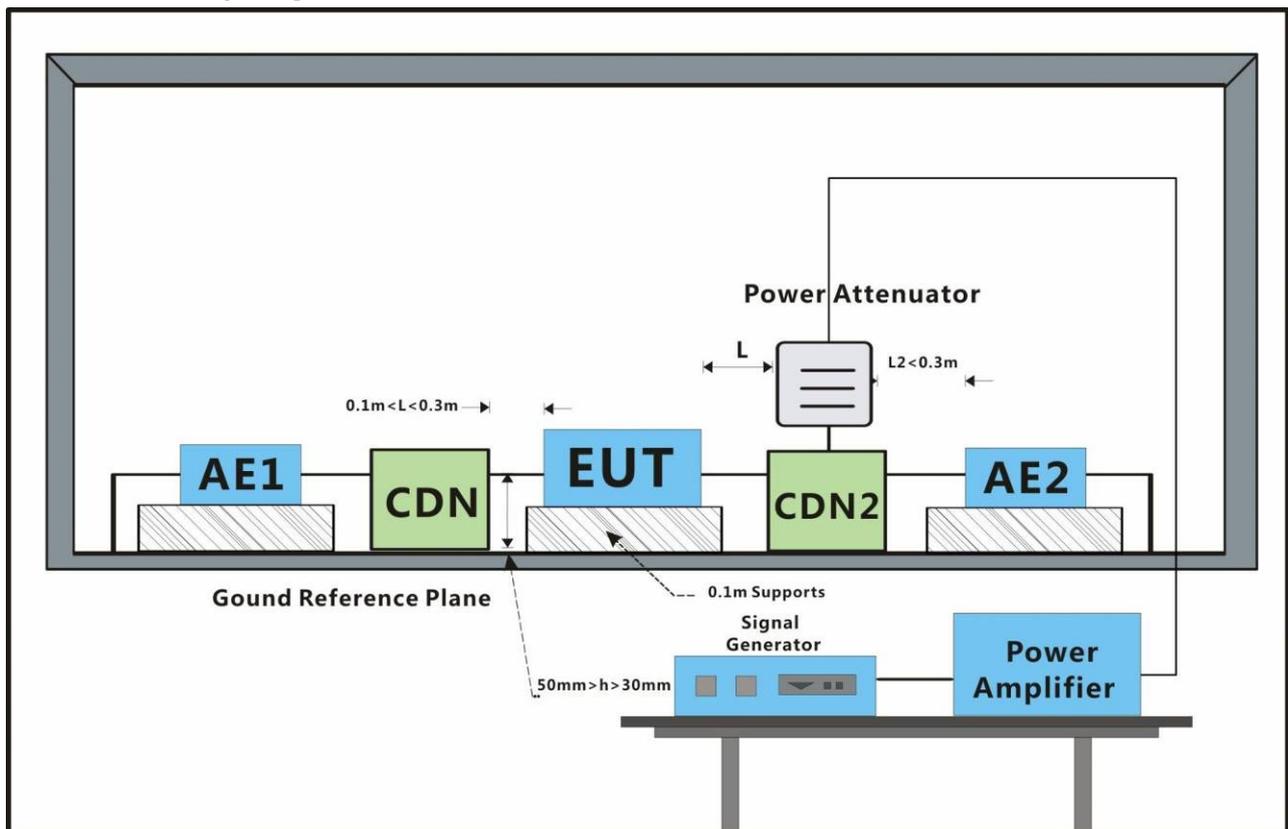
#### Results:

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

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

Test Requirement: EN 55035:2017  
 Test Method: EN 61000-4-6:2014  
 Performance Criterion: A  
 Frequency Range: 0.15MHz to 80MHz  
 Modulation: 80%, 1kHz Amplitude Modulation  
 Step Size: 1%

#### 7.22.1 Test Setup Diagram



#### 7.22.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test mode: a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.

b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

#### 7.22.3 Test Results:

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

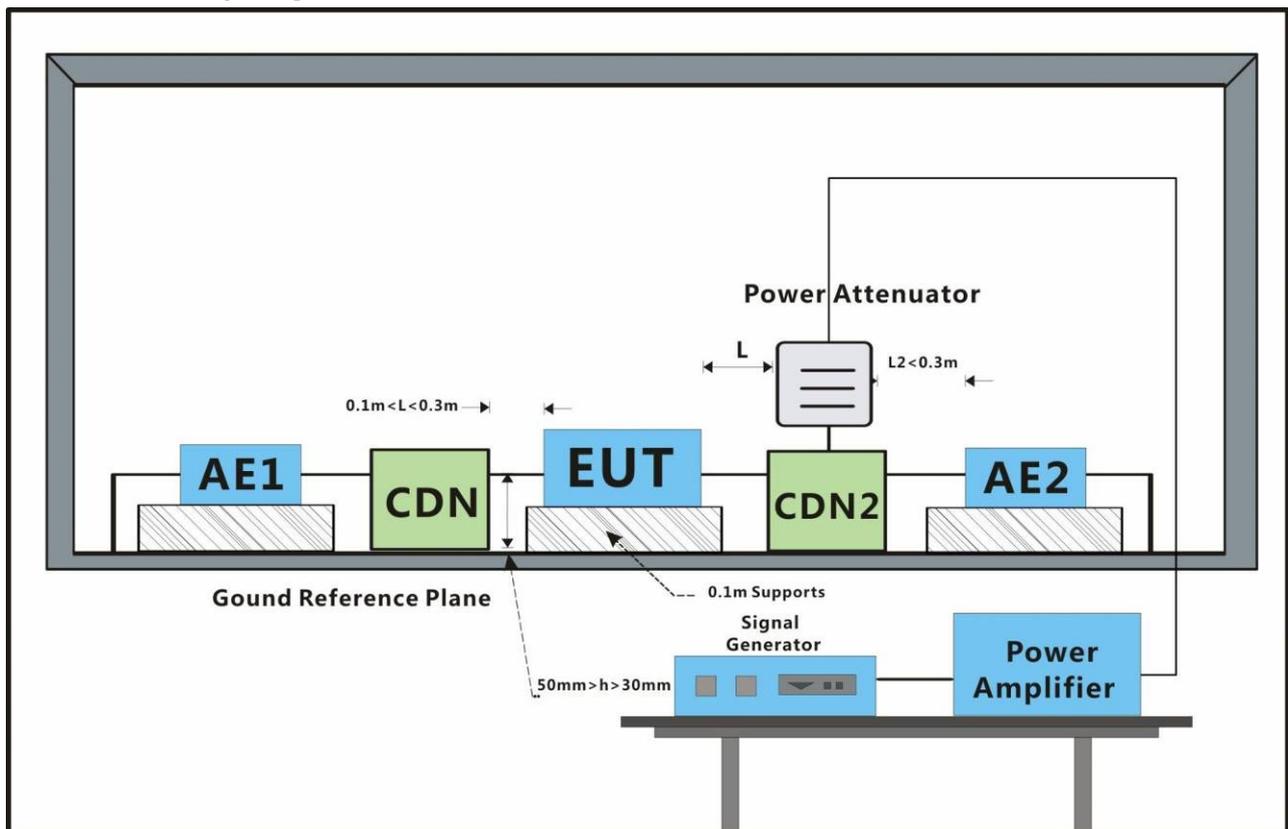
#### Results:

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

### 7.23 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%

#### 7.23.1 Test Setup Diagram



#### 7.23.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test mode: a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.

b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

#### 7.23.3 Test Results:

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

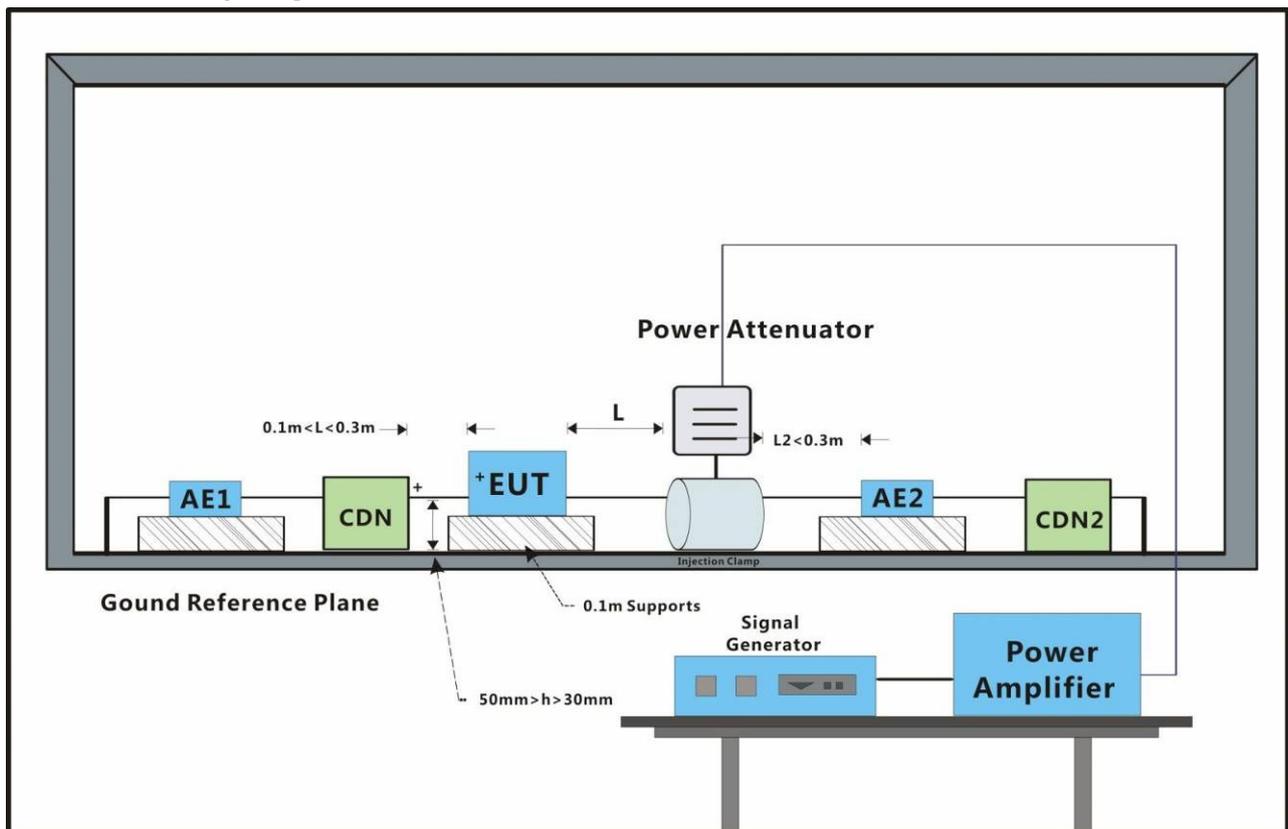
#### Results:

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

### 7.24 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%

#### 7.24.1 Test Setup Diagram



#### 7.24.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test mode: a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.

b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

#### 7.24.3 Test Results:

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

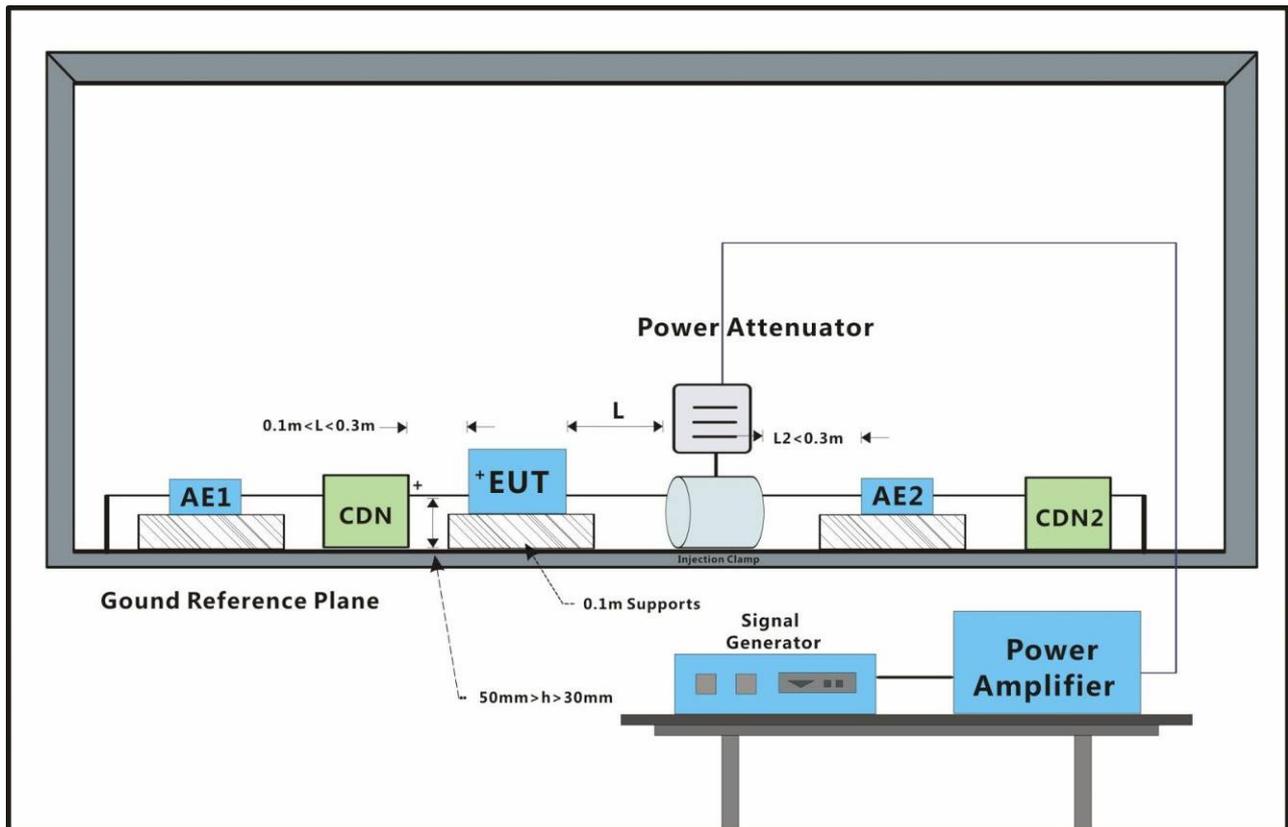
#### Results:

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

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

Test Requirement: EN 55035:2017  
 Test Method: EN 61000-4-6:2014  
 Performance Criterion: A  
 Frequency Range: 0.15MHz to 80MHz  
 Modulation: 80%, 1kHz Amplitude Modulation  
 Step Size: 1%

#### 7.25.1 Test Setup Diagram



#### 7.25.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test mode: a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.

b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

#### 7.25.3 Test Results:

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

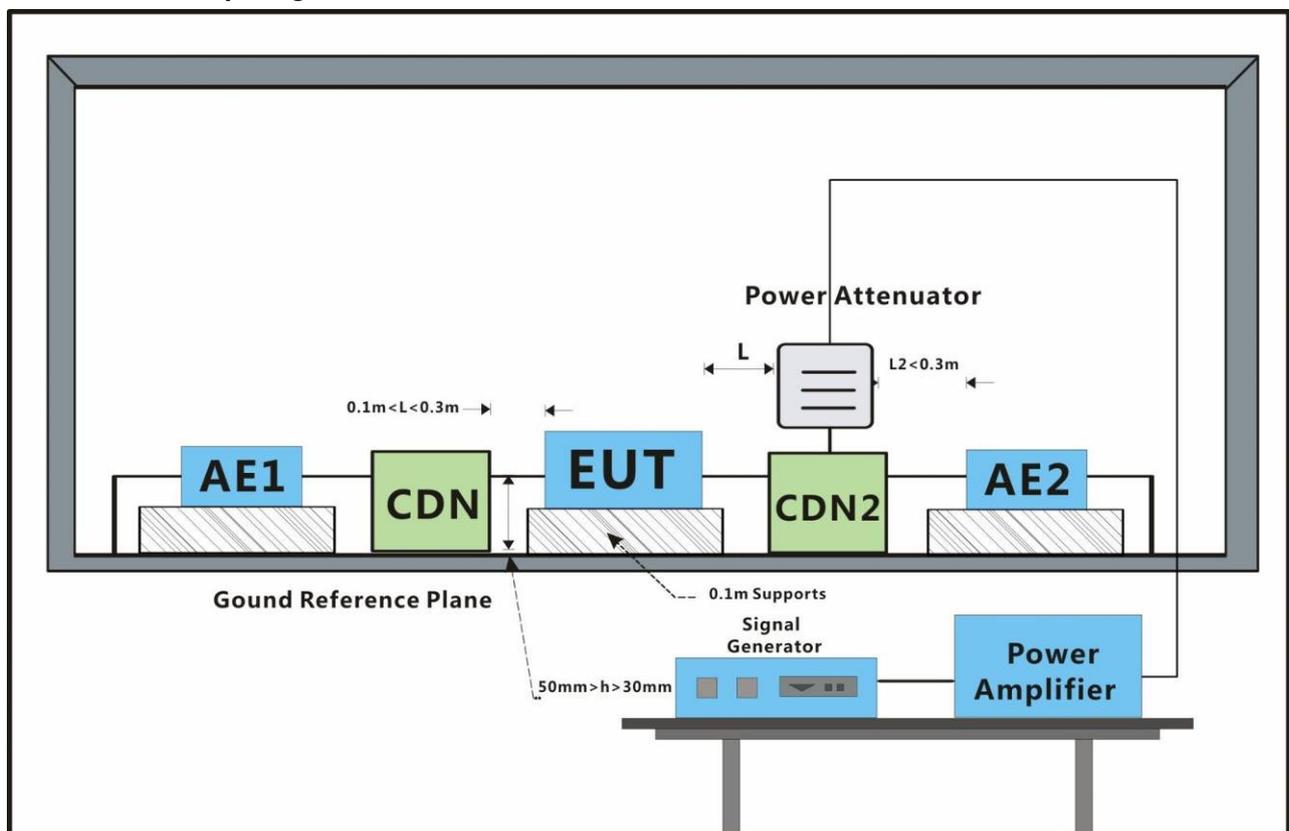
#### Results:

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

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

Test Requirement: EN 50130-4:2011 +A1:2014  
 Test Method: EN 61000-4-6:2014  
 Modulation: 80%, 1 kHz Amplitude Modulation & 0.5s ON 0.5s OFF Pulse Modulation  
 Criteria for compliance: There shall be no damage, malfunction or change of status due to the conditioning. Flickering of an indicator during the conditioning 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, and no

#### 7.26.1 Test Setup Diagram



#### 7.26.2 E.U.T. Operation

Operating Environment:  
 Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar  
 Test mode:  
 a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.  
 b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

#### 7.26.3 Test Results:

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

#### Results:

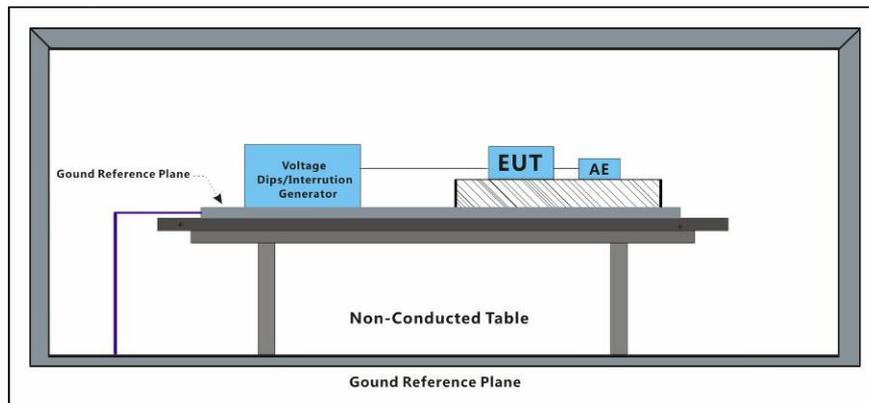
A: No degradation in the performance of the EUT was observed.



### 7.28 Voltage Dips and Interruptions

Test Requirement: EN 55024:2010 +A1:2015  
 Test Method: EN 61000-4-11:2004 +A1:2017  
 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

#### 7.28.1 Test Setup Diagram



#### 7.28.2 E.U.T. Operation

Operating Environment:  
 Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar  
 Test mode:  
 a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.  
 b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

#### 7.28.3 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	A
0	180°	250 Cycles	3	A
70	0°	25 Cycles	3	A
70	180°	25 Cycles	3	A

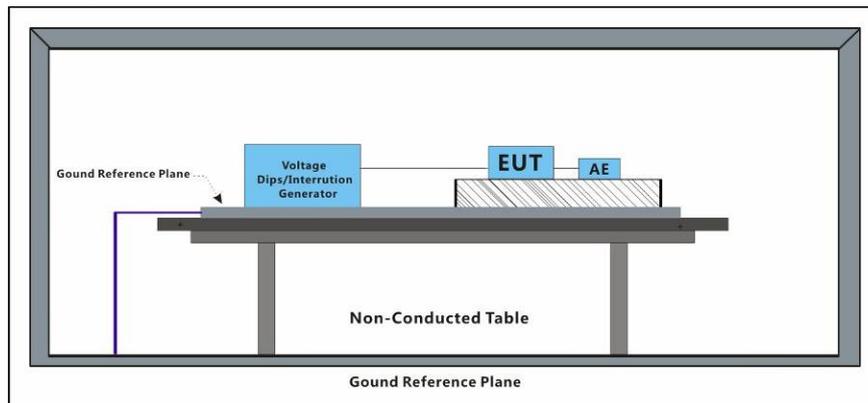
#### Results:

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

### 7.29 Voltage Dips and Interruptions

Test Requirement: EN 55035:2017  
 Test Method: EN 61000-4-11:2004 +A1:2017  
 Performance Criterion: <5% residual voltage for 0.5 periods: B  
 70% residual voltage for 25 periods: C  
 <5% residual voltage for 250 periods: C  
 No. of Dips / Interruptions: 3 per Level  
 Time between dropout 10s

#### 7.29.1 Test Setup Diagram



#### 7.29.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.

b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

#### 7.29.3 Test Results:

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

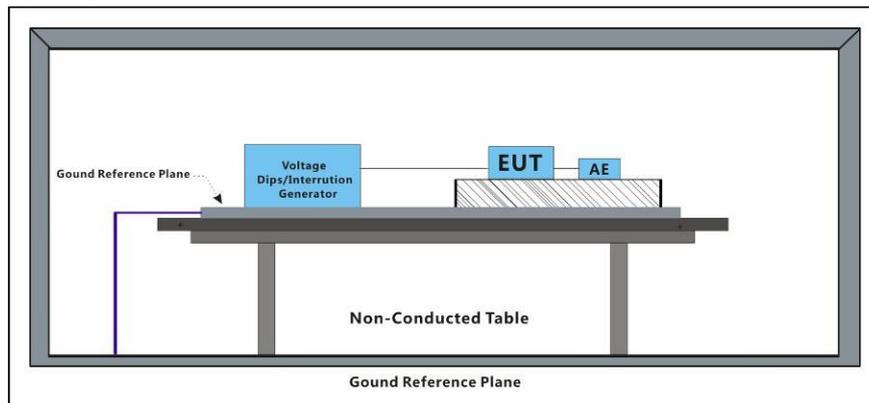
#### Results:

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

### 7.30 Voltage Dips and Interruptions

Test Requirement: EN 50130-4:2011 +A1:2014  
 Test Method: EN 61000-4-11:2004 +A1:2017  
 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

#### 7.30.1 Test Setup Diagram



#### 7.30.2 E.U.T. Operation

Operating Environment:  
 Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar  
 Test mode:  
 a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.  
 b: Normal Working\_keep EUT previewing and data running continual for model DH-XVR5832S-X.

#### 7.30.3 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	A
0	180°	250 Cycles	3	A

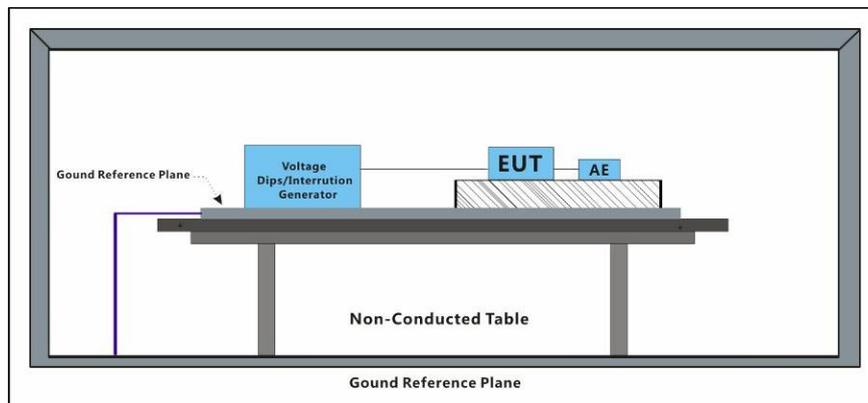
#### Results:

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

### 7.31 Mains Supply Voltage Variations-Conditioning

Test Requirement:	EN 50130-4:2011 +A1:2014
Test Method:	EN 50130-4:2011+A1:2014
Voltage max.:	AC 253V ( $U_{max}$ : $U_{nom} + 10\%$ )
Voltage min.:	AC 195.5V ( $U_{min}$ : $U_{nom} - 15\%$ )
$U_{nom}$ Voltage:	AC 230V
Criteria:	There shall be no damage, malfunction or change of status due to the different supply voltage conditions. The EUT shall meet the acceptance criteria for the functional test (see Clause 6 of EN 50130-4), during the conditioning.

#### 7.31.1 Test Setup Diagram



#### 7.31.2 E.U.T. Operation

Operating Environment:			
Temperature:	22 °C	Humidity:	50 % RH
		Atmospheric Pressure:	1020 mbar
Test mode:	a: keep EUT monitoring and data running continually for model DH-XVR7816S-4KL-X-LP.		
	b: Normal Working_keep EUT previewing and data running continual for model DH-XVR5832S-X.		

#### 7.31.3 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.

## 8 Photographs

### 8.1 Conducted Emissions at Mains Terminals (150kHz-30MHz) Test Setup

Model: DH-XVR7816S-4KL-X-LP



Model: DH-XVR5832S-X



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

Model: DH-XVR7816S-4KL-X-LP



Model: DH-XVR5832S-X



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

Model: DH-XVR7816S-4KL-X-LP



Model: DH-XVR5832S-X



#### 8.4 Radiated Emissions (above 1GHz) Test Setup

Model: DH-XVR7816S-4KL-X-LP



Model: DH-XVR5832S-X



## 8.5 Voltage Fluctuations and Flicker Test Setup

Model: DH-XVR7816S-4KL-X-LP



Model: DH-XVR5832S-X



### 8.6 Electrostatic Discharge Test Setup

Model: DH-XVR7816S-4KL-X-LP





Model: DH-XVR5832S-X





## 8.7 Radiated Immunity (80MHz-1GHz,1800MHz,2600MHz,3500MHz,5000MHz) Test Setup

Model: DH-XVR7816S-4KL-X-LP



Model: DH-XVR5832S-X



## 8.8 Radiated Immunity (80MHz-1GHz) Test Setup

Model: DH-XVR7816S-4KL-X-LP



Model: DH-XVR5832S-X



## 8.9 Radiated Immunity(80MHz-2.7GHz) Test Setup

Model: DH-XVR7816S-4KL-X-LP



Model: DH-XVR5832S-X



### 8.10 Electrical Fast Transients/Burst at Power Port Test Setup

Model: DH-XVR7816S-4KL-X-LP



Model: DH-XVR5832S-X



### 8.11 Electrical Fast Transients/Burst at Signal Port Test Setup

Model: DH-XVR7816S-4KL-X-LP



Model: DH-XVR5832S-X





### 8.12 Surge at Power Port Test Setup

Model: DH-XVR7816S-4KL-X-LP



Model: DH-XVR5832S-X



### 8.13 Surge at Signal Port Test Setup

Model: DH-XVR7816S-4KL-X-LP

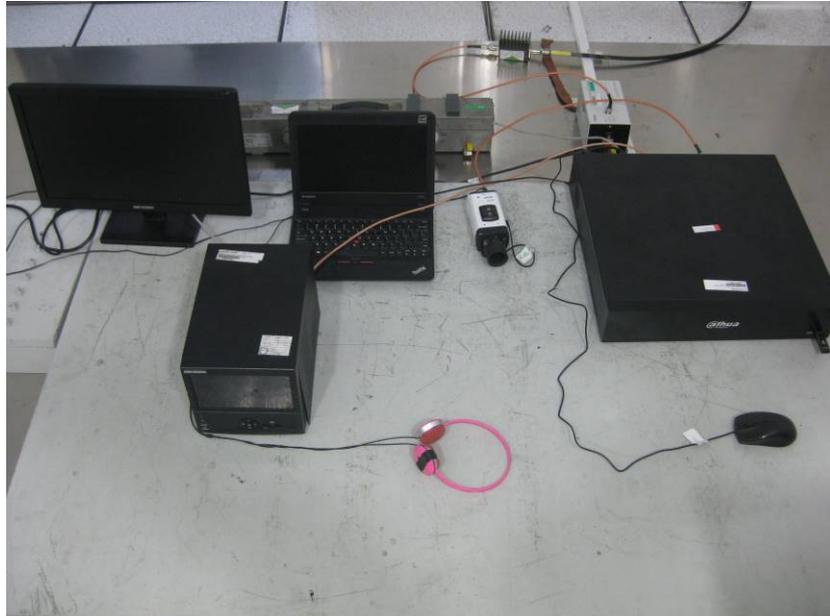


Model: DH-XVR5832S-X



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

Model: DH-XVR7816S-4KL-X-LP

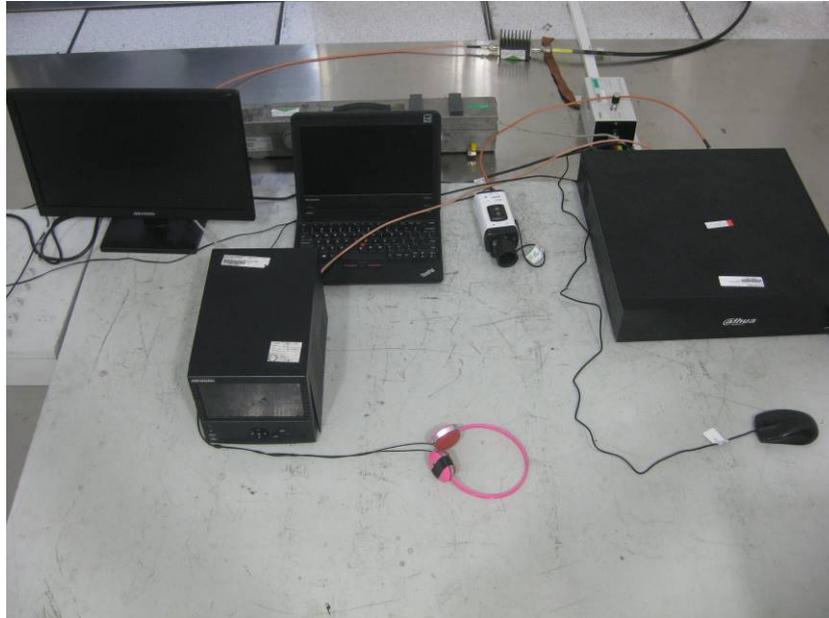


Model: DH-XVR5832S-X



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

Model: DH-XVR7816S-4KL-X-LP

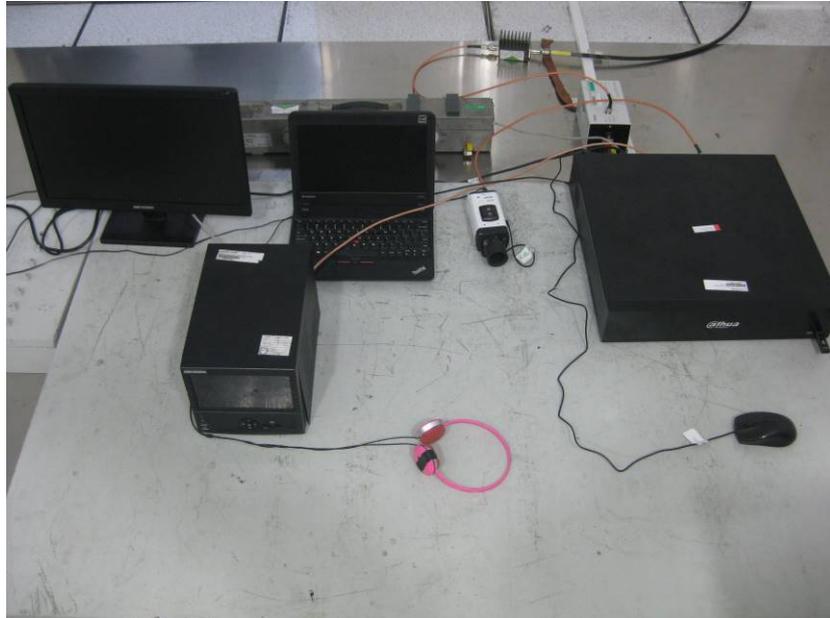


Model: DH-XVR5832S-X



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

Model: DH-XVR7816S-4KL-X-LP

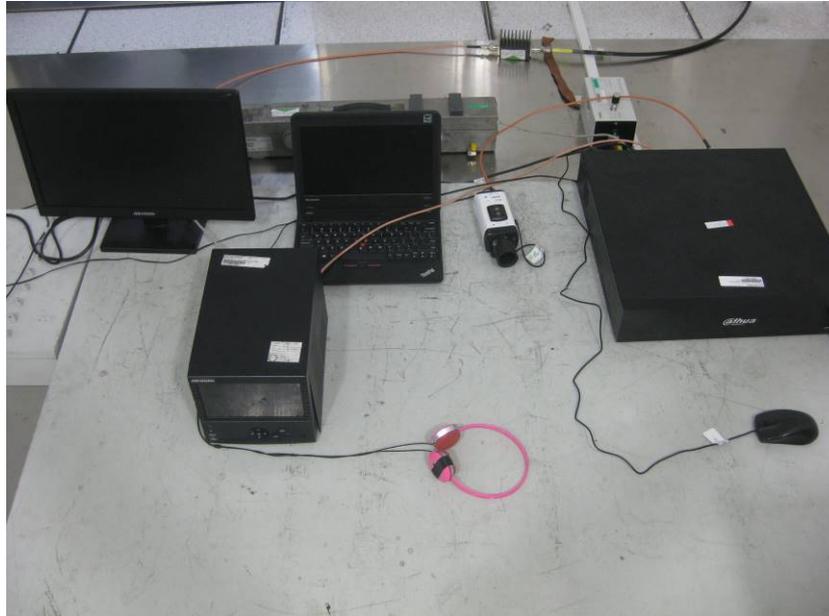


Model: DH-XVR5832S-X



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

Model: DH-XVR7816S-4KL-X-LP



Model: DH-XVR5832S-X



### 8.18 Voltage Dips and Interruptions Test Setup

Model: DH-XVR7816S-4KL-X-LP



Model: DH-XVR5832S-X



### 8.19 Mains Supply Voltage Variations-Conditioning Test Setup

Model: DH-XVR7816S-4KL-X-LP

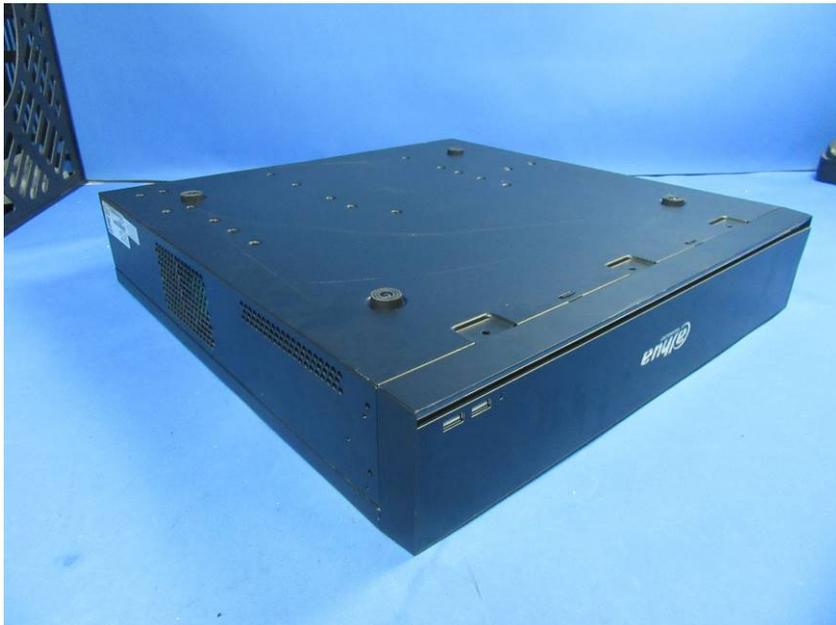


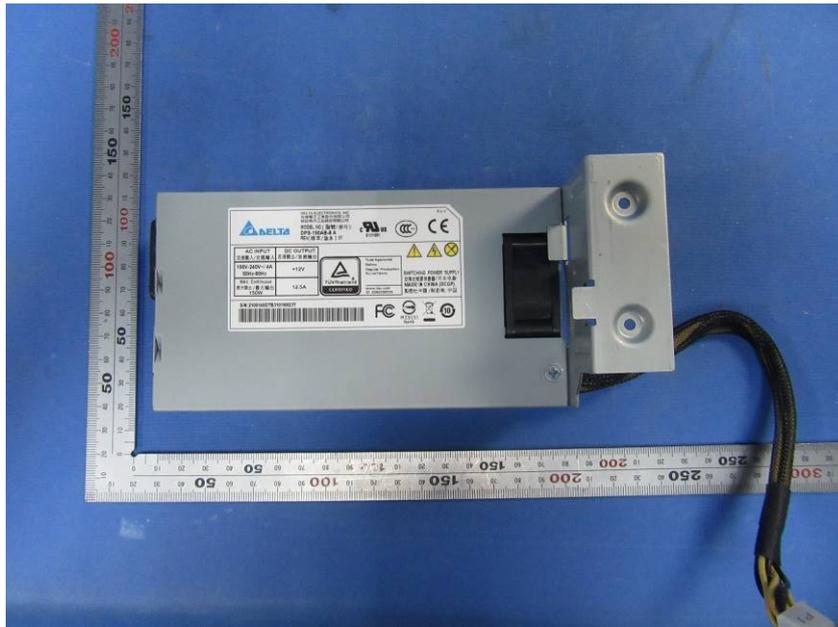
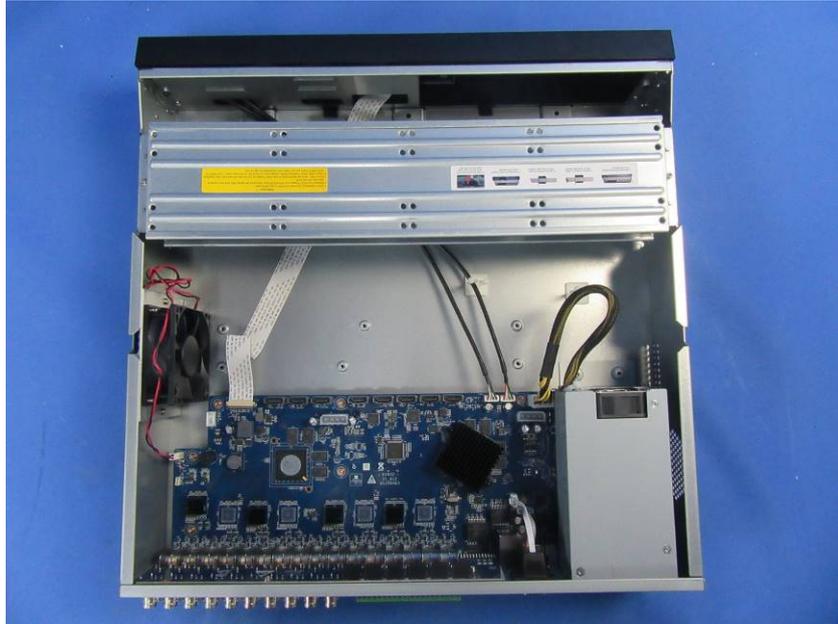
Model: DH-XVR5832S-X

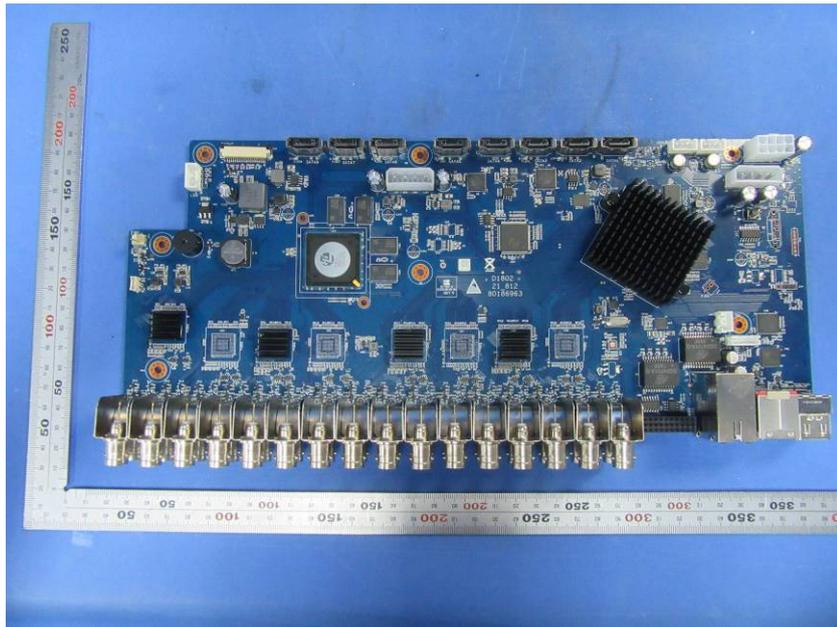


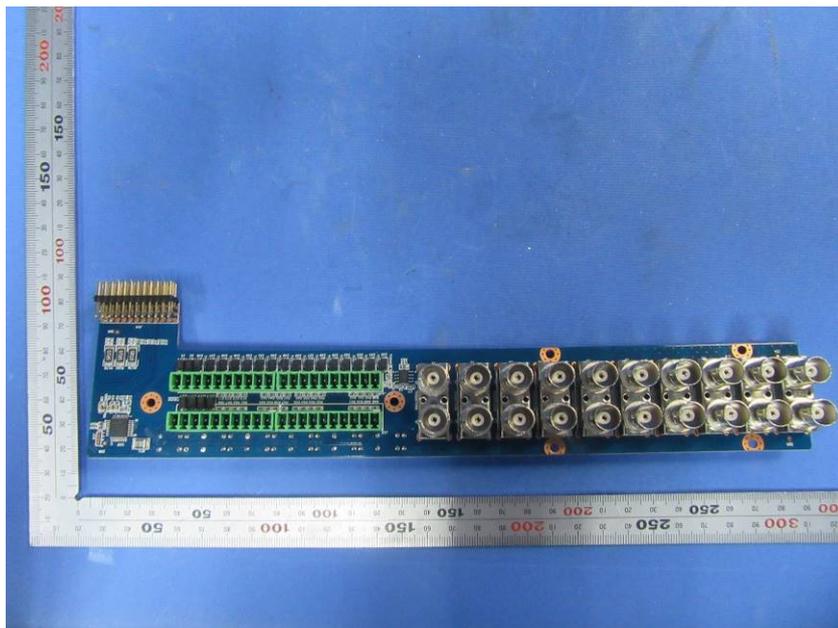
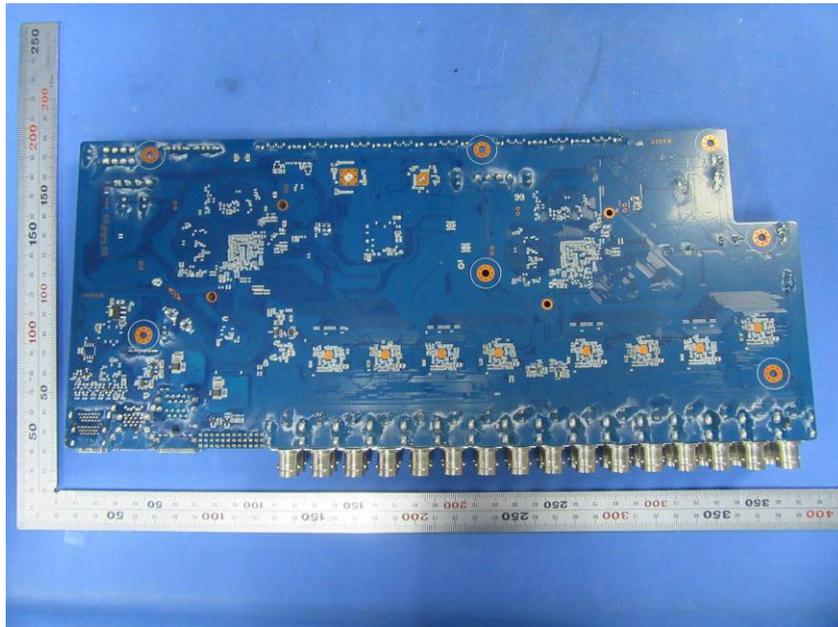
## 8.20 EUT Constructional Details (EUT Photos)

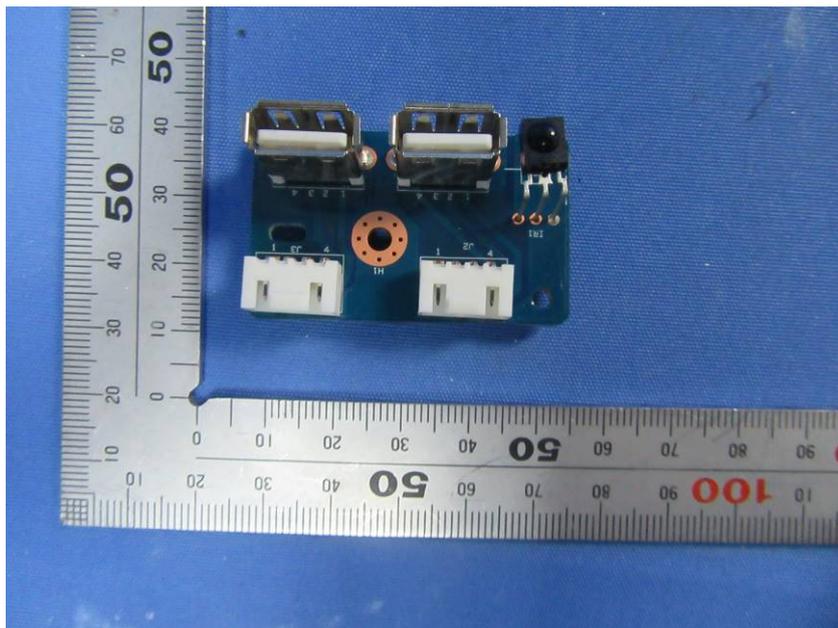
Model: DH-XVR7816S-4KL-X-LP

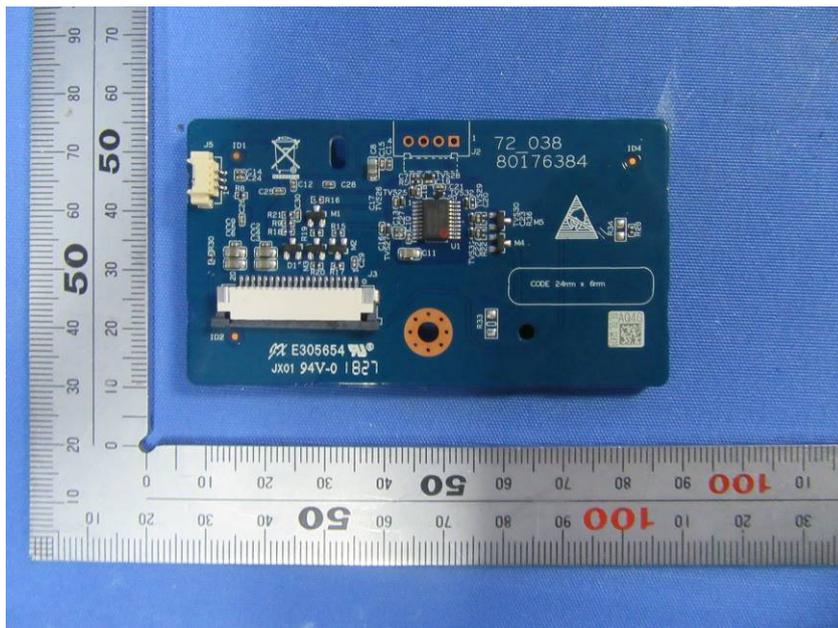
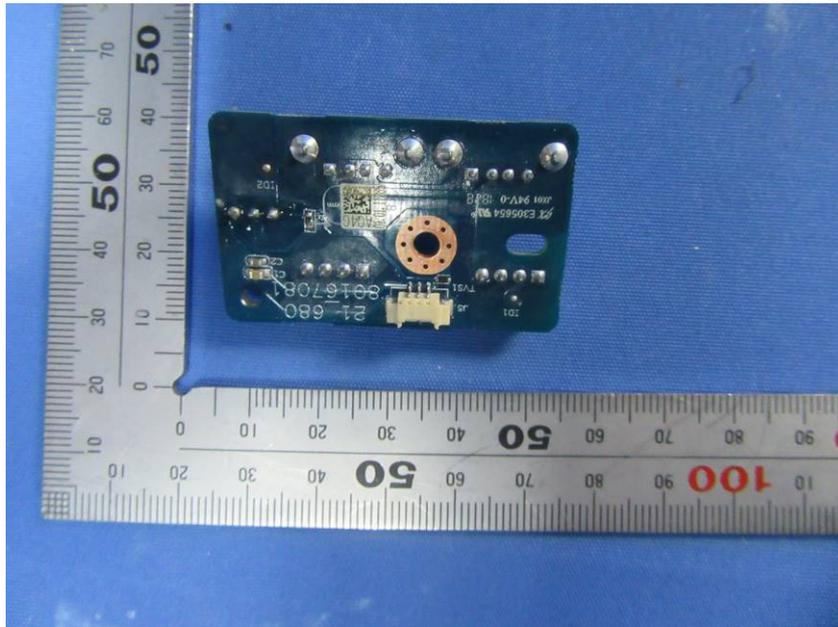


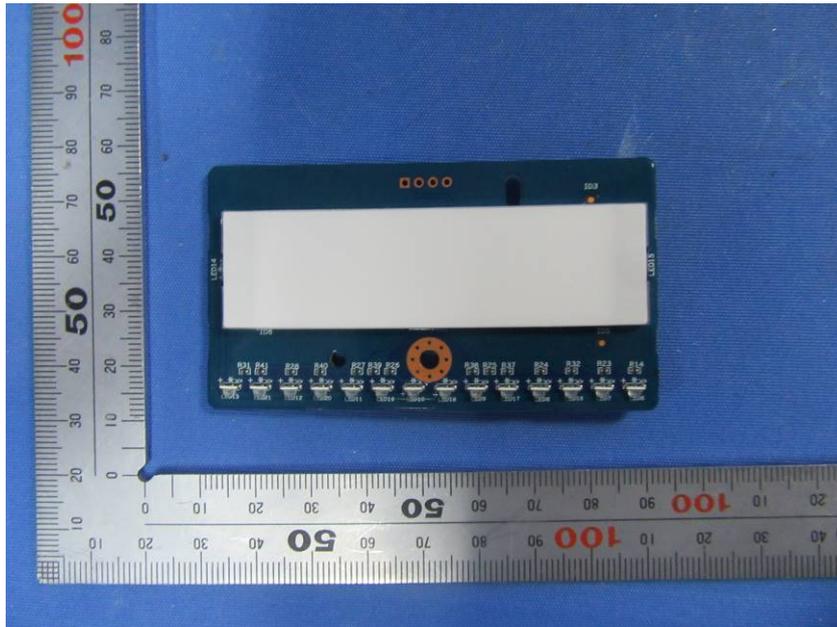








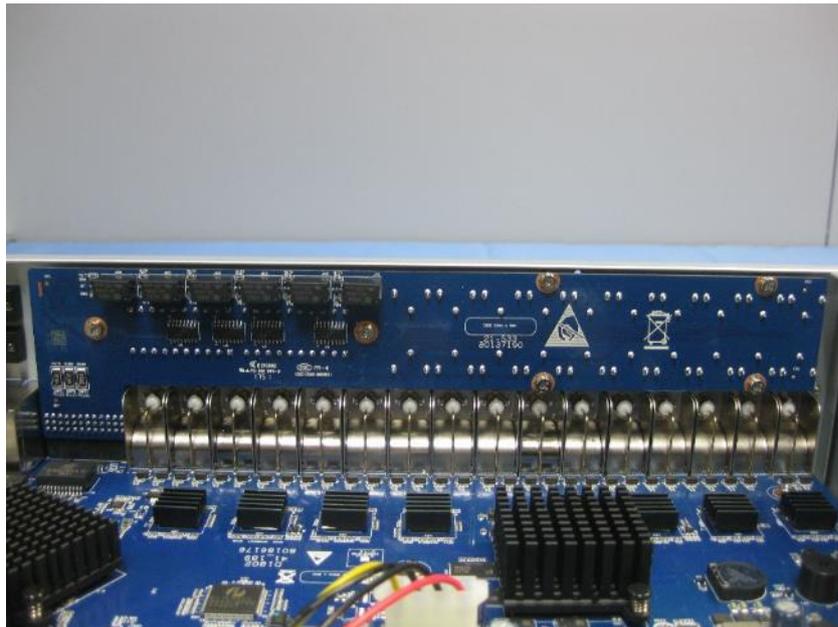
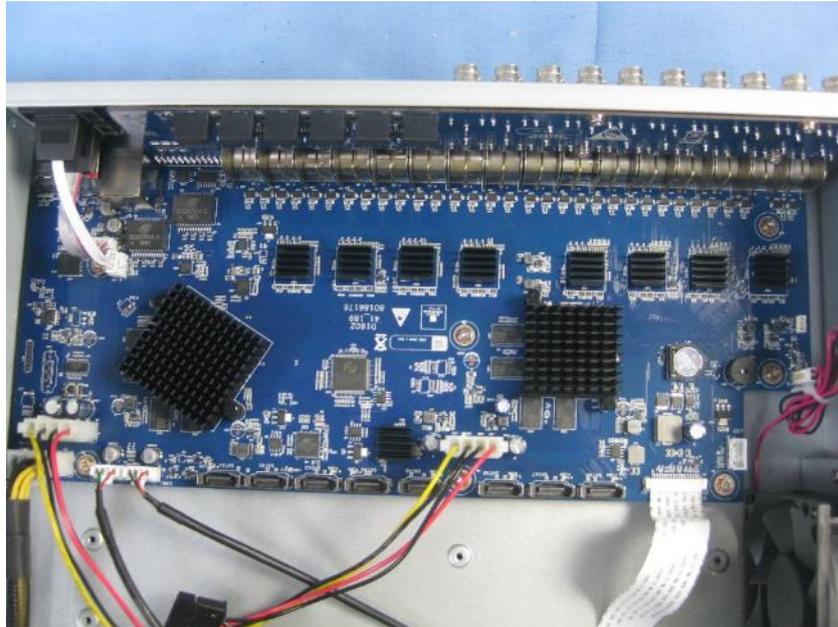




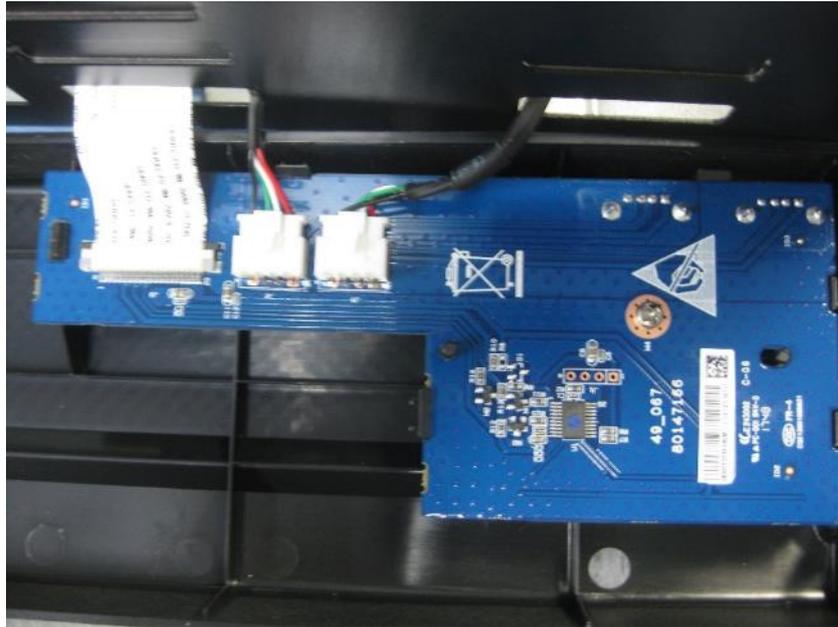
Model: DH-XVR5832S-X











- End of the Report -