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Report No.: SHEM180400300901  
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**1 Cover Page**

**TEST REPORT**

<b>Application No.:</b>	SHEM1804003009IT
<b>Applicant:</b>	Hangzhou Hikvision Digital Technology Co., Ltd.
<b>Equipment Under Test (EUT):</b> <b>NOTE:</b> The following sample(s) submitted was/were identified on behalf of the client as	
<b>EUT Name:</b>	NETWORK CAMERA
<b>Model No.:</b>	Refer to Page 2 ☐
☐	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
<b>Trade mark:</b>	HIKVISION
<b>Standards:</b>	EN 55032:2015, EN 61000-3-2:2014, EN 61000-3-3:2013, EN 50130-4:2011+A1:2014
<b>Date of Receipt:</b>	2016-04-02
<b>Date of Test:</b>	2016-04-05 to 2016-04-07
<b>Date of Issue:</b>	2018-05-10
<b>Test Result :</b>	<b>Pass*</b>

\* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

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



Parlam Zhan  
 E&E Section Manager

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

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**Model No.:**

DS-2DE4120I-D; DS-2DE4120IW-D; DS-2DE4220IW-D; DS-2DE4120I-DE; DS-2DE4120IW-DE;  
DS-2DE4220IW-DE; DS-2DE4120I-A; DS-2DE4120IW-A; DS-2DE4220IW-A; DS-2DE4120IW-AE;  
DS-2DE4120I-AE; DS-2DE4220IW-AE; DS-2AE4123TI-A; DS-2AE4223TI-A; DS-2AE4130TI-A;  
DS-2AE4230TI-A; DS-2AE4123TI-D; DS-2AE4223TI-D; DS-2AE4130TI-D; DS-2AE4230TI-D;  
DS-2DE4215IW-DE; DS-2DE4225IW-D/W; DS-2DE4225IW-DE; DS-2DE4320IW-DE;  
DS-2DE4420IW-DE; DS-2DE4425IW-DE; DS-2DE4415IW-DE; DS-2AE4225TI-A; DS-2AE4225TI-D;  
DS-2AE4215TI-A; DS-2AE4215TI-D; DS-2AE4225TI-A3; DS-2AE4225TI-D3; DS-2AE4215TI-A3;  
DS-2AE4215TI-D3; DS-2AE4232TI-A; DS-2AE4232TI-D; DS-2AE4232TI-A3; DS-2AE4232TI-D3;  
DS-2AE4223TI-D; DS-2AE4425TI-A; DS-2AE4425TI-D; DS-2AE4415TI-A; DS-2AE4415TI-D;  
DS-2AE4425TI-A3; DS-2AE4425TI-D3; DS-2AE4415TI-A3; DS-2AE4415TI-D3; DS-2AE4325TI-A;  
DS-2AE4325TI-D; DS-2AE4315TI-A; DS-2AE4315TI-D; DS-2AE4325TI-A3; DS-2AE4325TI-D3;  
DS-2AE4315TI-A3; DS-2AE4315TI-D3; DS-2AE4332TI-A; DS-2AE4332TI-D; DS-2AE4332TI-A3;  
DS-2AE4332TI-D3; DS-2AE4432TI-A; DS-2AE4432TI-D; DS-2AE4432TI-A3; DS-2AE4432TI-D3;  
DS-2AE4232T-A3; DS-2AE4232T-D; DS-2AE4232T-D3; DS-2AE4425T-A; DS-2AE4425T-A3; DS-  
2AE4425T-D; DS-2AE4425T-D3; DS-2AE4415T-A; DS-2AE4415T-A3; DS-2AE4415T-D;  
DS-2AE4415T-D3;



Revision Record			
Version	Description	Date	Remark
00	Add models	2018-05-10	Based on SHEM160400151901V01

<b>Authorized for issue by:</b>			
			
		<hr/>	
		<b>Bruce Tang / Project Engineer</b>	
			
		<hr/>	
		<b>Zenger Zhang / Reviewer</b>	

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## 2 Test Summary

Item	Standard	Method	Class	Result
CE M(150k-30M)	EN 55032:2015	EN 55032:2015	Class A	Pass
CE T(150K-30M)	EN 55032:2015	EN 55032:2015	Class A	Pass
RE(30M-1G)	EN 55032:2015	EN 55032:2015	Class A	Pass
RE(above1G)	EN 55032:2015	EN 55032:2015	Class A	Pass
Harmonic	EN 61000-3-2:2014	EN 61000-3-2:2014	N/A	N/A*
Flicker	EN 61000-3-3:2013	EN 61000-3-3:2013	Clause 5 of EN 61000-3-3	Pass
ESD	EN 50130-4:2011+A1:2014	EN 61000-4-2:2009	2,4,6kV Contact Discharge 2,4,8kV Air Discharge	Pass
EFT(Mains)	EN 50130-4:2011+A1:2014	EN 61000-4-4:2012	2kV 5/50ns Tr/Th 100kHz Repetition Frequency	Pass
EFT(Signal)	EN 50130-4:2011+A1:2014	EN 61000-4-4:2012	1kV 5/50ns Tr/Th 100kHz Repetition Frequency	Pass
Surge(Mains)	EN 50130-4:2011+A1:2014	EN 61000-4-5:2014	1.2/50µs Tr/Th 0.5,1kV Line to Line 0.5,1,2kV Line to Ground	Pass
V-Dips	EN 50130-4:2011+A1:2014	EN 61000-4-11:2004	80 % UT for 250per 70 % UT for 25per 40 % UT for 10per 0 % UT for 250per UT is Supply Voltage	Pass
Mains Supply Voltage Variations-Conditioning	EN 50130-4:2011+A1:2014	EN 50130-4:2011+A1:2014	Unom+10% Unom-15%	Pass
RI(80M-2.7G)	EN 50130-4:2011+A1:2014	EN 61000-4-3:2006+A1:2008+A2:2010	10V/m, 80%, 1kHz sinusoidal Amp. Mod.	Pass
CI M(150K-100M)	EN 50130-4:2011+A1:2014	EN 61000-4-6:2014	10Vrms (emf),80%,1kHz sinusoidal Amp. Mod.	Pass
CI S(150K-100M)	EN 50130-4:2011+A1:2014	EN 61000-4-6:2014	10Vrms (emf),80%,1kHz sinusoidal Amp. Mod.	pass
RI(80M-2.7G)	EN 50130-4:2011+A1:2014	EN 61000-4-3:2006+A1:2008+A2:2010	10V/m, 1Hz(0.5s On,0.5s Off) Pulse Mod.	Pass
CI M(150K-100M)	EN 50130-4:2011+A1:2014	EN 61000-4-6:2014	10Vrms (emf),1Hz(0.5s On,0.5s Off) Pulse Mod.	Pass
CI S(150K-100M)	EN 50130-4:2011+A1:2014	EN 61000-4-6:2014	10Vrms (emf),1Hz(0.5s On,0.5s Off) Pulse Mod.	Pass

N/A: Not applicable

**Note1: 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 DS-2DE4220IW-DE was tested since their differences were the model number, trade name and appearance.

**Note2:** N/A\*: Please refer to Section 6.5 of this report for details.

**Note3:** The SEHM160400151901V01 of the report has replaced the original report SHEM160400151901 which is invalid now.

**Note4:** The standard has been modified in the V01 version.

**Note5:** We add some models in this report. The new models mentioned in this report are the same as the original models, in Electronic or Electrical characters. Which were already EMC tested in the report SHEM160400151901V01. So the new models in this report are deemed to fulfil the EMC requirements without testing. And update EUT Name and Applicant information.



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## 4 General Information

### 4.1 Client Information

Applicant: Hangzhou Hikvision Digital Technology Co., Ltd.  
 Address of Applicant: No.555 Qianmo Road, Binjiang District, Hangzhou 310052, China  
 Manufacturer: Hangzhou Hikvision Digital Technology Co., Ltd.  
 Address of Manufacturer: No.555 Qianmo Road, Binjiang District, Hangzhou 310052, China  
 Factory: Hangzhou Hikvision Technology Co., Ltd.  
 Hangzhou Hikvision Electronics Co., Ltd.  
 No.700,Dongliu Road, Binjiang District, Hangzhou City,Zhejiang, 310052, China  
 Address of Factory: No.299,Qiushi Road,Tonglu Economic Development Zone,Tonglu County,  
 Hangzhou,Zhejiang,310052,China

### 4.2 Details of E.U.T.

Power supply: DC12V  
 Cable: LAN Cable 3m : supply by SGS  
 Power 24W

### 4.3 E.U.T Operation Mode

Detail description of the Test mode

a:Monitoring mode : connect EUT to laptop , keep EUT monitoring image continual .

### 4.4 Description of Support Units

Description	Manufacturer	Model No.
Laptop 1	LENOVO	R400
Laptop 2	LENOVO	X100e



#### **4.5 Test Location**

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab

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

Tel: +86 21 6191 5666

Fax: +86 21 6191 5678

No tests were sub-contracted.

#### **4.6 Test Facility**

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

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

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

- **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-3868,C-4336,T-12221,G-10830 respectively.

#### **4.7 Deviation from Standards**

None

#### **4.8 Abnormalities from Standard Conditions**

None

#### **4.9 Monitoring of EUT for All Immunity Test**

Visual: image quality



#### 4.10 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.



## 5 Equipment List

<b>CE M(150k-30M)</b>					
<b>Item</b>	<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Due Date</b>
1	EMI test receiver	Rohde & Schwarz	ESR7	SHEM162-1	2017-01-12
2	Line impedance stabilization network	EMCO	3816/2	SHEM019-1	2017-01-12
3	Pulse limiter	Rohde & Schwarz	ESH3-Z2	SHEM029-1	2016-08-04

<b>CE T(150K-30M)</b>					
<b>Item</b>	<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Due Date</b>
1	EMI test receiver	Rohde & Schwarz	ESR7	SHEM162-1	2017-01-12
2	Line impedance stabilization network	EMCO	3816/2	SHEM019-1	2017-01-12
3	Pulse limiter	Rohde & Schwarz	ESH3-Z2	SHEM029-1	2016-08-04
4	8-wire ISN cat 5	SCHWARZBECK	CAT5 8158	SHEM137-1	2017-01-12
5	8-wire ISN cat 3	SCHWARZBECK	CAT3 8158	SHEM137-2	2017-01-12
6	2-Draht ISN	Schwarzbeck - Mess-Elektronik	NTFM 8131	SHEM139-1	2017-01-12

<b>RE(30M-1G)</b>					
<b>Item</b>	<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Due Date</b>
1	EMI test receiver	Rohde & Schwarz	ESU40	SHEM051-1	2016-08-04
2	Antenna	SCHWARZBECK	VUBA9117	SHEM008-1	2017-01-15
3	Ultra Antenna	Rohde & Schwarz	HL562	SHEM010-1	2017-01-15
4	Pre Amplifier	Agilent	8447D	SHEM143-1	2016-08-09
5	New Low Amplifier	CLAVIO	BDLNA-0001-412010	SHEM164-1	2016-10-09
6	High Frequency Filter	LORCH	9BRX-875/X150-SR	SHEM156-1	N/A
7	Multi-device controller	ETS	2090	SHEM005-1	N/A



<b>RE(above1G)</b>					
<b>Item</b>	<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Due Date</b>
1	EMI test receiver	Rohde & Schwarz	ESU40	SHEM051-1	2016-08-04
2	Horn Antenna	Rohde & Schwarz	HF906	SHEM009-2	2017-01-15
3	Pre-Amplifier	Rohde & Schwarz	AFS42-001800-25-S-42	SHEM009-3	2017-01-15
4	New High Amplifier	CLAVIO	BDLNA-0118-352810	SHEM165-1	2016-10-09
5	High Frequency Filter	LORCH	5BRX-2400/X200-SR	SHEM155-1	N/A
6	High pass Fliter	WHK	WHK3.0/18G-10SS	SHEM157-1	N/A
7	Discrete bandreject filter	LORCH	5BRX-2400/X200-SR	SHEM083-3	N/A
8	Multi-device controller	ETS	2090	SHEM005-1	N/A

<b>Flicker</b>					
<b>Item</b>	<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Due Date</b>
1	Single phase harmonics&flicker analyzer	EM test	DPA500	SHEM024-1	2017-01-12
2	AC source 6KVA	EM test	ACS500	SHEM025-1	2017-01-12

<b>ESD</b>					
<b>Item</b>	<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Due Date</b>
1	Electrostatic Discharge Simulator	TESEQ	NSG 437	SHEM041-1	2016-08-24



<b>EFT(Mains)</b>					
<b>Item</b>	<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Due Date</b>
1	Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2017-01-12
2	Ultra-compact simulator	EM test	UCS500M4	SHEM026-1	2017-01-12
3	Capacitive coupling clamp	EM test	HFK	SHEM026-2	2016-08-04
4	Data coupling network 4 line	EM test	CNV 504	SHEM026-3	2016-08-04
5	Matching resistors for EFT/burst generators	EM test	KW50	SHEM026-4	N/A
6	Matching resistors for EFT/burst generators	EM test	KW1000	SHEM026-5	N/A

<b>EFT(Signal)</b>					
<b>Item</b>	<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Due Date</b>
1	Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2017-01-12
2	Ultra-compact simulator	EM test	UCS500M4	SHEM026-1	2017-01-12
3	Capacitive coupling clamp	EM test	HFK	SHEM026-2	2016-08-04
4	Data coupling network 4 line	EM test	CNV 504	SHEM026-3	2016-08-04
5	Matching resistors for EFT/burst generators	EM test	KW50	SHEM026-4	N/A
6	Matching resistors for EFT/burst generators	EM test	KW1000	SHEM026-5	N/A

<b>Surge(Mains)</b>					
<b>Item</b>	<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Due Date</b>
1	Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2017-01-12
2	Ultra-compact simulator	EM test	UCS500M4	SHEM026-1	2017-01-12
3	Data coupling network 4 line	EM test	CNV 504	SHEM026-3	2016-08-04
4	Matching resistors for EFT/burst generators	EM test	KW50	SHEM026-4	N/A
5	Matching resistors for EFT/burst generators	EM test	KW1000	SHEM026-5	N/A

<b>V-Dips</b>					
Item	Equipment	Manufacturer	Model No	Inventory No	Cal Due Date
1	Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2017-01-12
2	Ultra-compact simulator	EM test	UCS500M4	SHEM026-1	2017-01-12
3	Motorised Variac	MV2616	MV2616	SHEM026-6	2017-01-12

<b>Mains Supply Voltage Variations-Conditioning</b>					
Item	Equipment	Manufacturer	Model No	Inventory No	Cal Due Date
1	EMS test machine	EMC Partner	TRA3000 F-S-D-V	1229	2017-01-03

<b>RI(80M-2.7G)</b>					
Item	Equipment	Manufacturer	Model No	Inventory No	Cal Due Date
1	Antenna	SCHWARZBECK	STLP9128D	SHEM130-1	N/A
2	Antenna	SCHWARZBECK	STLP9149	SHEM131-1	N/A
3	Amplifier	MILMEGA	80RF1000-250	SHEM132-1	2016-08-09
4	Amplifier	MILMEGA	AS0840-55-55	SHEM133-1	2016-08-09
5	Power meter sensor	Rohde & Schwarz	NRP-Z22	SHEM136-1	2016-08-04
6	ElectroMagnetic Field Probe	ETS-Lindgren	HI-6113	SHEM134-1	2016-08-09

<b>CI M(150K-100M)</b>					
Item	Equipment	Manufacturer	Model No	Inventory No	Cal Due Date
1	PAMP Conducted RF test system	HAEFFLY	PAMP250	SHEM023-1	2017-01-12
2	6dB Attenuator	HUAXIANG	TST-150-761	SHEM151-1	N/A
3	CDN impedance and K-factor	LUTHI	L-801 M1	SHEM023-5	2017-01-12
4	CDN impedance and K-factor	LUTHI	L-801 M2/M3	SHEM023-6	2017-01-12



<b>CI S(150K-100M)</b>					
Item	Equipment	Manufacturer	Model No	Inventory No	Cal Due Date
1	signal generator	Rohde & Schwarz	SMJ100A	101394	2017-01-13
2	PAMP Conducted RF test system	HAEFFLY	PAMP250	151708	2017-01-13
3	CDN impedance and K-factor	LUTHI	L-801 M1	2116	2017-01-13
4	CDN impedance and K-factor	LUTHI	L-801 M2/M3	2117	2017-01-13
5	Coupling Clamp	LUTHI	EM 101	35724	2017-01-13

<b>General used equipment</b>					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Due date
1	Digital pressure meter	YONGZHI	DYM3-01	101012	2017-03-02
2	Temperature& humidity recorder	ShangHai weather meter work	ZJ 1-2B	84320600 803136, F304020153,201 01201FS100A6K ,201106117	2016-08-02
3	Digital Multimeter	FLUKE	17B	19720439	2017-01-13
4	Autoformer regulator	Guangzhou bao de	TDGC2-5KVA-	/	/
5	CLAMP METER	FLUKE	316	2503030971	2017-01-13

## 6 Emission Test Results

### 6.1 CE M(150k-30M)

Test Requirement:	EN 55032:2015
Test Method:	EN 55032:2015
Frequency Range:	150kHz to 30MHz
Limit:	
0.15M-0.5MHz	79dB(μV) quasi-peak, 66dB(μV) average
0.5M-30MHz	73dB(μV) quasi-peak, 60dB(μV) average
Detector:	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

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

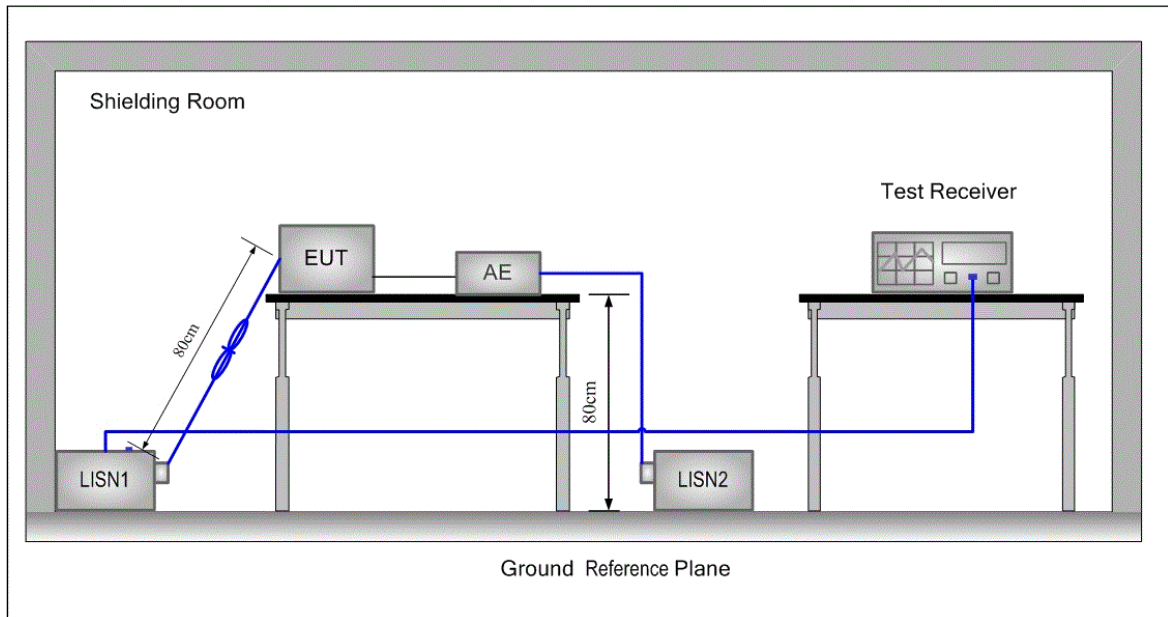
Operating Environment:

Temperature: 22 °C Humidity:48 % RH Atmospheric Pressure: 1010 mbar

Test mode a:Monitoring mode : connect EUT to laptop , keep EUT monitoring image continual .

The worst case for final test a:Monitoring mode : connect EUT to laptop , keep EUT monitoring image continual .

#### 6.1.2 Test Setup

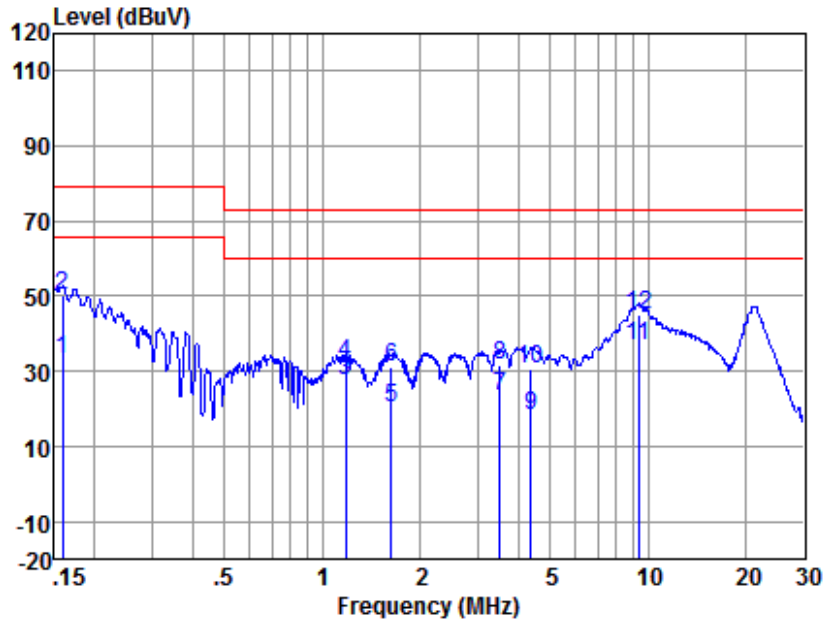


#### 6.1.3 Measurement Data

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



Mode:a;Line:Live Line

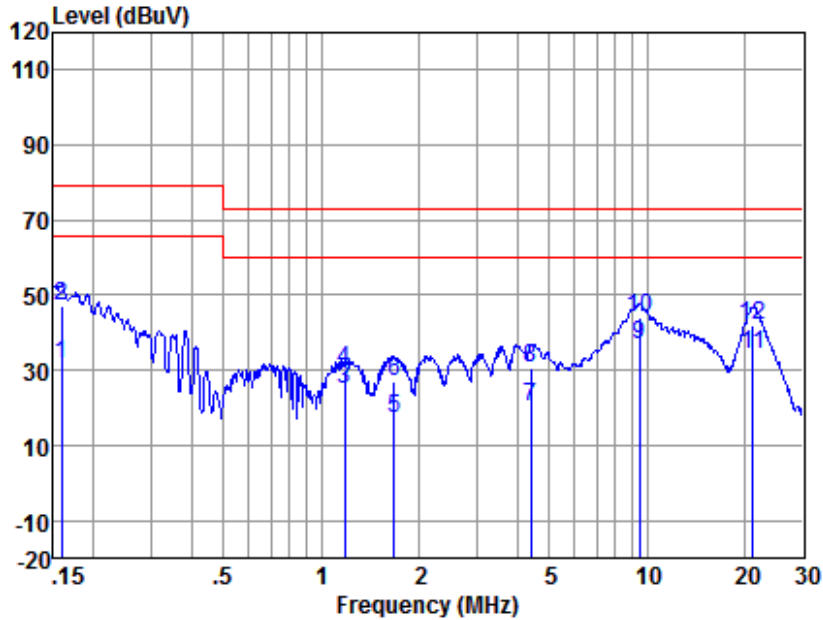


Site : chamber  
 Condition : CISPR22 CLASS A-QP LISN-L-2015  
 Model number: 1519IT  
 Test mode : a

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.159	23.17	0.32	9.86	33.35	66.00	-32.65	Average
2	0.159	40.33	0.32	9.86	50.51	79.00	-28.49	QP
3	1.181	17.27	0.21	9.87	27.35	60.00	-32.65	Average
4	1.181	22.05	0.21	9.87	32.13	73.00	-40.87	QP
5	1.632	9.87	0.30	9.87	20.04	60.00	-39.96	Average
6	1.632	21.12	0.30	9.87	31.29	73.00	-41.71	QP
7	3.506	13.19	0.38	9.88	23.45	60.00	-36.55	Average
8	3.506	21.45	0.38	9.88	31.71	73.00	-41.29	QP
9	4.372	8.18	0.39	9.89	18.46	60.00	-41.54	Average
10	4.372	20.56	0.39	9.89	30.84	73.00	-42.16	QP
11	9.394	26.61	0.33	9.88	36.82	60.00	-23.18	Average
12	9.394	34.91	0.33	9.88	45.12	73.00	-27.88	QP



Mode:a;Line:Neutral Line



Site : chamber  
Condition : CISPR22 CLASS A-QP LISN-N-2015  
Model number: 1519IT  
Test mode : a

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.159	21.33	0.33	9.86	31.52	66.00	-34.48	Average
2	0.159	37.00	0.33	9.86	47.19	79.00	-31.81	QP
3	1.183	14.77	0.41	9.87	25.05	60.00	-34.95	Average
4	1.183	19.99	0.41	9.87	30.27	73.00	-42.73	QP
5	1.672	6.31	0.80	9.87	16.98	60.00	-43.02	Average
6	1.672	16.54	0.80	9.87	27.21	73.00	-45.79	QP
7	4.407	9.76	0.50	9.89	20.15	60.00	-39.85	Average
8	4.407	20.21	0.50	9.89	30.60	73.00	-42.40	QP
9	9.522	26.72	0.38	9.88	36.98	60.00	-23.02	Average
10	9.522	33.70	0.38	9.88	43.96	73.00	-29.04	QP
11	21.229	23.60	0.45	9.97	34.02	60.00	-25.98	Average
12	21.229	31.35	0.45	9.97	41.77	73.00	-31.23	QP

## 6.2 CE T(150K-30M)

Test Requirement:	EN 55032:2015
Test Method:	EN 55032:2015
Frequency Range:	150kHz to 30MHz
Limit:	
0.15M-0.5MHz	97dB(μV)-87dB(μV) quasi-peak, 84dB(μV)-74dB(μV) average
0.5M-30MHz	87dB(μV) quasi-peak, 74dB(μV) average
Detector:	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

### 6.2.1 E.U.T. Operation

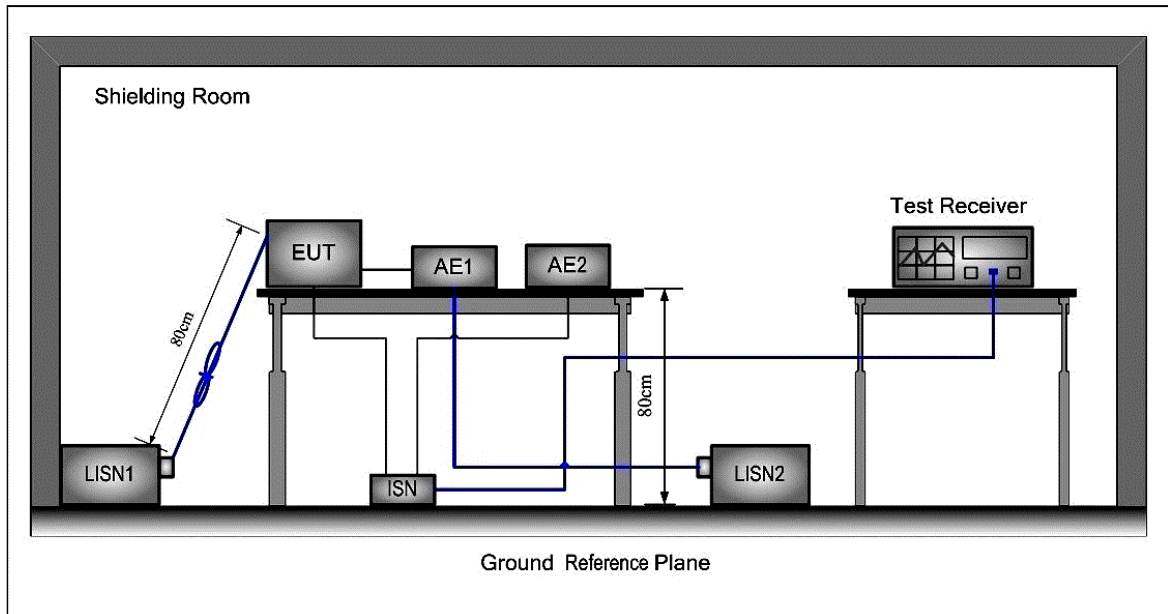
Operating Environment:

Temperature: 22 °C Humidity:48 % RH Atmospheric Pressure: 1010 mbar

Test mode a:Monitoring mode : connect EUT to laptop , keep EUT monitoring image continual .

The worst case for final test a:Monitoring mode : connect EUT to laptop , keep EUT monitoring image continual .

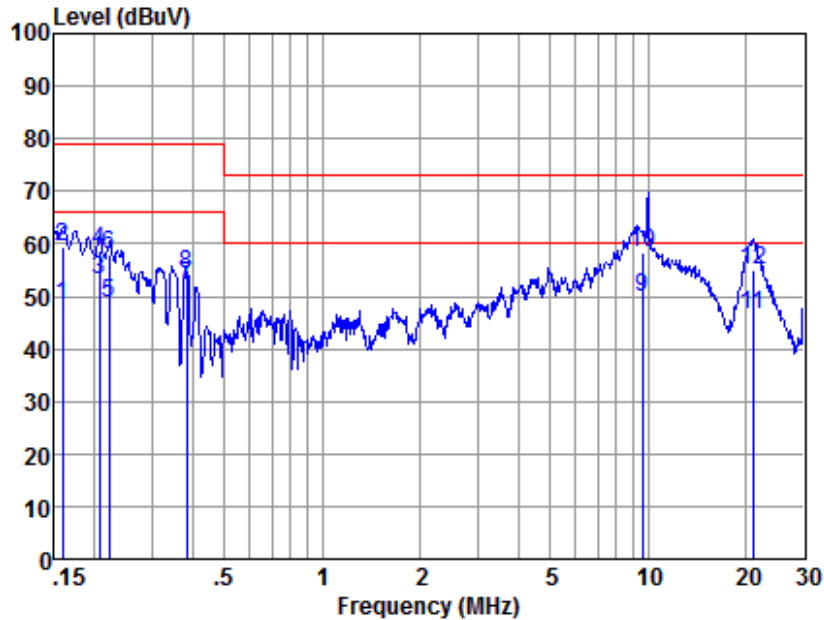
### 6.2.2 Test Setup



### 6.2.3 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



Site : chamber  
 Condition : CISPR22 CLASS A-QP ISN CAT5  
 Model number: 1519IT  
 Test mode : a

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.159	28.87	9.73	9.86	48.46	66.00	-17.54	Average
2	0.159	39.75	9.73	9.86	59.34	79.00	-19.66	QP
3	0.206	33.70	9.65	9.86	53.21	66.00	-12.79	Average
4	0.206	39.04	9.65	9.86	58.55	79.00	-20.45	QP
5	0.222	29.09	9.63	9.86	48.58	66.00	-17.42	Average
6	0.222	38.53	9.63	9.86	58.02	79.00	-20.98	QP
7	0.383	32.67	9.50	9.86	52.03	66.00	-13.97	Average
8	0.383	34.76	9.50	9.86	54.12	79.00	-24.88	QP
9	9.627	30.68	9.20	9.88	49.76	60.00	-10.24	Average
10	9.627	39.09	9.20	9.88	58.17	73.00	-14.83	QP
11	21.035	27.38	9.32	9.96	46.66	60.00	-13.34	Average
12	21.035	35.57	9.32	9.96	54.85	73.00	-18.15	QP

### 6.3 RE(30M-1G)

Test Requirement:	EN 55032:2015
Test Method:	EN 55032:2015
Frequency Range:	30MHz to 1GHz
Limit:	
30MHz-230MHz	50 dB(μV/m) quasi-peak
230MHz-1GHz	57 dB(μV/m) quasi-peak
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz

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

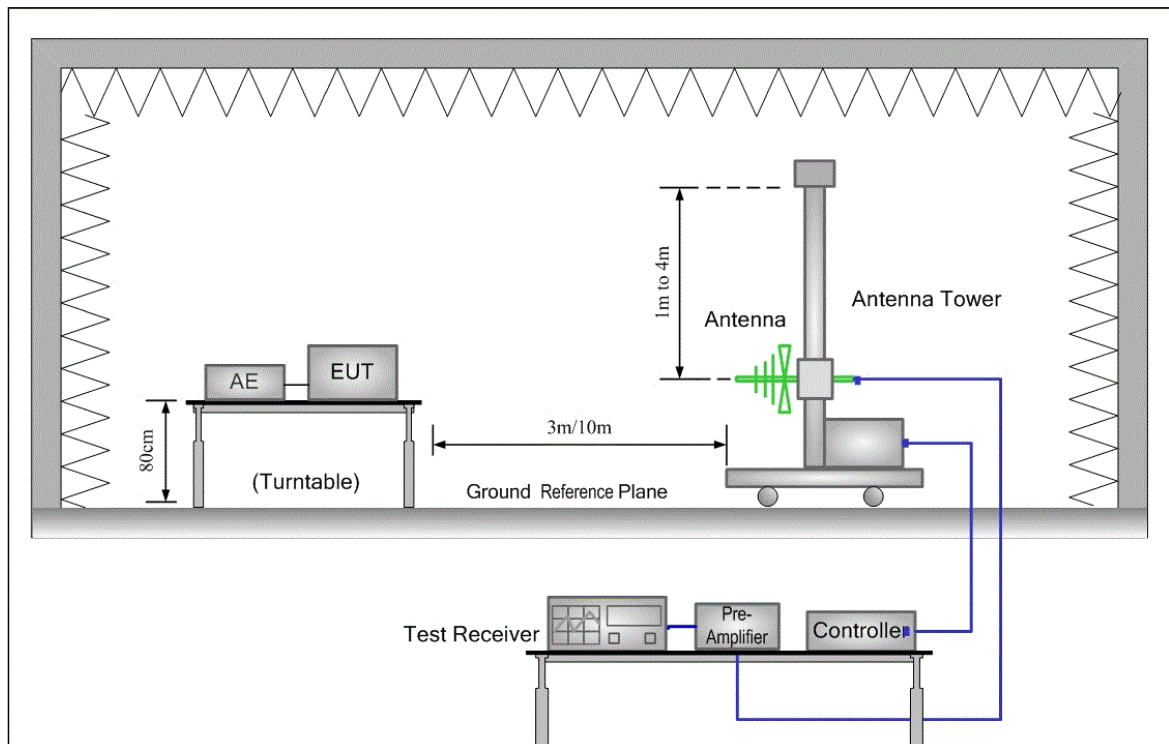
Operating Environment:

Temperature: 21 °C Humidity:51 % RH Atmospheric Pressure: 1001 mbar

Test mode a:Monitoring mode : connect EUT to laptop , keep EUT monitoring image continual .

The worst case for final test a:Monitoring mode : connect EUT to laptop , keep EUT monitoring image continual .

#### 6.3.2 Test Setup

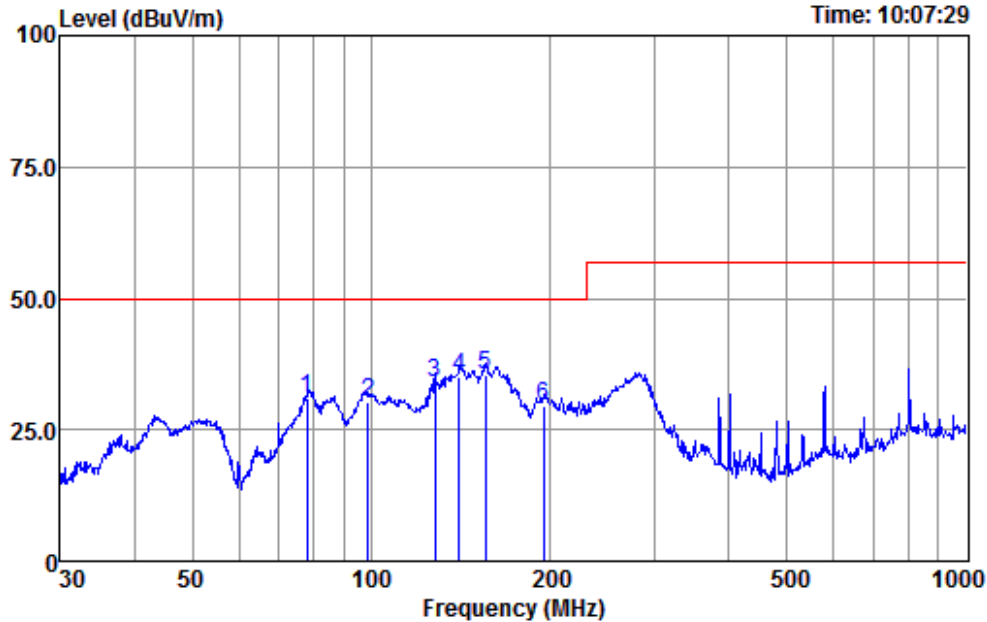


#### 6.3.3 Measurement Data

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

Data: 281



Condition : HORIZONTAL

EUT/Project: 1519IT

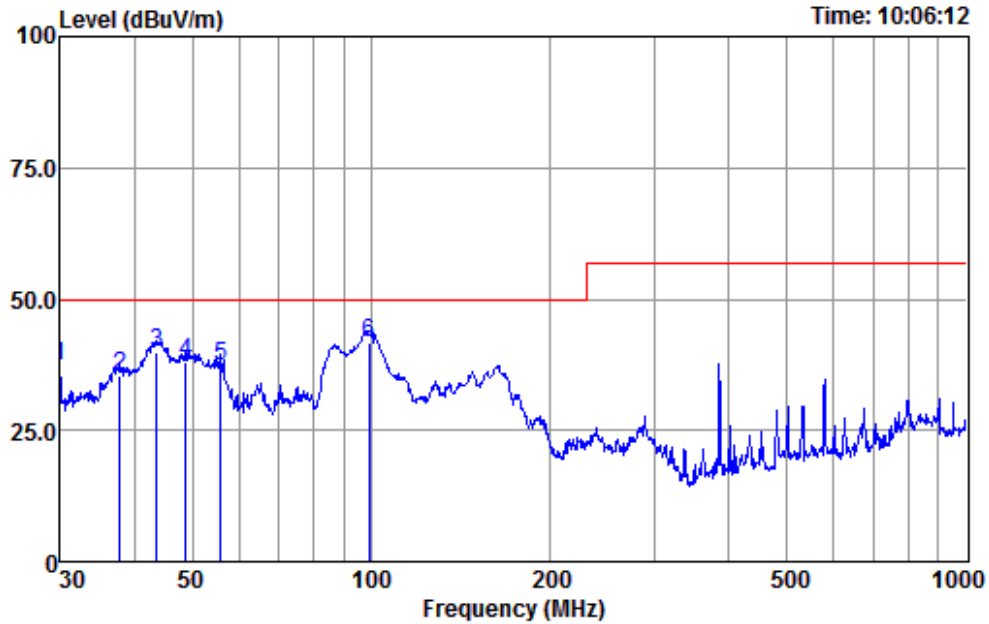
Mode : a

	Freq	ReadAntenna	Cable	Preamp	Limit	Over			
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	78.14	63.97	9.57	0.94	43.65	30.83	50.00	-19.17	QP
2	98.83	63.44	9.15	1.10	43.59	30.10	50.00	-19.90	QP
3	128.11	64.35	11.88	1.26	43.53	33.96	50.00	-16.04	QP
4	140.84	64.76	12.34	1.32	43.50	34.92	50.00	-15.08	QP
5 q	155.36	65.19	12.42	1.39	43.48	35.52	50.00	-14.48	QP
6	195.14	60.50	10.95	1.57	43.42	29.60	50.00	-20.40	QP



Mode:a;Polarization:Vertical

Data: 280



Condition : VERTICAL  
EUT/Project: 1519IT  
Mode : a

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	30.00	67.97	12.50	0.60	43.90	37.17	50.00	-12.83	QP
2	37.81	65.55	13.24	0.59	43.84	35.54	50.00	-14.46	QP
3	43.66	69.65	13.40	0.64	43.80	39.89	50.00	-10.11	QP
4	48.84	67.40	13.86	0.69	43.77	38.18	50.00	-11.82	QP
5	55.80	67.30	13.12	0.75	43.74	37.43	50.00	-12.57	QP
6 q	99.18	75.18	9.17	1.10	43.59	41.86	50.00	-8.14	QP



## 6.4 RE(above1G)

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

### 6.4.1 E.U.T. Operation

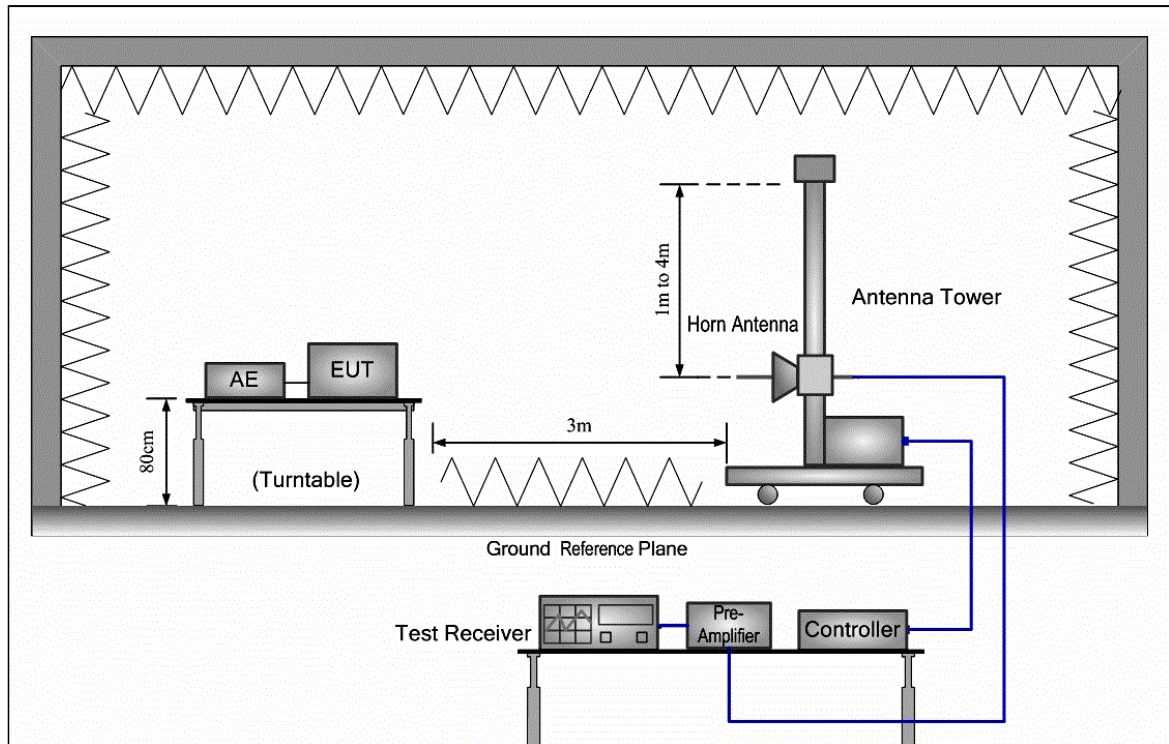
Operating Environment:

Temperature: 21 °C Humidity:51 % RH Atmospheric Pressure: 1001 mbar

Test mode a:Monitoring mode : connect EUT to laptop , keep EUT monitoring image continual .

The worst case for final test a:Monitoring mode : connect EUT to laptop , keep EUT monitoring image continual .

### 6.4.2 Test Setup

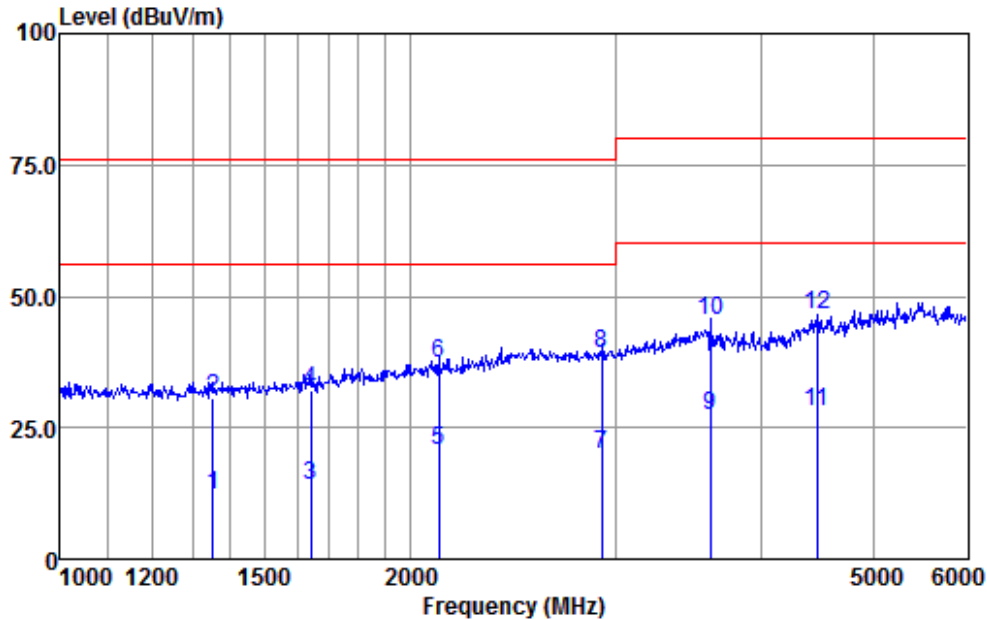


### 6.4.3 Measurement Data

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



Mode:a;Polarization:Horizontal



Condition : HORIZONTAL

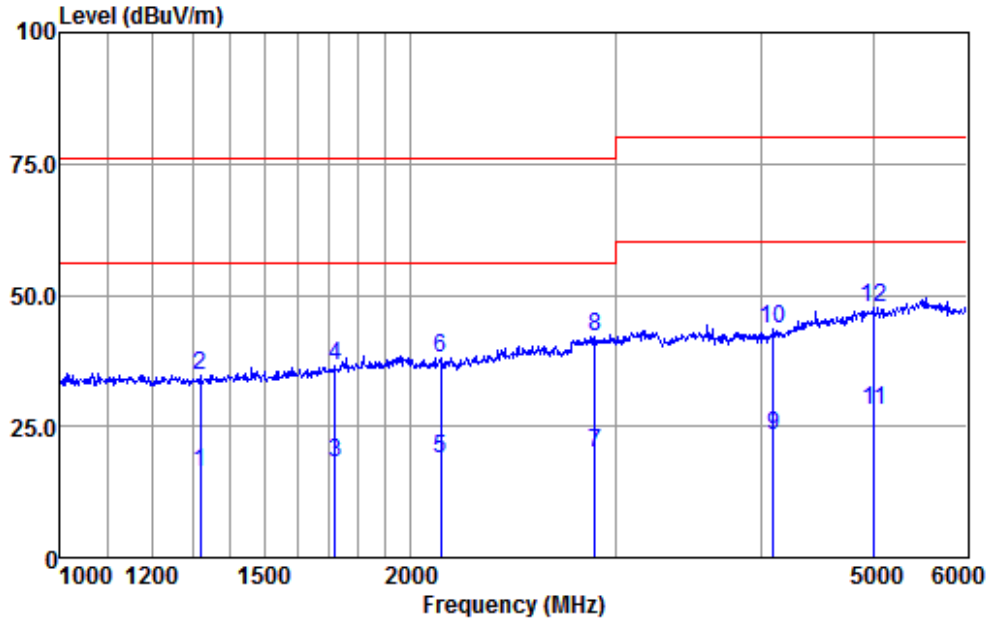
EUT/Project: 1519IT

Test Mode : a

	Freq	ReadAntenna Level	Cable Factor	Preamp Loss	Level	Limit	Over	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	1352.03	24.61	25.09	4.84	42.20	12.34	56.00	-43.66 Average
2	1352.03	42.87	25.09	4.84	42.20	30.60	76.00	-45.40 Peak
3	1641.44	25.10	25.47	5.82	42.23	14.16	56.00	-41.84 Average
4	1641.44	43.20	25.47	5.82	42.23	32.26	76.00	-43.74 Peak
5	2115.68	29.50	26.25	7.36	42.35	20.76	56.00	-35.24 Average
6	2115.68	45.94	26.25	7.36	42.35	37.20	76.00	-38.80 Peak
7	2919.09	27.50	28.07	6.87	42.50	19.94	56.00	-36.06 Average
8	2919.09	46.75	28.07	6.87	42.50	39.19	76.00	-36.81 Peak
9	3617.81	32.90	28.66	8.41	42.82	27.15	60.00	-32.85 Average
10	3617.81	51.00	28.66	8.41	42.82	45.25	80.00	-34.75 Peak
11	4465.32	31.01	30.24	9.70	42.81	28.14	60.00	-31.86 Average
12 p	4465.32	49.36	30.24	9.70	42.81	46.49	80.00	-33.51 Peak



Mode:a;Polarization:Vertical



Condition : VERTICAL  
EUT/Project: 1519IT  
Test Mode : a

	Freq	ReadAntenna	Cable	Preamp	Limit	Over			
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1320.12	28.49	25.02	4.77	42.20	16.08	56.00	-39.92	Average
2	1320.12	47.05	25.02	4.77	42.20	34.64	76.00	-41.36	Peak
3	1724.08	28.49	25.54	6.18	42.24	17.97	56.00	-38.03	Average
4	1724.08	46.87	25.54	6.18	42.24	36.35	76.00	-39.65	Peak
5	2122.38	27.50	26.27	7.36	42.35	18.78	56.00	-37.22	Average
6	2122.38	46.70	26.27	7.36	42.35	37.98	76.00	-38.02	Peak
7	2878.12	27.50	28.00	6.91	42.50	19.91	56.00	-36.09	Average
8	2878.12	49.70	28.00	6.91	42.50	42.11	76.00	-33.89	Peak
9	4096.43	27.50	29.65	8.84	42.88	23.11	60.00	-36.89	Average
10	4096.43	48.04	29.65	8.84	42.88	43.65	80.00	-36.35	Peak
11	5006.77	29.00	31.42	11.57	43.88	28.11	60.00	-31.89	Average
12 p	5006.77	48.51	31.42	11.57	43.88	47.62	80.00	-32.38	Peak



## **6.5 Harmonic**

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.

## 6.6 Flicker

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

### 6.6.1 E.U.T. Operation

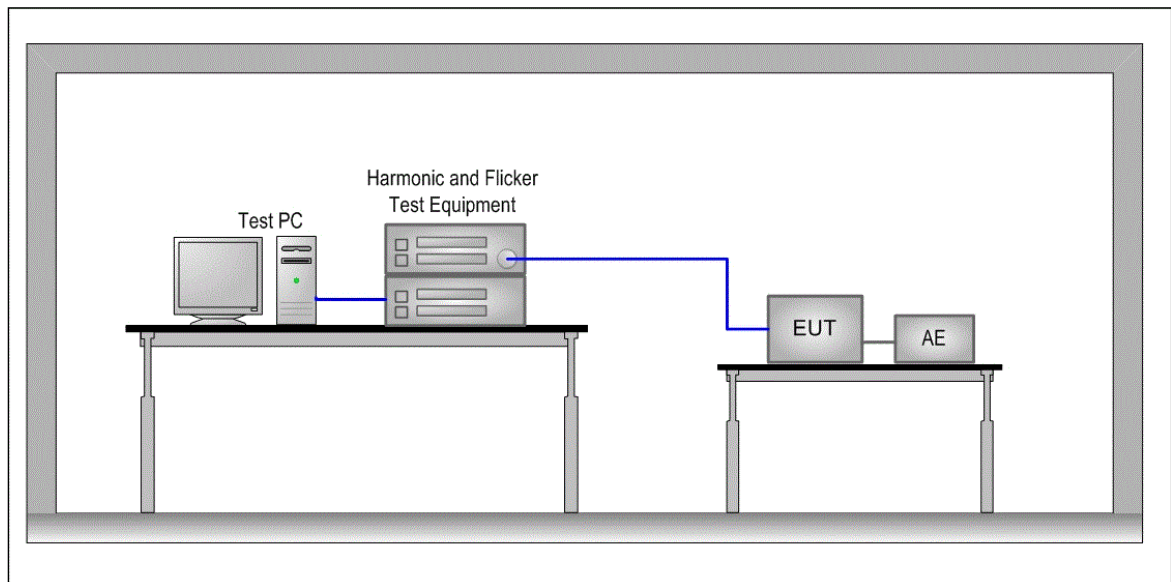
Operating Environment:

Temperature: 21 °C Humidity:45 % RH Atmospheric Pressure: 1010 mbar

Test mode a:Monitoring mode : connect EUT to laptop , keep EUT monitoring image continual .

The worst case for final test a:Monitoring mode : connect EUT to laptop , keep EUT monitoring image continual .

### 6.6.2 Test Setup



### 6.6.3 Measurement Data

Mode:a

## Maximum Flicker results

	EUT values	Limit	Result
Pst	0.035	1.00	PASS
Plt	0.035	0.65	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.219	4.00	PASS
Tmax [s]	0.000	0.50	PASS



## **7 Immunity Test Results**

### **7.1 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.

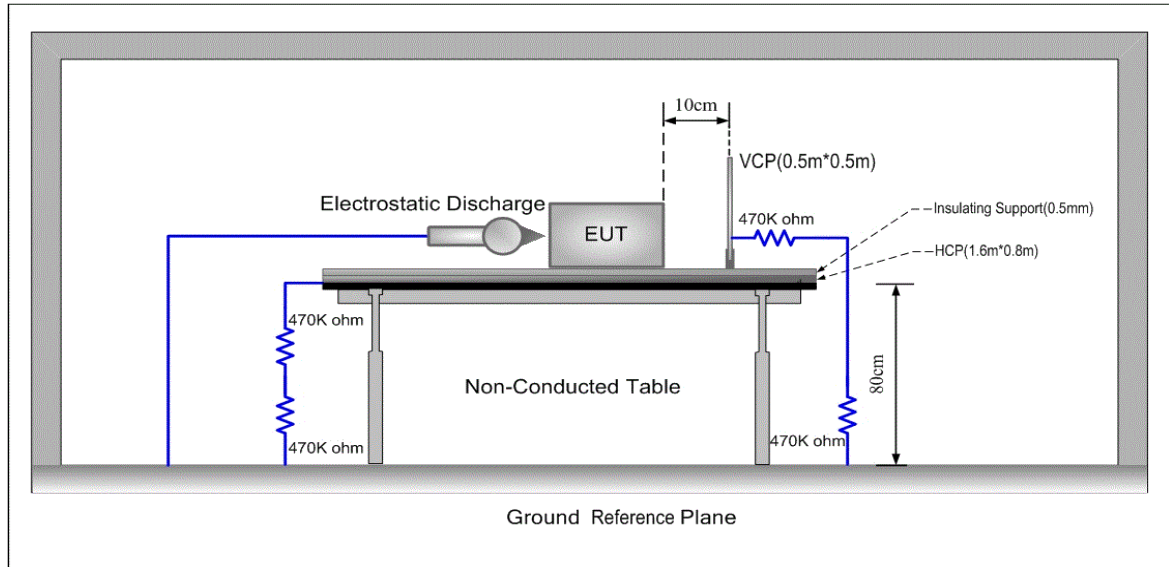
For further details, please refer to Clause 7.4, 8.4, 9.4, 10.4, 11.4, 12.4 and 13.4, of EN 50130-4.

## 7.2 ESD

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

Test Method: EN 61000-4-2:2009

### 7.2.1 Test Setup:



### 7.2.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 54 % RH Atmospheric Pressure: 1010 mbar

Test mode: a: Monitoring mode : connect EUT to laptop , keep EUT monitoring image continual

### 7.2.3 Test Results:

Observations: Test Point:

1. All insulated enclosure and seams.
2. All accessible metal parts of the enclosure.
3. All side

Discharge type	Level (kV)	Polarity	Test Point	Result / Observations
Air Discharge	2,4,8	+	1	A
Air Discharge	2,4,8	-	1	A
Contact Discharge	2,4,6	+	2	A
Contact Discharge	2,4,6	-	2	A
Horizontal Coupling	2,4,6	+	3	A
Horizontal Coupling	2,4,6	-	3	A
Vertical Coupling	2,4,6	+	3	A
Vertical Coupling	2,4,6	-	3	A

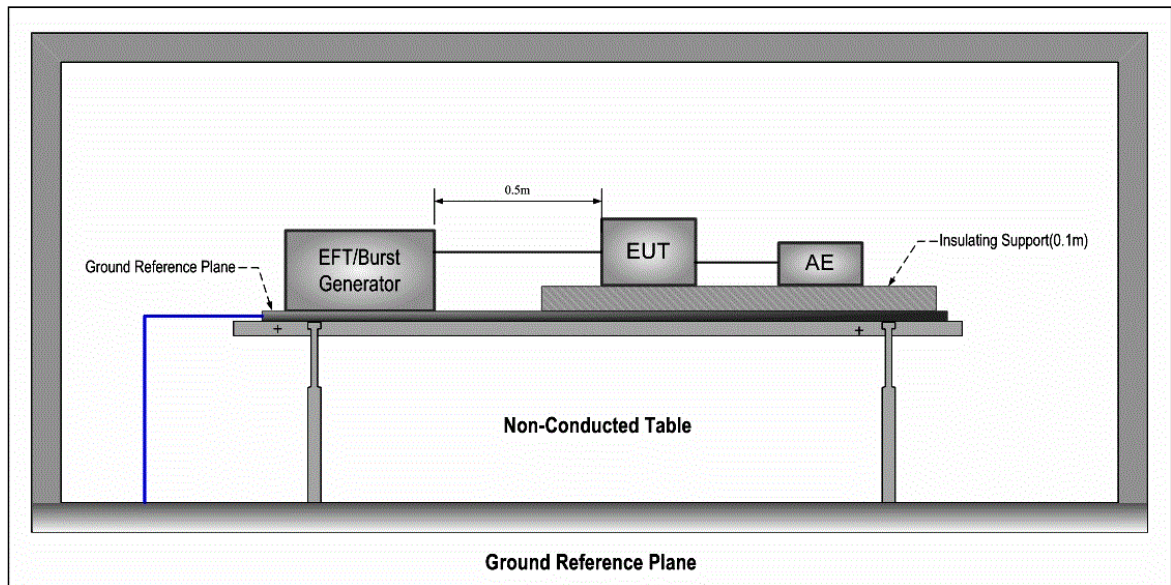
### Results:

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

### 7.3 EFT(Mains)

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

#### 7.3.1 Test Setup:



#### 7.3.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 54 % RH Atmospheric Pressure: 1010 mbar  
 Test mode: a: Monitoring mode : connect EUT to laptop , keep EUT monitoring image continual

#### 7.3.3 Test Results:

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

#### Results:

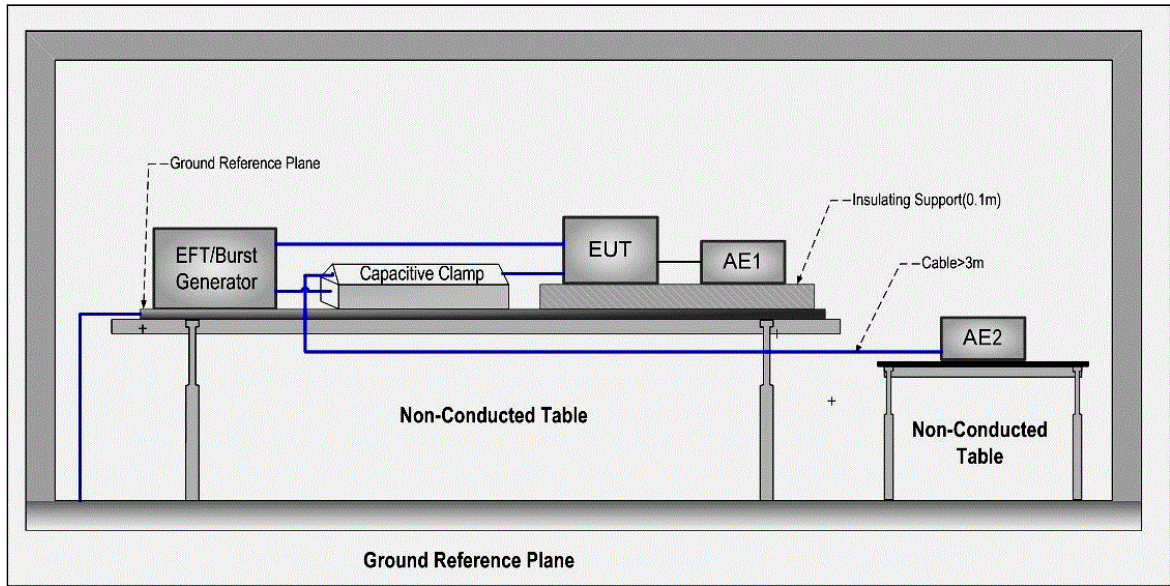
A: No degradation in the performance of the EUT was observed.



**7.4 EFT(Signal)**

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

**7.4.1 Test Setup:**



**7.4.2 E.U.T. Operation**

Operating Environment:  
 Temperature: 22 °C Humidity:54 % RH Atmospheric Pressure: 1010 mbar  
 Test mode: a:Monitoring mode : connect EUT to laptop , keep EUT monitoring image continual .

**7.4.3 Test Results:**

Cable port	Level (kV)	Polarity	Direct/Coupling	Result / Observations
Signal	1	+	Clamp	A
	1	-	Clamp	A

**Results:**

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

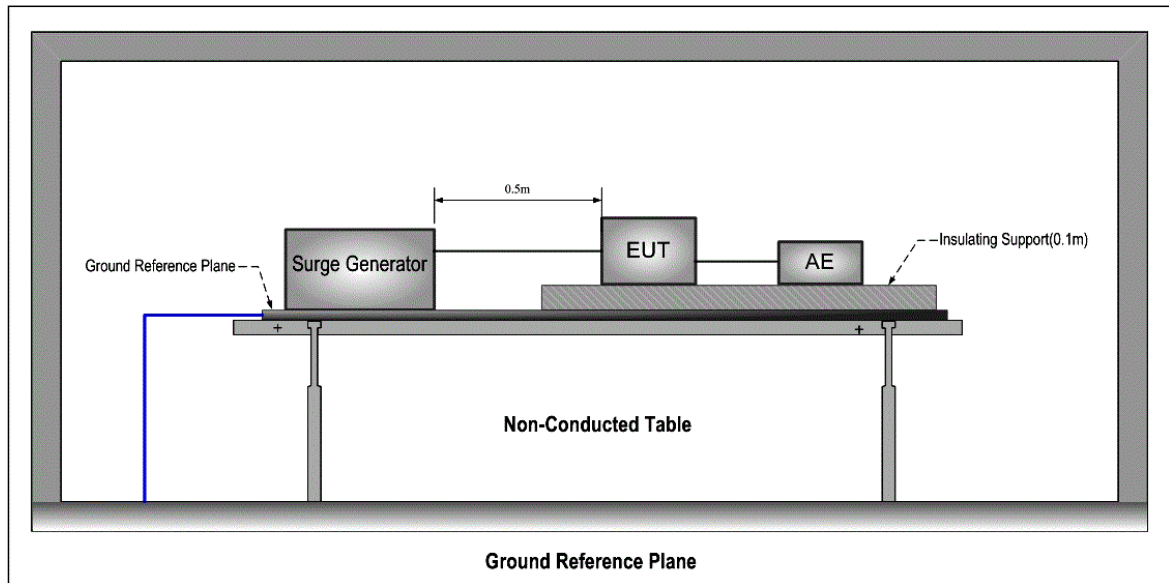


## 7.5 Surge(Mains)

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

Test Method: EN 61000-4-5:2014

### 7.5.1 Test Setup:



### 7.5.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity:54 % RH Atmospheric Pressure: 1010 mbar

Test mode: a:Monitoring mode : connect EUT to laptop , keep EUT monitoring image continual .

### 7.5.3 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

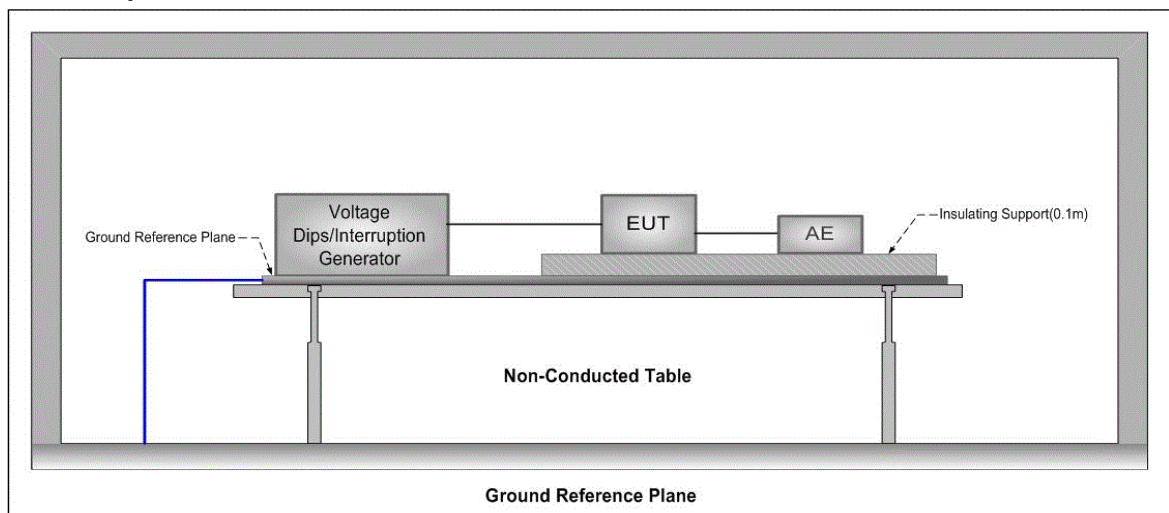
**Results:**

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

## 7.6 V-Dips

Test Requirement: EN 50130-4:2011+A1:2014  
 Test Method: EN 61000-4-11:2004  
 Performance Criterion: 0% of UT (Supply Voltage) for 250 Periods; 40% of UT for 10 Periods; 70% of UT for 25 Periods; 80% of UT for 250 Periods;  
 No. of Dips / Interruptions: 3 per Level  
 Time between dropout 10s

### 7.6.1 Test Setup:



### 7.6.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 54 % RH Atmospheric Pressure: 1010 mbar

Test mode: a: Monitoring mode : connect EUT to laptop , keep EUT monitoring image continual .

### 7.6.3 Test Results:

Level % UT	Phase (deg)	Duration	No. of Dips / Interruptions	Result / Observations
80	0°	250 Periods	3	B
80	180°	250 Periods	3	B
70	0°	25 Periods	3	A
70	180°	25 Periods	3	A
40	0°	10 Periods	3	A
40	180°	10 Periods	3	A
0	0°	250 Periods	3	B
0	180°	250 Periods	3	B

#### Results:

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

B: DT, the EUT restarted automatically

AT, NLOF

## 7.7 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 ( $U_{min}$ : $U_{nom} - 15\%$ )
Unom 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.

### 7.7.1 E.U.T. Operation

Operating Environment:

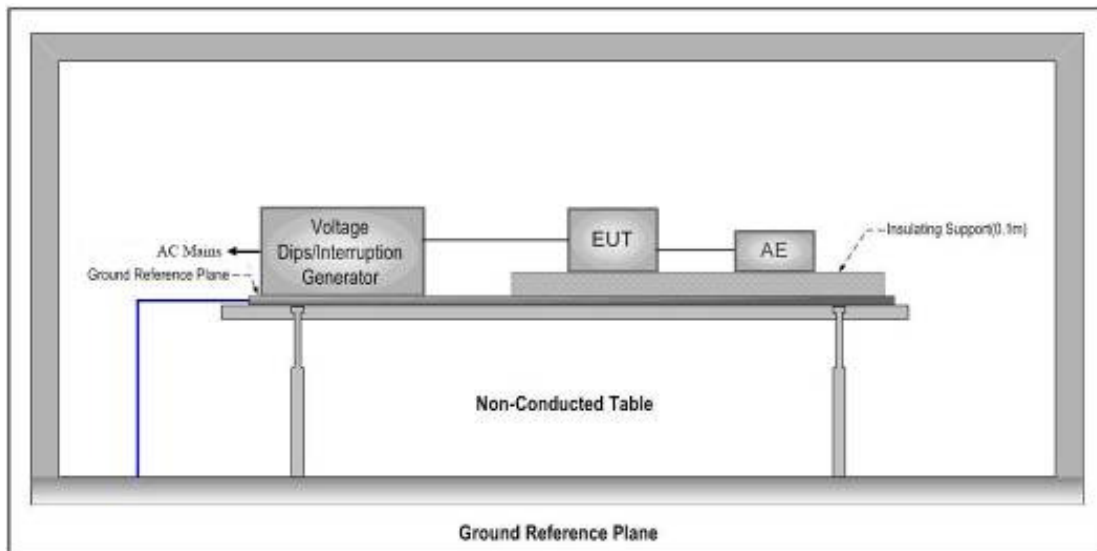
Temperature:	22 °C	Humidity:	55 % RH	Atmospheric Pressure:	1010 mbar
Test mode:	a:Monitoring mode : connect EUT to laptop , keep EUT monitoring image continual .				

### 7.7.2 Test Results:

#### Test phenomenon description for the EUT:

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

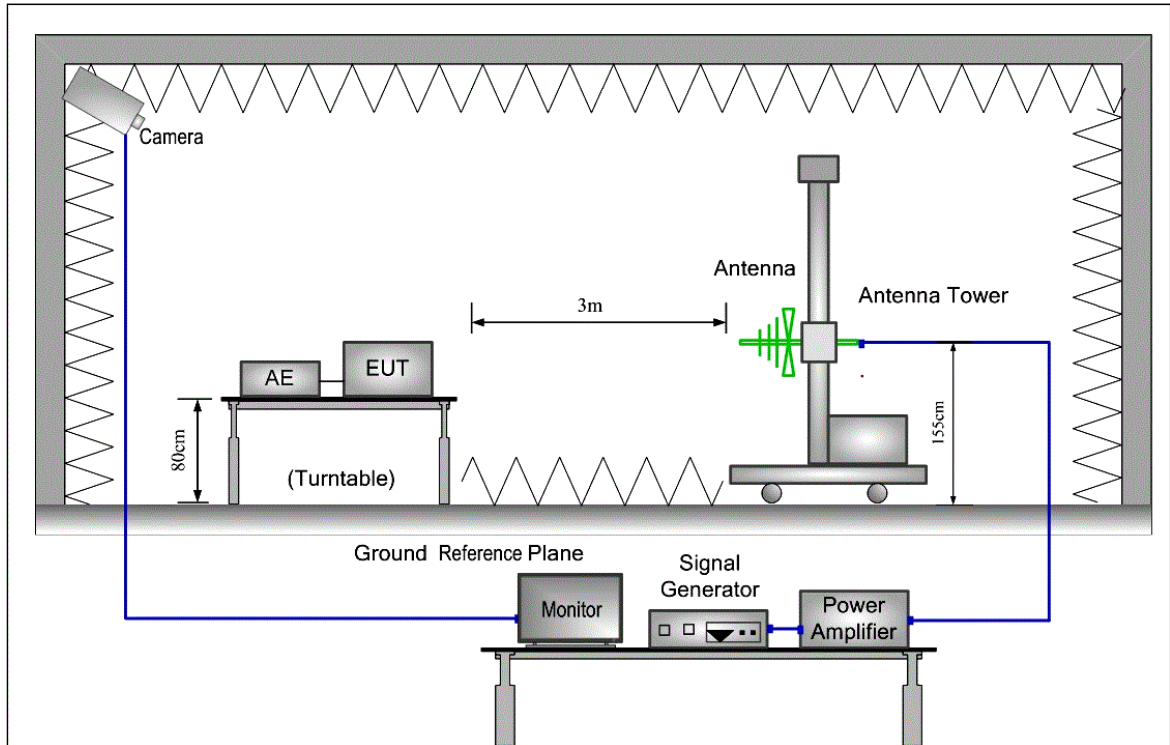
#### Test Setup:



### 7.8 RI(80M-2.7G)

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

#### 7.8.1 Test Setup:



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

Operating Environment:

Temperature: 21 °C Humidity: 51 % RH Atmospheric Pressure: 1001 mbar  
Test mode: a: Monitoring mode : connect EUT to laptop , keep EUT monitoring image continual .

#### 7.8.3 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.



**7.9 CI (150K-100M)**

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

**7.9.1 E.U.T. Operation**

Operating Environment:  
Temperature: 21 °C Humidity:45 % RH Atmospheric Pressure: 1010 mbar  
Test mode: a:Monitoring mode : connect EUT to laptop , keep EUT monitoring image continual .

**7.9.2 Test Results:**

Cable port	Level (Vrms)	Direct/Coupling	Dwell time	Result / Observations
AC power port	10	Direct	3s	A
Signal port	10	Direct	3s	A

**Results:**

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



## 8 Photographs

### 8.1 CE M(150k-30M) Test Setup



### 8.2 CE T(150K-30M) Test Setup



### 8.3 RE(30M-1G) Test Setup



### 8.4 RE(above1G) Test Setup





## 8.5 Flicker Test Setup



## 8.6 ESD Test Setup



### 8.7 EFT(Mains) Test Setup



### 8.8 EFT(Signal) Test Setup



### 8.9 Surge(Mains) Test Setup



### 8.10 V-Dips Test Setup





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



### 8.12 RI(80M-2.7G) Test Setup



### 8.13 CI M(150K-100M) Test Setup



### 8.14 CI S(150K-100M) Test Setup



**8.15 EUT Constructional Details**



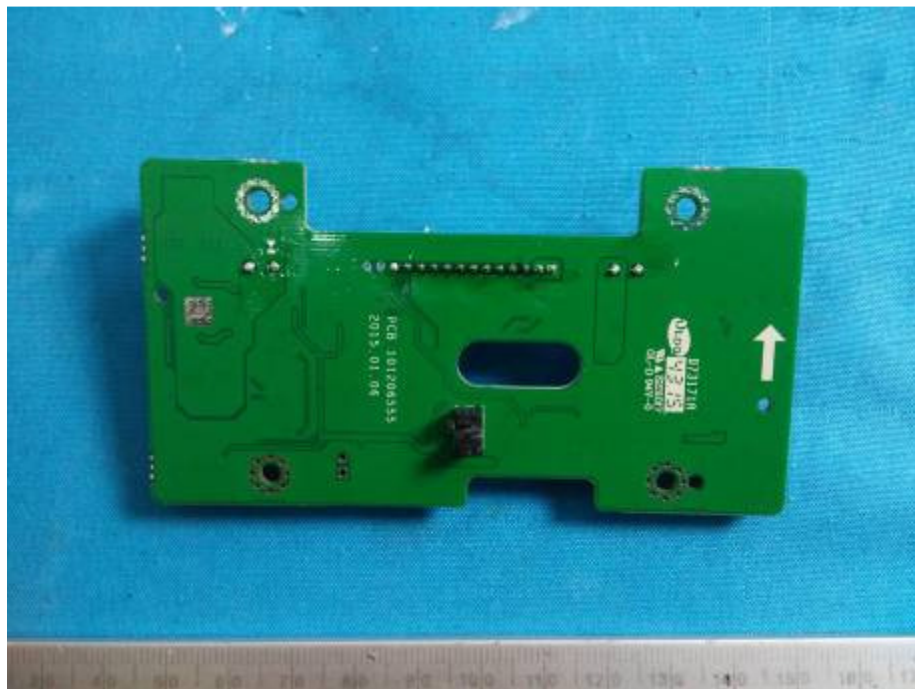








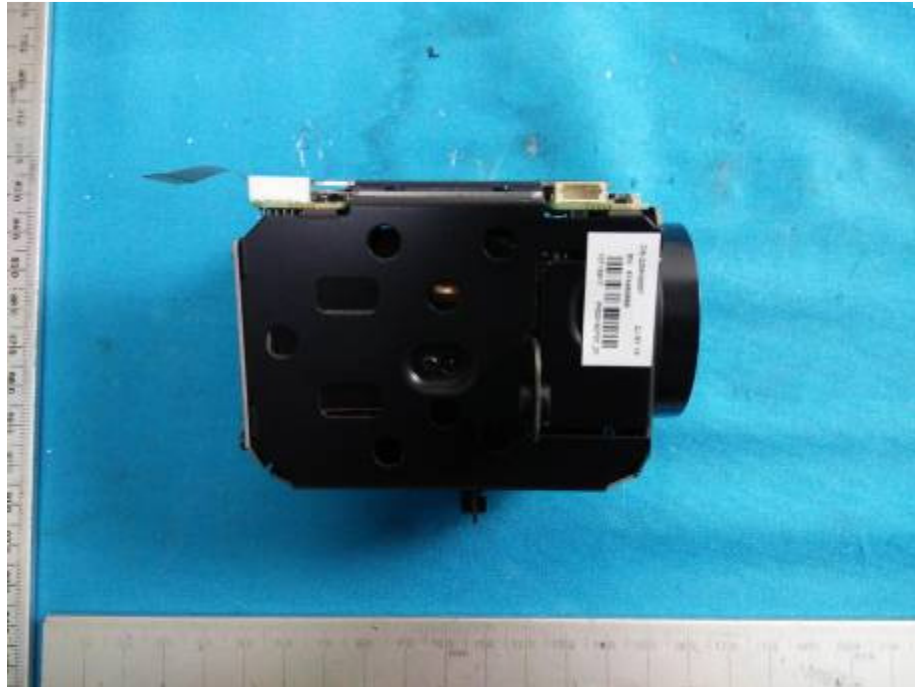


















**--End of the Report--**