TEST REPORT

Applicant	Hangzhou Hikvision Digital Technology Co., Ltd.
Address	No.555 Qianmo Road, Binjiang District, Hangzhou 310052, China

Manufacturer or Supplier	Hangzhou Hikvision Digital Technology Co., Ltd.
Address	No.555 Qianmo Road, Binjiang District, Hangzhou 310052, China
Product	Network Camera
Brand Name	HIKVISION
Model	DS-2CD7A46G0-IZHSY
Additional Model & Model Difference	DS-2CD7A26G0-IZHSY, DS-2CD7A26G0-IZHSYUHK, DS-2CD7A26G0-IZHSYCKV, etc., See item 2.1
Date of tests	Apr. 02, 2019 ~ Apr. 11, 2019

The submitted sample of the above equipment has been tested for according to the requirements of the following standards:

☒ **EN 55032:2015+AC:2016, Class B**
☒ **EN 61000-3-2:2014**
☒ **EN 61000-3-3:2013**
☒ **EN 50130-4:2011+A1:2014**

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Tested by Ryan Lu Project Engineer / EMC Department	Approved by Madison Luo Supervisor / EMC Department
Ryan	Date: May 31, 2019

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
CE190329N019	Original release	May 31, 2019

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1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

EMISSION			
Standard	**Test Type**	**Result**	**Remarks**
EN 55032:2015+AC:2016, Class B	Conducted Test	PASS	Minimum passing margin is –9.19 dB at 0.406 MHz
	Conducted Test (Telecom port)	PASS	Minimum passing margin is –4.48 dB at 12.498 MHz
	Radiated Test (30MHz~1GHz)	PASS	Minimum passing margin is –5.35 dB at 34.0013 MHz
	Radiated Test (1GHz~6GHz)	PASS	Minimum passing margin is –16.88 dB at 2194.998 MHz
EN 61000-3-2:2014	Harmonic current emissions	PASS	Meets the requirements.
EN 61000-3-3:2013	Voltage fluctuations & flicker	PASS	Meets the requirements.

Remark: EN 55032:2015+AC:2016 versions is required by client and it will also remark in report that it comply with previous standard EN 55032:2012+AC:2013.

IMMUNITY (EN 50130-4:2011 +A1:2014)			
Standard	**Test Type**	**Result**	**Remarks**
EN 61000-4-2:2009	Electrostatic discharge immunity test	PASS	Electrostatic Discharge – ESD: 2, 4, 8kV Air discharge, 6kV Contact discharge,
EN 61000-4-3:2006 +A1:2008+A2:2010	Radiated, radio-frequency, electromagnetic field immunity test	PASS	Radio-Frequency Electromagnetic Field Susceptibility Test – RS: 80-2700 MHz, 10V/m, 80% Sinusoidal, 1kHz, Pulse Modulation, 1 Hz (0.5s ON: 0.5s OFF)
EN 61000-4-4:2012	Electrical fast transient / burst immunity test.	PASS	Electrical Fast Transient/Burst - EFT AC Power lines: 2kV, Other supply/signal lines: 1kV
EN 61000-4-5:2014	Surge immunity test	PASS	Surge Immunity Test: 1.2/50 us Open Circuit Voltage, 8 /20 us Short Circuit Current, Line-to- Line 0.5kV & 1kV Line-to-ground 0.5kV, 1kV &2kV, Other supply/signal lines - line-to-ground : 0.5kV& 1kV
EN 61000-4-6:2014	Immunity to conducted disturbances, induced by radio-frequency fields	PASS	Conducted Radio Frequency Disturbances Test – CS: 0.15-100 MHz, 10Vrms, 80% Sinusoidal, 1kHz, Pulse Modulation 1 Hz (0.5s ON: 0.5s OFF)
EN 61000-4-11:2004	Voltage dips, short interruptions and voltage variations immunity tests	PASS	Voltage Dips: i) 20% reduction 250 period ii) 30% reduction 25period iii) 60% reduction 10 period iv) 100% reduction 250 period
EN 50130-4:2011 +A1:2014	Mains supply voltage variations test	PASS	Supply voltage max. (Umax)= Unom + 10% Supply voltage min. (Umin)=Unom – 15%

1.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	150kHz ~ 30MHz	+/- 3.10 dB
Conducted emissions at telecom port	150kHz ~ 30MHz	+/- 2.22 dB
Radiated emissions	30 MHz ~ 1GHz	+/- 4.95 dB
	Above 1GHz	+/- 4.60 dB

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Network Camera
MODEL NO.	DS-2CD7A46G0-IZHSY
ADDITIONAL MODEL	DS-2CD7A26G0-IZHSY, DS-2CD7A26G0-IZHSYUHK, DS-2CD7A26G0-IZHSYCKV, DS-2CD7A26G0-IZHSYUVS, DS-2CD7A26G0-IZHSYKVO, DS-2CD7A26G0-IZHSYHUN, DS-2CD7A26G0-IZSY, DS-2CD7A26G0-IZSYUHK, DS-2CD7A26G0-IZSYCKV, DS-2CD7A26G0-IZSYUVS, DS-2CD7A26G0-IZSYKVO, DS-2CD7A26G0-IZSYHUN, DS-2CD7A46G0-IZHSYUHK, DS-2CD7A46G0-IZHSYCKV, DS-2CD7A46G0-IZHSYUVS, DS-2CD7A46G0-IZHSYKVO, DS-2CD7A46G0-IZHSYHUN, DS-2CD7A46G0-IZSY, DS-2CD7A46G0-IZSYUHK, DS-2CD7A46G0-IZSYCKV, DS-2CD7A46G0-IZSYUVS, DS-2CD7A46G0-IZSYKVO, DS-2CD7A46G0-IZSYHUN
POWER SUPPLY	DC 12V or Powered by PoE
CABLE SUPPLIED	N/A
THE HIGHEST OPERATING FREQUENCY	1.8GHz

NOTE:

1. For the test results, the EUT had been tested with all conditions. But only the worst case was showed in test report.
2. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
3. Please refer to the EUT photo document (Reference No.: 190329N019) for detailed product photo.
4. Additional models (see about table) are identical with the test model DS-2CD7A46G0-IZHSY except the model number for marketing purpose.

2.2 DESCRIPTION OF TEST MODES

The EUT was tested under the following modes. And the final worst mode was marked in boldface and recorded in this report.

◆ **FOR CONDUCTED EMISSION TEST:**

Test Mode	Test Voltage
Network preview + RJ45 port 10Mbps data transmitting + Grounded	**DC 12V from adapter input AC 230V 50Hz** Powered by PoE input AC 230V 50Hz
Network preview + RJ45 port 100Mbps data transmitting + Grounded	
Network preview + RJ45 port 1000Mbps data transmitting + Grounded	

◆ **FOR CONDUCTED EMISSION TEST AT TELECOMMUNICATION PORT:**

Test Mode	Test Voltage
Network preview + RJ45 port 10Mbps data transmitting + Grounded	DC 12V from adapter input AC 230V 50Hz **Powered by PoE input AC 230V 50Hz**
Network preview + RJ45 port 100Mbps data transmitting + Grounded	
Network preview + RJ45 port 1000Mbps data transmitting + Grounded	

◆ **FOR RADIATED EMISSION TEST(BELOW 1GHz):**

Test Mode	Test Voltage
Network preview + RJ45 port 10Mbps data transmitting + Grounded	**DC 12V from adapter input AC 230V 50Hz** Powered by PoE input AC 230V 50Hz
Network preview + RJ45 port 100Mbps data transmitting + Grounded	
Network preview + RJ45 port 1000Mbps data transmitting + Grounded	

◆ **FOR RADIATED EMISSION TEST(ABOVE 1GHz):**

Test Mode	Test Voltage
Network preview + RJ45 port 10Mbps data transmitting + Grounded	**DC 12V from adapter input AC 230V 50Hz** Powered by PoE input AC 230V 50Hz
Network preview + RJ45 port 100Mbps data transmitting + Grounded	
Network preview + RJ45 port 1000Mbps data transmitting + Grounded	

◆ **FOR FLICKER TEST:**

Test Mode	Test Voltage
Network preview + RJ45 port 100Mbps data transmitting + Grounded	DC 12V from adapter input AC 230V 50Hz Powered by PoE input AC 230V 50Hz

◆ **FOR IMMUNITY TESTS:**

Test Mode	Test Voltage
Network preview + RJ45 port 100Mbps data transmitting + Grounded	DC 12V from adapter input AC 230V 50Hz Powered by PoE input AC 230V 50Hz

Remark: Test modes were required by client.

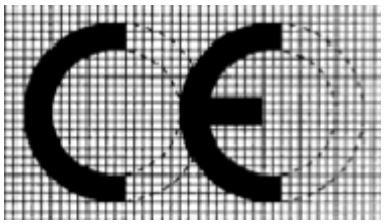
2.3 TEST PROGRAM USED AND OPERATION DESCRIPTIONS

a. Placed the EUT on the test table and it was powered by adapter.
b. Prepared notebooks to act as communication partners.

2.4 MISCELLANEOUS

➢ Affix CE marking

The marking must be placed visibly and legibly on the product or, if not possible due to the nature of the product, be affixed to the packaging and the accompanying document. The CE marking shall consist of the initials 'CE' taking the following form:



The various components of the CE marking must have the same vertical dimension, and may not be smaller than 5 mm. If the CE marking is reduced or enlarged, the proportions given in the graduated drawing above must be respected.

When the product is subject to other Directives covering other aspects and which also provide for the 'CE' marking, the accompanying documents must indicate that the product also conforms to those other Directives.

However, when one or more of those Directives allow the manufacturer, during a transitional period, to choose which arrangements to apply, the 'CE' marking has to indicate conformity only with the Directives applied by the manufacturer. In this case, the particularities of the Directives applied, as published in the Official Journal of the European Union, must be given in the documents, notices or instructions required by the Directives and accompanying such products.

2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT has been tested and complied with the requirements of the following standards:

EN 55032:2015+AC:2016 Class B
EN 61000-3-2:2014
EN 61000-3-3:2013
EN 50130-4:2011+A1:2014
EN 61000-4-2:2009
EN 61000-4-3:2006+A1:2008+A2:2010
EN 61000-4-4:2012
EN 61000-4-5:2014
EN 61000-4-6:2014
EN 61000-4-11:2004
IEC 61000-4-2:2008 ED. 2.0
IEC 61000-4-3:2010 ED. 3.2
IEC 61000-4-4:2012 ED. 3.0
IEC 61000-4-5:2014 ED. 3.0
IEC 61000-4-6:2013 ED. 4.0
IEC61000-4-11:2004 ED. 2.0

All applicable tests have been performed and recorded as per the above standards. The EUT haven't any components susceptible to magnetic fields, so don't test power-frequency magnetic filed item.

2.6 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as a dependent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook	HP	HP ProBook 440 G5	N/A	N/A
2	Notebook	Lenovo	ThinkPad L440	N/A	N/A
3	Power Adapter	MOSO	MSA-C2000IC12.0-24P-CN	N/A	N/A
4	PoE Injector	SUPLET	LAS60-57CN-RJ45	N/A	N/A
5	LAN Cable	Hikvision	EIA/TIA-568B	N/A	N/A

NO.	DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A
2	N/A
3	DC Line: Unshielded, Non-detachable 1.2m
4	DC Line: Unshielded, Non-detachable 1.2m
5	RJ45 Cable: Unshielded, detachable 2.0m

3 EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

NOTE: (1) The lower limit shall apply at the transition frequencies.
(2) The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
(3) All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

3.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR3	101831	May 6,19	May. 5,20
Line impedance stabilization network	Rohde&Schwarz	ENV216	10107	May 6,19	May. 5,20
Impedance Stabilization Network	Rohde&Schwarz	ENY81	101568	Aug. 01,18	Jul 31,19

NOTE: 1. The test was performed by witness in the Hikvision lab that was accredited by CNAS.
2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

3.1.3 TEST PROCEDURE

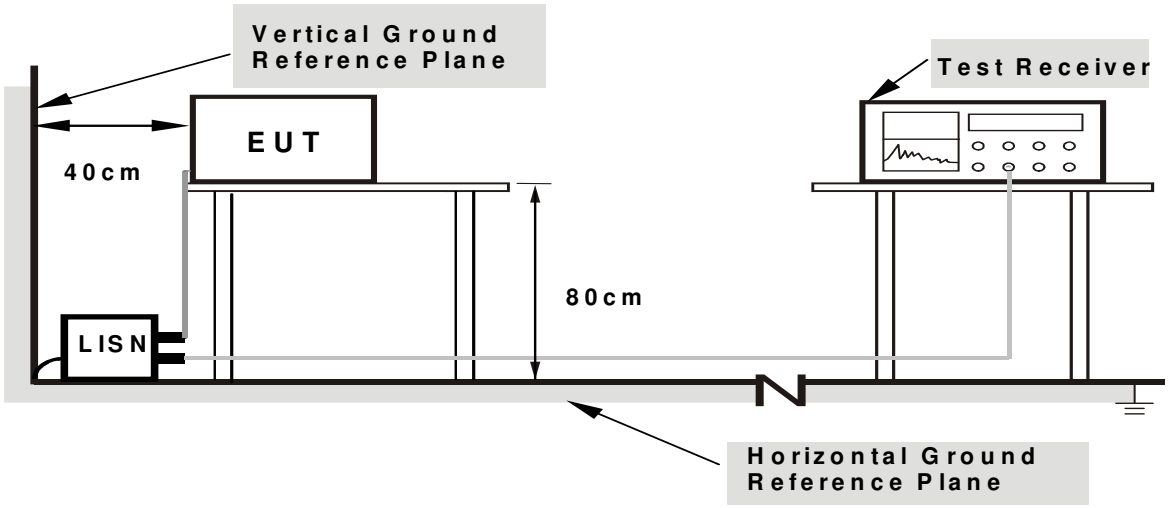
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20dB) were not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

3.1.4 DEVIATION FROM TEST STANDARD

No deviation

3.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.

3.1.6 EUT OPERATING CONDITIONS

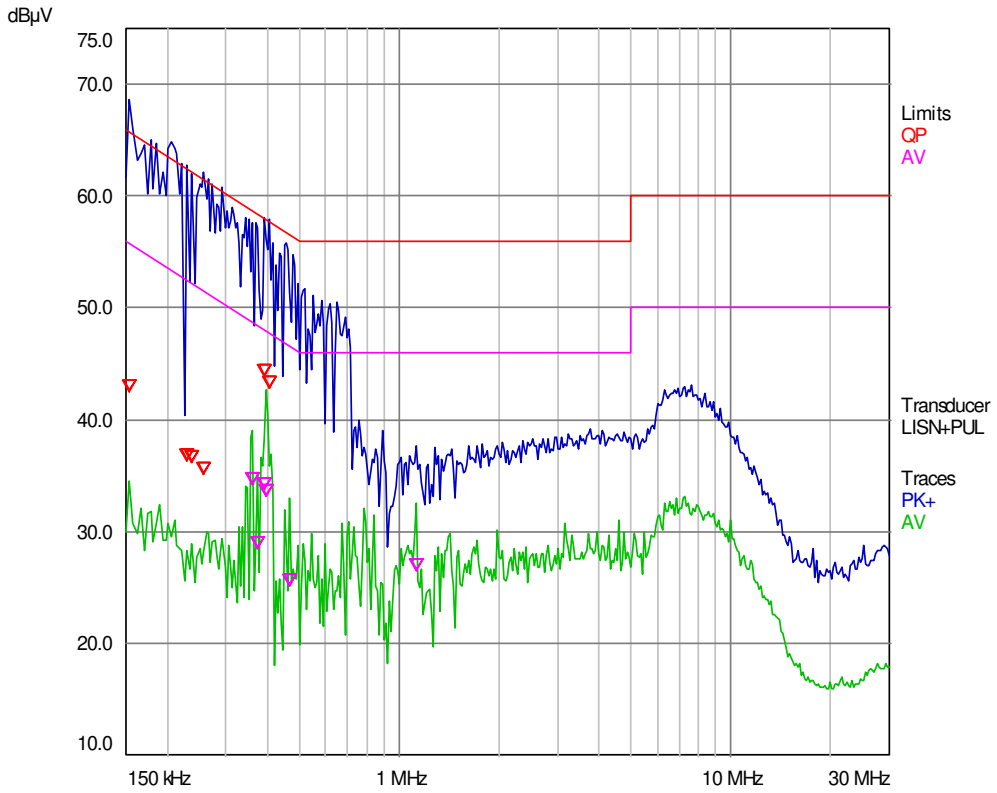
a. Turned on the power of all equipment.
b. EUT was operated according to the type used was description in manufacturer's specifications or the User's Manual.

3.1.7 TEST RESULTS

TEST MODE	See section 2.2	PHASE	Line(L)
TEST VOLTAGE	DC 12V from adapter input AC 230V/50Hz	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	25deg. C, 50% RH	TESTED BY: Qi Liu	

Trace	Frequency (MHz)	Level (dBµV)	Limit (dBµV)	Delta Limit (dB)
1 QP	0.154	42.53	65.78	-23.25
1 QP	0.23	36.29	62.45	-26.16
1 QP	0.238	36.08	62.17	-26.09
1 QP	0.258	35.08	61.50	-26.42
2 CA	0.362	34.13	48.68	-14.55
2 CA	0.374	28.49	48.41	-19.92
1 QP	0.39	43.80	58.06	-14.26
2 CA	0.39	33.69	48.06	-14.37
2 CA	0.398	33.14	47.90	-14.76
1 QP	0.406	42.86	57.73	-14.87
2 CA	0.47	25.11	46.51	-21.40
2 CA	1.122	26.48	46.00	-19.52

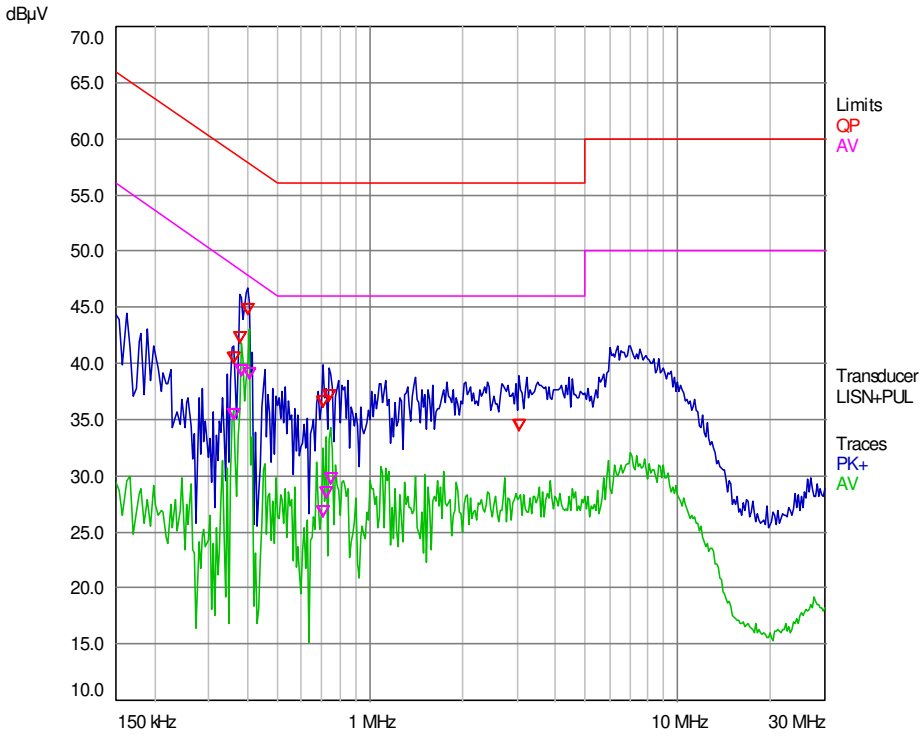
REMARKS: The emission levels of other frequencies were very low against the limit.



TEST MODE	See section 2.2	PHASE	Neutral (N)
TEST VOLTAGE	DC 12V from adapter input AC 230V/50Hz	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	25deg. C, 50% RH	TESTED BY: Qi Liu	

Trace	Frequency (MHz)	Level (dBµV)	Limit (dBµV)	Delta Limit (dB)
1 QP	0.362	40.00	58.68	-18.68
2 CA	0.362	34.92	48.68	-13.76
1 QP	0.378	41.76	58.32	-16.56
2 CA	0.382	38.83	48.24	-9.41
1 QP	0.402	44.28	57.81	-13.53
2 CA	**0.406**	**38.54**	**47.73**	**-9.19**
1 QP	0.706	36.05	56.00	-19.95
2 CA	0.706	26.39	46.00	-19.61
2 CA	0.718	27.98	46.00	-18.02
1 QP	0.738	36.70	56.00	-19.30
2 CA	0.75	29.27	46.00	-16.73
1 QP	3.046	34.03	56.00	-21.97

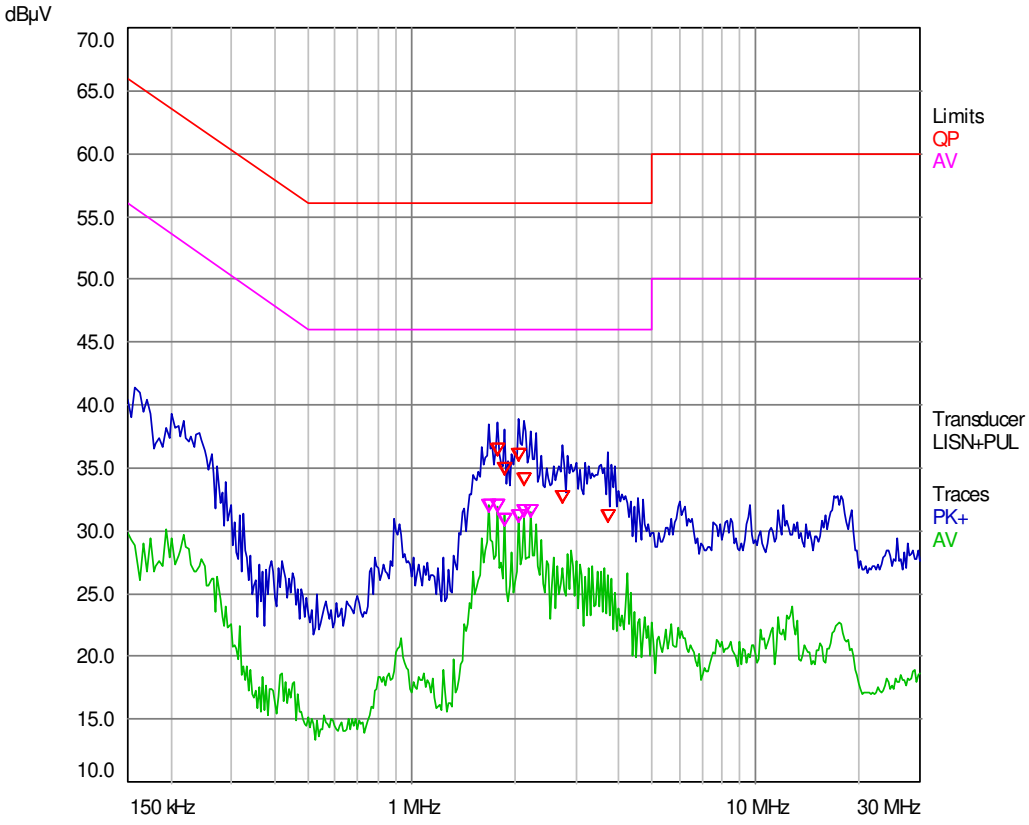
REMARKS: The emission levels of other frequencies were very low against the limit.



TEST MODE	See section 2.2	PHASE	Line(L)
TEST VOLTAGE	Powered by POE input AC 230V/50Hz	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	25deg. C, 50% RH	TESTED BY: Qi Liu	

Trace	Frequency (MHz)	Level (dBµV)	Limit (dBµV)	Delta Limit (dB)
2 CA	1.686	31.42	46.00	-14.58
1 QP	1.774	35.96	56.00	-20.04
2 CA	1.774	31.51	46.00	-14.49
1 QP	1.862	34.37	56.00	-21.63
2 CA	1.862	30.41	46.00	-15.59
1 QP	2.042	35.60	56.00	-20.40
2 CA	2.042	30.62	46.00	-15.38
1 QP	2.126	33.57	56.00	-22.43
2 CA	2.13	31.02	46.00	-14.98
2 CA	2.218	31.01	46.00	-14.99
1 QP	2.75	32.18	56.00	-23.82
1 QP	3.73	30.59	56.00	-25.41

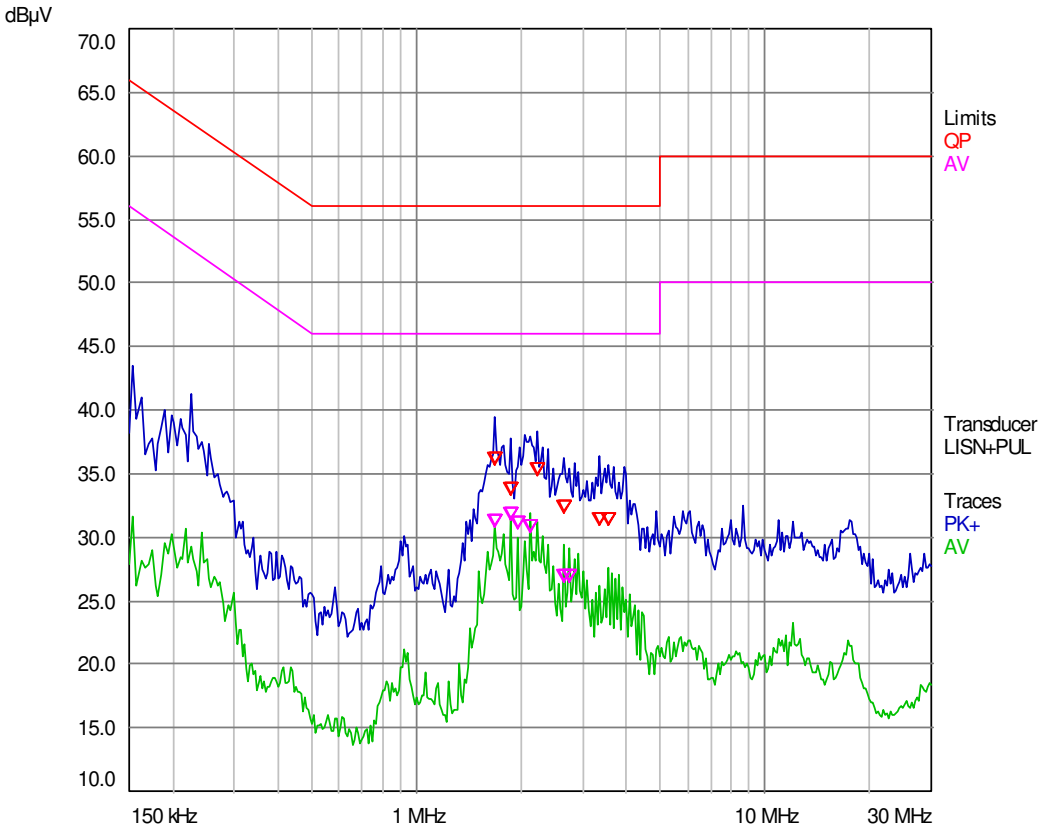
REMARKS: The emission levels of other frequencies were very low against the limit.



TEST MODE	See section 2.2	PHASE	Neutral (N)
TEST VOLTAGE	Powered by POE input AC 230V/50Hz	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	25deg. C, 50% RH	TESTED BY: Qi Liu	

Trace	Frequency (MHz)	Level (dBµV)	Limit (dBµV)	Delta Limit (dB)
2 CA	1.682	30.75	46.00	-15.25
1 QP	1.686	35.70	56.00	-20.30
1 QP	1.858	33.28	56.00	-22.72
2 CA	1.862	31.36	46.00	-14.64
2 CA	1.95	30.62	46.00	-15.38
2 CA	2.126	30.40	46.00	-15.60
1 QP	2.214	34.84	56.00	-21.16
1 QP	2.658	31.87	56.00	-24.13
2 CA	2.658	26.44	46.00	-19.56
2 CA	2.746	26.50	46.00	-19.50
1 QP	3.37	30.97	56.00	-25.03
1 QP	3.546	30.95	56.00	-25.05

REMARKS: The emission levels of other frequencies were very low against the limit.



3.2 CONDUCTED EMISSION MEASUREMENT AT TELECOMMUNICATION PORTS

3.2.1 LIMIT OF CONDUCTED COMMON MODE DISTURBANCE AT TELECOMMUNICATION PORTS

TEST STANDARD: EN 55032

FOR CLASS A EQUIPMENT

FREQUENCY (MHz)	Voltage Limit (dBuV)		Current Limit (dBuA)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	97 – 87	84 - 74	53 – 43	40 – 30
0.5 - 30.0	87	74	43	30

FOR CLASS B EQUIPMENT

FREQUENCY (MHz)	Voltage Limit (dBuV)		Current Limit (dBuA)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	84 - 74	74 - 64	40 – 30	30 – 20
0.5 - 30.0	74	64	30	20

NOTE: (1) The limits decrease linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

3.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR3	101831	May 6,19	May. 5,20
Line impedance stabilization network	Rohde&Schwarz	ENV216	10107	May 6,19	May. 5,20
Impedance Stabilization Network	Rohde&Schwarz	ENY81	101568	Aug. 01,18	Jul 31,19

NOTE: 1. The test was performed by witness in the Hikvision lab that was accredited by CNAS.
2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

3.2.3 TEST PROCEDURE

For using ISN:

a. The EUT is placed 0.4 meters from the conducting wall of the shielded room and connected to ISN directly to reference ground plane.

b. If voltage measurement is used, measure voltage at the measurement port of the ISN, correct the reading by adding the ISN voltage division factor, and compare to the voltage limit.

c. If current measurement is used, measure current with the current probe and compare to the current limit.

d. It is not necessary to apply the voltage and the current limit if the ISN is used. A 50 Ω load has to be connected to the measurement port of the ISN during the current measurement.

e. The disturbance levels and the frequencies of at least six highest disturbances are recorded from be measured each telecommunication port, which comprises the EUT.

For using a 150 Ω load to the outside surface of the shield cable:

a. Break the insulation and connect a 150 Ω resistor from the outside surface of the shield cable to ground, and apply a ferrite tube or clamp between 150Ω connection and AE.

b. The EUT is placed 0.4 meters from the conducting wall of the shielded room and connected to AE with the shield cable.

c. Measure current with a current probe and compare to the current limit. The common mode impedance towards the right of the 150Ω resistor.

d. The disturbance levels and the frequencies of at least six highest disturbances are recorded from be measured each telecommunication port, which comprises the EUT.

For using a combination of current probe and capacitive voltage probe:

a. The EUT is placed 0.4 meters from the conducting wall of the shielded room and connected to AE with a cable. The cable contains more than four balanced pairs or to unbalanced cable.

b. Measure current with a current probe and compare to the current limit.

c. Measure voltage with a capacitive probe and adjust the measured voltage as follows:

d. – current margin ≤ 6 dB – subtract the actual current margin from measured voltage;

e. – current margin > 6 dB – subtract 6 dB from measured voltage.

f. Compare adjusted voltage with the applicable voltage limit.

g. Both the measured current and the adjusted voltage shall be below the applicable current and voltage limits.

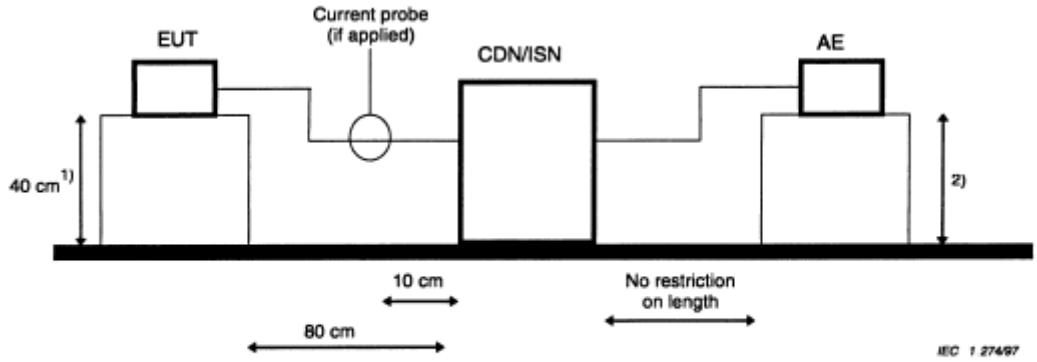
h. The disturbance levels and the frequencies of at least six highest disturbances are recorded from be measured each telecommunication port, which comprises the EUT.

3.2.4 DEVIATION FROM TEST STANDARD

No deviation

3.2.5 TEST SETUP

For using ISN:

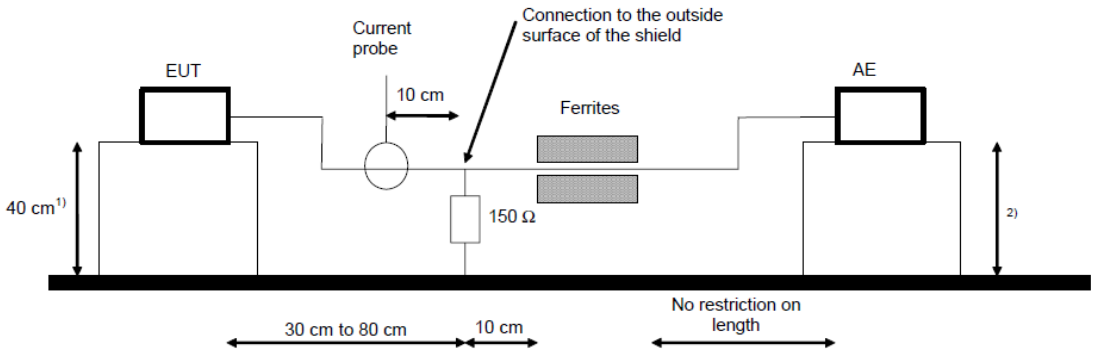


AE = Associated equipment
EUT = Equipment under test

1) Distance to the reference groundplane (vertical or horizontal).

2) Distance to the reference groundplane is not critical.

For using a 150 Ω load to the outside surface of the shield cable:

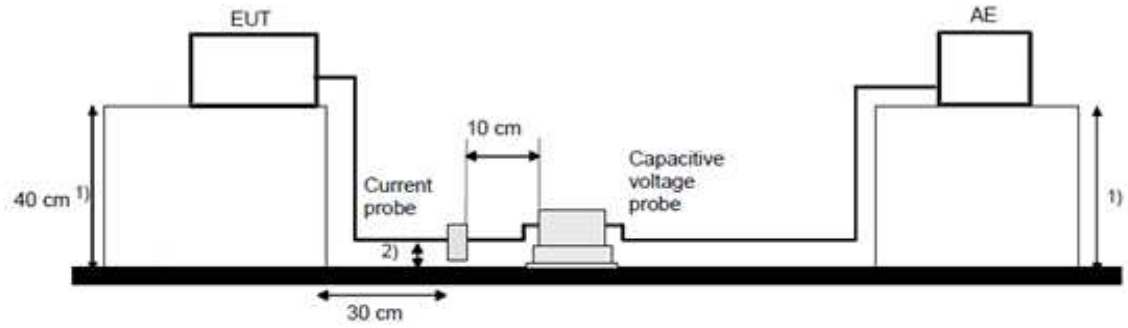


AE = Associated equipment
EUT = Equipment under test

1) Distance to the reference groundplane (vertical or horizontal).

2) Distance to the reference groundplane is not critical.

For using a combination of current probe and capacitive voltage probe:



1) Distance to the reference groundplane (vertical or horizontal)

2) Distance 4 ± 1 cm from the reference groundplane.

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration

3.2.6 EUT OPERATING CONDITIONS

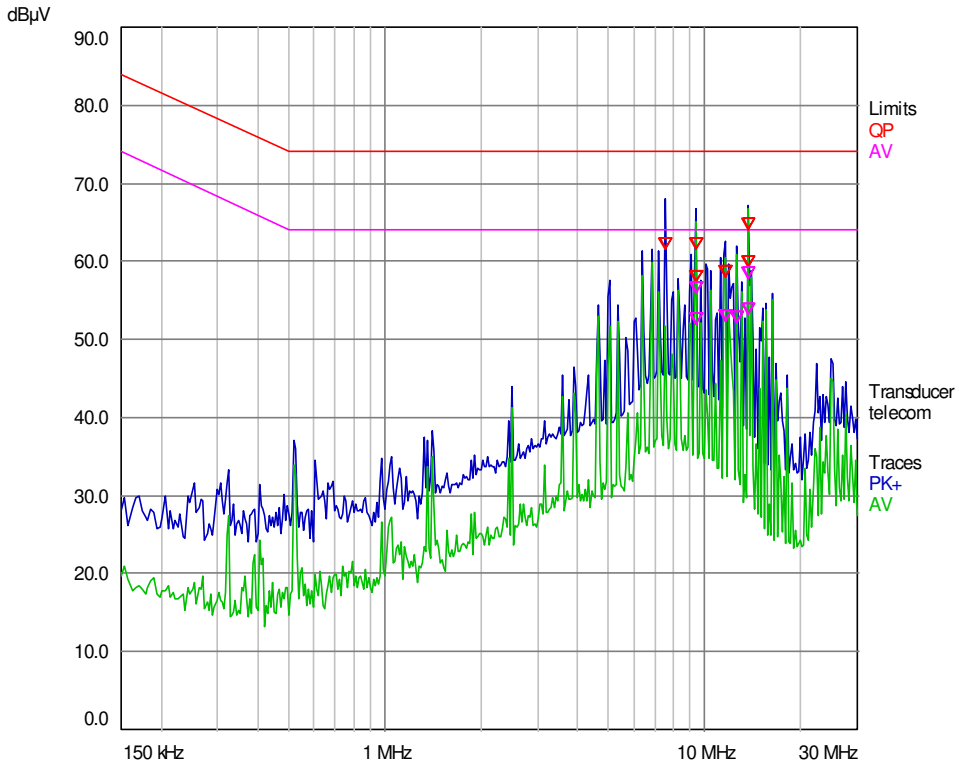
The condition of LAN utilization in excess of 10% and sustaining that level for a minimum of 250 ms is created by command TFGEN.

3.2.7 TEST RESULTS

TEST MODE	See section 2.2	**6dB BANDWIDTH**	9kHz
TEST VOLTAGE	DC 12V from adapter input AC 230V/50Hz	**PHASE**	T8
ENVIRONMENTAL CONDITIONS	25deg. C, 51% RH,	**TEST BY**	Qi Liu

Trace	Frequency (MHz)	Level (dBµV)	Limit (dBµV)	Delta Limit (dB)
1 QP	7.506	61.57	74.00	-12.43
1 QP	9.346	57.39	74.00	-16.61
2 CA	9.346	51.93	64.00	-12.07
1 QP	9.402	61.49	74.00	-12.51
2 CA	9.402	55.92	64.00	-8.08
1 QP	11.578	57.91	74.00	-16.09
2 CA	11.578	52.38	64.00	-11.62
2 CA	12.662	52.08	64.00	-11.92
1 QP	13.698	59.15	74.00	-14.85
2 CA	13.698	53.23	64.00	-10.77
1 QP	13.75	63.98	74.00	-10.02
2 CA	13.75	57.86	64.00	-6.14

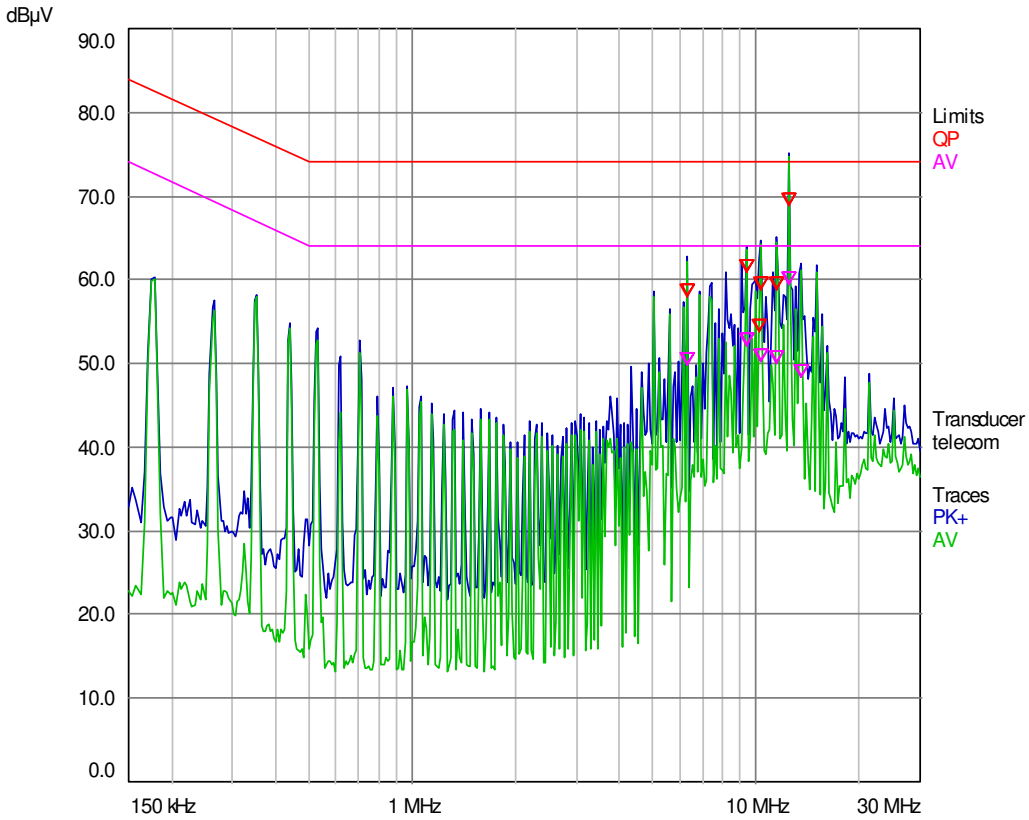
REMARKS: The emission levels of other frequencies were very low against the limit.



TEST MODE	See section 2.2	**6dB BANDWIDTH**	9kHz
TEST VOLTAGE	Powered by POE input AC 230V/50Hz	**PHASE**	T8
ENVIRONMENTAL CONDITIONS	25deg. C, 51% RH,	**TEST BY**	Qi Liu

Trace	Frequency (MHz)	Level (dBµV)	Limit (dBµV)	Delta Limit (dB)
1 QP	6.306	58.01	74.00	-15.99
2 CA	6.306	49.74	64.00	-14.26
1 QP	9.402	61.00	74.00	-13.00
2 CA	9.402	52.19	64.00	-11.81
1 QP	10.158	53.87	74.00	-20.13
1 QP	10.326	58.85	74.00	-15.15
2 CA	10.326	50.28	64.00	-13.72
1 QP	11.414	58.91	74.00	-15.09
2 CA	11.414	50.12	64.00	-13.88
1 QP	12.498	68.96	74.00	-5.04
2 CA	**12.498**	**59.52**	**64.00**	**-4.48**
2 CA	13.586	48.35	64.00	-15.65

REMARKS: The emission levels of other frequencies were very low against the limit.



3.3 RADIATED EMISSION MEASUREMENT

3.3.1 LIMITS OF RADIATED EMISSION MEASUREMENT

FOR FREQUENCY BELOW 1000 MHz

FREQUENCY (MHz)	Class A (at 10m) Quasi-Peak dBuV/m	Class B (at 10m) Quasi-Peak dBuV/m
30 – 230	40	30
230 – 1000	47	37

FREQUENCY (MHz)	Class A (at 3m) Quasi-Peak dBuV/m	Class B (at 3m) Quasi-Peak dBuV/m
30 – 230	50	40
230 – 1000	57	47

FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	Up to 5 times of the highest frequency or 6 GHz, whichever is less

FOR FREQUENCY ABOVE 1000 MHz

FREQUENCY (GHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
1 to 3	76	56	70	50
3 to 6	80	60	74	54

NOTE: 1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

3.3.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESU26	100449	Dec. 09,18	Dec. 08,19
PRE-Amplifier	Connphy	CLN-1G18G-4030-S	517002	Aug. 30, 18	Aug. 29, 19
TRLIOG Broad Band Antenna	Schwarzbeck	VULB 9168	796	Jul. 10,18	Jul. 09,19
Horn antenna	Schwarzbeck	BBHA 9120D	7794	Aug. 19,18	Aug. 18,19

NOTES: 1. The test was performed by witness in the Hikvision lab that was accredited by CNAS.

2. The test was performed in 966 Chamber (a 3m Semi-anechoic chamber).

3. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

3.3.3 TEST PROCEDURE

<Frequency Range below 1GHz>

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters Semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the turn table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

NOTE:

1. The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
3. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) (if the raw value not contains the amplifier)
4. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain(dB) (if the raw value contains the amplifier)
5. Margin value = Emission level – Limit value.

<Frequency Range above 1GHz>

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna can be varied from one meter-to four meters, the height of adjustment depends on the EUT height and the antenna 3dB beamwidth both, to detect the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. The bore sight should be used during the test above 1GHz.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test receiver/spectrum was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.

NOTE:

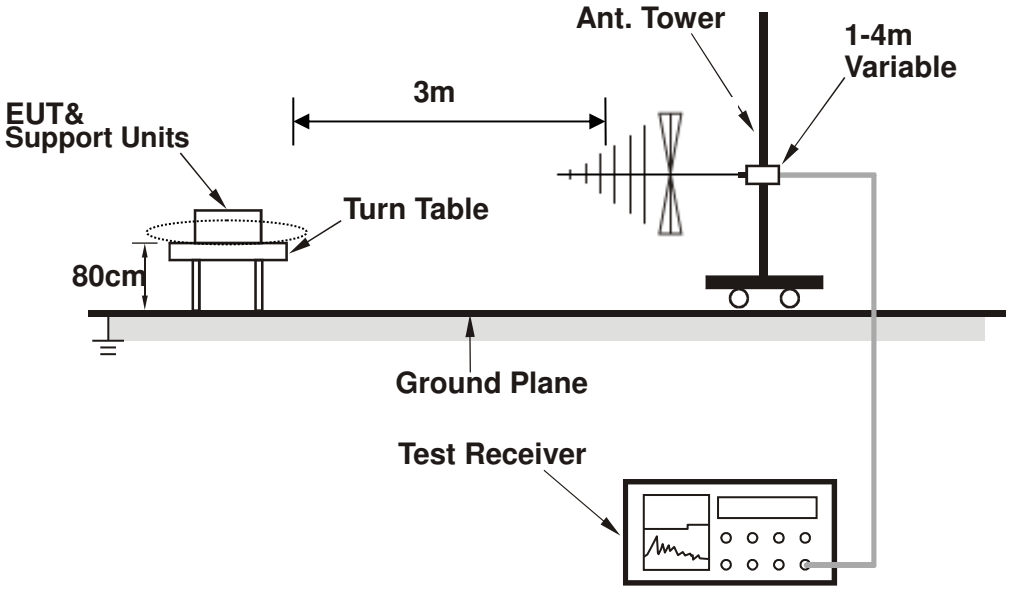
1. The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak detection at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz for Average detection (AV) at frequency above 1GHz.
2. For measurement of frequency above 1000 MHz, the EUT was set 3 meters away from the receiver antenna.
3. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
4. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) (if the raw value not contains the amplifier)
5. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain(dB) (if the raw value contains the amplifier)
6. Margin value = Emission level – Limit value.

3.3.4 DEVIATION FROM TEST STANDARD

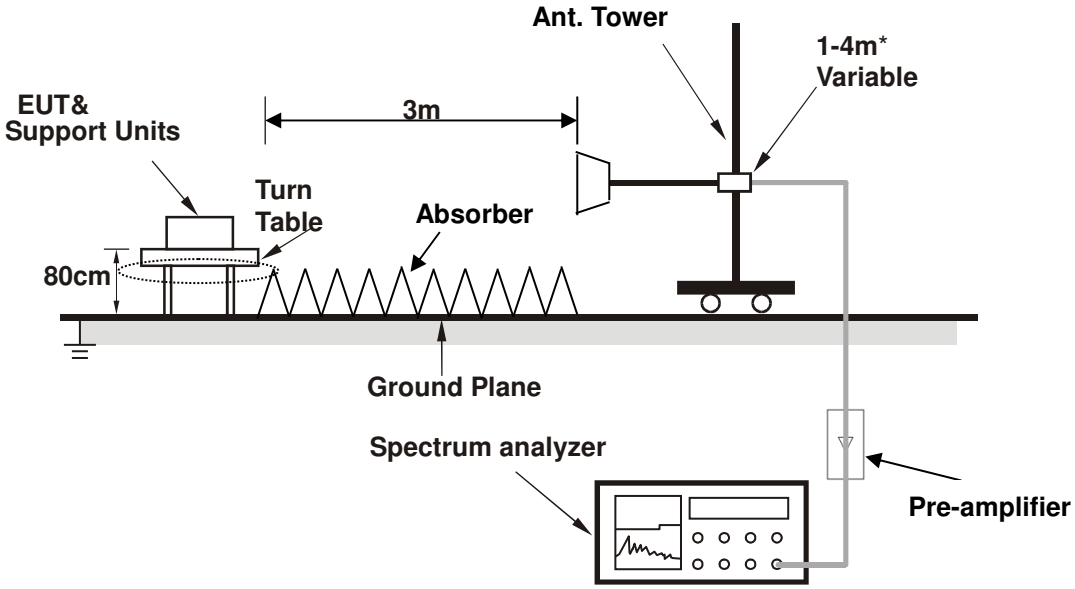
No deviation

3.3.5 TEST SETUP

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



* : depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

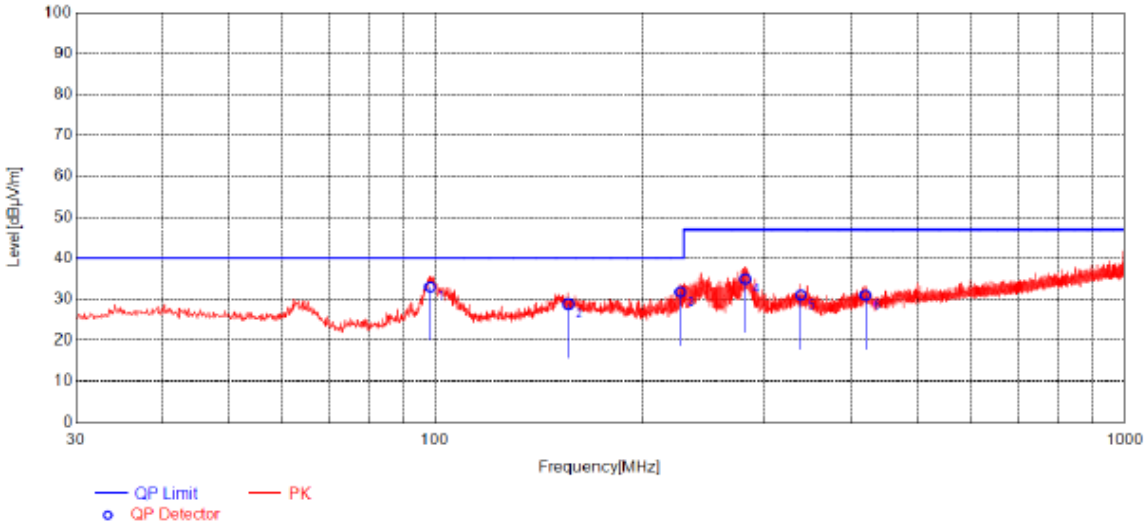
3.3.6 SUPPLEMENTARY INFORMATION

The more stringent measurement method of paragraph 8.3.2 in ANSI C63.4:2014 was applied for the test.

3.3.7 TEST RESULTS

TEST MODE	See section 2.2	**FREQUENCY RANGE**	30-1000MHz
TEST VOLTAGE	DC 12V from adapter input AC 230V/50Hz	**DETECTOR FUNCTION & RESOLUTION BANDWIDTH**	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	21deg. C, 59% RH,	**TESTED BY:** Qi Liu	

Test Graph

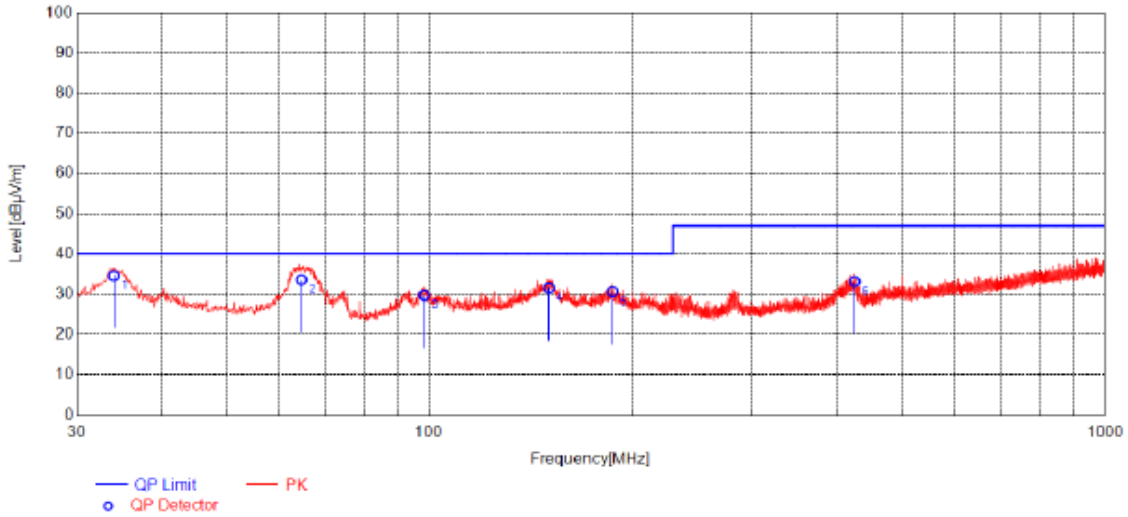


Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	98.2638	10.55	33.01	40.00	6.99	200	288	Horizontal
2	156.1000	15.30	28.86	40.00	11.14	200	233	Horizontal
3	227.2738	11.83	31.78	40.00	8.22	100	84	Horizontal
4	280.8663	13.75	35.04	47.00	11.96	100	256	Horizontal
5	338.2175	15.04	30.99	47.00	16.01	100	110	Horizontal
6	420.0613	16.46	30.95	47.00	16.05	200	55	Horizontal

TEST MODE	See section 2.2	**FREQUENCY RANGE**	30-1000MHz
TEST VOLTAGE	DC 12V from adapter input AC 230V/50Hz	**DETECTOR FUNCTION & RESOLUTION BANDWIDTH**	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	21deg. C, 59% RH,	**TESTED BY:** Qi Liu	

Test Graph

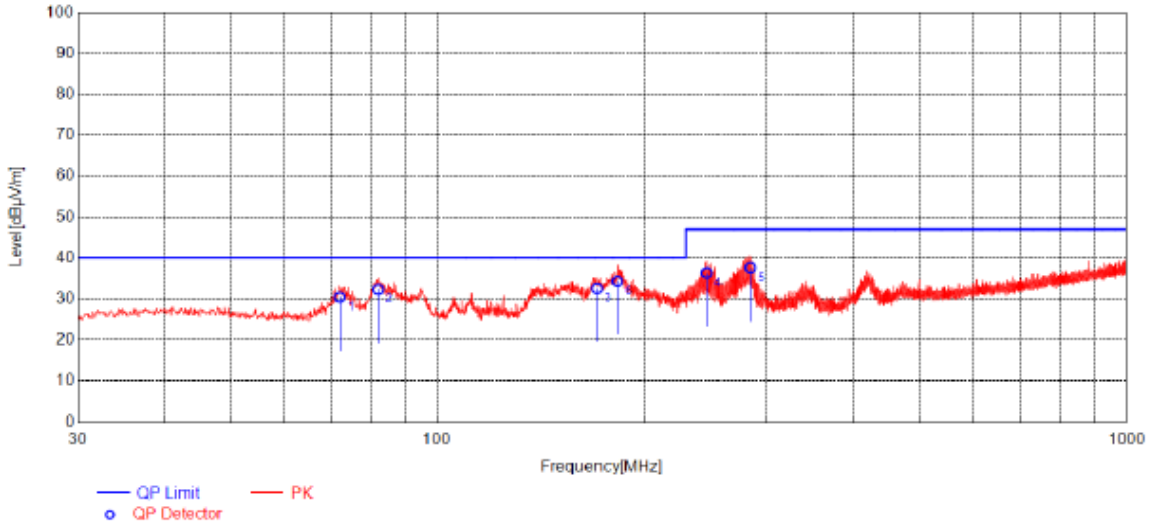


Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	34.0013	14.16	34.65	40.00	5.35	100	139	Vertical
2	64.5899	12.25	33.62	40.00	6.38	124.8	318.1	Vertical
3	98.2638	10.55	29.74	40.00	10.26	100	220	Vertical
4	150.5225	15.20	31.57	40.00	8.43	100	164	Vertical
5	187.0188	11.83	30.61	40.00	9.39	100	346	Vertical
6	425.2750	16.58	33.17	47.00	13.83	100	346	Vertical

TEST MODE	See section 2.2	**FREQUENCY RANGE**	30-1000MHz
TEST VOLTAGE	Powered by PoE input AC 230V/50Hz	**DETECTOR FUNCTION & RESOLUTION BANDWIDTH**	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	21deg. C, 59% RH,	**TESTED BY:** Qi Liu	

Test Graph

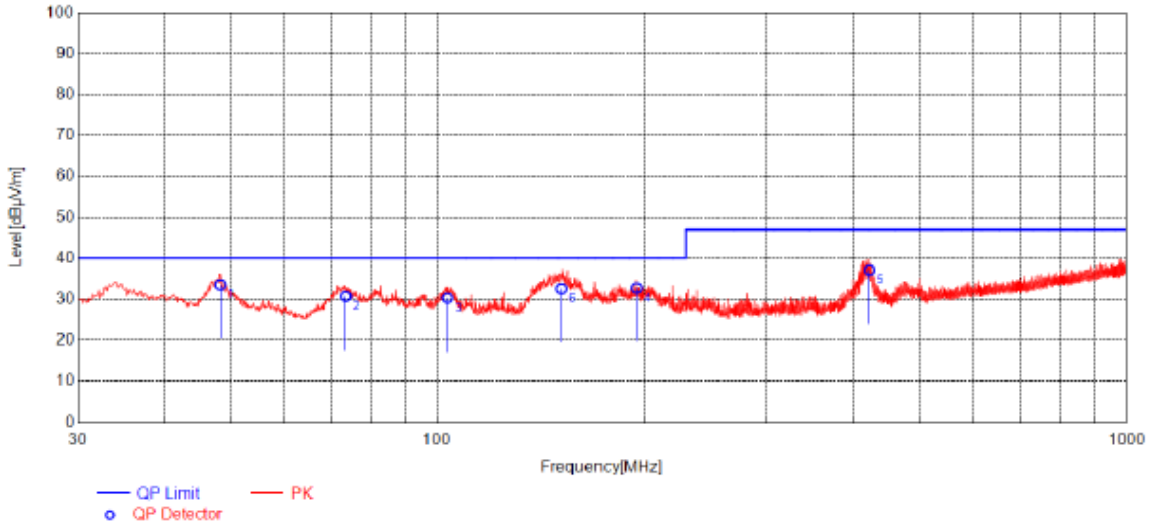


Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	72.0738	10.79	30.41	40.00	9.59	200	154	Horizontal
2	82.0163	10.06	32.35	40.00	7.65	200	150	Horizontal
3	170.6500	14.00	32.58	40.00	7.42	100	152	Horizontal
4	246.5525	12.48	36.45	47.00	10.55	100	274	Horizontal
5	283.6550	13.84	37.66	47.00	9.34	100	262	Horizontal
6	182.7590	12.30	34.38	40.00	5.62	186.1	143.9	Horizontal

TEST MODE	See section 2.2	**FREQUENCY RANGE**	30-1000MHz
TEST VOLTAGE	Powered by PoE input AC 230V/50Hz	**DETECTOR FUNCTION & RESOLUTION BANDWIDTH**	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	21deg. C, 59% RH,	**TESTED BY:** Qi Liu	

Test Graph

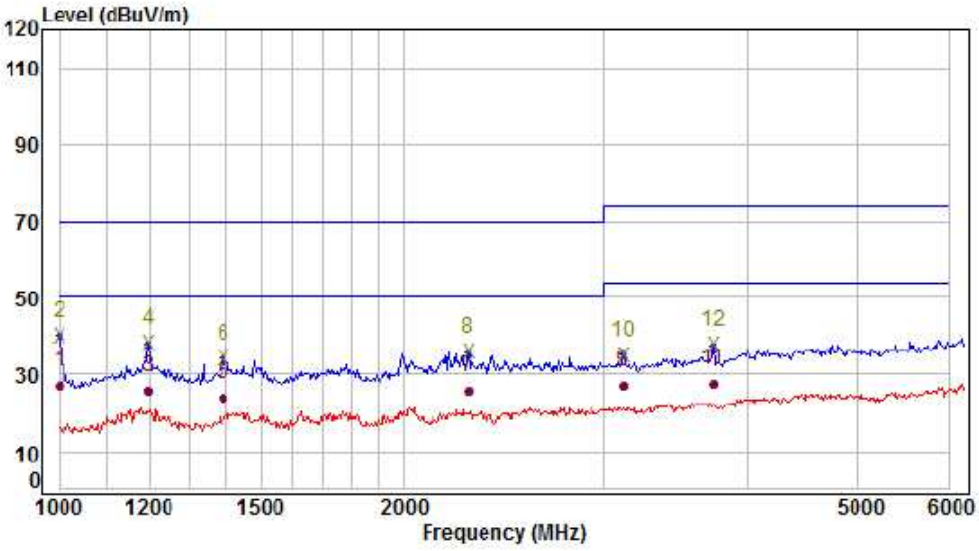


Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	48.3088	14.19	33.55	40.00	6.45	100	267	Vertical
2	73.5288	10.65	30.71	40.00	9.29	200	39	Vertical
3	103.3563	10.97	30.31	40.00	9.69	100	221	Vertical
4	194.9000	11.16	32.76	40.00	7.24	100	114	Vertical
5	422.8500	16.53	37.13	47.00	9.87	100	358	Vertical
6	151.5085	15.20	32.59	40.00	7.41	102	38.6	Vertical

3.3.8 TEST RESULTS (Above 1GHz)

TEST MODE	See section 2.2	**FREQUENCY RANGE**	Above 1GHz
TEST VOLTAGE	DC 12V from adapter input AC 230V 50Hz	**DETECTOR FUNCTION & RESOLUTION BANDWIDTH**	Peak/Average 1MHz
ENVIRONMENTAL CONDITIONS	21deg. C, 54% RH	**TESTED BY:** Qi Liu	



Test Distance: 3m

Ant. Polarization: Horizontal

Note: Margin(dB)=Limit(dBuV/m)-Level(dBuV/m)

Level(dBuV/m)=Reading(dBuV)+Factor (dB/m)

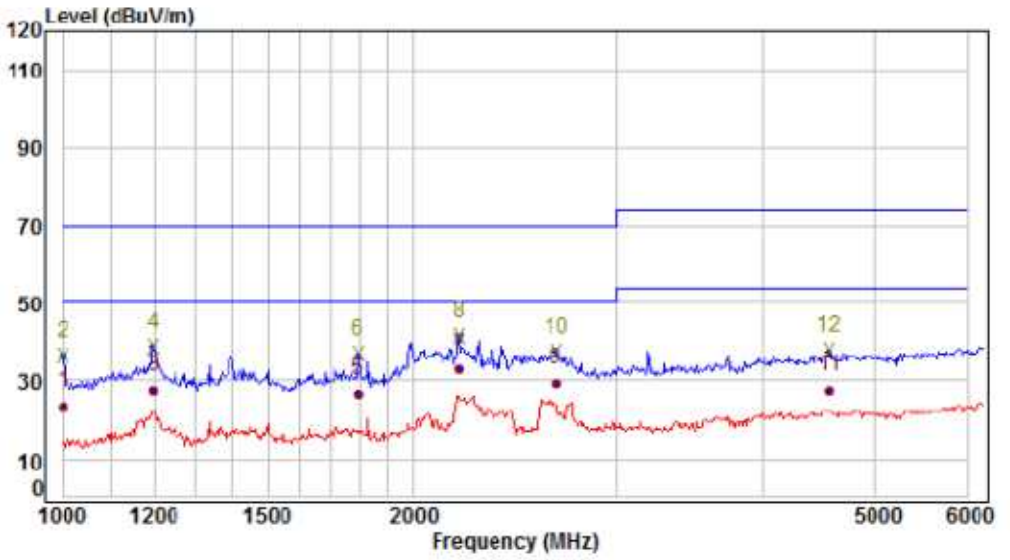
Env.: 23.8℃ , 58%RH , 100.0KPa

Factor(dB/m)= Antenna Factor(dB/m) + Cable Loss (dB)- Am(dB)

Remark: ----------

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (°)
1	1000	-15.85	42.8	26.95	50	23.05	Average	100	308
2	1000	-15.85	55.8	39.95	70	30.05	Peak	100	308
3	1196.264	-15.13	41.08	25.95	50	24.05	Average	200	166
4	1196.264	-15.13	53.08	37.95	70	32.05	Peak	200	166
5	1390.276	-14.39	38.55	24.16	50	25.84	Average	100	66
6	1390.276	-14.39	48.55	34.16	70	35.84	Peak	100	66
7	2279.044	-12.29	37.96	25.67	50	24.33	Average	100	47
8	2279.044	-12.29	47.96	35.67	70	34.33	Peak	100	47
9	3114.025	-10.89	37.83	26.94	54	27.06	Average	100	155
10	3114.025	-10.89	45.83	34.94	74	39.06	Peak	100	155
11	3735.978	-9.29	36.88	27.59	54	26.41	Average	100	174
12	3735.978	-9.29	46.88	37.59	74	36.41	Peak	100	174

TEST MODE	See section 2.2	**FREQUENCY RANGE**	Above 1GHz
TEST VOLTAGE	DC 12V from adapter input AC 230V 50Hz	**DETECTOR FUNCTION & RESOLUTION BANDWIDTH**	Peak/Average 1MHz
ENVIRONMENTAL CONDITIONS	21deg. C, 54% RH	**TESTED BY:** Qi Liu	



Test Distance: 3m

Ant. Polarization: Vertical

Note: Margin(dB)=Limit(dBuV/m)-Level(dBuV/m)

Level(dBuV/m)=Reading(dBuV)+Factor (dB/m)

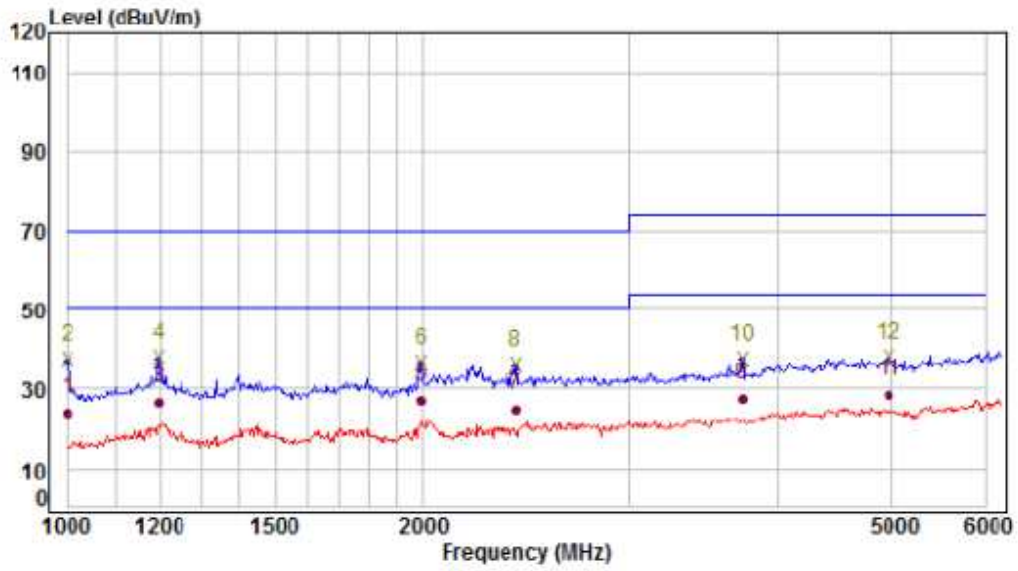
Env.: 23.8℃ , 58%RH , 100.0KPa

Factor(dB/m)= Antenna Factor(dB/m) + Cable Loss (dB)- Am(dB)

Remark: ----------

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (,)
1	1000	-15.85	39.24	23.39	50	26.61	Average	100	23
2	1000	-15.85	52.24	36.39	70	33.61	Peak	100	23
3	1196.264	-15.13	42.85	27.72	50	22.28	Average	200	360
4	1196.264	-15.13	53.85	38.72	70	31.28	Peak	200	360
5	1792.937	-13.26	39.98	26.72	50	23.28	Average	200	141
6	1792.937	-13.26	49.98	36.72	70	33.28	Peak	200	141
7	2194.998	-12.32	45.44	33.12	50	16.88	Average	100	16
8	2194.998	-12.32	53.44	41.12	70	28.88	Peak	100	16
9	2656.331	-11.76	41.05	29.29	50	20.71	Average	100	360
10	2656.331	-11.76	49.05	37.29	70	32.71	Peak	100	360
11	4573.76	-6.54	34.02	27.48	54	26.52	Average	200	295
12	4573.76	-6.54	44.02	37.48	74	36.52	Peak	200	295

TEST MODE	See section 2.2	FREQUENCY RANGE	Above 1GHz
TEST VOLTAGE	Powered by POE input AC 230V 50Hz	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Peak/Average 1MHz
ENVIRONMENTAL CONDITIONS	21deg. C, 54% RH	**TESTED BY:** Qi Liu	



EUT:

Test Distance: 3m

Env.: 23.8℃ , 58%RH , 100.0KPa

Ant. Polarization: Horizontal

Note: Margin(dB)=Limit(dBuV/m)-Level(dBuV/m)

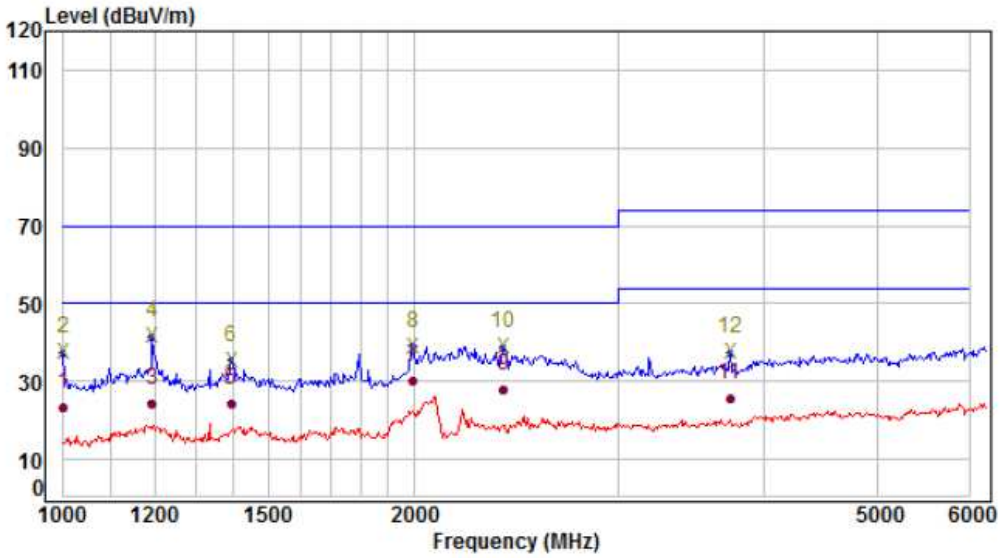
Level(dBuV/m)=Reading(dBuV)+Factor (dB/m)

Factor(dB/m)= Antenna Factor(dB/m) + Cable Loss (dB)- Am(dB)

Remark: ----------

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (,)
1	1000	-15.85	39.82	23.97	50	26.03	Average	200	306
2	1000	-15.85	52.82	36.97	70	33.03	Peak	200	306
3	1196.264	-15.13	41.64	26.51	50	23.49	Average	200	108
4	1196.264	-15.13	52.64	37.51	70	32.49	Peak	200	108
5	1995.309	-13.24	40.57	27.33	50	22.67	Average	100	360
6	1995.309	-13.24	49.57	36.33	70	33.67	Peak	100	360
7	2400.753	-12.07	36.85	24.78	50	25.22	Average	100	36
8	2400.753	-12.07	47.85	35.78	70	34.22	Peak	100	36
9	3735.978	-9.29	36.69	27.4	54	26.6	Average	100	154
10	3735.978	-9.29	46.69	37.4	74	36.6	Peak	100	154
11	4973.662	-6.52	35.09	28.57	54	25.43	Average	200	191
12	4973.662	-6.52	44.09	37.57	74	36.43	Peak	200	191

TEST MODE	See section 2.2	**FREQUENCY RANGE**	Above 1GHz
TEST VOLTAGE	Powered by POE input AC 230V 50Hz	**DETECTOR FUNCTION & RESOLUTION BANDWIDTH**	Peak/Average 1MHz
ENVIRONMENTAL CONDITIONS	21deg. C, 54% RH	**TESTED BY:** Qi Liu	



EUT: DS-2CD7A46G0-IZHSY

Test Distance: 3m

Env.: 23.8℃ , 58%RH , 100.0KPa

Ant. Polarization: Vertical

Note: Margin(dB)=Limit(dBuV/m)-Level(dBuV/m)

Level(dBuV/m)=Reading(dBuV)+Factor (dB/m)

Factor(dB/m)= Antenna Factor(dB/m) + Cable Loss (dB)- Am(dB)

Remark: ----------

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (°)
1	1000	-15.85	39.32	23.47	50	26.53	Average	200	30
2	1000	-15.85	53.32	37.47	70	32.53	Peak	200	30
3	1192.811	-15.11	39.64	24.53	50	25.47	Average	200	360
4	1192.811	-15.11	56.64	41.53	70	28.47	Peak	200	360
5	1394.3	-14.33	38.9	24.57	50	25.43	Average	200	354
6	1394.3	-14.33	49.9	35.57	70	34.43	Peak	200	354
7	1995.309	-13.24	43.37	30.13	50	19.87	Average	200	22
8	1995.309	-13.24	52.37	39.13	70	30.87	Peak	200	22
9	2386.915	-12.08	40	27.92	50	22.08	Average	100	125
10	2386.915	-12.08	51	38.92	70	31.08	Peak	100	125
11	3735.978	-9.29	34.93	25.64	54	28.36	Average	100	360
12	3735.978	-9.29	46.93	37.64	74	36.36	Peak	100	360

3.4 HARMONICS CURRENT MEASUREMENT

3.4.1 LIMITS OF HARMONICS CURRENT MEASUREMENT

TEST STANDARD: EN 61000-3-2

Limits for Class A equipment	
Harmonics Order n	Max. permissible harmonics current A
Odd harmonics	
3	2.30
5	1.14
7	0.77
9	0.40
11	0.33
13	0.21
15<=n<=39	0.15x15/n
Even harmonics	
2	1.08
4	0.43
6	0.30
8<=n<=40	0.23x8/n

Limits for Class D equipment		
Harmonics Order n	Max. permissible harmonics current per watt mA/W	Max. permissible harmonics current A
Odd Harmonics only		
3	3.4	2.30
5	1.9	1.14
7	1.0	0.77
9	0.5	0.40
11	0.35	0.33
13	0.30	0.21
15<=n<=39	3.85/n	0.15x15/n

NOTE: 1. Class A and Class D are classified according to section 5 of EN 61000-3-2.

2. According to section 7 of EN 61000-3-2, the above limits for all equipment except for lighting equipment are for all applications having an active input power > 75 W and no limits apply for equipment with an active input power up to and including 75 W.

3.4.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Harmonic &Flicker analyzer	TESEQ	NSG1007	1438A04118 -1	May 22,19	May 21,20
AC power source	TESEQ	CCN1000-1	1438A04118 -1	May 22,19	May 21,20

NOTE: 1. The test was performed by witness in the Hikvision lab that was accredited by CNAS.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

3.4.3 TEST PROCEDURE

a. The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn.

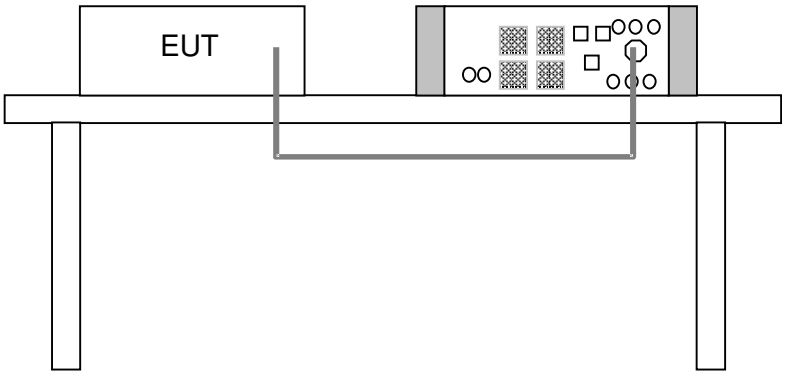
b. The classification of EUT is according to section 5 of EN 61000-3-2
The EUT is classified as follows:
Class A: Balanced three-phase equipment, Household appliances excluding equipment as Class D, Tools excluding portable tools, Dimmers for incandescent lamps, audio equipment, equipment not specified in one of the three other classes.
Class B: Portable tools. ; Arc welding equipment which is not professional equipment
Class C: Lighting equipment.
Class D: Equipment having a specified power less than or equal to 600 W of the following types: Personal computers and personal computer monitors and television receivers.

c. The correspondent test program of test instrument to measure the current harmonics emanated from EUT is chosen. The measure time shall be not less than the time necessary for the EUT to be exercised.

3.4.4 DEVIATION FROM TEST STANDARD

No deviation

3.4.5 TEST SETUP



3.4.6 EUT OPERATING CONDITIONS

Same as item 3.1.6

3.4.7 TEST RESULTS

The limits are not specified for equipment with a rated power of 75W or less (other than lighting equipment).The EUT is not required to meet this test item as its power consumption is lower than 75W.

For further details, please refer to Clause 7 of EN 61000-3-2:2014.

3.5 VOLTAGE FLUCTUATION AND FLICKS MEASUREMENT

3.5.1 LIMITS OF VOLTAGE FLUCTUATION AND FLICKS MEASUREMENT

TEST STANDARD: EN 61000-3-3

TEST ITEM	LIMIT	NOTE
P_{st}	1.0	P_{st} means short-term flicker indicator.
P_{lt}	0.65	P_{lt} means long-term flicker indicator.
$T_{d(t)}$ (ms)	500	$T_{d(t)}$ means maximum time that d(t) exceeds 3.3%.
dmax (%)	4	dmax means maximum relative voltage change.
dc (%)	3.3	dc means relative steady-state voltage change

3.5.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Harmonic &Flicker analyzer	TESEQ	NSG1007	1438A04118-1	May 22,19	May 21,20
AC power source	TESEQ	CCN1000-1	1438A04118-1	May 22,19	May 21,20

NOTE: 1. The test was performed by witness in the Hikvision lab that was accredited by CNAS.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

3.5.3 TEST PROCEDURE

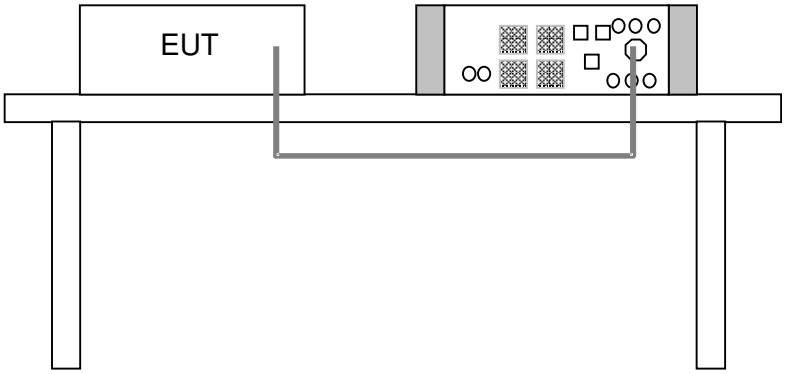
a. The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the most unfavorable sequence of voltage changes under normal operating conditions.

b. During the flick measurement, the measure time shall include that part of whole operation cycle in which the EUT produce the most unfavorable sequence of voltage changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

3.5.4 DEVIATION FROM TEST STANDARD

No deviation

3.5.5 TEST SETUP



3.5.6 EUT OPERATING CONDITIONS

Same as item 3.1.6

3.5.7 TEST RESULTS

TEST MODE	See section 2.2		
FUNDAMENTAL VOLTAGE	230.08Vrms	OBSERVATION PERIOD (Tp)	10 minutes
ENVIRONMENTAL CONDITIONS	24deg. C, 53%RH,	TESTED BY	Qi Liu

Test Parameter	Measurement Value	Limit	Remarks
Pst	0.263	1.0	Pass
Plt	/	0.65	/
Td(t) (ms)	0	500	Pass
dmax (%)	0	4	Pass
dc (%)	0	3.3	Pass

NOTE: (1) P_{st} means short-term flicker indicator.
(2) $T_{d(t)}$ means maximum time that d(t) exceeds 3.3%
(3) d_{max} means maximum relative voltage change.
(4) dc means relative steady-state voltage change.

4 IMMUNITY TEST

4.1 GENERAL DESCRIPTION

Product Standard:	**EN 50130-4:2011+A1:2014**	
Basic Standard, specification requirement	EN 61000-4-2	Electrostatic Discharge – ESD: 6kV Contact discharge, 2kV, 4kV& 8kV air discharge,
	EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test – RS: 80-2700 MHz, 10V/m, 80% sinusoidal 1kHz, Pulse Modulation 1 Hz (0.5s ON: 0.5s OFF)
	EN 61000-4-4	Electrical Fast Transient/Burst - EFT AC mains supply lines: 2kV, Other supply/ signal lines: 1kV
	EN 61000-4-5	Surge Immunity Test: 1.2/50 us Open Circuit Voltage, 8 /20 us Short Circuit Current, AC mains supply Lines: line to line 0.5 kV, 1 kV, line to ground 0.5 kV, 1 kV, 2kV Other supply/ signal lines: line to ground 0.5 kV, 1kV
	EN 61000-4-6	Conducted Radio Frequency Disturbances Test – CS: 0.15-100 MHz, 10Vrms, 80% sinusoidal, 1kHz, Pulse Modulation 1 Hz (0.5s ON: 0.5s OFF)
	EN 61000-4-11	Voltage Dips: v) 20% reduction 250 period Performance Criterion C vi) 30% reduction 25period Performance Criterion A vii) 60% reduction 10 period Performance Criterion A viii) 100% reduction 250 period
	EN 50130-4	Supply voltage max. (Umax)= Unom + 10% Supply voltage min. (Umin)=Unom – 15%

4.1.1 PERFORMANCE CRITERIA

Standard: EN 50130-4

STANDARD	CRITERIA FOR COMPLIANCE
EN 61000-4-2	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. The EUT shall meet the acceptance criteria for functional test, after the conditioning.
EN 61000-4-3	There shall be no damage, malfunction or change of status due to the conditioning. Flickering of an indicator during the conditioning is permissable, 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 such flickering of indicators occurs at a field strength of 3 V/m. For components of CCTV systems, where the status is monitored by observing the TV picture, then deterioration of the picture is allowed at 10 V/m, providing: a) there is no permanent damage or change to the EUT (e.g. no corruption of memory or changes to programmable settings etc.); b) at 3 V/m, any deterioration of the picture is so minor that the system could still be used; and c) there is no observable deterioration of the picture at 1 V/m. For components with radio links, it is accepted that communications via the radio link may not be possible during the conditioning within the transmitter and receiver exclusion bands defined in the relevant part of ETSI EN 301 489 for that type of radio link equipment. If the EUT is designed to detect and indicate this loss of communication, then this indication is permitted, providing it is in accordance with the manufacturer's specification. It may be necessary to use appropriate filters to ensure that failures out of the exclusion bands are not due to harmonics generated by the test system. NOTE: If no part of ETSI EN 301 489 is applicable to the type of radio link equipment then the definition of the exclusion bands should be taken from ETSI EN 300 339. The EUT shall meet the acceptance criteria for the functional test, after the conditioning.
EN 61000-4-4	There shall be no damage, malfunction or change of status due to the conditioning. Flickering of an indicator during the application of the bursts 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. The EUT shall meet the acceptance criteria for functional test, after the conditioning.

STANDARD	CRITERIA FOR COMPLIANCE
EN 61000-4-5	There shall be no damage, malfunction or change of status due to the conditioning. Flickering of an indicator during the application of the surges 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. The EUT shall meet the acceptance criteria for functional test, after the conditioning.
EN 61000-4-6	There shall be no damage, malfunction or change of status due to the conditioning. Flickering of an indicator during the conditioning is permissable, 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 such flickering of indicators occurs at U_0 = 130 dBμV. For components of CCTV systems, where the status is monitored by observing the TV picture, then deterioration of the picture is allowed at U_0 = 140 dBμV, providing: a) there is no permanent damage or change to the EUT (e.g. no corruption of memory or changes to programmable settings etc.); b) at U_0 = 130 dBμV, any deterioration of the picture is so minor that the system could still be used; and c) there is no observable deterioration of the picture at U_0 = 120 dBμV. For components with radio links, it is accepted that communications via the radio link may not be possible during the conditioning within the transmitter and receiver exclusion bands defined in the relevant part of ETSI EN 301 489 for that type of radio link equipment. If the EUT is designed to detect and indicate this loss of communication, then this indication is permitted, providing it is in accordance with the manufacturer's specification. It may be necessary to use appropriate filters to ensure that failures out of the exclusion bands are not due to harmonics generated by the test system. NOTE: If no part of ETSI EN 301 489 is applicable to the type of radio link equipment then the definition of the exclusion bands should be taken from ETSI EN 300 339. The EUT shall meet the acceptance criteria for the functional test after the conditioning.
EN 61000-4-11	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. The EUT shall meet the acceptance criteria for functional test, after the conditioning.

4.1.2 EUT OPERATING CONDITION

Same as item 3.1.6

4.2 ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD) (EN50130-4)

4.2.1 TEST SPECIFICATION

Basic Standard:	EN 61000-4-2
Discharge Impedance:	330 ohm / 150 pF
Discharge Voltage:	Contact Discharge : 6 kV (Direct &Indirect) Air Discharge: 2kV, 4kV & 8kV (Direct)
Polarity:	Positive & Negative
Number of Discharge:	Air Discharge: 10/20 times at each test point Contact Discharge: 10 times on each test points /200 times in total
Discharge Mode:	Single Discharge
Discharge Period:	1 second

4.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Electrostatic Discharge Simulator	TESEQ	NSG 437	1254	2018/7/4	2019/7/3

NOTE: 1. The test was performed by witness in the Hikvison lab that was accredited by CNAS.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

4.2.3 TEST PROCEDURE

The basic test procedure was in accordance with EN 61000-4-2:

a. Electrostatic discharges were applied only to those points and surfaces of the EUT that are accessible to users during normal operation.

b. The test was performed with at least ten single discharges on the pre-selected points in the most sensitive polarity.

c. The time interval between two successive single discharges was at least 1 second.

d. The discharge return cable of the generator shall be kept at a distance of at least 0.2 m from the EUT whilst the discharge is being applied and should not be held by the operator.

e. Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.

f. Air discharges were applied with the round discharge tip of the discharge electrode approaching the EUT as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator was removed from the EUT and re-triggered for a new single discharge. The test was repeated until all discharges were complete.

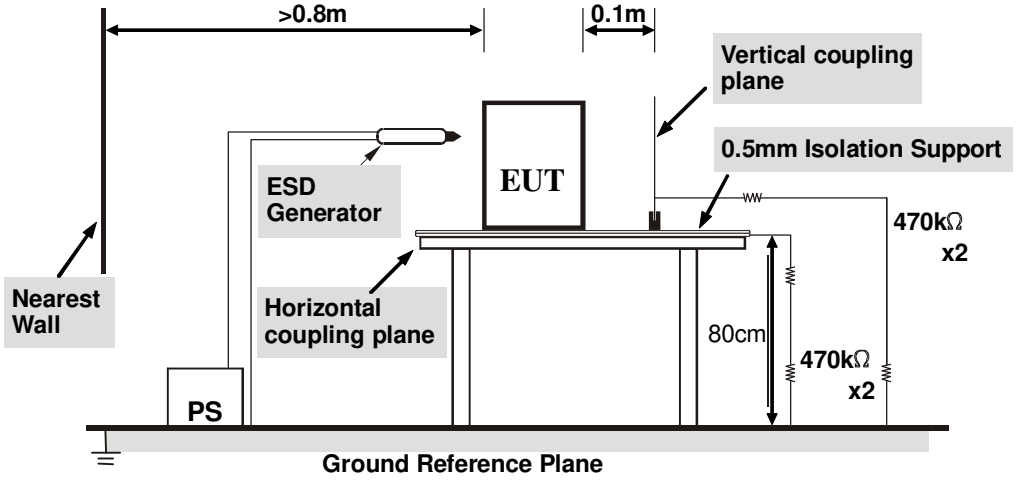
g. At least ten single discharges (in the most sensitive polarity) were applied to the Horizontal Coupling Plane at points on each side of the EUT. The ESD generator was positioned horizontal at a distance of 0.1 meters from the EUT with the discharge electrode touching the HCP.

h. At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the Vertical Coupling Plane in sufficiently different positions that the four faces of the EUT were completely illuminated. The VCP (dimensions 0.5m x 0.5m) was placed vertically to and 0.1 meters from the EUT.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



NOTE:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table 0.8 meters high standing on the **G**round **R**eference **P**lane. The **GRP** consisted of a sheet of aluminum at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system. A **H**orizontal **C**oupling **P**lane (1.6m x 0.8m) was placed on the table and attached to the **GRP** by means of a cable with 940kΩ total impedance. The equipment under test, was installed in a representative system as described in section 7 of EN 61000-4-2, and its cables were placed on the **HCP** and isolated by an insulating support of 0.5mm thickness. A distance of 0.8-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

FLOOR-STANDING EQUIPMENT

The equipment under test was installed in a representative system as described in section 7 of EN 61000-4-2, and its cables were isolated from the Ground Reference Plane by an insulating support of 0.1-meter thickness. The GRP consisted of a sheet of aluminum that is at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system and extended at least 0.5 meters from the EUT on all sides.

4.2.6 TEST RESULTS

TEST MODE	See section 2.2	TEST VOLTAGE	See section 2.2
ENVIRONMENTAL CONDITIONS	24.0deg. C, 53.0% RH 101.1kPa	TESTED BY: Qi Liu	

Direct Discharge Application				
Test Level (kV)	Polarity	Test Point	Test Result of Contact Discharge	Test Result of Air Discharge
6	+/-	All metal part	Pass	N/A
2, 4, 8	+/-	All non-metal part	N/A	Pass

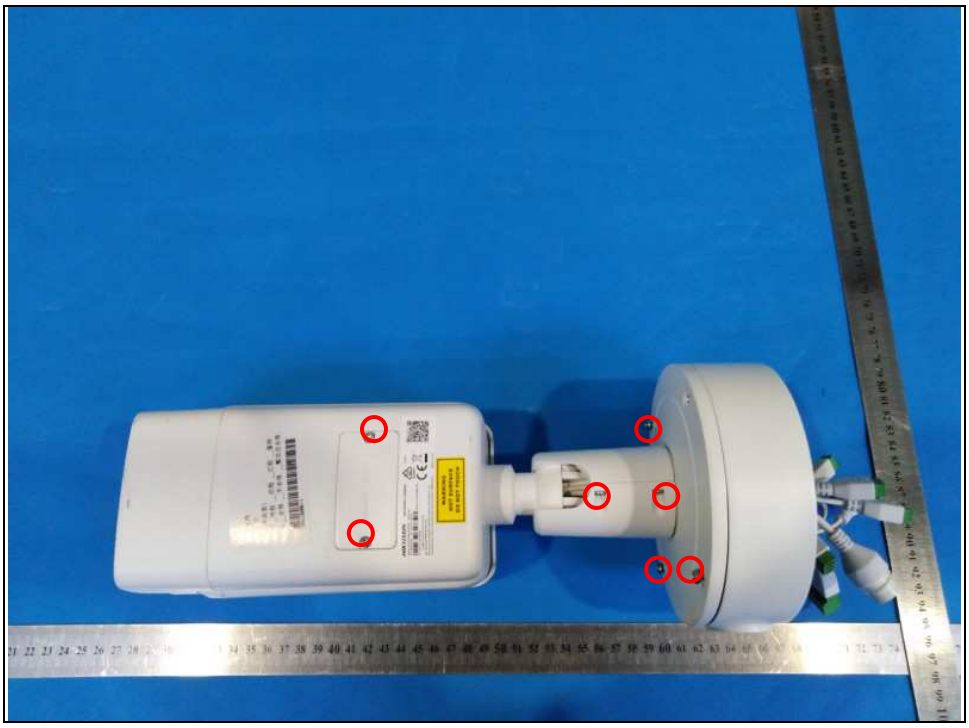
Indirect Discharge Application				
Discharge Level (kV)	Polarity	Test Point	Test Result of HCP	Test Result of VCP
6	+/-	HCP&VCP	Pass	Pass

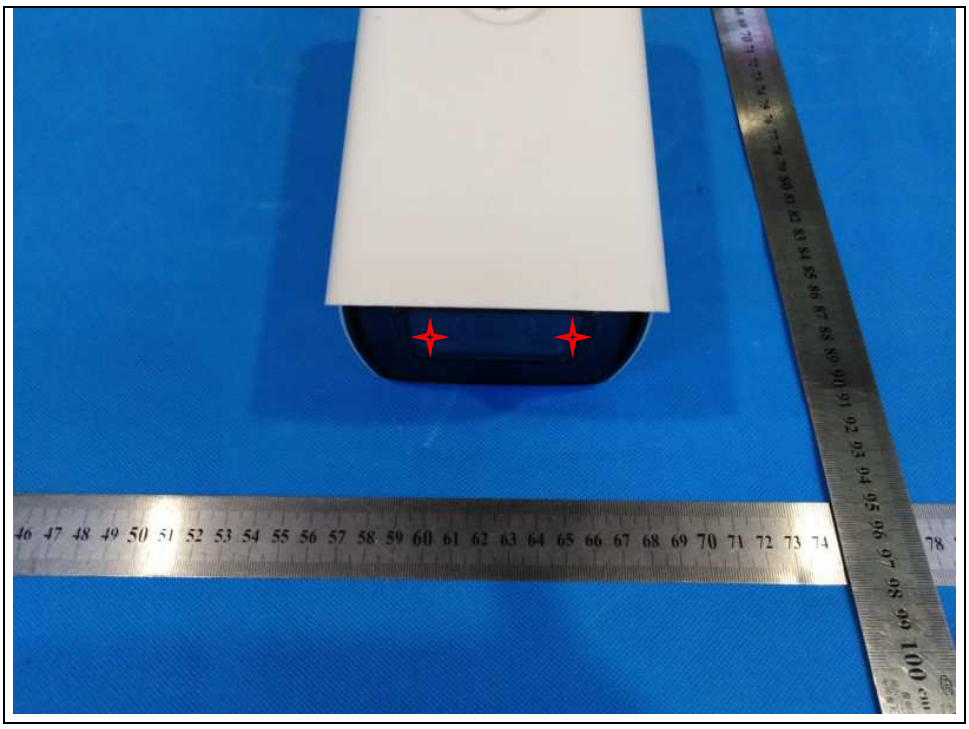
Result: Pass

1. The EUT working normal, before the conditioning.
2. Monitor the EUT during the conditioning period to detect no any change in status, during the conditioning.
3. No degradation in the performance of the EUT was observed, after the conditioning.

ESD TEST POINT

(○ Direct Contact Discharge; ✦ Air Discharge)





4.3 RADIATED, RADIO-FREQUENCY, ELECTROMAGNETIC FIELD IMMUNITY TEST (RS) (EN50130-4)

4.3.1 TEST SPECIFICATION

Basic Standard:	EN 61000-4-3
Frequency Range:	80-2700MHz
Field Strength:	10 V/m
Modulation:	80%, AM Modulation, 1 Hz Pulse Modulation (0.5s ON: 0.5s OFF)
Frequency Step:	1 % of fundamental
Polarity of Antenna:	Horizontal and Vertical
Antenna Height:	1.5m
Dwell Time:	at least 3 seconds

4.3.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Signal generator	keysight	N5181A	MY50146343	2018/11/09	2019/11/08
Power meter	keysight	N1914A	MY55336002	2018/11/09	2019/11/08
Amplifier	milmege	80RF1000-500	1069892	2018/11/09	2019/11/08
Amplifier	milmege	AS0827-230	1069893	2018/12/4	2019/12/03
Antenna	Schwarzbeck	STLP9128E	9128E7#3009	/	/
Antenna	Schwarzbeck	STLP 9149	9149-349	/	/

NOTE:1. The test was performed by witness in the Hikvison lab that was accredited by CNAS.

2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

4.3.3 TEST PROCEDURE

The test procedure was in accordance with EN 61000-4-3

a. The testing was performed in a fully-anechoic chamber.

b. The frequency range is swept from 80 MHz to 2700 MHz, with the signal 80% amplitude modulated with a 1kHz sine wave.

c. The dwell time at each frequency shall not be less than the time necessary for the EUT to be exercised and to respond, but shall in no case be less than 0,5s.

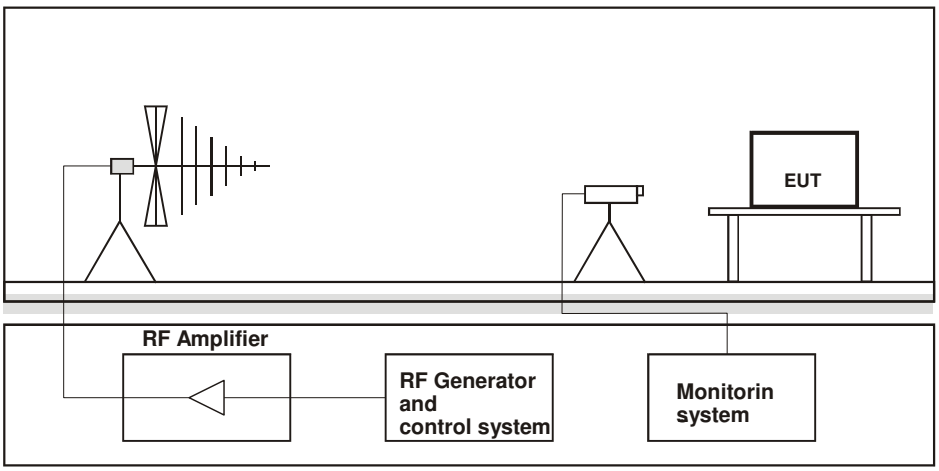
d. The field strength levels were 10V/m.

e. The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation.

4.3.5 TEST SETUP



NOTE:

TABLETOP EQUIPMENT
The EUT installed in a representative system as described in section 7 of EN 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

FLOOR STANDING EQUIPMENT
The EUT installed in a representative system as described in section 7 of EN 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

4.3.6 TEST RESULTS

TEST MODE	See section 2.2	TEST VOLTAGE	See section 2.2
ENVIRONMENTAL CONDITIONS	25.0deg. C, 54.0% RH	TESTED BY: Qi Liu	

Field Strength (V/m)	Test Frequency Note#1 (MHz)	Polarization of antenna (Horizontal / Vertical)	Test Distance (m)	Test Result	Remark
10	80 - 2700	H&V	1	Pass	1

Note#1:
Tested Israel SII Frequencies 89,100,107,144,163,196,244,315,434,460,600,825,845,880 MHz

Result: Pass

Remark:

1. The EUT working normal, before the conditioning.
2. Monitor the EUT during the conditioning period to detect any change in status, during the conditioning.
3. No degradation in the performance of the EUT was observed, after the conditioning.
4. There is no observable deterioration of the picture.

4.4 ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST (EFT) (EN50130-4)

4.4.1 TEST SPECIFICATION

Basic Standard:	EN 61000-4-4
Test Voltage:	AC mains supply lines: 2kV Other supply / signal lines: 1kV
Polarity:	Positive & Negative
Impulse Frequency:	100 kHz
Impulse Waveshape :	5/50 ns
Burst Duration:	15 ms/75 ms
Burst Period:	300 ms
Test Duration:	1 min.

4.4.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Immunity Test system	TESEQ	NSG3040	2173	2019/5/6	2020/5/5
Capacitive coupling clamp	TESEQ	CDN 3425	1928	2019/5/6	2020/5/5

NOTE:1. The test was performed by witness in the Hikvision lab that was accredited by CNAS
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

4.4.3 TEST PROCEDURE

a Both positive and negative polarity discharges were applied.

b The distance between any coupling devices and the EUT should be (0.5 – 0/+0.1) m for table-top equipment testing, and (1.0 ± 0.1) m for floor standing equipment.

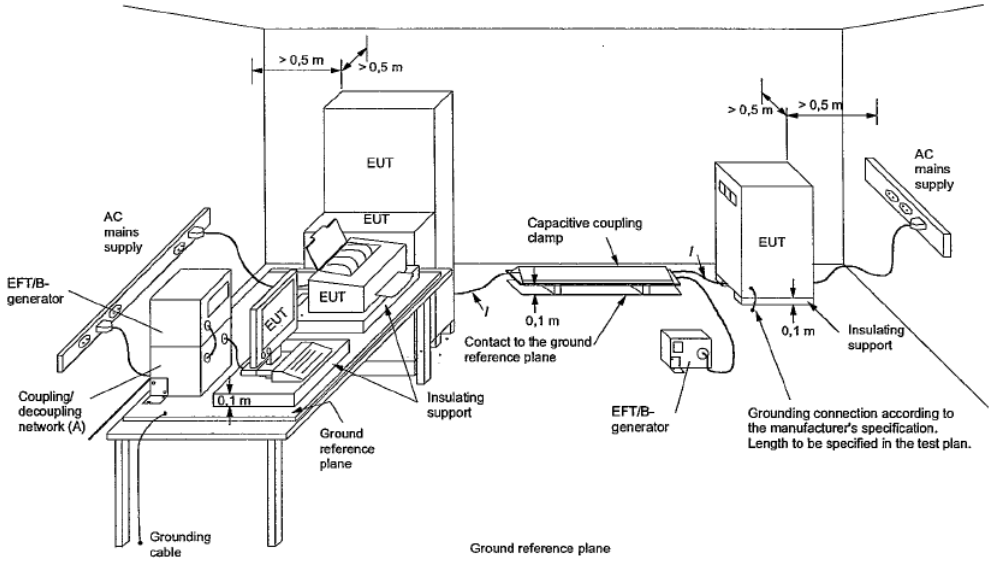
c The duration time of each test sequential was 1 minute.

d The transient/burst waveform was in accordance with EN 61000-4-4, 5/50ns.

4.4.4 DEVIATION FROM TEST STANDARD

No Deviation.

4.4.5 TEST SETUP



(A) location for supply line coupling
(B) location for signal lines coupling

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.4.6 TEST RESULTS

TEST MODE	See section 2.2	TEST VOLTAGE	See section 2.2
ENVIRONMENTAL CONDITIONS	20.7deg. C, 60.8% RH	TESTED BY: Qi Liu	

Pulse Voltage	2.0 kV		1.0 kV		___ kV	
Pulse Polarity	+	-	+	-	+	-
L	Pass	Pass	/	/	/	/
N	Pass	Pass	/	/	/	/
PE	Pass	Pass	/	/	/	/
L+N	Pass	Pass	/	/	/	/
L+PE	Pass	Pass	/	/	/	/
N+PE	Pass	Pass	/	/	/	/
L+N+PE	Pass	Pass	/	/	/	/
RJ45 port	/	/	Pass	Pass	/	/
Alarm port	/	/	Pass	Pass	/	/
485 port	/	/	Pass	Pass	/	/

Result: Pass

1. The EUT working normal, before the conditioning.
2. Monitor the EUT during the conditioning period to detect no any change in status, during the conditioning.
3. No degradation in the performance of the EUT was observed, after the conditioning.

4.5 SURGE IMMUNITY TEST (EN50130-4)

4.5.1 TEST SPECIFICATION

Basic Standard:	EN 61000-4-5
Wave-Shape:	Signal/telecommunication port(direct to outdoor cables*) 10/700 us Open Circuit Voltage, 5/320 us Short Circuit Current. Input AC power port: 1.2/50 us Open Circuit Voltage 8 /20 us Short Circuit Current
Test Voltage:	Line to Line: 1kV AC mains supply Lines: line to line 1 kV, line to ground 2kV Other supply/ signal lines: line to ground 1kV
Surge Input/Output:	L-N
Polarity:	Positive/Negative
Phase Angle:	0° /90°/180°/270°
Pulse Repetition Rate:	1 time / 60 sec.
Number of Tests:	5 positive and 5 negative at selected points

4.5.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Immunity Test system	TESEQ	NSG3060	1716	2019/05/06	2020/05/05
Data coupling network	TESEQ	CDN 117M	38777	2019/05/06	2020/05/05
Power coupling network	TESEQ	CDN 3061-S16	1513	2019/05/06	2020/05/05
Immunity Test system	3C test	SG-728G	EC0630906	2018/11/09	2019/11/08
Immunity Test system	3C test	SG-5006G	EC5580932	2018/11/09	2019/11/08
Data coupling network	3C test	SGN-C3	EC5620903	2018/11/09	2019/11/08
Power coupling network	3C test	SGN-5010G	EC5590919	2018/11/09	2019/11/08
Data coupling network	3C test	SGN-C2	EC5620903	2018/11/09	2019/11/08

NOTE: 1. The test was performed by witness in the Hikvision lab that was accredited by CNAS.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

4.5.3 TEST PROCEDURE

a. For EUT power supply:

The surge is to be applied to the EUT power supply terminals via the capacitive coupling network. Decoupling networks are required in order to avoid possible adverse effects on equipment not under test that may be powered by the same lines, and to provide sufficient decoupling impedance to the surge wave. The power cord between the EUT and the coupling/decoupling networks shall be 2 meters in length (or shorter).

b. For test applied to unshielded unsymmetrically operated interconnection lines of EUT:

The surge is applied to the lines via the capacitive coupling. The coupling / decoupling networks shall not influence the specified functional conditions of the EUT. The interconnection line between the EUT and the coupling/decoupling networks shall be 2 meters in length (or shorter).

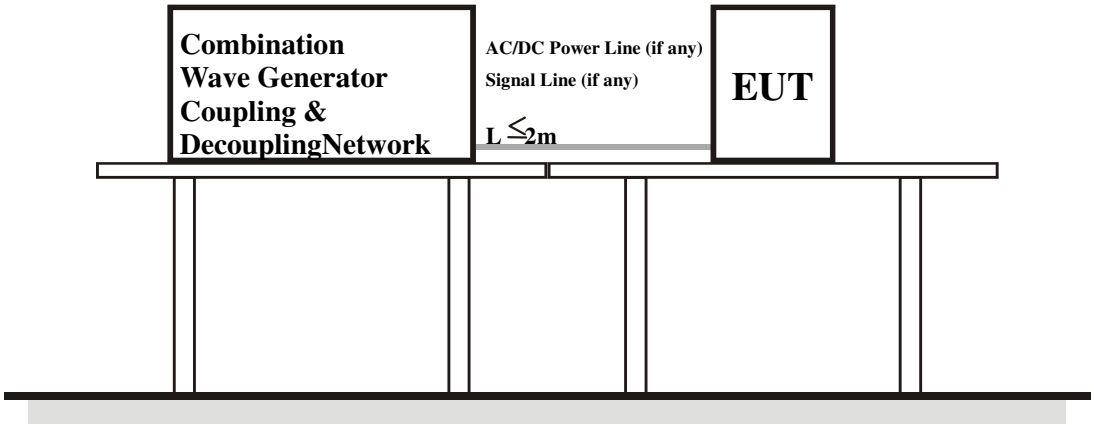
c. For test applied to unshielded symmetrically operated interconnection / telecommunication lines of EUT:

The surge is applied to the lines via gas arrestors coupling. Test levels below the ignition point of the coupling arrestor cannot be specified. The interconnection line between the EUT and the coupling/decoupling networks shall be 2 meters in length (or shorter).

4.5.4 DEVIATION FROM TEST STANDARD

No deviation.

4.5.5 TEST SETUP



4.5.6 TEST RESULTS

TEST MODE	See Section 2.2	TEST VOLTAGE	See section 2.2
ENVIRONMENTAL CONDITIONS	20.9deg. C, 68.7% RH	**TESTED BY:** Qi Liu	

Voltage (kV)	Test Point	Polarity	Test result	Voltage (kV)	Test Point	Polarity	Test result
1.0	L-N	+	Pass	2.0	L-PE	+	Pass
		-	Pass			-	Pass
2.0	N-PE	+	Pass				
		-	Pass				

Signal ports and telecommunication ports：

Voltage (kV)	Test Point	Polarity	Test result	Remark
1	RJ45	+	Pass	Standby mode
		-	Pass	
1	Alarm	+	Pass	Standby mode
		-	Pass	
1	485		Pass	Standby mode
			Pass	

Result: Pass

1. The EUT working normal, before the conditioning.
2. Monitor the EUT during the conditioning period to detect no any change in status, during the conditioning.
3. No degradation in the performance of the EUT was observed, after the conditioning.

4.6 IMMUNITY TO CONDUCTED DISTURBANCES INDUCED BY RF FIELDS (CS) (EN50130-4)

4.6.1 TEST SPECIFICATION

Basic Standard:	EN 61000-4-6
Frequency Range:	0.15 MHz - 100 MHz
Field Strength:	10 $V_{r.m.s}$
Modulation:	1kHz, 80%, sinusoidal, 1 Hz Pulse Modulation (0.5s ON: 0.5s OFF)
Frequency Step:	1 % of fundamental
Coupled Cable:	Power Mains
Coupling Device:	CDN-M2 (2 wires), CDN-T4, CDN-M3 (3 wires)

4.6.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Immunity Test system	TESEQ	NSG 4070C-0	47944	2019/04/02	2020/04/01
CDN	TESEQ	CDN M016	50365	2019/04/02	2020/04/01
Coupling clamp	TESEQ	KEMZ 801A	50113	2019/04/02	2020/04/01

NOTE: 1. The test was performed by witness in the Hikvision lab that was accredited by CNAS.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

4.6.3 TEST PROCEDURE

a. The EUT shall be tested within its intended operating and climatic conditions.

b. An artificial hand was placed on the hand-held accessory and connected to the ground reference plane.

c. The test shall be performed with the test generator connected to each of the coupling and decoupling devices in turn, while the other non-excited RF input ports of the coupling devices are terminated by a 50-ohm load resistor.

d. The frequency range is swept from 150 kHz to 100 MHz, using the signal level established during the setting process and with a disturbance signal of 80 % amplitude. The signal is modulated with a 1 kHz sine wave, pausing to adjust the RF signal level or the switch coupling devices as necessary. Where the frequency is swept incrementally, the step size shall not exceed 1 % of the preceding frequency value.

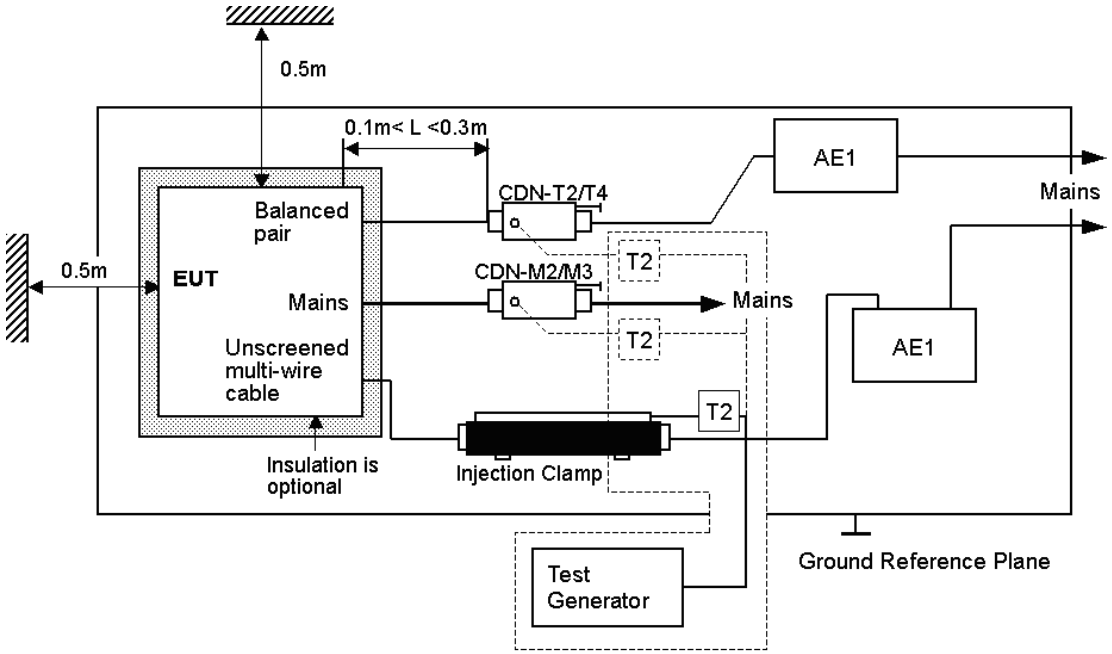
e. The dwell time of the amplitude modulated carrier at each frequency shall not be less than the time necessary for the EUT to be exercised and to respond, but shall in no case be less than 0,5 s. The sensitive frequencies (e.g. clock frequencies) shall be analyzed separately.

f. Attempts should be made to fully exercise the EUT during testing, and to fully interrogate all exercise modes selected for susceptibility.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation.

4.6.5 TEST SETUP



NOTE: The EUT clearance from any metallic obstacles shall be at least 0.5m.
All non-excited input ports of the CDNs shall be terminated by 50Ω loads.

NOTE:

FLOOR-STANDING EQUIPMENT
The equipment to be tested is placed on an insulating support of 0.1 meters height above a ground reference plane. All relevant cables shall be provided with the appropriate coupling and decoupling devices at a distance between 0.1 meters and 0.3 meters from the projected geometry of the EUT on the ground reference plane.

4.6.6 TEST RESULTS

TEST MODE	See section 2.2	TEST VOLTAGE	See section 2.2
ENVIRONMENTAL CONDITIONS	25.0deg. C, 54.0% RH	**TESTED BY:** Qi Liu	

Voltage (V)	Test Frequency Note#1 (MHz)	Tested Line	Injection Method.	Test Result	Remark
10	0.15–100MHz	AC Line	CDN-M2	Pass	N/A
10	0.15–100MHz	AC Line	CDN-M3	Pass	N/A
10	0.15–100MHz	RJ45 Line	Clamp	Pass	N/A
10	0.15–100MHz	Alarm Line	Clamp	Pass	N/A
10	0.15–100MHz	485 Line	Clamp	Pass	N/A

Note#1: Tested Israel SII Frequencies 0.2,0.53,1,1.5,7.1,13.56,21,27.12,40.68,65,68 MHz

Result: Pass

1. The EUT working normal, before the conditioning.
2. Monitor the EUT during the conditioning period to detect no any change in status, during the conditioning.
3. No degradation in the performance of the EUT was observed, after the conditioning.

4.7 VOLTAGE DIP/SHORT INTERRUPTIONS/VOLTAGE VARIATIONS (DIP) IMMUNITY TEST (EN50130-4)

4.7.1 TEST SPECIFICATION

Basic Standard:	EN 61000-4-11
Test Duration Time:	Minimum three test events in sequence
Interval between Event:	Minimum ten seconds
Phase Angle:	0° & 180°
Test Cycle:	3 times

4.7.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Immunity Test system	TESEQ	NSG3040	2173	2019/05/06	2020/05/05
Immunity Test system	TESEQ	VAR 3005-D16	2018	2019/05/06	2020/05/05

NOTE: 1. The test was performed by witness in the Hikvision lab that was accredited by CNAS.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

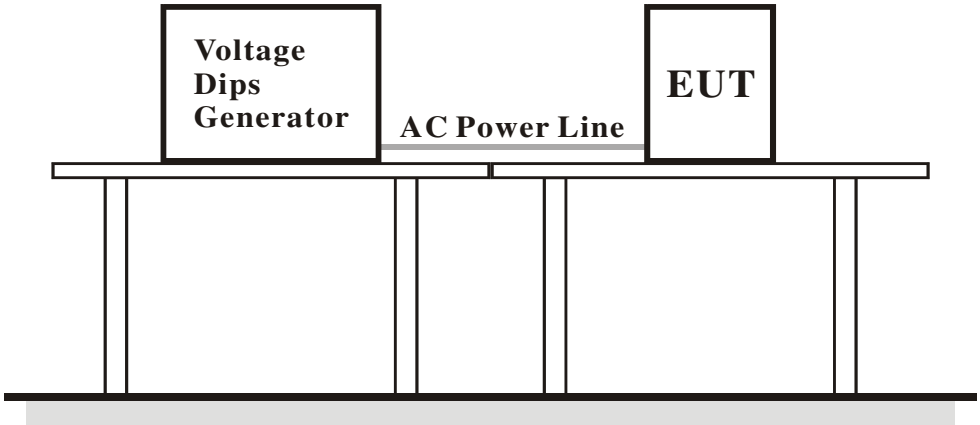
4.7.3 TEST PROCEDURE

The EUT shall be tested for each selected combination of test levels and duration with a sequence of three dips/interruptions with intervals of 10 s minimum (between each test event). Each representative mode of operation shall be tested. Abrupt changes in supply voltage shall occur at zero crossings of the voltage waveform.

4.7.4 DEVIATION FROM TEST STANDARD

No deviation.

4.7.5 TEST SETUP



4.7.6 TEST RESULTS

TEST MODE	See section 2.2	TEST VOLTAGE	See section 2.2
ENVIRONMENTAL CONDITIONS	20.8deg. C, 67.3% RH	TESTED BY: Qi Liu	

Ut : 230 Vac 50 Hz	Durations		Event interval (sec)	Total events (time)	Test result
Voltage dips (%)	(period)	(ms)			
20	250	5000	10	3	Pass
30	25	500	10	3	Pass
60	10	200	10	3	Pass
100	250	5000	10	3	Pass

Remark: According to the client's requirement, we used a UPS as ancillary equipment to meet the requirements of this clause during test.
Ut=the nominal supply voltage

Result: Pass

1. The EUT working normal, before the conditioning.
2. Monitor the EUT during the conditioning period to detect no any change in status, during the conditioning.
3. No degradation in the performance of the EUT was observed, after the conditioning.

4.8 VOLTAGE VARIATIONS IMMUNITY TEST

4.8.1 TEST SPECIFICATION

Basic Standard:	EN 50130-4:2011+A1:2014
Test Duration Time:	Minimum 5 minutes

4.8.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Immunity Test system	TESEQ	NSG3040	2173	2019/05/06	2020/05/05
Immunity Test system	TESEQ	VAR 3005-D16	2018	2019/05/06	2020/05/05

NOTE:1. The test was performed by witness in the Hikvision lab that was accredited by CNAS.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

4.8.3 TEST PROCEDURE

Connect the EUT to suitable power supply, monitoring and loading equipment. Subject the specimen to each of the power supply conditions, indicated in the following table until temperature stability is reached:

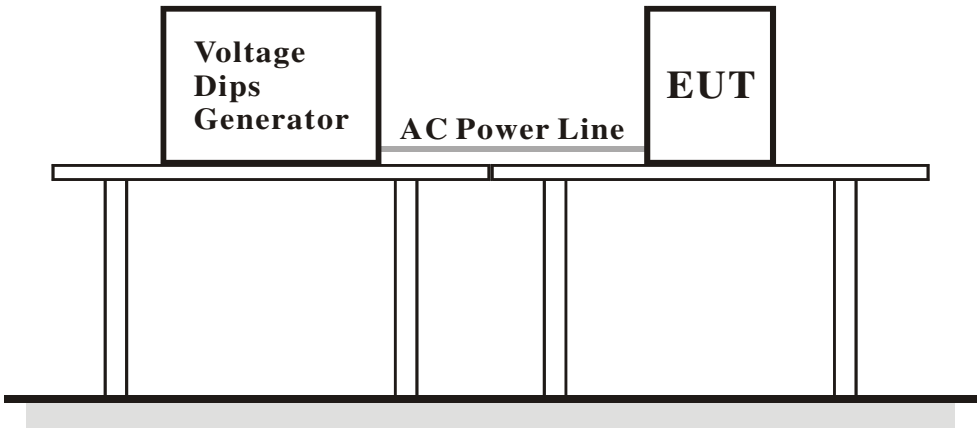
Supply voltage max. (U_{max})	U_{nom}[1)] +10%
Supply voltage min. (U_{min})	U_{nom}[1)] -15%
[1)] U_{nom} = Nominal mains votage. Where provision is made to adapt the equipment to suit a number of nominal supply voltages (e.g. by transformer tap changing), the above conditioning severity shall be applied for each nominal voltage, with the equipment suitably adapted. For equipment which is claimed to be suitable for a range of nominal mains voltages (e.g. 220/240V) without adaptation, U_{max} =(Maximum U_{nom}) + 10% and U_{min}= (Minimum U_{nom}) – 15%. In any case the range of U_{nom} must include the European nominal mains voltage of 230V.	

Monitor the EUT during the conditioning to detect any change in status. When temperature stability has been obtained, at each of the supply conditions, subject the EUT to the functional test.

4.8.4 DEVIATION FROM TEST STANDARD

No deviation.

4.8.5 TEST SETUP



4.8.6 TEST RESULTS

TEST MODE	See section 2.2	TEST VOLTAGE	See section 2.2
ENVIRONMENTAL CONDITIONS	20.8deg. C, 67.3% RH	TESTED BY: Qi Liu	

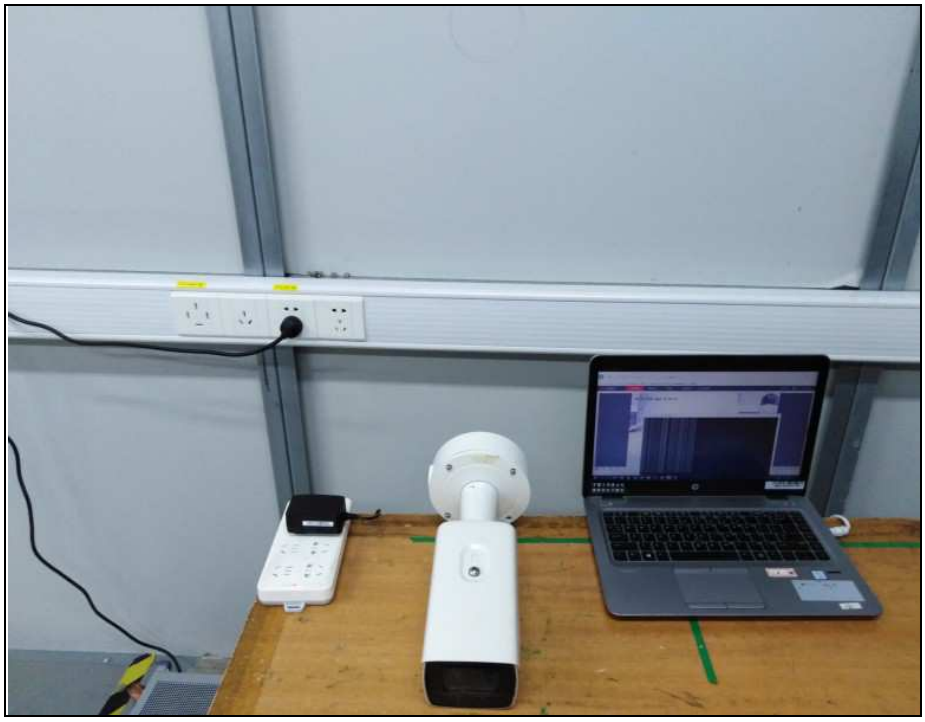
Voltage	Event Interval (sec)	Observation	Remark
264 (240+10%) Vac	60	NOTE	PASS
85 (100-15%) Vac	60	NOTE	PASS

Result: Pass

1. The EUT working normal, before the conditioning.
2. Monitor the EUT during the conditioning period to detect no any change in status, during the conditioning.
3. No degradation in the performance of the EUT was observed, after the conditioning.

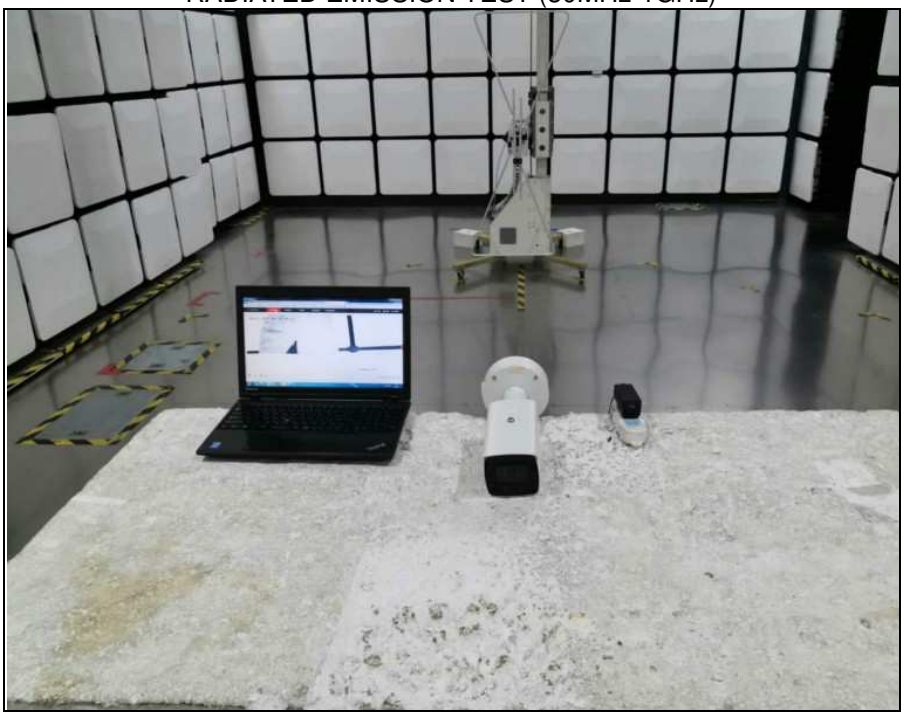
5 PHOTOGRAPHS OF THE TEST CONFIGURATION

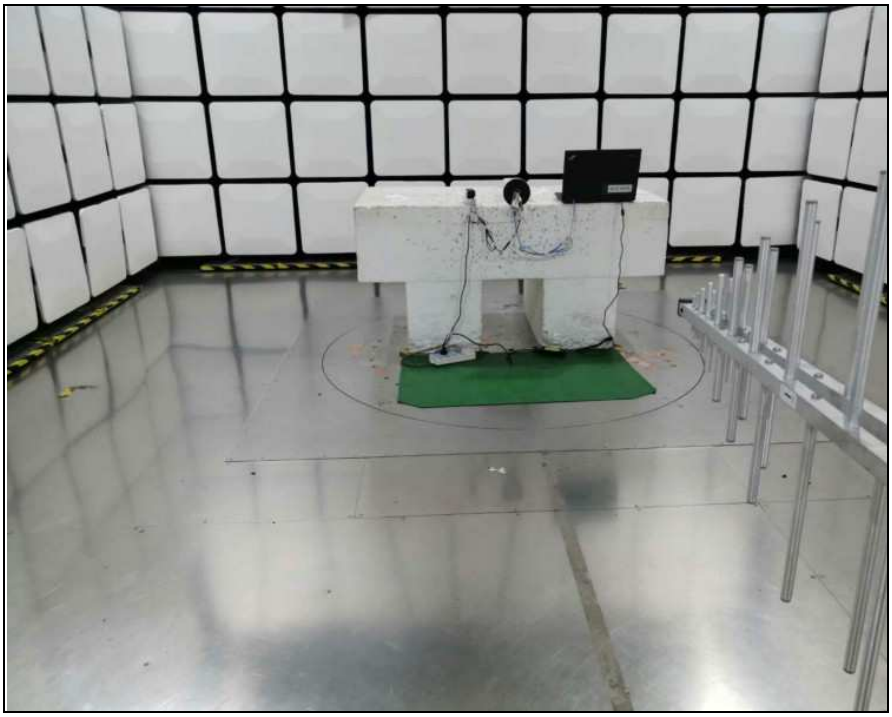
CONDUCTED EMISSION TEST



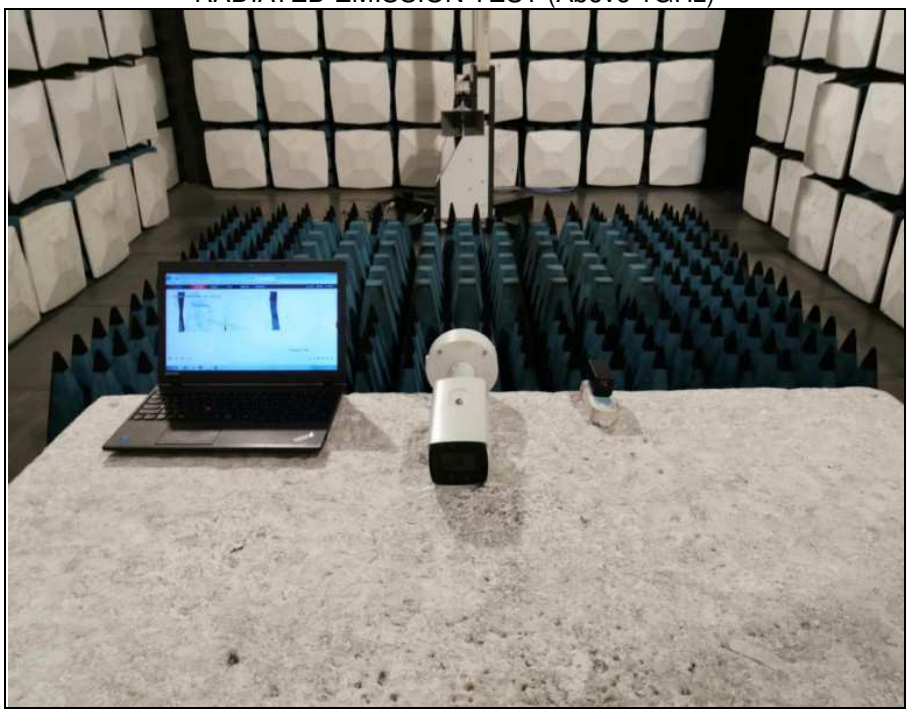
Conducted Emissions at telecom port TEST

RADIATED EMISSION TEST (30MHz-1GHz)



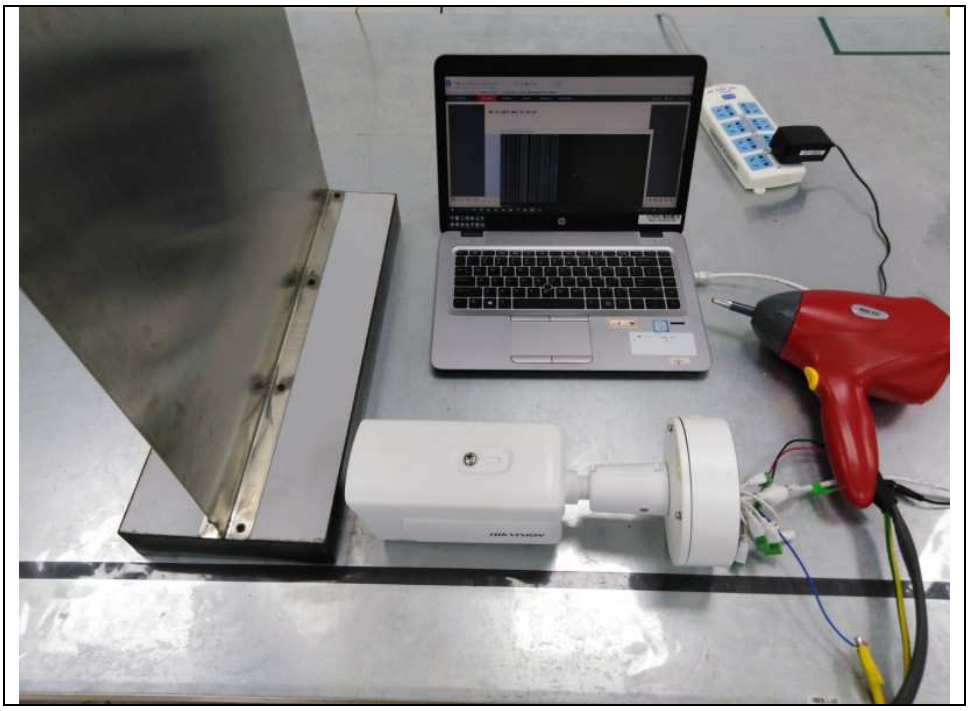


RADIATED EMISSION TEST (Above 1GHz)



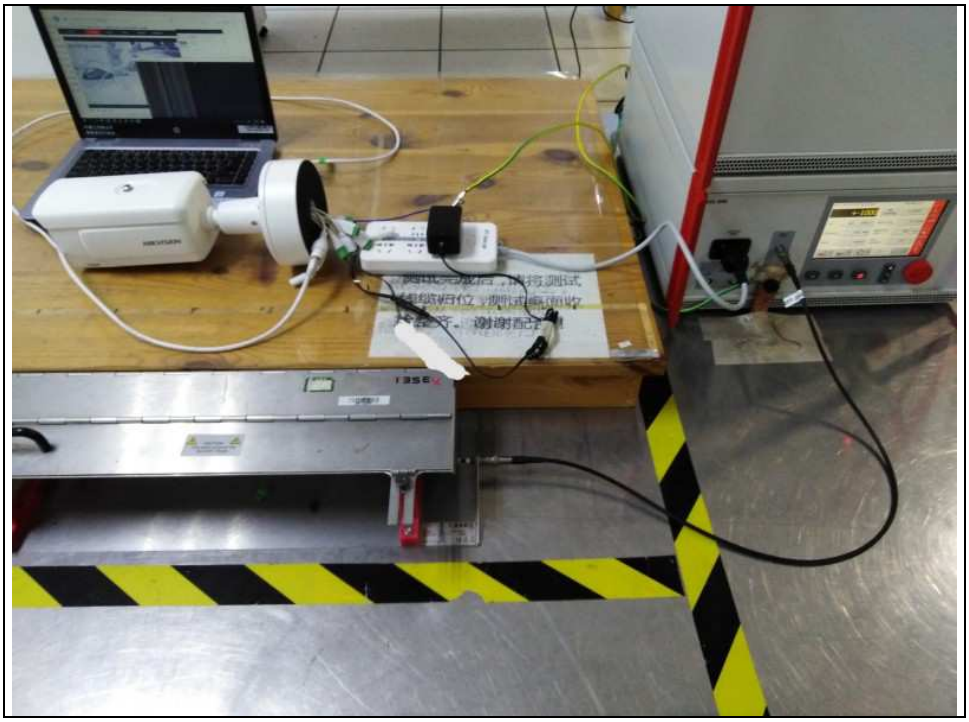
HARMONICS EMISSION TEST &
VOLTAGE FLUCTUATIONS AND FLICKER TEST

ESD TEST



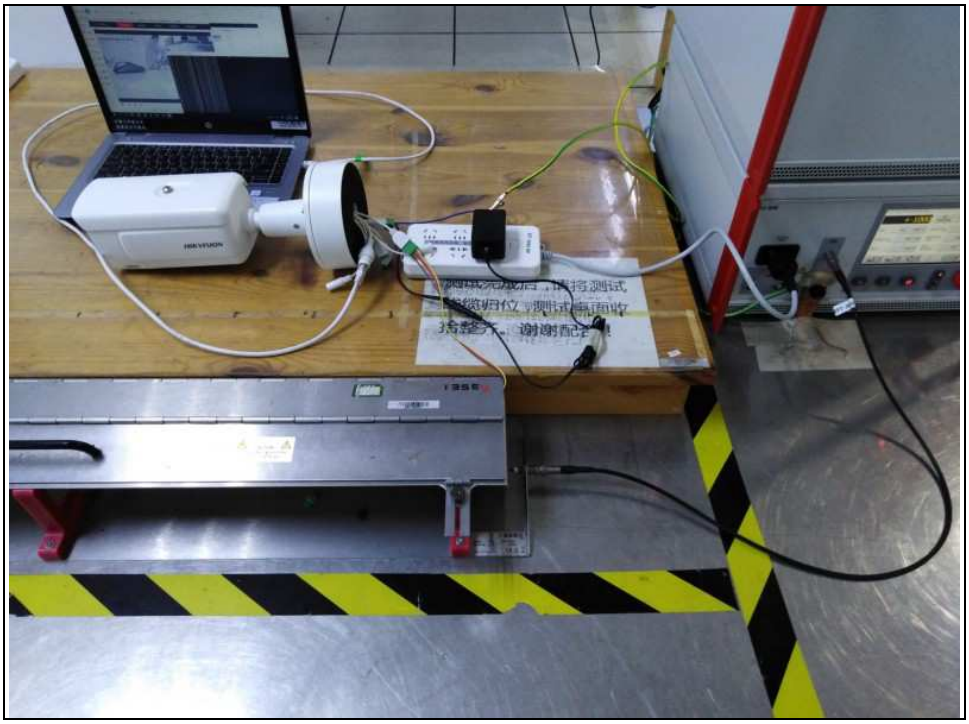
RS TEST

EFT TEST

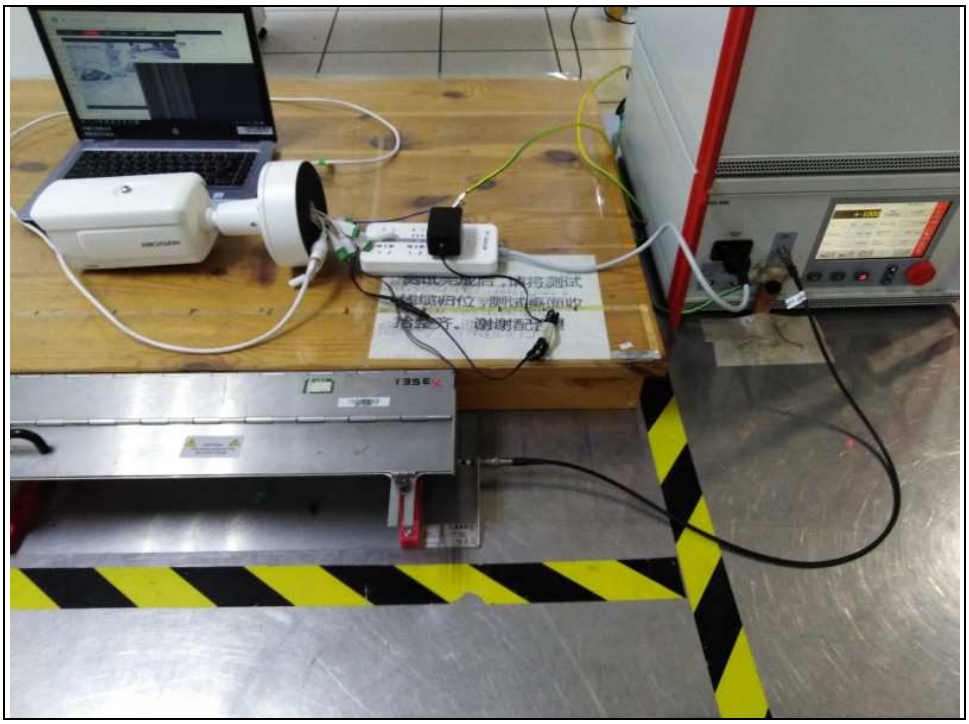


EFT AT TELECOM PORT TEST

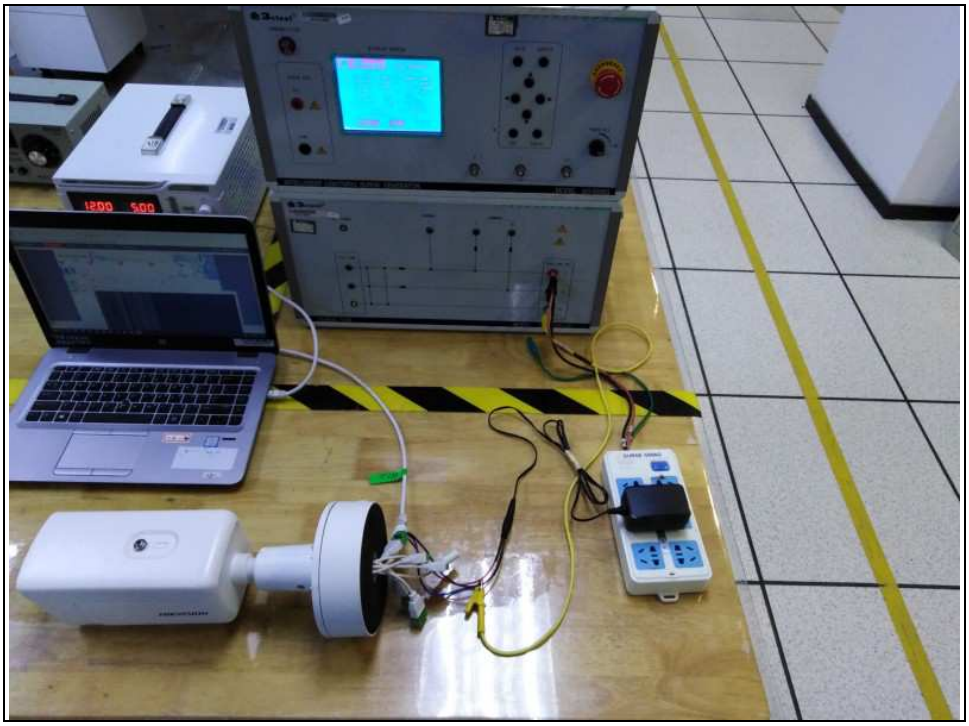
EFT AT ALARM PORT TEST



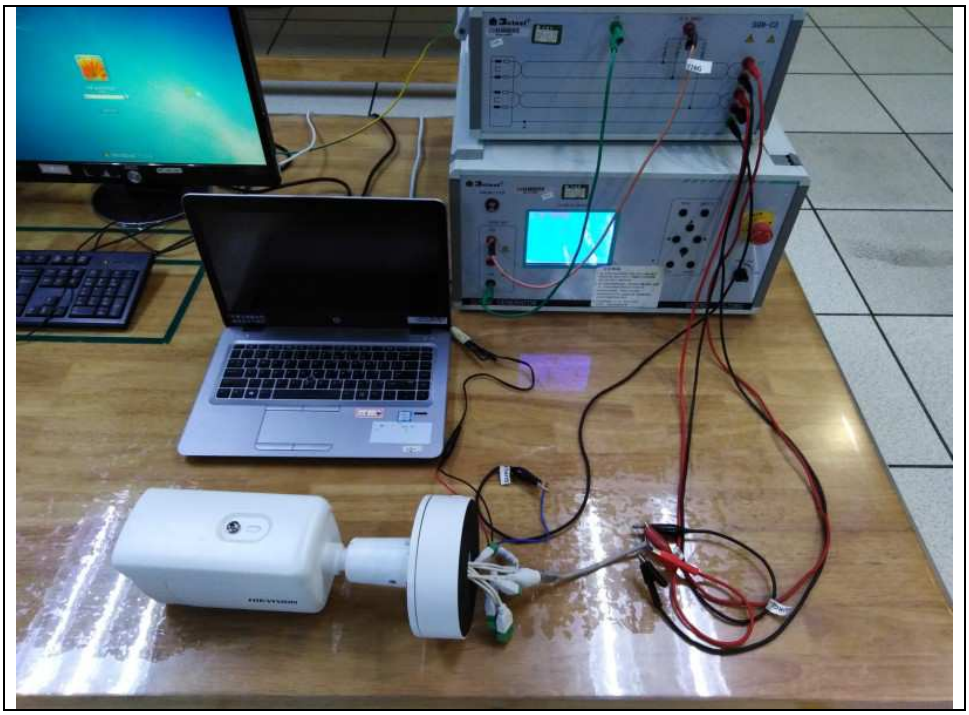
EFT AT 485 PORT TEST



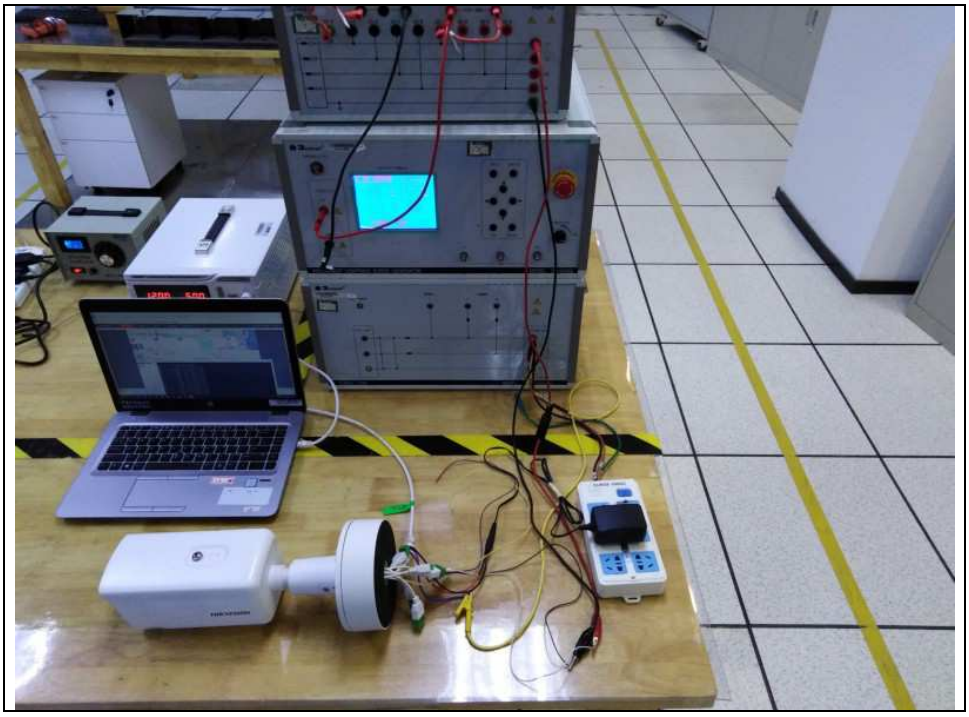
SURGE TEST



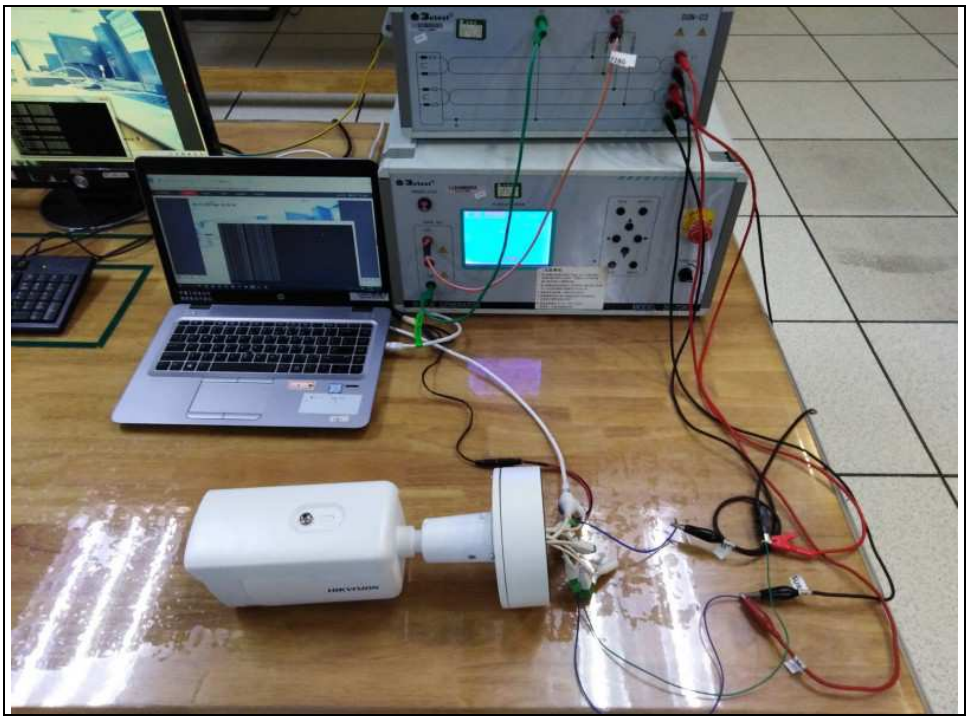
SURGE AT TELECOM PORT TEST



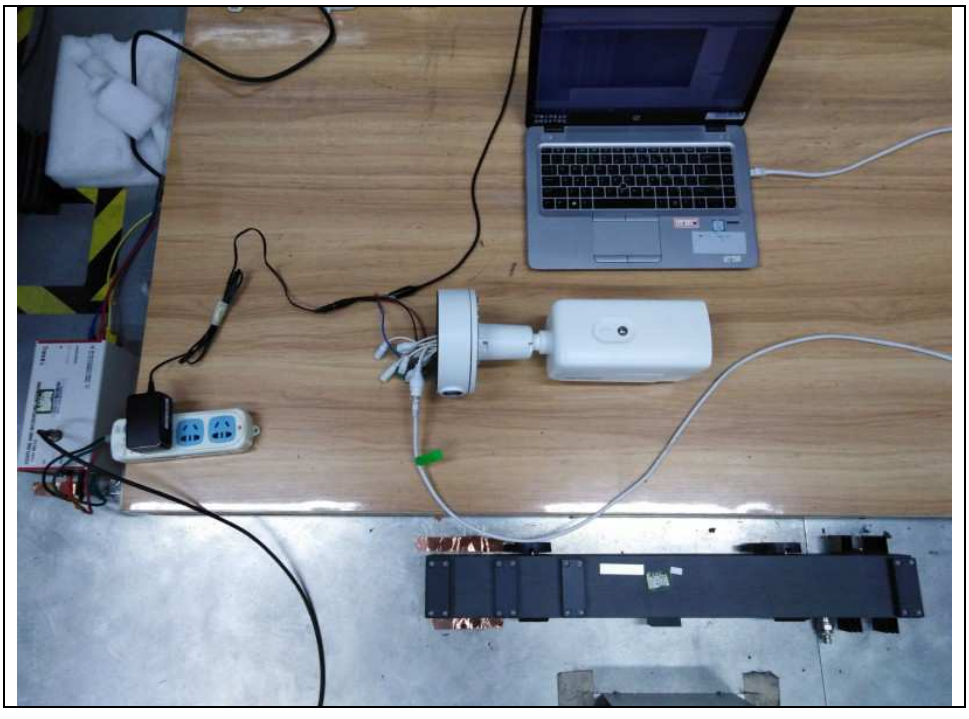
SURGE AT ALARM PORT TEST



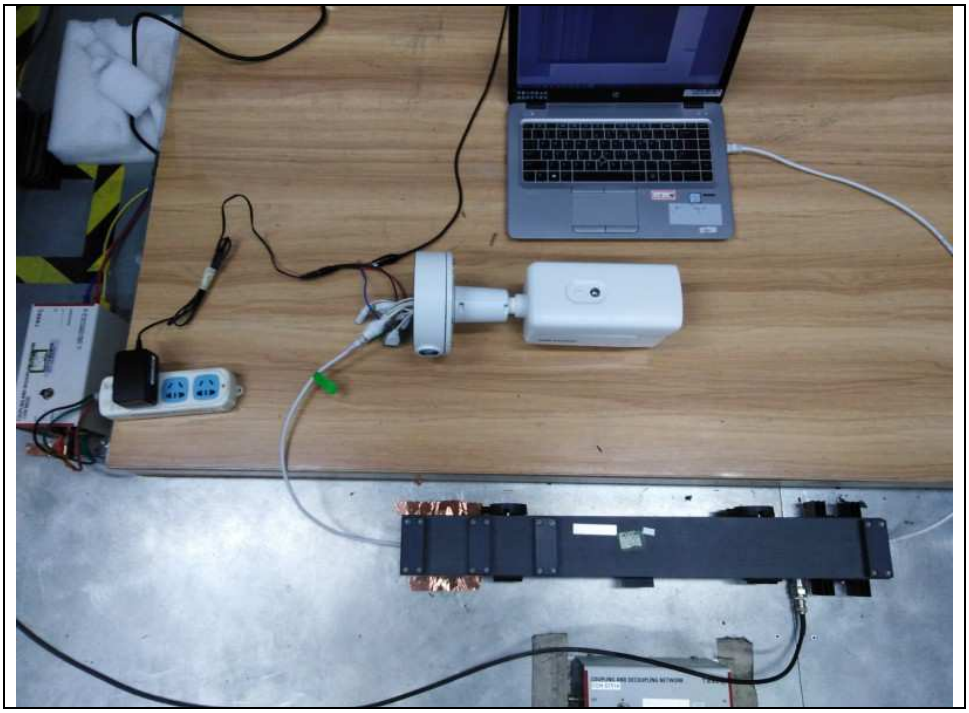
SURGE AT 485 PORT TEST



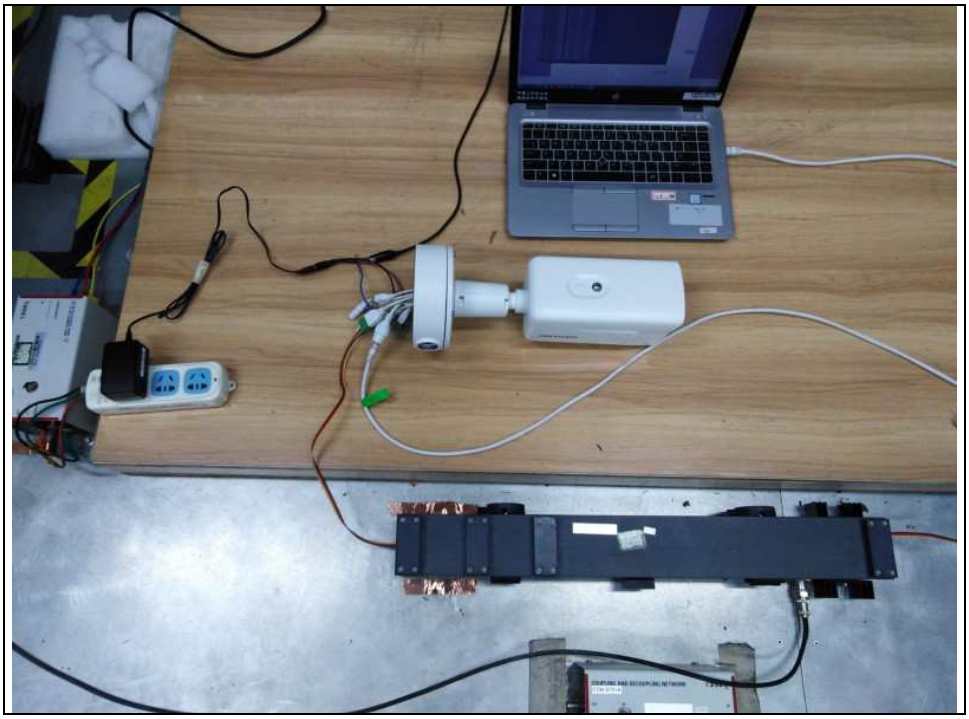
CONDUCTED SUSCEPTIBILITY TEST



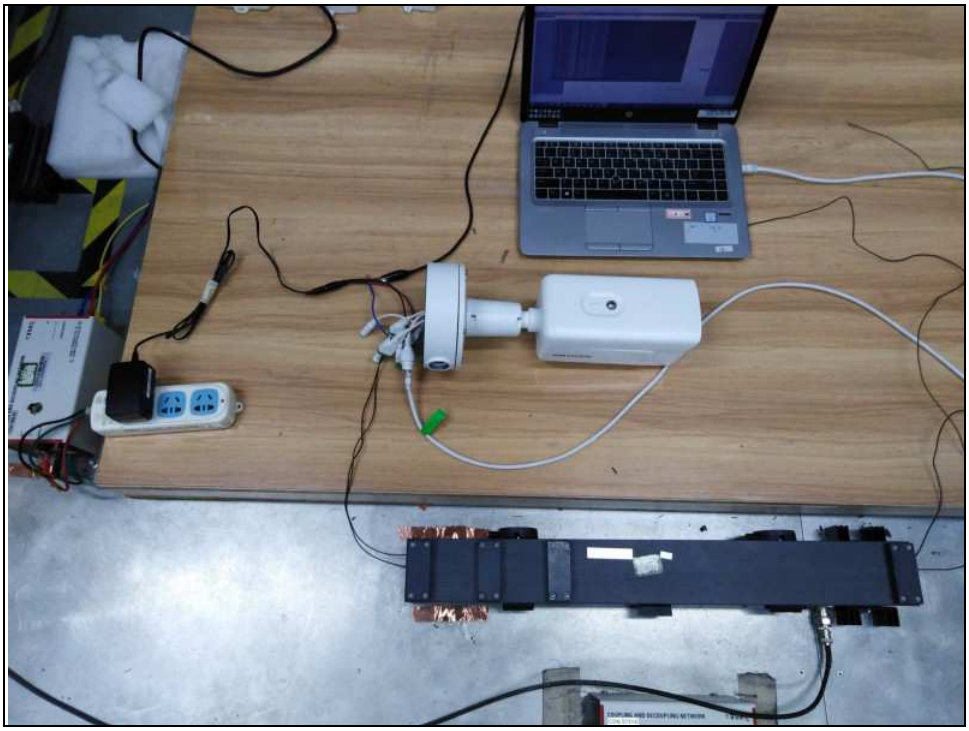
CONDUCTED SUSCEPTIBILITY AT TELECOM PORT TEST



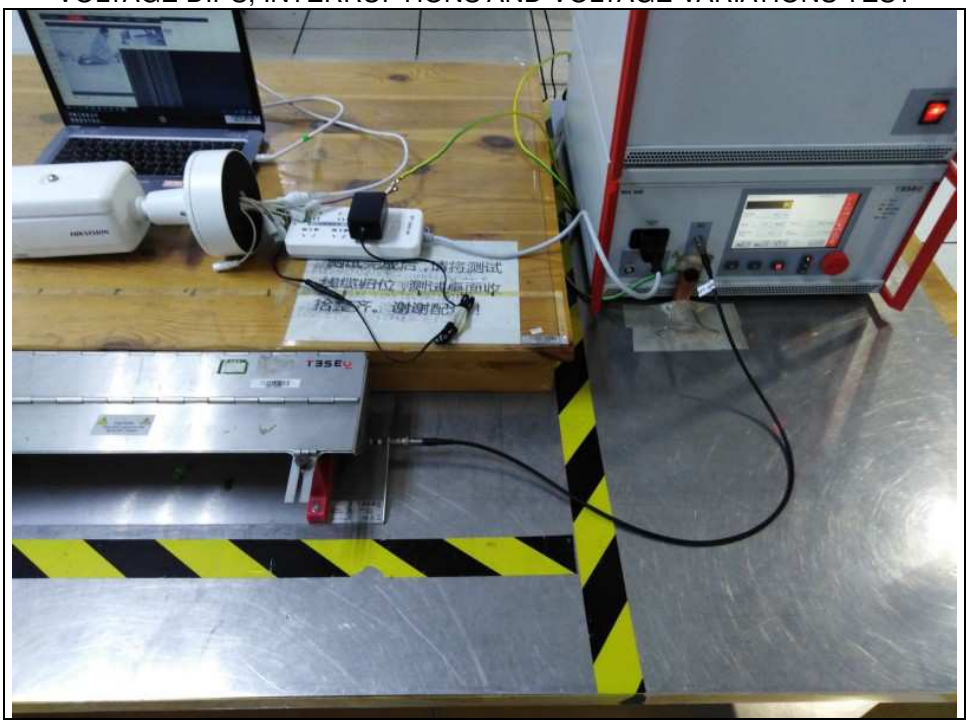
CONDUCTED SUSCEPTIBILITY AT ALARM PORT TEST



CONDUCTED SUSCEPTIBILITY AT 485 PORT TEST



VOLTAGE DIPS, INTERRUPTIONS AND VOLTAGE VARIATIONS TEST



6 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications were made to the EUT by the lab during the test.

---END---