

# CE Test Report

Product Name : Network Camera  
Model No. : IB9387-EH, IB9387-H

Applicant : VIVOTEK INC.  
Address : 6F, No.192, Lien-Cheng Rd., Chung-Ho , New Taipei City,  
235, Taiwan, R.O.C.

Date of Receipt : 2018/10/24  
Issued Date : 2018/11/14  
Report No. : 18A0322R-ITCEP01V01  
Report Version : V1.0



The test results relate only to the samples tested.  
The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.  
This report must not be used to claim product endorsement by TAF or any agency of the government.  
The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.

# Test Report

Issued Date : 2018/11/14

Report No. : 18A0322R-ITCEP01V01



Product Name : Network Camera  
 Applicant : VIVOTEK INC.  
 Address : 6F, No.192, Lien-Cheng Rd., Chung-Ho , New Taipei City, 235, Taiwan, R.O.C.  
 Manufacturer : VIVOTEK INC.  
 Model No. : IB9387-EH, IB9387-H  
 EUT Rated Voltage : DC 12V, By PoE  
 EUT Test Voltage : AC 230V / 50Hz, By PoE  
 Trade Name : VIVOTEK  
 Applicable Standard : EN 55032: 2015+AC: 2016, Class A  
 EN 55024: 2010+A1: 2015  
 EN 61000-3-2: 2014  
 EN 61000-3-3: 2013  
 CISPR 22: 2008  
 CISPR 24: 2010  
 AS/NZS CISPR 32: 2015

Test Result : Complied  
 Performed Location : DEKRA Testing and Certification Co., Ltd.  
 Linkou Laboratory  
 No. 5-22, Ruishukeng  
 Linkou District, New Taipei City, 24451, Taiwan  
 TEL:+866-2-8601-3788 / FAX:+886-2-8601-3789

Documented By : April Chen  
 (Senior Adm. Specialist / April Chen)

Reviewed By : Chifan Chen  
 ( Engineer / Chifan Chen )

Approved By : Vincent Lin  
 ( Director / Vincent Lin )

## Laboratory Information

We, **DEKRA Testing and Certification Co., Ltd.**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted (audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scopes:

<b>Taiwan R.O.C.</b>	<b>:</b>	<b>BSMI, NCC, TAF</b>
<b>Norway</b>	<b>:</b>	<b>DNV</b>
<b>USA</b>	<b>:</b>	<b>FCC</b>
<b>Japan</b>	<b>:</b>	<b>VCCI</b>

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site :

<http://www.dekra.com.tw/english/about/certificates.aspx?bval=5>

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site : [http://www.dekra.com.tw/index\\_en.aspx](http://www.dekra.com.tw/index_en.aspx)

If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

### Hsin Chu Laboratory:

No.75-2, 3rd Lin, WangYe Keng, Yonghxing Tsuen, Qionglin Shiang, Hsinchu County 307, Taiwan (R.O.C.)

No.372, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 310, Taiwan

No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 310, Taiwan

TEL:+886-3-592-8858 / FAX:+886-3-592-8859

TEL:+886-3-582-8001 / FAX:+886-3-5828-958 E-Mail : [info.tw@dekra.com](mailto:info.tw@dekra.com)

### Lin Kou Laboratory

No. 5-22, Ruishukeng, Linkou Dist., New Taipei City 24451, Taiwan (R.O.C.)

TEL : +886-2-8601-3788 / FAX : +886-2-8601-3789 E-Mail : [info.tw@dekra.com](mailto:info.tw@dekra.com)

### Suzhou (China) Testing Laboratory :

No.99 Hongye Rd., Suzhou Industrial Park, Suzhou,215006, Jiangsu,China

TEL : +86-512-6251-5088 / FAX : +86-512-6251-5098 E-Mail : [info.tw@dekra.com](mailto:info.tw@dekra.com)

## TABLE OF CONTENTS

Description	Page
1. General Information.....	7
1.1. EUT Description .....	7
1.2. Mode of Operation.....	8
1.3. Tested System Details .....	9
1.4. Configuration of Tested System.....	10
1.5. EUT Exercise Software .....	12
2. Technical Test.....	13
2.1. Summary of Test Result .....	13
2.2. List of Test Equipment .....	14
2.3. Measurement Uncertainty .....	16
2.4. Test Environment.....	18
3. Conducted Emission (Main Terminals) .....	19
3.1. Test Specification .....	19
3.2. Test Setup .....	19
3.3. Limit.....	19
3.4. Test Procedure .....	20
3.5. Deviation from Test Standard .....	20
3.6. Test Result .....	21
3.7. Test Photograph .....	27
4. Conducted Emissions (Telecommunication Ports) .....	29
4.1. Test Specification .....	29
4.2. Test Setup .....	29
4.3. Limit.....	30
4.4. Test Procedure .....	31
4.5. Deviation from Test Standard .....	31
4.6. Test Result .....	32
4.7. Test Photograph .....	44
5. Radiated Emission .....	47
5.1. Test Specification .....	47
5.2. Test Setup .....	47
5.3. Limit.....	48
5.4. Test Procedure .....	49
5.5. Deviation from Test Standard .....	49
5.6. Test Result .....	50
5.7. Test Photograph .....	58
6. Harmonic Current Emission .....	61

6.1.	Test Specification .....	61
6.2.	Test Setup .....	61
6.3.	Limit.....	61
6.4.	Test Procedure .....	63
6.5.	Deviation from Test Standard .....	63
6.6.	Test Result .....	64
6.7.	Test Photograph .....	66
7.	Voltage Fluctuation and Flicker .....	67
7.1.	Test Specification .....	67
7.2.	Test Setup .....	67
7.3.	Limit.....	67
7.4.	Test Procedure .....	68
7.5.	Deviation from Test Standard .....	68
7.6.	Test Result .....	69
7.7.	Test Photograph .....	70
8.	Electrostatic Discharge.....	71
8.1.	Test Specification .....	71
8.2.	Test Setup .....	71
8.3.	Limit.....	71
8.4.	Test Procedure .....	72
8.5.	Deviation from Test Standard .....	72
8.6.	Test Result .....	73
8.7.	Test Photograph .....	75
8.8.	EUT to dot photo for ESD test.....	76
9.	Radiated Susceptibility .....	79
9.1.	Test Specification .....	79
9.2.	Test Setup .....	79
9.3.	Limit.....	79
9.4.	Test Procedure .....	80
9.5.	Deviation from Test Standard .....	80
9.6.	Test Result .....	81
9.7.	Test Photograph .....	83
10.	Electrical Fast Transient/Burst.....	89
10.1.	Test Specification .....	89
10.2.	Test Setup .....	89
10.3.	Limit.....	89
10.4.	Test Procedure .....	90
10.5.	Deviation from Test Standard .....	90

10.6.	Test Result .....	91
10.7.	Test Photograph .....	93
11.	Surge.....	95
11.1.	Test Specification .....	95
11.2.	Test Setup .....	95
11.3.	Limit.....	95
11.4.	Test Procedure .....	96
11.5.	Deviation from Test Standard .....	96
11.6.	Test Result .....	97
11.7.	Test Photograph .....	99
12.	Conducted Susceptibility .....	101
12.1.	Test Specification .....	101
12.2.	Test Setup .....	101
12.3.	Limit.....	102
12.4.	Test Procedure .....	102
12.5.	Deviation from Test Standard .....	102
12.6.	Test Result .....	103
12.7.	Test Photograph .....	105
13.	Power Frequency Magnetic Field .....	107
13.1.	Test Specification .....	107
13.2.	Test Setup .....	107
13.3.	Limit.....	107
13.4.	Test Procedure .....	107
13.5.	Deviation from Test Standard .....	107
13.6.	Test Result .....	108
13.7.	Test Photograph .....	110
14.	Voltage Dips and Interruption .....	111
14.1.	Test Specification .....	111
14.2.	Test Setup .....	111
14.3.	Limit.....	111
14.4.	Test Procedure .....	112
14.5.	Deviation from Test Standard .....	112
14.6.	Test Result .....	113
14.7.	Test Photograph .....	114
15.	Attachment .....	115
	EUT Photograph.....	115

## 1. General Information

### 1.1. EUT Description

Product Name	Network Camera
Trade Name	VIVOTEK
Model No.	IB9387-EH, IB9387-H

Note: The EUT is including series models for different is marketing requirement.

## 1.2. Mode of Operation

DEKRA has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Pre-Test Mode	
Mode 1: IB9387-EH , DC	
Mode 2: IB9387-EH , PoE	
Mode 3: IB9387-H , DC	
Mode 4: IB9387-H , PoE	
Final Test Mode	
Emission	Mode 1: IB9387-EH , DC Mode 2: IB9387-EH , PoE
Immunity	Mode 1: IB9387-EH , DC Mode 2: IB9387-EH , PoE

Note: According to pre-test data, we choose the worst case mode 1, 2 as the final and full testing.

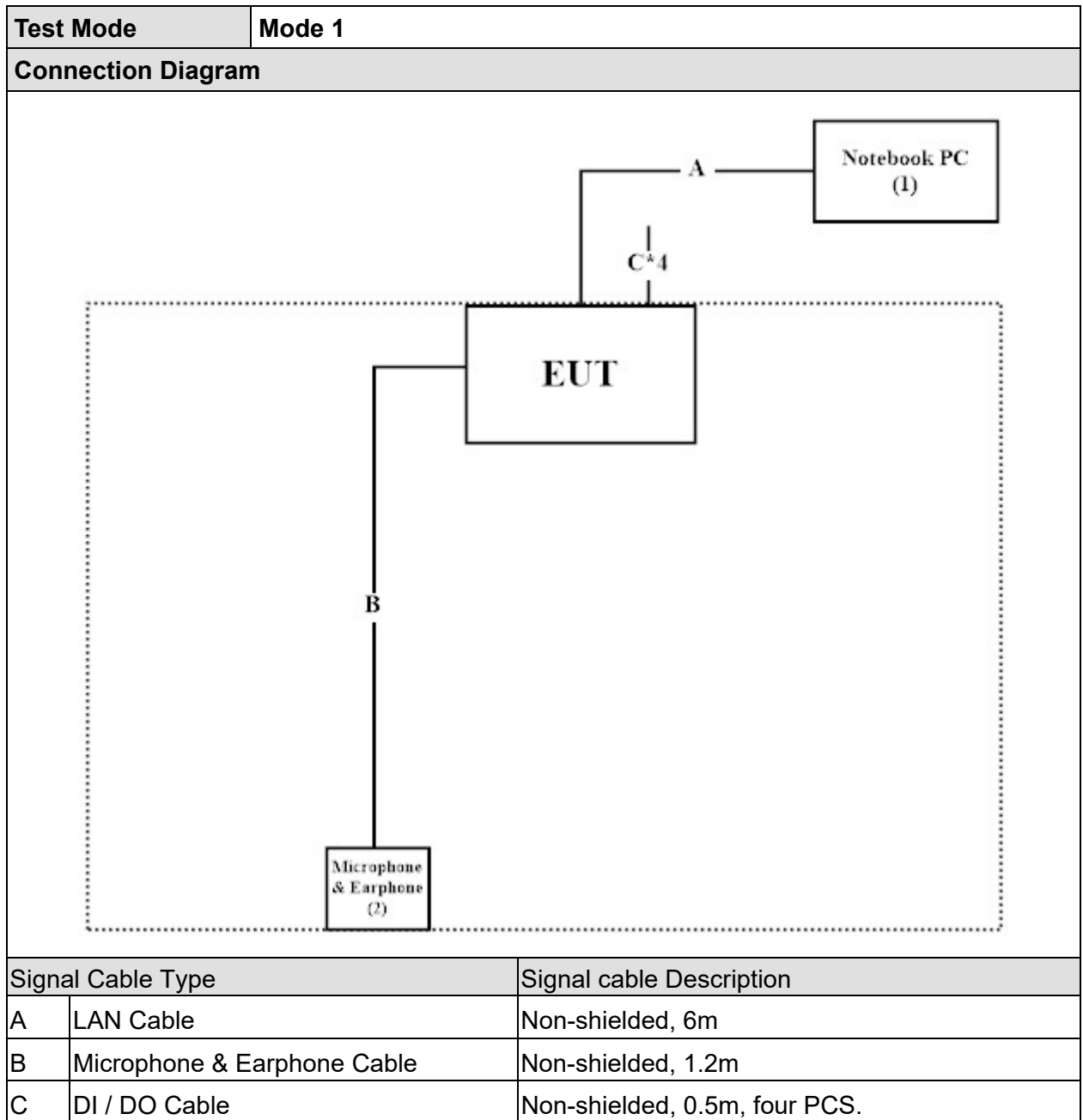
### 1.3. Tested System Details

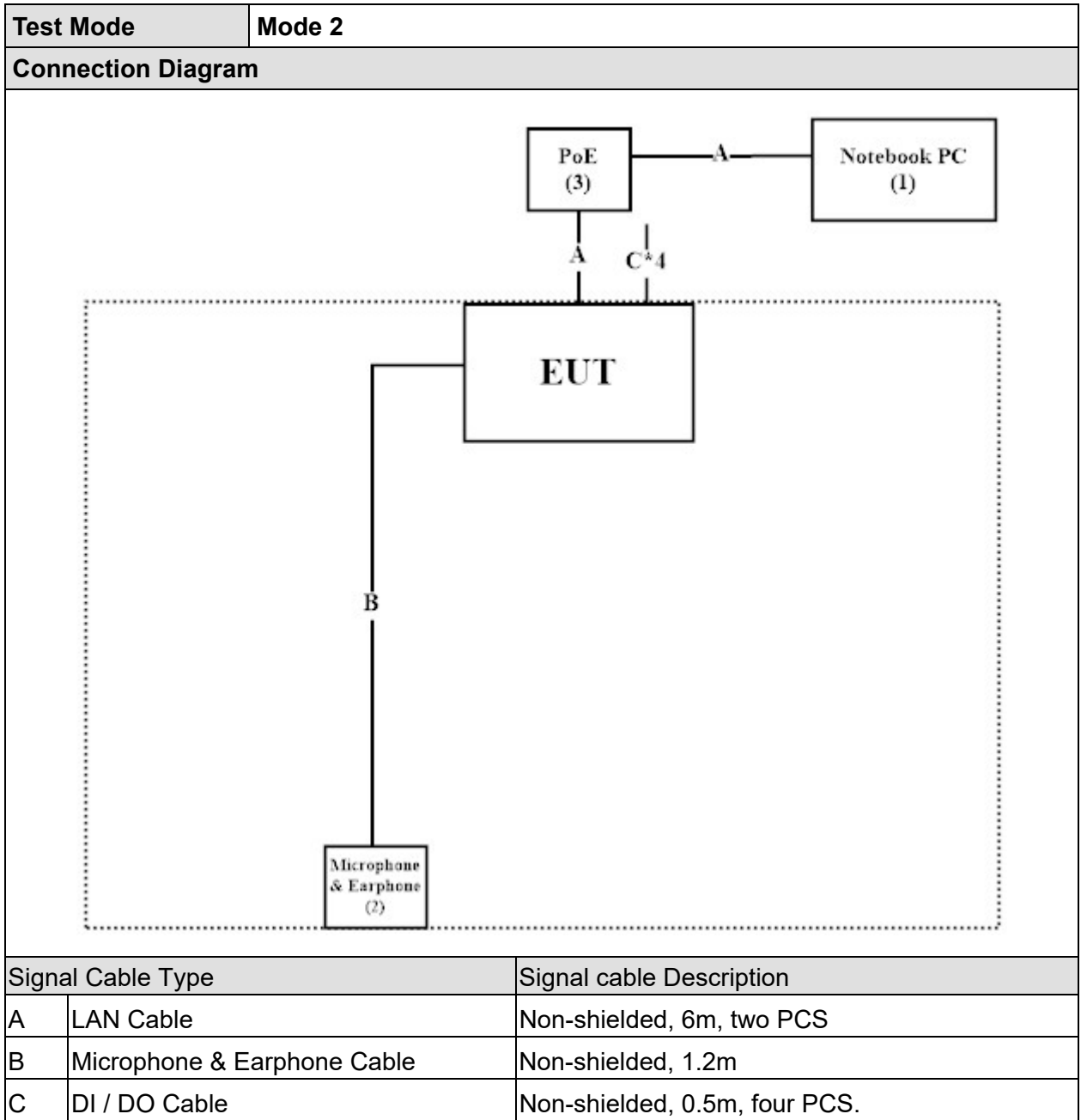
The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Test Mode		Mode 1			
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	E5530	24QPXW1	Non-shielded, 0.8m
2	Microphone & Earphone	RONEVER	MOE240	N/A	N/A

Test Mode		Mode 2			
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	E5530	24QPXW1	Non-shielded, 0.8m
2	Microphone & Earphone	RONEVER	MOE240	N/A	N/A
3	PoE	N/A	N/A	N/A	Non-shielded, 1.8m

### 1.4. Configuration of Tested System





### 1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on 1.4.
2	Turn on the power of all equipment.
3	The EUT will start to operate and display the video figure from the signal source.
4	The EUT will display "video figure" on monitor.
5	SD card works while the EUT is recording.
6	Repeat the above procedure (3) to (5).

## 2. Technical Test

### 2.1. Summary of Test Result

- No deviations from the test standards  
 Deviations from the test standards as below description:

Emission			
Performed Item	Normative References	Test Performed	Deviation
Conducted Emission	EN 55032: 2015+AC: 2016 AS/NZS CISPR 32: 2015	Yes	No
Impedance Stabilization Network	EN 55032: 2015+AC: 2016 AS/NZS CISPR 32: 2015	Yes	No
Radiated Emission	EN 55032: 2015+AC: 2016 AS/NZS CISPR 32: 2015	Yes	No
Power Harmonics	EN 61000-3-2: 2014	Yes	No
Voltage Fluctuation and Flicker	EN 61000-3-3: 2013	Yes	No

Immunity			
Performed Item	Normative References	Test Performed	Deviation
Electrostatic Discharge	IEC 61000-4-2 Ed. 2.0: 2008	Yes	No
Radiated susceptibility	IEC 61000-4-3 Ed. 3.2: 2010	Yes	No
Electrical fast transient/burst	IEC 61000-4-4 Ed. 3.0: 2012	Yes	No
Surge	IEC 61000-4-5 Ed. 3.1: 2014+A1: 2017	Yes	No
Conducted susceptibility	IEC 61000-4-6 Ed. 4.0: 2013	Yes	No
Power frequency magnetic field	IEC 61000-4-8 Ed. 2.0: 2009	Yes	No
Voltage dips and interruption	IEC 61000-4-11 Ed. 2.1: 2004 +A1: 2017	Yes	No

## 2.2. List of Test Equipment

### Conducted Emission / SR1

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	R&S	ESCS 30	100367	2018/01/23
LISN	R&S	ENV216	100085	2018/03/09
LISN	R&S	ESH2-Z5	836679/023	2018/08/06
Coaxial Cable	DEKRA	RG 400	LC016-RG	2018/06/21

### Impedance Stabilization Network / SR1

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	R&S	ESCS 30	100367	2018/01/23
LISN	R&S	ENV216	100085	2018/03/09
LISN	R&S	ESH2-Z5	836679/023	2018/08/06
Coaxial Cable	DEKRA	RG 400	LC016-RG	2018/06/21
Capacitive Voltage Probe	Schaffner	CVP2200A	18331	2017/11/17
RF Current Probe	FCC	F-65	198	2017/11/21
BALANCED TELECOM ISN	FCC	FCC-TLISN-T2-02	20316	2018/09/14
Coupling Decoupling Network	Teseq	CDN T800	30303	2018/05/16
Coupling Decoupling Network	Teseq	CDN ST08A	33998	2018/10/26
Coupling Decoupling Network	Teseq	CDN T8-Cat6	29669	2018/10/26

### Radiated Emission / Site 7

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Broadband Antenna	Schwarzbeck	VULB 9168	0853	2018/04/11
EMI Test Receiver	R&S	ESCI	100649	2018/07/20
Coaxial Cable	DEKRA	RG 214	LC007-RG	2018/06/18
Pre-Amplifier	DEKRA	AP/0100A	CHM/1009094	2018/06/18
Site7 NSA	DEKRA	N/A	N/A	2018/06/18

### Radiated Emission / CB7

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	R&S	ESU26	100433	2018/11/02
Horn Antenna	ETS-Lindgren	3117	00202723	2018/08/08
Horn Antenna	SCHWARZBECK	9120D	576	2017/12/07
Pre-Amplifier	EMCI	EMC051845SE	980359	2018/10/12
CB7 VSWR	DEKRA	N/A	N/A	2018/06/25

### Power Harmonics / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
AC Power Source (Harmonic)	TESEQ	NSG 1007-5	1530A00015	2018/08/01
Signal conditioning unit (Flicker)	TESEQ	CCN 1000-1	1530A00015	2018/08/01

### Voltage Fluctuation and Flicker / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
AC Power Source (Harmonic)	TESEQ	NSG 1007-5	1530A00015	2018/08/01
Signal conditioning unit (Flicker)	TESEQ	CCN 1000-1	1530A00015	2018/08/01

## Electrostatic Discharge / SR6

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
ESD Simulator System	Noiseken	ESS-B3011	ESS1233479	2018/05/16
ESD GUN	Noiseken	GT-30R	ESS1233499	2018/05/16
Horizontal Coupling Plane(HCP)	Quietek	HCP AL50	N/A	N/A
Vertical Coupling Plane(VCP)	Quietek	VCP AL50	N/A	N/A

## Radiated susceptibility / CB9

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Signal Generator	Keysight	N5171B	MY53051650	2018/08/20
Power Meter	Keysight	N1912A	MY55480006	2018/08/23
Stacked double Log.-Per.-Broadband Antenna	SCHWARZBECK	STLP 9129	9129 011	N/A
Power Amplifier	MILMEGA	80RF1000-300	1071481	N/A
Power Amplifier	MILMEGA	AS0860B-50/50	1071482	N/A
uniform field calibration	Dekra	N/A	N/A	2018/10/12

## Electrical fast transient/burst / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMS TEST System	TESEQ	NSG 3060	1823	2018/06/07

## Surge / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMS TEST System	TESEQ	NSG 3060	1823	2018/06/07

## Conducted susceptibility / SR6

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
TESEQ RF-Generator	TESEQ	NSG 4070B-30	37490	2018/05/29

## Power frequency magnetic field / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
AC Power Source (Harmonic)	TESEQ	NSG 1007-5	1530A00015	2018/08/01
Magnetic Loop Coil	Schaffner	INA 702	160	2018/08/02
Magnetic Loop Coil	TESEQ	INA 703	2007	2018/08/02

## Voltage dips and interruption / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMS TEST System	TESEQ	NSG 3060	1823	2018/06/07

## 2.3. Measurement Uncertainty

### Conducted Emission

The measurement uncertainty is evaluated as  $\pm 3.44$  dB.

### Impedance Stabilization Network

The measurement uncertainty is evaluated as  $\pm 3.88$  dB.

### Radiated Emission

The measurement uncertainty is evaluated as  $\pm 4.22$  dB.

### Radiated Emission Above 1GHz

The measurement uncertainty is evaluated as  $\pm 5.08$  dB.

### Harmonic Current Emission / Voltage Fluctuation and Flicker

The measurement uncertainty is evaluated as 2 dB.

### Electrostatic Discharge

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, the requirements for measurement uncertainty in ESD testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant ESD standards. The immunity test signal from the ESD system meet the required specifications in IEC 61000-4-2 through the calibration report with the calibrated uncertainty for the waveform of voltage, current and timing as being 1.5 %, 4.6% and 6.7%.

### Radiated susceptibility

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, the requirements for measurement uncertainty in RS testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant RS standards. The immunity test signal from the RS system meet the required specifications in IEC 61000-4-3 through the calibration for the uniform field strength and monitoring for the test level with the uncertainty evaluation report for the electrical field strength as being 3.57 dB.

### Electrical fast transient/burst

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, the requirements for measurement uncertainty in EFT/Burst testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant EFT/Burst standards. The immunity test signal from the EFT/Burst system meet the required specifications in IEC 61000-4-4 through the calibration report with the calibrated uncertainty for the waveform of voltage, frequency and timing as being 6.3 %,5.1% and 5.3%.

### Surge

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, the requirements for measurement uncertainty in Surge testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant Surge standards. The immunity test signal from the Surge system meet the required specifications in IEC 61000-4-5 through the calibration report with the calibrated uncertainty for the waveform of voltage, current and timing as being 5.6 %, 7.7% and 4.6%.

### Conducted susceptibility

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, the requirements for measurement uncertainty in CS testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant CS standards. The immunity test signal from the CS system meet the required specifications in IEC 61000-4-6 through the calibration for unmodulated signal and monitoring for the test level with the uncertainty evaluation report for the injected modulated signal level through CDN and EM Clamp/Direct Injection as being 2.15 dB and 3.3 dB.

### Power frequency magnetic field

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, the requirements for measurement uncertainty in PFM testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant PFM standards. The immunity test signal from the PFM system meet the required specifications in IEC 61000-4-8 through the calibration report with the calibrated uncertainty for the Gauss Meter to verify the output level of magnetic field strength as being 2.0 %.

### Voltage dips and interruption

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, the requirements for measurement uncertainty in DIP testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant DIP standards. The immunity test signal from the DIP system meet the required specifications in IEC 61000-4-11 through the calibration report with the calibrated uncertainty for the waveform of voltage and timing as being 5.5 % and 4.5%.

## 2.4. Test Environment

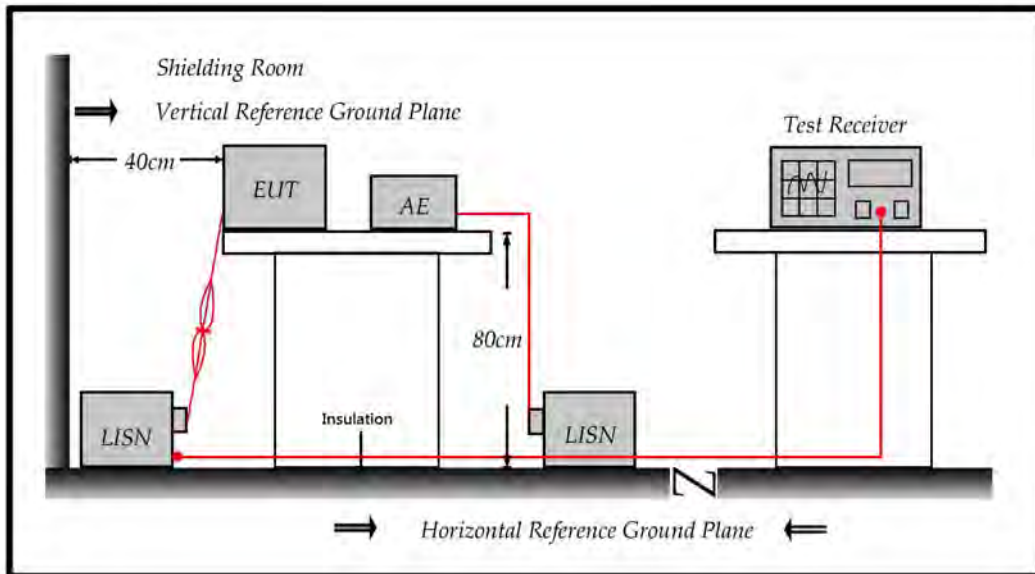
Performed Item	Items	Required	Actual
Conducted Emission	Temperature (°C)	15-35	27
	Humidity (%RH)	25-75	57
	Barometric pressure (mbar)	860-1060	950-1000
Impedance Stabilization Network	Temperature (°C)	15-35	27
	Humidity (%RH)	25-75	57
	Barometric pressure (mbar)	860-1060	950-1000
Radiated Emission	Temperature (°C)	15-35	25.9
	Humidity (%RH)	25-75	59
	Barometric pressure (mbar)	860-1060	950-1000
Electrostatic Discharge	Temperature (°C)	15-35	21
	Humidity (%RH)	30-60	56
	Barometric pressure (mbar)	860-1060	950-1000
Radiated susceptibility	Temperature (°C)	15-35	24
	Humidity (%RH)	25-75	57
	Barometric pressure (mbar)	860-1060	950-1000
Electrical fast transient/burst	Temperature (°C)	15-35	24
	Humidity (%RH)	25-75	51
	Barometric pressure (mbar)	860-1060	950-1000
Surge	Temperature (°C)	15-35	23
	Humidity (%RH)	10-75	58
	Barometric pressure (mbar)	860-1060	950-1000
Conducted susceptibility	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	57
	Barometric pressure (mbar)	860-1060	950-1000
Power frequency magnetic field	Temperature (°C)	15-35	23
	Humidity (%RH)	25-75	54
	Barometric pressure (mbar)	860-1060	950-1000
Voltage dips and interruption	Temperature (°C)	15-35	21
	Humidity (%RH)	25-75	56
	Barometric pressure (mbar)	860-1060	950-1000

### 3. Conducted Emission (Main Terminals)

#### 3.1. Test Specification

According to EMC Standard : EN 55032 / AS/NZS CISPR 32

#### 3.2. Test Setup



#### 3.3. Limit

Applicable to AC mains power ports			
Frequency range MHz	Coupling device	Detector type/ Bandwidth	Class A limits dB(μV)
0.15 – 0.5	AMN	Quasi Peak / 9 KHz	79
0.5 – 30			73
0.15 – 0.5	AMN	Average / 9 KHz	66
0.5 – 30			60

Both apply across the entire frequency range.

Remarks:

If the limits for the average detector are met when using the quasi-peak detector, then the limits for the measurement with the average detector are considered to be met.

### **3.4. Test Procedure**

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination.

(Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed on conducted measurement.

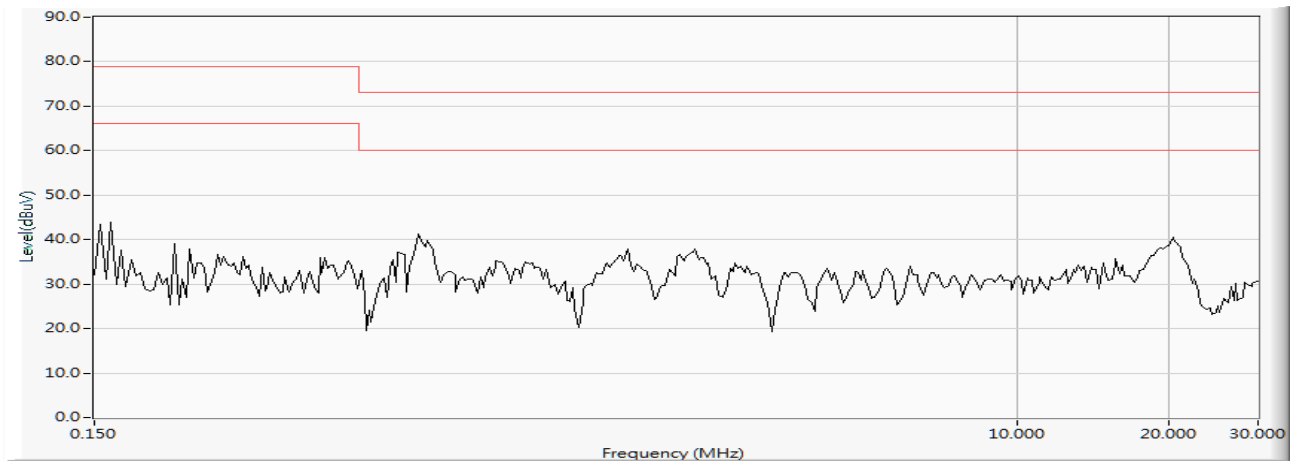
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

### **3.5. Deviation from Test Standard**

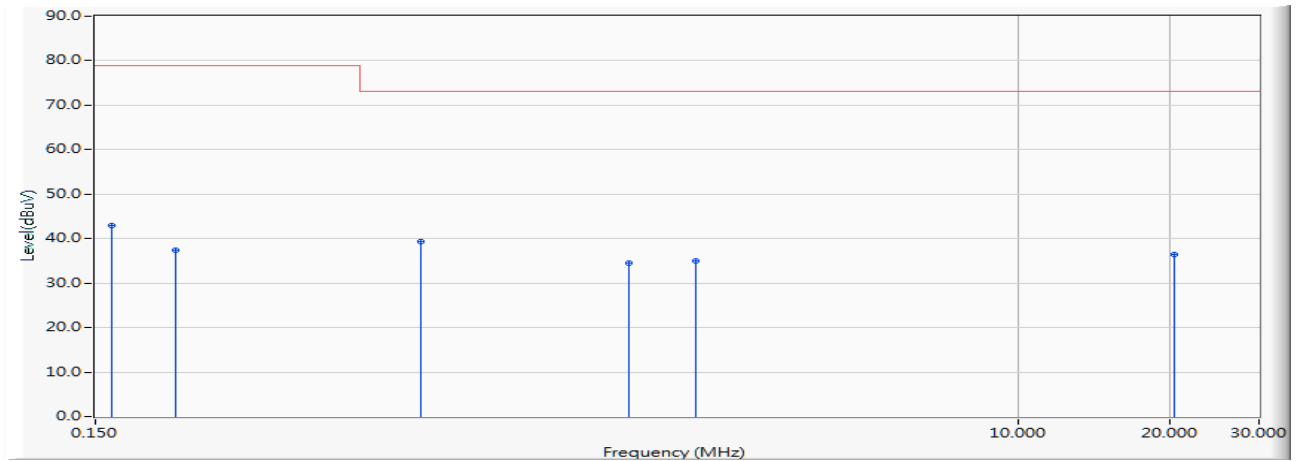
No deviation.

### 3.6. Test Result

Site : SR1	Time : 2018/10/29 - 13:30
Limit : CISPR_A_00M_QP	Margin : 13
EUT : Network Camera	Probe : ENV216_L1_1044 - Line1
Power : AC 230V/50Hz	Note: Mode 1



Site : SR1	Time : 2018/10/29 - 13:31
Limit : CISPR_A_00M_QP	Margin : 0
EUT : Network Camera	Probe : ENV216_L1_1044 - Line1
Power : AC 230V/50Hz	Note: Mode 1

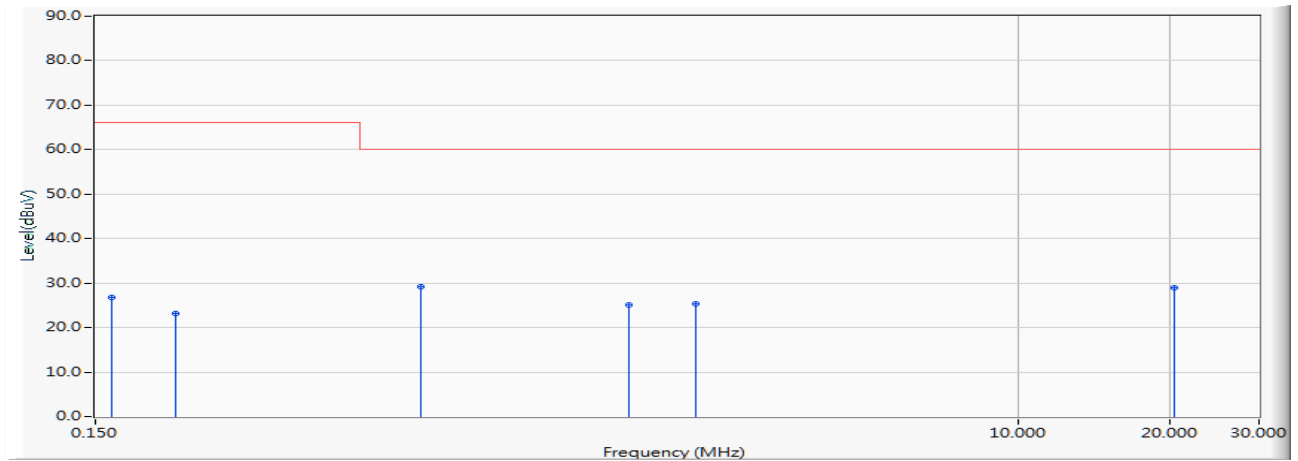


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.162	9.705	33.340	43.045	-35.955	79.000	QUASIPeAK
2		0.216	9.707	27.650	37.357	-41.643	79.000	QUASIPeAK
3	*	0.658	9.711	29.640	39.351	-33.649	73.000	QUASIPeAK
4		1.701	9.764	24.620	34.384	-38.616	73.000	QUASIPeAK
5		2.314	9.783	25.140	34.923	-38.077	73.000	QUASIPeAK
6		20.420	10.216	26.310	36.526	-36.474	73.000	QUASIPeAK

**Note:**

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR1	Time : 2018/10/29 - 13:31
Limit : CISPR_A_00M_AV	Margin : 0
EUT : Network Camera	Probe : ENV216_L1_1044 - Line1
Power : AC 230V/50Hz	Note: Mode 1

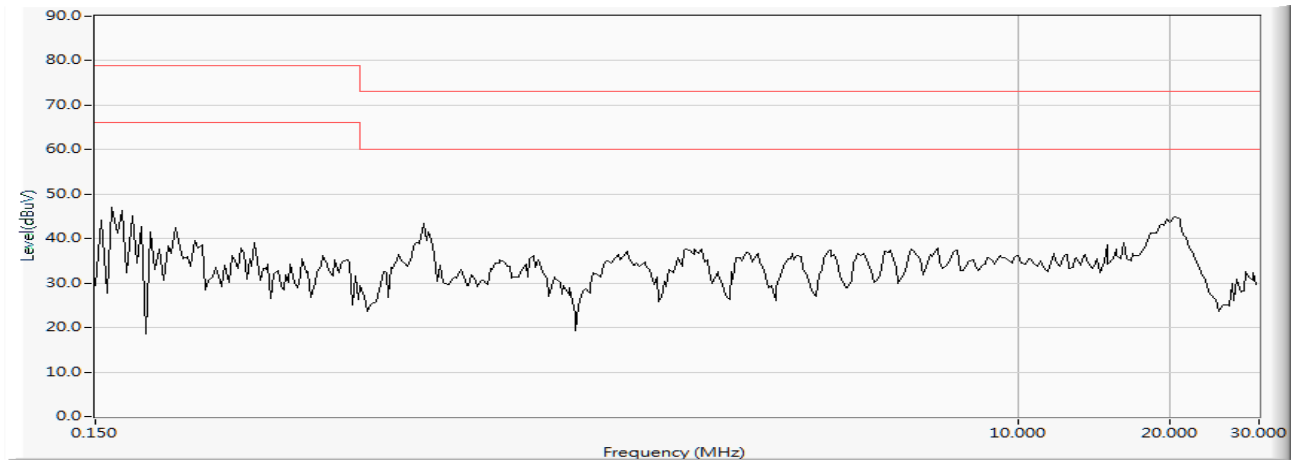


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.162	9.705	17.090	26.795	-39.205	66.000	AVERAGE
2		0.216	9.707	13.400	23.107	-42.893	66.000	AVERAGE
3	*	0.658	9.711	19.530	29.241	-30.759	60.000	AVERAGE
4		1.701	9.764	15.340	25.104	-34.896	60.000	AVERAGE
5		2.314	9.783	15.460	25.243	-34.757	60.000	AVERAGE
6		20.420	10.216	18.730	28.946	-31.054	60.000	AVERAGE

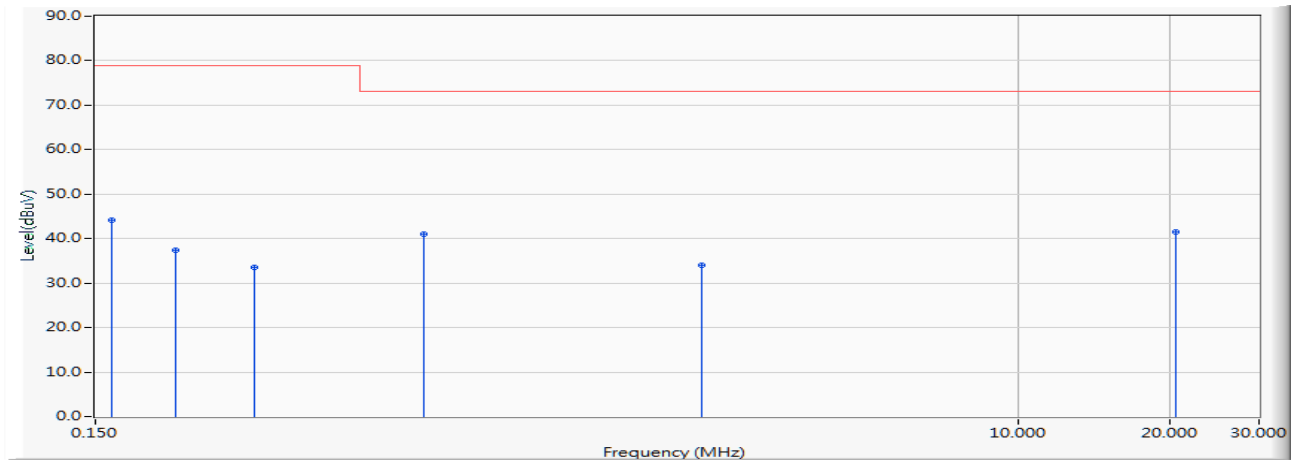
**Note:**

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR1	Time : 2018/10/29 - 13:32
Limit : CISPR_A_00M_QP	Margin : 13
EUT : Network Camera	Probe : ENV216_N_1044 - Line2
Power : AC 230V/50Hz	Note: Mode 1



Site : SR1	Time : 2018/10/29 - 13:33
Limit : CISPR_A_00M_QP	Margin : 0
EUT : Network Camera	Probe : ENV216_N_1044 - Line2
Power : AC 230V/50Hz	Note: Mode 1

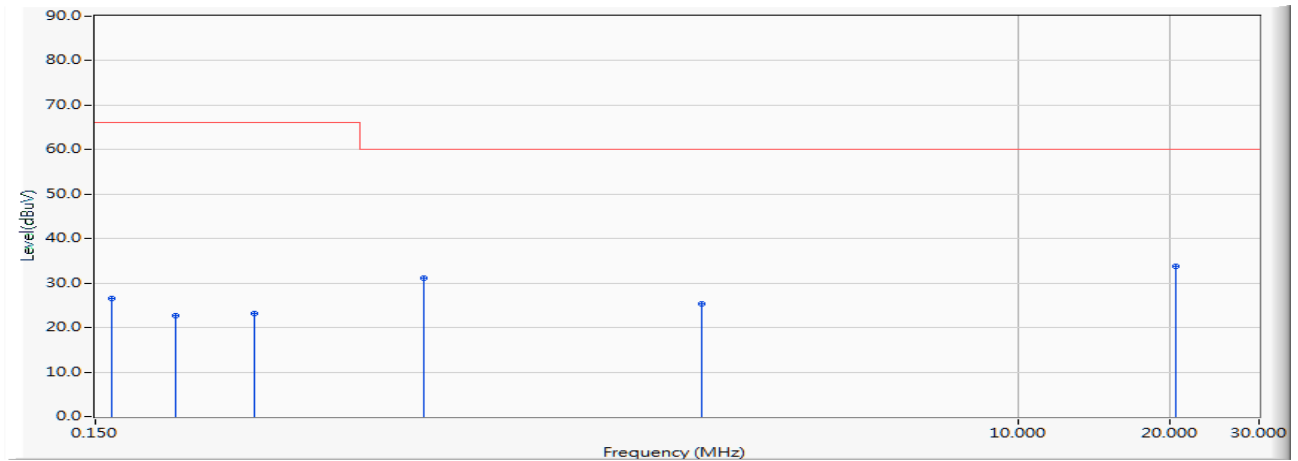


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.162	9.685	34.370	44.055	-34.945	79.000	QUASIPeAK
2		0.216	9.687	27.670	37.357	-41.643	79.000	QUASIPeAK
3		0.310	9.680	23.840	33.520	-45.480	79.000	QUASIPeAK
4		0.670	9.691	31.440	41.131	-31.869	73.000	QUASIPeAK
5		2.369	9.764	24.330	34.094	-38.906	73.000	QUASIPeAK
6	*	20.580	10.357	31.030	41.387	-31.613	73.000	QUASIPeAK

**Note:**

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR1	Time : 2018/10/29 - 13:33
Limit : CISPR_A_00M_AV	Margin : 0
EUT : Network Camera	Probe : ENV216_N_1044 - Line2
Power : AC 230V/50Hz	Note: Mode 1



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.162	9.685	16.770	26.455	-39.545	66.000	AVERAGE
2		0.216	9.687	13.090	22.777	-43.223	66.000	AVERAGE
3		0.310	9.680	13.460	23.140	-42.860	66.000	AVERAGE
4		0.670	9.691	21.330	31.021	-28.979	60.000	AVERAGE
5		2.369	9.764	15.480	25.244	-34.756	60.000	AVERAGE
6	*	20.580	10.357	23.380	33.737	-26.263	60.000	AVERAGE

**Note:**

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

### 3.7. Test Photograph

Test Mode : Mode 1: IB9387-EH , DC

Description : Front View of Conducted Test



Test Mode : Mode 1: IB9387-EH , DC

Description : Back View of Conducted Test



Test Mode : Mode 1: IB9387-EH , DC

Description : Back View of Conducted Test





### 4.3. Limit

Applicable to				
1. wired network ports				
2. optical fibre port with metallic shield or tension members				
3. antenna ports				
Frequency range MHz	Coupling device	Detector type/ Bandwidth	Class A voltage limits dB( $\mu$ V)	Class A current limits dB( $\mu$ A)
0.15 – 0.5	AAN	Quasi Peak / 9 KHz	97 – 87	N / A
0.5 – 30			87	
0.15 – 0.5	AAN	Average / 9 KHz	84 – 74	
0.5 – 30			74	
0.15 – 0.5	CVP And current probe	Quasi Peak / 9 KHz	97 – 87	53 – 43
0.5 – 30			87	43
0.15 – 0.5	CVP And current probe	Average / 9 KHz	84 – 74	40 – 30
0.5 – 30			74	30
0.15 – 0.5	Current Probe	Quasi Peak / 9 KHz	N / A	53 – 43
0.5 – 30				43
0.15 – 0.5	Current Probe	Average / 9 KHz		40 – 30
0.5 – 30				30

The choice of coupling device and measurement procedure is defined in EN55032: 2012 Annex C.

Screened ports including TV broadcast receiver tuner ports are tested with a common-mode impedance of 150  $\Omega$ .

This is typically accomplished with the screen terminated by 150  $\Omega$  to earth.

AC mains ports that also have the function of a wired network port shall meet the limits given in EN55032: 2012+AC 2013 Table A.9.

The test shall cover the entire frequency range.

The application of the voltage and/or current limits is dependent on the measurement procedure used. Refer to EN55032: 2012+AC 2013 Table C.1 for applicability.

Testing is required at only one EUT supply voltage and frequency.

Applicable to ports listed above and intended to connect to cables longer than 3 m

#### **4.4. Test Procedure**

##### **Telecommunication Port:**

The mains voltage shall be supplied to the EUT via the LISN when the measurement of telecommunication port is performed. The common mode disturbances at the telecommunication port shall be connected to the ISN, which is 150 ohm impedance.

Both alternative cables are tested related to the LCL requested. The measurement range is from 150kHz to 30MHz. The bandwidth of measurement is set to 9kHz.

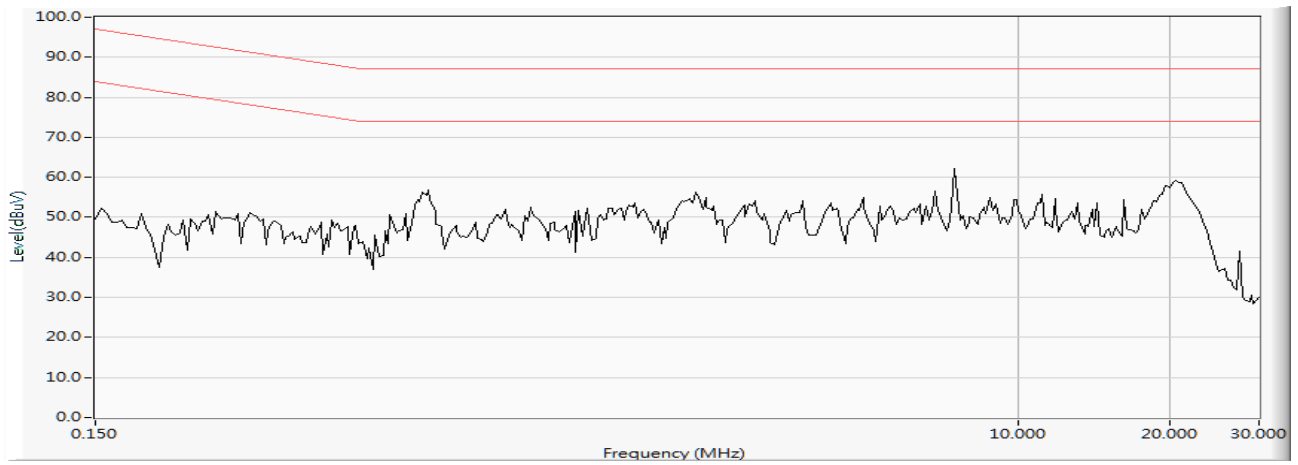
The 75Db LCL ISN is used for cat. 6 cable, the 65Db LCL ISN is used for cat. 5 cable, 55Db LCL ISN is used for cat. 3.

#### **4.5. Deviation from Test Standard**

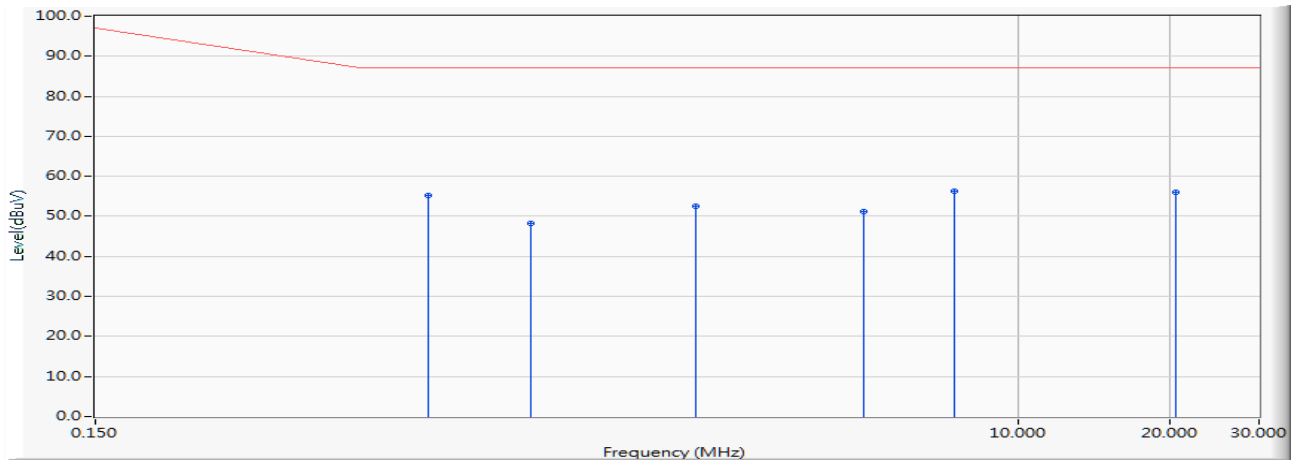
No deviation.

### 4.6. Test Result

Site : SR1	Time : 2018/10/29 - 13:22
Limit : ISN_Voltage_A_00M_QP	Margin : 13
EUT : Network Camera	Probe : TESEQ_T8_30303 - Line1
Power : AC 230V/50Hz	Note: Mode 1, ISN 10M



Site : SR1	Time : 2018/10/29 - 13:23
Limit : ISN_Voltage_A_00M_QP	Margin : 0
EUT : Network Camera	Probe : TESEQ_T8_30303 - Line1
Power : AC 230V/50Hz	Note: Mode 1, ISN 10M

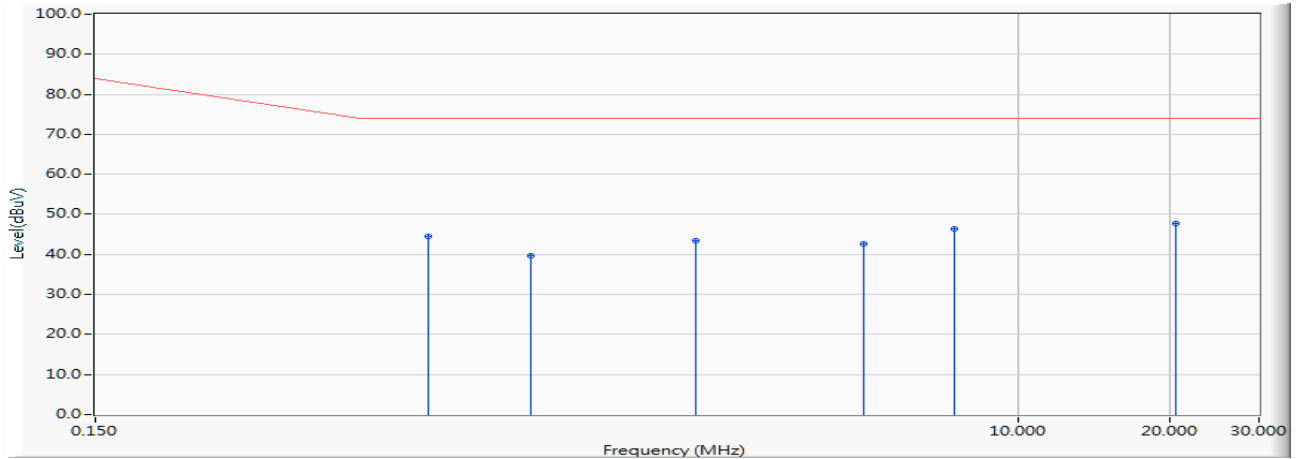


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.681	9.673	45.610	55.283	-31.717	87.000	QUASIPeAK
2	1.087	9.634	38.610	48.244	-38.756	87.000	QUASIPeAK
3	2.302	9.603	42.850	52.453	-34.547	87.000	QUASIPeAK
4	4.947	9.630	41.520	51.150	-35.850	87.000	QUASIPeAK
5	* 7.498	9.670	46.700	56.370	-30.630	87.000	QUASIPeAK
6	20.537	9.977	45.970	55.947	-31.053	87.000	QUASIPeAK

**Note:**

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR1	Time : 2018/10/29 - 13:23
Limit : ISN_Voltage_A_00M_AV	Margin : 0
EUT : Network Camera	Probe : TESEQ_T8_30303 - Line1
Power : AC 230V/50Hz	Note: Mode 1, ISN 10M

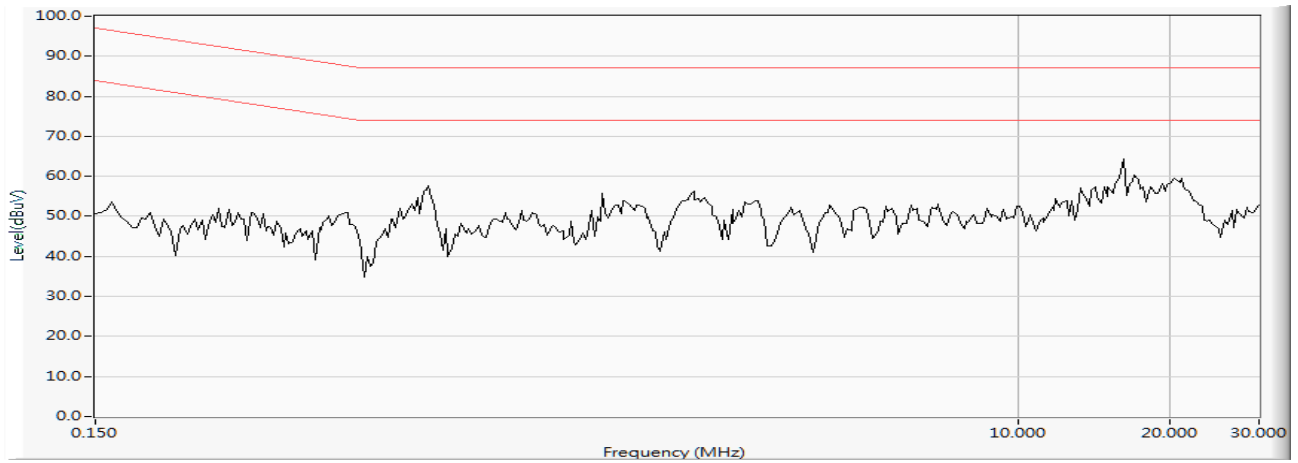


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.681	9.673	34.930	44.603	-29.397	74.000	AVERAGE
2		1.087	9.634	30.130	39.764	-34.236	74.000	AVERAGE
3		2.302	9.603	33.860	43.463	-30.537	74.000	AVERAGE
4		4.947	9.630	32.880	42.510	-31.490	74.000	AVERAGE
5		7.498	9.670	36.730	46.400	-27.600	74.000	AVERAGE
6	*	20.537	9.977	37.800	47.777	-26.223	74.000	AVERAGE

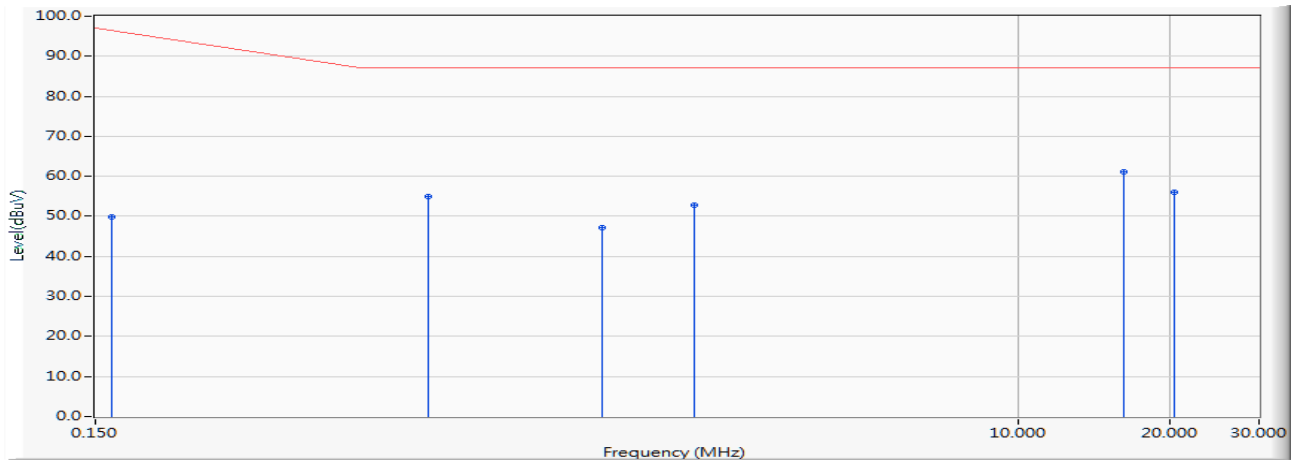
**Note:**

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR1	Time : 2018/10/29 - 13:24
Limit : ISN_Voltage_A_00M_QP	Margin : 13
EUT : Network Camera	Probe : TESEQ_T8_30303 - Line1
Power : AC 230V/50Hz	Note: Mode 1, ISN 100M



Site : SR1	Time : 2018/10/29 - 13:25
Limit : ISN_Voltage_A_00M_QP	Margin : 0
EUT : Network Camera	Probe : TESEQ_T8_30303 - Line1
Power : AC 230V/50Hz	Note: Mode 1, ISN 100M

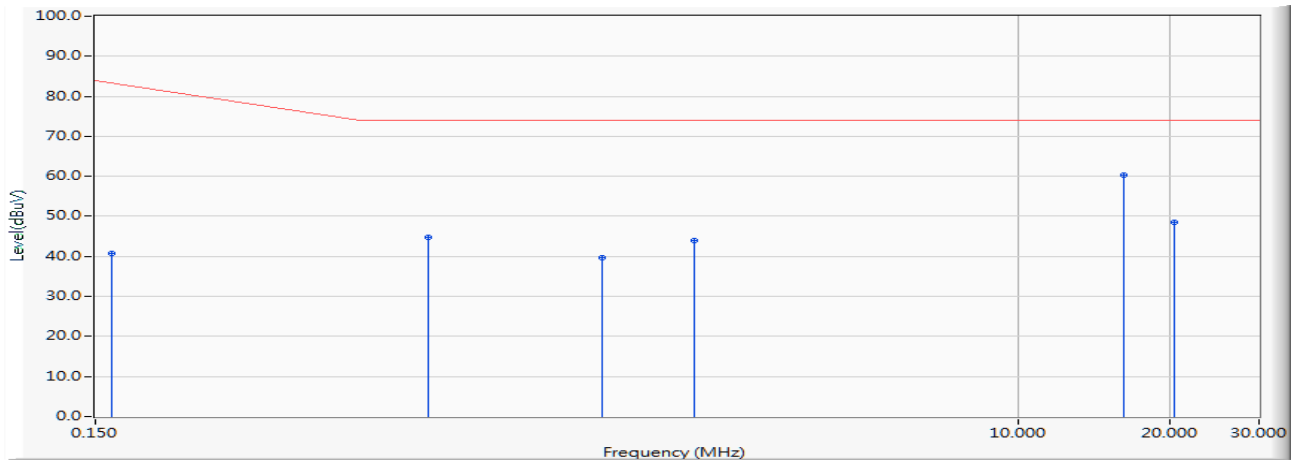


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.162	10.096	39.860	49.956	-46.701	96.657	QUASIPeAK
2		0.685	9.673	45.330	55.002	-31.998	87.000	QUASIPeAK
3		1.505	9.624	37.660	47.284	-39.716	87.000	QUASIPeAK
4		2.287	9.602	43.200	52.802	-34.198	87.000	QUASIPeAK
5	*	16.228	9.881	51.290	61.171	-25.829	87.000	QUASIPeAK
6		20.373	9.975	46.020	55.995	-31.005	87.000	QUASIPeAK

**Note:**

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR1	Time : 2018/10/29 - 13:25
Limit : ISN_Voltage_A_00M_AV	Margin : 0
EUT : Network Camera	Probe : TESEQ_T8_30303 - Line1
Power : AC 230V/50Hz	Note: Mode 1, ISN 100M

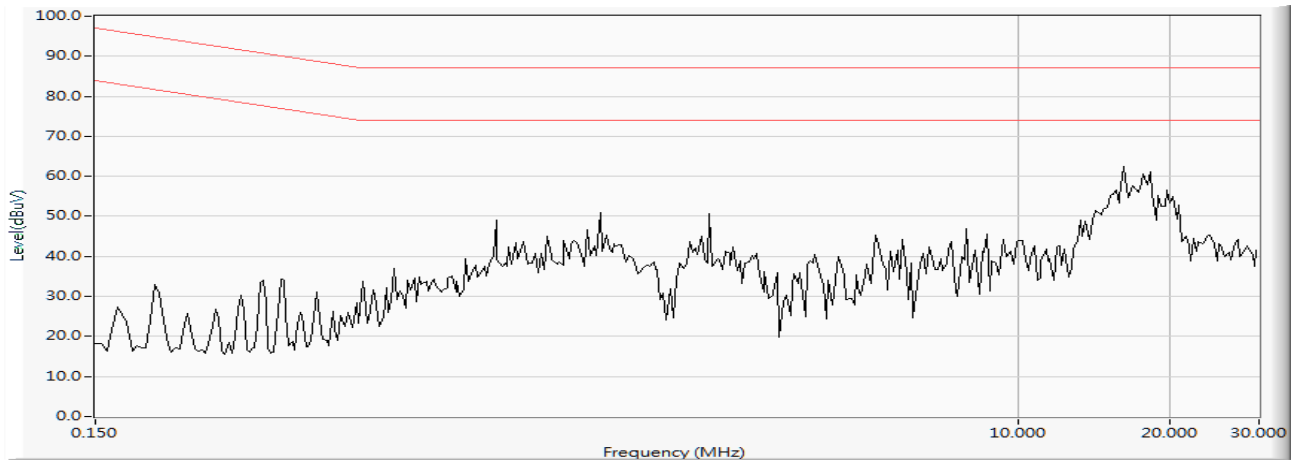


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.162	10.096	30.600	40.696	-42.961	83.657	AVERAGE
2		0.685	9.673	35.080	44.752	-29.248	74.000	AVERAGE
3		1.505	9.624	30.110	39.734	-34.266	74.000	AVERAGE
4		2.287	9.602	34.330	43.932	-30.068	74.000	AVERAGE
5	*	16.228	9.881	50.310	60.191	-13.809	74.000	AVERAGE
6		20.373	9.975	38.450	48.425	-25.575	74.000	AVERAGE

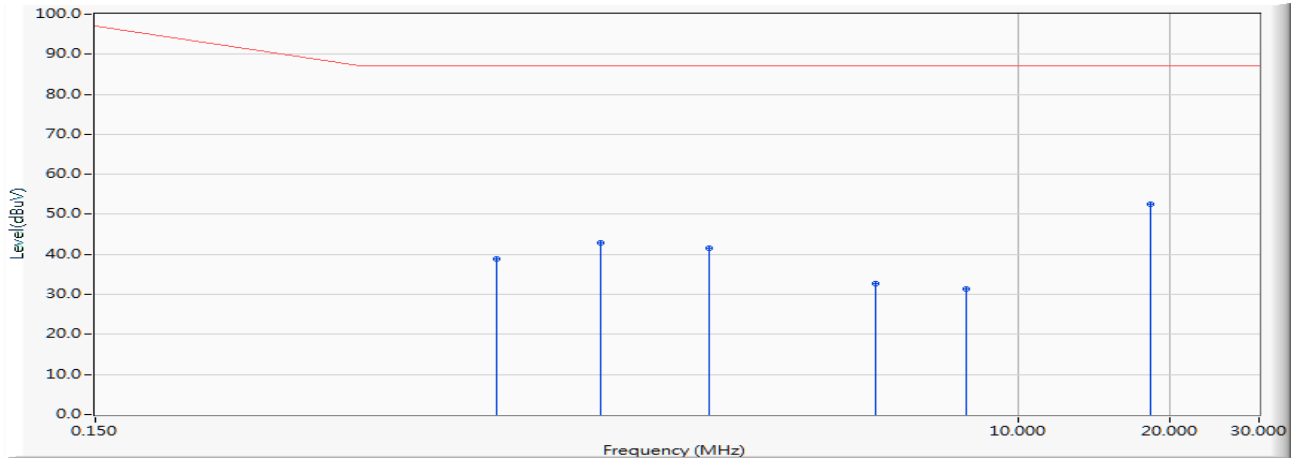
**Note:**

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR1	Time : 2018/10/29 - 14:08
Limit : ISN_Voltage_A_00M_QP	Margin : 13
EUT : Network Camera	Probe : TESEQ_T8_30303 - Line1
Power : By PoE	Note: Mode 2, ISN 10M



Site : SR1	Time : 2018/10/29 - 14:09
Limit : ISN_Voltage_A_00M_QP	Margin : 0
EUT : Network Camera	Probe : TESEQ_T8_30303 - Line1
Power : By PoE	Note: Mode 2, ISN 10M

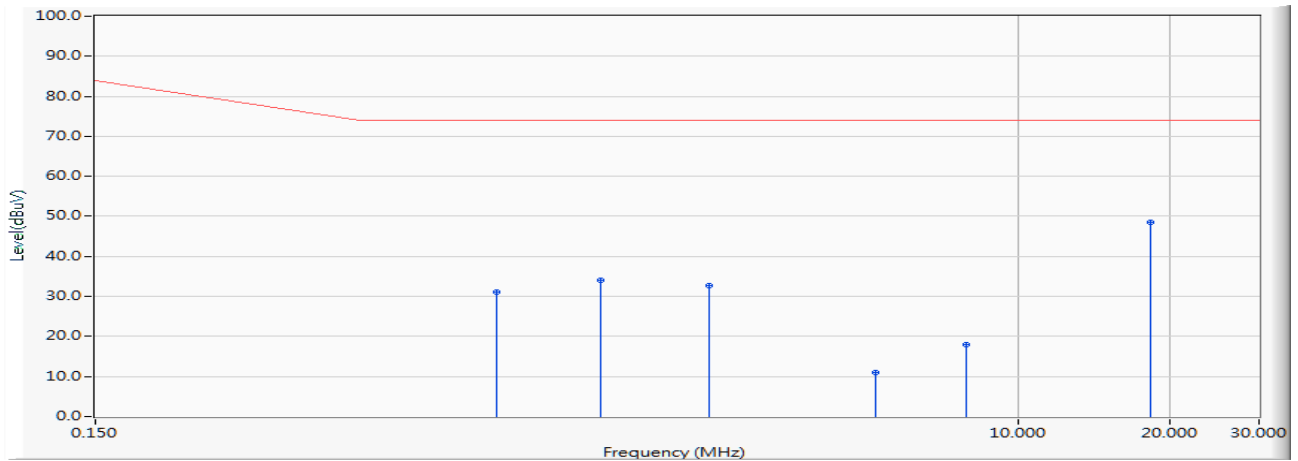


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.931	9.647	29.360	39.008	-47.992	87.000	QUASIPeAK
2		1.498	9.626	33.310	42.936	-44.064	87.000	QUASIPeAK
3		2.455	9.607	31.910	41.517	-45.483	87.000	QUASIPeAK
4		5.236	9.635	23.060	32.695	-54.305	87.000	QUASIPeAK
5		7.923	9.680	21.780	31.460	-55.540	87.000	QUASIPeAK
6	*	18.306	9.920	42.510	52.430	-34.570	87.000	QUASIPeAK

**Note:**

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR1	Time : 2018/10/29 - 14:09
Limit : ISN_Voltage_A_00M_AV	Margin : 0
EUT : Network Camera	Probe : TESEQ_T8_30303 - Line1
Power : By PoE	Note: Mode 2, ISN 10M

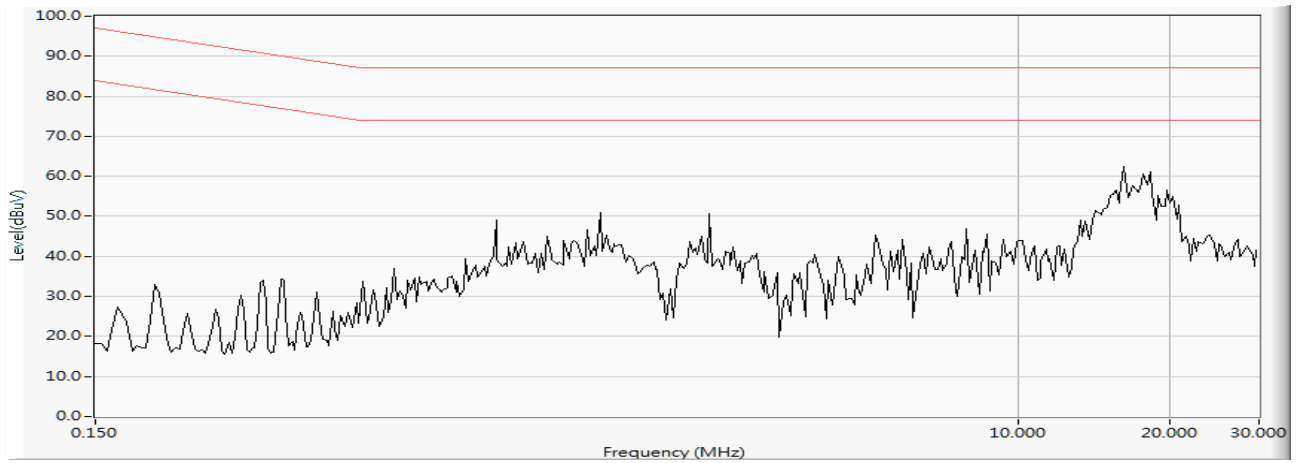


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.931	9.647	21.470	31.118	-42.882	74.000	AVERAGE
2		1.498	9.626	24.300	33.926	-40.074	74.000	AVERAGE
3		2.455	9.607	23.040	32.647	-41.353	74.000	AVERAGE
4		5.236	9.635	1.300	10.935	-63.065	74.000	AVERAGE
5		7.923	9.680	8.230	17.910	-56.090	74.000	AVERAGE
6	*	18.306	9.920	38.660	48.580	-25.420	74.000	AVERAGE

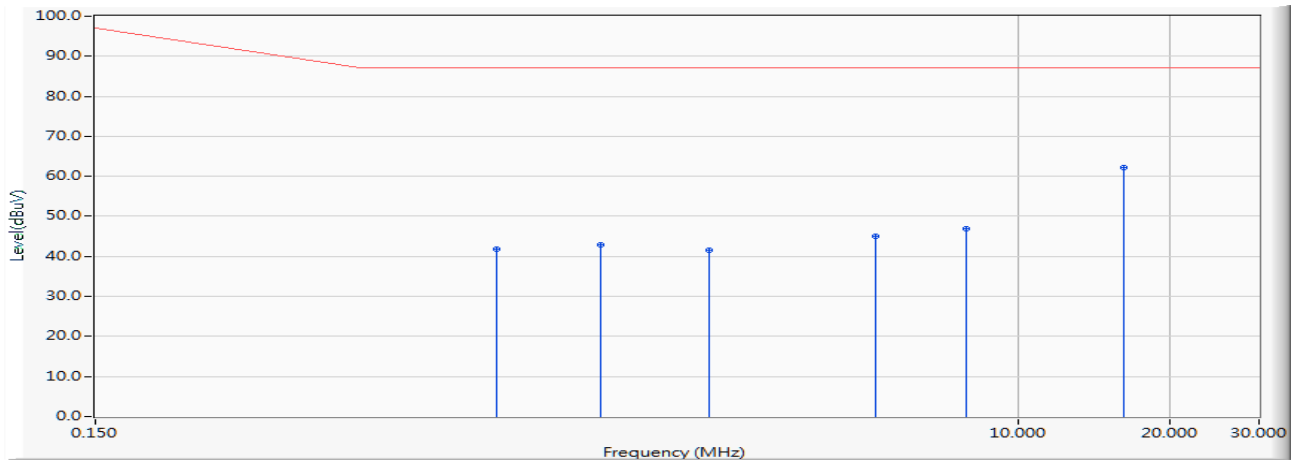
**Note:**

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR1	Time : 2018/10/29 - 14:11
Limit : ISN_Voltage_A_00M_QP	Margin : 13
EUT : Network Camera	Probe : TESEQ_T8_30303 - Line1
Power : By PoE	Note: Mode 2, ISN 100M



Site : SR1	Time : 2018/10/29 - 14:13
Limit : ISN_Voltage_A_00M_QP	Margin : 0
EUT : Network Camera	Probe : TESEQ_T8_30303 - Line1
Power : By PoE	Note: Mode 2, ISN 100M

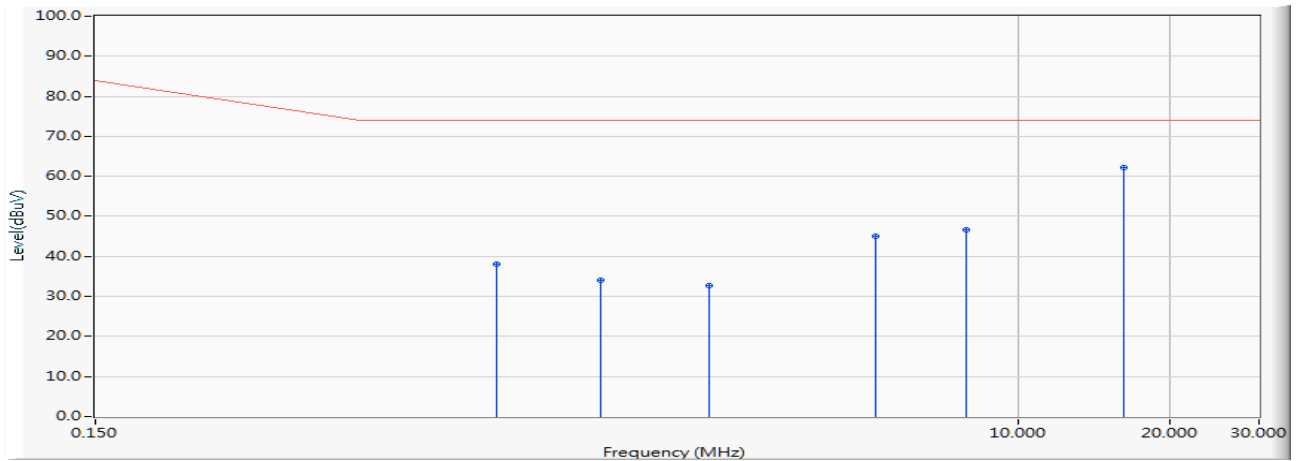


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.931	9.647	32.290	41.938	-45.062	87.000	QUASIPeAK
2		1.498	9.626	33.330	42.956	-44.044	87.000	QUASIPeAK
3		2.455	9.607	31.850	41.457	-45.543	87.000	QUASIPeAK
4		5.236	9.635	35.520	45.155	-41.845	87.000	QUASIPeAK
5		7.923	9.680	37.370	47.050	-39.950	87.000	QUASIPeAK
6	*	16.228	9.881	52.430	62.311	-24.689	87.000	QUASIPeAK

**Note:**

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR1	Time : 2018/10/29 - 14:13
Limit : ISN_Voltage_A_00M_AV	Margin : 0
EUT : Network Camera	Probe : TESEQ_T8_30303 - Line1
Power : By PoE	Note: Mode 2, ISN 100M



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.931	9.647	28.520	38.168	-35.832	74.000	AVERAGE
2		1.498	9.626	24.340	33.966	-40.034	74.000	AVERAGE
3		2.455	9.607	23.140	32.747	-41.253	74.000	AVERAGE
4		5.236	9.635	35.500	45.135	-28.865	74.000	AVERAGE
5		7.923	9.680	37.090	46.770	-27.230	74.000	AVERAGE
6	*	16.228	9.881	52.420	62.301	-11.699	74.000	AVERAGE

**Note:**

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

#### 4.7. Test Photograph

Test Mode : Mode 1: IB9387-EH , DC

Description : Front View of ISN Test



Test Mode : Mode 1: IB9387-EH , DC

Description : Back View of ISN Test



Test Mode : Mode 1: IB9387-EH , DC

Description : Back View of ISN Test



Test Mode : Mode 2: IB9387-EH , PoE

Description : Front View of ISN Test



Test Mode : Mode 2: IB9387-EH , PoE

Description : Back View of ISN Test



Test Mode : Mode 2: IB9387-EH , PoE

Description : Back View of ISN Test



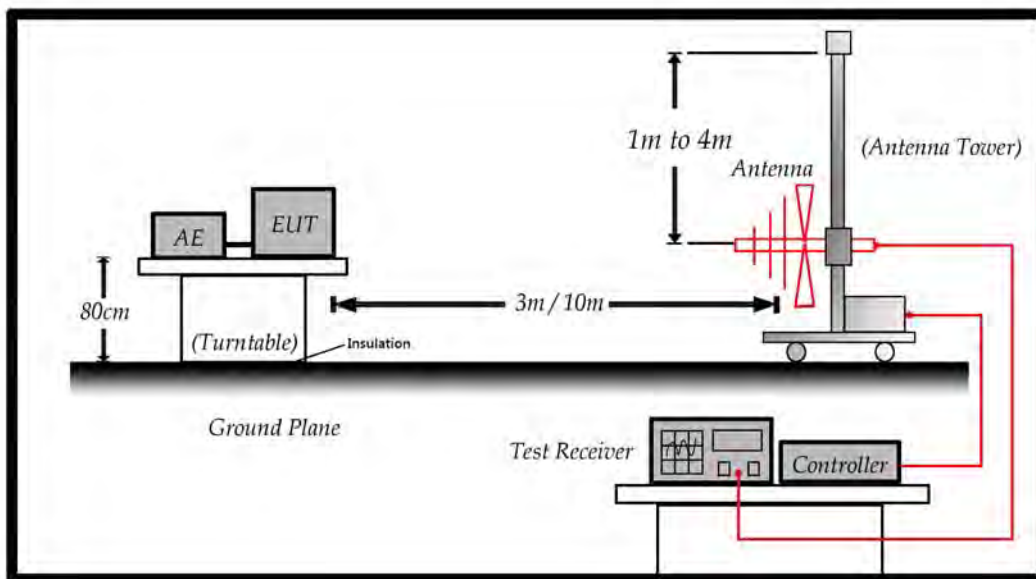
## 5. Radiated Emission

### 5.1. Test Specification

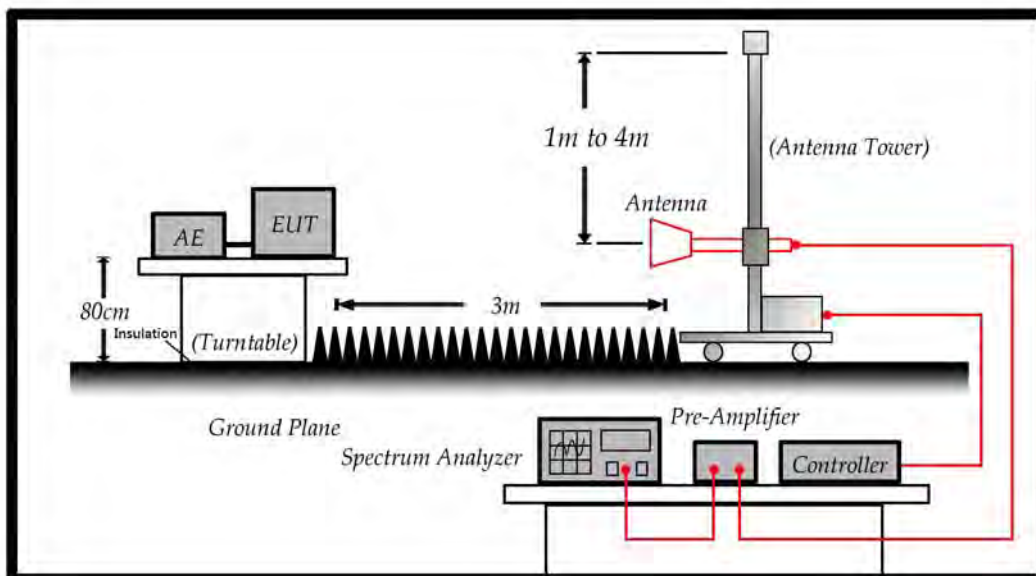
According to EMC Standard : EN 55032 / AS/NZS CISPR 32

### 5.2. Test Setup

Under 1GHz



Above 1GHz



### 5.3. Limit

Radiated emissions at frequencies up to 1 GHz

for Class A equipment

Frequency range MHz	Measurement		Class A limits dB( $\mu$ V/m)
	Distance m	Detector type/ Bandwidth	OATS / SAC
30-230	10	Quasi Peak / 120 KHz	40
230-1000			47
30-230	3		50
230-1000			57
Apply only 3m or 10m across the entire frequency range			

Radiated emissions at frequencies above 1 GHz

for Class A equipment

Frequency range MHz	Measurement		Class A limits dB( $\mu$ V/m)
	Distance m	Detector type/ Bandwidth	OATS / SAC
1000-3000	3	Average / 1 MHz	56
3000-6000			60
1000-3000		Peak / 1 MHz	76
3000-6000			80
Both apply across the frequency range from 1000 MHz to the highest required frequency of measurement derived from			

Required highest frequency for radiated measurement

Highest internal frequency ( $F_x$ )	Highest measured frequency
$F_x \leq 108$ MHz	1 GHz
$108$ MHz $< F_x \leq 500$ MHz	2 GHz
$500$ MHz $< F_x \leq 1$ GHz	5 GHz
$F_x > 1$ GHz	$5 \times F_x$ up to a maximum of 6 GHz

NOTE 1 For FM and TV broadcast receivers,  $F_x$  is determined from the highest frequency generated or used excluding the local oscillator and tuned frequencies.

NOTE 2  $F_x$  is defined in 3.1.19.

#### **5.4. Test Procedure**

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3/10 meters. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated on radiated measurement.

Radiated emissions were investigated over the frequency range from 30MHz to 1GHz using a receiver bandwidth of 120kHz and above 1GHz using a receiver bandwidth of 1MHz.

30MHz to 1GHz Radiated was performed at an antenna to EUT distance of 10 meters.

Above 1GHz Radiated was performed at an antenna to EUT distance of 3 meters.

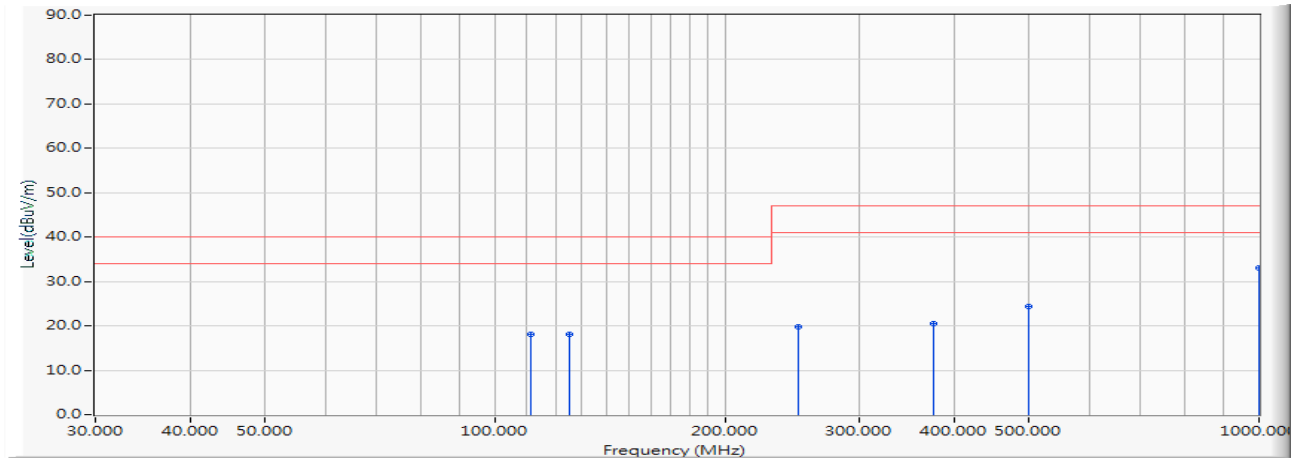
It is placed with absorb on the ground between EUT and Antenna.

#### **5.5. Deviation from Test Standard**

No deviation.

### 5.6. Test Result

Site : SITE7	Time : 2018/10/29 - 19:40
Limit : CISPR_A_10M_QP	Margin : 6
EUT : Network Camera	Probe : Site7_VULB9168_10m_1804 - HORIZONTAL
Power : AC 230V/50Hz	Note: Mode 1

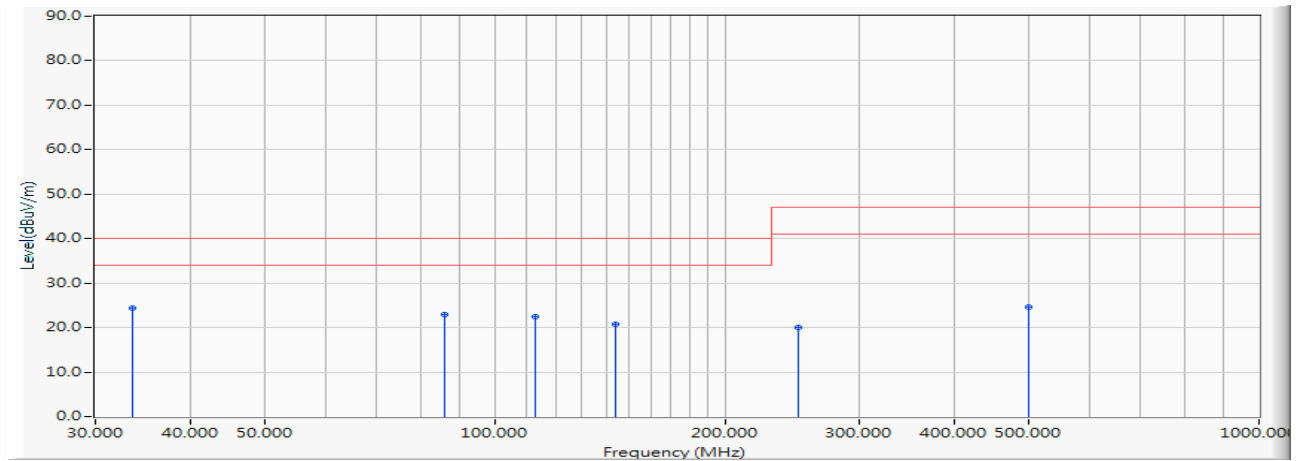


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1	111.200	-13.839	32.000	18.161	-21.839	40.000	QUASIPeAK	385.000	63.000
2	125.000	-12.407	30.600	18.194	-21.806	40.000	QUASIPeAK	375.000	51.000
3	250.000	-10.388	30.200	19.812	-27.188	47.000	QUASIPeAK	380.000	-44.000
4	375.000	-5.843	26.300	20.457	-26.543	47.000	QUASIPeAK	300.000	-48.000
5	500.000	-1.909	26.300	24.391	-22.609	47.000	QUASIPeAK	200.000	-91.000
6	* 1000.000	7.730	25.300	33.030	-13.970	47.000	QUASIPeAK	100.000	-117.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SITE7	Time : 2018/10/29 - 19:40
Limit : CISPR_A_10M_QP	Margin : 6
EUT : Network Camera	Probe : Site7_VULB9168_10m_1804 - VERTICAL
Power : AC 230V/50Hz	Note: Mode 1

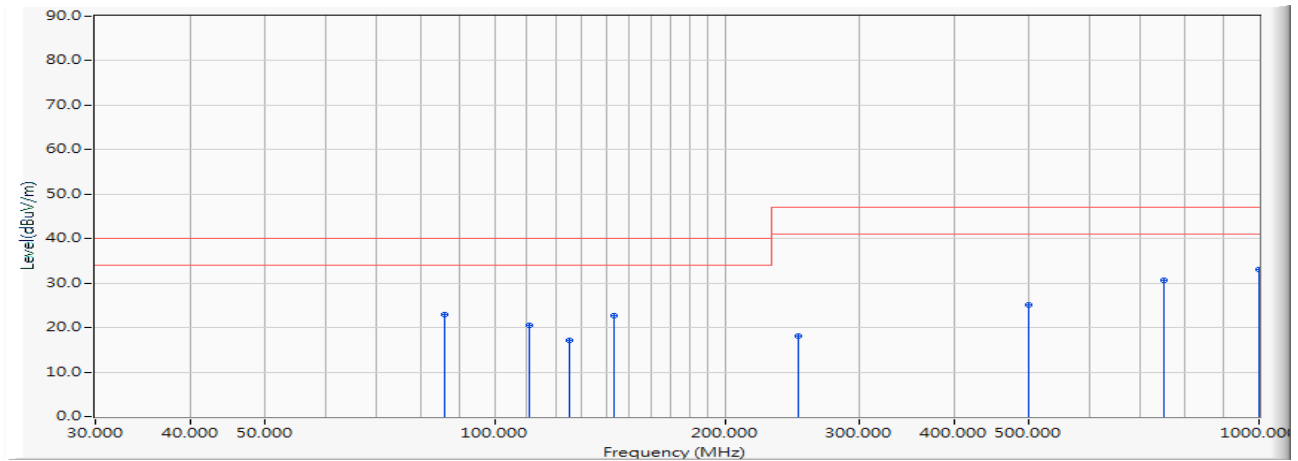


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1	*	33.600	-12.850	37.100	24.250	-15.750	40.000	QUASPEAK	100.000	128.000
2		85.960	-16.379	39.400	23.021	-16.979	40.000	QUASPEAK	100.000	-134.000
3		112.800	-13.674	36.000	22.326	-17.674	40.000	QUASPEAK	100.000	61.000
4		143.590	-10.675	31.400	20.725	-19.275	40.000	QUASPEAK	100.000	64.000
5		250.000	-10.388	30.300	19.912	-27.088	47.000	QUASPEAK	100.000	64.000
6		500.000	-1.909	26.600	24.691	-22.309	47.000	QUASPEAK	300.000	42.000

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SITE7	Time : 2018/10/29 - 17:09
Limit : CISPR_A_10M_QP	Margin : 6
EUT : Network Camera	Probe : Site7_VULB9168_10m_1804 - HORIZONTAL
Power : By PoE	Note: Mode 2

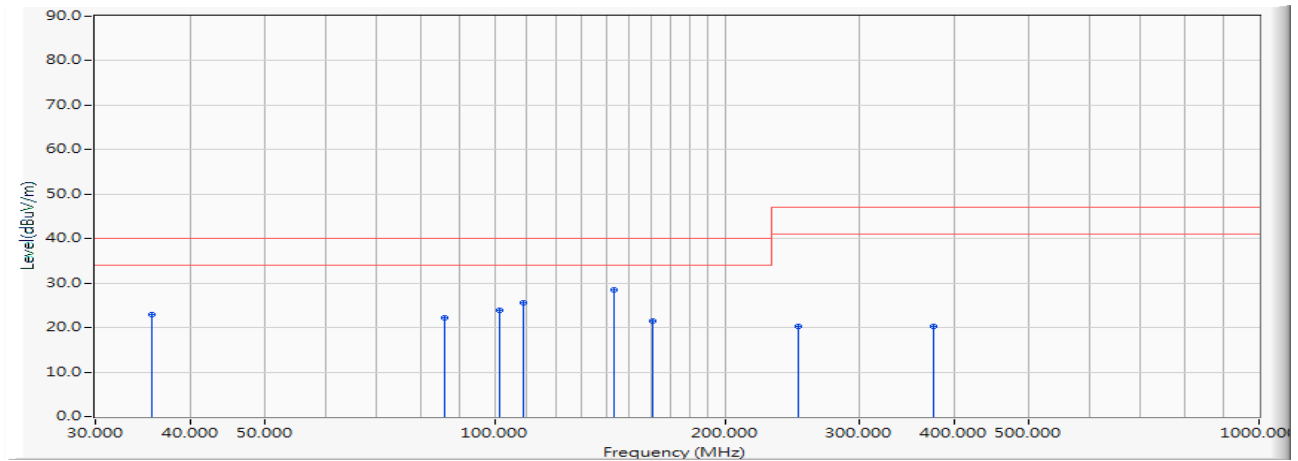


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1	86.040	-16.387	39.300	22.913	-17.087	40.000	QUASPEAK	400.000	67.000
2	110.700	-13.890	34.300	20.410	-19.590	40.000	QUASPEAK	400.000	-47.000
3	125.000	-12.407	29.600	17.194	-22.806	40.000	QUASPEAK	400.000	-4.000
4	143.300	-10.692	33.300	22.608	-17.392	40.000	QUASPEAK	400.000	62.000
5	250.000	-10.388	28.500	18.112	-28.888	47.000	QUASPEAK	360.000	67.000
6	500.000	-1.909	27.000	25.091	-21.909	47.000	QUASPEAK	200.000	-134.000
7	750.000	4.566	26.000	30.565	-16.435	47.000	QUASPEAK	130.000	-23.000
8	* 1000.000	7.730	25.400	33.130	-13.870	47.000	QUASPEAK	100.000	114.000

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SITE7	Time : 2018/10/29 - 17:09
Limit : CISPR_A_10M_QP	Margin : 6
EUT : Network Camera	Probe : Site7_VULB9168_10m_1804 - VERTICAL
Power : By PoE	Note: Mode 2

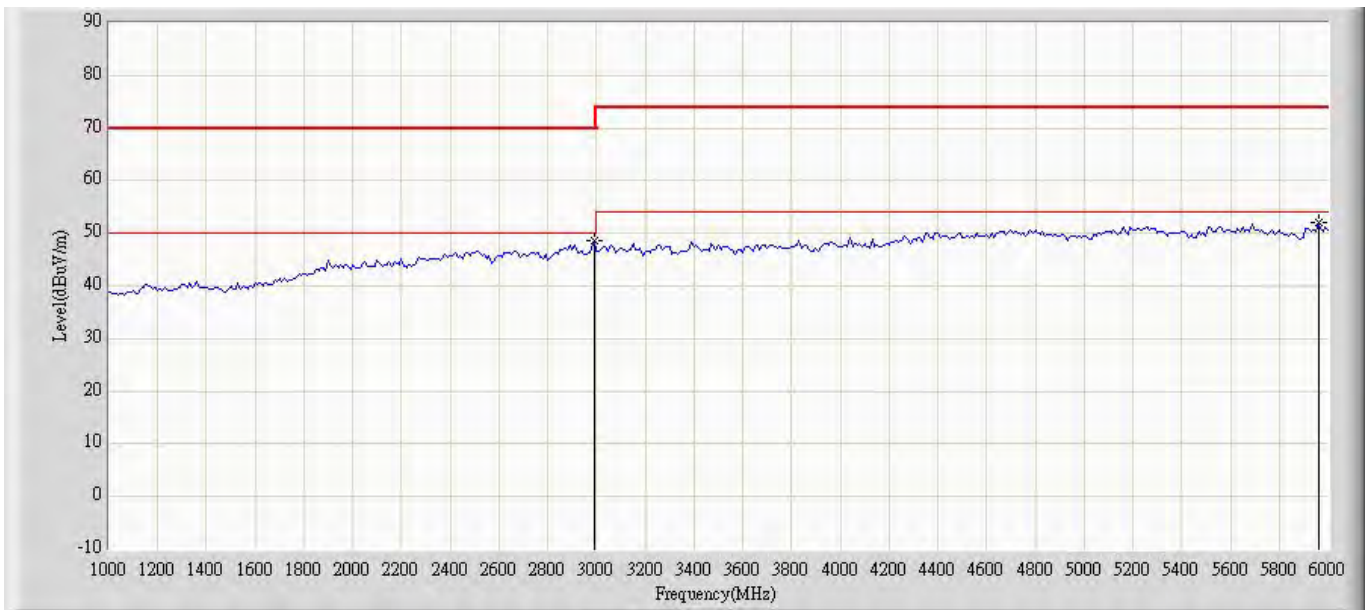


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1	35.600	-12.663	35.600	22.937	-17.063	40.000	QUASPEAK	100.000	96.000
2	86.080	-16.392	38.600	22.209	-17.791	40.000	QUASPEAK	100.000	-4.000
3	101.200	-15.326	39.200	23.874	-16.126	40.000	QUASPEAK	100.000	108.000
4	108.800	-14.152	39.800	25.648	-14.352	40.000	QUASPEAK	100.000	62.000
5	* 143.200	-10.698	39.100	28.402	-11.598	40.000	QUASPEAK	100.000	63.000
6	161.100	-10.132	31.600	21.467	-18.533	40.000	QUASPEAK	100.000	-58.000
7	250.000	-10.388	30.600	20.212	-26.788	47.000	QUASPEAK	100.000	-47.000
8	375.000	-5.843	26.000	20.157	-26.843	47.000	QUASPEAK	100.000	64.000

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site: CB7	Time: 2018/10/30 - 19:24
Limit: EN55032_B_(Above_1G)	Margin: 0
Probe: CB7_Horn_3117_1808	Polarity: Horizontal
EUT : Network Camera	Power: AC 230V/50Hz
Note: Mode 1	

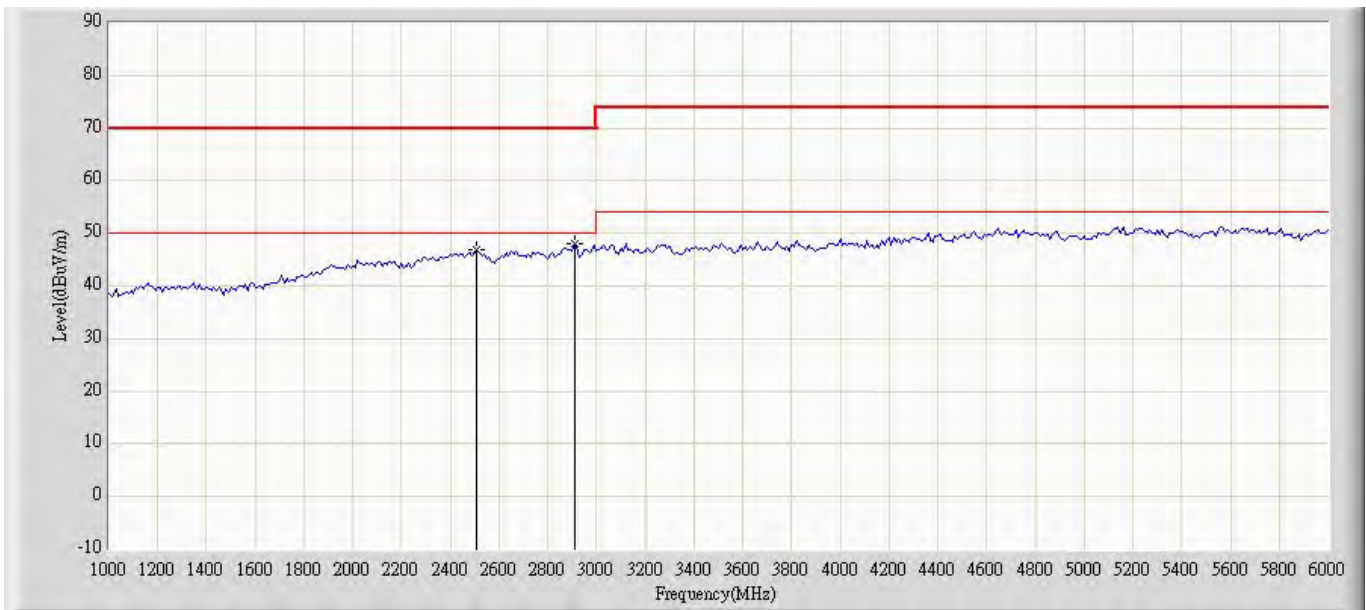


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Ant Pos (cm)	Table Pos (deg)	Type
1		*	2990.000	48.540	35.940	-21.460	70.000	12.600	100	103	PK
2			5960.000	51.988	34.458	-22.012	74.000	17.530	100	-77	PK

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Site: CB7	Time: 2018/10/30 - 19:48
Limit: EN55032_B_(Above_1G)	Margin: 0
Probe: CB7_Horn_3117_1808	Polarity: Vertical
EUT : Network Camera	Power: AC 230V/50Hz
Note: Mode 1	

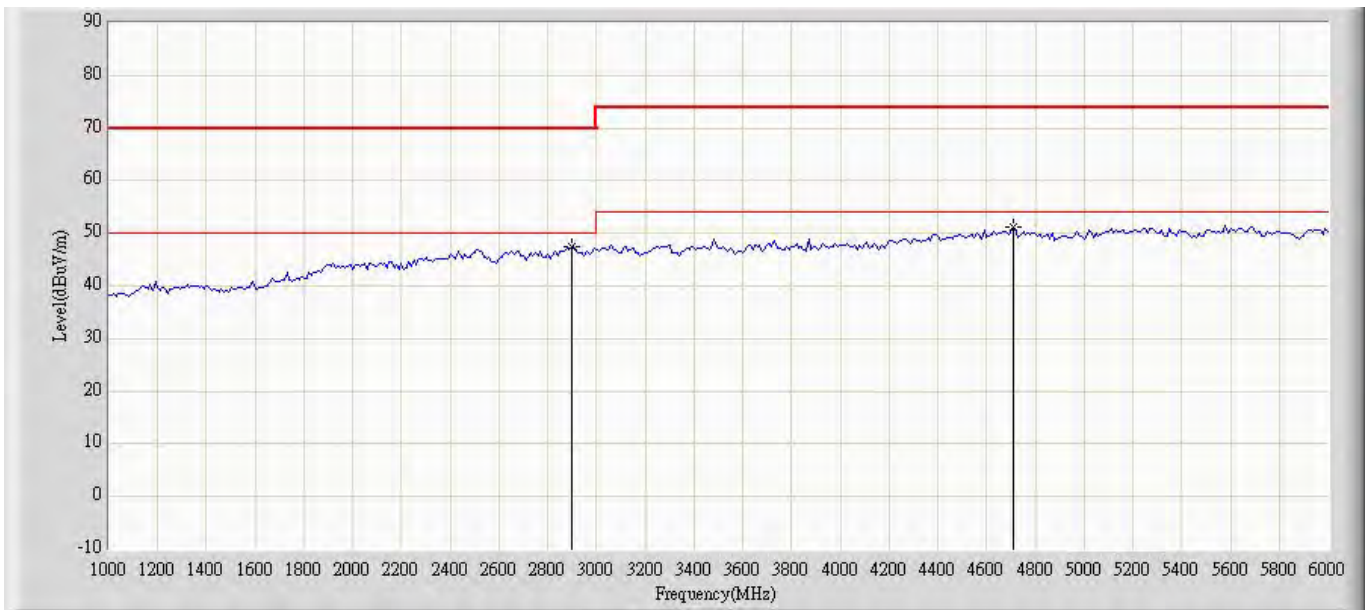


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Ant Pos (cm)	Table Pos (deg)	Type
1			2510.000	46.964	35.603	-23.036	70.000	11.361	100	162	PK
2		*	2910.000	47.912	35.688	-22.088	70.000	12.224	100	142	PK

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Site: CB7	Time: 2018/10/30 - 20:04
Limit: EN55032_B_(Above_1G)	Margin: 0
Probe: CB7_Horn_3117_1808	Polarity: Horizontal
EUT : Network Camera	Power : By PoE
Note: Mode 2	

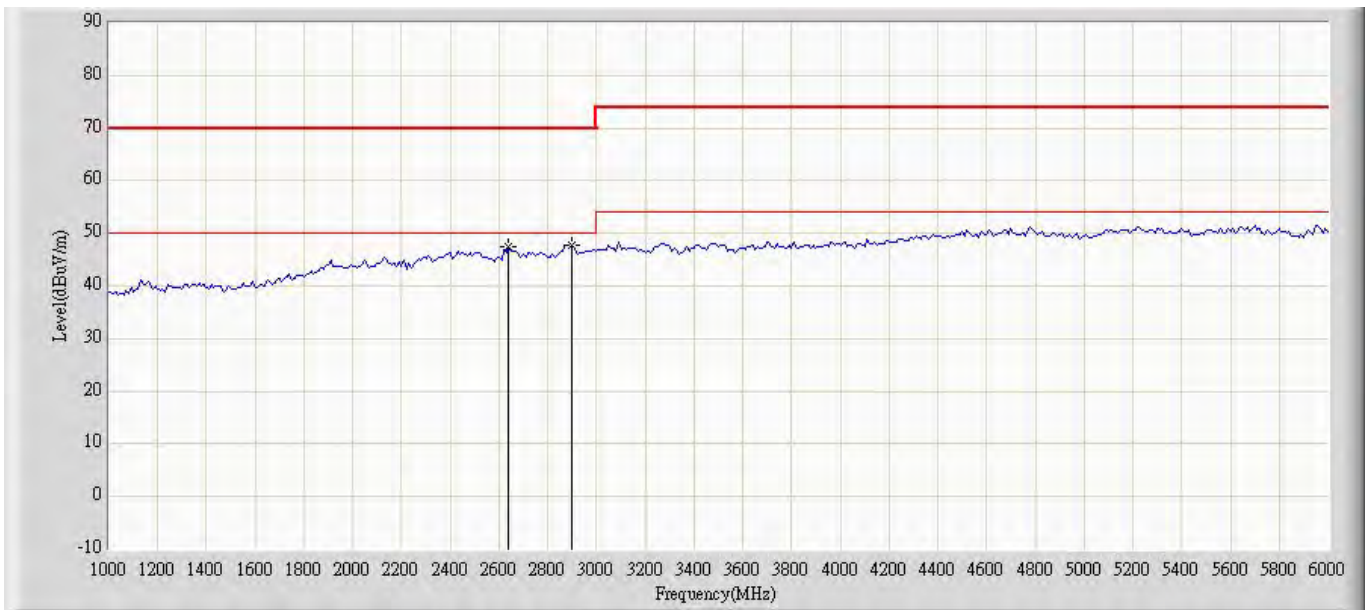


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Ant Pos (cm)	Table Pos (deg)	Type
1		*	2900.000	47.534	35.356	-22.466	70.000	12.178	100	47	PK
2			4710.000	51.179	35.562	-22.821	74.000	15.616	100	199	PK

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Site: CB7	Time: 2018/10/30 - 20:10
Limit: EN55032_B_(Above_1G)	Margin: 0
Probe: CB7_Horn_3117_1808	Polarity: Vertical
EUT : Network Camera	Power : By PoE
Note: Mode 2	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Ant Pos (cm)	Table Pos (deg)	Type
1			2640.000	47.575	35.730	-22.425	70.000	11.845	100	13	PK
2		*	2900.000	47.812	35.634	-22.188	70.000	12.178	100	64	PK

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

### 5.7. Test Photograph

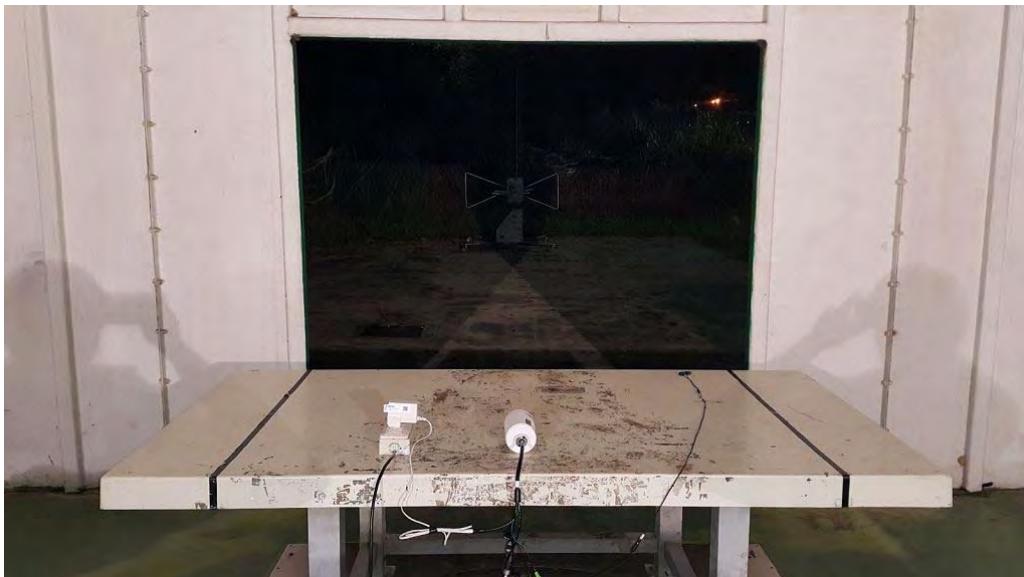
Test Mode : Mode 1: IB9387-EH , DC

Description : Front View of Radiated Test



Test Mode : Mode 1: IB9387-EH , DC

Description : Back View of Radiated Test



Test Mode : Mode 1: IB9387-EH , DC

Description : Front View of High Frequency Radiated Test



Test Mode : Mode 2: IB9387-EH , PoE

Description : Front View of Radiated Test



Test Mode : Mode 2: IB9387-EH , PoE

Description : Back View of Radiated Test



Test Mode : Mode 2: IB9387-EH , PoE

Description : Back View of Radiated Test

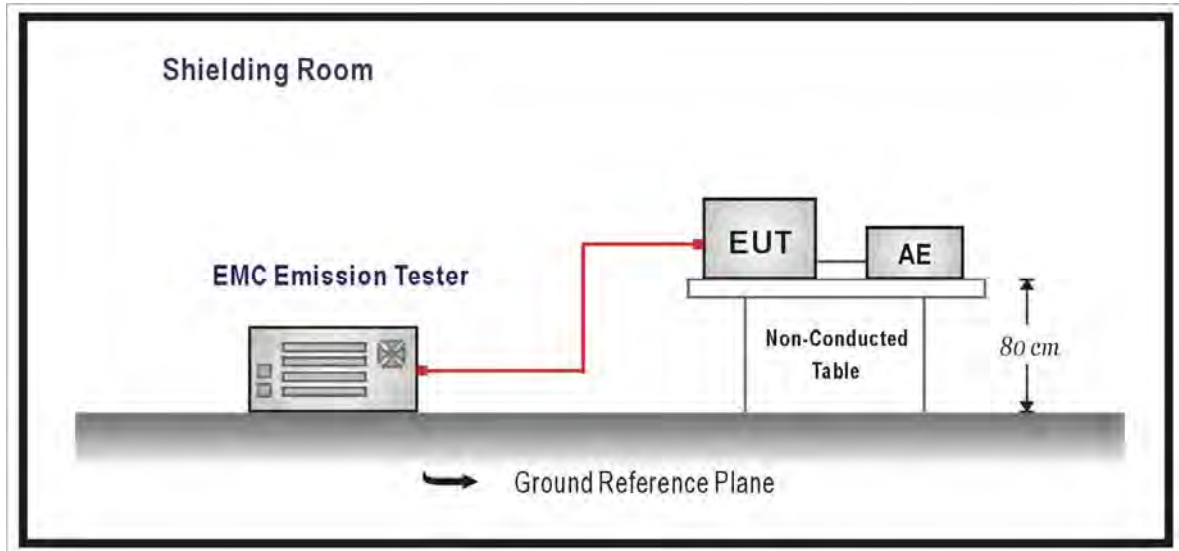


## 6. Harmonic Current Emission

### 6.1. Test Specification

According to EMC Standard : EN 61000-3-2

### 6.2. Test Setup



### 6.3. Limit

#### (a) Limits of Class A Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current A	Harmonics Order n	Maximum Permissible harmonic current A
Odd harmonics		Even harmonics	
3	2.30	2	1.08
5	1.14	4	0.43
7	0.77	6	0.30
9	0.40	$8 \leq n \leq 40$	$0.23 * 8/n$
11	0.33		
13	0.21		
$15 \leq n \leq 39$	$0.15 * 15/n$		

## (b) Limits of Class B Harmonics Currents

For Class B equipment, the harmonic of the input current shall not exceed the maximum permissible values given in table that is the limit of Class A multiplied by a factor of 1.5.

## (c) Limits of Class C Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current Expressed as a percentage of the input current at the fundamental frequency %
2	2
3	$30 \cdot \lambda^*$
5	10
7	7
9	5
$11 \leq n \leq 39$ (odd harmonics only)	3

\*  $\lambda$  is the circuit power factor

## (d) Limits of Class D Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current per watt mA/W	Maximum Permissible harmonic current A
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
$11 \leq n \leq 39$ (odd harmonics only)	$3.85/n$	See limit of Class A

#### **6.4. Test Procedure**

The EUT is supplied in series with power analyzer from a power source having the same normal voltage and frequency as the rated supply voltage and the equipment under test. And the rated voltage at the supply voltage of EUT of 0.94 times and 1.06 times shall be performed.

#### **6.5. Deviation from Test Standard**

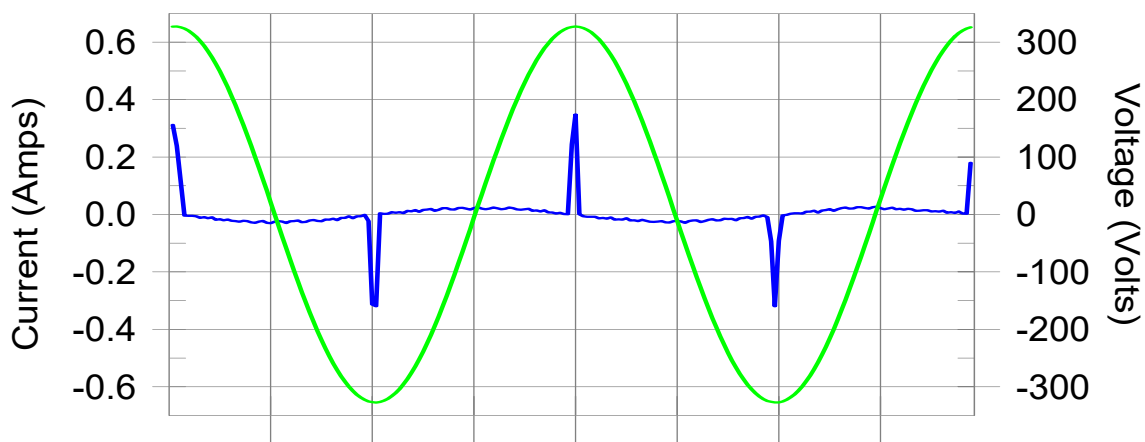
No deviation.

### 6.6. Test Result

Product	Network Camera		
Test Item	Power Harmonics		
Test Mode	Mode 1: IB9387-EH , DC		
Date of Test	2018/11/13	Test Site	No.3 Shielded Room

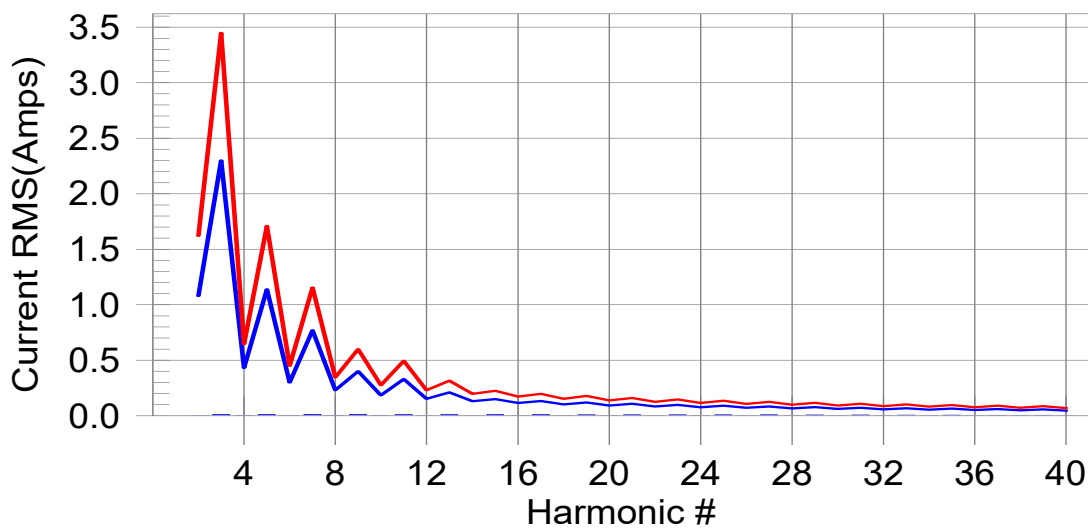
Test Result: Pass                      Source qualification: Normal

Current & voltage waveforms                      -



Harmonics and Class A limit line

European Limits



Test result: Pass                      Worst harmonics H27-7.2% of 150% limit, H31-9% of 100% limit

Test Result: Pass                      Source qualification: Normal  
 THC(A): 0.038                      I-THD(%): 175.0                      POHC(A): 0.022                      POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts):	231.56	Frequency(Hz):	50.00
I_Peak (Amps):	0.460	I_RMS (Amps):	0.056
I_Fund (Amps):	0.022	Crest Factor:	8.898
Power (Watts):	3.2	Power Factor:	0.270

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.002	1.080	N/A	0.003	1.620	N/A	Pass
3	0.011	2.300	0.5	0.014	3.450	0.4	Pass
4	0.002	0.430	N/A	0.003	0.645	N/A	Pass
5	0.011	1.140	0.9	0.014	1.710	0.8	Pass
6	0.002	0.300	N/A	0.003	0.450	N/A	Pass
7	0.011	0.770	1.4	0.013	1.155	1.2	Pass
8	0.002	0.230	N/A	0.003	0.345	N/A	Pass
9	0.010	0.400	2.6	0.013	0.600	2.2	Pass
10	0.002	0.184	N/A	0.003	0.276	N/A	Pass
11	0.010	0.330	3.1	0.013	0.495	2.6	Pass
12	0.002	0.153	N/A	0.002	0.230	N/A	Pass
13	0.010	0.210	4.8	0.012	0.315	4.0	Pass
14	0.002	0.131	N/A	0.002	0.197	N/A	Pass
15	0.010	0.150	6.5	0.012	0.225	5.4	Pass
16	0.002	0.115	N/A	0.002	0.173	N/A	Pass
17	0.009	0.132	7.1	0.012	0.198	5.9	Pass
18	0.002	0.102	N/A	0.002	0.153	N/A	Pass
19	0.009	0.118	7.7	0.011	0.178	6.3	Pass
20	0.002	0.092	N/A	0.002	0.138	N/A	Pass
21	0.009	0.107	8.1	0.011	0.161	6.6	Pass
22	0.002	0.084	N/A	0.002	0.125	N/A	Pass
23	0.008	0.098	8.5	0.010	0.147	6.9	Pass
24	0.002	0.077	N/A	0.002	0.115	N/A	Pass
25	0.008	0.090	8.8	0.010	0.135	7.1	Pass
26	0.002	0.071	N/A	0.002	0.107	N/A	Pass
27	0.007	0.083	8.9	0.009	0.125	7.2	Pass
28	0.001	0.066	N/A	0.002	0.099	N/A	Pass
29	0.007	0.078	9.0	0.008	0.116	7.2	Pass
30	0.001	0.061	N/A	0.002	0.092	N/A	Pass
31	0.007	0.073	9.0	0.008	0.109	7.1	Pass
32	0.001	0.058	N/A	0.002	0.086	N/A	Pass
33	0.006	0.068	8.9	0.007	0.102	7.0	Pass
34	0.001	0.054	N/A	0.001	0.081	N/A	Pass
35	0.006	0.064	8.8	0.007	0.096	6.8	Pass
36	0.001	0.051	N/A	0.001	0.077	N/A	Pass
37	0.005	0.061	8.5	0.006	0.091	6.5	Pass
38	0.001	0.048	N/A	0.001	0.073	N/A	Pass
39	0.005	0.058	N/A	0.005	0.087	N/A	Pass
40	0.001	0.046	N/A	0.001	0.069	N/A	Pass

1.Dynamic limits were applied for this test. The highest harmonics values in the above table may not occur at the same window as the maximum harmonics/limit ratio.

2:According to EN61000-3-2 paragraph 7 the note 1 and 2 are valid for all applications having an active input power >75W. Others the result should be pass.

## 6.7. Test Photograph

Test Mode : Mode 1: IB9387-EH , DC

Description : Power Harmonics Test Setup

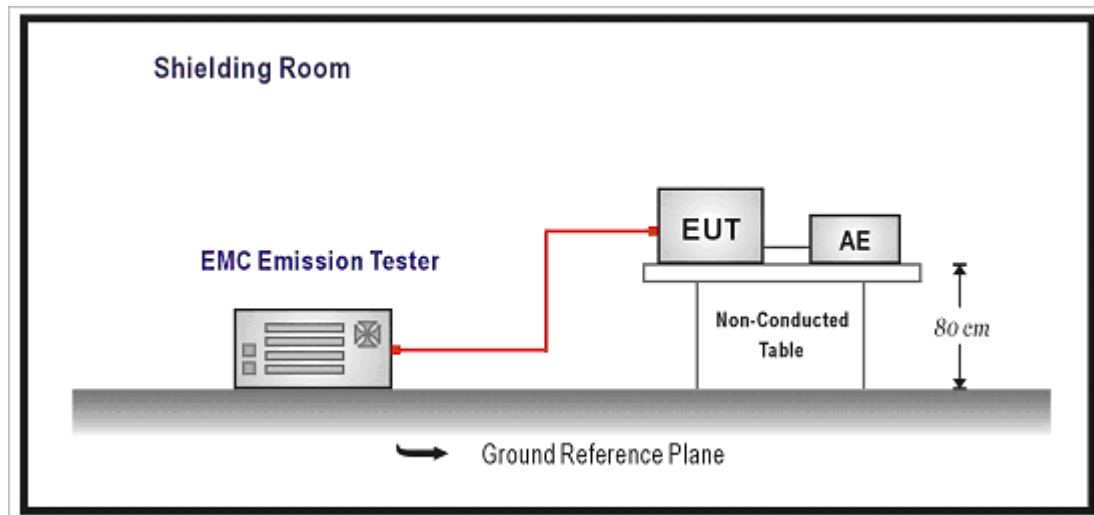


## 7. Voltage Fluctuation and Flicker

### 7.1. Test Specification

According to EMC Standard : EN 61000-3-3

### 7.2. Test Setup



### 7.3. Limit

The following limits apply:

- the value of  $P_{st}$  shall not be greater than 1.0;
  - the value of  $P_{1t}$  shall not be greater than 0.65;
  - the value of  $d(t)$  during a voltage change shall not exceed 3.3 % for more than 500 ms;
  - the relative steady-state voltage change,  $d_c$ , shall not exceed 3.3 %;
  - the maximum relative voltage change,  $d_{max}$ , shall not exceed;
- a) 4 % without additional conditions;
  - b) 6 % for equipment which is:
    - switched manually, or
    - switched automatically more frequently than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds), or manual restart, after a power supply interruption.

NOTE The cycling frequency will be further limited by the  $P_{st}$  and  $P_{1t}$  limit.

For example: a  $d_{max}$  of 6% producing a rectangular voltage change characteristic twice per hour will give a  $P_{1t}$  of about 0.65.

- c) 7 % for equipment which is:
- attended whilst in use (for example: hair dryers, vacuum cleaners, kitchen equipment such as mixers, garden equipment such as lawn mowers, portable tools such as electric drills), or
  - switched on automatically, or is intended to be switched on manually, no more than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds) or manual restart, after a power supply interruption.

$P_{st}$  and  $P_{1t}$  requirements shall not be applied to voltage changes caused by manual switching.

#### **7.4. Test Procedure**

The EUT is supplied in series with power analyzer from a power source having the same normal voltage and frequency as the rated supply voltage and the equipment under test. And the rated voltage at the supply voltage of EUT of 0.94 times and 1.06 times shall be performed.

#### **7.5. Deviation from Test Standard**

No deviation.

### 7.6. Test Result

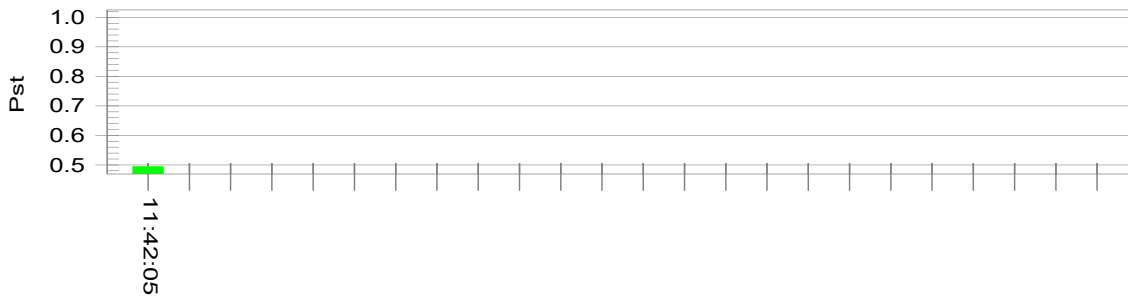
Product	Network Camera		
Test Item	Voltage Fluctuation and Flicker		
Test Mode	Mode 1: IB9387-EH , DC		
Date of Test	2018/10/31	Test Site	No.3 Shielded Room

Test Result: Pass

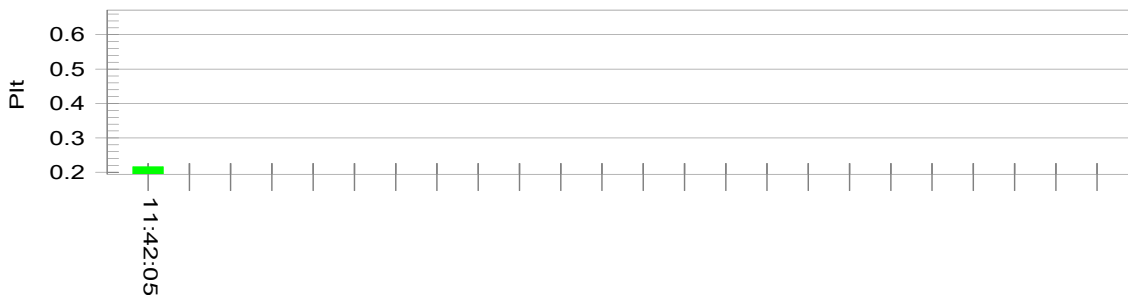
Status: Test Completed

Pst<sub>i</sub> and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	222.89			
T-max (mS):	0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	3.19	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.494	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.216	Test limit:	0.650	Pass

### 7.7. Test Photograph

Test Mode : Mode 1: IB9387-EH , DC

Description : Flicker Test Setup

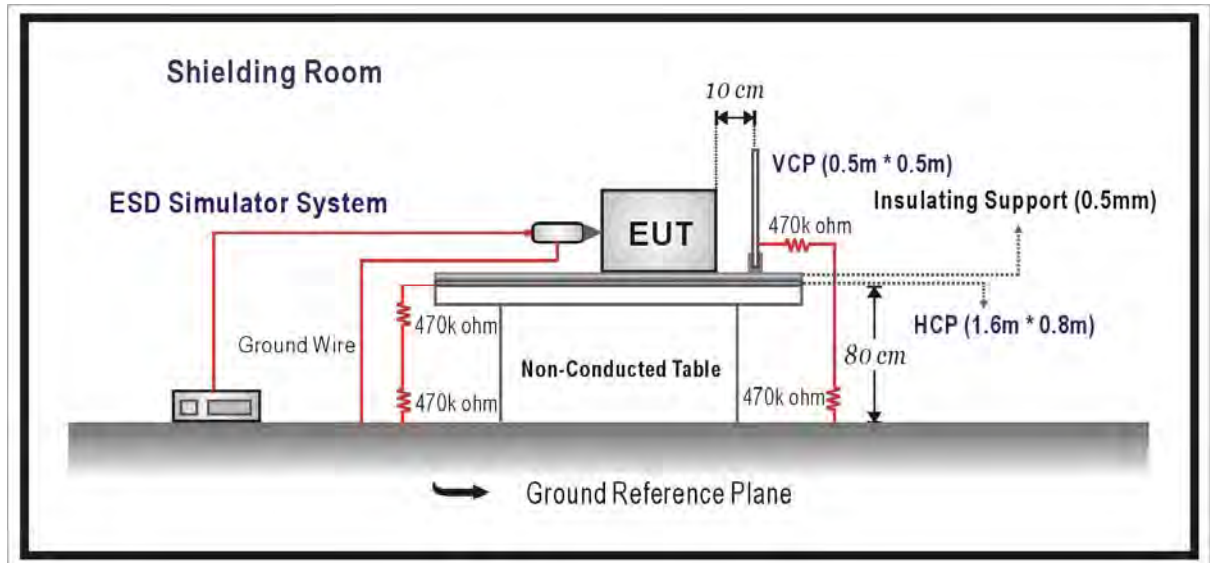


## 8. Electrostatic Discharge

### 8.1. Test Specification

According to Standard : IEC 61000-4-2

### 8.2. Test Setup



### 8.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Enclosure Port				
	Electrostatic Discharge	kV(Charge Voltage)	±8 Air Discharge ±4 Contact Discharge	B

## 8.4. Test Procedure

Direct application of discharges to the EUT:

Contact discharge was applied only to conductive surfaces of the EUT.

Air discharges were applied only to non-conductive surfaces of the EUT.

During the test, it was performed with single discharges. For the single discharge time between successive single discharges will be keep longer 1 second. It was at least ten single discharges with positive and negative at the same selected point.

Indirect application of discharges to the EUT:

Vertical Coupling Plane (VCP):

The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m from, the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge. It was at least ten single discharges with positive and negative at the same selected point.

Horizontal Coupling Plane (HCP):

The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge. It was at least ten single discharges with positive and negative at the same selected point.

## 8.5. Deviation from Test Standard

No deviation.

## 8.6. Test Result

Product	Network Camera		
Test Item	Electrostatic Discharge		
Test Mode	Mode 1: IB9387-EH , DC		
Date of Test	2018/11/02	Test Site	No.6 Shielded Room

Item	Amount of Discharge	Voltage	Required Criteria	Complied To Criteria (A,B,C)	Results
Air Discharge	10	+8kV	B	A	Pass
	10	-8kV	B	A	Pass
Contact Discharge	25	+4kV	B	B	Pass
	25	-4kV	B	B	Pass
Indirect Discharge (HCP)	25	+4kV	B	A	Pass
	25	-4kV	B	A	Pass
Indirect Discharge (VCP)	25	+4kV	B	A	Pass
	25	-4kV	B	A	Pass

### Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

#### NR: No Requirement

- Meet criteria A: Operate as intended during and after the test
- Meet criteria B: Operate as intended after the test
- Meet criteria C: Loss/Error of function
- Additional Information
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_ kV.
  - No false alarms or other malfunctions were observed during or after the test.

### Remark:

The Contact discharges were applied at least total 200 discharges at a minimum of four test points.

Product	Network Camera		
Test Item	Electrostatic Discharge		
Test Mode	Mode 2: IB9387-EH , PoE		
Date of Test	2018/11/02	Test Site	No.6 Shielded Room

Item	Amount of Discharge	Voltage	Required Criteria	Complied To Criteria (A,B,C)	Results
Air Discharge	10	+8kV	B	A	Pass
	10	-8kV	B	A	Pass
Contact Discharge	25	+4kV	B	B	Pass
	25	-4kV	B	B	Pass
Indirect Discharge (HCP)	25	+4kV	B	A	Pass
	25	-4kV	B	A	Pass
Indirect Discharge (VCP)	25	+4kV	B	A	Pass
	25	-4kV	B	A	Pass

Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

NR: No Requirement

- Meet criteria A: Operate as intended during and after the test
- Meet criteria B: Operate as intended after the test
- Meet criteria C: Loss/Error of function
- Additional Information
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_ kV.
  - No false alarms or other malfunctions were observed during or after the test.

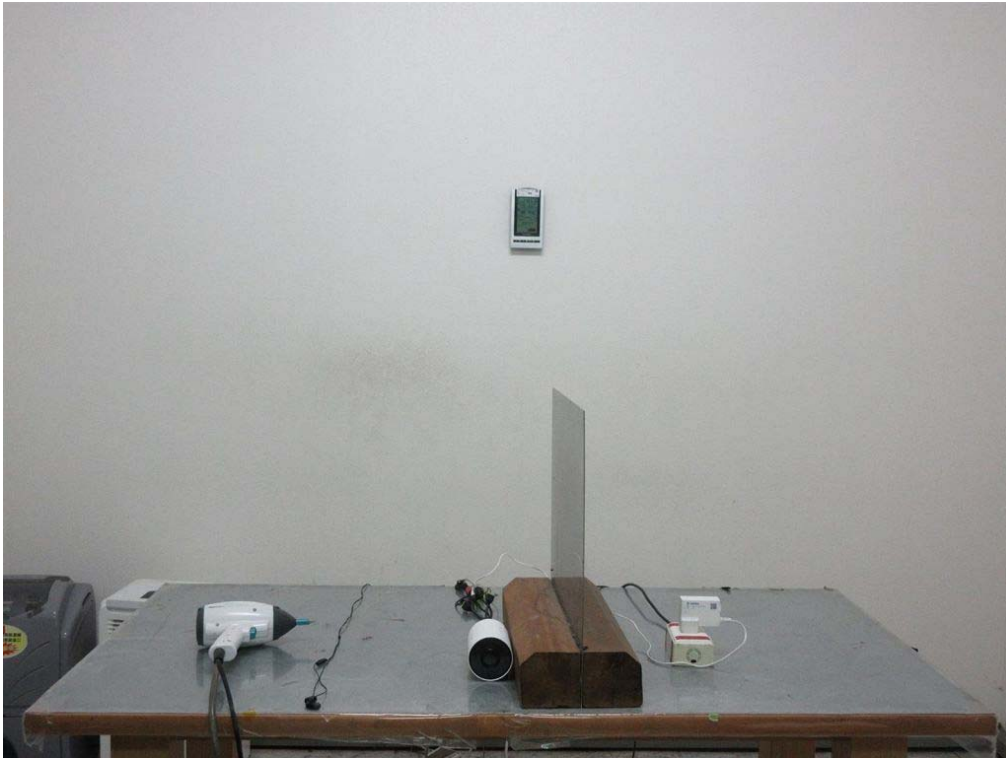
Remark:

The Contact discharges were applied at least total 200 discharges at a minimum of four test points.

### 8.7. Test Photograph

Test Mode : Mode 1: IB9387-EH , DC

Description : ESD Test Setup



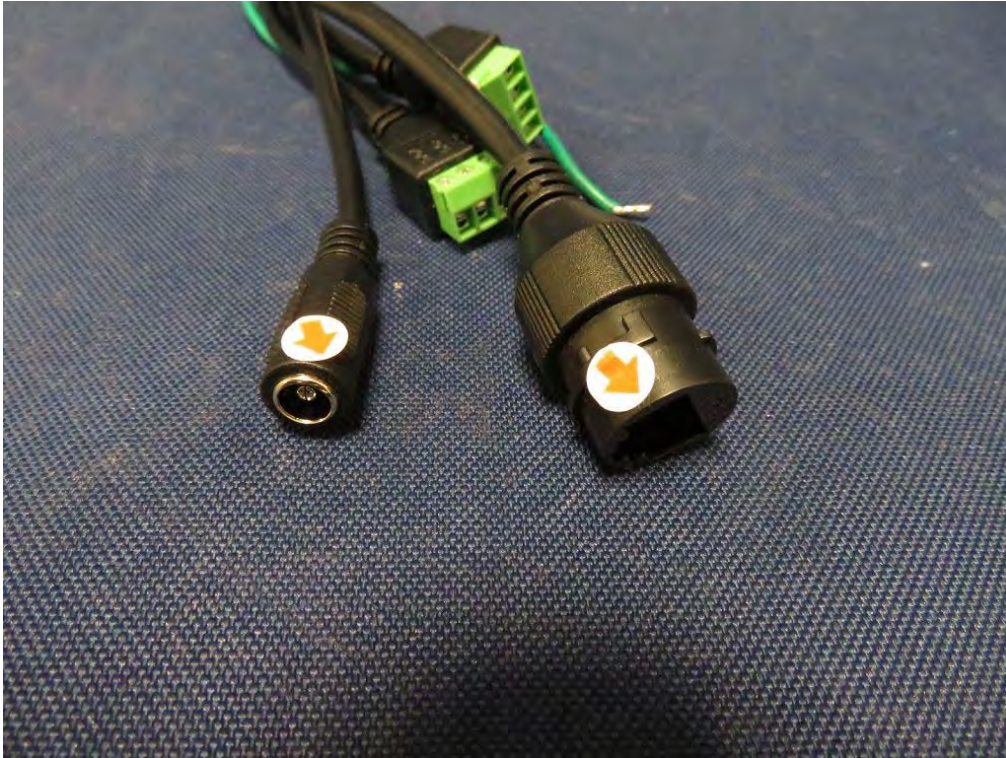
Test Mode : Mode 2: IB9387-EH , PoE

Description : ESD Test Setup



### 8.8. EUT to dot photo for ESD test

Test dot : (AIR DISCHARGE)



Test dot : (CONTACT DISCHARGE)



Test dot : (CONTACT DISCHARGE)



Test dot : (CONTACT DISCHARGE)



Test dot : (CONTACT DISCHARGE)

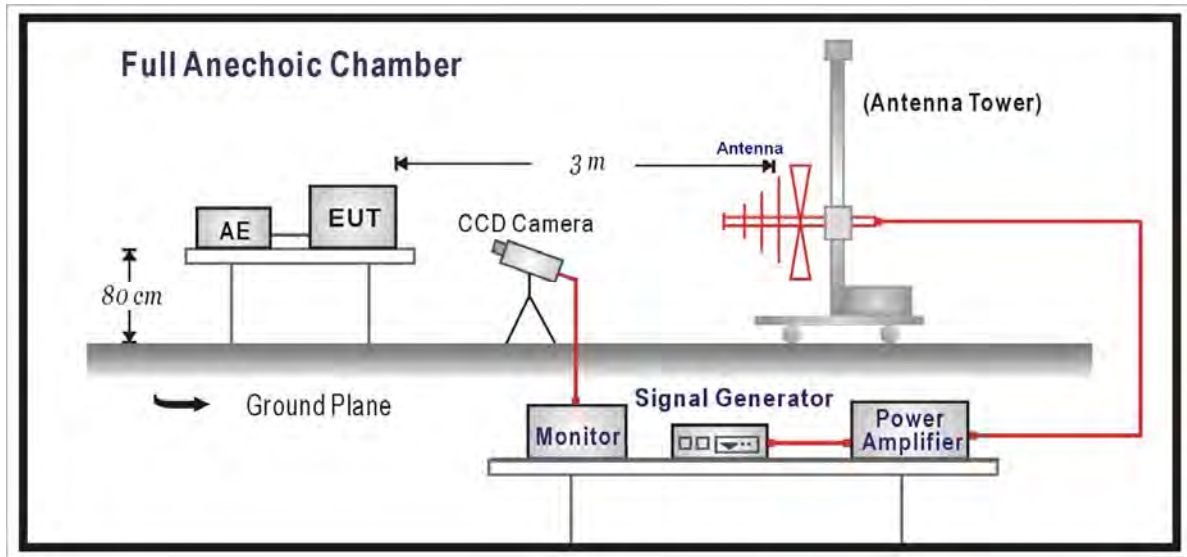


## 9. Radiated Susceptibility

### 9.1. Test Specification

According to Standard : IEC 61000-4-3

### 9.2. Test Setup



### 9.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Enclosure Port				
	Radio-Frequency	MHz	80-1000	A
	Electromagnetic Field	V/m(Un-modulated, rms)	3	
	Amplitude Modulated	% AM (1kHz)	80	

#### 9.4. Test Procedure

The EUT and load, which are placed on a table that is 0.8 meter above ground, are placed with one coincident with the calibration plane such that the distance from antenna to the EUT was 3 meters.

Both horizontal and vertical polarization of the antenna and four sides of the EUT are set on measurement.

In order to judge the EUT performance, a CCD camera is used to monitor EUT screen.

All the scanning conditions are as follows:

Condition of Test	Remarks
1. Field Strength	3 V/m Level 2
2. Radiated Signal	AM 80% Modulated with 1kHz
3. Scanning Frequency	80MHz - 1000MHz
4. Dwell Time	3 Seconds
5. Frequency step size $\Delta f$ :	1%
6. The rate of Swept of Frequency	$1.5 \times 10^{-3}$ decades/s

#### 9.5. Deviation from Test Standard

No deviation.

## 9.6. Test Result

Product	Network Camera		
Test Item	Radiated susceptibility		
Test Mode	Mode 1: IB9387-EH , DC		
Date of Test	2018/11/02	Test Site	Chamber 9

Frequency (MHz)	Position (Angle)	Polarity (H or V)	Field Strength (V/m)	Required Criteria	Complied To Criteria (A,B,C)	Results
80-1000	0°	H	3	A	A	PASS
80-1000	0°	V	3	A	A	PASS
80-1000	90°	H	3	A	A	PASS
80-1000	90°	V	3	A	A	PASS
80-1000	180°	H	3	A	A	PASS
80-1000	180°	V	3	A	A	PASS
80-1000	270°	H	3	A	A	PASS
80-1000	270°	V	3	A	A	PASS

### Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

- Meet criteria A: Operate as intended during and after the test
- Meet criteria B: Operate as intended after the test
- Meet criteria C: Loss/Error of function
- Additional Information
  - There was no observable degradation in performance.
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_\_ V/m at frequency \_\_\_\_\_MHz.
- No false alarms or other malfunctions were observed during or after the test.

Product	Network Camera		
Test Item	Radiated susceptibility		
Test Mode	Mode 2: IB9387-EH , PoE		
Date of Test	2018/11/02	Test Site	Chamber 9

Frequency (MHz)	Position (Angle)	Polarity (H or V)	Field Strength (V/m)	Required Criteria	Complied To Criteria (A,B,C)	Results
80-1000	0°	H	3	A	A	PASS
80-1000	0°	V	3	A	A	PASS
80-1000	90°	H	3	A	A	PASS
80-1000	90°	V	3	A	A	PASS
80-1000	180°	H	3	A	A	PASS
80-1000	180°	V	3	A	A	PASS
80-1000	270°	H	3	A	A	PASS
80-1000	270°	V	3	A	A	PASS

## Note:

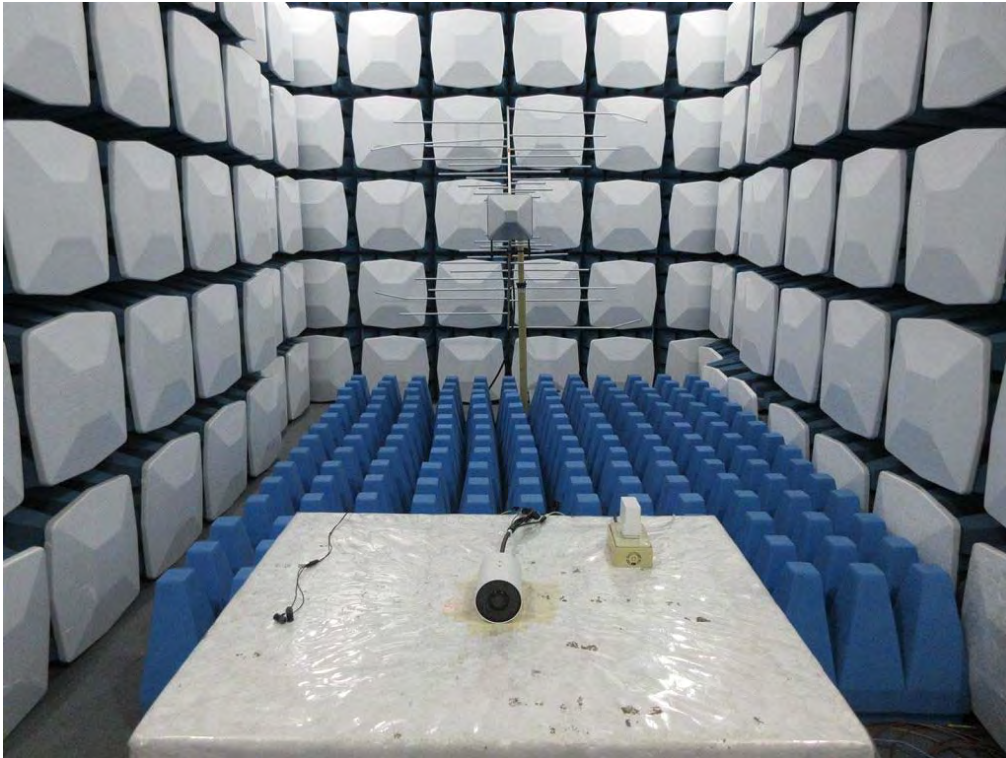
The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

- Meet criteria A: Operate as intended during and after the test
- Meet criteria B: Operate as intended after the test
- Meet criteria C: Loss/Error of function
- Additional Information
  - There was no observable degradation in performance.
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_\_ V/m at frequency \_\_\_\_\_MHz.
- No false alarms or other malfunctions were observed during or after the test.

### 9.7. Test Photograph

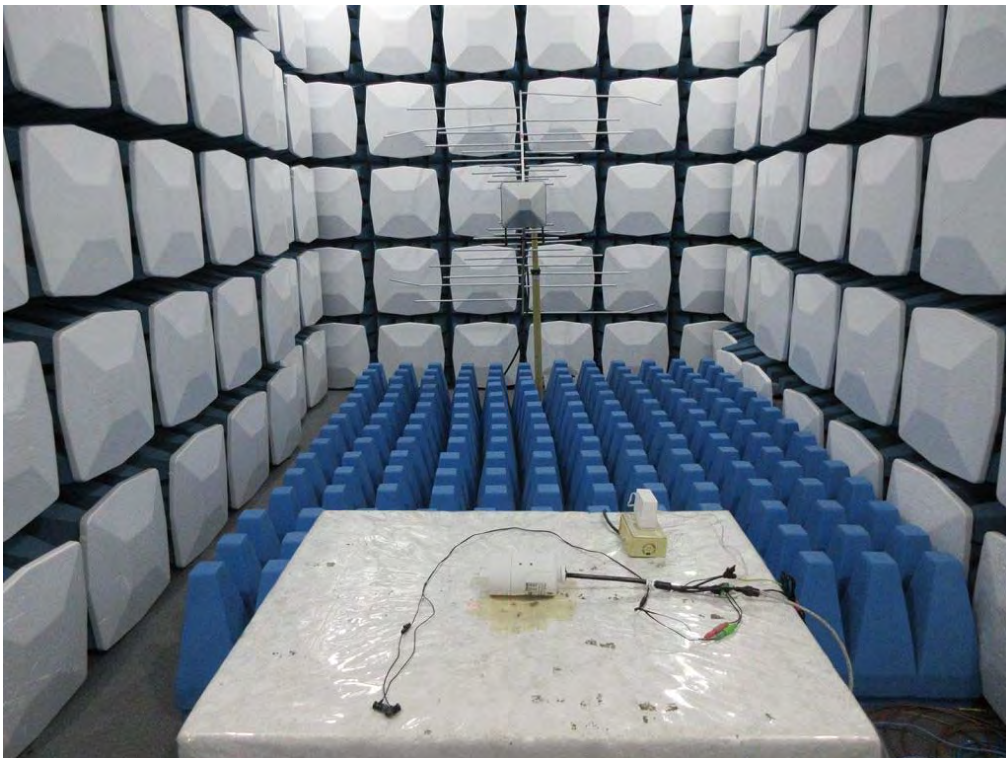
Test Mode : Mode 1: IB9387-EH , DC

Description : Radiated Susceptibility Test Setup



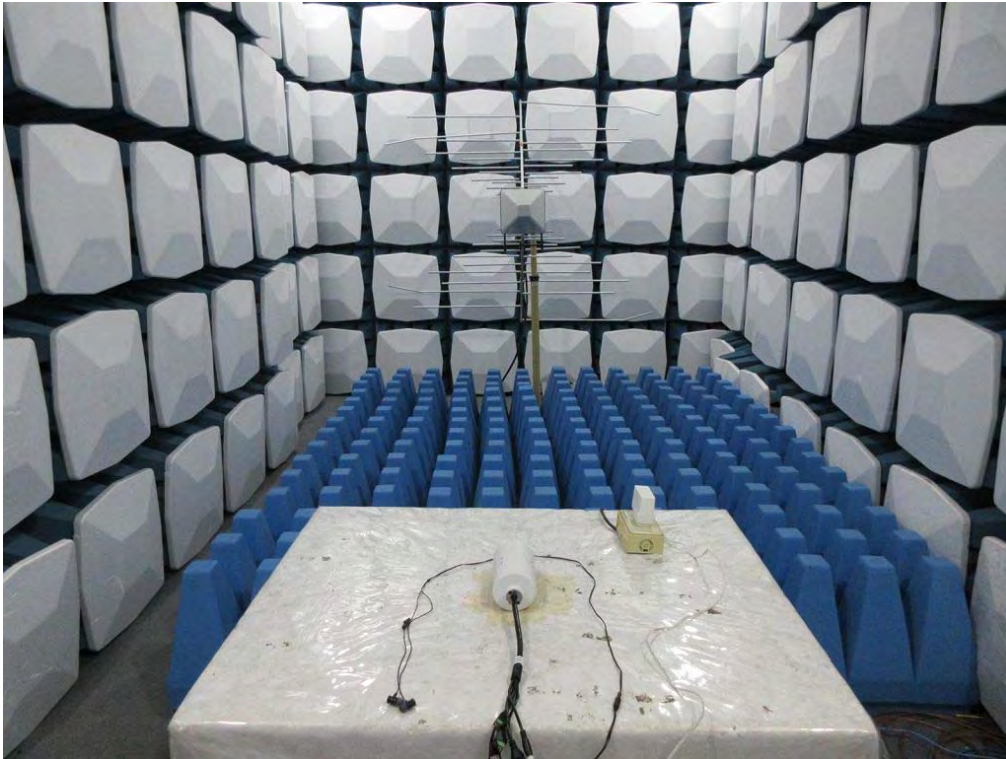
Test Mode : Mode 1: IB9387-EH , DC

Description : Radiated Susceptibility Test Setup



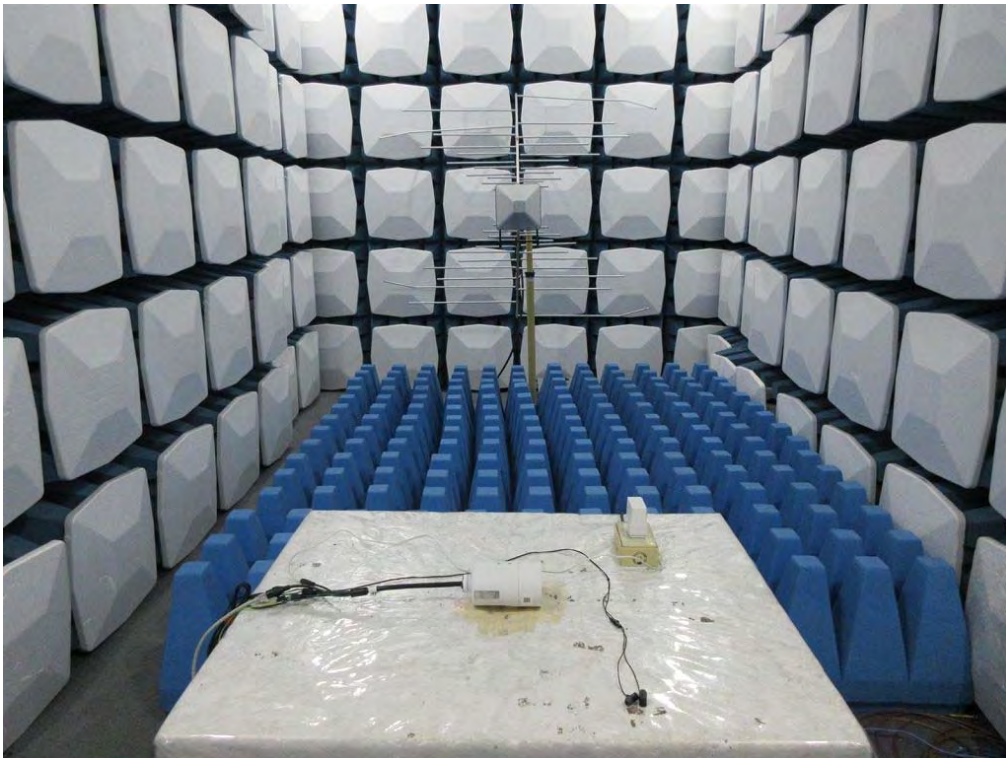
Test Mode : Mode 1: IB9387-EH , DC

Description : Radiated Susceptibility Test Setup



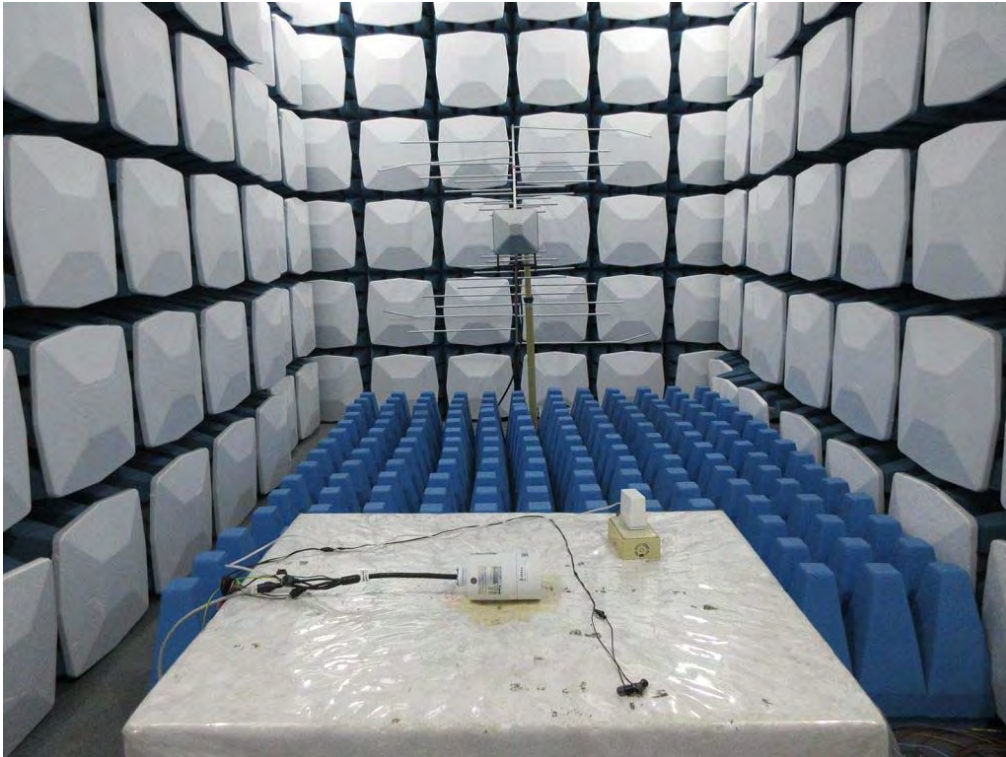
Test Mode : Mode 1: IB9387-EH , DC

Description : Radiated Susceptibility Test Setup



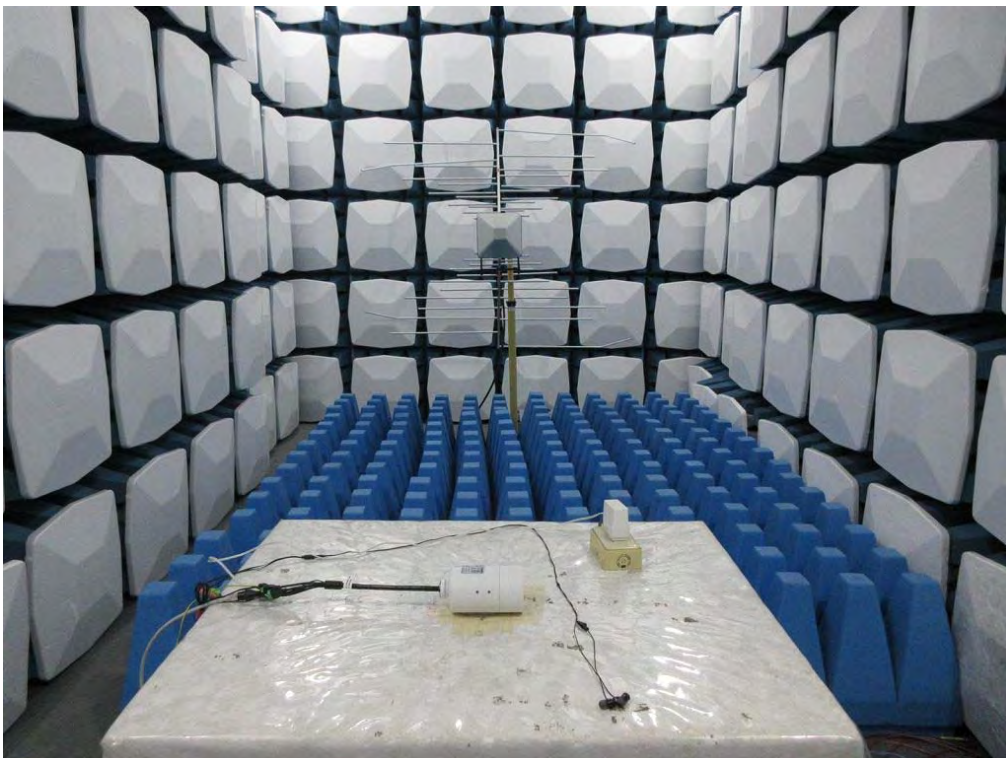
Test Mode : Mode 1: IB9387-EH , DC

Description : Radiated Susceptibility Test Setup



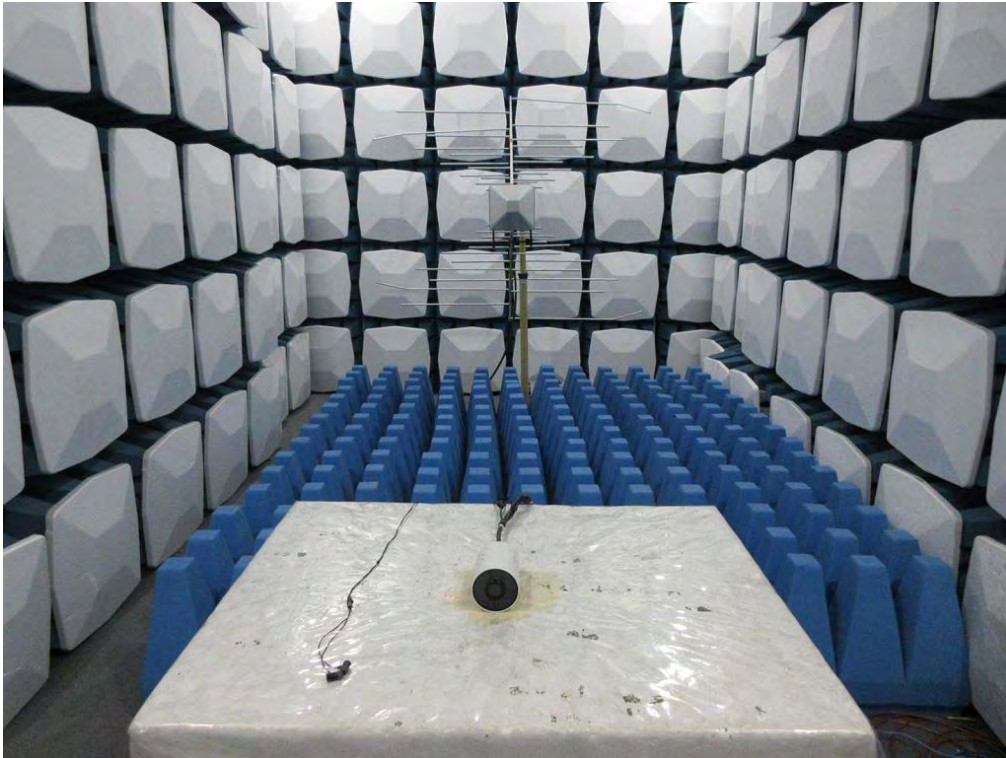
Test Mode : Mode 1: IB9387-EH , DC

Description : Radiated Susceptibility Test Setup



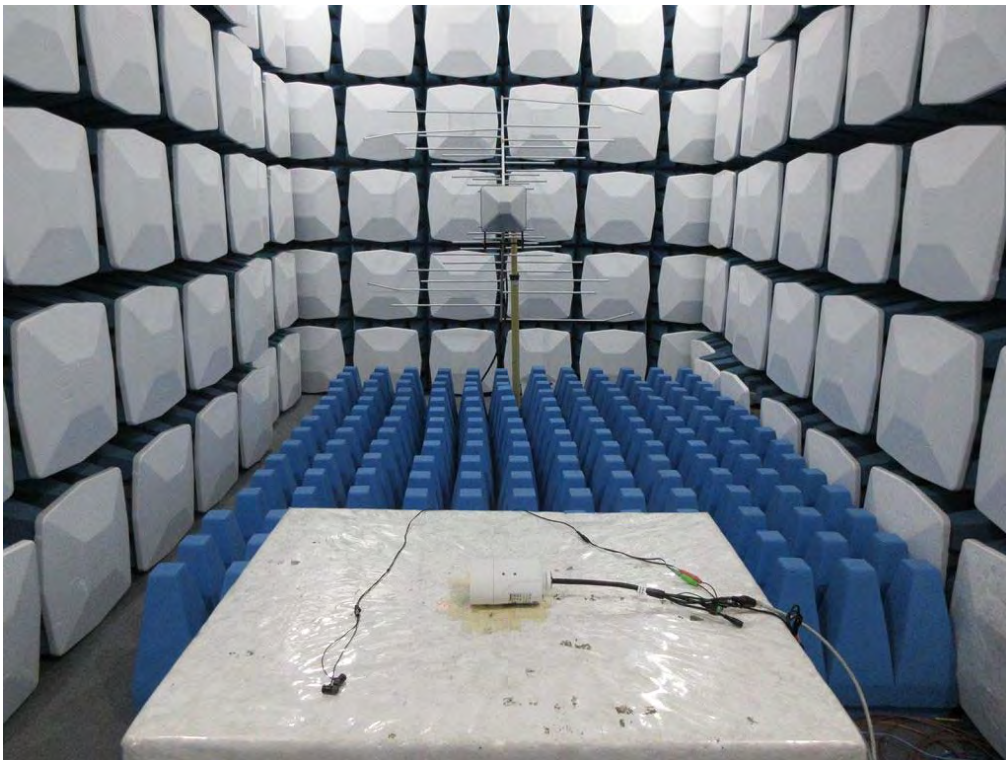
Test Mode : Mode 2: IB9387-EH , PoE

Description : Radiated Susceptibility Test Setup



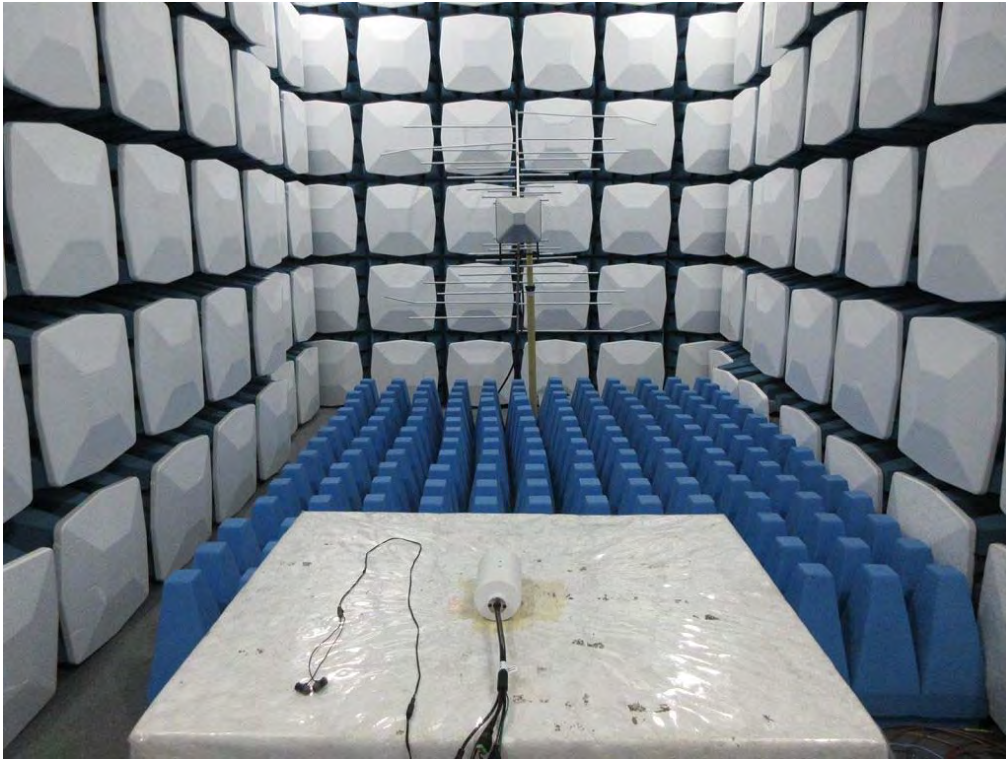
Test Mode : Mode 2: IB9387-EH , PoE

Description : Radiated Susceptibility Test Setup



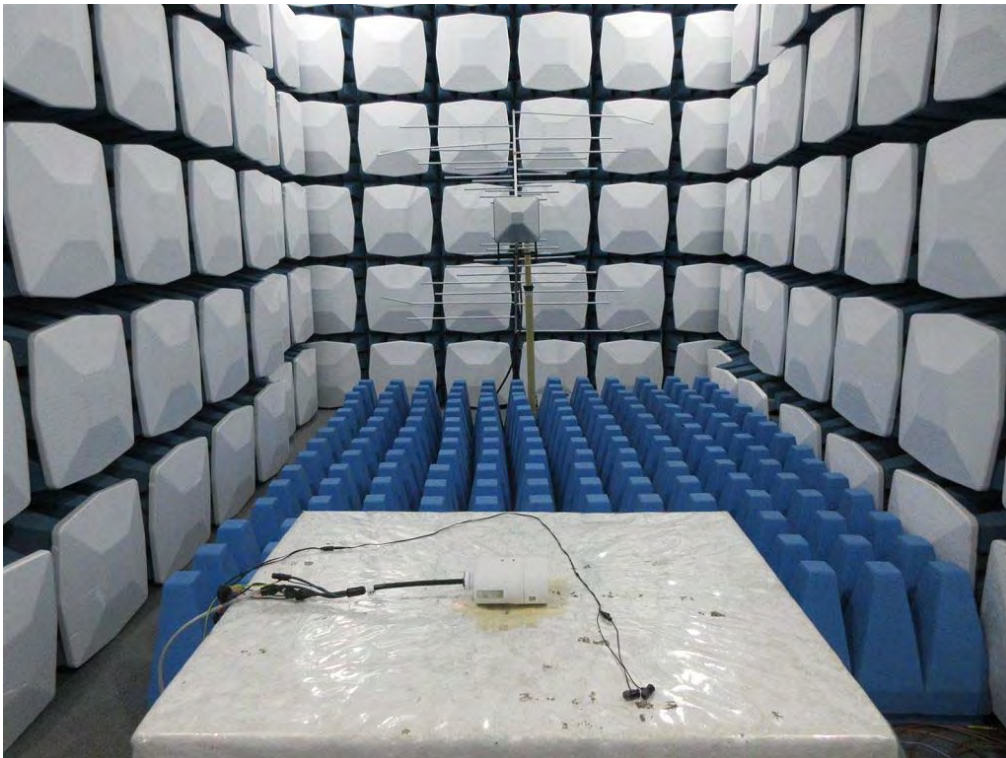
Test Mode : Mode 2: IB9387-EH , PoE

Description : Radiated Susceptibility Test Setup



Test Mode : Mode 2: IB9387-EH , PoE

Description : Radiated Susceptibility Test Setup



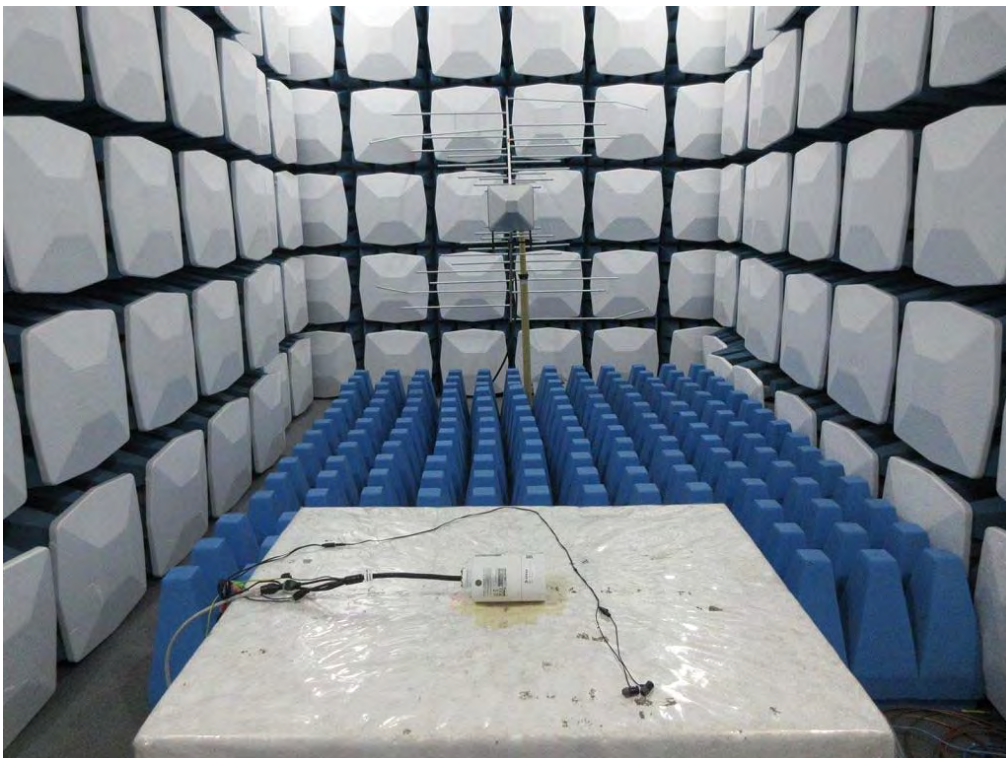
Test Mode : Mode 2: IB9387-EH , PoE

Description : Radiated Susceptibility Test Setup



Test Mode : Mode 2: IB9387-EH , PoE

Description : Radiated Susceptibility Test Setup

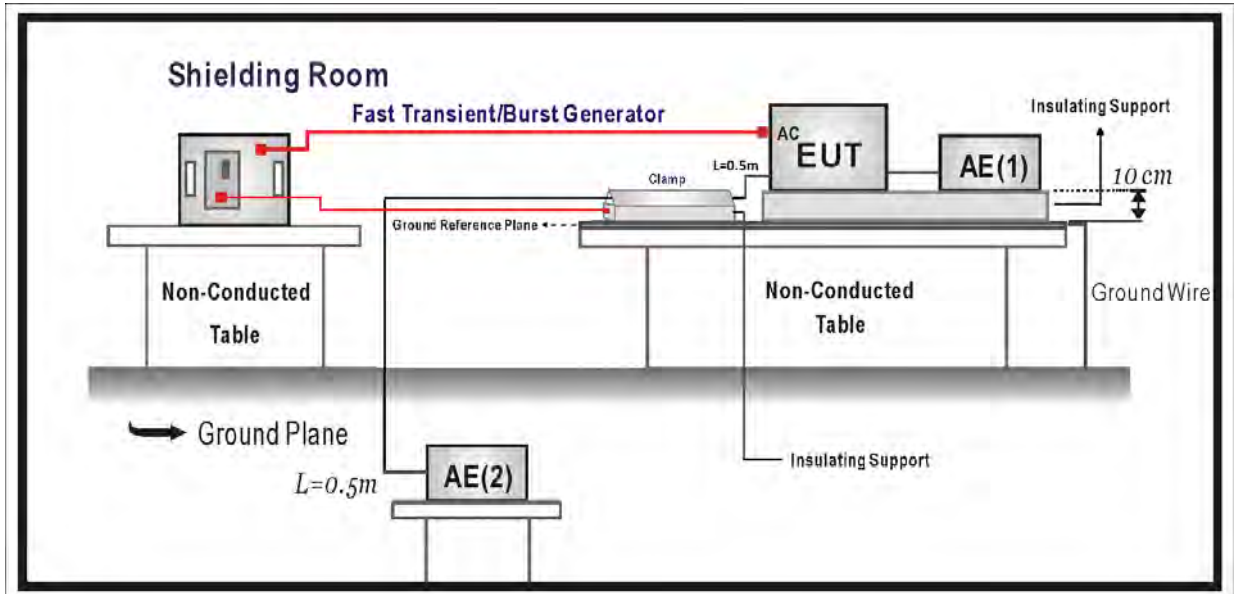


## 10. Electrical Fast Transient/Burst

### 10.1. Test Specification

According to Standard : IEC 61000-4-4

### 10.2. Test Setup



### 10.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
I/O and communication ports				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	+0.5 5/50 5	B
Input DC Power Ports				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	+0.5 5/50 5	B
Input AC Power Ports				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	+1 5/50 5	B

#### **10.4. Test Procedure**

The EUT is placed on a table that is 0.8 meter height. A ground reference plane is placed on the table, and uses a 0.1m insulation between the EUT and ground reference plane.

The minimum area of the ground reference plane is 1m\*1m, and 0.65mm thick min, and projected beyond the EUT by at least 0.1m on all sides.

Test on I/O and communication ports:

The EFT interference signal is through a coupling clamp device couples to the signal and control lines of the EUT with burst noise for 1minute.

Test on power supply ports:

The EUT is connected to the power mains through a coupling device that directly couples the EFT/B interference signal.

Each of the Line and Neutral conductors is impressed with burst noise for 1 minute.

The length of the signal and power lines between the coupling device and the EUT is 0.5m.

#### **10.5. Deviation from Test Standard**

No deviation.

### 10.6. Test Result

Product	Network Camera		
Test Item	Electrical fast transient/burst		
Test Mode	Mode 1: IB9387-EH , DC		
Date of Test	2018/11/01	Test Site	No.3 Shielded Room

Inject Line	Polarity	Voltage kV	Inject Time (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L	±	1kV	60	Clamp	B	A	PASS
N	±	1kV	60	Clamp	B	A	PASS
PE	±	1kV	60	Clamp	B	A	PASS
L-N-PE	±	1kV	60	Clamp	B	A	PASS
LAN	±	0.5kV	60	Clamp	B	A	PASS

Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

- Meet criteria A : Operate as intended during and after the test
- Meet criteria B : Operate as intended after the test
- Meet criteria C : Loss/Error of function
- Additional Information
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_\_ kV of Line \_\_\_\_\_.
- No false alarms or other malfunctions were observed during or after the test.

Product	Network Camera		
Test Item	Electrical fast transient/burst		
Test Mode	Mode 2: IB9387-EH , PoE		
Date of Test	2018/11/01	Test Site	No.6 Shielded Room

Inject Line	Polarity	Voltage kV	Inject Time (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
LAN	±	0.5kV	60	Clamp	B	A	PASS

## Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

- Meet criteria A : Operate as intended during and after the test
- Meet criteria B : Operate as intended after the test
- Meet criteria C : Loss/Error of function
- Additional Information
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_\_ kV of Line \_\_\_\_\_.
- No false alarms or other malfunctions were observed during or after the test.

### 10.7. Test Photograph

Test Mode : Mode 1: IB9387-EH , DC

Description : EFT/B Test Setup



Test Mode : Mode 1: IB9387-EH , DC

Description : EFT/B Test Setup - Clamp



Test Mode : Mode 2: IB9387-EH , PoE

Description : EFT/B Test Setup - Clamp

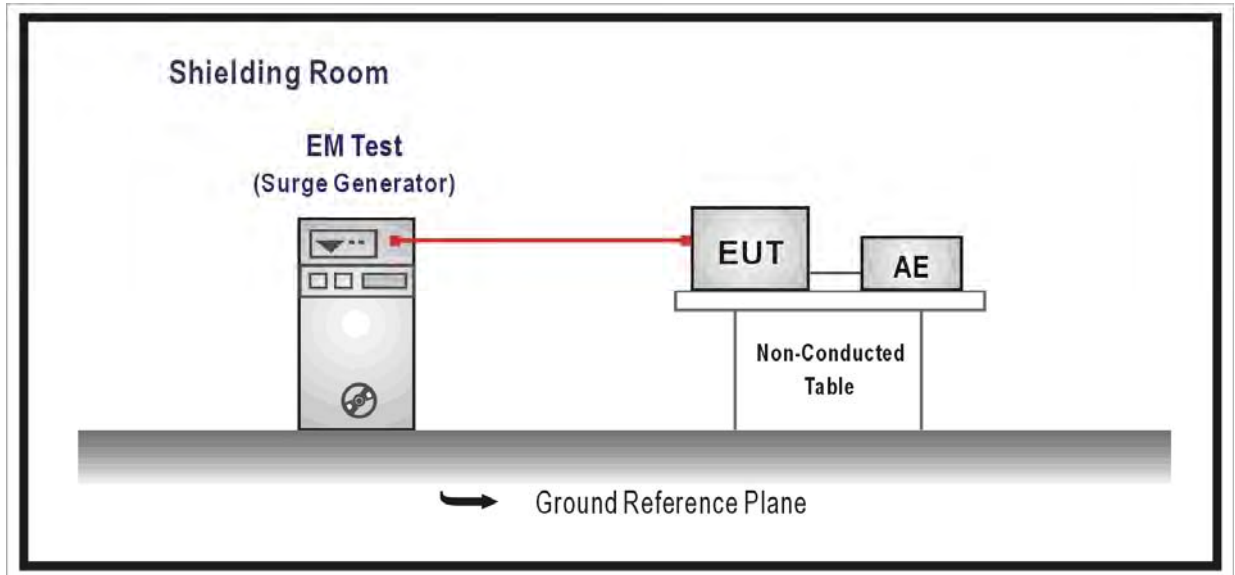


## 11. Surge

### 11.1. Test Specification

According to Standard : IEC 61000-4-5

### 11.2. Test Setup



### 11.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Signal Ports and Telecommunication Ports(See 1) and 2) )				
	Surges Line to Ground	Tr/Th us kV	10/700 ± 1	C
Input DC Power Ports				
	Surges Line to Ground	Tr/Th us kV	1.2/50 (8/20) ± 0.5	B
AC Input and AC Output Power Ports				
	Surges Line to Line Line to Ground	Tr/Th us kV kV	1.2/50 (8/20) ± 1 ± 2	B

Notes:

- 1) Applicable only to ports which according to the manufacturer's may directly to outdoor cables.
- 2) Where normal functioning cannot be achieved because of the impact of the CDN on the EUT, no immunity test shall be required.

#### **11.4. Test Procedure**

The EUT and its load are placed on a table that is 0.8 meter above a metal ground plane measured 1m\*1m min. and 0.65mm thick min. And projected beyond the EUT by at least 0.1m on all sides. The length of power cord between the coupling device and the EUT shall be 2m or less.

For Input and Output AC Power or DC Input and DC Output Power Ports:

The EUT is connected to the power mains through a coupling device that directly couples the Surge interference signal.

The surge noise shall be applied synchronized to the voltage phase at 0<sup>0</sup>, 90<sup>0</sup>, 180<sup>0</sup>, 270<sup>0</sup> and the peak value of the a.c. voltage wave. (Positive and negative)

Each of Line-Earth and Line-Line is impressed with a sequence of five surge voltages with interval of 1 min.

#### **11.5. Deviation from Test Standard**

No deviation.

### 11.6. Test Result

Product	Network Camera		
Test Item	Surge		
Test Mode	Mode 1: IB9387-EH , DC		
Date of Test	2018/11/09	Test Site	No.6 Shielded Room

Inject Line	Polarity	Voltage kV	Angle	Time Interval (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L-N	±	1kV	0	60	Direct	B	A	PASS
L-N	±	1kV	90	60	Direct	B	A	PASS
L-N	±	1kV	180	60	Direct	B	A	PASS
L-N	±	1kV	270	60	Direct	B	A	PASS
L-PE	±	2kV	0	60	Direct	B	A	PASS
L-PE	±	2kV	90	60	Direct	B	A	PASS
L-PE	±	2kV	180	60	Direct	B	A	PASS
L-PE	±	2kV	270	60	Direct	B	A	PASS
N-PE	±	2kV	0	60	Direct	B	A	PASS
N-PE	±	2kV	90	60	Direct	B	A	PASS
N-PE	±	2kV	180	60	Direct	B	A	PASS
N-PE	±	2kV	270	60	Direct	B	A	PASS
LAN (Line to Ground)	±	4kV	--	60	Direct	C	B	PASS

Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

- Meet criteria A : Operate as intended during and after the test
- Meet criteria B : Operate as intended after the test
- Meet criteria C : Loss/Error of function
- Additional Information
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_\_ kV of Line \_\_\_\_\_.
- No false alarms or other malfunctions were observed during or after the test.

Product	Network Camera		
Test Item	Surge		
Test Mode	Mode 2: IB9387-EH , PoE		
Date of Test	2018/11/09	Test Site	No.6 Shielded Room

Inject Line	Polarity	Voltage kV	Angle	Time Interval (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
LAN (Line to Ground)	±	4kV	--	60	Direct	C	B	PASS

## Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

- Meet criteria A : Operate as intended during and after the test
- Meet criteria B : Operate as intended after the test
- Meet criteria C : Loss/Error of function
- Additional Information
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_\_ kV of Line \_\_\_\_\_.
- No false alarms or other malfunctions were observed during or after the test.

### 11.7. Test Photograph

Test Mode : Mode 1: IB9387-EH , DC

Description : SURGE Test Setup



Test Mode : Mode 1: IB9387-EH , DC

Description : SURGE Test Setup - LAN



Test Mode : Mode 2: IB9387-EH , PoE

Description : SURGE Test Setup



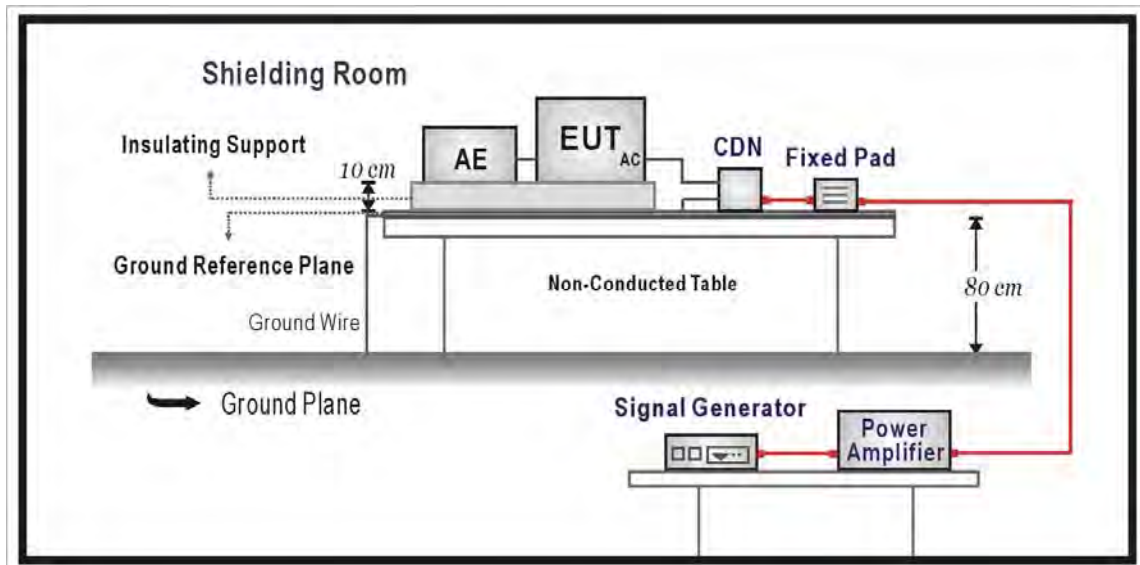
## 12. Conducted Susceptibility

### 12.1. Test Specification

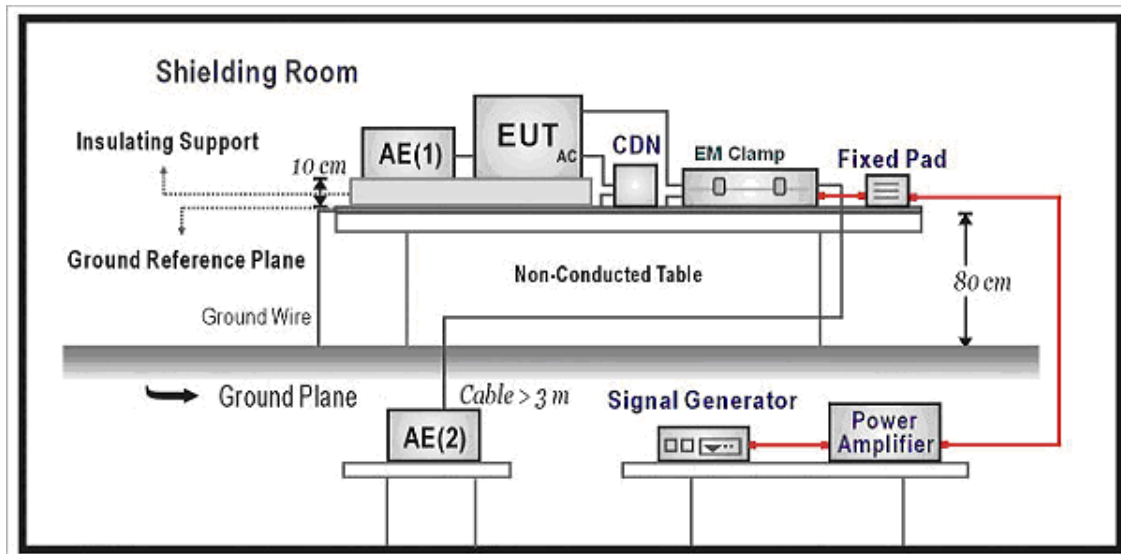
According to Standard : IEC 61000-4-6

### 12.2. Test Setup

CDN Inject Method



EM Clamp Inject Method



### 12.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Signal Ports and Telecommunication Ports				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 3 80	A
Input DC Power Ports				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 3 80	A
Input AC Power Ports				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 3 80	A

### 12.4. Test Procedure

The EUT are placed on a table that is 0.8 meter height, and a Ground reference plane on the table, EUT are placed upon table and use a 10cm insulation between the EUT and Ground reference plane.

For Signal Ports and Telecommunication Ports

The disturbance signal is through a coupling and decoupling networks (CDN) or EM-clamp device couples to the signal and Telecommunication lines of the EUT.

For Input DC and AC Power Ports

The EUT is connected to the power mains through a coupling and decoupling networks for power supply lines. And directly couples the disturbances signal into EUT.

Used CDN-M2 for two wires or CDN-M3 for three wires.

All the scanning conditions are as follows:

Condition of Test	Remarks
1. Field Strength	130dBuV(3V) Level 2
2. Radiated Signal	AM 80% Modulated with 1kHz
3. Scanning Frequency	0.15MHz – 80MHz
4. Dwell Time	3 Seconds
5. Frequency step size $\Delta f$ :	1%
6. The rate of Swept of Frequency	$1.5 \times 10^{-3}$ decades/s

### 12.5. Deviation from Test Standard

No deviation.

## 12.6. Test Result

Product	Network Camera		
Test Item	Conducted susceptibility		
Test Mode	Mode 1: IB9387-EH , DC		
Date of Test	2018/11/02	Test Site	No.6 Shielded Room

Frequency Range (MHz)	Voltage Applied dBuV(V)	Inject Method	Tested Port of EUT	Required Criteria	Performance Criteria Complied To	Result
0.15~80	130 (3V)	CDN	AC IN	A	A	PASS
0.15~80	130 (3V)	CDN	LAN	A	A	PASS

### Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

- Meet criteria A : Operate as intended during and after the test
- Meet criteria B : Operate as intended after the test
- Meet criteria C : Loss/Error of function
- Additional Information
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_\_ dBuV(V) at frequency \_\_\_\_\_MHz.
  - No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product	Network Camera		
Test Item	Conducted susceptibility		
Test Mode	Mode 2: IB9387-EH , PoE		
Date of Test	2018/11/02	Test Site	No.6 Shielded Room

Frequency Range (MHz)	Voltage Applied dBuV(V)	Inject Method	Tested Port of EUT	Required Criteria	Performance Criteria Complied To	Result
0.15~80	130 (3V)	CDN	LAN	A	A	PASS

Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

- Meet criteria A : Operate as intended during and after the test
- Meet criteria B : Operate as intended after the test
- Meet criteria C : Loss/Error of function
- Additional Information
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_\_ dBuV(V) at frequency \_\_\_\_\_MHz.
  - No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

### 12.7. Test Photograph

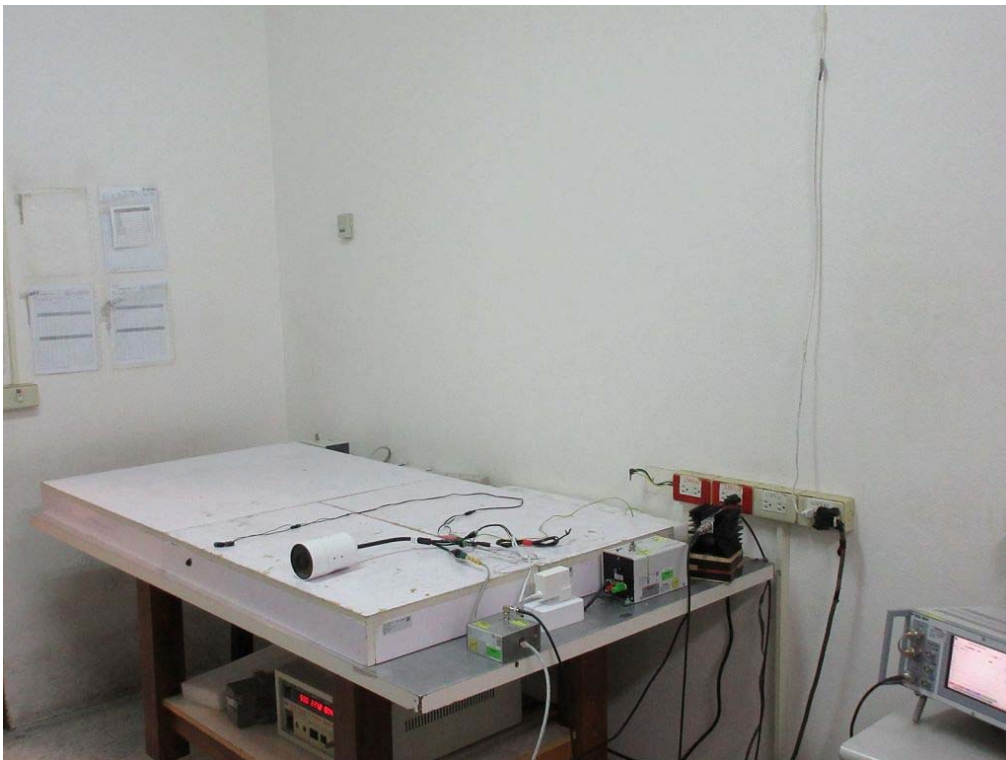
Test Mode : Mode 1: IB9387-EH , DC

Description : Conducted Susceptibility Test Setup



Test Mode : Mode 1: IB9387-EH , DC

Description : Conducted Susceptibility Test Setup - CDN



Test Mode : Mode 2: IB9387-EH , PoE

Description : Conducted Susceptibility Test Setup - CDN

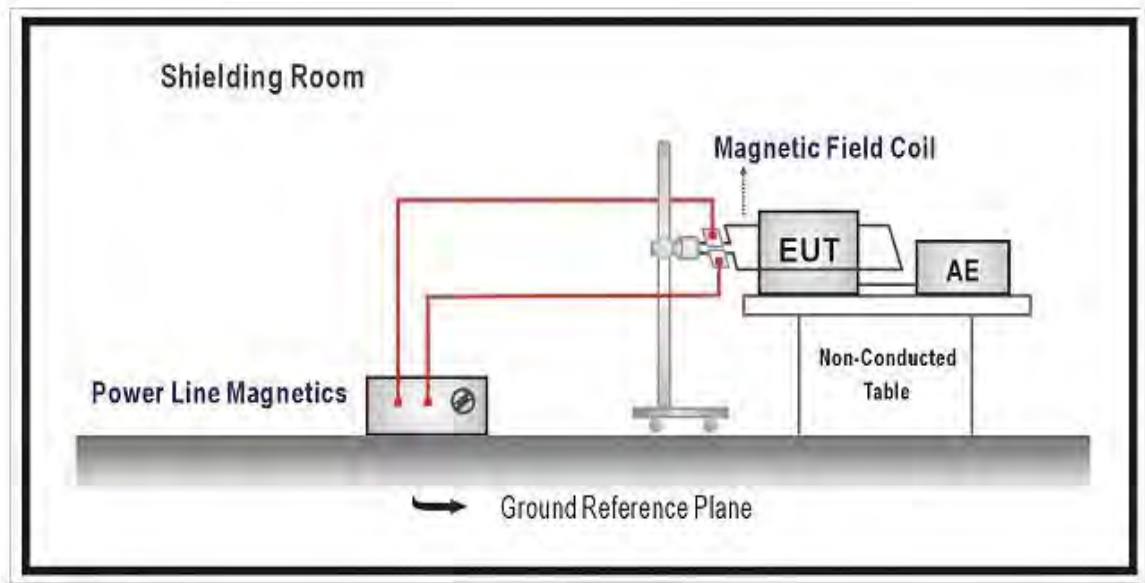


### 13. Power Frequency Magnetic Field

#### 13.1. Test Specification

According to Standard : IEC 61000-4-8

#### 13.2. Test Setup



#### 13.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Enclosure Port				
	Power-Frequency Magnetic Field	Hz A/m (r.m.s.)	50 1	A

#### 13.4. Test Procedure

The EUT and its load are placed on a table which is 0.8 meter above a metal ground plane measured at least 1m\*1m min. The test magnetic field shall be placed at central of the induction coil.

The test magnetic Field shall be applied 10 minutes by the immersion method to the EUT. And the induction coil shall be rotated by 90° in order to expose the EUT to the test field with different orientation (X, Y, Z Orientations).

#### 13.5. Deviation from Test Standard

No deviation.

### 13.6. Test Result

Product	Network Camera		
Test Item	Power frequency magnetic field		
Test Mode	Mode 1: IB9387-EH , DC		
Date of Test	2018/10/31	Test Site	No.3 Shielded Room

Polarization	Frequency (Hz)	Inject Times (s)	Magnetic Strength (A/m)	Required Performance Criteria	Performance Criteria Complied To	Test Result
X Orientation	50	60	1	A	A	PASS
Y Orientation	50	60	1	A	A	PASS
Z Orientation	50	60	1	A	A	PASS

- Meet criteria A: Operate as intended during and after the test
- Meet criteria B: Operate as intended after the test
- Meet criteria C: Loss/Error of function
- Additional Information
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_\_ kV of Line \_\_\_\_\_.
- No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product	Network Camera		
Test Item	Power frequency magnetic field		
Test Mode	Mode 2: IB9387-EH , PoE		
Date of Test	2018/10/31	Test Site	No.3 Shielded Room

Polarization	Frequency (Hz)	Inject Times (s)	Magnetic Strength (A/m)	Required Performance Criteria	Performance Criteria Complied To	Test Result
X Orientation	50	60	1	A	A	PASS
Y Orientation	50	60	1	A	A	PASS
Z Orientation	50	60	1	A	A	PASS

- Meet criteria A: Operate as intended during and after the test
- Meet criteria B: Operate as intended after the test
- Meet criteria C: Loss/Error of function
- Additional Information
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_\_ kV of Line \_\_\_\_\_.
- No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

### 13.7. Test Photograph

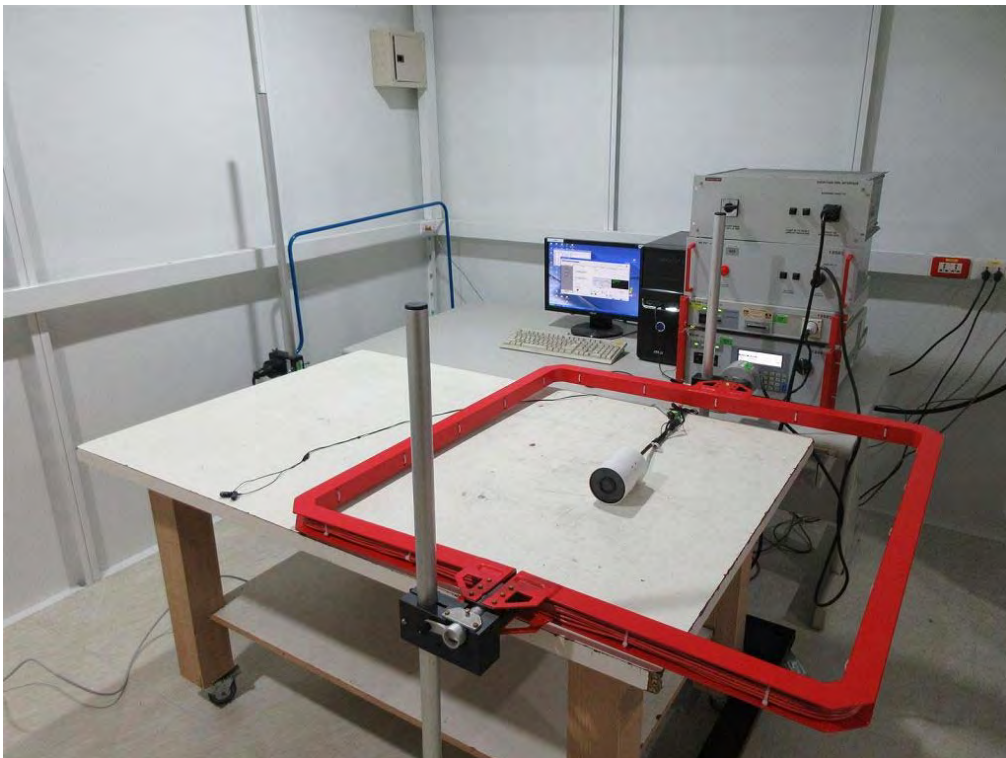
Test Mode : Mode 1: IB9387-EH , DC

Description : Power Frequency Magnetic Field Test Setup



Test Mode : Mode 2: IB9387-EH , PoE

Description : Power Frequency Magnetic Field Test Setup

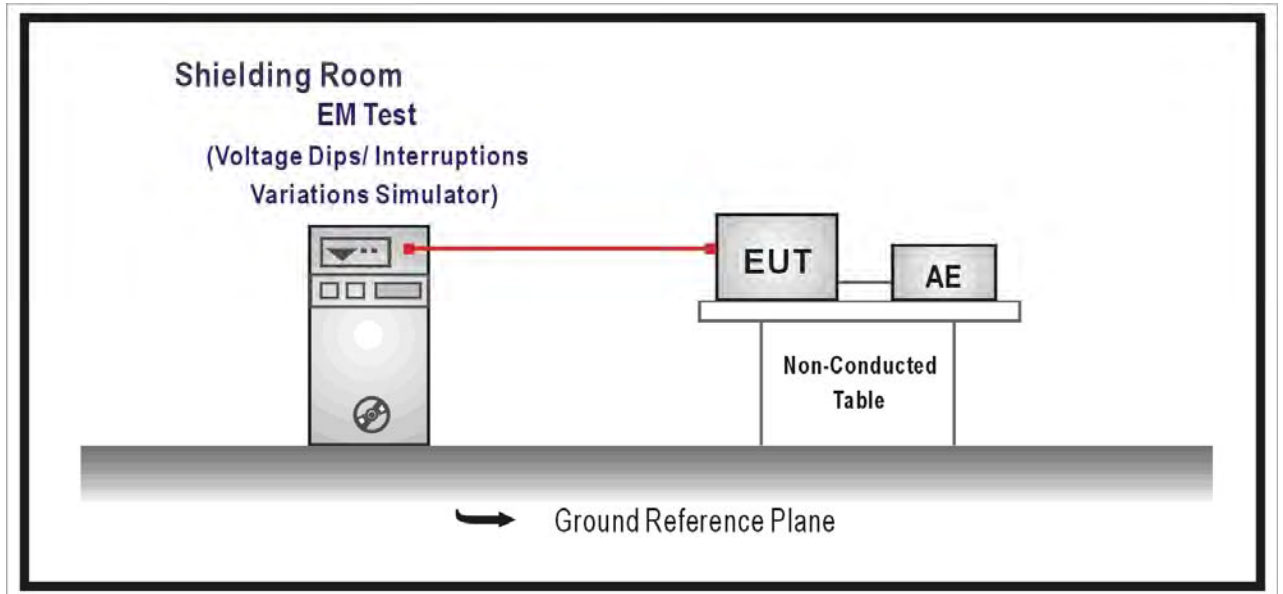


## 14. Voltage Dips and Interruption

### 14.1. Test Specification

According to Standard : IEC 61000-4-11

### 14.2. Test Setup



### 14.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Input AC Power Ports				
Voltage Dips	% Reduction	30	C	
	Period	25		
Voltage Interruptions	% Reduction	>95	B	
	Period	0.5		
Voltage Interruptions	% Reduction	> 95	C	
	Period	250		

#### 14.4. Test Procedure

The EUT and its load are placed on a table which is 0.8 meter above a metal ground plane measured 1m\*1m min. And 0.65mm thick min. And projected beyond the EUT by at least 0.1m on all sides. The power cord shall be used the shortest power cord as specified by the manufacturer.

For Voltage Dips/ Interruptions test:

The selection of test voltage is based on the rated power range. If the operation range is large than 20% of lower power range, both end of specified voltage shall be tested.

Otherwise, the typical voltage specification is selected as test voltage.

The EUT is connected to the power mains through a coupling device that directly couples to the Voltage Dips and Interruption Generator.

The EUT shall be tested for 30% voltage dip of supplied voltage and duration 25 Periods, for 95% voltage dip of supplied voltage and duration 0.5 Periods with a sequence of three voltage dips with intervals of 10 seconds, and for 95% voltage interruption of supplied voltage and duration 250 Periods with a sequence of three voltage interruptions with intervals of 10 seconds.

Voltage phase shifting are shall occur at 0°, 45°, 90°, 135°, 180°, 225°, 270°, 315° of the voltage.

#### 14.5. Deviation from Test Standard

No deviation.

#### 14.6. Test Result

Product	Network Camera		
Test Item	Voltage dips and interruption		
Test Mode	Mode 1: IB9387-EH , DC		
Date of Test	2018/11/01	Test Site	No.3 Shielded Room

Voltage Dips and Interruption Reduction(%)	Angle	Test Duration (Periods)	Required Performance Criteria	Performance Criteria Complied To	Test Result
30	0	25	C	A	PASS
30	45	25	C	A	PASS
30	90	25	C	A	PASS
30	135	25	C	A	PASS
30	180	25	C	A	PASS
30	225	25	C	A	PASS
30	270	25	C	A	PASS
30	315	25	C	A	PASS
>95	0	0.5	B	A	PASS
>95	45	0.5	B	A	PASS
>95	90	0.5	B	A	PASS
>95	135	0.5	B	A	PASS
>95	180	0.5	B	A	PASS
>95	225	0.5	B	A	PASS
>95	270	0.5	B	A	PASS
>95	315	0.5	B	A	PASS
>95	0	250	C	B	PASS
>95	45	250	C	B	PASS
>95	90	250	C	B	PASS
>95	135	250	C	B	PASS
>95	180	250	C	B	PASS
>95	225	250	C	B	PASS
>95	270	250	C	B	PASS
>95	315	250	C	B	PASS

- Meet criteria A: Operate as intended during and after the test
- Meet criteria B: Operate as intended after the test
- Meet criteria C: Loss/Error of function
- Additional Information
  - The nominal voltage of EUT is 230V.
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_\_ kV of Line \_\_\_\_\_.
- No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

### 14.7. Test Photograph

Test Mode : Mode 1: IB9387-EH , DC

Description : Voltage Dips Test Setup



**15. Attachment**

➤ **EUT Photograph**

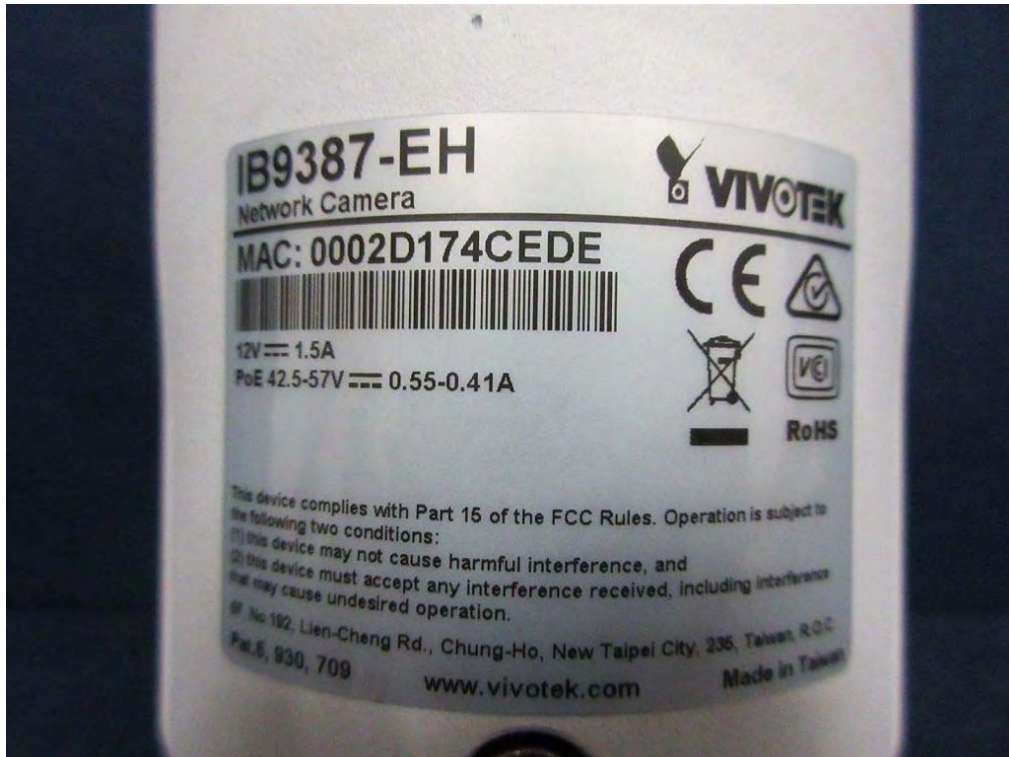
(1) EUT Photo \_M/N: IB9387-EH



(2) EUT Photo \_M/N: IB9387-EH



(3) EUT Photo \_M/N: IB9387-EH



(4) EUT Photo \_M/N: IB9387-H



(5) EUT Photo \_M/N: IB9387-H



(6) EUT Photo \_M/N: IB9387-H

