



# CERTIFICATE

Issued Date: Aug. 26, 2011  
Report No.: 116381R-ITCEP11V04

This is to certify that the following designated product

**Product** : Network Camera  
**Trade name** : VIVOTEK  
**Model Number** : PZ8111, PZ8121, PZ8111W, PZ8121W  
**Company Name** : VIVOTEK INC.

This product, which has been issued the test report listed as above in QuietTek Laboratory, is based on a single evaluation of one sample and confirmed to comply with the requirements of the following EMC standard.

EN 55022: 2006+A1: 2007

EN 55024: 1998+A1: 2001+A2: 2003

EN 61000-3-2: 2006+A2: 2009

IEC 61000-4-2: 2008

EN 61000-3-3: 2008

IEC 61000-4-3: 2010

IEC 61000-4-4: 2011

IEC 61000-4-5: 2005

IEC 61000-4-6: 2008

IEC 61000-4-8: 2009

AS/NZS CISPR 22: 2009

IEC 61000-4-11: 2004

TEST LABORATORY

Vincent Lin / Manager



# Test Report

Product Name : Network Camera

Model No. : PZ8111, PZ8121, PZ8111W, PZ8121W

Applicant : VIVOTEK INC.

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

Date of Receipt : 2011/06/23

Issued Date : 2011/08/26

Report No. : 116381R-ITCEP11V04

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, NVLAP or any agency of the Government.

The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.



# Declaration of Conformity

We herewith confirm the following designated products to comply with the requirements set out in the Council Directive on the approximation of the laws of the Member States relating to Electromagnetic Compatibility Directive (2004/108/EC) with applicable standards listed below.

Product : Network Camera  
Trade name : VIVOTEK  
Model Number : PZ8111, PZ8121, PZ8111W, PZ8121W  
Applicable Harmonized : EN 55022:2006+A1: 2007, Class B  
Standards under Directive : EN 55024: 1998+A1: 2001+A2: 2003  
2004/108/EC : EN 61000-3-2: 2006+A2: 2009  
EN 61000-3-3:2008  
AS/NZS CISPR 22: 2009

Company Name : \_\_\_\_\_

Company Address : \_\_\_\_\_

Telephone : \_\_\_\_\_ Facsimile : \_\_\_\_\_

Person in responsible for marking this declaration:

\_\_\_\_\_  
Name (Full Name)

\_\_\_\_\_  
Title/ Department

\_\_\_\_\_  
Date

\_\_\_\_\_  
Legal Signature



## Statement of Conformity

This statement is to certify that the designated product below.

Product : Network Camera  
Trade name : VIVOTEK  
Model Number : PZ8111, PZ8121, PZ8111W, PZ8121W  
Company Name : VIVOTEK INC.  
Applicable Standards : EN 55022:2006+A1: 2007, Class B  
EN 55024: 1998+A1: 2001+A2: 2003  
EN 61000-3-2: 2006+A2: 2009  
EN 61000-3-3:2008  
AS/NZS CISPR 22: 2009

One sample of the designated product has been tested and evaluated in our laboratory to find in compliance with the applicable standards above. The issued test report(s) show(s) it in detail.

**Report Number : 116381R-ITCEP11V04**



The verification is based on a single evaluation of one sample of above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab. Logo.

## Test Report Certification

Issued Date : 2011/08/26  
Report No. : 116381R-ITCEP11V04



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. : PZ8111, PZ8121, PZ8111W, PZ8121W  
EUT Rated Voltage : AC 100-240V, 50-60Hz  
By PoE  
EUT Test Voltage : AC 230 V / 50 Hz  
By PoE  
Trade Name : VIVOTEK  
Applicable Standard : EN 55022: 2006+A1: 2007, Class B  
EN 55024: 1998+A1: 2001+A2: 2003  
EN 61000-3-2: 2006+A2: 2009  
EN 61000-3-3:2008  
AS/NZS CISPR 22: 2009  
Test Result : Complied  
Performed Location : Quietek Corporation (Linkou Laboratory)  
No.5-22, Ruishukeng, Linkou Dist., New Taipei City 24451,  
Taiwan, R.O.C.  
TEL:+866-2-8601-3788 / FAX:+886-2-8601-3789

Documented By :

( Adm. Specialist / Joanne Lin )

Reviewed By :

( Engineer / Sampras Yen )

Approved By :

( Manager / Vincent Lin )

We , **Quietek Corporation**, 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>Germany</b>	<b>:</b>	<b>TUV Rheinland</b>
<b>Norway</b>	<b>:</b>	<b>Nemko, DNV</b>
<b>USA</b>	<b>:</b>	<b>FCC, NVLAP</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 Quietek Corporation’s Web Site : <http://tw.quietek.com/tw/emc/accreditations/accreditations.htm>  
 The address and introduction of Quietek Corporation’s laboratories can be founded in our Web site : <http://www.quietek.com/>  
 If you have any comments, Please don’t hesitate to contact us. Our contact information is as below:

**HsinChu Testing Laboratory :**

No.75-2, 3rd Lin, Wangye Keng, Yonghxing Tsuen, Qionglin Shiang, Hsinchu County 307, Taiwan, R.O.C.  
 TEL:+886-3-592-8858 / FAX:+886-3-592-8859 E-Mail : [service@quietek.com](mailto:service@quietek.com)



**Linkou Testing 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 : [service@quietek.com](mailto:service@quietek.com)



**Suzhou (China) Testing Laboratory :**

No. 99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone., Suzhou,China.  
 TEL : +86-512-6251-5088 / FAX : +86-512-6251-5098 E-Mail : [service@quietek.com](mailto:service@quietek.com)



**TABLE OF CONTENTS**

Description	Page
1. General Information .....	7
1.1. EUT Description.....	7
1.2. Mode of Operation .....	7
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).....	28
4.1. Test Specification .....	28
4.2. Test Setup.....	28
4.3. Limit .....	28
4.4. Test Procedure .....	29
4.5. Deviation from Test Standard.....	29
4.6. Test Result .....	30
4.7. Test Photograph .....	42
5. Radiated Emission .....	44
5.1. Test Specification .....	44
5.2. Test Setup.....	44
5.3. Limit .....	45
5.4. Test Procedure .....	46
5.5. Deviation from Test Standard.....	46
5.6. Test Result .....	47
5.7. Test Photograph .....	55
6. Harmonic Current Emission .....	58

6.1.	Test Specification .....	58
6.2.	Test Setup.....	58
6.3.	Limit.....	58
6.4.	Test Procedure .....	60
6.5.	Deviation from Test Standard.....	60
6.6.	Test Result.....	61
6.7.	Test Photograph .....	62
7.	Voltage Fluctuation and Flicker.....	64
7.1.	Test Specification.....	64
7.2.	Test Setup.....	64
7.3.	Limit.....	64
7.4.	Test Procedure .....	65
7.5.	Deviation from Test Standard.....	65
7.6.	Test Result.....	66
7.7.	Test Photograph .....	66
8.	Electrostatic Discharge .....	68
8.1.	Test Specification.....	68
8.2.	Test Setup.....	68
8.3.	Limit.....	68
8.4.	Test Procedure .....	69
8.5.	Deviation from Test Standard.....	69
8.6.	Test Result.....	70
8.7.	Test Photograph .....	72
9.	Radiated Susceptibility .....	72
9.1.	Test Specification.....	73
9.2.	Test Setup.....	73
9.3.	Limit.....	73
9.4.	Test Procedure .....	74
9.5.	Deviation from Test Standard.....	74
9.6.	Test Result.....	75
9.7.	Test Photograph .....	77
10.	Electrical Fast Transient/Burst .....	77
10.1.	Test Specification.....	78
10.2.	Test Setup.....	78
10.3.	Limit.....	78
10.4.	Test Procedure .....	79
10.5.	Deviation from Test Standard.....	79
10.6.	Test Result.....	80



10.7.	Test Photograph .....	81
11.	Surge .....	83
11.1.	Test Specification .....	84
11.2.	Test Setup.....	84
11.3.	Limit.....	84
11.4.	Test Procedure .....	85
11.5.	Deviation from Test Standard.....	85
11.6.	Test Result.....	86
11.7.	Test Photograph .....	87
12.	Conducted Susceptibility.....	88
12.1.	Test Specification .....	88
12.2.	Test Setup.....	88
12.3.	Limit.....	89
12.4.	Test Procedure .....	89
12.5.	Deviation from Test Standard.....	89
12.6.	Test Result.....	90
12.7.	Test Photograph .....	91
13.	Power Frequency Magnetic Field .....	93
13.1.	Test Specification .....	94
13.2.	Test Setup.....	94
13.3.	Limit.....	94
13.4.	Test Procedure .....	94
13.5.	Deviation from Test Standard.....	94
13.6.	Test Result.....	95
13.7.	Test Photograph .....	96
14.	Voltage Dips and Interruption.....	98
14.1.	Test Specification .....	98
14.2.	Test Setup.....	98
14.3.	Limit.....	98
14.4.	Test Procedure .....	99
14.5.	Deviation from Test Standard.....	99
14.6.	Test Result.....	100
14.7.	Test Photograph .....	101
15.	Attachment.....	102
	EUT Photograph.....	102

## 1. General Information

### 1.1. EUT Description

Product Name	Network Camera
Trade Name	VIVOTEK
Model No.	PZ8111, PZ8121, PZ8111W, PZ8121W

Component	
Power Adapter	MFR: ENG, M/N: 3A-183WP12 Input: AC 100-240V, 50-60Hz, 0.6A Output: DC 12V, 1.5A Cable Out: Non-Shielded, 1.6m
AV Cable	Non-Shielded, 1.5m

Note:

The different of each model is shown as below:

Model Number	PZ8111	PZ8121	PZ8111W	PZ8121W
Sensor	NTSC	PAL	NTSC	PAL
POE	YES	YES	NO	NO
WLAN	NO	NO	YES	YES

**1.2. Mode of Operation**

Quietek 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: Normal Operation (M/N: PZ8111W)	
Mode 2: PoE Mode (M/N: PZ8111)	
Final Test Mode	
Emission	Mode 1: Normal Operation (M/N: PZ8111W)
Immunity	Mode 1: Normal Operation (M/N: PZ8111W)
	Mode 2: PoE Mode (M/N: PZ8111)

### 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	Monitor	JVC	LT-20BW7BJ	N/A	Non-Shielded, 1.8m
2	Microphone & Earphone	Ergotech	ET-E201	N/A	N/A
3	Notebook PC	DELL	PP04X	C8YYM1S	Non-Shielded, 1.8m

Test Mode		Mode 2			
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Monitor	JVC	LT-20BW7BJ	N/A	Non-Shielded, 1.8m
2	Microphone & Earphone	Ergotech	ET-E201	N/A	N/A
3	Notebook PC	DELL	PP04X	C8YYM1S	Non-Shielded, 1.8m
4	PoE	VIVOTEK	PoE-IJ-1748NDN	N/A	Non-Shielded, 1.8m

1.4. Configuration of Tested System

Test Mode		Mode 1
Connection Diagram		
<p>The diagram shows a central box labeled 'EUT'. To its left is a box labeled 'Monitor (1)', connected to the EUT by a horizontal line labeled 'A'. Below the EUT is a box labeled 'Microphone &amp; Earphone (2)', connected to the EUT by a vertical line labeled 'B'. To the right of the EUT is a box labeled 'Notebook PC (3)', connected to the EUT by a horizontal line labeled 'C'. A dashed rectangular box encloses the Monitor (1), EUT, and Microphone &amp; Earphone (2) components.</p>		
Signal Cable Type		Signal cable Description
A	AV Cable	Non-Shielded, 1.5m
B	Microphone & Earphone Cable	Non-Shielded, 1.6m
C	LAN Cable	Non-Shielded, 3m

Test Mode		Mode 2
Connection Diagram		
<p>The diagram illustrates the test setup. A central EUT (Equipment Under Test) is connected to a Monitor (1) via cable A. A PoE (4) (Power over Ethernet) source is connected to the EUT and a Notebook PC (3) via cable C. A Microphone &amp; Earphone (2) is connected to the EUT via cable B. A dashed line encloses the Monitor (1), EUT, and Notebook PC (3), indicating they are part of the test environment.</p>		
Signal Cable Type		Signal cable Description
A	AV Cable	Non-Shielded, 1.5m
B	Microphone & Earphone Cable	Non-Shielded, 1.6m
C	LAN Cable	Non-Shielded, 3m, two PCS.

**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	Repeat the above procedure (3) to (4).

## 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 55022:2006+A1: 2007	Yes	No
Impedance Stabilization Network	EN 55022:2006+A1: 2007	Yes	No
Radiated Emission	EN 55022:2006+A1: 2007	Yes	No
Power Harmonics	EN 61000-3-2: 2006+A2: 2009	Yes	No
Voltage Fluctuation and Flicker	EN 61000-3-3:2008	Yes	No

Immunity			
Performed Item	Normative References	Test Performed	Deviation
Electrostatic Discharge	IEC 61000-4-2: 2008	Yes	No
Radiated susceptibility	IEC 61000-4-3: 2010	Yes	No
Electrical fast transient/burst	IEC 61000-4-4: 2011	Yes	No
Surge	IEC 61000-4-5: 2005	Yes	No
Conducted susceptibility	IEC 61000-4-6: 2008	Yes	No
Power frequency magnetic field	IEC 61000-4-8: 2009	Yes	No
Voltage dips and interruption	IEC 61000-4-11: 2004	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	100366	2010/11/10
LISN	R&S	ENV4200	833209/007	2010/09/06
LISN	R&S	ENV216	100085	2011/02/10
Pulse Limiter	R&S	ESH3-Z2	357.88.10.52	2010/09/02

### Impedance Stabilization Network / SR1

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Capacitive Voltage Probe	Schaffner	CVP2200A	18331	2010/11/15
EMI Test Receiver	R&S	ESCS 30	100366	2010/11/10
LISN	R&S	ENV216	100085	2011/02/10
LISN	R&S	ENV4200	833209/007	2010/09/06
Pulse Limiter	R&S	ESH3-Z2	357.88.10.52	2010/09/02
RF Current Probe	FCC	F-65 10KHz~1GHz	198	2010/11/08
BALANCED TELECOM ISN	FCC	FCC-TLISN-T2-02	20316	2011/07/08
BALANCED TELECOM ISN	FCC	FCC-TLISN-T4-02	20317	2011/07/08
BALANCED TELECOM ISN	FCC	FCC-TLISN-T8-02	20319	2011/07/08

### Radiated Emission / Site1

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Bilog Antenna	Schaffner Chase	CBL6112B	2918	2011/07/28
EMI Test Receiver	R&S	ESCS 30	100121	2010/12/06
Pre-Amplifier	QTK	N/A	N/A	2011/07/07
CXA Signal Analyzer	Agilent	N9000A	MY50510072	2011/02/10

### Radiated Emission / 9x6x6 Chamber

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	R&S	ESIB26	838786/004	2011/06/29
Horn Antenna	Schwarzbeck	9120D	576	2010/11/12
Pre-Amplifier	Quietek	AP-025C	CHM/071919	2011/07/12

### Power Harmonics / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
AC Power Source(Harmonic)	Schaffner	NSG 1007	HK54148	2010/09/06
IEC1000-4-X Analyzer(Flicker)	Schaffner	CCN 1000-1	X7 1887	2010/09/06

### Voltage Fluctuation and Flicker / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
AC Power Source(Harmonic)	Schaffner	NSG 1007	HK54148	2010/09/06
IEC1000-4-X Analyzer(Flicker)	Schaffner	CCN 1000-1	X7 1887	2010/09/06

## Electrostatic Discharge / SR6

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
ESD Simulator System	Noiseken	TC-815R	ESS09Z9758	2011/03/28
Horizontal Coupling Plane(HCP)	QuieTek	HCP AL50	N/A	N/A
Vertical Coupling Plane(VCP)	QuieTek	VCP AL50	N/A	N/A

## Radiated susceptibility / CB5

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
AF-BOX	R&S	AF-BOX ACCUST	100007	N/A
Audio Analyzer	R&S	UPL 16	100137	2011/05/09
Biconilog Antenna	EMCO	3149	00071675	N/A
Directional Coupler	A&R	DC 6180	22735	N/A
Dual Microphone Supply	B&K	5935	2426784	2011/04/21
Mouth Simulator	B&K	4227	2439692	2011/04/21
Power Amplifier	A&R	30S1G3	309453	N/A
Power Amplifier	A&R	100W10000M7	A285000010	N/A
Power Amplifier	SCHAFFNER	CBA9413B	4020	N/A
Power Amplifier	AR	75A250A	0325371	N/A
Power Meter	R&S	NRVD(P.M)	100219	2011/05/09
Pre-Amplifier	A&R	150A220	23067	N/A
Probe Microphone	B&K	4182	2278070	2011/04/21
Signal Generator	R&S	SMT03	100170	2011/05/09

## Electrical fast transient/burst / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
TRANSIENT TEST SYSTEM	EMC PARTNER	TRA2000IN6	1138	2010/12/09

## Surge / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
TRANSIENT TEST SYSTEM	EMC PARTNER	TRA2000IN6	1138	2010/12/09

## Conducted susceptibility / SR6

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Schaffner NSG 2070 RF-Generator	Schaffner	N/A	N/A	2011/04/07

## Power frequency magnetic field / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Induction Coil Interface	Schaffner	INA 2141	6002	N/A
Magnetic Loop Coil	Schaffner	INA 702	160	N/A

## Voltage dips and interruption / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
TRANSIENT TEST SYSTEM	EMC PARTNER	TRA2000IN6	1138	2010/12/09

## 2.3. Measurement Uncertainty

### Conducted Emission

The measurement uncertainty is evaluated as  $\pm 2.26$  dB.

### Impedance Stabilization Network

The measurement uncertainty is evaluated as  $\pm 2.26$  dB.

### Radiated Emission

The measurement uncertainty is evaluated as  $\pm 3.19$  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 and timing as being 3.0 % and 3.8%.

### 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 filed 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 4 %, and 2.5%.

### 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 and timing as being 3.5 % and 0.1%.

#### 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 2.0 dB and 2.61 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 3.5 % and 0.1%.

## 2.4. Test Environment

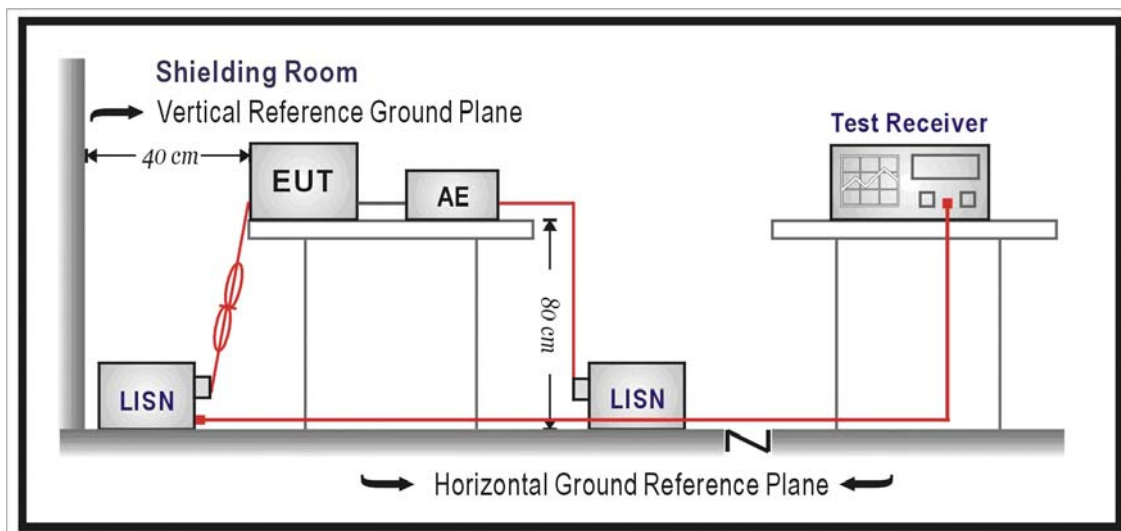
Performed Item	Items	Required	Actual
Conducted Emission	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Impedance Stabilization Network	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Radiated Emission	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Electrostatic Discharge	Temperature (°C)	15-35	25
	Humidity (%RH)	30-60	50
	Barometric pressure (mbar)	860-1060	950-1000
Radiated susceptibility	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Electrical fast transient/burst	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Surge	Temperature (°C)	15-35	25
	Humidity (%RH)	10-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Conducted susceptibility	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Power frequency magnetic field	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Voltage dips and interruption	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000

### 3. Conducted Emission (Main Terminals)

#### 3.1. Test Specification

According to EMC Standard : EN 55022

#### 3.2. Test Setup



#### 3.3. Limit

Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 - 46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

### 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.

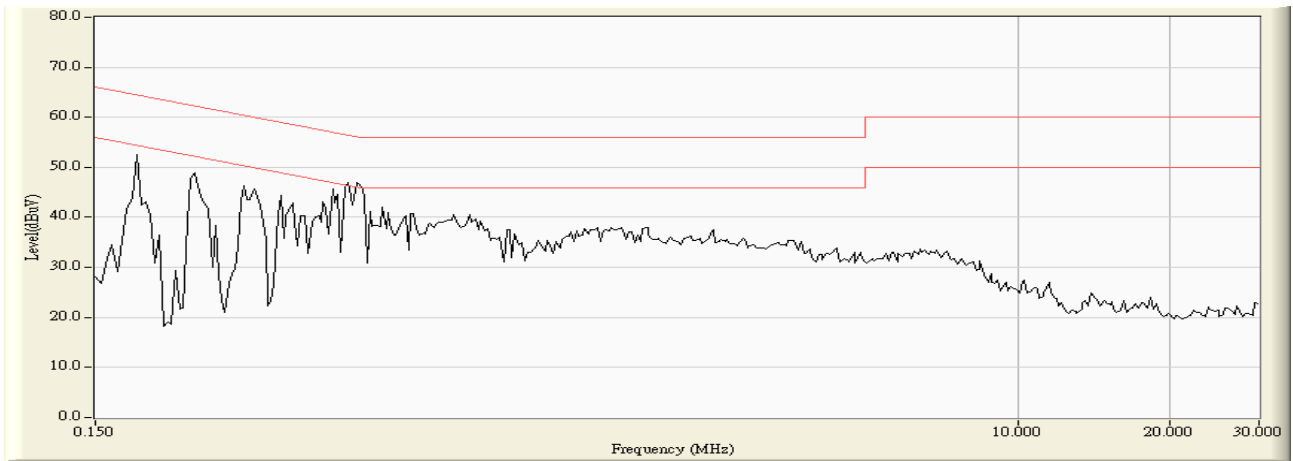
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

### 3.5. Deviation from Test Standard

No deviation.

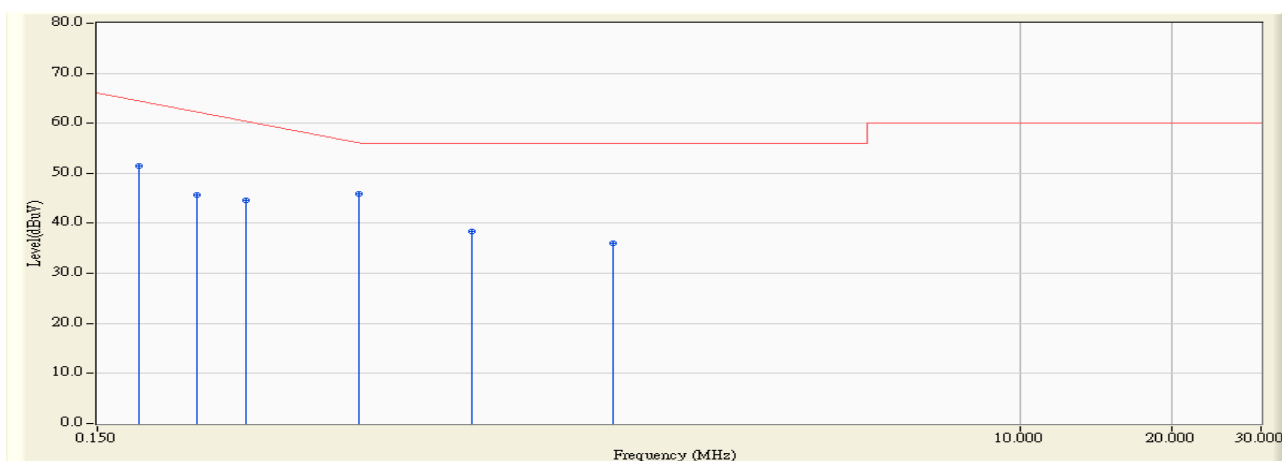
## 3.6. Test Result

Site : SR_1	Time : 2011/06/29 - 23:56
Limit : CISPR_B_00M_QP	Margin : 10
EUT : Network Camera	Probe : ENV_216_L1 - Line1
Power : AC 230V/50Hz	Note : Mode 1





Site : SR_1	Time : 2011/06/29 - 23:57
Limit : CISPR_B_00M_QP	Margin : 0
EUT : Network Camera	Probe : ENV_216_L1 - Line1
Power : AC 230V/50Hz	Note : Mode 1

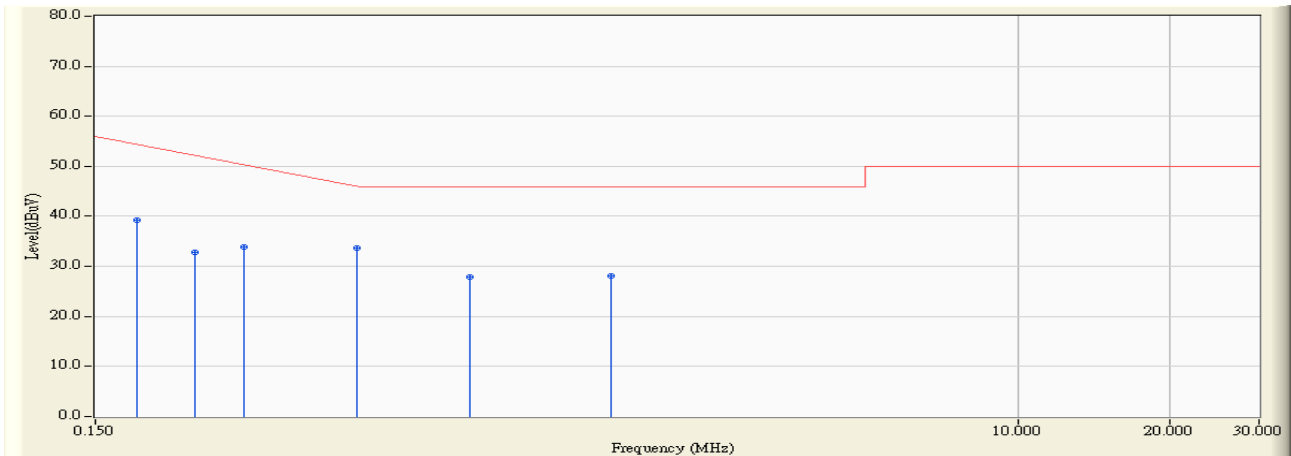


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.181	9.790	41.610	51.400	-13.714	65.114	QUASIPeAK
2		0.236	9.790	35.810	45.600	-17.943	63.543	QUASIPeAK
3		0.295	9.790	34.870	44.660	-17.197	61.857	QUASIPeAK
4	*	0.494	9.790	36.010	45.800	-10.371	56.171	QUASIPeAK
5		0.826	9.800	28.510	38.310	-17.690	56.000	QUASIPeAK
6		1.572	9.810	26.230	36.040	-19.960	56.000	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 : SR_1	Time : 2011/06/29 - 23:57
Limit : CISPR_B_00M_AV	Margin : 0
EUT : Network Camera	Probe : ENV_216_L1 - 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		0.181	9.790	29.470	39.260	-15.854	55.114	AVERAGE
2		0.236	9.790	22.960	32.750	-20.793	53.543	AVERAGE
3		0.295	9.790	24.180	33.970	-17.887	51.857	AVERAGE
4	*	0.494	9.790	23.960	33.750	-12.421	46.171	AVERAGE
5		0.826	9.800	18.160	27.960	-18.040	46.000	AVERAGE
6		1.572	9.810	18.250	28.060	-17.940	46.000	AVERAGE

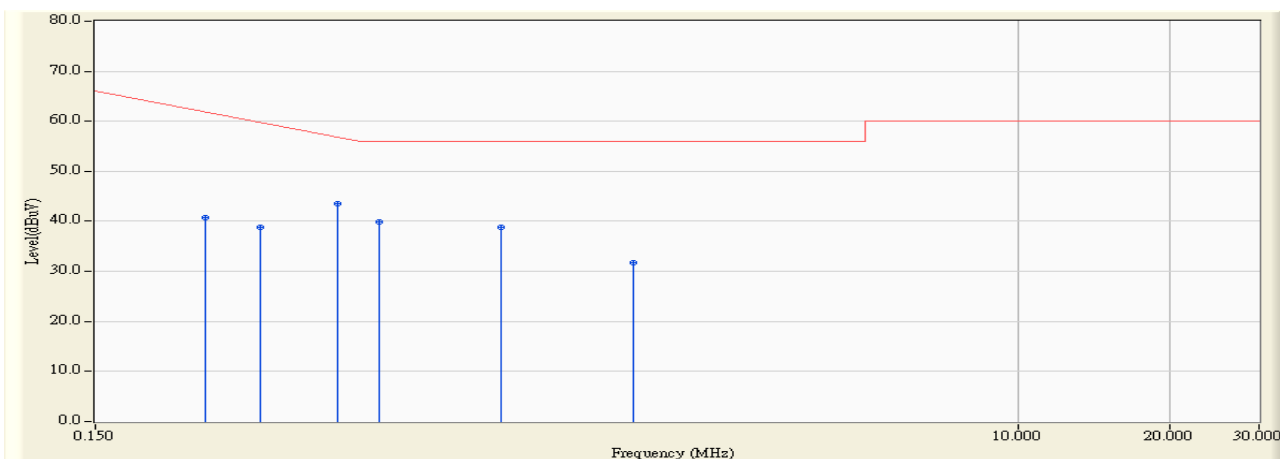
**Note:**

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 : SR_1	Time : 2011/06/29 - 23:57
Limit : CISPR_B_00M_QP	Margin : 10
EUT : Network Camera	Probe : ENV_216_N - Line2
Power : AC 230V/50Hz	Note : Mode 1



Site : SR_1	Time : 2011/06/29 - 23:58
Limit : CISPR_B_00M_QP	Margin : 0
EUT : Network Camera	Probe : ENV_216_N - Line2
Power : AC 230V/50Hz	Note : Mode 1

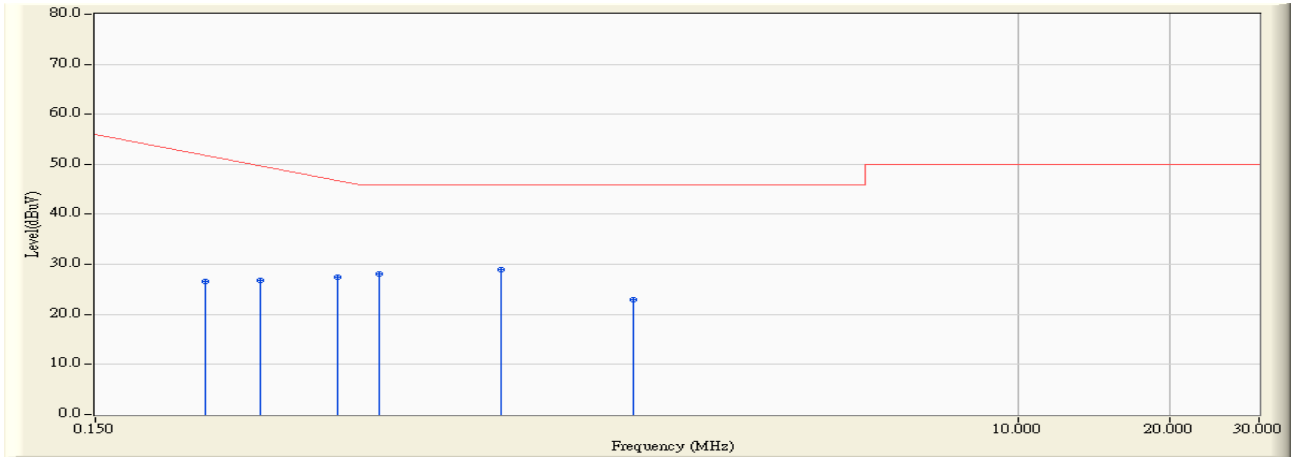


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.248	9.780	30.890	40.670	-22.530	63.200	QUASIPeAK
2		0.318	9.790	29.030	38.820	-22.380	61.200	QUASIPeAK
3	*	0.451	9.790	33.830	43.620	-13.780	57.400	QUASIPeAK
4		0.545	9.790	30.190	39.980	-16.020	56.000	QUASIPeAK
5		0.951	9.790	29.030	38.820	-17.180	56.000	QUASIPeAK
6		1.736	9.800	21.930	31.730	-24.270	56.000	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 : SR_1	Time : 2011/06/29 - 23:58
Limit : CISPR_B_00M_AV	Margin : 0
EUT : Network Camera	Probe : ENV_216_N - 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	0.248	9.780	16.790	26.570	-26.630	53.200	AVERAGE
2	0.318	9.790	16.990	26.780	-24.420	51.200	AVERAGE
3	0.451	9.790	17.710	27.500	-19.900	47.400	AVERAGE
4	0.545	9.790	18.340	28.130	-17.870	46.000	AVERAGE
5	* 0.951	9.790	19.160	28.950	-17.050	46.000	AVERAGE
6	1.736	9.800	13.060	22.860	-23.140	46.000	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: Normal Operation (M/N: PZ8111W)

Description : Front View of Conducted Test



Test Mode : Mode 1: Normal Operation (M/N: PZ8111W)

Description : Back View of Conducted Test

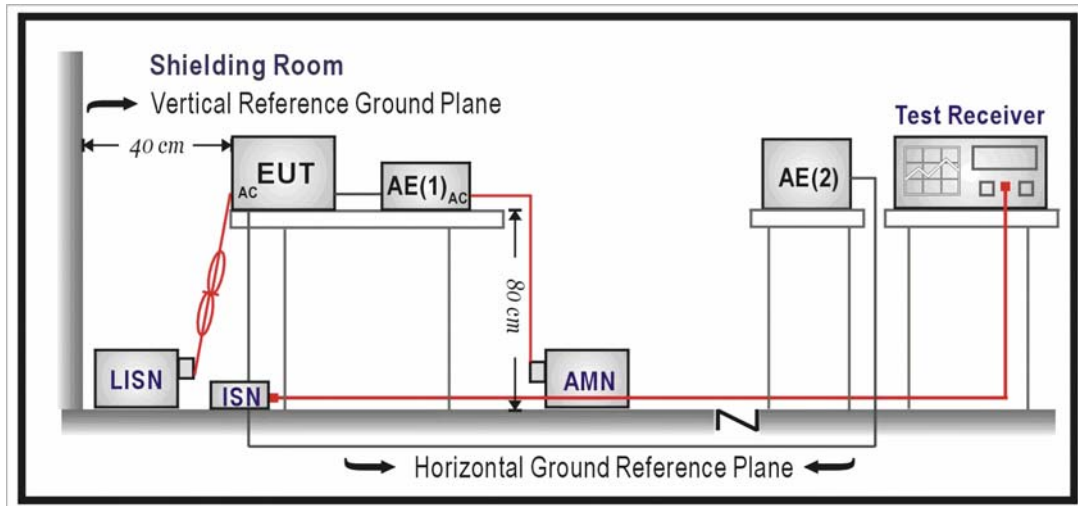


4. Conducted Emissions (Telecommunication Ports)

4.1. Test Specification

According to EMC Standard : EN 55022

4.2. Test Setup



4.3. Limit

Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	84 – 74	74 – 64
0.50 - 30	74	64

Remarks:

The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz~0.50 MHz.

#### **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.

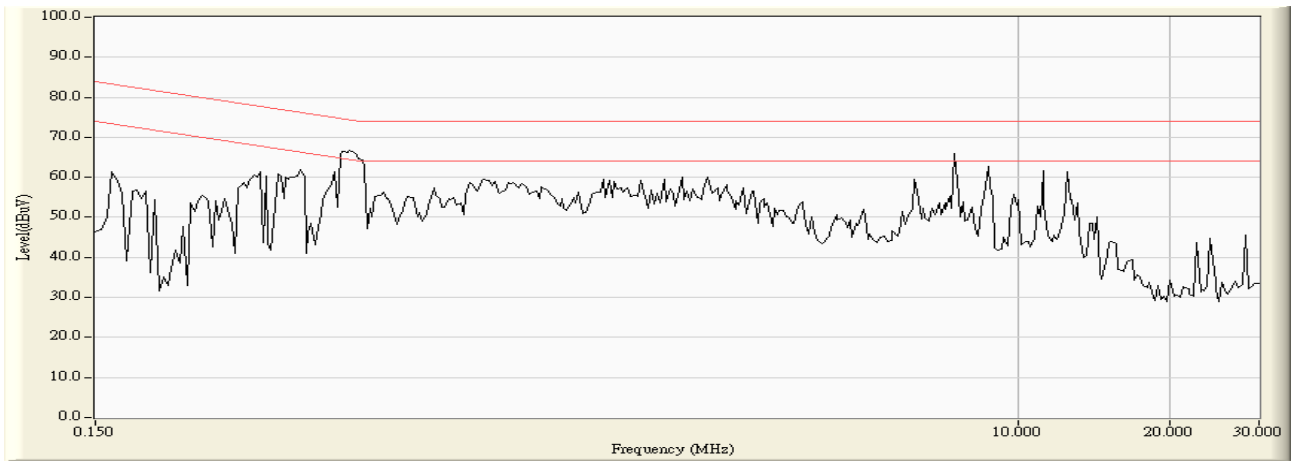
#### **4.5. Deviation from Test Standard**

No deviation.

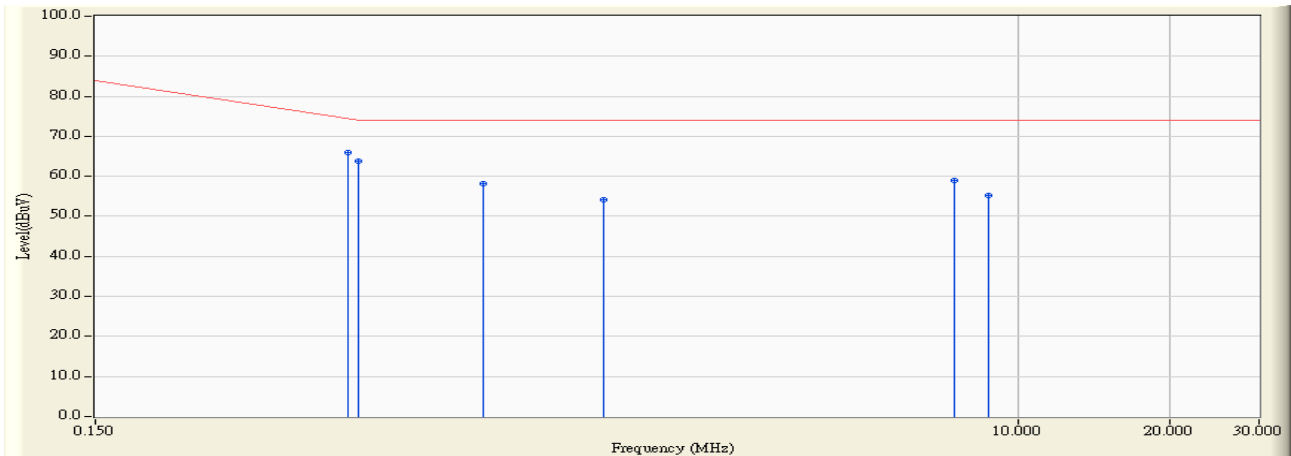


**4.6. Test Result**

Site : SR_1	Time : 2011/06/30 - 00:11
Limit : ISN_Voltage_B_00M_QP	Margin : 10
EUT : Network Camera	Probe : ISN_T4 - Line1
Power : AC 230V/50Hz	Note : Mode 1, ISN 10Mbps



Site : SR_1	Time : 2011/06/30 - 00:12
Limit : ISN_Voltage_B_00M_QP	Margin : 0
EUT : Network Camera	Probe : ISN_T4 - Line1
Power : AC 230V/50Hz	Note : Mode 1, ISN 10Mbps

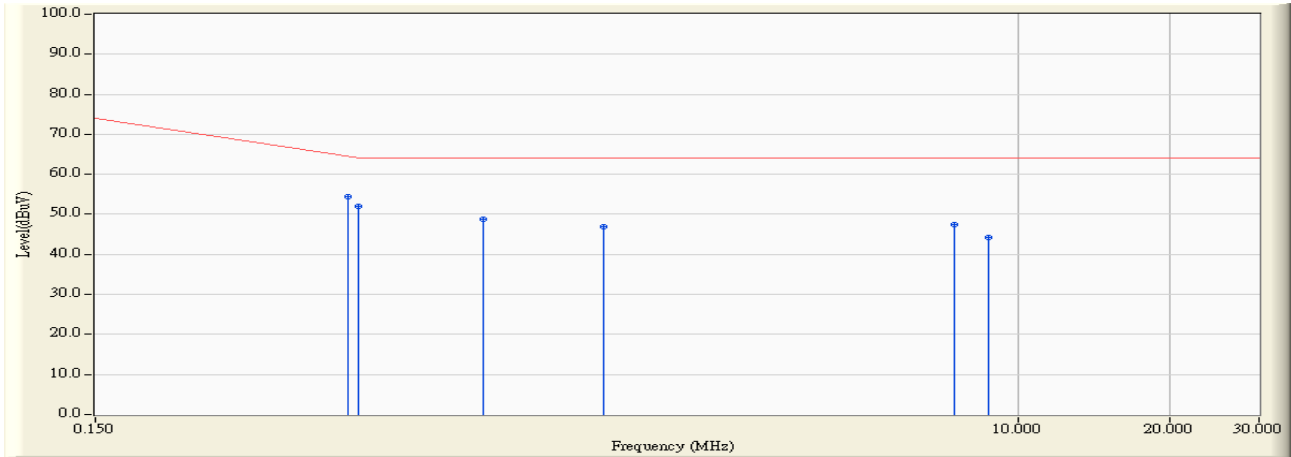


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.473	9.992	55.990	65.982	-8.789	74.771	QUASIPeAK
2		0.497	9.990	53.810	63.800	-10.286	74.086	QUASIPeAK
3		0.877	9.980	48.230	58.210	-15.790	74.000	QUASIPeAK
4		1.513	9.990	44.070	54.060	-19.940	74.000	QUASIPeAK
5		7.502	9.970	48.970	58.940	-15.060	74.000	QUASIPeAK
6		8.752	9.968	45.310	55.278	-18.722	74.000	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 : SR_1	Time : 2011/06/30 - 00:12
Limit : ISN_Voltage_B_00M_AV	Margin : 0
EUT : Network Camera	Probe : ISN_T4 - Line1
Power : AC 230V/50Hz	Note : Mode 1, ISN 10Mbps

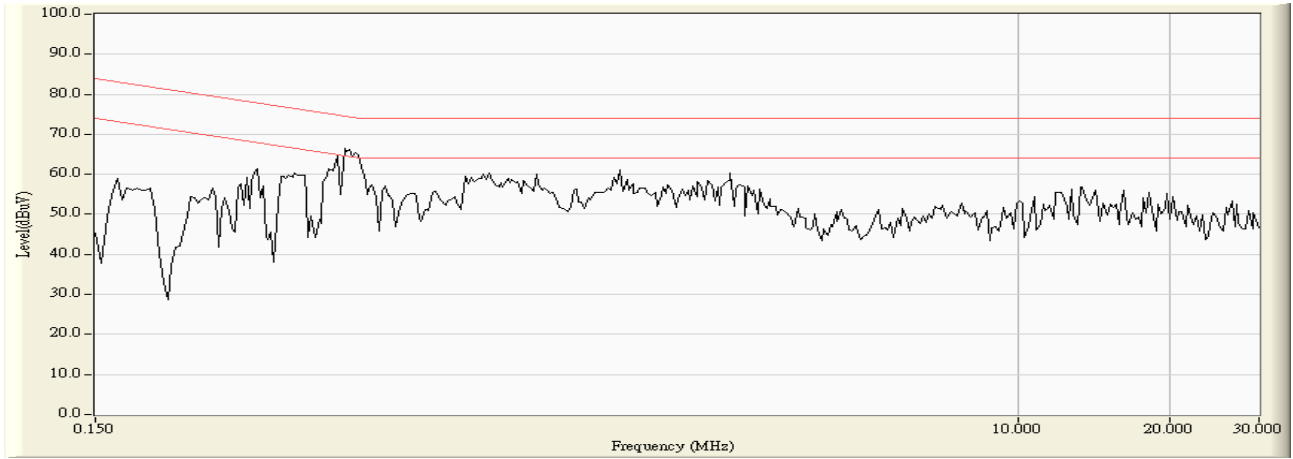


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.473	9.992	44.410	54.402	-10.369	64.771	AVERAGE
2		0.497	9.990	42.070	52.060	-12.026	64.086	AVERAGE
3		0.877	9.980	38.720	48.700	-15.300	64.000	AVERAGE
4		1.513	9.990	36.820	46.810	-17.190	64.000	AVERAGE
5		7.502	9.970	37.520	47.490	-16.510	64.000	AVERAGE
6		8.752	9.968	34.150	44.118	-19.882	64.000	AVERAGE

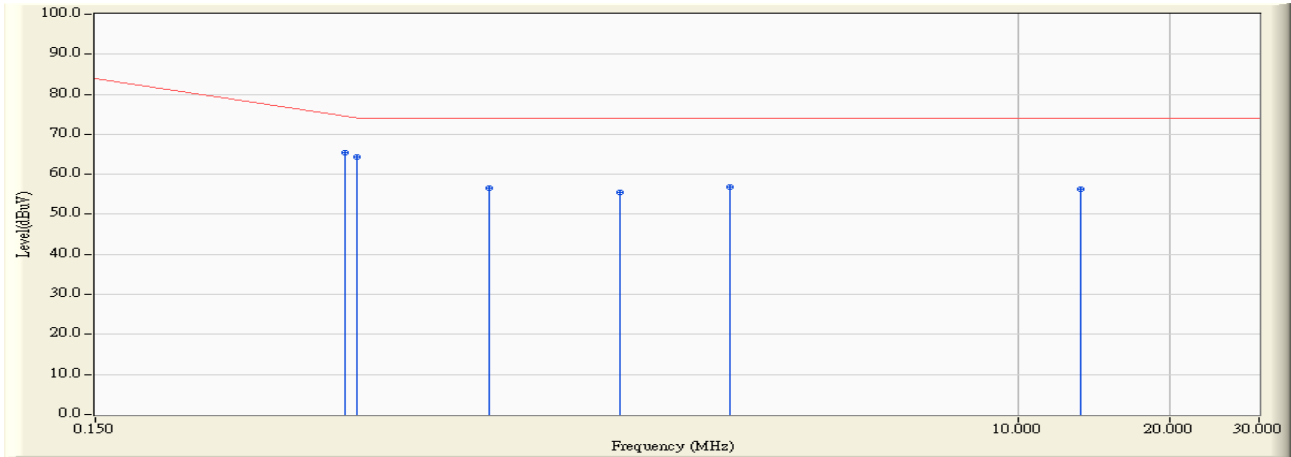
**Note:**

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 : SR_1	Time : 2011/06/30 - 00:09
Limit : ISN_Voltage_B_00M_QP	Margin : 10
EUT : Network Camera	Probe : ISN_T4 - Line1
Power : AC 230V/50Hz	Note : Mode 1, ISN 100Mbps



Site : SR_1	Time : 2011/06/30 - 00:10
Limit : ISN_Voltage_B_00M_QP	Margin : 0
EUT : Network Camera	Probe : ISN_T4 - Line1
Power : AC 230V/50Hz	Note : Mode 1, ISN 100Mbps

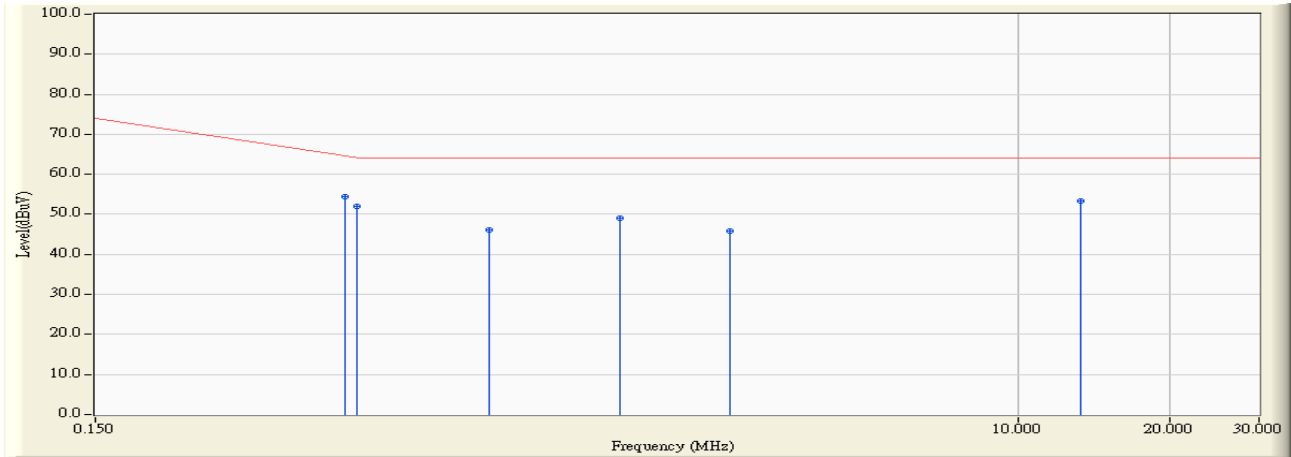


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.469	9.993	55.410	65.403	-9.483	74.886	QUASIPeAK
2		0.494	9.990	54.270	64.260	-9.911	74.171	QUASIPeAK
3		0.904	9.980	46.690	56.670	-17.330	74.000	QUASIPeAK
4		1.638	9.990	45.530	55.520	-18.480	74.000	QUASIPeAK
5		2.705	10.000	46.790	56.790	-17.210	74.000	QUASIPeAK
6		13.357	10.150	46.130	56.280	-17.720	74.000	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 : SR_1	Time : 2011/06/30 - 00:10
Limit : ISN_Voltage_B_00M_AV	Margin : 0
EUT : Network Camera	Probe : ISN_T4 - Line1
Power : AC 230V/50Hz	Note : Mode 1, ISN 100Mbps

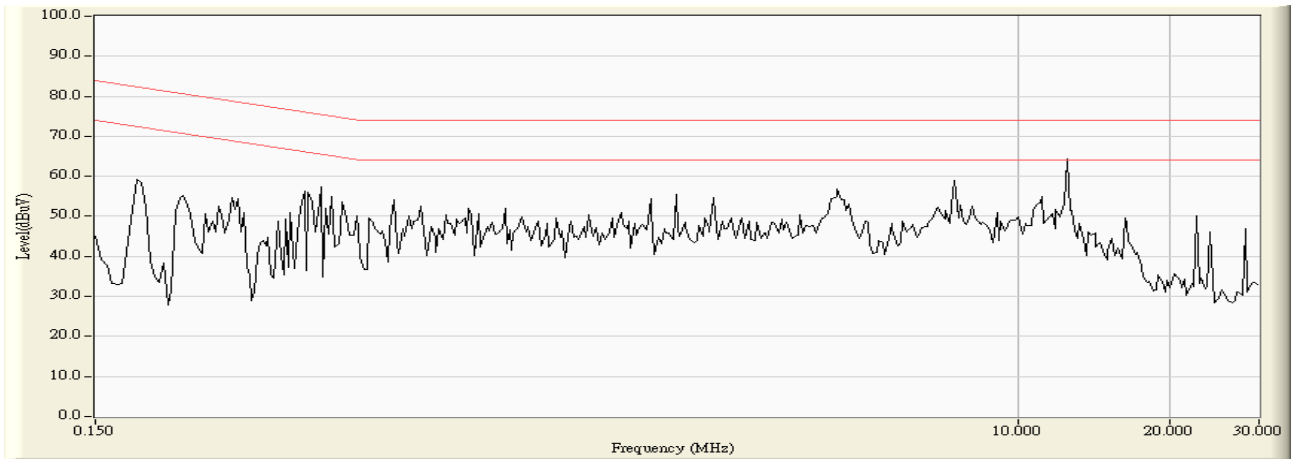


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.469	9.993	44.410	54.403	-10.483	64.886	AVERAGE
2		0.494	9.990	42.020	52.010	-12.161	64.171	AVERAGE
3		0.904	9.980	36.140	46.120	-17.880	64.000	AVERAGE
4		1.638	9.990	39.170	49.160	-14.840	64.000	AVERAGE
5		2.705	10.000	35.730	45.730	-18.270	64.000	AVERAGE
6		13.357	10.150	43.160	53.310	-10.690	64.000	AVERAGE

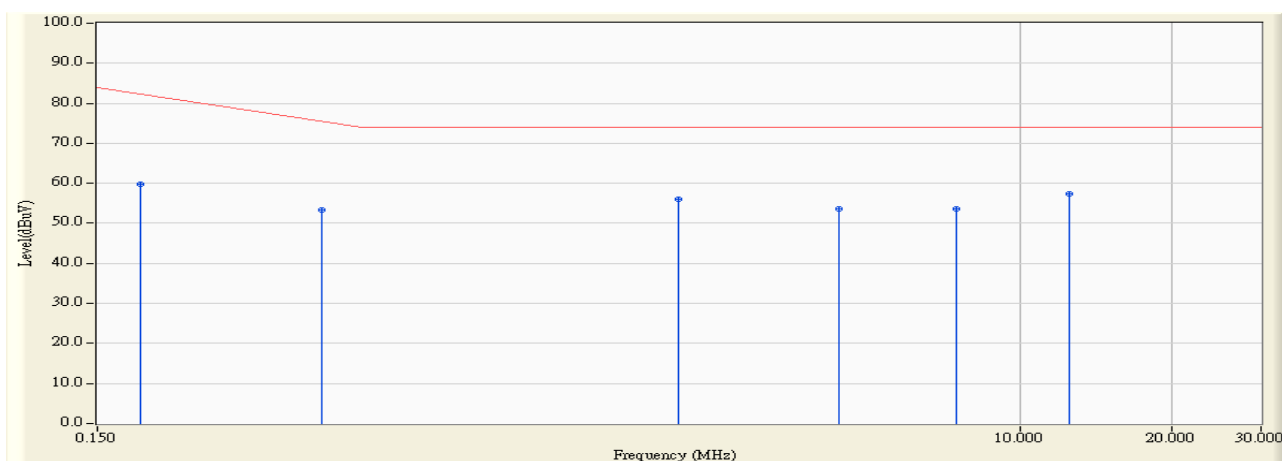
**Note:**

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 : SR_1	Time : 2011/07/06 - 14:17
Limit : ISN_Voltage_B_00M_QP	Margin : 10
EUT : Network Camera	Probe : TESEQ_T8 - Line1
Power : By PoE	Note : Mode 2, ISN 10Mbps



Site : SR_1	Time : 2011/07/06 - 14:19
Limit : ISN_Voltage_B_00M_QP	Margin : 0
EUT : Network Camera	Probe : TESEQ_T8 - Line1
Power : By PoE	Note : Mode 2, ISN 10Mbps



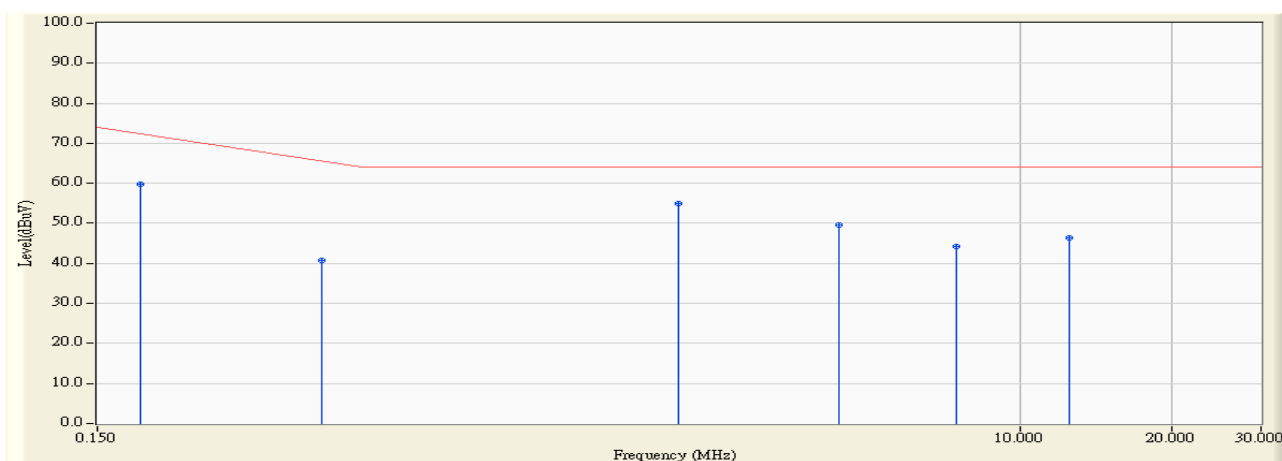
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.183	10.200	49.570	59.770	-23.287	83.057	QUASIPeAK
2		0.418	10.200	43.050	53.250	-23.093	76.343	QUASIPeAK
3		2.116	10.200	45.770	55.970	-18.030	74.000	QUASIPeAK
4		4.400	10.200	43.290	53.490	-20.510	74.000	QUASIPeAK
5		7.502	10.200	43.510	53.710	-20.290	74.000	QUASIPeAK
6	*	12.502	10.323	47.050	57.373	-16.627	74.000	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 : SR_1	Time : 2011/07/06 - 14:19
Limit : ISN_Voltage_B_00M_AV	Margin : 0
EUT : Network Camera	Probe : TESEQ_T8 - Line1
Power : By PoE	Note : Mode 2, ISN 10Mbps

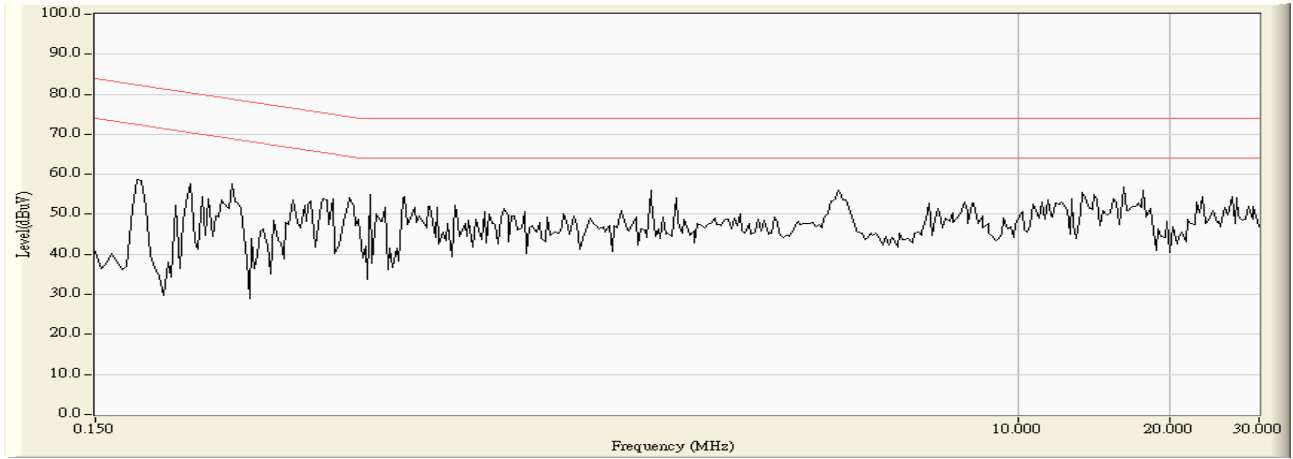


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.183	10.200	49.560	59.760	-13.297	73.057	AVERAGE
2		0.418	10.200	30.460	40.660	-25.683	66.343	AVERAGE
3	*	2.116	10.200	44.680	54.880	-9.120	64.000	AVERAGE
4		4.400	10.200	39.480	49.680	-14.320	64.000	AVERAGE
5		7.502	10.200	34.040	44.240	-19.760	64.000	AVERAGE
6		12.502	10.323	36.140	46.463	-17.537	64.000	AVERAGE

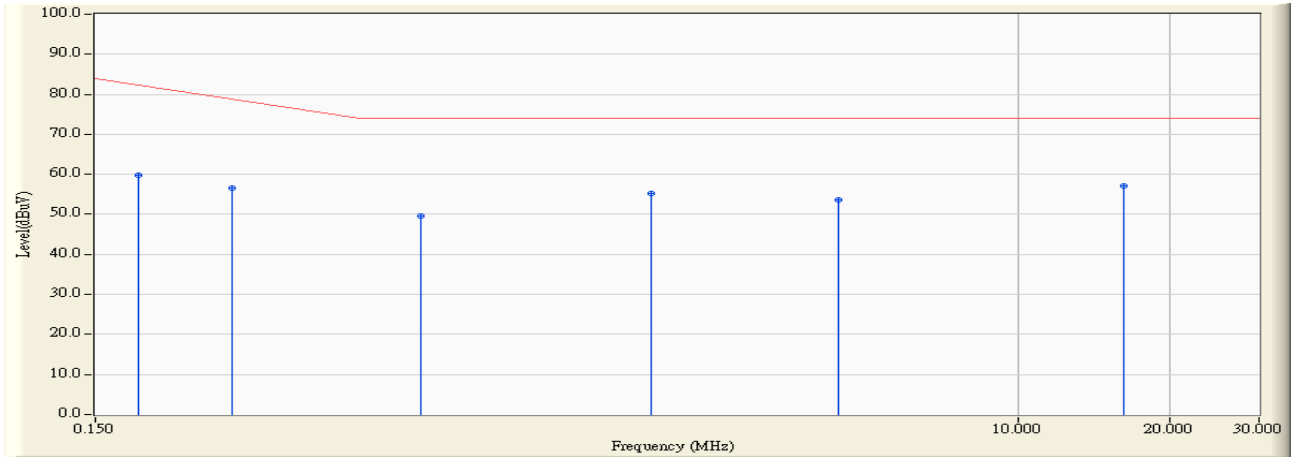
**Note:**

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 : SR_1	Time : 2011/07/06 - 14:20
Limit : ISN_Voltage_B_00M_QP	Margin : 10
EUT : Network Camera	Probe : TESEQ_T8 - Line1
Power : By PoE	Note : Mode 2, ISN 100Mbps



Site : SR_1	Time : 2011/07/06 - 14:22
Limit : ISN_Voltage_B_00M_QP	Margin : 0
EUT : Network Camera	Probe : TESEQ_T8 - Line1
Power : By PoE	Note : Mode 2, ISN 100Mbps

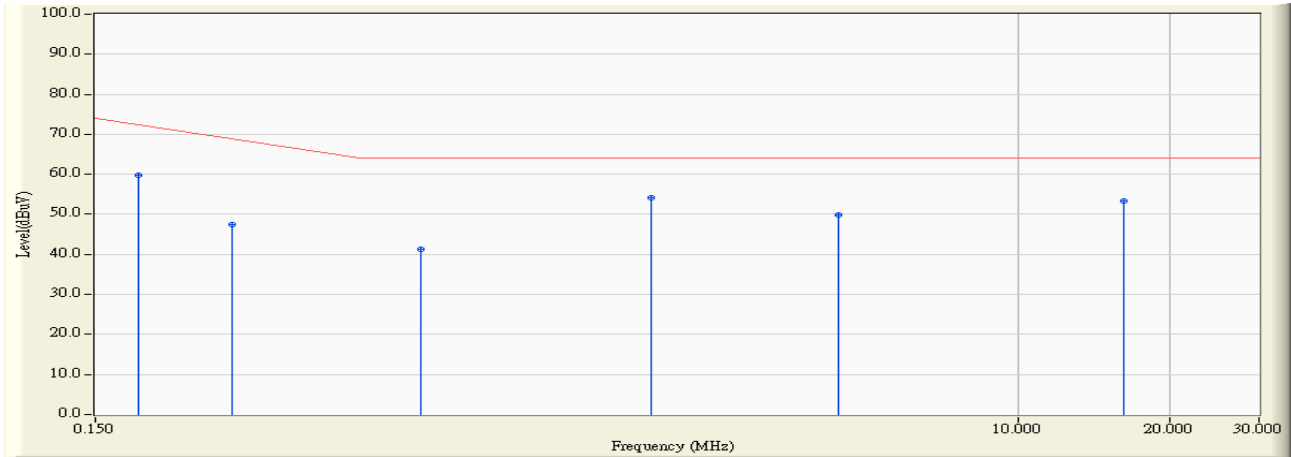


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.183	10.200	49.650	59.850	-23.207	83.057	QUASIPeAK
2		0.279	10.200	46.370	56.570	-23.744	80.314	QUASIPeAK
3		0.661	10.200	39.390	49.590	-24.410	74.000	QUASIPeAK
4		1.880	10.200	45.090	55.290	-18.710	74.000	QUASIPeAK
5		4.423	10.200	43.330	53.530	-20.470	74.000	QUASIPeAK
6	*	16.167	10.400	46.770	57.170	-16.830	74.000	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 : SR_1	Time : 2011/07/06 - 14:22
Limit : ISN_Voltage_B_00M_AV	Margin : 0
EUT : Network Camera	Probe : TESEQ_T8 - Line1
Power : By PoE	Note : Mode 2, ISN 100Mbps



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.183	10.200	49.640	59.840	-13.217	73.057	AVERAGE
2		0.279	10.200	37.290	47.490	-22.824	70.314	AVERAGE
3		0.661	10.200	30.960	41.160	-22.840	64.000	AVERAGE
4	*	1.880	10.200	43.840	54.040	-9.960	64.000	AVERAGE
5		4.423	10.200	39.720	49.920	-14.080	64.000	AVERAGE
6		16.167	10.400	43.000	53.400	-10.600	64.000	AVERAGE

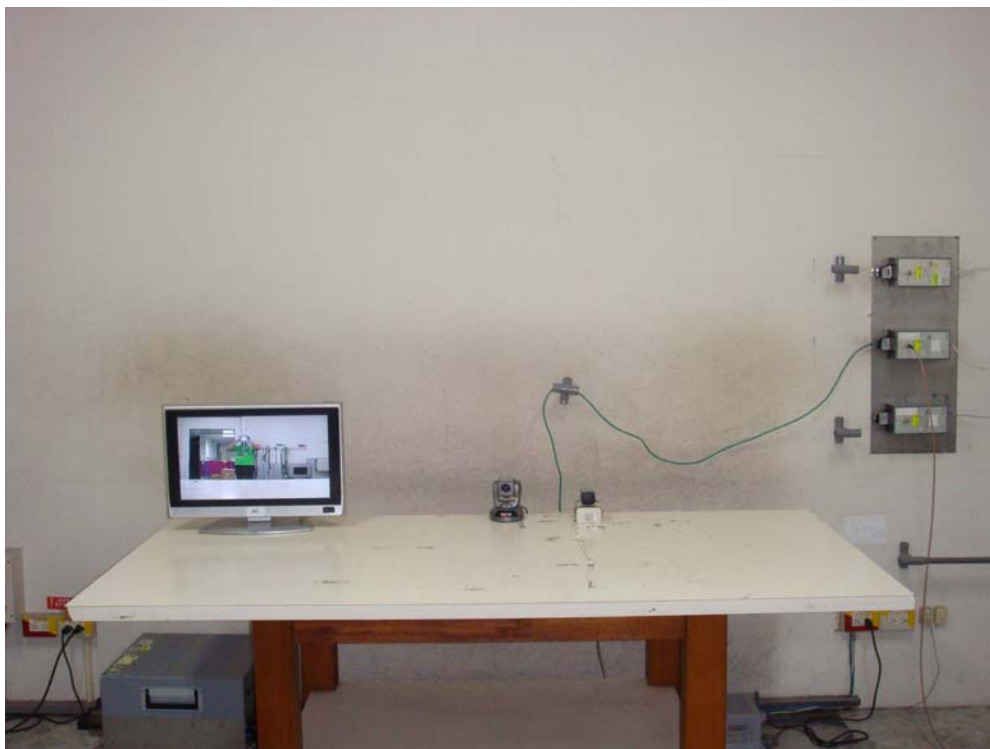
**Note:**

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: Normal Operation (M/N: PZ8111W)

Description : Front View of ISN Test



Test Mode : Mode 1: Normal Operation (M/N: PZ8111W)

Description : Back View of ISN Test



Test Mode : Mode 2: PoE Mode (M/N: PZ8111)

Description : Front View of ISN Test



Test Mode : Mode 2: PoE Mode (M/N: PZ8111)

Description : Back View of ISN Test



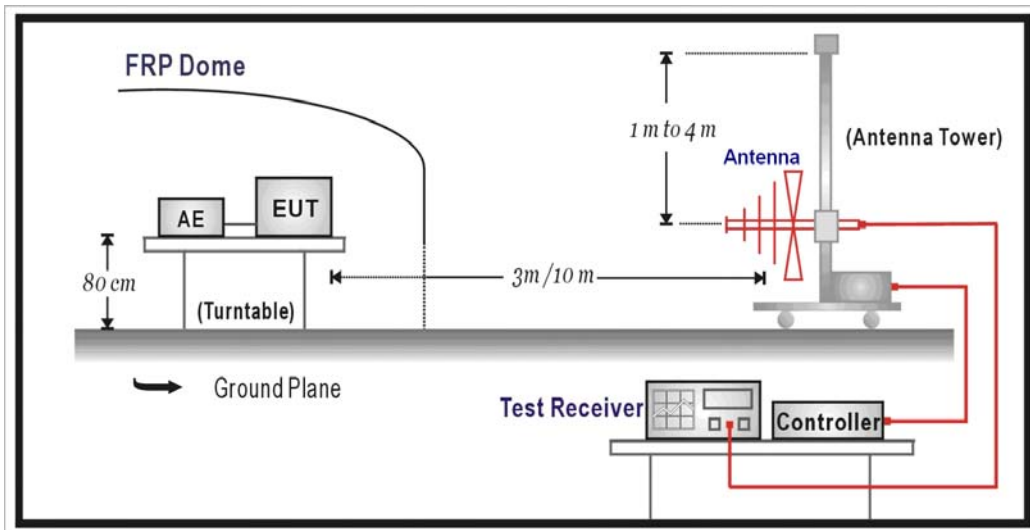
5. Radiated Emission

5.1. Test Specification

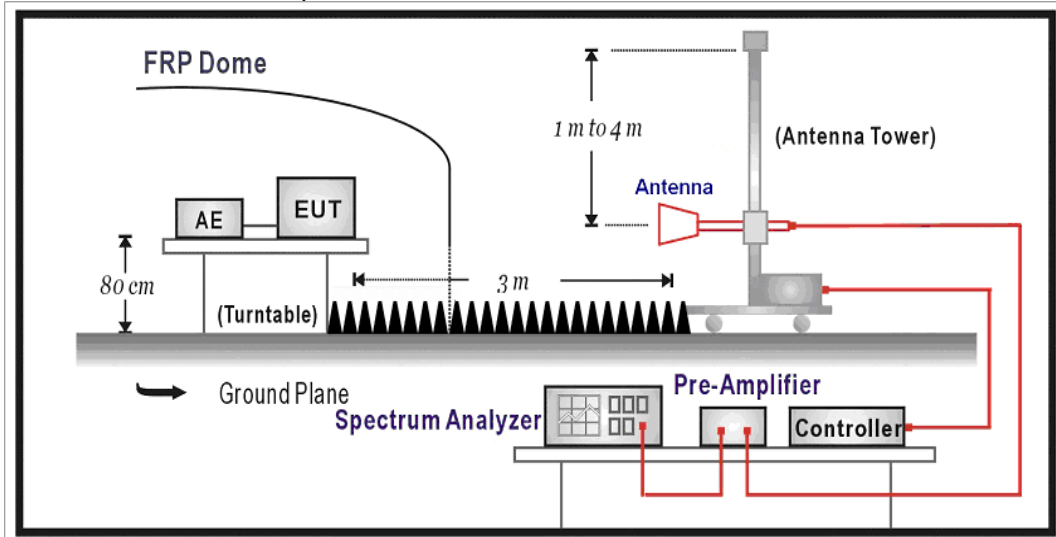
According to EMC Standard : EN 55022

5.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



**5.3. Limit**

Limits		
Frequency (MHz)	Distance (m)	dBuV/m
30 – 230	10	30
230 – 1000	10	37

Limits			
Frequency (GHz)	Distance (m)	Peak (dBuV/m)	Average (dBuV/m)
1 – 3	3	70	50
3 – 6	3	74	54

Remark:

1. The tighter limit shall apply at the edge between two frequency bands.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5 <sup>th</sup> harmonic of the highest frequency or 6 GHz, whichever is lower



#### **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.

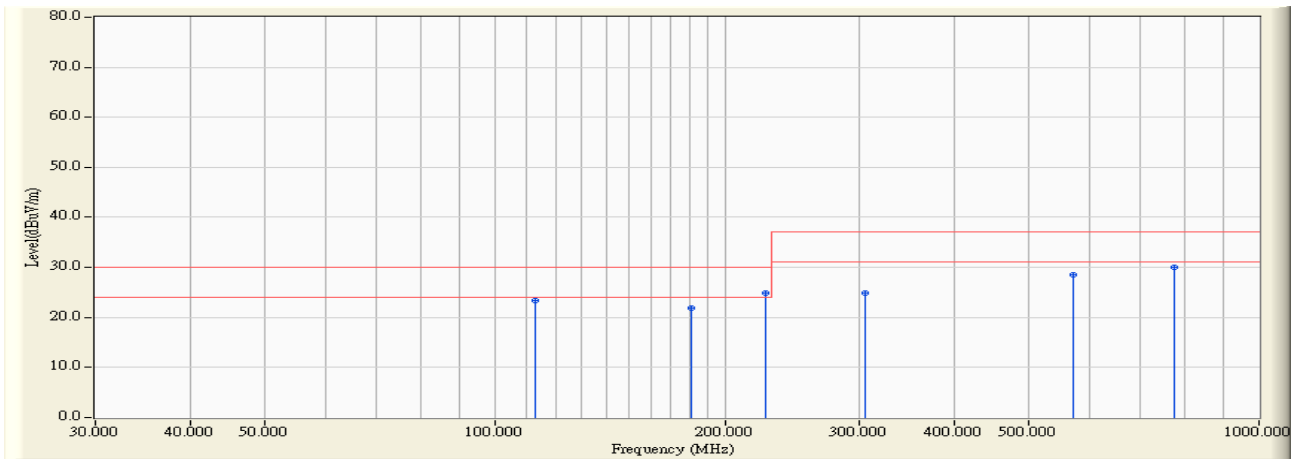
It is placed with absorb on the ground between EUT and Antenna.

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

No deviation.

5.6. Test Result

Site : OATS-1	Time : 2011/06/29 - 12:37
Limit : CISPR_B_10M_QP	Margin : 6
EUT : Network Camera	Probe : Site1_CBL6112_10M_0811 - HORIZONTAL
Power : AC 230V/50Hz	Note : Mode 1

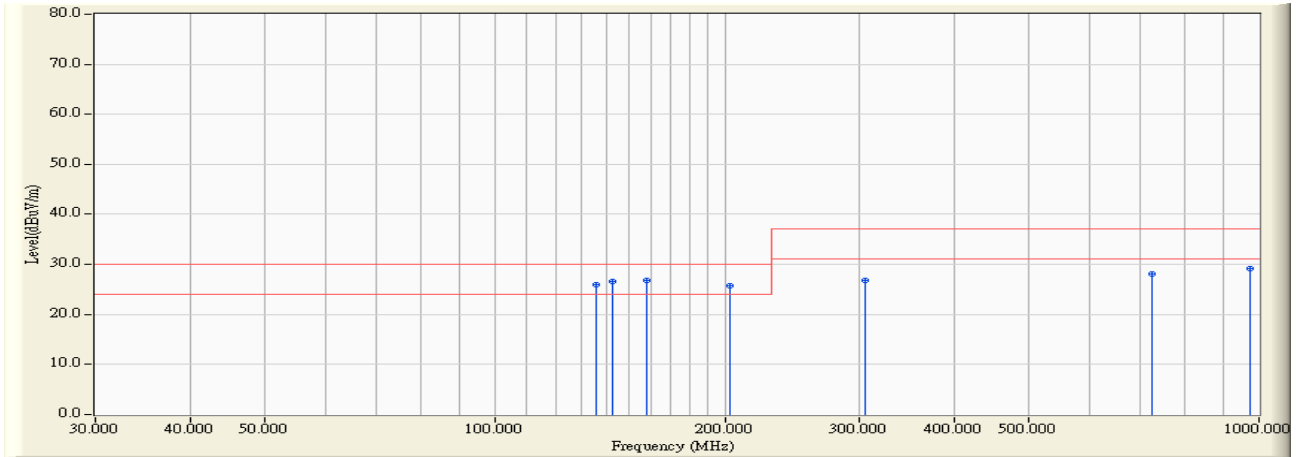


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	112.890	13.053	10.400	23.453	-6.547	30.000	QUASIPeAK
2	180.630	10.607	11.200	21.807	-8.193	30.000	QUASIPeAK
3	* 225.780	11.334	13.600	24.934	-5.066	30.000	QUASIPeAK
4	305.440	15.915	8.900	24.815	-12.185	37.000	QUASIPeAK
5	570.490	22.318	6.200	28.518	-8.482	37.000	QUASIPeAK
6	775.040	24.405	5.700	30.105	-6.895	37.000	QUASIPeAK

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 : OATS-1	Time : 2011/06/29 - 12:37
Limit : CISPR_B_10M_QP	Margin : 6
EUT : Network Camera	Probe : Site1_CBL6112_10M_0811 - VERTICAL
Power : AC 230V/50Hz	Note : Mode 1

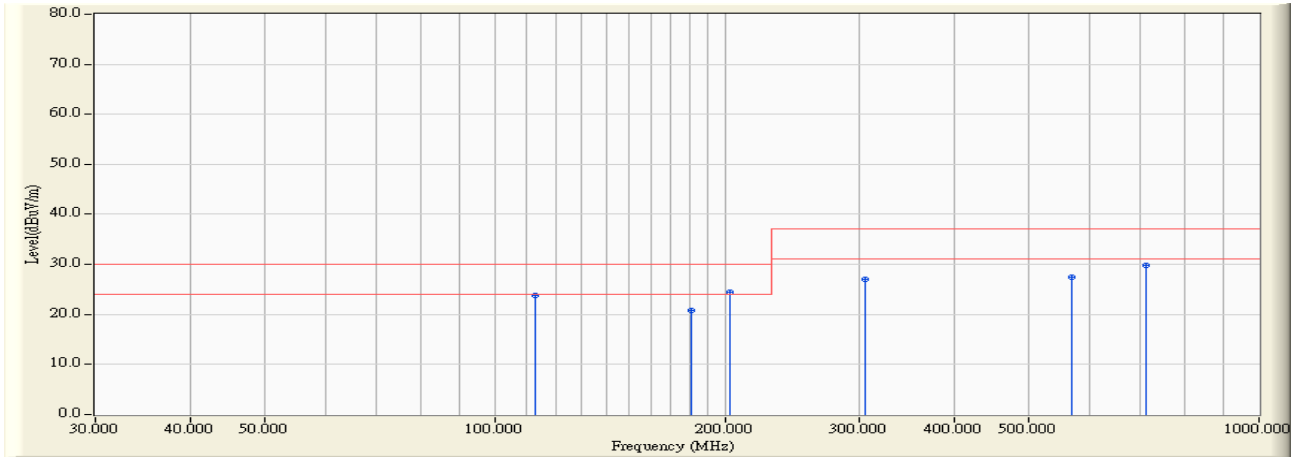


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	135.470	13.115	12.900	26.015	-3.985	30.000	QUASIPeAK
2	142.695	12.722	13.900	26.622	-3.378	30.000	QUASIPeAK
3	* 158.050	11.560	15.200	26.760	-3.240	30.000	QUASIPeAK
4	203.200	10.928	14.800	25.728	-4.272	30.000	QUASIPeAK
5	305.440	15.915	10.900	26.815	-10.185	37.000	QUASIPeAK
6	725.040	24.202	4.000	28.202	-8.798	37.000	QUASIPeAK
7	972.130	26.475	2.600	29.075	-7.925	37.000	QUASIPeAK

**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 : OATS-1	Time : 2011/06/29 - 13:45
Limit : CISPR_B_10M_QP	Margin : 6
EUT : Network Camera	Probe : Site1_CBL6112_10M_0811 - HORIZONTAL
Power : By PoE	Note : Mode 2

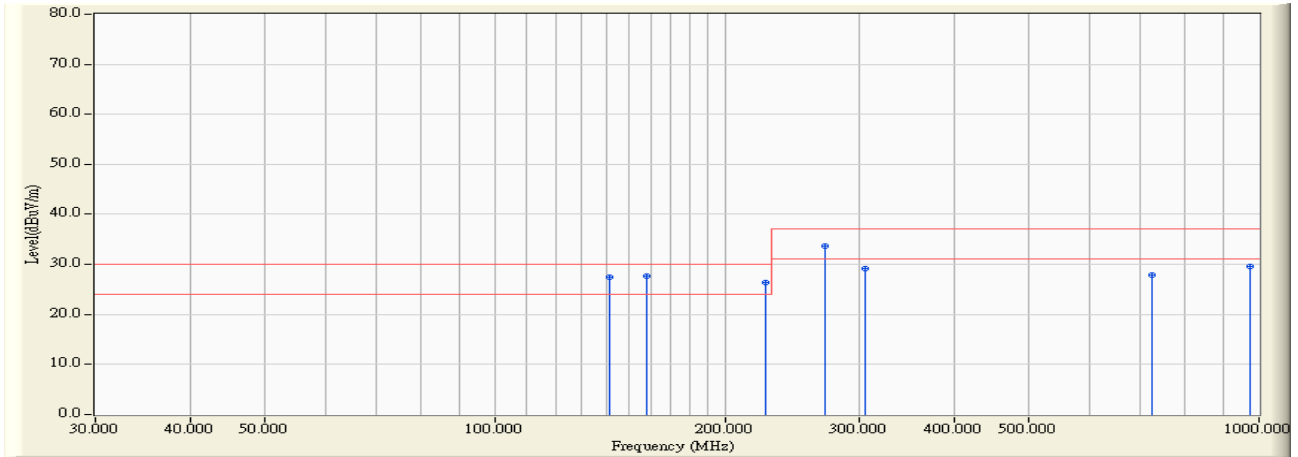


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	112.890	13.053	10.700	23.753	-6.247	30.000	QUASIPeAK
2	180.620	10.607	10.200	20.807	-9.193	30.000	QUASIPeAK
3	* 203.200	10.928	13.600	24.528	-5.472	30.000	QUASIPeAK
4	305.450	15.916	11.200	27.116	-9.884	37.000	QUASIPeAK
5	567.600	22.457	5.100	27.557	-9.443	37.000	QUASIPeAK
6	710.150	23.605	6.100	29.705	-7.295	37.000	QUASIPeAK

**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 : OATS-1	Time : 2011/06/29 - 13:45
Limit : CISPR_B_10M_QP	Margin : 6
EUT : Network Camera	Probe : Site1_CBL6112_10M_0811 - VERTICAL
Power : By PoE	Note : Mode 2

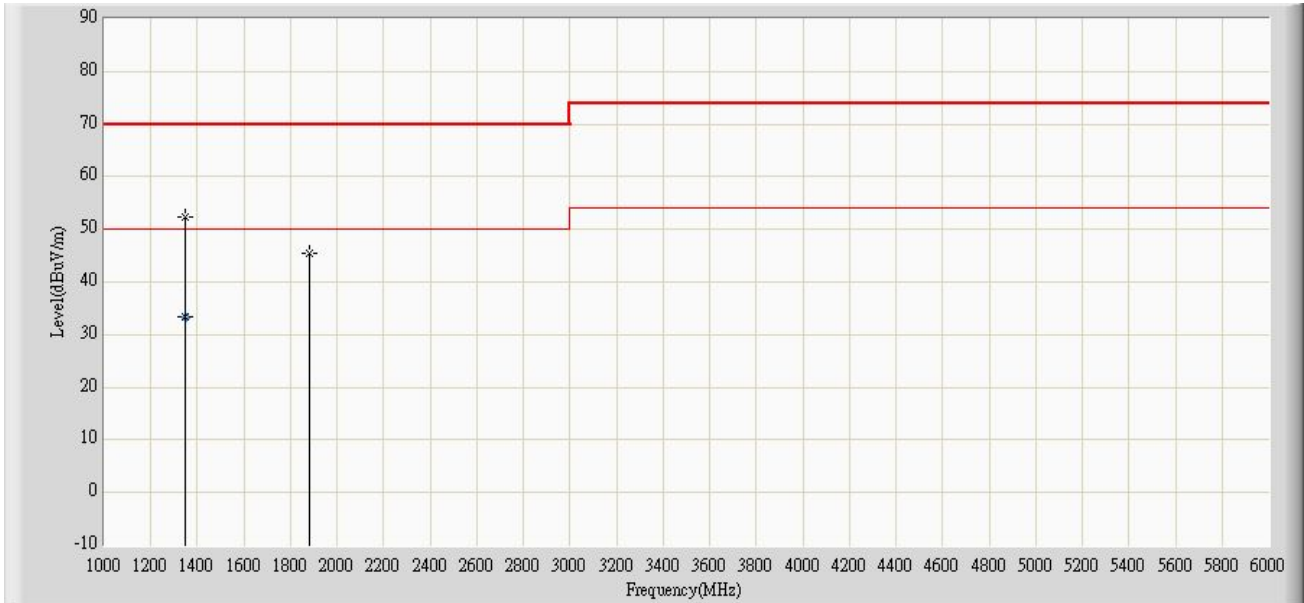


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		141.110	12.778	14.700	27.477	-2.523	30.000	QUASPEAK
2	*	158.050	11.560	16.200	27.760	-2.240	30.000	QUASPEAK
3		225.780	11.334	15.000	26.334	-3.666	30.000	QUASPEAK
4		270.000	14.825	18.800	33.625	-3.375	37.000	QUASPEAK
5		305.450	15.916	13.300	29.216	-7.784	37.000	QUASPEAK
6		725.000	24.202	3.600	27.802	-9.198	37.000	QUASPEAK
7		971.820	26.478	3.100	29.578	-7.422	37.000	QUASPEAK

**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: 9x6x6_Chamber	Time: 2011/06/29 - 20:02
Limit: EN55022_B_(Above_1G)	Margin: 0
Probe: 9120D_1-18G_Horn	Polarity: Horizontal
EUT: Network Camera	Power: AC 230V/50Hz
Note: Mode 1	

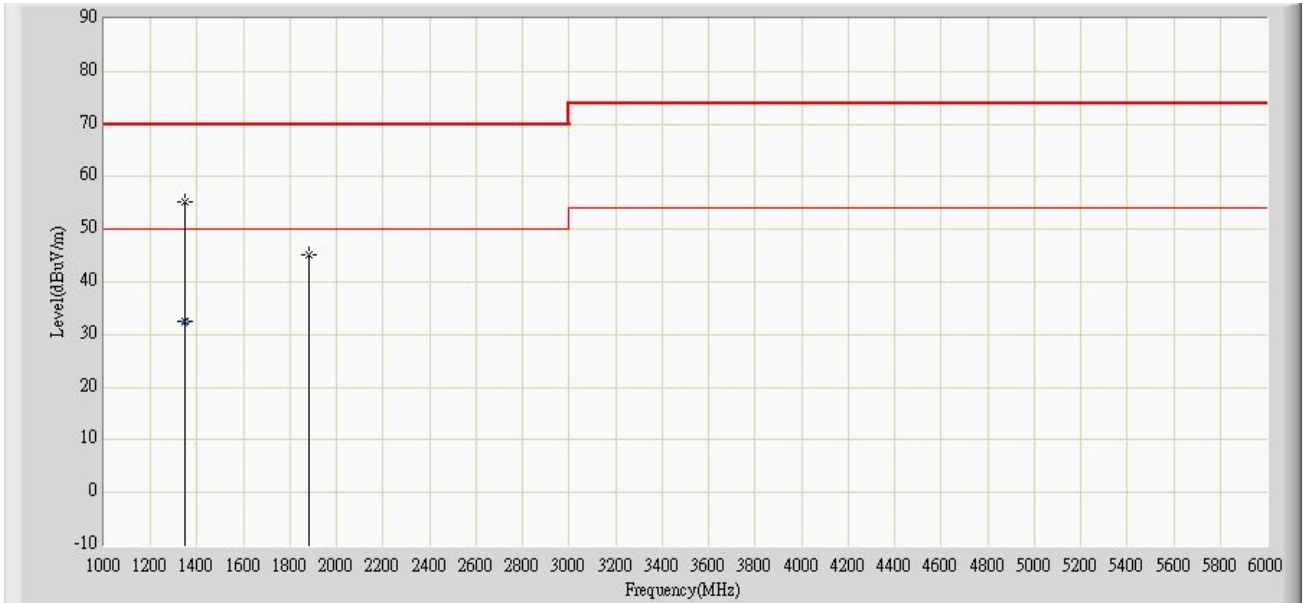


	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1	1350.000	52.355	59.640	-17.645	70.000	-7.285	PK
2	* 1350.000	33.265	40.550	-16.735	50.000	-7.285	AV
3	1880.000	45.432	51.800	-24.568	70.000	-6.368	PK

**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: 9x6x6_Chamber	Time: 2011/06/29 - 20:14
Limit: EN55022_B_(Above_1G)	Margin: 0
Probe: 9120D_1-18G_Horn	Polarity: Vertical
EUT: Network Camera	Power: AC 230V/50Hz
Note: Mode 1	

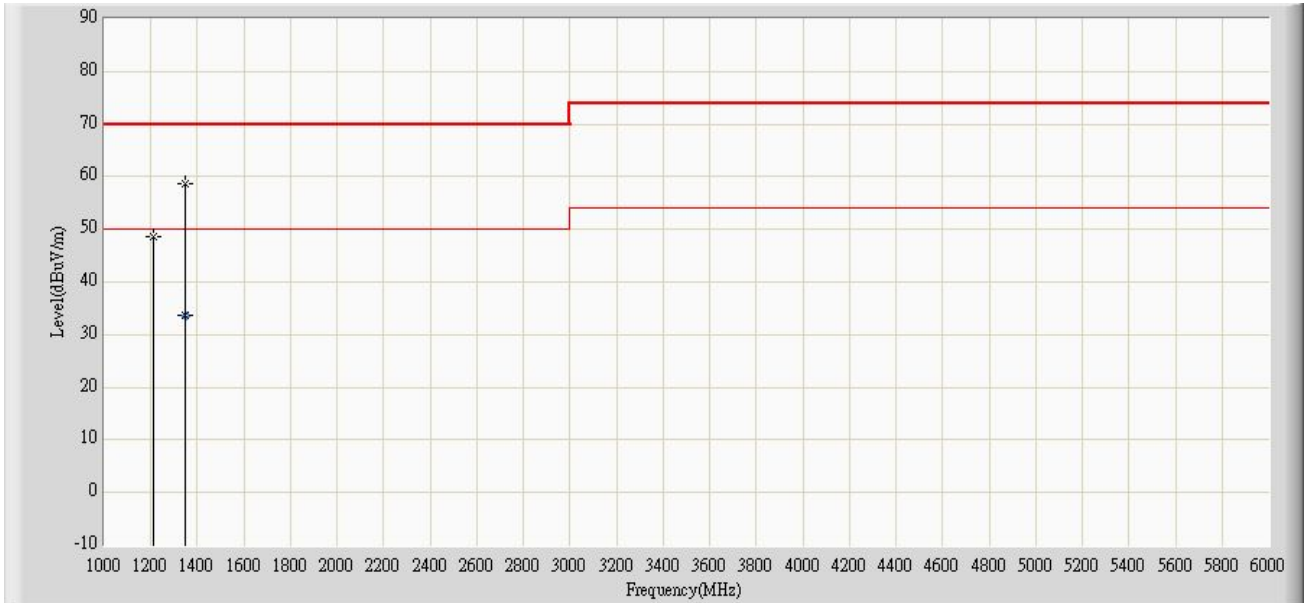


		Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1	*	1350.000	55.135	62.420	-14.865	70.000	-7.285	PK
2		1350.000	32.595	39.880	-17.405	50.000	-7.285	AV
3		1880.000	45.142	51.510	-24.858	70.000	-6.368	PK

**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: 9x6x6_Chamber	Time: 2011/06/29 - 20:54
Limit: EN55022_B_(Above_1G)	Margin: 0
Probe: 9120D_1-18G_Horn	Polarity: Horizontal
EUT: Network Camera	Power: By PoE
Note: Mode 2	



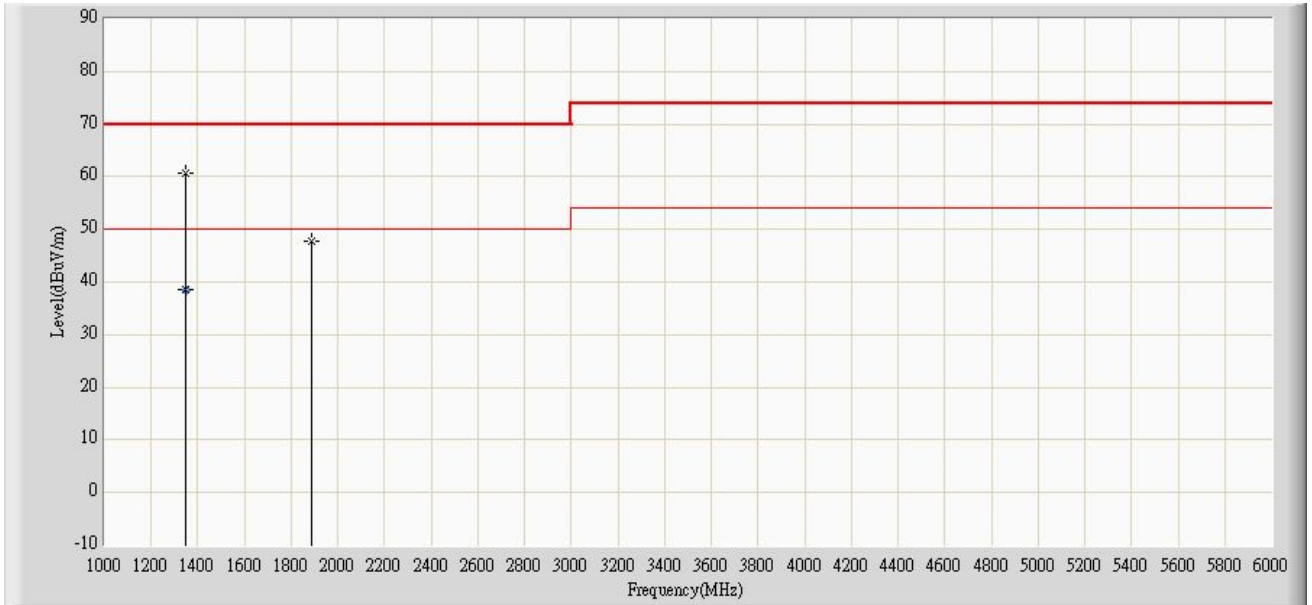
	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1	1212.000	48.761	56.330	-21.239	70.000	-7.569	PK
2	* 1350.000	58.715	66.000	-11.285	70.000	-7.285	PK
3	1350.000	33.695	40.980	-16.305	50.000	-7.285	AV

**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: 9x6x6_Chamber	Time: 2011/06/29 - 21:01
Limit: EN55022_B_(Above_1G)	Margin: 0
Probe: 9120D_1-18G_Horn	Polarity: Vertical
EUT: Network Camera	Power: By PoE
Note: Mode 2	



		Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1	*	1350.000	60.655	67.940	-9.345	70.000	-7.285	PK
2		1350.000	38.605	45.890	-11.395	50.000	-7.285	AV
3		1888.000	47.752	54.130	-22.248	70.000	-6.377	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: Normal Operation (M/N: PZ8111W)

Description : Front View of Radiated Test



Test Mode : Mode 1: Normal Operation (M/N: PZ8111W)

Description : Back View of Radiated Test



Test Mode : Mode 1: Normal Operation (M/N: PZ8111W)  
Description : Front View of High Frequency Radiated Test

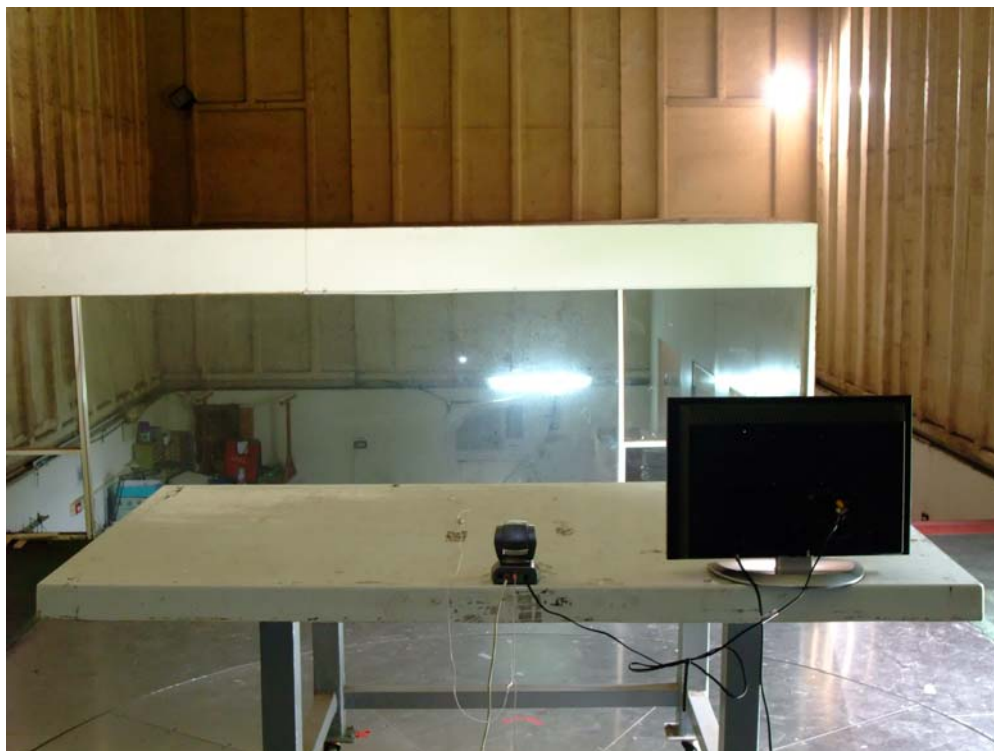


Test Mode : Mode 2: PoE Mode (M/N: PZ8111)  
Description : Front View of Radiated Test



Test Mode : Mode 2: PoE Mode (M/N: PZ8111)

Description : Back View of Radiated Test



Test Mode : Mode 2: PoE Mode (M/N: PZ8111)

Description : Front View of High Frequency Radiated Test

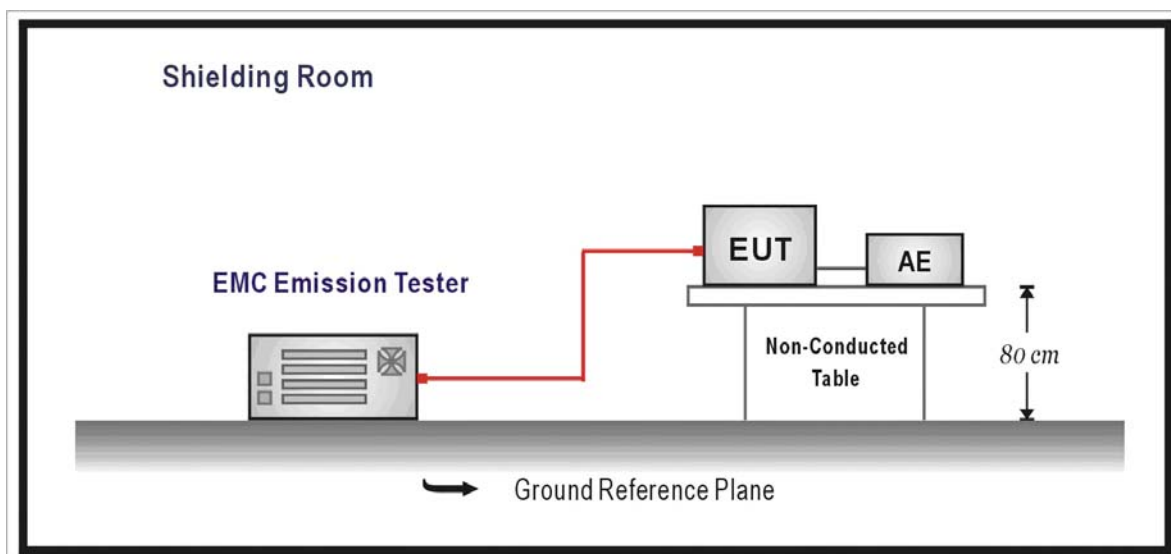


## 6. Harmonic Current Emission

### 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 ≤ n ≤ 40	0.23 * 8/n
11	0.33		
13	0.21		
15 ≤ n ≤ 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**

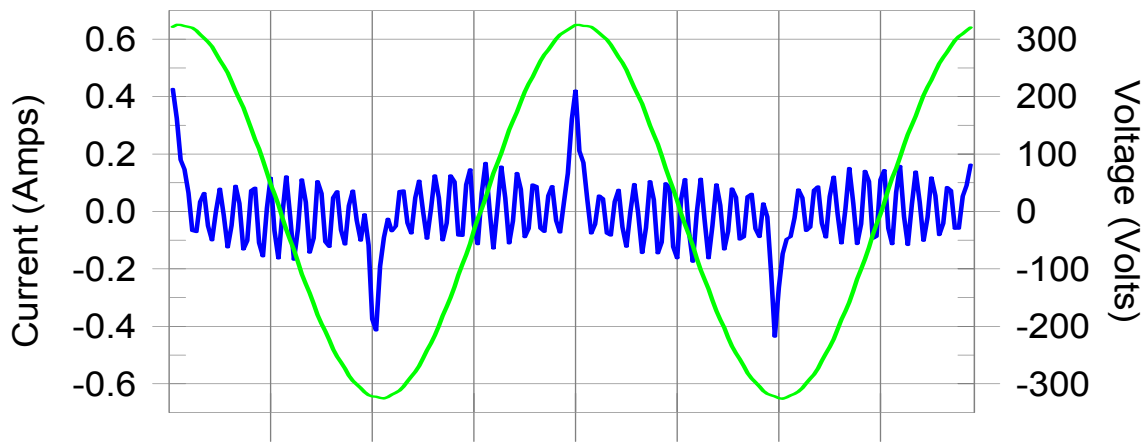
No deviation.

6.6. Test Result

Product	Network Camera		
Test Item	Power Harmonics		
Test Mode	Mode 1: Normal Operation (M/N: PZ8111W)		
Date of Test	2011/07/07	Test Site	No.3 Shielded Room

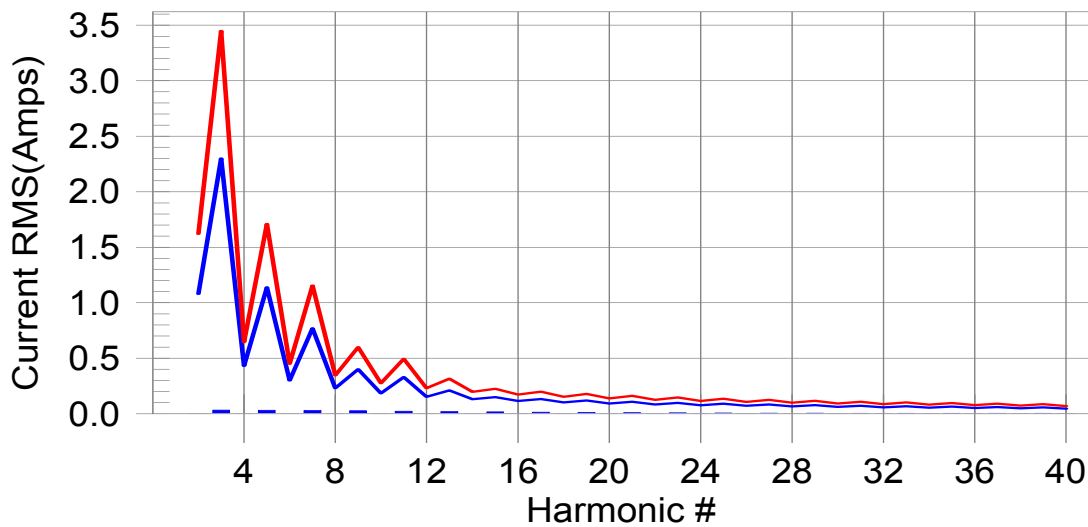
Test Result: Pass                      Source qualification: Normal

Current & voltage waveforms



Harmonics and Class A limit line

European Limits



Test result: Pass                      Worst harmonic was #15 with 9.53% of the limit.



Test Result: Pass                      Source qualification: Normal

THC(A): 0.06                      I-THD(%): 180.34                      POHC(A): 0.010                      POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts):	229.63	Frequency(Hz):	50.00
I_Peak (Amps):	0.484	I_RMS (Amps):	0.118
I_Fund (Amps):	0.039	Crest Factor:	4.199
Power (Watts):	7.8	Power Factor:	0.290

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	1.080	0.0	0.001	1.620	0.05	Pass
3	0.027	2.300	1.2	0.033	3.450	0.95	Pass
4	0.001	0.430	0.1	0.001	0.645	0.12	Pass
5	0.026	1.140	2.3	0.031	1.710	1.83	Pass
6	0.001	0.300	0.2	0.001	0.450	0.20	Pass
7	0.024	0.770	3.1	0.029	1.155	2.52	Pass
8	0.001	0.230	0.3	0.001	0.345	0.25	Pass
9	0.022	0.400	5.5	0.026	0.600	4.40	Pass
10	0.001	0.184	0.4	0.001	0.276	0.33	Pass
11	0.020	0.330	5.9	0.023	0.495	4.74	Pass
12	0.001	0.153	0.5	0.001	0.230	0.42	Pass
13	0.017	0.210	8.0	0.020	0.315	6.45	Pass
14	0.001	0.131	0.6	0.001	0.197	0.48	Pass
15	0.014	0.150	9.5	0.017	0.225	7.64	Pass
16	0.001	0.115	0.7	0.001	0.173	0.55	Pass
17	0.012	0.132	8.9	0.014	0.199	7.17	Pass
18	0.001	0.102	0.8	0.001	0.153	0.64	Pass
19	0.010	0.118	8.1	0.012	0.178	6.59	Pass
20	0.001	0.092	0.8	0.001	0.138	0.63	Pass
21	0.008	0.107	7.1	0.010	0.161	5.95	Pass
22	0.001	0.084	0.8	0.001	0.125	0.67	Pass
23	0.006	0.098	6.3	0.008	0.147	5.43	Pass
24	0.001	0.077	0.8	0.001	0.115	0.66	Pass
25	0.005	0.090	5.6	0.007	0.135	5.04	Pass
26	0.001	0.071	0.8	0.001	0.106	0.67	Pass
27	0.004	0.083	5.1	0.006	0.125	4.79	Pass
28	0.001	0.066	0.8	0.001	0.099	0.67	Pass
29	0.004	0.078	4.8	0.005	0.116	4.65	Pass
30	0.001	0.061	0.9	0.001	0.092	0.74	Pass
31	0.003	0.073	4.6	0.005	0.109	4.47	Pass
32	0.000	0.058	0.8	0.001	0.086	0.68	Pass
33	0.003	0.068	4.4	0.004	0.102	4.31	Pass
34	0.000	0.054	0.8	0.001	0.081	0.70	Pass
35	0.003	0.064	4.2	0.004	0.096	4.10	Pass
36	0.000	0.051	0.8	0.001	0.077	0.67	Pass
37	0.002	0.061	4.0	0.004	0.091	3.87	Pass
38	0.000	0.048	0.8	0.001	0.073	0.70	Pass
39	0.002	0.058	3.7	0.003	0.087	3.59	Pass
40	0.000	0.046	0.9	0.000	0.069	0.72	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: Normal Operation (M/N: PZ8111W)

Description : Power Harmonics Test Setup

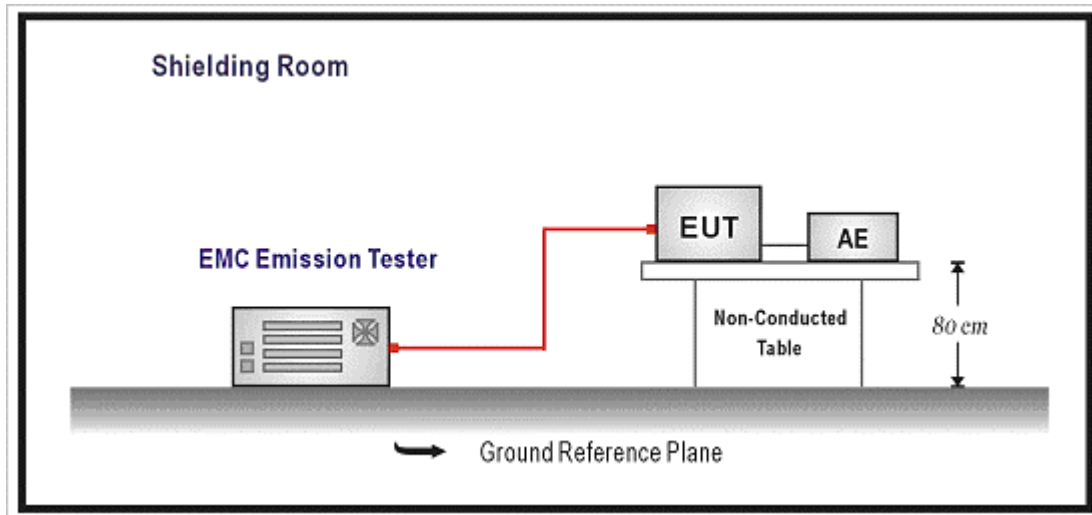


## 7. Voltage Fluctuation and Flicker

### 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

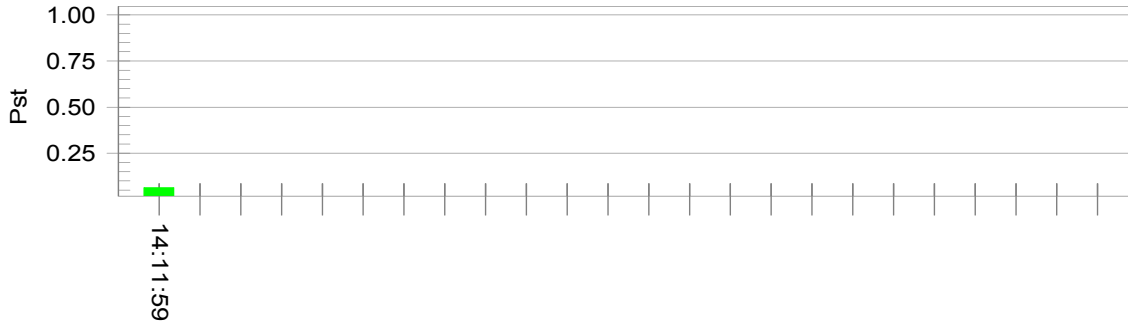
Product	Network Camera		
Test Item	Voltage Fluctuation and Flicker		
Test Mode	Mode 1: Normal Operation (M/N: PZ8111W)		
Date of Test	2011/07/07	Test Site	No.3 Shielded Room

Test Result: Pass

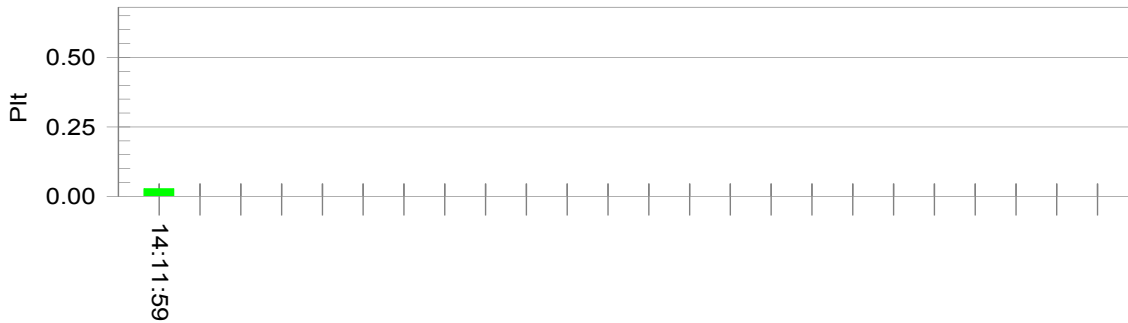
Status: Test Completed

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):	229.50			
Highest dt (%):	0.00	Test limit (%):	3.30	Pass
Time(mS) > dt:	0.0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	0.00	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.064	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.028	Test limit:	0.650	Pass

## 7.7. Test Photograph

Test Mode : Mode 1: Normal Operation (M/N: PZ8111W)

Description : Flicker Test Setup

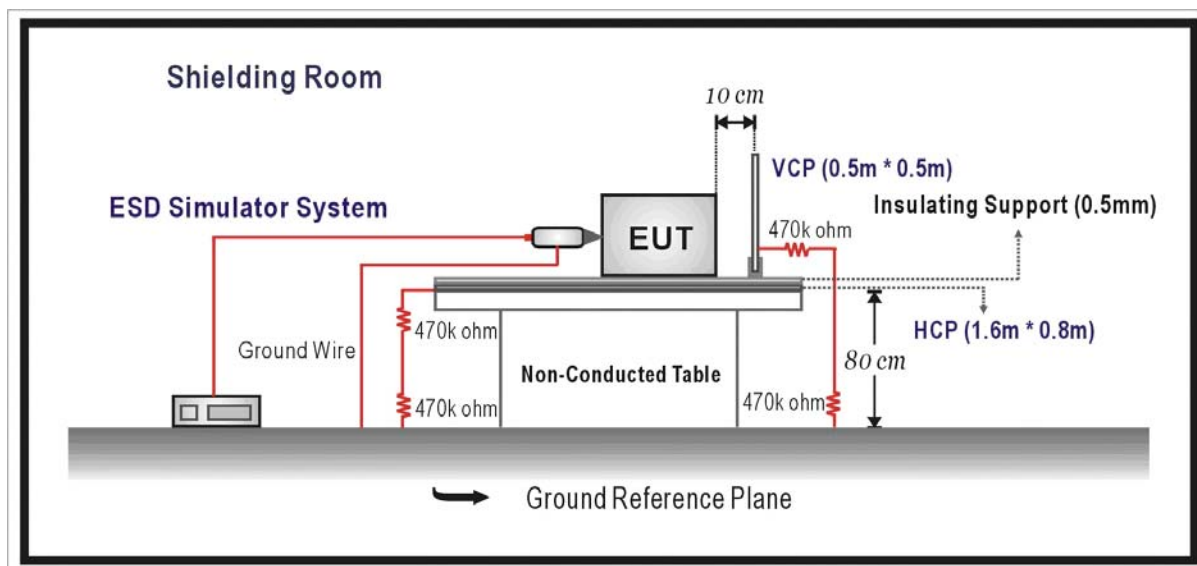


## 8. Electrostatic Discharge

### 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.

The selected point, which was performed with electrostatic discharge, was marked on the red label of the EUT.

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: Normal Operation (M/N: PZ8111W)		
Date of Test	2011/08/25	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	B	Pass
	10	-8kV	B	B	Pass
Contact Discharge	25	+4kV	B	A	Pass
	25	-4kV	B	A	Pass
Indirect Discharge (HCP)	25	+4kV	B	A	Pass
	25	-4kV	B	A	Pass
Indirect Discharge (VCP Front)	25	+4kV	B	A	Pass
	25	-4kV	B	A	Pass
Indirect Discharge (VCP Left)	25	+4kV	B	A	Pass
	25	-4kV	B	A	Pass
Indirect Discharge (VCP Back)	25	+4kV	B	A	Pass
	25	-4kV	B	A	Pass
Indirect Discharge (VCP Right)	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: PoE Mode (M/N: PZ8111)		
Date of Test	2011/08/25	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	B	Pass
	10	-8kV	B	B	Pass
Contact Discharge	25	+4kV	B	A	Pass
	25	-4kV	B	A	Pass
Indirect Discharge (HCP)	25	+4kV	B	A	Pass
	25	-4kV	B	A	Pass
Indirect Discharge (VCP Front)	25	+4kV	B	A	Pass
	25	-4kV	B	A	Pass
Indirect Discharge (VCP Left)	25	+4kV	B	A	Pass
	25	-4kV	B	A	Pass
Indirect Discharge (VCP Back)	25	+4kV	B	A	Pass
	25	-4kV	B	A	Pass
Indirect Discharge (VCP Right)	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: Normal Operation (M/N: PZ8111W)

Description : ESD Test Setup



Test Mode : Mode 2: PoE Mode (M/N: PZ8111)

Description : ESD Test Setup

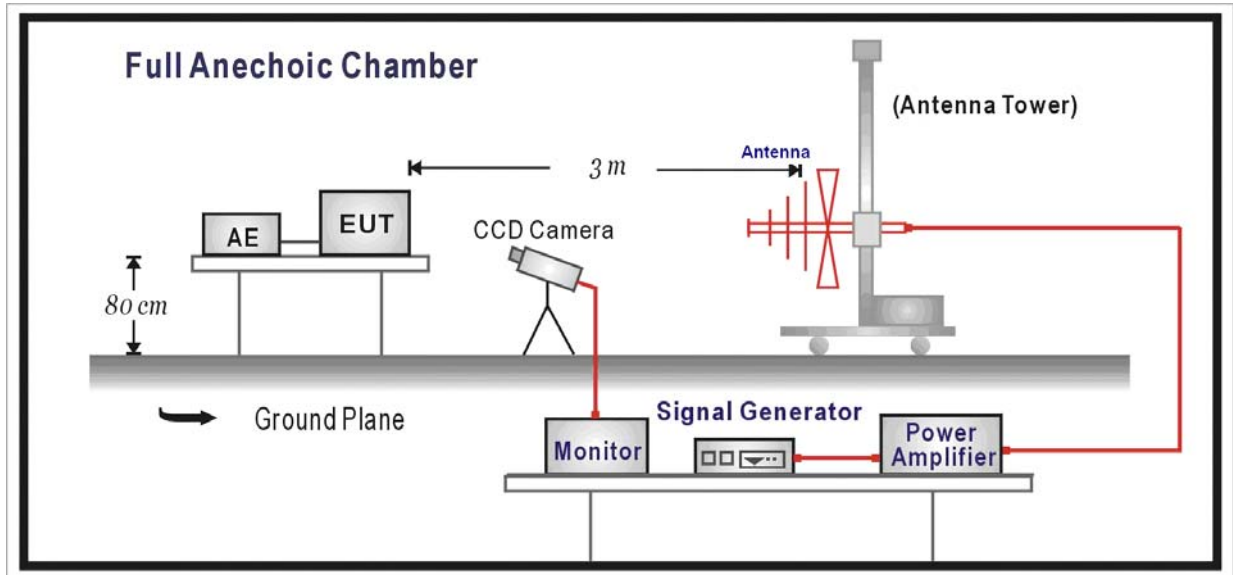


9. Radiated Susceptibility

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 Electromagnetic Field Amplitude Modulated	MHz V/m(Un-modulated, rms) % AM (1kHz)	80-1000 3 80	A

**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: Normal Operation (M/N: PZ8111W)		
Date of Test	2011/08/25	Test Site	Chamber5

Frequency (MHz)	Position (Angle)	Polarity (H or V)	Field Strength (V/m)	Required Criteria	Complied To Criteria (A,B,C)	Results
80-1000	FRONT	H	3	A	A	PASS
80-1000	FRONT	V	3	A	A	PASS
80-1000	BACK	H	3	A	A	PASS
80-1000	BACK	V	3	A	A	PASS
80-1000	RIGHT	H	3	A	A	PASS
80-1000	RIGHT	V	3	A	A	PASS
80-1000	LEFT	H	3	A	A	PASS
80-1000	LEFT	V	3	A	A	PASS
80-1000	UP	H	3	A	A	PASS
80-1000	UP	V	3	A	A	PASS
80-1000	DOWN	H	3	A	A	PASS
80-1000	DOWN	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: PoE Mode (M/N: PZ8111)		
Date of Test	2011/08/25	Test Site	Chamber5

Frequency (MHz)	Position (Angle)	Polarity (H or V)	Field Strength (V/m)	Required Criteria	Complied To Criteria (A,B,C)	Results
80-1000	FRONT	H	3	A	A	PASS
80-1000	FRONT	V	3	A	A	PASS
80-1000	BACK	H	3	A	A	PASS
80-1000	BACK	V	3	A	A	PASS
80-1000	RIGHT	H	3	A	A	PASS
80-1000	RIGHT	V	3	A	A	PASS
80-1000	LEFT	H	3	A	A	PASS
80-1000	LEFT	V	3	A	A	PASS
80-1000	UP	H	3	A	A	PASS
80-1000	UP	V	3	A	A	PASS
80-1000	DOWN	H	3	A	A	PASS
80-1000	DOWN	V	3	A	A	PASS

**Note:**

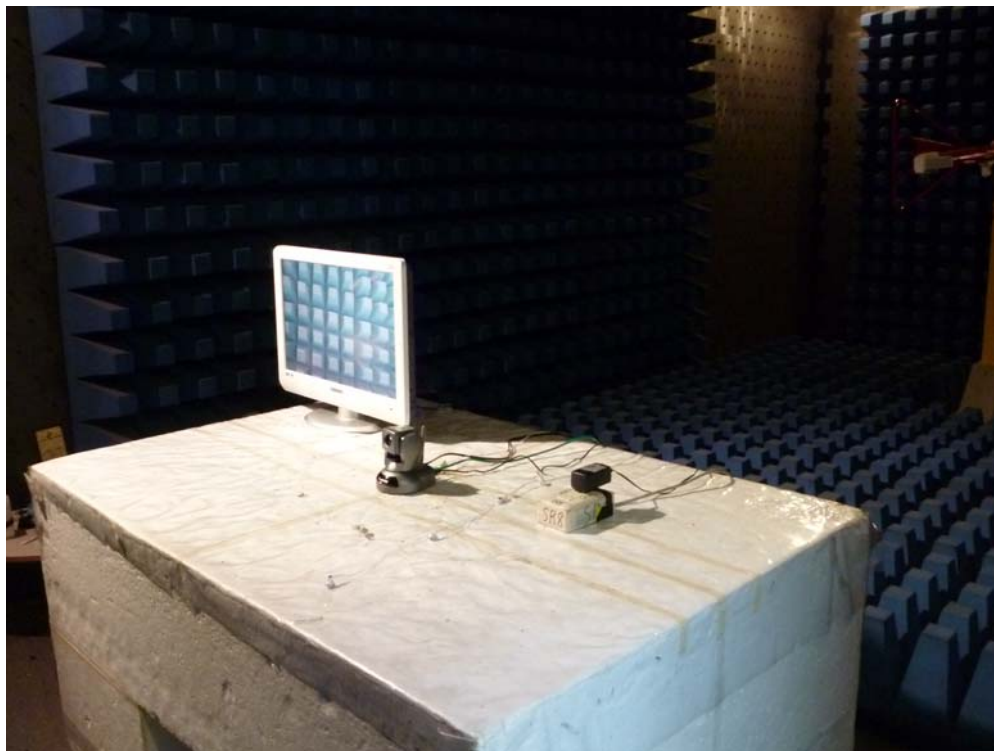
The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

- 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

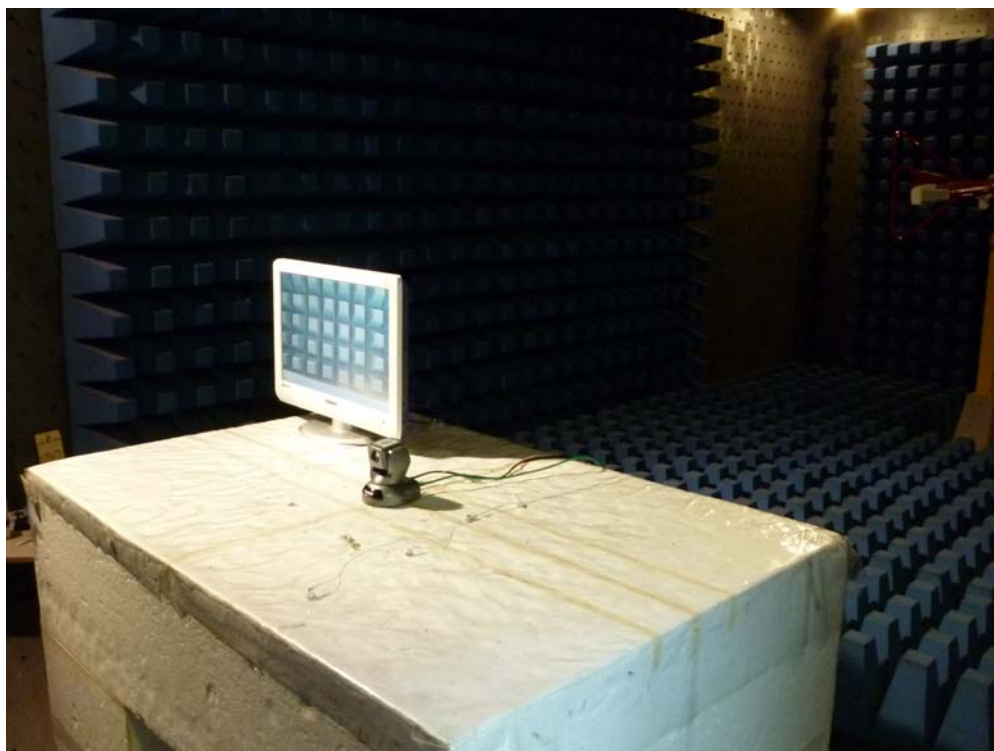
Test Mode : Mode 1: Normal Operation (M/N: PZ8111W)

Description : Radiated Susceptibility Test Setup



Test Mode : Mode 2: PoE Mode (M/N: PZ8111)

Description : Radiated Susceptibility Test Setup



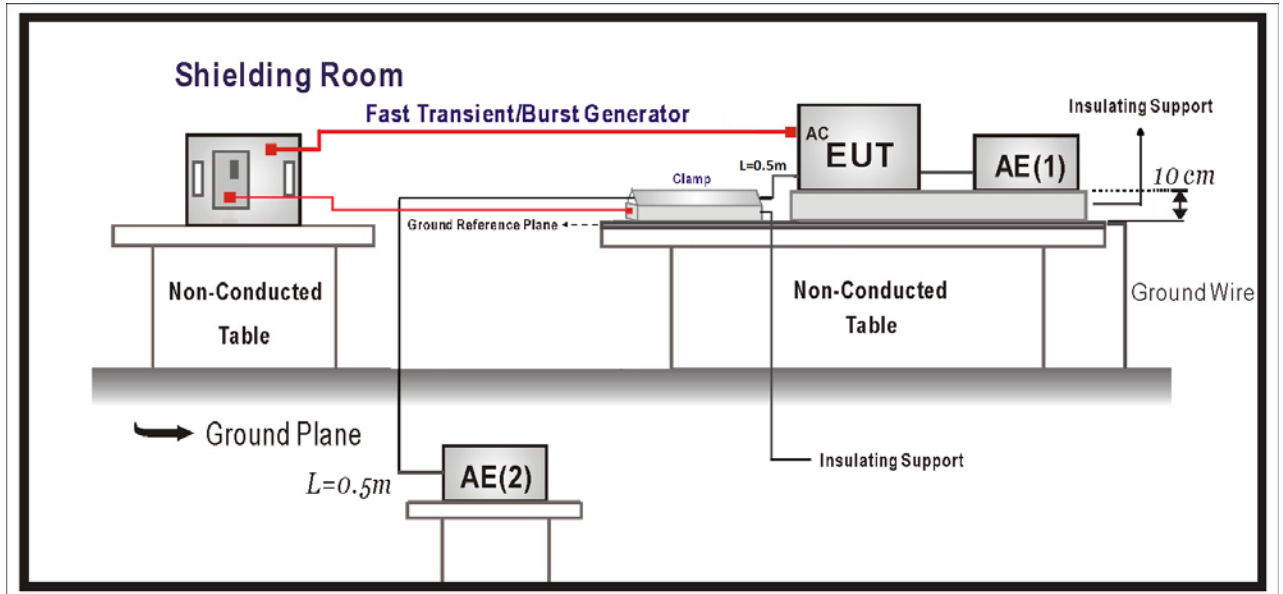


## 10. Electrical Fast Transient/Burst

### 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	$\pm 0.5$ 5/50 5	B
Input DC Power Ports				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	$\pm 0.5$ 5/50 5	B
Input AC Power Ports				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	$\pm 1$ 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 1 minute.

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: Normal Operation (M/N: PZ8111W)		
Date of Test	2011/08/25	Test Site	No.3 Shielded Room

Inject Line	Polarity	Voltage kV	Inject Time (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L-N	±	1kV	60	Direct	B	B	PASS
LAN	±	0.5kV	60	Clamp	B	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	Electrical fast transient/burst		
Test Mode	Mode 2: PoE Mode (M/N: PZ8111)		
Date of Test	2011/08/25	Test Site	No.3 Shielded Room

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

## 10.7. Test Photograph

Test Mode : Mode 1: Normal Operation (M/N: PZ8111W)

Description : EFT/B Test Setup



Test Mode : Mode 1: Normal Operation (M/N: PZ8111W)

Description : EFT/B Test Setup-Clamp



Test Mode : Mode 2: PoE Mode (M/N: PZ8111)

Description : EFT/B Test Setup-Clamp

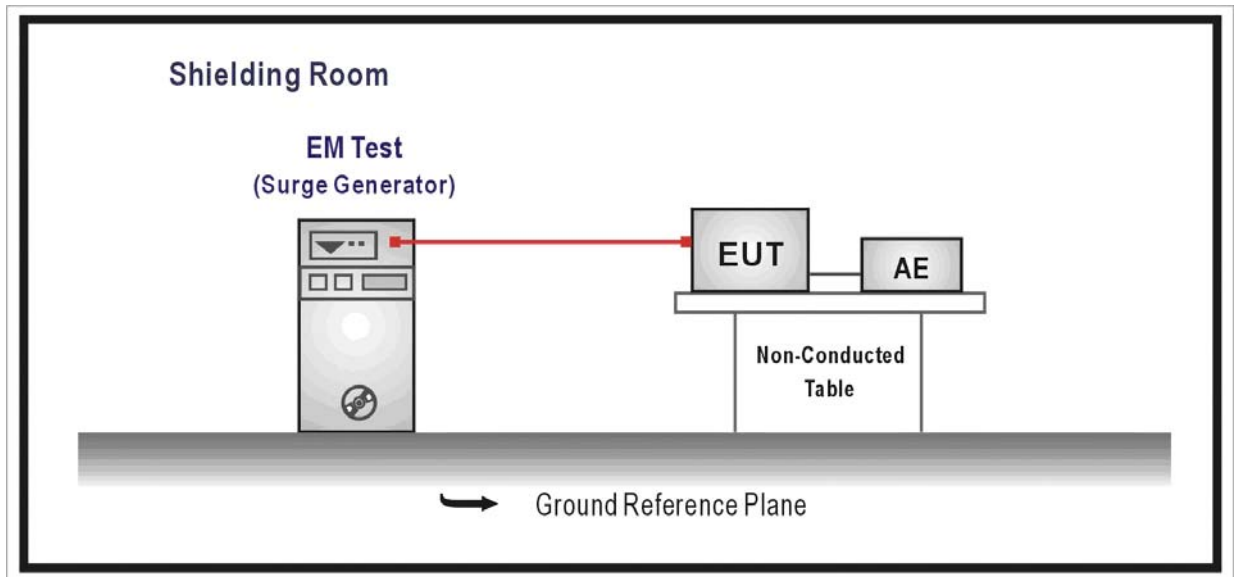


11. Surge

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	1.2/50 (8/20) ± 1	B
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: Normal Operation (M/N: PZ8111W)		
Date of Test	2011/08/25	Test Site	No.3 Shielded Room

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

## 11.7. Test Photograph

Test Mode : Mode 1: Normal Operation (M/N: PZ8111W)

Description : SURGE Test Setup



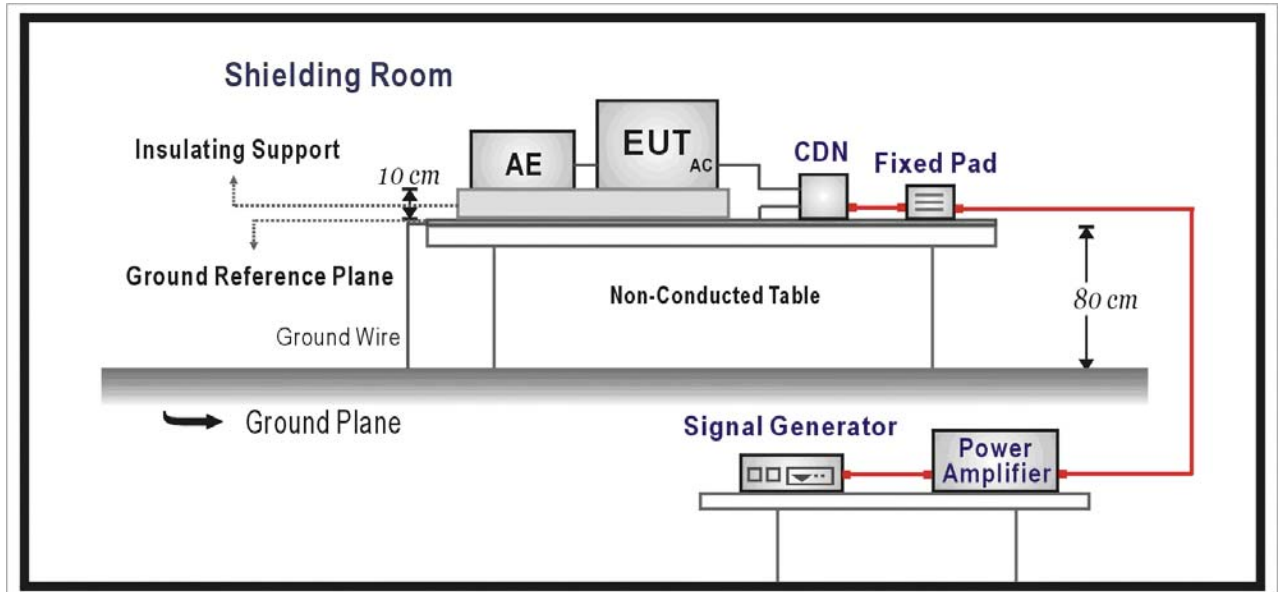
## 12. Conducted Susceptibility

### 12.1. Test Specification

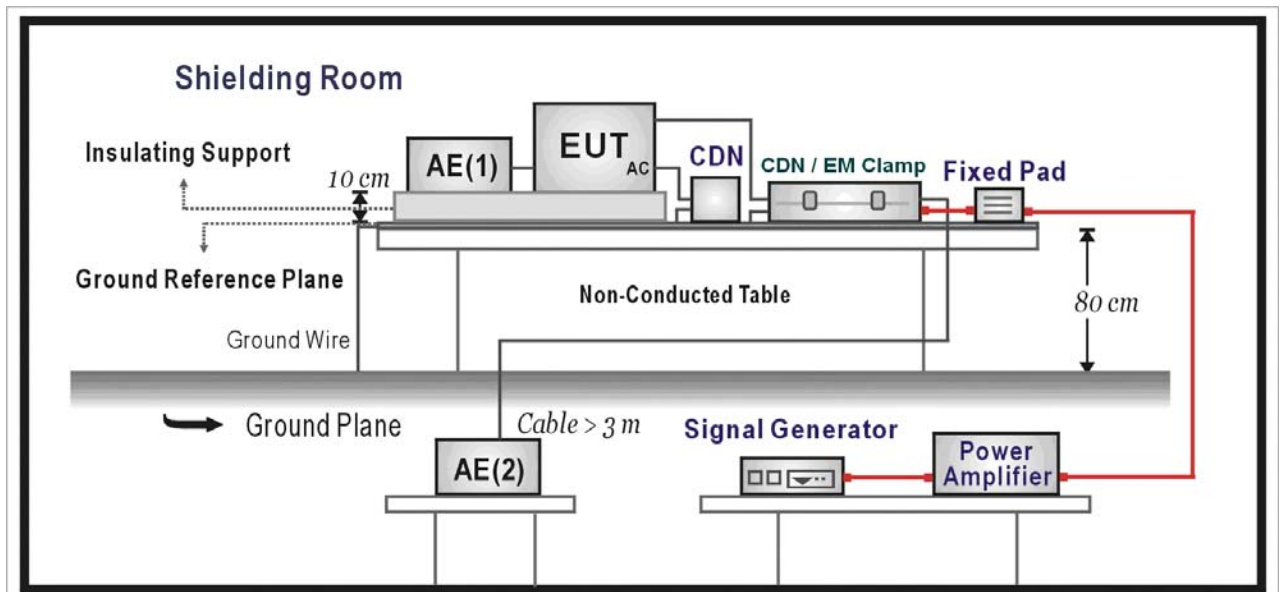
According to Standard : IEC 61000-4-6

### 12.2. Test Setup

#### CDN Test Mode



#### EM Clamp Test Mode



**12.3. Limit**

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
<b>Signal Ports and Telecommunication Ports</b>				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 3 80	A
<b>Input DC Power Ports</b>				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 3 80	A
<b>Input AC Power Ports</b>				
	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: Normal Operation (M/N: PZ8111W)		
Date of Test	2011/08/24	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: PoE Mode (M/N: PZ8111)		
Date of Test	2011/08/24	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)	Clamp	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: Normal Operation (M/N: PZ8111W)

Description : Conducted Susceptibility Test Setup



Test Mode : Mode 1: Normal Operation (M/N: PZ8111W)

Description : Conducted Susceptibility Test Setup-CDN



Test Mode : Mode 2: PoE Mode (M/N: PZ8111)

Description : Conducted Susceptibility Test Setup-Clamp



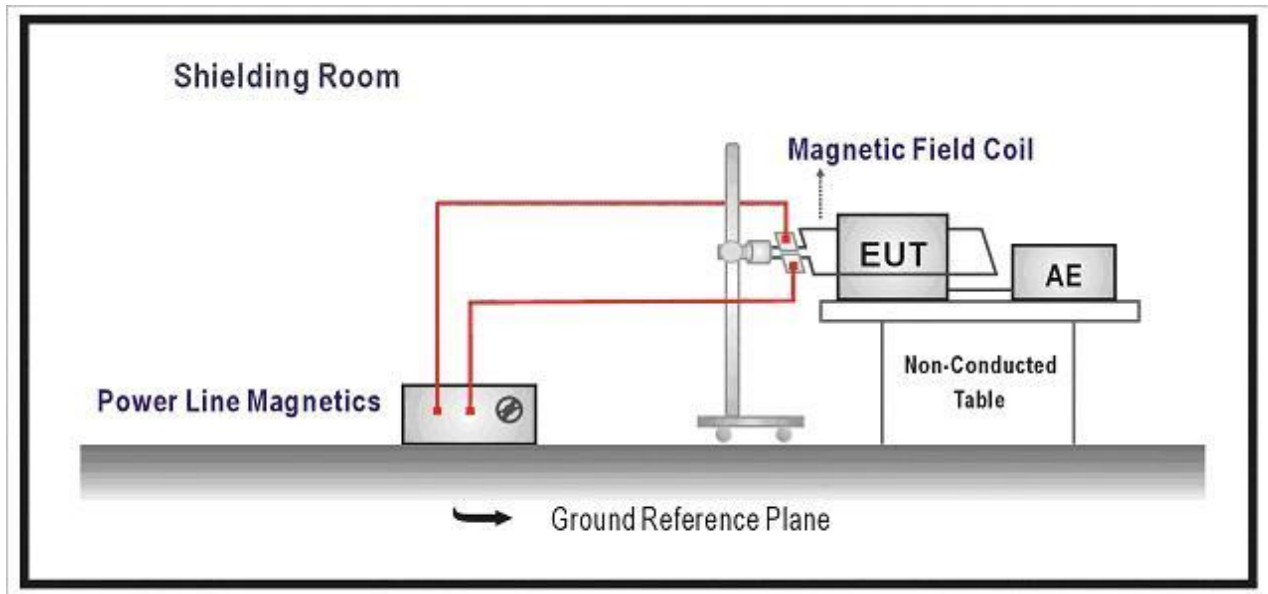


### 13. Power Frequency Magnetic Field

#### 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: Normal Operation (M/N: PZ8111W)		
Date of Test	2011/08/24	Test Site	No.3 Shielded Room

Polarization	Frequency (Hz)	Magnetic Strength (A/m)	Required Performance Criteria	Performance Criteria Complied To	Test Result
X Orientation	50	1	A	A	PASS
Y Orientation	50	1	A	A	PASS
Z Orientation	50	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: PoE Mode (M/N: PZ8111)		
Date of Test	2011/08/24	Test Site	No.3 Shielded Room

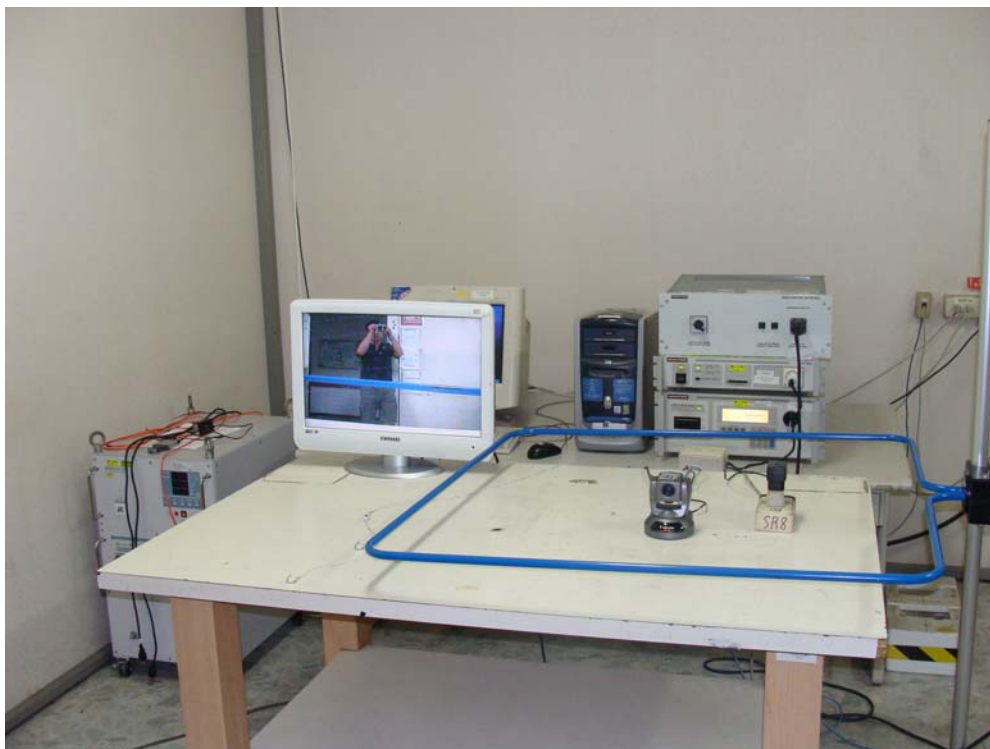
Polarization	Frequency (Hz)	Magnetic Strength (A/m)	Required Performance Criteria	Performance Criteria Complied To	Test Result
X Orientation	50	1	A	A	PASS
Y Orientation	50	1	A	A	PASS
Z Orientation	50	1	A	A	PASS

- 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: Normal Operation (M/N: PZ8111W)

Description : Power Frequency Magnetic Field Test Setup



Test Mode : Mode 2: PoE Mode (M/N: PZ8111)

Description : Power Frequency Magnetic Field Test Setup

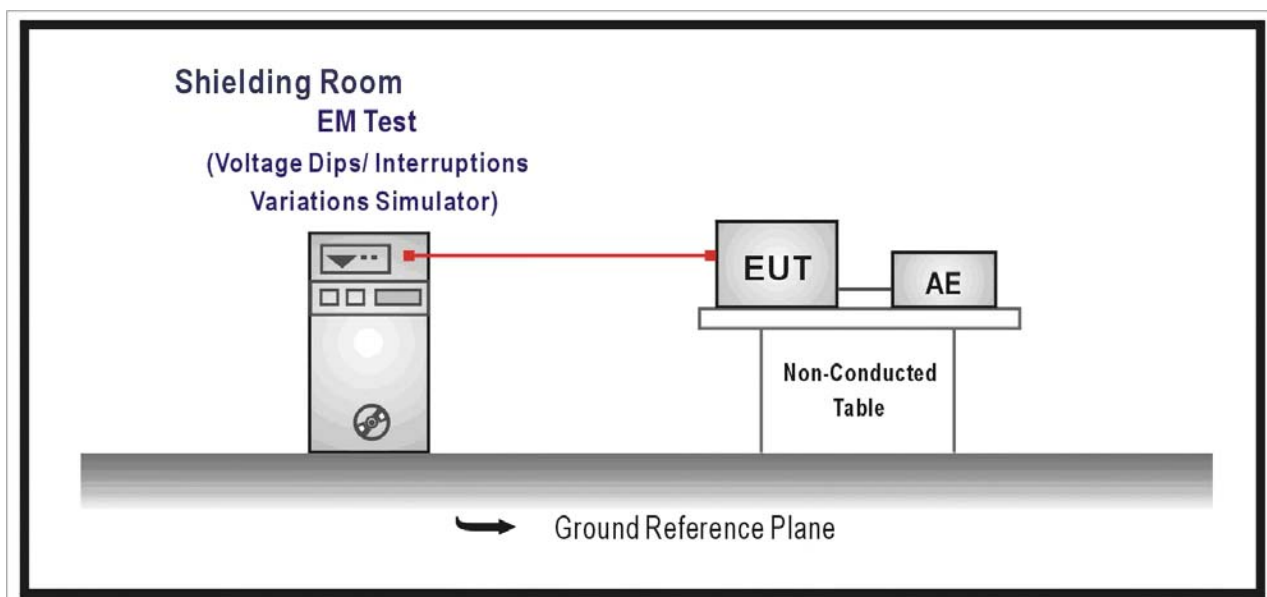


## 14. Voltage Dips and Interruption

### 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  $0^{\circ}$ ,  $45^{\circ}$ ,  $90^{\circ}$ ,  $135^{\circ}$ ,  $180^{\circ}$ ,  $225^{\circ}$ ,  $270^{\circ}$ ,  $315^{\circ}$  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: Normal Operation (M/N: PZ8111W)		
Date of Test	2011/08/24	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: Normal Operation (M/N: PZ8111W)

Description : Voltage Dips Test Setup





## 15. Attachment

### ➤ EUT Photograph

(1) EUT Photo (M/N: PZ8111)



(2) EUT Photo



(3) EUT Photo



(4) EUT Photo (M/N: PZ8111W)



(5) EUT Photo



(6) EUT Photo



(7) EUT Photo (M/N: PZ8121)



(8) EUT Photo



(9) EUT Photo



(10) EUT Photo (M/N: PZ8121W)



(11) EUT Photo



(12) EUT Photo



(13) EUT Photo



(14) EUT Photo



(15) EUT Photo



(16) EUT Photo

