CE Test Report

Product Name ： Network Camera
Model No. ： FE9381-EHV, FE9181-H

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

Date of Receipt ： 2015/12/03
Issued Date ： 2015/12/17
Report No. ： 15C0098R-ITCEP01V00
Report Version ： V1.0

Testing Laboratory
3023

Test Report

Issued Date : 2015/12/17
Report No. : 15C0098R-ITCEP01V00

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.	:	FE9381-EHV, FE9181-H
EUT Rated Voltage	:	Power By PoE, DC12V
EUT Test Voltage	:	Power By PoE, AC 230 V / 50 Hz
Trade Name	:	VIVOTEK
Applicable Standard	:	EN 55022: 2010+AC: 2011, Class A EN 55024: 2010 EN 61000-3-2: 2014 EN 61000-3-3: 2013 CISPR 22: 2008 CISPR 24: 2010 AS/NZS CISPR 22: 2009+A1: 2010
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 : Jinn Chen
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Reviewed By : Simon tsai
(Engineer / Simon Tsai)

Approved By :
(Director / Vincent Lin)

Laboratory Information

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:

Taiwan R.O.C.	**:**	**BSMI, NCC, TAF**
USA	**:**	**FCC**
Japan	**:**	**VCCI**

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site : http://www.quietek.com/chinese/about/certificates.aspx?bval=5
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:

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1. General Information

1.1. EUT Description

Product Name	Network Camera
Trade Name	VIVOTEK
Model No.	FE9381-EHV, FE9181-H

Component	
Maximum clock frequency	1600MHz

Note: The different of each model is shown as below:

Model No.	Description
FE9381-EHV	Metal shell
FE9181-H	Plastic shell

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:FE9381-EHV, DC 12V with AD Mode 2:FE9381-EHV, Poe Mode 3:FE9181-H, DC 12V with AD Mode 4:FE9181-H, Poe	
Final Test Mode	
Emission	Mode 1:FE9381-EHV, DC 12V with AD Mode 2:FE9381-EHV, Poe
Immunity	Mode 1:FE9381-EHV, DC 12V with AD Mode 2:FE9381-EHV, 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

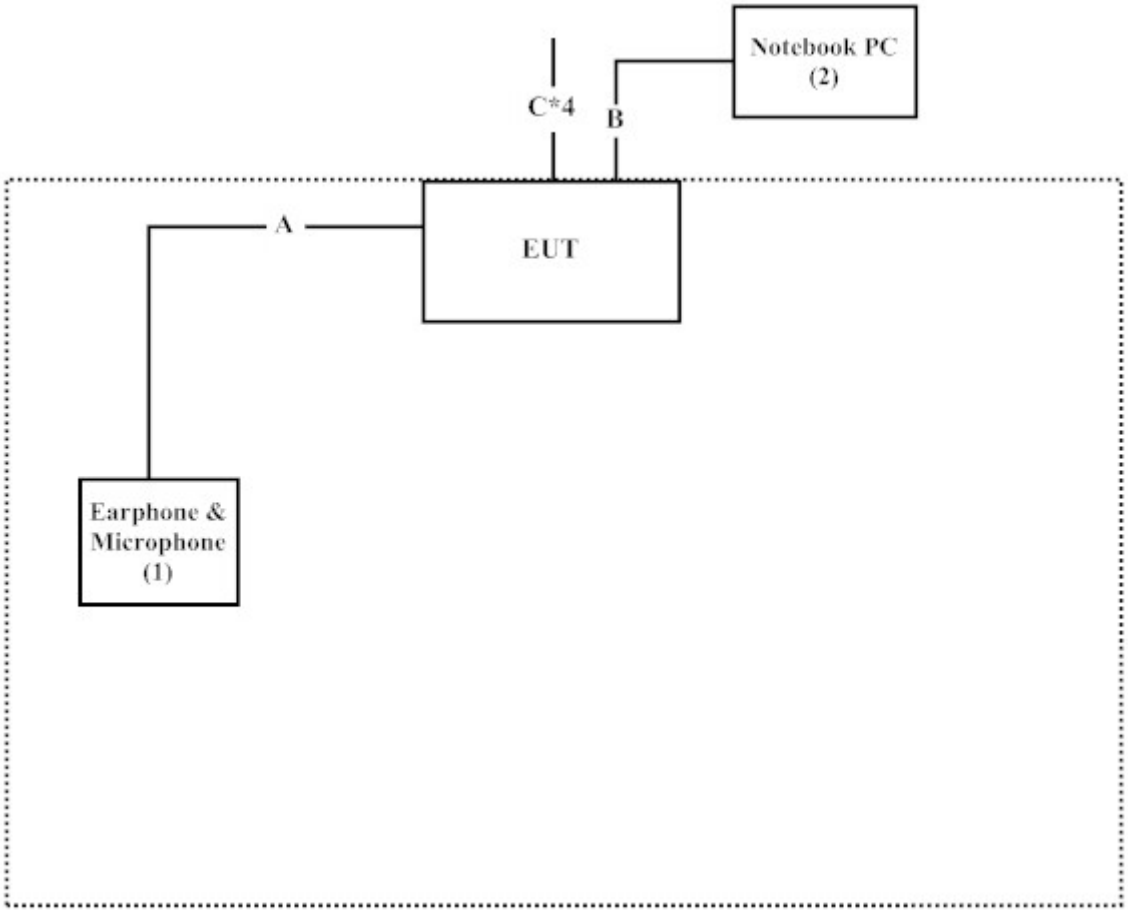
The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Test Mode		Mode 1			
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Microphone & Earphone(EMI)	Ergotech	E201	N/A	N/A
	Microphone & Earphone(EMS)	OMNIWELL	OM-230	N/A	N/A
2	Notebook PC	DELL	E5530	24QPXW1	Non-Shielded, 0.8m

Test Mode		Mode 2			
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Microphone & Earphone(EMI)	Ergotech	E201	N/A	N/A
	Microphone & Earphone(EMS)	OMNIWELL	OM-230	N/A	N/A
2	Notebook PC	DELL	E5530	24QPXW1	Non-Shielded, 0.8m
3	POE	by fixture	N/A	N/A	N/A

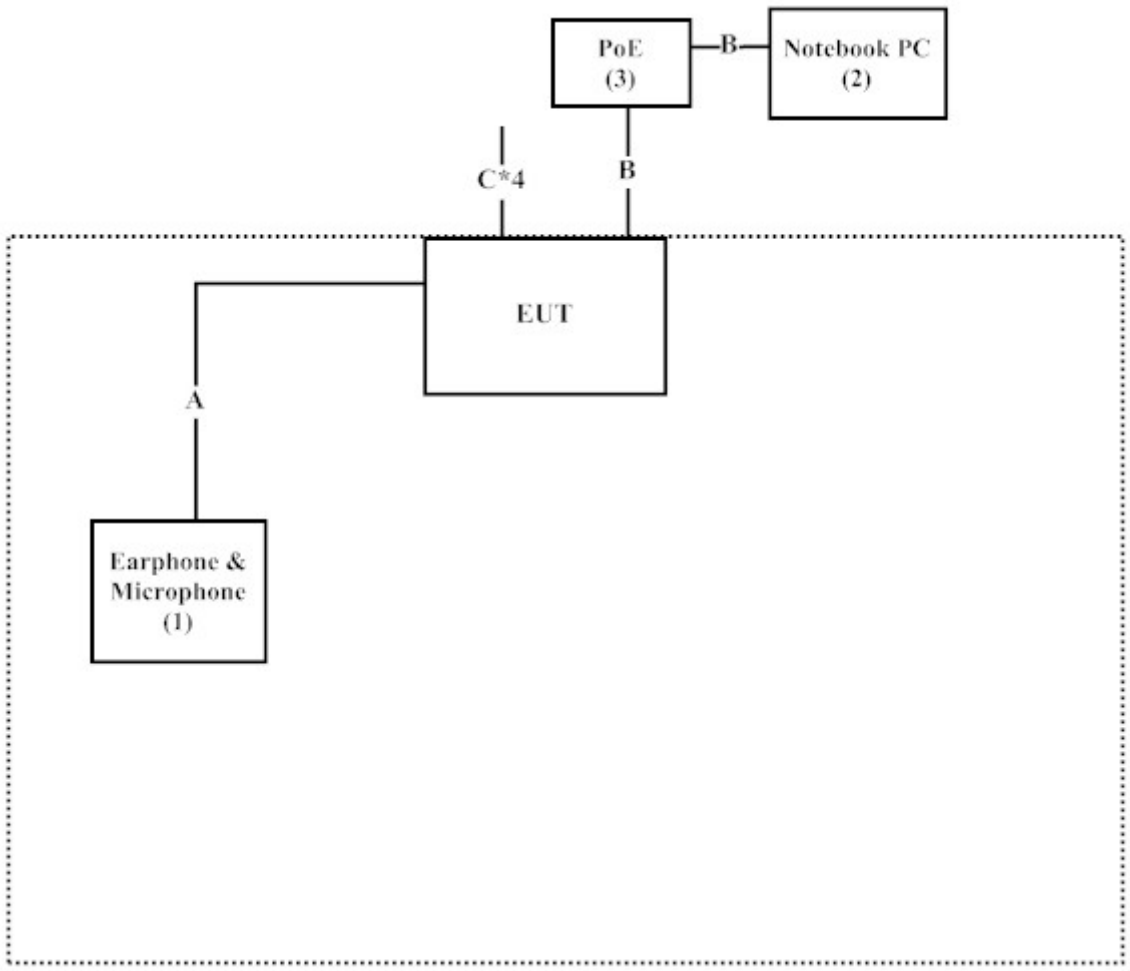
1.4. Configuration of Tested System

Test Mode	Mode 1
Connection Diagram	



Signal Cable Type		Signal cable Description
A	Microphone & Earphone Cable	Non-Shielded, 2m
B	LAN Cable	Non-Shielded, 7m
C	Signal Cable	Non-Shielded, 0.2m, four PCS.

Test Mode	Mode 2
Connection Diagram	



Signal Cable Type		Signal cable Description
A	Microphone & Earphone Cable	Non-Shielded, 2m
B	LAN Cable	Non-Shielded, 7m, two PCS.
C	Signal Cable	Non-Shielded, 0.2m, four PCS.

1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on 1.4.
2	Turn on the power of all equipments.
3	All the features of the EUT operation normally.

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: 2010+AC: 2011 AS/NZS CISPR 22: 2009+A1: 2010	Yes	No
Impedance Stabilization Network	EN 55022: 2010+AC: 2011 AS/NZS CISPR 22: 2009+A1: 2010	Yes	No
Radiated Emission	EN 55022: 2010+AC: 2011 AS/NZS CISPR 22: 2009+A1: 2010	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. 2.0: 2005	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. 2.0: 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	100367	2015/12/10
LISN	Schwarzback	8226	176	2014/12/25
LISN	Schwarzback	8226	177	2014/12/25
Coaxial Cable	QTK(Arnist)	RG 400	LC016-RG	2015/06/24

Impedance Stabilization Network / SR1

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Capacitive Voltage Probe	Schaffner	CVP2200A	18331	2015/10/30
EMI Test Receiver	R&S	ESCS 30	100367	2015/12/10
LISN	R&S	ENV216	100085	2015/01/19
LISN	R&S	ESH3-Z5	836679/023	2015/01/19
RF Current Probe	FCC	F-65 10KHz~1GHz	198	2015/11/03
Coaxial Cable	QTK(Arnist)	RG 400	LC016-RG	2015/06/24
Coupling Decoupling Network	Teseq	CDN ST08A	33998	2015/08/31
Coupling Decoupling Network	Teseq	CDN T800	30303	2015/03/30
BALANCED TELECOM ISN	FCC	FCC-TLISN-T2-02	20316	2015/08/03

Radiated Emission / Site 7

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Bilog Antenna	Schaffner Chase	CBL6112B	2930	2015/06/12
EMI Test Receiver	R&S	ESCI	100649	2015/04/22
Coaxial Cable	QTK(Arnist)	RG 214	LC007-RG	2015/06/21
Site7 NSA	QTK	N/A	N/A	2015/06/21
Pre-Amplifier	QTK	AP/0100A	CHM/1009094	2015/06/21

Radiated Emission / CB7

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	R&S	ESU26	100433	2015/09/03
Horn Antenna	ETS-Lindgren	3117	00135205	2015/04/01
Horn Antenna	SCHWARZBECK	9120D	576	2015/11/25
Pre-Amplifier	COM-POWER	PAM-118	443019	2015/07/14
CB7 VSWR	QTK	N/A	N/A	2015/06/25

Power Harmonics / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
AC Power Source (Harmonic)	TESEQ	NSG 1007-5	1530A00015	2015/07/30
Signal conditioning unit (Flicker)	TESEQ	CCN 1000-1	1530A00015	2015/07/30

Voltage Fluctuation and Flicker / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
AC Power Source (Harmonic)	TESEQ	NSG 1007-5	1530A00015	2015/07/30
Signal conditioning unit (Flicker)	TESEQ	CCN 1000-1	1530A00015	2015/07/30

Electrostatic Discharge / SR6

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
ESD Simulator System	Noiseken	ESS2002EX	ESS0929057	2015/06/30
ESD GUN	Noiseken	TC-815R	ESS0929097	2015/06/30
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
Signal Generator	R&S	SMB100A	106404	2015/05/08
Power Meter	R&S	NRVD(P.M)	100219	2015/05/08
Biconilog Antenna	EMCO	3149	00071675	N/A
Power Amplifier	A&R	30S1G3	309453	N/A
Power Amplifier	SCHAFFNER	CBA9413B	4020	N/A
uniform field calibration	QTK	N/A	N/A	2015/05/19

Electrical fast transient/burst / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
TRANSIENT TEST SYSTEM	EMC PARTNER	TRA2000IN6	1138	2015/04/08

Surge / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
TRANSIENT TEST SYSTEM	EMC PARTNER	TRA2000IN6	1138	2015/04/08

Conducted susceptibility / SR6

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
TESEQ RF-Generator	TESEQ	NSG 4070B-30	37490	2015/01/20

Power frequency magnetic field / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
AC Power Source(Harmonic)	Schaffner	NSG 1007	HK54148	2015/10/29
Magnetic Loop Coil	Schaffner	INA 702	160	2015/07/21

Voltage dips and interruption / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
TRANSIENT TEST SYSTEM	EMC PARTNER	TRA2000IN6	1138	2015/04/08

2.3. Measurement Uncertainty

Conducted Emission

The measurement uncertainty is evaluated as ± 2.26 dB.

Impedance Stabilization Network

The measurement uncertainty is evaluated as ± 2.26 dB.

Radiated Emission

The measurement uncertainty is evaluated as ± 3.19 dB.

Harmonic Current Emission

The measurement uncertainty is evaluated as Voltage: ±0.1%, Current: ±0.15%

Voltage Fluctuation and Flicker

The measurement uncertainty is evaluated as Voltage: ±0.1%, Current: ±0.15%

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 current and timing as being 2.5 % and 6%.

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 and timing as being 8.4 % and 4.7%.

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 4.1 % and 3.9%.

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 1.0 %.

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 1.6 % and 2.8%.

2.4. Test Environment

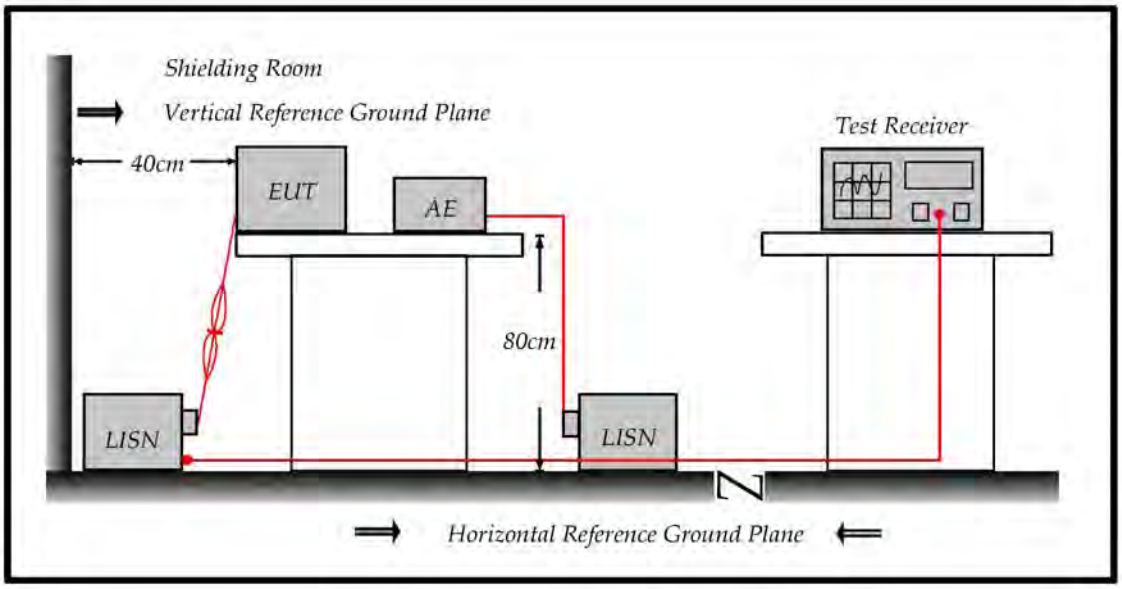
Performed Item	Items	Required	Actual
Conducted Emission	Temperature (°C)	15-35	19
	Humidity (%RH)	25-75	67
	Barometric pressure (mbar)	860-1060	950-1000
Impedance Stabilization Network	Temperature (°C)	15-35	19
	Humidity (%RH)	25-75	67
	Barometric pressure (mbar)	860-1060	950-1000
Radiated Emission	Temperature (°C)	15-35	19
	Humidity (%RH)	25-75	51
	Barometric pressure (mbar)	860-1060	950-1000
Electrostatic Discharge	Temperature (°C)	15-35	23
	Humidity (%RH)	30-60	57
	Barometric pressure (mbar)	860-1060	950-1000
Radiated susceptibility	Temperature (°C)	15-35	23
	Humidity (%RH)	25-75	54
	Barometric pressure (mbar)	860-1060	950-1000
Electrical fast transient/burst	Temperature (°C)	15-35	23
	Humidity (%RH)	25-75	63
	Barometric pressure (mbar)	860-1060	950-1000
Surge	Temperature (°C)	15-35	23
	Humidity (%RH)	10-75	60
	Barometric pressure (mbar)	860-1060	950-1000
Conducted susceptibility	Temperature (°C)	15-35	23
	Humidity (%RH)	25-75	55
	Barometric pressure (mbar)	860-1060	950-1000
Power frequency magnetic field	Temperature (°C)	15-35	23
	Humidity (%RH)	25-75	59
	Barometric pressure (mbar)	860-1060	950-1000
Voltage dips and interruption	Temperature (°C)	15-35	23
	Humidity (%RH)	25-75	63
	Barometric pressure (mbar)	860-1060	950-1000

3. Conducted Emission (Main Terminals)

3.1. Test Specification

According to EMC Standard : EN 55022 & AS/NZS CISPR 22

3.2. Test Setup



3.3. Limit

Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	79	66
0.50-5.0	73	60
5.0 - 30	73	60

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

3.4. Test Procedure

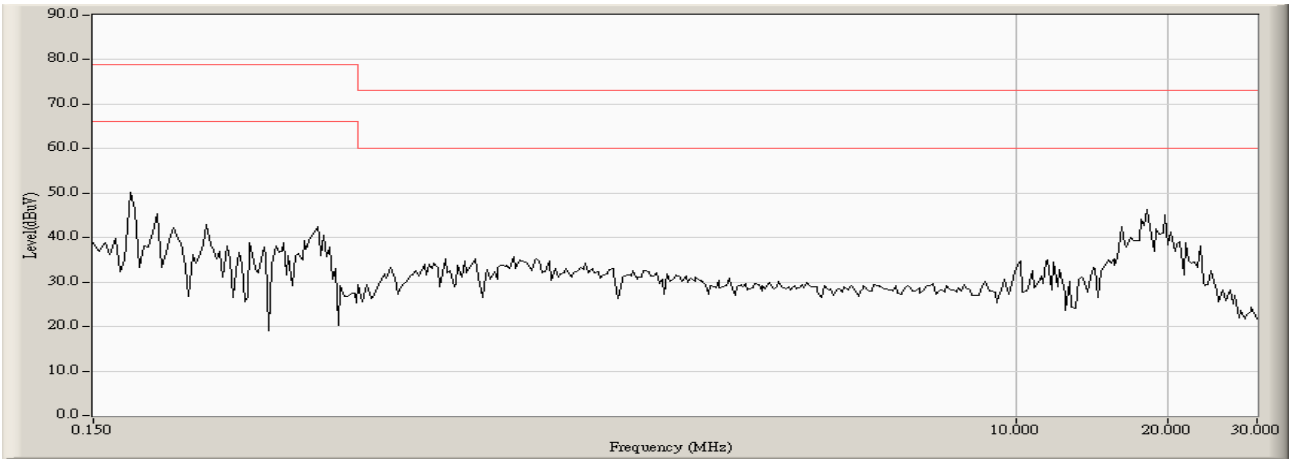
The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling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

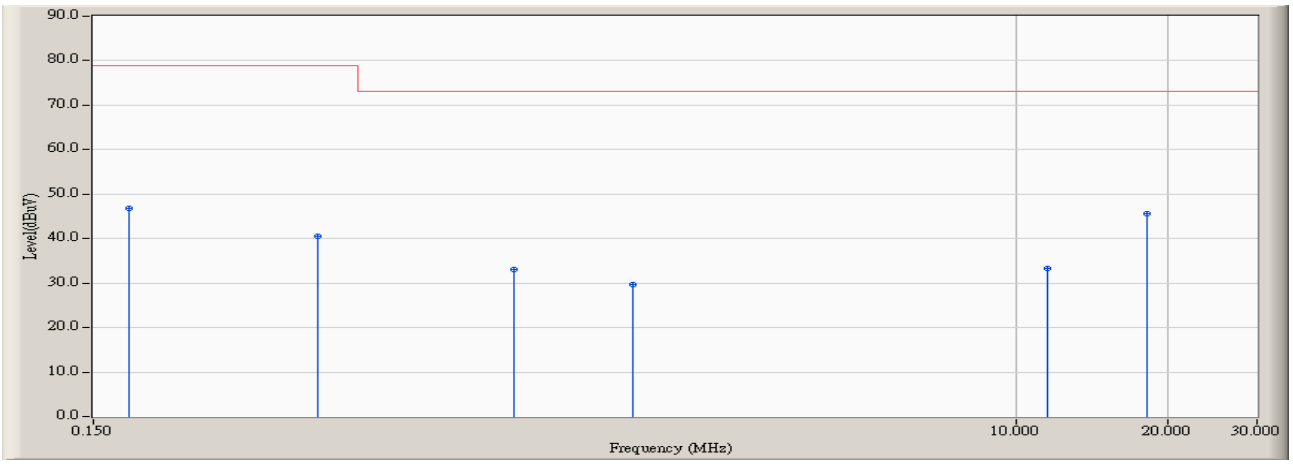
No deviation.

3.6. Test Result

Site : SR1	**Time : 2015/12/07 - 12:00**
Limit : CISPR_A_00M_QP	**Margin : 13**
EUT : Network Camera	**Probe : ENV216_L1 - Line1**
Power : AC 230V/50Hz to DC 12V	**Note : Mode 1**



Site : SR1	**Time : 2015/12/07 - 12:01**
Limit : CISPR_A_00M_QP	**Margin : 0**
EUT : Network Camera	**Probe : ENV216_L1 - Line1**
Power : AC 230V/50Hz to DC 12V	**Note : Mode 1**

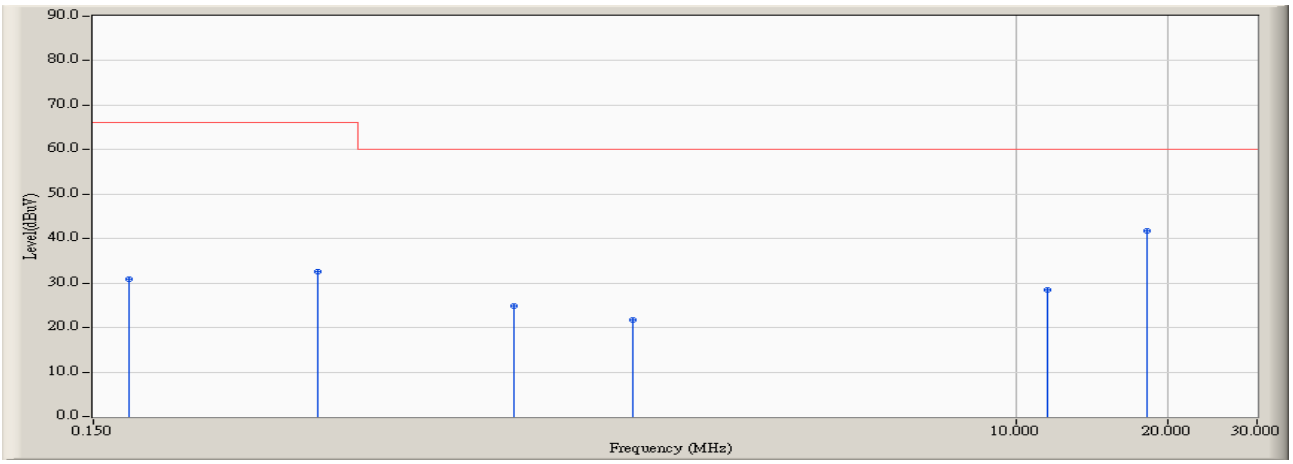


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.177	9.742	36.960	46.702	-32.298	79.000	QUASIPEAK
2		0.416	9.748	30.830	40.578	-38.422	79.000	QUASIPEAK
3		1.021	9.776	23.210	32.986	-40.014	73.000	QUASIPEAK
4		1.744	9.819	19.930	29.749	-43.251	73.000	QUASIPEAK
5		11.588	10.091	23.130	33.221	-39.779	73.000	QUASIPEAK
6	*	18.244	10.206	35.390	45.596	-27.404	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 : 2015/12/07 - 12:01**
Limit : CISPR_A_00M_AV	**Margin : 0**
EUT : Network Camera	**Probe : ENV216_L1 - Line1**
Power : AC 230V/50Hz to DC 12V	**Note : Mode 1**

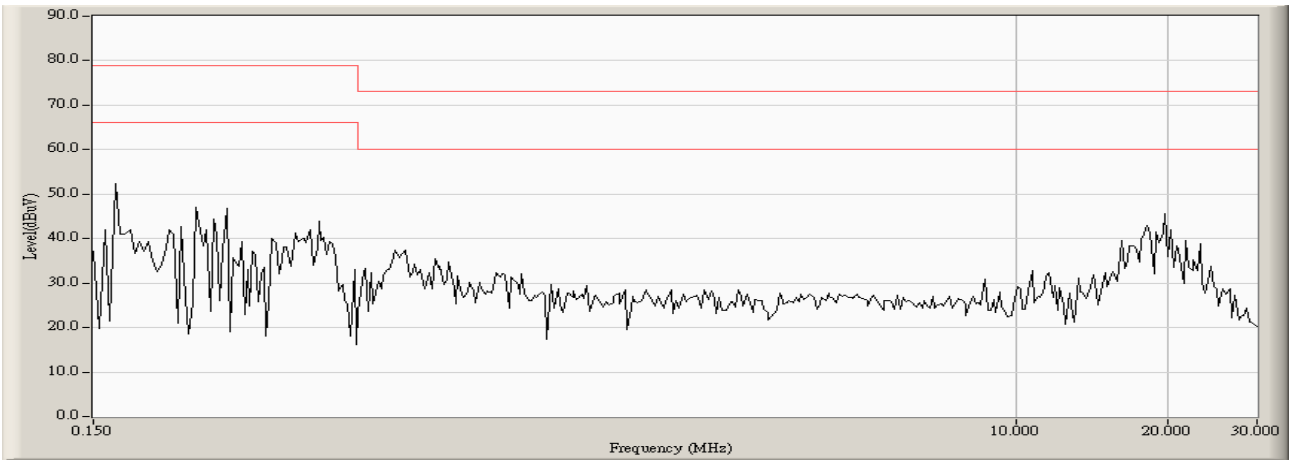


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.177	9.742	21.250	30.992	-35.008	66.000	AVERAGE
2		0.416	9.748	22.890	32.638	-33.362	66.000	AVERAGE
3		1.021	9.776	15.130	24.906	-35.094	60.000	AVERAGE
4		1.744	9.819	11.790	21.609	-38.391	60.000	AVERAGE
5		11.588	10.091	18.420	28.511	-31.489	60.000	AVERAGE
6	*	18.244	10.206	31.630	41.836	-18.164	60.000	AVERAGE

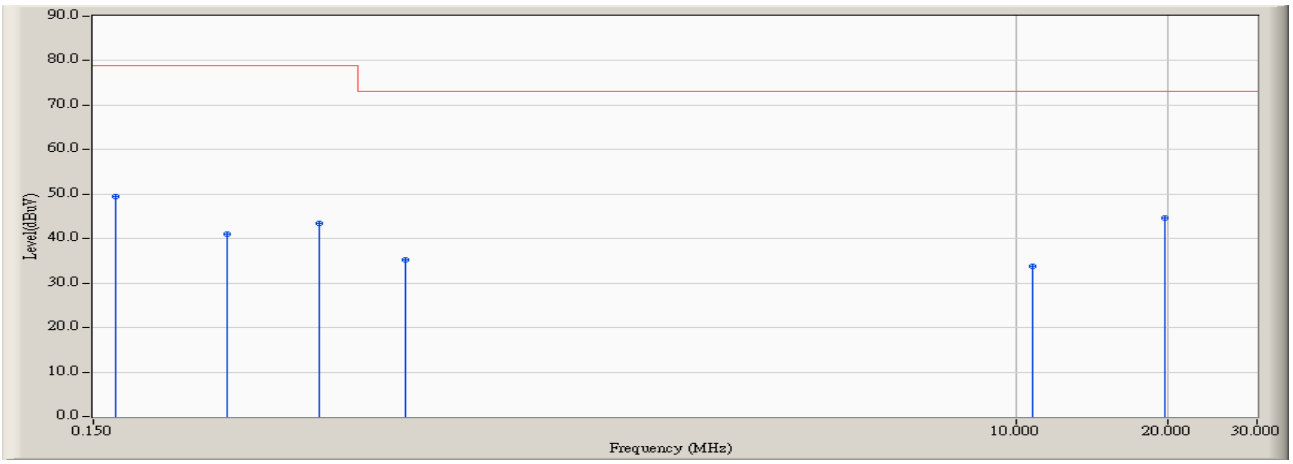
Note:

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 : 2015/12/07 - 12:01**
Limit : CISPR_A_00M_QP	**Margin : 13**
EUT : Network Camera	**Probe : ENV216_N - Line2**
Power : AC 230V/50Hz to DC 12V	**Note : Mode 1**



Site : SR1	**Time : 2015/12/07 - 12:04**
Limit : CISPR_A_00M_QP	**Margin : 0**
EUT : Network Camera	**Probe : ENV216_N - Line2**
Power : AC 230V/50Hz to DC 12V	**Note : Mode 1**

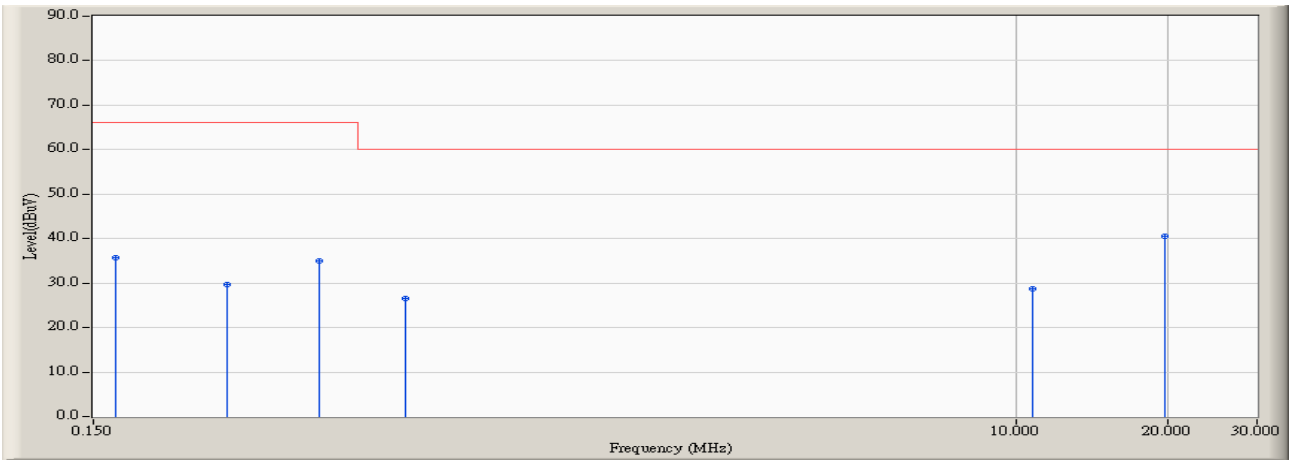


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.166	9.737	39.840	49.577	-29.423	79.000	QUASIPEAK
2		0.275	9.742	31.340	41.082	-37.918	79.000	QUASIPEAK
3		0.420	9.739	33.620	43.359	-35.641	79.000	QUASIPEAK
4		0.623	9.748	25.520	35.268	-37.732	73.000	QUASIPEAK
5		10.795	10.106	23.730	33.836	-39.164	73.000	QUASIPEAK
6	*	19.709	10.359	34.320	44.679	-28.321	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 : 2015/12/07 - 12:04**
Limit : CISPR_A_00M_AV	**Margin : 0**
EUT : Network Camera	**Probe : ENV216_N - Line2**
Power : AC 230V/50Hz to DC 12V	**Note : Mode 1**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.166	9.737	25.930	35.667	-30.333	66.000	AVERAGE
2		0.275	9.742	19.960	29.702	-36.298	66.000	AVERAGE
3		0.420	9.739	25.290	35.029	-30.971	66.000	AVERAGE
4		0.623	9.748	16.700	26.448	-33.552	60.000	AVERAGE
5		10.795	10.106	18.580	28.686	-31.314	60.000	AVERAGE
6	*	19.709	10.359	30.280	40.639	-19.361	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:FE9381-EHV, DC 12V with AD

Description : Front View of Conducted Test

Test Mode : Mode 1:FE9381-EHV, DC 12V with AD

Description : Back View of Conducted Test

Test Mode : Mode 1:FE9381-EHV, DC 12V with AD

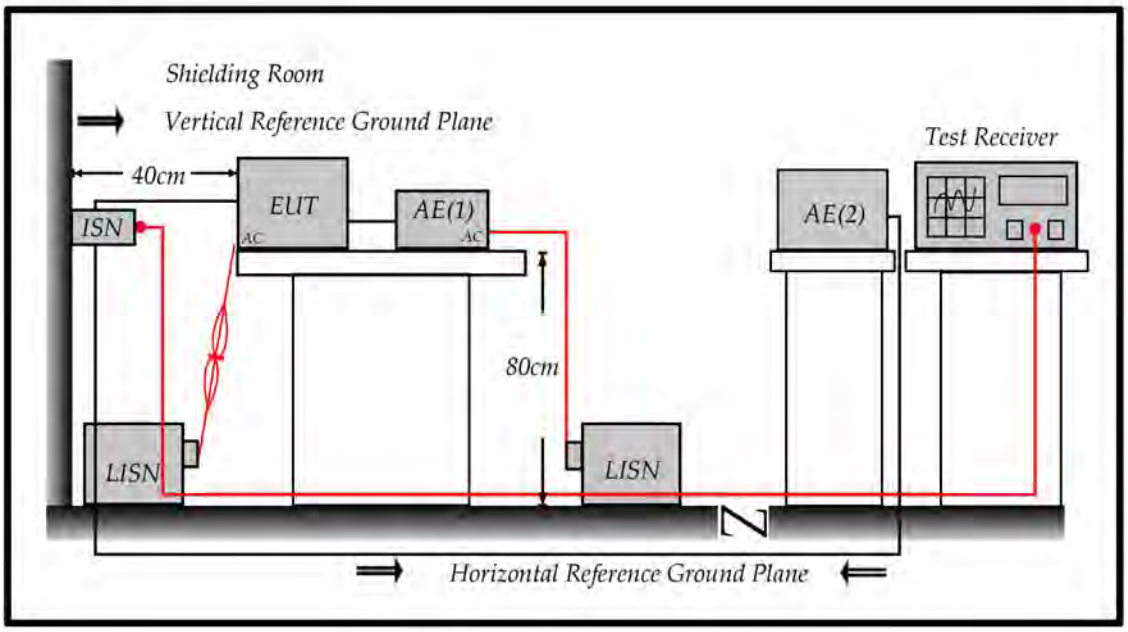
Description : Back View of Conducted Test

4. Conducted Emissions (Telecommunication Ports)

4.1. Test Specification

According to EMC Standard : EN 55022 & AS/NZS CISPR 22

4.2. Test Setup



4.3. Limit

Frequency (MHz)	Voltage Limits		Current Limits	
	QP (dBuV)	AV (dBuV)	QP (dBuV)	AV (dBuV)
0.15 – 0.50	97 – 87	84 – 74	53 – 43	40 – 30
0.50 – 30	87	74	43	30

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:

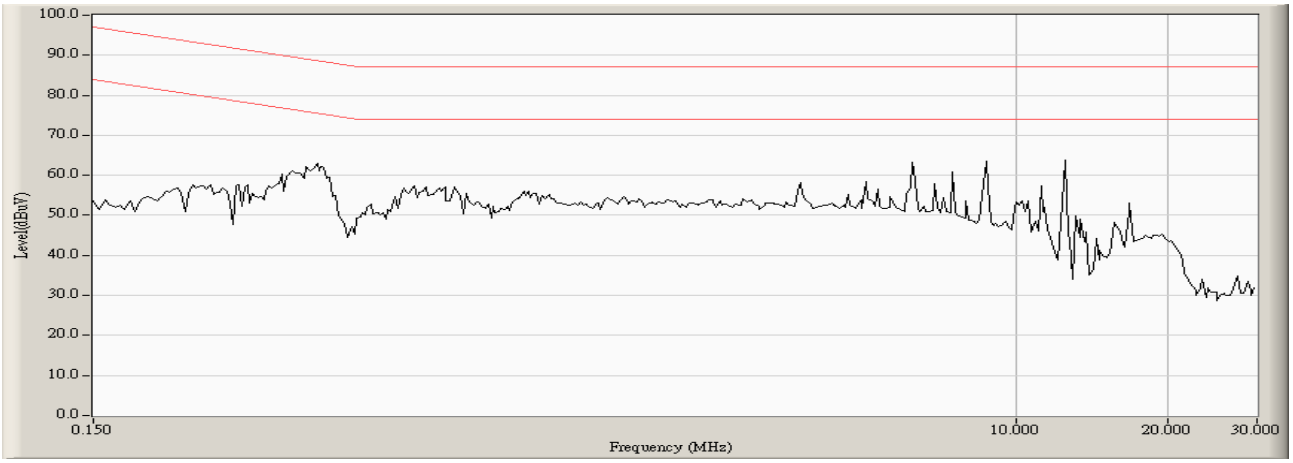
The mains voltage shall be supplied to the EUT via the LISN when the measurement of telecommunication port is performed. The common mode disturbances at the telecommunication port shall be connected to the ISN, which is 150 ohm impedance.
Both alternative cables are tested related to the LCL requested. 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

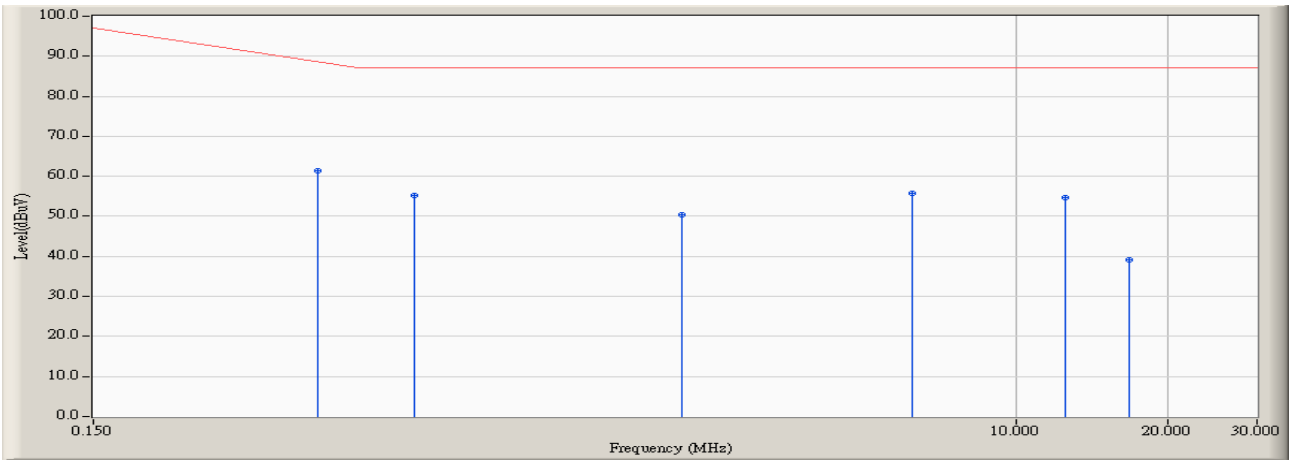
No deviation.

4.6. Test Result

Site : SR1	**Time : 2015/12/07 - 11:50**
Limit : ISN_Voltage_A_00M_QP	**Margin : 13**
EUT : Network Camera	**Probe : TESEQ_T8 - Line1**
Power : AC 230V/50Hz to DC 12V	**Note : Mode 1,ISN 10M**



Site : SR1	**Time : 2015/12/07 - 11:53**
Limit : ISN_Voltage_A_00M_QP	**Margin : 0**
EUT : Network Camera	**Probe : TESEQ_T8 - Line1**
Power : AC 230V/50Hz to DC 12V	**Note : Mode 1,ISN 10M**

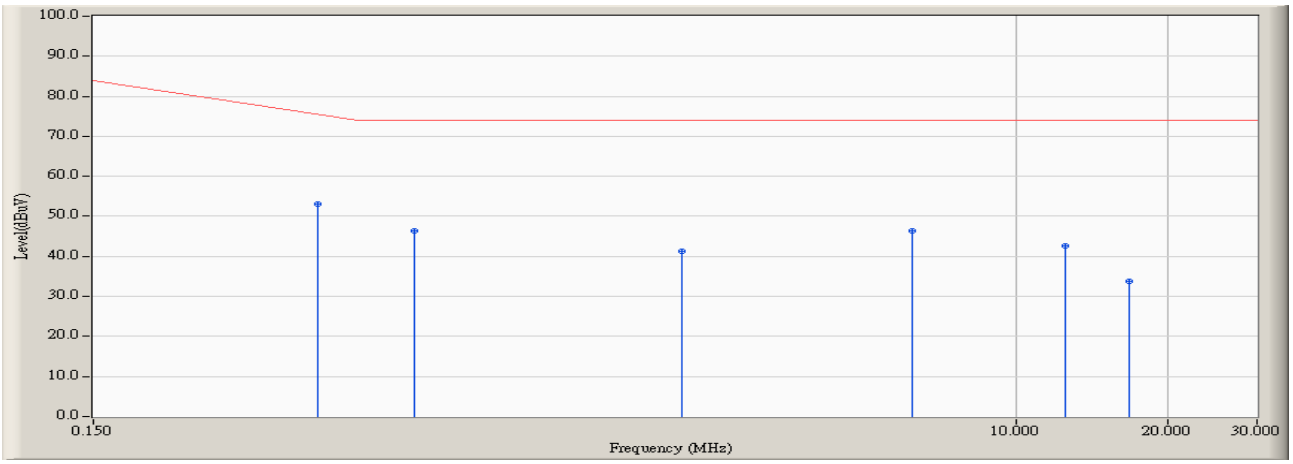


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.416	10.011	51.290	61.302	-28.098	89.400	QUASIPEAK
2		0.646	9.923	45.350	55.273	-31.727	87.000	QUASIPEAK
3		2.185	9.859	40.490	50.349	-36.651	87.000	QUASIPEAK
4		6.252	9.898	45.740	55.638	-31.362	87.000	QUASIPEAK
5		12.502	9.987	44.830	54.817	-32.183	87.000	QUASIPEAK
6		16.783	10.059	29.070	39.129	-47.871	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 : 2015/12/07 - 11:53**
Limit : ISN_Voltage_A_00M_AV	**Margin : 0**
EUT : Network Camera	**Probe : TESEQ_T8 - Line1**
Power : AC 230V/50Hz to DC 12V	**Note : Mode 1,ISN 10M**

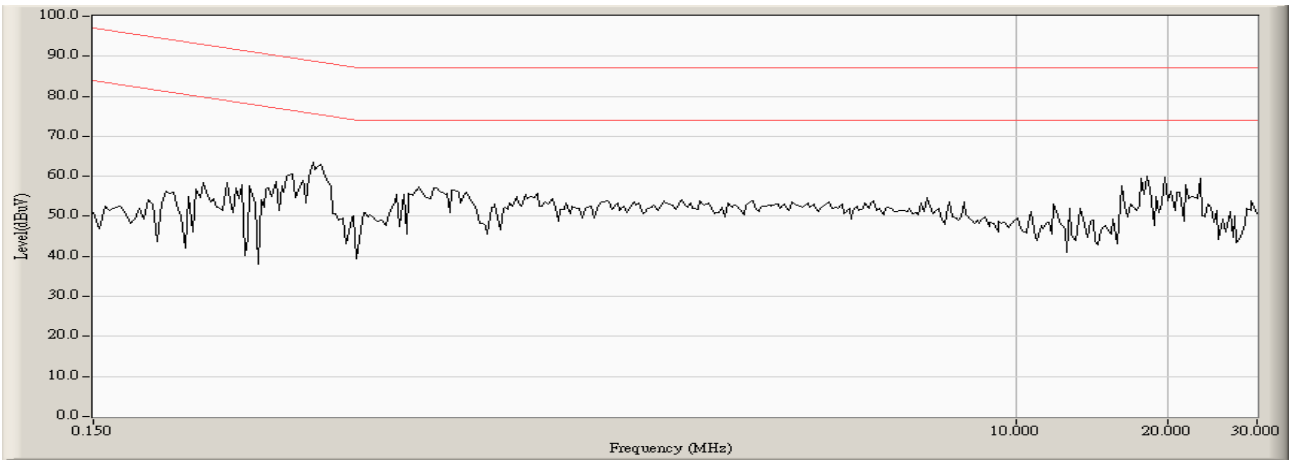


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.416	10.011	43.120	53.132	-23.268	76.400	AVERAGE
2		0.646	9.923	36.420	46.343	-27.657	74.000	AVERAGE
3		2.185	9.859	31.330	41.189	-32.811	74.000	AVERAGE
4		6.252	9.898	36.530	46.428	-27.572	74.000	AVERAGE
5		12.502	9.987	32.760	42.747	-31.253	74.000	AVERAGE
6		16.783	10.059	23.700	33.759	-40.241	74.000	AVERAGE

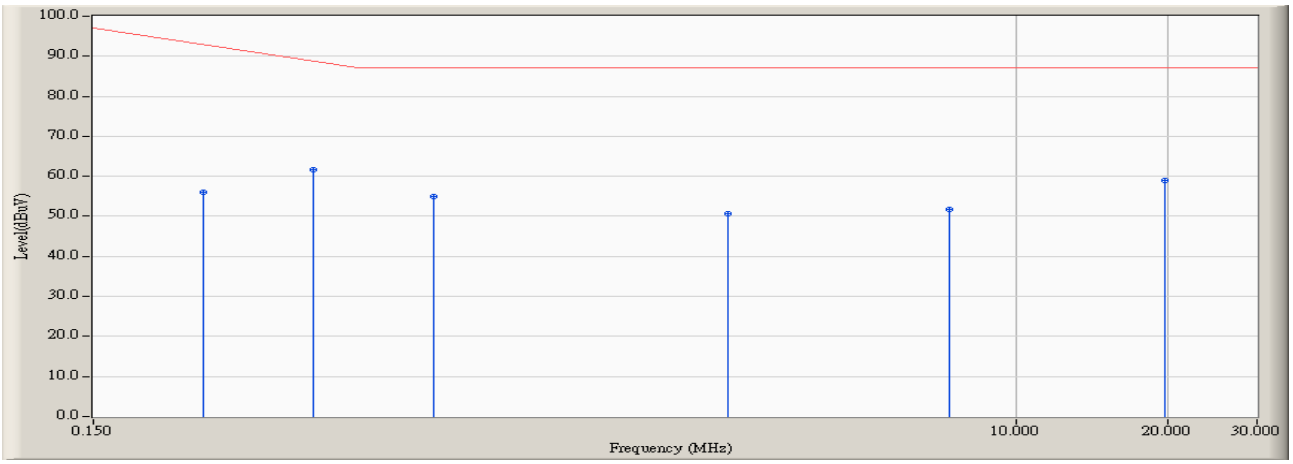
Note:

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 : 2015/12/07 - 11:53**
Limit : ISN_Voltage_A_00M_QP	**Margin : 13**
EUT : Network Camera	**Probe : TESEQ_T8 - Line1**
Power : AC 230V/50Hz to DC 12V	**Note : Mode 1,ISN 100M**



Site : SR1	**Time : 2015/12/07 - 11:55**
Limit : ISN_Voltage_A_00M_QP	**Margin : 0**
EUT : Network Camera	**Probe : TESEQ_T8 - Line1**
Power : AC 230V/50Hz to DC 12V	**Note : Mode 1,ISN 100M**

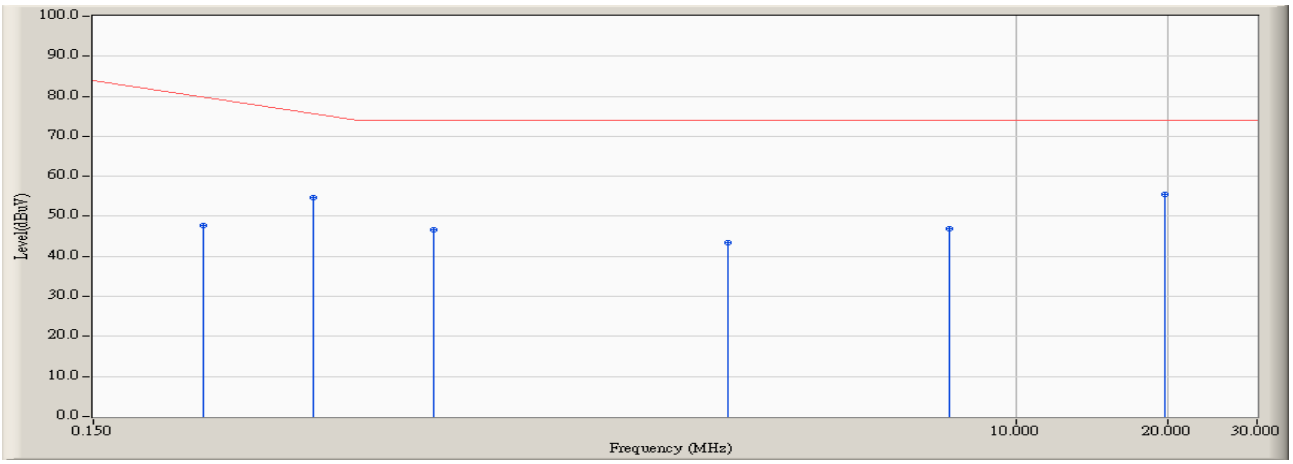


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.248	10.153	45.980	56.133	-38.067	94.200	QUASIPEAK
2	*	0.408	10.019	51.640	61.659	-27.970	89.629	QUASIPEAK
3		0.705	9.916	45.030	54.946	-32.054	87.000	QUASIPEAK
4		2.705	9.861	40.760	50.621	-36.379	87.000	QUASIPEAK
5		7.373	9.910	41.730	51.640	-35.360	87.000	QUASIPEAK
6		19.709	10.119	48.900	59.019	-27.981	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 : 2015/12/07 - 11:55**
Limit : ISN_Voltage_A_00M_AV	**Margin : 0**
EUT : Network Camera	**Probe : TESEQ_T8 - Line1**
Power : AC 230V/50Hz to DC 12V	**Note : Mode 1,ISN 100M**

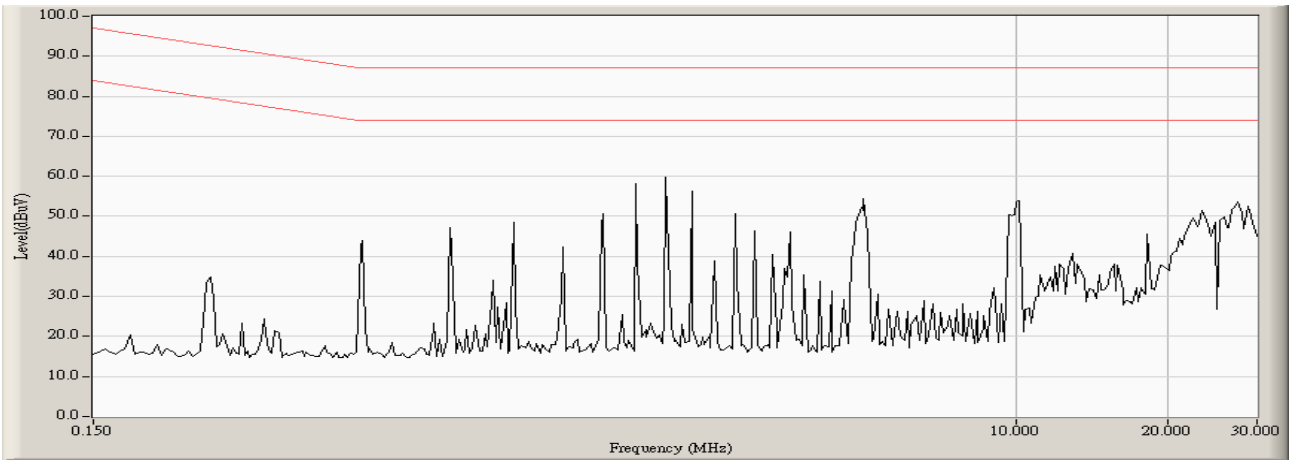


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.248	10.153	37.660	47.813	-33.387	81.200	AVERAGE
2		0.408	10.019	44.580	54.599	-22.030	76.629	AVERAGE
3		0.705	9.916	36.690	46.606	-27.394	74.000	AVERAGE
4		2.705	9.861	33.590	43.451	-30.549	74.000	AVERAGE
5		7.373	9.910	36.970	46.880	-27.120	74.000	AVERAGE
6	*	19.709	10.119	45.510	55.629	-18.371	74.000	AVERAGE

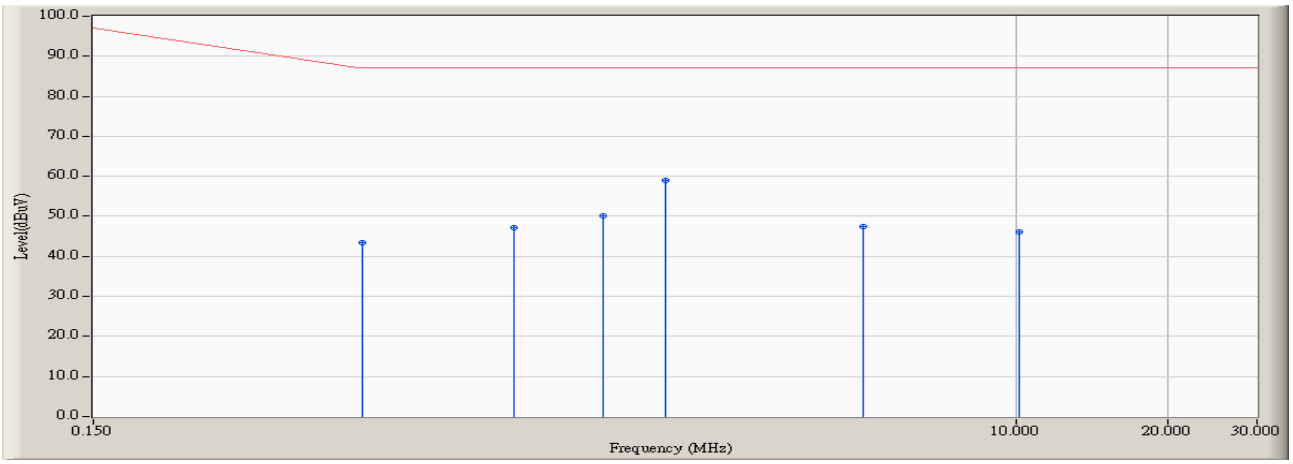
Note:

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 : 2015/12/07 - 11:37**
Limit : ISN_Voltage_A_00M_QP	**Margin : 13**
EUT : Network Camera	**Probe : TESEQ_T8 - Line1**
Power : Power By PoE	**Note : Mode 2,ISN 10M**



Site : SR1	**Time : 2015/12/07 - 11:38**
Limit : ISN_Voltage_A_00M_QP	**Margin : 0**
EUT : Network Camera	**Probe : TESEQ_T8 - Line1**
Power : Power By PoE	**Note : Mode 2,ISN 10M**

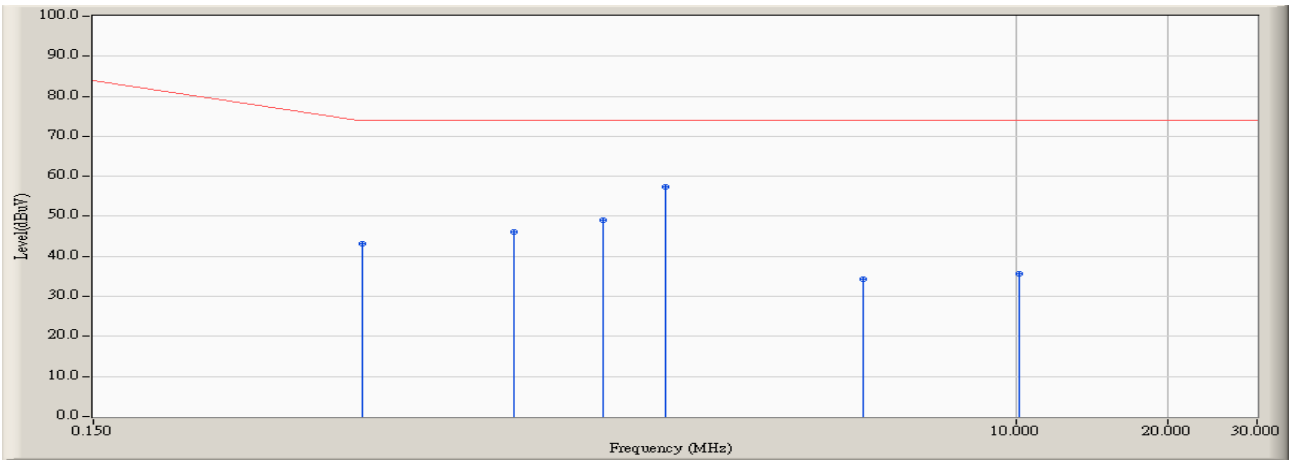


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.509	9.943	33.570	43.512	-43.488	87.000	QUASIPEAK
2		1.017	9.876	37.350	47.226	-39.774	87.000	QUASIPEAK
3		1.525	9.859	40.170	50.029	-36.971	87.000	QUASIPEAK
4	*	2.033	9.852	49.240	59.092	-27.908	87.000	QUASIPEAK
5		5.002	9.873	37.630	47.503	-39.497	87.000	QUASIPEAK
6		10.162	9.945	36.120	46.065	-40.935	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 : 2015/12/07 - 11:38**
Limit : ISN_Voltage_A_00M_AV	**Margin : 0**
EUT : Network Camera	**Probe : TESEQ_T8 - Line1**
Power : Power By PoE	**Note : Mode 2,ISN 10M**

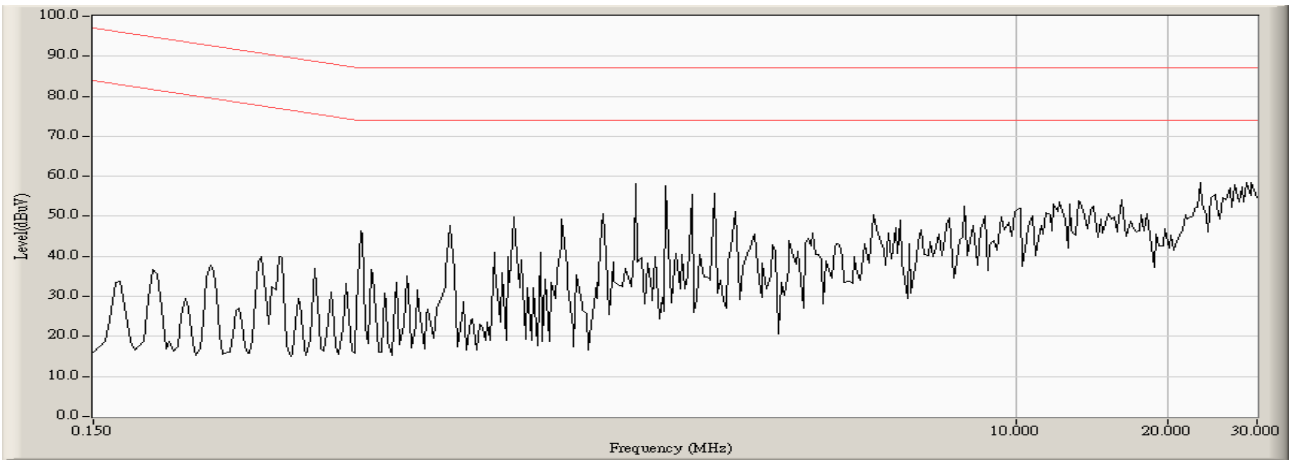


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.509	9.943	33.330	43.272	-30.728	74.000	AVERAGE
2		1.017	9.876	36.280	46.156	-27.844	74.000	AVERAGE
3		1.525	9.859	39.240	49.099	-24.901	74.000	AVERAGE
4	*	2.033	9.852	47.450	57.302	-16.698	74.000	AVERAGE
5		5.002	9.873	24.400	34.273	-39.727	74.000	AVERAGE
6		10.162	9.945	25.640	35.585	-38.415	74.000	AVERAGE

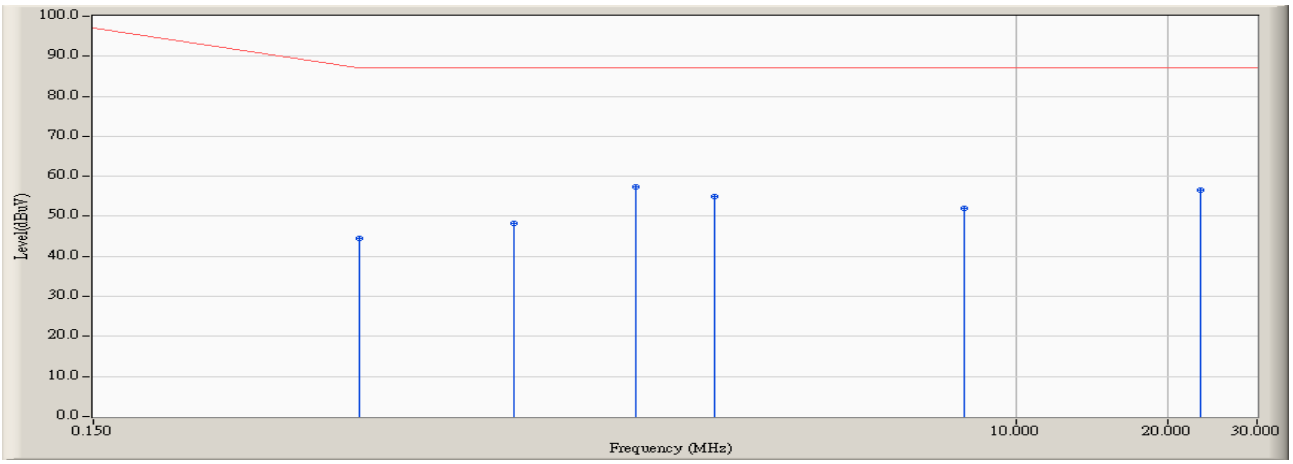
Note:

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 : 2015/12/07 - 11:39**
Limit : ISN_Voltage_A_00M_QP	**Margin : 13**
EUT : Network Camera	**Probe : TESEQ_T8 - Line1**
Power : Power By PoE	**Note : Mode 2,ISN 100M**



Site : SR1	**Time : 2015/12/07 - 11:41**
Limit : ISN_Voltage_A_00M_QP	**Margin : 0**
EUT : Network Camera	**Probe : TESEQ_T8 - Line1**
Power : Power By PoE	**Note : Mode 2,ISN 100M**

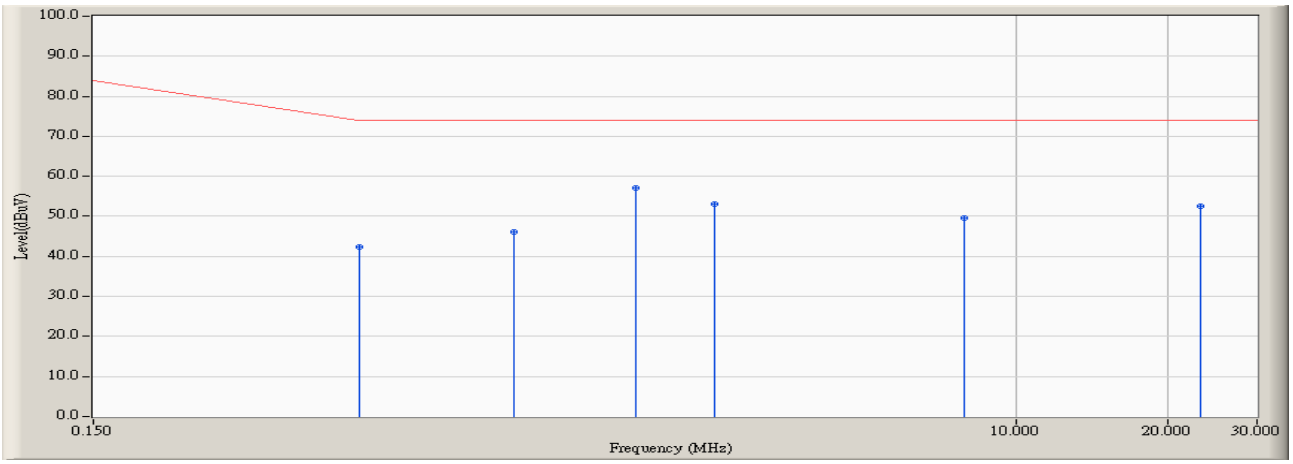


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.505	9.945	34.480	44.424	-42.576	87.000	QUASIPEAK
2		1.017	9.876	38.350	48.226	-38.774	87.000	QUASIPEAK
3	*	1.779	9.854	47.580	57.435	-29.565	87.000	QUASIPEAK
4		2.541	9.858	45.110	54.968	-32.032	87.000	QUASIPEAK
5		7.923	9.918	42.130	52.048	-34.952	87.000	QUASIPEAK
6		23.127	10.230	46.410	56.640	-30.360	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 : 2015/12/07 - 11:41**
Limit : ISN_Voltage_A_00M_AV	**Margin : 0**
EUT : Network Camera	**Probe : TESEQ_T8 - Line1**
Power : 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		0.505	9.945	32.410	42.354	-31.646	74.000	AVERAGE
2		1.017	9.876	36.320	46.196	-27.804	74.000	AVERAGE
3	*	1.779	9.854	47.300	57.155	-16.845	74.000	AVERAGE
4		2.541	9.858	43.250	53.108	-20.892	74.000	AVERAGE
5		7.923	9.918	39.740	49.658	-24.342	74.000	AVERAGE
6		23.127	10.230	42.450	52.680	-21.320	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:FE9381-EHV, DC 12V with AD

Description : Front View of ISN Test

Test Mode : Mode 1:FE9381-EHV, DC 12V with AD

Description : Back View of ISN Test

Test Mode : Mode 1:FE9381-EHV, DC 12V with AD

Description : Back View of ISN Test

Test Mode : Mode 2:FE9381-EHV, Poe

Description : Front View of ISN Test

Test Mode : Mode 2:FE9381-EHV, Poe

Description : Back View of ISN Test

Test Mode : Mode 2:FE9381-EHV, Poe

Description : Back View of ISN Test

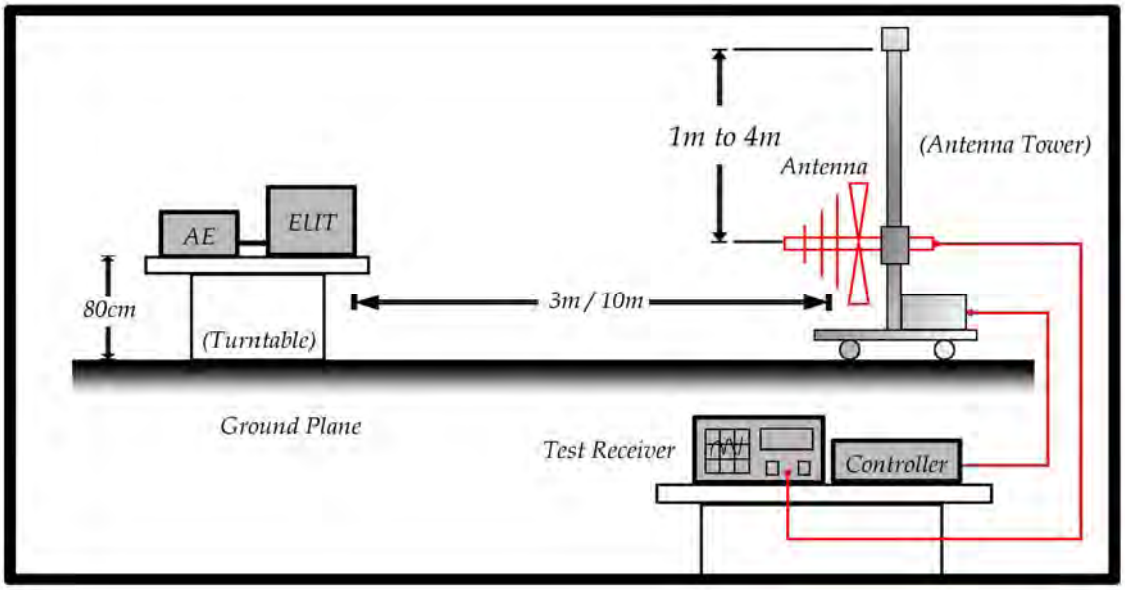
5. Radiated Emission

5.1. Test Specification

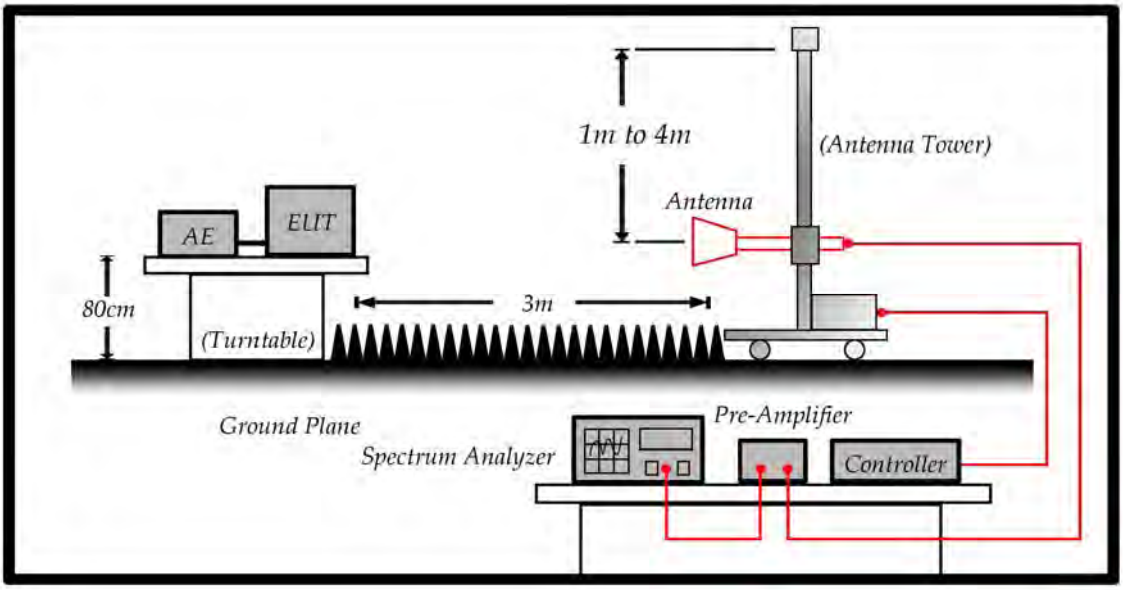
According to EMC Standard : EN 55022 & AS/NZS CISPR 22

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	40
230 – 1000	10	47

Limits			
Frequency (GHz)	Distance (m)	Peak (dBuV/m)	Average (dBuV/m)
1 – 3	3	76	56
3 – 6	3	80	60

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^{th} harmonic of the highest frequency or 6 GHz, whichever is lower

5.4. Test Procedure

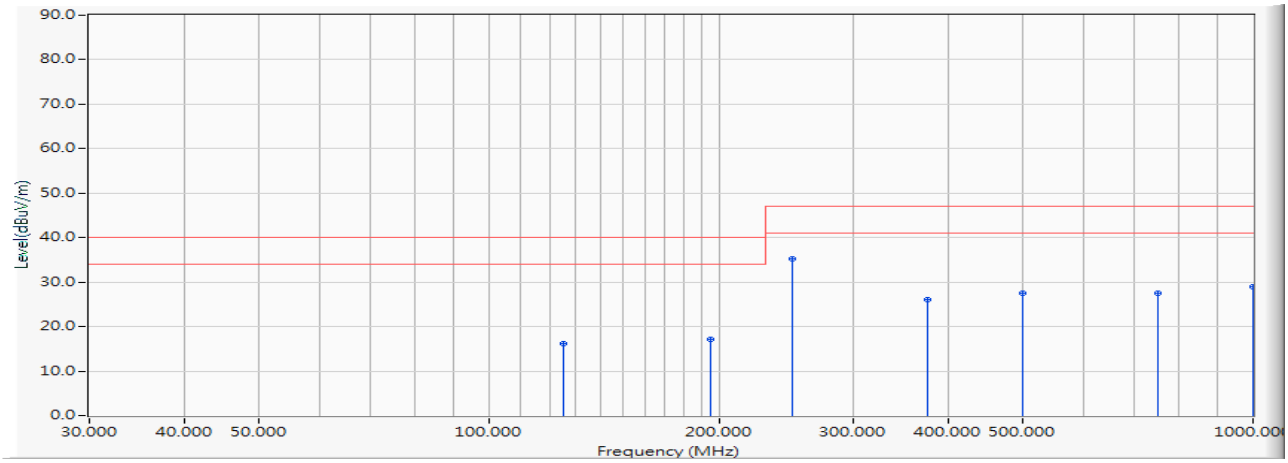
The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3/10 meters.
The antenna can move up and down 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 invested over the frequency range from 30MHz to1GHz using a receiver bandwidth of 120kHz and above 1GHz using a receiver bandwidth of 1MHz.
30MHz to1GHz Radiated was performed at an antenna to EUT distance of 10 meters.
Above1GHz 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 : 2015/12/07 - 10:05**
Limit : CISPR_A_10M_QP	**Margin : 6**
EUT : Network Camera	**Probe : Site7_CBL6112_10M_1506 - HORIZONTAL**
Power : AC 230V/50Hz to DC 12V	**Note : Mode 1**

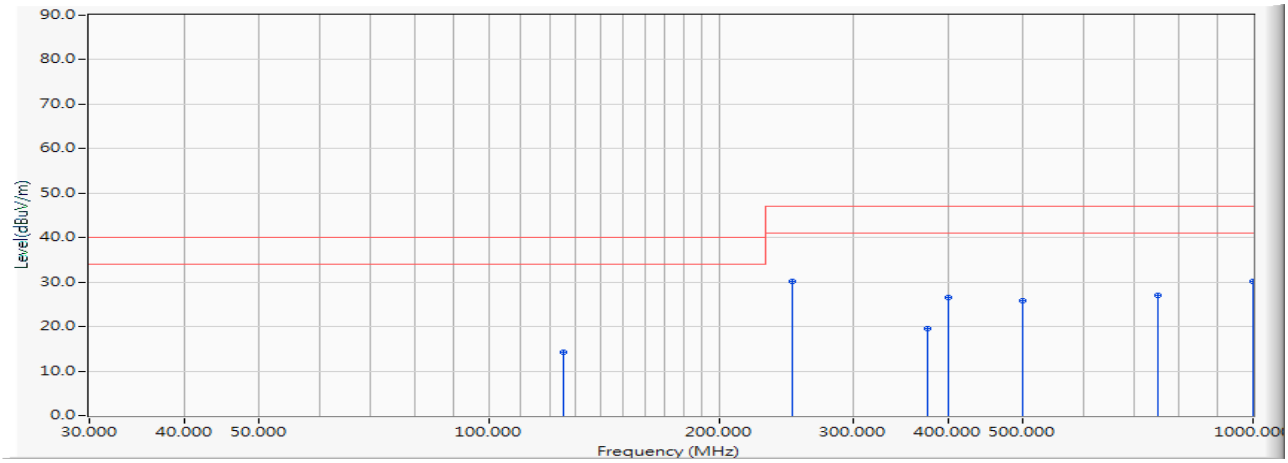


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		125.000	-18.127	34.200	16.072	-23.928	40.000	QUASIPEAK
2		194.600	-20.215	37.400	17.185	-22.815	40.000	QUASIPEAK
3	*	250.000	-16.224	51.400	35.176	-11.824	47.000	QUASIPEAK
4		375.000	-12.303	38.400	26.097	-20.903	47.000	QUASIPEAK
5		500.000	-8.769	36.200	27.431	-19.569	47.000	QUASIPEAK
6		750.000	-4.984	32.600	27.615	-19.385	47.000	QUASIPEAK
7		1000.000	-0.880	29.900	29.020	-17.980	47.000	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 : SITE7	**Time : 2015/12/07 - 09:48**
Limit : CISPR_A_10M_QP	**Margin : 6**
EUT : Network Camera	**Probe : Site7_CBL6112_10M_1506 - VERTICAL**
Power : AC 230V/50Hz to DC 12V	**Note : Mode 1**

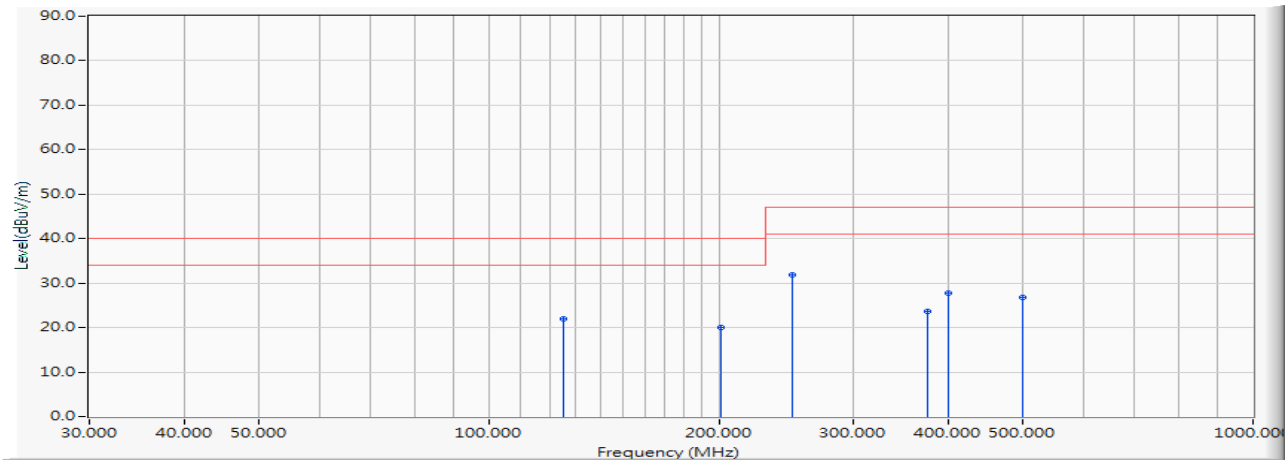


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		125.000	-18.127	32.400	14.272	-25.728	40.000	QUASIPEAK
2		250.000	-16.224	46.300	30.076	-16.924	47.000	QUASIPEAK
3		375.000	-12.303	31.900	19.597	-27.403	47.000	QUASIPEAK
4		400.000	-11.287	37.900	26.613	-20.387	47.000	QUASIPEAK
5		500.000	-8.769	34.700	25.931	-21.069	47.000	QUASIPEAK
6		750.000	-4.984	31.900	26.915	-20.085	47.000	QUASIPEAK
7	*	1000.000	-0.880	31.000	30.120	-16.880	47.000	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 : SITE7	**Time : 2015/12/04 - 16:16**
Limit : CISPR_A_10M_QP	**Margin : 6**
EUT : Network Camera	**Probe : Site7_CBL6112_10M_1506 - HORIZONTAL**
Power : Power By PoE	**Note : Mode 2**

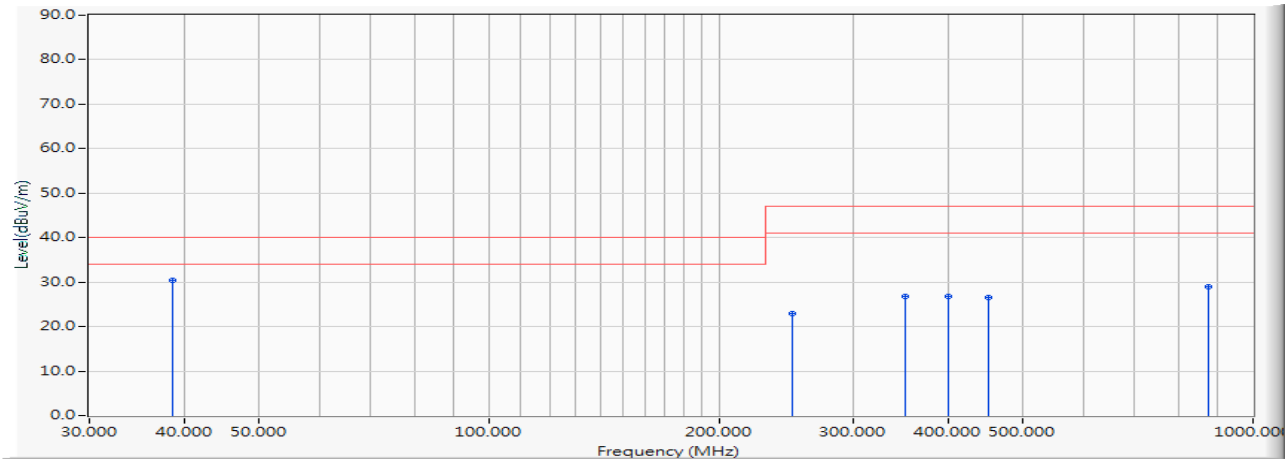


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		125.000	-18.127	40.000	21.872	-18.128	40.000	QUASIPEAK
2		201.600	-19.942	40.000	20.058	-19.942	40.000	QUASIPEAK
3	*	250.000	-16.224	48.000	31.776	-15.224	47.000	QUASIPEAK
4		375.000	-12.303	35.900	23.597	-23.403	47.000	QUASIPEAK
5		400.000	-11.287	39.000	27.713	-19.287	47.000	QUASIPEAK
6		500.000	-8.769	35.500	26.731	-20.269	47.000	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 : SITE7	**Time : 2015/12/04 - 15:59**
Limit : CISPR_A_10M_QP	**Margin : 6**
EUT : Network Camera	**Probe : Site7_CBL6112_10M_1506 - VERTICAL**
Power : Power By PoE	**Note : Mode 2**

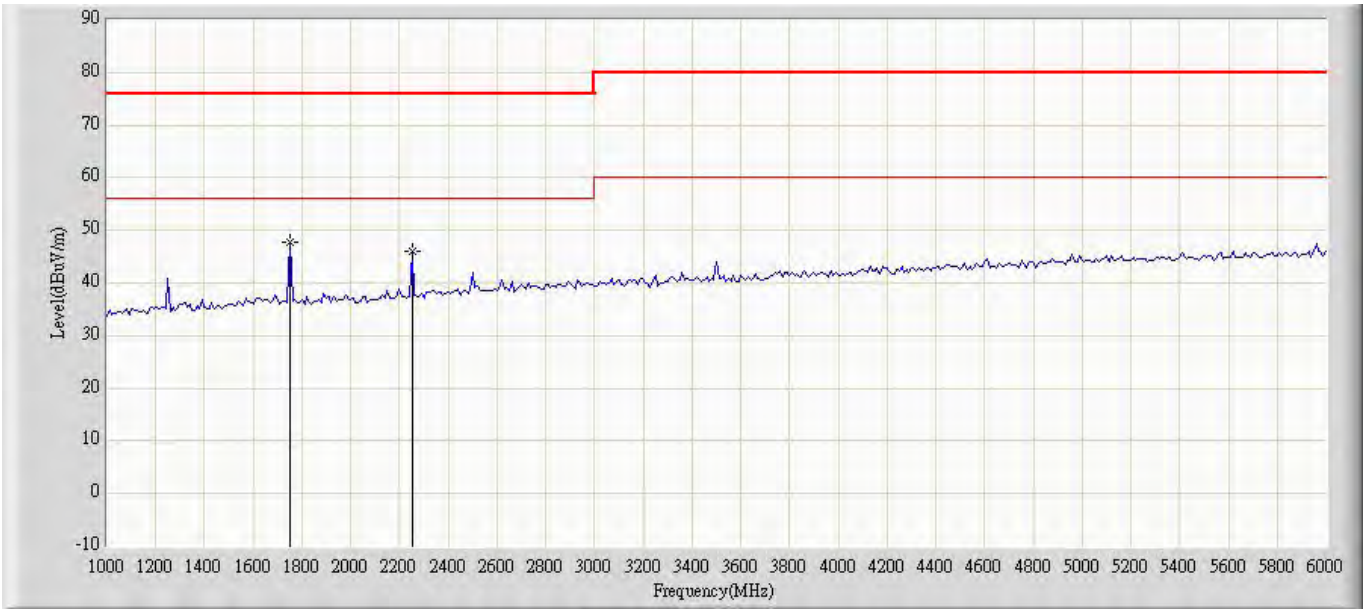


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	38.600	-16.697	47.100	30.404	-9.596	40.000	QUASIPEAK
2		250.000	-16.224	39.200	22.976	-24.024	47.000	QUASIPEAK
3		350.000	-13.314	40.000	26.686	-20.314	47.000	QUASIPEAK
4		400.000	-11.287	38.000	26.713	-20.287	47.000	QUASIPEAK
5		450.000	-9.880	36.500	26.620	-20.380	47.000	QUASIPEAK
6		875.000	-3.078	32.000	28.923	-18.077	47.000	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: CB7	Time: 2015/12/08 - 01:39
Limit: EN55022_A_(Above_1G)	Margin: 0
Probe: CB7_Horn_9120D_1503	Polarity: Horizontal
EUT: Network Camera	Power: AC 230V/50Hz to DC 12V
Note: Mode 1	

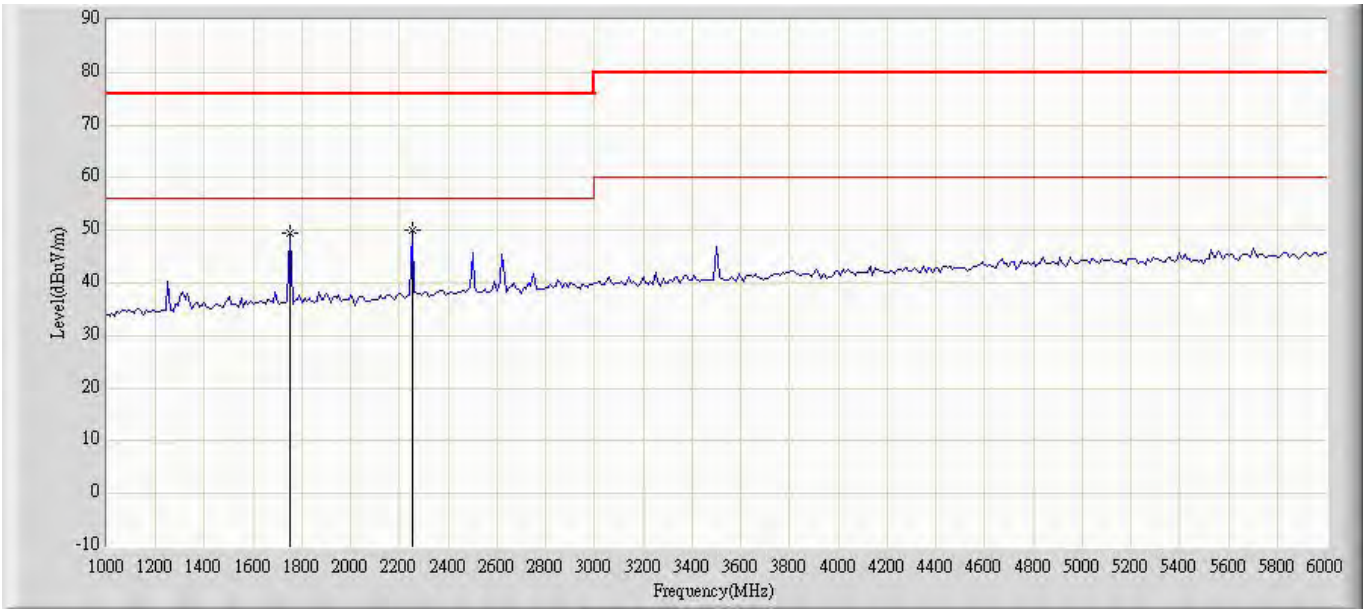


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	1750.000	47.694	44.527	-28.306	76.000	3.167	PK
2			2250.000	46.167	41.553	-29.833	76.000	4.614	PK

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: 2015/12/08 - 01:43
Limit: EN55022_A_(Above_1G)	Margin: 0
Probe: CB7_Horn_9120D_1503	Polarity: Vertical
EUT: Network Camera	Power: AC 230V/50Hz to DC 12V
Note: Mode 1	

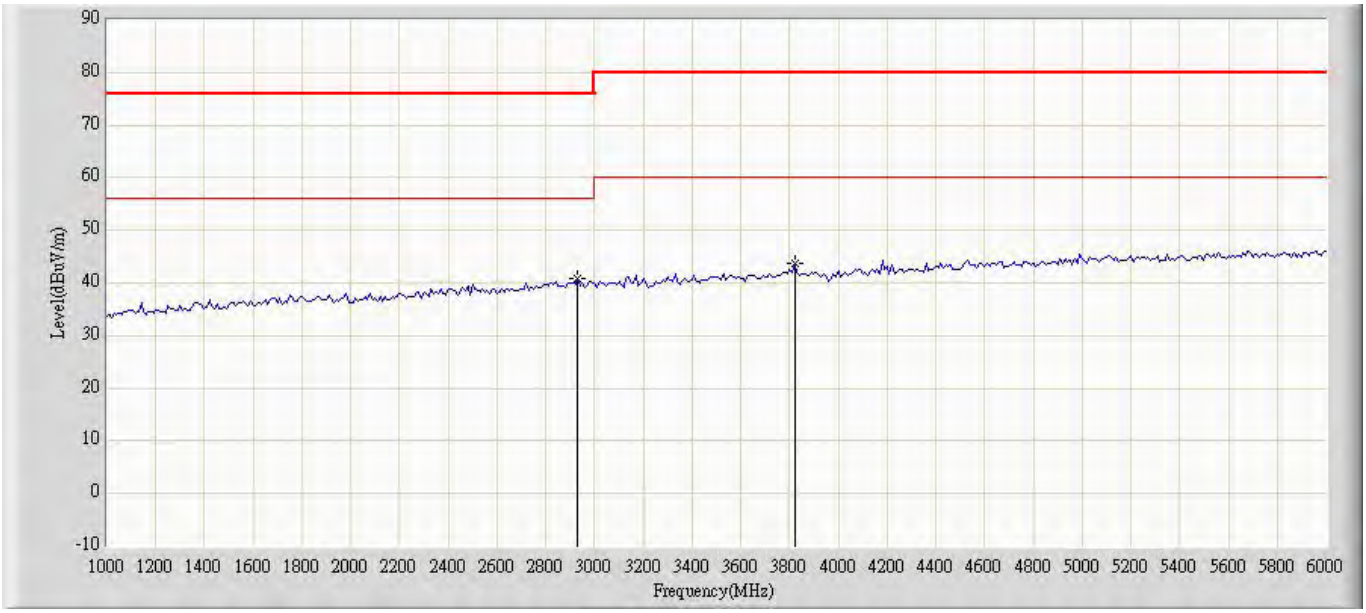


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			1750.000	49.359	46.192	-26.641	76.000	3.167	PK
2		*	2250.000	50.099	45.485	-25.901	76.000	4.614	PK

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: 2015/12/08 - 01:57
Limit: EN55022_A_(Above_1G)	Margin: 0
Probe: CB7_Horn_9120D_1503	Polarity: Horizontal
EUT: Network Camera	Power: Power By PoE
Note: Mode 2	

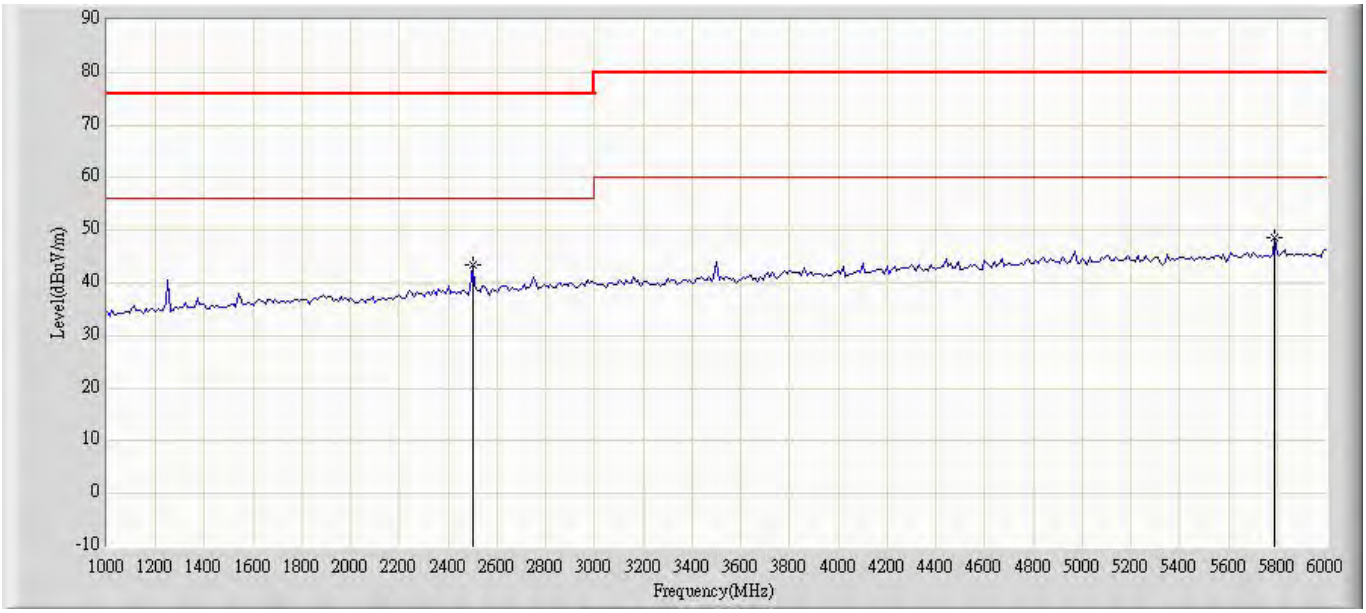


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2930.000	40.807	34.585	-35.193	76.000	6.222	PK
2			3820.000	43.707	36.329	-36.293	80.000	7.378	PK

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: 2015/12/08 - 01:57
Limit: EN55022_A_(Above_1G)	Margin: 0
Probe: CB7_Horn_9120D_1503	Polarity: Vertical
EUT: Network Camera	Power: 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	Type
1			2500.000	43.469	38.276	-32.531	76.000	5.193	PK
2		*	5790.000	48.727	36.726	-31.273	80.000	12.001	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:FE9381-EHV, DC 12V with AD

Description : Front View of Radiated Test

Test Mode : Mode 1:FE9381-EHV, DC 12V with AD

Description : Back View of Radiated Test

Test Mode : Mode 1:FE9381-EHV, DC 12V with AD

Description : Front View of High Frequency Radiated Test

Test Mode : Mode 2:FE9381-EHV, Poe

Description : Front View of Radiated Test

Test Mode : Mode 2:FE9381-EHV, Poe

Description : Back View of Radiated Test

Test Mode : Mode 2:FE9381-EHV, Poe

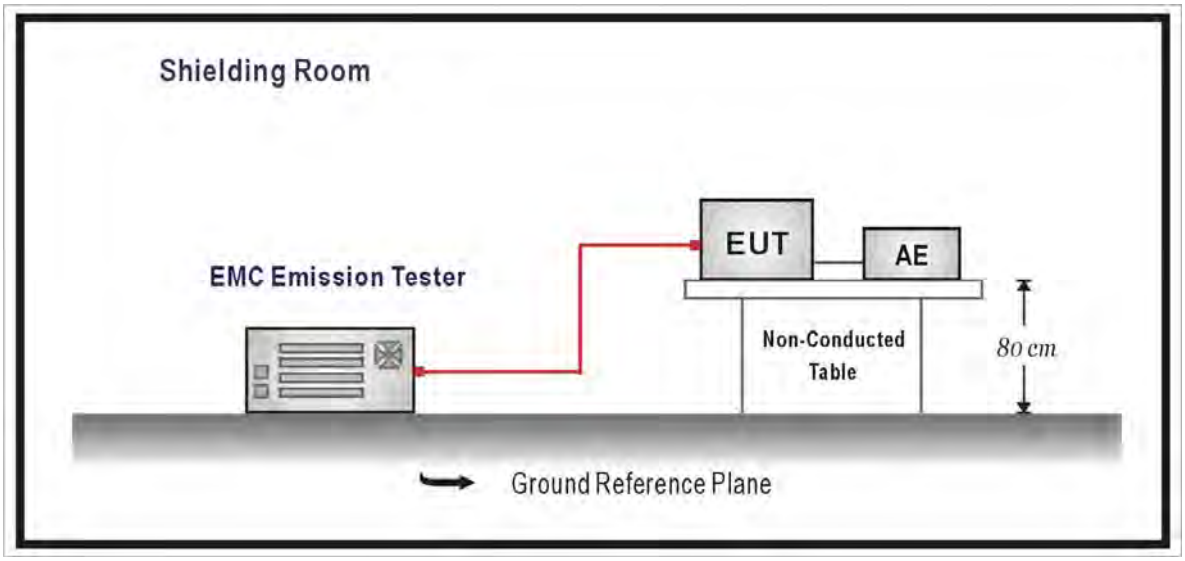
Description : Front View of High Frequency Radiated Test

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
∗λ 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

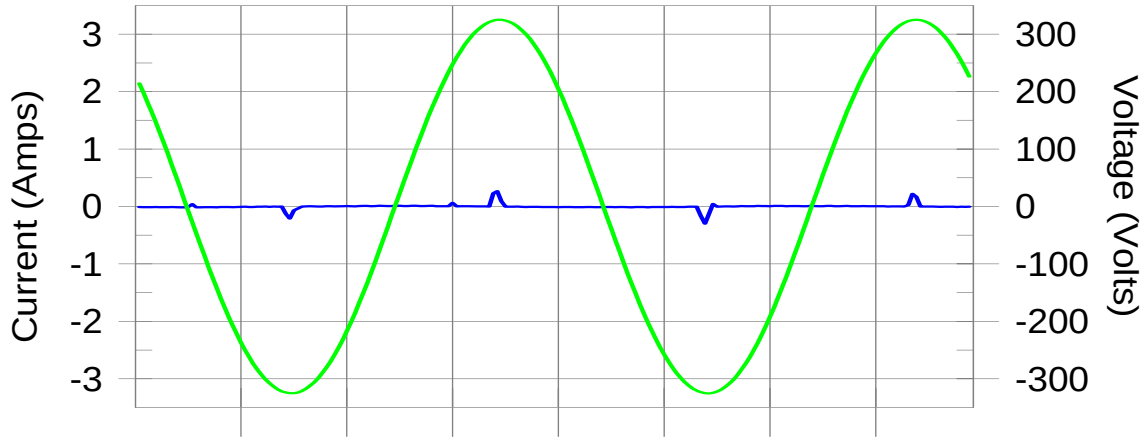
No deviation.

6.6. Test Result

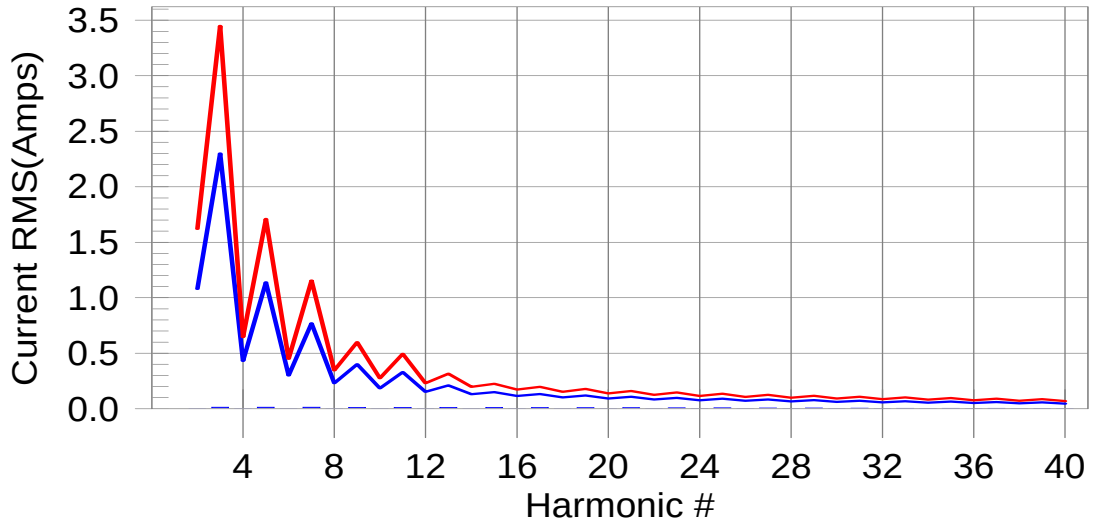
Product	Network Camera		
Test Item	Power Harmonics		
Test Mode	Mode 1:FE9381-EHV, DC 12V with AD		
Date of Test	2015/12/10	Test Site	No.3 Shielded Room

Test Result: Pass Source qualification: Normal

Current & voltage waveforms



Harmonics and Class A limit line European Limits



Test result: Pass Worst harmonic was #23 with 8.9% of the limit.

Test Result: Pass Source qualification: Normal
THC(A): 0.043 I-THD(%): 263.5 POHC(A): 0.019 POHC Limit(A): 0.251
Highest parameter values during test:

V_RMS (Volts):	230.08	Frequency(Hz):	50.00
I_Peak (Amps):	1.792	I_RMS (Amps):	0.055
I_Fund (Amps):	0.017	Crest Factor:	32.808
Power (Watts):	3.3	Power Factor:	0.314

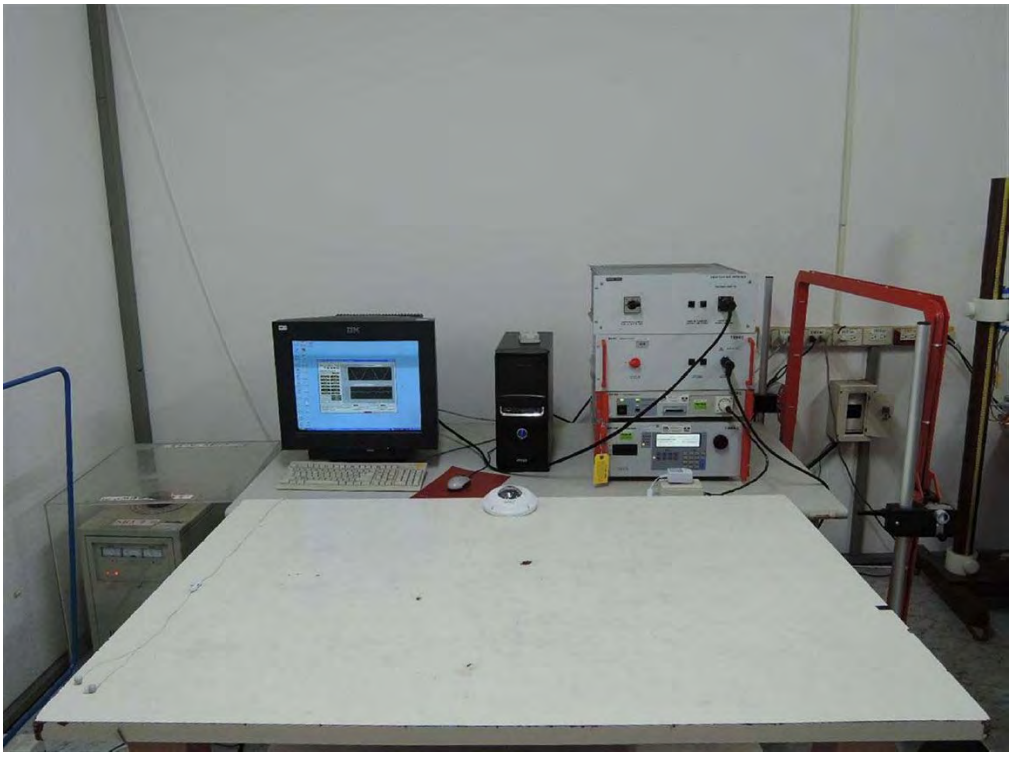
Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	1.080	N/A	0.002	1.620	N/A	Pass
3	0.014	2.300	0.6	0.014	3.450	0.4	Pass
4	0.002	0.430	N/A	0.002	0.645	N/A	Pass
5	0.014	1.140	1.2	0.014	1.710	0.8	Pass
6	0.002	0.300	N/A	0.002	0.450	N/A	Pass
7	0.014	0.770	1.8	0.014	1.155	1.2	Pass
8	0.002	0.230	N/A	0.003	0.345	N/A	Pass
9	0.013	0.400	3.3	0.013	0.600	2.2	Pass
10	0.002	0.184	N/A	0.002	0.276	N/A	Pass
11	0.013	0.330	3.9	0.013	0.495	2.6	Pass
12	0.002	0.153	N/A	0.002	0.230	N/A	Pass
13	0.012	0.210	5.8	0.012	0.315	4.0	Pass
14	0.002	0.131	N/A	0.002	0.197	N/A	Pass
15	0.012	0.150	7.7	0.012	0.225	5.3	Pass
16	0.002	0.115	N/A	0.002	0.173	N/A	Pass
17	0.011	0.132	8.3	0.011	0.198	5.6	Pass
18	0.002	0.102	N/A	0.002	0.153	N/A	Pass
19	0.010	0.118	8.6	0.010	0.178	5.9	Pass
20	0.002	0.092	N/A	0.002	0.138	N/A	Pass
21	0.009	0.107	8.9	0.010	0.161	6.1	Pass
22	0.002	0.084	N/A	0.002	0.125	N/A	Pass
23	0.009	0.098	8.9	0.009	0.147	6.1	Pass
24	0.001	0.077	N/A	0.002	0.115	N/A	Pass
25	0.008	0.090	8.8	0.008	0.135	6.0	Pass
26	0.001	0.071	N/A	0.002	0.107	N/A	Pass
27	0.007	0.083	8.5	0.007	0.125	5.9	Pass
28	0.001	0.066	N/A	0.002	0.099	N/A	Pass
29	0.006	0.078	8.1	0.007	0.116	5.7	Pass
30	0.001	0.061	N/A	0.002	0.092	N/A	Pass
31	0.006	0.073	7.6	0.006	0.109	5.3	Pass
32	0.001	0.058	N/A	0.002	0.086	N/A	Pass
33	0.005	0.068	N/A	0.005	0.102	N/A	Pass
34	0.001	0.054	N/A	0.002	0.081	N/A	Pass
35	0.004	0.064	N/A	0.004	0.096	N/A	Pass
36	0.001	0.051	N/A	0.002	0.077	N/A	Pass
37	0.003	0.061	N/A	0.004	0.091	N/A	Pass
38	0.001	0.048	N/A	0.002	0.073	N/A	Pass
39	0.003	0.058	N/A	0.003	0.087	N/A	Pass
40	0.001	0.046	N/A	0.002	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:FE9381-EHV, DC 12V with AD

Description : Power Harmonics Test Setup

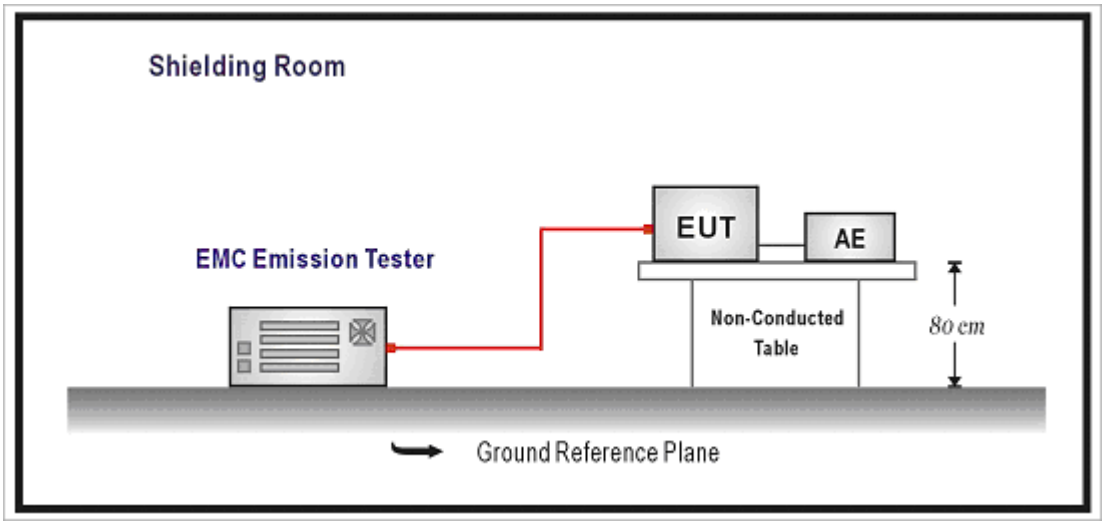


7. Voltage Fluctuation and Flicker

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_{lt} 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

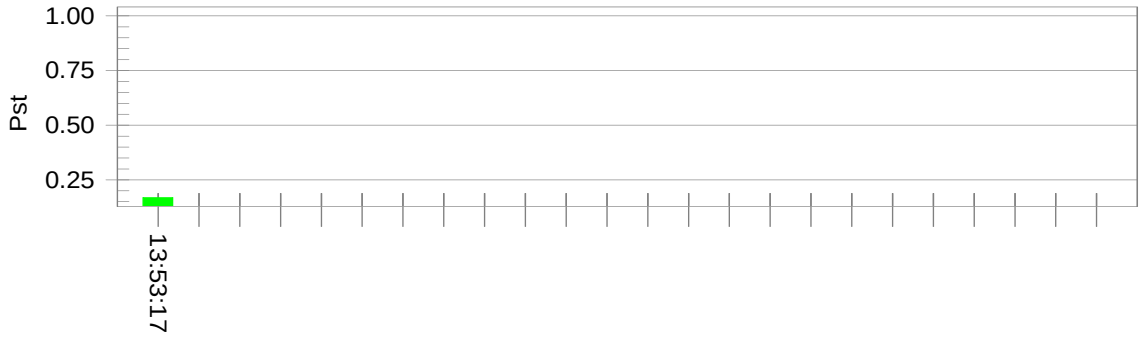
No deviation.

7.6. Test Result

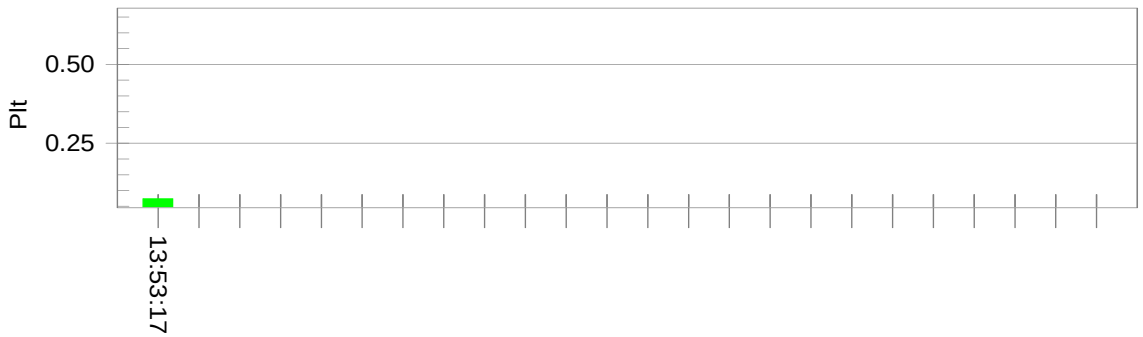
Product	Network Camera		
Test Item	Voltage Fluctuation and Flicker		
Test Mode	Mode 1:FE9381-EHV, DC 12V with AD		
Date of Test	2015/12/10	Test Site	No.3 Shielded Room

Test Result: Pass Status: Test Completed

Pst_1 and limit line European Limits



Plt and limit line



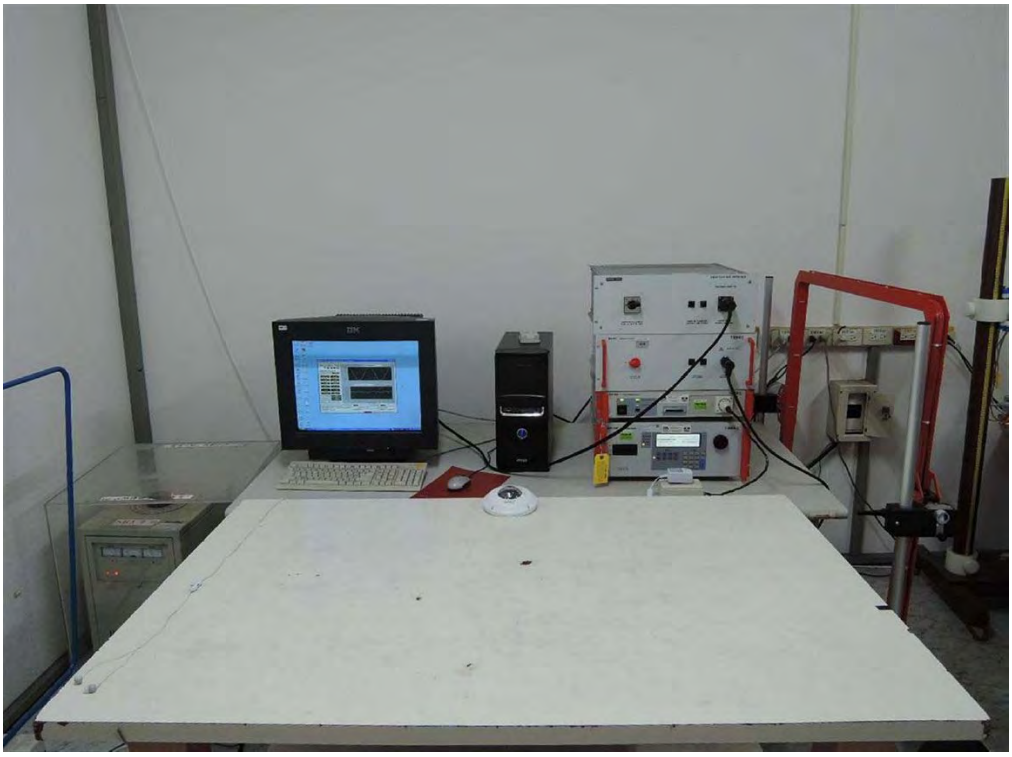
Parameter values recorded during the test:

Vrms at the end of test (Volt):	230.01			
Highest dt (%):	0.00	Test limit (%):	N/A	N/A
T-max (mS):	0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	-0.02	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.169	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.074	Test limit:	0.650	Pass

7.7. Test Photograph

Test Mode : Mode 1:FE9381-EHV, DC 12V with AD

Description : Flicker Test Setup

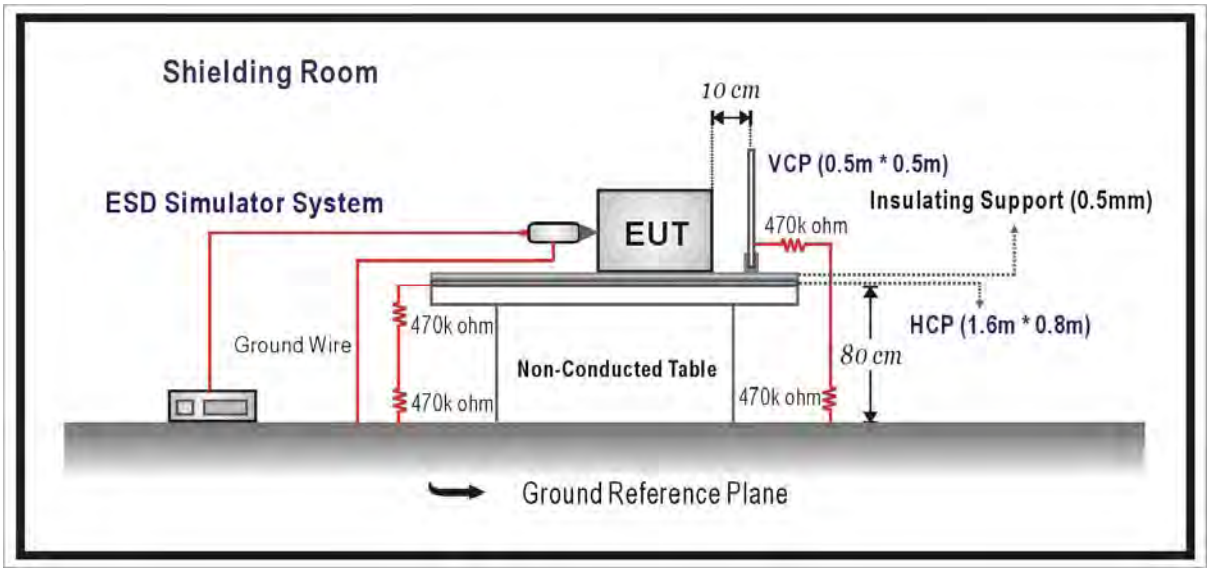


8. Electrostatic Discharge

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.

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:FE9381-EHV, DC 12V with AD		
Date of Test	2015/12/10	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	A	Pass
	25	-4kV	B	A	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:FE9381-EHV, Poe		
Date of Test	2015/12/10	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	A	Pass
	25	-4kV	B	A	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.

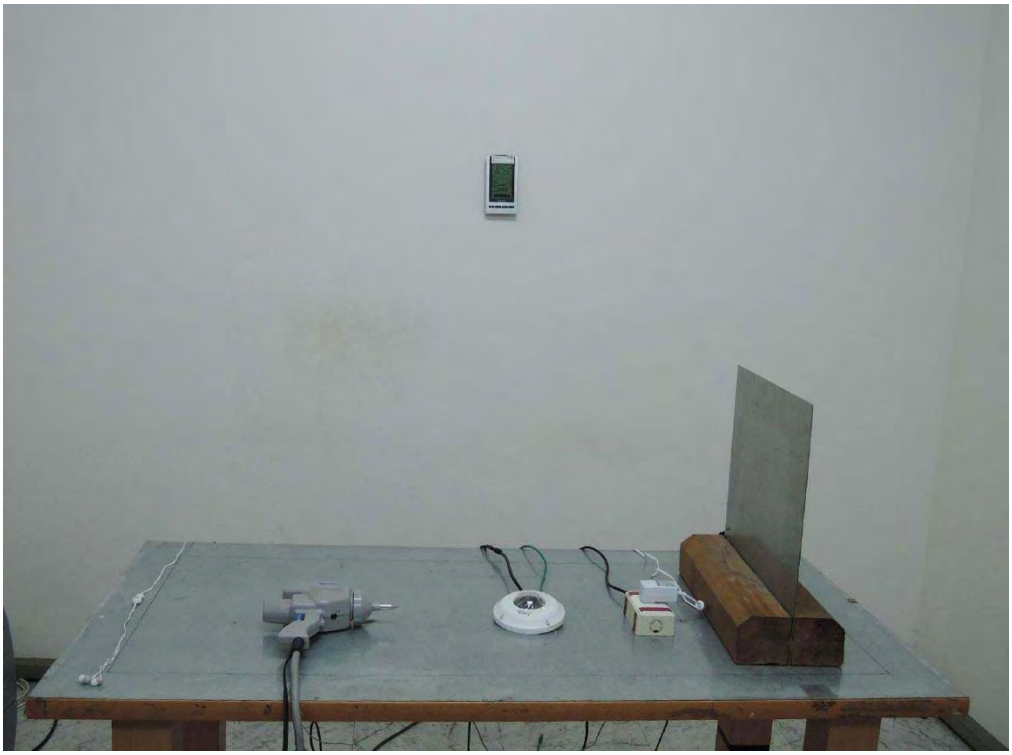
Remark:

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

8.7. Test Photograph

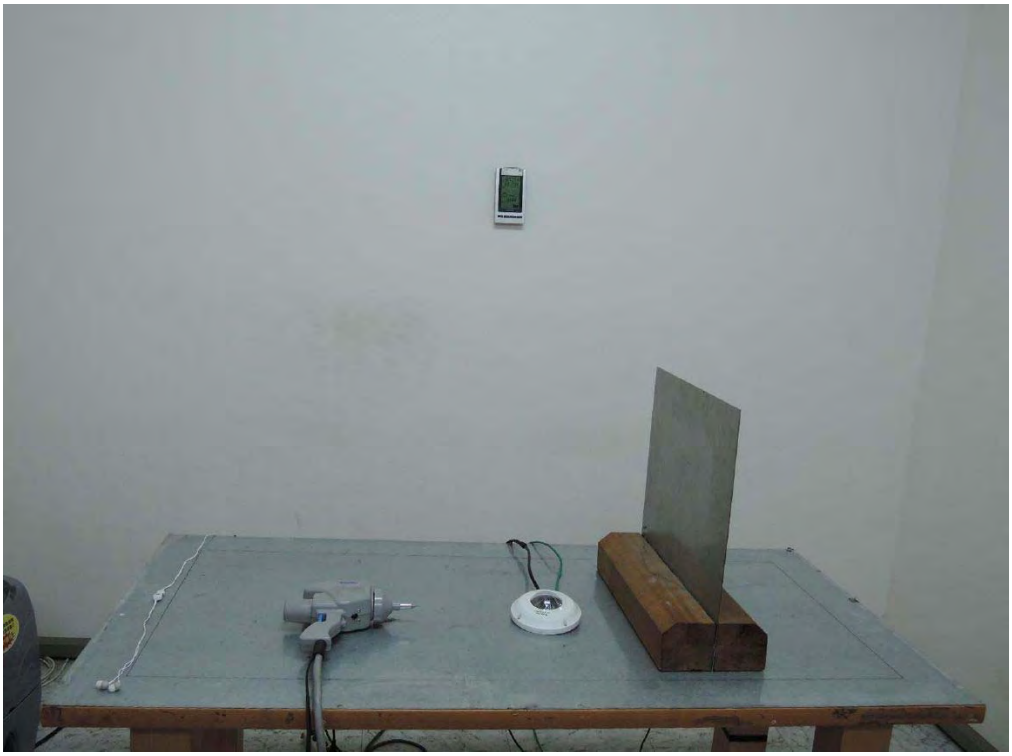
Test Mode : Mode 1:FE9381-EHV, DC 12V with AD

Description : ESD Test Setup



Test Mode : Mode 2:FE9381-EHV, Poe

Description : ESD Test Setup

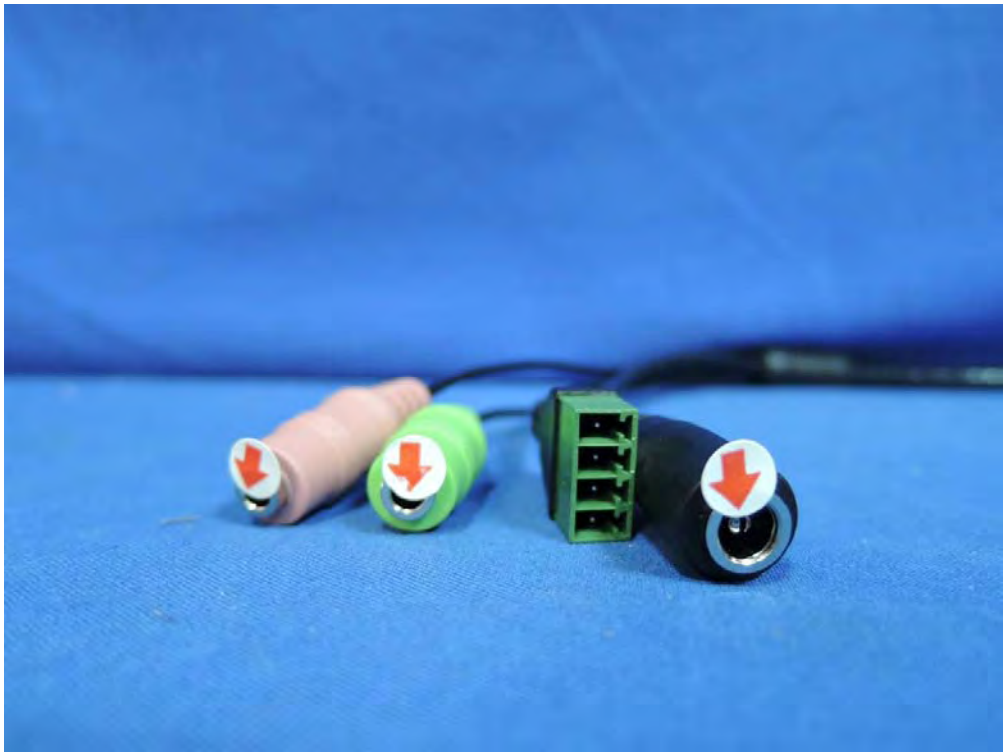


8.8. EUT to dot photo for ESD test

Test dot : (Contact Discharge) (M/N:FE9381-EHV)

Test dot : (Contact Discharge)

Test dot : (Contact Discharge)

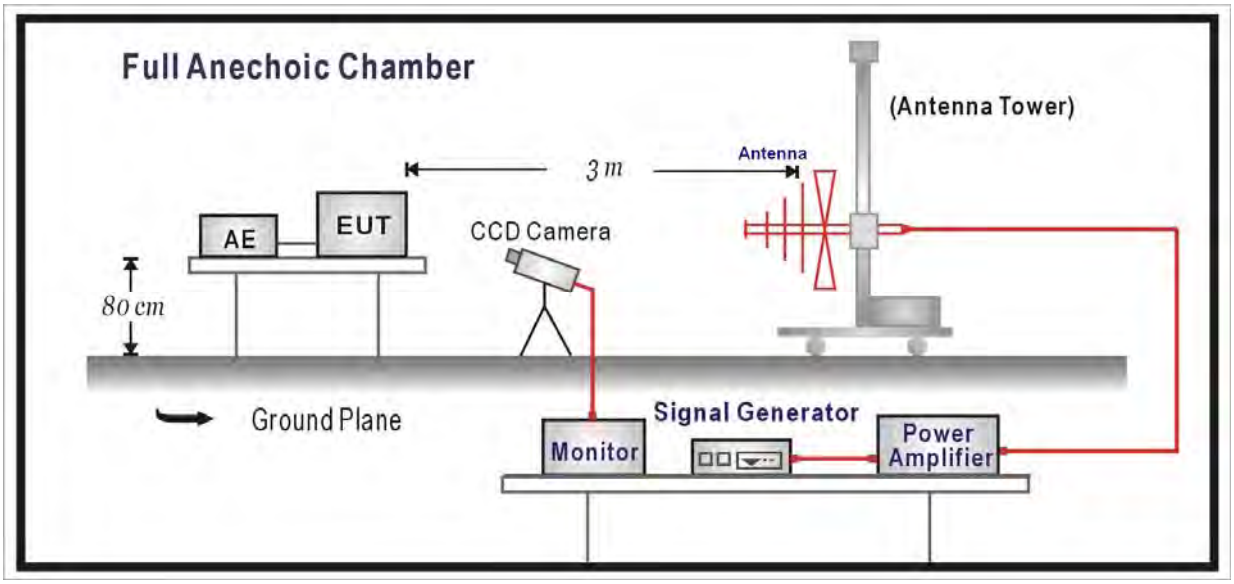


9. Radiated Susceptibility

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 Δf :	1%
6.	The rate of Swept of Frequency	1.5 x 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:FE9381-EHV, DC 12V with AD		
Date of Test	2015/12/10	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	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:FE9381-EHV, Poe		
Date of Test	2015/12/10	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	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.

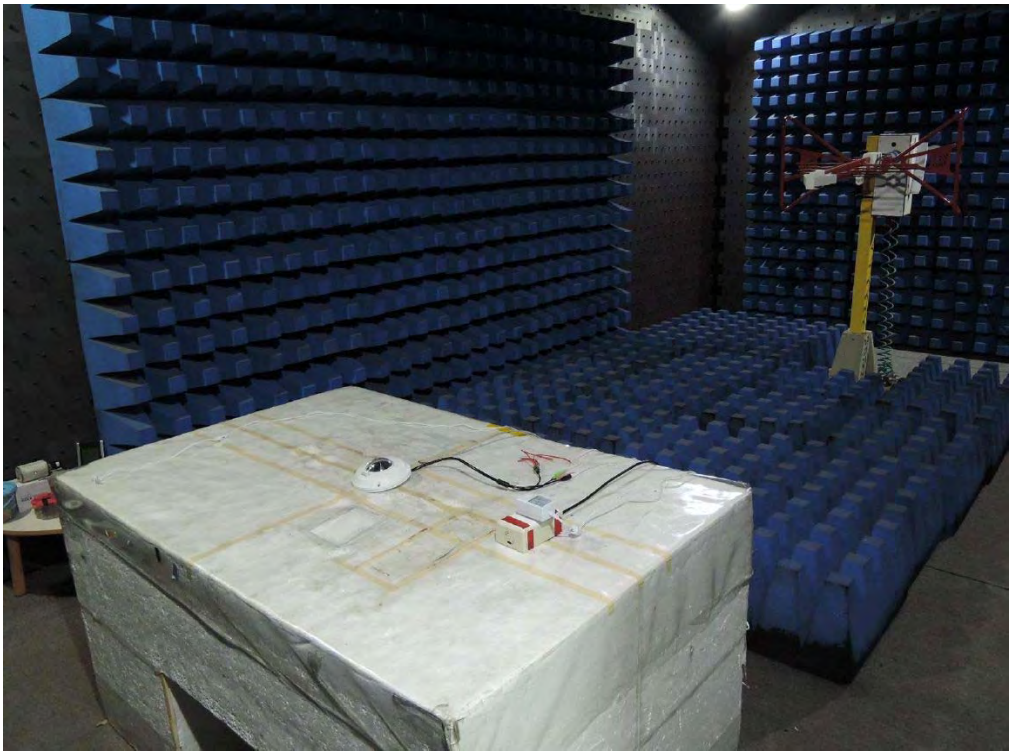
☒ Meet criteria A: Operate as intended during and after the test
☐ Meet criteria B: Operate as intended after the test
☐ Meet criteria C: Loss/Error of function
☐ Additional Information
  ☐ There was no observable degradation in performance.
  ☐ EUT stopped operation and could / could not be reset by 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:FE9381-EHV, DC 12V with AD

Description : Radiated Susceptibility Test Setup (Back)



Test Mode : Mode 1:FE9381-EHV, DC 12V with AD

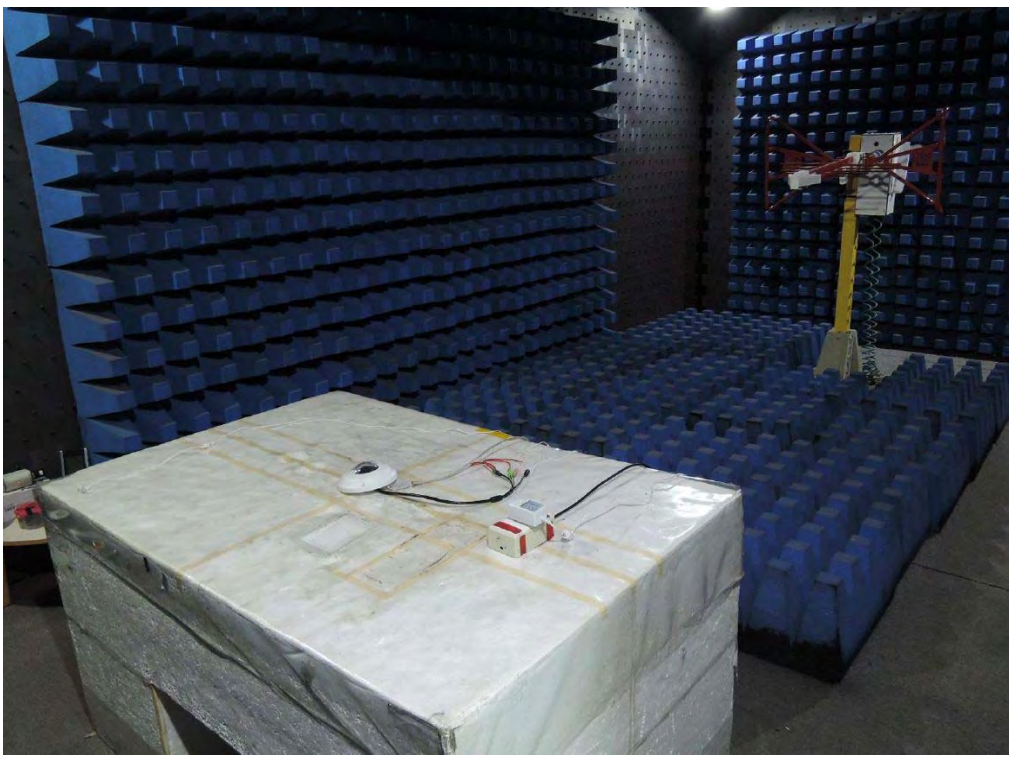
Description : Radiated Susceptibility Test Setup (Left)

Test Mode : Mode 1:FE9381-EHV, DC 12V with AD

Description : Radiated Susceptibility Test Setup (Front)

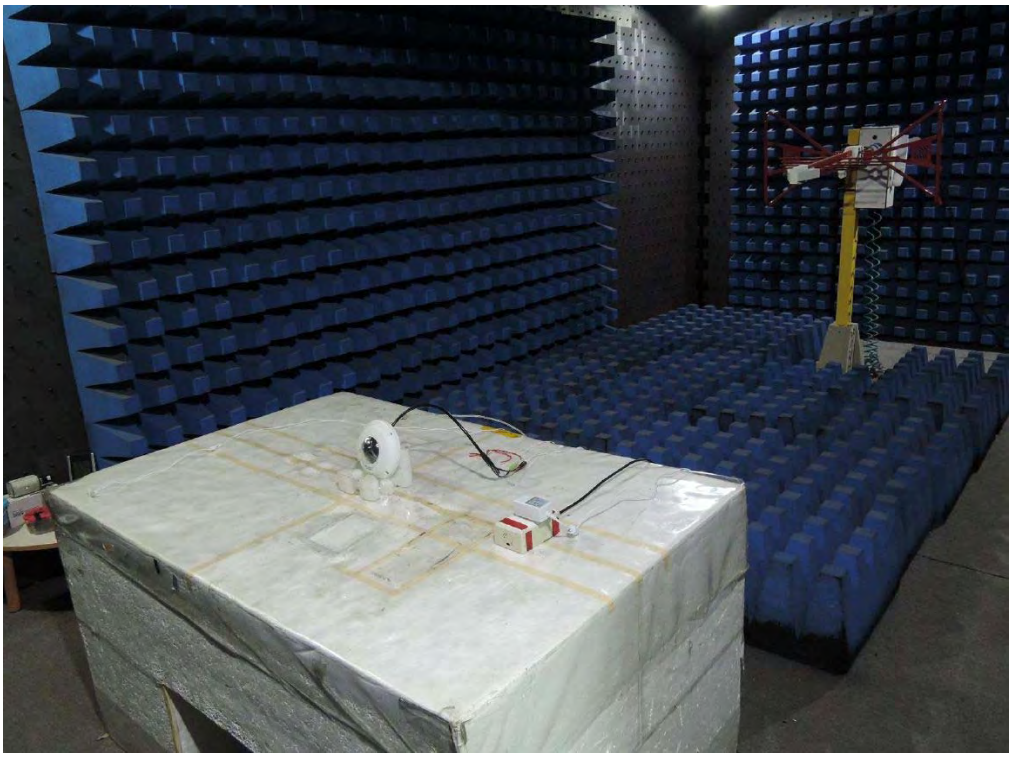
Test Mode : Mode 1:FE9381-EHV, DC 12V with AD

Description : Radiated Susceptibility Test Setup (Right)



Test Mode : Mode 1:FE9381-EHV, DC 12V with AD

Description : Radiated Susceptibility Test Setup (Down)



Test Mode : Mode 1:FE9381-EHV, DC 12V with AD

Description : Radiated Susceptibility Test Setup (Up)

Test Mode : Mode 2:FE9381-EHV, Poe

Description : Radiated Susceptibility Test Setup (Back)

Test Mode : Mode 2:FE9381-EHV, Poe

Description : Radiated Susceptibility Test Setup (Left)

Test Mode : Mode 2:FE9381-EHV, Poe

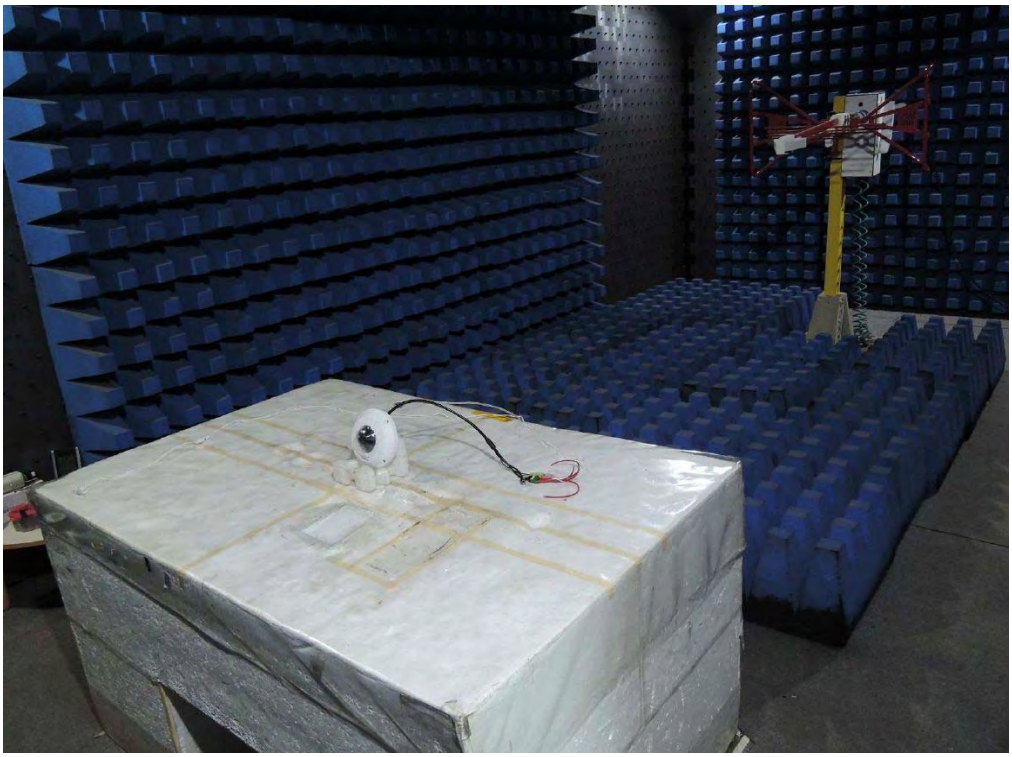
Description : Radiated Susceptibility Test Setup (Front)

Test Mode : Mode 2:FE9381-EHV, Poe

Description : Radiated Susceptibility Test Setup (Right)

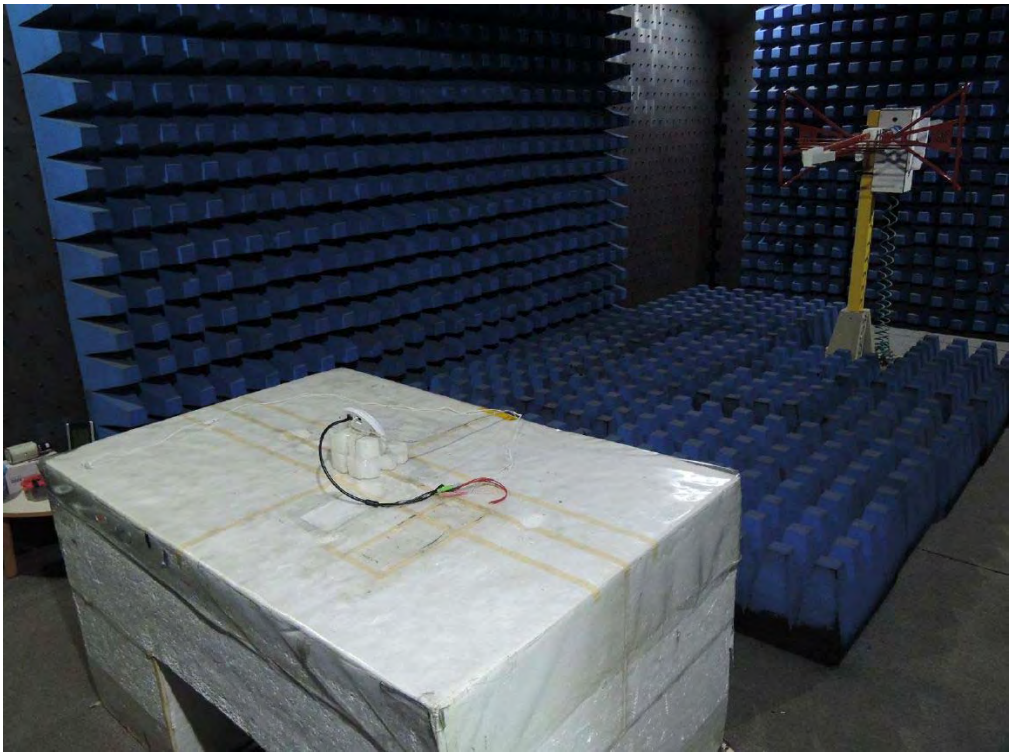
Test Mode : Mode 2:FE9381-EHV, Poe

Description : Radiated Susceptibility Test Setup (Down)



Test Mode : Mode 2:FE9381-EHV, Poe

Description : Radiated Susceptibility Test Setup (Up)

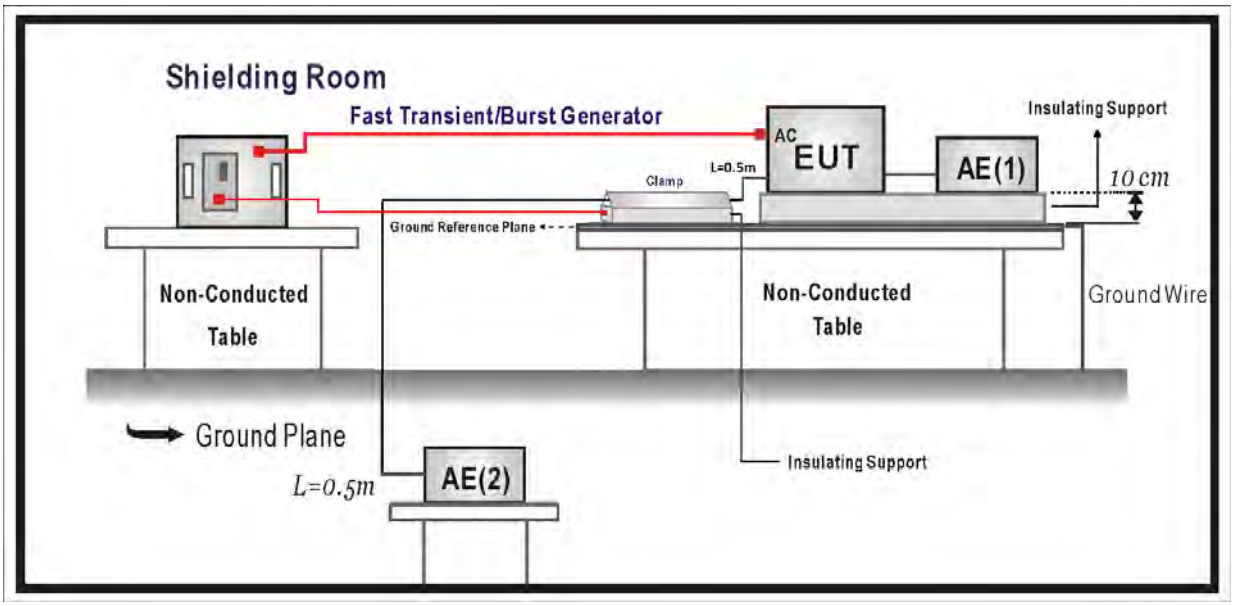


10. Electrical Fast Transient/Burst

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:FE9381-EHV, DC 12V with AD		
Date of Test	2015/12/11	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	Direct	B	A	PASS
N	±	1kV	60	Direct	B	A	PASS
L-N	±	1kV	60	Direct	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:FE9381-EHV, Poe		
Date of Test	2015/12/11	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	A	PASS

Note:

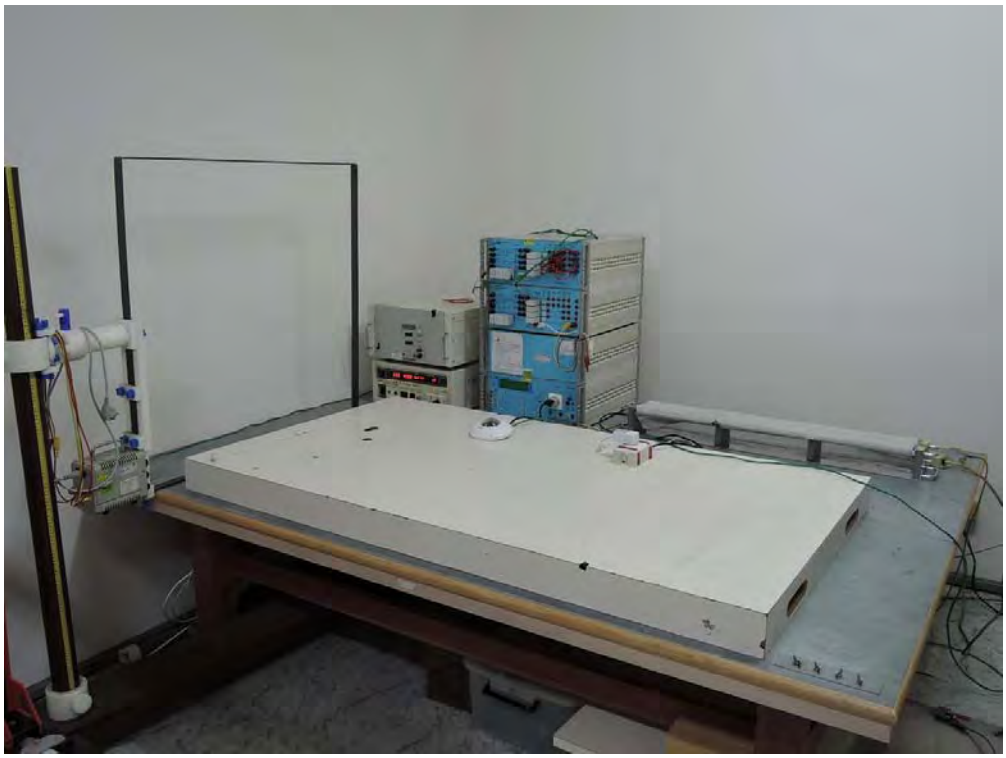
The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

☒ 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:FE9381-EHV, DC 12V with AD

Description : EFT/B Test Setup



Test Mode : Mode 1:FE9381-EHV, DC 12V with AD

Description : EFT/B Test Setup - Clamp

Test Mode : Mode 2:FE9381-EHV, Poe

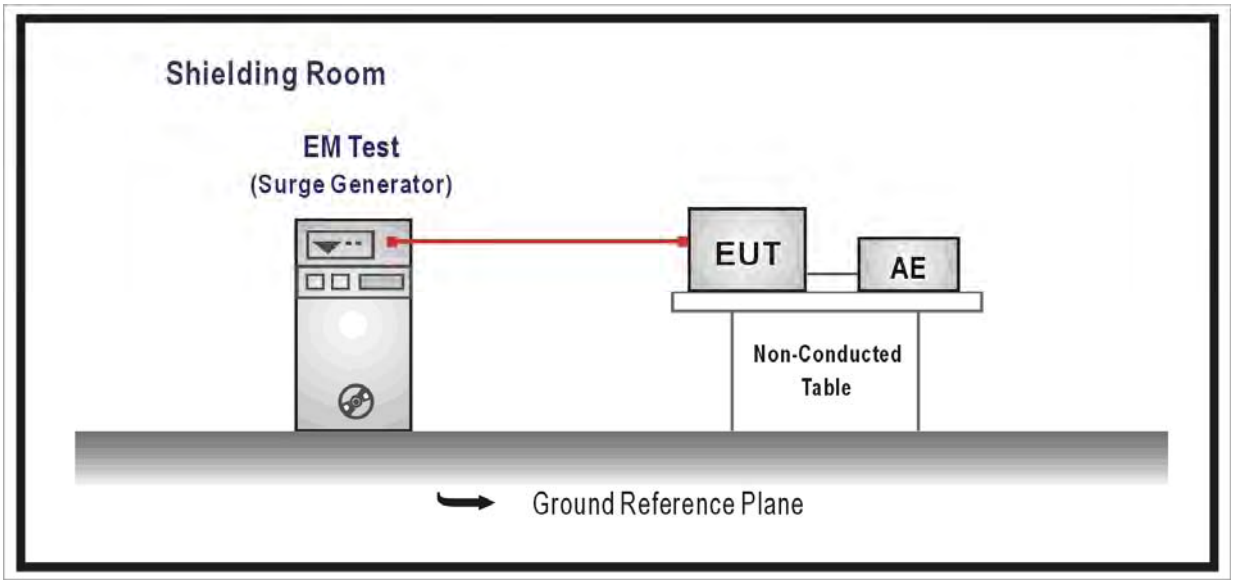
Description : EFT/B Test Setup - Clamp

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 specification may connect directly to outdoor cables.
2) Where the coupling network for the 10/700 µs waveform affects the functioning of high speed data ports, the test shall be carried out using a 1,2/50 (8/20) µs waveform and appropriate coupling network.

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 0^0, 90^0, 180^0, 270^0 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:FE9381-EHV, DC 12V with AD		
Date of Test	2015/12/12	Test Site	No.3 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
LAN	±	1kV	--	60	Direct	C	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	Surge		
Test Mode	Mode 2:FE9381-EHV, Poe		
Date of Test	2015/12/12	Test Site	No.3 Shielded Room

Inject Line	Polarity	Voltage kV	Angle	Time Interval (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
LAN	±	1kV	--	60	Direct	C	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.

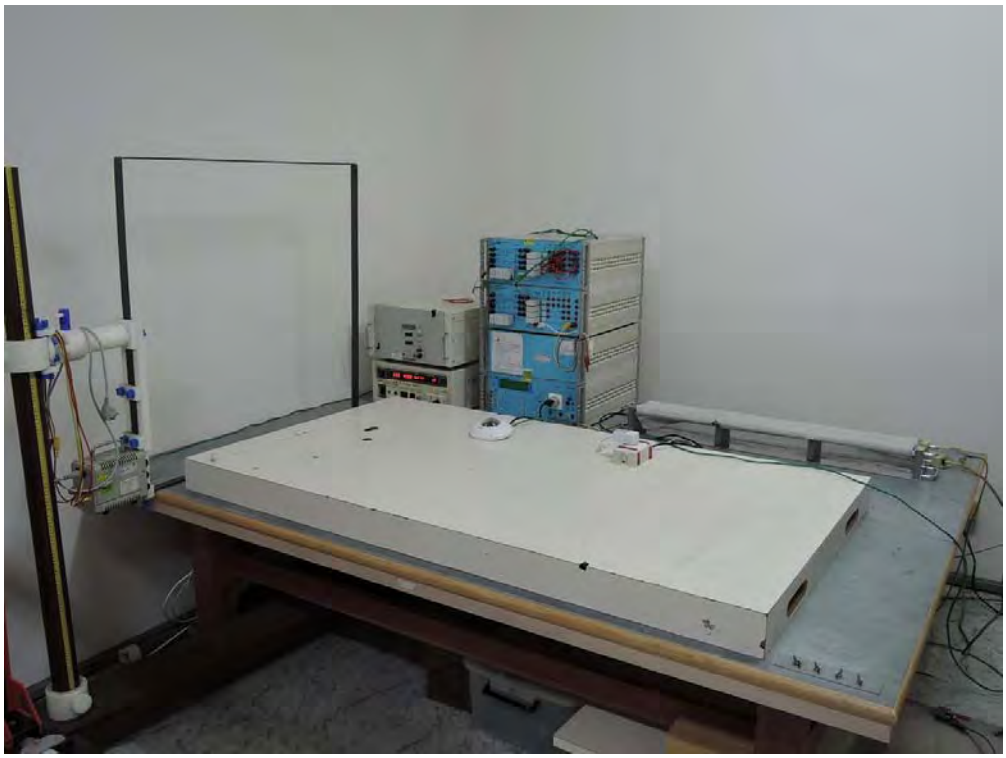
☒ Meet criteria A : Operate as intended during and after the test
☐ Meet criteria B : Operate as intended after the test
☐ Meet criteria C : Loss/Error of function
☐ Additional Information
☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.

☒ No false alarms or other malfunctions were observed during or after the test.

11.7. Test Photograph

Test Mode : Mode 1:FE9381-EHV, DC 12V with AD

Description : SURGE Test Setup



Test Mode : Mode 1:FE9381-EHV, DC 12V with AD

Description : SURGE Test Setup-LAN

Test Mode : Mode 2:FE9381-EHV, Poe

Description : SURGE Test Setup-LAN

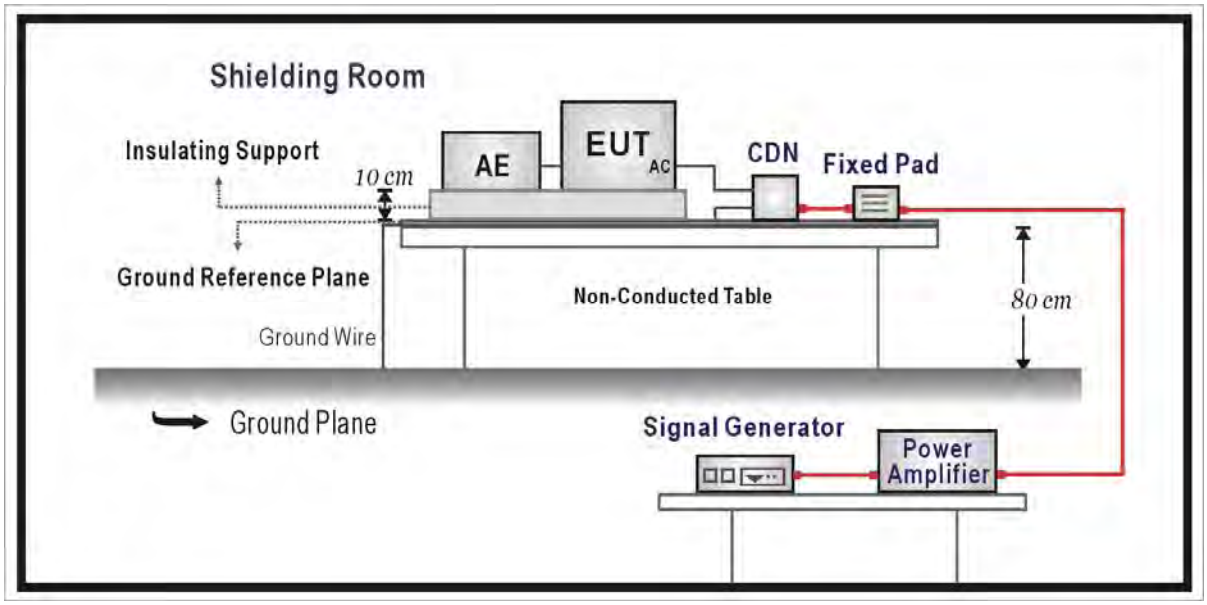
12. Conducted Susceptibility

12.1. Test Specification

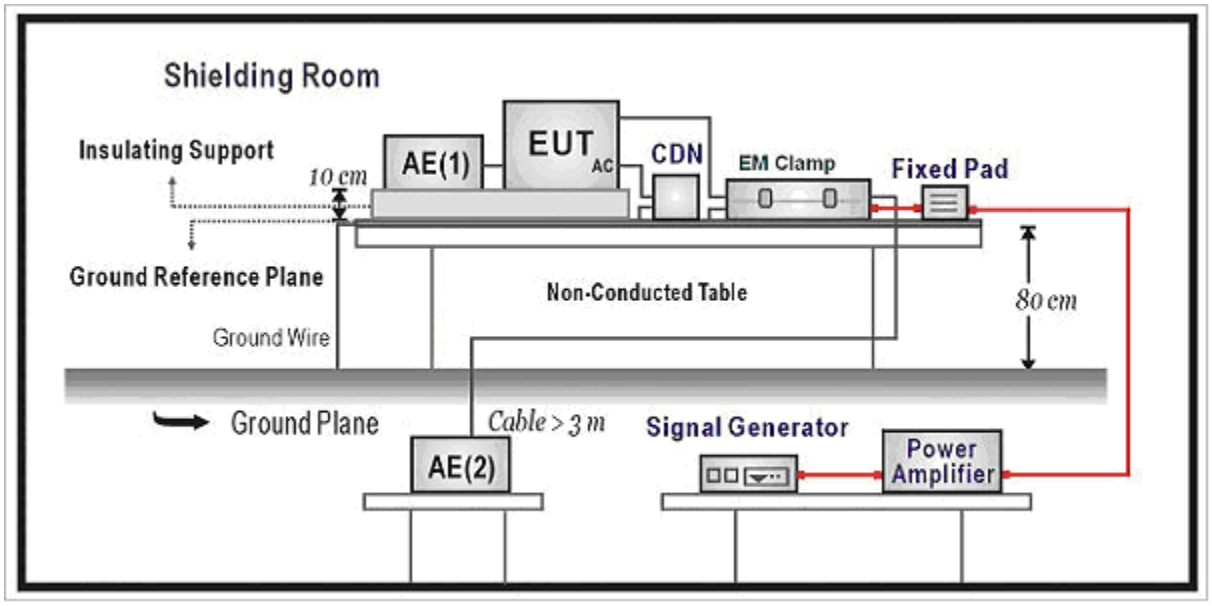
According to Standard : IEC 61000-4-6

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 Δf :	1%
6.	The rate of Swept of Frequency	1.5 x 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:FE9381-EHV, DC 12V with AD		
Date of Test	2015/12/10	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:FE9381-EHV, Poe		
Date of Test	2015/12/10	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:FE9381-EHV, DC 12V with AD

Description : Conducted Susceptibility Test Setup

Test Mode : Mode 1:FE9381-EHV, DC 12V with AD

Description : Conducted Susceptibility Test Setup-CDN

Test Mode : Mode 2:FE9381-EHV, Poe

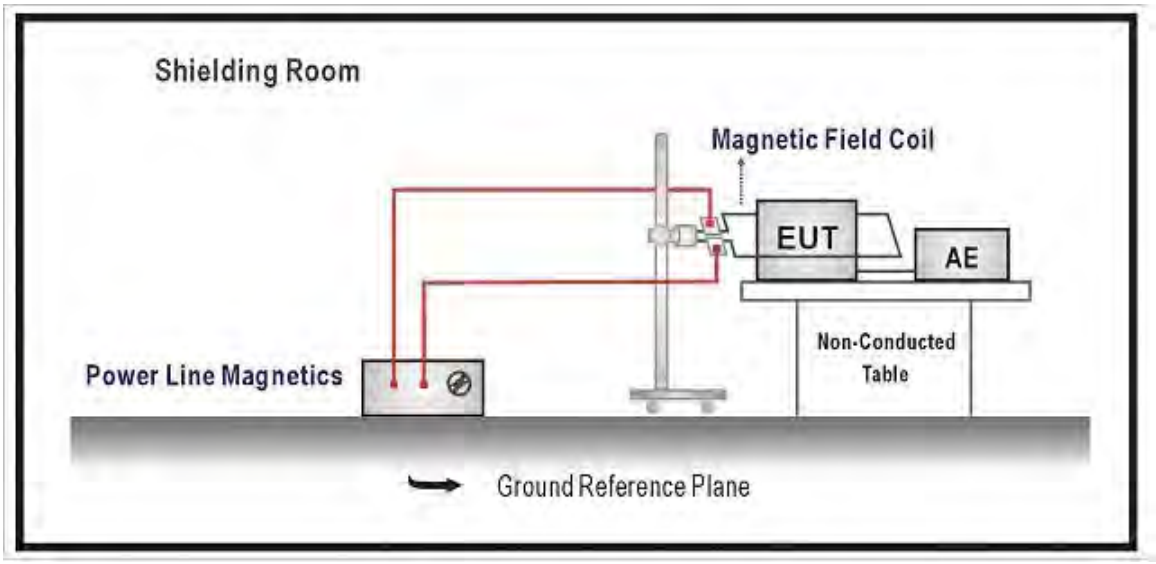
Description : Conducted Susceptibility Test Setup-CDN

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:FE9381-EHV, DC 12V with AD		
Date of Test	2015/12/10	Test Site	No.3 Shielded Room

Polarization	Frequency (Hz)	Inject Time (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:FE9381-EHV, Poe		
Date of Test	2015/12/10	Test Site	No.3 Shielded Room

Polarization	Frequency (Hz)	Inject Time (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

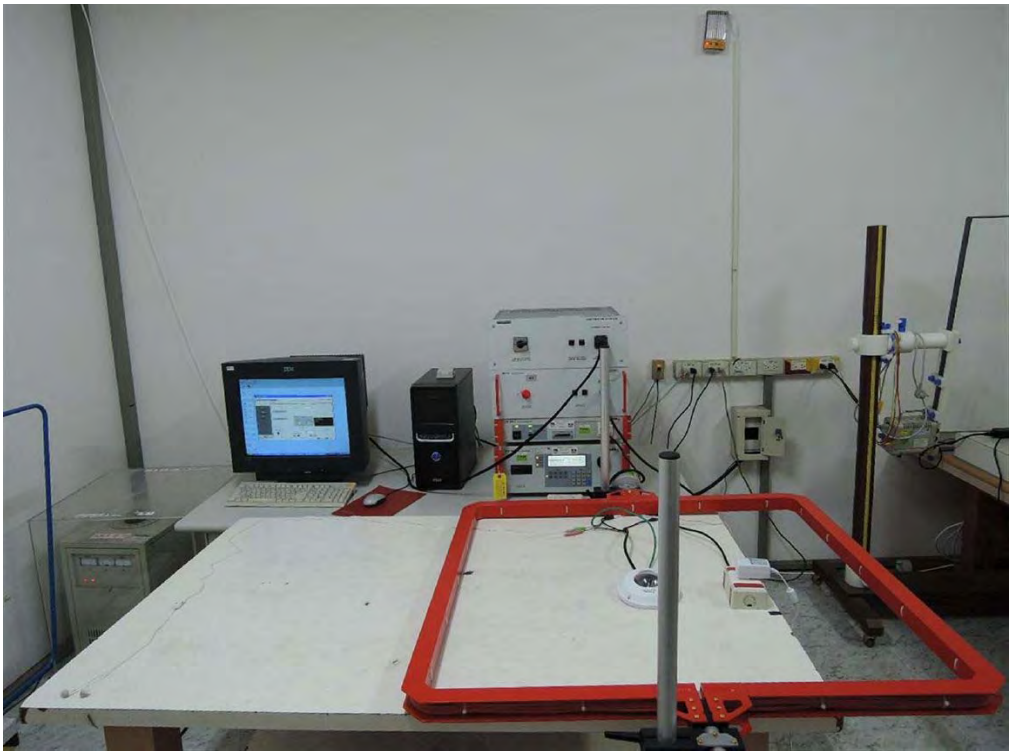
☒ Meet criteria A: Operate as intended during and after the test
☐ Meet criteria B: Operate as intended after the test
☐ Meet criteria C: Loss/Error of function
☐ Additional Information
  ☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.

☒ 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

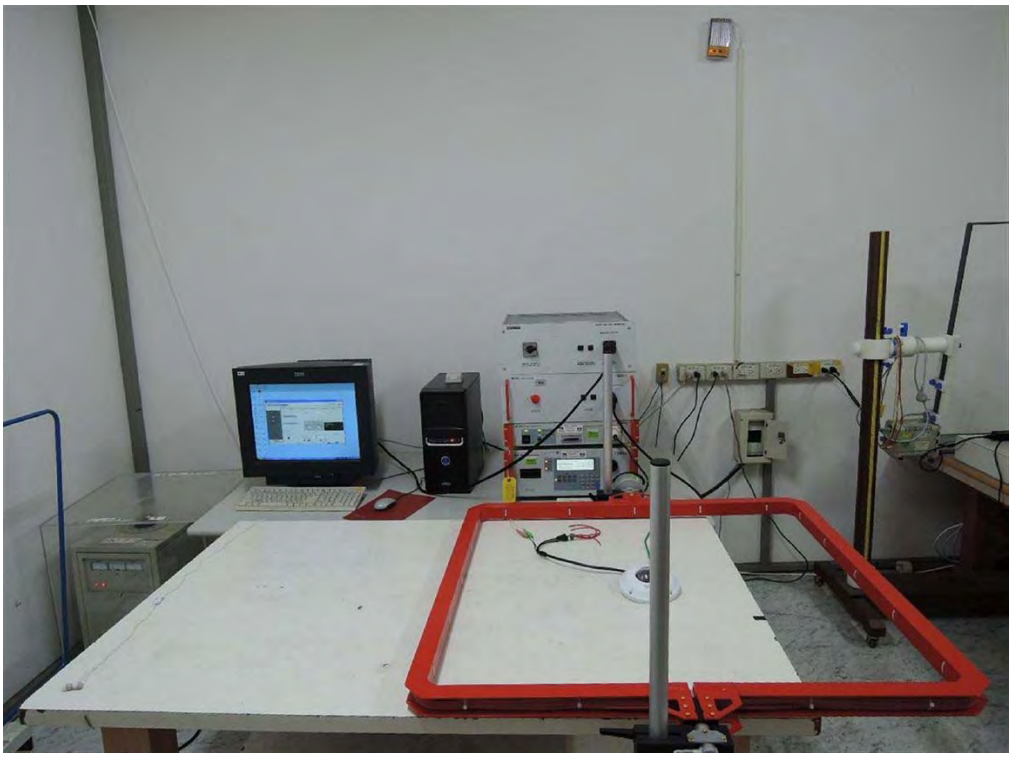
Test Mode : Mode 1:FE9381-EHV, DC 12V with AD

Description : Power Frequency Magnetic Field Test Setup



Test Mode : Mode 2:FE9381-EHV, Poe

Description : Power Frequency Magnetic Field Test Setup

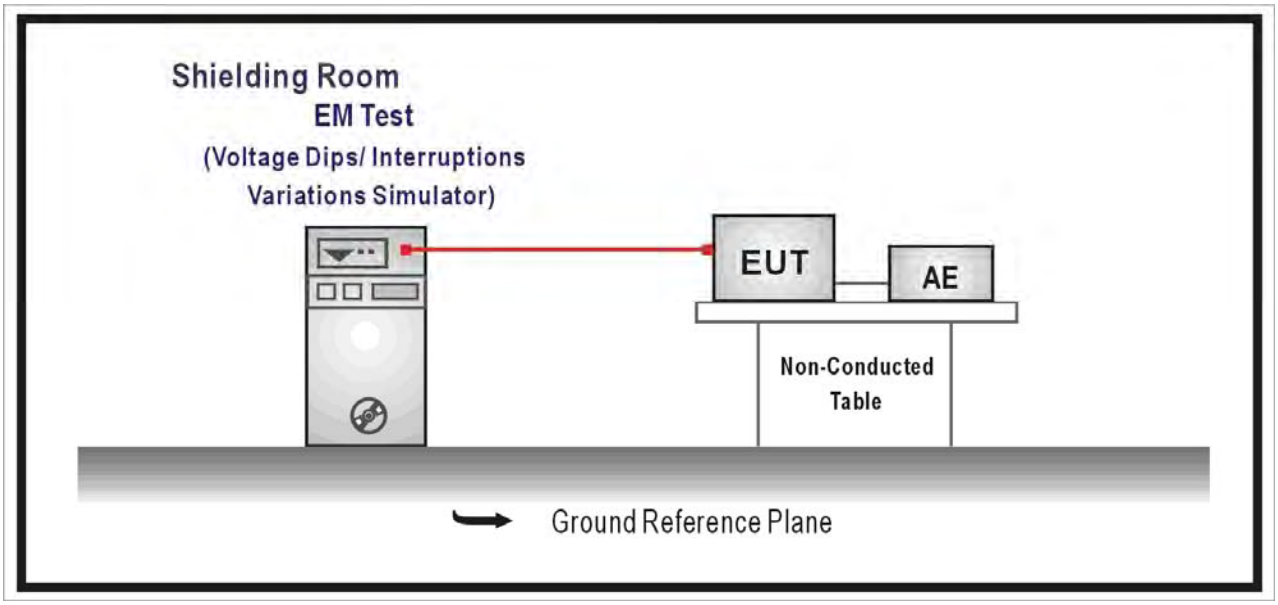


14. Voltage Dips and Interruption

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 Period	30 25	C
		% Reduction Period	>95 0.5	B
	Voltage Interruptions	% Reduction Period	> 95 250	C

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 0^0, 45^0, 90^0 ,135^0 ,180^0 ,225^0, 270^0 ,315^0 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:FE9381-EHV, DC 12V with AD		
Date of Test	2015/12/12	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:FE9381-EHV, DC 12V with AD

Description : Voltage Dips Test Setup

15. Attachment

➢ EUT Photograph

(1) EUT Photo (M/N : FE9181-H)

(2) EUT Photo

(3) EUT Photo

(4) EUT Photo (M/N: FE9381-EHV)

(5) EUT Photo

(6) EUT Photo