

# **CE Test Report**

Product Name : Network Camera

Model No. : MD8565-N

Applicant : VIVOTEK INC.

Address : 6F, No.192, Lien-Cheng Rd., Chung-Ho, New Taipei City,

235, Taiwan, R.O.C.

Date of Receipt : 2017/01/17

Issued Date : 2017/03/01

Report No. : 1710390R-ITCEP27V00

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.

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# Test Report

Issued Date : 2017/03/01

Report No. : 16A0014R-ITCEP27V00



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. : MD8565-N

EUT Rated Voltage : DC 12V, By PoE

EUT Test Voltage : AC 230V/50Hz, By PoE

Trade Name : VIVOTEK

Applicable Standard : EN 50121-1: 2015

EN 50121-4: 2015

EN 61000-6-4: 2007+A1: 2011 CISPR 16-1-2: 2003/A2 :2006 CISPR 16-2-1: 2003+A1 :2005

CISPR 16-2-3: 2006

Test Result : Complied

Performed Location : DEKRA Testing and Certification Co., Ltd.

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## 1. General Information

# 1.1. EUT Description

Product Name	Network Camera
Trade Name	VIVOTEK
Model No.	MD8565-N



## 1.2. Mode of Operation

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

Pre-Test Mode		
Mode 1: DC 12V		
Mode 2: PoE		
Final Test Mode		
Conducted Emission Mode 1: DC 12V		
Impedance Stabilization Network	Mode 1: DC 12V	
Radiated Emission	Mode 2: PoE	
Immunity	Mode 1: DC 12V	
Immunity	Mode 2: PoE	

Note:

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



## 1.3. Tested System Details

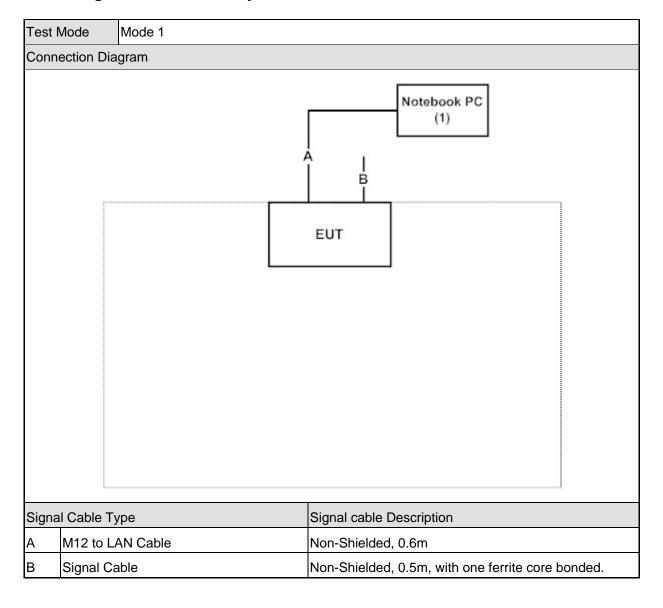
The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Test Mode Mode 1					
Product		Manufacturer	Model No.	Serial No.	Power Cord
1 Notebook PC		DELL	E5530	24QPXW1	Non-Shielded, 0.8m

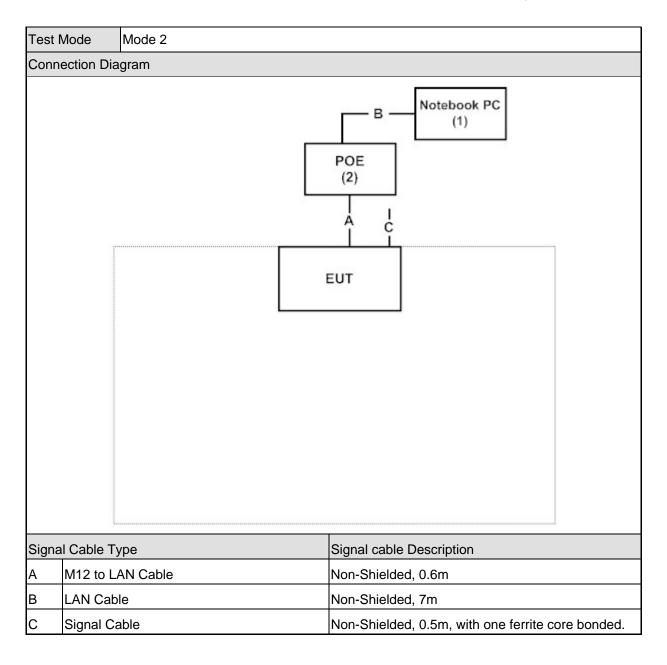
Test Mode Mode 2					
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	E5530	24QPXW1	Non-Shielded, 0.8m
2	POE	N/A	N/A	N/A	N/A



# 1.4. Configuration of Tested System









## 1.5. EUT Exercise Software

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



## 2. Technical Test

# 2.1. Summary of Test Result

$\boxtimes$	No deviations from the test standards
	Deviations from the test standards as below description:

Emission				
Performed Item	Normative References	Test Performed	Deviation	
Power Line Conducted Emission	EN 61000-6-4:2007+A1:2011	Yes	No	
	CISPR 16-2-1:2003+A1:2005			
	CISPR 16-1-2:2003/A2:2006			
Impedance Stabilization Network (ISN)	EN 61000-6-4:2007+A1:2011	Yes	No	
	CISPR 22			
Radiated Emission	EN 61000-6-4:2007+A1:2011	Yes	No	
	CISPR 16-2-3:2006			

Immunity					
Performed Item	Normative References	Test	Deviation		
renomed item	Normative References	Performed			
Electrostatic Discharge	IEC 61000-4-2 Ed. 2.0: 2008	Yes	No		
Radio-frequency electromagnetic field.	IEC 61000-4-3 Ed. 3.2: 2010	Yes	No		
(Radiated susceptibility)					
Electrical fast transient/burst	IEC 61000-4-4 Ed. 3.0: 2012	Yes	No		
Surge	IEC 61000-4-5 Ed. 3.0: 2014	Yes	No		
Radio-frequency common mode	IEC 61000-4-6 Ed. 4.0: 2013	Yes	No		
(Conducted susceptibility)					
Power frequency magnetic field	IEC 61000-4-8 Ed. 2.0: 2009	Yes	No		



# **2.2. List of Test Equipment** Conducted Emission / SR8

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	R&S	ESCS 30	100369	2016/10/13
LISN	R&S	ESH3-Z5	836679/017	2017/01/18
LISN	R&S	ENV216	100097	2017/01/18
Coaxial Cable	QTK(Arnist)	RG 400	LC018-RG	2016/06/23

Impedance Stabilization Network / SR8

	Manufacturer	Type No.	Serial No	Cal. Date
Capacitive Voltage Probe	Schaffner	CVP2200A	18331	2016/11/08
EMI Test Receiver	R&S	ESCS 30	100369	2016/10/13
LISN	R&S	ESH3-Z5	836679/017	2017/01/18
LISN	R&S	ENV216	100097	2017/01/18
RF Current Probe	FCC	F-65 10KHz~1GHz	198	2016/11/08
Impedance Stabilization Network	Teseq	ISN T800	29414	2016/09/01
Coaxial Cable	QTK(Arnist)	RG 400	LC018-RG	2016/06/23
BALANCED TELECOM ISN	FCC	FCC-TLISN-T2-02	20316	2016/08/09
Coupling Decoupling Network	Teseq	CDN ST08A	33998	2016/09/10

Radiated Emission / Site 7

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Bilog Antenna	Schaffner Chase	CBL6112B	2930	2016/08/17
EMI Test Receiver	R&S	ESR7	1316.3003K07-1 0145	2016/02/02
Coaxial Cable	QTK(Arnist)	RG 214	LC007-RG	2016/06/20
Pre-Amplifier	QTK	AP/0100A	CHM/1009094	2016/06/20
Site7 NSA	QTK	N/A	N/A	2016/06/20

Radiated Emission / CB7

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	R&S	ESU26	100433	2016/09/08
Horn Antenna	ETS-Lindgren	3117	00202723	2016/07/20
Horn Antenna	SCHWARZBECK	9120D	576	2016/11/24
Pre-Amplifier	COM-POWER	PAM-118	443019	2016/07/19
Pre-Amplifier	EMCI	EMC051845SE	980359	2016/09/19
CB7 VSWR	QTK	N/A	N/A	2016/06/24

Electrostatic Discharge / SR6

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Instrument	Manufacturer	Type No.	Serial No	Cal. Date
ESD Simulator System	Noiseken	ESS-B3011	ESS1233479	2016/02/25
ESD GUN	Noiseken	GT-30R	ESS1233499	2016/02/25
Horizontal Coupling Plane(HCP)	QuieTek	HCP AL50	N/A	N/A
Vertical Coupling Plane(VCP)	QuieTek	VCP AL50	N/A	N/A

Radiated susceptibility / CB9

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Signal Generator	Keysight	N5171B	MY53051650	2015/11/15
Power Meter	Keysight	N1912A	MY55480006	2015/11/28
Stacked double LogPerBroadband Antenna	SCHWARZBECK	STLP 9129	9129 011	N/A
Power Amplifier	MILMEGA	80RF1000-300	1071481	N/A
Power Amplifier	MILMEGA	AS0860B-50/50	1071482	N/A

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#### Electrical fast transient/burst / SR6

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMS TEST System	TESEQ	NSG 3060	1685	2016/06/29

## Surge / SR6

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMS TEST System	TESEQ	NSG 3060	1685	2016/06/29

## Conducted susceptibility / SR6

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
TESEQ RF-Generator	TESEQ	NSG 4070B-30	37490	2017/01/26

Power frequency magnetic field / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
AC Power Source (Harmonic)	TESEQ	NSG 1007-5	1530A00015	2016/08/18
Magnetic Loop Coil	Schaffner	INA 702	160	2016/07/28
Magnetic Loop Coil	TESEQ	INA 703	2007	2016/10/14



#### 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 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 %.



## 2.4. Test Environment

Performed Item	Items	Required	Actual
	Temperature (°C)	15-35	20
Conducted Emission	Humidity (%RH)	25-75	51
	Barometric pressure (mbar)	860-1060	950-1000
	Temperature (°C)	15-35	20
Impedance Stabilization Network	Humidity (%RH)	25-75	51
	Barometric pressure (mbar)	860-1060	950-1000
	Temperature (°C)	15-35	19.4
Radiated Emission	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
	Temperature (°C)	15-35	22
Electrostatic Discharge	Humidity (%RH)	30-60	42
	Barometric pressure (mbar)	860-1060	900-1000
	Temperature (°C)	15-35	22
Radiated susceptibility	Humidity (%RH)	25-75	52
	Barometric pressure (mbar)	860-1060	950-1000
	Temperature (°C)	15-35	22
Electrical fast transient/burst	Humidity (%RH)	25-75	57
	Barometric pressure (mbar)	860-1060	950-1000
	Temperature (°C)	15-35	22
Surge	Humidity (%RH)	10-75	53
	Barometric pressure (mbar)	860-1060	950-1000
	Temperature (°C)	15-35	22
Conducted susceptibility	Humidity (%RH)	25-75	52
	Barometric pressure (mbar)	860-1060	950-1000
	Temperature (°C)	15-35	22
Power frequency magnetic field	Humidity (%RH)	25-75	56
	Barometric pressure (mbar)	860-1060	950-1000

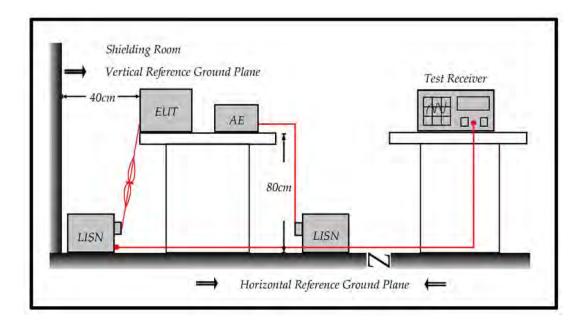


## 3. Conducted Emission (Main Terminals)

## 3.1. Test Specification

According to EN 50121-4 clause 5 and EN 61000-6-4 Table 1

## 3.2. Test Setup



## 3.3. Limit

Limits				
Frequency	QP	AV		
MHz	dBuV	dBiV		
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

According to CISPR 16-2-1 clause 7.4.1 and CISPR 16-1-2 clause 4.3:

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 D.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.

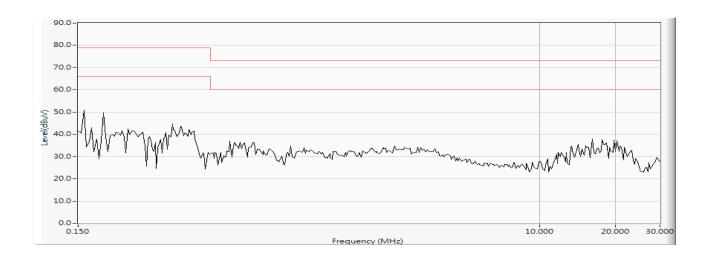
#### 3.5. Deviation from Test Standard

No deviation.



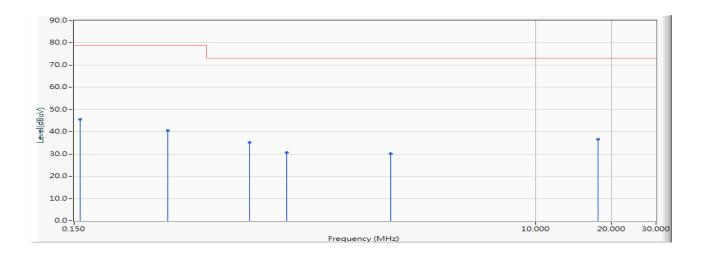
## 3.6. Test Result

Site : SR8	Time : 2017/02/03 - 13:52
Limit : CISPR_A_00M_QP	Margin : 13
EUT : Network Camera	Probe : ENV216_L1_1296_1602 - Line1
Power : AC 230V/50Hz	Note: Mode 1





Site : SR8	Time : 2017/02/03 - 13:52
Limit : CISPR_A_00M_QP	Margin : 0
EUT : Network Camera	Probe : ENV216_L1_1296_1602 - Line1
Power : AC 230V/50Hz	Note: Mode 1

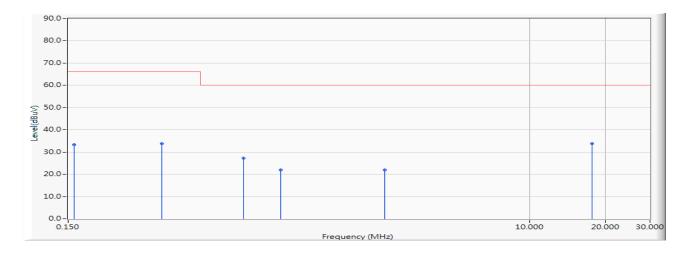


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV)	(dB)	(dBuV)	
1	*	0.158	9.685	35.910	45.595	-33.405	79.000	QUASIPEAK
2	*	0.353	9.681	30.860	40.541	-38.459	79.000	QUASIPEAK
3		0.740	9.693	25.450	35.143	-37.857	73.000	QUASIPEAK
4		1.041	9.703	20.970	30.673	-42.327	73.000	QUASIPEAK
5		2.685	9.754	20.320	30.074	-42.926	73.000	QUASIPEAK
6		17.693	9.972	26.800	36.772	-36.228	73.000	QUASIPEAK

- 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 : SR8	Time : 2017/02/03 - 13:53
Limit : CISPR_A_00M_AV	Margin : 0
EUT : Network Camera	Probe : ENV216_L1_1296_1602 - Line1
Power : AC 230V/50Hz	Note: Mode 1

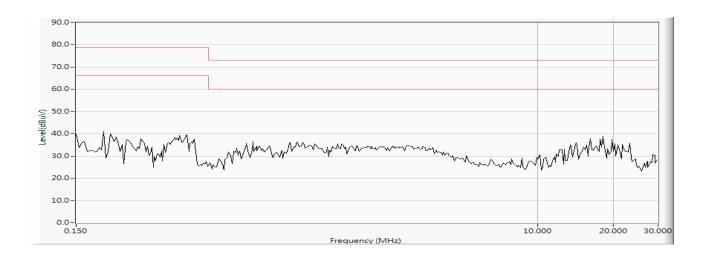


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV)	(dB)	(dBuV)	
1		0.158	9.685	23.650	33.335	-32.665	66.000	AVERAGE
2		0.353	9.681	24.070	33.751	-32.249	66.000	AVERAGE
3		0.740	9.693	17.570	27.263	-32.737	60.000	AVERAGE
4		1.041	9.703	12.150	21.853	-38.147	60.000	AVERAGE
5		2.685	9.754	12.200	21.954	-38.046	60.000	AVERAGE
6	*	17.693	9.972	23.820	33.792	-26.208	60.000	AVERAGE

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

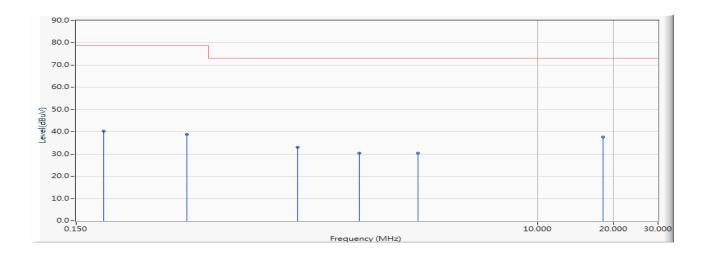


Site : SR8	Time : 2017/02/03 - 13:53
Limit : CISPR_A_00M_QP	Margin : 13
EUT : Network Camera	Probe : ENV216_N_1296_1602 - Line2
Power : AC 230V/50Hz	Note: Mode 1





Site : SR8	Time : 2017/02/03 - 13:53
Limit : CISPR_A_00M_QP	Margin: 0
EUT : Network Camera	Probe : ENV216_N_1296_1602 - Line2
Power : AC 230V/50Hz	Note: Mode 1

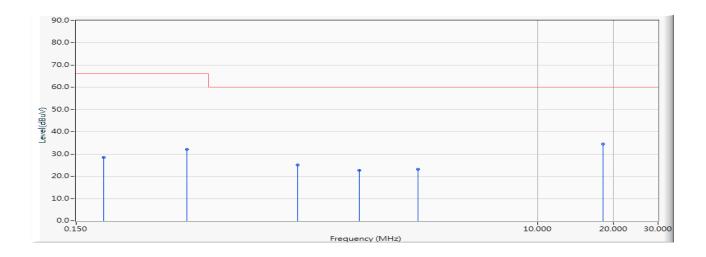


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV)	(dB)	(dBuV)	
1		0.193	9.656	30.640	40.296	-38.704	79.000	QUASIPEAK
2	*	0.412	9.663	29.170	38.833	-40.167	79.000	QUASIPEAK
3		1.123	9.695	23.260	32.955	-40.045	73.000	QUASIPEAK
4		1.978	9.723	20.790	30.513	-42.487	73.000	QUASIPEAK
5		3.365	9.751	20.770	30.521	-42.479	73.000	QUASIPEAK
6	*	18.244	10.092	27.470	37.562	-35.438	73.000	QUASIPEAK

- 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 : SR8	Time : 2017/02/03 - 13:53
Limit : CISPR_A_00M_AV	Margin: 0
EUT : Network Camera	Probe : ENV216_N_1296_1602 - Line2
Power : AC 230V/50Hz	Note: Mode 1



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV)	(dB)	(dBuV)	
1		0.193	9.656	18.770	28.426	-37.574	66.000	AVERAGE
2		0.412	9.663	22.330	31.993	-34.007	66.000	AVERAGE
3		1.123	9.695	15.280	24.975	-35.025	60.000	AVERAGE
4		1.978	9.723	13.000	22.723	-37.277	60.000	AVERAGE
5		3.365	9.751	13.320	23.071	-36.929	60.000	AVERAGE
6	*	18.244	10.092	24.350	34.442	-25.558	60.000	AVERAGE

- 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: DC 12V

Description : Front View of Conducted Test



Test Mode : Mode 1: DC 12V

Description : Back View of Conducted Test



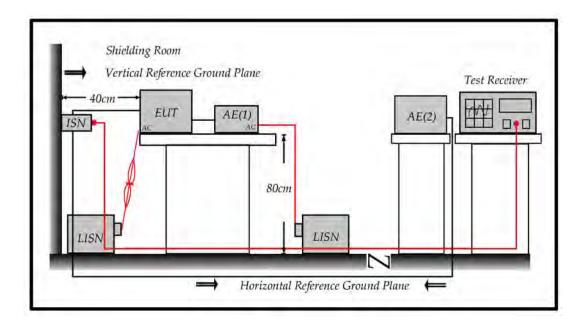


## 4. Conducted Emissions (Telecommunication Ports)

## 4.1. Test Specification

According to EN 50121-4 clause 5 and EN 61000-6-4 Table 1

## 4.2. Test Setup



## 4.3. Limit

Frequency	Voltage	Limits	Current Limits		
(MHz)	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  $0.15~\text{MHz}\-0.50~\text{MHz}$ .



#### 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.

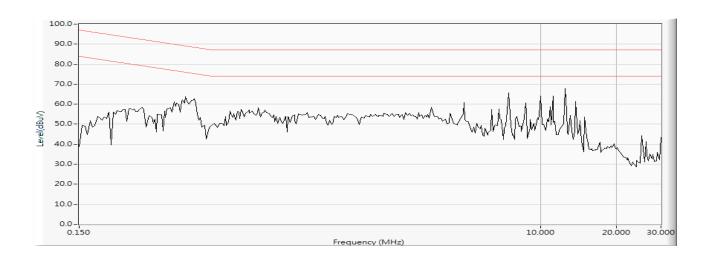
#### 4.5. Deviation from Test Standard

No deviation.



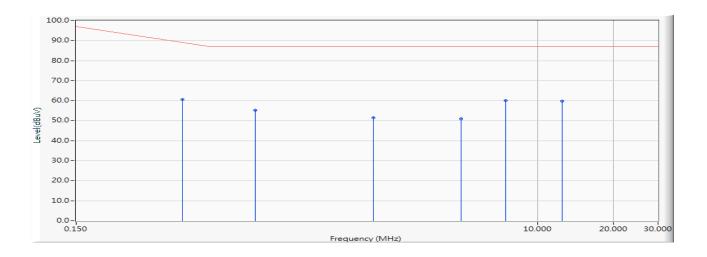
## 4.6. Test Result

Site : SR8	Time : 2017/02/03 - 13:55
Limit : ISN_Voltage_A_00M_QP	Margin : 13
EUT : Network Camera	Probe : TESEQ_T8 - Line1
Power : AC 230V/50Hz	Note: Mode 1,ISN 10M





Site : SR8	Time : 2017/02/03 - 13:55
Limit : ISN_Voltage_A_00M_QP	Margin: 0
EUT : Network Camera	Probe : TESEQ_T8 - Line1
Power : AC 230V/50Hz	Note: Mode 1,ISN 10M

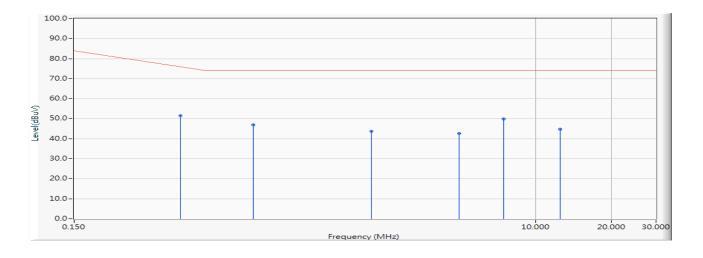


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV)	(dB)	(dBuV)	
1		0.396	9.797	50.890	60.687	-29.284	89.971	QUASIPEAK
2		0.767	9.687	45.550	55.237	-31.763	87.000	QUASIPEAK
3		2.252	9.620	41.860	51.480	-35.520	87.000	QUASIPEAK
4		4.998	9.598	41.320	50.918	-36.082	87.000	QUASIPEAK
5	*	7.502	9.619	50.350	59.969	-27.031	87.000	QUASIPEAK
6		12.502	9.704	50.020	59.724	-27.276	87.000	QUASIPEAK

- 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 : SR8	Time : 2017/02/03 - 13:55
Limit : ISN_Voltage_A_00M_AV	Margin : 0
EUT : Network Camera	Probe : TESEQ_T8 - Line1
Power : AC 230V/50Hz	Note: Mode 1,ISN 10M

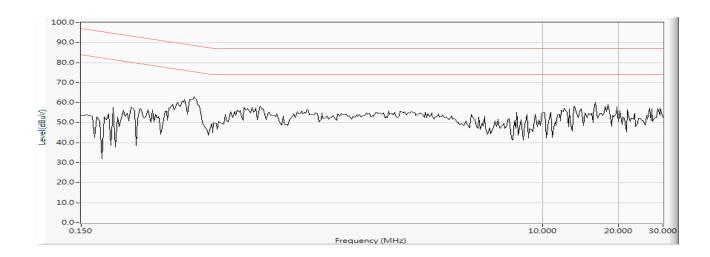


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV)	(dB)	(dBuV)	
1		0.396	9.797	41.570	51.367	-25.604	76.971	AVERAGE
2		0.767	9.687	37.180	46.867	-27.133	74.000	AVERAGE
3		2.252	9.620	34.120	43.740	-30.260	74.000	AVERAGE
4		4.998	9.598	33.130	42.728	-31.272	74.000	AVERAGE
5	*	7.502	9.619	40.240	49.859	-24.141	74.000	AVERAGE
6		12.502	9.704	35.030	44.734	-29.266	74.000	AVERAGE

- 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

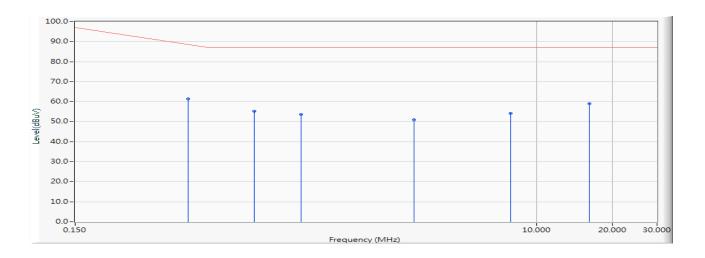


Site : SR8	Time : 2017/02/03 - 13:55
Limit : ISN_Voltage_A_00M_QP	Margin: 13
EUT : Network Camera	Probe : TESEQ_T8 - Line1
Power : AC 230V/50Hz	Note: Mode 1,ISN 100M





Site : SR8	Time : 2017/02/03 - 13:55
Limit : ISN_Voltage_A_00M_QP	Margin : 0
EUT : Network Camera	Probe : TESEQ_T8 - Line1
Power : AC 230V/50Hz	Note: Mode 1,ISN 100M

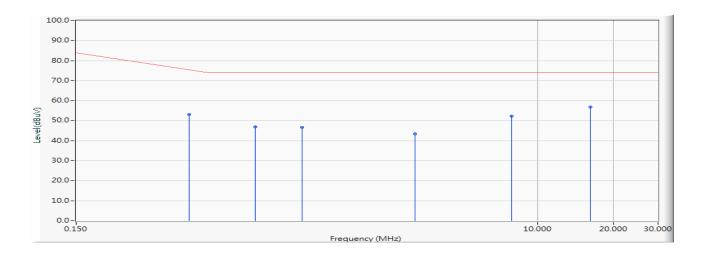


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV)	(dB)	(dBuV)	
1	*	0.420	9.783	51.480	61.263	-28.023	89.286	QUASIPEAK
2		0.767	9.687	45.610	55.297	-31.703	87.000	QUASIPEAK
3		1.177	9.657	43.840	53.497	-33.503	87.000	QUASIPEAK
4		3.287	9.600	41.300	50.900	-36.100	87.000	QUASIPEAK
5		7.923	9.618	44.670	54.288	-32.712	87.000	QUASIPEAK
6		16.228	9.791	49.080	58.871	-28.129	87.000	QUASIPEAK

- 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 : SR8	Time : 2017/02/03 - 13:55
Limit : ISN_Voltage_A_00M_AV	Margin: 0
EUT : Network Camera	Probe : TESEQ_T8 - Line1
Power : AC 230V/50Hz	Note: Mode 1,ISN 100M

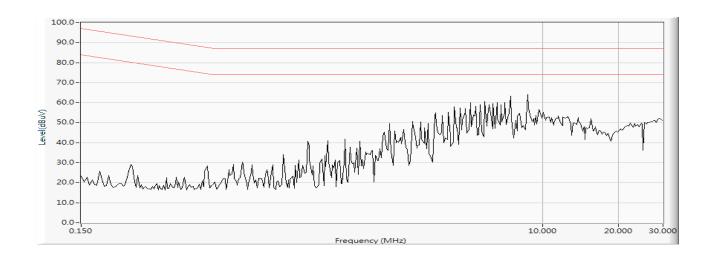


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV)	(dB)	(dBuV)	
1		0.420	9.783	43.220	53.003	-23.283	76.286	AVERAGE
2		0.767	9.687	37.300	46.987	-27.013	74.000	AVERAGE
3		1.177	9.657	36.970	46.627	-27.373	74.000	AVERAGE
4		3.287	9.600	33.960	43.560	-30.440	74.000	AVERAGE
5		7.923	9.618	42.620	52.238	-21.762	74.000	AVERAGE
6	*	16.228	9.791	47.170	56.961	-17.039	74.000	AVERAGE

- 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

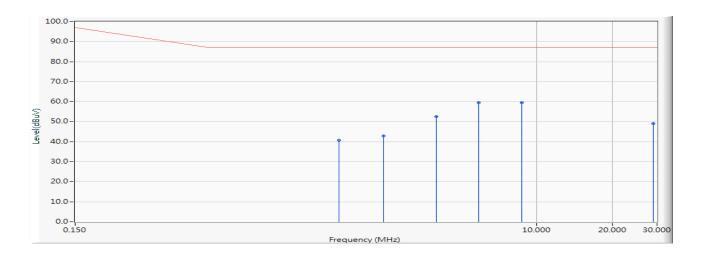


Site : SR8	Time : 2017/02/03 - 13:57
Limit : ISN_Voltage_A_00M_QP	Margin: 13
EUT : Network Camera	Probe : TESEQ_T8 - Line1
Power : POE	Note: Mode 2,ISN 10M





Site : SR8	Time : 2017/02/03 - 13:57
Limit : ISN_Voltage_A_00M_QP	Margin : 0
EUT : Network Camera	Probe : TESEQ_T8 - Line1
Power : POE	Note: Mode 2,ISN 10M

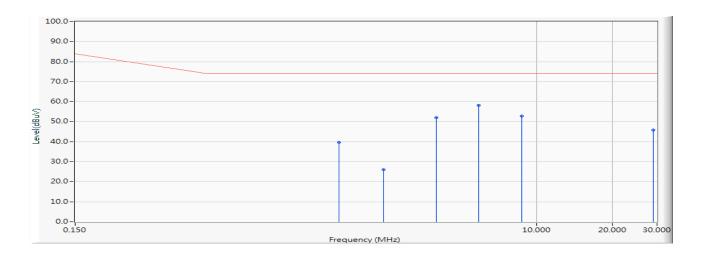


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV)	(dB)	(dBuV)	
1		1.654	9.638	31.030	40.669	-46.331	87.000	QUASIPEAK
2		2.494	9.618	33.340	42.957	-44.043	87.000	QUASIPEAK
3		4.017	9.596	42.990	52.586	-34.414	87.000	QUASIPEAK
4	*	5.912	9.600	49.850	59.450	-27.550	87.000	QUASIPEAK
5		8.748	9.629	49.790	59.419	-27.581	87.000	QUASIPEAK
6		29.080	10.528	38.620	49.148	-37.852	87.000	QUASIPEAK

- 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 : SR8	Time : 2017/02/03 - 13:57
Limit : ISN_Voltage_A_00M_AV	Margin : 0
EUT : Network Camera	Probe : TESEQ_T8 - Line1
Power : POE	Note: Mode 2,ISN 10M

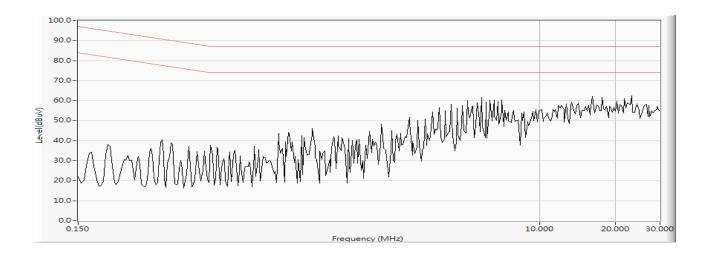


		Frequency Correct Factor		Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz) (dB)		(dBuV)	(dBuV)	(dB)	(dBuV)	
1		1.654	9.638	30.090	39.729	-34.271	74.000	AVERAGE
2	2 2.494 9.618		16.300	25.917	-48.083	74.000	AVERAGE	
3		4.017	9.596	42.320	51.916	-22.084	74.000	AVERAGE
4	*	5.912	9.600	48.570	58.170	-15.830	74.000	AVERAGE
5		8.748	9.629	43.140	52.769	-21.231	74.000	AVERAGE
6		29.080	10.528	35.360	45.888	-28.112	74.000	AVERAGE

- 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

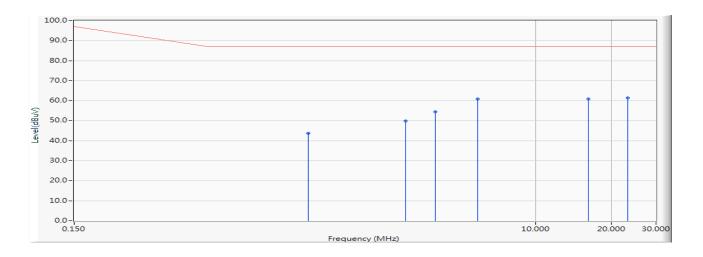


Site : SR8	Time : 2017/02/03 - 13:57
Limit : ISN_Voltage_A_00M_QP	Margin : 13
EUT : Network Camera	Probe : TESEQ_T8 - Line1
Power : POE	Note: Mode 2,ISN 100M





Site : SR8	Time : 2017/02/03 - 13:57
Limit : ISN_Voltage_A_00M_QP	Margin: 0
EUT : Network Camera	Probe : TESEQ_T8 - Line1
Power : POE	Note: Mode 2,ISN 100M

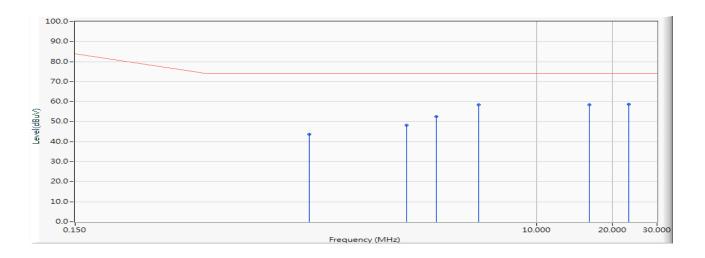


		Frequency Correct Factor		Reading Level	Measure Level	Margin Limit		Detector Type
		(MHz) (dB)		(dBuV)	(dBuV)	(dB)	(dBuV)	
1	1 1.267 9.650 34.1		34.170	43.820	-43.180	87.000	QUASIPEAK	
2	3.072 9.608		40.360	49.968	-37.032	87.000	QUASIPEAK	
3	4.017 9.596 4		44.760	54.356	-32.644	87.000	QUASIPEAK	
4	5.908 9.600 5		51.260	60.860	-26.140	87.000	QUASIPEAK	
5		16.228 9.791 51.180		60.971	-26.029	87.000	QUASIPEAK	
6	*	23.127	9.990	51.290	61.280	-25.720	87.000	QUASIPEAK

- 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 : SR8	Time : 2017/02/03 - 13:57
Limit : ISN_Voltage_A_00M_AV	Margin : 0
EUT : Network Camera	Probe : TESEQ_T8 - Line1
Power : POE	Note: Mode 2,ISN 100M



		Frequency Correct Factor		Reading Level	eading Level Measure Level		Limit	Detector Type
		(MHz) (dB)		(dBuV)	(dBuV)	(dB)	(dBuV)	
1	1 1.267 9.650 34.		34.160	43.810	-30.190	74.000	AVERAGE	
2	2 3.072 9.608		38.680	48.288	-25.712	74.000	AVERAGE	
3	3 4.017 9.596		43.010	52.606	-21.394	74.000	AVERAGE	
4	5.908 9.600		48.780	58.380	-15.620	74.000	AVERAGE	
5	16.228 9.791 48.740		58.531	-15.469	74.000	AVERAGE		
6	*	23.127	9.990	48.630	58.620	-15.380	74.000	AVERAGE

- 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: DC 12V

Description : Front View of ISN Test



Test Mode : Mode 1: DC 12V

Description : Back View of ISN Test





Test Mode : Mode 1: DC 12V

Description : Back View of ISN Test



Test Mode : Mode 2: PoE

Description : Front View of ISN Test





Test Mode : Mode 2: PoE

Description : Back View of ISN Test





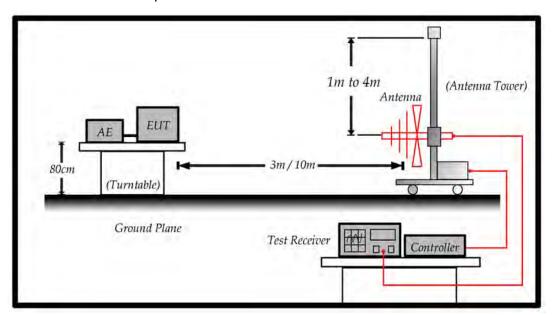
### 5. Radiated Emission

# 5.1. Test Specification

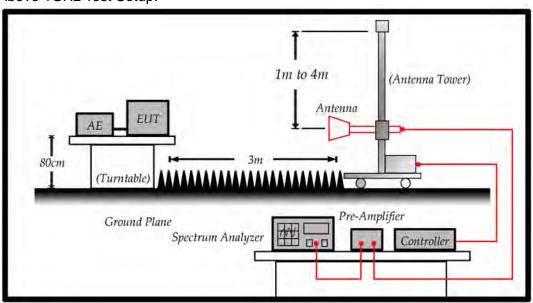
According to EN 50121-4 clause 5 and EN 61000-6-4 Table 1

## 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	Distance	Peak	Average				
(GHz)	(m)	(dBuV/m)	(dBuV/m)				
1 – 3	3	76	56				
3 – 6	3-6 3		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 <sup>th</sup> harmonic of the highest frequency or 6 GHz, whichever is lower



#### 5.4. Test Procedure

According to CISPR 16-2-3.

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 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. Radiated was performed at an antenna to EUT distance of 10 meters.

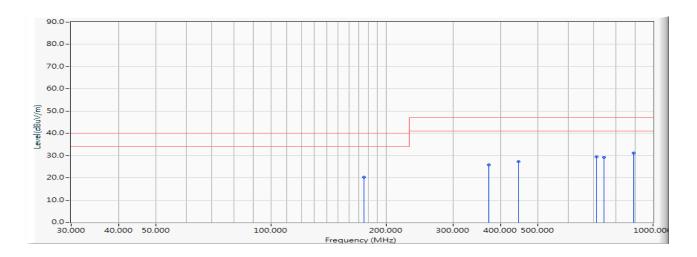
#### 5.5. Deviation from Test Standard

No deviation.



#### 5.6. Test Result

Site : SITE7	Time : 2017/01/24 - 19:17
Limit : CISPR_A_10M_QP	Margin : 6
EUT : Network Camera	Probe : Site7_CBL6112_10M_1606 - HORIZONTAL
Power : AC 230V/50Hz	Note: Mode 1

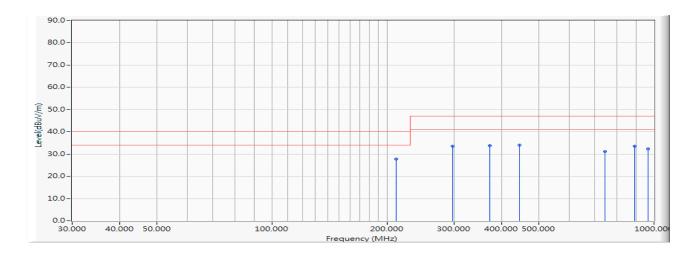


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type	Ant Pos	Table Pos
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)		(cm)	(deg)
1		174.910	-13.920	34.300	20.380	-19.620	40.000	QUASIPEAK	395.000	121.000
2		371.250	-6.164	32.000	25.836	-21.164	47.000	QUASIPEAK	310.000	26.000
3		445.500	-3.609	30.800	27.191	-19.809	47.000	QUASIPEAK	200.000	119.000
4		711.070	1.144	28.400	29.544	-17.456	47.000	QUASIPEAK	118.000	130.000
5		742.500	1.996	27.300	29.296	-17.704	47.000	QUASIPEAK	121.000	-129.000
6	*	891.000	3.616	27.500	31.116	-15.884	47.000	QUASIPEAK	115.000	-108.000

- 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 : 2017/01/24 - 19:17			
Limit : CISPR_A_10M_QP	Margin : 6			
EUT : Network Camera	Probe : Site7_CBL6112_10M_1606 - VERTICAL			
Power : AC 230V/50Hz	Note: Mode 1			

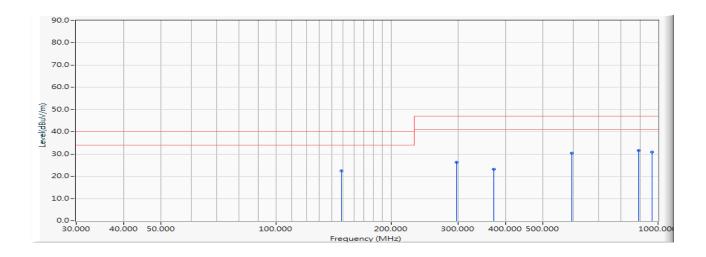


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type	Ant Pos	Table Pos
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)		(cm)	(deg)
1	*	211.740	-13.759	41.500	27.741	-12.259	40.000	QUASIPEAK	100.000	-179.000
2		297.000	-8.682	42.300	33.618	-13.382	47.000	QUASIPEAK	100.000	-101.000
3		371.250	-6.164	40.000	33.836	-13.164	47.000	QUASIPEAK	100.000	-9.000
4		445.500	-3.609	37.600	33.991	-13.009	47.000	QUASIPEAK	100.000	-94.000
5		742.500	1.996	29.200	31.196	-15.804	47.000	QUASIPEAK	245.000	-151.000
6		891.000	3.616	30.000	33.616	-13.384	47.000	QUASIPEAK	205.000	-82.000
7		965.250	4.444	27.900	32.344	-14.656	47.000	QUASIPEAK	181.000	-114.000

- 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 : 2017/01/24 - 19:44
Limit : CISPR_A_10M_QP	Margin : 6
EUT : Network Camera	Probe : Site7_CBL6112_10M_1606 - HORIZONTAL
Power : POE	Note: Mode 2

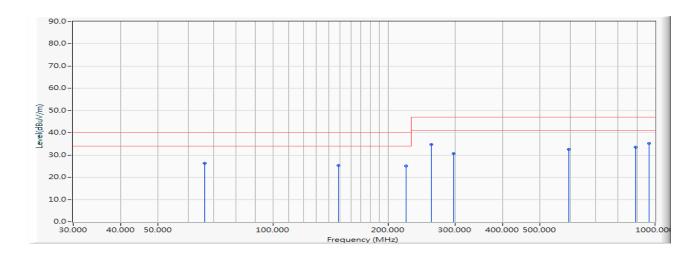


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type	Ant Pos	Table Pos
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)		(cm)	(deg)
		148.500	-13.173	35.700	22.527	-17.473	40.000	QUASIPEAK	400.000	-48.000
2	2	297.000	-8.682	35.000	26.318	-20.682	47.000	QUASIPEAK	390.000	-34.000
3	3	371.250	-6.164	29.400	23.236	-23.764	47.000	QUASIPEAK	280.000	131.000
4	ļ	594.000	-0.240	30.600	30.360	-16.640	47.000	QUASIPEAK	220.000	-29.000
	*	891.000	3.616	28.000	31.616	-15.384	47.000	QUASIPEAK	100.000	-51.600
6	6	965.250	4.444	26.400	30.844	-16.156	47.000	QUASIPEAK	100.000	73.600

- 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 : 2017/01/24 - 19:44
Limit : CISPR_A_10M_QP	Margin : 6
EUT : Network Camera	Probe : Site7_CBL6112_10M_1606 - VERTICAL
Power : POE	Note: Mode 2

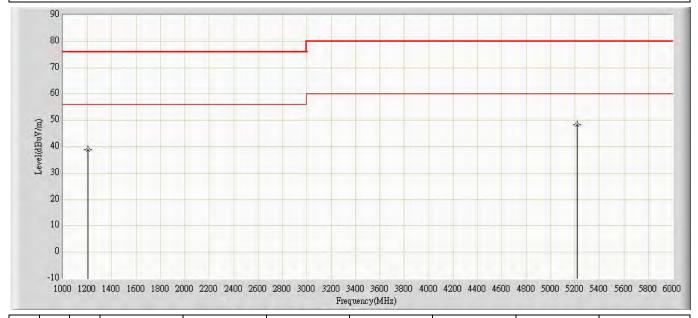


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type	Ant Pos	Table Pos	
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)		(cm)	(deg)	
1		66.200	-18.832	45.100	26.269	-13.731	40.000	QUASIPEAK	100.000	133.000	
2		148.500	-13.173	38.600	25.427	-14.573	40.000	QUASIPEAK	100.000	-121.000	
3		222.750	-13.226	38.300	25.074	-14.926	40.000	QUASIPEAK	100.000	106.000	
4		259.870	-8.762	43.600	34.838	-12.162	47.000	QUASIPEAK	100.000	158.000	
5			297.000	-8.682	39.300	30.618	-16.382	47.000	QUASIPEAK	100.000	128.000
6		594.000	-0.240	32.800	32.560	-14.440	47.000	QUASIPEAK	310.000	-17.000	
7		891.000	3.616	29.900	33.516	-13.484	47.000	QUASIPEAK	210.000	120.000	
8	*	965.250	4.444	30.700	35.144	-11.856	47.000	QUASIPEAK	176.000	-116.000	

- 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: 2017/02/07 - 17:48
Limit: EN55022_A_(Above_1G)	Margin: 0
Probe: CB7_Horn_3117_1607	Polarity: Horizontal
EUT: Network Camera	Power : AC 230V/50Hz
Note: Mode 1	

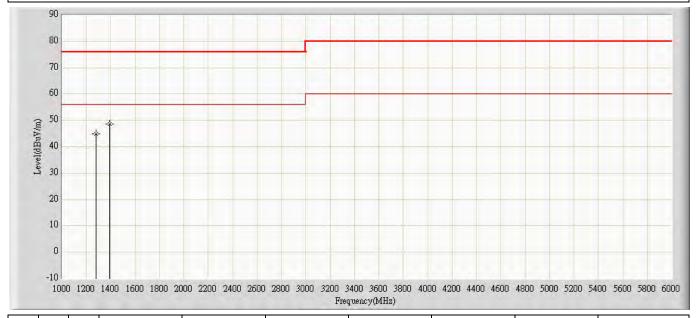


No	Flag	Mark	Frequency	Measure Level	Reading Level	Over Limit	Limit	Factor	Туре
			(MHz)	(dBuV/m)	(dBuV)	(dB)	(dBuV/m)		
1			1203.000	38.723	53.700	-37.277	76.000	-14.977	PK
2		*	5220.000	48.282	50.100	-31.718	80.000	-1.819	PK

- 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: 2017/02/07 - 17:49
Limit: EN55022_A_(Above_1G)	Margin: 0
Probe: CB7_Horn_3117_1607	Polarity: Vertical
EUT: Network Camera	Power : AC 230V/50Hz
Note: Mode 1	·

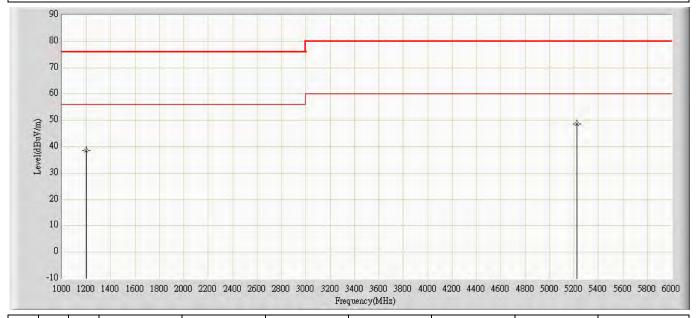


No	Flag	Mark	Frequency	Measure Level	Reading Level	Over Limit	Limit	Factor	Туре
			(MHz)	(dBuV/m)	(dBuV)	(dB)	(dBuV/m)		
1			1280.000	44.881	59.700	-31.119	76.000	-14.819	PK
2		*	1392.000	48.700	63.300	-27.300	76.000	-14.600	PK

- 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: 2017/02/07 - 17:50
Limit: EN55022_A_(Above_1G)	Margin: 0
Probe: CB7_Horn_3117_1607	Polarity: Horizontal
EUT: Network Camera	Power: POE
Note: Mode 2	·

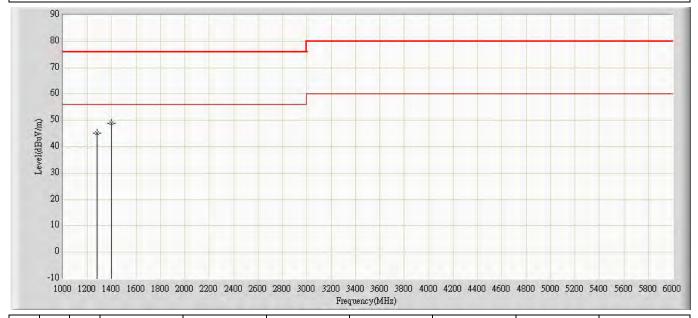


No	Fla	ag M	Mark	Frequency	Measure Level	Reading Level	Over Limit	Limit	Factor	Туре
				(MHz)	(dBuV/m)	(dBuV)	(dB)	(dBuV/m)		
1				1200.000	38.613	53.600	-37.387	76.000	-14.987	PK
2		*		5223.000	48.624	50.400	-31.376	80.000	-1.776	PK

- 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: 2017/02/07 - 17:50
Limit: EN55022_A_(Above_1G)	Margin: 0
Probe: CB7_Horn_3117_1607	Polarity: Vertical
EUT: Network Camera	Power: POE
Note: Mode 2	•



No	Flag	Mark	Frequency	Measure Level	Reading Level	Over Limit	Limit	Factor	Туре
			(MHz)	(dBuV/m)	(dBuV)	(dB)	(dBuV/m)		
1			1282.000	45.083	59.900	-30.917	76.000	-14.817	PK
2		*	1395.000	48.800	63.400	-27.200	76.000	-14.600	PK

- 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: DC 12V

Description : Front View of Radiated Test



Test Mode : Mode 1: DC 12V

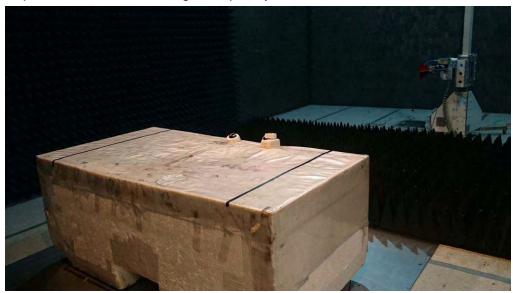
Description : Back View of Radiated Test





Test Mode : Mode 1: DC 12V

Description : Front View of High Frequency Radiated Test



Test Mode : Mode 2: PoE

Description : Front View of Radiated Test





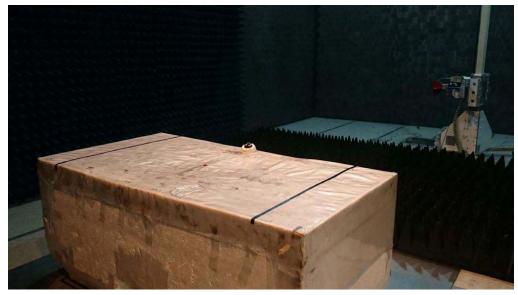
Test Mode : Mode 2: PoE

Description : Back View of Radiated Test



Test Mode : Mode 2: PoE

Description : Front View of High Frequency Radiated Test



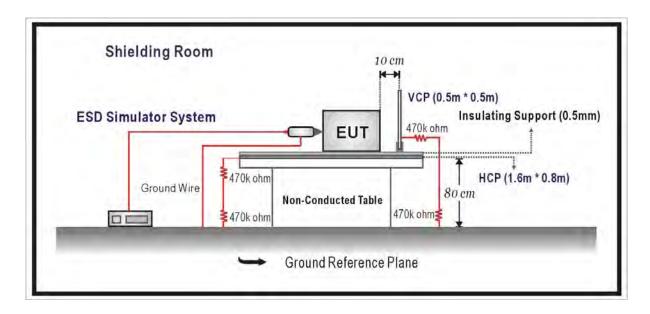


## 6. Electrostatic Discharge

# 6.1. Test Specification

According to EN 50121-4 clause 6.

## 6.2. Test Setup



## 6.3. Limit

Item	Environmental	Units	Test Specification	Performance		
	Phenomena			Criteria		
Enclo	Enclosure Port					
I	Electrostatic Discharge	kV(Charge Voltage)	±8 Air Discharge	В		
			±6 Contact Discharge	В		



#### 6.4. Test Procedure

According to EN 61000-4-2.

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  $0.5m \times 0.5m$ , 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.

#### 6.5. Deviation from Test Standard

No deviation..



## 6.6. Test Result

Product	Network Camera				
Test Item	Electrostatic Discharge				
Test Mode	Mode 1: DC 12V				
Date of Test	2017/02/15	Test Site	No.6 Shielded Room		

Item	Amount of Discharge	Voltage	Required Criteria	Complied To Criteria (A,B,C)	Results
Air Discharge	10	+8kV	В	А	Pass
All Discharge	10	-8kV	В	А	Pass
Contact Discharge	25	+6kV	В	В	Pass
Contact Discharge	25	-6kV	В	В	Pass
Indirect Discharge	25	+6kV	В	А	Pass
(HCP)	25	-6kV	В	А	Pass
Indirect Discharge	25	+6kV	В	А	Pass
(VCP)	25	-6kV	В	Α	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 C: Loss/Error of function
☐ Additional Information
☐ EUT stopped operation and <u>could</u> / <u>could not</u> 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		
Date of Test	2017/02/15	Test Site	No.6 Shielded Room

Item	Amount of Discharge	Voltage	Required Criteria	Complied To Criteria (A,B,C)	Results
Air Diagharga	10	+8kV	В	А	Pass
Air Discharge	10	-8kV	В	А	Pass
Contact Discharge	25	+6kV	В	В	Pass
Contact Discharge	25	-6kV	В	В	Pass
Indirect Discharge	25	+6kV	В	А	Pass
(HCP)	25	-6kV	В	А	Pass
Indirect Discharge	25	+6kV	В	А	Pass
(VCP)	25	-6kV	В	А	Pass

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
☐ Additional Information
☐ EUT stopped operation and <u>could</u> / <u>could not</u> 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.



# 6.7. Test Photograph

Test Mode : Mode 1: DC 12V

Description : ESD Test Setup



Test Mode : Mode 2: PoE

Description : ESD Test Setup





# 6.8. EUT to dot photo for ESD test

Test dot: (Contact Discharge)



Test dot: (Contact Discharge)





Test dot: (Contact Discharge)



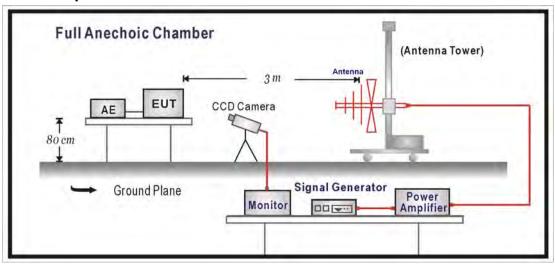


# 7. Radiated Susceptibility

# 7.1. Test Specification

According to EN 50121-4 clause 6.

## 7.2. Test Setup



## 7.3. Limit

Limi	τ						
Item	Environmental	Units	Test	Performance			
	Phenomena		Specification	Criteria			
Enclo	Enclosure Port						
	Radio-Frequency	MHz	80-800				
	Electromagnetic Field	V/m(Un-modulated, rms)	10	Α			
	Amplitude Modulated	% AM (1kHz)	80				
	Radio-Frequency	MHz	800-1000				
	Electromagnetic Field	V/m(Un-modulated, rms)	20	А			
	Amplitude Modulated	% AM (1kHz)	80				
	Radio-Frequency	MHz	1400-2000				
	Electromagnetic Field	V/m(Un-modulated, rms)	10	Α			
	Amplitude Modulated	% AM (1kHz)	80				
	Radio-Frequency	MHz	2000-2700				
	Electromagnetic Field	V/m(Un-modulated, rms)	5	А			
	Amplitude Modulated	% AM (1kHz)	80				
	Radio-Frequency	MHz	5100-6000				
	Electromagnetic Field	V/m(Un-modulated, rms)	3	Α			
	Amplitude Modulated	% AM (1kHz)	80				



#### 7.4. Test Procedure

According to EN 61000-4-3

Condition of Test

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.

Remarks

All the scanning conditions are as follows:

1.	Field Strength	5, 10, 20V/m
2.	Radiated Signal	AM 80% Modulated with 1kHz
3.	Scanning Frequency	80MHz-800MHz for 10V/m
		800MHz-1000MHz for 20V/m

800MHz-1000MHz for 20V/m 1400MHz-2000MHz for 10V/m 2000MHz-2700MHz for 5V/m 5100MHz-6000MHz for 3V/m

4 Dwell Time 3 Seconds

5. Frequency step size  $\Delta f$ : 1%

6. The rate of Swept of Frequency 1.5 x 10<sup>-3</sup> decades/s

#### 7.5. Deviation from Test Standard

No deviation.



# 7.6. Test Result

Product	Network Camera		
Test Item	Radiated susceptibility		
Test Mode	Mode 1: DC 12V		
Date of Test	2017/02/13	Test Site	Chamber9

Frequency (MHz)	Position (Angle)	Polarity (H or V)	Field Strength (V/m)	Required Criteria	Complied To Criteria (A,B,C)	Results
80-1000	O°	Н	20	Α	Α	PASS
80-1000	O°	V	20	Α	Α	PASS
80-1000	90°	Н	20	Α	Α	PASS
80-1000	90°	V	20	Α	Α	PASS
80-1000	180°	Н	20	Α	Α	PASS
80-1000	180°	V	20	Α	Α	PASS
80-1000	270°	Н	20	Α	Α	PASS
80-1000	270°	V	20	А	А	PASS
1400-2000	<b>0</b> °	Н	10	Α	А	PASS
1400-2000	<b>0</b> °	V	10	Α	А	PASS
1400-2000	90°	Н	10	Α	Α	PASS
1400-2000	90°	V	10	Α	А	PASS
1400-2000	180°	Н	10	Α	А	PASS
1400-2000	180°	V	10	Α	А	PASS
1400-2000	270°	Н	10	Α	Α	PASS
1400-2000	270°	V	10	Α	Α	PASS
2000-2700	<b>0</b> °	Н	5	Α	Α	PASS
2000-2700	<b>0</b> °	V	5	Α	Α	PASS
2000-2700	90°	Н	5	Α	Α	PASS
2000-2700	90°	V	5	Α	Α	PASS
2000-2700	180°	Н	5	Α	Α	PASS
2000-2700	180°	V	5	Α	Α	PASS
2000-2700	270°	Н	5	Α	Α	PASS
2000-2700	270°	V	5	Α	Α	PASS
5100-6000	<b>0</b> °	Н	3	Α	Α	PASS
5100-6000	<b>0</b> °	V	3	А	А	PASS
5100-6000	90°	Н	3	Α	Α	PASS
5100-6000	90°	V	3	А	Α	PASS
5100-6000	180°	Н	3	А	А	PASS
5100-6000	180°	V	3	Α	Α	PASS
5100-6000	270°	Н	3	Α	Α	PASS
5100-6000	270°	V	3	А	А	PASS



	The testing performed is from lowest level up to the highest level as require	d by
	standard, but only highest level is shown on the report.	
	☐ 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 <u>could</u> / <u>could not</u> be reset by operator at	V/m
	at frequencyMHz.	
$\boxtimes$	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		
Date of Test	2017/02/13	Test Site	Chamber9

Frequency (MHz)	Position (Angle)	Polarity (H or V)	Field Strength (V/m)	Required Criteria	Complied To Criteria (A,B,C)	Results
80-1000	<b>0</b> °	Н	20	Α	Α	PASS
80-1000	<b>0</b> °	V	20	Α	А	PASS
80-1000	90°	Н	20	Α	Α	PASS
80-1000	90°	V	20	Α	Α	PASS
80-1000	180°	Н	20	Α	А	PASS
80-1000	180°	V	20	Α	А	PASS
80-1000	270°	Н	20	Α	А	PASS
80-1000	270°	V	20	Α	А	PASS
1400-2000	<b>0</b> °	Н	10	Α	А	PASS
1400-2000	<b>0</b> °	V	10	Α	А	PASS
1400-2000	90°	Н	10	Α	Α	PASS
1400-2000	90°	V	10	Α	Α	PASS
1400-2000	180°	Н	10	Α	Α	PASS
1400-2000	180°	V	10	Α	Α	PASS
1400-2000	270°	Н	10	Α	Α	PASS
1400-2000	270°	V	10	Α	Α	PASS
2000-2700	<b>0</b> °	Н	5	Α	А	PASS
2000-2700	<b>0</b> °	V	5	Α	Α	PASS
2000-2700	90°	Н	5	Α	А	PASS
2000-2700	90°	V	5	Α	А	PASS
2000-2700	180°	Н	5	Α	А	PASS
2000-2700	180°	V	5	Α	А	PASS
2000-2700	270°	Н	5	Α	А	PASS
2000-2700	270°	V	5	Α	Α	PASS
5100-6000	<b>0</b> °	Н	3	Α	А	PASS
5100-6000	0°	V	3	Α	А	PASS
5100-6000	90°	Н	3	Α	Α	PASS
5100-6000	90°	V	3	Α	А	PASS
5100-6000	180°	Н	3	Α	А	PASS
5100-6000	180°	V	3	Α	Α	PASS
5100-6000	270°	Н	3	Α	Α	PASS
5100-6000	270°	V	3	А	А	PASS



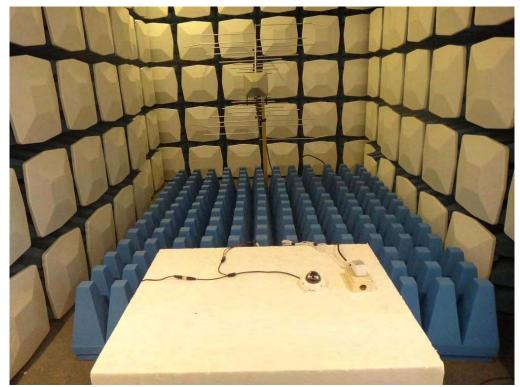
	The testing performed is from lowest level up to the highest level as required by
	standard, but only highest level is shown on the report.
	☐ Additional Information
	☐ There was no observable degradation in performance.
	☐ EUT stopped operation and <u>could</u> / <u>could not</u> be reset by operator at V/m
	at frequencyMHz.
$\boxtimes$	No false alarms or other malfunctions were observed during or after the test.



# 7.7. Test Photograph

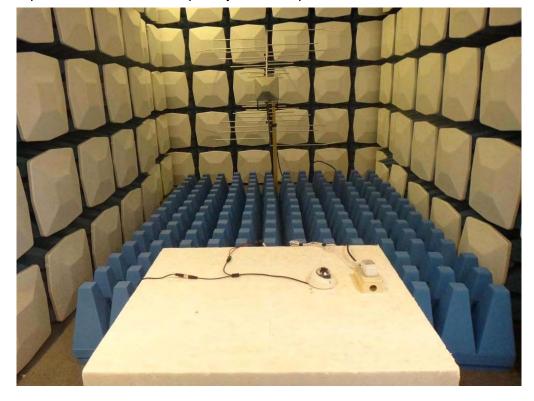
Test Mode : Mode 1: DC 12V

Description : Radiated Susceptibility Test Setup



Test Mode : Mode 1: DC 12V

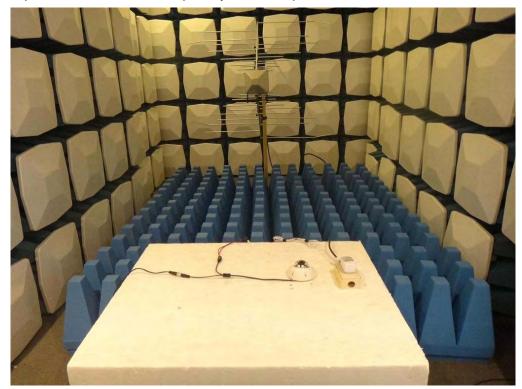
Description : Radiated Susceptibility Test Setup





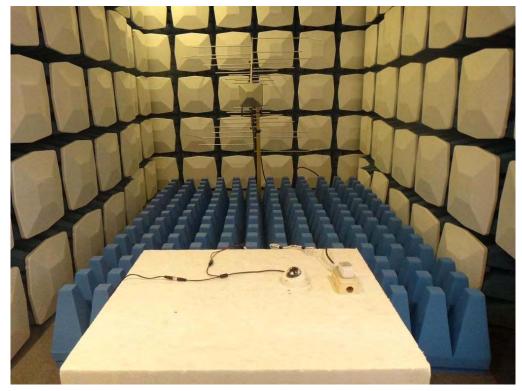
Test Mode : Mode 1: DC 12V

Description : Radiated Susceptibility Test Setup



Test Mode : Mode 1: DC 12V

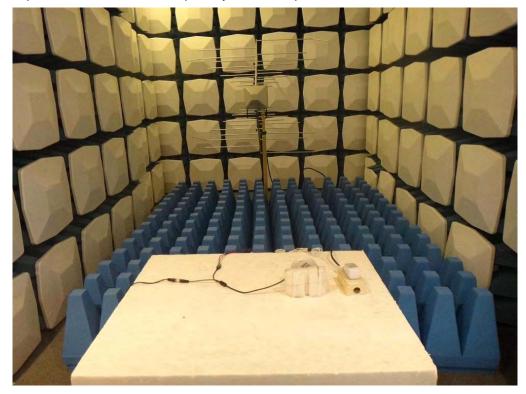
Description : Radiated Susceptibility Test Setup



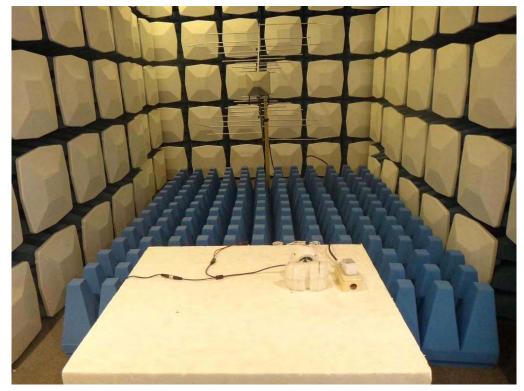


Test Mode : Mode 1: DC 12V

Description : Radiated Susceptibility Test Setup

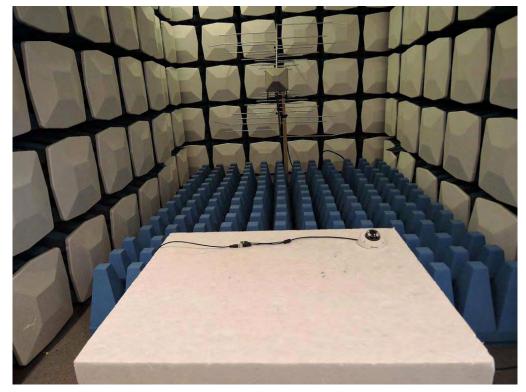


Test Mode : Mode 1: DC 12V

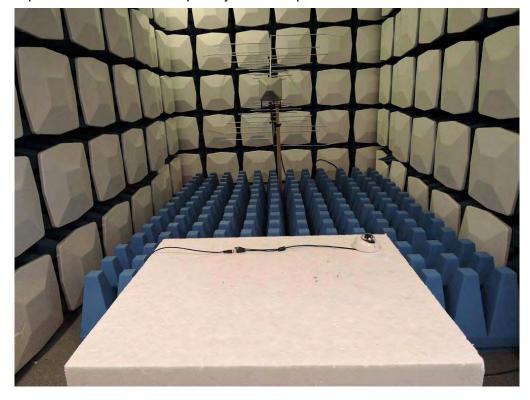




Description : Radiated Susceptibility Test Setup

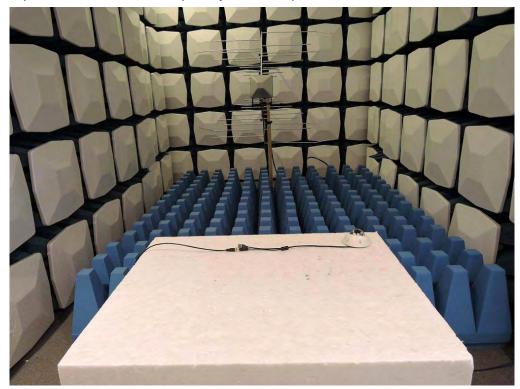


Test Mode : Mode 2: PoE

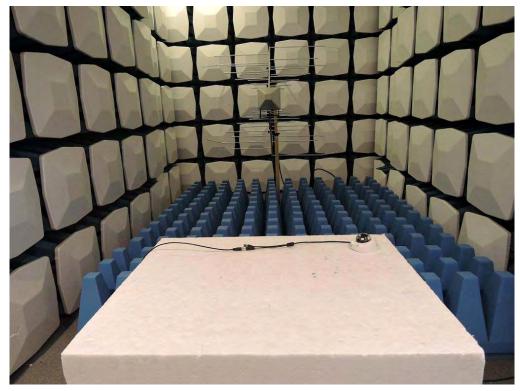




Description : Radiated Susceptibility Test Setup

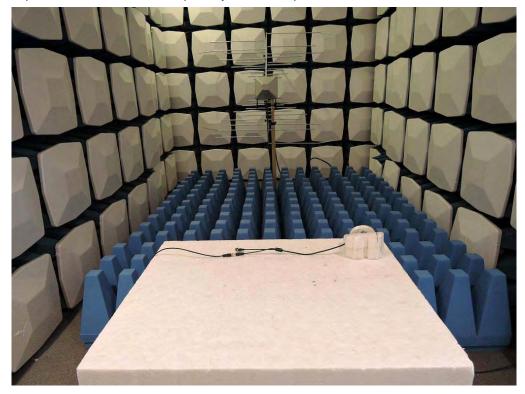


Test Mode : Mode 2: PoE





Description : Radiated Susceptibility Test Setup



Test Mode : Mode 2: PoE



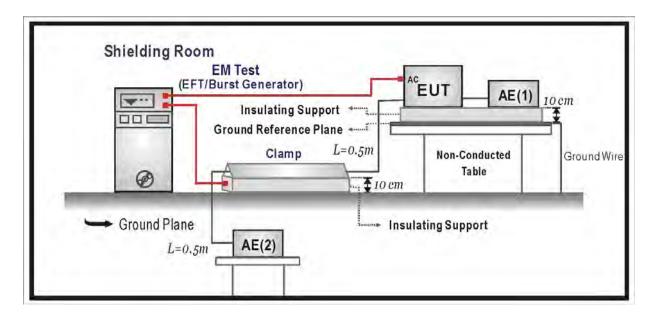


### 8. Electrical Fast Transient/Burst

## 8.1. Test Specification

According to EN 50121-4 clause 6.

## 8.2. Test Setup



### 8.3. Limit

Item Environmental Phenomena	Units	Test	Performance				
	oc	Specificatio					
Signal and Telecommunication Ports							
Fast Transients Common	kV (Peak)	<u>+</u> 2					
Mode	Tr/Th ns	<u>+</u> 2 5/50	Α				
	Rep. Frequency kHz	5					
Input DC Power Ports							
Fast Transients Common	kV (Peak)	<u>+</u> 2					
Mode	Tr/Th ns	<u>+</u> 2 5/50	Α				
	Rep. Frequency kHz	5					
Input AC Power Ports							
Fast Transients Common	kV (Peak)	<u>+</u> 2					
Mode	Tr/Th ns	5/50	Α				
	Rep. Frequency kHz	5					



#### 8.4. Test Procedure

According to EN 61000-4-4.

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.

#### 8.5. Deviation from Test Standard

No deviation



## 8.6. Test Result

Product	Network Camera		
Test Item	Electrical fast transient/burst		
Test Mode	Mode 1: DC 12V		
Date of Test	2017/02/18	Test Site	No.6 Shielded Room

Inject Line	Polarity	Voltage kV	Inject Time (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L	±	2kV	60	Direct	В	А	PASS
N	±	2kV	60	Direct	В	А	PASS
L-N	±	2kV	60	Direct	В	А	PASS
LAN	±	2kV	60	Clamp	В	Α	PASS
DI/DO	±	2kV	60	Clamp	В	А	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.

$\square$	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	
$\square$	No false alarms or other malfunctions were observed during or after the test	



Product	Network Camera		
Test Item	Transient Burst		
Test Mode	Mode 2: PoE		
Date of Test	2017/02/18	Test Site	No.6 Shielded Room

Inject Line	Polarity	Voltage kV	Inject Time (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
LAN	±	2kV	60	Clamp	В	А	PASS
DI/DO	±	2kV	60	Clamp	В	Α	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.

$\boxtimes$	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	
$\square$	No false alarms or other malfunctions were observed during or after the test	



## 8.7. Test Photograph

Test Mode : Mode 1: DC 12V

Description : EFT/B Test Setup



Test Mode : Mode 1: DC 12V

Description : EFT/B Test Setup-Clamp





Description : EFT/B Test Setup-Clamp



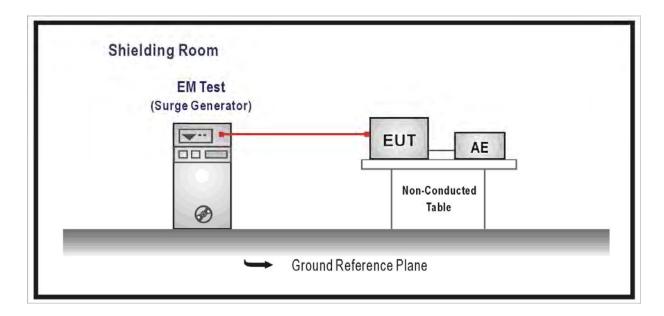


## 9. Surge

## 9.1. Test Specification

According to EN 50121-4 clause 6.

## 9.2. Test Setup



## 9.3. Limit

Item Environmental Phenomena	Units	Test	Performance				
		Specification	Criteria				
Signal Ports and Telecommunica	Signal Ports and Telecommunication Ports(See 1) and 2))						
Surges	Tr/Th us	1.2/50 (8/20)					
Line to Line	KV	± 1					
Line to Ground	kV	± 2	В				
	Output Impedance $\Omega$	42					
	Coupling Capacitance μF	0.5					
Input DC Power Ports							
Surges	Tr/Th us	1.2/50 (8/20)					
Line to Line	kV	± 1	В				
Line to Ground	kV	± 2					
Input AC Power Ports							
Surges	Tr/Th us	1.2/50 (8/20)					
Line to Line	kV	± 1	В				
Line to Ground	kV	± 2					



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.

#### 9.4. Test Procedure

According to EN 61000-4-5.

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°, 90°, 180°, 270° 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.

#### 9.5. Deviation from Test Standard

No deviation.



### 9.6. Test Result

Product	Network Camera		
Test Item	Surge		
Test Mode	Mode 1: DC 12V		
Date of Test	2017/02/17	Test Site	No.6 Shielded Room

Inject Line	Polarity	Voltage kV	Angle	Time Interval (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L-N	±	1kV	0	60	Direct	В	А	PASS
L-N	<u>±</u>	1kV	90	60	Direct	В	А	PASS
L-N	<u>±</u>	1kV	180	60	Direct	В	А	PASS
L-N	<u>±</u>	1kV	270	60	Direct	В	А	PASS
LAN (Line to Ground)	±	2kV		60	Direct	В	В	PASS
DI/DO (Line to Ground)	±	2kV		60	Direct	В	В	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.

$\boxtimes$	Meet criteria A: Operate as intended during and after the test	
$\boxtimes$	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: PoE		
Date of Test	2017/02/17	Test Site	No.6 Shielded Room

Inject Line	Polarity	Voltage kV	Angle	Time Interval (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
LAN (Line to Ground)	±	2kV		60	Direct	В	В	PASS
DI/DO (Line to Ground)	<u>+</u>	2kV		60	Direct	В	В	PASS

## Note:

The testing performed is from lowest level up to the highest level as required by standard, by
only highest level is shown on the report.
☐ Meet criteria A : Operate as intended during and after the test
☐ Meet criteria C : Loss/Error of function
☐ Additional Information
☐ EUT stopped operation and <u>could</u> / <u>could not</u> be reset by operator at kV of
Line
No false alarms or other malfunctions were observed during or after the test.



## 9.7. Test Photograph

Test Mode : Mode 1: DC 12V

Description : SURGE Test Setup



Test Mode : Mode 1: DC 12V

Description : SURGE Test Setup-LAN





Description : SURGE Test Setup-LAN





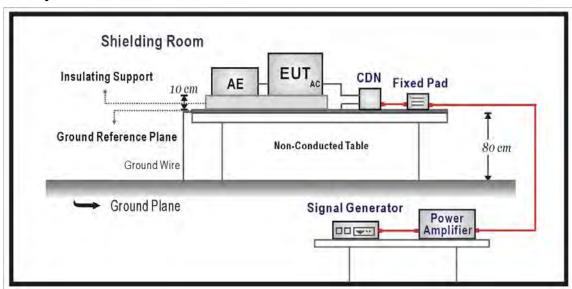
### 10. Conducted Susceptibility

## 10.1. Test Specification

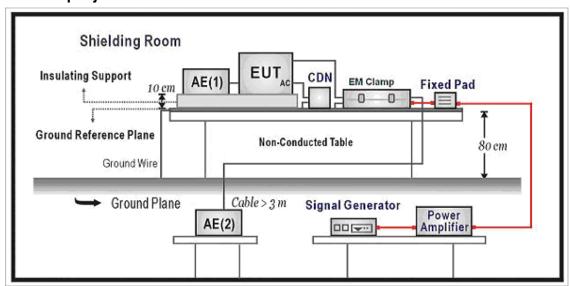
According to EN 50121-4 clause 6.

## 10.2. Test Setup

## **CDN Inject Method**



## **EM Clamp Inject Method**





#### 10.3. Limit

Item Environmental Phenomena	Units	Test Specification	Performance Criteria
Signal Ports and Telecommunicat	ion Ports		
Radio-Frequency	MHz	0.15-80	
Continuous Conducted	V (rms,	10	Λ .
	Un-modulated)	80	A
	% AM (1kHz)		
Input DC Power Ports			
Radio-Frequency	MHz	0.15-80	
Continuous Conducted	V (rms,	10	Λ .
	Un-modulated)	80	A
	% AM (1kHz)		
Input AC Power Ports			
Radio-Frequency	MHz	0.15-80	
Continuous Conducted	V (rms,	10	Λ .
	Un-modulated)	80	A
	% AM (1kHz)		

#### 10.4. Test Procedure

According to EN 61000-4-6.

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 140dBµV(10V) Level 3

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%

#### 10.5. Deviation from Test Standard

No deviation.



### 10.6. Test Result

Product	Network Camera		
Test Item	Conducted susceptibility		
Test Mode	Mode 1: DC 12V		
Date of Test	2017/02/14	Test Site	No.6 Shielded Room

Frequency	Voltage	Inject	Tested Port	Required	Performance	Result
Range	Applied	Method	of	Criteria	Criteria	
(MHz)	dBuV(V)		EUT		Complied To	
0.15~80	10V	CDN	AC IN	А	А	PASS
0.15~80	10V	CDN	LAN	Α	А	PASS
0.15~80	10V	Clamp	LAN	А	А	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.

$\boxtimes$	Me	eet criteria A: Operate as intended during and after the test
	Me	eet criteria B : Operate as intended after the test
	Me	eet criteria C : Loss/Error of function
	Ac	Iditional Information
		EUT stopped operation and could / could not be reset by operator at dBuV(V) at
		frequencyMHz.
	$\boxtimes$	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		
Date of Test	2017/02/14	Test Site	No.6 Shielded Room

Frequency	Voltage	Inject	Tested Port	Required	Performance	Result
Range	Applied	Method	of	Criteria	Criteria	
(MHz)	dBuV(V)		EUT		Complied To	
0.15~80	10V	CDN	LAN	Α	Α	PASS
0.15~80	10V	Clamp	LAN	Α	А	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.

$\boxtimes$	Mee	et criteria A : Operate as intended during and after the test
	Mee	et criteria B : Operate as intended after the test
	Mee	et criteria C : Loss/Error of function
	Add	litional Information
	□ E	EUT stopped operation and <u>could</u> / <u>could not</u> be reset by operator at dBuV(V) at
	f	requencyMHz.
		No false alarms or other malfunctions were observed during or after the test. The
	á	acceptance criteria were met, and the EUT passed the test.



## 10.7. Test Photograph

Test Mode : Mode 1: DC 12V

Description : Conducted Susceptibility Test Setup



Test Mode : Mode 1: DC 12V

Description : Conducted Susceptibility Test Setup-CDN





Description : Conducted Susceptibility Test Setup-CDN



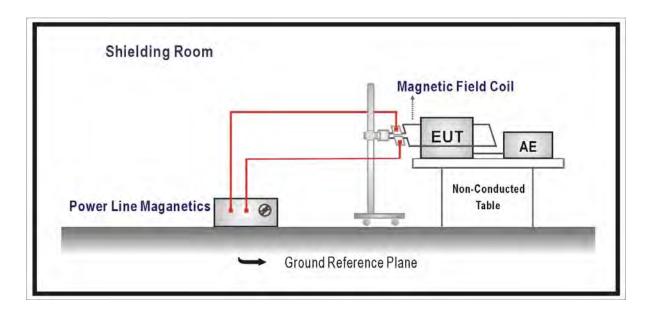


## 11. Power Frequency Magnetic Field

## 11.1. Test Specification

According to EN 50121-4 clause 6.

## 11.2. Test Setup



### 11.3. Limit

Item	Environmental	ronmental Units		Performance	
	Phenomena			Criteria	
Enclosu	re Port				
	Power-Frequency	Hz	16.7	Α	
	Magnetic Field	Hz	50		
		Hz	0 d.c		
		A/m (r.m.s.)	100 a.c. systems		
		A/m (r.m.s.)	300 d.c. systems		

Note: Test only applies to apparatus containing devices sensitive to magnetic fields, such as Hall elements, electro-dynamic microphones etc.



#### 11.4. Test Procedure

According to EN 61000-4-8.

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).

### 11.5. Deviation from Test Standard

No deviation.



## 11.6. Test Result

Product	Network Camera				
Test Item	Power frequency magnetic field				
Test Mode	Mode 1: DC 12V				
Date of Test	2017/02/13	Test Site	No.6 Shielded Room		

Polarization	Frequency	Inject	Magnetic	Required	Performance	Test Result
	(Hz)	Time	Strength	Performance	Criteria	
		(s)	(A/m)	Criteria	Complied To	
X Orientation	50	60	100	А	А	PASS
Y Orientation	50	60	100	А	А	PASS
Z Orientation	50	60	100	А	А	PASS
X Orientation	0	60	300	А	А	PASS
Y Orientation	0	60	300	А	А	PASS
Z Orientation	0	60	300	А	А	PASS
X Orientation	16.7	60	100	А	А	PASS
Y Orientation	16.7	60	100	А	А	PASS
Z Orientation	16.7	60	100	А	А	PASS

	$\boxtimes$	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	
$\boxtimes$	No false	e alarms or other malfunctions were observed during or after the test. The accept	tance
	critoria	were met, and the FLIT passed the test	



Product	Network Camera					
Test Item	Power frequency magnetic field					
Test Mode	Mode 2: PoE					
Date of Test	2017/02/13	Test Site	No.6 Shielded Room			

Polarization	Frequency	Inject	Magnetic	Required	Performance	Test Result
	(Hz)	Time	Strength	Performance	Criteria	
		(s)	(A/m)	Criteria	Complied To	
X Orientation	50	60	100	А	А	PASS
Y Orientation	50	60	100	А	А	PASS
Z Orientation	50	60	100	А	А	PASS
X Orientation	0	60	300	А	А	PASS
Y Orientation	0	60	300	А	А	PASS
Z Orientation	0	60	300	А	А	PASS
X Orientation	16.7	60	100	А	А	PASS
Y Orientation	16.7	60	100	А	А	PASS
Z Orientation	16.7	60	100	А	А	PASS

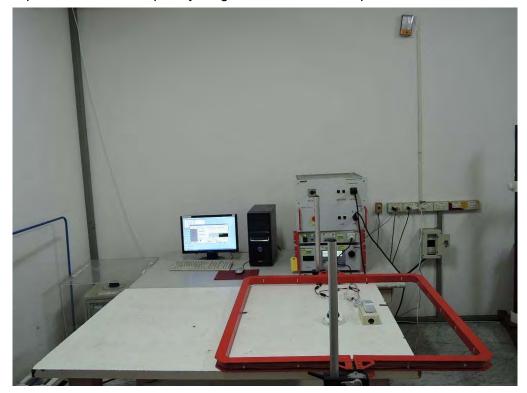
	☐ Meet criteria B: Operate as intended after the test
	☐ Meet criteria C: Loss/Error of function
	☐ Additional Information
	☐ EUT stopped operation and <u>could</u> / <u>could not</u> be reset by operator at kV
	of Line
$\boxtimes$	No false alarms or other malfunctions were observed during or after the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



## 11.7. Test Photograph

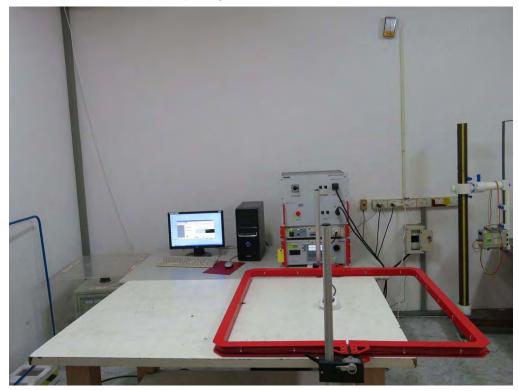
Test Mode : Mode 1: DC 12V

Description : Power Frequency Magnetic Field Test Setup



Test Mode : Mode 2: PoE

Description : Power Frequency Magnetic Field Test Setup





## 12. Attachment

# EUT Photograph

(1) EUT Photo\_MD8565-N (3.6mm)



## (2) EUT Photo\_MD8565-N (3.6mm)



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## (3) EUT Photo\_MD8565-N (3.6mm)



# (4) EUT Photo\_MD8565-N (2.8mm)





# (5) EUT Photo\_MD8565-N (2.8mm)



# (6) EUT Photo\_MD8565-N (2.8mm)

