CE Test Report

Product Name : Network Camera

Model No. : IB9389-H,IB9389-EH,IB9389-HM,IB9389-EHM, IB9389-HT,IB9389-EHT

Applicant : VIVOTEK INC.

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

Date of Receipt : 2019/04/17

Issued Date : 2019/05/10

Report No. : 1940266R-ITCEP27V00

Report Version : V1.0

Test Report

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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.	:	IB9389-H,IB9389-EH,IB9389-HM,IB9389-EHM, IB9389-HT,IB9389-EHT
EUT Rated Voltage	:	By PoE
EUT Test Voltage	:	By PoE
Trade Name	:	VIVOTEK
Applicable Standard	:	EN 50121-1: 2017 EN 50121-4: 2016 EN 61000-6-4: 2007+A1: 2011
Test Result	:	Complied
Performed Location	:	DEKRA Testing and Certification Co., Ltd. Linkou Laboratory No. 5-22, Ruishukeng Linkou District, New Taipei City, 24451, Taiwan TEL:+866-2-8601-3788 / FAX:+886-2-8601-3789

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1. General Information

1.1. EUT Description

Product Name	Network Camera
Trade Name	VIVOTEK
Model No.	IB9389-H,IB9389-EH,IB9389-HM,IB9389-EHM, IB9389-HT,IB9389-EHT

Note: The different of each model is shown as below

Model	Description	
IB9389-H	fixed	
IB9389-EH	fixed	Wide-Range Temperature
IB9389-HM	manual	
IB9389-EHM	manual	Wide-Range Temperature
IB9389-HT	remote	
IB9389-EHT	remote	Wide-Range Temperature

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: IB9389-HT, PoE Mode	
Final Test Mode	
Emission	Mode 1: IB9389-HT, PoE Mode
Immunity	Mode 1: IB9389-HT, PoE Mode: IB9389-HT, PoE Mode

1.3. Tested System Details

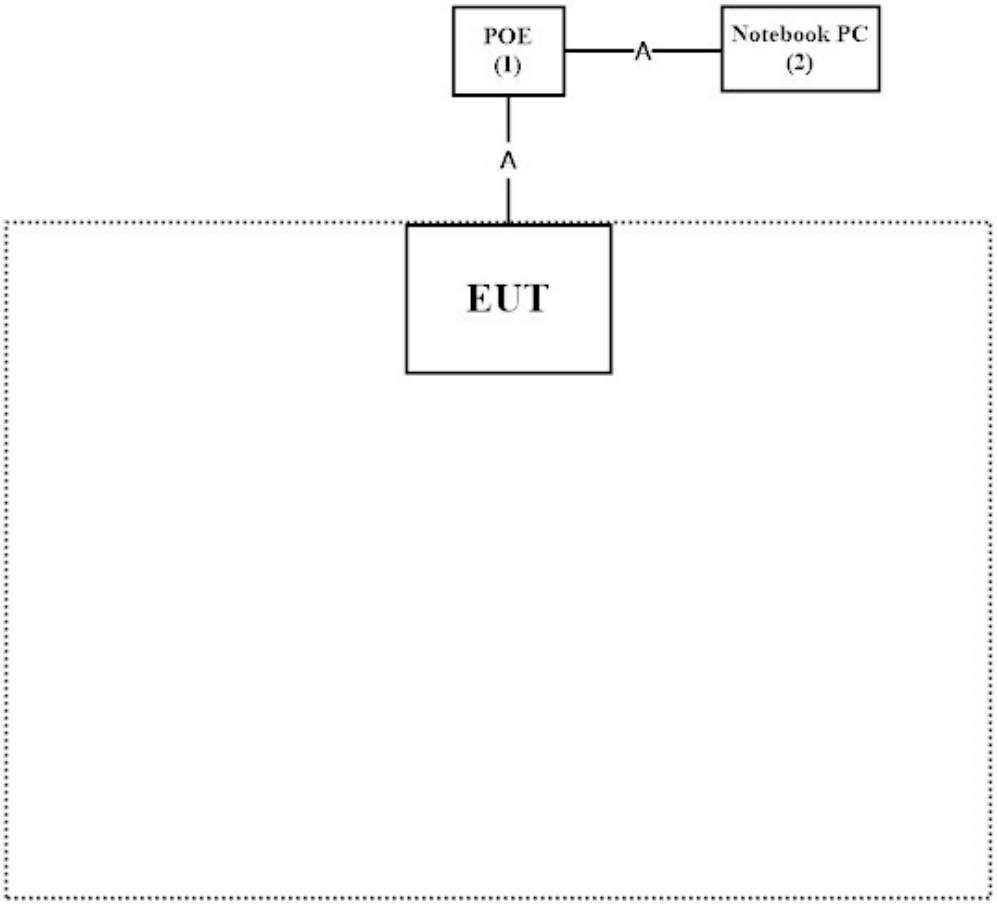
The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Test Mode		**EMI**			
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	POE	N/A	N/A	N/A	Non-Shielded, 1.2m
2	Notebook PC	DELL	PP04X	7607342512	N/A

Test Mode		**EMS**			
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	POE	N/A	N/A	N/A	Non-Shielded, 1.2m
2	Notebook PC	DELL	D630	00144-023-351-283	N/A

1.4. Configuration of Tested System

Connection Diagram



Signal Cable Type		Signal cable Description
A	LAN Cable	Non-shielded, 6m, two PCS

1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on 1.4.
2	Turn on the power of all equipment.
3	SD card works while the EUT is recording.
4	Repeat the above procedure (3).

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

Immunity			
Performed Item	Normative References	Test Performed	Deviation
Electrostatic Discharge	IEC 61000-4-2 Ed. 2.0: 2008	Yes	No
Radio-frequency electromagnetic field. (Radiated susceptibility)	IEC 61000-4-3 Ed. 3.2: 2010	Yes	No
Electrical fast transient/burst	IEC 61000-4-4 Ed. 3.0: 2012	Yes	No
Surge	IEC 61000-4-5 Ed. 3.1: 2014+A1: 2017	Yes	No
Radio-frequency common mode (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

2.2. List of Test Equipment

Impedance Stabilization Network / SR8

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	R&S	ESCS 30	100369	2018/11/19
LISN	R&S	ENV216	100097	2019/02/18
LISN	R&S	ESH3-Z5	836679/017	2019/02/18
Coaxial Cable	DEKRA	RG 400	LC018-RG	2018/06/21
Capacitive Voltage Probe	Schaffner	CVP2200A	18331	2018/12/03
RF Current Probe	FCC	F-65	198	2018/12/13
BALANCED TELECOM ISN	FCC	FCC-TLISN-T2-02	20316	2018/09/14
Impedance Stabilization Network	Teseq	ISN T800	42815	2018/07/12

Radiated Emission / Site6

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Broadband Antenna	Schwarzbeck	VULB 9168	0852	2019/02/02
EMI Test Receiver	R&S	ESR3	101973	2018/11/13
Coaxial Cable	DEKRA	RG 214	LC006-RG	2018/06/17
Pre-Amplifier	DEKRA	AP-025C	CHM-0506002	2018/06/17
Coaxial signal switch	Anritsu	MP59B	6201454660	2018/06/17
Site6 NSA	DEKRA	N/A	N/A	2018/06/17

Radiated Emission / CB8

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	R&S	ESR26	101385	2018/07/31
Horn Antenna	ETS-Lindgren	3117	00203761	2018/11/01
Horn Antenna	SCHWARZBECK	9120D	576	2018/12/18
Pre-Amplifier	EMCI	EMC012630SE	980210	2019/04/16
CB8 VSWR	DEKRA	N/A	N/A	2018/05/28

Electrostatic Discharge / SR6

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

Radiated susceptibility / CB9

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Signal Generator	Keysight	N5171B	MY53051650	2019/03/05
Power Sensor	Keysight	N1912A	MY55480006	2019/03/06
Stacked double Log.-Per.-Broadband Antenna	SCHWARZBECK	STLP 9129	9129 011	N/A
Power Amplifier	MILMEGA	80RF1000-300	1071481	N/A
Power Amplifier	MILMEGA	AS0860B-50/50	1071482	N/A
uniform field calibration	Dekra	N/A	N/A	2018/06/15

Electrical fast transient/burst / SR6

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMS TEST System	TESEQ	NSG 3060	1685	2018/09/02

Surge / SR3

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

Conducted susceptibility / SR6

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

Power frequency magnetic field / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
45kVA Power Source	TESEQ	NSG 1007-45	1847A00294	2018/12/19
Magnetic Loop Coil	TESEQ	INA 703	2007	2018/08/02

2.3. Measurement Uncertainty

Impedance Stabilization Network

The measurement uncertainty is evaluated as ± 3.88 dB.

Radiated Emission

The measurement uncertainty is evaluated as ± 4.22 dB.

Radiated Emission Above 1GHz

The measurement uncertainty is evaluated as ± 5.08 dB.

Electrostatic Discharge

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

Radiated susceptibility

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

Electrical fast transient/burst

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

Surge

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

Conducted susceptibility

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, the

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

Power frequency magnetic field

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

2.4. Test Environment

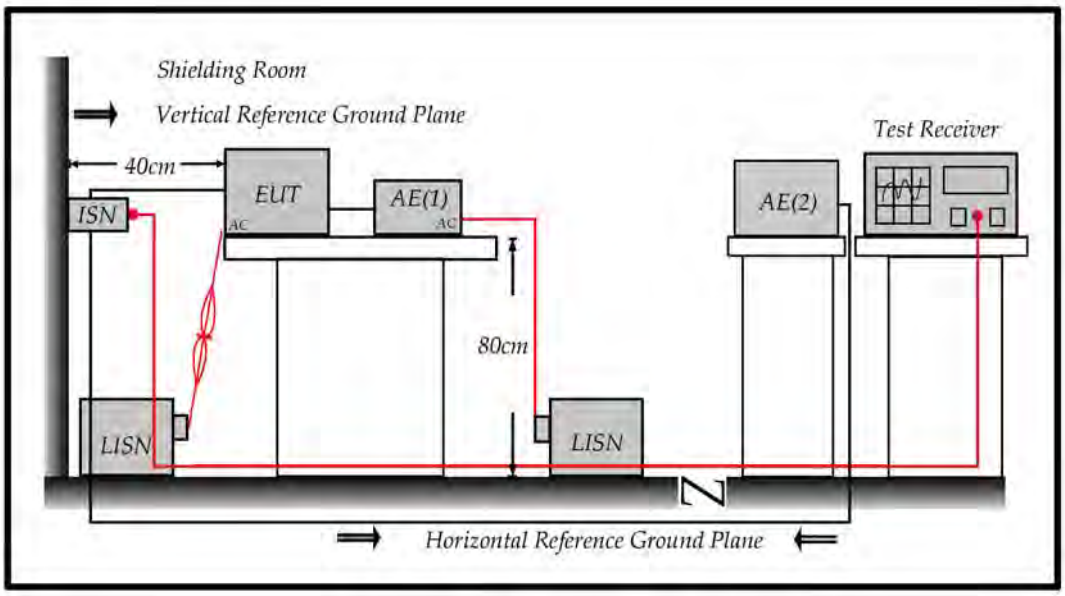
Performed Item	Items	Required	Actual
Impedance Stabilization Network	Temperature (°C)	15-35	20
	Humidity (%RH)	25-75	51
	Barometric pressure (mbar)	860-1060	950-1000
Radiated Emission	Temperature (°C)	15-35	26.7
	Humidity (%RH)	25-75	65
	Barometric pressure (mbar)	860-1060	950-1000
Electrostatic Discharge	Temperature (°C)	15-35	20
	Humidity (%RH)	30-60	48
	Barometric pressure (mbar)	860-1060	950-1000
Radiated susceptibility	Temperature (°C)	15-35	22
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Electrical fast transient/burst	Temperature (°C)	15-35	23
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Surge	Temperature (°C)	15-35	22
	Humidity (%RH)	10-75	52
	Barometric pressure (mbar)	860-1060	950-1000
Conducted susceptibility	Temperature (°C)	15-35	22
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Power frequency magnetic field	Temperature (°C)	15-35	22
	Humidity (%RH)	25-75	52
	Barometric pressure (mbar)	860-1060	950-1000

3. Conducted Emissions (Telecommunication Ports)

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

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.

3.4. Test Procedure

Telecommunication Port:

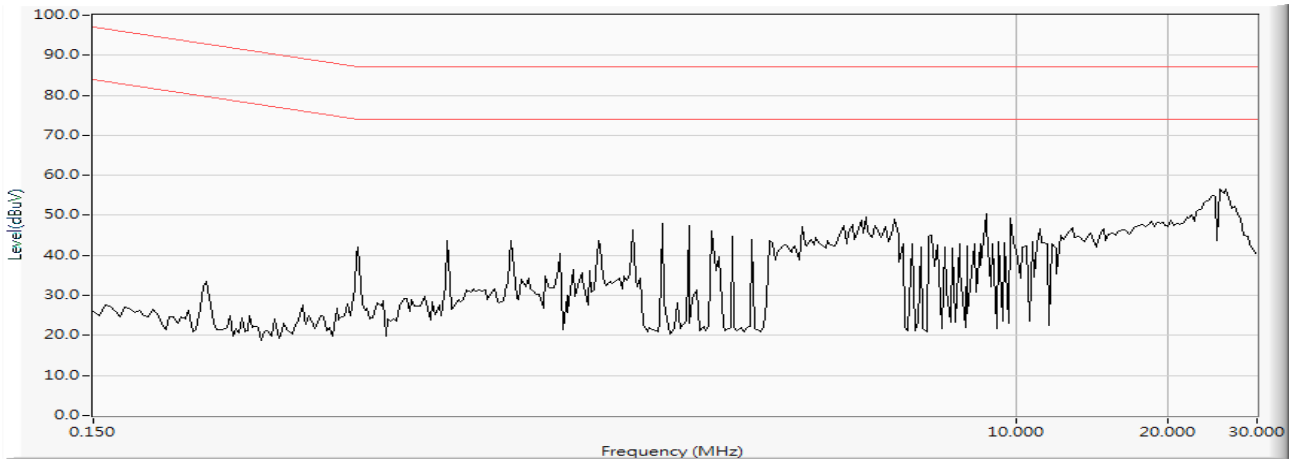
The mains voltage shall be supplied to the EUT via the LISN when the measurement of telecommunication port is performed. The common mode disturbances at the telecommunication port shall be connected to the ISN, which is 150 ohm impedance.
Both alternative cables are tested related to the LCL requested.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

3.5. Deviation from Test Standard

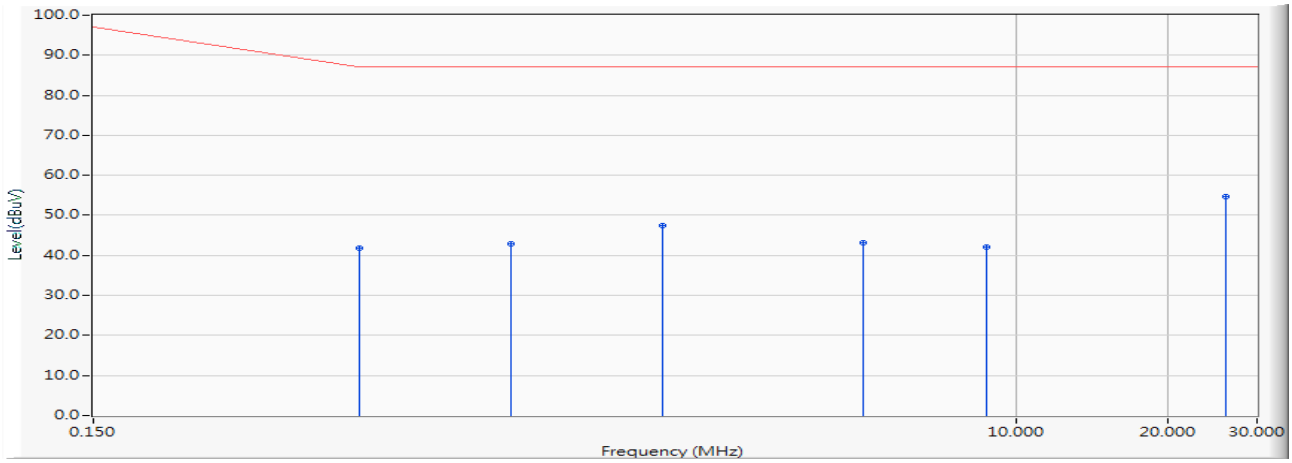
No deviation.

3.6. Test Result

Site : SR8	**Time : 2019/04/22 - 17:12**
Limit : ISN_Voltage_A_00M_QP	**Margin : 13**
EUT : Network Camera	**Probe : TESEQ_T8_42815 - Line1**
Power : PoE	**Note : Mode 1, ISN 10M**



Site : SR8	**Time : 2019/04/22 - 17:13**
Limit : ISN_Voltage_A_00M_QP	**Margin : 0**
EUT : Network Camera	**Probe : TESEQ_T8_42815 - Line1**
Power : PoE	**Note : Mode 1, ISN 10M**

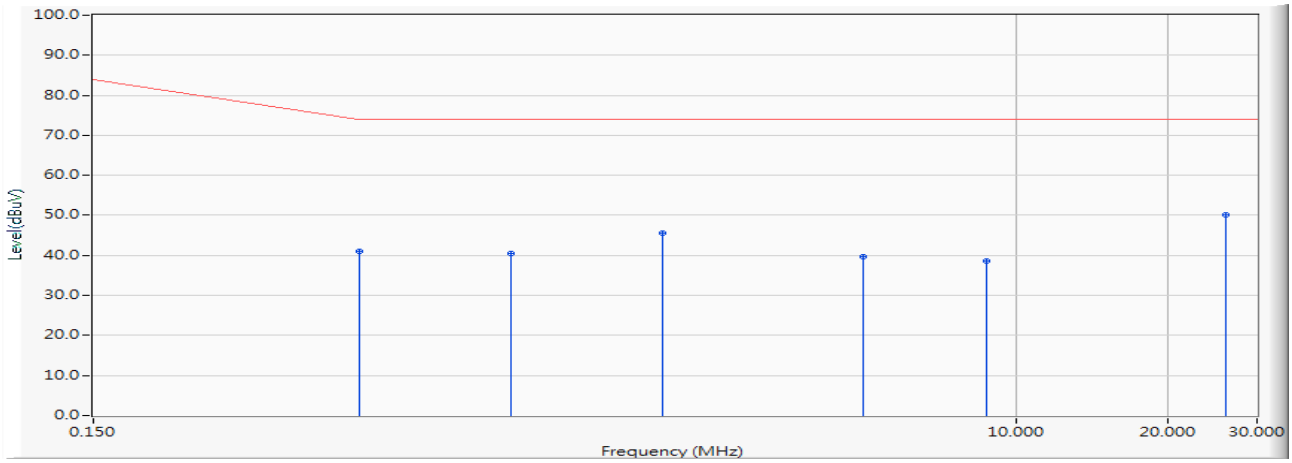


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.502	10.012	31.840	41.852	-45.148	87.000	QUASIPEAK
2		1.002	9.931	32.860	42.791	-44.209	87.000	QUASIPEAK
3		2.004	9.902	37.480	47.382	-39.618	87.000	QUASIPEAK
4		5.009	9.914	33.140	43.054	-43.946	87.000	QUASIPEAK
5		8.767	9.999	31.960	41.959	-45.041	87.000	QUASIPEAK
6	*	26.048	10.505	44.200	54.705	-32.295	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(Probe+Cable-Amp).

Site : SR8	**Time : 2019/04/22 - 17:13**
Limit : ISN_Voltage_A_00M_AV	**Margin : 0**
EUT : Network Camera	**Probe : TESEQ_T8_42815 - Line1**
Power : PoE	**Note : Mode 1, ISN 10M**

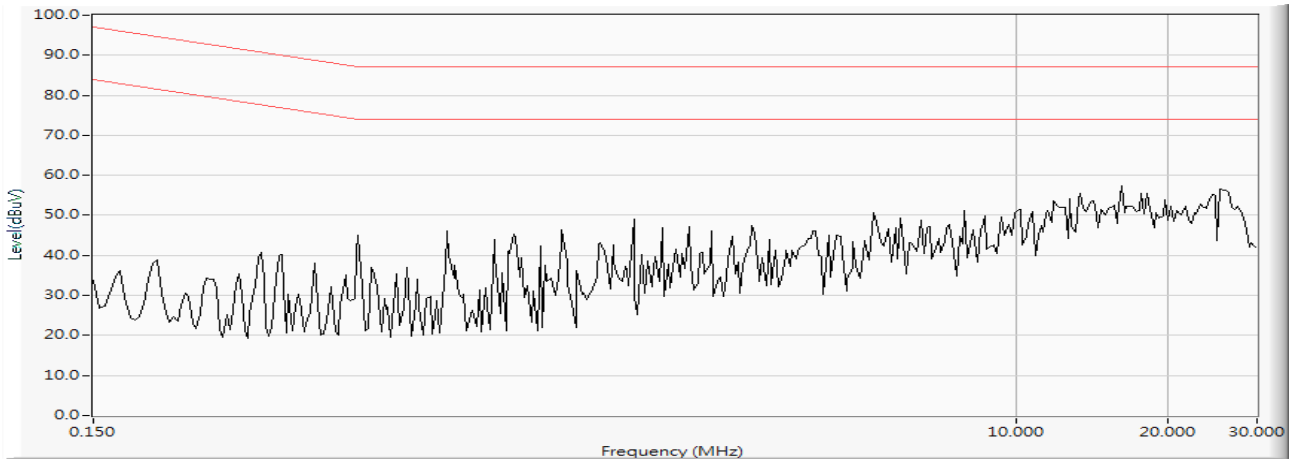


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.502	10.012	31.080	41.092	-32.908	74.000	AVERAGE
2		1.002	9.931	30.640	40.571	-33.429	74.000	AVERAGE
3		2.004	9.902	35.800	45.702	-28.298	74.000	AVERAGE
4		5.009	9.914	29.820	39.734	-34.266	74.000	AVERAGE
5		8.767	9.999	28.700	38.699	-35.301	74.000	AVERAGE
6	*	26.048	10.505	39.660	50.165	-23.835	74.000	AVERAGE

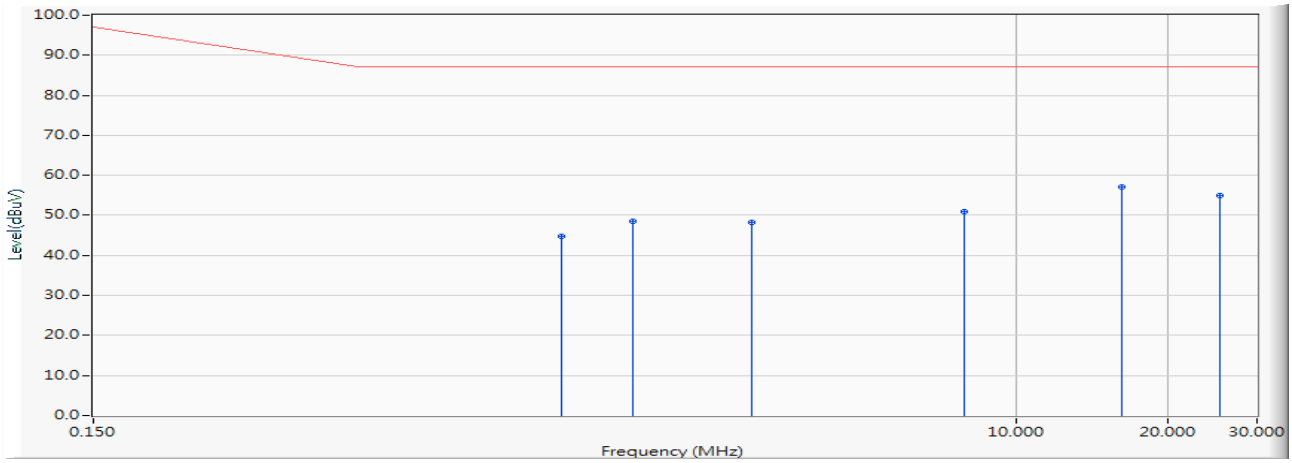
Note:

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(Probe+Cable-Amp).

Site : SR8	**Time : 2019/04/22 - 17:08**
Limit : ISN_Voltage_A_00M_QP	**Margin : 13**
EUT : Network Camera	**Probe : TESEQ_T8_42815 - Line1**
Power : PoE	**Note : Mode 1, ISN 100M**



Site : SR8	**Time : 2019/04/22 - 17:09**
Limit : ISN_Voltage_A_00M_QP	**Margin : 0**
EUT : Network Camera	**Probe : TESEQ_T8_42815 - Line1**
Power : PoE	**Note : Mode 1, ISN 100M**

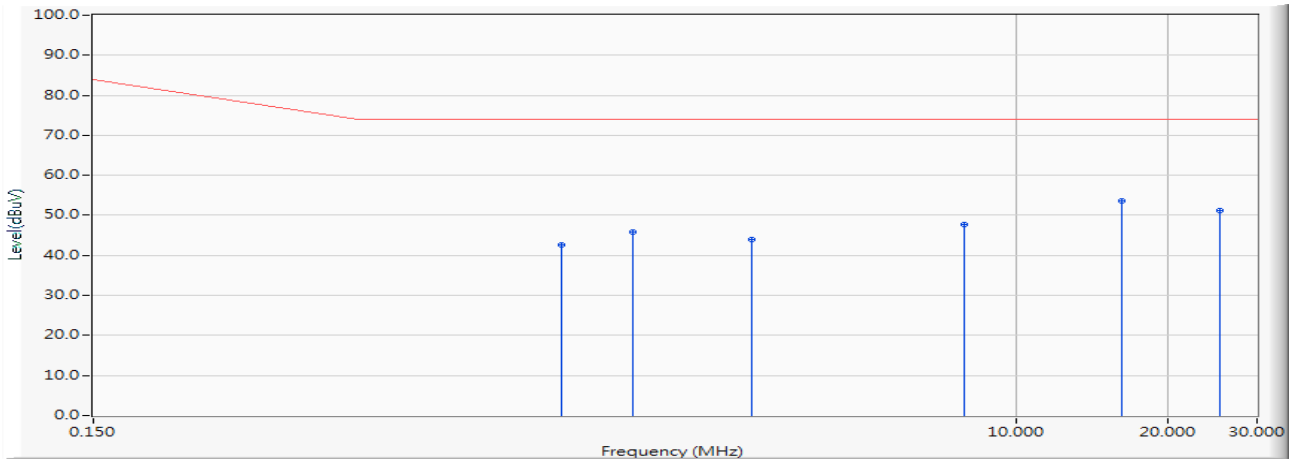


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		1.268	9.922	34.900	44.822	-42.178	87.000	QUASIPEAK
2		1.754	9.911	38.640	48.551	-38.449	87.000	QUASIPEAK
3		3.007	9.898	38.420	48.318	-38.682	87.000	QUASIPEAK
4		7.923	9.980	40.920	50.900	-36.100	87.000	QUASIPEAK
5	*	16.228	10.191	46.860	57.051	-29.949	87.000	QUASIPEAK
6		25.301	10.475	44.420	54.895	-32.105	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(Probe+Cable-Amp).

Site : SR8	**Time : 2019/04/22 - 17:09**
Limit : ISN_Voltage_A_00M_AV	**Margin : 0**
EUT : Network Camera	**Probe : TESEQ_T8_42815 - Line1**
Power : PoE	**Note : Mode 1, ISN 100M**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		1.268	9.922	32.640	42.562	-31.438	74.000	AVERAGE
2		1.754	9.911	35.900	45.811	-28.189	74.000	AVERAGE
3		3.007	9.898	34.040	43.938	-30.062	74.000	AVERAGE
4		7.923	9.980	37.700	47.680	-26.320	74.000	AVERAGE
5	*	16.228	10.191	43.540	53.731	-20.269	74.000	AVERAGE
6		25.301	10.475	40.760	51.235	-22.765	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(Probe+Cable-Amp).

3.7. Test Photograph

Test Mode : Mode 1: IB9389-HT, PoE Mode

Description : Front View of ISN Test

Test Mode : Mode 1: IB9389-HT, PoE Mode

Description : Back View of ISN Test

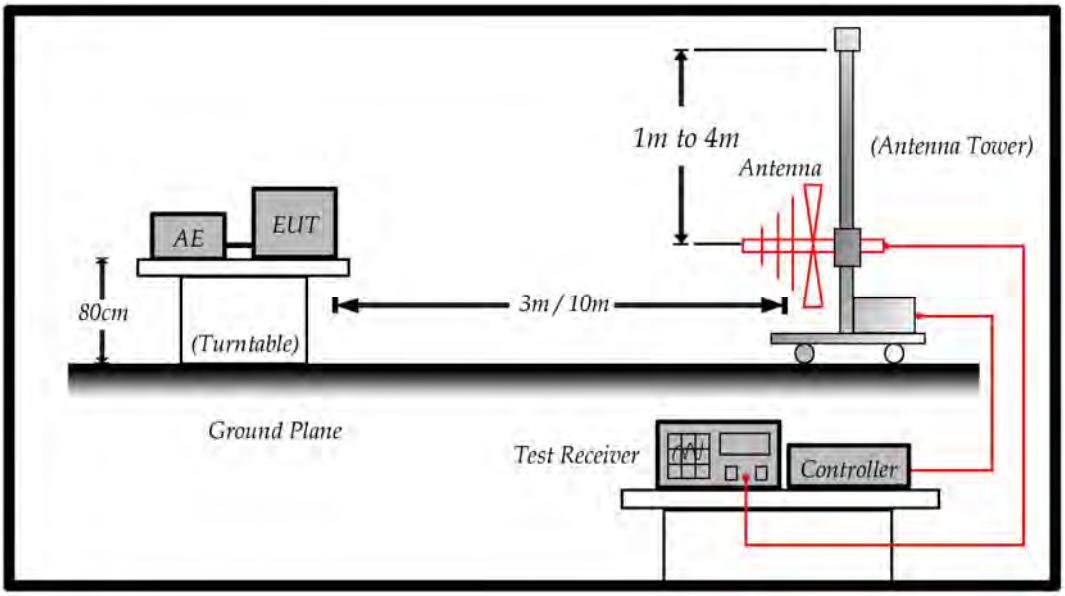
4. Radiated Emission

4.1. Test Specification

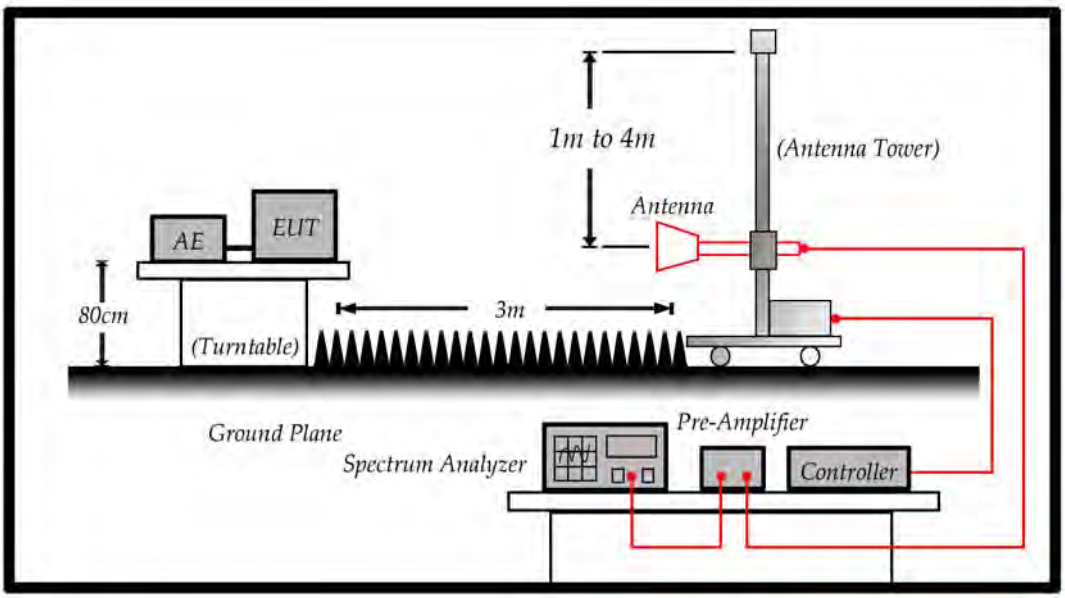
According to EN 50121-4 clause 5 and EN 61000-6-4 Table 1

4.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. 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

4.4. Test Procedure

According to CISPR 16-2-3.

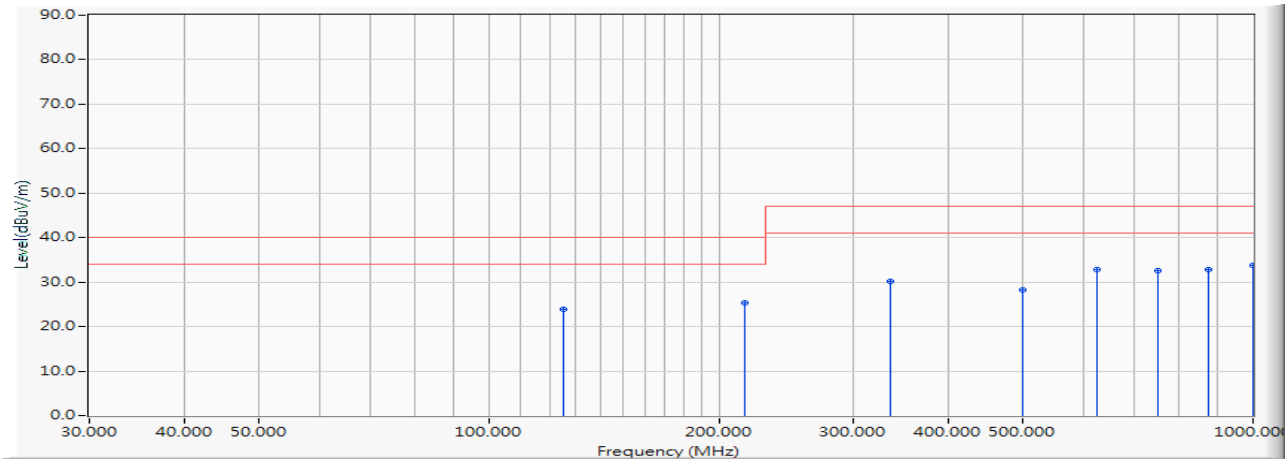
The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 10 meters. The antenna can move up and down between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

4.5. Deviation from Test Standard

No deviation.

4.6. Test Result

Site : Site6	**Time : 2019/04/19 - 14:05**
Limit : CISPR_A_10M_QP	**Margin : 6**
EUT : Network Camera	**Probe : Site6_VULB9168_10m_1902 - HORIZONTAL**
Power : By POE	**Note : Mode 1**

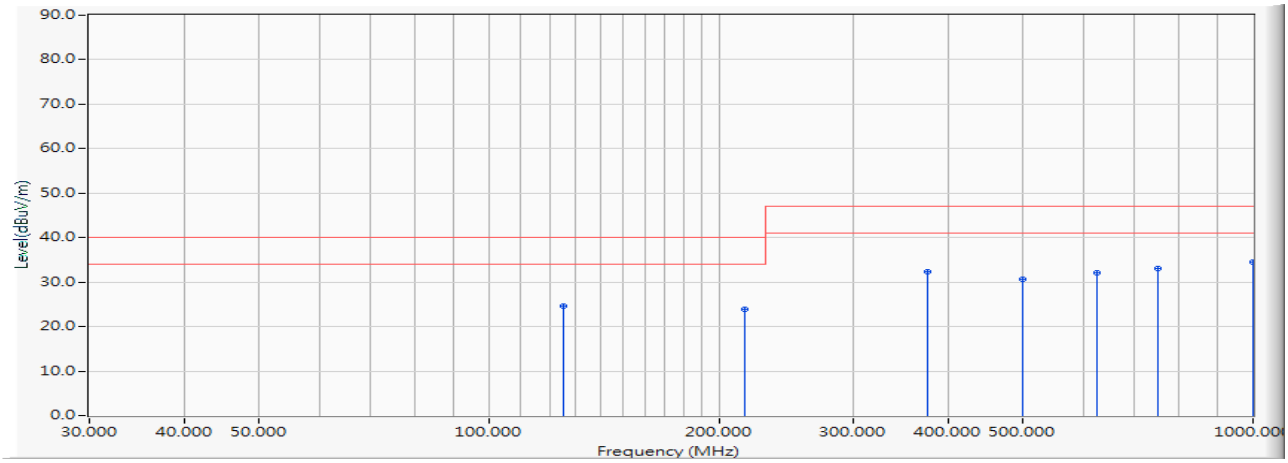


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1		125.000	-12.267	36.200	23.934	-16.066	40.000	QUASIPEAK	400.000	159.000
2		216.000	-12.854	38.300	25.445	-14.555	40.000	QUASIPEAK	400.000	21.000
3		336.000	-7.116	37.200	30.084	-16.916	47.000	QUASIPEAK	221.000	58.000
4		500.000	-1.999	30.200	28.201	-18.799	47.000	QUASIPEAK	203.000	22.000
5		625.000	1.532	31.200	32.732	-14.268	47.000	QUASIPEAK	150.000	108.000
6		750.000	4.551	28.100	32.651	-14.349	47.000	QUASIPEAK	100.000	49.000
7		875.000	6.292	26.600	32.893	-14.107	47.000	QUASIPEAK	100.000	49.000
8	*	1000.000	8.220	25.500	33.720	-13.280	47.000	QUASIPEAK	100.000	-66.000

Note:

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

Site : Site6	**Time : 2019/04/19 - 13:39**
Limit : CISPR_A_10M_QP	**Margin : 6**
EUT : Network Camera	**Probe : Site6_VULB9168_10m_1902 - VERTICAL**
Power : By POE	**Note : Mode 1**

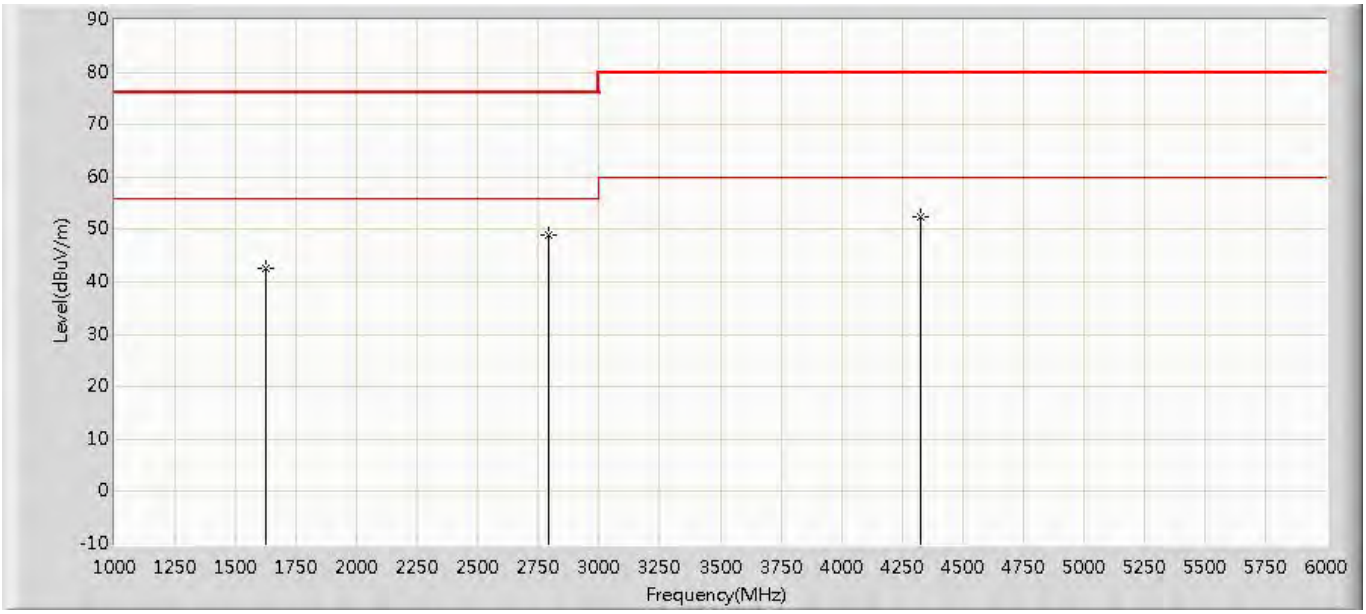


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1		125.000	-12.267	36.800	24.534	-15.466	40.000	QUASIPEAK	100.000	96.000
2		216.000	-12.854	36.800	23.945	-16.055	40.000	QUASIPEAK	100.000	96.000
3		375.000	-5.846	38.200	32.354	-14.646	47.000	QUASIPEAK	100.000	92.000
4		500.000	-1.999	32.600	30.601	-16.399	47.000	QUASIPEAK	261.000	19.000
5		625.000	1.532	30.500	32.032	-14.968	47.000	QUASIPEAK	261.000	19.000
6		750.000	4.551	28.600	33.151	-13.849	47.000	QUASIPEAK	221.000	130.000
7	*	1000.000	8.220	26.200	34.420	-12.580	47.000	QUASIPEAK	163.000	27.000

Note:

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

Site: CB8	Time: 2019/04/19 - 20:02
Limit: EN55032_A_(Above_1G)	Margin: 0
Probe: CB8_Horn_3117_1805	Polarity: Horizontal
EUT: Network Camera	Power: By POE
Note: Mode 1	

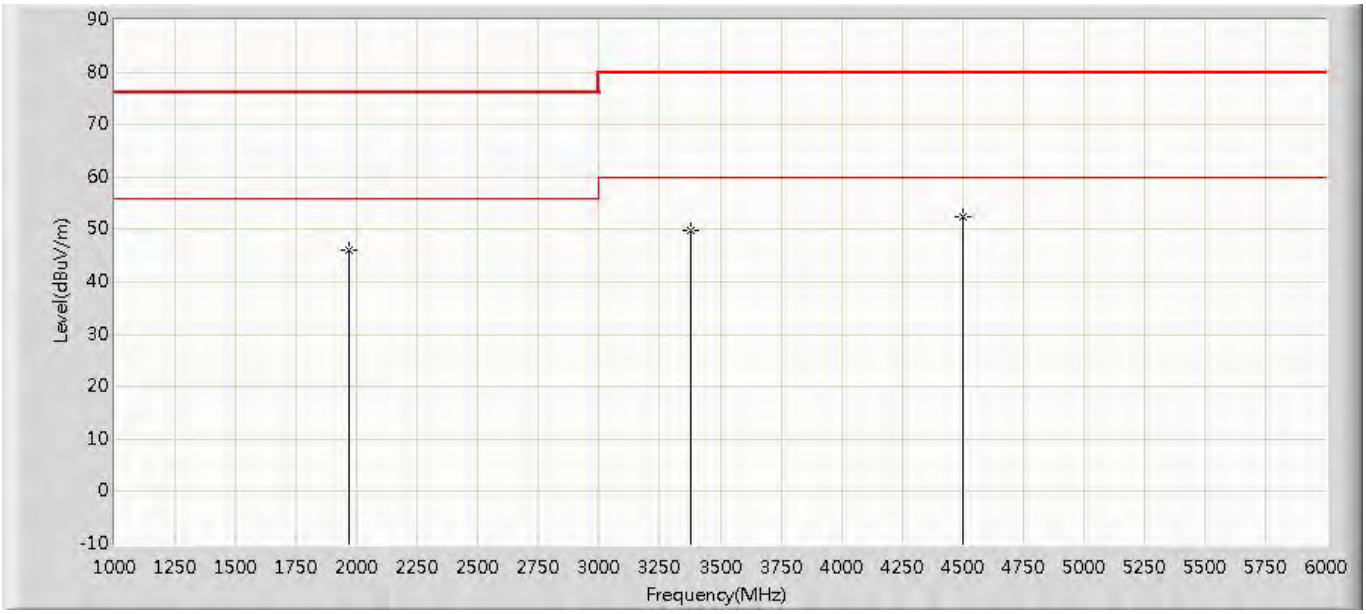


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Ant Pos (cm)	Table Pos (deg)	Type
1			1625.000	42.630	33.890	-33.370	76.000	8.740	100	-167	PK
2		*	2790.000	48.862	34.420	-27.138	76.000	14.442	100	84	PK
3			4328.000	52.326	35.190	-27.674	80.000	17.137	100	21	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: CB8	Time: 2019/04/19 - 20:53
Limit: EN55032_A_(Above_1G)	Margin: 0
Probe: CB8_Horn_3117_1805	Polarity: Vertical
EUT: Network Camera	Power: By POE
Note: Mode 1	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Ant Pos (cm)	Table Pos (deg)	Type
1			1965.000	46.161	34.200	-29.839	76.000	11.961	100	-117	PK
2			3380.000	49.779	34.310	-30.221	80.000	15.469	100	187	PK
3		*	4500.000	52.294	34.490	-27.706	80.000	17.804	100	28	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).

4.7. Test Photograph

Test Mode : Mode 1: IB9389-HT, PoE Mode

Description : Front View of Radiated Test

Test Mode : Mode 1: IB9389-HT, PoE Mode

Description : Back View of Radiated Test

Test Mode : Mode 1: IB9389-HT, PoE Mode

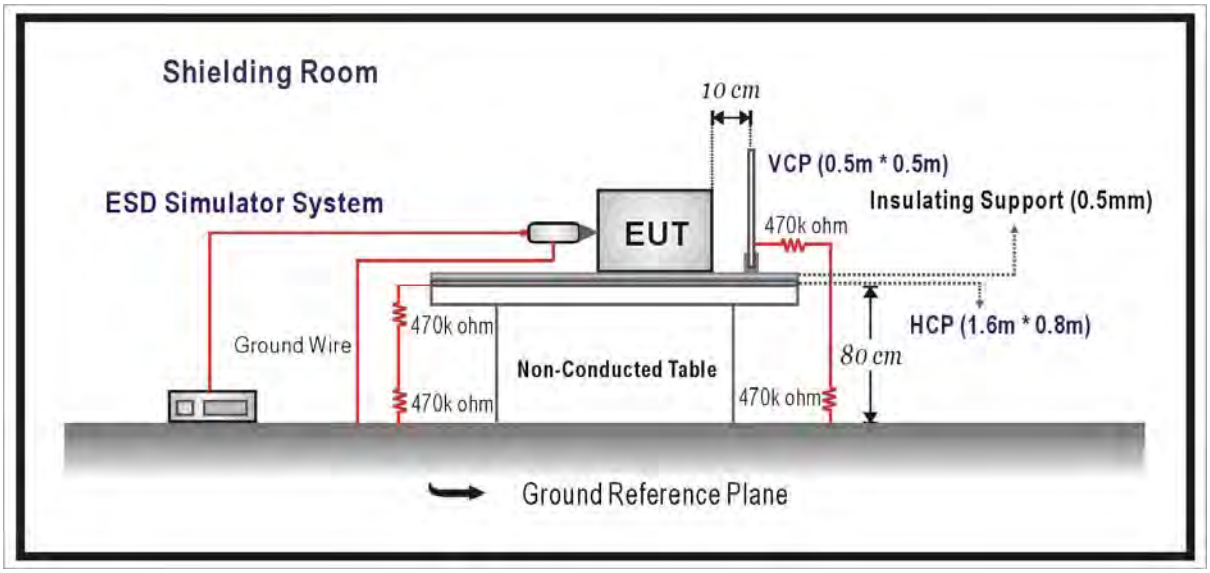
Description : Front View of High Frequency Radiated Test

5. Electrostatic Discharge

5.1. Test Specification

According to EN 50121-4 clause 6.

5.2. Test Setup



5.3. Limit

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

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

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

Horizontal Coupling Plane (HCP):

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

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

5.5. Deviation from Test Standard

No deviation..

5.6. Test Result

Product	Network Camera		
Test Item	Electrostatic Discharge		
Test Mode	Mode 1: IB9389-HT, PoE Mode		
Date of Test	2019/05/08	Test Site	No.6 Shielded Room

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

5.7. Test Photograph

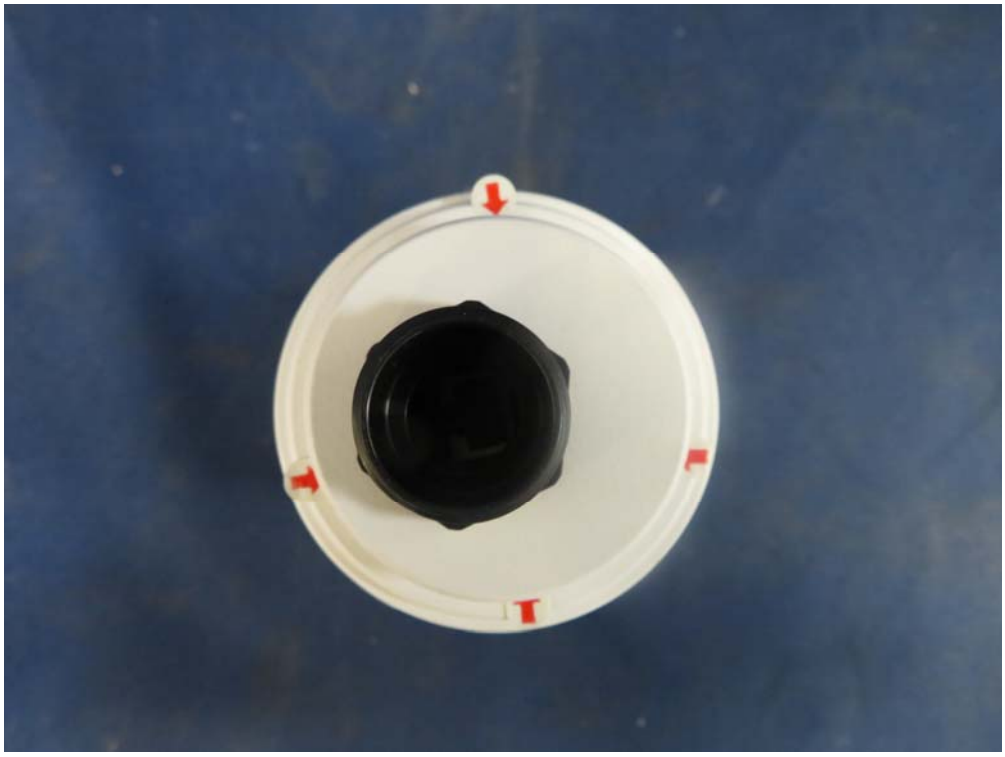
Test Mode : Mode 1: IB9389-HT, PoE Mode

Description : ESD Test Setup

5.8. EUT to dot photo for ESD test

Test dot : (Air DISCHARGE)

Test dot : (Air DISCHARGE)



Test dot : (Air DISCHARGE)

Test dot : (Air DISCHARGE)

Test dot : (Air DISCHARGE)

Test dot : (Air DISCHARGE)

Test dot : (CONTACT DISCHARGE)

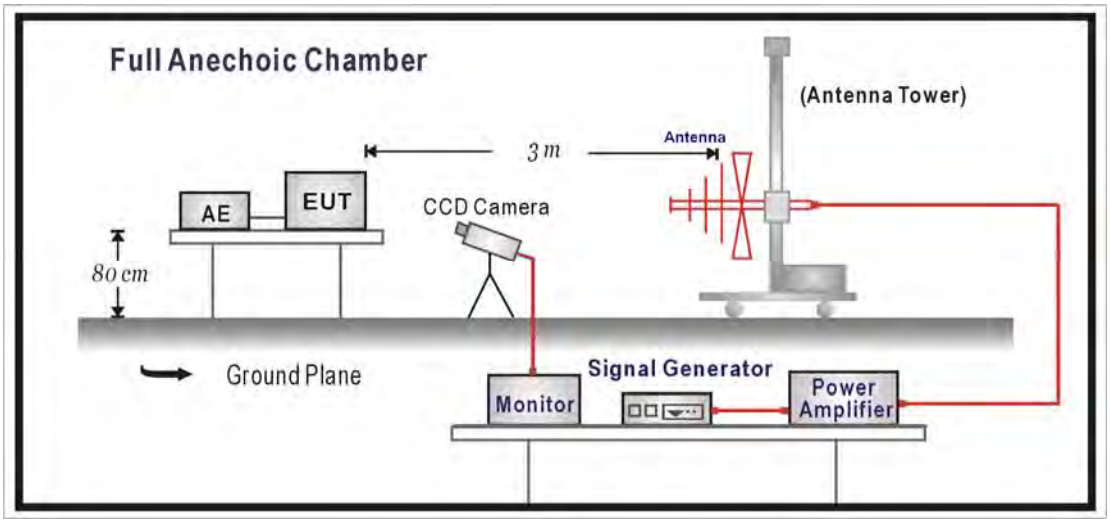
Test dot : (CONTACT DISCHARGE)

6. Radiated Susceptibility

6.1. Test Specification

According to EN 50121-4 clause 6.

6.2. Test Setup



6.3. Limit

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

6.4. Test Procedure

According to EN 61000-4-3

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

6.5. Deviation from Test Standard

No deviation.

6.6. Test Result

Product	Network Camera		
Test Item	Radiated susceptibility		
Test Mode	Mode 1: IB9389-HT, PoE Mode		
Date of Test	2019/05/02	Test Site	Chamber 9

Frequency (MHz)	Position (Angle)	Polarity (H or V)	Field Strength (V/m)	Required Criteria	Complied To Criteria (A,B,C)	Results
80-800	0°	H	10	A	A	PASS
80-800	0°	V	10	A	A	PASS
80-800	90°	H	10	A	A	PASS
80-800	90°	V	10	A	A	PASS
80-800	180°	H	10	A	A	PASS
80-800	180°	V	10	A	A	PASS
80-800	270°	H	10	A	A	PASS
80-800	270°	V	10	A	A	PASS
800-1000	0°	H	20	A	A	PASS
800-1000	0°	V	20	A	A	PASS
800-1000	90°	H	20	A	A	PASS
800-1000	90°	V	20	A	A	PASS
800-1000	180°	H	20	A	A	PASS
800-1000	180°	V	20	A	A	PASS
800-1000	270°	H	20	A	A	PASS
800-1000	270°	V	20	A	A	PASS
1400-2000	0°	H	10	A	A	PASS
1400-2000	0°	V	10	A	A	PASS
1400-2000	90°	H	10	A	A	PASS
1400-2000	90°	V	10	A	A	PASS
1400-2000	180°	H	10	A	A	PASS
1400-2000	180°	V	10	A	A	PASS
1400-2000	270°	H	10	A	A	PASS
1400-2000	270°	V	10	A	A	PASS
2000-2700	0°	H	5	A	A	PASS
2000-2700	0°	V	5	A	A	PASS
2000-2700	90°	H	5	A	A	PASS
2000-2700	90°	V	5	A	A	PASS
2000-2700	180°	H	5	A	A	PASS
2000-2700	180°	V	5	A	A	PASS
2000-2700	270°	H	5	A	A	PASS
2000-2700	270°	V	5	A	A	PASS
5100-6000	0°	H	3	A	A	PASS
5100-6000	0°	V	3	A	A	PASS
5100-6000	90°	H	3	A	A	PASS
5100-6000	90°	V	3	A	A	PASS
5100-6000	180°	H	3	A	A	PASS
5100-6000	180°	V	3	A	A	PASS
5100-6000	270°	H	3	A	A	PASS
5100-6000	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.

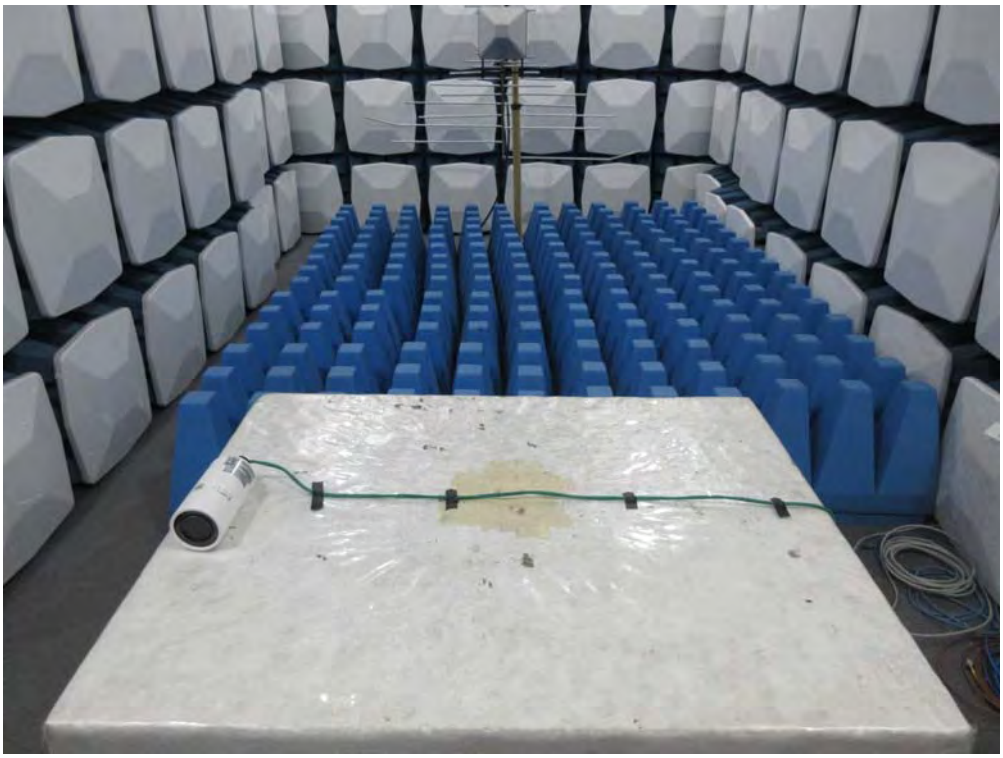
☒ Meet criteria A: Operate as intended during and after the test
☐ Meet criteria B: Operate as intended after the test
☐ Meet criteria C: Loss/Error of function
☐ Additional Information
  ☐ There was no observable degradation in performance.
  ☐ EUT stopped operation and could / could not be reset by operator at _____ V/m at frequency _____MHz.

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

6.7. Test Photograph

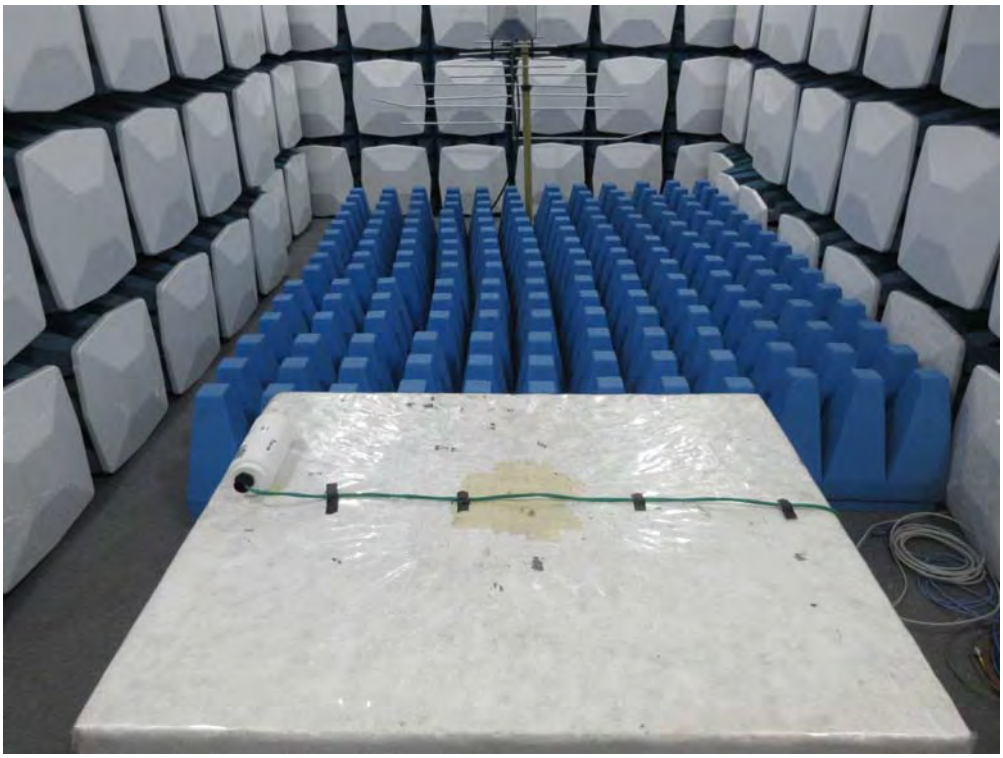
Test Mode : Mode 1: IB9389-HT, PoE Mode

Description : Radiated Susceptibility Test Setup



Test Mode : Mode 1: IB9389-HT, PoE Mode

Description : Radiated Susceptibility Test Setup

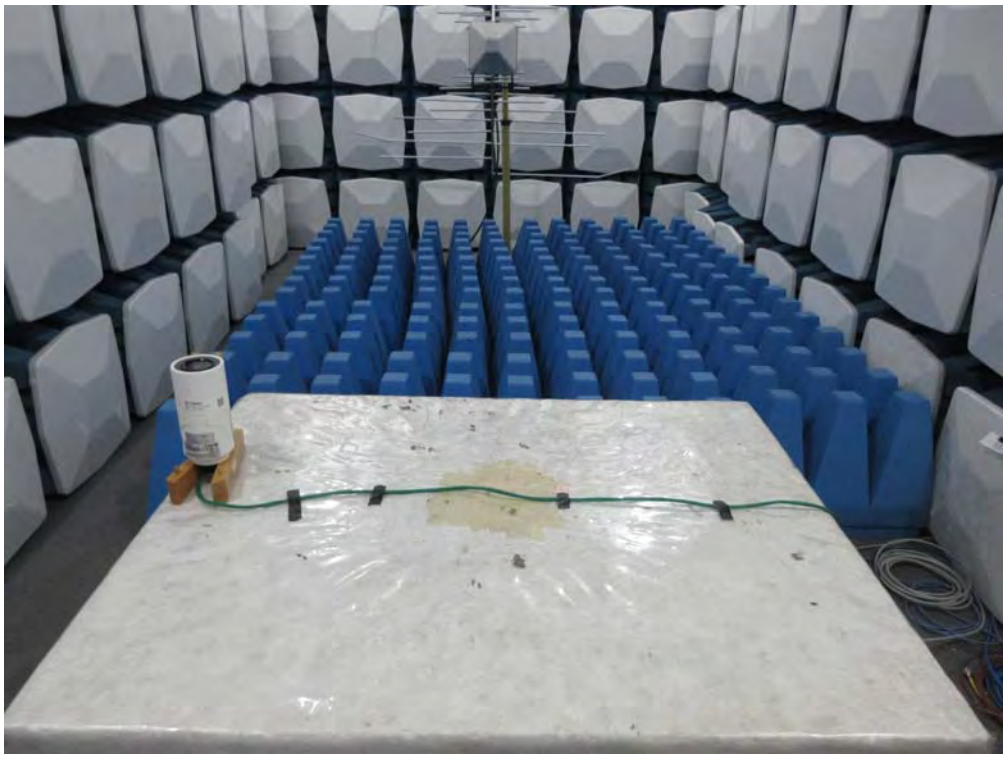


Test Mode : Mode 1: IB9389-HT, PoE Mode

Description : Radiated Susceptibility Test Setup

Test Mode : Mode 1: IB9389-HT, PoE Mode

Description : Radiated Susceptibility Test Setup

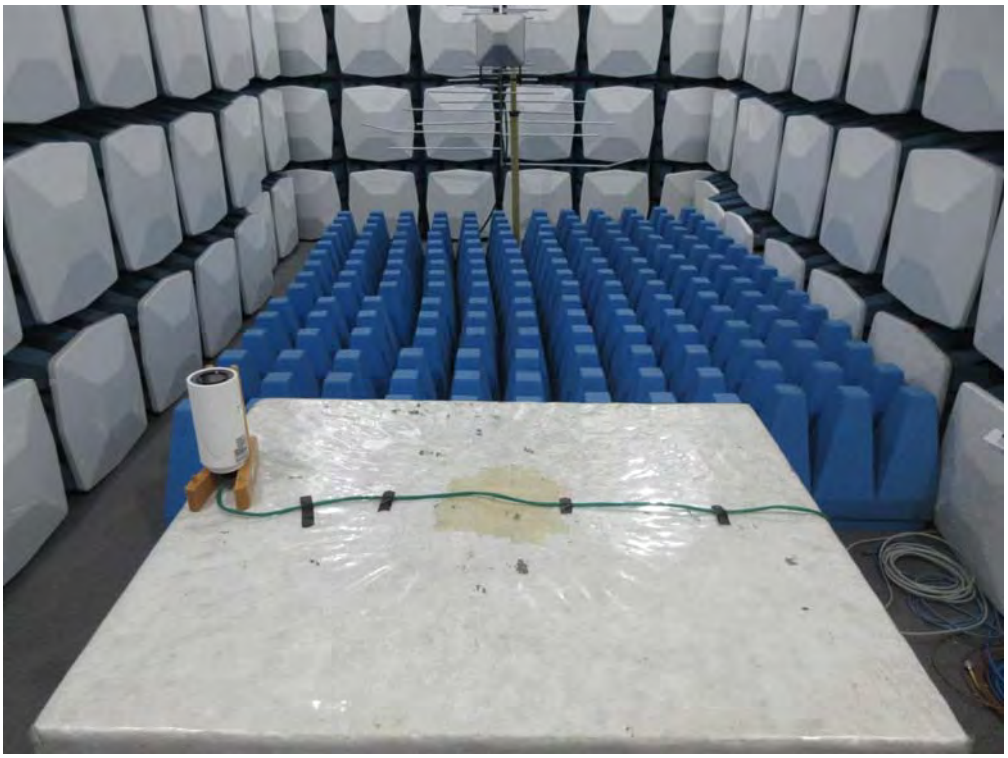


Test Mode : Mode 1: IB9389-HT, PoE Mode

Description : Radiated Susceptibility Test Setup

Test Mode : Mode 1: IB9389-HT, PoE Mode

Description : Radiated Susceptibility Test Setup

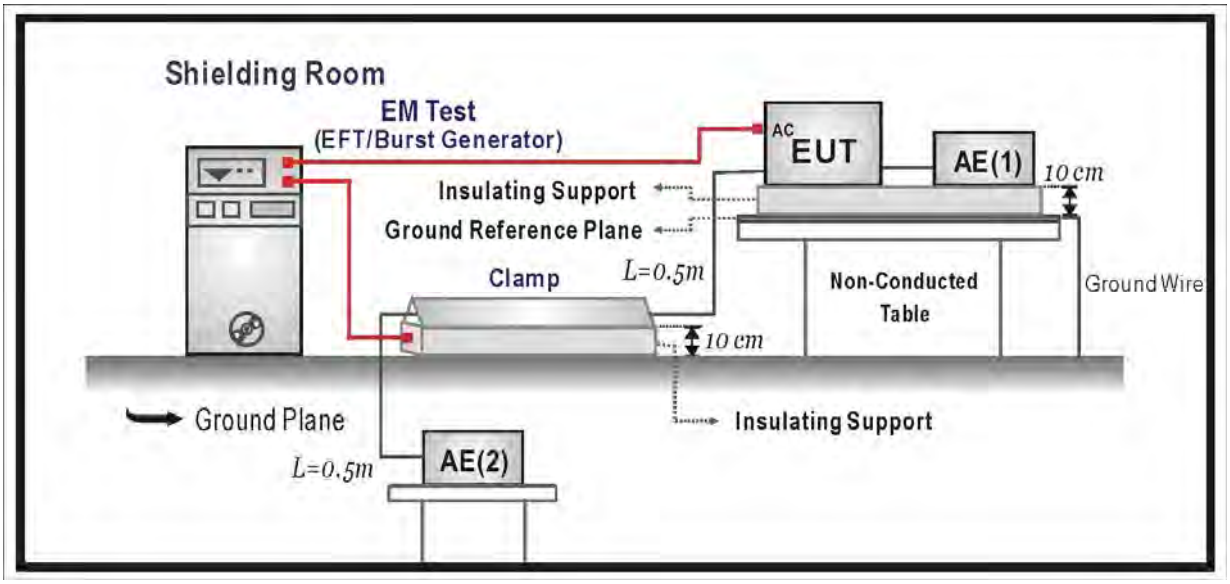


7. Electrical Fast Transient/Burst

7.1. Test Specification

According to EN 50121-4 clause 6.

7.2. Test Setup



7.3. Limit

Item	Environmental Phenomena	Units	Test Specificatio	Performance Criteria
Signal and Telecommunication Ports				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	±2 5/50 5	A
Input DC Power Ports				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	±2 5/50 5	A
Input AC Power Ports				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	±2 5/50 5	A

7.4. 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.

7.5. Deviation from Test Standard

No deviation

7.6. Test Result

Product	Network Camera		
Test Item	Electrical fast transient/burst		
Test Mode	Mode 1: IB9389-HT, PoE Mode		
Date of Test	2019/04/26	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	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 _____ kV of Line _____.
☒ No false alarms or other malfunctions were observed during or after the test.

7.7. Test Photograph

Test Mode : Mode 1: IB9389-HT, PoE Mode

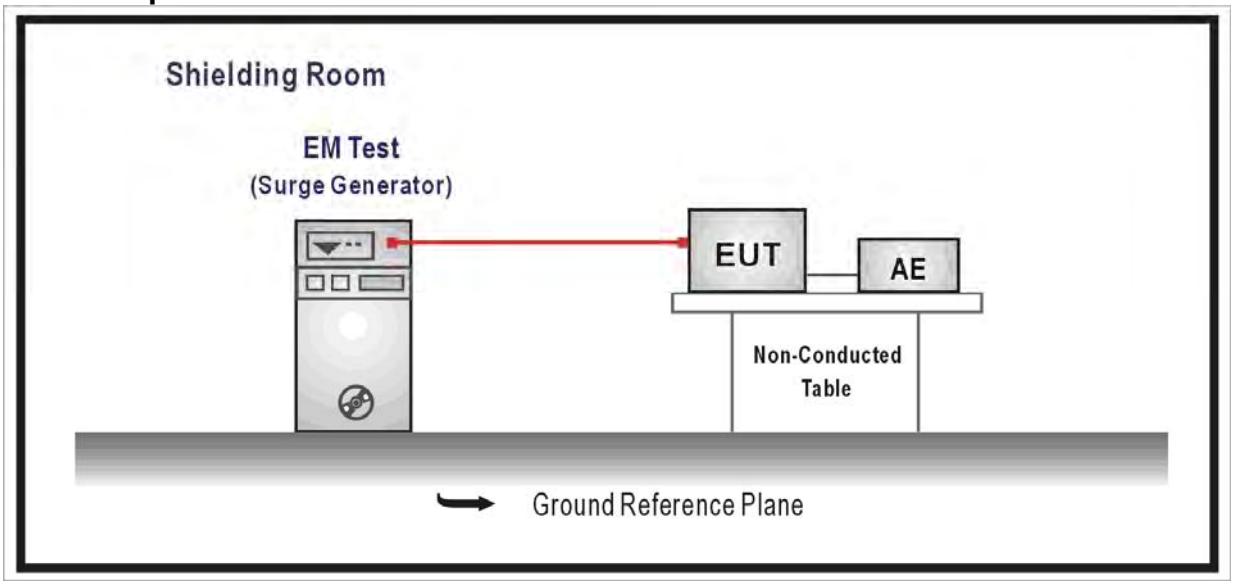
Description : EFT/B Test Setup

8. Surge

8.1. Test Specification

According to EN 50121-4 clause 6.

8.2. Test Setup



8.3. Limit

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

Notes:

1) For telecommunication ports and other ports intended for connection to highly balanced pairs, a line to line test is not required.
2) Ports directly connected to power ports or to the (public) low voltage network are classified as power ports also.

8.4. 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 0^0, 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.

8.5. Deviation from Test Standard

No deviation.

8.6. Test Result

Product	Network Camera		
Test Item	Surge		
Test Mode	Mode 1: IB9389-HT, PoE Mode		
Date of Test	2019/05/03	Test Site	No.3 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	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.

8.7. Test Photograph

Test Mode : Mode 1: IB9389-HT, PoE Mode

Description : SURGE Test Setup

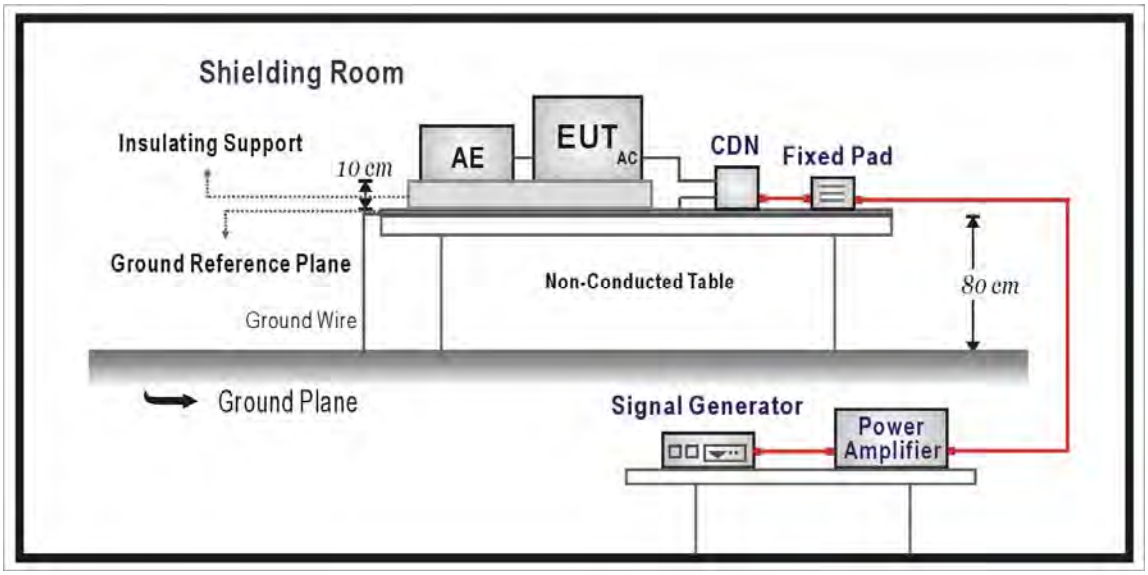
9. Conducted Susceptibility

9.1. Test Specification

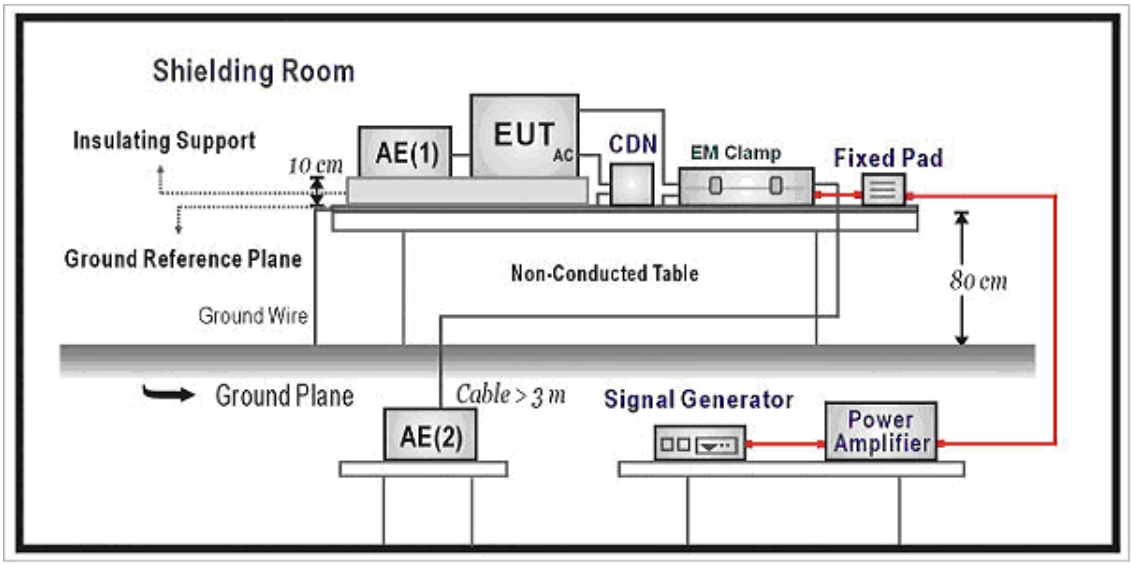
According to EN 50121-4 clause 6.

9.2. Test Setup

CDN Inject Method



EM Clamp Inject Method



9.3. 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 10 80	A
Input DC Power Ports				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 10 80	A
Input AC Power Ports				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 10 80	A

9.4. 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	Δf :	1%

9.5. Deviation from Test Standard

No deviation.

9.6. Test Result

Product	Network Camera		
Test Item	Conducted susceptibility		
Test Mode	Mode 1: IB9389-HT, PoE Mode		
Date of Test	2019/04/30	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	10V	CDN	LAN IN	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.

9.7. Test Photograph

Test Mode : Mode 1: IB9389-HT, PoE Mode

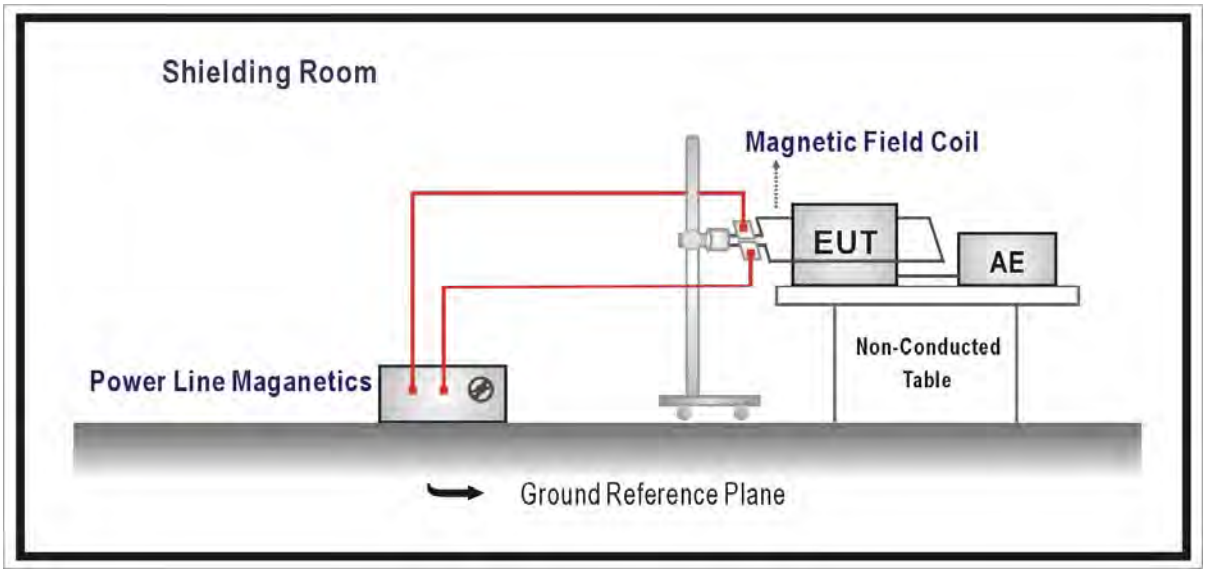
Description : Conducted Susceptibility Test Setup

10. Power Frequency Magnetic Field

10.1. Test Specification

According to EN 50121-4 clause 6.

10.2. Test Setup



10.3. Limit

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

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

10.4. 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 plane of the inductive coil shall then be rotated by 90° in order to expose the EUT to the test field with different orientations(X, Y, Z Orientations) and the same procedure.

10.5. Deviation from Test Standard

No deviation.

10.6. Test Result

Product	Network Camera		
Test Item	Power frequency magnetic field		
Test Mode	Mode 1: IB9389-HT, PoE Mode		
Date of Test	2019/05/02	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	100	A	A	PASS
Y Orientation	50	60	100	A	A	PASS
Z Orientation	50	60	100	A	A	PASS
X Orientation	0	60	300	A	A	PASS
Y Orientation	0	60	300	A	A	PASS
Z Orientation	0	60	300	A	A	PASS
X Orientation	16.7	60	100	A	A	PASS
Y Orientation	16.7	60	100	A	A	PASS
Z Orientation	16.7	60	100	A	A	PASS

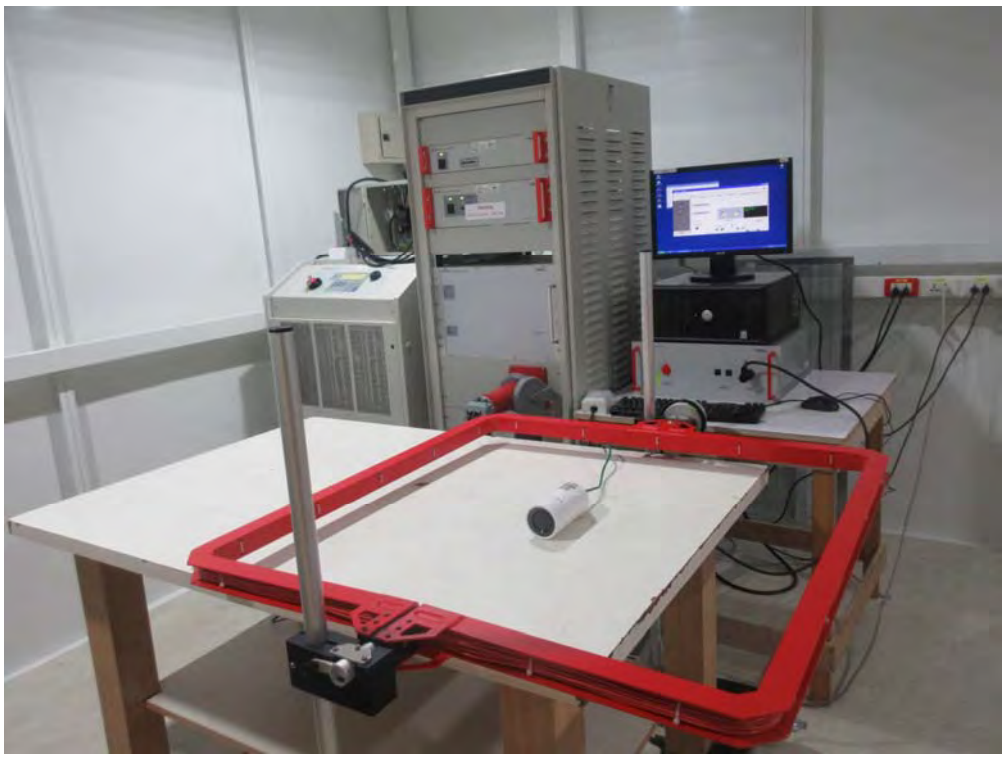
☒ Meet criteria A: Operate as intended during and after the test
☐ Meet criteria B: Operate as intended after the test
☐ Meet criteria C: Loss/Error of function
☐ Additional Information
  ☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.

☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

10.7. Test Photograph

Test Mode : Mode 1: IB9389-HT, PoE Mode

Description : Power Frequency Magnetic Field Test Setup



11. Attachment

➢ EUT Photograph

(1) EUT Photo

(2) EUT Photo

(3) EUT Photo