



EMC TEST REPORT For CE

Test Report No. : KES-E1-16T0325-R3
Date of Issue : May. 15, 2019
Product name : NETWORK CAMERA
Model/Type No. : QNO-6070R
Variant Model : -
Applicant : Hanwha Techwin Co., Ltd.
Applicant Address : 6, Pangyo-ro 319 Beon-gil, Bundang-gu, Seongnam-si,
Gyeonggi-do, 13488, KOREA
Manufacturer : 1. Hanwha Techwin (Tianjin) Co.,Ltd.
2. HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.
3. D-TECH CO.,LTD.
Manufacturer Address : 1. No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA, Tianjin,
300385, People's Republic of China
2. Lot O-2, Que Vo Industrial Zone extended area,
Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam
3. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi-do,
Korea (Suwon Industrial Complex)
Date of Receipt : Jun. 16, 2016
Test date : Jun. 30, 2016 – Jul. 04, 2016
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

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This test report is not related to KOLAS.

**KES Co., Ltd.**

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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Jul. 06, 2016	KES-E1-16T0325	Issued
Jun. 22, 2017	KES-E1-16T0325-R1	Changed manufacturer and Updated standards
Jun. 27, 2018	KES-E1-16T0325-R2	Re-issue due to manufacturer change
May. 15, 2019	KES-E1-16T0325-R3	Re-issue due to regulations update

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1.0 General Product Description

Main Specifications of E.U.T are:

Video		Video	
Imaging Device	1/2.9" 2.19M CMOS	Imaging Device	1/2.9" 2.19M CMOS
Total Pixels	2,000(H) x 1,121(V)	Total Pixels	2,000(H) x 1,121(V)
Effective Pixels	1,984(H) x 1,105(V)	Effective Pixels	1,984(H) x 1,105(V)
Scanning System	Progressive	Scanning System	Progressive
Min. Illumination	Color : 0.095Lux B/W : 0Lux	Min. Illumination	Color : 0.095Lux B/W : 0Lux
Lens		Lens	
Focal Length (Zoom Ratio)	Manual 2.8~12mm	Focal Length (Zoom Ratio)	Manual 2.8~12mm
Max. Aperture Ratio	F1.4	Max. Aperture Ratio	F1.4
Angular Field of View	H 103.8~32.4° / V 53.7~18.4° / D 121.9~37.1°	Angular Field of View	H 103.8~32.4° / V 53.7~18.4° / D 121.9~37.1°
Min. Object Distance	-	Min. Object Distance	-
Lens Type	Manual	Lens Type	Manual
Focus control	DC auto iris	Focus control	DC auto iris
Mount Type	Board type	Mount Type	Board type
Pan / Tilt / Rotate		Pan / Tilt / Rotate	
Pan Range	0	Pan Range	0
Tilt Range	0	Tilt Range	0
Rotate Range	0	Rotate Range	0
Operational		Operational	
IR Viewable Length	30m	IR Viewable Length	30m
Camera Title	Off / On (Displayed up to 20 characters per line) - W/W : English/Numeric/Special Characters - China : English/Numeric/Special/Chinese Characters - Common : Multi-line (Max 5). Color (Grey/Green/Red/Blue/Black/White) Transparency, Auto Scale by Resolution	Camera Title	Off / On (Displayed up to 20 characters per line) - W/W : English/Numeric/Special Characters - China : English/Numeric/Special/Chinese Characters - Common : Multi-line (Max 5). Color (Grey/Green/Red/Blue/Black/White) Transparency, Auto Scale by Resolution
Day & Night	True Day & Night	Day & Night	True Day & Night
Backlight Compensation	Off / BLC	Backlight Compensation	Off / BLC
Wide Dynamic Range	120dB	Wide Dynamic Range	120dB
Digital Noise Reduction	SSNR(Off / On)	Digital Noise Reduction	SSNR(Off / On)
Motion Detection	Off / On (4ea polygon zones)	Motion Detection	Off / On (4ea polygon zones)
Privacy Masking	Off / On (6ea rectangler zones)	Privacy Masking	Off / On (6ea rectangler zones)
Gain Control	Off / Low / Middle / High	Gain Control	Off / Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor	White Balance	ATW / AWC / Manual / Indoor / Outdoor
LDC(Lens distortion control)	On/Off (5 levels with Min/Max)	LDC(Lens distortion control)	On/Off (5 levels with Min/Max)
Electronic Shutter Speed	Minimum / Maximum / Anti flicker	Electronic Shutter Speed	Minimum / Maximum / Anti flicker
Flip / Mirror	Flip / Mirror / Halfway view	Flip / Mirror	Flip / Mirror / Halfway view
Intelligent Video Analytics	Motion Detection with metadata, Tampering, Defocus	Intelligent Video Analytics	Motion Detection with metadata, Tampering, Defocus
Alarm I/O	Input 1 / Output 1	Alarm I/O	Input 1 / Output 1
Alarm Triggers	Motion detection, Tampering Detection, SD card error, NAS error, Alarm input Defocus detection	Alarm Triggers	Motion detection, Tampering Detection, SD card error, NAS error, Alarm input Defocus detection
Alarm Events	File upload via FTP and E-Mail Local storage recording at Event Notification via E-Mail External output	Alarm Events	File upload via FTP and E-Mail Local storage recording at Event Notification via E-Mail External output
Pixel Counter	Support (plug-in viewer only)	Pixel Counter	Support (plug-in viewer only)

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1.1 Test Voltage & Frequency

Unless indicated otherwise on the individual data sheet or test results, the test voltage and frequency was as indicated below.

Voltage ☐ 220 Vac ☐ 230 Vac ☐ 240 Vac ☒ PoE ☒ 12 Vdc

Frequency ☐ 50 Hz ☐ 60 Hz ☐ Hz

1.2 Variant Model Differences

Not applicable

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
NETWORK CAMERA	QNO-6070R	-	Hanwha Techwin(Tianjin) Co., Ltd.	E.U.T

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Notebook	RT3290LE	5CD242B043	HP	-
Notebook Adapter	Series PPP009L-E	WCNWVOA3U3G31S	LITE-ON TECHNOLOGY (CHANGZHOU) Co., Ltd.	-
Alarm Jig	-	-	-	-
PoE Adapter	PD3001GC/AC	RD9356082016964200	Power Dsine	-
MIC	CMK-303	-	CAMAC	-
Micro SD Card	-	-	SanDisk	-

1.6 External I/O Cabling

- DC 12 V Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (E.U.T)	RJ-45	Notebook	RJ-45	3.0	U
	Audio IN	MIC	Audio IN	1.7	U
	Alarm	Alarm Jig	Alarm	3.0	U
	Micro SD Card slot	Micro SD Card	-	-	-

- PoE Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (E.U.T)	RJ-45	PoE Adapter	RJ-45	3.0	U
	Audio In	MIC	Audio Out	1.7	U
	Alarm	Alarm Jig	-	3.0	U
	Micro SD Card slot	Micro SD Card	-	-	-
PoE Adapter	RJ-45	Notebook	RJ-45	3.0	U

* Unshielded=U, Shielded=S

1.7 E.U.T Operating Mode(s)

Equipment under test was operated during the measurement under the following conditions:

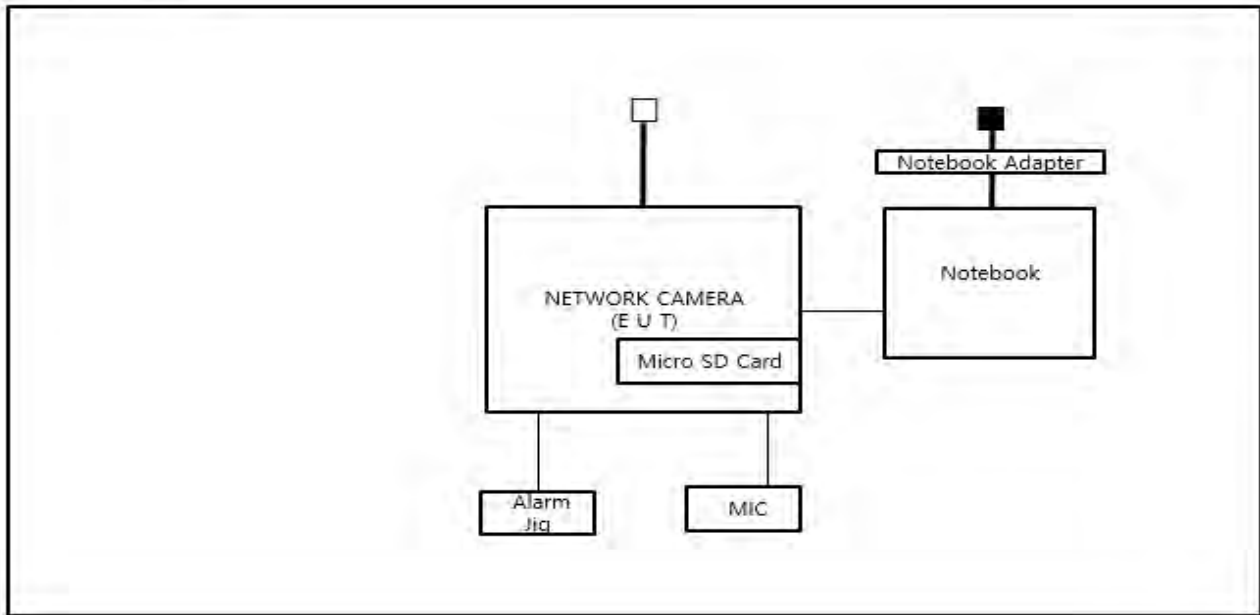
Test mode	Normal operating
OP	MONITORING Network ping test

- Input power condition during the measurements was 12 V (dc) , PoE

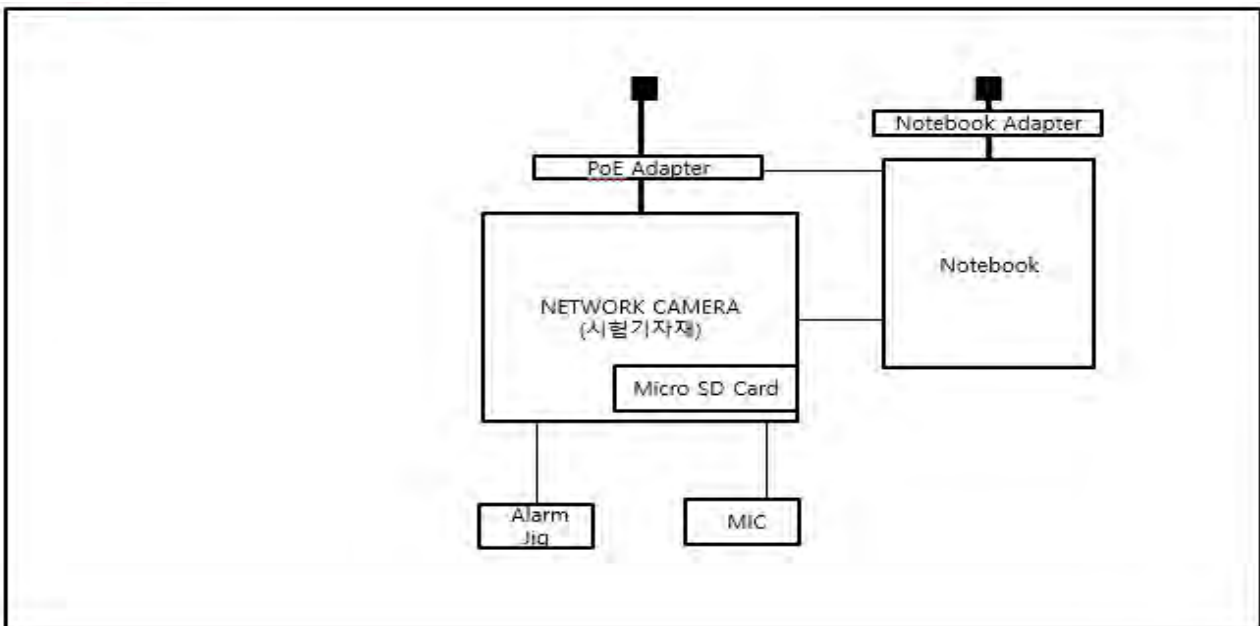
1.8 Configuration

■ AC Main
 □ DC Main

- DC 12 V Mode



- PoE Mode



1.9 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less.

1.10 Test Facility

The measurement facility is located at 473-21 Gayeo-ro, Yeosu-si, Gyeonggi-do, 12658, Korea. The sites are constructed in conformance with the requirements of ANSI C63.4:2014 and CISPR 16-1-4:2012

1.11 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
KOREA	RRA	EMI (3 m & 10 m Semi-Anechoic Chamber , 10 m Open Area and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KR0100
International	KOLAS	EMI (3 m & 10 m Semi-Anechoic Chamber , and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KT489
USA	FCC	3 m & 10 m Semi-Anechoic Chamber, 10 m Open Area and Conducted test site to perform FCC Part 15/18 measurements.	 KR0100
Canada	ISED	3 m & 10 m Semi-Anechoic Chamber and Conducted test site	 23298-1
JAPAN	VCCI	Mains Ports Conducted Interference Measurement, Telecommunication Ports Conducted Disturbance Measurement and Radiation 10 meter site, Facility for measuring radiated disturbance above 1 GHz	 R-4308, C-4798, T-2311, G-914
Europe	TÜV SÜD	EMI (3 m & 10 m Semi-Anechoic Chamber , 10 m Open Area and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 CARAT 17 07 01633 001

2.0 Test Regulations

The emissions tests were performed according to following regulations:

☒ **EMC – Directive 2014/30/EU**

☐ EN 61000-6-3:2011

☐ EN 61000-6-1:2007

☐ EN 61000-6-4:2007 +A1:2011

☐ EN 61000-6-2:2005

☐ EN 55011:2007 +A1:2010

☐ Group 1
☐ Class A

☐ Group 2
☐ Class B

☐ EN 55014-1:2006 +A2:2011

☐ EN 55014-2:1997 +A2:2008

☐ EN 55015:2013

☐ EN 61547:2009

☒ EN 55032:2012/AC:2013

☒ Class A

☐ Class B

☐ EN 55024:2010 +A1:2015

☒ EN 50130-4:2011 +A1:2014

☐ EN 61000-3-2:2014

☐ EN 61000-3-3:2013

☐ EN 61326-1:2013



-
- | | | |
|---|----------------------------------|----------------------------------|
| ☐ VCCI V-3 / 2015.04 | ☐ Class A | ☐ Class B |
| ☐ AS/NZS CISPR22:2009 +A1:2010 | ☐ Class A | ☐ Class B |
| ☐ 47 CFR Part 15, Subpart B | | |
| ☐ CISPR 22:2009 +A1:2010 | ☐ Class A | ☐ Class B |
| ☐ ANSI C63.4-2009 | | |
| ☐ IC Regulation ICES-003 : 2016 | | |
| ☐ CISPR 22:2009 +A1:2010 | ☐ Class A | ☐ Class B |
| ☐ ANSI C63.4-2014 | | |
|
 | | |
| ☐ RE- Directive 2014/53/EU | | |
|
 | | |
| ☐ EN 301 489-1 V1.9.2 | | |
| ☐ Equipment for fixed use | | |
| ☐ Equipment for vehicular use | | |
| ☐ Equipment for portable use | | |
| ☐ EN 301 489-3 V1.6.1 | | |
| ☐ EN 301 489-17 V2.2.1 | | |
| ☐ EN 60945:2002 | | |

2.1 Conducted Emissions at Mains Power Ports

Test Date

N/A

Test Location

Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☐	EMI Test Receiver	ESR3	R&S	101783	05, 03, 2017
☐	LISN	ENV216	R&S	101137	02, 04, 2017
☐	LISN	ENV216	R&S	101786	05, 02, 2017
☐	Electro wave Shieldroom	-	SEMITEC	-	-

Test ConditionsTemperature: °C
Relative Humidity: %**Frequency Range of Measurement**

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

- ☐ PASS
☐ NOT PASS
☒ NOT APPLICABLE

Remarks

Because the E.U.T power is 12 V (dc) power and PoE, limits are not specified.

2.2 Conducted Emissions at Telecommunication Ports

Test Date

Jul. 04, 2016

Test Location

Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test Receiver	ESR3	R&S	101783	05, 03, 2017
☒	LISN	ENV216	R&S	101137	02, 04, 2017
☒	LISN	ENV216	R&S	101786	05, 02, 2017
☒	8-Wire ISN CAT3	CAT3 8158	Schwarzbeck Mess	8158-0019	04, 01, 2017
☒	8-Wire ISN CAT5	CAT5 8158	Schwarzbeck Mess	8158-0030	04, 01, 2017
☐	8-Wire ISN CAT6	NTFM 8158	Schwarzbeck Mess	8158-0029	08, 14, 2016
☒	Electro wave Shieldroom	-	SEMITEC	-	-

Test Conditions

Temperature: 23,3 °C
Relative Humidity: 58,2 %

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Jun. 30, 2016

Test Location
☒ Open Area Test Site #1 ☐ Open Area Test Site #2

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI TEST Receiver	ESU26	R&S	100551	04, 18, 2017
☒	Trilog-Broadband ANT	VULB 9163	Schwarzbeck	9163-715	04, 14, 2018
☒	OATS	-	KES	-	-
☒	Antenna Mast	1070/1080	EMCO	-	-
☒	Turn Table	-	DAEIL EMC	-	-

Test Conditions

Temperature: 21,3 °C
Relative Humidity: 67,0 %

Frequency Range of Measurement

30 MHz to 1 GHz

Instrument Settings

IF Band Width: 120 kHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

2.4 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Jul. 01, 2016

Test Location

Semi Anchoic Chamber #2

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test Receiver	ESU26	R&S	100552	04, 24, 2017
☒	Broadband Coaxial Preamplifier	BBV 9718	Schwarzbeck Mess - Elektronik	9718-246	10, 23, 2016
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	05, 07, 2017
☒	Semi Anchoic Chamber #2	-	SEMITEC	-	-
☒	Antenna Mast	-	AUDIX	-	-
☒	Turn Table	-	AUDIX	-	-

Test Conditions

Temperature: 21,3 °C

Relative Humidity: 54,8 %

Frequency Range of Measurement

1 GHz to 6 GHz

Instrument Settings

IF Band Width: 1 MHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

RemarksSee Appendix A for test data.



2.5 Harmonic Current Emissions

Test Date

N/A

Test Location

Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☐	AC Source	ACS 500 N	EM TEST	V1024106760	08, 13, 2016
☐	Digital Power Analyzer	DPA 500 N	EM TEST	V1024106759	08, 13, 2016

Test Conditions

Temperature: °C

Relative Humidity: %

Classification of Equipment for Harmonic Current Emissions

- ☐ Class A
- ☐ Class B
- ☐ Class C(Below 25 W)
- ☐ Class C(Above 25 W)
- ☐ Class D

Test Results

The requirements are:

- ☐ PASS
- ☐ NOT PASS
- ☒ NOT APPLICABLE

Remarks

Because the E.U.T power is less than 75 W, limits are not specified.



2.6 Voltage Fluctuations and Flicker

Test Date

N/A

Test Location

Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☐	AC Source	ACS 500 N	EM test	V1024106760	08, 13, 2016
☐	Digital Power Analyzer	DPA 500 N	EM test	V1024106759	08, 13, 2016

Test Conditions

Temperature: °C

Relative Humidity: %

Test Results

The requirements are:

- ☐ PASS
☐ NOT PASS
☒ NOT APPLICABLE

Remarks

Because the E.U.T power is 12 V (dc) power and PoE.

3.0 Criteria for compliance

Criteria for compliance was based on the following guidelines:

EN 50130-4:2011 +A1:2014 Alarm systems-Part 4: Electromagnetic compatibility Product family standard: Immunity requirements for components of fire, intruder and social alarm systems

The variety and the diversity of the apparatus within the scope of this document makes it difficult to define precise criteria for the evaluation of the immunity test results.

If as a result of the application of the tests defined in this standard, the apparatus becomes dangerous or unsafe then the apparatus shall be deemed to have failed the test.

A functional description and a definition of performance by the manufacture and noted in the test report, based on the following criteria:

Electrostatic discharge

There shall be no damage, malfunction or change of status due to the conditioning.

Flickering of an indicator during the application of discharge is permissible, providing that is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change.

Radiated electromagnetic fields

There shall be no damage, malfunction or change of status due to the conditioning.

Flickering of an indicator during the application of discharge is permissible, providing which could be interpreted by associated equipment as a change, and no such

Flickering of indicators occurs at a field strength of 3 V/m.

For components of CCTV systems, where the picture is allowed at 10 V/m, providing.

(a) there is no permanent damage or change to EUT

(e.g. no corruption of memory or changes to programmable setting etc.)

(b) at 3 V/m, any deterioration of the picture is so minor that the system could still be used; and

(c) there is no observable deterioration of the picture at 1 V/m.

Fast transient burst / slow high energy voltage surge

There shall be no damage, malfunction or change of status due to the conditioning.

Flickering of an indicator during the application of discharge is permissible, providing

That there is no residual is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change.

Conducted RF immunity

There shall be no damage, malfunction or change of status due to the conditioning.

Flickering of an indicator during the application of discharge is permissible, providing

That there is no residual is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change,

and no such flickering of indicators occurs at $U = 130 \text{ dB}\mu\text{V}$.

For component of CCTV systems, where the status is monitored by observing the TV picture, then deterioration of the picture is allowed at $U = 140 \text{ dB}\mu\text{V}$, providing:

(a) there is no permanent damage or change to the EUT

(e.g. no corruption of memory or changes to programmable settings etc.)

(b) at $U = 130 \text{ dB}\mu\text{V}$, any deterioration of the picture is so minor that the system could still be used; and

(c) there is no observable deterioration of the picture at $U = 120 \text{ dB}\mu\text{V}$.

Voltage dip/interruption / Voltage variation

There shall be no damage, malfunction or change of status due to the conditioning.

Flickering of an indicator during the conditioning is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment

as a change. The EUT shall meet the acceptance criteria for the functional test, after the conditioning.

3.1 Electrostatic Discharge

Reference Standard

EN 61000-4-2:2009

Test Date

Jul. 04, 2016

Test Location

EMS-ESD: Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	ESD SIMULATOR	ESS-2000	Noise Ken	ESS05X4620	02, 24, 2017
☒	HCP	-	Noise Ken	-	-
☒	VCP	-	Noise Ken	-	-

Test Conditions

Temperature: 23,3 °C
Relative Humidity: 58,2 %
Atmospheric Pressure: 99,2 kPa

Test Specifications

Discharge Factor: ≥ 1 s

Discharge Impedance: 330 ohm / 150 pF

Kind of Discharge: Air, Contact (direct and indirect)

Polarity: Positive and Negative

Number of Discharge: 10 at all locations for Air discharge
10 at all locations for Contact discharge

Discharge Voltage:	Contact ☐ 2 kV ☐ 4 kV ☒ 6 kV ☐ 8 kV ☐ 15 kV	Air ☒ 2 kV ☒ 4 kV ☐ 6 kV ☒ 8 kV ☐ 15 kV	HCP ☐ 2 kV ☐ 4 kV ☒ 6 kV ☐ 8 kV ☐ 15 kV	VCP ☐ 2 kV ☐ 4 kV ☒ 6 kV ☐ 8 kV ☐ 15 kV
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Notes: HCP: Horizontal coupling plane
VCP: Vertical coupling plane

Required Performance Criteria: ☒ Complied

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Location of Discharge:

Air
Contact



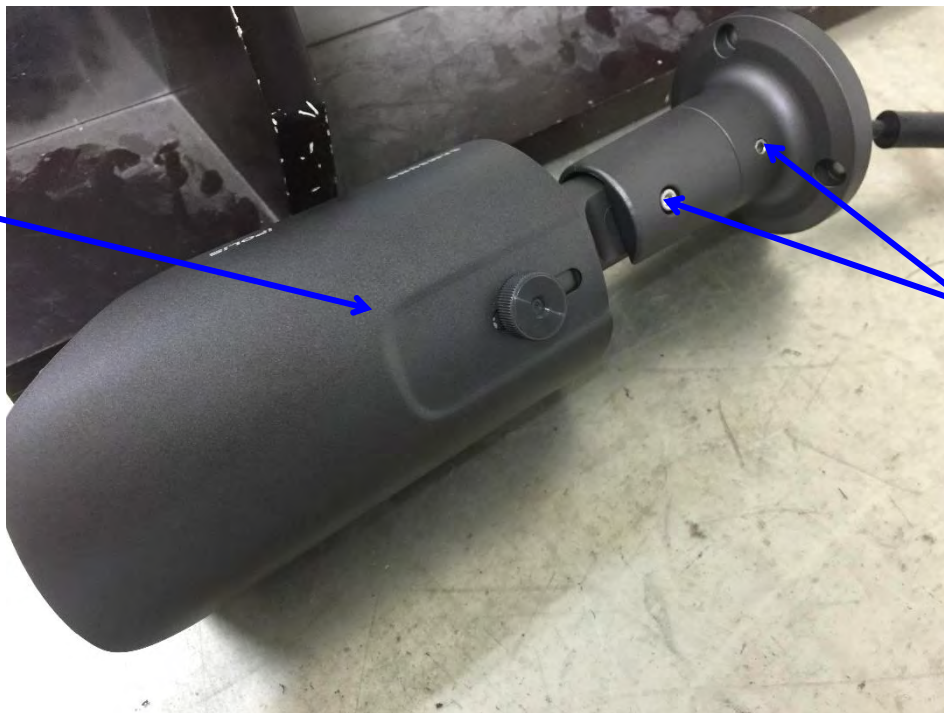
- DC 12 V, PoE Mode

1. Contact



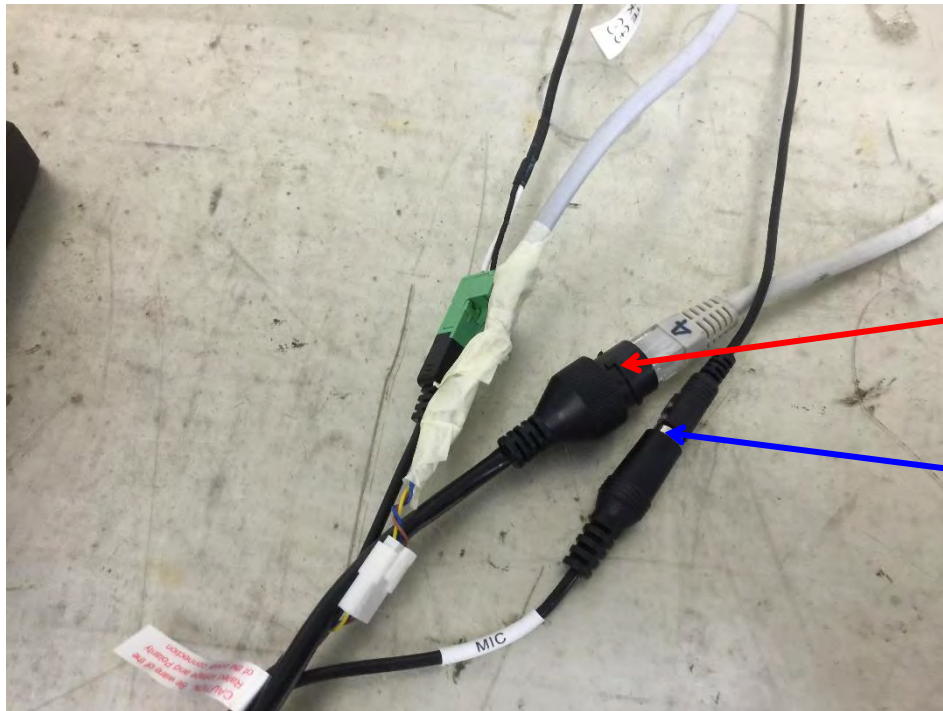
3. Air

1. Contact



2. Contact

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**Test Data****- DC 12 V Mode****Indirect Discharge**

No.	Test Point	Discharge Method	Performance	Remarks
			Observation	
1	HCP Contact	Contact Discharge	Complied	-
2	VCP Contact	Contact Discharge	Complied	-

Direct Discharge

No.	Test Point	Discharge Method	Performance	Remarks
			Observation	
1	Enclosure	Contact Discharge	Complied	-
2	Screw	Contact Discharge	Complied	-
3	Lens	Air Discharge	Complied	-
4	Audio In	Contact Discharge	Complied	-
5	RJ-45	Air Discharge	Complied	-

- PoE Mode**Indirect Discharge**

No.	Test Point	Discharge Method	Performance	Remarks
			Observation	
1	HCP Contact	Contact Discharge	Complied	-
2	VCP Contact	Contact Discharge	Complied	-

Direct Discharge

No.	Test Point	Discharge Method	Performance	Remarks
			Observation	
1	Enclosure	Contact Discharge	Complied	-
2	Screw	Contact Discharge	Complied	-
3	Lens	Air Discharge	Complied	-
4	Audio In	Contact Discharge	Complied	-
5	RJ-45	Air Discharge	Complied	-

Note: "Blank" = Not performed

Observations:

Complied – No degradation of function

Test Results

- ☒ PASS Required Performance Criteria
☐ NOT PASS Required Performance Criteria

Remarks

PASS Required Performance Criteria.



3.2 Radiated Electric Field Immunity

Reference Standard

EN 61000-4-3:2006 +A2:2010

Test Date

Jul. 01, 2016

Test Location

EMS-RS: ☐ Semi Anchoic Chamber #1 ☒ Semi Anchoic Chamber #2

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	SIGNAL GENERATOR	SMB 100A	R&S	108252	08, 13, 2016
☒	BROADBAND AMPLIFIER	BBA100	R&S	101239	08, 13, 2016
☒	BROADBAND AMPLIFIER	100S1G6M1	AR	579931	08, 13, 2016
☒	POWER METER	NRP2	R&S	103475	08, 13, 2016
☒	AVG POWER SENSOR	NRP-Z91	R&S	102526	08, 13, 2016
☒	AVG POWER SENSOR	NRP-Z91	R&S	102527	08, 13, 2016
☒	Stacked Log.-Per.Antenna	STLP 9128 D	Schwarzbeck	9128D038	-
☒	DIRECTIONAL COUPLER	KYDC-D1070-DX40	KyTelecom Co., Ltd.	KY150001	09, 25, 2016
☒	Semi Anchoic Chamber #2		SEMITEC	-	-

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Test Conditions

Temperature: 21,3 °C
Relative Humidity: 54,8 %
Atmospheric Pressure: 99,6 kPa

Test Specifications

Antenna Polarization: Horizontal & vertical unless indicated otherwise

Antenna Distance: ☒ 3 m

Field Strength: ☐ 1 V/m ☐ 3 V/m
☒ 10 V/m

Frequency Range: ☐ 80 MHz to 1 GHz ☐ 1,4 GHz to 2,7 GHz
☒ 80 MHz to 2,7 GHz

Modulation: ☒ AM, 80 %, 1 kHz sine wave
☒ PM, 1 Hz (0,5 s ON : 0,5 s OFF)

Frequency step: ☒ 1 % step

Dwell Time: ☐ 1 s ☒ 3 s

of Sides Radiated: ☒ 4

Required Performance Criteria: ☒ Complied

Test Data

- DC 12 V Mode

Side Exposed	Observation	
	Horizontal	Vertical
Front	Complied	Complied
Right	Complied	Complied
Back	Complied	Complied
Left	Complied	Complied

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- PoE Mode

Side Exposed	Observation	
	Horizontal	Vertical
Front	Complied	Complied
Right	Complied	Complied
Back	Complied	Complied
Left	Complied	Complied

Note: "Blank" = Not performed

Observations:

Complied – No degradation of function

Test Results

- ☒ PASS Required Performance Criteria
☐ NOT PASS Required Performance Criteria

Remarks

PASS Required Performance Criteria.

3.3 Electrical Fast Transients/Bursts

Reference Standard

EN 61000-4-4:2012

Test Date

Jul. 02, 2016

Test Location

EMS-EFT: Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	Ultra Compact Simulator	UCS 500 N5	EM TEST	V0936105120	06, 27, 2017
☒	Capacitive Coupling Clamp	HFK	EM TEST	070925	06, 27, 2017
☒	MotorVariac	MV2616	EM TEST	V0936105123	06, 27, 2017

Test Conditions

Temperature: 21,6 °C
Relative Humidity: 43,3 %
Atmospheric Pressure: 98,6 kPa

Test Specifications

Pulse Amplitude & Polarity: (AC Power Lines)	☐ ± 1.0 kV ☐ ± 4.0 kV	☐ ± 2.0 kV
Pulse Amplitude & Polarity: (Other supply / Signal Lines)	☐ ± 0.5 kV	☒ ± 1.0 kV ☐ ± 2.0 kV
Burst Period:	☒ 300 ms	☐ 2 s
Repetition Rate:	☐ 5 kHz	☒ 100 kHz
Duration of Test Voltage:	☒ ≥ 1 min	
Required Performance Criteria:	☒ Complied	



Test Data

- DC 12 V Mode

☐ Input a.c. power ports – Coupling/Decoupling Network used

Mode of Application	OBSERVATIONS	
	(+) Burst (kV)	(-) Burst (kV)
-	-	-

☒ Input d.c. power ports – Coupling/Decoupling Network used

Mode of Application	OBSERVATIONS	
	(+) Burst (kV)	(-) Burst (kV)
L1 – L2	Complied	Complied

☒ Signal ports and telecommunication ports – Coupling Clamp used

Mode of Application	OBSERVATIONS	
	(+) Burst (kV)	(-) Burst (kV)
RJ-45	Complied	Complied
Alarm	Complied	Complied

- PoE Mode

☐ Input a.c. power ports – Coupling/Decoupling Network used

Mode of Application	OBSERVATIONS	
	(+) Burst (kV)	(-) Burst (kV)
-	-	-

☐ Input d.c. power ports – Coupling/Decoupling Network used

Mode of Application	OBSERVATIONS	
	(+) Burst (kV)	(-) Burst (kV)
-	-	-

☒ Signal ports and telecommunication ports – Coupling Clamp used

Mode of Application	OBSERVATIONS	
	(+) Burst (kV)	(-) Burst (kV)
RJ-45	Complied	Complied
Alarm	Complied	Complied

Note: “Blank” = Not performed

Observations:

Complied – No degradation of function

Test Results

- ☒ PASS Required Performance Criteria
☐ NOT PASS Required Performance Criteria

Remarks

PASS Required Performance Criteria.

3.4 Surge Transients

Reference Standard

EN 61000-4-5:2014

Test Date

Jul. 02, 2016

Test Location

EMS-Surge: Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	Ultra Compact Simulator	UCS 500 N5	EM TEST	V0936105120	06, 27, 2017
☒	Motor Variac	MV2616	EM TEST	V0936105123	06, 27, 2017
☒	CDN	CNV 504N	EM TEST	V0936105121	03, 25, 2017
☐	CDN	CNV 508N1	EM TEST	P1551168979	04, 27, 2017
☐	CDN	CNV 508T5	EM TEST	P1549168422	04, 27, 2017

Test Conditions

Temperature: 24,5 °C
Relative Humidity: 48,4 %
Atmospheric Pressure: 99,2 kPa

Test Specifications
AC Power Lines

Source Impedance: 12 ohm for common mode and 2 ohm for differential mode

Surge Amplitude :

Common Mode
☐ (0,5 / 1,0 / 2,0) kV

Differential Mode
☐ (0,5 / 1,0) kV

Number of Surges:

☐ 5 surges per angle

Angle:

☐ 0°, 90°, 180°, 270° (input a.c. power port)

Polarity:

☐ Positive & Negative

Repetition Rate:

☐ 1 surge per min ☐ 1 surge per 30 sec.

Required Performance Criteria: ☐ Complied



Other supply / Signal Lines

Source Impedance: 42 ohm for common mode
Surge Amplitude: Common Mode
☒ (0,5 / 1,0) kV

Number of Surges: ☒ 5 Surges

Polarity: ☒ Positive & Negative

Repetition Rate: ☒ 1 surge per min ☐ 1 surge per 30 sec.

Required Performance Criteria: ☒ Complied

Test Data

- DC 12 V Mode

☐ Line to Line – Differential Mode

Mode of Application	OBSERVATIONS	
	(+) Surge (kV)	(-) Surge (kV)
-	-	-

☐ Line to Earth – Common Mode

Mode of Application	OBSERVATIONS	
	(+) Surge (kV)	(-) Surge (kV)
-	-	-

Signal Lines

☒ Line to Earth – Common Mode

Mode of Application	OBSERVATIONS	
	(+) Surge (kV)	(-) Surge (kV)
RJ-45	Complied	Complied
Alarm	Complied	Complied

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- PoE Mode

☐ Line to Line – Differential Mode

Mode of Application	OBSERVATIONS	
	(+) Surge (kV)	(-) Surge (kV)
-	-	-

☐ Line to Earth – Common Mode

Mode of Application	OBSERVATIONS	
	(+) Surge (kV)	(-) Surge (kV)
-	-	-

Signal Lines

☒ Line to Earth – Common Mode

Mode of Application	OBSERVATIONS	
	(+) Surge (kV)	(-) Surge (kV)
RJ-45	Complied	Complied
Alarm	Complied	Complied

Note: "Blank" = Not performed

Observations:

Complied – No degradation of function

Test Results

- ☒ PASS Required Performance Criteria
☐ NOT PASS Required Performance Criteria

Remarks

PASS Required Performance Criteria.



3.5 Conducted Disturbance

Reference Standard

EN 61000-4-6:2014

Test Date

Jul. 02, 2016

Test Location

EMS-CS: Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	Continuous Wave Generator	CWS 500N1	EM TEST	V0936105119	09, 25, 2016
☒	6dB Attenuator	ATT6	EM TEST	1208-34	08, 13, 2016
☒	CDN	CDN-M2/M3N	EM TEST	0909-06	08, 13, 2016
☐	CDN	CDN-T2-RJ11	EM TEST	0909-07	08, 13, 2016
☐	CDN	CDN-T4	EM TEST	0909-08	08, 13, 2016
☐	CDN	CDN-T8RJ45	EM TEST	0909-09	08, 13, 2016
☐	CDN	CDN-AF2	EM TEST	0909-10	08, 13, 2016
☐	CDN	CDN-AF4	EM TEST	0909-11	08, 13, 2016
☒	EM Injection Clamp	EM 101	Liithi	35943	02, 04, 2017

Test Conditions

Temperature: 21,6 °C
Relative Humidity: 43,3 %
Atmospheric Pressure: 98,6 kPa

**Test Specifications**

Frequency range:

☒ 150 kHz to 100 MHz
☐ 150 kHz to 230 MHz☐ 10 kHz to 30 MHz
☐ 10 kHz to 100 MHz

Voltage Level:

☐ 1 Vrms
☒ 10 Vrms☐ 3 Vrms

Modulation:

☒ AM, 80 %, 1 kHz sine wave
☒ PM, 1 Hz (0,5 s ON : 0,5 s OFF)

Frequency step:

☒ 1 % step

Dwell Time:

☐ 1 s ☒ 3 sRequired Performance Criteria: ☒ Complied**Test Data**

- DC 12 V Mode

☐ Input a.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observation
-	CDN (☐ M2, ☐ M3)	-

☒ Input d.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observation
L1 - L2	CDN (☒ M2, ☐ M3)	Complied

☒ Signal ports and telecommunication ports

Coupling Location (Line Stressed)	Coupling Method	Observation
RJ-45	EM Injection Clamp	Complied
Alarm	EM Injection Clamp	Complied

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- PoE Mode☐ Input a.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observation
-	CDN (☐ M2, ☐ M3)	-

☐ Input d.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observation
-	CDN (☐ M2, ☐ M3)	-

☒ Signal ports and telecommunication ports

Coupling Location (Line Stressed)	Coupling Method	Observation
RJ-45	EM Injection Clamp	Complied
Alarm	EM Injection Clamp	Complied

Notes: CDN = Coupling Decoupling Network
"blank" = Not performed

Observations:

Complied – No degradation of function

Test Results

- ☒ PASS Required Performance Criteria
☐ NOT PASS Required Performance Criteria

Remarks

PASS Required Performance Criteria.



3.6 Voltage Dips and Short Interruptions

Reference Standard

EN 61000-4-11:2004

Test Date

N/A

Test Location

EMS-Voltage dip: Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☐	Transient Test System	TRA3000F-S-D-V	EMC PARTNER AG	1524	03, 25, 2017
☐	MotorVariac	VAR-EXT1000	EMC PARTNER AG	1507	03, 25, 2017

Test Conditions

Temperature: °C
Relative Humidity: %
Atmospheric Pressure: kPa



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Test Specifications & Observations/Remarks

Test Level	Duration [in period/ms (50 Hz)]	Results
☐ 20 % dip	☐ 250 /10	_____
☐ 30 % dip	☐ 25 /10	_____
☐ 60 % dip	☐ 10 /10	_____
☐ 100 % dip	☐ 250 /10	_____

- Voltage variations

☐ Unom + 10 %	☐ 253 V (ac)	_____
☐ Unom - 15 %	☐ 195.5 V (ac)	_____

Observations:
Complied – No degradation of function

Test Results

- ☐ PASS Required Performance Criteria
☐ NOT PASS Required Performance Criteria
☒ NOT APPLICABLE

Remarks

PASS Required Performance Criteria.

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APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

[HOT]

N/A

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[NEUTRAL]

N/A

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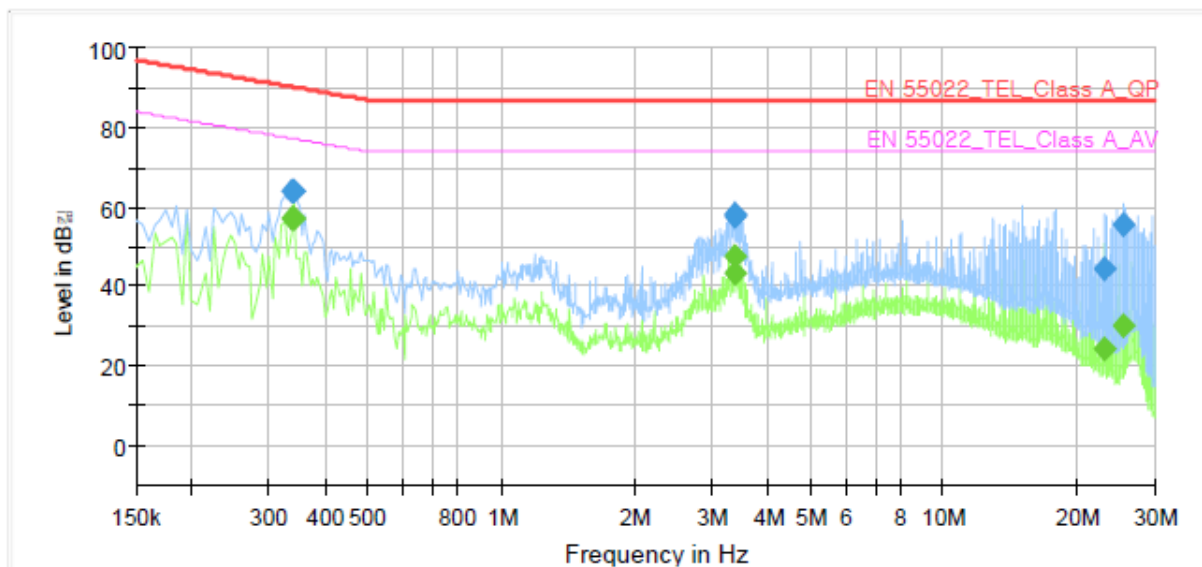
Conducted Emissions at Telecommunication Ports

- DC 12 V Mode

[10 Mbps]

Common Information

Test Description: Telecommunication Emission
Model No.: QNO-6070RP
Mode: DC12V_LAN_10M
Operator Name: KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.335000	---	57.37	77.33	19.96	1000.0	9.000	Single Line	10.0
0.335000	63.87	---	90.33	26.46	1000.0	9.000	Single Line	10.0
0.340000	---	57.28	77.20	19.92	1000.0	9.000	Single Line	10.0
0.340000	64.13	---	90.20	26.07	1000.0	9.000	Single Line	10.0
3.360000	---	47.73	74.00	26.27	1000.0	9.000	Single Line	9.8
3.360000	58.24	---	87.00	28.76	1000.0	9.000	Single Line	9.8
3.375000	---	43.48	74.00	30.52	1000.0	9.000	Single Line	9.8
3.375000	57.85	---	87.00	29.15	1000.0	9.000	Single Line	9.8
23.125000	---	24.54	74.00	49.46	1000.0	9.000	Single Line	10.0
23.125000	44.35	---	87.00	42.65	1000.0	9.000	Single Line	10.0
25.340000	---	30.38	74.00	43.62	1000.0	9.000	Single Line	10.0
25.340000	55.43	---	87.00	31.57	1000.0	9.000	Single Line	10.0

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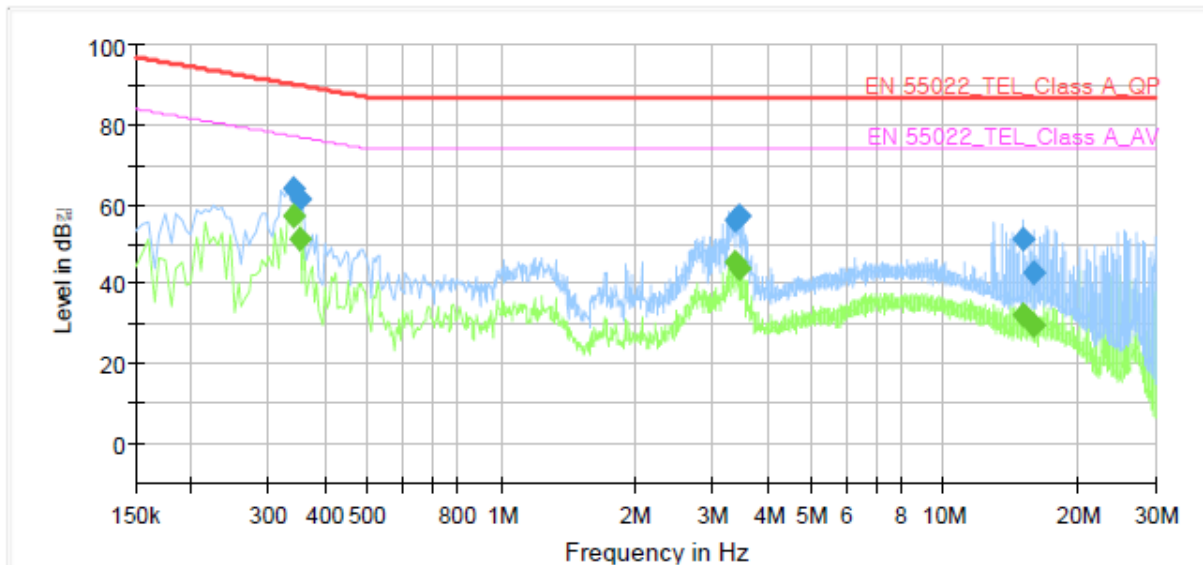
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[100 Mbps]

Common Information

Test Description: Telecommunication Emission
Model No.: QNO-6070RP
Mode: DC12V_LAN_100M
Operator Name: KES



Final_Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.340000	---	57.28	77.20	19.92	1000.0	9.000	Single Line	9.5
0.340000	63.99	---	90.20	26.21	1000.0	9.000	Single Line	9.5
0.350000	---	51.31	76.96	25.65	1000.0	9.000	Single Line	9.5
0.350000	61.55	---	89.96	28.41	1000.0	9.000	Single Line	9.5
3.360000	---	45.50	74.00	28.50	1000.0	9.000	Single Line	9.3
3.360000	55.98	---	87.00	31.02	1000.0	9.000	Single Line	9.3
3.460000	---	44.15	74.00	29.85	1000.0	9.000	Single Line	9.3
3.460000	57.38	---	87.00	29.62	1000.0	9.000	Single Line	9.3
15.020000	---	32.26	74.00	41.74	1000.0	9.000	Single Line	9.6
15.020000	51.47	---	87.00	35.53	1000.0	9.000	Single Line	9.6
15.920000	---	29.87	74.00	44.13	1000.0	9.000	Single Line	9.6
15.920000	42.71	---	87.00	44.29	1000.0	9.000	Single Line	9.6

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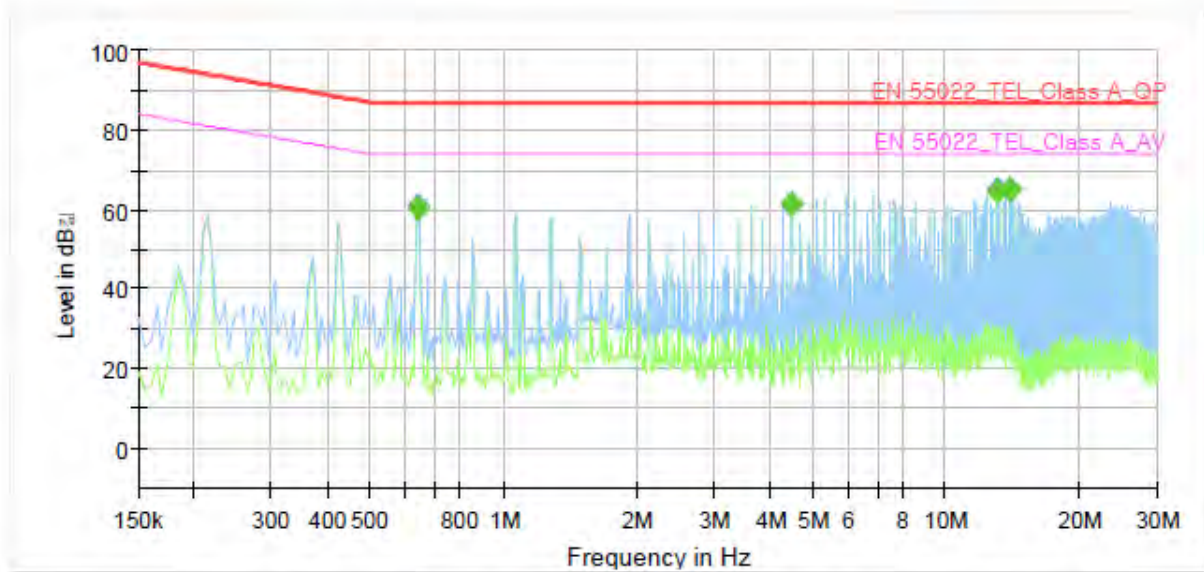
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- PoE Mode

[10 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	QNO-6070RP
Mode	PoE_LAN_10M
Operator Name:	KES



Final Result

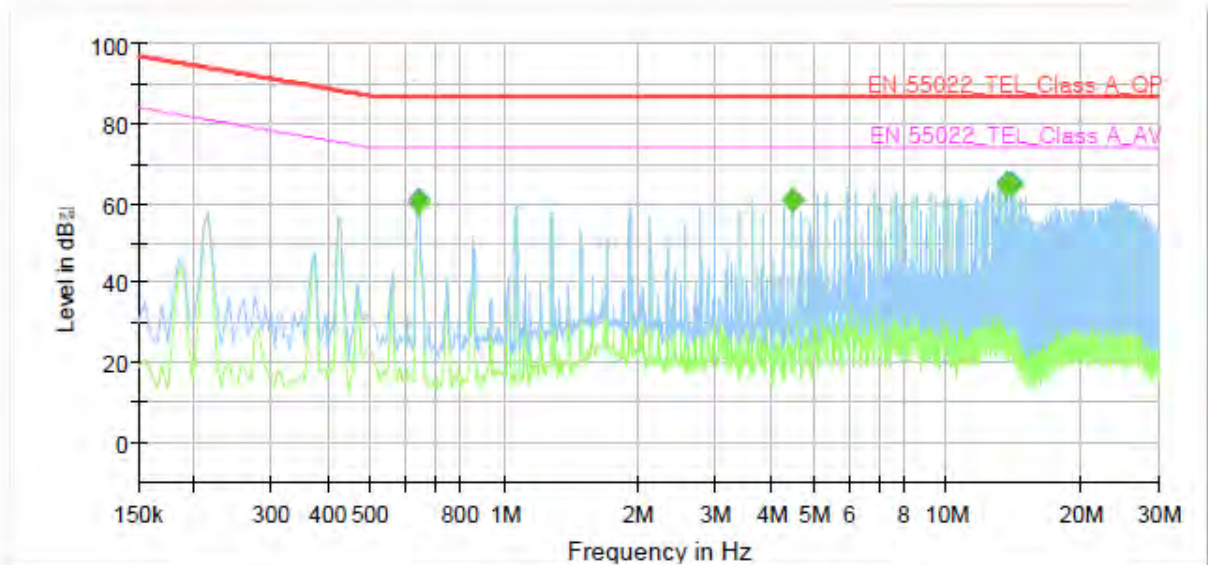
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.640000	---	60.26	74.00	13.74	1000.0	9.000	Single Line	9.9
0.640000	60.88	---	87.00	26.12	1000.0	9.000	Single Line	9.9
4.490000	---	61.31	74.00	12.69	1000.0	9.000	Single Line	9.8
4.490000	61.35	---	87.00	25.65	1000.0	9.000	Single Line	9.8
13.040000	---	64.81	74.00	9.19	1000.0	9.000	Single Line	10.1
13.040000	65.07	---	87.00	21.93	1000.0	9.000	Single Line	10.1
13.895000	---	64.98	74.00	9.02	1000.0	9.000	Single Line	10.1
13.895000	65.16	---	87.00	21.84	1000.0	9.000	Single Line	10.1

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[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	QNO-6070RP
Mode	PoE_LAN_100M
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.640000	---	60.27	74.00	13.73	1000.0	9.000	Single Line	9.4
0.640000	60.91	---	87.00	26.09	1000.0	9.000	Single Line	9.4
4.490000	---	60.90	74.00	13.10	1000.0	9.000	Single Line	9.3
4.490000	60.95	---	87.00	26.05	1000.0	9.000	Single Line	9.3
13.680000	---	64.45	74.00	9.55	1000.0	9.000	Single Line	9.6
13.680000	65.06	---	87.00	21.94	1000.0	9.000	Single Line	9.6
13.895000	---	64.76	74.00	9.24	1000.0	9.000	Single Line	9.6
13.895000	65.00	---	87.00	22.00	1000.0	9.000	Single Line	9.6

**Radiated Electric Field Emissions(Below 1 GHz)**

- DC 12 V Mode

Frequency	Amplitude	ANT Polar.	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[MHz]	[dB μ V]	(H/V)	[m]	ANT. [dB/m]	Cable [dB]	[dB μ V/m]	[dB μ V/m]	[dB]
222.74	20.65	V	1.00	11.96	3.08	35.69	40.00	4.31
297.03	20.46	H	3.96	13.35	3.69	37.50	47.00	9.50
371.25	19.96	V	1.12	14.95	4.03	38.94	47.00	8.06
408.34	11.67	H	3.19	15.71	4.28	31.66	47.00	15.34
445.51	10.83	H	2.44	16.36	4.55	31.74	47.00	15.26
482.63	15.82	V	1.00	17.00	4.82	37.64	47.00	9.36

* H : Horizontal, V : Vertical

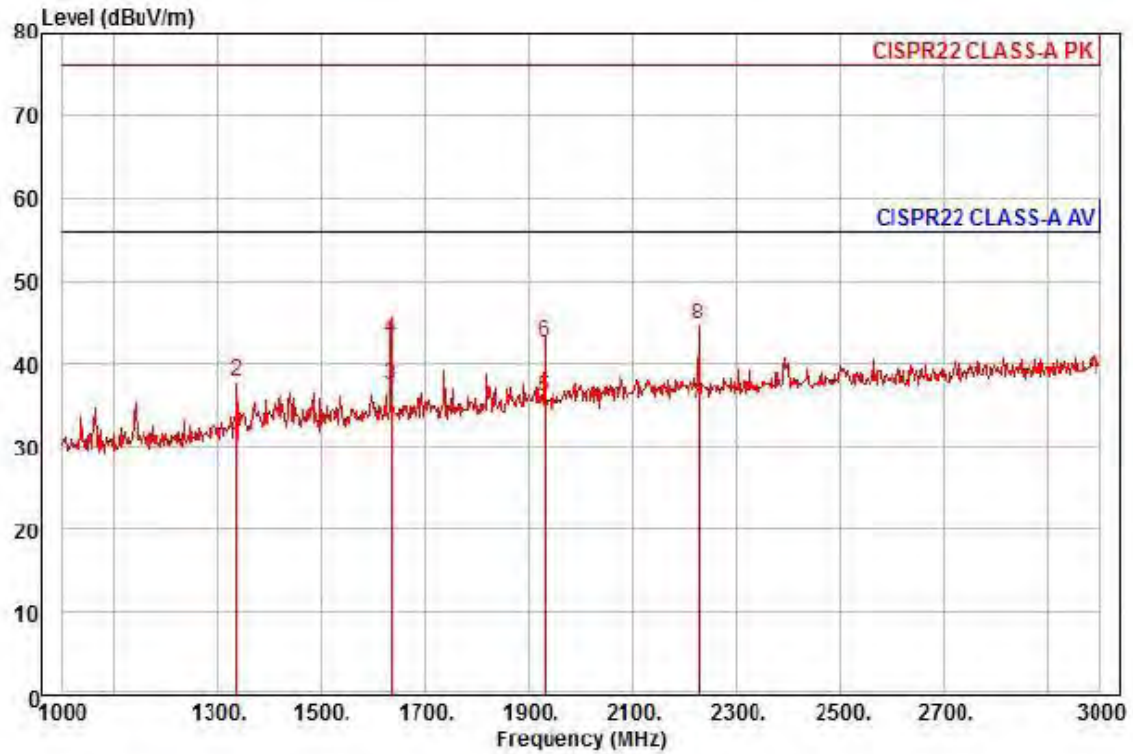
- PoE Mode

Frequency	Amplitude	ANT Polar.	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[MHz]	[dB μ V]	(H/V)	[m]	ANT. [dB/m]	Cable [dB]	[dB μ V/m]	[dB μ V/m]	[dB]
222.73	21.78	V	1.06	11.96	3.08	36.82	40.00	3.18
296.99	16.22	H	4.00	13.35	3.69	33.26	47.00	13.74
371.25	19.66	H	3.29	14.95	4.03	38.64	47.00	8.36
445.74	17.56	H	3.52	16.36	4.55	38.47	47.00	8.53
446.32	17.53	V	1.00	16.37	4.56	38.46	47.00	8.54
482.81	17.90	V	1.17	17.00	4.82	39.72	47.00	7.28

* H : Horizontal, V : Vertical

Radiated Electric Field Emissions(Above 1 GHz)

- DC 12 V Mode



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : QNO-6070RP
Mode : DC12V
Memo : 1 ~ 3 GHz

	Read	Ant	Cable	Preamp	TPos	Limit	Over		
Freq	Level	Factor	Loss	Factor		Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1336.00	37.23	25.24	7.48	39.96	256	56.00	-26.01	horizontal Average
2	1336.00	45.10	25.24	7.48	39.96	256	76.00	-38.14	horizontal Peak
3 pp	1634.00	42.58	26.43	8.34	39.81	152	56.00	-18.46	horizontal Average
4	1634.00	48.03	26.43	8.34	39.81	152	76.00	-33.01	horizontal Peak
5	1930.00	38.80	27.60	9.16	39.66	123	56.00	-20.10	horizontal Average
6	1930.00	45.48	27.60	9.16	39.66	123	76.00	-33.42	horizontal Peak
7	2228.00	36.72	28.44	9.70	39.76	129	56.00	-20.90	horizontal Average
8 pk	2228.00	46.22	28.44	9.70	39.76	129	76.00	-31.40	horizontal Peak

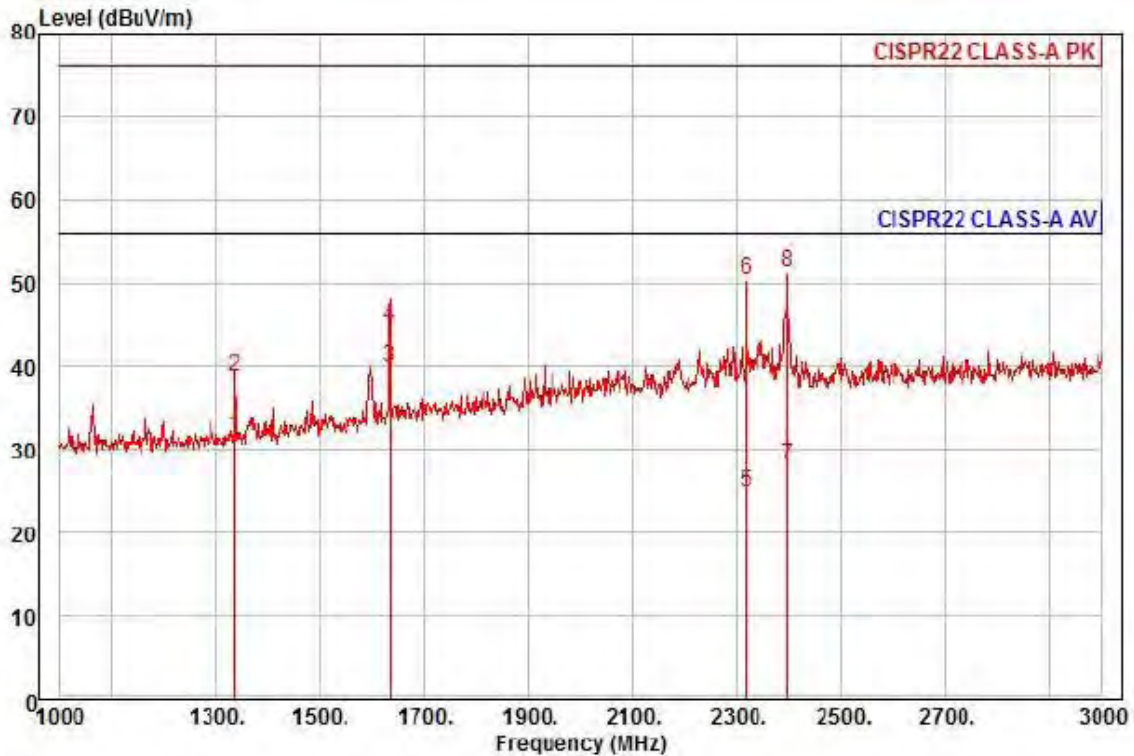
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Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : QNO-6070RP
Mode : DC12V
Memo : 1 ~ 3 GHz

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1336.00	38.89	25.24	7.48	39.96	199	56.00	-24.35	vertical	Average
2	1336.00	46.03	25.24	7.48	39.96	199	76.00	-37.21	vertical	Peak
3 pp	1634.00	44.83	26.43	8.34	39.81	133	56.00	-16.21	vertical	Average
4	1634.00	49.91	26.43	8.34	39.81	133	76.00	-31.13	vertical	Peak
5	2318.00	26.15	28.66	9.84	39.81	340	56.00	-31.16	vertical	Average
6	2318.00	51.69	28.66	9.84	39.81	340	76.00	-25.62	vertical	Peak
7	2398.00	29.16	28.86	9.96	39.86	179	56.00	-27.88	vertical	Average
8 pk	2398.00	52.16	28.86	9.96	39.86	179	76.00	-24.88	vertical	Peak

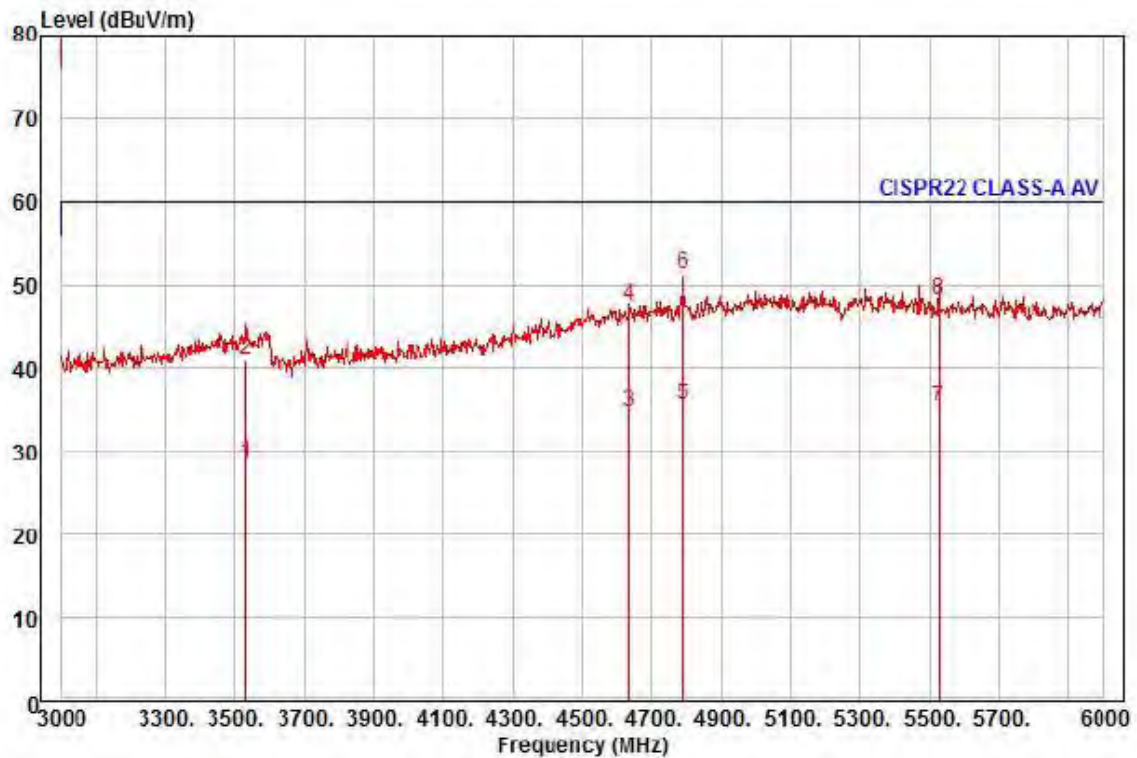
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Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : QNO-6070RP
Mode : DC12V
Memo : 3 ~ 6 GHz

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3531.00	25.01	31.22	12.57	40.32	329	60.00	-31.52	horizontal	Average
2	3531.00	37.62	31.22	12.57	40.32	329	80.00	-38.91	horizontal	Peak
3	4638.00	24.64	35.65	14.68	40.41	124	60.00	-25.44	horizontal	Average
4	4638.00	37.65	35.65	14.68	40.41	124	80.00	-32.43	horizontal	Peak
5 pp	4788.00	24.53	36.51	14.95	40.41	255	60.00	-24.42	horizontal	Average
6 pk	4788.00	40.16	36.51	14.95	40.41	255	80.00	-20.79	horizontal	Peak
7	5526.00	23.08	36.66	15.97	40.34	283	60.00	-24.63	horizontal	Average
8	5526.00	35.99	36.66	15.97	40.34	283	80.00	-31.72	horizontal	Peak

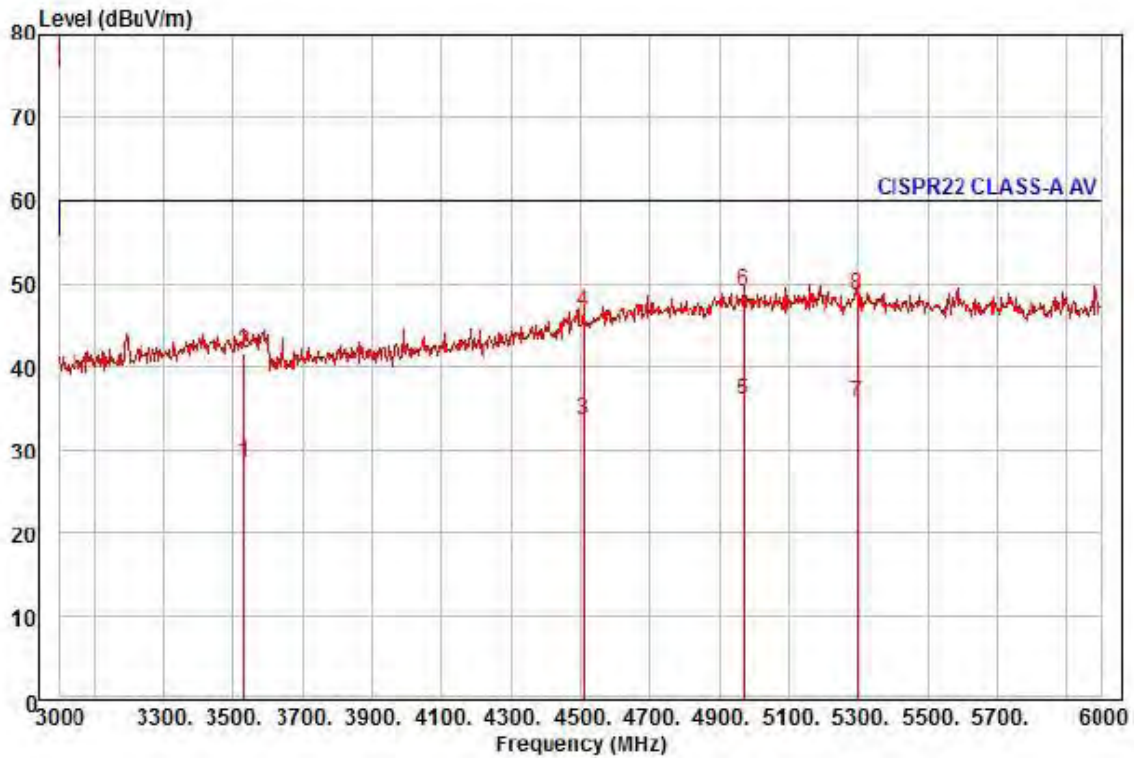
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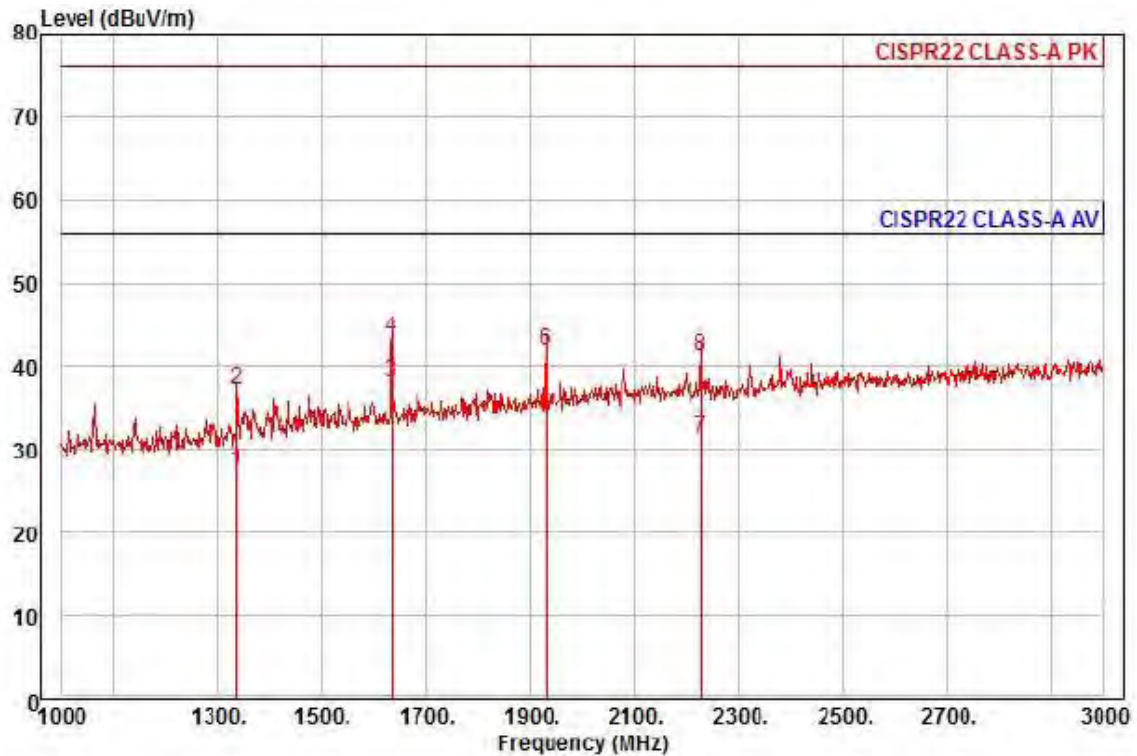


Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : QNO-6070RP
Mode : DC12V
Memo : 3 ~ 6 GHz

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3531.00	25.13	31.22	12.57	40.32	0	60.00	-31.40	vertical	Average
2	3531.00	38.21	31.22	12.57	40.32	0	80.00	-38.32	vertical	Peak
3	4509.00	24.62	34.92	14.45	40.41	158	60.00	-26.42	vertical	Average
4	4509.00	37.70	34.92	14.45	40.41	158	80.00	-33.34	vertical	Peak
5 pp	4968.00	23.47	37.54	15.27	40.41	223	60.00	-24.13	vertical	Average
6 pk	4968.00	36.56	37.54	15.27	40.41	223	80.00	-31.04	vertical	Peak
7	5298.00	23.38	37.12	15.68	40.37	236	60.00	-24.19	vertical	Average
8	5298.00	36.12	37.12	15.68	40.37	236	80.00	-31.45	vertical	Peak

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- PoE Mode



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : QNO-6070RP
Mode : PoE
Memo : 1 ~ 3 GHz

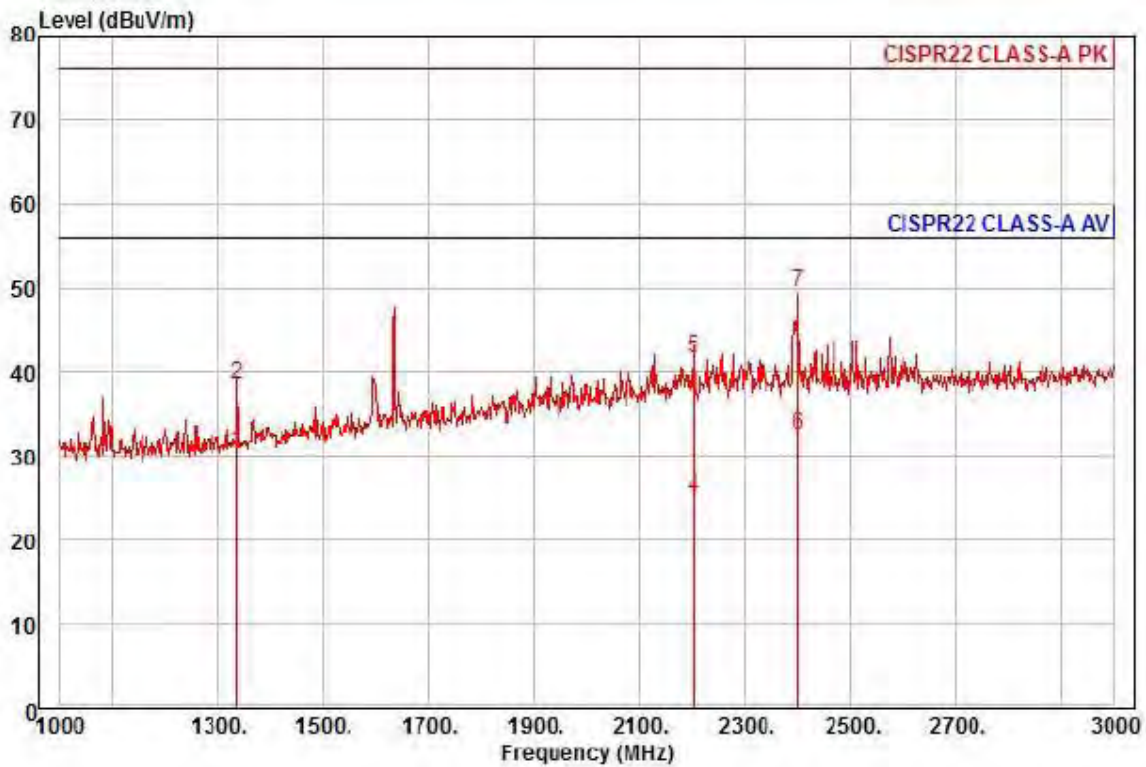
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1336.00	34.73	25.24	7.48	39.96	131	56.00	-28.51	horizontal	Average
2	1336.00	44.45	25.24	7.48	39.96	131	76.00	-38.79	horizontal	Peak
3 pp	1634.00	43.17	26.43	8.34	39.81	154	56.00	-17.87	horizontal	Average
4 pk	1634.00	48.34	26.43	8.34	39.81	154	76.00	-32.70	horizontal	Peak
5	1930.00	36.99	27.60	9.16	39.66	119	56.00	-21.91	horizontal	Average
6	1930.00	44.65	27.60	9.16	39.66	119	76.00	-34.25	horizontal	Peak
7	2228.00	33.05	28.44	9.70	39.76	349	56.00	-24.57	horizontal	Average
8	2228.00	42.86	28.44	9.70	39.76	349	76.00	-34.76	horizontal	Peak



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Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : QNO-6070RP
Mode : PoE
Memo : 1 ~ 3 GHz

		Read	Ant	Cable	Preamp	TPos	Limit	Over		
	Freq	Level	Factor	Loss	Factor		Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1336.00	37.69	25.24	7.48	39.96	18	56.00	-25.55	vertical	Average
2	1336.00	45.82	25.24	7.48	39.96	18	76.00	-37.42	vertical	Peak
3	1634.00	0.00	26.43	8.34	39.81	126	76.00	-81.04	vertical	Peak
4	2202.00	26.75	28.37	9.66	39.75	62	56.00	-30.97	vertical	Average
5	2202.00	43.36	28.37	9.66	39.75	62	76.00	-34.36	vertical	Peak
6 pp	2400.00	33.60	28.85	9.96	39.86	178	56.00	-23.44	vertical	Average
7 pk	2400.00	50.63	28.85	9.96	39.86	178	76.00	-26.41	vertical	Peak

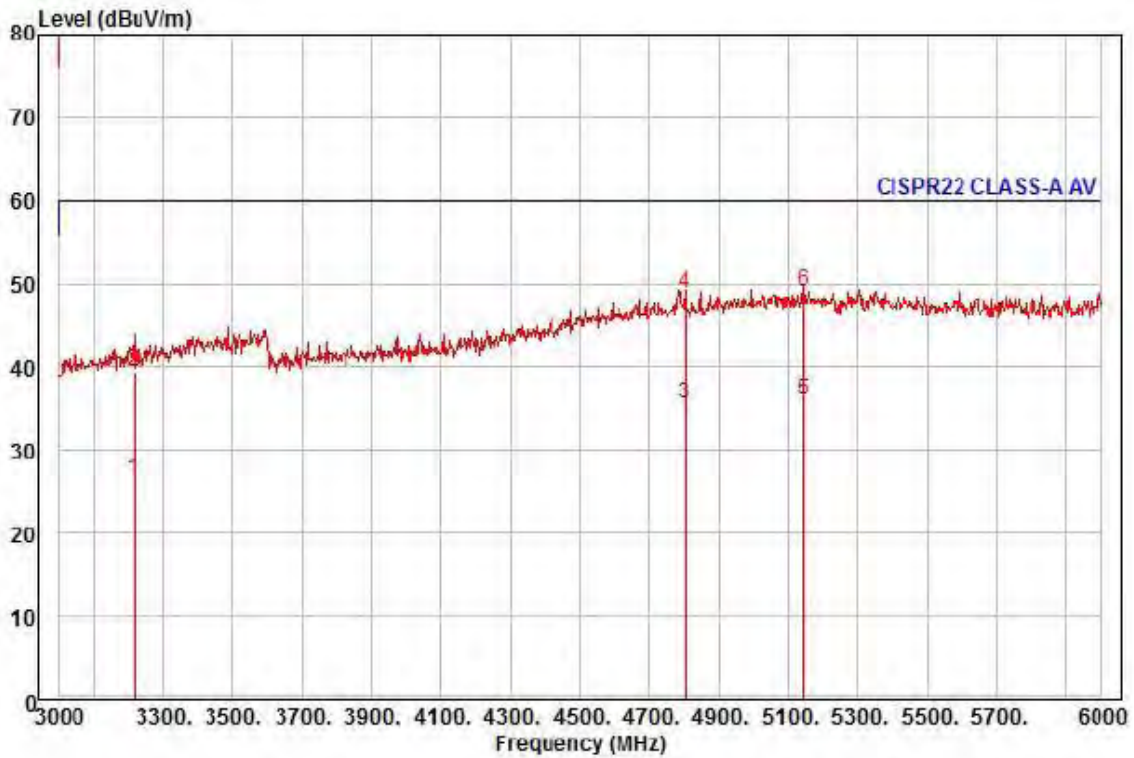
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Test report No.:
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Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : QNO-6070RP
Mode : PoE
Memo : 3 ~ 6 GHz

	Freq	Read Level	Ant Factor	Cable Loss	Preamplifier Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3216.00	24.18	30.69	11.78	40.25	7	60.00	-33.60	horizontal	Average
2	3216.00	37.15	30.69	11.78	40.25	7	80.00	-40.63	horizontal	Peak
3	4800.00	24.35	36.58	14.97	40.41	223	60.00	-24.51	horizontal	Average
4	4800.00	37.66	36.58	14.97	40.41	223	80.00	-31.20	horizontal	Peak
5 pp	5142.00	23.37	37.43	15.50	40.39	310	60.00	-24.09	horizontal	Average
6 pk	5142.00	36.56	37.43	15.50	40.39	310	80.00	-30.90	horizontal	Peak

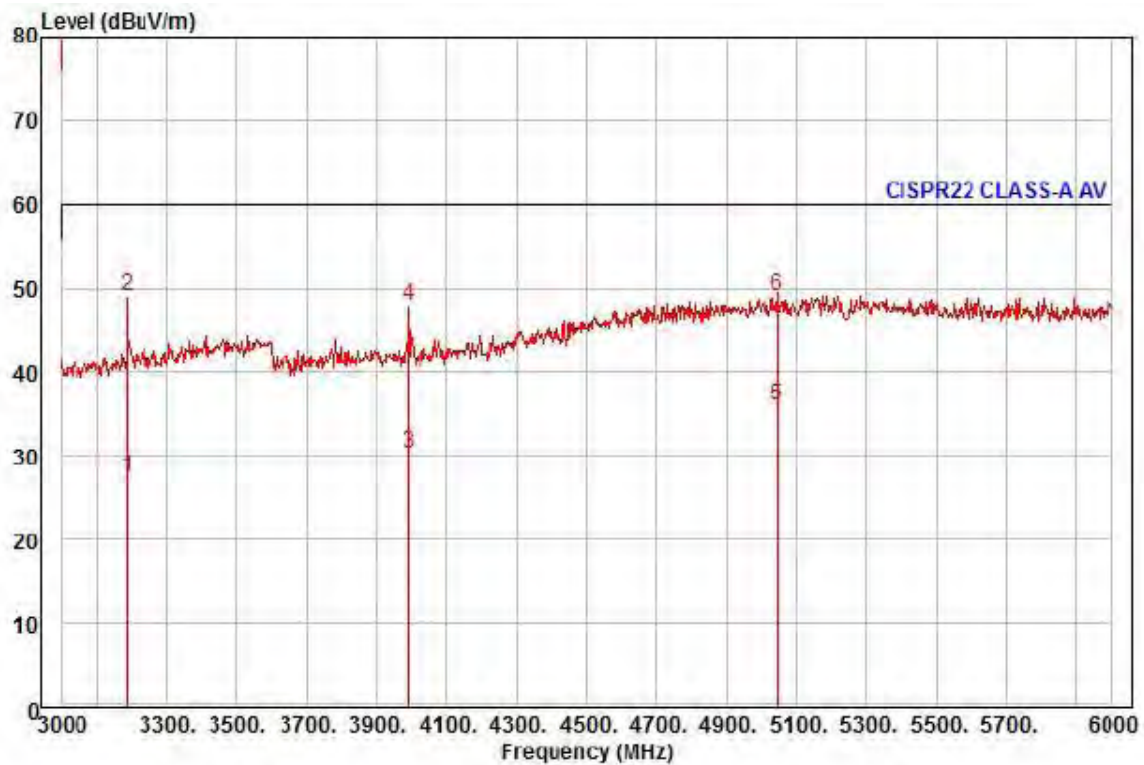
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Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : QNO-6070RP
Mode : PoE
Memo : 3 ~ 6 GHz

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3186.00	25.29	30.64	11.70	40.25	37	60.00	-32.62	vertical	Average
2	3186.00	46.95	30.64	11.70	40.25	37	80.00	-30.96	vertical	Peak
3	3990.00	25.19	31.99	13.49	40.41	48	60.00	-29.74	vertical	Average
4	3990.00	42.94	31.99	13.49	40.41	48	80.00	-31.99	vertical	Peak
5 pp	5046.00	23.44	37.63	15.38	40.40	305	60.00	-23.95	vertical	Average
6 pk	5046.00	36.47	37.63	15.38	40.40	305	80.00	-30.92	vertical	Peak

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Harmonic Current Emissions and Voltage Fluctuations and Flicker

Average harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	N/A			
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				

Harmonic currents less than 0.6% of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded.

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Test Data - Harmonics (continued)

Maximum harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	N/A			
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				

Harmonic currents less than 0.6% of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded.

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Test Data - Voltage Fluctuations

Maximum Flicker results

	EUT values	Limit	Result
Pst	N/A		
Plt			
dc [%]			
dmax [%]			
Tmax [s]			

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Test Setup Photos and Configuration

Conducted Voltage Emissions

N/A

N/A

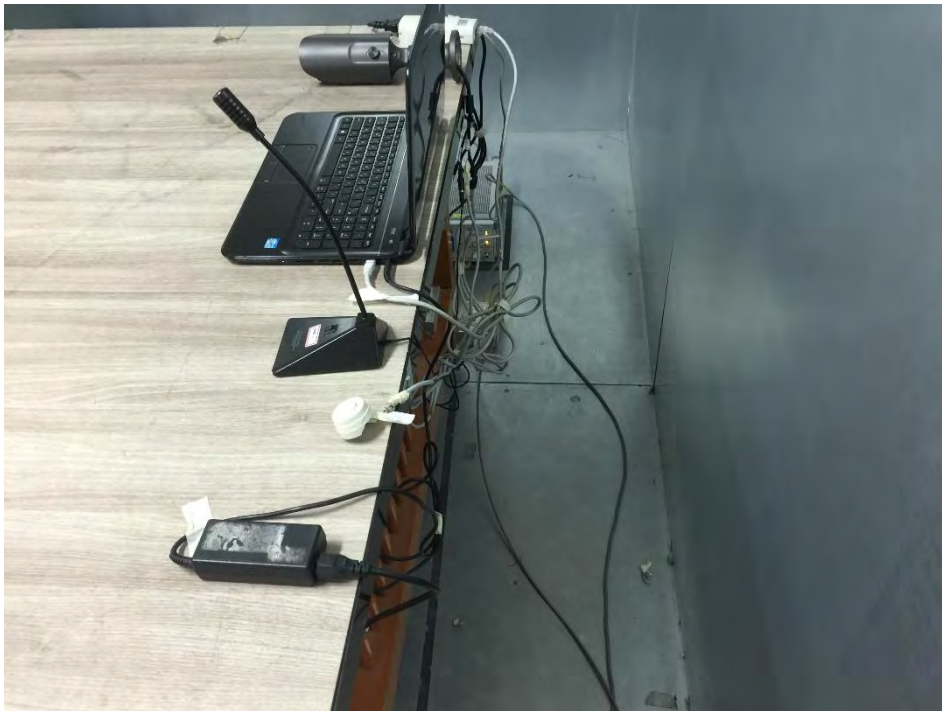
Conducted Telecommunication Emissions

- DC 12 V Mode



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- PoE Mode



Radiated Electric Field Emissions(Below 1 GHz)

- DC 12 V Mode



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- PoE Mode



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Radiated Electric Field Emissions(Above 1 GHz)

- DC 12 V Mode



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- PoE Mode





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Harmonic Current Emissions and Voltage Fluctuations and Flicker

N/A

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Electrostatic Discharge

- DC 12 V Mode



- PoE Mode



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Radiated Electric Field Immunity

- DC 12 V Mode



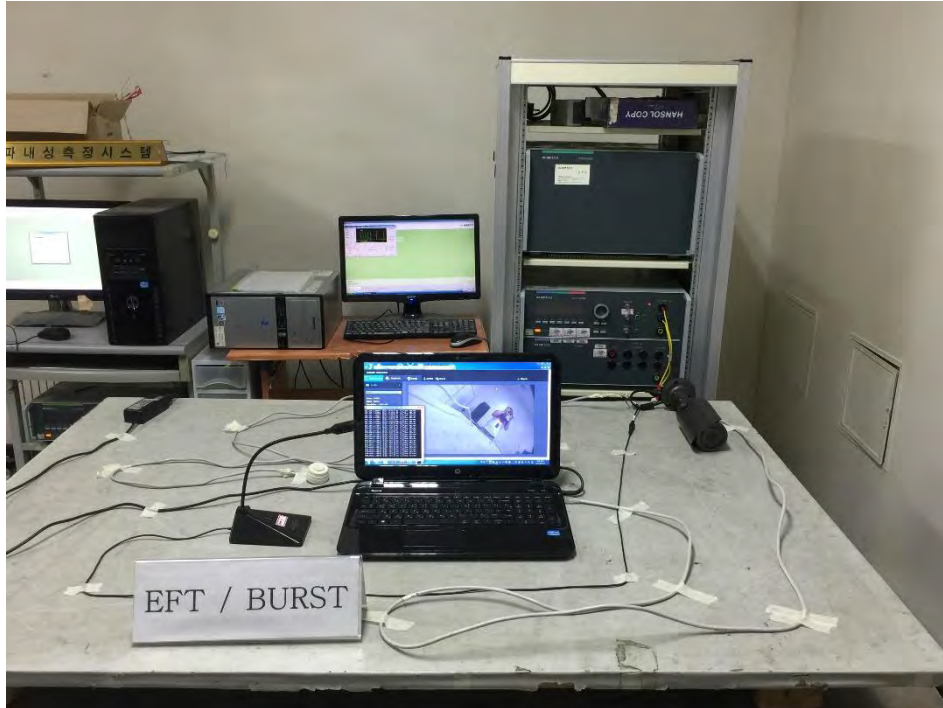
- PoE Mode



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Electrical Fast Transients/Bursts

- DC 12 V Mode



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- PoE Mode



Surge Transients

- DC 12 V Mode



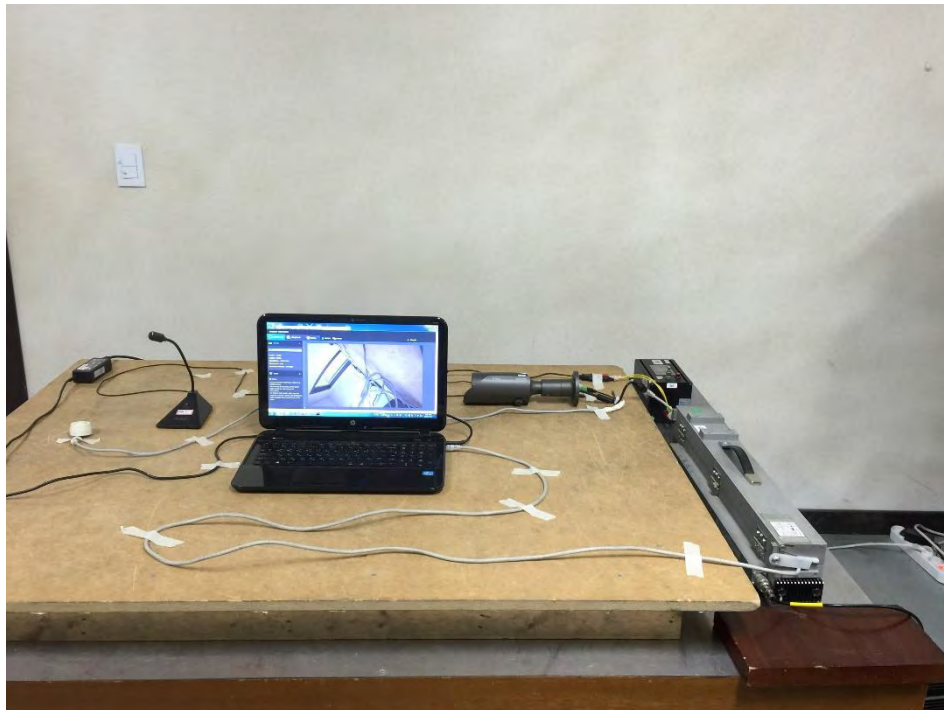
- PoE Mode



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Conducted Disturbance

- DC 12 V Mode



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- PoE Mode





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Voltage Dips and Short Interruptions

N/A

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EUT External Photographs

(Top)



(Bottom)



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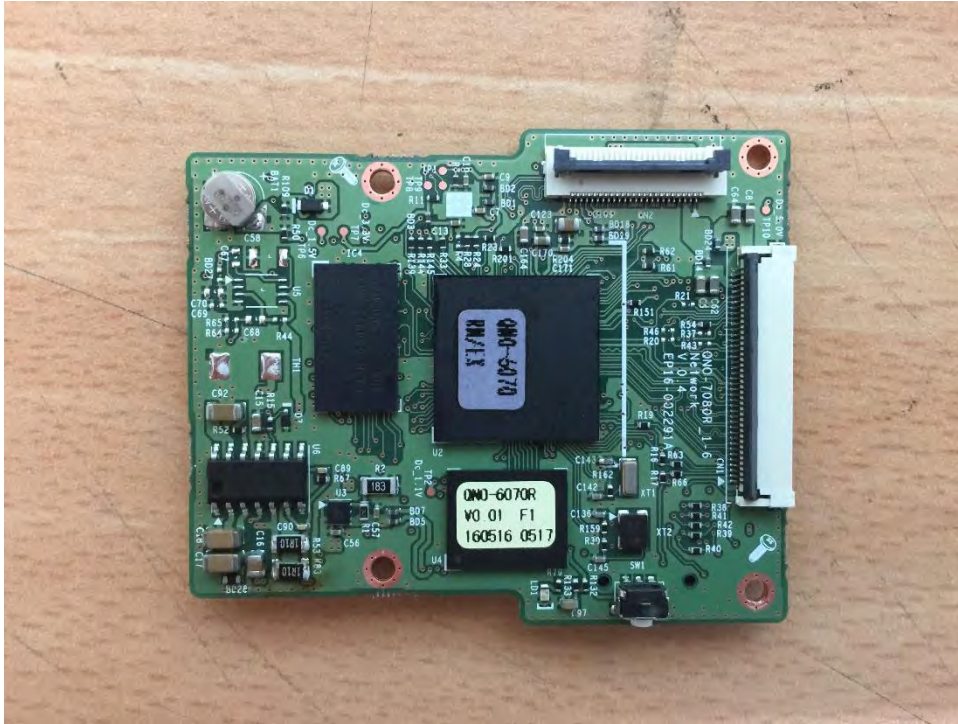
EUT Internal Photographs

(Internal View)

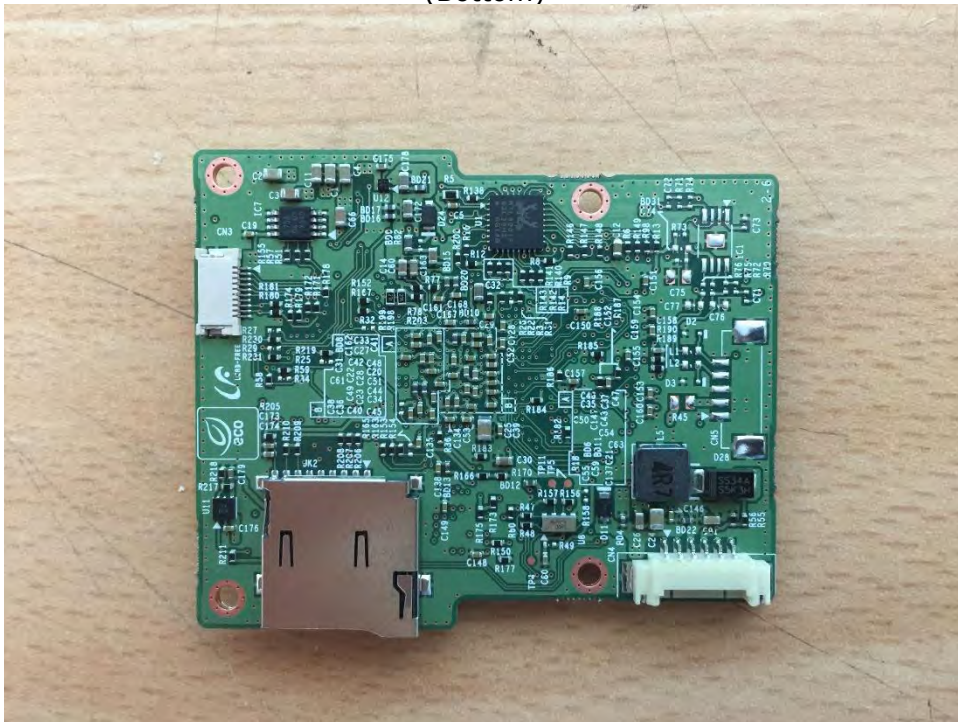


EUT Internal View – Main Board

(Top)



(Bottom)



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EUT Internal View – LED Board

(Top)



(Bottom)



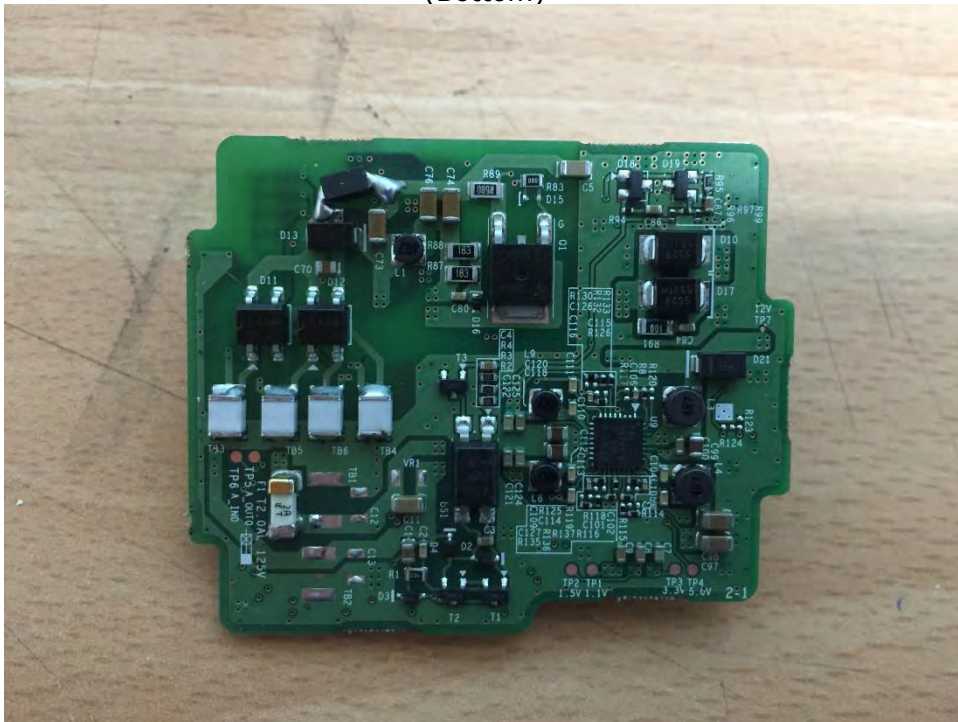
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EUT Internal View – Power Board

(Top)



(Bottom)



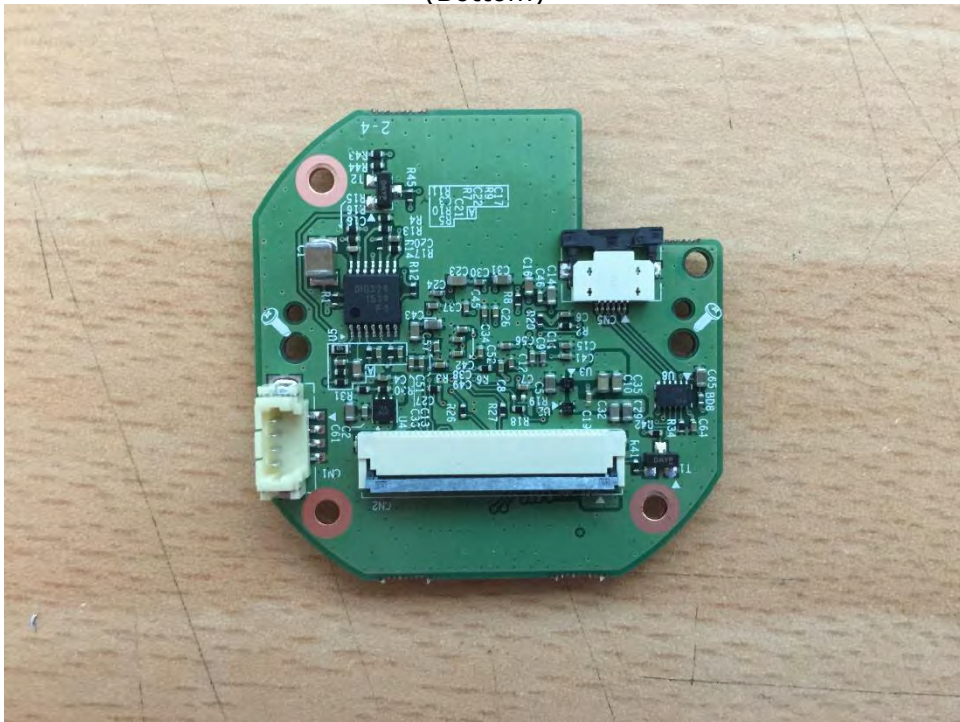
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EUT Internal View – Sensor Board

(Top)



(Bottom)



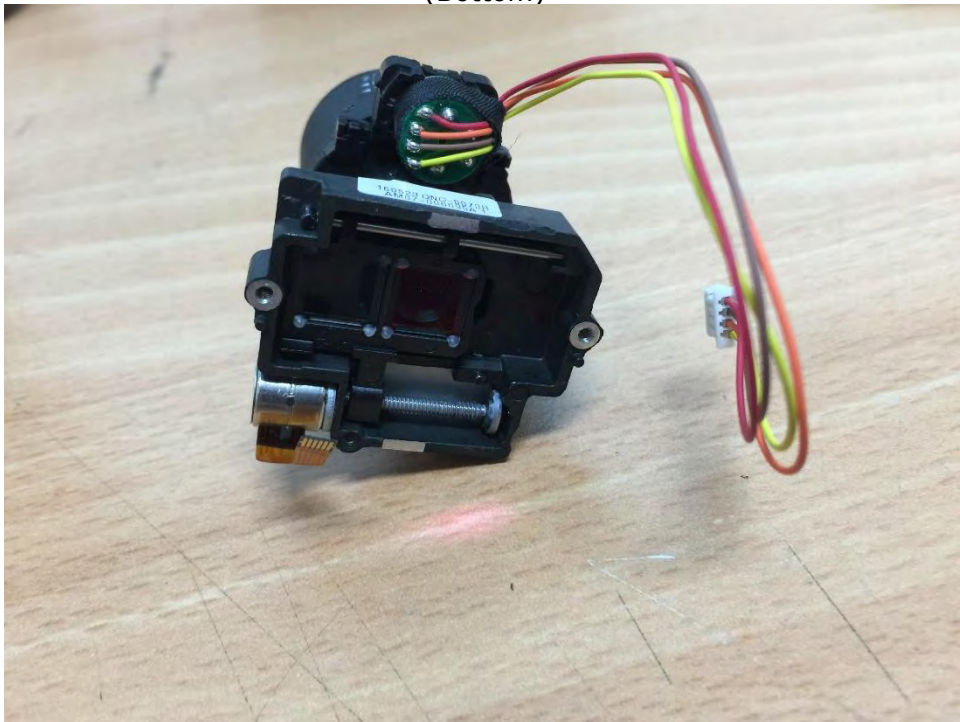
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EUT Internal View – Lens

(Top)



(Bottom)



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Label and Location



NETWORK CAMERA

Model No : QNO-6070R

Manufacturer : Tianjin Samsung Techwin Opto-Electronic Co.,Ltd.

Made in China

