

**KES Co., Ltd.**

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www.kes.co.kr

Test report No.:

KES-E1-17T0553-R4

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EMC TEST REPORT For CE

Test Report No. : KES-E1-17T0553-R4

Date of Issue : Mar. 12, 2021

Product name : NETWORK CAMERA

Model/Type No. : XNF-8010RV

Variant Model : XNF-8010RVP

Applicant : Hanwha Techwin Co., Ltd.

Applicant Address : 6, Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si,
Gyeonggi-do, Republic of Korea

Manufacturer : 1. HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.
2. D-TECH CO.,LTD.

Manufacturer Address : 1. Lot O-2, Que Vo Industrial Zone extended area,
Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam
2. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi- do,
Korea (Suwon Industrial Complex)

Date of Receipt : Aug. 04, 2017

Test date : Aug. 18, 2017 – Aug. 21, 2017

Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Kang Hyeon, Kim
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

This test report is not related to KS Q ISO/IEC 17025 and KOLAS.

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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Aug. 25, 2017	KES-E1-17T0553	Issued
Jun. 22, 2018	KES-E1-17T0553-R1	Re-issue due to manufacturer change
Sep. 28, 2018	KES-E1-17T0553-R2	model name correction
Mar. 19, 2019	KES-E1-17T0553-R3	Add Derived Model and Modify Model Name
Mar. 12, 2021	KES-E1-17T0553-R4	Reissue due to change of applicant's address and manufacturer

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1.0 General Product Description

Main Specifications of E.U.T are:

Video	
Imaging Device	1/1.8" 6M CMOS
Total Pixels	3,096x2,094
Effective Pixels	2,048x2,048
Scanning System	Progressive
Min. Illumination	Color : 0.07Lux(F2.2, 30IRE) B/W : 0 Lux (IR LED On)
S / N Ratio	50dB
Video Out	CVBS : 1.0 Vp-p / 75Ω composite, 714x480(N), 702x576(P), for installation - DIP connector type USB
Lens	
Focal Length (Zoom Ratio)	1.6mm
Max. Aperture Ratio	F1.6
Angular Field of View	H : 187° / V : 187° / D : 187°
Min. Object Distance	0.3m
Focus Control	Simple Focus / Manual - Remote control via network
Lens Type	Fixed Lens
Mount Type	Board Type
Operational	
Viewable Length	15m
Camera Title	Off / On (Displayed up to 85 characters) - 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	Auto (ICR) / Color / B/W / External / Schedule
Backlight Compensation	OFF / BLC / HLC(Masking / Dimming) / WDR

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Wide Dynamic Range	120dB
Contrast Enhancement	SSDR Off / On
Digital Noise Reduction	SSNRV (2D+3D noise filter) Off / On
Digital Image Stabilization	Off/On
Defog	Off/Auto(input from fog-detection) / Manual
Motion Detection	Off / On (8ea, 8point Polygonal zones), Hand over
Privacy Masking	Off / On (32ea, Polygonal) - Color : Gray, Green, Red, Blue, Black, White, Mosaic
Gain Control	Off / Low / Middle / High / Manual
White Balance	ATW / AWC / Manual / Indoor / Outdoor(Included mercury&Sodium)
Electronic Shutter Speed	Minimum / Maximum / Anti flicker(2~1/12,000sec)
Digital Zoom	24x, Digital PTZ(Preset, Group)
Flip / Mirror	Off / On
Video & Audio Analytics	Tampering, Loitering, Directional detection, Defocus-detection , Fog-detection , Virtual line, Enter/Exit, (Dis)Appear, Audio detection, Face-detection , Motion detection, Digital-auto-tracking , Sound classification
Alarm I/O	Input 1ea / Output 1ea
Alarm Triggers	Alarm Input, Motion Detection, Video & Audio Analytics , Network Disconnect, SD card error, NAS error
Alarm events	File upload via FTP and E-Mail Notification via E-Mail local storage(SD/SDHC/SDXC) or NAS recording at Event Triggers External output, DPTZ-preset
View Composition	<Camera Side> Fisheye Single Panorama Double Panorama Fisheye+4 PTZ Quad view Fisheye+8 PTZ
Pixel Counter	Support

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Network	
Video Compression Format	H.265/H.264/MJPEG
Resolution	[Original View(1:1)] 2048x2048 / 1280x1280 / 1080x1080 / 960x960 / 768x768 / 720x720 / 640x640 / 480x480
	[Single Panorama(4:1)] 2048x512 / 1920x480 / 1280x320 / 640x160 / 704x176
	[Double Panorama(2:1)] 2048x1024 / 1920x960 / 1280x640 / 640x320 / 704x352
	[Quad View(4:3)] 2048x1536 / 1600x1200 / 1280x960 / 1024x768 / 800x600 / 640x480 / 704x576
	[Q1/2/3/4] 1024x768, 800x600, 640x480
Max. Framerate	H.265/H.264 : 30fps@2,048x2,048
	MJPEG : Max 15fps
Smart Codec	Manual Mode (area-based : 5EA)
WiseStreamII	Support
Video Quality Adjustment	H.265/H.264 : Target Bitrate Level Control MJPEG : Quality Level Control
Bitrate Control Method	H.265/H.264 : CBR or VBR MJPEG : VBR
Streaming Capability	Multiple Streaming (Up to 10profiles)
Audio In	Selectable (Mic IN/Line IN/Built-in mic) Supply voltage: 2.5VDC(4mA), Input impedance: approx. 2K Ohm
Audio out	Line out (3.5mm mono jack), Max output level: 1 Vrms
Audio Compression Format	G.711 u-law /G.726 Selectable G.726 (ADPCM) 8KHz, G.711 8KHz G.726 : 16Kbps, 24Kbps, 32Kbps, 40Kbps AAC-LC : 48Kbps at 8/16/32/48KHz
Audio Communication	Bi-directional(2way)
IP	IPv4, IPv6
Protocol	TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP,RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, PPPoE, FTP, SMTP, ICMP, IGMP,

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	SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, PIM-SM, UPnP, Bonjour, SIP
Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access Log 802.1x Authentication (EAP-TLS, EAP-LEAP)
Streaming Method	Unicast / Multicast
Max. User Access	20 users at Unicast Mode
Edge Storage	SD/SDHC/SDXC 2slot(up to 512GB) - Continuous recording(1st slot to 2nd slot) - motion Images recorded in the SD/SDHC/SDXC memory card can be downloaded. - camera can detect automatically when the memory is connected - memory status display (normal/error/active/formatting/lock) NAS(Network Attached Storage) Local PC for Instant Recording(plug-in viewer only)
Application Programming Interface	ONVIF Profile S/G SUNAPI Wisenet open platrom
Webpage Language	English, French, German, Spanish, Italian, Chinese, Korean, Russian, Japanese, Swedish, Portuguese, Turkish, Polish, Czech, Dutch, Hungary, Greek
Web Viewer	Supported OS: Windows 7, 8.1, 10, Mac OS X 10.9. 10.10. 10.11. 10.12 Plug-in Free Webviewer Supported Browser : Google Chrome 54, MS Edge 30, Mozilla Firefox 49(Window 64bit only), Apple Safari9 *Mac OS X only Plug-in Webviewer

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	Supported Browser : MS Explore 11, Apple Safari 9 * Mac OS X only
Central Management Software	Smart Viewer
Environmental	
Operating Temperature / Humidity	-40°C ~ +55°C / Less than 90% RH
Storage Temperature / Humidity	-50°C ~ +60°C (-22°F ~ +140°F) / Less than 90% RH
Ingress Protection	IP66
Vandal Resistance	IK10
Electrical	
Input Voltage / Current	DC12V±10%,PoE(IEEE802.3af,Class3)
Power Consumption	DC12V(10W 0.83A), PoE(11.5W 0.31A)
Mechanical	
Color / Material	Ivory/ALUMINUM, PLASTIC
Dimension (WxHxD)	D146, H65.8
Weight	785g

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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 ☐ 230Vac ☐ 100 Vac ☐ 24 Vac ☒ 12 Vdc ☒ PoE
Frequency ☐ 50 Hz ☐ 60 Hz ☐ Hz

1.2 Variant Model Differences

Add model for sales department classification

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
NETWORK CAMERA	XNF-8010RV	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	E.U.T

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
POE Adaptor	POE 36U-1AT-R	P90215791A1	PHIHONG	-
Notebook	X56K	HN11N5151FJ0045W	HanSunG Corporation	-
Notebook Adaptor	A12-120P1A	F180271552011758	CHICONY POWER TECHNOLOGY CO.,LTD.	-
Speaker	CS-30	-	E-SOUND SYSTEM CO., LTD	-
MIC	CMK-303	-	CAMAC	-
Alarm	-	-	-	-



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	4.0	U
	3.5 mm	Speaker	3.5 mm	1.6	U
	3.5 mm	MIC	3.5 mm	1.7	U
	3 Pin	Alarm	3 Pin	1.6	U

* Unshielded=U, Shielded=S

- PoE Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (E.U.T)	RJ-45 (POE)	POE Adaptor	RJ-45 (POE)	4.0	U
	3.5 mm	Speaker	3.5 mm	1.6	U
	3.5 mm	MIC	3.5 mm	1.7	U
	3 Pin	Alarm	3 Pin	1.6	U
Notebook	RJ-45 (DATA)	POE Adaptor	RJ-45 (DATA)	3.0	U

* Unshielded=U, Shielded=S

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1.7 E.U.T Operating Mode(s)

Test mode	operating
DC 12 V	E.U.T Monitoring, Ping Test
POE	E.U.T Monitoring, Ping Test

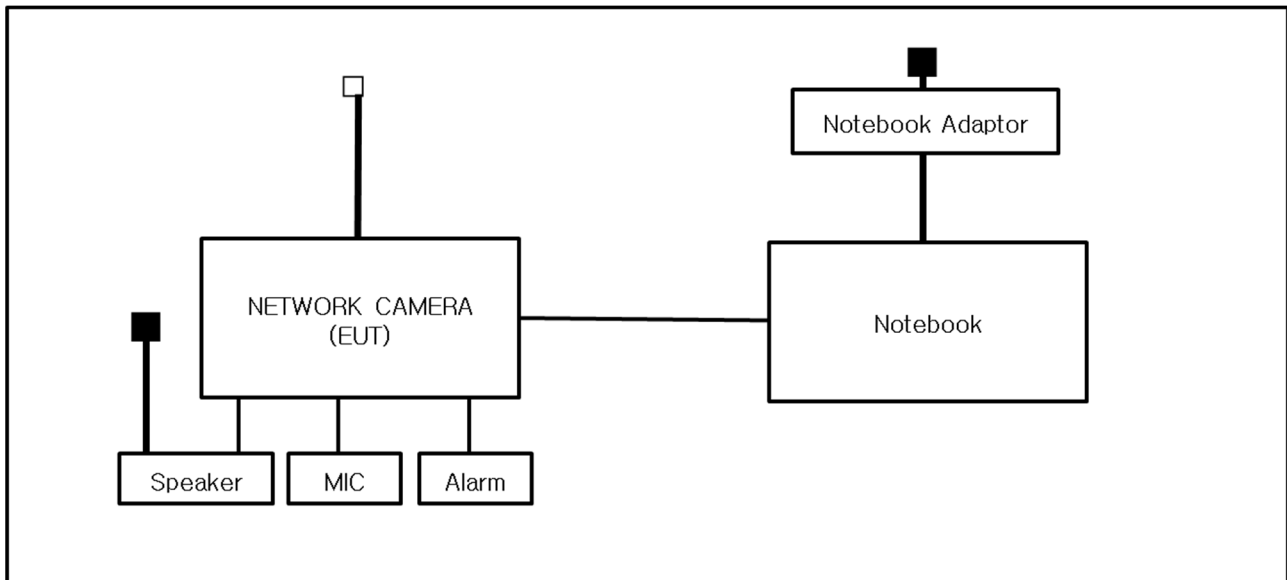
E.U.T Test operating S/W		
Name	Version	Manufacture Company
WebViewer	-	Hanwha Techwin Co., Ltd.

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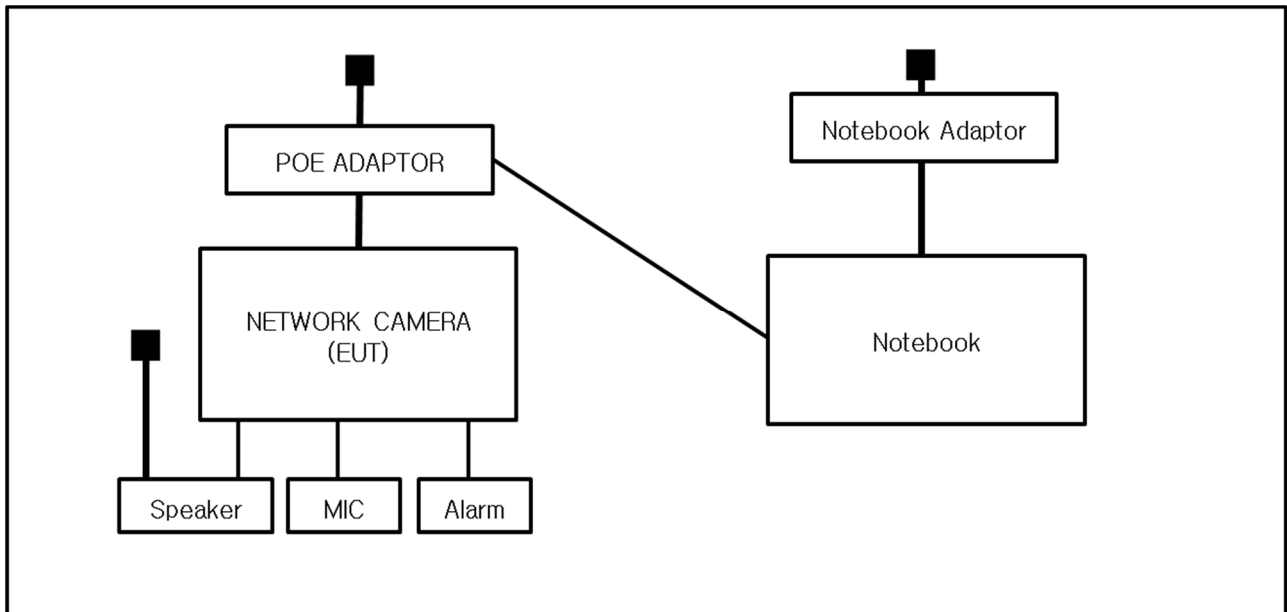
1.8 Configuration

■ 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, Yeoju-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-20056, C-20036, T-20040, G-20057
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 001633 0004



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

☐ EN 61000-3-2:2014

☐ EN 61000-3-3:2013

☐ EN 61326-1:2013



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- | | | |
|---|----------------------------------|----------------------------------|
| ☐ 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 | | |
| ☐ CAN/CSA CISPR 22-10 | ☐ 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 | | |

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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 S/W	EMC32	R & S	9.12.00	-
☐	EMI TEST RECEIVER	ESR3	R & S	101781	04, 27, 2018
☐	LISN	ENV216	R & S	101787	01, 11, 2018
☐	LISN	ESH2-Z5	R & S	100450	04, 27, 2018
☐	PULSE LIMITER	ESH3-Z2	R & S	101915	12, 13, 2017

Test Conditions

Temperature: °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

=

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2.2 Conducted Emissions at Telecommunication Ports

Test Date

Aug. 18, 2017

Test Location

Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EMC32	R & S	9.12.00	-
☒	EMI TEST RECEIVER	ESR3	R & S	101783	04, 27, 2018
☒	LISN	ENV216	R & S	101137	02, 03, 2018
☒	LISN	ESH2-Z5	R & S	101786	04, 27, 2018
☒	PULSE LIMITER	ESH3-Z2	R & S	101914	12, 13, 2017
☒	8-WIRE ISN CAT3	CAT3 8158	SCHWARZBECK	8158-0019	03, 29, 2018
☒	8-WIRE ISN CAT5	CAT5 8158	SCHWARZBECK	8158-0030	03, 29, 2018
☐	8-WIRE ISN CAT6	NTFM 8158	SCHWARZBECK	8158-0029	08, 10, 2018

Test Conditions

Temperature: 23,6 °C

Relative Humidity: 50,2 %

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

RemarksSee Appendix A for test data.

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2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Aug. 19, 2017

Test Location

☐ OPEN AREA TEST SITE #2 ☒ SAC #4(10 m)

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	SAC #4(10 m)	-	DYMSTEC	-	-
☒	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
☒	EMI TEST RECEIVER	ESU26	R & S	100551	04, 18, 2018
☒	AMPLIFIER	SCU 01	R & S	100603	12, 13, 2017
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	716	11, 28, 2018

Test Conditions

Temperature: 23.1 °C
Relative Humidity: 51.6 %

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.

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2.4 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Aug. 18, 2017

Test Location

SEMI ANECHOIC CHAMBER #2

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	SEMI ANECHOIC CHAMBER #2	-	SEMITEC	-	-
☒	EMI Test S/W	e3	AUDIX	8.083b	-
☒	EMI TEST RECEIVER	ESU26	R & S	100552	04, 19, 2018
☒	PREAMPLIFIER	8449B	AGILENT	3008A01729	05, 31, 2018
☐	ATTENUATOR	8491A	HP	35496	03, 24, 2018
☒	LOG-PERIODIC ANTENNA	STLP 9149	SCHWARZBECK	9149-255	05, 17, 2018

Test Conditions

Temperature: 23,1 °C
Relative Humidity: 51,6 %

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

Remarks

See Appendix A for test data.

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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 oeuvres 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 in 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.

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3.1 Electrostatic Discharge

Reference Standard

EN 61000-4-2:2009

Test Date

Aug. 21, 2017

Test Location

EMS-ESD: Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☐	EMS Test S/W	-	-	-	-
☒	ESD SIMULATOR	ESS-2000	Noise Ken	ESS05X4620	02, 24, 2018
☒	HCP	-	Noise Ken	-	-
☒	VCP	-	Noise Ken	-	-

Test Conditions

Temperature: 22,1 °C
Relative Humidity: 47,9 %
Atmospheric Pressure: 99,3 kPa

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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	Air	HCP	VCP
	☐ 2 kV	☒ 2 kV	☐ 2 kV	☐ 2 kV
	☐ 4 kV	☒ 4 kV	☐ 4 kV	☐ 4 kV
	☒ 6 kV	☐ 6 kV	☒ 6 kV	☒ 6 kV
	☐ 8 kV	☒ 8 kV	☐ 8 kV	☐ 8 kV
	☐ 15 kV	☐ 15 kV	☐ 15 kV	☐ 15 kV

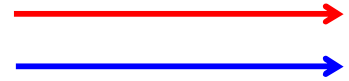
Notes: HCP: Horizontal coupling plane

VCP: Vertical coupling plane

Required Performance Criteria: ☒ Complied

Location of Discharge:

Air
Contact



1

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

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

Direct Discharge

No.	Test Point	Discharge Method	Observations	Remarks
1	Screw	Contact Discharge	Complied	-

- PoE Mode**Indirect Discharge**

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

Direct Discharge

No.	Test Point	Discharge Method	Observations	Remarks
1	Screw	Contact 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

Aug. 18, 2017

Test Location

EMS-RS: ☐ SEMI ANECHOIC CHAMBER #2 ☒ SEMI ANECHOIC CHAMBER #3

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	SEMI ANECHOIC CHAMBER #2	-	SEMITEC	-	-
☒	EMS Test S/W	KTI_RS2012	KOREA TECHNOLOGY INSTITUTE CO., LTD	2.1.1	-
☒	SIGNAL GENERATOR	ESG-3000A	HP	US37040210	11, 01, 2017
☒	AMPLIFIER	ITA0300-200	Infinitech	-	11, 01, 2017
☒	AMPLIFIER	ITA0750-200	Infinitech	-	11, 01, 2017
☒	AMPLIFIER	ITA1500-100	Infinitech	-	11, 01, 2017
☒	AMPLIFIER	ITA2500-100	Infinitech	-	11, 01, 2017
☒	POWER METER	E4419B	Agilent	MY45101506	06, 26, 2018
☒	AVERAGE POWER SENSOR	E9301A	Agilent	-	06, 26, 2018
☒	AVERAGE POWER SENSOR	E9301A	Agilent	MY41495698	06, 26, 2018
☒	HYBRID LOG-PERIODIC ANTENNA	HLP-2603	TDK	100400	-
☒	AMPLIFIER	TK-PA8/3W	TESTEK	150008	06, 26, 2018
☐	COUPLER	ZARC-25-63-S+	Mini-Circuits	FM14101424	06, 26, 2018
☐	SIGNAL GENERATOR	SMB100A	R & S	108252	08, 07, 2018
☐	LOG-PERIODIC ANTENNA	STLP 9149	SCHWARZBECK	9149-255	05, 17, 2018

Test Conditions

Temperature: 23,6 °C
Relative Humidity: 50,2 %
Atmospheric Pressure: 99,5 kPa

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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

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Test Data

- DC 12 V Mode

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

- PoE Mode

Side Exposed	Observations	
	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.

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3.3 Electrical Fast Transients/Bursts

Reference Standard

EN 61000-4-4:2012

Test Date

Aug. 21, 2017

Test Location

EMS-EFT: Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	iec.control	EM TEST	5.3.9	-
☒	ULTRA COMPACT SIMULATOR	UCS 500N5T	EM TEST	P1317117973	02, 08, 2018
☒	MOTOR VARIAC	MV2616	EM TEST	V0936105123	02, 08, 2018
☒	CAPACITIVE COUPLING CLAMP	HFK	EM TEST	070925	06, 26, 2018

Test Conditions

Temperature: 22,1 °C
Relative Humidity: 47,9 %
Atmospheric Pressure: 99,3 kPa

Test Specifications

Pulse Amplitude & Polarity:
(AC Power Lines) ☐ ± 1.0 kV ☐ ± 2.0 kV
☐ ± 4.0 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 klz ☒ 100 klz

Duration of Test Voltage: ☒ ≥ 1 min

Required Performance Criteria: ☒ Complied

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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)
L – N	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.

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3.4 Surge Transients

Reference Standard

EN 61000-4-5:2014

Test Date

Aug. 21, 2017

Test Location

EMS-Surge: Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	iec.control	EM TEST	5.3.9	-
☒	ULTRA COMPACT SIMULATOR	UCS 500N5T	EM TEST	P1317117973	02, 08, 2018
☒	MOTOR VARIAC	MV2616	EM TEST	V0936105123	02, 08, 2018
☒	CDN	CNV 508N1	EM TEST	P1551168979	04, 26, 2018
☐	CDN	CNV 508T5	EM TEST	P1549168422	04, 26, 2018

Test Conditions

Temperature: 22,1 °C
Relative Humidity: 47,9 %
Atmospheric Pressure: 99,3 kPa

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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

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Test Data

- DC 12 V Mode

☐ Line to Line – Differential Mode

Mode of Application	Observations	
	(+) Surge (kV)	(-) Surge (kV)
L – N	-	-

☐ 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)
L – N	-	-

☐ 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.

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3.5 Conducted Disturbance

Reference Standard

EN 61000-4-6:2014

Test Date

Aug. 21, 2017

Test Location

EMS-CS: Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	SHIELD ROOM #3 (C동 전도/EMS)	-	SEMITEC	-	-
☒	EMS Test S/W	icd.control	EM TEST	5.3.7	-
☒	CONTINUOUS WAVE SIMULATOR	CWS 500N1	EM TEST	V0936105119	08, 07, 2018
☒	ATTENUATOR	ATT6	EM TEST	1208-34	08, 07, 2018
☒	CDN	CDN-M2/M3N	EM TEST	0909-06	08, 07, 2018
☒	CDN	CDN T8RJ45	EM TEST	0909-09	08, 07, 2018
☒	EM INJECTION CLAMP	EM 101	Liithi	35943	02, 03, 2018

Test Conditions

Temperature: 22,1 °C
Relative Humidity: 47,9 %
Atmospheric Pressure: 99,3 kPa

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Test Specifications

- Frequency range: ☒ 150 kHz to 100 MHz ☐ 150 kHz to 80 MHz
- Voltage Level: ☐ 1 Vrms ☐ 3 Vrms
☒ 10 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 s
- Required Performance Criteria: ☒ Complied

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Test Data

- DC 12 V Mode

☐ Input a.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observations
-	CDN	-

☒ Input d.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observations
L - N	CDN	Complied

☒ Signal ports and telecommunication ports

Coupling Location (Line Stressed)	Coupling Method	Observations
RJ-45	CDN T8RJ45	Complied
Alarm	EM Clamp	Complied

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- PoE Mode

☐ Input a.c. power ports

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

☐ Input d.c. power ports

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

☒ Signal ports and telecommunication ports

Coupling Location (Line Stressed)	Coupling Method	Observations
RJ-45	CDN T8RJ45	Complied
Alarm	EM 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.

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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
☐	EMS Test S/W	iec.control	EM TEST	5.3.9	-
☐	ULTRA COMPACT SIMULATOR	UCS 500N5T	EM TEST	P1317117973	02, 08, 2018
☐	MOTOR VARIAC	MV2616	EM TEST	V0936105123	02, 08, 2018

Test Conditions

Temperature:

°C

Relative Humidity:

%

Atmospheric Pressure:

kPa

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Test Specifications & Observations/Remarks

(Test Voltage : 50 Hz)

<u>Test Level</u>	<u>Duration [in period/ms (50 Hz)]</u>	<u>Results</u>
☐ 20 % dip	☐ 250 / 5000	_____
☐ 30 % dip	☐ 25 / 500	_____
☐ 60 % dip	☐ 10 / 200	_____
☐ 100 % dip	☐ 250 / 5000	_____

- Voltage variations

☐ Unom + 10 %	☐ 253.0 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

-



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Test report No.:
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APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

[HOT]

N/A

◆ Calculation

QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

Corr. : Correction values (LISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

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[NEUTRAL]

N/A

◆ Calculation

QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

Corr. : Correction values (LISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

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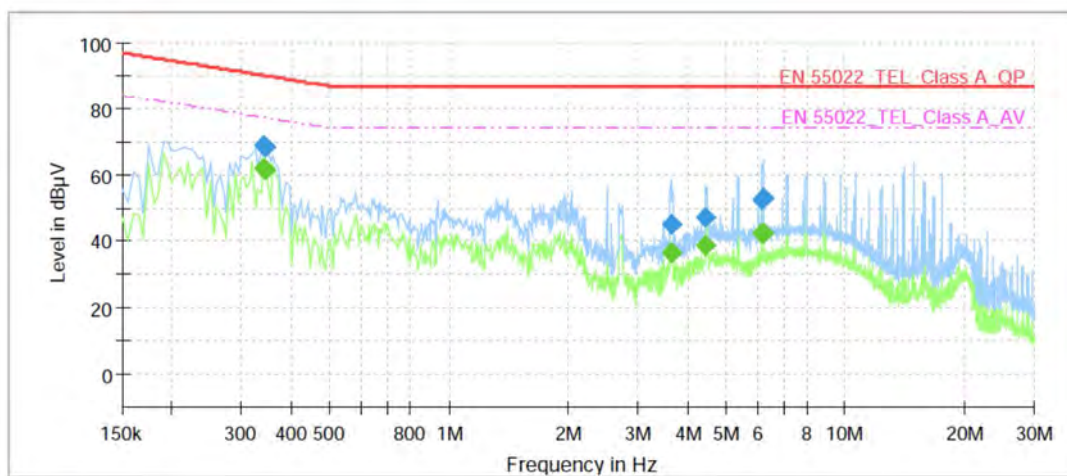
Conducted Emissions at Telecommunication Ports

- DC 12 V Mode

[10 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	XNF-8010RVP
Mode	10
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	---	61.91	77.20	15.29	1000.0	9.000	Single Line	19.9
0.340000	68.59	---	90.20	21.61	1000.0	9.000	Single Line	19.9
0.345000	---	61.29	77.08	15.79	1000.0	9.000	Single Line	19.9
0.345000	68.38	---	90.08	21.70	1000.0	9.000	Single Line	19.9
3.625000	---	36.28	74.00	37.72	1000.0	9.000	Single Line	20.0
3.625000	45.26	---	87.00	41.74	1000.0	9.000	Single Line	20.0
4.455000	---	38.60	74.00	35.40	1000.0	9.000	Single Line	20.0
4.455000	47.05	---	87.00	39.95	1000.0	9.000	Single Line	20.0
6.170000	---	42.41	74.00	31.59	1000.0	9.000	Single Line	19.9
6.170000	52.66	---	87.00	34.34	1000.0	9.000	Single Line	19.9
6.200000	---	42.23	74.00	31.77	1000.0	9.000	Single Line	19.9
6.200000	52.85	---	87.00	34.15	1000.0	9.000	Single Line	19.9

◆ Calculation

QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]

QuasiPeak / CAverage : The Final Value

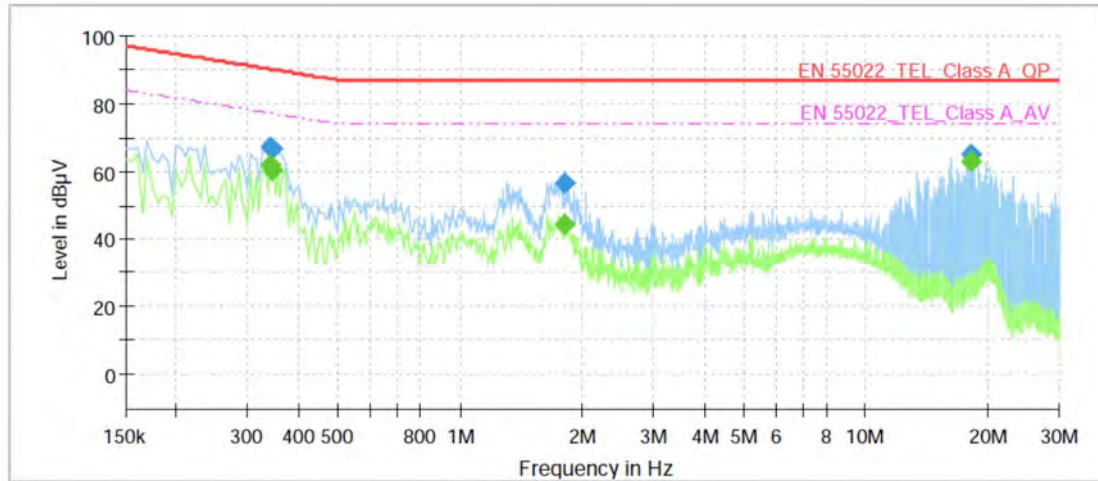
Reading Value : Not shown in the table.

Corr. : Correction values (ISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	XNF-8010RVP
Mode	100
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	---	61.77	77.20	15.43	1000.0	9.000	Single Line	19.4
0.340000	67.19	---	90.20	23.01	1000.0	9.000	Single Line	19.4
0.345000	---	60.38	77.08	16.70	1000.0	9.000	Single Line	19.4
0.345000	66.92	---	90.08	23.16	1000.0	9.000	Single Line	19.4
1.815000	---	44.66	74.00	29.34	1000.0	9.000	Single Line	19.6
1.815000	56.58	---	87.00	30.42	1000.0	9.000	Single Line	19.6
18.245000	---	63.16	74.00	10.84	1000.0	9.000	Single Line	19.5
18.245000	64.99	---	87.00	22.01	1000.0	9.000	Single Line	19.5

◆ Calculation

QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

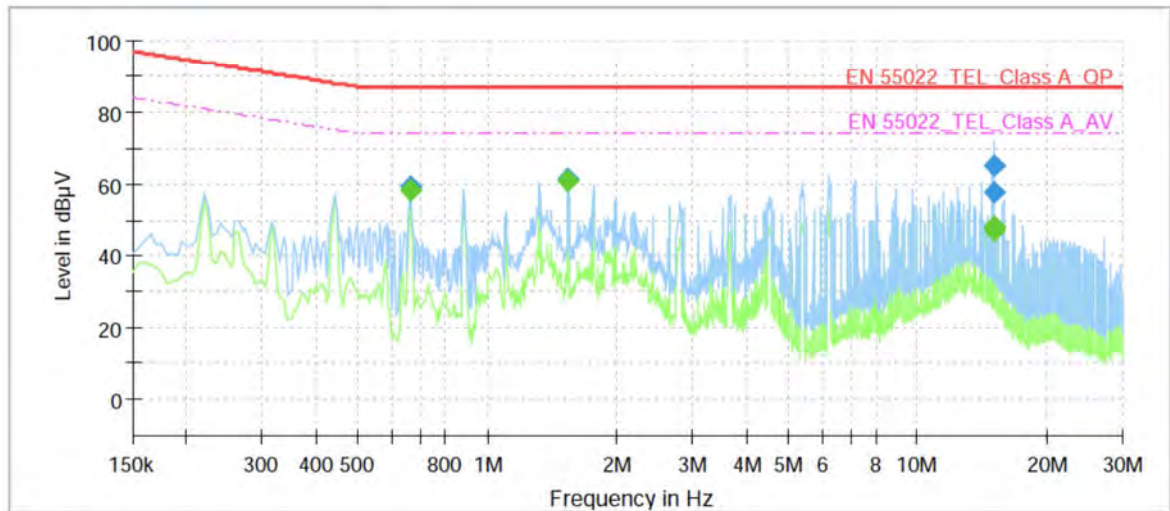
Corr. : Correction values (ISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

- PoE Mode

[10 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	XNF-8010RVP
Mode	POE 10
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.660000	---	58.27	74.00	15.73	1000.0	9.000	Single Line	19.9
0.660000	59.38	---	87.00	27.62	1000.0	9.000	Single Line	19.9
1.545000	---	60.62	74.00	13.38	1000.0	9.000	Single Line	20.0
1.545000	61.56	---	87.00	25.44	1000.0	9.000	Single Line	20.0
15.000000	---	47.01	74.00	26.99	1000.0	9.000	Single Line	20.0
15.000000	65.07	---	87.00	21.93	1000.0	9.000	Single Line	20.0
15.010000	---	48.39	74.00	25.61	1000.0	9.000	Single Line	20.0
15.010000	57.71	---	87.00	29.29	1000.0	9.000	Single Line	20.0

◆ Calculation

QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]

QuasiPeak / CAverage : The Final Value

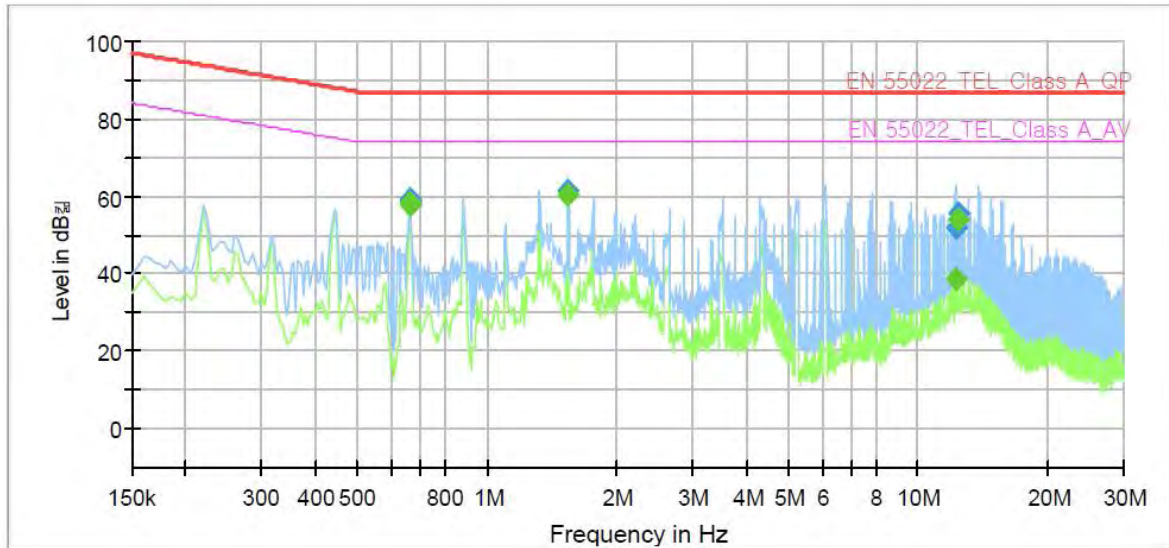
Reading Value : Not shown in the table.

Corr. : Correction values (ISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	XNF-8010RVP
Mode	POE 100
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.660000	---	58.26	74.00	15.74	1000.0	9.000	Single Line	19.9
0.660000	59.36	---	87.00	27.64	1000.0	9.000	Single Line	19.9
0.665000	---	57.83	74.00	16.17	1000.0	9.000	Single Line	19.9
0.665000	58.97	---	87.00	28.03	1000.0	9.000	Single Line	19.9
1.545000	---	60.58	74.00	13.42	1000.0	9.000	Single Line	20.0
1.545000	61.58	---	87.00	25.42	1000.0	9.000	Single Line	20.0
12.185000	---	38.51	74.00	35.49	1000.0	9.000	Single Line	19.8
12.185000	51.89	---	87.00	35.11	1000.0	9.000	Single Line	19.8
12.365000	---	54.16	74.00	19.84	1000.0	9.000	Single Line	19.8
12.365000	55.63	---	87.00	31.37	1000.0	9.000	Single Line	19.8

◆ Calculation

QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]

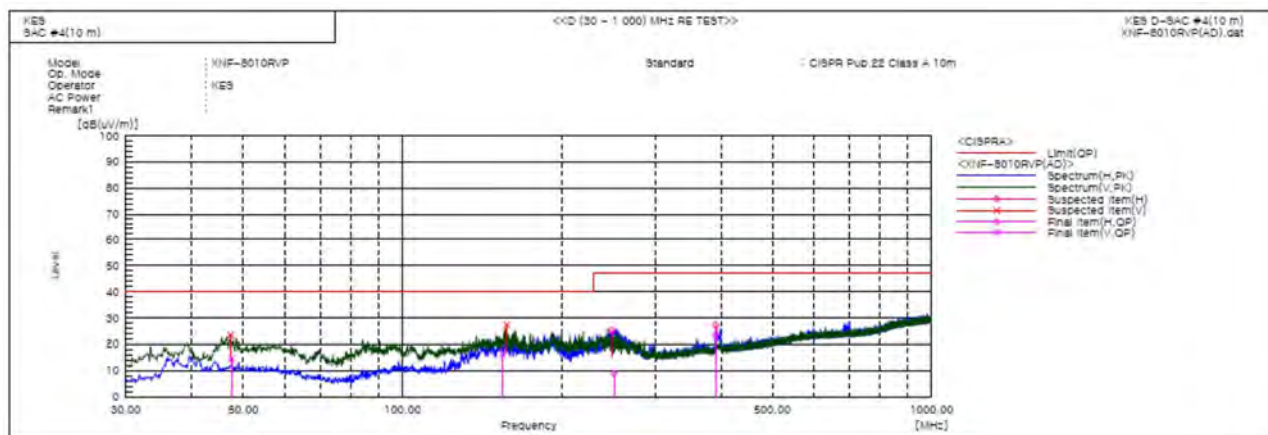
QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

Corr. : Correction values (ISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

Radiated Electric Field Emissions(Below 1 GHz)

- DC 12 V Mode



Final Result

No.	Frequency [MHz]	(P)	Reading [dB(uV)]	c.f [dB(1/m)]	Result [dB(uV/m)]	Limit [dB(uV/m)]	Margin [dB]	Height [cm]	Angle [deg]	Remark
1	47.551	V	42.4	-27.8	14.6	40.0	25.4	152.0	260.0	
2	154.434	V	47.5	-31.1	16.4	40.0	23.6	110.0	62.0	
3	251.403	H	34.0	-25.3	8.7	47.0	38.3	371.0	127.0	
4	391.166	H	43.9	-20.5	23.4	47.0	23.6	218.0	271.0	

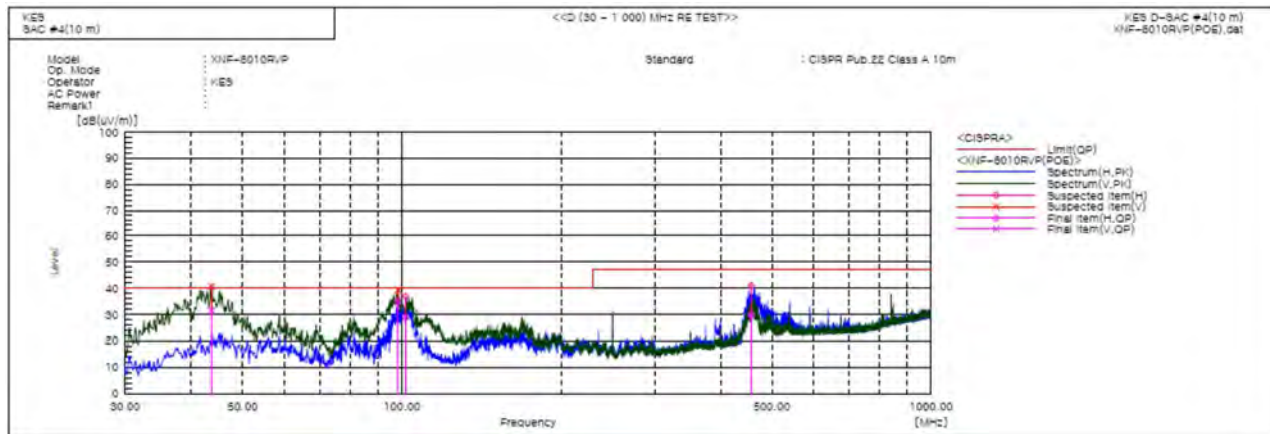
♦ Calculation

Corrected Amplitude [dBuV] = Amplitude[dBuV] + Correction Factor [dB]

Corrected Amplitude : The Final Value, Amplitude : Reading Value,

Correction Factor : ANT FACTOR + Cable loss

- PoE Mode



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	101.780	H	56.9	-28.3	28.6	40.0	11.4	400.0	243.0	
2	457.406	H	48.6	-18.8	29.8	47.0	17.2	200.0	336.0	
3	43.701	V	59.6	-28.1	31.5	40.0	8.5	400.0	19.0	
4	98.506	V	63.2	-28.4	34.8	40.0	5.2	150.0	223.0	

◆ Calculation

Corrected Amplitude [dBuV] = Amplitude[dBuV] + Correction Factor [dB]

Corrected Amplitude : The Final Value, Amplitude : Reading Value,

Correction Factor : ANT FACTOR + Cable loss

Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value



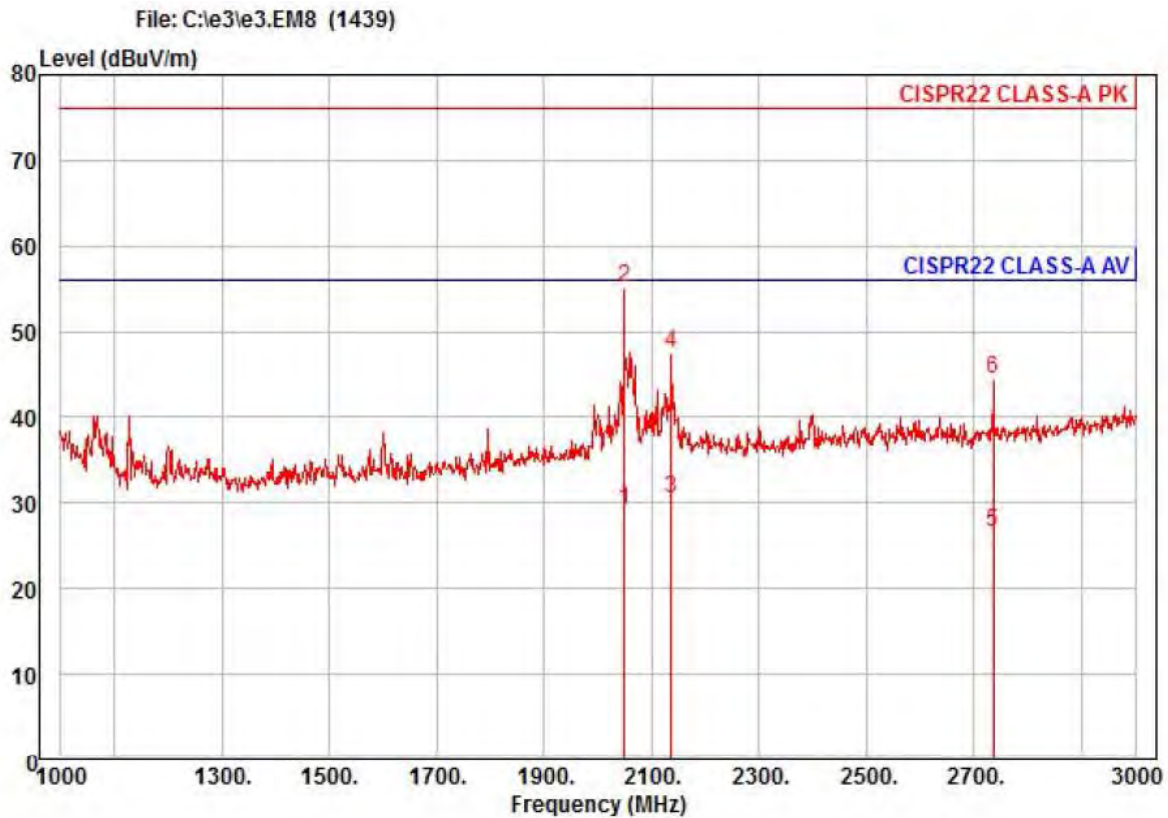
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Radiated Electric Field Emissions(Above 1 GHz)

- DC12V Mode



Site : chamber
Condition: CISPR22 CLASS-A PK 3m STLP9149(RRA CAL 2017-05-18) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : XNF-8010RVP (CE)
Mode :
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	2050.00	28.44	26.16	9.77	35.19	15	56.00	-26.82	horizontal	Average
2 pp	2050.00	54.42	26.16	9.77	35.19	15	76.00	-20.84	horizontal	Peak
3 av	2136.00	29.40	26.42	9.97	35.22	217	56.00	-25.43	horizontal	Average
4	2136.00	46.36	26.42	9.97	35.22	217	76.00	-28.47	horizontal	Peak
5	2736.00	22.13	28.57	11.43	35.46	239	56.00	-29.33	horizontal	Average
6	2736.00	40.01	28.57	11.43	35.46	239	76.00	-31.45	horizontal	Peak

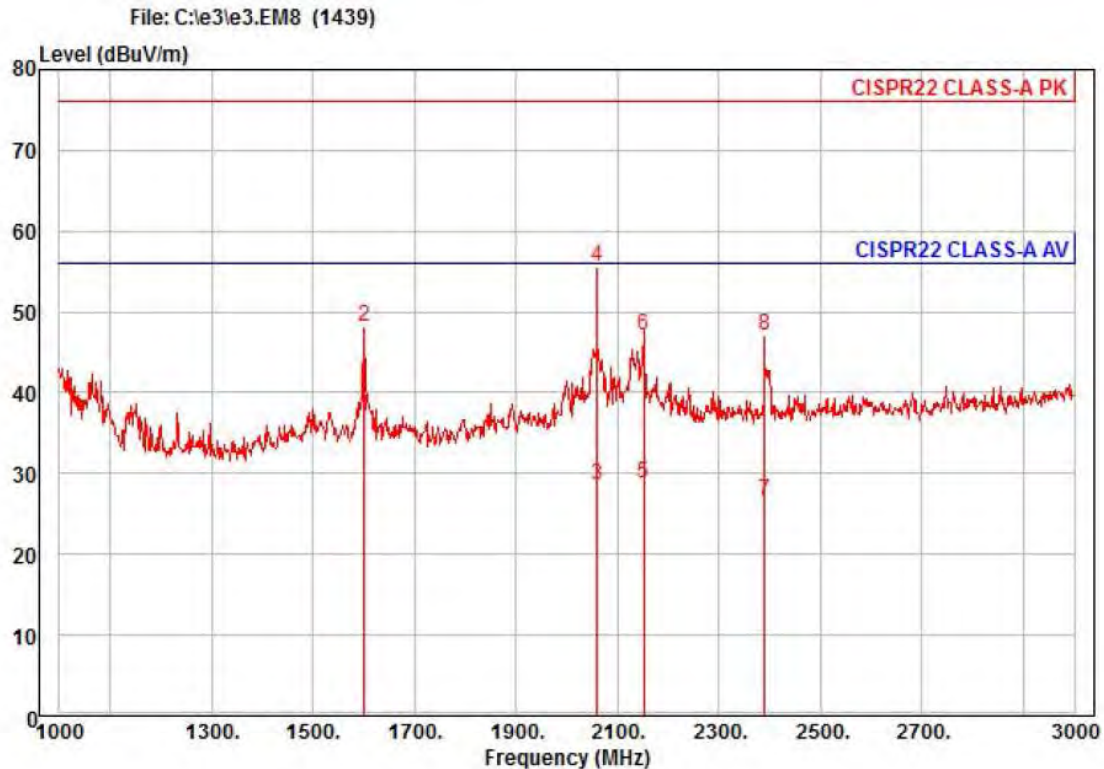
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Site : chamber
Condition: CISPR22 CLASS-A PK 3m STLP9149(RRA CAL 2017-05-18) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : XNF-8010RVP (CE)
Mode :
Memo : 1 ~ 3 GHz

	Freq	Read Level	Ant Factor	Cable Loss	Preampl Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1 pp	1600.00	39.70	24.42	8.51	35.53	30	56.00	-18.90	vertical	Average
2	1600.00	50.81	24.42	8.51	35.53	30	76.00	-27.79	vertical	Peak
3	2060.00	27.78	26.19	9.79	35.19	162	56.00	-27.43	vertical	Average
4 pk	2060.00	54.79	26.19	9.79	35.19	162	76.00	-20.42	vertical	Peak
5	2152.00	27.51	26.47	10.01	35.23	212	56.00	-27.24	vertical	Average
6	2152.00	45.74	26.47	10.01	35.23	212	76.00	-29.01	vertical	Peak
7	2390.00	24.15	27.20	10.57	35.32	19	56.00	-29.40	vertical	Average
8	2390.00	44.61	27.20	10.57	35.32	19	76.00	-28.94	vertical	Peak

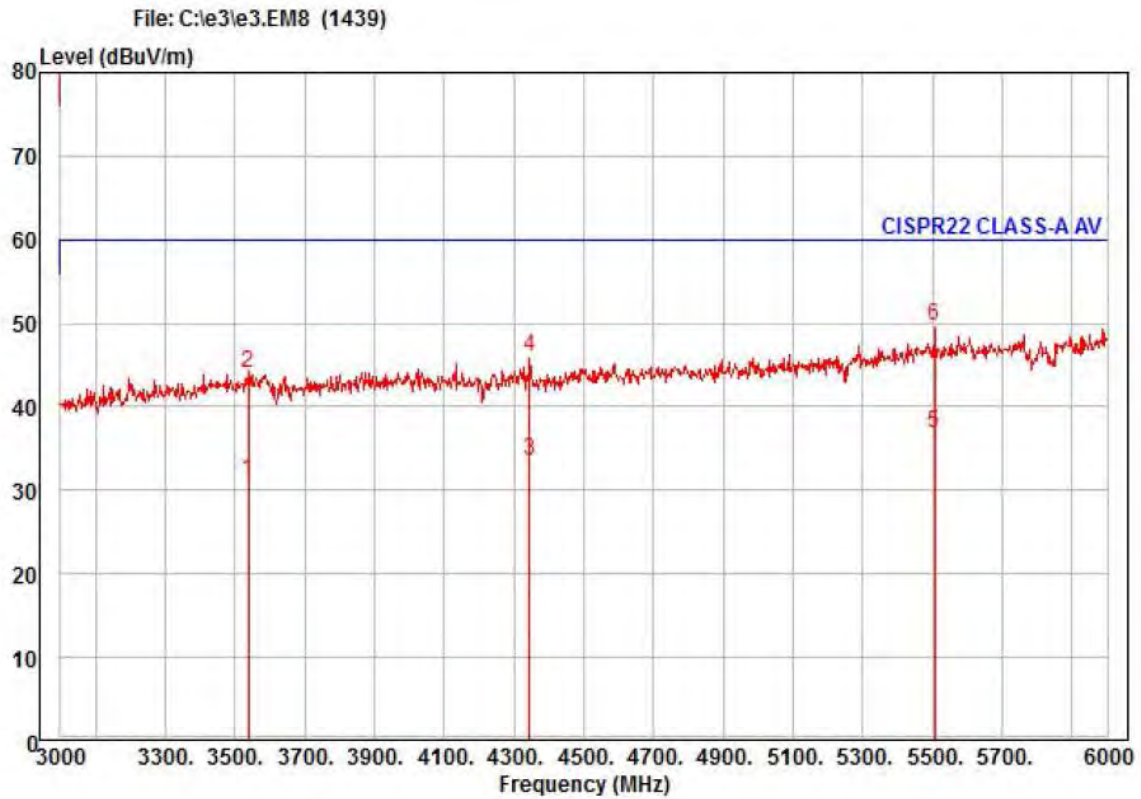
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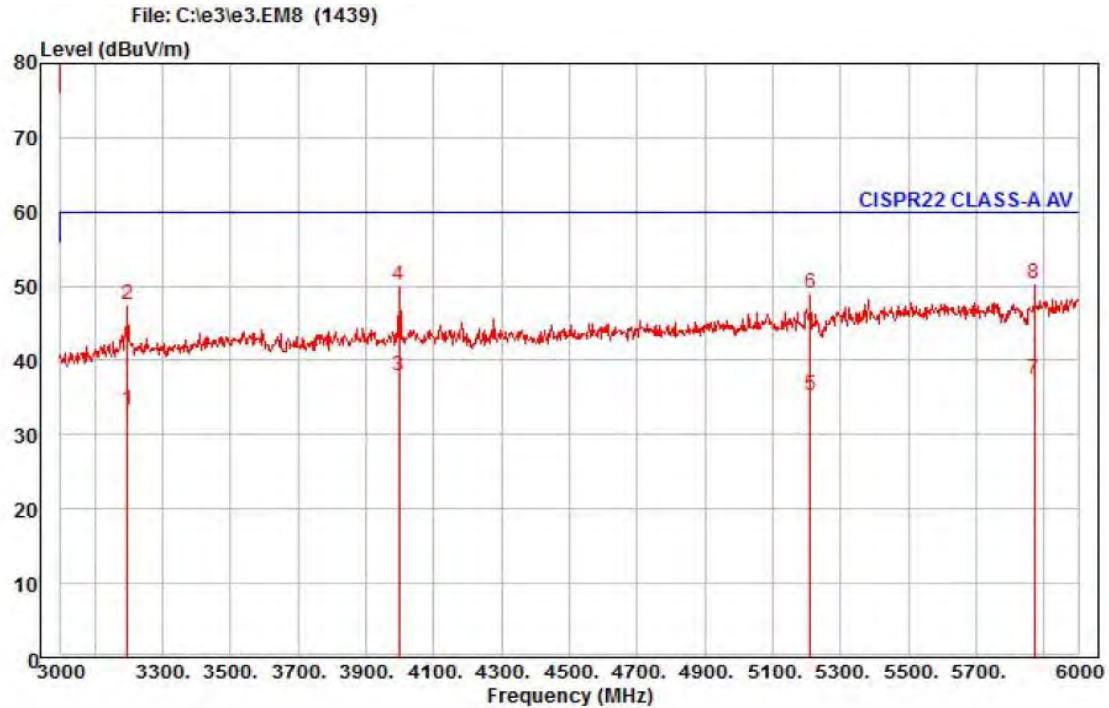
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Site : chamber
Condition: CISPR22 CLASS-A PK 3m STLP9149(RRA CAL 2017-05-18) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : XNF-8010RVP (CE)
Mode :
Memo : 3 ~ 6 GHz

	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	3540.00	22.12	31.26	13.20	35.41	227	60.00	-28.83	horizontal	Average
2	3540.00	35.00	31.26	13.20	35.41	227	80.00	-35.95	horizontal	Peak
3	4344.00	21.84	32.40	14.69	35.40	116	60.00	-26.47	horizontal	Average
4	4344.00	34.35	32.40	14.69	35.40	116	80.00	-33.96	horizontal	Peak
5 pp	5505.00	20.44	35.38	16.62	35.66	244	60.00	-23.22	horizontal	Average
6 pk	5505.00	33.44	35.38	16.62	35.66	244	80.00	-30.22	horizontal	Peak

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Site : chamber
Condition: CISPR22 CLASS-A PK 3m STLP9149(RRA CAL 2017-05-18) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : XNF-8010RVP (CE)
Mode :
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	3198.00	25.89	30.30	12.66	35.50	336	60.00	-26.65	vertical	Average
2	3198.00	39.95	30.30	12.66	35.50	336	80.00	-32.59	vertical	Peak
3 pp	3999.00	26.63	32.50	14.07	35.28	9	60.00	-22.08	vertical	Average
4	3999.00	38.93	32.50	14.07	35.28	9	80.00	-29.78	vertical	Peak
5	5211.00	20.73	34.24	16.09	35.64	44	60.00	-24.58	vertical	Average
6	5211.00	34.26	34.24	16.09	35.64	44	80.00	-31.05	vertical	Peak
7	5871.00	20.01	35.93	17.26	35.68	243	60.00	-22.48	vertical	Average
8 pk	5871.00	32.90	35.93	17.26	35.68	243	80.00	-29.59	vertical	Peak

◆ Calculation

Result(PK/CAV) [dB(μV/m)] = (Reading(PK/CAV)[dB(μV)] + c.f[dB(1/m)])

Margin(PK/CAV)[dB] = Limit[dB(μV/m)] - Result(PK/CAV) [dB(μV/m)]

Reading(PK/CAV) : Reading value, Result(PK/CAV) : Reading value + Factor value

Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value

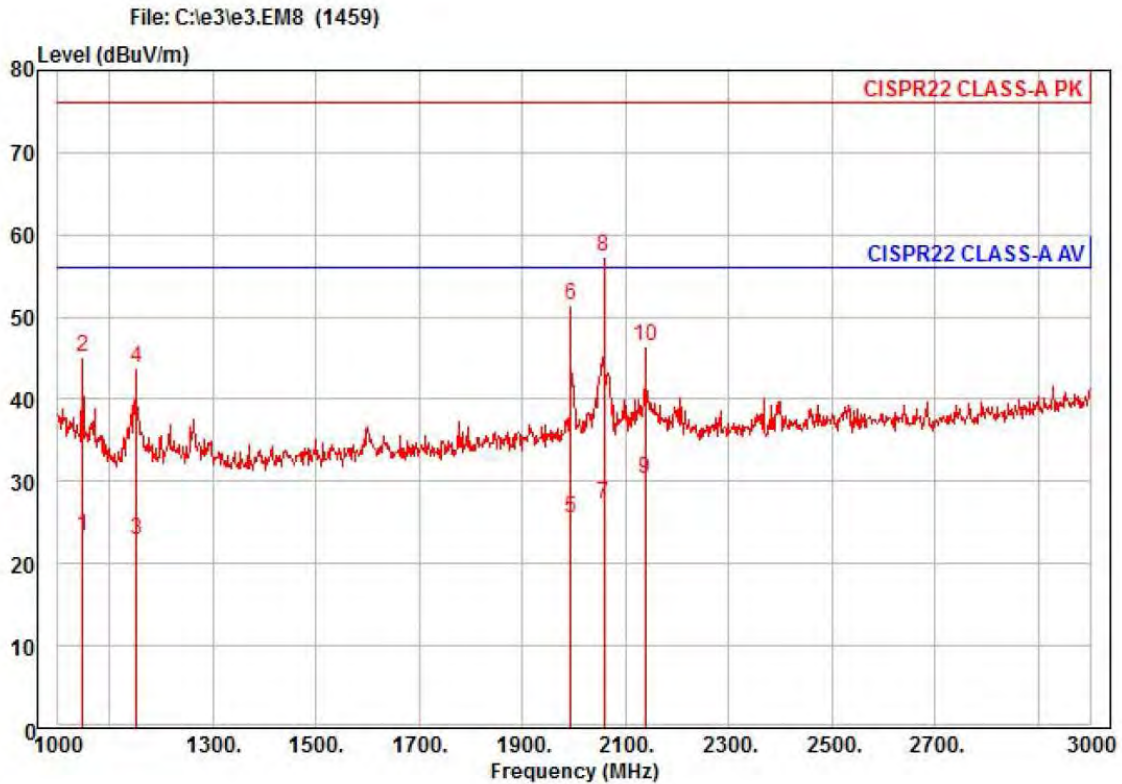


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- PoE Mode



Site : chamber
Condition: CISPR22 CLASS-A PK 3m STLP9149(RRA CAL 2017-05-18) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : XNF-8010RVP(CE)
Mode : POE
Memo : 1 ~ 3 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	1048.00	29.96	22.65	6.79	36.02	184	56.00	-32.62	horizontal	Average
2	1048.00	51.65	22.65	6.79	36.02	184	76.00	-30.93	horizontal	Peak
3	1152.00	28.63	22.96	7.13	35.92	31	56.00	-33.20	horizontal	Average
4	1152.00	49.59	22.96	7.13	35.92	31	76.00	-32.24	horizontal	Peak
5	1994.00	25.06	25.99	9.63	35.18	164	56.00	-30.50	horizontal	Average
6	1994.00	50.99	25.99	9.63	35.18	164	76.00	-24.57	horizontal	Peak
7	2058.00	26.37	26.19	9.79	35.19	109	56.00	-28.84	horizontal	Average
8 pp	2058.00	56.60	26.19	9.79	35.19	109	76.00	-18.61	horizontal	Peak
9 av	2138.00	29.11	26.43	9.98	35.22	243	56.00	-25.70	horizontal	Average
10	2138.00	45.16	26.43	9.98	35.22	243	76.00	-29.65	horizontal	Peak

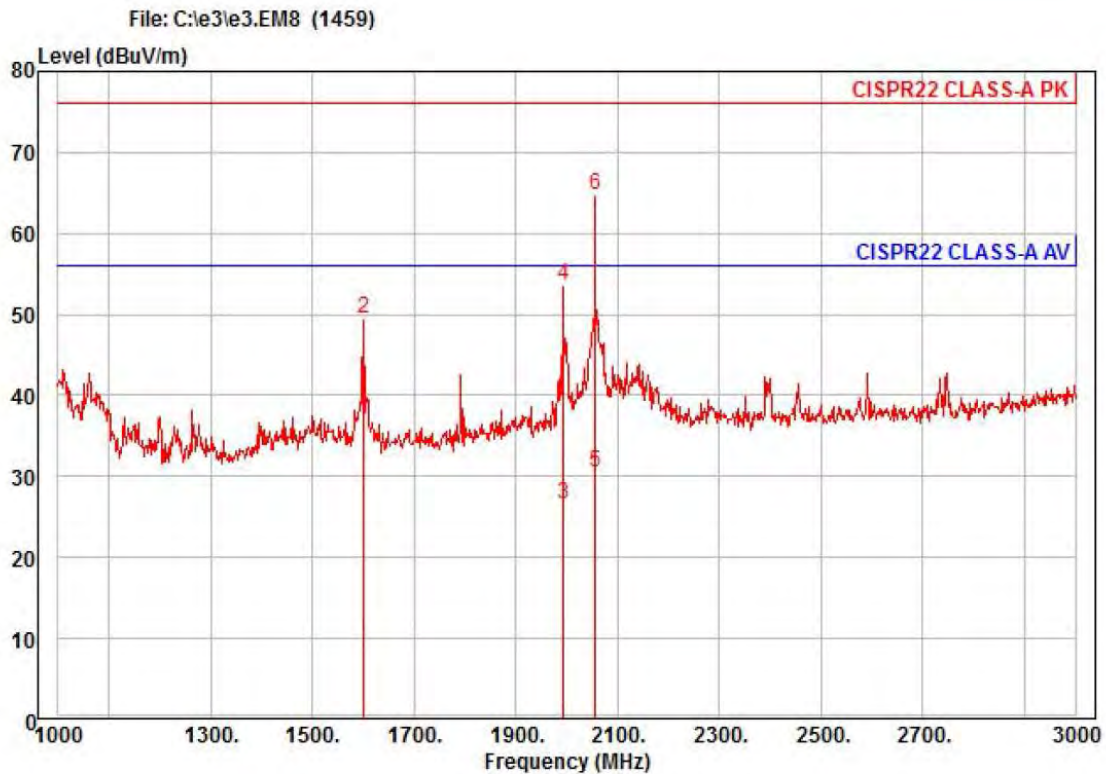
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Test report No.:
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Site : chamber
Condition: CISPR22 CLASS-A PK 3m STLP9149(RRA CAL 2017-05-18) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : XNF-8010RVP(CE)
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 av	1600.00	39.75	24.42	8.51	35.53	31	56.00	-18.85	vertical	Average
2	1600.00	51.97	24.42	8.51	35.53	31	76.00	-26.63	vertical	Peak
3	1994.00	26.26	25.99	9.63	35.18	5	56.00	-29.30	vertical	Average
4	1994.00	53.17	25.99	9.63	35.18	5	76.00	-22.39	vertical	Peak
5	2056.00	29.71	26.18	9.78	35.19	355	56.00	-25.52	vertical	Average
6 pp	2056.00	63.94	26.18	9.78	35.19	355	76.00	-11.29	vertical	Peak

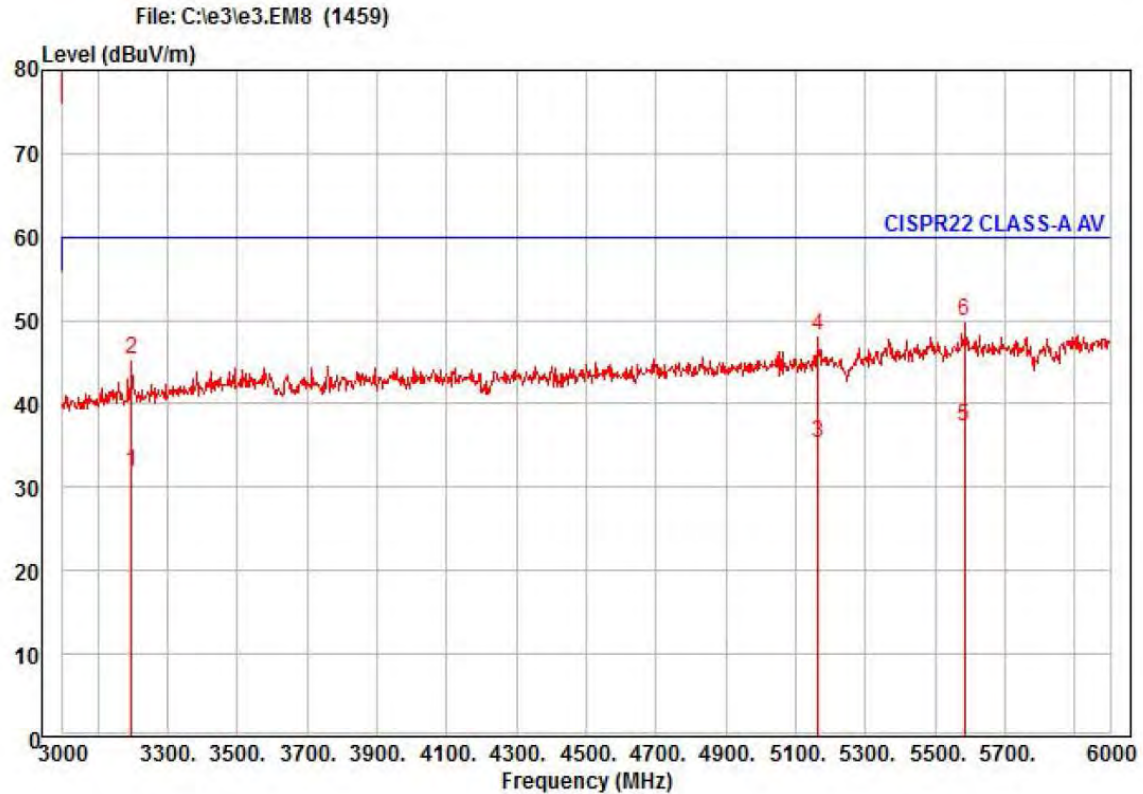
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Site : chamber
Condition: CISPR22 CLASS-A PK 3m STLP9149(RRA CAL 2017-05-18) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : XNF-8010RVP(CE)
Mode : POE
Memo : 3 ~ 6 GHz

	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	3198.00	24.30	30.30	12.66	35.50	315	60.00	-28.24	horizontal	Average
2	3198.00	37.79	30.30	12.66	35.50	315	80.00	-34.75	horizontal	Peak
3	5163.00	20.98	34.05	16.01	35.64	44	60.00	-24.60	horizontal	Average
4	5163.00	33.80	34.05	16.01	35.64	44	80.00	-31.78	horizontal	Peak
5 pp	5583.00	20.60	35.49	16.74	35.66	251	60.00	-22.83	horizontal	Average
6 pk	5583.00	33.33	35.49	16.74	35.66	251	80.00	-30.10	horizontal	Peak

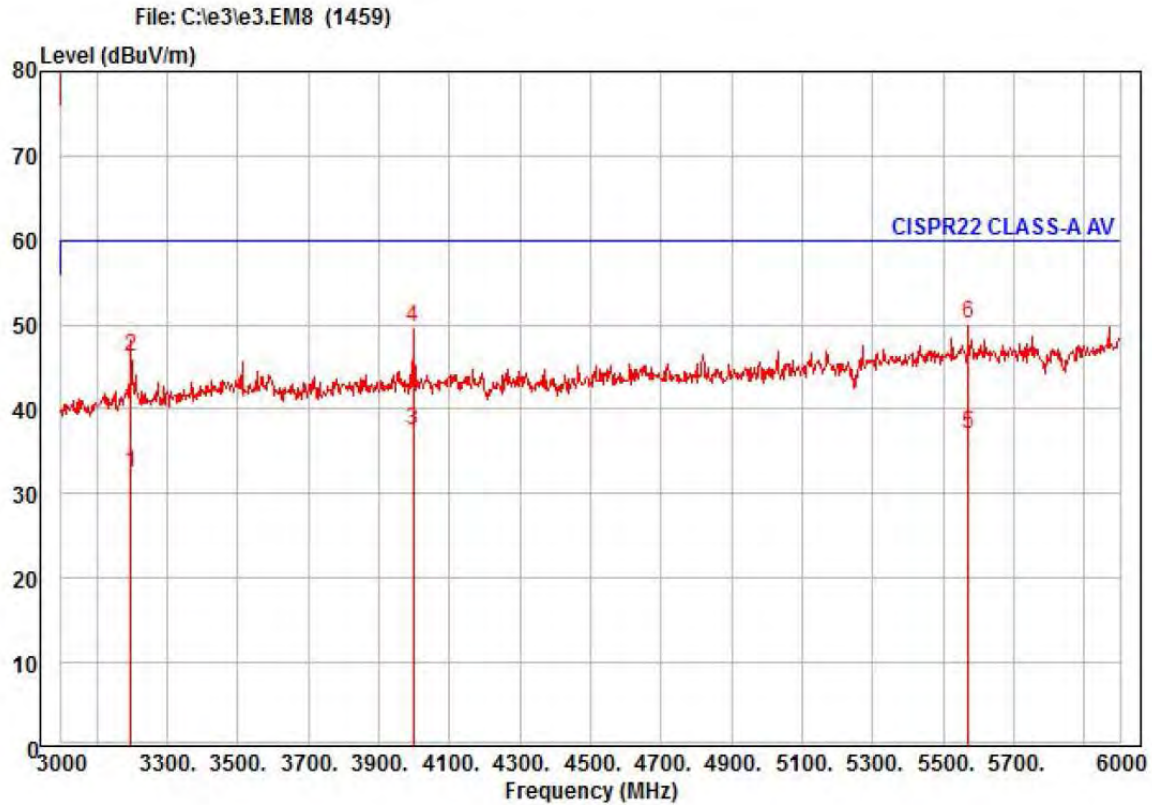
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Test report No.:
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Site : chamber
Condition: CISPR22 CLASS-A PK 3m STLP9149(RRA CAL 2017-05-18) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : XNF-8010RVP(CE)
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	3198.00	24.99	30.30	12.66	35.50	360	60.00	-27.55	vertical	Average
2	3198.00	38.86	30.30	12.66	35.50	360	80.00	-33.68	vertical	Peak
3 pp	3999.00	26.11	32.50	14.07	35.28	24	60.00	-22.60	vertical	Average
4	3999.00	38.37	32.50	14.07	35.28	24	80.00	-30.34	vertical	Peak
5	5571.00	20.61	35.48	16.72	35.66	178	60.00	-22.85	vertical	Average
6 pk	5571.00	33.68	35.48	16.72	35.66	178	80.00	-29.78	vertical	Peak

◆ Calculation

Result(PK/CAV) [dB(μV/m)] = (Reading(PK/CAV)[dB(μV)] + c.f[dB(1/m)])

Margin(PK/CAV)[dB] = Limit[dB(μV/m)] - Result(PK/CAV) [dB(μV/m)]

Reading(PK/CAV) : Reading value, Result(PK/CAV) : Reading value + Factor value

Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value

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Harmonic Current Emissions and Voltage Fluctuations and Flicker

Average harmonic current results

Hn	Ieff [A]	% of Limit	Limit [A]	Result
N/A				

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

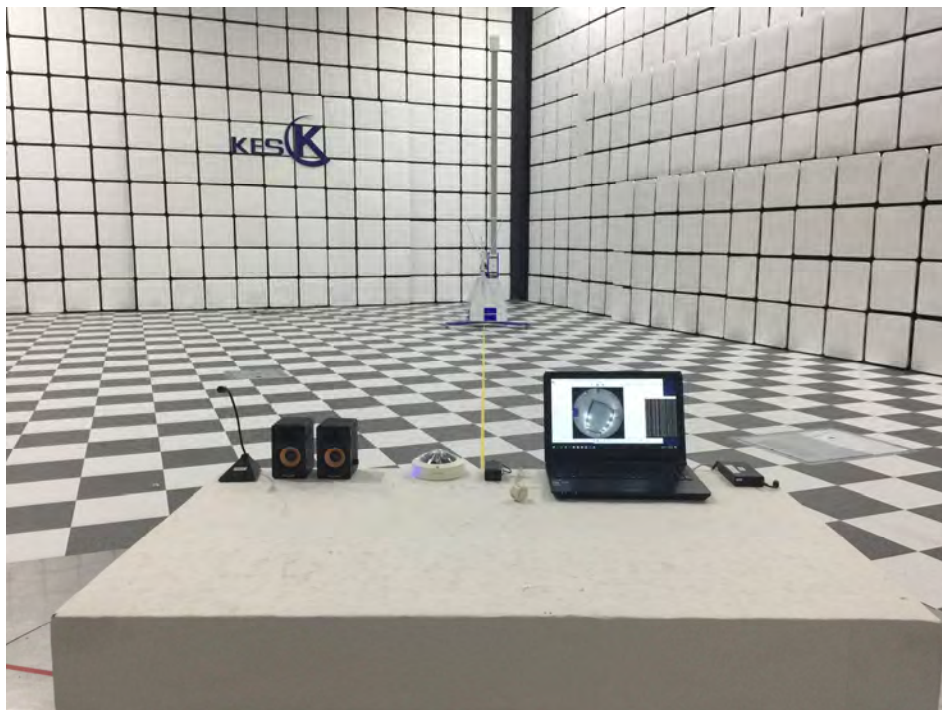
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Conducted Telecommunication Emissions



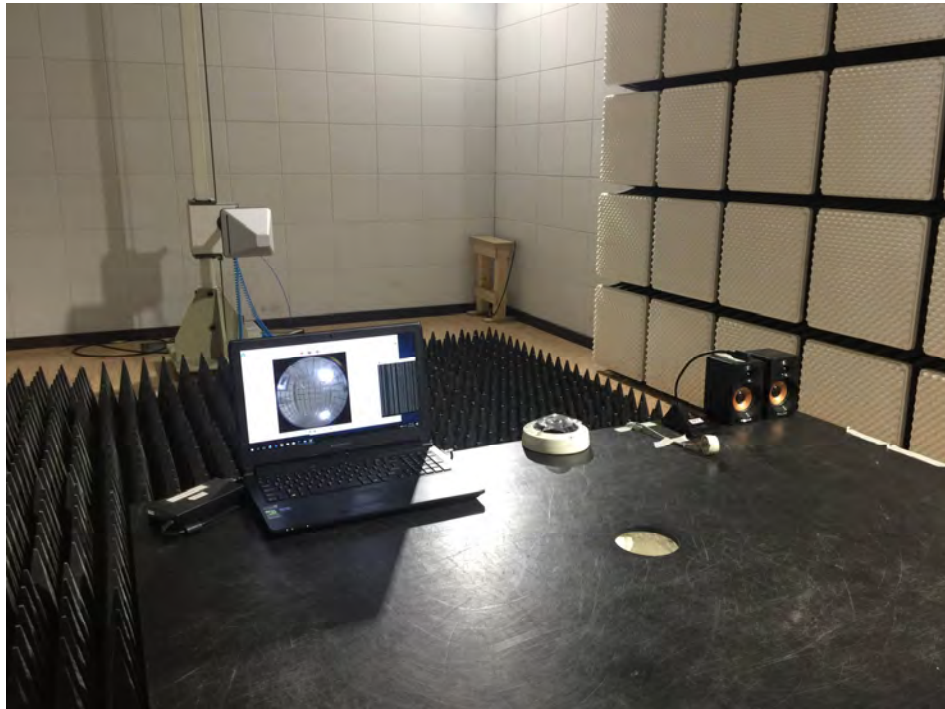
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Radiated Electric Field Emissions(Below 1 GHz)



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Radiated Electric Field Emissions(Above 1 GHz)



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Harmonic Current Emissions and Voltage Fluctuations and Flicker

N/A

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Electrostatic Discharge



Radiated Electric Field Immunity



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Electrical Fast Transients/Bursts



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Surge Transients



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Conducted Disturbance



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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)



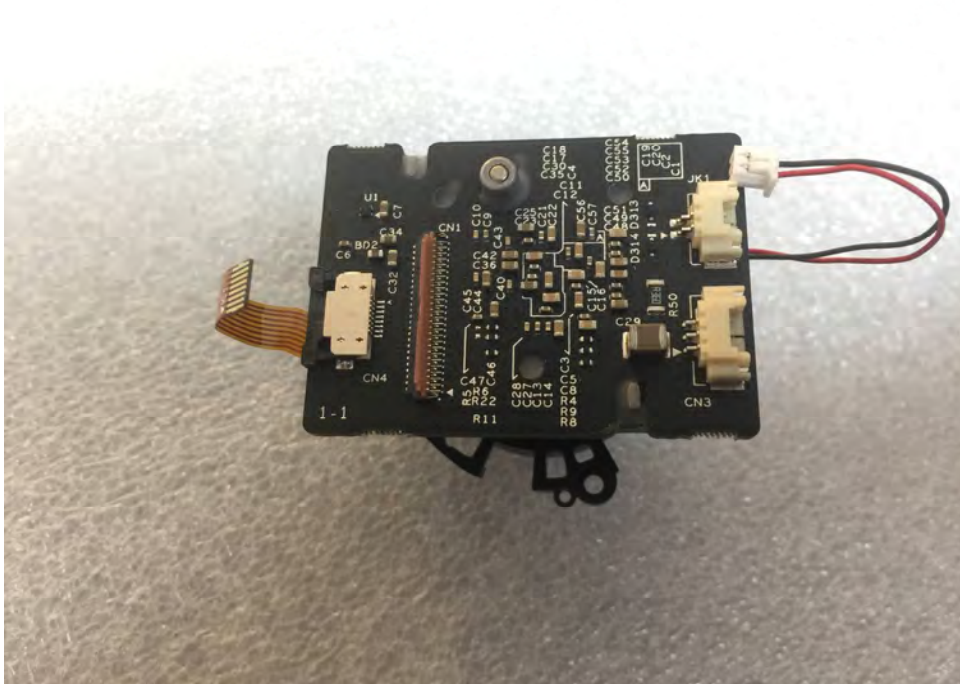
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EUT Internal View – CAMERA Module

(Top)



(Bottom)



EUT Internal View – LED BOARD

(Top)



(Bottom)



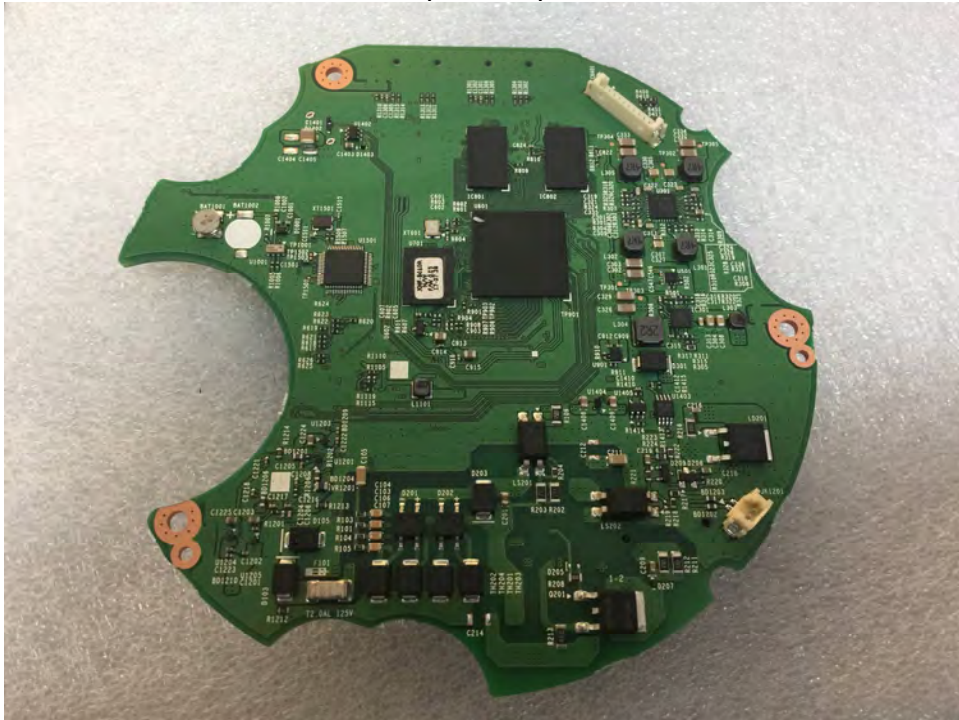
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EUT Internal View – Main Board

(Top)

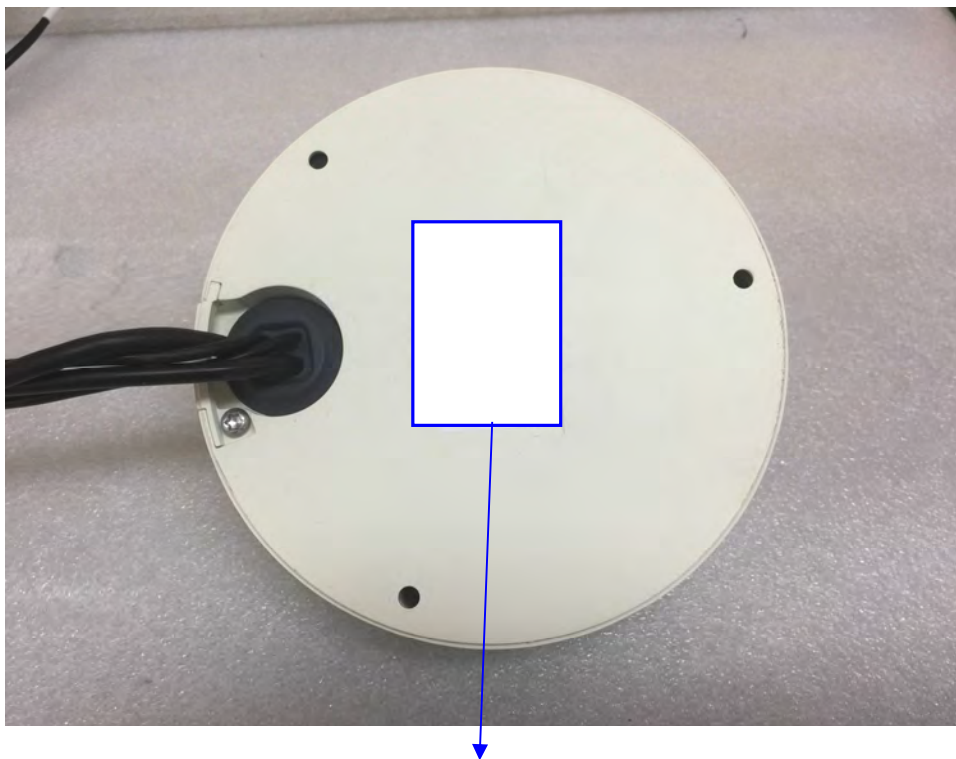


(Bottom)



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Label and Location



NETWORK CAMERA

Model No : XNF-8010RV

Manufacturer : HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.

Made in Vietnam

