



EMC TEST REPORT For CE

Test Report No. : KES-EM-20T0623
Date of Issue : Sep. 18, 2020
Product name : NETWORK CAMERA
Model/Type No. : PNM-9000QB
Variant Model : -
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, 2020
Test date : Aug. 09, 2020 ~ Aug. 14, 2020
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Dong Il, Lee
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.

**KES Co., Ltd.**

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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Sep. 18, 2020	KES-EM-20T0623	Issued

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1.0 General Product Description

Main Specifications of EUT are:

Video	
Imaging Device	None
Resolution	1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240
Max. Framerate	H.265/H.264: 2MP Max. 30fps/25fps(60Hz/50Hz) MJPEG: Max. 30fps/25fps(60Hz/50Hz)
NETD	None
Pixel Size	None
Min. Illumination	None
Video Out	HDMI(1920x1080, Single/Quad view)
Video Transmission Distance	None
Lens	
Focal Length (Zoom Ratio)	None
Max. Aperture Ratio	None
Angular Field of View	None
Min. Object Distance	None
Focus Control	None
Lens Type	None
Mount Type	None
Optional Lens	SLA-T1080FA, SLA-T2480A, SLA-T2480VA, SLA-T4680A, SLA-T4680VA
Pan / Tilt / Rotate	
Pan / Tilt / Rotate Range	None
Pan Range	None
Pan Speed	None
Tilt Range	None
Tilt Speed	None
Rotate Range	None
Sequence	None
Preset Accuracy	None
Operational	
Camera Title	Displayed up to 85 characters

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Direction Indicator	None
Day & Night	Auto(Electrical)
Backlight Compensation	BLC, HLC, WDR, SSDR
Wide Dynamic Range	extreme WDR(150dB)
Digital Noise Reduction	SSNR V
Digital Image Stabilization	Support
Defog	Support
Motion Detection	8ea, 8point polygonal zones
Privacy Masking	32ea, polygonal zones - Color: Grey/Green/Red/Blue/Black/White - Mosaic
Gain Control	Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor
LDC	Support
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2~1/12,000sec)
Digital PTZ	None
Video Rotation	Flip, Mirror, Hallway view(90°/270°)
Analytics	Defocus detection, Directional detection, Motion detection, Enter/Exit, Tampering, Virtual line
Business Intelligence	None
Serial Interface	None
Alarm I/O	Input 2ea / Output 2ea
Alarm Triggers	Analytics, Network disconnect, Alarm input
Alarm Events	File upload via FTP and e-mail Notification via e-mail SD/SDHC/SDXC at event triggers Alarm output
Audio In	Selectable(mic in/line in) Supply voltage: 2.5VDC(4mA), Input impedance: 2K Ohm
Audio Out	Line out, Max.output level: 1Vrms
IR Viewable Length	None
IR Illuminator (Optional)	None
Water Removal	None
Auto Tracking	None
Coaxial Protocol	None

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Color Palettes	None
Radiometry	
Temperature detect range	None
Temperature accuracy	None
Temperature detection	None
Additional	None
Network	
Ethernet	RJ-45(10/100/1000BASE-T)
Video Compression	H.265/H.264: Main/Baseline/High, MJPEG
Audio Compression	G.711 u-law /G.726 Selectable G.726(ADPCM) 8KHz, G.711 8KHz G.726: 16Kbps, 24Kbps, 32Kbps, 40Kbps AAC-LC: 48Kbps at 16KHz
Smart Codec	Manual(Sea area), WiseStream II
Video Quality Adjustment	None
Bitrate Control	H.264/H.265: CBR or VBR MJPEG: VBR
Streaming	Unicast(20 users) / Multicast Multiple streaming(Up to 10 profiles)
Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, PIM-SM, UPnP, Bonjour, LLDP
Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access log 802.1X Authentication(EAP-TLS, EAP-LEAP) Device Certificate(Hanwha Techwin Root CA)
Application Programming Interface	ONVIF Profile S/T SUNAPI(HTTP API)
General	
Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Swedish, Portuguese, Czech, Polish, Turkish, Dutch, Hungarian, Greek

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Web Viewer	None
Edge Storage	Micro SD/SDHC/SDXC 2slot [256 X 2 GB]
Memory	4GB(LPDDR4), 512MB(NAND)
Environmental & Electrical	
Operating Temperature / Humidity	-10°C ~ +45°C(-40°F ~ +113°F) / Less than 95% RH(Non condensing)
Storage Temperature / Humidity	-50°C ~ +60°C(-58°F ~ +140°F) / Less than 90% RH
Certification	None
Input Voltage	PoE+(IEEE802.3at, Class4), 12VDC
Power Consumption	PoE : (Typical) 16.70W (Max) 22.00W DC : (Typical) 14.00W (Max) 19.00W
Mechanical	
Color / Material	White / Plastic
RAL Code	RAL9003
Product dimensions / weight	200(W)x37(H)x146(D)mm
Conduit hole	None
Hanging mount(Dome)	None
Skin cover(Dome)	None
Weather cap(Dome)	None
Power module	None
Backbox	None
DORI (EN62676-4 standard)	
Detect (25PPM/ 8PPF)	None
Observe (63PPM/ 19PPF)	None
Recognize (125PPM/ 38PPF)	None
Identify (250PPM/ 76PPF)	None

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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 ☒ 230 Vac ☐ 100 Vac ☐ 24 Vac ☐ 12 Vdc ☒ PoE

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	PNM-9000QB	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	EUT



1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Notebook	P95G001	8KM8HT2	DELL	-
Notebook Adaptor	LA65NS2-01	-	LITE-ON TECHNOLOGY(CHANG ZHOU)CO.,LTD.	-
CAMERA 1	SLA-T4680V		HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	-
CAMERA 2	SLA-T2480V		HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	-
CAMERA 3	SLA-T4680		HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	-
CAMERA 4	SLA-T2480		HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	-
CAMERA 5	SLA-T1080F		HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	-
Micro SD Card 1	-	-	SanDisk	8 GB
Micro SD Card 2	-	-	SanDisk	16 GB
PoE Adaptor	PT-PSE109GBRO-AH	PT1850221049	Dongguan PROCET Network Technology Co.,Ltd	-
DC Adaptor	2ACB022F	-	Channel Well Technology (Guangzhou) Co.,Ltd.	-
Alarm	-	-	-	-
Alarm	-	-	-	-
Speaker	BR1000A Cuve Black 2	-	DONGGUAN EDIFIER TECHNOLOGY Co., Ltd	-
MIC	MP1000	-	-	-
Smart Phone	LG-SU760	108KPQJ0186212	LG	-
Monitor	SMT-2232	C95V67VF900025B	Weihai Daewoo Electronics Co., Ltd.	-



1.6 External I/O Cabling

■ DC_CAMERA(1,2,3,4)

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (EUT)	RJ-45	Notebook	PoE	3.0	S
	SLOT	Micro SD Card 1	SLOT	-	-
	SLOT	Micro SD Card 2	SLOT	-	-
	LAN(6Pin)	CAMERA 1	LAN(6Pin)	10.0	S
	LAN(6Pin)	CAMERA 2	LAN(6Pin)	10.0	S
	LAN(6Pin)	CAMERA 3	LAN(6Pin)	10.0	S
	LAN(6Pin)	CAMERA 4	LAN(6Pin)	10.0	S
	HDMI	Monitor	HDMI	1.5	S
	3.5 mm	Speaker	3.5 mm	1.4	U
	3.5 mm	MIC	3.5 mm	1.6	U
	Alarm in	Alarm	Alarm out	3.0	U
	Alarm out	Alarm	Alarm in	3.0	U
Notebook	3.5 mm	Smart Phone	3.5 mm	1.0	U

* Unshielded=U, Shielded=S



■ DC_CAMERA(2,3,4,5)

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (EUT)	RJ-45	Notebook	PoE	3.0	S
	SLOT	Micro SD Card 1	SLOT	-	-
	SLOT	Micro SD Card 2	SLOT	-	-
	LAN(6Pin)	CAMERA 2	LAN(6Pin)	10.0	S
	LAN(6Pin)	CAMERA 3	LAN(6Pin)	10.0	S
	LAN(6Pin)	CAMERA 4	LAN(6Pin)	10.0	S
	LAN(6Pin)	CAMERA 5	LAN(6Pin)	10.0	S
	HDMI	Monitor	HDMI	1.5	S
	3.5 mm	Speaker	3.5 mm	1.4	U
	3.5 mm	MIC	3.5 mm	1.6	U
	Alarm in	Alarm	Alarm out	3.0	U
	Alarm out	Alarm	Alarm in	3.0	U
Notebook	3.5 mm	Smart Phone	3.5 mm	1.0	U

* Unshielded=U, Shielded=S



■ PoE_CAMERA(1,2,3,4)

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (EUT)	RJ-45(PoE)	PoE Adaptor	PoE	5.0	S
	SLOT	Micro SD Card 1	SLOT	-	-
	SLOT	Micro SD Card 2	SLOT	-	-
	LAN(6Pin)	CAMERA 1	LAN(6Pin)	10.0	S
	LAN(6Pin)	CAMERA 2	LAN(6Pin)	10.0	S
	LAN(6Pin)	CAMERA 3	LAN(6Pin)	10.0	S
	LAN(6Pin)	CAMERA 4	LAN(6Pin)	10.0	S
	HDMI	Monitor	HDMI	1.5	S
	3.5 mm	Speaker	3.5 mm	1.4	U
	3.5 mm	MIC	3.5 mm	1.6	U
	Alarm in	Alarm	Alarm out	3.0	U
	Alarm out	Alarm	Alarm in	3.0	U
Notebook	3.5 mm	Smart Phone	3.5 mm	1.0	U
	RJ-45	PoE Adaptor	RJ-45	5.0	S

* Unshielded=U, Shielded=S



■ PoE_CAMERA(2,3,4,5)

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (EUT)	RJ-45(PoE)	PoE Adaptor	PoE	5.0	S
	SLOT	Micro SD Card 1	SLOT	-	-
	SLOT	Micro SD Card 2	SLOT	-	-
	LAN(6Pin)	CAMERA 2	LAN(6Pin)	10.0	S
	LAN(6Pin)	CAMERA 3	LAN(6Pin)	10.0	S
	LAN(6Pin)	CAMERA 4	LAN(6Pin)	10.0	S
	LAN(6Pin)	CAMERA 5	LAN(6Pin)	10.0	S
	HDMI	Monitor	HDMI	1.5	S
	3.5 mm	Speaker	3.5 mm	1.4	U
	3.5 mm	MIC	3.5 mm	1.6	U
	Alarm in	Alarm	Alarm out	3.0	U
	Alarm out	Alarm	Alarm in	3.0	U
Notebook	3.5 mm	Smart Phone	3.5 mm	1.0	U
	RJ-45	PoE Adaptor	RJ-45	5.0	S

* Unshielded=U, Shielded=S

1.7 EUT Operating Mode(s)

Test Mode	operating
Operation mode	Monitoring EUT Using Web Viewer, Ping Test

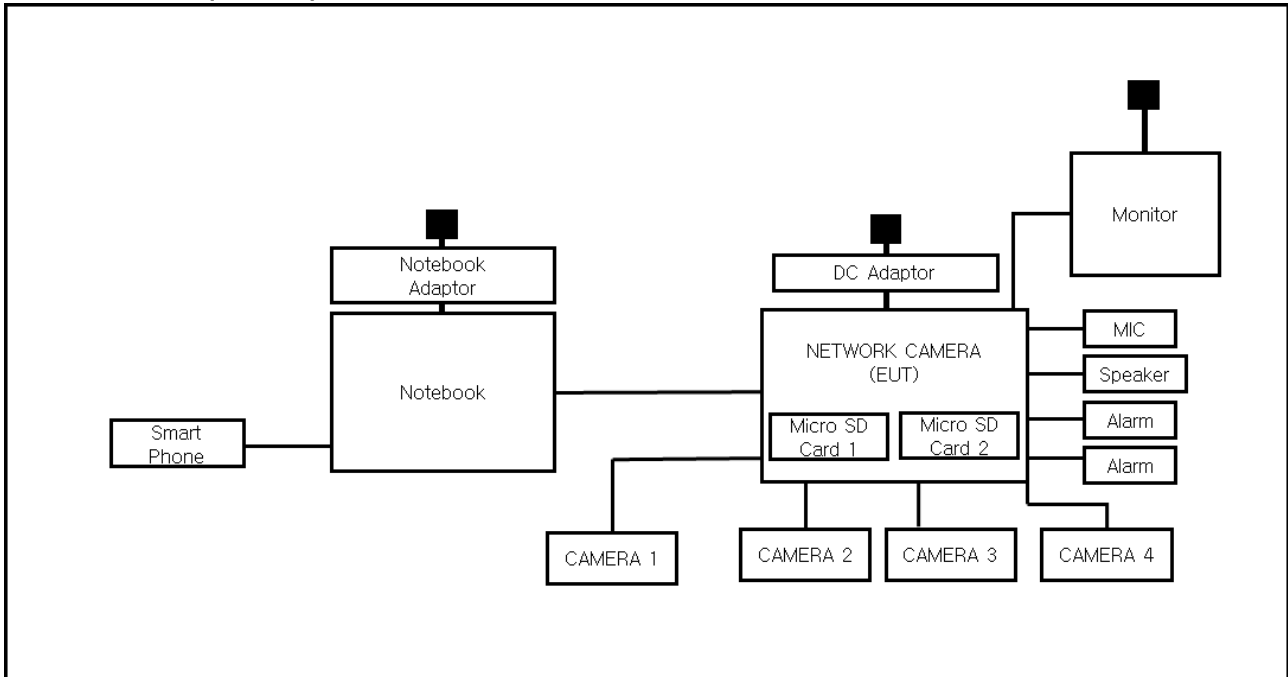
EUT Test operating S/W		
Name	Version	Manufacture Company
Web Viewer	-	-

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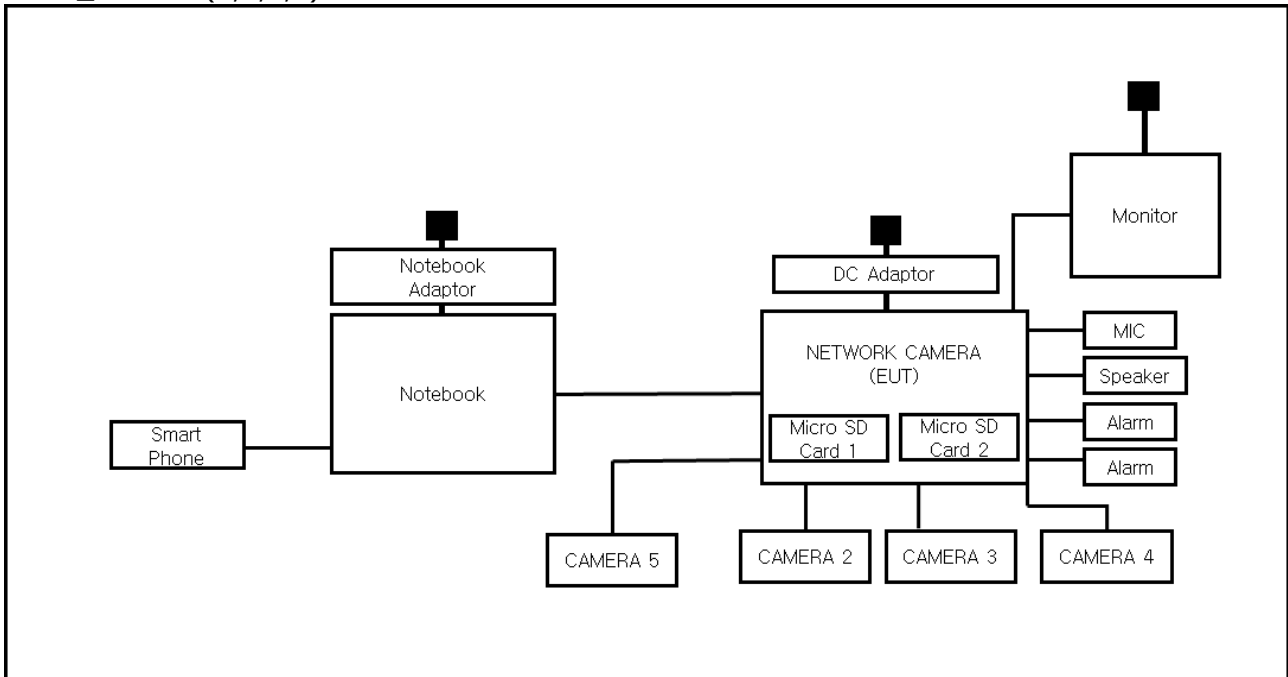
1.8 Configuration

■ AC Main
 □ DC Main

■ DC_CAMERA(1,2,3,4)

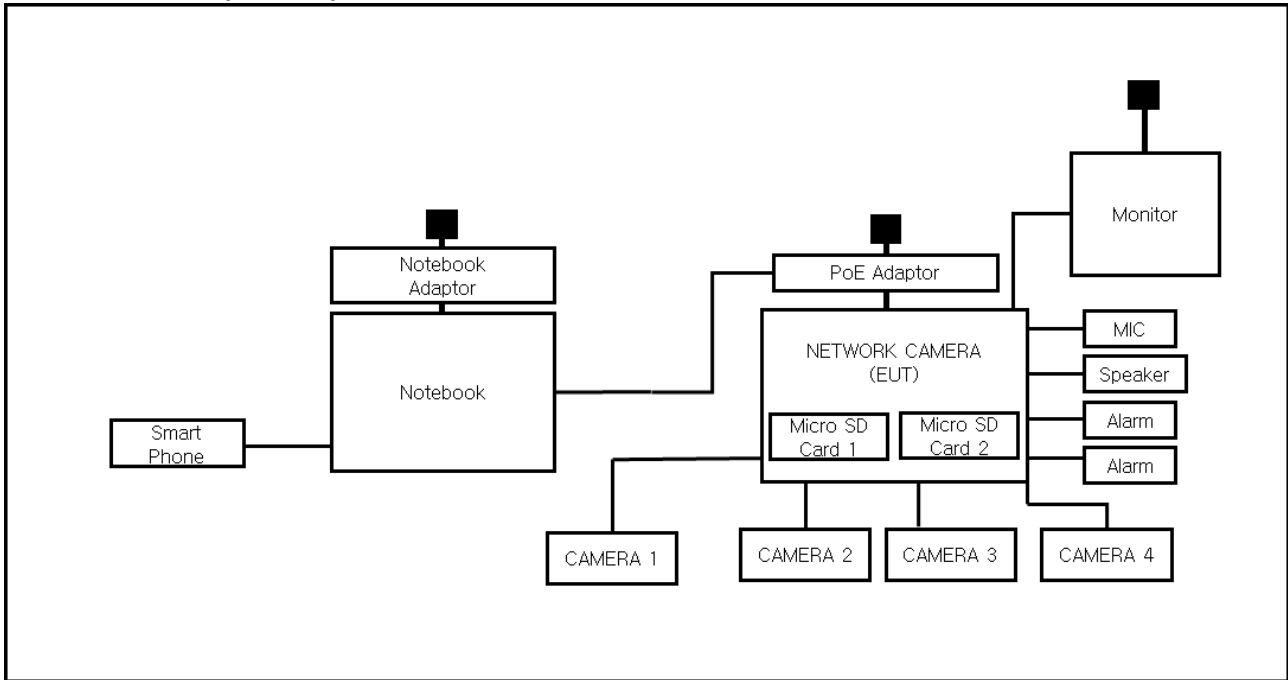


■ DC_CAMERA(2,3,4,5)

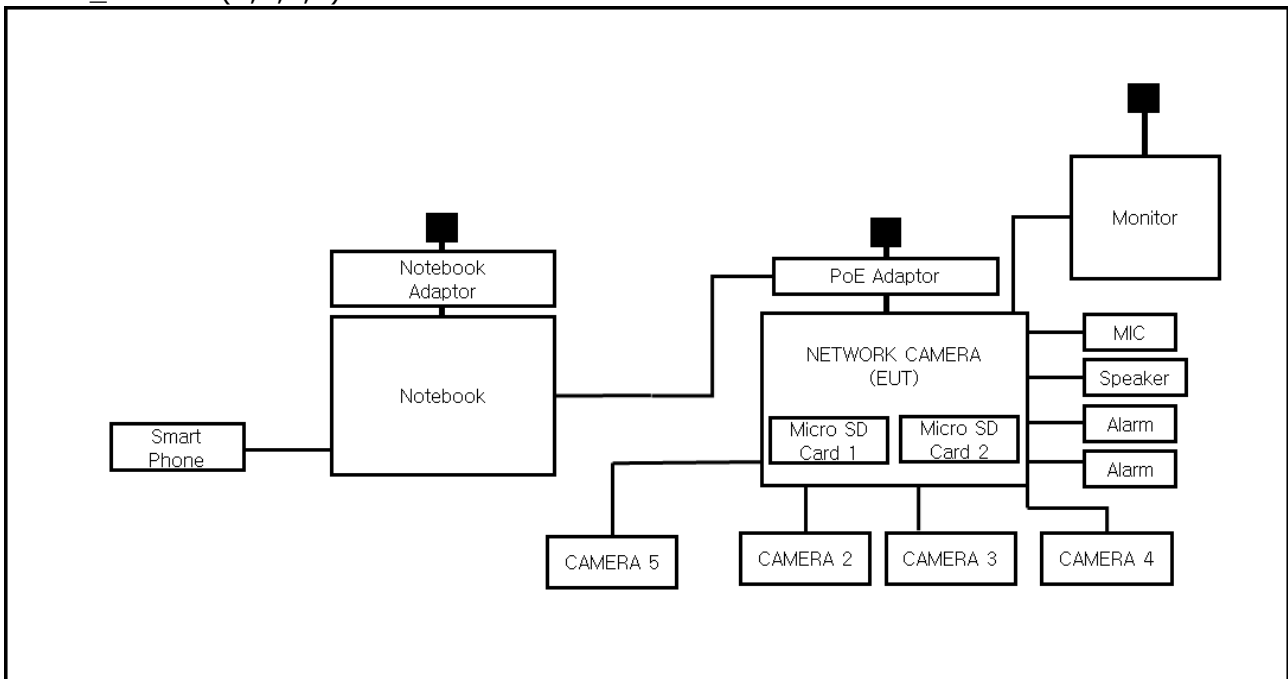


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■ PoE_CAMERA(1,2,3,4)



■ PoE_CAMERA(2,3,4,5)



1.9 Remarks when standards applied

N/A

1.10 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.

1.11 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

1.12 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 0003

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-CISPR 32:2016 | ☐ Class A | ☐ Class B |
| ☐ AS/NZS CISPR32:2015 | ☐ Class A | ☐ Class B |
| ☐ 47 CFR Part 15, Subpart B | | |
| ☐ CISPR 22:2009 +A1:2010 | ☐ Class A | ☐ Class B |
| ☐ ANSI C63.4-2014 | | |
| ☐ 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

Aug. 10, 2020

Test Location

Electro wave Shieldroom #6

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	01, 20, 2021
☒	LISN	ENV216	R & S	101787	01, 02, 2021
☒	LISN	ESH2-Z5	R & S	100450	01, 02, 2021
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	01, 02, 2021

Test Conditions

Temperature: 25,0 °C
Relative Humidity: 56,5 % R.H.

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.

2.2 Conducted Emissions at Telecommunication Ports

Test Date

Aug. 10, 2020

Test Location

Electro wave Shieldroom #6

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	01, 20, 2021
☒	LISN	ENV216	R & S	101787	01, 02, 2021
☒	LISN	ESH2-Z5	R & S	100450	01, 02, 2021
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	01, 02, 2021
☐	8-WIRE ISN CAT3,5	ENY81	R & S	100174	01, 07, 2021
☐	8-WIRE ISN CAT6	ENY81-CAT6	R & S	101665	01, 07, 2021
☒	ISN	ISN S8	SCHWARZBECK	ISN-S8-0019	03, 10, 2021
☐	CDN	CDNS502A	TESEQ	40431	01, 02, 2021

Test Conditions

Temperature: 25,0 °C
Relative Humidity: 56,5 % R.H.

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.

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2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Aug. 10, 2020

Test Location

☐ OPEN AREA TEST SITE #2 ☒ SEMI ANECHOIC CHAMBER #4(10m)

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
☒	EMI TEST RECEIVER	ESU26	R & S	100551	04, 01, 2021
☒	AMPLIFIER	SCU 01	R & S	100603	11, 25, 2020
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	11, 29, 2020
☒	ATTENUATOR	8491A	HP	32173	03, 10, 2021

Test Conditions

Temperature: 23,3 °C
Relative Humidity: 50,9 % R.H.

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

Aug. 11, 2020

Test Location

SEMI ANECHOIC CHAMBER #3

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
☒	EMI TEST RECEIVER	ESR7	R & S	101190	08, 05, 2021
☒	PREAMPLIFIER	8449B	AGILENT	3008A01967	04, 20, 2021
☐	ATTENUATOR	8491A	HP	35496	03, 10, 2021
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	03, 11, 2021

Test Conditions

Temperature: 23,3 °C
Relative Humidity: 54,8 % R.H.

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.



2.5 Harmonic Current Emissions

Test Date

Aug. 11, 2020

Test Location

Electro wave Shieldroom #3

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	net.control	EM TEST	2.1.4	-
☒	DIGITAL POWER ANALYZER	DPA 500N	EM TEST	V1024106759	04, 06, 2021
☒	POWER SOURCE	ACS 500N6	EM TEST	V1024106760	-

Test Conditions

Temperature: 23,9 °C
Relative Humidity: 52,9 % R.H.

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

See Appendix A for test data.



2.6 Voltage Fluctuations and Flicker

Test Date

Aug. 11, 2020

Test Location

Electro wave Shieldroom #3

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	net.control	EM TEST	2.1.4	-
☒	DIGITAL POWER ANALYZER	DPA 500N	EM TEST	V1024106759	04, 06, 2021
☒	POWER SOURCE	ACS 500N6	EM TEST	V1024106760	-

Test Conditions

Temperature: 23,9 °C
Relative Humidity: 52,9 % R.H.

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.

3.0 Criteria for compliance

Criteria for compliance was based on the following guidelines:

EN 50130-4:2011 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.

3.1 Electrostatic Discharge

Reference Standard

EN 61000-4-2:2009

Test Date

Aug. 11, 2020

Test Location

EMS-ESD: Electro wave Shieldroom #7

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	ESD SIMULATOR	ESS-2000	Noise Ken	ESS05X4620	01, 28, 2021
☒	HCP	-	KES	-	-
☒	VCP	-	Noise Ken	-	-

Test Conditions

Temperature: 24,0 °C
Relative Humidity: 53,4 % R.H.
Atmospheric Pressure: 99,9 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

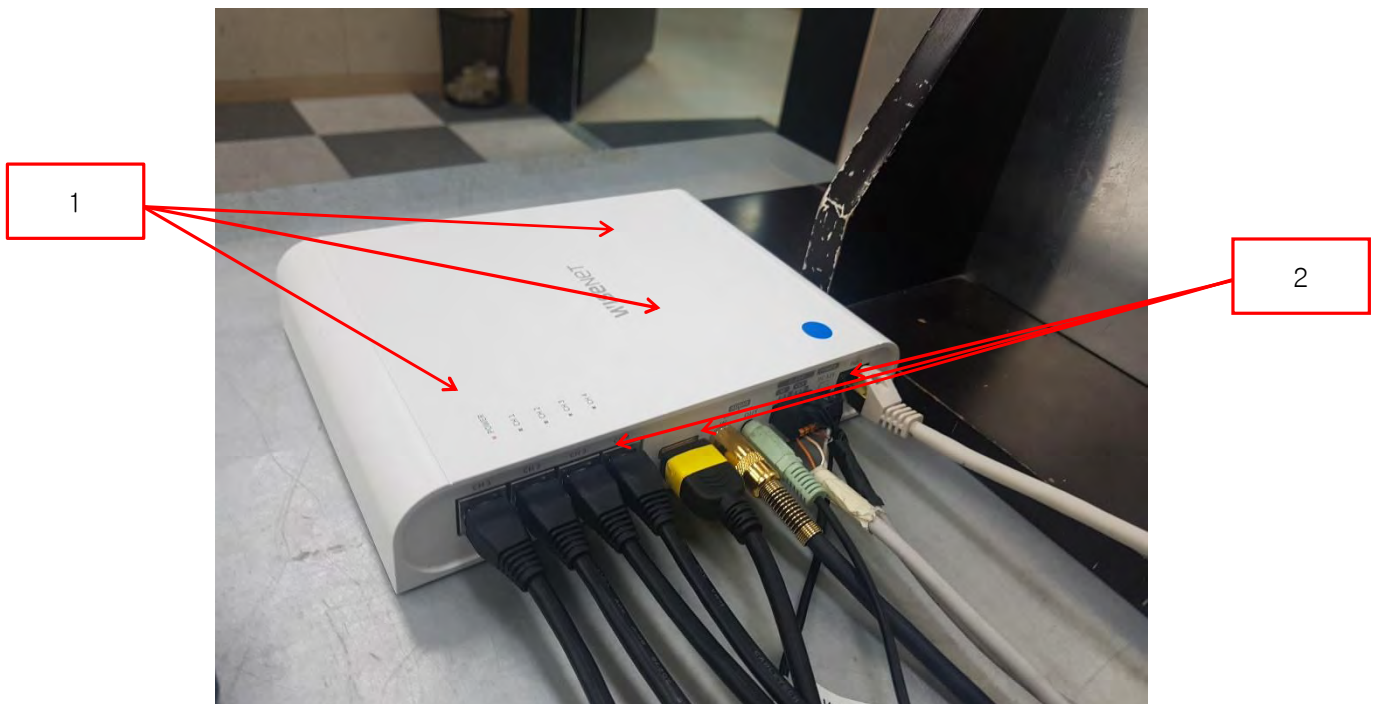
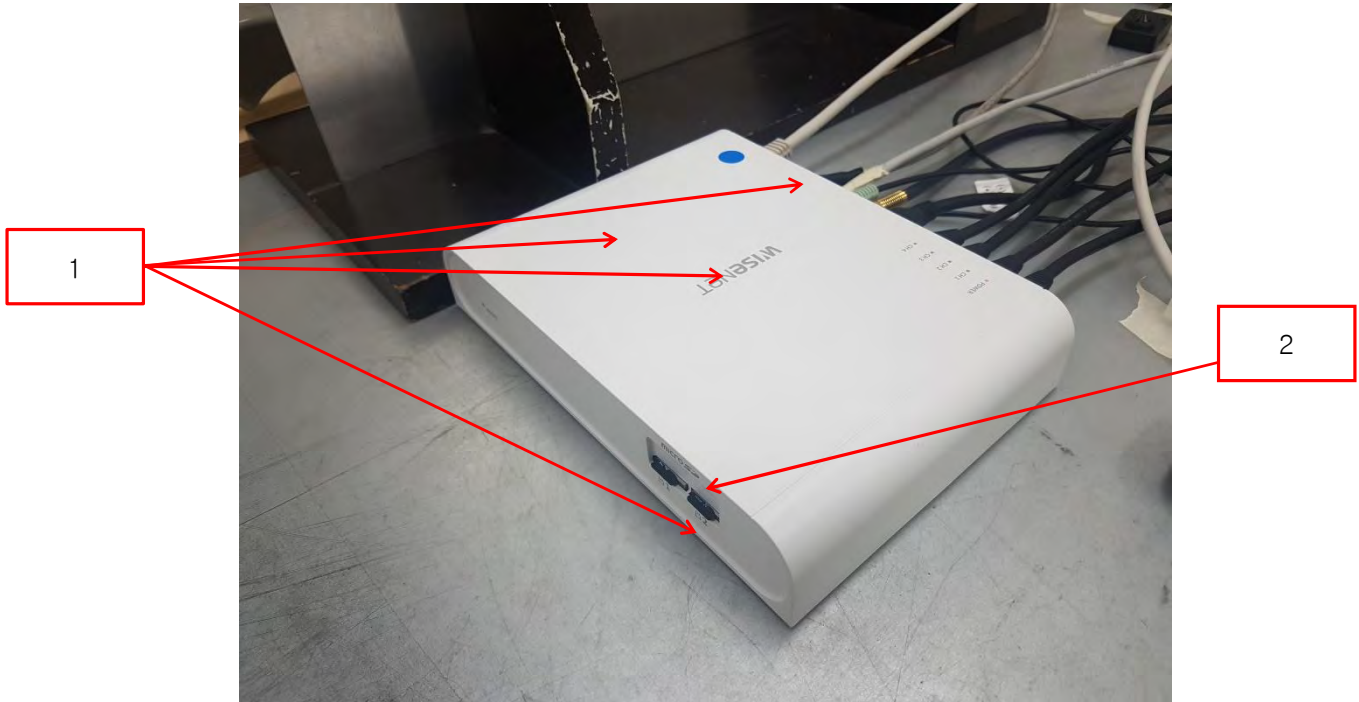
Discharge Voltage:	Contact ☐ 2 kV ☐ 4 kV ☒ 6 kV ☐ 8 kV ☐ 15 kV	Air ☒ 2 kV ☒ 4 kV ☐ 6 kV ☒ 8 kV ☐ 15 kV	HCP ☐ 2 kV ☐ 4 kV ☒ 6 kV ☐ 8 kV ☐ 15 kV	VCP ☐ 2 kV ☐ 4 kV ☒ 6 kV ☐ 8 kV ☐ 15 kV
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Notes: HCP: Horizontal coupling plane
VCP: Vertical coupling plane

Required Performance Criteria: ☒ Complied

Location of Discharge:

Air
Contact



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Test Data

■ DC_CAMERA(1,2,3,4)

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	Enclosure	Air Discharge	Complied	-
2	Around port	Air Discharge	Complied	-

■ DC_CAMERA(2,3,4,5)

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	Enclosure	Air Discharge	Complied	-
2	Around port	Air Discharge	Complied	-



■ PoE_CAMERA(1,2,3,4)

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	Enclosure	Air Discharge	Complied	-
2	Around port	Air Discharge	Complied	-

■ PoE_CAMERA(2,3,4,5)

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	Enclosure	Air Discharge	Complied	-
2	Around port	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

Aug. 09, 2020 / Aug. 12, 2020

Test Location

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

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	EMC32	R & S	9.12.00	-
☒	SIGNAL GENERATOR	SMB 100A	Rohde & Schwarz	108252	08, 06, 2020
☒	HIGH POWER DUAL AMP	SSA532	SUNGSAN	SSA532-001	05, 15, 2020
☒	POWER METER	E4419B	Agilent	GB40203000	04, 20, 2021
☒	CW POWER SENSOR	E4412A	Agilent	US38488240	04, 20, 2021
☒	CW POWER SENSOR	E4412A	Agilent	MY41501662	04, 20, 2021
☒	STACKED DOUBLE LOG-PER- ANTENNA	STPL9128 E	Schwarzbeck	9128ES-121	-
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	03, 11, 2021

Test Conditions

	Aug. 09, 2020	Aug. 12, 2020
Temperature:	23,4 °C	23,4 °C
Relative Humidity:	54,9 % R.H.	54,3 % R.H.
Atmospheric Pressure:	100,1 kPa	99,9 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

Test Date : Aug. 09, 2020

■ DC_CAMERA(1,2,3,4)

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

■ DC_CAMERA(2,3,4,5)

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

■ PoE_CAMERA(1,2,3,4)

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

Test Date : Aug. 12, 2020

■ PoE_CAMERA(2,3,4,5)

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

3.3 Electrical Fast Transients/Bursts

Reference Standard

EN 61000-4-4:2012

Test Date

Aug. 14, 2020

Test Location

EMS-EFT: Electro wave Shieldroom #7

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	iec.control	EM TEST	5.4.7	-
☒	ULTRA COMPACT SIMULATOR	UCS 500N7	EM TEST	P1608172950	11, 27, 2020
☒	MOTOR VARIAC	MV2616	EM TEST	P1552169719	11, 27, 2020
☒	CAPACITIVE COUPLING CLAMP	HFK	EM TEST	P1633183115	11, 27, 2020

Test Conditions

Temperature: 23,5 °C
Relative Humidity: 52,8 % R.H.
Atmospheric Pressure: 99,8 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 kHz ☒ 100 kHz

Duration of Test Voltage: ☒ ≥ 1 min

Required Performance Criteria: ☒ Complied

Test Data

■ DC_CAMERA(1,2,3,4)

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

Mode of Application	Observations	
	(+) Burst (kV)	(-) Burst (kV)
L	Complied	Complied
N	Complied	Complied
PE	-	-
L – N	Complied	Complied
L – PE	-	-
N – PE	-	-
L – N – PE	-	-

☐ 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
LAN (6 PIN)	Complied	Complied
Alarm in	Complied	Complied
Alarm out	Complied	Complied

■ DC_CAMERA(2,3,4,5)

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

Mode of Application	Observations	
	(+) Burst (kV)	(-) Burst (kV)
L	Complied	Complied
N	Complied	Complied
PE	-	-
L – N	Complied	Complied
L – PE	-	-
N – PE	-	-
L – N – PE	-	-

☐ 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
LAN (6 PIN)	Complied	Complied
Alarm in	Complied	Complied
Alarm out	Complied	Complied

■ PoE_CAMERA(1,2,3,4)

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

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

☐ 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 (PoE)	Complied	Complied
LAN (6 PIN)	Complied	Complied
Alarm in	Complied	Complied
Alarm out	Complied	Complied

■ PoE_CAMERA(2,3,4,5)

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

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

☐ 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 (PoE)	Complied	Complied
LAN (6 PIN)	Complied	Complied
Alarm in	Complied	Complied
Alarm out	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

Aug. 14, 2020

Test Location

EMS-EFT: Electro wave Shieldroom #7

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	iec.control	EM TEST	5.4.7	-
☒	ULTRA COMPACT SIMULATOR	UCS 500N7	EM TEST	P1608172950	11, 27, 2020
☒	MOTOR VARIAC	MV2616	EM TEST	P1552169719	11, 27, 2020
☒	CDN	CNV 508N1	EM TEST	P1610176296	11, 27, 2020

Test Conditions

Temperature: 23,5 °C
Relative Humidity: 52,8 % R.H.
Atmospheric Pressure: 99,8 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_CAMERA(1,2,3,4)**☒ Line to Line – Differential Mode

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

☐ Line to Earth – Common Mode

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

Signal Lines☒ Line to Earth – Common Mode

Mode of Application	Coupling Method	Observations	
		(+) Surge (kV)	(-) Surge (kV)
RJ-45	CDN	Complied	Complied
	LINE	Complied	Complied

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■ DC_CAMERA(2,3,4,5)☒ Line to Line – Differential Mode

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

☐ Line to Earth – Common Mode

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

Signal Lines☒ Line to Earth – Common Mode

Mode of Application	Coupling Method	Observations	
		(+) Surge (kV)	(-) Surge (kV)
RJ-45	CDN	Complied	Complied
	LINE	Complied	Complied

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■ PoE_CAMERA(1,2,3,4)☐ 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)
L – PE	-	-
N – PE	-	-

Signal Lines☒ Line to Earth – Common Mode

Mode of Application	Coupling Method	Observations	
		(+) Surge (kV)	(-) Surge (kV)
RJ-45 (PoE)	CDN	Complied	Complied
	LINE	Complied	Complied

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■ PoE_CAMERA(2,3,4,5)☐ 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)
L – PE	-	-
N – PE	-	-

Signal Lines☒ Line to Earth – Common Mode

Mode of Application	Coupling Method	Observations	
		(+) Surge (kV)	(-) Surge (kV)
RJ-45 (PoE)	CDN	Complied	Complied
	LINE	Complied	Complied

Note: "Blank" = Not performed

Observations:

Complied – No degradation of function

Test Results

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

Remarks

PASS Required Performance Criteria

3.5 Conducted Disturbance

Reference Standard

EN 61000-4-6:2014

Test Date

Aug. 13, 2020

Test Location

EMS-CS: Electro wave Shieldroom #6

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	icd.control	EM TEST	5.3.11	-
☒	CONTINUOUS WAVE SIMULATOR	CWS 500N1.4	EM TEST	P1602169880	11, 25, 2020
☒	ATTENUATOR	ATT 6/80	EM TEST	P1614178148	11, 25, 2020
☒	CDN	CDN M016	TESEQ	43694	11, 25, 2020
☒	CDN	CDN M016	TESEQ	43697	11, 25, 2020
☒	CDN	CDN ST08A	TESEQ	43886	11, 25, 2020
☒	EM CLAMP	KEMZ 801A	TESEQ	44099	11, 26, 2020

Test Conditions

Temperature: 24,9 °C
Relative Humidity: 56,3 % R.H.
Atmospheric Pressure: 99,9 kPa

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

Test Data

■ DC_CAMERA(1,2,3,4)

☒ Input a.c. power ports

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

☐ Input d.c. power ports

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

☒ Signal ports and telecommunication ports

Coupling Location (Line Stressed)	Coupling Method	Observations
RJ-45	CDN	Complied
LAN (6 PIN)	Clamp	Complied
Alarm in	Clamp	Complied
Alarm out	Clamp	Complied

■ DC_CAMERA(2,3,4,5)

☒ Input a.c. power ports

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

☐ Input d.c. power ports

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

☒ Signal ports and telecommunication ports

Coupling Location (Line Stressed)	Coupling Method	Observations
RJ-45	CDN	Complied
LAN (6 PIN)	Clamp	Complied
Alarm in	Clamp	Complied
Alarm out	Clamp	Complied

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■ PoE_CAMERA(1,2,3,4)☐ Input a.c. power ports

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

☐ Input d.c. power ports

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

☒ Signal ports and telecommunication ports

Coupling Location (Line Stressed)	Coupling Method	Observations
RJ-45 (PoE)	CDN	Complied
LAN (6 PIN)	Clamp	Complied
Alarm in	Clamp	Complied
Alarm out	Clamp	Complied

■ PoE_CAMERA(2,3,4,5)

☐ Input a.c. power ports

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

☐ Input d.c. power ports

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

☒ Signal ports and telecommunication ports

Coupling Location (Line Stressed)	Coupling Method	Observations
RJ-45 (PoE)	CDN	Complied
LAN (6 PIN)	Clamp	Complied
Alarm in	Clamp	Complied
Alarm out	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

Aug. 14, 2020

Test Location

EMS-Voltage dip: Electro wave Shieldroom #7

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	iec.control	EM TEST	5.4.7	-
☒	ULTRA COMPACT SIMULATOR	UCS 500N7	EM TEST	P1608172950	11, 27, 2020
☒	MOTOR VARIAC	MV2616	EM TEST	P1552169719	11, 27, 2020

Test Conditions

Temperature: 23,5 °C
Relative Humidity: 52,8 % R.H.
Atmospheric Pressure: 99,8 kPa



Test Specifications & Observations/Remarks

■ DC_CAMERA(1,2,3,4)

- Voltage Dips and Short Interruptions

<u>Test Level</u>	<u>Duration [in period/ms (50 Hz)]</u>	<u>Results</u>
☒ 20 % dip	☒ 250 / 5 000	<u>Complied</u>
☒ 30 % dip	☒ 25 / 500	<u>Complied</u>
☒ 60 % dip	☒ 10 / 200	<u>Complied</u>
☒ 100 % dip	☒ 250 / 5 000	<u>Degradation</u>

- Voltage variations

☒ Unom + 10 %	☒ 253.0 V (ac)	<u>Complied</u>
☒ Unom - 15 %	☒ 195.5 V (ac)	<u>Complied</u>

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■ DC_CAMERA(2,3,4,5)**- Voltage Dips and Short Interruptions**

<u>Test Level</u>	<u>Duration [in period/ms (50 Hz)]</u>	<u>Results</u>
☒ 20 % dip	☒ 250 / 5 000	<u>Complied</u>
☒ 30 % dip	☒ 25 / 500	<u>Complied</u>
☒ 60 % dip	☒ 10 / 200	<u>Complied</u>
☒ 100 % dip	☒ 250 / 5 000	<u>Degradation</u>

- Voltage variations

☒ Unom + 10 %	☒ 253.0 V (ac)	<u>Complied</u>
☒ Unom - 15 %	☒ 195.5 V (ac)	<u>Complied</u>

Observations:

Complied – No degradation of function

Degradation - See "Remarks "

Test Results

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

Remarks

During the test(100%, 250cycle), EUT was turned off but after the test, it was recovered by no operator's intervention.

APPENDIX A – TEST DATA

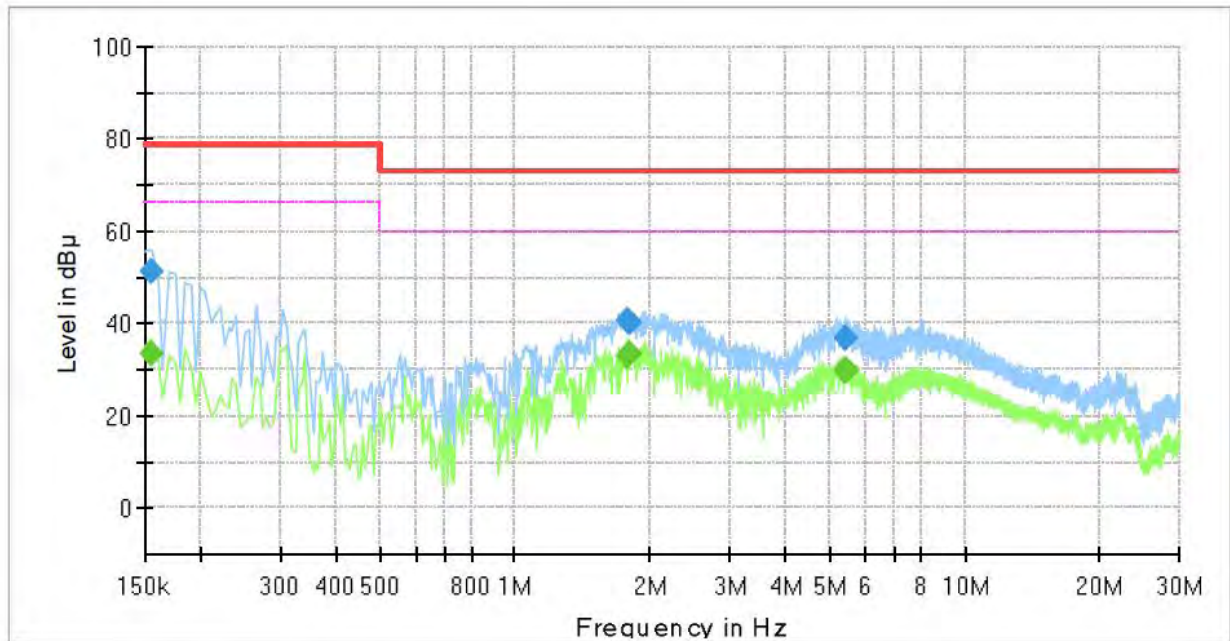
Conducted Emissions at Mains Power Ports

■ DC_CAMERA(1,2,3,4)

[HOT]

Common Information

Test Description:	Conducted Emission
Model No.:	PNM-9000QB
Phase:	L1
Mode:	DC_CAMERA(1,2,3,4)
Operator Name:	KES



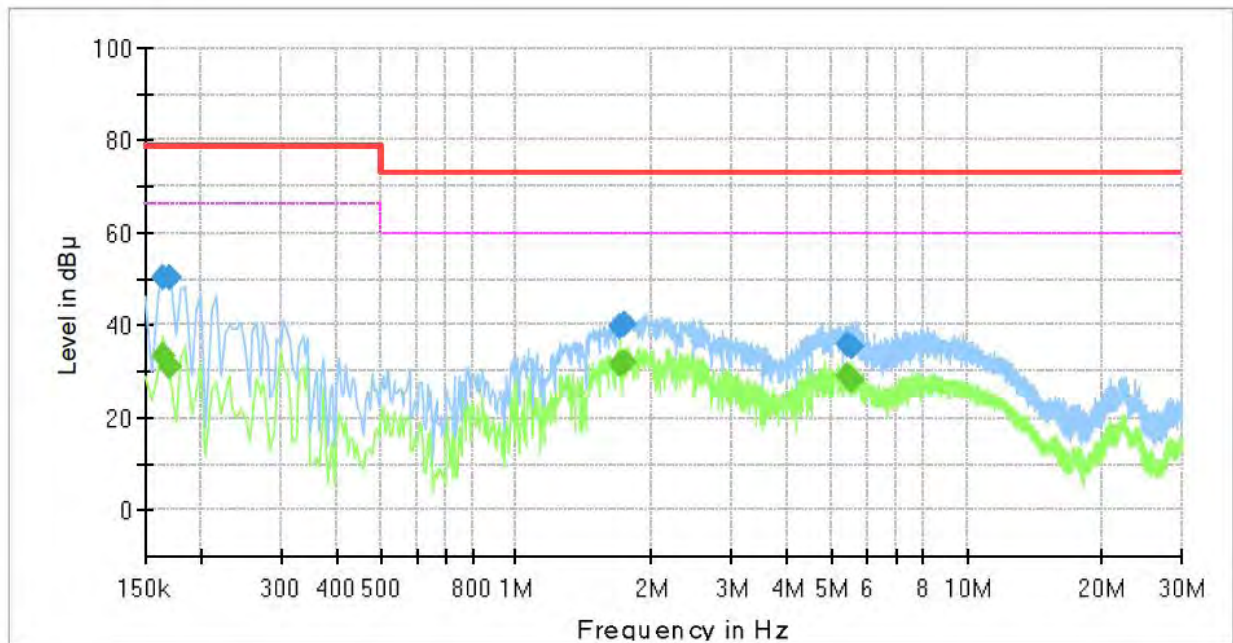
Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.155000	---	33.63	66.00	32.37	1000.0	9.000	L1	19.5
0.155000	51.45	---	79.00	27.55	1000.0	9.000	L1	19.5
1.770000	---	33.01	60.00	26.99	1000.0	9.000	L1	20.2
1.770000	40.56	---	73.00	32.44	1000.0	9.000	L1	20.2
1.800000	---	33.19	60.00	26.81	1000.0	9.000	L1	20.2
1.800000	40.35	---	73.00	32.65	1000.0	9.000	L1	20.2
5.415000	---	29.78	60.00	30.22	1000.0	9.000	L1	19.5
5.415000	36.74	---	73.00	36.26	1000.0	9.000	L1	19.5
5.435000	---	29.83	60.00	30.17	1000.0	9.000	L1	19.5
5.435000	36.89	---	73.00	36.11	1000.0	9.000	L1	19.5

[NEUTRAL]

Common Information

Test Description:	Conducted Emission
Model No.:	PNM-9000QB
Phase:	N
Mode:	DC_CAMERA(1,2,3,4)
Operator Name:	KES



Final Result

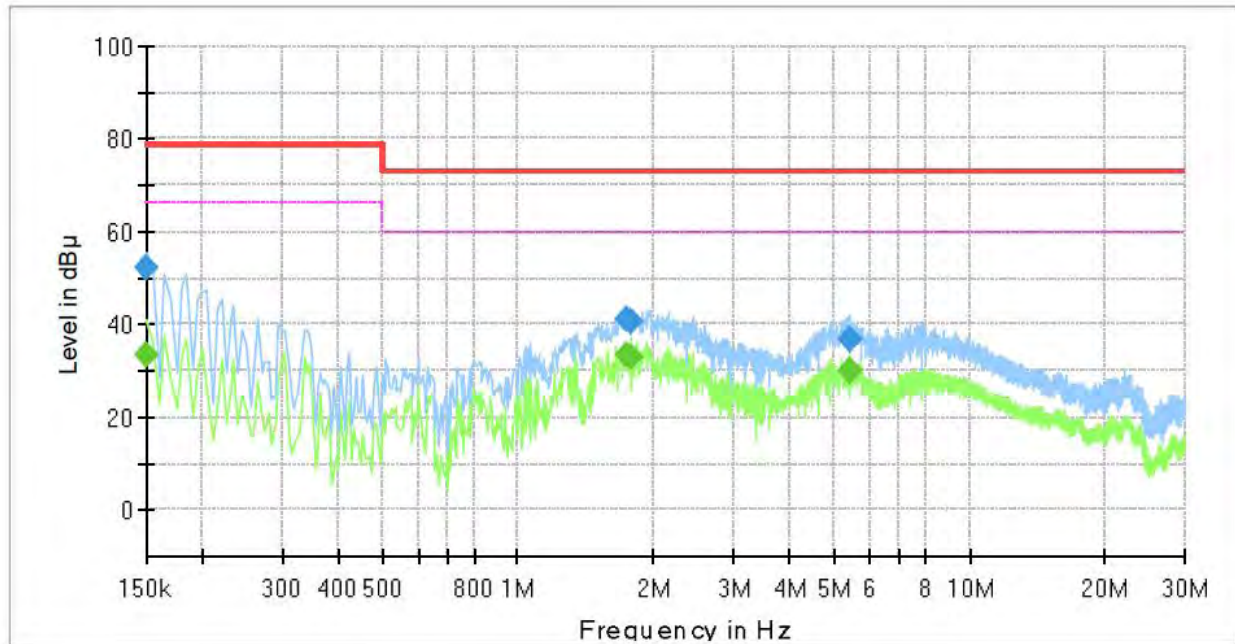
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.165000	---	33.40	66.00	32.60	1000.0	9.000	N	19.4
0.165000	50.41	---	79.00	28.59	1000.0	9.000	N	19.4
0.170000	---	31.04	66.00	34.96	1000.0	9.000	N	19.5
0.170000	50.18	---	79.00	28.82	1000.0	9.000	N	19.5
1.700000	---	31.26	60.00	28.74	1000.0	9.000	N	20.2
1.700000	39.52	---	73.00	33.48	1000.0	9.000	N	20.2
1.735000	---	32.13	60.00	27.87	1000.0	9.000	N	20.2
1.735000	40.07	---	73.00	32.93	1000.0	9.000	N	20.2
5.440000	---	28.95	60.00	31.05	1000.0	9.000	N	19.6
5.440000	36.01	---	73.00	36.99	1000.0	9.000	N	19.6
5.585000	---	28.01	60.00	31.99	1000.0	9.000	N	19.6
5.585000	35.26	---	73.00	37.74	1000.0	9.000	N	19.6

■ DC_CAMERA(2,3,4,5)

[HOT]

Common Information

Test Description:	Conducted Emission
Model No.:	PNM-9000QB
Phase:	L1
Mode:	DC_CAMERA(2,3,4,5)
Operator Name:	KES



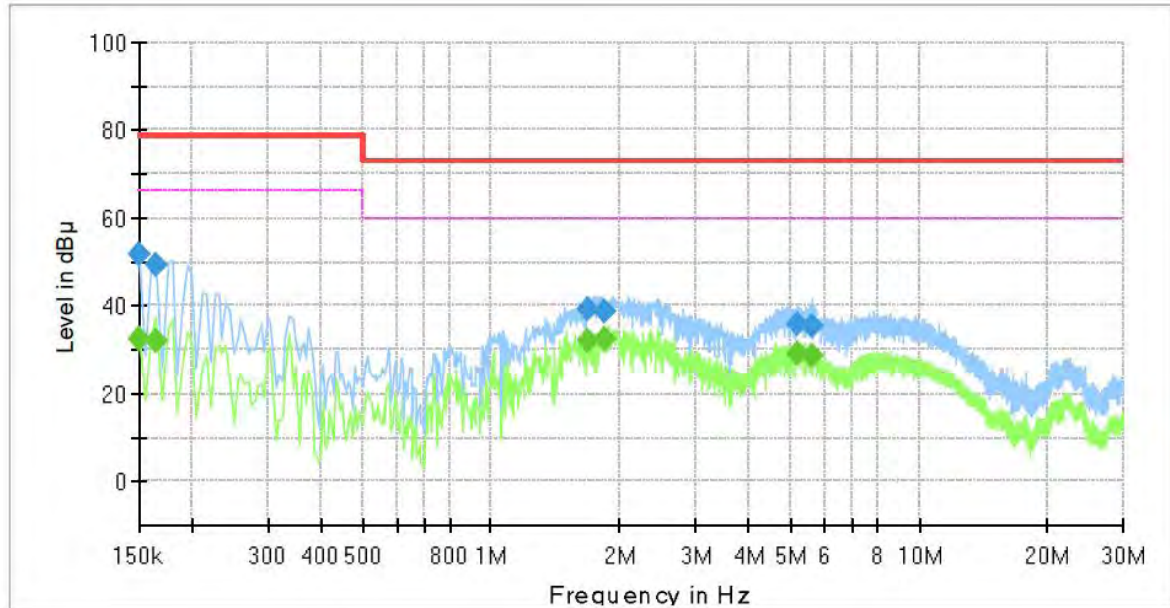
Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.150000	---	33.38	66.00	32.62	1000.0	9.000	L1	19.5
0.150000	52.26	---	79.00	26.74	1000.0	9.000	L1	19.5
1.740000	---	33.18	60.00	26.82	1000.0	9.000	L1	20.2
1.740000	40.99	---	73.00	32.01	1000.0	9.000	L1	20.2
1.775000	---	32.72	60.00	27.28	1000.0	9.000	L1	20.2
1.775000	40.53	---	73.00	32.47	1000.0	9.000	L1	20.2
5.415000	---	29.90	60.00	30.10	1000.0	9.000	L1	19.5
5.415000	36.84	---	73.00	36.16	1000.0	9.000	L1	19.5
5.435000	---	29.89	60.00	30.11	1000.0	9.000	L1	19.5
5.435000	36.90	---	73.00	36.10	1000.0	9.000	L1	19.5

[NEUTRAL]

Common Information

Test Description:	Conducted Emission
Model No.:	PNM-9000QB
Phase:	N
Mode:	DC_CAMERA(2,3,4,5)
Operator Name:	KES



Final_Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.150000	---	32.58	66.00	33.42	1000.0	9.000	N	19.4
0.150000	51.77	---	79.00	27.23	1000.0	9.000	N	19.4
0.165000	---	32.14	66.00	33.86	1000.0	9.000	N	19.4
0.165000	49.38	---	79.00	29.62	1000.0	9.000	N	19.4
1.675000	---	31.91	60.00	28.09	1000.0	9.000	N	20.2
1.675000	39.19	---	73.00	33.81	1000.0	9.000	N	20.2
1.835000	---	32.53	60.00	27.47	1000.0	9.000	N	20.2
1.835000	38.92	---	73.00	34.08	1000.0	9.000	N	20.2
5.205000	---	29.08	60.00	30.92	1000.0	9.000	N	19.5
5.205000	35.99	---	73.00	37.01	1000.0	9.000	N	19.5
5.625000	---	28.37	60.00	31.63	1000.0	9.000	N	19.6
5.625000	35.47	---	73.00	37.53	1000.0	9.000	N	19.6

◆ 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))

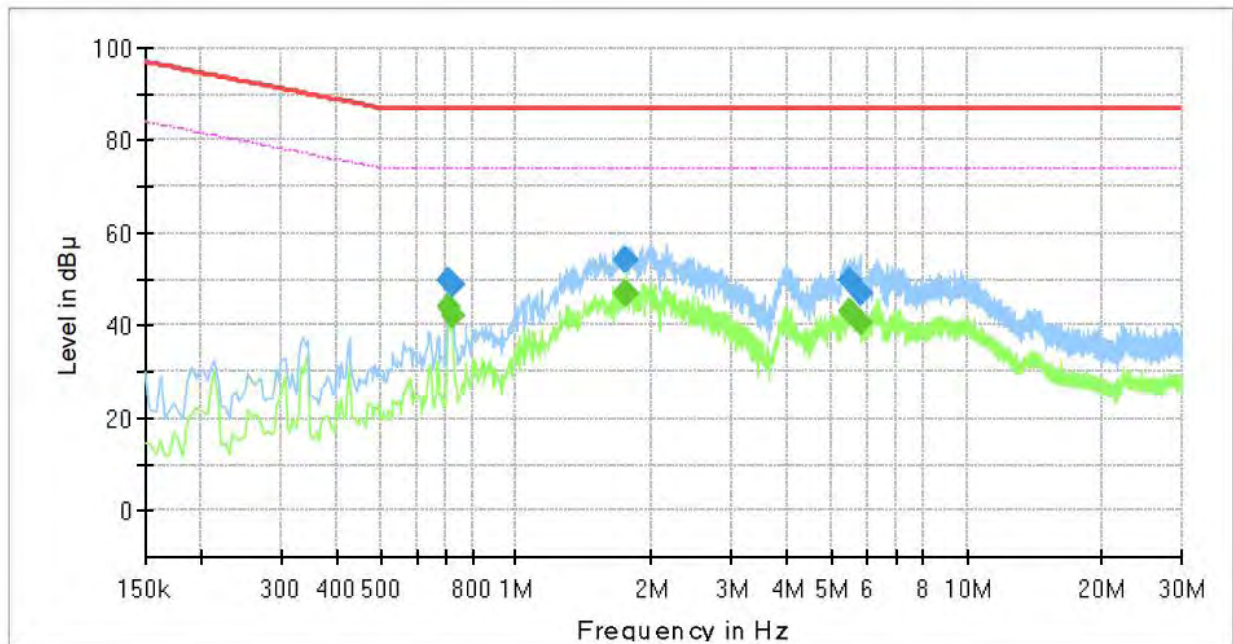
Conducted Emissions at Telecommunication Ports

■ DC_CAMERA(1,2,3,4)

[1 000 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	PNM-9000QB
Mode :	DC_CAMERA(1,2,3,4)
Speed :	1 000 Mbps
Operator Name:	KES



Final Result

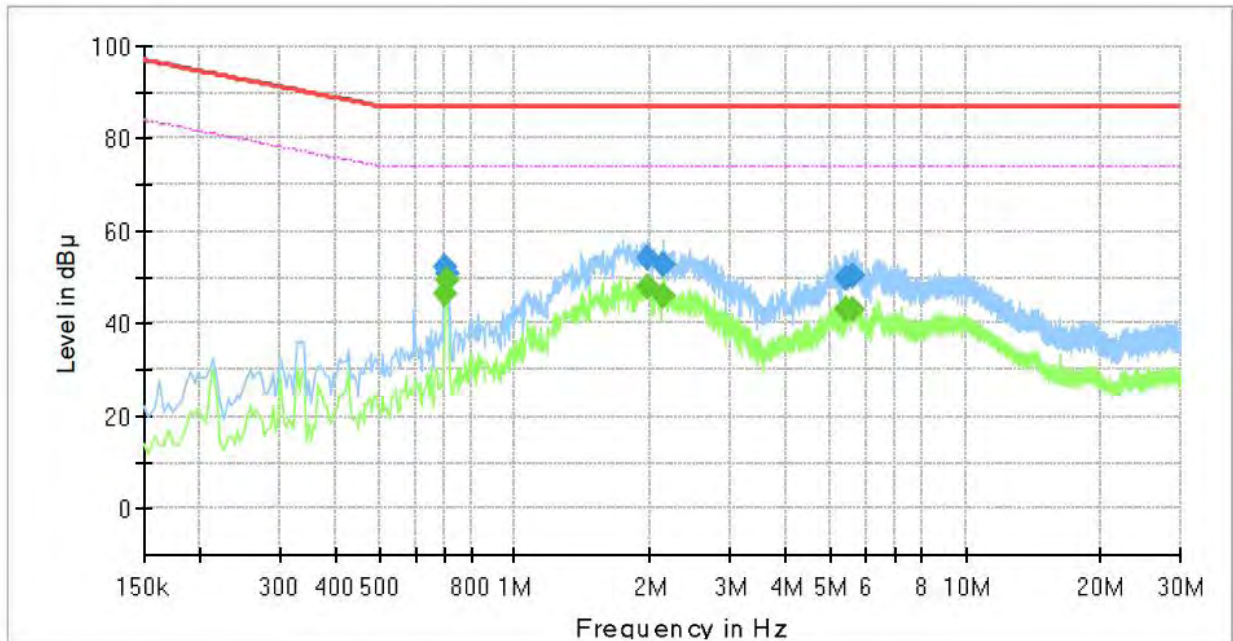
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.710000	---	44.21	74.00	29.79	1000.0	9.000	Single Line	19.9
0.710000	49.86	---	87.00	37.14	1000.0	9.000	Single Line	19.9
0.722000	---	41.98	74.00	32.02	1000.0	9.000	Single Line	19.9
0.722000	48.62	---	87.00	38.38	1000.0	9.000	Single Line	19.9
1.734000	---	46.90	74.00	27.10	1000.0	9.000	Single Line	20.1
1.734000	54.40	---	87.00	32.60	1000.0	9.000	Single Line	20.1
1.754000	---	46.97	74.00	27.03	1000.0	9.000	Single Line	20.1
1.754000	54.35	---	87.00	32.65	1000.0	9.000	Single Line	20.1
5.522000	---	42.91	74.00	31.09	1000.0	9.000	Single Line	19.4
5.522000	49.87	---	87.00	37.13	1000.0	9.000	Single Line	19.4
5.782000	---	40.51	74.00	33.49	1000.0	9.000	Single Line	19.4
5.782000	47.13	---	87.00	39.87	1000.0	9.000	Single Line	19.4

■ DC_CAMERA(2,3,4,5)

[1 000 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	PNM-9000QB
Mode :	DC_CAMERA(2,3,4,5)
Speed :	1 000 Mbps
Operator Name:	KES



Final Result

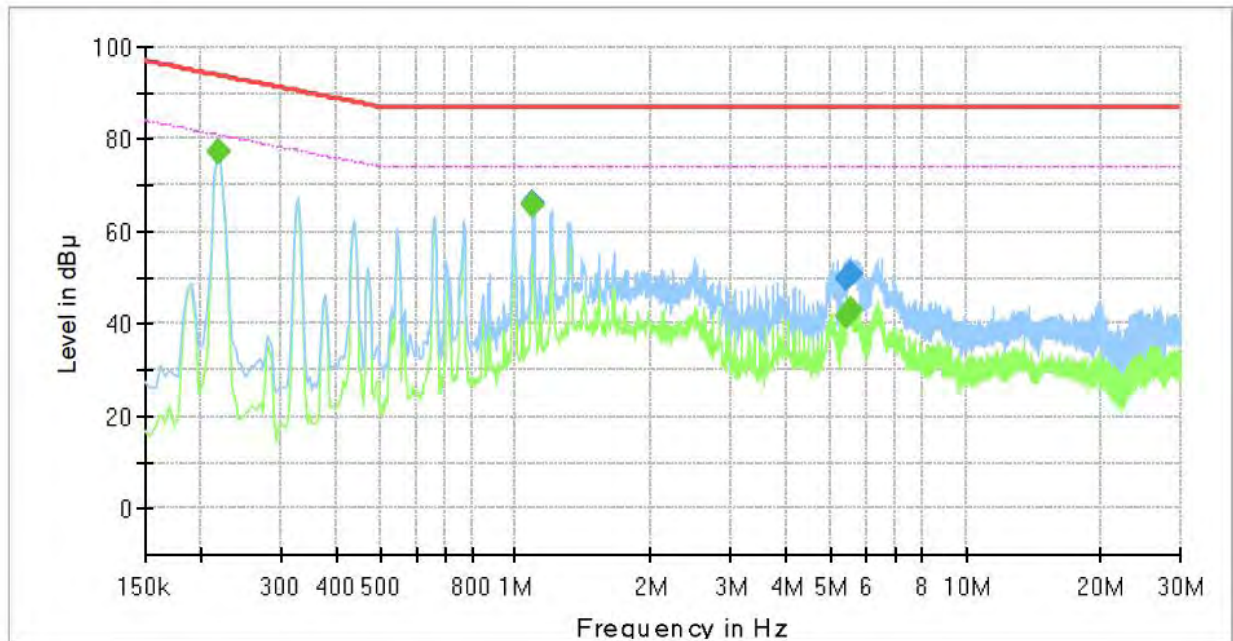
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.702000	---	46.22	74.00	27.78	1000.0	9.000	Single Line	19.9
0.702000	52.20	---	87.00	34.80	1000.0	9.000	Single Line	19.9
0.706000	---	49.11	74.00	24.89	1000.0	9.000	Single Line	19.9
0.706000	50.93	---	87.00	36.07	1000.0	9.000	Single Line	19.9
1.966000	---	47.85	74.00	26.15	1000.0	9.000	Single Line	20.2
1.966000	54.04	---	87.00	32.96	1000.0	9.000	Single Line	20.2
2.142000	---	46.09	74.00	27.91	1000.0	9.000	Single Line	20.1
2.142000	52.94	---	87.00	34.06	1000.0	9.000	Single Line	20.1
5.458000	---	43.22	74.00	30.78	1000.0	9.000	Single Line	19.4
5.458000	49.90	---	87.00	37.10	1000.0	9.000	Single Line	19.4
5.590000	---	43.21	74.00	30.79	1000.0	9.000	Single Line	19.4
5.590000	50.36	---	87.00	36.64	1000.0	9.000	Single Line	19.4

■ PoE_CAMERA(1,2,3,4)

[1 000 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	PNM-9000QB
Mode :	PoE_CAMERA(1,2,3,4)
Speed :	1 000 Mbps
Operator Name:	KES



Final Result

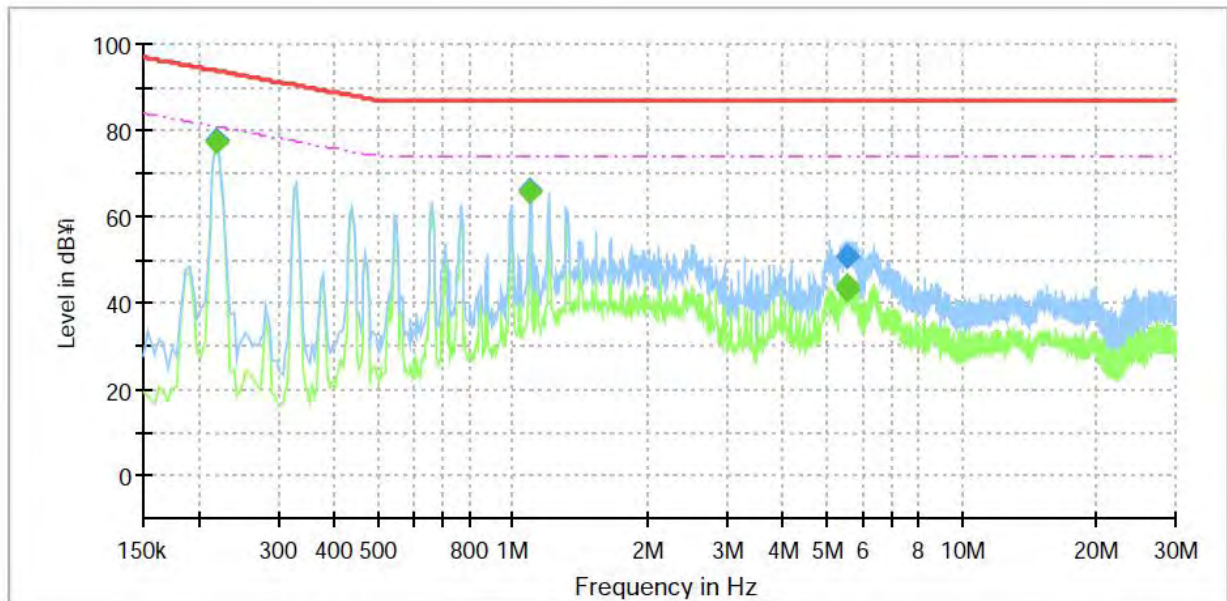
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.218000	---	77.39	80.89	3.50	1000.0	9.000	Single Line	19.5
0.218000	77.49	---	93.89	16.40	1000.0	9.000	Single Line	19.5
1.094000	---	65.52	74.00	8.48	1000.0	9.000	Single Line	20.0
1.094000	66.15	---	87.00	20.85	1000.0	9.000	Single Line	20.0
5.414000	---	41.65	74.00	32.35	1000.0	9.000	Single Line	19.4
5.414000	49.76	---	87.00	37.24	1000.0	9.000	Single Line	19.4
5.546000	---	43.24	74.00	30.76	1000.0	9.000	Single Line	19.4
5.546000	50.67	---	87.00	36.33	1000.0	9.000	Single Line	19.4

■ PoE_CAMERA(2,3,4,5)

[1 000 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	PNM-9000QB
Mode :	PoE_CAMERA(2,3,4,5)
Speed :	1 000 Mbps
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.218000	---	77.52	80.89	3.37	1000.0	9.000	Single Line	19.5
0.218000	77.63	---	93.89	16.26	1000.0	9.000	Single Line	19.5
1.094000	---	65.63	74.00	8.37	1000.0	9.000	Single Line	20.0
1.094000	66.34	---	87.00	20.66	1000.0	9.000	Single Line	20.0
5.530000	---	43.11	74.00	30.89	1000.0	9.000	Single Line	19.4
5.530000	50.64	---	87.00	36.36	1000.0	9.000	Single Line	19.4
5.578000	---	43.88	74.00	30.12	1000.0	9.000	Single Line	19.4
5.578000	50.95	---	87.00	36.05	1000.0	9.000	Single Line	19.4

◆ 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))



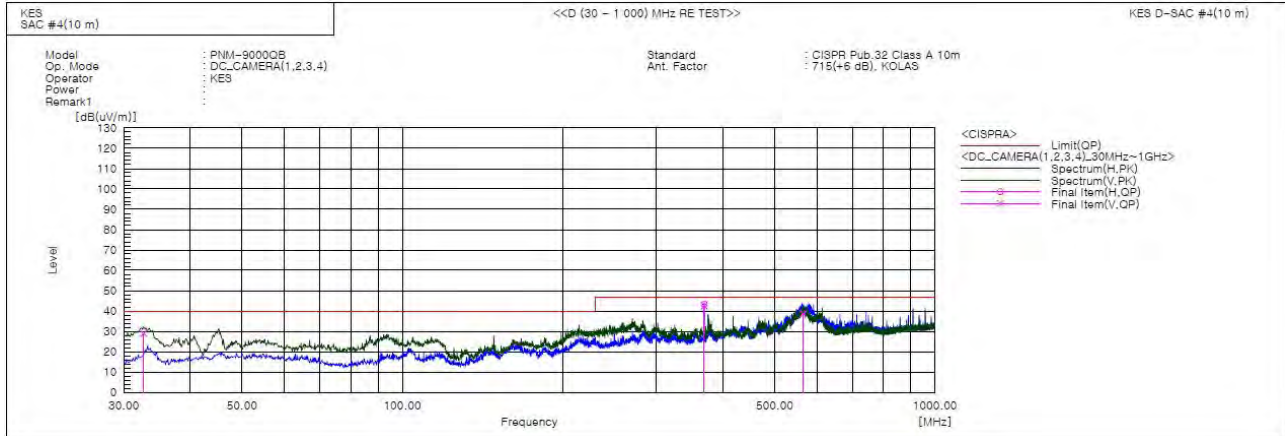
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Radiated Electric Field Emissions(Below 1 GHz)

■ DC_CAMERA(1,2,3,4)



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	32.668	V	53.8	-24.9	28.9	40.0	11.1	100.0	328.0	
2	368.651	V	58.4	-15.9	42.5	47.0	4.5	100.0	26.0	
3	368.651	H	59.3	-15.9	43.4	47.0	3.6	200.0	241.0	
4	566.046	V	49.8	-11.1	38.7	47.0	8.3	100.0	349.0	

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The authenticity of the test report, contact shchoi@kes.co.kr

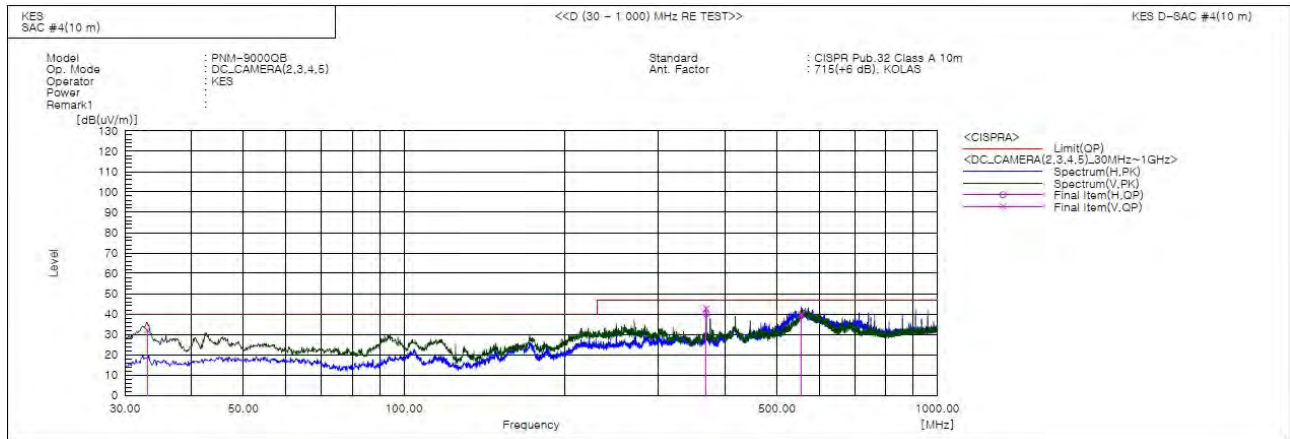


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■ DC_CAMERA(2,3,4,5)



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	33.031	V	56.9	-24.9	32.0	40.0	8.0	150.0	218.0	
2	368.651	H	56.1	-15.9	40.2	47.0	6.8	200.0	150.0	
3	368.651	V	58.6	-15.9	42.7	47.0	4.3	100.0	199.0	
4	555.013	V	51.4	-11.6	39.8	47.0	7.2	100.0	207.0	

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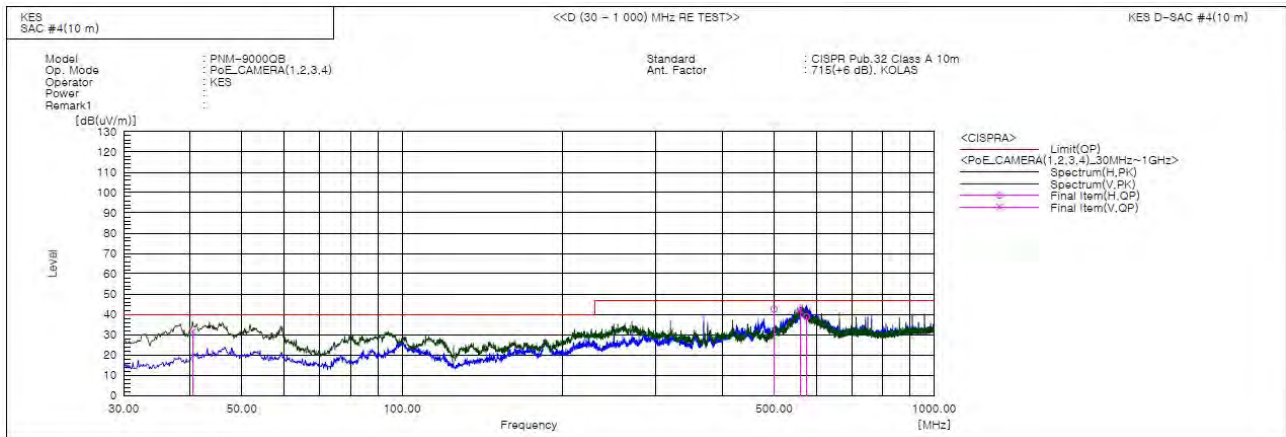


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■ PoE_CAMERA(1,2,3,4)



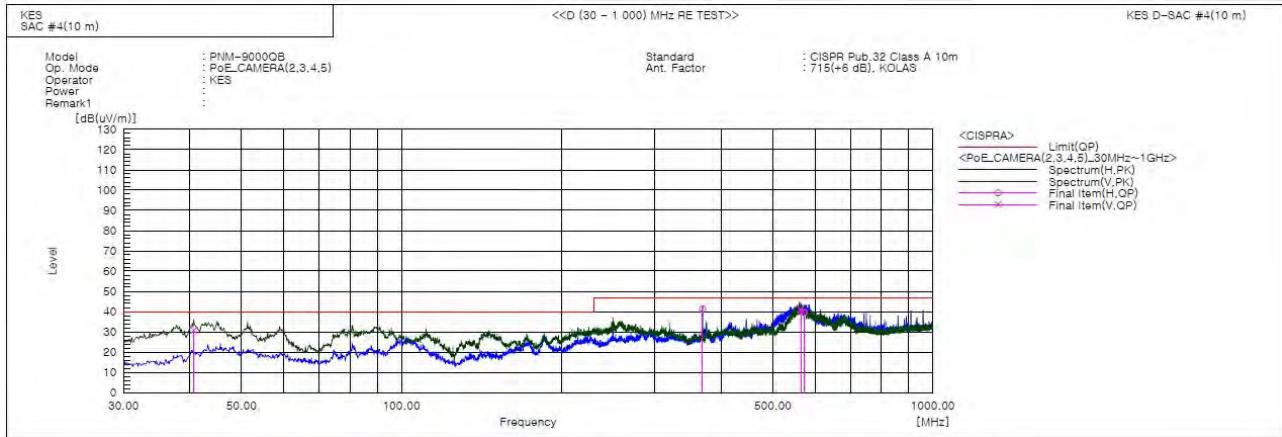
Final Result

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	40.428	V	54.3	-22.7	31.6	40.0	8.4	109.0	10.0	
2	500.086	H	55.3	-12.8	42.5	47.0	4.5	162.0	274.0	
3	559.378	V	53.5	-11.4	42.1	47.0	4.9	100.0	10.0	
4	575.383	H	49.4	-10.6	38.8	47.0	8.2	251.0	50.0	

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■ PoE_CAMERA(2,3,4,5)



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	40.670	V	53.4	-22.6	30.8	40.0	9.2	144.0	335.0	
2	368.651	H	57.3	-15.9	41.4	47.0	5.6	162.0	270.0	
3	564.106	V	52.2	-11.2	41.0	47.0	6.0	132.0	16.0	
4	571.866	H	50.3	-10.8	39.5	47.0	7.5	208.0	33.0	

◆ Calculation – SEMI ANECHOIC CHAMBER #4(10 m)

Result(QP) [dB(μ V/m)] = (Reading(QP)[dB(μ V)] + c.f[dB(1/m)])

Margin(QP)[dB] = Limit[dB(μ V/m)] - Result(QP) [dB(μ V/m)]

Reading(QP) : Reading value, Result(QP) : Reading value + Factor value

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)

■ DC_CAMERA(1,2,3,4)



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]	Remark
1	1484.760	V	65.5	57.7	-6.7	58.8	51.0	76.0	56.0	17.2	5.0	100.0	321.9	
2	2227.720	V	60.1	52.6	-1.2	58.9	51.4	76.0	56.0	17.1	4.6	100.0	71.7	
3	2227.890	H	58.4	49.2	-1.2	57.2	48.0	76.0	56.0	18.8	8.0	100.0	355.2	
4	2969.870	H	55.8	49.0	1.5	57.3	50.5	76.0	56.0	18.7	5.5	100.0	42.5	
5	2970.010	V	55.5	45.9	1.5	57.0	47.4	76.0	56.0	19.0	8.6	100.0	356.9	
6	4455.340	V	51.0	38.2	6.1	57.1	44.3	80.0	60.0	22.9	15.7	100.0	50.3	

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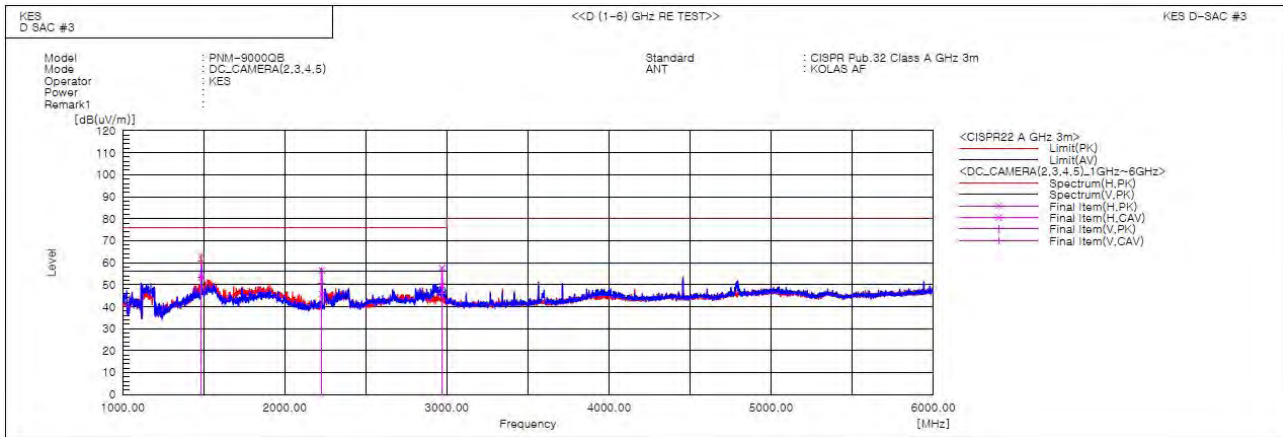


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■ DC_CAMERA(2,3,4,5)



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]	Remark
1	1484.850	H	69.9	60.0	-6.7	63.2	53.3	76.0	56.0	12.8	2.7	100.0	25.1	
2	1485.110	V	67.2	60.3	-6.7	60.5	53.6	76.0	56.0	15.5	2.4	100.0	298.0	
3	2227.370	V	57.1	51.8	-1.2	55.9	50.6	76.0	56.0	20.1	5.4	100.0	88.5	
4	2227.810	H	57.7	47.0	-1.2	56.5	45.8	76.0	56.0	19.5	10.2	100.0	43.3	
5	2969.960	V	54.7	44.7	1.5	56.2	46.2	76.0	56.0	19.8	9.8	100.0	341.5	
6	2970.110	H	56.0	47.9	1.5	57.5	49.4	76.0	56.0	18.5	6.6	100.0	343.9	

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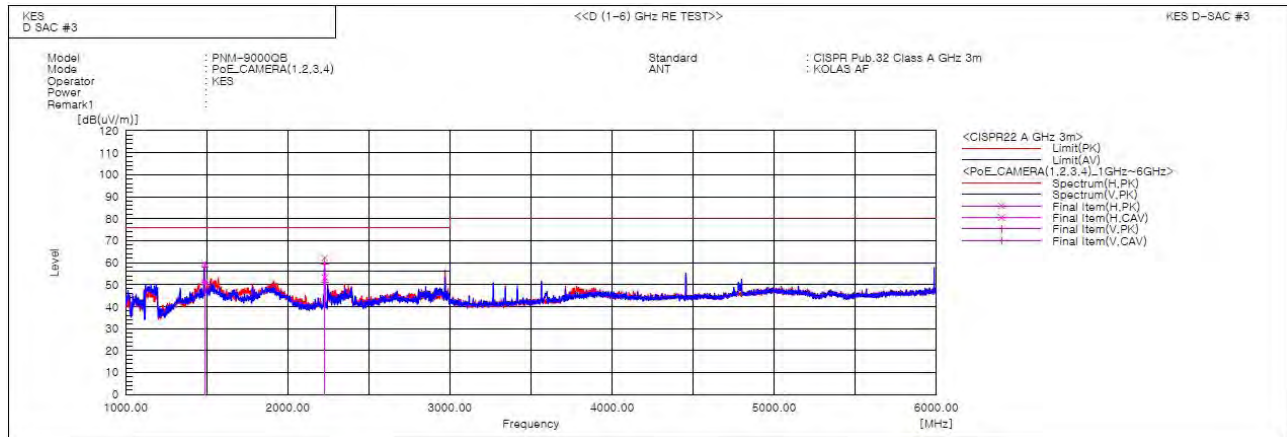


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■ PoE_CAMERA(1,2,3,4)



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]	Remark
1	1485.740	V	64.6	57.5	-6.7	57.9	50.8	76.0	56.0	18.1	5.2	100.0	221.1	
2	1485.750	H	66.5	57.7	-6.7	59.8	51.0	76.0	56.0	16.2	5.0	100.0	11.2	
3	2228.210	H	63.4	54.4	-1.2	62.2	53.2	76.0	56.0	13.8	2.8	100.0	35.9	
4	2228.320	V	60.4	52.0	-1.2	59.2	50.8	76.0	56.0	16.8	5.2	100.0	51.8	

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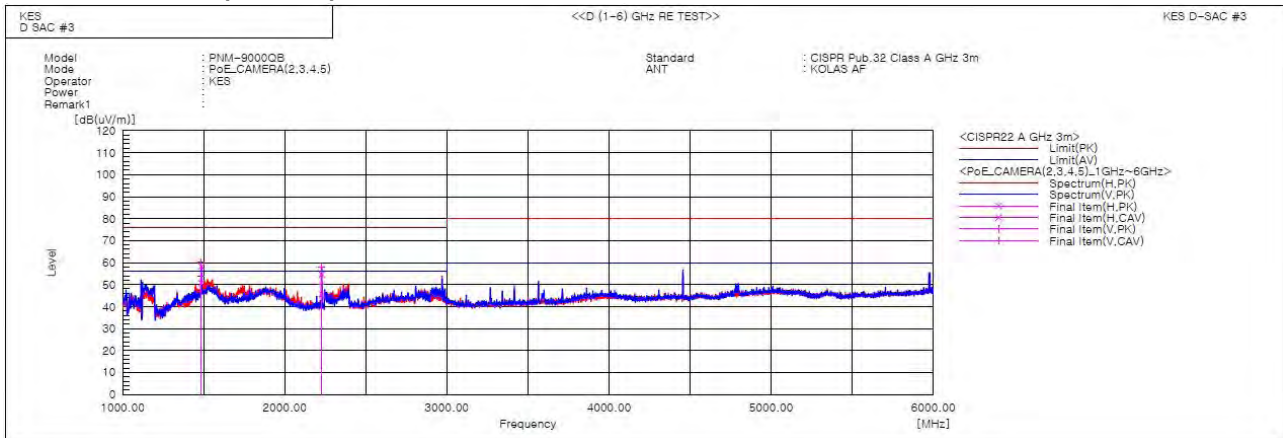


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■ PoE_CAMERA(2,3,4,5)



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]	Remark
1	1484.960	V	66.8	60.3	-6.7	60.1	53.6	76.0	56.0	15.9	2.4	100.0	175.3	
2	1485.220	H	65.0	57.3	-6.7	58.3	50.6	76.0	56.0	17.7	5.4	100.0	324.8	
3	2227.610	V	59.3	51.4	-1.2	58.1	50.2	76.0	56.0	17.9	5.8	100.0	336.9	
4	2227.630	H	55.8	46.8	-1.2	54.6	45.6	76.0	56.0	21.4	10.4	100.0	36.8	

◆ Calculation

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

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

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

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



Harmonic Current Emissions and Voltage Fluctuations and Flicker

■ DC_CAMERA(1,2,3,4)

Average harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	0.071			
2	0.002	0.173	1.080	n/a
3	0.065	2.811	2.300	PASS
4	0.002	0.553	0.430	n/a
5	0.063	5.531	1.140	PASS
6	0.002	0.744	0.300	n/a
7	0.060	7.832	0.770	PASS
8	0.002	0.926	0.230	n/a
9	0.056	14.009	0.400	PASS
10	0.002	1.050	0.184	n/a
11	0.052	15.610	0.330	PASS
12	0.002	1.206	0.153	n/a
13	0.046	22.127	0.210	PASS
14	0.002	1.468	0.131	n/a
15	0.041	27.446	0.150	PASS
16	0.002	1.582	0.115	n/a
17	0.036	27.069	0.132	PASS
18	0.002	1.783	0.102	n/a
19	0.031	25.826	0.118	PASS
20	0.002	1.971	0.092	n/a
21	0.026	16.021	0.161	PASS
22	0.002	2.219	0.084	n/a
23	0.021	14.386	0.147	PASS
24	0.002	2.328	0.077	n/a
25	0.017	12.962	0.135	PASS
26	0.002	2.465	0.071	n/a
27	0.015	11.688	0.125	PASS
28	0.002	2.552	0.066	n/a
29	0.013	10.958	0.116	PASS
30	0.002	2.718	0.061	n/a
31	0.012	10.660	0.109	PASS
32	0.002	2.814	0.058	n/a
33	0.011	10.799	0.102	PASS
34	0.002	2.897	0.054	n/a
35	0.011	11.178	0.096	PASS
36	0.002	3.024	0.051	n/a
37	0.010	11.210	0.091	PASS
38	0.001	2.919	0.048	n/a
39	0.010	11.344	0.087	PASS
40	0.001	3.049	0.046	n/a

Note: 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.

* Application of limits for average is 100% except for odd harmonics from 21 to 39, where 150% applies.



Test Data - Harmonics (continued)

Maximum harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	0.073			
2	0.002	0.154	1.620	n/a
3	0.068	1.984	3.450	PASS
4	0.003	0.439	0.645	n/a
5	0.065	3.830	1.710	PASS
6	0.003	0.615	0.450	n/a
7	0.063	5.457	1.155	PASS
8	0.003	0.767	0.345	n/a
9	0.058	9.689	0.600	PASS
10	0.002	0.842	0.276	n/a
11	0.053	10.780	0.495	PASS
12	0.002	0.977	0.230	n/a
13	0.048	15.284	0.315	PASS
14	0.002	1.098	0.197	n/a
15	0.042	18.800	0.225	PASS
16	0.002	1.188	0.173	n/a
17	0.037	18.508	0.199	PASS
18	0.002	1.343	0.153	n/a
19	0.031	17.669	0.178	PASS
20	0.002	1.513	0.138	n/a
21	0.026	16.430	0.161	PASS
22	0.002	1.741	0.125	n/a
23	0.022	14.688	0.147	PASS
24	0.002	1.863	0.115	n/a
25	0.018	13.199	0.135	PASS
26	0.002	1.974	0.106	n/a
27	0.015	11.857	0.125	PASS
28	0.002	2.011	0.099	n/a
29	0.013	11.173	0.116	PASS
30	0.002	2.141	0.092	n/a
31	0.012	10.965	0.109	PASS
32	0.002	2.234	0.086	n/a
33	0.011	11.149	0.102	PASS
34	0.002	2.307	0.081	n/a
35	0.011	11.678	0.096	PASS
36	0.002	2.358	0.077	n/a
37	0.011	11.735	0.091	PASS
38	0.002	2.279	0.073	n/a
39	0.010	12.057	0.087	PASS
40	0.002	2.361	0.069	n/a

Note: 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.

* Application of limits for average is 100% except for odd harmonics from 21 to 39, where 150% applies.



■ DC_CAMERA(2,3,4,5)

Average harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	0.073			
2	0.002	0.157	1.080	n/a
3	0.067	2.902	2.300	PASS
4	0.002	0.461	0.430	n/a
5	0.066	5.750	1.140	PASS
6	0.002	0.638	0.300	n/a
7	0.063	8.181	0.770	PASS
8	0.002	0.786	0.230	n/a
9	0.058	14.576	0.400	PASS
10	0.002	0.864	0.184	n/a
11	0.054	16.295	0.330	PASS
12	0.002	1.003	0.153	n/a
13	0.049	23.248	0.210	PASS
14	0.002	1.188	0.131	n/a
15	0.043	28.999	0.150	PASS
16	0.002	1.343	0.115	n/a
17	0.038	28.794	0.132	PASS
18	0.002	1.526	0.102	n/a
19	0.033	27.783	0.118	PASS
20	0.002	1.698	0.092	n/a
21	0.028	17.464	0.161	PASS
22	0.002	1.938	0.084	n/a
23	0.023	15.964	0.147	PASS
24	0.002	2.091	0.077	n/a
25	0.020	14.648	0.135	PASS
26	0.002	2.237	0.071	n/a
27	0.017	13.440	0.125	PASS
28	0.002	2.343	0.066	n/a
29	0.015	12.758	0.116	PASS
30	0.002	2.524	0.061	n/a
31	0.014	12.427	0.109	PASS
32	0.002	2.664	0.058	n/a
33	0.013	12.536	0.102	PASS
34	0.001	2.717	0.054	n/a
35	0.012	12.899	0.096	PASS
36	0.001	2.834	0.051	n/a
37	0.012	12.887	0.091	PASS
38	0.001	2.731	0.048	n/a
39	0.011	13.056	0.087	PASS
40	0.001	2.851	0.046	n/a

Note: 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.

* Application of limits for average is 100% except for odd harmonics from 21 to 39, where 150% applies.



Test Data - Harmonics (continued)

Maximum harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	0.074			
2	0.002	0.134	1.620	n/a
3	0.069	1.988	3.450	PASS
4	0.002	0.349	0.645	n/a
5	0.066	3.858	1.710	PASS
6	0.002	0.526	0.450	n/a
7	0.064	5.519	1.155	PASS
8	0.002	0.606	0.345	n/a
9	0.059	9.767	0.600	PASS
10	0.002	0.693	0.276	n/a
11	0.054	10.966	0.495	PASS
12	0.002	0.811	0.230	n/a
13	0.049	15.675	0.315	PASS
14	0.002	0.969	0.197	n/a
15	0.044	19.449	0.225	PASS
16	0.002	1.139	0.173	n/a
17	0.038	19.321	0.199	PASS
18	0.002	1.253	0.153	n/a
19	0.033	18.613	0.178	PASS
20	0.002	1.349	0.138	n/a
21	0.028	17.557	0.161	PASS
22	0.002	1.583	0.125	n/a
23	0.024	16.059	0.147	PASS
24	0.002	1.701	0.115	n/a
25	0.020	14.797	0.135	PASS
26	0.002	1.773	0.106	n/a
27	0.017	13.552	0.125	PASS
28	0.002	1.872	0.099	n/a
29	0.015	12.872	0.116	PASS
30	0.002	1.987	0.092	n/a
31	0.014	12.552	0.109	PASS
32	0.002	2.115	0.086	n/a
33	0.013	12.659	0.102	PASS
34	0.002	2.142	0.081	n/a
35	0.013	13.066	0.096	PASS
36	0.002	2.223	0.077	n/a
37	0.012	13.040	0.091	PASS
38	0.002	2.160	0.073	n/a
39	0.011	13.232	0.087	PASS
40	0.002	2.303	0.069	n/a

Note: 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.

* Application of limits for average is 100% except for odd harmonics from 21 to 39, where 150% applies.

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Test Data - Voltage Fluctuations**Maximum Flicker results****■ DC_CAMERA(1,2,3,4)**

Flicker Measurements					
	Plt	Max Pst	Max Dc	Max Dmax	Max Tmax
Line 1:	0.028	0.028	0	< 0.2	0
Limits:	0.65	1	3.3	4	0.5
Results:	PASS	PASS	PASS	PASS	PASS

■ DC_CAMERA(2,3,4,5)

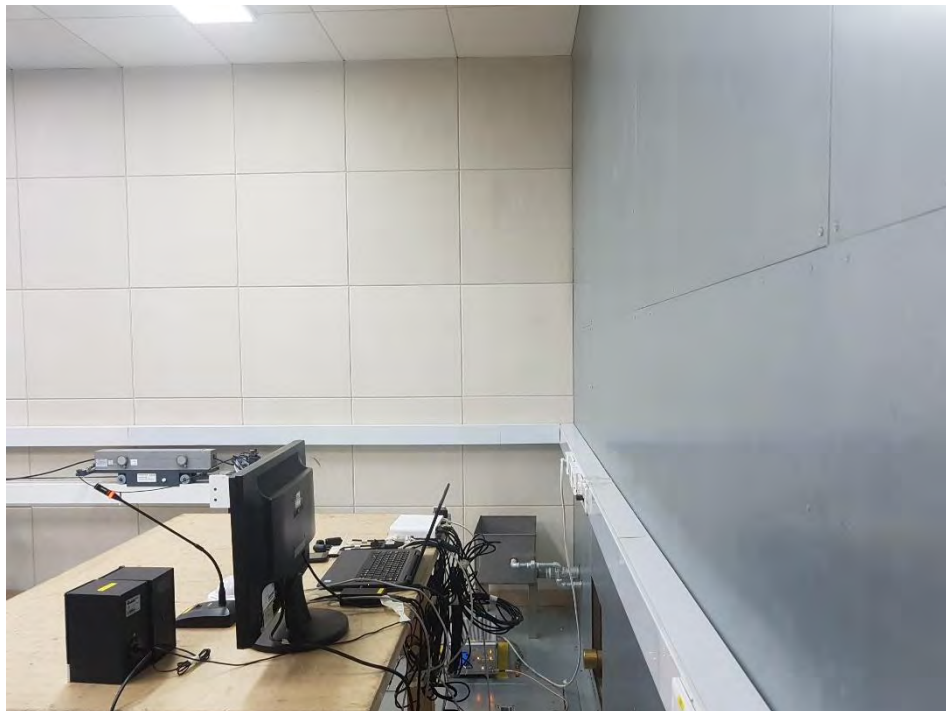
Flicker Measurements					
	Plt	Max Pst	Max Dc	Max Dmax	Max Tmax
Line 1:	0.028	0.028	0	< 0.2	0
Limits:	0.65	1	3.3	4	0.5
Results:	PASS	PASS	PASS	PASS	PASS

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Test Setup Photos and Configuration

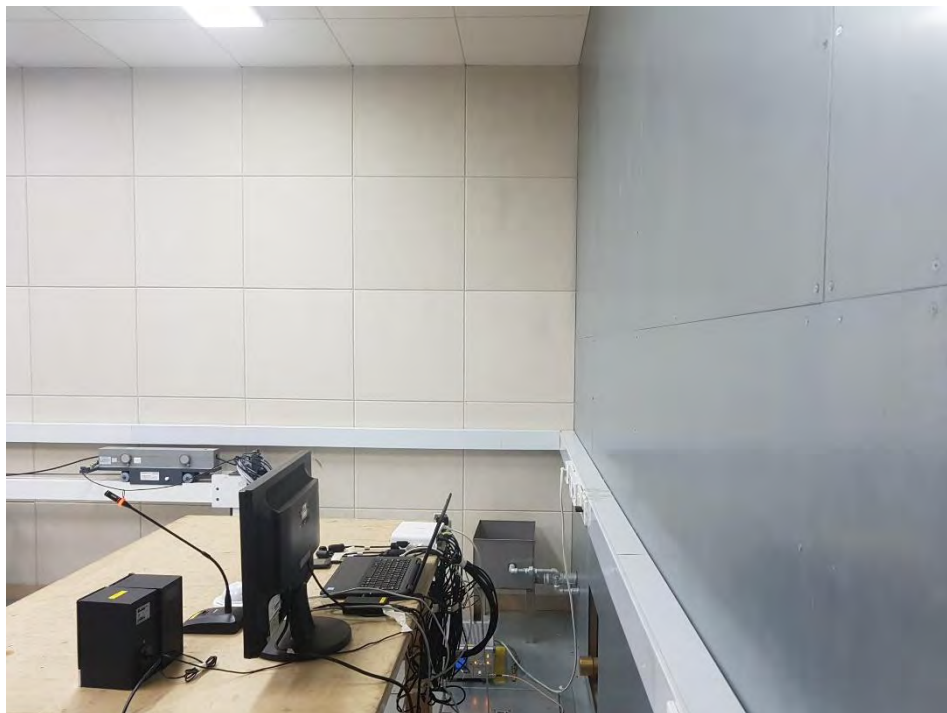
Conducted Emissions at Mains Power Ports

■ DC_CAMERA(1,2,3,4)



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■ DC_CAMERA(2,3,4,5)



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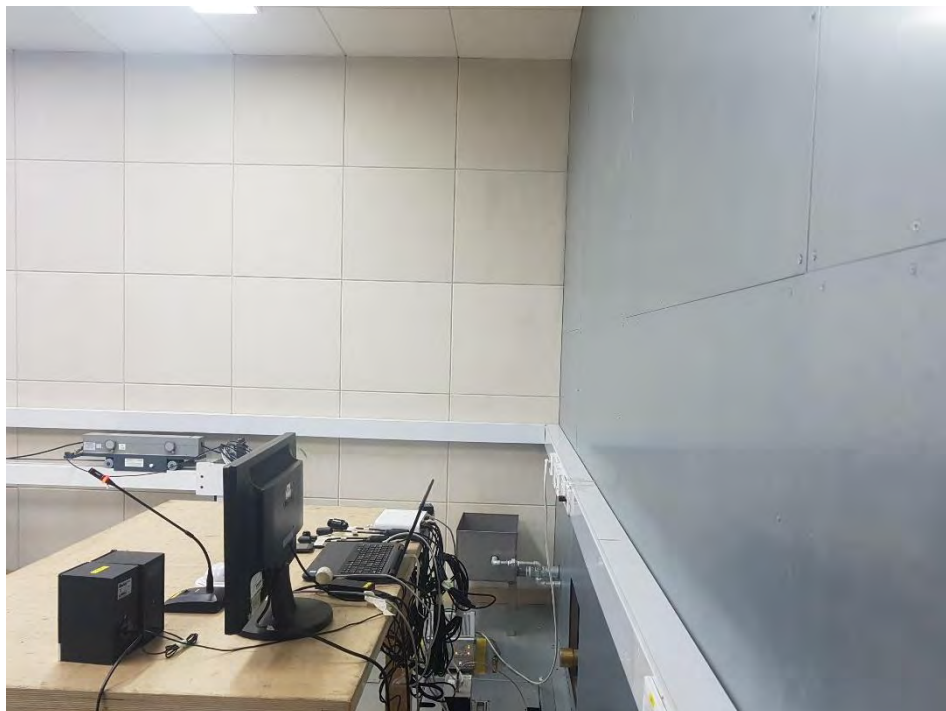
Conducted Emissions at Telecommunication Ports

■ DC_CAMERA(1,2,3,4)

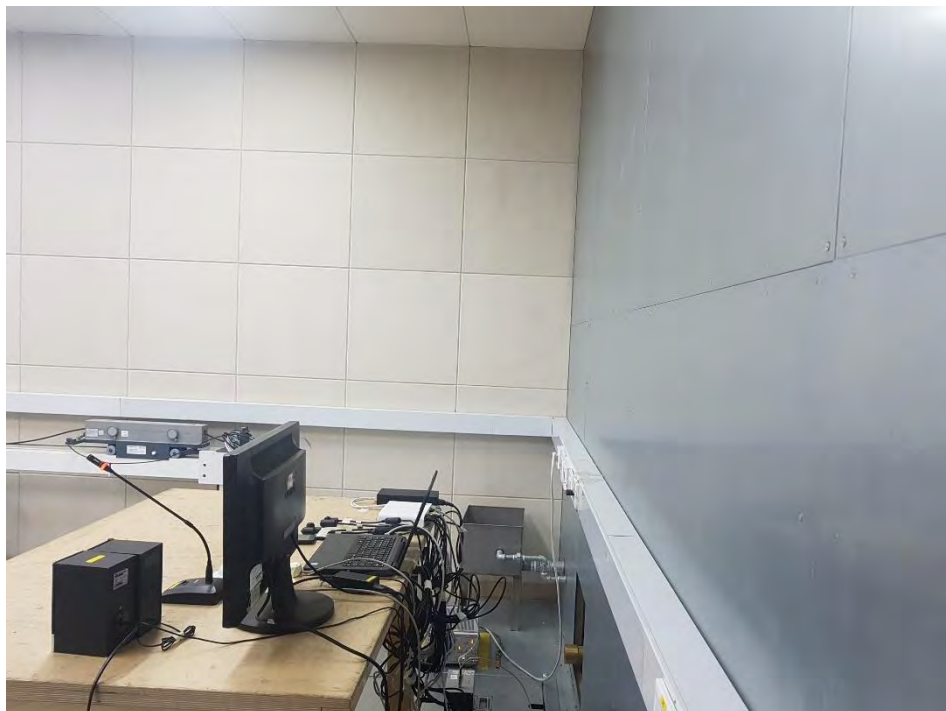


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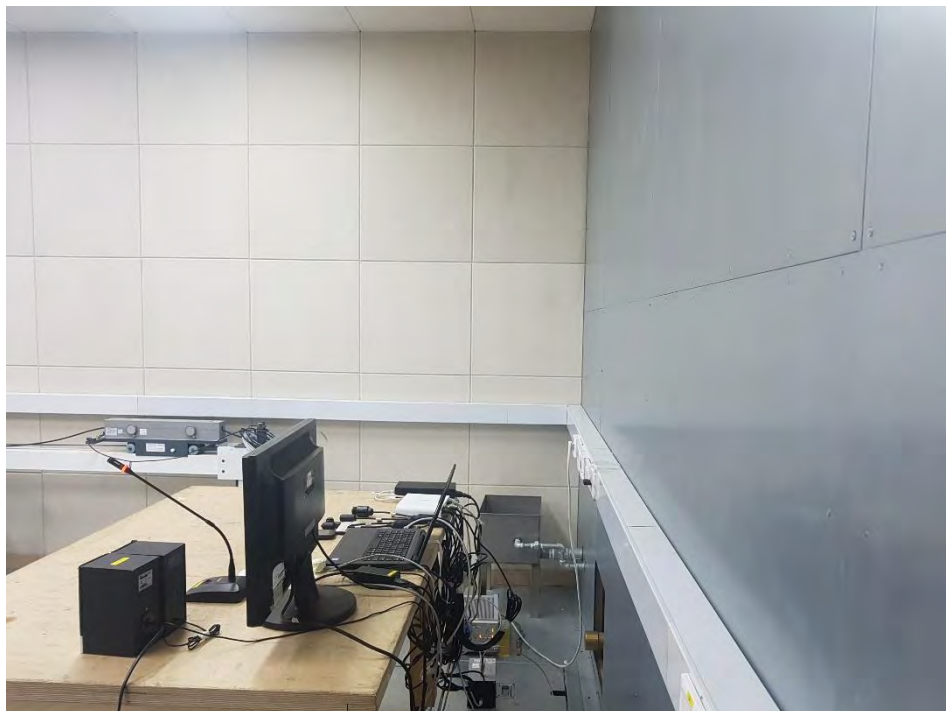
■ DC_CAMERA(2,3,4,5)



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■ PoE_CAMERA(1,2,3,4)

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■ PoE_CAMERA(2,3,4,5)

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Radiated Electric Field Emissions(Below 1 GHz)

■ DC_CAMERA(1,2,3,4)



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■ DC_CAMERA(2,3,4,5)

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■ PoE_CAMERA(1,2,3,4)

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■ PoE_CAMERA(2,3,4,5)

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Radiated Electric Field Emissions(Above 1 GHz)

■ DC_CAMERA(1,2,3,4)



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■ DC_CAMERA(2,3,4,5)

■ PoE_CAMERA(1,2,3,4)

■ PoE_CAMERA(2,3,4,5)

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Harmonic Current Emissions and Voltage Fluctuations and Flicker

■ DC_CAMERA(1,2,3,4)



■ DC_CAMERA(2,3,4,5)



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Electrostatic Discharge

■ DC_CAMERA(1,2,3,4)

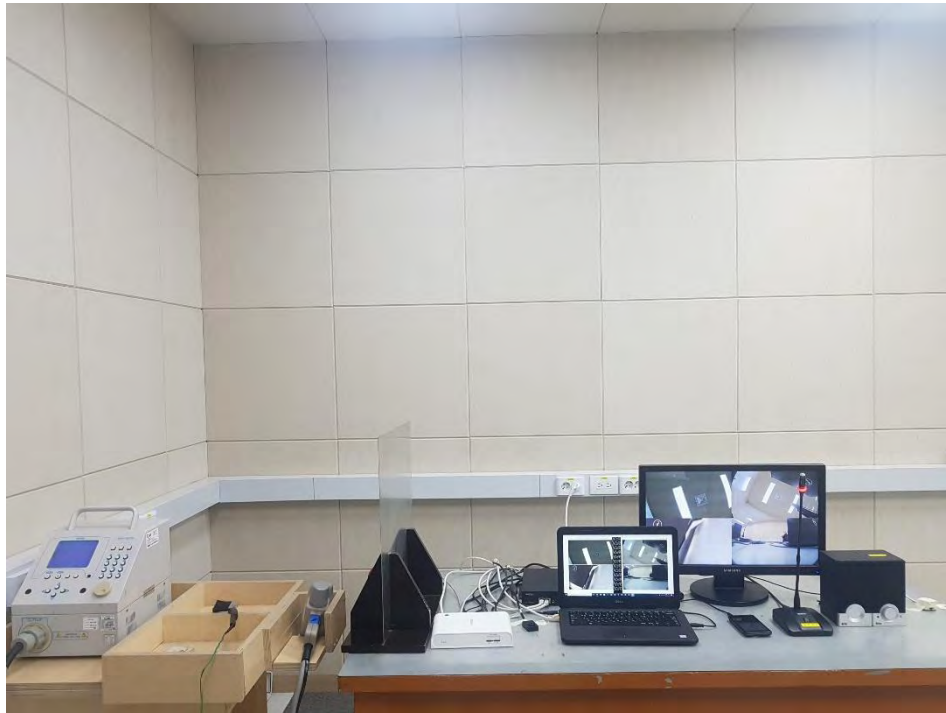


■ DC_CAMERA(2,3,4,5)



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■ PoE_CAMERA(1,2,3,4)



■ PoE_CAMERA(2,3,4,5)



Radiated Electric Field Immunity

■ DC_CAMERA(1,2,3,4)



■ DC_CAMERA(2,3,4,5)



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■ PoE_CAMERA(1,2,3,4)



■ PoE_CAMERA(2,3,4,5)



Electrical Fast Transients/Bursts

■ DC_CAMERA(1,2,3,4)



■ DC_CAMERA(2,3,4,5)



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■ PoE_CAMERA(1,2,3,4)



■ PoE_CAMERA(2,3,4,5)



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Surge Transients

■ DC_CAMERA(1,2,3,4)



■ DC_CAMERA(2,3,4,5)



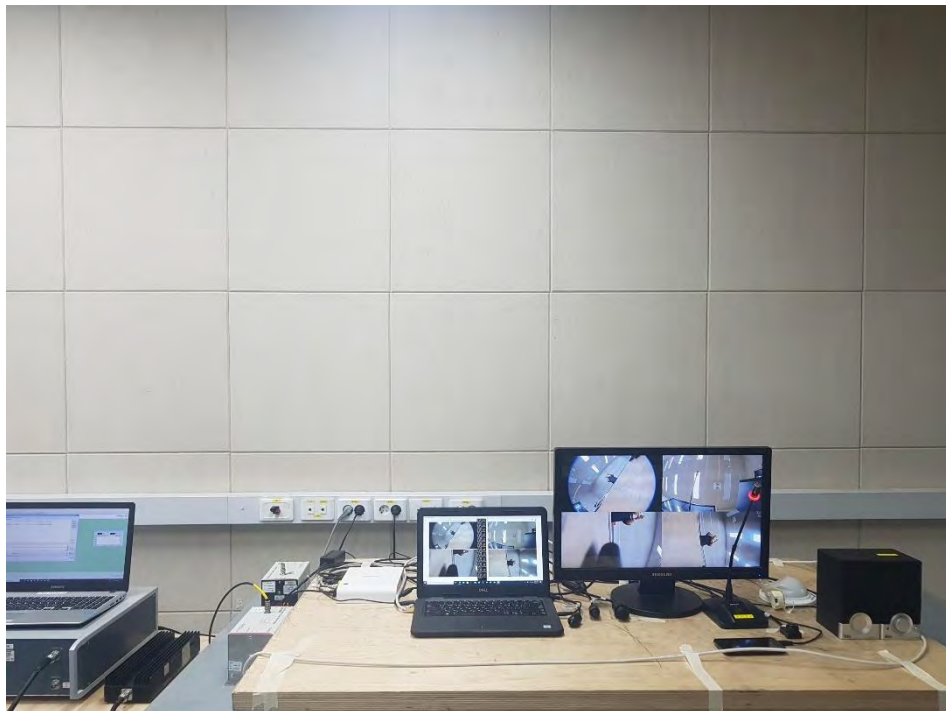
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Conducted Disturbance

■ DC_CAMERA(1,2,3,4)



■ DC_CAMERA(2,3,4,5)

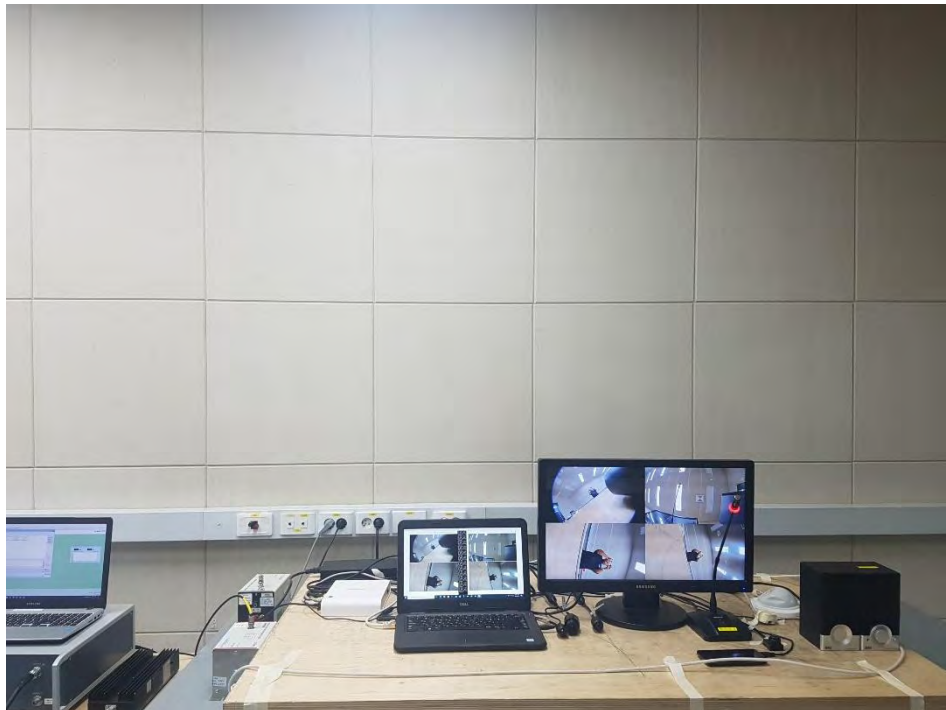


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■ PoE_CAMERA(1,2,3,4)



■ PoE_CAMERA(2,3,4,5)



Voltage Dips and Short Interruptions

■ DC_CAMERA(1,2,3,4)



■ DC_CAMERA(2,3,4,5)



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EUT External Photographs

(Top)



(Bottom)



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EUT Internal Photographs

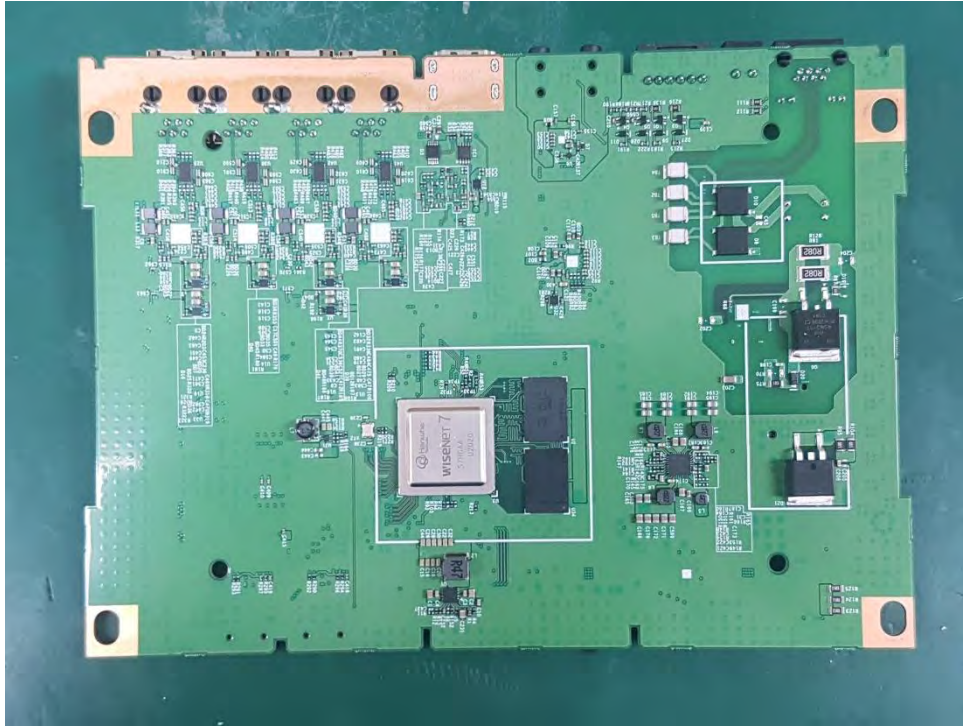
(Internal View)



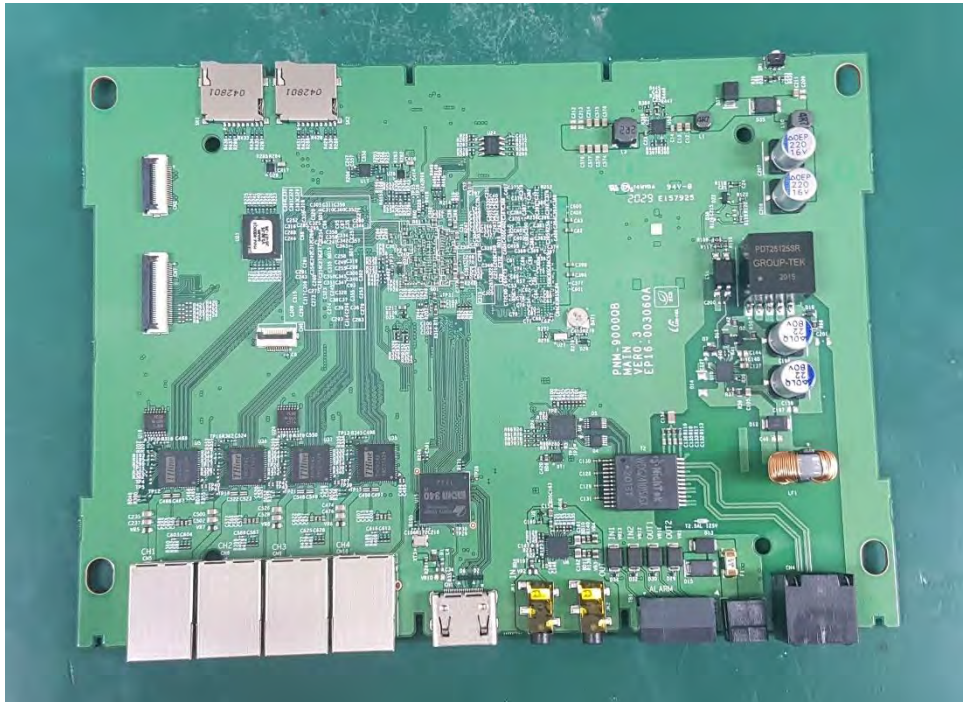
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EUT Internal View – Main Board

(Top)



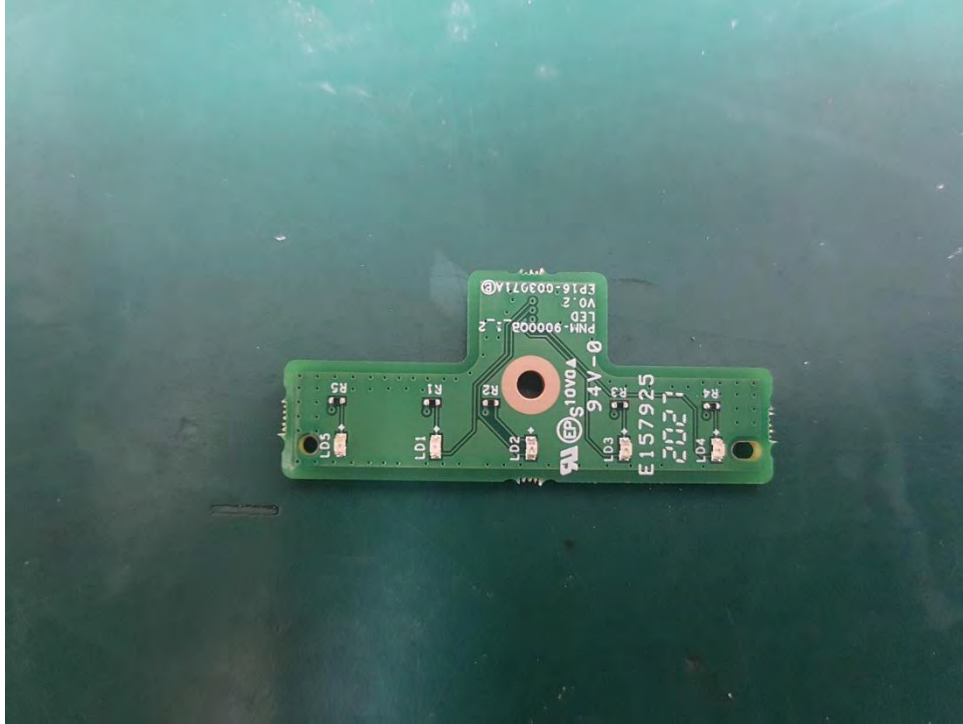
(Bottom)



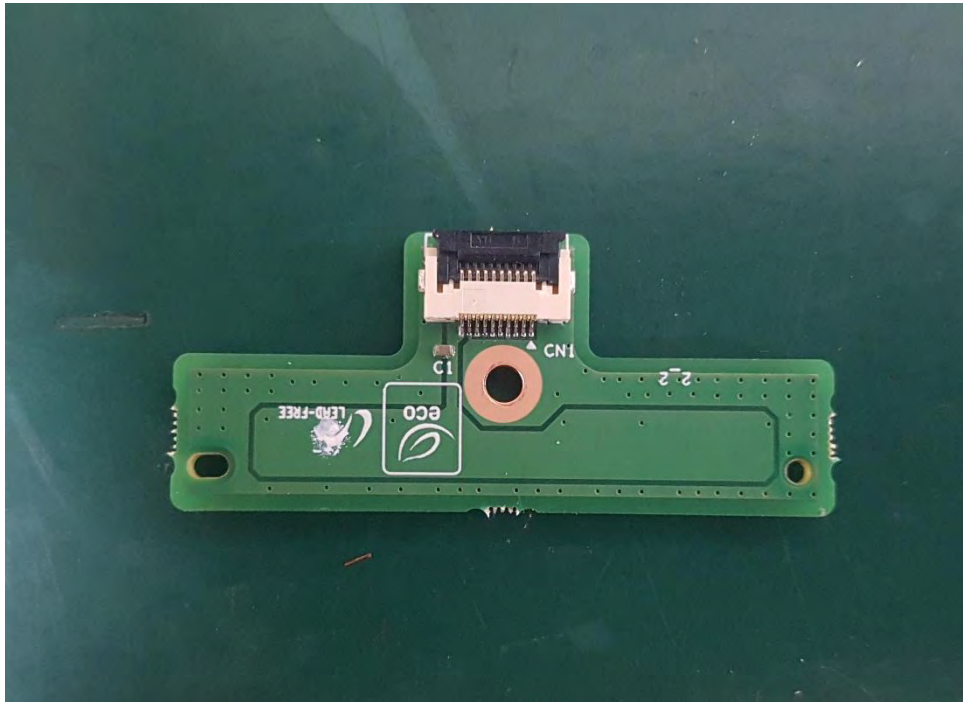
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EUT Internal View – SUB Board

(Top)

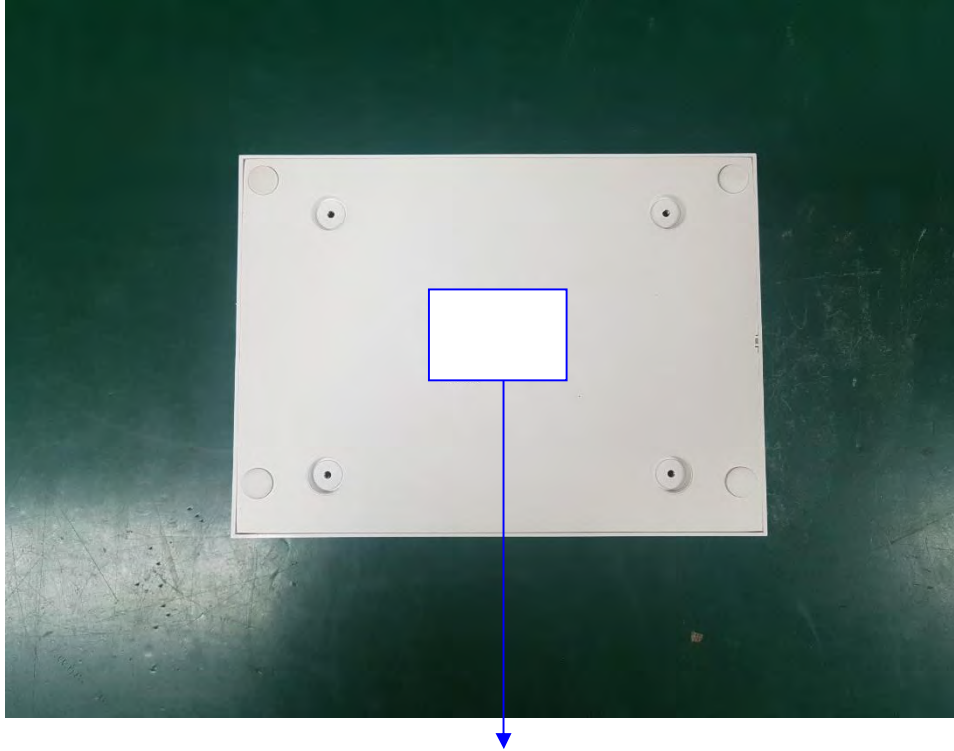


(Bottom)



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Label and Location



NETWORK CAMERA

Model No : PNM-9000QB

Manufacturer : HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.

Made in Vietnam

