



EMC TEST REPORT

Test Report No. : KES-EM-23T0448
Date of Issue : May. 31, 2023
Product name : Network Camera
Model/Type No. : PNM-C34404RQPZ
Variant Model : -
Applicant : Hanwha Vision Co., Ltd
Applicant Address : 6, Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si,
Gyeonggi-do, Republic of Korea
Manufacturer : 1. HANWHA VISION VIETNAM COMPANY LIMITED
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 : Apr. 26, 2023
Test date : May. 04, 2023 ~ May. 09, 2023
Test Results : ☒ In Compliance ☐ Not in Compliance

Tested by

Dong Yun, Lee
EMC Test Engineer

Reviewed by

Dae Jung, Choi
EMC Technical Manager

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



KES Co., Ltd.

3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
May. 31, 2023	KES-EM-23T0448	Issued

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1.0 General Product Description

Main Specifications of EUT are:

PNM-C34404RQPZ		
Spec Display Name	4CH camera	PTZ
Video		
Imaging Device	1/2.8" CMOS	
Resolution	3940x2160, 3328x1872, 3072x1728, 2592x1944, 2688x1520, 1920x1080, 1600x1200, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240	1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240
Max. Framerate	(TBD) H.265/H.264: 4K Max. 20fps/16.7fps(60Hz/50Hz) (TBD) MJPEG: 4K Max. 20fps/16.7fps(60Hz/50Hz) (TBD)	H.265/H.264: 2MP Max. 60fps/50fps(60Hz/50Hz) MJPEG: 2MP Max. 30fps/25fps(60Hz/50Hz)
NETD	None	None
Pixel Size	None	None
Min. Illumination	(TBD) Color: 0.16Lux(F1.5, 1/30sec, 30IRE) BW: 0.016Lux(F1.5, 1/30sec, 30IRE), 0Lux(IR LED on)	Color: 0.05Lux(F1.6, 1/30sec, 30IRE) BW: 0.005Lux(F1.6, 1/30sec, 30IRE), 0Lux(IR LED on)
Video Out	None	
Lens		
Focal Length (Zoom Ratio)	3.3~5.7mm(1.7x) motorized varifocal	4.25~170mm(40x) zoom (digital 32x, total 1280x zoom)
Max. Aperture Ratio	F1.5(Wide)~F1.9(Tele)	F1.6(Wide)~F4.95(Tele)
Angular Field of View	H: 108.3°(Wide)~56.4°(Tele) V: 54.7°(Wide)~31.2°(Tele) D: 135.5°(Wide)~65.2°(Tele)	H: 65.66°(Wide)~1.88°(Tele) V: 39.40°(Wide)~1.09°(Tele) D:
Min. Object Distance	Wide : 1.3m ; Tele : 3.3m	3m(9.84ft)
Focus Control	Simple focus	Oneshot AF, Focus save
Lens Type	Fixed iris	DC-auto iris
Mount Type	None	
Optional Lens	None	
Pan / Tilt / Rotate		
Pan / Tilt / Rotate Range	(TBD) Remote adjustment (Max. 200cycles) (PTRZ) Pan : (All) 0~360° (Each) ±90° Tilt : (Without Shield IR) 25° ~81° (With Shield IR) 25° ~50° Rotate : 0~90°	None
Pan Range	None	360° Endless
Pan Speed	None	Max. 700°/sec, Manual: 0.024°/sec~250°/sec
Tilt Range	None	110°(-20°~90°)
Tilt Speed	None	Max. 500°/sec, Manual: 0.024°/sec~250°/sec
Rotate Range	None	None
Sequence	None	Preset(300ea), Swing, Group(6ea), Trace, Tour, Auto Run, Schedule
Preset Accuracy	None	Up to ±0.1°, Pan/Tilt correction
Operational		
Camera Title	Displayed up to 85 characters	
Direction Indicator	None	Support
Day & Night	Auto(ICR)	
Backlight Compensation	BLC, WDR, SSDR	BLC, HLC, WDR, SSDR
Wide Dynamic Range	WDR(120dB)	WDR(150dB)
Digital Noise Reduction	SSNRV, WiseNR II	
Digital Image Stabilization	None	Support
Defog	Support(TBD)	Support
Motion Detection	8ea, 8point polygonal zones	
Privacy Masking	6ea, 4point quadrangle zones - Color: Grey/Black/White	32ea, 4point quadrangle zones - Color: Grey/Green/Red/Blue/Black/White - Mosaic
Gain Control	Low / Middle / High	
White Balance	ATW / AWC / Manual / Indoor / Outdoor	
LDC	Support	None
Electronic Shutter Speed	Minimum / Maximum / Anti flicker(2~1/12,000sec) Auto prefer shutter control(Based on AI engine)	
Digital PTZ	None	
Video Rotation	Flip, Mirror, Halfway view(90°)	Flip, Mirror
Analytics	Classified object type: Person/Face/Vehicle/License plate Attributes: Vehicle(Type: car/bus/truck/motorcycle/bicycle) Support Bestshot Analytics events based on AI engine - Object detection, Virtual line(Crossing/Direction), Virtual area(Loitering/Intrusion/Enter/Exit) Analytics events - Defocus detection, Motion detection, Tampering, Virtual area(Appear/Disappear) * Support Audio detection, Sound classification via optional SPM-4210 I/O box	Directional detection, Fog detection, Face detection , Motion detection, Appear/Disappear, Enter/Exit, Loitering, Tampering, Virtual line, Shock detection * Audio detection, Sound classification(with NW I/O Box)
Business Intelligence	None	
Serial Interface	None	None
Alarm I/O	* Alarm In/Out (with NW I/O Box)	
Alarm Triggers	Analytics, Network disconnect, Alarm input(with NW I/O Box)	

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3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
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Alarm Triggers	Analytics, Network disconnect, Alarm input(with NW I/O Box)	
Alarm Events	When alarm trigger occurred	
Audio In	*with NW I/O Box	
Audio Out	*with NW I/O Box	
IR Viewable Length	20m(65.62ft)	WiseIR 200m(656.17ft)
IR Illuminator (Optional)	None	None
Water Removal	None	Support(Spinning dry)
Auto Tracking	None	Object auto tracking(Person/Vehicle), Target lock tracking
Color Palettes	None	None
Radiometry		
Temperature detect range	None	None
Temperature accuracy	None	None
Temperature detection	None	None
Additional	None	None
Network		
Ethernet	Metal shielded RJ-45(10/100/1000BASE-T)	Metal shielded RJ-45(10/100BASE-T)
Video Compression	H.265/H.264: Main/High, MJPEG	H.265/H.264: Main/Baseline/High, MJPEG
Audio Compression	None	
Smart Codec	Manual(Sea area), WiseStreamII, WiseStreamIII(Based on AI engine)	
Video Quality Adjustment	H.264/H.265: Target bitrate level control MJPEG: Target bitrate level control	
Bitrate Control	H.264/H.265: CBR or VBR MJPEG: VBR	
Streaming	Unicast(10 users) / Multicast Multiple streaming(Up to 3 profiles)	Unicast(20 users) / Multicast (128 user) 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, SRTP	
Security	TPM 2.0 (FIPS 140-2 level 2) (Preferred FIPS 140-3) HTTPS(SSL) login authentication Digest login authentication IP address filtering User access log 802.1X authentication(EAP-TLS, EAP-LEAP, EAP-PEAP MSCHAPv2) Device certificate(Hanwha Techwin Root CA, pre-installed) Secure by default certificate Secure OS/Boot/Storage, Verify firmware forgery	
Application Programming Interface	ONVIF Profile S/T/M ONVIF Profile G (TBD) SUNAPI(HTTP API)	ONVIF Profile S/T/G/M (TBD) SUNAPI(HTTP API) Wisenet open platform

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General		Environmental & Electrical	
Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Portuguese, Czech, Polish, Turkish, Dutch, Hungarian, Greek		
Edge Storage	(TBD) Micro SD/SDHC/SDXC 2slots 1TB (512GB x 2)		
Memory	8GB RAM, 512MB Flash (TBD)	4GB RAM, 512MB Flash	
Environmental & Electrical			
Operating Temperature / Humidity	-40°C ~ +50°C(-40°F ~ +122°F) +74°C(+165°F)(MAX) based on NEMA-TS 2(2.2.7) + Start up should be done at above -30°C 0 ~ 95% RH(non-condensing)		
Storage Temperature / Humidity	-50°C ~ +60°C(-58°F ~ +140°F) / 0 ~ 90% RH		
Certification	IP66, IK10, NEMA4X		
Input Voltage	HPoE(IEEE802.3bt type 4, Class B) + WisePower		
Power Consumption	(TBD) HPoE: Max **.*W, typical **.*W		
Mechanical			
Color / Material	White / Aluminum		
RAL Code	RAL9003		
Product Dimensions / Weight	PNM-9322VQP design with XNP-6400R PTZ (TBD) Weight of the camera + SBP-156HMMW = 10kg or less		
Compatible Conduit hole / Gangbox	None		
Hanging mount(Dome)	None		
Skin cover(Dome)	None		
Weather cap(Dome)	None		
Power module	None		
Backbox	None		
Certifications & Standards			
Network	None		
EMC	EN 50121-4 FCC 47 CFR 15 Subpart B Class A		
Safety	UL 62368-1, CAN/CSA C22.2 NO, 62368-1 IEC 62471		
Environment	EN IEC 63000 IEC 60529 IP66/IP67, IEC 62262 IK10		
Video	None		
DORI (EN62676-4 standard)			
Detect (25PPM/ 8PPF)	Wide: 200.1m(656.40ft) / Tele: 583.4m(1913.89ft)	Wide: 59.5m(195.3ft) / Tele: 2340.4m(7678.4ft)	
Observe (63PPM/ 19PPF)	Wide: 80.0m(262.56ft) / Tele: 233.3m(765.56ft)	Wide: 23.8m(78.1ft) / Tele: 936.2m(3071.4ft)	
Recognize (125PPM/ 38PPF)	Wide: 40.0m(131.28ft) / Tele: 116.7m(382.78ft)	Wide: 11.9m(39.1ft) / Tele: 466.1m(1535.7ft)	
Identify (250PPM/ 76PPF)	Wide: 20.0m(65.64ft) / Tele: 58.3m(191.39ft)	Wide: 6.0m(19.5ft) / Tele: 234.0m(767.8ft)	

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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.

☒ AC 230 V, 60 Hz (PoE)

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-C34404RQPZ	-	HANWHA VISION VIETNAM COMPANY LIMITED	EUT
PoE Injector	PT-PSE109GBRO- AH-S	-	Dongguan PROCET Network Technology Co., Ltd	EUT

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Micro SD Card	-	-	SanDisk	16 GB
Laptop 1	Latitude 5300	8C47BE45C060	DELL INC.	-
Laptop Adapter 1	HA65NM130	-	Chicony Power Technology (Suzhou)Co.,Ltd.	-
Laptop 2	P95G001	9JM8HT2	DELL INC.	-
Laptop Adapter 2	HA65NM130	-	Chicony Power Technology (Suzhou)Co.,Ltd.	-
SFP Module 1	AXM761	-	NETGEAR	-
SFP Module 2	AXM761	-	NETGEAR	-
Optical Converter	SFC2000-SFP	-	SOLTECH	-
Optical Converter Adapter	FJ-SW126050200DK	-	SHENZHEN FUJIA APPLIANCE CO., LTD.	-
Ground	-	-	-	-

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1.6 External I/O Cabling

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
Network Camera (EUT)	Micro SD Card Slot	Micro SD Card	Micro SD Card Slot	-	-
	RJ-45 (PoE)	PoE Injector (EUT)	RJ-45 (PoE)	2.0	S
PoE Injector (EUT)	RJ-45 (LAN)	Laptop 1	RJ-45 (LAN)	4.0	S
	SFP Slot	SFP Module 1	SFP Slot	-	-
	-	Ground	-	1.5	-
SFP Module 1	LC	SFP Module 2	LC	3.0	-
Optical Converter	SFP Slot	SFP Module 2	SFP Slot	-	-
	DC Jack	Optical Converter Adapter	DC Jack	1.5	S
	RJ-45	Laptop 2	RJ-45	3.5	S
Laptop 1	DC Jack	Laptop Adapter 1	DC Jack	1.6	U
Laptop 2	DC Jack	Laptop Adapter 1	DC Jack	1.6	U

* Unshielded=U, Shielded=S

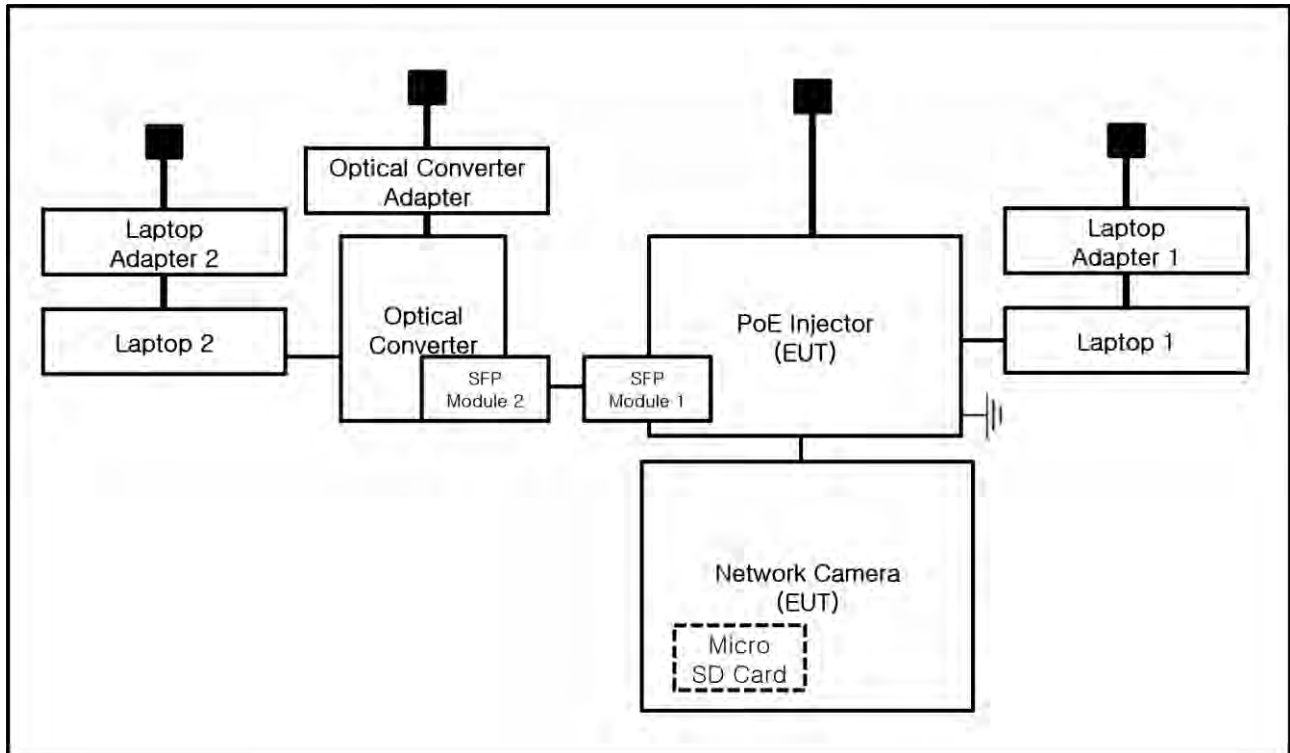
1.7 EUT Operating Mode(s)

Test Mode	operating
Operation	1. Check if the EUT image is output to the laptop normally. 2. Check if the network is operating normally through a ping test. 3. After the test, check if the EUT video has been recorded normally. 4. Check the recorded video using the Micro SD card

EUT Test operating S/W		
Name	Version	Manufacture Company
Web Viewer	-	Hanwha Vision Co., Ltd.

1.8 Configuration

■ AC Main
□ DC Main



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, Republic of. The sites are constructed in conformance with the requirements of ANSI C63.4a-2017 and CISPR 16-1-4:2019

1.12 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
KOREA	RRA	EMI (3 m & 10 m Semi-Anechoic Chamber 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 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
JAPAN	VCCI	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site)	 C-20136, T-20137, R-20181, G-20176
Europe	TÜV SÜD	EMI (3 m & 10 m Semi-Anechoic Chamber 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 55032:2015/A11:2020

☒ Class A

☐ Class B

☒ EN 50130-4:2011

☒ EN 61000-3-2:2014

☒ EN 61000-3-3:2013

☒ **EMC – Regulations 2016**

☒ EN 55032:2015/A11:2020

☒ Class A

☐ Class B

☒ EN 50130-4:2011

☒ EN 61000-3-2:2014

☒ EN 61000-3-3:2013

2.1 Conducted Emissions at Mains Power Ports

Test Date

May. 04, 2023

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	11, 11, 2023
☒	LISN	ENV216	R & S	101787	11, 10, 2023
☒	LISN	ESH2-Z5	R & S	100450	11, 10, 2023
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 10, 2023

Test Conditions

Temperature: (23,0 ± 0,1) °C

Relative Humidity: (43,7 ± 0,1) % 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

RemarksSee Appendix A for test data.

2.2 Conducted Emissions at Telecommunication Ports

Test Date

May. 04, 2023

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	11, 11, 2023
☒	LISN	ENV216	R & S	101787	11, 10, 2023
☒	LISN	ESH2-Z5	R & S	100450	11, 10, 2023
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 10, 2023
☒	ISN	ISN S8	SCHWARZBECK	ISN-S8-0019	03, 06, 2024
☐	CDN	CDNS502A	TESEQ	40431	11, 10, 2023

Test Conditions

Temperature: (23,0 ± 0,1) °C

Relative Humidity: (43,7 ± 0,1) % 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.
- For Ethernet interfaces, measurements are required at the highest data rate supported by the interface.

2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

May. 04, 2023

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	03, 21, 2024
☒	AMPLIFIER	SCU 01	R & S	100603	11, 10, 2023
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	11, 17, 2024
☒	ATTENUATOR	8491A	HP	32173	03, 03, 2024

Test Conditions

Temperature: (23,4 ± 0,2) °C
Relative Humidity: (42,6 ± 0,1) % 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

May. 07, 2023

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, 01, 2023
☒	PREAMPLIFIER	8449B	AGILENT	3008A01967	03, 06, 2024
☒	ATTENUATOR	8491A	HP	35496	03, 03, 2024
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	03, 06, 2024

Test Conditions

Temperature: (23,5 ± 0,2) °C

Relative Humidity: (44,0 ± 0,2) % 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

RemarksSee Appendix A for test data.

2.5 Harmonic Current Emissions

Test Date

May. 08, 2023

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	03, 27, 2024
☒	POWER SOURCE	ACS 500N6	EM TEST	V1024106760	-

Test Conditions

Temperature: (22,2 ± 0,1) °C

Relative Humidity: (44,2 ± 0,1) % 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

May. 08, 2023

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	03, 27, 2024
☒	POWER SOURCE	ACS 500N6	EM TEST	V1024106760	-

Test Conditions

Temperature: (22,2 ± 0,3) °C

Relative Humidity: (44,2 ± 0,2) % 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

May. 09, 2023

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	ESS01Z0454	01, 31, 2024
☒	HCP	-	KES	-	-
☒	VCP	-	Noise Ken	-	-

Test Conditions

Temperature: (22,0 ± 0,2) °C
Relative Humidity: (42,8 ± 0,2) % R.H.
Atmospheric Pressure: (100,2 ± 0,0) 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

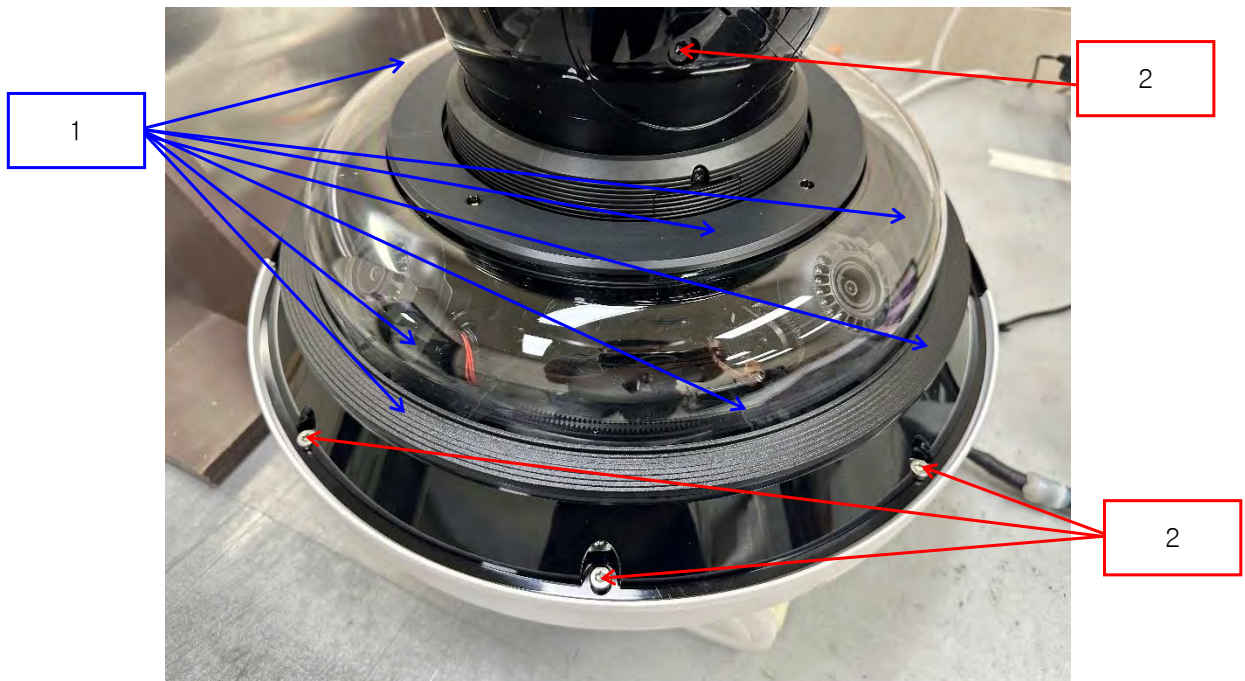
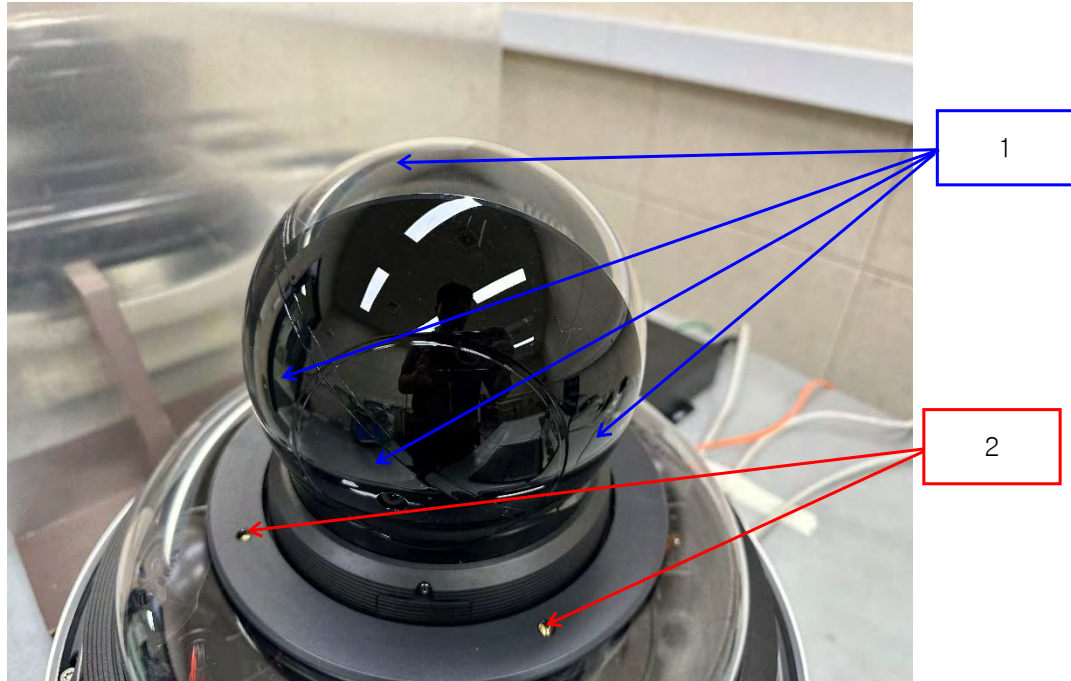
Discharge Voltage:	Contact	Air	HCP	VCP
	☐ 2 kV	☒ 2 kV	☐ 2 kV	☐ 2 kV
	☐ 4 kV	☒ 4 kV	☐ 4 kV	☐ 4 kV
	☒ 6 kV	☐ 6 kV	☒ 6 kV	☒ 6 kV
	☐ 8 kV	☒ 8 kV	☐ 8 kV	☐ 8 kV
	☐ 15 kV	☐ 15 kV	☐ 15 kV	☐ 15 kV

Notes: HCP: Horizontal coupling plane
VCP: Vertical coupling plane

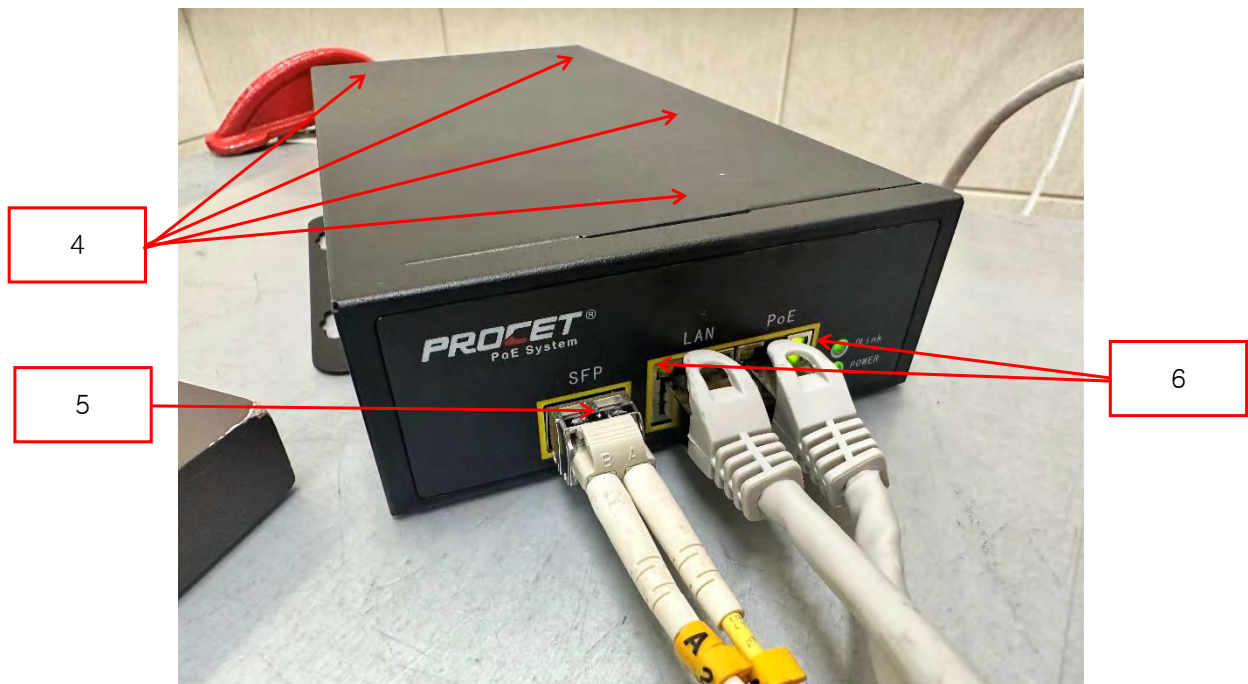
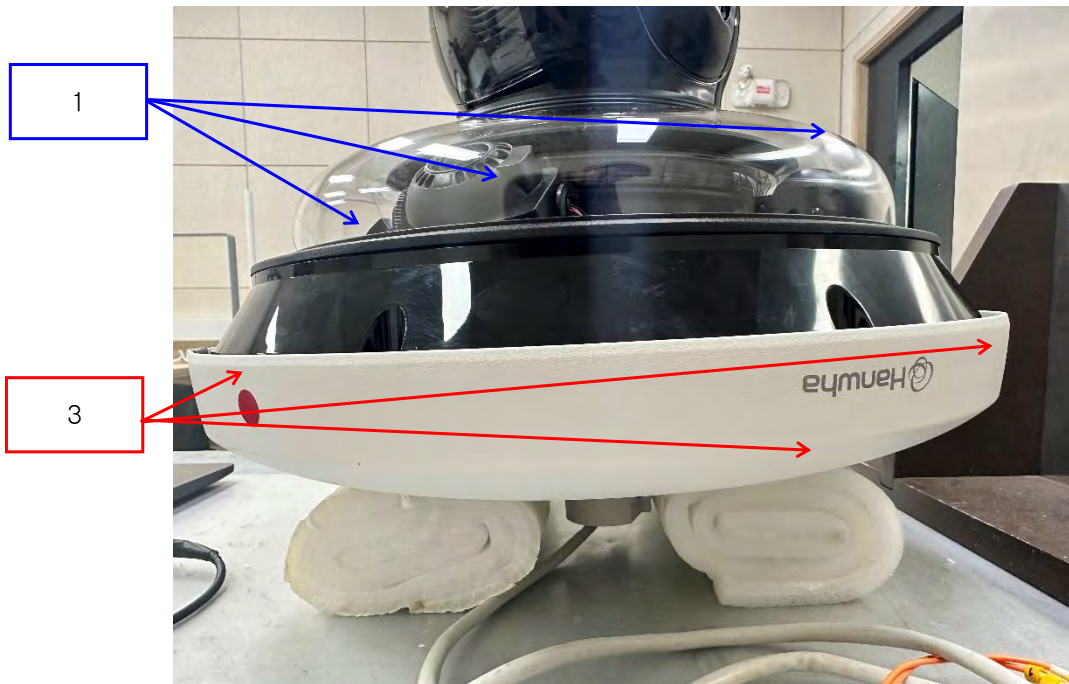
Required Performance Criteria: ☒ Complied

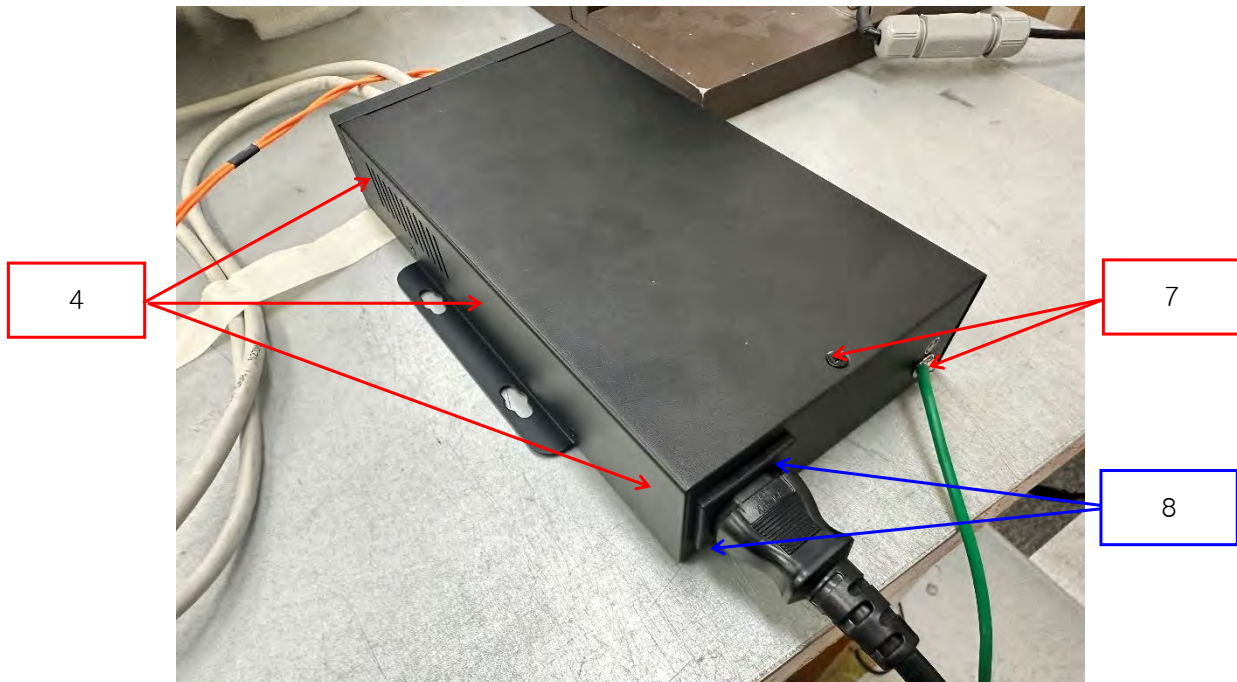
Location of Discharge:

Air
Contact



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3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
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Test Data

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	Lens Cover	Air Discharge	Complied	-
2	Screw	Contact Discharge	Complied	-
3	Enclosure	Contact Discharge	Complied	-
4	PoE Enclosure	Contact Discharge	Complied	-
5	SFP Module	Contact Discharge	Complied	-
6	RJ-45 Ports	Contact Discharge	Complied	-
7	PoE Screw	Contact Discharge	Complied	-
8	PoE Power 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 IEC 61000-4-3:2020

Test Date

May. 07, 2023

Test LocationEMS-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	10.10.02	-
☒	SIGNAL GENERATOR	SMB 100A	Rohde & Schwarz	108252	08, 01, 2023
☒	HIGH POWER DUAL AMP	SSA532	SUNGSAN	SSA532-001	-
☒	POWER METER	E4419B	Agilent	GB40203000	03, 21, 2024
☒	AVERAGE POWER SENSOR	E9301A	Agilent	MY52170007	03, 21, 2024
☒	AVERAGE POWER SENSOR	E9301A	Agilent	MY41498669	03, 21, 2024
☒	STACKED DOUBLE LOG-PER- ANTENNA	STPL9128 E	Schwarzbeck	9128ES-121	-
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM, INC	781	03, 06, 2024

Test Conditions

Temperature: (23,5 ± 0,4) °C
Relative Humidity: (44,0 ± 0,3) % R.H.
Atmospheric Pressure: (100,8 ± 0,0) kPa



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Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
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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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Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
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Test Data

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

RemarksPASS Required Performance Criteria

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3.3 Electrical Fast Transients / Bursts

Reference Standard

EN 61000-4-4:2012

Test Date

May. 09, 2023

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	5.4.8	-
☒	ULTRA COMPACT SIMULATOR	UCS 500N7	EM TEST	P1608172950	11, 28, 2023
☒	MOTOR VARIAC	MV2616	EM TEST	P1552169719	11, 29, 2023
☒	CAPACITIVE COUPLING CLAMP	HFK	EM TEST	P1633183115	11, 28, 2023

Test ConditionsTemperature: (22,0 ± 0,2) °C
Relative Humidity: (42,8 ± 0,1) % R.H.
Atmospheric Pressure: (100,2 ± 0,0) kPa**Test Specifications**Pulse Amplitude & Polarity: ☐ ± 1.0 kV ☒ ± 2.0 kV
(AC Power Lines) ☐ ± 4.0 kVPulse Amplitude & Polarity: ☐ ± 0.5 kV ☒ ± 1.0 kV
(Other supply / Signal Lines) ☐ ± 2.0 kVBurst Period: ☒ 300 ms ☐ 2 sRepetition Rate: ☐ 5 kHz ☒ 100 kHzDuration of Test Voltage: ☒ ≥ 1 minRequired Performance Criteria: ☒ Complied

Test Data

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

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

☐ 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 (LAN)	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/A1:2017

Test Date

May. 09, 2023

Test Location

EMS-Surge: Electro wave Shieldroom #7

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	iec.control	EM TEST	5.4.8	-
☒	ULTRA COMPACT SIMULATOR	UCS 500N7	EM TEST	P1608172950	11, 28, 2023
☒	MOTOR VARIAC	MV2616	EM TEST	P1552169719	11, 29, 2023
☒	CDN	CNV 508N1	EM TEST	P1610176296	11, 29, 2023

Test Conditions

Temperature: (22,0 ± 0,3) °C

Relative Humidity: (42,8 ± 0,2) % R.H.

Atmospheric Pressure: (100,2 ± 0,0) kPa



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3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
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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

Test Data

☒ 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	Complied	Complied
N – PE	Complied	Complied

Signal Lines

☒ Line to Earth – Common Mode

Mode of Application	Coupling Method	Observations	
		(+) Surge (kV)	(-) Surge (kV)
RJ-45 (LAN)	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

Remarks

PASS Required Performance Criteria

3.5 Conducted Disturbance

Reference Standard

EN 61000-4-6:2014

Test Date

May. 08, 2023

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	5.3.12	-
☒	CONTINUOUS WAVE SIMULATOR	CWS 500N1.4	EM TEST	P1602169880	11, 10, 2023
☒	ATTENUATOR	ATT 6/80	EM TEST	P1614178148	11, 10, 2023
☒	CDN	CDN M016	TESEQ	43694	11, 10, 2023
☒	CDN	CDN M016	TESEQ	43697	11, 10, 2023
☒	CDN	CDN ST08A	TESEQ	43886	11, 10, 2023
☐	EM CLAMP	KEMZ 801A	TESEQ	44099	11, 14, 2023

Test Conditions

Temperature: (22,3 ± 0,3) °C
Relative Humidity: (43,8 ± 0,2) % R.H.
Atmospheric Pressure: (100,8 ± 0,0) 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☒ Input a.c. power ports

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

RemarksPASS Required Performance Criteria

3.6 Voltage Dips and Short Interruptions

Reference Standard
EN IEC 61000-4-11:2020

Test Date
May. 09, 2023

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	5.4.8	-
☒	ULTRA COMPACT SIMULATOR	UCS 500N7	EM TEST	P1608172950	11, 29, 2023
☒	MOTOR VARIAC	MV2616	EM TEST	P1552169719	11, 29, 2023

Test Conditions

Temperature: (22,0 ± 0,1) °C
Relative Humidity: (42,8 ± 0,1) % R.H.
Atmospheric Pressure: (100,2 ± 0,0) kPa

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Test Specifications & Observations/Remarks**- 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

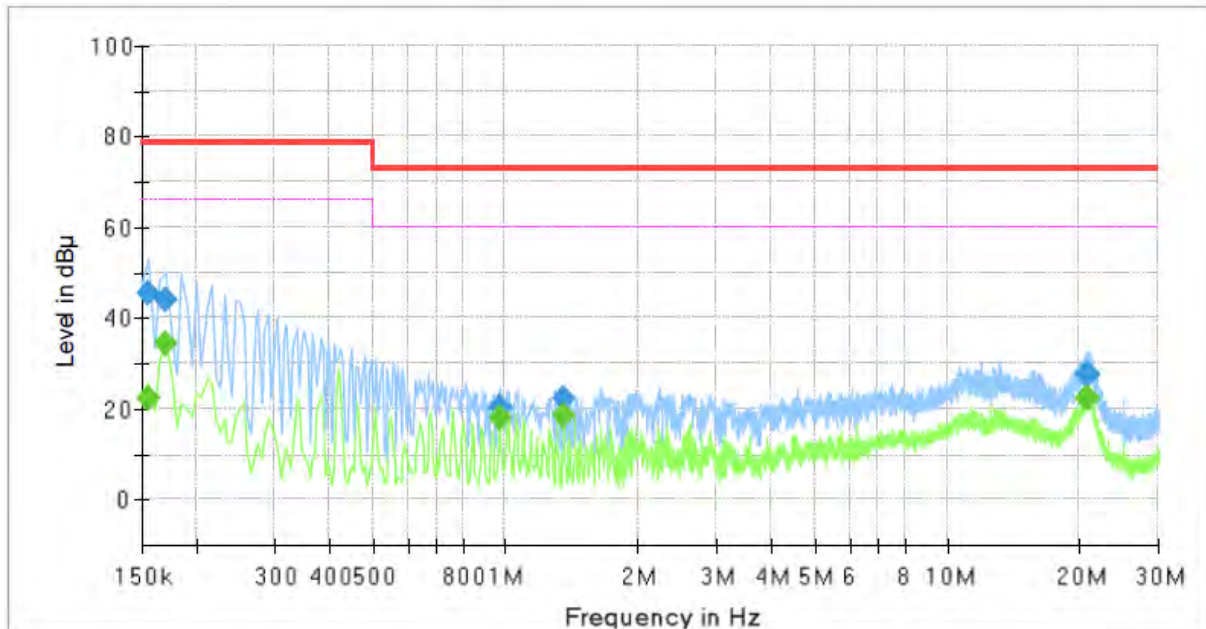
During the test(100%, 250cycle), EUT was turned off but after the test, it was recovered by no operator's intervention.

APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports [HOT]

Common Information

Test Description:	Conducted Emission
Model No.:	PNM-C34404RQPZ
Phase:	L1
Mode:	
Operator Name:	KES



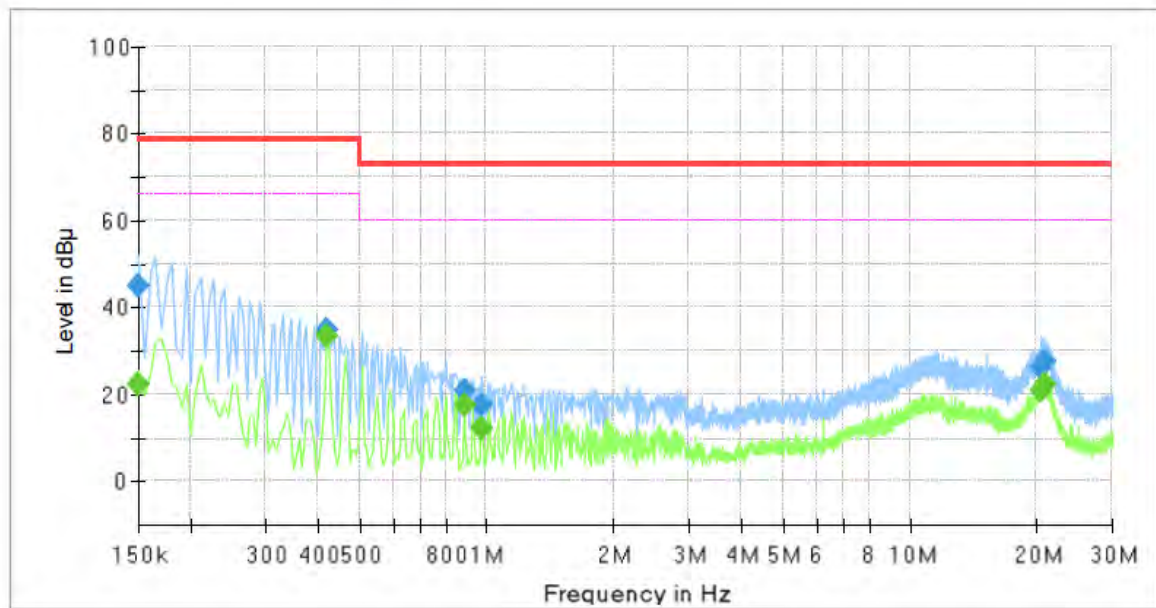
Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.155000	---	22.55	66.00	43.45	1000.0	9.000	L1	19.5
0.155000	45.52	---	79.00	33.48	1000.0	9.000	L1	19.5
0.170000	---	34.28	66.00	31.72	1000.0	9.000	L1	19.5
0.170000	43.84	---	79.00	35.16	1000.0	9.000	L1	19.5
0.970000	---	18.18	60.00	41.82	1000.0	9.000	L1	20.1
0.970000	20.61	---	73.00	52.39	1000.0	9.000	L1	20.1
1.345000	---	18.66	60.00	41.34	1000.0	9.000	L1	20.2
1.345000	22.13	---	73.00	50.87	1000.0	9.000	L1	20.2
20.625000	---	22.21	60.00	37.79	1000.0	9.000	L1	20.2
20.625000	27.46	---	73.00	45.54	1000.0	9.000	L1	20.2
20.790000	---	22.52	60.00	37.48	1000.0	9.000	L1	20.2
20.790000	27.83	---	73.00	45.17	1000.0	9.000	L1	20.2

[NEUTRAL]

Common Information

Test Description: Conducted Emission
Model No.: PNM-C34404RQPZ
Phase: N
Mode:
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	---	22.19	66.00	43.81	1000.0	9.000	N	19.4
0.150000	44.99	---	79.00	34.01	1000.0	9.000	N	19.4
0.420000	---	33.60	66.00	32.40	1000.0	9.000	N	19.6
0.420000	35.07	---	79.00	43.93	1000.0	9.000	N	19.6
0.885000	---	17.64	60.00	42.36	1000.0	9.000	N	20.0
0.885000	20.75	---	73.00	52.25	1000.0	9.000	N	20.0
0.975000	---	11.96	60.00	48.04	1000.0	9.000	N	20.1
0.975000	17.41	---	73.00	55.59	1000.0	9.000	N	20.1
20.345000	---	20.97	60.00	39.03	1000.0	9.000	N	20.2
20.345000	26.28	---	73.00	46.72	1000.0	9.000	N	20.2
20.740000	---	22.20	60.00	37.80	1000.0	9.000	N	20.2
20.740000	27.50	---	73.00	45.50	1000.0	9.000	N	20.2

◆ 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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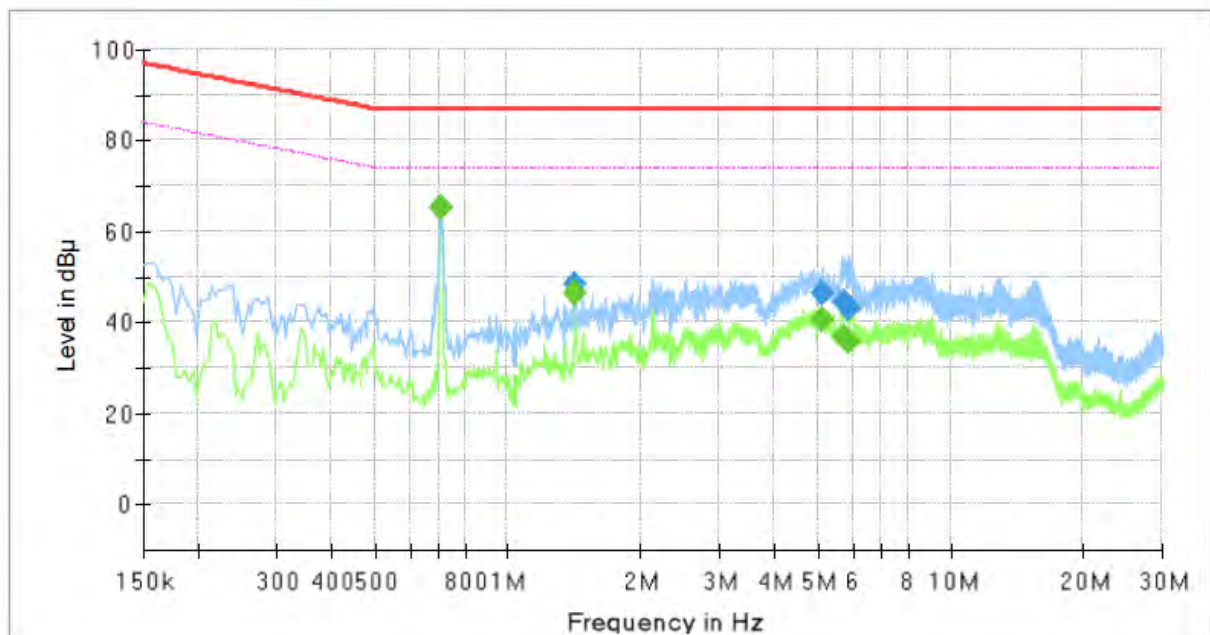
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Conducted Emissions at Telecommunication Ports [1 000 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	PNM-C34404RQPZ
Mode :	LAN
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)
0.706000	---	65.31	74.00	8.69	1000.0	9.000	Single Line	19.7
0.706000	65.47	---	87.00	21.53	1000.0	9.000	Single Line	19.7
1.414000	---	46.65	74.00	27.35	1000.0	9.000	Single Line	20.0
1.414000	48.35	---	87.00	38.65	1000.0	9.000	Single Line	20.0
5.106000	---	40.61	74.00	33.39	1000.0	9.000	Single Line	19.4
5.106000	46.58	---	87.00	40.42	1000.0	9.000	Single Line	19.4
5.758000	---	36.90	74.00	37.10	1000.0	9.000	Single Line	19.3
5.758000	44.37	---	87.00	42.63	1000.0	9.000	Single Line	19.3
5.890000	---	35.93	74.00	38.07	1000.0	9.000	Single Line	19.3
5.890000	43.20	---	87.00	43.80	1000.0	9.000	Single Line	19.3

◆ Calculation

$$\text{QuasiPeak [dBuV]} / \text{CAverage [dBuV]} = \text{Reading Value [dBuV]} + \text{Corr. [dB]}$$

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

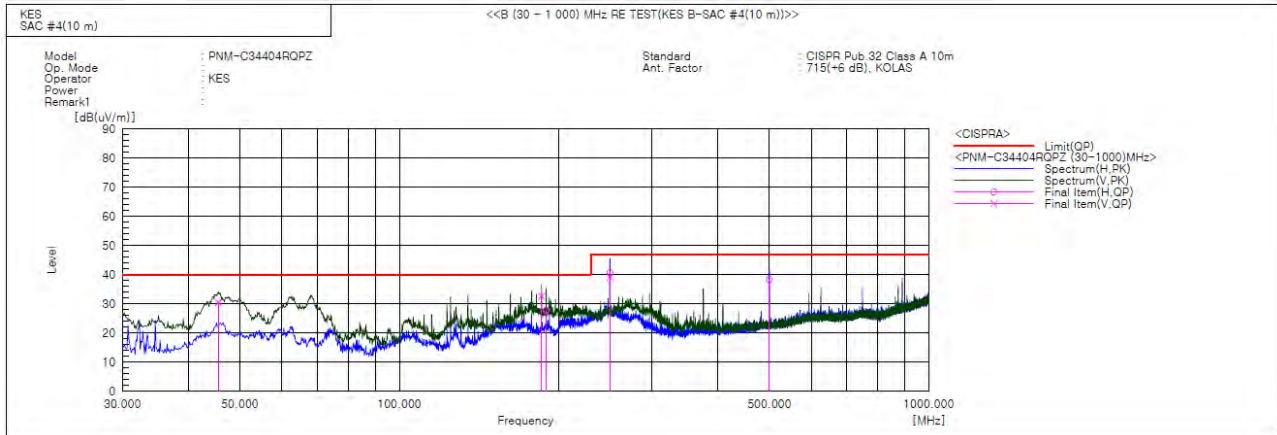
Corr. : Correction values (ISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

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Radiated Electric Field Emissions(Below 1 GHz)



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	45.520	V	51.4	-21.0	30.4	40.0	9.6	110.0	154.0	
2	185.564	V	55.6	-23.0	32.6	40.0	7.4	108.0	315.0	
3	189.444	H	50.3	-22.5	27.8	40.0	12.2	386.0	155.0	
4	249.948	H	60.0	-19.3	40.7	47.0	6.3	393.0	310.0	
5	249.955	V	58.3	-19.3	39.0	47.0	8.0	104.0	217.0	
6	499.965	H	49.4	-11.1	38.3	47.0	8.7	391.0	268.0	

◆ 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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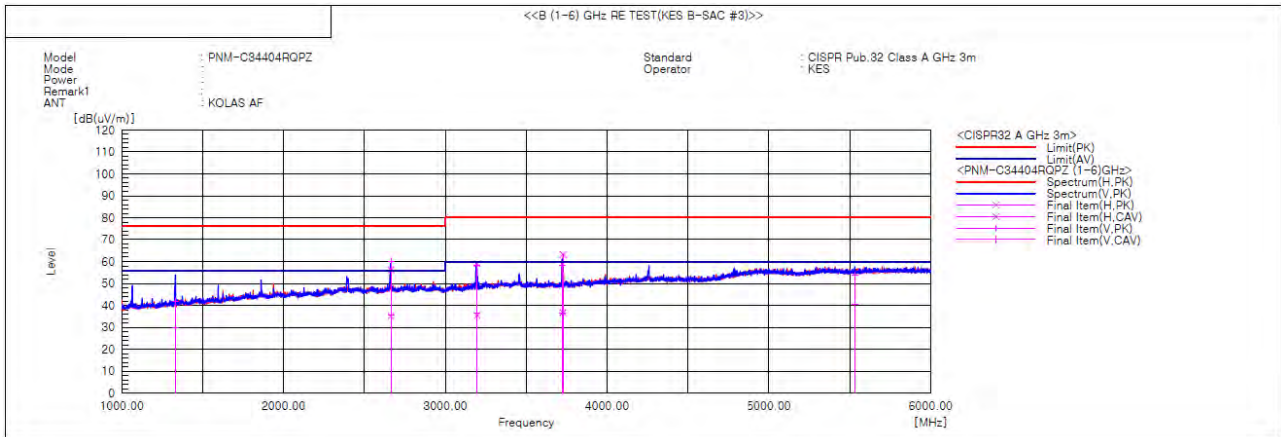
3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Report No.:

KES-EM-23T0448

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Radiated Electric Field Emissions(Above 1 GHz)



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(μV)]	Reading CAV [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Result CAV [dB(μV/m)]	Limit PK [dB(μV/m)]	Limit AV [dB(μV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]	Remark
1	1332.446	V	42.9	31.1	-1.2	41.7	29.9	76.0	56.0	34.3	26.1	100.0	348.5	
2	2662.761	V	53.4	29.2	6.6	60.0	35.8	76.0	56.0	16.0	20.2	100.0	146.9	
3	2662.811	H	49.7	28.6	6.6	56.3	35.2	76.0	56.0	19.7	20.8	100.0	98.0	
4	3191.881	V	50.5	28.4	8.0	58.5	36.4	80.0	60.0	21.5	23.6	100.0	202.1	
5	3194.960	H	51.0	27.4	8.1	59.1	35.5	80.0	60.0	20.9	24.5	100.0	79.9	
6	3722.690	V	48.4	26.8	9.8	58.2	36.6	80.0	60.0	21.8	23.4	100.0	347.4	
7	3726.210	H	53.4	27.0	9.8	63.2	36.8	80.0	60.0	16.8	23.2	100.0	189.3	
8	5530.679	V	38.2	25.0	15.6	53.8	40.6	80.0	60.0	26.2	19.4	100.0	345.4	

◆ 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	I _{eff} [A]	% of Limit	Limit [A]	Result
1	0.191			
2	0.004	0.333	1.080	n/a
3	0.182	7.894	2.300	PASS
4	0.005	1.165	0.430	PASS
5	0.173	15.181	1.140	PASS
6	0.004	1.427	0.300	n/a
7	0.161	20.927	0.770	PASS
8	0.004	1.860	0.230	n/a
9	0.146	36.471	0.400	PASS
10	0.004	2.340	0.184	n/a
11	0.129	39.094	0.330	PASS
12	0.004	2.495	0.153	n/a
13	0.111	52.651	0.210	PASS
14	0.004	2.931	0.131	n/a
15	0.091	60.984	0.150	PASS
16	0.003	2.745	0.115	n/a
17	0.073	55.224	0.132	PASS
18	0.003	2.475	0.102	n/a
19	0.055	46.811	0.118	PASS
20	0.002	2.140	0.092	n/a
21	0.040	24.585	0.161	PASS
22	0.002	1.880	0.084	n/a
23	0.026	17.843	0.147	PASS
24	0.001	1.585	0.077	n/a
25	0.015	11.166	0.135	PASS
26	0.001	1.335	0.071	n/a
27	0.007	5.217	0.125	PASS
28	0.001	1.256	0.066	n/a
29	0.001	0.969	0.116	n/a
30	0.001	1.027	0.061	n/a
31	0.004	3.458	0.109	n/a
32	0.001	1.124	0.058	n/a
33	0.006	5.409	0.102	PASS
34	0.001	1.222	0.054	n/a
35	0.006	6.432	0.096	PASS
36	0.001	1.460	0.051	n/a
37	0.005	5.965	0.091	PASS
38	0.001	1.388	0.048	n/a
39	0.004	4.746	0.087	n/a
40	0.001	1.275	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	0.192			
2	0.005	0.334	1.620	PASS
3	0.182	5.275	3.450	PASS
4	0.006	0.951	0.645	PASS
5	0.173	10.138	1.710	PASS
6	0.005	1.107	0.450	n/a
7	0.161	13.980	1.155	PASS
8	0.005	1.464	0.345	PASS
9	0.147	24.497	0.600	PASS
10	0.005	1.791	0.276	n/a
11	0.130	26.203	0.495	PASS
12	0.005	1.967	0.230	n/a
13	0.111	35.260	0.315	PASS
14	0.005	2.310	0.197	n/a
15	0.092	40.972	0.225	PASS
16	0.004	2.125	0.173	n/a
17	0.073	36.897	0.199	PASS
18	0.003	1.911	0.153	n/a
19	0.056	31.525	0.178	PASS
20	0.003	1.840	0.138	n/a
21	0.040	24.798	0.161	PASS
22	0.002	1.591	0.125	n/a
23	0.026	18.025	0.147	PASS
24	0.001	1.285	0.115	n/a
25	0.015	11.308	0.135	PASS
26	0.001	1.112	0.106	n/a
27	0.007	5.376	0.125	PASS
28	0.001	0.986	0.099	n/a
29	0.001	1.177	0.116	n/a
30	0.001	0.925	0.092	n/a
31	0.004	3.752	0.109	n/a
32	0.001	0.970	0.086	n/a
33	0.006	5.597	0.102	PASS
34	0.001	1.012	0.081	n/a
35	0.006	6.525	0.096	PASS
36	0.001	1.150	0.077	n/a
37	0.006	6.195	0.091	PASS
38	0.001	1.063	0.073	n/a
39	0.004	4.913	0.087	n/a
40	0.001	1.022	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.

**KES Co., Ltd.**

3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

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KES-EM-23T0448
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Test Data - Voltage Fluctuations

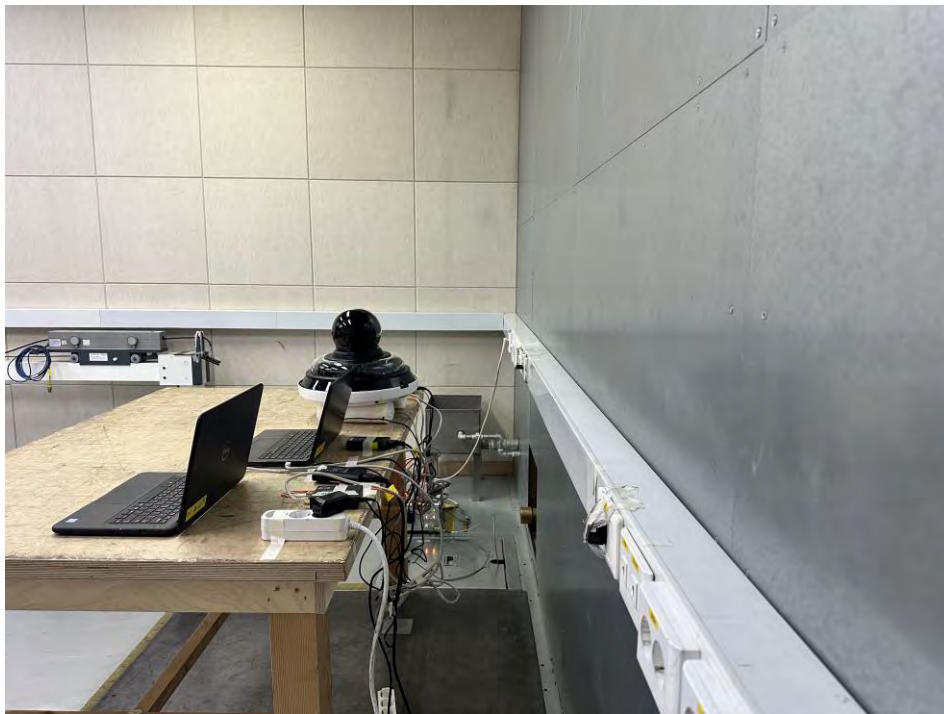
Maximum Flicker results

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



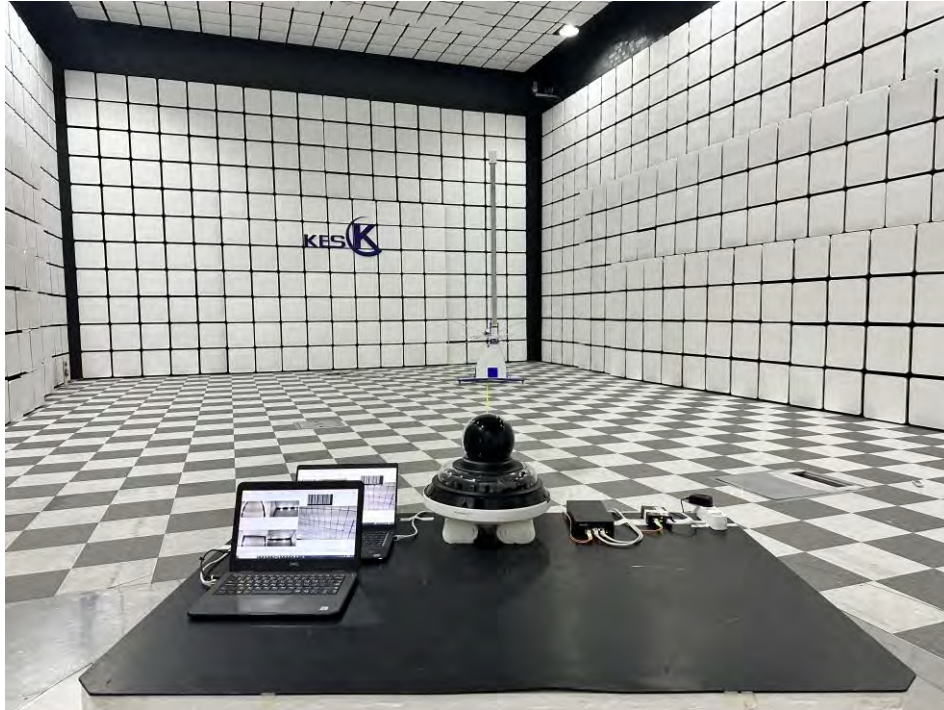
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Conducted Emissions at Telecommunication Ports



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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



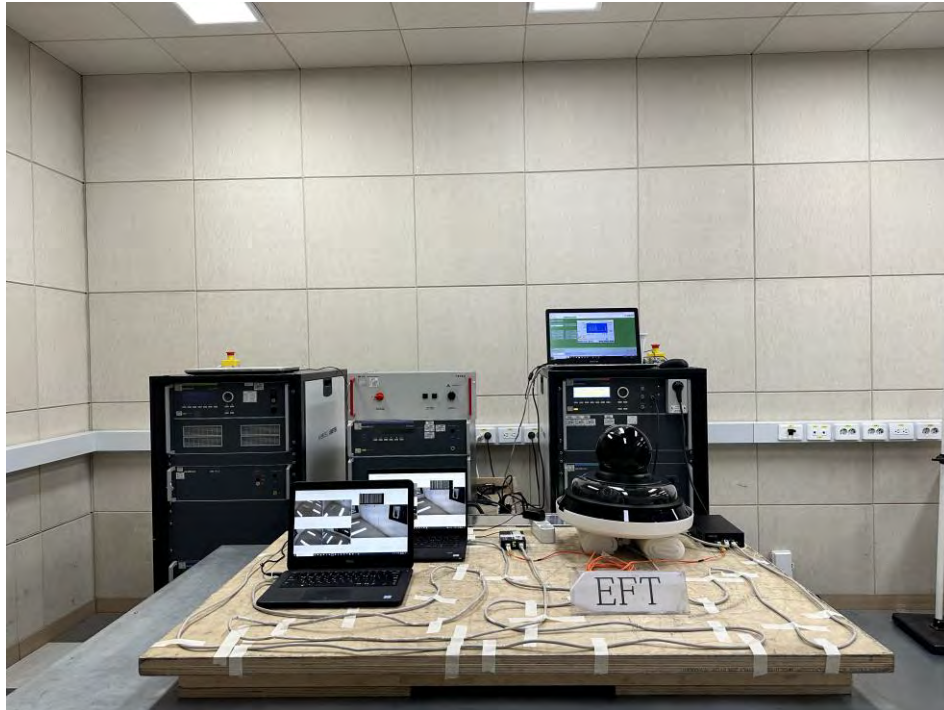
Electrostatic Discharge



Radiated Electric Field Immunity



Electrical Fast Transients / Bursts



Surge Transients



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Conducted Disturbance



Voltage Dips and Short Interruptions



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EUT External Photographs

(Top)

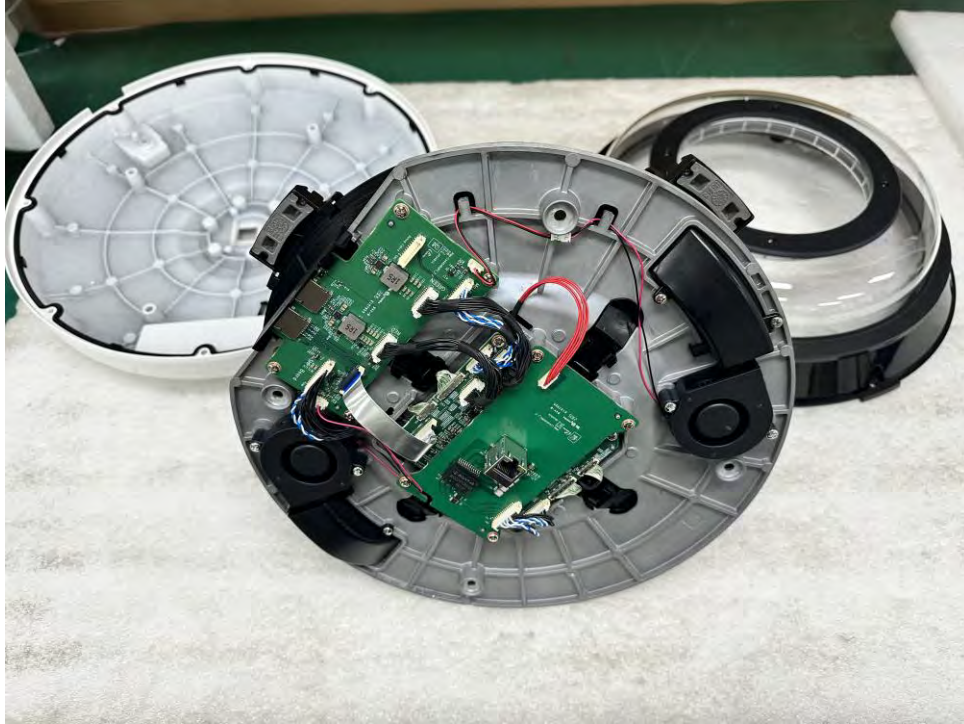


(Bottom)



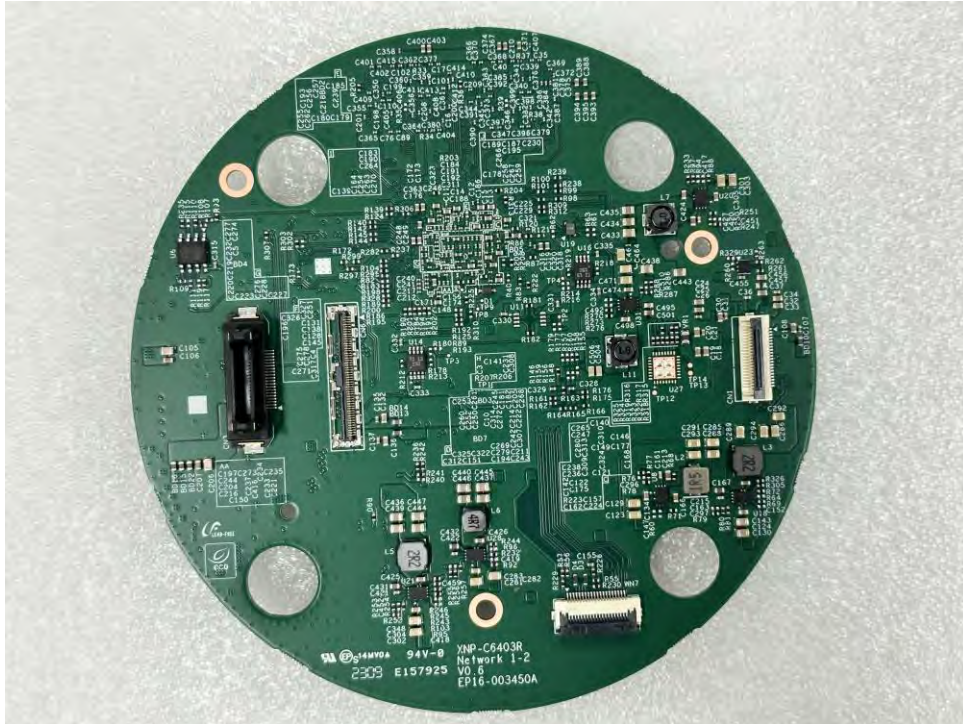
EUT Internal Photographs

(Internal View)

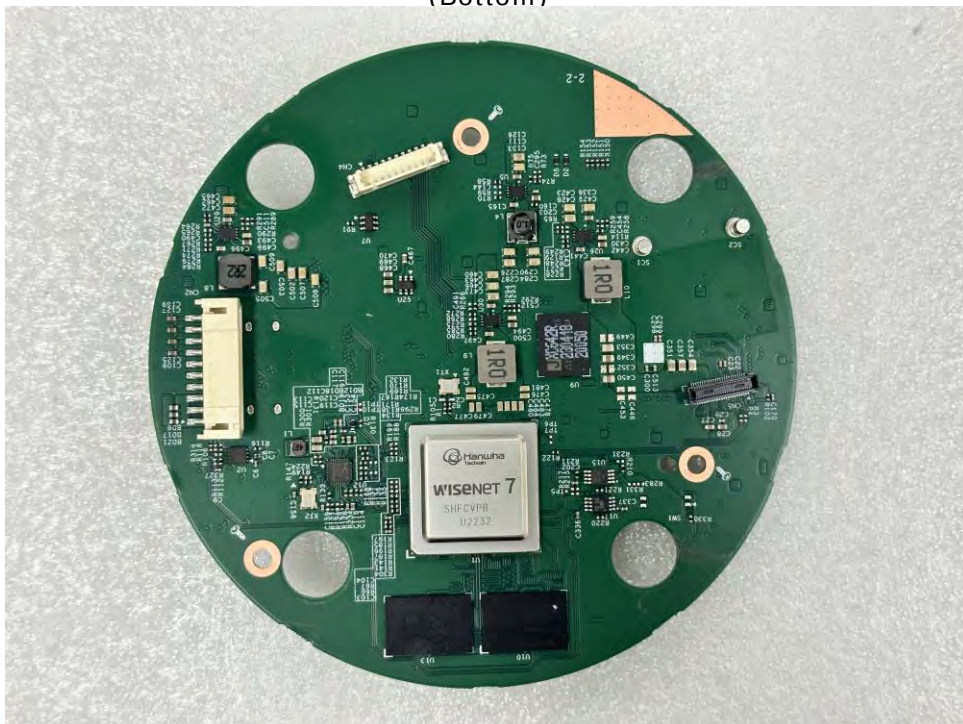


EUT Internal View – Main Board

(Top)



(Bottom)



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EUT Internal View – IR Board 1

(Top)



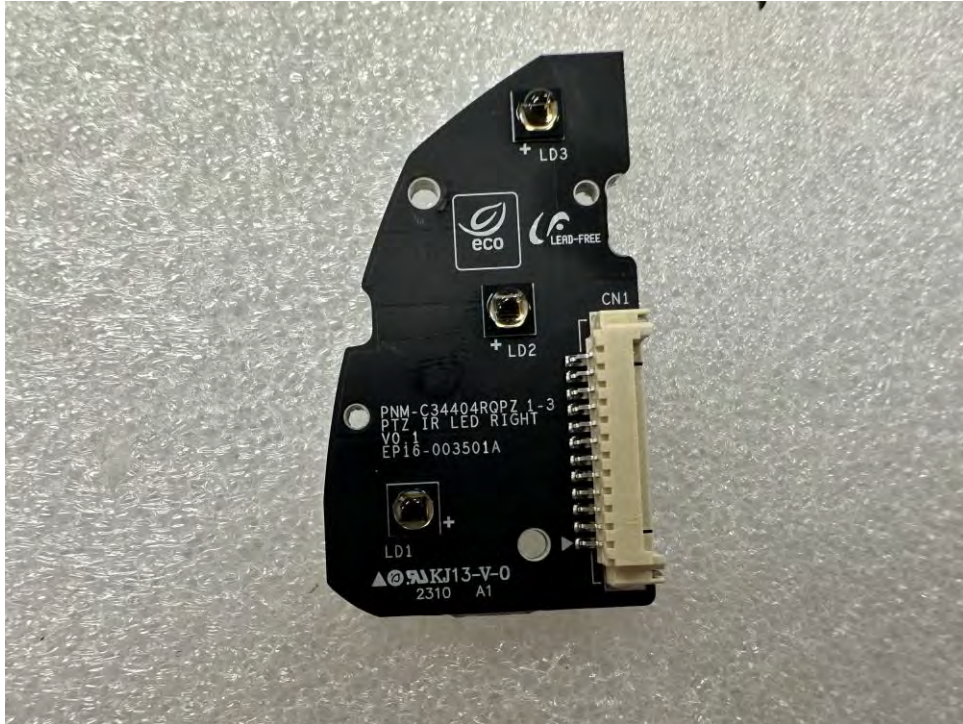
(Bottom)



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EUT Internal View – IR Board 2

(Top)



(Bottom)



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EUT Internal View – LAN Board

(Top)

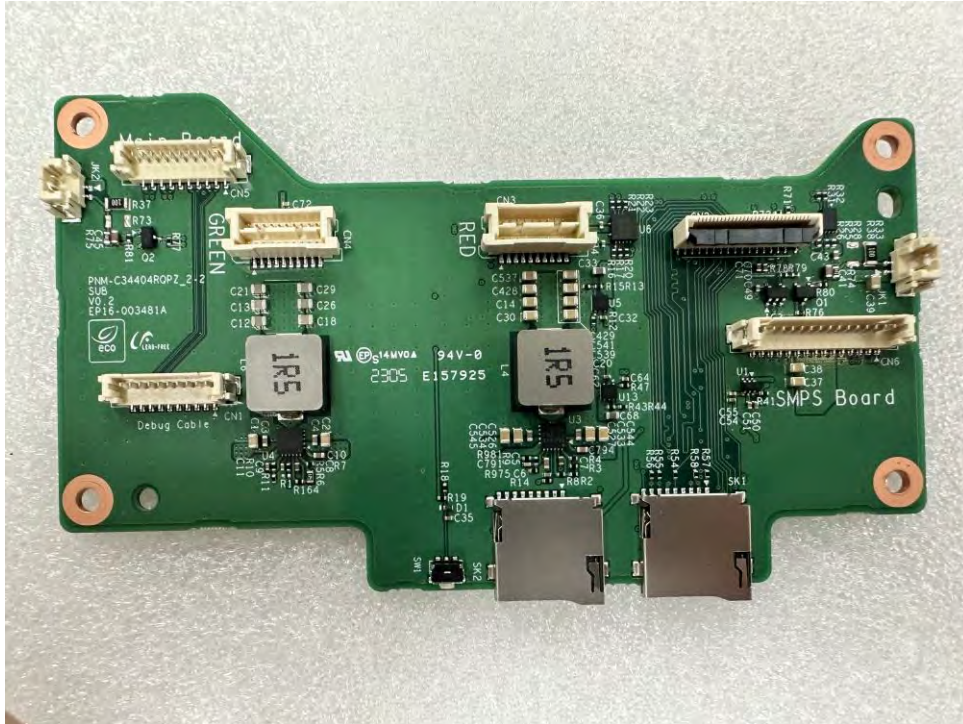


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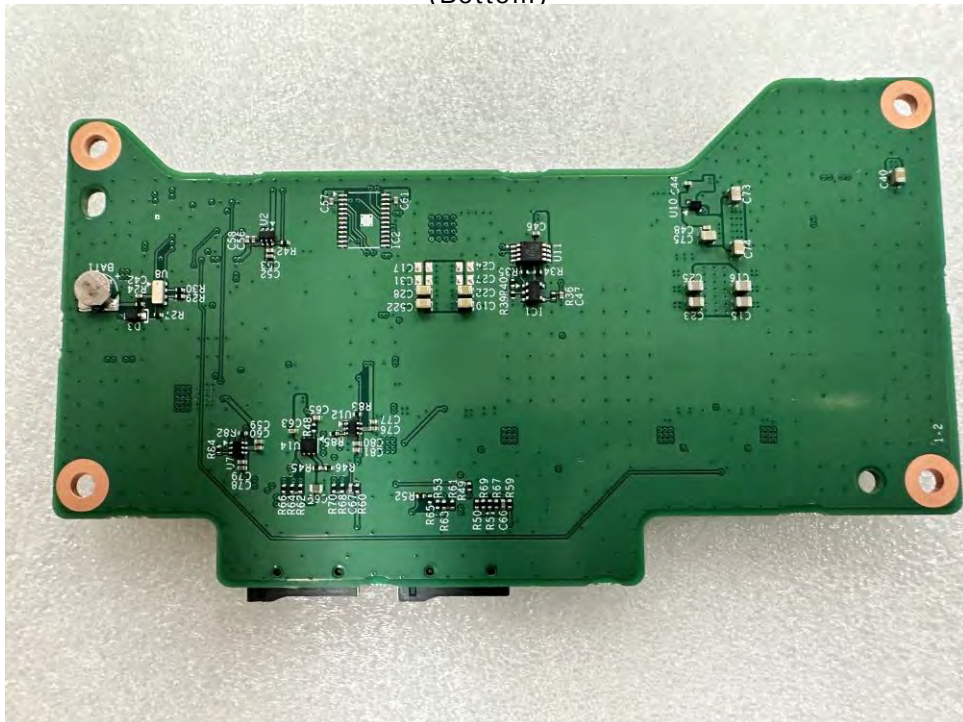


EUT Internal View – MICRO SD Card Board

(Top)



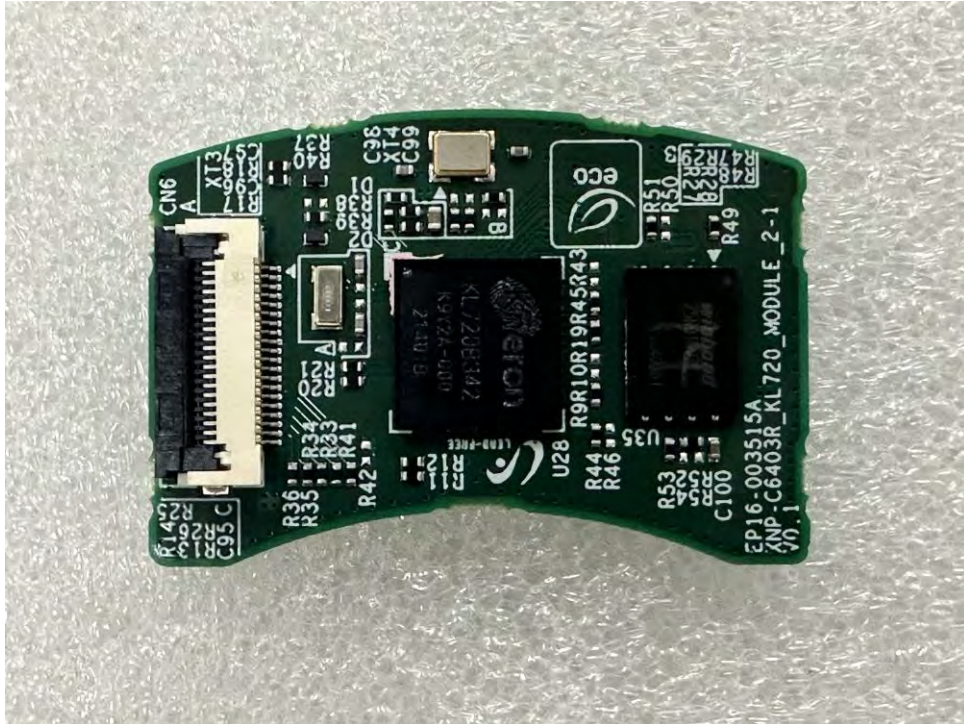
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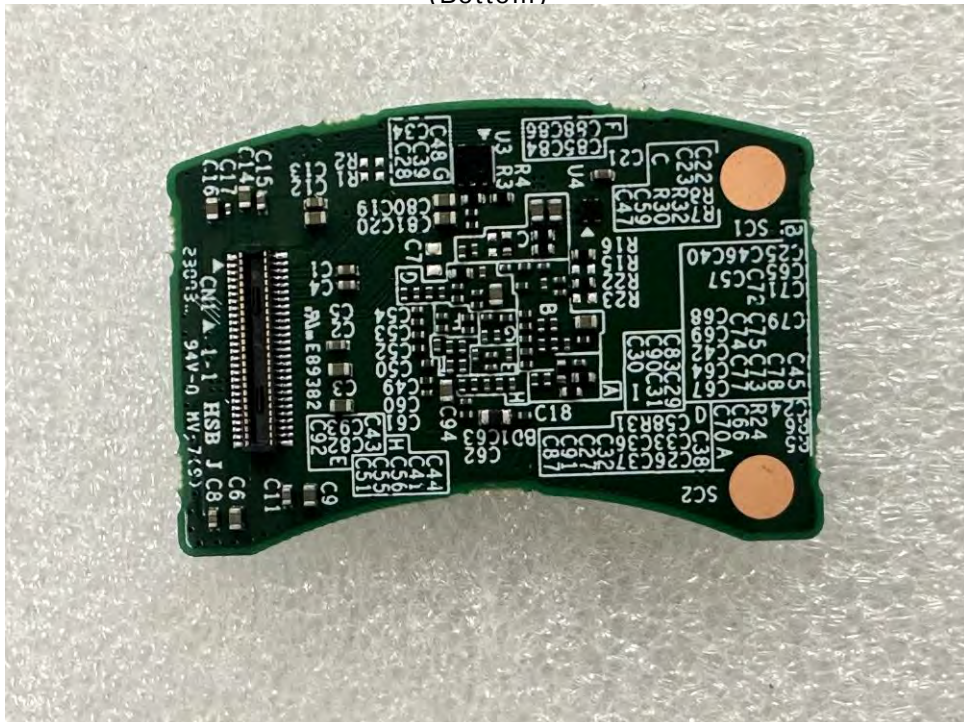
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EUT Internal View – SUB Board 1

(Top)

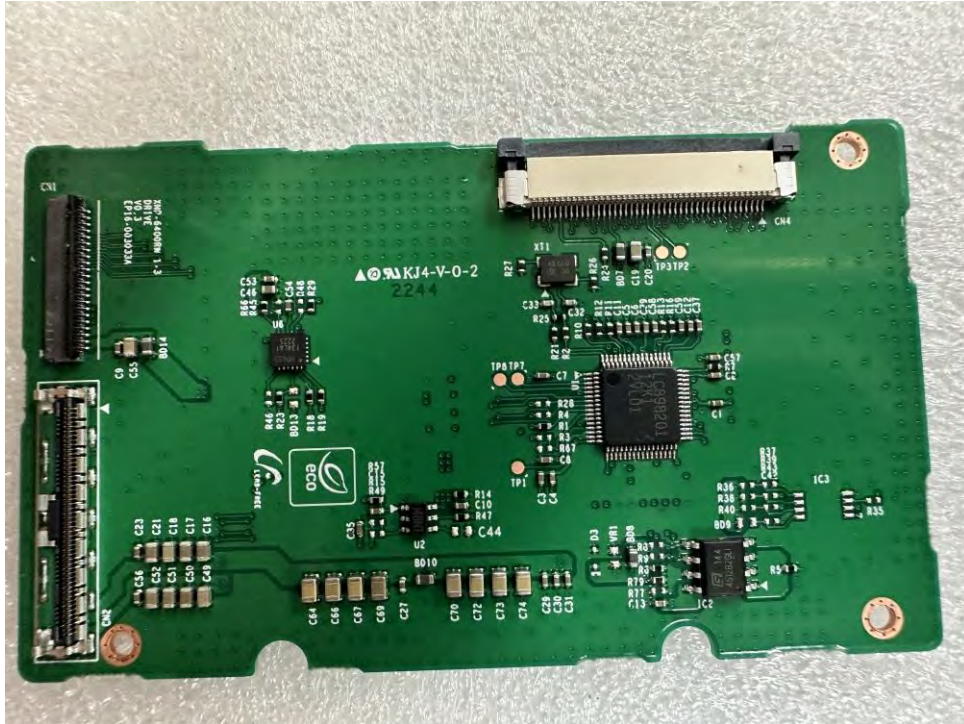


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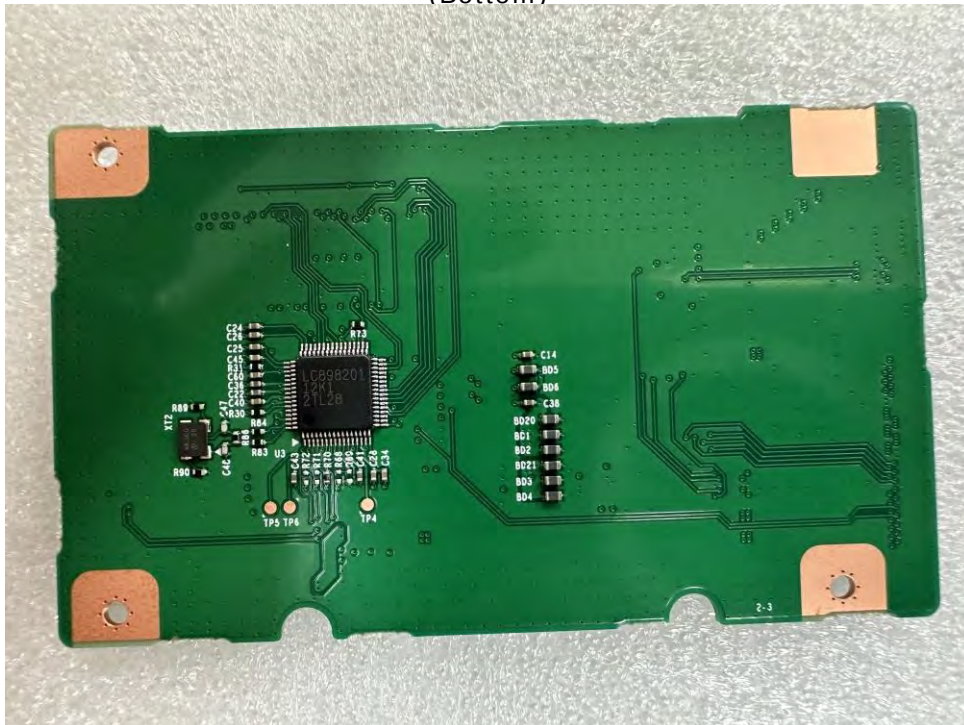


EUT Internal View – SUB Board 2

(Top)



(Bottom)



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EUT Internal View – Camera LED Board

(Top)



(Bottom)



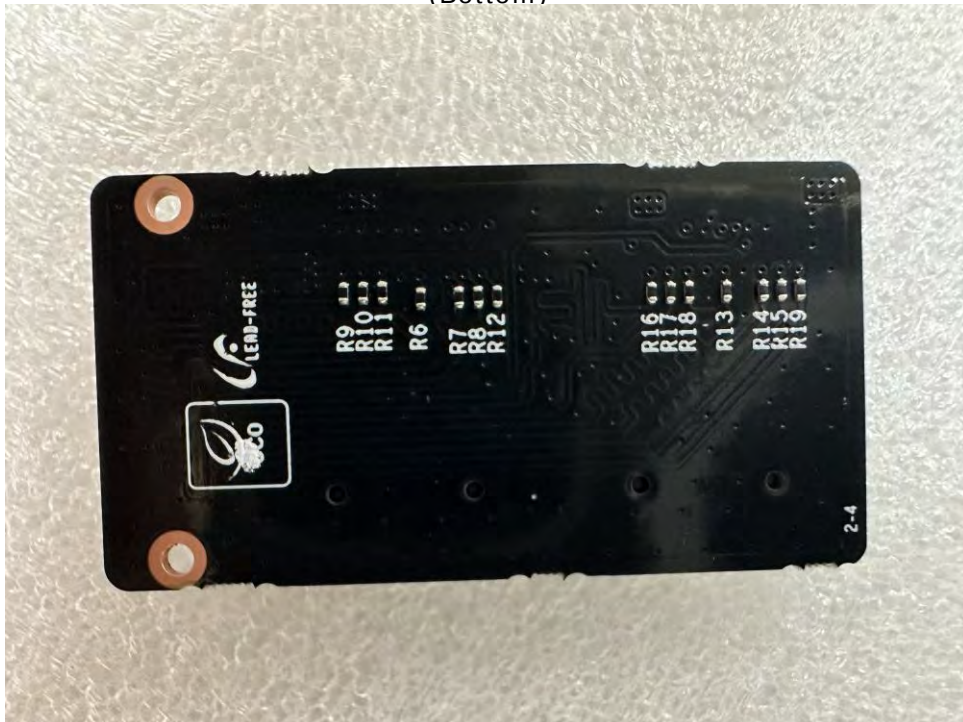
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EUT Internal View – Camera Micro SD Card Board

(Top)

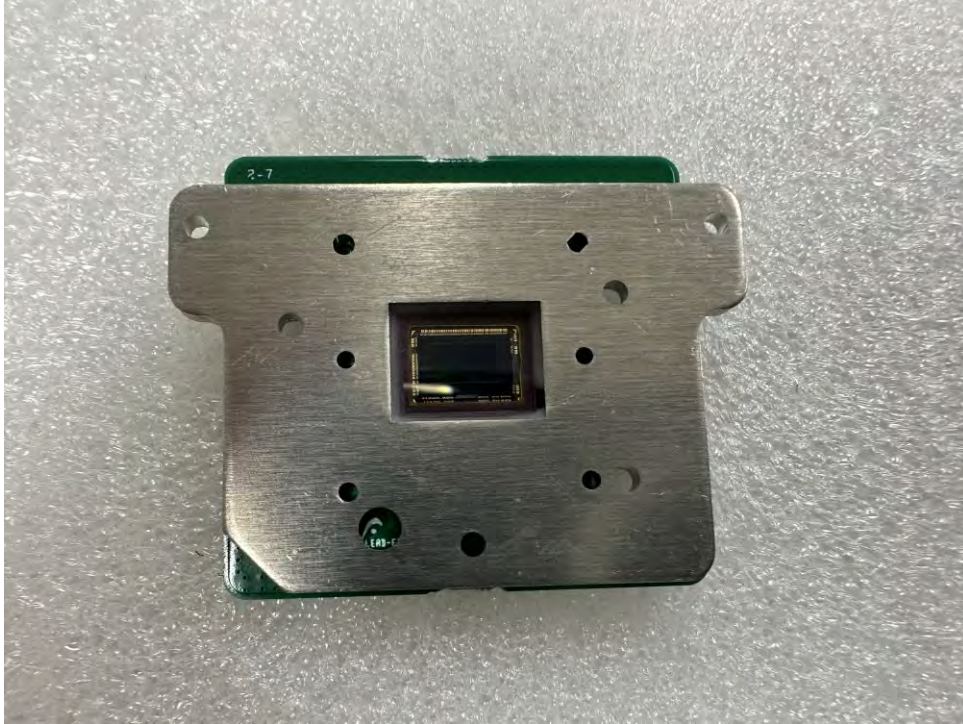


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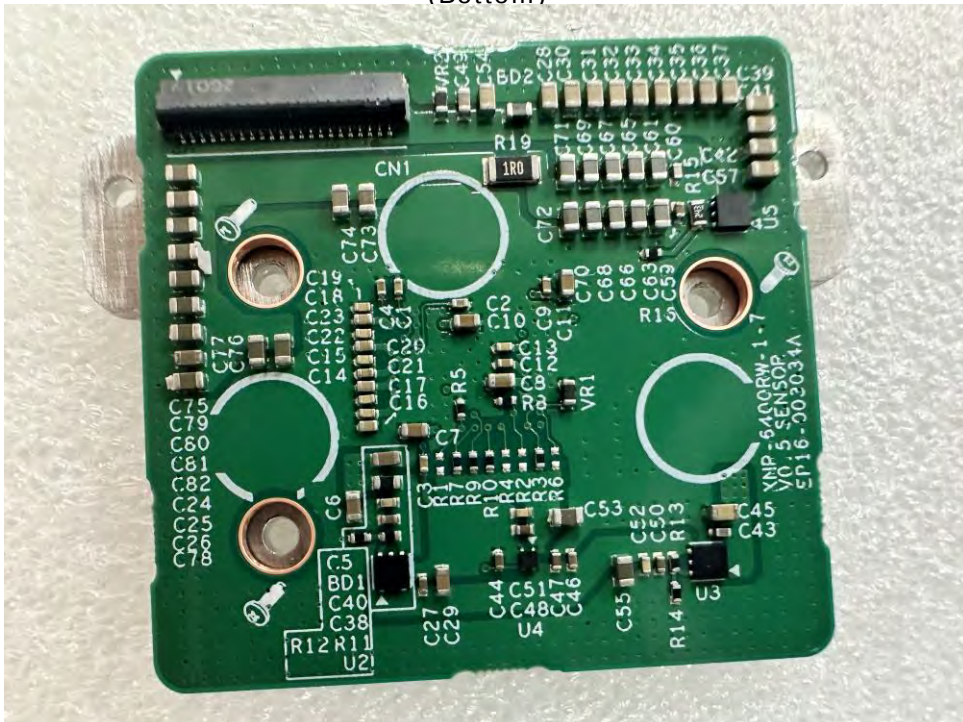


EUT Internal View – Camera Lens Board

(Top)



(Bottom)



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EUT Internal View – Camera Motor

(Top)



(Bottom)

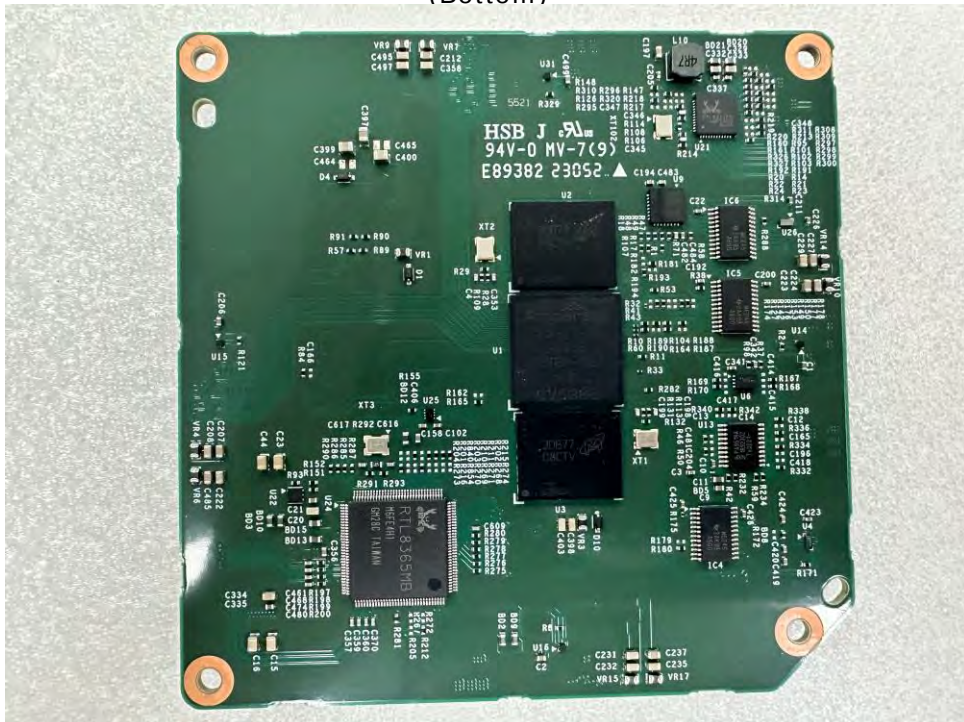


EUT Internal View – Camera Board

(Top)



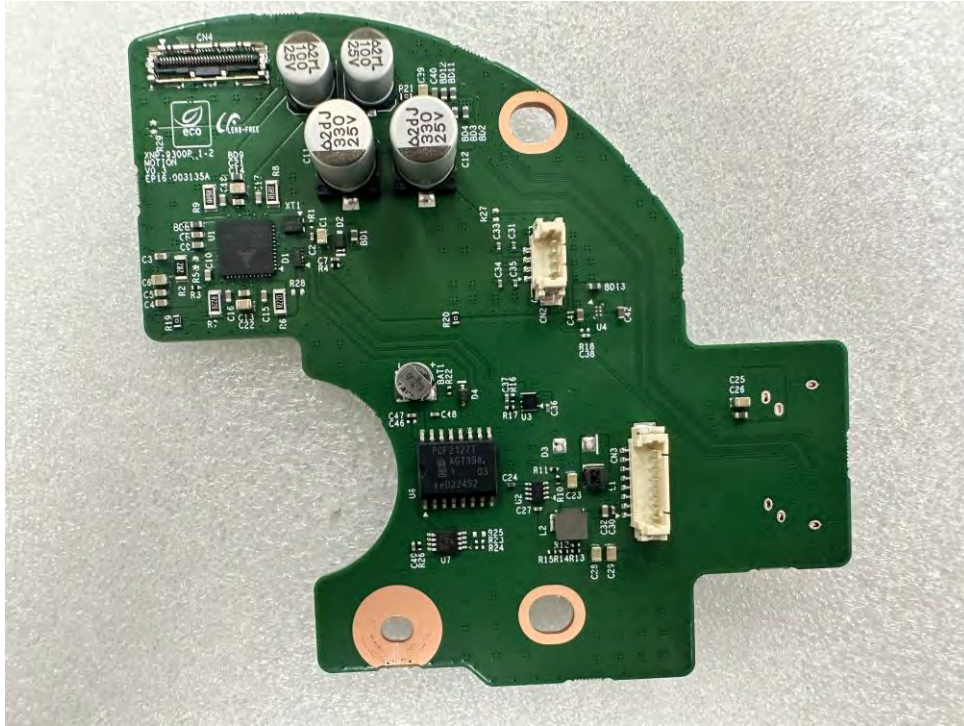
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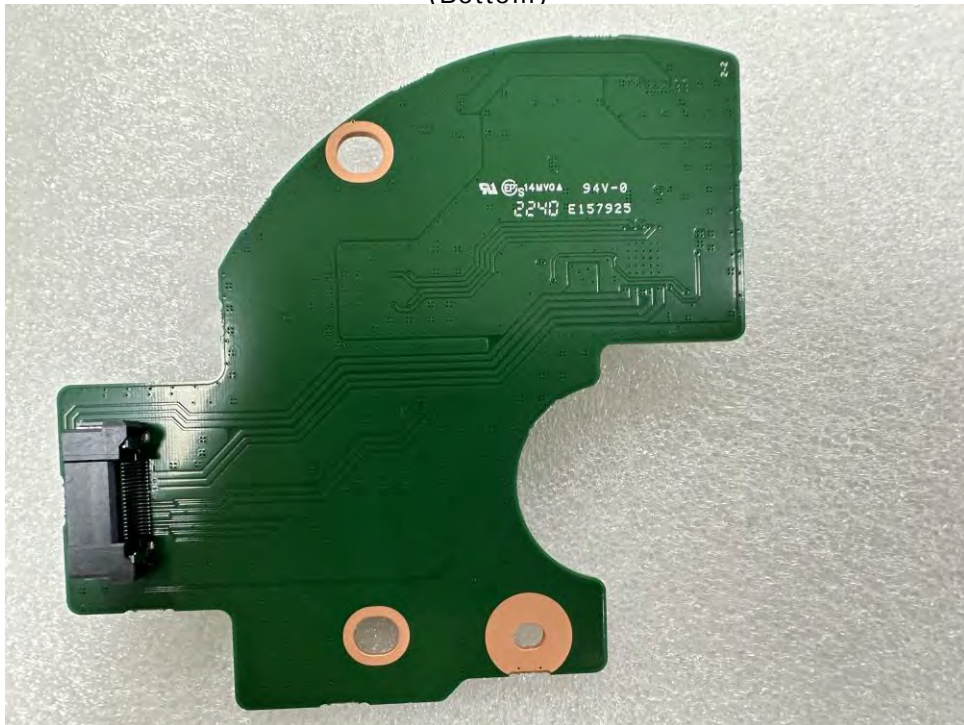
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EUT Internal View – Camera SUB Board 1

(Top)



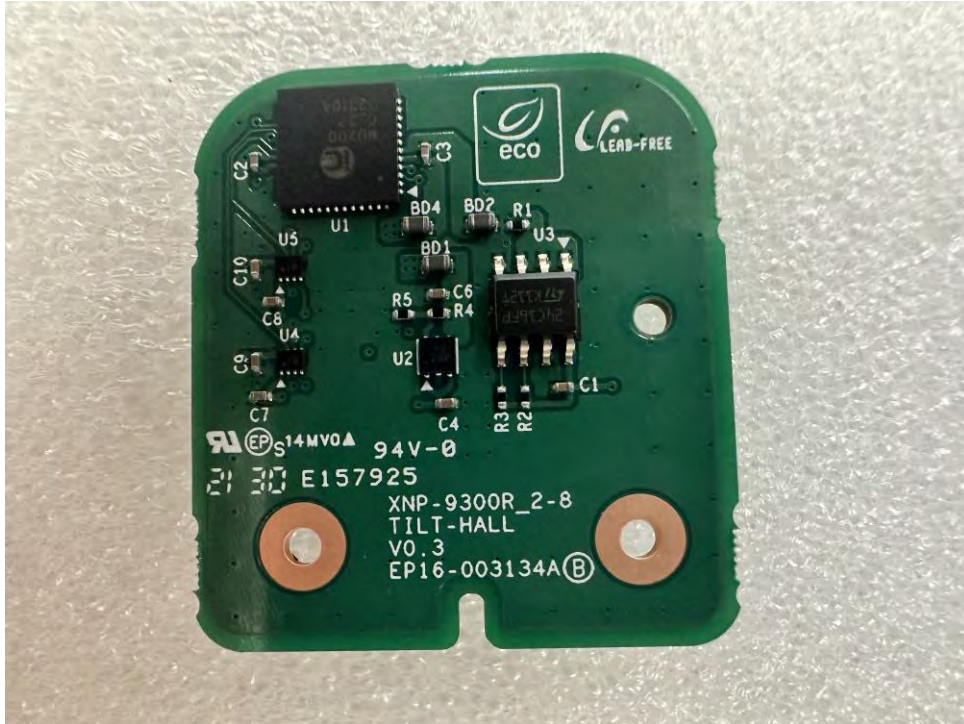
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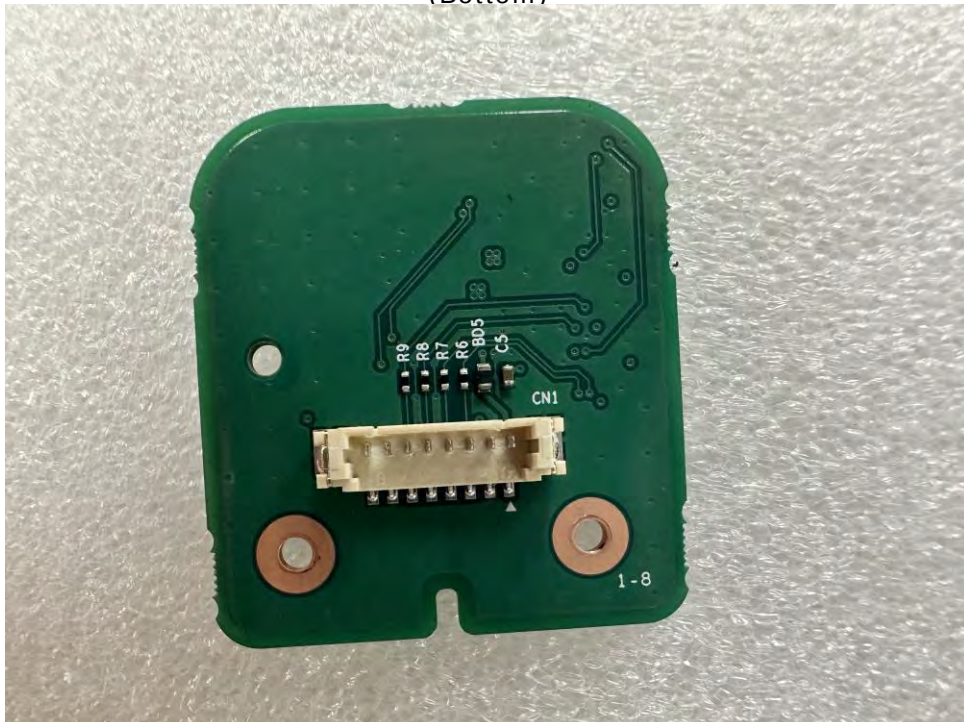
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EUT Internal View – Camera SUB Board 2

(Top)



(Bottom)



EUT Internal View – Camera Cooler 1

(Top)



(Bottom)



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EUT Internal View – Camera Cooler 2

(Top)



(Bottom)



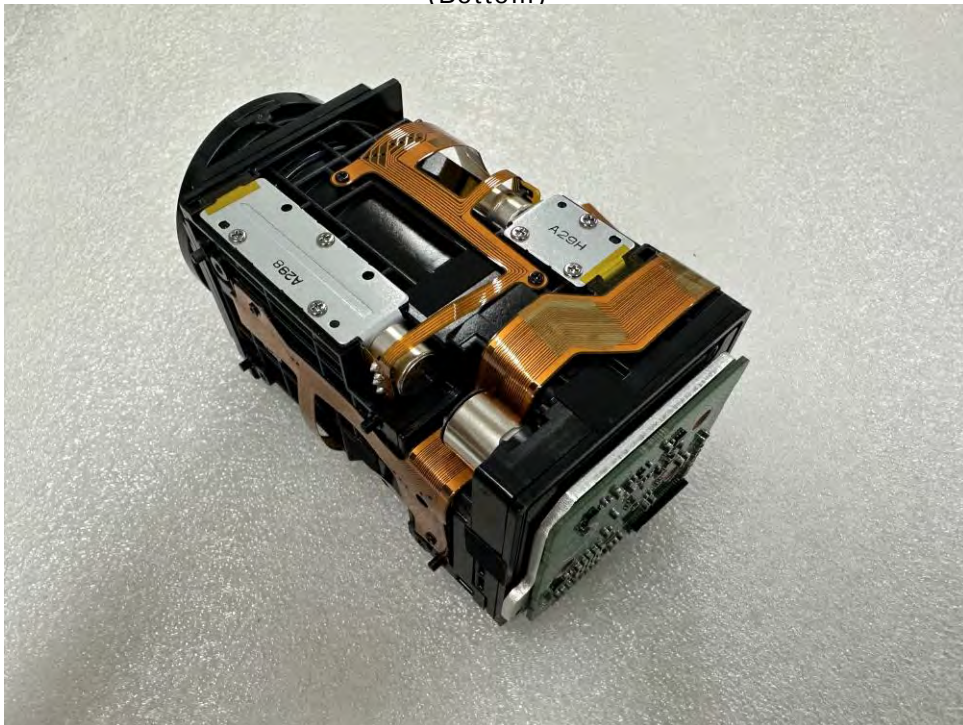
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EUT Internal View – Camera

(Top)



(Bottom)



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Label and Location



Network Camera

Model No : PNM-C34404RQPZ

Manufacturer : HANWHA VISION VIETNAM COMPANY LIMITED

Made in Vietnam

