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Report No.:
KES-EM-23T0451
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EMC TEST REPORT For VCCI

Test Report No. : KES-EM-23T0451
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. 07, 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.

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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
May. 31, 2023	KES-EM-23T0451	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, 2592x1544, 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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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	
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)
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 $\pm 4.5W$, typical $\pm 3.5W$
Mechanical	
Color / Material	White / Aluminum
RAL Code	RAL9003
Product Dimensions / Weight	PNM-9322VQP design with XNP-6400R PT2 (TBD) Weight of the camera + SBP-156H/MW = 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)
Observe (63PPM/ 19PPF)	Wide: 80.0m(262.56ft) / Tele: 233.3m(765.56ft)
Recognize (125PPM/ 38PPF)	Wide: 40.0m(131.28ft) / Tele: 116.7m(382.78ft)
Identify (250PPM/ 76PPF)	Wide: 20.0m(65.64ft) / Tele: 58.3m(191.39ft)

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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 100 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

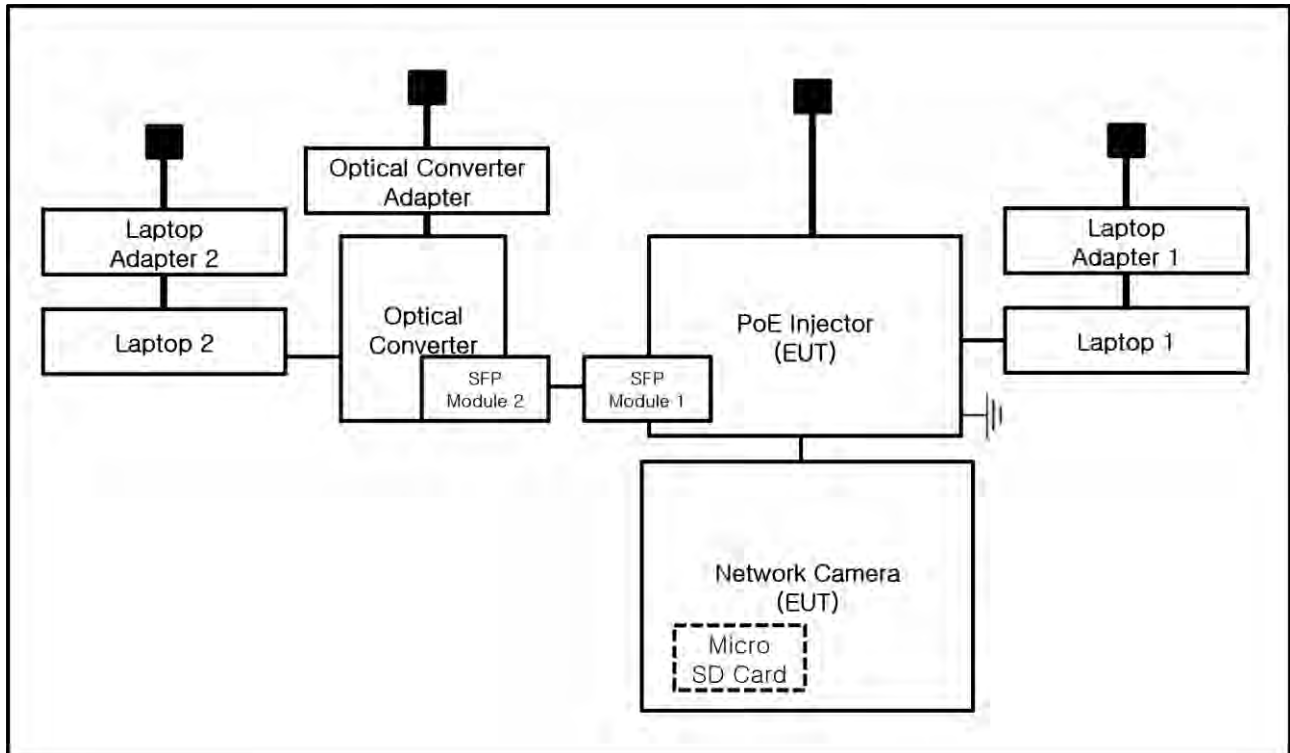
1.7 EUT Operating Mode(s)

Test Mode	operating
Operater	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



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2.0 Test Regulations

The emissions tests were performed according to following regulations:

☒ VCCI-CISPR 32:2016

☒ Class A

☐ Class B

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2.1 Conducted Emissions 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

RemarksSee 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

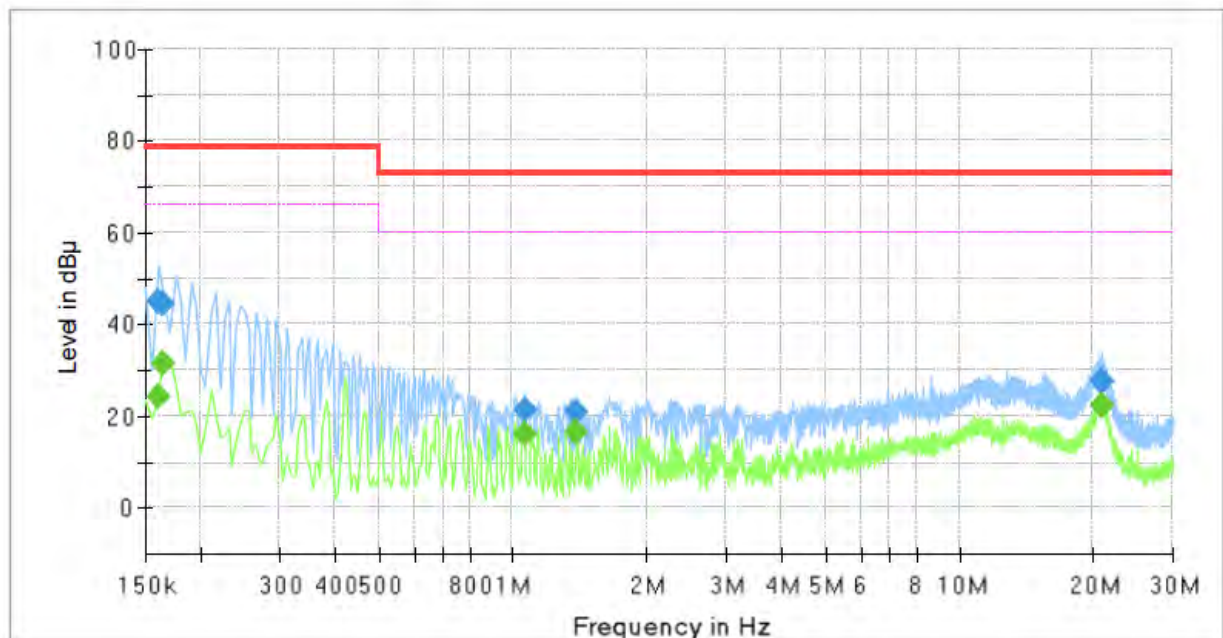
RemarksSee Appendix A for test data.

APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports HOT LINE

Common Information

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



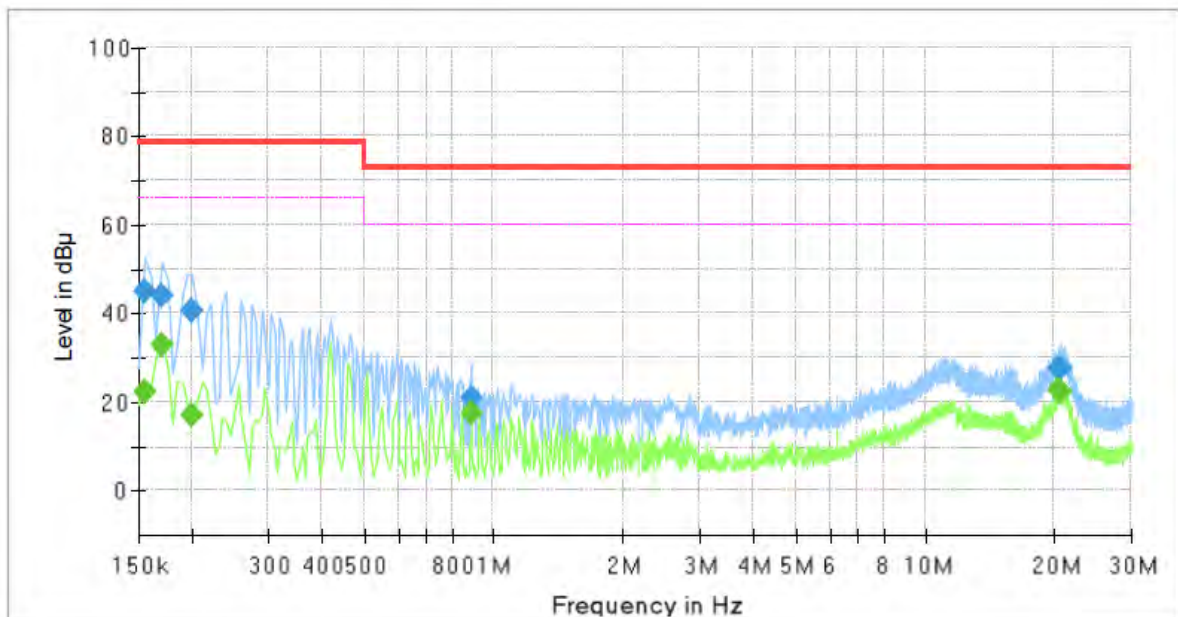
Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.160000	---	24.19	66.00	41.81	1000.0	9.000	L1	19.5
0.160000	44.97	---	79.00	34.03	1000.0	9.000	L1	19.5
0.165000	---	31.63	66.00	34.37	1000.0	9.000	L1	19.5
0.165000	44.55	---	79.00	34.45	1000.0	9.000	L1	19.5
1.060000	---	16.26	60.00	43.74	1000.0	9.000	L1	20.2
1.060000	21.55	---	73.00	51.45	1000.0	9.000	L1	20.2
1.385000	---	16.67	60.00	43.33	1000.0	9.000	L1	20.2
1.385000	20.97	---	73.00	52.03	1000.0	9.000	L1	20.2
20.800000	---	22.24	60.00	37.76	1000.0	9.000	L1	20.2
20.800000	27.53	---	73.00	45.47	1000.0	9.000	L1	20.2
20.810000	---	22.36	60.00	37.64	1000.0	9.000	L1	20.2
20.810000	27.78	---	73.00	45.22	1000.0	9.000	L1	20.2

NEUTRAL LINE

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)
0.155000	45.20	---	79.00	33.80	1000.0	9.000	N	19.4
0.155000	---	22.14	66.00	43.86	1000.0	9.000	N	19.4
0.170000	44.03	---	79.00	34.97	1000.0	9.000	N	19.5
0.170000	---	33.15	66.00	32.85	1000.0	9.000	N	19.5
0.200000	40.51	---	79.00	38.49	1000.0	9.000	N	19.5
0.200000	---	17.21	66.00	48.79	1000.0	9.000	N	19.5
0.885000	---	17.45	60.00	42.55	1000.0	9.000	N	20.0
0.885000	20.76	---	73.00	52.24	1000.0	9.000	N	20.0
20.420000	---	22.63	60.00	37.37	1000.0	9.000	N	20.2
20.420000	27.80	---	73.00	45.20	1000.0	9.000	N	20.2
20.690000	---	22.14	60.00	37.86	1000.0	9.000	N	20.2
20.690000	27.45	---	73.00	45.55	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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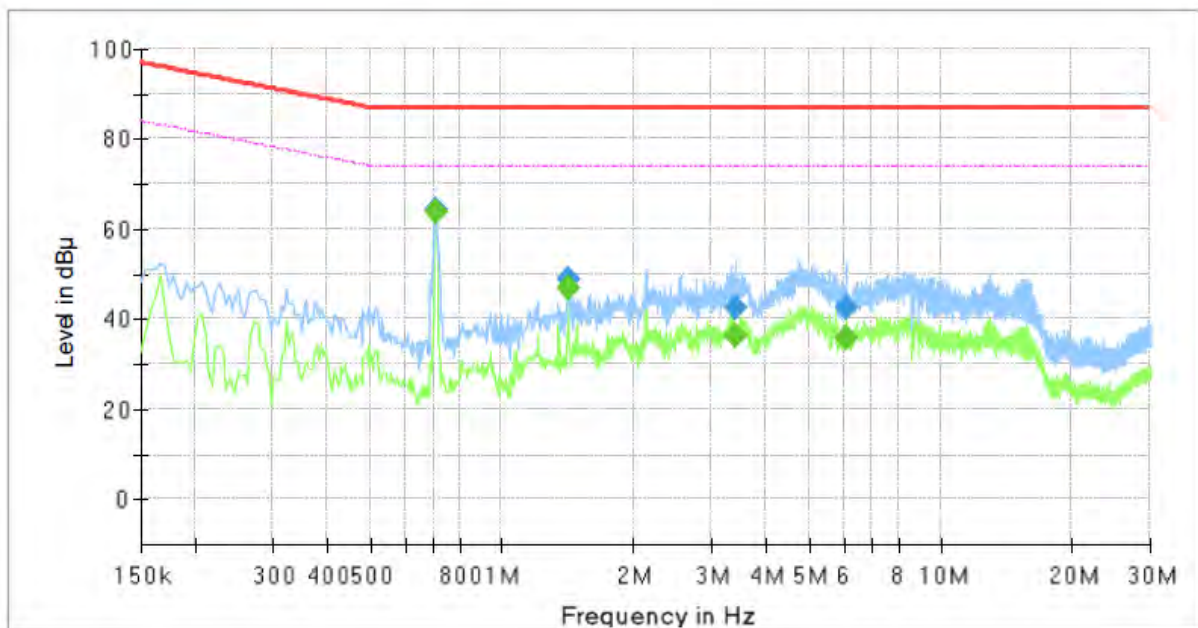
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Conducted Emissions at Telecommunication Ports [1 000 Mbps]

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	---	64.04	74.00	9.96	1000.0	9.000	Single Line	19.7
0.706000	64.47	---	87.00	22.53	1000.0	9.000	Single Line	19.7
1.414000	---	46.91	74.00	27.09	1000.0	9.000	Single Line	20.0
1.414000	48.62	---	87.00	38.38	1000.0	9.000	Single Line	20.0
3.390000	---	36.55	74.00	37.45	1000.0	9.000	Single Line	19.8
3.390000	42.74	---	87.00	44.26	1000.0	9.000	Single Line	19.8
6.110000	---	35.72	74.00	38.28	1000.0	9.000	Single Line	19.3
6.110000	42.56	---	87.00	44.44	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))

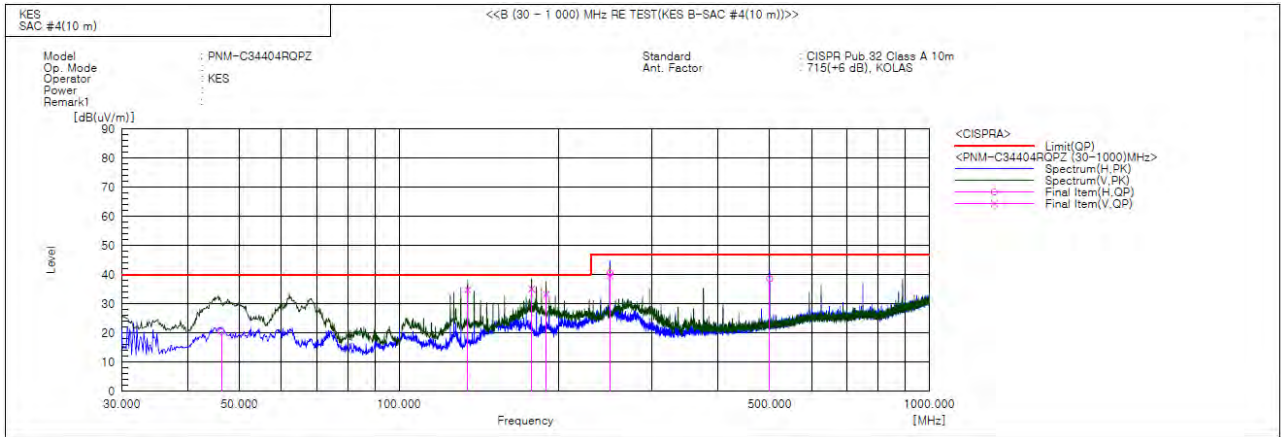


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Report No.:
KES-EM-23T0451
Page (19) of (44)

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	46.248	H	41.3	-20.9	20.4	40.0	19.6	398.0	340.0	
2	134.760	V	60.2	-25.4	34.8	40.0	5.2	110.0	219.0	
3	177.804	V	58.9	-23.8	35.1	40.0	4.9	117.0	263.0	
4	189.444	V	55.7	-22.5	33.2	40.0	6.8	106.0	72.0	
5	249.948	H	59.7	-19.3	40.4	47.0	6.6	383.0	333.0	
6	249.952	V	58.8	-19.3	39.5	47.0	7.5	113.0	182.0	
7	499.965	H	49.7	-11.1	38.6	47.0	8.4	382.0	131.0	

◆ Calculation

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

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

Correction Factor : ANT FACTOR + Cable loss

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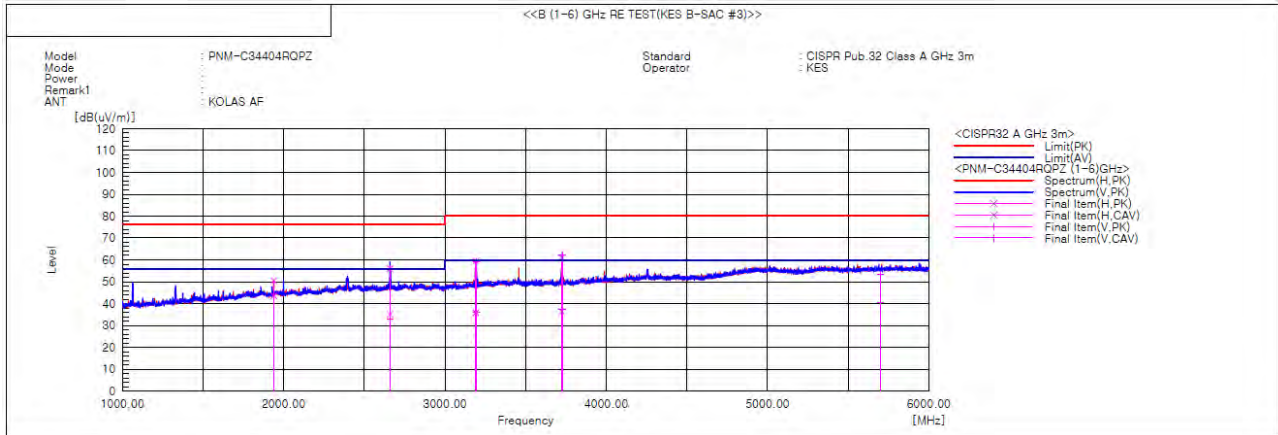
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Report No.:

KES-EM-23T0451

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Radiated Electric Field Emissions(Above 1 GHz)



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	1937.770	H	46.9	39.9	3.7	50.6	43.6	76.0	56.0	25.4	12.4	100.0	24.0	
2	2658.761	H	49.4	28.6	6.5	55.9	35.1	76.0	56.0	20.1	20.9	100.0	1.0	
3	2659.613	V	49.4	26.7	6.5	55.9	33.2	76.0	56.0	20.1	22.8	100.0	278.1	
4	3190.540	H	51.6	27.9	8.0	59.6	35.9	80.0	60.0	20.4	24.1	100.0	71.2	
5	3192.590	V	50.9	27.8	8.1	59.0	35.9	80.0	60.0	21.0	24.1	100.0	6.7	
6	3723.640	H	51.1	26.6	9.8	60.9	36.4	80.0	60.0	19.1	23.6	100.0	9.2	
7	3726.130	V	52.2	27.7	9.8	62.0	37.5	80.0	60.0	18.0	22.5	100.0	79.6	
8	5700.488	V	37.6	24.7	15.9	53.5	40.6	80.0	60.0	26.5	19.4	100.0	16.6	

◆ Calculation

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

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

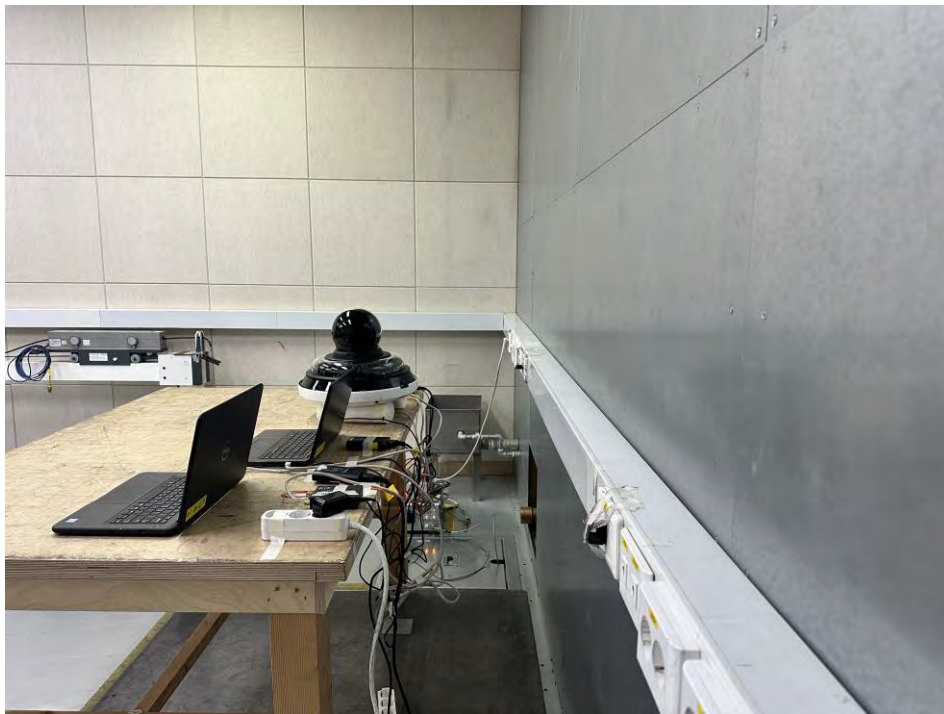
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Test Setup Photos and Configuration

Conducted Emissions at Mains Power Ports

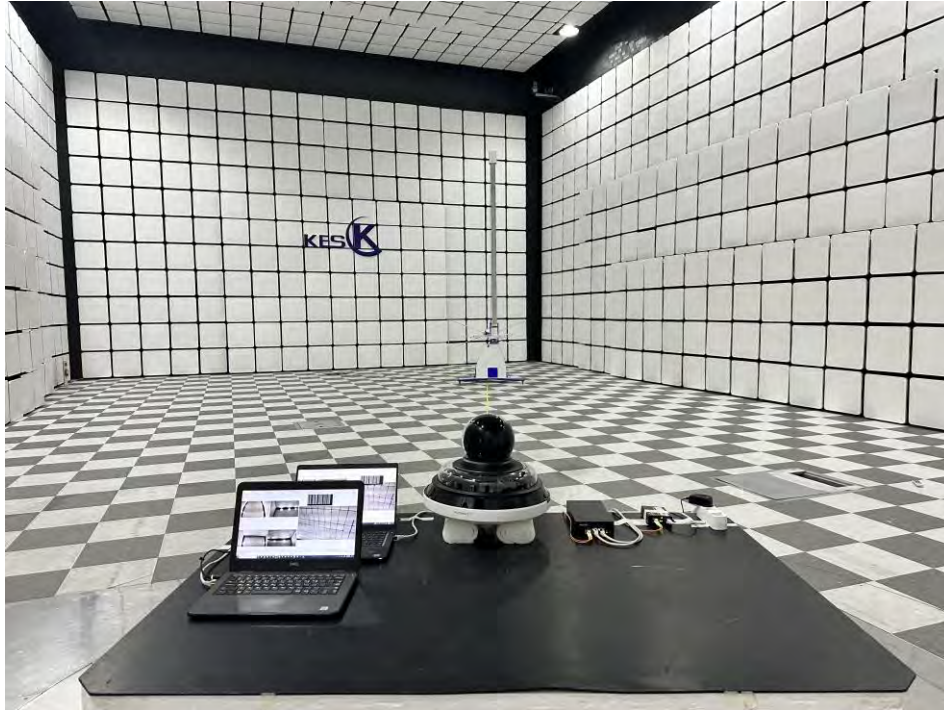


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Conducted Emissions at Telecommunication Ports



Radiated Electric Field Emissions(Below 1 GHz)



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Radiated Electric Field Emissions(Above 1 GHz)



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EUT External Photographs

(Top)

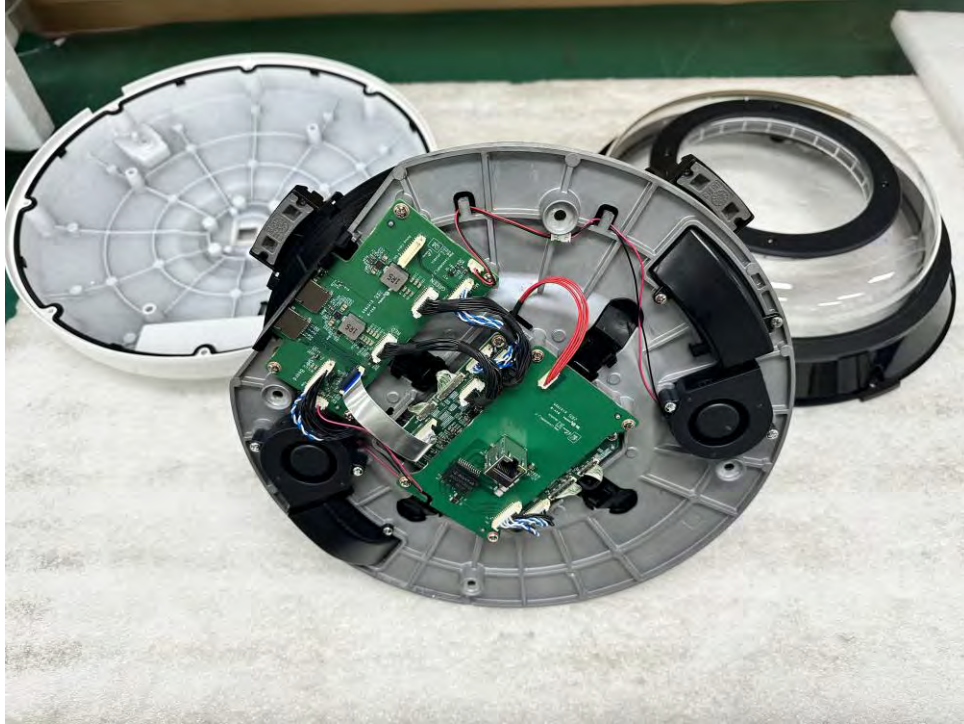


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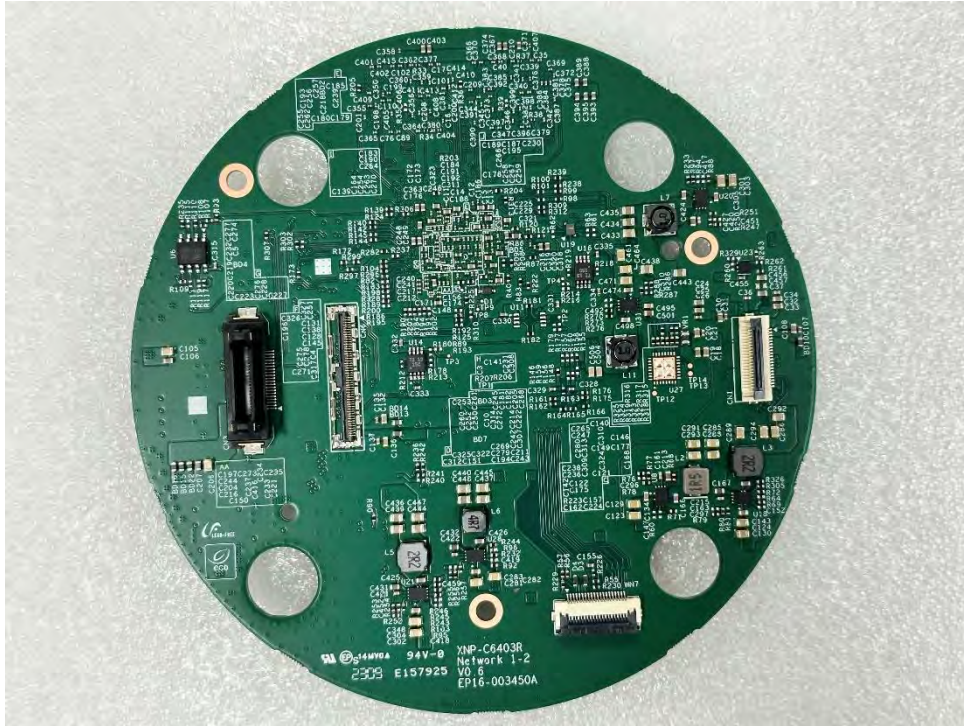
EUT Internal Photographs

(Internal View)

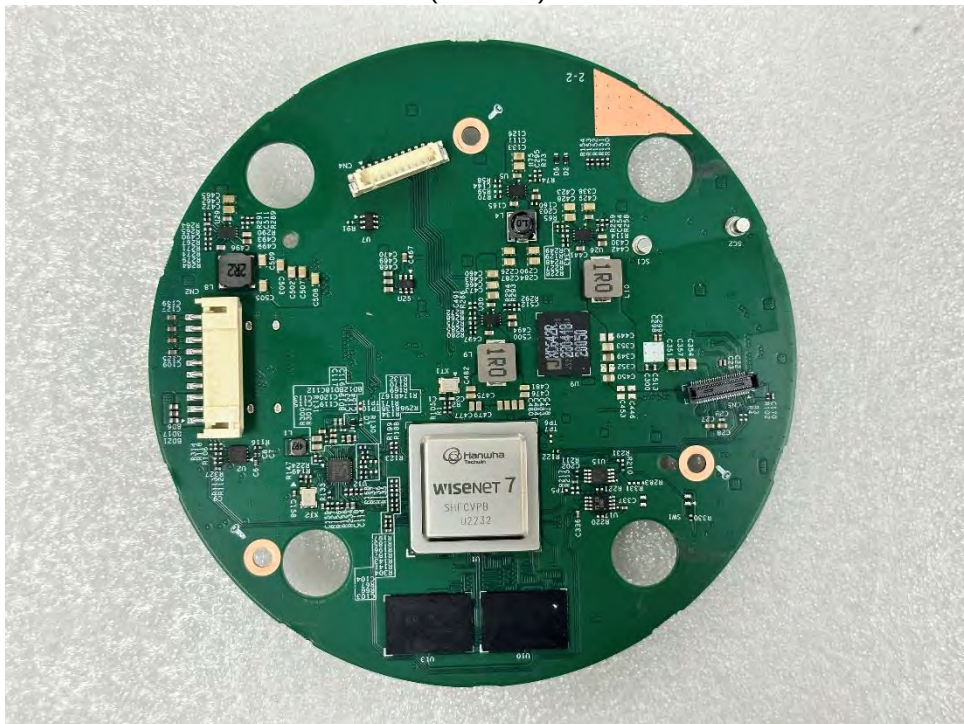


EUT Internal View – Main Board

(Top)



(Bottom)



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EUT Internal View – IR Board 1

(Top)



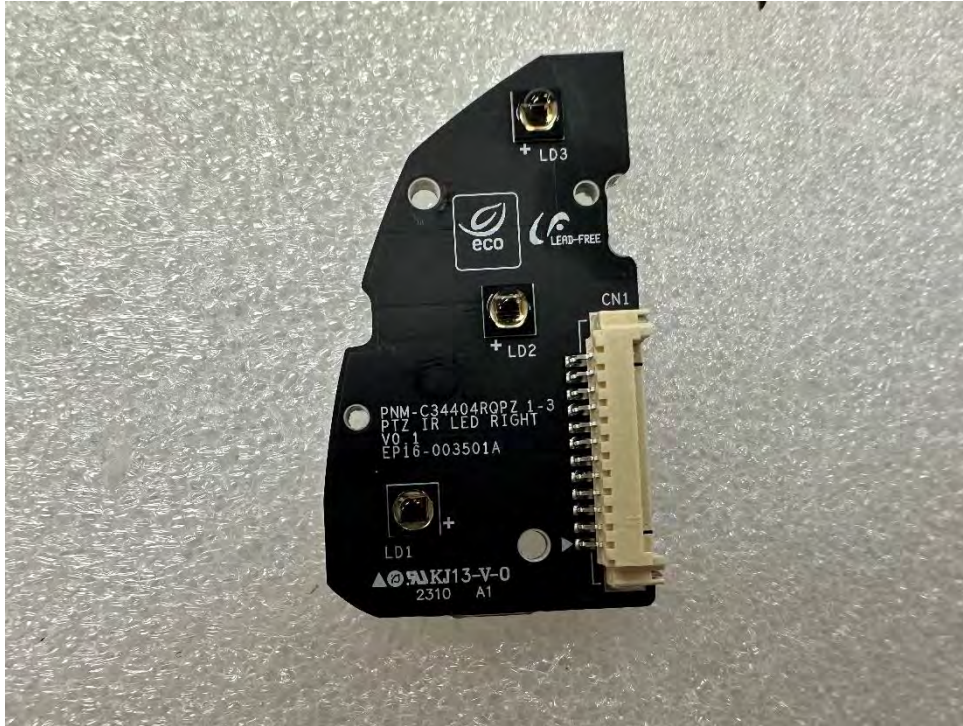
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EUT Internal View – IR Board 2

(Top)



(Bottom)



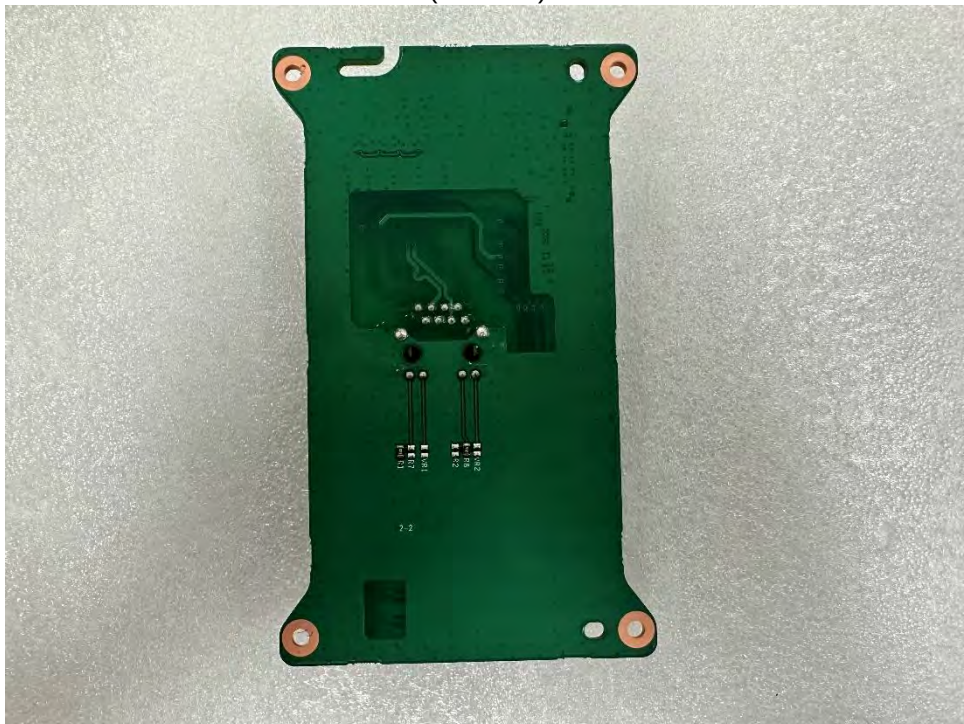
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EUT Internal View – LAN Board

(Top)



(Bottom)



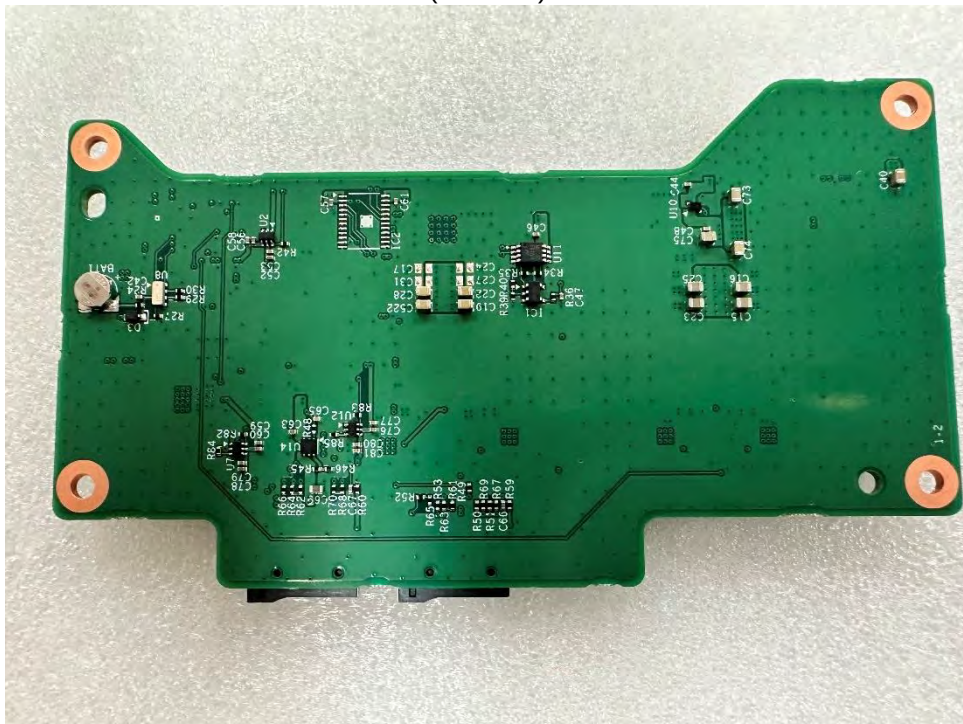
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EUT Internal View – MICRO SD Card Board

(Top)



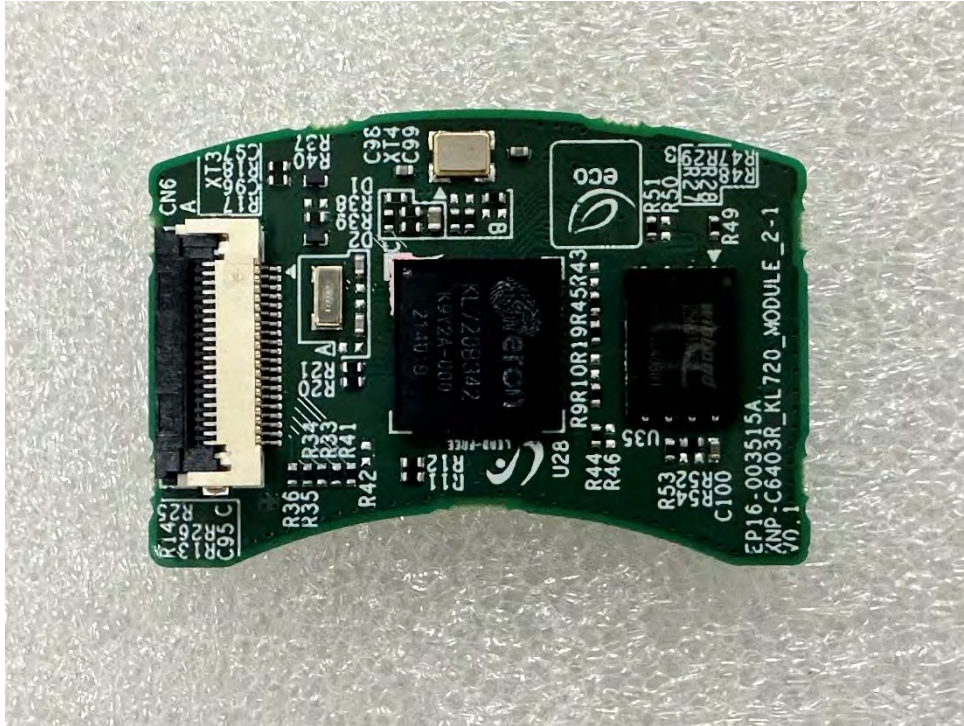
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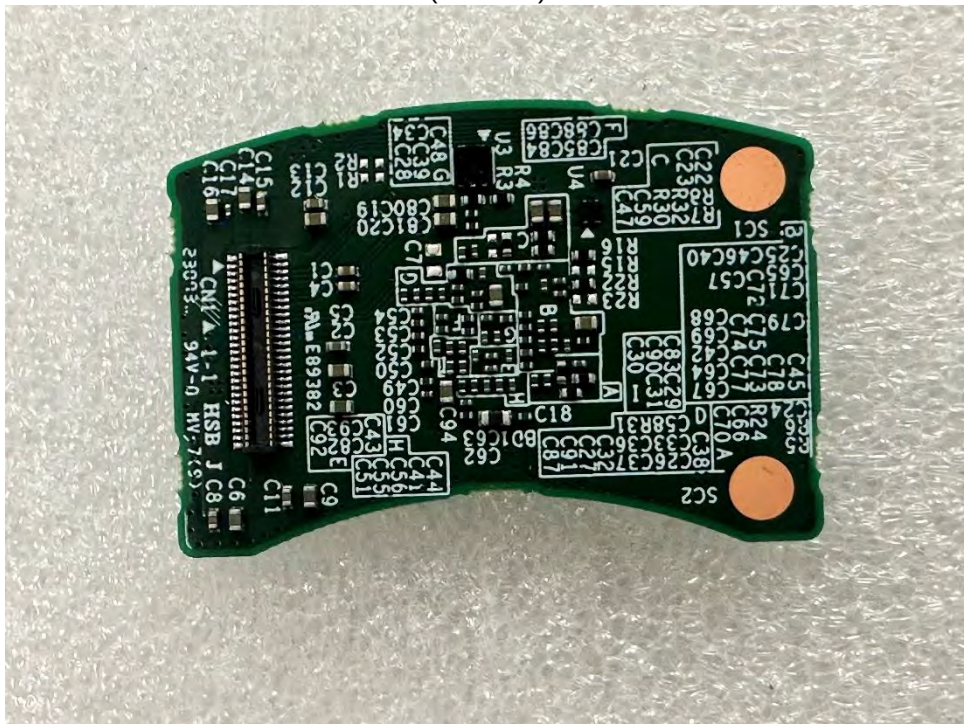
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EUT Internal View – SUB Board 1

(Top)



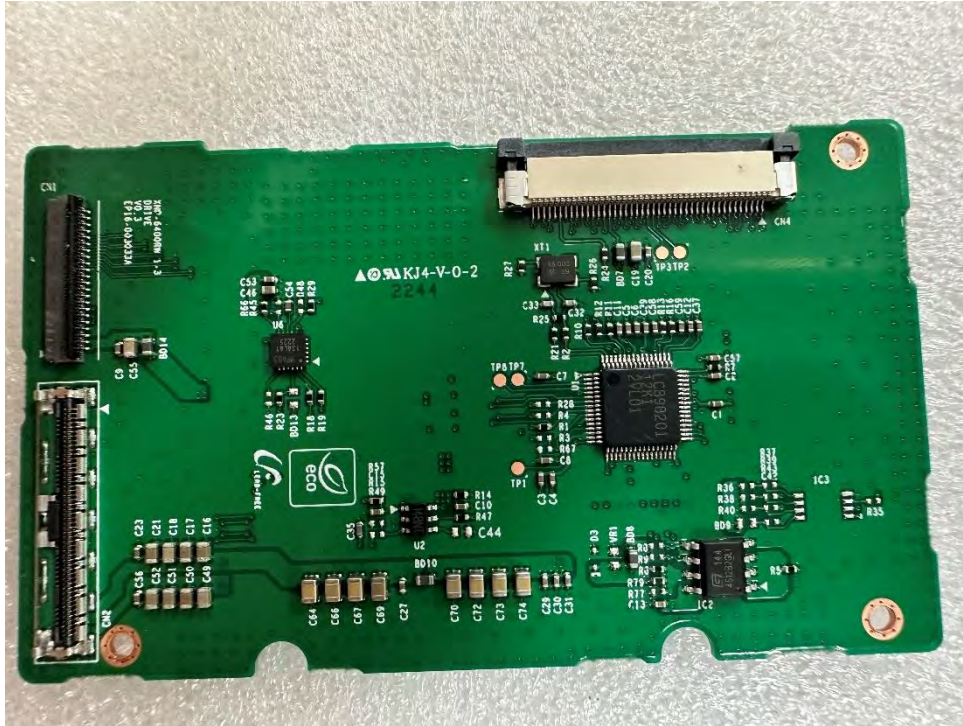
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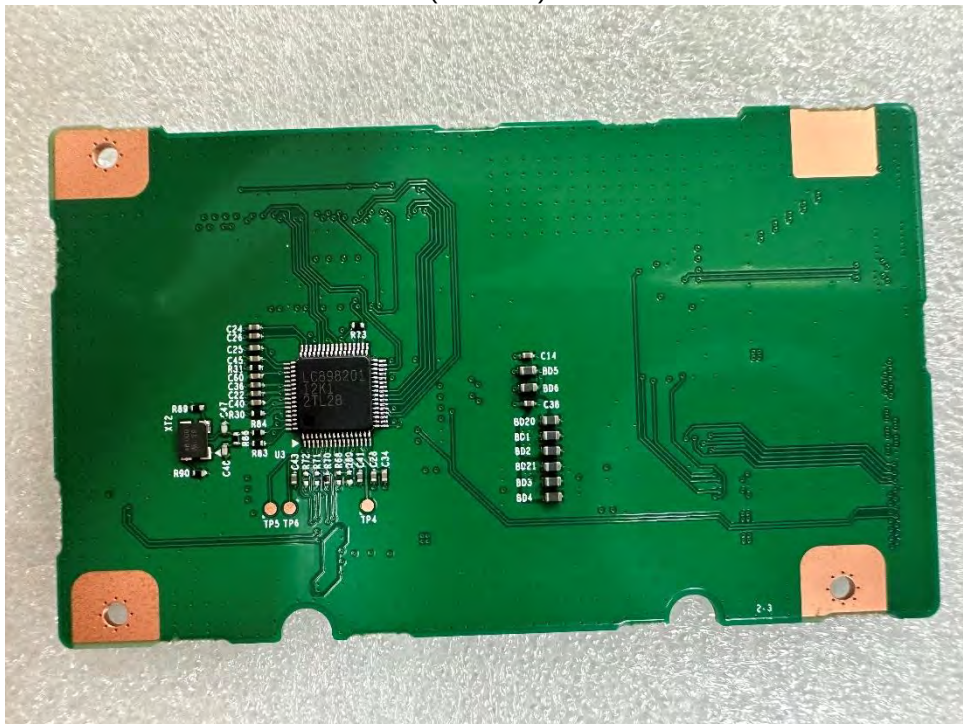
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EUT Internal View – SUB Board 2

(Top)



(Bottom)



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EUT Internal View – Camera LED Board

(Top)



(Bottom)



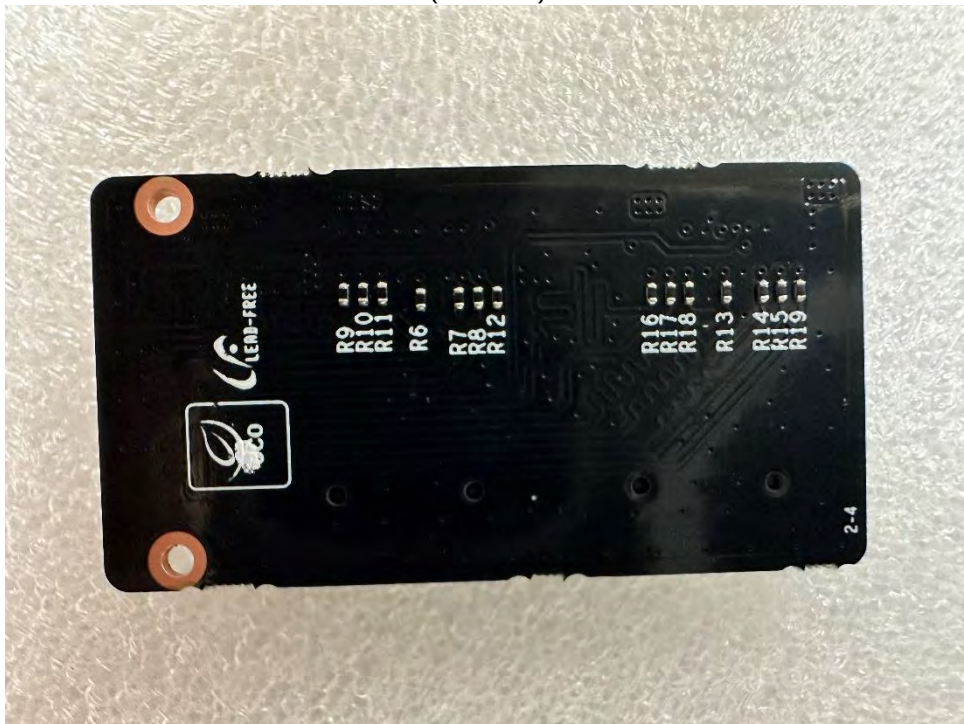
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EUT Internal View – Camera Micro SD Card Board

(Top)



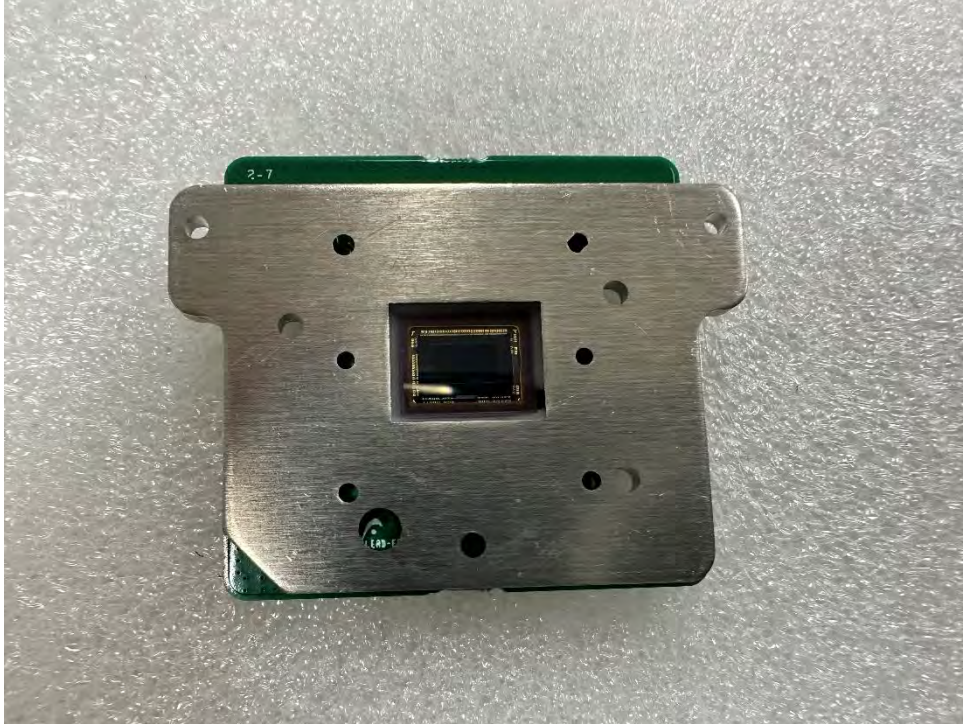
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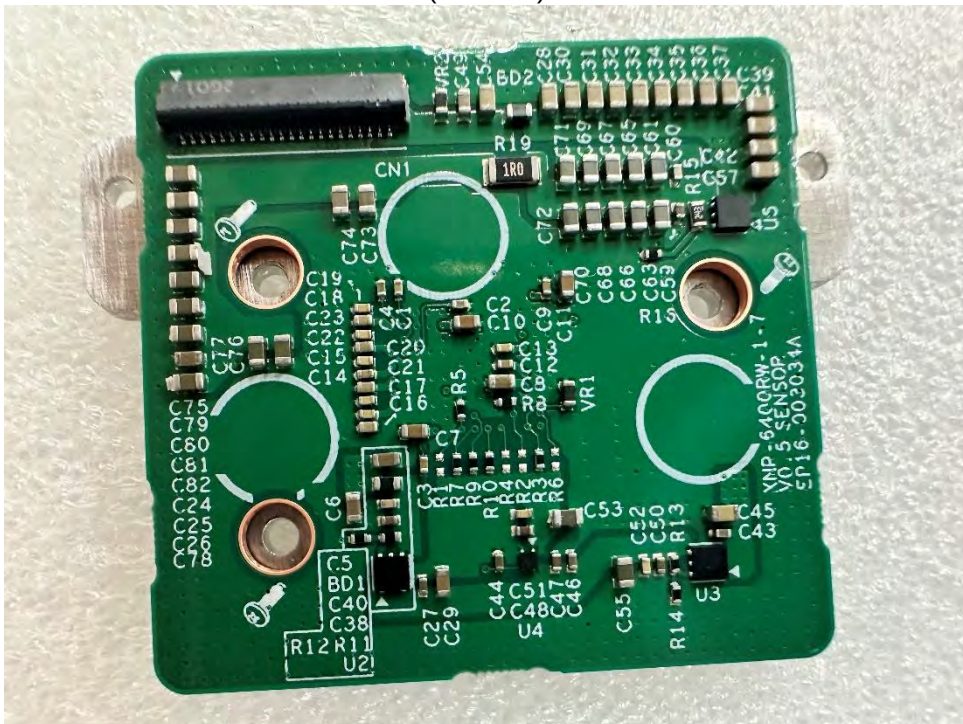
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EUT Internal View – Camera Lens Board

(Top)



(Bottom)



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EUT Internal View – Camera Motor

(Top)



(Bottom)

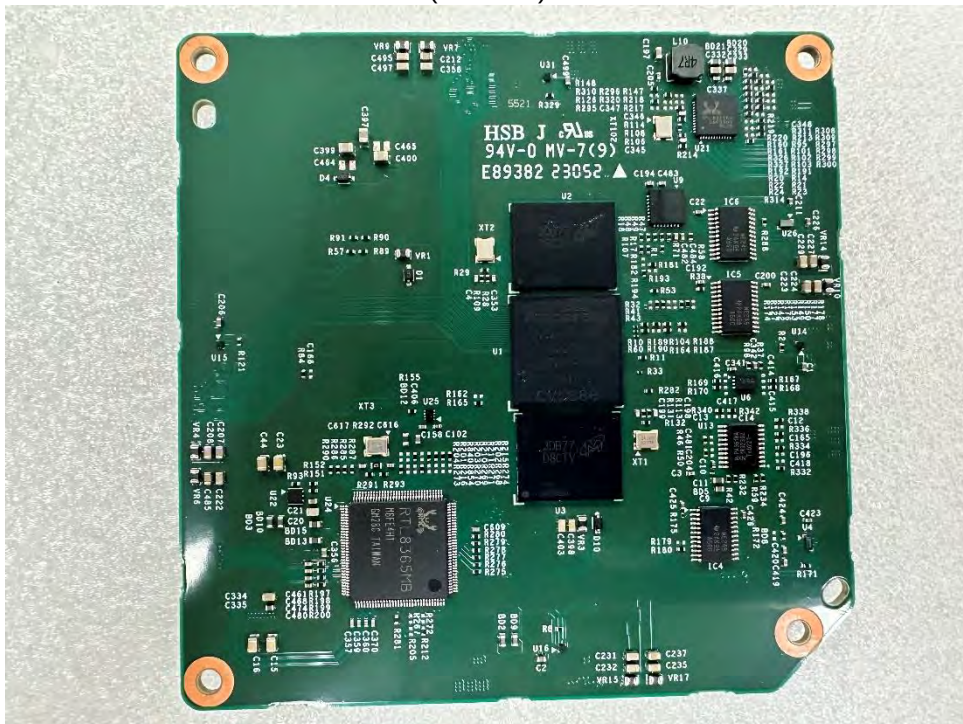


EUT Internal View – Camera Board

(Top)



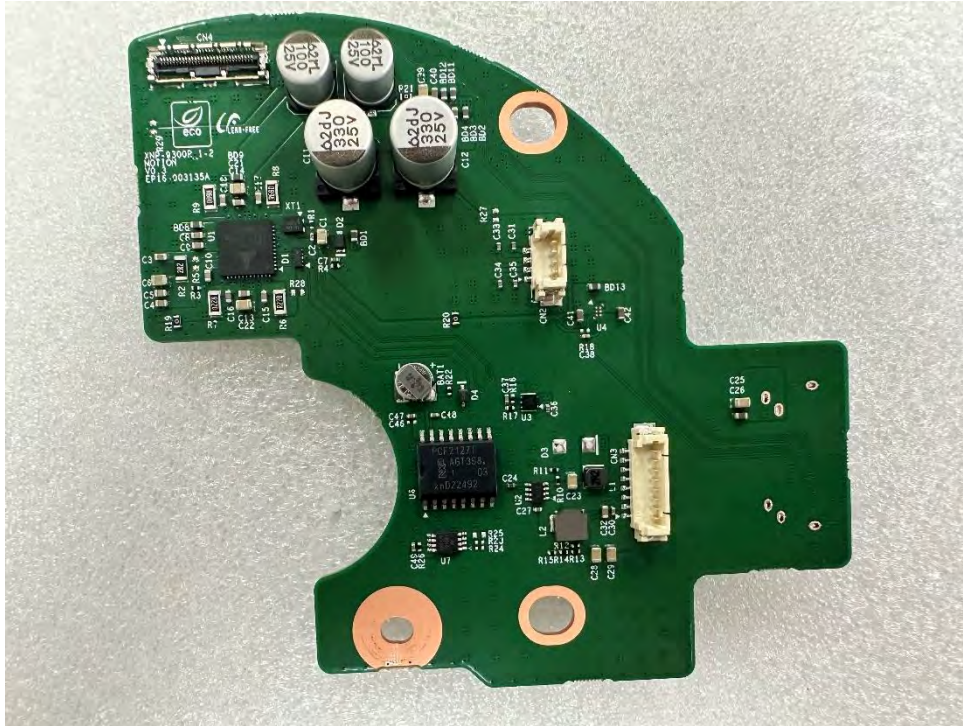
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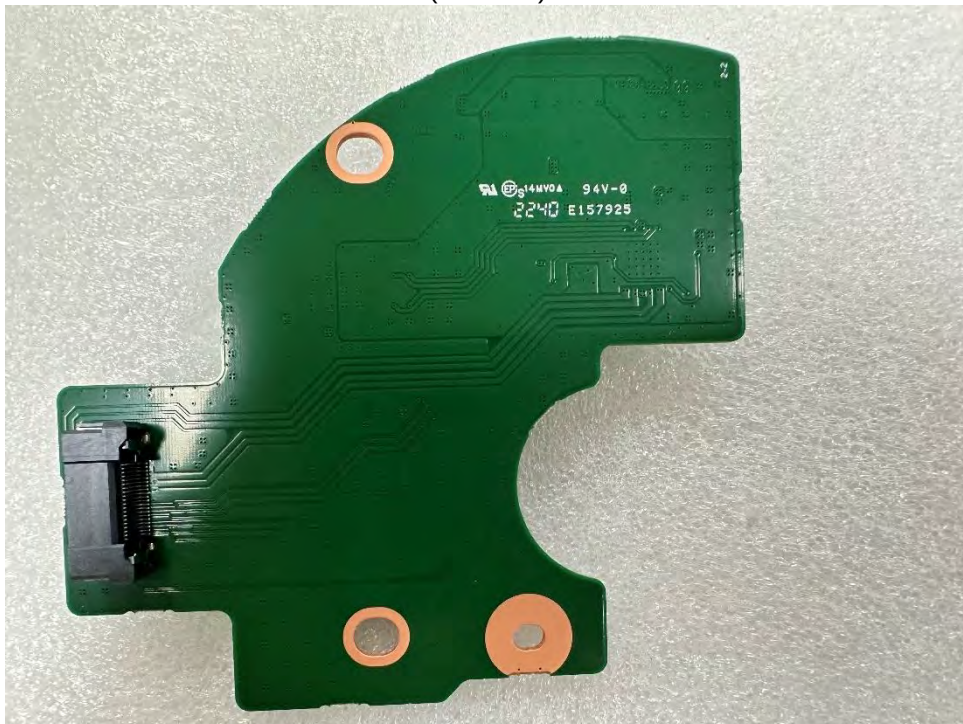
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EUT Internal View – Camera SUB Board 1

(Top)



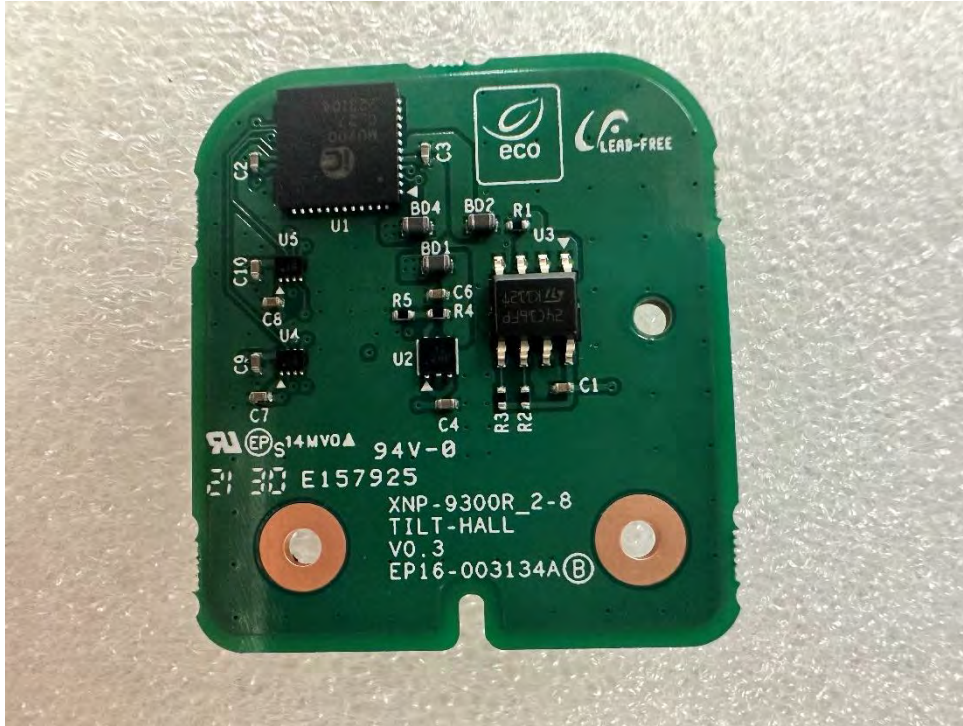
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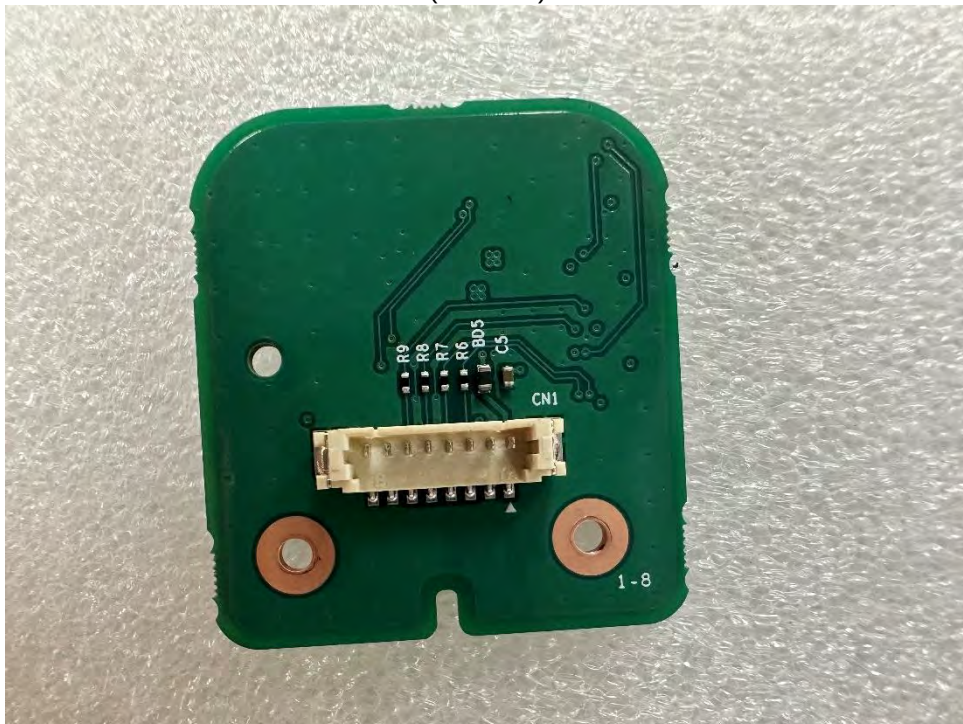
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EUT Internal View – Camera SUB Board 2

(Top)



(Bottom)

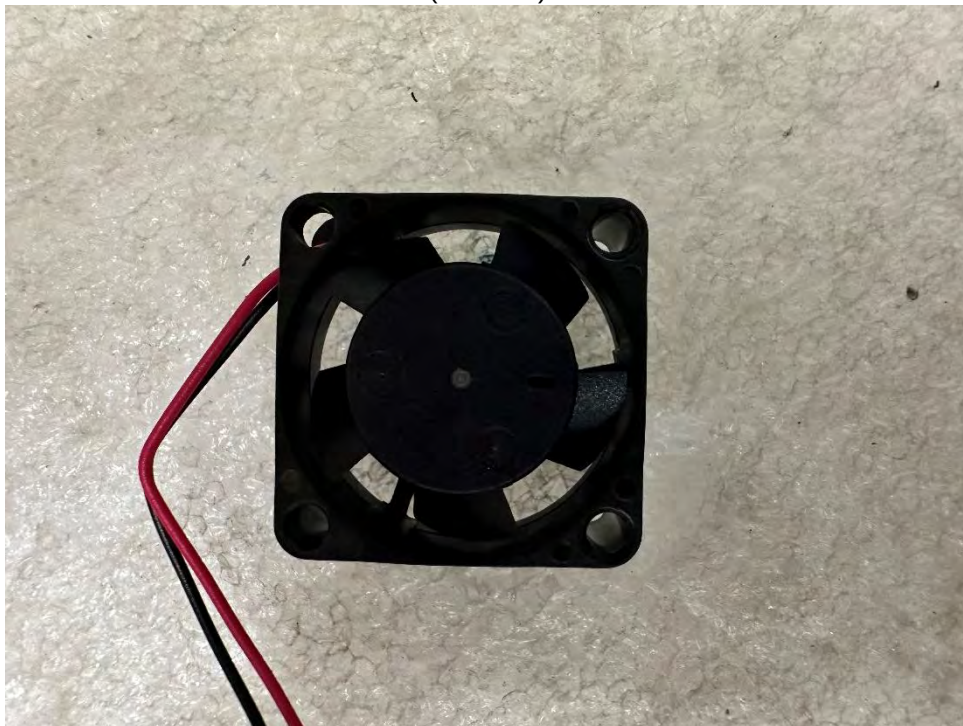


EUT Internal View – Camera Cooler 1

(Top)



(Bottom)



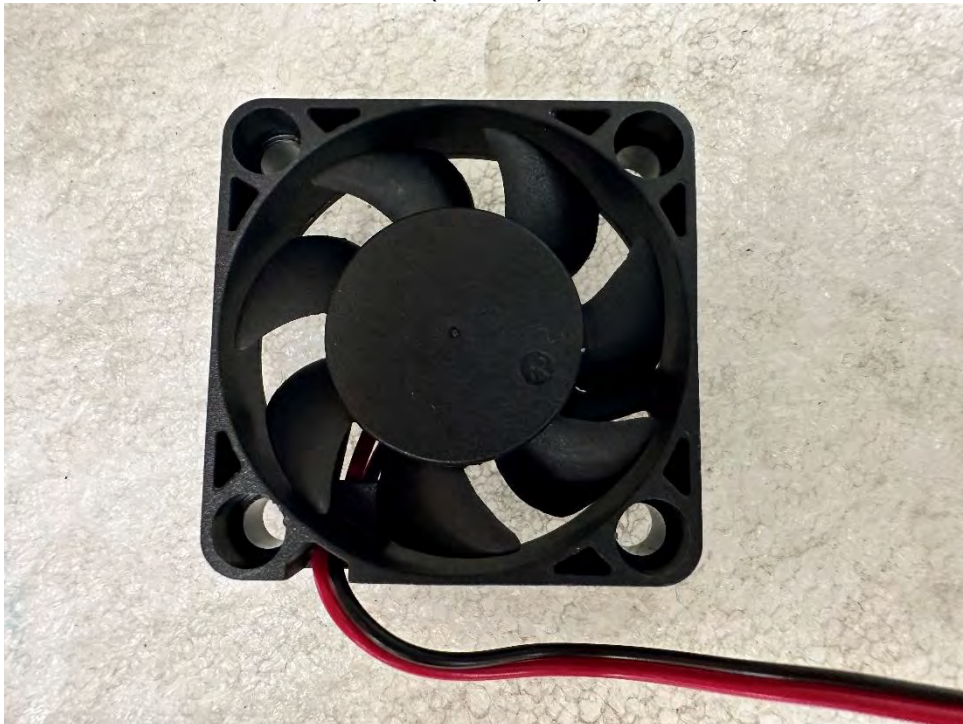
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EUT Internal View – Camera Cooler 2

(Top)



(Bottom)



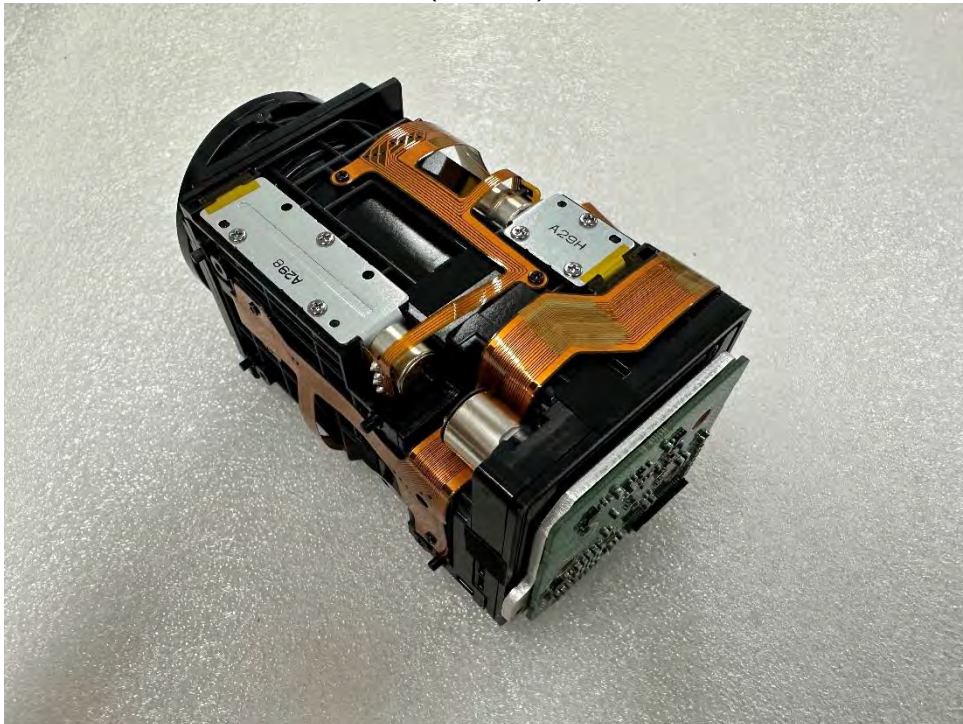
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EUT Internal View – Camera

(Top)



(Bottom)



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