



TEST REPORT



Report No. : KES-EM250773

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KES Co., Ltd.

#3002, #3503, #3701, 40, Simin-daero365beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Republic of Korea
Tel : +82-31-425-6200, Fax : +82-31-341-3838

1. Client

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

2. Sample Description

Product name : NETWORK CAMERA
Model/Type No. : PNM-C19183RVTP
Variant Model : -
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 Ward, Bac Ninh City, Bac Ninh Province, Vietnam
2. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi-do, Korea (Suwon Industrial Complex)

3. Date of Receipt : Mar. 04, 2025

4. Test date : Mar. 11, 2025 ~ Mar. 13, 2025

5. Date of Issue : Apr. 09, 2025

6. Test Results : In Compliance

Tested by

Reviewed by

Dong Hyun, Won
EMC Test Engineer

Dong Hun, Jang
EMC Technical Manager

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

**REPORT REVISION HISTORY**

Date	Test Report No.	Revision History
Apr. 09, 2025	KES-EM250773	Issued

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1.0 General Product Description

Main Specifications of EUT are:

Spec Display Name	3CH camera	PTZ
Video		
Imaging Device	1/2.8" CMOS: each CH	1/2.8"
Resolution	2592x1944, 2560x1440, 1920x1080, 1280x960, 1280x720, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240	2592x1520, 2560x1440, 1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240
Max. Framerate	H.265/H.264: Max. 30fps/25fps (60Hz/50Hz) MJPEG: Max. 30fps/25fps (60Hz/50Hz) (@5MP Max. 5fps)	H.265/H.264: Max. 30fps/25fps (60Hz/50Hz) MJPEG: Max. 30fps/25fps (60Hz/50Hz) (@4MP Max. 5fps)
NETD	None	None
Pixel Size	None	None
Min. Illumination	Color: 0.08Lux (F2.0, 1/30sec) BW: 0.007Lux (F2.0, 1/30sec, 30IRE), 0Lux(IR LED on)	Color: 0.05Lux(F2.0, 1/30sec, 30IRE) BW: 0.005Lux(F2.0, 1/30sec, 30IRE)
Video Out	USB: Micro USB Type C, 1280x720 for installation	None
Video Transmission Distance	None	
Lens		
Focal Length (Zoom Ratio)	2.4mm	5.42~98.29mm(18x) zoom
Max. Aperture Ratio	F2.0	F2.0(Wide)~F3.27(Tele)
Angular Field of View	[5M] H: 123°/ V: 91°/ D: 159°	H: 53.1°(Wide)~3.39°(Tele) V: 31.75°(Wide)~1.98°(Tele) D: 60.8°(Wide)~3.92°(Tele)
Min. Object Distance	0.5m(1.64ft)	5.0m(16.40ft)
Focus Control	Fixed Focal	Oneshot AF, Focus save
Lens Type	Fixed Iris	auto iris(DC with hall sensor)
Mount Type	M12	None
Optional Lens	None	None
Pan / Tilt / Rotate		
Pan / Tilt / Rotate Range	None	-
Pan Range	None	360° Endless
Pan Speed	None	600°/sec, Manual: 0.024°/sec~250°/sec
Tilt Range	None	0°~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 ±0.2°
Operational		
Camera Title	Displayed up to 85 characters	
Direction Indicator	None	Support
Day & Night	Auto(ICR)	
Backlight Compensation	BLC, WDR, SDR	BLC, HLC, WDR, SDR
Wide Dynamic Range	extremeWDR(120dB)	
Digital Noise Reduction	WiseNR II (Based on AI engine), SSNRV	
Digital Image Stabilization	None	Support
Defog	Support	Support
Motion Detection	8ea, 8point Polygonal zones	
Privacy Masking	12ea(4 per ch), 4point quadrangle zones - Color: Grey/Green/Red/Blue/Black/White	12ea, 4point quadrangle zones - Color: Grey/Green/Red/Blue/Black/White
Gain Control	Low / Middle / High	Off / Max Gain / Manual
White Balance	ATW / AWC / Manual / Indoor / Outdoor	ATW / Narrow ATW / AWC / Manual / Indoor / Outdoor / Mercury / Sodium
LDC	Support	None
Electronic Shutter Speed	Minimum / Maximum / Anti flicker(1/5~1/12,000sec) Auto Prefer shutter control(Based on AI engine)	
Digital PTZ	None	None
Video Rotation	None	Flip, Mirror



Analytics	Classified object type: Person/Face/Vehicle/License plate Attributes: Vehicle (Color and Type: Car/Bus/Truck/Motorcycle/Bicycle), Person (upper and bottom clothing color) Support BestShot per object Analytics events based on AI engine - Object detection, Virtual line(Crossing/Direction), Virtual area(Loitering/Intrusion/Enter/Exit), Motion detection AI Analytics events - Motion detection(W/O WiseAI), Tampering, Virtual area(Appear/Disappear) * Audio detection(via optional I/O box)	Classified object type: Person/Face/Vehicle/License plate Attributes: Vehicle (Color and Type: Car/Bus/Truck/Motorcycle/Bicycle), Person (upper and bottom clothing color) Support Detection Shot per object Analytics events based on AI engine - Object detection, Virtual line(Crossing/Direction), Virtual area(Loitering/Intrusion/Enter/Exit) Analytics events - Motion detection, Tampering, Virtual area(Appear/Disappear) * Audio detection (via optional I/O box)
Business Intelligence	Based on AI engine: People counting, Vehicle counting, Queue management, Heatmap	None
Serial Interface	None	None
Alarm I/O	via optional I/O box	via optional I/O box
Alarm Triggers	Analytics, Network disconnect, Alarm input(Via optional I/O box SPM-4210), App event, Schedule, MQTT subscription	
Alarm Events	When alarm trigger occurred - File upload(image): e-mail/FTP - Notification: e-mail - Recording: SD/SDHC/SDXC or NAS recording at event triggers - Alarm output(with NW I/O box SPM-4210) - Handover: PTZ preset, Send message by HTTP/HTTPS/TCP - MQTT: publication	
Audio In	via optional I/O box	via optional I/O box
Audio Out	via optional I/O box	via optional I/O box
IR Viewable Length	15m(49.21ft) 10m(32.8ft) under 3m height installation	None
IR Illuminator (Optional)	None	None
Water Removal	None	None
Auto Tracking	None	Object auto tracking(Person/Vehicle), Target lock tracking
Coaxial Protocol	None	None
Color Palettes	None	None
Radiometry		
Temperature Detect Range	None	
Temperature Accuracy	None	
Temperature Detection	None	
Additional	None	
Network		
Ethernet	Metal shielded RJ-45(10/100/1000BASE-T)	
Video Compression	H.265/H.264: Main/Baseline/High, MJPEG	
Audio Compression	None	
Smart Codec	Manual(Sea area), WiseStream (Option: AI engine)	Manual(Sea area), WiseStreamII
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(5 users per profile) / Multicast Multiple streaming(Up to 4 profiles per channel)	Unicast(5 users per profile) / Multicast Multiple streaming(Up to 3 profiles)
Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP,RTSP, NTP, HTTP, HTTPS, SSL/TLS/StartTLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, PIM-SM, UPnP, Bonjour, LLDP, CDP, SRTP(TCP, UDP Unicast), MQTT	
Security	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 Private Root CA, pre-installed)	
SIP support (VoIP, Peer-to-peer, SIP/P	None	None
Application Programming Interface	ONVIF Profile S/T/G/M SUNAPI(HTTP API) Wisenet open platform	



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Security		
OS / Firmware Protect	Secure boot, Verify firmware forgery, Firmware encryption	
User authentication	Digest Authentication, Privent brute-force attack	
Network authentication	802.1X Authentication(EAP-TLS, EAP-LEAP, EAP-PEAP MSCHAPv2)	
Secure Communication	HTTPS, SRTP, WSS(Websocket secure)	
Access Control	IP address filtering	
Data Protect	Authentication information encryption, ZIP compression encryption	
Audit	User Access/System/Event log	
Device ID	Device Certificate(Hanwha Techwin Root CA, pre-installed)	
Secure Storage	FIPS 140-3	
Security Certificate	Secure by default	
General		
Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Portuguese, Czech, Polish, Turkish, Dutch, Greek, Hungarian	
Web Viewer	None	
Edge Storage	Micro SD/SDHC/SDXC 2slot Max. 2TB(1TBx2)	
Memory	8GB RAM, 8GB eMMC	4GB RAM, 512MB Flash
Environmental & Electrical		
Operating Temperature / Humidity	-40°C~-+55°C(-40°F~-+131°F) * Start up should be done at above -35°C 0~95% RH(non-condensing), Humidity control /w AIR vent	
Storage Temperature / Humidity	-50°C~-+60°C(-58°F~-+140°F) / 0~90% RH	
Certification	IP66, NEMA4X, IK10	
Input Voltage	PoE++(IEEE802.3bt type 3, Class6)	
Power Consumption	PoE++: Max 42W, typical 32W	
Mechanical		
Color / Material	White / Aluminum Hard-coated dome bubble	
RAL Code	RAL9003	
Product Dimensions / Weight	Ø251.4x212, weight 4.8kg	
Compatible Conduit hole / Gangbox	3/4" (M25)/ single, double, 4" octagon, 4" square	
Hanging Mount (Dome)	SBP-250HMMW	
Skin Cover (Dome)	None	
Weather Cap (Dome)	None	
Power Module	None	
Backbox	None	
Certifications & Standards		
Network	None	
EMC	FCC 47 CFR 15 Subpart B Class A ICES-3(A)/NMB-3(A) CE/UKCA - EN 55032 Class A, EN 50130-4 VCCI CISPR 32 Class A RCM AS/NZS CISPR 32 Class A KS C 9832 Class A , KS C 9835	
Safety	UL 62368-1, CAN/CSA C22.2 NO. 62368-1 IEC 62471	
Environment	EN IEC 63000 IEC 60529 IP66, IEC 62262 IK10 NEMA 250 type 4X	
Video	None	
DORI (EN62676-4 standard)		
Detect (25PPM/ 8PPF)	28.1m(92.35ft)	Wide: 103.7m(340.4ft) / Tele: 1751.8m(5474.5ft)
Observe (63PPM/ 19PPF)	11.3m(36.94ft)	Wide: 41.5m(136.2ft) / Tele: 700.7m(2299.0ft)
Recognize (125PPM/ 38PPF)	5.6m(18.47ft)	Wide: 20.7m(68.1ft) / Tele: 350.4m(1149.5ft)
Identify (250PPM/ 76PPF)	2.8m(9.23ft)	Wide: 10.4m(34.0ft) / Tele: 175.2m(574.8ft)



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 50 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-C19183RVTP	-	HANWHA VISION VIETNAM COMPANY LIMITED	EUT
Fiber PoE Injector	PT-PSE109GBRO-AH-S	-	Dongguan PROCET Network Technology Co.,Ltd	R-R-LJ9- PSE109GBR O-A02

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Notebook1	P95G001	9JM8HT2	DELL INC.	-
Notebook1 Adapter	HA65NM130	-	Chicony Power Technology (Suzhou)Co.,Ltd.	-
Notebook2	LG15N54	506NZGK000615	엘지전자(주)	-
Notebook2 Adapter	PA-1650-43(65W)	OF58U63849302Y6 09	엘지전자(주)	-
PoE Adapter	PT-PSE106GBR- AH-S	-	Dongguan PROCET Network Technology Co.,Ltd	-
Micro SD Card1	-	-	TKR	8 GB
Micro SD Card2	-	-	Transcend	32 GB



1.6 External I/O Cabling

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (EUT)	RJ-45 (PoE)	Fiber PoE Injector (EUT)	RJ-45 (PoE)	1.8	U
	Micro SD Slot	Micro SD Card1	Micro SD Slot	-	-
	Micro SD Slot	Micro SD Card2	Micro SD Slot	-	-
Fiber PoE Injector (EUT)	RJ-45 (LAN)	Notebook1	RJ-45 (LAN)	3.1	U
	SFP (Optical)	PoE Adapter	SFP (Optical)	5.2	U
	Ground	Enclosure ground	Ground	1.6	-
PoE Adapter	RJ-45 (LAN)	Notebook2	RJ-45 (LAN)	1.6	U
Notebook1	DC Jack	Notebook1 Adapter	Line	2.0	U
Notebook2	DC Jack	Notebook2 Adapter	Line	1.8	U

* Unshielded=U, Shielded=S

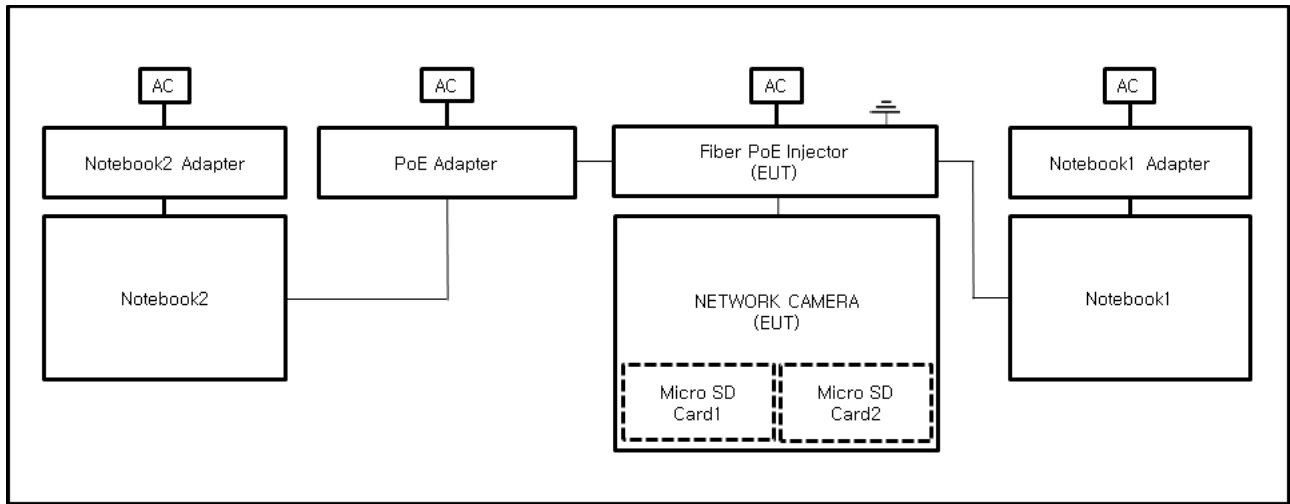
1.7 EUT Operating Mode(s)

Test mode	Normal operating
Operating	<ul style="list-style-type: none">- Check the network behavior of the EUT with the Notebook1's Ping Test.- View images of the camera through the Web Viewer.- Check the operation of the SFP port through of the PoE Adapter with the Notebook2's Ping Test.- After testing, check the recording with Micro SD Card.

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



1.8 Configuration



**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 0008



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/A1:2014

☒ EN IEC 61000-3-2:2019

☒ EN 61000-3-3:2013/A2:2021

☒ **EMC – Regulations 2016**

☒ EN 55032:2015/A11:2020

☒ Class A

☐ Class B

☒ EN 50130-4:2011/A1:2014

☒ EN IEC 61000-3-2:2019

☒ EN 61000-3-3:2013/A2:2021



2.1 Conducted Emissions at Mains Power Ports

Test Date

Mar. 13, 2025

Test Location

Electro wave Shieldroom #6

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EMC32	R & S	9.12.00	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESR3	R & S	101783	11, 06, 2025
<input checked="" type="checkbox"/>	LISN	ENV216	R & S	101786	01, 09, 2026
<input checked="" type="checkbox"/>	ARTIFICIAL MAINS NETWORK	ESH2-Z5	R & S	100450	11, 06, 2025
<input checked="" type="checkbox"/>	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 06, 2025

Test Conditions

Temperature: (23,3 ± 0,1) °C

Relative Humidity: (46,0 ± 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

Mar. 13, 2025

Test Location

Electro wave Shieldroom #6

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EMC32	R & S	9.12.00	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESR3	R & S	101783	11, 06, 2025
<input checked="" type="checkbox"/>	LISN	ENV216	R & S	101786	01, 09, 2026
<input checked="" type="checkbox"/>	ARTIFICIAL MAINS NETWORK	ESH2-Z5	R & S	100450	11, 06, 2025
<input checked="" type="checkbox"/>	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 06, 2025
<input checked="" type="checkbox"/>	8-WIRE ISN CAT6	NTFM 8158	SCHWARZBECK	8158-0029	01, 09, 2026

Test Conditions

Temperature: (23,3 ± 0,1) °C
Relative Humidity: (46,0 ± 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.



2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Mar. 12, 2025

Test Location☒ SEMI ANECHOIC CHAMBER #4(10m)**Test Equipment**

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESU26	R & S	100551	02, 13, 2026
<input checked="" type="checkbox"/>	AMPLIFIER	SCU 01	R & S	100603	11, 06, 2025
<input checked="" type="checkbox"/>	BILOG ANTENNA	VULB 9168	SCHWARZBECK	9168-461	05, 09, 2026
<input checked="" type="checkbox"/>	ATTENUATOR	6806.17.A	HUBER+SUHNER	-	02, 13, 2026

Test Conditions

Temperature: (23,2 ± 0,1) °C

Relative Humidity: (46,1 ± 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

Mar. 12, 2025

Test Location

SEMI ANECHOIC CHAMBER #5

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	ES10/RE	TOYO Corporation	2022.01.000	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESU26	Rohde & Schwarz	100552	02, 13, 2026
<input checked="" type="checkbox"/>	HORN ANTENNA	BBHA 9120D	SCHWARZBECK	9120D-1802	11, 04, 2025
<input checked="" type="checkbox"/>	PREAMPLIFIER	8449B	HP	3008A00538	04, 30, 2025
<input checked="" type="checkbox"/>	ATTENUATOR	8491B	HP	23094	02, 13, 2026

Test Conditions

Temperature: (23,3 ± 0,1) °C

Relative Humidity: (46,2 ± 0,1) % 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.The Average of the test data is the cispr average result.



2.5 Harmonic Current Emissions

Test Date

Mar. 13, 2025

Test Location

Electro wave Shieldroom #7

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	net.control	EM TEST	2.1.4	-
<input checked="" type="checkbox"/>	DIGITAL POWER ANALYZER	DPA 500N	EM TEST	V1024106759	03, 28, 2025
<input checked="" type="checkbox"/>	POWER SOURCE	ACS 500N6	EM TEST	V1024106760	-

Test Conditions

Temperature: (22,9 ± 0,1) °C

Relative Humidity: (46,2 ± 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

RemarksSee Appendix A for test data.



2.6 Voltage Fluctuations and Flicker

Test Date

Mar. 13, 2025

Test Location

Electro wave Shieldroom #7

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	net.control	EM TEST	2.1.4	-
<input checked="" type="checkbox"/>	DIGITAL POWER ANALYZER	DPA 500N	EM TEST	V1024106759	03, 28, 2025
<input checked="" type="checkbox"/>	POWER SOURCE	ACS 500N6	EM TEST	V1024106760	-

Test Conditions

Temperature: (22,9 ± 0,1) °C

Relative Humidity: (46,2 ± 0,1) % R.H.

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

RemarksSee Appendix A for test data.



3.0 Criteria for compliance

Criteria for compliance was based on the following guidelines:

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

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

If as a result of the application of the tests defined in this standard, the apparatus

becomes dangerous or unsafe then the apparatus shall be deemed to have failed the test.

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

Electrostatic discharge

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

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

Radiated electromagnetic fields

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

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

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

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

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

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

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

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



Fast transient burst / slow high energy voltage surge

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

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

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

Conducted RF immunity

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

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

That there is no residual is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change, and no such flickering of indicators oeuvres at $U = 130 \text{ dB}\mu\text{V}$.

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

- (a) there is no permanent damage or change to the EUT
(e.g. no corruption of memory or changes to programmable settings etc.)
- (b) at $U = 130 \text{ dB}\mu\text{V}$, any deterioration of the picture is so minor that the system could still be used; and
- (c) there in no observable deterioration of the picture at $U = 120 \text{ dB}\mu\text{V}$.

Voltage dip/interruption / Voltage variation

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

Flickering of an indicator during the conditioning is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change. The EUT shall meet the acceptance criteria for the functional test, after the conditioning.



3.1 Electrostatic Discharge

Reference Standard

EN 61000-4-2

Test Date

Mar. 12, 2025

Test Location

EMS-ESD: Electro wave Shieldroom #6

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	ESD SIMULATOR	ESS-2000	Noise Ken	ESS01Z0454	01, 21, 2026
<input checked="" type="checkbox"/>	HCP	-	KES	-	-
<input checked="" type="checkbox"/>	VCP	-	Noise Ken	-	-

Test Conditions

Temperature: (23,2 ± 0,1) °C
Relative Humidity: (46,0 ± 0,1) % R.H.
Atmospheric Pressure: (100,3 ± 0,1) 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

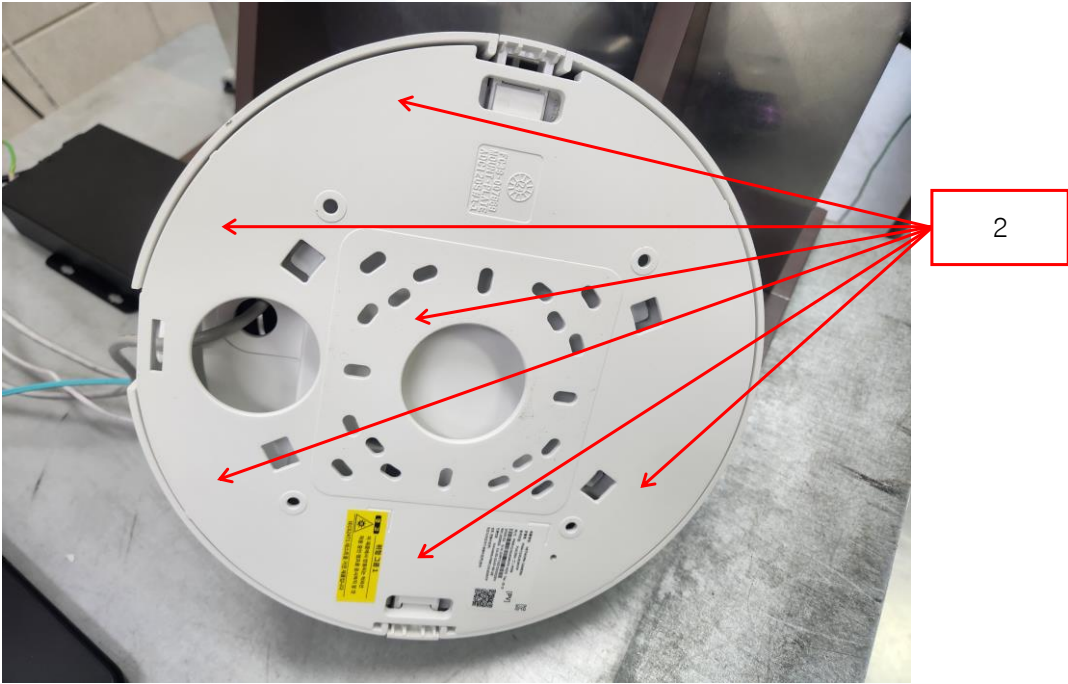
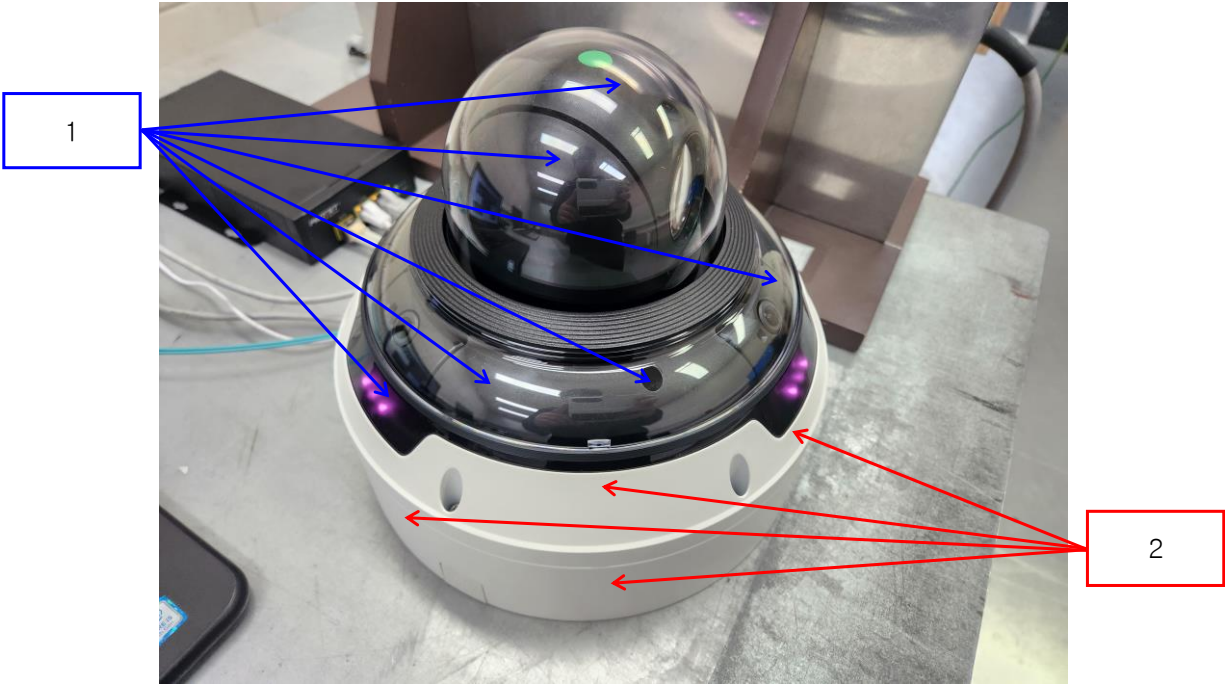
Discharge Voltage:	Contact	Air	HCP	VCP
	<input type="checkbox"/> 2 kV	<input checked="" type="checkbox"/> 2 kV	<input type="checkbox"/> 2 kV	<input type="checkbox"/> 2 kV
	<input type="checkbox"/> 4 kV	<input checked="" type="checkbox"/> 4 kV	<input type="checkbox"/> 4 kV	<input type="checkbox"/> 4 kV
	<input checked="" type="checkbox"/> 6 kV	<input type="checkbox"/> 6 kV	<input checked="" type="checkbox"/> 6 kV	<input checked="" type="checkbox"/> 6 kV
	<input type="checkbox"/> 8 kV	<input checked="" type="checkbox"/> 8 kV	<input type="checkbox"/> 8 kV	<input type="checkbox"/> 8 kV
	<input type="checkbox"/> 15 kV	<input type="checkbox"/> 15 kV	<input type="checkbox"/> 15 kV	<input type="checkbox"/> 15 kV

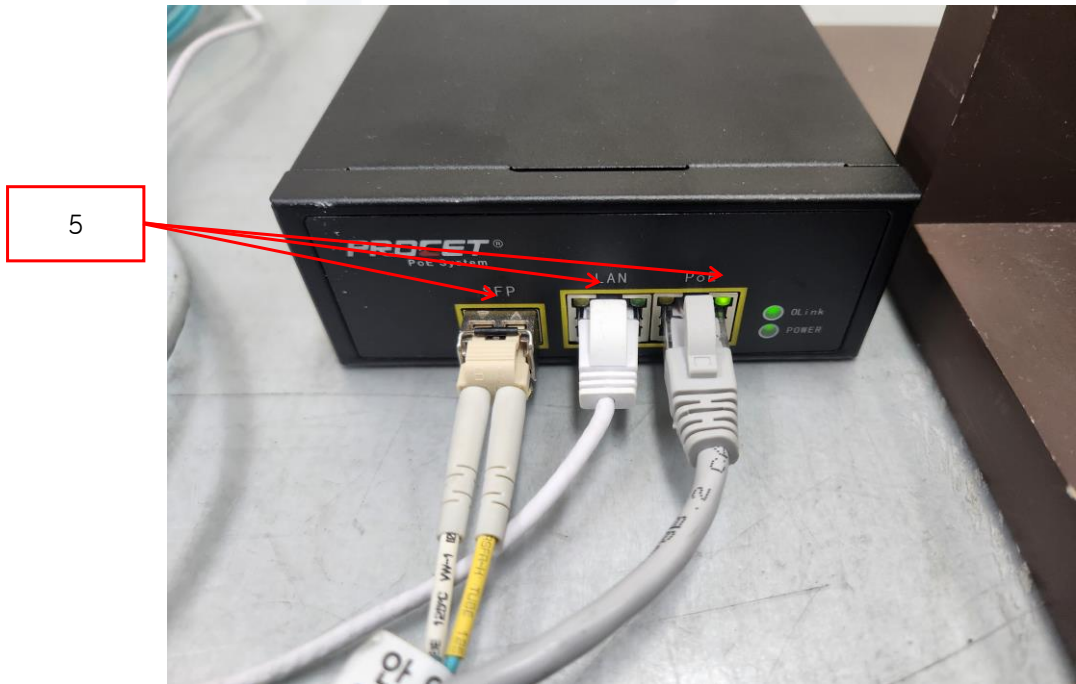
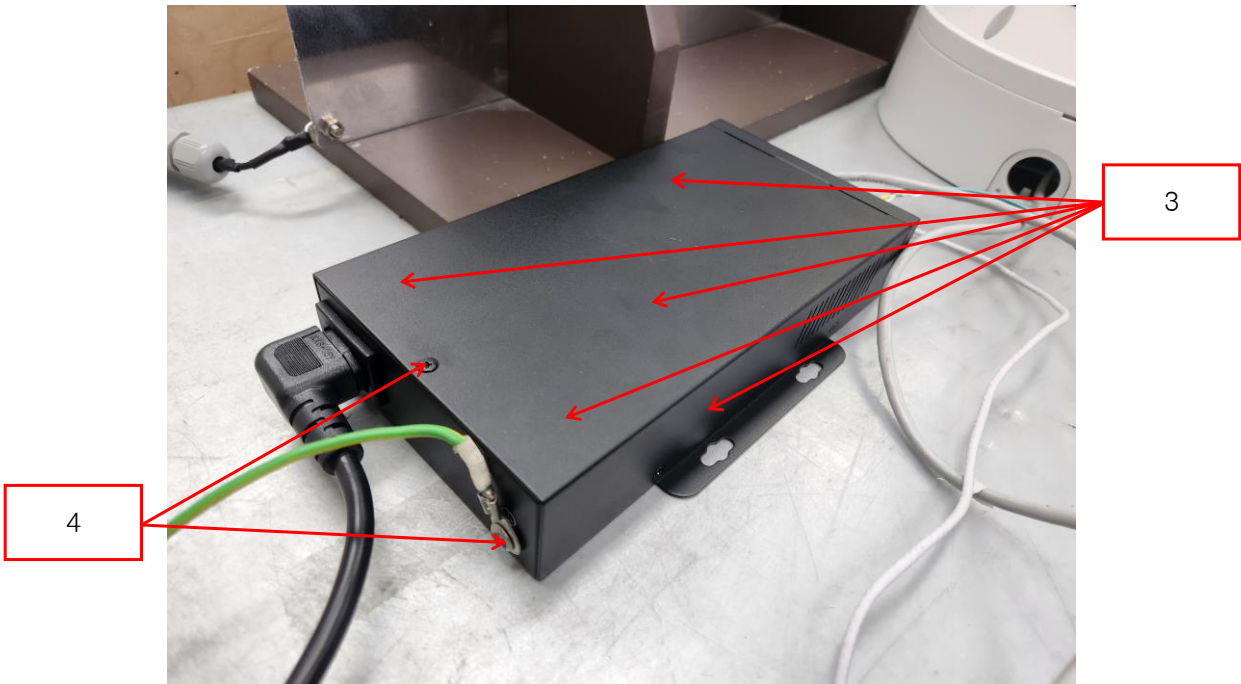
Notes: HCP: Horizontal coupling plane
VCP: Vertical coupling plane

Required Performance Criteria: ☒ Complied



Location of Discharge:





**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	Enclosure1	Air Discharge	Complied	-
2	Enclosure2	Contact Discharge	Complied	-
3	Fiber PoE Injector Enclosure	Contact Discharge	Complied	-
4	Fiber PoE Injector Screw	Contact Discharge	Complied	-
5	Fiber PoE Injector Port	Contact Discharge	Complied	-

Note: "Blank" = Not performed

Observations:

Complied – No degradation of function

Test Results

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

Remarks

PASS Required Performance Criteria



3.2 Radiated Electric Field Immunity

Reference Standard

EN IEC 61000-4-3

Test Date

Mar. 11, 2025

Test LocationEMS-RS: ☐ SEMI ANECHOIC CHAMBER #2☒ SEMI ANECHOIC CHAMBER #3**Test Equipment**

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMS Test S/W	EMC32	R & S	10.10.02	-
<input checked="" type="checkbox"/>	SIGNAL GENERATOR	SMB 100A	Rohde & Schwarz	108252	07, 29, 2025
<input checked="" type="checkbox"/>	HIGH POWER DUAL AMP	SSA532	SUNGSAN	SSA532-001	-
<input checked="" type="checkbox"/>	POWER METER	E4419B	Agilent	GB40203000	02, 13, 2026
<input checked="" type="checkbox"/>	AVERAGE POWER SENSOR	E9301A	Agilent	MY52170007	02, 13, 2026
<input checked="" type="checkbox"/>	AVERAGE POWER SENSOR	E9301A	Agilent	MY41498669	02, 13, 2026
<input checked="" type="checkbox"/>	STACKED DOUBLE LOG-PER- ANTENNA	STPL9128 E	Schwarzbeck	9128ES-121	-
<input checked="" type="checkbox"/>	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	03, 05, 2025

Test Conditions

Temperature: (23,5 ± 0,2) °C
Relative Humidity: (46,2 ± 0,1) % R.H.
Atmospheric Pressure: (100,3 ± 0,1) kPa



Test Specifications

Antenna Polarization: Horizontal & vertical unless indicated otherwise

Antenna Distance: ☒ 3 m

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

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

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

Frequency step: ☒ 1 % step

Dwell Time: ☐ 1 s ☒ 3 s

of Sides Radiated: ☒ 4

Required Performance Criteria: ☒ Complied

**Test Data**

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

Test Date

Mar. 13, 2025

Test Location

EMS-EFT: Electro wave Shieldroom #7

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMS Test S/W	iec.control	EM TEST	5.4.8	-
<input checked="" type="checkbox"/>	ULTRA COMPACT SIMULATOR	UCS 500N7	EM TEST	P1608172950	11, 06, 2025
<input checked="" type="checkbox"/>	MOTOR VARIAC	MV2616	EM TEST	P1552169719	11, 07, 2025
<input checked="" type="checkbox"/>	CAPACITIVE COUPLING CLAMP	HFK	EM TEST	P1633183115	11, 06, 2025

Test Conditions

Temperature: (22,9 ± 0,1) °C
Relative Humidity: (46,2 ± 0,1) % R.H.
Atmospheric Pressure: (100,0 ± 0,1) kPa

Test Specifications

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

Pulse Amplitude & Polarity: ☐ ± 0.5 kV ☒ ± 1.0 kV
(Other supply / Signal Lines) ☐ ± 2.0 kV

Burst Period: ☒ 300 ms ☐ 2 s

Repetition Rate: ☐ 5 klz ☒ 100 klz

Duration of Test Voltage: ☒ ≥ 1 min

Required Performance Criteria: ☒ Complied

**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

Test Date

Mar. 13, 2025

Test Location

EMS-Surge: Electro wave Shieldroom #7

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMS Test S/W	iec.control	EM TEST	5.4.8	-
<input checked="" type="checkbox"/>	ULTRA COMPACT SIMULATOR	UCS 500N7	EM TEST	P1608172950	11, 07, 2025
<input checked="" type="checkbox"/>	MOTOR VARIAC	MV2616	EM TEST	P1552169719	11, 07, 2025
<input checked="" type="checkbox"/>	CDN	CNV 508N1	EM TEST	P1610176296	11, 08, 2025

Test Conditions

Temperature: (22,9 ± 0,2) °C
Relative Humidity: (46,2 ± 0,1) % R.H.
Atmospheric Pressure: (100,0 ± 0,1) kPa



Test Specifications

AC Power Lines

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

Surge Amplitude :
Common Mode
☒ (0,5 / 1,0 / 2,0) kV
Differential Mode
☒ (0,5 / 1,0) kV

Number of Surges: ☒ 5 surges per angle

Angle: ☒ 0°, 90°, 180°, 270° (input a.c. power port)

Polarity: ☒ Positive & Negative

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

Required Performance Criteria: ☒ Complied

Other supply / Signal Lines

Source Impedance: 42 ohm for common Mode

Surge Amplitude:
Common Mode
☒ (0,5 / 1,0) kV

Number of Surges: ☒ 5 Surges

Polarity: ☒ Positive & Negative

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

Required Performance Criteria: ☒ Complied

**Test Data**☒ Line to Line – Differential Mode

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

☐ Line to Earth – Common Mode

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

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

Test Date

Mar. 12, 2025

Test Location

EMS-CS: Electro wave Shieldroom #7

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMS Test S/W	icd.control	EM TEST	7.2.0	-
<input checked="" type="checkbox"/>	TEST SYSTEM FOR CONDUCTED AND RADIATED	NSG4070	TESEQ	65585	11, 18, 2025
<input checked="" type="checkbox"/>	ATTENUATOR	ATT 6/80	EM TEST	P1614178148	11, 06, 2025
<input checked="" type="checkbox"/>	CDN	CDN M016	TESEQ	43694	11, 07, 2025
<input checked="" type="checkbox"/>	CDN	CDN M016	TESEQ	43697	11, 07, 2025
<input checked="" type="checkbox"/>	CDN	CDN T8RJ45	EM TEST	0909-09	07, 29, 2025

Test Conditions

Temperature: (23,0 ± 0,1) °C
Relative Humidity: (46,0 ± 0,1) % R.H.
Atmospheric Pressure: (100,2 ± 0,1) 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**☒ 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**Remarks**

PASS Required Performance Criteria



3.6 Voltage Dips and Short Interruptions

Reference Standard

EN IEC 61000-4-11

Test Date

Mar. 13, 2025

Test Location

EMS-Voltage dip: Electro wave Shieldroom #7

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMS Test S/W	iec.control	EM TEST	5.4.8	-
<input checked="" type="checkbox"/>	ULTRA COMPACT SIMULATOR	UCS 500N7	EM TEST	P1608172950	11, 07, 2025
<input checked="" type="checkbox"/>	MOTOR VARIAC	MV2616	EM TEST	P1552169719	11, 07, 2025

Test Conditions

Temperature: (22,9 ± 0,1) °C
Relative Humidity: (46,2 ± 0,1) % R.H.
Atmospheric Pressure: (100,0 ± 0,1) kPa

**Test Specifications & Observations/Remarks****- Voltage Dips and Short Interruptions**

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

- Voltage variations

<input checked="" type="checkbox"/> Unom + 10 %	<input checked="" type="checkbox"/> 253.0 V (ac)	<u>Complied</u>
<input checked="" type="checkbox"/> Unom - 15 %	<input checked="" type="checkbox"/> 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

Degradation : *During the test(100%, 250cycle), EUT was turned off but after the test, it was recovered without operator's intervention.

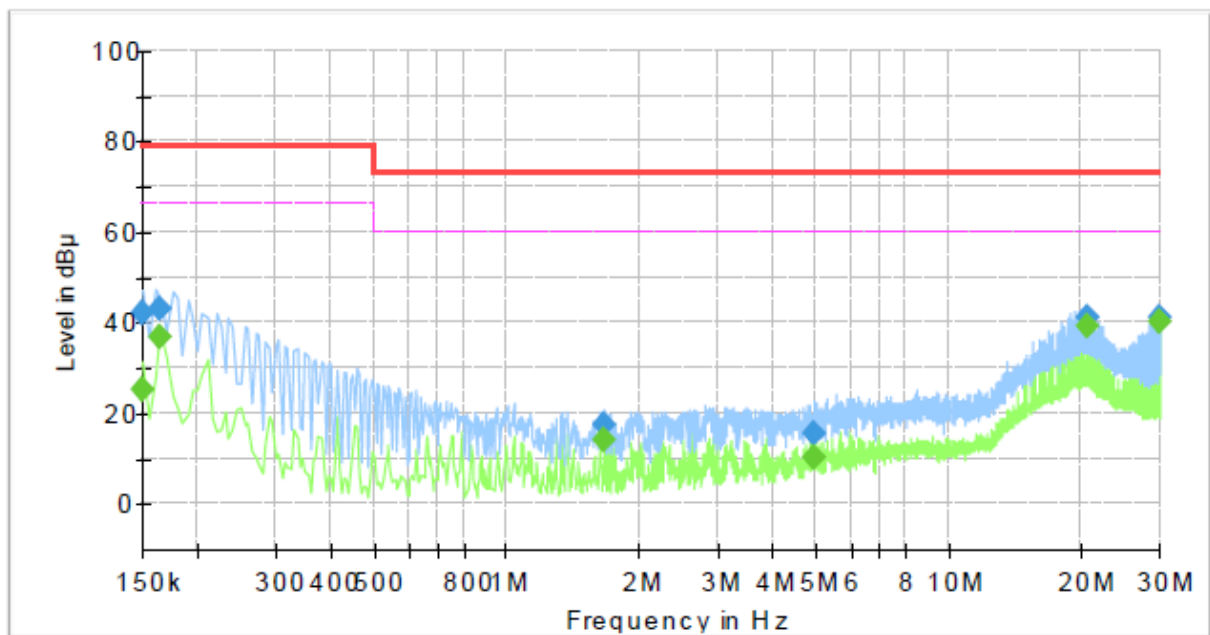


APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

[HOT]

Test Description: Conducted Emission
Job No.: KES-EM250773
Phase: L
Mode:
Operator Name: KES

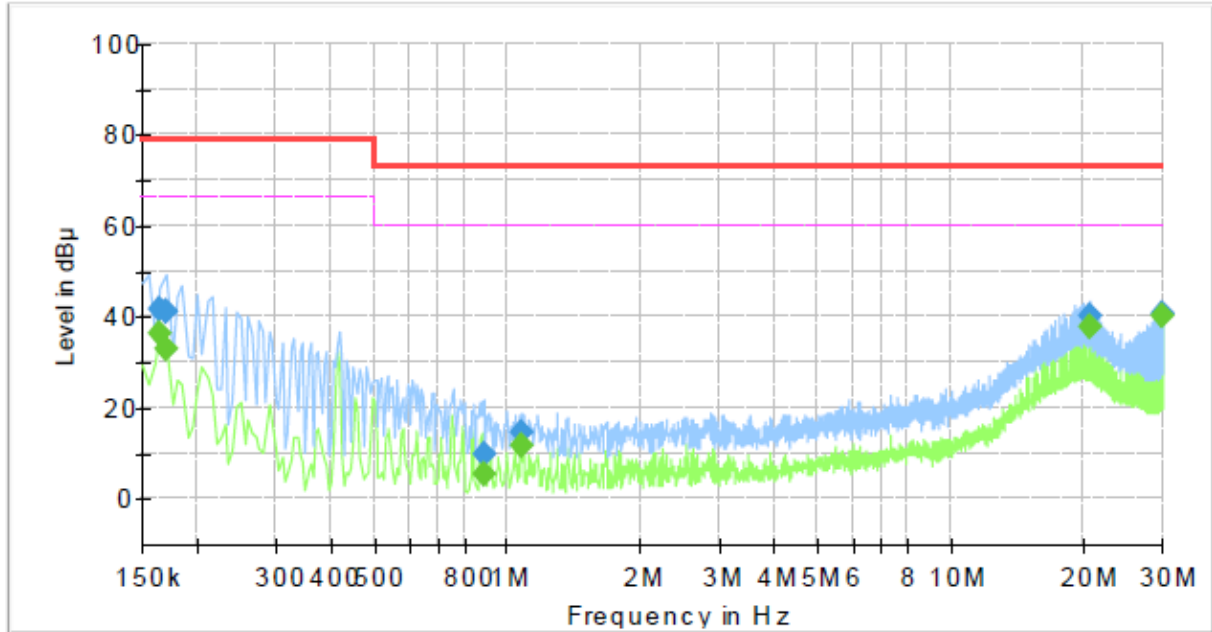


Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.150000	—	25.43	66.00	40.57	1000.0	9.000	L1	19.5
0.150000	42.11	—	79.00	36.89	1000.0	9.000	L1	19.5
0.165000	—	36.75	66.00	29.25	1000.0	9.000	L1	19.5
0.165000	42.86	—	79.00	36.14	1000.0	9.000	L1	19.5
1.665000	—	14.14	60.00	45.86	1000.0	9.000	L1	19.6
1.665000	17.39	—	73.00	55.61	1000.0	9.000	L1	19.6
4.980000	—	10.33	60.00	49.67	1000.0	9.000	L1	19.9
4.980000	15.63	—	73.00	57.37	1000.0	9.000	L1	19.9
20.485000	—	38.98	60.00	21.02	1000.0	9.000	L1	20.4
20.485000	41.13	—	73.00	31.87	1000.0	9.000	L1	20.4
29.980000	—	40.40	60.00	19.60	1000.0	9.000	L1	20.7
29.980000	41.01	—	73.00	31.99	1000.0	9.000	L1	20.7

**[NEUTRAL]**

Test Description: Conducted Emission
Job No.: KES-EM250773
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)
0.165000	—	36.22	66.00	29.78	1000.0	9.000	N	19.5
0.165000	41.80	—	79.00	37.20	1000.0	9.000	N	19.5
0.170000	—	32.82	66.00	33.18	1000.0	9.000	N	19.5
0.170000	41.03	—	79.00	37.97	1000.0	9.000	N	19.5
0.885000	—	5.26	60.00	54.74	1000.0	9.000	N	19.6
0.885000	9.99	—	73.00	63.01	1000.0	9.000	N	19.6
1.080000	—	11.80	60.00	48.20	1000.0	9.000	N	19.6
1.080000	14.59	—	73.00	58.41	1000.0	9.000	N	19.6
20.485000	—	37.90	60.00	22.10	1000.0	9.000	N	20.3
20.485000	40.30	—	73.00	32.70	1000.0	9.000	N	20.3
29.980000	—	40.07	60.00	19.93	1000.0	9.000	N	20.6
29.980000	40.80	—	73.00	32.20	1000.0	9.000	N	20.6

◆ Calculation

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

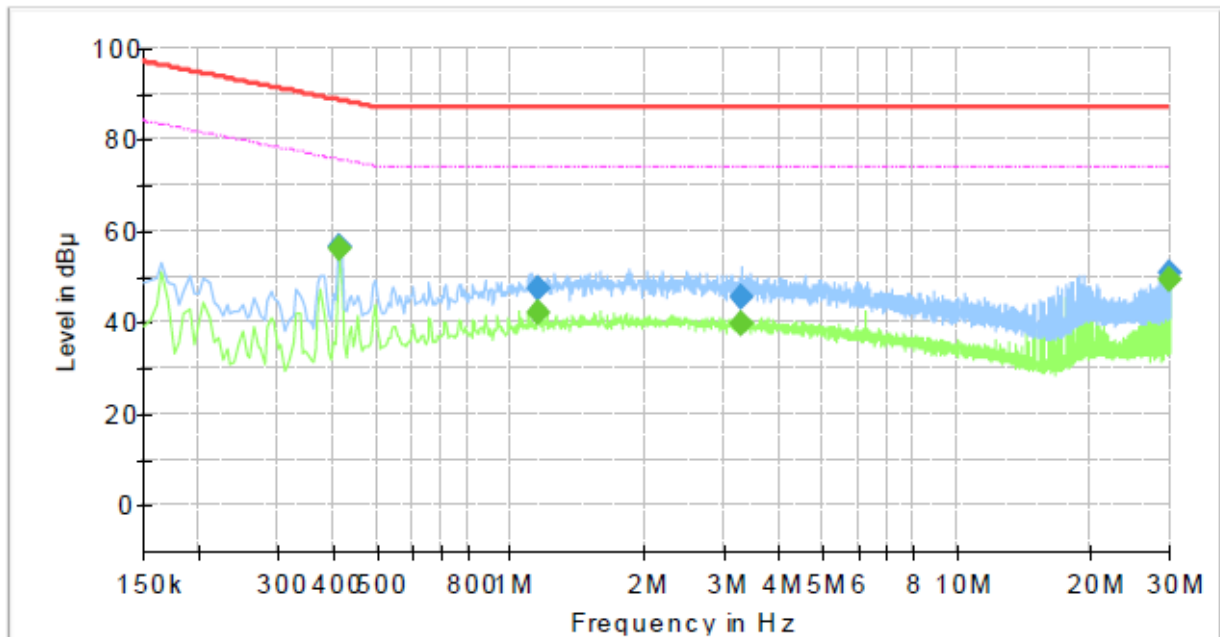
QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

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

**Conducted Emissions at Telecommunication Ports****[1 000 Mbps]**

Test Description: Telecommunication Emission
Job No.: KES-EM250773
Mode :
Speed : 1 000 Mbps
Operator Name: KES

**Final Result**

Frequency (MHz)	QuasiPeak (dB μV)	CAverage (dB μV)	Limit (dB μV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.415000	—	55.90	75.55	19.65	1000.0	9.000	Single Line	19.4
0.415000	56.60	—	88.55	31.95	1000.0	9.000	Single Line	19.4
1.150000	—	42.18	74.00	31.82	1000.0	9.000	Single Line	19.3
1.150000	47.37	—	87.00	39.63	1000.0	9.000	Single Line	19.3
3.290000	—	39.72	74.00	34.28	1000.0	9.000	Single Line	19.4
3.290000	45.42	—	87.00	41.58	1000.0	9.000	Single Line	19.4
29.980000	—	49.13	74.00	24.87	1000.0	9.000	Single Line	20.1
29.980000	50.55	—	87.00	36.45	1000.0	9.000	Single Line	20.1

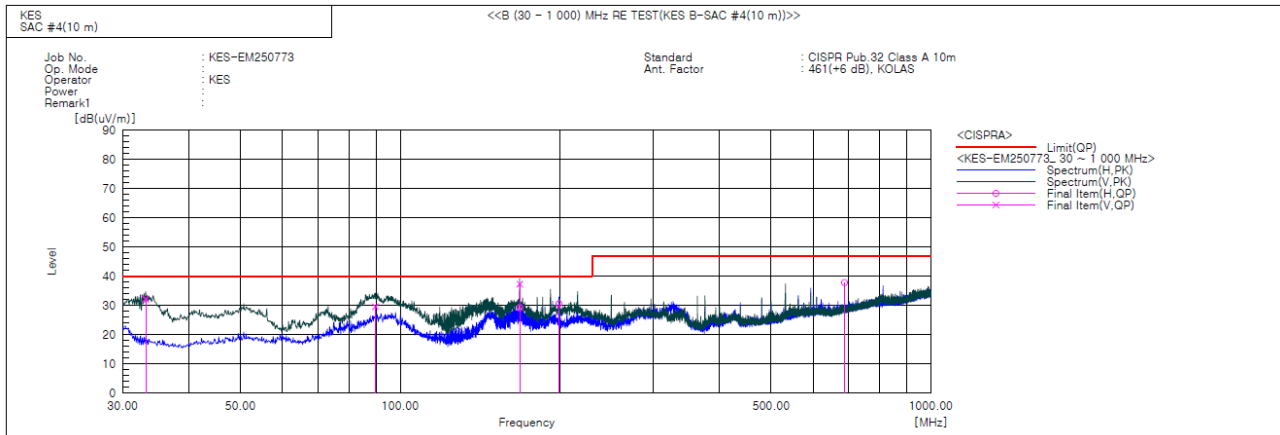
♦ Calculation

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

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

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

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

No.	Frequency [MHz]	(P)	Reading QP [dB(μV)]	c.f [dB(1/m)]	Result QP [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	33.153	V	54.6	-22.4	32.2	40.0	7.8	124.0	230.0	
2	89.776	V	55.7	-26.1	29.6	40.0	10.4	148.0	239.0	
3	167.983	V	57.2	-19.9	37.3	40.0	2.7	100.0	21.0	
4	168.002	H	49.1	-19.9	29.2	40.0	10.8	199.0	180.0	
5	199.144	H	52.5	-21.9	30.6	40.0	9.4	398.0	300.0	
6	687.660	H	43.2	-5.4	37.8	47.0	9.2	400.0	337.0	

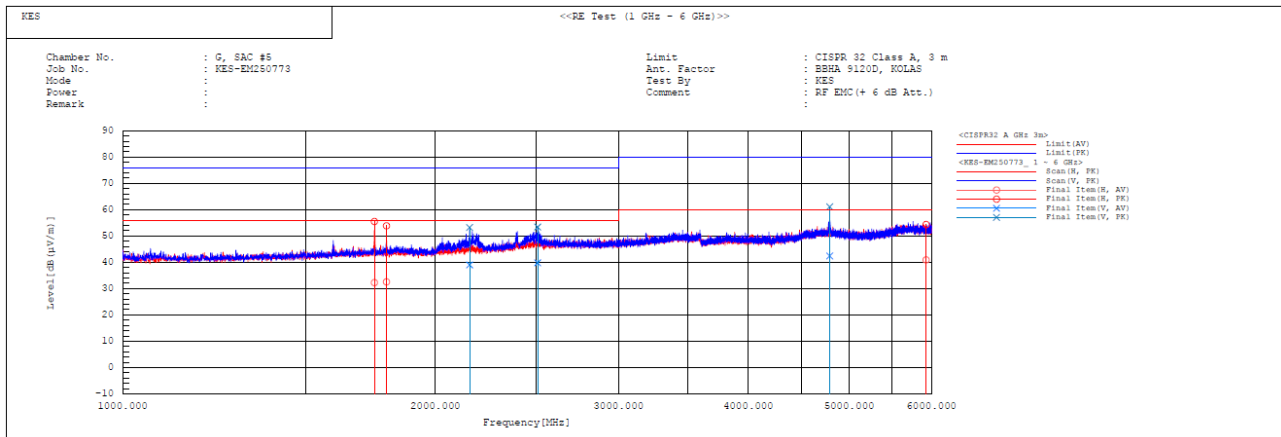
◆ Calculation

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

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

**Radiated Electric Field Emissions(Above 1 GHz)****Final Result**

No.	Frequency [MHz]	Pol	Reading AV [dB(μV)]	Reading PK [dB(μV)]	c.f [dB(1/m)]	Result AV [dB(μV/m)]	Result PK [dB(μV/m)]	Limit AV [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]	Remark
1	1747.037	H	30.2	53.4	2.1	32.3	55.5	56.0	76.0	23.7	20.5	100.0	170.4	
2	1794.525	H	30.4	51.7	2.2	32.6	53.9	56.0	76.0	23.4	22.1	100.0	155.6	
3	2157.596	V	35.3	49.5	3.7	39.0	53.2	56.0	76.0	17.0	22.8	100.0	101.6	
4	2508.502	V	34.7	48.3	5.1	39.8	53.4	56.0	76.0	16.2	22.6	100.0	247.6	
5	4790.038	V	30.7	49.4	11.7	42.4	61.1	60.0	80.0	17.6	18.9	100.0	158.2	
6	5928.992	H	26.6	40.1	14.3	40.9	54.4	60.0	80.0	19.1	25.6	100.0	117.2	

◆ 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(PK/CAV) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value

**Harmonic Current Emissions and Voltage Fluctuations and Flicker****Average harmonic current results**

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	0.184			
2	0.003	0.290	1.080	n/a
3	0.174	7.575	2.300	PASS
4	0.005	1.135	0.430	n/a
5	0.166	14.579	1.140	PASS
6	0.004	1.367	0.300	n/a
7	0.155	20.172	0.770	PASS
8	0.004	1.781	0.230	n/a
9	0.141	35.155	0.400	PASS
10	0.004	2.278	0.184	n/a
11	0.125	37.781	0.330	PASS
12	0.004	2.402	0.153	n/a
13	0.108	51.325	0.210	PASS
14	0.004	2.927	0.131	n/a
15	0.090	59.878	0.150	PASS
16	0.003	2.740	0.115	n/a
17	0.072	54.509	0.132	PASS
18	0.002	2.344	0.102	n/a
19	0.055	46.622	0.118	PASS
20	0.002	2.149	0.092	n/a
21	0.040	24.732	0.161	PASS
22	0.002	1.806	0.084	n/a
23	0.027	18.272	0.147	PASS
24	0.001	1.463	0.077	n/a
25	0.016	12.018	0.135	PASS
26	0.001	1.213	0.071	n/a
27	0.008	6.170	0.125	PASS
28	0.001	1.190	0.066	n/a
29	0.002	1.469	0.116	n/a
30	0.001	0.981	0.061	n/a
31	0.003	2.749	0.109	n/a
32	0.001	1.052	0.058	n/a
33	0.005	4.733	0.102	n/a
34	0.001	1.092	0.054	n/a
35	0.006	5.971	0.096	PASS
36	0.001	1.270	0.051	n/a
37	0.005	5.974	0.091	PASS
38	0.001	1.496	0.048	n/a
39	0.004	4.716	0.087	n/a
40	0.001	1.289	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	0.184			
2	0.004	0.234	1.620	n/a
3	0.174	5.054	3.450	PASS
4	0.006	0.873	0.645	PASS
5	0.166	9.727	1.710	PASS
6	0.005	1.077	0.450	n/a
7	0.156	13.466	1.155	PASS
8	0.005	1.372	0.345	n/a
9	0.141	23.484	0.600	PASS
10	0.005	1.743	0.276	n/a
11	0.125	25.241	0.495	PASS
12	0.004	1.824	0.230	n/a
13	0.108	34.331	0.315	PASS
14	0.004	2.205	0.197	n/a
15	0.090	40.126	0.225	PASS
16	0.004	2.088	0.173	n/a
17	0.073	36.529	0.199	PASS
18	0.003	1.847	0.153	n/a
19	0.056	31.269	0.178	PASS
20	0.002	1.632	0.138	n/a
21	0.040	24.945	0.161	PASS
22	0.002	1.402	0.125	n/a
23	0.027	18.510	0.147	PASS
24	0.001	1.298	0.115	n/a
25	0.017	12.250	0.135	PASS
26	0.001	1.034	0.106	n/a
27	0.008	6.399	0.125	PASS
28	0.001	0.936	0.099	n/a
29	0.002	1.657	0.116	n/a
30	0.001	0.774	0.092	n/a
31	0.003	3.100	0.109	n/a
32	0.001	0.774	0.086	n/a
33	0.005	5.041	0.102	PASS
34	0.001	0.805	0.081	n/a
35	0.006	6.097	0.096	PASS
36	0.001	0.978	0.077	n/a
37	0.006	6.064	0.091	PASS
38	0.001	1.102	0.073	n/a
39	0.004	4.806	0.087	n/a
40	0.001	0.966	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.



Test Data - Voltage Fluctuations

Maximum Flicker results

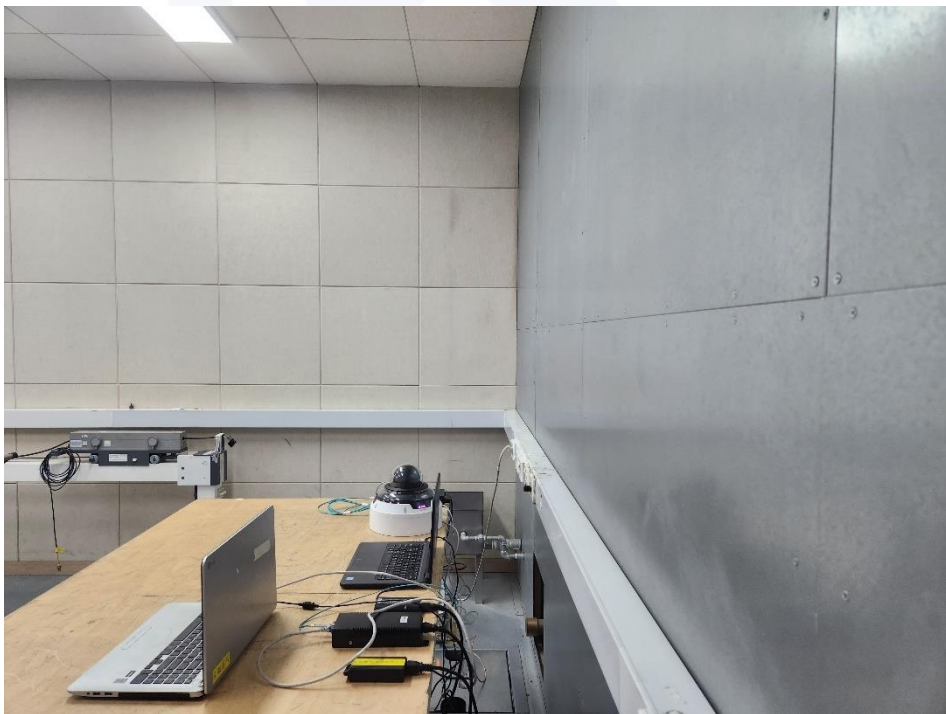
Flicker Measurements					
	Plt	Max Pst	Max Dc	Max Dmax	Max Tmax
Line 1:	0.028	0.028	0	< 0.2	0
Limits:	0.65	1	3.3	4	0.5
Results:	PASS	PASS	PASS	PASS	PASS





Test Setup Photos and Configuration

Conducted Emissions at Mains Power Ports



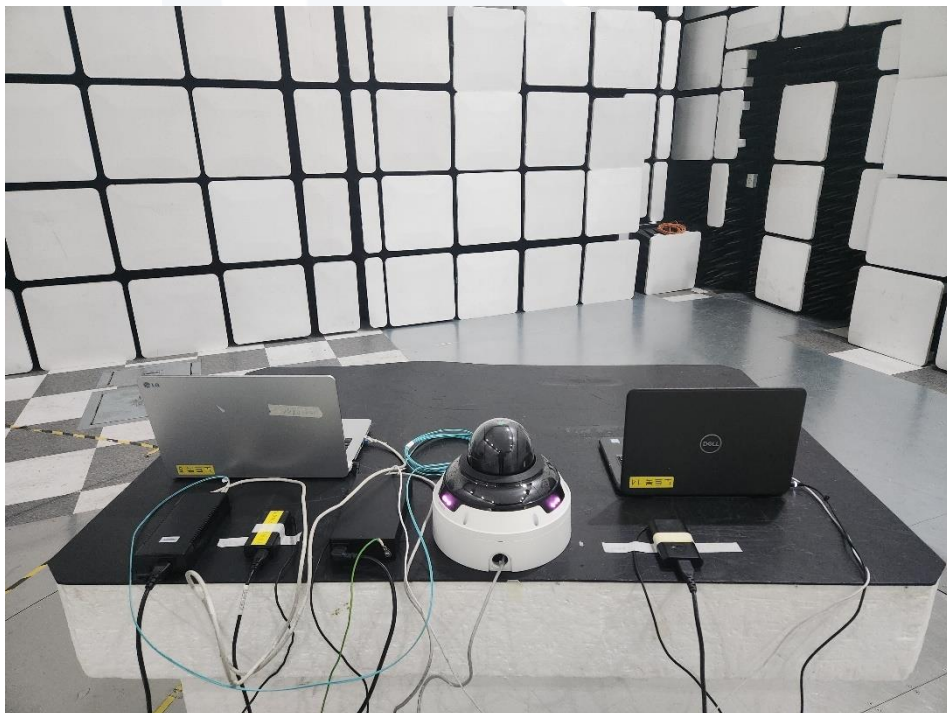


Conducted Emissions at Telecommunication Ports



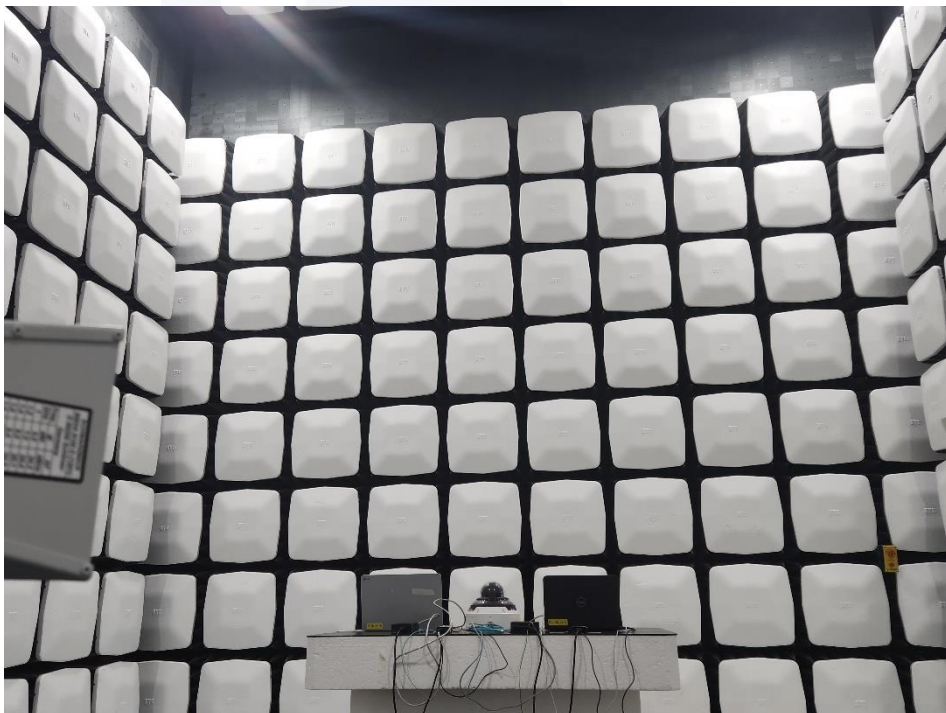


Radiated Electric Field Emissions(Below 1 GHz)



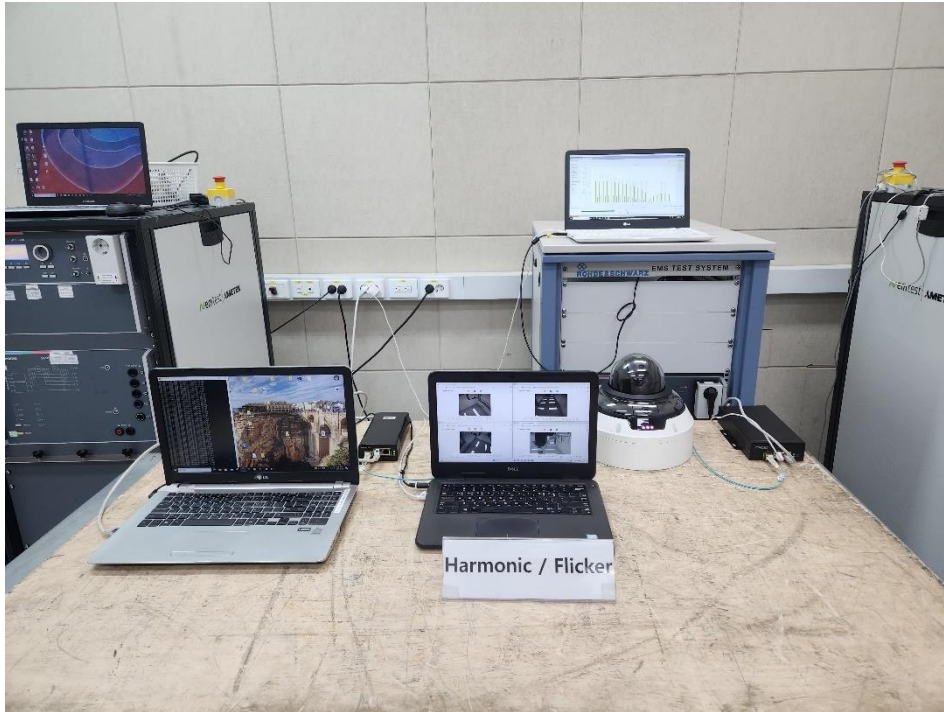


Radiated Electric Field Emissions(Above 1 GHz)





Harmonic Current Emissions and Voltage Fluctuations and Flicker

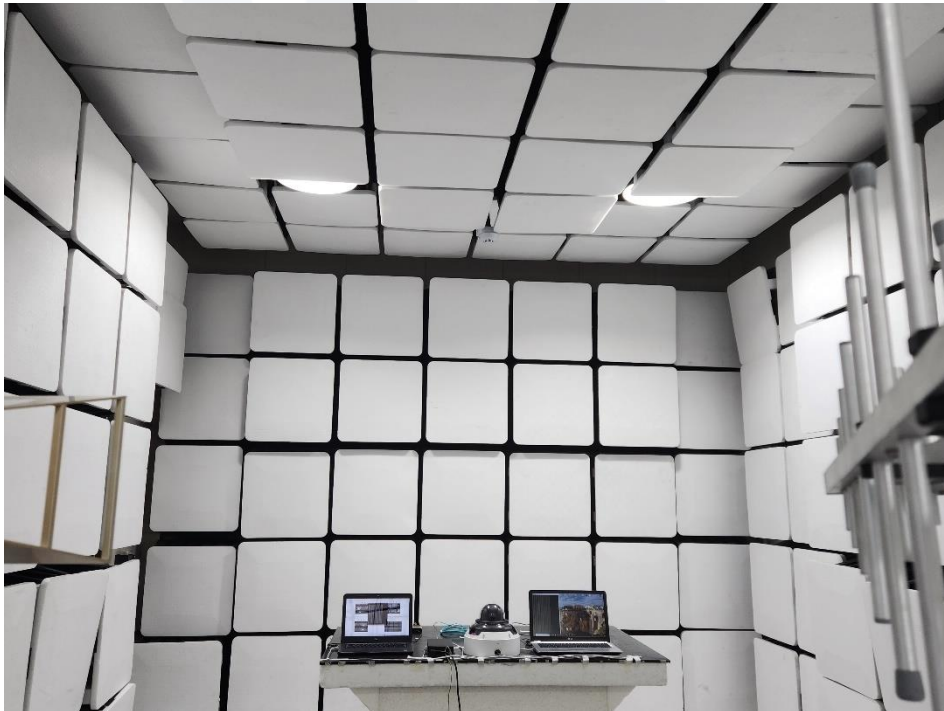




Electrostatic Discharge



Radiated Electric Field Immunity





Electrical Fast Transients/Bursts



Surge Transients





Conducted Disturbance



Voltage Dips and Short Interruptions





EUT External Photographs

(Top)



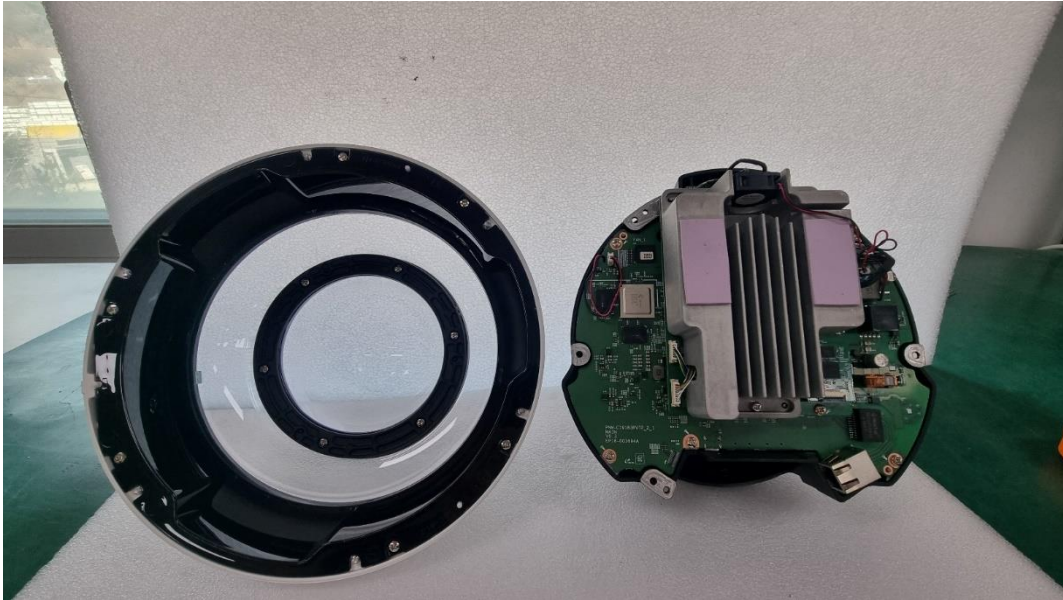
(Bottom)





EUT Internal Photographs

(Internal View)





EUT Internal View – Main Board 1

(Top)



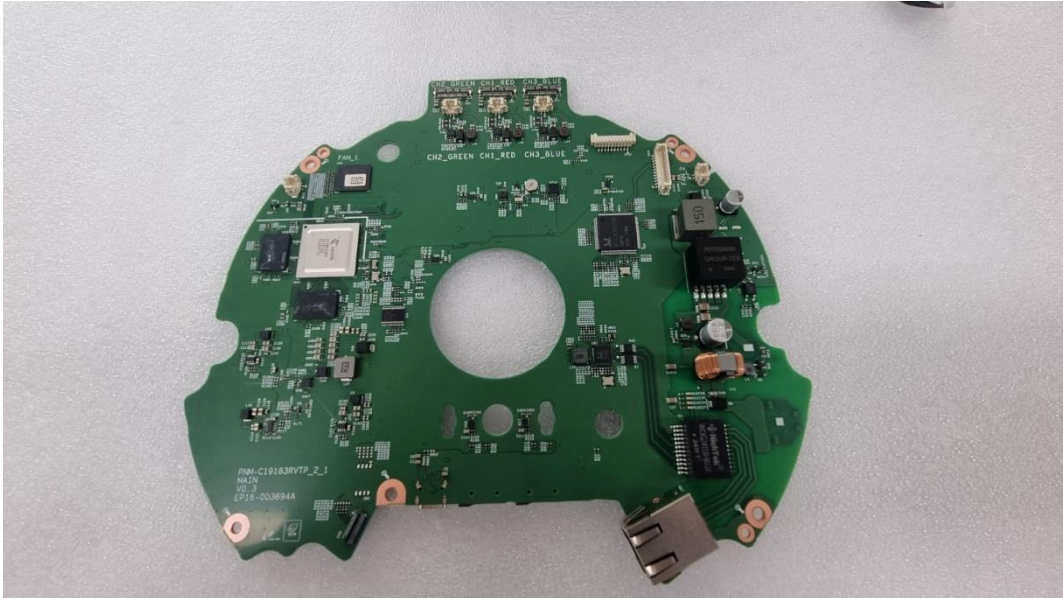
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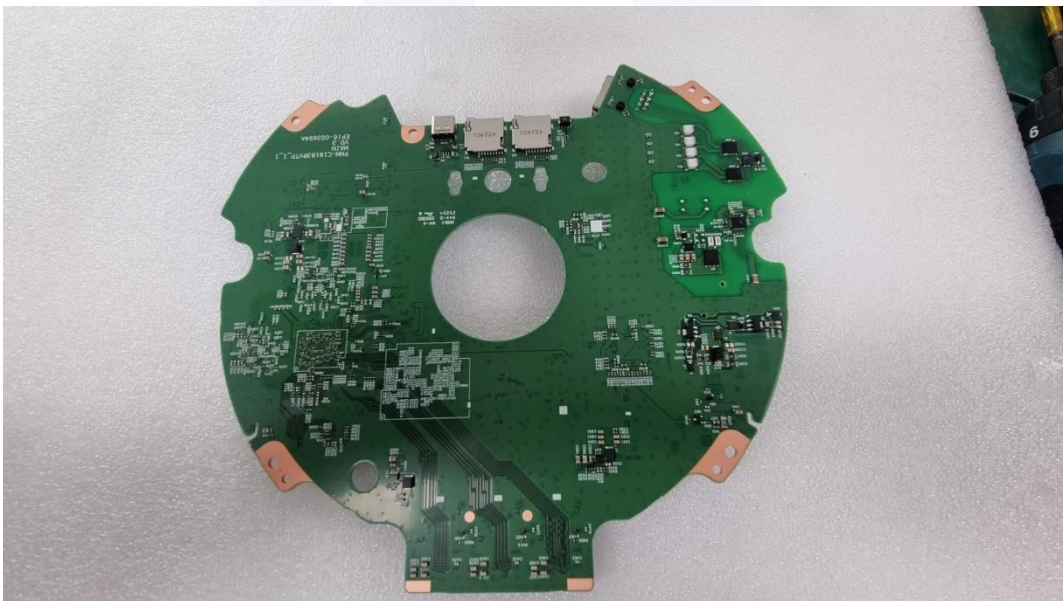


EUT Internal View – Main Board 2

(Top)



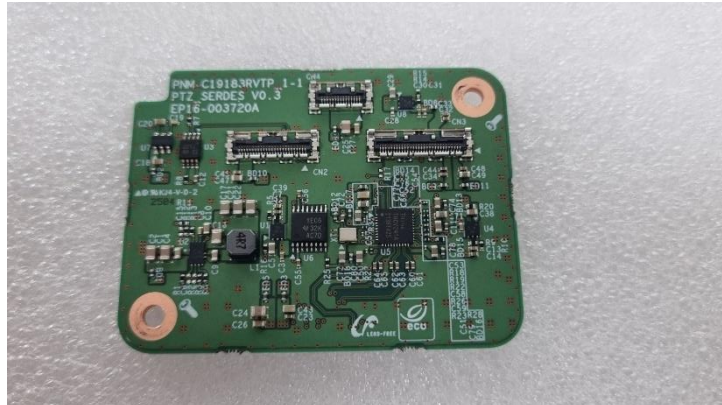
(Bottom)





EUT Internal View – Board 1

(Top)



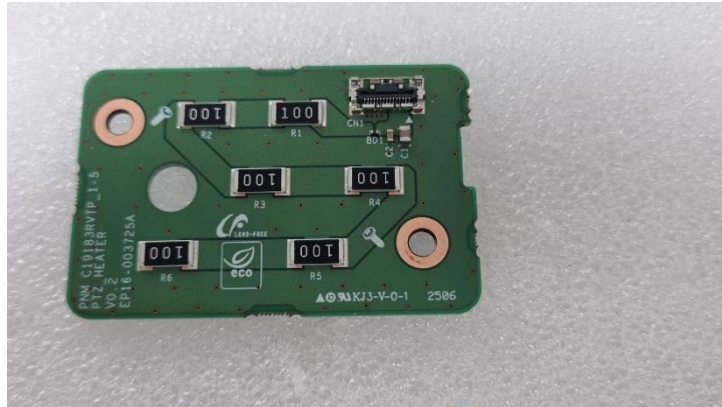
(Bottom)





EUT Internal View – Board 2

(Top)



(Bottom)



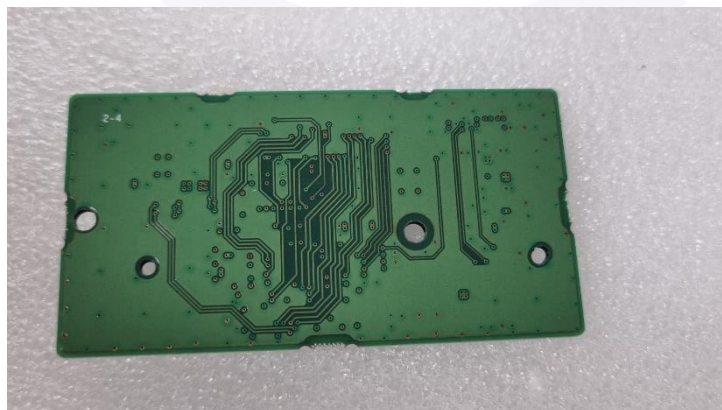


EUT Internal View – Board 3

(Top)



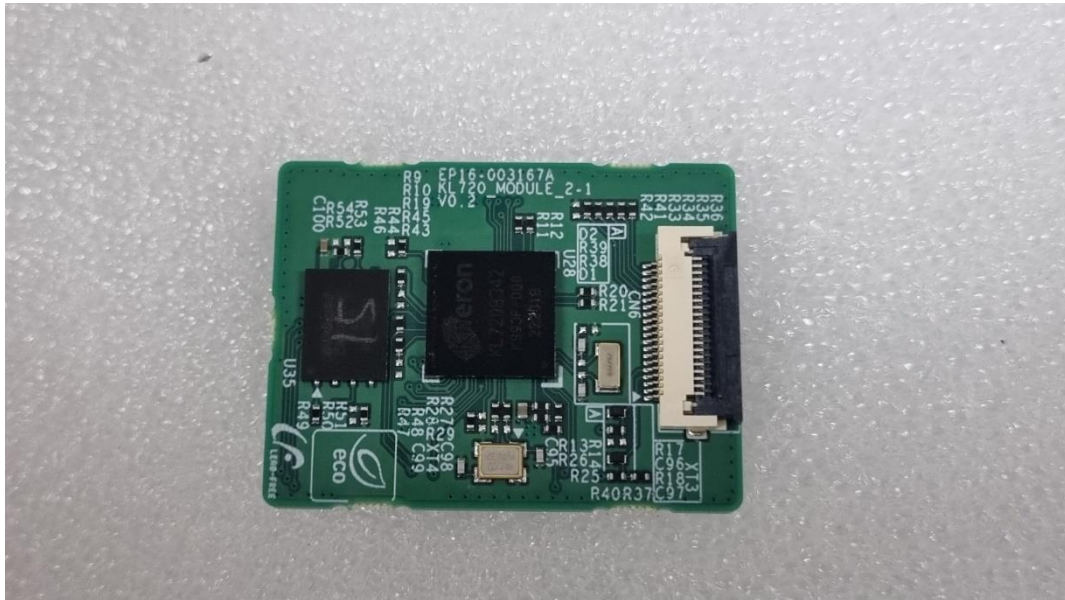
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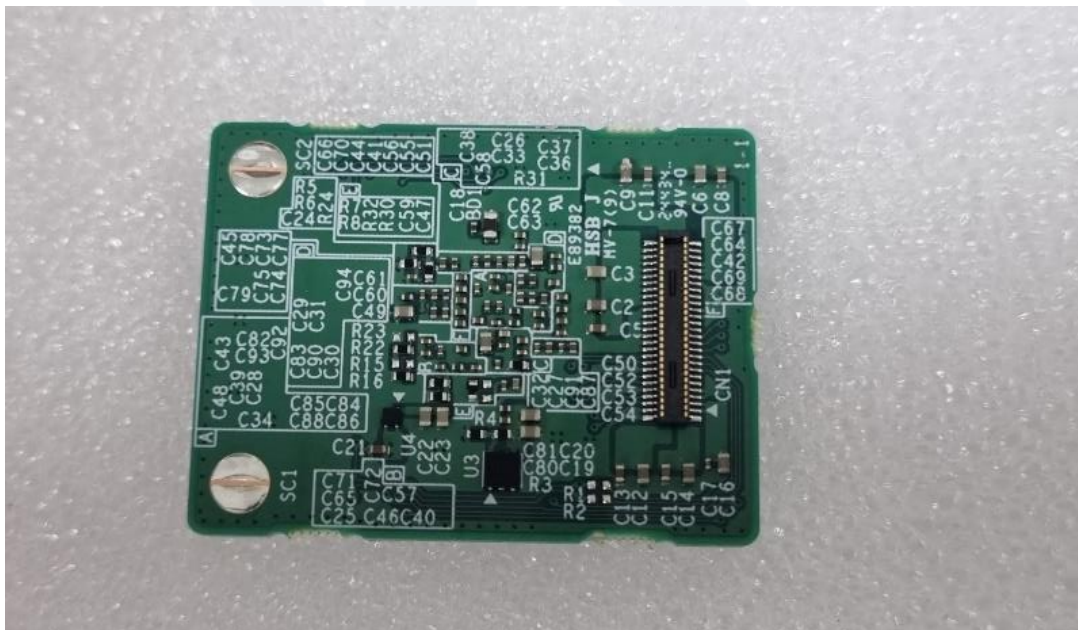


EUT Internal View – Module Board

(Top)



(Bottom)



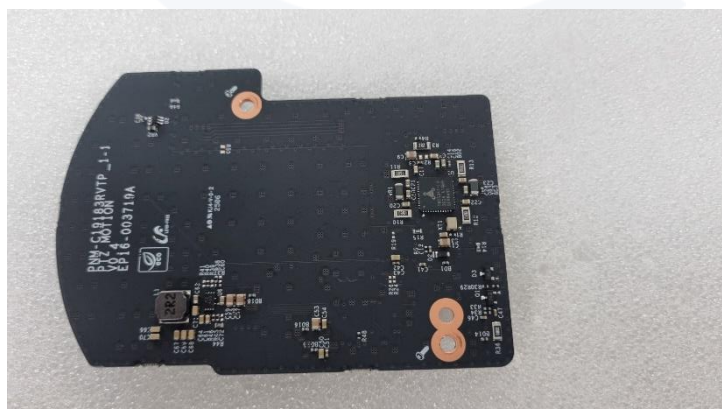


EUT Internal View – Motion Board

(Top)



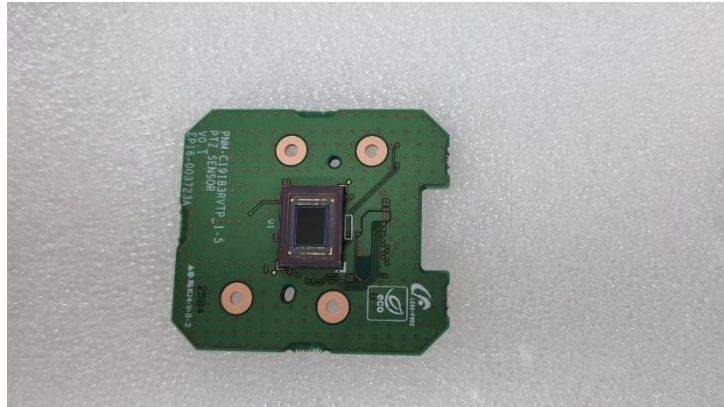
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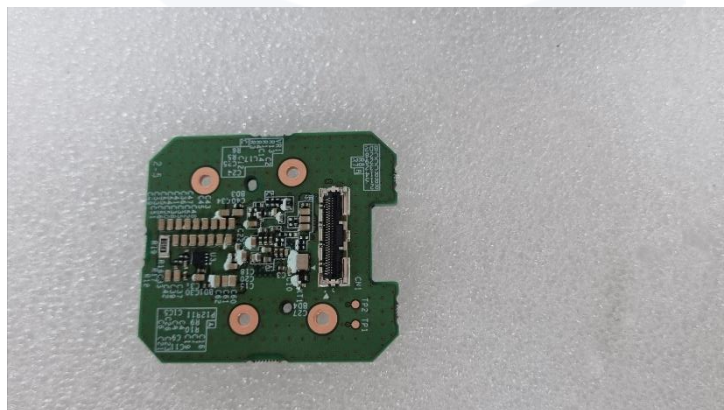


EUT Internal View – Sensor Board

(Top)



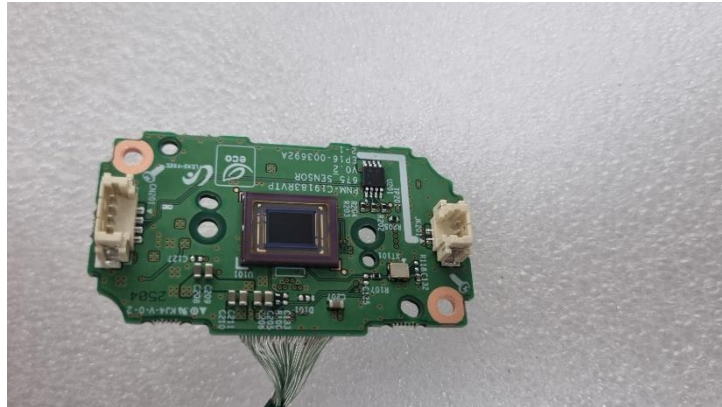
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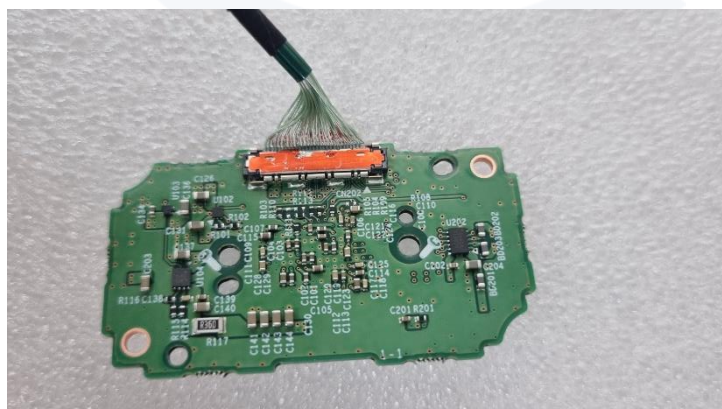


EUT Internal View – Lens board

(Top)



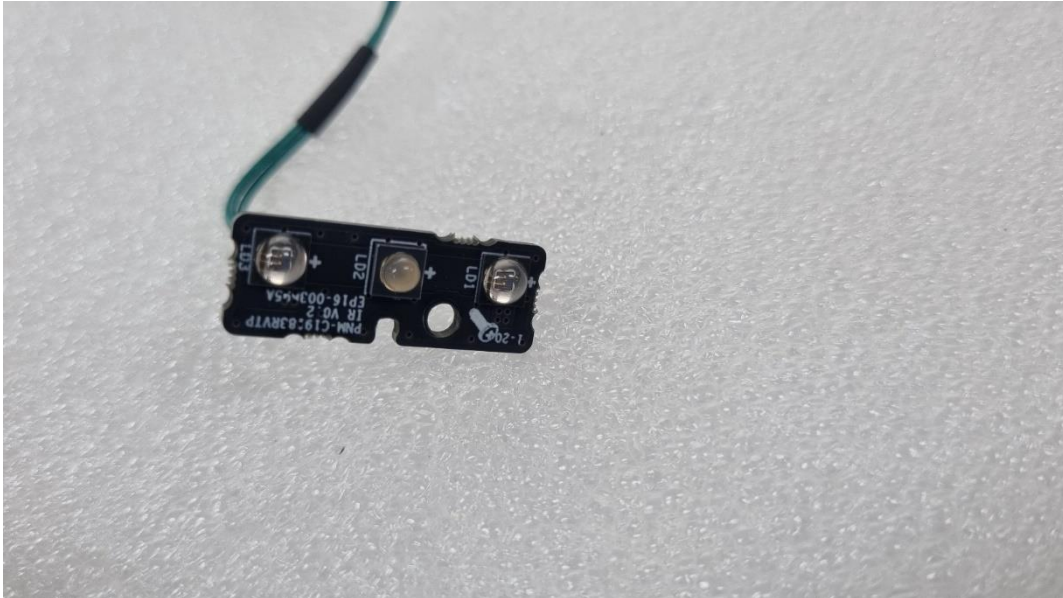
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EUT Internal View – LED board

(Top)

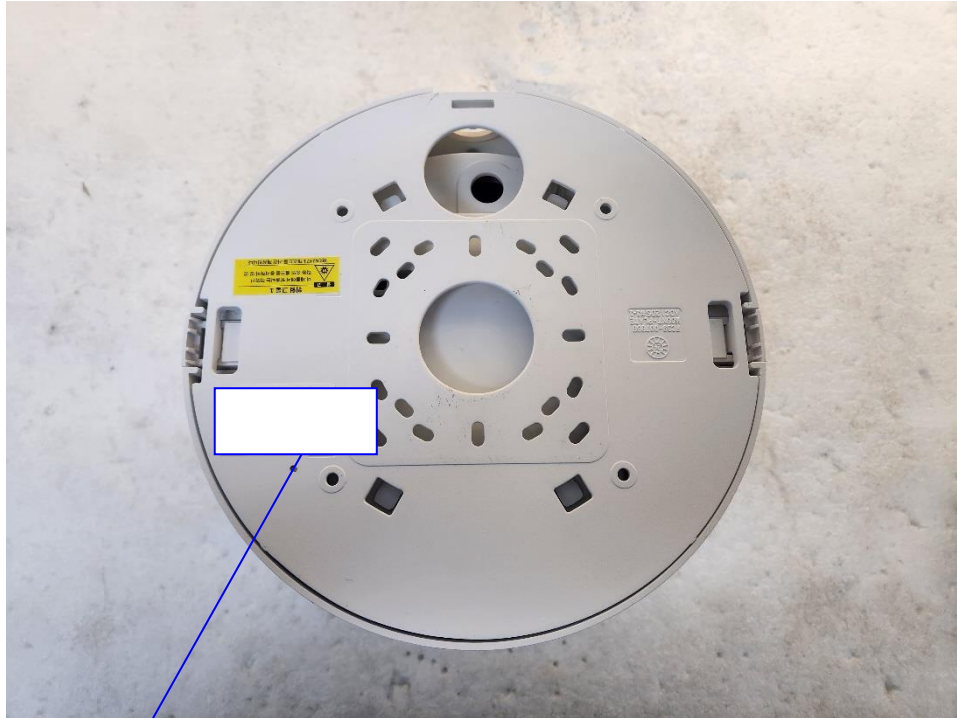


(Bottom)





Label and Location



NETWORK CAMERA

Model No : PNM-C19183RVTP

Manufacturer : HANWHA VISION VIETNAM COMPANY LIMITED

Made in Vietnam



The End.