



EMC TEST REPORT For CE

Test Report No. : KES-EM-20T0804-R1
Date of Issue : Jan. 07, 2021
Product name : NETWORK CAMERA
Model/Type No. : XNP-9250R
Variant Model : XNP-8250R
Applicant : Hanwha Techwin Co., Ltd.
Applicant Address : 6, Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si,
Gyeonggi-do, Republic of Korea
Manufacturer : 1. HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.
2. D-TECH CO.,LTD.
Manufacturer Address : 1. Lot O-2, Que Vo Industrial Zone extended area,
Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam
2. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi- do,
Korea (Suwon Industrial Complex)
Date of Receipt : Nov. 04, 2020
Test date : Nov. 06, 2020 ~ Nov. 09, 2020
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

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EMC Test Engineer

Reviewed by

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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
Nov. 20, 2020	KES-EM-20T0804	Issued
Jan. 07, 2021	KES-EM-20T0804-R1	Changed model name, variant model name and specification due to customer request.

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1.0 General Product Description

Main Specifications of EUT are:

	XNP-9250R
Video	
Imaging Device	1/2.8" 8MP CMOS
Effective Pixels	3864(H) x 2192(V)
Min. Illumination	Color: 0.1Lux(F1.6, 1/30sec) BW: 0Lux(IR LED On)
Video Out	None
Lens	
Focal Length (Zoom Ratio) TBD	5~125 mm (25x) zoom
Max. Aperture Ratio	F1.6(Wide)~F3.73(Tele)
Angular Field of View	H: 57.42°(Wide)~2.71°(Tele) / V: 33.54°(Wide)~1.55°(Tele)
Min. Object Distance	5m(16.4ft)
Focus Control	Oneshot AF, Focus save
Lens Type	DC auto iris
Pan / Tilt / Rotate	
Pan Range	360° Endless
Pan Speed	Max. 700 °/sec, Manual: 0.024 °/sec ~ 250 °/sec
Tilt Range	110°(-20°~90°)
Tilt Speed	Max. 500 °/sec, Manual: 0.024 °/sec ~ 250 °/sec
Sequence	Preset(300 ea), Swing, Group(6 ea), Trace, Tour, Auto Run, Schedule, Preset trace recording
Preset Accuracy	±0.1°(±20°C by temperature at preset setting) / ±0.2°(other temperature)
Azimuth	Support
Auto Tracking	Object auto tracking(Person/Vehicle)
Operational	
IR Viewable Length	200 m(656.17 ft)
Camera Title	Displayed up to 85 characters, Direction Indicator
Day & Night	Auto(ICR)/Color/BW/Schedule
Backlight Compensation	BLC, HLC, WDR
Wide Dynamic Range	120 dB
Digital Noise Reduction	SSNR V
Digital Image Stabilization	Support(built-in gyro sensor)
Defog	Support
Motion Detection	8 ea, 8point polygonal zones 32 ea, polygonal Support
Privacy Masking	- Color: Grey/Green/Red/Blue/Black/White - Mosaic
Gain Control	Manual / Max
White Balance	ATW, NARROW ATW, Manual, AWC, OUTDOOR, INDOOR, MERCURY, SODIUM
LDC	None
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2~1/12,000 sec)
Video Rotation	Flip&Mirror

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Analytics	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
Alarm I/O	None
Alarm Triggers	Analytics, Network disconnect * Alarm input(with NW I/O Box)
Alarm Events	File upload via FTP and e-mail Notification via e-mail SD/SDHC/SDXC or NAS recording at event triggers PTZ Preset * Alarm output(with NW I/O Box)
Audio In	None
Audio Out	None
Wiper / Waterdrop removal	Spinning Dry, Heat film
Network	
Ethernet	RJ-45(10/100BASE-T)
Video Compression	H.265/H.264,MJPEG
Resolution	3840 x 2160, 2592 x 1944, 2592 x 1464, 1920 x 1080, 1600 x 1200, 1280 x 1024, 1280 x 960, 1280 x 720, 1024 x 768, 800 x 600, 800 x 448, 720 x 576, 720 x 480, 640 x 480, 640 x 360, 320 x 240
Max. Framerate	H.265/H.264: Max. 30 fps / 25 fps(60 Hz / 50 Hz) MJPEG: Max. 30 fps / 25 fps(60 Hz / 50 Hz)
Smart Codec	Manual(5 ea 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(20 users) / Multicast (128 user) Multiple streaming(Up to 10 profiles)
Audio Compression	None
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	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access log 802.1X Authentication(EAP-TLS, EAP-LEAP) Device certificate(Hanwha Techwin Root CA)

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Edge Storage	Micro SD/SDHC/SDXC 2slot 1 TB
Application Programming Interface	ONVIF Profile S/G/T SUNAPI(HTTP API) Wisenet open platform
Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Swedish, Portuguese, Czech, Polish, Turkish, Dutch, Hungarian, Greek
Web Viewer	Supported OS: Windows 7, 8.1, 10, Mac OS X 10.10, 10.11, 10.12 Recommended Browser: Google Chrome Supported Browser: MS Explore11, MS Edge, Mozilla Firefox(Window 64bit only), Apple Safari(Mac OS X only)
Memory	4 GB RAM, 512 MB Flash
Environmental	
Operating Temperature / Humidity	-40 °C ~ +55 °C (-40 °F ~ +131 °F) / Less than 95 % RH(Non-condensing) Start up should be done at above -30°C Maximum Temperature : +60°C(+140°F), intermittent Absolute maximum(According to NEMA TS2, 2.2.7) : +74°C
Storage Temperature / Humidity	-50°C~+60°C (-58°F~+140°F) / Less than 95% RH(Non-condensing)
Certification	IP66, IK10(Body only), NEMA4X, NEMA TS 2.2.9
Electrical	
Input Voltage	HPoE(IEEE802.3bt, Class6, Type 3)
Power Consumption	HPoE Max. 40 W, Typ. 20 W
Mechanical	
Color / Material	White / body(Aluminum),dome(PC)
RAL Code	None
Product dimensions / weight	Ø(158 x 293) mm, 3.1 kg
Conduit hole	None
Hanging mount(Dome)	None
Skin cover(Dome)	None
Weather cap(Dome)	None
Power module	None
Backbox	None

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1.1 Test Voltage & Frequency

Unless indicated otherwise on the individual data sheet or test results, the test voltage and frequency was as indicated below.

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

Frequency ☒ 50 Hz ☐ 60 Hz ☐ Hz

1.2 Variant Model Differences

Addition of derivative models for place of sale management

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
NETWORK CAMERA	XNP-9250R	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	EUT
PoE Adapter	PT-PSE106GBR-AH-S	-	Dongguan PROCET Network Technology Co.,Ltd	-

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
PoE Switch	GS728TPP	-	NETGEAR	-
Notebook 1	HSN-Q07C	5CD8367KND	HP	-
Notebook 1 Adapter	HSTNN-CA40	WFTKU0ERLB4Q CH	HP	-
Notebook 2	ProBook4430s	-	HP	-
Notebook 2 Adapter	SeriesPPP0009H	-	CHICONY POWER TECHNOLOGY (SUZHOU) CO.,LTD,	-
Micro SD Card	-	-	SanDisk	16 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 Adapter (EUT)	PoE	1.0	U
	SLOT	Micro SD Card	SLOT	-	-
PoE Adapter (EUT)	SFP	PoE Switch	Optical	5.0	U
	LAN	Notebook 1	RJ-45	3.0	U
	Ground	Ground	Ground	2.0	U
PoE Switch	RJ-45	Notebook 2	RJ-45	2.0	U

* Unshielded=U, Shielded=S

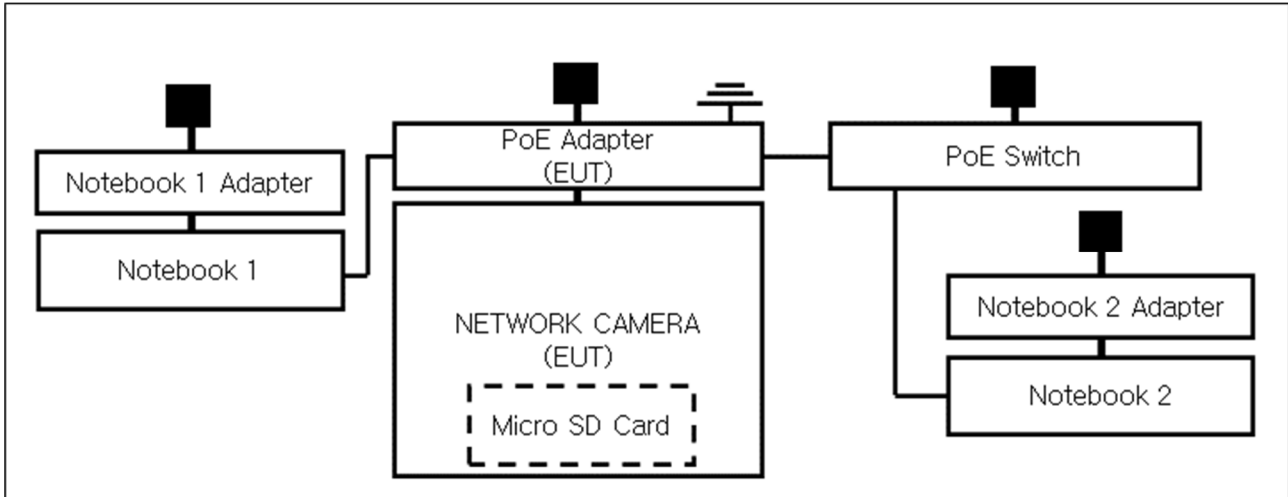
1.7 EUT Operating Mode(s)

Test Mode	operating
Operating	Monitoring EUT Using Web Viewer, Ping Test

EUT Test operating S/W		
Name	Version	Manufacture Company
Web Viewer	-	Hanwha Techwin 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. The sites are constructed in conformance with the requirements of ANSI C63.4:2014 and CISPR 16-1-4:2012

1.12 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
KOREA	RRA	EMI (3 m & 10 m Semi-Anechoic Chamber , 10 m Open Area and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KR0100
International	KOLAS	EMI (3 m & 10 m Semi-Anechoic Chamber , and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KT489
USA	FCC	3 m & 10 m Semi-Anechoic Chamber, 10 m Open Area and Conducted test site to perform FCC Part 15/18 measurements.	 KR0100
Canada	ISED	3 m & 10 m Semi-Anechoic Chamber and Conducted test site	 23298-1
JAPAN	VCCI	Mains Ports Conducted Interference Measurement, Telecommunication Ports Conducted Disturbance Measurement and Radiation 10 meter site, Facility for measuring radiated disturbance above 1 GHz	 R-20056, C-20036, T-20040, G-20057
Europe	TÜV SÜD	EMI (3 m & 10 m Semi-Anechoic Chamber , 10 m Open Area and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 CARAT 001633 0004



2.0 Test Regulations

The emissions tests were performed according to following regulations:

☒ **EMC – Directive 2014/30/EU**

☐ EN 61000-6-3:2011

☐ EN 61000-6-1:2007

☐ EN 61000-6-4:2007 +A1:2011

☐ EN 61000-6-2:2005

☐ EN 55011:2007 +A1:2010

☐ Group 1
☐ Class A

☐ Group 2
☐ Class B

☐ EN 55014-1:2006 +A2:2011

☐ EN 55014-2:1997 +A2:2008

☐ EN 55015:2013

☐ EN 61547:2009

☒ EN 55032:2012/AC:2013

☒ Class A

☐ Class B

☐ EN 55024:2010 +A1:2015

☒ EN 50130-4:2011

☒ EN 61000-3-2:2014

☒ EN 61000-3-3:2013

☐ EN 61326-1:2013



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-
- | | | |
|---|----------------------------------|----------------------------------|
| <input type="checkbox"/> VCCI-CISPR 32:2016 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> AS/NZS CISPR32:2015 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> 47 CFR Part 15, Subpart B | | |
| <input type="checkbox"/> CISPR 22:2009 +A1:2010 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> ANSI C63.4-2014 | | |
| <input type="checkbox"/> IC Regulation ICES-003 : 2016 | | |
| <input type="checkbox"/> CAN/CSA CISPR 22-10 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> ANSI C63.4-2014 | | |
| <input type="checkbox"/> RE- Directive 2014/53/EU | | |
| <input type="checkbox"/> EN 301 489-1 V1.9.2 | | |
| <input type="checkbox"/> Equipment for fixed use | | |
| <input type="checkbox"/> Equipment for vehicular use | | |
| <input type="checkbox"/> Equipment for portable use | | |
| <input type="checkbox"/> EN 301 489-3 V1.6.1 | | |
| <input type="checkbox"/> EN 301 489-17 V2.2.1 | | |
| <input type="checkbox"/> EN 60945:2002 | | |

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2.1 Conducted Emissions at Mains Power Ports

Test Date

Nov. 06, 2020

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	01, 20, 2021
<input checked="" type="checkbox"/>	LISN	ENV216	R & S	101787	12, 29, 2021
<input checked="" type="checkbox"/>	LISN	ESH2-Z5	R & S	100450	12, 29, 2021
<input checked="" type="checkbox"/>	PULSE LIMITER	ESH3-Z2	R & S	101915	12, 29, 2021

Test Conditions

Temperature: 21,8 °C
Relative Humidity: 46,1 % 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.



2.2 Conducted Emissions at Telecommunication Ports

Test Date

Nov. 06, 2020

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	01, 20, 2021
<input checked="" type="checkbox"/>	LISN	ENV216	R & S	101787	12, 29, 2021
<input checked="" type="checkbox"/>	LISN	ESH2-Z5	R & S	100450	12, 29, 2021
<input checked="" type="checkbox"/>	PULSE LIMITER	ESH3-Z2	R & S	101915	12, 29, 2021
<input checked="" type="checkbox"/>	8-WIRE ISN CAT3,5	ENY81	R & S	100174	12, 30, 2021
<input type="checkbox"/>	8-WIRE ISN CAT6	ENY81-CAT6	R & S	101665	12, 30, 2021
<input type="checkbox"/>	CDN	CDNS502A	TESEQ	40431	12, 29, 2021

Test Conditions

Temperature: 21,8 °C
Relative Humidity: 46,1 % 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.



2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Nov. 06, 2020

Test Location

☐ OPEN AREA TEST SITE #2 ☒ 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	04, 01, 2021
<input checked="" type="checkbox"/>	AMPLIFIER	SCU 01	R & S	100603	11, 25, 2021
<input checked="" type="checkbox"/>	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	12, 08, 2022
<input checked="" type="checkbox"/>	ATTENUATOR	8491A	HP	32173	03, 10, 2021

Test Conditions

Temperature: 24,0 °C
Relative Humidity: 48,1 % 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

Nov. 07, 2020

Test Location

SEMI ANECHOIC CHAMBER #3

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	ESR7	R & S	101190	08, 05, 2021
<input checked="" type="checkbox"/>	PREAMPLIFIER	8449B	AGILENT	3008A01967	04, 20, 2021
<input type="checkbox"/>	ATTENUATOR	8491A	HP	35496	03, 10, 2021
<input checked="" type="checkbox"/>	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	03, 11, 2021

Test Conditions

Temperature: 23,9 °C
Relative Humidity: 48,4 % R.H.

Frequency Range of Measurement

1 GHz to 6 GHz

Instrument Settings

IF Band Width: 1 MHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.



2.5 Harmonic Current Emissions

Test Date

Nov. 06, 2020

Test Location

Electro wave Shieldroom #3

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	04, 06, 2021
<input checked="" type="checkbox"/>	POWER SOURCE	ACS 500N6	EM TEST	V1024106760	-

Test Conditions

Temperature: 23,1 °C
Relative Humidity: 48,8 % 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

Nov. 06, 2020

Test Location

Electro wave Shieldroom #3

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	04, 06, 2021
<input checked="" type="checkbox"/>	POWER SOURCE	ACS 500N6	EM TEST	V1024106760	-

Test Conditions

Temperature: 23,1 °C
Relative Humidity: 48,8 % 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

Nov. 09, 2020

Test Location

EMS-ESD: Electro wave Shieldroom #7

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	ESD SIMULATOR	ESS-2000	Noise Ken	ESS05X4620	01, 28, 2021
<input checked="" type="checkbox"/>	HCP	-	KES	-	-
<input checked="" type="checkbox"/>	VCP	-	Noise Ken	-	-

Test Conditions

Temperature: 22,7 °C
Relative Humidity: 48,3 % R.H.
Atmospheric Pressure: 100,9 kPa

Test Specifications

Discharge Factor: ≥ 1 s

Discharge Impedance: 330 ohm / 150 pF

Kind of Discharge: Air, Contact (direct and indirect)

Polarity: Positive and Negative

Number of Discharge: ☐ 10 at all locations for Air discharge
☐ 10 at all locations for Contact discharge

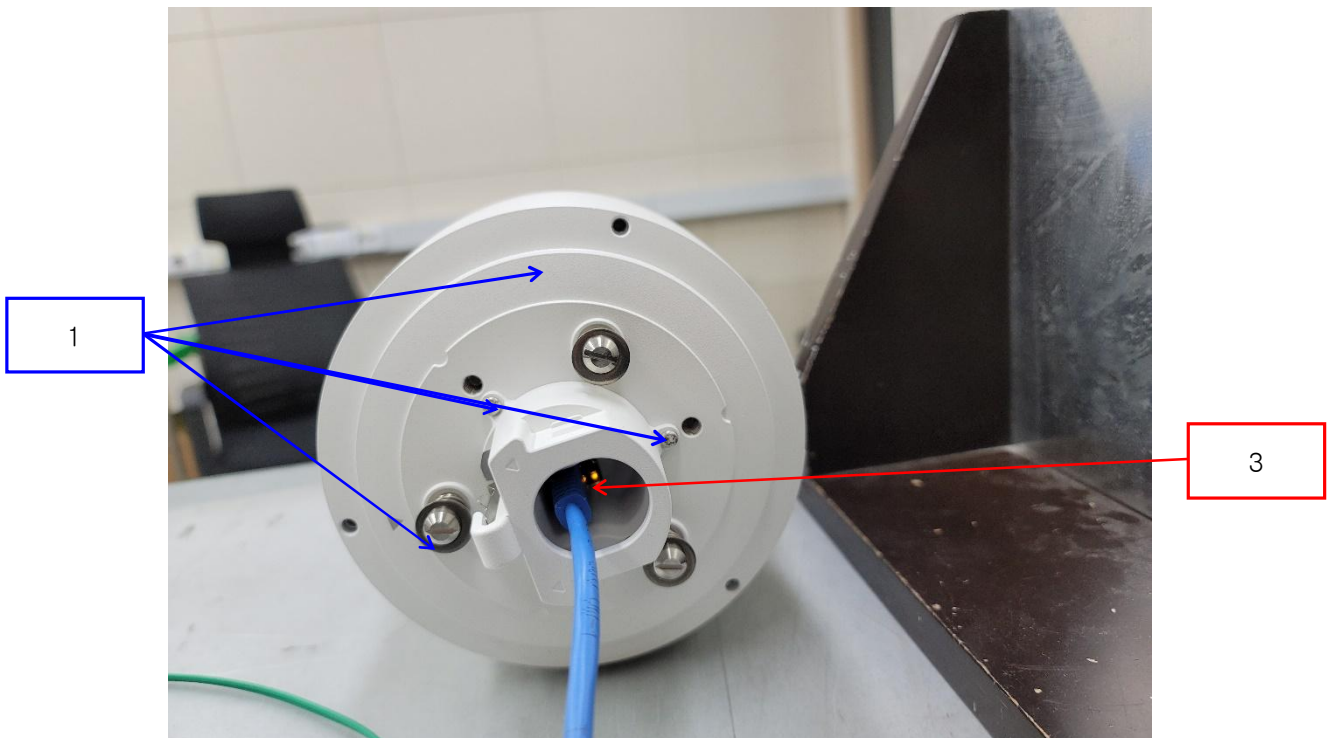
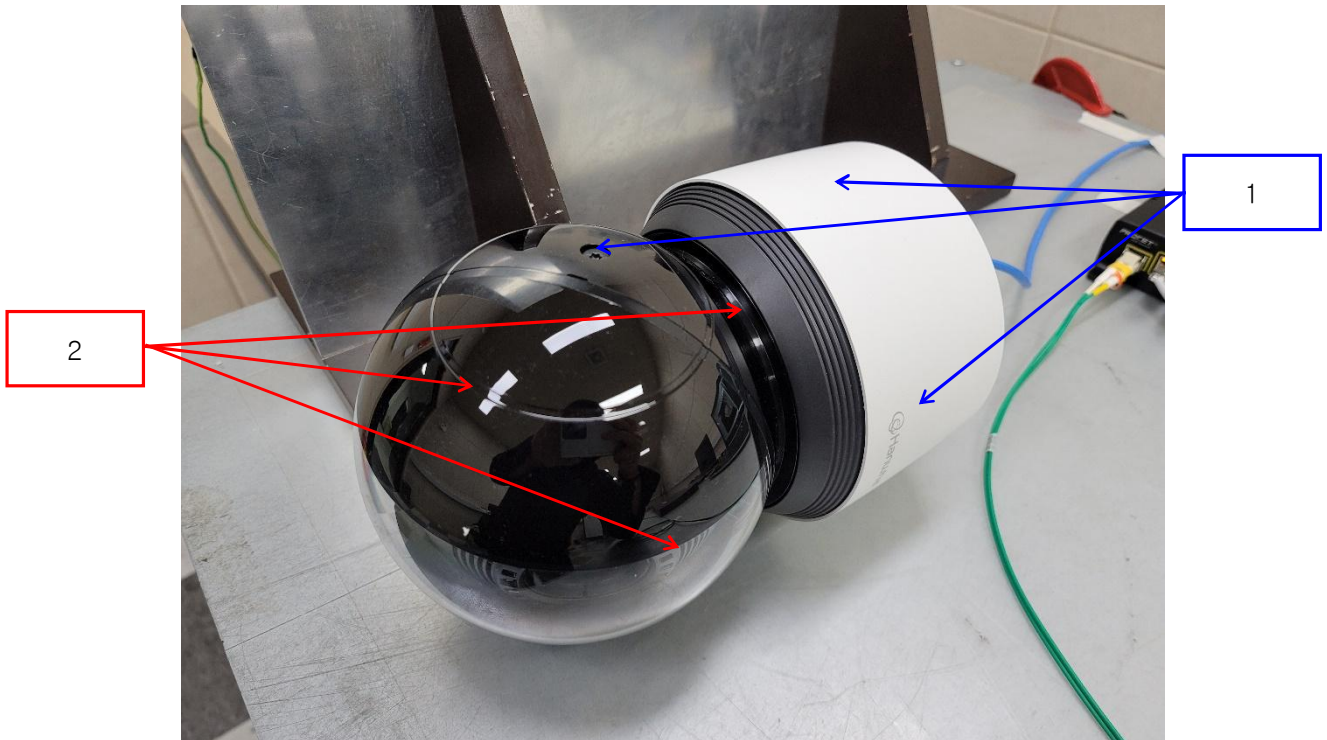
Discharge Voltage:	Contact	Air	HCP	VCP
	<input type="checkbox"/> 2 kV	<input checked="" type="checkbox"/> 2 kV	<input type="checkbox"/> 2 kV	<input type="checkbox"/> 2 kV
	<input type="checkbox"/> 4 kV	<input checked="" type="checkbox"/> 4 kV	<input type="checkbox"/> 4 kV	<input type="checkbox"/> 4 kV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

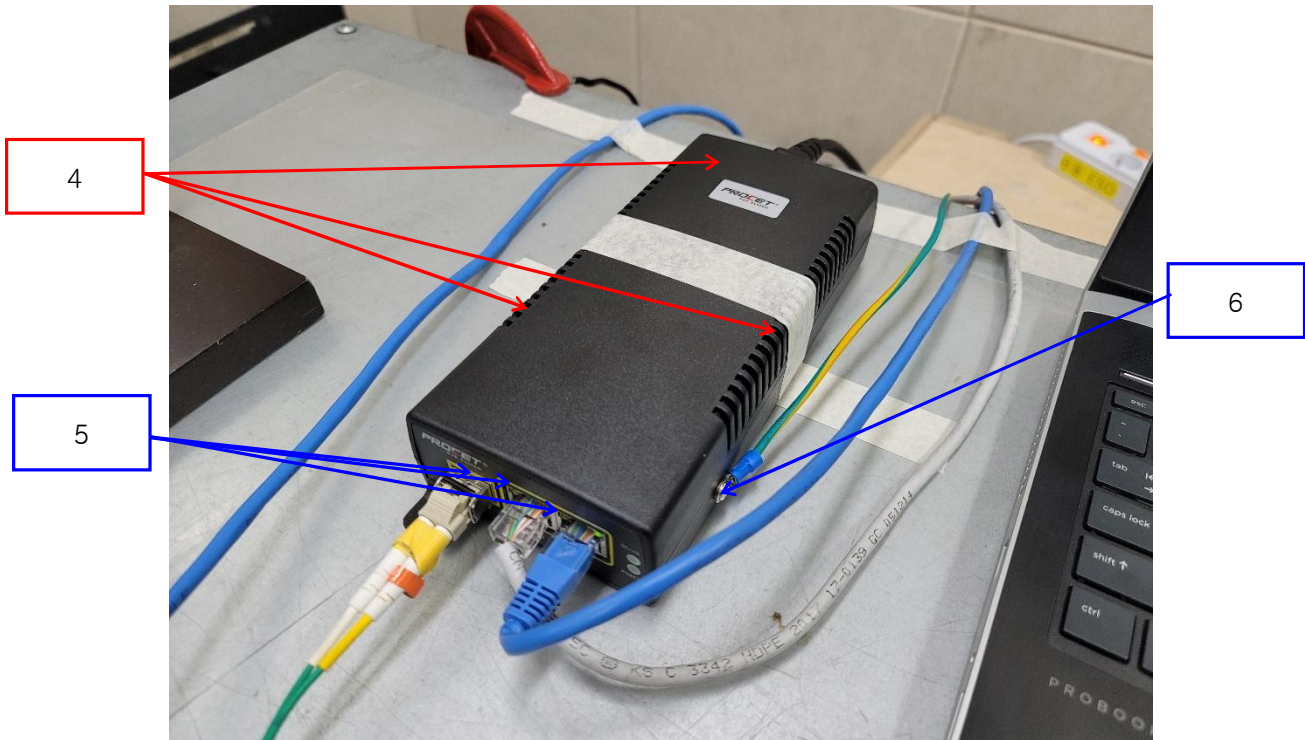
Required Performance Criteria: ☒ Complied

Location of Discharge:

Air
Contact



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Test Data**Indirect Discharge**

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

Direct Discharge

No.	Test Point	Discharge Method	Observations	Remarks
1	Enclosure metal, Screw	Contact Discharge	Complied	-
2	Enclosure	Air Discharge	Complied	-
3	RJ-45 Port	Air Discharge	Complied	-
4	PoE Adapter Enclosure	Air Discharge	Complied	-
5	SFP, PoE, LAN Ports	Contact Discharge	Complied	-
6	Ground 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

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3.2 Radiated Electric Field Immunity

Reference Standard

EN 61000-4-3:2006 +A2:2010

Test Date

Nov. 08, 2020

Test Location

EMS-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	9.12.00	-
<input checked="" type="checkbox"/>	SIGNAL GENERATOR	SMB 100A	Rohde & Schwarz	108252	08, 05, 2021
<input checked="" type="checkbox"/>	HIGH POWER DUAL AMP	SSA532	SUNGSAN	SSA532-001	-
<input checked="" type="checkbox"/>	POWER METER	E4419B	Agilent	GB40203000	04, 20, 2021
<input checked="" type="checkbox"/>	CW POWER SENSOR	E4412A	Agilent	US38488240	04, 20, 2021
<input checked="" type="checkbox"/>	CW POWER SENSOR	E4412A	Agilent	MY41501662	04, 20, 2021
<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, 11, 2021

Test Conditions

Temperature: 23,8 °C
Relative Humidity: 47,6 % R.H.
Atmospheric Pressure: 100,5 kPa



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Test Specifications

Antenna Polarization: Horizontal & vertical unless indicated otherwise

Antenna Distance: ☒ 3 m

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

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

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

Frequency step: ☒ 1 % step

Dwell Time: ☐ 1 s ☒ 3 s

of Sides Radiated: ☒ 4

Required Performance Criteria: ☒ Complied

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Test Data

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

Note: "Blank" = Not performed

Observations:

Complied – No degradation of function

Test Results

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

Remarks

PASS Required Performance Criteria

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3.3 Electrical Fast Transients/Bursts

Reference Standard

EN 61000-4-4:2012

Test Date

Nov. 09, 2020

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	5.4.7	-
<input checked="" type="checkbox"/>	ULTRA COMPACT SIMULATOR	UCS 500N7	EM TEST	P1608172950	11, 27, 2020
<input checked="" type="checkbox"/>	MOTOR VARIAC	MV2616	EM TEST	P1552169719	11, 27, 2020
<input checked="" type="checkbox"/>	CAPACITIVE COUPLING CLAMP	HFK	EM TEST	P1633183115	11, 27, 2020

Test Conditions

Temperature: 22,7 °C
Relative Humidity: 48,3 % R.H.
Atmospheric Pressure: 100,9 kPa

Test Specifications

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

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

Burst Period: ☒ 300 ms ☐ 2 s

Repetition Rate: ☐ 5 kHz ☒ 100 kHz

Duration of Test Voltage: ☒ ≥ 1 min

Required Performance Criteria: ☒ Complied

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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)
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

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3.4 Surge Transients

Reference Standard

EN 61000-4-5:2014

Test Date

Nov. 09, 2020

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	5.4.7	-
<input checked="" type="checkbox"/>	ULTRA COMPACT SIMULATOR	UCS 500N7	EM TEST	P1608172950	11, 27, 2020
<input checked="" type="checkbox"/>	MOTOR VARIAC	MV2616	EM TEST	P1552169719	11, 27, 2020
<input checked="" type="checkbox"/>	CDN	CNV 508N1	EM TEST	P1610176296	11, 27, 2020

Test Conditions

Temperature: 22,7 °C
Relative Humidity: 48,3 % R.H.
Atmospheric Pressure: 100,9 kPa

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Test Specifications

AC Power Lines

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

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

Number of Surges: ☒ 5 surges per angle

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

Polarity: ☒ Positive & Negative

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

Required Performance Criteria: ☒ Complied

Other supply / Signal Lines

Source Impedance: 42 ohm for common Mode

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

Number of Surges: ☒ 5 Surges

Polarity: ☒ Positive & Negative

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

Required Performance Criteria: ☒ Complied

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Test Data

☒ 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)
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
☐ NOT APPLICABLE

Remarks

PASS Required Performance Criteria



3.5 Conducted Disturbance

Reference Standard

EN 61000-4-6:2014

Test Date

Nov. 06, 2020

Test Location

EMS-CS: Electro wave Shieldroom #6

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMS Test S/W	icd.control	EM TEST	5.3.11	-
<input checked="" type="checkbox"/>	CONTINUOUS WAVE SIMULATOR	CWS 500N1.4	EM TEST	P1602169880	07, 22, 2021
<input checked="" type="checkbox"/>	ATTENUATOR	ATT 6/80	EM TEST	P1614178148	11, 25, 2020
<input checked="" type="checkbox"/>	CDN	CDN M016	TESEQ	43694	11, 25, 2020
<input checked="" type="checkbox"/>	CDN	CDN M016	TESEQ	43697	11, 25, 2020
<input type="checkbox"/>	CDN	CDN T800	TESEQ	42800	11, 25, 2020
<input checked="" type="checkbox"/>	CDN	CDN T8RJ45	EM TEST	0909-09	08, 05, 2021

Test Conditions

Temperature: 21,8 °C
Relative Humidity: 46,1 % R.H.
Atmospheric Pressure: 100,4 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

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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
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 61000-4-11:2004

Test Date

Nov. 09, 2020

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	5.4.7	-
<input checked="" type="checkbox"/>	ULTRA COMPACT SIMULATOR	UCS 500N7	EM TEST	P1608172950	11, 27, 2020
<input checked="" type="checkbox"/>	MOTOR VARIAC	MV2616	EM TEST	P1552169719	11, 27, 2020

Test Conditions

Temperature: 22,7 °C
Relative Humidity: 48,3 % R.H.
Atmospheric Pressure: 100,9 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

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

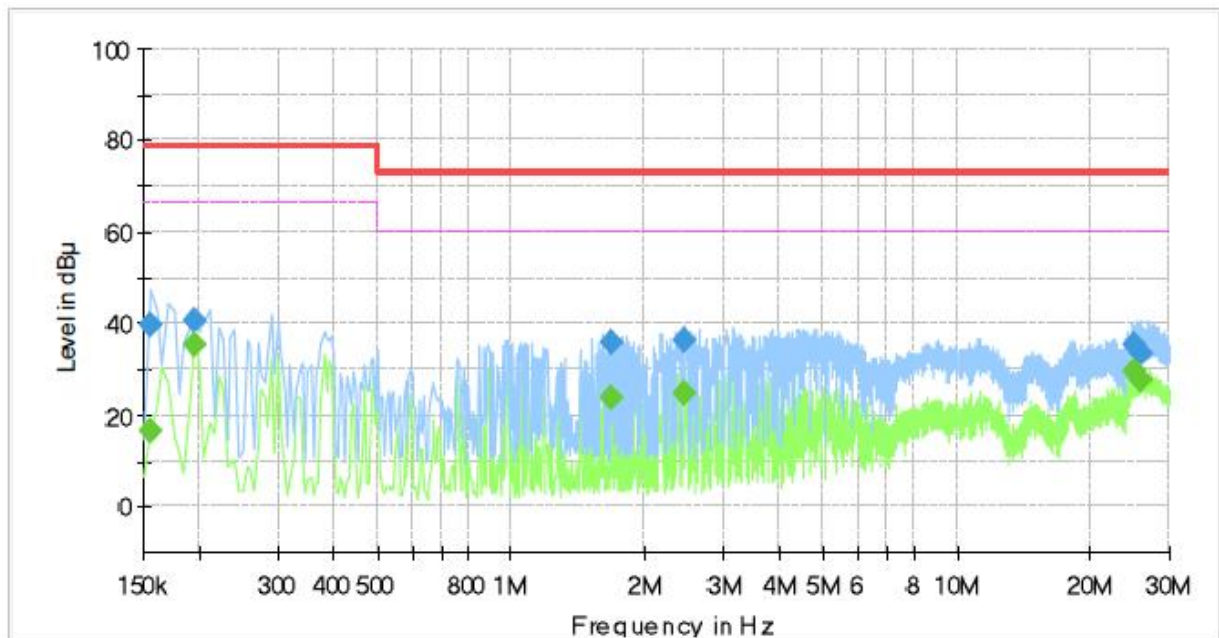
APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

[HOT]

Common Information

Test Description:	Conducted Emission
Model No.:	XNP-9250R
Phase:	H
Mode:	-
Operator Name:	KES



Final Result

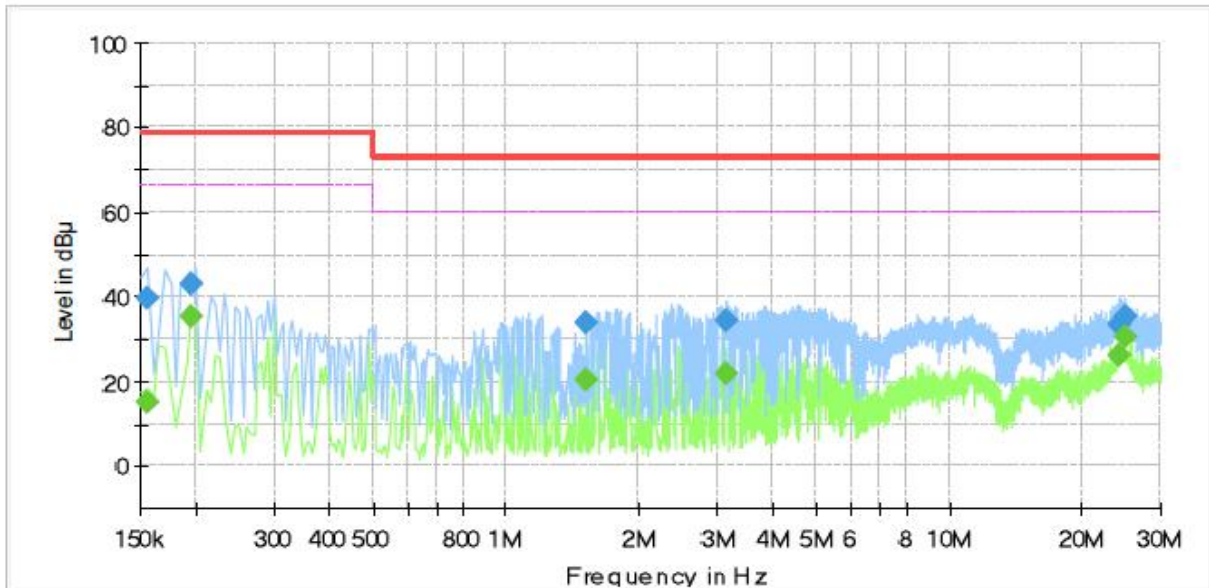
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.155000	---	16.60	66.00	49.40	1000.0	9.000	L1	19.5
0.155000	39.53	---	79.00	39.47	1000.0	9.000	L1	19.5
0.195000	---	35.45	66.00	30.55	1000.0	9.000	L1	19.5
0.195000	40.78	---	79.00	38.22	1000.0	9.000	L1	19.5
1.675000	---	23.92	60.00	36.08	1000.0	9.000	L1	20.2
1.675000	35.66	---	73.00	37.34	1000.0	9.000	L1	20.2
2.460000	---	24.59	60.00	35.41	1000.0	9.000	L1	20.2
2.460000	36.26	---	73.00	36.74	1000.0	9.000	L1	20.2
24.960000	---	29.69	60.00	30.31	1000.0	9.000	L1	20.3
24.960000	35.35	---	73.00	37.65	1000.0	9.000	L1	20.3
25.995000	---	27.55	60.00	32.45	1000.0	9.000	L1	20.4
25.995000	33.63	---	73.00	39.37	1000.0	9.000	L1	20.4

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[NEUTRAL]

Common Information

Test Description:	Conducted Emission
Model No.:	XNP-9250R
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	---	15.20	66.00	50.80	1000.0	9.000	N	19.4
0.155000	39.83	---	79.00	39.17	1000.0	9.000	N	19.4
0.195000	---	35.39	66.00	30.61	1000.0	9.000	N	19.5
0.195000	43.14	---	79.00	35.86	1000.0	9.000	N	19.5
1.520000	---	20.56	60.00	39.44	1000.0	9.000	N	20.2
1.520000	33.75	---	73.00	39.25	1000.0	9.000	N	20.2
3.130000	---	22.08	60.00	37.92	1000.0	9.000	N	20.0
3.130000	34.51	---	73.00	38.49	1000.0	9.000	N	20.0
24.120000	---	26.30	60.00	33.70	1000.0	9.000	N	20.3
24.120000	33.25	---	73.00	39.75	1000.0	9.000	N	20.3
24.900000	---	30.34	60.00	29.66	1000.0	9.000	N	20.4
24.900000	35.27	---	73.00	37.73	1000.0	9.000	N	20.4

◆ Calculation

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

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

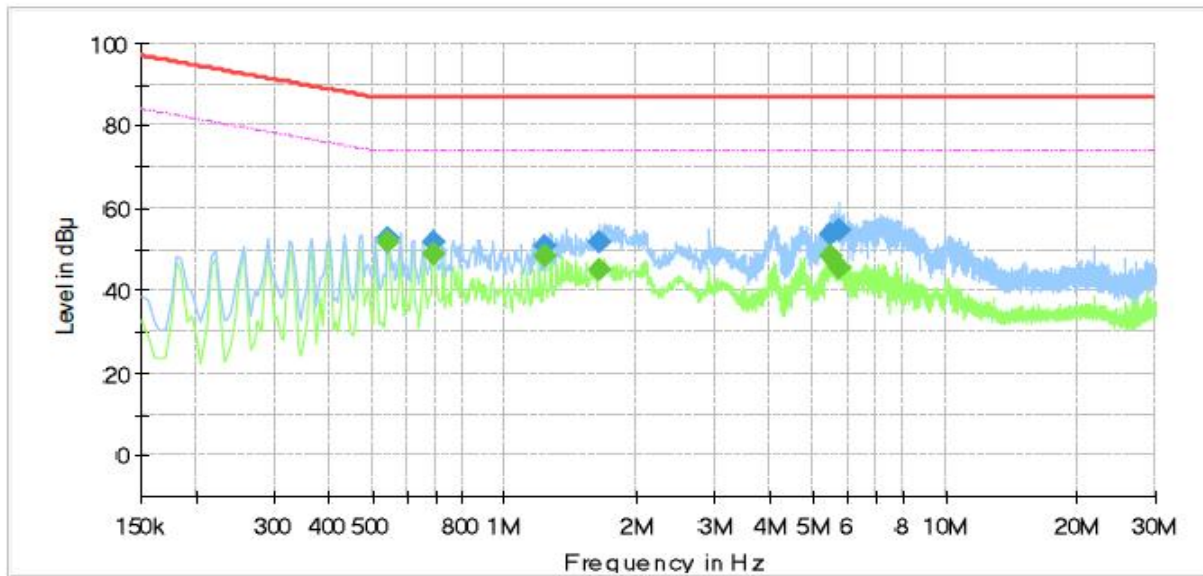
Corr. : Correction values (LISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

Conducted Emissions at Telecommunication Ports

[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	XNP-9250R
Mode :	-
Speed :	100 Mbps
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.545000	---	51.76	74.00	22.24	1000.0	9.000	Single Line	19.8
0.545000	52.57	---	87.00	34.43	1000.0	9.000	Single Line	19.8
0.690000	---	48.78	74.00	25.22	1000.0	9.000	Single Line	19.9
0.690000	51.73	---	87.00	35.27	1000.0	9.000	Single Line	19.9
1.235000	---	48.14	74.00	25.86	1000.0	9.000	Single Line	20.0
1.235000	50.89	---	87.00	36.11	1000.0	9.000	Single Line	20.0
1.640000	---	45.13	74.00	28.87	1000.0	9.000	Single Line	20.0
1.640000	51.84	---	87.00	35.16	1000.0	9.000	Single Line	20.0
5.490000	---	48.33	74.00	25.67	1000.0	9.000	Single Line	19.3
5.490000	53.70	---	87.00	33.30	1000.0	9.000	Single Line	19.3
5.760000	---	45.42	74.00	28.58	1000.0	9.000	Single Line	19.3
5.760000	54.63	---	87.00	32.37	1000.0	9.000	Single Line	19.3

◆ Calculation

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

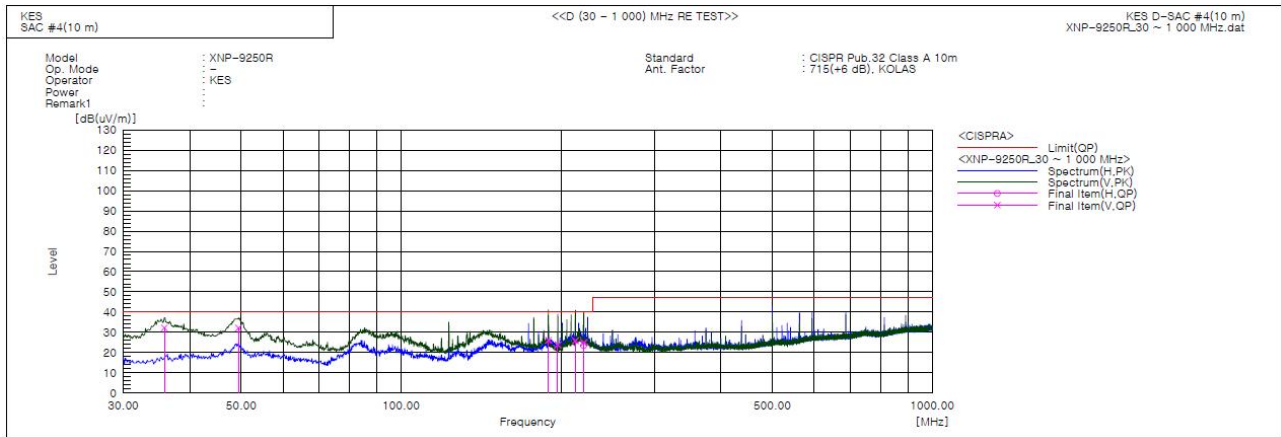
QuasiPeak / CAverage : The Final Value

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(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	35.820	V	56.9	-24.7	32.2	40.0	7.8	100.0	291.0	
2	49.400	V	53.6	-21.4	32.2	40.0	7.8	105.0	136.0	
3	189.444	V	49.0	-22.9	26.1	40.0	13.9	100.0	349.0	
4	197.204	V	45.9	-22.1	23.8	40.0	16.2	127.0	22.0	
5	212.845	V	46.8	-21.0	25.8	40.0	14.2	110.0	184.0	
6	220.605	H	44.0	-20.6	23.4	40.0	16.6	400.0	151.0	
7	220.726	V	45.4	-20.6	24.8	40.0	15.2	132.0	71.0	

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

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



KES Co., Ltd.

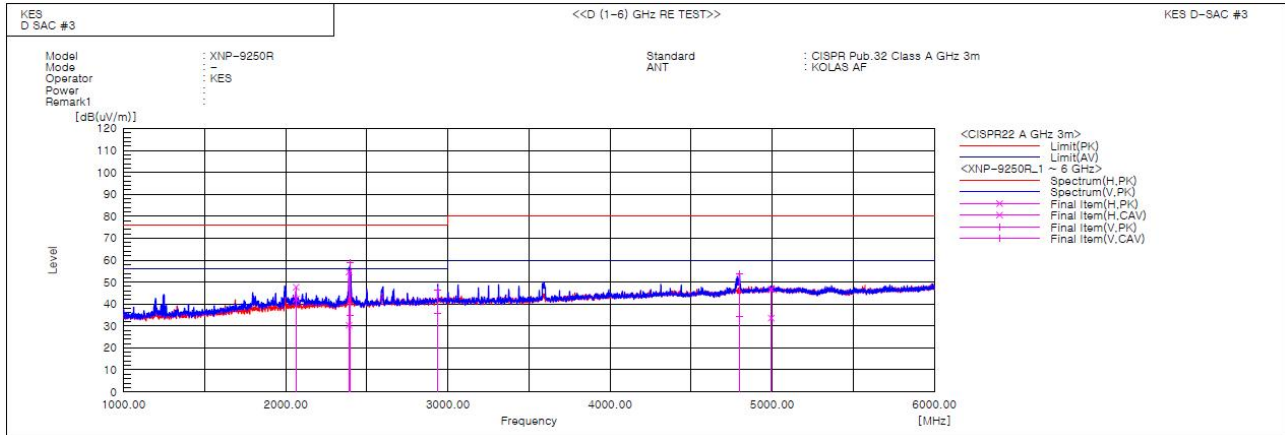
3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
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Report No.:

KES-EM-20T0804-R1

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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	2062.940	H	49.6	44.3	-1.9	47.7	42.4	76.0	56.0	28.3	13.6	100.0	145.5	
2	2389.420	H	55.3	31.1	-0.7	54.6	30.4	76.0	56.0	21.4	25.6	100.0	344.3	
3	2397.350	V	59.8	35.3	-0.7	59.1	34.6	76.0	56.0	16.9	21.4	100.0	149.6	
4	2937.000	V	45.0	34.2	1.4	46.4	35.6	76.0	56.0	29.6	20.4	100.0	180.8	
5	4799.740	V	46.2	26.7	7.5	53.7	34.2	80.0	60.0	26.3	25.8	100.0	357.6	
6	4992.804	H	38.4	25.2	8.4	46.8	33.6	80.0	60.0	33.2	26.4	100.0	0.6	

◆ Calculation

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

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

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

Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - 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	0.099			
2	0.004	0.351	1.080	n/a
3	0.089	3.874	2.300	PASS
4	0.005	1.278	0.430	PASS
5	0.086	7.570	1.140	PASS
6	0.004	1.461	0.300	n/a
7	0.083	10.777	0.770	PASS
8	0.004	1.660	0.230	n/a
9	0.078	19.508	0.400	PASS
10	0.004	2.311	0.184	n/a
11	0.073	21.977	0.330	PASS
12	0.004	2.304	0.153	n/a
13	0.067	31.761	0.210	PASS
14	0.003	2.314	0.131	n/a
15	0.060	40.068	0.150	PASS
16	0.003	2.392	0.115	n/a
17	0.053	40.187	0.132	PASS
18	0.002	2.308	0.102	n/a
19	0.046	38.762	0.118	PASS
20	0.002	2.042	0.092	n/a
21	0.038	23.922	0.161	PASS
22	0.002	1.918	0.084	n/a
23	0.032	21.531	0.147	PASS
24	0.001	1.853	0.077	n/a
25	0.025	18.707	0.135	PASS
26	0.001	1.837	0.071	n/a
27	0.019	15.436	0.125	PASS
28	0.001	2.243	0.066	n/a
29	0.014	11.642	0.116	PASS
30	0.001	2.235	0.061	n/a
31	0.009	8.047	0.109	PASS
32	0.001	2.385	0.058	n/a
33	0.005	4.960	0.102	PASS
34	0.001	2.445	0.054	n/a
35	0.003	2.663	0.096	n/a
36	0.001	2.224	0.051	n/a
37	0.003	3.237	0.091	n/a
38	0.001	2.300	0.048	n/a
39	0.004	4.737	0.087	n/a
40	0.001	2.049	0.046	n/a

Note: Harmonic currents less than 0.6 % of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded.

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



Test Data - Harmonics (continued)

Maximum harmonic current results				
Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	0.099			
2	0.004	0.266	1.620	n/a
3	0.089	2.589	3.450	PASS
4	0.006	0.938	0.645	PASS
5	0.087	5.059	1.710	PASS
6	0.005	1.089	0.450	n/a
7	0.083	7.205	1.155	PASS
8	0.004	1.247	0.345	n/a
9	0.078	13.041	0.600	PASS
10	0.005	1.734	0.276	n/a
11	0.073	14.740	0.495	PASS
12	0.004	1.697	0.230	n/a
13	0.067	21.247	0.315	PASS
14	0.004	1.796	0.197	n/a
15	0.061	26.924	0.225	PASS
16	0.003	1.854	0.173	n/a
17	0.054	26.951	0.199	PASS
18	0.003	1.776	0.153	n/a
19	0.046	25.996	0.178	PASS
20	0.002	1.605	0.138	n/a
21	0.039	24.161	0.161	PASS
22	0.002	1.506	0.125	n/a
23	0.032	21.758	0.147	PASS
24	0.002	1.472	0.115	n/a
25	0.026	18.939	0.135	PASS
26	0.002	1.433	0.106	n/a
27	0.020	15.701	0.125	PASS
28	0.002	1.702	0.099	n/a
29	0.014	11.900	0.116	PASS
30	0.002	1.634	0.092	n/a
31	0.009	8.286	0.109	PASS
32	0.002	1.766	0.086	n/a
33	0.005	5.154	0.102	PASS
34	0.001	1.830	0.081	n/a
35	0.003	2.756	0.096	n/a
36	0.001	1.646	0.077	n/a
37	0.003	3.502	0.091	n/a
38	0.001	1.693	0.073	n/a
39	0.004	4.978	0.087	n/a
40	0.001	1.520	0.069	n/a

Note: Harmonic currents less than 0.6 % of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded.

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

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www.kes.co.kr

Report No.:
KES-EM-20T0804-R1
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Test Data - Voltage Fluctuations

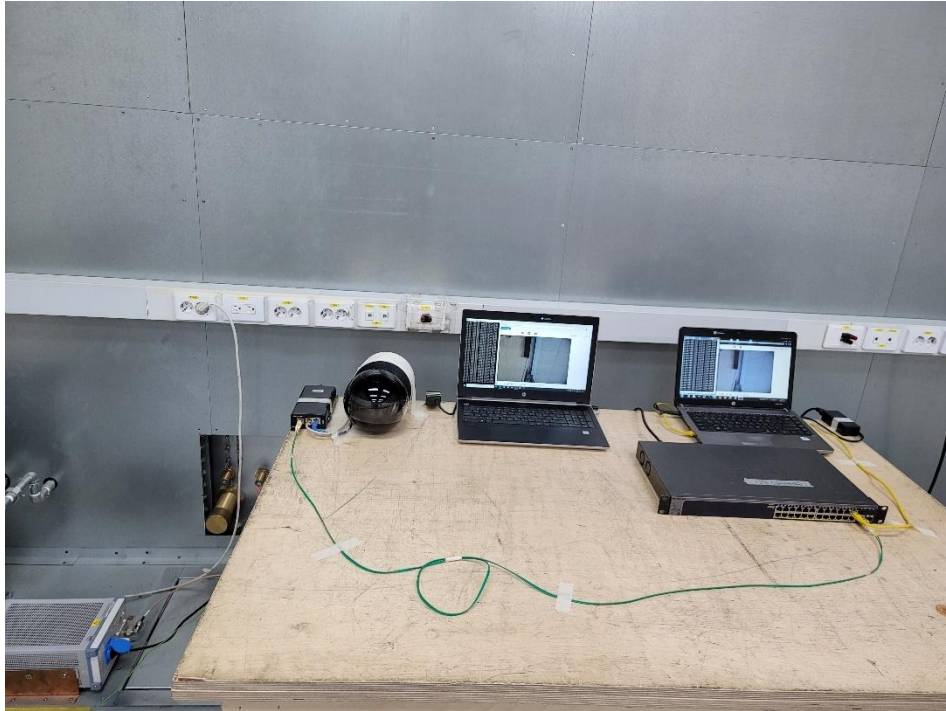
Maximum Flicker results

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



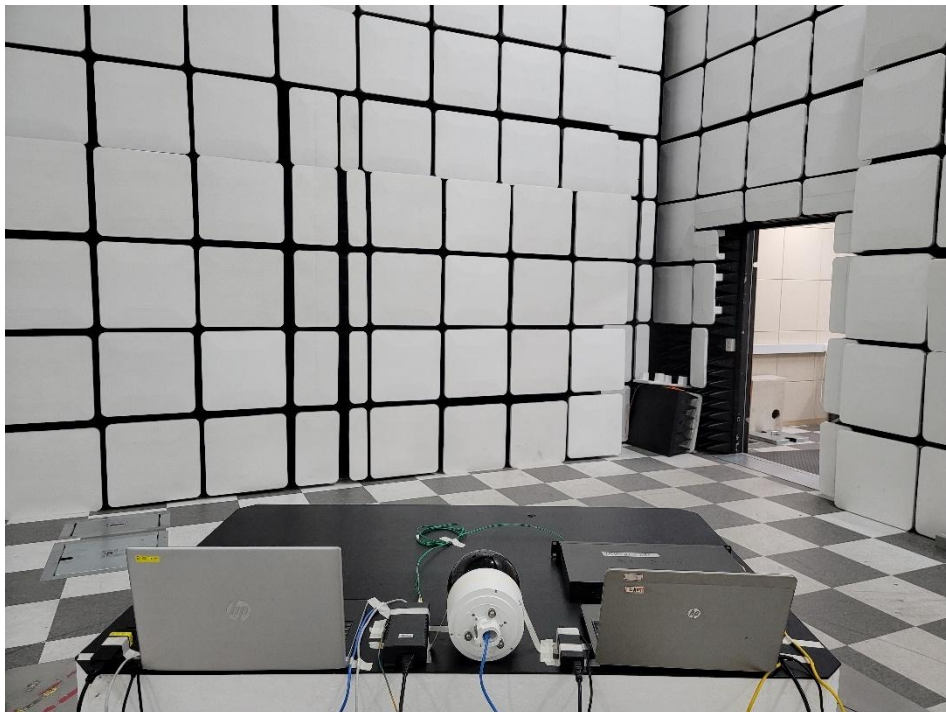
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Conducted Emissions at Telecommunication Ports



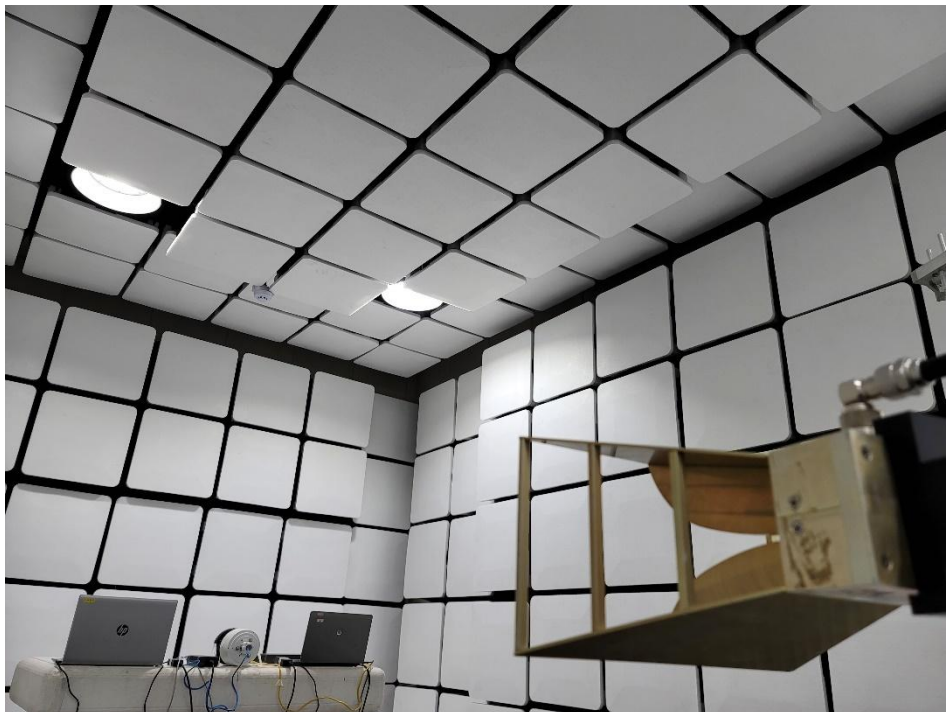
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Radiated Electric Field Emissions(Below 1 GHz)



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Radiated Electric Field Emissions(Above 1 GHz)



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Harmonic Current Emissions and Voltage Fluctuations and Flicker

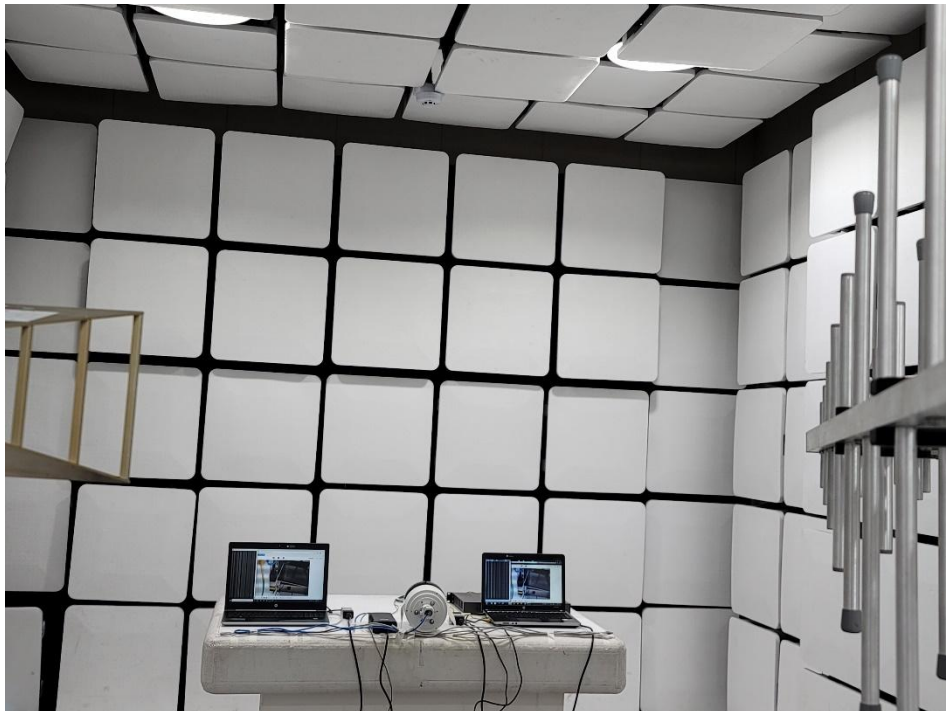


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Electrostatic Discharge



Radiated Electric Field Immunity



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Electrical Fast Transients/Bursts

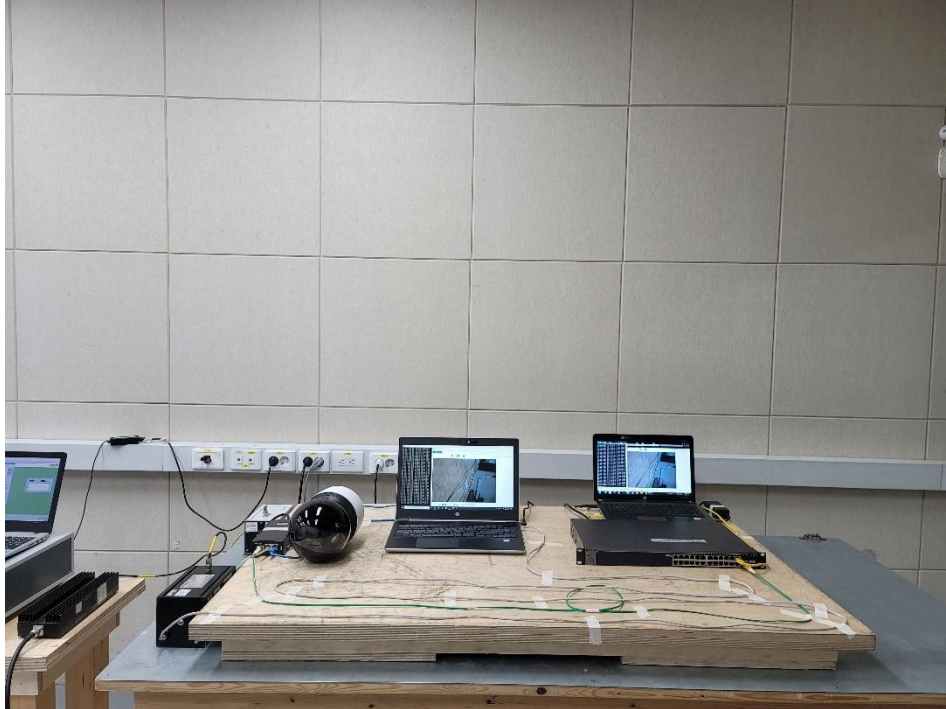


Surge Transients



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Conducted Disturbance



Voltage Dips and Short Interruptions



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EUT External Photographs

(Top)



(Bottom)



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EUT Internal Photographs

(Internal View)



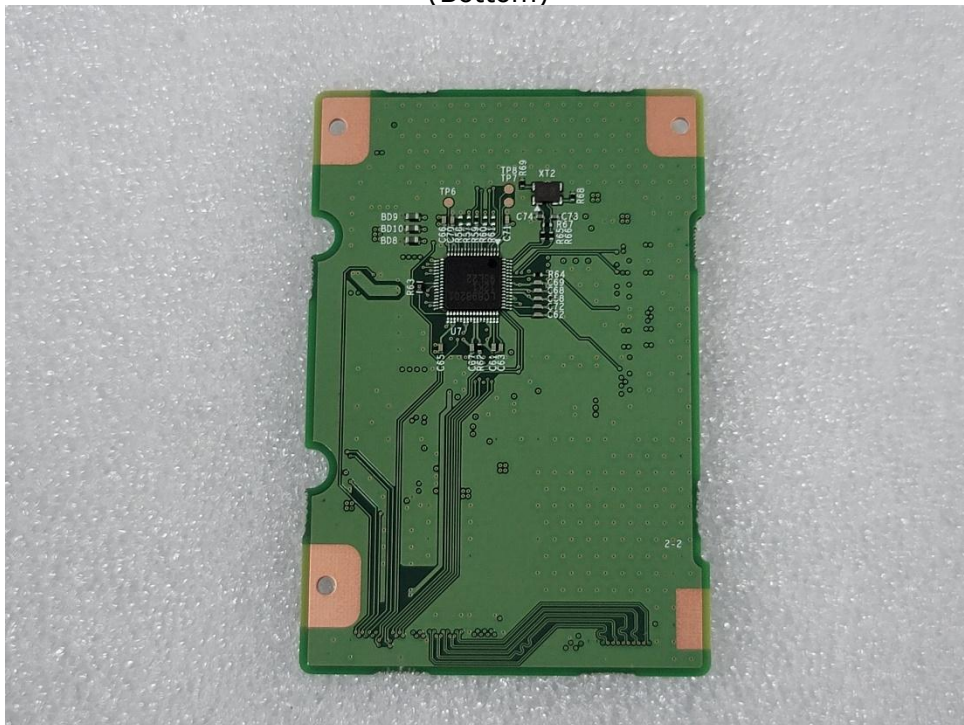
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EUT Internal View – DRIVE Board

(Top)



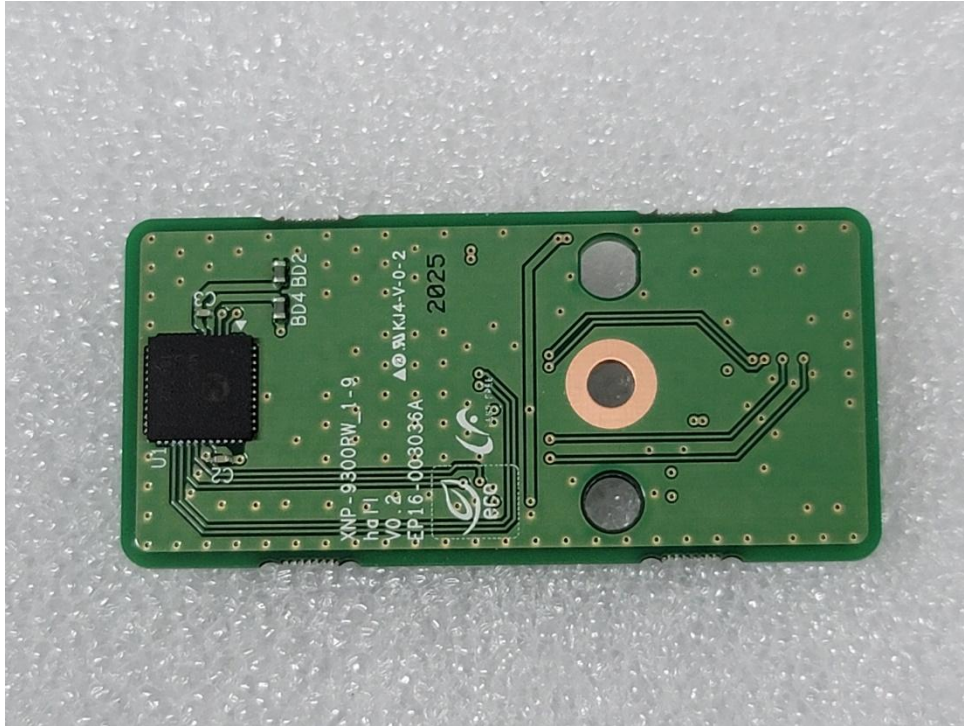
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EUT Internal View – Hall Board

(Top)



(Bottom)



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EUT Internal View – Heater Board

(Top)



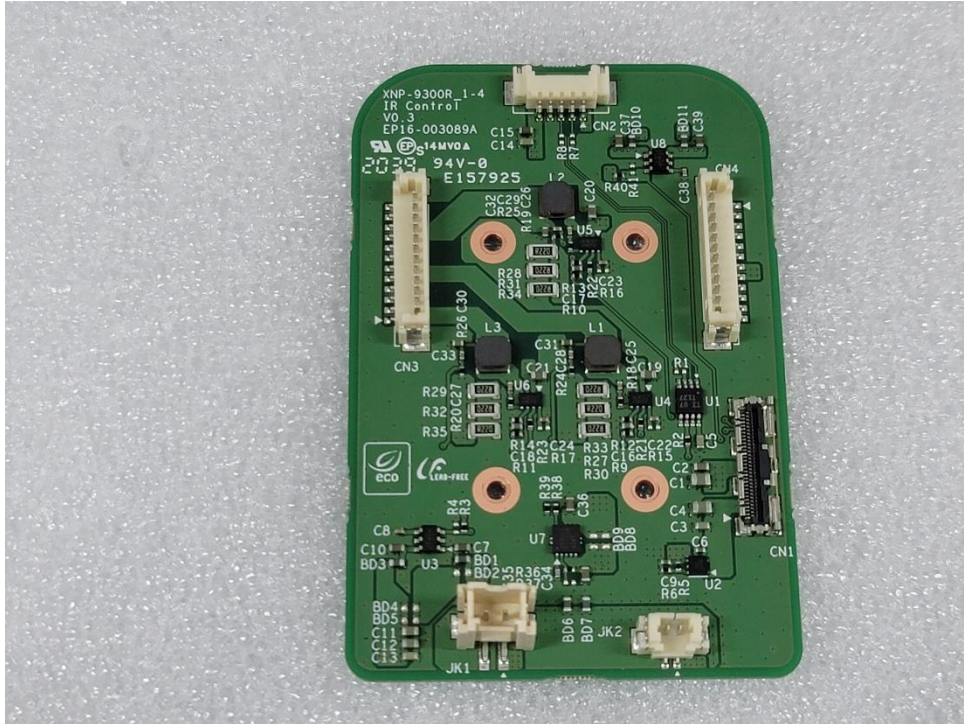
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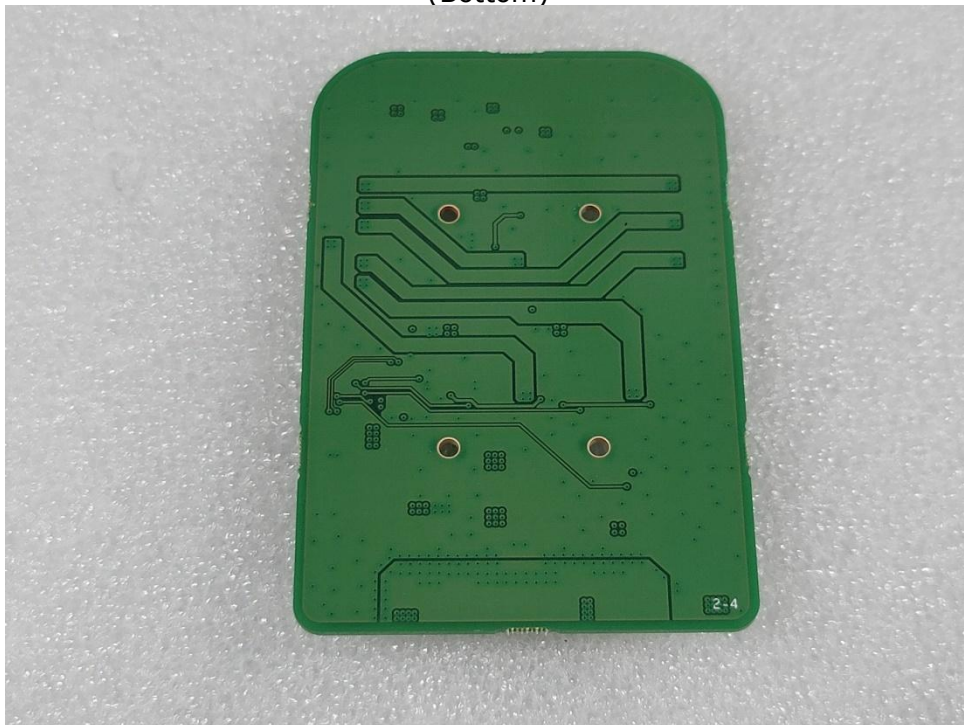
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EUT Internal View – IR Control Board

(Top)



(Bottom)



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EUT Internal View – IR LED LEFT Board

(Top)



(Bottom)



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EUT Internal View – IR LED RIGHT Board

(Top)



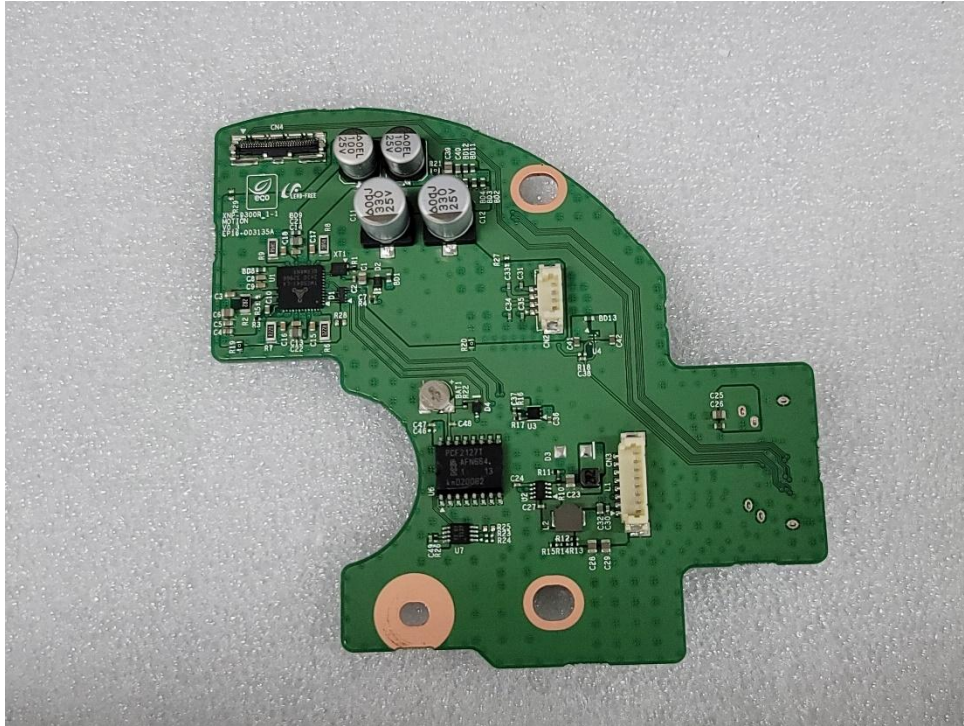
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EUT Internal View – MOTION Board

(Top)



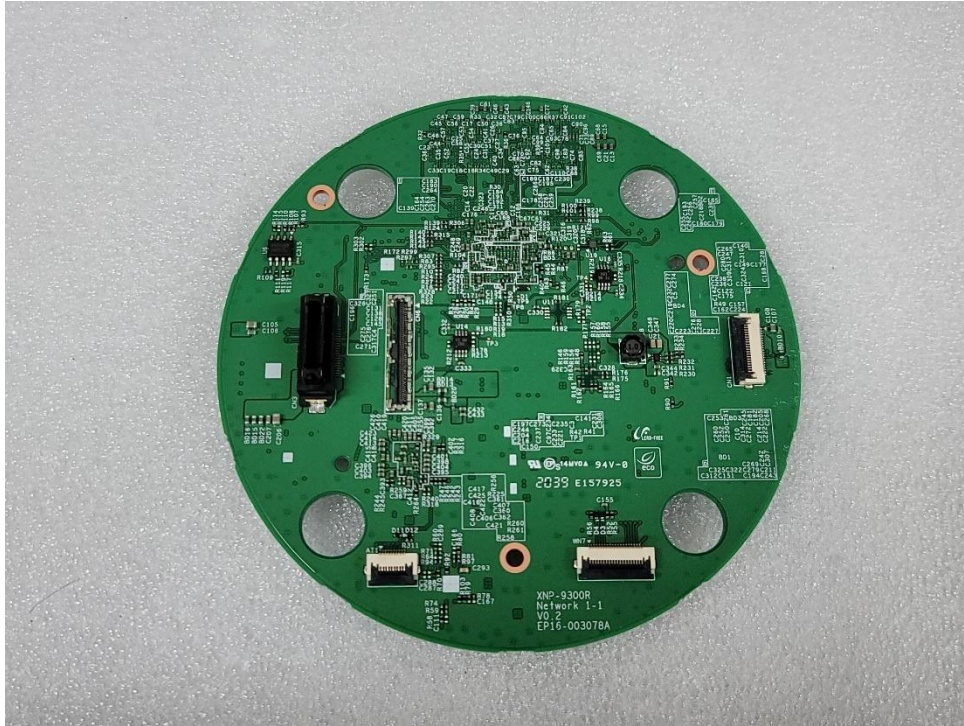
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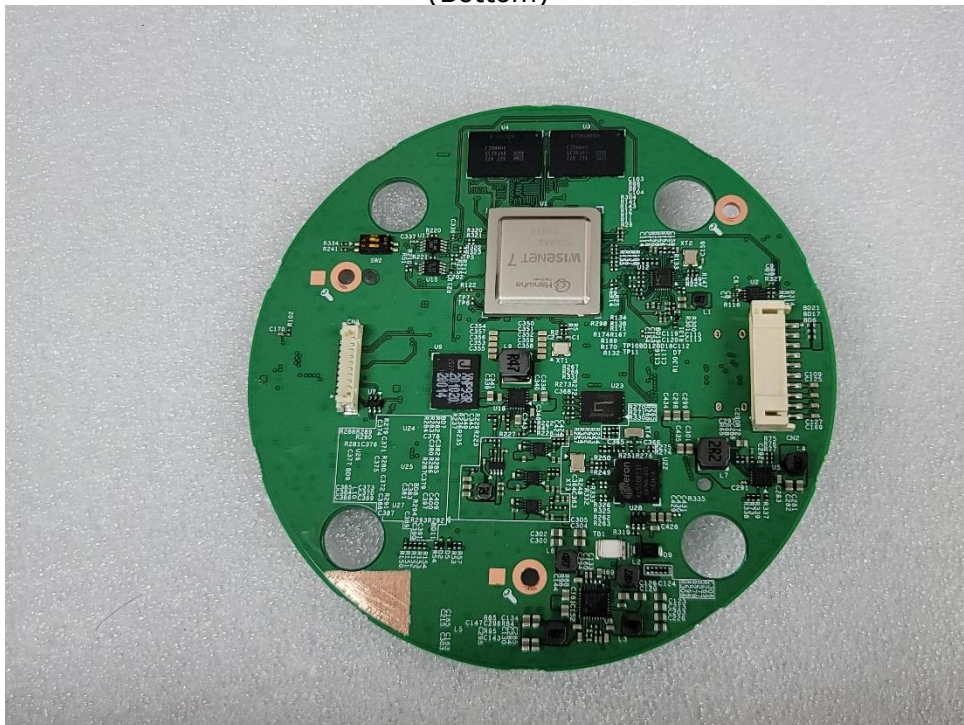
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EUT Internal View – Network Board

(Top)



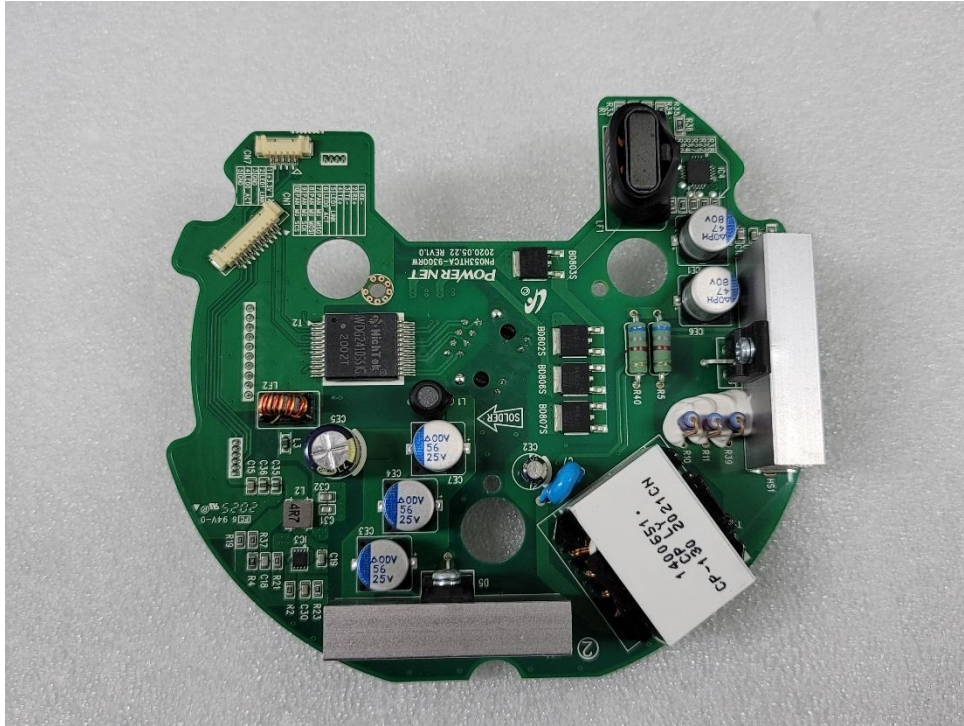
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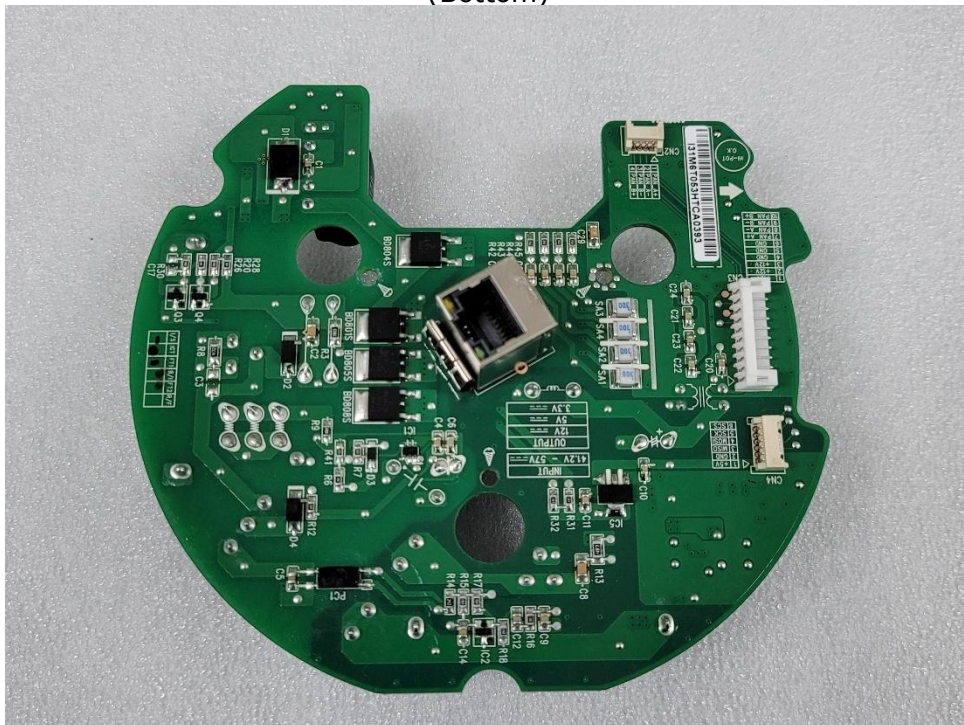
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EUT Internal View – Power Board

(Top)



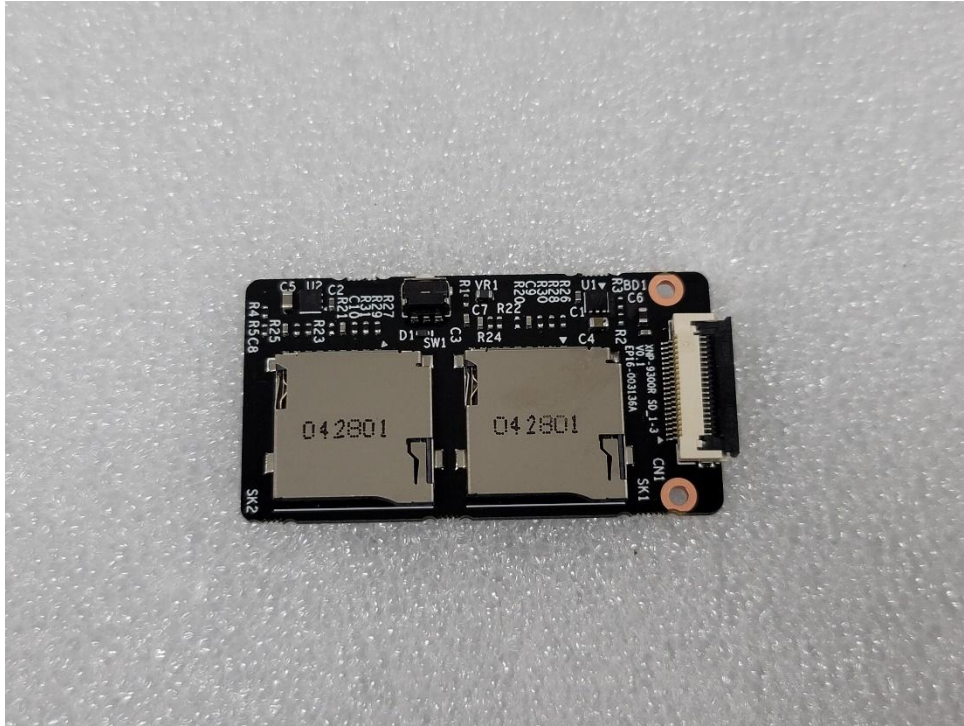
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EUT Internal View – SD Board

(Top)



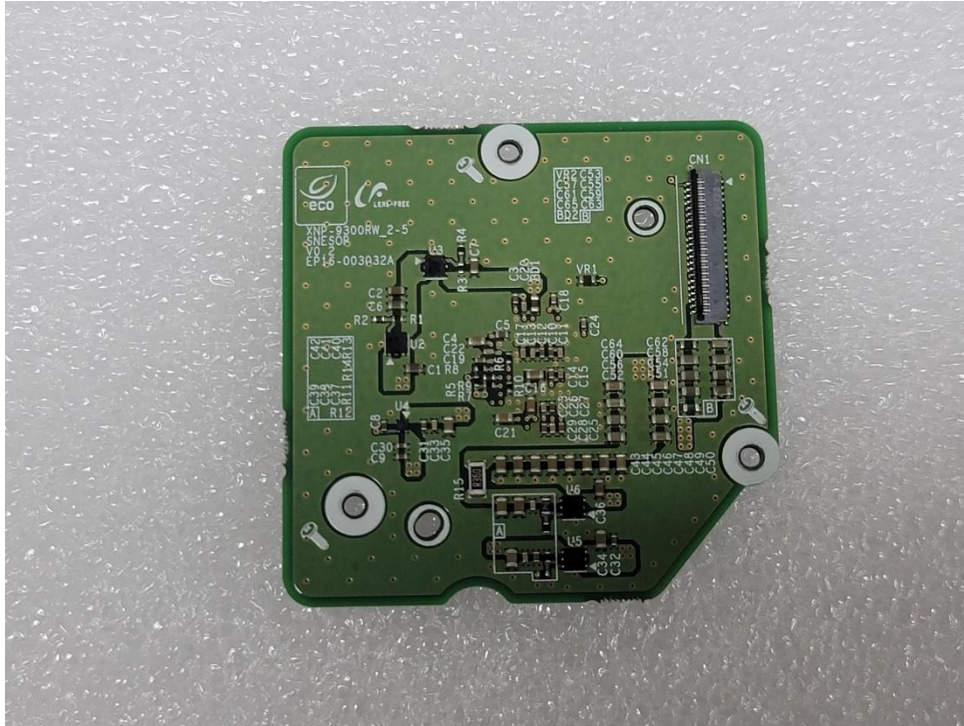
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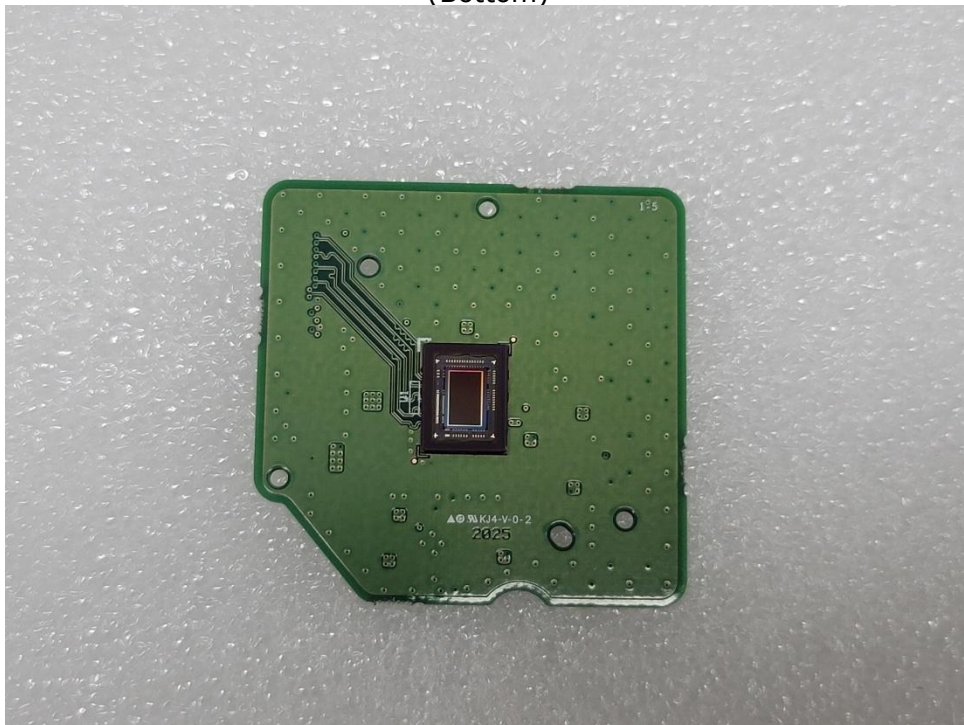
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EUT Internal View – SENSOR Board

(Top)



(Bottom)



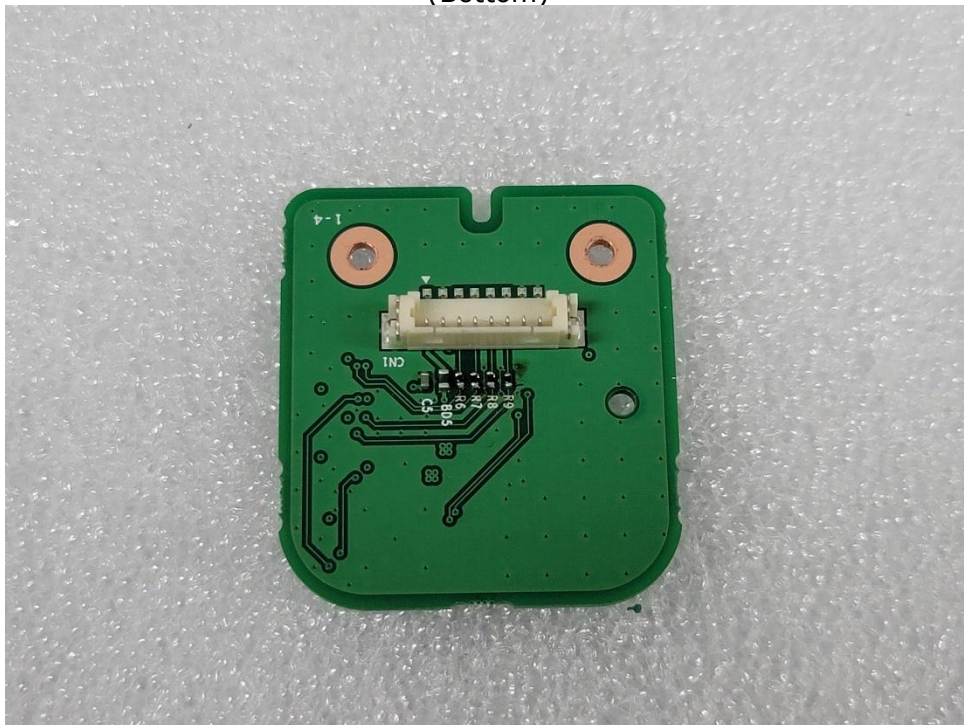
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EUT Internal View – TILT-HALL Board

(Top)



(Bottom)



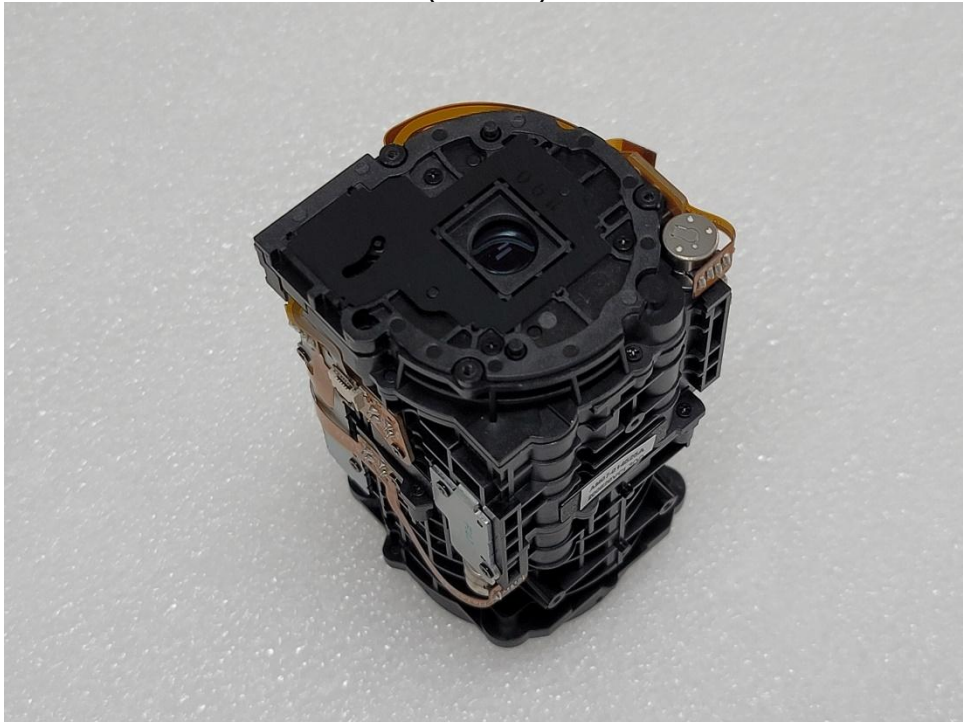
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EUT Internal View – LENS

(Top)



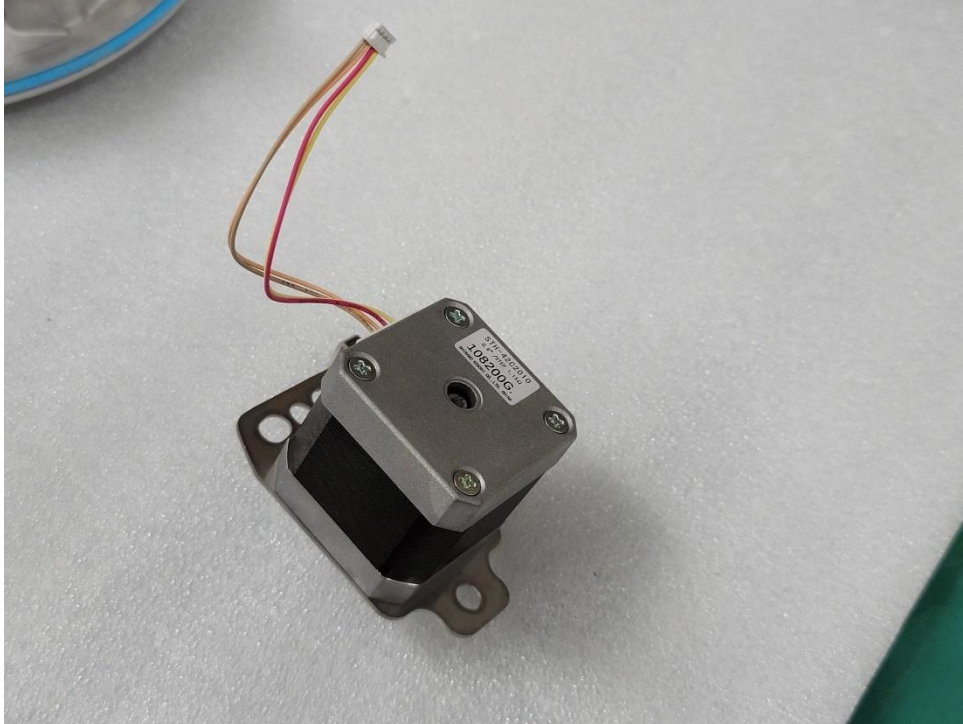
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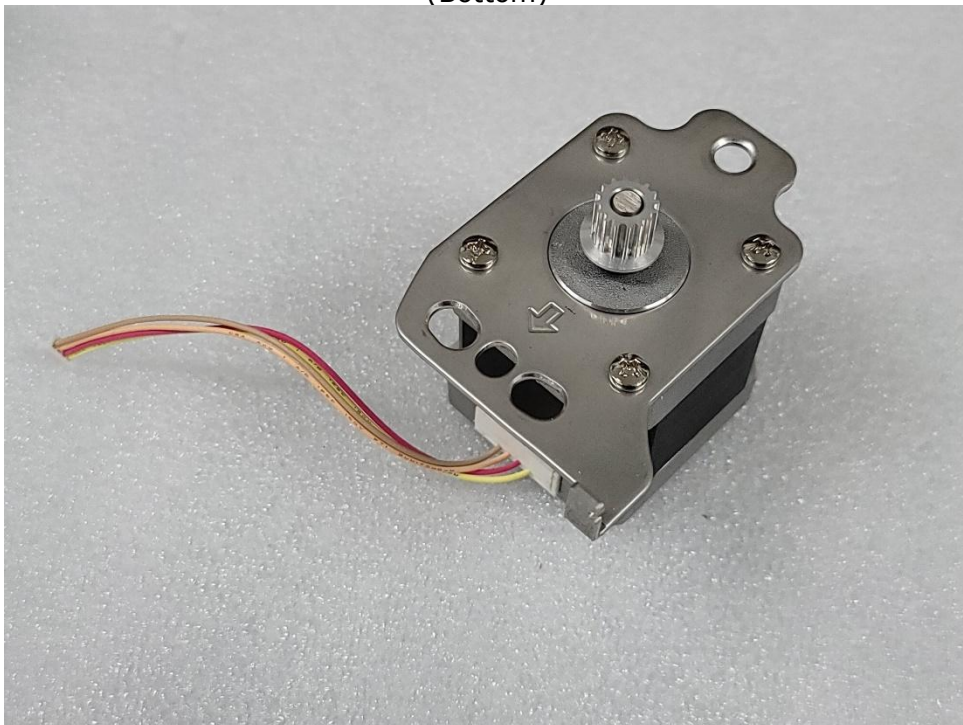
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EUT Internal View – MOTOR

(Top)



(Bottom)



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Manufacturer : HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.

Made in Vietnam

