

**KES Co., Ltd.**

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www.kes.co.kr

Report No.:

KES-EM-21T0179-R1

Page (1) of (37)

EMC TEST REPORT

Test Report No. : KES-EM-21T0179-R1
Date of Issue : Feb. 24, 2023
Product name : NETWORK CAMERA
Model/Type No. : PNO-A6081R
Variant Model : -
Applicant : Hanwha Vision Co., Ltd.
Applicant Address : 6, Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si,
Gyeonggi-do, Republic of Korea
Manufacturer : 1. HANWHA VISION VIETNAM COMPANY LIMITED
2. D-TECH CO.,LTD.
Manufacturer Address : 1. Lot O-2, Que Vo Industrial Zone extended area,
Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam
2. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi- do,
Korea (Suwon Industrial Complex)
Equipment authorization : **Supplier's Declaration of Conformity**
Date of Receipt : Jan. 28, 2021
Test date : Feb. 01, 2021
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Dae Soo, Kim
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

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

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Report No.:

KES-EM-21T0179-R1

Page (2) of (37)

REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Mar. 17, 2021	KES-EM-21T0179	Issued
Feb. 24, 2023	KES-EM-21T0179-R1	Change the Applicant and manufacturer at the request of the customer

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TABLE OF CONTENTS

1.0	General Product Description.....	4
1.1	Test Voltage & Frequency	6
1.2	Variant Model Differences	6
1.3	Device Modifications	6
1.4	Equipment Under Test.....	6
1.5	Support Equipments	7
1.6	External I/O Cabling	8
1.7	EUT Operating Mode(s)	9
1.8	Configuration.....	10
1.9	Remarks when standards applied	11
1.10	Calibration Details of Equipment Used for Measurement.....	11
1.11	Test Facility	11
1.12	Laboratory Accreditations and Listings	11
2.0	Test Regulations.....	12
2.1	Conducted Emissions at Mains Power Ports	14
2.2	Radiated Electric Field Emissions(Below 1 GHz)	15
2.3	Radiated Electric Field Emissions(Above 1 GHz)	16
APPENDIX A – TEST DATA.....		17
Conducted Emissions at Mains Power Ports.....		17
Radiated Electric Field Emissions(Below 1 GHz)		19
Radiated Electric Field Emissions(Above 1 GHz)		21
Test Setup Photos and Configuration		23
Conducted Emissions at Mains Power Ports.....		23
Radiated Electric Field Emissions(Below 1 GHz)		24
Radiated Electric Field Emissions(Above 1 GHz)		26
EUT External Photographs		28
EUT Internal Photographs		29



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Report No.:

KES-EM-21T0179-R1

Page (4) of (37)

1.0 General Product Description

Main Specifications of EUT are:

	PNO-A6081R
Video	
Imaging Device	1/2" CMOS
Resolution	1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360
Max. Framerate	H.265/H.264: Max. 60/50fps(60Hz/50Hz, AI analytics on), Max. 120/100fps(60Hz/50Hz, AI analytics off) MJPEG: Max. 15fps/12fps(60Hz/50Hz)
NETD	None
Pixel Size	None
Min. Illumination	Color: 0.008Lux(F1.3, 1/30sec, 30IRE) B/W : 0.0008Lux(F1.3, 1/30sec, 30IRE), 0Lux(IR LED on), 30/25fps Color: 0.016Lux(F1.3, 1/60sec, 30IRE) B/W : 0.0016Lux(F1.3, 1/60sec, 30IRE), 0Lux(IR LED on), 60/50fps Color: 0.032Lux(F1.3, 1/120sec, 30IRE) B/W : 0.0032Lux(F1.3, 1/120sec, 30IRE), 0Lux(IR LED on), 120/100fps
Video Out	CVBS: 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P) for installation USB: Micro USB Type B, 1280x720 for installation
Video Transmission Distance	None
Lens	
Focal Length (Zoom Ratio)	4.38~9.33mm(2.13x) motorized varifocal
Max. Aperture Ratio	F1.3(Wide)~F2.15(Tele)
Angular Field of View	H:103.1°(Wide)~44.5°(Tele) / V:54.2°(Wide)~24.9°(Tele) / D:124°(Wide)~51.1°(Tele)
Min. Object Distance	0.5m(1.64ft)
Focus Control	Simple focus
Lens Type	P iris
Mount Type	None
Optional Lens	None
Pan / Tilt / Rotate	
Pan / Tilt / Rotate Range	None
Pan Range	None
Pan Speed	None
Tilt Range	None
Tilt Speed	None
Rotate Range	None
Sequence	None
Preset Accuracy	None
Operational	
Camera Title	Displayed up to 85 characters
Direction Indicator	None
Day & Night	Auto(ICR)
Backlight Compensation	BLC, WDR, SSDR
Wide Dynamic Range	120dB
Digital Noise Reduction	SSNR, WiseNR II(using AI engine)
Digital Image Stabilization	Stabilization Support(built-in gyro sensor)
Defog	None
Motion Detection	8ea, polygonal zones
Privacy Masking	6ea, rectangle zones
Gain Control	- Color: Gray/Green/Red/Blue/Black/White Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor
LDC	Support
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (1/5~1/12,000sec)
Digital PTZ	Auto prefer shutter control based on AI engine
Video Rotation	Flip, Mirror, Hallway view(90°/270°) - Classified object type : Person/Face/Vehicle/License plate with attributes, BestShot per object
Analytics	- Analytics events based on AI engine : Object detection, Face mask detection, Directional detection, Digital auto tracking, Enter/Exit, Loitering, Virtual line, Social distancing detection - Analytics events : Defocus detection, Motion detection, Appear/Disappear, Tampering, Audio detection, Sound classification, Shock detection
Business Intelligence	People counting, Queue management, Heatmap based on AI engine
Serial Interface	None
Alarm I/O	Input 1ea / Output 1ea / DC 12V Power(Max. 50mA) 1ea
Alarm Triggers	Analytics, Network disconnect, Alarm input File upload via FTP and e-mail
Alarm Events	Notification via e-mail SD/SDHC/SDXC or NAS recording at event triggers Alarm output Handover Audio playback
Audio In	Selectable(mic in/line in) Supply voltage: 2.5VDC(4mA), Input impedance: 2K Ohm
Audio Out	Line out, Max.output level: 1Vrms
IR Viewable Length	40m(131.23ft), Wise IR
IR Illuminator (Optional)	None
Water Removal	None
Auto Tracking	None
Coaxial Protocol	None
Color Palettes	None

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Report No.:

KES-EM-21T0179-R1

Page (5) of (37)

Radiometry	
Temperature detect range	None
Temperature accuracy	None
Temperature detection	None
Additional	None
Network	
Ethernet	Metal shielded RJ-45(10/100/1000 BASE-T)
Video Compression	H.265/H.264: Main/High, MJPEG
Audio Compression	G.711 u-law /G.726 Selectable G.726(ADPCM) 8KHz, G.711 8KHz G.726: 16Kbps, 24Kbps, 32Kbps, 40Kbps AAC-LC: 48Kbps at 16KHz
Smart Codec	Manual(Sea area), WiseStreamII, WiseStreamIII(using AI engine)
Video Quality Adjustment	H.264/H.265: Target bitrate level control MJPEG: Target bitrate level control
Bitrate Control	H.264/H.265: CBR or VBR MJPEG: VBR
Streaming	Unicast(6 users) / Multicast Multiple streaming(Up to 5 profiles)
Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, UPnP, Bonjour, LLDP, SRTP (TCP, UDP Unicast)
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) TPM with FIPS 140-2 level2 Secure boot, Verify firmware forgery
Application Programming Interface	ONVIF Profile S/G/T SUNAPI(HTTP API) Wisenet open platform
General	
Webpage Language	English, French, German, Spanish, Italian, Chinese, Korean, Russian, Japanese, Swedish, Portuguese, Czech, Polish, Turkish, Dutch, Hungarian, Greek
Web Viewer	None
Edge Storage	Micro SD/SDHC/SDXC 2slots 512GB
Memory	4096MB RAM, 512MB Flash
Environmental & Electrical	
Operating Temperature / Humidity	-50°C ~ +55°C(-58°F ~ +131°F) / Less than 90% RH * Start up should be done at above -30°C
Storage Temperature / Humidity	-50°C ~ +60°C(-58°F ~ +140°F) / Less than 90% RH
Certification	IP66/IP67, IK10, NEMA4X
Input Voltage	PoE+(IEEE802.3at), 12VDC
Power Consumption	PoE+: Max 19.50W, typical 16.00W 12VDC: Max 17.00W, typical 13.50W
Mechanical	
Color / Material	Dark gray / Aluminum, Hard-coated window
RAL Code	None
Product dimensions / weight	Ø91.0x368.6mm (3.58" x 14.51") (Without sunshield), Weight : 2.6Kg (5.73lb)
Conduit hole	None
Hanging mount(Dome)	None
Skin cover(Dome)	None
Weather cap(Dome)	None
Power module	None
Backbox	None
DORI (EN62676-4 standard)	
Detect (25PPM/ 8PPF)	Wide: 62.9m(206.34ft) / Tele: 183m(600.33ft)
Observe (63PPM/ 19PPF)	Wide: 25.1m(82.34ft) / Tele: 73.3m(240.46ft)
Recognize (125PPM/ 38PPF)	Wide: 12.6m(41.33ft) / Tele: 36.6m(120.07ft)
Identify (250PPM/ 76PPF)	Wide: 6.3m(20.67ft) / Tele: 18.3m(60.03ft)

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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 ☒ 120 Vac ☐ 24 Vac ☐ 12 Vdc ☒ PoE

Frequency ☐ 50 Hz ☒ 60 Hz ☐ Hz

1.2 Variant Model Differences

Not applicable

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
NETWORK CAMERA	PNO-A6081R	-	HANWHA VISION VIETNAM COMPANY LIMITED	EUT

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Report No.:

KES-EM-21T0179-R1

Page (7) of (37)

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Adapter	2ACB022F	-	Channel Well Technology (Guangzhou) Co., Ltd.	-
PoE SWITCH	PT-PSE109GBRO-AH	PT1850221049	Dongguan PROCET Network Technology Co.,Ltd	-
Notebook	CQ61-127TU	CNF91801TM	HP	-
Notebook Adapter	PPP09D	601W94D1CKU	HP	-
Alarm	SIP-1201DD D0	-	SAMSUNG TECHWIN CO., LTD.	-
Alarm Adapter	2ACB022F	-	Channel Well Technology (Guangzhou) Co., Ltd.	-
Button alarm	-	-	-	-
Smartphone	A1303	-	APPLE .Inc	-
Speaker	BR1000A Cuve Black 2	-	DONGGUAN EDIFIER TECHNOLOGY Co., Ltd	-
MIC	MP1000	-	-	-
Micro SD Card	-	-	SanDisk	16 GB

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Report No.:

KES-EM-21T0179-R1

Page (8) of (37)

1.6 External I/O Cabling

■ DC Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (EUT)	RJ-45	Notebook	RJ-45	3.5	S
	Alarm OUT	Alarm	Alarm IN	3.0	U
	Alarm IN	Button alarm	Alarm OUT	3.0	U
	Audio OUT	Speaker	Audio OUT	1.4	U
	Audio IN	MIC	Audio IN	1.4	U
	SLOT	Micro SD Card	SLOT	-	-
Notebook	3.5 mm	Smartphone	3.5 mm	0.5	U

* Unshielded=U, Shielded=S

■ PoE Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (EUT)	RJ-45 (PoE)	PoE SWITCH	RJ-45 (PoE)	3.5	S
	Alarm OUT	Alarm	Alarm IN	3.0	U
	Alarm IN	Button alarm	Alarm OUT	3.0	U
	Audio OUT	Speaker	Audio OUT	1.4	U
	Audio IN	MIC	Audio IN	1.4	U
	SLOT	Micro SD Card	SLOT	-	-
Notebook	RJ-45 (LAN)	PoE SWITCH	RJ-45 (LAN)	1.5	S
	3.5 mm	Smartphone	3.5 mm	0.5	U

* Unshielded=U, Shielded=S

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Report No.:

KES-EM-21T0179-R1

Page (9) of (37)

1.7 EUT Operating Mode(s)

Test Mode	operating
OP	the test was conducted while checking the camera video output from the laptop and making sure that they operate normally while performing a ping test.

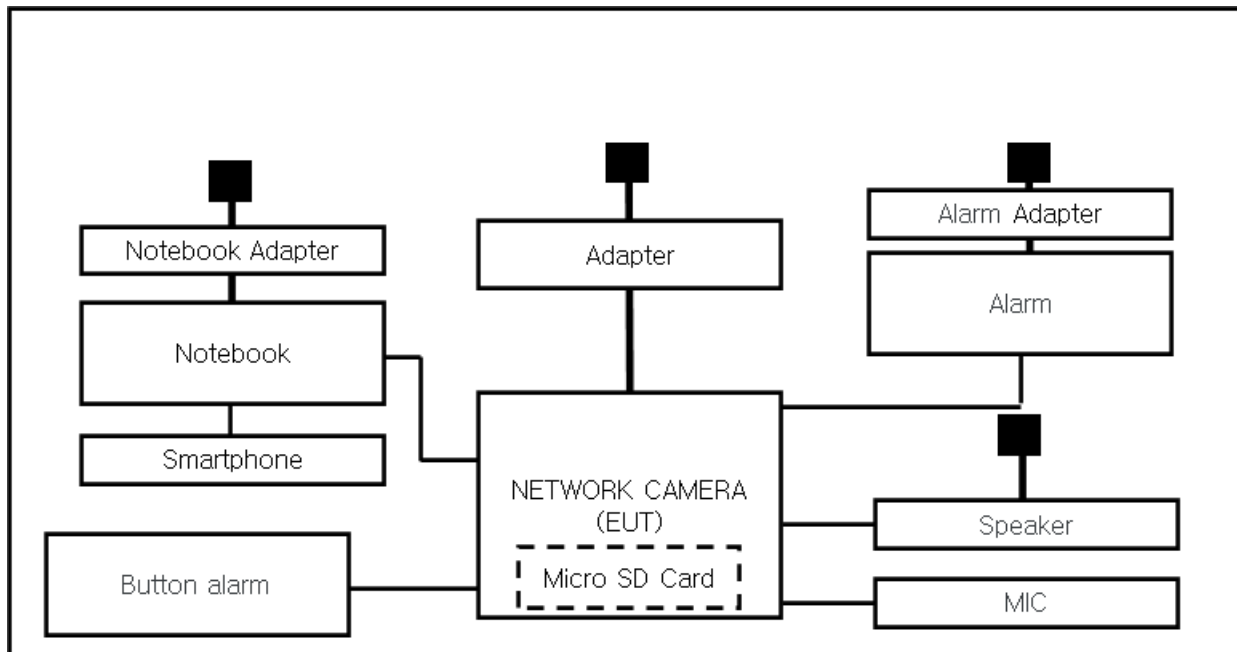
EUT Test operating S/W		
Name	Version	Manufacture Company
Web Viewer	-	Hanwha Vision Co., Ltd

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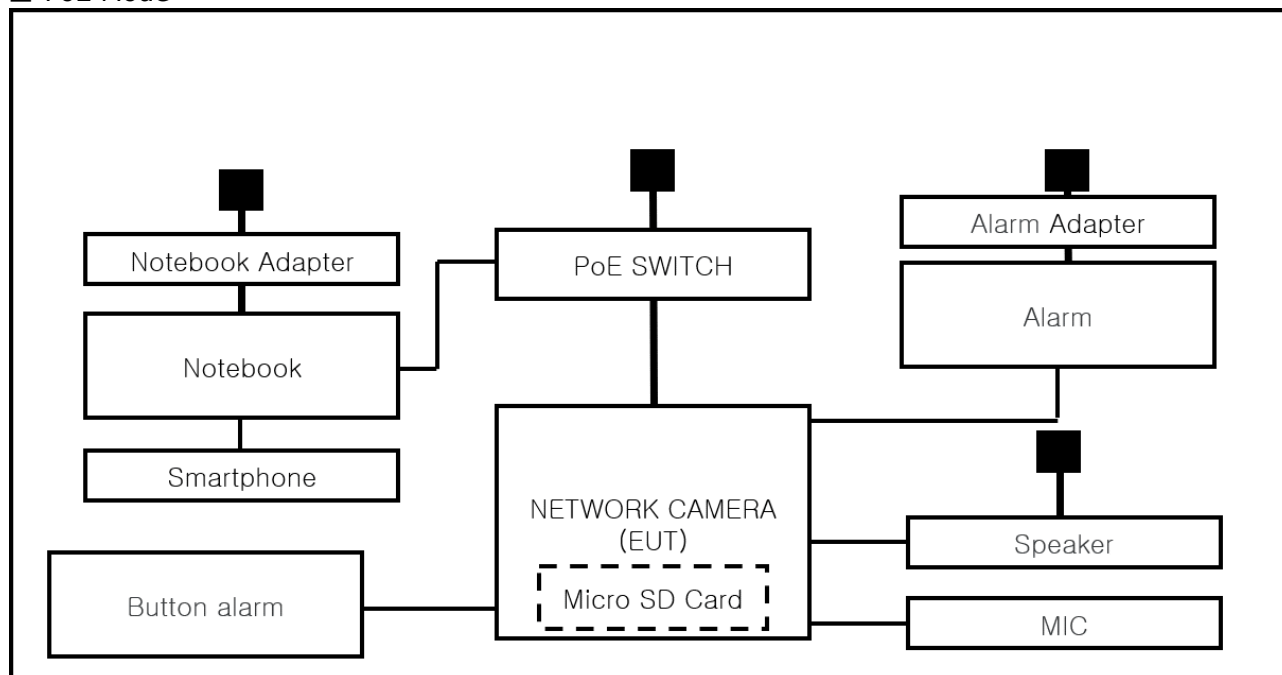
1.8 Configuration

■ AC Main
 □ DC Main

■ DC Mode



■ PoE Mode



1.9 Remarks when standards applied

USB port and VIDEO port are for administrator use and are excluded from testing.

1.10 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less.

1.11 Test Facility

The measurement facility is located at 473-21, Gayeo-ro, Yeosu-si, Gyeonggi-do, 12658, Korea, Republic of. The sites are constructed in conformance with the requirements of ANSI C63.4a-2017 and CISPR 16-1-4:2019

1.12 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
KOREA	RRA	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KR0100
International	KOLAS	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KT489
USA	FCC	3 m & 10 m Semi-Anechoic Chamber Conducted test site to perform FCC Part 15/18 measurements.	 KR0100
Canada	ISED	3 m & 10 m Semi-Anechoic Chamber and Conducted test site	 23298
JAPAN	VCCI	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site)	 C-20136, T-20137, R-20181, G-20176
Europe	TÜV SÜD	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 CARAT 001633 0004



2.0 Test Regulations

The emissions tests were performed according to following regulations:

☐ **EMC – Directive 2014/30/EU**

☐ EN 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 55032:2015

☐ Class A

☐ Class B

☐ EN 55024:2010

☐ EN 50130-4:2011 +A1:2014

☐ EN 61000-3-2:2014

☐ EN 61000-3-3:2013

☐ EN 61326-1:2013

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Report No.:

KES-EM-21T0179-R1

Page (13) of (37)

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

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Report No.:

KES-EM-21T0179-R1

Page (14) of (37)

2.1 Conducted Emissions at Mains Power Ports

Test Date

Feb. 01, 2021

Test Location

Electro wave Shieldroom #6

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EMC32	R & S	9.12.00	-
☒	EMI TEST RECEIVER	ESR3	R & S	101783	01, 15, 2022
☒	LISN	ENV216	R & S	101787	12, 29, 2021
☒	LISN	ESH2-Z5	R & S	100450	12, 29, 2021
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	12, 29, 2021

Test Conditions

Temperature: 23,3 °C
Relative Humidity: 40,9 % 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.

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Report No.:

KES-EM-21T0179-R1

Page (15) of (37)

2.2 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Feb. 01, 2021

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

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
☒	EMI TEST RECEIVER	ESU26	R & S	100551	04, 01, 2021
☒	AMPLIFIER	SCU 01	R & S	100603	11, 25, 2021
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	12, 08, 2022
☒	ATTENUATOR	8491A	HP	32173	03, 10, 2022

Test Conditions

Temperature: 21,4 °C

Relative Humidity: 44,6 % 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.

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Report No.:

KES-EM-21T0179-R1

Page (16) of (37)

2.3 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Feb. 15, 2021

Test Location

SEMI ANECHOIC CHAMBER #4(10 m)

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
☒	EMI TEST RECEIVER	ESU26	R & S	100551	04, 01, 2021
☒	PREAMPLIFIER	8449B	AGILENT	3008A01742	12, 29, 2021
☐	ATTENUATOR	8491A	HP	35496	03, 10, 2022
☒	HORN ANTENNA	BBHA 9120D	SCHWARZBECK	9120D-1802	12, 14, 2021

Test Conditions

Temperature: 21,4 °C
Relative Humidity: 44,6 % R.H.

Frequency Range of Measurement

1 GHz to 5 GHz

Instrument Settings

IF Band Width: 1 MHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

RemarksSee Appendix A for test data.

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APPENDIX A – TEST DATA

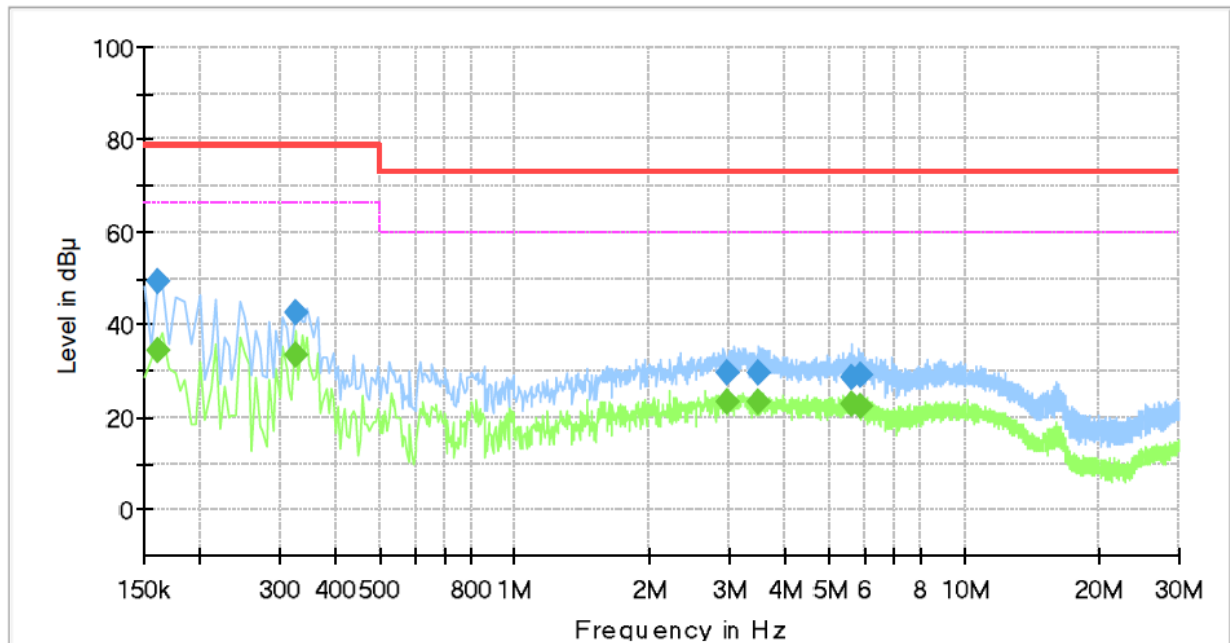
Conducted Emissions at Mains Power Ports

■ DC Mode

HOT LINE

Common Information

Test Description:	Conducted Emission
Model No.:	PNO-A6081R
Phase:	H
Mode:	DC
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.160000	---	34.39	66.00	31.61	1000.0	9.000	L1	19.4
0.160000	49.51	---	79.00	29.49	1000.0	9.000	L1	19.4
0.325000	---	33.49	66.00	32.51	1000.0	9.000	L1	19.5
0.325000	42.59	---	79.00	36.41	1000.0	9.000	L1	19.5
2.955000	---	23.19	60.00	36.81	1000.0	9.000	L1	20.0
2.955000	29.75	---	73.00	43.25	1000.0	9.000	L1	20.0
3.485000	---	23.13	60.00	36.87	1000.0	9.000	L1	19.9
3.485000	29.75	---	73.00	43.25	1000.0	9.000	L1	19.9
5.615000	---	22.79	60.00	37.21	1000.0	9.000	L1	19.5
5.615000	28.77	---	73.00	44.23	1000.0	9.000	L1	19.5
5.875000	---	22.48	60.00	37.52	1000.0	9.000	L1	19.5
5.875000	28.85	---	73.00	44.15	1000.0	9.000	L1	19.5

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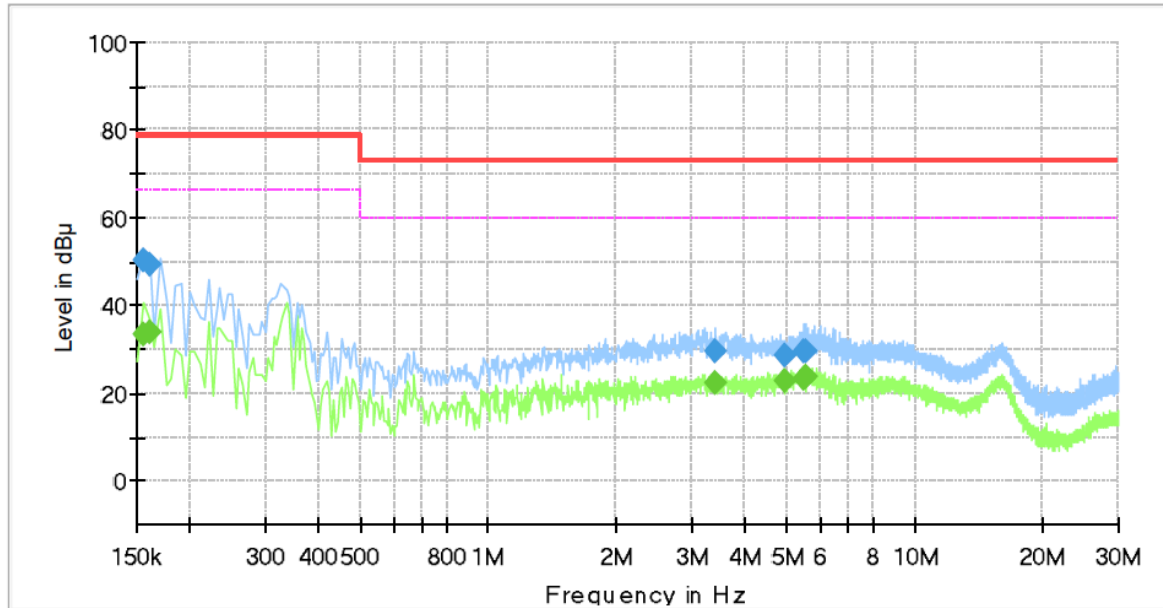
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NEUTRAL LINE

Common Information

Test Description:	Conducted Emission
Model No.:	PNO-A6081R
Phase:	N
Mode:	DC
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.155000	---	33.20	66.00	32.80	1000.0	9.000	N	19.4
0.155000	50.18	---	79.00	28.82	1000.0	9.000	N	19.4
0.160000	---	33.86	66.00	32.14	1000.0	9.000	N	19.4
0.160000	49.26	---	79.00	29.74	1000.0	9.000	N	19.4
3.410000	---	22.55	60.00	37.45	1000.0	9.000	N	19.9
3.410000	29.47	---	73.00	43.53	1000.0	9.000	N	19.9
4.985000	---	22.79	60.00	37.21	1000.0	9.000	N	19.6
4.985000	28.56	---	73.00	44.44	1000.0	9.000	N	19.6
5.510000	---	23.42	60.00	36.58	1000.0	9.000	N	19.6
5.510000	29.40	---	73.00	43.60	1000.0	9.000	N	19.6
5.560000	---	23.56	60.00	36.44	1000.0	9.000	N	19.5
5.560000	29.44	---	73.00	43.56	1000.0	9.000	N	19.5

◆ Calculation

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

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

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

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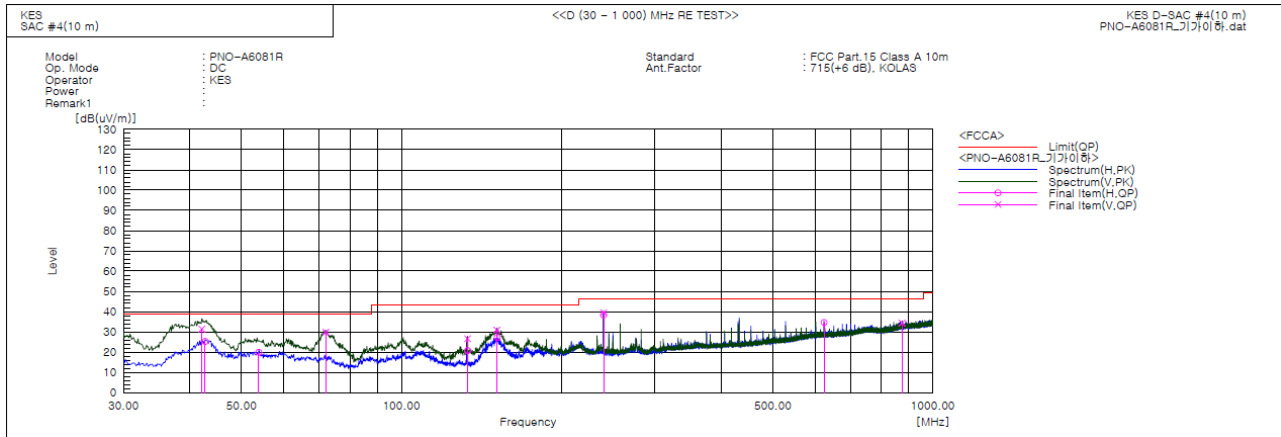
Report No.:

KES-EM-21T0179-R1

Page (19) of (37)

Radiated Electric Field Emissions(Below 1 GHz)

■ DC Mode



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	42.125	V	53.3	-21.9	31.4	39.0	7.6	114.0	343.0	
2	42.731	H	47.1	-21.8	25.3	39.0	13.7	392.0	128.0	
3	53.886	H	41.2	-21.3	19.9	39.0	19.1	349.0	32.0	
4	72.074	V	55.6	-25.7	29.9	39.0	9.1	172.0	341.0	
5	133.184	V	52.0	-25.3	26.7	43.5	16.8	122.0	27.0	
6	133.184	H	46.1	-25.3	20.8	43.5	22.7	388.0	335.0	
7	151.129	V	55.9	-25.0	30.9	43.5	12.6	113.0	63.0	
8	151.493	H	52.2	-25.0	27.2	43.5	16.3	284.0	232.0	
9	240.005	V	58.8	-19.4	39.4	46.5	7.1	123.0	201.0	
10	240.005	H	57.7	-19.4	38.3	46.5	8.2	353.0	312.0	
11	624.004	H	42.9	-8.2	34.7	46.5	11.8	296.0	304.0	
12	874.991	V	38.7	-4.3	34.4	46.5	12.1	117.0	175.0	

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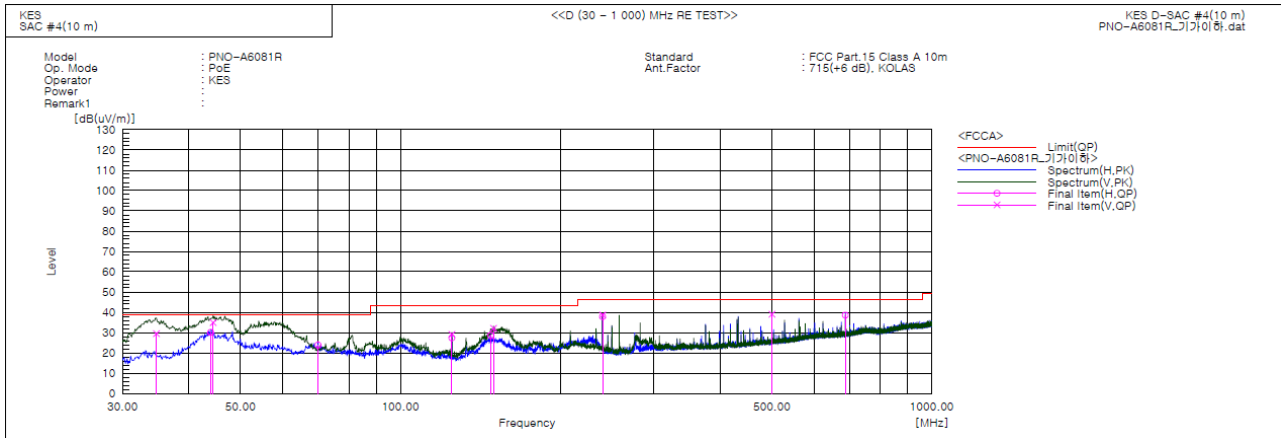
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Page (20) of (37)

PoE Mode



Final Result

No.	Frequency	(P)	Reading	c.f	Result	Limit	Margin	Height	Angle	Remark
	[MHz]		QP [dB(uV)]	[dB(1/m)]	QP [dB(uV/m)]	QP [dB(uV/m)]	QP [dB]	[cm]	[deg]	
1	34.729	V	54.4	-24.9	29.5	39.0	9.5	103.0	139.0	
2	43.944	H	51.8	-21.6	30.2	39.0	8.8	365.0	159.0	
3	44.429	V	56.4	-21.5	34.9	39.0	4.1	105.0	205.0	
4	70.013	H	48.8	-24.9	23.9	39.0	15.1	297.0	224.0	
5	124.939	H	52.2	-24.8	27.4	43.5	16.1	282.0	117.0	
6	124.939	V	53.9	-24.8	29.1	43.5	14.4	114.0	289.0	
7	147.855	H	53.8	-25.2	28.6	43.5	14.9	322.0	320.0	
8	149.674	V	57.3	-25.1	32.2	43.5	11.3	124.0	147.0	
9	240.005	H	57.3	-19.4	37.9	46.5	8.6	347.0	175.0	
10	240.005	V	58.1	-19.4	38.7	46.5	7.8	103.0	169.0	
11	499.965	V	50.7	-11.6	39.1	46.5	7.4	117.0	189.0	
12	687.539	H	46.0	-7.4	38.6	46.5	7.9	377.0	150.0	

◆ Calculation - SAC #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

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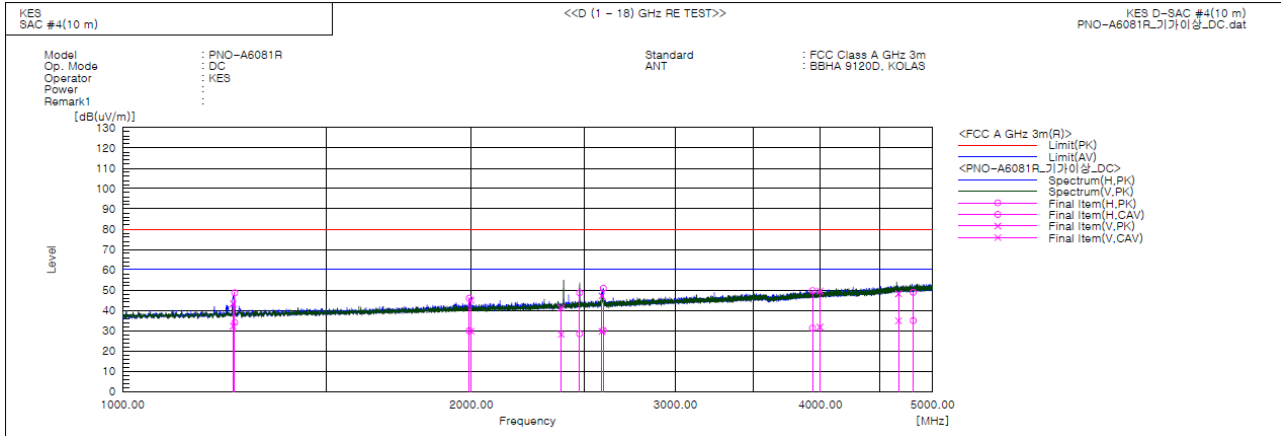
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Radiated Electric Field Emissions(Above 1 GHz)

■ DC Mode



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	1245.500	V	47.2	36.1	-3.9	43.3	32.2	80.0	60.0	36.7	27.8	114.0	44.0	
2	1249.500	H	52.5	37.8	-3.9	48.6	33.9	80.0	60.0	31.4	26.1	392.0	314.0	
3	1991.000	H	46.3	30.2	-0.3	46.0	29.9	80.0	60.0	34.0	30.1	356.0	100.0	
4	1997.895	V	45.2	29.9	-0.2	45.0	29.7	80.0	60.0	35.0	30.3	121.0	33.0	
5	2390.090	V	39.4	26.3	1.8	41.2	28.1	80.0	60.0	38.8	31.9	117.0	54.0	
6	2479.620	H	46.4	26.2	2.2	48.6	28.4	80.0	60.0	31.4	31.6	312.0	83.0	
7	2590.500	V	44.5	26.9	2.7	47.2	29.6	80.0	60.0	32.8	30.4	112.0	137.0	
8	2599.500	H	48.1	27.5	2.7	50.8	30.2	80.0	60.0	29.2	29.8	289.0	4.0	
9	3939.000	H	41.5	23.1	8.2	49.7	31.3	80.0	60.0	30.3	28.7	381.0	147.0	
10	3996.500	V	41.1	23.2	8.5	49.6	31.7	80.0	60.0	30.4	28.3	104.0	79.0	
11	4672.050	V	37.0	23.6	11.2	48.2	34.8	80.0	60.0	31.8	25.2	103.0	245.0	
12	4810.710	H	37.2	23.3	11.6	48.8	34.9	80.0	60.0	31.2	25.1	296.0	358.0	



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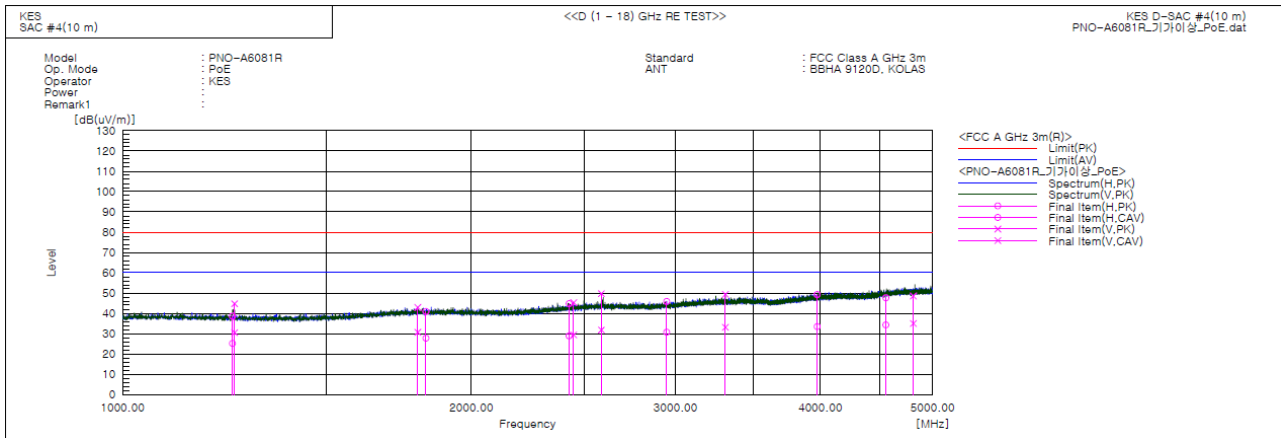
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Page (22) of (37)

PoE Mode



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	1243.855	H	42.5	29.1	-3.9	38.6	25.2	80.0	60.0	41.4	34.8	288.0	328.0	
2	1249.230	V	48.7	34.4	-3.9	44.8	30.5	80.0	60.0	35.2	29.5	124.0	304.0	
3	1797.500	V	44.0	31.8	-1.1	42.9	30.7	80.0	60.0	37.1	29.3	107.0	310.0	
4	1826.920	H	41.9	28.8	-1.0	40.9	27.8	80.0	60.0	39.1	32.2	354.0	198.0	
5	2428.000	H	42.8	26.9	2.0	44.8	28.9	80.0	60.0	35.2	31.1	277.0	136.0	
6	2450.000	V	43.2	27.3	2.1	45.3	29.4	80.0	60.0	34.7	30.6	104.0	9.0	
7	2589.225	V	47.0	29.1	2.7	49.7	31.8	80.0	60.0	30.3	28.2	121.0	22.0	
8	2947.500	H	41.6	26.4	4.3	45.9	30.7	80.0	60.0	34.1	29.3	394.0	278.0	
9	3312.500	V	44.0	27.8	5.4	49.4	33.2	80.0	60.0	30.6	26.8	108.0	279.0	
10	3974.500	H	40.9	25.1	8.4	49.3	33.5	80.0	60.0	30.7	26.5	325.0	98.0	
11	4557.395	H	37.0	23.7	10.6	47.6	34.3	80.0	60.0	32.4	25.7	389.0	84.0	
12	4811.600	V	36.9	23.4	11.6	48.5	35.0	80.0	60.0	31.5	25.0	119.0	3.0	

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

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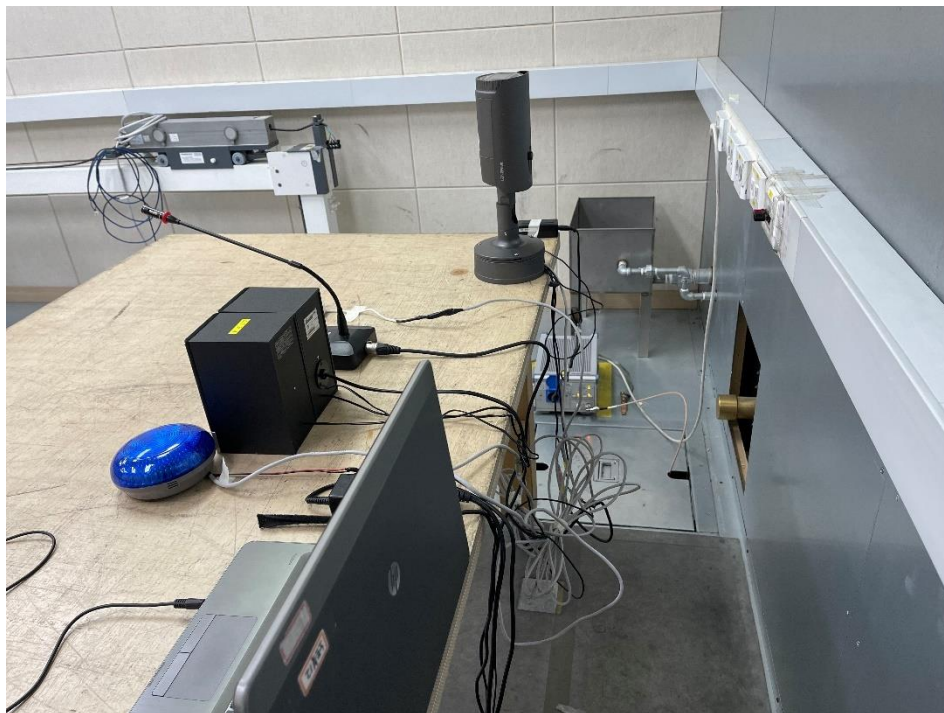
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Test Setup Photos and Configuration

Conducted Emissions at Mains Power Ports

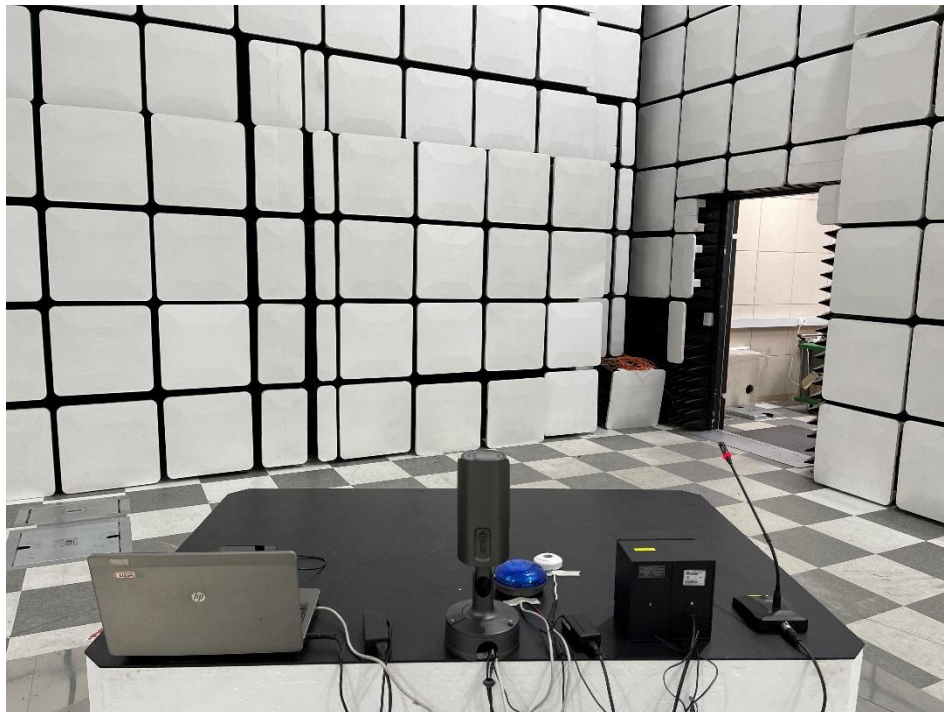
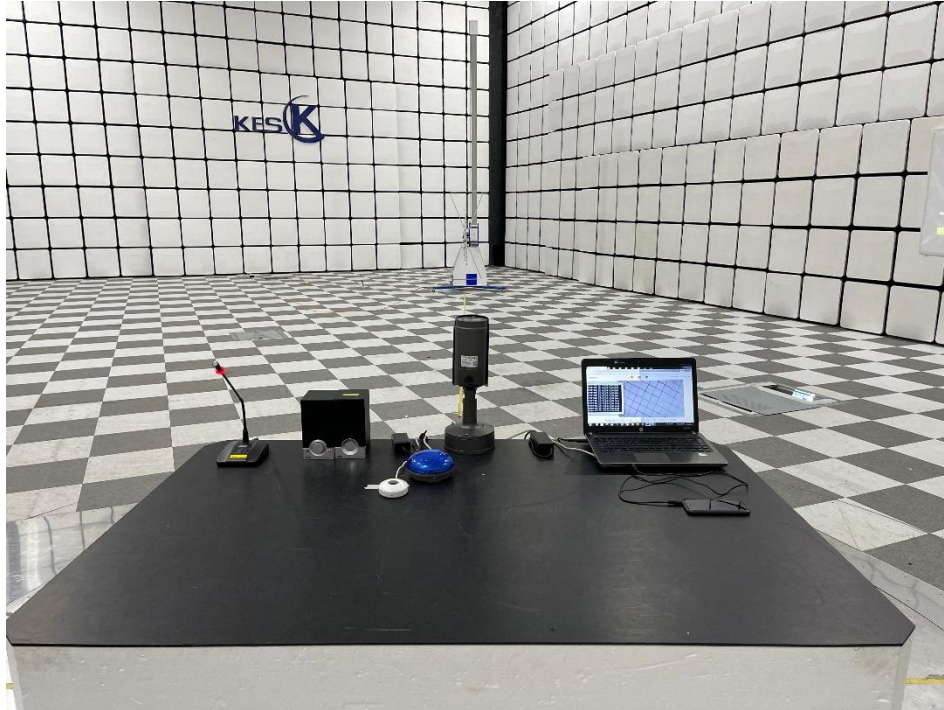
■ DC Mode



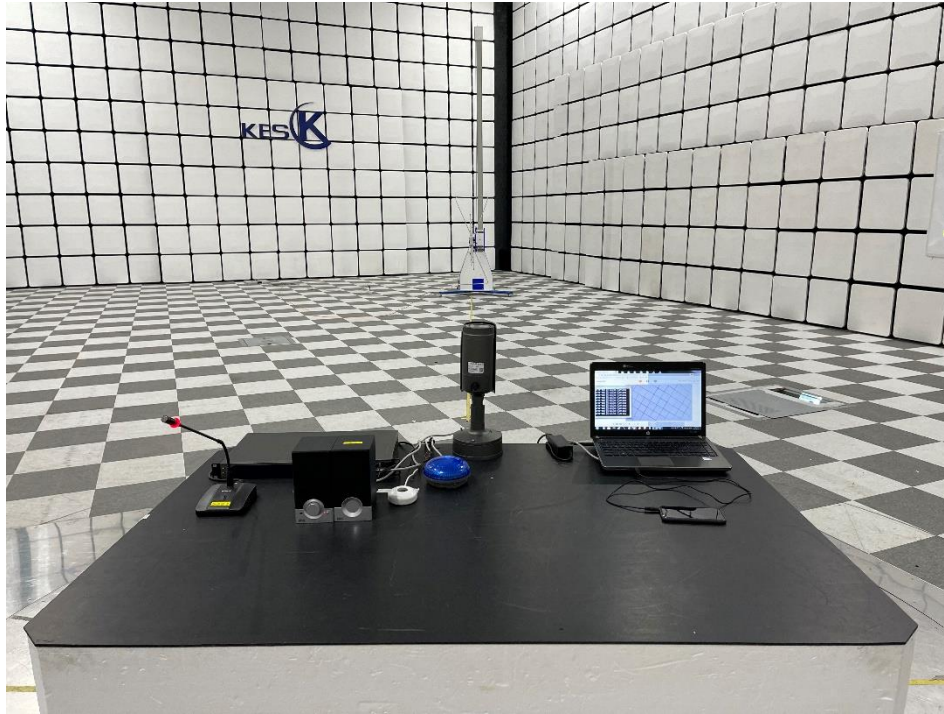
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Radiated Electric Field Emissions(Below 1 GHz)

■ DC Mode

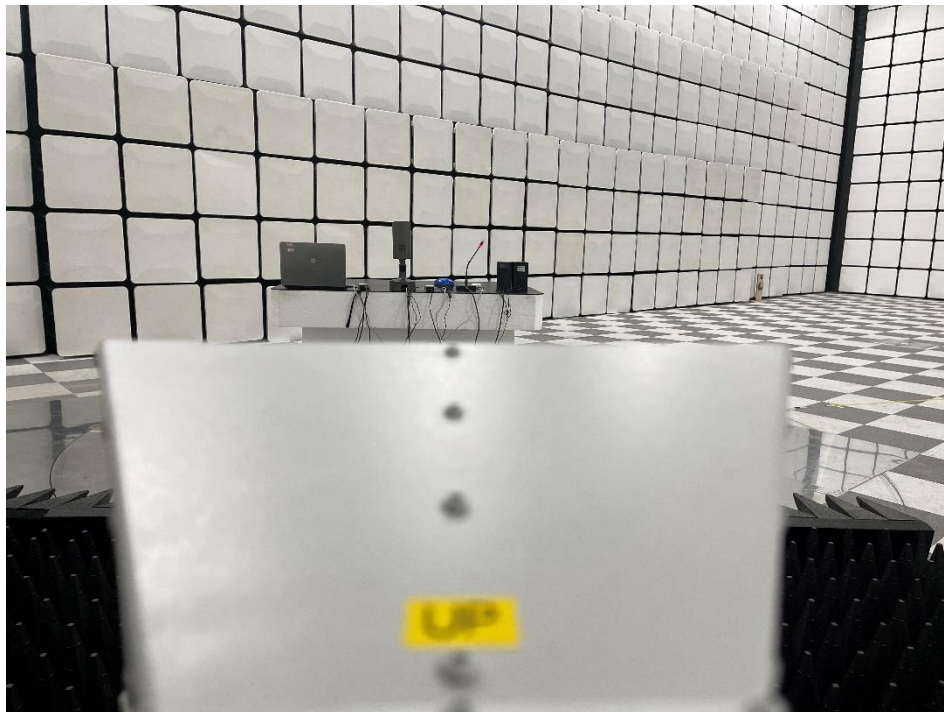
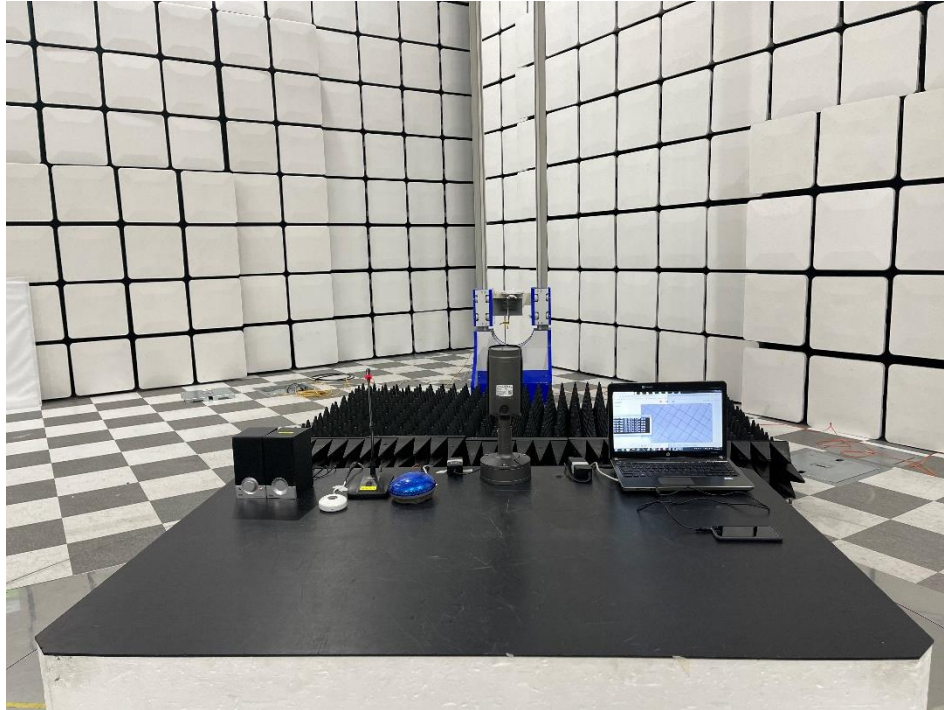


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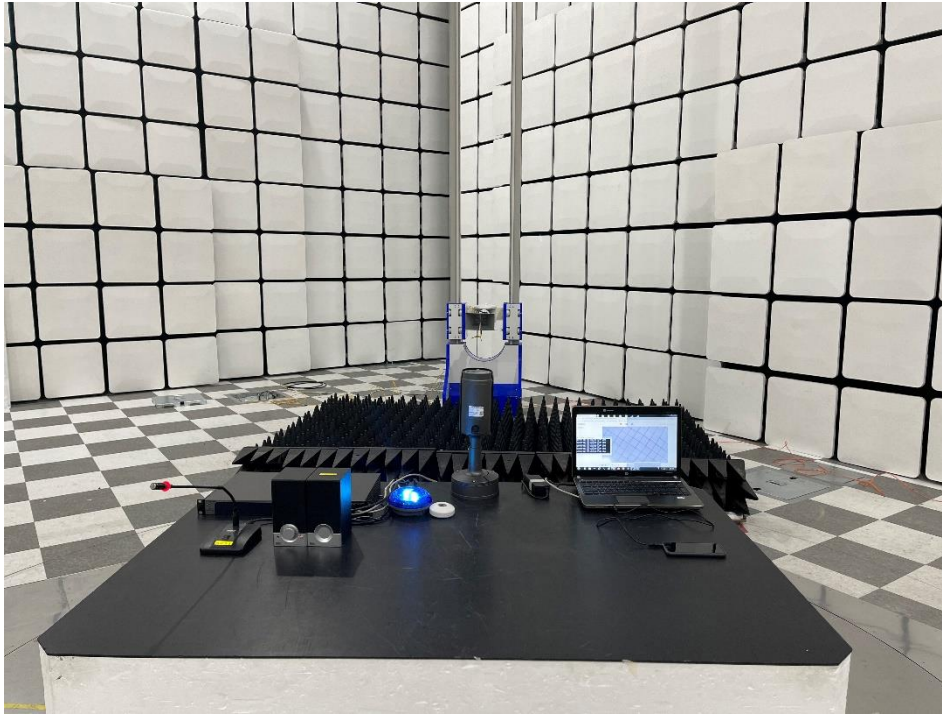
■ PoE Mode

Radiated Electric Field Emissions(Above 1 GHz)

■ DC Mode



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EUT External Photographs

(Top)

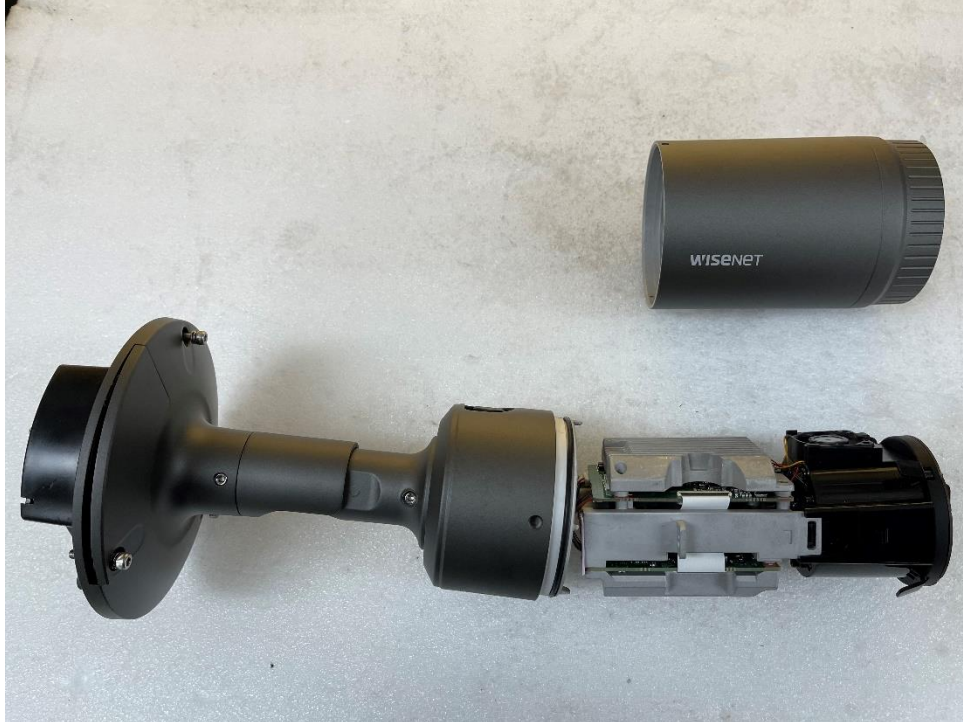


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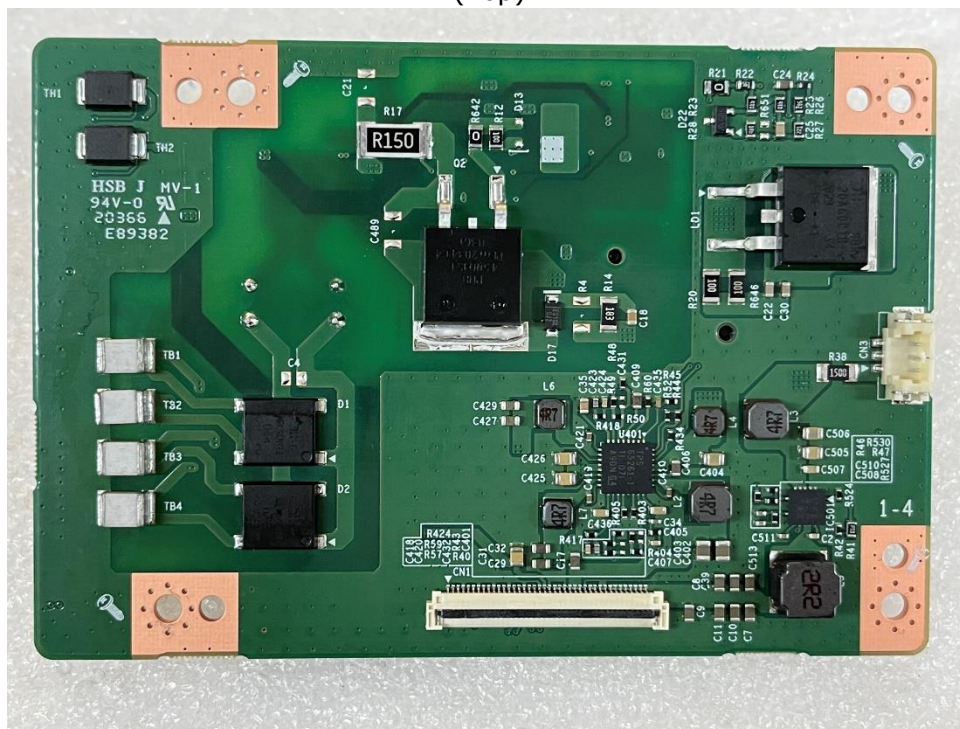
EUT Internal Photographs

(Internal View)

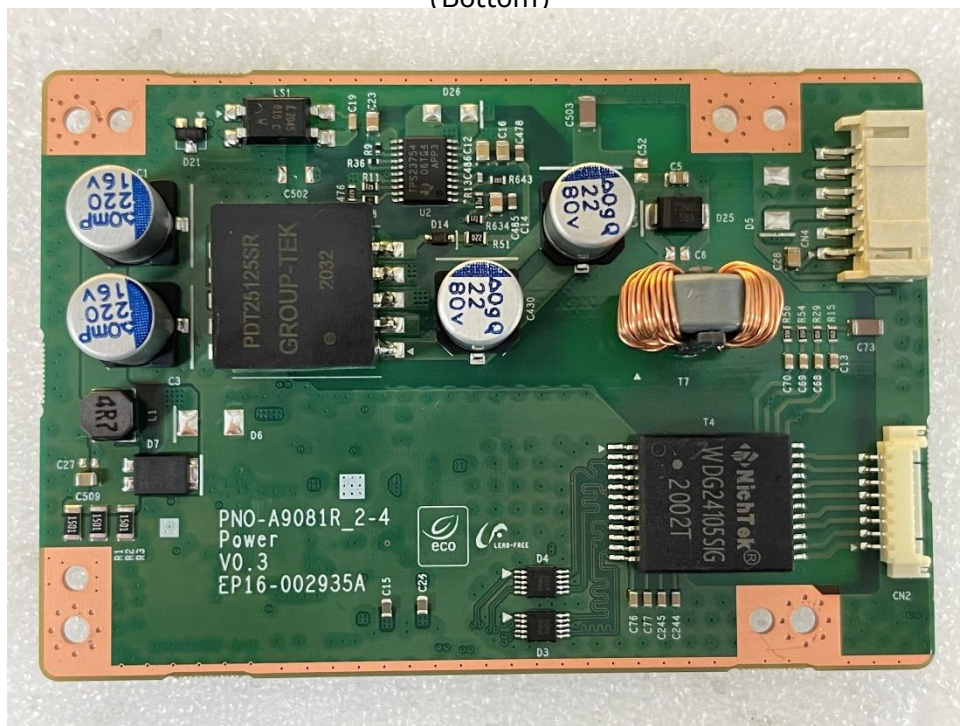


EUT Internal View – Board 1

(Top)



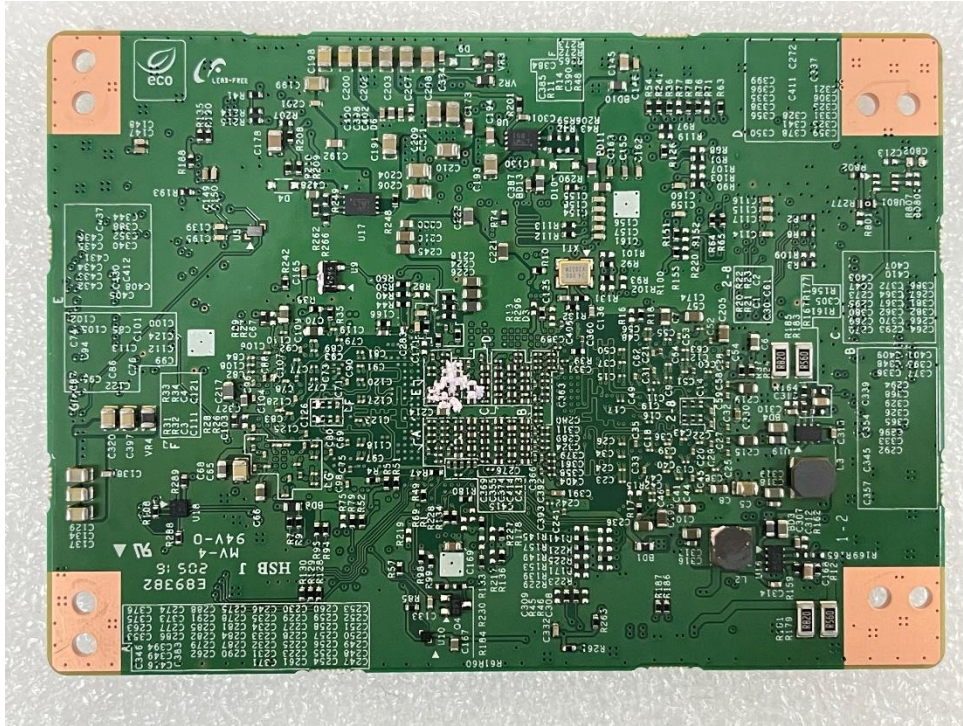
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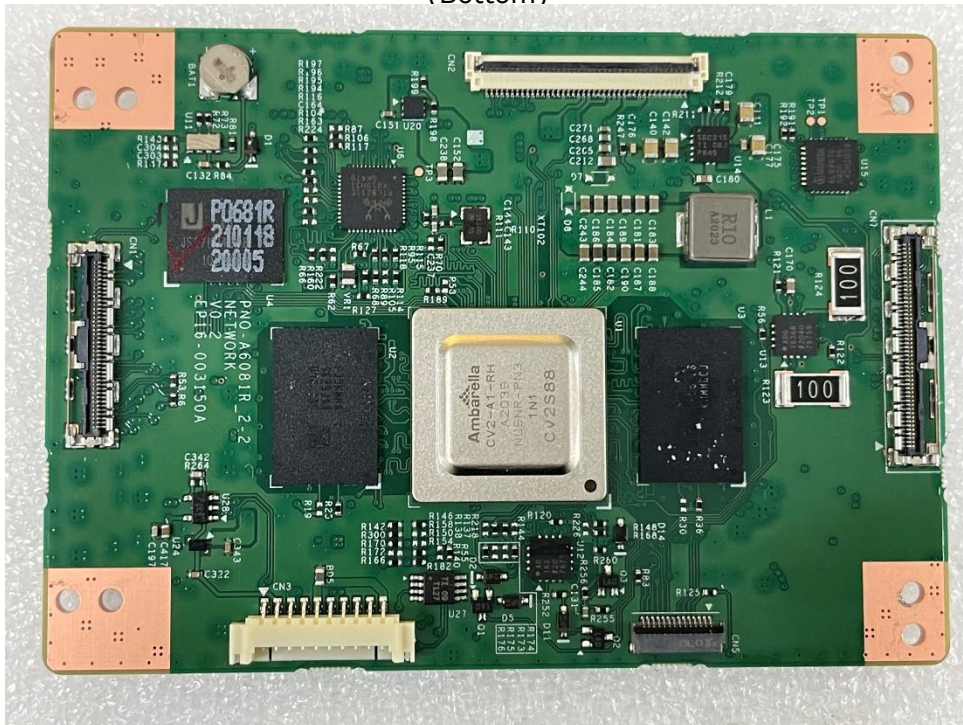
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EUT Internal View – Board 2

(Top)



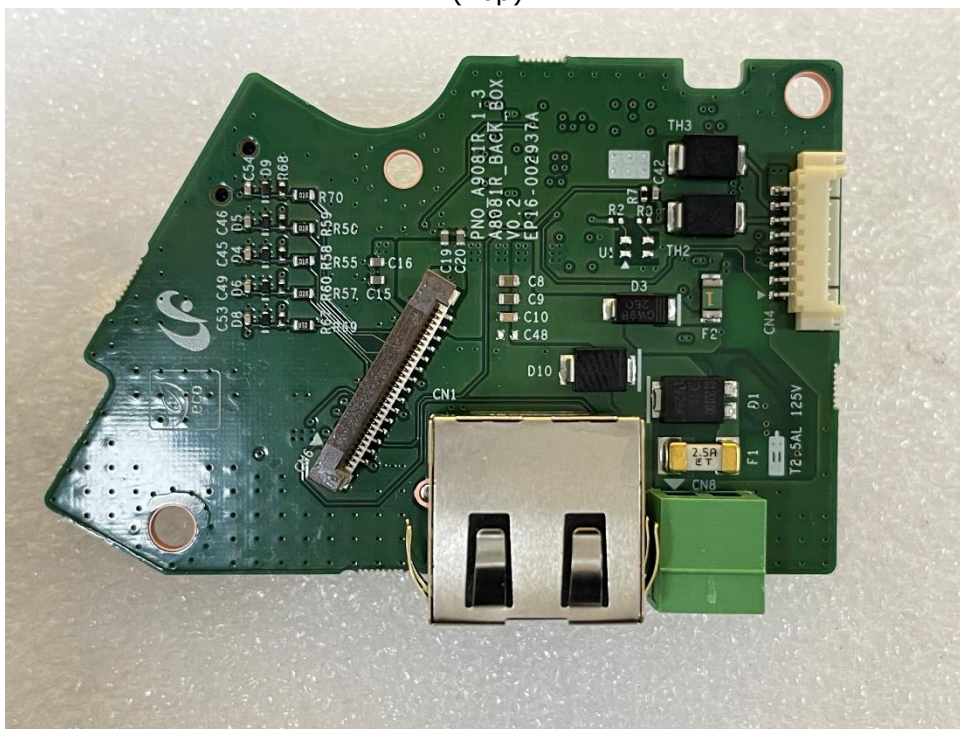
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EUT Internal View – Board 3

(Top)



(Bottom)



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EUT Internal View – Board 4

(Top)



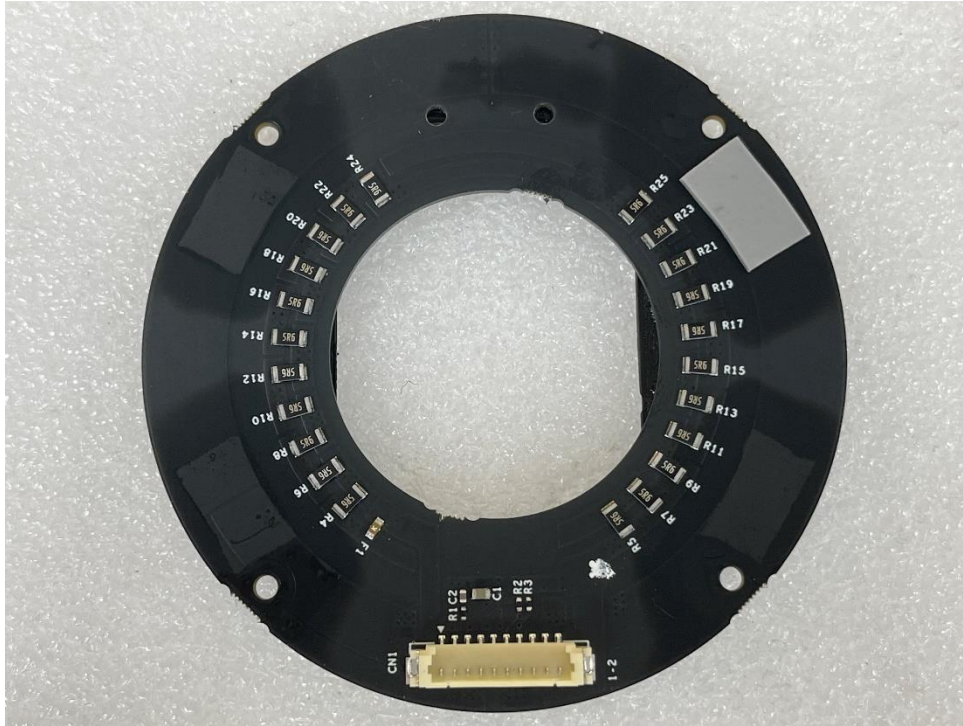
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EUT Internal View – Board 5

(Top)



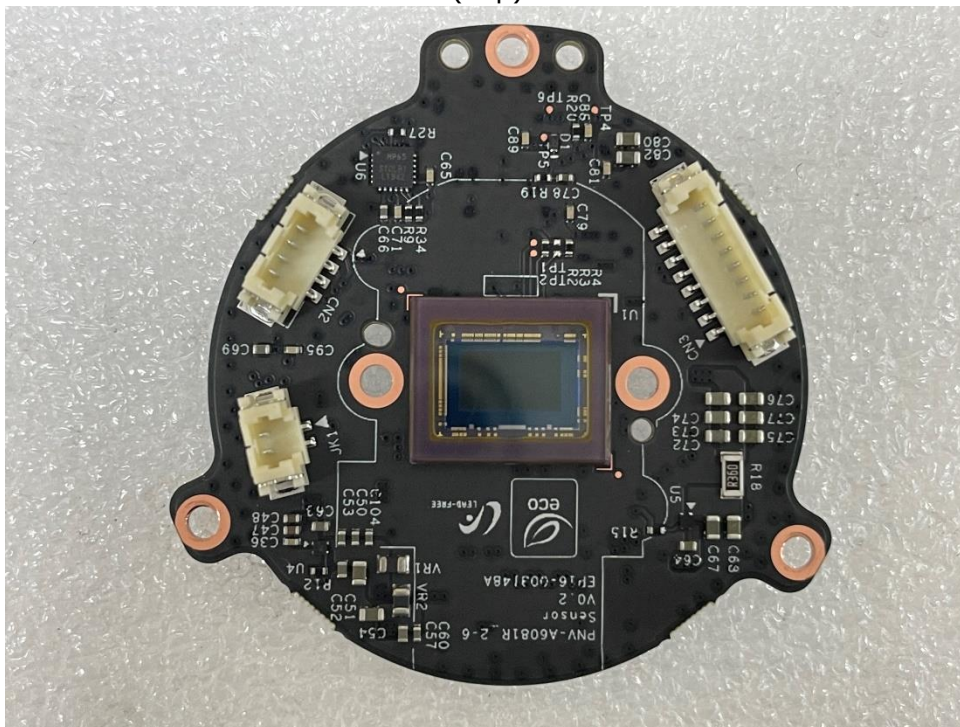
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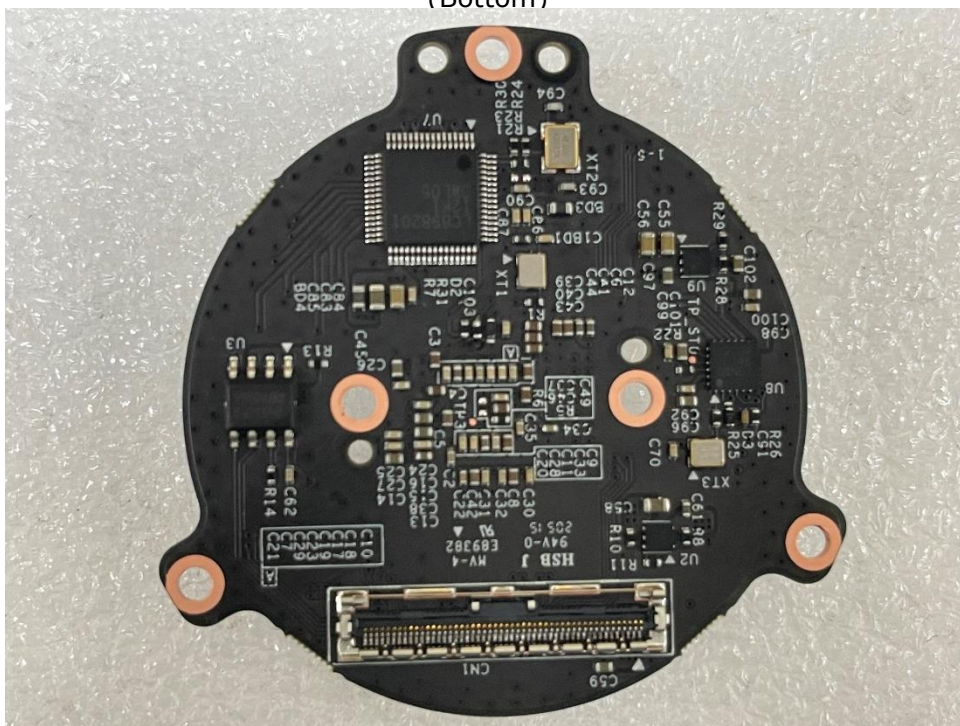
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EUT Internal View – Board 6

(Top)



(Bottom)



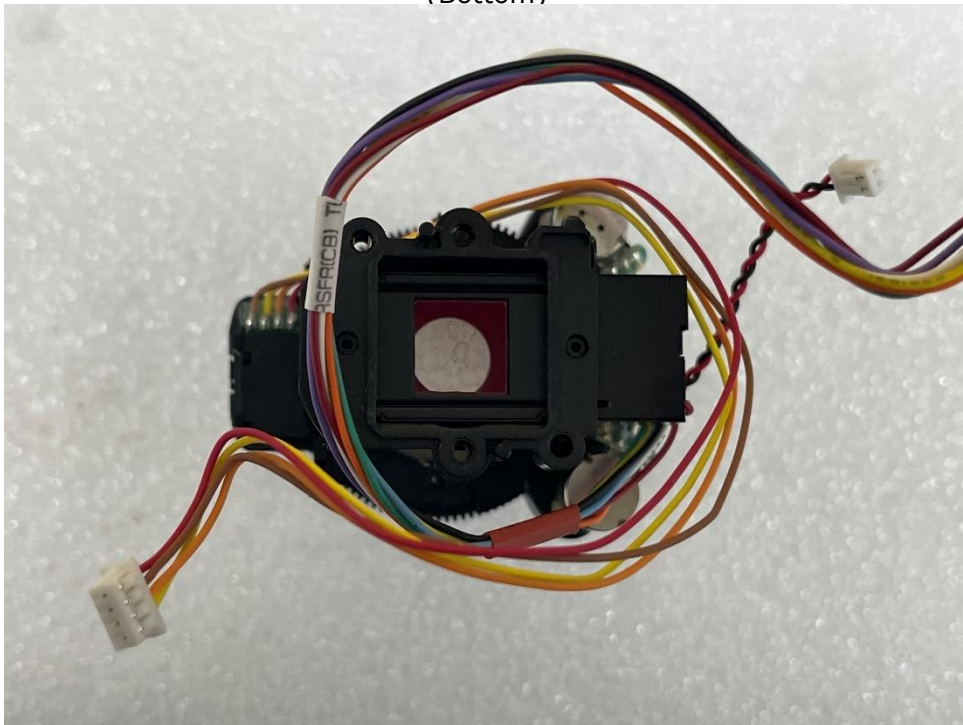
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EUT Internal View – Lens

(Top)

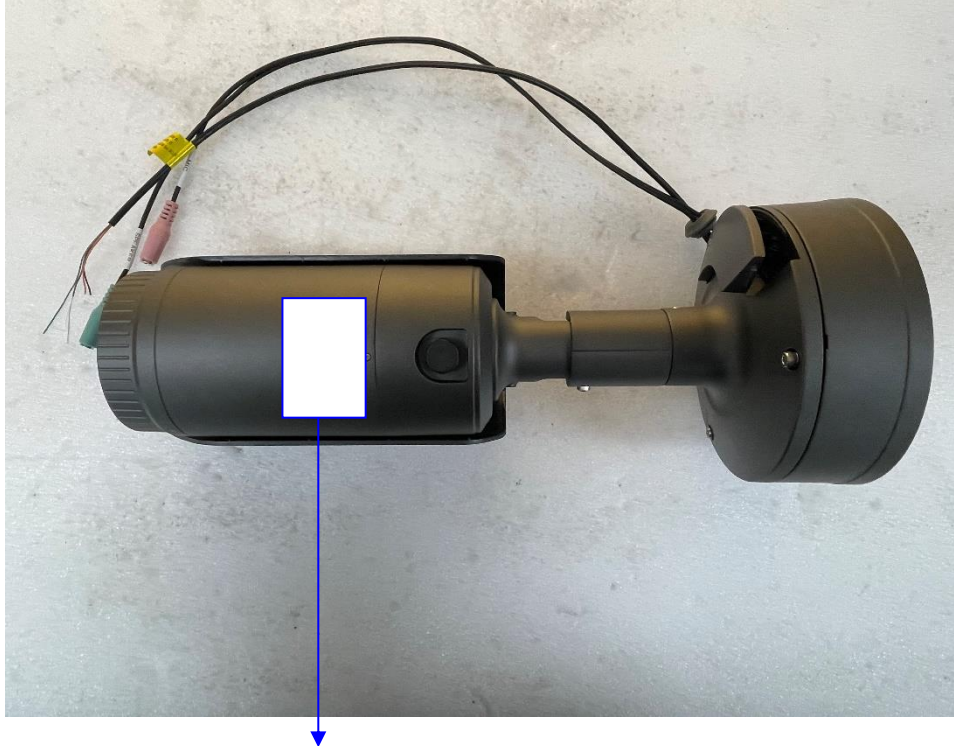


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Label Photographs



CAN ICES-3(A) / NMB-3(A)

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.