



KES Co., Ltd.
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Report No.:
KES-EM-23T0783
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EMC TEST REPORT

Test Report No. : KES-EM-23T0783
Date of Issue : Sep. 07, 2023
Product name : NETWORK CAMERA
Model/Type No. : PNO-A9311R
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 : Aug. 24, 2023
Test date : Aug. 30, 2023
Test Results : ☒ In Compliance ☐ Not in Compliance

Tested by

Jae Won, Lee
EMC Test Engineer

Reviewed by

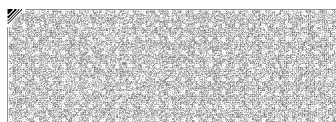
Dae Jung, Choi
EMC Technical Manager

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

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REPORT REVISION HISTORY

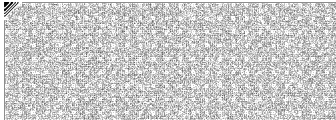
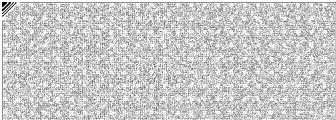
Date	Test Report No.	Revision History
Sep. 07, 2023	KES-EM-23T0783	Issued

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1.0 General Product Description

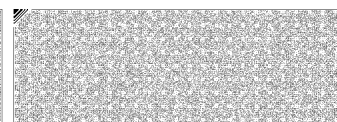
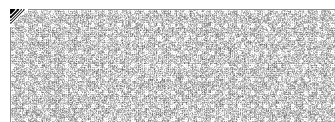
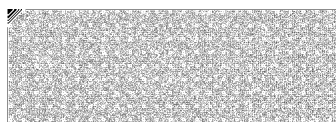
Main Specifications of EUT are:

Video	
Imaging Device	1/1.8" CMOS
Resolution	3840x2160, 3072x1728, 2592x1944, 2688x1520, 2560x1440, 2048x1536, 1920x1080, 1600x1200, 1280x1024, 1280x960, 1280x720, 1024x768, 800 x 600, 800 x 448, 720 x 576, 720x480, 640x480, 640x360
Max. Framerate	H.265/H.264: Max. 30fps/25fps(60Hz/50Hz) MJPEG: Max. 30fps/25fps(60Hz/50Hz)
NETD	None
Pixel Size	None
Min. Illumination	Color: 0.05Lux(F1.6, 1/30sec) BW: 0.005Lux(F1.6, 1/30sec), 0Lux(IR LED on)
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)	6.91~214.7mm (31x) motorized varifocal
Max. Aperture Ratio	F1.36(Wide)~F4.6(Tele)
Angular Field of View	H: 60.92°(Wide)~2.2°(Tele) / V: 35.26°(Wide)~1.24°(Tele) / D: 69.18°(Wide)~2.52°(Tele) [TBD]
Min. Object Distance	3m(9.84ft)
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, SDR
Wide Dynamic Range	None
Digital Noise Reduction	SSNR V, 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 - Color: Gray/Black/White
Gain Control	Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor
LDC	Support
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (1/5~1/12,000sec) Auto prefer shutter control based on AI engine
Digital PTZ	None
Video Rotation	Flip, Mirror, Hallway view(90°/270°)
Analytics	Classified object type : Person/Face/Vehicle/License plate Attributes : Person(Gender, Color and Bag), Face(Age, Gender, Mask and Glasses), Vehicle(Type:car/bus/truck/motorcycle/bicycle and Color) Support Bestshot per object Analytics events based on AI engine - Object detection, Virtual line*(Crossing/Direction), Virtual area*(Loitering/Intrusion/Enter/Exit), Face mask detection, Digital auto tracking, Social distancing detection, Slip&Fall detection Analytics events - Defocus detection, Motion detection, Tampering, Audio detection, Sound classification, Shock detection, Virtual area(Appear/Disappear) *Some of the video analytics only works with people and vehicle detection
Business Intelligence	People/Vehicle/Crowd counting, Queue management, Heatmap based on AI engine
Serial Interface	None

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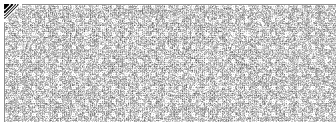
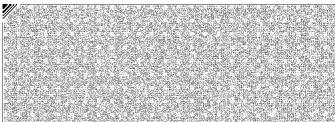
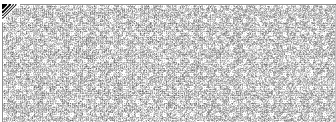
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Alarm I/O	2 configurable I/O ports, DC 12V output(Max. 50mA)
Alarm Triggers	Analytics, Network disconnect, Alarm input
Alarm Events	File upload via FTP and e-mail
	Notification via e-mail
	SD/SDHC/SDXC or NAS recording at event triggers
	Alarm output
	Handover
Audio In	Audio playback
	Selectable(mic in/line in)
Audio Out	Supply voltage: 2.5VDC(4mA), Input impedance: 2K Ohm
IR Viewable Length	Line out, Max.output level: 1Vrms
IR Illuminator (Optional)	70m(229.66ft) TBD, testing up to 90m(295.28ft)
Water Removal	None
Auto Tracking	None
Coaxial Protocol	None
Color Palettes	None
Radiometry	None
Temperature detect range	None
Temperature accuracy	None
Temperature detection	None
Additional	None
Network	None
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
Smart Codec	AAC-LC: 48Kbps at 16KHz
Video Quality Adjustment	Manual(Sea area), WiseStreamII, WiseStreamIII(using AI engine)
Bitrate Control	H.264/H.265: Target bitrate level control
	MJPEG: Target bitrate level control
Bitrate Control	H.264/H.265: CBR or VBR
	MJPEG: VBR

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Streaming	Unicast(6 users) / Multicast Multiple streaming(Up to 6 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) Secure boot
Application Programming Interface	ONVIF Profile S/G/T/M 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, 1024MB Flash
Environmental & Electrical	
Operating Temperature / Humidity	-40°C ~ +55°C(-40°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 20.0W, typical 17.00W 12VDC: Max 18.00W, typical 16.00W
Mechanical	
Color / Material	Dark gray / Aluminum
RAL Code	None
Product dimensions / weight	Ø136.2x358.7mm (Ø5.36" x 14.12") (Without sunshield), Weight : 0.00Kg (0.00lb) TBD, New design
Compatible Conduit hole / Gangbox	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: 73.5m(241ft) / Tele: 2.250m(7.382ft) [TBD]
Observe (63PPM/ 19PPF)	Wide: 29.4m(96.4ft) / Tele: 900m(2,953ft) [TBD]
Recognize (125PPM/ 38PPF)	Wide: 14.7m(48.2ft) / Tele: 450m(1,476ft) [TBD]
Identify (250PPM/ 76PPF)	Wide: 7.3m(24.1ft) / Tele: 225m(738.2ft) [TBD]

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1.1 Test Voltage & Frequency

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

☒ AC 120 V, 60 Hz (AC Adapter Input Power)

☒ AC 120 V, 60 Hz (PoE Adapter Input Power)

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-A9311R	-	HANWHA VISION VIETNAM COMPANY LIMITED	EUT

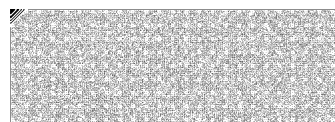
1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Adapter	2ACB022F	-	ChAnnel Well Technology (Guangzhou) Co.,Ltd.	-
PoE Adapter	PT-PSE109GBRO-AH	-	Dongguan PROCET Network Technology Co.,Ltd	-
Laptop	P95G001	8KM8HT2	DELL INC.	-
Laptop Adapter	LA65NS2-01	-	LITE-ON TECHNOLOGY(CHANGZH OU)CO.,LTD.	-
Micro SD Card1	-	-	SanDisk	8 GB
Micro SD Card2	-	-	SanDisk	8 GB
Alarm	PRO-SL	-	SENSOR PRO	-
Button Alarm1	-	-	-	-
Button Alarm2	-	-	-	-
Headset	K550	-	Britz®	-
Smartphone	-	-	SAMSUNG	-

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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(LAN)	Laptop	RJ-45(LAN)	3.5	U
	Alarm OUT	Alarm	Alarm IN	3.5	U
	Alarm IN	Button Alarm1	Alarm OUT	3.5	U
	Alarm IN	Button Alarm2	Alarm OUT	3.5	U
	Audio OUT	Headset	Audio IN	1.5	U
	Audio IN		Audio OUT	1.5	U
	Micro SD Card Slot	Micro SD Card1	Micro SD Card Slot	-	-
	Micro SD Card Slot	Micro SD Card2	Micro SD Card Slot	-	-
	DC Jack	Adapter	DC Jack	1.6	U
Laptop	DC Jack	Laptop Adapter	DC Jack	1.3	U
	3.5 mm	Smartphone	3.5 mm	1.0	U

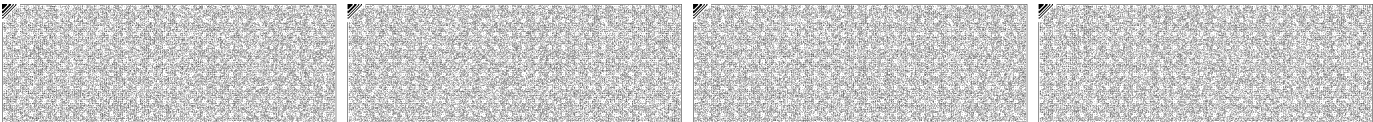
* Unshielded=U, Shielded=S

■ PoE Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (EUT)	RJ-45(PoE)	PoE Adapter	RJ-45(PoE)	3.5	U
	Alarm OUT	Alarm	Alarm IN	3.5	U
	Alarm IN	Button Alarm1	Alarm OUT	3.5	U
	Alarm IN	Button Alarm2	Alarm OUT	3.5	U
	Audio OUT	Headset	Audio IN	1.5	U
	Audio IN		Audio OUT	1.5	U
	Micro SD Card Slot	Micro SD Card1	Micro SD Card Slot	-	-
	Micro SD Card Slot	Micro SD Card2	Micro SD Card Slot	-	-
	DC Jack	Laptop Adapter	DC Jack	1.3	U
Laptop	DC Jack	Laptop Adapter	DC Jack	1.3	U
	3.5 mm	Smartphone	3.5 mm	1.0	U

* Unshielded=U, Shielded=S

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1.7 EUT Operating Mode(s)

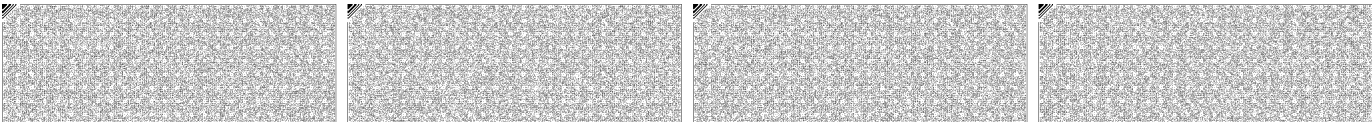
Test mode	operating
Operater	After arranging the test equipment and peripherals as shown in the layout diagram below, 1. Run the Web Viewer on your laptop and check the camera video output 2. PingTest from your laptop to check the network status 3. Confirm the alarm output by pressing the alarm button 4. Play 1KHz toon on your smartphone and check the output on your headset 5. Record in the notebook and check the input in the headset microphone 6. After the test, the Micro SD Card storage file was checked.

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

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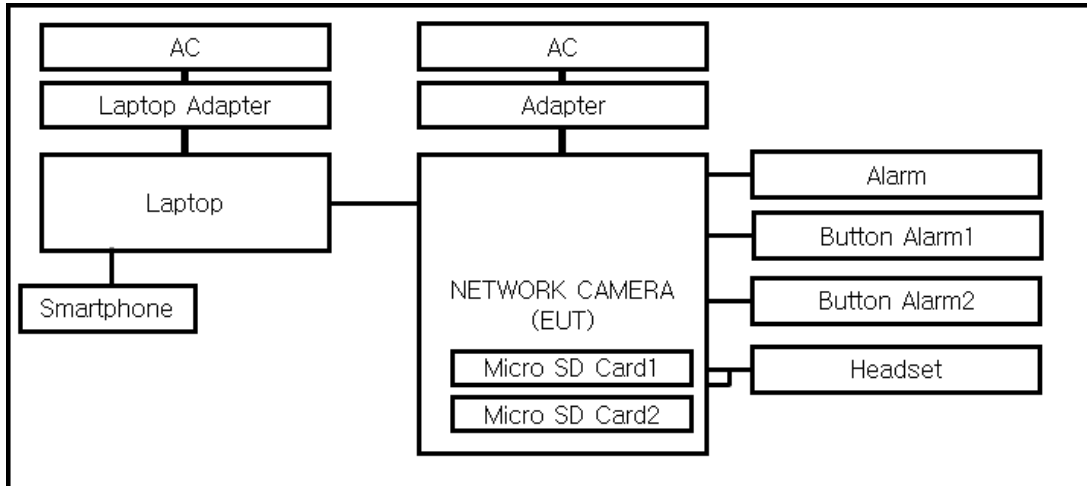


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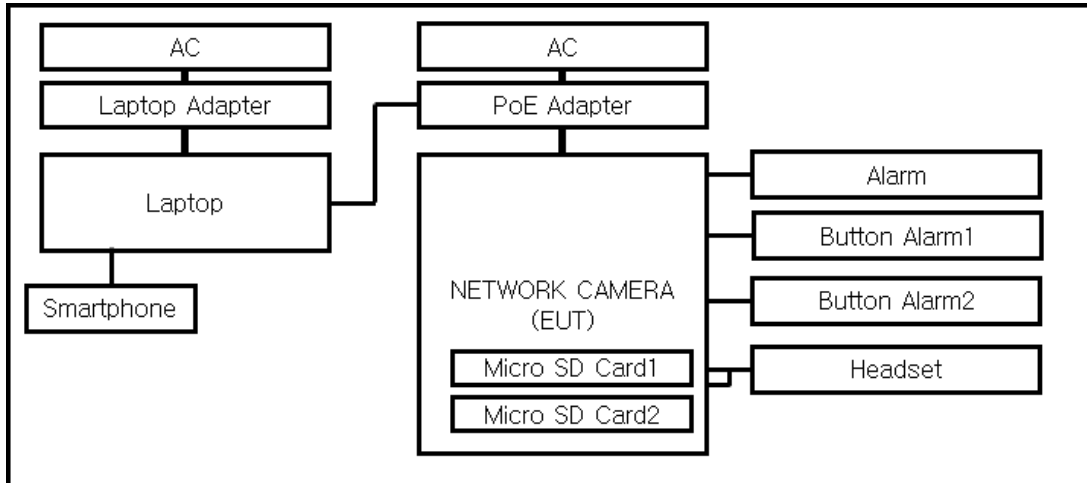
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1.8 Configuration

■ DC Mode



■ PoE Mode



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1.9 Remarks when standards applied

- Micro 5 Pin, VIDEO port is not tested because it is for administrators.

1.10 Calibration Details of Equipment Used for Measurement

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

1.11 Test Facility

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

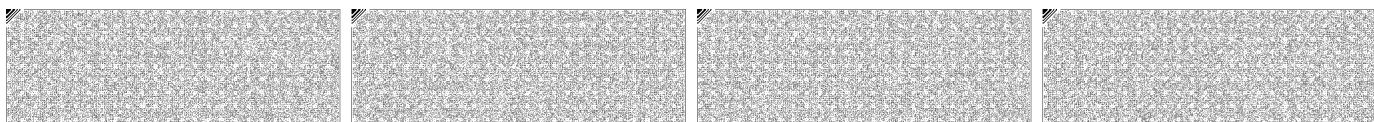
1.12 Laboratory Accreditations and Listings

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

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주식회사 케이이엑스 (KES Co.,Ltd)





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2.0 Test Regulations

The emissions tests were performed according to following regulations:

☒ **47 CFR Part 15, Subpart B**

☐ CISPR 22:2009 +A1:2010

☐ Class A

☐ Class B

☒ ANSI C63.4a-2017

☒ Class A

☐ Class B

☒ **IC Regulation ICES-003 Issue 7**

☐ CAN/CSA-CISPR 32:17

☐ Class A

☐ Class B

☒ ANSI C63.4a-2017

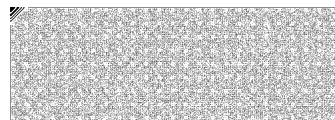
☒ Class A

☐ Class B

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2.1 Conducted Emissions at Mains Power Ports

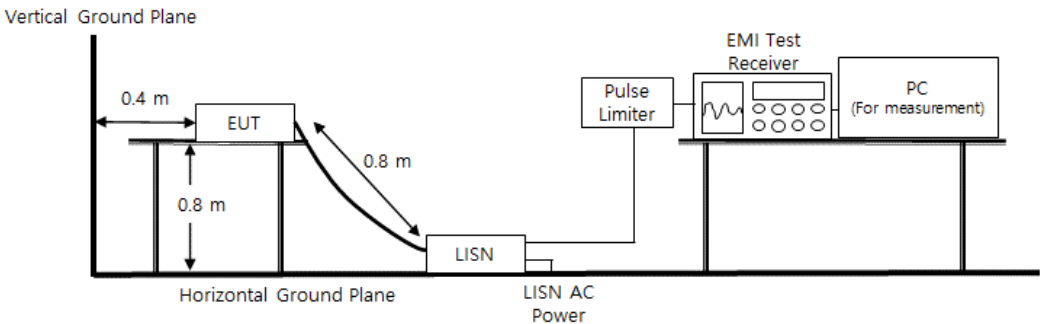
Test Date
Aug. 30, 2023

Test Location
Electro wave Shieldroom #6

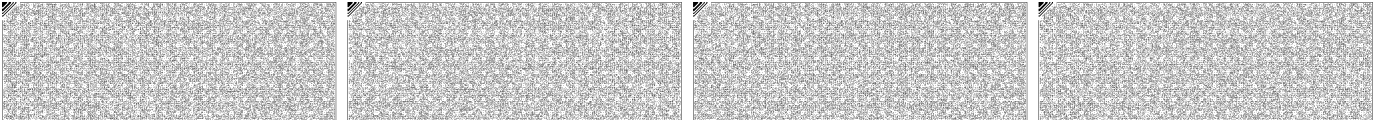
Test Equipment

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, 11, 2023
<input checked="" type="checkbox"/>	LISN	ENV216	R & S	101787	11, 10, 2023
<input checked="" type="checkbox"/>	LISN	ESH2-Z5	R & S	100450	11, 10, 2023
<input checked="" type="checkbox"/>	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 10, 2023

Diagram of test setup



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Test Conditions

Temperature: (24,4 ± 0,1) °C
Relative Humidity: (48,5 ± 0,1) % R.H.

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.

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2.2 Radiated Electric Field Emissions(Below 1 GHz)

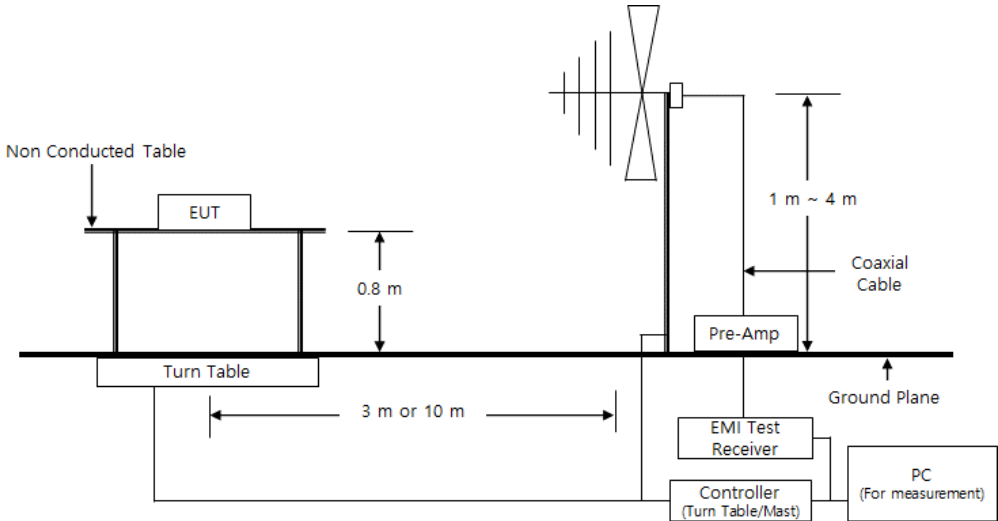
Test Date
Aug. 30, 2023

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

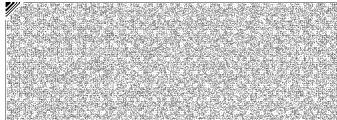
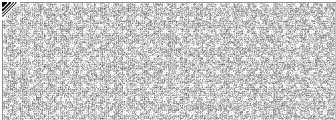
Test Equipment

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	03, 21, 2024
<input checked="" type="checkbox"/>	AMPLIFIER	SCU 01	R & S	100603	11, 10, 2023
<input checked="" type="checkbox"/>	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	11, 17, 2024
<input checked="" type="checkbox"/>	ATTENUATOR	8491A	HP	32173	03, 03, 2024

Diagram of test setup



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Test Conditions

Temperature: (24,7 ± 0,1) °C
Relative Humidity: (48,4 ± 0,1) % R.H.

Frequency Range of Measurement

30 MHz to 1 GHz

Instrument Settings

IF Band Width: 120 kHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

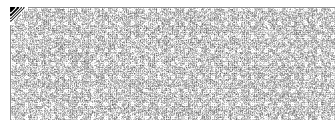
Remarks

See Appendix A for test data.

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2.3 Radiated Electric Field Emissions(Above 1 GHz)

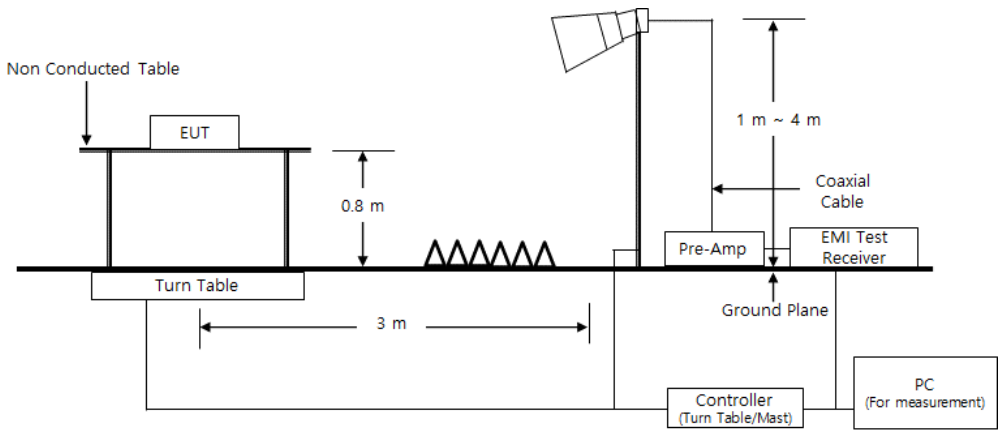
Test Date
Aug. 30, 2023

Test Location
SEMI ANECHOIC CHAMBER #5

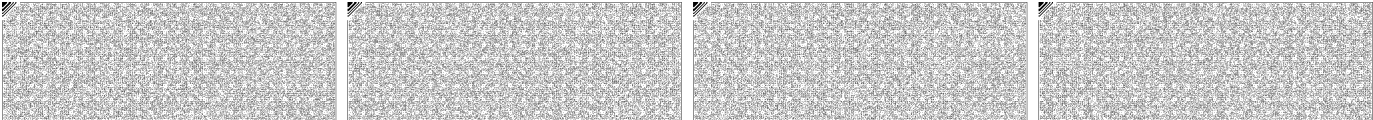
Test Equipment

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	03, 21, 2024
<input checked="" type="checkbox"/>	HORN ANTENNA	BBHA 9120D	SCHWARZBECK	9120D-1802	11, 08, 2023
<input checked="" type="checkbox"/>	PREAMPLIFIER	8449B	HP	3008A00538	05, 31, 2024
<input checked="" type="checkbox"/>	ATTENUATOR	8491B	HP	23094	03, 21, 2024

Diagram of test setup



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Test Conditions

Temperature: (24,4 ± 0,1) °C
Relative Humidity: (49,2 ± 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

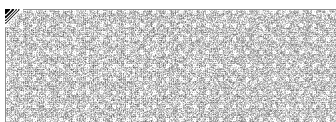
Remarks

- See Appendix A for test data.
- The Average of the test data is the cispr average result.

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APPENDIX A – TEST DATA

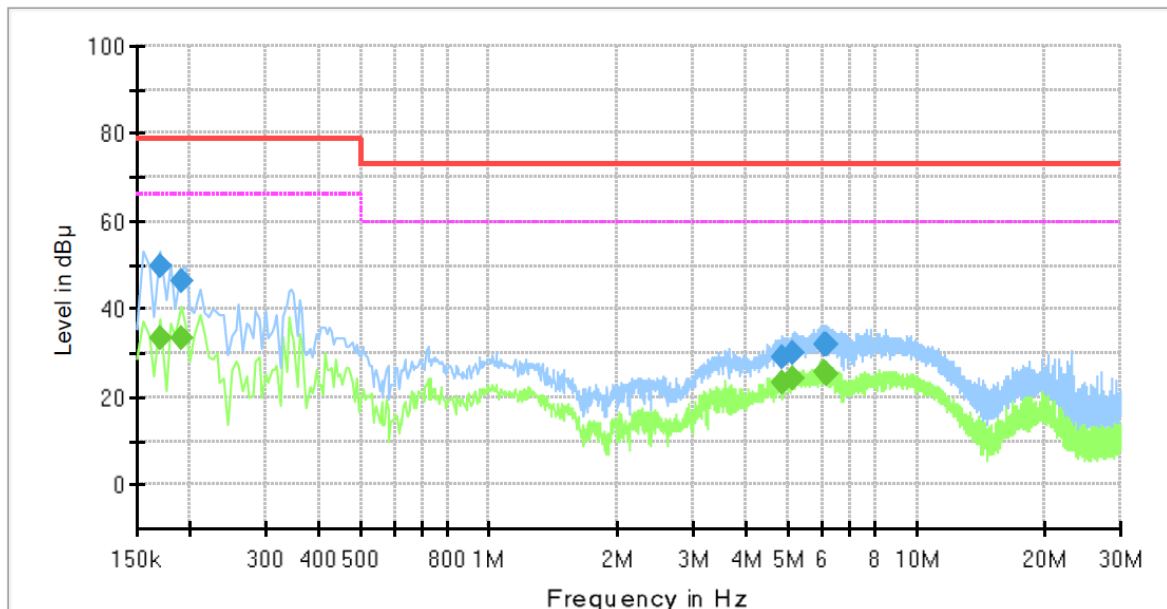
Conducted Emissions at Mains Power Ports

■ DC Mode

HOT LINE

Common Information

Test Description: Conducted Emission
 Model No.: PNO-A9311R
 Phase: DC_L1
 Mode:
 Operator Name: KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.170000	---	33.30	66.00	32.70	1000.0	9.000	L1	19.4
0.170000	49.71	---	79.00	29.29	1000.0	9.000	L1	19.4
0.190000	---	33.49	66.00	32.51	1000.0	9.000	L1	19.4
0.190000	46.67	---	79.00	32.33	1000.0	9.000	L1	19.4
4.830000	---	23.17	60.00	36.83	1000.0	9.000	L1	19.7
4.830000	29.28	---	73.00	43.72	1000.0	9.000	L1	19.7
5.105000	---	24.12	60.00	35.88	1000.0	9.000	L1	19.7
5.105000	29.86	---	73.00	43.14	1000.0	9.000	L1	19.7
6.110000	---	25.53	60.00	34.47	1000.0	9.000	L1	19.8
6.110000	31.81	---	73.00	41.19	1000.0	9.000	L1	19.8
6.150000	---	25.40	60.00	34.60	1000.0	9.000	L1	19.8
6.150000	32.01	---	73.00	40.99	1000.0	9.000	L1	19.8

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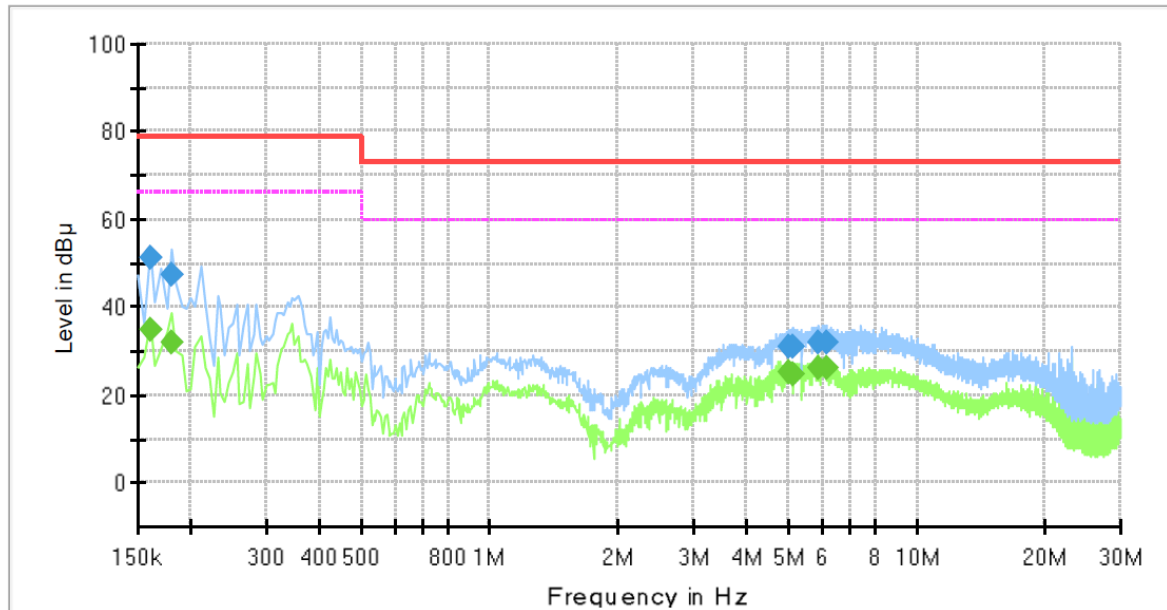
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NEUTRAL LINE

Common Information

Test Description: Conducted Emission
 Model No.: PNO-A9311R
 Phase: DC_N
 Mode:
 Operator Name: KES



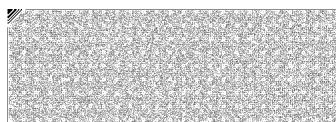
Final_Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.160000	---	35.10	66.00	30.90	1000.0	9.000	N	19.4
0.160000	51.30	---	79.00	27.70	1000.0	9.000	N	19.4
0.180000	---	31.98	66.00	34.02	1000.0	9.000	N	19.4
0.180000	47.34	---	79.00	31.66	1000.0	9.000	N	19.4
4.995000	---	25.12	60.00	34.88	1000.0	9.000	N	19.7
4.995000	31.03	---	73.00	41.97	1000.0	9.000	N	19.7
5.125000	---	24.73	60.00	35.27	1000.0	9.000	N	19.7
5.125000	31.17	---	73.00	41.83	1000.0	9.000	N	19.7
5.910000	---	26.05	60.00	33.95	1000.0	9.000	N	19.8
5.910000	32.08	---	73.00	40.92	1000.0	9.000	N	19.8
6.170000	---	26.21	60.00	33.79	1000.0	9.000	N	19.8
6.170000	32.20	---	73.00	40.80	1000.0	9.000	N	19.8

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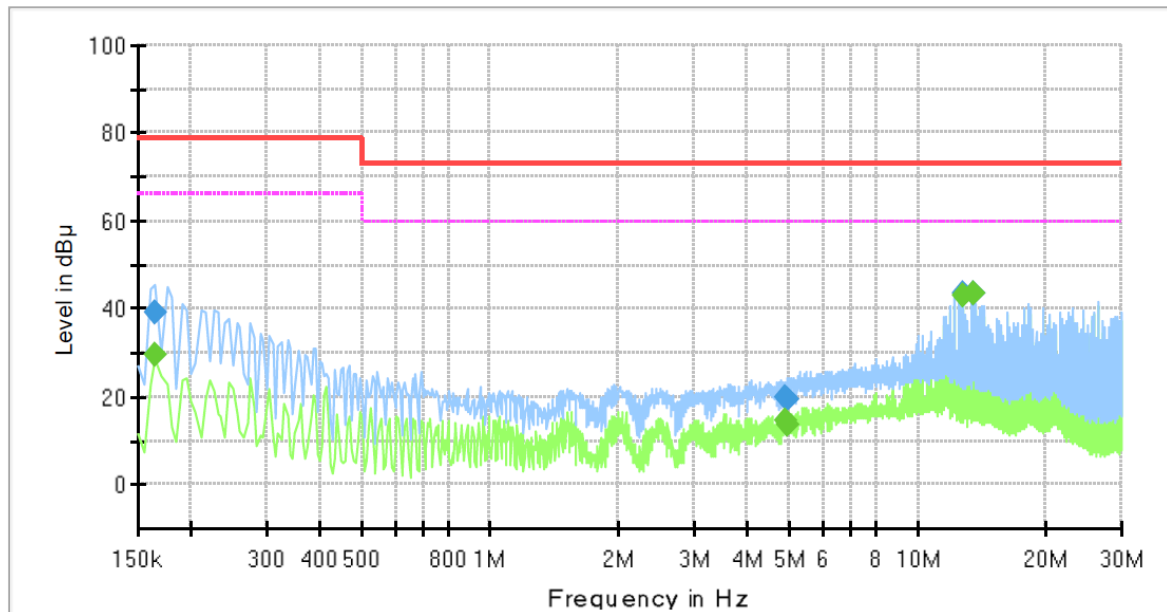
Report No.:
 KES-EM-23T0783
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■ PoE Mode

HOT LINE

Common Information

Test Description: Conducted Emission
 Model No.: PNO-A9311R
 Phase: PoE_L1
 Mode:
 Operator Name: KES



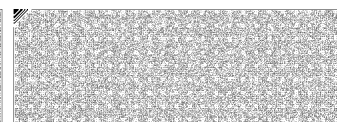
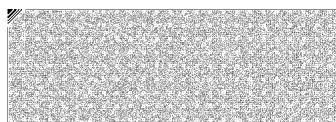
Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.165000	---	29.40	66.00	36.60	1000.0	9.000	L1	19.4
0.165000	39.10	---	79.00	39.90	1000.0	9.000	L1	19.4
4.920000	---	14.42	60.00	45.58	1000.0	9.000	L1	19.7
4.920000	19.68	---	73.00	53.32	1000.0	9.000	L1	19.7
4.980000	---	13.84	60.00	46.16	1000.0	9.000	L1	19.7
4.980000	19.63	---	73.00	53.37	1000.0	9.000	L1	19.7
12.810000	---	43.09	60.00	16.91	1000.0	9.000	L1	20.0
12.810000	43.78	---	73.00	29.22	1000.0	9.000	L1	20.0
13.480000	---	43.47	60.00	16.53	1000.0	9.000	L1	20.0
13.480000	43.79	---	73.00	29.21	1000.0	9.000	L1	20.0

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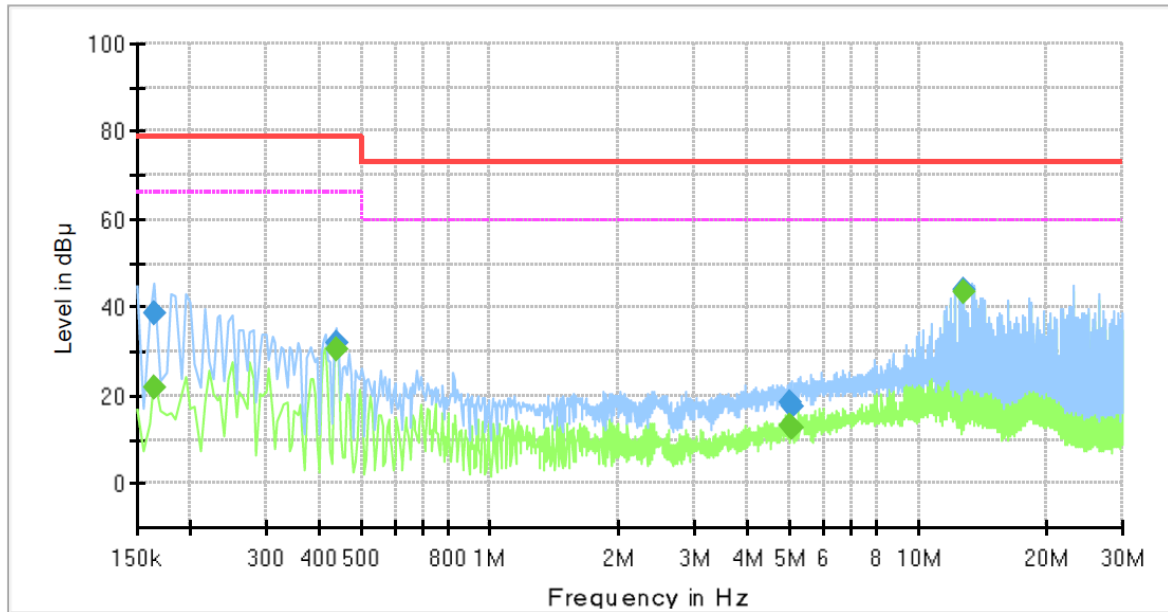
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NEUTRAL LINE

Common Information

Test Description: Conducted Emission
 Model No.: PNO-A9311R
 Phase: PoE_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	---	21.88	66.00	44.12	1000.0	9.000	N	19.4
0.165000	38.81	---	79.00	40.19	1000.0	9.000	N	19.4
0.440000	---	30.67	66.00	35.33	1000.0	9.000	N	19.4
0.440000	31.87	---	79.00	47.13	1000.0	9.000	N	19.4
4.995000	---	13.26	60.00	46.74	1000.0	9.000	N	19.7
4.995000	18.31	---	73.00	54.69	1000.0	9.000	N	19.7
5.050000	---	12.71	60.00	47.29	1000.0	9.000	N	19.7
5.050000	17.41	---	73.00	55.59	1000.0	9.000	N	19.7
12.810000	---	43.61	60.00	16.39	1000.0	9.000	N	20.0
12.810000	44.26	---	73.00	28.74	1000.0	9.000	N	20.0

◆ Calculation

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

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

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

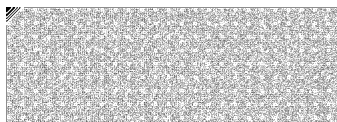
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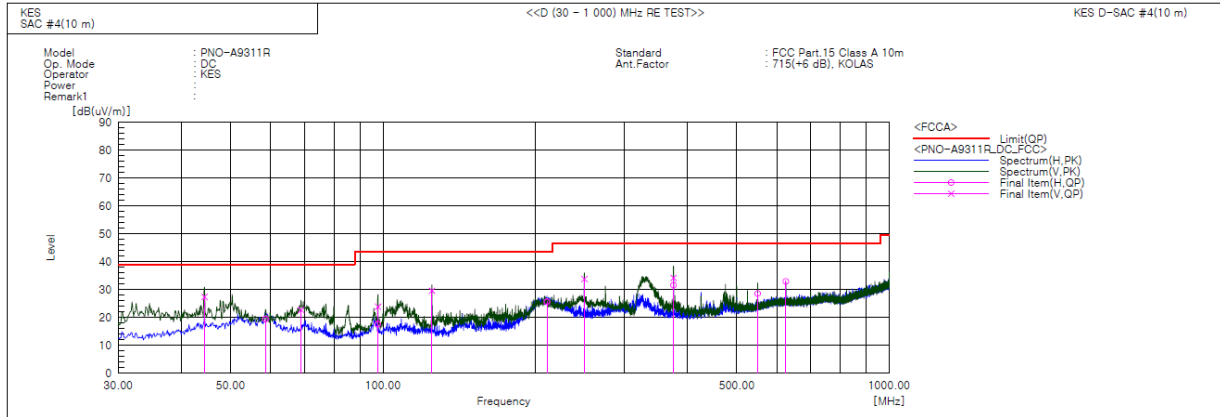
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Radiated Electric Field Emissions(Below 1 GHz)

- 47 CFR Part 15, Subpart B

■ DC Mode



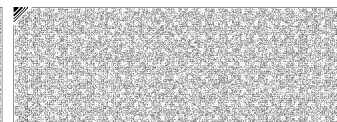
Final Result

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	44.429	V	48.4	-21.0	27.4	39.0	11.6	142.0	325.0	
2	58.615	H	40.7	-21.3	19.4	39.0	19.6	194.0	15.0	
3	68.921	V	46.8	-24.1	22.7	39.0	16.3	100.0	262.0	
4	97.658	H	39.8	-22.2	17.6	43.5	25.9	397.0	125.0	
5	97.779	V	46.1	-22.2	23.9	43.5	19.6	111.0	188.0	
6	124.939	V	53.9	-24.3	29.6	43.5	13.9	100.0	105.0	
7	210.905	H	45.7	-20.1	25.6	43.5	17.9	196.0	113.0	
8	249.948	V	52.6	-18.8	33.8	46.5	12.7	141.0	188.0	
9	374.956	V	48.2	-14.0	34.2	46.5	12.3	148.0	206.0	
10	374.978	H	45.6	-14.0	31.6	46.5	14.9	398.0	154.0	
11	550.041	H	38.1	-9.5	28.6	46.5	17.9	389.0	91.0	
12	624.974	H	40.5	-7.6	32.9	46.5	13.6	396.0	169.0	

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KES-QP16-F01(00-23-01-01)

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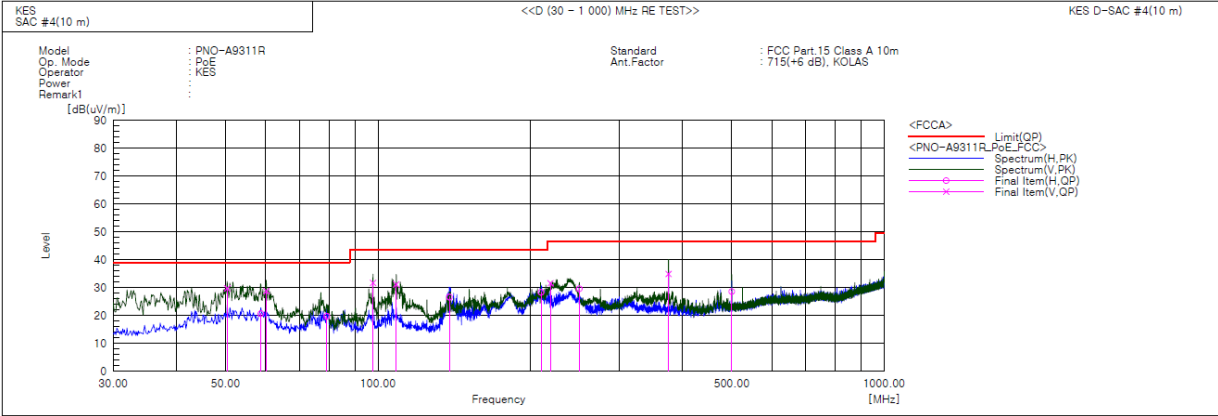




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KES-EM-23T0783
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PoE Mode



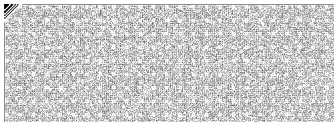
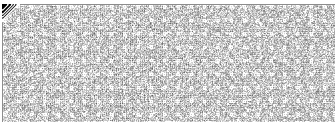
Final Result

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	50.370	V	50.1	-20.4	29.7	39.0	9.3	142.0	127.0	
2	58.736	H	42.0	-21.3	20.7	39.0	18.3	196.0	23.0	
3	60.191	V	50.4	-21.6	28.8	39.0	10.2	114.0	333.0	
4	79.228	H	46.9	-27.2	19.7	39.0	19.3	396.0	12.0	
5	97.779	V	53.9	-22.2	31.7	43.5	11.8	145.0	172.0	
6	108.691	V	53.6	-22.4	31.2	43.5	12.3	112.0	299.0	
7	138.398	H	51.7	-25.1	26.6	43.5	16.9	396.0	176.0	
8	209.935	H	48.5	-20.2	28.3	43.5	15.2	389.0	102.0	
9	219.150	V	51.2	-19.6	31.6	46.5	14.9	142.0	180.0	
10	249.948	H	48.4	-18.8	29.6	46.5	16.9	196.0	79.0	
11	374.956	V	48.9	-14.0	34.9	46.5	11.6	112.0	191.0	
12	499.965	H	39.2	-10.6	28.6	46.5	17.9	396.0	169.0	

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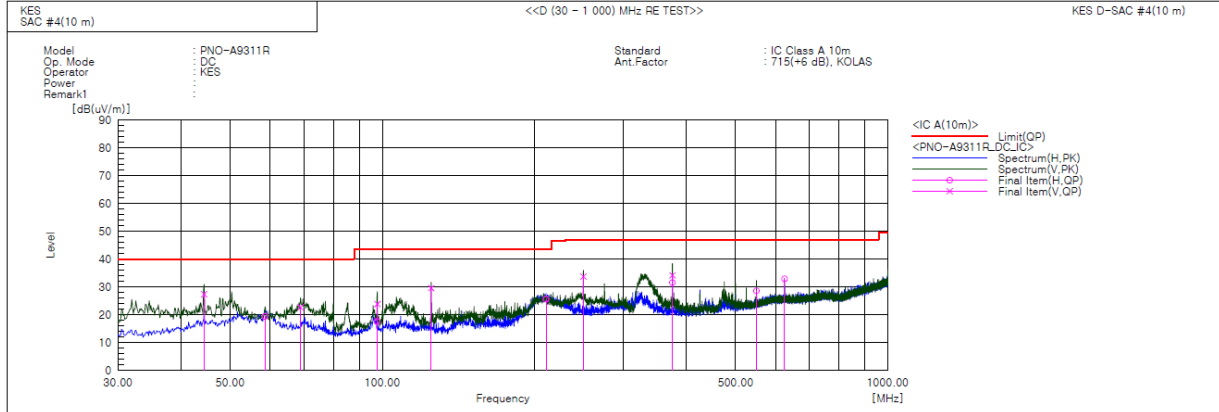


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- IC Regulation ICES-003 Issue 7

■ DC Mode



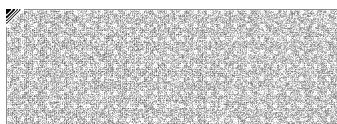
Final Result

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	44.429	V	48.4	-21.0	27.4	40.0	12.6	142.0	325.0	
2	58.615	H	40.7	-21.3	19.4	40.0	20.6	194.0	15.0	
3	68.921	V	46.8	-24.1	22.7	40.0	17.3	100.0	262.0	
4	97.658	H	39.8	-22.2	17.6	43.5	25.9	397.0	125.0	
5	97.779	V	46.1	-22.2	23.9	43.5	19.6	111.0	188.0	
6	124.939	V	53.9	-24.3	29.6	43.5	13.9	100.0	105.0	
7	210.905	H	45.7	-20.1	25.6	43.5	17.9	196.0	113.0	
8	249.948	V	52.6	-18.8	33.8	47.0	13.2	141.0	188.0	
9	374.956	V	48.2	-14.0	34.2	47.0	12.8	148.0	206.0	
10	374.978	H	45.6	-14.0	31.6	47.0	15.4	398.0	154.0	
11	550.041	H	38.1	-9.5	28.6	47.0	18.4	389.0	91.0	
12	624.974	H	40.5	-7.6	32.9	47.0	14.1	396.0	169.0	

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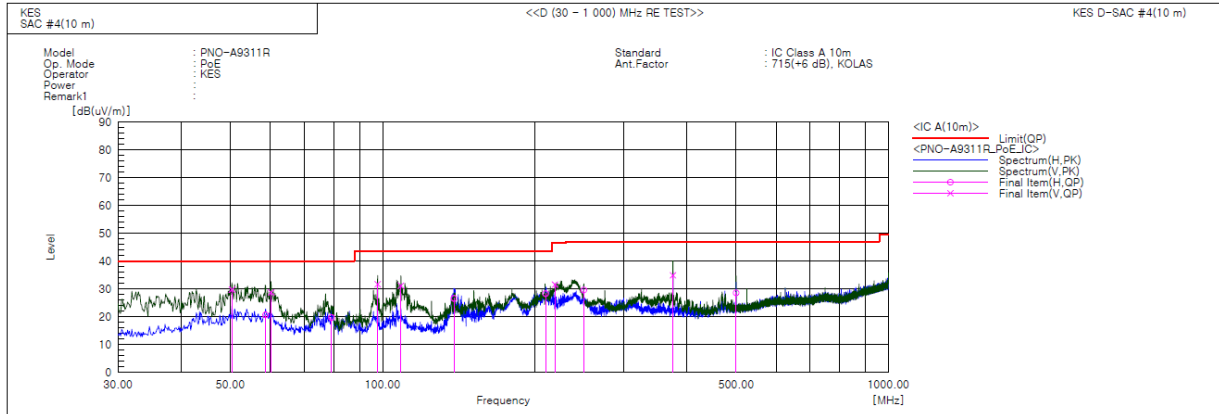




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■ PoE Mode



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	50.370	V	50.1	-20.4	29.7	40.0	10.3	142.0	127.0	
2	58.736	H	42.0	-21.3	20.7	40.0	19.3	196.0	23.0	
3	60.191	V	50.4	-21.6	28.8	40.0	11.2	114.0	333.0	
4	79.228	H	46.9	-27.2	19.7	40.0	20.3	396.0	12.0	
5	97.779	V	53.9	-22.2	31.7	43.5	11.8	145.0	172.0	
6	108.691	V	53.6	-22.4	31.2	43.5	12.3	112.0	299.0	
7	138.398	H	51.7	-25.1	26.6	43.5	16.9	396.0	176.0	
8	209.935	H	48.5	-20.2	28.3	43.5	15.2	389.0	102.0	
9	219.150	V	51.2	-19.6	31.6	46.4	14.8	142.0	180.0	
10	249.948	H	48.4	-18.8	29.6	47.0	17.4	196.0	79.0	
11	374.956	V	48.9	-14.0	34.9	47.0	12.1	112.0	191.0	
12	499.965	H	39.2	-10.6	28.6	47.0	18.4	396.0	169.0	

◆ 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

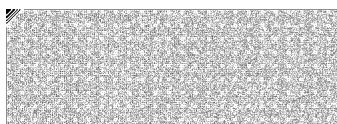
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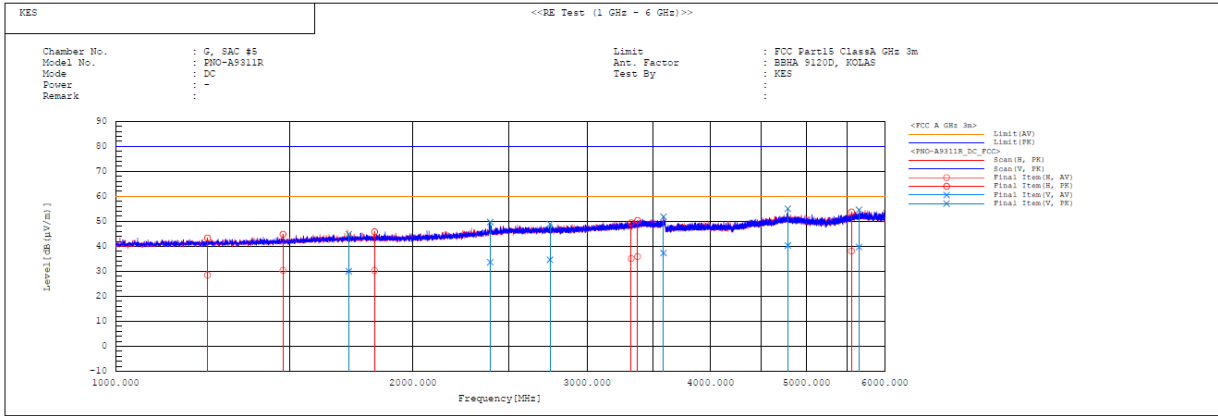


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Radiated Electric Field Emissions(Above 1 GHz)

■ DC Mode



Final Result

No.	Frequency [MHz]	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	1238.976	H	29.1	43.9	-0.6	28.5	43.3	60.0	80.0	31.5	36.7	197.0	52.5	
2	1477.136	H	29.8	44.2	0.6	30.4	44.8	60.0	80.0	29.6	35.2	397.0	355.5	
3	1722.169	V	28.4	43.2	1.6	30.0	44.8	60.0	80.0	30.0	35.2	102.0	268.3	
4	1829.134	H	28.2	43.7	2.1	30.3	45.8	60.0	80.0	29.7	34.2	103.0	27.9	
5	2394.133	V	29.3	45.4	4.3	33.6	49.7	60.0	80.0	26.4	30.3	146.0	292.9	
6	2751.599	V	29.1	43.4	5.5	34.6	48.9	60.0	80.0	25.4	31.1	102.0	11.2	
7	3324.509	H	28.4	42.7	6.7	35.1	49.4	60.0	80.0	24.9	30.6	106.0	297.8	
8	3374.465	H	29.1	43.5	6.8	35.9	50.3	60.0	80.0	24.1	29.7	102.0	359.3	
9	3585.139	V	30.3	44.8	7.0	37.3	51.8	60.0	80.0	22.7	28.2	397.0	353.8	
10	4789.554	V	28.9	43.6	11.4	40.3	55.0	60.0	80.0	19.7	25.0	102.0	160.1	
11	5553.541	H	25.1	40.7	13.0	38.1	53.7	60.0	80.0	21.9	26.3	106.0	223.7	
12	5653.593	V	26.5	41.4	13.2	39.7	54.6	60.0	80.0	20.3	25.4	106.0	339.4	

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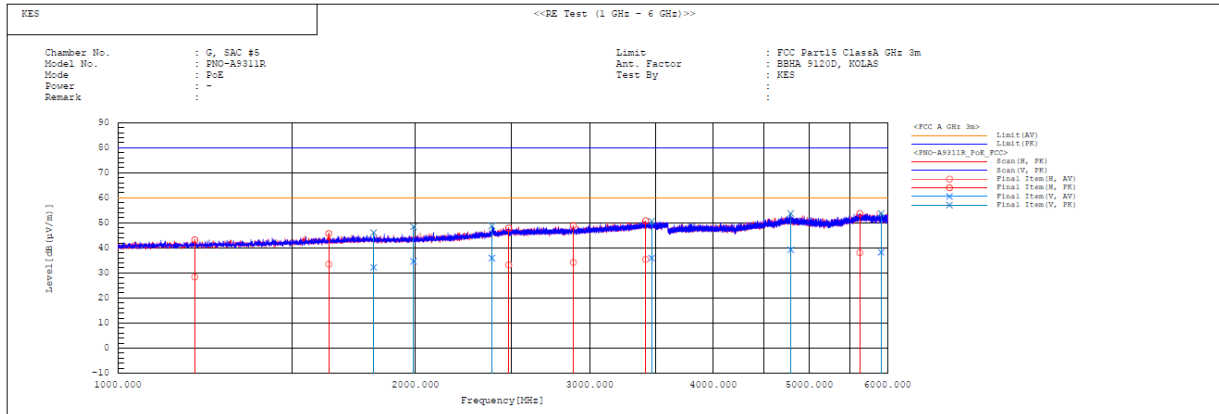




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■ PoE Mode



Final Result

No.	Frequency	Pol	Reading AV	Reading PK	c.f	Result AV	Result PK	Limit AV	Limit PK	Margin AV	Margin PK	Height	Angle	Remark
	[MHz]		[dB(μV)]	[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[dB]	[cm]	[deg]	
1	1196.485	H	29.2	44.0	-0.8	28.4	43.2	60.0	80.0	31.6	36.8	195.0	157.1	
2	1633.985	H	32.2	44.4	1.3	33.5	45.7	60.0	80.0	26.5	34.3	196.0	114.8	
3	1814.487	V	30.2	44.1	2.0	32.2	46.1	60.0	80.0	27.8	33.9	146.0	175.1	
4	1990.415	V	32.0	45.8	2.6	34.6	48.4	60.0	80.0	25.4	31.6	147.0	156.5	
5	2389.500	V	31.6	44.5	4.3	35.9	48.8	60.0	80.0	24.1	31.2	103.0	127.2	
6	2484.459	H	28.6	43.3	4.6	33.2	47.9	60.0	80.0	26.8	32.1	195.0	346.0	
7	2887.996	H	28.3	43.0	5.9	34.2	48.9	60.0	80.0	25.8	31.1	196.0	77.8	
8	3418.097	H	28.6	44.0	6.8	35.4	50.8	60.0	80.0	24.6	29.2	196.0	233.1	
9	3466.157	V	29.1	43.8	6.8	35.9	50.6	60.0	80.0	24.1	29.4	146.0	247.7	
10	4790.438	V	27.8	42.3	11.4	39.2	53.7	60.0	80.0	20.8	26.3	105.0	0.3	
11	5624.975	H	24.9	40.5	13.2	38.1	53.7	60.0	80.0	21.9	26.3	397.0	6.2	
12	5912.976	V	24.5	40.1	13.7	38.2	53.8	60.0	80.0	21.8	26.2	105.0	140.8	

◆ Calculation

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

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

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

Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value

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Test Setup Photos and Configuration

Conducted Emissions at Mains Power Ports

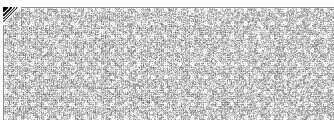
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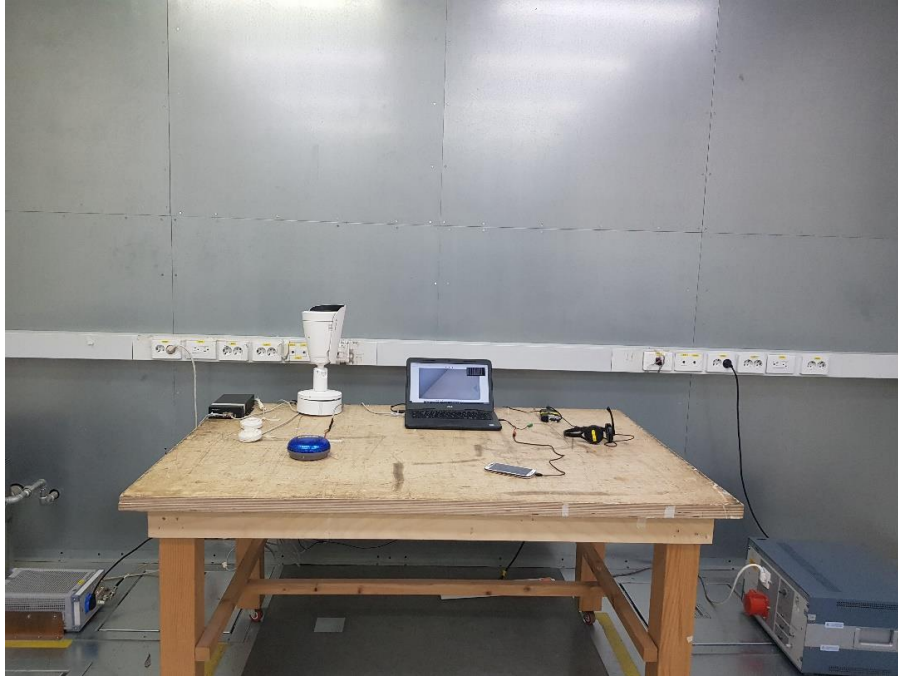




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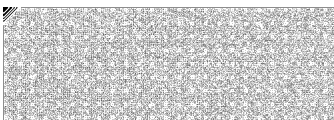
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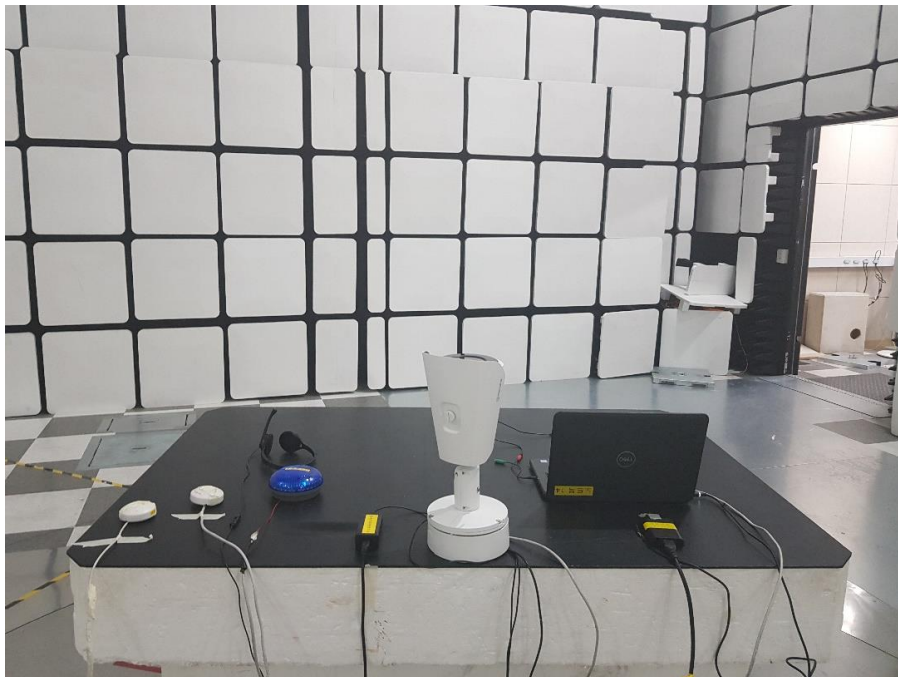


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Radiated Electric Field Emissions(Below 1 GHz)

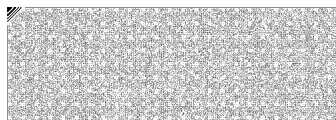
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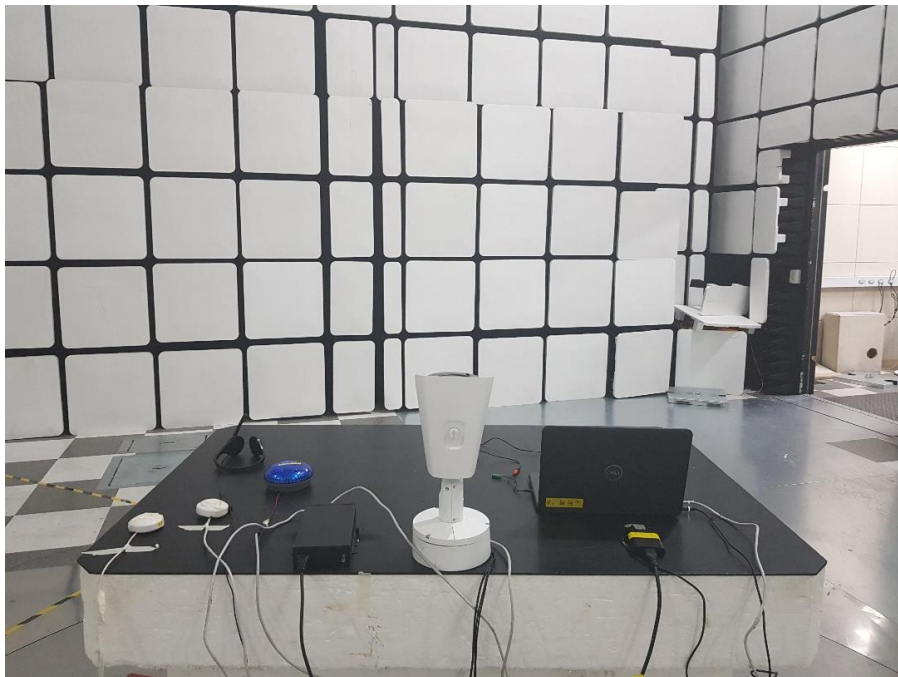




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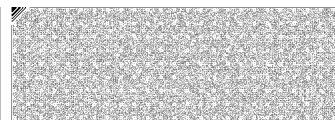
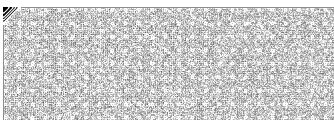
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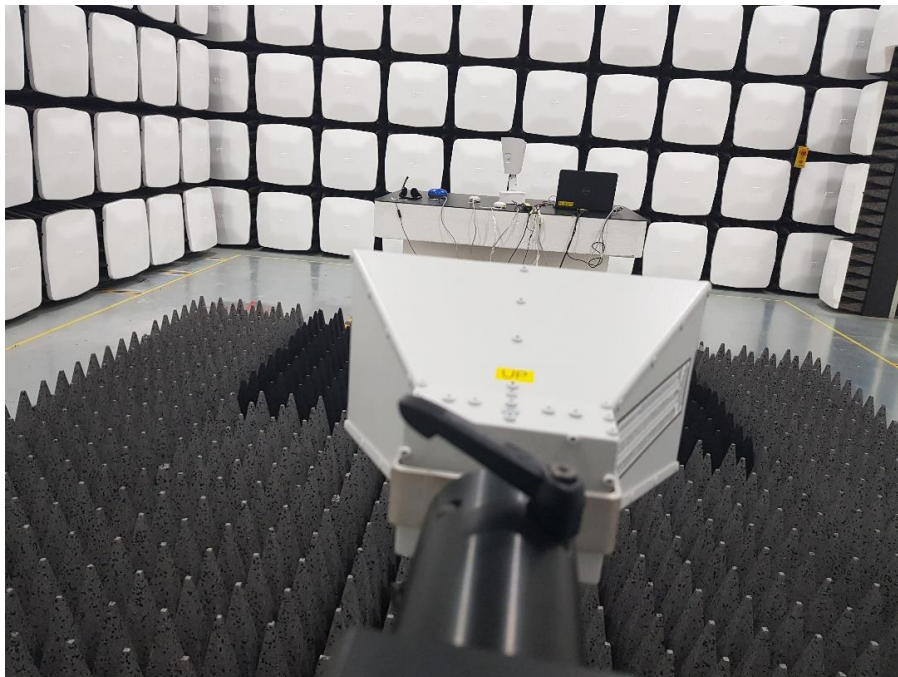
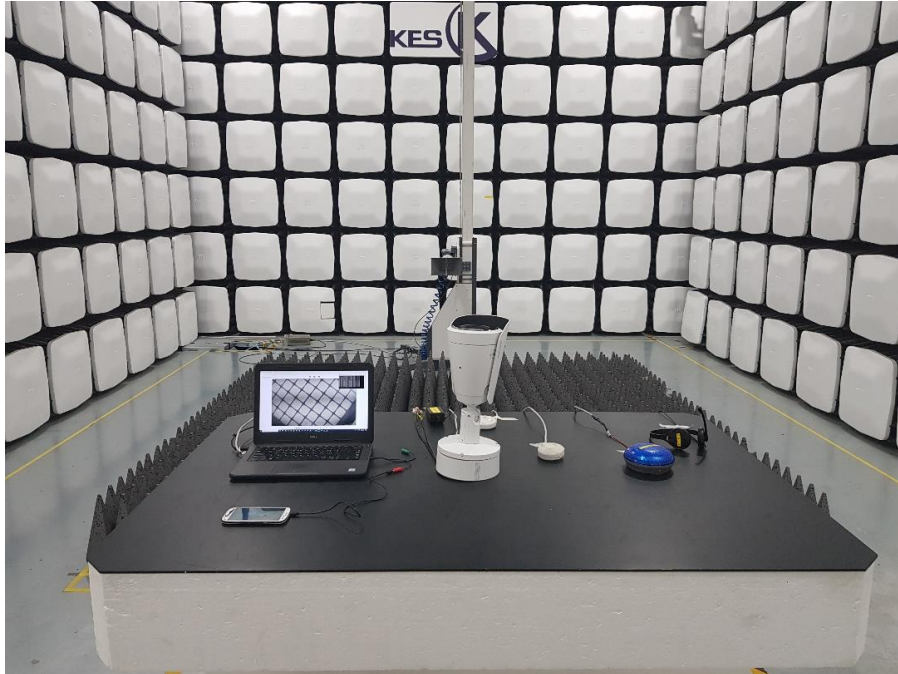


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Radiated Electric Field Emissions(Above 1 GHz)

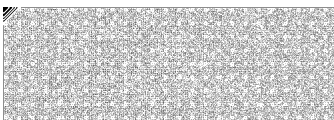
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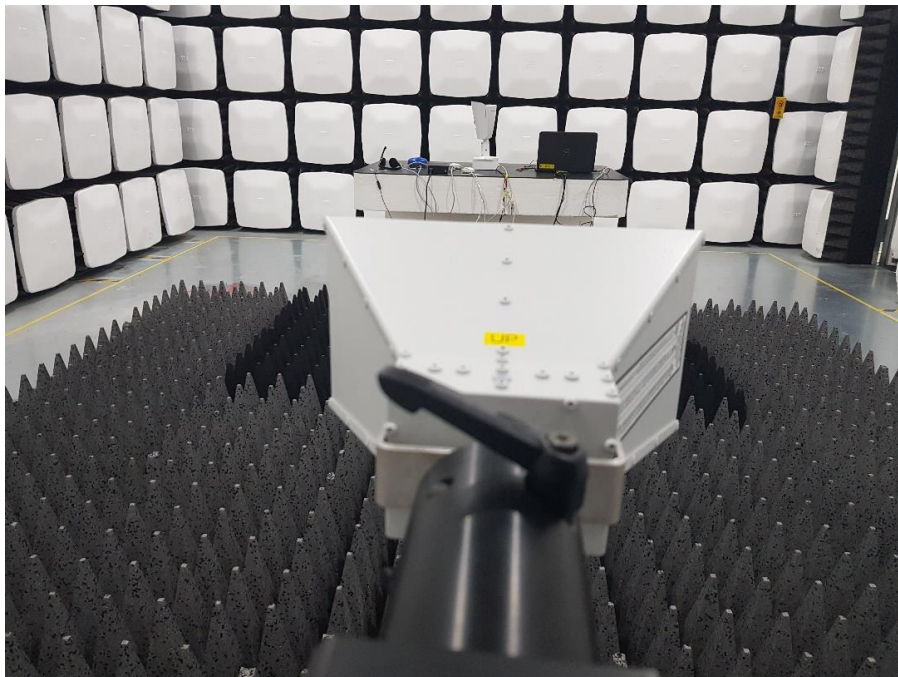
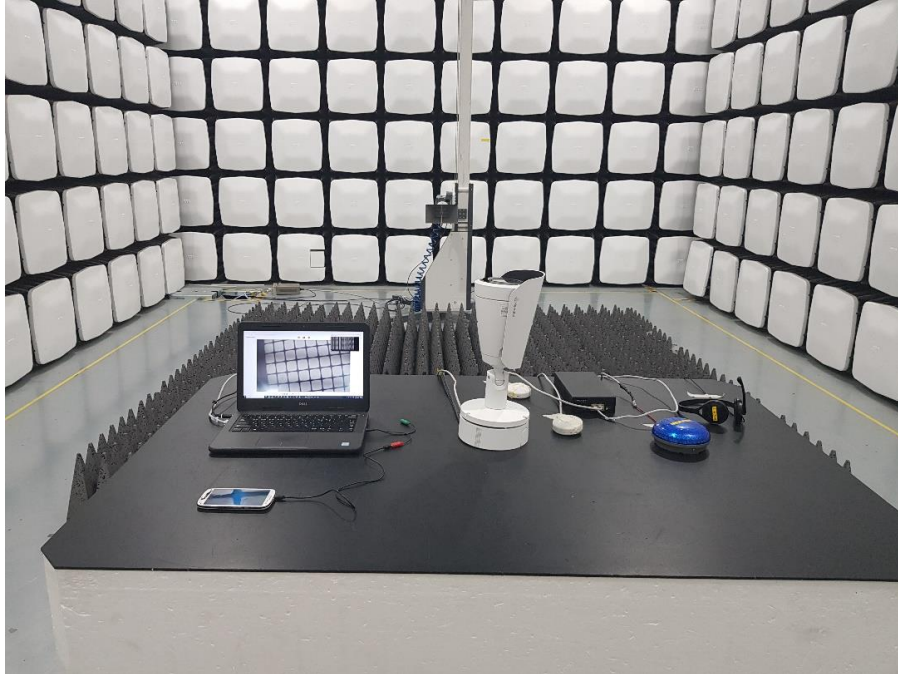




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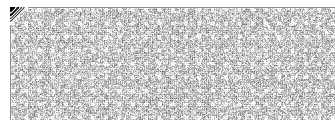
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EUT External Photographs

(Top)



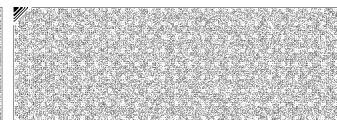
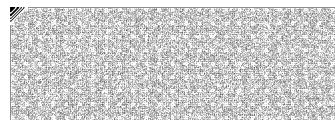
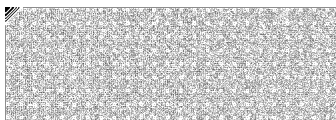
(Bottom)



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EUT Internal Photographs

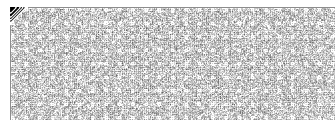
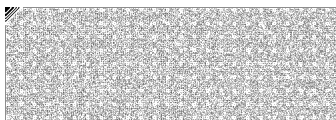
(Internal View)



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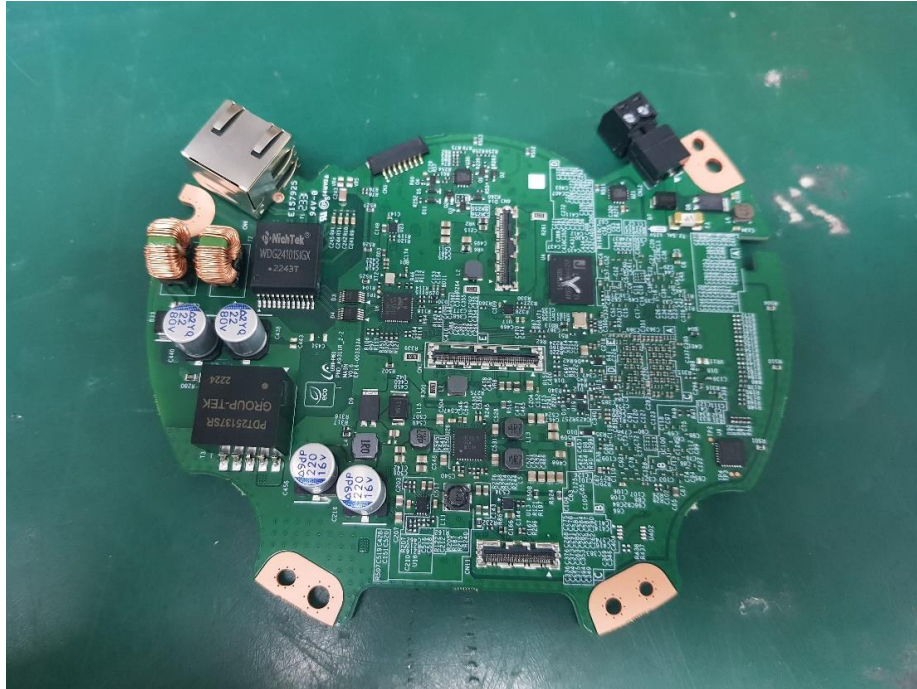


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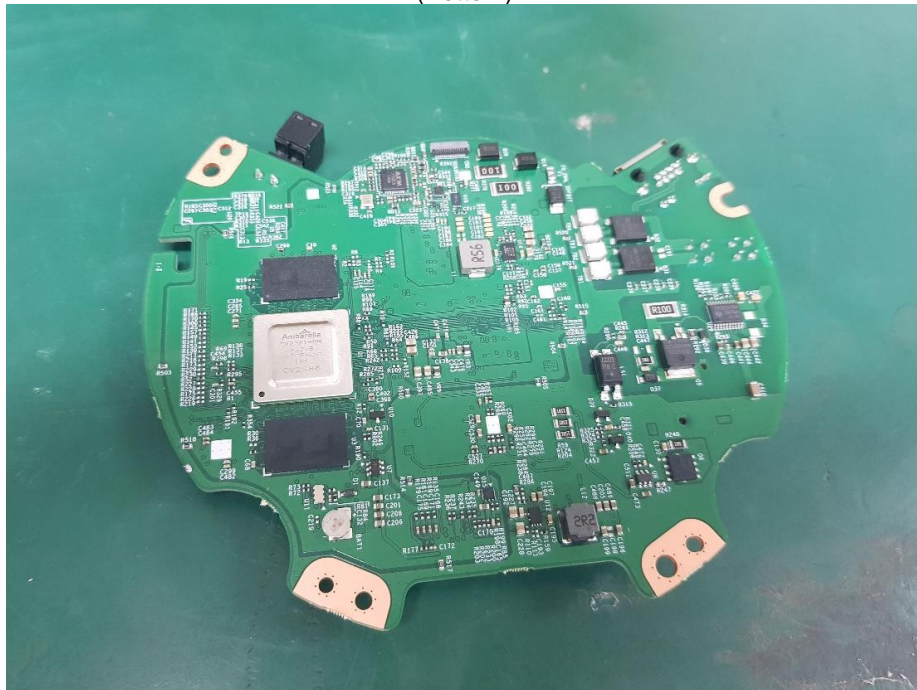
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EUT Internal View – Main Board

(Top)



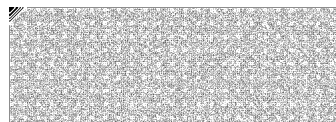
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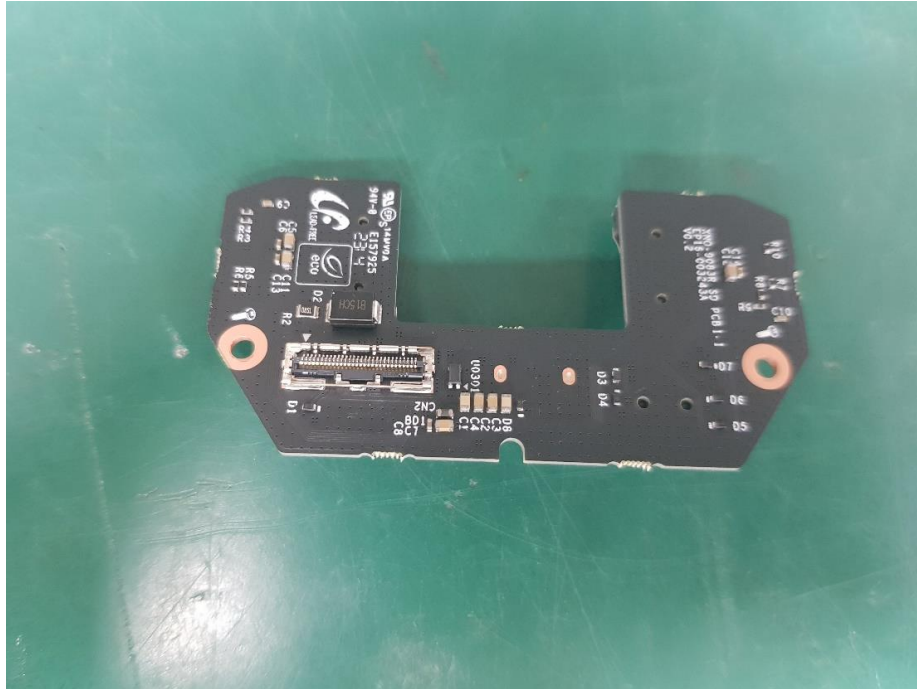


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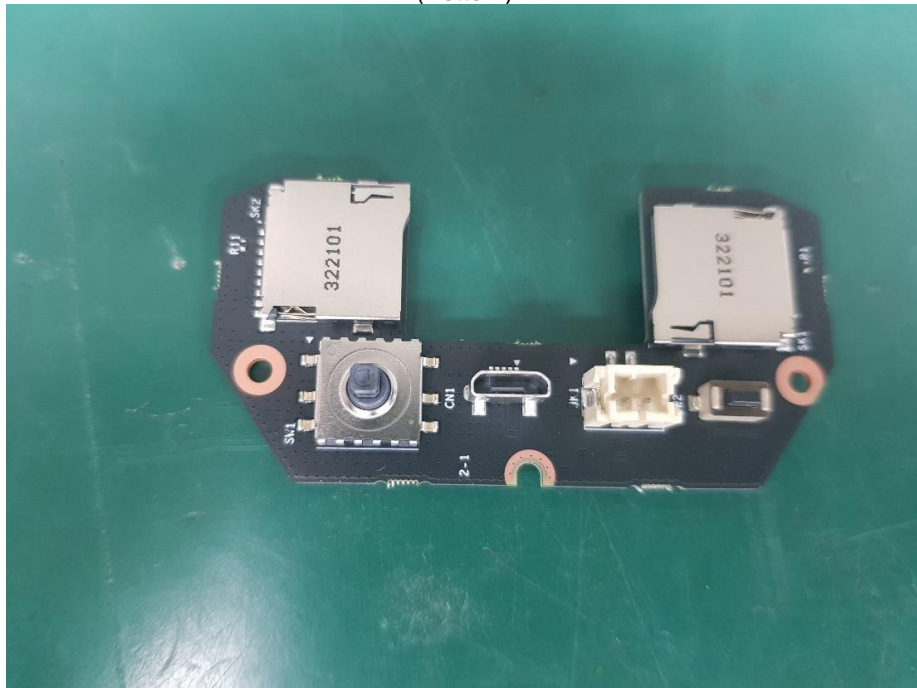
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EUT Internal View – Sub Board 1

(Top)



(Bottom)



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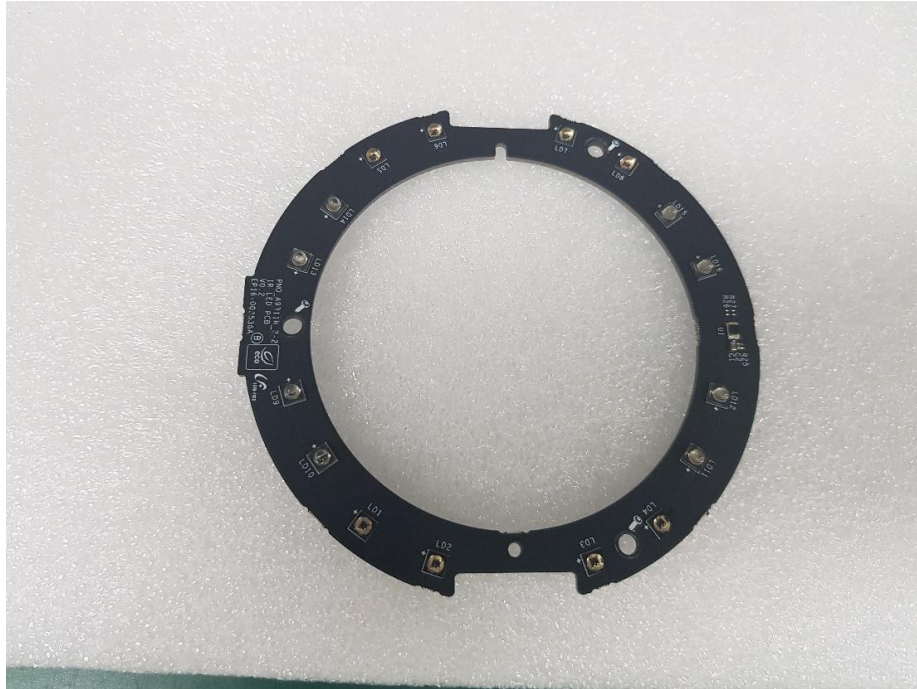


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EUT Internal View – Sub Board 2

(Top)



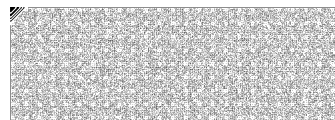
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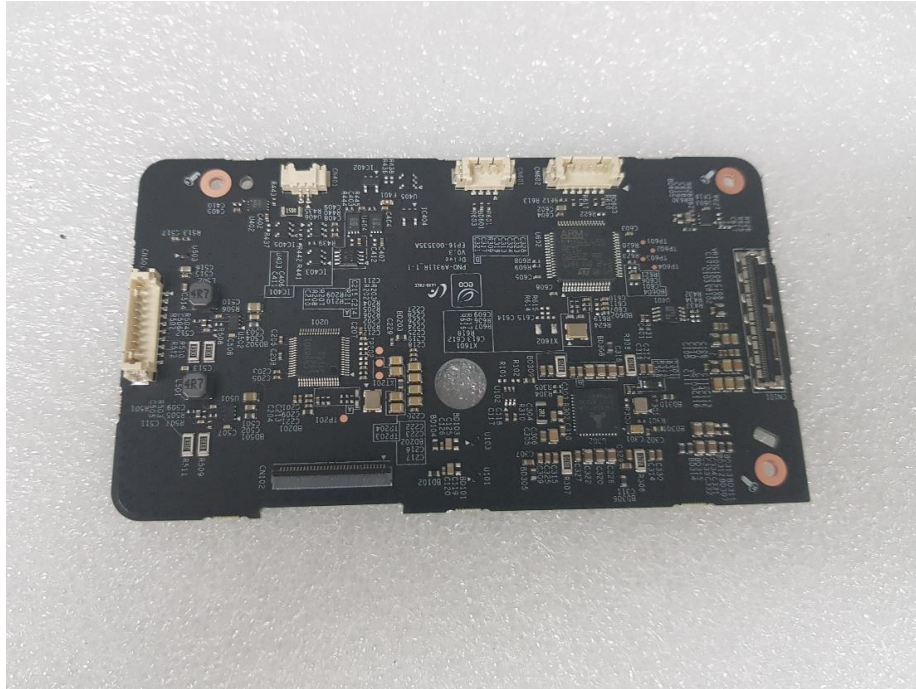
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KES-EM-23T0783

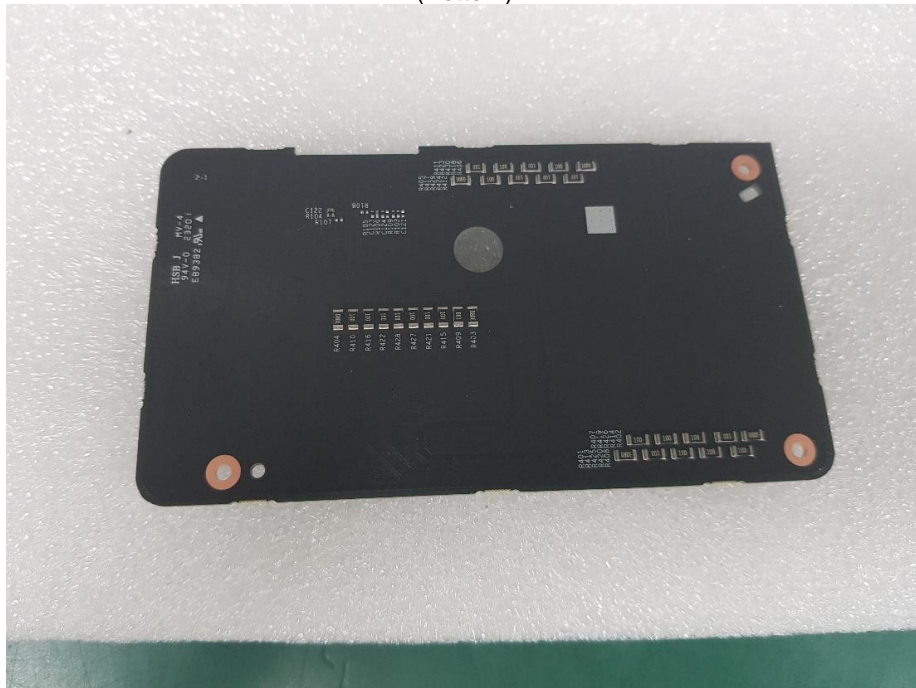
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EUT Internal View – Sub Board 3

(Top)



(Bottom)



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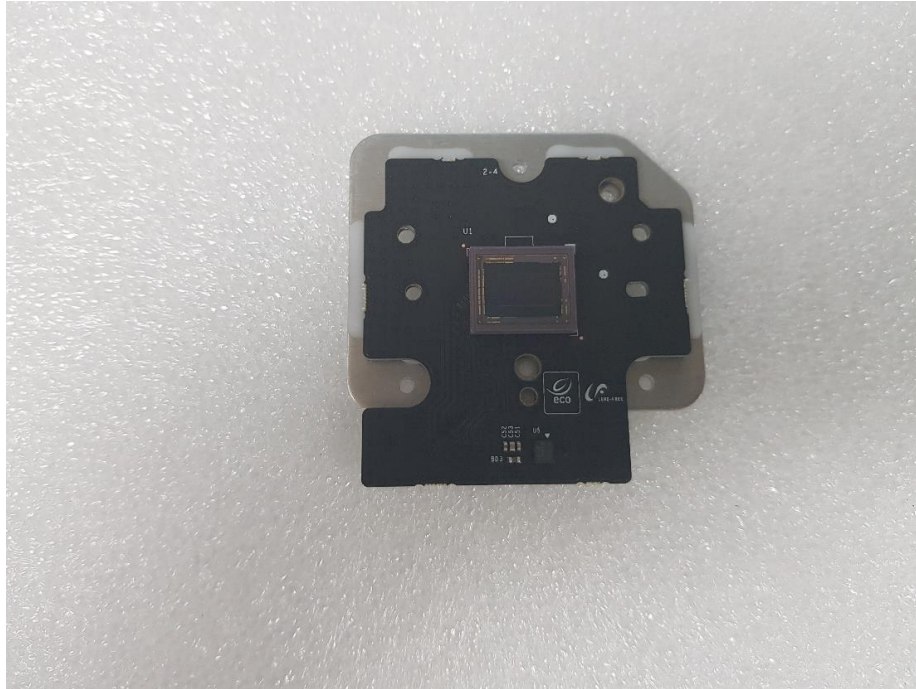


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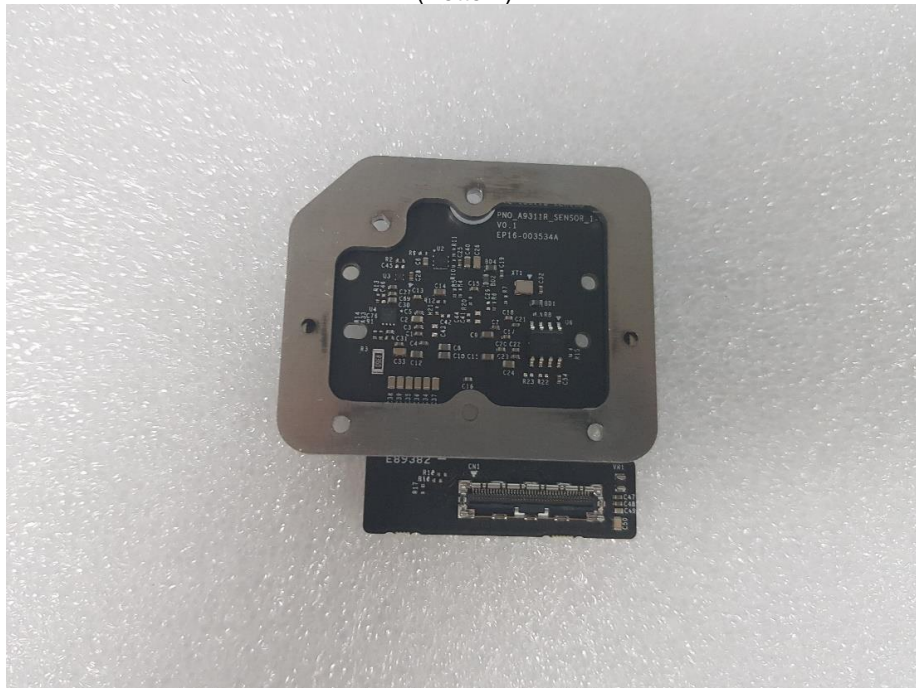
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EUT Internal View – Sub Board 4

(Top)



(Bottom)



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EUT Internal View – Camera Lens

(Top)



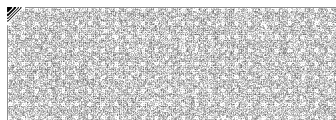
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Label Photographs

FCC Label



NETWORK CAMERA

PNO-A9311R

IC Label

CAN ICES-003(A) / NMB-003(A)

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.

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