



TEST REPORT



Report No. : KES-EM242538

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KES Co., Ltd.

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1. Client

Applicant : Hanwha Vision Co., Ltd

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

2. Sample Description

Product name : NETWORK CAMERA

Model/Type No. : QNV-C8023R

Variant Model : QNV-C8013R

Manufacturer : 1. HANWHA VISION VIETNAM COMPANY LIMITED
2. D-TECH CO.,LTD.

Manufacturer Address : 1. Lot O-2, Que Vo Industrial Zone extended Area, Nam Son Ward, Bac Ninh City, Bac Ninh Province, Vietnam
2. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi- do, Korea (Suwon Industrial Complex)

3. Date of Receipt : Jul. 24, 2024

4. Test date : Jul. 31, 2024

5. Date of Issue : Aug. 08, 2024

6. Test Results : In Compliance

Tested by

Reviewed by

Se Heon, Kim
EMC Test Engineer

Seong Min, Choi
EMC Technical Manager

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



REPORT REVISION HISTORY

| Date | Test Report No. | Revision History |
|---------------|-----------------|------------------|
| Aug. 08, 2024 | KES-EM242538 | Issued |
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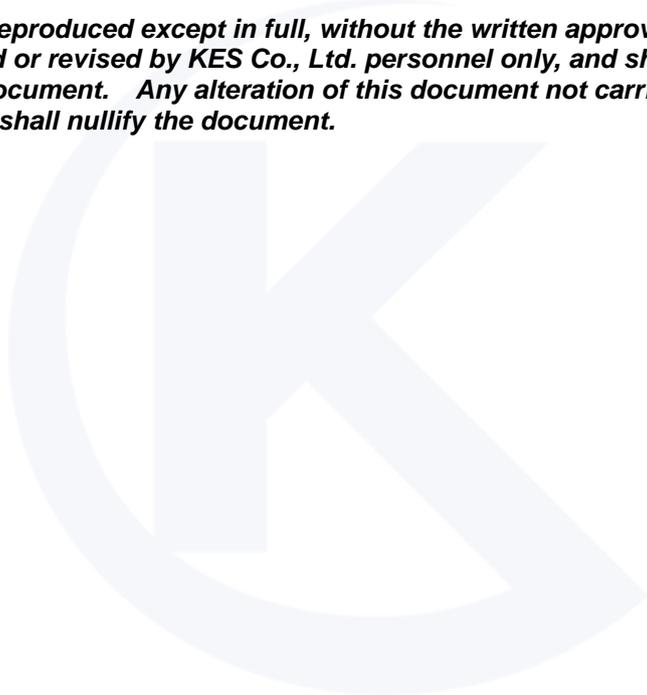




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1.0 General Product Description

Main Specifications of EUT are:

Highest internal Frequency : 1 866 MHz

| QNV-C8013R | |
|-----------------------------|---|
| Video | |
| Imaging Device | 1/2.8" CMOS |
| Resolution | 2592x1944, 2560x1440, 1920x1080, 1280x960, 1280x720, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240 |
| Max. Framerate | H.265/H.264: Max. 30fps/25fps(60Hz/50Hz) (WDR on/off) MJPEG: Max. 30fps@5MP Max. 5fps |
| NETD | None |
| Pixel Size | None |
| Min. Illumination | Color: 0.03Lux(F1.6, 1/30sec, 30IRE) BW: 0.003Lux(F1.6, 1/30sec, 30IRE), 0Lux(IR, LED on) |
| Video Out | USB: Micro USB Type B, 1280x720 for installation |
| Video Transmission Distance | None |
| Lens | |
| Focal Length (Zoom Ratio) | 3.0mm fixed focal |
| Optical Zoom | None |
| Max. Aperture Ratio | F1.6 |
| Angular Field of View | H: 100°/ V: 73°/ D: 129° |
| Min. Object Distance | 0.5m (1.64ft) |
| Focus Control | Fixed |
| Lens Type | Fixed IRIS |
| Mount Type | M12 |
| Optional Lens | None |
| Pan / Tilt / Rotate | |
| Pan / Tilt / Rotate Range | 0°~350° / 0°~70° / 0°~355° |
| 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 | 120dB |
| Digital Noise Reduction | WiseNRⅡ (Based on AI engine) SSNRⅤ |
| Digital Image Stabilization | None |
| Defog | None |
| Motion Detection | 8ea, 8point polygonal zones |
| Privacy Masking | 32ea, 4point quadrangle zones - Color: Gray/Green/Red/Blue/Black/White Dynamic Privacy Mask - Mosaic |
| Gain Control | Low / Middle / High |
| White Balance | ATW / AWC / Manual / Indoor / Outdoor |
| LDC | Support |
| Electronic Shutter Speed | Minimum / Maximum / Anti flicker (1/5~1/25,000sec) Prefer shutter control(Based on AI engine) |
| Video Rotation | Flip, Mirror, Hallway view(90°/270°) |
| Analytics | Classified object type: Person/Vehicle(Type:car/bus/truck/motorcycle/bicycle) Attributes: Person(Upper/lower clothes color), Vehicle(Type:car/bus/truck/motorcycle/bicycle and color) Support DetectionShot Analytics events based on AI engine - Motion detection*, Object detection, Virtual line*(Crossing/Direction), Virtual area*(Loitering/Intrusion/Enter/Exit) Analytics events - Defocus detection, Tampering, Virtual area(Appear/Disappear) * Some of the video analytics only works with people and vehicle detection |
| Business Intelligence | Based on AI engine: People counting, Vehicle counting, Queue management, Heatmap |
| Serial Interface | None |
| Alarm I/O | Input 1ea / Output 1ea * Alarm I/O is supported through an optional cable(SPP-C7400) |
| Alarm Triggers | Analytics, Network disconnect, Alarm input |
| Alarm Events | When alarm trigger occurred - File upload(image) : e-mail/FTP - Notification : e-mail - Recording : SD/SDHC/SDXC or NAS recording at event triggers - Alarm output - Handover(PTZ preset, Send message by HTTP/HTTPS/TCP) - MQTT: publication |
| Audio Streaming | None |
| Audio In | Selectable(mic in/line in) * Audio In is supported through an optional cable(SPP-C7400) |
| Audio Out | Line out * Audio Out is supported through an optional cable(SPP-C7400) (TBD) |
| Light Type | IR, LED (850nm) |
| Light Viewable Length | 20m(65.62ft)→25m(TBD) |
| IR Viewable Length | None |
| IR Illuminator (Optional) | None |
| IR Radiation angle | None |
| IR LED | None |



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| | |
|---------------------------------------|--|
| IR Wavelength | long-life 850 nm IR LED |
| IR Operation | None |
| Water Removal | None |
| Auto Tracking | None |
| Coaxial Protocol | None |
| Color Palettes | None |
| Radiometry | |
| Temperature Detect Range | None |
| Temperature Accuracy | None |
| Temperature Detection | None |
| Additional | None |
| Network | |
| Ethernet | RJ-45(10/100BASE-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), WiseStreamIII(Based on AI engine) |
| Bitrate Control | H.264/H.265: CBR or VBR MJPEG: VBR |
| Streaming | Unicast(20 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, CDP, SRTP (TCP, UDP Unicast) |
| SIP support (VoIP, Peer-to-peer) | None |
| Security | None |
| Application Programming Inter | ONVIF Profile S/G/T/M SUNAPI(HTTP API) |
| Security | |
| OS / Firmware Protect | Secure boot, Signed firmware, Firmware encryption |
| User authentication | Digest Authentication, Prevent brute-force attack |
| Network authentication | 802.1X Authentication(EAP-TLS, EAP-LEAP, EAP-PEAP MSCHAPv2) |
| Secure Communication | HTTPS, SRTP, WSS(Websocket secure) |
| Access Control | Access control based on IP address |
| Data Protect | Authentication information encryption, ZIP compression encryption |
| Audit | User Access/System/Event log management |
| Device ID | Device Certificate(Hanwha Private Root CA) |
| Secure Storage | SDcard partition encrypt |
| Security Certificate | None |
| General | |
| Webpage Language | English, Korean, Simplified Chinese, Traditional Chinese, French, Italian, Spanish, German, Japanese, Russian, Portuguese, Czech, Polish, Turkish, Dutch, Hungarian, Greek |
| Web Viewer | None |
| Edge Storage | Micro SD/SDHC/SDXC 1slot 256GB |
| Memory | 2GB RAM, 1GB Flash |
| Environmental & Electrical | |
| Operating Temperature / Humidity | -30°C~+55°C(-22°F~+131°F) / 0~100% RH * Start up should be done at above -30°C Humidity control /w Air vent |
| Storage Temperature / Humidity | -50°C~+60°C(-58°F~+140°F) / 0~95% RH |
| Wind Load | None |
| EPA(Effective Projected Area) | None |
| Certification | IP66, IK10 |
| Input Voltage | PoE(IEEE802.3af, Class3) |
| Power Consumption | PoE: Max 8.1W, typical 4.0W |
| Mechanical | |
| Color / Material | White / Aluminum Bubble : Hard-coated dome |
| RAL Code | RAL9003 |
| Product Dimensions / Weight | ø120x97.5mm(ø4.72x3.84"), 579.0g(1.27 lb) |
| Compatible Conduit hole / Gasket | SBD-110GP1 : Single, Double, 4" Octagon (Sold seperately) |
| Hanging Mount (Dome) | None |
| Skin Cover | None |
| Skin Cover (Dome) | None |
| Weather Cap (Dome) | None |
| Power Module | None |
| Backbox | None |
| Ceiling Mount (Assy) | None |
| Wall Mount | None |
| Pole Mount | None |
| In-ceiling Mount | None |
| Parapet Mount | None |
| Corner Mount | None |
| Tilt Mount | None |
| Housing (Box) | None |
| Cabinet | None |
| Gang Plate | None |
| Conduit Adaptor | None |
| Other Compatible Models | None |

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

KES Co., Ltd.

The authenticity of this test report can be found on the verification page of our website (www.kes.co.kr)



| Certifications & Standards | |
|-------------------------------|---|
| Network | None |
| EMC | FCC 47 CFR 15 Subpart B Class A ICES-3(A)/NMB-3(A) CE/UKCA - EN 55032 Class A, EN 50130-4, EN 61000-3-2, EN 61000-3-3 VCCI CISPR 32 Class A RCM AS/NZS CISPR 32 Class A KS C 9832 Class A , KS C 9835 |
| Safety | UL 62368-1, CAN/CSA C22.2 NO. 62368-1 IEC/EN 62471 |
| Environment | IEC/EN 63000 IEC/EN 60529 IP66, IEC/EN 62262 IK10 |
| Video | None |
| Compatible Models | |
| Hanging Adaptor | SBP-120HMMW |
| Back Box | SBV-140BW |
| Ceiling Mount (Assy) | SBP-300CMW1/900CMW, SBP-150CMI/300CMI, SBP-300CMTW, SBP-300CM |
| Ceiling Mount (Single Unit) | None |
| Wall Mount | SBP-125WMW1, SBP-300WMW/WMW1, SBP-390WMW2 |
| Wall Mount Adaptor | None |
| Pole Mount | SBD-140PMW, SBP-300PMW2, SBD-140PMB |
| In-ceiling Mount | SHD-1200FPW |
| Corner Mount | SBP-300KMW1, SBD-140KMB |
| Parapet Mount | SBP-300LMW, SBP-156LMW1 |
| Tilt Mount | SBV-140TMW |
| Cabinet | SBP-300NBW |
| Housing | None |
| Gang Plate | SBD-110GP1 |
| Skin Cover | None |
| Weather Cap | None |
| Dome Cover | None |
| Conduit Adaptor | None |
| Power Module | None |
| Interface Box | None |
| Other Compatible Models | SPP-C7400 (Audio/Alarm Cable) |
| DORI (EN62676-4 standard) | |
| Detect (25PPM/ 8PPF) | 43.5m(142.71ft) |
| Observe (63PPM/ 19PPF) | 17.5m(57.09ft) |
| Recognize (125PPM/ 38PPF) | 8.7m(28.54ft) |
| Identify (250PPM/ 76PPF) | 4.3m(14.27ft) |
| LPR/ANPR/MMCR | |
| Speed Description | None |
| Speed limit | None |
| Min. Forward Distance | None |
| Max. Forward Distance | None |
| Max. Horizontal Angle | None |
| Max. Vertical Angle | None |
| Horizontal Offset | None |
| Camera Height | None |
| Lane Coverage | None |
| Vehicle Recognition | None |
| Available Countries | None |
| Wisenet Road AI LPR/ANPR/MMCR | |
| Solution | None |
| Speed Description | None |
| Lane Coverage | None |
| Speed limit | None |
| Min. Forward Distance | None |
| Max. Forward Distance | None |
| Max. Horizontal Angle | None |
| Max. Vertical Angle | None |
| Horizontal Offset | None |
| Camera Height | None |
| Vehicle Recognition | None |
| Available Countries | None |
| Ver | |
| Ver | 202407 |



1.1 Test Voltage & Frequency

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

AC 100 V, 50 Hz(PoE Adapter Input Power)

1.2 Variant Model Differences

Addition of a simple derivative model due to the difference in fixed lenses
(No electronics in the lens, same as the base model, no changes in circuitry, appearance, or hardware.)

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

| Description | Model Number | Serial Number | Manufacturer | Remarks |
|----------------|--------------|---------------|--|---------|
| NETWORK CAMERA | QNV-C8023R | - | HANWHA VISION VIETNAM COMPANY LIMITED. | EUT |

1.5 Support Equipments

| Description | Model Number | Serial Number | Manufacturer | Remarks |
|----------------|--------------|---------------|--|---------|
| Laptop | P95G001 | 9JM8HT2 | DELL INC. | - |
| Laptop Adapter | HA65NM130 | - | Chicony Power Technology(Suzhou)Co.,Ltd. | - |
| Alarm | - | - | - | - |
| Button Alarm | - | - | - | - |
| Micro SD Card | - | - | SanDisk | 16 GB |
| PoE Injector | MA-INJ-4 | - | Changzhou Wujin Hong Guang Radio Co.,Ltd | - |
| Headset | K550 | - | Britz® | - |
| Smartphone | SM-N960N | - | Samsung Electronics Co., Ltd. | - |



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) | PoE Injector | RJ-45 (PoE) | 3.5 | U |
| | 7 Pin (Audio OUT) | Headset | 7 Pin (Audio IN) | 2.0 | U |
| | 7 Pin (Audio IN) | | 7 Pin (Audio OUT) | 2.0 | U |
| | 7 Pin (Alarm OUT) | Alarm | 7 Pin (Alarm IN) | 3.5 | U |
| | 7 Pin (Alarm IN) | Button Alarm | 7 Pin (Alarm OUT) | 3.5 | U |
| | Micro SD Slot | Micor SD Card | Micro SD Slot | - | - |
| PoE Injector | RJ-45 (LAN) | Laptop | RJ-45 (LAN) | 2.0 | U |
| Laptop | DC Jack | Laptop Adapter | DC Jack | 1.5 | U |
| | 3.5 mm | Smartphone | 3.5 mm | 1.2 | U |

* Unshielded=U, Shielded=S

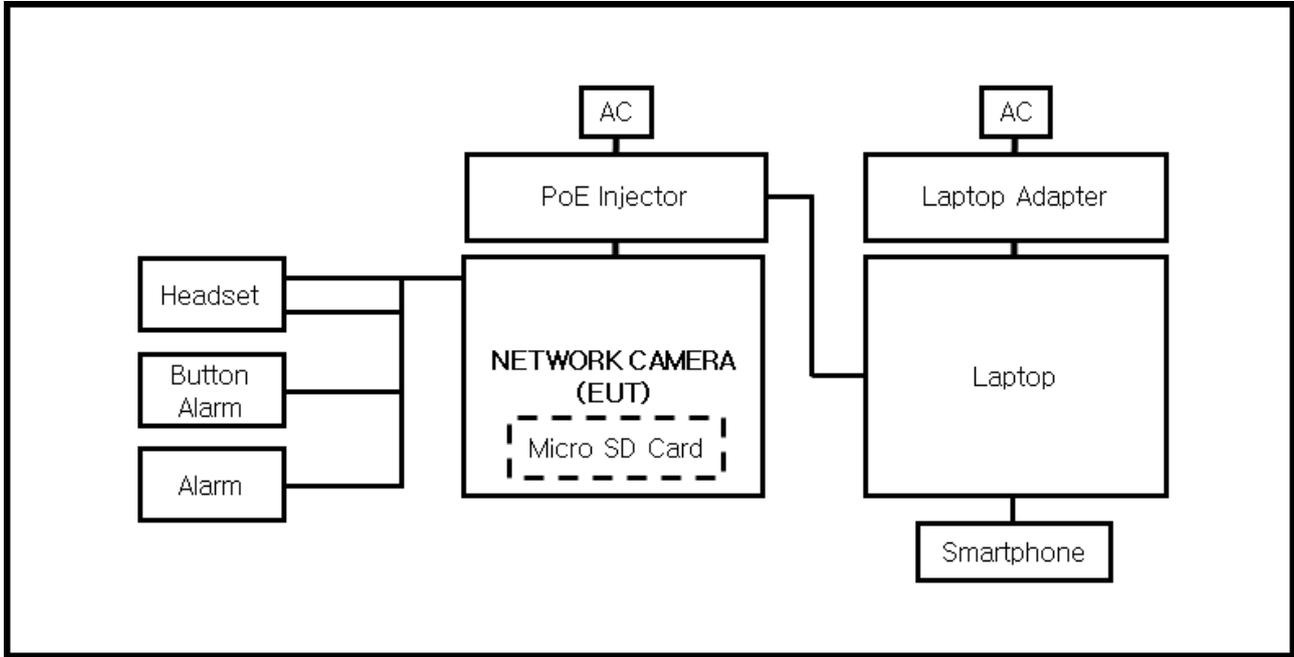
1.7 EUT Operating Mode(s)

| Test mode | Normal operating | Test Voltages |
|-----------|--|-----------------|
| Operating | <ul style="list-style-type: none"> - Monitoring EUT Using Web Viewer, Ping Test - Check Audio Port Behavior Through Headset - When the Button Alarm is pressed, make sure the Alarm is working - Check the files stored on the Micro SD Card after testing | AC 100 V, 50 Hz |

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



1.8 Configuration





1.9 Remarks when standards applied

- PoE port is considered to be wired network port, so power-related test items are excluded.
- The USB port was excluded from the test as a port 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 0008 |



2.0 Test Regulations

The emissions tests were performed according to following regulations:

VCCI-CISPR 32:2016

Class A

Class B





2.1 Conducted Emissions Mains Power Ports

Test Date

N/A

Test Location

Electro wave Shieldroom #6

Test Equipment

| Used | Description | Model Number | Manufacturer | Serial Number | Cal. Due |
|--------------------------|-------------------|--------------|--------------|---------------|--------------|
| <input type="checkbox"/> | EMI Test S/W | EMC32 | R & S | 9.12.00 | - |
| <input type="checkbox"/> | EMI TEST RECEIVER | ESR3 | R & S | 101783 | 11, 08, 2024 |
| <input type="checkbox"/> | LISN | ENV216 | R & S | 101787 | 11, 08, 2024 |
| <input type="checkbox"/> | LISN | ESH2-Z5 | R & S | 100450 | 11, 08, 2024 |
| <input type="checkbox"/> | PULSE LIMITER | ESH3-Z2 | R & S | 101915 | 11, 08, 2024 |

Test Conditions

Temperature: °C

Relative Humidity: % 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

RemarksRefer to 'Remarks when standards applied'.



2.2 Conducted Emissions at Telecommunication Ports

Test Date

Jul. 31, 2024

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, 08, 2024 |
| <input checked="" type="checkbox"/> | LISN | ENV216 | R & S | 101787 | 11, 08, 2024 |
| <input checked="" type="checkbox"/> | LISN | ESH2-Z5 | R & S | 100450 | 11, 08, 2024 |
| <input checked="" type="checkbox"/> | PULSE LIMITER | ESH3-Z2 | R & S | 101915 | 11, 08, 2024 |
| <input checked="" type="checkbox"/> | 8-WIRE ISN CAT3,5 | ENY81 | R & S | 100174 | 11, 09, 2024 |

Test Conditions

Temperature: (25,2 ± 0,0) °C

Relative Humidity: (50,2 ± 0,0) % R.H.

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

- PASS
 NOT PASS
 NOT APPLICABLE

RemarksSee Appendix A for test data.



2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Jul. 31, 2024

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 | 02, 13, 2025 |
| <input checked="" type="checkbox"/> | AMPLIFIER | SCU 01 | R & S | 100603 | 11, 08, 2024 |
| <input checked="" type="checkbox"/> | TRILOG-BROADBAND ANTENNA | VULB9163 | Schwarzbeck | 715 | 11, 17, 2024 |
| <input checked="" type="checkbox"/> | ATTENUATOR | 8491A | HP | 32173 | 02, 13, 2025 |

Test Conditions

Temperature: (24,1 ± 0,0) °C
Relative Humidity: (46,7 ± 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.



2.4 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Jul. 31, 2024

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 | 07, 29, 2025 |
| <input checked="" type="checkbox"/> | PREAMPLIFIER | 8449B | AGILENT | 3008A01967 | 03, 05, 2025 |
| <input checked="" type="checkbox"/> | ATTENUATOR | 8491A | HP | 35496 | 02, 13, 2025 |
| <input checked="" type="checkbox"/> | DOUBLE RIDGED HORN ANTENNA | SAS-571 | A.H.SYSTEM,INC | 781 | 03, 05, 2025 |

Test Conditions

Temperature: (24,6 ± 0,0) °C

Relative Humidity: (46,8 ± 0,0) % 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.



APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

HOT LINE





NEUTRAL LINE

N/A

◆ 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))

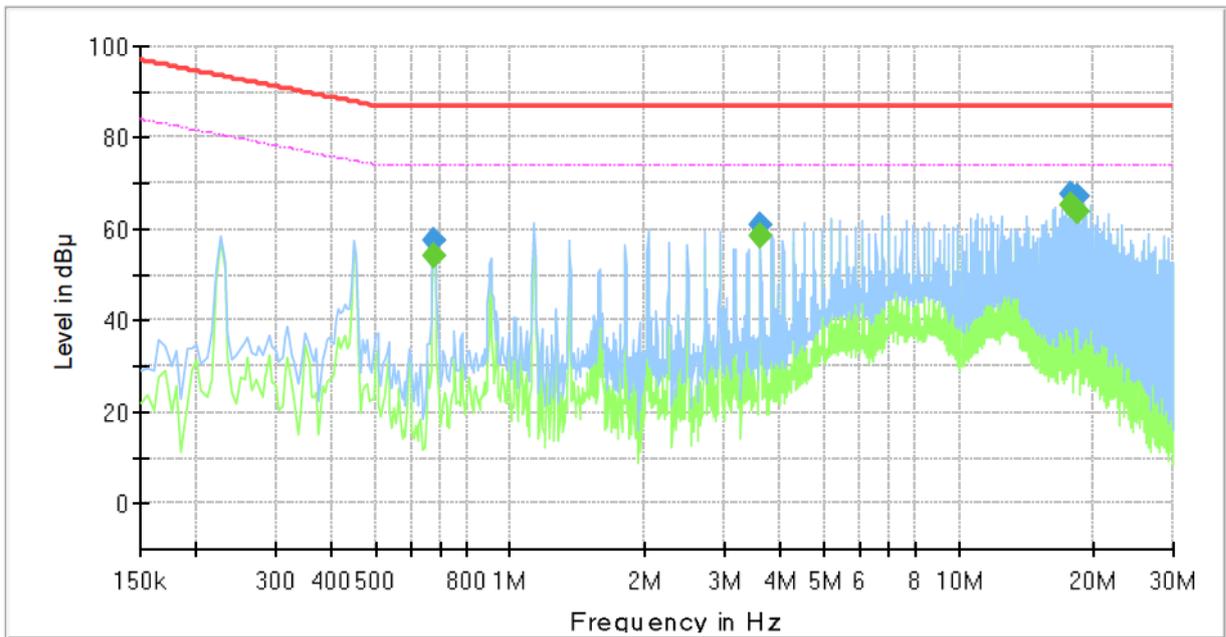


Conducted Emissions at Telecommunication Ports

[100 Mbps]

Common Information

| | |
|-------------------|----------------------------|
| Test Description: | Telecommunication Emission |
| Job No.: | KES-EM242538 |
| 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) |
|-----------------|------------------|-----------------|--------------|-------------|-----------------|-----------------|-------------|------------|
| 0.675000 | --- | 54.34 | 74.00 | 19.66 | 1000.0 | 9.000 | Single Line | 19.5 |
| 0.675000 | 57.53 | --- | 87.00 | 29.47 | 1000.0 | 9.000 | Single Line | 19.5 |
| 3.610000 | --- | 58.68 | 74.00 | 15.32 | 1000.0 | 9.000 | Single Line | 19.6 |
| 3.610000 | 60.79 | --- | 87.00 | 26.21 | 1000.0 | 9.000 | Single Line | 19.6 |
| 17.695000 | --- | 65.18 | 74.00 | 8.82 | 1000.0 | 9.000 | Single Line | 20.0 |
| 17.695000 | 67.75 | --- | 87.00 | 19.25 | 1000.0 | 9.000 | Single Line | 20.0 |
| 18.305000 | --- | 63.83 | 74.00 | 10.17 | 1000.0 | 9.000 | Single Line | 20.1 |
| 18.305000 | 66.96 | --- | 87.00 | 20.04 | 1000.0 | 9.000 | Single Line | 20.1 |

◆ Calculation

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

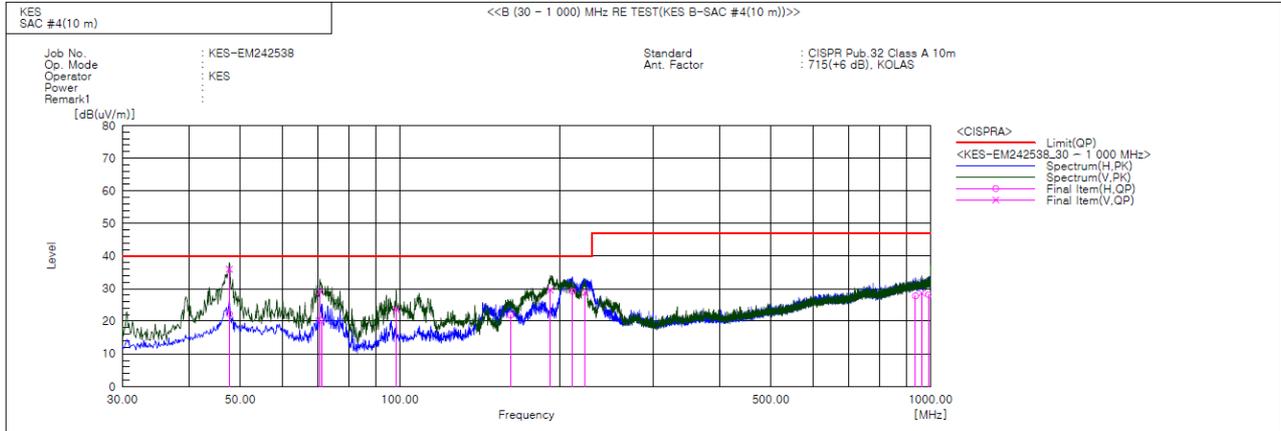
QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

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



Radiated Electric Field Emissions(Below 1 GHz)



Final Result

| No. | Frequency [MHz] | (P) | Reading QP [dB(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 | 47.703 | V | 57.2 | -21.2 | 36.0 | 40.0 | 4.0 | 114.0 | 259.0 | |
| 2 | 47.703 | H | 43.5 | -21.2 | 22.3 | 40.0 | 17.7 | 396.0 | 189.0 | |
| 3 | 70.740 | V | 54.2 | -25.2 | 29.0 | 40.0 | 11.0 | 168.0 | 270.0 | |
| 4 | 71.104 | H | 45.7 | -25.4 | 20.3 | 40.0 | 19.7 | 369.0 | 177.0 | |
| 5 | 98.385 | V | 46.0 | -22.4 | 23.6 | 40.0 | 16.4 | 115.0 | 273.0 | |
| 6 | 161.556 | H | 46.6 | -24.7 | 21.9 | 40.0 | 18.1 | 394.0 | 170.0 | |
| 7 | 191.990 | V | 51.3 | -21.7 | 29.6 | 40.0 | 10.4 | 131.0 | 69.0 | |
| 8 | 211.390 | H | 49.1 | -19.9 | 29.2 | 40.0 | 10.8 | 341.0 | 128.0 | |
| 9 | 223.394 | V | 48.1 | -19.3 | 28.8 | 40.0 | 11.2 | 107.0 | 150.0 | |
| 10 | 936.829 | H | 30.5 | -2.7 | 27.8 | 47.0 | 19.2 | 388.0 | 225.0 | |
| 11 | 961.685 | V | 31.1 | -2.5 | 28.6 | 47.0 | 18.4 | 140.0 | 244.0 | |
| 12 | 990.906 | H | 30.1 | -1.9 | 28.2 | 47.0 | 18.8 | 363.0 | 146.0 | |

◆ Calculation

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

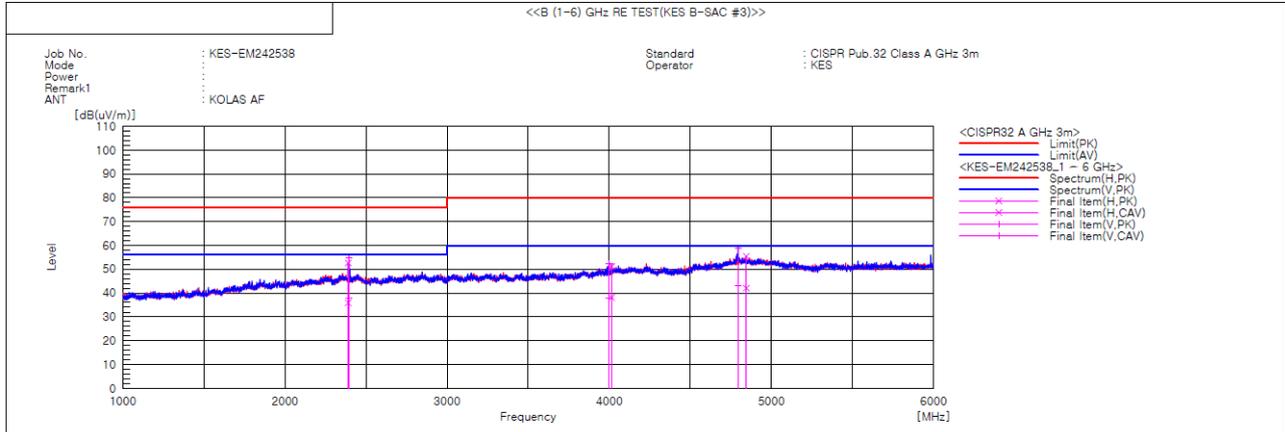
Margin(QP)[dB] = Limit[dB(μV/m)] - Result(QP) [dB(μV/m)]

Reading(QP) : Reading value, Result(QP) : Reading value + Factor value

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



Radiated Electric Field Emissions(Above 1 GHz)



Final Result

| No. | Frequency [MHz] | (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 | 2389.210 | H | 46.3 | 29.5 | 6.4 | 52.7 | 35.9 | 76.0 | 56.0 | 23.3 | 20.1 | 100.0 | 283.9 | |
| 2 | 2394.991 | V | 48.2 | 31.5 | 6.4 | 54.6 | 37.9 | 76.0 | 56.0 | 21.4 | 18.1 | 100.0 | 130.6 | |
| 3 | 3999.771 | V | 41.2 | 26.7 | 11.0 | 52.2 | 37.7 | 80.0 | 60.0 | 27.8 | 22.3 | 100.0 | 146.6 | |
| 4 | 4014.008 | H | 40.1 | 27.0 | 11.1 | 51.2 | 38.1 | 80.0 | 60.0 | 28.8 | 21.9 | 100.0 | 98.2 | |
| 5 | 4795.347 | V | 43.0 | 27.2 | 15.8 | 58.8 | 43.0 | 80.0 | 60.0 | 21.2 | 17.0 | 100.0 | 182.2 | |
| 6 | 4845.034 | H | 39.5 | 26.1 | 16.0 | 55.5 | 42.1 | 80.0 | 60.0 | 24.5 | 17.9 | 100.0 | 146.8 | |

◆ 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



Test Setup Photos and Configuration Conducted Emissions at Mains Power Ports

N/A



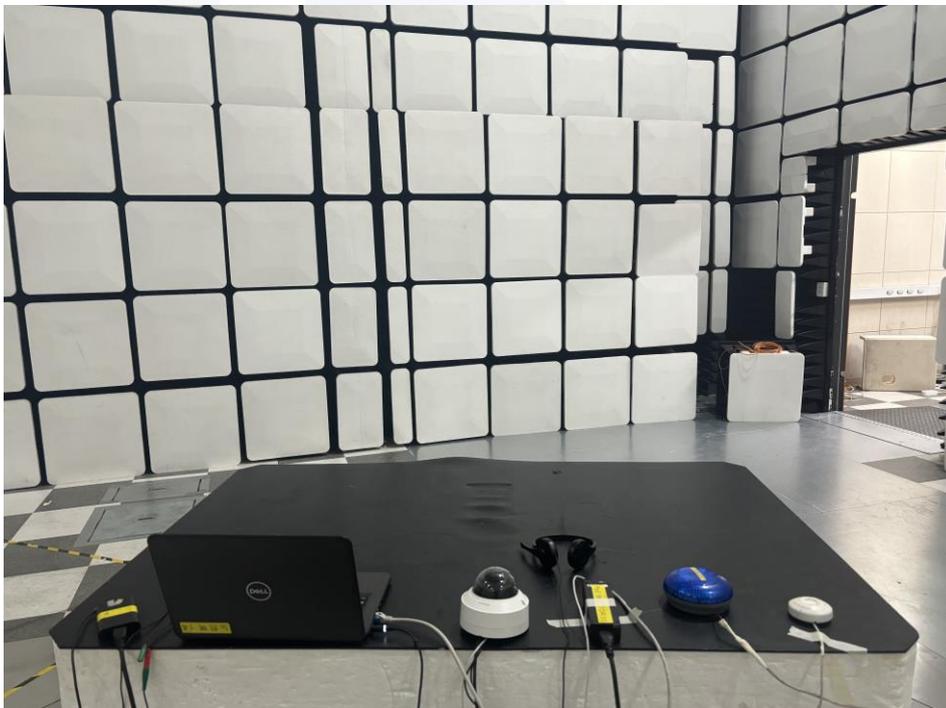
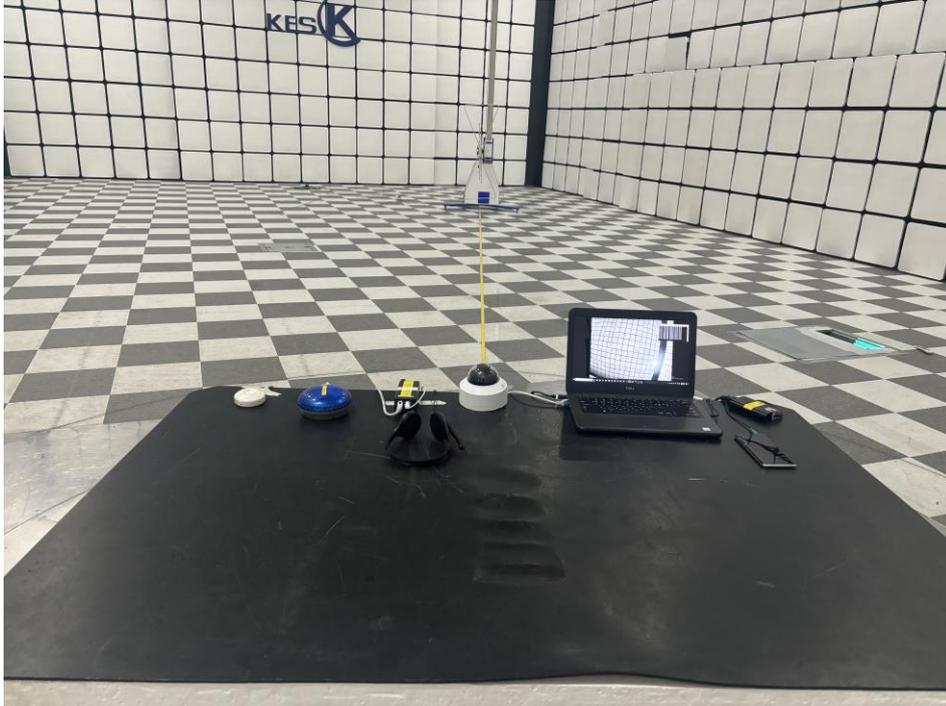


Conducted Emissions at Telecommunication Ports



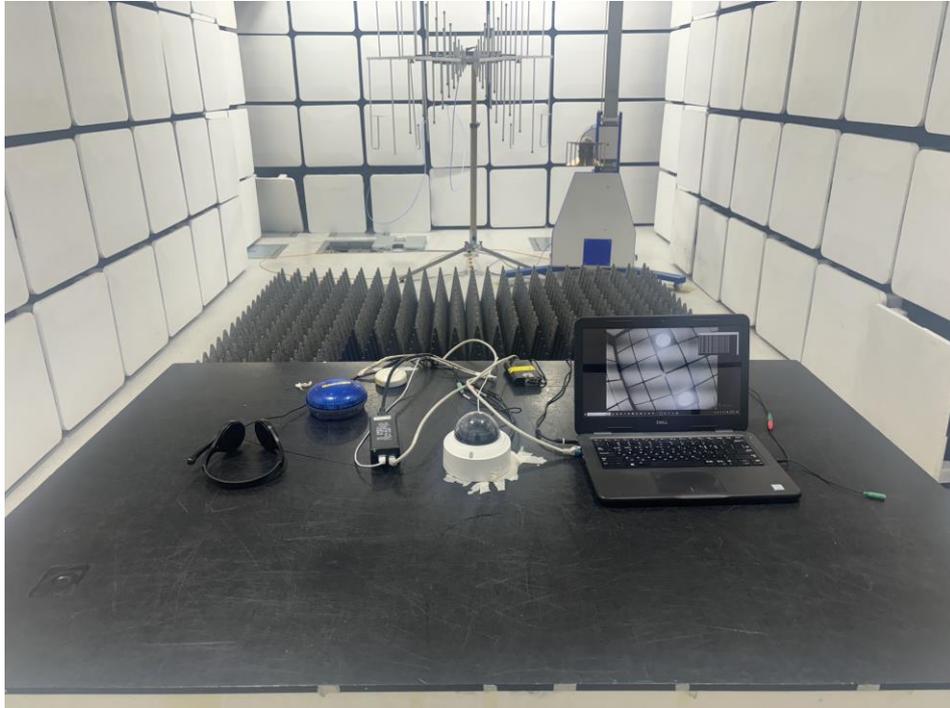


Radiated Electric Field Emissions(Below 1 GHz)





Radiated Electric Field Emissions(Above 1 GHz)





EUT External Photographs

(Top)



(Bottom)





EUT Internal Photographs

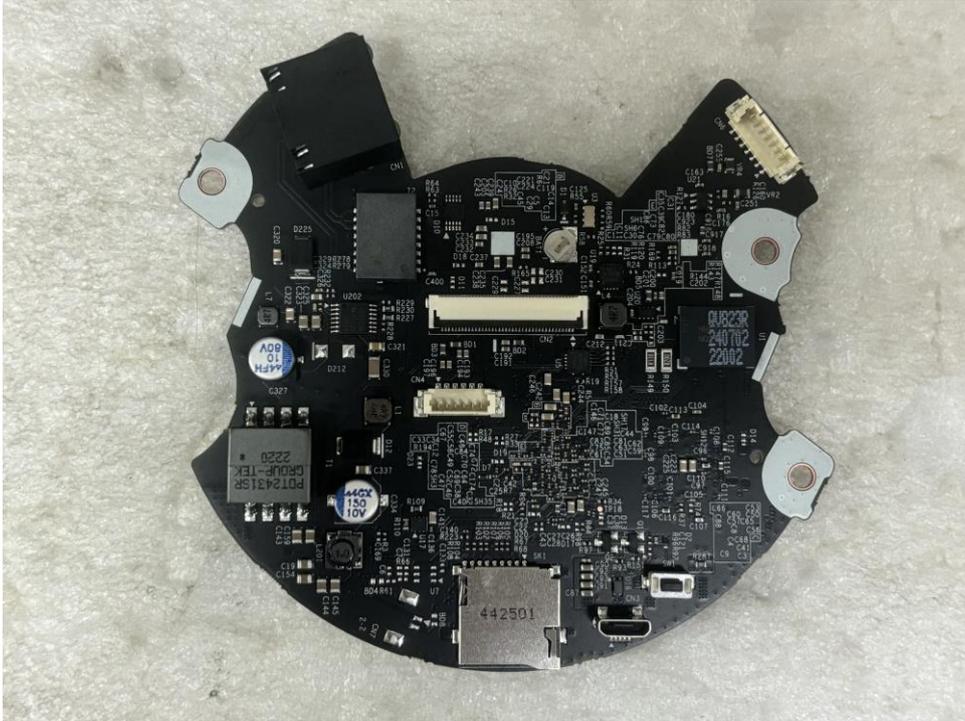
(Internal View)



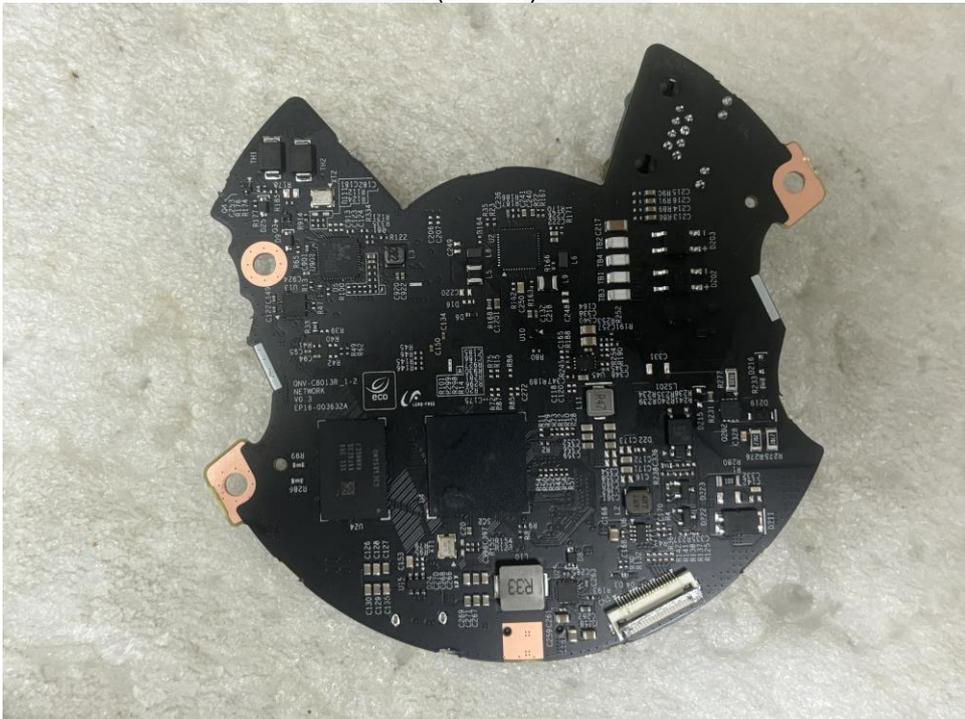


EUT Internal View – Board 1

(Top)



(Bottom)





EUT Internal View – Board 2

(Top)



(Bottom)





EUT Internal View – Board 3

(Top)



(Bottom)





EUT Internal View – Lens

(Top)



(Bottom)





Label Photographs



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