

**KES Co., Ltd.**

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Report No.:

KES-EM-23T0119

Page (1) of (61)

EMC TEST REPORT

Test Report No. : KES-EM-23T0119

Date of Issue : Feb. 14, 2023

Product name : NETWORK CAMERA

Model/Type No. : QNO-C9083R

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)

Date of Receipt : Jan. 17, 2023

Test date : Jan. 27, 2023 ~ Jan. 30, 2023

Test Results : ☒ In Compliance ☐ Not in Compliance

Tested by

Jae Won, Lee
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-23T0119
Page (2) of (61)

REPORT REVISION HISTORY

| Date | Test Report No. | Revision History |
|---------------|-----------------|------------------|
| Feb. 14, 2023 | KES-EM-23T0119 | Issued |
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TABLE OF CONTENTS

| | |
|---|----|
| 1.0 General Product Description | 4 |
| 1.1 Test Voltage & Frequency | 8 |
| 1.2 Variant Model Differences | 8 |
| 1.3 Device Modifications | 8 |
| 1.4 Equipment Under Test | 8 |
| 1.5 Support Equipments | 8 |
| 1.6 External I/O Cabling | 9 |
| 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 | 13 |
| 2.2 Conducted Emissions at Telecommunication Ports | 14 |
| 2.3 Radiated Electric Field Emissions(Below 1 GHz) | 15 |
| 2.4 Radiated Electric Field Emissions(Above 1 GHz) | 16 |
| 2.5 Harmonic Current Emissions | 17 |
| 2.6 Voltage Fluctuations and Flicker | 18 |
| 3.0 Criteria for compliance | 19 |
| 3.1 Electrostatic Discharge | 21 |
| 3.2 Radiated Electric Field Immunity | 24 |
| 3.3 Electrical Fast Transients/Bursts | 27 |
| 3.4 Surge Transients | 29 |
| 3.5 Conducted Disturbance | 32 |
| 3.6 Voltage Dips and Short Interruptions | 35 |
| APPENDIX A – TEST DATA | 37 |
| Conducted Emissions at Mains Power Ports | 37 |
| Conducted Emissions at Telecommunication Ports | 39 |
| Radiated Electric Field Emissions(Below 1 GHz) | 40 |
| Radiated Electric Field Emissions(Above 1 GHz) | 41 |
| Harmonic Current Emissions and Voltage Fluctuations and Flicker | 42 |
| Test Setup Photos and Configuration | 45 |
| Conducted Emissions at Mains Power Ports | 45 |
| Conducted Emissions at Telecommunication Ports | 46 |
| Radiated Electric Field Emissions(Below 1 GHz) | 47 |
| Radiated Electric Field Emissions(Above 1 GHz) | 48 |
| Harmonic Current Emissions and Voltage Fluctuations and Flicker | 49 |
| Electrostatic Discharge | 50 |
| Radiated Electric Field Immunity | 50 |
| Electrical Fast Transients/Bursts | 51 |
| Surge Transients | 52 |
| Conducted Disturbance | 52 |
| Voltage Dips and Short Interruptions | 53 |
| EUT External Photographs | 54 |
| EUT Internal Photographs | 55 |
| Label and Location | 61 |



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Report No.:
KES-EM-23T0119
Page (4) of (61)

1.0 General Product Description

Main Specifications of EUT are:

| | QNO-C9083R |
|-----------------------------|---|
| Video | |
| Imaging Device | 1/2.8" CMOS |
| Resolution | 3840x2160, 3328x1872, 3072x1728, 2592x1944, 2688x1520, 1920x1080, 1600x1200, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240 |
| Max. Framerate | H.265/H.264: Max. 30fps/25fps(60Hz/50Hz) MJPEG: Max. 5fps |
| NETD | None |
| Pixel Size | None |
| Min. Illumination | Color: 0.065Lux(F1.6, 1/30sec) BW: 0.0065Lux(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) | 3.2~10.2mm(3.1x) motorized varifocal |
| Max. Aperture Ratio | F1.6(Wide)~F3.1(Tele) |
| Angular Field of View | H : 104°(Wide)~31°(Tele) V : 55°(Wide)~17°(Tele) D : 124°(Wide)~35°(Tele) |
| Min. Object Distance | 1.2m (3.93ft) |
| Focus Control | Simple focus |
| Lens Type | DC auto iris(IR Corrected) |
| 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 | 120dB |
| Digital Noise Reduction | SSNR V, WiseNR II (Based on AI engine) |
| Digital Image Stabilization | None |
| Defog | None |

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Report No.:
KES-EM-23T0119
Page (5) of (61)

| | |
|---------------------------|--|
| Motion Detection | 8ea, 8point Polygonal zones |
| Privacy Masking | 32ea, rectangular zones |
| 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) |
| Digital PTZ | Support |
| Video Rotation | Flip, Mirror, Hallway view(90°/270°) |
| Analytics | <p>Classified object type: Person/Vehicle Attributes: Vehicle(Type:car/bus/truck/motorcycle/bicycle) 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)</p> <p>* Some of the video analytics only works with people and vehicle detection</p> |
| Business Intelligence | None |
| Serial Interface | None |
| Alarm I/O | Input 1ea / Output 1ea |
| Alarm Triggers | Analytics, Network disconnect, Alarm input |
| Alarm Events | <p>When alarm trigger occurred</p> <ul style="list-style-type: none">- 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)- Audio clip playback (TBD) |
| Audio Streaming | None |
| Audio In | Selectable(mic in/line in) |
| Audio Out | Supply voltage: 2.5VDC(4mA), Input impedance: 25K Ohm |
| IR Viewable Length | Line out, Max.output level: 0.5Vrms |
| IR Illuminator (Optional) | 30m(98.42ft) |
| IR Radiation angle | None |
| IR LED | None |
| IR Wavelength | 2ea |
| IR Operation | long-life 850 nm IR LED |
| Water Removal | None |
| Auto Tracking | None |
| Coaxial Protocol | None |
| Color Palettes | None |

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Report No.:
KES-EM-23T0119
Page (6) of (61)

| | |
|---|---|
| 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), WiseStream II |
| Video Quality Adjustment | H.264/H.265: Target bitrate level control MJPEG: Quality 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) |
| SIP support (VoIP, Peer-to-peer, SIP/PBX) | None |
| 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, pre-installed) Secure boot |
| Application Programming Interface | ONVIF Profile S/G/T/M SUNAPI(HTTP API) |
| General | |
| Webpage Language | English, Korean, 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 (TBD) |
| Memory | 2GB RAM, 1GB Flash |
| Environmental & Electrical | |
| Operating Temperature / Humidity | -30°C~+55°C(-22°F ~ +131°F) / 0~95% RH * Start up should be done at above -30°C |
| Storage Temperature / Humidity | -50°C ~ +60°C(-58°F ~ +140°F) / Less than 95% RH |
| Certification | IP66, IK10 |
| Input Voltage | PoE(IEEE802.3af, Class3) |

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Report No.:
KES-EM-23T0119
Page (7) of (61)

| | |
|---------------------------------------|--|
| Power Consumption | PoE: Max 12W, typical 5.3W |
| Mechanical | |
| Color / Material | White / Aluminum |
| RAL Code | RAL9003 |
| Product Dimensions / Weight | ø92.0x251.0mm(ø3.62x9.88"), 00g(0.00 lb) (TBD) |
| 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 |
| 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 |
| DORI (EN62676-4 standard) | |
| Detect (25PPM/ 8PPF) | Wide: 60.0m(196.86ft) / Tele: 276.9m(908.57ft) |
| Observe (63PPM/ 19PPF) | Wide: 24.2m(78.74ft) / Tele: 111.7m(363.43ft) |
| Recognize (125PPM/ 38PPF) | Wide: 12.0m(39.37ft) / Tele: 55.4m(181.71ft) |
| Identify (250PPM/ 76PPF) | Wide: 6.0m(19.69ft) / Tele: 27.7m(90.86ft) |

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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 230 V, 50 Hz (PoE)

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 | QNO-C9083R | - | HANWHA VISION VIETNAM CO MPANY LIMITED | EUT |

1.5 Support Equipments

| Description | Model Number | Serial Number | Manufacturer | Remarks |
|------------------|------------------|---------------|--|---------|
| PoE Adaptor | PT-PSE109GBRO-AH | - | Dongguan PROCET Network Technology Co.,Ltd | - |
| Notebook | P95G001 | 9JM8HT2 | DELL INC. | - |
| Notebook Adaptor | LA65NS2-01 | - | LITE-ON TECHNOLOGY(CHANGZ HOU)CO.,LTD. | - |
| Button Alarm | - | - | - | - |
| Alarm | - | - | - | - |
| Smartphone | - | - | SAMSUNG | - |
| Headset | K550 | - | Britz® | - |
| Micro SD Card | - | - | Sandisk | 8 GB |

1.6 External I/O Cabling

| Start | | END | | Cable Spec. | |
|----------------------|-------------|------------------|-------------|-------------|--------|
| Description | I/O Port | Description | I/O Port | Length | Shield |
| NETWORK CAMERA (EUT) | RJ-45 (PoE) | PoE Adaptor | RJ-45 (PoE) | 3.0 | U |
| | Slot | Micro SD Card | Slot | - | - |
| | Alarm OUT | Alarm | Alarm IN | 3.0 | U |
| | Alarm IN | Button Alarm | Alarm OUT | 3.0 | U |
| | Audio IN | Headset | Audio OUT | 1.7 | U |
| | Audio OUT | | Audio IN | 1.7 | U |
| Notebook | RJ-45 (LAN) | PoE Adaptor | RJ-45 (LAN) | 3.5 | U |
| | 3.5 mm | Smartphone | 3.5 mm | 0.8 | U |
| | JACK | Notebook Adaptor | JACK | 1.7 | U |

* Unshielded=U, Shielded=S

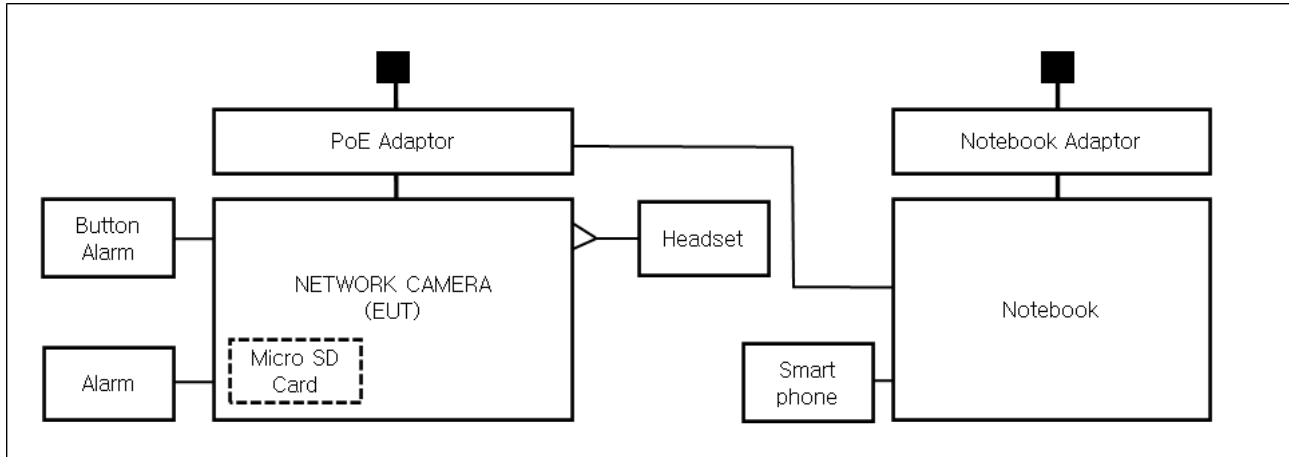
1.7 EUT Operating Mode(s)

| Test Mode | operating |
|-----------|--|
| Operater | 1. Check the camera video output on the laptop 2. Check if the network status is operating normally during PING TEST 3. Check the output of the 1 kHz tone output from the smartphone and the microphone input from the headset 4. Press the alarm button to check the normal operation of the button alarm. 5. Checked the files stored in the Micro SD Card after testing. |

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

1.8 Configuration

■ AC Main
 □ DC Main



1.9 Remarks when standards applied

- PoE port is considered to be wired network port, so power-related test items are excluded.
- USB port are not used and have not been tested.







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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2.0 Test Regulations

The emissions tests were performed according to following regulations:

☒ **EMC – Directive 2014/30/EU**

☒ EN 55032:2015/A11:2020

☒ Class A

☐ Class B

☒ EN 50130-4:2011

☒ **EMC – Regulations 2016**

☒ EN 55032:2015/A11:2020

☒ Class A

☐ Class B

☒ EN 50130-4:2011

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

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

Remarks

PoE port is considered to be wired network port, so power-related test items are excluded.

2.2 Conducted Emissions at Telecommunication Ports

Test Date

Jan. 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 |
| <input checked="" type="checkbox"/> | 8-WIRE ISN CAT3,5 | ENY81 | R & S | 100174 | 11, 22, 2023 |
| <input type="checkbox"/> | 8-WIRE ISN CAT6 | ENY81-CAT6 | R & S | 101665 | 11, 22, 2023 |
| <input type="checkbox"/> | CDN | CDNS502A | TESEQ | 40431 | 11, 10, 2023 |

Test Conditions

Temperature: (22,3 ± 0,1) °C

Relative Humidity: (45,4 ± 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.- For Ethernet interfaces, measurements are required at the highest data rate supported by the interface.

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2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Jan. 27, 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, 31, 2023 |
| <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, 08, 2023 |

Test Conditions

Temperature: (22,0 ± 0,1) °C

Relative Humidity: (45,7 ± 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

Jan. 27, 2023

Test Location

SEMI ANECHOIC CHAMBER #3

Test Equipment

| Used | Description | Model Number | Manufacturer | Serial Number | Cal. Due |
|-------------------------------------|----------------------------|--------------|------------------|---------------|--------------|
| <input checked="" type="checkbox"/> | EMI Test S/W | EP5/RE | TOYO Corporation | 6.0.0 | - |
| <input checked="" type="checkbox"/> | EMI TEST RECEIVER | ESR7 | R & S | 101190 | 08, 01, 2023 |
| <input checked="" type="checkbox"/> | PREAMPLIFIER | 8449B | AGILENT | 3008A01967 | 04, 01, 2023 |
| <input checked="" type="checkbox"/> | ATTENUATOR | 8491A | HP | 35496 | 03, 08, 2023 |
| <input checked="" type="checkbox"/> | DOUBLE RIDGED HORN ANTENNA | SAS-571 | A.H.SYSTEM,INC | 781 | 03, 03, 2023 |

Test Conditions

Temperature: (22,2 ± 0,1) °C

Relative Humidity: (44,7 ± 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.

2.5 Harmonic Current Emissions

Test Date

N/A

Test Location

Electro wave Shieldroom #3

Test Equipment

| Used | Description | Model Number | Manufacturer | Serial Number | Cal. Due |
|--------------------------|------------------------|--------------|--------------|---------------|--------------|
| <input type="checkbox"/> | EMI Test S/W | net.control | EM TEST | 2.1.4 | - |
| <input type="checkbox"/> | DIGITAL POWER ANALYZER | DPA 500N | EM TEST | V1024106759 | 04, 06, 2023 |
| <input type="checkbox"/> | POWER SOURCE | ACS 500N6 | EM TEST | V1024106760 | - |

Test Conditions

Temperature:

°C

Relative Humidity:

% R.H.

Classification of Equipment for Harmonic Current Emissions

- ☐ Class A
- ☐ Class B
- ☐ Class C(Below 25 W)
- ☐ Class C(Above 25 W)
- ☐ Class D

Test Results

The requirements are:

- ☐ PASS
- ☐ NOT PASS
- ☒ NOT APPLICABLE

Remarks

PoE port is considered to be wired network port, so power-related test items are excluded.



2.6 Voltage Fluctuations and Flicker

Test Date

N/A

Test Location

Electro wave Shieldroom #3

Test Equipment

| Used | Description | Model Number | Manufacturer | Serial Number | Cal. Due |
|--------------------------|------------------------|--------------|--------------|---------------|--------------|
| <input type="checkbox"/> | EMI Test S/W | net.control | EM TEST | 2.1.4 | - |
| <input type="checkbox"/> | DIGITAL POWER ANALYZER | DPA 500N | EM TEST | V1024106759 | 04, 06, 2023 |
| <input type="checkbox"/> | POWER SOURCE | ACS 500N6 | EM TEST | V1024106760 | - |

Test Conditions

Temperature:

°C

Relative Humidity:

% R.H.

Test Results

The requirements are:

- ☐ PASS
☐ NOT PASS
☒ NOT APPLICABLE

Remarks

PoE port is considered to be wired network port, so power-related test items are excluded.

3.0 Criteria for compliance

Criteria for compliance was based on the following guidelines:

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

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

If as a result of the application of the tests defined in this standard, the apparatus becomes dangerous or unsafe then the apparatus shall be deemed to have failed the test.

A functional description and a definition of performance by the manufacture and noted in the test

report, based on the following criteria:

Electrostatic discharge

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

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

Radiated electromagnetic fields

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

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

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

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

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

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

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

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

Fast transient burst / slow high energy voltage surge

There shall be no damage, malfunction or change of status due to the conditioning.
Flickering of an indicator during the application of discharge is permissible, providing
That there is no residual is permissible, providing that there is no residual change in the EUT or
any
change in outputs, which could be interpreted by associated equipment as a change.

Conducted RF immunity

There shall be no damage, malfunction or change of status due to the conditioning.
Flickering of an indicator during the application of discharge is permissible, providing
That there is no residual is permissible, providing that there is no residual change in the EUT or
any
change in outputs, which could be interpreted by associated equipment as a change,
and no such flickering of indicators oeuvres at $U = 130 \text{ dB}\mu\text{V}$.
For component of CCTV systems, where the status is monitored by observing the TV picture,
then deterioration of the picture is allowed at $U = 140 \text{ dB}\mu\text{V}$, providing:
(a) there is no permanent damage or change to the EUT
(e.g. no corruption of memory or changes to programmable settings etc.)
(b) at $U = 130 \text{ dB}\mu\text{V}$, any deterioration of the picture is so minor that the system could
still be used; and
(c) there in no observable deterioration of the picture at $U = 120 \text{ dB}\mu\text{V}$.

Voltage dip/interruption / Voltage variation

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

3.1 Electrostatic Discharge

Reference Standard

EN 61000-4-2: 2009

Test Date

Jan. 28, 2023

Test Location

EMS-ESD: Electro wave Shieldroom #3

Test Equipment

| Used | Description | Model Number | Manufacturer | Serial Number | Cal. Due |
|-------------------------------------|---------------|--------------|--------------|---------------|--------------|
| <input checked="" type="checkbox"/> | ESD SIMULATOR | ESS-2000 | Noise Ken | ESS05X4620 | 03, 10, 2023 |
| <input checked="" type="checkbox"/> | HCP | - | KES | - | - |
| <input checked="" type="checkbox"/> | VCP | - | Noise Ken | - | - |

Test Conditions

Temperature: (22,2 ± 0,1) °C
Relative Humidity: (46,3 ± 0,1) % R.H.
Atmospheric Pressure: (100,8 ± 0,0) kPa

Test Specifications

Discharge Factor: ≥ 1 s

Discharge Impedance: 330 ohm / 150 pF

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

Polarity: Positive and Negative

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

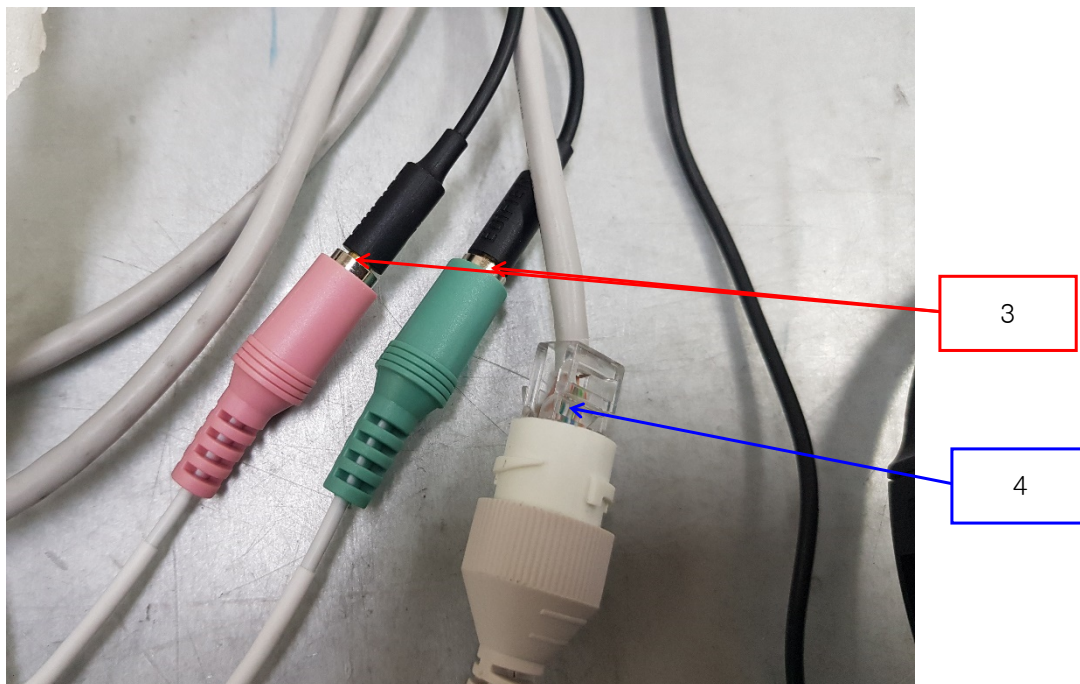
| | | | | |
|--------------------|--|--|--|--|
| Discharge Voltage: | Contact | Air | HCP | VCP |
| | <input type="checkbox"/> 2 kV | <input checked="" type="checkbox"/> 2 kV | <input type="checkbox"/> 2 kV | <input type="checkbox"/> 2 kV |
| | <input type="checkbox"/> 4 kV | <input checked="" type="checkbox"/>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

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

Required Performance Criteria: ☒ Complied

Location of Discharge:

| |
|---------|
| Air |
| Contact |



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Report No.:
KES-EM-23T0119
Page (23) of (61)

Test Data

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

Direct Discharge

| No. | Test Point | Discharge Method | Observations | Remarks |
|-----|-----------------------------|-------------------|--------------|---------|
| 1 | Enclosure | Contact Discharge | Complied | - |
| 2 | Camera Lens | Air Discharge | Complied | - |
| 3 | Audio Port | Contact Discharge | Complied | - |
| 4 | Around the RJ-45 (PoE) Port | Air Discharge | Complied | - |

Note: "Blank" = Not performed

Observations:

Complied – No degradation of function

Test Results

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

Remarks

PASS Required Performance Criteria

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3.2 Radiated Electric Field Immunity

Reference Standard

EN IEC 61000-4-3:2020

Test Date

Jan. 27, 2023

Test Location

EMS-RS: ☐ SEMI ANECHOIC CHAMBER #2 ☒ SEMI ANECHOIC CHAMBER #3

Test Equipment

| Used | Description | Model Number | Manufacturer | Serial Number | Cal. Due |
|-------------------------------------|---------------------------------|--------------|-----------------|---------------|--------------|
| <input checked="" type="checkbox"/> | EMS Test S/W | EMC32 | R & S | 10.10.02 | - |
| <input checked="" type="checkbox"/> | SIGNAL GENERATOR | SMB 100A | Rohde & Schwarz | 108252 | 08, 01, 2023 |
| <input checked="" type="checkbox"/> | HIGH POWER DUAL AMP | SSA532 | SUNGSAN | SSA532-001 | - |
| <input checked="" type="checkbox"/> | POWER METER | E4419B | Agilent | GB40203000 | 03, 31, 2023 |
| <input checked="" type="checkbox"/> | AVERAGE POWER SENSOR | E9301A | Agilent | MY52170007 | 04, 04, 2023 |
| <input checked="" type="checkbox"/> | AVERAGE POWER SENSOR | E9301A | Agilent | MY41498669 | 04, 04, 2023 |
| <input checked="" type="checkbox"/> | STACKED DOUBLE LOG-PER- ANTENNA | STPL9128 E | Schwarzbeck | 9128ES-121 | - |
| <input checked="" type="checkbox"/> | DOUBLE RIDGED HORN ANTENNA | SAS-571 | A.H.SYSTEM, INC | 781 | 03, 03, 2023 |

Test Conditions

Temperature: (22,2 ± 0,6) °C
Relative Humidity: (44,7 ± 0,6) % R.H.
Atmospheric Pressure: (100,8 ± 0,0) kPa



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Report No.:
KES-EM-23T0119
Page (25) of (61)

Test Specifications

Antenna Polarization: Horizontal & vertical unless indicated otherwise

Antenna Distance: ☒ 3 m

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

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

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

Frequency step: ☒ 1 % step

Dwell Time: ☐ 1 s ☒ 3 s

of Sides Radiated: ☒ 4

Required Performance Criteria: ☒ Complied

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Report No.:
KES-EM-23T0119
Page (26) of (61)

Test Data

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

Note: "Blank" = Not performed

Observations:

Complied – No degradation of function

Test Results

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

Remarks

PASS Required Performance Criteria

3.3 Electrical Fast Transients/Bursts

Reference Standard

EN 61000-4-4:2012

Test Date

Jan. 28, 2023

Test Location

EMS-EFT: Electro wave Shieldroom #7

Test Equipment

| Used | Description | Model Number | Manufacturer | Serial Number | Cal. Due |
|-------------------------------------|---------------------------|--------------|--------------|---------------|--------------|
| <input checked="" type="checkbox"/> | EMS Test S/W | iec.control | EM TEST | 5.4.8 | - |
| <input checked="" type="checkbox"/> | ULTRA COMPACT SIMULATOR | UCS 500N7 | EM TEST | P1608172950 | 11, 28, 2023 |
| <input checked="" type="checkbox"/> | MOTOR VARIAC | MV2616 | EM TEST | P1552169719 | 11, 29, 2023 |
| <input checked="" type="checkbox"/> | CAPACITIVE COUPLING CLAMP | HFK | EM TEST | P1633183115 | 11, 28, 2023 |

Test Conditions

Temperature: (22,2 ± 0,1) °C
Relative Humidity: (46,3 ± 0,1) % R.H.
Atmospheric Pressure: (100,8 ± 0,0) kPa

Test Specifications

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

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

Burst Period: ☒ 300 ms ☐ 2 s

Repetition Rate: ☐ 5 kHz ☒ 100 kHz

Duration of Test Voltage: ☒ ≥ 1 min

Required Performance Criteria: ☒ Complied

Test Data

☐ Input a.c. power ports – Coupling/Decoupling Network used

| Mode of Application | Observations | |
|---------------------|----------------|----------------|
| | (+) Burst (kV) | (-) Burst (kV) |
| L | - | - |
| N | - | - |
| PE | - | - |
| L – N | - | - |
| L – PE | - | - |
| N – PE | - | - |
| L – N – PE | - | - |

☐ Input d.c. power ports – Coupling/Decoupling Network used

| Mode of Application | Observations | |
|---------------------|----------------|----------------|
| | (+) Burst (kV) | (-) Burst (kV) |
| - | - | - |

| Mode of Application | Observations | |
|---------------------|----------------|----------------|
| | (+) Burst (kV) | (-) Burst (kV) |
| RJ-45 (PoE) | Complied | Complied |
| Alarm OUT | Complied | Complied |
| Alarm IN | Complied | Complied |

☒ Signal ports and telecommunication ports – Coupling Clamp used

Note: "Blank" = Not performed

Observations:

Complied – No degradation of function

Test Results

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

Remarks

PASS Required Performance Criteria

3.4 Surge Transients

Reference Standard

EN 61000-4-5:2014/A1:2017

Test Date

Jan. 28, 2023

Test Location

EMS-Surge: Electro wave Shieldroom #7

Test Equipment

| Used | Description | Model Number | Manufacturer | Serial Number | Cal. Due |
|-------------------------------------|-------------------------|--------------|--------------|---------------|--------------|
| <input checked="" type="checkbox"/> | EMS Test S/W | iec.control | EM TEST | 5.4.8 | - |
| <input checked="" type="checkbox"/> | ULTRA COMPACT SIMULATOR | UCS 500N7 | EM TEST | P1608172950 | 11, 28, 2023 |
| <input checked="" type="checkbox"/> | MOTOR VARIAC | MV2616 | EM TEST | P1552169719 | 11, 29, 2023 |
| <input checked="" type="checkbox"/> | CDN | CNV 508N1 | EM TEST | P1610176296 | 11, 29, 2023 |

Test Conditions

Temperature: (22,2 ± 0,6) °C
Relative Humidity: (46,3 ± 0,6) % R.H.
Atmospheric Pressure: (100,8 ± 0,0) kPa



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Report No.:
KES-EM-23T0119
Page (30) of (61)

Test Specifications

AC Power Lines

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

Surge Amplitude :

Common Mode

☐ (0,5 / 1,0 / 2,0) kV

Differential Mode

☐ (0,5 / 1,0) kV

Number of Surges:

☐ 5 surges per angle

Angle:

☐ 0°, 90°, 180°, 270° (input a.c. power port)

Polarity:

☐ Positive & Negative

Repetition Rate:

☐ 1 surge per min ☐ 1 surge per 30 sec.

Required Performance Criteria: ☐ Complied

Other supply / Signal Lines

Source Impedance:

42 ohm for common Mode

Surge Amplitude:

Common Mode

☒ (0,5 / 1,0) kV

Number of Surges:

☒ 5 Surges

Polarity:

☒ Positive & Negative

Repetition Rate:

☒ 1 surge per min ☐ 1 surge per 30 sec.

Required Performance Criteria: ☒ Complied

Test Data

☐ Line to Line – Differential Mode

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

☐ Line to Earth – Common Mode

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

Signal Lines

☒ Line to Earth – Common Mode

| Mode of Application | Coupling Method | Observations | |
|---------------------|-----------------|----------------|----------------|
| | | (+) Surge (kV) | (-) Surge (kV) |
| RJ-45 (PoE) | CDN | Complied | Complied |
| | LINE | Complied | Complied |

Note: "Blank" = Not performed

Observations:

Complied – No degradation of function

Test Results

☒ PASS Required Performance Criteria

☐ NOT PASS Required Performance Criteria

Remarks

PASS Required Performance Criteria

3.5 Conducted Disturbance

Reference Standard

EN 61000-4-6:2014

Test Date

Jan. 30, 2023

Test Location

EMS-CS: Electro wave Shieldroom #6

Test Equipment

| Used | Description | Model Number | Manufacturer | Serial Number | Cal. Due |
|-------------------------------------|---------------------------|--------------|--------------|---------------|--------------|
| <input checked="" type="checkbox"/> | EMS Test S/W | icd.control | EM TEST | 5.3.12 | - |
| <input checked="" type="checkbox"/> | CONTINUOUS WAVE SIMULATOR | CWS 500N1.4 | EM TEST | P1602169880 | 11, 10, 2023 |
| <input checked="" type="checkbox"/> | ATTENUATOR | ATT 6/80 | EM TEST | P1614178148 | 11, 10, 2023 |
| <input checked="" type="checkbox"/> | CDN | CDN M016 | TESEQ | 43694 | 11, 10, 2023 |
| <input checked="" type="checkbox"/> | CDN | CDN M016 | TESEQ | 43697 | 11, 10, 2023 |
| <input checked="" type="checkbox"/> | CDN | CDN T8RJ45 | EM TEST | 0909-09 | 08, 01, 2023 |
| <input checked="" type="checkbox"/> | EM CLAMP | KEMZ 801A | TESEQ | 44099 | 11, 14, 2023 |

Test Conditions

Temperature: (22,3 ± 0,6) °C
Relative Humidity: (45,4 ± 0,6) % R.H.
Atmospheric Pressure: (100,8 ± 0,0) kPa



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Report No.:
KES-EM-23T0119
Page (33) of (61)

Test Specifications

Frequency range: ☒ 150 kHz to 100 MHz ☐ 150 kHz to 80 MHz

Voltage Level: ☐ 1 Vrms ☐ 3 Vrms
☒ 10 Vrms

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

Frequency step: ☒ 1 % step

Dwell Time: ☐ 1 s ☒ 3 s

Required Performance Criteria: ☒ Complied

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Test Data☐ Input a.c. power ports

| Coupling Location (Line Stressed) | Coupling Method | Observations |
|--------------------------------------|-----------------|--------------|
| - | - | - |

☐ Input d.c. power ports

| Coupling Location (Line Stressed) | Coupling Method | Observations |
|--------------------------------------|-----------------|--------------|
| - | - | - |

☒ Signal ports and telecommunication ports

| Coupling Location (Line Stressed) | Coupling Method | Observations |
|--------------------------------------|-----------------|--------------|
| RJ-45 (PoE) | CDN | Complied |
| Alarm OUT | Clamp | Complied |
| Alarm IN | Clamp | Complied |

Notes: CDN = Coupling Decoupling Network
"blank" = Not performed

Observations:

Complied – No degradation of function

Test Results

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

RemarksPASS Required Performance Criteria

3.6 Voltage Dips and Short Interruptions

Reference Standard

EN IEC 61000-4-11:2020

Test Date

N/A

Test Location

EMS-Voltage dip: Electro wave Shieldroom #7

Test Equipment

| Used | Description | Model Number | Manufacturer | Serial Number | Cal. Due |
|--------------------------|-------------------------|--------------|--------------|---------------|--------------|
| <input type="checkbox"/> | EMS Test S/W | iec.control | EM TEST | 5.4.8 | - |
| <input type="checkbox"/> | ULTRA COMPACT SIMULATOR | UCS 500N7 | EM TEST | P1608172950 | 11, 29, 2023 |
| <input type="checkbox"/> | MOTOR VARIAC | MV2616 | EM TEST | P1552169719 | 11, 29, 2023 |

Test Conditions

Temperature:

°C

Relative Humidity:

% R.H.

Atmospheric Pressure:

kPa

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Report No.:
KES-EM-23T0119
Page (36) of (61)

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

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

- Voltage variations

| | | |
|--------------------------------------|---------------------------------------|------------|
| <input type="checkbox"/> Unom + 10 % | <input type="checkbox"/> 253.0 V (ac) | <u>N/A</u> |
| <input type="checkbox"/> Unom - 15 % | <input type="checkbox"/> 195.5 V (ac) | <u>N/A</u> |

Observations:

Complied – No degradation of function

Degradation - See "Remarks "

Test Results

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

Remarks

PoE port is considered to be wired network port, so power-related test items are excluded.



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Page (37) of (61)

APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

[HOT]

N/A

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Report No.:
KES-EM-23T0119
Page (38) of (61)

[NEUTRAL]

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))

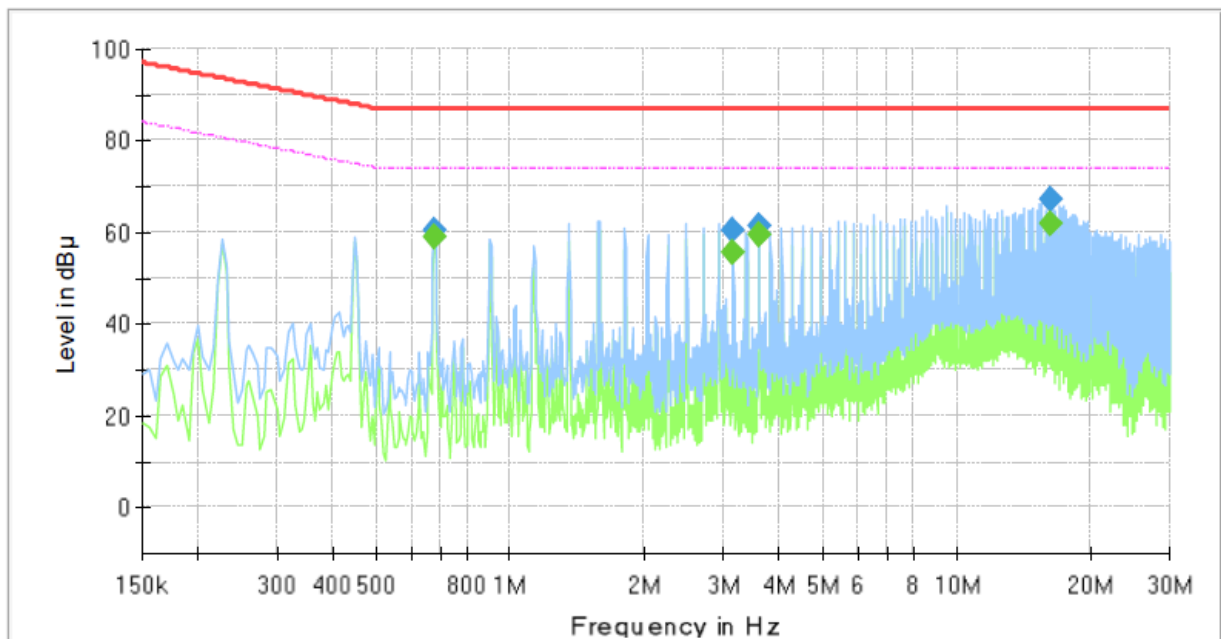
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Conducted Emissions at Telecommunication Ports

[100 Mbps]

Common Information

Test Description: Telecommunication Emission
 Model No.: QNO-C9083R
 Mode : TEL 100 Mbps
 Speed :
 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 | --- | 59.13 | 74.00 | 14.87 | 1000.0 | 9.000 | Single Line | 19.9 |
| 0.675000 | 60.48 | --- | 87.00 | 26.52 | 1000.0 | 9.000 | Single Line | 19.9 |
| 3.155000 | --- | 55.70 | 74.00 | 18.30 | 1000.0 | 9.000 | Single Line | 19.9 |
| 3.155000 | 60.59 | --- | 87.00 | 26.41 | 1000.0 | 9.000 | Single Line | 19.9 |
| 3.605000 | --- | 59.67 | 74.00 | 14.33 | 1000.0 | 9.000 | Single Line | 19.8 |
| 3.605000 | 61.62 | --- | 87.00 | 25.38 | 1000.0 | 9.000 | Single Line | 19.8 |
| 16.225000 | --- | 61.70 | 74.00 | 12.30 | 1000.0 | 9.000 | Single Line | 19.7 |
| 16.225000 | 66.96 | --- | 87.00 | 20.04 | 1000.0 | 9.000 | Single Line | 19.7 |

◆ Calculation

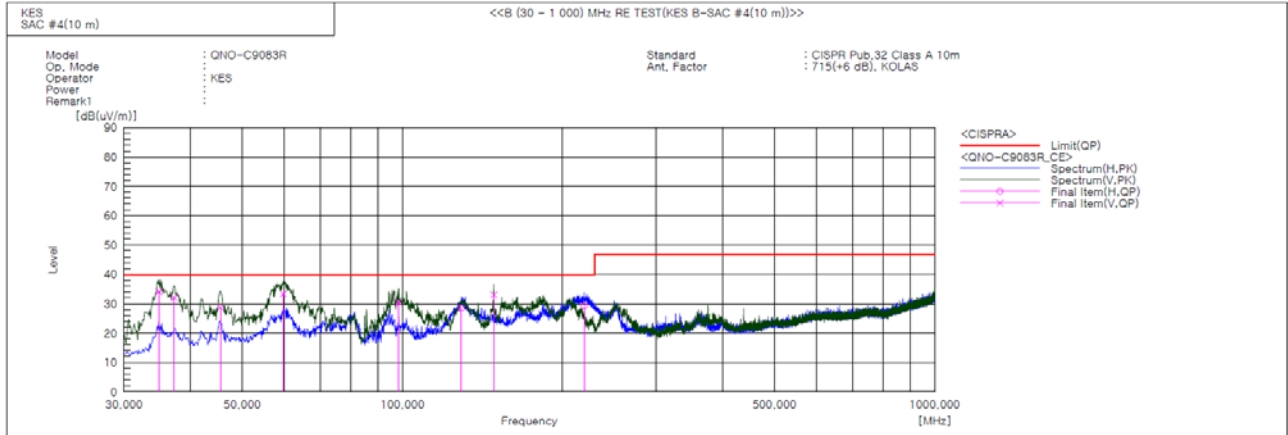
QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]

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 | 34.850 | V | 58.5 | -24.3 | 34.2 | 40.0 | 5.8 | 142.0 | 72.0 | |
| 2 | 37.275 | V | 55.5 | -23.4 | 32.1 | 40.0 | 7.9 | 111.0 | 68.0 | |
| 3 | 45.520 | V | 49.6 | -20.8 | 28.8 | 40.0 | 11.2 | 100.0 | 90.0 | |
| 4 | 59.706 | V | 54.9 | -21.5 | 33.4 | 40.0 | 6.6 | 107.0 | 139.0 | |
| 5 | 98.385 | V | 52.5 | -22.1 | 30.4 | 40.0 | 9.6 | 115.0 | 300.0 | |
| 6 | 129.061 | H | 53.2 | -24.7 | 28.5 | 40.0 | 11.5 | 395.0 | 345.0 | |
| 7 | 148.461 | V | 58.0 | -24.9 | 33.1 | 40.0 | 6.9 | 115.0 | 16.0 | |
| 8 | 219.514 | H | 48.9 | -19.6 | 29.3 | 40.0 | 10.7 | 389.0 | 42.0 | |

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

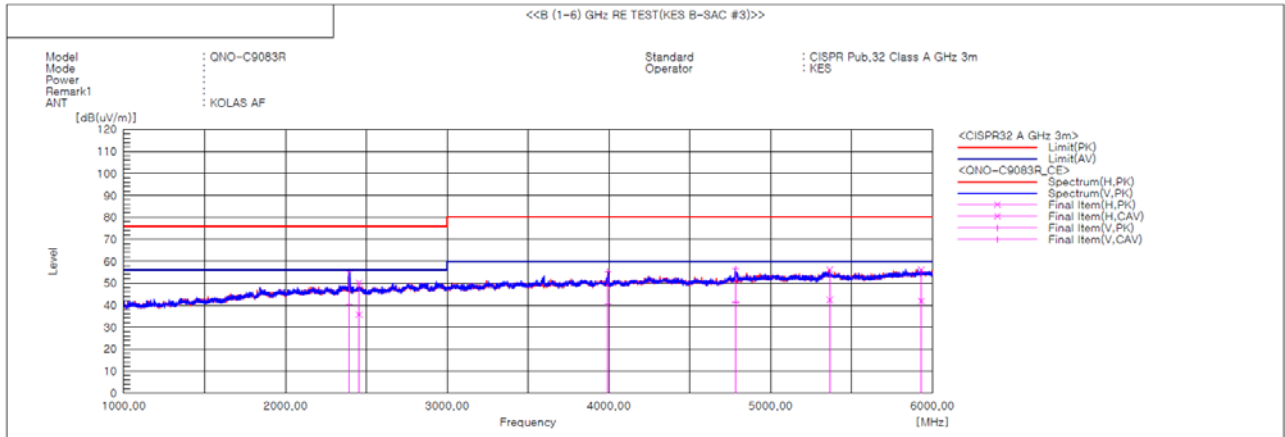
Result(QP) [dB(μV/m)] = (Reading(QP)[dB(μV)] + c.f[dB(1/m)])

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

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

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

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 | 2394.534 | V | 49.2 | 34.0 | 6.3 | 55.5 | 40.3 | 76.0 | 56.0 | 20.5 | 15.7 | 100.0 | 138.0 | |
| 2 | 2454.011 | H | 43.9 | 29.4 | 6.3 | 50.2 | 35.7 | 76.0 | 56.0 | 25.8 | 20.3 | 100.0 | 251.9 | |
| 3 | 3994.756 | V | 44.5 | 29.7 | 10.8 | 55.3 | 40.5 | 80.0 | 60.0 | 24.7 | 19.5 | 100.0 | 16.1 | |
| 4 | 4782.867 | V | 43.5 | 28.3 | 13.0 | 56.5 | 41.3 | 80.0 | 60.0 | 23.5 | 18.7 | 100.0 | 8.7 | |
| 5 | 5365.986 | H | 41.2 | 27.4 | 15.0 | 56.2 | 42.4 | 80.0 | 60.0 | 23.8 | 17.6 | 100.0 | 210.7 | |
| 6 | 5930.755 | H | 40.0 | 25.7 | 16.2 | 56.2 | 41.9 | 80.0 | 60.0 | 23.8 | 18.1 | 100.0 | 275.8 | |

◆ Calculation

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

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

**KES Co., Ltd.**

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Report No.:

KES-EM-23T0119

Page (44) of (61)

Test Data - Voltage Fluctuations

Maximum Flicker results

| Flicker Measurements | | | | | |
|----------------------|-----------------|---------------------|--------------------|----------------------|----------------------|
| | P _{It} | Max P _{st} | Max D _c | Max D _{max} | Max T _{max} |
| Line 1: | N/A | | | | |
| Limits: | | | | | |
| Results: | | | | | |

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Page (45) of (61)

Test Setup Photos and Configuration

Conducted Emissions at Mains Power Ports

N/A

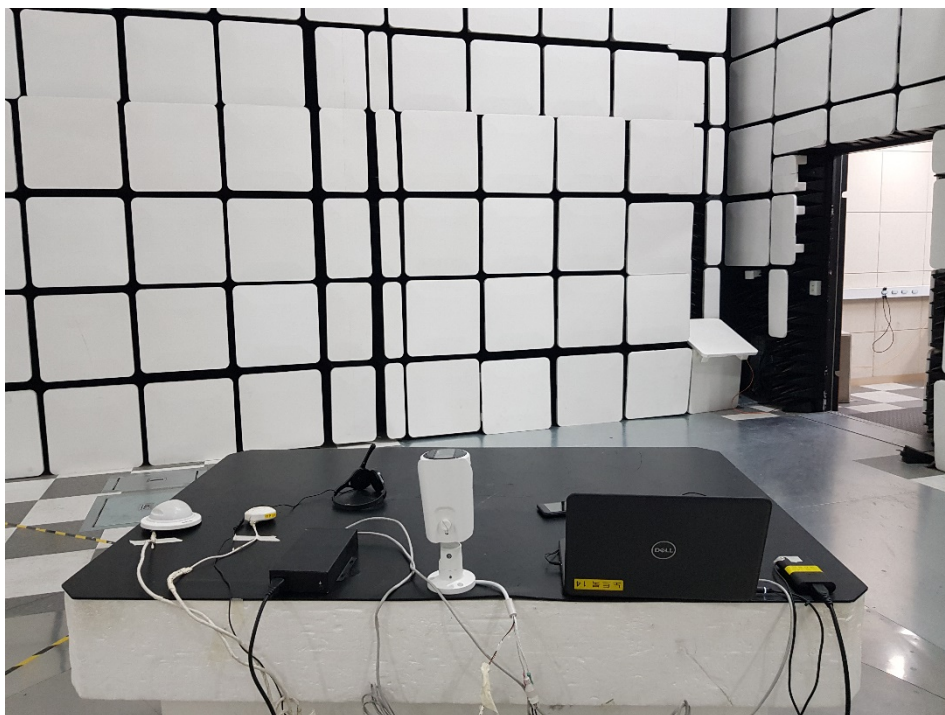
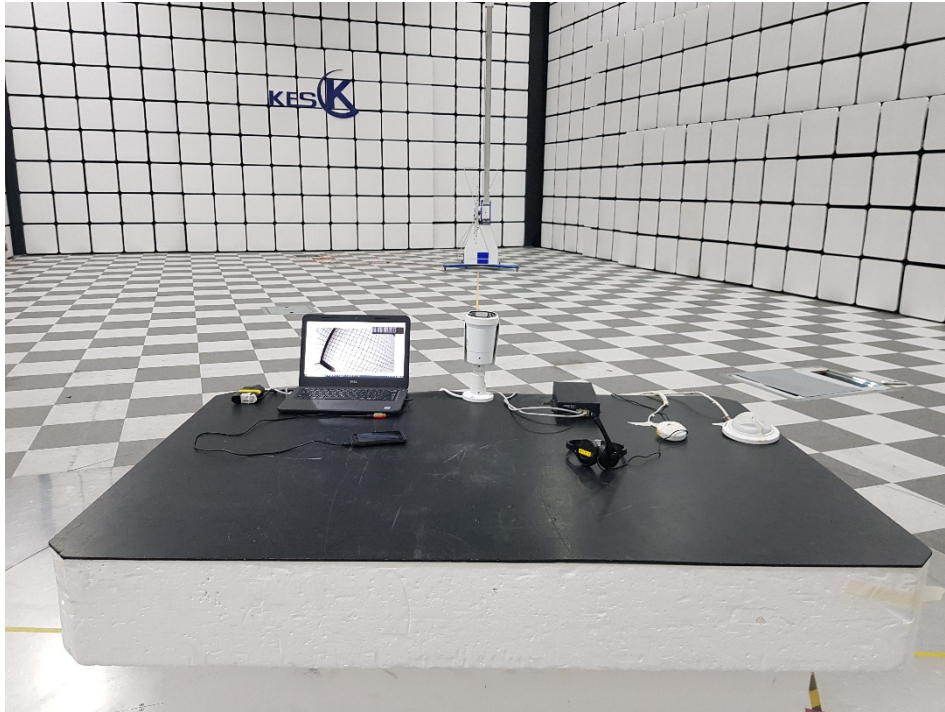
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Conducted Emissions at Telecommunication Ports



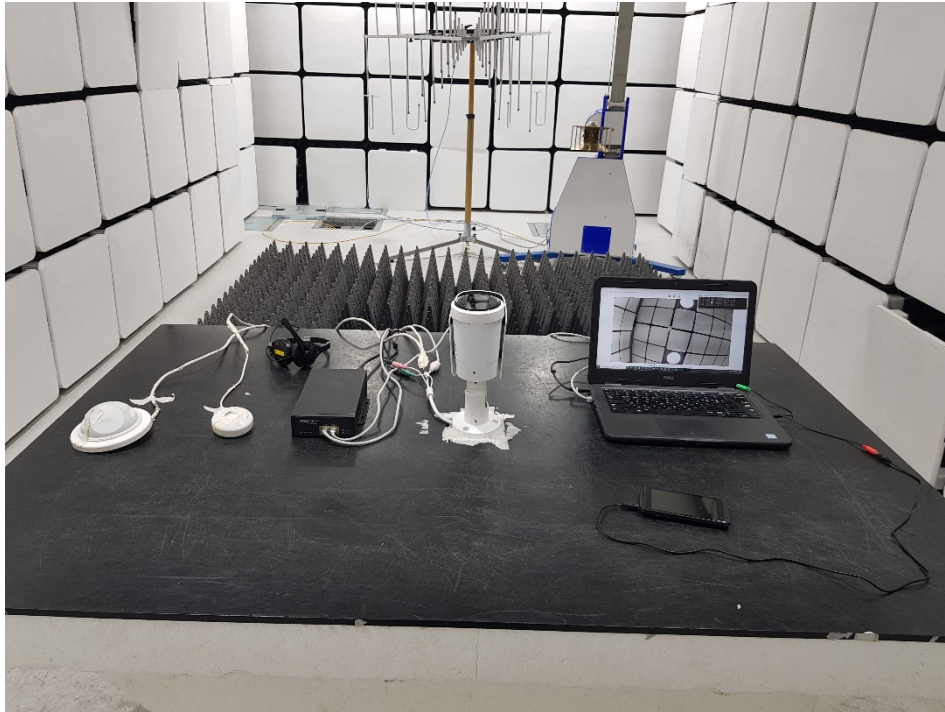
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Radiated Electric Field Emissions(Below 1 GHz)



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Radiated Electric Field Emissions(Above 1 GHz)



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Report No.:
KES-EM-23T0119
Page (49) of (61)

Harmonic Current Emissions and Voltage Fluctuations and Flicker

N/A

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Electrostatic Discharge

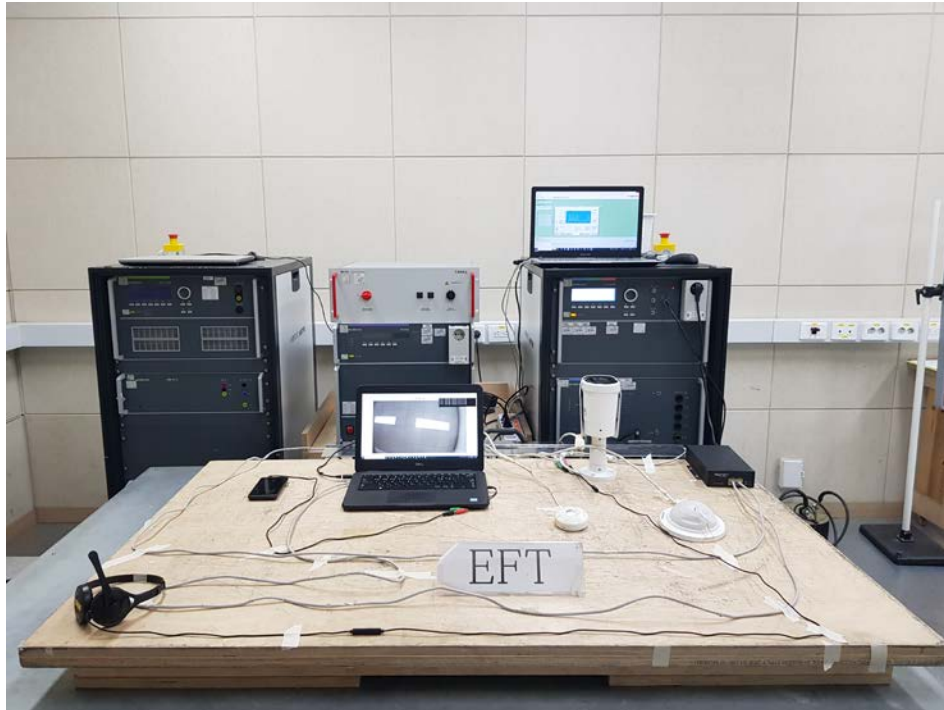


Radiated Electric Field Immunity



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Electrical Fast Transients/Bursts

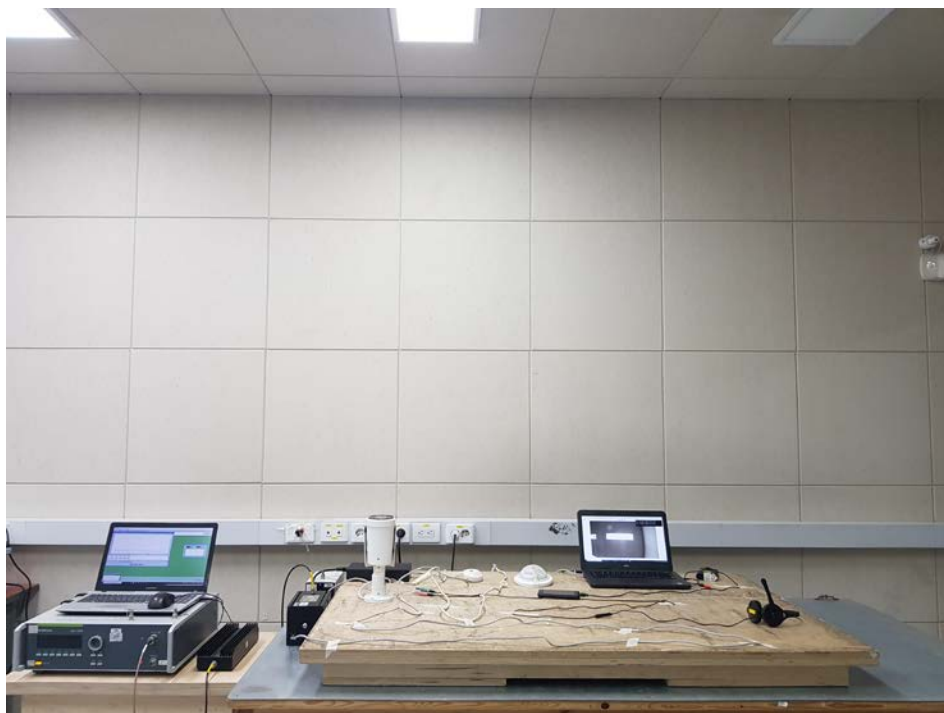


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Surge Transients



Conducted Disturbance



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Page (53) of (61)

Voltage Dips and Short Interruptions

N/A

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EUT External Photographs

(Top)



(Bottom)



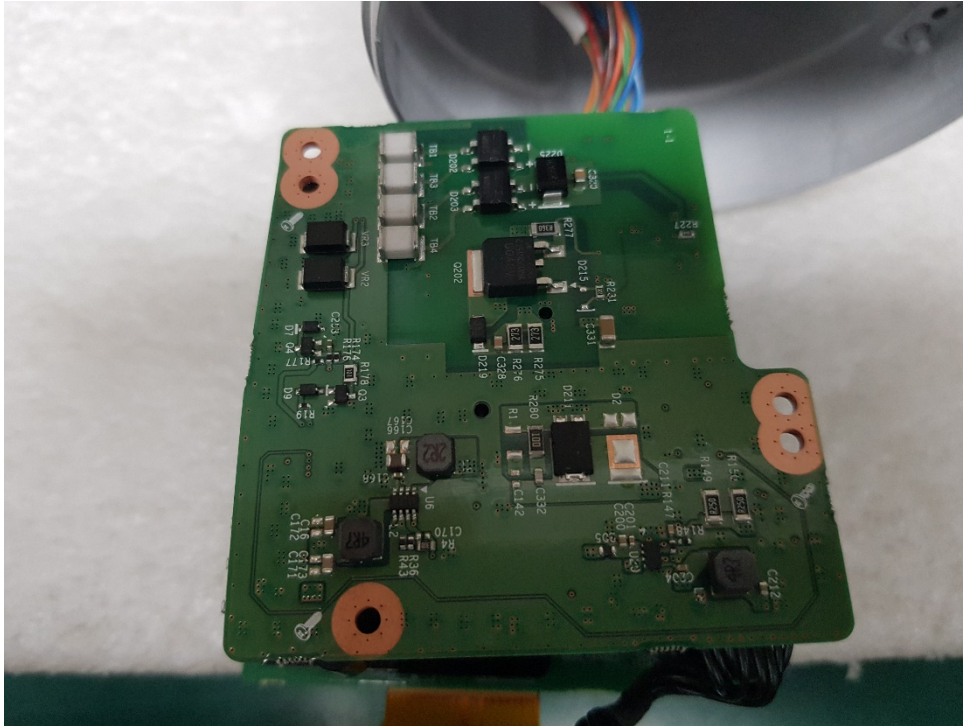
EUT Internal Photographs

(Internal View)



EUT Internal View – Main Board 1

(Top)



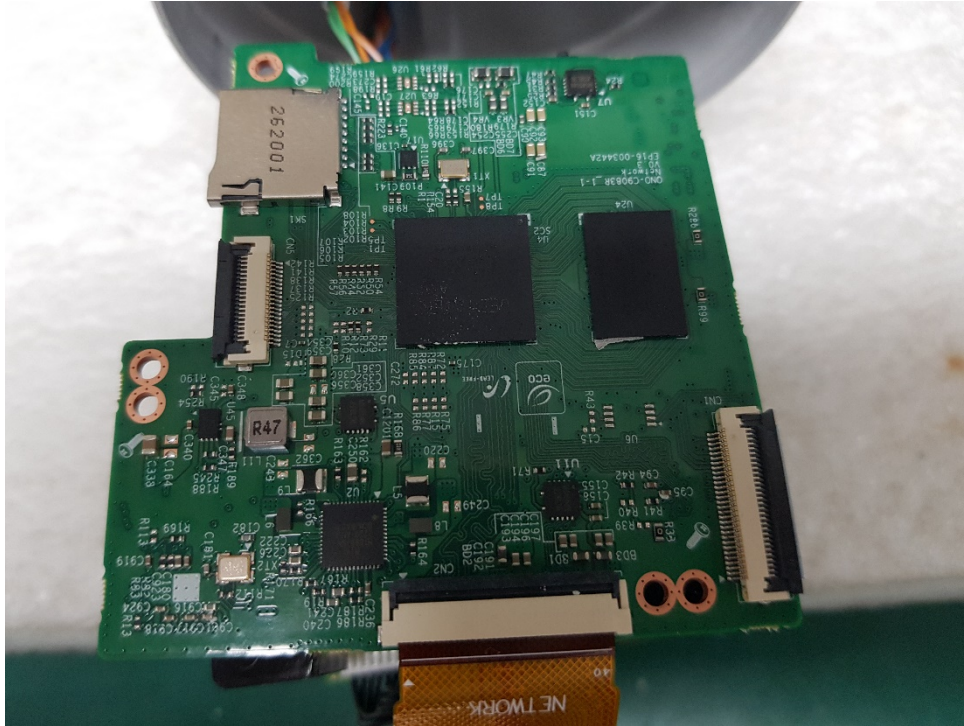
(Bottom)



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EUT Internal View – Main Board 2

(Top)



(Bottom)



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EUT Internal View – SUB Board

(Top)



(Bottom)



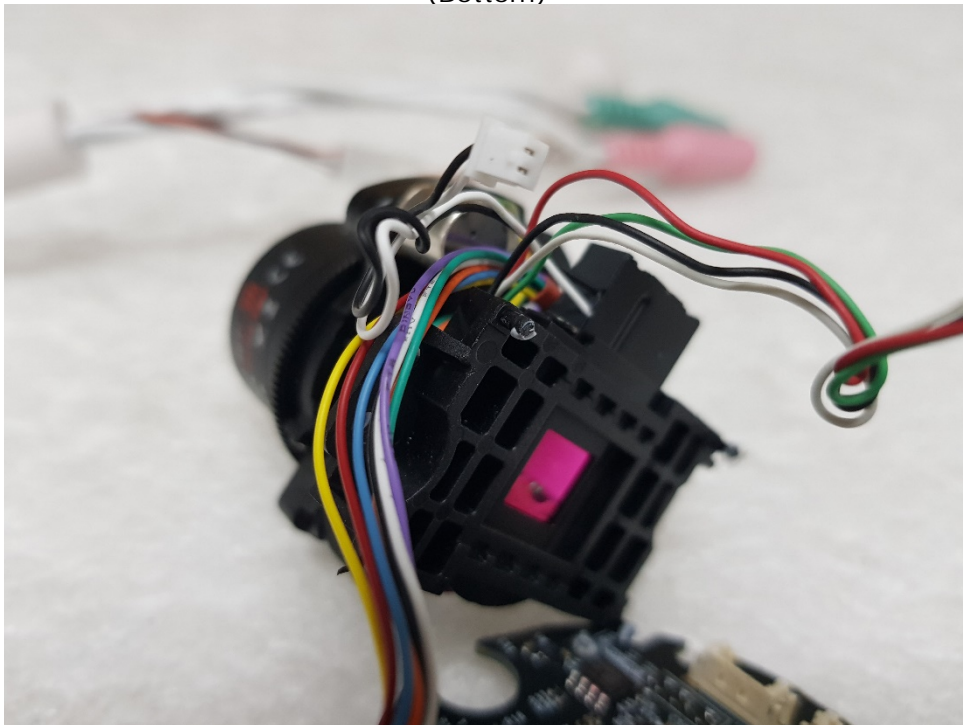
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EUT Internal View – Camera Lens

(Top)



(Bottom)



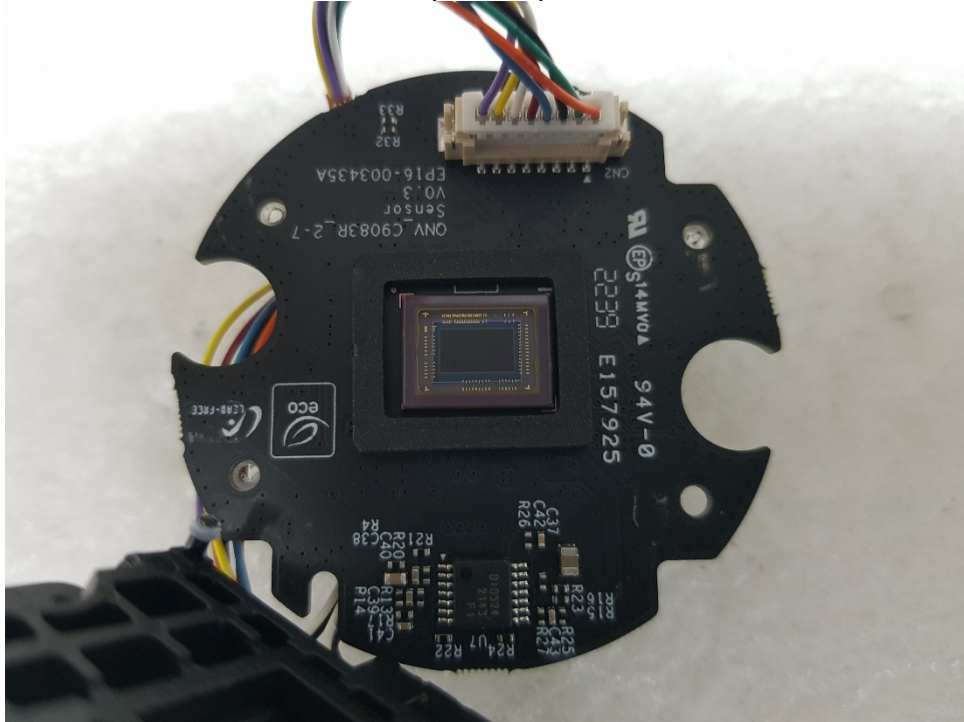
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EUT Internal View – Camera Lens Board

(Top)

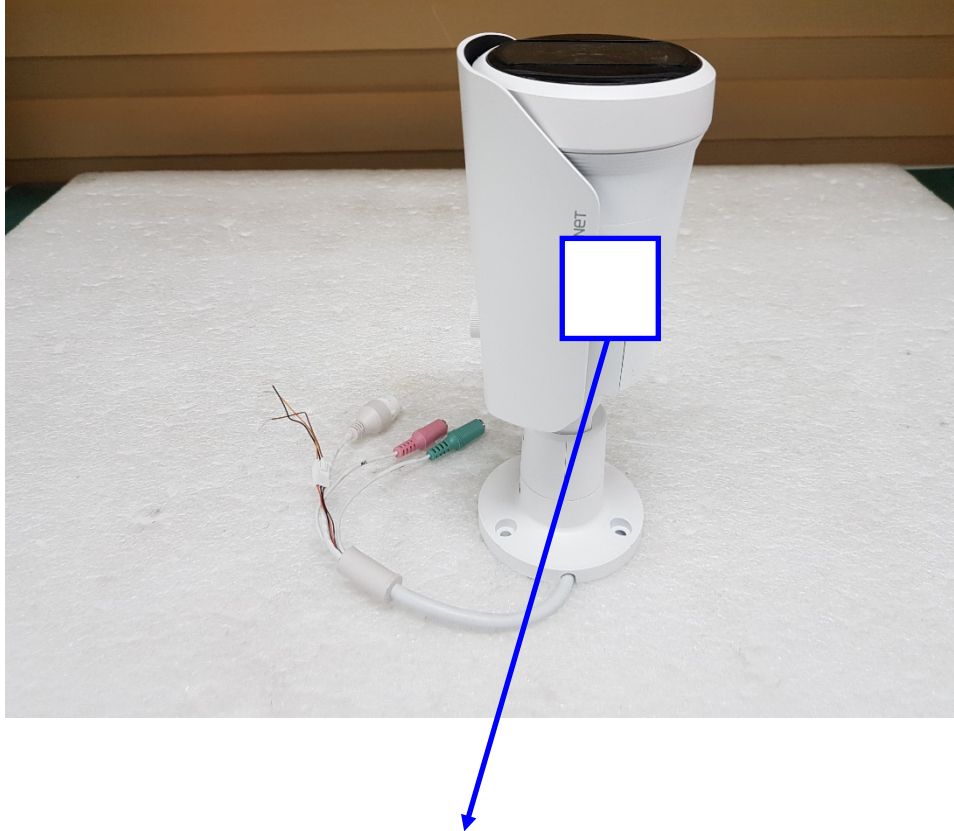


(Bottom)



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Label and Location



NETWORK CAMERA

Model No : QNO-C9083R

Manufacturer : HANWHA VISION VIETNAM COMPANY LIMITED

Made in Vietnam

