



## EMC TEST REPORT For VCCI

Test Report No. : KES-EM-21T1206-R2  
Date of Issue : Feb. 24, 2023  
Product name : NETWORK CAMERA  
Model/Type No. : PNM-A7083RVD  
Variant Model : PNM-C7083RVD  
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 : Dec. 15, 2021  
Test date : Dec. 17, 2021  
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Eun Gu, Jeon  
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 REVISION HISTORY**

| Date          | Test Report No.   | Revision History                                                     |
|---------------|-------------------|----------------------------------------------------------------------|
| Dec. 22, 2021 | KES-EM-21T1206    | Issued                                                               |
| Mar. 10, 2022 | KES-EM-21T1206-R1 | Reissuance due to the addition of a derivative                       |
| Feb. 24, 2023 | KES-EM-21T1206-R2 | Change the Applicant and manufacturer at the request of the customer |
|               |                   |                                                                      |
|               |                   |                                                                      |
|               |                   |                                                                      |
|               |                   |                                                                      |
|               |                   |                                                                      |
|               |                   |                                                                      |
|               |                   |                                                                      |

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## 1.0 General Product Description

### Main Specifications of EUT are:

|                             |                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Video                       |                                                                                                                                                                                                                                                                                                                                                                                                             |
| Imaging Device              | CMOS x 2CH (Must have independent configuration)                                                                                                                                                                                                                                                                                                                                                            |
| Resolution                  | 1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240                                                                                                                                                                                                                                                                                           |
| Min. Illumination           | <b>Color: 0.035lux (F2.2, 1/30sec) (TBD)</b><br><b>BW: 0 lux(IR LED on)</b>                                                                                                                                                                                                                                                                                                                                 |
| Max. Framerate              | H.265/H.264: 2MP Max. 30fps/25fps(60Hz/50Hz)<br>MJPEG: Max. 30fps/25fps(60Hz/50Hz)                                                                                                                                                                                                                                                                                                                          |
| Video Out                   | USB: micro USB Type B, 1280x720 for installation                                                                                                                                                                                                                                                                                                                                                            |
| Lens                        |                                                                                                                                                                                                                                                                                                                                                                                                             |
| Focal Length (Zoom Ratio)   | 3~6mm(2x) motorized varifocal                                                                                                                                                                                                                                                                                                                                                                               |
| Max. Aperture Ratio         | F2.2(Wide)~F3.1(Tele)                                                                                                                                                                                                                                                                                                                                                                                       |
| Angular Field of View       | H: 107°(Wide)~56.3°(Tele) / V: 57°(Wide)~31.5°(Tele) / D: 126°(Wide)~64.3°(Tele)                                                                                                                                                                                                                                                                                                                            |
| Min. Object Distance        | 0.5m(1.64ft)                                                                                                                                                                                                                                                                                                                                                                                                |
| Focus Control               | Simple focus                                                                                                                                                                                                                                                                                                                                                                                                |
| Pan / Tilt / Rotate Range   | 0~355°/0~78°/0~180°                                                                                                                                                                                                                                                                                                                                                                                         |
| Lens Type                   | Fixed IRIS                                                                                                                                                                                                                                                                                                                                                                                                  |
| Camera Title                | Displayed up to 85 characters                                                                                                                                                                                                                                                                                                                                                                               |
| Day & Night                 | Auto(ICR)                                                                                                                                                                                                                                                                                                                                                                                                   |
| Backlight Compensation      | BLC, WDR, SDDR                                                                                                                                                                                                                                                                                                                                                                                              |
| Wide Dynamic Range          | 120dB                                                                                                                                                                                                                                                                                                                                                                                                       |
| Digital Noise Reduction     | SSNR, WiseNR II(using AI engine)                                                                                                                                                                                                                                                                                                                                                                            |
| Digital Image Stabilization | Not Support                                                                                                                                                                                                                                                                                                                                                                                                 |
| Defog                       | Not Support                                                                                                                                                                                                                                                                                                                                                                                                 |
| Motion Detection            | 8ea, 8point polygonal zones                                                                                                                                                                                                                                                                                                                                                                                 |
| Privacy Masking             | 6ea rectangular zones (Nice to have polygonal zones)<br>- Color: Grey/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)                                                                                                                                                                                                                                                                                                        |
| Video Rotation              | Flip, Mirror, Hallway view(90°/270°) - Each channel separately                                                                                                                                                                                                                                                                                                                                              |
| Analytics                   | - Analytics events based on AI engine: Object detection (Person/Face/Vehicle (car/truck/bus/bicycle/bike) /licence plate),<br><b>Bestshot support, Attributes Not Support</b> , IVA (Virtual line/Area, Enter/Exit, Loitering, direction, intrusion), Appear/Disappear<br>- Analytics events : Defocus detection, Motion detection, Tampering,<br>* Audio detection, Sound classification (with NW I/O Box) |
| Alarm Triggers              | Analytics, Network disconnect<br>* Alarm input(with NW I/O Box)                                                                                                                                                                                                                                                                                                                                             |
| Alarm Events                | File upload via FTP and e-mail (Video chunk not supported.)<br>Notification via e-mail<br>SD/SDHC/SDXC recording at event triggers<br>* Alarm output(with NW I/O Box)                                                                                                                                                                                                                                       |
| Audio In                    | * Audio In (with NW I/O Box)                                                                                                                                                                                                                                                                                                                                                                                |
| Audio Out                   | * Audio Out (with NW I/O Box)                                                                                                                                                                                                                                                                                                                                                                               |
| IR Viewable Length          | 15m, Wise IR (Nice to have 30m)                                                                                                                                                                                                                                                                                                                                                                             |

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|                                   |                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Network                           |                                                                                                                                                                                                                                                                                                                                                       |
| Ethernet                          | RJ-45(10/100/1000BASE-T)                                                                                                                                                                                                                                                                                                                              |
| Video Compression                 | H.265/H.264: Main/Baseline/High, MJPEG                                                                                                                                                                                                                                                                                                                |
| Smart Codec                       | Manual(Sea area), WiseStreamII, WiseStreamIII(Based on AI engine)                                                                                                                                                                                                                                                                                     |
| Bitrate Control                   | H.264/H.265: CBR or VBR<br>MJPEG: VBR                                                                                                                                                                                                                                                                                                                 |
| Streaming                         | (5 Profiles/channel) Unicast(10 users) / Multicast (TBD)                                                                                                                                                                                                                                                                                              |
| Protocol                          | IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP,RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP,FTP, SMTP, ICMP, IGMP, SNMPv1/V2c/V3(MIB-2), ARP, DNS, DDNS, QoS, PIM-SM, UPnP, Bonjour, LLDP                                                                                                                                                              |
| Security                          | HTTPS(SSL) Login Authentication<br>Digest Login Authentication<br>IP Address Filtering<br>User access log<br>802.1X Authentication(EAP-TLS, EAP-LEAP, EAP-PEAP MSCHAPv2)<br>Device Certificate(Hanwha Techwin Root CA, pre-installed)<br>Secure by default certificate<br>Secure OS/Boot/Storage, Verify firmware forgery, TPM with FIPS 140-2 level2 |
| Application Programming Interface | ONVIF Profile S/T<br>SUNAPI(HTTP API)                                                                                                                                                                                                                                                                                                                 |
| Environmental & Electrical        |                                                                                                                                                                                                                                                                                                                                                       |
| Operating Temperature / Humidity  | -40°C~+55°C(-40°F~+131°F) / Less than 90% RH                                                                                                                                                                                                                                                                                                          |
| Storage Temperature / Humidity    | -50°C~+60°C(-58°F~+140°F) / Less than 90% RH                                                                                                                                                                                                                                                                                                          |
| Certification                     | IP66, IK10, NEMA4X (IP67 would be nice to have)                                                                                                                                                                                                                                                                                                       |
| Input Voltage                     | PoE+                                                                                                                                                                                                                                                                                                                                                  |
| Power Consumption                 | <25.5watt (Typical : TBD, Max : TBD)                                                                                                                                                                                                                                                                                                                  |
| Mechanical                        |                                                                                                                                                                                                                                                                                                                                                       |
| Color / Material                  | White / Aluminum<br>Hard-coated dome bubble                                                                                                                                                                                                                                                                                                           |
| RAL Code                          | RAL9003                                                                                                                                                                                                                                                                                                                                               |
| Product dimensions / weight       | <b>215(H) X 135(V) X 93.2(H) (mm) / 1.33 kg</b>                                                                                                                                                                                                                                                                                                       |
| Gangbox compatibility             | Single, Double, <b>4" Square</b> , 4" Octagon by using a back plate<br>The camera mounting holes should fit at least one of the above electrical boxes                                                                                                                                                                                                |

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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.

☒ PoE

## 1.2 Variant Model Differences

Add derivative model for vendor management

## 1.3 Device Modifications

Not applicable

## 1.4 Equipment Under Test

| Description    | Model Number | Serial Number | Manufacturer                                | Remarks |
|----------------|--------------|---------------|---------------------------------------------|---------|
| NETWORK CAMERA | PNM-A7083RVD | -             | HANWHA VISION<br>VIETNAM COMPANY<br>LIMITED | EUT     |

## 1.5 Support Equipments

| Description      | Model Number | Serial Number | Manufacturer                                    | Remarks |
|------------------|--------------|---------------|-------------------------------------------------|---------|
| PoE INJECTOR     | GS728TPP     | -             | NETGEAR                                         | -       |
| Notebook         | P95G001      | 9JM8HT2       | Wistron Infocom<br>(Chengdu) Company<br>Limited | -       |
| Notebook Adapter | LA65NS2-01   | -             | LITE-ON TECHNOLOGY<br>(CHANGZHOU)CO.,LTD.       | -       |
| 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 INJECTOR     | RJ-45         | 3.0         | U      |
|                      | Micro SD Slot | Micro SD Card    | Micro SD Slot | -           | -      |
| Notebook             | RJ-45         | PoE INJECTOR     | RJ-45         | 2.0         | U      |
|                      | DC Jack       | Notebook Adapter | DC Jack       | 1.6         | U      |

\* Unshielded=U, Shielded=S

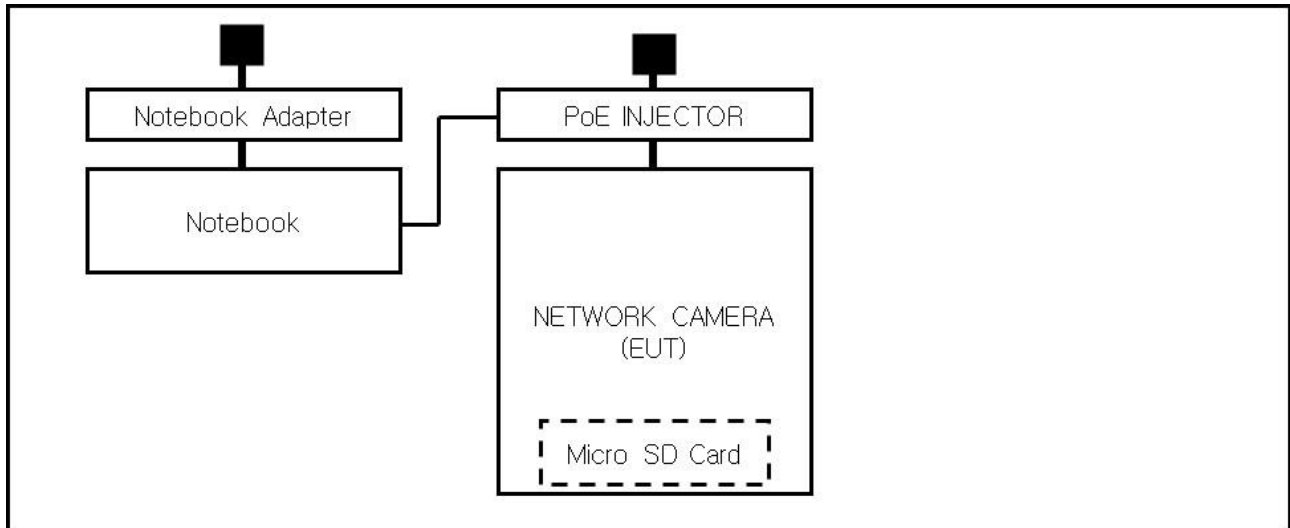
## 1.7 EUT Operating Mode(s)

| operating                 |
|---------------------------|
| EUT Monitoring, Ping Test |

| 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

- The main power ports were excluded tested because, the EUT operated by PoE Powered.
- USB ports are not used and have not been tested. (For firmware update)

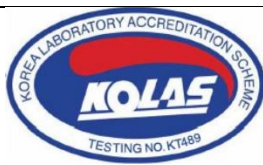
## 1.10 Calibration Details of Equipment Used for Measurement

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

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## 2.0 Test Regulations

The emissions tests were performed according to following regulations:

☒ **VCCI-CISPR 32:2016**

☒ Class A

☐ Class B

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## 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        | 01, 15, 2022 |
| <input type="checkbox"/> | LISN              | ENV216       | R & S        | 101787        | 12, 29, 2021 |
| <input type="checkbox"/> | LISN              | ESH2-Z5      | R & S        | 100450        | 12, 29, 2021 |
| <input type="checkbox"/> | PULSE LIMITER     | ESH3-Z2      | R & S        | 101915        | 12, 29, 2021 |

### 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

Please refer to the Remarks when standards applied.

## 2.2 Conducted Emissions at Telecommunication Ports

### Test Date

Dec. 17, 2021

### Test Location

Electro wave Shieldroom #6

### Test Equipment

| Used                                | Description       | Model Number | Manufacturer | Serial Number | Cal. Due     |
|-------------------------------------|-------------------|--------------|--------------|---------------|--------------|
| <input checked="" type="checkbox"/> | EMI Test S/W      | EMC32        | R & S        | 9.12.00       | -            |
| <input checked="" type="checkbox"/> | EMI TEST RECEIVER | ESR3         | R & S        | 101783        | 01, 15, 2022 |
| <input checked="" type="checkbox"/> | LISN              | ENV216       | R & S        | 101787        | 12, 29, 2021 |
| <input checked="" type="checkbox"/> | LISN              | ESH2-Z5      | R & S        | 100450        | 12, 29, 2021 |
| <input checked="" type="checkbox"/> | PULSE LIMITER     | ESH3-Z2      | R & S        | 101915        | 12, 29, 2021 |
| <input type="checkbox"/>            | 8-WIRE ISN CAT3,5 | ENY81        | R & S        | 100174        | 12, 30, 2021 |
| <input checked="" type="checkbox"/> | 8-WIRE ISN CAT6   | ENY81-CAT6   | R & S        | 101665        | 12, 30, 2021 |
| <input type="checkbox"/>            | CDN               | CDNS502A     | TESEQ        | 40431         | 12, 29, 2021 |

### Test Conditions

Temperature: (22,4 ± 0,1) °C  
Relative Humidity: (43,6 ± 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



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supported by the interface.

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## 2.3 Radiated Electric Field Emissions(Below 1 GHz)

### Test Date

Dec. 17, 2021

### Test Location

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

### Test Equipment

| Used                                | Description              | Model Number | Manufacturer     | Serial Number | Cal. Due     |
|-------------------------------------|--------------------------|--------------|------------------|---------------|--------------|
| <input checked="" type="checkbox"/> | EMI Test S/W             | EP5/RE       | TOYO Corporation | 6.0.0         | -            |
| <input checked="" type="checkbox"/> | EMI TEST RECEIVER        | ESU26        | R & S            | 100551        | 04, 01, 2022 |
| <input checked="" type="checkbox"/> | AMPLIFIER                | SCU 01       | R & S            | 100603        | 11, 24, 2022 |
| <input checked="" type="checkbox"/> | TRILOG-BROADBAND ANTENNA | VULB9163     | Schwarzbeck      | 715           | 12, 08, 2022 |
| <input checked="" type="checkbox"/> | ATTENUATOR               | 8491A        | HP               | 32173         | 03, 10, 2022 |

### Test Conditions

Temperature: (22,4 ± 0,1) °C  
Relative Humidity: (43,5 ± 0,2) % 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

Dec. 17, 2021

### 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, 03, 2022 |
| <input checked="" type="checkbox"/> | PREAMPLIFIER               | 8449B        | AGILENT          | 3008A01967    | 04, 07, 2022 |
| <input type="checkbox"/>            | ATTENUATOR                 | 8491A        | HP               | 35496         | 03, 10, 2022 |
| <input checked="" type="checkbox"/> | DOUBLE RIDGED HORN ANTENNA | SAS-571      | A.H.SYSTEM,INC   | 781           | 03, 11, 2022 |

### Test Conditions

Temperature: (22,3 ± 0,2) °C

Relative Humidity: (43,8 ± 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.



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## **APPENDIX A – TEST DATA**

### **Conducted Emissions at Mains Power Ports** HOT LINE

N/A

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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))

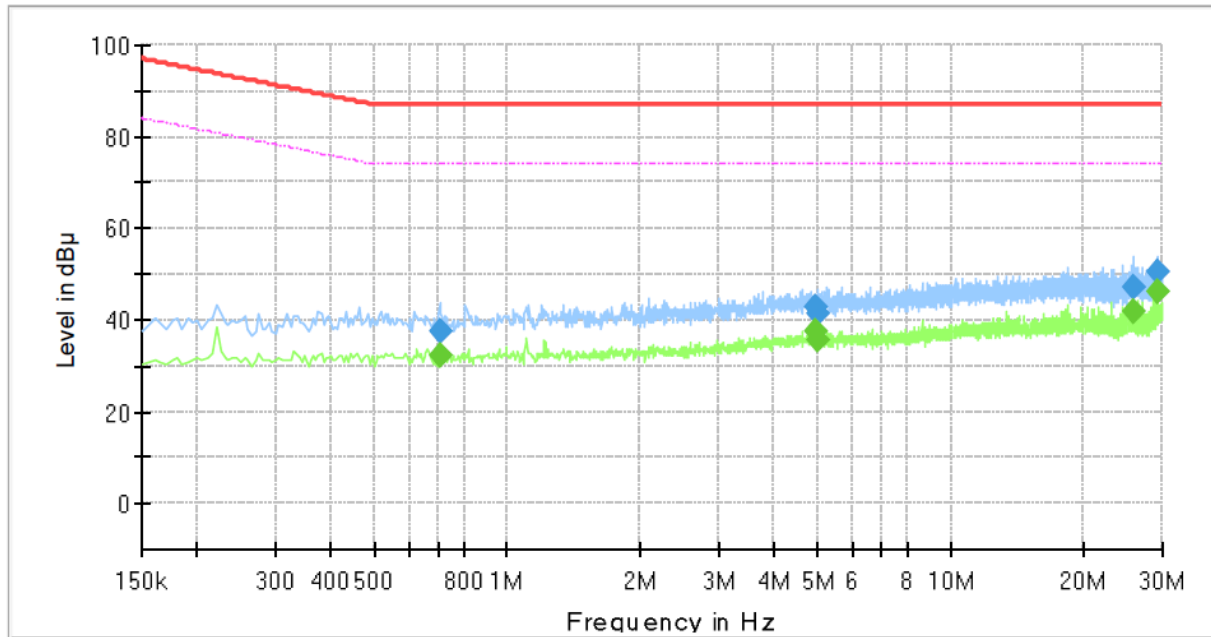
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## Conducted Emissions at Telecommunication Ports [1 000 Mbps]

### Common Information

Test Description: Telecommunication Emission  
 Model No.: PNM-A7083RVD  
 Mode :  
 Speed : 1 000 Mbps  
 Operator Name: KES



### Final Result

| Frequency (MHz) | QuasiPeak (dBμV) | CAverage (dBμV) | Limit (dBμV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line        | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|-----------------|-----------------|-------------|------------|
| 0.705000        | ---              | 32.04           | 74.00        | 41.96       | 1000.0          | 9.000           | Single Line | 20.0       |
| 0.705000        | 37.75            | ---             | 87.00        | 49.25       | 1000.0          | 9.000           | Single Line | 20.0       |
| 4.975000        | ---              | 37.42           | 74.00        | 36.58       | 1000.0          | 9.000           | Single Line | 19.5       |
| 4.975000        | 42.88            | ---             | 87.00        | 44.12       | 1000.0          | 9.000           | Single Line | 19.5       |
| 5.020000        | ---              | 35.67           | 74.00        | 38.33       | 1000.0          | 9.000           | Single Line | 19.5       |
| 5.020000        | 41.41            | ---             | 87.00        | 45.59       | 1000.0          | 9.000           | Single Line | 19.5       |
| 26.000000       | ---              | 41.99           | 74.00        | 32.01       | 1000.0          | 9.000           | Single Line | 20.3       |
| 26.000000       | 47.32            | ---             | 87.00        | 39.68       | 1000.0          | 9.000           | Single Line | 20.3       |
| 29.235000       | ---              | 46.35           | 74.00        | 27.65       | 1000.0          | 9.000           | Single Line | 20.5       |
| 29.235000       | 50.46            | ---             | 87.00        | 36.54       | 1000.0          | 9.000           | Single Line | 20.5       |

#### ◆ Calculation

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

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

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

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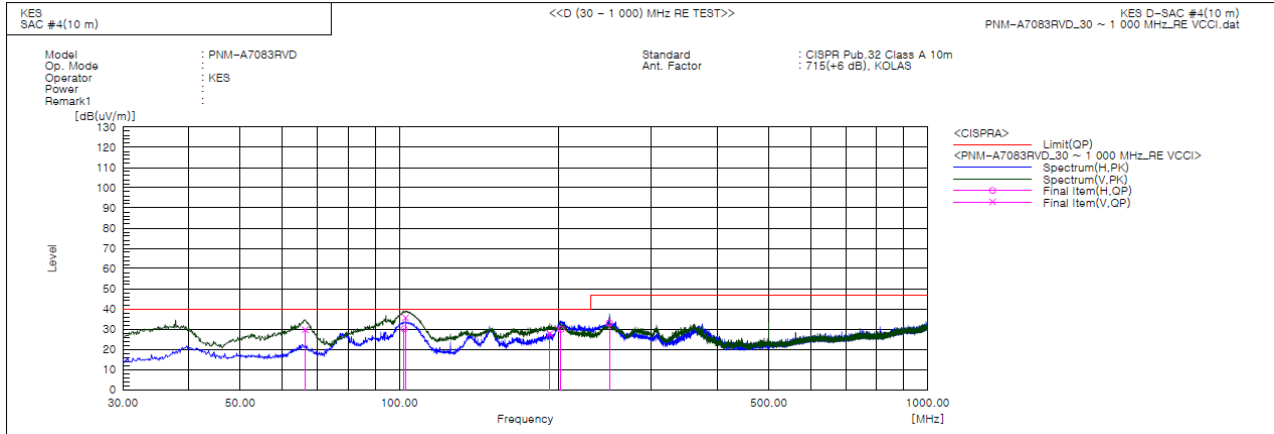
3701, 40, Simin-daero 365beon-gil,  
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### Radiated Electric Field Emissions(Below 1 GHz)



#### Final Result

| No. | Frequency<br>[MHz] | (P) | Reading<br>QP<br>[dB(uV)] | c.f<br>[dB(1/m)] | Result<br>QP<br>[dB(uV/m)] | Limit<br>QP<br>[dB(uV/m)] | Margin<br>QP<br>[dB] | Height<br>[cm] | Angle<br>[deg] | Remark |
|-----|--------------------|-----|---------------------------|------------------|----------------------------|---------------------------|----------------------|----------------|----------------|--------|
| 1   | 66.382             | V   | 53.2                      | -23.5            | 29.7                       | 40.0                      | 10.3                 | 142.0          | 79.0           |        |
| 2   | 102.167            | H   | 52.6                      | -22.4            | 30.2                       | 40.0                      | 9.8                  | 398.0          | 348.0          |        |
| 3   | 102.772            | V   | 57.9                      | -22.3            | 35.6                       | 40.0                      | 4.4                  | 138.0          | 294.0          |        |
| 4   | 192.621            | V   | 49.3                      | -21.6            | 27.7                       | 40.0                      | 12.3                 | 107.0          | 261.0          |        |
| 5   | 202.439            | H   | 50.7                      | -20.8            | 29.9                       | 40.0                      | 10.1                 | 378.0          | 167.0          |        |
| 6   | 249.962            | H   | 52.2                      | -19.1            | 33.1                       | 47.0                      | 13.9                 | 395.0          | 293.0          |        |

#### ◆ Calculation

Corrected Amplitude [dBuV] = Amplitude[dBuV] + Correction Factor [dB]

Corrected Amplitude : The Final Value, Amplitude : Reading Value,

Correction Factor : ANT FACTOR + Cable loss

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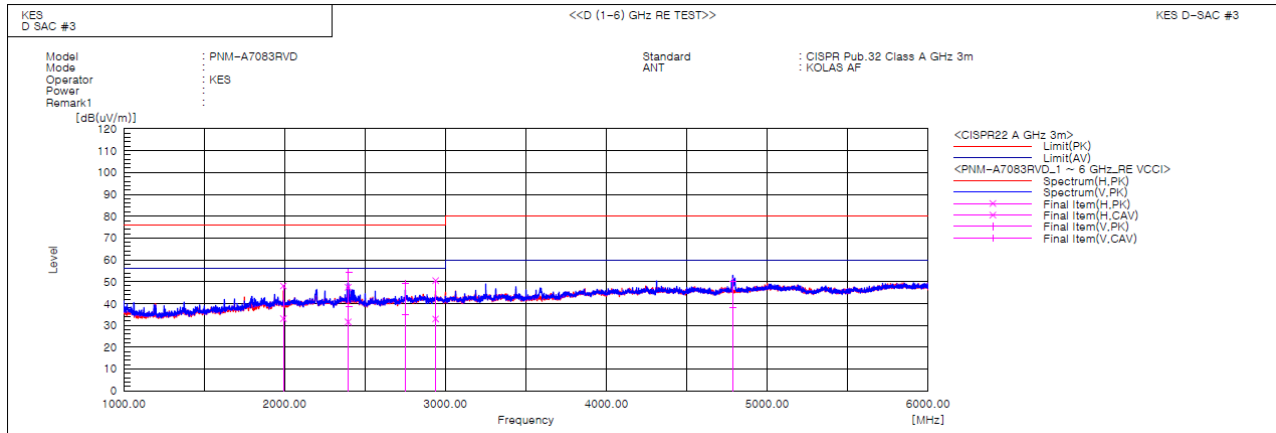


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### Radiated Electric Field Emissions(Above 1 GHz)



#### Final Result

| No. | Frequency [MHz] | (P) | Reading PK [dB(uV)] | Reading CAV [dB(uV)] | c.f [dB(1/m)] | Result PK [dB(uV/m)] | Result CAV [dB(uV/m)] | Limit PK [dB(uV/m)] | Limit AV [dB(uV/m)] | Margin PK [dB] | Margin CAV [dB] | Height [cm] | Angle [deg] | Remark |
|-----|-----------------|-----|---------------------|----------------------|---------------|----------------------|-----------------------|---------------------|---------------------|----------------|-----------------|-------------|-------------|--------|
| 1   | 1992.295        | H   | 49.1                | 34.2                 | -1.1          | 48.0                 | 33.1                  | 76.0                | 56.0                | 28.0           | 22.9            | 100.0       | 356.4       |        |
| 2   | 2394.529        | H   | 47.2                | 31.4                 | 0.2           | 47.4                 | 31.6                  | 76.0                | 56.0                | 28.6           | 24.4            | 100.0       | 262.2       |        |
| 3   | 2397.335        | V   | 54.1                | 38.4                 | 0.2           | 54.3                 | 38.6                  | 76.0                | 56.0                | 21.7           | 17.4            | 100.0       | 285.8       |        |
| 4   | 2751.416        | V   | 47.8                | 33.4                 | 1.5           | 49.3                 | 34.9                  | 76.0                | 56.0                | 26.7           | 21.1            | 100.0       | 234.3       |        |
| 5   | 2938.471        | H   | 48.8                | 31.2                 | 1.7           | 50.5                 | 32.9                  | 76.0                | 56.0                | 25.5           | 23.1            | 100.0       | 275.3       |        |
| 6   | 4786.146        | V   | 42.4                | 30.2                 | 7.9           | 50.3                 | 38.1                  | 80.0                | 60.0                | 29.7           | 21.9            | 100.0       | 177.0       |        |

#### ◆ 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**

N/A

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## Conducted Emissions at Telecommunication Ports



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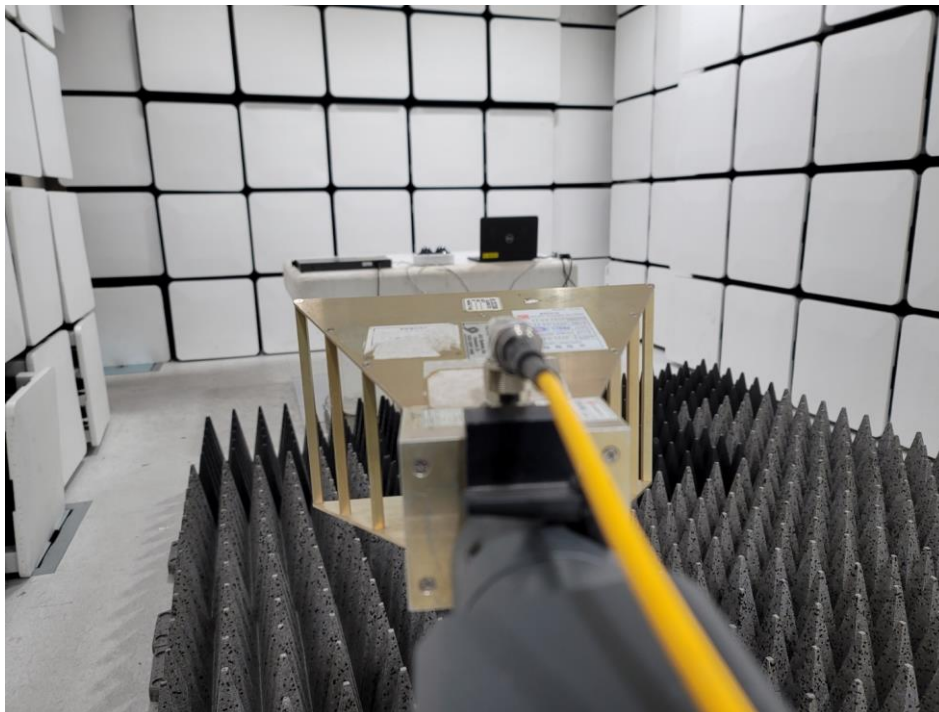
## Radiated Electric Field Emissions(Below 1 GHz)



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## Radiated Electric Field Emissions(Above 1 GHz)



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## EUT External Photographs

(Top)



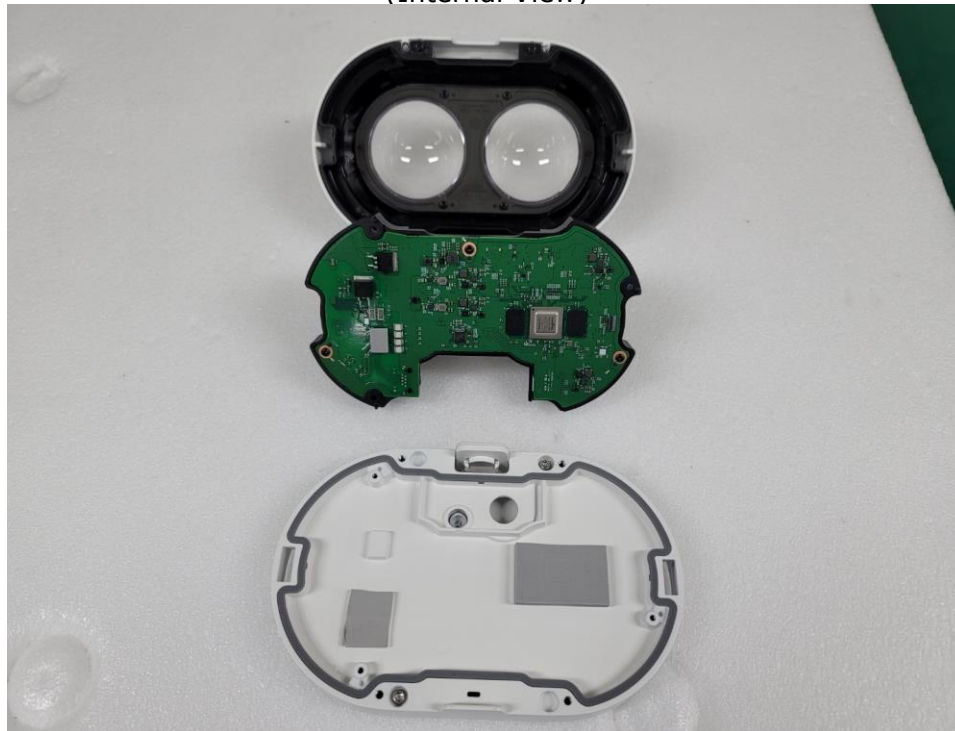
(Bottom)



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## EUT Internal Photographs

(Internal View)

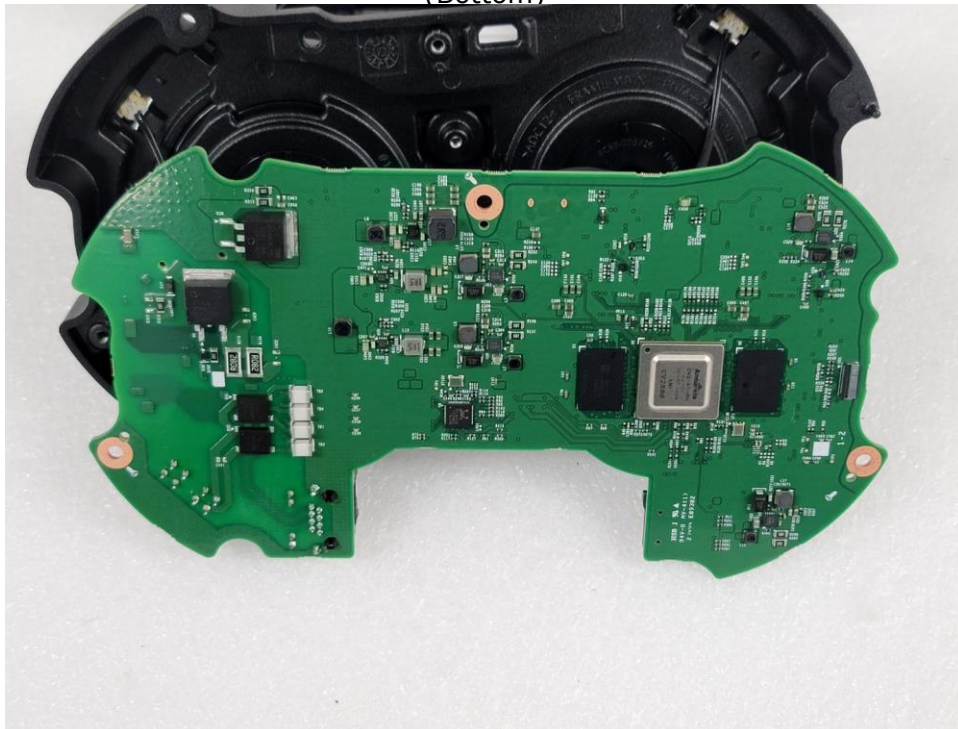


## EUT Internal View – Board 1

(Top)



(Bottom)



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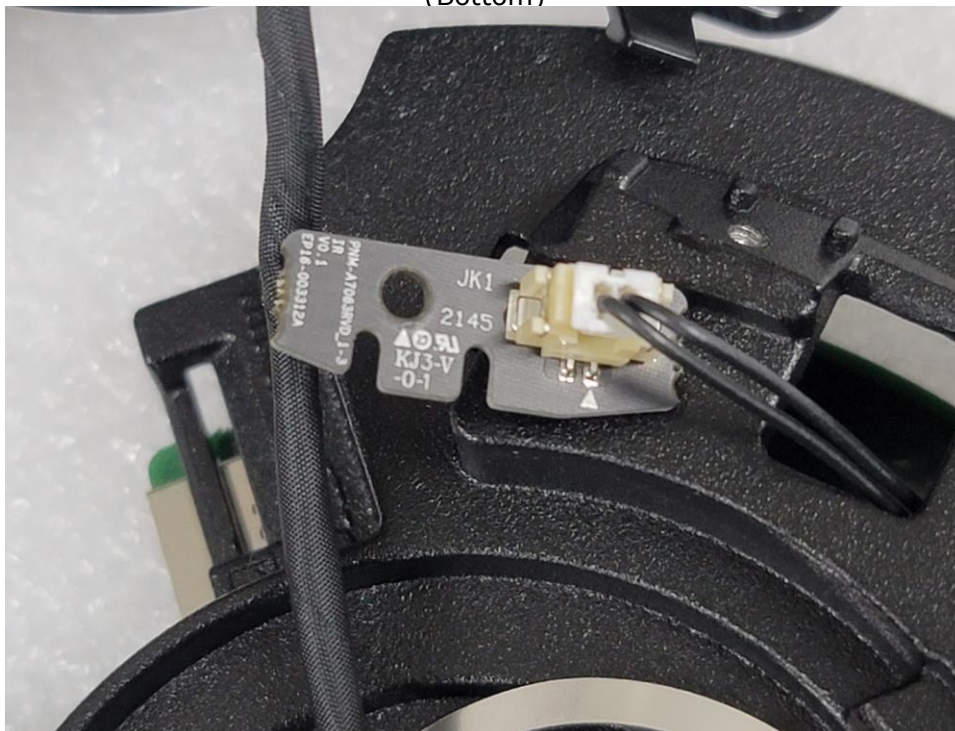


## EUT Internal View – Board 2

(Top)



(Bottom)



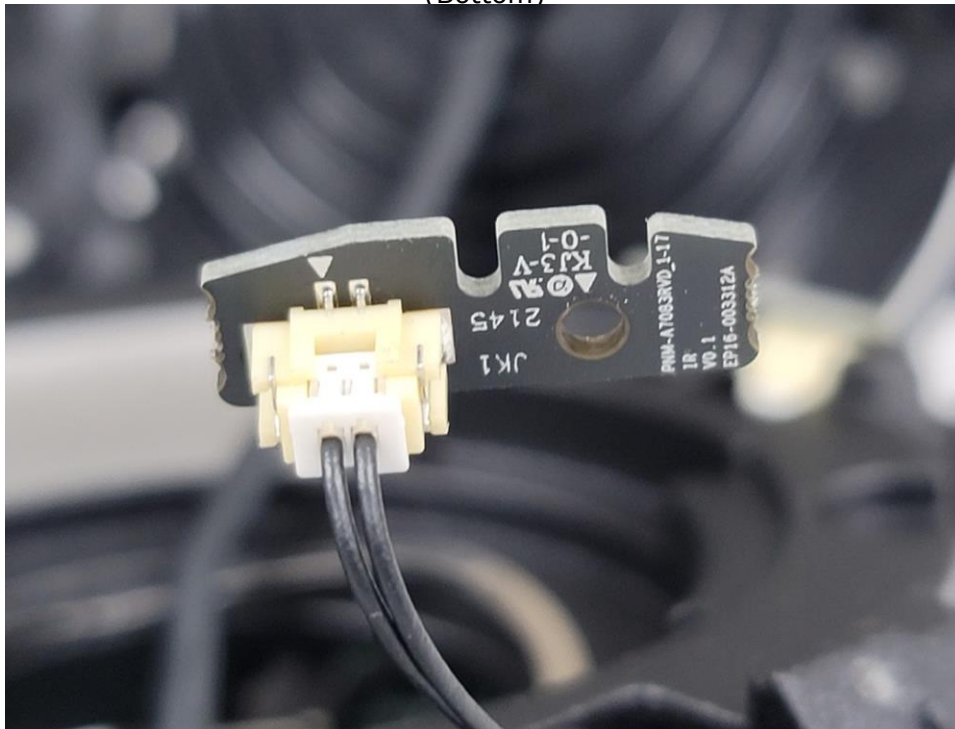
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## EUT Internal View – Board 3

(Top)



(Bottom)



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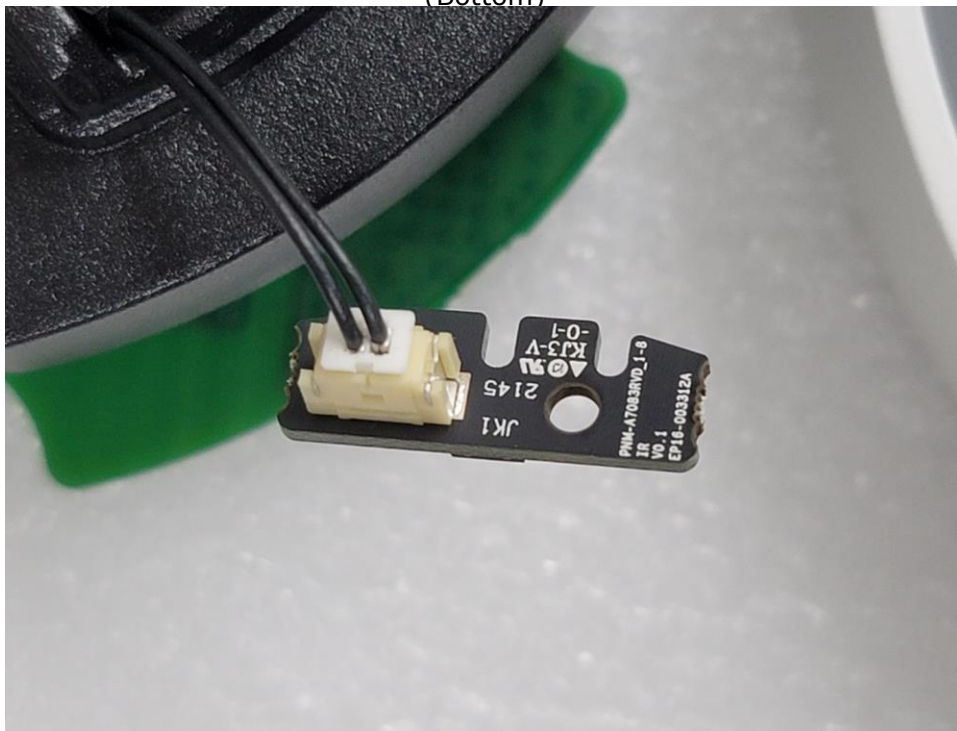


## EUT Internal View – Board 4

(Top)



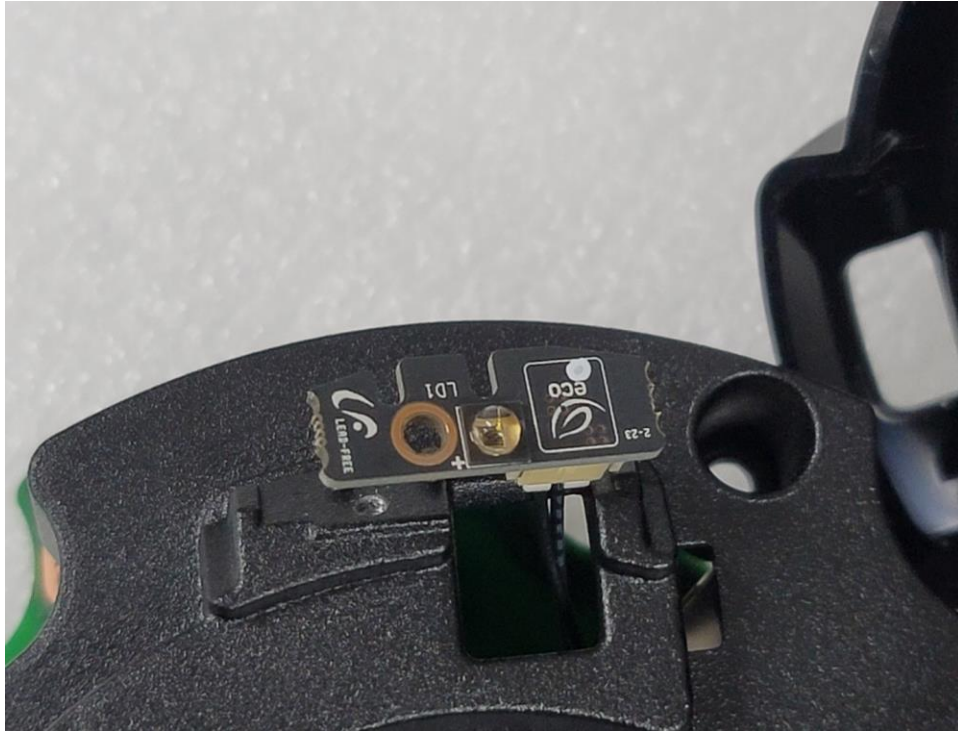
(Bottom)



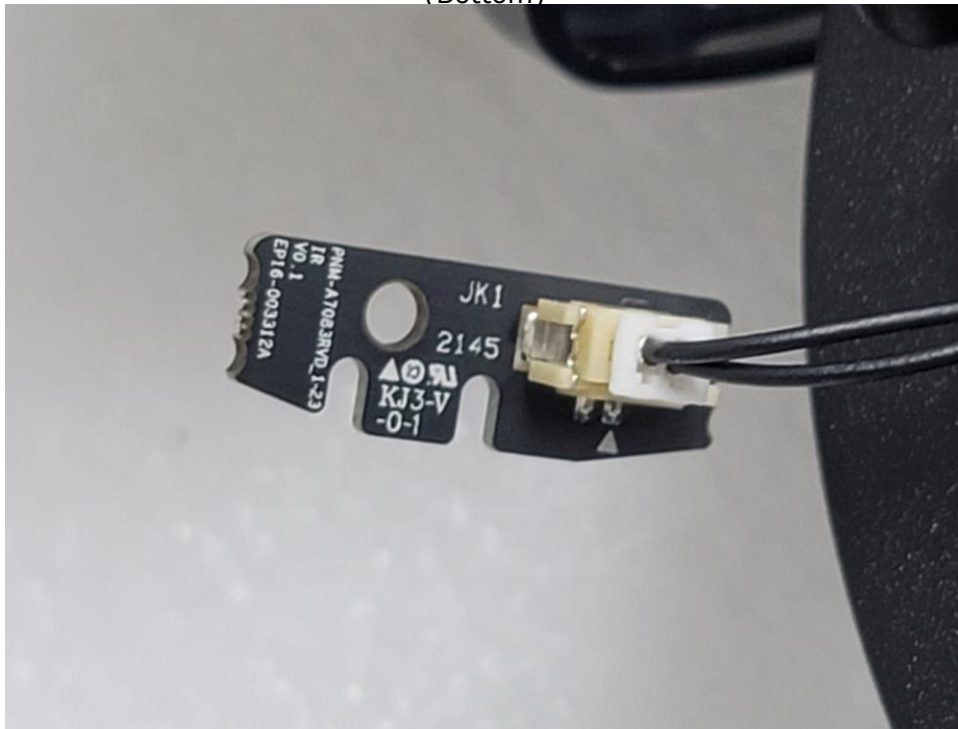
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## EUT Internal View – Board 5

(Top)



(Bottom)



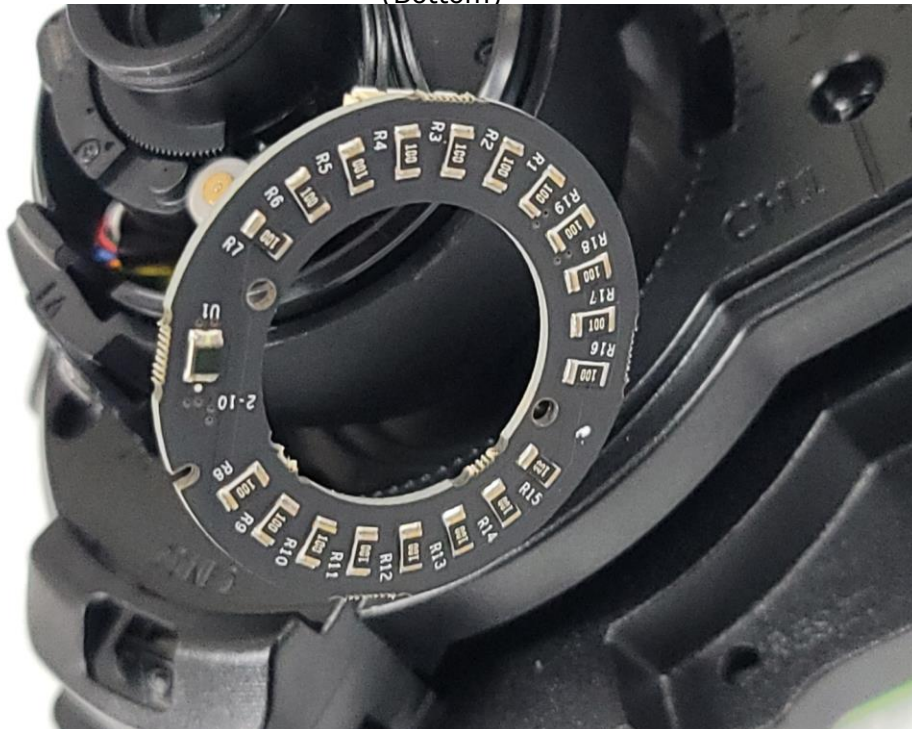
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## EUT Internal View – Board 6

(Top)



(Bottom)



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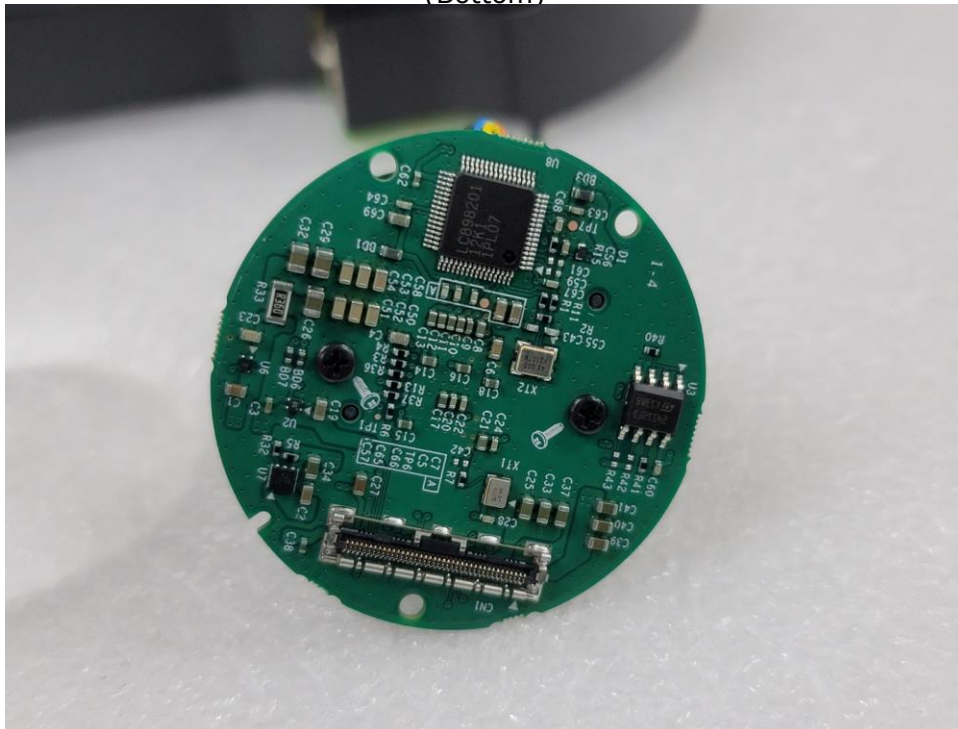


## EUT Internal View – Board 7

(Top)

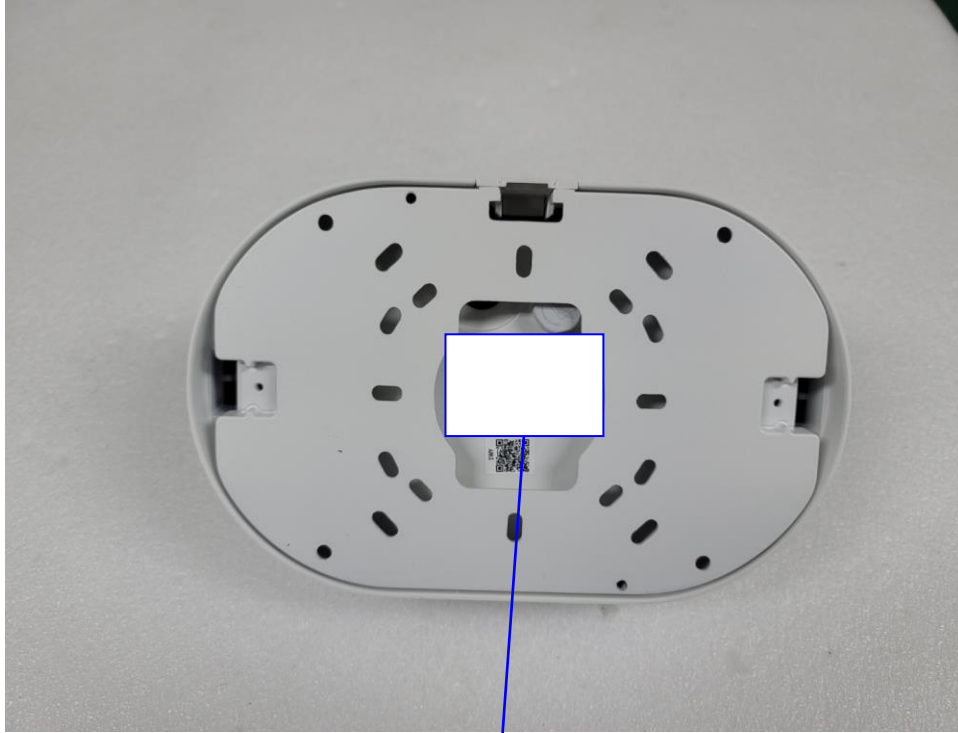


(Bottom)



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