



# EMC TEST REPORT For C-TICK

Test Report No. : KES-E1-17T0002-R1  
Date of Issue : Feb. 24, 2023  
Product name : NETWORK CAMERA  
Model/Type No. : XND-6080R  
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 : Nov, 23, 2016  
Test date : Dec, 21, 2016 – Dec, 23, 2016  
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

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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                                                                 |
|---------------|-------------------|----------------------------------------------------------------------------------|
| Jan. 04, 2017 | KES-E1-17T0002    | Issued                                                                           |
| Feb. 24, 2023 | KES-E1-17T0002-R1 | Change the Applicant, manufacturer at the request of the customer and model name |
|               |                   |                                                                                  |
|               |                   |                                                                                  |
|               |                   |                                                                                  |
|               |                   |                                                                                  |
|               |                   |                                                                                  |
|               |                   |                                                                                  |
|               |                   |                                                                                  |
|               |                   |                                                                                  |

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## 1.0 General Product Description

### Main Specifications of EUT are:

|                             |                                                                                                                                                                                                                                                                     |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Video</b>                |                                                                                                                                                                                                                                                                     |
| Imaging Device              | 1/2.8" 2M CMOS                                                                                                                                                                                                                                                      |
| Total Pixels                | 1945(H) x 1109(V) 2.16M                                                                                                                                                                                                                                             |
| Effective Pixels            | 1945(H) x 1097(V) 2.13M                                                                                                                                                                                                                                             |
| Scanning System             | Progressive Scan                                                                                                                                                                                                                                                    |
| Min. Illumination           | Color : 0.03 lux(F1.4, 1./30sec)<br>B/W : 0 Lux (F1.4, IR LED On)                                                                                                                                                                                                   |
| S / N Ratio                 | 50dB                                                                                                                                                                                                                                                                |
| Video Out                   | CVBS : 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P), for installation<br>USB : Micro USB type B, 1920 x 1080, for installation                                                                                                                                  |
| <b>Lens</b>                 |                                                                                                                                                                                                                                                                     |
| Focal Length (Zoom Ratio)   | 2.8~12mm(4.3x) motorized varifocal                                                                                                                                                                                                                                  |
| Max. Aperture Ratio         | 1.4(Wide) ~ 3.6(Tele)                                                                                                                                                                                                                                               |
| Angular Field of View       | H: 119.5°, V: 62.8°, D: 142.1°<br>H: 27.9°, V: 15.7°, D: 32.0°                                                                                                                                                                                                      |
| Min. Object Distance        | 0.5m (1.64ft)                                                                                                                                                                                                                                                       |
| Focus Control               | Simple focus(Motorized V/F) / Manual, Remote control via network<br>(Manual, Simple focus)                                                                                                                                                                          |
| Lens Type                   | DC Auto Iris, P-iris                                                                                                                                                                                                                                                |
| Mount Type                  | Board-in type                                                                                                                                                                                                                                                       |
| <b>Pan / Tilt / Rotate</b>  |                                                                                                                                                                                                                                                                     |
| Pan / Tilt / Rotate range   | 0° ~ 354° / 0° ~ 85°(TBD) / 0° ~ 355°                                                                                                                                                                                                                               |
| <b>Operational</b>          |                                                                                                                                                                                                                                                                     |
| IR-LED                      | 4EA                                                                                                                                                                                                                                                                 |
| Viewable Length             | 30m(98.4ft)                                                                                                                                                                                                                                                         |
| Camera Title                | Off / On (Displayed up to 85 characters)<br>- W/W : English/Numeric/Special Characters<br>- China : English/Numeric/Special/Chinese Characters<br>- Common : Multi-line (Max 5), Color (Grey/Green/Red/Blue/Black/White),<br>Transparency, Auto Scale by Resolution |
| Day & Night                 | Auto (ICR) / Color / B/W / External / Schedule                                                                                                                                                                                                                      |
| Backlight Compensation      | Off / BLC / HLC(Masking/Dimming), WDR                                                                                                                                                                                                                               |
| Wide Dynamic Range          | 150dB                                                                                                                                                                                                                                                               |
| Contrast Enhancement        | SSDR (Off / On)                                                                                                                                                                                                                                                     |
| Digital Noise Reduction     | SSNR5 (2D+3D Noise Filter) (Off / On)                                                                                                                                                                                                                               |
| Digital Image Stabilization | Off / On                                                                                                                                                                                                                                                            |
| Defog                       | Auto(input from fog detection) / Manual / Off                                                                                                                                                                                                                       |
| Motion Detection            | Off/ On(8ea, 8point Polygonal zones), Hand over                                                                                                                                                                                                                     |
| Privacy Masking             | Off / On (32ea, polygonal zones)<br>- Color : Grey/Green/Red/Blue/Black/White<br>- Mosaic                                                                                                                                                                           |
| Gain Control                | Off / Low / Middle / High                                                                                                                                                                                                                                           |
| White Balance               | ATW / AWC / Manual / Indoor / Outdoor((included Mercury & Sodium)                                                                                                                                                                                                   |
| Contrast                    | level adjustment                                                                                                                                                                                                                                                    |
| LDC                         | On/Off (5 levels with Min/Max)                                                                                                                                                                                                                                      |
| Electronic Shutter Speed    | Minimum / Maximum / Anti flicker (2 ~ 1/12,000sec)                                                                                                                                                                                                                  |
| Digital PTZ                 | 24X, 'Digital PTZ(Preset, Group)                                                                                                                                                                                                                                    |

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|                          |                                                                                                                                                                                                             |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Flip / Mirror            | Flip : On/Off<br>Mirror : On/Off<br>Hallway view : 90°/270°                                                                                                                                                 |
| Video & Audio Analytics  | Tampering, Loitering, Directional Detection, Defocus Detection, Fog Detection, Virtual Line, Enter/Exit, Appear / Disappear, Audio Detection, Motion Detection, Digital Auto Tracking, Sound Classification |
| Alarm I/O                | Input 1ea / Output 1ea                                                                                                                                                                                      |
| Remote Control Interface | -                                                                                                                                                                                                           |
| RS-485 Protocol          | -                                                                                                                                                                                                           |
| Alarm Triggers           | Alarm Input, Motion Detection, Video & Audio Analytics, Network Disconnect                                                                                                                                  |
| Alarm events             | File upload via FTP, E-Mail<br>Notification via E-Mail<br>local storage(SD/SDHC/SDXC) or NAS recording at Event Triggers<br>External output<br>DPTZ preset                                                  |
| Audio In                 | Selectable (Mic IN/Line IN), Built-in MIC. Max output level : 1Vrms<br>Supply voltage: 2.5VDC(4mA), Input impedance: approx. 2K Ohm                                                                         |
| Audio out                | Line out, Max output level: 1 Vrms                                                                                                                                                                          |
| Fan / Heater             | N/A                                                                                                                                                                                                         |
| Pixel Counter            | Support                                                                                                                                                                                                     |
| <b>Network</b>           |                                                                                                                                                                                                             |
| Ethernet                 | RJ-45 (10/100/1000BASE-T)                                                                                                                                                                                   |
| Video Compression Form   | H.265/H.264 (MPEG-4 Part 10/AVC) : Main/Baseline/High , Motion JPEG                                                                                                                                         |
| Resolution               | 1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x450, 720x576<br>640x480, 640x360, 320x240, 320x180                                                                                         |
| Max. Framerate           | H.265/H.264 : Max. 60fps at all resolutions<br>Motion JPEG : Max. 30fps                                                                                                                                     |
| Smart Codec              | Manual Mode (area-based : 5EA)                                                                                                                                                                              |
| WiseStream               | Support                                                                                                                                                                                                     |
| Video Quality Adjustment | H.264/H.265 : Target Bitrate Level Control<br>MJPEG : Target Bitrate Level Control                                                                                                                          |
| Bitrate Control Method   | H.264/H.265 : CBR or VBR<br>MJPEG : VBR                                                                                                                                                                     |
| Streaming Capability     | Multiple Streaming (Up to 10 Profiles)                                                                                                                                                                      |
| Audio Compression Form   | G.711 u-law /G.726 Selectable<br>G.726 (ADPCM) 8KHz, G.711 8KHz<br>G.726 : 16Kbps, 24Kbps, 32Kbps, 40Kbps<br>AAC-LC : 48Kbps at 8/16/32/48KHz                                                               |
| Audio Communication      | Bi-directional (2-Way)                                                                                                                                                                                      |
| IP                       | IPv4, IPv6                                                                                                                                                                                                  |
| Protocol                 | TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, PPPoE, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, PIM-SM, UPnP, Bonjour                             |
| 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)                                                      |
| Streaming Method         | Unicast / Multicast                                                                                                                                                                                         |
| Max. User Access         | 20 users at Unicast Mode                                                                                                                                                                                    |

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|                                  |                                                                                                                                                                                                                                                                                                     |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Edge Storage                     | SD/SDHC/SDXC 2slot (up to 512 GB)<br>- Continuous recording(1'st slot to 2'nd slot)<br>- Motion Images recorded in the SD/SDHC/SDXC memory card can be downloaded.<br>NAS(Network Attached Storage)<br>Local PC for Instant Recording                                                               |
| Application Programming          | ONVIF Profile S/G<br>SUNAPI(HTTP API)<br>Open Platform                                                                                                                                                                                                                                              |
| Webpage Language                 | English, Korean, Chinese, French, Italian, Spanish, German, Japanese,<br>Russian, Swedish, Danish, Portuguese, Czech, Polish, Turkish, Rumanian, Serbian,<br>Dutch, Croatia, Hungary, Greek, Norsk, Finnish                                                                                         |
| Web Viewer                       | Supported OS: Windows 7, 8, 10, Mac OS X 10.10. 10.11 10.12<br><b>Non-plugin Webviewer</b><br>Supported Browser: Google Chrome 54, MS Edge 38, Mozilla Firefox 49 , Apple Safari 9 (Mac OS X only)<br><b>Plug-in Webviewer</b><br>Supported Browser : MS Explore 11, Apple Safari 9 (Mac OS X only) |
| Central Management Soft          | SmartViewer, SSM                                                                                                                                                                                                                                                                                    |
| <b>Environmental</b>             |                                                                                                                                                                                                                                                                                                     |
| Operating Temperature / Humidity | -10°C ~ +55°C (-14°F ~ +131°F) / Less than 90% RH                                                                                                                                                                                                                                                   |
| Storage Temperature / Humidity   | -50°C ~ +60°C (-22°F ~ +140°F) / Less than 90% RH                                                                                                                                                                                                                                                   |
| Ingress Protection               | -                                                                                                                                                                                                                                                                                                   |
| Vandal Resistance                | IK08                                                                                                                                                                                                                                                                                                |
| <b>Electrical</b>                |                                                                                                                                                                                                                                                                                                     |
| Input Voltage / Current          | 12VDC ± 10%, PoE(IEEE802.3af)                                                                                                                                                                                                                                                                       |
| Power Consumption                | TBD                                                                                                                                                                                                                                                                                                 |

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## 1.1 Test Voltage & Frequency

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

Voltage ☐ 100 Vac ☐ 110 Vac ☐ 24ac ☒ 12 Vdc ☒ PoE  
Frequency ☐ 50 Hz ☐ 60 Hz ☐ Hz

## 1.2 Variant Model Differences

Not applicable

## 1.3 Device Modifications

Not applicable

## 1.4 Equipment Under Test

| Description    | Model Number | Serial Number | Manufacturer                                | Remarks |
|----------------|--------------|---------------|---------------------------------------------|---------|
| NETWORK CAMERA | XND-6080R    | -             | HANWHA VISION<br>VIETNAM COMPANY<br>LIMITED | E.U.T   |

## 1.5 Support Equipments

| Description      | Model Number  | Serial Number      | Manufacturer                         | Remarks |
|------------------|---------------|--------------------|--------------------------------------|---------|
| POE Adapter      | PD-3001GC/AC  | RD9356082016964200 | Power Dsine                          | -       |
| Notebook         | X56K          | HN11N5151FJ0045W   | HANSUNG                              | -       |
| Notebook Adapter | A12-120P1A    | F180271552011758   | CHICONY POWER<br>TECHNOLOGY CO.,LTD. | -       |
| Phone            | A1530         | -                  | APPLE                                | -       |
| MIC              | CMK-303       | -                  | CAMAC                                | 1.7 m   |
| Speaker          | BR10000A CUVE | -                  | BEIJING EDIFIER HI-<br>TECH GROUP.   | 1.6 m   |
| Alarm            | -             | -                  | -                                    | -       |

## 1.6 External I/O Cabling

- DC 12 V Mode

| Start                     |          | END         |           | Cable Spec. |        |
|---------------------------|----------|-------------|-----------|-------------|--------|
| Description               | I/O Port | Description | I/O Port  | Length      | Shield |
| NETWORK CAMERA<br>(E.U.T) | RJ-45    | Notebook    | RJ-45     | 3.0         | U      |
|                           | 3.5 mm   | MIC         | 3.5 mm    | 1.7         | U      |
|                           | 3.5 mm   | Speaker     | 3.5 mm    | 1.6         | U      |
|                           | 3 pin    | Alarm       | 3 pin     | 3.0         | U      |
| Notebook                  | Audio in | Phone       | Audio out | 1.7         | U      |

- PoE Mode

| Start                     |              | END         |              | Cable Spec. |        |
|---------------------------|--------------|-------------|--------------|-------------|--------|
| Description               | I/O Port     | Description | I/O Port     | Length      | Shield |
| NETWORK CAMERA<br>(E.U.T) | RJ-45 (POE)  | POE Adapter | RJ-45 (POE)  | 3.0         | U      |
|                           | 3.5 mm       | MIC         | 3.5 mm       | 1.7         | U      |
|                           | 3.5 mm       | Speaker     | 3.5 mm       | 1.6         | U      |
|                           | 3 pin        | Alarm       | 3 pin        | 3.0         | U      |
| Notebook                  | Audio in     | Phone       | Audio out    | 1.7         | U      |
|                           | RJ-45 (DATA) | POE Adapter | RJ-45 (DATA) | 3.0         | U      |

\* Unshielded=U, Shielded=S

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## 1.7 EUT Operating Mode(s)

| operating                           |
|-------------------------------------|
| E.U.T Monitoring , Ping test, 1 kHz |

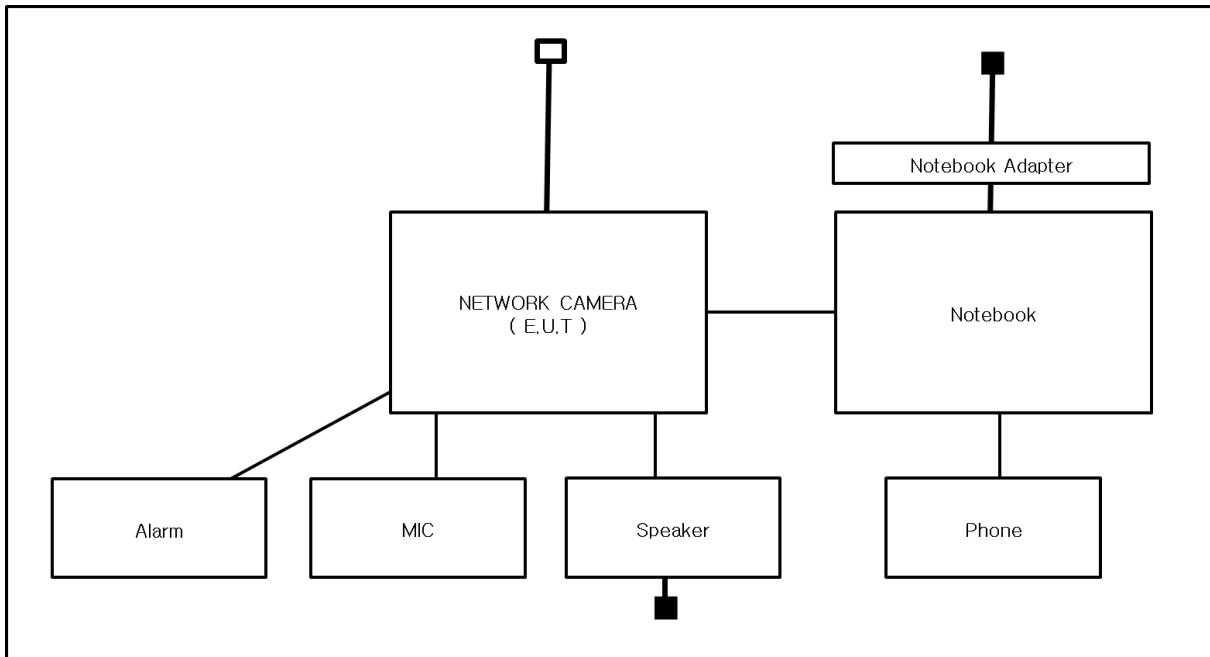
| E.U.T Test operating S/W |         |                        |
|--------------------------|---------|------------------------|
| Name                     | Version | Manufacture Company    |
| SmartViewer              | -       | Hanwha Vision Co., Ltd |

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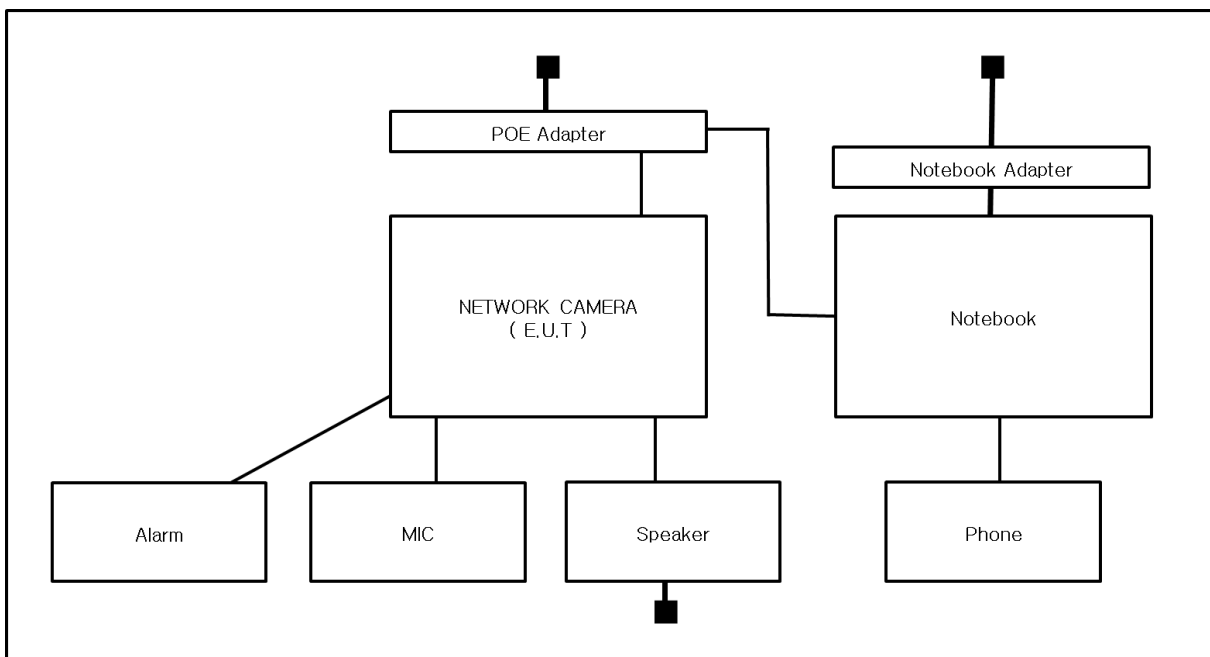
## 1.8 Configuration

■ AC Main  
□ DC 12 V Main

- DC 12V Mode



- PoE Mode



## 1.9 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.

## 1.10 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

## 1.11 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                     |

## 2.0 Test Regulations

The emissions tests were performed according to following regulations:

☐ **EMC – Directive 2014/30/EU**

☐ EN 61000-6-3:2011

☐ EN 61000-6-1:2007

☐ EN 61000-6-4:2007 +A1:2011

☐ EN 61000-6-2:2005

☐ EN 55011:2007 +A1:2010

☐ Group 1  
☐ Class A

☐ Group 2  
☐ Class B

☐ EN 55014-1:2006 +A2:2011

☐ EN 55014-2:1997 +A2:2008

☐ EN 55015:2013

☐ EN 55022:2010

☐ Class A

☐ Class B

☐ EN 55024:2010

☐ EN 50130-4:2011 +A1:2014

☐ EN 61000-3-2:2014

☐ EN 61000-3-3:2013

☐ EN 61326-1:2013



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☐ **VCCI V-3 / 2015.04**

☐ Class A

☐ Class B

☒ **AS/NZS CISPR22:2009 +A1:2010**

☒ Class A

☐ Class B

☐ **47 CFR Part 15, Subpart B**

☐ CISPR 22:2009 +A1:2010

☐ Class A

☐ Class B

☐ ANSI C63.4-2009

☐ **IC Regulation ICES-003 : 2016**

☐ CAN/CSA CISPR 22-10

☐ Class A

☐ Class B

☐ ANSI C63.4-2014

☐ **RE- Directive 2014/53/EU**

☐ EN 301 489-1 V1.9.2

- ☐ Equipment for fixed use
- ☐ Equipment for vehicular use
- ☐ Equipment for portable use

☐ EN 301 489-3 V1.6.1

☐ EN 301 489-17 V2.2.1

☐ EN 60945:2002

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## 2.1 Conducted Emissions at Mains Power Ports

### Test Date

N/A

### Test Location

Electro wave Shieldroom

### Test Equipment

| Used                     | Description             | Model Number | Manufacturer | Serial Number | Cal. Due     |
|--------------------------|-------------------------|--------------|--------------|---------------|--------------|
| <input type="checkbox"/> | EMI Test Receiver       | ESR3         | R & S        | 101783        | 05, 03, 2017 |
| <input type="checkbox"/> | LISN                    | ENV216       | R & S        | 101137        | 02, 04, 2017 |
| <input type="checkbox"/> | LISN                    | ENV216       | R & S        | 101786        | 05, 02, 2017 |
| <input type="checkbox"/> | Electro wave Shieldroom | -            | SEMITEC      | -             | -            |
| <input type="checkbox"/> | EMI Test S/W            | EMC32        | R & S        | 9.12.00       | -            |

### Test Conditions

Temperature: °C  
Relative Humidity: %

### 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

N/A Because the E.U.T power is 12 v (dc) power and PoE, limits are not specified.

## 2.2 Conducted Emissions at Telecommunication Ports

### Test Date

Dec, 23, 2016

### Test Location

Electro wave Shieldroom

### Test Equipment

| Used                                | Description             | Model Number | Manufacturer     | Serial Number | Cal. Due     |
|-------------------------------------|-------------------------|--------------|------------------|---------------|--------------|
| <input checked="" type="checkbox"/> | EMI Test Receiver       | ESR3         | R & S            | 101783        | 05, 03, 2017 |
| <input checked="" type="checkbox"/> | LISN                    | ENV216       | R & S            | 101137        | 02, 04, 2017 |
| <input checked="" type="checkbox"/> | LISN                    | ENV216       | R & S            | 101786        | 05, 02, 2017 |
| <input checked="" type="checkbox"/> | 8-Wire ISN CAT3         | CAT3 8158    | Schwarzbeck Mess | 8158-0019     | 04, 01, 2017 |
| <input checked="" type="checkbox"/> | 8-Wire ISN CAT5         | CAT5 8158    | Schwarzbeck Mess | 8158-0030     | 04, 01, 2017 |
| <input type="checkbox"/>            | 8-Wire ISN CAT6         | NTFM 8158    | Schwarzbeck Mess | 8158-0029     | 08, 11, 2017 |
| <input checked="" type="checkbox"/> | Electro wave Shieldroom | -            | SEMITEC          | -             | -            |
| <input checked="" type="checkbox"/> | EMI Test S/W            | EMC32        | R & S            | 9,12,00       | -            |

### Test Conditions

Temperature: 17,9 °C

Relative Humidity: 49,7 %

### 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.

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

### Test Date

Dec, 23, 2016

### Test Location

☐ Open Area Test Site #1      ☒ Open Area Test Site #2

### Test Equipment

| Used                                | Description          | Model Number | Manufacturer | Serial Number | Cal. Due     |
|-------------------------------------|----------------------|--------------|--------------|---------------|--------------|
| <input checked="" type="checkbox"/> | EMI TEST Receiver    | ESR3         | R&S          | 101781        | 05, 03, 2017 |
| <input checked="" type="checkbox"/> | Trilog-Broadband ANT | VULB 9163    | Schwarzbeck  | 9163-713      | 05, 15, 2017 |
| <input checked="" type="checkbox"/> | OATS                 | -            | KES          | -             | -            |
| <input checked="" type="checkbox"/> | Antenna Mast         | -            | DAEIL EMC    | -             | -            |
| <input checked="" type="checkbox"/> | Turn Table           | -            | DAEIL EMC    | -             | -            |
| <input checked="" type="checkbox"/> | EMI Test S/W         | -            | -            | -             | -            |

### Test Conditions

Temperature: -0,4 °C  
Relative Humidity: 66,0 %

### 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, 23, 2016

### Test Location

Semi Anechoic Chamber #2

### Test Equipment

| Used                                | Description                    | Model Number | Manufacturer                  | Serial Number | Cal. Due     |
|-------------------------------------|--------------------------------|--------------|-------------------------------|---------------|--------------|
| <input checked="" type="checkbox"/> | EMI Test Receiver              | ESU26        | R&S                           | 100552        | 04, 24, 2017 |
| <input checked="" type="checkbox"/> | Broadband Coaxial Preamplifier | BBV 9718     | Schwarzbeck Mess - Elektronik | 9718-246      | 10, 14, 2017 |
| <input checked="" type="checkbox"/> | DOUBLE RIDGED HORN ANTENNA     | SAS-571      | A.H.SYSTEM,INC                | 781           | 05, 07, 2017 |
| <input checked="" type="checkbox"/> | Semi Anechoic Chamber #2       | -            | SEMITEC                       | -             | -            |
| <input checked="" type="checkbox"/> | Antenna Mast                   | -            | AUDIX                         | -             | -            |
| <input checked="" type="checkbox"/> | Turn Table                     | -            | AUDIX                         | -             | -            |
| <input checked="" type="checkbox"/> | EMI Test S/W                   | e3           | AUDIX                         | 8.083b        | -            |

### Test Conditions

Temperature: 17,9 °C

Relative Humidity: 49,7 %

### Frequency Range of Measurement

1 GHz to 6 GHz

### Instrument Settings

IF Band Width: 1 MHz

### Test Results

The requirements are:

- ☒ PASS  
☐ NOT PASS  
☐ NOT APPLICABLE

### Remarks

See Appendix A for test data.



## APPENDIX A – TEST DATA

### Conducted Emissions at Mains Power Ports

[HOT]

M/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)



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www.kes.co.kr

Report No.:

KES-E1-17T0002-R1

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[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)

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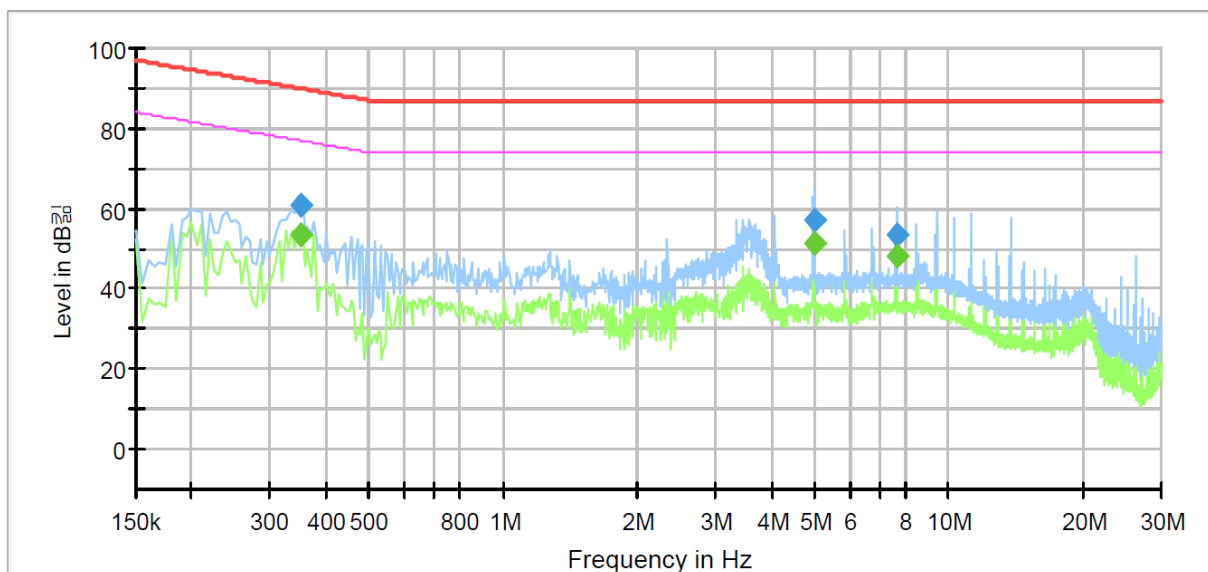
## Conducted Emissions at Telecommunication Ports

- DC 12V Mode

[10 Mbps]

### Common Information

Test Description: Telecommunication Emission  
Model No.: XND-6080RP  
Mode: DC 12 V\_10 Mbps  
Operator Name: KES



### Final Result

| Frequency (MHz) | QuasiPeak (dBμV) | CAverage (dBμV) | Limit (dBμV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line        | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|-----------------|-----------------|-------------|------------|
| 0.350000        | ---              | 53.34           | 76.96        | 23.62       | 1000.0          | 9.000           | Single Line | 10.1       |
| 0.350000        | 60.88            | ---             | 89.96        | 29.08       | 1000.0          | 9.000           | Single Line | 10.1       |
| 5.000000        | ---              | 51.44           | 74.00        | 22.56       | 1000.0          | 9.000           | Single Line | 10.1       |
| 5.000000        | 57.18            | ---             | 87.00        | 29.82       | 1000.0          | 9.000           | Single Line | 10.1       |
| 7.665000        | ---              | 48.05           | 74.00        | 25.95       | 1000.0          | 9.000           | Single Line | 10.0       |
| 7.665000        | 53.64            | ---             | 87.00        | 33.36       | 1000.0          | 9.000           | Single Line | 10.0       |

#### ◆ Calculation

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

QuasiPeak / CAverage : The Final Value

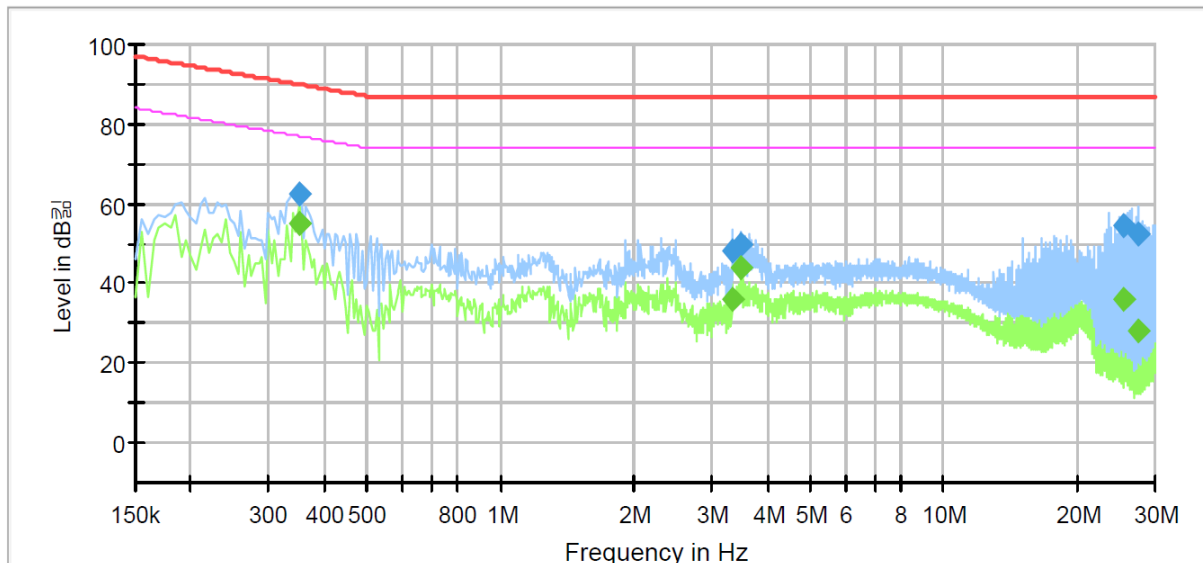
Reading Value : Not shown in the table.

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

## [100 Mbps]

### Common Information

Test Description: Telecommunication Emission  
Model No.: XND-6080RP  
Mode: DC 12 V\_100 Mbps  
Operator Name: KES



### Final Result

| Frequency (MHz) | QuasiPeak (dBμV) | CAverage (dBμV) | Limit (dBμV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line        | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|-----------------|-----------------|-------------|------------|
| 0.350000        | ---              | 54.99           | 76.96        | 21.97       | 1000.0          | 9.000           | Single Line | 9.6        |
| 0.350000        | 62.39            | ---             | 89.96        | 27.57       | 1000.0          | 9.000           | Single Line | 9.6        |
| 3.340000        | ---              | 35.88           | 74.00        | 38.12       | 1000.0          | 9.000           | Single Line | 9.7        |
| 3.340000        | 47.99            | ---             | 87.00        | 39.01       | 1000.0          | 9.000           | Single Line | 9.7        |
| 3.505000        | ---              | 43.73           | 74.00        | 30.27       | 1000.0          | 9.000           | Single Line | 9.7        |
| 3.505000        | 49.65            | ---             | 87.00        | 37.35       | 1000.0          | 9.000           | Single Line | 9.7        |
| 25.550000       | ---              | 36.09           | 74.00        | 37.91       | 1000.0          | 9.000           | Single Line | 9.5        |
| 25.550000       | 54.67            | ---             | 87.00        | 32.33       | 1000.0          | 9.000           | Single Line | 9.5        |
| 27.360000       | ---              | 28.23           | 74.00        | 45.77       | 1000.0          | 9.000           | Single Line | 9.5        |
| 27.360000       | 52.65            | ---             | 87.00        | 34.35       | 1000.0          | 9.000           | Single Line | 9.5        |

#### ◆ Calculation

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

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

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

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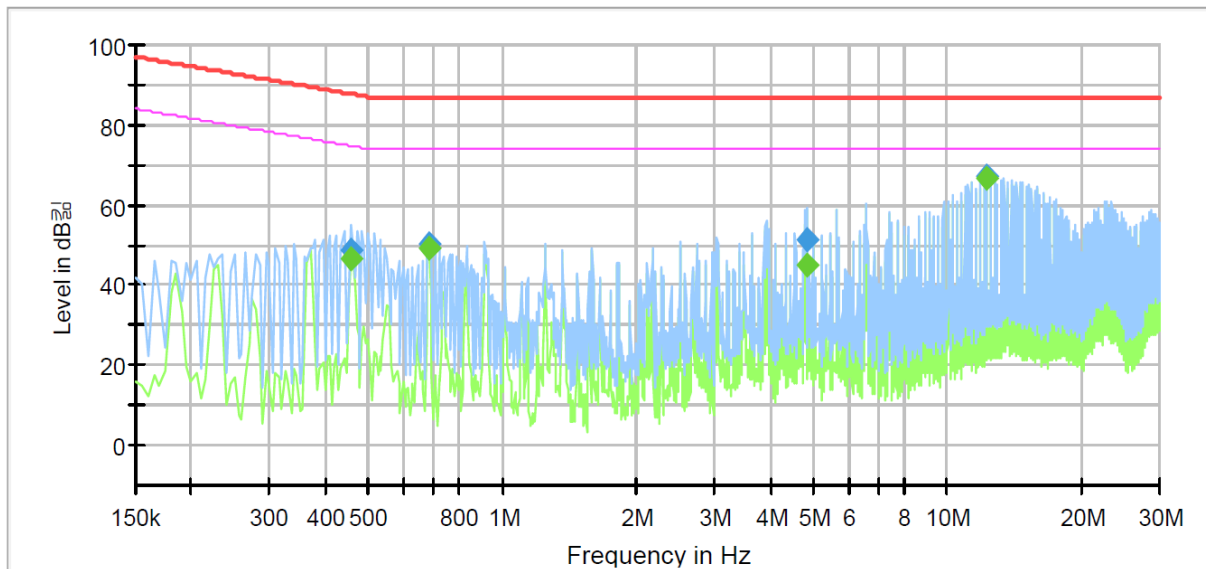
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- PoE Mode

**[10 Mbps]**

## Common Information

|                   |                            |
|-------------------|----------------------------|
| Test Description: | Telecommunication Emission |
| Model No.:        | XND-6080RP                 |
| Mode              | POE_10 Mbps                |
| Operator Name:    | KES                        |



## Final Result

| Frequency (MHz) | QuasiPeak (dBμV) | CAverage (dBμV) | Limit (dBμV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line        | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|-----------------|-----------------|-------------|------------|
| 0.455000        | ---              | 46.58           | 74.78        | 28.20       | 1000.0          | 9.000           | Single Line | 10.1       |
| 0.455000        | 48.88            | ---             | 87.78        | 38.90       | 1000.0          | 9.000           | Single Line | 10.1       |
| 0.685000        | ---              | 49.13           | 74.00        | 24.87       | 1000.0          | 9.000           | Single Line | 10.1       |
| 0.685000        | 50.30            | ---             | 87.00        | 36.70       | 1000.0          | 9.000           | Single Line | 10.1       |
| 4.835000        | ---              | 44.94           | 74.00        | 29.06       | 1000.0          | 9.000           | Single Line | 10.1       |
| 4.835000        | 51.12            | ---             | 87.00        | 35.88       | 1000.0          | 9.000           | Single Line | 10.1       |
| 12.300000       | ---              | 66.81           | 74.00        | 7.19        | 1000.0          | 9.000           | Single Line | 10.0       |
| 12.300000       | 67.19            | ---             | 87.00        | 19.81       | 1000.0          | 9.000           | Single Line | 10.0       |

### ◆ Calculation

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

QuasiPeak / CAverage : The Final Value

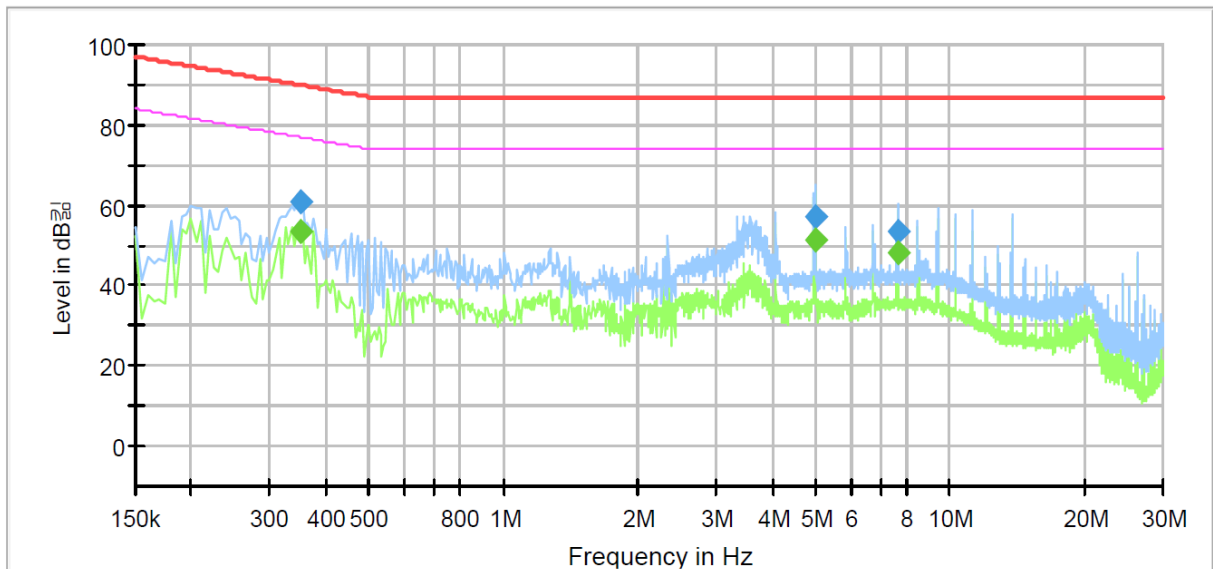
Reading Value : Not shown in the table.

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

## [100 Mbps]

### Common Information

|                   |                            |
|-------------------|----------------------------|
| Test Description: | Telecommunication Emission |
| Model No.:        | XND-6080RP                 |
| Mode              | DC 12 V_10 Mbps            |
| Operator Name:    | KES                        |



### Final Result

| Frequency (MHz) | QuasiPeak (dBμV) | CAverage (dBμV) | Limit (dBμV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line        | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|-----------------|-----------------|-------------|------------|
| 0.350000        | ---              | 53.34           | 76.96        | 23.62       | 1000.0          | 9.000           | Single Line | 10.1       |
| 0.350000        | 60.88            | ---             | 89.96        | 29.08       | 1000.0          | 9.000           | Single Line | 10.1       |
| 5.000000        | ---              | 51.44           | 74.00        | 22.56       | 1000.0          | 9.000           | Single Line | 10.1       |
| 5.000000        | 57.18            | ---             | 87.00        | 29.82       | 1000.0          | 9.000           | Single Line | 10.1       |
| 7.665000        | ---              | 48.05           | 74.00        | 25.95       | 1000.0          | 9.000           | Single Line | 10.0       |
| 7.665000        | 53.64            | ---             | 87.00        | 33.36       | 1000.0          | 9.000           | Single Line | 10.0       |

#### ◆ Calculation

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

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

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

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## Radiated Electric Field Emissions(Below 1 GHz)

- DC 12V Mode

| Frequency | Amplitude | ANT             | ANT. Height | Correction Factor |               | Corrected Amplitude | Applicable Limit | Margin |
|-----------|-----------|-----------------|-------------|-------------------|---------------|---------------------|------------------|--------|
| [MHz]     | [dBμV]    | Polar.<br>(H/V) | [m]         | ANT.<br>[dB/m]    | Cable<br>[dB] | [dBμV/m]            | [dBμV/m]         | [dB]   |
| 59.45     | 14.23     | V               | 1.21        | 12.76             | 2.23          | 29.22               | 40.00            | 10.78  |
| 186.27    | 15.12     | H               | 3.86        | 10.00             | 3.97          | 29.09               | 40.00            | 10.91  |
| 270.00    | 17.18     | V               | 1.11        | 12.80             | 4.89          | 34.87               | 47.00            | 12.13  |
| 601.11    | 11.98     | H               | 3.89        | 19.30             | 7.84          | 39.12               | 47.00            | 7.88   |
| 617.24    | 11.24     | H               | 3.99        | 19.37             | 7.94          | 38.55               | 47.00            | 8.45   |
| 623.97    | 13.36     | V               | 1.00        | 19.40             | 7.99          | 40.75               | 47.00            | 6.25   |

\* H : Horizontal, V : Vertical

### ◆ Calculation

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

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

Correction Factor : ANT FACTOR + Cable loss

- PoE Mode

| Frequency | Amplitude | ANT             | ANT. Height | Correction Factor |               | Corrected Amplitude | Applicable Limit | Margin |
|-----------|-----------|-----------------|-------------|-------------------|---------------|---------------------|------------------|--------|
| [MHz]     | [dBμV]    | Polar.<br>(H/V) | [m]         | ANT.<br>[dB/m]    | Cable<br>[dB] | [dBμV/m]            | [dBμV/m]         | [dB]   |
| 121.96    | 21.61     | V               | 1.12        | 9.49              | 3.19          | 34.29               | 40.00            | 5.71   |
| 186.34    | 17.12     | H               | 3.80        | 10.01             | 3.97          | 31.10               | 40.00            | 8.90   |
| 458.41    | 10.54     | H               | 3.82        | 16.52             | 6.83          | 33.89               | 47.00            | 13.11  |
| 593.21    | 10.24     | H               | 3.93        | 19.15             | 7.77          | 37.16               | 47.00            | 9.84   |
| 705.37    | 11.21     | V               | 1.21        | 19.76             | 8.58          | 39.55               | 47.00            | 7.45   |
| 853.89    | 9.84      | V               | 1.14        | 21.52             | 9.74          | 41.10               | 47.00            | 5.90   |

\* H : Horizontal, V : Vertical

### ◆ Calculation

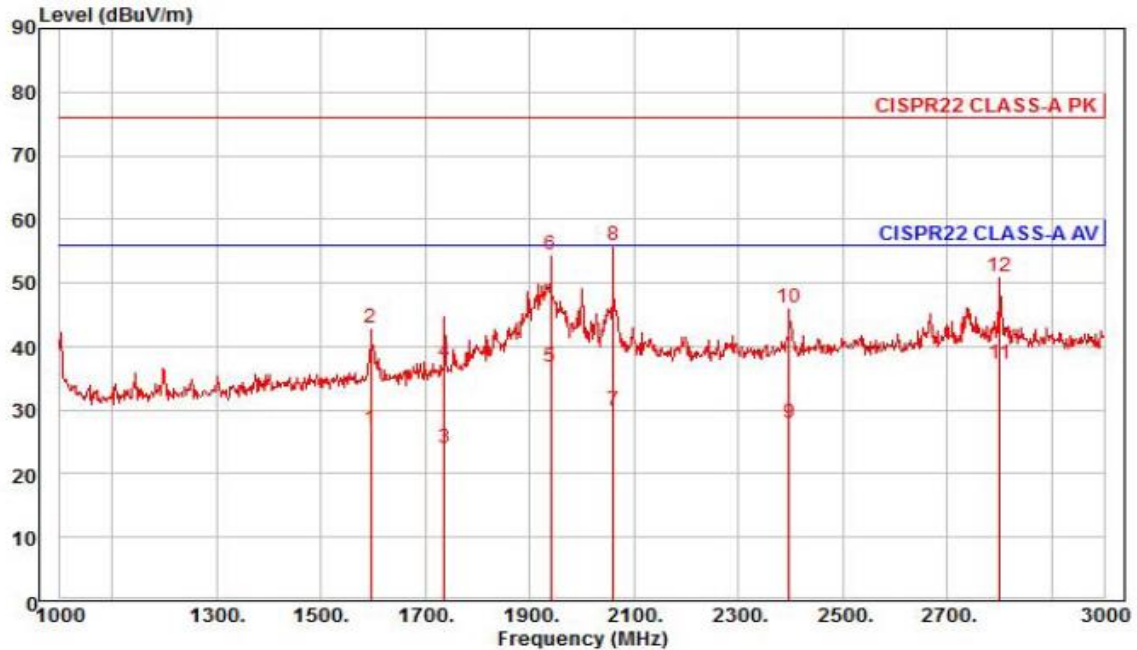
Corrected Amplitude [dBuV] = Amplitude[dBuV] + Correction Factor [dB]

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

Correction Factor : ANT FACTOR + Cable loss

## Radiated Electric Field Emissions(Above 1 GHz)

- DC 12V Mode



Site : chamber  
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal  
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto  
Project :  
Model : XND-6080RP  
Mode : DC 12 V  
Memo : 1 ~ 3 GHz

|       | Freq    | Read Level | Ant Factor | Cable Loss | Preamp Factor | TPos | Limit Line | Over Limit | Pol/Phase  | Remark  |
|-------|---------|------------|------------|------------|---------------|------|------------|------------|------------|---------|
|       | MHz     | dBuV       | dB/m       | dB         | dB            | deg  | dBuV/m     | dB         |            |         |
| 1     | 1596.00 | 31.71      | 26.28      | 8.30       | 39.22         | 360  | 56.00      | -28.93     | horizontal | Average |
| 2     | 1596.00 | 47.57      | 26.28      | 8.30       | 39.22         | 360  | 76.00      | -33.07     | horizontal | Peak    |
| 3     | 1736.00 | 27.73      | 26.83      | 8.66       | 39.29         | 217  | 56.00      | -32.07     | horizontal | Average |
| 4     | 1736.00 | 41.44      | 26.83      | 8.66       | 39.29         | 217  | 76.00      | -38.36     | horizontal | Peak    |
| 5     | 1940.00 | 39.44      | 27.64      | 9.18       | 39.38         | 6    | 56.00      | -19.12     | horizontal | Average |
| 6     | 1940.00 | 56.98      | 27.64      | 9.18       | 39.38         | 6    | 76.00      | -21.58     | horizontal | Peak    |
| 7     | 2060.00 | 31.89      | 28.03      | 9.48       | 39.41         | 176  | 56.00      | -26.01     | horizontal | Average |
| 8 pk  | 2060.00 | 57.84      | 28.03      | 9.48       | 39.41         | 176  | 76.00      | -20.06     | horizontal | Peak    |
| 9     | 2398.00 | 28.31      | 28.86      | 10.32      | 39.42         | 302  | 56.00      | -27.93     | horizontal | Average |
| 10    | 2398.00 | 46.45      | 28.86      | 10.32      | 39.42         | 302  | 76.00      | -29.79     | horizontal | Peak    |
| 11 pp | 2800.00 | 36.00      | 29.84      | 11.23      | 39.88         | 86   | 56.00      | -18.81     | horizontal | Average |
| 12    | 2800.00 | 49.79      | 29.84      | 11.23      | 39.88         | 86   | 76.00      | -25.02     | horizontal | Peak    |

### ◆ Calculation

Over Limit [dB] = (Read Level[dBuV] + Ant Factor[dB/m] + Cable Loss [dB] - Preamp Factor [dB]) - Limit Line[dBuV]

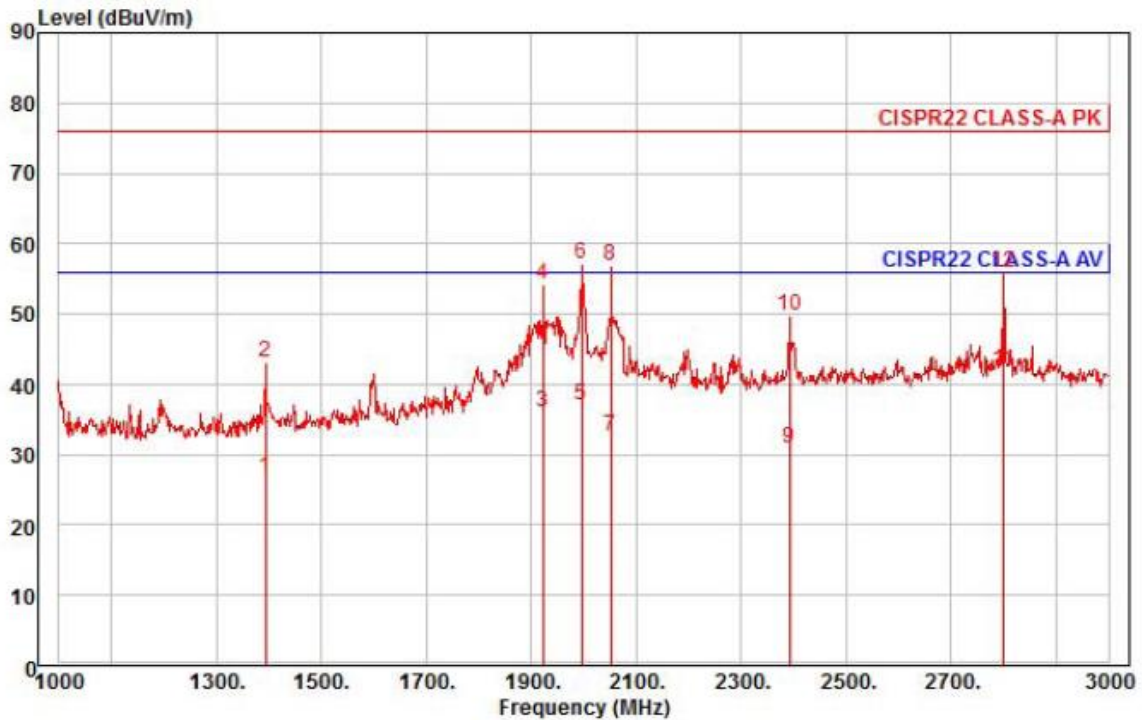
Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor,

Cable Loss : Cable loss, Preamp Factor : Preamp Factor

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Site : chamber  
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical  
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto  
Project :  
Model : XND-6080RP  
Mode : DC 12 V  
Memo : 1 ~ 3 GHz

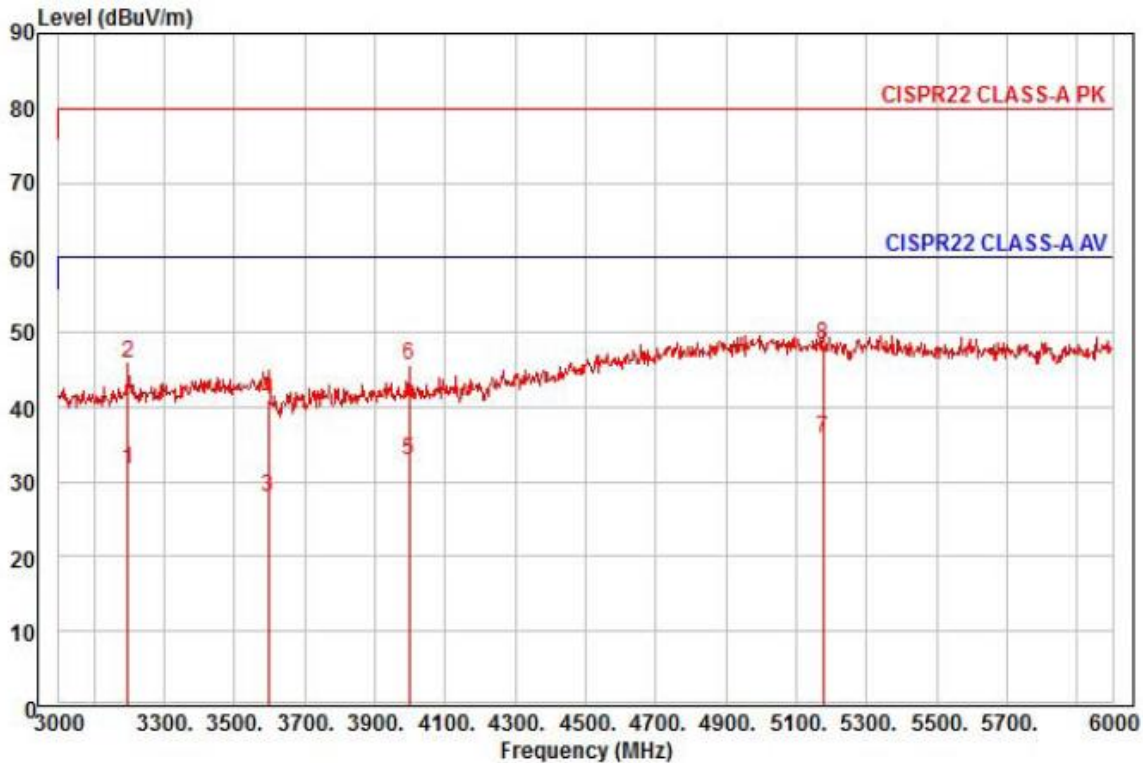
|       | Freq    | Read Level | Ant Factor | Cable Loss | Preamp Factor | TPos | Limit Line | Over Limit | Pol/Phase | Remark  |
|-------|---------|------------|------------|------------|---------------|------|------------|------------|-----------|---------|
|       | MHz     | dBuV       | dB/m       | dB         | dB            | deg  | dBuV/m     | dB         |           |         |
| 1     | 1394.00 | 32.63      | 25.47      | 7.71       | 39.14         | 284  | 56.00      | -29.33     | vertical  | Average |
| 2     | 1394.00 | 49.02      | 25.47      | 7.71       | 39.14         | 284  | 76.00      | -32.94     | vertical  | Peak    |
| 3     | 1922.00 | 38.78      | 27.57      | 9.14       | 39.37         | 84   | 56.00      | -19.88     | vertical  | Average |
| 4     | 1922.00 | 56.75      | 27.57      | 9.14       | 39.37         | 84   | 76.00      | -21.91     | vertical  | Peak    |
| 5     | 1996.00 | 39.33      | 27.86      | 9.33       | 39.41         | 349  | 56.00      | -18.89     | vertical  | Average |
| 6 pk  | 1996.00 | 59.48      | 27.86      | 9.33       | 39.41         | 349  | 76.00      | -18.74     | vertical  | Peak    |
| 7     | 2052.00 | 34.59      | 28.01      | 9.46       | 39.41         | 179  | 56.00      | -23.35     | vertical  | Average |
| 8     | 2052.00 | 58.89      | 28.01      | 9.46       | 39.41         | 179  | 76.00      | -19.05     | vertical  | Peak    |
| 9     | 2392.00 | 31.17      | 28.84      | 10.30      | 39.42         | 112  | 56.00      | -25.11     | vertical  | Average |
| 10    | 2392.00 | 49.94      | 28.84      | 10.30      | 39.42         | 112  | 76.00      | -26.34     | vertical  | Peak    |
| 11 pp | 2800.00 | 40.81      | 29.84      | 11.23      | 39.88         | 221  | 56.00      | -14.00     | vertical  | Average |
| 12    | 2800.00 | 54.74      | 29.84      | 11.23      | 39.88         | 221  | 76.00      | -20.07     | vertical  | Peak    |

#### ◆ Calculation

Over Limit [dB] = (Read Level[dBuV] + Ant Factor[dB/m] + Cable Loss [dB] - Preamp Factor [dB]) - Limit Line[dBuV]

Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor,  
Cable Loss : Cable loss, Preamp Factor : Preamp Factor

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Site : chamber  
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal  
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto  
Project :  
Model : XND-6080RP  
Mode : DC 12 V  
Memo : 3 ~ 6 GHz

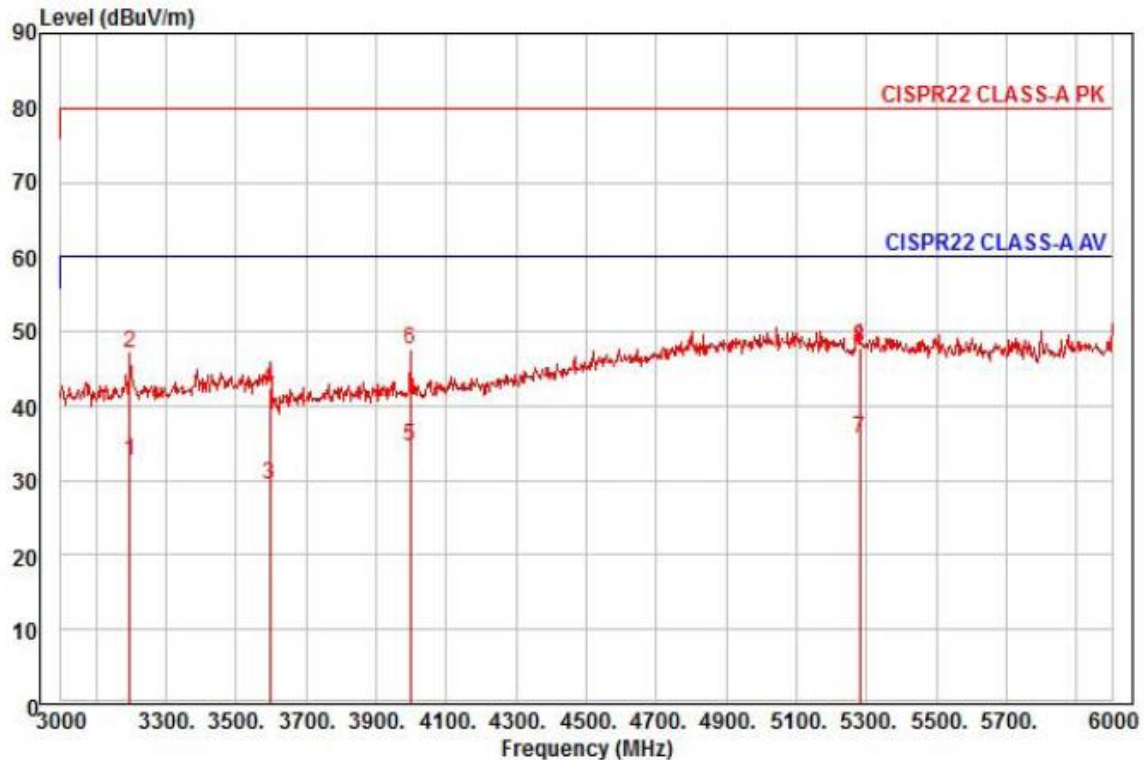
|      | Read    | Ant    | Cable | Preamp | TPos  | Limit  | Over  |           |                    |
|------|---------|--------|-------|--------|-------|--------|-------|-----------|--------------------|
| Freq | Level   | Factor | Loss  | Factor |       | Line   | Limit | Pol/Phase | Remark             |
| MHz  | dBuV    | dB/m   | dB    | dB     | deg   | dBuV/m | dB    |           |                    |
| 1    | 3198.00 | 29.43  | 30.66 | 12.05  | 40.41 | 2      | 60.00 | -28.27    | horizontal Average |
| 2    | 3198.00 | 43.61  | 30.66 | 12.05  | 40.41 | 2      | 80.00 | -34.09    | horizontal Peak    |
| 3    | 3597.00 | 24.77  | 31.33 | 12.80  | 40.85 | 318    | 60.00 | -31.95    | horizontal Average |
| 4    | 3597.00 | 37.78  | 31.33 | 12.80  | 40.85 | 318    | 80.00 | -38.94    | horizontal Peak    |
| 5    | 3999.00 | 28.08  | 32.01 | 13.56  | 40.70 | 353    | 60.00 | -27.05    | horizontal Average |
| 6    | 3999.00 | 40.63  | 32.01 | 13.56  | 40.70 | 353    | 80.00 | -34.50    | horizontal Peak    |
| 7 pp | 5178.00 | 23.28  | 37.36 | 15.67  | 40.57 | 336    | 60.00 | -24.26    | horizontal Average |
| 8 pk | 5178.00 | 35.91  | 37.36 | 15.67  | 40.57 | 336    | 80.00 | -31.63    | horizontal Peak    |

#### ◆ Calculation

Over Limit [dB] = (Read Level[dBuV] + Ant Factor[dB/m] + Cable Loss [dB] - Preamp Factor [dB]) - Limit Line[dBuV]

Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor,  
Cable Loss : Cable loss, Preamp Factor : Preamp Factor

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Site : chamber

Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical  
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto

Project :

Model : XND-6080RP

Mode : DC 12 V

Memo : 3 ~ 6 GHz

|      | Freq    | Read Level | Ant Factor | Cable Loss | Preamp Factor | TPos | Limit Line | Over Limit | Pol/Phase | Remark  |
|------|---------|------------|------------|------------|---------------|------|------------|------------|-----------|---------|
|      | MHz     | dBuV       | dB/m       | dB         | dB            | deg  | dBuV/m     | dB         |           |         |
| 1    | 3198.00 | 30.31      | 30.66      | 12.05      | 40.41         | 220  | 60.00      | -27.39     | vertical  | Average |
| 2    | 3198.00 | 44.74      | 30.66      | 12.05      | 40.41         | 220  | 80.00      | -32.96     | vertical  | Peak    |
| 3    | 3597.00 | 26.08      | 31.33      | 12.80      | 40.85         | 333  | 60.00      | -30.64     | vertical  | Average |
| 4    | 3597.00 | 39.02      | 31.33      | 12.80      | 40.85         | 333  | 80.00      | -37.70     | vertical  | Peak    |
| 5    | 3999.00 | 29.82      | 32.01      | 13.56      | 40.70         | 325  | 60.00      | -25.31     | vertical  | Average |
| 6    | 3999.00 | 42.76      | 32.01      | 13.56      | 40.70         | 325  | 80.00      | -32.37     | vertical  | Peak    |
| 7 pp | 5280.00 | 23.21      | 37.15      | 15.84      | 40.73         | 218  | 60.00      | -24.53     | vertical  | Average |
| 8 pk | 5280.00 | 35.68      | 37.15      | 15.84      | 40.73         | 218  | 80.00      | -32.06     | vertical  | Peak    |

# Calculation

Over Limit [dB] = (Read Level[dBuV] + Ant Factor[dB/m] + Cable Loss [dB] - Preamp Factor [dB]) - Limit Line[dBuV]

Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor,

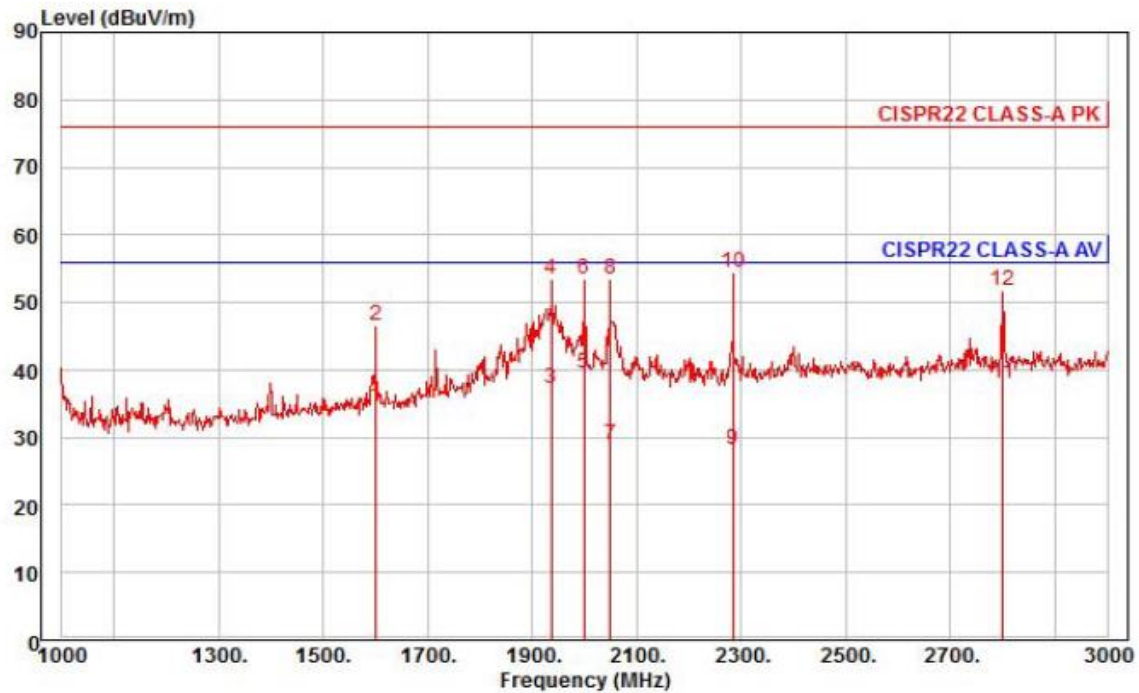
Cable Loss : Cable loss, Preamp Factor : Preamp Factor

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# - PoE Mode



Site : chamber  
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal  
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto  
Project :  
Model : XND-6080RP  
Mode : POE  
Memo : 1 ~ 3 GHz

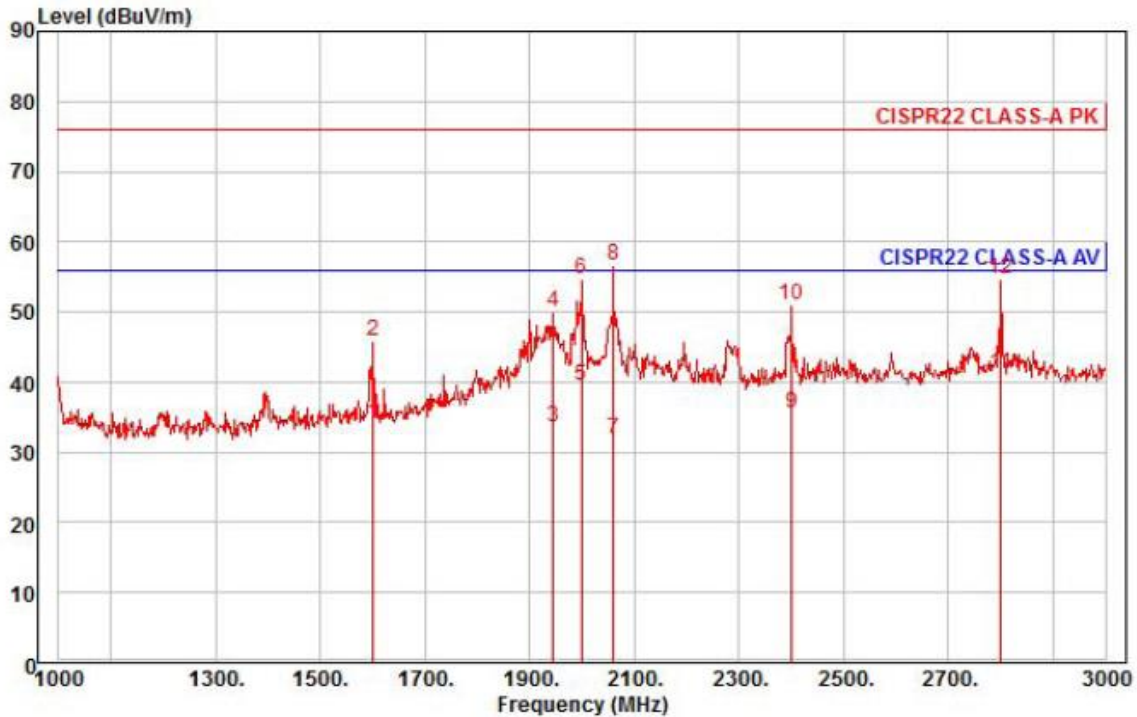
|       | Freq    | Read Level | Ant Factor | Cable Loss | Preamp Factor | TPos | Limit Line | Over Limit | Pol/Phase  | Remark  |
|-------|---------|------------|------------|------------|---------------|------|------------|------------|------------|---------|
|       | MHz     | dBuV       | dB/m       | dB         | dB            | deg  | dBuV/m     | dB         |            |         |
| 1     | 1600.00 | 39.26      | 26.29      | 8.31       | 39.22         | 142  | 56.00      | -21.36     | horizontal | Average |
| 2     | 1600.00 | 51.20      | 26.29      | 8.31       | 39.22         | 142  | 76.00      | -29.42     | horizontal | Peak    |
| 3     | 1936.00 | 39.75      | 27.63      | 9.17       | 39.38         | 7    | 56.00      | -18.83     | horizontal | Average |
| 4     | 1936.00 | 55.93      | 27.63      | 9.17       | 39.38         | 7    | 76.00      | -22.65     | horizontal | Peak    |
| 5 pp  | 2000.00 | 41.79      | 27.88      | 9.34       | 39.41         | 45   | 56.00      | -16.40     | horizontal | Average |
| 6     | 2000.00 | 55.77      | 27.88      | 9.34       | 39.41         | 45   | 76.00      | -22.42     | horizontal | Peak    |
| 7     | 2050.00 | 30.80      | 28.00      | 9.45       | 39.41         | 0    | 56.00      | -27.16     | horizontal | Average |
| 8     | 2050.00 | 55.46      | 28.00      | 9.45       | 39.41         | 0    | 76.00      | -22.50     | horizontal | Peak    |
| 9     | 2284.00 | 28.92      | 28.58      | 10.02      | 39.42         | 121  | 56.00      | -27.90     | horizontal | Average |
| 10 pk | 2284.00 | 55.24      | 28.58      | 10.02      | 39.42         | 121  | 76.00      | -21.58     | horizontal | Peak    |
| 11    | 2800.00 | 36.74      | 29.84      | 11.23      | 39.88         | 85   | 56.00      | -18.07     | horizontal | Average |
| 12    | 2800.00 | 50.47      | 29.84      | 11.23      | 39.88         | 85   | 76.00      | -24.34     | horizontal | Peak    |

## ◆ Calculation

Over Limit [dB] = (Read Level[dBuV] + Ant Factor[dB/m] + Cable Loss [dB] - Preamp Factor [dB]) - Limit Line[dBuV]

Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor,  
Cable Loss : Cable loss, Preamp Factor : Preamp Factor

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Site : chamber  
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical  
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto  
Project :  
Model : XND-6080RP  
Mode : POE  
Memo : 1 ~ 3 GHz

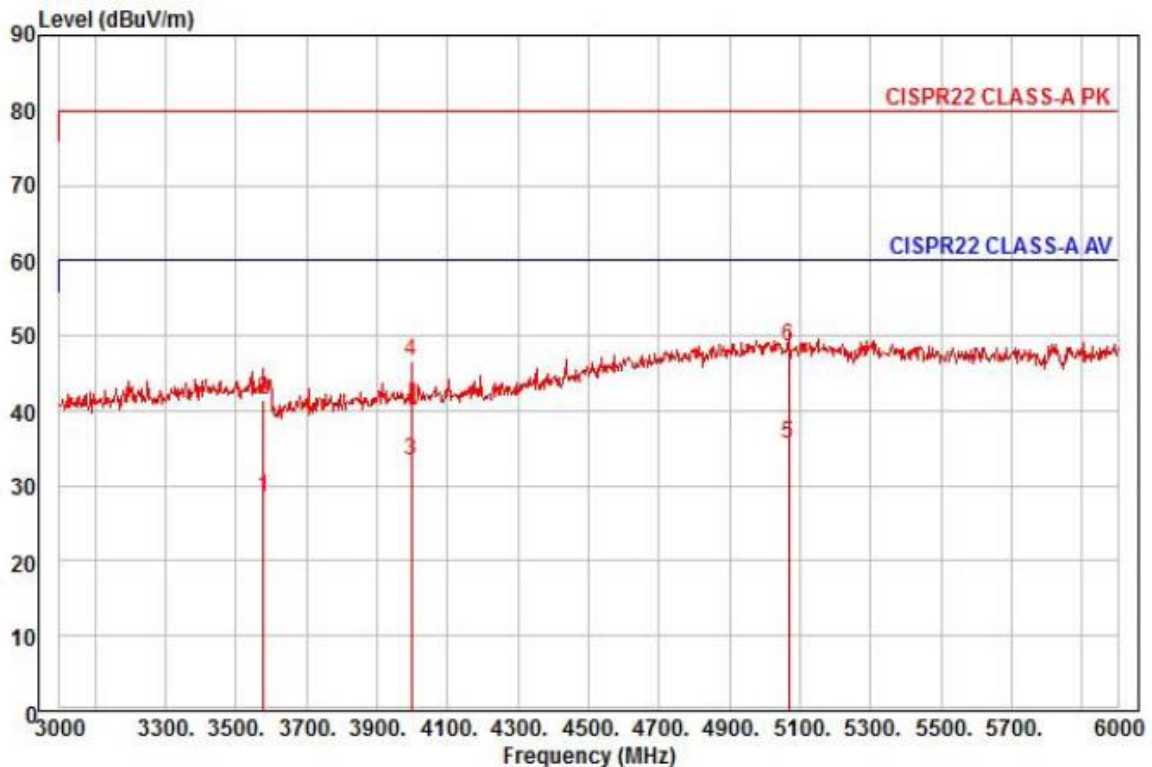
|       | Freq    | Read Level | Ant Factor | Cable Loss | Preamp Factor | TPos | Limit Line | Over Limit | Pol/Phase | Remark  |
|-------|---------|------------|------------|------------|---------------|------|------------|------------|-----------|---------|
|       | MHz     | dBuV       | dB/m       | dB         | dB            | deg  | dBuV/m     | dB         |           |         |
| 1     | 1600.00 | 38.78      | 26.29      | 8.31       | 39.22         | 232  | 56.00      | -21.84     | vertical  | Average |
| 2     | 1600.00 | 50.37      | 26.29      | 8.31       | 39.22         | 232  | 76.00      | -30.25     | vertical  | Peak    |
| 3     | 1946.00 | 36.13      | 27.67      | 9.20       | 39.38         | 351  | 56.00      | -22.38     | vertical  | Average |
| 4     | 1946.00 | 52.45      | 27.67      | 9.20       | 39.38         | 351  | 76.00      | -26.06     | vertical  | Peak    |
| 5     | 2000.00 | 41.71      | 27.88      | 9.34       | 39.41         | 104  | 56.00      | -16.48     | vertical  | Average |
| 6     | 2000.00 | 56.89      | 27.88      | 9.34       | 39.41         | 104  | 76.00      | -21.30     | vertical  | Peak    |
| 7     | 2060.00 | 33.78      | 28.03      | 9.48       | 39.41         | 192  | 56.00      | -24.12     | vertical  | Average |
| 8 pk  | 2060.00 | 58.64      | 28.03      | 9.48       | 39.41         | 192  | 76.00      | -19.26     | vertical  | Peak    |
| 9     | 2400.00 | 35.73      | 28.86      | 10.32      | 39.42         | 104  | 56.00      | -20.51     | vertical  | Average |
| 10    | 2400.00 | 51.17      | 28.86      | 10.32      | 39.42         | 104  | 76.00      | -25.07     | vertical  | Peak    |
| 11 pp | 2800.00 | 40.09      | 29.84      | 11.23      | 39.88         | 37   | 56.00      | -14.72     | vertical  | Average |
| 12    | 2800.00 | 53.61      | 29.84      | 11.23      | 39.88         | 37   | 76.00      | -21.20     | vertical  | Peak    |

# Calculation

Over Limit [dB] = (Read Level[dBuV] + Ant Factor[dB/m] + Cable Loss [dB] - Preamp Factor [dB]) - Limit Line[dBuV]

Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor,  
Cable Loss : Cable loss, Preamp Factor : Preamp Factor

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Site : chamber  
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal  
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto  
Project :  
Model : XND-6080RP  
Mode : POE  
Memo : 3 ~ 6 GHz

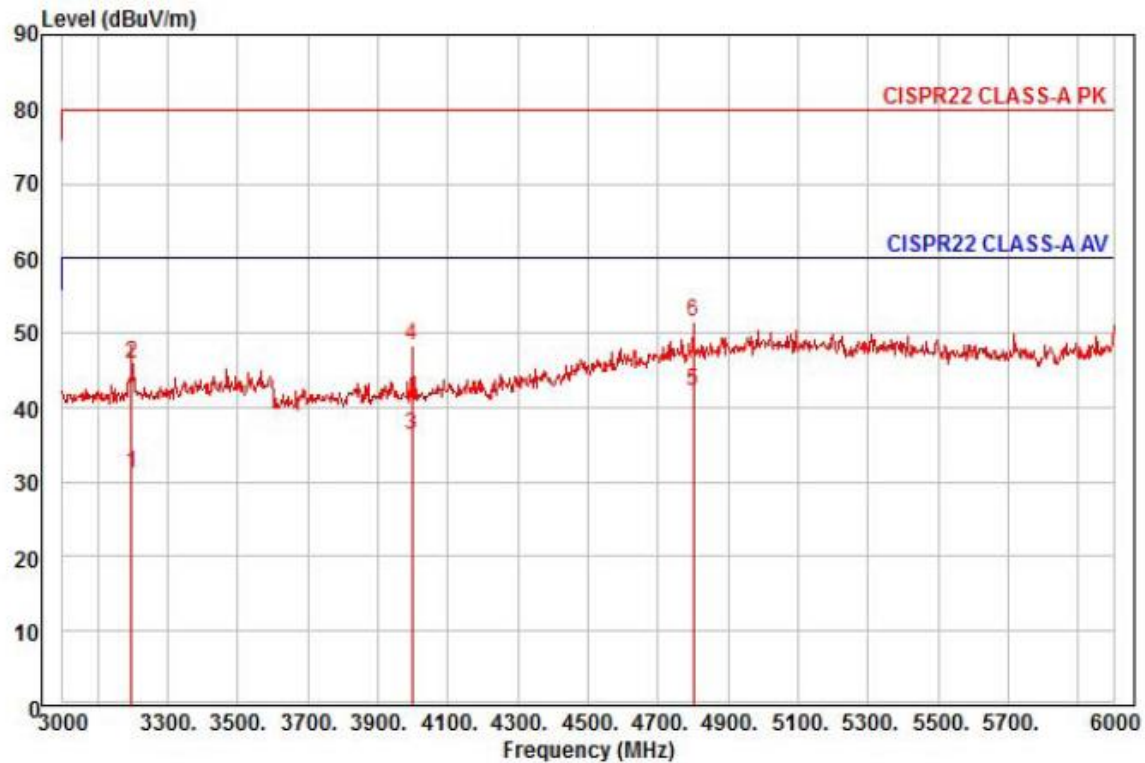
|      | Freq    | Read Level | Ant Factor | Cable Loss | Preamp Factor | TPos | Limit Line | Over Limit | Pol/Phase  | Remark  |
|------|---------|------------|------------|------------|---------------|------|------------|------------|------------|---------|
|      | MHz     | dBuV       | dB/m       | dB         | dB            | deg  | dBuV/m     | dB         |            |         |
| 1    | 3579.00 | 25.17      | 31.30      | 12.77      | 40.85         | 59   | 60.00      | -31.61     | horizontal | Average |
| 2    | 3579.00 | 38.22      | 31.30      | 12.77      | 40.85         | 59   | 80.00      | -38.56     | horizontal | Peak    |
| 3    | 3999.00 | 28.44      | 32.01      | 13.56      | 40.70         | 360  | 60.00      | -26.69     | horizontal | Average |
| 4    | 3999.00 | 41.79      | 32.01      | 13.56      | 40.70         | 360  | 80.00      | -33.34     | horizontal | Peak    |
| 5 pp | 5067.00 | 22.96      | 37.58      | 15.45      | 40.38         | 348  | 60.00      | -24.39     | horizontal | Average |
| 6 pk | 5067.00 | 36.03      | 37.58      | 15.45      | 40.38         | 348  | 80.00      | -31.32     | horizontal | Peak    |

◆ Calculation

Over Limit [dB] = (Read Level[dBuV] + Ant Factor[dB/m] + Cable Loss [dB] - Preamp Factor [dB]) - Limit Line[dBuV]

Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor,  
Cable Loss : Cable loss, Preamp Factor : Preamp Factor

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Site : chamber  
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical  
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto  
Project :  
Model : XND-6080RP  
Mode : POE  
Memo : 3 ~ 6 GHz

|      | Freq    | Read Level | Ant Factor | Cable Loss | Preamp Factor | TPos | Limit Line | Over Limit | Pol/Phase | Remark  |
|------|---------|------------|------------|------------|---------------|------|------------|------------|-----------|---------|
|      | MHz     | dBuV       | dB/m       | dB         | dB            | deg  | dBuV/m     | dB         |           |         |
| 1    | 3198.00 | 28.76      | 30.66      | 12.05      | 40.41         | 17   | 60.00      | -28.94     | vertical  | Average |
| 2    | 3198.00 | 43.67      | 30.66      | 12.05      | 40.41         | 17   | 80.00      | -34.03     | vertical  | Peak    |
| 3    | 3999.00 | 31.42      | 32.01      | 13.56      | 40.70         | 329  | 60.00      | -23.71     | vertical  | Average |
| 4    | 3999.00 | 43.32      | 32.01      | 13.56      | 40.70         | 329  | 80.00      | -31.81     | vertical  | Peak    |
| 5 pp | 4800.00 | 30.94      | 36.58      | 15.10      | 40.47         | 138  | 60.00      | -17.85     | vertical  | Average |
| 6 pk | 4800.00 | 40.19      | 36.58      | 15.10      | 40.47         | 138  | 80.00      | -28.60     | vertical  | Peak    |

#### ◆ Calculation

Over Limit [dB] = (Read Level[dBuV] + Ant Factor[dB/m] + Cable Loss [dB] - Preamp Factor [dB]) - Limit Line[dBuV]

Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor,  
Cable Loss : Cable loss, Preamp Factor : Preamp Factor



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Report No.:

KES-E1-17T0002-R1

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## **Test Setup Photos and Configuration**

### **Conducted Voltage Emissions**

N/A

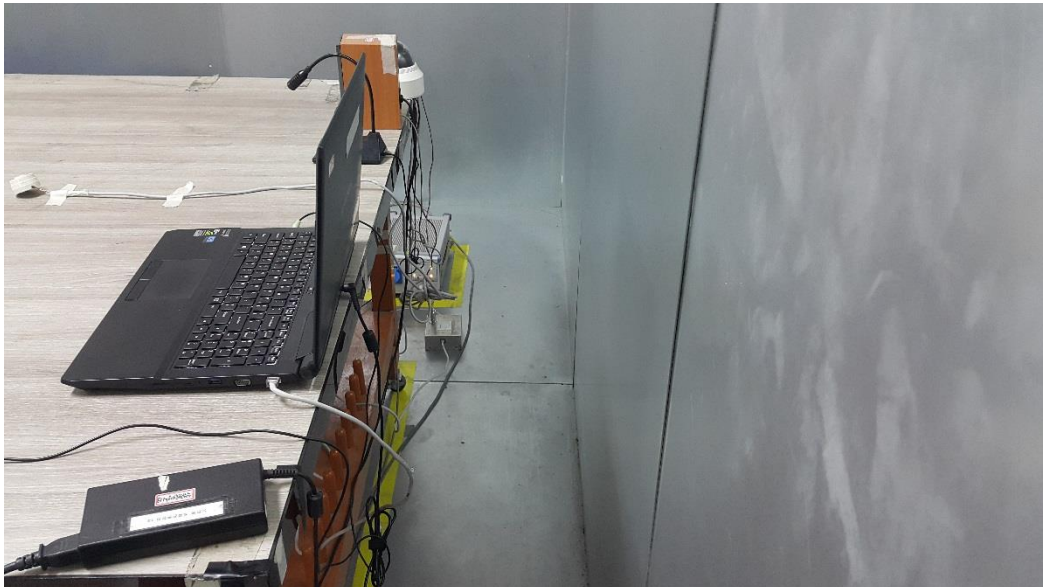
N/A

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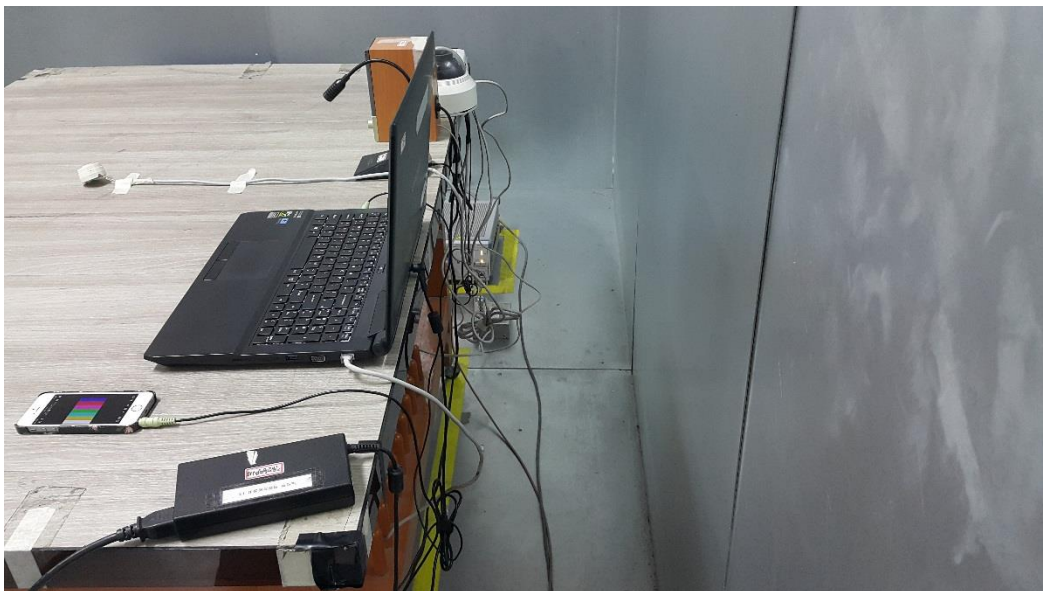
## Conducted Telecommunication Emissions

- DC 12V Mode



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- PoE Mode



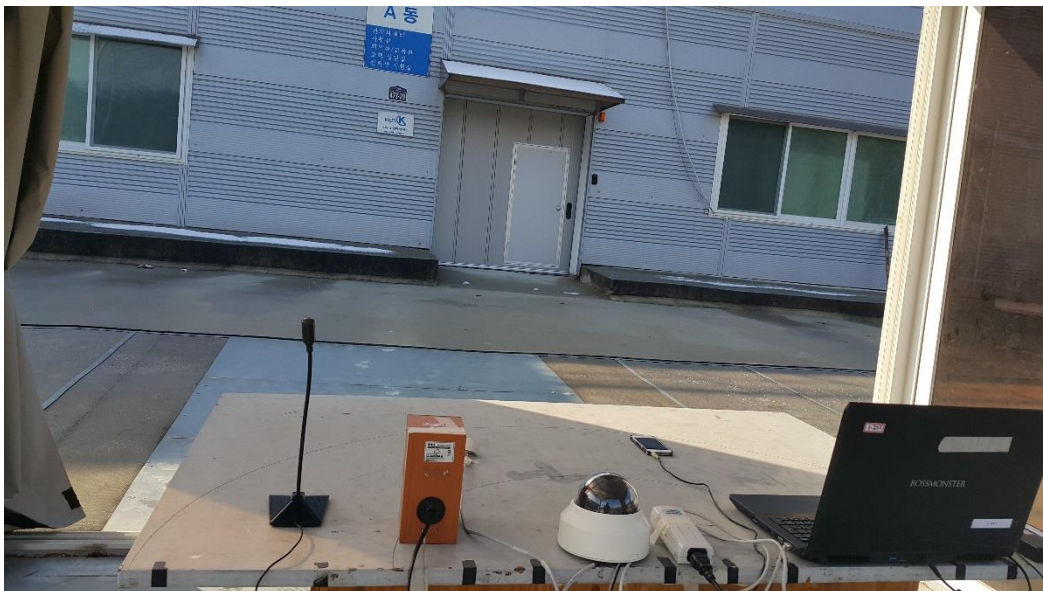
## Radiated Electric Field Emissions(Below 1 GHz)

- DC 12V Mode



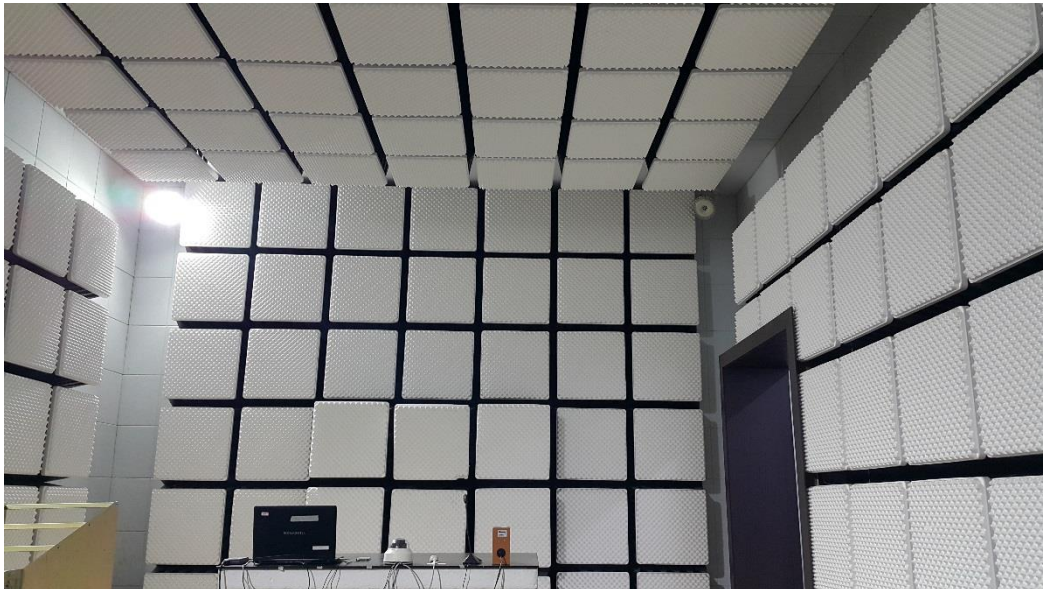
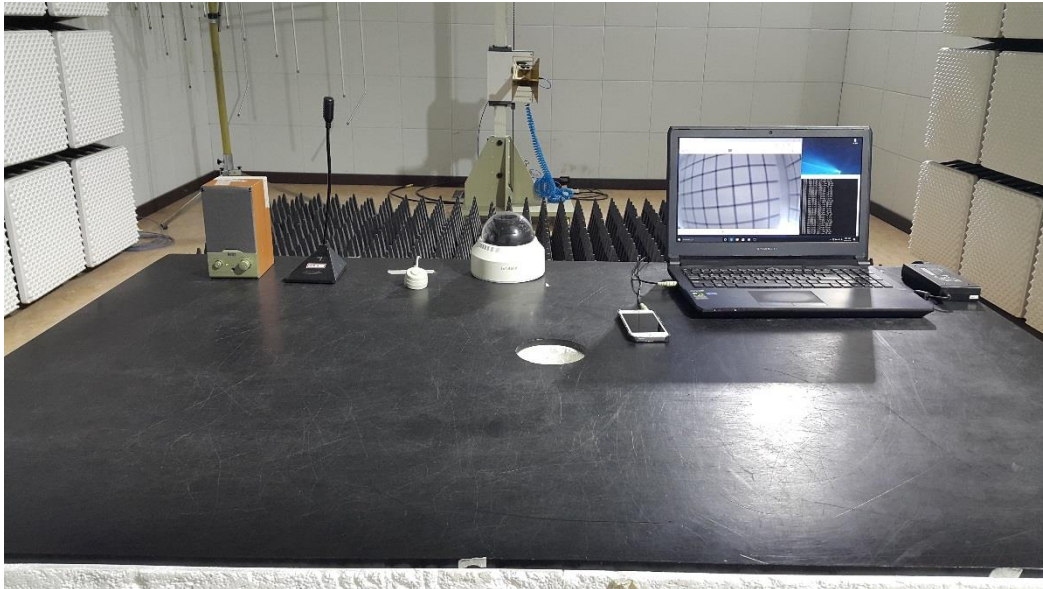
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- PoE Mode



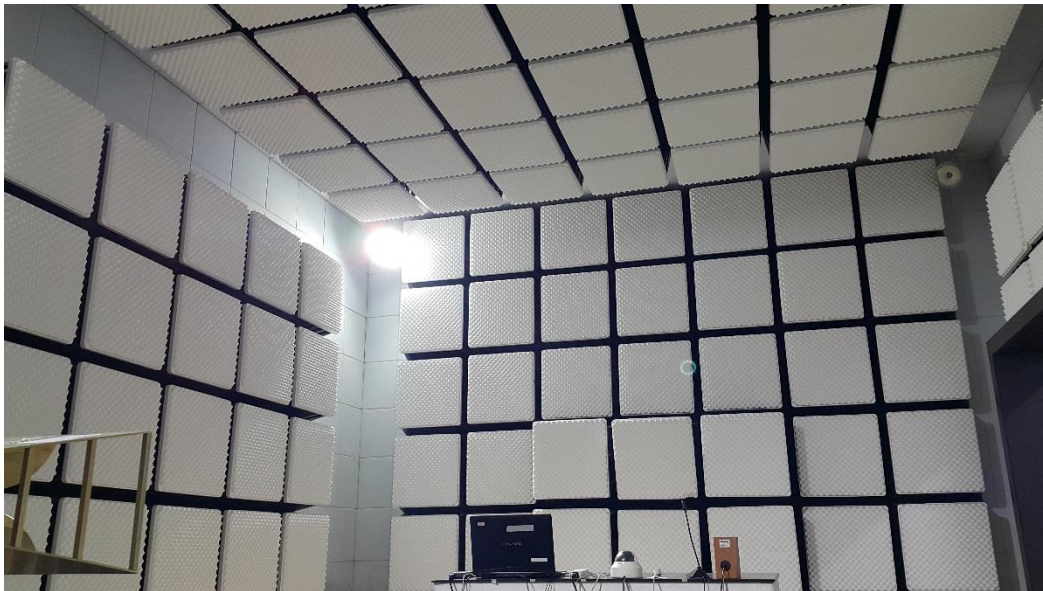
## Radiated Electric Field Emissions(Above 1 GHz)

- DC 12V Mode



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- PoE Mode



## EUT External Photographs

(Top)



(Bottom)



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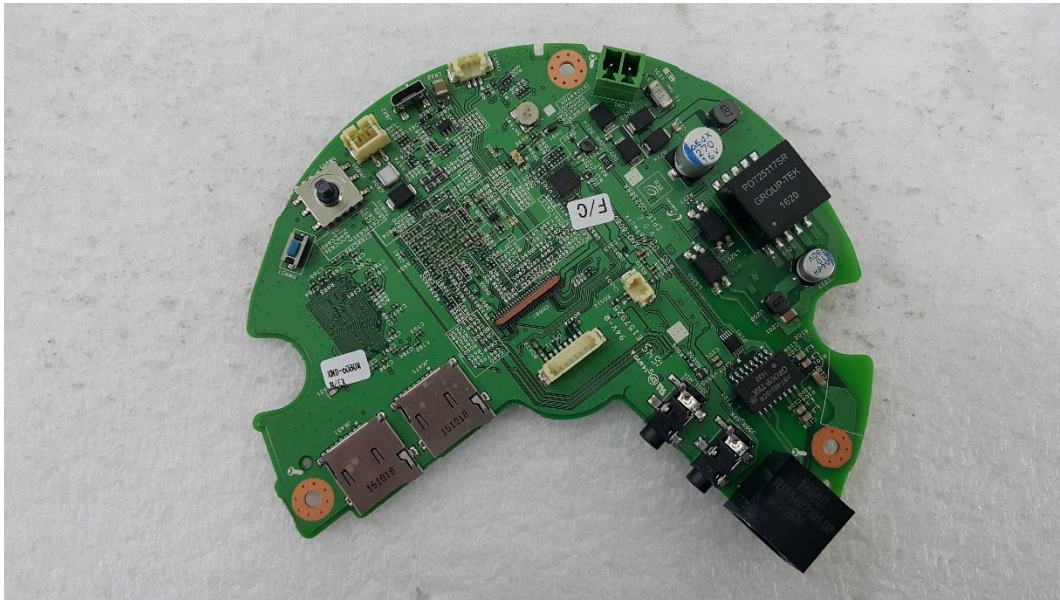
## **EUT Internal Photographs**

(Internal View)

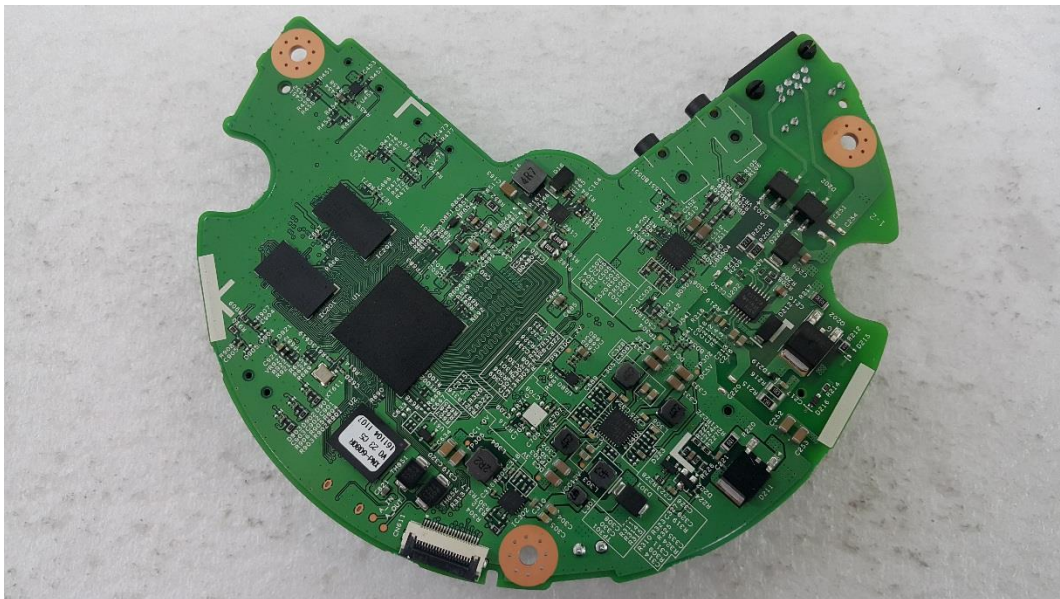


## EUT Internal View – Board 1

(Top)

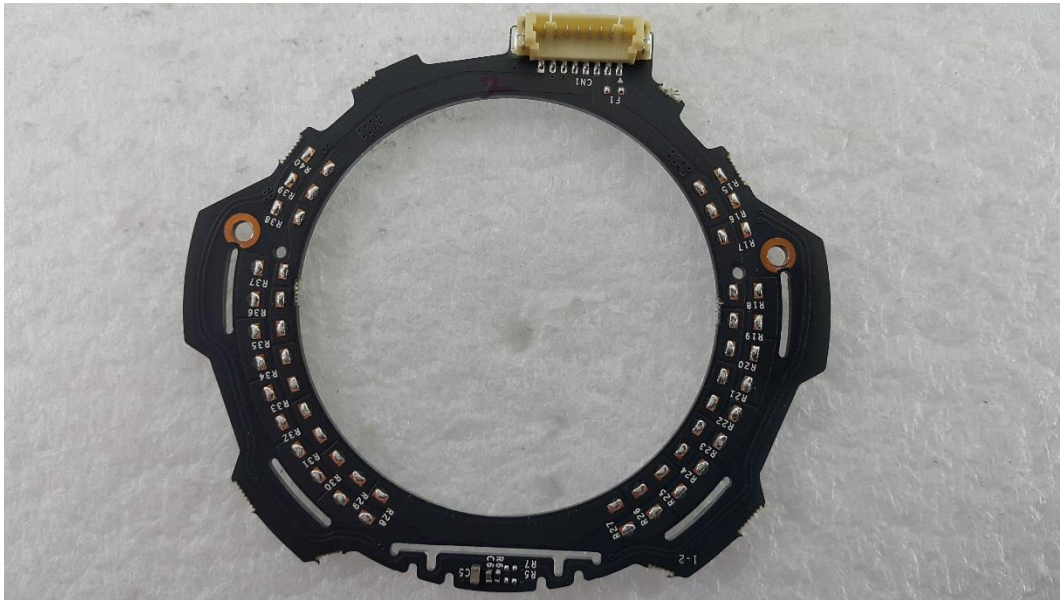


(Bottom)



## EUT Internal View – Board 2

(Top)

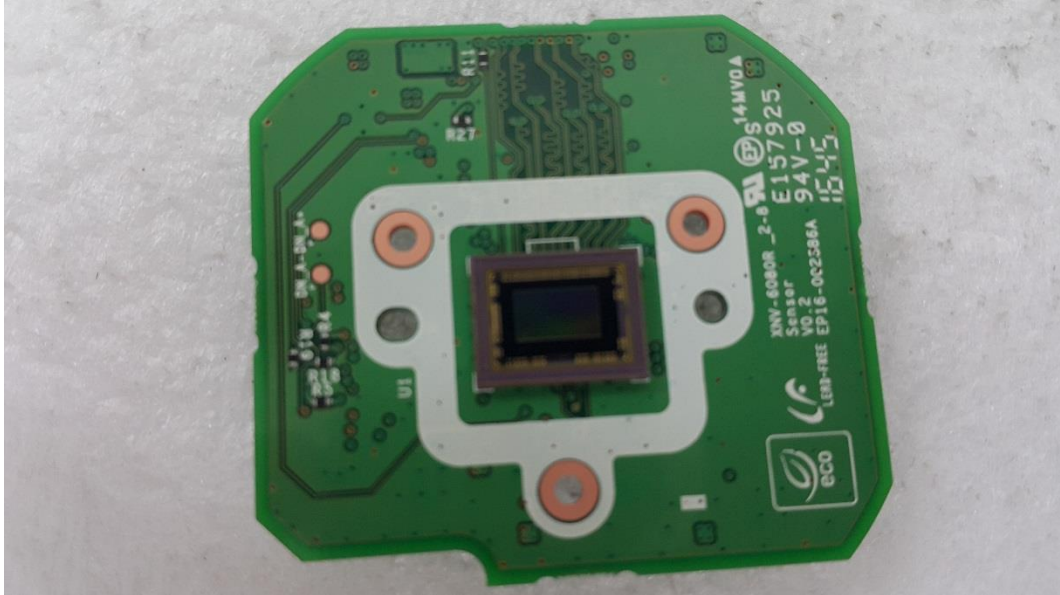


(Bottom)



## EUT Internal View – Board 3

(Top)



(Bottom)

