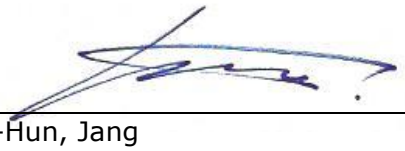
# EMC TEST REPORT

| | | |
|---|---|---|
| Test Report No. | : | KES-EM-20T0467-R1 |
| Date of Issue | : | Nov. 01, 2021 |
| Product name | : | NETWORK VIDEO RECORDER |
| Model/Type No. | : | XRN-410S |
| Variant Mode | : | XRN-410S/KCJ |
| Applicant | : | Hanwha Techwin Co., Ltd. |
| Applicant Address | : | 6, Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea |
| Manufacturer | : | 1. HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.<br>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<br>2. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi- do, Korea (Suwon Industrial Complex) |
| Equipment authorization | : | **Supplier's Declaration of Conformity** |
| Date of Receipt | : | Jun. 22, 2020 |
| Test date | : | Jul. 04, 2020 |
| Test Results | : | ☒ **In Compliance** ☐ **Not in Compliance** |

*Tested by*

Min Seong, Kim
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.

# REPORT REVISION HISTORY

| Date | Test Report No. | Revision History |
|---|---|---|
| Jul. 20, 2020 | KES-EM-20T0467 | Issued |
| Nov. 01, 2021 | KES-EM-20T0467-R1 | - IC Regulation ICES-003 Issue 7 Update ANSI C63.4-2014 or ANSI C63.4-2014 amended as per ANSI C63.4a-2017 |
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# 1.0 General Product Description

## Main Specifications of EUT are:

| Model | | XRN-410S |
|---|---|---|
| **Display** | | |
| Network Camera | Inputs | Max. 4CH |
| | Resolution | CIF ~ 8MP |
| | Protocols | Samsung, ONVIF |
| Live | Local Display | 1x HDMI / 1x VGA |
| | Multi-Channel Display | [Local Monitor] 1 /2V / 3V/ 4 / Auto Sequence<br>[Web] 1 / 4 / Auto Sequence |
| | Performance | [Local Monitor]<br>8MP(60fps,only One Ch)<br>5MP(90fps), 3MP(120fps), 2MP(240fps), 720p(240fps), D1(240fps)<br>[Web]<br>5MP(30fps), 3MP(60fps), 2MP(120fps), 720p(240fps), D1(240fps) |
| **Performance** | | |
| Operating System | Embedded | Linux |
| Record | Compression | H.265, H.264, MJPEG |
| | Recording Bandwidth | Max. 50Mbps |
| | Resolution | CIF ~ 8MP |
| | Type | Manual, Schedule(Continuous/Event), Event (Pre/Post) |
| | Event Action | e-Mail, PTZ Preset, Alarm Out, Buzzer, Monitor Out |
| Search & Play | Playback Bandwidth | 32Mbps (4CH simultaneously) |
| | Performance | Max. 3 Users (Remote 3) |
| | Mode | Date & Time(Calendar)<br>Event Log list<br>Text Search(POS, ANPR) |
| | Simultaneous playback | Max. 4CH (Local, Network) |
| | Resolution | CIF ~ 8MP |
| | Playback Control | Fast/Slow Forward / Backward, Move one step Up / Down |
| Storage | Default Built-In | 0TB ~ 8TB (dependent on region) |
| | Internal | 1 SATA |
| | Max.Capacity | 8TB |
| Backup | File backup | BU/Exe(USB), JPG/AVI(Web, CMS) |
| | Function | Multi channel(Upto 4CH) Play, Date-Time/Title display |
| Sensor | I/O | 4/2 (NO 1EA, NO/NC 1EA) |
| Audio | Input | 4 CH (network) |
| | Compression | G.711, G.726, AAC(16/48KHz) |
| | Audio Communication | 2-Way |
| **Network** | | |
| Protocol | | TCP/IP, UDP/IP, RTP (UDP), RTP (TCP), RTSP, NTP, HTTP, DHCP (Server, Client), PPPoE, SMTP, ICMP, IGMP, ARP, DNS, DDNS, uPnP, HTTPS, SNMP, ONVIF (Profile-S), SUNAPI(Server, Client) |
| DDNS | | Hanwha Security DDNS |
| Transmission Bandwidth | | 64Mbps |
| Max Remote Users | | Search (3), Live Unicast (10), Multicast (20) |
| IP Version | | IPv4/v6 |
| Security | | User access Log, IP Filtering, 802.1x, Encryption |
| OS | | Supported OS : Windows 7, 8, 10, Mac OS X 10.8. 10.9. 10.10. 10.11 |

| | | |
|---|---|---|
| Web Browser | | Non-plugin Webviewer<br>Supported Browser: Google Chrome 47, MS Edge 20<br><br>Plug-in Webviewer<br>Supported MS Explore 11 , Mozilla Firefox 43 , Apple Safari 9 * Mac OS X only |
| Viewer Software | Type | SSM, Webviewer, Smart Viewer, wisenet Mobile |
| | CMS Support | Support SDK/CGI(SUNAPI) |
| **Functions** | | |
| Camera Setup | Register | PnP, Manual |
| | Setup Items | IP address, Add profile edit, Bitrate, Compression, GOP, Quality, Camera MD setup<br>Camera video setup (Simple focus, Brightness/Contrast, Flip/Mirror, IRIS, WDR, D&N, SSNR, Shutter, SSDR, DIS), Fisheye Dewarping(web), Hallway View Setup, Camera Webpage |
| Camera Control | PoE | 1) Monitor PoE Power consumption<br>2) On/Off Control for each PoE camera<br>3) Remote Reset for each PoE camera |
| Easy Configuration | | Setup Wizard<br>(Date/Time, Network, Auto Camera Configuration)<br>P2P (TUTK) |
| Redundancy | ARB | Yes |
| PTZ | Control | Via GUI, Webviewer, SPC-2000 |
| | Preset | 300 Presets (Camera) |
| Smart phone | Support Model | I-Phone, Android |
| | Protocol Support | RTP, RTSP, HTTP, CGI(SUNAPI) |
| | Control | Live(4ch) : Multi-Profile Support<br>Playback(1ch)<br>Event push |
| | Max. Remote Users | Search (3), Live Unicast (10), Multicast (20) |
| System Control | Control Applications | Mouse, Web, SPC-2000 (Controller), IR Remocon |
| **Indicator/Interface** | | |
| Front | Indicator | Power Status LED 1EA<br>Lan Status LED 1EA<br>Record Status LED 1EA |
| Connectors | HDMI | 1 EA<br>- Support upto 4K (3840 x 2160) |
| | Audio | Out(1EA, RCA, Line) |
| | Ethernet | ■ 4EA (PoE/PoE+, 100Mbps)<br>■ 1EA (WAN, 1Gbps)<br>- WAN : Uplink to CMS |
| | Alarm | In(4EA, Terminal Block)<br>Out(2EA, Terminal Block) |
| | USB | 2EA(Front 1, Rear 1) |
| | Reset | Switch(1EA) |
| | Power Cord | Included |
| **System** | | |
| Log | Log List | Max. 20000 (System Log, Event Log each) |
| **Environmental** | | |
| Operating Temperature / Humidity | | +0°C to +40°C(+32°F to +104°F) |
| Humidity | | 20% ~ 85% RH |

## 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 ☐ 230 Vac ☒ 120 Vac ☐ 24 Vac ☐ 12 Vdc ☐ PoE

Frequency ☐ 50 Hz ☒ 60 Hz ☐ Hz

## 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 VIDEO RECORDER | XRN-410S | - | HANWHA TECHWIN SECURITY VIETNAM CO.,LTD. | EUT |
| AC / DC Adapter | FSP090-AWAN3 | - | FSP TECHNOLOGY INC. | - |
| Mouse | MOEIUOA, AA-SM2PCPB | - | Dongguan Primax Electronic & Telecommunication Products Ltd. | - |
| Remote Controller | EP10-000331A | - | SAMSUNG | - |
| HDD | WD10PURX | - | West digital | 1 TB |

## 1.5 Support Equipments

| Description | Model Number | Serial Number | Manufacturer | Remarks |
|---|---|---|---|---|
| Notebook | LG15N54 | 410NZGK015231 | LG Electronics Co., Ltd. | - |
| Notebook Adapter | ADP-90WH B | 84ZW19F1663 | DELTA ELECTRONICS (JIANGSU) LTD. | - |
| Monitor 1 | 24M47VQ | 702NTQDA3604 | LG Electronics Co., Ltd. | - |
| Monitor 1 Adapter | ADS-40FSG-19 19025GPG-1 | EAY62768621 | Shenzhen Honor Electronic Co., Ltd. | - |
| Monitor 2 | SMT-2232 | C95V67VF900038B | Weihai Daewoo Electronics Co., Ltd. | - |
| Camera 1 | QNV-6023R | - | HANWHA TECHWIN CO.,LTD. | - |
| Camera 2 | QNV-6024RM | - | HANWHA TECHWIN CO.,LTD. | - |
| Speaker | E5 | - | PreSonus® | - |
| Alarm | SLE-0001 DO | C64167JDB601268 F | - | - |
| Alarm Adapter | 2ACB022F | - | Channel Well Technology (Guangzhou) Co., Ltd. | - |
| Button Alarm | - | - | - | - |
| USB Memory | - | - | SanDisk | 16 GB |

## 1.6 External I/O Cabling

| Start | | END | | Cable Spec. | |
|---|---|---|---|---|---|
| **Description** | **I/O Port** | **Description** | **I/O Port** | **Length** | **Shield** |
| NETWORK VIDEO RECORDER (EUT) | VIEWER | Notebook | RJ-45 | 3.0 | U |
| | HDMI | Monitor 1 | HDMI | 1.6 | S |
| | VGA OUT | Monitor 2 | D-SUB | 1.6 | S |
| | PoE CAMERA | Camera 1 | RJ-45 | 10.0 | U |
| | PoE CAMERA | Camera 2 | RJ-45 | 10.0 | U |
| | AUDIO OUT | Speaker | RCA | 1.5 | U |
| | Alarm Out | Alarm | Alarm In | 3.0 | U |
| | Alarm In | Button Alarm | Alarm Out | 3.0 | U |
| | USB | USB Memory | USB | - | - |
| | USB 2.0 | Mouse (EUT) | USB 2.0 | 1.5 | U |
| | Ground | Ground | - | 1.8 | - |
| | IR | Remote Controller (EUT) | IR | - | - |

* Unshielded=U, Shielded=S

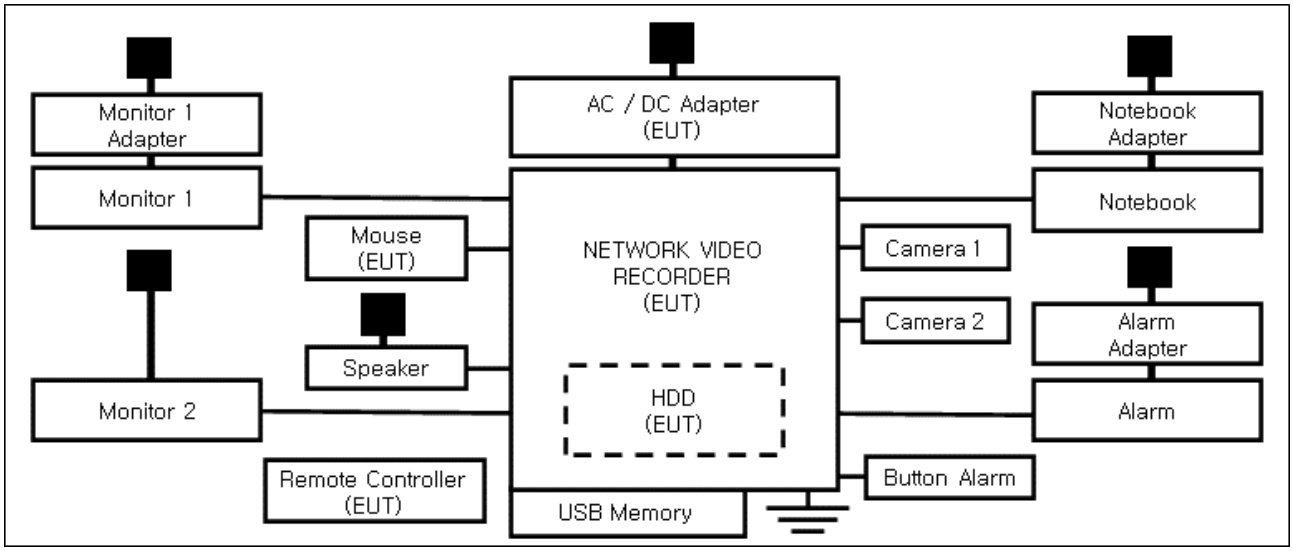
## 1.7 EUT Operating Mode(s)

| Test mode | operating |
|---|---|
| Operation mode | - Checked that the camera video output was working properly in the web viewer and used the ping test to verify that the network behavior was working properly.<br>- Check if the camera's video is output normally using the monitor. |

| EUT Test operating S/W | | |
|---|---|---|
| **Name** | **Version** | **Manufacture Company** |
| Web Viewer | - | - |

## 1.8 Configuration

■ AC Main
□ DC Main



## 1.9 Remarks when standards applied

N/A

## 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, Yeoju-si, Gyeonggi-do, 12658, Korea. The sites are constructed in conformance with the requirements of ANSI C63.4a-2017 and CISPR 16-1-4:2019

## 1.12 Laboratory Accreditations and Listings

| Country | Agency | Scope of Accreditation | Logo |
|---|---|---|---|
| KOREA | **RRA** | EMI (3 m & 10 m Semi-Anechoic Chamber , 10 m Open Area and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions) | KR0100 |
| International | **KOLAS** | EMI (3 m & 10 m Semi-Anechoic Chamber , and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions) | KT489 |
| USA | **FCC** | 3 m & 10 m Semi-Anechoic Chamber, 10 m Open Area and Conducted test site to perform FCC Part 15/18 measurements. | KR0100 |
| Canada | **ISED** | 3 m & 10 m Semi-Anechoic Chamber and Conducted test site | 23298-1 |
| JAPAN | **VCCI** | Mains Ports Conducted Interference Measurement, Telecommunication Ports Conducted Disturbance Measurement and Radiation 10 meter site, Facility for measuring radiated disturbance above 1 GHz | R-20056, C-20036, T-20040, G-20057 |
| Europe | **TÜV SÜD** | EMI (3 m & 10 m Semi-Anechoic Chamber , 10 m Open Area and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions) | 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<br>☐ Class A | ☐ Group 2<br>☐ Class B |
| ☐ EN 55014-1:2006 +A2:2011 | | |
| ☐ EN 55014-2:1997 +A2:2008 | | |
| ☐ EN 55015:2013 | | |
| ☐ EN 55032:2015 | ☐ 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 | | |

| | | |
|---|---|---|
| ☐ **VCCI-CISPR 32:2016** | ☐ Class A | ☐ Class B |
| ☐ **AS/NZS CISPR32:2015** | ☐ Class A | ☐ Class B |
| ☒ **47 CFR Part 15, Subpart B** | | |
| ☐ CISPR 22:2009 +A1:2010 | ☐ Class A | ☐ Class B |
| ☒ ANSI C63.4a-2017 | ☒ Class A | ☐ Class B |
| ☒ **IC Regulation ICES-003 Issue 7** | | |
| ☐ CAN/CSA-CISPR 32:17 | ☐ Class A | ☐ Class B |
| ☒ ANSI C63.4a-2017 | ☒ Class A | ☐ Class B |

☐ **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

# 2.1 Conducted Emissions at Mains Power Ports

**Test Date**
Jul. 04, 2020

**Test Location**
Electro wave Shieldroom #6

**Test Equipment**

| Used | Description | Model Number | Manufacturer | Serial Number | Cal. Due |
|---|---|---|---|---|---|
| ☒ | EMI Test S/W | EMC32 | R & S | 9.12.00 | - |
| ☒ | EMI TEST RECEIVER | ESR3 | R & S | 101783 | 01, 20, 2021 |
| ☒ | LISN | ENV216 | R & S | 101787 | 01, 02, 2021 |
| ☒ | LISN | ESH2-Z5 | R & S | 100450 | 01, 02, 2021 |
| ☒ | PULSE LIMITER | ESH3-Z2 | R & S | 101915 | 01, 02, 2021 |

**Test Conditions**
Temperature: 24,1 ℃
Relative Humidity: 51,7 % R.H.

**Frequency Range of Measurement**
150 ㎑ to 30 ㎒

**Instrument Settings**
IF Band Width: 9 ㎑

**Test Results**
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

**Remarks**
See Appendix A for test data.

# 2.2 Radiated Electric Field Emissions(Below 1 ㎓)

**Test Date**
Jul. 04, 2020

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

**Test Equipment**

| Used | Description | Model Number | Manufacturer | Serial Number | Cal. Due |
|---|---|---|---|---|---|
| ☒ | EMI Test S/W | EP5/RE | TOYO Corporation | 6.0.0 | - |
| ☒ | EMI TEST RECEIVER | ESU26 | R & S | 100551 | 04, 01, 2021 |
| ☒ | AMPLIFIER | SCU 01 | R & S | 100603 | 11, 25, 2020 |
| ☒ | TRILOG-BROADBAND ANTENNA | VULB9163 | Schwarzbeck | 715 | 11, 29, 2020 |
| ☒ | ATTENUATOR | 8491A | HP | 32173 | 03, 10, 2021 |

**Test Conditions**
Temperature: 23,9 ℃
Relative Humidity: 52,2 % R.H.

**Frequency Range of Measurement**
30 ㎒ to 1 ㎓

**Instrument Settings**
IF Band Width: 120 ㎑

**Test Results**
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

**Remarks**
See Appendix A for test data.

# 2.3 Radiated Electric Field Emissions(Above 1 ㎓)

**Test Date**
Jul. 04, 2020

**Test Location**
SEMI ANECHOIC CHAMBER #4(10 m)

**Test Equipment**

| Used | Description | Model Number | Manufacturer | Serial Number | Cal. Due |
|---|---|---|---|---|---|
| ☒ | EMI Test S/W | EP5/RE | TOYO Corporation | 6.0.0 | - |
| ☒ | EMI TEST RECEIVER | ESU26 | R & S | 100551 | 04, 01, 2021 |
| ☒ | PREAMPLIFIER | 8449B | AGILENT | 3008A01742 | 01, 02, 2021 |
| ☐ | ATTENUATOR | 8491A | HP | 35496 | 03, 10, 2021 |
| ☒ | HORN ANTENNA | BBHA 9120D | SCHWARZBECK | 9120D-1802 | 12, 13, 2020 |

**Test Conditions**
Temperature: 23,9 ℃
Relative Humidity: 52,2 % R.H.

**Frequency Range of Measurement**
1 ㎓ to 5 ㎓

**Instrument Settings**
IF Band Width: 1 ㎒

**Test Results**
The requirements are:
☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

**Remarks**
See Appendix A for test data.

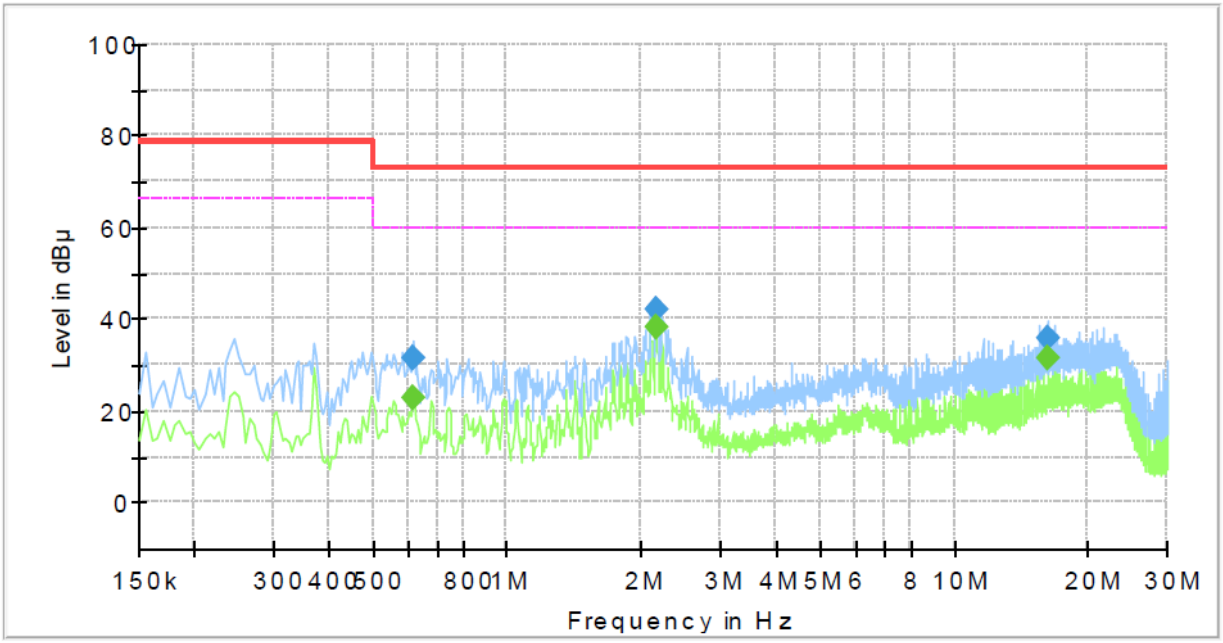
# APPENDIX A – TEST DATA

## Conducted Emissions at Mains Power Ports

HOT LINE

## Common Information

| | |
|---|---|
| Test Description: | Conducted Emission |
| Model No.: | XRN-410S |
| Phase: | H |
| Mode: | - |
| Operator Name: | KES |



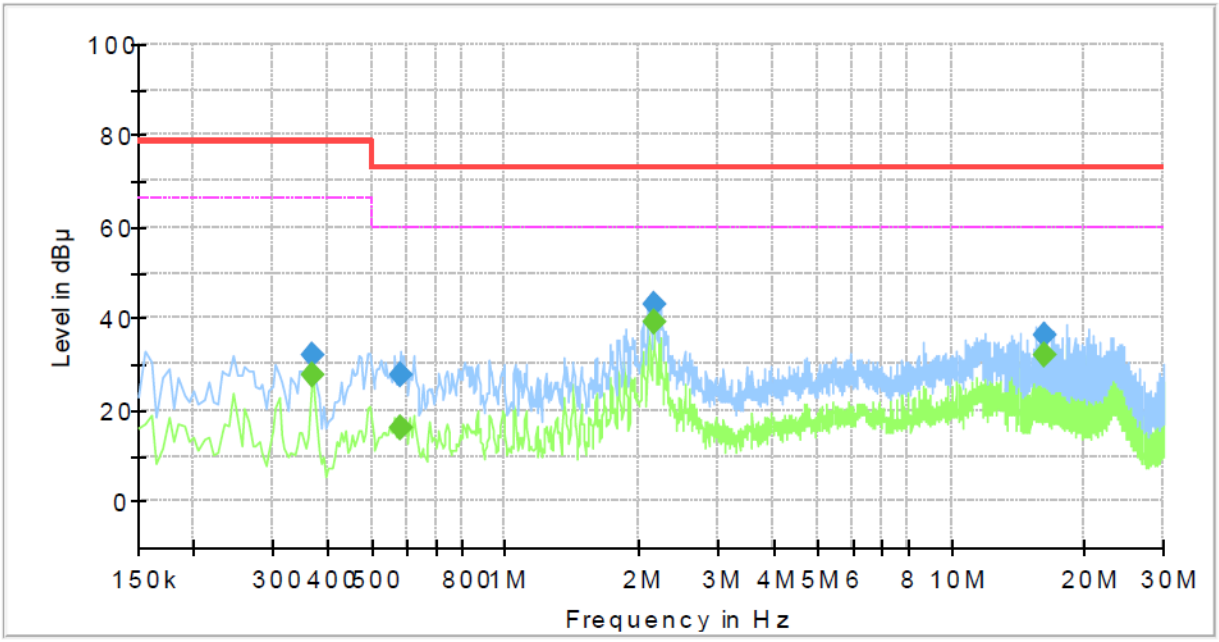

## Final_Result

| Frequency (MHz) | QuasiPeak (dBµV) | CAverage (dBµV) | Limit (dBµV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line | Corr. (dB) |
|---|---|---|---|---|---|---|---|---|
| 0.615000 | --- | 22.67 | 60.00 | 37.33 | 1000.0 | 9.000 | L1 | 19.6 |
| 0.615000 | 31.50 | --- | 73.00 | 41.50 | 1000.0 | 9.000 | L1 | 19.6 |
| 2.155000 | --- | 38.09 | 60.00 | 21.91 | 1000.0 | 9.000 | L1 | 19.7 |
| 2.155000 | 42.28 | --- | 73.00 | 30.72 | 1000.0 | 9.000 | L1 | 19.7 |
| 16.230000 | --- | 31.55 | 60.00 | 28.45 | 1000.0 | 9.000 | L1 | 20.1 |
| 16.230000 | 35.85 | --- | 73.00 | 37.15 | 1000.0 | 9.000 | L1 | 20.1 |

NEUTRAL LINE

## Common Information

| | |
|---|---|
| Test Description: | Conducted Emission |
| Model No.: | XRN-410S |
| Phase: | N |
| Mode: | - |
| Operator Name: | KES |

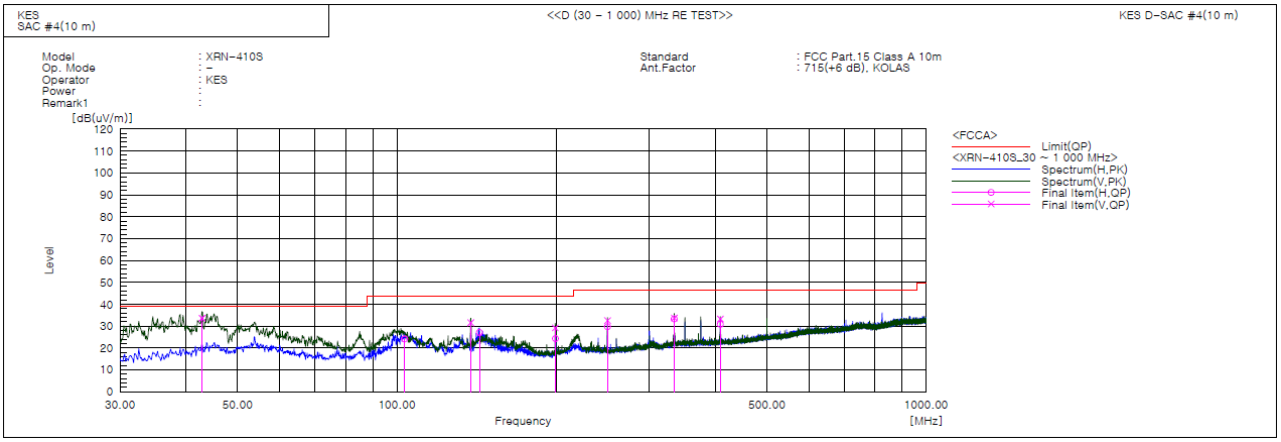



## Final_Result

| Frequency (MHz) | QuasiPeak (dBµV) | CAverage (dBµV) | Limit (dBµV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line | Corr. (dB) |
|---|---|---|---|---|---|---|---|---|
| 0.370000 | --- | 27.55 | 66.00 | 38.45 | 1000.0 | 9.000 | N | 19.6 |
| 0.370000 | 32.02 | --- | 79.00 | 46.98 | 1000.0 | 9.000 | N | 19.6 |
| 0.580000 | --- | 16.18 | 60.00 | 43.82 | 1000.0 | 9.000 | N | 19.6 |
| 0.580000 | 27.44 | --- | 73.00 | 45.56 | 1000.0 | 9.000 | N | 19.6 |
| 2.155000 | --- | 39.17 | 60.00 | 20.83 | 1000.0 | 9.000 | N | 19.7 |
| 2.155000 | 43.28 | --- | 73.00 | 29.72 | 1000.0 | 9.000 | N | 19.7 |
| 16.225000 | --- | 31.95 | 60.00 | 28.05 | 1000.0 | 9.000 | N | 20.2 |
| 16.225000 | 36.22 | --- | 73.00 | 36.78 | 1000.0 | 9.000 | N | 20.2 |

◆ Calculation
QuasiPeak[㏈uV] / CAverage [㏈uV] = Reading Value[㏈uV] + Corr. [㏈]
QuasiPeak / CAverage : The Final Value
Reading Value : Not shown in the table.
Corr. : Correction values (LISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

## Radiated Electric Field Emissions(Below 1 ㎓)

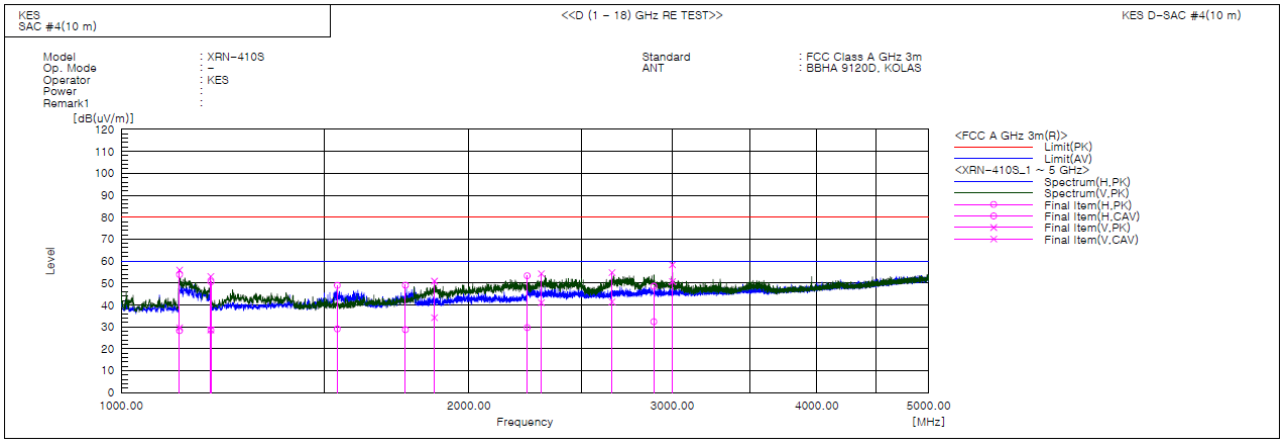



Final Result

| No. | Frequency [MHz] | (P) | Reading QP [dB(uV)] | c.f [dB(1/m)] | Result QP [dB(uV/m)] | Limit QP [dB(uV/m)] | Margin QP [dB] | Height [cm] | Angle [deg] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 42.853 | V | 55.9 | -22.3 | 33.6 | 39.0 | 5.4 | 144.0 | 124.0 | |
| 2 | 103.356 | H | 46.7 | -22.6 | 24.1 | 43.5 | 19.4 | 400.0 | 191.0 | |
| 3 | 137.913 | V | 57.9 | -26.3 | 31.6 | 43.5 | 11.9 | 132.0 | 271.0 | |
| 4 | 143.248 | H | 53.3 | -26.2 | 27.1 | 43.5 | 16.4 | 366.0 | 287.0 | |
| 5 | 199.144 | V | 51.2 | -22.0 | 29.2 | 43.5 | 14.3 | 111.0 | 223.0 | |
| 6 | 199.312 | H | 46.3 | -22.0 | 24.3 | 43.5 | 19.2 | 400.0 | 276.0 | |
| 7 | 249.948 | V | 52.6 | -20.1 | 32.5 | 46.5 | 14.0 | 186.0 | 349.0 | |
| 8 | 250.024 | H | 49.8 | -20.1 | 29.7 | 46.5 | 16.8 | 276.0 | 296.0 | |
| 9 | 334.095 | H | 50.2 | -16.9 | 33.3 | 46.5 | 13.2 | 200.0 | 288.0 | |
| 10 | 334.099 | V | 50.6 | -16.9 | 33.7 | 46.5 | 12.8 | 100.0 | 14.0 | |
| 11 | 408.421 | H | 46.0 | -15.2 | 30.8 | 46.5 | 15.7 | 344.0 | 170.0 | |
| 12 | 408.421 | V | 48.5 | -15.2 | 33.3 | 46.5 | 13.2 | 219.0 | 182.0 | |

♦ Calculation – SAC #4(10 m)
Result(QP) [㏈(㎶/m)] = (Reading(QP)[㏈(㎶)] + c.f[㏈(1/m)]
Margin(QP)[㏈] = Limit[㏈(㎶/m)] - Result(QP) [㏈(㎶/m)]
Reading(QP) : Reading value, Result(QP) : Reading value + Factor value
Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value

## Radiated Electric Field Emissions(Above 1 ㎓)




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 | 1123.100 | V | 60.3 | 33.9 | -4.4 | 55.9 | 29.5 | 80.0 | 60.0 | 24.1 | 30.5 | 117.0 | 107.0 | |
| 2 | 1123.235 | H | 58.2 | 32.7 | -4.4 | 53.8 | 28.3 | 80.0 | 60.0 | 26.2 | 31.7 | 321.0 | 67.0 | |
| 3 | 1195.440 | V | 57.0 | 32.6 | -4.0 | 53.0 | 28.6 | 80.0 | 60.0 | 27.0 | 31.4 | 100.0 | 91.0 | |
| 4 | 1195.525 | H | 54.5 | 32.4 | -4.0 | 50.5 | 28.4 | 80.0 | 60.0 | 29.5 | 31.6 | 400.0 | 71.0 | |
| 5 | 1538.475 | H | 51.1 | 31.2 | -2.2 | 48.9 | 29.0 | 80.0 | 60.0 | 31.1 | 31.0 | 400.0 | 150.0 | |
| 6 | 1762.000 | H | 50.2 | 29.9 | -1.2 | 49.0 | 28.7 | 80.0 | 60.0 | 31.0 | 31.3 | 380.0 | 85.0 | |
| 7 | 1866.670 | V | 51.5 | 34.9 | -0.7 | 50.8 | 34.2 | 80.0 | 60.0 | 29.2 | 25.8 | 100.0 | 339.0 | |
| 8 | 2245.955 | H | 52.3 | 28.6 | 1.0 | 53.3 | 29.6 | 80.0 | 60.0 | 26.7 | 30.4 | 323.0 | 164.0 | |
| 9 | 2309.935 | V | 52.9 | 39.7 | 1.3 | 54.2 | 41.0 | 80.0 | 60.0 | 25.8 | 19.0 | 114.0 | 278.0 | |
| 10 | 2659.630 | V | 51.6 | 38.3 | 3.1 | 54.7 | 41.4 | 80.0 | 60.0 | 25.3 | 18.6 | 177.0 | 287.0 | |
| 11 | 2891.175 | H | 44.3 | 28.1 | 4.2 | 48.5 | 32.3 | 80.0 | 60.0 | 31.5 | 27.7 | 213.0 | 109.0 | |
| 12 | 2999.875 | V | 53.6 | 46.0 | 4.7 | 58.3 | 50.7 | 80.0 | 60.0 | 21.7 | 9.3 | 100.0 | 257.0 | |

♦ 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)]

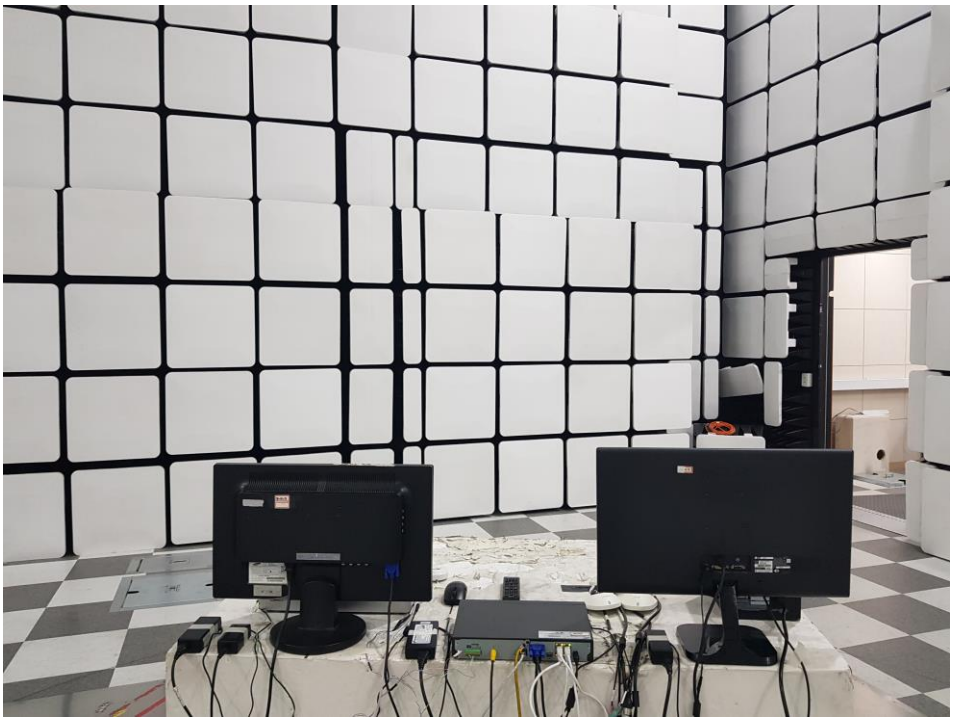
Reading(PK/CAV) : Reading value, Result(PK/CAV) : Reading value + Factor value

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

# Test Setup Photos and Configuration

## Conducted Emissions at Mains Power Ports

## Radiated Electric Field Emissions(Below 1 ㎓)



## Radiated Electric Field Emissions(Above 1 ㎓)

# EUT External Photographs

(Top)

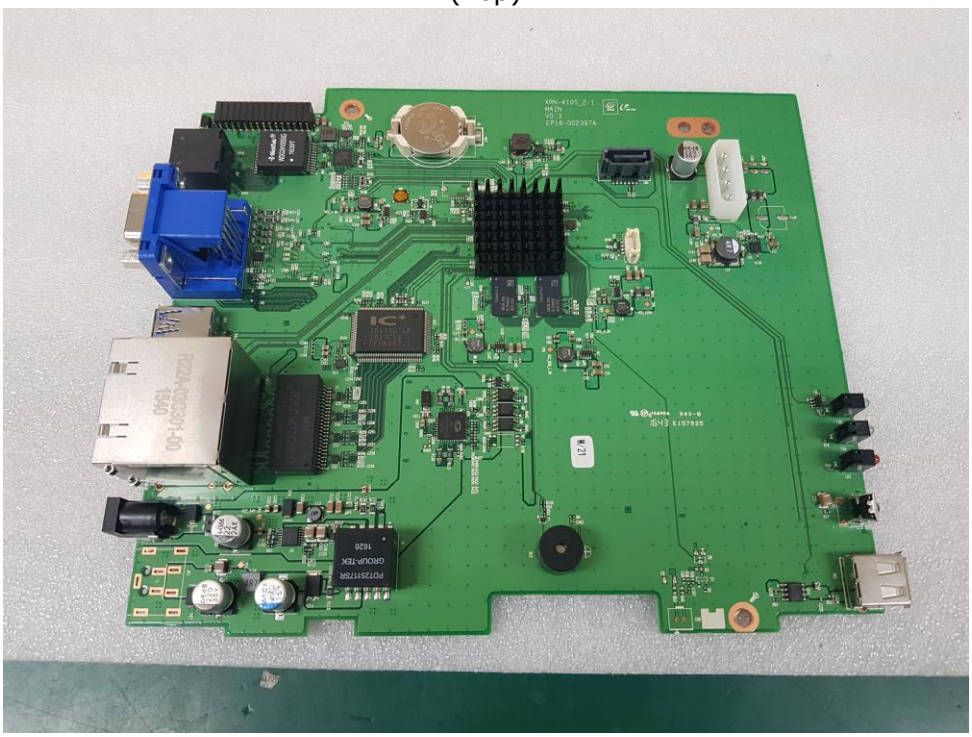
(Bottom)

# EUT Internal Photographs

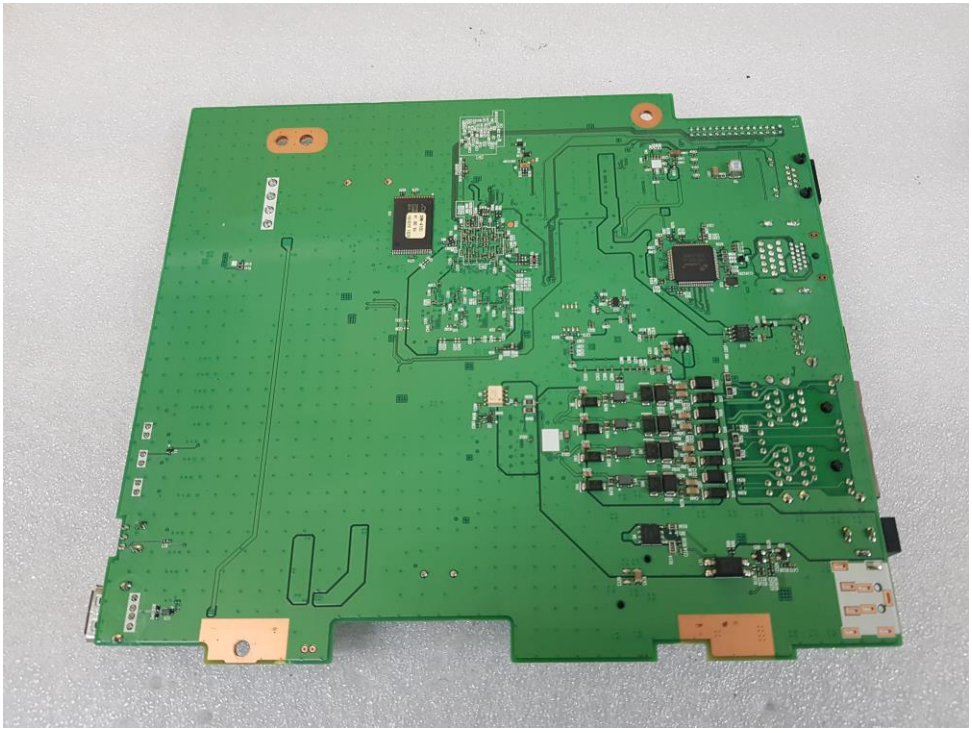
(Internal View)

# EUT Internal View – Main Board

(Top)

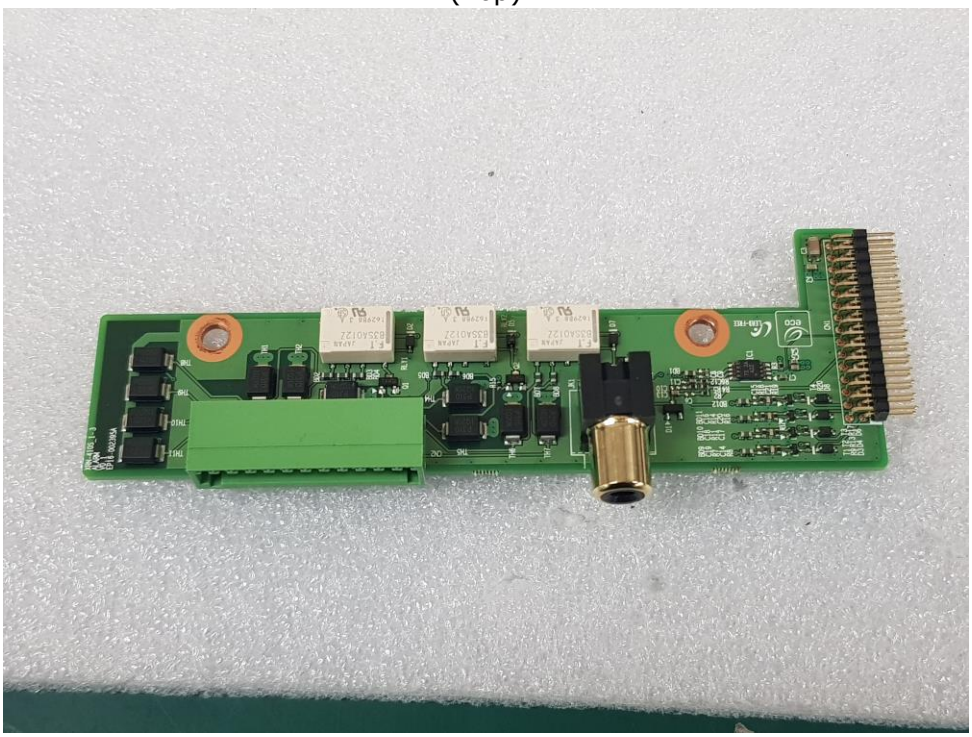


(Bottom)

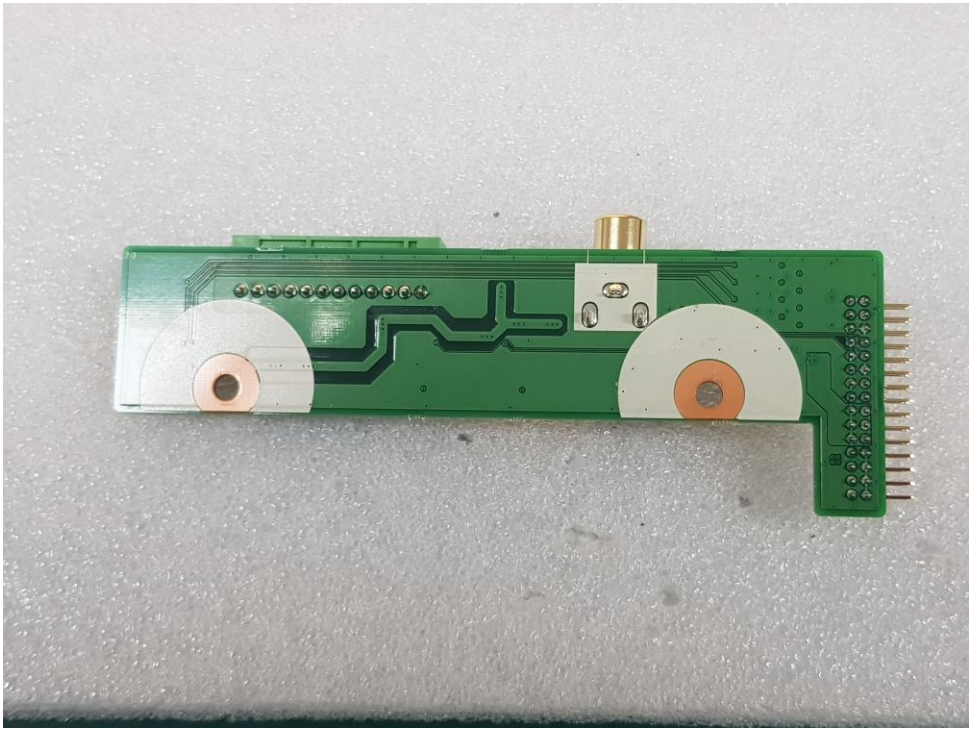


# EUT Internal View – SUB Board

(Top)



(Bottom)

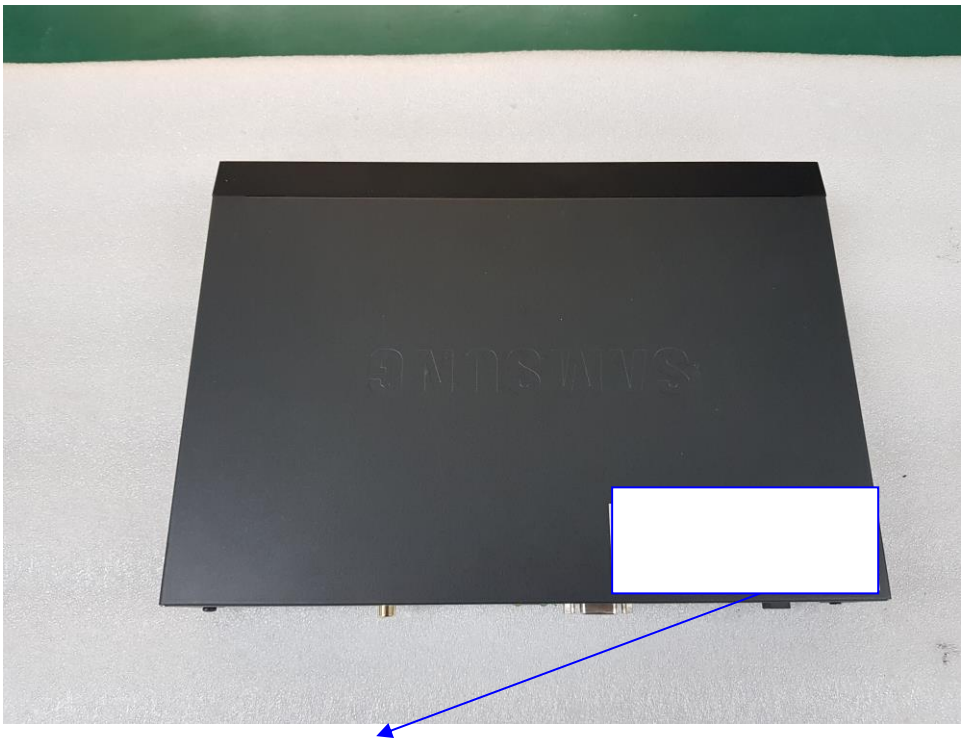


# EUT Internal View – HDD

(Top)


(Bottom)

# Label Photographs



CAN ICES-3(A) / NMB-3(A)

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.
Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
(1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.