

# EMC TEST REPORT For CE

Test Report No. : KES-E1-17T0818-R1

Date of Issue : May. 15, 2019

Product name : Network Camera

Model/Type No. : XNP-6320HS

Variant Model : -

Applicant : Hanwha Techwin Co., Ltd.

Applicant Address : 6, Pangyo-ro 319 Beon-gil, Bundang-gu, Seongnam-si,  
Gyeonggi-do, 13488, KOREA

Manufacturer : 1. Hanwha Techwin (Tianjin) Co.,Ltd.  
2. HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.  
3. D-TECH CO.,LTD.

Manufacturer Address : 1. No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA, Tianjin,  
300385, People's Republic of China  
2. Lot O-2, Que Vo Industrial Zone extended area,  
Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam  
3. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi-do,  
Korea (Suwon Industrial Complex)

Date of Receipt : Nov. 22, 2017

Test date : Dec. 04, 2017 ~ Dec. 07, 2017

Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Tae Yeon, Kim  
EMC Test Engineer

Reviewed by

Dong-Hun, Jang  
EMC Technical Manager

This test report is not related to KOLAS.

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### REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Dec. 12, 2017	KES-E1-17T0818	Issued
May. 15, 2019	KES-E1-17T0818-R1	Re-issue due to manufacturer change

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## 1.0 General Product Description

### Main Specifications of E.U.T are:

	XNP-6320HS
<b>Video</b>	
Imaging Device	1/2.8" 2.4M CMOS
Total Pixels	1981(H) x 1288(V), 2.55M
Effective Pixels	1944(H) x 1212(V), 2.35M
Scanning System	Progressive
Min. Illumination	Color : 0.05Lux (1/30sec, F1.6) B/W : 0.005 Lux (1/30sec, F1.6)
S / N Ratio	50dB
Video Out	CVBS : 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P), for installation USB : Micro USB type B, 1280x720, for installation
<b>Lens</b>	
Focal Length (Zoom Ratio)	4.4 ~ 142.6mm(Optical 32X)
Max. Aperture Ratio	F1.6 (Wide) / F4.4 (Tele)
Angular Field of View	H : 61.8°(Wide) ~ 2.19°(Tele) / V : 36.2°(Wide) ~ 1.24°(Tele)
Min. Object Distance	Wide 1.5m ,Tele 2m
Focus Control	Auto / Manual / One shot AF
Lens Type	DC Auto Iris
Mount Type	Board-in type
<b>Pan/Tilt/Rotate</b>	
Pan Range	360° Endless
Pan Speed	Preset : 700°/sec, Manual : 0.024°/sec ~ 200°/sec
Tilt Range	210°(-15° ~ 195°)
Tilt Speed	Preset : 700°/sec, Manual : 0.024°/sec ~ 200°/sec
Sequence	set (300 ea), Swing, Group (6 ea), Trace, Tour (1 ea), Auto Run, Schedule
Preset Accuracy	±0.2°
Azimuth	Yes (E/W/S/N/NE/NW/SE/SW)
Auto Tracking	Support
<b>Operational</b>	
Camera Title	Off / On (Displayed up to 85 characters) - W/W : English/Numeric/Special Characters - China : English/Numeric/Special/Chinese Characters - Common : Multi-line (Max 5), Color (Grey/Green/Red/Blue/Black/White), Transparency, Auto Scale by
Day & Night	Auto (ICR) / Color / B/W / Schedule
Backlight Compensation	Off / BLC / HLC / 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 (built-in Gyro)
Defog	Auto/Manual/Off
Motion Detection	Off / On(8ea, Polygonal)
Privacy Masking	Off / On ( 24 Zones of Rectangle zone) - Color : Grey/Green/Red/Blue/Black/White - Zoom ratio option for mask mode - Mosaic option
Gain Control	Off / Low / Middle / High
White Balance	TW / AWC / Manual / Indoor / Outdoor (included Mercury & Sodium)
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (1 ~ 1/12,000sec)

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Image Rotation	Flip/Mirror : On/Off
Video&Audio Analytics	Tampering, Loitering, Directional Detection, Fog Detection, Virtual Line, Enter/Exit, Appear / Disappear, Audio Detection, Face Detection, Motion Detection, Sound Classification
Serial Interface	RS-485 - Samsung-T, Pelco-D/P, Panasonic, Bosch, AD, GE, Vicon, Honeywell
Alarm I/O	Input 4ea / Output 2ea (Relay)
Alarm Triggers	Alarm input, Motion Detection, video & Audio Analytics, network, Disconnect
Alarm events	File upload via FTP and E-Mail Notification via E-Mail, TCP and HTTP local storage(SD/SDHC/SDXC) or NAS recording at Alarm Triggers External output Preset
Audio In	Selectable (Mic IN/Line IN) Supply voltage: 2.5VDC(4mA), Input impedance: approx. 2K Ohm
Audio out	Line out (3.5mm mono jack), Max output level: 1 Vrms
Pixel counter	support
<b>Network</b>	
Ethernet	RJ-45 (10/100BASE-T)
Video Compression Format	H.264 (MPEG-4 Part 10/AVC), H.265, Motion JPEG
Resolution	1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240
Max. Framerate	H.264/H.265 : Max 60fps at all resolutions Motion JPEG : Max. 30fps at all resolutions
Smart Codec	Manual mode (Area-Based : 5ea)
WiseStream-II	support
Video Quality Adjustment	H.264 / H.265 / MJPEG : Target Bitrate Level Control
Bitrate Control Method	H.264 / H.265 : CBR or VBR Motion JPEG : VBR
Streaming Capability	Multiple Streaming (Up to 10 Profiles)
Audio Compression Format	G.711 u-law / G.726 Selectable G.726 (ADPCM) 8KHz, G.711 8KHz G.726 : 16Kbps, 24Kbps, 32Kbps, 40Kbps AAC-LC : 48Kbps at 16KHz
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

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Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access Log 802.1X Authentication (EAP-TLS, EAP-LEAP)
Streaming Method	Unicast / Multicast
Max. User Access	20 users at Unicast Mode
Edge Storage	Micro SD/SDHC/SDXC 2slot (up to 512 GB) - Continuous recording(1'st slot to 2'nd slot) - Motion Images recorded in the Micro SD/SDHC/SDXC memory card can be downloaded. NAS(Network Attached Storage) Local PC for Instant Recording
Application Programming	ONVIF Profile S/G SUNAPI 2.0(HTTP API) Wisenet Open Platform
Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Swedish, Portuguese, Czech, Polish, Turkish, Dutch, Hungarian, Greek
Web Viewer	Supported OS : Windows 7, 8.1, 10, Mac OS X 10.10, 10.11, 10.12 Plug-in Free Webviewer Supported Browser : Google Chrome, MS Edge, Mozilla Firefox(Window 64bit only) , Apple Safari 10 (Mac OS X only) Plug-in Webviewer Supported Browser : MS Explore 11, Apple Safari 10 (Mac OS X only)
Central Management Software	SmartViewer
<b>Environmental</b>	
Operating Temperature / Humidity	24V AC: -50°C ~ +55°C (-58°F ~ +131°F) / ~ 90% RH * Start up should be done at above -40°C
	PoE+ : -35°C ~ +55°C (-31°F ~ +131°F) / ~ 90% RH * Start up should be done at above -25°C
Storage Temperature / Humidity	-30°C ~ +60°C (-22°F ~ +140°F) / Less than 90% RH
Ingress Protection	IP66/IP67, NEMA4X
Vandal Resistance	IK10
<b>Electrical</b>	
Input Voltage / Current	AC24V±10%, PoE+ (IEEE802.3at, Class4)
Power Consumption	24W Max(Heater Off), 65W Max(Heater On, AC24V)
<b>Mechanical</b>	
Color / Material	SUS316L
Dimension (WxH)	Φ227*296H
Weight	5.3Kg

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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 ☐ 230Vac ☐ 100 Vac ☒ 24 Vac ☐ 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	XNP-6320HS	-	Hanwha Techwin (Tianjin) Co.,Ltd	E.U.T

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## 1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
PoE Adaptor	GS728TPP	-	NETGEAR, INC.	-
Notebook	X56K	HN11N5151FJ0045 W	Hansung computer co., Ltd.	-
Notebook Adaptor	PA-1900-14	-	LITE-ON TECHNOLOGY (CHANGZHOU)CO., LTD.	-
Speaker	BR10000A CUVE	-	BEIJING EDIFIER HI-TECH GROUP.	-
MIC	CMK-303	-	CAMAC	-
Alarm	SIP-1201DD D0	-	SAMSUNG TECHWIN CO., LTD.	-
Controller	SPC-1010	C50E67WG10100F	SamSung Techwin Co.,Ltd.	-
Controller Adaptor	RS-AB1000	-	Dongguan JinhuaSheng Power Technology Co.,Ltd.	-
Micro SD Card	-	-	SanDisk	32 GB

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## 1.6 External I/O Cabling

### ■ AC 24 V Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
Network Camera (E.U.T)	RJ-45	Notebook	RJ-45	3.0	U
	3.5 mm	Speaker	3.5 mm	1.6	U
	3.5 mm	MIC	3.5 mm	1.7	U
	3 Pin	Alarm	3 Pin	4.0	U
	RS-485 (3 Pin)	Controller	RS-485 (3 Pin)	3.5	U
	SLOT	Micro SD Card	SLOT	-	-

\* Unshielded=U, Shielded=S

### ■ PoE Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
Network Camera (E.U.T)	RJ-45 (PoE)	PoE Adaptor	RJ-45 (PoE)	3.0	U
	3.5 mm	Speaker	3.5 mm	1.6	U
	3.5 mm	MIC	3.5 mm	1.7	U
	3 Pin	Alarm	3 Pin	4.0	U
	RS-485 (3 Pin)	Controller	RS-485 (3 Pin)	3.5	U
	SLOT	Micro SD Card	SLOT	-	-
PoE Adaptor	RJ-45 (Data)	Notebook	RJ-45 (Data)	3.0	U

\* Unshielded=U, Shielded=S



## 1.7 E.U.T Operating Mode(s)

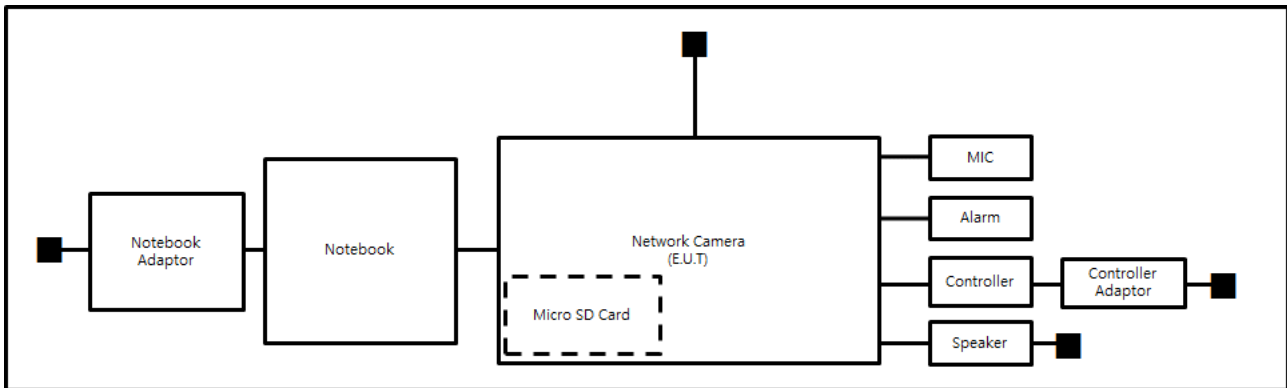
Test Mode	operating
AC 24 V	E.U.T Monitoring, Ping Test
PoE	

E.U.T Test operating S/W		
Name	Version	Manufacture Company
Webviewer	-	Hanwha Techwin Co., Ltd.

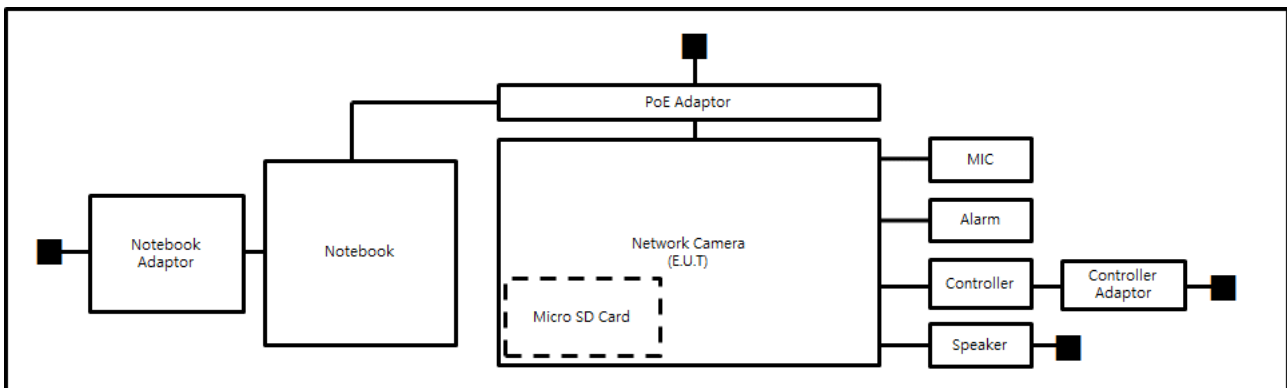
## 1.8 Configuration

■ AC Main  
 □ DC Main

### ■ AC 24 V Mode



### ■ PoE Mode



## 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, Yeosu-si, Gyeonggi-do, 12658, Korea. The sites are constructed in conformance with the requirements of ANSI C63.4:2014 and CISPR 16-1-4:2012

## 1.12 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
KOREA	<b>RRA</b>	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	<b>KOLAS</b>	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	<b>FCC</b>	3 m & 10 m Semi-Anechoic Chamber, 10 m Open Area and Conducted test site to perform FCC Part 15/18 measurements.	 KR0100
Canada	<b>ISED</b>	3 m & 10 m Semi-Anechoic Chamber and Conducted test site	 23298-1
JAPAN	<b>VCCI</b>	Mains Ports Conducted Interference Measurement, Telecommunication Ports Conducted Disturbance Measurement and Radiation 10 meter site, Facility for measuring radiated disturbance above 1 GHz	 R-4308, C-4798, T-2311, G-914
Europe	<b>TÜV SÜD</b>	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 17 07 01633 001

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## 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

☐ Group 2

☐ Class A

☐ Class B

☐ EN 55014-1:2006 +A2:2011

☐ EN 55014-2:1997 +A2:2008

☐ EN 55015:2013

☐ EN 61547:2009

☒ EN 55032:2012/AC:2013

☒ Class A

☐ Class B

☐ EN 55024:2010 +A1:2015

☒ EN 50130-4:2011

☐ EN 61000-3-2:2014

☐ EN 61000-3-3:2013

☐ EN 61326-1:2013



- 
- |   |                                  |                                  |
|---|----------------------------------|----------------------------------|
| <input type="checkbox"/> <b>VCCI V-3 / 2015.04</b>            | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> <b>AS/NZS CISPR22:2009 +A1:2010</b>  | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> <b>47 CFR Part 15, Subpart B</b>     |                                  |                                  |
| <input type="checkbox"/> CISPR 22:2009 +A1:2010               | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> ANSI C63.4-2009                      |                                  |                                  |
| <input type="checkbox"/> <b>IC Regulation ICES-003 : 2016</b> |                                  |                                  |
| <input type="checkbox"/> CAN/CSA CISPR 22-10                  | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> ANSI C63.4-2014                      |                                  |                                  |
| <br><input type="checkbox"/> <b>RE- Directive 2014/53/EU</b>  |                                  |                                  |
| <br><input type="checkbox"/> EN 301 489-1 V1.9.2              |                                  |                                  |
| <input type="checkbox"/> Equipment for fixed use              |                                  |                                  |
| <input type="checkbox"/> Equipment for vehicular use          |                                  |                                  |
| <input type="checkbox"/> Equipment for portable use           |                                  |                                  |
| <br><input type="checkbox"/> EN 301 489-3 V1.6.1              |                                  |                                  |
| <br><input type="checkbox"/> EN 301 489-17 V2.2.1             |                                  |                                  |
| <br><input type="checkbox"/> EN 60945:2002                    |                                  |                                  |



## 2.1 Conducted Emissions at Mains Power Ports

### Test Date

Dec. 04, 2017

### Test Location

Electro wave Shieldroom

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EMC32	R & S	9.12.00	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESR3	R & S	101781	04, 27, 2018
<input checked="" type="checkbox"/>	LISN	ENV216	R & S	101787	01, 11, 2018
<input checked="" type="checkbox"/>	LISN	ESH2-Z5	R & S	100450	04, 27, 2018
<input checked="" type="checkbox"/>	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 27, 2018
<input type="checkbox"/>	LISN	NNBM8124	SCHWARZBECK	8124-1002	08, 07, 2018
<input type="checkbox"/>	LISN	NNBM8124	SCHWARZBECK	8124-1003	08, 07, 2018

### Test Conditions

Temperature: 22,0 °C  
Relative Humidity: 43,0 % R.H.

### Frequency Range of Measurement

150 kHz to 30 MHz

### Instrument Settings

IF Band Width: 9 kHz

### Test Results

The requirements are:

- ☒ PASS  
☐ NOT PASS  
☐ NOT APPLICABLE

### Remarks

See Appendix A for test data.

## 2.2 Conducted Emissions at Telecommunication Ports

### Test Date

Dec. 04, 2017

### Test Location

Electro wave Shieldroom

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EMC32	R & S	9.12.00	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESR3	R & S	101781	04, 27, 2018
<input checked="" type="checkbox"/>	LISN	ENV216	R & S	101787	01, 11, 2018
<input checked="" type="checkbox"/>	LISN	ESH2-Z5	R & S	100450	04, 27, 2018
<input checked="" type="checkbox"/>	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 27, 2017
<input checked="" type="checkbox"/>	8-WIRE ISN CAT3,5	ENY81	R & S	100174	01, 11, 2018
<input type="checkbox"/>	8-WIRE ISN CAT6	ENY81-CAT6	R & S	101665	01, 11, 2018
<input type="checkbox"/>	ISN	ISN S8	SCHWARZBECK	ISN-S8-0019	05, 12, 2018
<input type="checkbox"/>	CDN	CDNS502A	TESEQ	40431	01, 11, 2018

### Test Conditions

Temperature: 22,0 °C

Relative Humidity: 43,0 % R.H.

### Frequency Range of Measurement

150 kHz to 30 MHz

### Instrument Settings

IF Band Width: 9 kHz

### Test Results

The requirements are:

- ☒ PASS  
☐ NOT PASS  
☐ NOT APPLICABLE

### Remarks

See Appendix A for test data.

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

### Test Date

Dec. 04, 2017

### Test Location

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

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESU26	R & S	100551	04, 18, 2018
<input checked="" type="checkbox"/>	AMPLIFIER	SCU 01	R & S	100603	11, 27, 2018
<input checked="" type="checkbox"/>	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	716	11, 28, 2018

### Test Conditions

Temperature: 22,7 °C  
Relative Humidity: 41,3 % R.H.

### Frequency Range of Measurement

30 MHz to 1 GHz

### Instrument Settings

IF Band Width: 120 kHz

### Test Results

The requirements are:

☒ PASS  
☐ NOT PASS  
☐ NOT APPLICABLE

### Remarks

See Appendix A for test data.



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

### Test Date

Dec. 05, 2017

### Test Location

SEMI ANECHOIC CHAMBER #2

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	e3	AUDIX	8.083b	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESU26	R & S	100552	04, 19, 2018
<input checked="" type="checkbox"/>	PREAMPLIFIER	8449B	AGILENT	3008A01729	05, 31, 2018
<input type="checkbox"/>	ATTENUATOR	8491A	HP	35496	03, 24, 2018
<input type="checkbox"/>	LOG-PERIODIC ANTENNA	STLP 9149	SCHWARZBECK	9149-255	05, 17, 2018
<input checked="" type="checkbox"/>	HORN ANTENNA	BBHA 9120D	SCHWARZBECK	9120D-1802	09, 04, 2019

### Test Conditions

Temperature: 20,5 °C  
Relative Humidity: 45,2 % R.H.

### Frequency Range of Measurement

1 GHz to 6 GHz

### Instrument Settings

IF Band Width: 1 MHz

### Test Results

The requirements are:

- ☒ PASS  
☐ NOT PASS  
☐ NOT APPLICABLE

### Remarks

See Appendix A for test data.



## 2.5 Harmonic Current Emissions

### Test Date

N/A

### Test Location

Electro wave Shieldroom

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input type="checkbox"/>	EMI Test S/W	dpa.control	EM TEST	5.4.11.0	-
<input type="checkbox"/>	DIGITAL POWER ANALYZER	DPA 500N	EM TEST	V1024106759	08, 09, 2018
<input type="checkbox"/>	POWER SOURCE	ACS 500N6	EM TEST	V1024106760	-

### Test Conditions

Relative Humidity:                      °C  
    % R.H.

### Classification of Equipment for Harmonic Current Emissions

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

### Test Results

The requirements are:

- ☐ PASS
- ☐ NOT PASS
- ☒ NOT APPLICABLE

### Remarks

N/A : Because the E.U.T power is less than 75 W, limits are not specified.



### 3.0 Criteria for compliance

Criteria for compliance was based on the following guidelines:

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

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

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

A functional description and a definition of performance by the manufacture and noted in the test  
report, based on the following criteria:

#### Electrostatic discharge

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

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

#### Radiated electromagnetic fields

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

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

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

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

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

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

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

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



---

### **Fast transient burst / slow high energy voltage surge**

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

Flickering of an indicator during the application of discharge is permissible, providing

That there is no residual is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change.

### **Conducted RF immunity**

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

Flickering of an indicator during the application of discharge is permissible, providing

That there is no residual is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change,

and no such flickering of indicators oeuvres at  $U = 130 \text{ dB}\mu\text{V}$ .

For component of CCTV systems, where the status is monitored by observing the TV picture, then deterioration of the picture is allowed at  $U = 140 \text{ dB}\mu\text{V}$ , providing:

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

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

(b) at  $U = 130 \text{ dB}\mu\text{V}$ , any deterioration of the picture is so minor that the system could still be used; and

(c) there in no observable deterioration of the picture at  $U = 120 \text{ dB}\mu\text{V}$ .

### **Voltage dip/interruption / Voltage variation**

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

Flickering of an indicator during the conditioning is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment

as a change. The EUT shall meet the acceptance criteria for the functional test, after the conditioning.



## 3.1 Electrostatic Discharge

### Reference Standard

EN 61000-4-2:2009

### Test Date

Dec. 07, 2017

### Test Location

EMS-ESD: Electro wave Shieldroom

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	ESD SIMULATOR	ESS-2000	Noise Ken	ESS01Z0454	10, 11, 2018
<input checked="" type="checkbox"/>	HCP	-	KES	-	-
<input checked="" type="checkbox"/>	VCP	-	KES	-	-

### Test Conditions

Temperature: 21,0 °C  
Relative Humidity: 43,0 % R.H.  
Atmospheric Pressure: 100,2 kPa



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www.kes.co.kr

Test report No.:

KES-E1-17T0818-R1

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### Test Specifications

Discharge Factor:  $\geq 1$  s

Discharge Impedance: 330 ohm / 150 pF

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

Polarity: Positive and Negative

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

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

Notes: HCP: Horizontal coupling plane

VCP: Vertical coupling plane

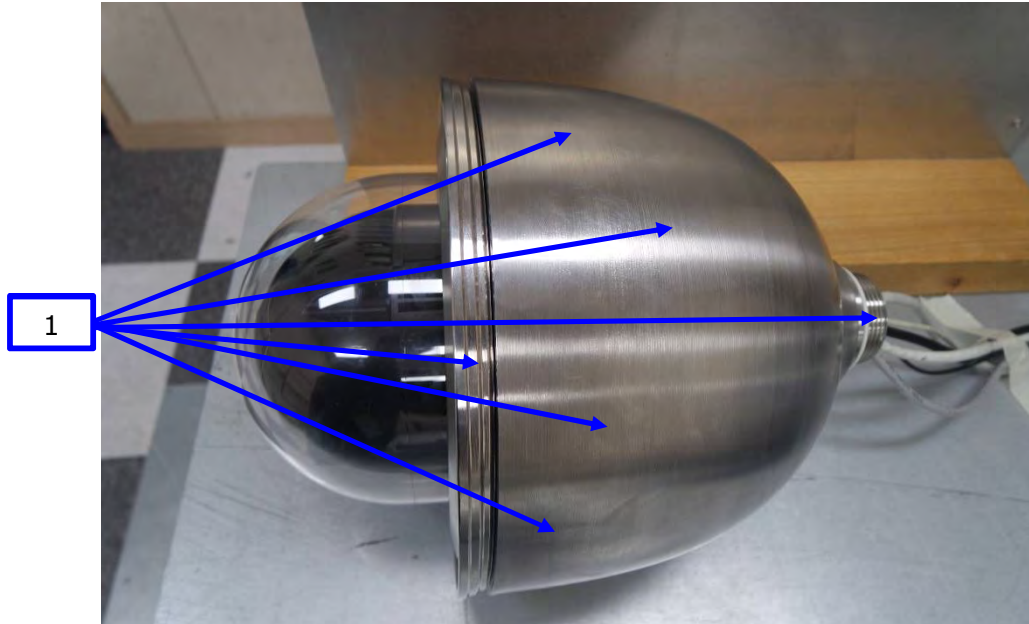
Required Performance Criteria: ☒ Complied

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**Location of Discharge:**

Air
Contact



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**Test Data****■ AC 24 V, PoE Mode****Indirect Discharge**

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

**Direct Discharge**

No.	Test Point	Discharge Method	Observations	Remarks
1	Surface	Contact Discharge	Complied	-

Note: "Blank" = Not performed

Observations:

Complied – No degradation of function

**Test Results**

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

**Remarks**

PASS Required Performance Criteria.

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## 3.2 Radiated Electric Field Immunity

### Reference Standard

EN 61000-4-3:2006 +A2:2010

### Test Date

Dec. 05, 2017

### Test Location

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

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMS Test S/W	KTI_RS2012	KOREA TECHNOLOGY INSTITUTE CO., LTD	2.1.1	-
<input checked="" type="checkbox"/>	SIGNAL GENERATOR	ESG-3000A	HP	US37040210	11, 01, 2018
<input checked="" type="checkbox"/>	AMPLIFIER	ITA0300-200	Infinitech	-	11, 01, 2018
<input checked="" type="checkbox"/>	AMPLIFIER	ITA0750-200	Infinitech	-	11, 01, 2018
<input checked="" type="checkbox"/>	AMPLIFIER	ITA1500-100	Infinitech	-	11, 01, 2018
<input checked="" type="checkbox"/>	AMPLIFIER	ITA2500-100	Infinitech	-	11, 01, 2018
<input checked="" type="checkbox"/>	POWER METER	E4419B	Agilent	MY45101506	06, 26, 2018
<input checked="" type="checkbox"/>	AVERAGE POWER SENSOR	E9301A	Agilent	-	06, 26, 2018
<input checked="" type="checkbox"/>	AVERAGE POWER SENSOR	E9301A	Agilent	MY41495698	06, 26, 2018
<input checked="" type="checkbox"/>	HYBRID LOG-PERIODIC ANTENNA	HLP-2603	TDK	100400	-

### Test Conditions

Temperature: 20,5 °C  
Relative Humidity: 45,2 % R.H.  
Atmospheric Pressure: 100,2 kPa

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## Test Specifications

Antenna Polarization: Horizontal & vertical unless indicated otherwise

Antenna Distance: ☒ 3 m

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

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

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

Frequency step: ☒ 1 % step

Dwell Time: ☒ 1 s ☐ 3 s

# of Sides Radiated: ☒ 4

Required Performance Criteria: ☒ Complied

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**Test Data**

## ■ AC 24 V Mode

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

## ■ PoE Mode

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

Note: "Blank" = Not performed

Observations:

Complied – No degradation of function

**Test Results**

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

**Remarks**PASS Required Performance Criteria.

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### 3.3 Electrical Fast Transients/Bursts

#### Reference Standard

EN 61000-4-4:2012

#### Test Date

Dec. 06, 2017

#### Test Location

EMS-EFT: Electro wave Shieldroom

#### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMS Test S/W	iec.control	AMETEK CTS	7.1.2	-
<input checked="" type="checkbox"/>	ULTRA COMPACT SIMULATOR	UCS 500 N5	EM TEST	V0936105120	06, 26, 2018
<input checked="" type="checkbox"/>	MOTOR VARIAC	MV2616	EM TEST	V0936105123	06, 26, 2018
<input checked="" type="checkbox"/>	CAPACITIVE COUPLING CLAMP	HFK	EM TEST	070925	06, 26, 2018

#### Test Conditions

Temperature: 20,9 °C  
Relative Humidity: 45,0 % R.H.  
Atmospheric Pressure: 100,1 kPa

#### Test Specifications

Pulse Amplitude & Polarity: (AC Power Lines)	<input type="checkbox"/> ± 1.0 kV <input type="checkbox"/> ± 4.0 kV	<input checked="" type="checkbox"/> ± 2.0 kV
Pulse Amplitude & Polarity: (Other supply / Signal Lines)	<input type="checkbox"/> ± 0.5 kV <input type="checkbox"/> ± 2.0 kV	<input checked="" type="checkbox"/> ± 1.0 kV
Burst Period:	<input checked="" type="checkbox"/> 300 ms	<input type="checkbox"/> 2 s
Repetition Rate:	<input type="checkbox"/> 5 kHz	<input checked="" type="checkbox"/> 100 kHz
Duration of Test Voltage:	<input checked="" type="checkbox"/> ≥ 1 min	
Required Performance Criteria:	<input checked="" type="checkbox"/> Complied	

## Test Data

### ■ AC 24 V Mode

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

Mode of Application	Observations	
	(+) Burst (kV)	(-) Burst (kV)
L - N	Complied	Complied

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

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

☒ Signal ports and telecommunication ports – Coupling Clamp used

Mode of Application	Observations	
	(+) Burst (kV)	(-) Burst (kV)
RJ-45	Complied	Complied
Alarm (3 Pin)	Complied	Complied
RS-485 (3 Pin)	Complied	Complied



■ PoE Mode

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

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

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

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

☒ Signal ports and telecommunication ports – Coupling Clamp used

Mode of Application	Observations	
	(+) Burst (kV)	(-) Burst (kV)
RJ-45 (PoE)	Complied	Complied
Alarm (3 Pin)	Complied	Complied
RS-485 (3 Pin)	Complied	Complied

Note: "Blank" = Not performed

Observations:

Complied – No degradation of function

**Test Results**

☒ PASS Required Performance Criteria

☐ NOT PASS Required Performance Criteria

**Remarks**

PASS Required Performance Criteria.





## 3.4 Surge Transients

### Reference Standard

EN 61000-4-5:2014

### Test Date

Dec. 06, 2017

### Test Location

EMS-Surge: Electro wave Shieldroom

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMS Test S/W	iec.control	AMETEK CTS	7.1.2	-
<input checked="" type="checkbox"/>	ULTRA COMPACT SIMULATOR	UCS 500 N5	EM TEST	V0936105120	10, 16, 2018
<input checked="" type="checkbox"/>	MOTOR VARIAC	MV2616	EM TEST	V0936105123	06, 26, 2018
<input checked="" type="checkbox"/>	CDN	CNV 508N1	EM TEST	P1551168979	04, 26, 2018
<input type="checkbox"/>	CDN	CNV 508T5	EM TEST	P1549168422	04, 26, 2018

### Test Conditions

Temperature: 20,9 °C  
Relative Humidity: 45,0 % R.H.  
Atmospheric Pressure: 100,1 kPa



## Test Specifications

### AC Power Lines

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

Surge Amplitude : Common Mode  
☐ (0,5 / 1,0 / 2,0) kV  
Differential Mode  
☒ (0,5 / 1,0) kV

Number of Surges: ☒ 5 surges per angle

Angle: ☒ 0°, 90°, 180°, 270° (input a.c. power port)

Polarity: ☒ Positive & Negative

Repetition Rate: ☒ 1 surge per min ☐ 1 surge per 30 sec.

Required Performance Criteria: ☒ Complied

### Other supply / Signal Lines

Source Impedance: 42 ohm for common Mode

Surge Amplitude: Common Mode  
☒ (0,5 / 1,0) kV

Number of Surges: ☒ 5 Surges

Polarity: ☒ Positive & Negative

Repetition Rate: ☒ 1 surge per min ☐ 1 surge per 30 sec.

Required Performance Criteria: ☒ Complied

## Test Data

### ■ AC 24 V Mode

☒ Line to Line – Differential Mode

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

### Signal Lines

☒ Line to Earth – Common Mode

Mode of Application	Observations	
	(+) Surge (kV)	(-) Surge (kV)
RJ-45	Complied	Complied
Alarm (3 Pin)	Complied	Complied
RS-485 (3 Pin)	Complied	Complied

### ■ PoE Mode

☐ Line to Earth – Common Mode

Mode of Application	Observations	
	(+) Surge (kV)	(-) Surge (kV)
-	-	-

### Signal Lines

☒ Line to Earth – Common Mode

Mode of Application	Observations	
	(+) Surge (kV)	(-) Surge (kV)
RJ-45 (PoE)	Complied	Complied
Alarm (3 Pin)	Complied	Complied
RS-485 (3 Pin)	Complied	Complied

Note: "Blank" = Not performed

Observations:

Complied – No degradation of function

## Test Results

☒ PASS Required Performance Criteria

☐ NOT PASS Required Performance Criteria

## Remarks

PASS Required Performance Criteria.

## 3.5 Conducted Disturbance

### Reference Standard

EN 61000-4-6:2014

### Test Date

Dec. 07, 2017

### Test Location

EMS-CS: Electro wave Shieldroom

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMS Test S/W	icd.control	EM TEST	5.3.11	-
<input checked="" type="checkbox"/>	CONTINUOUS WAVE SIMULATOR	CWS 500N1.4	EM TEST	P1602169880	11, 27, 2018
<input checked="" type="checkbox"/>	ATTENUATOR	ATT 6/80	EM TEST	P1614178148	11, 27, 2018
<input checked="" type="checkbox"/>	CDN	CDN M016	TESEQ	43694	11, 27, 2018
<input type="checkbox"/>	CDN	CDN M016	TESEQ	43697	11, 27, 2018
<input checked="" type="checkbox"/>	CDN	CDN T800	TESEQ	42800	11, 27, 2018
<input checked="" type="checkbox"/>	EM CLAMP	KEMZ 801A	TESEQ	44099	11, 28, 2018

### Test Conditions

Temperature: 22,1 °C  
Relative Humidity: 42,0 % R.H.  
Atmospheric Pressure: 100,8 kPa

### Test Specifications

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

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

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

Frequency step: ☒ 1 % step

Dwell Time: ☒ 1 s ☐ 3 s

Required Performance Criteria: ☒ Complied

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## Test Data

### ■ AC 24 V Mode

#### ☒ Input a.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observations
L - N	CDN ( <input checked="" type="checkbox"/> M2, <input type="checkbox"/> M3)	Complied

#### ☐ Input d.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observations
-	CDN ( <input type="checkbox"/> M2, <input type="checkbox"/> M3)	-

#### ☒ Signal ports and telecommunication ports

Coupling Location (Line Stressed)	Coupling Method	Observations
RJ-45	CDN T800	Complied
Alarm (3 Pin)	Clamp	Complied
RS-485 (3 Pin)	Clamp	Complied

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**■ PoE Mode**☐ Input a.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observations
-	CDN ( <input type="checkbox"/> M2, <input type="checkbox"/> M3)	-

☐ Input d.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observations
-	CDN ( <input type="checkbox"/> M2, <input type="checkbox"/> M3)	-

☒ Signal ports and telecommunication ports

Coupling Location (Line Stressed)	Coupling Method	Observations
RJ-45 (PoE)	CDN T800	Complied
Alarm (3 Pin)	Clamp	Complied
RS-485 (3 Pin)	Clamp	Complied

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

Observations:

Complied – No degradation of function

**Test Results**☒ PASS Required Performance Criteria☐ NOT PASS Required Performance Criteria**Remarks**PASS Required Performance Criteria.



### 3.6 Voltage Dips and Short Interruptions

#### Reference Standard

EN 61000-4-11:2004

#### Test Date

Dec. 06, 2017

#### Test Location

EMS-Voltage dip: Electro wave Shieldroom

#### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMS Test S/W	iec.control	AMETEK CTS	7.1.2	-
<input checked="" type="checkbox"/>	ULTRA COMPACT SIMULATOR	UCS 500 N5	EM TEST	V0936105120	06, 26, 2018
<input checked="" type="checkbox"/>	MOTOR VARIAC	MV2616	EM TEST	V0936105123	06, 26, 2018

#### Test Conditions

Temperature: 20,9 °C  
Relative Humidity: 45,0 % R.H.  
Atmospheric Pressure: 100,1 kPa



## Test Specifications & Observations/Remarks

### ■ AC 24 V Mode (Test Voltage : 230 V)

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

### - Voltage variations

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

Observations:  
Complied – No degradation of function

### Test Results

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

### Remarks

PASS Required Performance Criteria.

\*The test has been tested using the AC / AC Adaptor



## APPENDIX A – TEST DATA

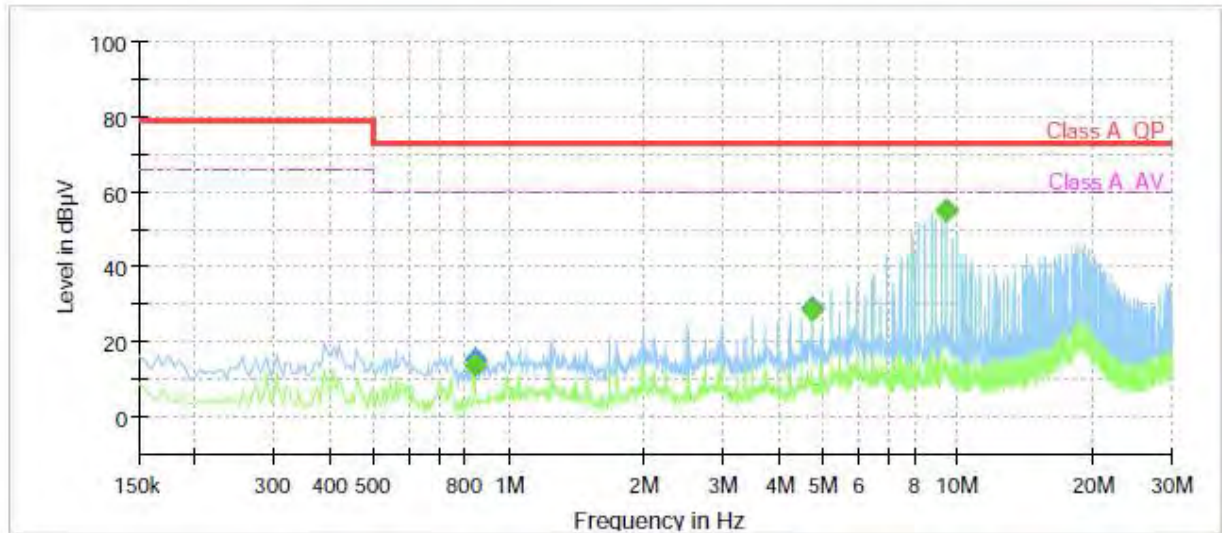
### Conducted Emissions at Mains Power Ports

■ AC 24 V Mode  
[HOT]

#### Common Information

Test Description:  
Model No.:  
Mode  
Operator Name:

Conducted Emission  
XNP-6320HSP  
AC\_H  
KES



#### Final Result

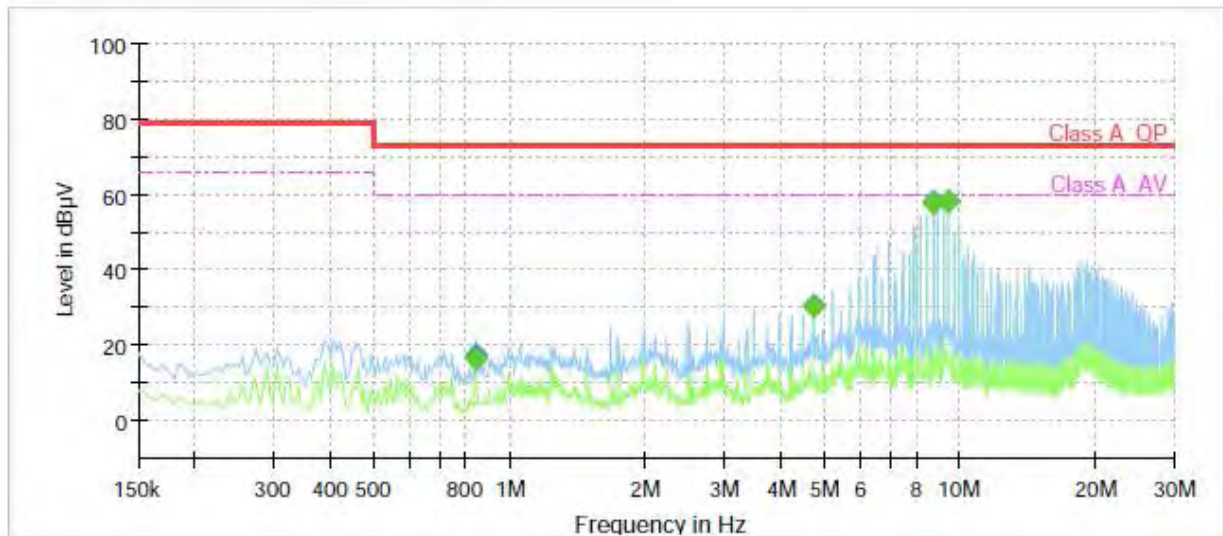
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.840000	---	13.96	60.00	46.04	1000.0	9.000	L1	20.0
0.840000	15.23	---	73.00	57.77	1000.0	9.000	L1	20.0
4.725000	---	28.40	60.00	31.60	1000.0	9.000	L1	19.8
4.725000	29.08	---	73.00	43.92	1000.0	9.000	L1	19.8
9.445000	---	54.91	60.00	5.09	1000.0	9.000	L1	20.0
9.445000	55.09	---	73.00	17.91	1000.0	9.000	L1	20.0

## [ NEUTRAL ]

### Common Information

Test Description:  
Model No.:  
Mode  
Operator Name:

Conducted Emission  
XNP-6320HSP  
AC \_ N  
KES



### Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.840000	---	16.65	60.00	43.35	1000.0	9.000	N	20.0
0.840000	17.73	---	73.00	55.27	1000.0	9.000	N	20.0
4.725000	---	30.07	60.00	29.93	1000.0	9.000	N	19.8
4.725000	30.75	---	73.00	42.25	1000.0	9.000	N	19.8
8.700000	---	57.90	60.00	2.10	1000.0	9.000	N	19.9
8.700000	58.14	---	73.00	14.86	1000.0	9.000	N	19.9
9.445000	---	57.99	60.00	2.01	1000.0	9.000	N	20.0
9.445000	58.27	---	73.00	14.73	1000.0	9.000	N	20.0

#### ◆ 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 (LISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))



## Conducted Emissions at Telecommunication Ports

■ AC 24 V mode  
[10 Mbps]

### Common Information

Test Description:

Telecommunication Emission

Model No.:

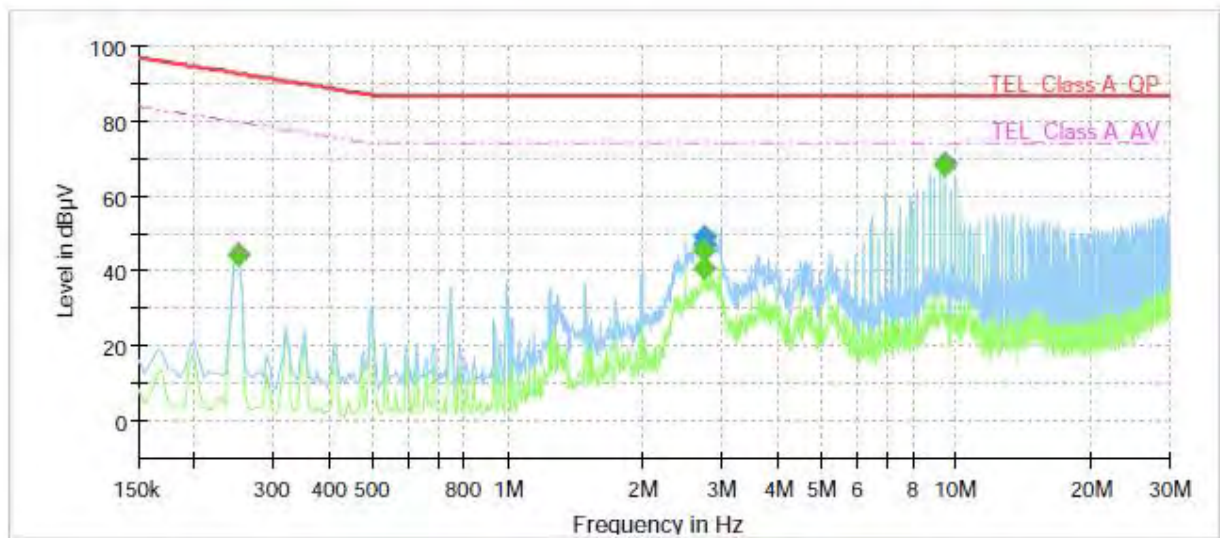
XNP-6320HSP

Mode

AC\_10 Mbps

Operator Name:

KES



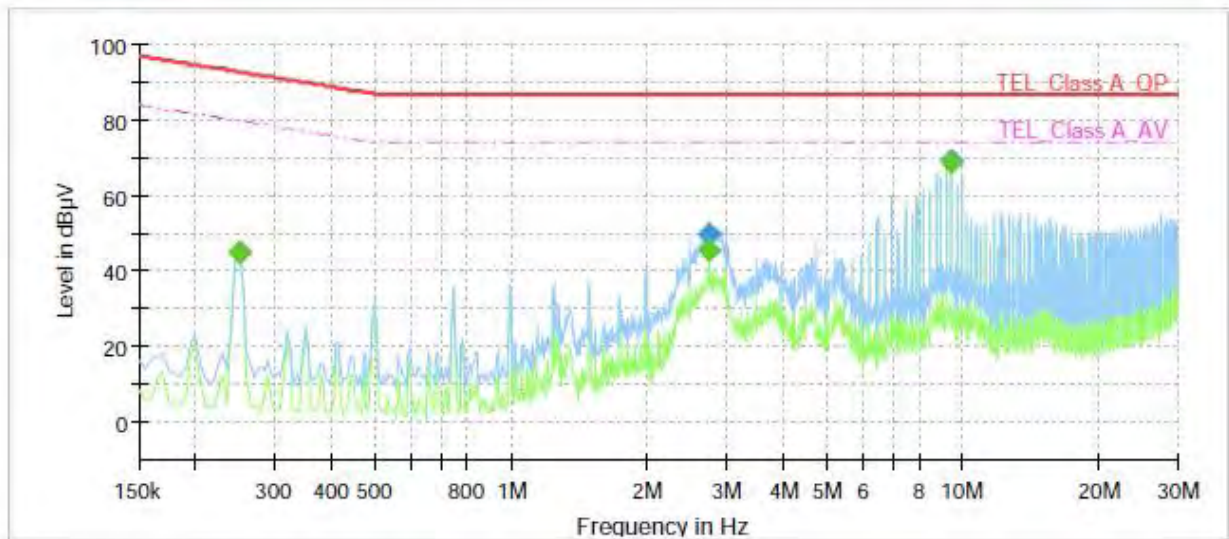
### Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.250000	---	44.72	79.76	35.04	1000.0	9.000	Single Line	19.6
0.250000	44.68	---	92.76	48.08	1000.0	9.000	Single Line	19.6
2.730000	---	40.57	74.00	33.43	1000.0	9.000	Single Line	19.9
2.730000	47.04	---	87.00	39.96	1000.0	9.000	Single Line	19.9
2.735000	---	45.32	74.00	28.68	1000.0	9.000	Single Line	19.9
2.735000	49.17	---	87.00	37.83	1000.0	9.000	Single Line	19.9
9.445000	---	68.19	74.00	5.81	1000.0	9.000	Single Line	19.7
9.445000	68.69	---	87.00	18.31	1000.0	9.000	Single Line	19.7

## [100 Mbps]

### Common Information

Test Description:	Telecommunication Emission
Model No.:	XNP-6320HSP
Mode	AC_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)
0.250000	---	45.18	79.76	34.58	1000.0	9.000	Single Line	19.9
0.250000	45.15	---	92.76	47.61	1000.0	9.000	Single Line	19.9
2.735000	---	45.48	74.00	28.52	1000.0	9.000	Single Line	20.2
2.735000	49.74	---	87.00	37.26	1000.0	9.000	Single Line	20.2
9.445000	---	68.68	74.00	5.32	1000.0	9.000	Single Line	20.0
9.445000	69.12	---	87.00	17.88	1000.0	9.000	Single Line	20.0

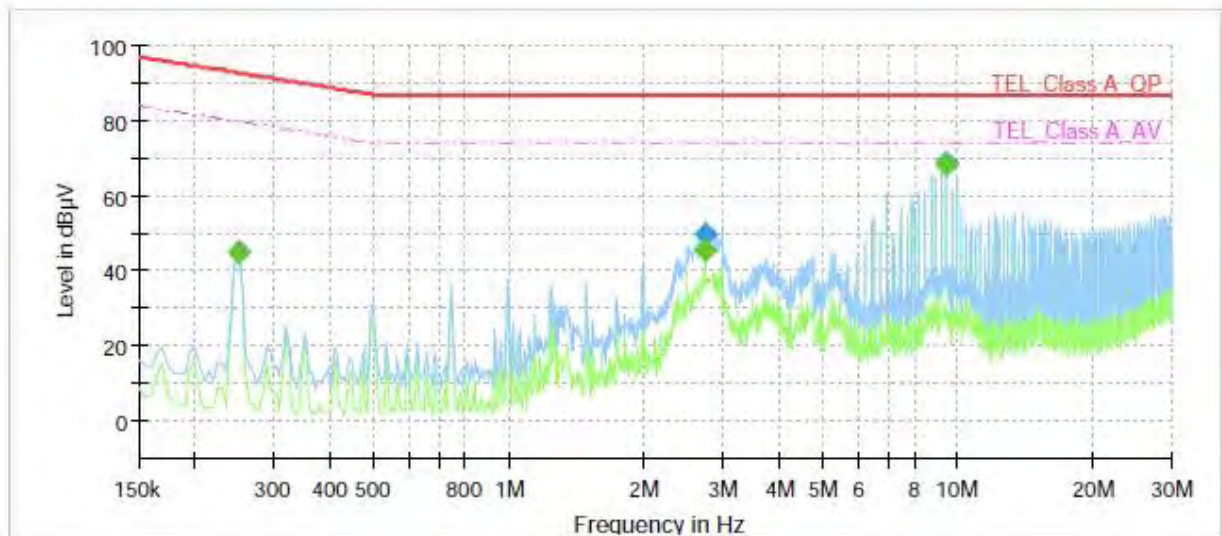
■ PoE mode

**[10 Mbps]**

## Common Information

Test Description:  
Model No.:  
Mode  
Operator Name:

Telecommunication Emission  
XNP-6320HSP  
PoE\_10 Mbps  
KES



## Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.250000	---	44.82	79.76	34.94	1000.0	9.000	Single Line	19.6
0.250000	44.78	---	92.76	47.98	1000.0	9.000	Single Line	19.6
2.735000	---	45.45	74.00	28.55	1000.0	9.000	Single Line	19.9
2.735000	49.65	---	87.00	37.35	1000.0	9.000	Single Line	19.9
9.445000	---	68.51	74.00	5.49	1000.0	9.000	Single Line	19.7
9.445000	68.92	---	87.00	18.08	1000.0	9.000	Single Line	19.7

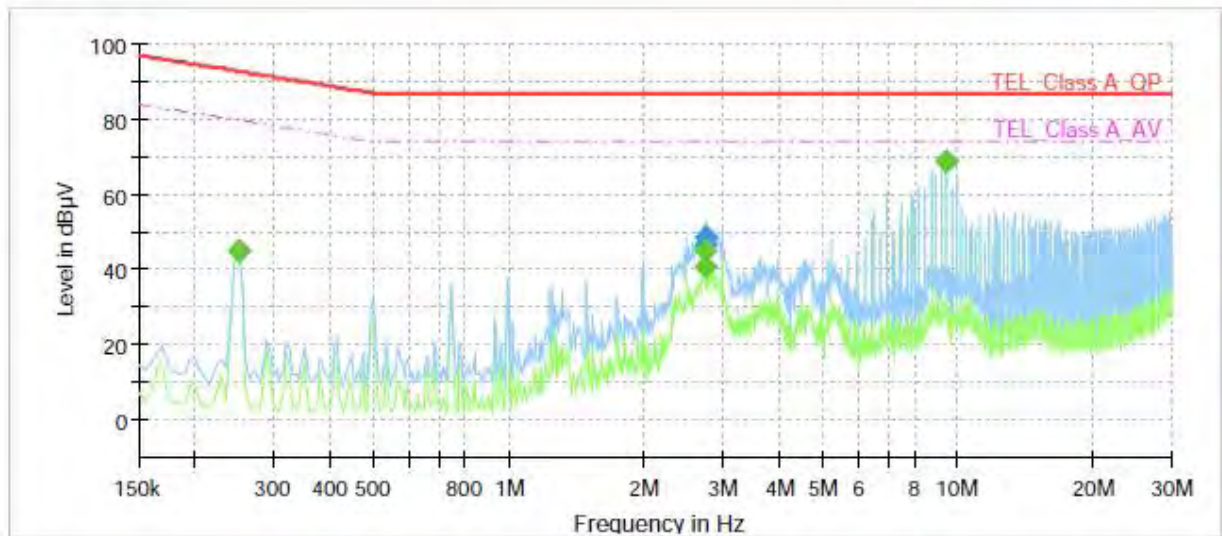


## [100 Mbps]

### Common Information

Test Description:  
Model No.:  
Mode  
Operator Name:

Telecommunication Emission  
XNP-6320HSP  
PoE\_100 Mbps  
KES



### Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.250000	---	45.21	79.76	34.55	1000.0	9.000	Single Line	19.9
0.250000	45.18	---	92.76	47.58	1000.0	9.000	Single Line	19.9
2.730000	---	40.74	74.00	33.26	1000.0	9.000	Single Line	20.2
2.730000	46.81	---	87.00	40.19	1000.0	9.000	Single Line	20.2
2.735000	---	45.20	74.00	28.80	1000.0	9.000	Single Line	20.2
2.735000	48.84	---	87.00	38.16	1000.0	9.000	Single Line	20.2
9.445000	---	68.56	74.00	5.44	1000.0	9.000	Single Line	20.0
9.445000	69.04	---	87.00	17.96	1000.0	9.000	Single Line	20.0



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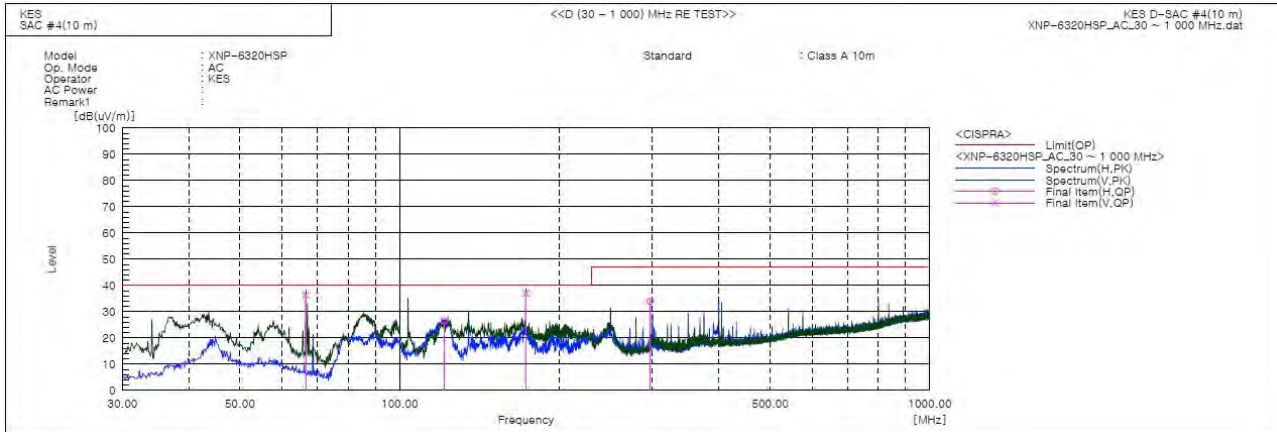
Test report No.:

KES-E1-17T0818-R1

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## Radiated Electric Field Emissions(Below 1 GHz)

### ■ AC 24 V Mode



### 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	66.618	V	67.3	-30.9	36.4	40.0	3.6	131.0	146.0	
2	121.301	H	57.6	-31.1	26.5	40.0	13.5	400.0	169.0	
3	173.075	V	67.3	-30.3	37.0	40.0	3.0	100.0	252.0	
4	296.993	H	57.9	-24.0	33.9	47.0	13.1	332.0	247.0	

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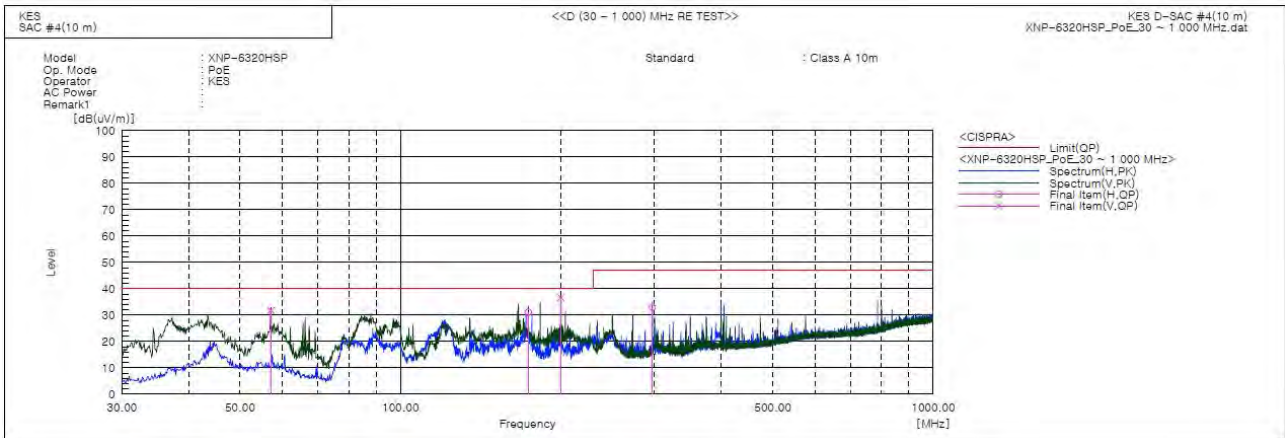
3701, 40, Simin-daero 365beon-gil,  
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Test report No.:

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### PoE Mode



### 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	57.160	V	60.3	-28.5	31.8	40.0	8.2	114.0	293.0	
2	173.803	H	61.3	-30.2	31.1	40.0	8.9	400.0	242.0	
3	200.114	V	63.3	-26.7	36.6	40.0	3.4	135.0	3.0	
4	296.993	H	57.0	-24.0	33.0	47.0	14.0	342.0	255.0	

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

Result(QP) [dB( $\mu$ V/m)] = (Reading(QP)[dB( $\mu$ V)] + c.f[dB(1/m)])

Margin(QP)[dB] = Limit[dB( $\mu$ V/m)] - Result(QP) [dB( $\mu$ V/m)]

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

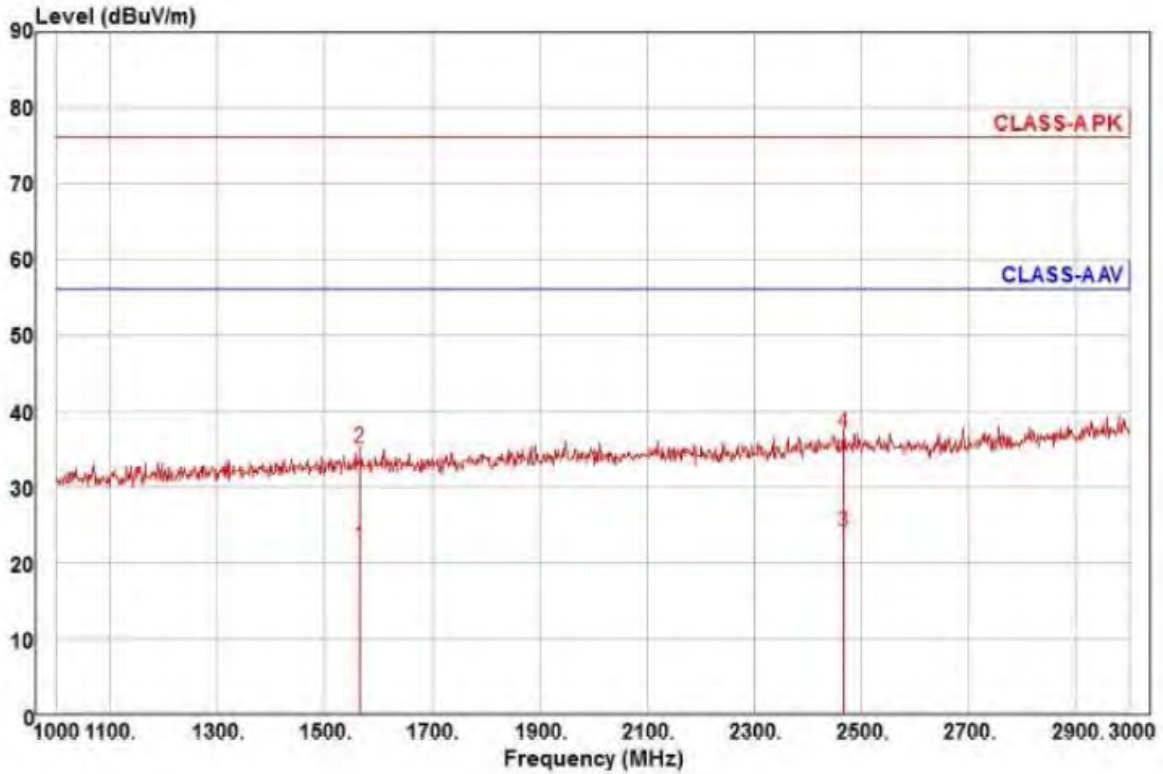
Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value

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## Radiated Electric Field Emissions(Above 1 GHz)

### ■ AC 24 V Mode



Site : YEOJU\_C 3 m SAC

Condition: CISPR22 CLASS-A PK 3m BBHA 9120D(RRA 2019-09-04) horizontal

: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto

Project :

Model : XNP-6320HSP

Mode : AC

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	1566.00	23.74	25.65	8.41	35.56	298	56.00	-33.76	horizontal	Average
2	1566.00	36.64	25.65	8.41	35.56	298	76.00	-40.86	horizontal	Peak
3 pp	2468.00	21.61	27.14	10.75	35.35	36	56.00	-31.85	horizontal	Average
4 pk	2468.00	34.46	27.14	10.75	35.35	36	76.00	-39.80	horizontal	Peak

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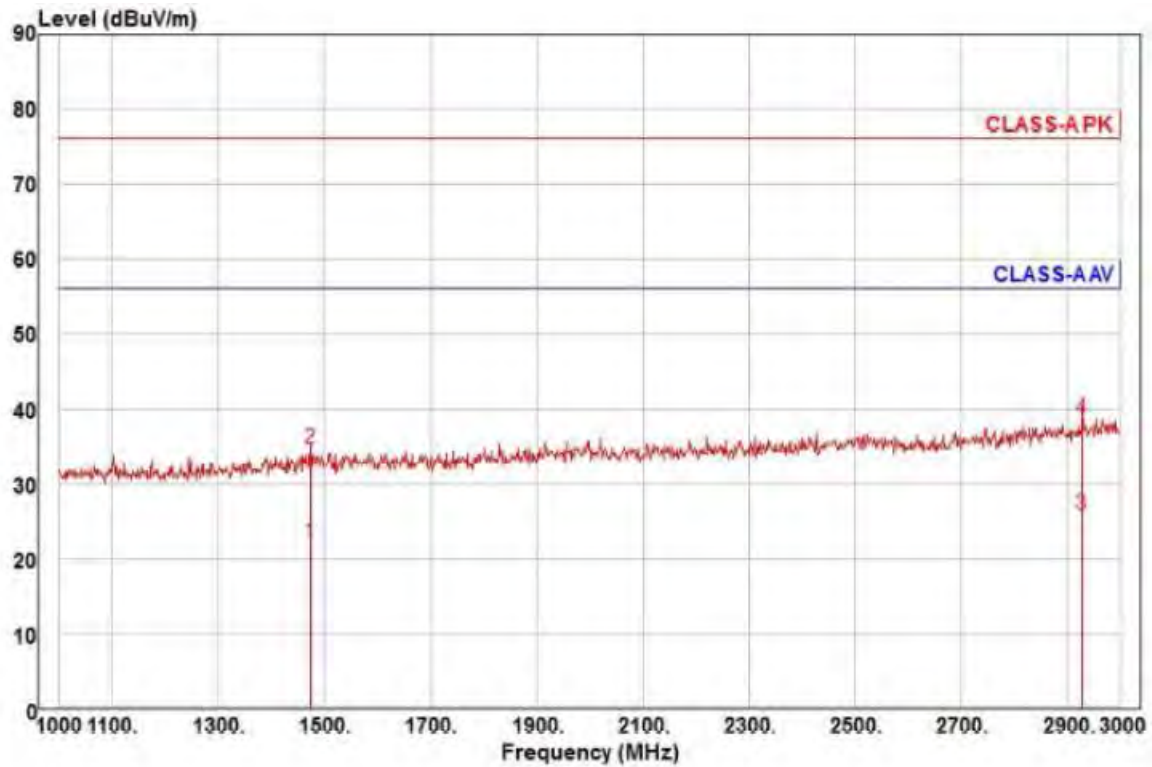
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Test report No.:  
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Site : YEOJU\_C 3 m SAC  
Condition: CISPR22 CLASS-A PK 3m BBHA 9120D(RRA 2019-09-04) vertical  
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto  
Project :  
Model : XNP-6320HSP  
Mode : AC  
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	1474.00	24.12	25.49	8.14	35.64	26	56.00	-33.89	vertical	Average
2	1474.00	36.76	25.49	8.14	35.64	26	76.00	-41.25	vertical	Peak
3 pp	2930.00	21.12	28.33	11.96	35.53	329	56.00	-30.12	vertical	Average
4 pk	2930.00	33.91	28.33	11.96	35.53	329	76.00	-37.33	vertical	Peak

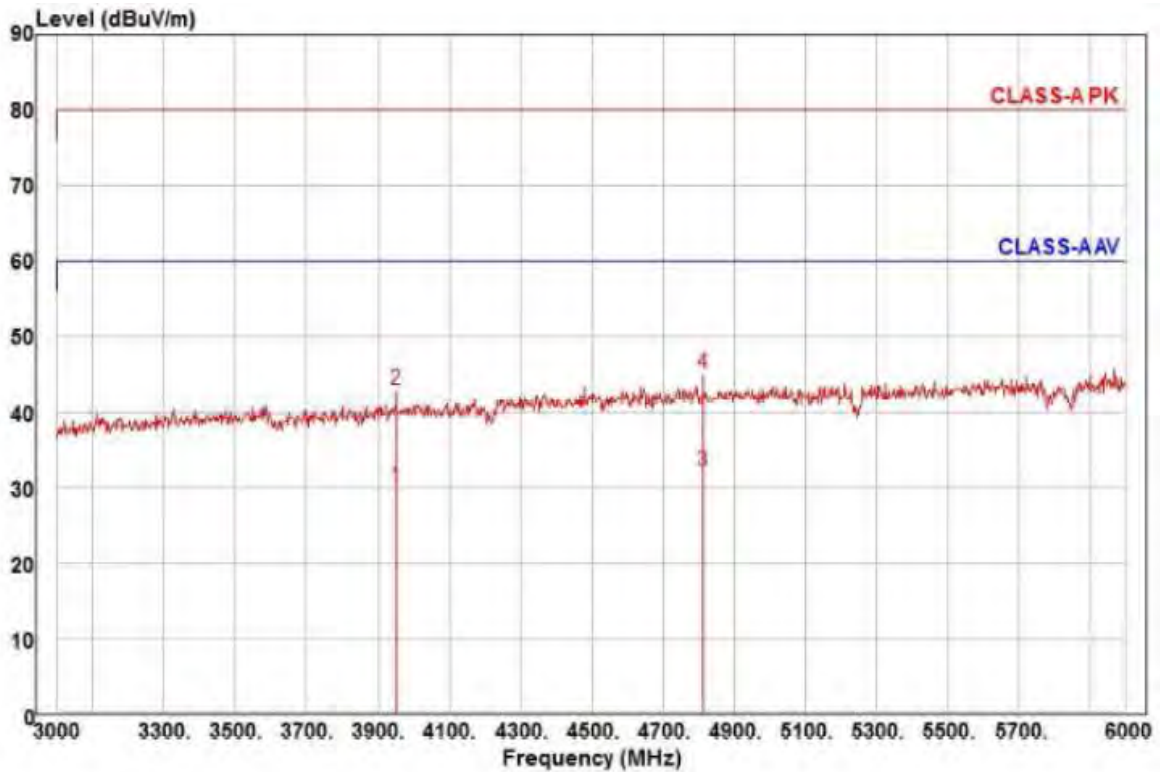
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Test report No.:  
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Site : YEOJU\_C 3 m SAC  
Condition: CISPR22 CLASS-A PK 3m BBHA 9120D(RRA 2019-09-04) horizontal  
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto  
Project :  
Model : XNP-6320HSP  
Mode : AC  
Memo : 3 ~ 6 GHz

	Freq	Read Level	Ant Factor	Cable Loss	Preamplifier Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3951.00	21.59	29.74	13.96	35.29	152	60.00	-30.00	horizontal	Average
2	3951.00	34.60	29.74	13.96	35.29	152	80.00	-36.99	horizontal	Peak
3 pp	4815.00	20.87	31.27	15.53	35.57	79	60.00	-27.90	horizontal	Average
4 pk	4815.00	33.93	31.27	15.53	35.57	79	80.00	-34.84	horizontal	Peak

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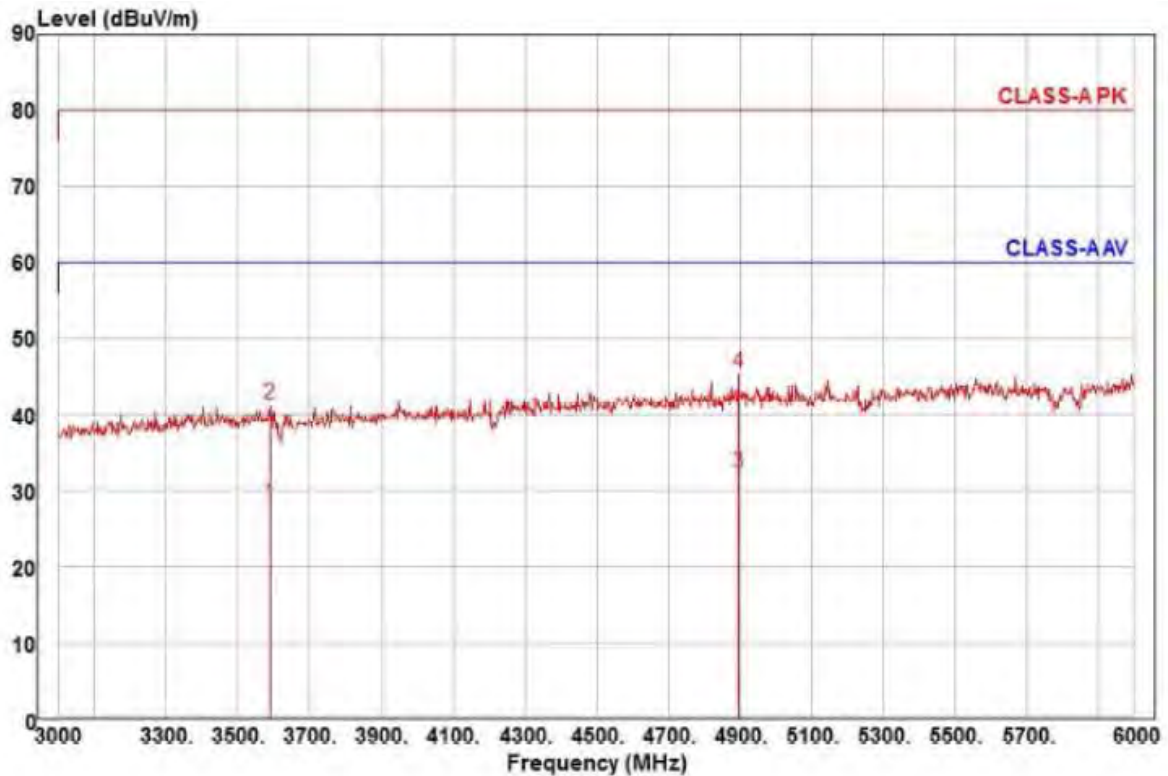
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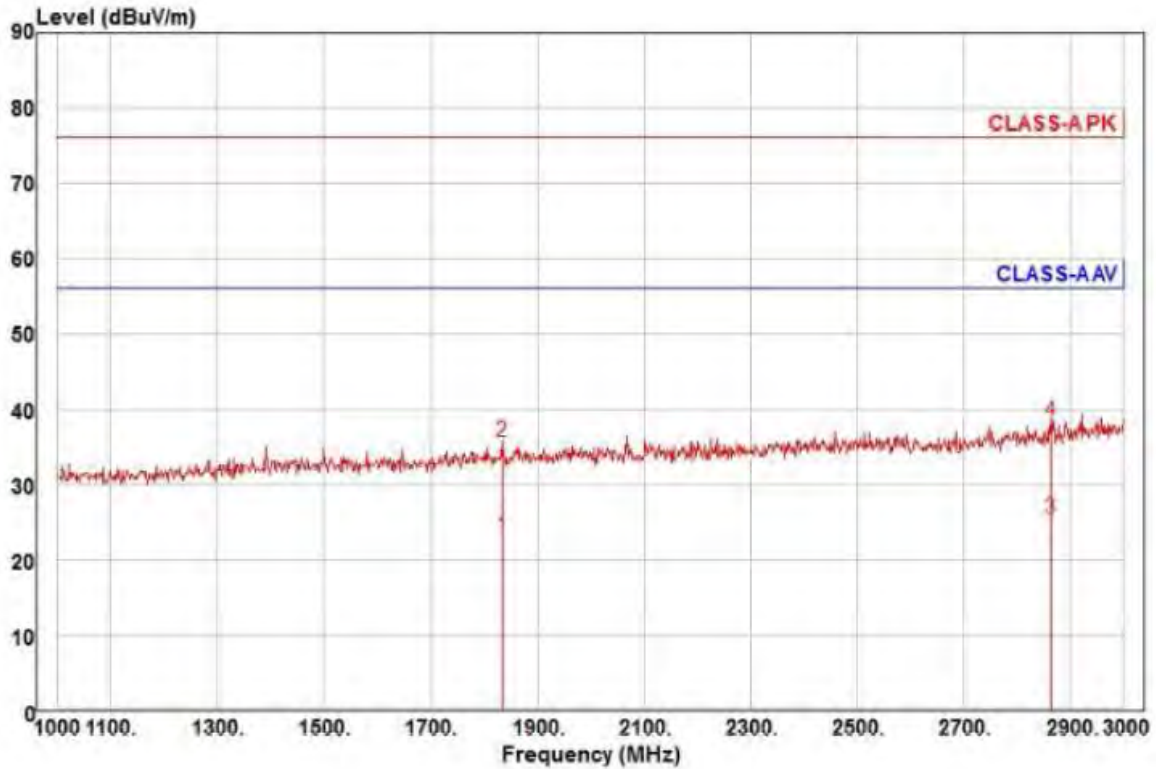
Site : YEOJU\_C 3 m SAC  
Condition: CISPR22 CLASS-A PK 3m BBHA 9120D(RRA 2019-09-04) vertical  
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto  
Project :  
Model : XNP-6320HSP  
Mode : AC  
Memo : 3 ~ 6 GHz

	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	3588.00	21.27	29.04	13.26	35.40	40	60.00	-31.83	vertical	Average
2	3588.00	34.46	29.04	13.26	35.40	40	80.00	-38.64	vertical	Peak
3 pp	4896.00	20.99	31.36	15.63	35.59	169	60.00	-27.61	vertical	Average
4 pk	4896.00	34.05	31.36	15.63	35.59	169	80.00	-34.55	vertical	Peak

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# ■ PoE Mode



Site : YEOJU\_C 3 m SAC  
Condition: CISPR22 CLASS-A PK 3m BBHA 9120D(RRA 2019-09-04) horizontal  
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto  
Project :  
Model : XNP-6320HSP  
Mode : PoE  
Memo : 1 ~ 3 GHz

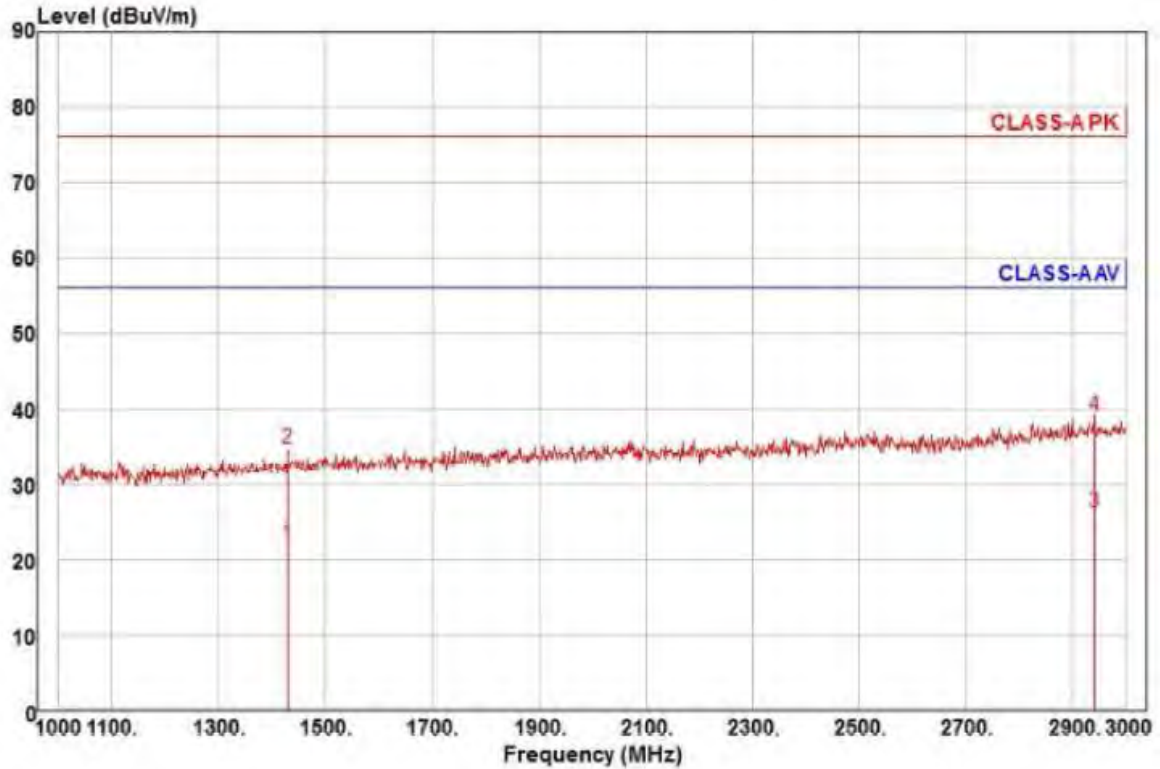
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1834.00	23.27	25.96	9.19	35.32	311	56.00	-32.90	horizontal	Average
2	1834.00	35.83	25.96	9.19	35.32	311	76.00	-40.34	horizontal	Peak
3 pp	2864.00	21.06	28.16	11.78	35.51	172	56.00	-30.51	horizontal	Average
4 pk	2864.00	33.97	28.16	11.78	35.51	172	76.00	-37.60	horizontal	Peak



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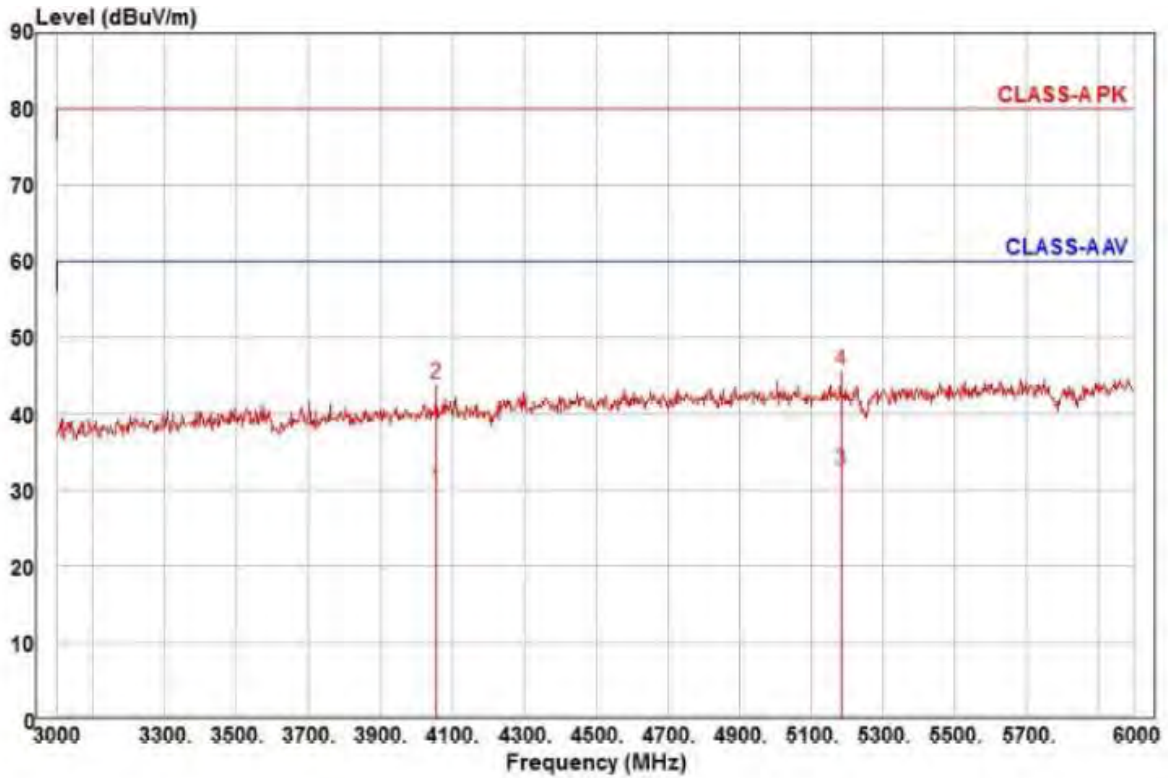
Test report No.:  
KES-E1-17T0818-R1  
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Site : YEOJU\_C 3 m SAC  
Condition: CISPR22 CLASS-A PK 3m BBHA 9120D(RRA 2019-09-04) vertical  
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto  
Project :  
Model : XNP-6320HSP  
Mode : PoE  
Memo : 1 ~ 3 GHz

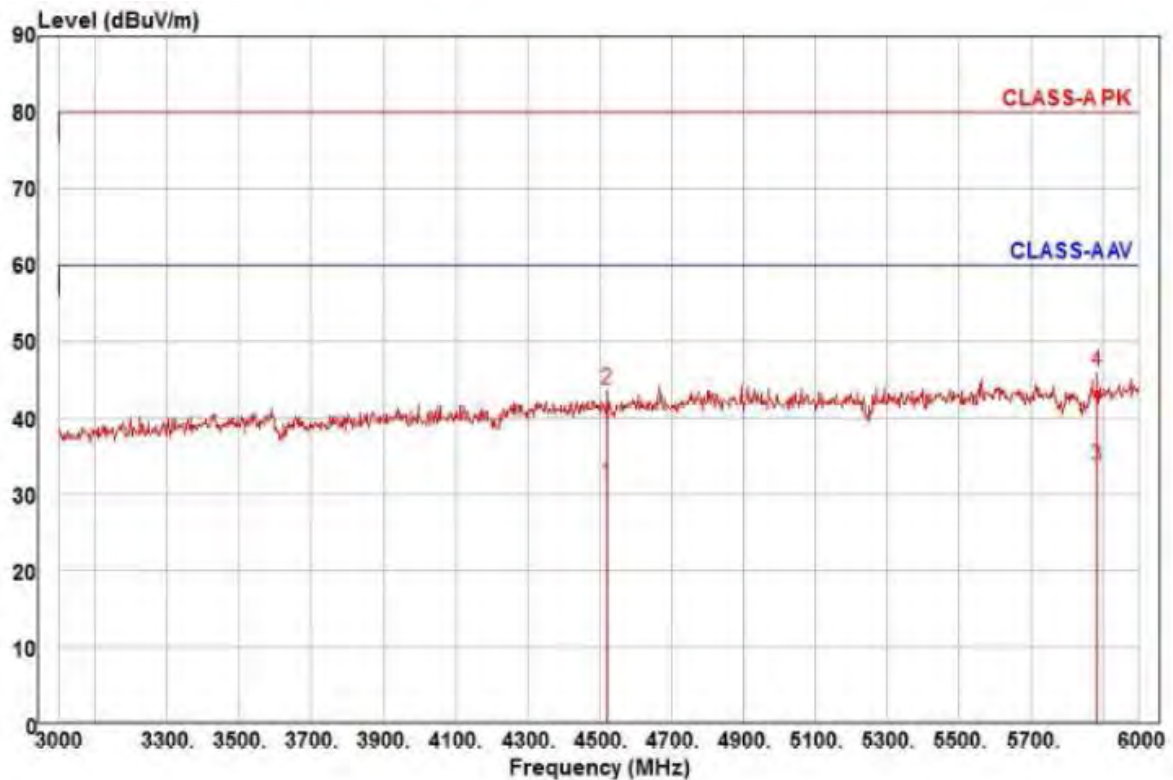
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1428.00	24.24	25.36	8.01	35.68	136	56.00	-34.07	vertical	Average
2	1428.00	36.96	25.36	8.01	35.68	136	76.00	-41.35	vertical	Peak
3 pp	2942.00	21.40	28.36	11.99	35.54	64	56.00	-29.79	vertical	Average
4 pk	2942.00	34.16	28.36	11.99	35.54	64	76.00	-37.83	vertical	Peak

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Site : YEOJU\_C 3 m SAC  
Condition: CISPR22 CLASS-A PK 3m BBHA 9120D(RRA 2019-09-04) horizontal  
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto  
Project :  
Model : XNP-6320HSP  
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	4056.00	21.46	29.95	14.16	35.30	247	60.00	-29.73	horizontal	Average
2	4056.00	35.08	29.95	14.16	35.30	247	80.00	-36.11	horizontal	Peak
3 pp	5184.00	20.51	31.59	16.04	35.64	302	60.00	-27.50	horizontal	Average
4 pk	5184.00	33.66	31.59	16.04	35.64	302	80.00	-34.35	horizontal	Peak



Site : YEOJU\_C 3 m SAC  
Condition: CISPR22 CLASS-A PK 3m BBHA 9120D(RRA 2019-09-04) vertical  
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto  
Project :  
Model : XNP-6320HSP  
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	4524.00	21.00	30.93	15.00	35.46	29	60.00	-28.53	vertical	Average
2	4524.00	33.23	30.93	15.00	35.46	29	80.00	-36.30	vertical	Peak
3 pp	5886.00	19.68	32.41	17.30	35.68	187	60.00	-26.29	vertical	Average
4 pk	5886.00	32.03	32.41	17.30	35.68	187	80.00	-33.94	vertical	Peak

◆ Calculation

Over Limit [dB] = (Read Level[ $\mu$ V] + Ant Factor[ $\mu$ V/m] + Cable Loss [dB] – Preamp Factor [dB]) – Limit Line[ $\mu$ V]

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











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Test report No.:  
KES-E1-17T0818-R1  
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### Test Data - Voltage Fluctuations

## Maximum Flicker results

	EUT values	Limit	Result
Pst	N/A		
Plt			
dc [%]			
dmax [%]			
Tmax [s]			

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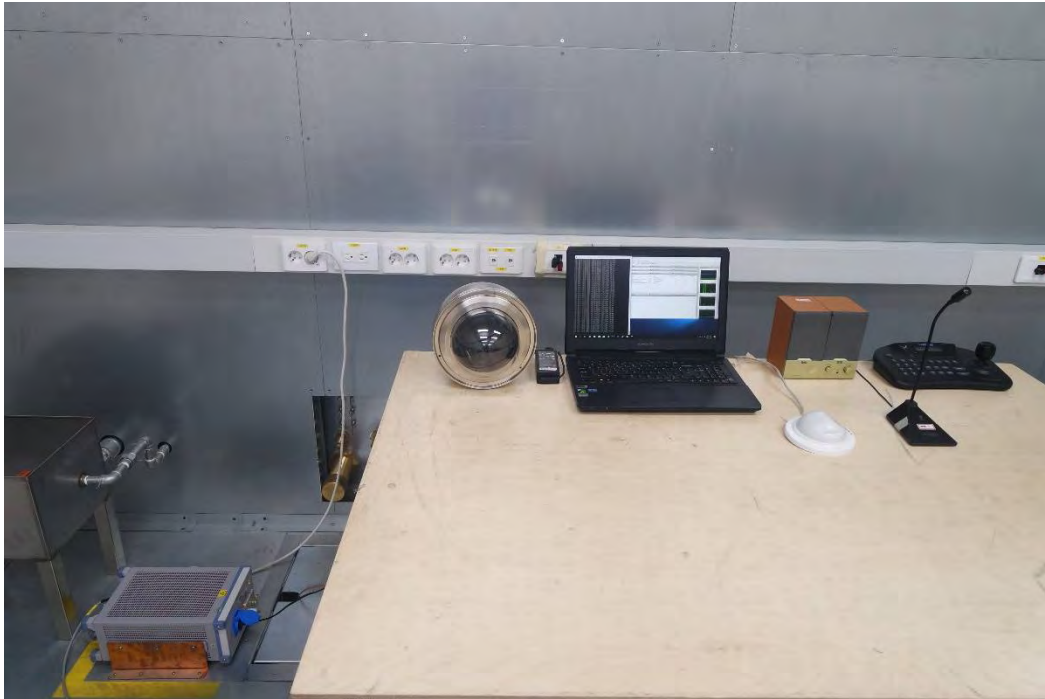
## Test Setup Photos and Configuration

### Conducted Voltage Emissions



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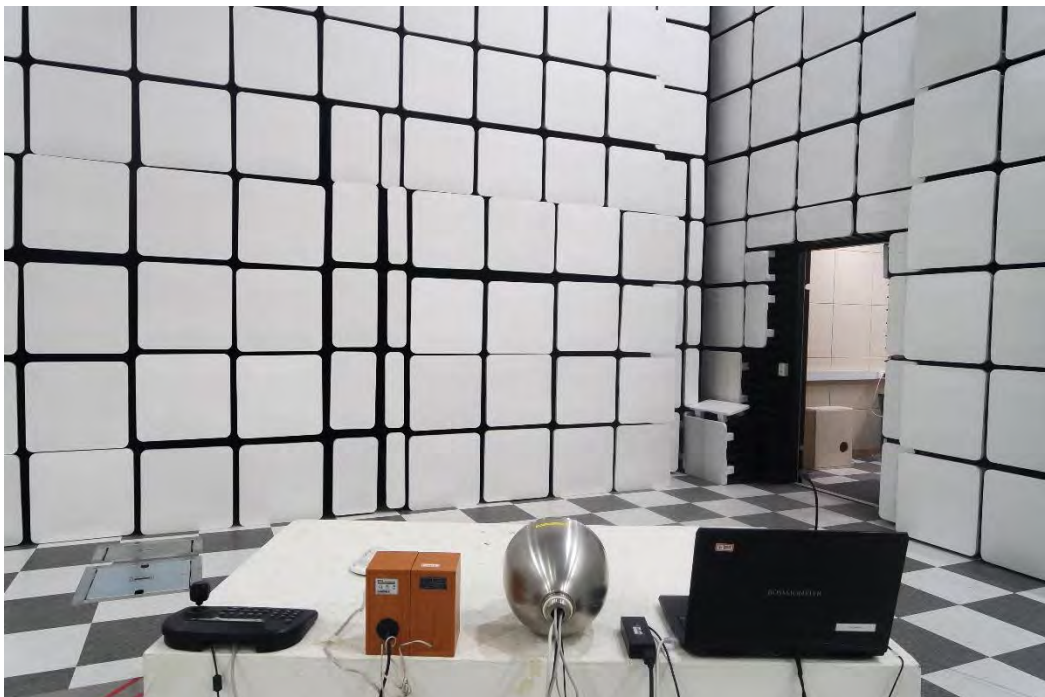
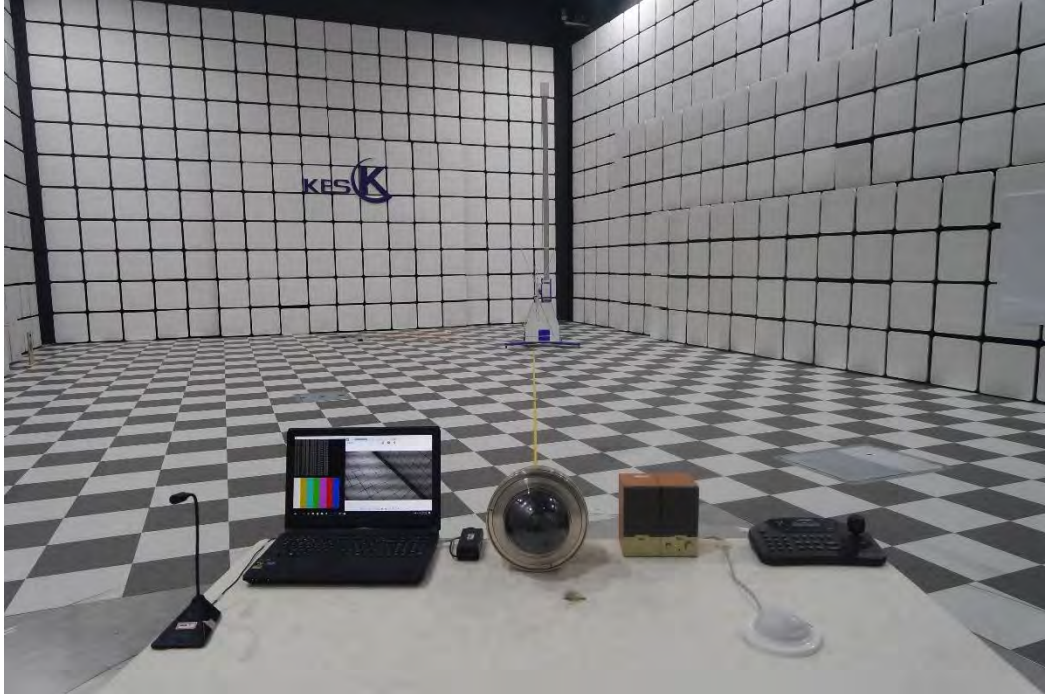
## Conducted Telecommunication Emissions



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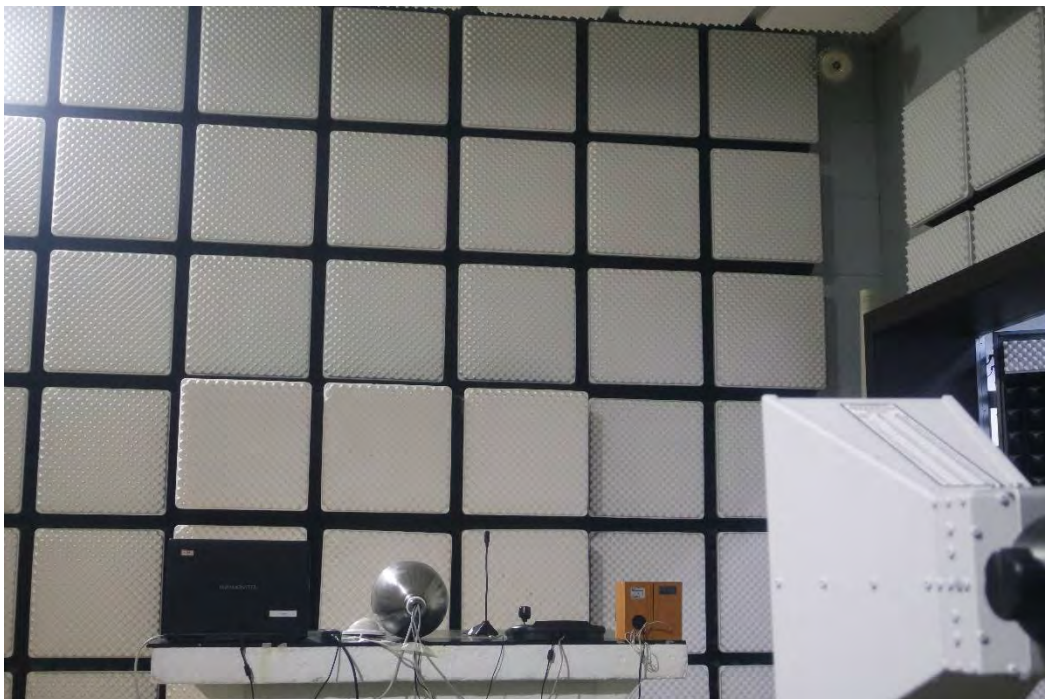
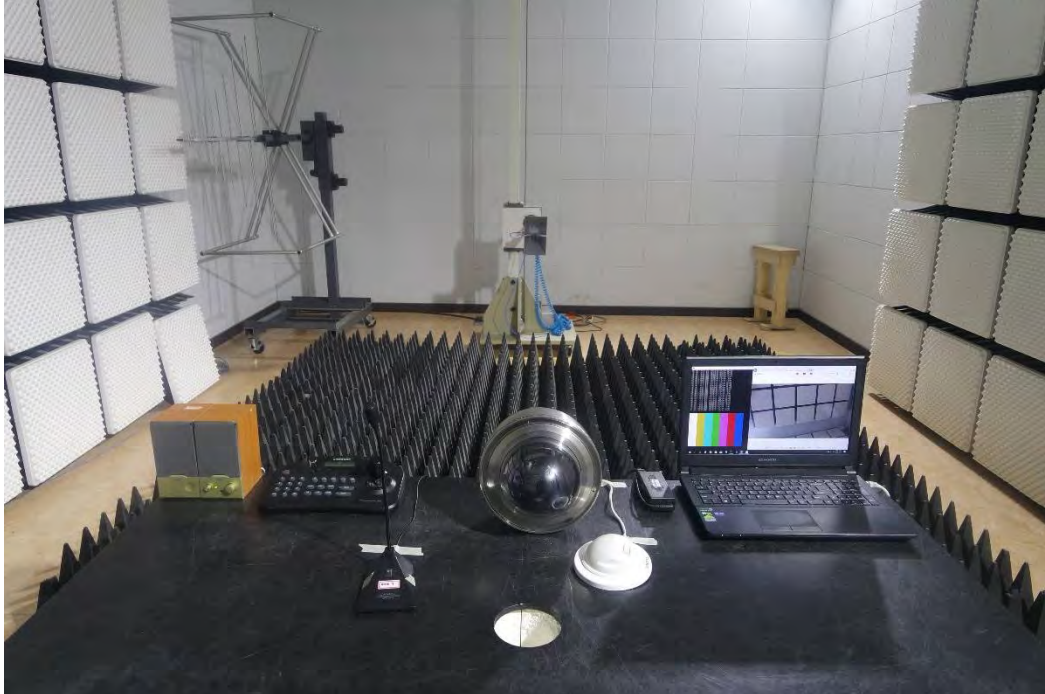


## Radiated Electric Field Emissions(Below 1 GHz)



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## Radiated Electric Field Emissions(Above 1 GHz)



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www.kes.co.kr

Test report No.:  
KES-E1-17T0818-R1  
Page (65) of (81)

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## **Harmonic Current Emissions and Voltage Fluctuations and Flicker**

N/A

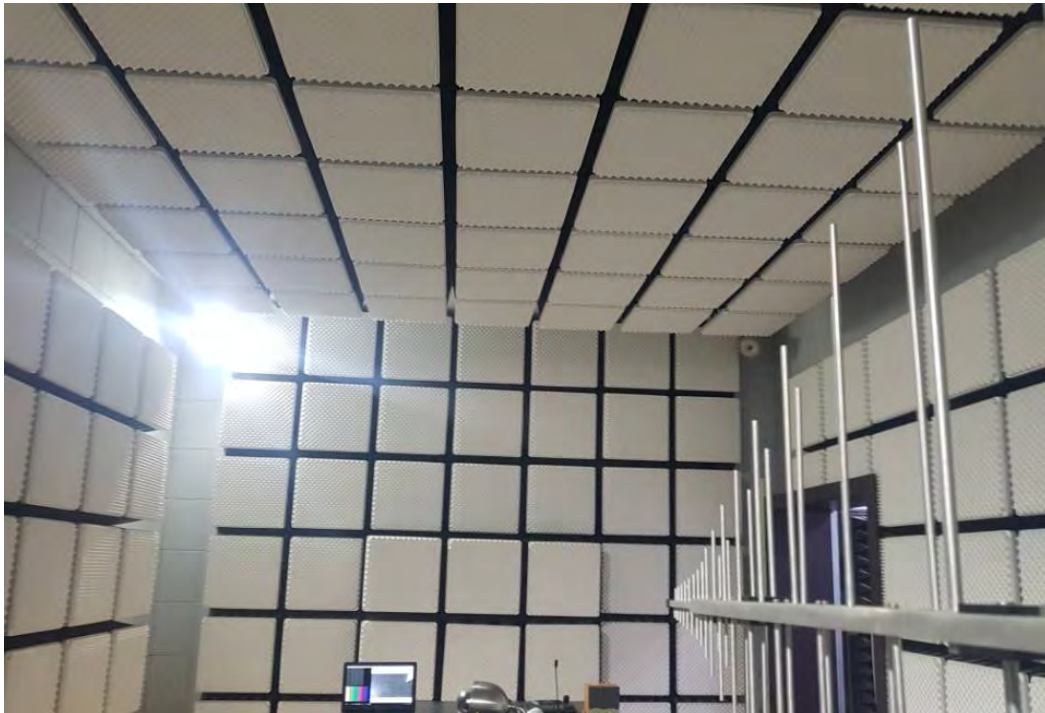
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## Electrostatic Discharge



## Radiated Electric Field Immunity



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## Electrical Fast Transients/Bursts



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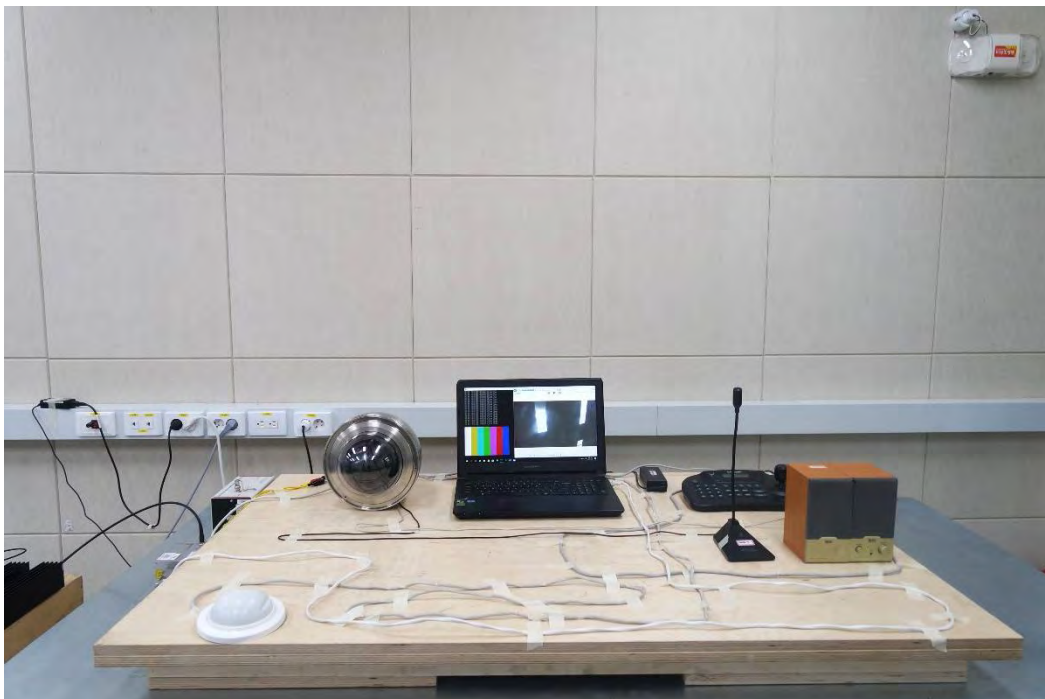
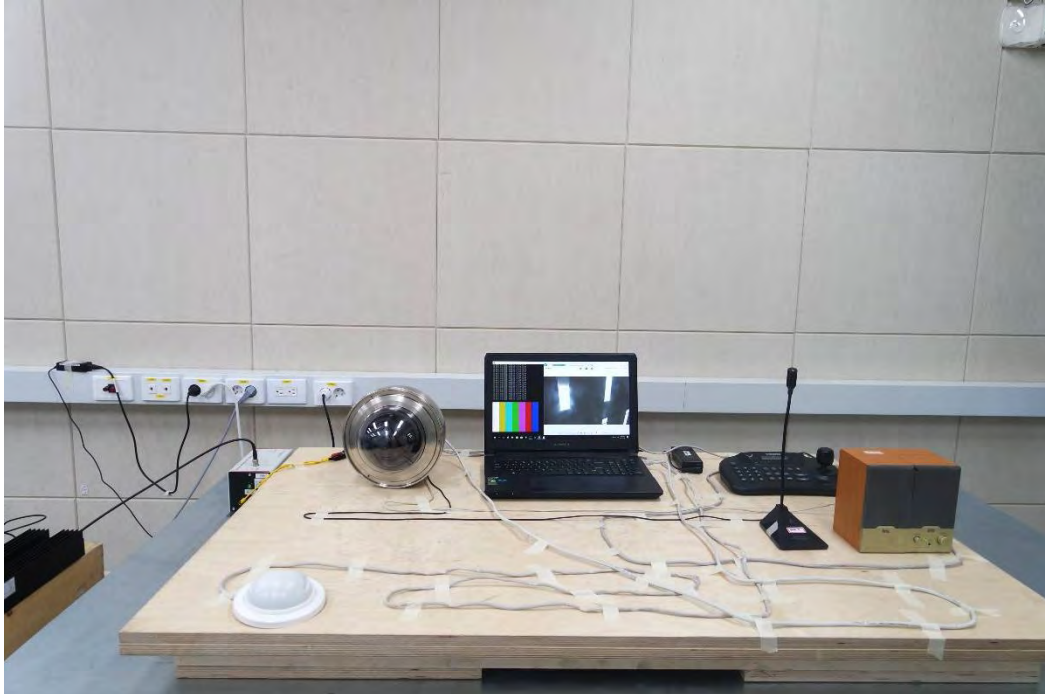
## Surge Transients



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## Conducted Disturbance



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## Voltage Dips and Short Interruptions



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## EUT External Photographs

(Top)



(Bottom)



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## EUT Internal Photographs

(Internal View)

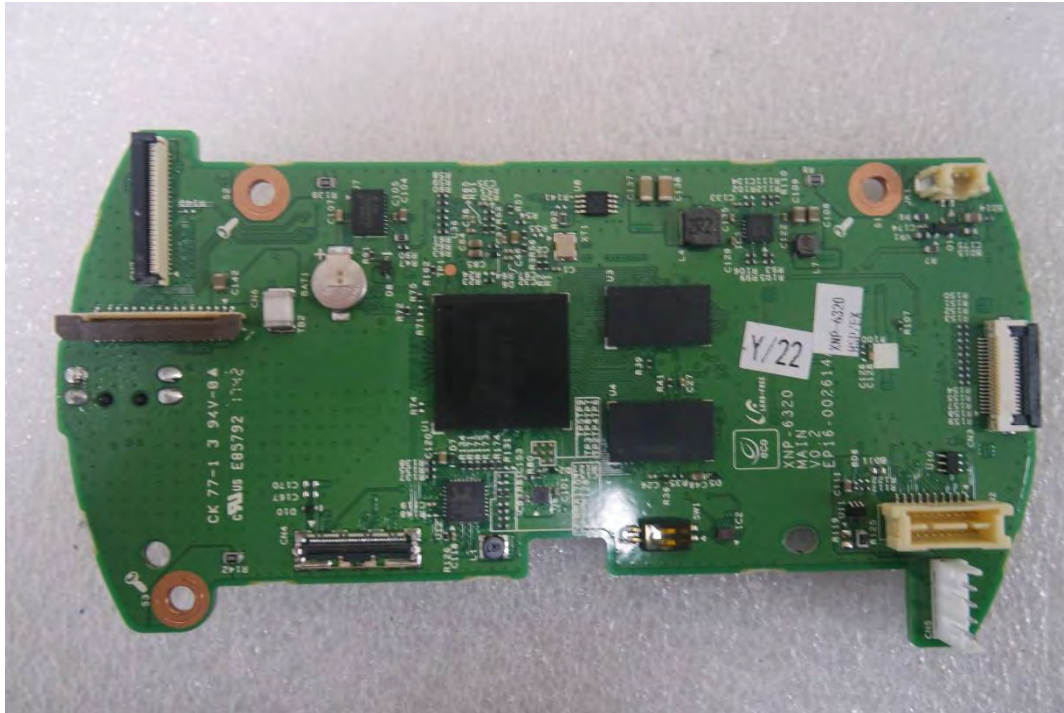


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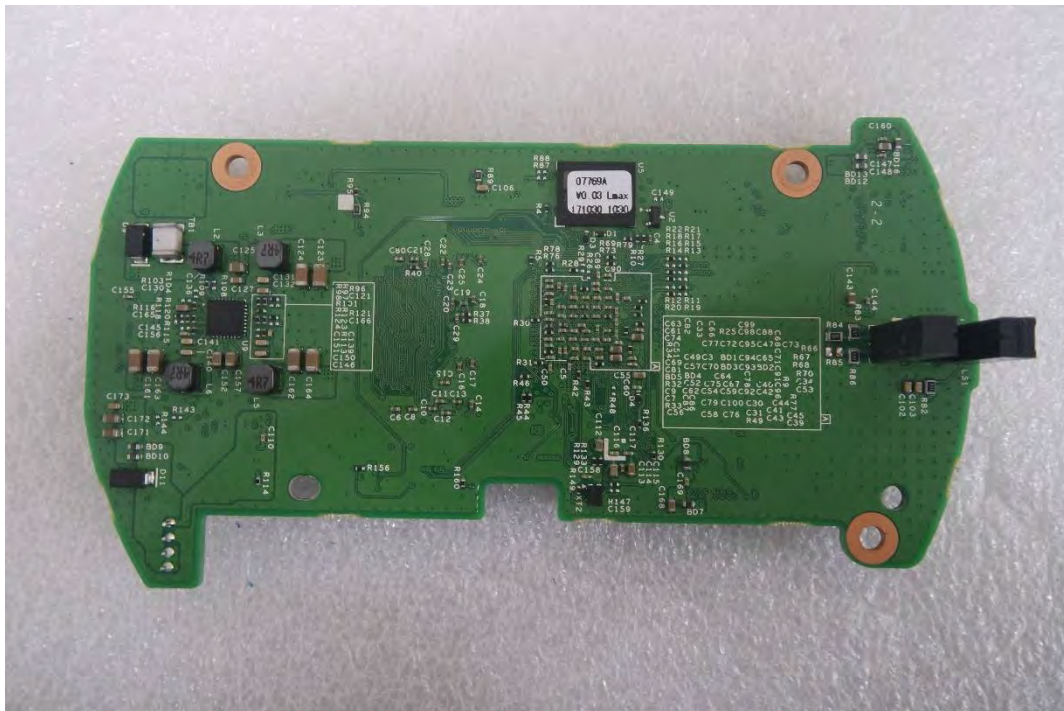


## EUT Internal View – Main board

(Top)



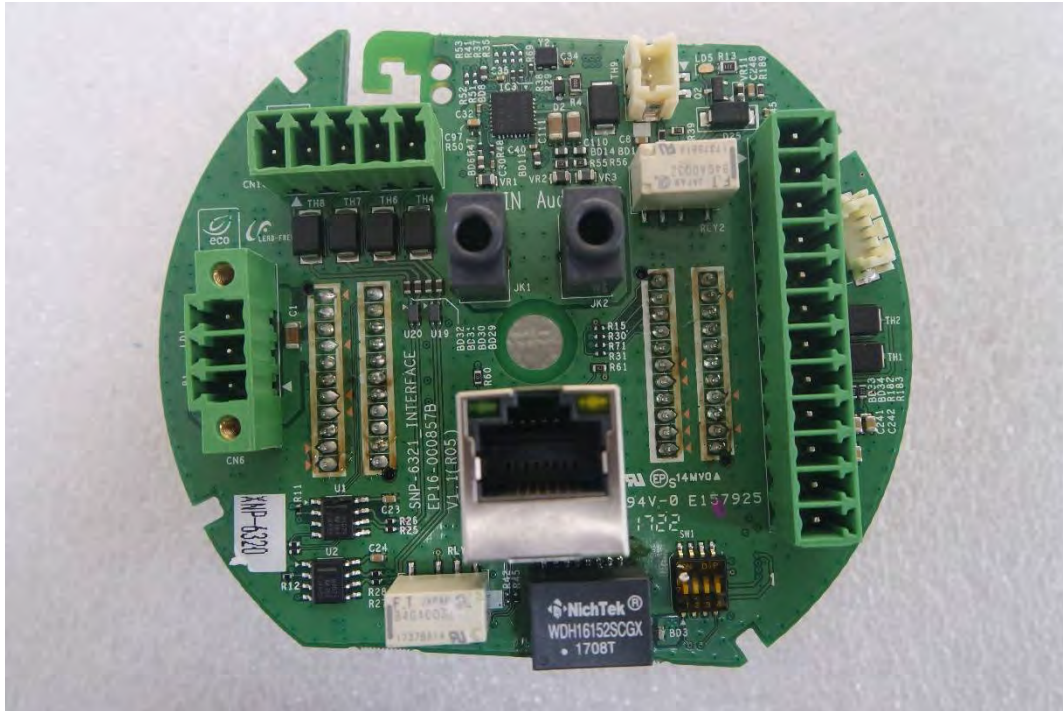
(Bottom)



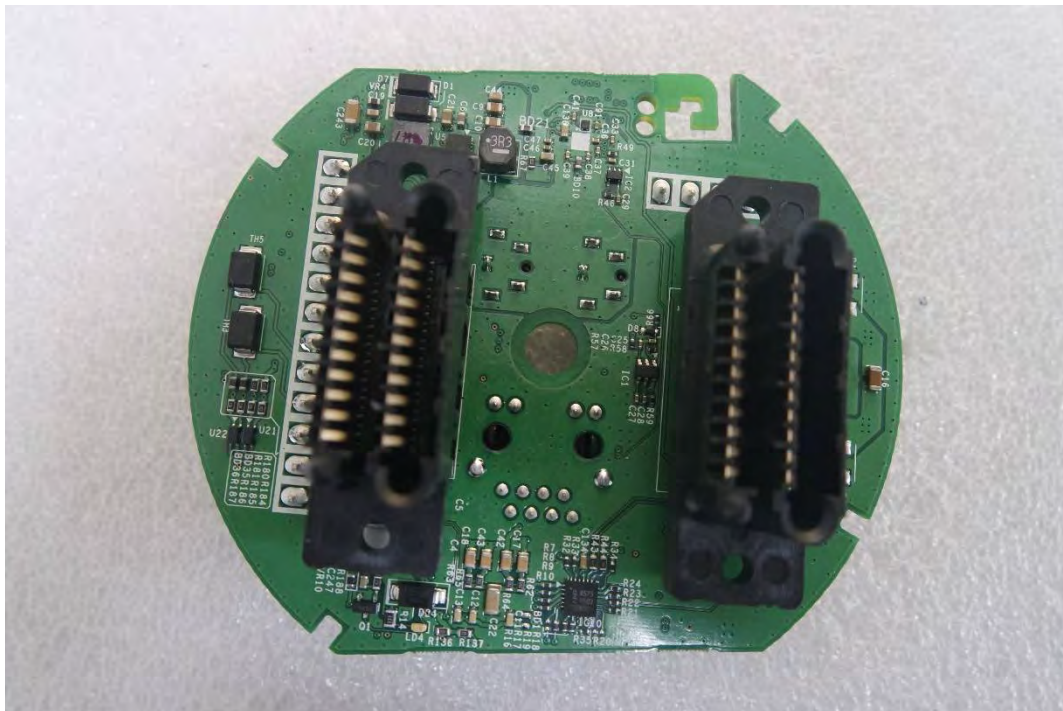
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## EUT Internal View – Interface board

(Top)



(Bottom)

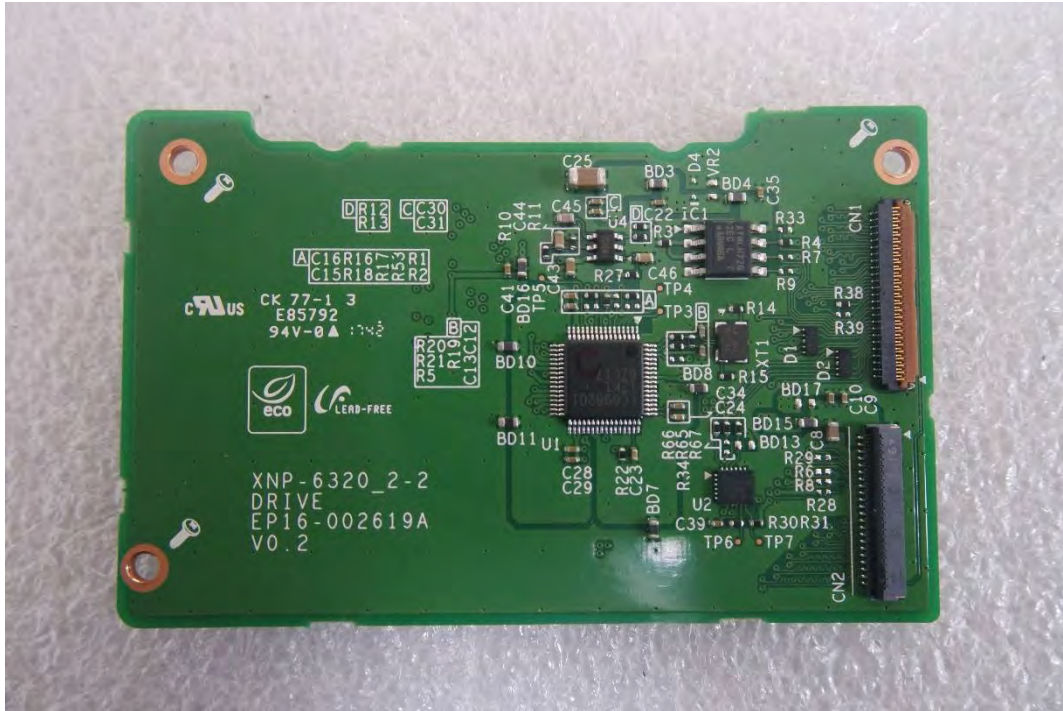


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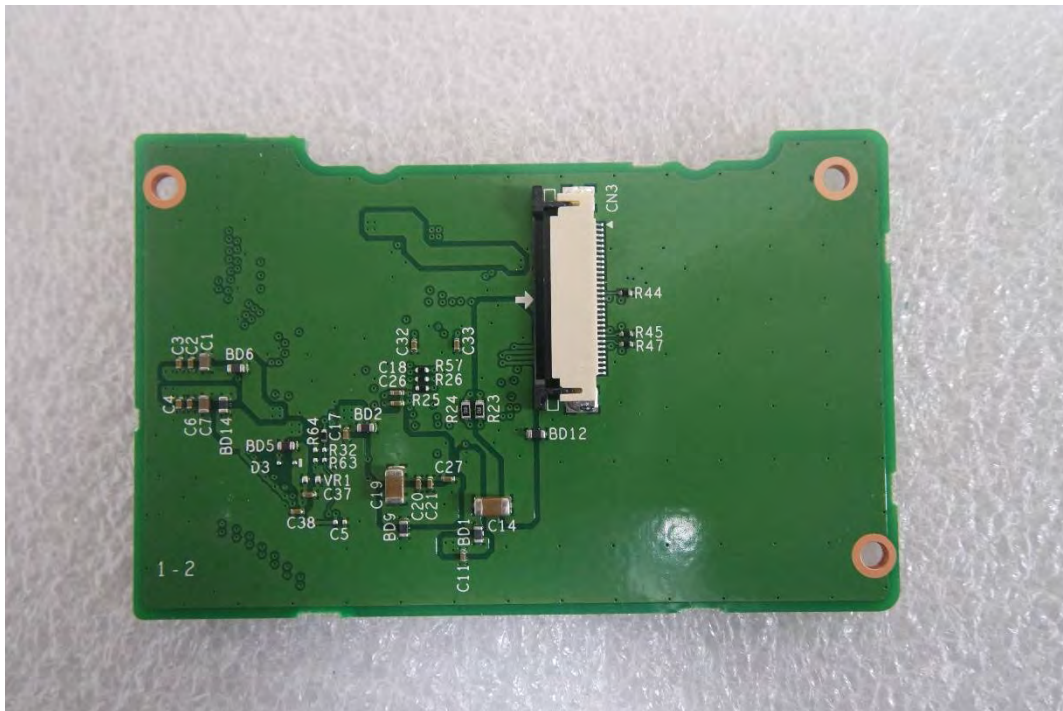


## EUT Internal View – Drive board

(Top)



(Bottom)



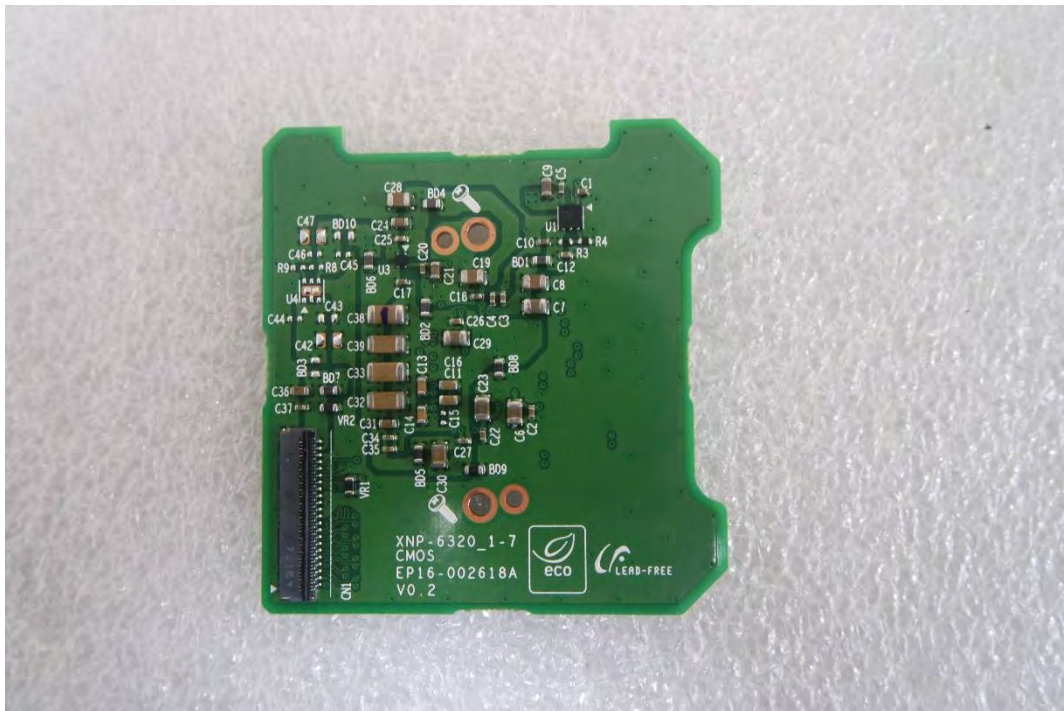
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## EUT Internal View – CCD board

(Top)



(Bottom)

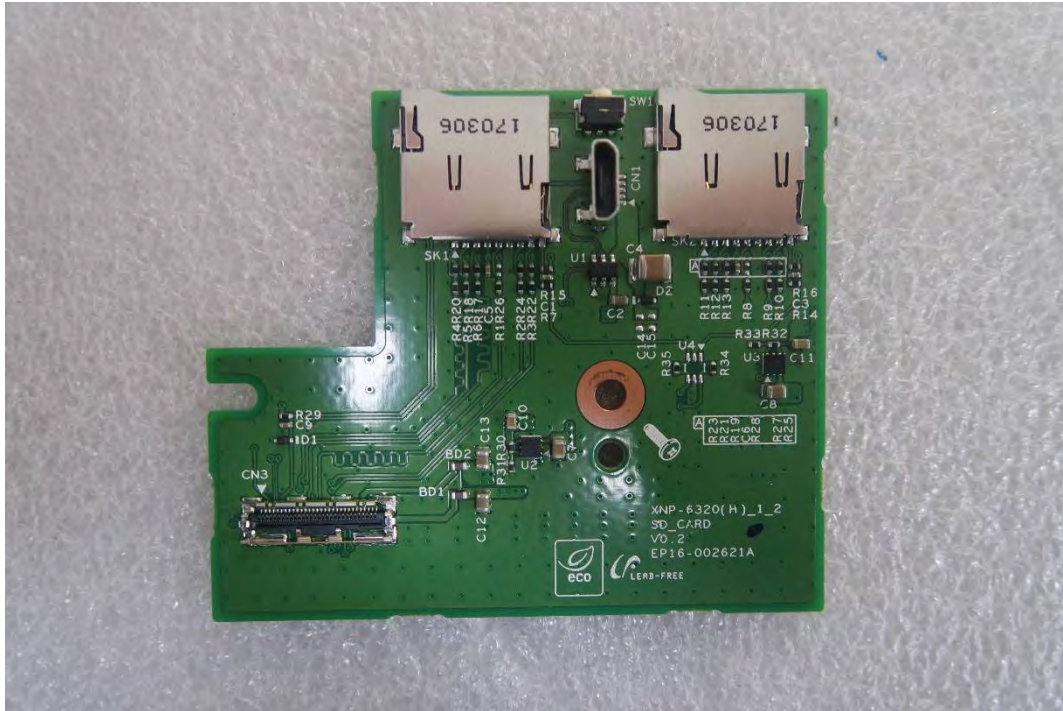


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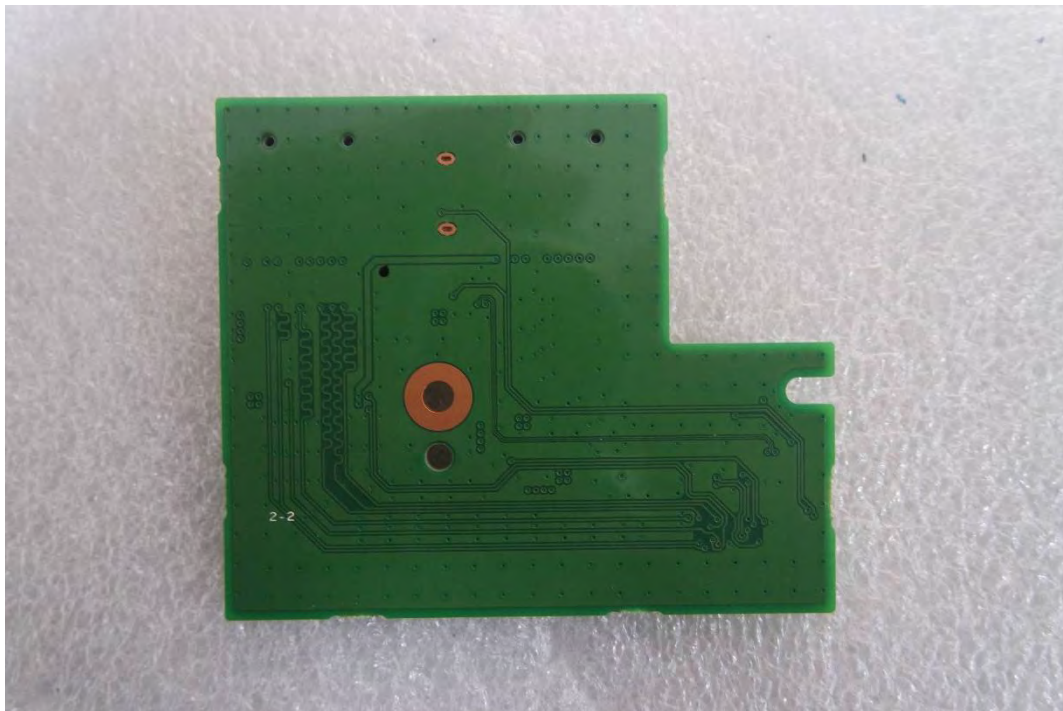


## EUT Internal View – SD board

(Top)



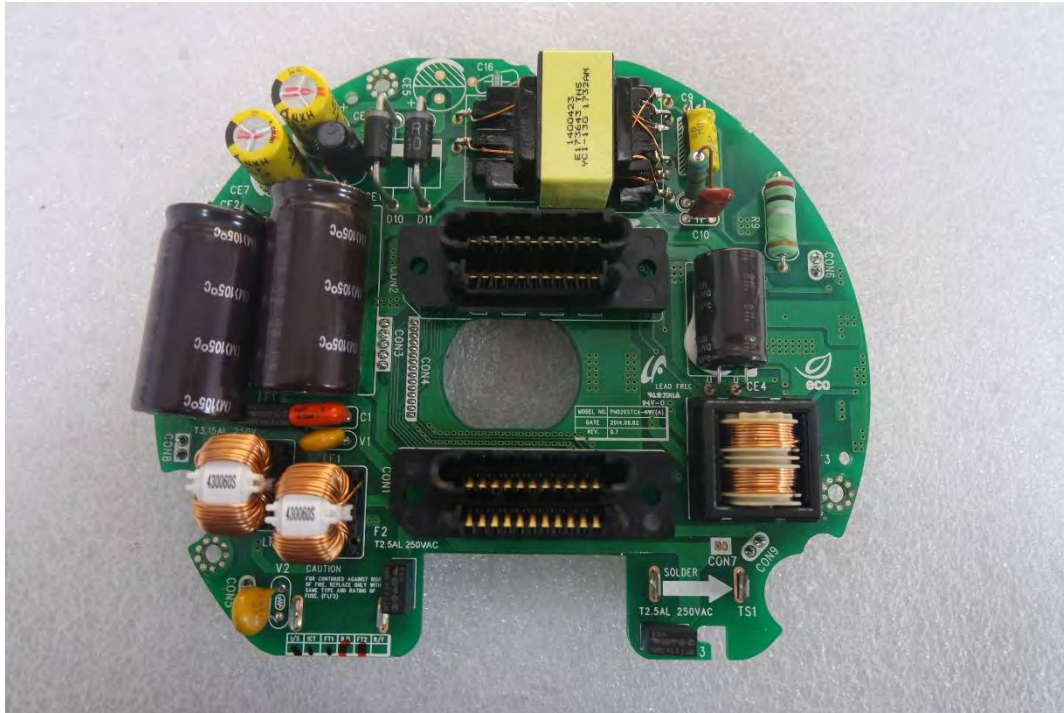
(Bottom)



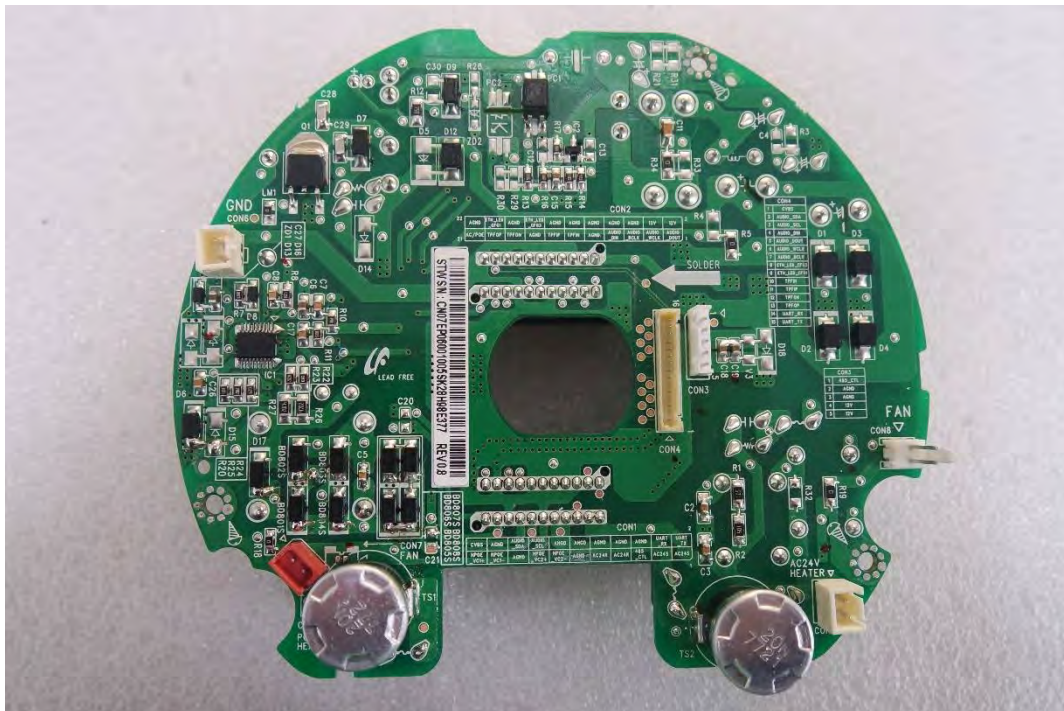
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## EUT Internal View – Power board

(Top)



(Bottom)

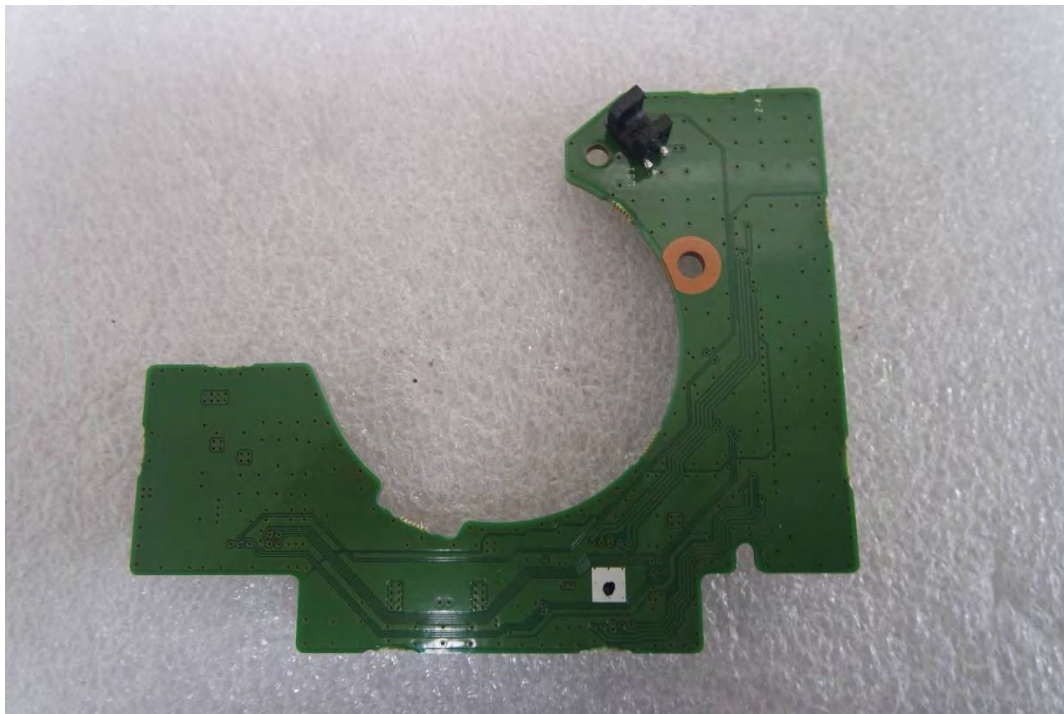
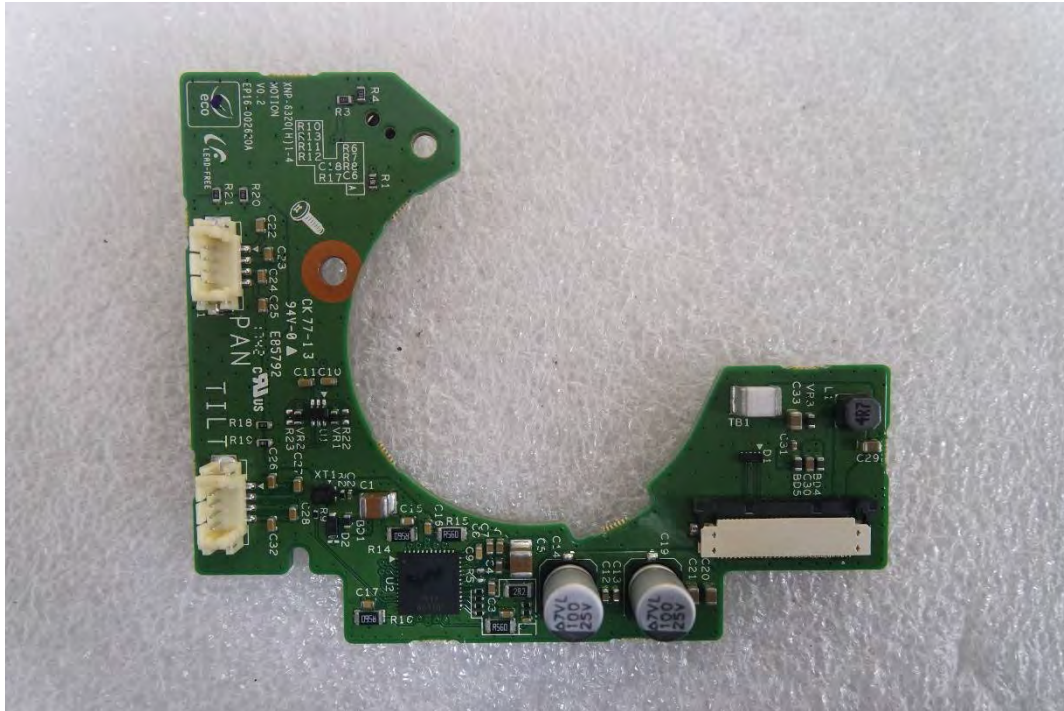


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## EUT Internal View – TILT board

(Top)

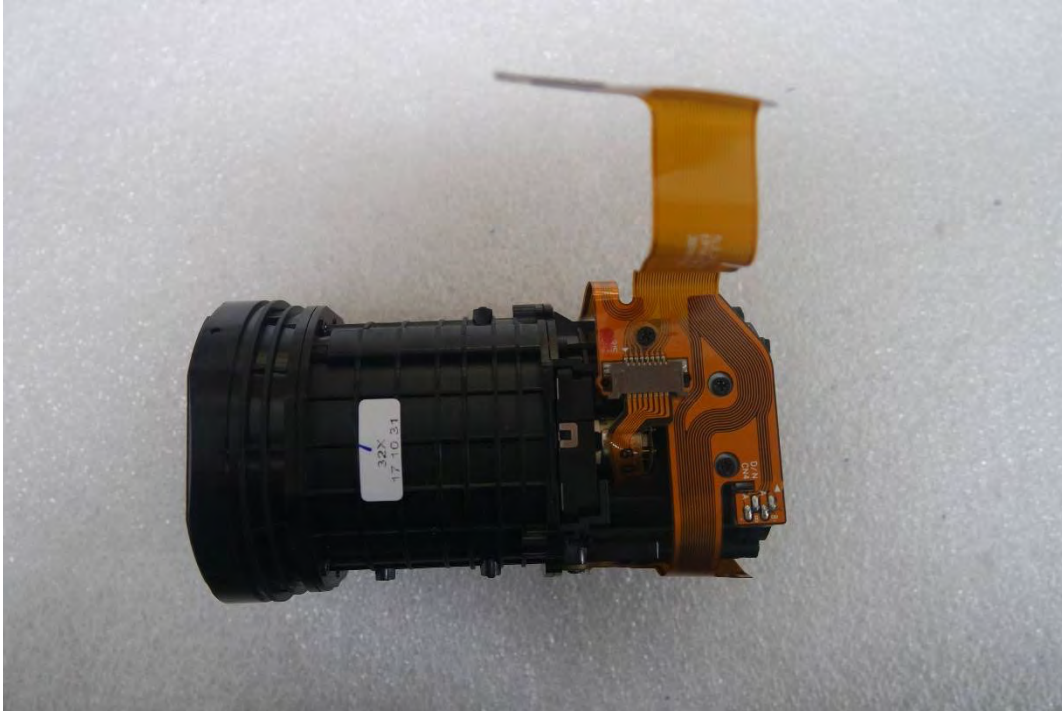


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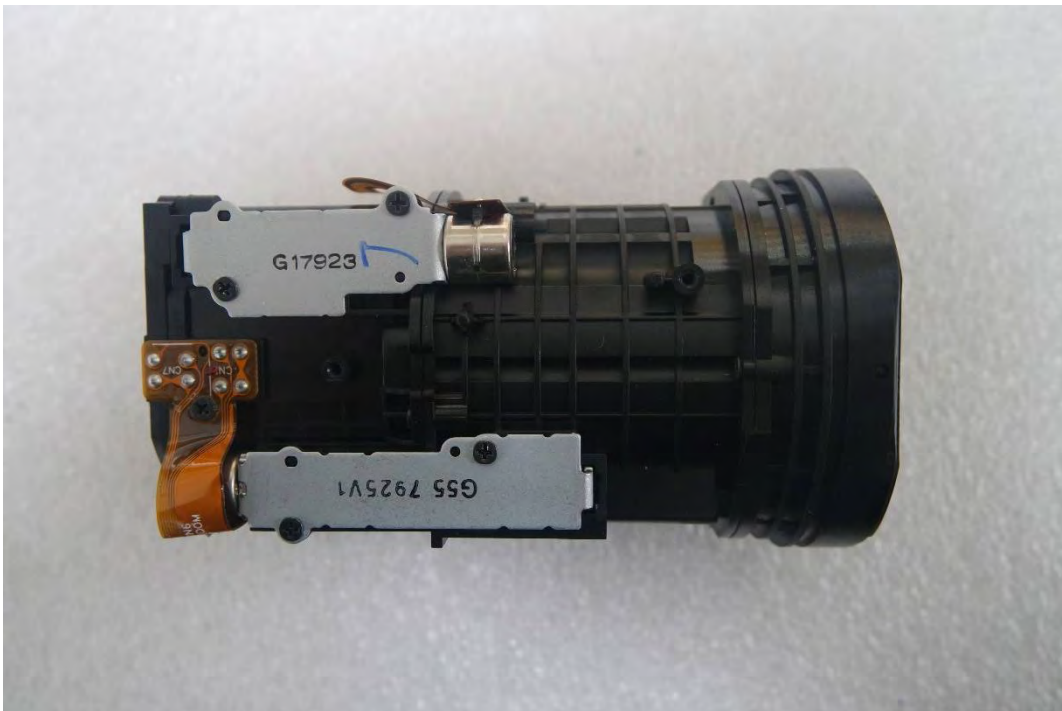


## EUT Internal View – Lens Module

(Top)

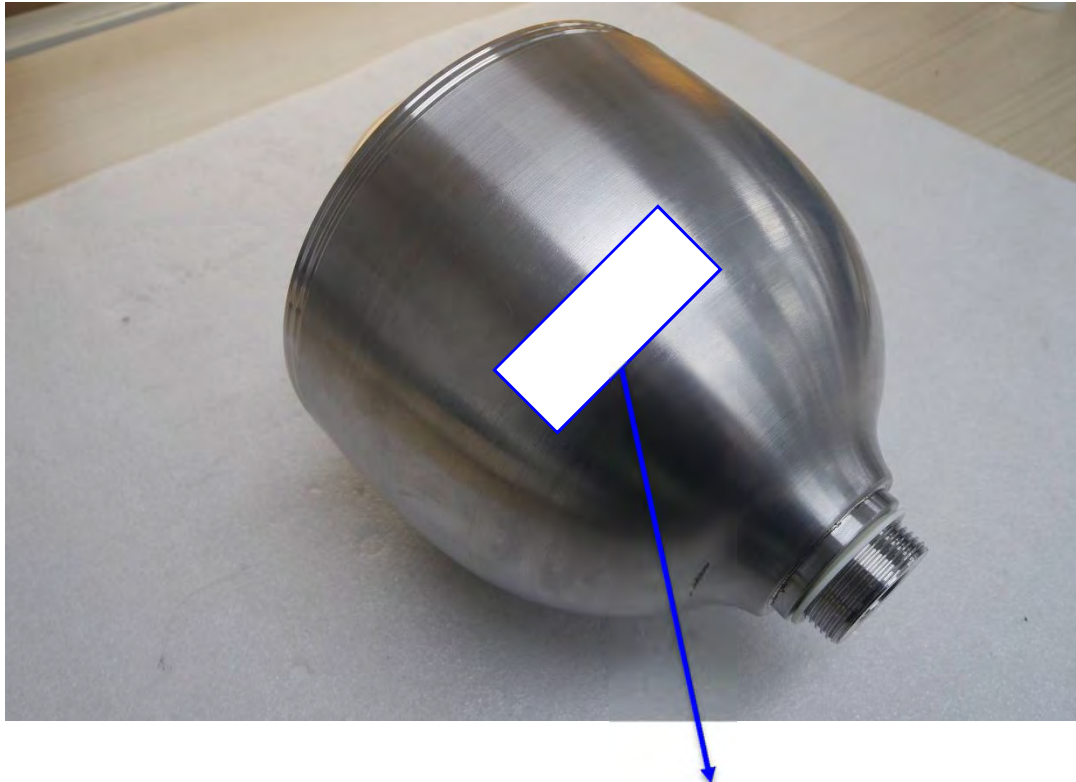


(Bottom)



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## Label and Location



### **Network Camera**

Model No : XNP-6320HS

Manufacturer : Hanwha Techwin (Tianjin) Co.,Ltd.

Made in China

