EMC TEST REPORT For CE

Test Report No.	:	KES-E1-18T0511
Date of Issue	:	Sep. 04, 2018
Product name	:	NETWORK CAMERA
Model/Type No.	:	XNP-6550RH
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	:	Aug. 20, 2018
Test date	:	Sep. 02, 2018 ~ Sep. 03, 2018
Test Results	:	☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Dong Hyun, Won
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

This test report is not related to KOLAS.

REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Sep. 04, 2018	KES-E1-18T0511	Issued

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1.0 General Product Description

Main Specifications of EUT are:

	XNP-6550RH
Video	
Imaging Device	1/2.8" 2.16M CMOS
Total Pixels	1945(H) X 1109(V) approx 2.16M pixels
Effective Pixels	1945(H) X 1097(V) approx 2.13M pixels
Scanning System	Progressive Scan
Min. Illumination	Color : 0.03 lux (1/30sec, F1.6) TBD BW : 0.003 lux (1/30sec,F1.6) 0 Lux (IR LED On)
S / N Ratio	50dB
Video Out	CVBS : 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P), for installation
Lens	
Focal Length (Zoom R	**4.75mm ~ 261.4mm (55x)**
Max. Aperture Ratio	F1.6 (Wide) ~ F6.5 (Tele)
Angular Field of View	H : 58.6°(Wide) ~ 1.23°(Tele) / V : 34.8°(Wide) ~ 0.71°(Tele)
Min. Object Distance	5m
Focus Control	AF / One-Shot AF / Manual
Lens Type	DC Auto Iris
Mount Type	Board-in type
Zoom Movement Spee	Approx. 5 sec (wide to tele)
Pan / Tilt / Rotate	
Pan Range	360° Endless
Pan Speed	Preset : 400°/sec , Manual : 0.024°/sec ~ 250°/sec
Tilt Range	190°(-5° ~ 185°)
Tilt Speed	Preset : 300°/sec , Manual : 0.024°/sec ~ 250°/sec
Sequence	Preset (300 ea), Swing, Group (6 ea), Trace, Tour , Auto Run, Schedule
Preset Accuracy	±0.2°
Azimuth	Yes (E/W/S/N/NE/SE/NW/SW OSD)
Auto Tracking	Off / On
Operational	
Viewable Length	350m
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 Resolution
Day & Night	Auto (ICR) / Color / B/W
Backlight Compensati	Off / BLC / HLC / WDR
Wide Dynamic Range	120dB
Contrast Enhancemen	SSDR (Off / On)
Digital Noise Reductio	SSNR5 (2D+3D Noise Filter) (Off / On)
Defog (Optical)	Auto/Manual/Off
Digital Image Stabiliza	Off / On (built-in Gyro)
Motion Detection	Yes(8ea, Polygonal zones)

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 / Medium / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor / Mercury / Sodium
Electronic Shutter Spe	Minimum / Maximum / Anti flicker (2 ~ 1/12,000sec)
Digital Zoom	32x , area zoom function support digital zoom 2x
Rotate Image	Flip : On/Off Mirror : On/Off
Intelligent Video Analy	Tampering, Loitering, Directional Detection,Fog Detection, Virtual Line, Enter/Exit, Appear / Disappear, Audio Detection, Face Detection, Motion Detection, Sound Classification
Alarm I/O	Input 4ea / Output 2ea (Relay type)
Remote Control Interfa	RS-485
RS-485 Protocol	Samsung-T, Pelco-D/P, Panasonic, Honeywell, AD, Vicon, GE, BOSCH
Alarm Triggers	Alarm Input, Motion Detection, Intelligent Video Analytics, Network Disconnec
Alarm events	• File upload via FTP, E-Mail • Notification via E-Mail • local storage(SD/SDHC) or NAS recording at Event Triggers • External output • PTZ preset
Audio In	Selectable (Mic IN/Line IN), Supply voltage: 2.5VDC(4mA), Input impedance: approx. 2K Ohm
Audio out	Line out (3.5mm stereo mini jack), Max output level: 1 Vrms
Pixel Counter	support
Network	
Ethernet	RJ-45 (10/100BASE-T) SFP (*only using SBP-303HF)
Video Compression F	H.265/H.264 (MPEG-4 Part 10/AVC) : Main/Baseline/High , 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 Adjustm	H.264/H.265/MJPEG : Target Bitrate Level Control
Bitrate Control Metho	H.264/H.265 : CBR or VBR MJPEG : VBR
Streaming Capability	Multiple Streaming (Up to 10 Profiles)
Audio Compression F	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
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 Programm	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 S	SmartViewer
Environmental	
Operating Temperature / Humidity	AC24 : -50°C ~ +55°C (-58°F ~ +131°F) / Less than 90% RH HPoE : -40°C ~ +55°C (-22°F ~ +131°F) / Less than 90% RH * Start up should be done at above -30°C (HPoE Mode)
Storage Temperature / Humidity	-50°C ~ +60°C (-58°F ~ +140°F) / Less than 90% RH
Ingress Protection	IP66
Vandal Resistance	IK10
Electrical	
Input Voltage / Current	AC24V / HPoE
Power Consumption	AC24 : 92W HPoE : 60W

Mechanical	
Color / Material	black(head) + ivory(body) / Aluminum, Plastic
Dimension (WxHxD)	Ø236.9 x 407.7
Weight	7.1 Kg(TBD)

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-6550RH	-	Hanwha Techwin (Tianjin) Co.,Ltd	EUT
PoE Adaptor	PT-PSE109GBRO-A	-	I.T.E POWER SUPPLY	-

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Cellular phone	SHV-E210L	R33D713KA3F	SAMSUNG	-
Notebook	NT630Z5J	JK9091EF400142M	SAMSUNG	-
Notebook Adaptor	A13-040N2A	CN60BA4400313AD 0N869C0587	Chicony Power Technology (suzhou)Co., Ltd.	-
Notebook	LG15N54	410NZGK015231	LG	Harmonic Flicker Test
Notebook Adaptor	ADP-90WH B	84ZW19F1663	DELTA ELECTRONICS(JIANGSU) LTD.	
Speaker	BR10000A CUVE	-	BEIJING EDIFIER HI-TECH GROUP.	-
Mic	CMK-303	-	CAMAC	-
Controller	SPC-1010	C50E67WD601003	SamSung Techwin Co.,Ltd	-
Controller Adaptor	RS-AB1000	-	Dongguan Jinhuasheng Power Technology Co.,Ltd	-
Alarm 1	SIP-1201DD D0	-	SAMSUNG TECHWIN CO., LTD.	-
Alarm 2	-	-	-	-
Micro SD Card	-	-	Transcend	8 GB

1.6 External I/O Cabling

■ AC MODE

Start		END		Cable Spec.	
Description	**I/O Port**	**Description**	**I/O Port**	**Length**	**Shield**
NETWORK CAMERA (EUT)	RJ-45	Notebook	RJ-45	3.0	U
	3.5 ㎜	Speaker	3.5 ㎜	1.6	U
	3.5 ㎜	Mic	3.5 ㎜	1.7	U
	Alarm In	Alarm 1	Alarm Out	3.0	U
	Alarm Out	Alarm 2	Alarm In	3.0	U
	RS-485	Controller	RS-485	3.2	U
	SLOT	Micro SD Card	SLOT	-	-
Notebook	3.5 ㎜	Cellular phone	3.5 ㎜	1.5	U

* Unshielded=U, Shielded=S

■ PoE MODE

Start		END		Cable Spec.	
Description	**I/O Port**	**Description**	**I/O Port**	**Length**	**Shield**
NETWORK CAMERA (EUT)	RJ-45	PoE Adaptor	RJ-45	3.0	U
	3.5 ㎜	Speaker	3.5 ㎜	1.7	U
	3.5 ㎜	Mic	3.5 ㎜	1.7	U
	Alarm In	Alarm 1	Alarm Out	3.0	U
	Alarm Out	Alarm 2	Alarm In	3.0	U
	RS-485	Controller	RS-485	4.0	U
	SLOT	Micro SD Card	SLOT	-	-
POE Adaptor	RJ-45	Notebook	RJ-45	3.0	S
Notebook	3.5 ㎜	Cellular phone	3.5 ㎜	1.5	U

* Unshielded=U, Shielded=S

1.7 EUT Operating Mode(s)

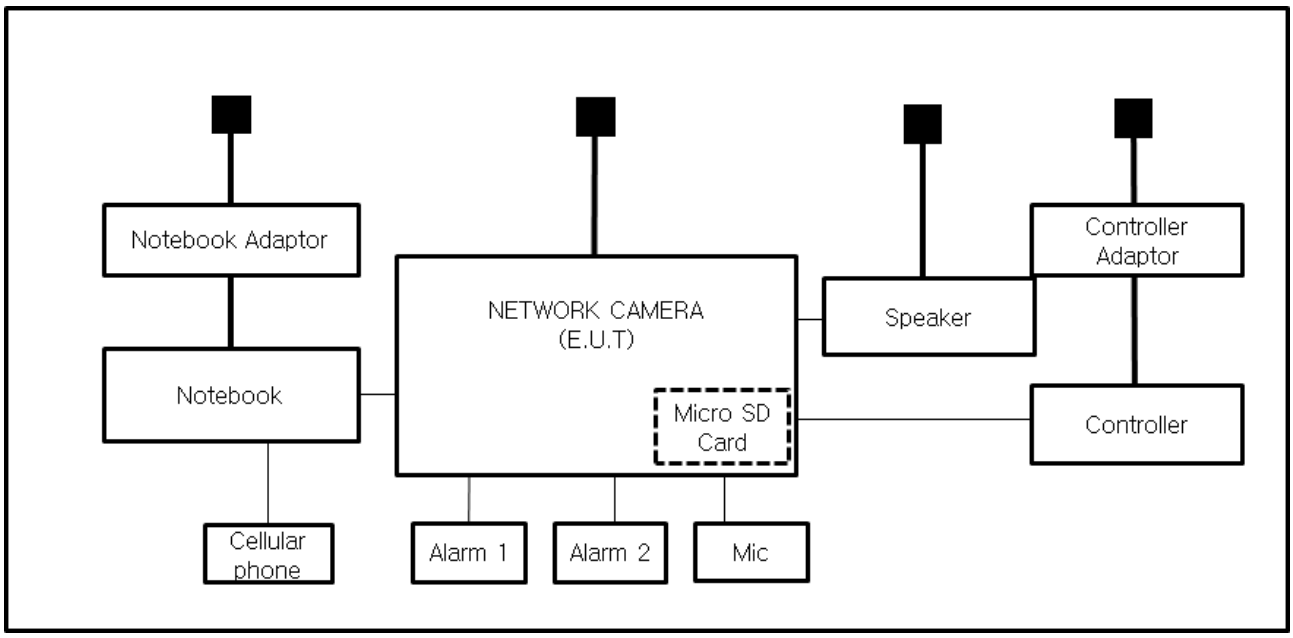
Test Mode	operating
AC 24 V	E.U.T Monitoring, Ping Test
PoE	E.U.T Monitoring, Ping Test

EUT Test operating S/W		
Name	**Version**	**Manufacture Company**
WebViewer	-	Hanwha Techwin Co., Ltd.

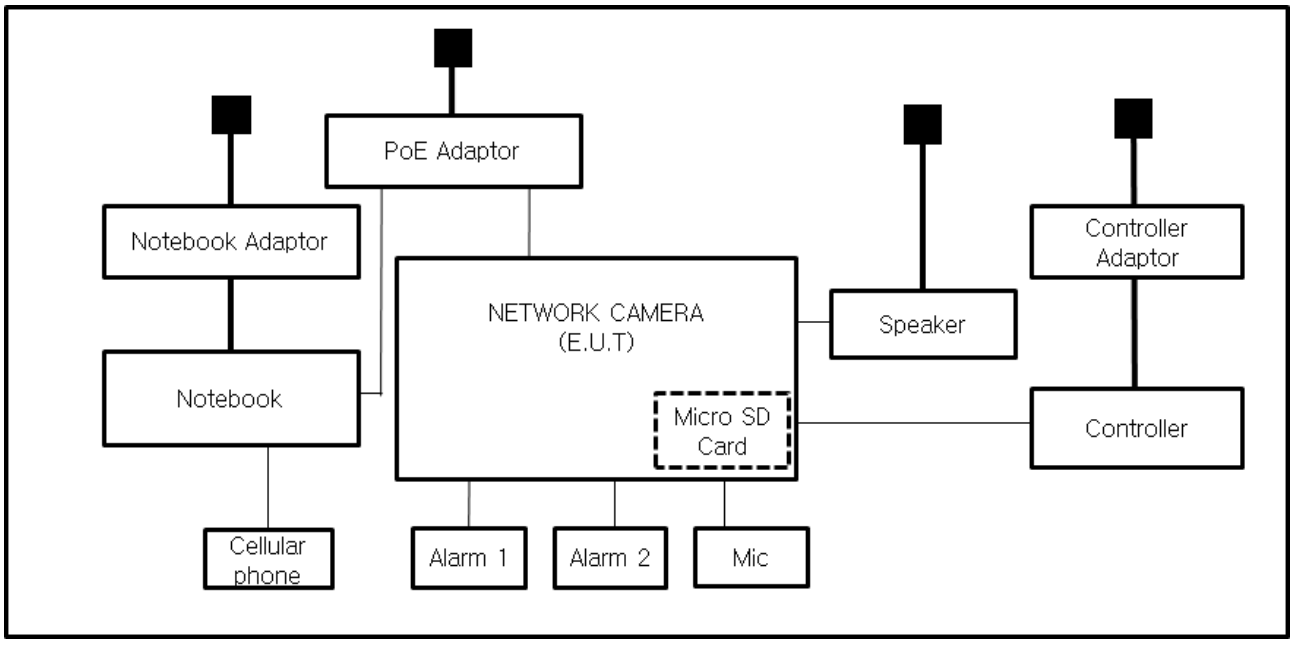
1.8 Configuration

■ AC Main
□ DC Main

■ AC 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, Yeoju-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	**RRA**	EMI (3 m & 10 m Semi-Aechoic 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-Aechoic Chamber , and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	KT489
USA	**FCC**	3 m & 10 m Semi-Aechoic Chamber, 10 m Open Area and Conducted test site to perform FCC Part 15/18 measurements.	KR0100
Canada	**ISED**	3 m & 10 m Semi-Aechoic 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-4308, C-4798, T-2311, G-914
Europe	**TÜV SÜD**	EMI (3 m & 10 m Semi-Aechoic 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

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 61547:2009		
☒ EN 55032:2015	☒ Class A	☐ Class B
☐ EN 55024:2010 +A1:2015		
☒ EN 50130-4:2011 +A1:2014		
☒ EN 61000-3-2:2014		
☒ EN 61000-3-3:2013		
☐ EN 61326-1:2013		

☐ **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

2.1 Conducted Emissions at Mains Power Ports

Test Date
Sep. 02, 2018

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	101781	04, 25, 2019
☒	LISN	ENV216	R & S	101787	01, 05, 2019
☒	LISN	ESH2-Z5	R & S	100450	04, 25, 2019
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 27, 2018

Test Conditions
Temperature: 24,2 ℃
Relative Humidity: 49,9 % 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 Conducted Emissions at Telecommunication Ports

Test Date
Sep. 02, 2018

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	101781	04, 25, 2019
☒	LISN	ENV216	R & S	101787	01, 05, 2019
☒	LISN	ESH2-Z5	R & S	100450	04, 25, 2019
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 27, 2018
☒	8-WIRE ISN CAT3,5	ENY81	R & S	100174	01, 07, 2019
☒	8-WIRE ISN CAT6	ENY81-CAT6	R & S	101665	01, 07, 2019

Test Conditions
Temperature: 24,2 ℃
Relative Humidity: 49,9 % 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.

2.3 Radiated Electric Field Emissions(Below 1 ㎓)

Test Date
Sep. 02, 2018

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

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, 11, 2019
☒	AMPLIFIER	SCU 01	R & S	100603	11, 27, 2018
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	714	11, 28, 2018

Test Conditions
Temperature: 24,5 ℃
Relative Humidity: 53,1 % 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.

2.4 Radiated Electric Field Emissions(Above 1 ㎓)

Test Date
Sep. 02, 2018

Test Location
SEMI ANECHOIC CHAMBER #3

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	ESR7	R & S	101190	08, 06, 2019
☒	PREAMPLIFIER	8449B	AGILENT	3008A01967	05, 31, 2019
☐	ATTENUATOR	8491A	HP	35496	03, 21, 2019
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	05, 02, 2019

Test Conditions
Temperature: 23,8 ℃
Relative Humidity: 54,9 % R.H.

Frequency Range of Measurement
1 ㎓ to 6 ㎓

Instrument Settings
IF Band Width: 1 ㎒

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

2.5 Harmonic Current Emissions

Test Date
Sep. 02, 2018

Test Location
Electro wave Shieldroom #3

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	dpa.control	EM TEST	5.4.11.0	-
☒	DIGITAL POWER ANALYZER	DPA 500N	EM TEST	V1024106759	08, 08, 2019
☒	POWER SOURCE	ACS 500N6	EM TEST	V1024106760	-

Test Conditions
Temperature: 24,4 ℃
Relative Humidity: 48,5 % 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
See Appendix A for test data.

2.6 Voltage Fluctuations and Flicker

Test Date
Sep. 02, 2018

Test Location
Electro wave Shieldroom #3

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	dpa.control	EM TEST	5.4.11.0	-
☒	DIGITAL POWER ANALYZER	DPA 500N	EM TEST	V1024106759	08, 08, 2019
☒	POWER SOURCE	ACS 500N6	EM TEST	V1024106760	-

Test Conditions
Temperature: 24,4 ℃
Relative Humidity: 48,5 % R.H.

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

3.0 Criteria for compliance

Criteria for compliance was based on the following guidelines:
EN 50130-4:2011 +A1:2014 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 dBμV.

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 dBμV, 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 dBμV, 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 dBμV.

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
Sep. 02, 2018

Test Location
EMS-ESD: Electro wave Shieldroom #3

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	ESD SIMULATOR	ESS-2000	Noise Ken	ESS05X4620	02, 21, 2019
☒	HCP	-	Noise Ken	-	-
☒	VCP	-	Noise Ken	-	-

Test Conditions
Temperature: 24,1 ℃
Relative Humidity: 48,3 % R.H.
Atmospheric Pressure: 99,8 kPa

Test Specifications
Discharge Factor: ≥ 1 s

Discharge Impedance: 330 ohm / 150 pF

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

Polarity: Positive and Negative
Number of Discharge: 10 at all locations for Air discharge
10 at all locations for Contact discharge

Discharge Voltage:

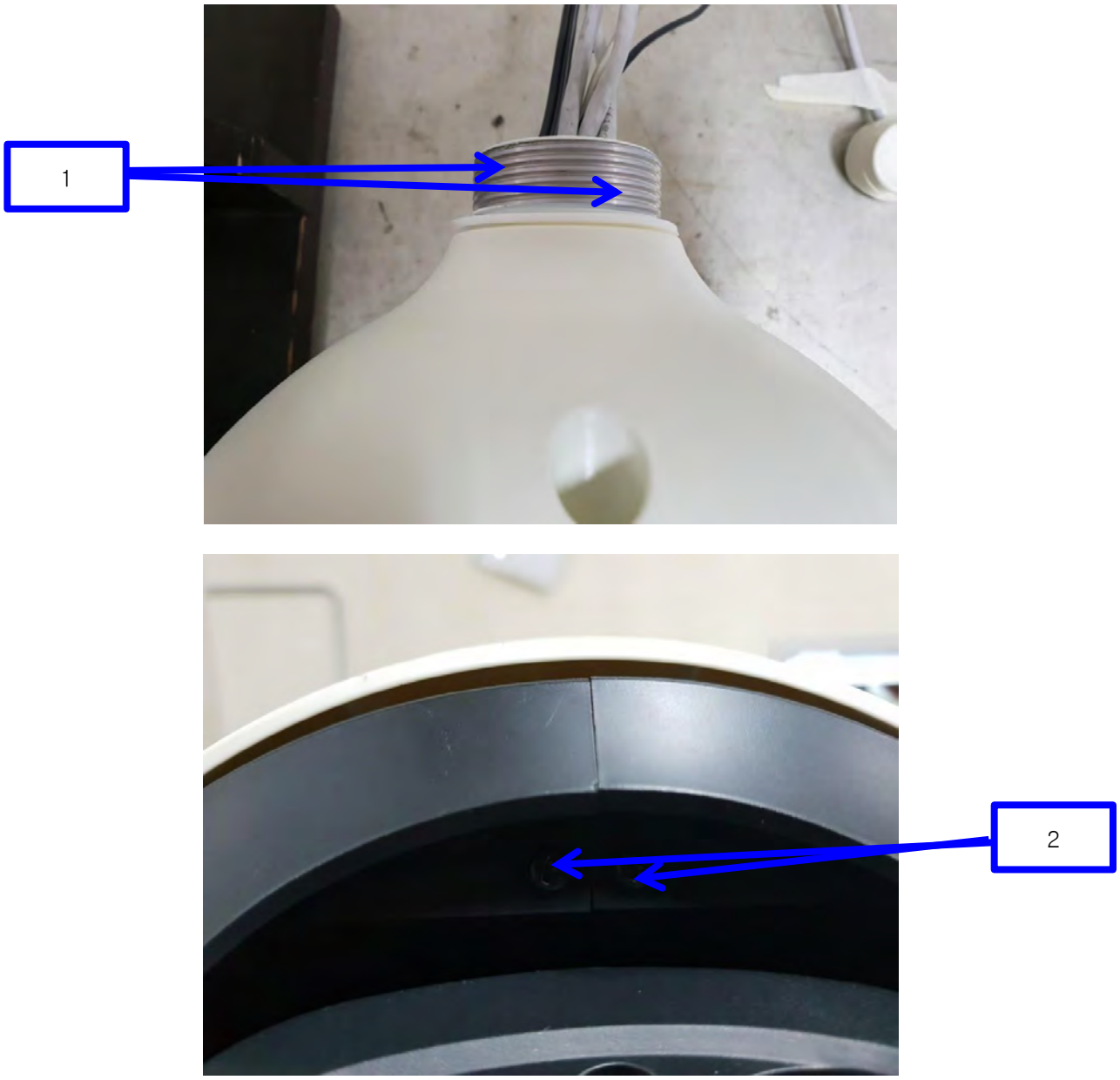
Contact	Air	HCP	VCP
☐ 2 kV	☒ 2 kV	☐ 2 kV	☐ 2 kV
☐ 4 kV	☒ 4 kV	☐ 4 kV	☐ 4 kV
☒ 6 kV	☐ 6 kV	☒ 6 kV	☒ 6 kV
☐ 8 kV	☒ 8 kV	☐ 8 kV	☐ 8 kV
☐ 15 kV	☐ 15 kV	☐ 15 kV	☐ 15 kV

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

Required Performance Criteria: ☒ Complied

Location of Discharge:

Air
Contact



Test Data

■ AC 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	-
2	Screw	Contact Discharge	Complied	-

■ 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	-
2	Screw	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

N/A

3.2 Radiated Electric Field Immunity

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

Test Date
Sep. 03, 2018

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

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	EMC32	R & S	10.10.02	-
☒	SIGNAL GENERATOR	SMB 100A	R & S	177586	08, 06, 2019
☒	BROADBAND AMPLIFIER	BBA100	R & S	101239	08, 06, 2019
☒	BROADBAND AMPLIFIER	100S1G6M1	AR	579931	08, 06, 2019
☒	POWER METER	NRP2	R & S	103475	08, 06, 2019
☒	AVG POWER SENSOR	NRP-Z91	R & S	102526	08, 06, 2019
☒	AVG POWER SENSOR	NRP-Z91	R & S	102527	08, 06, 2019
☒	STACKED DOUBLE LOG-PER- ANTENNA	STPL9128 E	Schwarzbeck	9128ES-121	-
☒	DIRECTIONAL COUPLER	KYDC-D1070-DX40	KY TELECOM	KY150001	08, 06, 2019
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	05, 02, 2019

Test Conditions
Temperature: 23,6 ℃
Relative Humidity: 55,1 % R.H.
Atmospheric Pressure: 99,2 kPa

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

Test Data

■ AC 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

N/A

3.3 Electrical Fast Transients/Bursts

Reference Standard
EN 61000-4-4:2012

Test Date
Sep. 03, 2018

Test Location
EMS-EFT: Electro wave Shieldroom #3

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	iec.control	AMETEK CTS	7.1.2	-
☒	ULTRA COMPACT SIMULATOR	UCS 500 N5	EM TEST	V0936105120	06, 26, 2019
☒	MOTOR VARIAC	MV2616	EM TEST	V0936105123	06, 26, 2019
☒	CAPACITIVE COUPLING CLAMP	HFK	EM TEST	070925	06, 26, 2019

Test Conditions
Temperature: 24,5 ℃
Relative Humidity: 48,7 % R.H.
Atmospheric Pressure: 99,9 ㎪

Test Specifications

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

Test Data

■ AC MODE

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

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

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

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

☒ Signal ports and telecommunication ports – Coupling Clamp used

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

■ POE MODE

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

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

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

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

☒ Signal ports and telecommunication ports – Coupling Clamp used

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

Note: "Blank" = Not performed
Observations:
Complied – No degradation of function

Test Results

☒ PASS Required Performance Criteria
☐ NOT PASS Required Performance Criteria

Remarks

N/A

3.4 Surge Transients

Reference Standard
EN 61000-4-5:2014

Test Date
Sep. 03, 2018

Test Location
EMS-Surge: Electro wave Shieldroom #3

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	iec.control	AMETEK CTS	7.1.2	-
☒	ULTRA COMPACT SIMULATOR	UCS 500 N5	EM TEST	V0936105120	06, 26, 2019
☒	MOTOR VARIAC	MV2616	EM TEST	V0936105123	06, 26, 2019
☒	CDN	CNV 508N1	EM TEST	P1551168979	04, 25, 2019
☐	CDN	CNV 508T5	EM TEST	P1549168422	04, 25, 2019

Test Conditions
Temperature: 24,5 ℃
Relative Humidity: 48,7 % R.H.
Atmospheric Pressure: 99,9 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 MODE

☒ Line to Line – Differential Mode

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

☐ Line to Earth – Common Mode

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

Signal Lines

☒ Line to Earth – Common Mode

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

■ PoE MODE

☒ Line to Line – Differential Mode

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

☐ Line to Earth – Common Mode

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

Signal Lines

☒ Line to Earth – Common Mode

Mode of Application	Observations	
	(+) Surge (㎸)	(-) Surge (㎸)
RJ-45	Complied	Complied
RS-485	Complied	Complied
Alarm 1	Complied	Complied
Alarm 2	Complied	Complied

Note:"Blank" = Not performed
Observations:
Complied – No degradation of function

Test Results

☒ PASS Required Performance Criteria
☐ NOT PASS Required Performance Criteria

Remarks

N/A

3.5 Conducted Disturbance

Reference Standard
EN 61000-4-6:2014

Test Date
Sep. 03, 2018

Test Location
EMS-CS: Electro wave Shieldroom #3

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	icd.control	EM TEST	5.3.7	-
☒	CONTINUOUS WAVE SIMULATOR	CWS 500N1	EM TEST	V0936105119	08, 09, 2019
☒	ATTENUATOR	ATT6	EM TEST	1208-34	08, 08, 2019
☒	CDN	CDN-M2/M3N	EM TEST	0909-06	08, 06, 2019
☒	CDN	CDN T8RJ45	EM TEST	0909-09	08, 06, 2019
☒	EM INJECTION CLAMP	EM 101	Liithi	35943	02, 02, 2019

Test Conditions
Temperature: 24,5 ℃
Relative Humidity: 48,7 % R.H.
Atmospheric Pressure: 99,9 ㎪

Test Specifications

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

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

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

Frequency step: ☒ 1 % step

Dwell Time: ☒ 1 s ☐ 3 s

Required Performance Criteria: ☒ Complied

Test Data

■ AC MODE

☒ Input a.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observations
L – N	CDN	Complied

☐ Input d.c. power ports

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

☒ Signal ports and telecommunication ports

Coupling Location (Line Stressed)	Coupling Method	Observations
RJ-45	CDN	Complied
RS-485	Clamp	Complied
Alarm In	Clamp	Complied
Alarm Out	Clamp	Complied

■ PoE MODE

☒ Input a.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observations
L – N -PE	CDN	Complied

☐ Input d.c. power ports

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

☒ Signal ports and telecommunication ports

Coupling Location (Line Stressed)	Coupling Method	Observations
RJ-45	CDN	Complied
RS-485	Clamp	Complied
Alarm In	Clamp	Complied
Alarm Out	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

N/A

3.6 Voltage Dips and Short Interruptions

Reference Standard
EN 61000-4-11:2004

Test Date
Sep. 03, 2018

Test Location
EMS-Voltage dip: Electro wave Shieldroom #3

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	iec.control	AMETEK CTS	7.1.2	-
☒	ULTRA COMPACT SIMULATOR	UCS 500 N5	EM TEST	V0936105120	06, 26, 2019
☒	MOTOR VARIAC	MV2616	EM TEST	V0936105123	06, 26, 2019

Test Conditions

Temperature:	25,5 ℃
Relative Humidity:	48,7 % R.H.
Atmospheric Pressure:	99,9 kPa

Test Specifications & Observations/Remarks

■ AC MODE
(Test Voltage : 230 V)

Test Level	Duration [in period/ms (50 ㎐)]	Results
☒ 20 % dip	☒ 250 / 5 000	Complied
☒ 30 % dip	☒ 25 / 500	Complied
☒ 60 % dip	☒ 10 / 200	Complied
☒ 100 % dip	☒ 250 / 5 000	Complied

- Voltage variations

☒ Unom + 10 %	☒ 253.0 V (ac)	Complied
☒ Unom - 15 %	☒ 195.5 V (ac)	Complied

■ PoE MODE
(Test Voltage : 230 V)

Test Level	Duration [in period/ms (50 ㎐)]	Results
☒ 20 % dip	☒ 250 / 5 000	Complied
☒ 30 % dip	☒ 25 / 500	Complied
☒ 60 % dip	☒ 10 / 200	Complied
☒ 100 % dip	☒ 250 / 5 000	Complied

- Voltage variations

☒ Unom + 10 %	☒ 253.0 V (ac)	Complied
☒ Unom - 15 %	☒ 195.5 V (ac)	Complied

Observations:
Complied – No degradation of function

Test Results

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

Remarks

The test has been tested using the AC/AC adaptor.

APPENDIX A – TEST DATA

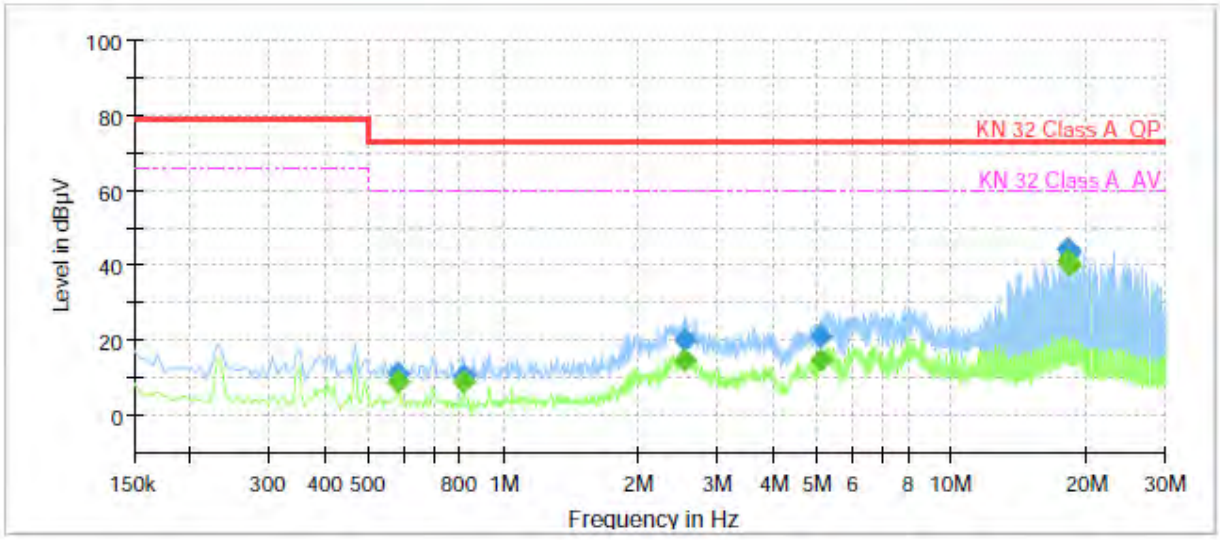
Conducted Emissions at Mains Power Ports

■ AC MODE

[HOT]

Common Information

Test Description:	Conducted Emission
Model No.:	XNP-6550RH
Mode	AC_ H
Operator Name:	KES



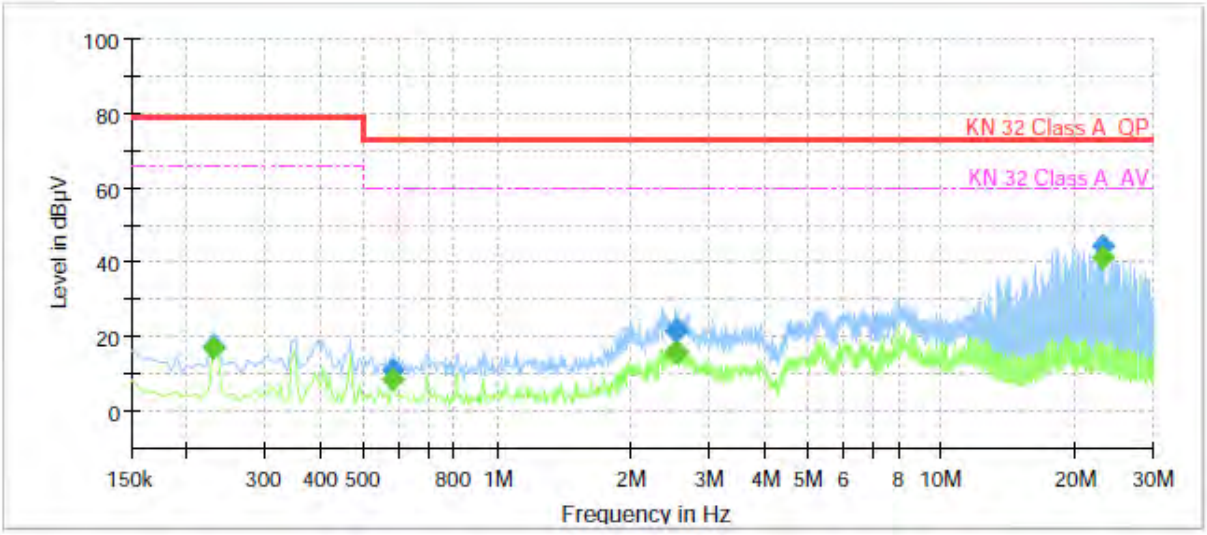
Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.580000	---	8.92	60.00	51.08	1000.0	9.000	L1	19.8
0.580000	11.19	---	73.00	61.81	1000.0	9.000	L1	19.8
0.815000	---	9.10	60.00	50.90	1000.0	9.000	L1	20.0
0.815000	10.76	---	73.00	62.24	1000.0	9.000	L1	20.0
2.535000	---	14.81	60.00	45.19	1000.0	9.000	L1	20.2
2.535000	20.07	---	73.00	52.93	1000.0	9.000	L1	20.2
5.115000	---	14.74	60.00	45.26	1000.0	9.000	L1	19.8
5.115000	21.04	---	73.00	51.96	1000.0	9.000	L1	19.8
18.245000	---	41.04	60.00	18.96	1000.0	9.000	L1	20.3
18.245000	44.46	---	73.00	28.54	1000.0	9.000	L1	20.3
18.305000	---	40.30	60.00	19.70	1000.0	9.000	L1	20.3
18.305000	43.66	---	73.00	29.34	1000.0	9.000	L1	20.3

[NEUTRAL]

Common Information

Test Description:	Conducted Emission
Model No.:	XNP-6550RH
Mode	AC_ N
Operator Name:	KES



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.230000	---	16.74	66.00	49.26	1000.0	9.000	N	19.5
0.230000	17.40	---	79.00	61.60	1000.0	9.000	N	19.5
0.580000	---	8.28	60.00	51.72	1000.0	9.000	N	19.8
0.580000	11.09	---	73.00	61.91	1000.0	9.000	N	19.8
2.525000	---	15.98	60.00	44.02	1000.0	9.000	N	20.2
2.525000	21.52	---	73.00	51.48	1000.0	9.000	N	20.2
2.540000	---	15.87	60.00	44.13	1000.0	9.000	N	20.2
2.540000	21.50	---	73.00	51.50	1000.0	9.000	N	20.2
23.130000	---	41.46	60.00	18.54	1000.0	9.000	N	20.5
23.130000	44.59	---	73.00	28.41	1000.0	9.000	N	20.5

♦ 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))

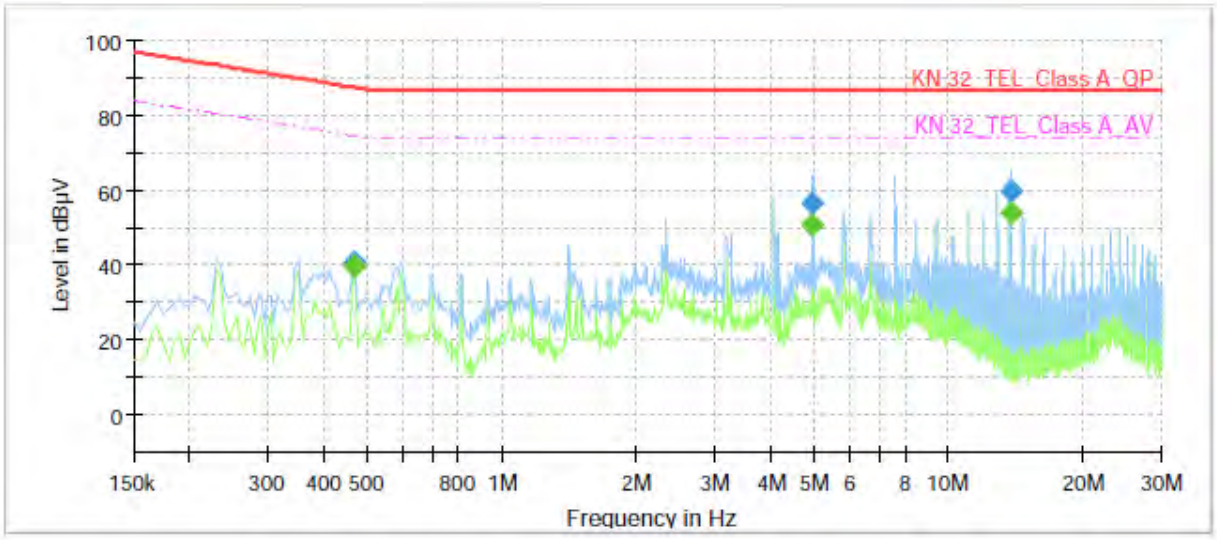
Conducted Emissions at Telecommunication Ports

■ AC MODE

[10 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	XNP-6550RH
Mode	AC_ 10 Mbps
Operator Name:	KES



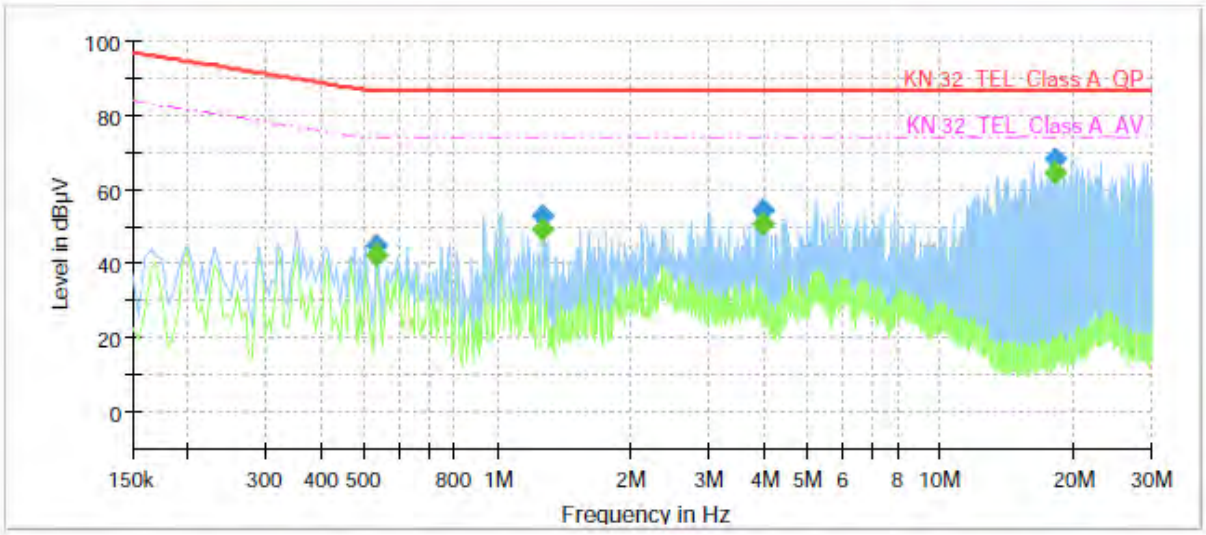
Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.465000	---	39.87	74.60	34.73	1000.0	9.000	Single Line	19.6
0.465000	40.61	---	87.60	46.99	1000.0	9.000	Single Line	19.6
4.945000	---	50.91	74.00	23.09	1000.0	9.000	Single Line	19.5
4.945000	56.57	---	87.00	30.43	1000.0	9.000	Single Line	19.5
13.750000	---	53.94	74.00	20.06	1000.0	9.000	Single Line	19.9
13.750000	59.77	---	87.00	27.23	1000.0	9.000	Single Line	19.9

[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	XNP-6550RH
Mode	AC_ 100 Mbps
Operator Name:	KES



Final_Result

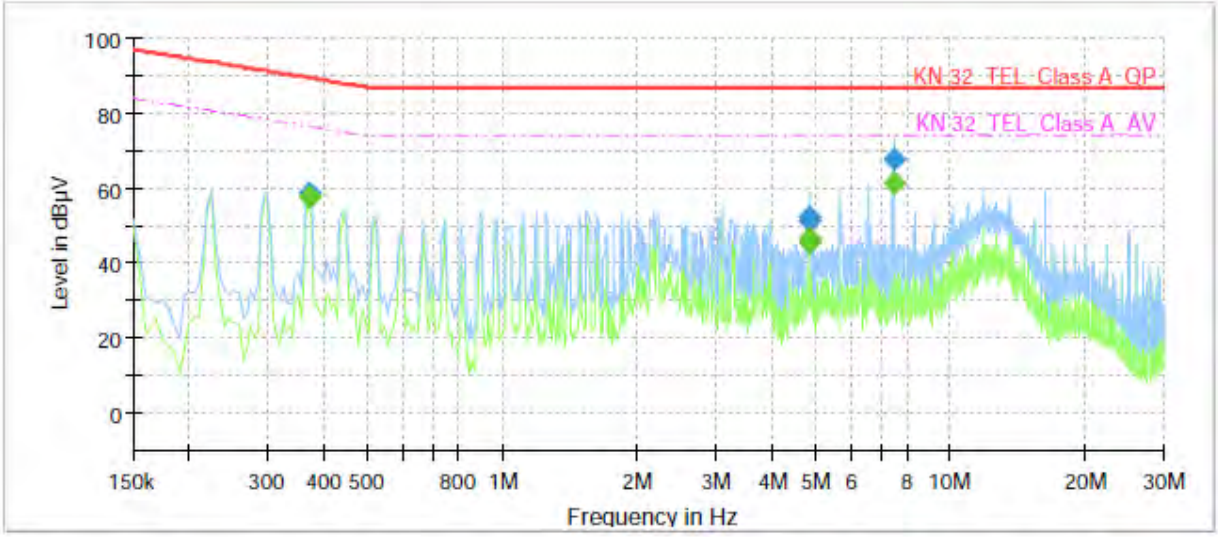
Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.535000	---	42.54	74.00	31.46	1000.0	9.000	Single Line	19.6
0.535000	44.94	---	87.00	42.06	1000.0	9.000	Single Line	19.6
1.265000	---	49.43	74.00	24.57	1000.0	9.000	Single Line	19.8
1.265000	52.71	---	87.00	34.29	1000.0	9.000	Single Line	19.8
3.955000	---	51.02	74.00	22.98	1000.0	9.000	Single Line	19.6
3.955000	54.59	---	87.00	32.41	1000.0	9.000	Single Line	19.6
18.245000	---	64.79	74.00	9.21	1000.0	9.000	Single Line	20.0
18.245000	68.40	---	87.00	18.60	1000.0	9.000	Single Line	20.0

■ PoE MODE

[10 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	XNP-6550RH
Mode	PoE_ 10 Mbps
Operator Name:	KES



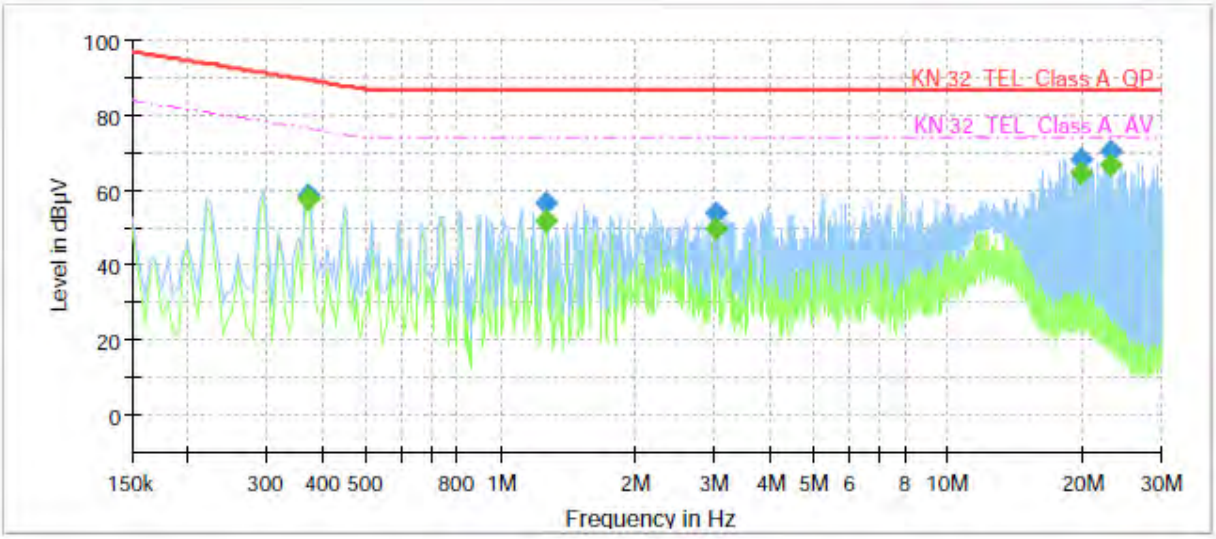
Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.370000	---	57.76	76.50	18.74	1000.0	9.000	Single Line	19.6
0.370000	58.70	---	89.50	30.80	1000.0	9.000	Single Line	19.6
4.835000	---	46.72	74.00	27.28	1000.0	9.000	Single Line	19.5
4.835000	52.54	---	87.00	34.46	1000.0	9.000	Single Line	19.5
4.840000	---	45.45	74.00	28.55	1000.0	9.000	Single Line	19.5
4.840000	51.34	---	87.00	35.66	1000.0	9.000	Single Line	19.5
7.500000	---	61.53	74.00	12.47	1000.0	9.000	Single Line	19.4
7.500000	67.94	---	87.00	19.06	1000.0	9.000	Single Line	19.4

[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	XNP-6550RH
Mode	PoE_ 100 Mbps
Operator Name:	KES



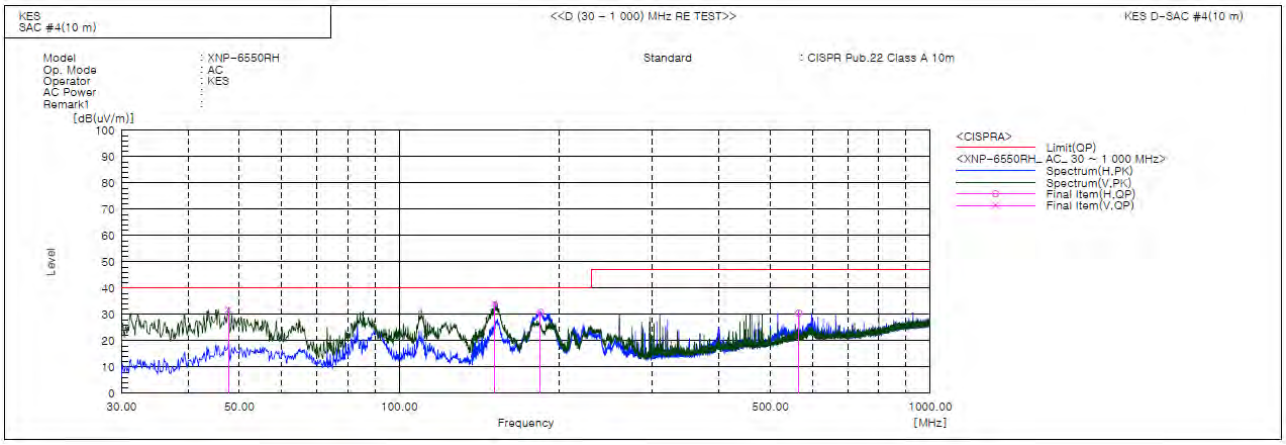
Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.370000	---	57.93	76.50	18.57	1000.0	9.000	Single Line	19.5
0.370000	58.82	---	89.50	30.68	1000.0	9.000	Single Line	19.5
1.265000	---	51.94	74.00	22.06	1000.0	9.000	Single Line	19.8
1.265000	56.85	---	87.00	30.15	1000.0	9.000	Single Line	19.8
3.040000	---	49.89	74.00	24.11	1000.0	9.000	Single Line	19.8
3.040000	53.84	---	87.00	33.16	1000.0	9.000	Single Line	19.8
19.710000	---	64.56	74.00	9.44	1000.0	9.000	Single Line	20.1
19.710000	68.29	---	87.00	18.71	1000.0	9.000	Single Line	20.1
23.130000	---	66.84	74.00	7.16	1000.0	9.000	Single Line	20.2
23.130000	70.52	---	87.00	16.48	1000.0	9.000	Single Line	20.2

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

Radiated Electric Field Emissions(Below 1 ㎓)

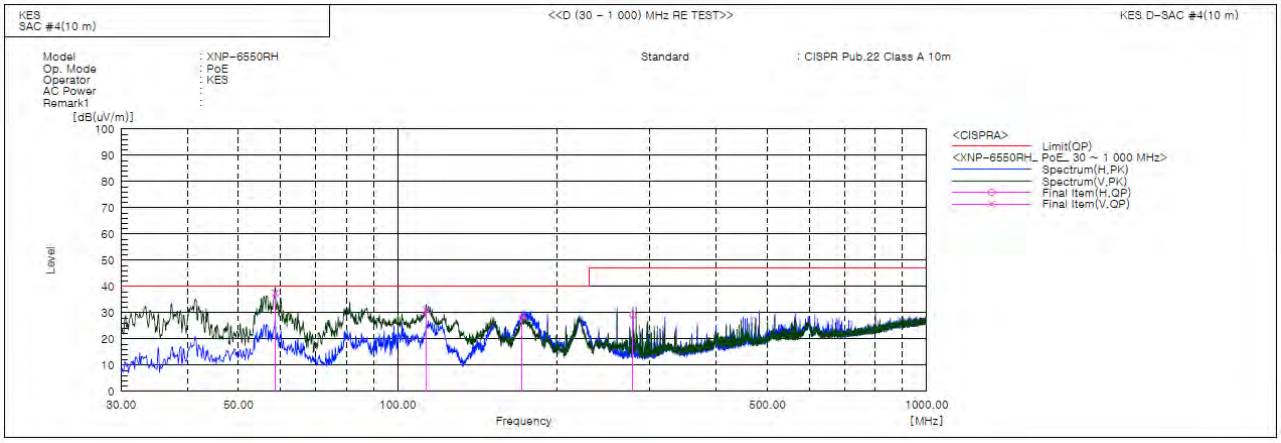
■ AC MODE



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	47.703	V	60.4	-28.5	31.9	40.0	8.1	152.0	161.0	
2	151.008	V	66.2	-32.0	34.2	40.0	5.8	166.0	224.0	
3	184.473	H	60.4	-29.6	30.8	40.0	9.2	387.0	251.0	
4	565.198	H	47.3	-16.8	30.5	47.0	16.5	221.0	240.0	

■ PoE MODE



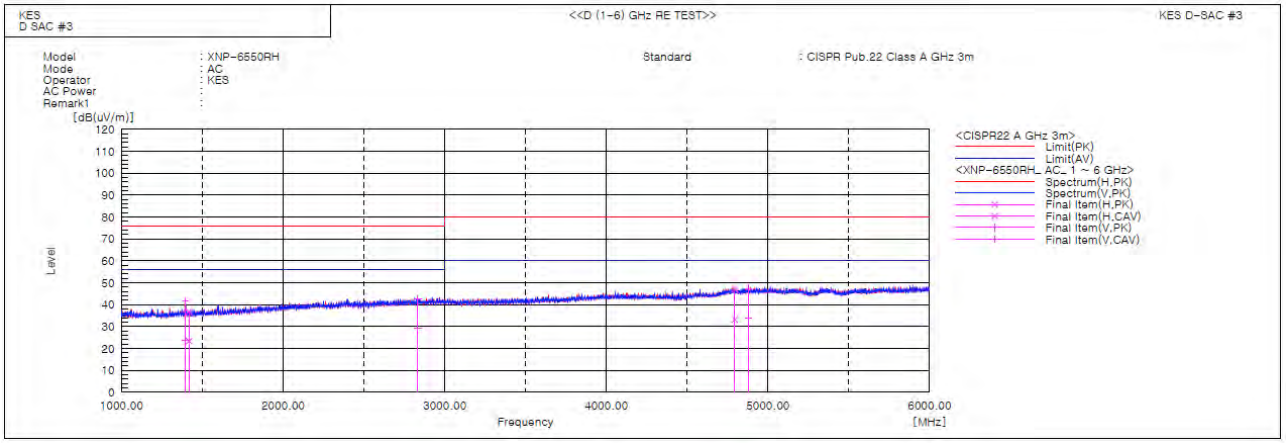
Final Result

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	58.716	V	66.8	-29.3	37.5	40.0	2.5	137.0	251.0	
2	113.178	V	61.4	-30.4	31.0	40.0	9.0	103.0	290.0	
3	171.984	H	59.6	-31.1	28.5	40.0	11.5	368.0	248.0	
4	278.441	H	54.6	-25.4	29.2	47.0	17.8	224.0	315.0	

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

Radiated Electric Field Emissions(Above 1 ㎓)

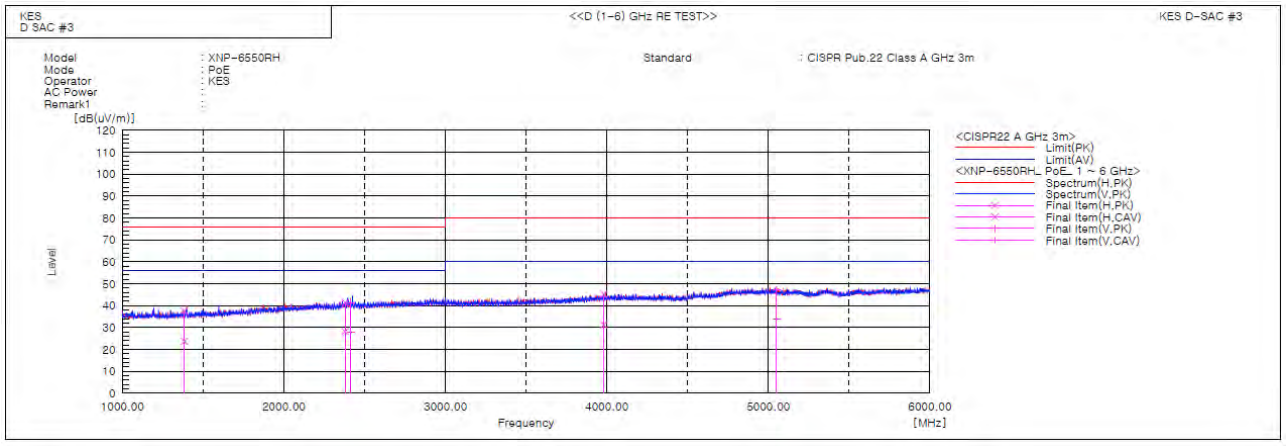
■ AC MODE



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	1418.045	H	42.9	29.5	-6.1	36.8	23.4	76.0	56.0	39.2	32.6	100.0	115.7	
2	1394.471	V	48.1	30.0	-6.3	41.8	23.7	76.0	56.0	34.2	32.3	100.0	259.6	
3	2832.926	V	41.4	27.8	1.2	42.6	29.0	76.0	56.0	33.4	27.0	100.0	114.0	
4	4795.518	H	39.5	25.7	7.6	47.1	33.3	80.0	60.0	32.9	26.7	100.0	235.7	
5	4878.370	V	39.4	25.8	8.1	47.5	33.9	80.0	60.0	32.5	26.1	100.0	35.6	

■ PoE MODE



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	1383.833	H	43.9	30.0	-6.3	37.6	23.7	76.0	56.0	38.4	32.3	100.0	156.2	
2	2379.563	H	41.7	28.6	-0.4	41.3	28.2	76.0	56.0	34.7	27.8	100.0	129.1	
3	2414.252	V	41.8	28.3	-0.3	41.5	28.0	76.0	56.0	34.5	28.0	100.0	219.5	
4	3980.882	H	40.5	26.6	4.7	45.2	31.3	80.0	60.0	34.8	28.7	100.0	2.7	
5	5050.338	V	39.0	25.5	8.4	47.4	33.9	80.0	60.0	32.6	26.1	100.0	145.2	

♦ Calculation

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

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

Harmonic Current Emissions and Voltage Fluctuations and Flicker

■ PoE MODE

Average harmonic current results

Hn	Ieff [A]	% of Limit	Limit [A]	Result
1	199.257E-3			
2	2.636E-3			PASS
3	47.296E-3	2.056	2.30	PASS
4	1.338E-3			PASS
5	53.572E-3	4.699	1.14	PASS
6	596.111E-6			PASS
7	21.855E-3	2.838	770.00E-3	PASS
8	675.792E-6			PASS
9	13.551E-3	3.388	400.00E-3	PASS
10	791.929E-6			PASS
11	4.847E-3			PASS
12	670.227E-6			PASS
13	4.499E-3			PASS
14	601.981E-6			PASS
15	4.581E-3			PASS
16	624.986E-6			PASS
17	3.015E-3			PASS
18	626.579E-6			PASS
19	2.131E-3			PASS
20	663.808E-6			PASS
21	2.300E-3			PASS
22	995.554E-6			PASS
23	1.941E-3			PASS
24	643.646E-6			PASS
25	1.707E-3			PASS
26	646.321E-6			PASS
27	1.143E-3			PASS
28	744.768E-6			PASS
29	2.029E-3			PASS
30	623.632E-6			PASS
31	1.182E-3			PASS
32	618.905E-6			PASS
33	976.664E-6			PASS
34	744.413E-6			PASS
35	770.519E-6			PASS
36	671.012E-6			PASS
37	1.012E-3			PASS
38	599.562E-6			PASS
39	724.489E-6			PASS
40	578.176E-6			PASS

Harmonic currents less than 0.6% of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded.

Test Data - Harmonics (continued)

Maximum harmonic current results

Hn	Ieff [A]	% of Limit	Limit [A]	Result
1	199.548E-3			
2	2.787E-3			PASS
3	47.381E-3	1.373	3.45	PASS
4	1.444E-3			PASS
5	53.671E-3	3.139	1.71	PASS
6	696.476E-6			PASS
7	21.973E-3	1.902	1.15	PASS
8	787.226E-6			PASS
9	13.693E-3	2.282	600.00E-3	PASS
10	878.112E-6			PASS
11	4.928E-3			PASS
12	786.765E-6			PASS
13	4.754E-3			PASS
14	747.083E-6			PASS
15	4.677E-3			PASS
16	751.987E-6			PASS
17	3.194E-3			PASS
18	689.812E-6			PASS
19	2.230E-3			PASS
20	916.966E-6			PASS
21	2.487E-3			PASS
22	1.089E-3			PASS
23	2.066E-3			PASS
24	715.291E-6			PASS
25	1.774E-3			PASS
26	727.118E-6			PASS
27	1.380E-3			PASS
28	852.109E-6			PASS
29	2.180E-3			PASS
30	742.155E-6			PASS
31	1.314E-3			PASS
32	679.542E-6			PASS
33	1.120E-3			PASS
34	822.831E-6			PASS
35	899.960E-6			PASS
36	736.069E-6			PASS
37	1.146E-3			PASS
38	675.826E-6			PASS
39	803.906E-6			PASS
40	638.425E-6			PASS

Harmonic currents less than 0.6% of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded.

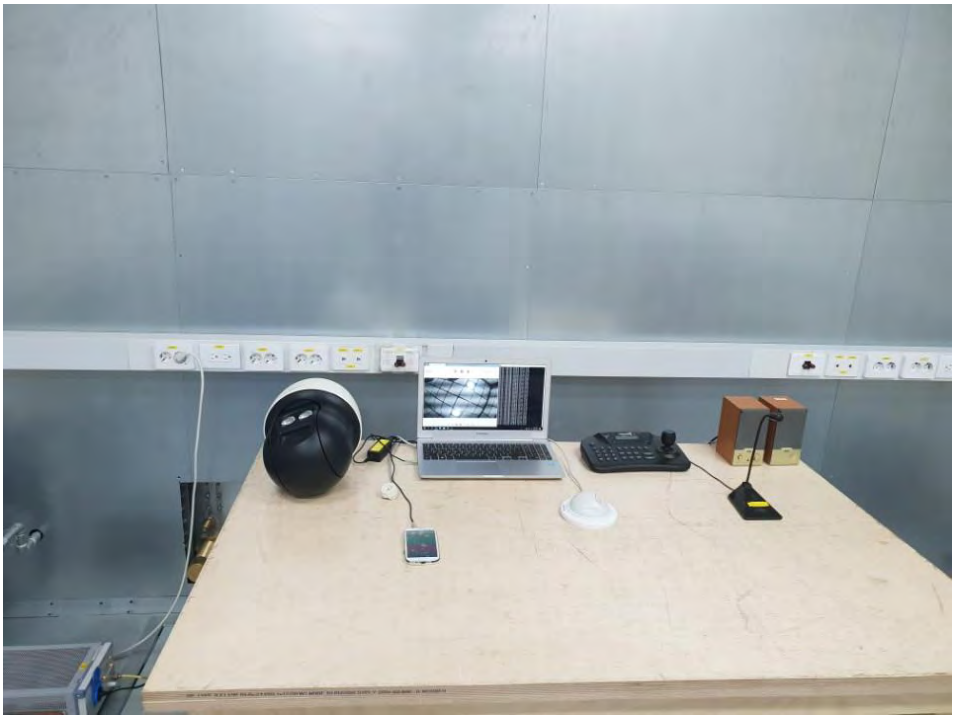
Test Data - Voltage Fluctuations

Maximum Flicker results

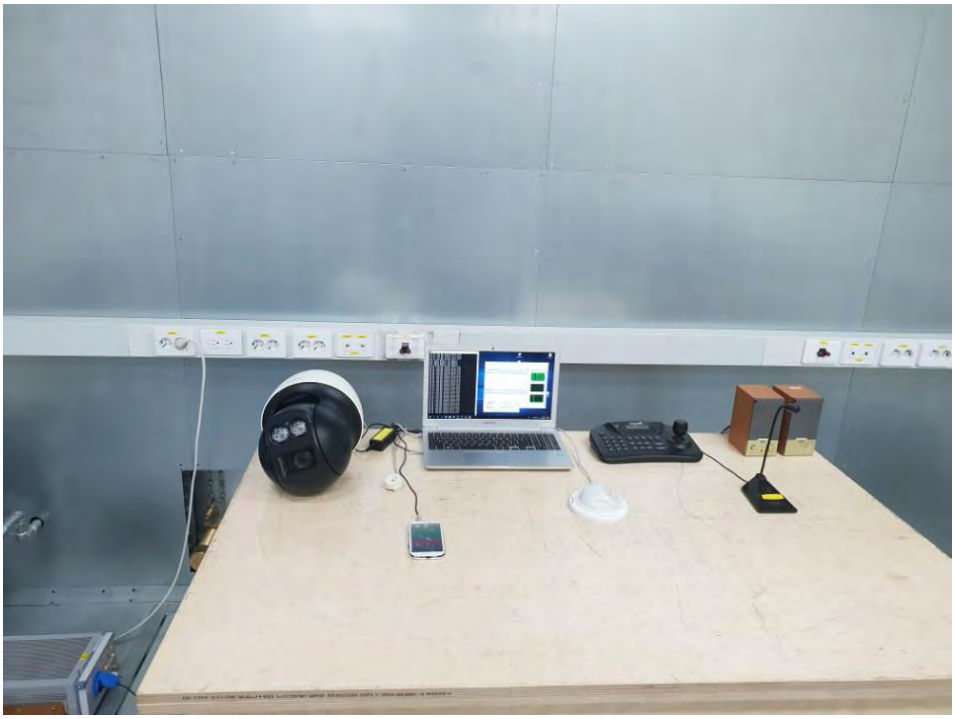
	EUT values	Limit	Result
Pst	0.028	1.00	PASS
Plt	0.028	0.65	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.045	4.00	PASS
Tmax [s]	0.000	0.50	PASS

Test Setup Photos and Configuration

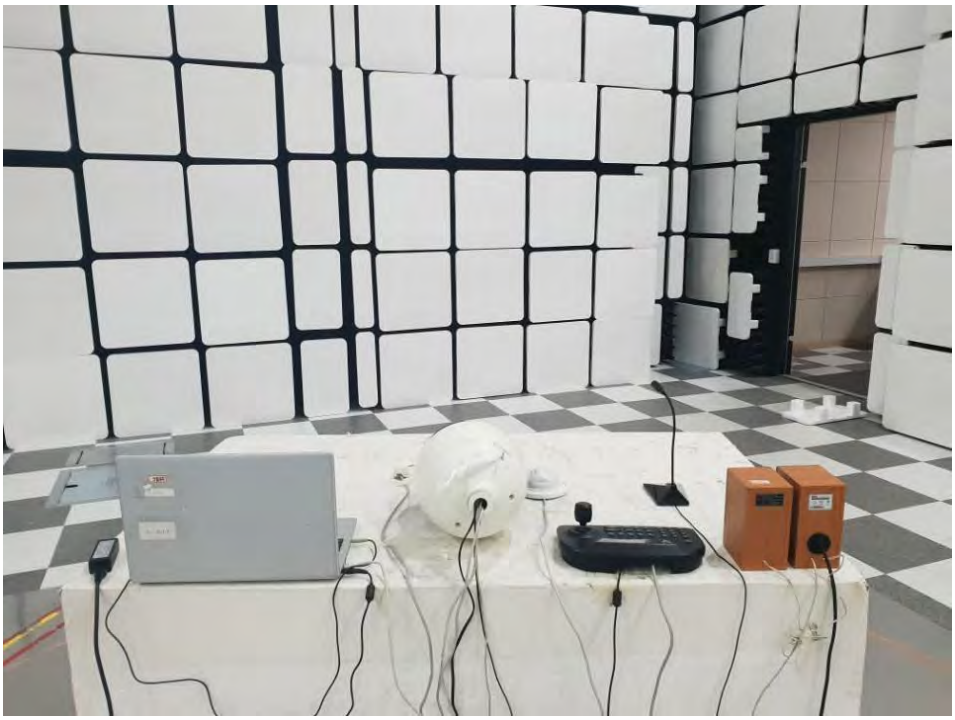
Conducted Voltage Emissions



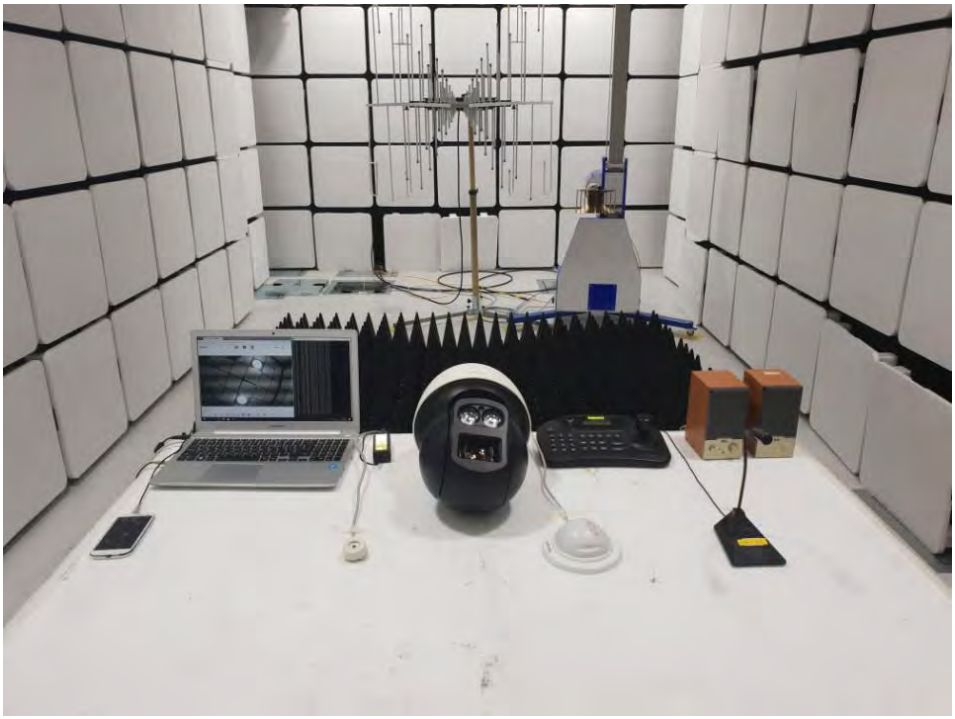
Conducted Telecommunication Emissions

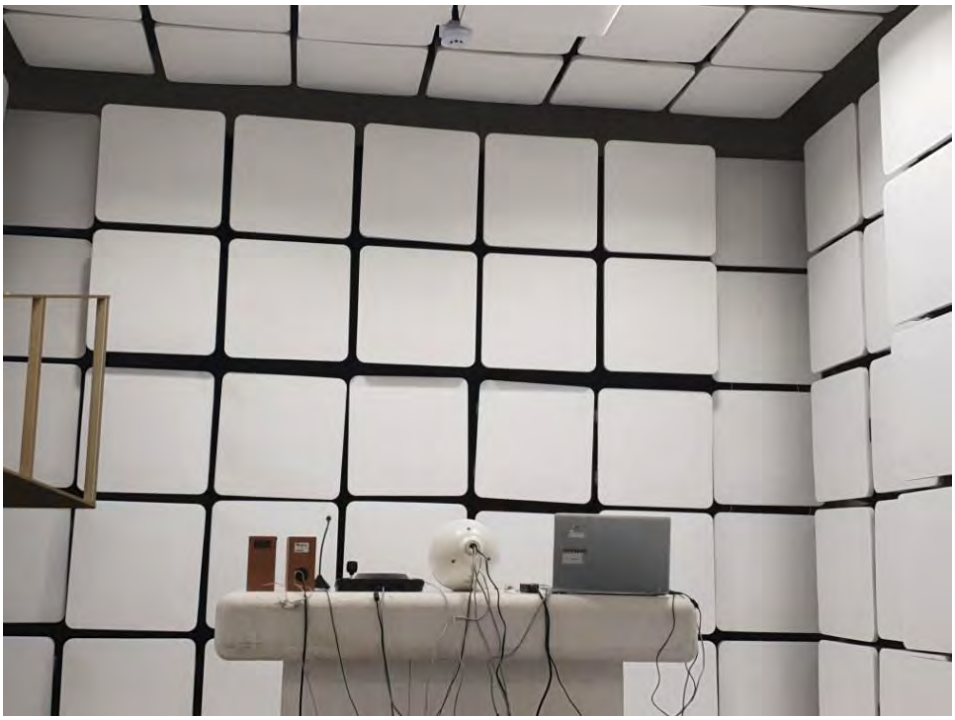


Radiated Electric Field Emissions(Below 1 ㎓)



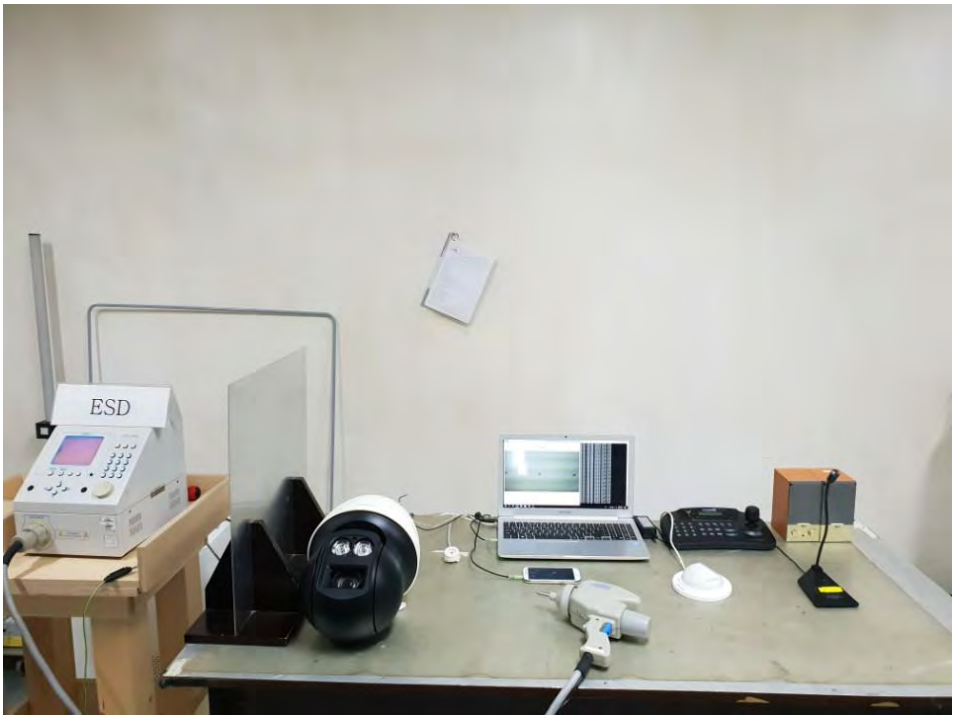
Radiated Electric Field Emissions(Above 1 ㎓)



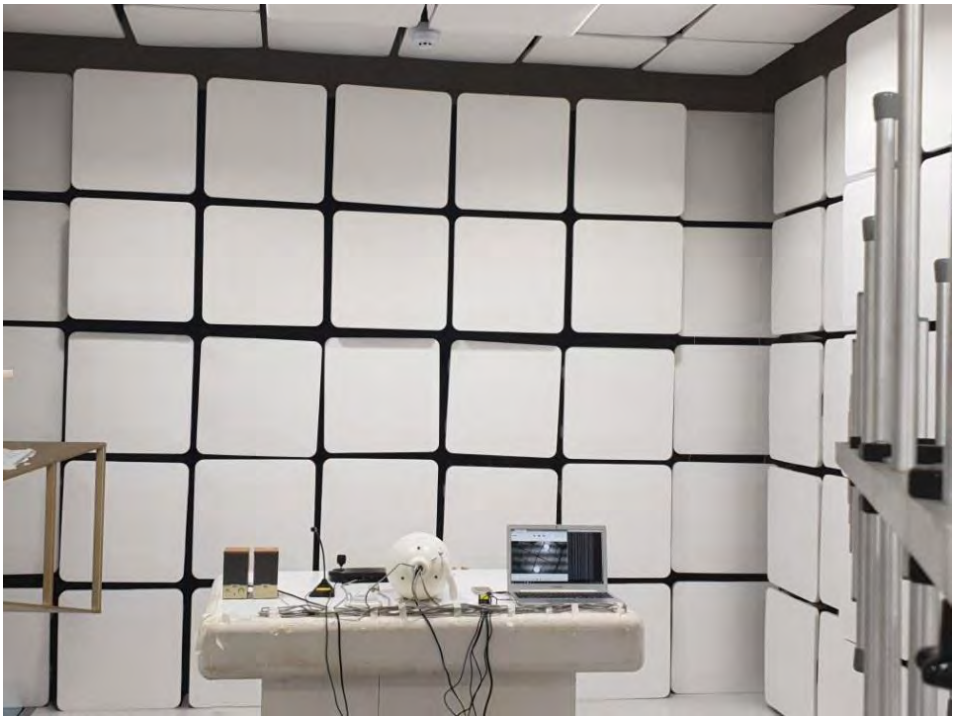


Harmonic Current Emissions and Voltage Fluctuations and Flicker

Electrostatic Discharge



Radiated Electric Field Immunity



Electrical Fast Transients/Bursts

Surge Transients

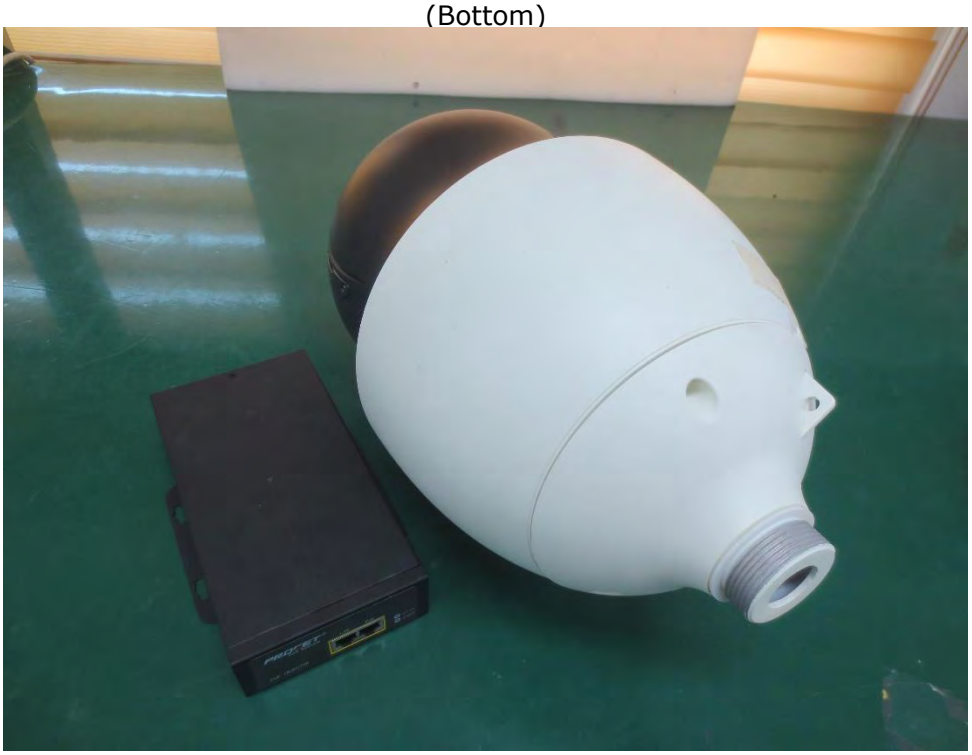
Conducted Disturbance

Voltage Dips and Short Interruptions

EUT External Photographs

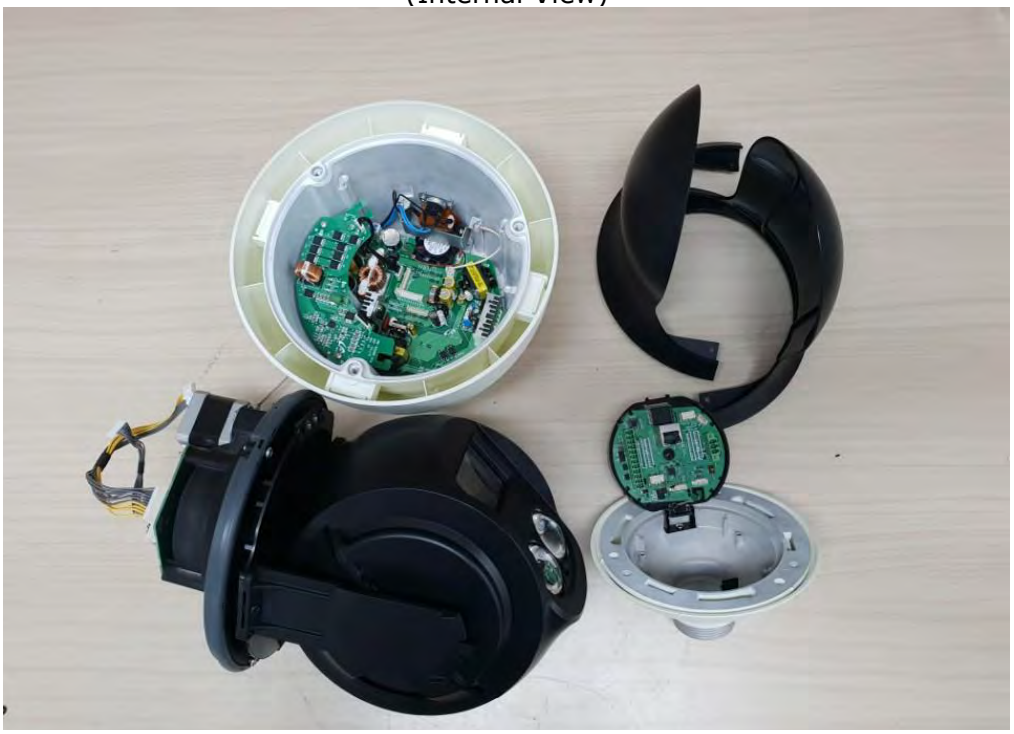
(Top)

(Bottom)



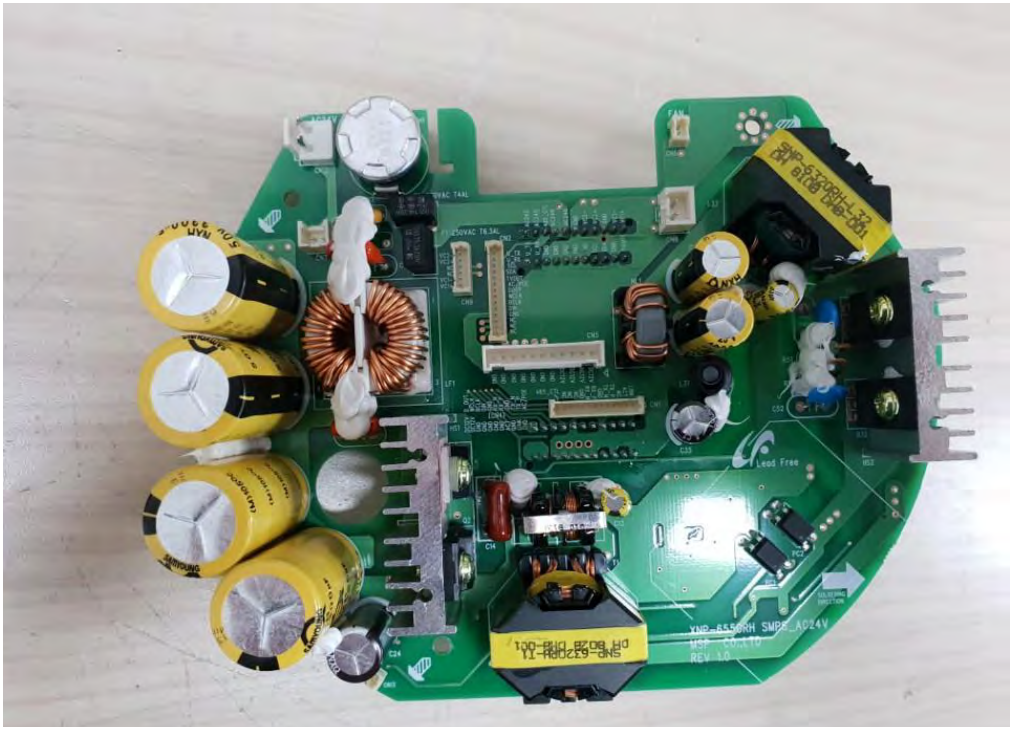
EUT Internal Photographs

(Internal View)

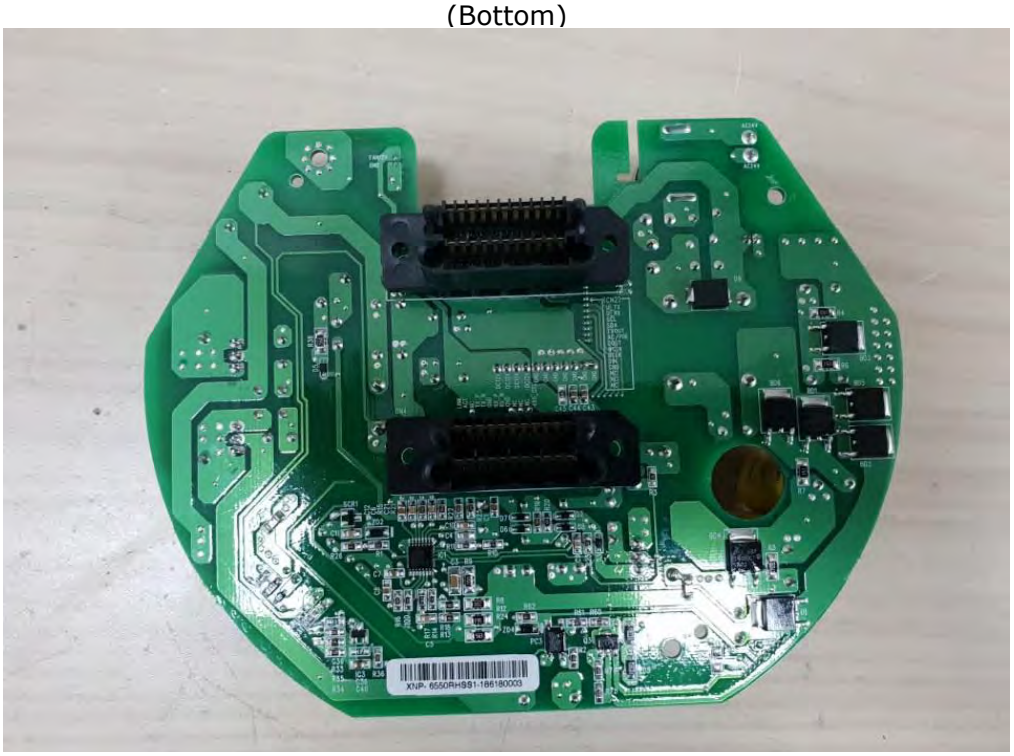


EUT Internal View – Board 1

(Top)

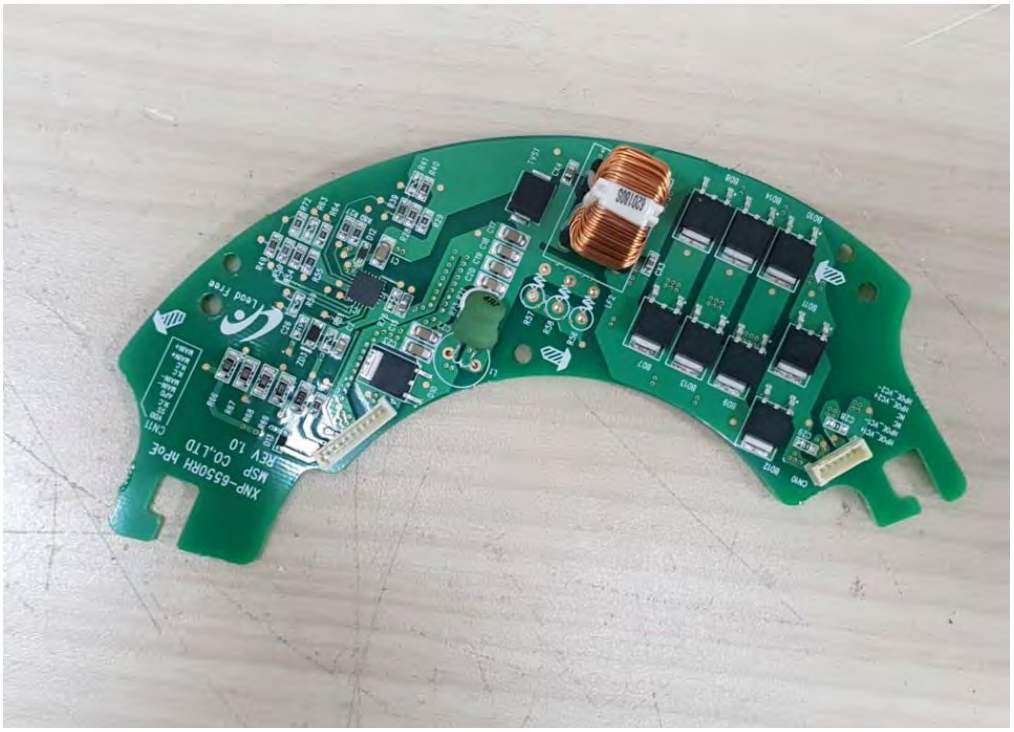


(Bottom)

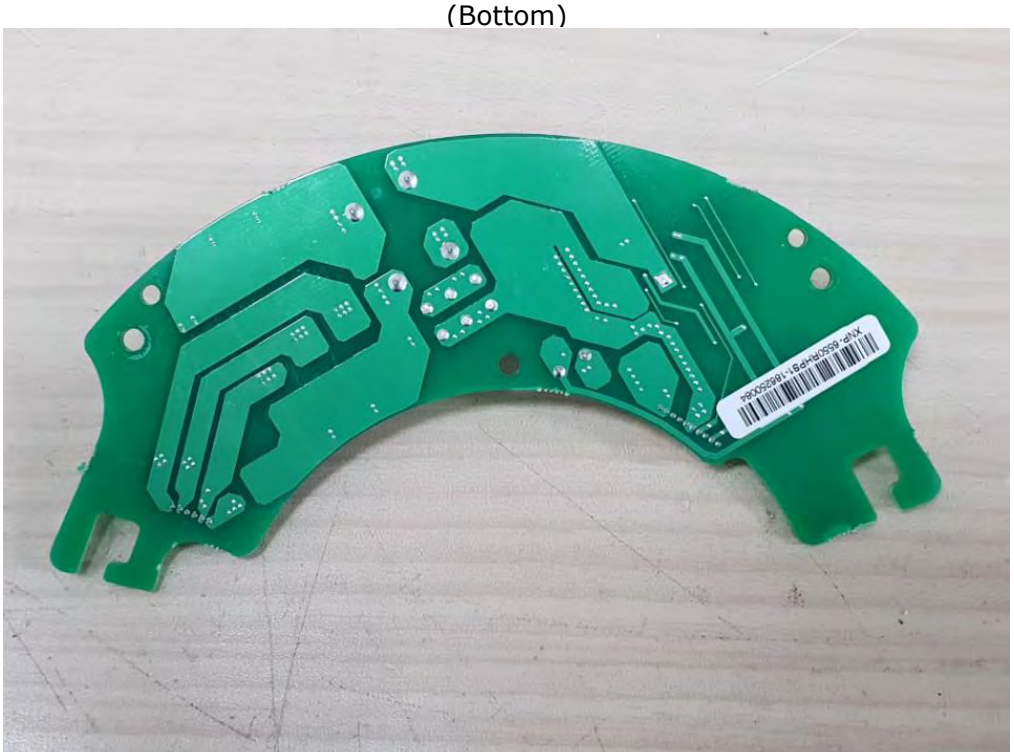


EUT Internal View – Board 2

(Top)



(Bottom)



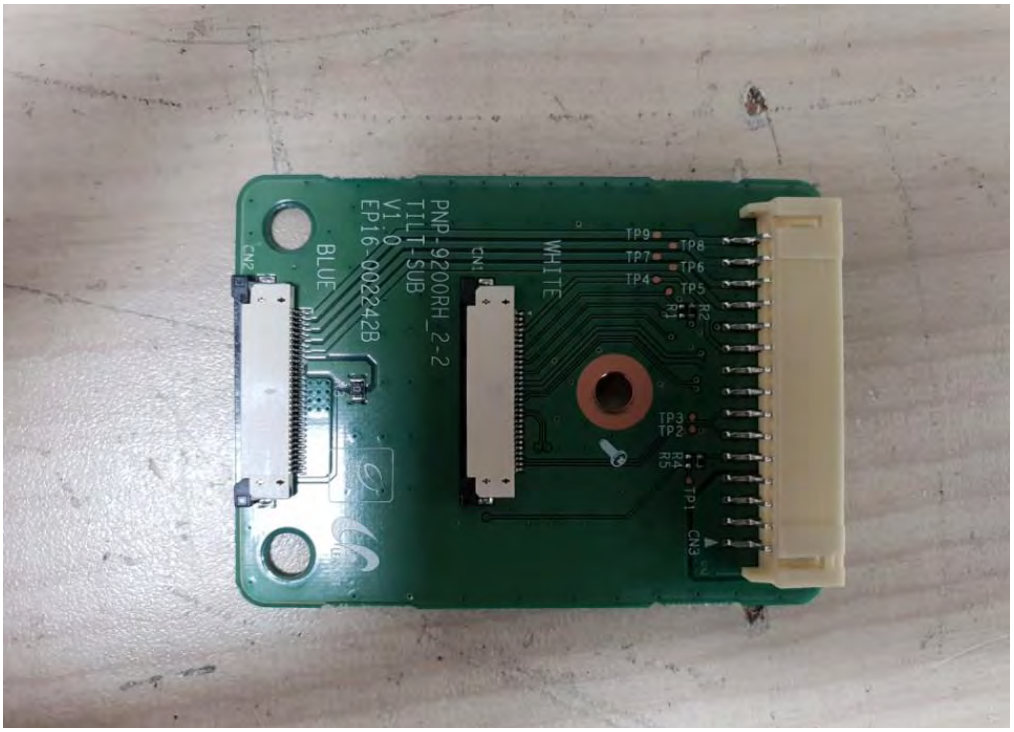
EUT Internal View – Board 3

(Top)

(Bottom)

EUT Internal View – Board 4

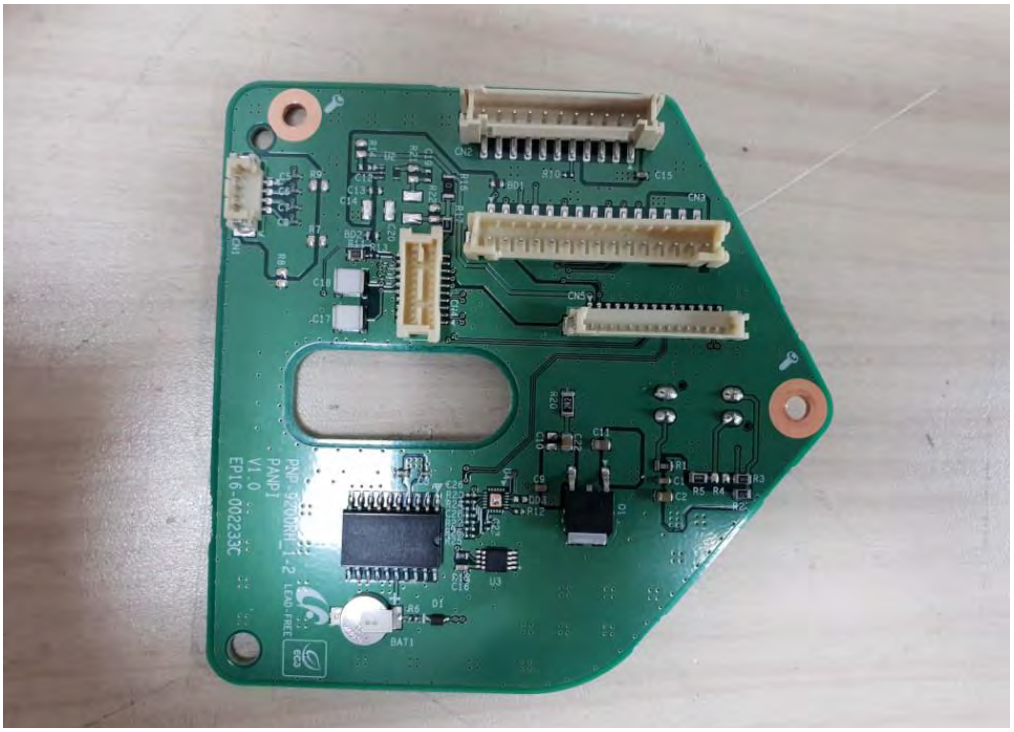
(Top)



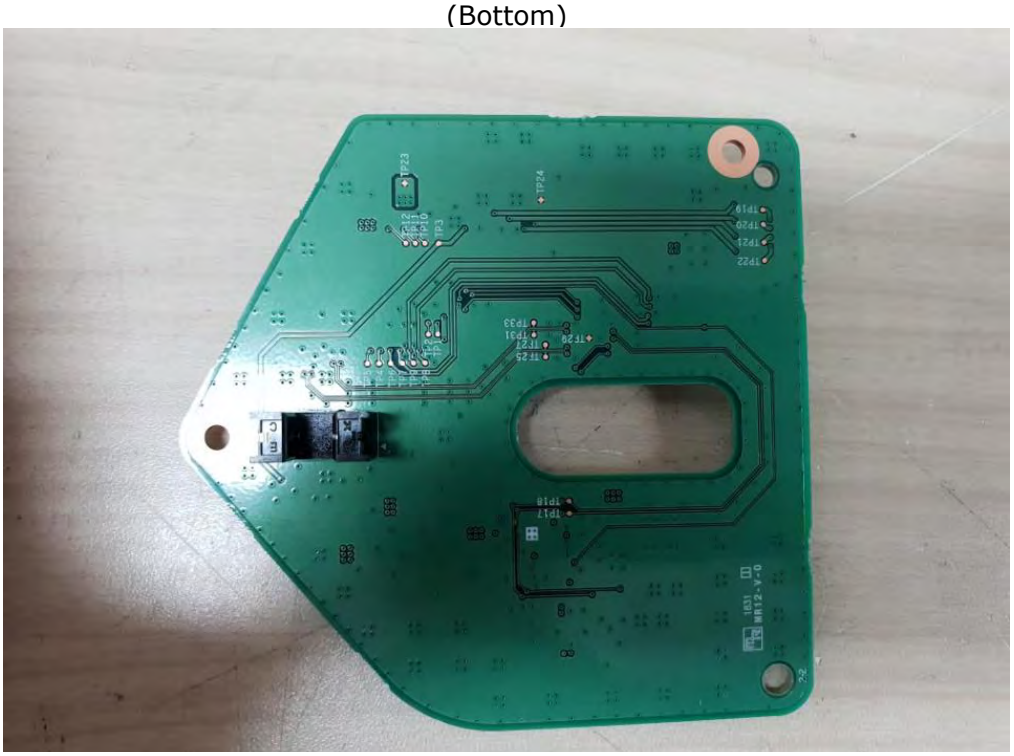
(Bottom)

EUT Internal View – Board 5

(Top)



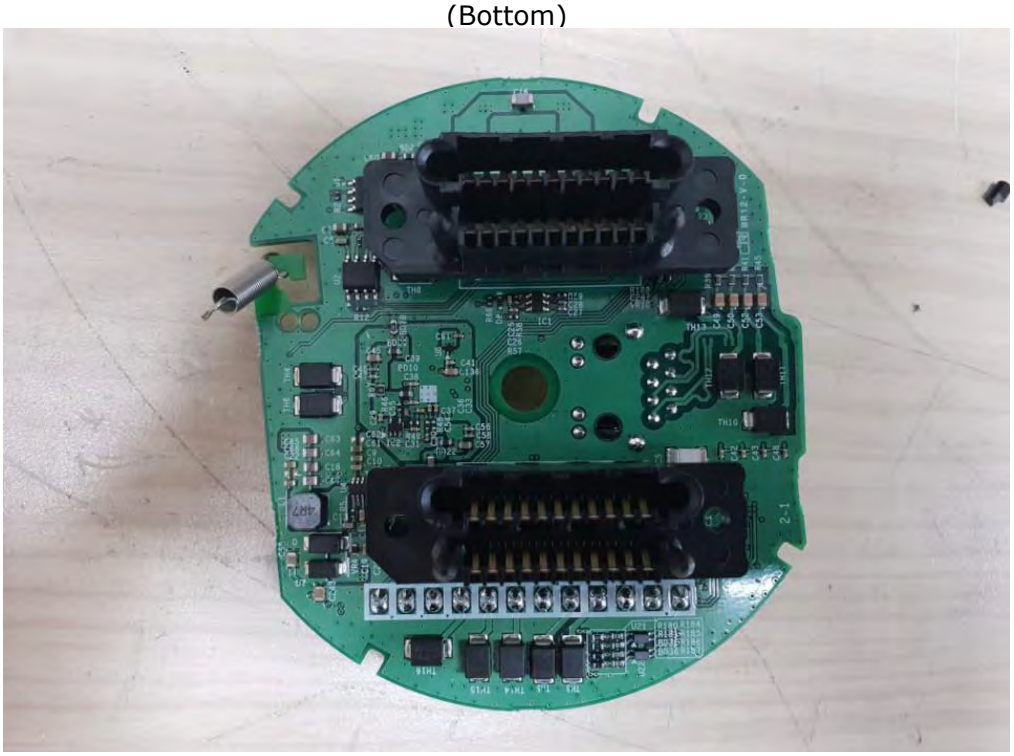
(Bottom)



EUT Internal View – Board 6

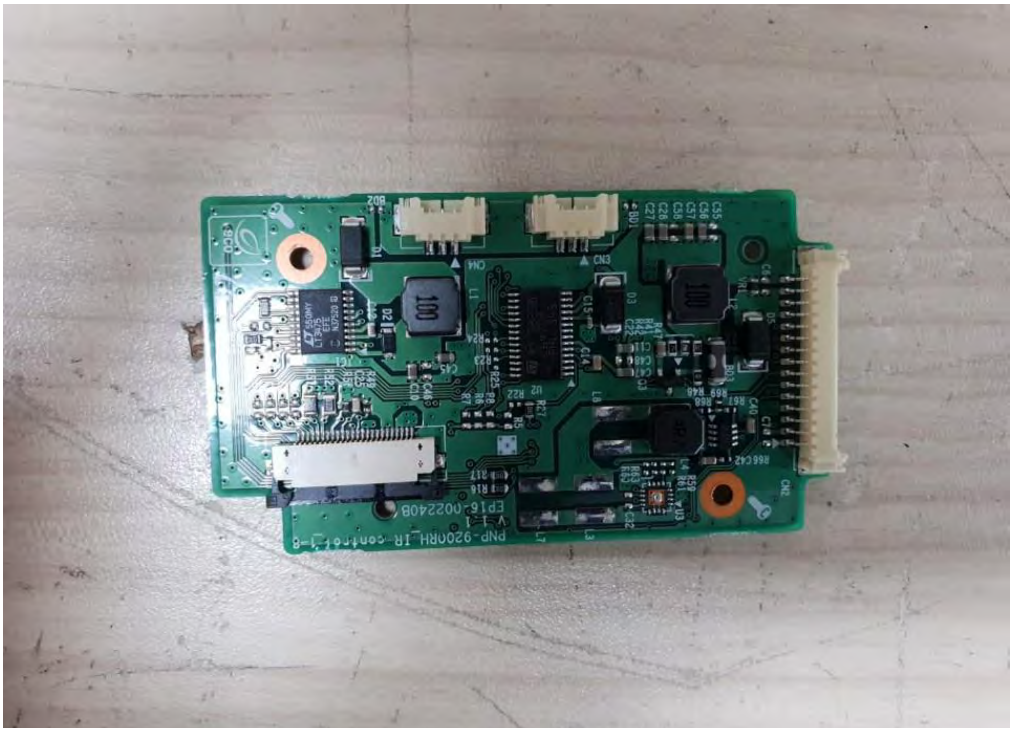
(Top)

(Bottom)

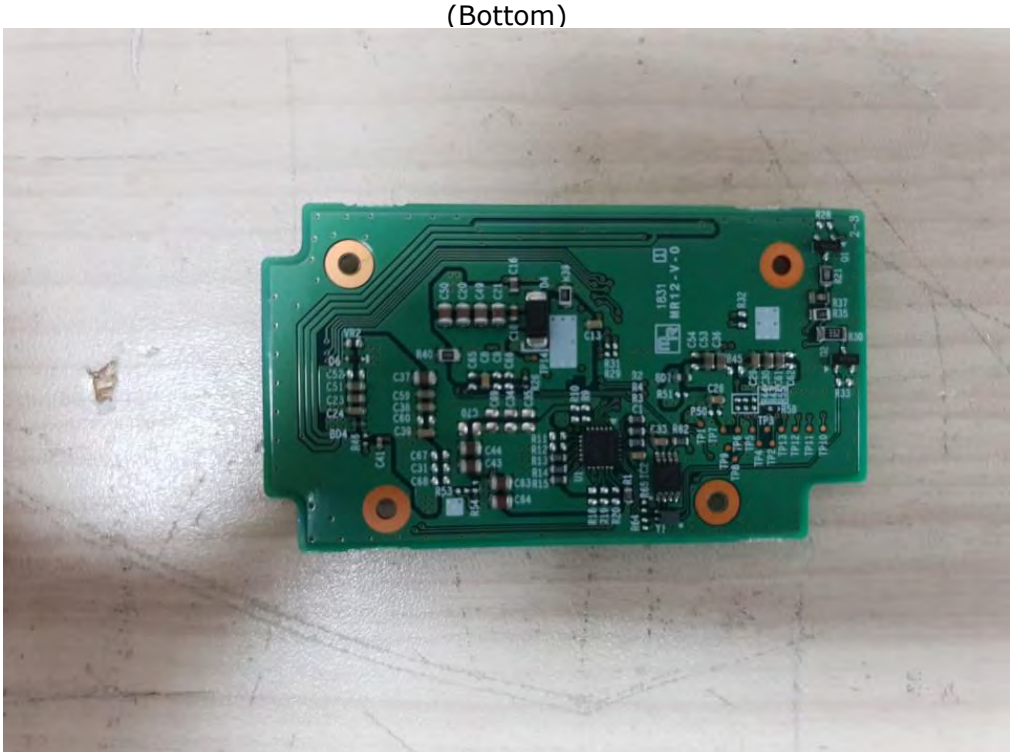


EUT Internal View – Board 7

(Top)

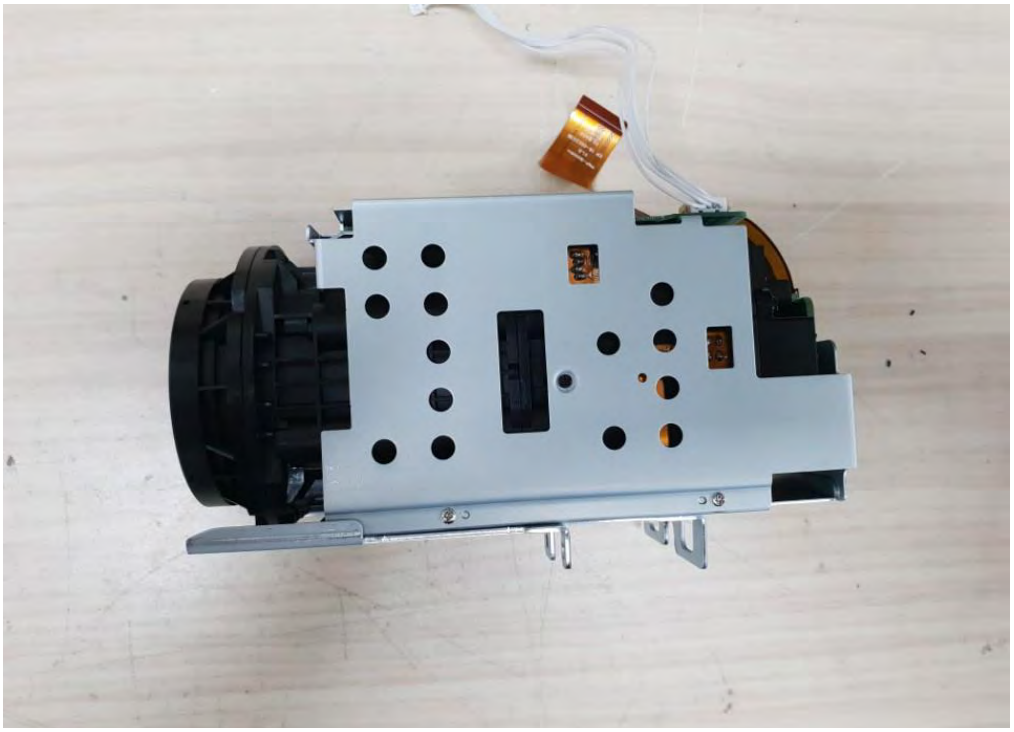


(Bottom)

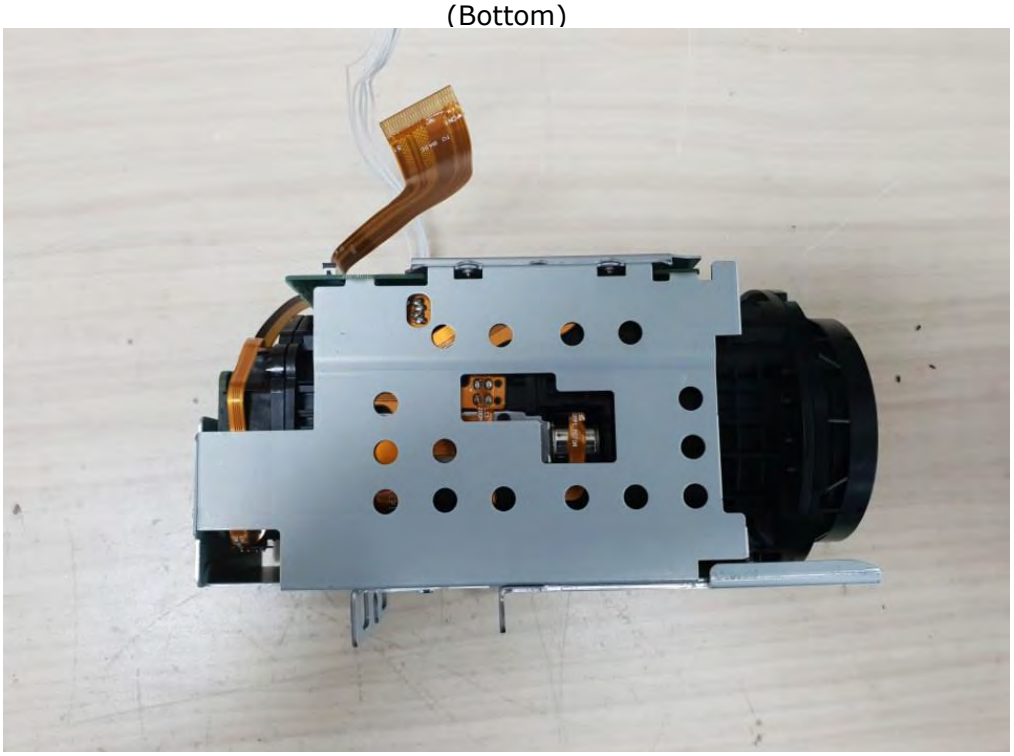


EUT Internal View – Lens

(Top)



(Bottom)



Label and Location

NETWORK CAMERA

Model No : XNP-6550RH

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

Made in China

CE