



# EMC TEST REPORT For CE

Test Report No. : KES-E1-16T0592-R1  
Date of Issue : Sep, 27, 2017  
Product name : NETWORK CAMERA  
Model/Type No. : XNP-6370RHP  
Variant Model : -  
Applicant : Hanwha Techwin Co., Ltd.  
Applicant Address : 1204, Changwon-daero, Seongsan-gu, Changwon-si,  
Gyeongsangnam-do, Korea  
Manufacturer : Hanwha Techwin(Tianjin) Co., Ltd.  
Manufacturer Address : No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA,  
Tianjin, 300385, People's Republic of China  
Date of Receipt : Nov, 14, 2016  
Test date : Nov, 18, 2016 ~ Nov, 21, 2016  
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Jin Bae Lee  
EMC Test Engineer

Reviewed by

Dong-Hun, Jang  
EMC Technical Manager

**KES Co., Ltd.**

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**REPORT REVISION HISTORY**

Date	Test Report No.	Revision History
Nov. 25, 2016	KES-E1-16T0592	Issued
Sep. 27, 2017	KES-E1-16T0592-R1	Standard Revision

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## 1.0 General Product Description

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

<b>Video</b>	
Imaging Device	1/1.9" 2.42M CMOS
Total Pixels	1952(H) X 1241(V) approx 2.42M pixels
Effective Pixels	1937(H) X 1097(V) approx 2.12M pixels
Scanning System	Progressive Scan
Min. Illumination	Color : 0.1 lux (1/30sec, F1.5, 50IRE), 0.0017Lux(2sec, F1.5, 50IRE) Color : 0.05 lux (1/30sec, F1.5, 30IRE), 0.00083Lux(2sec, F1.5, 30IRE) 0 Lux (IR LED On)
S / N Ratio	50dB
Video Out	CVBS : 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P), for installation
<b>Lens</b>	
Focal Length (Zoom Ratio)	6mm ~ 222mm (37x)
Max. Aperture Ratio	F1.5 (Wide) ~ F4.6 (Tele)
Angular Field of View	H : 59.3°(Wide) ~ 1.9°(Tele) / V : 35.8°(Wide) ~ 1.1°(Tele)
Min. Object Distance	1.5m (3.28ft)
Focus Control	AF / One-Shot AF / Manual
Lens Type	DC Auto Iris
Mount Type	Board-in type
<b>Pan / Tilt / Rotate</b>	
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
Rotate Range	-
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
<b>Operational</b>	
IR LED	2 ea
Viewable Length	350m
Camera Title	Off / On (Displayed up to 15 characters per line) - W/W : English/Numeric/Special Characters - Korea : English/Numeric/Special/Korean Characters - China : English/Numeric/Special/Chinese Characters - Common : Multi-line (Max 6), Color (Grey/Green/Red/Blue/Black/White), Transparency, Auto Scale by Resolution
Day & Night	Auto (ICR) / Color / B/W
Backlight Compensation	Off / BLC / WDR
Wide Dynamic Range	120dB
Contrast Enhancement	SSDR (Off / On)
Digital Noise Reduction	SSNR(2D+3D Noise Filter) (Off / On)
Defog	Auto/Manual/Off
Motion Detection	Yes(4ea, Polygonal zones)
Privacy Masking	Off / On (16ea, rectangular zones) - Color : Grey/Green/Red/Blue/Black/White - Zoom ratio option for mask mode
Gain Control	Off / Low / Medium / High

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White Balance	ATW / AWC / Manual / Indoor / Outdoor / Mercury / Sodium
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2 ~ 1/12,000sec)
Digital Zoom	16x , area zoom function support digital zoom 2x
Rotate Image	Flip : On/Off Mirror : On/Off
Intelligent Video Analytics	Tampering, Virtual Line, Enter/Exit, Appear / Disappear, Audio Detection
Alarm I/O	Input 4ea / Output 2ea (Relay type)
Remote Control Interface	RS-485/422
RS-485 Protocol	Samsung-T/E, Pelco-D/P, Panasonic, Honeywell, AD, Vicon, GE, BOSCH
Alarm Triggers	Alarm Input, Motion Detection, Intelligent Video Analytics, Network Disconnect
Alarm events	<ul style="list-style-type: none"><li>• File upload via FTP, E-Mail</li><li>• Notification via E-Mail</li><li>• local storage(SD/SDHC) or NAS recording at Event Triggers</li><li>• External output</li><li>• PTZ preset</li></ul>
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
<b>Network</b>	
Ethernet	RJ-45 (10/100BASE-T) SFP (*only using SBP-302HF)
Video Compression Format	H.265/H.264 (MPEG-4 Part 10/AVC) : Main/Baseline/High , Motion JPEG
Resolution	1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x450, 720x576, 640x480, 640x360, 320x240, 320x180
Max. Framerate	H.265/H.264 : Max. 60fps at all resolutions Motion JPEG : Max. 30fps at all resolutions
Smart Codec	Manual Mode (area-based : 5EA)
Video Quality Adjustment	H.264/H.265 : Target Bitrate Level Control MJPEG : Target Bitrate Level Control
Bitrate Control Method	H.264/H.265 : CBR or VBR, with WiseStream MJPEG : 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
Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access Log 802.1X Authentication (EAP-TLS, EAP-LEAP)

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Streaming Method	Unicast / Multicast
Max. User Access	15 Users at Unicast Mode
Edge Storage	SD/SDHC/SDXC(up to 128 G) - motion Images recorded in the SD/SDHC/SDXC memory card can be downloaded. NAS(Network Attached Storage) Local PC for Instant Recording
Application Programming Interface	ONVIF Profile S/G SUNAPI(HTTP API) SVNP 1.2 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 10.9, 10.10, 10.11 [Plug-in Free Webviewer] Supported Browser: Google Chrome, MS Edge Support Codec : Video-H.264, MJPEG (Max. 1M 15fps) [Plug-in Webviewer] Supported Browser : MS Explorer 11, Mozilla Firefox, Apple Safari 9 ※ Mac OS X only
Central Management Software	SmartViewer, SSM
<b>Environmental</b>	
Operating Temperature / Humidity	-50°C ~ +55°C (-58°F ~ +131°F) / Less than 90% RH
Storage Temperature / Humidity	-50°C ~ +60°C (-22°F ~ +140°F) / Less than 90% RH
Ingress Protection	IP66
Vandal Resistance	IK10
<b>Electrical</b>	
Input Voltage / Current	AC24V
Power Consumption	90W(Heater On, IR On), 60W(Heater Off, IR On)
<b>Mechanical</b>	
Color / Material	black(head) + ivory(body) / Aluminum, Plastic
Dimension (WxHxD)	Ø236.9 x 407.7
Weight	7.1kg

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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 ☐ 220 Vac ☐ 230 Vac ☐ 240 Vac ☒ 24 Vac ☐ 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-6370RHP	-	Hanwha Techwin(Tianjin) Co., Ltd.	E.U.T

## 1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
NOTEBOOK	NT63025J	JK9091EF400432X	Samsung Electronics Suzhou Computer Co., Ltd.	-
NOTEBOOK ADAPTOR	A13-040N2A	CN60BA4400313AD 0N843KO243	Chicony Power Technology (suzhou)Co., Ltd.	-
SMART PHONE	LG-H791	-	LG Electronics	-
CONTROLLER	SPC-1010	C50E67WG10100F	SamSung Techwin Co.,Ltd	
CONTROLLER ADAPTOR	PA-120150SN	-	-	-
ALARM	-	-	-	
SPEAKER	BR10000A CUVE	-	BEIJING EDIFIER HI-TECH GROUP.	-
SDcard	-	-	MANDO	16 GB

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## 1.6 External I/O Cabling

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	SMART PHONE	3.5 mm	1.3	U
	2 Pin	CONTROLLER	2 Pin	3.0	U
	2 Pin	ALARM	2 Pin	3.0	U
	3.5 mm	SPEAKER	3.5 mm	1.6	U
	Slot	SDcard	Slot	-	-

\* Unshielded=U, Shielded=S

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

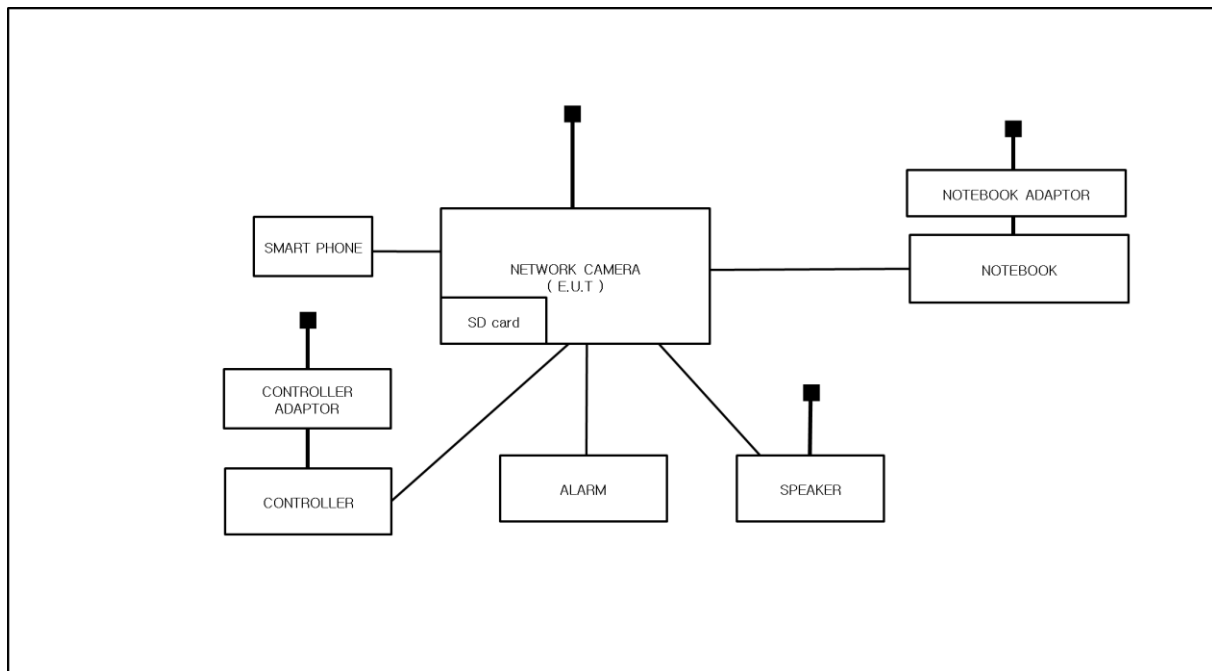
Equipment under test was operated during the measurement under the following conditions:

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

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

## 1.8 Configuration

■ AC 24 V Main  
□ DC Main









## 1.9 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less.

## 1.10 Test Facility

The measurement facility is located at 473-21 Gayeo-ro, Yeosu-si, Gyeonggi-do, 12658, Korea. The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22.

## 1.11 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3 & 10 meter Open Area Test Sites and one conducted site to perform FCC Part 15/18 measurements.	
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
KOREA	MSIP	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KR0100
Canada	IC	3 & 10 meter Open Area Test Sites and one conducted site	 4769B-1
Europe	CE	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	
International	KOLAS	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	



## 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 55032:2012

☒ 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



☐ **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 C63.4-2014

☐ Class A

☐ Class B

☐ **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

Nov, 19, 2016

### Test Location

Electro wave Shieldroom

### Test Equipment

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

### Test Conditions

Temperature: 19,2 °C  
Relative Humidity: 43,6 %

### 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

Nov, 19, 2016

### Test Location

Electro wave Shieldroom

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test Receiver	ESR3	R&S	101783	05, 03, 2017
<input checked="" type="checkbox"/>	LISN	ENV216	R&S	101137	02, 04, 2017
<input checked="" type="checkbox"/>	LISN	ENV216	R&S	101786	05, 02, 2017
<input checked="" type="checkbox"/>	8-Wire ISN CAT3	CAT3 8158	Schwarzbeck Mess	8158-0019	04, 01, 2017
<input checked="" type="checkbox"/>	8-Wire ISN CAT5	CAT5 8158	Schwarzbeck Mess	8158-0030	04, 01, 2017
<input type="checkbox"/>	8-Wire ISN CAT6	NTFM 8158	Schwarzbeck Mess	8158-0029	08, 11, 2017
<input checked="" type="checkbox"/>	Electro wave Shieldroom	-	SEMITEC	-	-
<input checked="" type="checkbox"/>	EMI Test S/W	EMC32	R&S	9.12.00	-

### Test Conditions

Temperature: 19,2 °C  
Relative Humidity: 43,6 %

### Frequency Range of Measurement

150 kHz to 30 MHz

### Instrument Settings

IF Band Width: 9 kHz

### Test Results

The requirements are:

- ☒ PASS  
☐ NOT PASS  
☐ NOT APPLICABLE

### Remarks

See Appendix A for test data.



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

### Test Date

Nov, 19, 2016

### Test Location

☐ Open Area Test Site #1

☒ Open Area Test Site #2

### Test Equipment

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

### Test Conditions

Temperature: 19,3 °C

Relative Humidity: 43,6 %

### 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

Nov, 18, 2016

### Test Location

Semi Anechoic Chamber #2

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test Receiver	ESU26	R&S	100552	04, 24, 2017
<input checked="" type="checkbox"/>	Broadband Coaxial Preamplifier	BBV 9718	Schwarzbeck Mess - Elektronik	9718-246	10, 23, 2016
<input checked="" type="checkbox"/>	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	05, 07, 2017
<input checked="" type="checkbox"/>	Semi Anechoic Chamber #2	-	SEMITEC	-	-
<input checked="" type="checkbox"/>	Antenna Mast	-	AUDIX	-	-
<input checked="" type="checkbox"/>	Turn Table	-	AUDIX	-	-
<input checked="" type="checkbox"/>	EMI Test S/W	e3	AUDIX	8.083b	-

### Test Conditions

Temperature: 17,4 °C

Relative Humidity: 47,0 %

### 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

Nov, 21, 2016

### Test Location

Electro wave Shieldroom

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	AC Source	ACS 500 N	EM TEST	V1024106760	08, 08, 2017
<input checked="" type="checkbox"/>	Digital Power Analyzer	DPA 500 N	EM TEST	V1024106759	08, 08, 2017
<input checked="" type="checkbox"/>	EMI Test S/W	dpa.control	EM TEST AG	5.4.8.0	-

### Test Conditions

Temperature: 17,2 °C

Relative Humidity: 43,6 %

### 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

Nov, 21, 2016

### Test Location

Electro wave Shieldroom

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	AC Source	ACS 500 N	EM test	V1024106760	08, 08, 2017
<input checked="" type="checkbox"/>	Digital Power Analyzer	DPA 500 N	EM test	V1024106759	08, 08, 2017
<input checked="" type="checkbox"/>	EMI Test S/W	dpa.control	EM TEST AG	5.4.8.0	-

### Test Conditions

Temperature: 17,2 °C

Relative Humidity: 43,6 %

### 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 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

Nov, 21, 2016

### 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	ESS05X4620	02, 24, 2017
<input checked="" type="checkbox"/>	HCP	-	Noise Ken	-	-
<input checked="" type="checkbox"/>	VCP	-	Noise Ken	-	-
<input checked="" type="checkbox"/>	EMS Test S/W	-	-	-	-

### Test Conditions

Temperature: 17,2 °C  
Relative Humidity: 43,6 %  
Atmospheric Pressure: 100,5 kPa

### 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

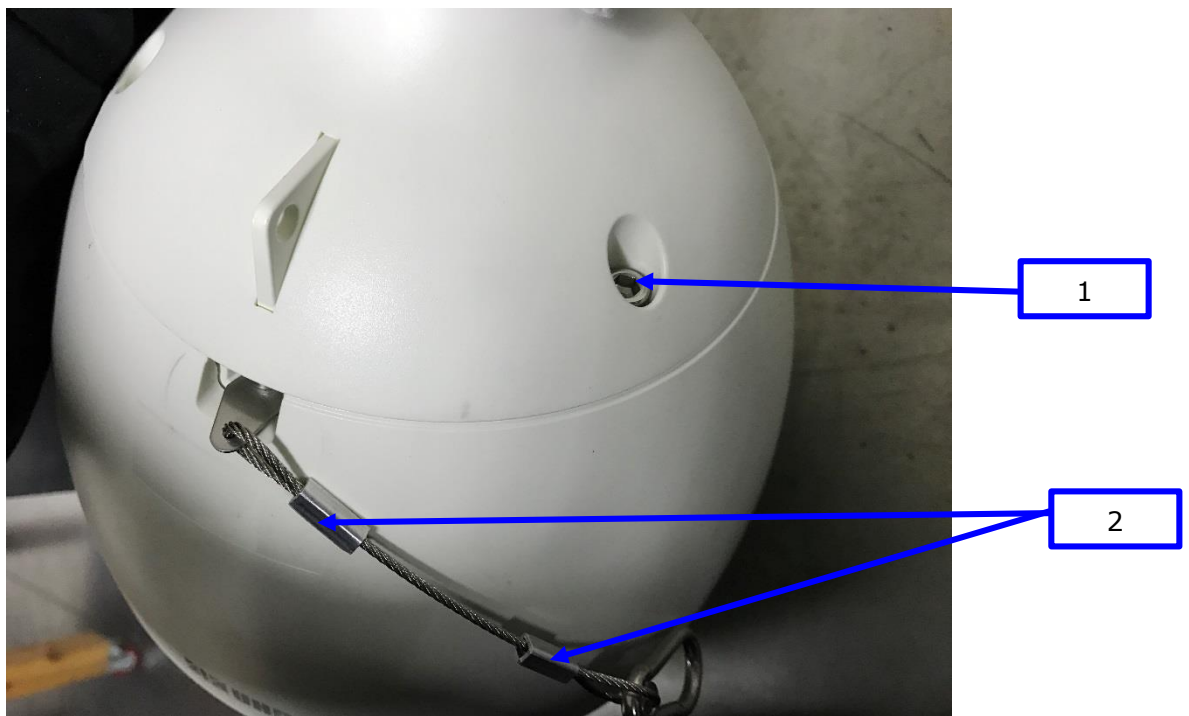
Discharge Voltage:	<b>Contact</b> <input type="checkbox"/> 2 kV <input type="checkbox"/> 4 kV <input checked="" type="checkbox"/> 6 kV <input type="checkbox"/> 8 kV <input type="checkbox"/> 15 kV	<b>Air</b> <input checked="" type="checkbox"/> 2 kV <input checked="" type="checkbox"/> 4 kV <input type="checkbox"/>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

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

Required Performance Criteria: ☒ Complied

**Location of Discharge:**

Air
Contact



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 The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

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Test report No.:

KES-E1-16T0592-R1

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**Test Date**

## Indirect Discharge

No.	Test Point	Discharge Method	Performance Criteria	Results	Remarks
1	HCP Contact	Contact Discharge	Complied	Complied	-
2	VCP Contact	Contact Discharge	Complied	Complied	-

## Direct Discharge

No.	Test Point	Discharge Method	Performance Criteria	Results	Remarks
1	Screw	Contact Discharge	Complied	Complied	-
2	limk	Contact Discharge	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.

## 3.2 Radiated Electric Field Immunity

### Reference Standard

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

### Test Date

Nov, 20, 2016

### Test Location

EMS-RS: ☐ Semi Anechoic Chamber #1 ☒ Semi Anechoic Chamber #2

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	SIGNAL GENERATOR	SMB 100A	Rohde & Schwarz	108252	08, 08, 2017
<input checked="" type="checkbox"/>	BROADBAND AMPLIFIER	BBA100	Rohde & Schwarz	101239	08, 08, 2017
<input checked="" type="checkbox"/>	BROADBAND AMPLIFIER	100S1G6M1	AR	579931	08, 08, 2017
<input checked="" type="checkbox"/>	POWER METER	NRP2	Rohde & Schwarz	103475	08, 08, 2017
<input checked="" type="checkbox"/>	AVG POWER SENSOR	NRP-Z91	Rohde & Schwarz	102526	08, 08, 2017
<input checked="" type="checkbox"/>	AVG POWER SENSOR	NRP-Z91	Rohde & Schwarz	102527	08, 08, 2017
<input checked="" type="checkbox"/>	Stacked Log.-Per.Antenna	STLP 9128 D	Schwarzbeck	9128D038	-
<input checked="" type="checkbox"/>	DIRECTIONAL COUPLER	KYDC-D1070-DX40	Kytelecom Co., Ltd.	KY150001	08, 08, 2017
<input checked="" type="checkbox"/>	Semi Anechoic Chamber #2	-	SEMITEC	-	-
<input checked="" type="checkbox"/>	EMS Test S/W	EMC32	R&S	9.12.00	-

### Test Conditions

Temperature: 19,7 °C  
Relative Humidity: 44,2 %  
Atmospheric Pressure: 101,0 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

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.

### 3.3 Electrical Fast Transients/Bursts

#### Reference Standard

EN 61000-4-4:2012

#### Test Date

Nov, 21, 2016

#### Test Location

EMS-EFT: Electro wave Shieldroom

#### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	Ultra Compact Simulator	UCS 500 N5	EM TEST	V0936105120	06, 27, 2017
<input checked="" type="checkbox"/>	Capacitive Coupling Clamp	HFK	EM TEST	070925	06, 27, 2017
<input checked="" type="checkbox"/>	Motor Variac	MV2616	EM TEST	V0936105123	06, 27, 2017
<input checked="" type="checkbox"/>	EMS Test S/W	iec.control	EM TEST AG	5.0.9.0	-

#### Test Conditions

Temperature: 17,2 °C  
Relative Humidity: 43,6 %  
Atmospheric Pressure: 100,5 kPa

#### Test Specifications

Pulse Amplitude & Polarity:  
(AC Power Lines) ☐ ± 1.0 kV ☒ ± 2.0 kV  
☐ ± 4.0 kV

Pulse Amplitude & Polarity:  
(Other supply / Signal Lines) ☐ ± 0.5 kV ☒ ± 1.0 kV  
☐ ± 2.0 kV

Burst Period: ☒ 300 ms ☐ 2 s

Repetition Rate: ☐ 5 kHz ☒ 100 kHz

Duration of Test Voltage: ☒ ≥ 1 min

Required Performance Criteria: ☒ Complied

**Test Data**☒ 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	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

Nov, 21, 2016

### Test Location

EMS-Surge: Electro wave Shieldroom

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	Ultra Compact Simulator	UCS 500 N5	EM TEST	V0936105120	06, 27, 2017
<input checked="" type="checkbox"/>	Motor Variac	MV2616	EM TEST	V0936105123	06, 27, 2017
<input type="checkbox"/>	CDN	CNV 508N1	EM TEST	P1551168979	04, 27, 2017
<input type="checkbox"/>	CDN	CNV 504N	EM TEST	V0936105121	06, 27, 2017
<input checked="" type="checkbox"/>	CDN	CNV 508T5	EM TEST	P1549168422	04, 27, 2017
<input checked="" type="checkbox"/>	EMS Test S/W	iec.control	EM TEST AG	5.0.9.0	-

### Test Conditions

Temperature: 17,2 °C  
Relative Humidity: 43,6 %  
Atmospheric Pressure: 100,5 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

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Test report No.:

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**Other supply / Signal Lines**

Source Impedance: 42 ohm for common mode

Surge Amplitude: Common Mode  
☒ (0,5 / 1,0) kVNumber of Surges: ☒ 5 SurgesPolarity: ☒ Positive & NegativeRepetition Rate: ☒ 1 surge per min ☐ 1 surge per 30 sec.Required Performance Criteria: ☒ Complied**Test Data**☒ Line to Line – Differential Mode

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

☐ 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	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**

Nov, 21, 2016

**Test Location**

EMS-CS: Electro wave Shieldroom

**Test Equipment**

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	Continuous Wave Generator	CWS 500N1	EM TEST	V0936105119	08, 08, 2017
<input checked="" type="checkbox"/>	6 dB Attenuator	ATT6	EM TEST	1208-34	08, 08, 2017
<input checked="" type="checkbox"/>	CDN	CDN-M2/M3N	EM TEST	0909-06	08, 08, 2017
<input type="checkbox"/>	CDN	CDN-T2-RJ11	EM TEST	0909-07	08, 08, 2017
<input type="checkbox"/>	CDN	CDN-T4	EM TEST	0909-08	08, 08, 2017
<input type="checkbox"/>	CDN	CDN-T8RJ45	EM TEST	0909-09	08, 08, 2017
<input type="checkbox"/>	CDN	CDN-AF2	EM TEST	0909-10	08, 08, 2017
<input type="checkbox"/>	CDN	CDN-AF4	EM TEST	0909-11	08, 08, 2017
<input checked="" type="checkbox"/>	EM Injection Clamp	EM 101	Liithi	35943	02, 04, 2017
<input checked="" type="checkbox"/>	EMS Test S/W	icd.control	EM TEST AG	5.3.7	-

**Test Conditions**

Temperature: 17,2 °C  
Relative Humidity: 43,6 %  
Atmospheric Pressure: 100,5 kPa

### Test Specifications

Frequency range: ☒ 150 kHz to 100 MHz ☐ 10 kHz to 30 MHz  
☐ 150 kHz to 230 MHz ☐ 10 kHz to 100 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

### Test Data

☒ 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	EM Injection Clamp	Complied
Alarm	EM Injection 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

Nov, 21, 2016

### Test Location

EMS-Voltage dip: Electro wave Shieldroom

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	Ultra Compact Simulator	UCS 500 N5	EM TEST	V0936105120	06, 27, 2017
<input checked="" type="checkbox"/>	Motor Variac	MV2616	EM TEST	V0936105123	06, 27, 2017
<input checked="" type="checkbox"/>	EMS Test S/W	iec.control	EM TEST AG	5.0.9.0	-

### Test Conditions

Temperature: 17,2 °C  
Relative Humidity: 43,6 %  
Atmospheric Pressure: 100,5 kPa





## Test Specifications & Observations/Remarks

(Test Voltage : AC 24 V, 50 Hz)

<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 /5000	<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 /5000	<u>Complied</u>

- Voltage variations

<input checked="" type="checkbox"/> Unom + 10 %	<input checked="" type="checkbox"/> 26.4 V (ac)	<u>Complied</u>
<input checked="" type="checkbox"/> Unom - 15 %	<input checked="" type="checkbox"/> 20.4 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 Adapter.

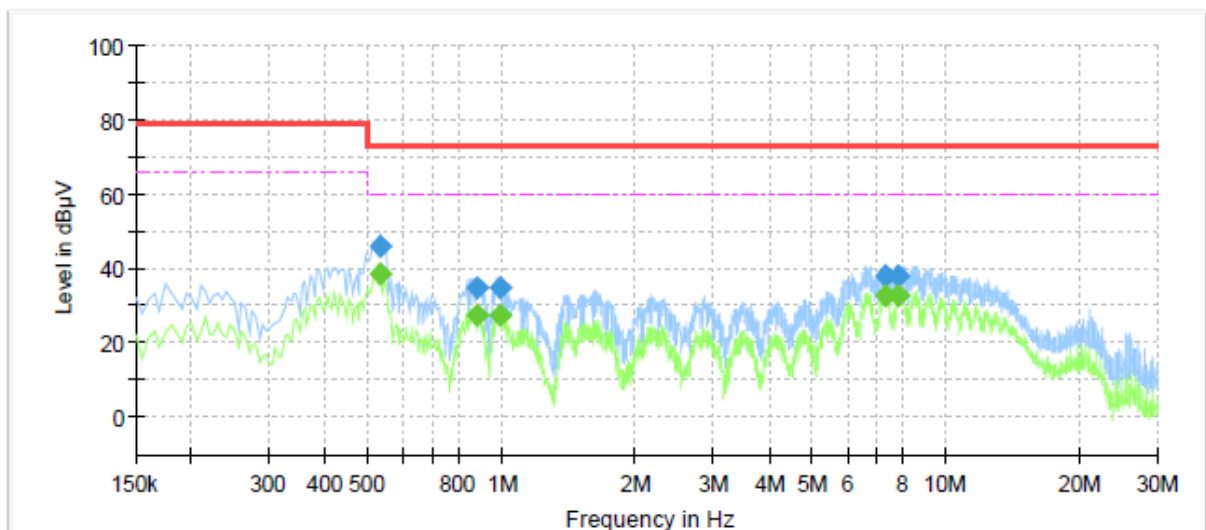
## APPENDIX A – TEST DATA

### Conducted Emissions at Mains Power Ports

[HOT]

#### Common Information

Test Description: Conducted Emission  
Model No.: XNP-6370RHP  
Mode: H  
Operator Name: KES



#### Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.530000	---	38.59	60.00	21.41	1000.0	9.000	L1	9.8
0.530000	46.06	---	73.00	26.94	1000.0	9.000	L1	9.8
0.880000	---	27.38	60.00	32.62	1000.0	9.000	L1	10.0
0.880000	34.84	---	73.00	38.16	1000.0	9.000	L1	10.0
0.990000	---	27.48	60.00	32.52	1000.0	9.000	L1	10.0
0.990000	34.80	---	73.00	38.20	1000.0	9.000	L1	10.0
7.310000	---	32.96	60.00	27.04	1000.0	9.000	L1	9.9
7.310000	38.31	---	73.00	34.69	1000.0	9.000	L1	9.9
7.865000	---	32.60	60.00	27.40	1000.0	9.000	L1	9.9
7.865000	37.89	---	73.00	35.11	1000.0	9.000	L1	9.9

#### ♦ Calculation

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

QuasiPeak / CAverage : The Final Value

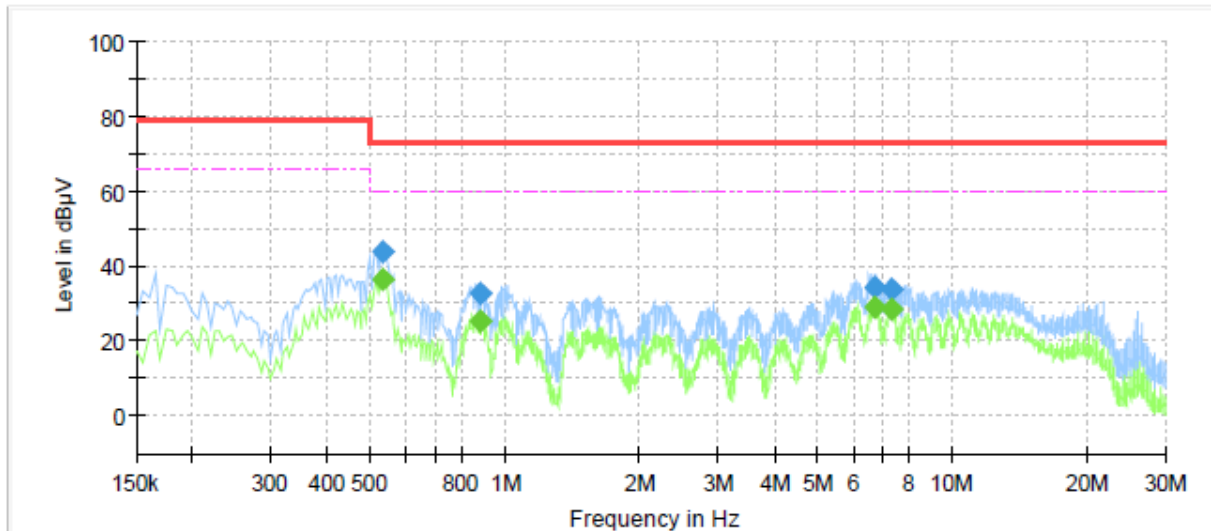
Reading Value : Not shown in the table.

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

[NEUTRAL]

## Common Information

Test Description: Conducted Emission  
Model No.: XNP-6370RHP  
Mode: N  
Operator Name: KES



## Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.530000	---	36.45	60.00	23.55	1000.0	9.000	N	9.8
0.530000	43.89	---	73.00	29.11	1000.0	9.000	N	9.8
0.880000	---	25.29	60.00	34.71	1000.0	9.000	N	10.0
0.880000	32.75	---	73.00	40.25	1000.0	9.000	N	10.0
6.745000	---	29.19	60.00	30.81	1000.0	9.000	N	9.9
6.745000	34.67	---	73.00	38.33	1000.0	9.000	N	9.9
7.315000	---	28.85	60.00	31.15	1000.0	9.000	N	9.9
7.315000	34.15	---	73.00	38.85	1000.0	9.000	N	9.9

### ◆ 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)

## Conducted Emissions at Telecommunication Ports

[10 Mbps]

### Common Information

Test Description:

Model No.:

Mode

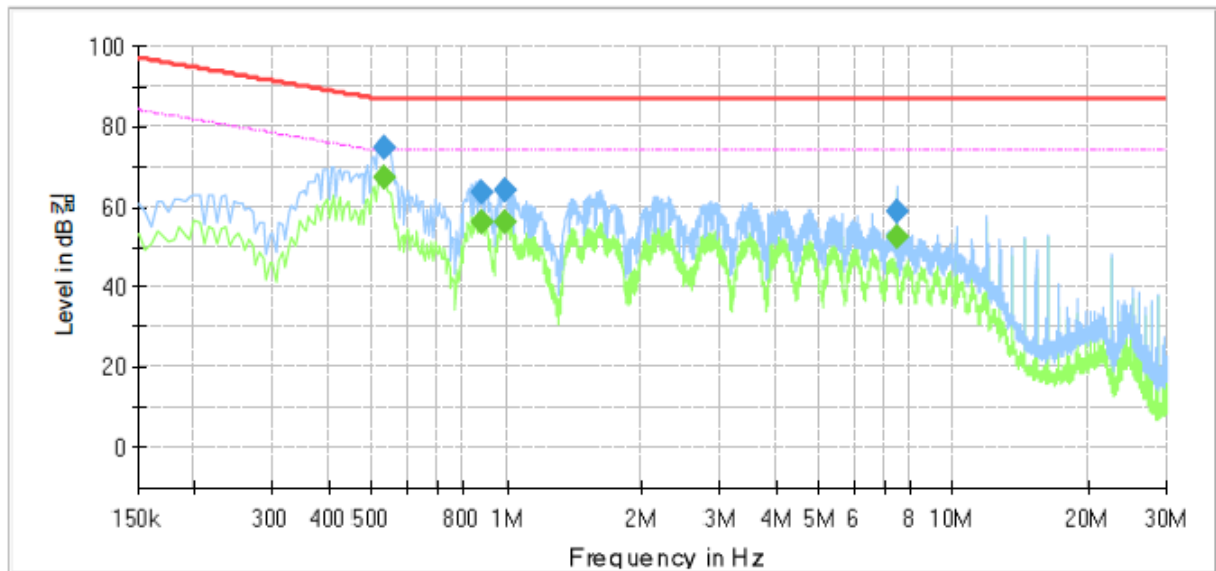
Operator Name:

Telecommunication Emission

XNP-6370RHP

10 Mbps

KES



### Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.535000	---	67.04	74.00	6.96	1000.0	9.000	Single Line	10.1
0.535000	74.53	---	87.00	12.47	1000.0	9.000	Single Line	10.1
0.880000	---	56.14	74.00	17.86	1000.0	9.000	Single Line	10.2
0.880000	63.68	---	87.00	23.32	1000.0	9.000	Single Line	10.2
0.995000	---	56.33	74.00	17.67	1000.0	9.000	Single Line	10.2
0.995000	63.83	---	87.00	23.17	1000.0	9.000	Single Line	10.2
7.500000	---	52.26	74.00	21.74	1000.0	9.000	Single Line	10.0
7.500000	58.71	---	87.00	28.29	1000.0	9.000	Single Line	10.0

#### ◆ Calculation

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

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

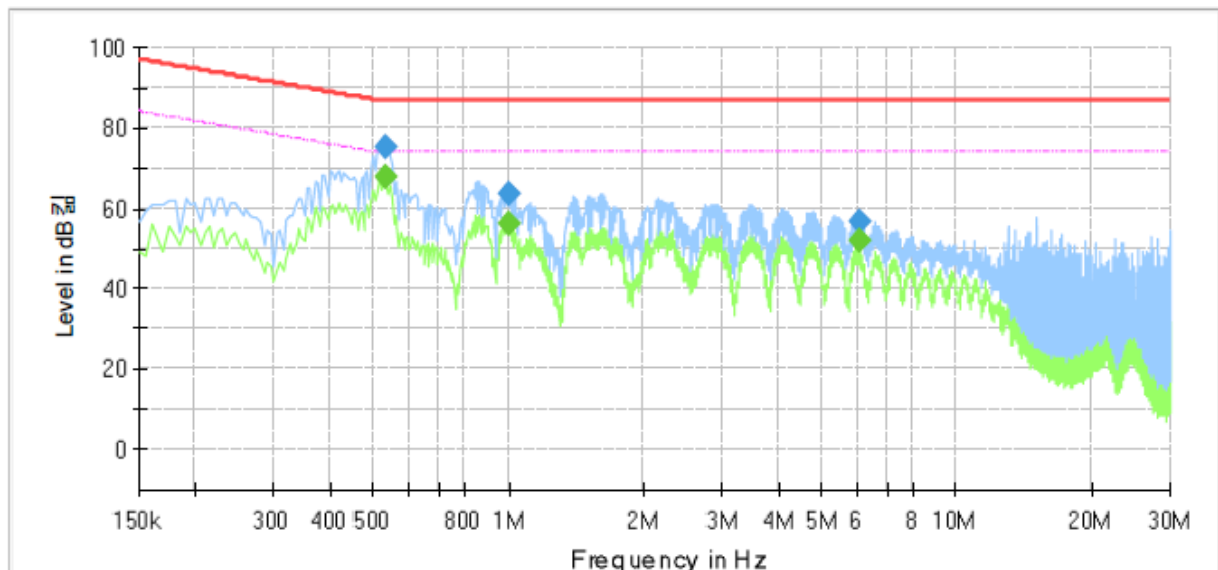
Corr. : Correction values (ISN FACTOR+ Cable Loss)



**[100 Mbps]**

## Common Information

Test Description: Telecommunication Emission  
Model No.: XNP-6370RHP  
Mode: 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)
0.530000	---	67.55	74.00	6.45	1000.0	9.000	Single Line	9.6
0.530000	75.15	---	87.00	11.85	1000.0	9.000	Single Line	9.6
1.005000	---	56.02	74.00	17.98	1000.0	9.000	Single Line	9.7
1.005000	63.62	---	87.00	23.38	1000.0	9.000	Single Line	9.7
6.060000	---	51.95	74.00	22.05	1000.0	9.000	Single Line	9.6
6.060000	56.80	---	87.00	30.20	1000.0	9.000	Single Line	9.6

### ◆ 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)



## Radiated Electric Field Emissions(Below 1 GHz)

Frequency	Amplitude	ANT	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[MHz]	[dB $\mu$ V]	Polar. (H/V)	[m]	ANT. [dB/m]	Cable [dB]	[dB $\mu$ V/m]	[dB $\mu$ V/m]	[dB]
50.33	13.10	V	1.82	13.91	2.10	29.11	40.00	10.89
260.84	10.79	H	3.33	12.62	4.81	28.22	47.00	18.78
334.59	11.18	H	3.27	14.18	5.49	30.85	47.00	16.15
425.68	11.36	V	2.24	16.06	6.49	33.91	47.00	13.09
482.63	18.90	V	2.18	16.86	6.93	42.69	47.00	4.31
557.66	13.55	H	3.72	18.37	7.47	39.39	47.00	7.61

\* H : Horizontal, V : Vertical

### ◆ Calculation

Corrected Amplitude [dB $\mu$ V] = Amplitude[dBuV] + Correction Factor [dB]

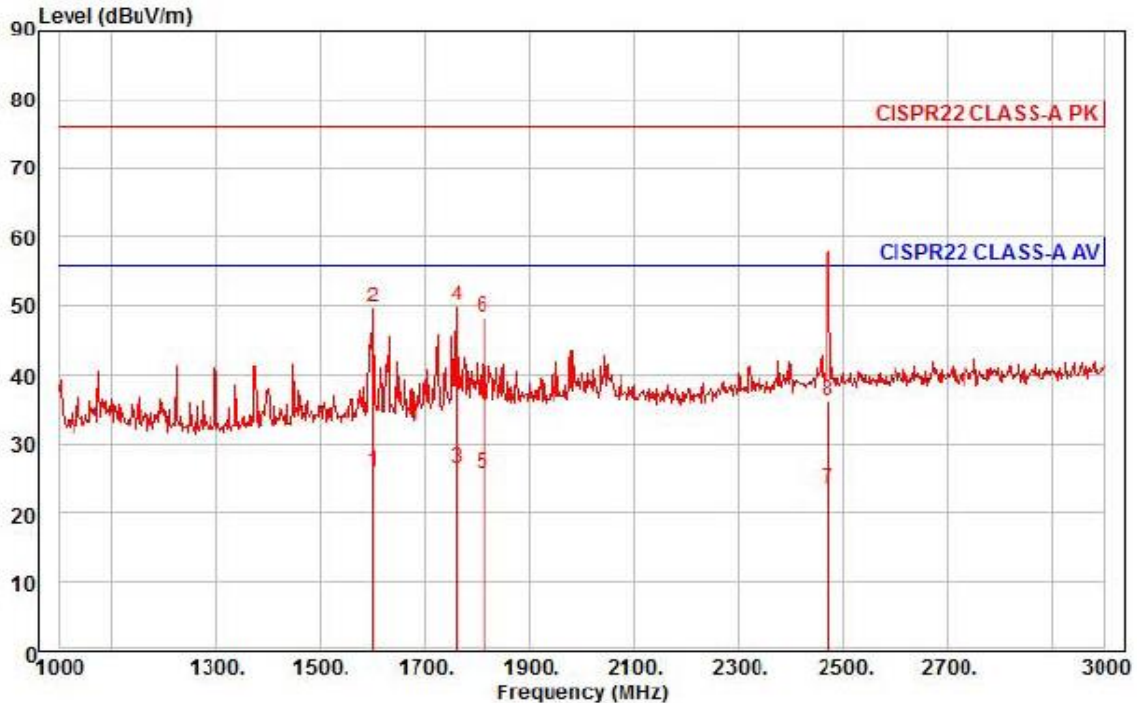
Corrected Amplitude : The Final Value, Amplitude : Reading Value,

Correction Factor : ANT FACTOR + Cable loss





## Radiated Electric Field Emissions(Above 1 GHz)



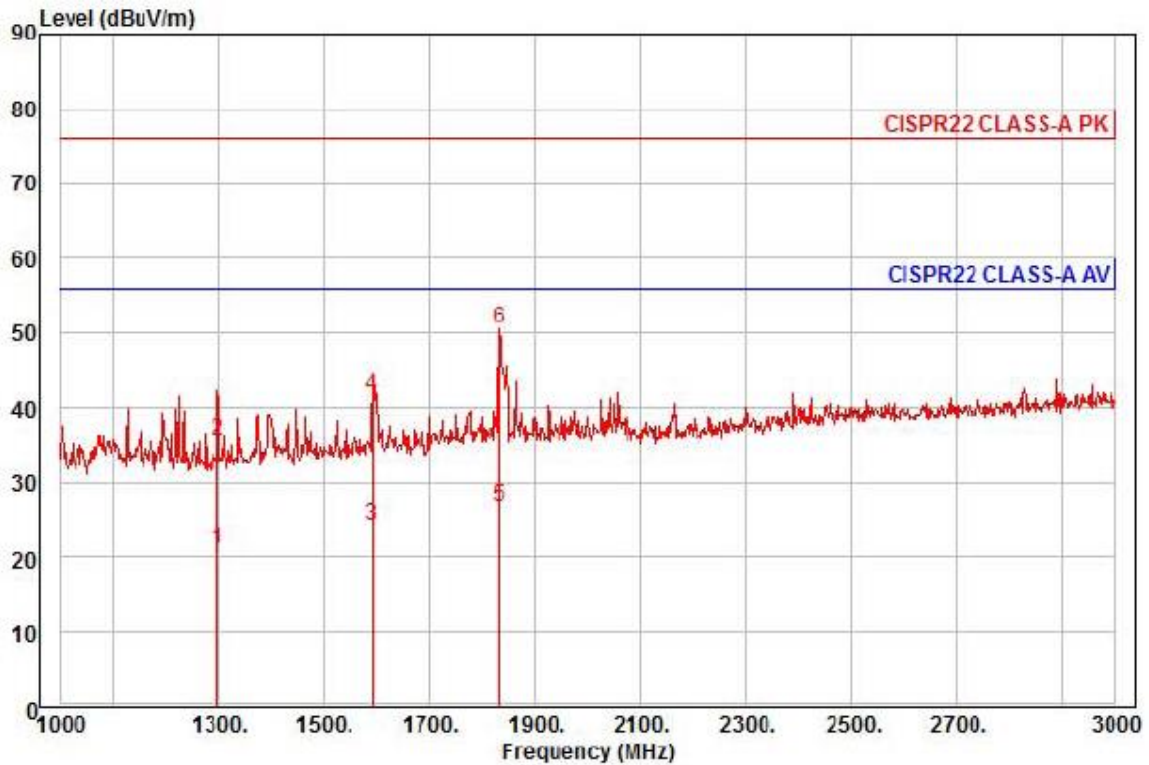
Site : chamber  
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal  
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto  
Project :  
Model : XNP-6370RHP  
Mode :  
Memo :

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1600.00	30.67	26.29	8.31	39.22	142	56.00	-29.95	horizontal	Average
2	1600.00	54.49	26.29	8.31	39.22	142	76.00	-26.13	horizontal	Peak
3 av	1760.00	30.17	26.93	8.72	39.30	116	56.00	-29.48	horizontal	Average
4 pp	1760.00	53.64	26.93	8.72	39.30	116	76.00	-26.01	horizontal	Peak
5	1812.00	29.14	27.13	8.86	39.32	152	56.00	-30.19	horizontal	Average
6	1812.00	51.60	27.13	8.86	39.32	152	76.00	-27.73	horizontal	Peak
7	2472.00	23.62	29.04	10.47	39.50	59	56.00	-32.37	horizontal	Average
8	2472.00	36.35	29.04	10.47	39.50	59	76.00	-39.64	horizontal	Peak

### ◆ Calculation

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

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



Site : chamber  
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical  
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto  
Project :  
Model : XNP-6370RHP  
Mode :  
Memo :

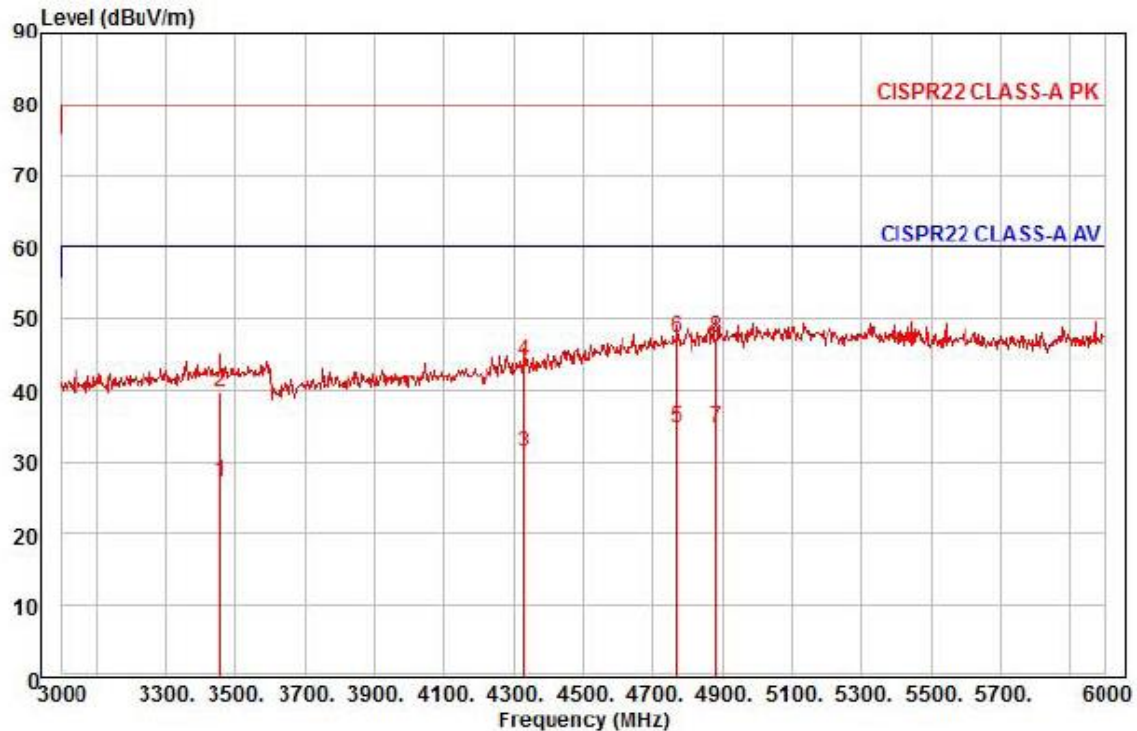
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1298.00	27.98	25.09	7.43	39.37	188	56.00	-34.87	vertical	Average
2	1298.00	42.37	25.09	7.43	39.37	188	76.00	-40.48	vertical	Peak
3	1592.00	28.94	26.26	8.29	39.22	185	56.00	-31.73	vertical	Average
4	1592.00	46.44	26.26	8.29	39.22	185	76.00	-34.23	vertical	Peak
5 av	1834.00	29.93	27.22	8.91	39.33	159	56.00	-29.27	vertical	Average
6 pp	1834.00	53.65	27.22	8.91	39.33	159	76.00	-25.55	vertical	Peak

#### ◆ Calculation

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

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





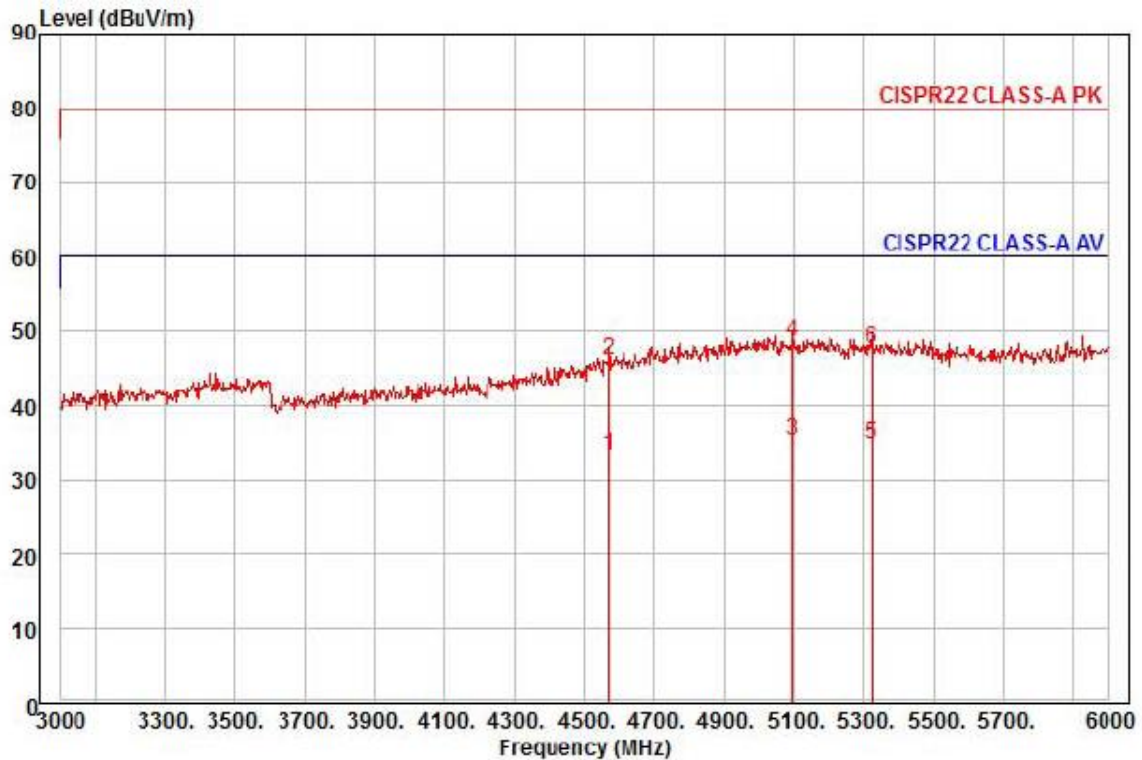
Site : chamber  
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal  
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto  
Project :  
Model : XNP-6370RHP  
Mode :  
Memo :

	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	3459.00	24.34	31.10	12.55	40.82	88	60.00	-32.83	horizontal	Average
2	3459.00	36.78	31.10	12.55	40.82	88	80.00	-40.39	horizontal	Peak
3	4329.00	24.00	33.89	14.15	40.75	198	60.00	-28.71	horizontal	Average
4	4329.00	36.81	33.89	14.15	40.75	198	80.00	-35.90	horizontal	Peak
5	4767.00	23.88	36.39	15.03	40.50	80	60.00	-25.20	horizontal	Average
6 pk	4767.00	36.52	36.39	15.03	40.50	80	80.00	-32.56	horizontal	Peak
7 pp	4881.00	23.05	37.04	15.19	40.39	29	60.00	-25.11	horizontal	Average
8	4881.00	35.55	37.04	15.19	40.39	29	80.00	-32.61	horizontal	Peak

◆ Calculation

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

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



Site : chamber  
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical  
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto  
Project :  
Model : XNP-6370RHP  
Mode :  
Memo :

	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	4569.00	24.11	35.26	14.60	40.70	360	60.00	-26.73	vertical	Average
2	4569.00	36.88	35.26	14.60	40.70	360	80.00	-33.96	vertical	Peak
3 pp	5097.00	22.65	37.52	15.51	40.43	112	60.00	-24.75	vertical	Average
4 pk	5097.00	36.06	37.52	15.51	40.43	112	80.00	-31.34	vertical	Peak
5	5322.00	22.67	37.07	15.91	40.80	160	60.00	-25.15	vertical	Average
6	5322.00	35.45	37.07	15.91	40.80	160	80.00	-32.37	vertical	Peak

◆ Calculation

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

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

**Harmonic Current Emissions and Voltage Fluctuations and Flicker****Average harmonic current results**

Hn	I <sub>eff</sub> [A]	% of Limit	Limit [A]	Result
1	231.794E-3			
2	3.439E-3			PASS
3	53.065E-3	2.564	2.07	PASS
4	687.203E-6			PASS
5	53.865E-3	5.250	1.03	PASS
6	509.075E-6			PASS
7	23.897E-3	3.448	693.00E-3	PASS
8	166.212E-6			PASS
9	14.051E-3	3.903	360.00E-3	PASS
10	258.648E-6			PASS
11	5.056E-3	1.702	297.00E-3	PASS
12	280.883E-6			PASS
13	5.018E-3	2.655	189.00E-3	PASS
14	403.561E-6			PASS
15	4.551E-3			PASS
16	425.204E-6			PASS
17	2.798E-3			PASS
18	268.638E-6			PASS
19	2.113E-3			PASS
20	420.667E-6			PASS
21	2.330E-3			PASS
22	359.574E-6			PASS
23	2.235E-3			PASS
24	317.238E-6			PASS
25	1.421E-3			PASS
26	271.846E-6			PASS
27	1.328E-3			PASS
28	214.802E-6			PASS
29	1.195E-3			PASS
30	321.285E-6			PASS
31	819.008E-6			PASS
32	241.822E-6			PASS
33	689.400E-6			PASS
34	430.345E-6			PASS
35	859.017E-6			PASS
36	263.364E-6			PASS
37	733.286E-6			PASS
38	341.908E-6			PASS
39	797.149E-6			PASS
40	221.267E-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	I <sub>eff</sub> [A]	% of Limit	Limit [A]	Result
1	232.269E-3			
2	3.756E-3			PASS
3	53.294E-3	1.159	4.60	PASS
4	883.484E-6			PASS
5	54.162E-3	2.376	2.28	PASS
6	688.504E-6			PASS
7	24.347E-3	1.581	1.54	PASS
8	708.535E-6			PASS
9	14.246E-3	1.781	800.00E-3	PASS
10	467.611E-6			PASS
11	5.561E-3	0.843	660.00E-3	PASS
12	438.173E-6			PASS
13	5.304E-3	1.263	420.00E-3	PASS
14	596.529E-6			PASS
15	5.208E-3	1.736	300.00E-3	PASS
16	548.491E-6			PASS
17	3.132E-3			PASS
18	579.952E-6			PASS
19	2.572E-3			PASS
20	670.300E-6			PASS
21	2.490E-3			PASS
22	612.557E-6			PASS
23	2.415E-3			PASS
24	568.151E-6			PASS
25	1.744E-3			PASS
26	510.058E-6			PASS
27	1.483E-3			PASS
28	525.541E-6			PASS
29	1.717E-3			PASS
30	471.964E-6			PASS
31	1.115E-3			PASS
32	498.295E-6			PASS
33	1.045E-3			PASS
34	697.082E-6			PASS
35	1.028E-3			PASS
36	399.179E-6			PASS
37	990.120E-6			PASS
38	476.581E-6			PASS
39	954.131E-6			PASS
40	413.497E-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.

**KES Co., Ltd.**

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Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea  
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www.kes.co.kr

Test report No.:

KES-E1-16T0592-R1

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## Test Data - Voltage Fluctuations

**Maximum Flicker results**

	<b>EUT values</b>	<b>Limit</b>	<b>Result</b>
Pst	0.033	1.00	PASS
Plt	0.028	0.65	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.187	4.00	PASS
Tmax [s]	0.000	0.50	PASS

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## Test Setup Photos and Configuration

### Conducted Voltage Emissions



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## Conducted Telecommunication Emissions



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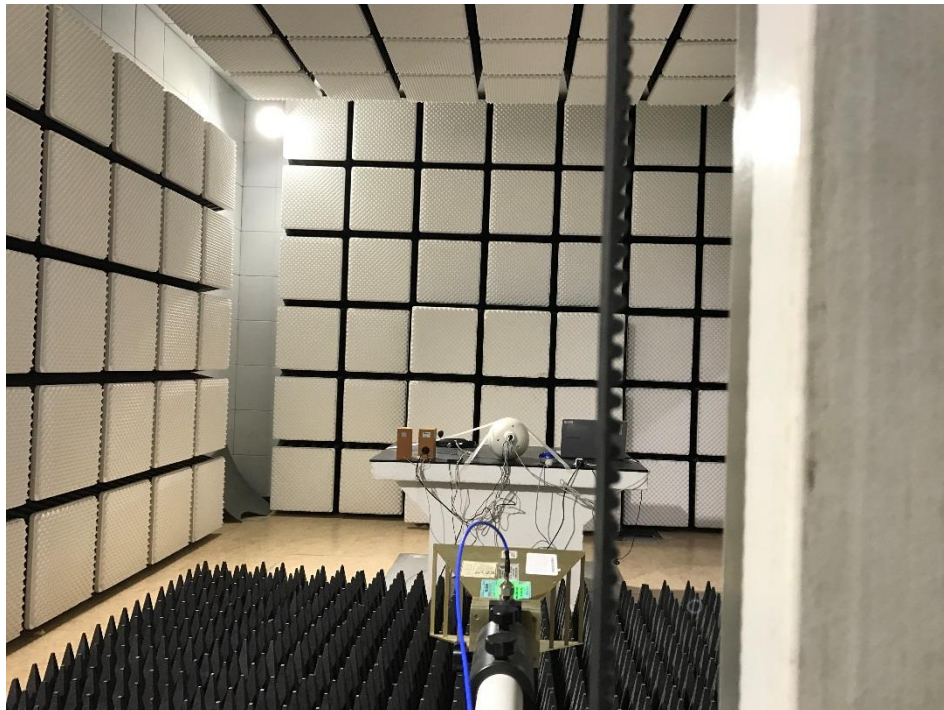
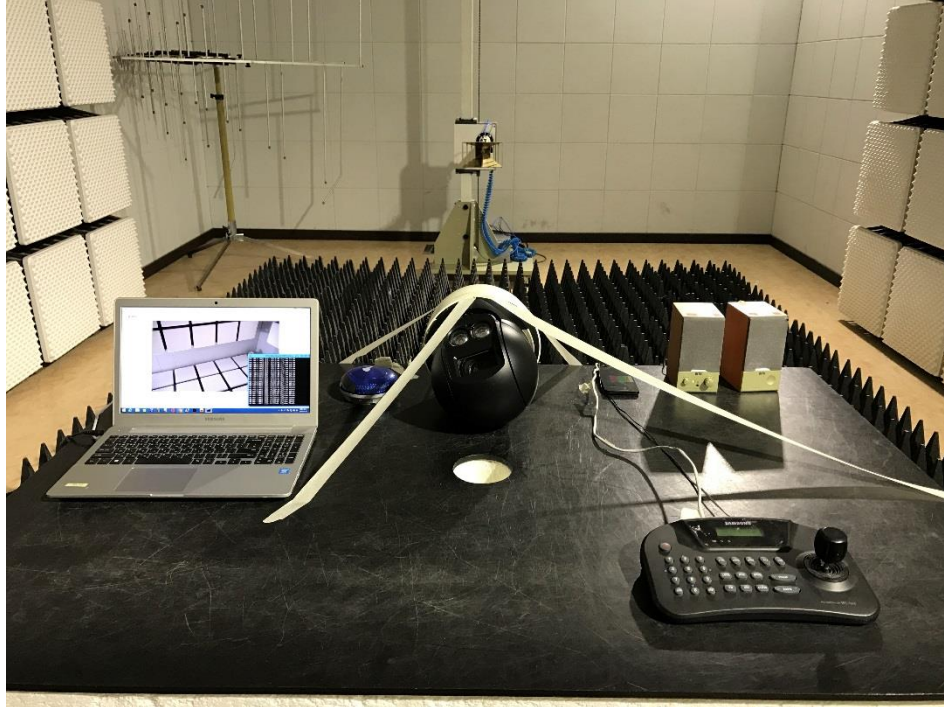
## Radiated Electric Field Emissions(Below 1 GHz)



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## Radiated Electric Field Emissions(Above 1 GHz)



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## Harmonic Current Emissions and Voltage Fluctuations and Flicker



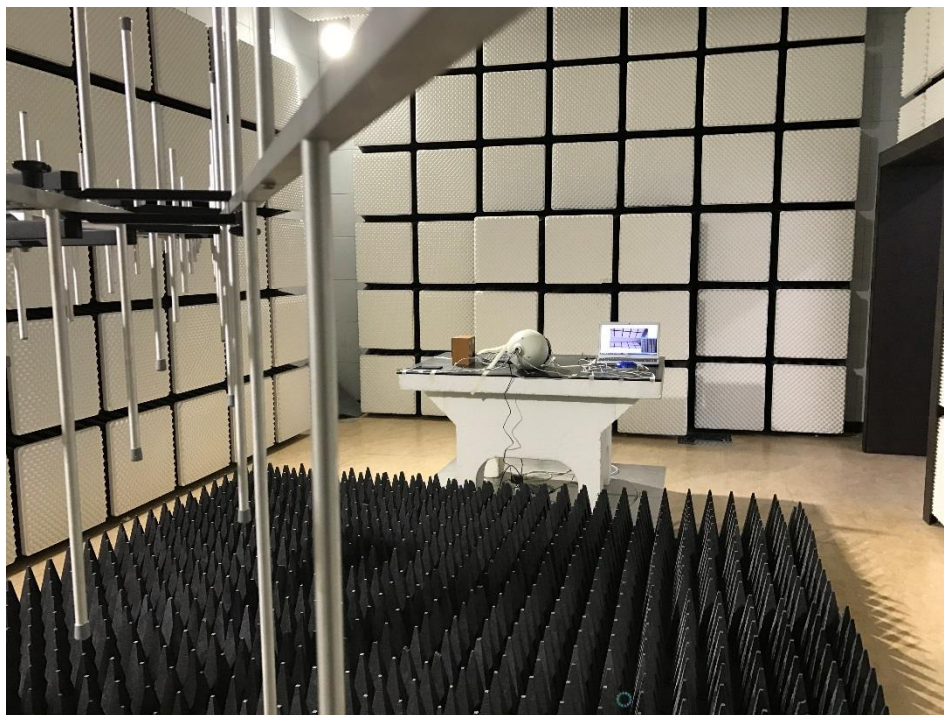
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## Electrostatic Discharge



## 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)

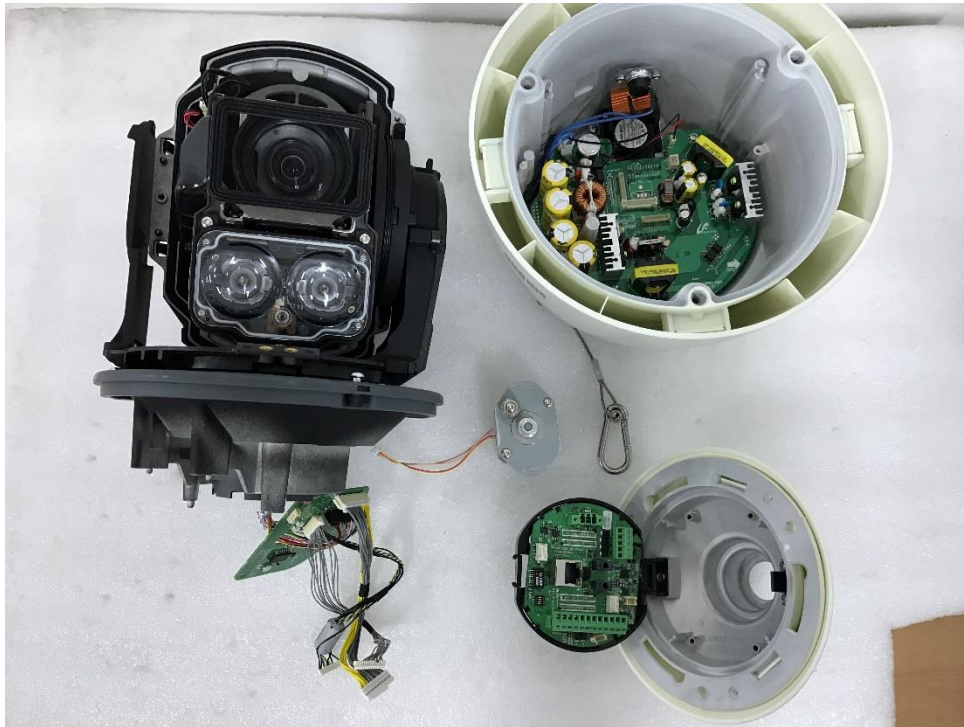


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## EUT Internal Photographs

(Internal View)



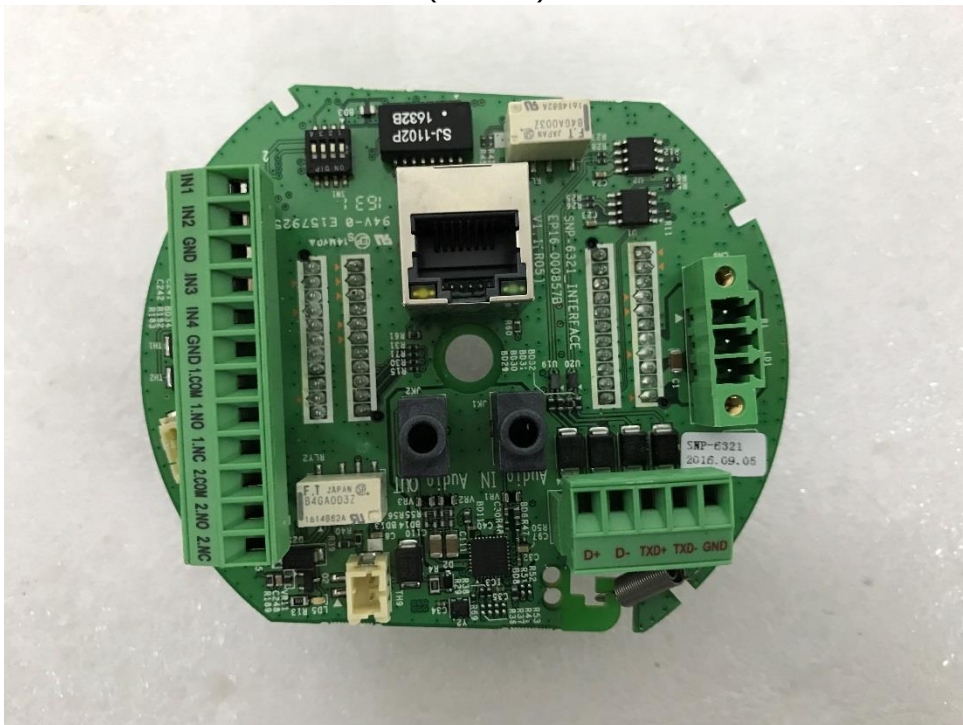
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## EUT Internal View – Board 1

(Top)



(Bottom)

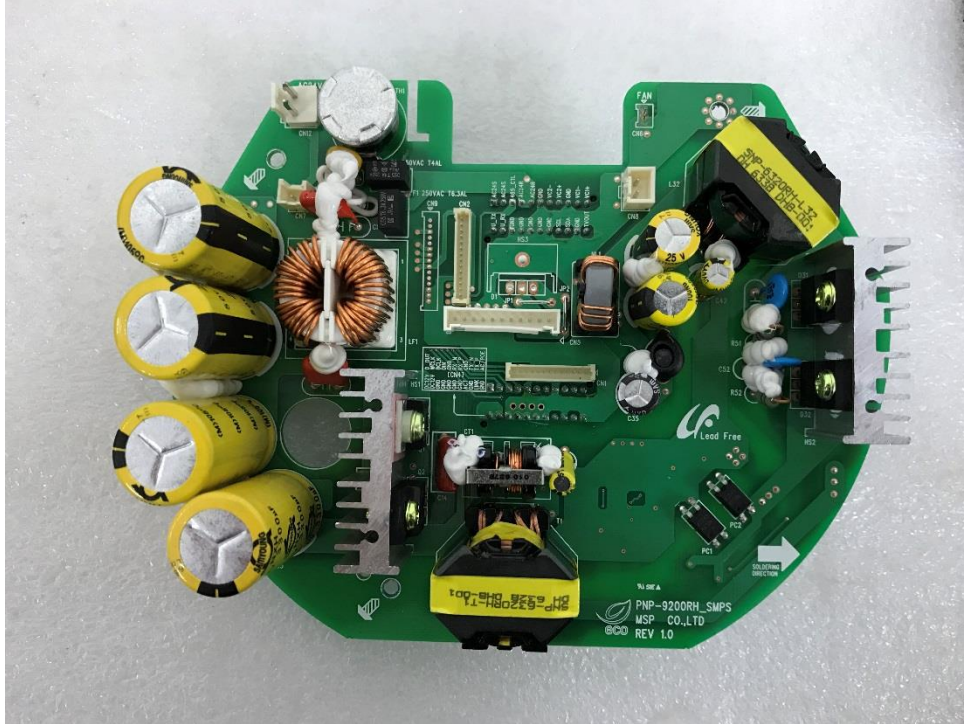


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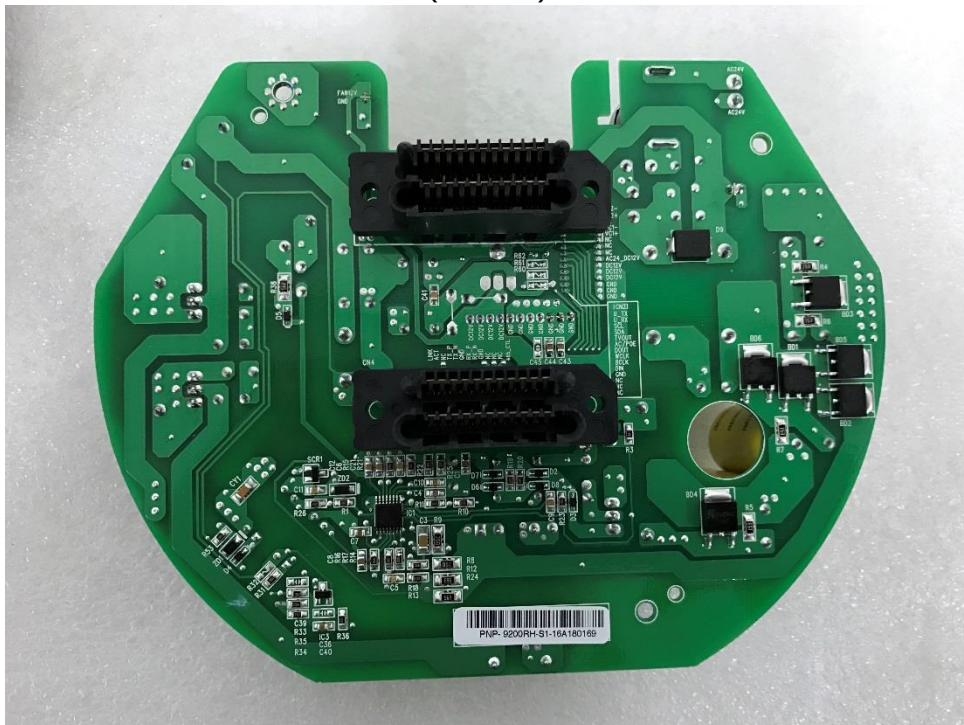


## EUT Internal View – Board 2

(Top)



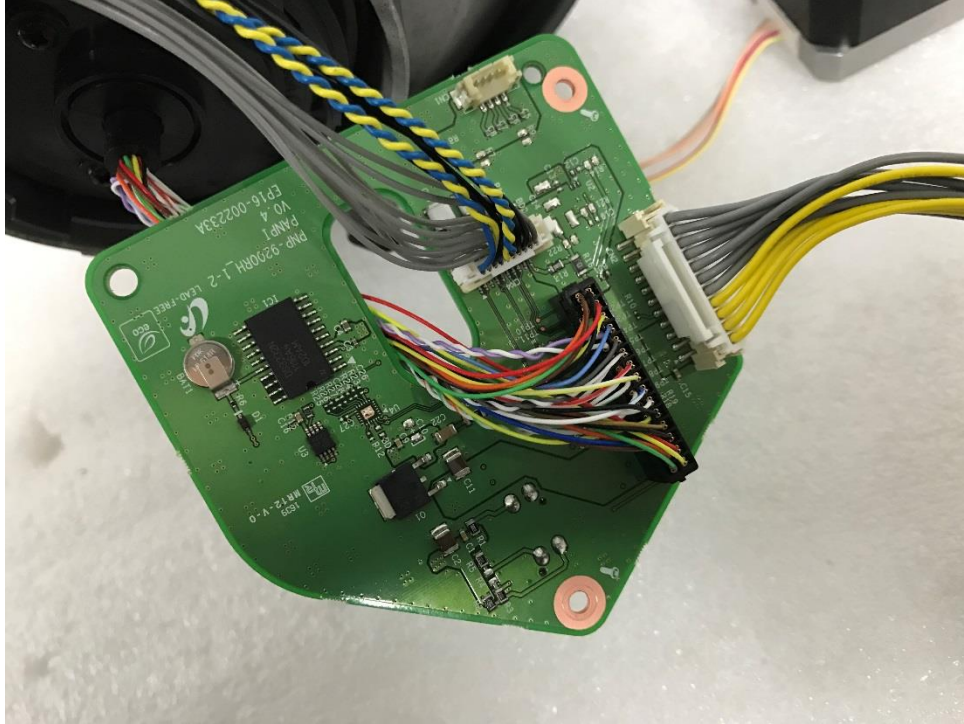
(Bottom)



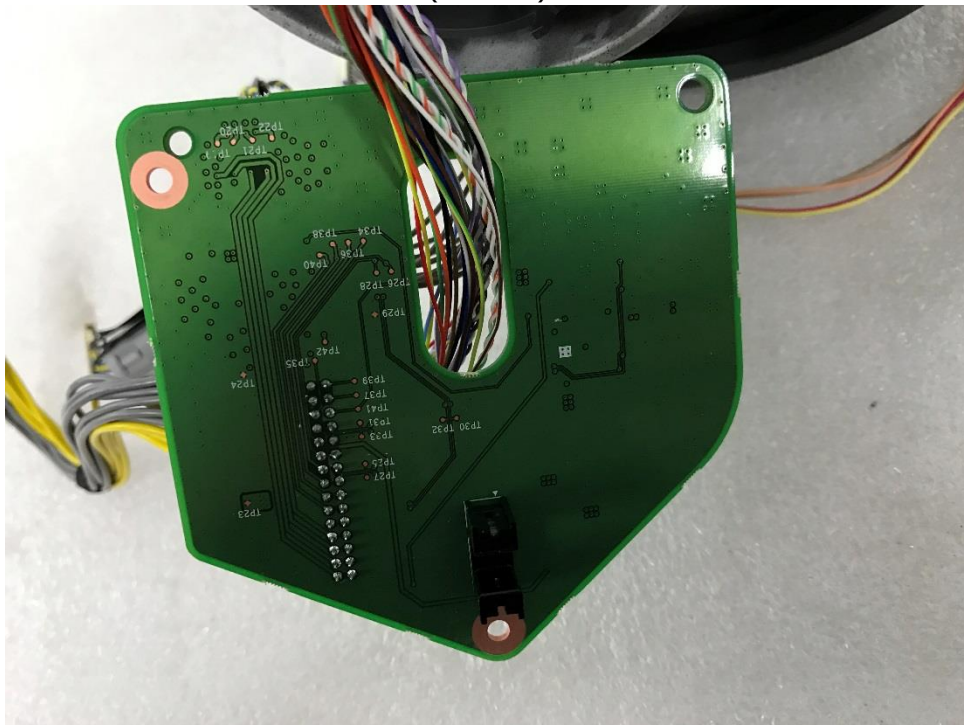
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## EUT Internal View – Board 3

(Top)



(Bottom)

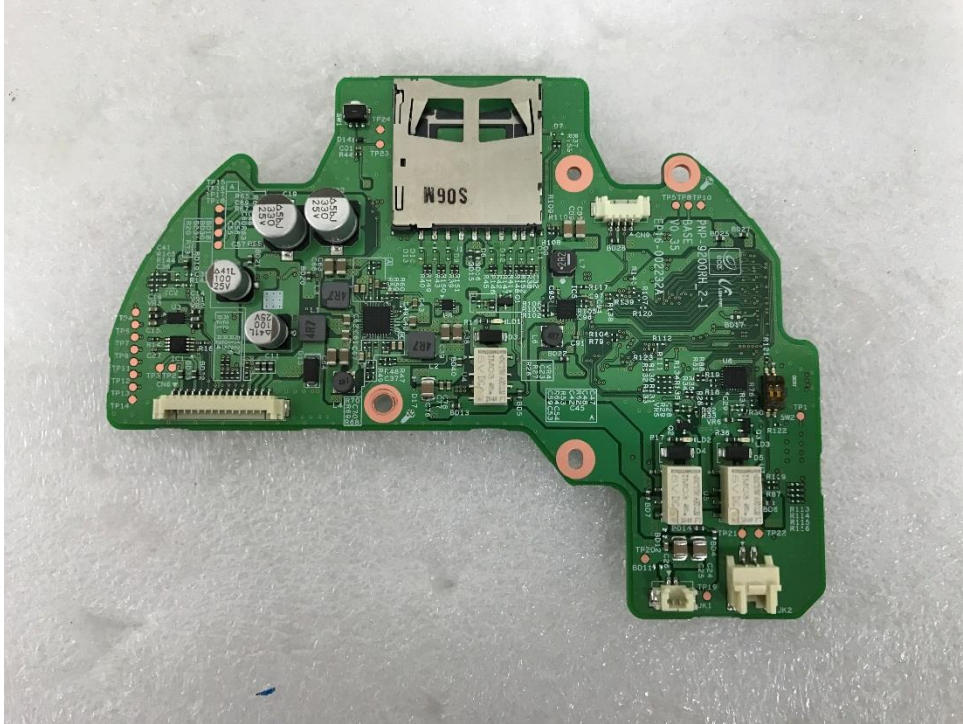


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## EUT Internal View – Board 4

(Top)



(Bottom)



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## EUT Internal View – Board 5

(Top)



(Bottom)

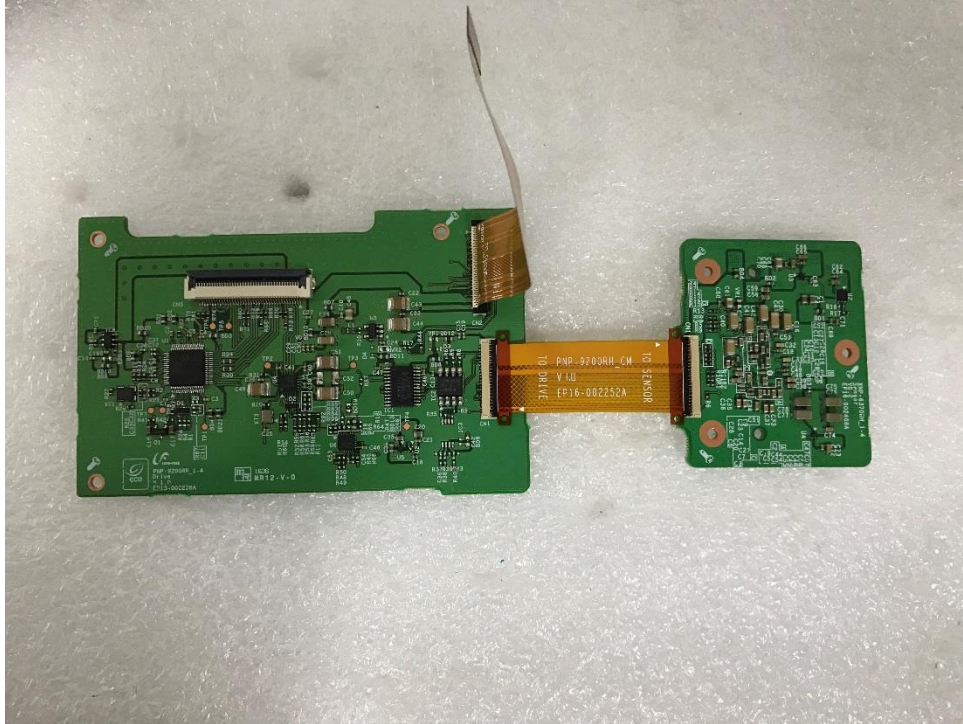


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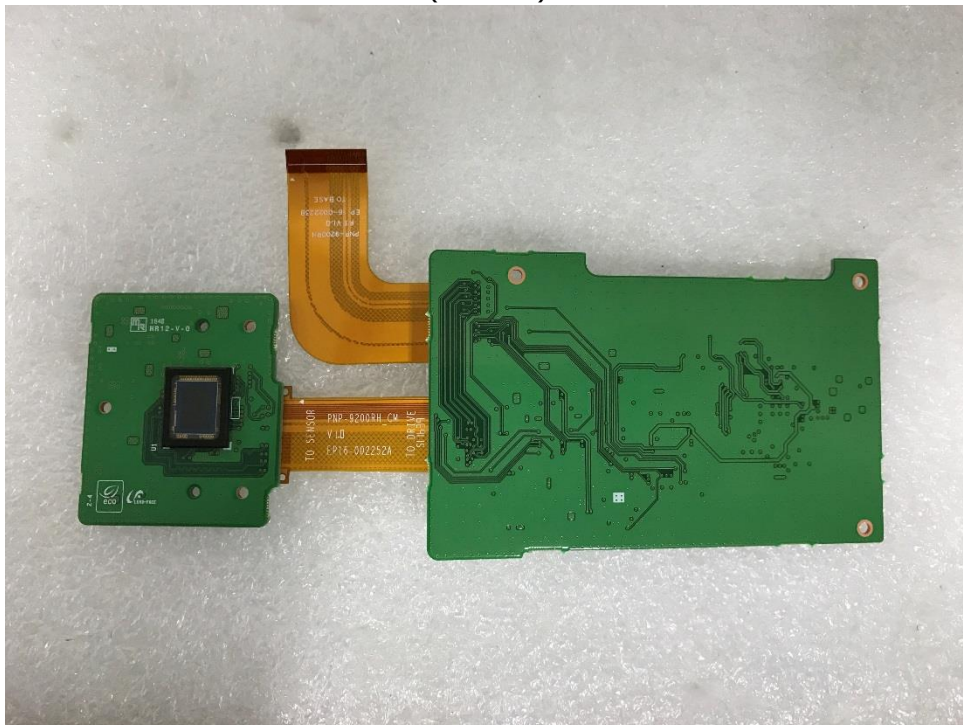


## EUT Internal View – Board 6

(Top)



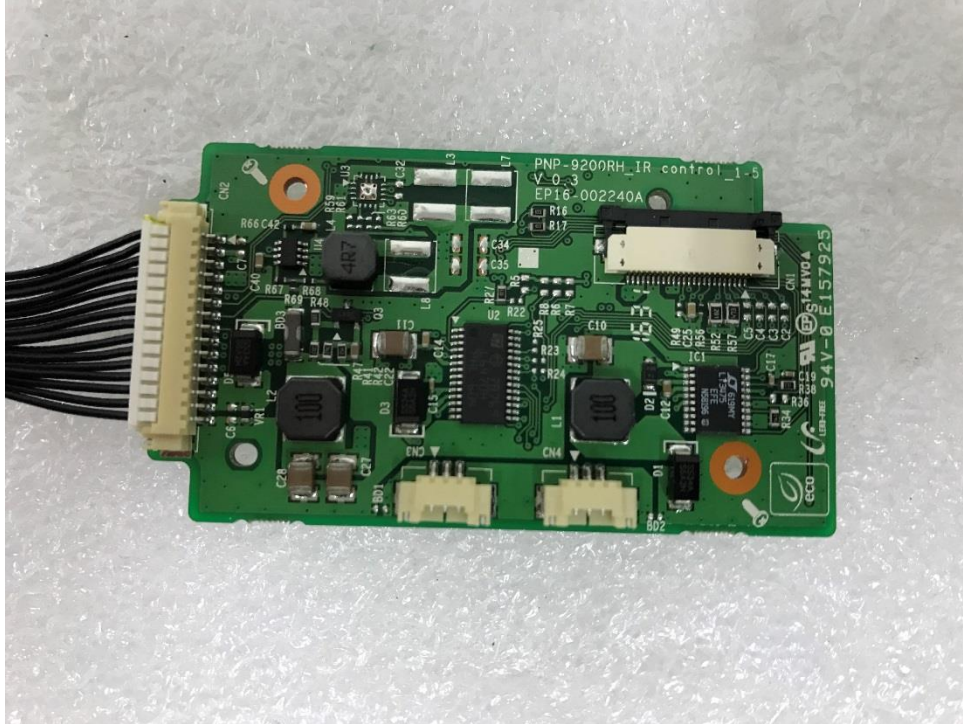
(Bottom)



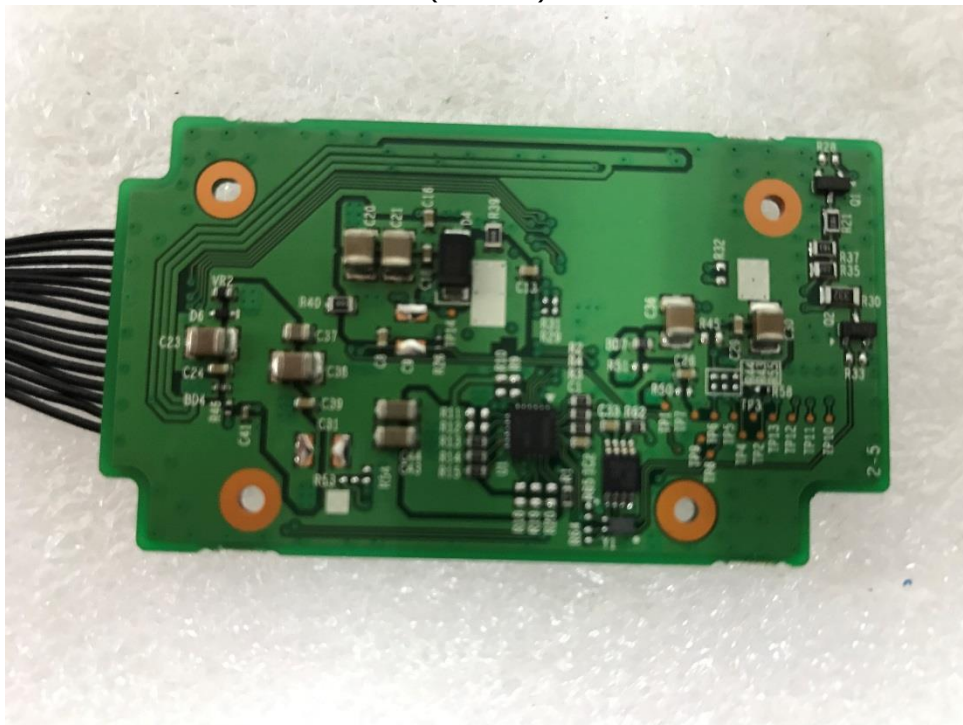
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## EUT Internal View – Board 7

(Top)



(Bottom)



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## **EUT Internal View – Board 8**

(Top)



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## Label and Location



### **NETWORK CAMERA**

Model No : XNP-6370RHP

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

Made in China

