

EMC TEST REPORT

Test Report No. : KES-E1-19T0139

Date of Issue : Mar. 06, 2019

Product name : Network Camera

Model/Type No. : XNP-6320RH

Variant Mode : XNP-6250RH

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)

Equipment authorization : Supply's Declaration of Conformity

Date of Receipt : Feb. 20, 2019

Test date : Mar. 02, 2019 ~ Mar. 03, 2019

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

Tested by

Min Seong, Kim
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

This test report is not related to KOLAS.

**KES Co., Ltd.**

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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Feb. 06, 2019	KES-E1-19T0139	Issued

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1.0 General Product Description

Main Specifications of EUT are:

Video	
Imaging Device	1/2.8" 2MP CMOS
Effective Pixels	1944(H)x1212(V)
NETD	None
Pixel Size	None
Min. Illumination	Color: 0.05Lux(F1.6, 1/30sec) BW: 0Lux(IR LED On)
Video Out	CVBS: 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P) for installation
Lens	
Focal Length (Zoom Ratio)	4.44~111mm(25x) 줌 렌즈
Max. Aperture Ratio	F1.6(Wide)~F3.9(Tele)
Angular Field of View	H: 61.8°(Wide)~2.84°(Tele) / V: 36.2°(Wide)~1.60°(Tele)
Min. Object Distance	Wide: 1.5m(4.92ft), Tele: 2m(6.56ft)
Focus Control	Oneshot AF
Lens Type	DC auto iris
Mount Type	None
Optional Lens	None
Pan / Tilt / Rotate	
Pan / Tilt / Rotate Range	None
Pan Range	360° Endless
Pan Speed	Preset: 400°/sec, Manual: 0.024°/sec~250°/sec
Tilt Range	95°(-5°~90°)
Tilt Speed	Preset: 250°/sec, Manual: 0.024°/sec~250°/sec
Rotate Range	None
Sequence	Preset(300ea), Swing, Group(6ea), Trace, Tour, Auto Run, Schedule
Preset Accuracy	±0.2°
Azimuth	Support
Auto Tracking	Support
Operational	
IR Viewable Length	200m(656.17ft)
Camera Title	Displayed up to 85 characters
Day & Night	Auto(ICR)
Backlight Compensation	BLC, HLC, WDR, SSDR
Wide Dynamic Range	150dB
Digital Noise Reduction	SSNRV
Digital Image Stabilization	Support(built-in gyro sensor)
Defog	Support
Motion Detection	8ea, 8point polygonal zones
Privacy Masking	32ea, rectangular Support - Color: Grey/Green/Red/Blue/Black/White - Mosaic
Gain Control	Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor
LDC	None



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Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2~1/12,000sec)
Digital PTZ	None
Video Rotation	Flip, Mirror
Analytics	Directional detection, Fog detection, Face detection, Motion detection, Appear/Disappear, Enter/Exit, Loitering, Tampering, Virtual line, Audio detection, Sound classification, Shock detection
Business Intelligence	None
Serial Interface	RS-485(Samsung-T, Pelco-D/P, Panasonic, Bosch, AD, GE, Vicon, Honeywell)
Alarm I/O	Input 4ea / Output 2ea
Alarm Triggers	Analytics, Network disconnect, Alarm input
Alarm Events	File upload via FTP and e-mail Notification via e-mail SD/SDHC/SDXC or NAS recording at event triggers Alarm output PTZ Preset
Audio In	Selectable(mic in/line in) Supply voltage: 2.5VDC(4mA), Input impedance: 2K Ohm
Audio Out	Line out, Max.output level: 1Vrms
IR Illuminator (Optional)	None
Wiper	None
Coaxial Protocol	None
Video Transmission Distance	None
Radiometry	
Temperature detect range	None
Temperature accuracy	None
Temperature detection	None
Additional	None
Network	
Ethernet	RJ-45(10/100BASE-T), SFP(Optional)
Video Compression	H.265/H.264,MJPEG
Resolution	1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240
Max. Framerate	H.265/H.264: Max. 60fps/50fps(60Hz/50Hz) MJPEG: Max. 30fps/25fps(60Hz/50Hz)
Smart Codec	Manual(5ea area), WiseStreamII
Video Quality Adjustment	H.264/H.265: Target bitrate level control MJPEG: Target bitrate level control
Bitrate Control	H.264/H.265: CBR or VBR MJPEG: VBR
Streaming	Unicast(20 users) / Multicast (128 user) Multiple streaming(Up to 10 profiles)
Audio Compression	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

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Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP,RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, PIM-SM, UPnP, Bonjour,LLDP, SRTP
Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access log 802.1X Authentication(EAP-TLS, EAP-LEAP)
Edge Storage	Micro SD/SDHC/SDXC 2slot 512GB
Application Programming In	ONVIF Profile S/G/T SUNAPI(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 Recommended Browser: Google Chrome Supported Browser: MS Explore11, MS Edge, Mozilla Firefox(Window 64bit only), Apple Safari(Mac OS X only)
Memory	1024MB RAM, 256MB Flash
Environmental	
Operating Temperature / Humidity	24VAC : -50°C~+55°C (-58°F ~ +131°F) / Less than 90% RH HPoE : -40°C~+55°C (-40°F ~ +131°F) / Less than 90% RH * Start up should be done at above -35°C
Storage Temperature / Humidity	-50°C~+60°C (-58°F~+140°F) / Less than 90% RH
Certification	IP66, IK10
Electrical	
Input Voltage	24VAC, HPoE(IEEE802.3bt, Class7)
Power Consumption	24VAC: Max. 83W (typical : 30W) HPoE : Max. 51W (typical : 30W)
Mechanical	
Color / Material	Body: Ivory / Plastic, Head: Black / Plastic
RAL Code	None
Product dimensions / weigh	Ø236.9x407.7mm(9.33x16.05"), 6.8Kg(14.99 lb)
Conduit hole	None
Hanging mount(Dome)	SBP-303HF(SFP)
Skin cover(Dome)	None
Weather cap(Dome)	None
Power module	None
Backbox	None

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

Frequency ☐ 50 Hz ☒ 60 Hz ☐ Hz

1.2 Variant Model Differences

Added a simple derivative model for classification by vendor

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
Network Camera	XNP-6320RH	-	Hanwha Techwin (Tianjin) Co.,Ltd.	EUT
PoE Adapter	PT-PSE109GBRO-AH	-	Dongguan PROCET Network Technology Co.,Ltd	

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1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Notebook	NT500R5M	0Q7491AJ800552B	Samsung Electronics Co., Ltd.	-
Notebook Adapter	A13-040N2A	AD-4019C	Chicony Power Technology Co., Ltd.	-
Speaker	BR1000A Cuve Black 2	-	DONGGUAN EDIFIER TECHNOLOGY Co., Ltd	-
MIC	MP1000	-	-	-
Alarm	SIP-1201DD D0	-	SAMSUNG TECHWIN CO., LTD.	-
Button Alarm	-	-	-	-
Controller	SPC-1010	C60E67WD601003	SamSung Techwin Co.,Ltd.	-
Controller Adapter	RS-AB1000	-	Dongguan Jinhua Sheng Power Technology Co.,Ltd.	-
Micro SD Card	-	-	SanDisk	4 GB
Smart Phone	A1303	-	APPLE .Inc	-

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1.6 External I/O Cabling

■ AC 24 V

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
Network Camera (EUT)	RJ-45	Notebook	RJ-45	3.5	U
	3.5 mm	Speaker	3.5 mm	1.4	U
	3.5 mm	MIC	XLR	1.4	U
	2 Pin	Alarm	Line-In	3.0	U
	2 Pin	Button Alarm	Line-Out	3.0	U
	2 Pin	Controller	2 Pin	3.0	U
	SLOT	Micro SD Card	SLOT	-	-
Notebook	3.5 mm	Smart Phone	3.5 mm	1.0	U

* Unshielded=U, Shielded=S

■ PoE

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
Network Camera (EUT)	RJ-45 (PoE)	PoE Adaptor	RJ-45 (PoE)	2.5	U
	3.5 mm	Speaker	3.5 mm	1.4	U
	3.5 mm	MIC	XLR	1.4	U
	2 Pin	Alarm	Line-In	3.0	U
	2 Pin	Button Alarm	Line-Out	3.0	U
	2 Pin	Controller	2 Pin	3.0	U
	SLOT	Micro SD Card	SLOT	-	-
Notebook	3.5 mm	Smart Phone	3.5 mm	1.0	U
	RJ-45 (DATA)	PoE Adaptor	RJ-45 (DATA)	3.5	U

* Unshielded=U, Shielded=S

1.7 EUT Operating Mode(s)

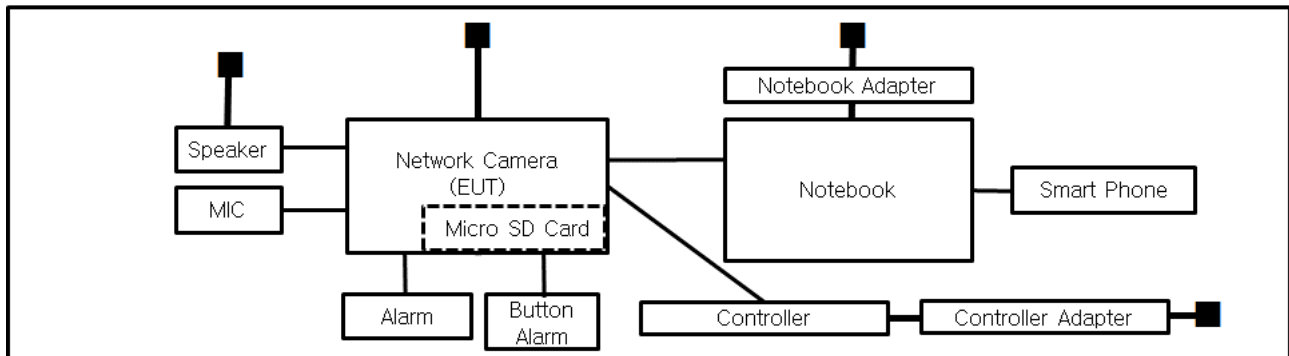
Test mode	operating
AC 24 V	EUT Monitoring, Ping Test
PoE	EUT Monitoring, Ping Test

EUT Test operating S/W		
Name	Version	Manufacture Company
-	-	-

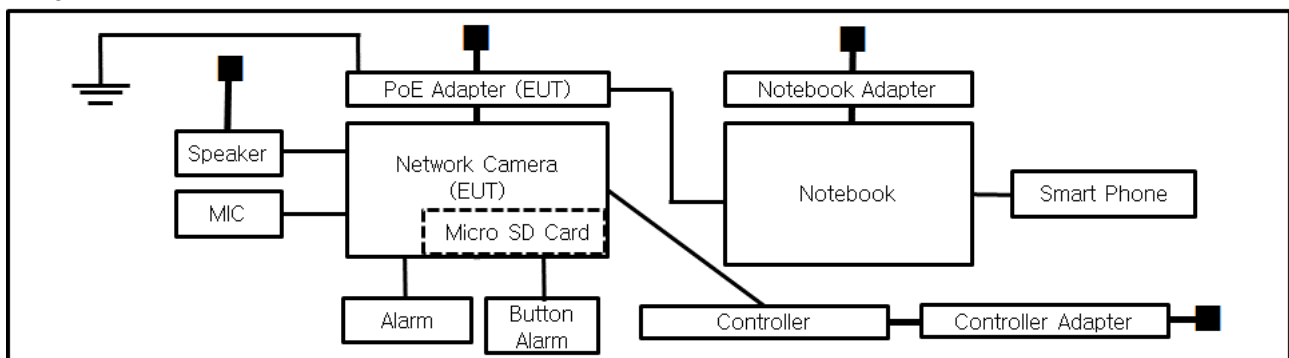
1.8 Configuration

■ AC Main
 □ DC Main

■ AC 24 V



■ PoE



1.9 Remarks when standards applied

N/A







1.10 Calibration Details of Equipment Used for Measurement

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

1.11 Test Facility

The measurement facility is located at 473-21 Gayeo-ro, Yeosu-si, Gyeonggi-do, 12658, Korea. The sites are constructed in conformance with the requirements of ANSI C63.4: 2014 and CISPR 16-1-4: 2012

1.12 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
KOREA	RRA	EMI (3 m & 10 m Semi-Anechoic Chamber , 10 m Open Area and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KR0100
International	KOLAS	EMI (3 m & 10 m Semi-Anechoic Chamber , and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KT489
USA	FCC	3 m & 10 m Semi-Anechoic Chamber, 10 m Open Area and Conducted test site to perform FCC Part 15/18 measurements.	 KR0100
Canada	ISED	3 m & 10 m Semi-Anechoic Chamber and Conducted test site	 23298-1
JAPAN	VCCI	Mains Ports Conducted Interference Measurement, Telecommunication Ports Conducted Disturbance Measurement and Radiation 10 meter site, Facility for measuring radiated disturbance above 1 GHz	 R-4308, C-4798, T-2311, G-914
Europe	TÜV SÜD	EMI (3 m & 10 m Semi-Anechoic Chamber , 10 m Open Area and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 CARAT 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 55032:2015

☐ Class A

☐ Class B

☐ EN 55024:2010

☐ EN 50130-4:2011 +A1:2014

☐ EN 61000-3-2:2014

☐ EN 61000-3-3:2013

☐ EN 61326-1:2013



-
- | | | |
|--|---|----------------------------------|
| <input type="checkbox"/> VCCI-CISPR 32:2016 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> AS/NZS CISPR32:2015 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input checked="" type="checkbox"/> 47 CFR Part 15, Subpart B | | |
| <input type="checkbox"/> CISPR 22:2009 +A1:2010 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input checked="" type="checkbox"/> ANSI C63.4-2014 | <input checked="" type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input checked="" type="checkbox"/> IC Regulation ICES-003 : 2016 | | |
| <input type="checkbox"/> CAN/CSA CISPR 22-10 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input checked="" type="checkbox"/> ANSI C63.4-2014 | <input checked="" type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> RE- Directive 2014/53/EU | | |
| <input type="checkbox"/> EN 301 489-1 V1.9.2 | | |
| <input type="checkbox"/> Equipment for fixed use | | |
| <input type="checkbox"/> Equipment for vehicular use | | |
| <input type="checkbox"/> Equipment for portable use | | |
| <input type="checkbox"/> EN 301 489-3 V1.6.1 | | |
| <input type="checkbox"/> EN 301 489-17 V2.2.1 | | |
| <input type="checkbox"/> EN 60945:2002 | | |

2.1 Conducted Emissions at Mains Power Ports

Test Date

Mar. 03, 2019

Test Location

Electro wave Shieldroom #6

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EMC32	R & S	9.12.00	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESR3	R & S	101781	04, 25, 2019
<input checked="" type="checkbox"/>	LISN	ENV216	R & S	101787	01, 04, 2020
<input checked="" type="checkbox"/>	LISN	ESH2-Z5	R & S	100450	04, 25, 2019
<input checked="" type="checkbox"/>	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 26, 2019

Test ConditionsTemperature: 21,4 °C
Relative Humidity: 42,5 % R.H.**Frequency Range of Measurement**

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

RemarksSee Appendix A for test data.

2.2 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Mar. 02, 2019

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

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESU26	R & S	100551	04, 11, 2019
<input checked="" type="checkbox"/>	AMPLIFIER	SCU 01	R & S	100603	11, 26, 2019
<input checked="" type="checkbox"/>	ATTENUATOR	8491A	HP	32173	03, 21, 2019
<input checked="" type="checkbox"/>	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	11, 29, 2020

Test ConditionsTemperature: 21,8 °C
Relative Humidity: 40,9 % R.H.**Frequency Range of Measurement**

30 MHz to 1 GHz

Instrument Settings

IF Band Width: 120 kHz

Test Results

The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE**Remarks**See Appendix A for test data.

2.3 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Mar. 23, 2019

Test Location

SEMI ANECHOIC CHAMBER #4(10 m)

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESU26	R & S	100551	04, 11, 2019
<input checked="" type="checkbox"/>	PREAMPLIFIER	8449B	AGILENT	3008A01742	01, 08, 2020
<input type="checkbox"/>	ATTENUATOR	8491A	HP	35496	03, 21, 2019
<input checked="" type="checkbox"/>	HORN ANTENNA	BBHA 9120D	SCHWARZBECK	9120D-1802	09, 04, 2019

Test Conditions

Temperature: 21,8 °C
Relative Humidity: 40,9 % R.H.

Frequency Range of Measurement

1 GHz to 5 GHz

Instrument Settings

IF Band Width: 1 MHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

APPENDIX A – TEST DATA

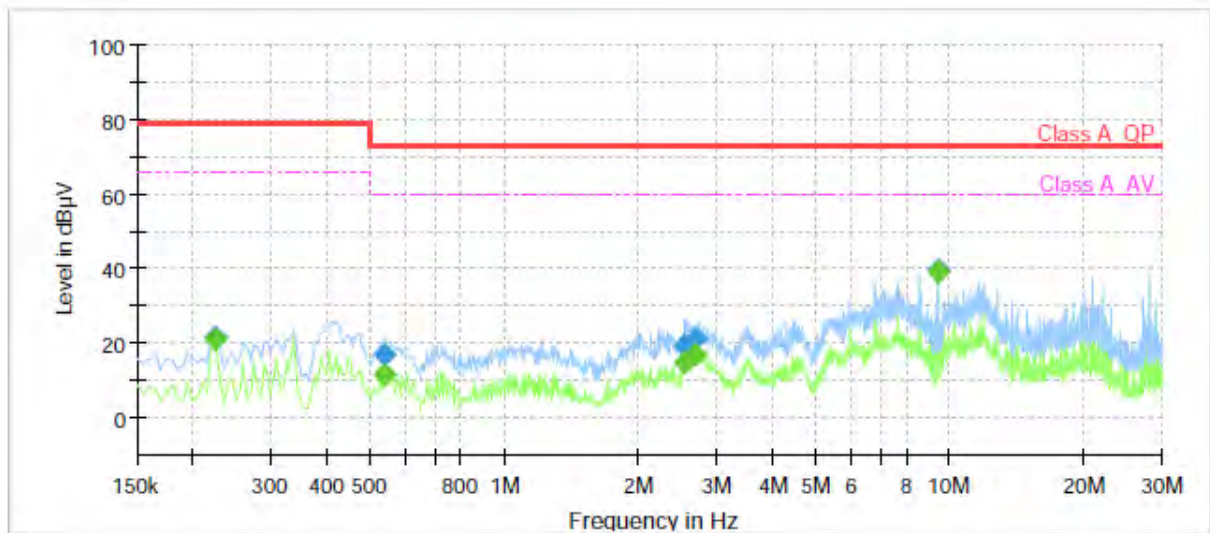
Conducted Emissions at Mains Power Ports

■ AC 24 V

HOT LINE

Common Information

Test Description:	Conducted Emission
Model No.:	XNP-6320RH
Mode	AC 24 V_H
Operator Name:	KES



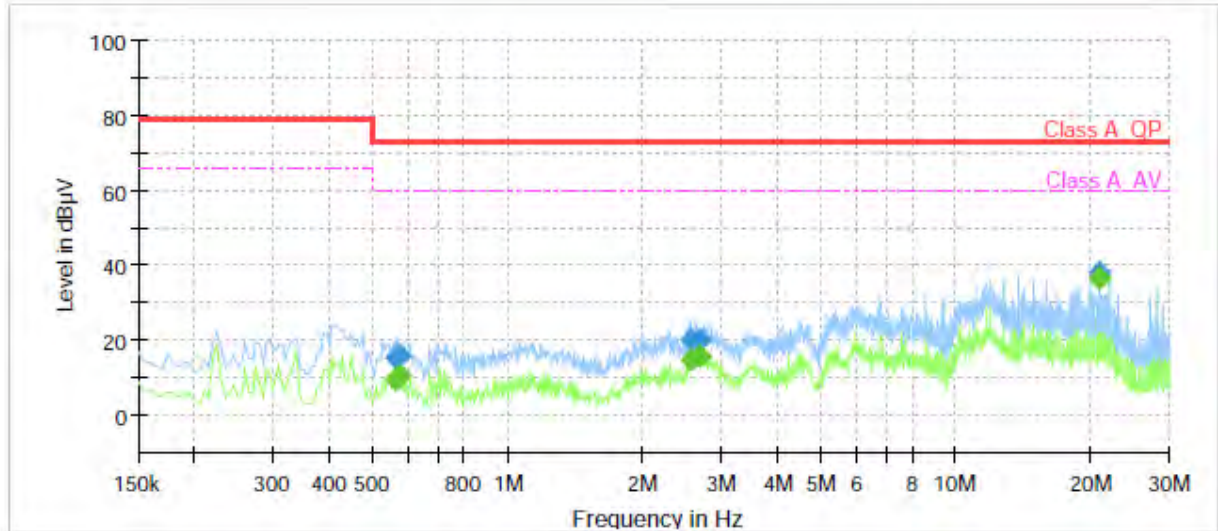
Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.225000	---	21.01	66.00	44.99	1000.0	9.000	L1	19.6
0.225000	21.75	---	79.00	57.25	1000.0	9.000	L1	19.6
0.540000	---	11.63	60.00	48.37	1000.0	9.000	L1	19.6
0.540000	16.82	---	73.00	56.18	1000.0	9.000	L1	19.6
2.545000	---	14.79	60.00	45.21	1000.0	9.000	L1	19.7
2.545000	19.79	---	73.00	53.21	1000.0	9.000	L1	19.7
2.695000	---	16.89	60.00	43.11	1000.0	9.000	L1	19.7
2.695000	21.16	---	73.00	51.84	1000.0	9.000	L1	19.7
9.380000	---	39.06	60.00	20.94	1000.0	9.000	L1	19.9
9.380000	39.58	---	73.00	33.42	1000.0	9.000	L1	19.9

NEUTRAL LINE

Common Information

Test Description: Conducted Emission
Model No.: XNP-6320RH
Mode: AC 24 V_N
Operator Name: KES



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.560000	---	9.59	60.00	50.41	1000.0	9.000	N	19.6
0.560000	15.61	---	73.00	57.39	1000.0	9.000	N	19.6
0.575000	---	10.44	60.00	49.56	1000.0	9.000	N	19.6
0.575000	16.16	---	73.00	56.84	1000.0	9.000	N	19.6
2.560000	---	14.84	60.00	45.16	1000.0	9.000	N	19.7
2.560000	19.96	---	73.00	53.04	1000.0	9.000	N	19.7
2.695000	---	15.76	60.00	44.24	1000.0	9.000	N	19.7
2.695000	20.09	---	73.00	52.91	1000.0	9.000	N	19.7
20.990000	---	36.41	60.00	23.59	1000.0	9.000	N	20.2
20.990000	38.32	---	73.00	34.68	1000.0	9.000	N	20.2

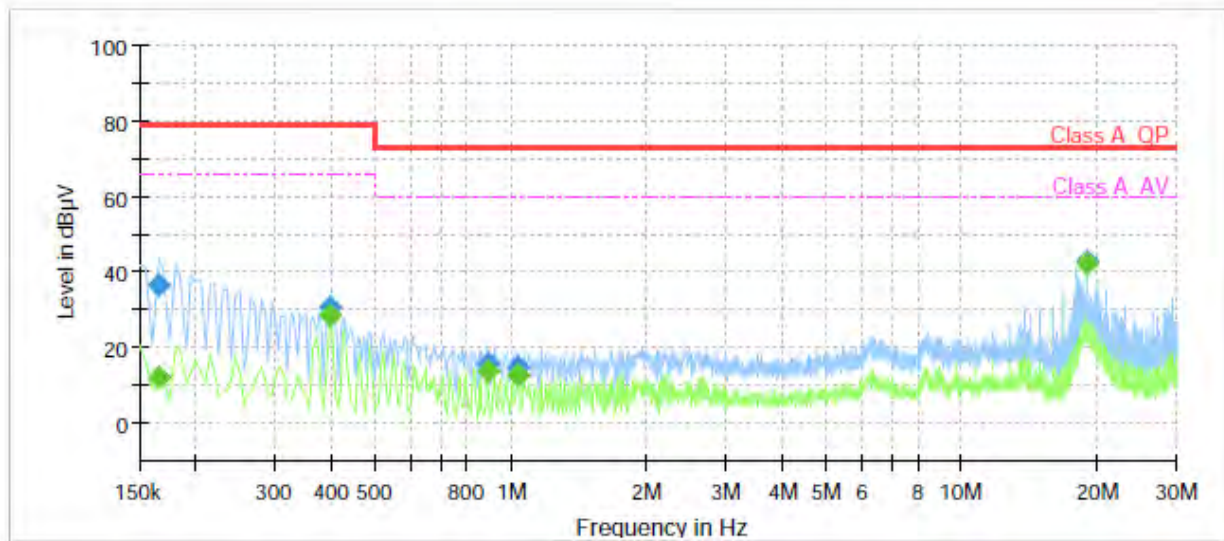


■ PoE

HOT LINE

Common Information

Test Description: Conducted Emission
Model No.: XNP-6320RH
Mode: PoE_H
Operator Name: KES



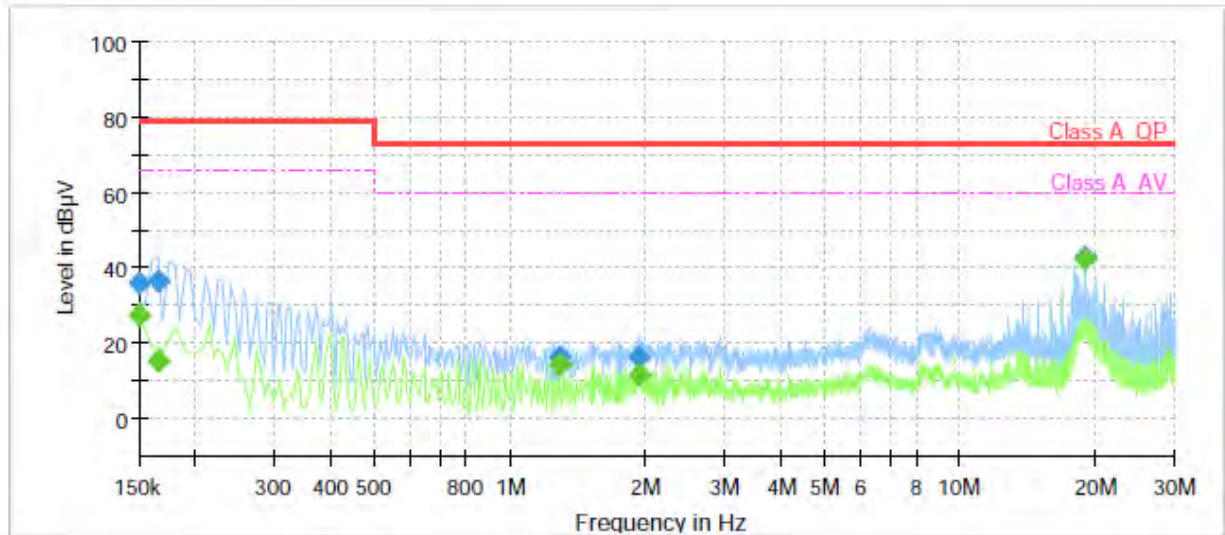
Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.165000	---	12.32	66.00	53.68	1000.0	9.000	L1	19.5
0.165000	36.47	---	79.00	42.53	1000.0	9.000	L1	19.5
0.395000	---	28.60	66.00	37.40	1000.0	9.000	L1	19.6
0.395000	30.64	---	79.00	48.36	1000.0	9.000	L1	19.6
0.890000	---	13.85	60.00	46.15	1000.0	9.000	L1	19.7
0.890000	15.93	---	73.00	57.07	1000.0	9.000	L1	19.7
1.040000	---	12.50	60.00	47.50	1000.0	9.000	L1	19.7
1.040000	15.12	---	73.00	57.88	1000.0	9.000	L1	19.7
18.945000	---	42.11	60.00	17.89	1000.0	9.000	L1	20.1
18.945000	42.74	---	73.00	30.26	1000.0	9.000	L1	20.1

NEUTRAL LINE

Common Information

Test Description:	Conducted Emission
Model No.:	XNP-6320RH
Mode	PoE_N
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.150000	---	27.63	66.00	38.37	1000.0	9.000	N	19.6
0.150000	36.18	---	79.00	42.82	1000.0	9.000	N	19.6
0.165000	---	15.52	66.00	50.48	1000.0	9.000	N	19.5
0.165000	36.49	---	79.00	42.51	1000.0	9.000	N	19.5
1.285000	---	14.07	60.00	45.93	1000.0	9.000	N	19.7
1.285000	16.33	---	73.00	56.67	1000.0	9.000	N	19.7
1.925000	---	11.65	60.00	48.35	1000.0	9.000	N	19.7
1.925000	16.57	---	73.00	56.43	1000.0	9.000	N	19.7
18.945000	---	42.26	60.00	17.74	1000.0	9.000	N	20.2
18.945000	42.88	---	73.00	30.12	1000.0	9.000	N	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 (LISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))



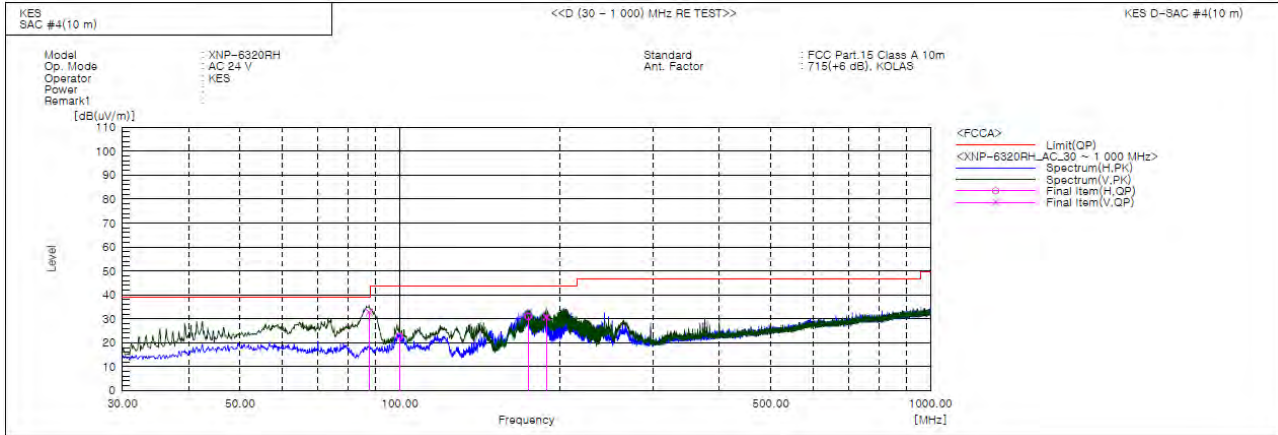
KES Co., Ltd.

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Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
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Report No.:
KES-E1-19T0139
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Radiated Electric Field Emissions(Below 1 GHz)

■ AC 24 V



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	87.473	V	58.3	-25.6	32.7	39.0	6.3	133.0	263.0	
2	99.840	H	45.2	-22.6	22.6	43.5	20.9	400.0	218.0	
3	174.530	H	55.3	-24.3	31.0	43.5	12.5	314.0	250.0	
4	188.959	V	53.7	-23.0	30.7	43.5	12.8	100.0	182.0	

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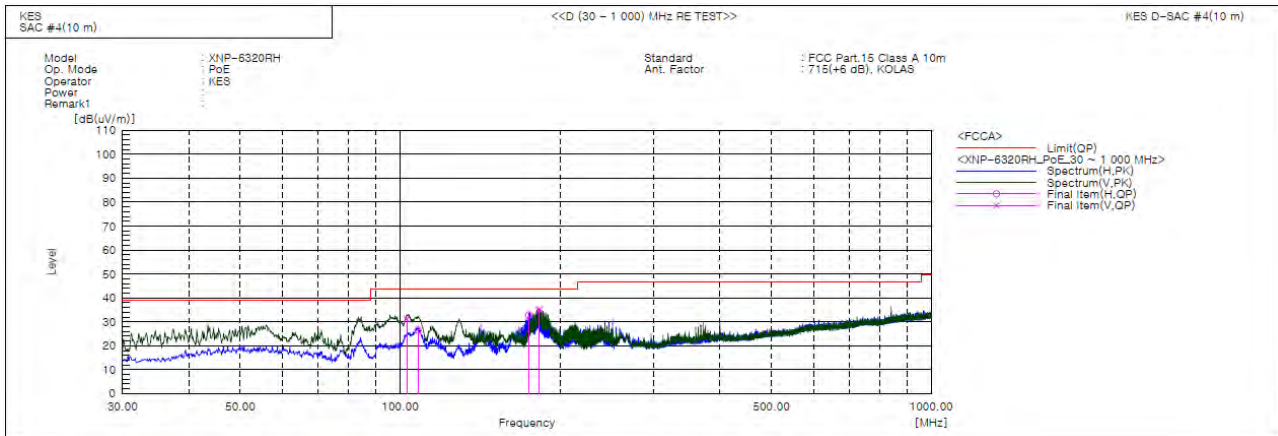


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KES-E1-19T0139
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■ PoE



Final Result

No.	Frequency (P)	Reading QP	c.f	Result QP	Limit QP	Margin QP	Height	Angle	Remark
	[MHz]	[dB(uV)]	[dB(1/m)]	[dB(uV/m)]	[dB(uV/m)]	[dB]	[cm]	[deg]	
1	102.921	V 53.8	-22.6	31.2	43.5	12.3	110.0	87.0	
2	108.060	H 49.1	-22.6	26.5	43.5	17.0	399.0	105.0	
3	174.586	H 57.1	-24.3	32.8	43.5	10.7	398.0	87.0	
4	182.802	V 58.7	-23.7	35.0	43.5	8.5	101.0	187.0	

◆ Calculation – SAC #4(10 m)

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

Margin(QP)[dB] = Limit[dB(μ V/m)] - Result(QP) [dB(μ V/m)]

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

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



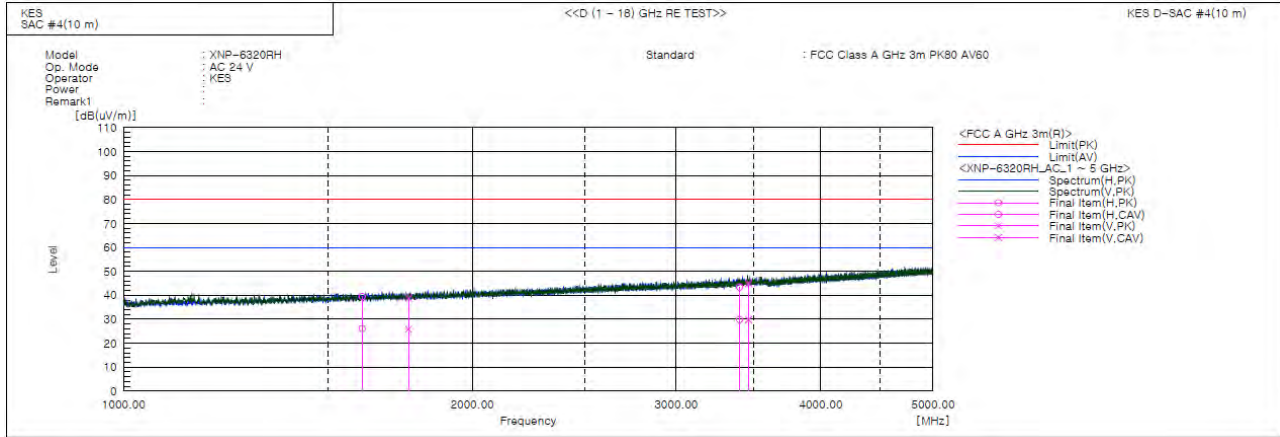
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Radiated Electric Field Emissions(Above 1 GHz)

■ AC 24 V



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	1607.125	H	41.7	28.3	-2.2	39.5	26.1	80.0	60.0	40.5	33.9	297.0	348.0	
2	1762.005	V	40.3	27.4	-1.5	38.8	25.9	80.0	60.0	41.2	34.1	100.0	282.0	
3	3403.430	H	38.3	24.8	5.1	43.4	29.9	80.0	60.0	36.6	30.1	363.0	355.0	
4	3465.105	V	39.8	24.6	5.2	45.0	29.8	80.0	60.0	35.0	30.2	211.0	53.0	

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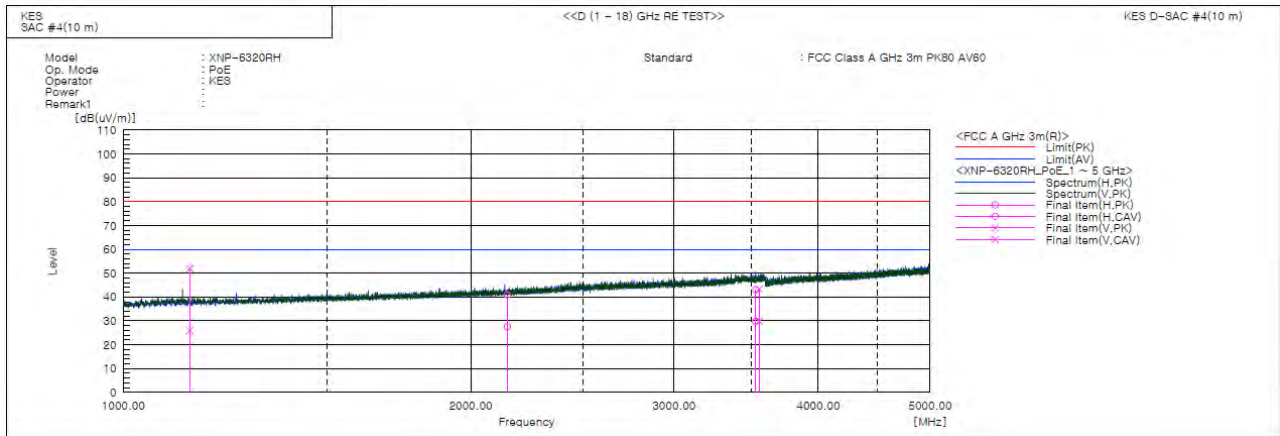


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KES-E1-19T0139
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■ PoE



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	1142.155	V	57.1	31.1	-5.2	51.9	25.9	80.0	60.0	28.1	34.1	143.0	273.0	
2	2151.240	H	40.6	27.3	0.3	40.9	27.6	80.0	60.0	39.1	32.4	367.0	88.0	
3	3530.855	H	37.7	24.6	5.3	43.0	29.9	80.0	60.0	37.0	30.1	288.0	154.0	
4	3554.590	V	37.9	24.5	5.4	43.3	29.9	80.0	60.0	36.7	30.1	210.0	199.0	

◆ Calculation

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

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

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

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

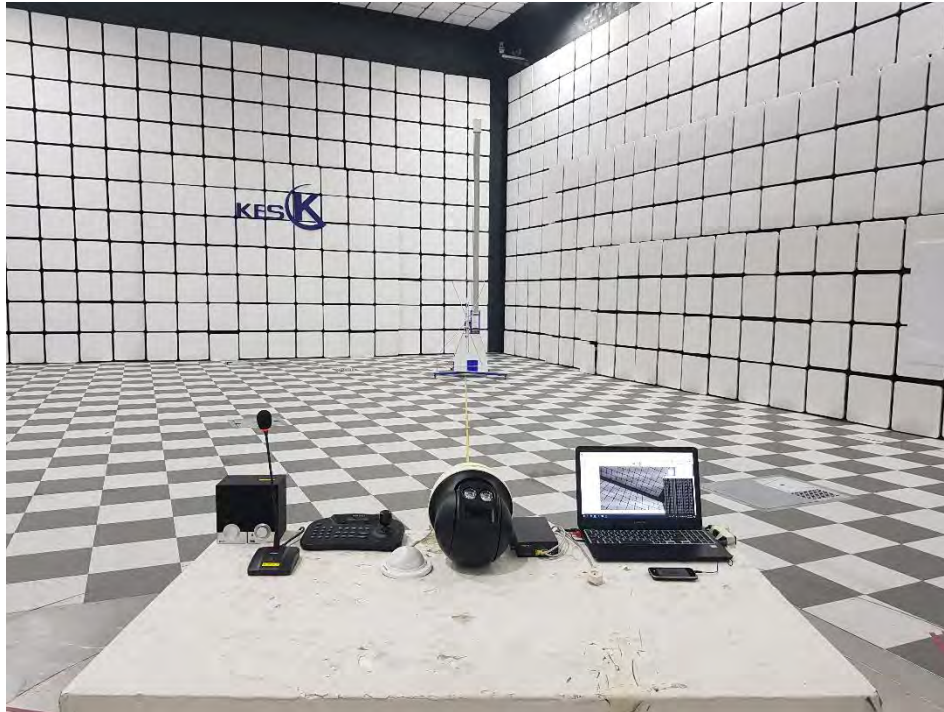
Test Setup Photos and Configuration

Conducted Voltage Emissions



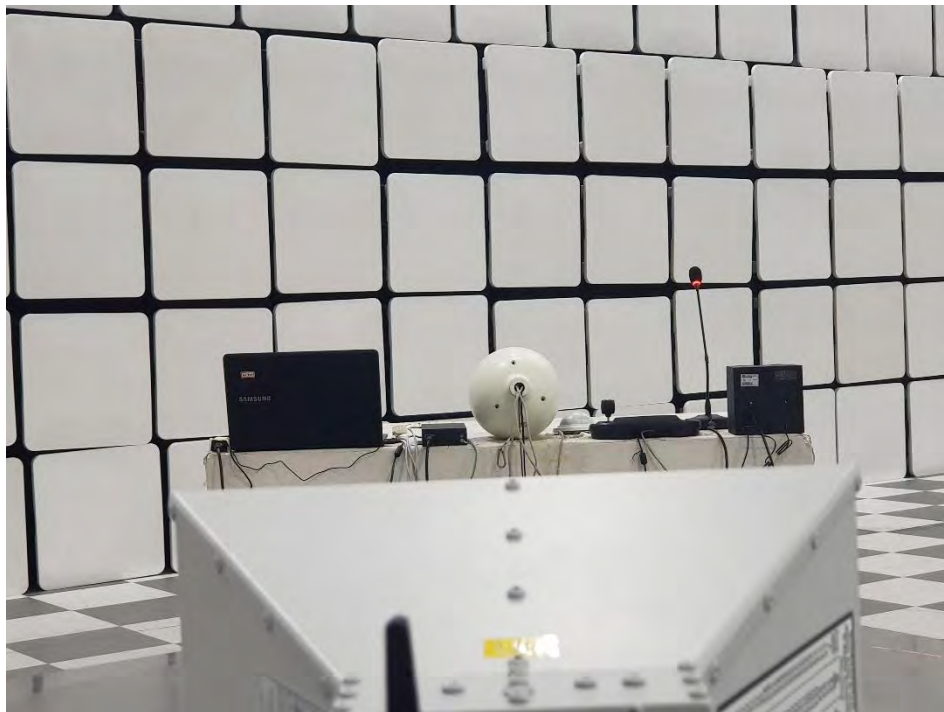
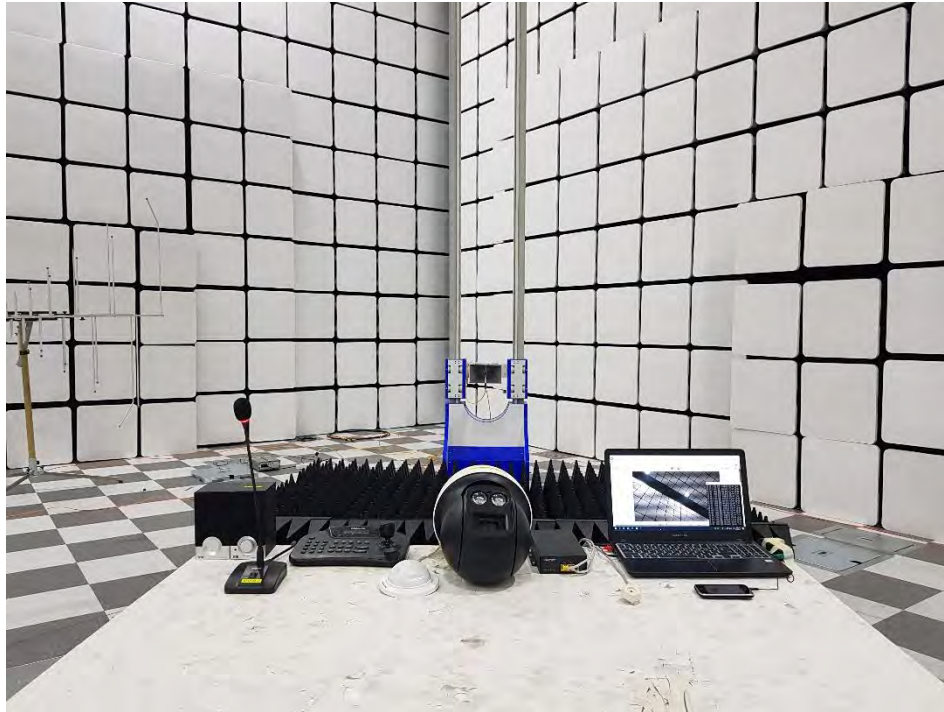
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Radiated Electric Field Emissions(Below 1 GHz)



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Radiated Electric Field Emissions(Above 1 GHz)



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EUT External Photographs

(Top)



(Bottom)



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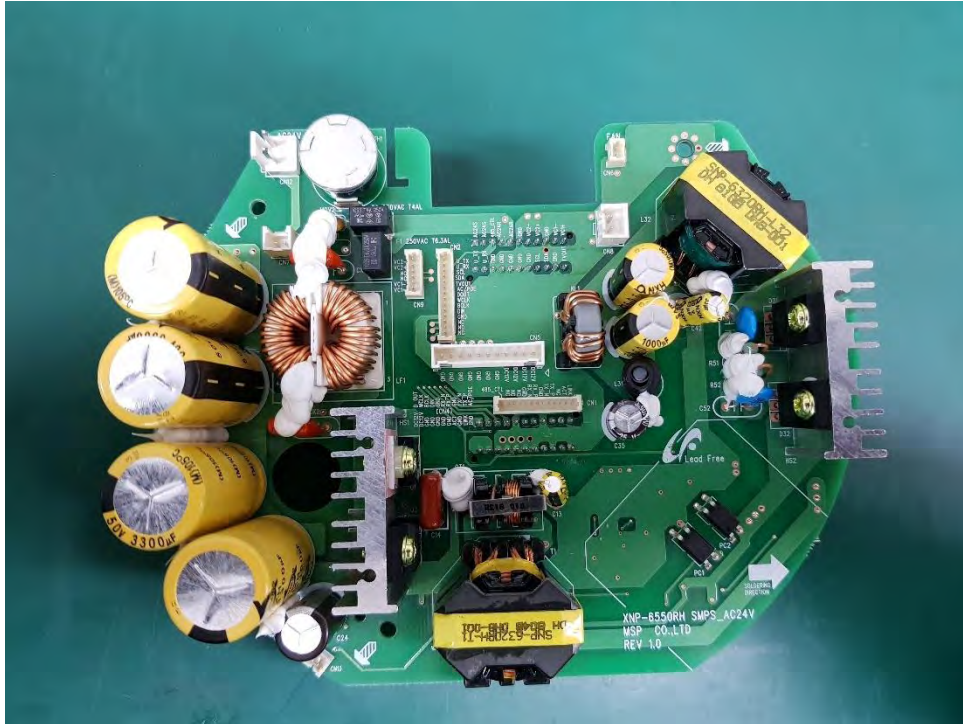
EUT Internal Photographs

(Internal View)

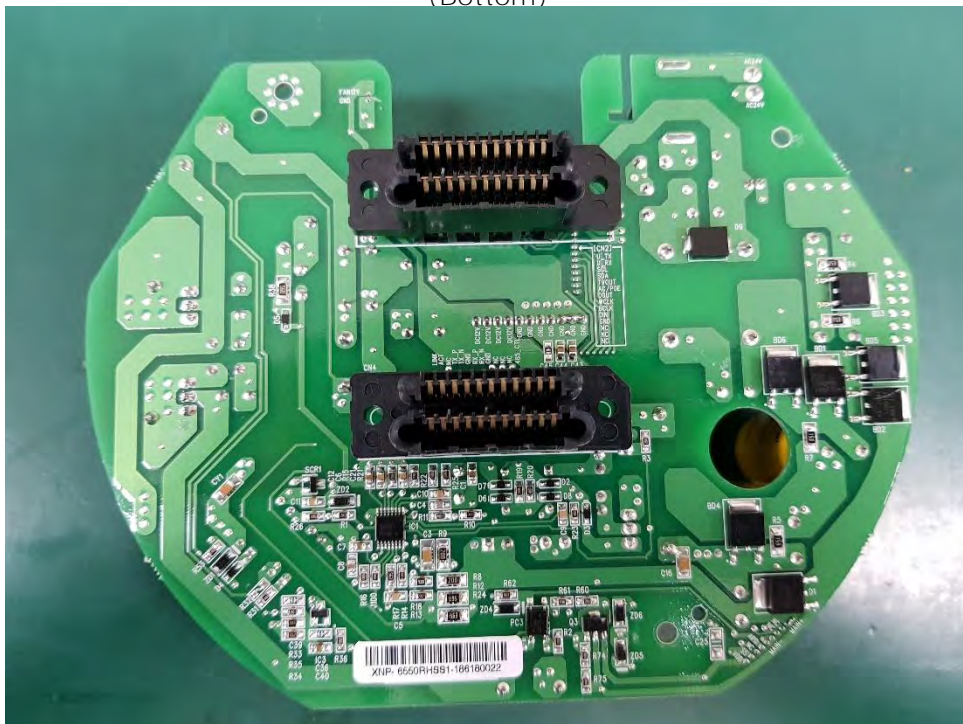


EUT Internal View – AC Power Board

(Top)



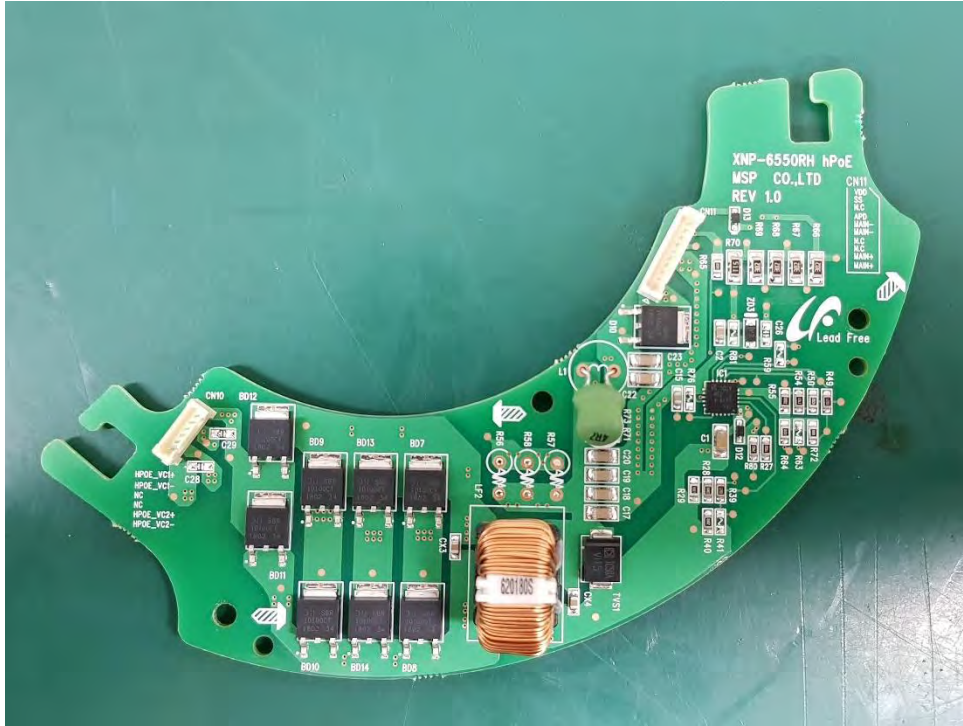
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EUT Internal View – PoE Power Board

(Top)



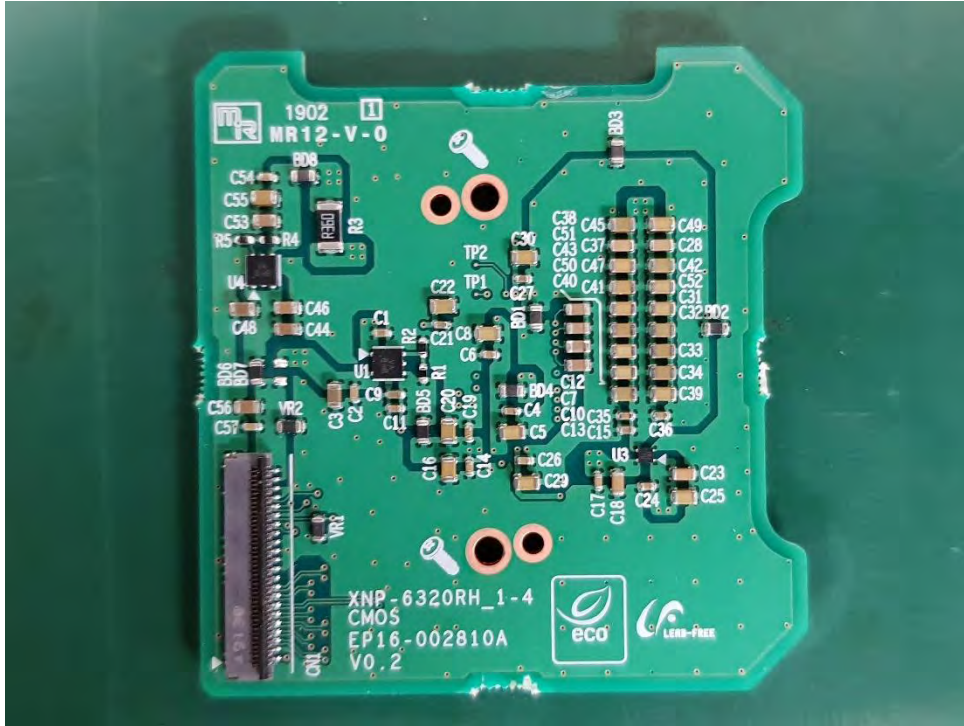
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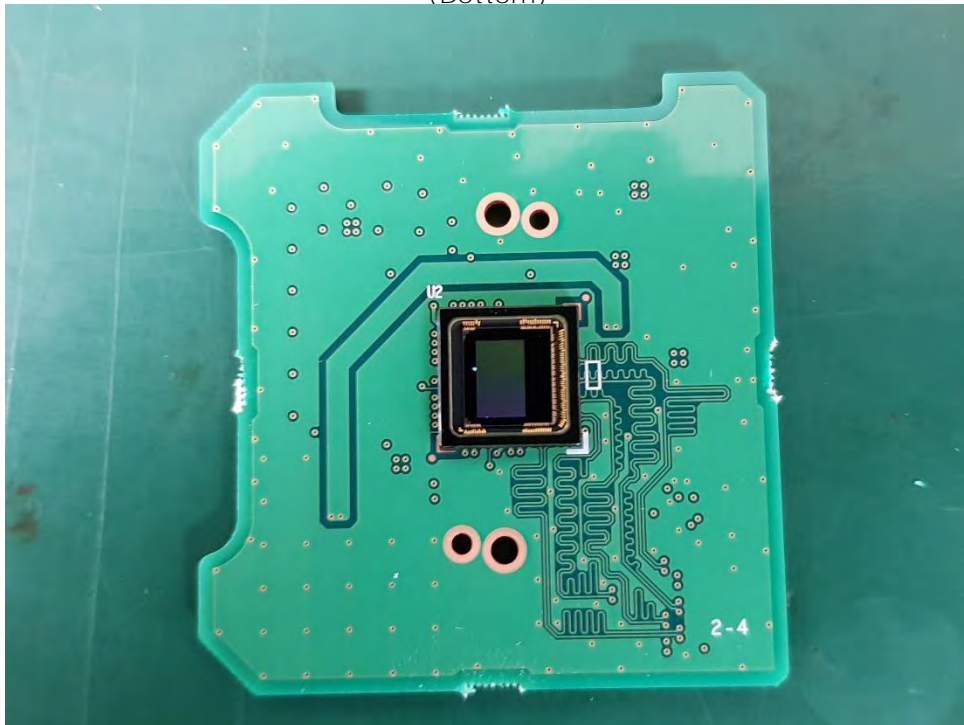
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EUT Internal View – CMOS Board

(Top)



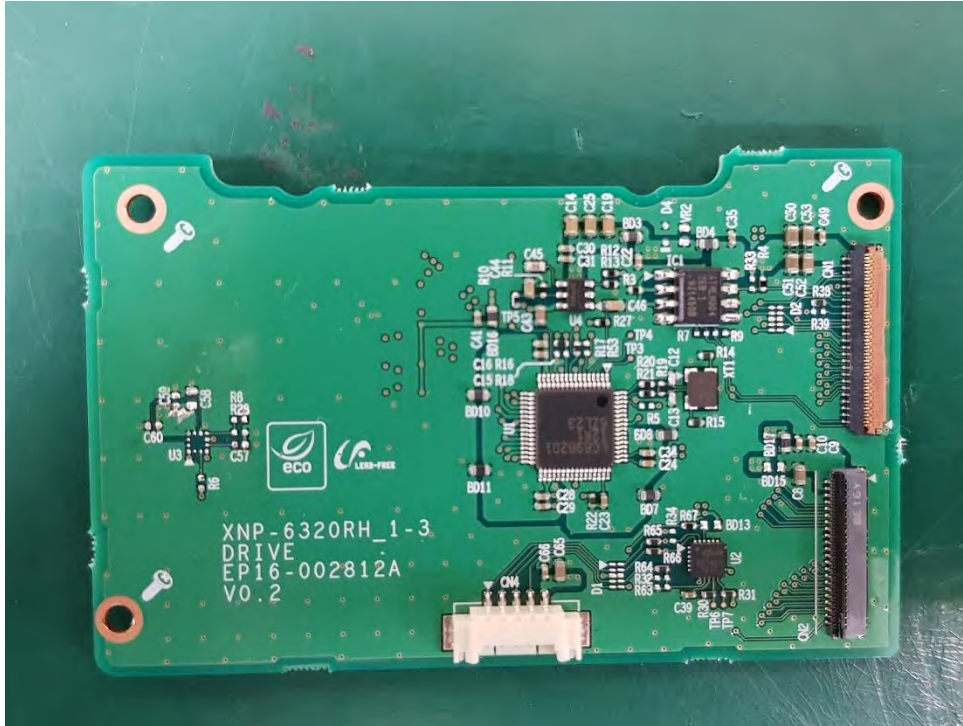
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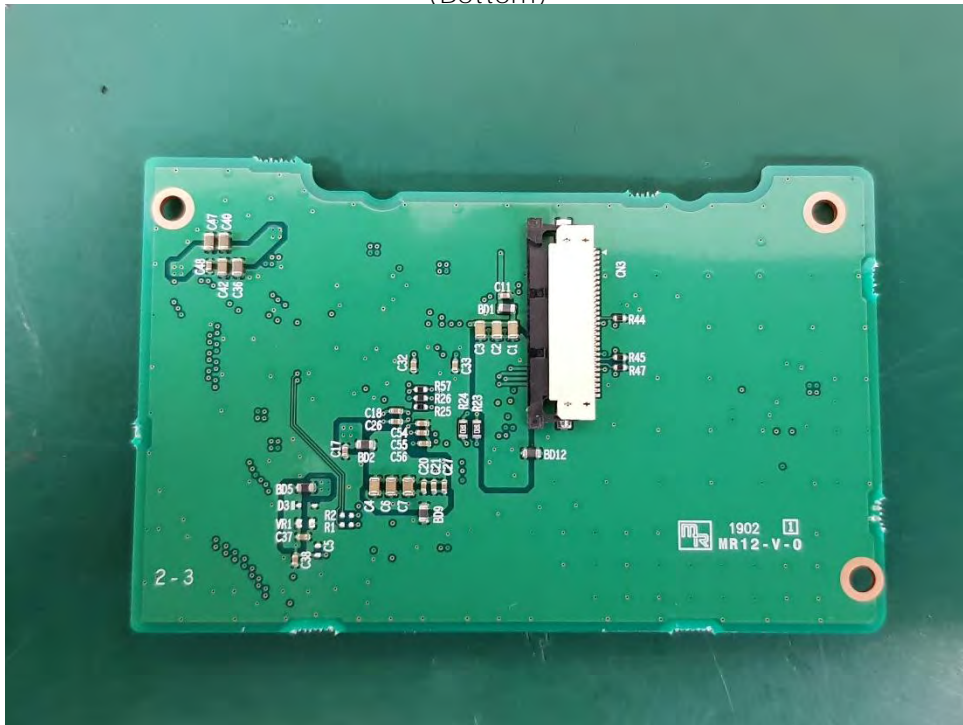
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EUT Internal View – Drive Board

(Top)



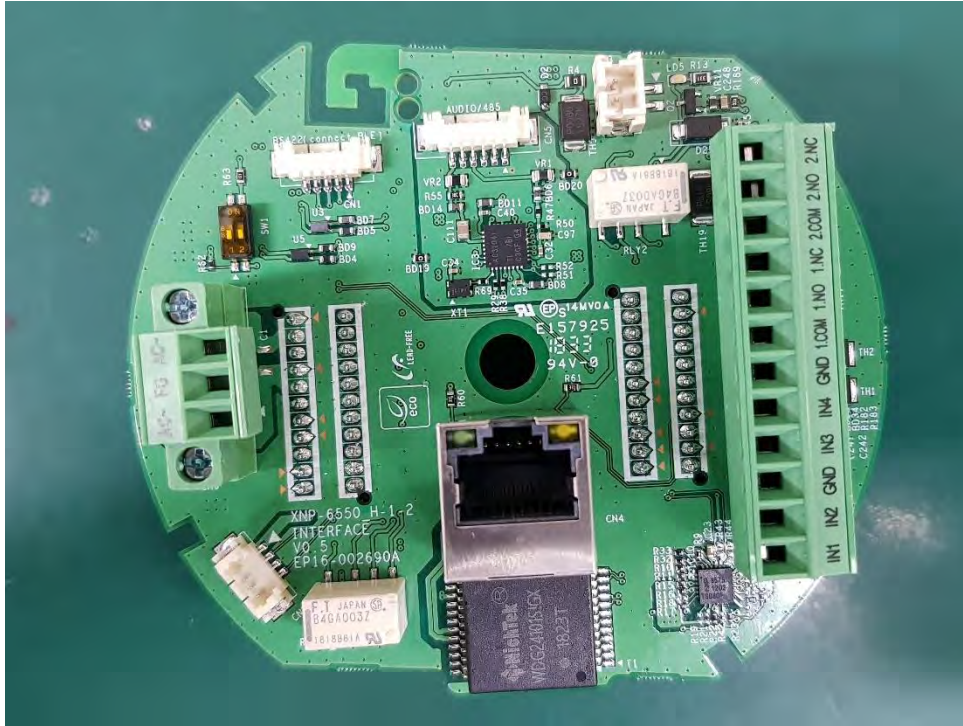
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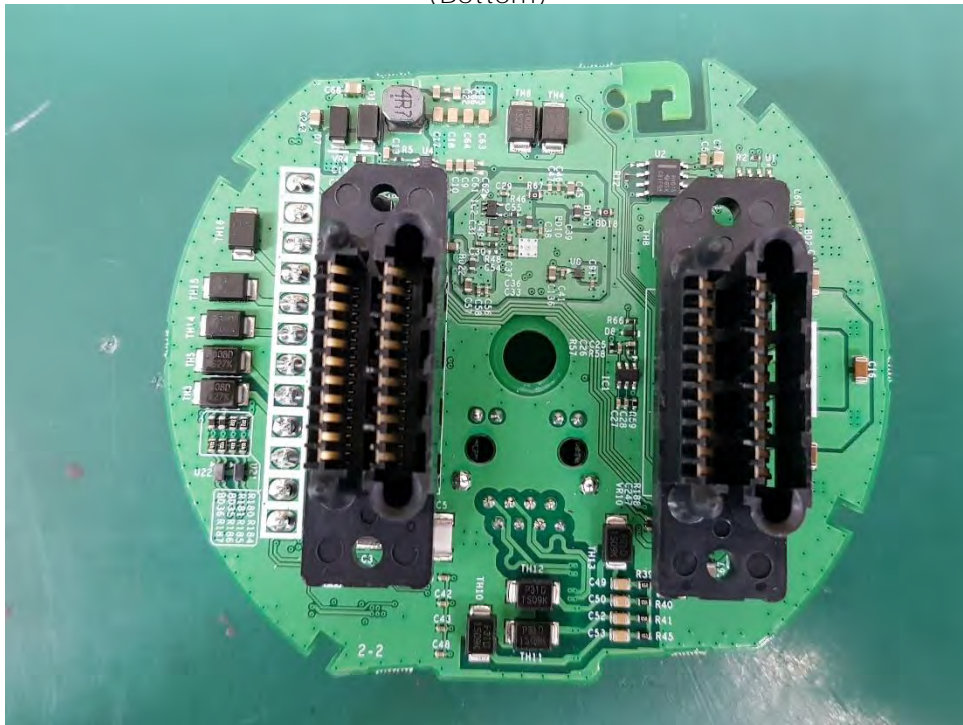
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EUT Internal View – Interface Board

(Top)



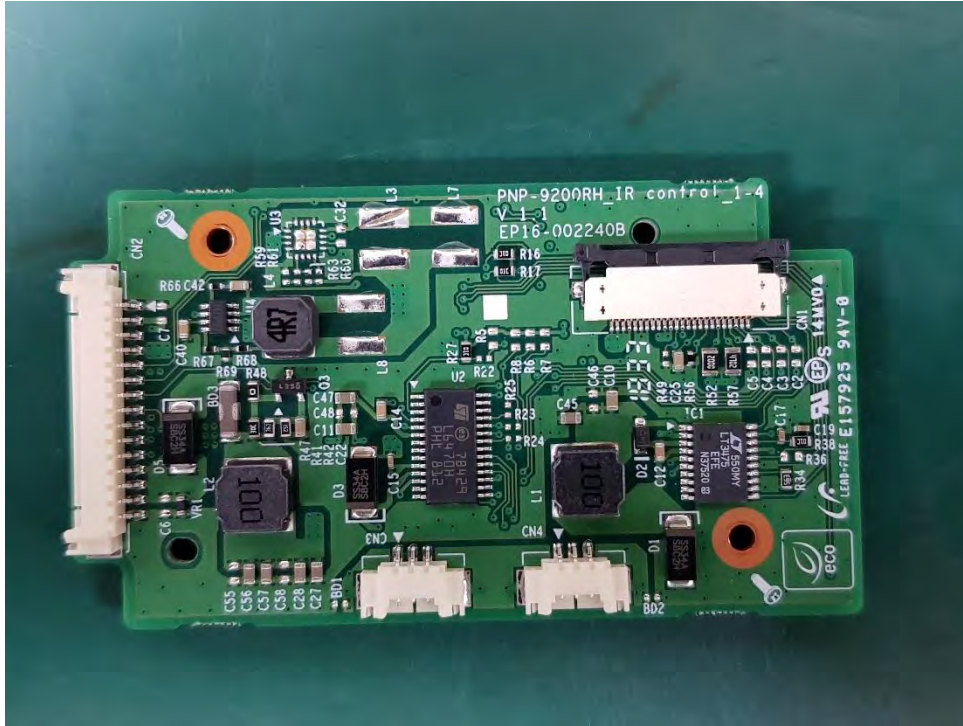
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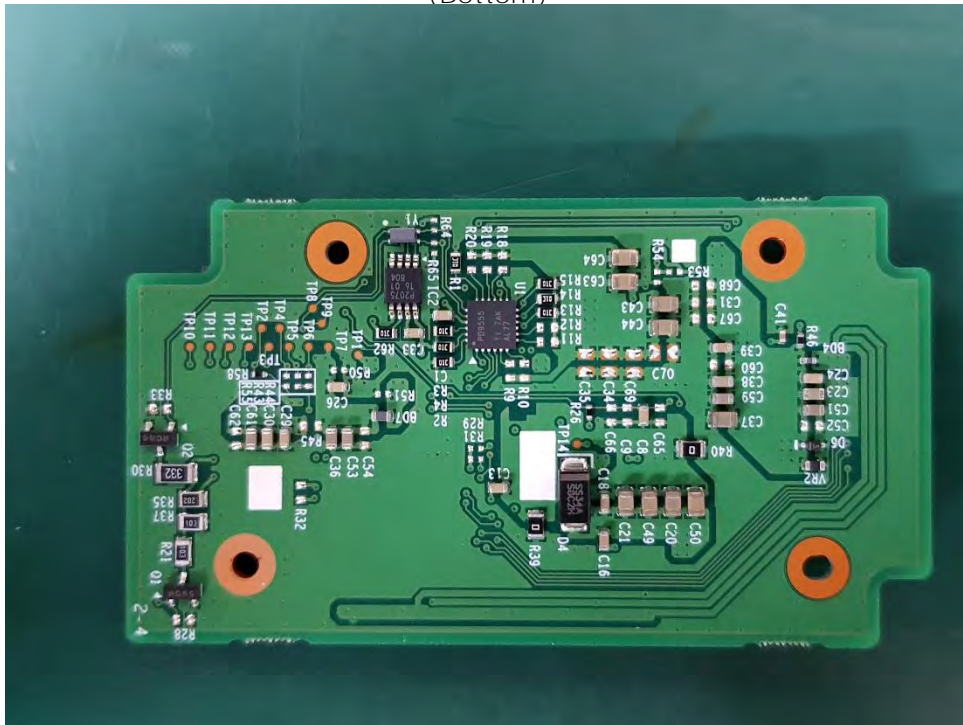
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EUT Internal View – IR Control Board

(Top)



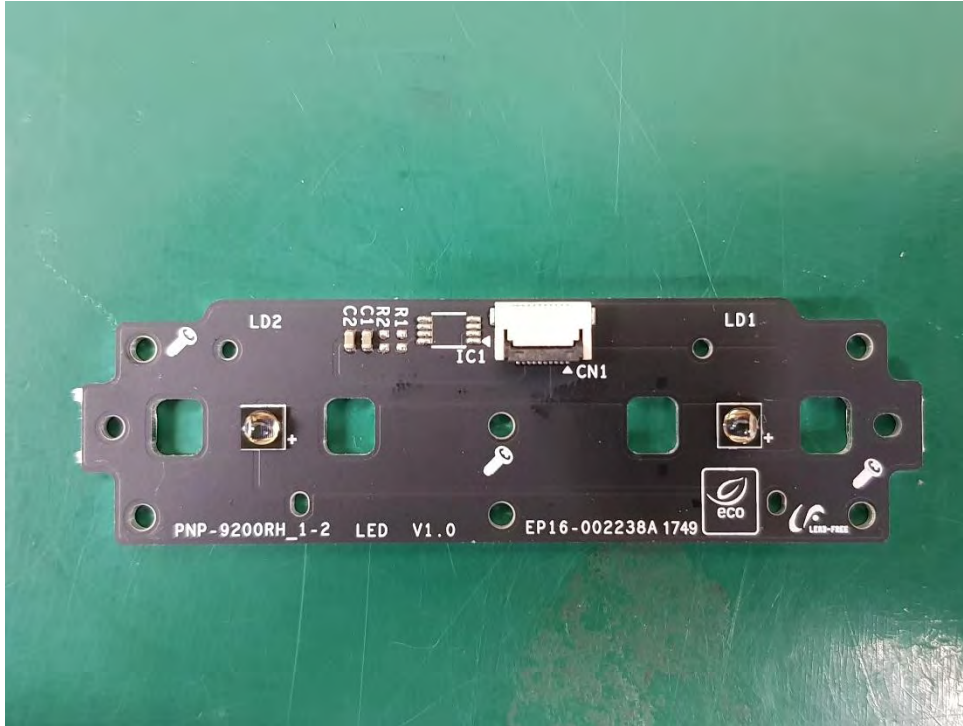
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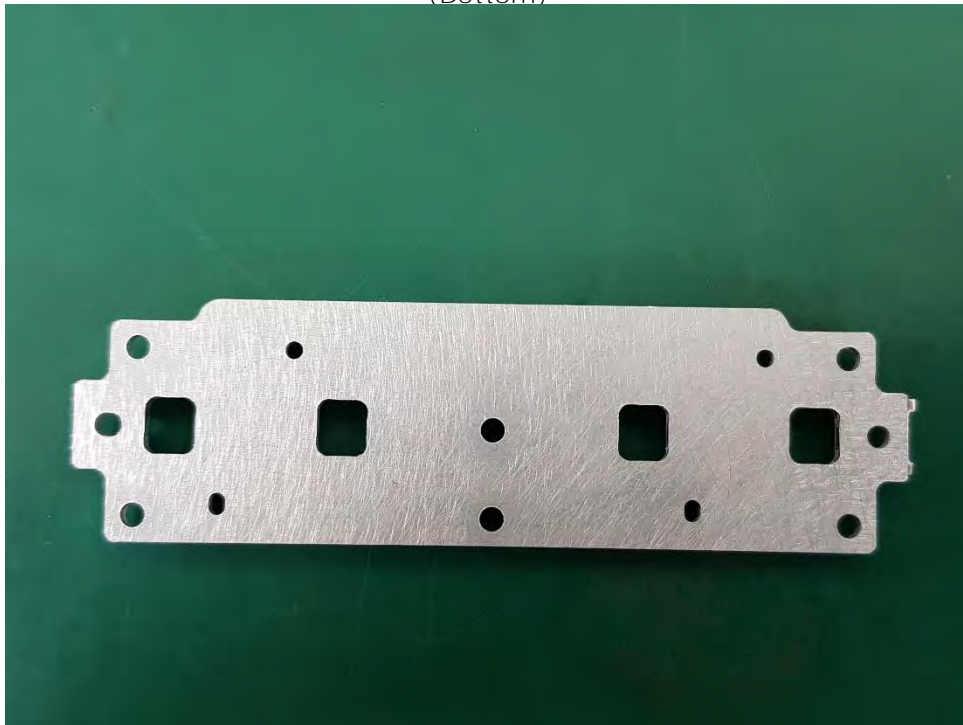
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EUT Internal View – LED Board

(Top)



(Bottom)



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EUT Internal View – Network Board

(Top)



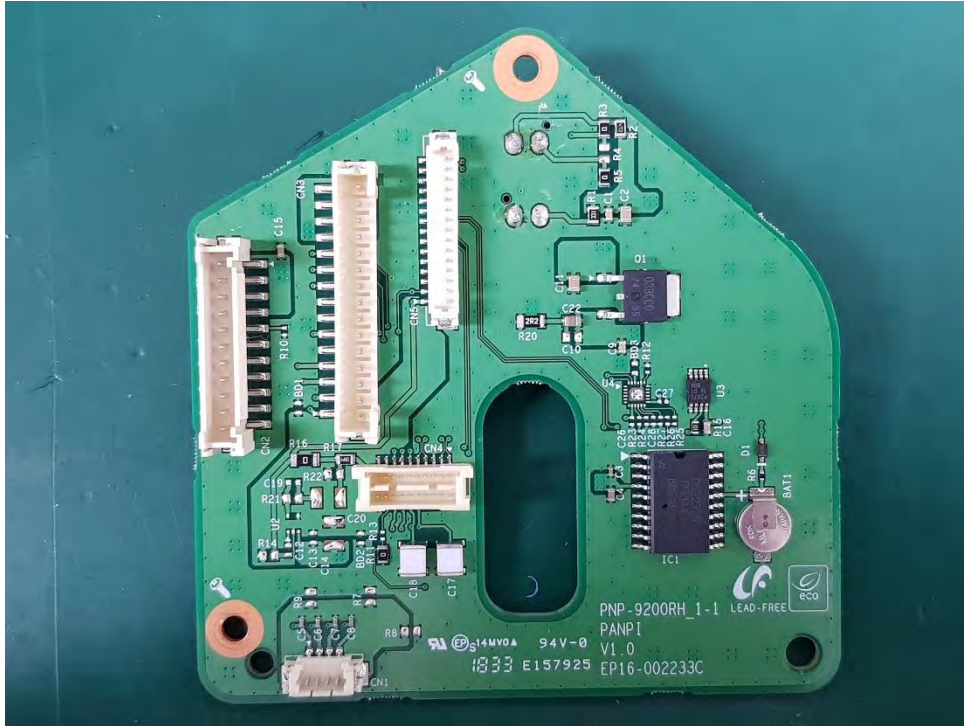
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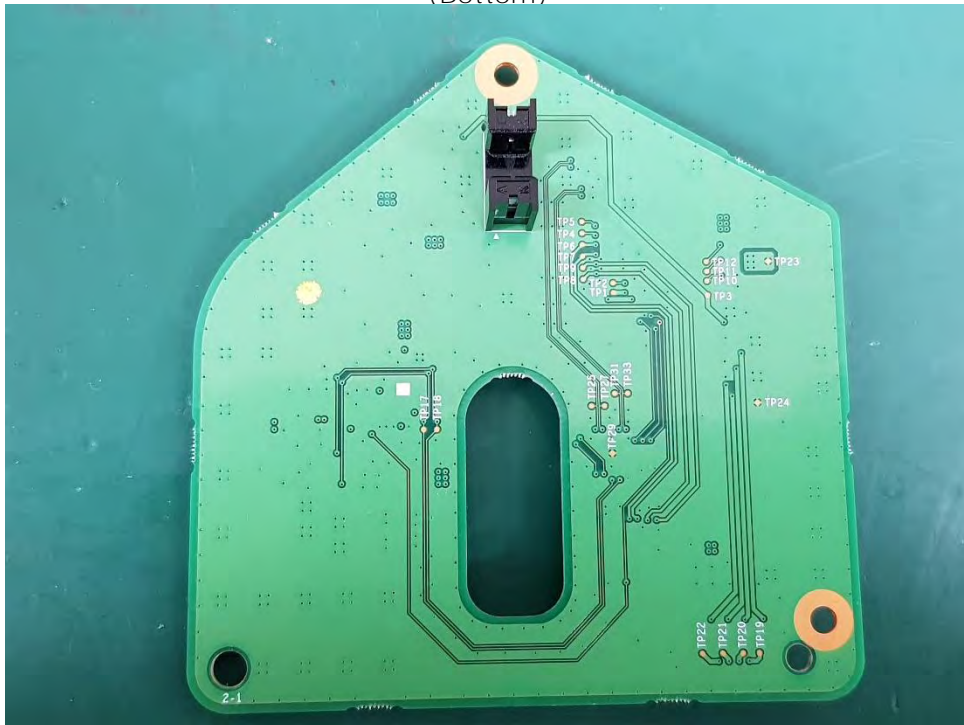
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EUT Internal View – PANPI Board

(Top)



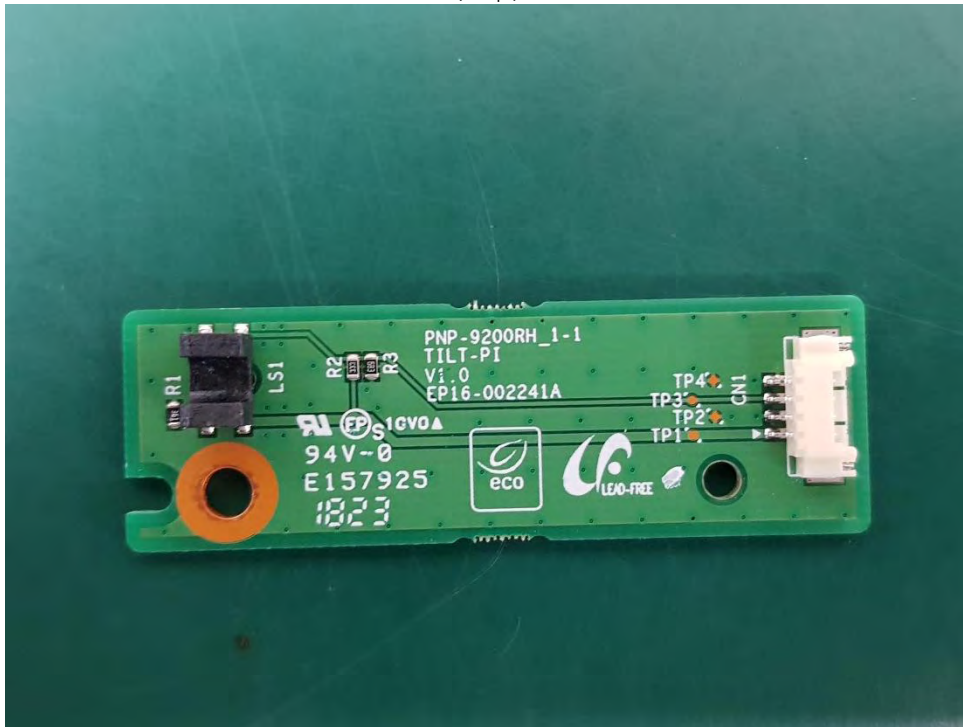
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EUT Internal View – TILT Board

(Top)



(Bottom)



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EUT Internal View – Lens

(Top)

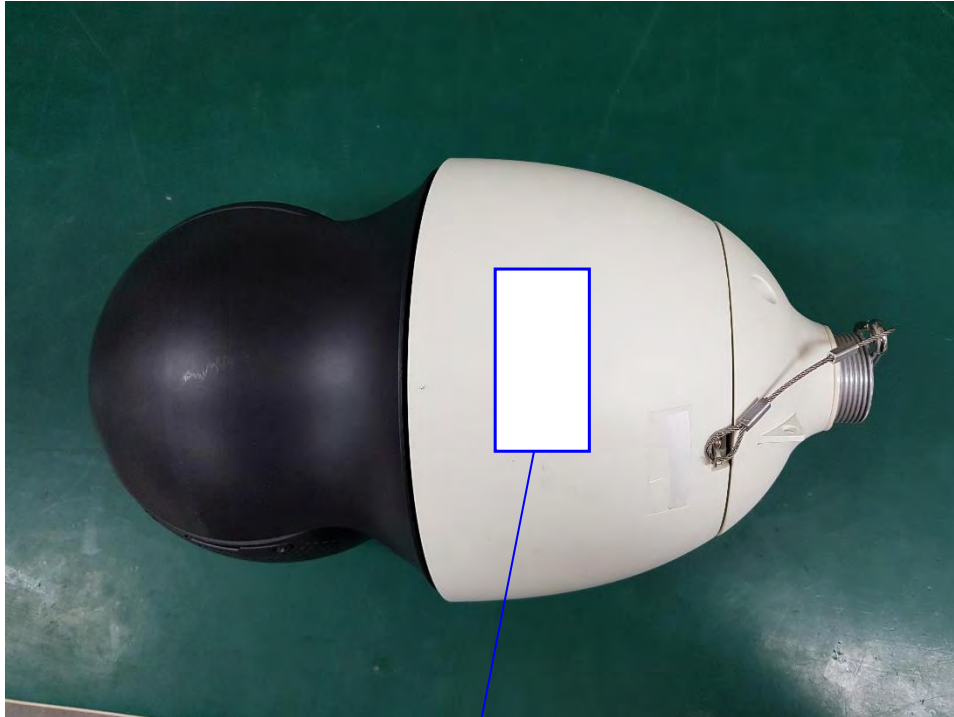


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CAN ICES-3(A) / NMB-3(A)

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

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.